Dell Latitude 7200 2-in-1

Service Manual

Regulatory Model: T04J
Regulatory Type: T04J001
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Notes, cautions, and warnings

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

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

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

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1

Working on your computer

Topics:

- Before Working Inside Your Tablet
- Safety instructions
- Turning off your computer — Windows 10
- After working inside your computer

Before Working Inside Your Tablet

Prerequisites

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

- You have read the safety information that shipped with your tablet.

About this task

NOTE: Before working inside your tablet, read the safety information that shipped with your tablet. For additional safety best practices information, see the Regulatory Compliance Homepage at **www.dell.com/regulatory_compliance**

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

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

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

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

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

To avoid damaging your tablet, perform the following steps before you begin working inside the tablet.

Steps

1. Ensure that your work surface is flat and clean to prevent the tablet cover from being scratched.
2. Turn off your tablet.
3. If the tablet is connected to a docking device (docked) such as the optional docking station or keyboard dock, un-dock it.
4. Disconnect the power adapter from the tablet.
5. Press and hold the power button for a few seconds to remove the flea power from the system board.

   CAUTION: To guard against electrical shock, always unplug your tablet from the electrical outlet.

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

6. Remove the storage SD card from the tablet.

Safety instructions

Prerequisites

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

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

About this task

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

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

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

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

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

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

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.

CAUTION: System will shut down if side covers are removed while the system is running. The system will not power on if the side cover is removed.

Turning off your computer — Windows 10

About this task

CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer or remove the side cover.

Steps

1. Click or tap  .
2. Click or tap ⏻ and then click or tap **Shut down**.

   NOTE: Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 6 seconds to turn them off.

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.

2

Disassembly and reassembly

Topics:

- Subscriber Identity Module (SIM) card
- Micro Secure Digital (SD) Card
- Display panel assembly
- Solid-state drive
- WLAN card
- WWAN card
- Battery
- Heat sink
- Speakers
- Front facing camera
- Rear facing camera
- Smart Card Cage
- Docking board connector
- Power Button Board
- System Board
- I/O Board
- WWAN Antenna

Subscriber Identity Module (SIM) card

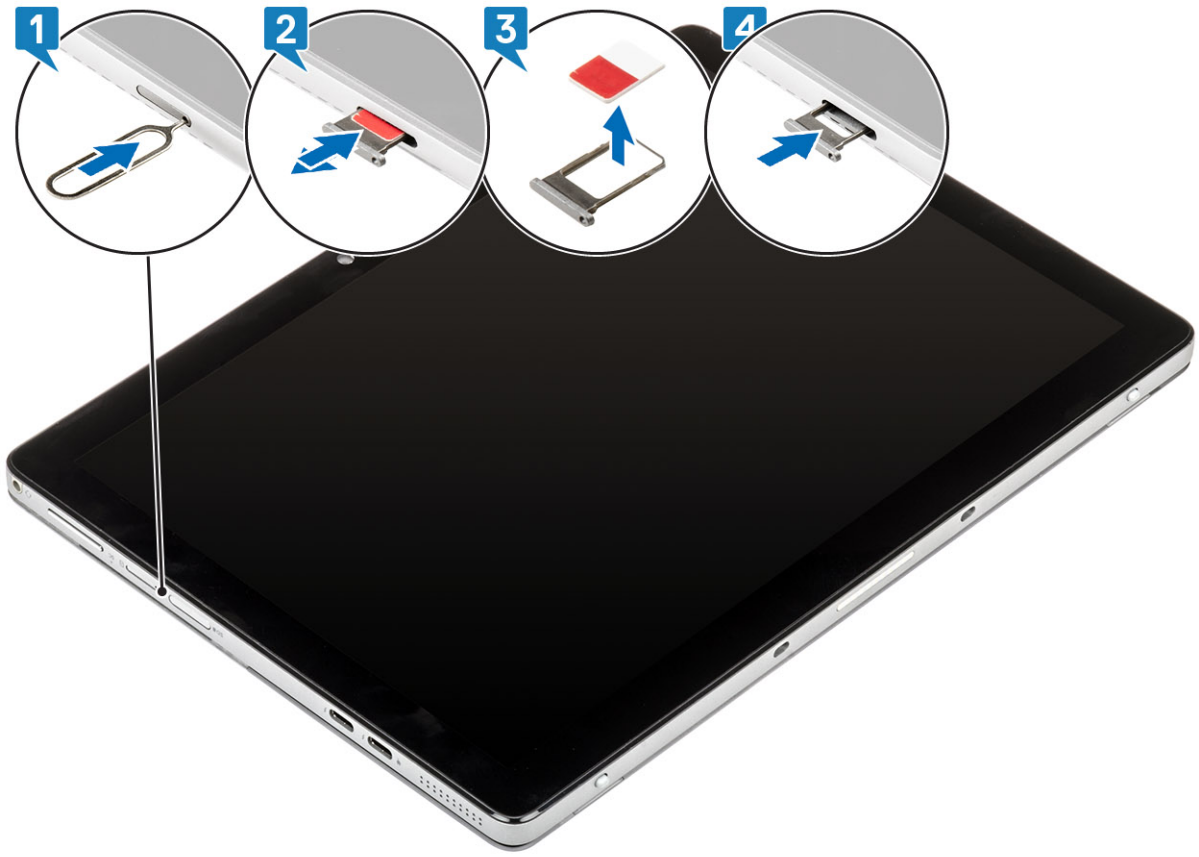
Removing the SIM card tray

Prerequisites

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

Steps

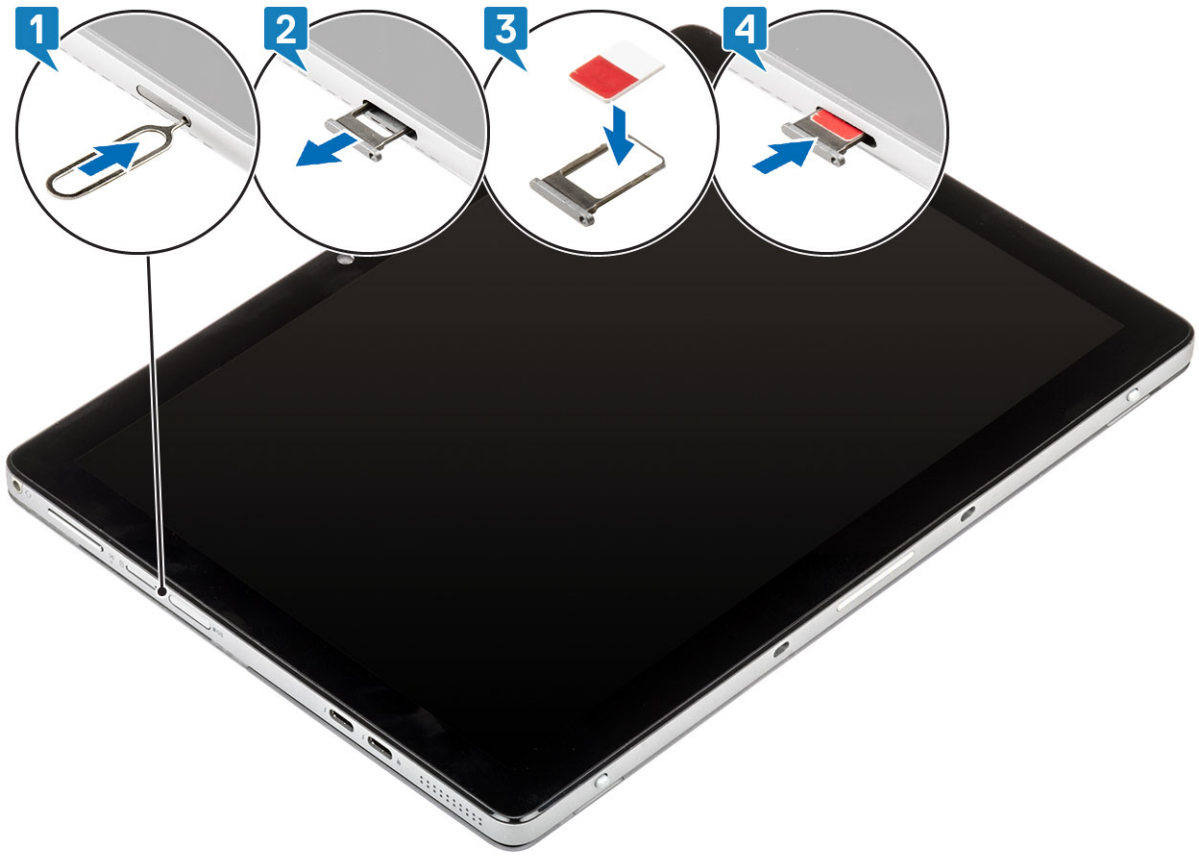
1. Insert a pin into the hole of the SIM card tray and push inward until the tray is released
2. Slide the SIM card tray out of the slot on the computer.
3. Remove the SIM card from the SIM card tray.
4. Slide the SIM card tray into the slot, until it clicks into place.



Installing the SIM card tray

Steps

1. Insert a pin into the hole of the SIM card tray and push inward until the tray is released
2. Slide the SIM card tray out of the slot on the computer.
3. Place the SIM card into the SIM card tray with the metallic contact facing up.
4. Align the SIM card tray with the slot on the computer, and slide the SIM card tray into the slot, until it clicks into place.



Next steps

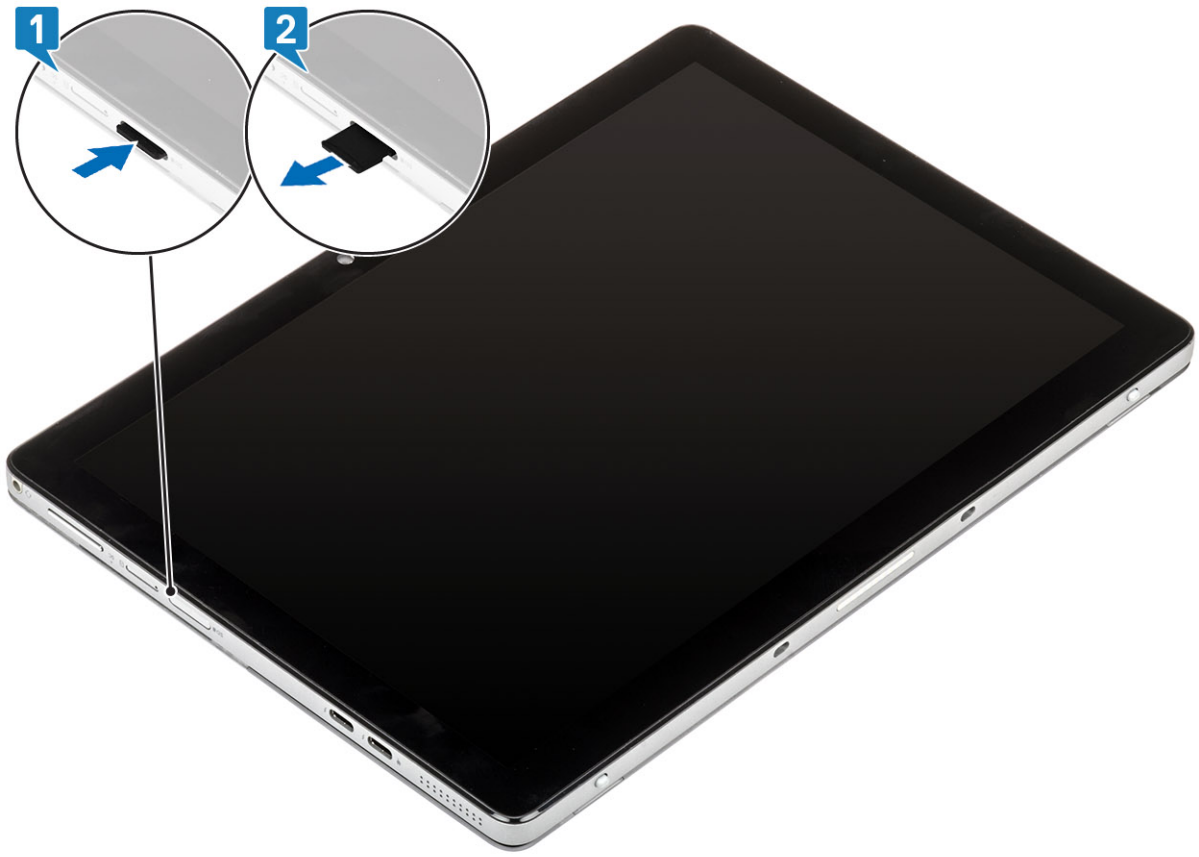
1. Follow the procedure in after working inside your computer.

Micro Secure Digital (SD) Card

Removing the microSD card

Steps

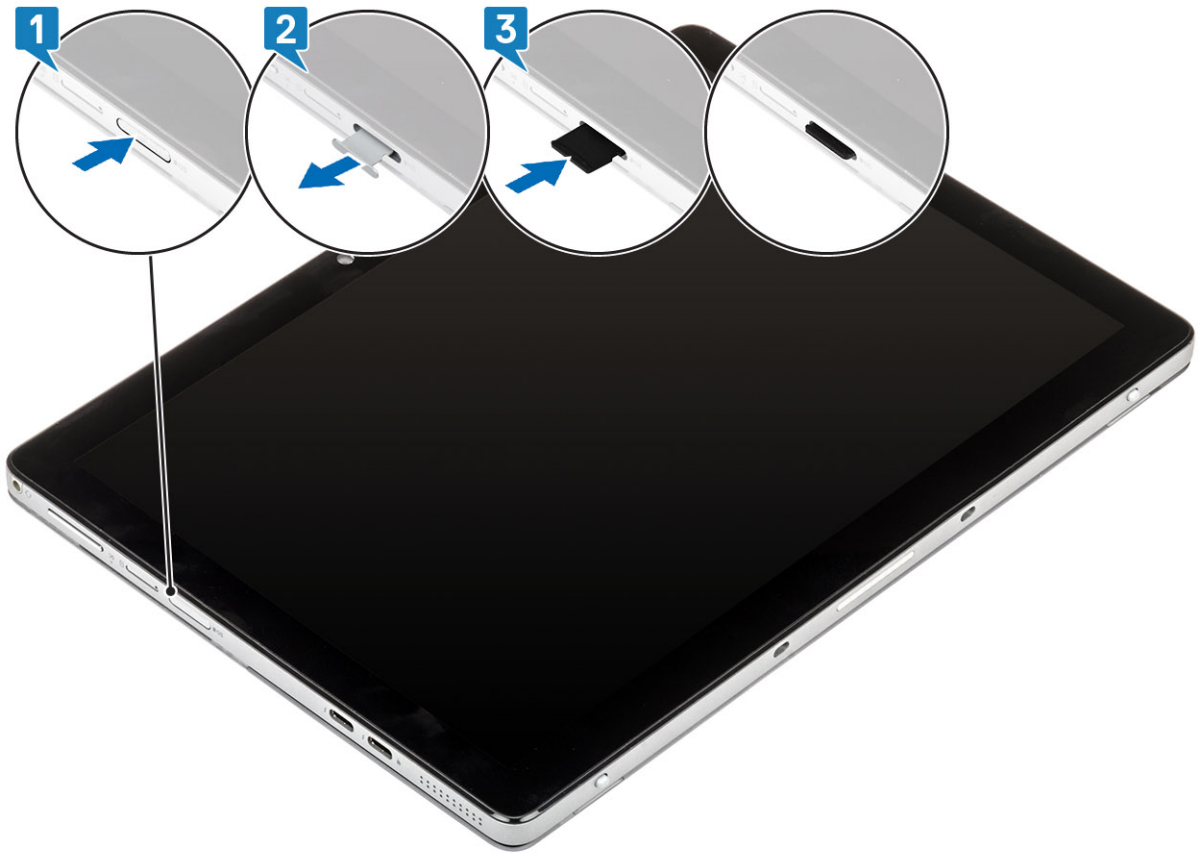
1. Follow the procedure in Before working inside your computer.
2. Press the microSD card to eject it from the slot [1].
3. Remove the microSD card from the computer[2].



Installing the microSD card

Steps

1. Press the dummy microSD card filler to eject it out.
2. Remove the dummy microSD card filler from the computer.
3. Align the microSD card in the slot on the computer.
4. Slide the microSD card into the slot until it clicks into place.



Next steps

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

Display panel assembly

Removing the display panel assembly

About this task

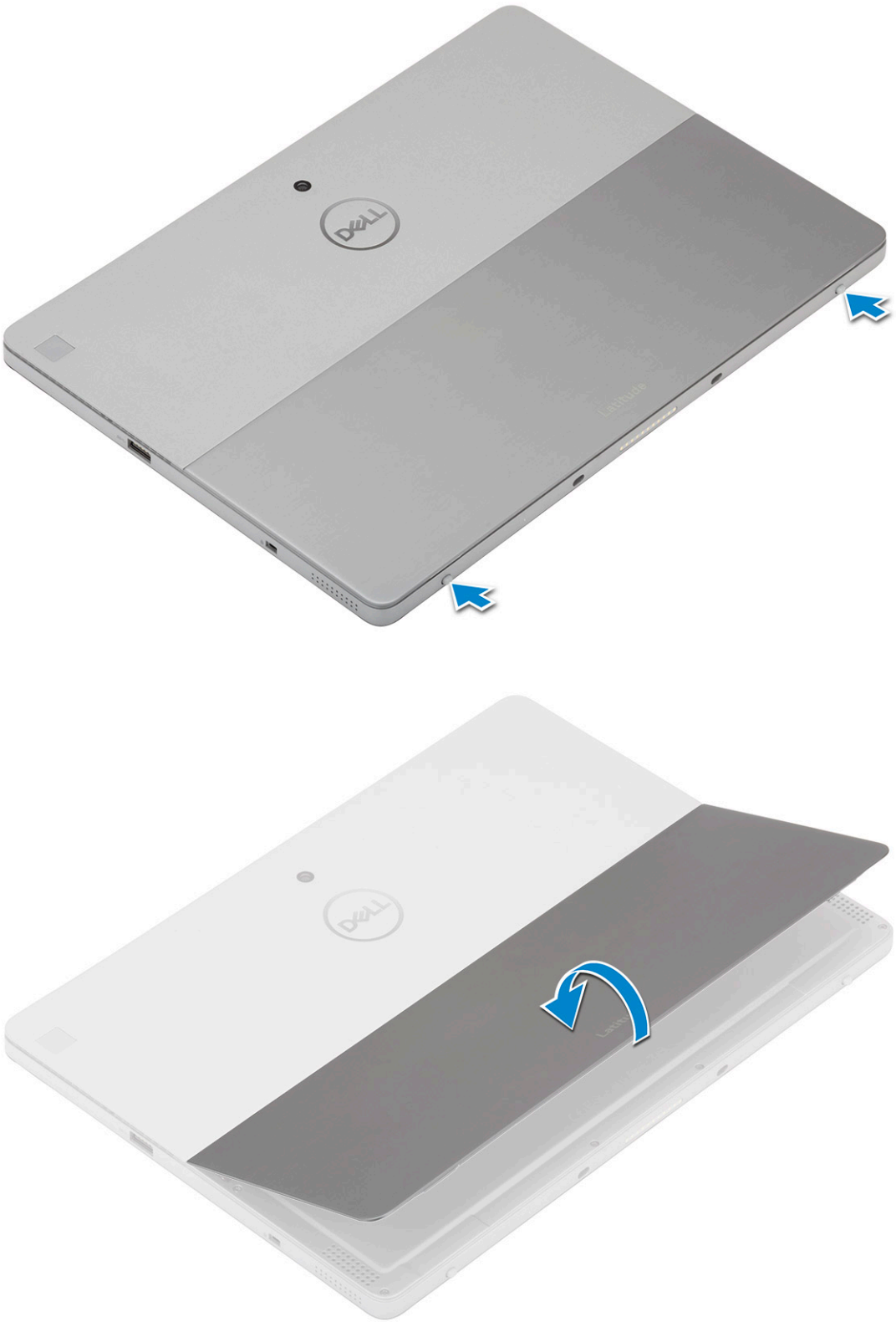
NOTE: There are two different configurations of the Latitude 7210 2-in-1:

- Non-security configuration with non-captive screws.
- Security configuration with captive screws.

Latitude 7210 2-in-1 has the kickstand power on feature. When the kickstand is deployed, the tablet will power on. If the tablet is powered on with the kickstand deployed, press and hold the power button to turn off the tablet, and then begin the tablet disassembly. There is no need to close the kickstand, proceed to remove the screws securing the display assembly.

Steps

1. Follow the procedure in Before working inside your tablet.
2. Remove the:
   a. microSD card
   b. SIM card tray
3. Press the release tabs and lift the display back cover upwards.



4. Remove the six screws (non-security configuration) and loosen the six captive screws (security configuration) securing the display assembly of Latitude 7210 2-in-1 to the system chassis.

5. Using a plastic scribe, push the two release holes next to the hinges to loosen the display assembly from the display back cover.

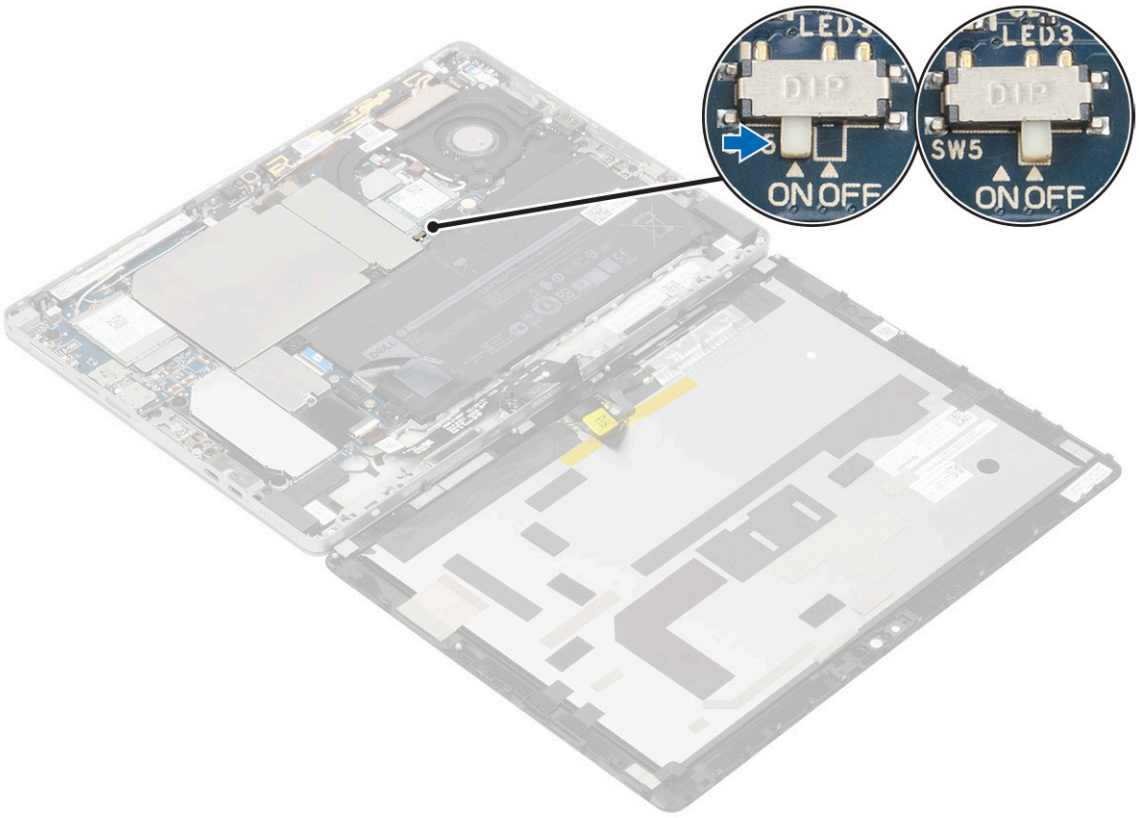
6. Close the display back cover.

7. Flip the system over so the display assembly is facing upwards.

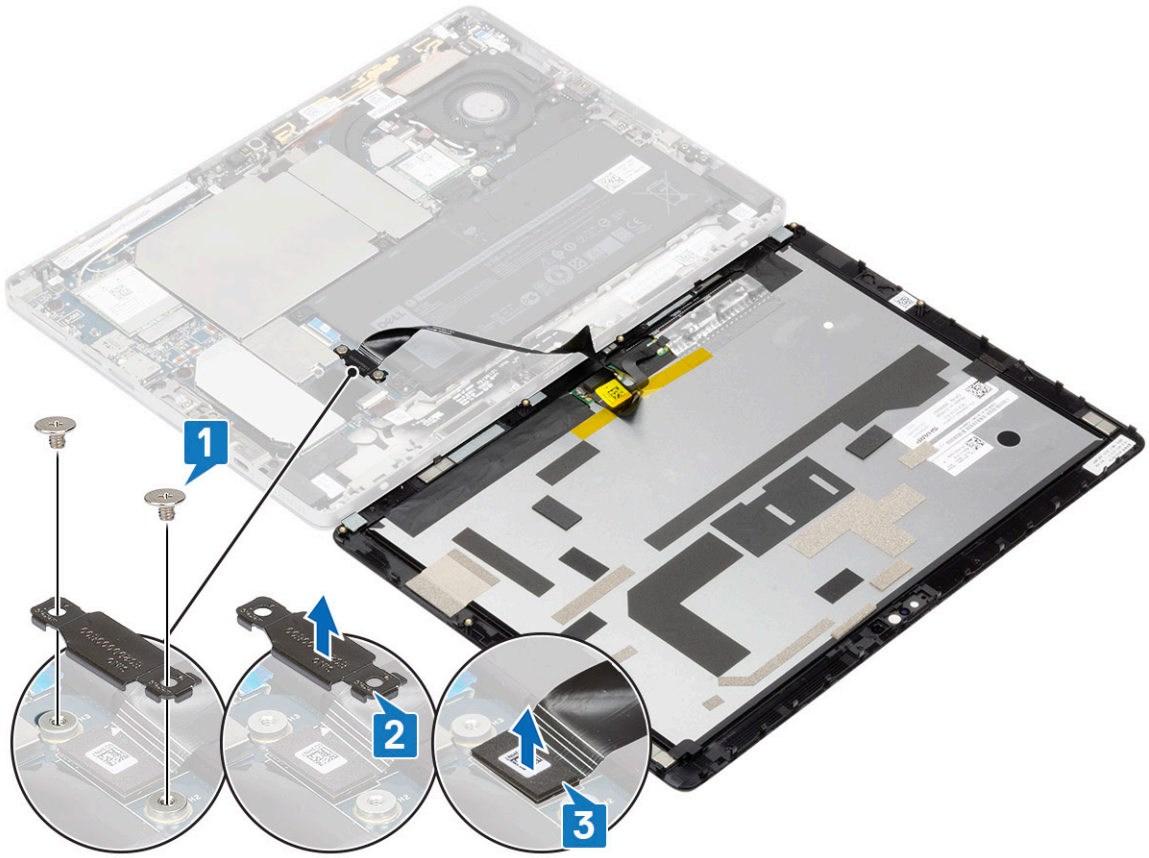
8. Insert the plastic scribe into the gap created in step #1 and with a suction cup (optional), pry open the display assembly from the bottom-left corner of the front side of the system. Work your way around the right side of the display assembly.

9. Carefully flip the display assembly over from the top edge and lay the display assembly face-down next to the display back cover. Do not pull away the display assembly from the base. The display assembly is still connected to the system board on the base via the display cable. Carefully flip the display assembly over and disconnect the display cable.

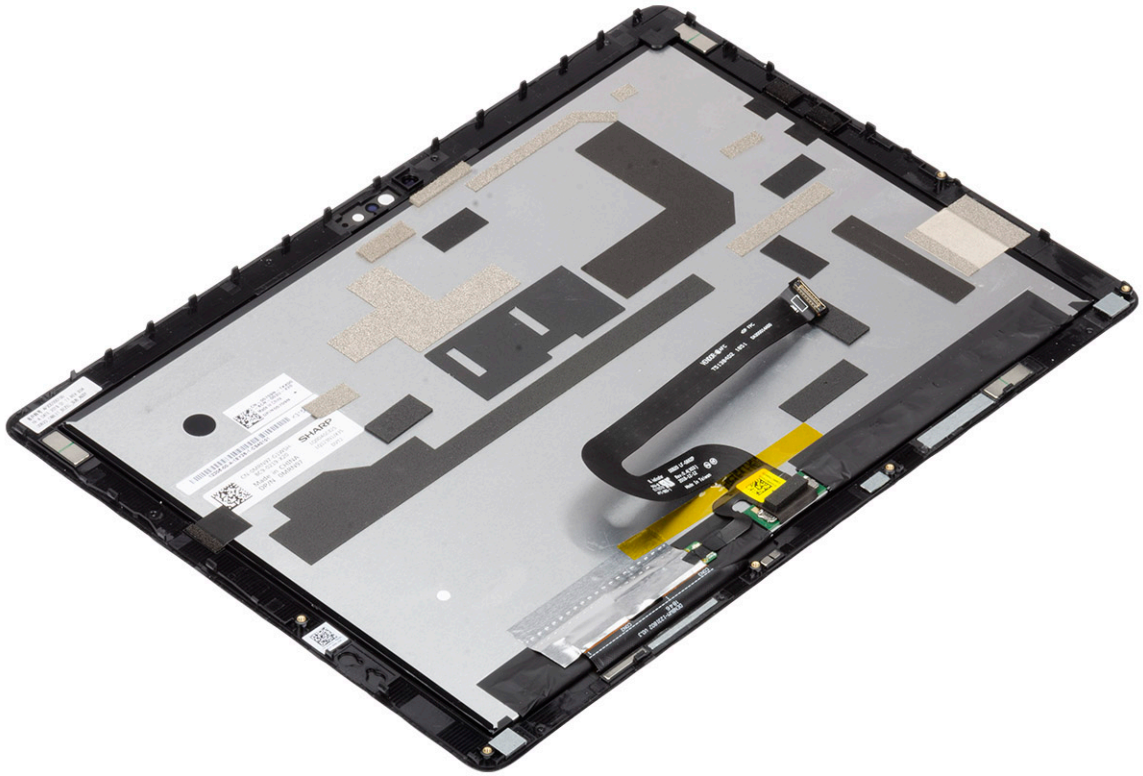
10. Slide the battery power switch on the system board to **OFF**.



11. Remove the two M2x2.5 screws [1] securing the display cable bracket [2] to the system board and remove the display cable bracket.



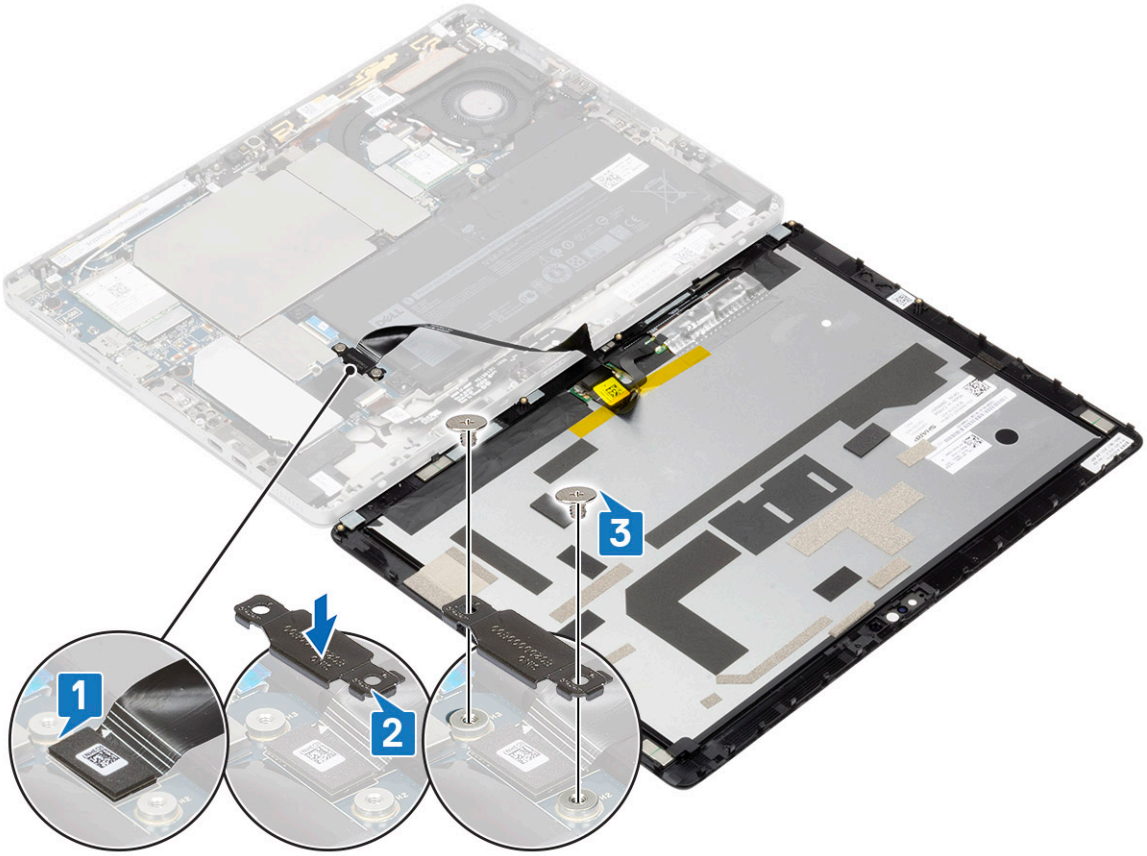
12. Disconnect the display cable [3] from the system board and remove the display panel assembly from the system.



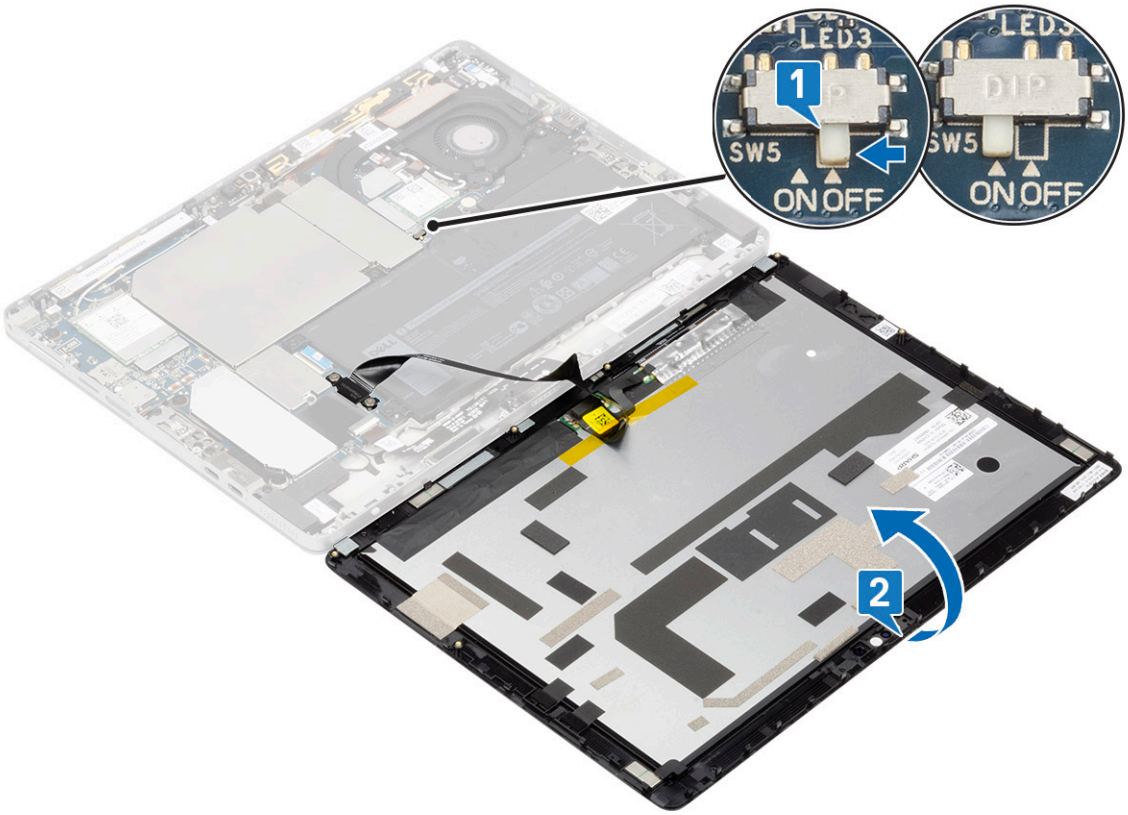
Installing the display panel assembly

Steps

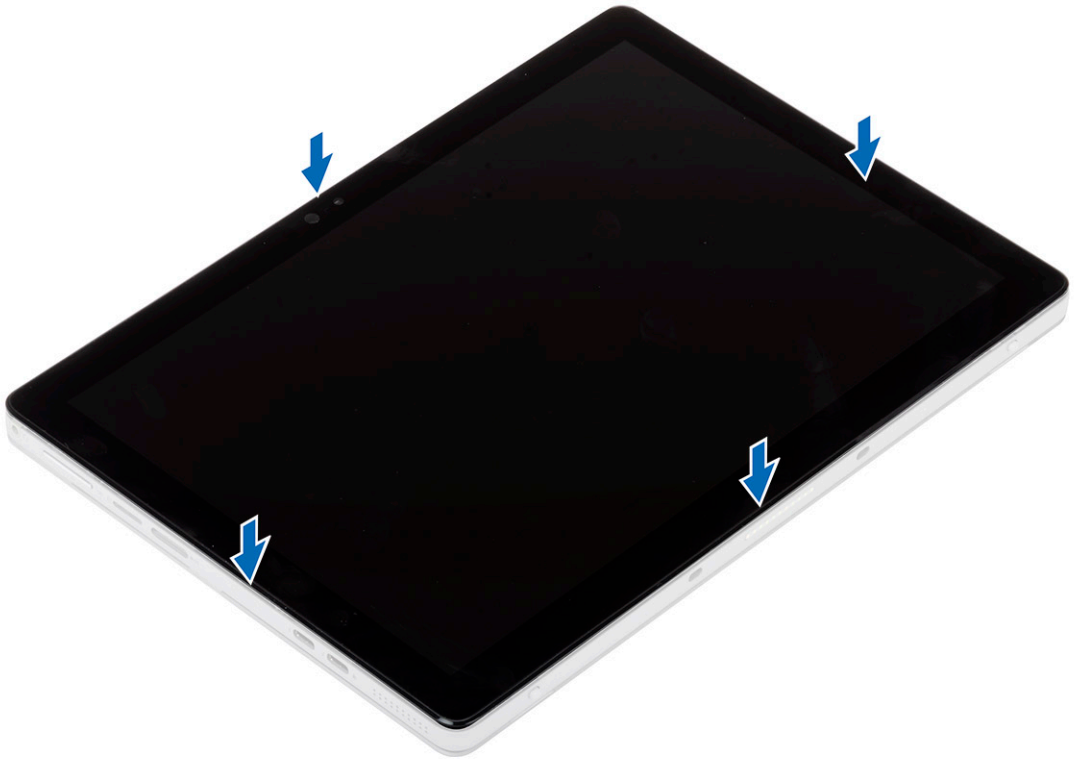
1. Connect the display cable to the connector on the system board.
2. Replace the two M2x2.5 screws [3] securing the display cable bracket to the system board and replace the display cable bracket [2].



3. Slide the battery power switch on the system board to **ON**, carefully connect the display assembly to the system board using display cable, and flip the display assembly facing up.



4. Continue to work around the left side and the top side of the display assembly.



5. Flip over the computer, and then place the computer on a flat surface.

6. Open the kickstand.

7. Replace the six screws (non-security configuration) and tighten the six captive screws (security configuration) securing the display assembly of Latitude 7210 2-in-1 to the system chassis.

8. Close the kickstand.

9. Install the:
   a. SIM card tray
   b. microSD card
10. Follow the procedure in After working inside your tablet.

Solid-state drive

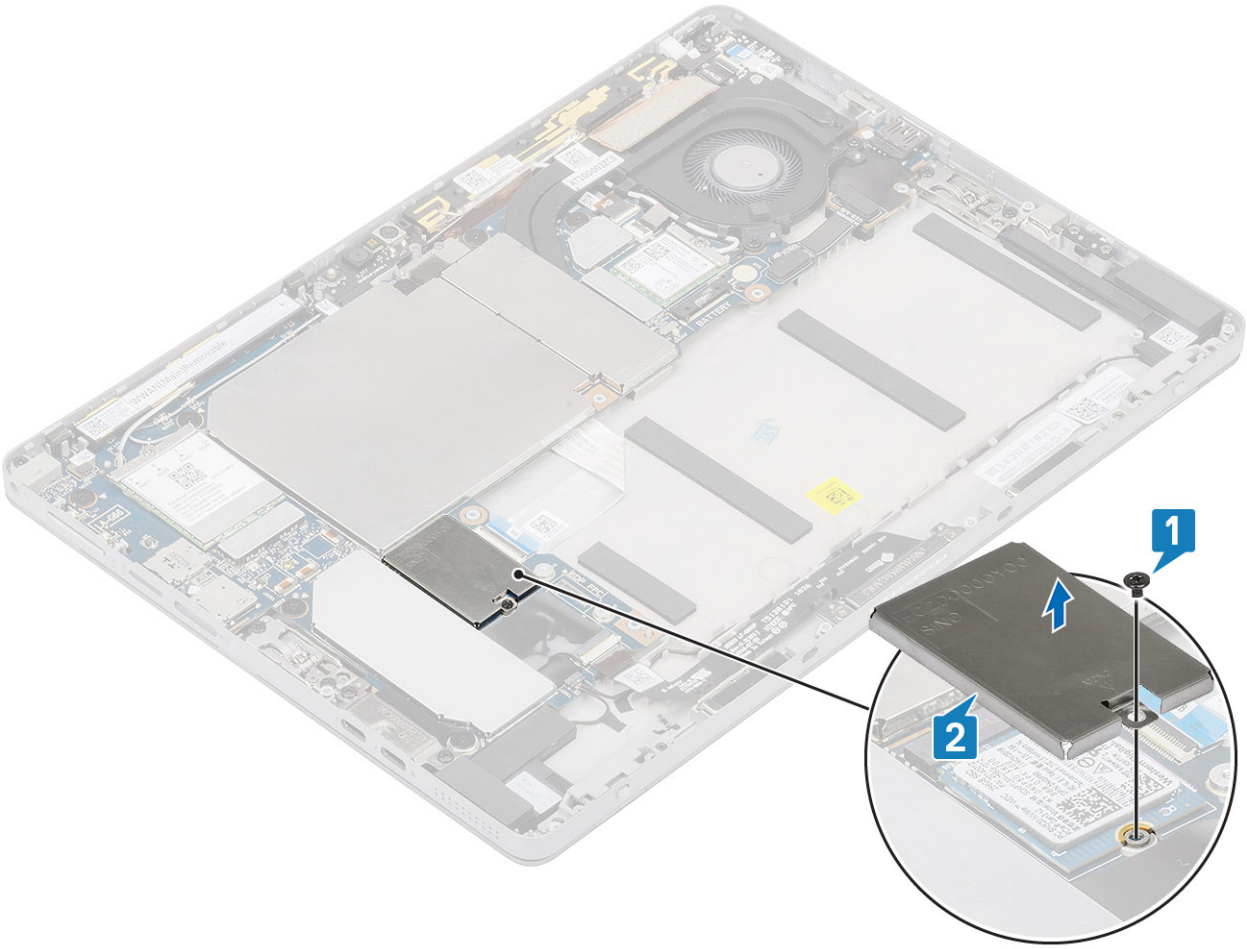
Removing the SSD module

Steps

1. Follow the procedure in before working inside your tablet.
2. Remove the:
   a. Remove the SIM card and display panel.

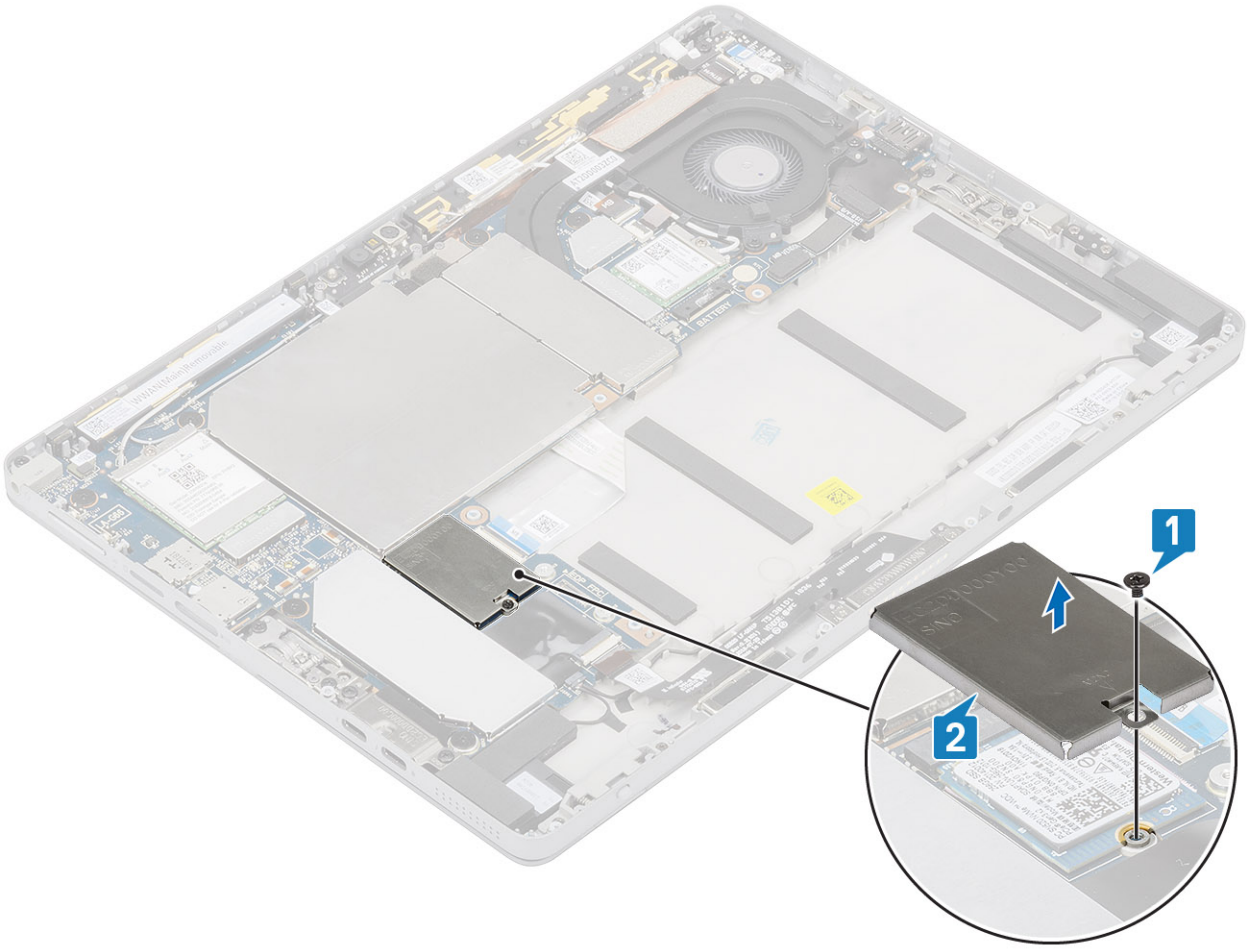
      NOTE: SIM card slot is available only on tablets shipping with WWAN module.

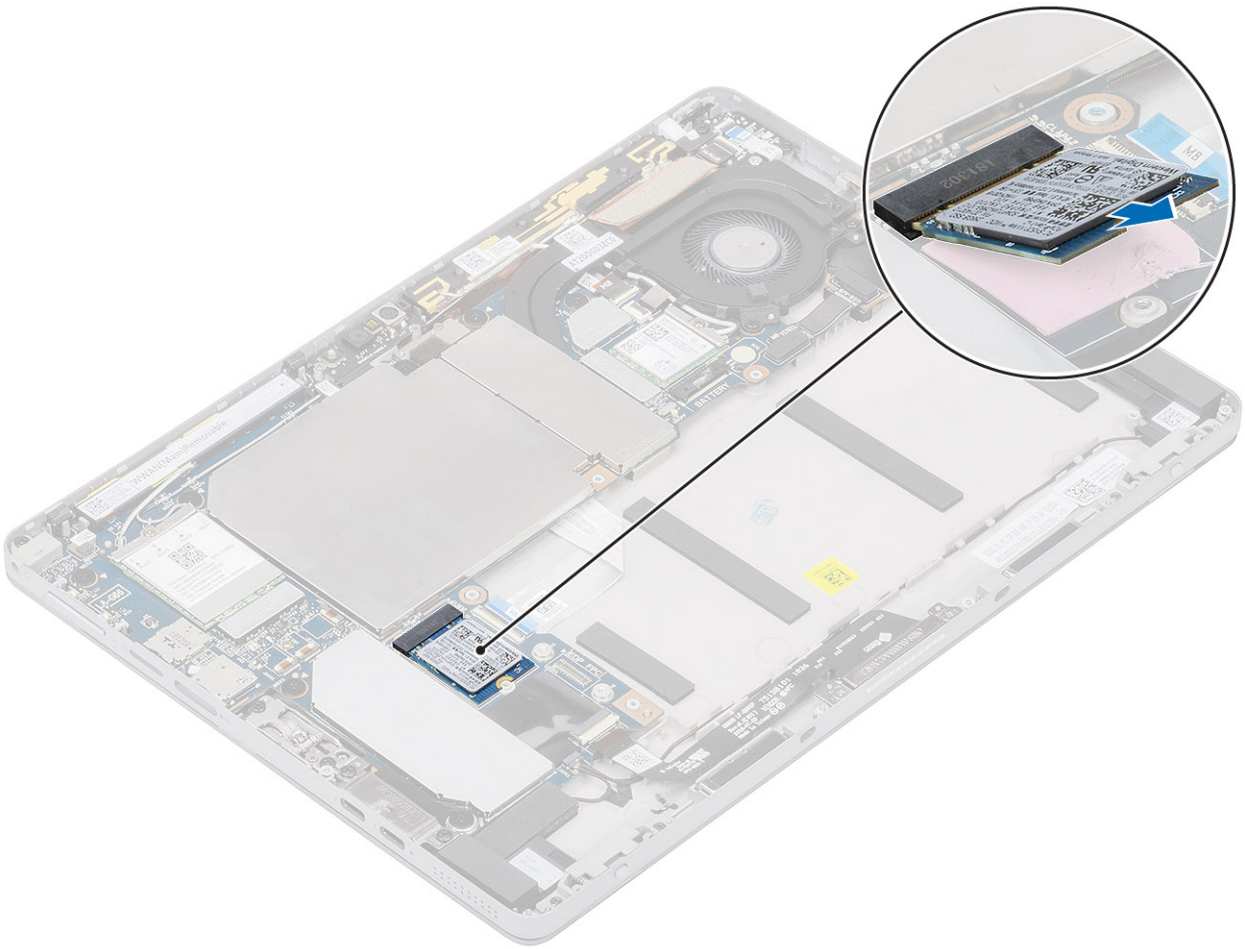
3. To remove the SSD module:
   a. Remove the single M2 x 2.5 screw securing the M.2 2230 SSD shielding cover.



b. Lift the M.2 2230 SSD shielding cover from the tablet.
c. Slide and lift the SSD module from the slot on the tablet.

NOTE: Ensure NOT to lift the SSD card by an angle more than 15°.

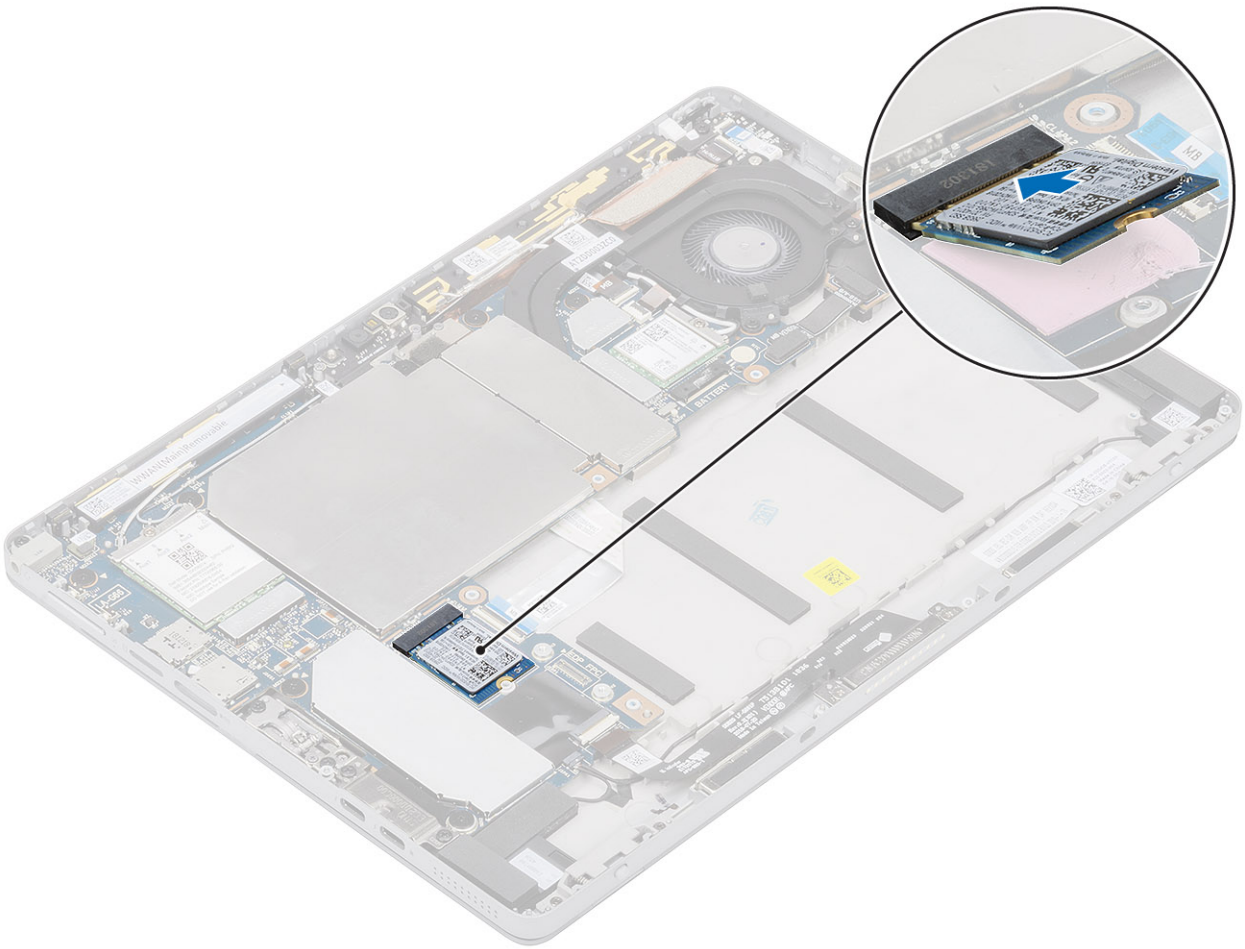

1
2



Installing SSD module

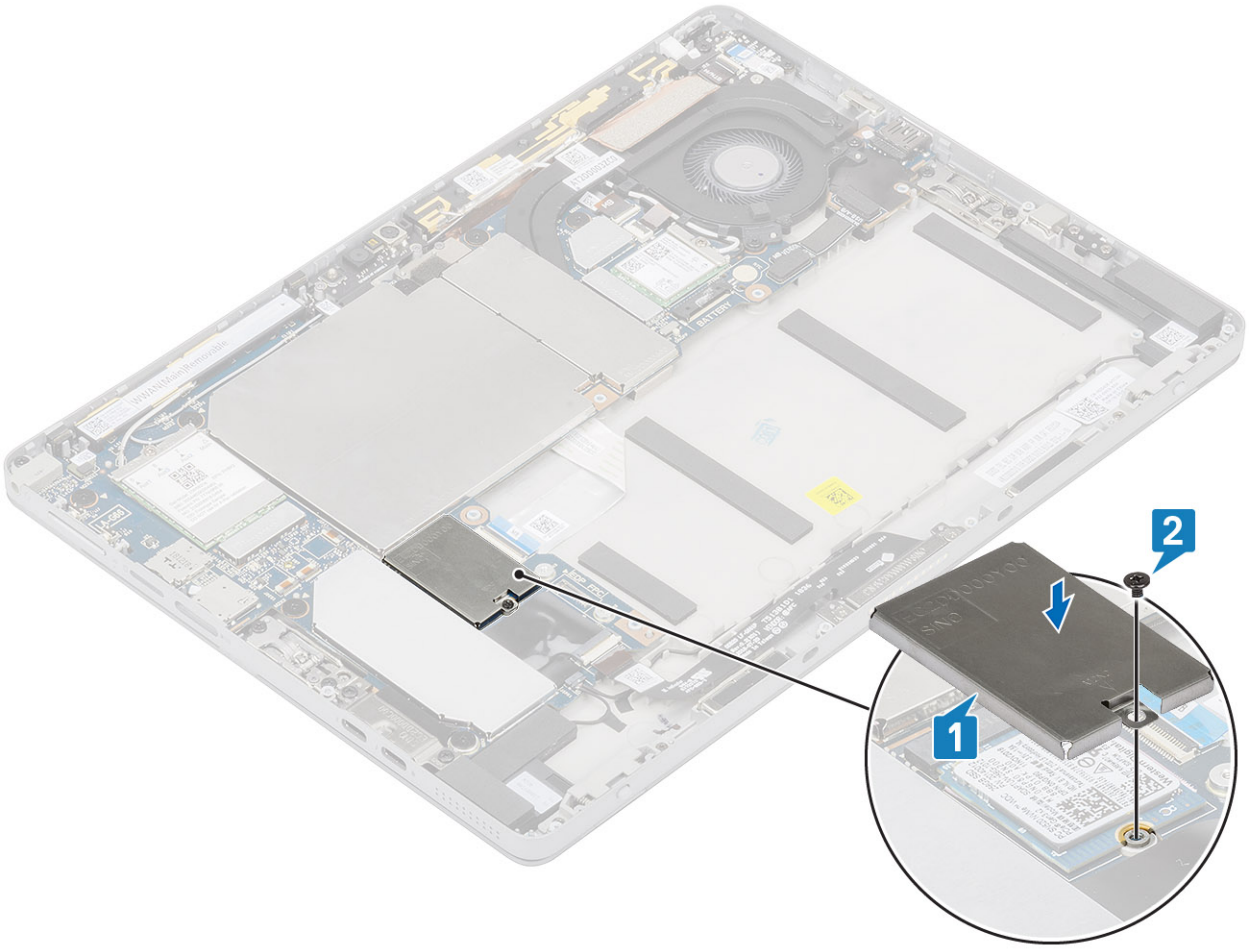
Steps

1. Insert the SSD module into the slot on the system board.



2. Replace the M2 x 2.5 screw to secure SSD shield.

NOTE: Align the shield carefully to avoid damage to the clips heads.



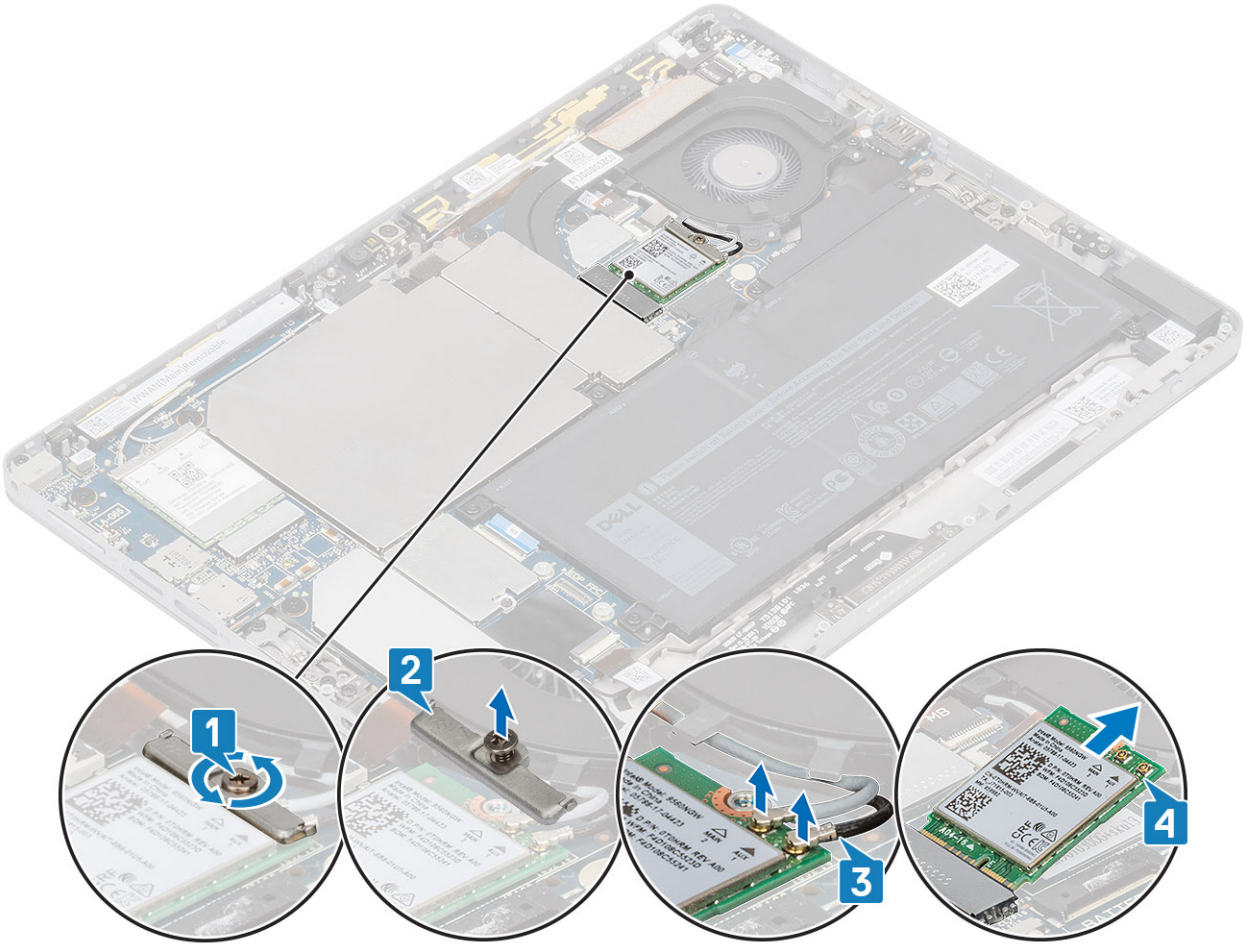
WLAN card

Removing the WLAN card

Steps

1. Follow the procedure in Before working inside your tablet.
2. Remove the:
   a. microSD card
   b. SIM card tray
   c. display panel assembly
3. Loosen the M2x3.5 screws that secure the WLAN bracket to the WLAN card [1].
4. Remove the WLAN bracket [2].
5. Disconnect the antenna cables from the WLAN card [3].

6. Slide and remove the WLAN card from the WLAN card slot [4].

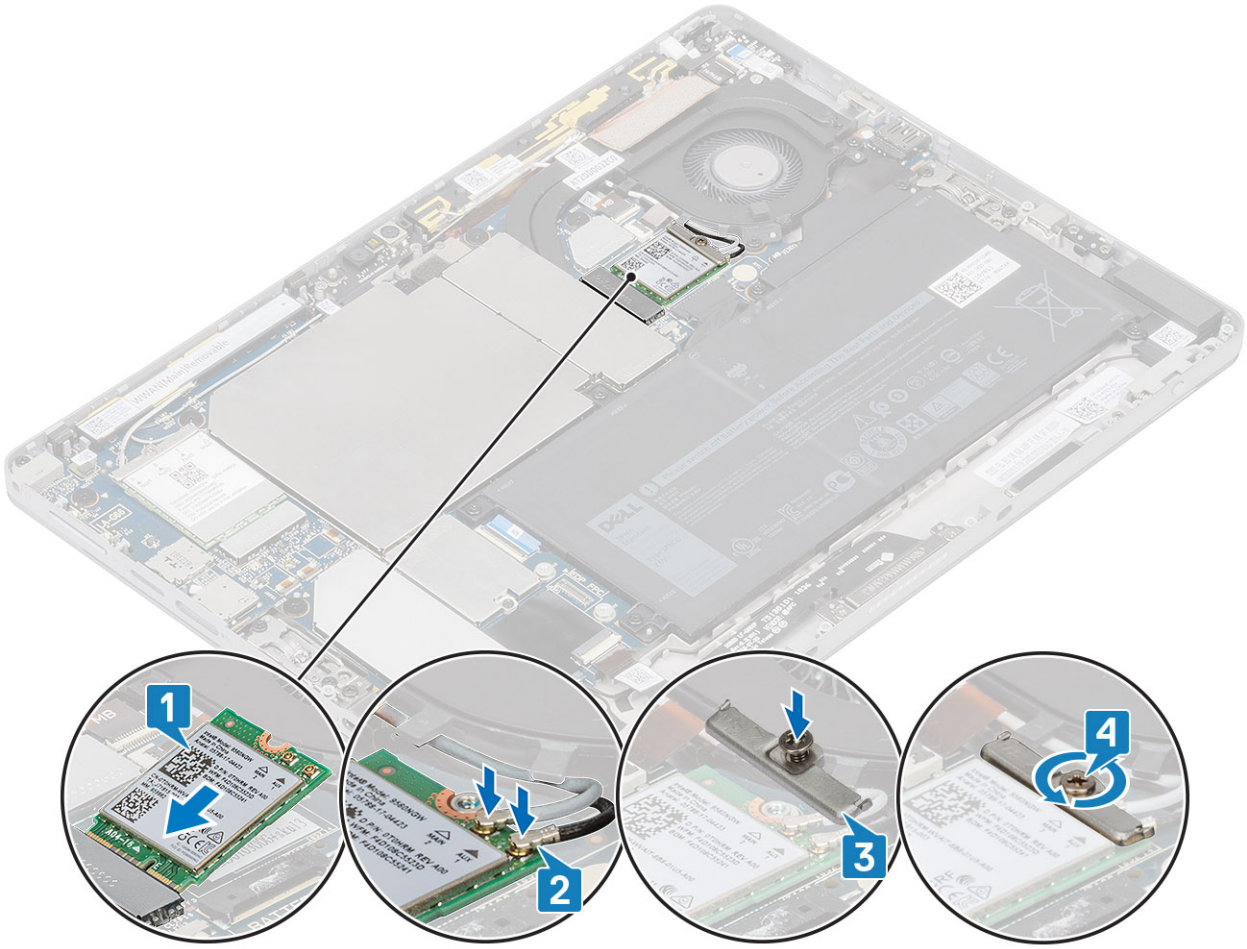


Installing the WLAN card

Steps

1. Align the notch on the WLAN card with the tab on the WLAN-card slot and insert the WLAN card at an angle into the WLAN-card slot [1].
2. Connect the antenna cables to the WLAN card [2].
3. Place the WLAN bracket to the WLAN card [3].

4. Replace the M2x3.5 that secures the WLAN bracket to the WLAN card.



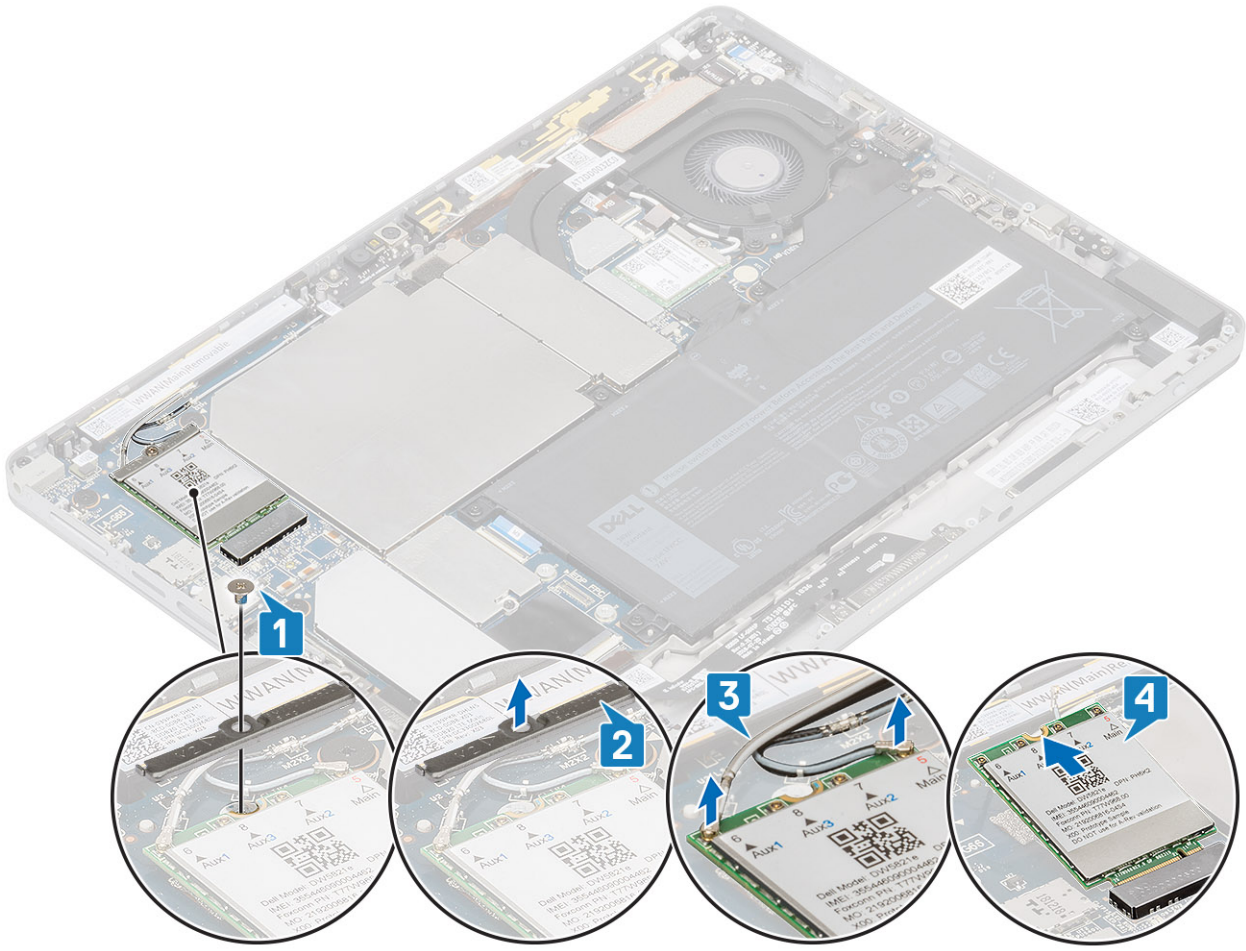
5. Install the:
   a. microSD card
   b. SIM card tray
   c. display panel assembly
6. Follow the procedure in After working inside your tablet.

WWAN card

Removing the WWAN card

Steps

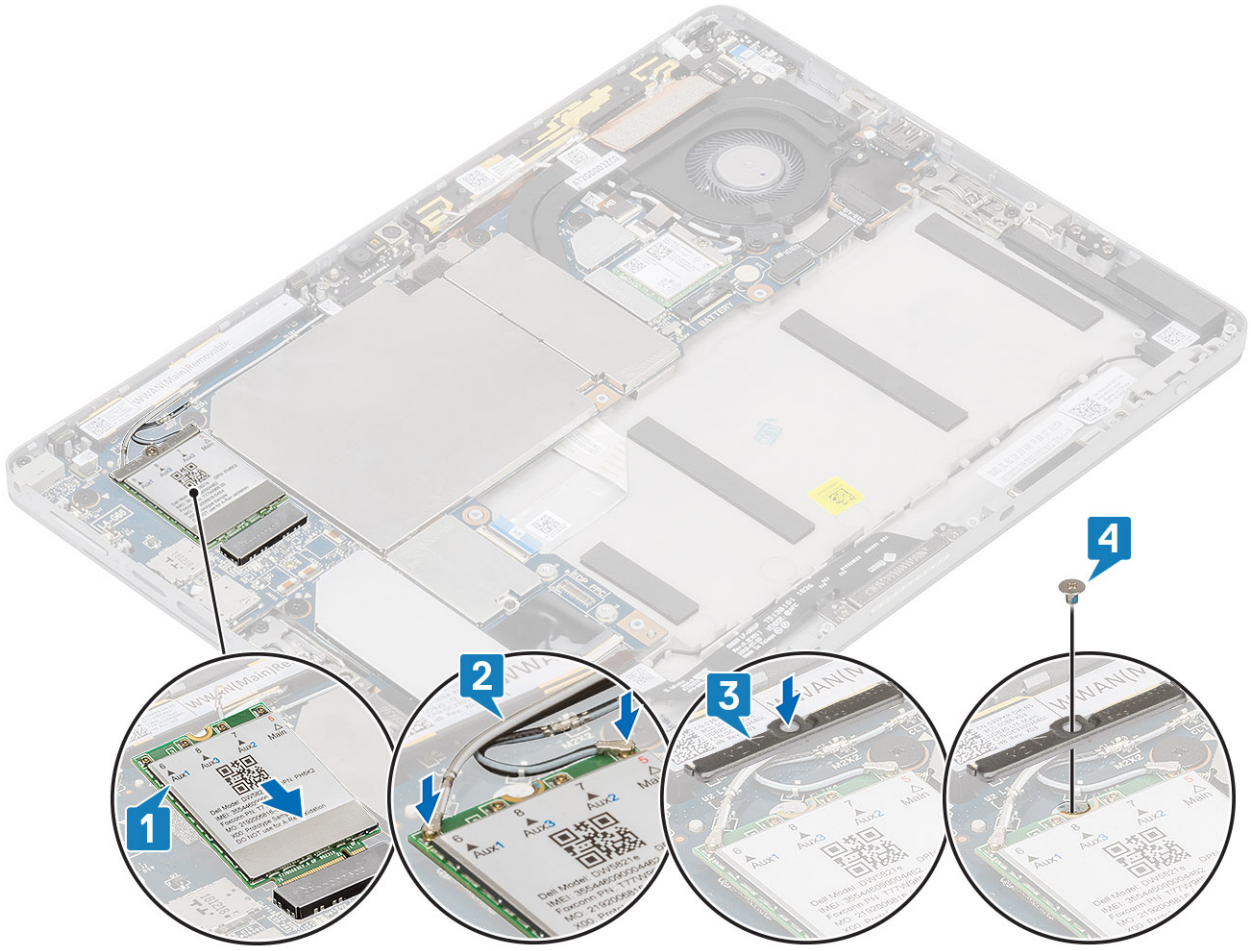
1. Follow the procedure in Before working inside your tablet.
2. Remove the:
   a. microSD card
   b. SIM card tray
   c. display panel assembly
3. Loosen the M2x3.5 screw that secures the WWAN bracket to the WWAN card [1].
4. Remove the WWAN bracket [2].
5. Disconnect the antenna cables from the WWAN card [3].
6. Slide and remove the WWAN card from the WWAN card slot [4].



Installing the WWAN card

Steps

1. Align the notch on the WWAN card with the tab on the WWAN-card slot and insert the WWAN card at an angle into the WWAN-card slot [1].
2. Connect the antenna cables to the WWAN card. [2]
3. Place the WWAN bracket to the WWAN card [3]
4. Replace the M2x3.5 screw that secures the WWAN bracket to the WWAN card.



5. Install the:
   a. microSD card
   b. SIM card tray
   c. display panel assembly
6. Follow the procedure in After working inside your tablet.

Battery

Lithium-ion battery precautions

CAUTION:

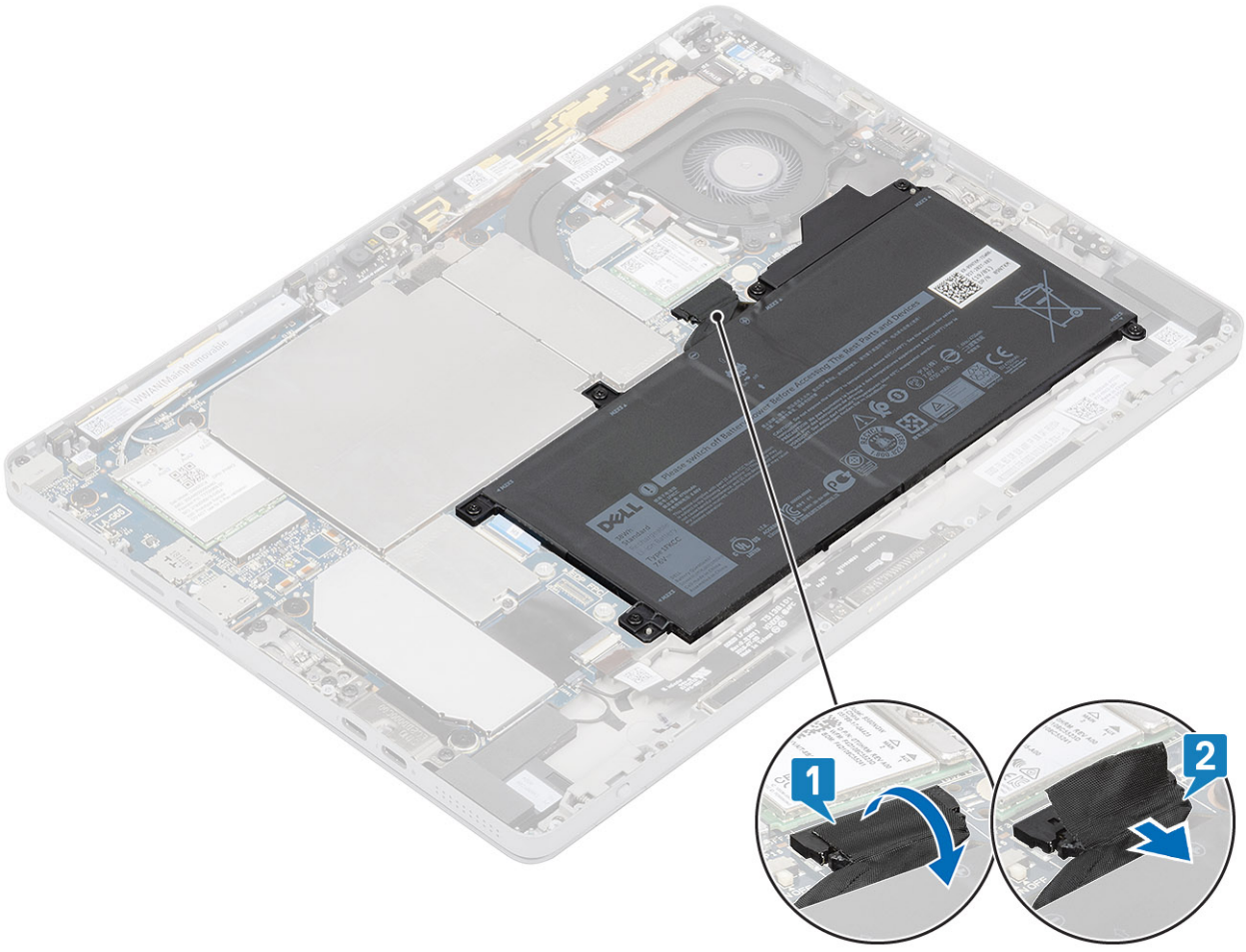
- **Exercise caution when handling Lithium-ion batteries.**
- **Discharge the battery completely before removing it. Disconnect the AC power adapter from the system and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.**
- **Do not crush, drop, mutilate, or penetrate the battery with foreign objects.**
- **Do not expose the battery to high temperatures, or disassemble battery packs and cells.**
- **Do not apply pressure to the surface of the battery.**
- **Do not bend the battery.**
- **Do not use tools of any kind to pry on or against the battery.**
- **Ensure any screws during the servicing of this product are not lost or misplaced, to prevent accidental puncture or damage to the battery and other system components.**

- **If the battery gets stuck inside your computer as a result of swelling, do not try to release it as puncturing, bending, or crushing a lithium-ion battery can be dangerous. In such an instance, contact Dell technical support for assistance. See www.dell.com/contactdell.**
- **Always purchase genuine batteries from www.dell.com or authorized Dell partners and resellers.**
- **Swollen batteries should not be used and should be replaced and disposed properly. For guidelines on how to handle and replace swollen Lithium-ion batteries, see Handling swollen Lithium-ion batteries.**

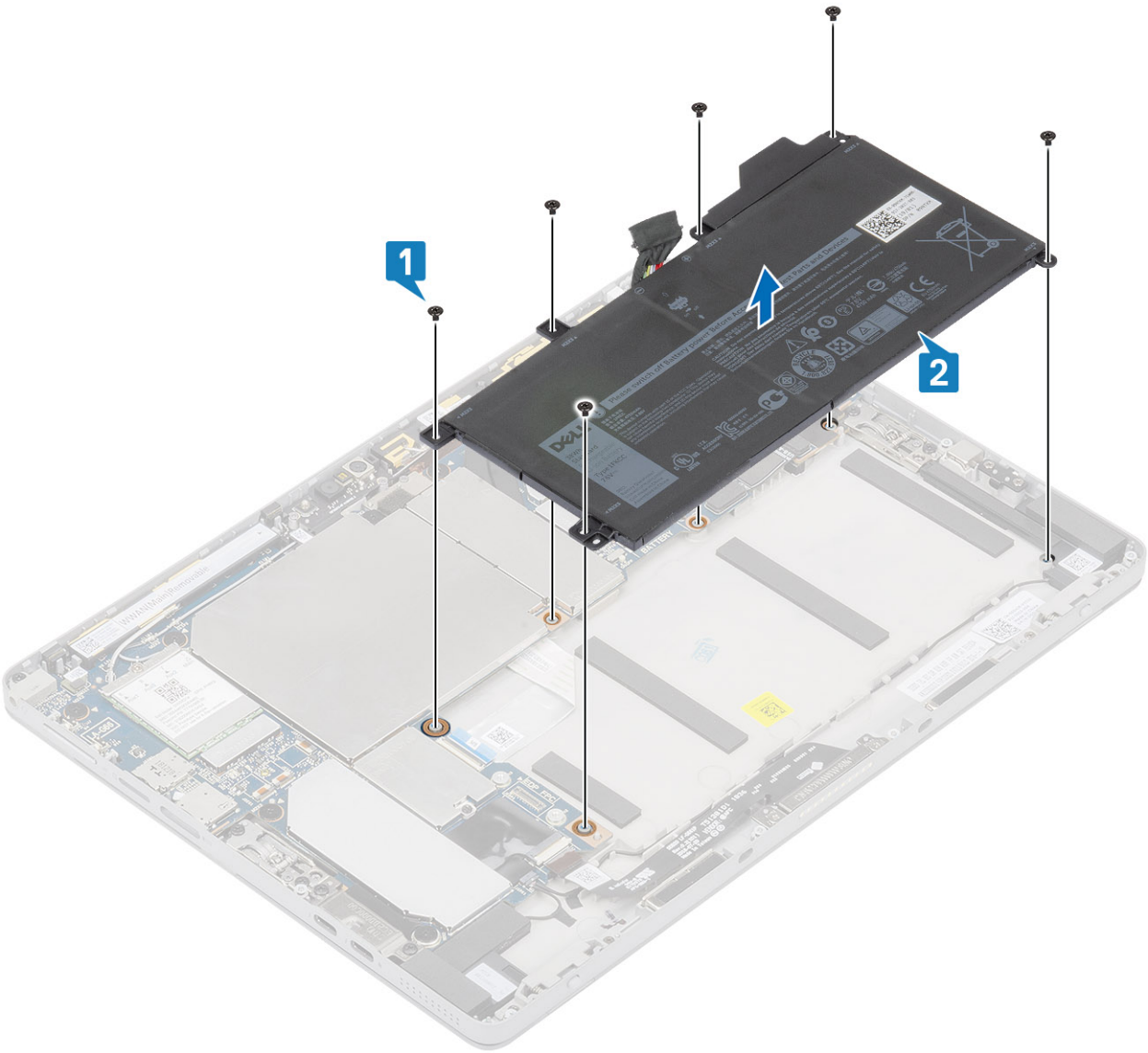
Removing the battery

Steps

1. Follow the procedure in Before working inside your tablet.
2. Remove the:
   a. microSD card
   b. SIM card tray
   c. Display panel assembly
3. To remove the battery:
   a. Peel off the adhesive tape covering the battery connector [1].
   b. Disconnect the battery cable from the system board [2]



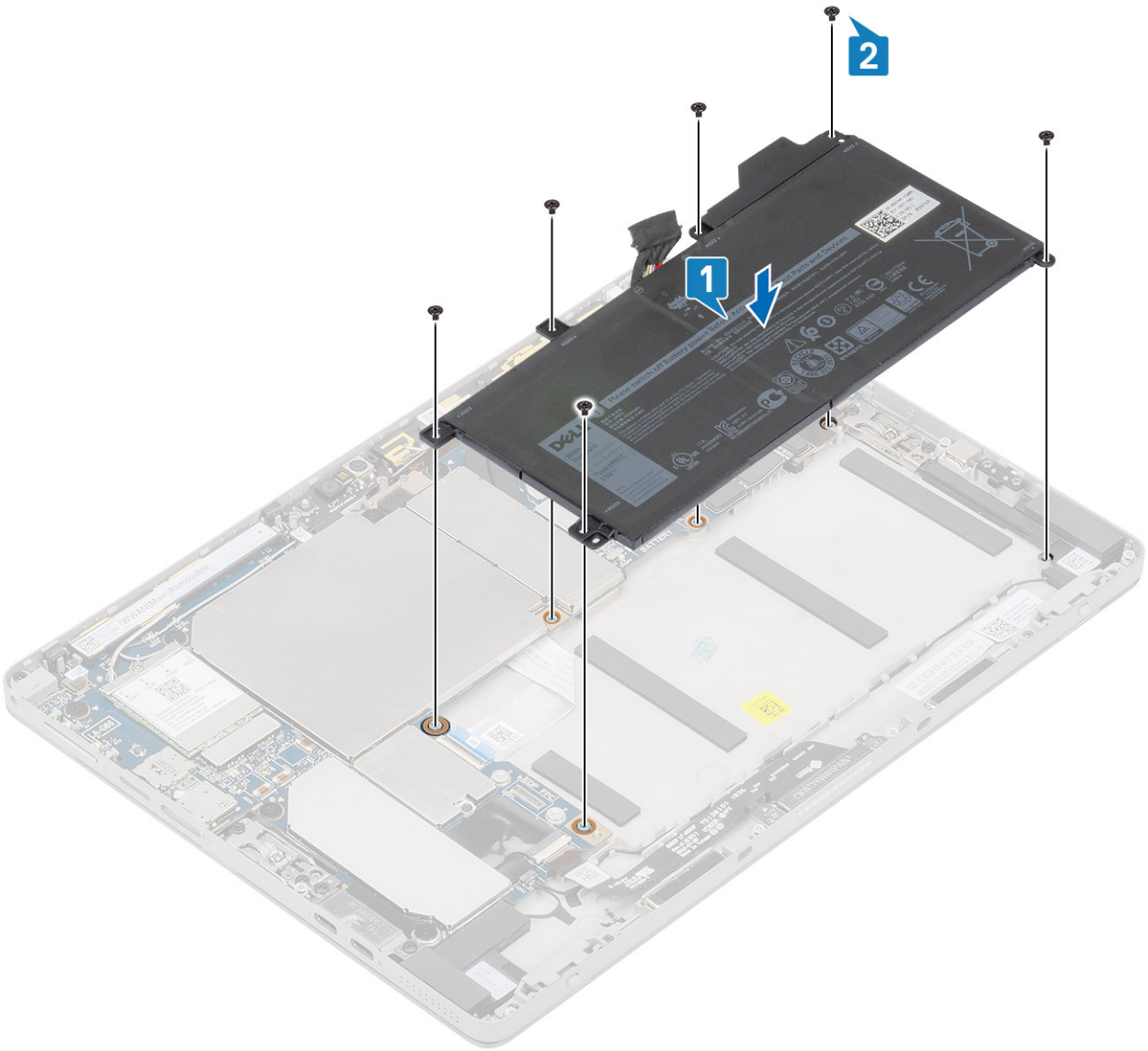
   c. Remove the M2x4 screws that secure the battery to the chassis [1].
   d. Lift the battery off the computer [2].



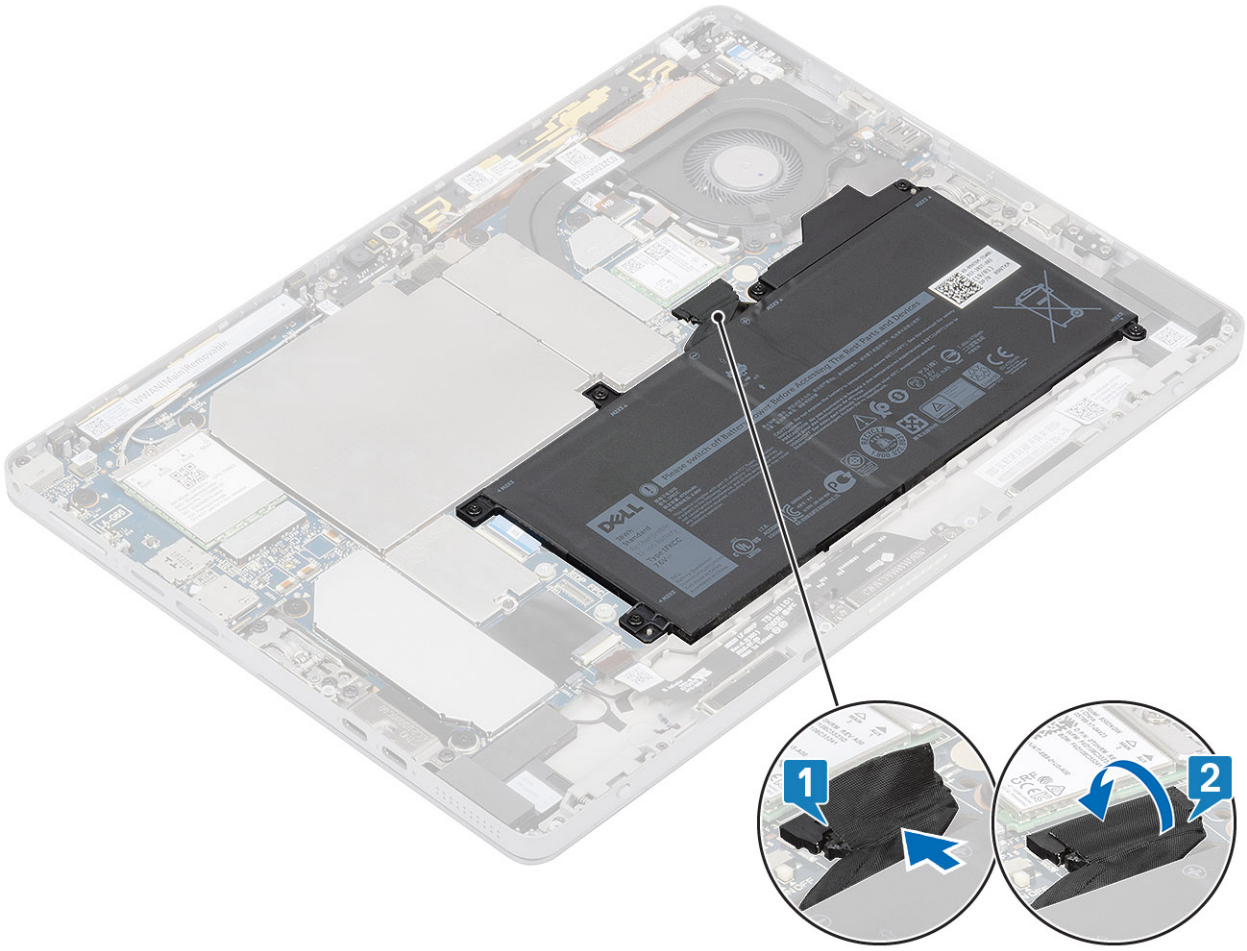
Installing the battery

Steps

1. Align the screw holes on the battery with the screw holes on the computer [1].
2. Replace the M2x4 screws that secure the battery to the computer [2].



3. Connect the battery cable to connector on the system board [1].
4. Adhere the tape on the battery connector[2].



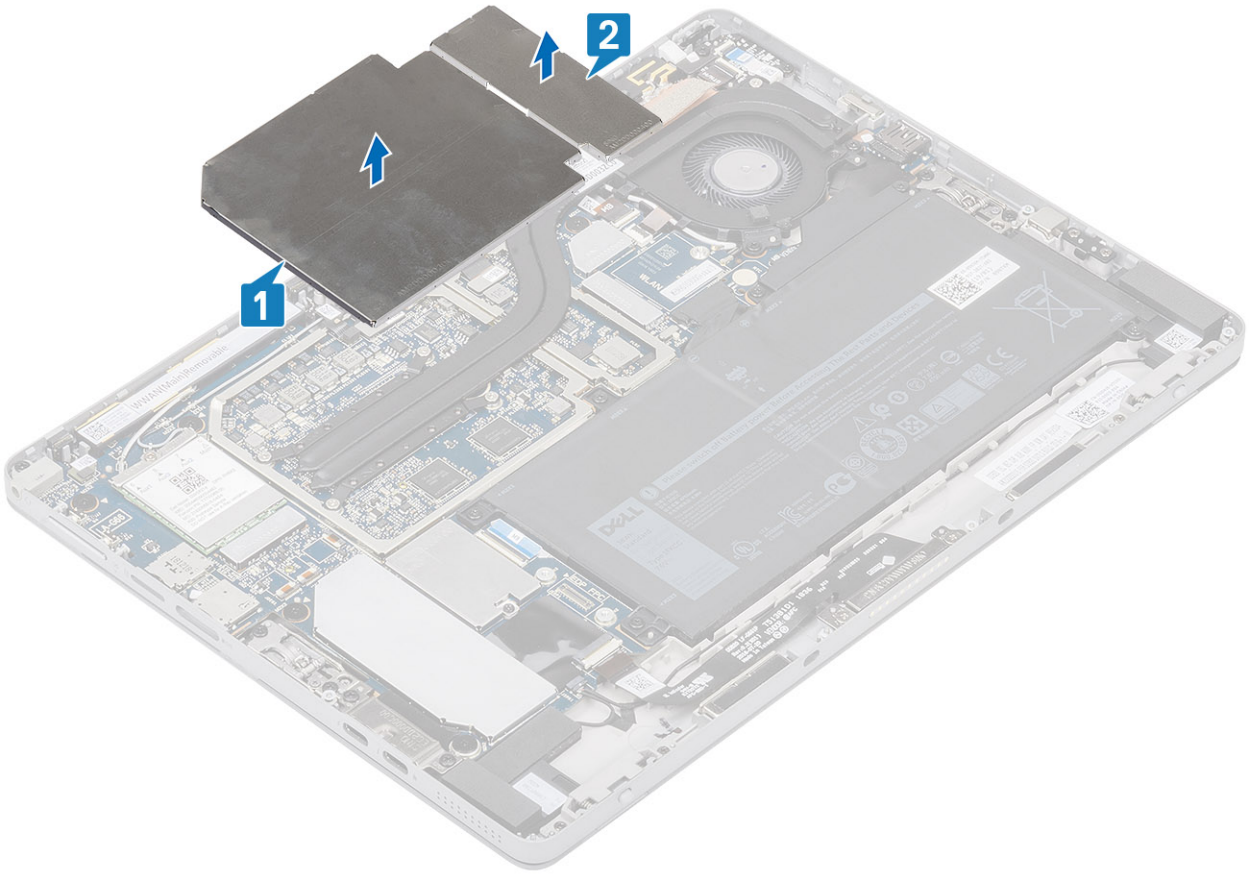
5. Install the:
   a. Display panel assembly
   b. microSD card
   c. SIM card tray
6. Follow the procedure in After working inside your tablet.

Heat sink

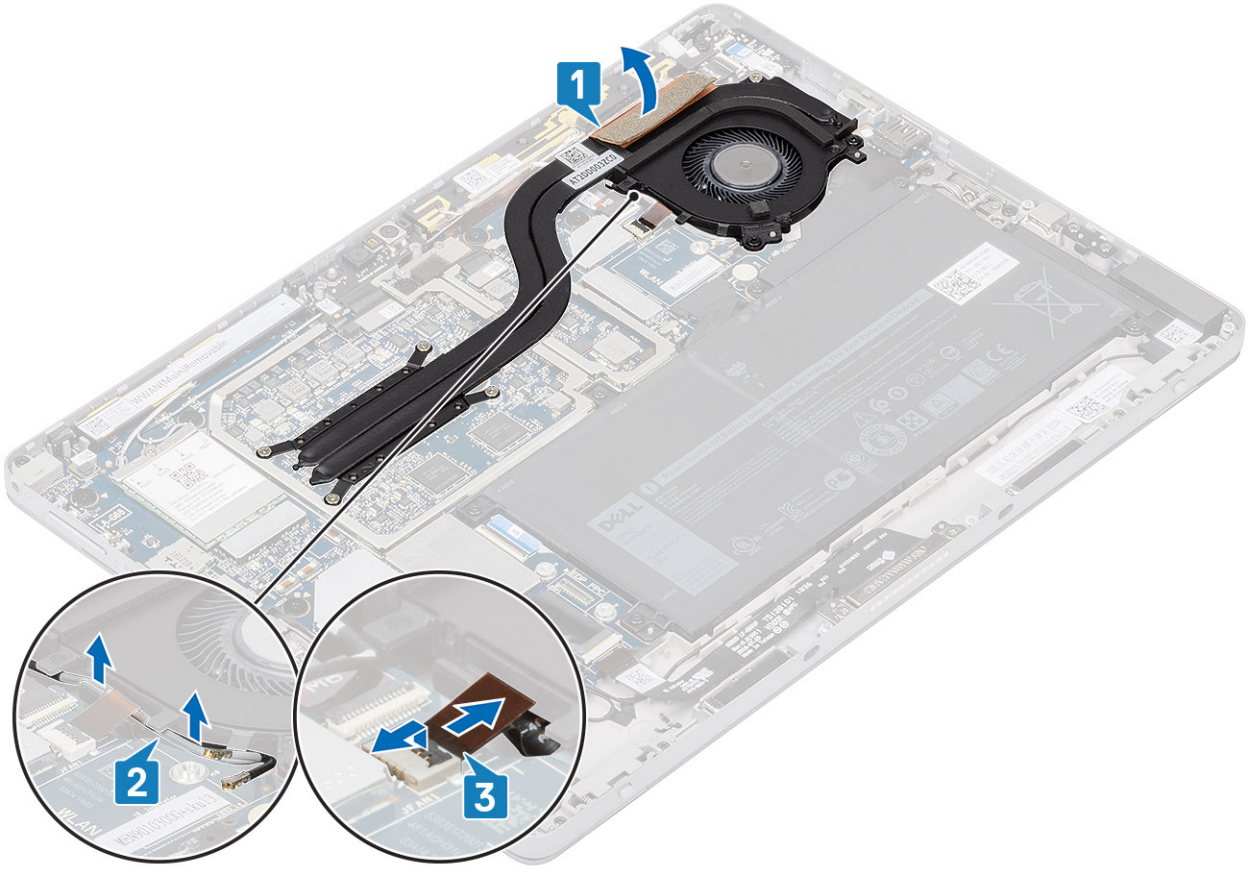
Removing the heat-sink assembly

Steps

1. Follow the procedure in Before working inside your tablet.
2. Remove the:
   a. microSD card
   b. SIM card tray
   c. display panel assembly
3. Lift and remove the left heat-sink shield [1] and right heat-sink shield [2] away from the heat-sink.



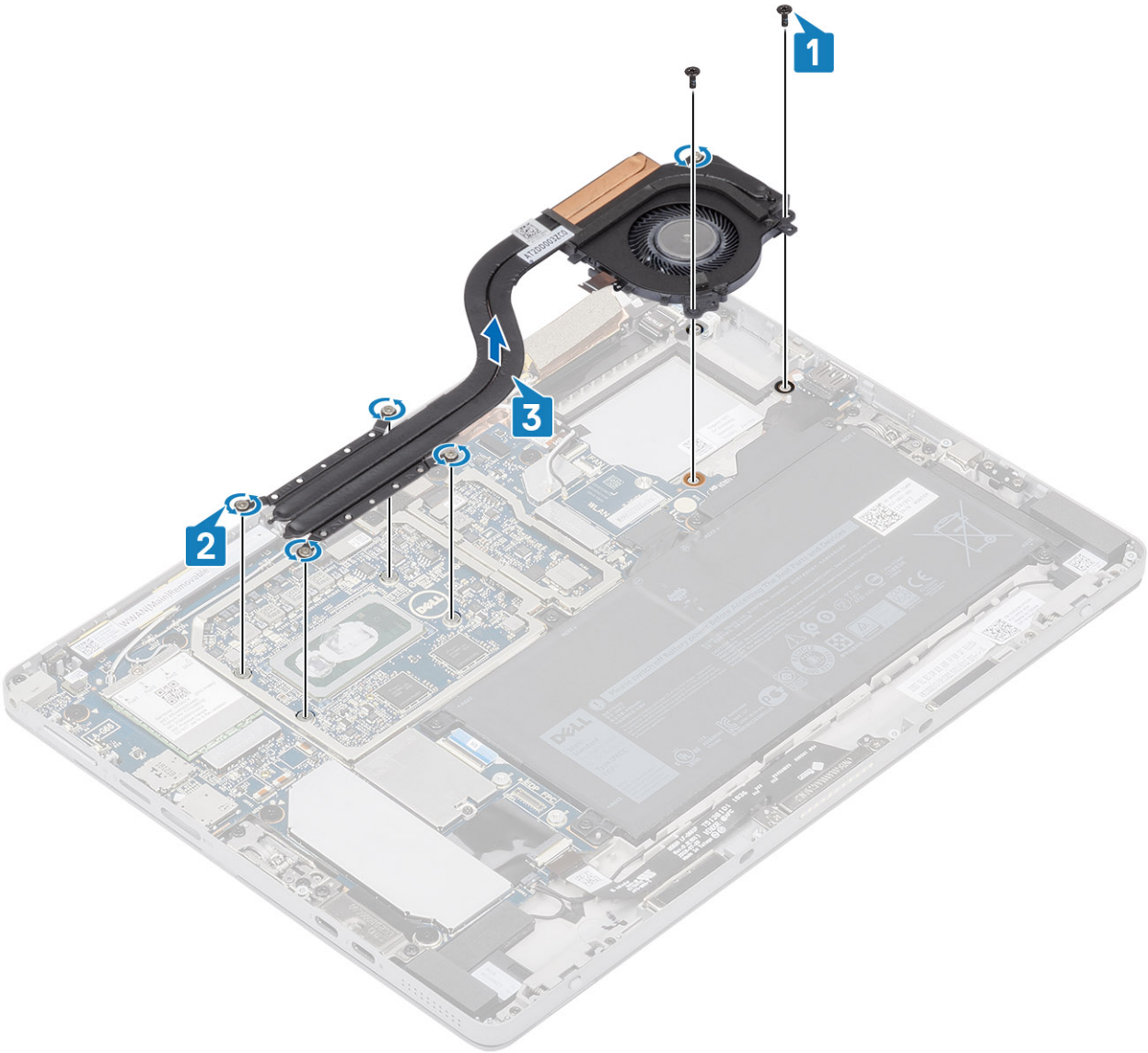
4. Peel the adhesive the tape from the heat-sink assembly [1].
5. Unroute the WLAN antenna cables from the routing guides on the heat sink [2].
6. Open the latch and disconnect the heat-sink fan cable from the connector on the system board [3].



7. To remove the heat-sink assembly:
   a. Remove the M2x2.5 screws that secure the heat-sink fan to the system board [1].
   b.
   c. In sequential order (as indicated on the heat sink), loosen the captive screws that secure the heat sink to the system board [2].

      NOTE: Remove the screws in the order of the callout numbers [1, 2, 3, 4] as graphically printed on the heat sink.

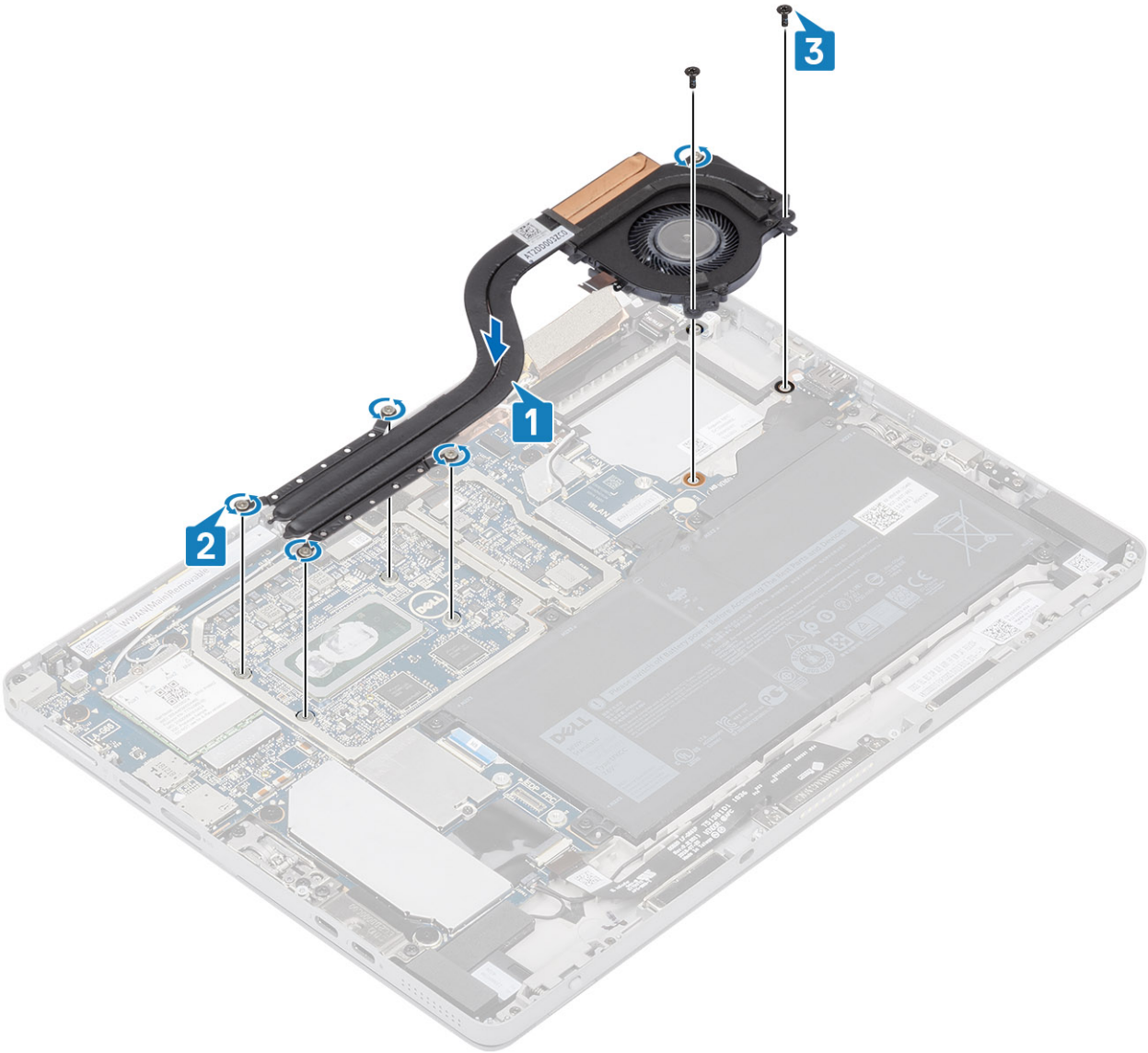
   d. Lift the heat-sink assembly from the tablet [3].



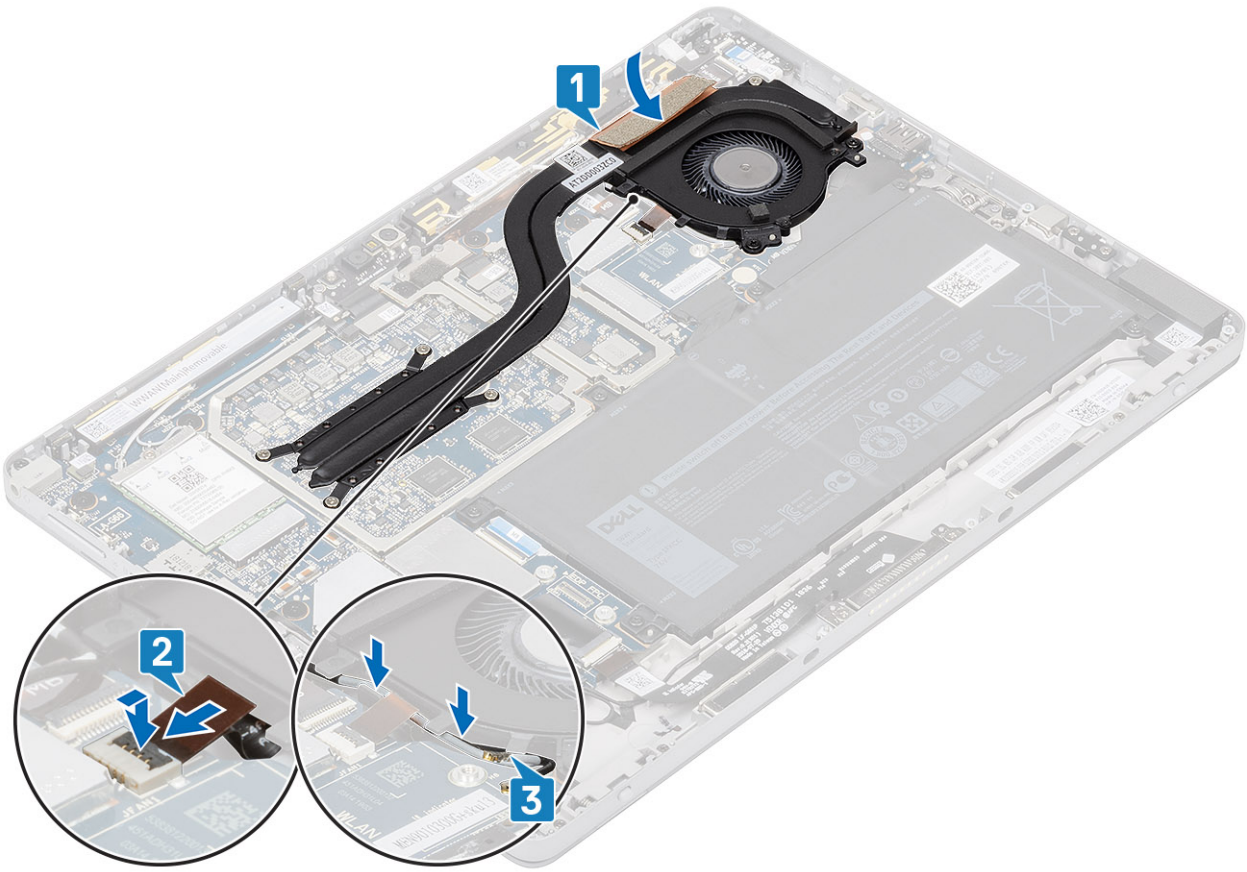
Installing the heat-sink assembly

Steps

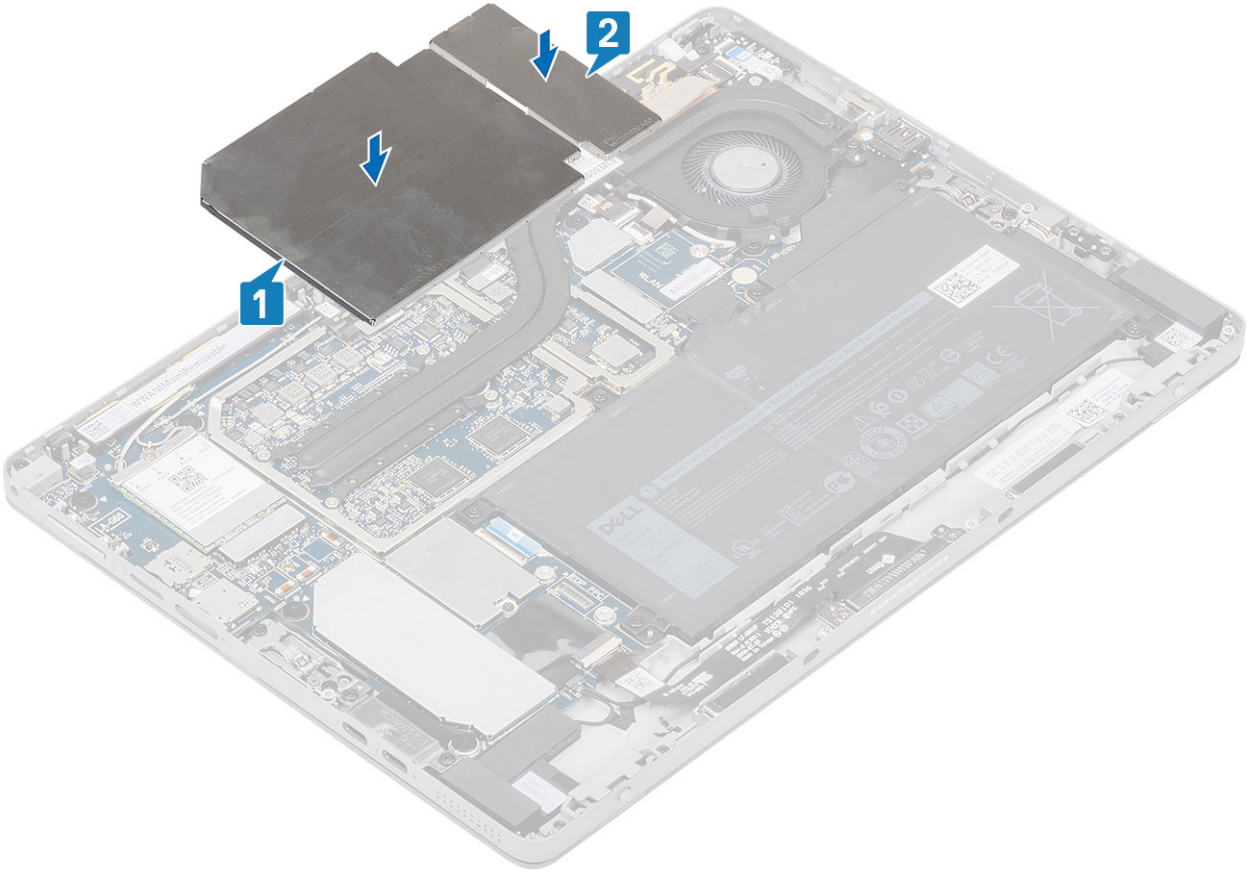
1. To install the heat sink assembly:
   a. Place the heat sink on the system board [1].
   b. Align the screw holes on the heat sink with the screw holes on the system board.
   c. In sequential order (indicated on the heat sink), tighten the captive screws that secure the heat sink to the system board [2].
   d. Align the screw holes on the heat-sink fan with the screw holes on the system board.
   e. Replace the M2x2.5 captive screws that secure the heat-sink fan on the system board [3].



f. Adhere the adhesive tape to the heat-sink assembly [1].
g. Slide the heat-sink fan cable into the connector on the system board and close the latch to secure the cable [2].
h. Route the WLAN antenna cables through the routing guides on the system board [3].



i. Place the left heat-sink shield [1] and right heat-sink shield [2] on the heat sink.



2. Install the:

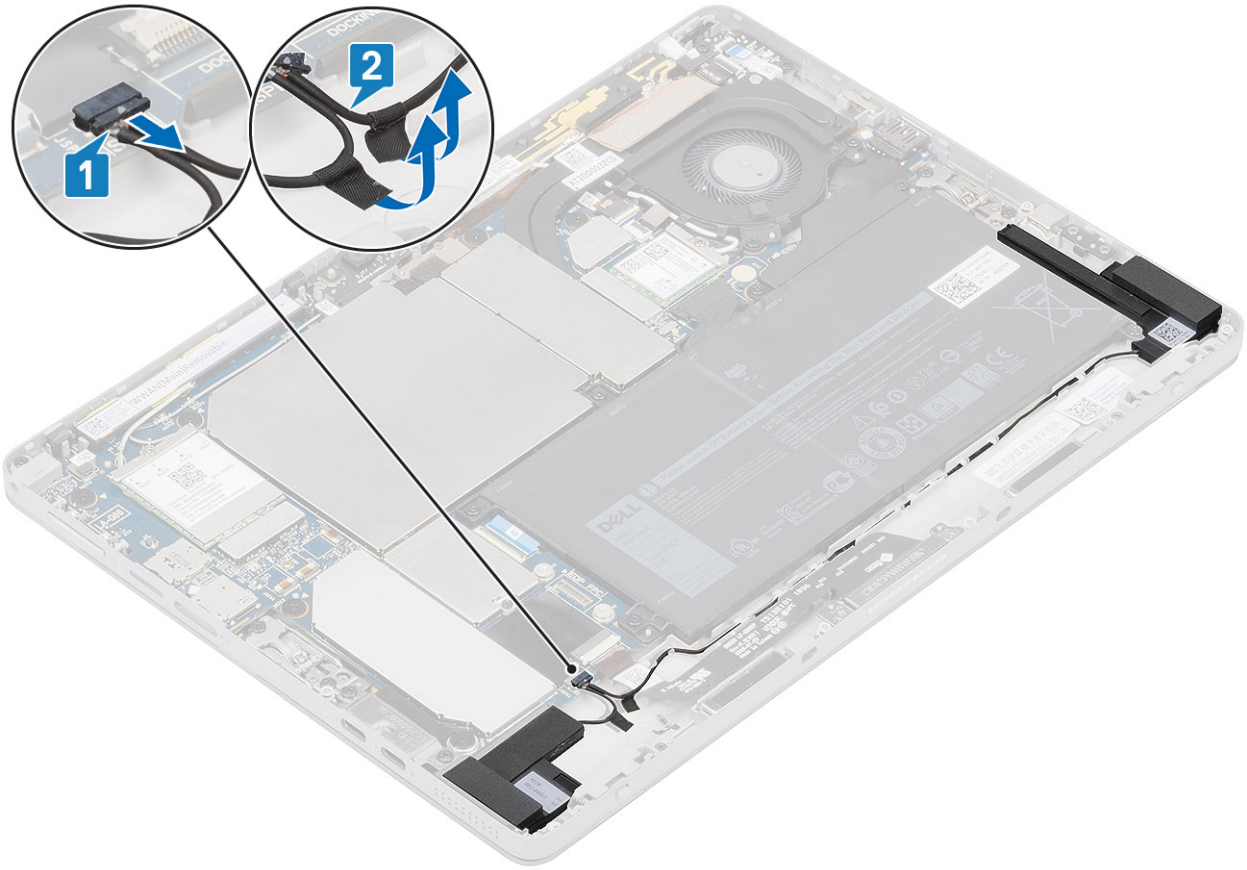
a. display panel assembly
b. microSD card
c. SIM card tray

Speakers

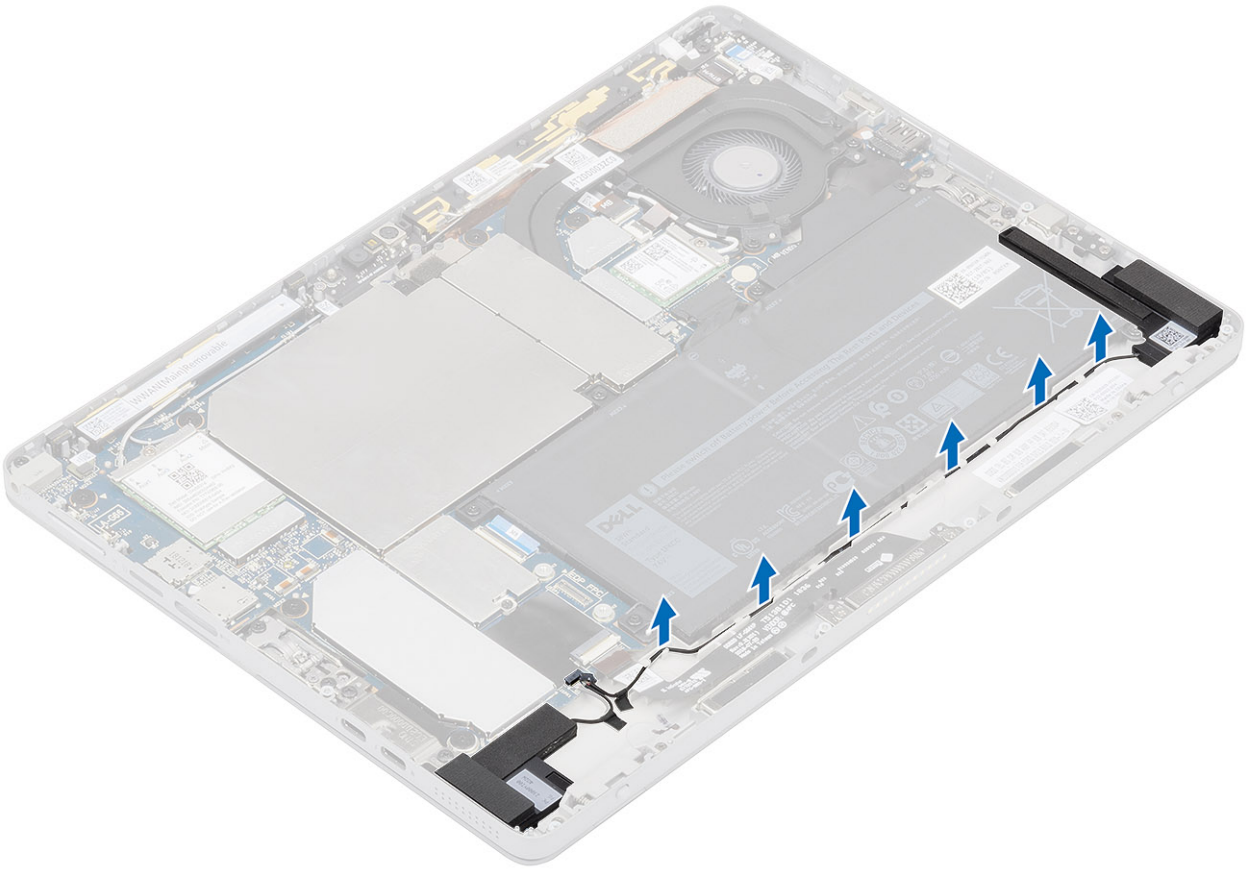
Removing the speakers

Steps

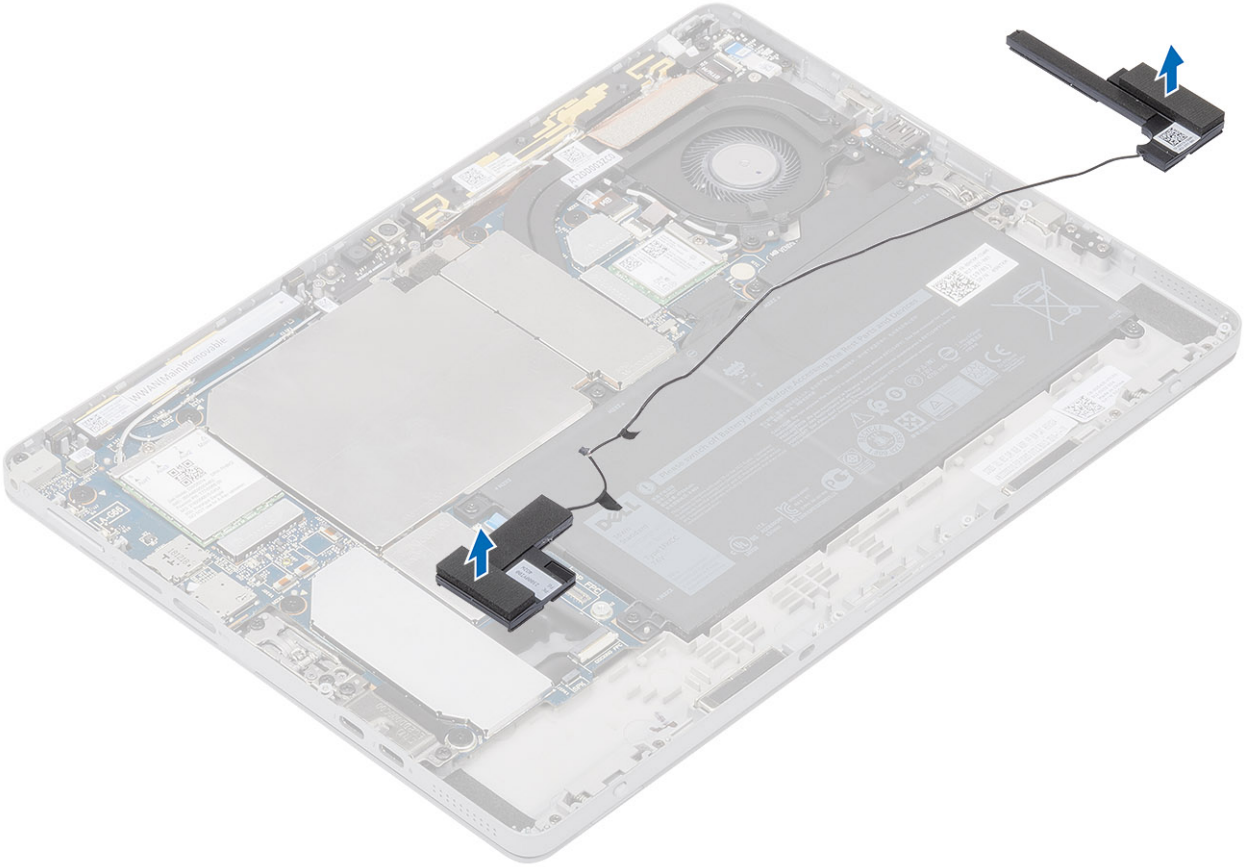
1. Follow the procedure in Before working inside your tablet.
2. Remove the:
   a. microSD card
   b. SIM card tray
   c. display panel assembly
3. To remove the speakers:
   a. Disconnect the speaker cable from the connector on the system board [1].
   b. Peel off the tapes that secure the speaker cable to the computer [2].



   c. Unroute the speaker cable from the routing guides on the computer.



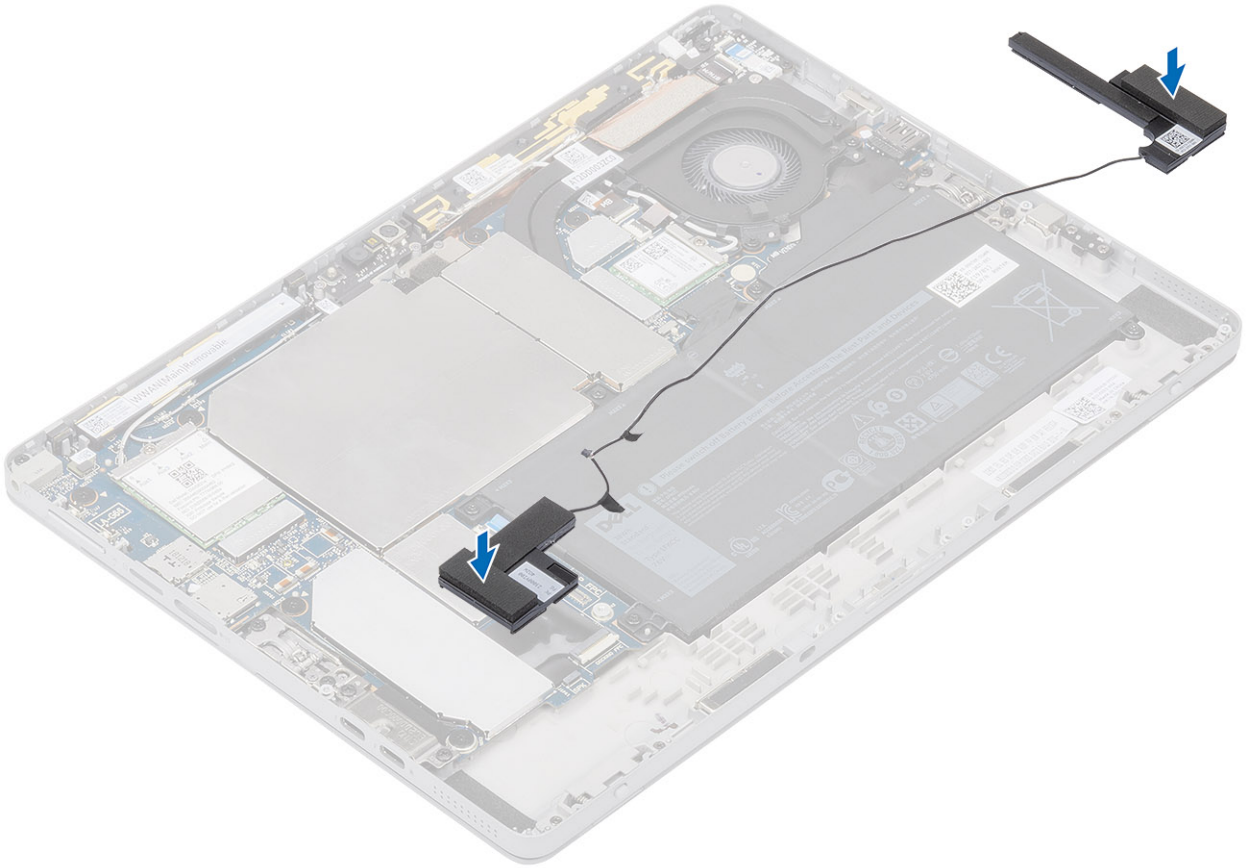
d. Lift the speakers off the computer.



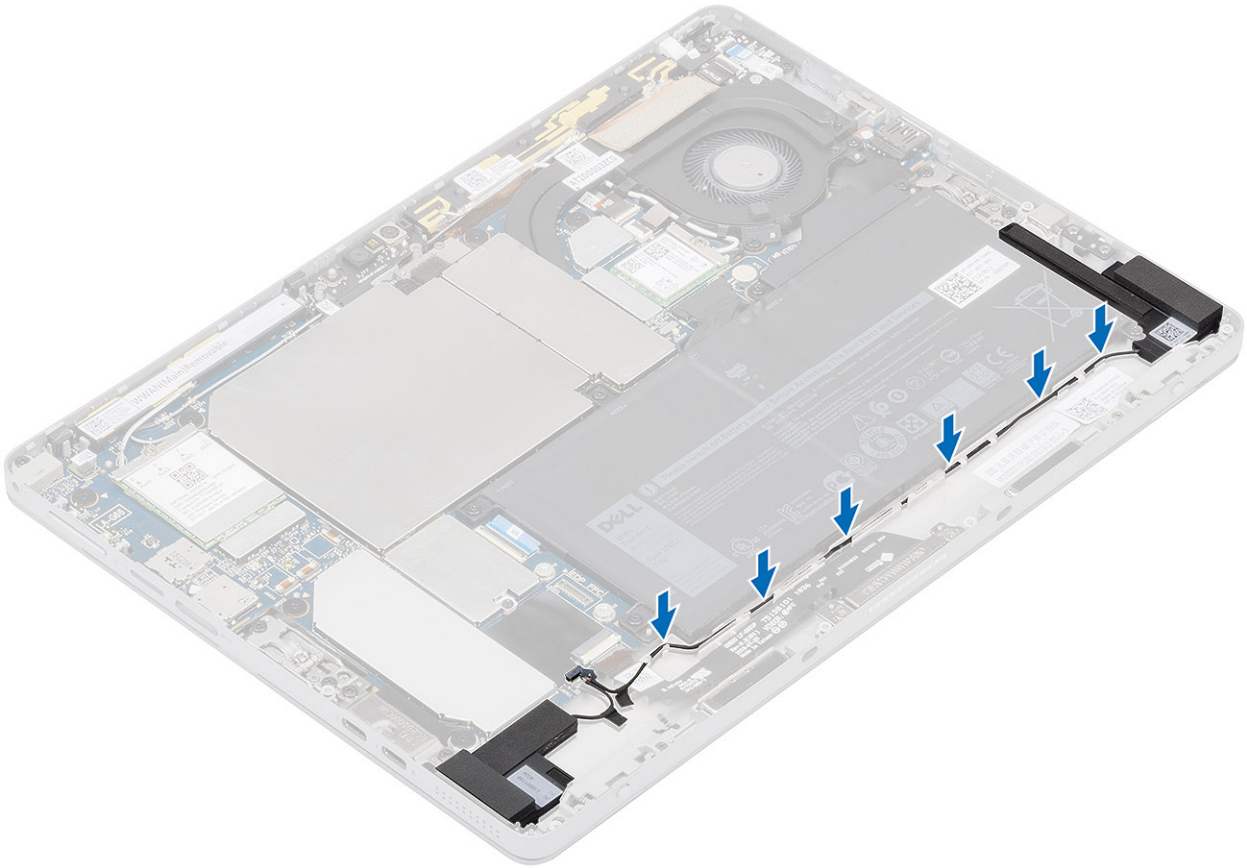
Installing speakers

Steps

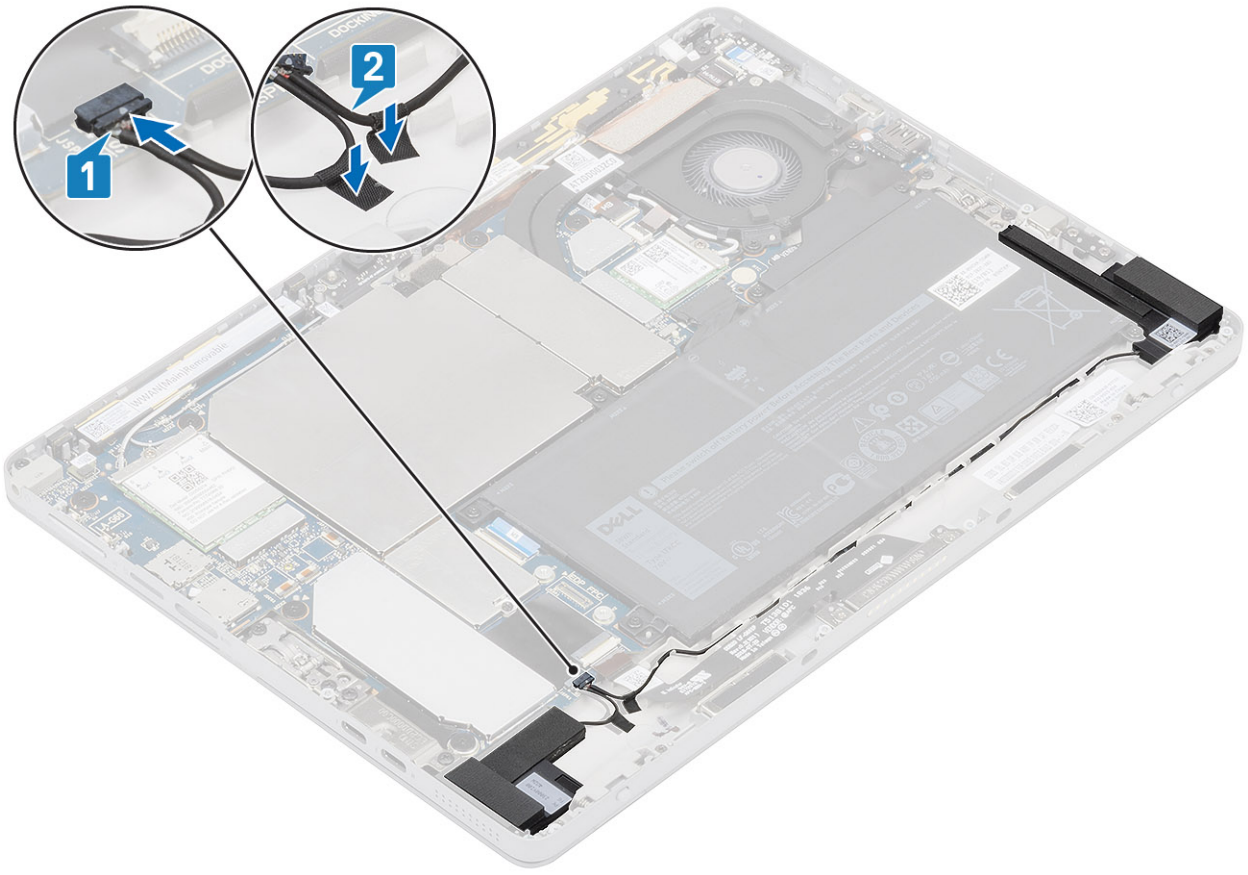
1. Using the alignment posts, align and place the speakers on the computer.



2. Route the speaker cable through the routing guides on the computer.



3. Connect the speaker cable to connector on the system board.
4. Adhere the tapes that secure the speaker cable to the computer.



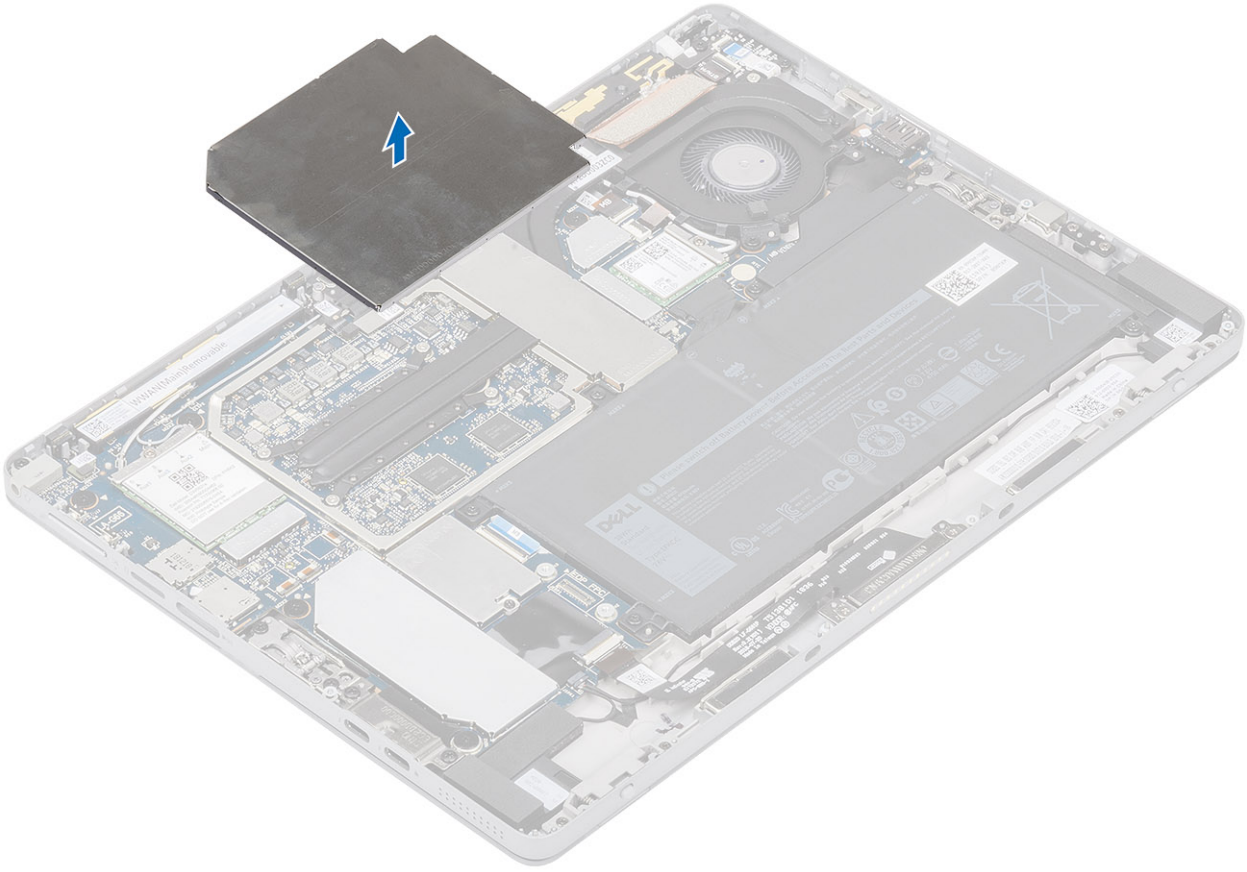
5. Install the:
   a. display panel assembly
   b. microSD card
   c. SIM card tray
6. Follow the procedure in After working inside your tablet.

Front facing camera

Removing the front-facing camera

Steps

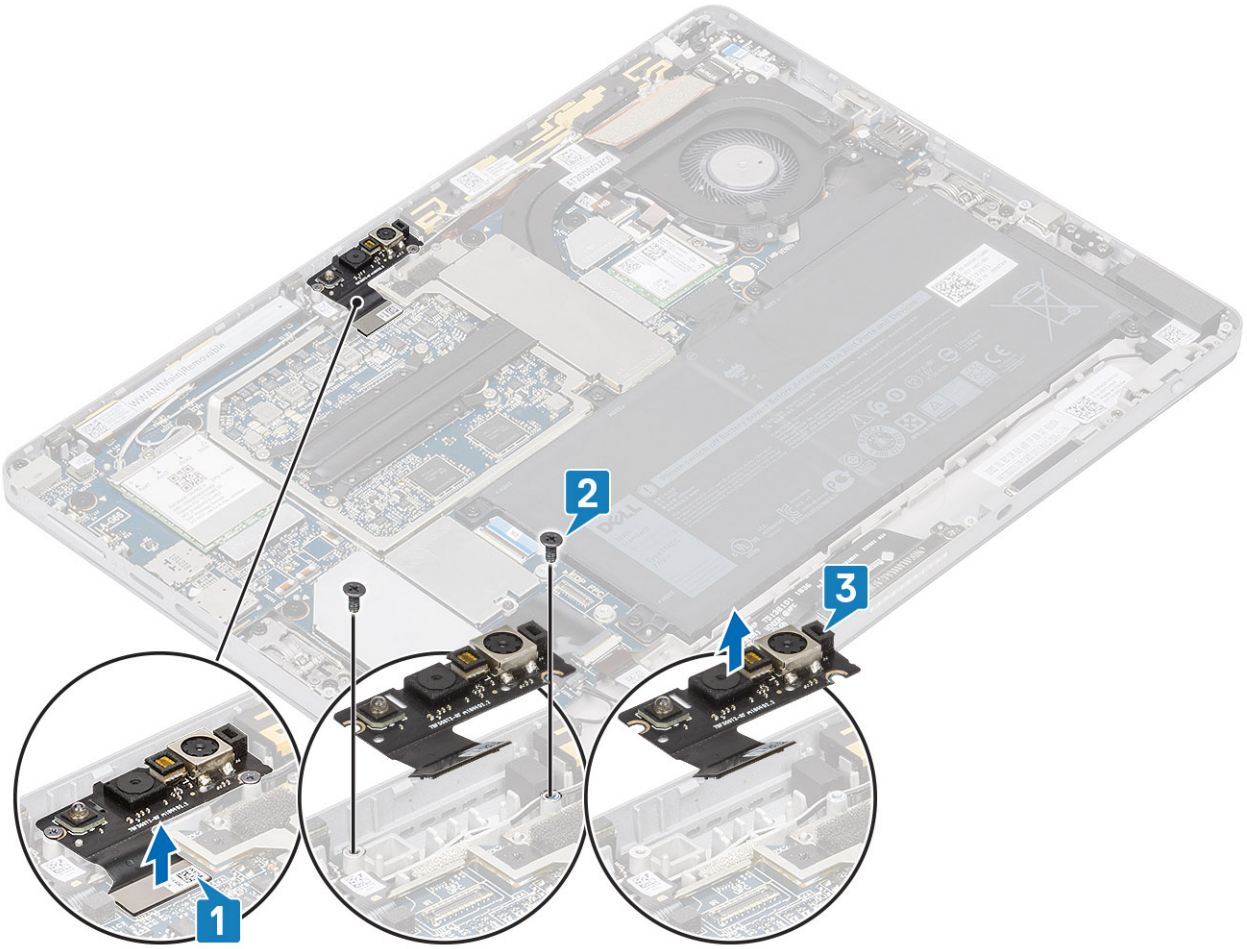
1. Follow the procedure in Before working inside your tablet.
2. Remove the:
   a. microSD card
   b. SIM card tray
   c. display panel assembly
3. To remove the front camera:
   a. Using a plastic scribe, gently pry open and remove the left shielding cover from the edge that is marked with an arrow.



   b. Disconnect the front-facing camera cable from the system board [1].

      NOTE: Ensure to peel off the adhesive tape that secures the front camera to the rear camera. The front camera cable is glued to the rear camera, ensure to gently peel off, to remove the screw that secures the rear camera to the system board.

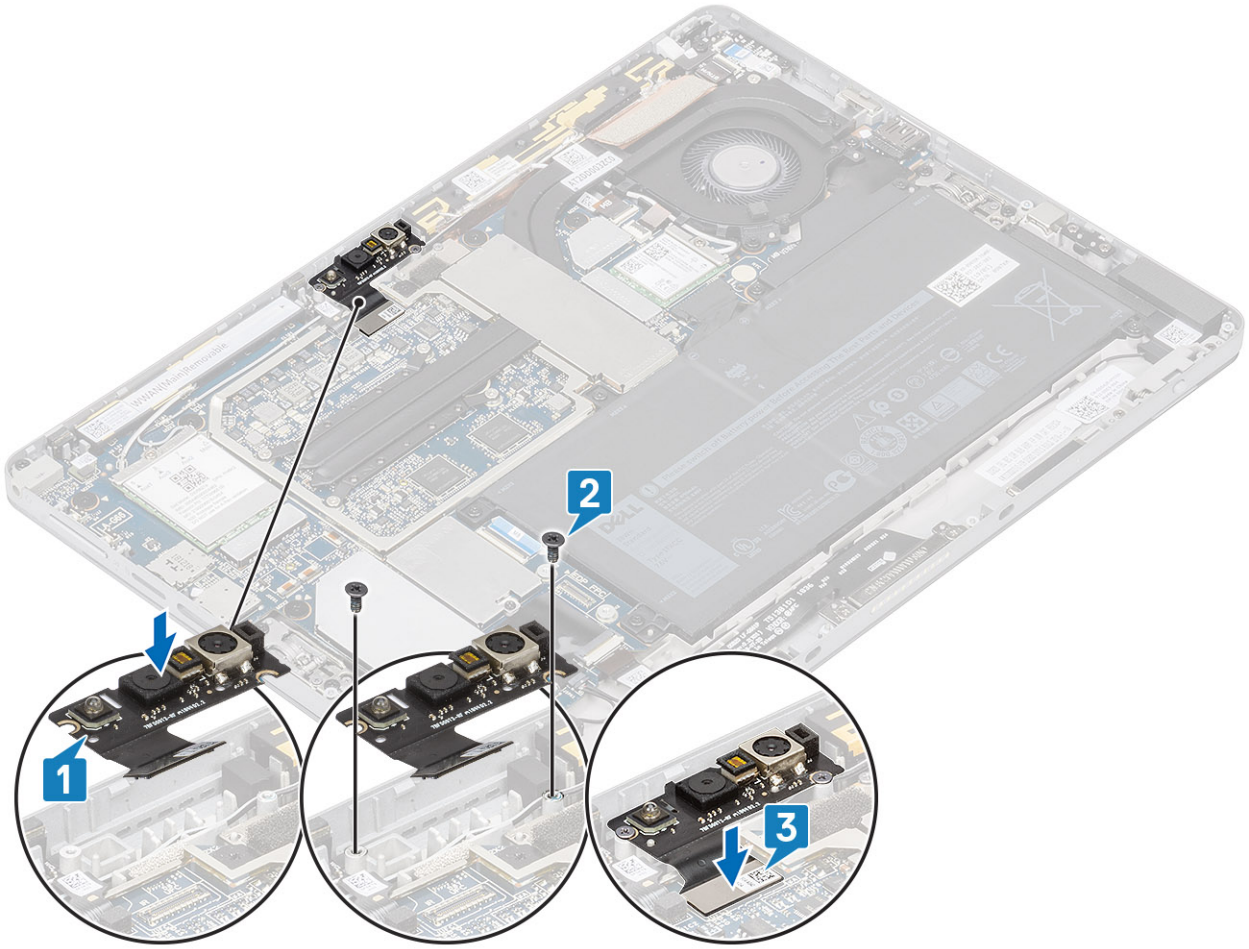
   c. Remove the M1.6x3 screws that secure the front-camera module to the computer [2].
   d. Peel off and lift the front-camera module from the computer [3].



Installing the front-facing camera

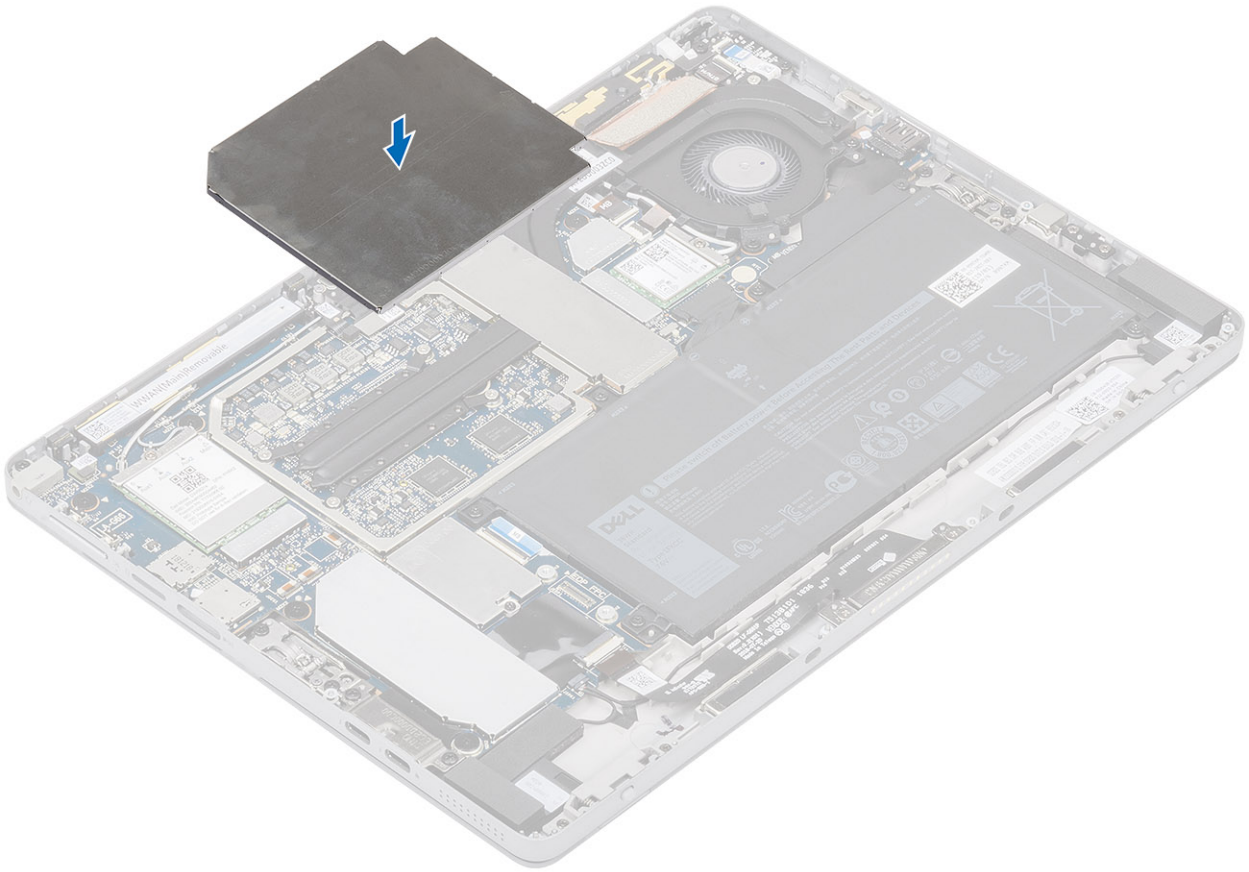
Steps

1. Align and place the front-camera module into the slot on the computer.
2. Replace the M1.6x3 screws to secure the front-camera module to the computer.
3. Connect the front-camera cable to the connector on the system board.



4. Place the shielding cover to secure the front-camera module.

NOTE: Handle the covering shield with care else it may break.



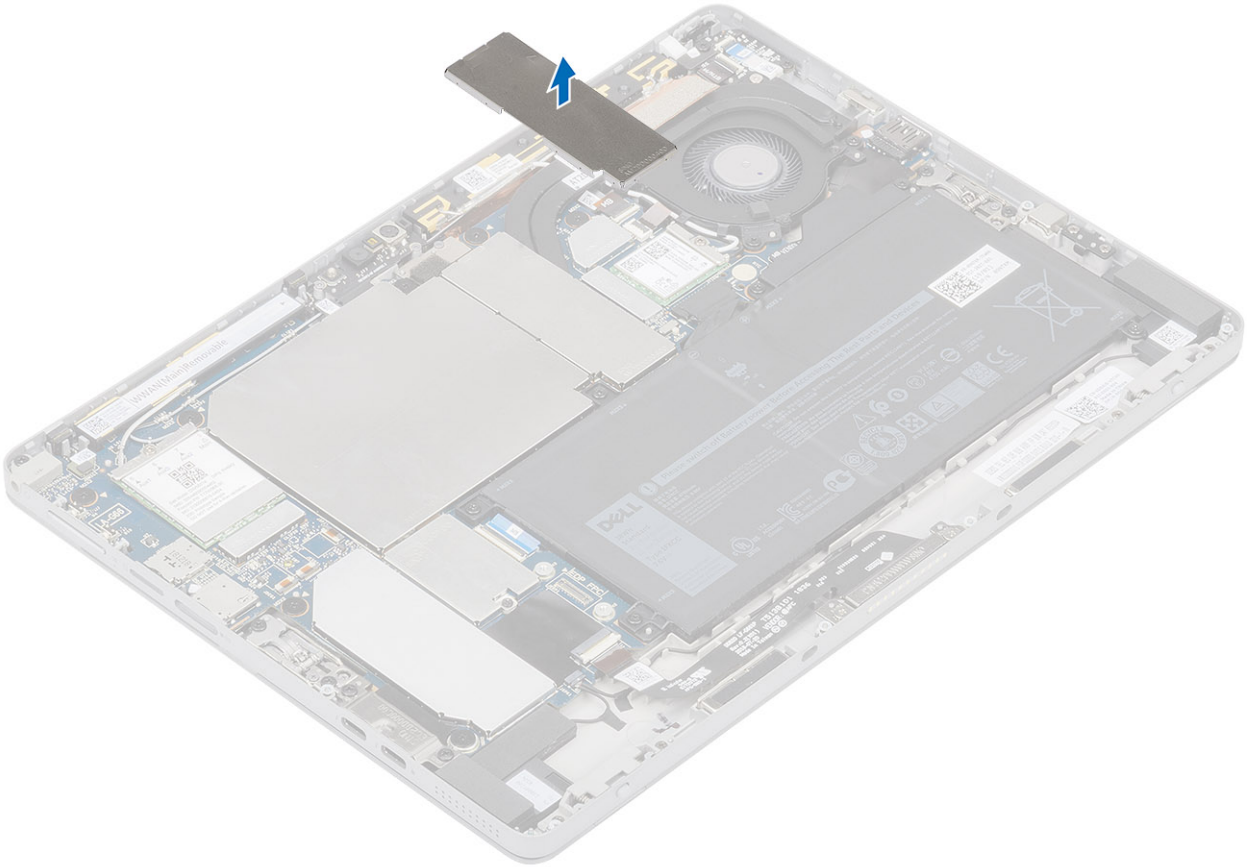
5. Install the:
   a. display panel assembly
   b. microSD card
   c. SIM card tray
6. Follow the procedure in After working inside your tablet.

Rear facing camera

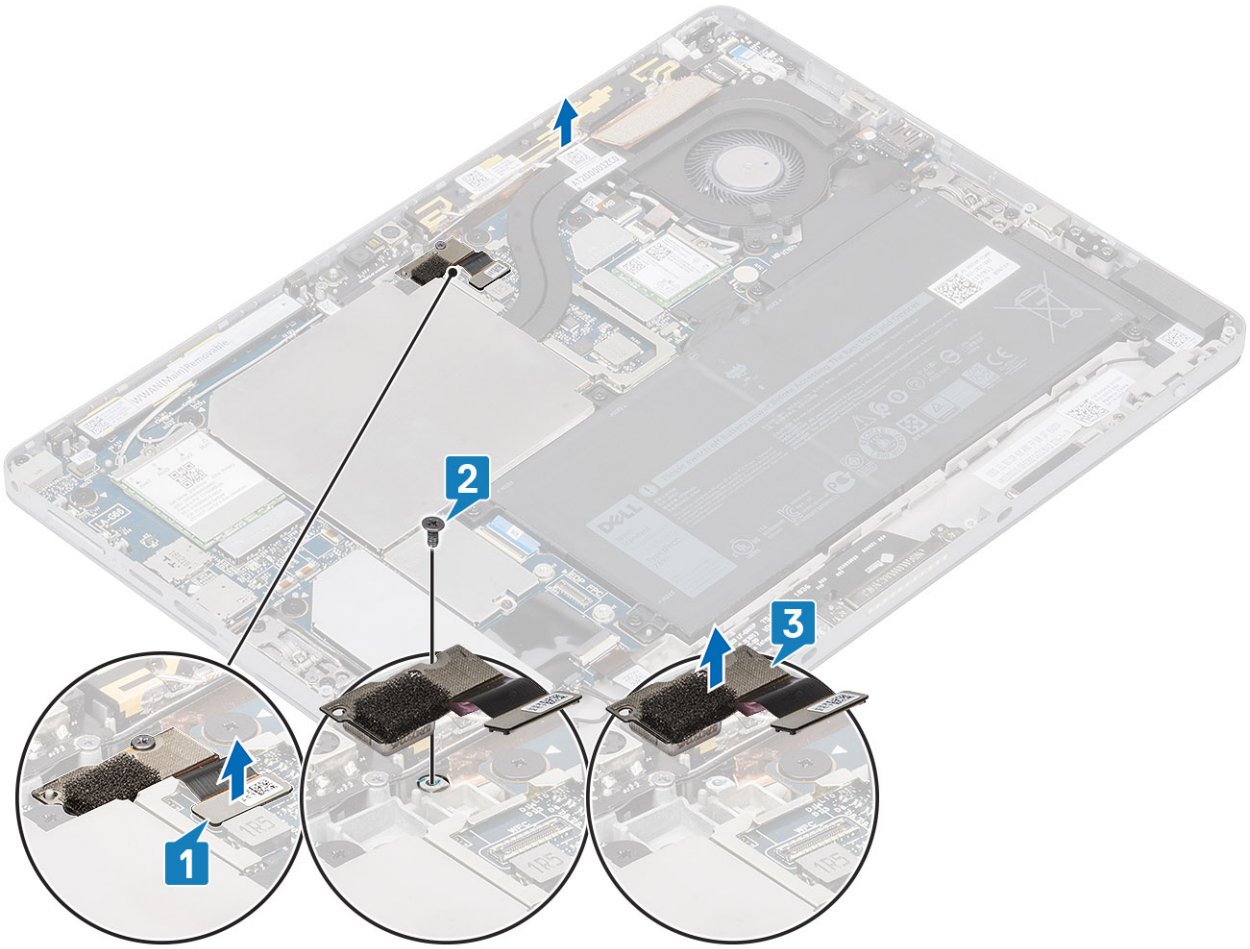
Removing the rear camera

Steps

1. Follow the procedure in Before working inside your tablet.
2. Remove the:
   a. MicroSD card
   b. SIM card tray
   c. display panel assembly
3. To remove the rear camera:
   a. Remove the shielding cover from the computer.



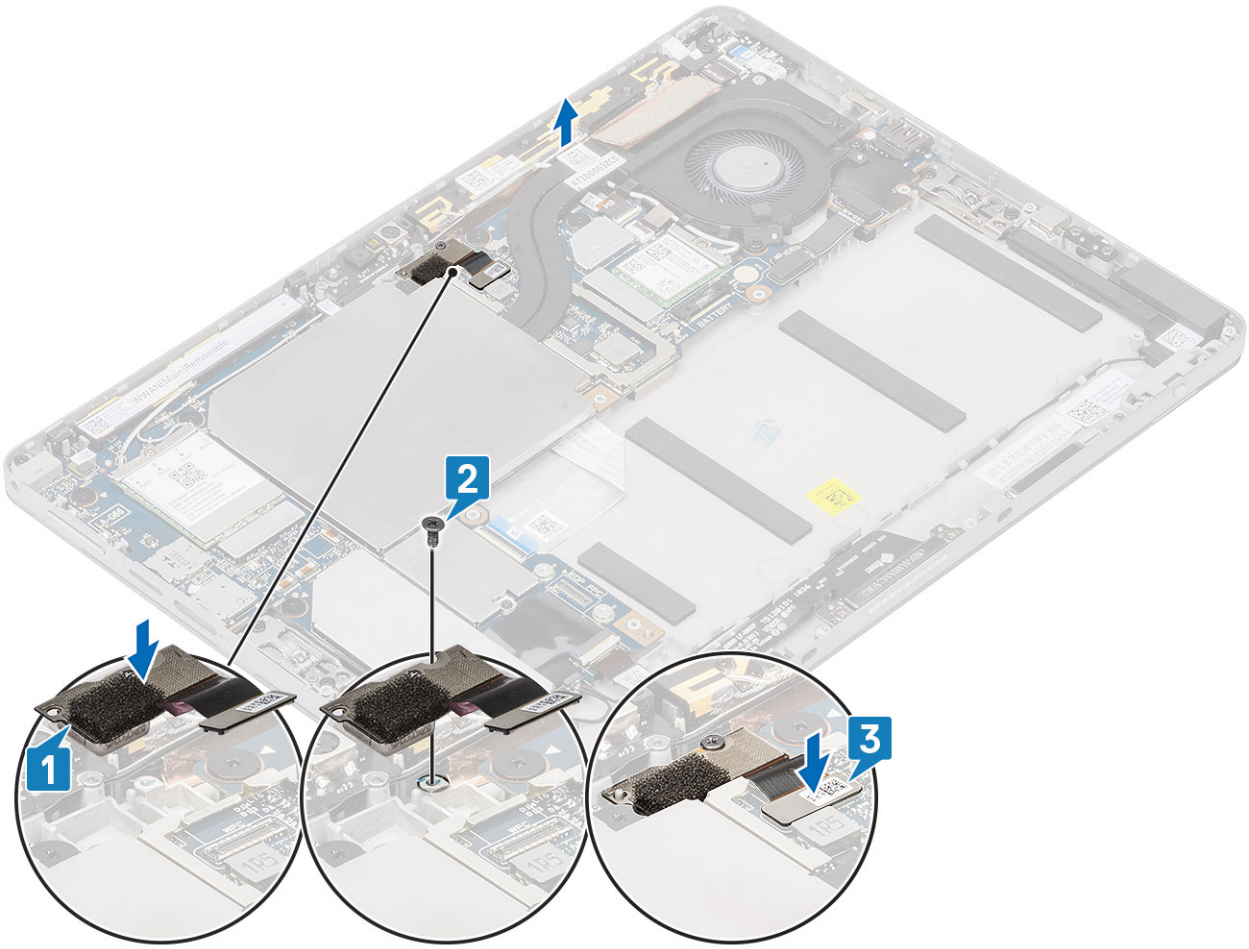
b. Disconnect the rear-camera cable from the system board [1].
c. Remove the M1.6x3 screw securing the rear-camera module to the computer [2].
d. Lift the camera module from the computer [3].



Installing rear camera

Steps

1. To install the rear camera:
   a. Align and place the rear-camera module into the slot on the computer [1].
   b. Replace the M1.6x3 screw to secure the rear-camera module to the computer [2].
   c. Connect the rear-camera cable to the connector on the system board [3].



2. Place the shielding cover to secure the rear-camera module to the computer.
3. Install the:
   a. display panel assembly
   b. microSD card
   c. SIM card tray
4. Follow the procedure in After working inside your tablet.

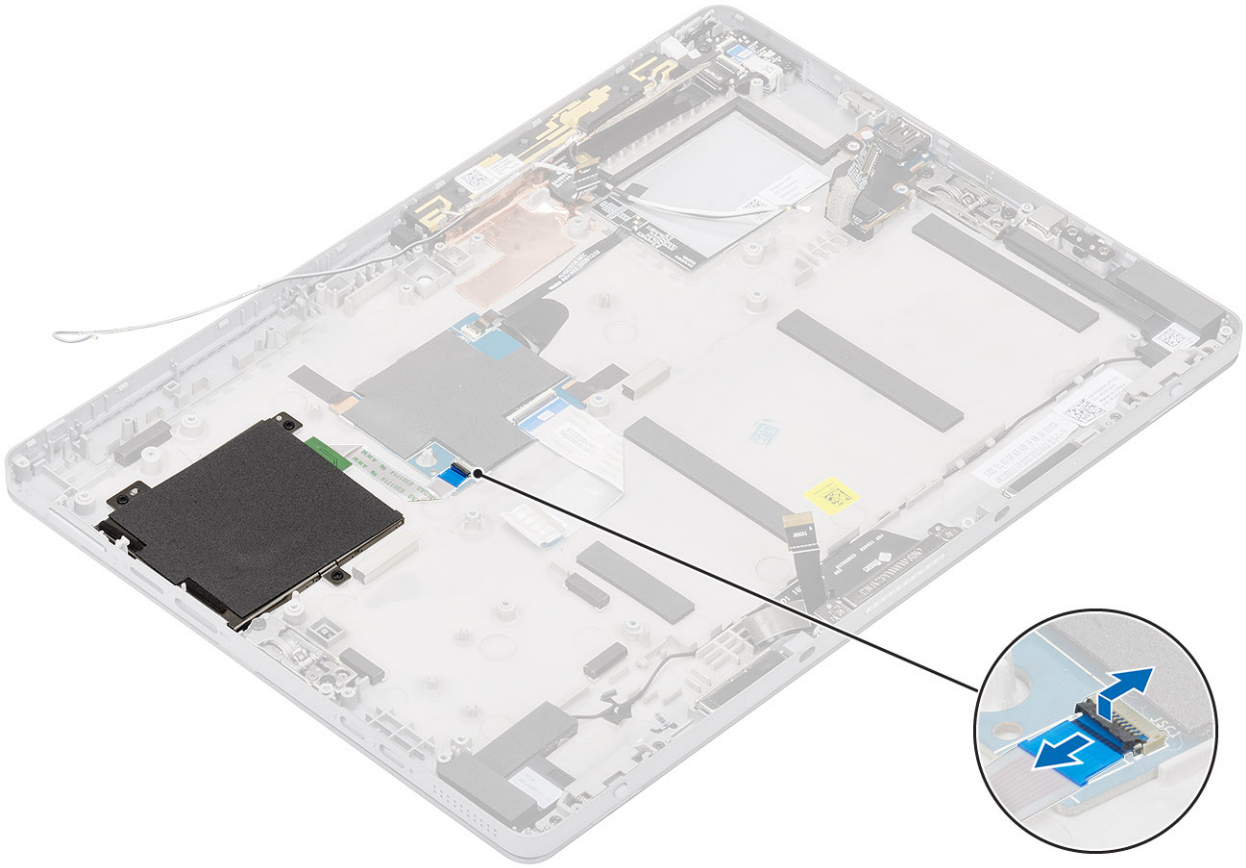
Smart Card Cage

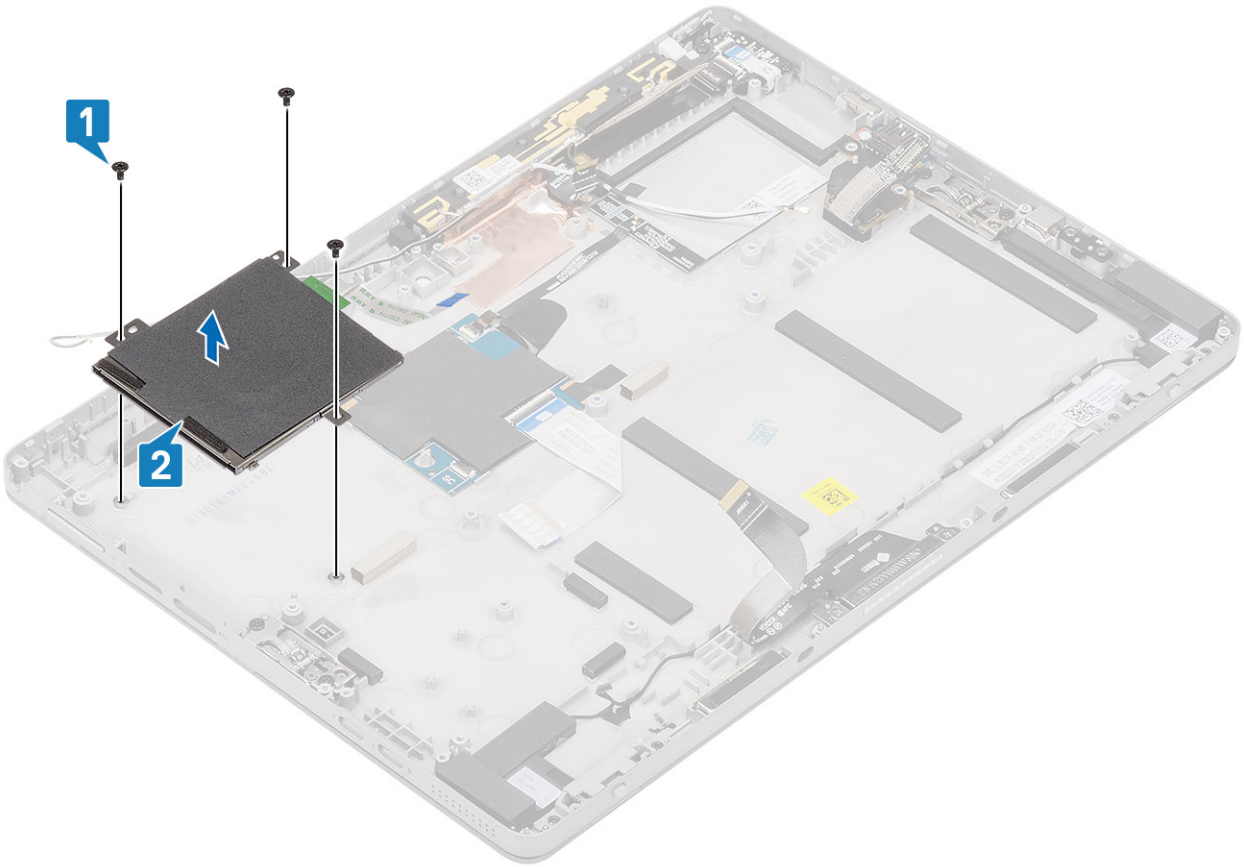
Removing the smart card cage

Steps

1. Follow the procedure in Before working inside your tablet.
2. Remove the:
   a. microSD card
   b. SIM card tray
   c. battery
   d. M.2 2230 SSD
   e. WWAN card
   f. Rear-facing camera
   g. Heat sink assembly
   h. WWAN main antenna module
   i. System board
   j. display panel

3. To remove the smart card cage:
   a. Disconnect and peel back the Smartcard cage FFC from the daughter board.
   b. Remove the M2x2 screws from the smart card module [1].
   c. Lift the smart card cage from the tablet [2].

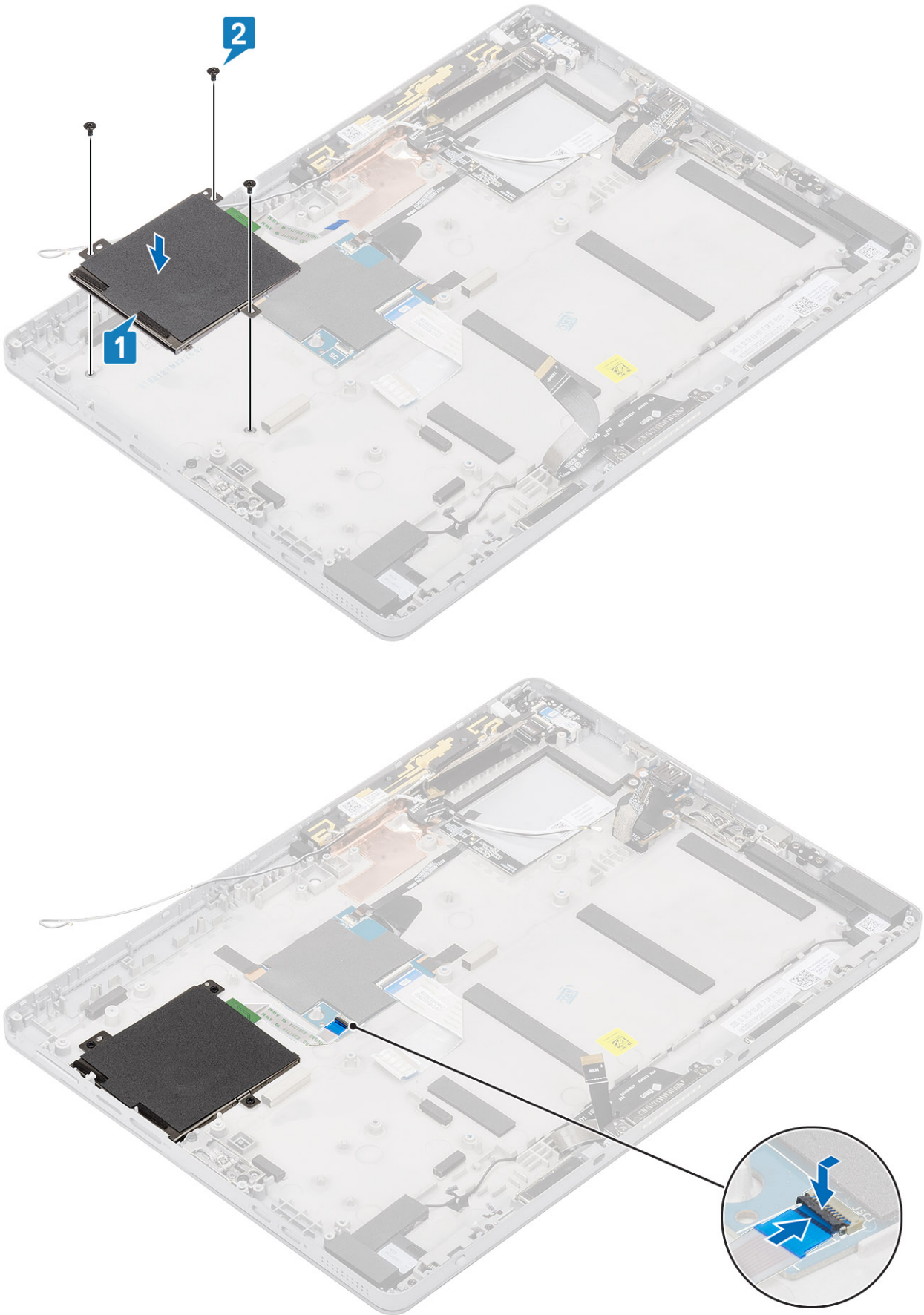




Installing the smart card cage

Steps

1. Insert the smart cage into the slot on the tablet.
2. Replace the M2 x 2.5 screws [2] to secure the smart card cage to the tablet [1].
3. Connect the smart cable to the smart card module.



4. Replace the:
   a. System board

b. WWAN main antenna module
c. Heat sink assembly
d. Rear-facing camera
e. display panel
f. microSD card
g. SIM card tray
h. battery

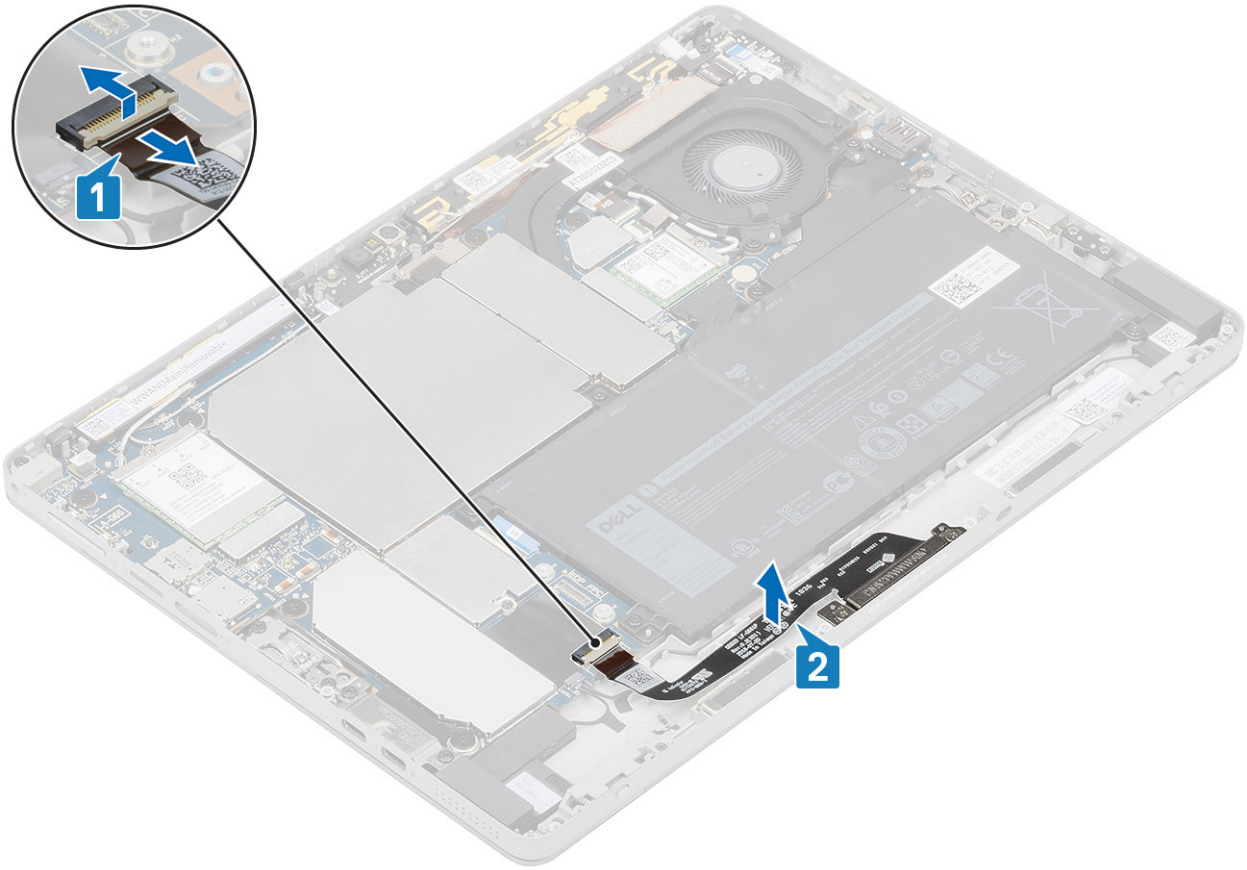
5. Follow the procedure in After working inside your tablet.

Docking board connector

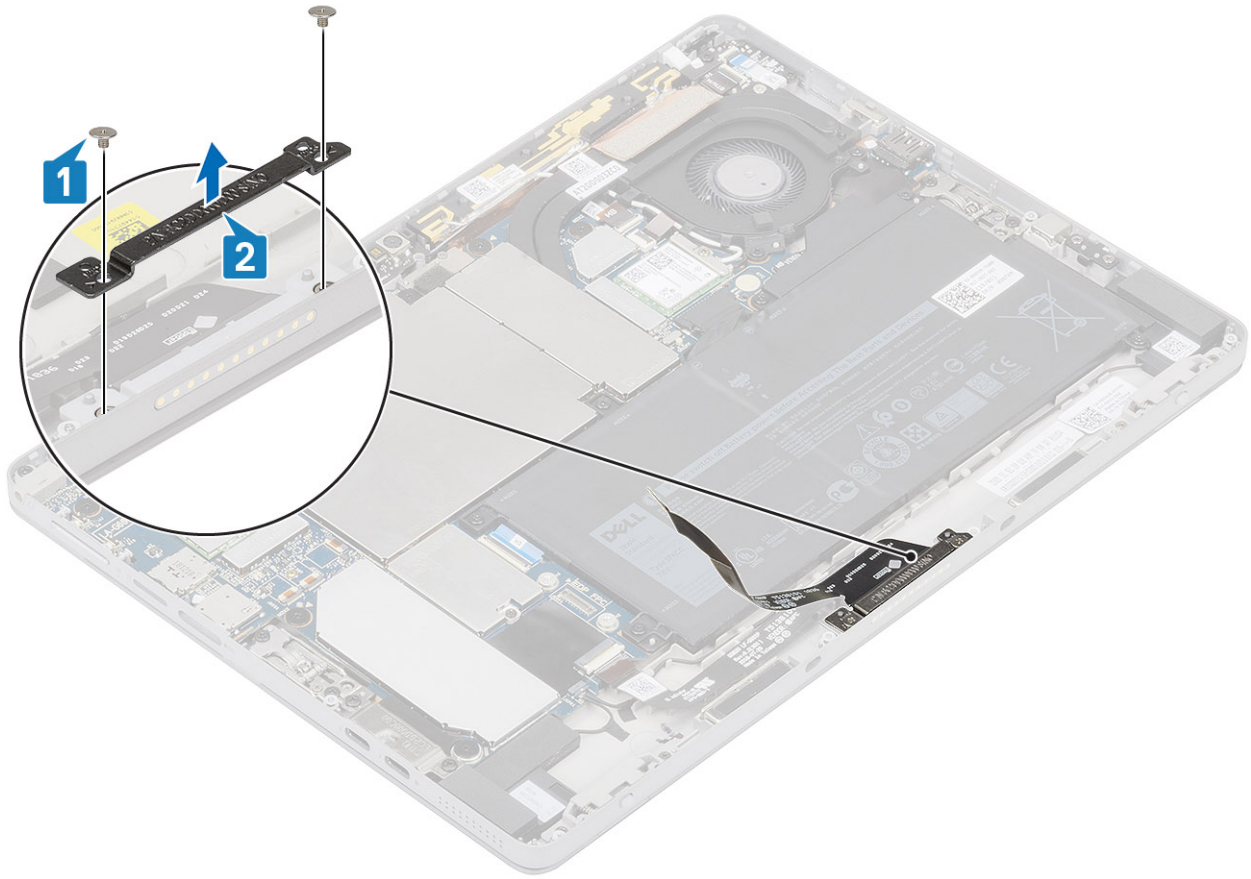
Removing the docking connector

Steps

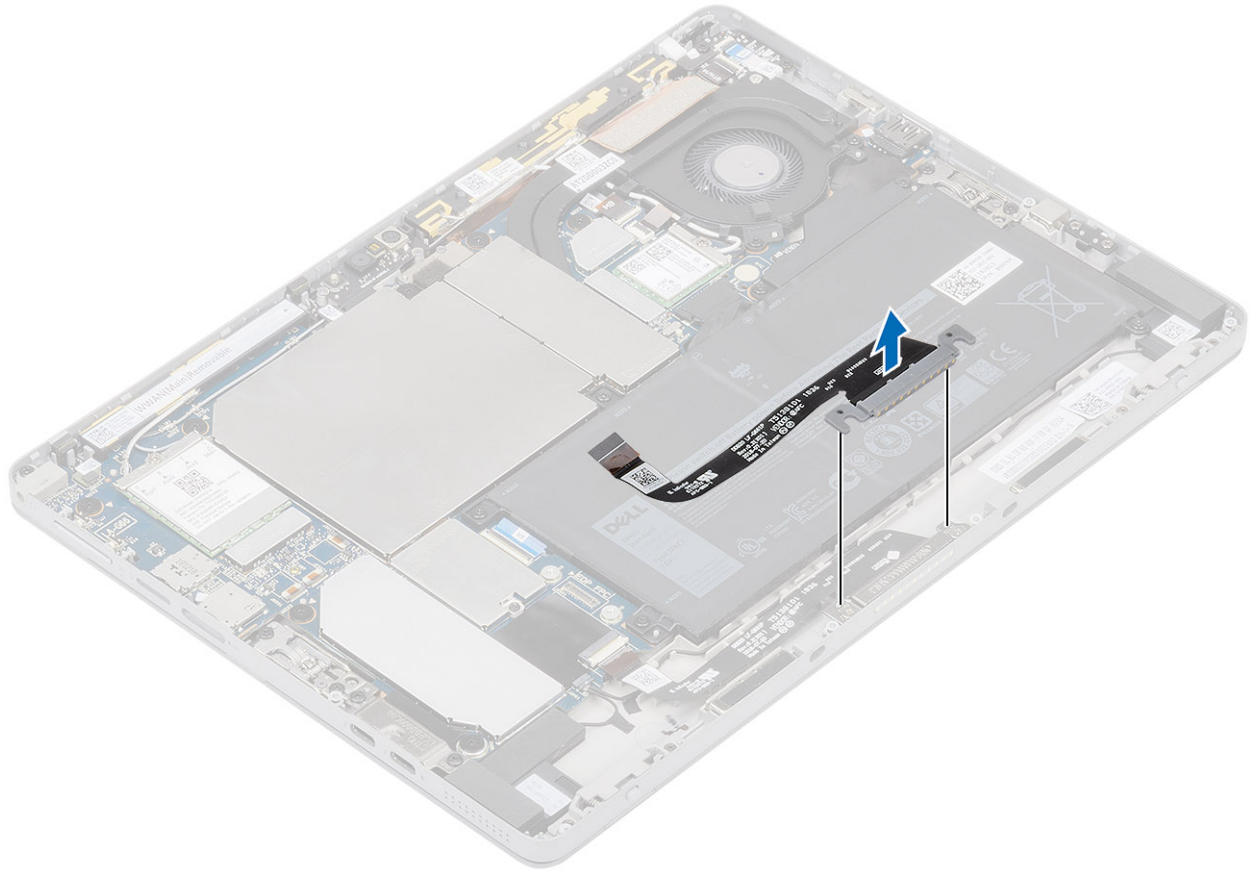
1. Follow the procedure in Before working inside your tablet.
2. Remove the:
   a. microSD card
   b. SIM card tray
   c. display panel assembly
3. To remove the docking connector:
   a. Open the latch and disconnect the docking connector FPC from the system board [1].
   b. Peel the docking connector FPC from the computer [2].



   c. Remove the M2x2.5 screws that secure the docking-board bracket to the docking board [1].
   d. Lift the docking-board bracket away from the docking board [2].



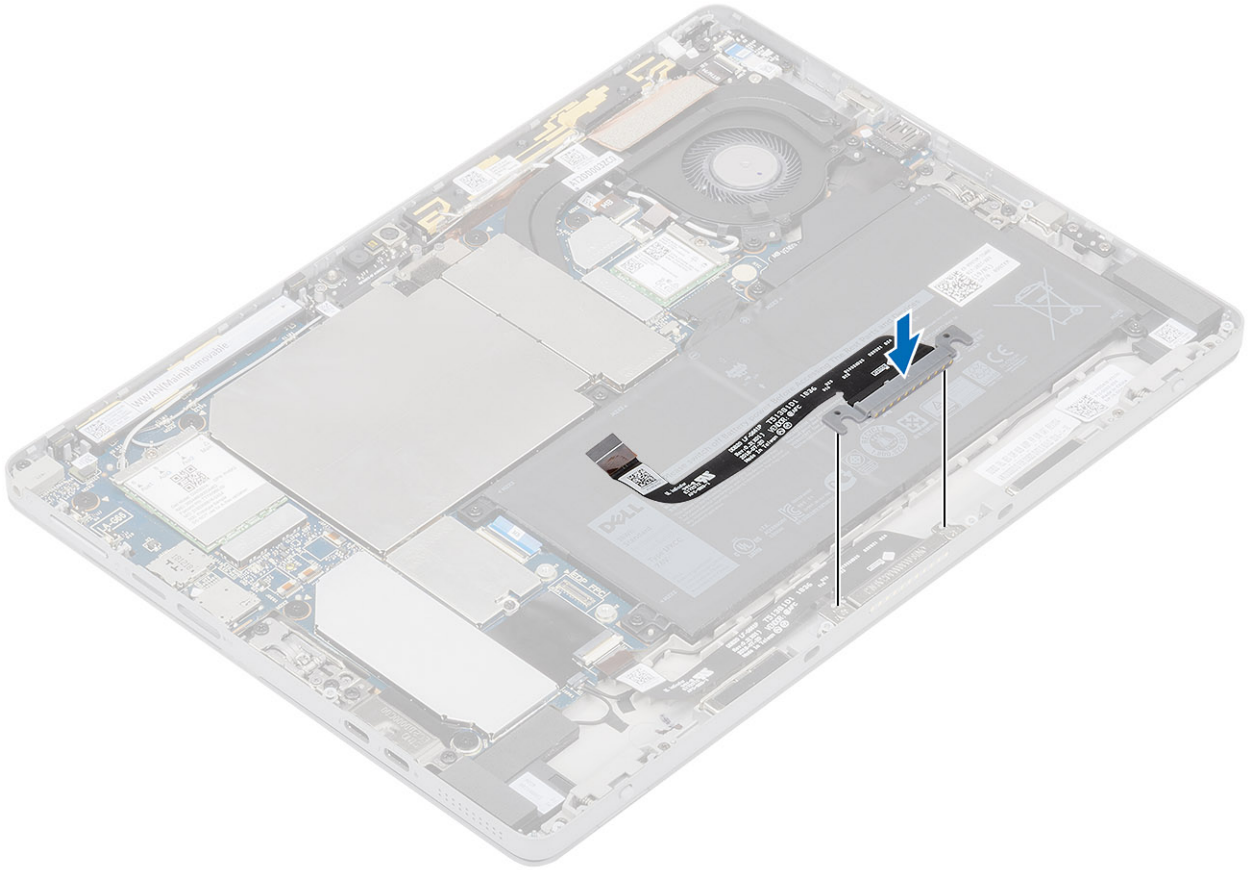
e. Remove the docking connector along with its FPC from the computer.



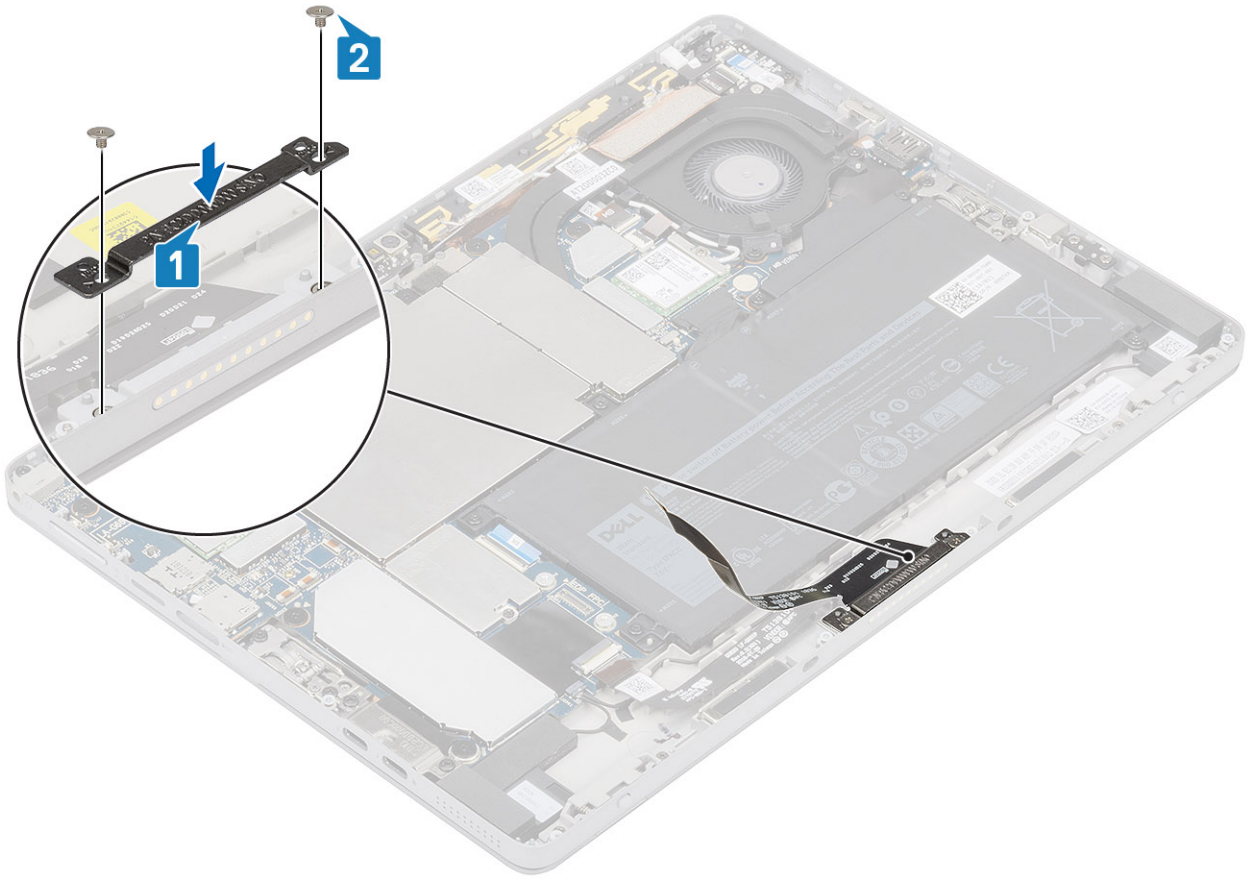
Installing the docking board

Steps

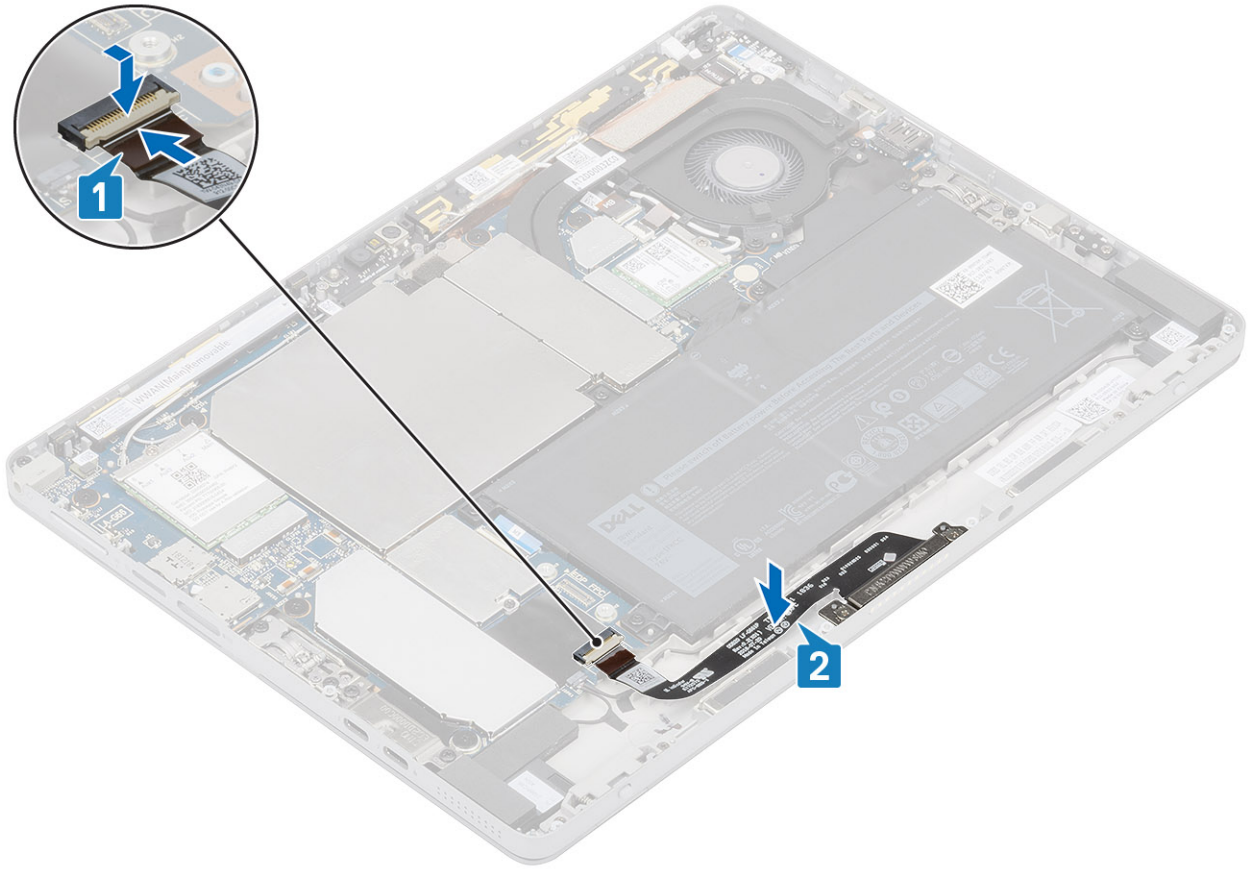
1. Align and place the docking board along with the FPC in the slot on the computer.



2. Align the screw holes on the docking-connector bracket with the screw holes on the docking board [1].
3. Replace the M2x2 screws to secure the docking-connector bracket to the docking board [2].



4. Connect the docking board cable to the connector on the system board [1].
5. Adhere the docking-board cable to the computer [2].



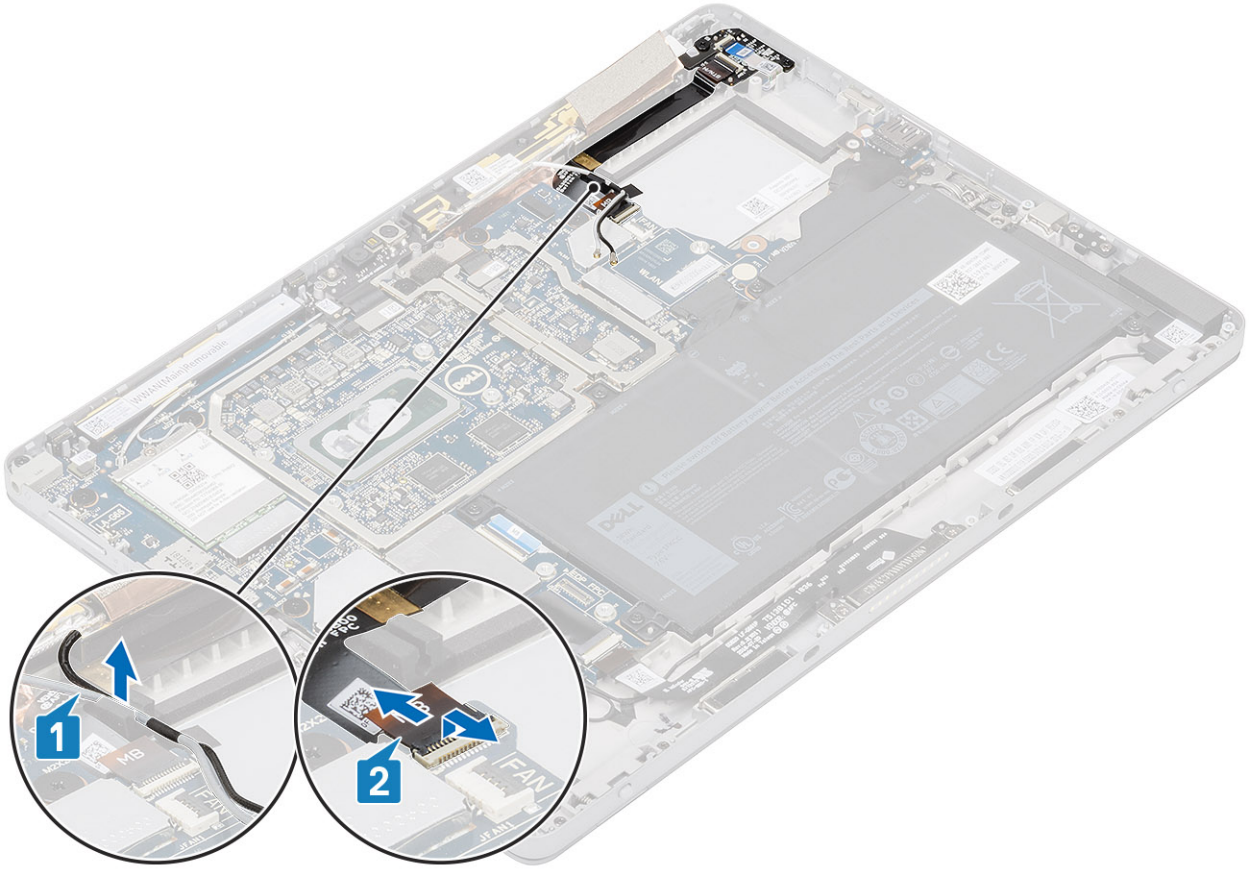
6. Replace the:
   a. display panel assembly
   b. microSD card
   c. SIM card tray
7. Follow the procedure in After working inside your tablet.

Power Button Board

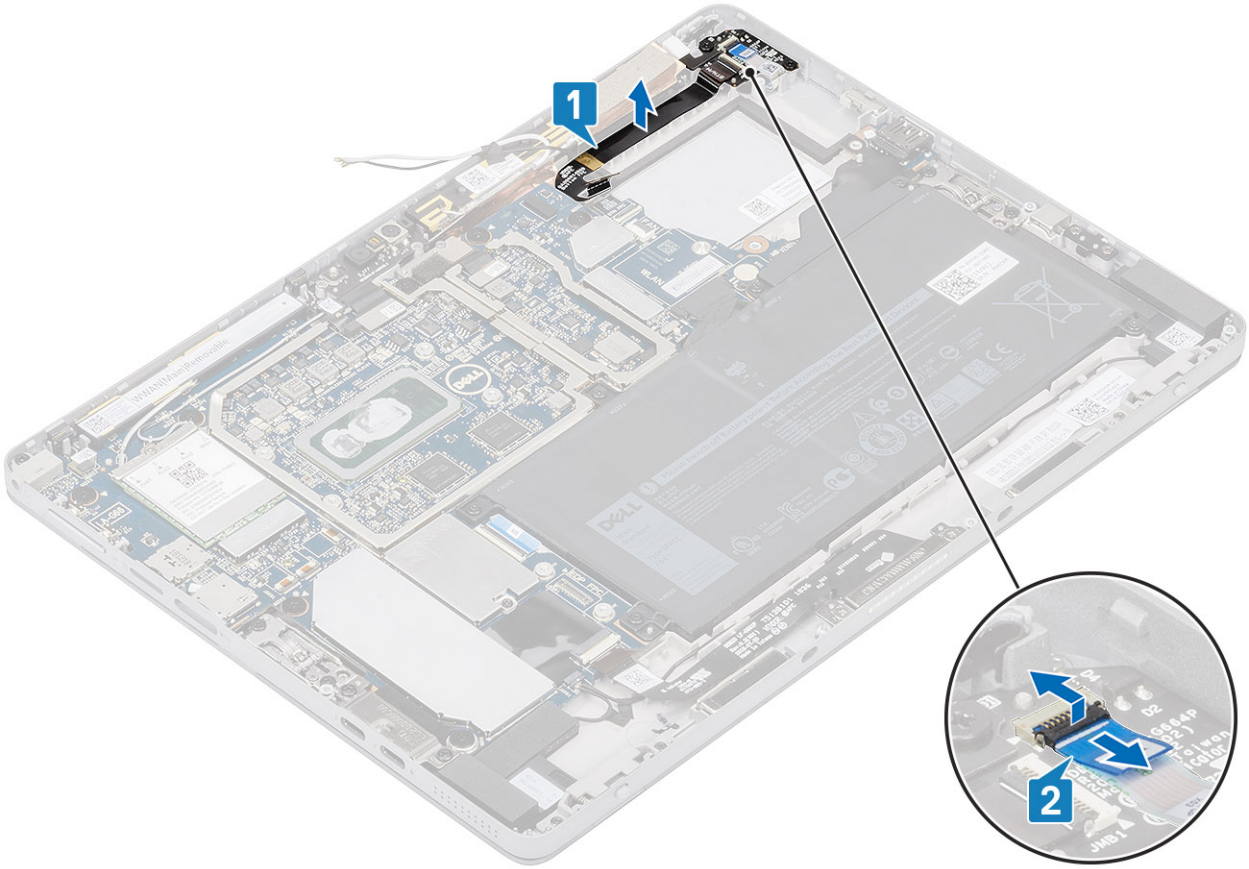
Removing the power-button board

Steps

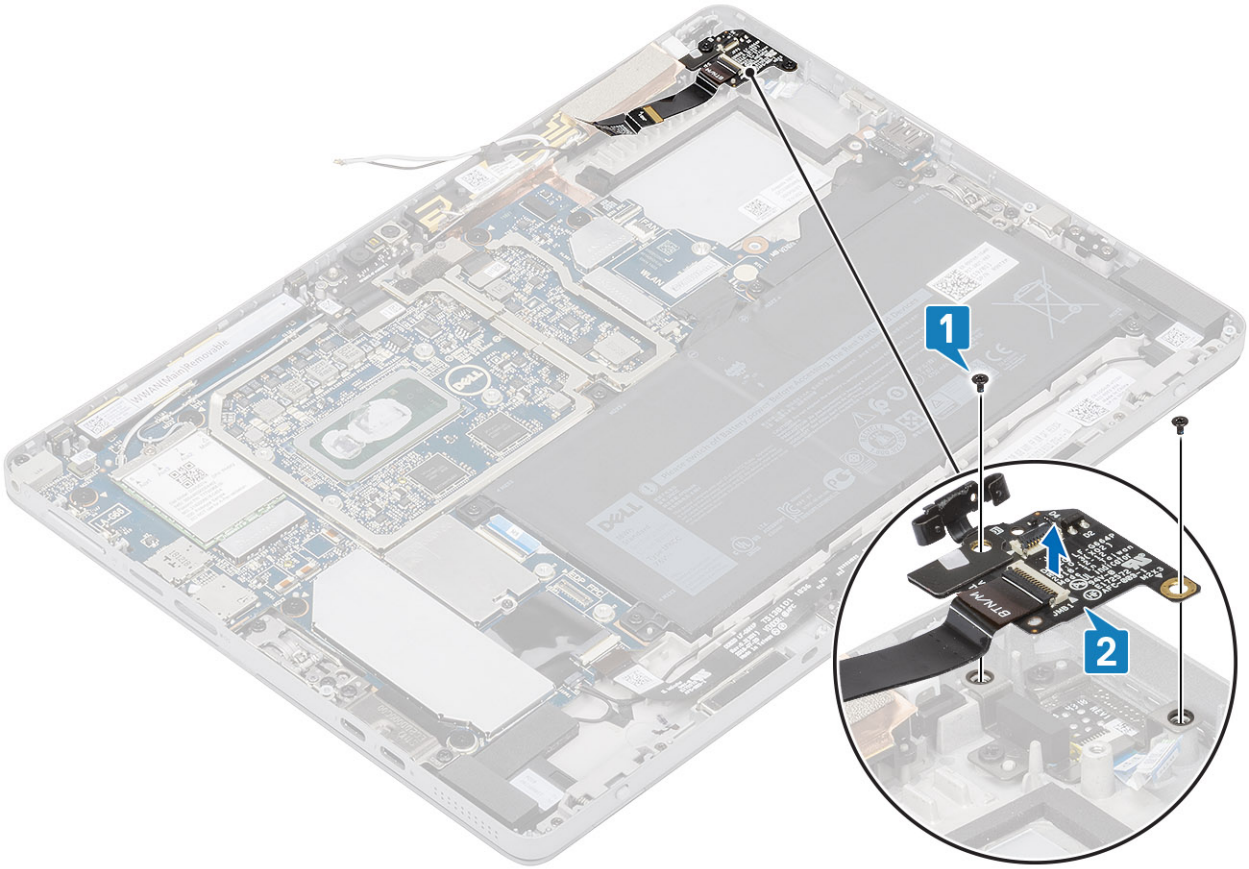
1. Follow the procedure in Before working inside your tablet.
2. Remove the:
   a. microSD card
   b. SIM card tray
   c. display panel assembly
   d. heat-sink assembly
3. Unroute the WLAN antenna cables from the routing guides on the computer [1].
4. Open the latch and disconnect the power-button board FPC from the connector on the system board [2].



5. Peel the power-button board FPC from the computer [1].
6. Open the latch and disconnect the fingerprint reader FFC from the power-button board [2].



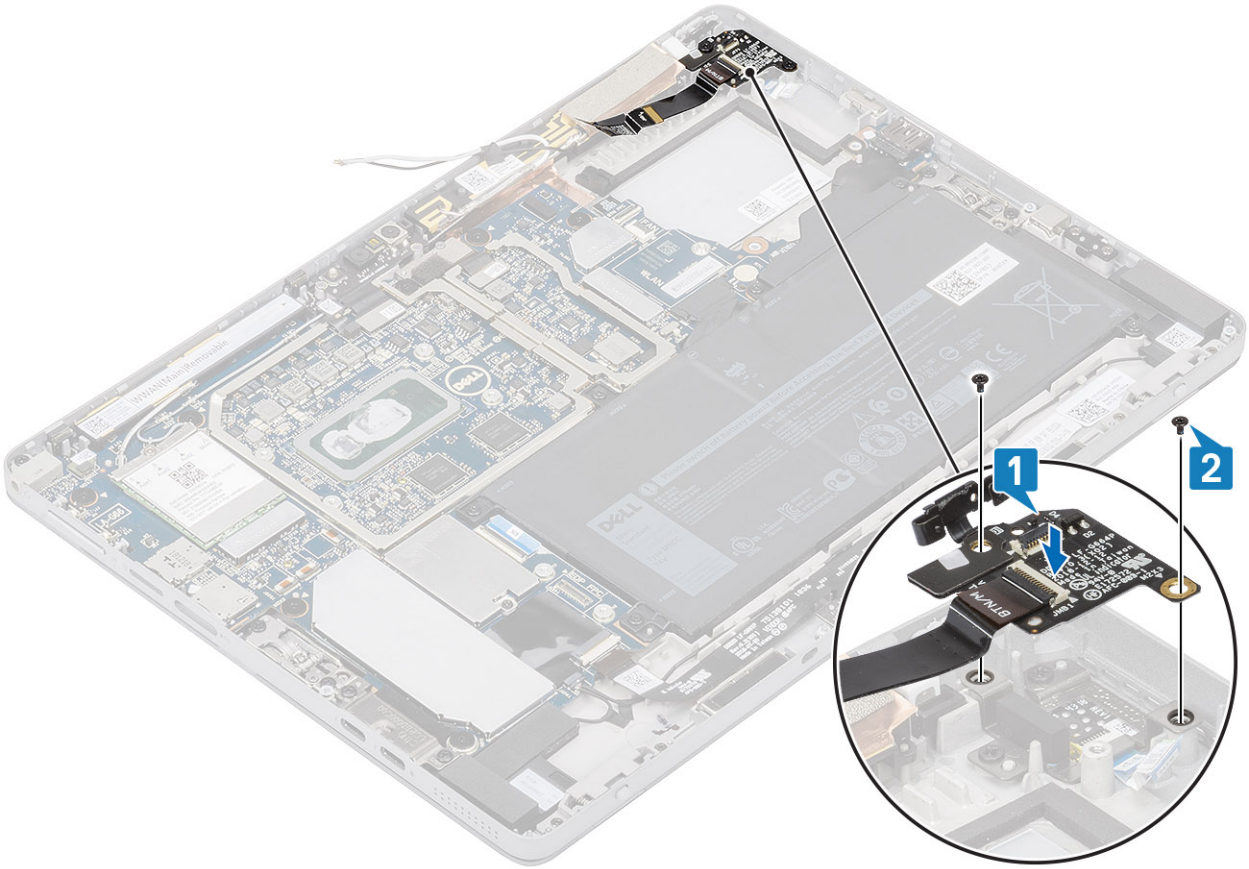
7. Remove the two M2x3 screws that secure the power-button board to the computer [1].
8. Using a plastic scribe, pry the power-button sensor at the top edge of the power-button board out of its compartment.
9. Remove the power-button board along with its FPC from the computer [2].



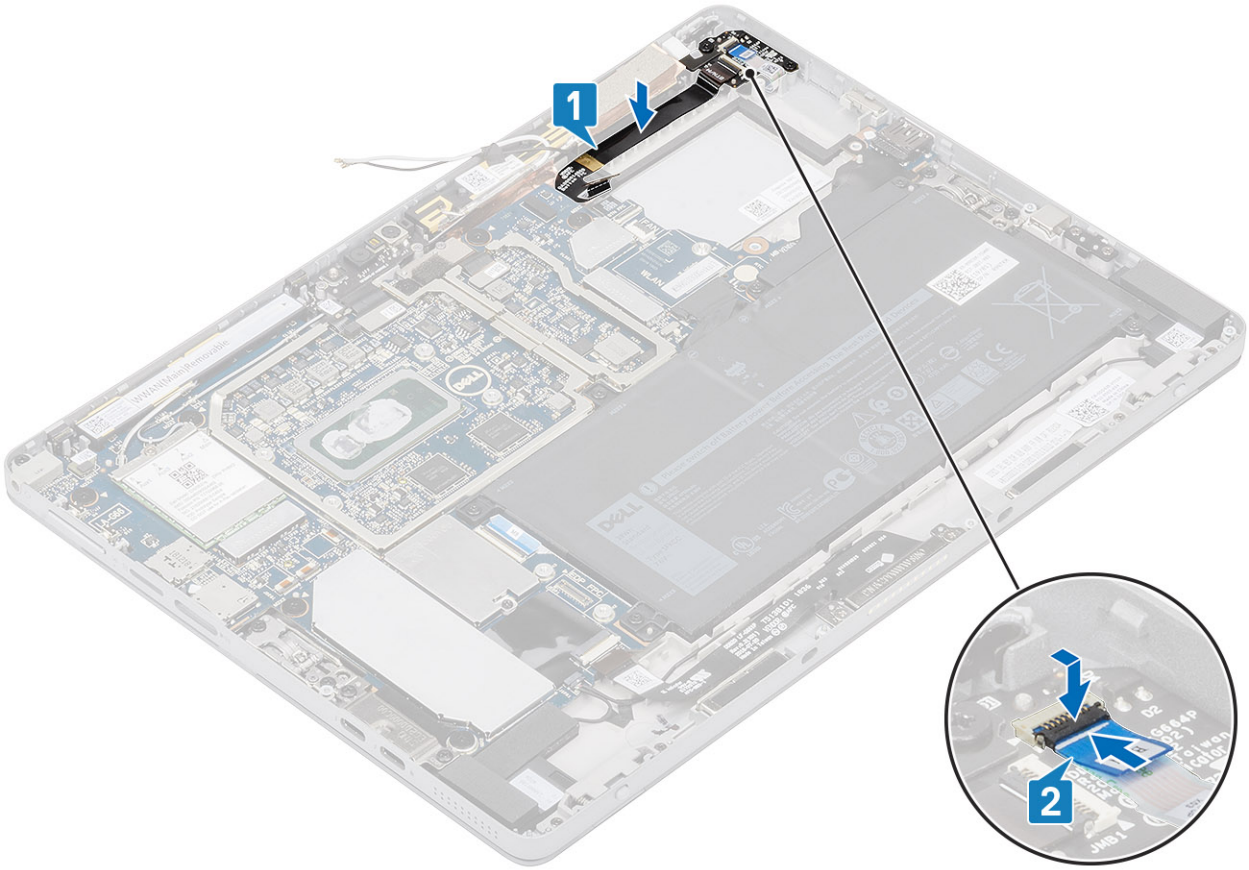
Installing the power-button board

Steps

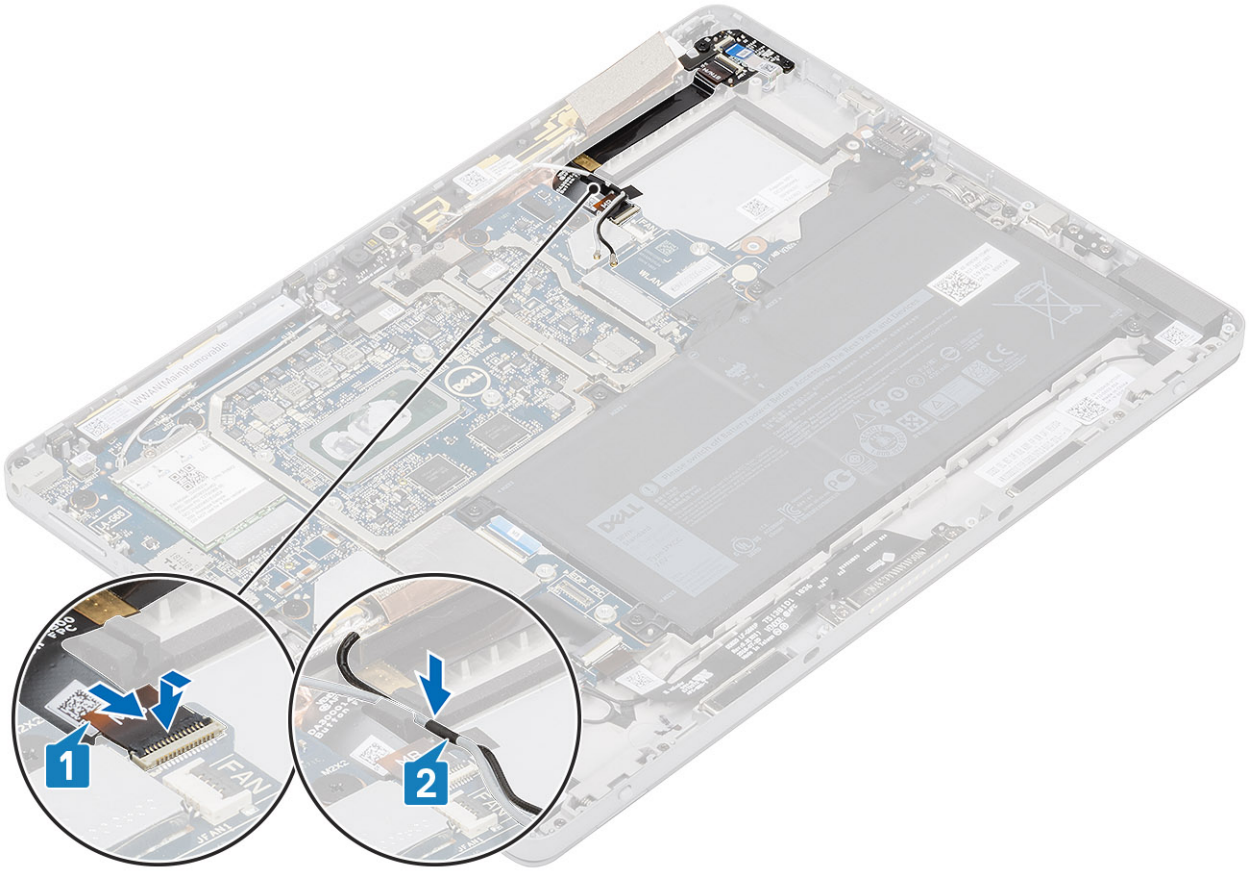
1. Align and place the power-button board along with its FPC in the slot on the computer [1].
2. Replace the two M2x2.5 screws to secure the power-button board to the computer [2].



3. Adhere the power-button board FPC to the computer [1].
4. Connect the fingerprint reader FFC to the connector on the power-button board [2].



5. Connect the power-button board FPC to the connector on the system board [1].
6. Route the WLAN antenna cables through the routing guides on the computer [2].



7. Replace the:
   a. heat-sink assembly
   b. display panel assembly
   c. SIM card tray
   d. microSD card
8. Follow the procedure in After working inside your tablet.

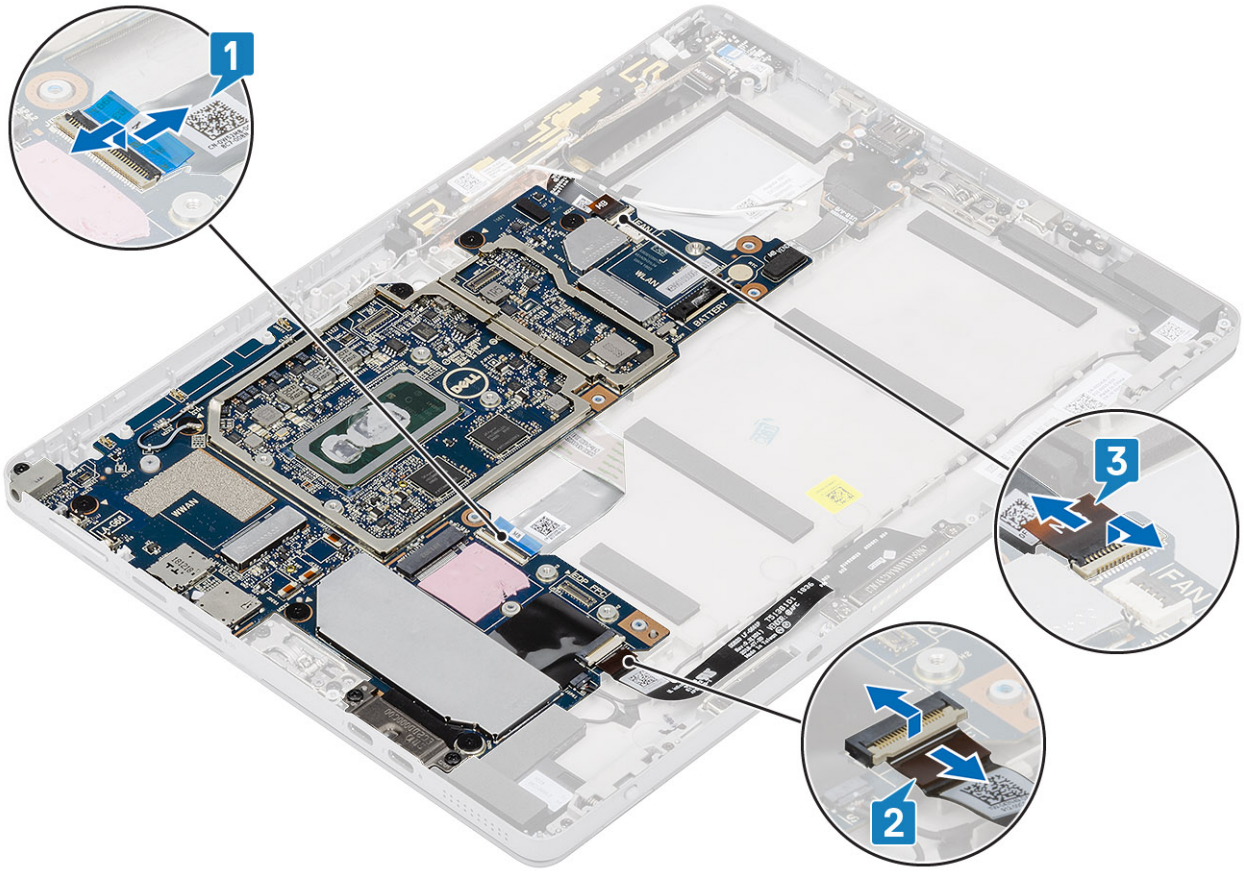
System Board

Removing system board

Steps

1. Follow the procedure in Before working inside your tablet.
2. Remove the:
   a. microSD card
   b. SIM card tray
   c. battery
   d. display panel assembly
   e. M.2 2230 SSD
   f. WWAN card
   g. Rear-facing Camera
   h. Heat-sink assembly
   i. WWAN main antenna module
3. Disconnect the following cables from the system board .

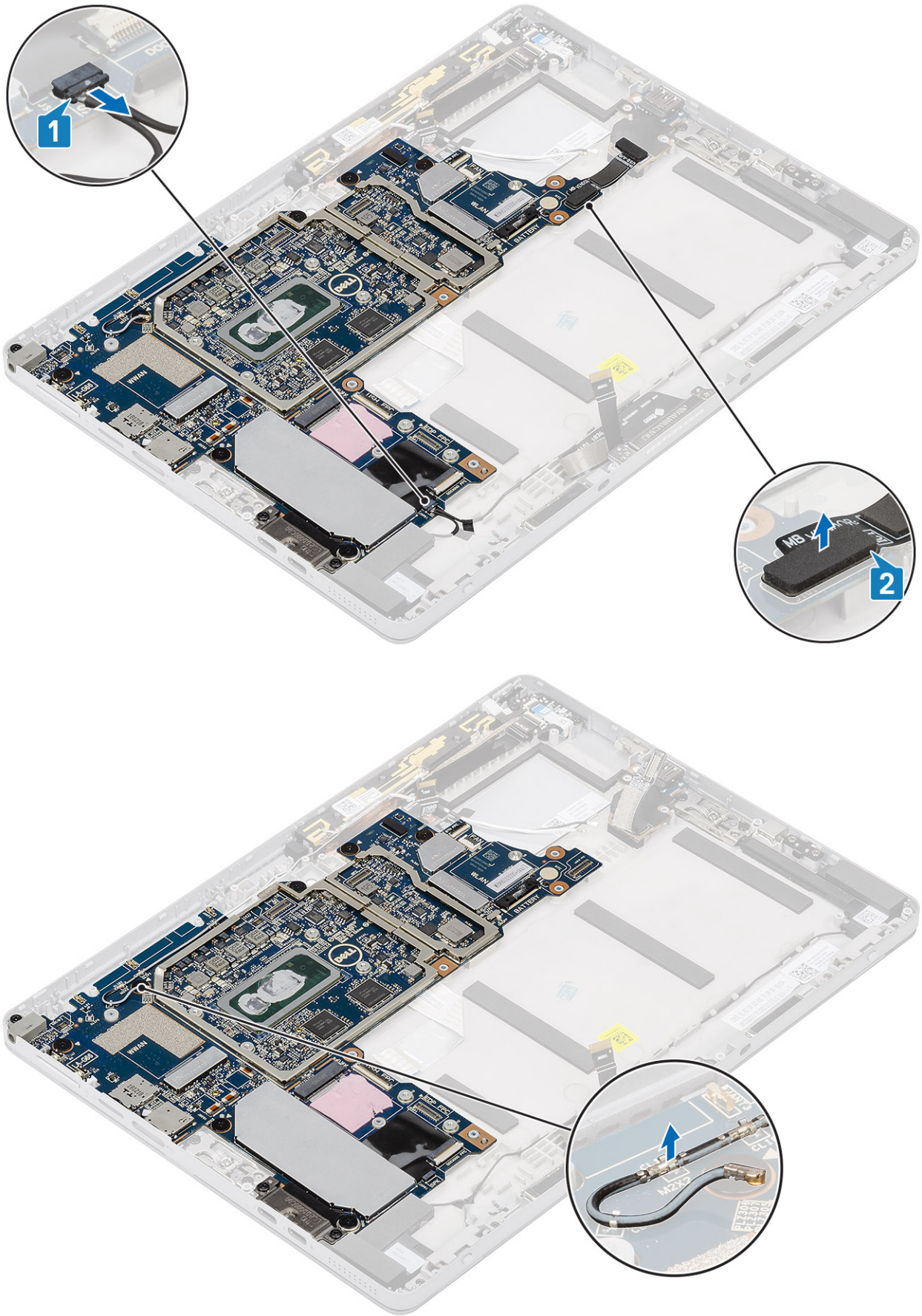
a. Push the release latch of on the SIM card cage inward to release



the
dummy SIM card tray.

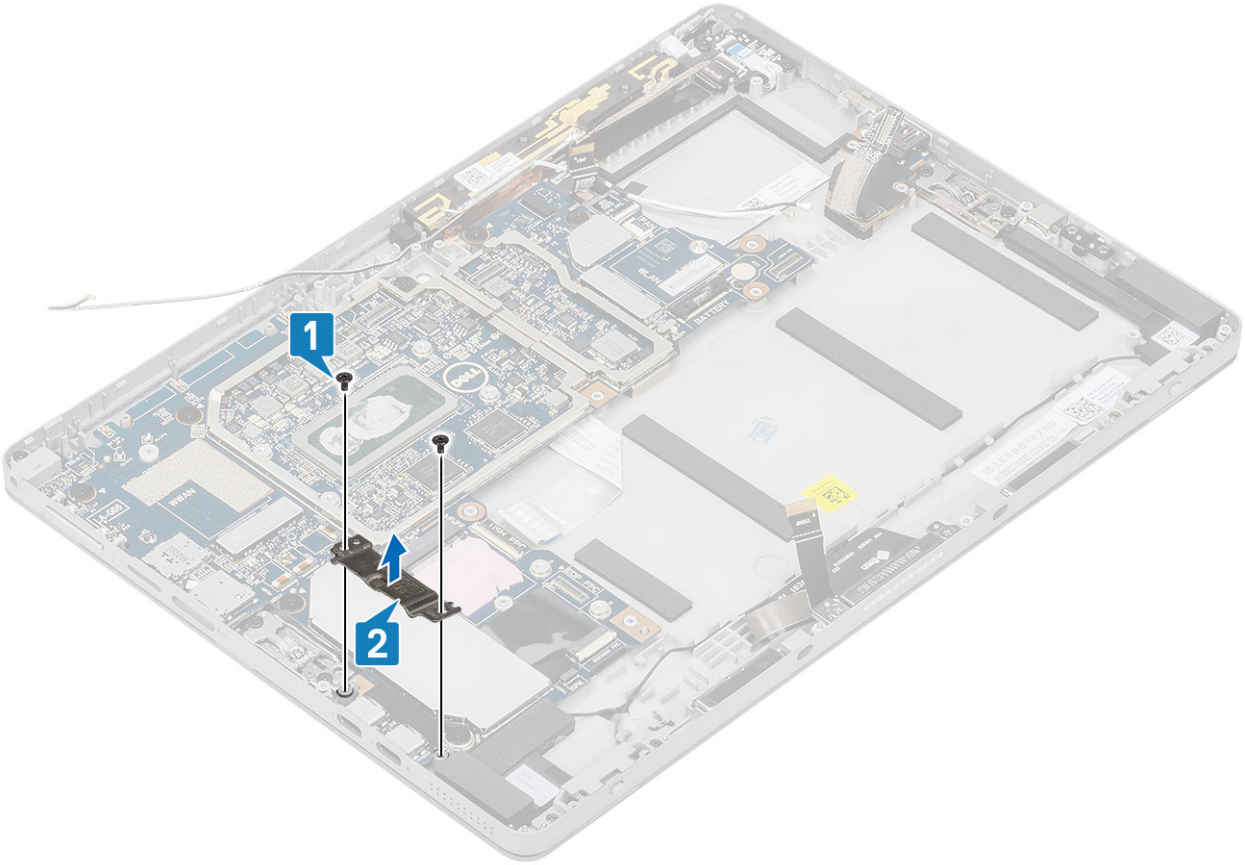
b. Remove the dummy SIM card tray.
c. Disconnect the power button daughter board FPC, USB daughter board FPC, USH FFC (that are shipped with a USH module), docking connector FPC, and a speaker cable.

4. Un-route the antenna cables from the routing clips .

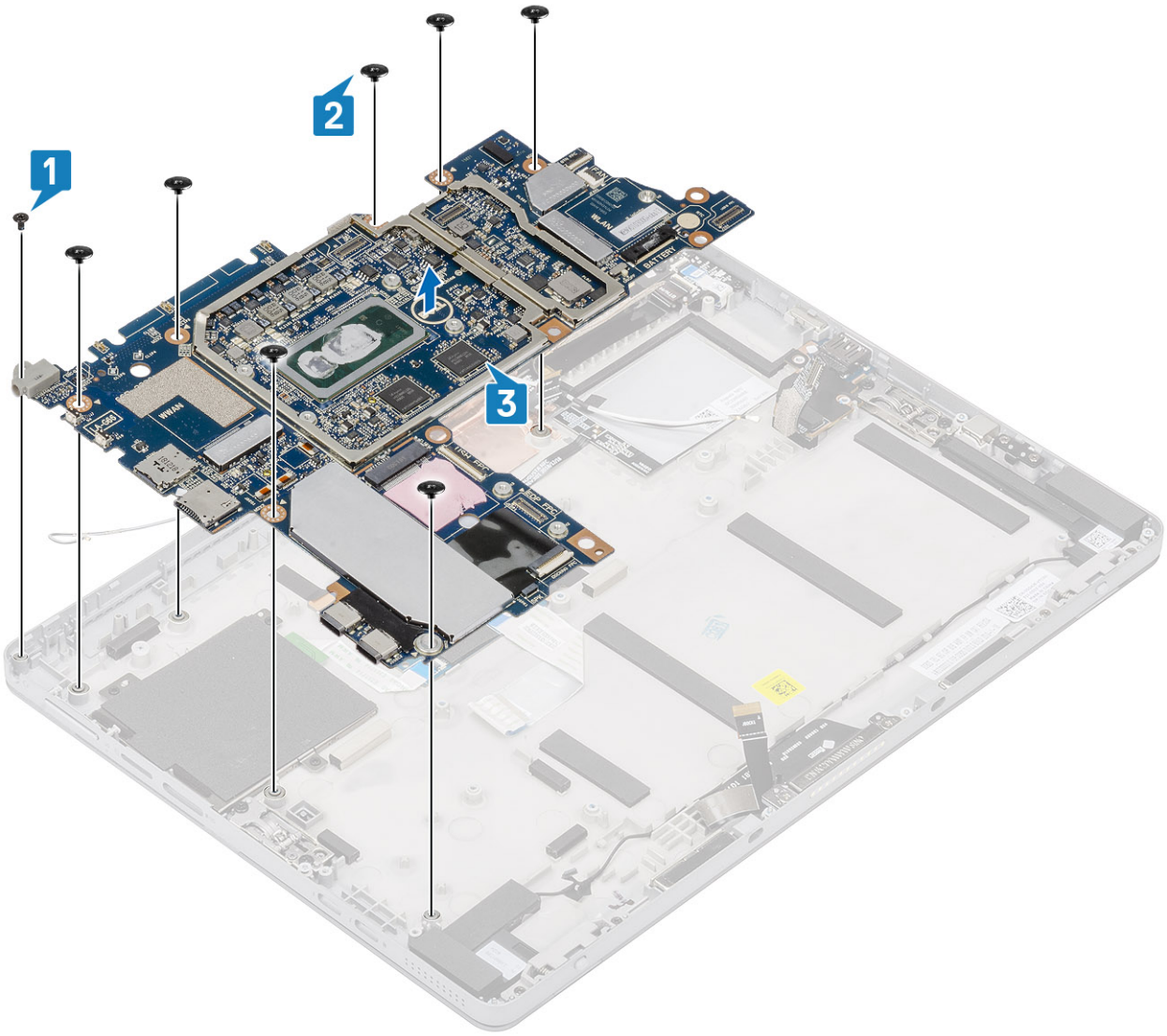


5. To remove the system board
   a. Remove the two bracket M2 x3 screws securing the Type-C USB bracket in place.

b. Remove the Type-C USB bracket.
c. Remove the single M2 x 3 screw securing the audio jack in place.



d. Remove the seven M2 x 2 screws securing the system board in place



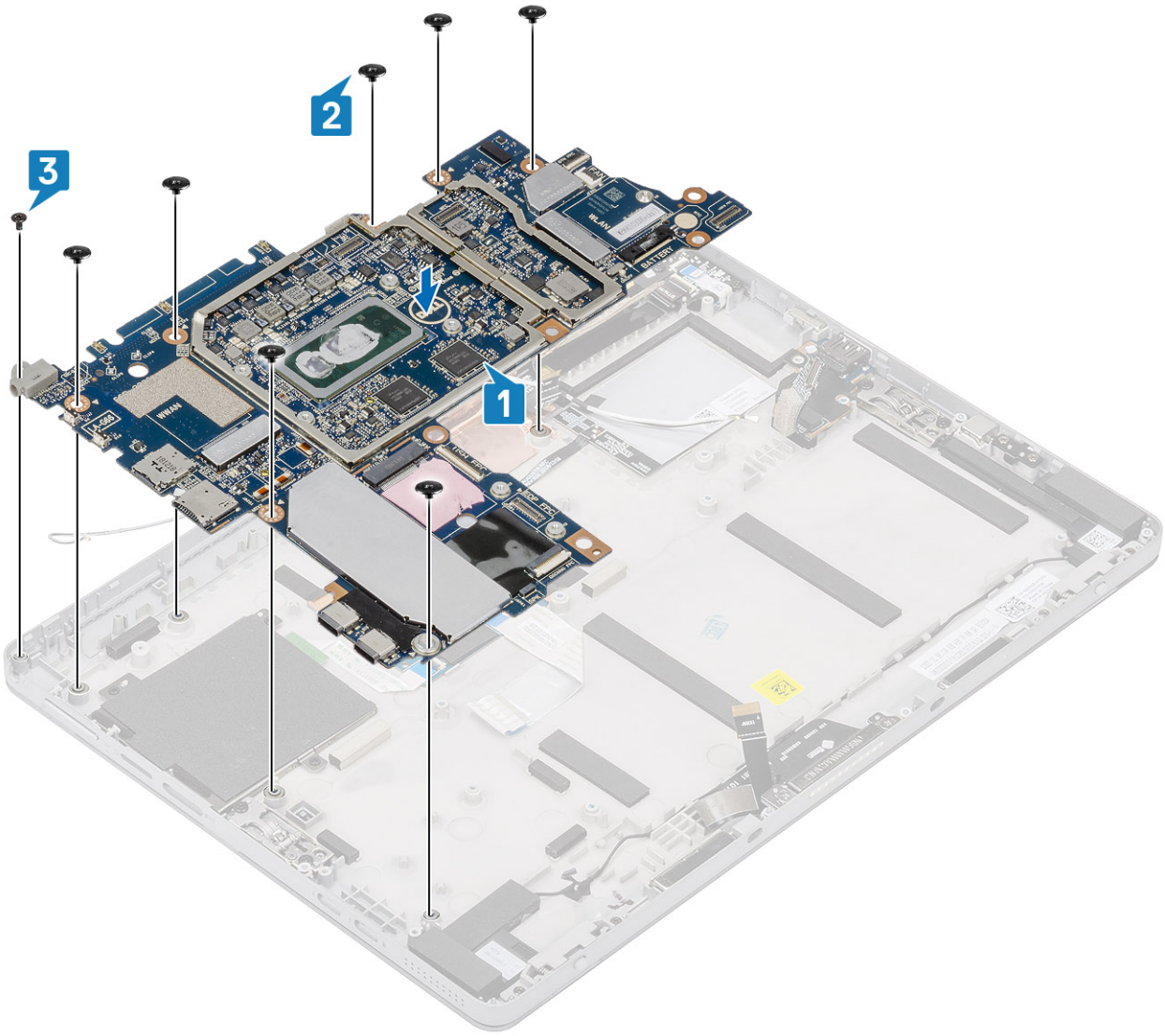
e. Lift the system board from the tablet [2].

Installing system board

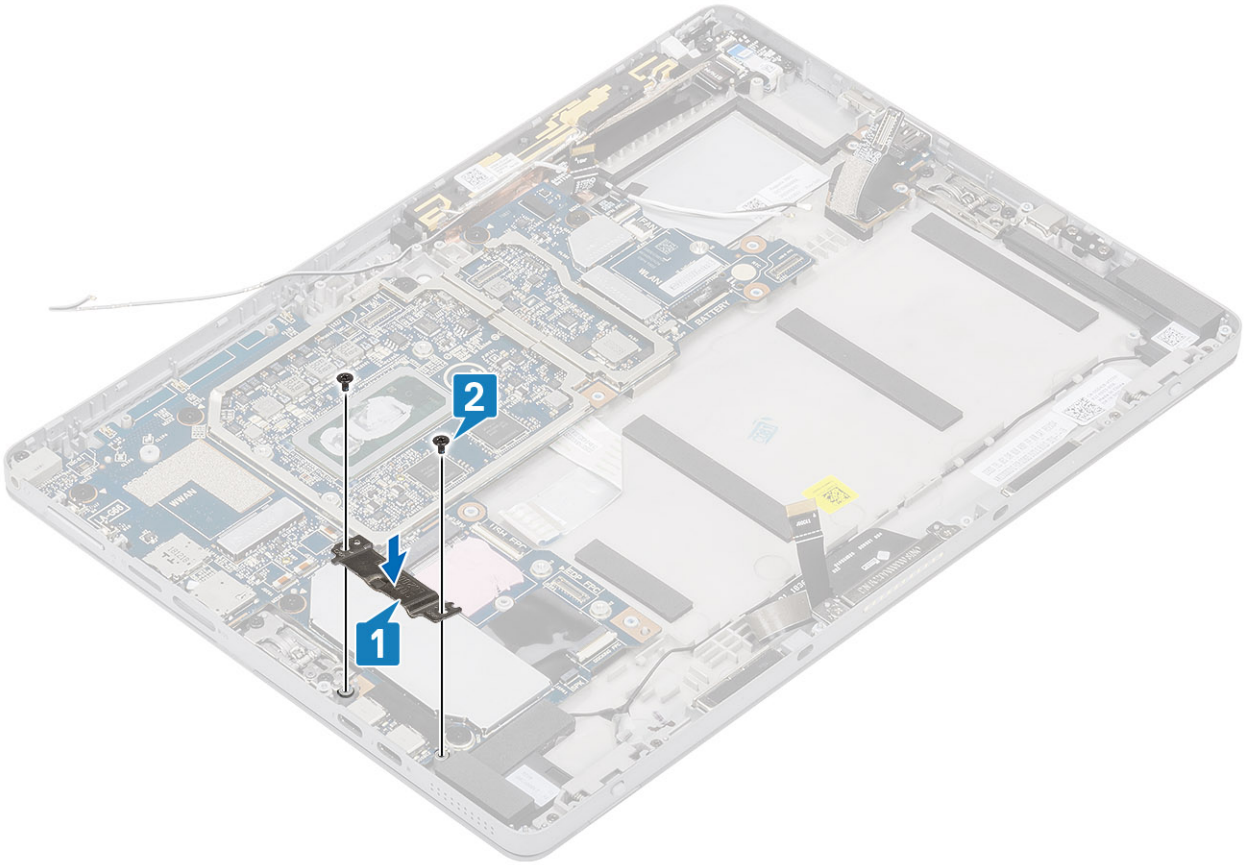
Steps

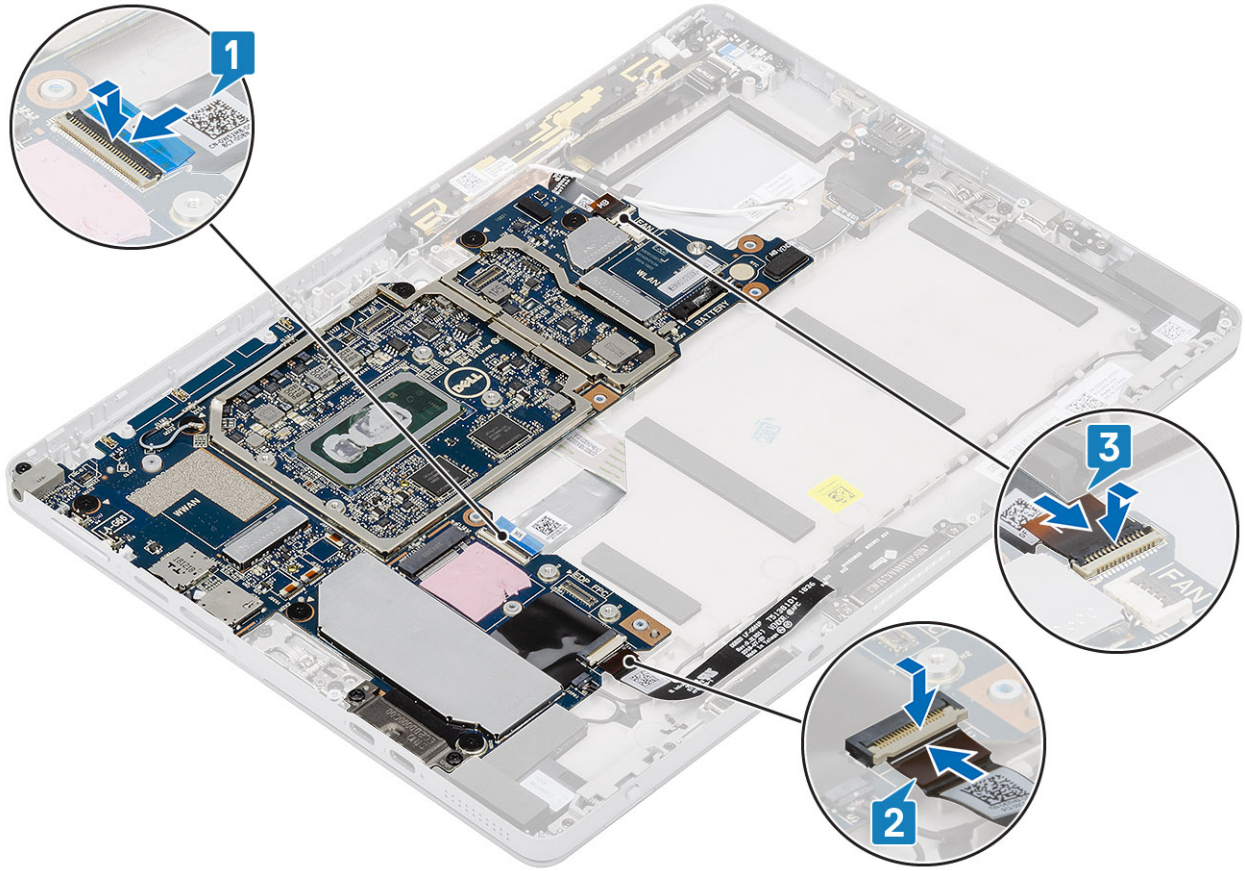
1. Align the system board with the screw holders on the tablet.
2. Tighten the seven M2 x2 screws to secure the system board to the tablet.

NOTE: Remember to align the Type-C port and tighten the two screws to secure the port to the system chassis.



3. Tighten the single M2 x 3 screw securing the audio jack in place and place the USB Type-C bracket.
4. Tighten the two bracket M2 x3 screws securing the Type-C USB bracket in place.





5. Replace the:
   a. WWAN main antenna module

b. Heat-sink assembly
c. Rear-facing camera
d. display panel
e. microSD card
f. SIM card tray
g. battery

6. Follow the procedure in after working inside your tablet.

I/O Board

Removing I/O board

Steps

1. Follow the procedure in Before working inside your tablet.
2. Remove the SD Memory Card and display panel.
3. Remove the cable from the system board, and peel off the adhesive tape to remove the I/O board

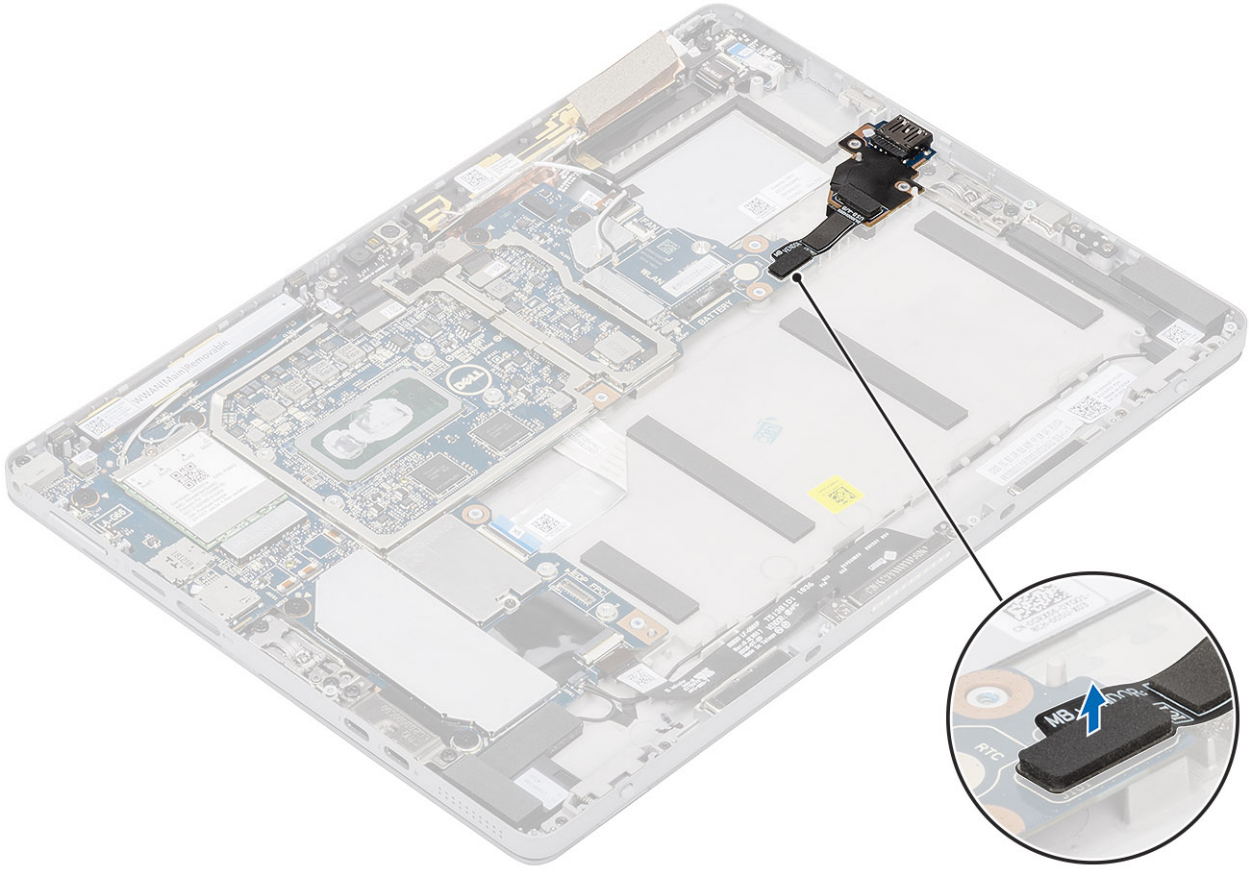


Figure 1. Removing the cable

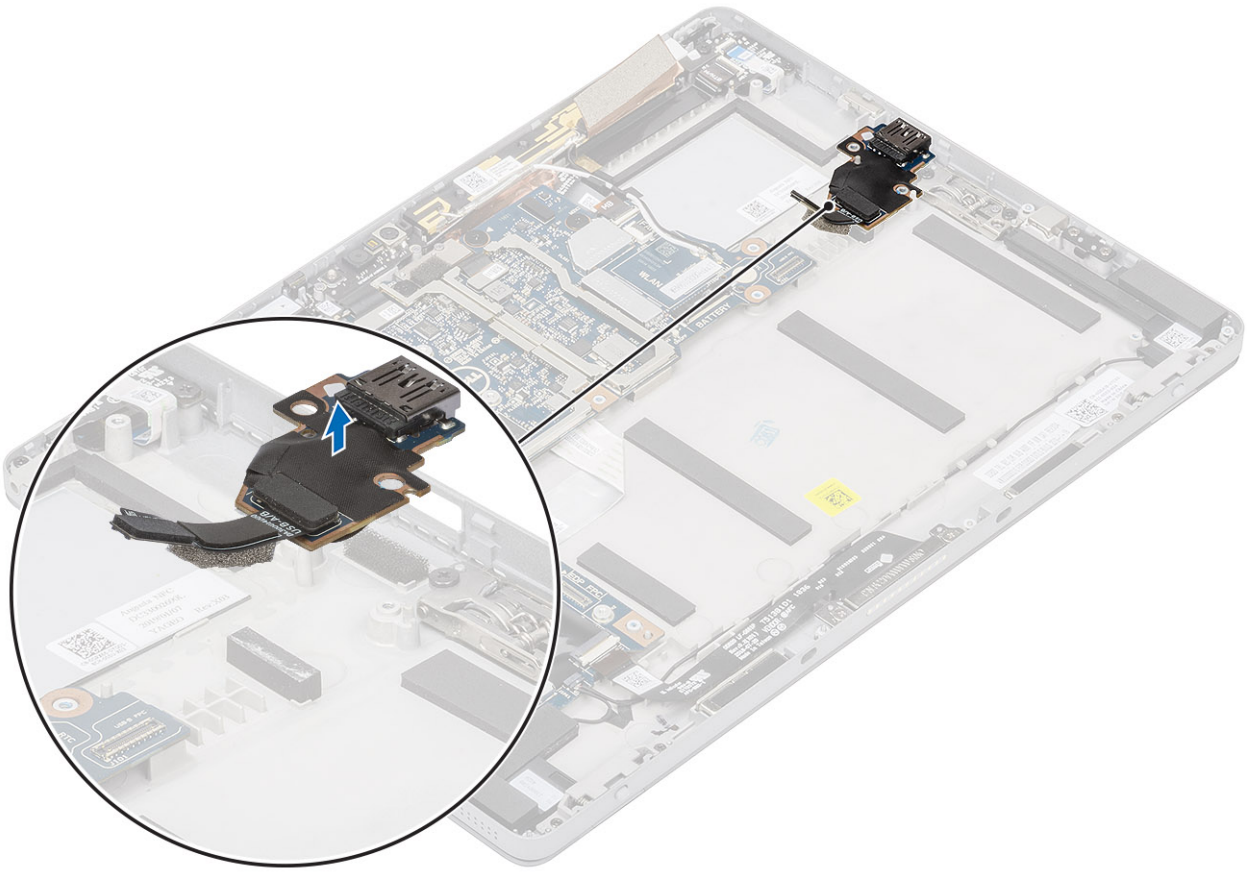


Figure 2. Peel off the adhesive tape

Installing I/O board

Steps

1. Follow the procedure in Before working inside your tablet.
2. Remove the SD Memory Card and display panel.
3. Fix the adhesive tape and Install the cable with the I/O board to the system board.

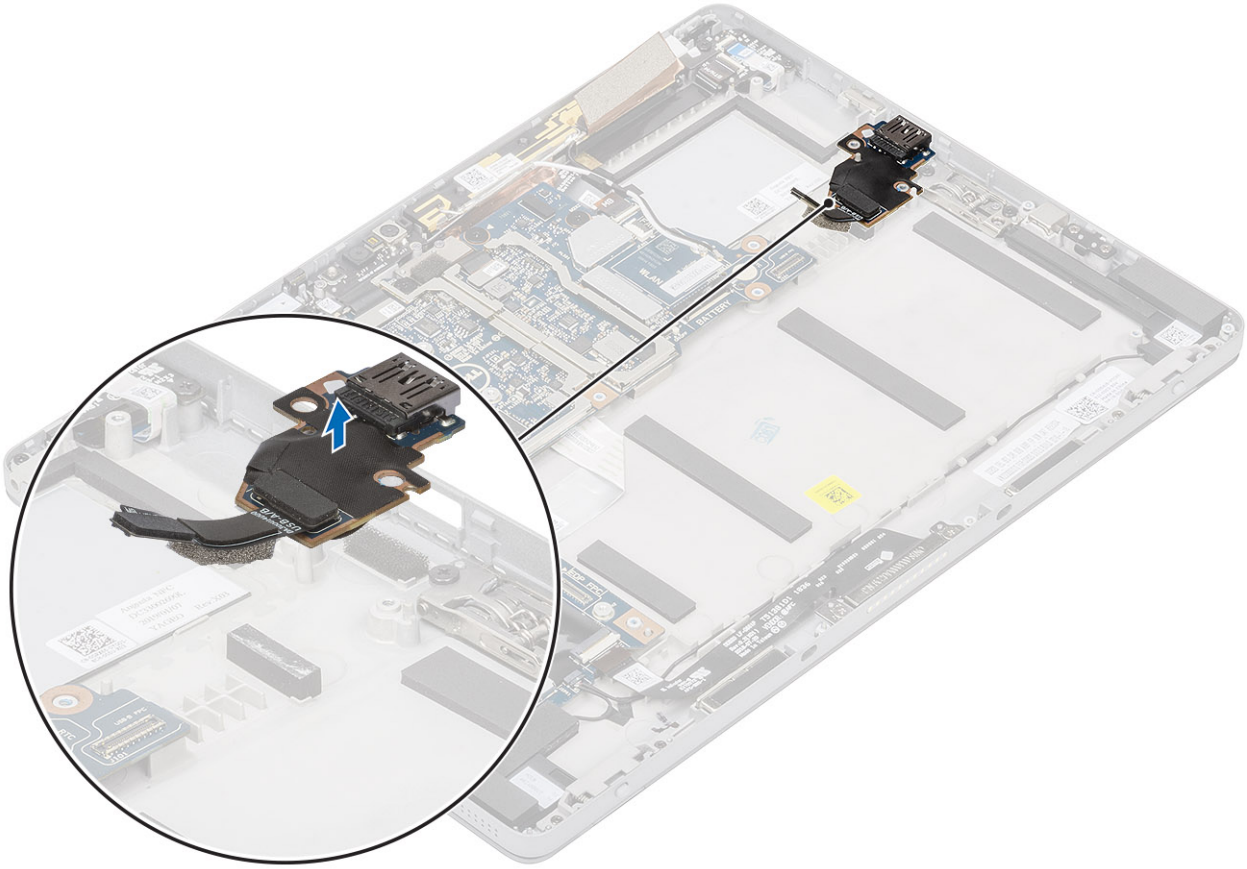


Figure 3. Fix the adhesive tape

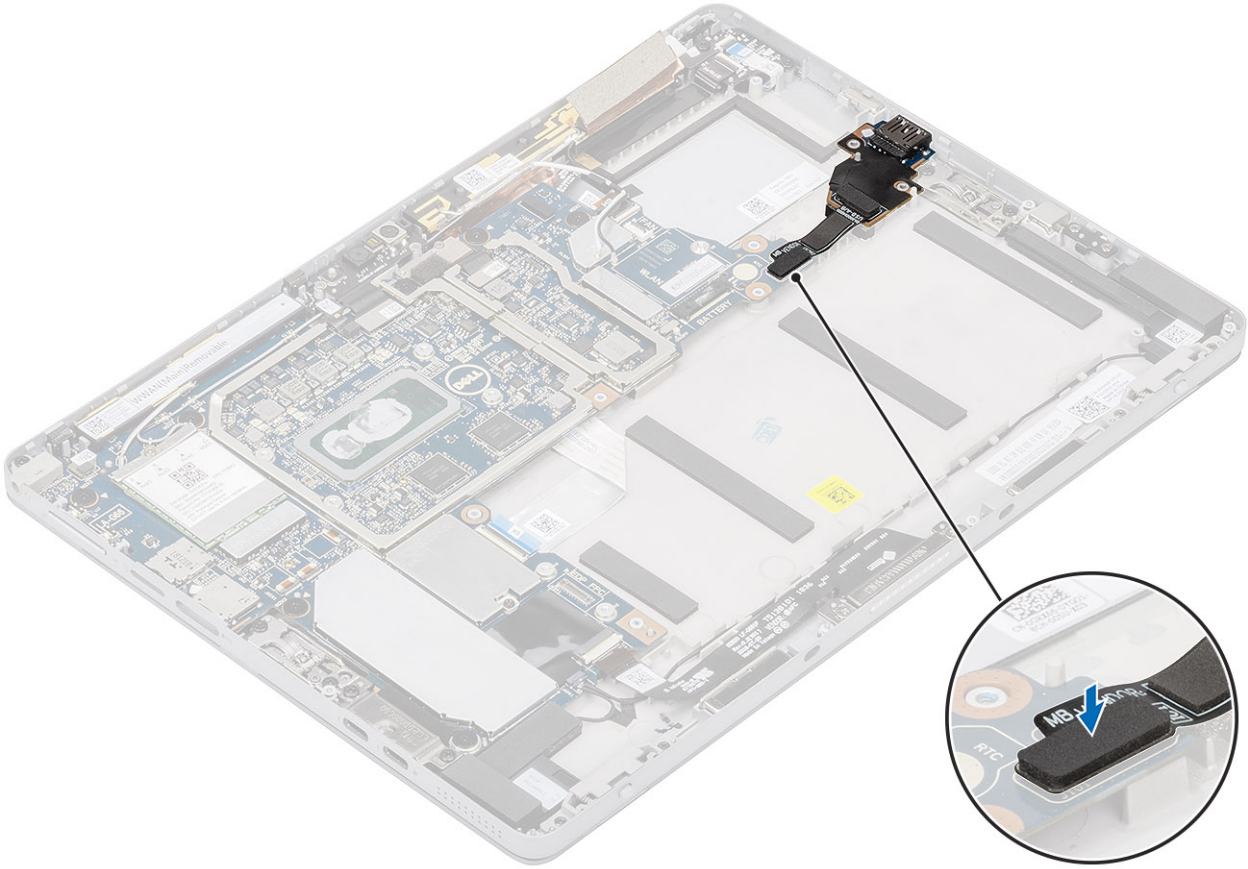


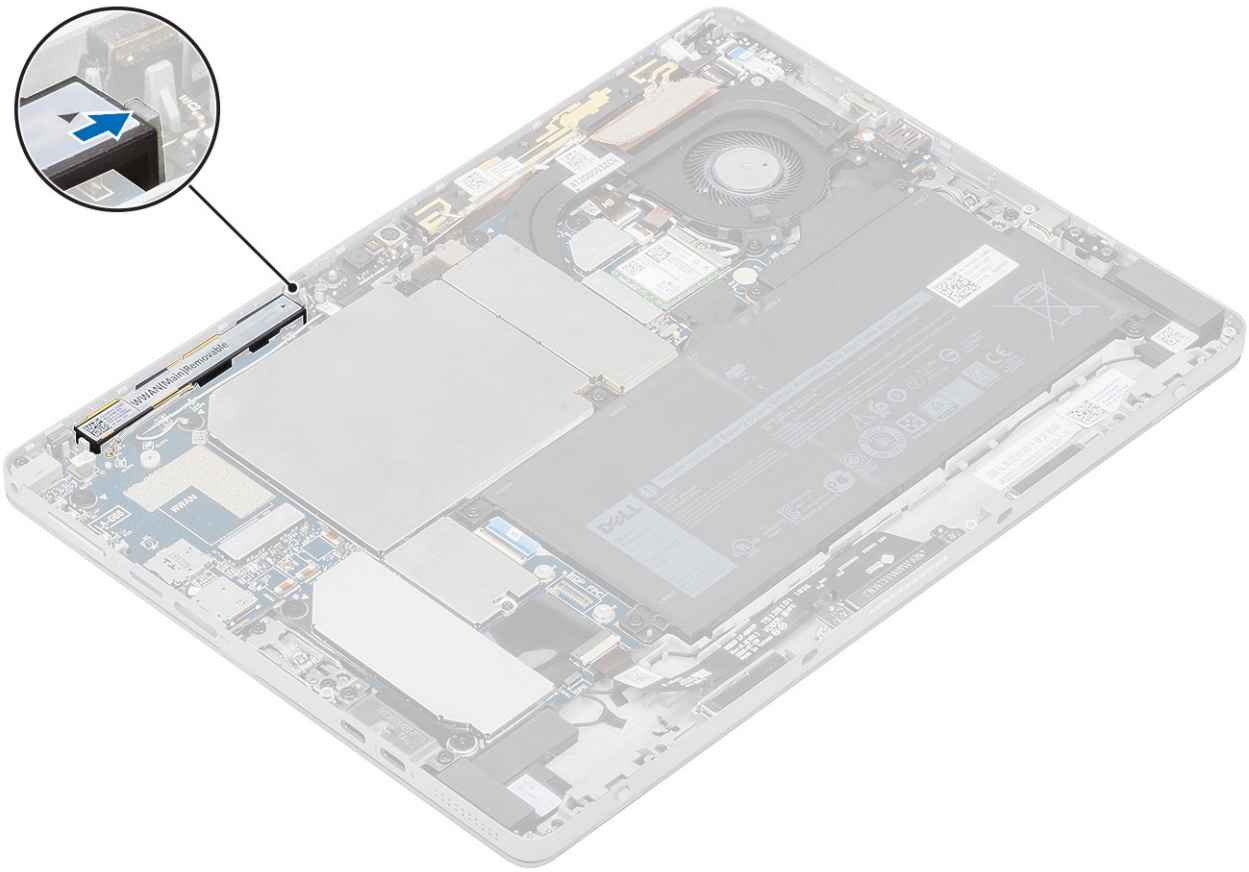
Figure 4. Fix the I/O module

WWAN Antenna

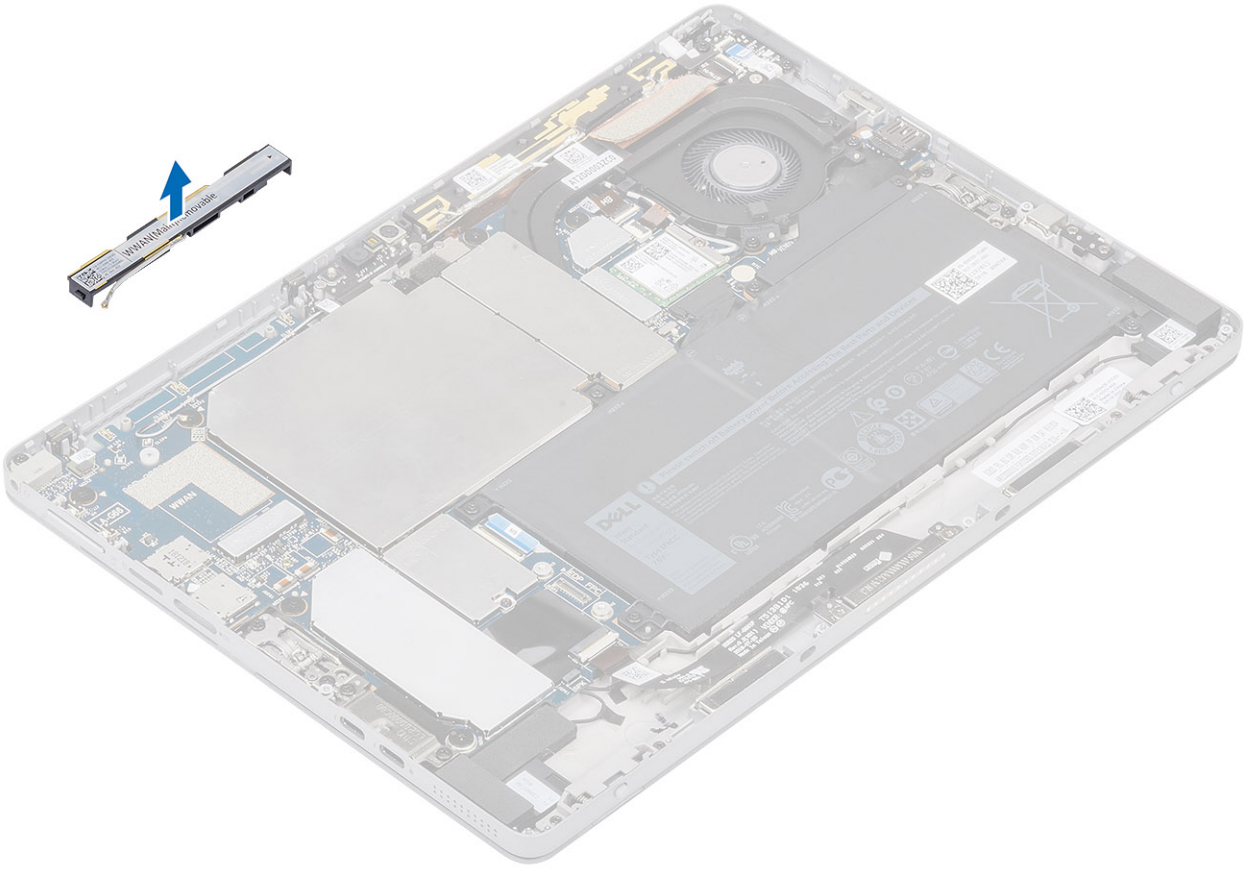
Removing the WWAN antenna module

Steps

1. Follow the procedure in Before working inside your tablet.
2. Remove the:
   a. microSD card
   b. SIM card tray
   c. display panel assembly
3. To remove the antenna module:
   a. Unroute the WWAN antenna cables from the system board.
   b. Release the clips on the left and right side of the WWAN main antenna module securing it to the computer.



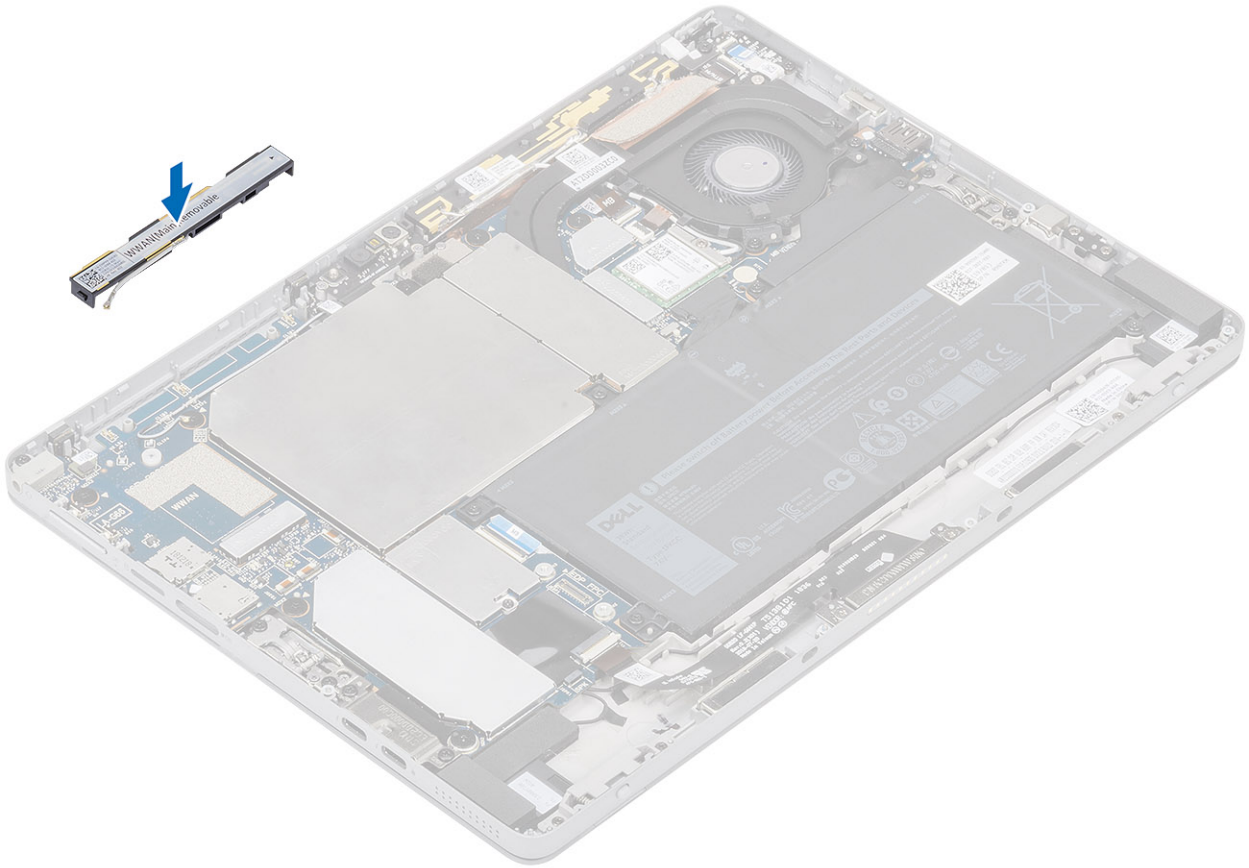
c. Flip over the WWAN main antenna module to release it from the system board.
d. Remove the WWAN main antenna module from the computer.



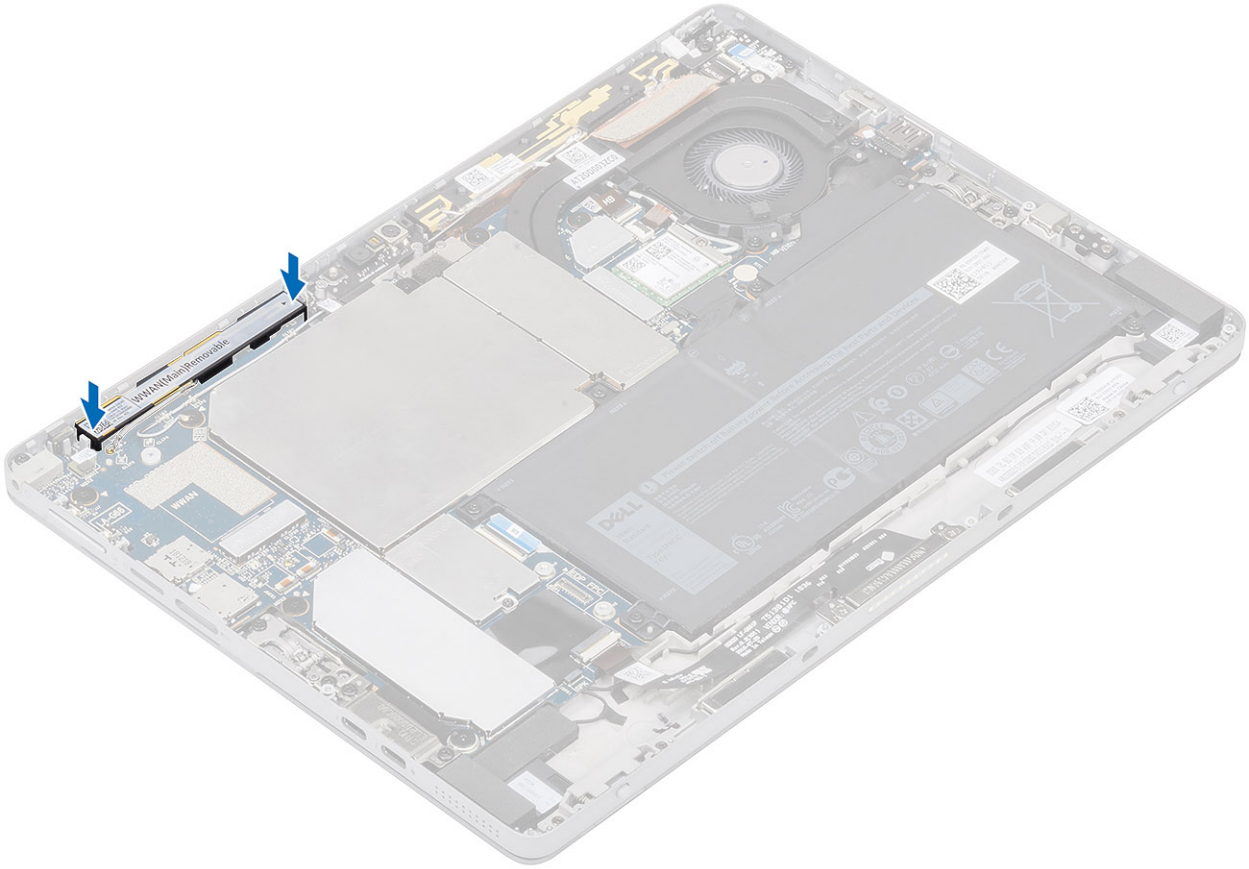
Installing the WWAN antenna module

Steps

1. Insert the WWAN antenna module into the slot on the computer.
2. Flip over the WWAN main antenna module to fix it to the system board.



3. Tighten the clips on the left and right side of the WWAN main antenna module to secure it to the computer.
4. Route the WWAN antenna cables to the system board.



5. Replace the:
   a. display panel assembly
   b. microSD card
   c. SIM card tray
6. Follow the procedure in After working inside your tablet.

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

System setup

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

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

Topics:

- BIOS overview
- Entering BIOS setup program
- Navigation keys
- One time boot menu
- Entering BIOS without keyboard
- System setup options
- System Log
- Updating the BIOS
- System and setup password
- Clearing BIOS (System Setup) and System passwords

BIOS overview

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

Entering BIOS setup program

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 1. Navigation keys

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.

Table 1. Navigation keys (continued)

Keys	Navigation
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.
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.

Entering BIOS without keyboard

Steps

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

System setup options

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

General options

Table 2. General options

Option	Description
System Information	This section lists the primary hardware features of your computer.

Table 2. General options (continued)

Option	Description
	The options are: • **System Information** • **Memory Configuration** • **Processor Information** • **Device Information**
Battery Information	Displays the battery status and the type of AC adapter connected to the computer.
Boot Sequence	Allows you to change the order in which the computer attempts to find an operating system. The options are: • **Windows Boot Manager**—Enable or disable the Windows Boot Manager option. • **Boot List Option**—You can add, delete, and view the boot options.
Advanced Boot Options	Enable or disable the UEFI Network Stack option.
UEFI Boot Path Security	Allows you to control whether the system prompts the user to enter the Admin password when booting to a UEFI boot path. Click one of the following options: • **Always, Except Internal HDD**—Default • **Always** • **Never**
Date/Time	Allows you to set the date and time. The change to the system date and time takes effect immediately.

System configuration

Table 3. System Configuration options

Option	Description
SATA Operation	Allows you to configure the operating mode of the integrated SATA hard-drive controller. The options are: • **Disabled** • **AHCI** • **RAID On**—By default, the RAID On option is enabled. **NOTE:** SATA is configured to support RAID mode.
Drives	Allows you to enable or disable various drives on board. The options are: • **SATA-0** • **SATA–1** • **M.2 PCIe SSD-0** • **M.2 PCIe SSD-1** By default, all the options are enabled.

Table 3. System Configuration options (continued)

Option	Description
SMART Reporting	This field controls whether hard drive errors for integrated drives are reported during system startup. This technology is part of the SMART (Self Monitoring Analysis and Reporting Technology) specification. By default, the **Enable SMART Reporting** option is disabled .
USB Configuration	Allows you to enable or disable the internal/integrated USB configuration. The options are: • **Enable USB Boot Support** • **Enable External USB Port** By default, all the options are enabled. **NOTE:** USB keyboard and mouse always work in the BIOS setup irrespective of these settings.
Thunderbolt Adapter Configuration	Allows you to configure the Thunderbolt adapter security settings within the operating system. The options are: • **Thunderbolt**—This option is enabled by default. • **Enable Thunderbolt Support** • **Enable Thunderbolt (and PCIe behind TBT) Pre-boot Modules** • **No Security** • **User Authorization**—This option is enabled by default. • **Secure Connect** • **Display Port and USB Only**
Thunderbolt Auto Switch	Allows you to configure the method used by the Thunderbolt controller to perform the PCIe device enumeration. By default, the **Auto switch** option is enabled. The options are: • **Native Enumeration** • **BIOS Assist Enumeration**
Audio	Allows you to enable or disable the integrated audio controller. By default, the **Enable Audio** option is selected. The options are: • **Enable Microphone** • **Enable Internal Speaker** By default, all the options are enabled.
Fingerprint Reader	Enables or disables the fingerprint reader device. The options are: • Enable Fingerprint Reader Device • Enable Finger Reader Single Sign On By default, both the options are enabled.
Miscellaneous devices	Allows you to enable or disable the following devices: • **Enable Camera** • **Enable Hard Drive Free Fall Protection** • **WiFi Radio** • **Enable Secure Digital (SD) Card** By default, all the options are enabled.

Video screen options

Table 4. Video

Option	Description
LCD Brightness	Allows you to set the display brightness depending upon the power source. By default, Brightness On Battery is 50% and Brightness On AC is 100%.

Security

Table 5. Security

Option	Description
Admin Password	Allows you to set, change, or delete the administrator (admin) password. The entries to set password are: • **Enter the old password:** • **Enter the new password:** • **Confirm new password:** Click **OK** once you set the password. **NOTE:** By default, the **Enter the old password** field is marked as **Not set**. Hence, password has to be set for the first time you login and then you can change or delete the password.
System Password	Allows you to set, change, or delete the system password. The entries to set password are: • **Enter the old password:** • **Enter the new password:** • **Confirm new password:** Click **OK** once you set the password. **NOTE:** By default, the **Enter the old password** field is marked as **Not set**. Hence, password has to be set for the first time you login and then you can change or delete the password.
Strong Password	Allows you to enforce the option to always set strong password. • **Enable Strong Password** By default, this option is disabled.
Password Configuration	You can define the length of your password. Min = 4, Max = 32
Password Bypass	Allows you to bypass the System password and the Internal HDD password, when it is set, during a system restart. The options are: • **Disabled**—This option is enabled by default. • **Reboot bypass**
Password Change	Allows you to change the system password when the administrator password is set. • **Allow Non-Admin Password Changes** By default, this option is enabled.
Non-Admin Setup Changes	Allows you to determine whether changes to the setup options are allowed when an administrator password is set. If disabled the setup options are locked by the admin password. • **Allow Wireless Switch Changes**

Table 5. Security (continued)

Option	Description
	By default, this option is disabled.
UEFI Capsule Firmware Updates	Allows you to update the system BIOS through UEFI capsule update packages. • **Enable UEFI Capsule Firmware Updates** By default, this option is enabled.
TPM 2.0 Security	Allows you to enable or disable the Trusted Platform Module (TPM) during POST. The options are: • **TPM On**—This option is enabled by default. • **Clear** • **PPI Bypass for Enable Commands** • **PPI Bypass for Disbale Commands** • **PPI Bypass for Clear Command** • **Attestation Enable**—This option is enabled by default. • **Key Storage Enable**—This option is enabled by default. • **SHA-256**—This option is enabled by default.
Absolute®	This field lets you Enable, Disable, or Permanently Disable the BIOS module interface of the optional Absolute Persistence Module service from Absolute® Software.
Admin Setup Lockout	Allows you to prevent users from entering Setup when an administrator password is set. • **Enable Admin Setup Lockout** By default, this option is disabled.
Master Password Lockout	Allows you to disable master password support. • **Enable Master Password Lockout** By default, this option is disabled. **NOTE:** Hard Disk password should be cleared before the settings can be changed.
SMM Security Mitigation	Allows you to enable or disable additional UEFI SMM Security Mitigation protection. • **SMM Security Mitigation** By default, this option is enabled.

Secure boot

Table 6. Secure Boot

Option	Description
Secure Boot Enable	Allows you to enable or disable the Secure Boot Feature. • **Secure Boot Enable**—By default, this option is disabled.
Secure Boot Mode	Changes to the Secure Boot operation mode modifies the behavior of Secure Boot to allow evaluation of UEFI driver signatures. This options are: • **Deployed Mode**—By default, this option is enabled. • **Audit Mode**
Expert Key Management	Allows you to enable or disable Expert Key Management.

Table 6. Secure Boot (continued)

Option	Description
	• **Enable Custom Mode**—By default, this option is disabled. The Custom Mode Key Management options are: • **PK**—By default, this option is disabled. • **KEK** • **db** • **dbx**

Intel Software Guard Extensions options

Table 7. Intel Software Guard Extensions

Option	Description
Intel SGX Enable	This field allows you to provide a secured environment for running code/storing sensitive information in the context of the main operating systems. Click one of the following options: • **Disabled** • **Enabled** • **Software controlled**—Default
Enclave Memory Size	This option sets **SGX Enclave Reserve Memory Size** Click one of the following options: • **32 MB** • **64 MB** • **128 MB**—Default

Performance

Table 8. Performance

Option	Description
Multi Core Support	This field specifies whether the processor has one or all cores enabled. The performance of some applications improves with the additional cores. • **All**—Default • **1** • **2** • **3**
Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep mode of processor. • **Enable Intel SpeedStep** This option is set by default.
C-States Control	Allows you to enable or disable the additional processor sleep states. • **C states** This option is set by default.

Table 8. Performance (continued)

Option	Description
Intel® TurboBoost™	This option enables or disables the Intel® TurboBoost™ mode of the processor
Hyper-Thread Control	Allows you to enable or disable the HyperThreading in the processor. • **Disabled** • **Enabled**—Default

Power management

Table 9. Power Management

Option	Description
Lid Switch	Allows you to disable the lid switch. The options are: • **Enable Lid Switch**—enabled by default • **Power On Lid Open**—enabled by default
AC Behavior	Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected. • **Wake on AC** By default, this option is disabled.
Enable Intel Speed Shift technology	Allows you to enable or disable the Intel Speed Shift Technology option. By default, this option is enabled.
Auto On Time	Allows you to set the time at which the computer must turn on automatically. The options are: • **Disabled**—enabled by default • **Every Day** • **Weekdays** • **Select Days**
USB Wake Support	Allows you to enable USB devices to wake the system from standby. By default, the option **Enable USB Wake Support** is disabled.
Advanced Battery Charge Configuration	This option enables you to maximize the battery health. When you enable this option, your system uses the standard charging algorithm and other techniques, during the nonwork hours to improve the battery health. By default, the **Enable Advanced Battery Charge Mode** option is disabled.
Primary Battery Charge Configuration	Allows you to select the charging mode for the battery. The options are: • **Adaptive**—enabled by default • **Standard** • **ExpressCharge** • **Primarily AC use** • **Custom** If Custom Charge is selected, you can also configure Custom Charge Start and Custom Charge Stop. **NOTE:** All charging mode may not be available for all the batteries.

Table 9. Power Management (continued)

Option	Description
Type-C Connector Power	Allows you to set the maximum power that can be drawn from the type-c connector. The options are: • 7.5 Watts—enabled by default • 15 Watts

Post behavior

Table 10. POST Behavior

Option	Description
Adapter Warnings	Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters. • **Enable Adapter Warnings**—enabled by default
Keypad (embedded)	Allows you to choose one of two methods to enable the keyboard that is embedded in the internal keyboard. The options are: • **Fn Key Only**—enabled by default • **By Numlock**
Numlock Enable	Allows you to enable or disable the Numlock function when the system boots. • **Enable Numlock**—enabled by default
Fn Lock Options	Allows you to let hot key combinations Fn + Esc toggle the primary behavior of F1–F12, between their standard and secondary functions. If you disable this option, you cannot toggle dynamically the primary behavior of these keys. By default, the **Fn Lock** option is enabled. Select one of the following options: • **Lock Mode Disable/Standard** • **Lock Mode Enable/Secondary**—enabled by default
Fastboot	Allows you to speed up the boot process by bypassing some of the compatibility steps. Select one of the following options: • **Minimal**—enabled by default • **Thorough** • **Auto**
Extended BIOS POST Time	Allows you to create an additional preboot delay. Select one of the following options: • **0 seconds**—enabled by default • **5 seconds** • **10 seconds**
Full Screen Logo	Allows you to display full screen logo, when your image matches screen resolution. By default, the **Enable Full Screen Logo** option is disabled.
Warnings and Errors	Allows you to select different options to either stop, prompt and wait for user input, continue when warnings are detected but pause on errors, or continue when either warnings or errors are detected during the POST process. Select one of the following options: • **Prompt on Warnings and Errors**—enabled by default • **Continue on Warnings** • **Continue on Warnings and Errors**

Virtualization support

Table 11. Virtualization Support

Option	Description
Virtualization	This option specifies whether a Virtual Machine Monitor (VMM) can use the additional hardware capabilities that are provided by the Intel Virtualization technology. By default, the **Enable Intel Virtualization Technology** option is enabled.
VT for Direct I/O	Enables or disables the Virtual Machine Monitor (VMM) from using the additional hardware capabilities that are provided by the Intel Virtualization technology for direct I/O. By default, the **Enable VT for Direct I/O** option is enabled.

Wireless options

Table 12. Wireless

Option	Description
Wireless Switch	Allows to set the wireless devices that can be controlled by the wireless switch. The options are: • **WLAN** • **Bluetooth®** All the options are enabled by default.
Wireless Device Enable	Allows you to enable or disable the internal wireless devices. The options are: • **WLAN** • **Bluetooth®** All the options are enabled by default.

Maintenance

Table 13. Maintenance

Option	Description
Service Tag	Displays the service tag of your computer.
Asset Tag	Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.
BIOS Downgrade	Allows you to flash previous revisions of the system firmware. • **Allow BIOS Downgrade** This option is set by default.
Data Wipe	Allows you to securely erase data from all internal storage devices. • **Wipe on Next Boot** This option is not set by default.
Bios Recovery	**BIOS Recovery from Hard Drive**—By default, this option is enabled. Allows you to recover the corrupted BIOS from a recovery file on the HDD or an external USB key.

Table 13. Maintenance (continued)

Option	Description
	BIOS Auto-Recovery— Allows you to recover the BIOS automatically.

System logs

Table 14. System Logs

Option	Description
BIOS events	Allows you to view and clear the System Setup (BIOS) POST events.
Thermal Events	Allows you to view and clear the System Setup (Thermal) events.
Power Events	Allows you to view and clear the System Setup (Power) events.

SupportAssist system resolution

Table 15. SupportAssit System Resolution

Option	Description
Auto OS Recovery Threshold	The **Auto OS Recovery Threshold** setup option controls the automatic boot flow for Support Assist System Resolution Console and Dell OS Recovery tool. Click one of the following options: • **OFF** • **1** • **2**—enabled by default • **3**
SupportAssist OS Recovery	Allows you to recover the SupportAssist OS Recovery (Disabled by default). By default, this option is enabled.

System Log

Option	Description
BIOS Events	Allows you to view and clear the System Setup (BIOS) POST events.
Thermal Events	Allows you to view and clear the System Setup (Thermal) events.
Power Events	Allows you to view and clear the System Setup (Power) events.

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/article/sln153694

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 in Linux and Ubuntu

To update the system BIOS on a computer that is installed with Linux or Ubuntu, see the knowledge base article 000131486 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/article/sln153694

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/article/sln153694

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 16. 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.

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Troubleshooting

Topics:

- Handling swollen Lithium-ion batteries
- Dell SupportAssist Pre-boot System Performance Check diagnostics
- Built-in self-test (BIST)
- System-diagnostic lights
- Kickstand open status behavior
- Recovering the operating system
- Backup media and recovery options
- WiFi power cycle
- Drain residual flea power (perform hard reset)

Handling swollen Lithium-ion batteries

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

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

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

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

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

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

Dell SupportAssist Pre-boot System Performance Check diagnostics

About this task

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

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

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

For more information, see https://www.dell.com/support/kbdoc/000180971.

Running the SupportAssist Pre-Boot System Performance Check

Steps

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

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 17. 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

Power and battery-status light

The power and battery status light indicates the power and battery status of the computer. These are the power states:

Solid white: Power adapter is connected and the battery has more than 5% charge.

Amber: Computer is running on battery and the battery has less than 5% charge.

Off:

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

The power and battery-status light may blink amber or white according to pre-defined "beep codes" indicating various failures.

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

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

NOTE: The following diagnostic light codes and recommended solutions are intended for Dell service technicians to troubleshoot problems. 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.

Table 18. Diagnostic-light LED codes

Diagnostic light codes (Amber,White)	Problem description	Recommended solutions
2,1	Processor failure	Replace the system board.
2,2	System board: BIOS or ROM (Read-Only Memory) failure	Flash latest BIOS version. If problem persists, replace the system board.
2,3	No memory or RAM (Random-Access Memory) detected	Confirm that the memory module is installed properly. If problem persists, replace the memory module.
2,4	Memory or RAM (Random-Access Memory) failure	Reset and swap memory modules among the slots. If problem persists, replace the memory module.
2,5	Invalid memory installed	Reset and swap memory modules among the slots. If problem persists, replace the memory module.
2,6	System-board or chipset error	Flash latest BIOS version. If problem persists, replace the system board.
2,7	Display failure - SBIOS message	Replace display cable (EDP) if possible, otherwise replace the display assembly (LCD).
3,1	Coin-cell battery failure	Reset the CMOS battery connection. If problem persists, replace the RTC battery.
3,2	PCI, video card/chip failure	Replace the system board.
3,3	Recovery image not found	Flash latest BIOS version. If problem persists, replace the system board.
3,4	Recovery image found but invalid	Flash latest BIOS version. If problem persists, replace the system board.
3,5	Power-rail failure	EC ran into power sequencing failure. If problem persists, replace the system board.
3,6	System BIOS Flash incomplete	Flash corruption detected by SBIOS. If problem persists, replace the system board.
3,7	Management Engine (ME) error	Timeout waiting on ME to reply to HECI message. If problem persists, replace the system board.

Kickstand open status behavior

Table 19. Kickstand open status behavior

	Operation Sequence		Power status changes			
	1- Kickstand	2 - Folio KB	S0	MS	S4	**G3/S5
1	Closed to Open	W/O Folio KB	System keeps opened	System resume	System resume	System resume
2	Open to Closed		System keeps opened	System resume	System off	System off
3	Closed	Folio KB closed -> opened (Action)	System keeps opened	System resume	System off	System off
4	Open		System keeps opened	System resume	System resume	System resume***
5	Closed to Open	Folio KB closed always	System keeps opened	System off	System off	System off
NOTE: *** If Folio is opened within 5sec of opening kickstand, it will transition to system open status. Otherwise, it will return back to system Suspend/off mode.						

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**.

Backup media and recovery options

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

WiFi power cycle

About this task

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

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

Steps

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

Drain residual flea power (perform hard reset)

About this task

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

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

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

To drain residual flea power (perform a hard reset)

Steps

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

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

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Getting help

Topics:

- Contacting Dell

Contacting Dell

Prerequisites

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

About this task

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

Steps

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