

# Latitude 5290 2-in-1

## Owner's Manual

## 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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# Working on your computer

## Safety precautions

The safety precautions chapter details the primary steps to be taken before performing any disassembly instructions.

Observe the following safety precautions before you perform any installation or break/fix procedures involving disassembly or reassembly:

- Turn off the system and all attached peripherals.
- Disconnect the system and all attached peripherals from AC power.
- Disconnect all network cables, telephone, and telecommunications lines from the system.
- Use an ESD field service kit when working inside any notebook to avoid electrostatic discharge (ESD) damage.
- After removing any system component, carefully place the removed component on an anti-static mat.
- Wear shoes with non-conductive rubber soles to reduce the chance of getting electrocuted.

### Standby power

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

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

### Bonding

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

## Electrostatic discharge—ESD protection

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

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

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

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

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

Perform the following steps to prevent ESD damage:

- Use a wired ESD wrist strap that is properly grounded. The use of wireless anti-static straps is no longer allowed; they do not provide adequate protection. Touching the chassis before handling parts does not ensure adequate ESD protection on parts with increased sensitivity to ESD damage.
- Handle all static-sensitive components in a static-safe area. If possible, use anti-static floor pads and workbench pads.

- When unpacking a static-sensitive component from its shipping carton, do not remove the component from the anti-static packing material until you are ready to install the component. Before unwrapping the anti-static packaging, ensure that you discharge static electricity from your body.
- Before transporting a static-sensitive component, place it in an anti-static container or packaging.

## ESD field service kit

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

### Components of an ESD field service kit

The components of an ESD field service kit are:

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

### ESD protection summary

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

## Transporting sensitive components

When transporting ESD sensitive components such as replacement parts or parts to be returned to Dell, it is critical to place these parts in anti-static bags for safe transport.

### Lifting equipment

Adhere to the following guidelines when lifting heavy weight equipment:

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

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

## Before Working Inside Your Tablet

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.

**i 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](http://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.**

**i 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.

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.

## After working inside your tablet

**⚠ CAUTION: Leaving stray or loose screws inside your tablet may severely damage your tablet.**

1. Replace all screws and ensure that no stray screws remain inside your tablet.
2. Connect any external devices, peripherals, and cables that you removed before working on your tablet.
3. Replace any media card, SIM card, and any other parts that you removed before working on your tablet.


4. Connect your tablet and all attached devices to their electrical outlets.
5. Turn on your tablet.

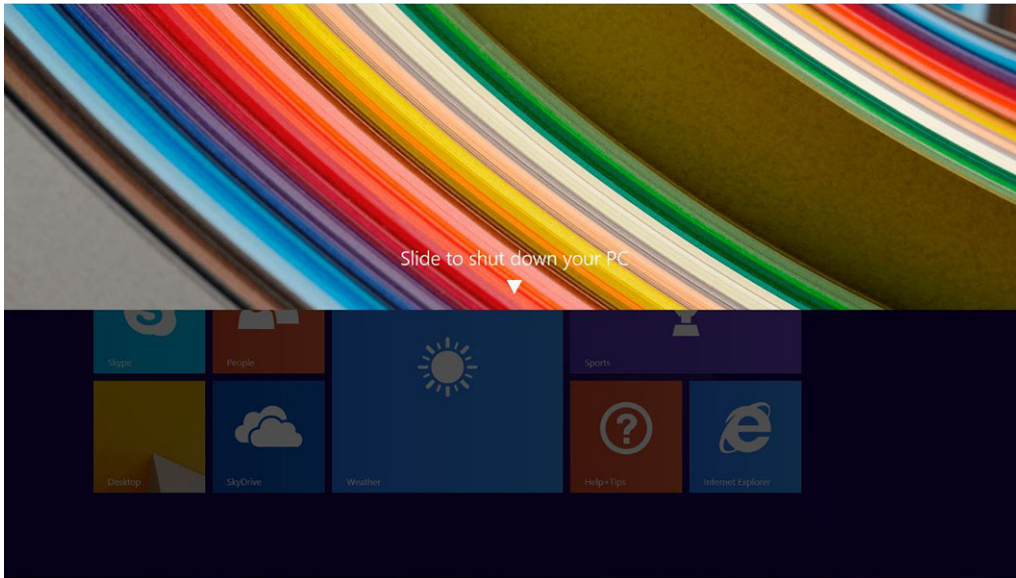
## Turning off Your Tablet

Turning off your tablet completely shuts down your tablet. You can turn off your tablet by two ways:

- Using power button
- Using charms menu


1. To turn off your tablet using power button:

- a) Press and hold the **Power** button  until you see “Slide to shut down your PC” on the screen.



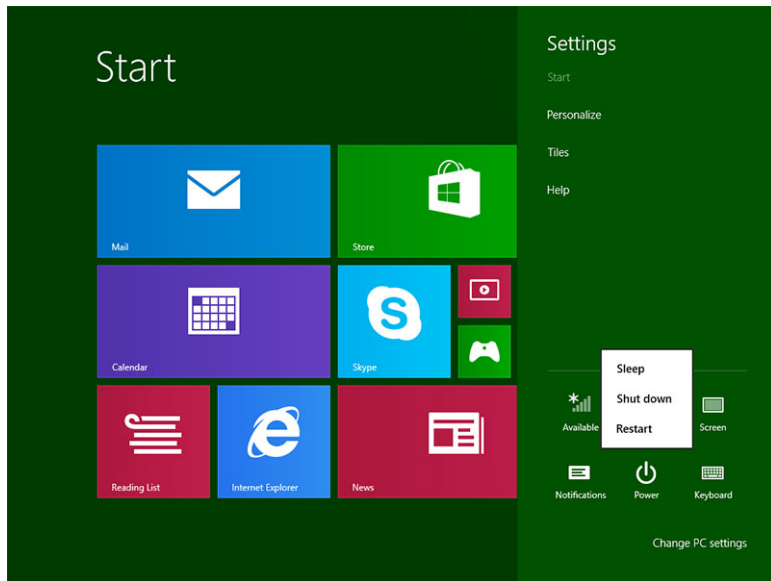
**NOTE:** After you press and hold the Power button, by default, the “Slide to shut down your PC” screen displays only in *Venue 11 Pro 7130*. For *Venue 11 pro 7130 vPro* and *Venue 11 Pro 7139*, by default, the tablet enters sleep mode. However, if you change the power button setting to shut down, the tablet shuts down. To change the power button setting, go to Control Panel > Power Options > Change Plan Setting > Change Advanced Power Settings. To access Control Panel, swipe at the right edge of the screen, tap Search, enter Control Panel in the search box, and then click Control Panel.

- b) Slide to shut down your tablet.

**NOTE:** You can also turn off your tablet without sliding down the screen. Press and hold the Power  button for >10 seconds to turn off your tablet. You can perform this force shutdown, if your tablet is not responding / behaving unexpectedly or touch is not working.

2. To turn off your tablet using the charms menu:

- a) Swipe from the right edge of the display to access the **Charms** menu.
- b) Touch **Settings**  —> **Power**  —> **Shut down** to turn off the tablet.



# Removing and installing components

## Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver
  - #0 Phillips head screwdriver
  - #1 Phillips head screwdriver
- Plastic scribe

## Screw list

**Table 1. Latitude 5290 2-in-1 Screw size list**

Component	M2x 1.1+1.7	M2X4	M1.6x3	M2X2.5	M1.6x3	M2X2	M2X3.5
Back cover	3						
Battery		4					
Heat sink				4			
Hinges		4					
Display panel			6				
System fan	2						
WWAN card							1
WLAN card							1
Smart card cage				3			
SSD card				1			
Docking bracket						2	
Kickstand					4		
Camera module					2 (front)		
					1(rear)		
Antenna module					1		
System board				4			

## micro SD - micro SIM card

uSIM cards can be installed only on tablets shipped with WWAN module.

1. Follow the procedure in [Before working inside your tablet](#).

**NOTE:** disconnect the power and drain flea power before preforming the steps

2. Lay the tablet on a plane and flat surface, with the kickstand facing upward.
3. Press the two kickstand auto-release pegs, and pull to open the kickstand [1],[2].

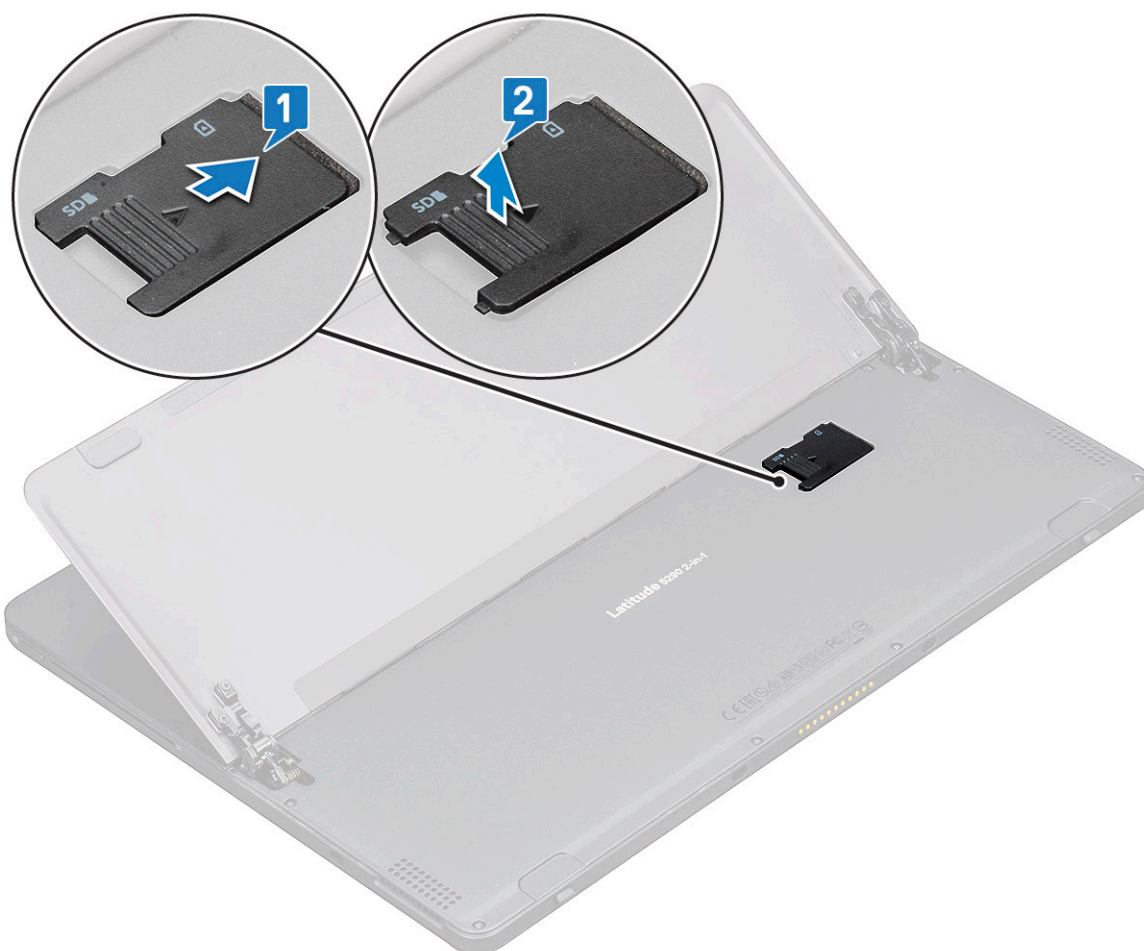
**NOTE:** Ensure NOT to pull more than 145° to avoid damage to the hinges.

**NOTE:** Ensure to turn off or disconnect power, to drain flea power before installing the micro SD and/or micro-SIM.



4. Rotate the kickstand to an angle  $145^{\circ}$ , to access microSD and micro-SIM cards slot.
5. Slide the microSD / micro-SIM card cover [1] and pull the cover [2].
6. Insert the SD card / micro-SIM cards and align the cover with the groove on the tablet and slide it inside to secure the microSD and the micro-SIM cards.





7. Perform the same steps to remove the microSD / micro-SIM cards

## Display Assembly

### Removing the display assembly

1. Follow the procedure in [Before working inside your tablet](#).
2. Remove the:
  - a) uSIM/microSD card

**NOTE:** uSIM card slot is available only on tablets shipping with WWAN module.
3. Open the kickstand by holding the tablet vertically and pressing it down. Place the tablet with the display facing down.



**NOTE:** You can also open the kickstand from the speaker recess area.

4. Place the tablet on a flat surface and lift the stand to reveal the base of the tablet.

**NOTE:** Ensure to open the kickstand to 145 degrees.



5. To release the display assembly:

a) Remove the M1.6 x 3.0 (6) screws that secure the base cover to the tablet [1].

b) Close the kickstand [2] and flip the tablet to view the display.



6. Use a plastic scribe [1] to pry the edges [2] of the display panel starting from the bottom side first (near the docking port).

**i** NOTE: Flip the tablet so the LCD is upward.



**NOTE:** Ensure to pry from the docking port and gently moving clockwise to avoid damage to the plastic clips. Use a plastic scribe.

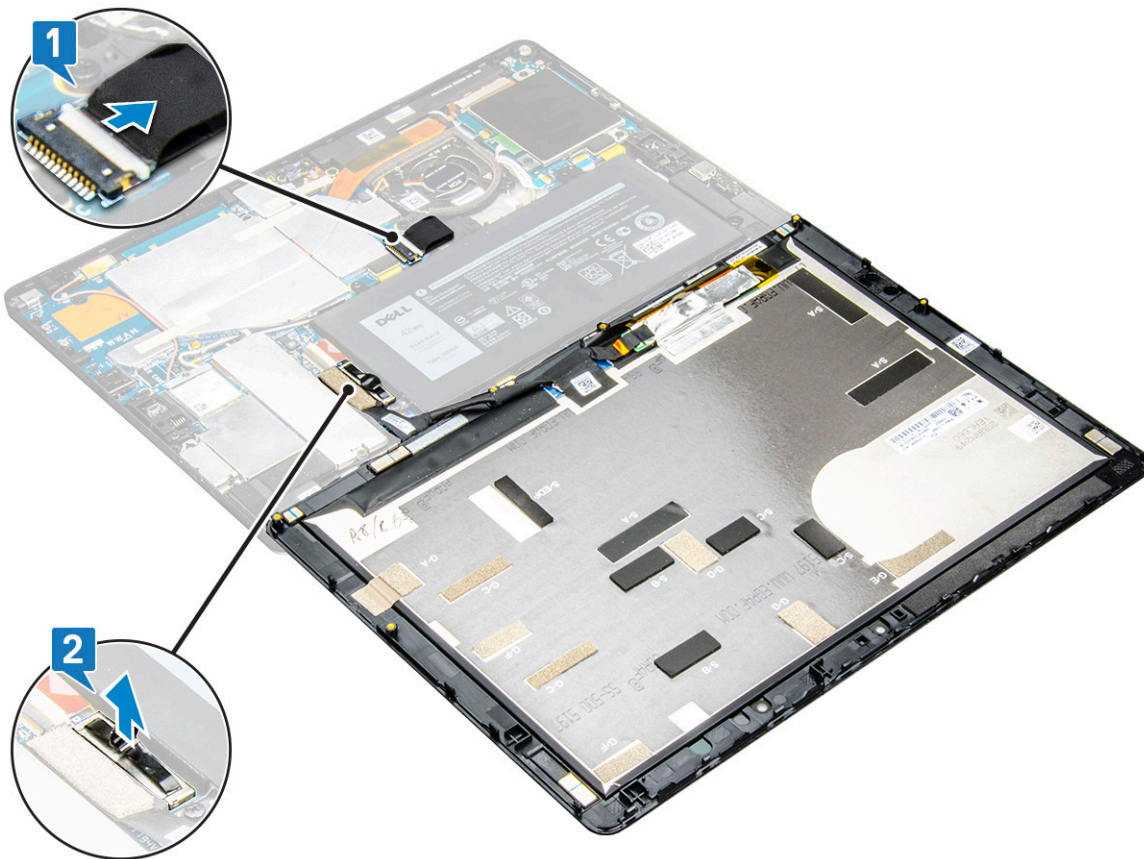


7. Flip the display panel on a plane surface with the LCD panel upwards.



8. To disconnect the cables:

- Push and disconnect the battery cable on the system board [1].
- Pull and disconnect the display cable on the system board [2].



9. Lift the display assembly from the tablet.

## Installing the display assembly

1. Place the display panel on a plane surface.
2. Connect the display cable to the connector on the system board
3. Connect the battery cable to the connector on the system board.
4. Install the display panel on the tablet and press the edges until they snap in.
5. Flip the tablet and open the kickstand.
6. Replace the M1.6 x 3 screws to secure the tablet to the display panel.
7. Install the:
  - a) uSIM/micro SD card
8. Follow the procedure in [After working inside your tablet.](#)

## PCIe Solid State Drive (SSD)

### Removing the SSD module

1. Follow the procedure in [Before working inside your tablet.](#)
2. Remove the:
  - a) uSIM/microSD card
 

**NOTE:** uSIM card slot is available only on tablets shipping with WWAN module.
  - b) display panel
  - c) battery
3. To remove the SSD module:
  - a) Remove the M2 x 2.5 screw securing the SSD shield [1].

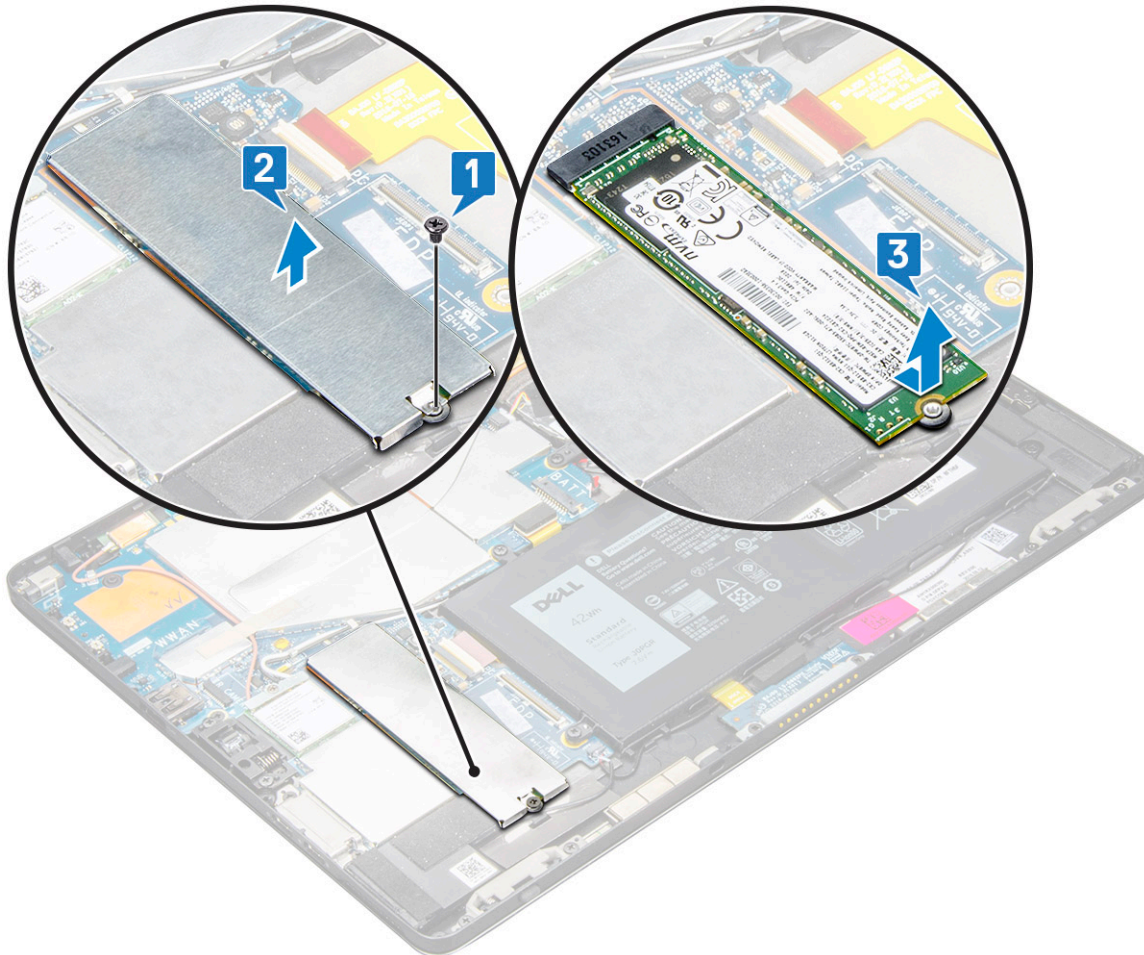
b) Lift the SSD shield away from the tablet [2].

**NOTE:**

- For models shipped with M.2 2280 SSDs, the SSD requires installation of a shielding cover over the SSD.
- There are five clips near the M.2 2280 SSD slot on the Latitude 5290 2-in-1 system board.
- For models shipped with M.2 2230 SSDs, the SSD requires installation of a holder over the SSD for securing the SSD in place.

c) Slide and lift the SSD module from the slot on the tablet [3].

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



## Installing SSD module

1. Insert the SSD module into the connector on the system board.
2. Install the SSD shield on the SSD module.

**CAUTION:** Align the five clips heads into the system board clips holes, to install the shield properly. Ensure to insert the clips with caution, as the clips are small and delicate. Mishandling damages the clips head and needs replacing the shield.

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

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

4. Install the:
  - a) Display panel
  - b) uSIM/microSD  
Micro-SIM card is installed only on tablets shipped with WWAN module.
  - c) battery

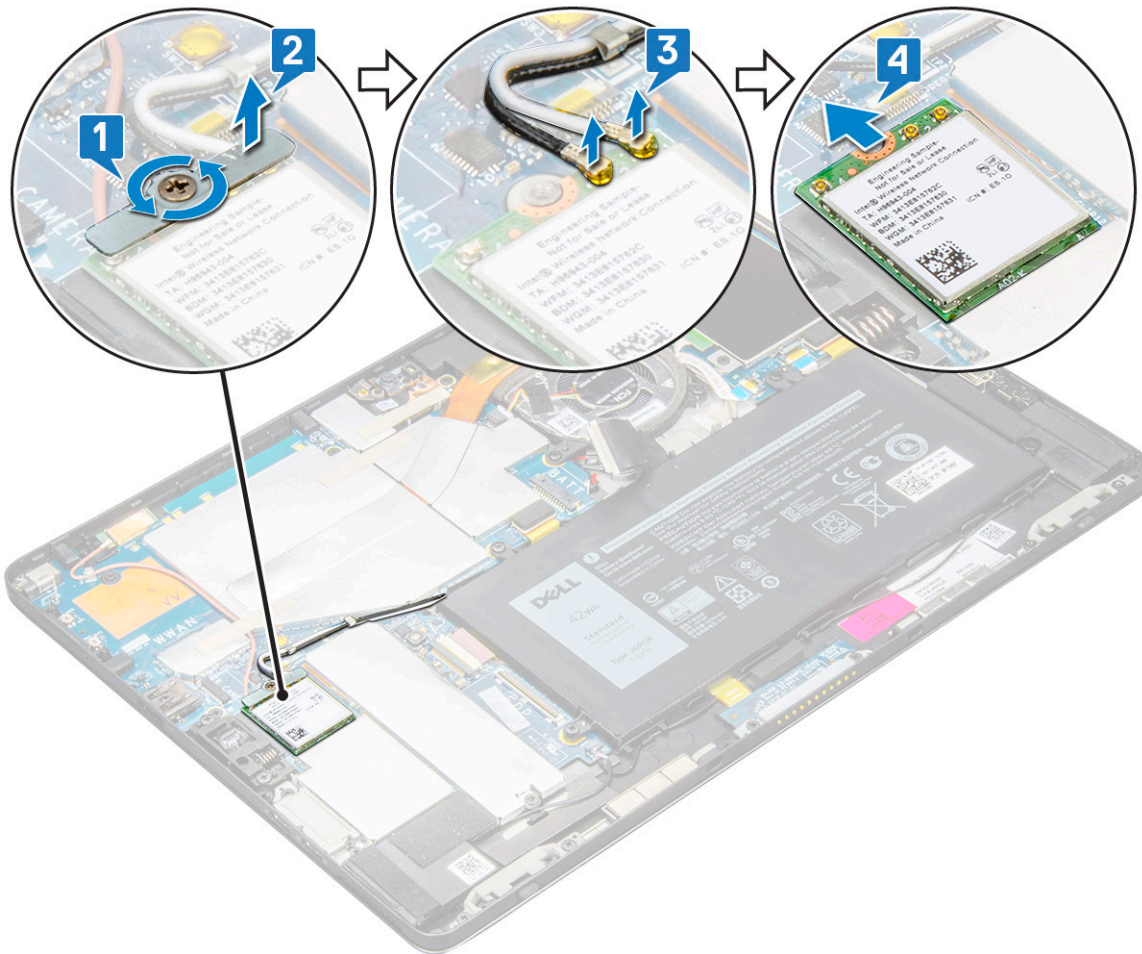


5. Follow the procedure in [after working inside your tablet](#).

## WLAN card


### Removing the WLAN card

1. Follow the procedure in [Before working inside your tablet](#).
2. Remove the:
  - a) uSIM/microSD card
    - NOTE:** uSIM card slot is available only on tablets shipping with WWAN module.
  - b) display panel
  - c) battery
  - NOTE:** Instead of removing the battery, ensure disconnecting the battery to remove components.
3. To remove the WLAN card:
  - a) Remove the M2 x 3.5 screw securing the WLAN bracket [1] and lift the bracket [2].
    - NOTE:** Ensure to remove the gasket to remove the WLAN card.
  - b) Disconnect the antenna cables from the WLAN card [3].
  - c) Lift and slide the WLAN card from the connector on the system board [4].
    - NOTE:** Ensure to lift the WLAN card by an angle NOT more than 20°.



## Installing the WLAN card

1. Insert the WLAN card into the connector on the system board.
2. Connect the antenna cables to the WLAN card.
3. Insert the WLAN bracket to the WLAN card.
4. Replace the M2 x 3.5 screw to secure WLAN bracket.
5. Install the:
  - a) [display panel](#)
  - b) [uSIM/microSD](#)


 **NOTE: uSIM card is installed only on tablets shipping with WWAN module.**

  - c) [battery](#)
6. Follow the procedure in [After working inside your tablet](#).


## WWAN card

### Removing the WWAN card

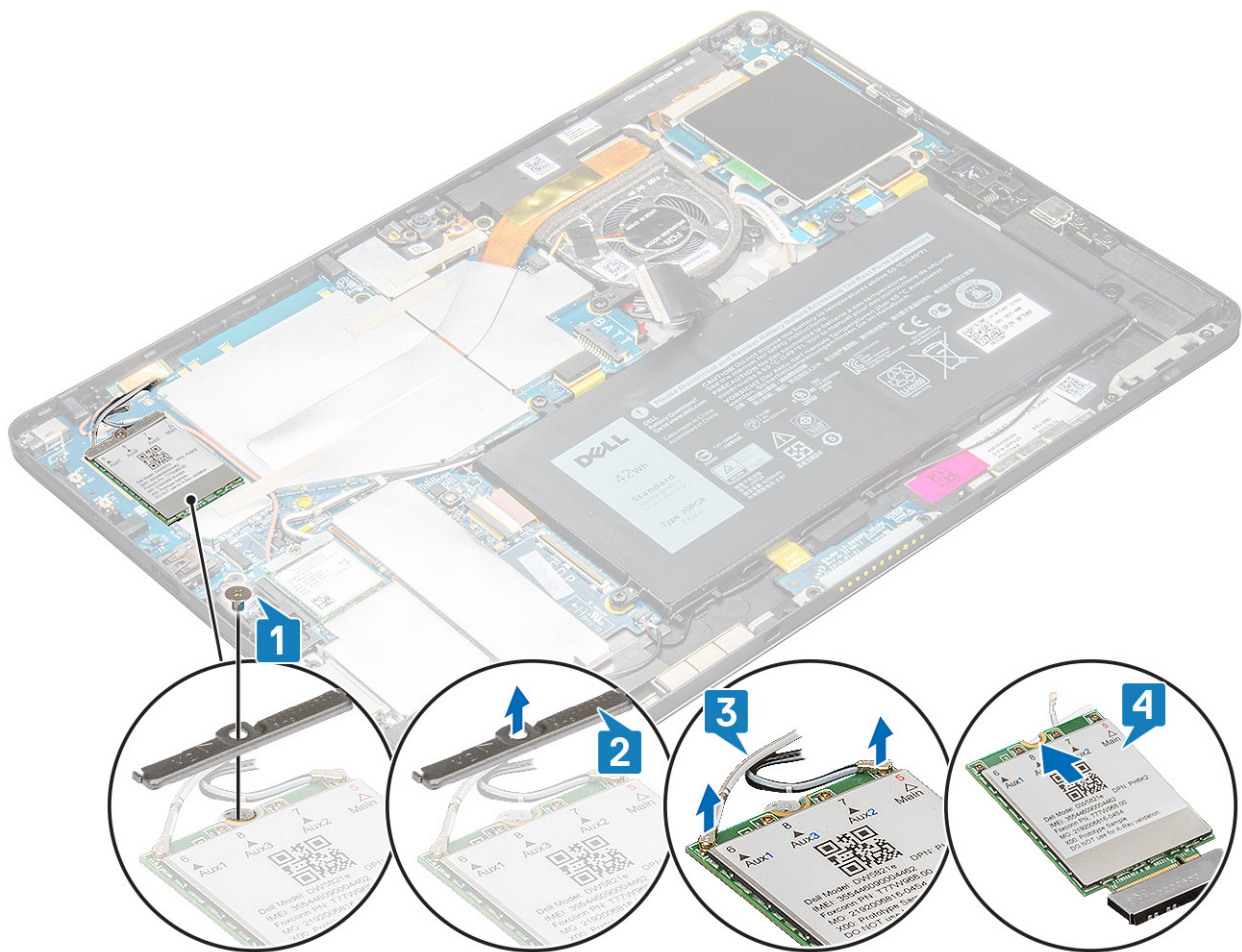
1. Follow the procedure in [Before working inside your tablet](#).
2. Remove the:
  - a) [uSIM/microSD card](#)

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

  - b) [display panel](#)
  - c) [battery](#)

 **NOTE: Instead of removing the battery, ensure disconnecting the battery to remove components.**
3. To remove the WWAN card:
  - a) Remove the single M2.0 x 3.5 screw that secures the metal bracket to the WWAN card [1].
  - b) Lift the metal bracket that secures the WWAN card [2].
  - c) Disconnect the WWAN antennae cables from the connectors on the WWAN card [3].
  - d) Lift the WWAN card from the computer [4].





## Installing the WWAN card

1. Insert the WWAN card into the connector on the system board.
2. Connect the WWAN cables to the connectors on the WWAN card.
3. Place the metal bracket and replace the M2.0 x 3.5 screw to secure the WWAN card to the computer.
4. Install the:
  - a) display panel
  - b) uSIM/microSD
  - c) battery
5. Follow the procedure in [After working inside your tablet](#).

**NOTE:** The IMEI number can also be found on the WWAN card.

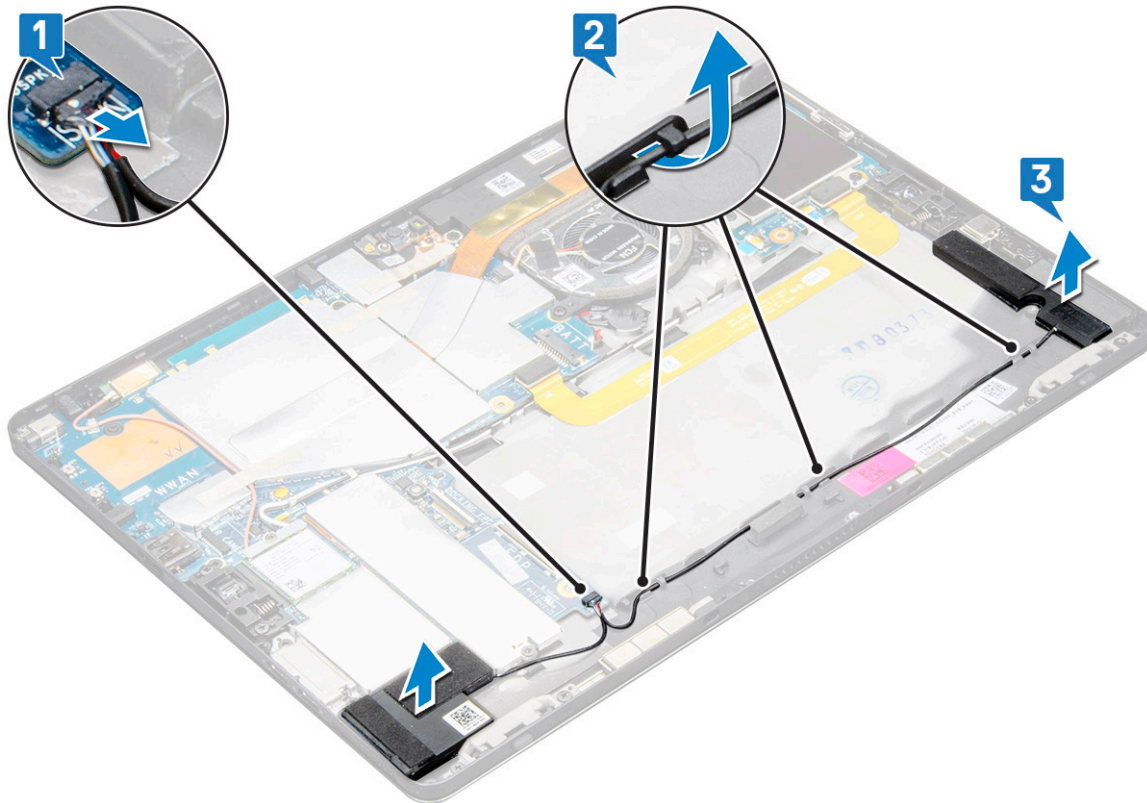
## Speaker

### Removing the speaker

1. Follow the procedure in [Before working inside your tablet](#).
2. Remove the:
  - a) Micro SIM/micro SD card

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

- b) [display panel](#)
  - c) [battery](#)
3. To remove the speaker:
- a) Lift the latch and release the speaker cable from the connector [1].
    - i** **NOTE: Ensure to remove the SSD, to create more space to pry off the speakers.**
  - b) Un-route the speaker cable from the routing clips with a plastic scribe [2].
    - i** **NOTE: Ensure to remove the M.2 2280 SSD and M.2 2280 SSD shielding cover, to avoid obstruction in un-routing the speaker cable.**



- c) Release the speakers from the tablet [3].
  - i** **NOTE: The speaker is attached with an adhesive, ensure to pull gently for reuse of the tape in installing the speaker.**

## Installing speaker

1. Insert the speaker in the block on the system board.
2. Connect the cables to the system board.
3. Press the speaker to glue it to the adhesive paste on the system.
4. Install the:
  - a) [Display panel](#)
  - b) [uSIM/microSD](#)
  - i** **NOTE: uSIM card is installed only on tablets shipping with WWAN module.**
  - c) [battery](#)
5. Follow the procedure in [After working inside your tablet.](#)



# Battery

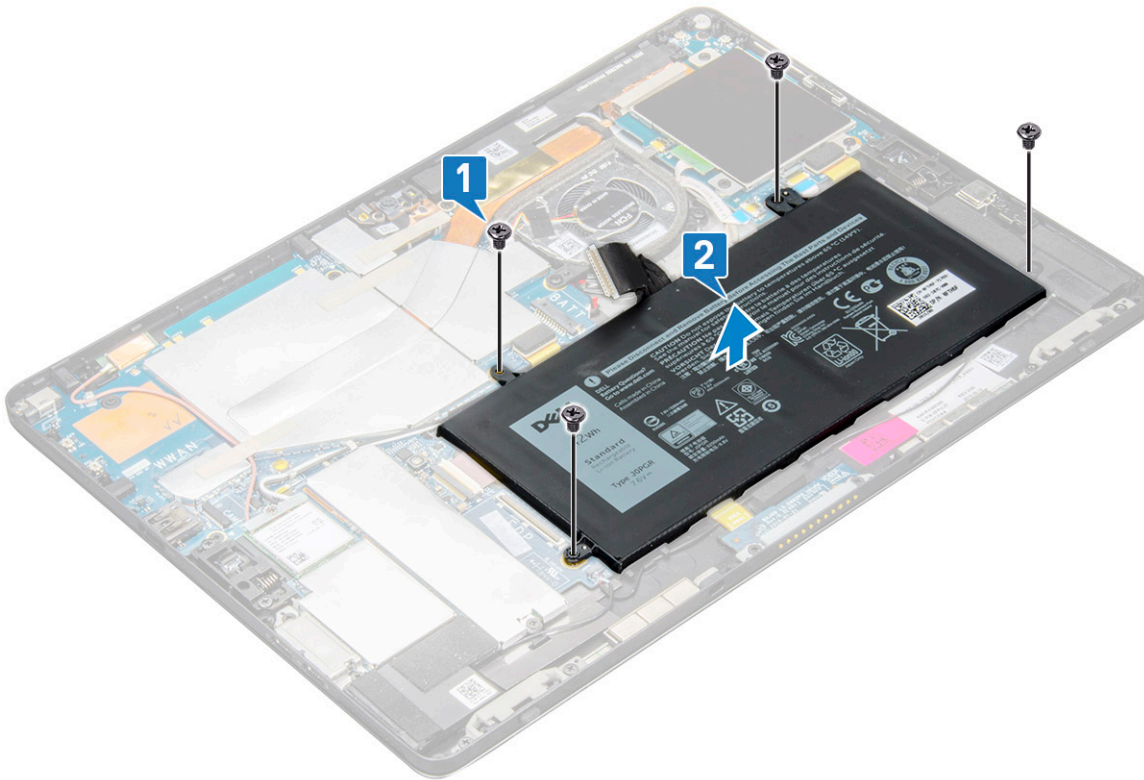
## Lithium-ion battery precautions

### CAUTION:

- Exercise caution when handling Lithium-ion batteries.
- Discharge the battery as much as possible before removing it from the system. This can be done by disconnecting the AC adapter from the system to allow the battery to drain.
- 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](http://www.dell.com/contactdell).
- Always purchase genuine batteries from [www.dell.com](http://www.dell.com) or authorized Dell partners and resellers.

## Removing the battery

1. Follow the procedure in [Before working inside your tablet](#).
2. Remove the:
  - a) [uSIM/micro SD card](#)  
 **NOTE:** uSIM card slot is available only on tablets shipping with WWAN module.
  - b) [display panel](#)
3. To remove the battery:
  - a) Release the adhesive tape that secures the battery connector to the system board.
  - b) Disconnect the battery cable from the connector on the system board.  
 **NOTE:** Ensure to pull the cable by the lever of the battery connector, to avoid damage to the pin.
  - c) Remove the M2 x 4 screws (4) that secure the battery to the tablet [1].
  - d) Lift the battery from the tablet [2].



## Installing the battery

1. Insert the battery into the slot on the tablet.
2. Replace the M2 x 4 screws to secure the battery to the tablet.
3. Connect the battery connector to the system board and release the adhesive tape that secures the connector.
4. Install the:
  - a) display panel
  - b) uSIM/microSD card

**NOTE:** uSIM card is installed only on tablets shipping with WWAN module.
5. Follow the procedure in [After working inside your tablet](#).

## System Fan

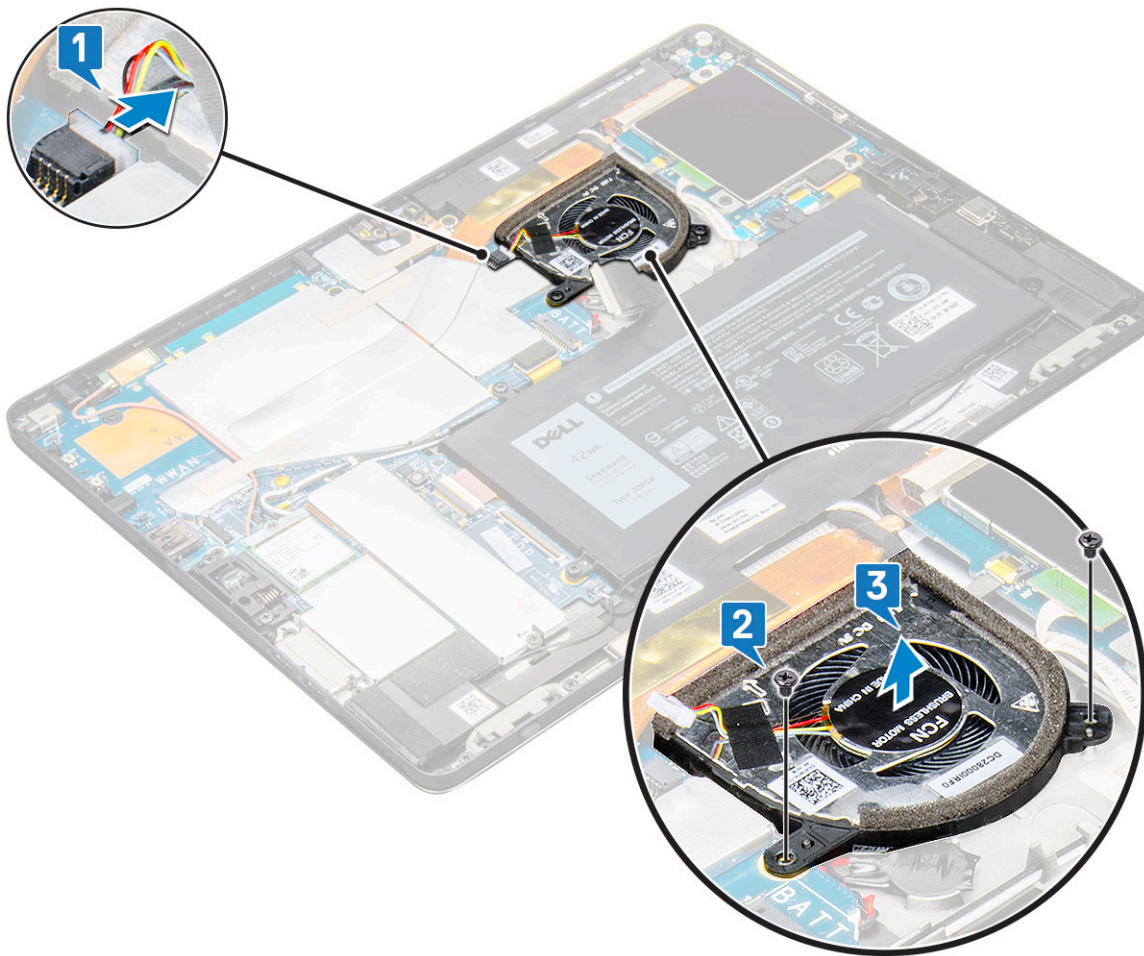
### Removing the system fan

1. Follow the procedure in [Before working inside your tablet](#).
2. Remove the:
  - a) uSIM/microSD card

**NOTE:** Micro-SIM card slot is available only on tablets shipped with WWAN module.

  - b) Display panel
  - c) battery
3. To remove the system fan:
  - a) Disconnect the system fan cable from the system board [1].
  - b) Remove the M2 x 4 screws (2) that secure the system fan [2].
  - c) Lift the system fan from the tablet system chassis [3].





## Installing the system fan

1. Align the system fan with screw holders on the system board.
2. Replace the M2 x 3 screws to secure the system fan to the system board.
3. Connect the system fan cable to the system board.
4. Install the:
  - a) display panel

**NOTE:** uSIM card is installed only on tablets shipping with WWAN module.

  - b) uSIM/microSD card
  - c) battery
5. Follow the procedure in [After working inside your tablet.](#)

## Heat Sink

### Removing heat sink assembly

1. Follow the procedure in [Before working inside your tablet.](#)
2. Remove the:
  - a) Micro-SIM and/or microSD card

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

  - b) Display panel
  - c) battery

3. To remove the heat sink assembly:

a) Peel the conductive tapes that secure the shielding cover.

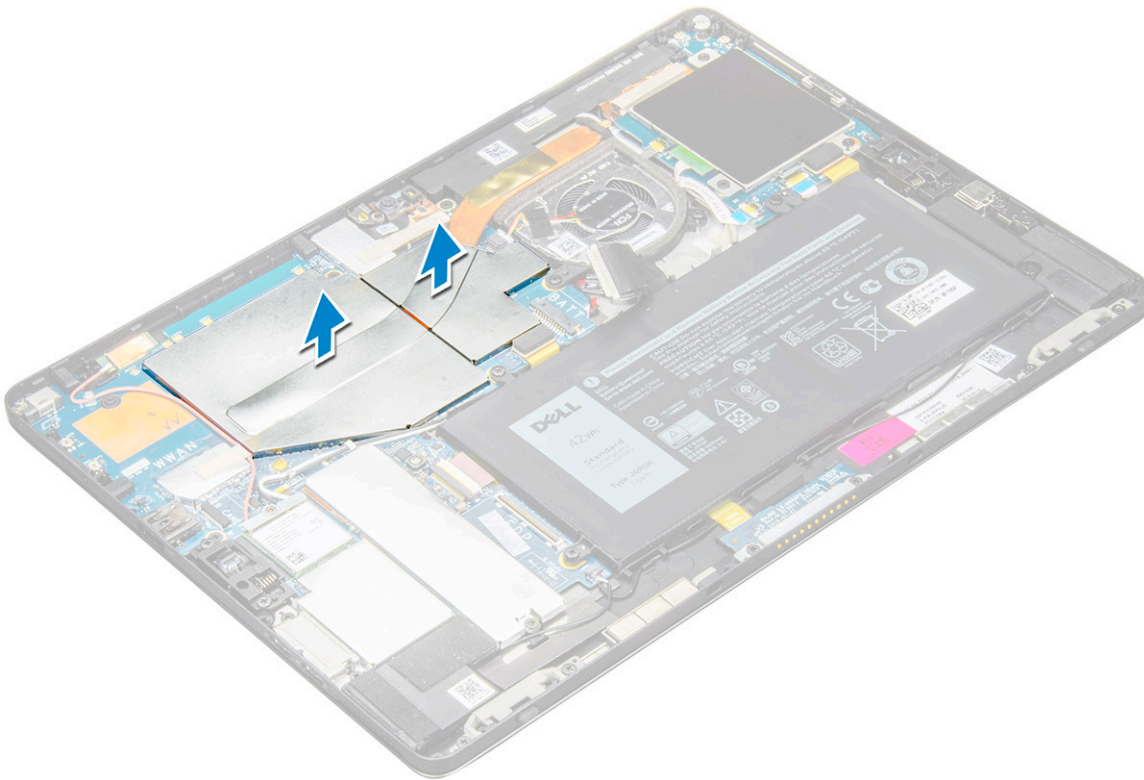
**i** **NOTE:** The shielding covers on the system board and conductive tape attached on the shielding covers need to be removed in order to replace either the system board or heatsink.

**i** **NOTE:** Ensure to peel off the tape carefully, as any damage to the tape will need to raise a new order for conductive tapes. The tape secures the IR camera cable from any damage. Ensure to fix the tapes while installing or replacing the component.

**i** **NOTE:** Ensure to peel off the conductive tape, if the system heatsink is shipped with conductive tape.

b) Lift the shielding covers that secure the heat sink assembly .

**i** **NOTE:** Peel the black tape / copper tape that secure the IR camera cable for model shipped with IR camera (optional).

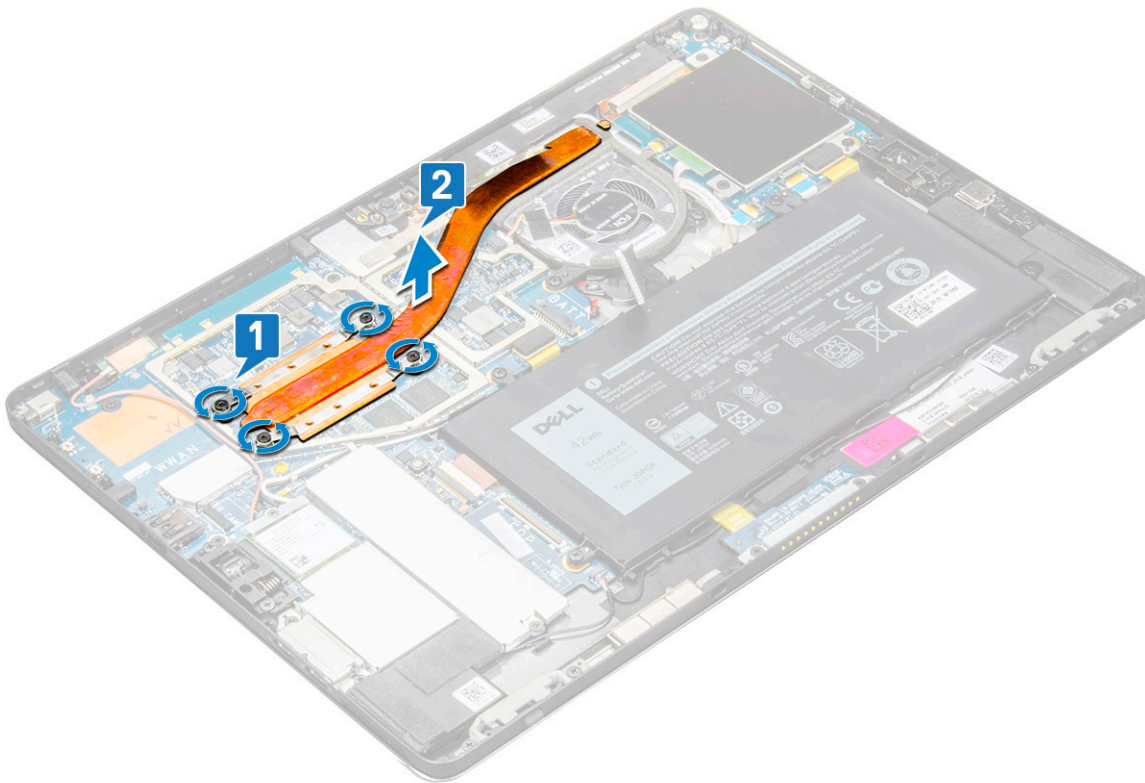


4. To remove the heat sink assembly:

a) Loosen the M2 x 2.5 captive screws (4) that secure the heat sink assembly to the tablet [1].

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

b) Lift the heat sink assembly from the tablet [2].



## Installing heat sink assembly

1. Align the heat sink assembly with screw holders on the system board.
2. Replace the M2 x 2.5 screws to secure the heat sink to the system board.
  - NOTE:** Tighten the screws on the system board in the order of the callout numbers [1, 2, 3, 4] as indicated on the heat sink.
3. Install the shielding covers on the heat sink assembly.
  - NOTE:** Affix the black tape / copper tape that secure the IR camera cable for model shipped with IR camera (optional).
4. Replace the shielding covers to cover the heat sink assembly.
  - NOTE:** The shield covers can break if not handled carefully.
5. Affix the conductive tapes to secure the shielding covers.
6. Install the:
  - a) display panel
  - b) battery
  - c) uSIM/microSD card
  - NOTE:** uSIM card is installed only on tablets shipping with WWAN module.
7. Follow the procedure in [After working inside your tablet](#)

## Front facing camera

### Removing front camera

1. Follow the procedure in [Before working inside your tablet](#).
2. Remove the:



- a) Micro-SIM and/or microSD card

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

- b) battery
- c) Display panel

3. To remove the front camera:

- a) Remove the conductive tape covering the camera module, heatsink, antenna and shielding cover [1].

**NOTE:** Ensure to pull the conductive tape gently to reuse after re-installing the front camera.

- b) Gently pry and lift the shielding cover covering the front camera cable connected to the system board [2].
- c) Use a plastic scribe to pry and disconnect the front camera cable [3]

**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.

- d) Remove the M1.6 x 3 screws (2) securing the front camera module to the system chassis [4].
- e) Peel off and lift the front camera module from the tablet [5].



## Installing the front camera

1. Insert the camera module into the slot on the tablet.
2. Replace the M1.6 x 3 screws to secure the front camera module.
3. Connect the front camera cable to the system board.

**NOTE:** Affix the adhesive tape that secures the front camera to the rear camera.

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

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

5. Affix the conductive tape covering the camera module, heatsink, antenna and shielding cover.
6. Install the:



- a) display panel
- b) battery
- c) uSIM/microSD card

**NOTE:** uSIM card is installed only on tablets shipping with WWAN module.

7. Follow the procedure in [After working inside your tablet.](#)

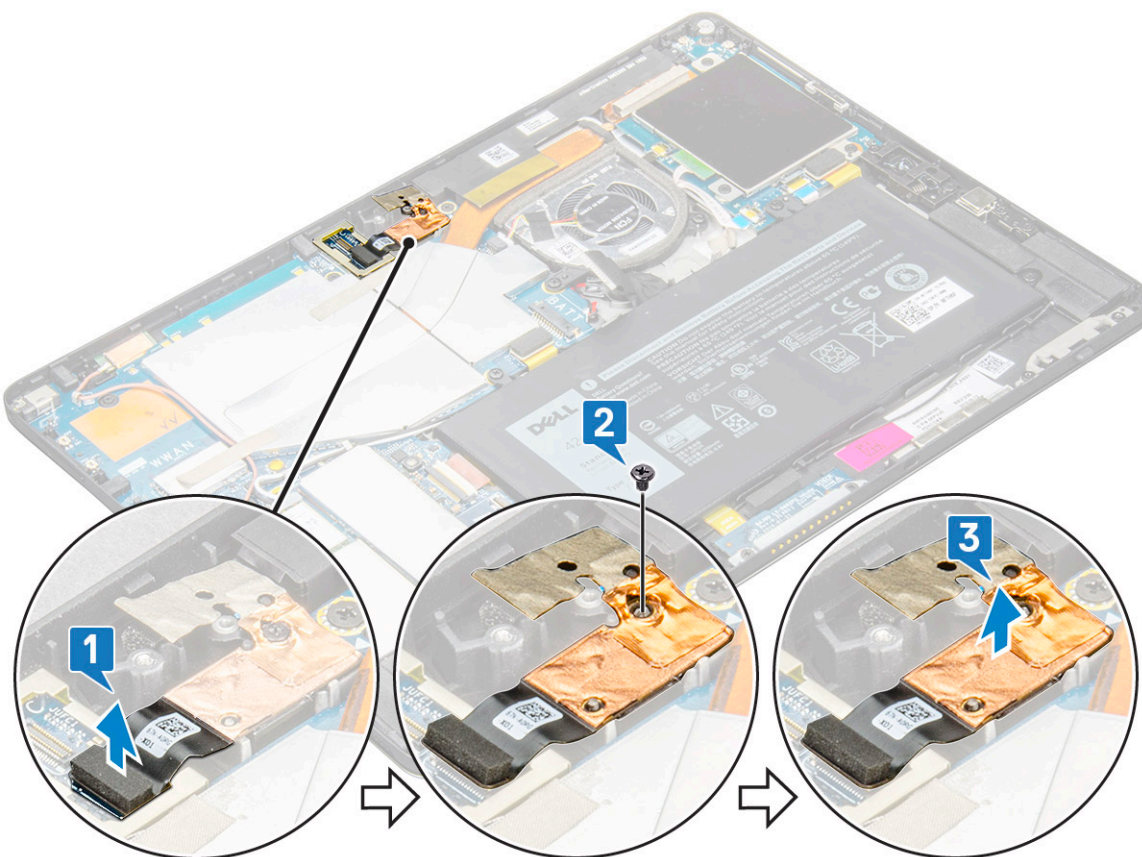
## Rear facing camera

### Removing rear camera

1. Follow the procedure in [Before working inside your tablet.](#)
2. Remove the:
  - a) uSIM/microSD

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

  - b) battery
  - c) Display panel
  - d) front facing camera
3. To remove the rear camera:
  - a) Disconnect the rear camera cable from the system board [1].
  - b) Remove the M1.6 x 3 screw (1) securing the rear camera module [2].
  - c) Lift the camera module from the tablet [3].



### Installing the rear camera

1. Insert the rear camera module into the slot on the tablet.
2. Replace the M1.6 x 3 screw to secure the rear camera module.

3. Connect the rear camera cable to the system board.
4. Install the:
  - a) front camera
  - b) display panel
  - c) battery
  - d) uSIM/microSD

**NOTE:** uSIM card is installed only on tablets shipping with WWAN module.

5. Follow the procedure in [After working inside your tablet.](#)

## Smart Card Cage

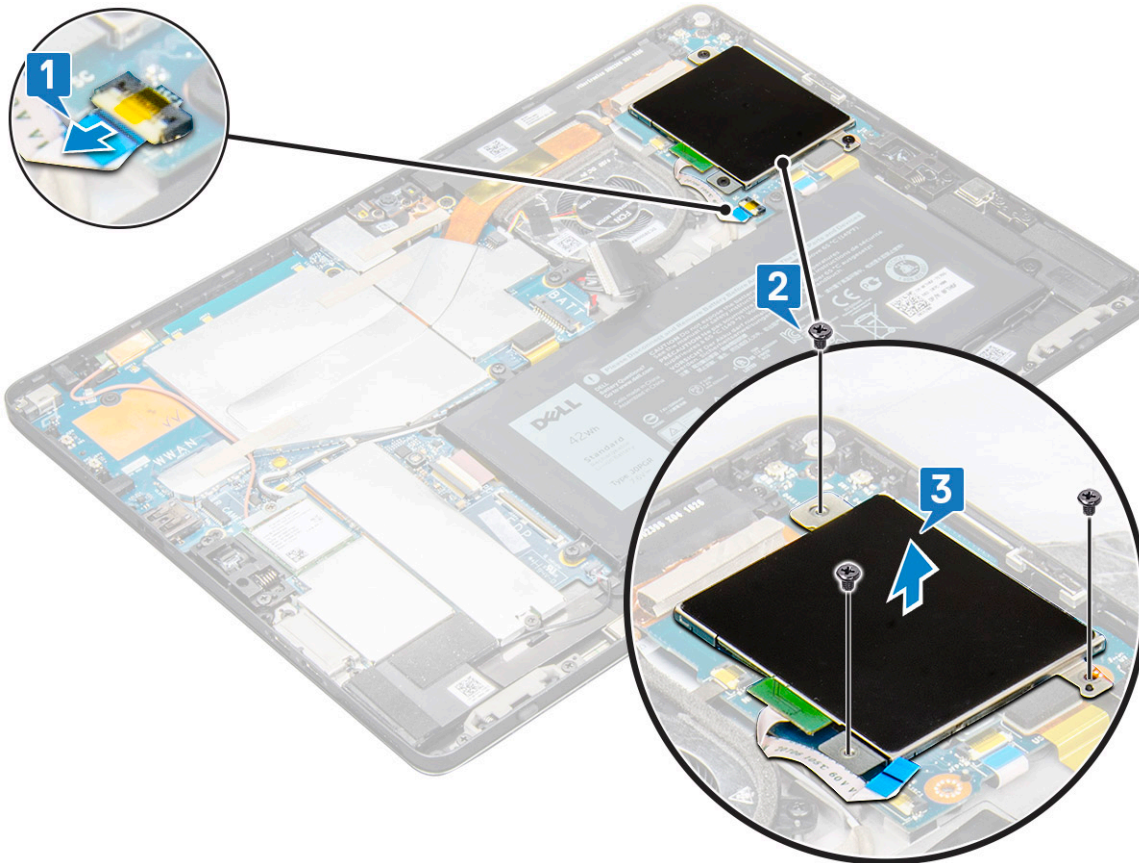
### Removing the smart card cage

**NOTE:** Always remove the smart card from the smart card reader.

1. Follow the procedure in [Before working inside your tablet.](#)
2. Remove the:
  - a) uSIM/microSD card

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

  - b) battery
  - c) display panel
3. To disconnect the cables:
  - a) Lift the latch and disconnect the smart card cable from the smart card cage [1].
  - b) Remove the M2.0 x 2.5 screws (3) from the smart card module [2].
  - c) Lift the smart card cage from the tablet [3].



## Installing the smart card cage

1. Insert the smart cage into the slot on the tablet.
2. Replace the M2 x 2.5 screws screws to secure the smart card cage to the tablet.
3. Connect the smart cable to the smart card module.
4. Install the:
  - a) [display panel](#)
  - b) [battery](#)
  - c) [uSIM/microSD card](#)

**NOTE:** uSIM card is installed only on tablets shipping with WWAN module.
5. Follow the procedure in [After working inside your tablet](#).

## Docking board

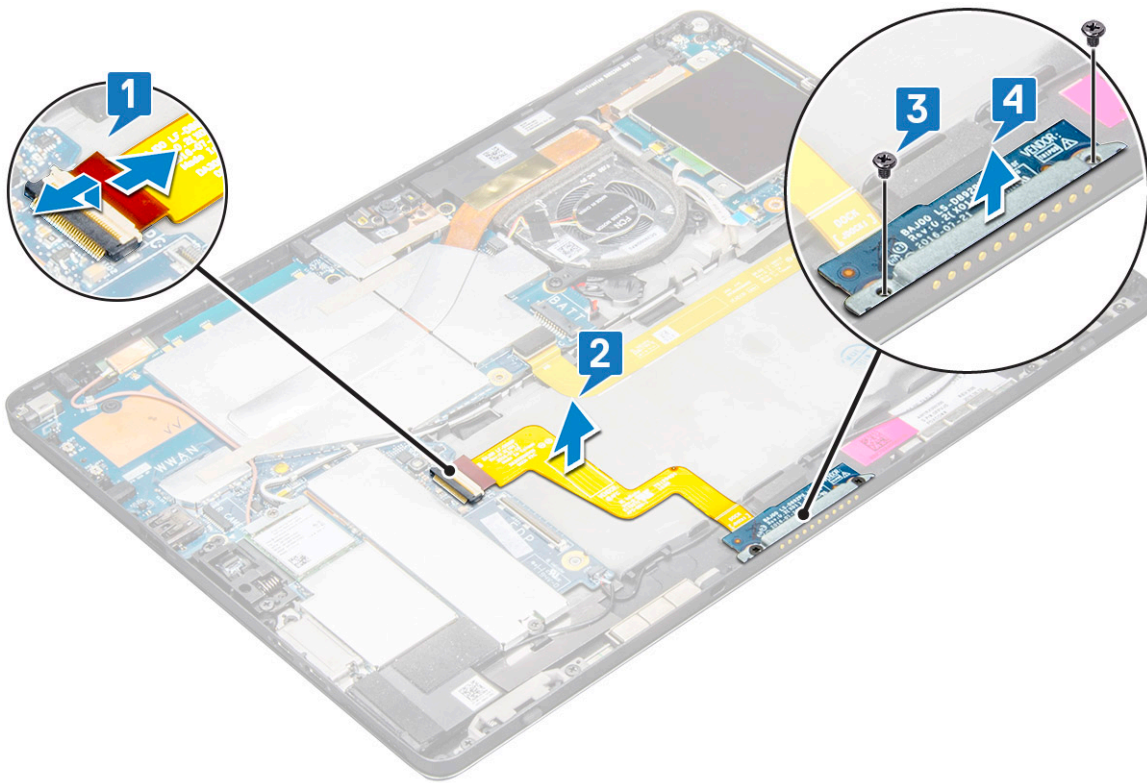
### Removing the docking board

1. Follow the procedure in [Before working inside your tablet](#).
2. Remove the:
  - a) [uSIM/microSD card](#)

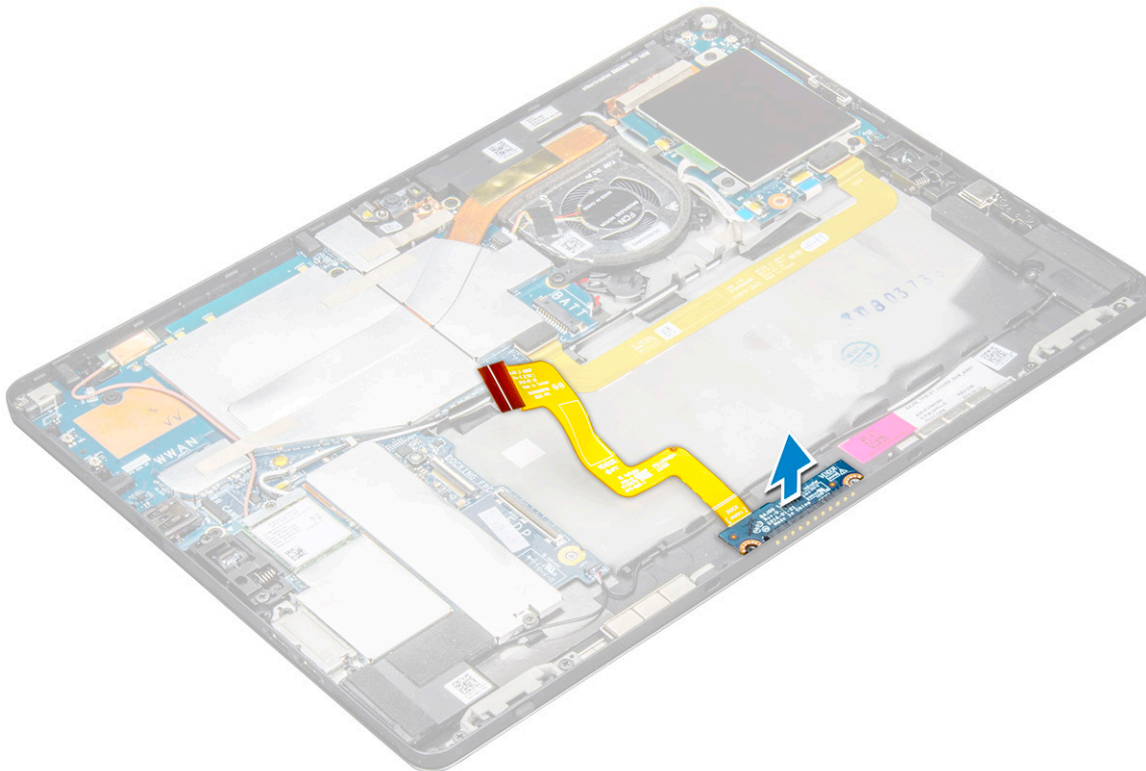
**NOTE:** uSIM card slot is available only on tablets shipping with WWAN module.

  - b) [display panel](#)
  - c) [battery](#)
3. To release the docking board:
  - a) Lift the latch and disconnect the docking board cable from the system board [1].

**NOTE:** The docking board FPC is obstructed by the speaker cable. Remove the right speaker first from the system to replace the docking board.
  - b) Peel the docking board cable from adhesive on the tablet [2].
  - c) Remove the M2 x 2 screws (2) securing the docking board bracket to the docking board [3].
  - d) Lift the docking board metal bracket from the tablet [4].



e) Lift the docking board after releasing the cable from the adhesive.




## Installing the docking board

1. Insert the docking board and docking board bracket into the slot on the tablet.
2. Replace the M2 x 2 screws to secure the docking board to the tablet.
3. Affix the docking board cable on the tablet,




4. Connect the docking board cable to the connector on the system board.
5. Install the:
  - a) battery
  - b) display panel
  - c) uSIM/microSD card


 **NOTE: uSIM card is installed only on tablets shipping with WWAN module.**
6. Follow the procedure in [After working inside your tablet](#).

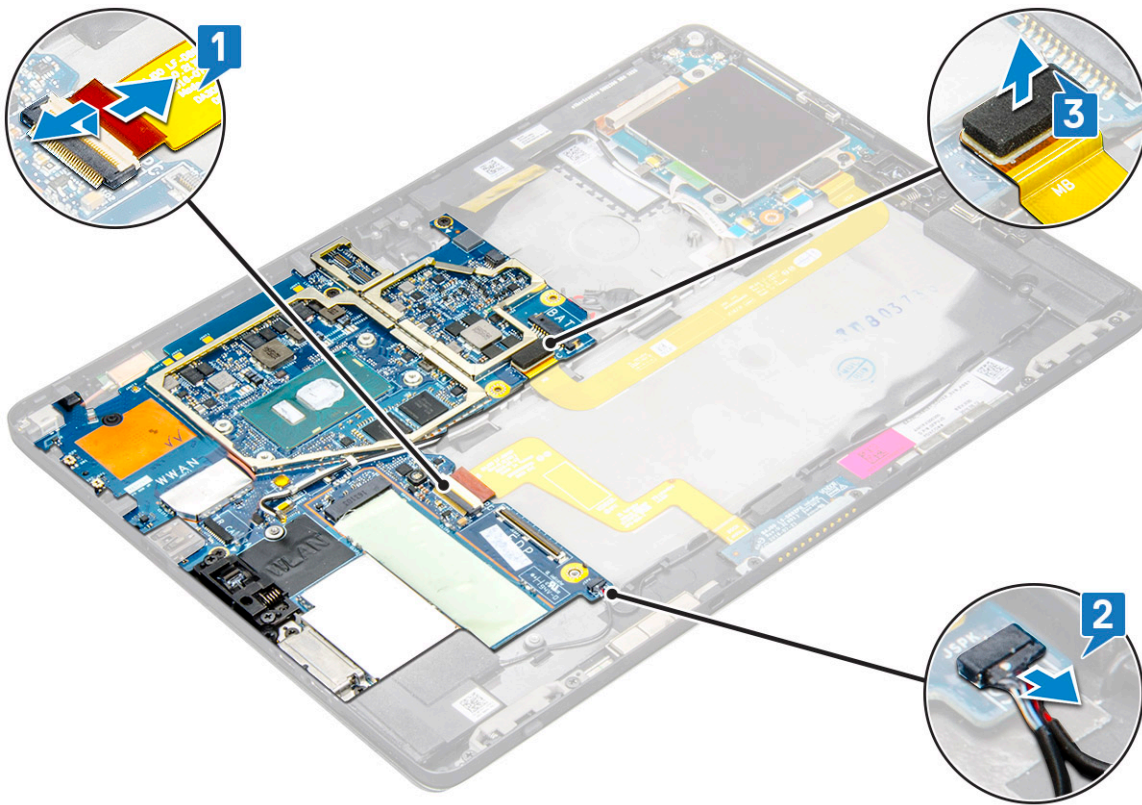
## System Board

### Removing system board

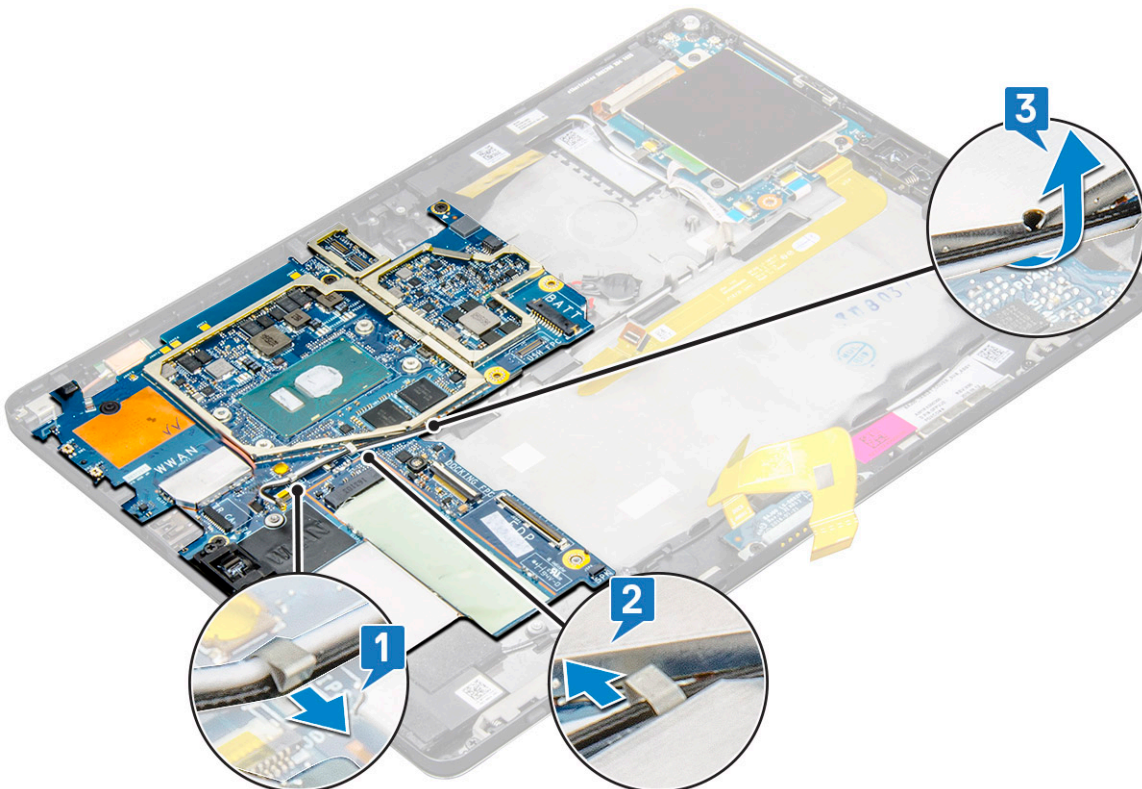
1. Follow the procedure in [Before working inside your tablet](#).
2. Remove the:
  - a) uSIM/microSD card

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

 **NOTE: A piece of mylar tape covers the SIM Card slot, ensure to remove the mylar for models configured with WLAN card.**
  - b) display panel
  - c) battery
  - d) SSD card
  - e) system fan
  - f) WLAN card
  - g) front camera
  - h) rear camera
  - i) heat sink
3. Disconnect the following cables from the system board .
  - a) Lift the latch and disconnect the docking board cable [1]
  - b) USB Type-C port bracket
  - c) speaker cable [2]
  - d) USH board cable [3]

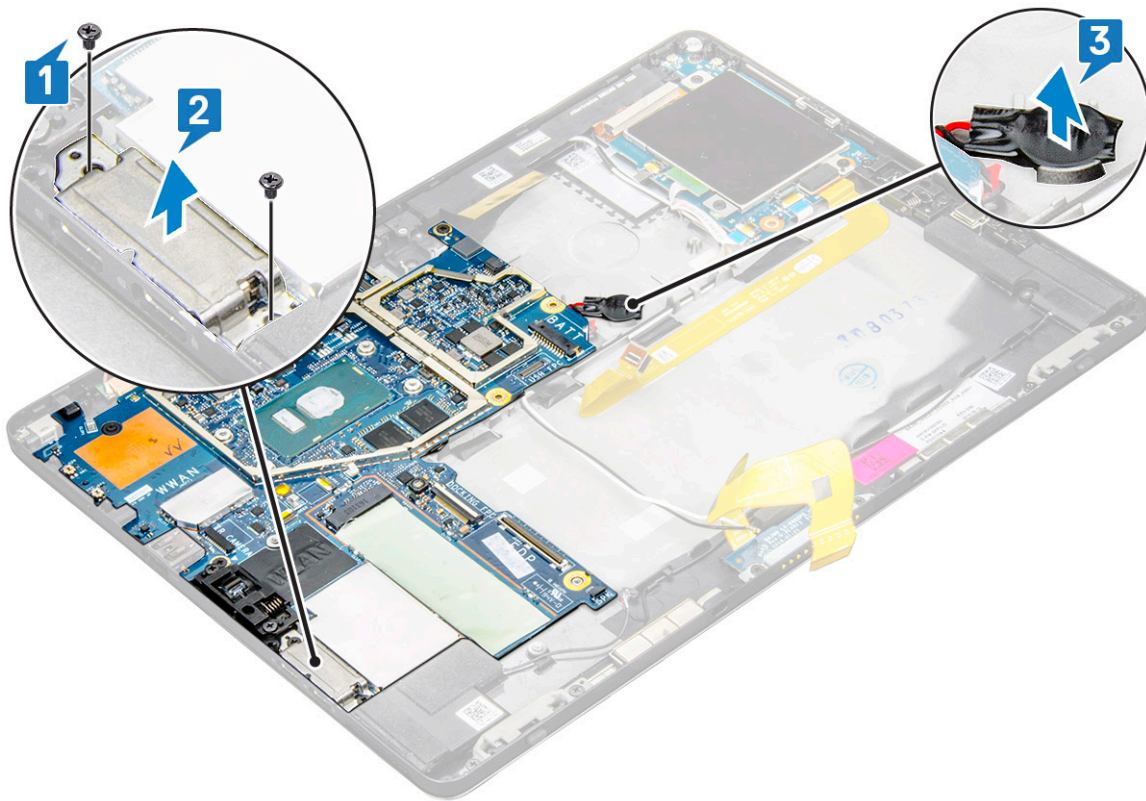


4. Un route the antenna cables from the routing clips [1,2,3].



5. To remove the system board

- a) Remove the bracket M2 x 2.5 screws (2) and lift the bracket form the tablet [1],[2].
- b) Release the coin cell battery from the adhesive on the tablet chassis [3].



c) Remove the M2 x 2.5 screws (4) that secure the system board to the tablet [1].

**NOTE:** There are different screws sizes that secure the hinges to the system.

d) Lift the system board from the tablet [2].



# Installing system board

1. Align the system board with the screw holders on the tablet.
2. Tighten the M2 x 2.5 screws to secure the system board to the tablet.  
**i** | **NOTE: Remember to align the Type-C port and tighten the two screws to secure the port to the system chassis.**
3. Route the antenna cables through the routing clips and channels.
4. Connect the docking board cable, speaker cable and the USH board cable to the connectors on the system board.
5. Install the:
  - a) heat sink
  - b) rear facing camera
  - c) front facing camera
  - d) system fan
  - e) WLAN card
  - f) SSD card
  - g) battery
  - h) display panel
  - i) uSIM/microSD**i** | **NOTE: uSIM card is installed only on tablets shipping with WWAN module.**
6. Follow the procedure in [After working inside your tablet.](#)

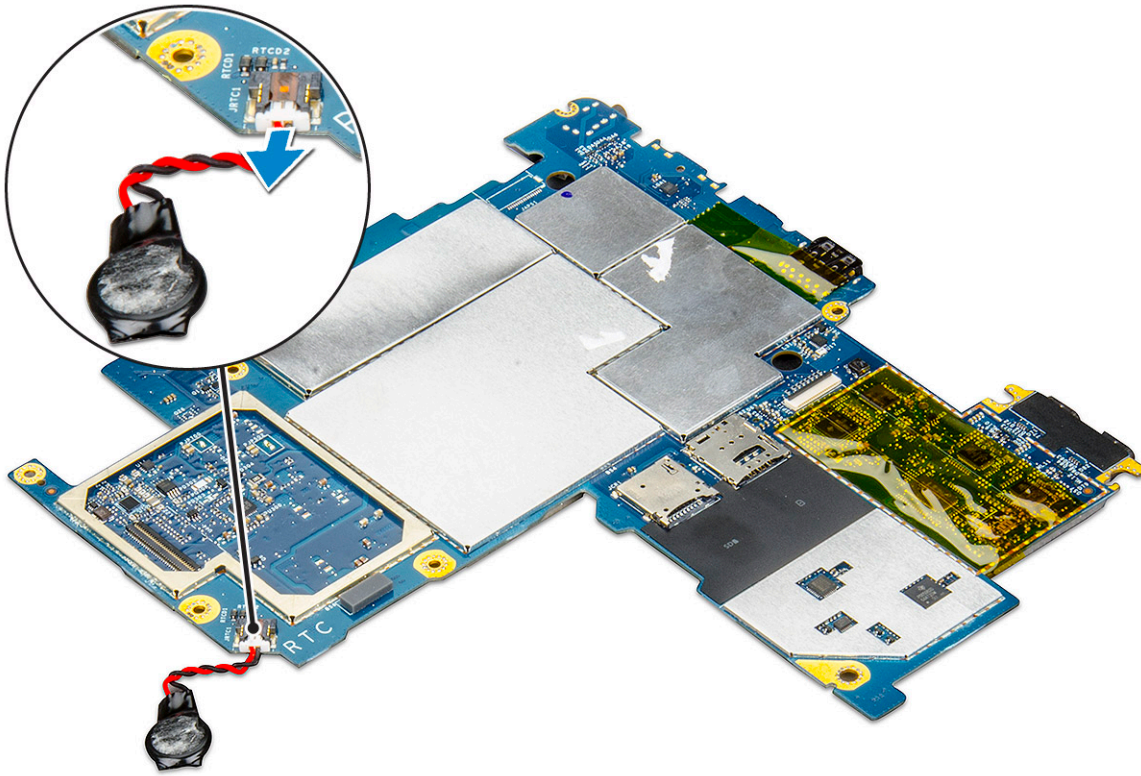
# Coin cell battery

## Removing coin cell battery

Coin cell battery connector is located beneath the system board.

1. Follow the procedure in [Before working inside your tablet.](#)
2. Remove the:
  - a) uSIM card  
**i** | **NOTE: uSIM card slot is available only on tablets shipping with WLAN module.**
  - b) microSD card
  - c) Display panel
  - d) Battery
  - e) System board
3. To remove the coin cell battery:
  - a) Disconnect the coin cell battery cable from the connector beneath the system board.  
**i** | **NOTE: The system board must be removed first before the RTC battery can be removed.**
  - b) Lift the coin cell battery from the tablet.





## Installing coin cell battery

1. Insert the coin cell battery to the slot on and affix it to the back cover.
  2. Connect the coin cell battery cable to the connector beneath the system board.
  3. Install the:
    - a) Battery
    - b) Display panel
    - c) System board
    - d) uSIM/microSD card
- NOTE:** uSIM card is installed only on tablets shipping with WLAN module.
4. Follow the procedure in [After working inside your tablet.](#)

## USH board

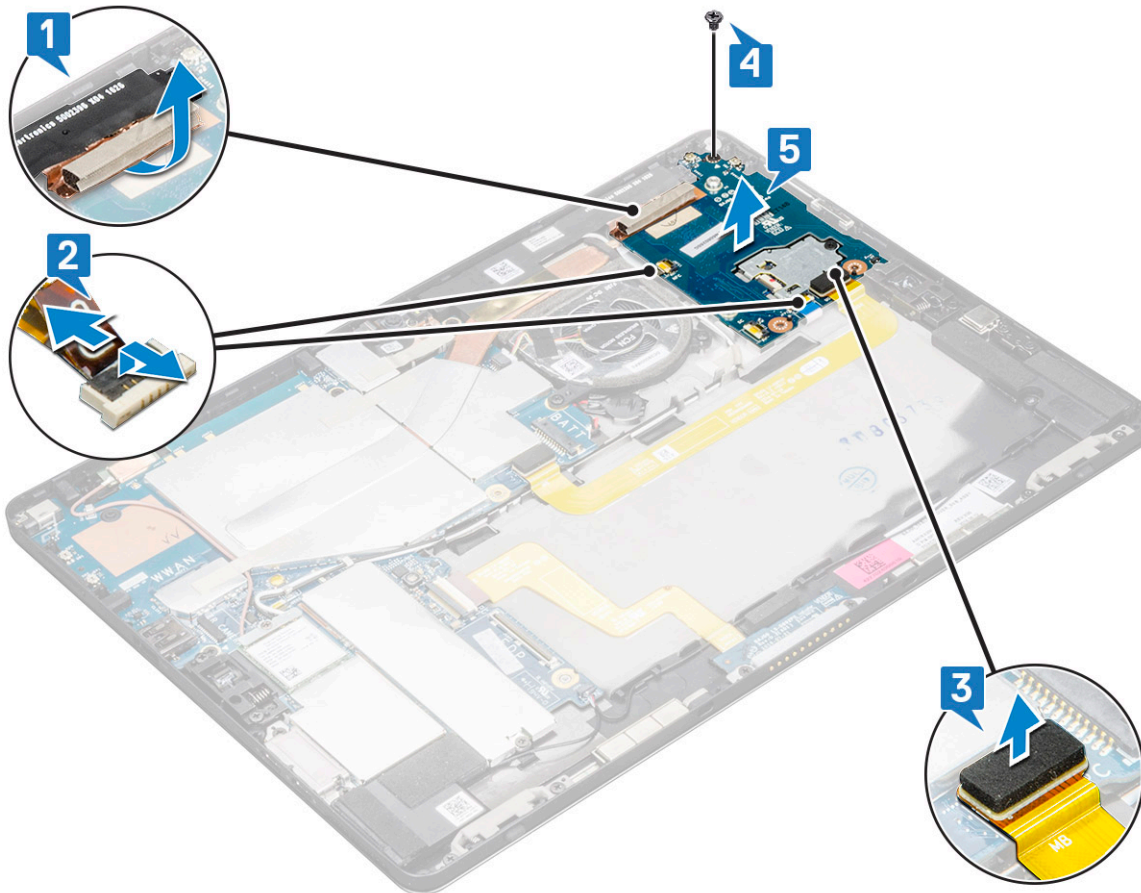
### Removing the USH board with power button

1. Follow the procedure in [Before working inside your tablet.](#)
2. Remove the:
  - a) uSIM/microSD card

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

  - b) display panel
  - c) battery
  - d) smart card cage
3. To disconnect the cables:
  - a) Lift the shield from the connector on the USH board [1].
  - b) Disconnect the NFC and fingerprint reader cables from the connectors on the USH board [2].

- c) Disconnect the USH board cable from the connector on the USH board [3]
- d) Remove the M2 x 2.5 screw that secures the USH board [4].
- e) Lift the USH board from the tablet [5].



## Installing the USB board with power button

1. Replace the USH board in the slot on the tablet.
2. Connect the M2 x 2.5 screw to secure the USH board
3. Connect the USB board cable to the connector on the USH board.
4. Connect the NFC and the fingerprint reader cables to the connectors on the system board.
5. Replace the shield on the USH board.
6. Install the:
  - a) smart card cage
  - b) battery
  - c) display panel
  - d) uSIM/microSD card
7. Follow the procedure in [After working inside your tablet.](#)

**NOTE: uSIM card is installed only on tablets shipping with WWAN module.**

## Antenna

### Removing the antenna module

1. Follow the procedure in [Before working inside your tablet.](#)
2. Remove:

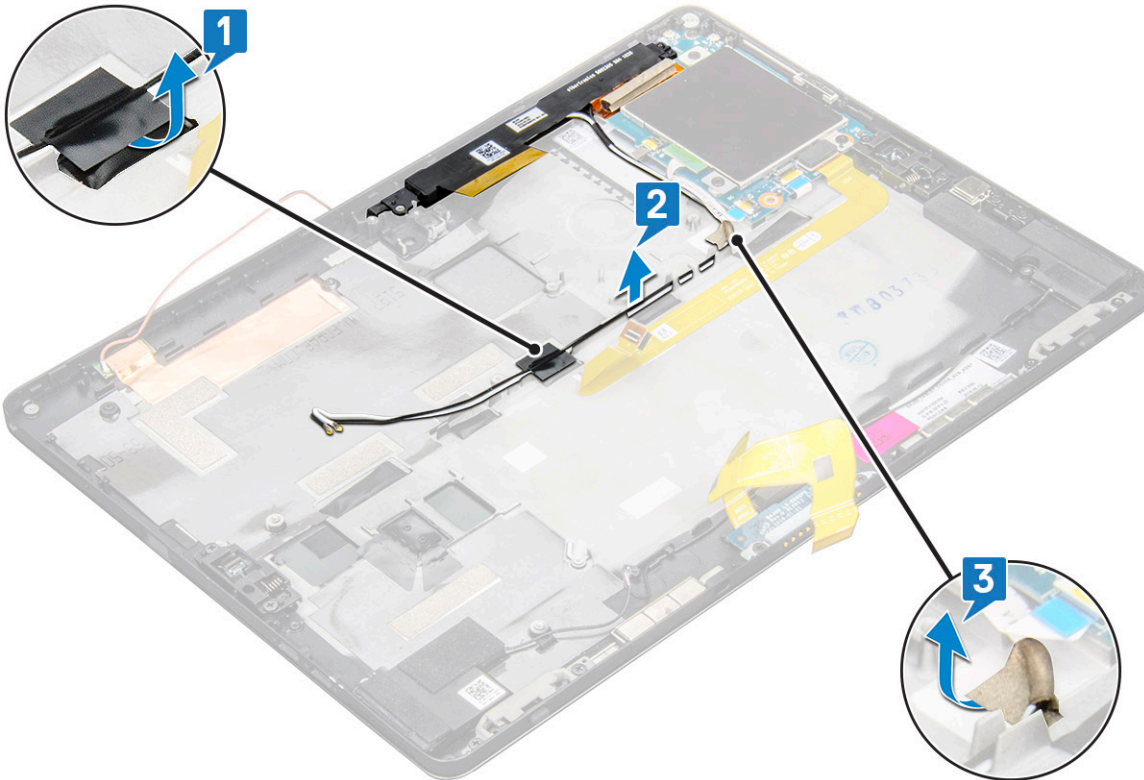
- a) uSIM and/or microSD card

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

- b) display panel
- c) battery
- d) front facing camera
- e) rear facing camera
- f) system board

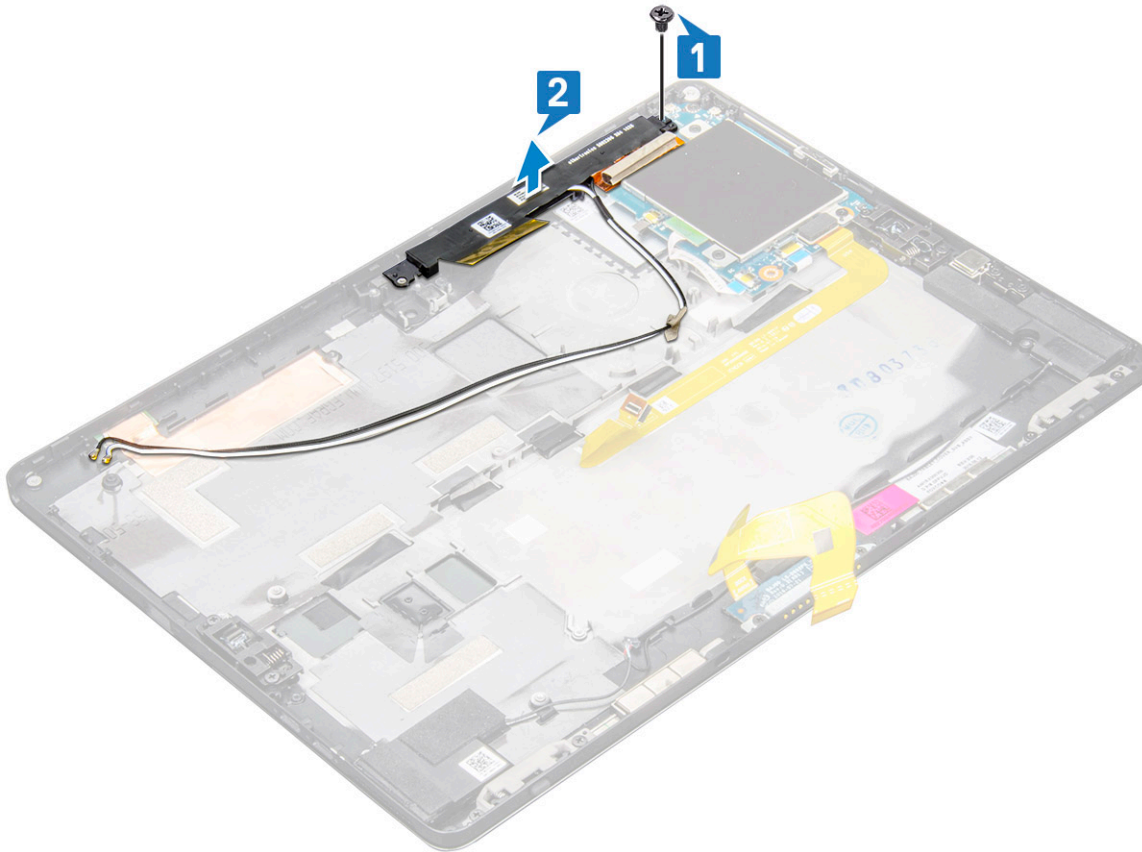
3. To un route the antenna cables of the antenna module:

- a) Peel the tape that secures the cables to the back cover of the tablet [1].
- b) Un route the cables from routing channels on the back cover [2].
- c) Peel the conductive tape that secures the cables [3].



4. To remove the antenna module:

- a) Remove the M1.6 x 3 screw that secures the antenna module to the back cover of the tablet [1].
- b) Lift the antenna module from the back cover [2].



## Installing the antenna module

1. Insert the antenna module into the slot on the back cover of the tablet.
  2. Tighten the M1.6 x 3 screw to secure the antenna module.
  3. Route the antenna cables to the routing channels.
  4. Affix the tape and the conductive tapes to secure the antenna cables.
  5. Install the:
    - a) [heat sink](#)
    - b) [rear facing camera](#)
    - c) [front facing camera](#)
    - d) [system fan](#)
    - e) [WLAN card](#)
    - f) [SSD card](#)
    - g) [battery](#)
    - h) [display panel](#)
    - i) [uSIM/microSD card](#)
- NOTE:** uSIM card is installed only on tablets shipping with WWAN module.
6. Follow the procedure in [After working inside your tablet](#).

# Technology and components

This chapter details the technology and components available in the system.

## Topics:

- [Power adapter](#)
- [Processors](#)
- [Chipset](#)
- [Memory features](#)
- [Display options](#)
- [Camera features](#)
- [Hard drive options](#)
- [Drivers](#)
- [Dell Active Pen](#)

## Power adapter

This system is shipped with 45 W or 65 W Type-C power adapters.

**⚠ WARNING:** When you disconnect the power adapter cable from the tablet, grasp the connector, not the cable itself, and then pull firmly but gently to avoid damaging the cable.

**⚠ WARNING:** The power adapter works with electrical outlets worldwide. However, power connectors and power strips vary among countries. Using an incompatible cable or improperly connecting the cable to the power strip or electrical outlet may cause fire or equipment damage.

## Processors

Latitude 5290 is shipped with:

- 7th Gen Intel® Core™ Processors up to i3-7130U Dual Core
- 8th Gen Intel® Core™ Processors up to i7-8650U Quad Core
- 8th Gen Intel® Core™ Processors up to i5-8350U Quad Core
- 8th Gen Intel® Core™ Processor up to i3-8130U Dual core

**ℹ NOTE:** The clock speed and performance varies depending on the workload and other variables.

## Identifying processors in Windows 10

1. Type **Device Manager** in **Ask me anything** field.  
The **Device Manager** window is displayed.
2. Click **Processor**.  
The processor information is displayed.

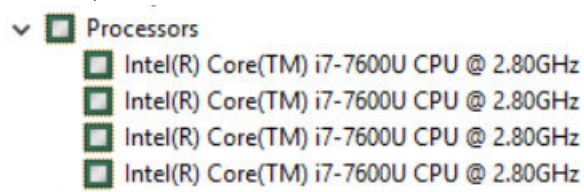


Figure 1. Processor



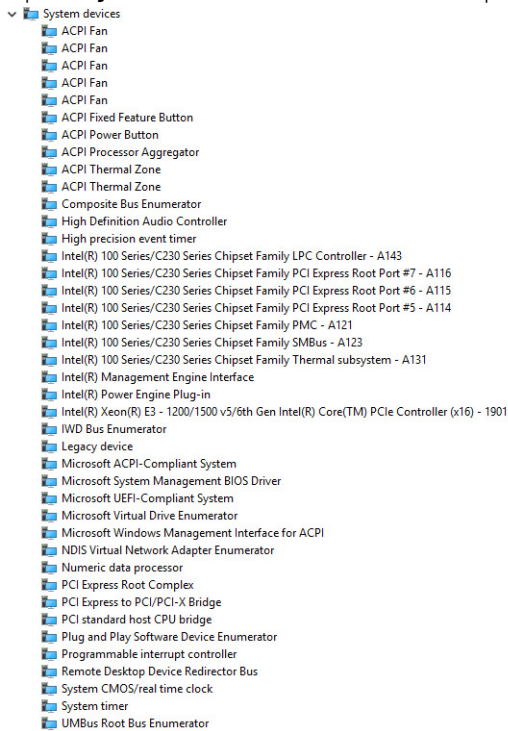
# Chipset

The chipset is integrated on the processor.

## Identifying chipset in device manager on Windows 10

**NOTE:** The Chipset information displayed is a generic image and may be different from what is displayed.

1. Type **Device Manager** in the **Ask me anything** field.  
Device Manager window appears.
2. Expand **System Devices** and search for the chipset.



## Memory features

Latitude 5285 supports the following memory configurations:


- 4G 1866MHz LPDDR3 - Intel Core i3-7100U
- 8G 1866MHz LPDDR3 - Intel Core i5-7200U/ Intel Core i5-7300U
- 16G 1866MHz LPDDR3 - Intel Core i7-7600U

## Verifying system memory in setup

1. Turn on or restart your notebook.
2. When the Dell logo appears, press F2.  
Entering BIOS setup message appears.
3. On the left pane, select **Settings > General > System Information**.  
The memory information is displayed on the right pane.

# Verifying system memory

## Windows 10

1. Click the **Windows** button and select **All Settings**  > **System** .
2. Under **System**, click **About**.

# Testing memory using ePSA

1. Turn on or restart your tablet.
2. Perform one of the following actions after the Dell logo is displayed:
  - a) With keyboard—Press **F12**
  - b) Press **Volume Up** button before pressing the **Power button** to turn on the tablet.
  - c) Release the **Volume Up** button, once the power sequence is initiated and ePSA will launch.

The PreBoot System Assessment (PSA) is launched on your tablet.

 **NOTE: If you wait too long and the operating system logo appears, continue to wait until you see the desktop. Turn off the tablet, and try again.**

3. Follow the steps in [Running ePSA diagnostics](#).

# Display options

This tablet is shipped with 12.3" 1920x1280 Touch with Corning Gorilla Glass, Antireflective and Antismudge display.

# Identifying display adapter

1. Type `Device manager` in the **Ask me anything** field. The **Display Manager** window is displayed.
2. Expand the **Display adapters**. The display adapter information is displayed.

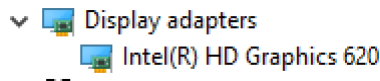
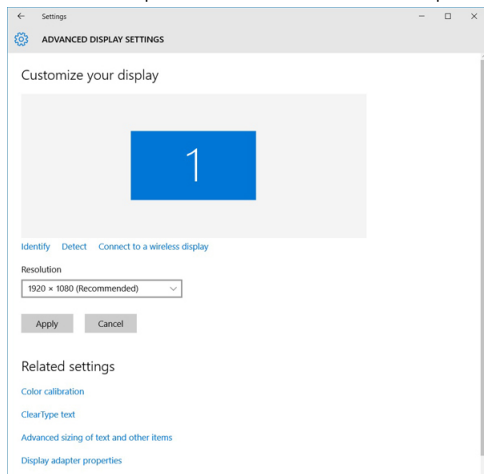


Figure 2. display adapter

# Changing the screen resolution

1. Right click on the desktop and select **Display Settings**.
2. Tap or click the **Advanced display settings**.
3. Select the required resolution from the drop-down list and tap **Apply**.

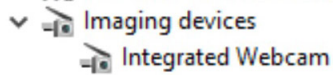


# Camera features

This system is shipped with front facing camera with 5 MP and rear facing camera with 8 MP

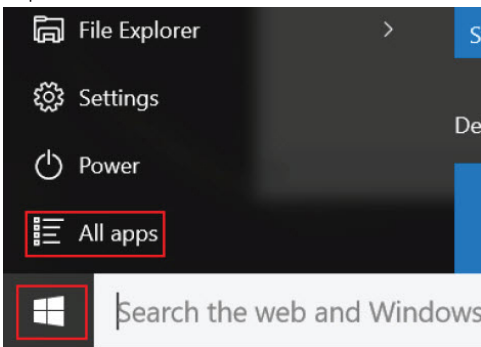
## Identifying the camera in Device Manager on Windows 10

1. In the **Search** box, type `device manager`, and tap to start it.
2. Under **Device Manager**, expand **Imaging devices**.

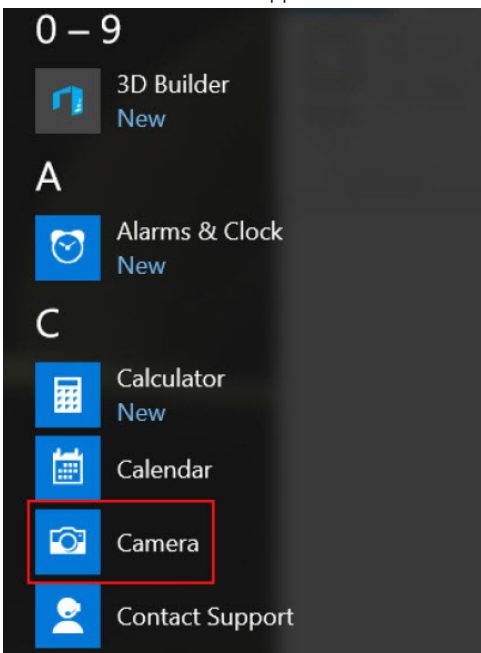


## Starting the camera application

1. Tap or click the **Windows** button and select **All apps**.

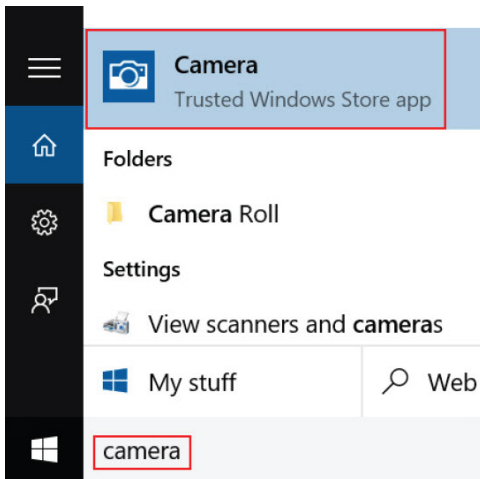


2. Select **Camera** from the apps list.



3. If the **Camera** App is not available in the apps list, search for it.





## Hard drive options

This system supports M.2 SATA SSD, M.2 PCIe NVMe SSD, and M.2 PCIe NVMe SED.

### Identifying the hard drive in the BIOS

1. Turn on or restart your laptop.
2. When the Dell logo appears, perform one of the following actions to enter the BIOS setup program:
  - With keyboard — Tap **F2** until the Entering BIOS setup message appears. To enter the Boot selection menu, tap **F12**.
  - In tablet mode — Press the **Volume Up** button to display the **F12** boot selection or press **Volume Down** button to enter BIOS setup directly.

Hard drive is listed under the **System Information** under the **General** group.

# Drivers

This section lists the drivers associated with the components shipped with your tablet.

## System drivers

- Intel(R) CSI2 Host Controller
- Intel(R) Imaging Signal Processor 2500
- Intel(R) Integrated Sensor Solution
- Intel(R) Management Engine Interface
- Intel(R) Power Engine Plug-in
- Intel(R) Serial IO I2C Host Controller - 9D60
- Intel(R) Serial IO I2C Host Controller - 9D61
- Intel(R) Serial IO I2C Host Controller - 9D62
- Intel(R) Serial IO I2C Host Controller - 9D64
- Intel(R) Smart Sound Technology (Intel(R) SST) Audio Controller
- Intel(R) Smart Sound Technology (Intel(R) SST) OED
- Intel(R) Virtual Buttons
- Intel(R) Xeon(R) E3 - 1200 v6/7th Gen Intel(R) Core(TM) Host Bridge/DRAM Registers - 5904
- ISS Dynamic Bus Enumerator
- Legacy device
- Microsoft ACPI-Compliant Embedded Controller
- Microsoft ACPI-Compliant System
- Microsoft System Management BIOS Driver
- Microsoft UEFI-Compliant System
- Microsoft Virtual Drive Enumerator
- Microsoft Windows Management Interface for ACPI
- Mobile 6th/7th Generation Intel(R) Processor Family I/O PCI Express Root Port #9 - 9D18
- Mobile 6th/7th Generation Intel(R) Processor Family I/O PCI Express Root Port #8 - 9D17
- Mobile 6th/7th Generation Intel(R) Processor Family I/O PCI Express Root Port #5 - 9D14
- Mobile 6th/7th Generation Intel(R) Processor Family I/O PCI Express Root Port #7 - 9D16
- Mobile 6th/7th Generation Intel(R) Processor Family I/O PMC - 9D21
- Mobile 6th/7th Generation Intel(R) Processor Family I/O SMBUS - 9D23
- Mobile 6th/7th Generation Intel(R) Processor Family I/O Thermal subsystem - 9D31
- Mobile 7th Generation Intel(R) Processor Family I/O LPC Controller (U with iHDPC2.2 Premium) - 9D4E
- NDIS Virtual Network Adapter Enumerator
- NFC USB Bus Driver
- PCI Express Root Complex
- Plug and Play Software Device Enumerator
- Programmable interrupt controller
- Remote Desktop Device Redirector Bus
- System CMOS/real time clock
- System timer
- UMBus Root Bus Enumerator
- > Universal Serial Bus controllers

Figure 3. System drivers

## Disk driver

- > Audio inputs and outputs
- > Batteries
- > Biometric devices
- > Bluetooth
- > Computer
- > ControlVault Device
- ▼ Disk drives
  - CX2-8B512-Q11 NVMe LITEON 512GB
- > Display adapters
- > Firmware
- > Human Interface Devices
- > Intel(R) Dynamic Platform and Thermal Framework
- > Intel® Power Sharing Manager
- > Intel® Wireless Gigabit Drivers
- > Keyboards
- > Memory technology devices
- > Mice and other pointing devices
- > Monitors
- > Network adapters
- > Ports (COM & LPT)
- > Print queues
- > Processors
- > Proximity devices
- > Security devices
- > Sensors
- > Smart card readers
- > Software devices
- > Sound, video and game controllers
- > Storage controllers
- > System devices
- > Universal Serial Bus controllers

Figure 4. Disk driver

## Sound, video and game controller drivers

- > Firmware
- > Human Interface Devices
- > Intel(R) Dynamic Platform and Thermal Framework
- > Intel® Power Sharing Manager
- > Intel® Wireless Gigabit Drivers
- > Keyboards
- > Memory technology devices
- > Mice and other pointing devices
- > Monitors
- > Network adapters
- > Ports (COM & LPT)
- > Print queues
- > Processors
- > Proximity devices
- > Security devices
- > Sensors
- > Smart card readers
- > Software devices
- ▼ Sound, video and game controllers
  - Intel(R) AVStream Camera 2500
  - Intel(R) Display Audio
  - Realtek Audio
- > Storage controllers
- > System devices
- > Universal Serial Bus controllers

Figure 5. Sound, video, and game controllers

## Storage controller drivers

- > Audio inputs and outputs
- > Batteries
- > Biometric devices
- > Bluetooth
- > Computer
- > ControlVault Device
- > Disk drives
- > Display adapters
- > Firmware
- > Human Interface Devices
- > Intel(R) Dynamic Platform and Thermal Framework
- > Intel® Power Sharing Manager
- > Intel® Wireless Gigabit Drivers
- > Keyboards
- > Memory technology devices
- > Mice and other pointing devices
- > Monitors
- > Network adapters
- > Ports (COM & LPT)
- > Print queues
- > Processors
- > Proximity devices
- > Security devices
- > Sensors
- > Smart card readers
- > Software devices
- > Sound, video and game controllers
- ▼ Storage controllers
  - Microsoft Storage Spaces Controller
  - Standard NVM Express Controller
- > System devices
- > Universal Serial Bus controllers

Figure 6. Storage controllers

## Network drivers

- > Audio inputs and outputs
- > Batteries
- > Biometric devices
- > Bluetooth
- > Computer
- > ControlVault Device
- > Disk drives
- > Display adapters
- > Firmware
- > Human Interface Devices
- > Intel(R) Dynamic Platform and Thermal Framework
- > Intel® Power Sharing Manager
- > Intel® Wireless Gigabit Drivers
- > Keyboards
- > Memory technology devices
- > Mice and other pointing devices
- > Monitors
- ▼ Network adapters
  - Bluetooth Device (Personal Area Network)
  - Bluetooth Device (RFCOMM Protocol TDI)
  - Intel(R) Dual Band Wireless-AC 8265
- > Ports (COM & LPT)
- > Print queues
- > Processors

Figure 7. Network drivers

## Graphics driver

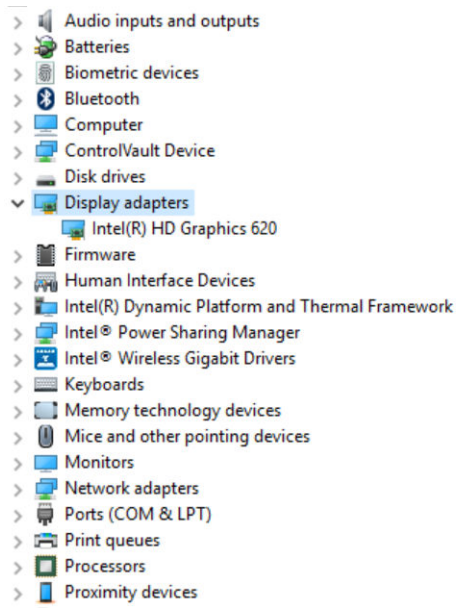


Figure 8. Graphics driver

# Dell Active Pen



- Natural writing feel for a pen on paper experience
- Industry leading accuracy, built with Wacom feel IT technologies
- Active stylus with hovering and pressure-sensitive tip (2048 levels of pressure)
- Magnetic attach feature with built-in magnet for increased fastening strength
- Removed Pen clip and added Tethering functionality
- Customizable\* 2 barrel buttons and Top button
- Quick launch and note taking over lock screen (requires Bluetooth pairing)
- LED light to show Bluetooth pairing status
- 12 months battery life\*\*, with AAAA battery

\*\*Based on 3 hours daily usage for 5 days a week



## System specifications


### Processor specifications

Feature	Specification
<b>Types</b>	<ul style="list-style-type: none"> <li>7th Gen Intel® Core™ i3-7130U (3M Cache, up to 2.7 GHz), Intel® Integrated HD Graphics 620</li> <li>8th Gen Intel® Core™ i3-8130U (4M Cache, up to 3.4 GHz), Intel® Integrated UHD Graphics 620</li> <li>8th Gen Intel® Core™ i5-8250U (6M Cache, Quad Core, up to 3.4GHz), Intel® Integrated UHD Graphics 620</li> <li>8th Gen Intel® Core™ i5-8350U (6M Cache, Quad Core, up to 3.6GHz), vPro, Intel® Integrated UHD Graphics 620</li> <li>8th Gen Intel® Core™ i7-8650U (8M Cache, Quad Core, up to 3.9GHz), vPro, Intel® Integrated UHD Graphics 620</li> </ul>


### System specifications

Feature	Specification
<b>Chipset</b>	Integrated in the processor
<b>DRAM bus width</b>	LPDDR3 SDRAM

### Memory specifications

Feature	Specification
<b>Memory connector</b>	Onboard memory
<b>Memory capacity</b>	<ul style="list-style-type: none"> <li>16GB SDRAM</li> <li>4GB/8GB SDRAM</li> </ul> <p> <b>NOTE: Memory size is fixed and cannot be expanded.</b></p>
<b>Memory type</b>	<ul style="list-style-type: none"> <li>LPDDR3 1866MHz</li> <li>LPDDR3—2133 MHz</li> </ul>

### Video specifications

Feature	Specification
<b>Type</b>	Integrated on system board
<b>UMA controller</b>	<ul style="list-style-type: none"> <li>Intel Integrated HD Graphics 620 (7th Generation Intel® Core)</li> <li>Intel Integrated UHD Graphics 620 (8th Generation Intel® Core)</li> </ul>
<b>External display support</b>	Optional Dell Adapter - USB Type-C to HDMI/VGA/ 3.1 Gen1  <b>NOTE: Supports VGA, DisplayPort, HDMI through the docking station (Dell Dock WD15).</b>

## Audio specifications

Feature	Specification
<b>Types</b>	High-definition audio
<b>Controller</b>	Realtek ALC3253
<b>Stereo conversion</b>	24-bit—analog-to-digital and digital-to-analog
<b>Internal interface</b>	High-definition audio
<b>External interface</b>	Microphone-in, stereo headphones, and speakers universal connector
<b>Speakers</b>	Two
<b>Internal speaker amplifier</b>	2 W (RMS) per channel
<b>Volume controls</b>	Volume up and Volume down buttons

## Port and connector specifications

Feature	Specification
<b>Audio</b>	<ul style="list-style-type: none"><li>Realtek ALC3253 Controller</li><li>Microphone-in and stereo headphones/speakers universal connector</li></ul>
<b>Video</b>	<ul style="list-style-type: none"><li>2 x Display Port over USB Type-C (optional Thunderbolt 3)</li></ul>
<b>Memory card reader</b>	<ul style="list-style-type: none"><li>micro SD 4.0</li><li>Optional smart card reader</li></ul>
<b>Micro Subscriber Identity Module (uSIM) card</b>	micro SIM card slot (on WWAN only)
<b>USB ports</b>	<ul style="list-style-type: none"><li>1 x USB 3.1 Gen1 (with PowerShare)</li><li>2 x Display Port over USB Type-C (optional Thunderbolt 3)</li></ul>
<b>Micro SIM</b>	Optional micro-SIM card slot (under the kickstand)
<b>Security and Lock slot</b>	<ul style="list-style-type: none"><li>Noble Wedge Lock slot</li><li>Contacted smart card reader (optional)</li><li>Touch finger print reader (optional)</li><li>Contactless SC Reader/NFC</li><li>ControlVault, TPM2.0</li></ul>
<b>Other</b>	<ul style="list-style-type: none"><li>I2C for the Dock Pin Keyboard connection</li></ul>

## Communication specifications

Features	Specification
<b>Wireless</b>	WiFi Display (Miracast)
<b>Wireless LAN</b>	<ul style="list-style-type: none"><li>Qualcomm® QCA61x4A 802.11ac Dual Band (2x2) Wireless Adapter+ Bluetooth 4.1</li><li>Qualcomm® QCA6174A Extended Range 802.11ac MU-MIMO Dual Band (2x2) Wi-Fi + Bluetooth 4.1</li><li>Intel® Dual-Band Wireless-AC 8265 Wi-Fi + BT 4.217 Wireless Card (2x2). Bluetooth Optional</li></ul>
<b>Mobile Broadband (Optional)</b>	<ul style="list-style-type: none"><li>Qualcomm® Snapdragon™ X7 LTE-A (DW5811e) for AT&amp;T, Verizon &amp; Sprint (US)</li><li>Qualcomm® Snapdragon™ X7 LTE-A (DW5811e) (EMEA/APJ/ROW)</li><li>Qualcomm® Snapdragon™ X7 LTE-A (DW5816e for Japan/ANZ/China/India)</li></ul>

Features	Specification
WiGig (Optional)	Intel Tri-Band Wireless-AC 18265 WiGig + Wi-Fi + BT4.2 Wireless Card

## Camera specifications

Feature	Specification
Type	<ul style="list-style-type: none"> <li>Front Camera- 5MP fixed focus</li> <li>Rear Camera- 8MP auto focus</li> <li>Optional IR camera (Win Hello compliant)</li> </ul>
Sensor type	CMOS sensor technology (Front and Rear camera)
Imaging rate	Up to 30 frames per second
Video Resolution	<ul style="list-style-type: none"> <li>Front Camera- 2592 x 1944 pixels</li> <li>Rear Camera- 3264 x 2448 pixels</li> </ul>

## Display specifications

Feature	Specification
Type	12.3" 3:2 WVA Touch with Corning Gorilla Glass 4, Anti-reflective, and Anti-smudge
Luminance	340 nits
Height	265.56 mm(10.55 inches)
Width	185.06 mm (7.28 inches)
Diagonal	312.42 mm (12.3 inches)
Maximum resolution	1920x1280
Refresh rate	60 Hz
Maximum viewing angles—horizontal	+/-80°
Maximum viewing angles—vertical	+/-80°
Pixel pitch	0.135 mm

## AC adapter specifications

Feature	Specification
Type	45 W USB Type-C, 46 W small form factor (SFF) USB Type C and 65 W USB Type-C
Input voltage	100 V AC–240 V AC
Input current—maximum	1.3 A / 1.6 A
Input frequency	50 Hz to 60 Hz
Output current	<ul style="list-style-type: none"> <li>20 V/2.25 A (Continuous)</li> <li>15 V/3 A (Continuous)</li> <li>9.0 V/3 A (Continuous)</li> <li>5.0 V/3 A (Continuous)</li> </ul>

Feature	Specification
<b>Rated output voltage</b>	20 VDC/15 VDC/9 VDC/5 VDC
<b>Weight</b>	<ul style="list-style-type: none"> <li>0.17 kg/0.37 lbs (45W)</li> <li>0.216 kg/0.476 lbs (65W)</li> </ul>
<b>Dimensions</b>	<ul style="list-style-type: none"> <li><b>45W USB-C:</b> 0.87 x 2.17 x 3.42 inch ( 22mm x 55mm x 87mm)</li> <li><b>45W USB-C SFF:</b> 0.87 x 2.17 x 2.36 inch (22mm x 55mm x 60mm)</li> <li><b>65W USB-C:</b> 0.87 x 2.6 x 3.9 inch (22mm x 66mm x 99mm)</li> </ul>
<b>Temperature range—Operating</b>	0°C to 40°C (32°F to 104°F)
<b>Temperature range—Non-Operating</b>	-40°C to 70°C (-40°F to 158°F)

## Battery specifications

Feature	Specification
<b>Type</b>	<ul style="list-style-type: none"> <li>3-Cell 31.5 Whr Polymer battery with ExpressCharge</li> <li>4-Cell 42 Whr Polymer battery with ExpressCharge</li> <li>4-Cell 42 WHr Polymer Long Life Cycle</li> </ul>

### 31.5 Whr:

<b>Length</b>	177.6 mm (6.99 inches)
<b>Width</b>	82.6 mm (3.25 inches)
<b>Height</b>	5.5 mm (0.21 inch)
<b>Weight</b>	135.0 g (0.29 lb) (126 GB m2 SATA)
<b>Voltage</b>	11.4 VDC

### 42 WHr:

<b>Length</b>	177.6 mm (6.99 inches)
<b>Width</b>	82.6 mm (3.25 inches)
<b>Height</b>	5.5 mm (0.21 inch)
<b>Weight</b>	170 g (0.37 lb)
<b>Voltage</b>	7.6 VDC
<b>Life span</b>	300 discharge per charge cycles

### Temperature range

<b>Operating</b>	<ul style="list-style-type: none"> <li>Charge: 0°C to 50°C (32°F to 122°F)</li> <li>Discharge: 0°C to 70°C (32°F to 158°F)</li> </ul>
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<b>Non-operating</b>	- 20°C to 85°C (- 4°F to 185°F)
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## Physical specifications

Feature	Specification
<b>Weight - Tablet only(with 31.5 Whr battery and</b>	1.89 lbs (857 g)

<b>Feature</b>	<b>Specification</b>
<b>126 GB m2 SATA base)</b>	
<b>Weight - Tablet +Keyboard</b>	2.65 lbs (1201.8 g)
<b>Input current—maximum</b>	1.3 A / 1.7 A
<b>Width</b>	11.5 inches (292 mm)
<b>Height (Tablet only)</b>	0.38 inch - 0.42 inch (9.76 mm - 10.65 mm)
<b>Height (Tablet +Keyboard only)</b>	0.59 inch - 0.63 inch (14.9 mm - 15.9 mm)
<b>Depth</b>	<ul style="list-style-type: none"> <li>• Tablet only: 8.22 inches (208.8 mm)</li> <li>• Tablet with Travel Keyboard - 8.52 inch ( 216.4mm)</li> </ul>

## Environmental specifications

<b>Temperature</b>	<b>Specifications</b>
<b>Operating</b>	0°C to 35°C (32°F to 95°F)
<b>Storage</b>	-40°C to 65°C (-40°F to 149°F)
<b>Relative humidity—maximum</b>	<b>Specifications</b>
<b>Operating</b>	10% to 90% (non-condensing)
<b>Storage</b>	10% to 95% (non-condensing)
<b>Altitude—maximum</b>	<b>Specifications</b>
<b>Operating</b>	0 m to 3048 m (0 to 10,000 ft)
<b>Non-operating</b>	0 m to 10,668 m (0 ft to 35,000 ft)
<b>Airborne contaminant level</b>	G2 or lower as defined by ISA S71.04-1985



# System setup

System setup enables you to manage your notebook 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:

- [Entering BIOS without keyboard](#)
- [System setup options](#)
- [System Log](#)
- [Updating the BIOS](#)
- [System and setup password](#)

## Entering BIOS without keyboard

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 laptop and its installed devices, the items listed in this section may or may not appear.


## General screen options

This section lists the primary hardware features of your computer.

Option	Description
<b>System Information</b>	<ul style="list-style-type: none"> <li>• System Information: Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date, Manufacture Date, and the Express Service Code.</li> <li>• Memory Information: Displays Memory Installed, Memory Available, Memory Speed, Memory Channels Mode, Memory Technology, DIMM A Size, DIMM B Size.</li> <li>• Processor Information: Displays Processor Type, Core Count, Processor ID, Current Clock Speed, Minimum Clock Speed, Maximum Clock Speed, Processor L2 Cache, Processor L3 Cache, HT Capable, and 64-Bit technology.</li> <li>• Device Information: Displays Primary Hard Drive, MiniCard Device, ODD Device, Dock eSATA Device, LOM MAC Address, Video Controller, Video BIOS Version, Video Memory, Panel Type, Native Resolution, Audio Controller, Wi-Fi Device, WiGig Device, Cellular Device, Bluetooth Device.</li> </ul>
<b>Battery Information</b>	Displays the battery status and the type of AC adapter connected to the computer.
<b>Boot Sequence</b>	<p><b>Boot Sequence</b> Allows you to change the order in which the computer attempts to find an operating system. The options are:</p> <ul style="list-style-type: none"> <li>• Windows Boot Manager</li> </ul>

Option	Description
	By default, the options is checked.
<b>Boot List Options</b>	Allows you to change the boot list option: <ul style="list-style-type: none"> <li>· Legacy</li> <li>· UEFI (The option is enabled by default)</li> </ul>
<b>Advanced Boot Options</b>	Allows you the legacy option ROMs to load. By default, all the option are disabled. <ul style="list-style-type: none"> <li>· <b>Enable Legacy Option ROMs</b></li> <li>· <b>Enable Attempt Legacy Boot</b></li> </ul>
<b>UEFI Boot Path SecurityOptions</b>	Allows you to control whether or not the system will prompt to the user to enter the Admin password, when a user selects a UEFI boot path from the F12 boot Menu. <ul style="list-style-type: none"> <li>· <b>Always, Except Internal HDD.</b> This option is enabled by default.</li> <li>· <b>Always</b></li> <li>· <b>Never</b></li> </ul> <p> <b>NOTE: These options have no relevance if the Admin password is not set BIOS settings.</b></p>
<b>Date/Time</b>	Allows you to change the date and time.




## System Configuration screen options

Option	Description
<b>SMART Reporting</b>	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. This option is disabled by default. <ul style="list-style-type: none"> <li>· Enable SMART Reporting</li> </ul>
<b>USB Configuration</b>	This is an optional feature. <p>This field configures the integrated USB controller. If Boot Support is enabled, the system is allowed to boot any type of USB Mass Storage Devices—HDD, memory key, floppy.</p> <p>If USB port is enabled, device attached to this port is enabled and available for OS.</p> <p>If USB port is disabled, the OS cannot see any device attached to this port.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>· Enable USB Boot Support—enabled by default</li> <li>· Enable External USB Port—enabled by default</li> <li>· Always Allow dell docks—enabled by default</li> </ul> <p> <b>NOTE: USB keyboard and mouse always work in the BIOS setup irrespective of these settings.</b></p>
<b>USB PowerShare</b>	This field configures the USB PowerShare feature behavior. This option allows you to charge external devices using the stored system battery power through the USB PowerShare port. This option is disabled by default
<b>Audio</b>	This field enables or disables the integrated audio controller. By default, the <b>Enable Audio</b> option is selected. The options are: <ul style="list-style-type: none"> <li>· Enable Microphone—enabled by default</li> <li>· Enable Internal Speaker—enabled by default</li> </ul>
<b>Keyboard Illumination</b>	This field lets you choose the operating mode of the keyboard illumination feature. The keyboard brightness level can be set from 0% to 100%. The options are: <ul style="list-style-type: none"> <li>· Disabled—enabled by default</li> <li>· Dim (50%)</li> <li>· Bright</li> </ul>

Option	Description
<b>Keyboard Backlight Timeout on Battery</b>	<p>The Keyboard Backlight Timeout dims out with the Battery option. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. The options are:</p> <ul style="list-style-type: none"> <li>• 5 sec</li> <li>• 10 sec—enabled by default</li> <li>• 15 sec</li> <li>• 30 sec</li> <li>• 1 min</li> <li>• 5 min</li> <li>• 15 min</li> <li>• Never</li> </ul>
<b>Keyboard Backlight with AC</b>	<p>The Keyboard Backlight with AC option does not affect the main keyboard illumination feature. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. This option is enabled by default.</p>
<b>Keyboard Backlight Timeout on AC</b>	<p>The Keyboard Backlight Timeout dims out with AC option. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. The options are:</p> <ul style="list-style-type: none"> <li>• 5 sec</li> <li>• 10 sec—enabled by default</li> <li>• 15 sec</li> <li>• 30 sec</li> <li>• 1 min</li> <li>• 5 min</li> <li>• 15 min</li> <li>• Never</li> </ul>
<b>Unobtrusive Mode</b>	<p>This option, when enabled, pressing <b>Fn+F7</b> turns off all light and sound emissions in the system. To resume normal operation, press <b>Fn+F7</b> again. This option is disabled by default.</p>
<b>Miscellaneous Devices</b>	<p>Allows you to enable or disable the following devices:</p> <ul style="list-style-type: none"> <li>• Enable Front Camera—enabled by default</li> <li>• Enable Back Camera—enabled by default</li> <li>• Secure Digital (SD) card—enabled by default</li> <li>• Secure Digital (SD) card boot</li> <li>• Secure Digital (SD) card read-only-mode</li> </ul>

## System Configuration screen options

Option	Description
<b>Integrated NIC</b>	<p>Allows you to controls the on-board LAN controller. The options are:</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b>The internal LAN in off and not visible to the operating system.</li> <li>• <b>Enabled</b>The internal LAN is enabled.</li> <li>• <b>Enabled w/PXE</b>The internal LAN is enabled (with PXE boot). This option is enabled by default.</li> </ul>
<b>SATA Operation</b>	<p>Allows you to configure the internal SATA hard-drive controller. The options are:</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b></li> <li>• <b>AHCI</b></li> <li>• <b>RAID On</b> This option is enabled by default.</li> </ul>
<b>Drives</b>	<p>Allows you to configure the various drives on board. All drives are enabled by default. The options are:</p> <ul style="list-style-type: none"> <li>• <b>SATA- 2</b></li> <li>• <b>M.2 PCI-e SSD-0</b></li> </ul>

Option	Description
<b>SMART Reporting</b>	<p>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. This option is disabled by default.</p> <ul style="list-style-type: none"> <li>• <b>Enable SMART Reporting</b></li> </ul>
<b>USB Configuration</b>	<p>This is an optional feature.</p> <p>This field configures the integrated USB controller. If Boot Support is enabled, the system is allowed to boot any type of USB Mass Storage Devices (HDD, memory key, floppy).</p> <p>If USB port is enabled, device attached to this port is enabled and available for OS.</p> <p>If USB port is disabled, the OS cannot see any device attached to this port.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>Enable USB Boot Support</b></li> <li>• <b>Enable External USB Port</b></li> </ul> <p> <b>NOTE: Both the option is enabled by default.</b></p>
<b>Dell Type-C dock configuration</b>	<p>Allows you to enable docks. The options are:</p> <ul style="list-style-type: none"> <li>• <b>Always Allow Dell Docks</b>This option is enabled by default.</li> <li>• When set to enabled, allows connection to the Dell WD and TB family of docks (Type-C docks) independent of USB and Thunderbolt Adapter configuration settings.</li> <li>• When set to disabled, the docks will be controlled via the USB and Thunderbolt Adapter configuration settings.</li> </ul>
<b>Thunderbolt Adapter configuration:</b>	<p>Allows you to configure the Thunderbolt™ adapter security settings within the Operating System.</p> <p> <b>NOTE: Security Levels are not applicable or enforced in the Pre-boot environment.</b></p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>Enable Thunderbolt™ Technology Support</b>This option is enabled by default.</li> <li>• <b>Enable Thunderbolt™ Adapter Boot Support</b></li> <li>• <b>Enable Thunderbolt™ Adapter Pre-boot Modules</b></li> <li>• <b>Security level - No Security</b></li> <li>• <b>Security level - User Authorization</b>This option is enabled by default.</li> <li>• <b>Security level - Secure Correct</b></li> <li>• <b>Security level - Display Port only</b></li> </ul>
<b>USB PowerShare</b>	<p>Allows you to charge external devices using the stored system battery power through the USB PowerShare port. This field can also configure the USB PowerShare feature behavior. By default, the <b>Enable USB PowerShare</b> is disabled.</p>
<b>Audio</b>	<p>Allows you to enable or disable the integrated audio controller. By default, the <b>Enable Audio</b> option is selected.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• <b>Enable Microphone</b>This option is enabled by default.</li> <li>• <b>Enable Internal Speaker</b> This option is enabled by default.</li> </ul>
<b>Keyboard Illumination</b>	<p>Allows you to choose the operating mode of the keyboard illumination feature. The keyboard brightness level can be set from 0% to 100%. The options are:</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b></li> <li>• <b>Dim</b></li> <li>• <b>Bright</b> This option is enabled by default.</li> </ul> <p> <b>NOTE: The &lt;Fn+F10&gt; hotkey can be used to change the setting.</b></p>
<b>Keyboard Backlight Timeout on AC</b>	<p>Allows you to define the time-out value for the keyboard Backlight when an AC adapter is plugged into the system. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. The options are:</p> <ul style="list-style-type: none"> <li>• <b>5 seconds</b></li> </ul>




Option	Description
	<ul style="list-style-type: none"> <li>• <b>10 seconds</b> This option is enabled by default.</li> <li>• <b>15 seconds</b></li> <li>• <b>30 seconds</b></li> <li>• <b>1 minute</b></li> <li>• <b>5 minute</b></li> <li>• <b>15 minute</b></li> <li>• <b>never</b></li> </ul>
<b>Keyboard Backlight Time-out on Battery</b>	<p>Allows you to define the Keyboard Backlight Time-out dims out with Battery option. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. The options are:</p> <ul style="list-style-type: none"> <li>• <b>5 seconds</b></li> <li>• <b>10 seconds</b> This option is enabled by default.</li> <li>• <b>15 seconds</b></li> <li>• <b>30 seconds</b></li> <li>• <b>1 minute</b></li> <li>• <b>5 minute</b></li> <li>• <b>15 minute</b></li> <li>• <b>never</b></li> </ul>
<b>Touchscreen</b>	Allows you to controls whether the touchscreen is enabled or disabled. By default, the option is enabled.
<b>Unobtrusive Mode</b>	Allows you to select the option. When enabled, pressing Fn+F7 turns off all light and sound emissions in the system. To resume normal operation, press Fn+F7 again. This option is disabled by default.
<b>Miscellaneous Devices</b>	<p>Allows you to enable or disable various on board devices:</p> <ul style="list-style-type: none"> <li>• <b>Enable Camera</b> This option is enabled by default.</li> <li>• <b>Enable Secure Digital(SD) Card</b>This option is enabled by default.</li> <li>• <b>Secure Digital(SD) Card read only mode</b></li> <li>• <b>Secure Digital(SD) Card Read-Only Mode</b></li> </ul>

## Video screen options



Option	Description
<b>LCD Brightness</b>	Allows you to set the display brightness depending up on the power source (On Battery and On AC).

 **NOTE:** The video setting will be visible only when a video card is installed into the system.

## Security screen options

Option	Description
<b>Admin Password</b>	<p>Allows you to set, change, or delete the administrator (admin) password.</p> <p> <b>NOTE:</b> You must set the admin password before you set the system or hard drive password. Deleting the admin password automatically deletes the system password and the hard drive password.</p> <p> <b>NOTE:</b> Password changes take effect immediately.</p> <p>By default, the drive will not have a password set.</p>
<b>System Password</b>	<p>Allows you to set, change or delete the system password.</p> <p> <b>NOTE:</b> Password changes take effect immediately.</p> <p>By default, the drive will not have a password set.</p>



Option	Description
<b>M.2 SATA SSD-2 Password</b>	<p>Allows you to set, change, or delete the password on the system's M.2 SATA solid state drive(SSD).</p> <p> <b>NOTE: Password changes take effect immediately.</b></p> <p>By default, the drive will not have a password set.</p>
<b>Strong Password</b>	<p>Allows you to enforce the option to always set strong passwords.</p> <p>Default Setting: Enable Strong Password is not selected.</p> <p> <b>NOTE: If user interface is enabled, Admin and System passwords must contain at least one uppercase character, one lowercase character and be at least 8 characters long.</b></p>
<b>Password Configuration</b>	<p>Allows you to determine the minimum and maximum length of Administrator and System passwords.</p>
<b>Password Bypass</b>	<p>Allows you to disable or enable the permission to bypass the System and the Internal hard drive password, when they are set. The options are:</p> <ul style="list-style-type: none"> <li>• <b>Disabled.</b> This option is selected by default.</li> <li>• <b>Reboot bypass</b></li> </ul>
<b>Password Change</b>	<p>Allows you to enable or disable permission to the System and Hard Drive passwords when the admin password is set.</p> <p><b>Allow Non-Admin Password Changes</b> This option is selected by default.</p>
<b>Non-Admin Setup Changes</b>	<p>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.</p>
<b>UEFI Capsule Firmware Updates</b>	<p>This option controls whether the system allows BIOS updates via UEFI capsule update packages.</p> <p><b>Enable UEFI Capsule Firmware Updates</b> option is selected by default.</p> <p> <b>NOTE: Disabling this option will block BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS).</b></p>
<b>TPM 2.0 Security</b>	<p>Allows you to enable the Trusted Platform Module (TPM) during POST.</p> <p>You can control whether the trusted platform module is visible to the operating system. The option is:</p> <ul style="list-style-type: none"> <li>• <b>TPM on</b> This option is selected by default.</li> <li>• <b>Clear</b></li> <li>• <b>PPI Bypass for Enable Commands</b> This option is selected by default.</li> <li>• <b>Attestation Enable.</b> This option is selected by default.</li> <li>• <b>PPI Bypass for Disable Commands</b></li> <li>• <b>Key Storage Enable.</b> This option is selected by default.</li> <li>• <b>SHA-256.</b> This option is selected by default.</li> </ul> <p> <b>CAUTION: For the TPM upgrade/downgrade process, it is recommended to complete the process in an AC power with AC adapter plugged into the computer. The upgrade/downgrade process without the AC adapter plugged in might damage the computer or hard disk.</b></p> <p> <b>NOTE: Disabling this option does not change any settings you have made to the TPM, nor does it delete or change any information or keys you may have stored in the TPM. Changes to this setting take effect immediately.</b></p>
<b>Computrace (R)</b>	<p>Allows you to activate or disable the optional Computrace Service from Absolute software. The options are:</p> <ul style="list-style-type: none"> <li>• Deactivate</li> <li>• Disable</li> <li>• Activate</li> </ul> <p> <b>NOTE: The Activate and Disable options will permanently activate or disable the feature and no further changes will be allowed</b></p> <p>Default setting: Activate</p>

Option	Description
<b>OROM Keyboard Access</b>	<p>Allows you to set an option to enter the Option ROM Configuration screens using hotkeys during boot. The options are:</p> <ul style="list-style-type: none"> <li>• <b>Enabled</b>. This option is selected by default.</li> <li>• <b>One Time Enable</b></li> <li>• <b>Disabled</b></li> </ul> <p>Default setting: Enable</p>
<b>Admin Setup Lockout</b>	<p>Allows you to prevent users from entering the setup when an Administrator password is set.</p> <p><b>Enable Admin Setup Lockout</b> This option is not selected by default.</p>
<b>Master Password Lockout</b>	<p>Allows you to prevent users from entering the setup when an Master password is set. Hard disk passwords need to be cleared before the setting can be changed.</p> <p><b>Enable Master Password Lockout</b> This option is not selected by default.</p>
<b>SSM Security Mitigation</b>	<p>Allows you to enable or disable additional UEFI SMM Security Mitigation protections. The OS can use the feature to help protect the secure environment created by virtualization based security.</p> <p><b>SSM Security Mitigation</b> This option is disabled by default.</p>

## Secure Boot

Option	Description
<b>Secure Boot Enable</b>	<p>This option enables or disables the <b>Secure Boot</b> feature.</p> <ul style="list-style-type: none"> <li>• Disabled</li> <li>• Enabled</li> </ul> <p>Default setting: Enabled.</p>
<b>Expert Key Management</b>	<p>Allows you to manipulate the security key databases only if the system is in Custom Mode. The <b>Enable Custom Mode</b> option is disabled by default.</p>
<b>Custom Mode Key Management</b>	<p>Allows you to manage the security key databases only if the system is in Custom Mode .The options are:</p> <ul style="list-style-type: none"> <li>• <b>PK</b>. This option is selected by default.</li> <li>• <b>KEK</b></li> <li>• <b>db</b></li> <li>• <b>dbx</b></li> </ul> <p><b>NOTE:</b> If you disable the Enable Custom Mode, all the changes made will be erased and the keys will restore to default settings. Save to File will save the key to a user-selected file.</p>


## Intel software Guard Extensions


Option	Description
<b>Intel SGX Enable</b>	<p>This option enables or disables to provide a secured environment for running code/storing sensitive information in the context of the main OS. The options are:</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b></li> <li>• <b>Enabled</b></li> <li>• <b>Software Controlled</b>.This option is selected by default.</li> </ul>
<b>Enclave Memory Size</b>	<p>Allows you to reserve the memory size. The memory size can be set from 32 MB to 128 MB, these options are disabled by default. The options are:</p> <ul style="list-style-type: none"> <li>• <b>32 MB</b></li> <li>• <b>64 MB</b></li> <li>• <b>128 MB</b></li> </ul>

## Performance screen options


Option	Description
<b>Multi Core Support</b>	<p>This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores. This option is enabled by default. Allows you to enable or disable multi-core support for the processor.</p> <ul style="list-style-type: none"><li>· <b>All</b>This option is enabled by default.</li><li>· <b>1</b></li><li>· <b>2</b></li><li>· <b>3</b></li></ul>
<b>Intel SpeedStep</b>	<p>Allows you to enable or disable the Intel SpeedStep mode of the processor.</p> <ul style="list-style-type: none"><li>· <b>Enable Intel SpeedStep</b></li></ul> <p>Default setting: The option is enabled.</p>
<b>C-States Control</b>	<p>Allows you to enable or disable the additional processor sleep states.</p> <ul style="list-style-type: none"><li>· <b>C states</b></li></ul> <p>Default setting: The option is enabled.</p>
<b>Intel TurboBoost</b>	<p>Allows you to enable or disable the Intel TurboBoost mode of the processor.</p> <ul style="list-style-type: none"><li>· <b>Enable Intel TurboBoost</b></li></ul> <p>Default setting: The option is enabled.</p>
<b>HyperThread Control</b>	<p>Allows you to enable or disable the HyperThreading in the processor.</p> <ul style="list-style-type: none"><li>· <b>Disabled</b></li><li>· <b>Enabled</b>This option is enabled by default.</li></ul>

## Power Management screen options

Option	Description
<b>AC Behavior</b>	<p>Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected.</p> <p><b>Wake on AC</b> This option is disabled by default.</p>
<b>Enable Intel Speed Shift Technology</b>	<p>Allows you to enable or disable the Intel speed Shift Technology support. Setting to enable option, allows the operating system to automatically select the required processor performance.</p> <p><b>Enable Intel Speed Shift Technology</b> This option is enabled by default.</p>
<b>Auto On Time</b>	<p>Allows you to set the time at which the computer must turn on automatically. The options are:</p> <ul style="list-style-type: none"><li>· <b>Disabled</b> This option is enabled by default.</li><li>· <b>Every Day</b></li><li>· <b>Weekdays</b></li><li>· <b>Select Days</b></li></ul>
<b>USB Wake Support</b>	<p>Allows you to enable USB devices to wake the system from Standby.</p> <p> <b>NOTE: This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the system setup removes power from all the USB ports to conserve battery power.</b></p> <ul style="list-style-type: none"><li>· <b>Enable USB Wake Support</b></li><li>· <b>Wake on Dell USB-C Dock</b> The option is selected by default.</li></ul>
<b>Wireless Radio Control</b>	<p>Allows you to sense the connection of the system to a wired network and subsequently disable the selected wireless radios (WLAN and/or WWAN)</p>

Option	Description
	<p>Upon disconnection from the wired network, the selected wireless radios is re-enabled. By default none of the option is enabled. The options are:</p> <ul style="list-style-type: none"> <li>• <b>Control WLAN radio</b></li> <li>• <b>Control WWAN radio</b></li> </ul>
<b>Wake on WLAN</b>	<p>Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal.</p> <ul style="list-style-type: none"> <li>• <b>Disabled</b> This option is selected by default.</li> <li>• <b>LAN Only</b></li> <li>• <b>WLAN Only</b></li> <li>• <b>LAN or WLAN</b></li> </ul>
<b>Block Sleep</b>	<p>Allows you to block entering to sleep (S3 state) in OS environment. When enabled system wont go to sleep. Intel Rapid Start will be disabled automatically and OS Power option will be blank if it was set to Sleep (S3 state) . Block Sleep (S3 State) option is <b>disabled</b> by default.</p>
<b>Peak Shift</b>	<p>Allows you to minimize the AC power consumption during the peak power times of day. After you enable this option, your system runs only in battery even if the AC is attached.</p> <ul style="list-style-type: none"> <li>• <b>Enable Peak Shift</b> This option is not selected by default.</li> </ul>
<b>Advanced Battery Charge Configuration</b>	<p>This option enables you to maximize the battery health. By enabling this option, your system uses the standard charging algorithm and other techniques, during the non-work hours to improve the battery health.</p> <ul style="list-style-type: none"> <li>• <b>Enable Advanced Battery Charge Mode</b> This option is not selected by default.</li> </ul>
<b>Primary Battery Charge Configuration</b>	<p>Allows you to select the charging mode for the battery. The options are:</p> <ul style="list-style-type: none"> <li>• <b>Adaptive</b> This option is enabled by default.</li> <li>• <b>Standard</b> Fully charges your battery at a standard rate.</li> <li>• <b>ExpressCharge</b> The battery charges over a shorter period of time using Dell's fast charging technology.</li> <li>• <b>Primarily AC use</b></li> <li>• <b>Custom</b></li> </ul> <p>If Custom Charge is selected, you can also configure Custom Charge Start and Custom Charge Stop.</p> <p> <b>NOTE: All charging mode may not be available for all the batteries. To enable this option, disable the Advanced Battery Charge Configuration option.</b></p>
<b>Type-C Connector Power</b>	<p>Allows you to set the maximum power the computer can draw from the Type-C connectors. The options are:</p> <p><b>7.5 Watts</b></p> <p><b>15 Watts</b> This option is enabled by default.</p>

## POST Behavior

Option	Description
<b>Adapter Warnings</b>	<p>Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters.</p> <p><b>Enable Adapter Warnings</b> This option is selected by default.</p>
<b>Keypad (Embedded)</b>	<p>Allows you to choose one of two methods to enable the keypad that is embedded in the internal keyboard.</p> <ul style="list-style-type: none"> <li>• <b>Fn Key Only</b> This option is enabled by default.</li> <li>• <b>By Numlock</b></li> </ul> <p> <b>NOTE: When setup is running, this option has no effect. Setup works in Fn Key Only mode.</b></p>
<b>Numlock Enable</b>	<p>Allows you to enable the Numlock option when the computer boots.</p> <ul style="list-style-type: none"> <li>• <b>Enable Network</b> This option is enabled by default.</li> </ul>

Option	Description
<b>Fn Key Emulation</b>	Allows you to set the option where the Scroll Lock key is used to simulate the Fn key feature. <ul style="list-style-type: none"> <li>• <b>Enable Fn Key Emulation</b> This option is enabled by default.</li> </ul>
<b>Fn Lock Options</b>	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. The available options are: <ul style="list-style-type: none"> <li>• <b>Fn Lock</b> This option is enabled by default.</li> <li>• <b>Lock Mode Disable/Standard</b> This option is selected by default.</li> <li>• <b>Lock Mode Enable/Secondary</b></li> </ul>
<b>Fastboot</b>	Allows you to speed up the boot process by bypassing some of the compatibility steps. The options are: <ul style="list-style-type: none"> <li>• <b>Minimal</b> This option is selected by default.</li> <li>• <b>Thorough</b></li> <li>• <b>Auto</b></li> </ul>
<b>Extended BIOS POST Time</b>	Allows you to create an additional pre-boot delay. The options are: <ul style="list-style-type: none"> <li>• <b>0 seconds</b> This option is enabled by default.</li> <li>• <b>5 seconds</b></li> <li>• <b>10 seconds</b></li> </ul>
<b>Full Screen Logo</b>	Allows you display full screen logo if your image match screen resolution. The options are: <ul style="list-style-type: none"> <li>• <b>Enable Full Screen Logo</b> This option is disabled by default.</li> </ul>
<b>Warnings and Errors</b>	Allows you to select in the BIOS setup options that cause the boot process to pause only, when warnings or errors are detected rather than stop, prompt and wait for user input. The options are: <p><b>Prompt on Warnings and Errors.</b> This option is enabled by default.</p> <p><b>Continue on Warnings</b></p> <p><b>Continue on Warnings and Errors</b></p>

## Virtualization Support options

Option	Description
<b>Virtualization</b>	Allows you to enable or disable the Intel Virtualization Technology. <p><b>Enable Intel Virtualization Technology</b> This option is selected by default.</p>
<b>VT for Direct I/O</b>	Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by Intel® Virtualization technology for direct I/O. <p><b>Enable VT for Direct I/O</b> This option is selected by default.</p>
<b>Trusted Execution</b>	This option specifies whether a Measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities provided by Intel Trusted Execution Technology. The TPM Virtualization Technology, and Virtualization technology for direct I/O must be enabled to use this feature. <p><b>Trusted Execution</b> This option is disabled by default.</p>

## Wireless screen options

Option	Description
<b>Wireless Device Enable</b>	Allows you to enable or disable the internal wireless devices. <ul style="list-style-type: none"> <li>• WWAN/GPS</li> <li>• WLAN/WiGig</li> </ul>



Option	Description
	<ul style="list-style-type: none"> <li>Bluetooth</li> </ul> <p>All the options are enabled by default.</p>

 **NOTE: IMEI number for WWAN can be found on the outer box or the WWAN card.**

## Maintenance

Option	Description
<b>Service Tag</b>	Displays the Service Tag of your computer.
<b>Asset Tag</b>	Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.
<b>BIOS Downgrade</b>	Allows you to control flashing of the system firmware to previous revisions. The option are: <b>Allows BIOS Downgrade</b> This option is enabled by default.
<b>Data Wipe</b>	Allows you to securely erase data from all internal storage devices. The process adheres to Serial ATA Security Erase and eMMC JEDEC Sanitize specifications. The option are: <b>Wipe on Next Boot</b> This option is disabled by default.
<b>BIOS Recovery</b>	Allows you to recover from certain computed BIOS conditions from a recovery file on the user primary hard drive or an external USB key. When 'Enabled' is selected BIOS stores the recovery file on the user primary hard drive. The option are: <b>BIOS Recovery from Hard Drive</b> This option is enabled by default. <b>BIOS Auto-Recovery</b> <b>Always Perform Integrity Check</b>

## System logs screen options

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

## System Log

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

## Updating the BIOS


It is recommended to update your BIOS (System setup) on replacing the system board or if an update is available. Ensure that your notebook battery is fully charged and connected to a power outlet.

1. Restart the notebook.
2. Go to **Dell.com/support**.
3. Enter the **Service Tag** or **Express Service Code** and click **Submit**.

 **NOTE:** To locate the Service Tag, click **Where is my Service Tag?**

 **NOTE:** If you cannot find your Service Tag, click **Detect My Product**. Proceed with the instructions on screen.

- If you are unable to locate or find the Service Tag, click the Product Category of your notebook.
- Choose the **Product Type** from the list.
- Select your notebook model and the **Product Support** page of your notebook appears.
- Click **Get drivers** and click **View All Drivers**.  
The Drivers and Downloads page opens.
- On the Drivers and Downloads screen, under the **Operating System** drop-down list, select **BIOS**.
- Identify the latest BIOS file and click **Download File**.  
You can also analyze which drivers need an update. To do this for your product, click **Analyze System for Updates** and follow the instructions on the screen.
- Select your preferred download method in the **Please select your download method below** window, click **Download File**.  
The **File Download** window appears.
- Click **Save** to save the file on your notebook.
- Click **Run** to install the updated BIOS settings on your notebook.  
Follow the instructions on the screen.

 **NOTE:** It is recommended not to update the BIOS version for more than 3 revisions. For example: If you want to update the BIOS from 1.0 to 7.0, then install version 4.0 first and then install version 7.0.

## System and setup password

Table 2. System and setup password

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

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

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

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

 **NOTE:** System and setup password feature is disabled.

## Assigning a system setup password

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

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

- In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.  
The **Security** screen is displayed.
- Select **System/Admin Password** and create a password in the **Enter the new password** field.  
Use the following guidelines to assign the system password:
  - A password can have up to 32 characters.
  - The password can contain the numbers 0 through 9.
  - Only lower case letters are valid, upper case letters are not allowed.
  - Only the following special characters are allowed: space, ("), (+), (,), (-), (.), (/), (:), ([], (\), (]), (').
- Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
- Press Esc and a message prompts you to save the changes.
- Press Y to save the changes.

The computer reboots.

## Deleting or changing an existing system setup password

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.

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

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



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

# Software

This chapter details the supported operating systems along with instructions on how to install the drivers.

## Topics:

- [Supported operating systems](#)
- [Downloading drivers](#)
- [ControlVault drivers](#)
- [Human Interface Devices drivers](#)
- [Network drivers](#)
- [Audio drivers](#)
- [Disk drives](#)
- [Management Engine Interface](#)
- [USB drivers](#)

## Supported operating systems

The following table lists the operating systems supported by Latitude 5285 tablet:

**Table 3. Operating systems**

Supported operating systems	
Windows	<ul style="list-style-type: none"> <li>• Microsoft Windows 10 Pro 64-bit</li> <li>• Microsoft Windows 10 Home 64-bit</li> </ul>
OS media support	USB media available

## Downloading drivers



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

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

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

## ControlVault drivers

Verify if the ControlVault Device drivers are already installed in the computer.

- ▼  ControlVault Device
  -  Dell ControlVault w/ Fingerprint Touch Sensor

# Human Interface Devices drivers













Verify if the Touchpad, and Portable Device drivers are already installed in the computer.

- ▼  Human Interface Devices
  -  Converted Portable Device Control device
  -  GPIO Dock Mode Indicator Driver
  -  GPIO Laptop or Slate Indicator Driver
  -  HID PCI Minidriver for ISS
  -  HID PCI Minidriver for ISS
  -  HID PCI Minidriver for ISS
  -  HID PCI Minidriver for ISS
  -  HID PCI Minidriver for ISS
  -  HID-compliant consumer control device
  -  HID-compliant consumer control device
  -  HID-compliant pen
  -  HID-compliant system controller
  -  HID-compliant system controller
  -  HID-compliant touch screen
  -  HID-compliant vendor-defined device
  -  HID-compliant vendor-defined device
  -  HID-compliant vendor-defined device
  -  HID-compliant vendor-defined device
  -  HID-compliant wireless radio controls
  -  I2C HID Device
  -  Intel(R) HID Event Filter
  -  Microsoft Input Configuration Device
  -  Portable Device Control device
  -  Sideband GPIO Buttons Injection Device
  -  USB Input Device

# Network drivers





Install the WLAN and Bluetooth drivers from the Dell support site.

Verify if the Network drivers are already installed in the computer.

- ▼  Network adapters
  -  Bluetooth Device (Personal Area Network)
  -  Bluetooth Device (RFCOMM Protocol TDI)
  -  Intel(R) Dual Band Wireless-AC 8265
  -  WAN Miniport (IKEv2)
  -  WAN Miniport (IP)
  -  WAN Miniport (IPv6)
  -  WAN Miniport (L2TP)
  -  WAN Miniport (Network Monitor)
  -  WAN Miniport (PPPOE)
  -  WAN Miniport (PPTP)
  -  WAN Miniport (SSTP)

# Audio drivers

Verify if the Realtek Audio drivers are already installed in the computer.

- ▼  Sound, video and game controllers
  -  Intel(R) AVStream Camera 2500
  -  Intel(R) Display Audio
  -  Realtek Audio

# Disk drives

Verify if the Disk drives drivers are already installed in the computer.

- ▼  Disk drives
  -  KBG30ZMS256G NVMe TOSHIBA 256GB
  -  KXG5AZNV512G NVMe SED TOSHIBA 512GB








# Management Engine Interface

Verify if the Intel Management Engine Interface drivers are already installed in the computer.

- ▼ System devices
  - ACPI Fixed Feature Button
  - ACPI Lid
  - ACPI Processor Aggregator
  - ACPI Sleep Button
  - ACPI Thermal Zone
  - Camera Sensor OV5670
  - Camera Sensor OV8858
  - Charge Arbitration Driver
  - Composite Bus Enumerator
  - Dell Diag Control Device
  - Dell System Analyzer Control Device
  - High precision event timer
  - Intel(R) Control Logic
  - Intel(R) CSI2 Host Controller
  - Intel(R) Imaging Signal Processor 2500
  - Intel(R) Integrated Sensor Solution
  - Intel(R) Management Engine Interface
  - Intel(R) Power Engine Plug-in
  - Intel(R) Serial IO I2C Host Controller - 9D60
  - Intel(R) Serial IO I2C Host Controller - 9D61
  - Intel(R) Serial IO I2C Host Controller - 9D62
  - Intel(R) Serial IO I2C Host Controller - 9D64
  - Intel(R) Smart Sound Technology (Intel(R) SST) Audio Controller
  - Intel(R) Smart Sound Technology (Intel(R) SST) OED
  - Intel(R) Virtual Buttons
  - Intel(R) Xeon(R) E3 - 1200 v6/7th Gen Intel(R) Core(TM) Host Bridge/DRAM Registers - 5914
  - ISS Dynamic Bus Enumerator
  - Legacy device
  - Microsoft ACPI-Compliant Embedded Controller
  - Microsoft ACPI-Compliant System
  - Microsoft System Management BIOS Driver
  - Microsoft UEFI-Compliant System
  - Microsoft Virtual Drive Enumerator
  - Microsoft Windows Management Interface for ACPI
  - Microsoft Windows Management Interface for ACPI
  - Mobile 6th/7th Generation Intel(R) Processor Family I/O PCI Express Root Port #1 - 9D10
  - Mobile 6th/7th Generation Intel(R) Processor Family I/O PCI Express Root Port #9 - 9D18
  - Mobile 6th/7th Generation Intel(R) Processor Family I/O PCI Express Root Port #8 - 9D17

## USB drivers

Verify if the USB drivers are already installed in the laptop.

- ▼  Universal Serial Bus controllers
  -  Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
  -  UCSI USB Connector Manager
  -  USB Composite Device
  -  USB Root Hub (USB 3.0)

# Troubleshooting

## Enhanced Pre-boot System Assessment - ePSA

The ePSA is a diagnostic utility available on the tablet. This utility includes a series of tests for a tablet's hardware. Customers can run these tests even if the computer lacks any media (hard drive, CD drive, etc.). If an ePSA-tested component fails, the system displays an error code and generates a beep code.

### Features:

- Graphical User Interface.
- Automatic Default Operation- runs test on all devices, allowing a user to interrupt and select any device.
- Checks the Master Boot Record for readiness to boot into a full OS environment.
- Tablet panel test.
- Video card.
- Battery test.
- Charger test.
- Primary battery.
- Multiprocessor cache test.

## Running the ePSA Diagnostic Utility

**NOTE:** The following steps can be used to run the ePSA diagnostic utility in DOS mode without using an external keyboard.

1. Power on the system.
2. Before the Dell Logo is displayed, immediately press the **Volume Up** button to get the **Boot Menu**.
3. Scroll down the **Diagnostics** and then press the **Volume Down** button to select.
4. The tablet will begin running the ePSA utility.

## Tablet LED

This section details the diagnostic features of the battery LED in a tablet.

### Diagnostic LED

Tablets rely on the Battery LED light blinking amber/white pattern to determine failures listed in the following table:

**NOTE:**

- **The blinking patterns will consist of 2 sets of numbers being represented by (First Group: Amber blinks, Second Group: White blinks)**
- **First Group: The LED blinks 1 to 9 times followed by a brief pause with LED off at the interval of 1.5 seconds. (This is in Amber color)**
- **Second Group: The LED blinks 1 to 9 times, followed by a longer pause before the next cycle starts again at the interval of 1.5 seconds. (This is in White color)**
- **Example: No Memory detected (2,3), Battery LED blinks two times of amber color followed by a pause, and then blinks three times of white color. The Battery LED will pause for 3 seconds before the next cycle repeat itself again**

The following table depicts the amber and white blinking patterns with possible troubleshooting resolution:

**Table 4. LED pattern**

Blinking pattern	Problem Description	Suggested Resolution
2,1	processor	processor failure
2,2	system board, BIOS ROM	system board, covers BIOS corruption or ROM error
2,3	memory	no memory/no RAM detected
2,4	memory	memory failure/RAM failure
2,5	memory	invalid memory installed
2,6	system board; chipset	system board/ chipset error
2,7	display	display failure
3,1	RTC power failure	coin-cell battery failure
3,2	PCI/Video	PCI/Video card/chip failure
3,3	BIOS recovery 1	recovery image not found
3,4	BIOS recovery 2	recovery image found but invalid

## Real Time Clock reset

The Real Time Clock (RTC) reset function allows you to recover your Dell system from **No POST/No Boot/No Power** situations. To initiate the RTC reset on the system make sure system is in a power-off state and is connected to power source . Press and hold the power button for 25 seconds and then release the power button. Go to [how to reset real time clock](#).

**NOTE: If AC power is disconnected from the system during the process or the power button is held longer than 40 seconds, the RTC reset process is aborted.**

The RTC reset will reset the BIOS to Defaults, un-provision Intel vPro and reset the system date and time. The following items are unaffected by the RTC reset:

- Service Tag
- Asset Tag
- Ownership Tag
- Admin Password
- System Password
- HDD Password
- TPM on and Active
- Key Databases
- System Logs

The following items may or may not reset based on your custom BIOS setting selections:


- The Boot List
- Enable Legacy OROMs
- Secure Boot Enable
- Allow BIOS Downgrade

## Identifying the AC adapter shipped with your notebook

AC adapters are shipped based on customer requirements or based on regions. To identify the AC adapter shipped with your notebook, you can verify it from the service tag.

1. Go to **Dell.com/support**
2. Type the service tag of your notebook.
3. Click **System configuration**. System configuration details are displayed.
4. Click **Original configuration** to view the AC adapter shipped with your notebook.

# Contacting Dell

 **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.

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:

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.