Latitude 3180

Owner's Manual

1

Notes, cautions, and warnings

(i) **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.**

Contents

Working on your computer

Safety instructions

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

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

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

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

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

⚠ **CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface that is grounded to ground yourself before you touch the computer to perform any disassembly tasks.**

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

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

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

Turning off your — Windows

⚠ **CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer .**

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

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

Before working inside your computer

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.

2. Turn off your computer.
3. Disconnect all network cables from the computer (if available).

> ⚠️ **CAUTION: If your computer has an RJ45 port, disconnect the network cable by first unplugging the cable from your computer.**

4. Disconnect your computer and all attached devices from their electrical outlets.
5. Open the display.
6. Press and hold the power button for few seconds, to ground the system board.

> ⚠️ **CAUTION: To guard against electrical shock unplug your computer from the electrical outlet before performing Step # 8.**

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

7. Remove any installed ExpressCards or Smart Cards from the appropriate slots.

After working inside your computer

After you complete any replacement procedure, ensure that you connect any external devices, cards, and cables before turning on your computer.

> ⚠️ **CAUTION: To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.**

1. Connect any external devices, such as a port replicator or media base, and replace any cards, such as an ExpressCard.
2. Connect any telephone or network cables to your computer.

> ⚠️ **CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.**

3. Connect your computer and all attached devices to their electrical outlets.
4. Turn on your computer.

Disassembly and reassembly

Recommended tools

The procedures in this document require the following tools:

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

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

microSD card

Removing microSD card

1. Follow the procedure in Before working inside your computer.
2. Press in on the microSD card to release it from the computer.

3. Remove the microSD card from the computer.

Installing microSD card

1. Slide the SD card into its slot until it clicks into place.
2. Install the microSD card.
3. Follow the procedure in After working inside your computer.

Base cover

Removing base cover

1. Follow the procedure in Before working inside your computer.
2. Remove the microSD card.
3. To remove the base cover:
   a. Loosen the M2.5x7 captive screws that secure the base cover to the computer [1, 2].

b. Pry the base cover from the edge.

(i) **NOTE: You may need a 3c plastic scribe to pry the base cover from the edge.**

4. Lift the base cover away from the computer.

Installing base cover

If the system is shipped with M.2 SSD perform the following steps.

1. Toe in the base cover front edge into the system.
2. Press the edges of the cover until it clicks into place.
3. Replace the M2.5x7 screws to secure the base cover to the computer.
4. Install the microSD card
5. Follow the procedure in After working inside your computer.

Battery

Lithium-ion battery precautions

⚠ **CAUTION:**

- **Exercise caution when handling Lithium-ion batteries.**
- **Discharge the battery 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 a battery gets stuck in a device as a result of swelling, do not try to free it as puncturing, bending, or crushing a Lithium-ion battery can be dangerous. In such an instance, contact for assistance and further instructions.**
- **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 https://www.dell.com/support.**
- **Always purchase genuine batteries from https://www.dell.com or authorized Dell partners and resellers.**

Removing battery - optional

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. microSD card
   b. base cover
3. To remove the battery:
   a. Disconnect the battery cable from the connector on the system board [1,2].
   b. Remove the M2.0x3.0 screws that secure the battery to the computer [3].
   c. Lift the battery away from the computer [4].
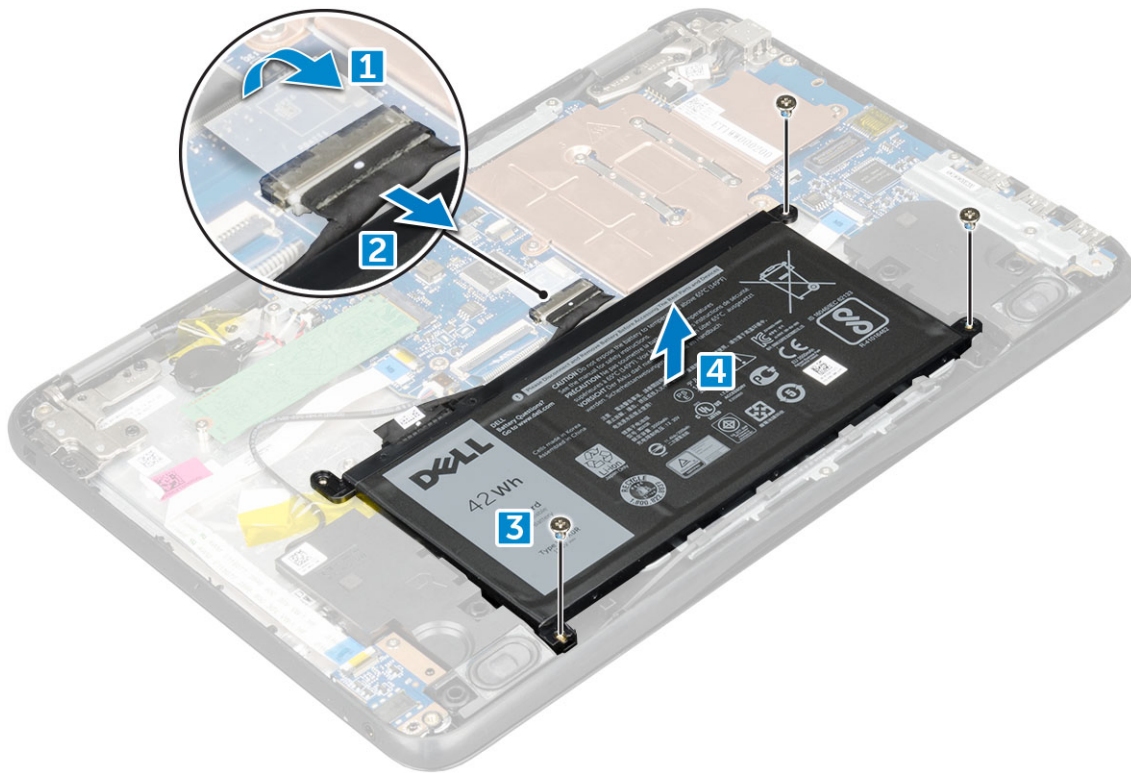
Installing battery

1. Insert the battery into the slot on the computer.
2. Connect the battery cable to the connector on the battery.
3. Replace the M2x3 screws to secure the battery to the computer.
4. Install the:
   a. base cover
   b. microSD card
5. Follow the procedure in After working inside your computer.

Keyboard lattice and Keyboard

Removing keyboard

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. microSD card
   b. base cover
   c. battery
3. To remove keyboard:
   a. Disconnect the keyboard cable from the system board [1].
   b. Use the plastic scribe to the release the keyboard [2].
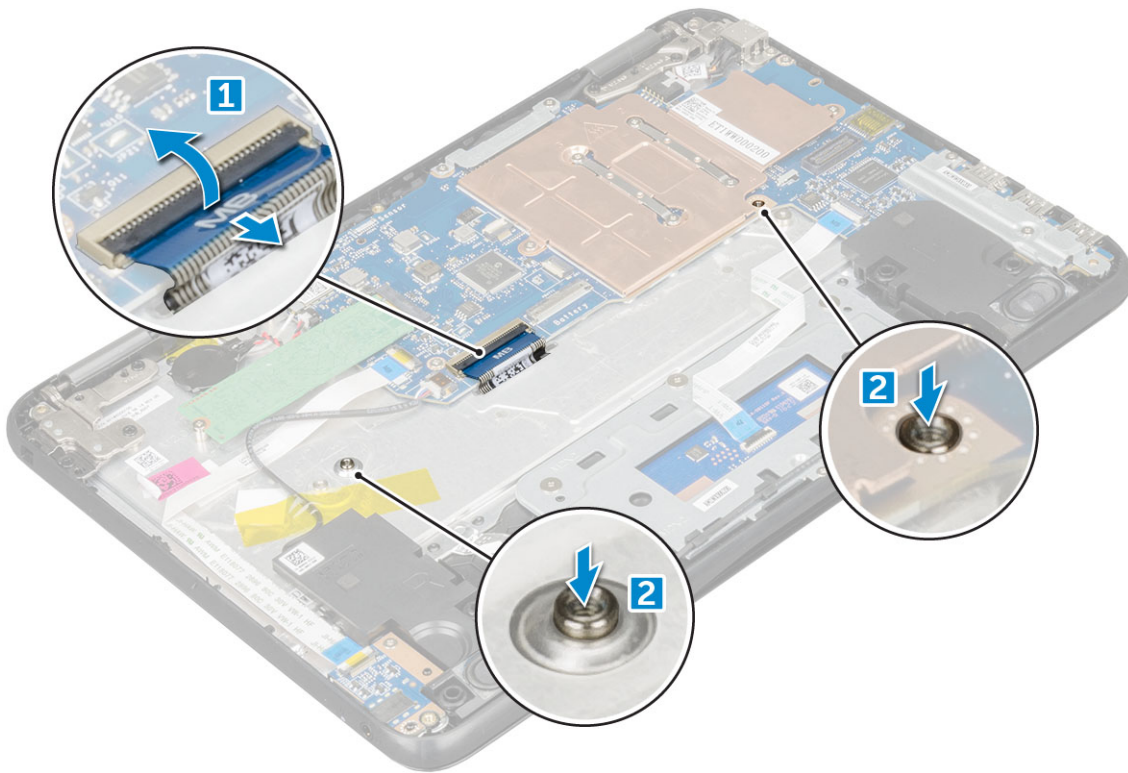
ⓘ **NOTE: The two release holes for the keyboard are indicated by the "KB" labeling.**

4. Slide and lift the keyboard away from the computer.
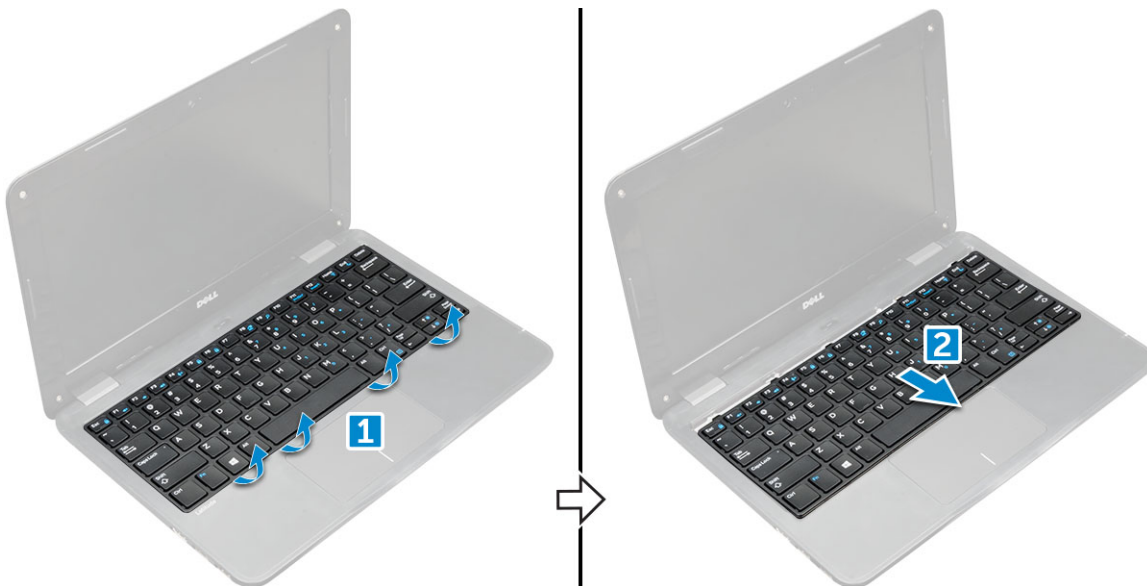
Installing keyboard

1. Align the keyboard trim with the tabs on the computer, and press it until it clicks into place.

The image shows the press points on the keyboard.

2. Connect the keyboard cable on the system board.
3. Install the:
   a. battery
   b. base cover
   c. microSD card
4. Follow the procedure in After working inside your computer.

Solid State Drive — optional

Removing M.2 Solid State Drive (SSD)

If the system is shipped with M.2 SSD perform the following steps.

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. microSD card
   b. base cover
   c. battery
3. To remove the SSD:
   a. Remove the M2.0x3.0 screw that secures the SSD card [1].
   b. Slide and lift the SSD card from the system board [2].
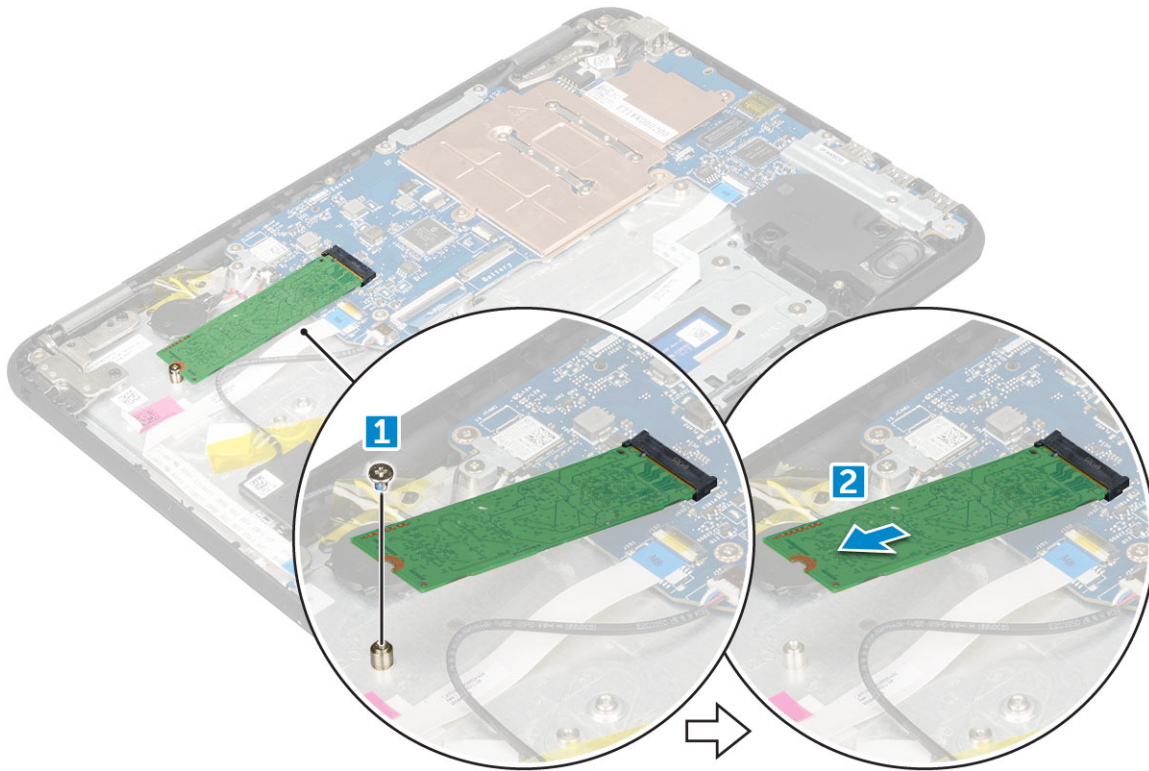
Installing M.2 Solid State Drive

ⓘ **NOTE: If the system is shipped with SSD perform the following steps.**

1. Align the notch on the SSD card with the tab on the SSD card connector and slide the card into the slot.
2. Align the screw hole on the SSD card with the screw hole on the system board.
3. Replace the screw that secures the SSD card to the system board.
4. Install the:
   a. battery
   b. base cover
   c. microSD card
5. Follow the procedure in After working inside your computer.

Audio board

Removing audio board

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. microSD card
   b. base cover
   c. battery
3. To remove the audio board:
   a. Disconnect the audio cable from the connector on the audio board [1].
   b. Remove the M.2.0x3.0 screw that secures the audio board on the computer [2].
   c. Lift the audio board away from the computer [3].
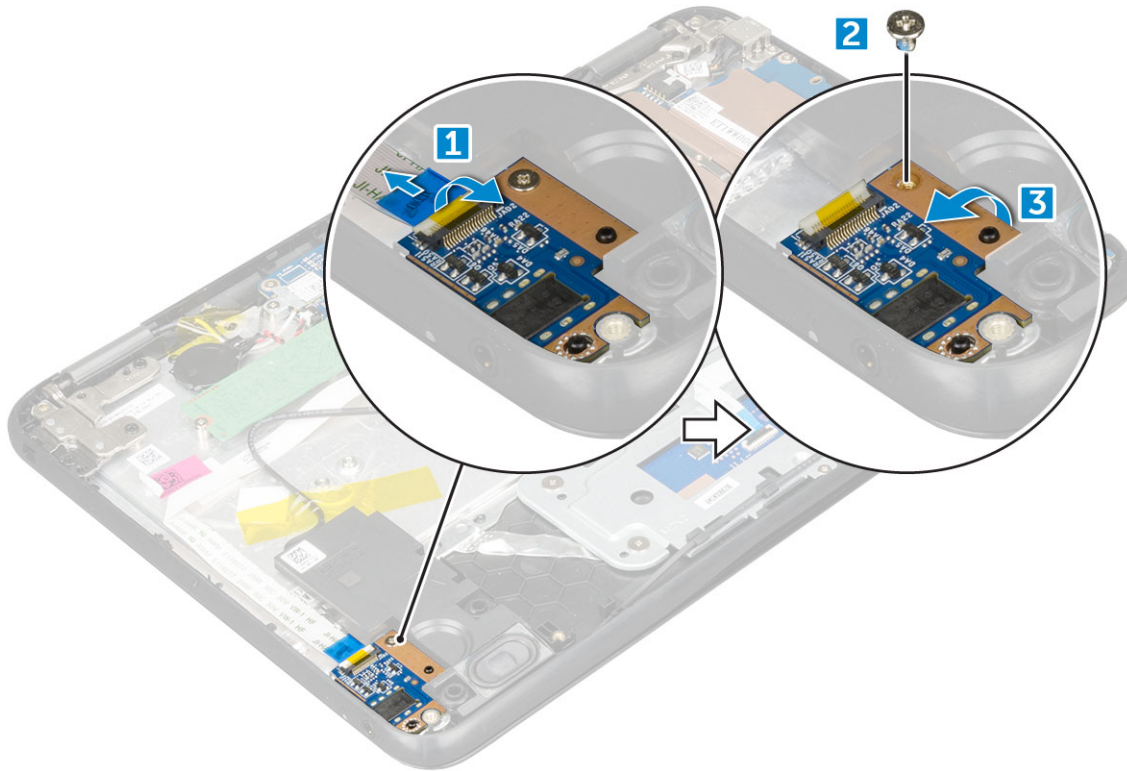
Installing audio board

1. Insert the audio board into the slot on the computer.
2. Replace the M2x3 screw that secure the audio board to the computer.
3. Connect the audio cable to the connector on the audio board.
4. Install the:
   a. battery
   b. base cover
   c. microSD card
5. Follow the procedure in After working inside your computer.

Power connector port

Removing power connector port

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. microSD card
   b. base cover
   c. battery
3. To remove the power connector port:
   a. Disconnect the power connector cable from the connector on the system board [1].
   b. Remove the M.2.0x3.0 screws that secure the power connector port on the computer [2].
   c. Slide and lift the power connector port away from the computer [3].
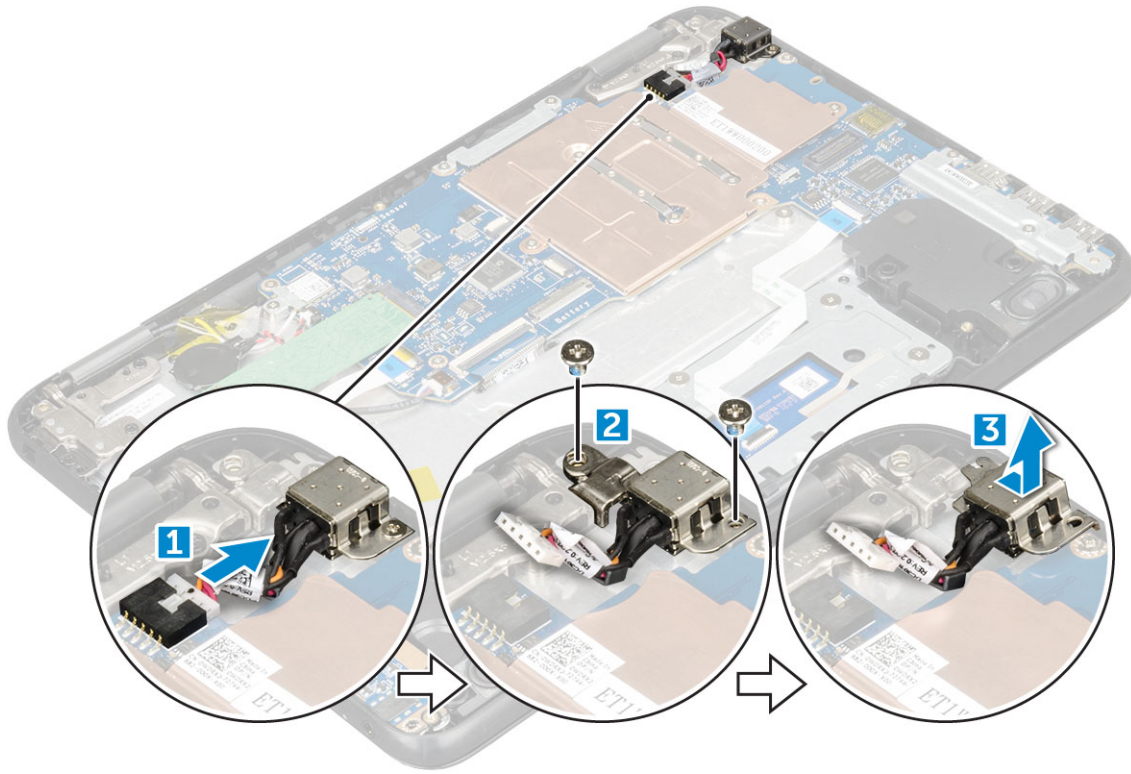
Installing power connector port

1. Insert the power connector port into the slot on the computer.
2. Replace the two M2x3 screws that secure the power connector port to the computer.
3. Connect the power connector cable to the connector on the system board.
4. Install the:
   a. battery
   b. base cover
   c. microSD card
5. Follow the procedure in After working inside your computer.

Coin-cell battery

Removing coin cell battery

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. microSD card
   b. base cover
   c. battery
3. To remove the coin cell battery:
   a. Disconnect the coin cell battery cable from the connector on the system board [1].
   b. Pry the coin cell battery to release it from the adhesive and lift it away from the computer [2].
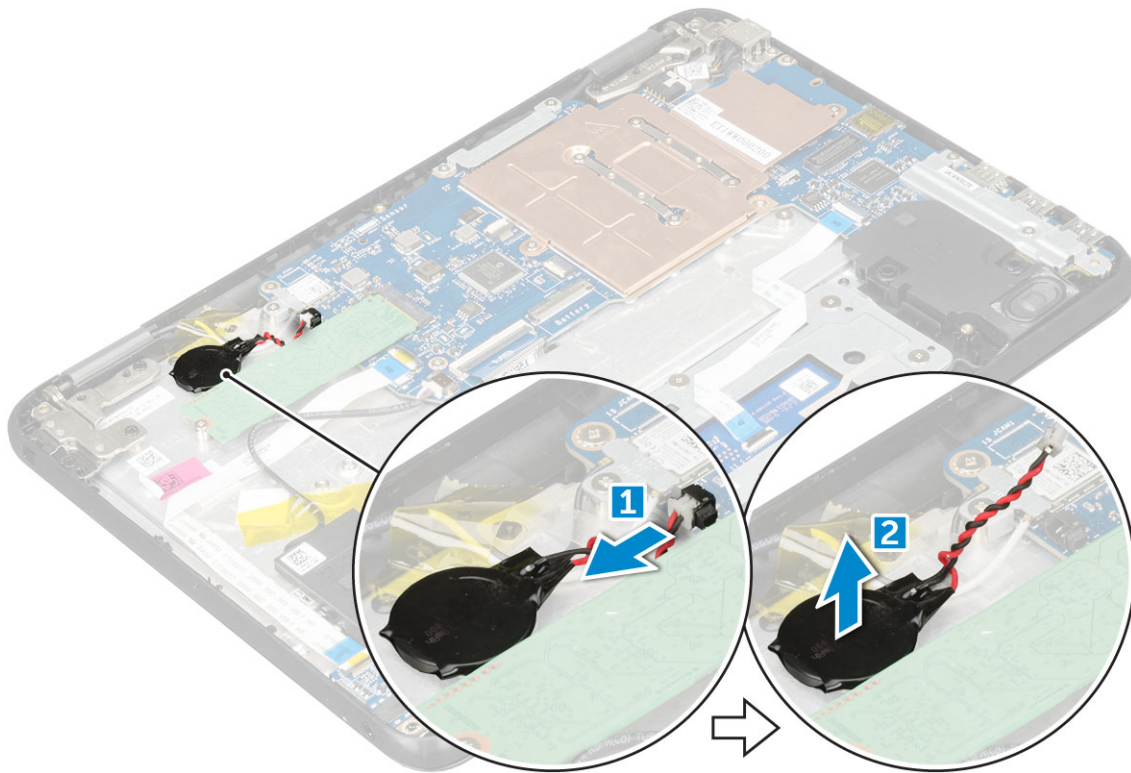
Installing coin cell battery

1. Place the coin cell battery into the slot on the computer.
2. Connect the coin cell battery cable to the connector on the system board.
3. Install the:
    a. battery
    b. base cover
    c. microSD card
4. Follow the procedure in After working inside your computer.

Speaker

Removing speaker

1. Follow the procedure in Before working inside your computer.
2. Remove the:
    a. microSD card
    b. base cover
    c. battery
3. To remove the speaker:
    a. Disconnect the speaker cable from the connector on the system board [1].
    b. Remove the adhesive tape that secures the speaker cable on the computer [2].
    c. Unroute the speaker cable from the routing channel [3].
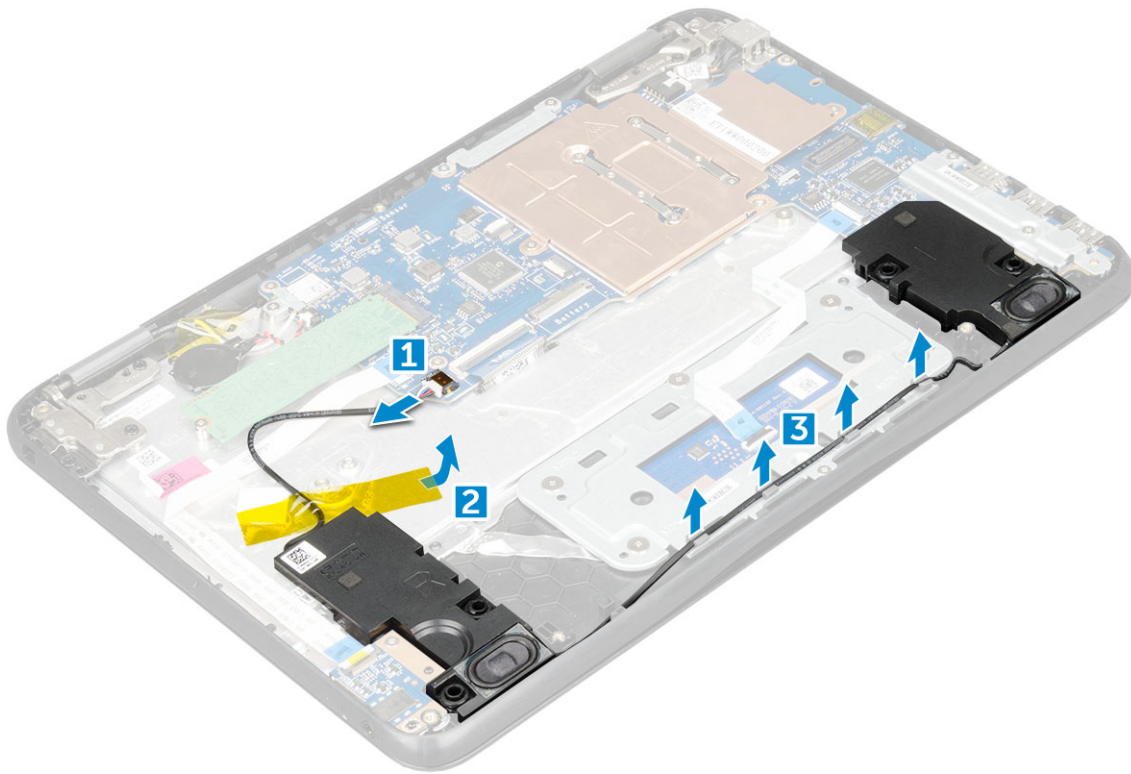
4. Remove the speaker from the computer.

Installing speakers

1. Place the speakers into the slots on the computer.
2. Route the speaker cable through the retention clips through routing channel.
3. Affix the adhesive tape to secure the speaker cable on the computer.
4. Connect the speaker cable to the connector on the system board.

5. Install the:
   a. battery
   b. base cover
   c. microSD card
6. Follow the procedure in After working inside your computer.

System board

Removing system board

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. microSD card
   b. base cover
   c. battery
   d. SSD card
3. Disconnect the following cables:
   a. audio cable [1]
   b. keyboard cable [2]
   c. touch pad cable [3]
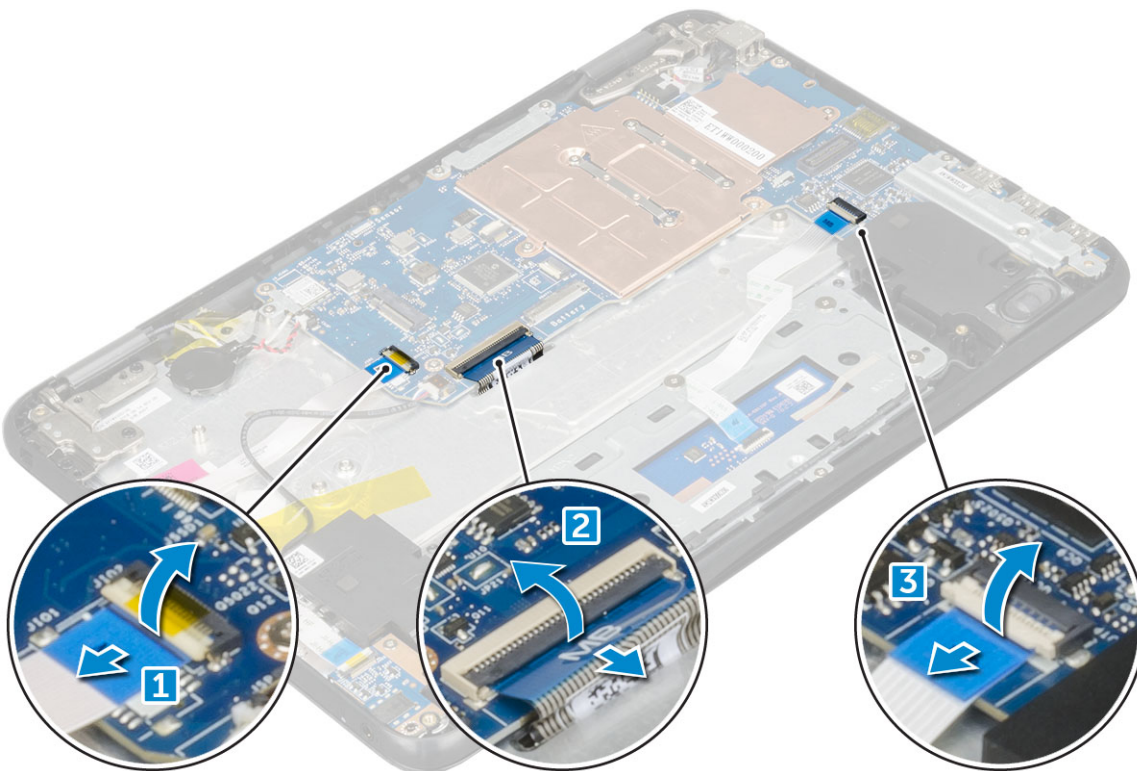
4. To disconnect the cable:
   a. Disconnect coin cell battery , power connector port, and speaker cable [1, 2, 3].
   b. Remove the M2.0xM3.0 screws and lift the metal bracket that secure on the system board [4, 5].
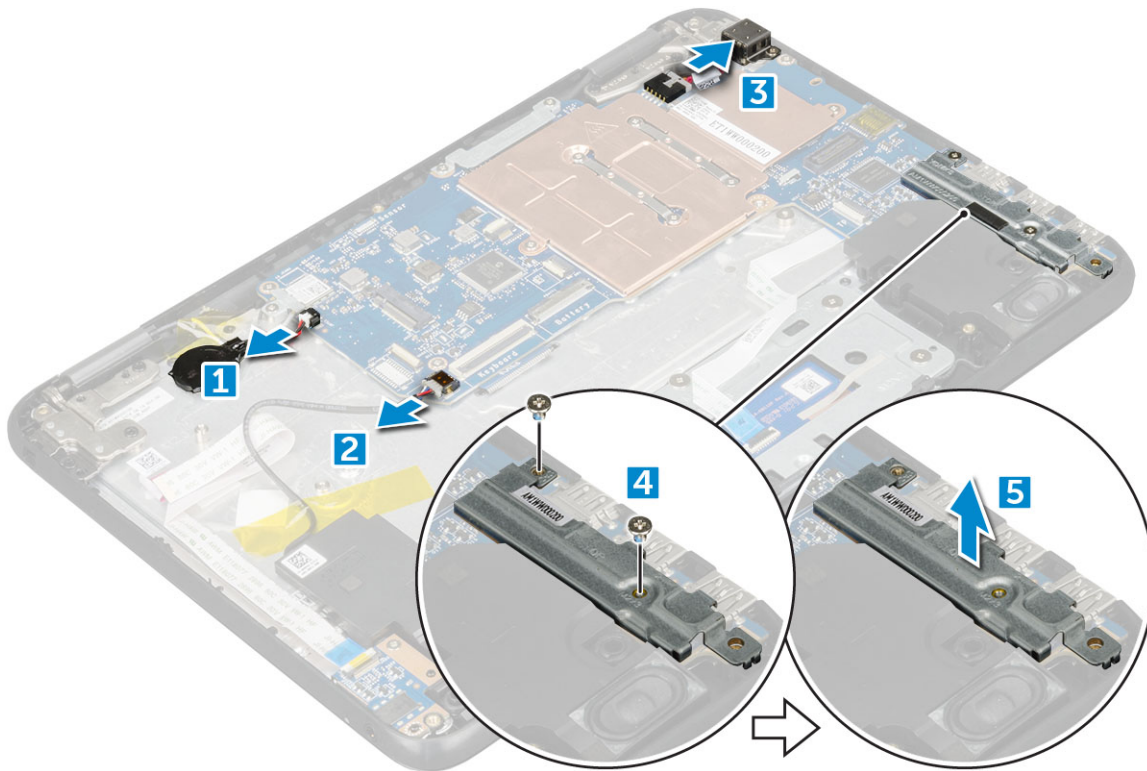
5. To remove metal bracket:
    a. Remove the screw M2.0x3.0 and lift the metal bracket that secures the WLAN card on the system board [1, 2]
    b. Disconnect the WLAN cables [3].
    c. Remove the screws M2.0x.30 and lift the metal bracket that secures the display cable on the computer [4, 5]
    d. Lift the latch, and disconnect the cable [6]
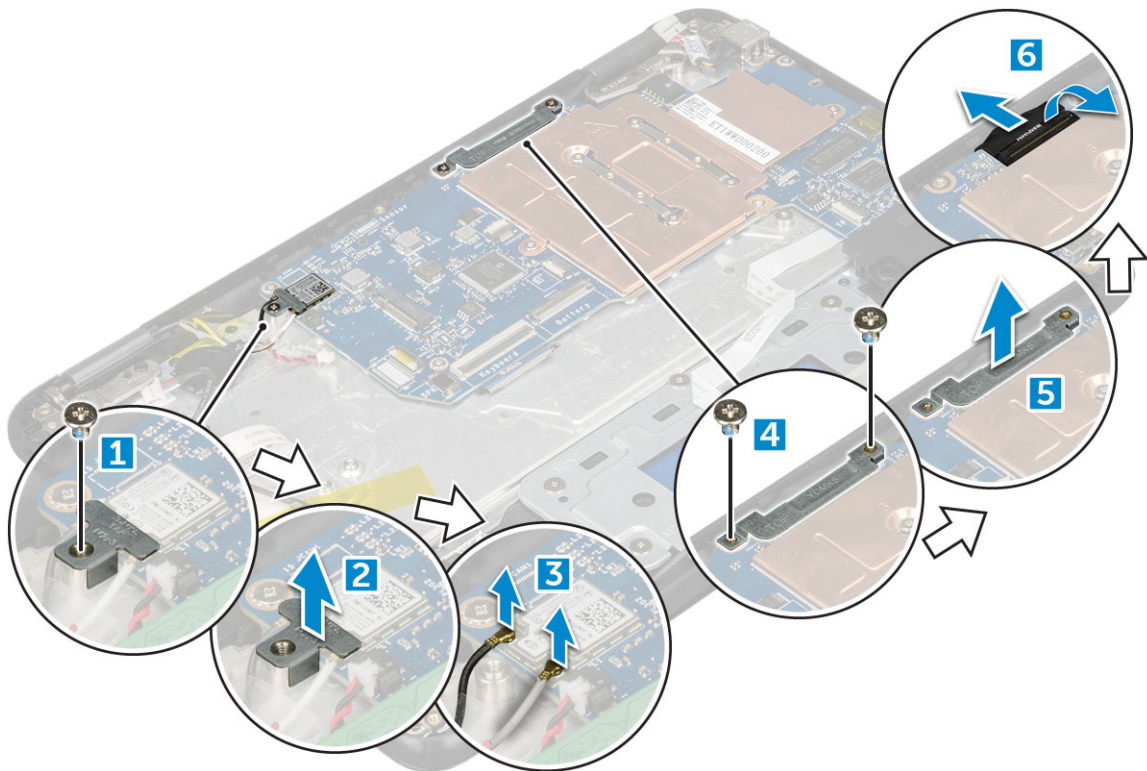
6. Remove the M2. x3.0 screws and lift system board away from the computer[1 ,2]
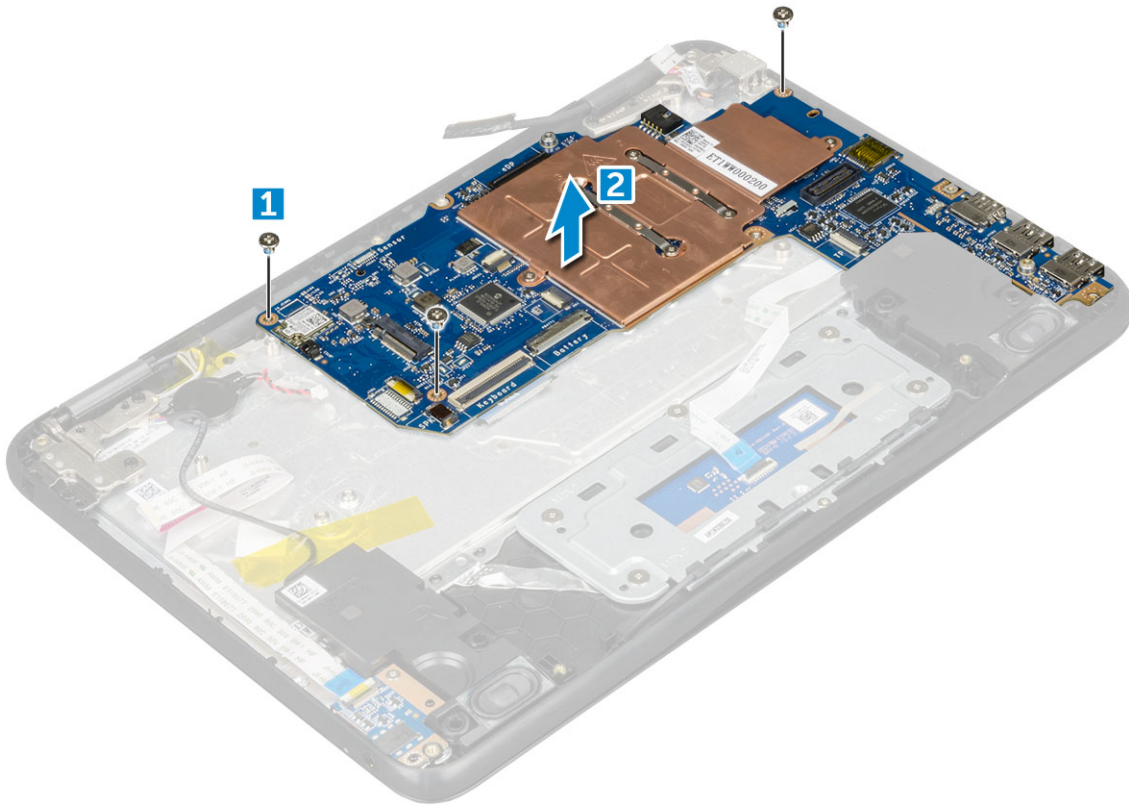
Installing system board

1. Align the system board with the screw holders on the palm rest assembly.
2. Replace the M2.0x3.0 screws to secure the system board to the palm rest assembly.
3. Connect the display cable to the connector on the system board.
4. Place the metal bracket over the connector, and tighten the M2.0x3.0 screws to secure the display cable to the system board.
5. Connect the WLAN cables.
6. Place the metal bracket on the WLAN card, and tighten the M2.0x3.0 screw to secure the WLAN cable on the WLAN card.
7. Place the metal bracket on the system board and tighten M2.0x3.0 screws to secure on the system board.
8. Connect the following cables:
   a. power connector cable
   b. touchpad cable
   c. keyboard cable
   d. speaker cable
   e. audio cable
   f. coin cell battery cable
   g. camera cable
9. Install the:
   a. SSD card
   b. battery
   c. base cover
   d. microSD card
10. Follow the procedure in After working inside your computer.

Display assembly
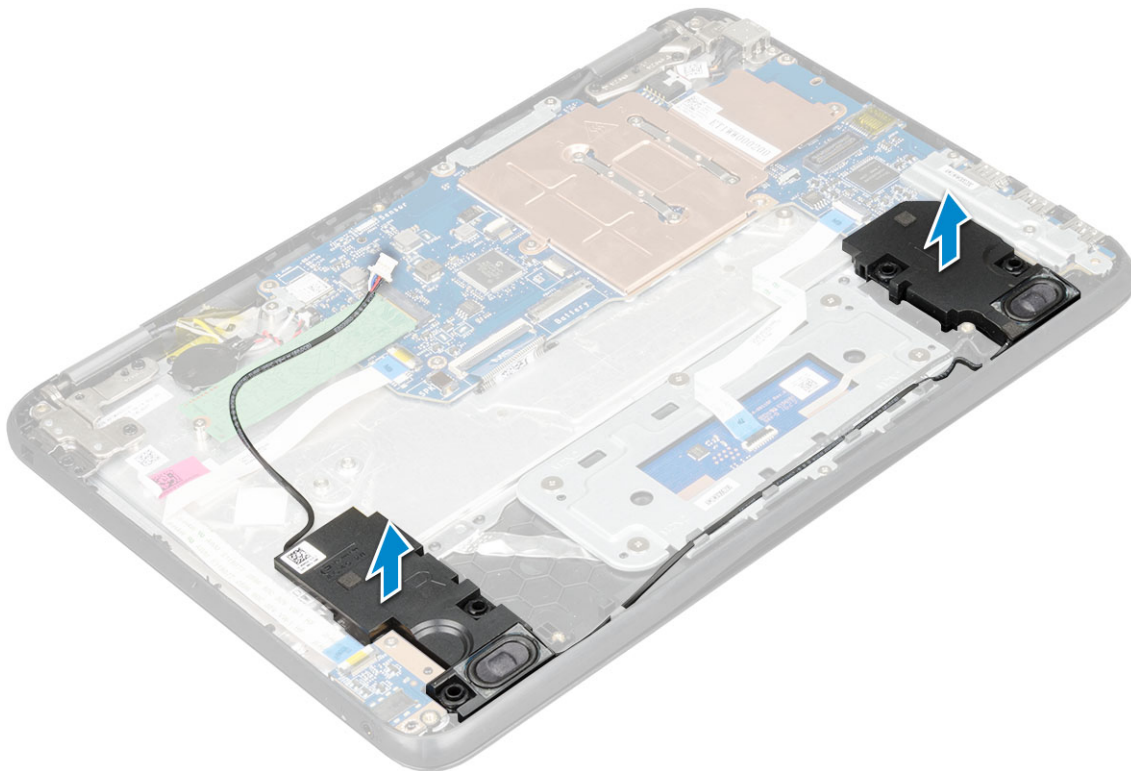
Removing display assembly

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. microSD card
   b. base cover
   c. battery
3. To remove display cable:
   a. Remove the screws M2.0x3.0 and lift the metal bracket that secures the display cable on the computer [1, 2].
   b. Lift the latch, and disconnect the display cable on the system board [3].
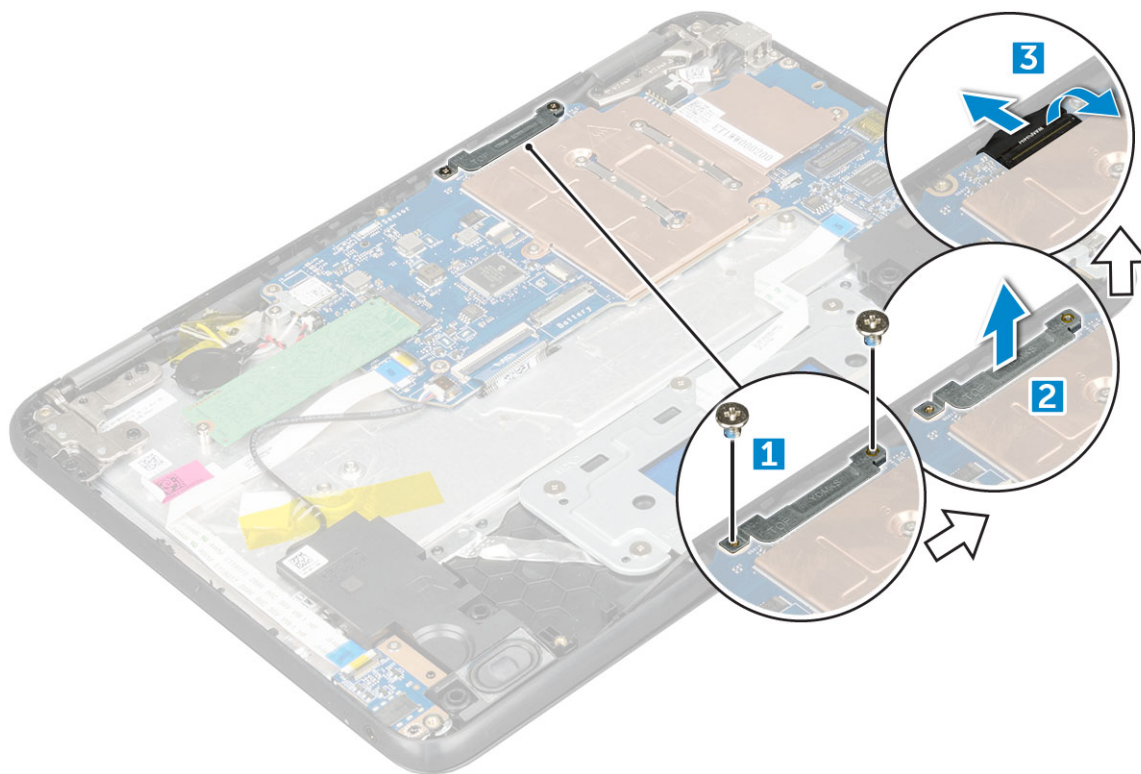
4. To disconnect WLAN cable:
   a. Remove the screw M2.0x3.0 and lift the metal bracket that secure the WLAN card on the system board [1, 2].
   b. Disconnect the WLAN cables [3].
   c. Turn over the computer [4].
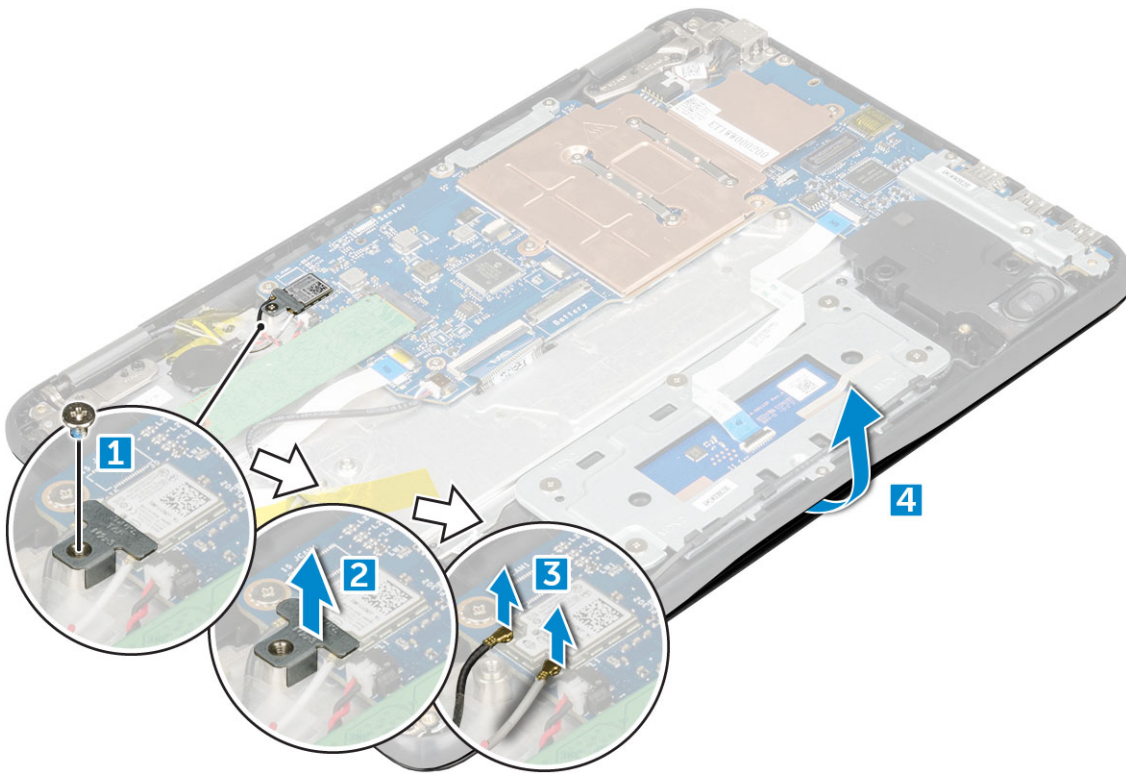
5. To remove the display assembly:
   a. Remove the display hinge screws M2.5xM5.0 that secure the display assembly to the computer [1].
   b. Lift the display assembly away from the computer [2].

Installing display assembly

1. Place the display assembly to align with the screw holders on the computer.
2. Replace the screws that secure the display hinges to the palm-rest assembly.
3. Flip over the computer.
4. Connect the display cable to the connector on the system board.

5. Place the metal bracket over the (display cable) connector, and tighten the M2.0x3.0 screws to secure the display cable to the computer.
6. Connect the WLAN cables.
7. Place the metal bracket, and tighten the M2.0x3.0 screw to the WLAN cable on the system board.
8. Install the:
    a. battery
    b. base cover
    c. microSD card
9. Follow the procedure in After working inside your computer.

Display bezel

Removing display bezel

1. Follow the procedure in Before working inside your computer.
2. Remove the:
    a. microSD card
    b. base cover
    c. battery
3. Remove the hinge cap and the mylar cap that secures the display bezel to the display assembly [1,2].
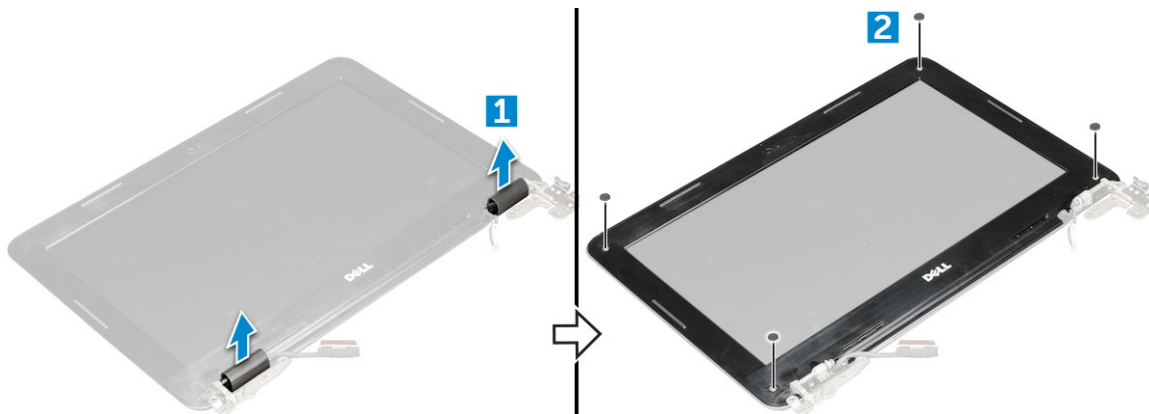
4. Remove the M2.5x3.5 screws and pry the edges to release the display bezel from the display assembly
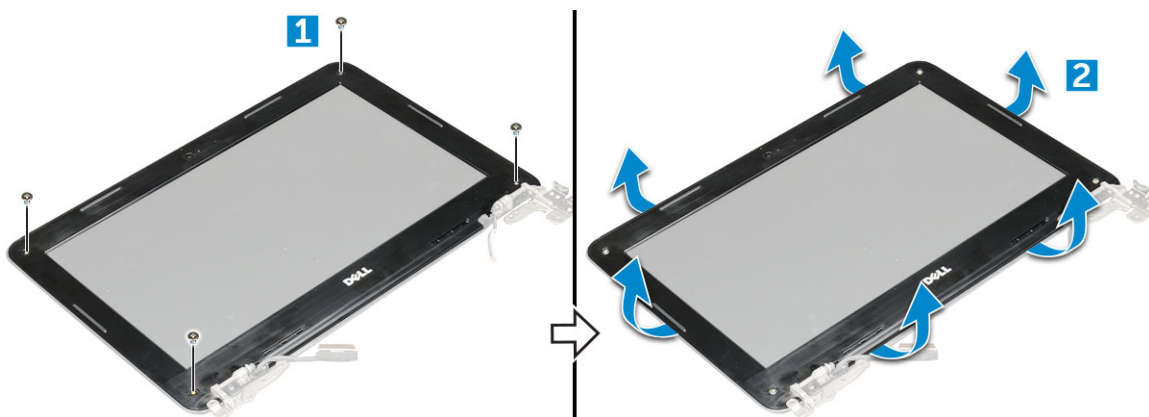
Installing display bezel

1. Place the display bezel on the display assembly.
2. Starting from the top corner, press on the display bezel and work around the entire bezel until it clicks on to the display assembly.
3. Replace the screws to secure the display bezel to the display assembly.
4. Affix the hinge cap.

5. Install the:
   a. battery
   b. base cover
   c. microSD card
6. Follow the procedure in After working inside your computer

Display panel

Removing display panel

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. microSD card
   b. base cover
   c. battery
   d. display assembly
   e. display bezel
3. Remove the M2.0x3.0 screws that secure the display panel to the display assembly [1] and lift to turn over the display panel to access the eDP cable [2].
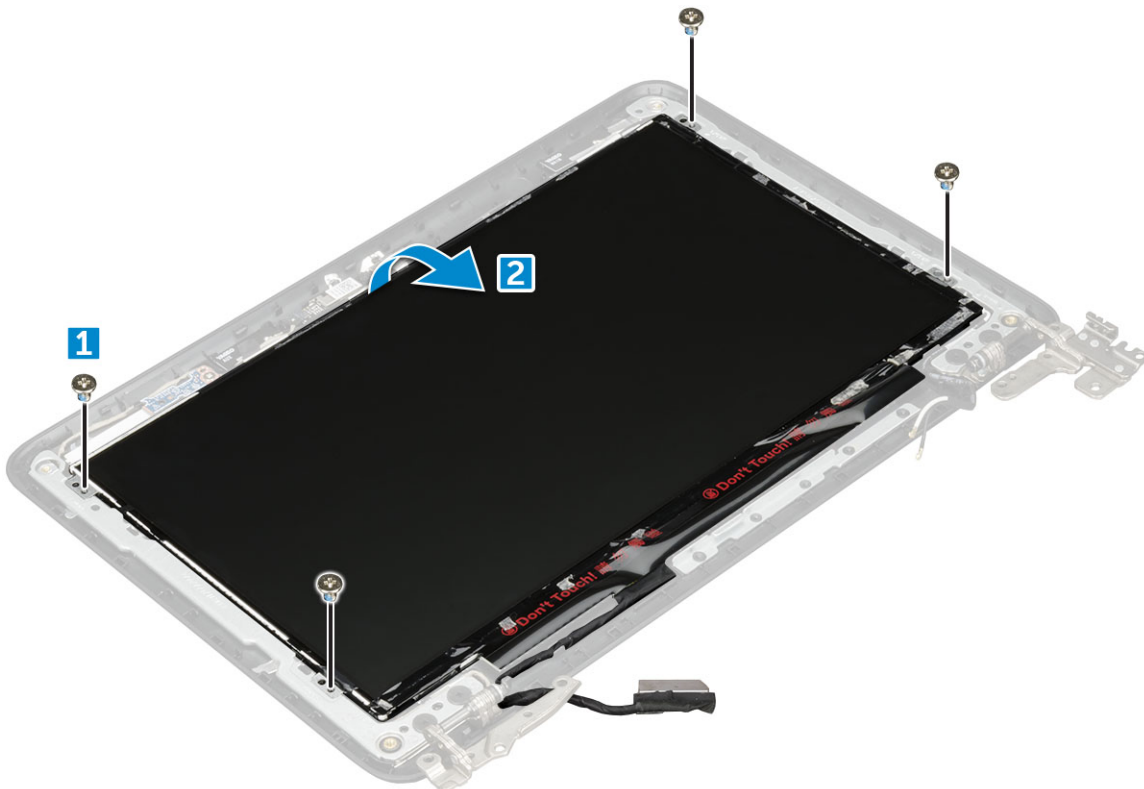
4. To remove display panel:
   a. Peel off the adhesive tape [1].
   b. Disconnect the display cable from the connector on the display panel [2].
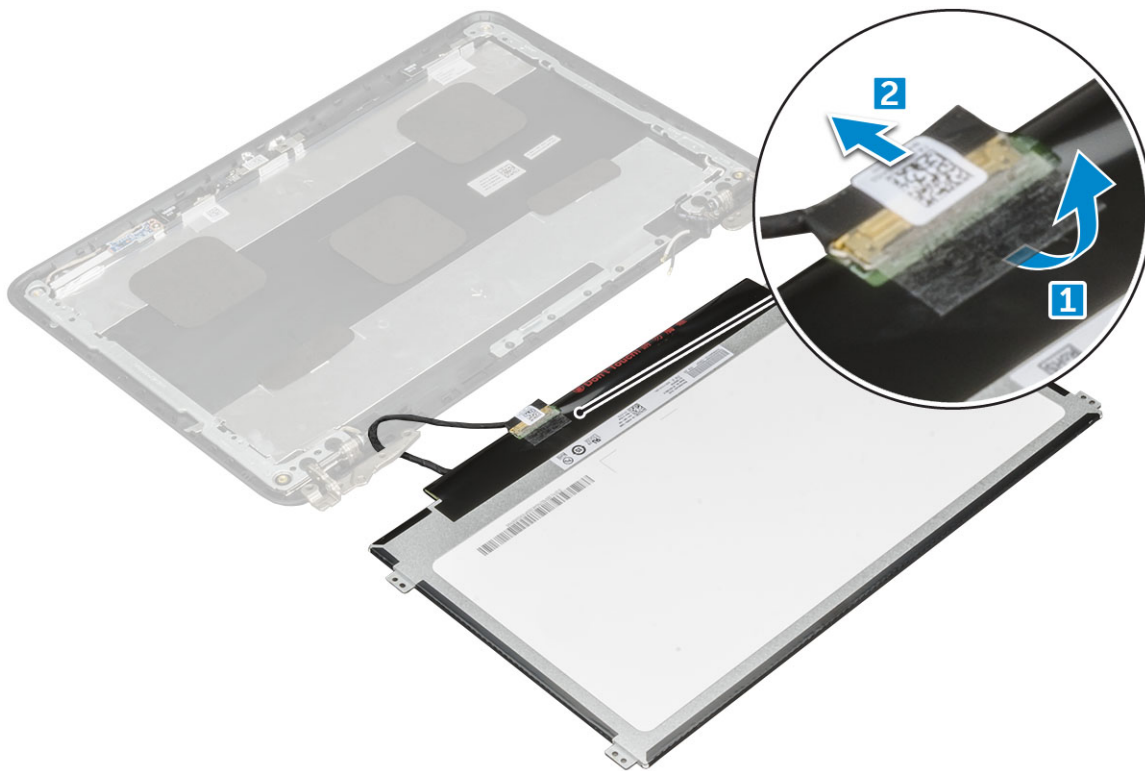
Installing display panel

1. Connect the eDP cable to the connector, and affix the tape.
2. Replace the display panel to align with the screw holders on the display assembly.
3. Replace the M2x3 screws to secure the display panel to the display assembly.
4. Install the:
   a. display bezel
   b. display assembly
   c. battery
   d. base cover
   e. microSD card
5. Follow the procedure in After working inside your computer

Display hinges

Removing display hinge

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. microSD card
   b. base cover
   c. battery
   d. display assembly
   e. display bezel
   f. display panel
3. To remove display hinge:
   a. Remove the M2.5x2.5 screws that secure the display hinge to the display assembly [1].
   b. Lift the display hinge away from the display assembly [2].
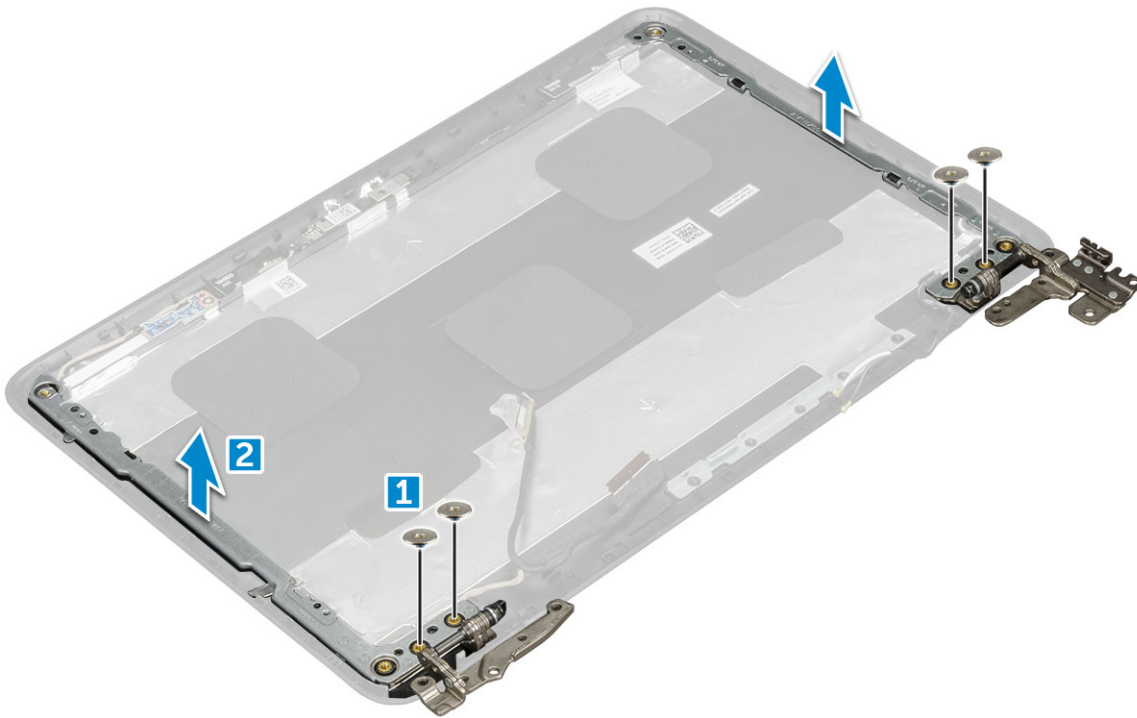
Installing display hinge

1. Place the display hinge cover on the display assembly.
2. Replace the M2.5x2.5 screws to secure the display hinge cover to the display assembly.
3. Install the:
    a. display panel
    b. display bezel
    c. display assembly
    d. battery
    e. base cover
    f. microSD card
4. Follow the procedure in After working inside your computer

Camera

Removing camera

1. Follow the procedure in Before working inside your computer.
2. Remove the:
    a. microSD card
    b. base cover
    c. battery
    d. display assembly
    e. display bezel
    f. display panel
3. To remove display camera:
    a. Disconnect the camera cable from the connector [1].
    b. Lift the camera away from the display [2].
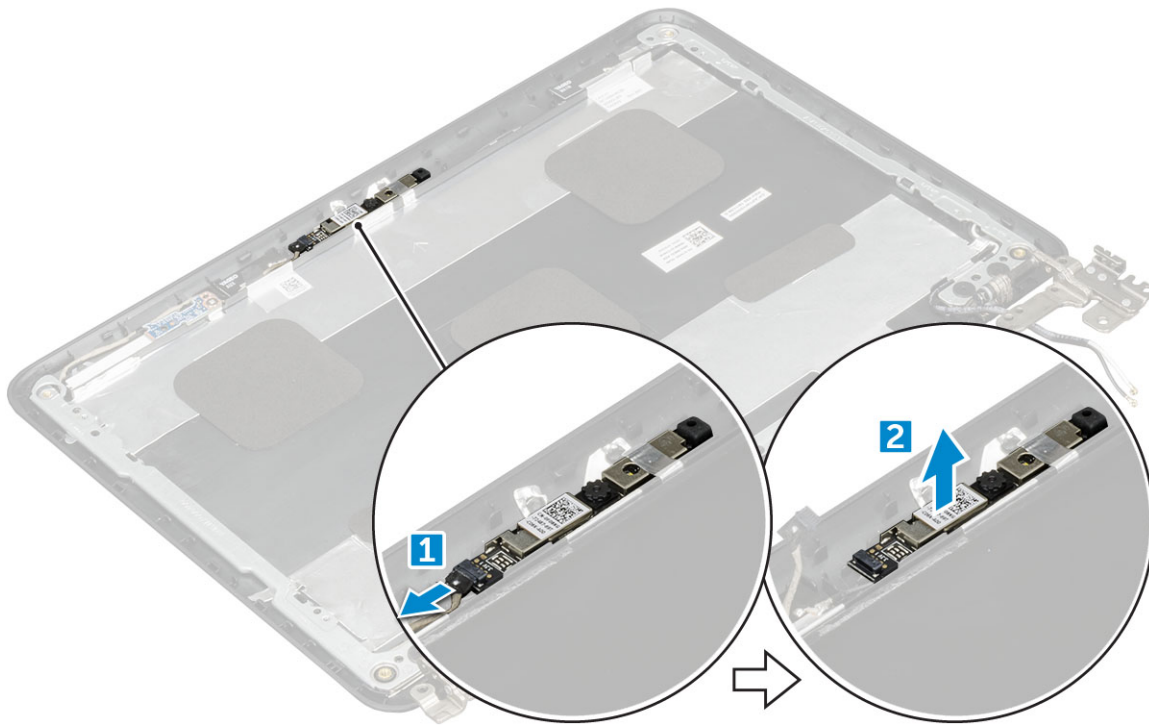
Installing camera

1. Place the camera on the display assembly.
2. Connect the camera cable to the connector on the display assembly.
3. Install the:
   a. display panel
   b. display bezel
   c. display assembly
   d. battery
   e. base cover
   f. microSD card
4. Follow the procedure in After working inside your computer

Technology and components

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

Topics:

Power adapter

This laptop is shipped with 65 W power adapter.

⚠️ **WARNING: When you disconnect the power adapter cable from the laptop, 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

This laptop is shipped with the following processors:

- Intel Celeron Processor N3350 (6 W, 2 M cache, up to 2.4 GHz)
- Intel Pentium Processor N4200 (6 W, 2 M cache, up to 2.5 GHz)

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

Verifying the processor usage in Task Manager

1. **Ctrl+Alt+Del**.
2. Select **Start Task Manager**.
   The **Windows Task Manager** window is displayed.
3. Click the **Performance** tab in the **Windows Task Manager** window.

Verifying the processor usage in Resource Monitor

1. **Ctrl+Alt+Del**.
2. Select **Start Task Manager**.
   The **Windows Task Manager** window is displayed.
3. Click the **Performance** tab in the **Windows Task Manager** window.
   The processor performance details are displayed.
4. Click **Open Resource Monitor**.

Chipsets

All laptops or notebook communicate with the CPU through the chipset. This laptop is shipped with the Intel 100 Series chipset.

Intel HD Graphics

This computer is shipped with the following list of Intel HD Graphics chipsets.

1. Intel Corei3-6606U Intel HD graphics 520
2. Intel Celeron 3865U Intel HD graphics 610
3. Intel Pentium 4415U Intel HD graphics 610
4. Intel Core i5-7200U Intel HD graphics 620

Memory features

This laptop supports a maximum memory of 4 GB LPDDR3 1600 Mhz.

Verifying system memory in system setup BIOS

1. Turn on or restart your system.
2. Perform the following actions after the Dell logo is displayed

   - With keyboard — Tap F2 until the Entering BIOS setup message appears. To enter the Boot selection menu, tap F12.
3. On the left pane, select **Settings** > **General** > **System Information**,
   The memory information is displayed on the right pane.

Testing memory using ePSA

1. Turn on or restart your system.
2. Perform one of the following actions after the Dell logo is displayed:

   - With keyboard — Press **F12**.

   The PreBoot System Assessment (PSA) starts on your system.

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

Graphic options

This laptop is shipped with the following graphics chipset options:

- Pentium Intel HD Graphics 500
- Celeron Intel HD Graphics 505

Hard drive options

This laptop supports :

- M.2 128GB SATA Class 20 Solid State Drive
- 32 GB eMMC
- 64 GB eMMC

Identifying the hard drive in the BIOS

1. Turn on or restart your system.
2. When the Dell logo appears, perform the following action 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.

The hard drive is listed under the **System Information** under the **General** group.
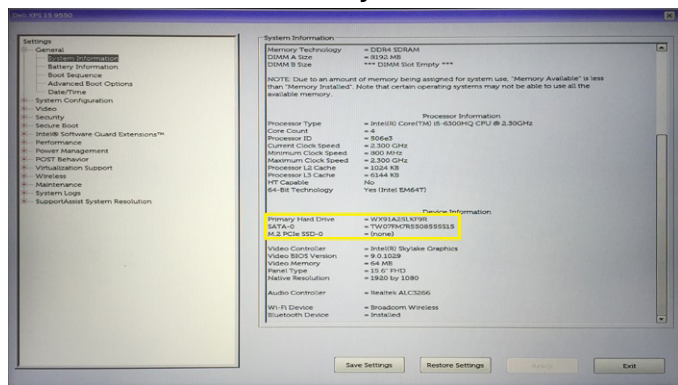
USB features

Universal Serial Bus, or USB, was introduced in 1996. It dramatically simplified the connection between host computers and peripheral devices like mice, keyboards, external drivers, and printers.

Let's take a quick look on the USB evolution referencing to the table below.

Table 1. USB evolution

Type	Data Transfer Rate	Category	Introduction Year
USB 2.0	480 Mbps	High Speed	2000
USB 3.0/USB 3.1 Gen 1	5 Gbps	Super Speed	2010
USB 3.1 Gen 2	10 Gbps	Super Speed	2013

USB 3.0/USB 3.1 Gen 1 (SuperSpeed USB)

For years, the USB 2.0 has been firmly entrenched as the de facto interface standard in the PC world with about 6 billion devices sold, and yet the need for more speed grows by ever faster computing hardware and ever greater bandwidth demands. The USB 3.0/USB 3.1 Gen 1 finally has the answer to the consumers' demands with a theoretically 10 times faster than its predecessor. In a nutshell, USB 3.1 Gen 1 features are as follows:

- Higher transfer rates (up to 5 Gbps)
- Increased maximum bus power and increased device current draw to better accommodate power-hungry devices
- New power management features
- Full-duplex data transfers and support for new transfer types
- Backward USB 2.0 compatibility
- New connectors and cable

The topics below cover some of the most commonly asked questions regarding USB 3.0/USB 3.1 Gen 1.

Speed

Currently, there are 3 speed modes defined by the latest USB 3.0/USB 3.1 Gen 1 specification. They are Super-Speed, Hi-Speed and Full-Speed. The new SuperSpeed mode has a transfer rate of 4.8Gbps. While the specification retains Hi-Speed, and Full-Speed USB mode, commonly known as USB 2.0 and 1.1 respectively, the slower modes still operate at 480Mbps and 12Mbps respectively and are kept to maintain backward compatibility.

USB 3.0/USB 3.1 Gen 1 achieves the much higher performance by the technical changes below:

- An additional physical bus that is added in parallel with the existing USB 2.0 bus (refer to the picture below).

- USB 2.0 previously had four wires (power, ground, and a pair for differential data); USB 3.0/USB 3.1 Gen 1 adds four more for two pairs of differential signals (receive and transmit) for a combined total of eight connections in the connectors and cabling.
- USB 3.0/USB 3.1 Gen 1 utilizes the bidirectional data interface, rather than USB 2.0's half-duplex arrangement. This gives a 10-fold increase in theoretical bandwidth.
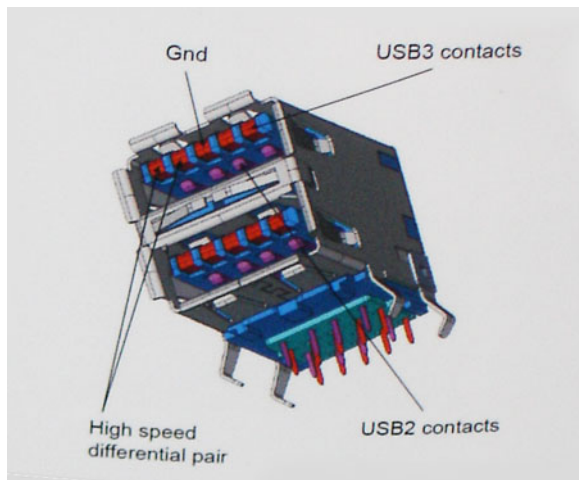
With today's ever increasing demands placed on data transfers with high-definition video content, terabyte storage devices, high megapixel count digital cameras etc., USB 2.0 may not be fast enough. Furthermore, no USB 2.0 connection could ever come close to the 480Mbps theoretical maximum throughput, making data transfer at around 320Mbps (40MB/s) — the actual real-world maximum. Similarly, USB 3.0/USB 3.1 Gen 1 connections will never achieve 4.8Gbps. We will likely see a real-world maximum rate of 400MB/s with overheads. At this speed, USB 3.0/USB 3.1 Gen 1 is a 10x improvement over USB 2.0.

Applications

USB 3.0/USB 3.1 Gen 1 opens up the laneways and provides more headroom for devices to deliver a better overall experience. Where USB video was barely tolerable previously (both from a maximum resolution, latency, and video compression perspective), it's easy to imagine that with 5-10 times the bandwidth available, USB video solutions should work that much better. Single-link DVI requires almost 2Gbps throughput. Where 480Mbps was limiting, 5Gbps is more than promising. With its promised 4.8Gbps speed, the standard will find its way into some products that previously weren't USB territory, like external RAID storage systems.

Listed below are some of the available SuperSpeed USB 3.0/USB 3.1 Gen 1 products:

- External Desktop USB 3.0/USB 3.1 Gen 1 Hard Drives
- Portable USB 3.0/USB 3.1 Gen 1 Hard Drives
- USB 3.0/USB 3.1 Gen 1 Drive Docks & Adapters
- USB 3.0/USB 3.1 Gen 1 Flash Drives & Readers
- USB 3.0/USB 3.1 Gen 1 Solid-state Drives
- USB 3.0/USB 3.1 Gen 1 RAIDs
- Optical Media Drives
- Multimedia Devices
- Networking
- USB 3.0/USB 3.1 Gen 1 Adapter Cards & Hubs

Compatibility

The good news is that USB 3.0/USB 3.1 Gen 1 has been carefully planned from the start to peacefully co-exist with USB 2.0. First of all, while USB 3.0/USB 3.1 Gen 1 specifies new physical connections and thus new cables to take advantage of the higher speed capability of the new protocol, the connector itself remains the same rectangular shape with the four USB 2.0 contacts in the exact same location as before. Five new connections to carry receive and transmitted data independently are present on USB 3.0/USB 3.1 Gen 1 cables and only come into contact when connected to a proper SuperSpeed USB connection.

Windows 8/10 will be bringing native support for USB 3.1 Gen 1 controllers. This is in contrast to previous versions of Windows, which continue to require separate drivers for USB 3.0/USB 3.1 Gen 1 controllers.

Microsoft announced that Windows 7 would have USB 3.1 Gen 1 support, perhaps not on its immediate release, but in a subsequent Service Pack or update. It is not out of the question to think that following a successful release of USB 3.0/USB 3.1 Gen 1 support in

Windows 7, SuperSpeed support would trickle down to Vista. Microsoft has confirmed this by stating that most of their partners share the opinion that Vista should also support USB 3.0/USB 3.1 Gen 1.

HDMI 1.4

This topic explains the HDMI 1.4 and its features along with the advantages.

HDMI (High-Definition Multimedia Interface) is an industry-supported, uncompressed, all-digital audio/video interface. HDMI provides an interface between any compatible digital audio/video source, such as a DVD player, or A/V receiver and a compatible digital audio and/or video monitor, such as a digital TV (DTV). The intended applications for HDMI TVs, and DVD players. The primary advantage is cable reduction and content protection provisions. HDMI supports standard, enhanced, or high-definition video, plus multichannel digital audio on a single cable.

ⓘ **NOTE: The HDMI 1.4 will provide 5.1 channel audio support.**

HDMI 1.4 Features

- **HDMI Ethernet Channel** - Adds high-speed networking to an HDMI link, allowing users to take full advantage of their IP-enabled devices without a separate Ethernet cable
- **Audio Return Channel** - Allows an HDMI-connected TV with a built-in tuner to send audio data "upstream" to a surround audio system, eliminating the need for a separate audio cable
- **3D** - Defines input/output protocols for major 3D video formats, paving the way for true 3D gaming and 3D home theater applications
- **Content Type** - Real-time signaling of content types between display and source devices, enabling a TV to optimize picture settings based on content type
- **Additional Color Spaces** - Adds support for additional color models used in digital photography and computer graphics
- **4K Support** - Enables video resolutions far beyond 1080p, supporting next-generation displays that will rival the Digital Cinema systems used in many commercial movie theaters
- **HDMI Micro Connector** - A new, smaller connector for phones and other portable devices, supporting video resolutions up to 1080p
- **Automotive Connection System** - New cables and connectors for automotive video systems, designed to meet the unique demands of the motoring environment while delivering true HD quality

Advantages of HDMI

- Quality HDMI transfers uncompressed digital audio and video for the highest, crispest image quality.
- Low -cost HDMI provides the quality and functionality of a digital interface while also supporting uncompressed video formats in a simple, cost-effective manner
- Audio HDMI supports multiple audio formats from standard stereo to multichannel surround sound
- HDMI combines video and multichannel audio into a single cable, eliminating the cost, complexity, and confusion of multiple cables currently used in A/V systems
- HDMI supports communication between the video source (such as a DVD player) and the DTV, enabling new functionality

Realtek ALC3246

This laptop is shipped with integrated Realtek ALC3246 controller High Definition audio codec designed for Windows desktops and laptops.

Camera features

This laptop is shipped with a front-facing camera with the image resolution of 1280 x 720 (maximum).

BIOS Overview

Boot menu

Press <F12> when the Dell™ logo appears to initiate a one-time boot menu with a list of the valid boot devices for the system. Diagnostics and BIOS Setup options are also included in this menu. The devices listed on the boot menu depend on the bootable devices in the system. This menu is useful when you are attempting to boot to a particular device or to bring up the diagnostics for the system. Using the boot menu does not make any changes to the boot order stored in the BIOS.

The options are:

- Legacy Boot:
  - Internal HDD
  - Onboard NIC
- UEFI Boot:
  - Windows Boot Manager
- Other Options:
  - BIOS Setup
  - BIOS Flash Update
  - Diagnostics
  - Change Boot Mode Settings

System setup options

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

Topics:

Navigation keys

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

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
Enter	Selects a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
Tab	Moves to the next focus area. ⓘ **NOTE: For the standard graphics browser only.**
Esc	Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.

System Setup overview

System Setup allows you to:

- Change the system configuration information after you add, change, or remove any hardware in your computer.
- Set or change a user-selectable option such as the user password.
- Read the current amount of memory or set the type of hard drive installed.

Before you use System Setup, it is recommended that you write down the System Setup screen information for future reference.

⚠ **CAUTION: Unless you are an expert computer user, do not change the settings for this program. Certain changes can cause your computer to work incorrectly.**

Accessing System Setup

1. Turn on (or restart) your computer.
2. After the white Dell logo appears, press F2 immediately.

   The System Setup page is displayed.

   ⓘ **NOTE: If you wait too long and the operating system logo appears, wait until you see the desktop. Then, shut down or restart your computer and try again.**

   ⓘ **NOTE: After the Dell logo appears, you can also press F12 and then select BIOS setup.**

General screen options

This section lists the primary hardware features of your computer.

Option	Description
System Information	This section lists the primary hardware features of your computer.
	• System Information: Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date, Manufacture Date, Express Service Code, the Signed Firmware update—enabled by default
	• Memory Information: Primary Hard Drive, SATA, Displays Memory Installed, Memory Available, Memory Speed, Memory Channels Mode, Memory Technology
	• Processor Information: Displays Processor Type, Core Count, Processor ID, Current Clock Speed, Minimum Clock Speed, Maximum Clock Speed, Processor L2 Cache, HT Capable, and 64-Bit Technology
	• Device Information: Primary Hard Drive, Passthrough MAC address, Video Controller, Video BIOS Version, Video Memory, Panel Type, Native Resolution, Audio Controller, Wi-Fi Device, Bluetooth Device
Battery Information	Displays the battery status health and whether the AC adapter is installed.
Advanced Boot Options	• Enable Legacy Option ROMs (Enable Default)
	• Enable Attempt Legacy Boot (Enable Default)
	• Enable UEFI Network Stack
UEFI boot path security	• Always, except internal HDD (System Default)
	• Always
	• Never
Date/Time	Allows you to change the date and time.

System Configuration screen options

Option	Description
Drives	Allows you to configure the SATA drives on board.
	• SATA-0 enabled by default
	• eMMC enabled by default
USB Configuration	This is an optional feature.
	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.
	If USB port is enabled, device attached to this port is enabled and available for OS.
	If USB port is disabled, the OS cannot see any device attached to this port.
	The options are:

Option	Description
	• Enable Boot Support—enabled by default
	• Enable External USB Port—enabled by default
	ⓘ NOTE: **USB keyboard and mouse always work in the BIOS setup irrespective of these settings.**
USB PowerShare	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
Audio	This field enables or disables the integrated audio controller. By default, the **Enable Audio** option is selected. The options are:
	• Enable Microphone—by default enable
	• Enable Internal Speaker—(default enable)
Debug Memory Frequency Configuration	Allows you to enable or disable the following devices:
	• Memory Frequency 1866
	• Memory Frequency 1600 (default enable)
Miscellaneous Devices	Allows you to enable or disable the following devices:
	• Secure Digital (SD) card—enabled
	• Secure Digital (SD) card read-only-mode

Video screen options

Option	Description
LCD Brightness	Allows you to set the display brightness depending up on the power source—On Battery and On AC. The LCD brightness is independent for battery and AC adapter. It can be set using the slider.

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

Security screen options

Option	Description
Admin Password	Allows you to set, change, or delete the administrator (admin) password.
	ⓘ NOTE: **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.**
	ⓘ NOTE: **Successful password changes take effect immediately.**
	Default setting: Not set
System Password	Allows you to set, change, or delete the system password.
	ⓘ NOTE: **Successful password changes take effect immediately.**
	Default setting: Not set
Strong Password	Allows you to enforce the option to always set strong passwords.
	Default Setting: Enable Strong Password is not selected.
	ⓘ NOTE: **If Strong Password is enabled, the Admin and System passwords must contain at least one uppercase character, one lowercase character and be at least 8 characters long.**
Password Configuration	Allows you to specify the minimum and max password lengths of the Administrator and System passwords.
	• min-4—by default, if you want to change you can increase the number

Option	Description
	• max-32—you can decrease the number
Password Bypass	Allows you to enable or disable the permission to bypass the System and the Internal HDD password, when they are set. The options are:
	• Disabled —enabled by default
	• Reboot bypass
Password Change	Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set.
	Default setting: **Allow Non-Admin Password Changes** is selected.
Non-Admin Setup Changes	Allows you to determine whether changes to the setup options are allowed when an Administrator Password is set. If disabled the setup options are locked by the admin password.
	Option "allow wireless switch changes" is not selected by default.
UEFI Capsule Firmware Updates	Allows you to enable the disable. This option controls whether this system allows BIOS updated via UEFI capsule update packages. The options are:
	• Enable UEFI Capsule Firmware—enabled by default
TPM 2.0 Security	Allows you to enable the Trusted Platform Module (TPM) during POST. The options are:
	• TPM On—enabled by default
	• Clear
	• PPI Bypass for Enable Commands—enabled by default
	• PPI Bypass for Disabled Commands
	• Attestation enable—enabled by default
	• Key storage enable—enabled by default
	• SHA-256—enabled by default
	• Disabled
	• Enabled—enabled by default
	ⓘ **NOTE: To upgrade or downgrade TPM 2.0, download the TPM wrapper tool—software.**
Computrace	Allows you to activate or disable the optional Computrace software The options are:
	• Deactivate
	• Disable
	• Activate—enabled by default
	ⓘ **NOTE: The Activate and Disable options will permanently activate or disable the feature and no further changes are allowed**
CPU XD Support	Allows you to enable the Execute Disable mode of the processor.
	Enable CPU XD Support—enabled by default
Admin Setup Lockout	Allows you to prevent users from entering Setup when an Administrator password is set.
	Default Setting: This option is enabled
Master password lockout	This option is not enabled by default.

Secure Boot screen options

Option	Description
Secure Boot Enable	This option enables or disables the **Secure Boot** feature.
	• Disabled (Enabled)
	• Enabled

Option	Description
Expert Key Management	Allows you to manipulate the security key databases only if the system is in Custom Mode. The **Enable Custom Mode** option is disabled by default. The options are: • PK—enabled by default • KEK • db • dbx If you enable the **Custom Mode**, the relevant options for **PK, KEK, db, and dbx** appear. The options are: • **Save to File**—Saves the key to a user-selected file • **Replace from File**—Replaces the current key with a key from a user-selected file • **Append from File**—Adds a key to the current database from a user-selected file • **Delete**—Deletes the selected key • **Reset All Keys**—Resets to default setting • **Delete All Keys**—Deletes all the keys ⓘ **NOTE: If you disable the Custom Mode, all the changes made are erased and the keys restore to default settings.**

Performance screen options

Option	Description
Multi-Core Support	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. The installed processor supports two cores. If you enable Multi-Core Support, two cores are enabled. If you disable Multi-Core Support, one core is enabled. • Enable Multi-Core Support Default setting: The option is enabled.
Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep feature. • Enable Intel SpeedStep Default setting: The option is enabled.
C-States Control	Allows you to enable or disable the additional processor sleep states. • C states Default setting: The option is enabled.
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor. • Enable Intel TurboBoost Default setting: The option is enabled.

Power management screen options

Option	Description
AC Behavior	Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected. Default setting: Wake on AC is not selected.
Auto On Time	Allows you to set the time at which the computer must turn on automatically. The options are: • Disabled • Every Day • Weekdays

Option	Description
	• Select Days
	Default setting: Disabled
USB Wake Support	Allows you to enable USB devices to wake the system from Standby.
	(i) **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.**
	• Enable USB Wake Support
	• Wake on Dell USB-C dock
	Default setting: The option is disabled.
Wake on WLAN	Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal.
	• Disabled
	• WLAN
	Default setting: Disabled
Block Sleep	This option lets you block entering to sleep (S3 state) in operating system environment.
	Block Sleep (S3 state)
	Default setting: This option is disabled
Peak Shift	This option enables 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.
	• Enable peak shift
	• Set battery threshold (15% to 100%) - 15 % (enabled by default)
Advanced Battery Charge Configuration	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 nonwork hours to improve the battery health.
	Disabled
	Default setting: Disabled
Primary Battery Charge Configuration	Allows you to select the charging mode for the battery. The options are:
	• Adaptive—enabled by default
	• Standard—Fully charges your battery at a standard rate.
	• ExpressCharge—The battery charges over a shorter time using Dell's fast charging technology This option is enabled by default.
	• Primarily AC use
	• Custom
	If Custom Charge is selected, you can also configure Custom Charge Start and Custom Charge Stop.
	(i) **NOTE: All charging mode may not be available for all the batteries. To enable this option, disable the Advanced Battery Charge Configuration option.**
Sleep mode	• OS Automatic selection
	Force S3—enabled by default

POST behavior screen options

Option	Description
Adapter Warnings	Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters.
	Default setting: Enable Adapter Warnings
Numlock Enable	Allows you to enable the Numlock option when the computer boots.

Option	Description
	Enable Network. This option is enabled by default.
Fn Lock Options	Allows you to let hot key combinations Fn + Esc toggle the primary behavior of F1–F12, between their standard and secondary functions. If you disable this option, you cannot toggle dynamically the primary behavior of these keys. The available options are: • Lock Mode Disable/Standard—enabled by default • Lock Mode Enable
Fastboot	Allows you to speed up the boot process by bypassing some of the compatibility steps. The options are: • Minimal—enabled by default • Thorough • Auto
Extended BIOS POST Time	Allows you to create an extra preboot delay. The options are: • 0 seconds—enabled by default. • 5 seconds • 10 seconds
Full Screen Log	• Enable Full Screen Logo—not enabled

Wireless screen options

Option	Description
Wireless Device Enable	Allows you to enable or disable the internal wireless devices. • WLAN — enabled by default • Bluetooth All the options are enabled by default.

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

Memory specifications

Feature	Specification
Memory connector	On board memory
Memory capacity	2 GB, and 4 GB
Memory type	LPDDR3 SDRAM
Speed	1600 MHz
Minimum memory	2 GB
Maximum memory	4 GB

System logs screen options

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

SupportAssist system resolution

Option	Description
Auto OS Recovery Threshold	The Auto OS Recovery Threshold setup option controls the automatic boot flow for SupportAssist System Resolution Console and for Dell OS Recovery Tool. • OFF • 1 • 2 (default) • 3

Updating the BIOS in Windows

It is recommended to update your BIOS (System Setup), when you replace the system board or if an update is available.

(i) **NOTE: If BitLocker is enabled, it must be suspended prior to updating the system BIOS, and then re-enabled after the BIOS update is completed.**

1. Restart the computer.
2. Go to **Dell.com/support**.
   - Enter the **Service Tag** or **Express Service Code** and click **Submit**.
   - Click **Detect Product** and follow the instructions on screen.
3. If you are unable to detect or find the Service Tag, click **Choose from all products**.
4. Choose the **Products** category from the list.

   (i) **NOTE: Choose the appropriate category to reach the product page**

5. Select your computer model and the **Product Support** page of your computer appears.
6. Click **Get drivers** and click **Drivers and Downloads**.
   The Drivers and Downloads section opens.
7. Click **Find it myself**.
8. Click **BIOS** to view the BIOS versions.
9. Identify the latest BIOS file and click **Download**.
10. Select your preferred download method in the **Please select your download method below** window, click **Download File**.
    The **File Download** window appears.
11. Click **Save** to save the file on your computer.
12. Click **Run** to install the updated BIOS settings on your computer.
    Follow the instructions on the screen.

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.**

(i) **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.

1. In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.
   The **Security** screen is displayed.
2. Select **System/Admin Password** and create a password in the **Enter the new password** field.

   Use the following guidelines to assign the system password:

   - A password can have up to 32 characters.
   - 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, ("), (+), (,), (-), (.), (/), (;), ([), (\), (]), (`).

3. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
4. Press Esc and a message prompts you to save the changes.
5. 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.

   (i) **NOTE: If you change the System and/or Setup password, re-enter the new password when promoted. If you delete the System and/or Setup password, confirm the deletion when promoted.**

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.

Technical specifications

(i) **NOTE: Offerings may vary by region. For more information regarding the configuration of your computer in:**

- **Windows 10, click or tap Start [⊞] > Settings > System > About.**

Topics:

System specifications

Feature	Specification
Chipset	Intel Apollo Lake (integrated with processor)
DRAM bus width	64-bit
Flash EPROM	SPI 128 Mbits
PCIe bus	100 MHz
External Bus Frequency	PCIe Gen3 (8 GT/s)

Processor specifications

Feature	Specification
Types	• Intel Celeron Processor N3350 (6 W, 2 M cache, up to 2.4 GHz) • Intel Pentium Processor N4200 (6 W, 2 M cache, up to 2.5 GHz)

Memory specifications

Feature	Specification
Memory connector	On board memory

Feature	Specification
Memory capacity	2 GB, and 4 GB
Memory type	LPDDR3 SDRAM
Speed	1600 MHz
Minimum memory	2 GB
Maximum memory	4 GB

Storage specifications

Feature	Specification
Embedded Multi-Media Controller	· 32 GB eMMC · 64 GB eMMC
SSD M.2 SATA	· 128 GB SSD

Audio specifications

Feature	Specification
Types	High-definition audio
Controller	Realtek ALC3234
Stereo conversion	Digital audio-out through HDMI—up to 7.1 compressed and uncompressed audio
Internal interface	High-definition audio codec
External interface	Stereo headset/mic combo
Speakers	Two
Internal speaker amplifier	2 W (RMS) per channel
Volume controls	Hot keys

Video specifications

Feature	Specification
Type	Integrated on system board, hardware accelerated
GPU cards	· Intel HD Graphics 505 - Pentium N4200 · Intel HD Graphics 500 - Celeron N3450 and Celeron N3350
Data bus	Integrated video
External display support	19-pin HDMI connector

Camera specifications

(i) **NOTE:** Windows Hello face authentication enabled.

Feature	Specification
Camera resolution	1.00 megapixels
HD Panel Resolution	1280 x 720 pixels
HD Panel Video Resolution (maximum)	1280 x 720 pixels
Diagonal viewing angle	74º

Communication specifications

Features	Specification
Wireless	Internal wireless local area network (WLAN) (Intel Dual Band Wireless-AC 7265 802.11AC 2x2 Wi-Fi + BT 4.2 LE Solder Down Card)

Port and connector specifications

Feature	Specification
Audio	Stereo headset / mic combo
Video	One 19-pin HDMI connector
USB	• One HDMI • One USB 3.1 Gen 1 with PowerShare • One USB 3.1 Gen 1 port • One microSD card
Memory card reader	Up to SD 3.0
Docking port	Docking has two options: • Dell D1000 USB 3.0 Dock • Dell Entry USB 3.0 Dock

Keyboard specifications

Feature	Specification
Number of keys	• United States: 82 keys • United Kingdom: 83 keys • Europe: 83 keys • Brazil: 84 keys • Japan: 86 keys

Touchpad specifications

Feature	Specification
Active Area:	
X-axis	97.00 mm
Y-axis	52.00 mm

Battery specifications

Feature	Specification
Type	42 Whr
42 Whr	
Length	184.00 mm (7.24 inches)
Weight	185.00 g (0.185 kg)
Width	97 mm (3.82 inches)
Height	11.4 V DC
Voltage	
Life span	300 discharge per charge cycles
Temperature range	
Operating	• Charge: 0°C to 50°C (32°F to 122°F) • Discharge: 0°C to 70°C (32°F to 158°F) • Operating: 0°C to 35°C (32°F to 95°F)
Non-operating	- 40°C to 65°C (- 40°F to 149°F)
Coin cell battery	3 V CR2032 lithium coin cell

AC adapter specifications

Feature	Specification
Type	65 W
Input voltage	100 V AC to 240 V AC
Input current (maximum)	1.7 A
Input frequency	50 Hz to 60 Hz
Output current	3.34 A
Rated output voltage	19.5 +/− 1.0 V DC
Temperature range (Operating)	0°C to 40°C (32°F to 104°F)
Temperature range (Non-Operating)	−40°C to 70°C (−40°F to 158°F)

Physical specifications

Feature	Specification
Front height	20.75 mm (0.81 inch)
Back height	20.75 mm (0.81 inch)
Width	303.30 mm (11.94 inches)
Depth	206.00 mm (8.11 inches)
Starting weight	2.78 lbs (1.26 kg)

Environmental specifications

Temperature	Specifications
Operating	0°C to 35°C (32°F to 95°F)
Storage	−40°C to 65°C (−40°F to 149°F)

Relative humidity (maximum)	Specifications
Operating	10 % to 90 % (non condensing)
Storage	5 % to 95 % (non condensing)

Altitude (maximum)	Specifications
Operating	0 m to 3048 m (0 ft to 10,000 ft)
Non-operating	0 m to 10,668 m (0 ft to 35,000 ft)
Airborne contaminant level	G1 as defined by ISA-71.04–1985

Troubleshooting

Enhanced Pre-Boot System Assessment — ePSA diagnostics

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

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

⚠ **CAUTION: Use the system diagnostics to test only your computer. Using this program with other computers may cause invalid results or error messages.**

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

Running the ePSA Diagnostics

Invoke diagnostics boot by either of the methods that are suggested below:

1. Power on the computer.
2. As the computer boots, press the F12 key when the Dell logo is displayed.
3. In the boot menu screen, use Up/Down arrow key to select the **Diagnostics** option and then press **Enter**.

   ⓘ **NOTE: The Enhanced Pre-boot System Assessment window displays, listing all devices detected in the computer. The diagnostics starts running the tests on all the detected devices.**

4. Press the arrow in the lower-right corner to go to the page listing.
   The detected items are listed and tested.
5. To run a diagnostic test on a specific device, press Esc and click **Yes** to stop the diagnostic test.
6. Select the device from the left pane and click **Run Tests**.
7. If there are any issues, error codes are displayed.
   Note the error code and contact Dell.

   or
8. Shut down the computer.
9. Press and hold the Fn key, while pressing the power button, and then release both.
10. Repeat steps 3–7 above.

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

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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.