

# Dell Latitude 7280

## 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.

**Copyright © 2017 Dell Inc. or its subsidiaries. All rights reserved.** Dell, EMC, and other trademarks are trademarks of Dell Inc. or its subsidiaries. Other trademarks may be trademarks of their respective owners.

<b>1 Working on your computer.....</b>	<b>6</b>
Turning off your computer — Windows 10.....	6
Turning off your computer — Windows 8.....	6
Turning off your computer — Windows 7.....	6
Before working inside your computer.....	6
Safety instructions.....	7
After working inside your computer.....	7
<b>2 Removing and installing components.....</b>	<b>9</b>
Screw size list.....	9
Recommended tools.....	9
Micro Secure Digital (SD) Card.....	10
Removing the Micro Secure Digital (SD) Card.....	10
Installing the Micro Secure Digital (SD) Card.....	10
Subscriber Identity Module (SIM) Card.....	10
Removing the micro SIM card or the micro SIM card tray.....	10
Base cover.....	10
Removing the base cover.....	10
Installing the base cover.....	11
Battery.....	11
Removing the battery.....	11
Installing battery.....	12
PCIe Solid State Drive (SSD).....	12
Removing the NVMe SSD card.....	12
Installing the NVMe SSD.....	13
WLAN card.....	13
Removing the WLAN card.....	13
Installing the WLAN card.....	14
WWAN card.....	15
Removing the WWAN card.....	15
Installing the WWAN card.....	15
Power board.....	15
Removing the power board.....	15
Installing the power board.....	16
Speaker.....	16
Removing the speaker module.....	16
Installing the speaker module.....	18
Fingerprint Board.....	18
Removing the fingerprint reader board.....	18
Installing the fingerprint reader board.....	19
LED Board.....	19
Removing the LED board.....	20
Installing the LED board.....	20



Smart Card Cage.....	21
Removing the smart card cage.....	21
Installing the smart card cage.....	22
Heat Sink.....	22
Removing heat sink assembly.....	22
Installing heat sink assembly.....	23
Display Assembly.....	23
Removing the display assembly.....	23
Installing the display assembly.....	26
Removing dummy SIM card tray .....	26
System Board.....	27
Removing system board.....	27
Installing system board.....	30
Real time clock (RTC).....	30
Removing the real time clock (RTC).....	31
Installing real time clock (RTC).....	31
Keyboard.....	32
Removing keyboard assembly.....	32
Removing keyboard from the keyboard tray.....	33
Installing keyboard to the keyboard tray.....	34
Installing keyboard assembly.....	34
Display Panel.....	35
Removing the display panel.....	35
Installing the display panel.....	37
G-sensor board.....	37
Removing the G-sensor board.....	37
Installing the G-sensor board .....	38
Camera.....	38
Removing the camera.....	38
Installing the camera.....	39
Palmrest.....	39
Replacing palm rest .....	40

**3 System specifications..... 42**

Supported operating systems.....	42
Processor specifications.....	43
System specifications.....	43
Memory specifications.....	43
Storage specifications.....	43
Video specifications.....	43
Audio specifications.....	44
Battery specifications.....	44
AC adapter specifications.....	45
Docking options.....	45
Port and connector specifications.....	45
Communication specifications.....	46
Camera specifications.....	46




Touchpad specifications.....	46
Display specifications.....	46
Physical specifications.....	48
Environmental specifications.....	48
<b>4 System Setup.....</b>	<b>49</b>
Boot menu.....	49
Navigation keys.....	50
System setup options.....	50
General screen options.....	50
System Configuration screen options.....	51
Video screen options.....	53
Security screen options.....	53
Secure Boot screen options.....	55
Intel software guard extensions screen options.....	56
Performance screen options.....	56
Power management screen options.....	57
POST behavior screen options.....	58
Manageability.....	59
Virtualization support screen options.....	59
Wireless screen options.....	59
Maintenance screen options.....	60
System logs screen options.....	60
Updating the BIOS in Windows .....	61
System and setup password.....	61
Assigning a system password and setup password.....	61
Deleting or changing an existing system and/or setup password.....	62
<b>5 Troubleshooting.....</b>	<b>63</b>
Enhanced Pre-Boot System Assessment (ePSA) diagnostics.....	63
Running the ePSA diagnostics.....	63
<b>6 Contacting Dell.....</b>	<b>64</b>



## Working on your computer

### Turning off your computer — Windows 10



**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.

### Turning off your computer — Windows 8

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

- 1 Turning off your computer:
  - In Windows 8 (using a touch enabled device):
    - 1 Swipe in from the right edge of the screen, opening the **Charms** menu and select **Settings**.
    - 2 Tap  and then tap **Shut down**
  - In Windows 8 (using a mouse):
    - 1 Point to upper-right corner of the screen and click **Settings**.
    - 2 Click  and then click **Shut down**.
- 2 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.

### Turning off your computer — Windows 7

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

- 1 Click **Start**.
- 2 Click **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 If the computer is connected to a docking device (docked), undock it.
- 4 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.

- 5 Disconnect your computer and all attached devices from their electrical outlets.
- 6 Open the display.
- 7 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.

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

## 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 reverse order.

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

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


## After working inside your computer

After you complete any replacement procedure, ensure that you connect 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.



## Removing and installing components

This section provides detailed information on how to remove or install the components from your computer.

### Screw size list

**Table 1. Latitude 7280 - screw size list**

Component	M2.5x 6.0	M2.0 x 5.0	M2.5 x 4.0	M2.0x3.0	M2.0 x 2.5	M2.0 x 2.0
Back cover	8 (captive screws)					
Battery—3-cell		1				
Battery—4-cell		2				
SSD module				1		
Heat sink module				4		
System fan				2		
Speaker				4		
WWAN card				1		
WLAN card				1		
Power connector port				1		
ESD bracket				1		
EDP bracket				2		
Touchpad buttons					2	
Fingerprint reader				1		
LED board					1	
Smart card reader cage					2	
Display hinge			6			
Display panel						2
Antenna—Infinity displays				2		
Keyboard support plate					19	
Keyboard						5
System board				8		
Memory module bracket				1		

### Recommended tools

The procedures in this document require the following tools:

- Small flat blade screwdriver



- Phillips # 1 screwdriver
- Small plastic scribe

## Micro Secure Digital (SD) Card

### Removing the Micro Secure Digital (SD) Card

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Press in on the Micro SD card to release it from the computer.
- 3 Slide the Micro SD card out of the computer.

### Installing the Micro Secure Digital (SD) Card

- 1 Slide the Micro SD into the slot until it clicks into place.
- 2 Follow the procedures in [After working inside your computer](#).

## Subscriber Identity Module (SIM) Card

### Removing the micro SIM card or the micro SIM card tray

**⚠ CAUTION:** Removing the micro SIM card when the computer is on may cause data loss or damage the card. Ensure that your computer is turned off or the network connections are disabled.

**📌 NOTE:** Micro SIM card tray is available only for systems that are shipped with WWAN card.

- 1 Insert a paperclip or a micro SIM card removal tool into the pinhole on the micro SIM card tray.
- 2 Use a scribe to pull the micro SIM card tray.
- 3 If a micro SIM card is available, remove the micro SIM card from the micro SIM card tray.

## Base cover

### Removing the base cover

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Loosen the M2.5 x 5.0 captive screws that secure the base cover to the computer.



- 3 Use a plastic scribe to pry the base cover starting from the hinges at the top edge of the base cover and lift it from the computer.

**NOTE:** The recesses are located near the hinges at the rear side of the computer.



## Installing the base cover

- 1 Align the base cover tabs to the slots on the edges of the computer.
- 2 Press the edges of the cover until it clicks into place.
- 3 Tighten the M2.5 x 5.0 captive screws to secure the base cover to the computer.
- 4 Follow the procedure in [After working inside your computer](#).

## Battery

### Removing the battery

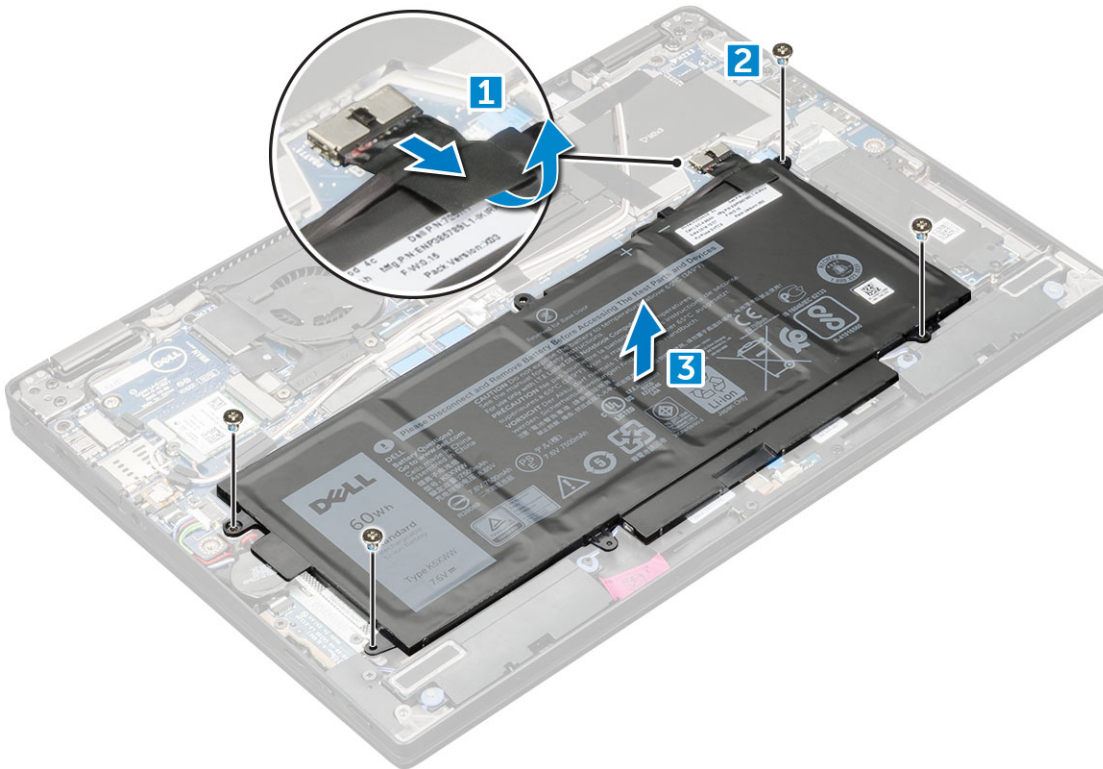
- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove:
  - a [MicroSD card](#)



- b [Base cover](#)
- 3 To remove the battery:
  - a Lift the ribbon, and disconnect the battery cable from the connector on the system board [1].
  - b Remove the M2.0 x 4 L screws that secure the battery to the computer [2].

**NOTE:** The image displayed is for reference only. Some components location and screw may vary.

- c Lift the battery from the computer [3].



## Installing battery

- 1 Insert the battery into the slot on the computer.
- 2 Connect the battery cable to the connector on the system board.
- 3 Replace the M 2 x 4L screws to secure the battery to the computer.
- 4 Install the:
  - a [base cover](#)
  - b [SD card](#)
- 5 Follow the procedure in [After working inside your computer](#).

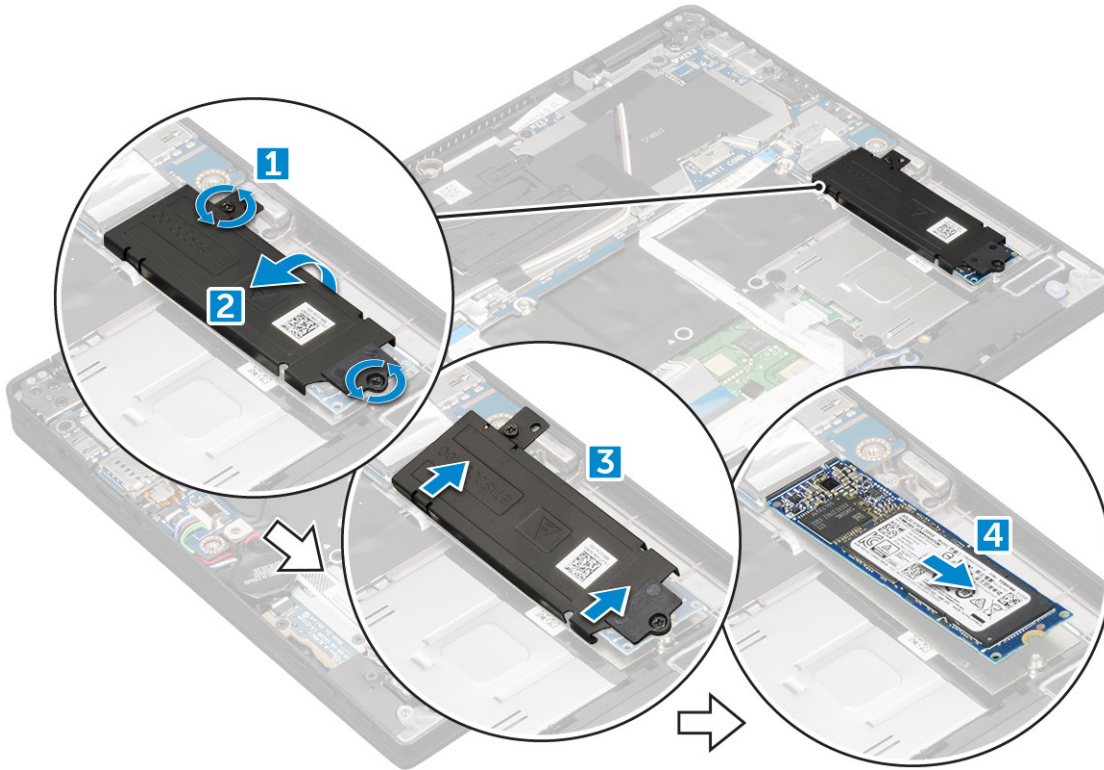
## PCIe Solid State Drive (SSD)

### Removing the NVMe SSD card

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove:
  - a [MicroSD card](#)
  - b [base cover](#)
  - c [battery](#)

**NOTE:** You need not remove the battery, instead you can disconnect the battery cable from the system board.

- 3 To remove the NVMe SSD card:
  - a Remove the M2.0 x 3.0 screws that secure SSD thermal bracket and lift the thermal bracket [1].
  - b Slide the thermal bracket from the SSD card [2].
  - c Slide and remove the SSD card from the slot on the computer [3].



## Installing the NVMe SSD

- 1 Insert the NVMe SSD card into the connector.
- 2 Install the thermal bracket over the SSD card.
- 3 Replace the M2.0 x 3.0 screws to secure the SSD thermal bracket.
- 4 Install the:
  - a battery

**NOTE:** If you have not removed the battery, you must connect the battery cable to the system board.

- b base cover
  - c MicroSD card
- 5 Follow the procedure in [After working inside your computer](#).

## WLAN card

### Removing the WLAN card

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove:
  - a MicroSD card

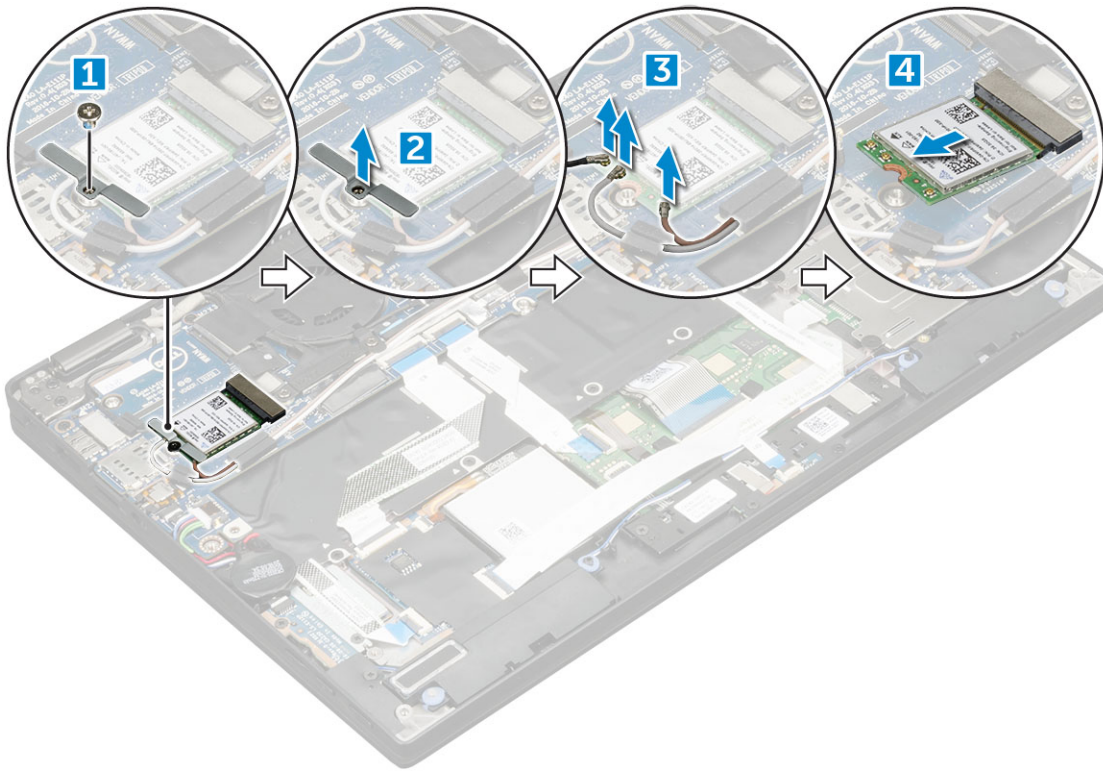




- b base cover
- c battery

**NOTE:** You need not remove battery, instead you can disconnect the battery cable from the system board.

- 3 To remove the WLAN card:
  - a Remove the M2.0 x 3.0 screw that secures the metal bracket to the WLAN card [1].
  - b Lift the metal bracket [2].
  - c Disconnect the WLAN cables from the connectors on the WLAN card [3].
  - d Remove the WLAN card from the computer [4].



## Installing the WLAN card

- 1 Insert the WLAN card into the connector on the system board.
- 2 Connect the WLAN cables to the connectors on the WLAN card.
- 3 Place the metal bracket and replace the M2.0 x 3.0 screw to secure WLAN card to the computer.
- 4 Install the:
  - a battery

**NOTE:** If you have not removed the battery then you must connect the battery cable to the system board.

- b base cover
  - c MicroSD card
- 5 Follow the procedure in [After working inside your computer](#).

# WWAN card

## Removing the WWAN card

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove:
  - a [MicroSD card](#)
  - b [base cover](#)
  - c [battery](#)

**NOTE:** You need not remove the battery, instead you can disconnect the battery cable from the system board.

- 3 To remove the WWAN card:
  - a Remove the M2.0 x 3.0 screw that secures the metal bracket to the WWAN card .
  - b Lift the metal bracket that secures the WWAN card .
  - c Disconnect the WWAN cables from the connectors on the WWAN card
  - d Lift the WWAN card from the computer.

## 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 3.0 screw to secure the WLAN card to the computer.
- 4 Install the:
  - a [battery](#)

**NOTE:** If you have not removed the battery then you must connect the battery cable to the system board.

- b [base cover](#)
  - c [MicroSD card](#)
- 5 Follow the procedure in [After working inside your computer](#).

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

# Power board

## Removing the power board

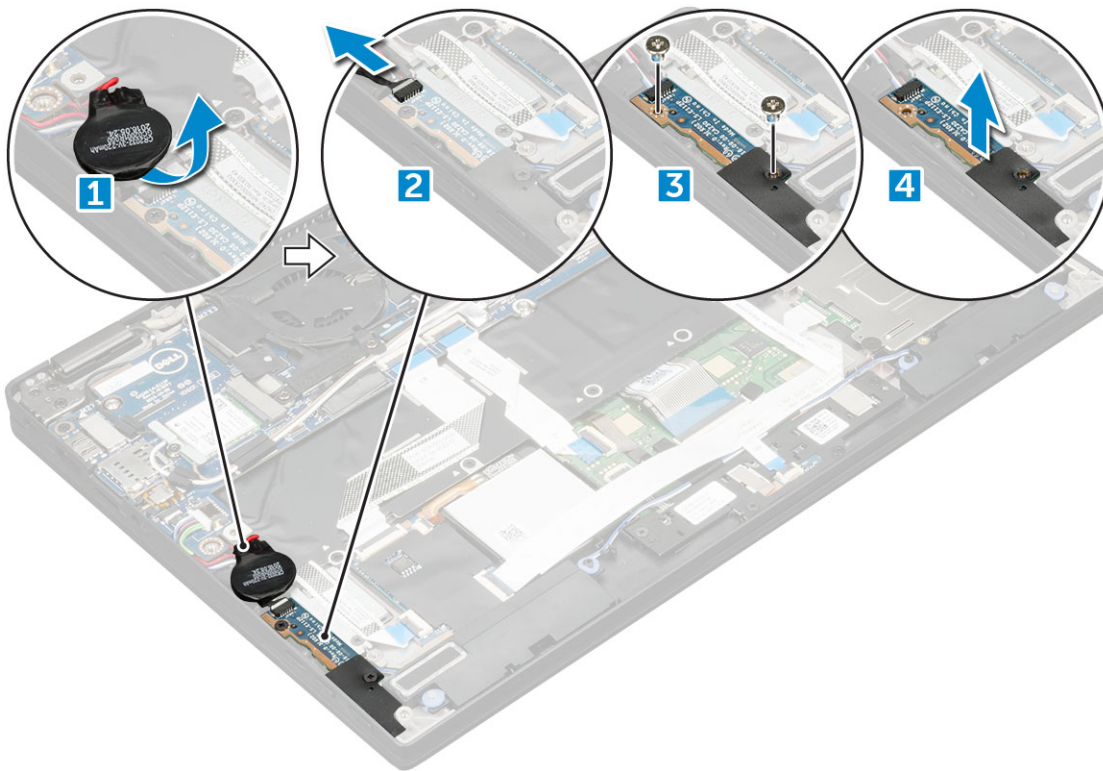
- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove:
  - a [MicroSD card](#)
  - b [SIM card tray](#)

**NOTE:** SIM Card tray is available only if your computer is shipped with a WWAN card.

- c [base cover](#)
  - d [battery](#)
- 3 To remove the power board:
    - a Peel the coin cell battery affixed to the computer [1].
    - b Disconnect the power cable from the system board [2].



- c Remove the M2.0x3.0 screws to release the power board [3].
- d Lift the power board from the computer [4].



## Installing the power board

- 1 Insert the power board into the slot.
- 2 Replace the M2.0x3.0 screws to secure the power board to the computer.
- 3 Connect the power board cable to the connector on the system board.
- 4 Affix the coin cell battery in the slot on the computer.
- 5 Install the:
  - a battery
  - b base cover
  - c MicroSD card
- 6 Follow the procedure in [After working inside your computer](#).

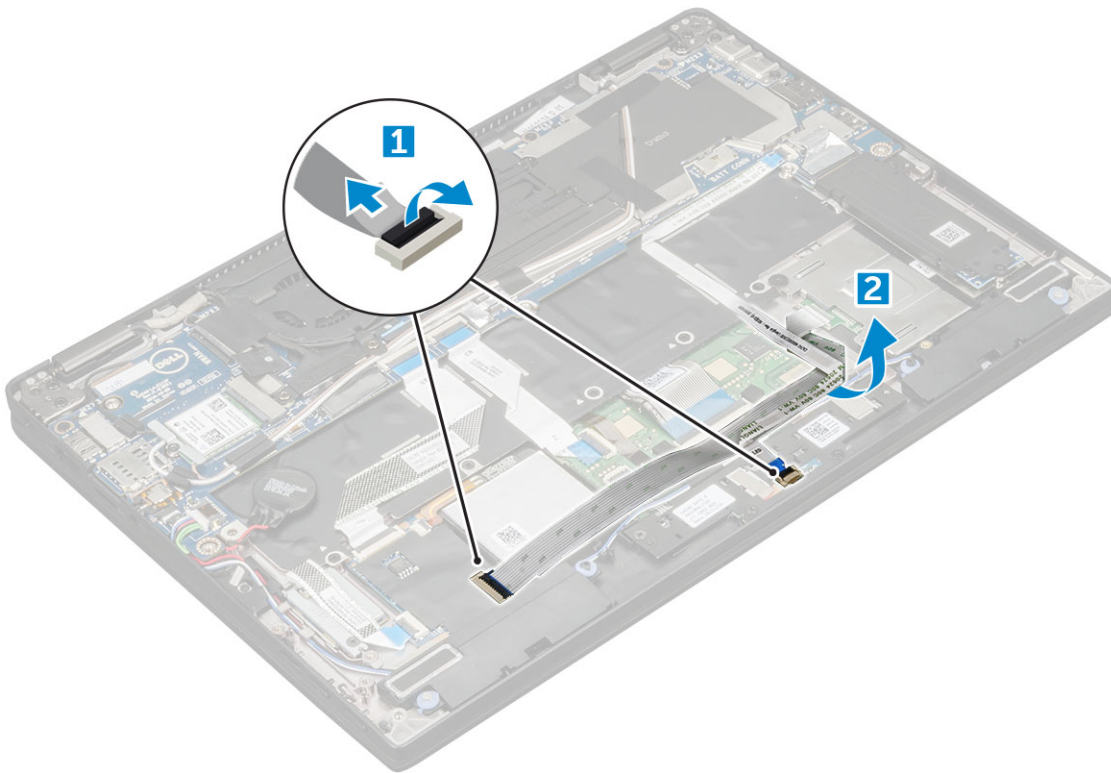
## Speaker

### Removing the speaker module

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove:
  - a MicroSD card
  - b base cover
  - c battery
  - d power board
- 3 To disconnect the cables:



- a Disconnect the and fold back the smart card cable [1].
- b Disconnect and fold back the LED board cable [2].



4 To release the speaker module:

- a Disconnect the speaker cable from the connector on the system board [1].
- b Un route the speaker cable by removing the tapes that secure the cable [2].



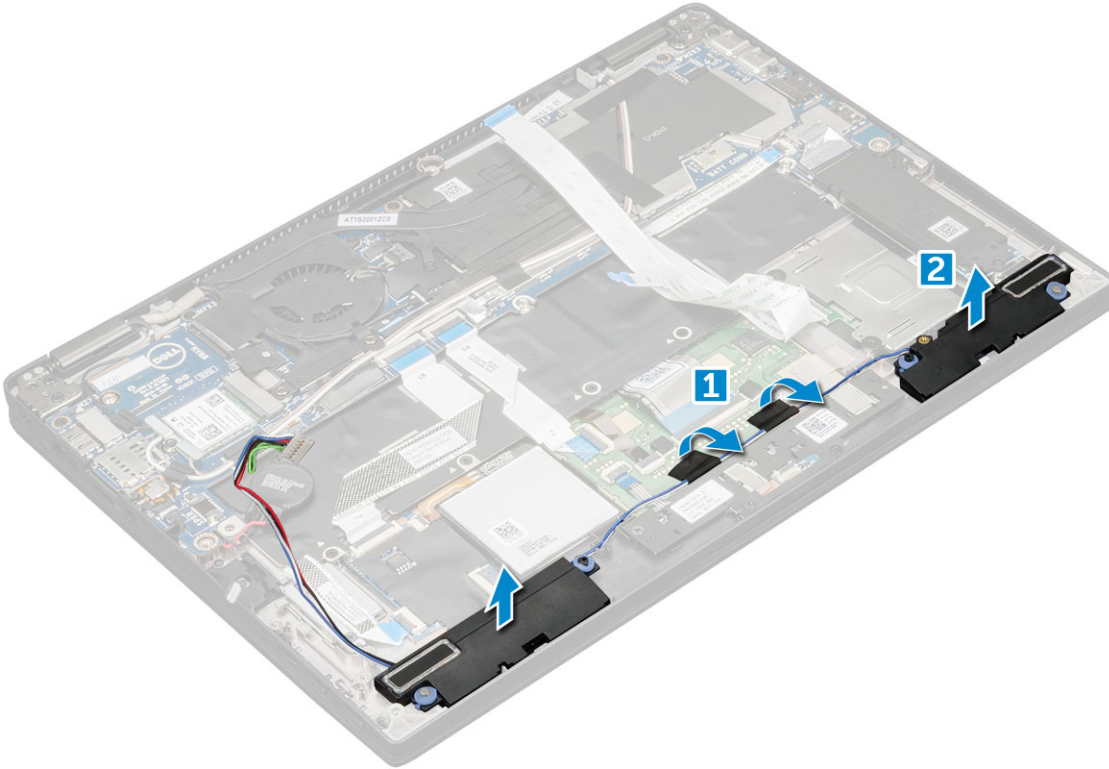
5 To remove the speaker module:

- a Un route the speaker cable from the routing clips near the palm rest [1].



- b Lift the speaker module from the computer.

 **NOTE:** You can use a plastic scribe to lift the speaker module from the computer.



## Installing the speaker module

- 1 Place the speaker module into the slots on the computer.
- 2 Route the speaker cable through the routing channel and secure it with tapes.
- 3 Connect the speaker cable to the connector on the system board.
- 4 Connect the LED cable to the connector on the palm rest.
- 5 Install the:
  - a power board
  - b battery
  - c base cover
  - d Micro SD
- 6 Follow the procedure in [After working inside your computer](#).

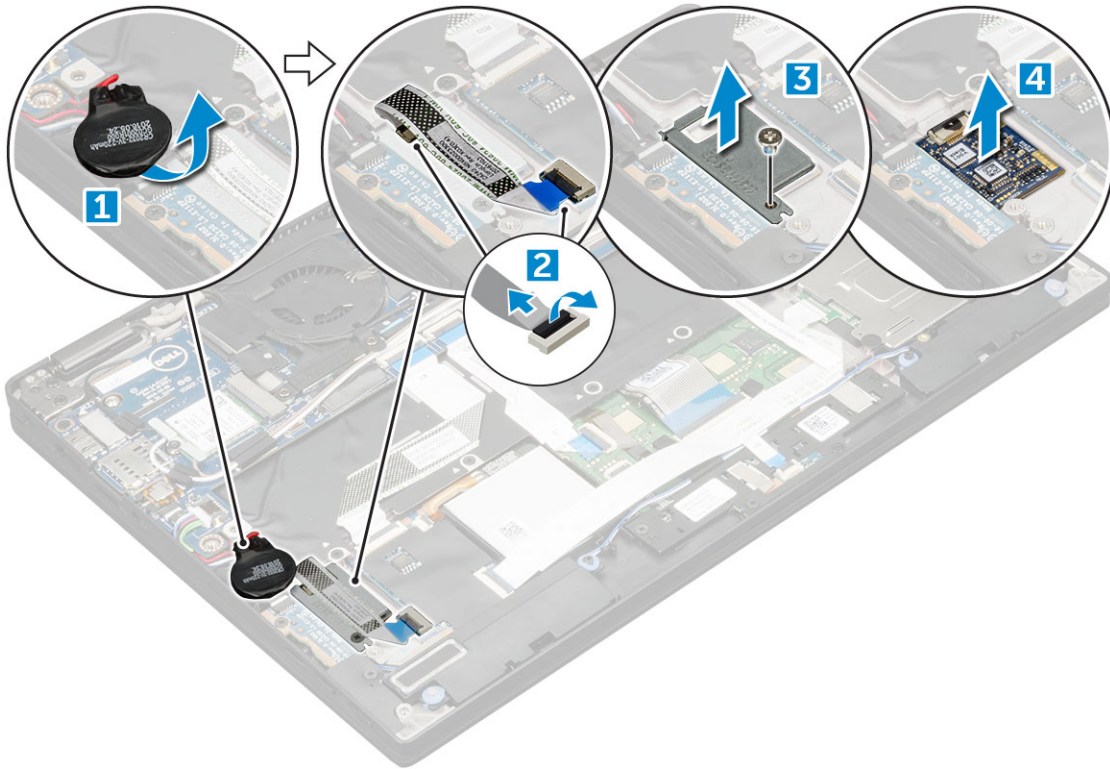
## Fingerprint Board

### Removing the fingerprint reader board

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove:
  - a Micro SD
  - b base cover
  - c battery

- 3 To remove the fingerprint reader board:
  - a Lift the coin cell battery affixed to the speaker cables [1].
  - b Disconnect the finger print reader cable from the fingerprint reader board and the USH board [2].
  - c Remove the M2 x 3 screw that secures the fingerprint reader bracket [3].
  - d Lift the fingerprint reader bracket from the fingerprint reader board [3].
  - e Lift the fingerprint reader board from the slot on the computer.

**NOTE:** Fingerprint reader board is affixed and you may need a plastic scribe to lift the fingerprint reader board.



## Installing the fingerprint reader board

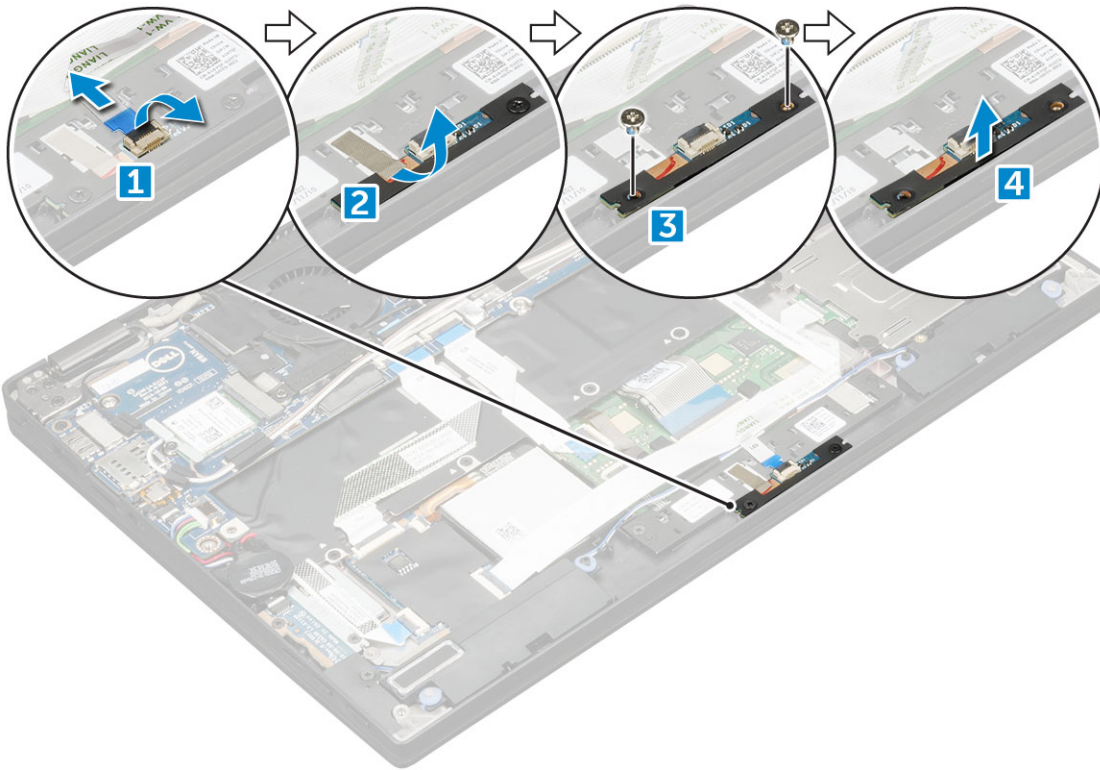
- 1 Install the fingerprint reader board into the slot.
- 2 Place the fingerprint reader bracket on the board.
- 3 Replace the M2 x 3 screw to secure the bracket to the board.
- 4 Connect the fingerprint reader cable to the fingerprint reader board and the USH board.
- 5 Affix the coin cell battery on the speaker cable
- 6 Install the:
  - a battery
  - b base cover
  - c Micro SD
- 7 Follow the procedure in [After working inside your computer](#).

## LED Board



# Removing the LED board

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove:
  - a [Micro SD](#)
  - b [base cover](#)
  - c [battery](#)
- 3 To remove the LED board:
  - a Disconnect the LED board cable from the LED board [1].
  - b Remove the tape that secures the LED board to the touchpad panel [2].
  - c Remove the M2 x 3 screws that secure the LED board [3].
  - d Lift the LED board from the computer [4].



# Installing the LED board

- 1 Install the LED board into the slot.
- 2 Replace the M2 x 3 screws to secure the LED board.
- 3 Affix the tape to secure the LED board.
- 4 Connect the LED board cable to the LED board.
- 5 Install the:
  - a [battery](#)
  - b [base cover](#)
  - c [SD card](#)
- 6 Follow the procedure in [After working inside your computer](#).



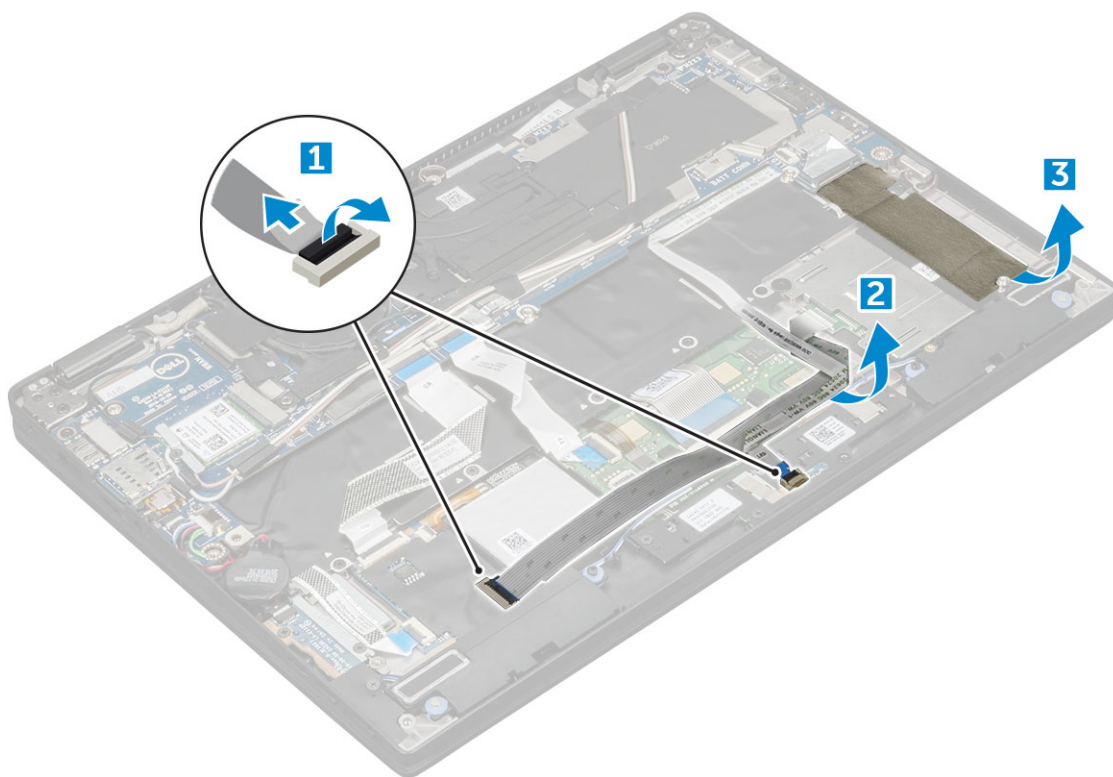
# Smart Card Cage

## Removing the smart card cage

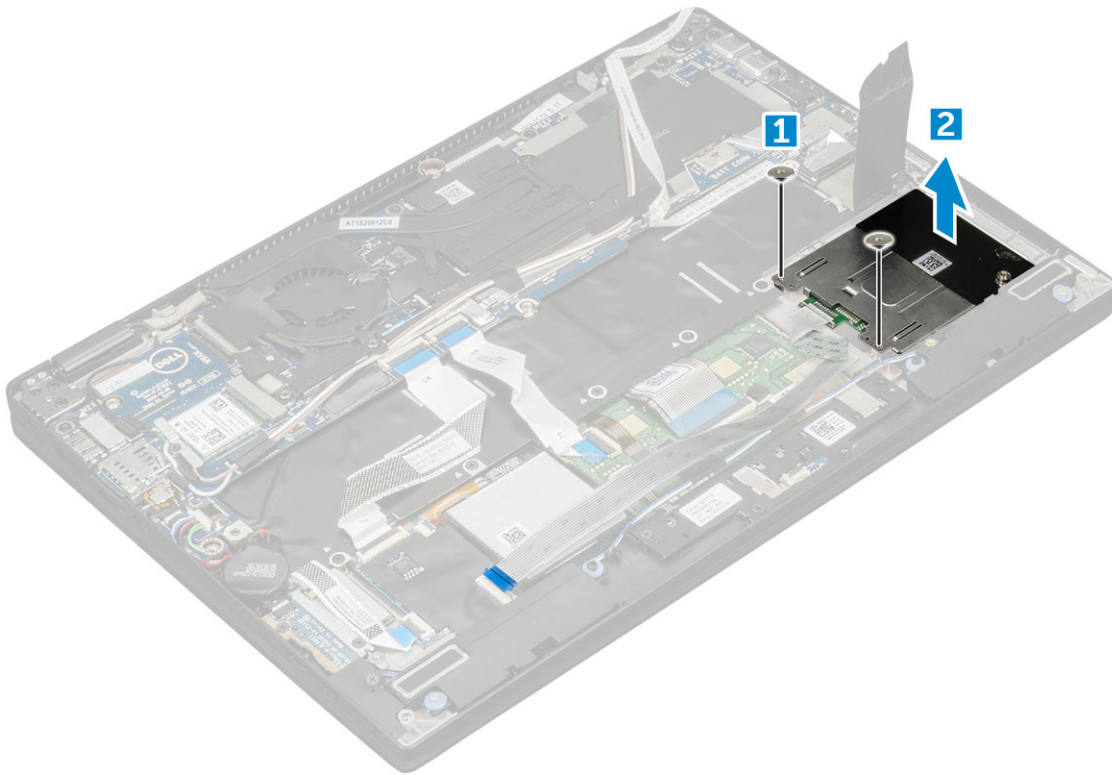
**NOTE:** Always remove the smart card from the smart card reader.

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove:
  - a [Micro SD](#)
  - b [base cover](#)
  - c [battery](#)
  - d [SSD card](#)
- 3 To disconnect the cables:
  - a Disconnect the smart card cable [1] and fold it away from the smart card cage.
  - b Disconnect the LED board cable [2] and fold it away from the smart card cage.
  - c Peel the SSD thermal pad from the SSD slot [3].

**NOTE:** You may need to apply force to peel off the SSD thermal pad.



- 4 To remove the smart card cage:
  - a Remove the M2.0 x 1.7 screws that secure the smart card cage to the computer [1].
  - b Lift the smart card cage from the computer [2].



## Installing the smart card cage

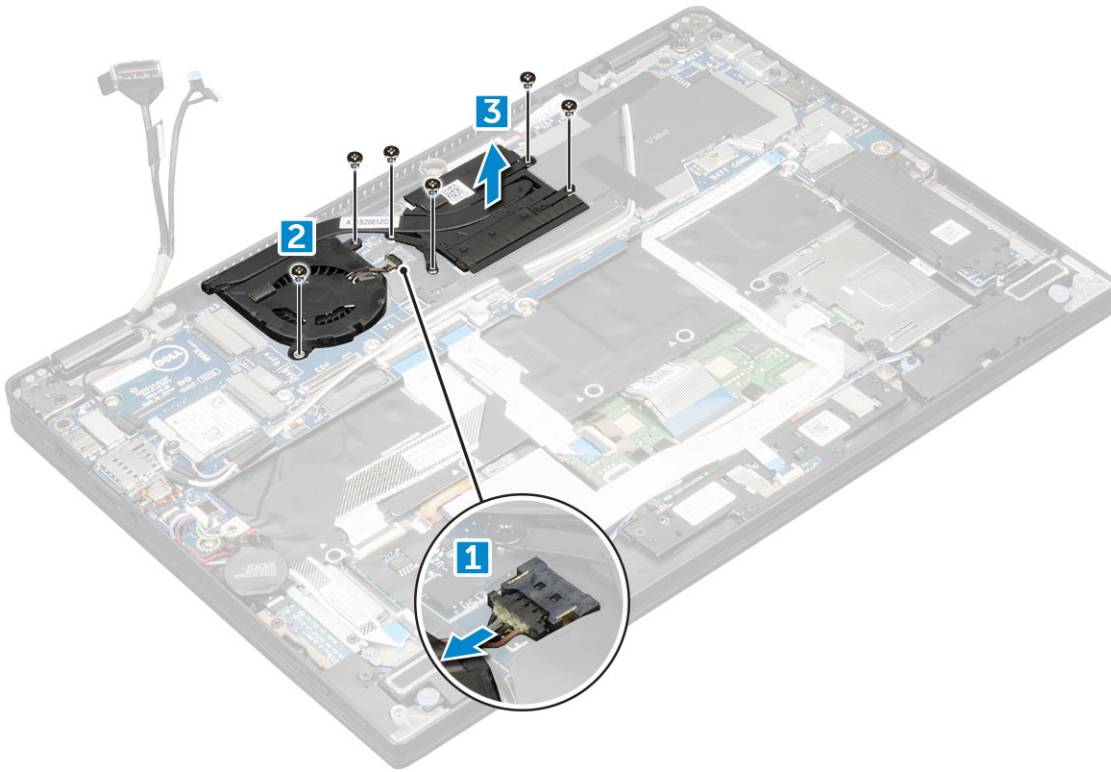
- 1 Slide the smart card cage into the slot to align with the screw holders on the computer.
- 2 Replace the M2.0 x 1.7 screws to secure the smart card cage to the computer.
- 3 Affix the thermal pad in the SSD slot.
- 4 Affix the LED board cable and connect it to the LED board on the computer.
- 5 Affix the smart card cable and connect it to the USH board on the computer .
- 6 Install the:
  - a SSD card
  - b battery
  - c base cover
  - d Micro SD
- 7 Follow the procedure in [After working inside your computer](#).

## Heat Sink

### Removing heat sink assembly

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
  - a Micro SD
  - b base cover
  - c battery
- 3 To remove the heat sink assembly:
  - a Disconnect the fan cable from the system board [1].

- b Remove the M2.0 x 3.0 screws that secure the fan to the system board.
- c Remove the M2.0 x 3.0 screws that secure the heat sink to the system board [2].
- d Lift the heat sink assembly from the system board.



## Installing heat sink assembly

- 1 Align the heat sink assembly with screw holders on the system board.
- 2 Replace the M2.0 x 3.0 screws to secure the heat sink to the system board.

① **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 Replace the M2.0 x 3.0 screws to secure the fan to the system board.
- 4 Connect the fan cable to the connector on the system board.
- 5 Install the:
  - a battery
  - b base cover
- 6 Follow the procedure in [After working inside your computer](#).

## Display Assembly

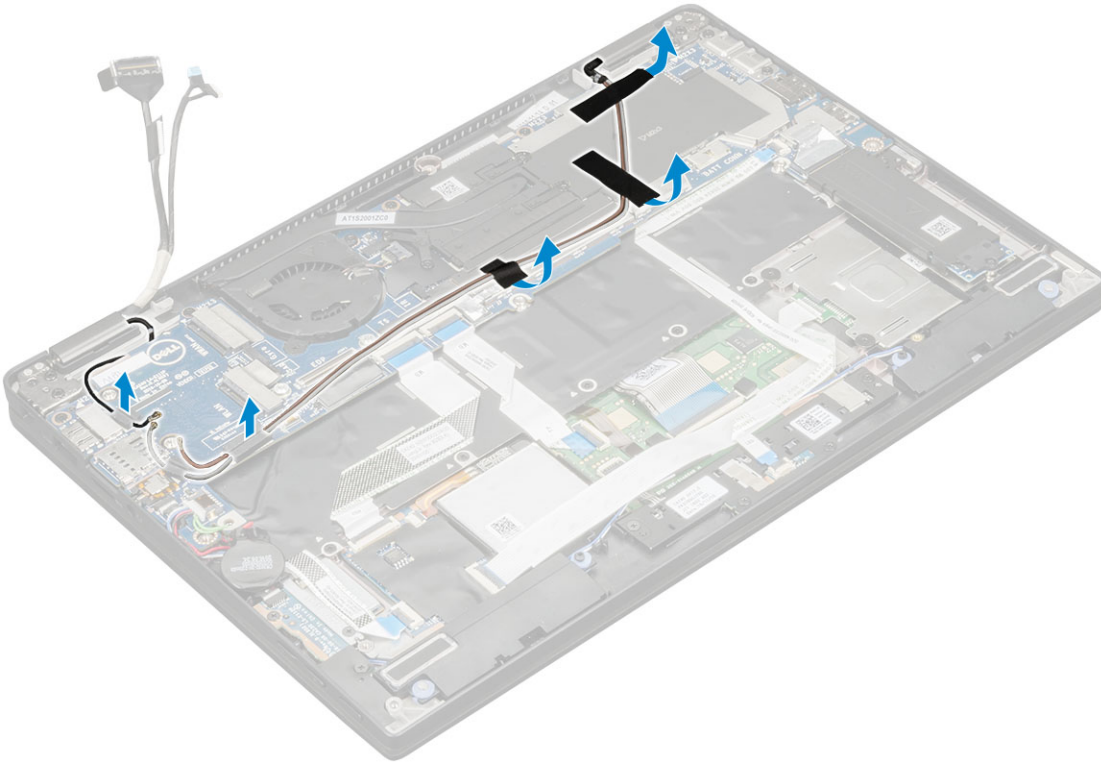
### Removing the display assembly

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
  - a Micro SD
  - b base cover



- c battery
- d WLAN card
- e WWAN card

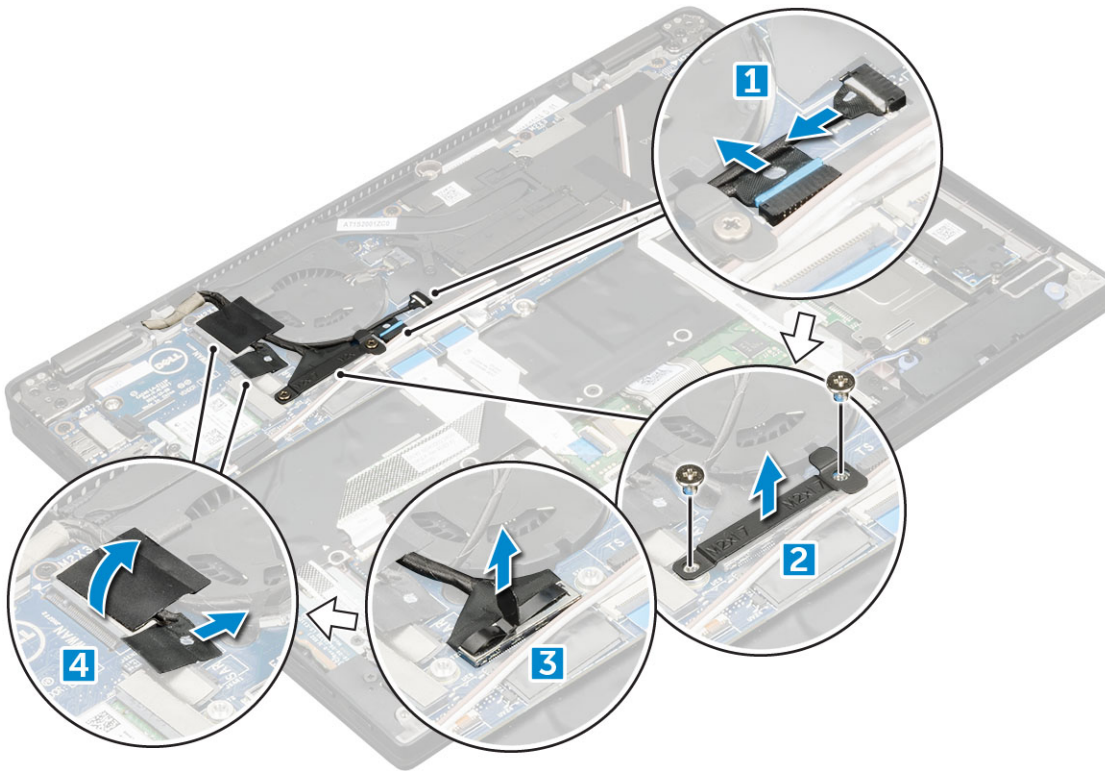
3 Peel the tapes that secure the antenna cables and un route the cables from the routing clips.



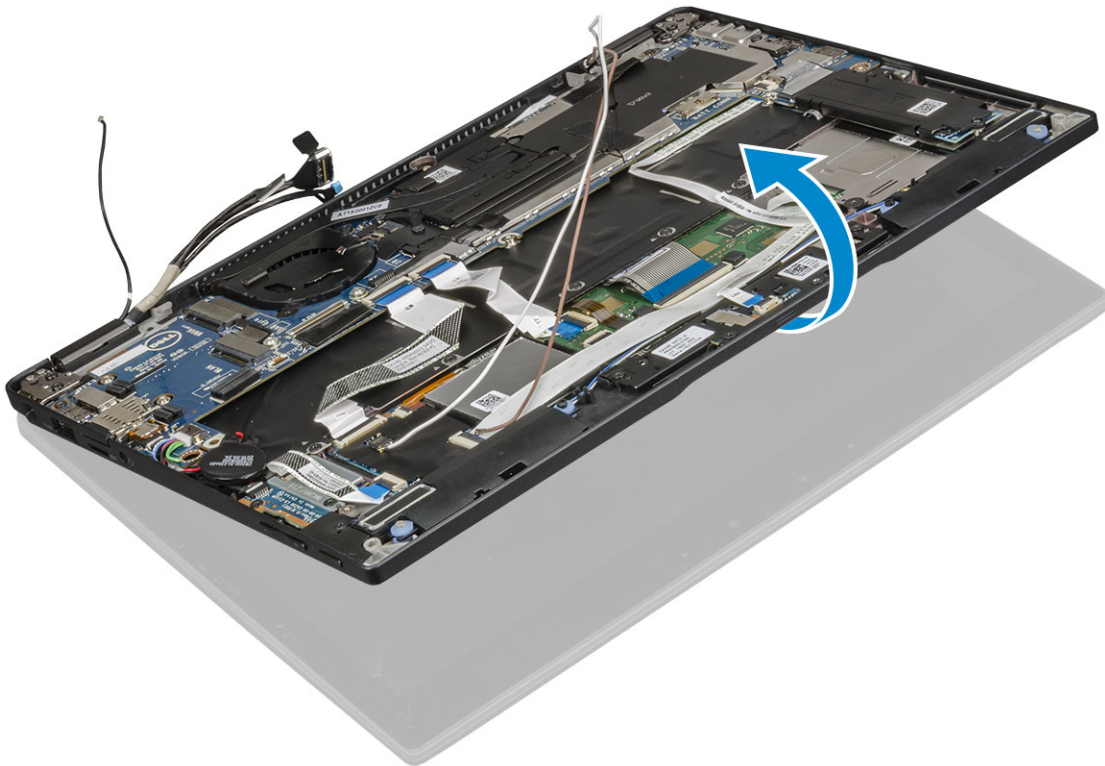
4 Disconnect the :

- a IR camera and touchscreen cable [1].
- b Remove the M 2 x 1.7L screws that secure the eDP bracket and lift it away from the computer [2].
- c Disconnect the eDP cable from the system board [3].
- d Disconnect th G-sensor and eDP cables [4].





5 Lift the base of the computer away from the display assembly.



6 To remove the display assembly:

- a Place the base of the computer with the display assembly at 270 degrees (laptop) or 90 degrees (tablet).

**NOTE:** If the system is used as a laptop, then display assembly should be at 270 degrees and for a fully closed tablet configuration, the display should be at 90 degrees.

- b Remove the M2.5 x 4.0 screws that secure the display hinge brackets [1].



- c Lift the display assembly away from the computer [2].



## Installing the display assembly

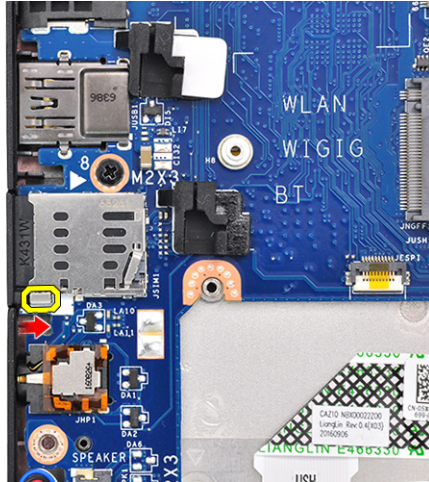
- 1 Place the base of the computer on a flat surface.
- 2 Install the display assembly by aligning it with the display hinge screw holders.
- 3 Replace the M2.5 x 4.0 screws to secure the display assembly.
- 4 Close the display assembly and flip the computer.
- 5 Connect the cables:
  - a G-sensor and eDP cable
  - b Place the eDP bracket on the eDP cable and replace the M 2 x 1.7L on the bracket.
  - c IR camera and touch screen cables
- 6 Route the antenna cables through the routing clips
- 7 Affix the tapes to secure the antenna cables to the system board.
- 8 Install the:
  - a [WWAN card](#)
  - b [WLAN card](#)
  - c [battery](#)
  - d [base cover](#)
  - e [Micro SD](#)
- 9 Follow the procedure in [After working inside your computer](#).

## Removing dummy SIM card tray

For models shipped with a WWAN card, the SIM card tray must first be removed from the system before removing the system board. To remove the SIM card tray from the system follow the steps outlined in the disassembly section.

**NOTE:** For models shipped with a wireless card only, a dummy SIM card tray must first be removed from the system before removing the system board. The following are the steps for removing the dummy SIM card tray:

- 1 Push the release latch on the SIM card slot inwards.

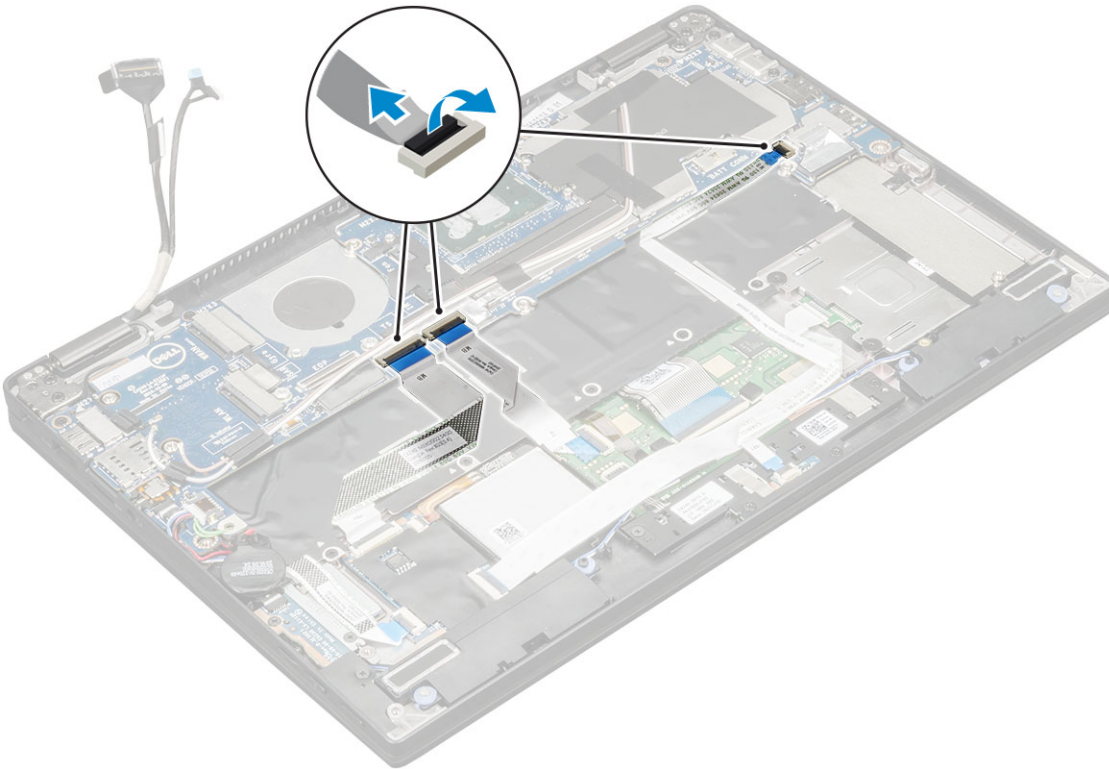


- 2 Slide the dummy SIM card tray out of the system.

## System Board

### Removing system board

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
  - a [Micro SD](#)
  - b [SIM card tray](#)  
If your system is shipped with a WWAN card, it will have a dummy SIM card tray.
  - c [dummy SIM tray](#)
  - d [base cover](#)
  - e [battery](#)
  - f [SSD card](#)
  - g [WLAN card](#)
  - h [WWAN card](#)
  - i [Heatsink assembly](#)
- 3 Disconnect the following cables from the system board .
  - a touchpad cable
  - b USH cable
  - c LED board cable

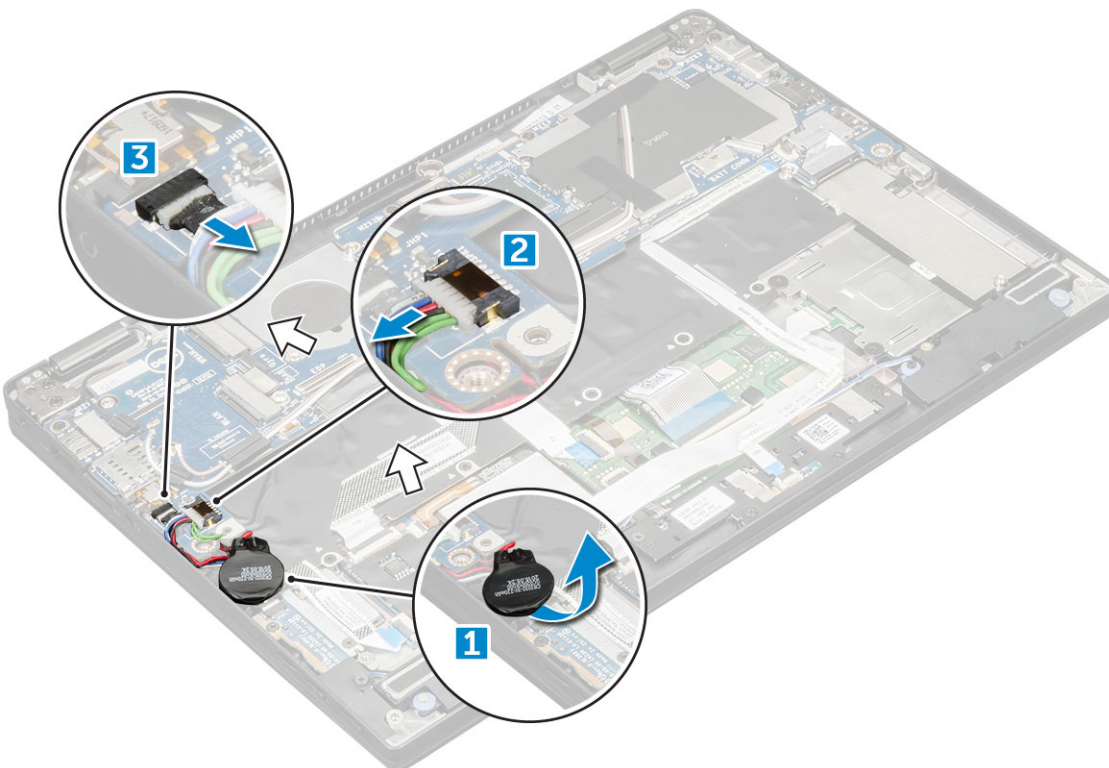


4 Disconnect the eDP cable:

① **NOTE:** To disconnect the eDP cable, remove the M 2 x 1.7L screws that secure the eDP bracket and lift it away from the computer, Disconnect the eDP cable from the system board.

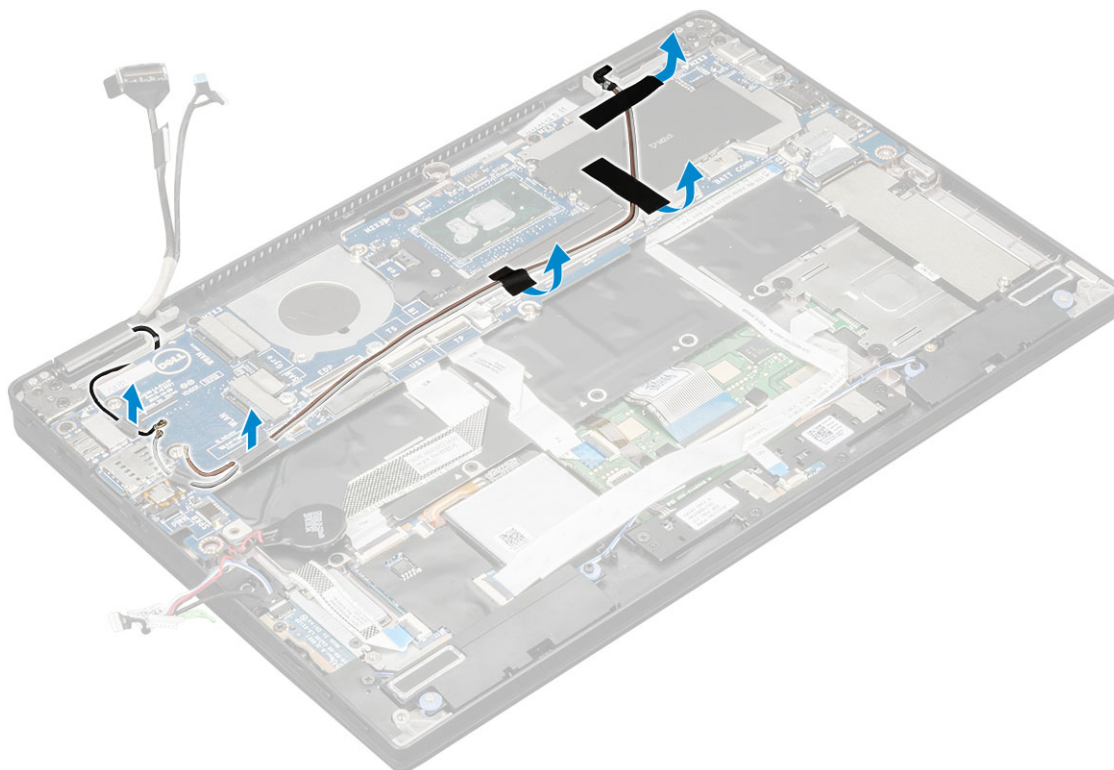
5 To release the cables:

- a Flip the coin cell battery to reveal the speaker cable [1].
- b Disconnect the speaker cable from the system board [2].
- c Disconnect the power board cable from the system board [3].

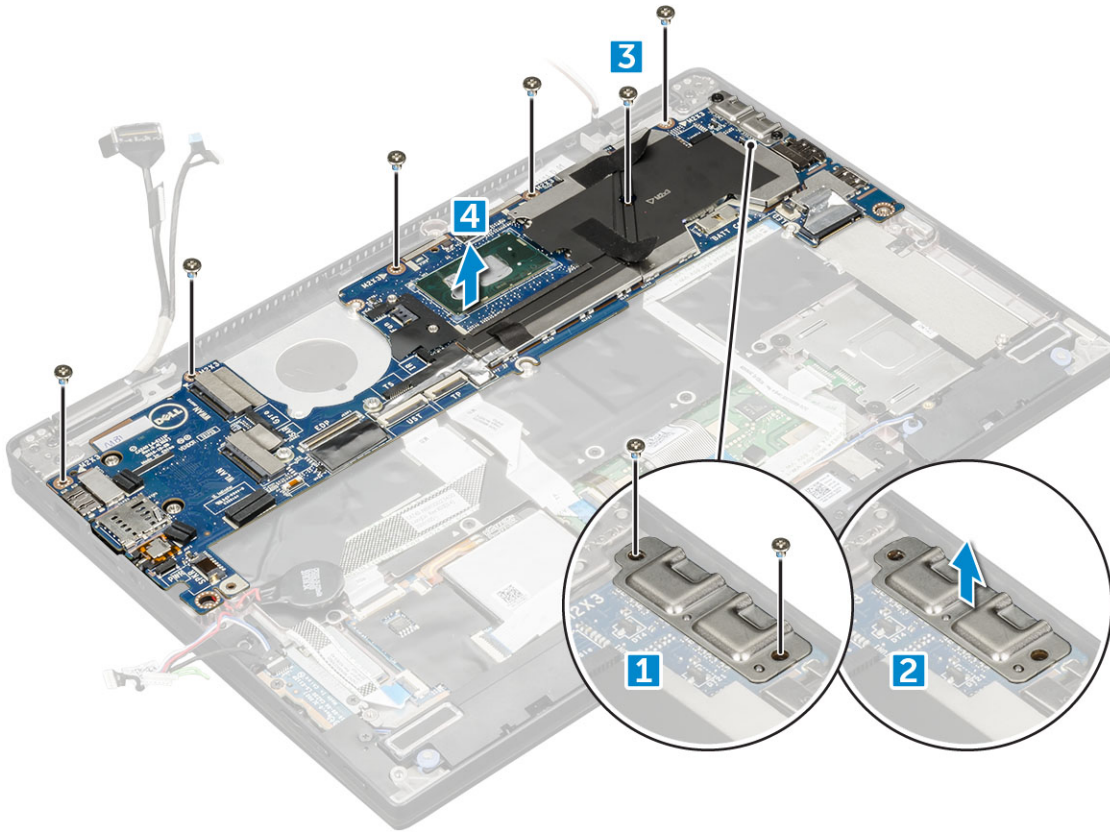




- 6 Peel the tapes that secure antenna cables and un route the cables from the routing clips.



- 7 To remove the system board:
  - a Remove the M2.0 x 4L screws on the USB Type-C bracket [1].
  - b Lift the USB Type-C bracket from the Type-C module [2].
  - c Remove the M2.0 x 3.0 screws that secure the system board to the computer [3].
  - d Lift the system board away from the computer[4].



## Installing system board

- 1 Align the system board with the screw holders on the computer.
- 2 Replace the M2.0 x 3.0 screws to secure the system board to the computer.
- 3 Place the USB Type-C bracket on the Type-C module.
- 4 Replace the M 2.0 x 4L screws to secure the USB Type-C bracket to the Type-C module.
- 5 Route the antenna cable through the routing clips and affix the tapes to secure the antenna cables.
- 6 Connect the power board and the speaker cable to the system board.
- 7 Affix the coin cell battery on the speaker cable.
- 8 Connect the USH board, Touchpad board and LED board cables to the system board.
- 1 **NOTE:** If your computer has a WWAN card, then SIM card tray installation is a requirement.
- 9 Install the:
  - a heatsink module
  - b WWAN card
  - c WLAN card
  - d SSD card
  - e battery
  - f base cover
  - g SIM card tray
  - h Micro SD
- 10 Follow the procedure in [After working inside your computer](#).

## Real time clock (RTC)

# Removing the real time clock (RTC)

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

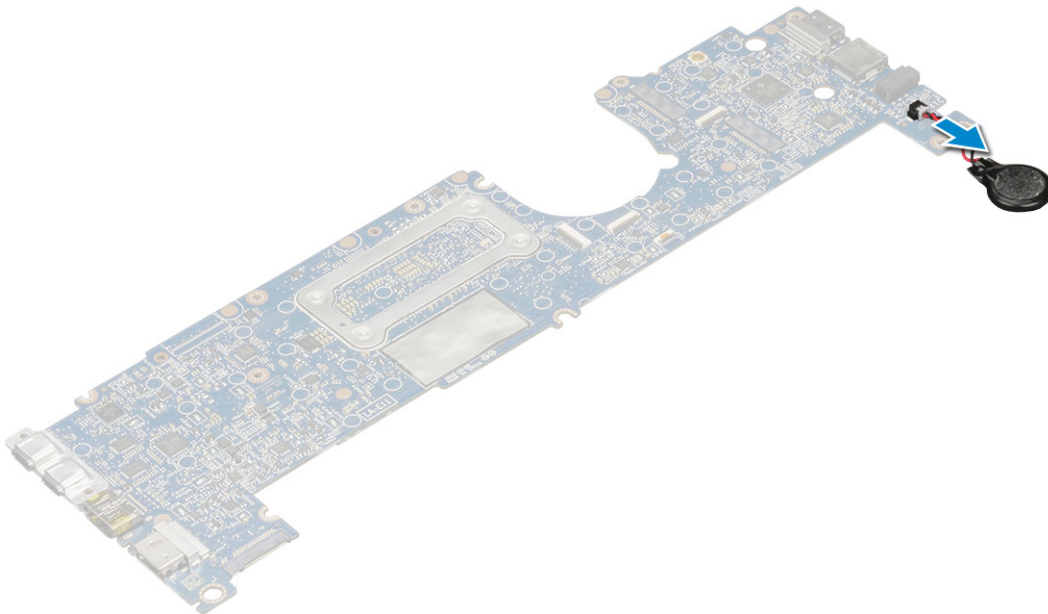
- a micro SD card
- b SIM card tray

**NOTE:** SIM Card tray is available only if your computer is shipped with a WWAN card.

- c base cover
- d battery
- e SSD card
- f WLAN card
- g WWAN card
- h heat sink assembly
- i system board

**NOTE:** RTC is located on the system board and hence system board removal is a requirement.

- 3 Disconnect the RTC cable to release it from the system board.



# Installing real time clock (RTC)

- 1 Connect the coin cell battery cable to the system board.
- 2 Install:

- a system board
- b heat sink module
- c WWAN card
- d WLAN card
- e SSD card
- f battery
- g base cover
- h Micro SD
- i SIM card tray



- 3 Follow the procedure in [After working inside your computer](#).

RTC is located on the system board and hence system board must be installed after the installation of the RTC.

# Keyboard

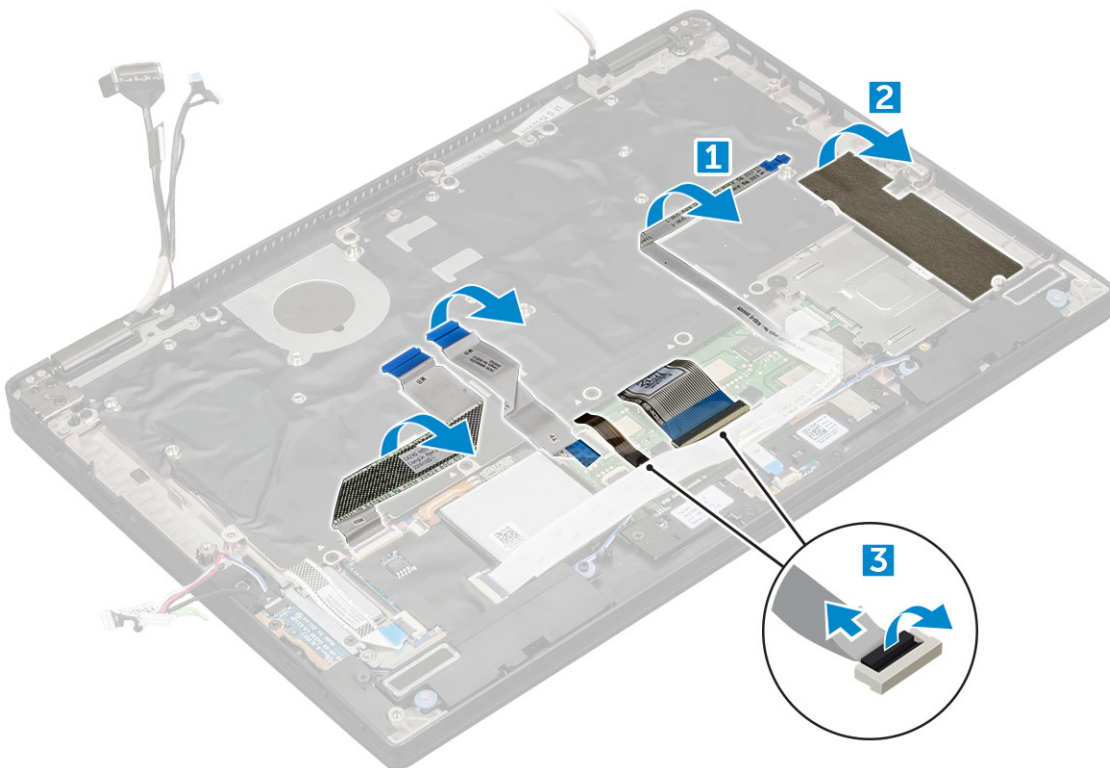
## Removing keyboard assembly

**NOTE:** The keyboard and the keyboard tray together are called the keyboard assembly.

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

**NOTE:** SIM Card tray is available only if your computer is shipped with a WWAN card.

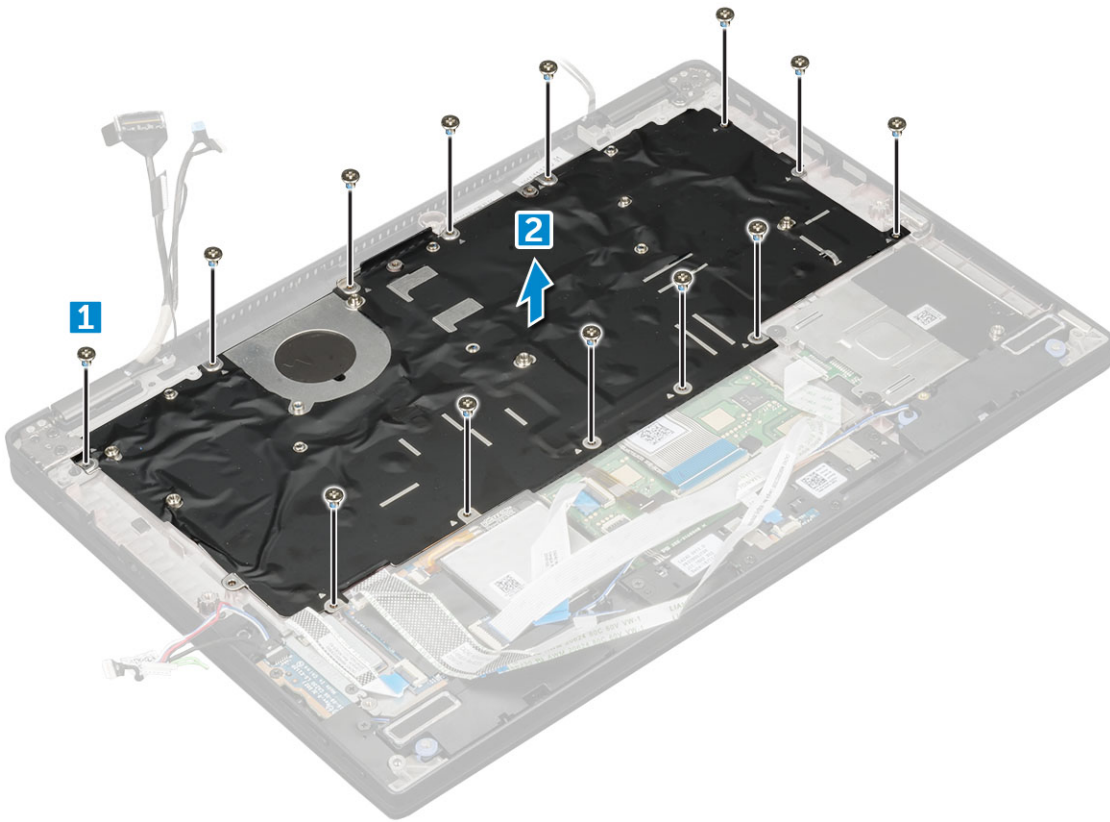
- c [base cover](#)
  - d [battery](#)
  - e [SSD card](#)
  - f [WLAN card](#)
  - g [WWAN card](#)
  - h [Heatsink assembly](#)
  - i [system board](#)
- 3 Peel and disconnect the cables:
    - a [LED board cable](#) [1]
    - b [SSD thermal pad](#) [2]
    - c [keyboard and backlit keyboard cables](#) [3]



- 4 To remove the keyboard:
  - a Remove the M2.0 x 3.0 screws that secure the keyboard to the chassis [1].

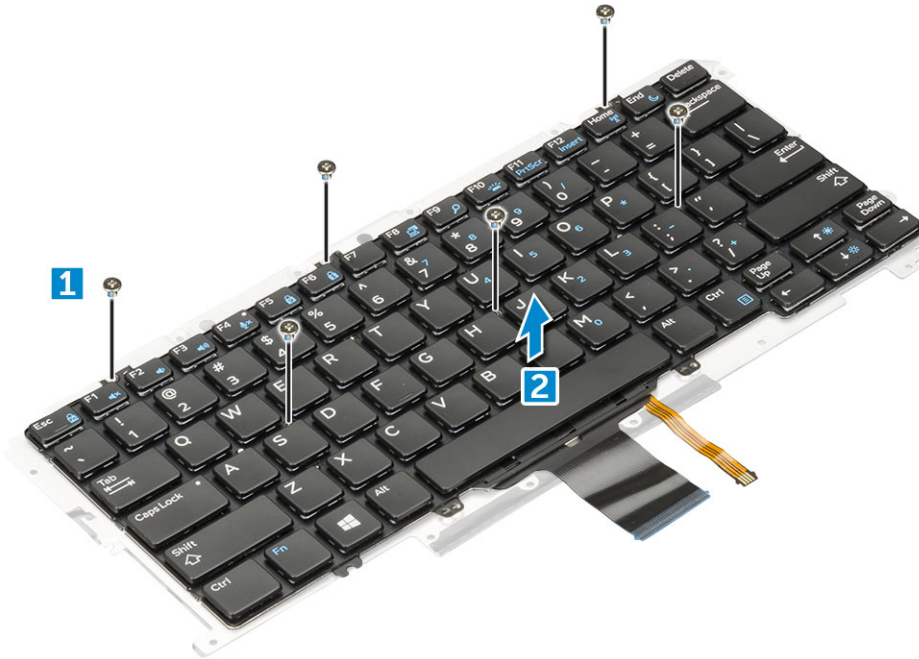


- b Lift the keyboard from the chassis [2].



## Removing keyboard from the keyboard tray

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the [keyboard](#)
- 3 Remove the keyboard from the keyboard support tray:
  - a Remove the M2.0 x 2.0 screws that secure the keyboard to the keyboard assembly [1].
  - b Lift the keyboard away from the keyboard support tray [2].



## Installing keyboard to the keyboard tray

- 1 Align the keyboard with the screw holders on the keyboard tray.
- 2 Tighten the M2.0 x 2.0 screws to secure the keyboard to the keyboard tray.
- 3 Install the [keyboard](#).

## Installing keyboard assembly

① **NOTE:** The keyboard and the keyboard tray together are called the keyboard assembly.

- 1 Align the keyboard assembly with the screw holders on the chassis.
- 2 Replace the M2.0 x 3.0 screws that secure the keyboard to the chassis.
- 3 Affix and connect the keyboard and the backlit keyboard cables to the keyboard.
- 4 Affix the LED board cable on the keyboard.
- 5 Affix the SSD thermal pad on the SSD module.

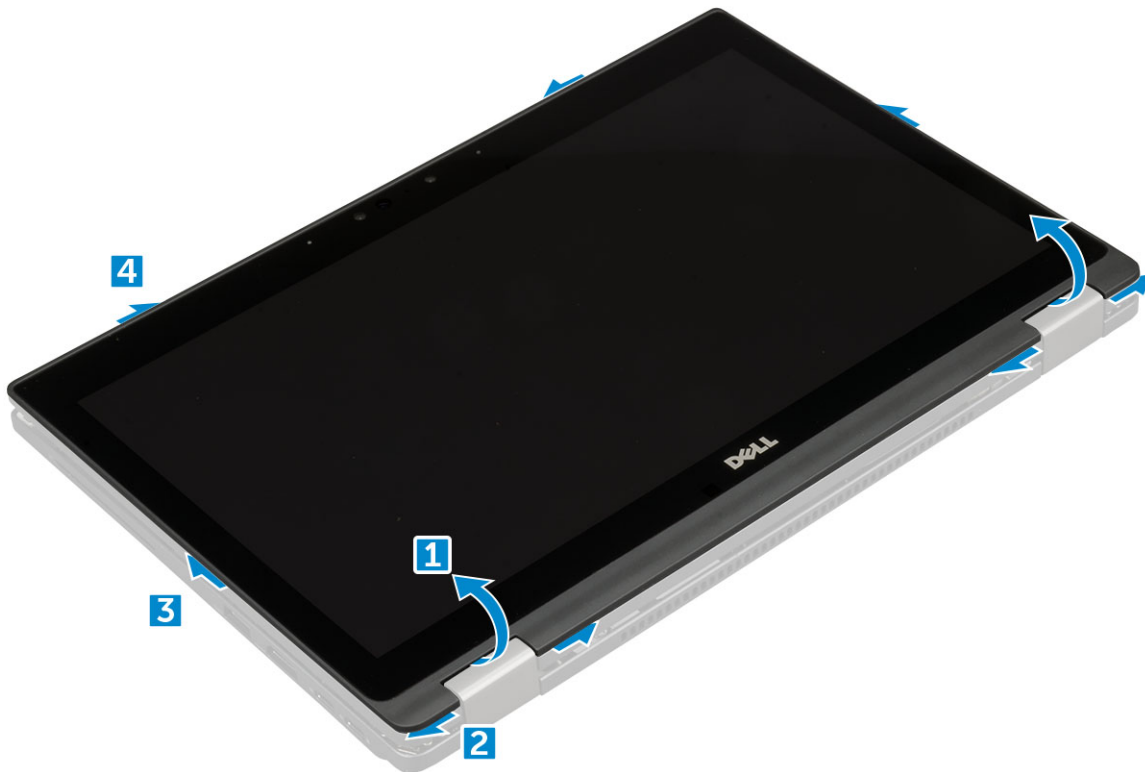
① **NOTE:** If your computer has a WWAN card, then SIM card tray installation is a requirement.

- 6 Install the:
  - a [system board](#)
  - b [heatsink module](#)
  - c [WWAN card](#)
  - d [WLAN card](#)
  - e [SSD card](#)
  - f [battery](#)
  - g [base cover](#)
  - h [Micro SD](#)
  - i [SIM card tray](#)
- 7 Follow the procedure in [After working inside your computer](#).

# Display Panel

## Removing the display panel

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
  - a [Micro SD](#)
  - b [base cover](#)
  - c [battery](#)
  - d [WLAN card](#)
  - e [WWAN card](#)
  - f [display assembly](#)
- 3 To release the display panel:
  - a Pry the display panel from the display hinges [1].
  - b Push the display hinges from the recesses at the bottom edge [2].
  - c Work your way around the edges to release the display panel [3,4].

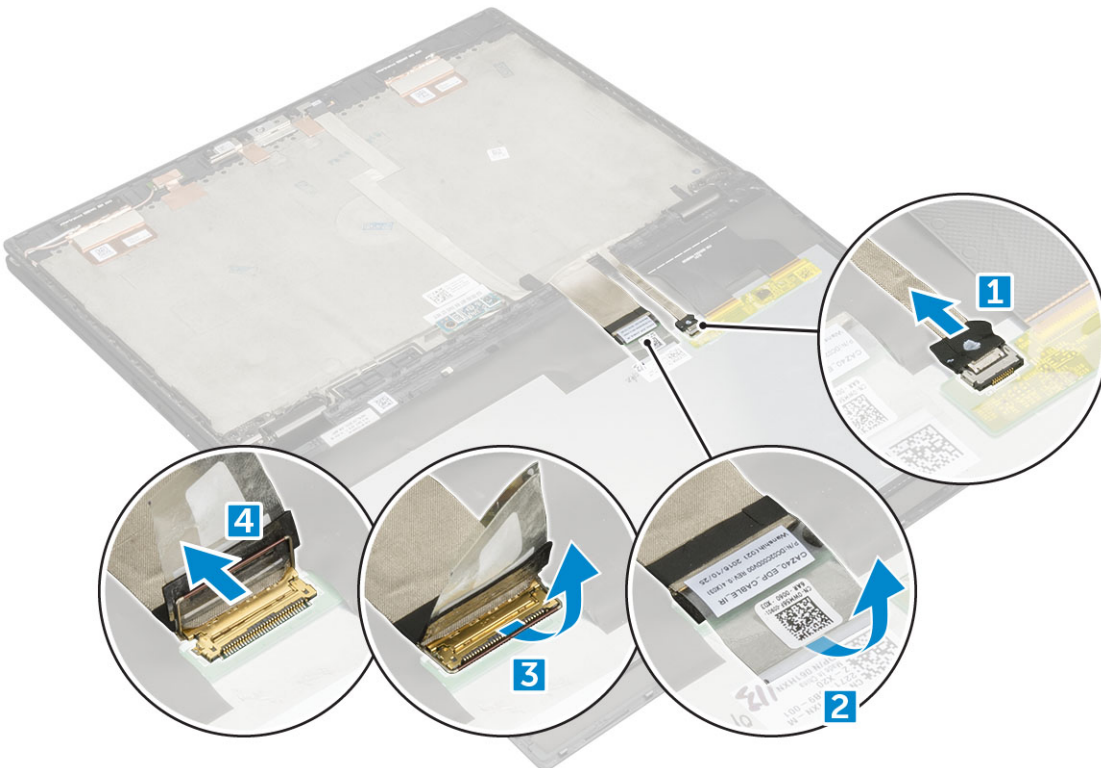


- 4 Flip the display panel.





- 5 Disconnect the cables:
- a G-sensor cable [1].
  - b Peel the tape that secures the display cable [2].
  - c Lift the metal tab that secures the display cable [3].
  - d Disconnect the display cable from the display panel.



## Installing the display panel

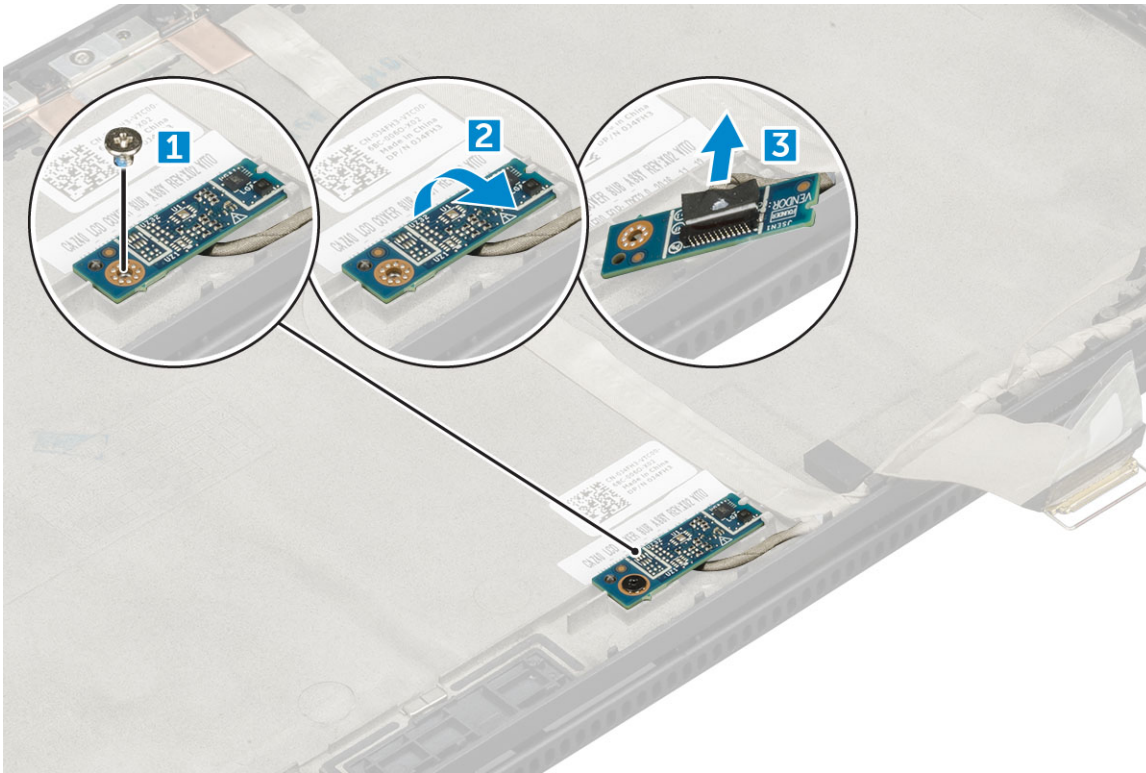
- 1 Place the display panel near the left over portion of the display cover .
- 2 Connect the display cable from the display cover to the display panel.
- 3 Affix the tape to secure the display cable on the display panel.
- 4 Connect the G-sensor cable to the connector on the display panel.
- 5 Flip the display panel on the display cover.
- 6 Press the edges to secure the display panel to the display assembly.
- 7 Install the:
  - a WLAN card
  - b WWAN card
  - c battery
  - d base cover
  - e Micro SD
- 8 Follow the procedure in [After working inside your computer](#).

## G-sensor board

### Removing the G-sensor board

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
  - a Micro SD
  - b base cover
  - c battery
  - d WLAN card
  - e WWAN card
  - f display assembly
  - g display panel
- 3 To remove the G-sensor board:
  - a Remove the M2.0 x 3.0 screw that secures the G-sensor board to the display cover [1].
  - b Flip the G-sensor board to reveal the display cable [2].
  - c Disconnect the display cable from the G-sensor board [3].





## Installing the G-sensor board

- 1 Place the G-sensor board on the display cover.
- 2 Connect the display cable to the G-sensor board.
- 3 Flip the G-sensor board to align with the screw holder on the display cover.
- 4 Replace the M2.0 x 3.0 screw to secure the G-sensor board to the display cover.
- 5 Install the:
  - a [display panel](#)
  - b [WLAN card](#)
  - c [WWAN card](#)
  - d [battery](#)
  - e [base cover](#)
  - f [Micro SD](#)
- 6 Follow the procedure in [After working inside your computer](#).

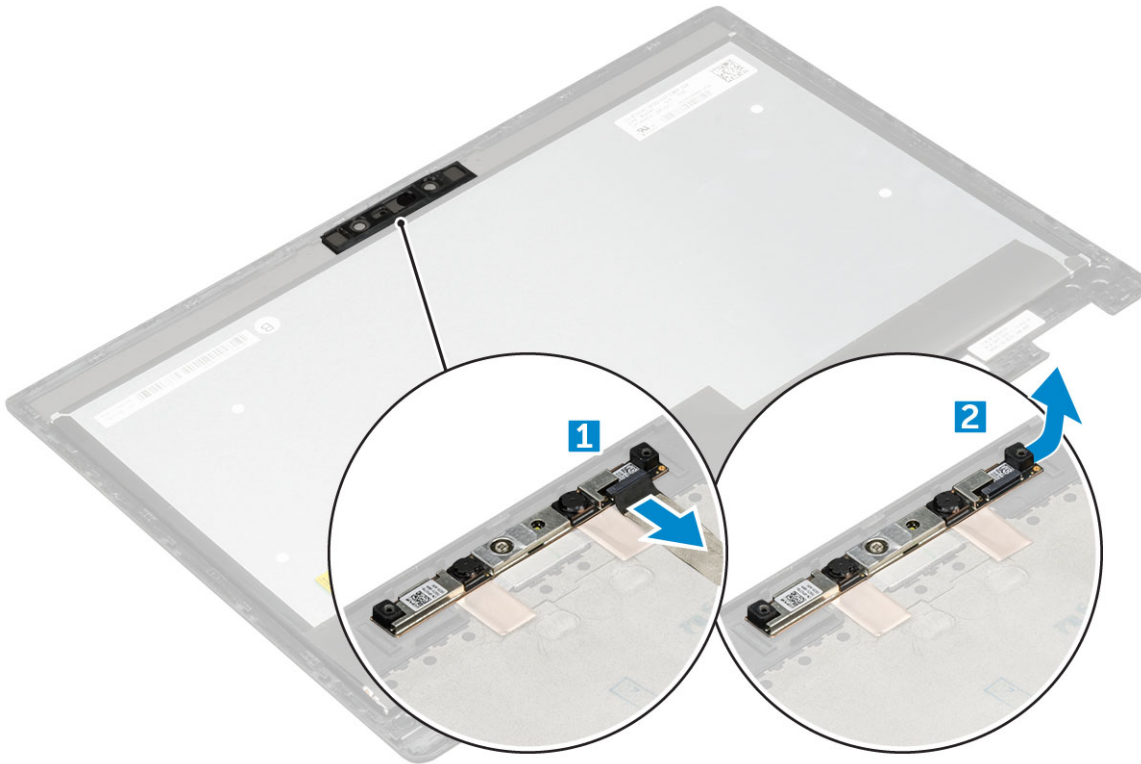
## Camera

### Removing the camera

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
  - a [Micro SD](#)
  - b [base cover](#)
  - c [battery](#)
  - d [WLAN card](#)



- e [WWAN card](#)
  - f [display assembly](#)
  - g [display panel](#)
- 3 To remove the camera:
- a Disconnect the camera cable from the camera module [1].
  - b Peel the camera module to lift it away from the display cover [2].



## Installing the camera

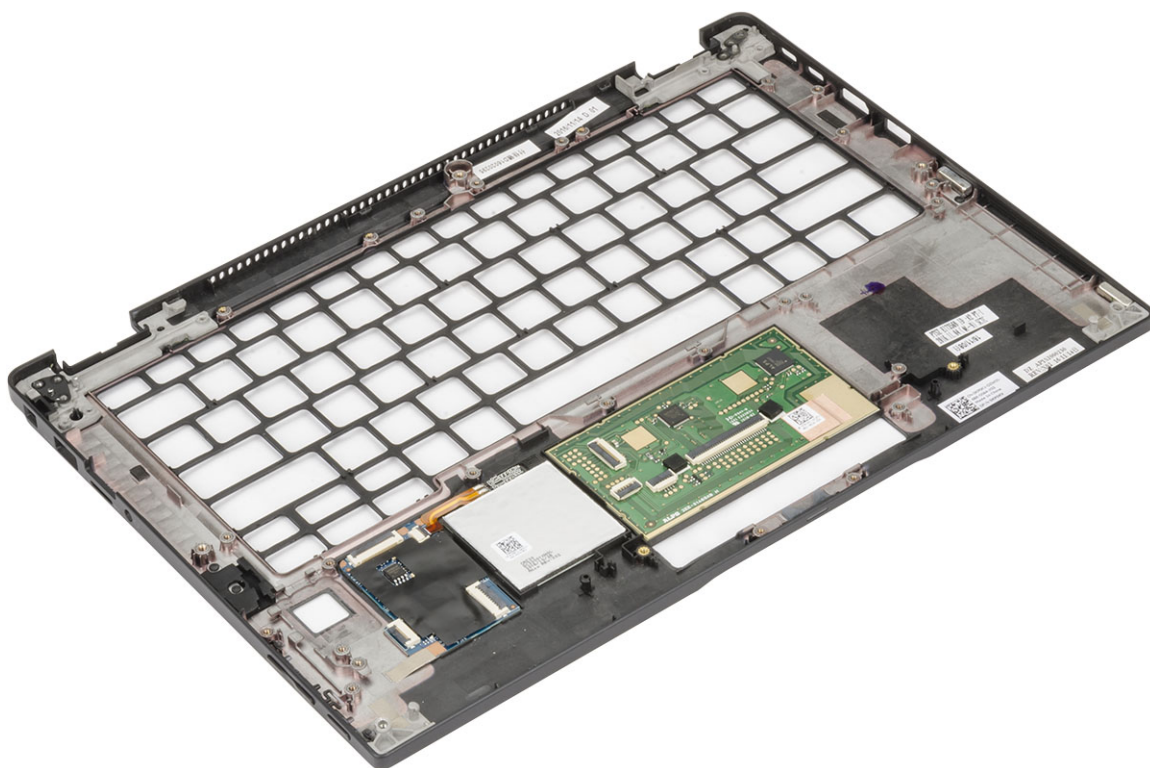
- 1 Insert the camera module in the slot on the display cover.
- 2 Affix the camera module to secure the module to the display cover.
- 3 Connect the camera cable to the connector on the camera module.
- 4 Install the:
  - a [display panel](#)
  - b [display assembly](#)
  - c [WLAN card](#)
  - d [WWAN card](#)
  - e [battery](#)
  - f [base cover](#)
  - g [Micro SD](#)
- 5 Follow the procedure in [After working inside your computer](#).

## Palmrest



# Replacing palm rest

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
  - a base cover
  - b battery
  - c SSD module
  - d WLAN card
  - e WWAN card
  - f power board
  - g heat sink assembly
  - h RTC
  - i LED board
  - j speaker
  - k smart card cage
  - l display assembly
  - m system board
  - n keyboard



The component you are left with is the palmrest.

- 3 Replace the palmrest.
- 4 Install the:
  - a keyboard assembly
  - b system board
  - c display assembly
  - d smart card cage
  - e speaker
  - f LED board
  - g RTC



- h heat sink
- i power board
- j WLAN card
- k WWAN card
- l PCIe SSD
- m battery
- n base cover

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



# System specifications

**NOTE:** Offerings may vary by region. The following specifications are only those required by law to ship with your computer. For more information about the configuration of your computer, go to Help and Support in your Windows operating system and select the option to view information about your computer.

Topics:

- [Supported operating systems](#)
- [Processor specifications](#)
- [System specifications](#)
- [Memory specifications](#)
- [Storage specifications](#)
- [Video specifications](#)
- [Audio specifications](#)
- [Battery specifications](#)
- [AC adapter specifications](#)
- [Docking options](#)
- [Port and connector specifications](#)
- [Communication specifications](#)
- [Camera specifications](#)
- [Touchpad specifications](#)
- [Display specifications](#)
- [Physical specifications](#)
- [Environmental specifications](#)

## Supported operating systems

The topic lists the operating systems supported for Latitude 7280 .

**Table 2. Supported operating systems**

Supported operating systems	Description
Windows 10	<ul style="list-style-type: none"> <li>• Microsoft Windows 10 Pro 64-bit</li> <li>• Microsoft Windows 10 Home 64-bit</li> <li>• Microsoft® Windows 8.1 Professional 64 bit, (available through downgrade rights from Windows 10 Pro License only through Dell Configuration Services) (available with Intel 6th Gen Core I only)</li> <li>• Microsoft Windows 7 Professional 32/64 bit, (available through downgrade rights from Windows 10 Pro License) (Available with Intel 6th Gen Core I only)</li> </ul>
Other	<ul style="list-style-type: none"> <li>• Ubuntu 16.04 LTS SP1 64-bit</li> <li>• NeoKylin v6.0 64-bit</li> </ul>

# Processor specifications

Feature	Specification
Types	<ul style="list-style-type: none"><li>7th generation Intel Core i3 / i5 / i7 series</li><li>6th generation Intel Core i5 / i7 series</li></ul>

# System specifications

Feature	Specification
Chipset	Integrated in the processor
DRAM bus width	64-bit
Flash EPROM	SPI 128 Mbits
PCIe bus	100 MHz
External Bus Frequency	DMI 3.0—8GT/s

# Memory specifications

Feature	Specification
Memory connector	One SoDIMM slot
Memory capacity	4 GB and 16 GB
Memory type	DDR4 SDRAM—2133 MHz
Minimum memory	4 GB
Maximum memory	16 GB

# Storage specifications

This laptop supports one M.2 SATA SSD or M.2 PCIe NVMe SSD.


The options are:

- Up to 512 GB SATA SSD
- Up to 1 TB PCIe NVMe SSD
- Up to 512 GB NVMe SED SSD

# Video specifications

Feature	Specification
Type	Integrated on system board
UMA controller	<ul style="list-style-type: none"><li>Intel Integrated HD Graphics 620</li><li>Intel Integrated HD Graphics 520 (available with Intel 6th Gen Core I only)</li></ul>



Feature	Specification
External display support	<ul style="list-style-type: none"> <li>On system – eDP (internal display), HDMI</li> <li>Optional Type-C port – VGA, DisplayPort 1.2, DVI and Thunderbolt</li> </ul>
	 <b>NOTE: Supports one VGA, DisplayPort, HDMI through the Docking station.</b>

## Audio specifications

Feature	Specification
Types	Four-channel high-definition audio
Controller	Realtek ALC3246
Stereo conversion	24-bit—analogue-to-digital and digital-to-analog
Internal interface	High-definition audio
External interface	Microphone-in, stereo headphones, and headset combo connector
Speakers	Two
Internal speaker amplifier	2 W (RMS) per channel
Volume controls	Hot keys

## Battery specifications

Feature	Specification
Type	<ul style="list-style-type: none"> <li>3-cell Lithium Prismatic battery with ExpressCharge</li> <li>4-cell Lithium Prismatic battery with ExpressCharge</li> </ul>

### 42 WHr (3-cell):

Length	200.5 mm (7.89 inches)
Width	95.9 mm (3.78 inches)
Height	5.7 mm (0.22 inch)
Weight	185.0 g (0.41 lb)
Voltage	11.4 VDC

### 60 WHr (4-cell):

Length	238 mm (9.37 inches)
Width	95.9 mm (3.78 inch)
Height	5.7 mm (0.22 inch)
Weight	270 g (0.6 lb)
Voltage	7.6 VDC
Life span	300 discharge per charge cycles
Temperature range	

Feature	Specification
Operating	<ul style="list-style-type: none"> <li>Charge: 0°C to 50°C (32°F to 158°F)</li> <li>Discharge: 0°C to 70°C (32°F to 122°F)</li> </ul>
Non-operating	- 20°C to 65°C (- 4°F to 149°F)
Coin cell battery	3 V CR2032 lithium coin cell

## AC adapter specifications

Feature	Specification
Type	65 W or 90 W
Input voltage	100 V AC to 240 V AC
Input current— maximum	1.7 A / 2.5 A
Input frequency	50 Hz to 60 Hz
Output current	3.34 A and 4.62 A
Rated output voltage	19.5 V DC
Weight	230 g (65 W) and 320 g (90 W)
Dimensions	22 x 66 x 106 mm (65 W) and 22 x 66 x 130 (90 W)
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)

## Docking options

**NOTE:** Docking stations are sold separately.

Options	<ul style="list-style-type: none"> <li>Dell Dock WD15</li> <li>Dell Dock Stand DS1000</li> <li>Dell Thunderbolt Dock TB16</li> </ul>
---------	--

## Port and connector specifications

Feature	Specification
Audio	Microphone-in, stereo headphones, and headset combo connector
Video	HDMI 1.4
Network adapter	One RJ-45 connector
USB	<ul style="list-style-type: none"> <li>One USB 3.0</li> <li>One DisplayPort over USB Type-C (optional Thunderbolt 3)</li> </ul>



Feature	Specification
---------	---------------

Memory card reader	one Micro SD 4.0
--------------------	------------------

Micro Subscriber Identity Module (uSIM) card	One
--	-----

Docking port	None
--------------	------

 | **NOTE:** Cable docking is available .

Express Card	None
--------------	------

AC adapter	One
------------	-----

Smart card reader	One (optional)
-------------------	----------------

## Communication specifications

Features	Specification
----------	---------------

Network adapter	10/100/1000 Mb/s Ethernet (RJ-45)
-----------------	-----------------------------------

Wireless	Internal wireless local area network (WLAN), wireless wide area network (WWAN), WiGig
----------	---

## Camera specifications

 | **NOTE:** Systems with FHD display are also shipped with an optional IR camera that supports Windows hello feature.

Feature	Specification
---------	---------------

Type	HD fixed focus
------	----------------

Sensor type	CMOS sensor technology
-------------	------------------------

Imaging rate	Up to 30 frames per second
--------------	----------------------------

Video Resolution	1280 x 720 pixels (0.92 MP)
------------------	-----------------------------

## Touchpad specifications

Feature	Specification
---------	---------------

Active Area:

X-axis	99.50 mm
--------	----------

Y-axis	53.0 mm
--------	---------

X/Y position resolution	X: 1048dpi; Y:984dpi
-------------------------	----------------------

Multi-touch	Configurable single finger and multi-finger gestures
-------------	--

## Display specifications

Feature	Specification
---------	---------------

**HD anti-glare**

Luminance	200 nits
-----------	----------

Feature	Specification
Height	155.52 mm (6.12 inches)
Width	276.62 mm (10.89 inches)
Diagonal	317.5 mm (12.5 inches)
Maximum resolution	1366 x 768
Refresh rate	60 Hz/48 Hz
Maximum viewing angles—horizontal	+/-40°
Maximum viewing angles—vertical	+10°/-30°
Pixel pitch	0.2025 x 0.2025 mm

**FHD anti-glare:**

Luminance	300 nits
Height	155.52 mm (6.12 inches)
Width	276.62 mm (10.89 inches)
Diagonal	317.5 mm (12.5 inches)
Maximum resolution	1920 x 1080
Refresh rate	60 Hz
Maximum viewing angles—horizontal	+/-80°
Maximum viewing angles—vertical	+/-80°
Pixel pitch	0.144 x 0.144 mm

**Feature Specification**

**FHD anti-smudge**

Luminance	300 nits
Height	155.52 mm (6.12 inches)
Width	276.62 mm (10.89 inches)
Diagonal	305.3 mm (12.02 inches)
Maximum resolution	1920 x 1080
Refresh rate	60 Hz
Maximum viewing angles—horizontal	+/-80°
Maximum viewing angles—vertical	+/-80°
Pixel pitch	0.144 x 0.144





# Physical specifications

Feature	Specification
Front height	11.51 mm (0.45 inch)
Back height—non-touch	17.05 mm (0.71 inch)
Back height—touch	17.3 mm (0.79 inch)
Width	304.8 mm (12.0 inches)
Depth	207.95 mm (8.19 inches)
Weight—non-touch with 3-cell battery	1.18 kg (2.61 lbs)

# Environmental specifications

Temperature	Specifications
Operating	0°C to 60°C (32°F to 140°F)
Storage	-51°C to 71°C (-59°F to 159°F)
Relative humidity—maximum	Specifications
Operating	10% to 90% (non-condensing)
Storage	5% to 95% (non-condensing)
Altitude—maximum	Specifications
Operating	-15.2 m to 3048 m (-50 to 10,000 ft) 0°C to 35°C
Non-operating	-15.24 m to 10,668 m (-50 ft to 35,000 ft)
Airborne contaminant level	G2 or lower as defined by ISA S71.04-1985



# System Setup

## Topics:

- [Boot menu](#)
- [Navigation keys](#)
- [System setup options](#)
- [General screen options](#)
- [System Configuration screen options](#)
- [Video screen options](#)
- [Security screen options](#)
- [Secure Boot screen options](#)
- [Intel software guard extensions screen options](#)
- [Performance screen options](#)
- [Power management screen options](#)
- [POST behavior screen options](#)
- [Manageability](#)
- [Virtualization support screen options](#)
- [Wireless screen options](#)
- [Maintenance screen options](#)
- [System logs screen options](#)
- [Updating the BIOS in Windows](#)
- [System and setup password](#)

## 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



# 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 options

**NOTE:** Depending on the notebook 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>	This section lists the primary hardware features of your computer. <ul style="list-style-type: none"><li>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</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 M.2 SATA, M.2 PCIe SSD-0, LOM MAC Address, Passthrough 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 health and whether the AC adapter is installed.
<b>Boot Sequence</b>	Allows you to change the order in which the computer attempts to find an operating system. <ul style="list-style-type: none"><li>Diskette Drive</li><li>Internal HDD</li><li>USB Storage Device</li><li>CD/DVD/CD-RW Drive</li><li>Onboard NIC</li></ul>
<b>Boot sequence options</b>	<ul style="list-style-type: none"><li>Windows boot manager</li><li>WindowsIns</li></ul>




Option	Description
<b>Boot list options</b>	<ul style="list-style-type: none"> <li>· Legacy</li> <li>· UEFI—selected by default</li> </ul>
<b>Advanced Boot Options</b>	This option allows you the legacy option ROMs to load. By default, the <b>Enable Legacy Option ROMs</b> is disabled. Enable Attempt Legacy Boot is disabled by default.
<b>UEFI boot path security</b>	<ul style="list-style-type: none"> <li>· Always, except internal HDD</li> <li>· Always</li> <li>· Never</li> </ul>
<b>Date/Time</b>	Allows you to change the date and time.

## System Configuration screen options

Option	Description
<b>Integrated NIC</b>	<p>Allows you to configure the integrated network controller. The options are:</p> <ul style="list-style-type: none"> <li>· Disabled</li> <li>· Enabled</li> <li>· Enable UEFI network stack: This option is enabled by default.</li> <li>· Enabled w/PXE</li> </ul>
<b>Parallel Port</b>	<p>Allows you to configure the parallel port on the docking station. The options are:</p> <ul style="list-style-type: none"> <li>· Disabled</li> <li>· AT: This option is enabled by default.</li> <li>· PS2</li> <li>· ECP</li> </ul>
<b>Serial Port</b>	<p>Allows you to configure the integrated serial port. The options are:</p> <ul style="list-style-type: none"> <li>· Disabled</li> <li>· COM1: This option is enabled by default.</li> <li>· COM2</li> <li>· COM3</li> <li>· COM4</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>· Disabled</li> <li>· AHCI</li> <li>· RAID On: This option is enabled by default.</li> </ul>
<b>Drives</b>	<p>Allows you to configure the SATA drives on board. All drives are enabled by default. The options are:</p> <ul style="list-style-type: none"> <li>· SATA-0</li> <li>· M.2 PCI-e SSD-0</li> <li>· SATA-2</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>· Enable SMART Reporting</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>· Enable USB Boot Support—enabled by default</li> <li>· Enable the Thunderbolt ports—enabled by default</li> <li>· Always Allow dell docks—enabled by default</li> <li>· Enable External USB Port—enabled by default</li> <li>· Enable Thunderbolt Boot Support</li> <li>· Enable Thunderbolt (and PCIE behind TBT) Preboot</li> <li>· Security level-no security</li> <li>· Security level-user configuration—enabled by default</li> <li>· Security level-secure connect</li> <li>· Security level- Display port only</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>	<p>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</p>
<b>Audio</b>	<p>This field enables or disables the integrated audio controller. By default, the <b>Enable Audio</b> option is selected. The options are:</p> <ul style="list-style-type: none"> <li>· Enable Microphone—by default enable</li> <li>· Enable Internal Speaker—by default enable</li> </ul>
<b>Keyboard Illumination</b>	<p>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:</p> <ul style="list-style-type: none"> <li>· Disabled—enabled by default</li> <li>· Dim (50%)</li> <li>· Bright</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> </ul>

Option	Description
	<ul style="list-style-type: none"> <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 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>Touchscreen</b>	It controls whether the screen is enabled or disabled. This option is enabled by default.
<b>Unobtrusive Mode</b>	This 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 the following devices:</p> <ul style="list-style-type: none"> <li>· Enable 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>

## 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. 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
<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> Successful password changes take effect immediately.</p>






Option	Description
	Default setting: Not set
<b>System Password</b>	Allows you to set, change, or delete the system password.
	   <b>NOTE: Successful password changes take effect immediately.</b>
	Default setting: Not set
<b>Internal HDD-2 Password</b>	Allows you to set, change, or delete the administrator password.
	   <b>NOTE: Successful password changes take effect immediately.</b>
	Default setting: Not set
<b>Strong Password</b>	Allows you to enforce the option to always set strong passwords.
	Default Setting: Enable Strong Password is not selected.
	   <b>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.</b>
<b>Password Configuration</b>	Allows you to specify the minimum and max password lengths of the Administrator and System passwords.
	<ul style="list-style-type: none"> <li>· min-4—by default, if you want to change you can increase the number</li> <li>· max-32—you can decrease the number</li> </ul>
<b>Password Bypass</b>	Allows you to enable or disable the permission to bypass the System and the Internal HDD password, when they are set. The options are:
	<ul style="list-style-type: none"> <li>· Disabled</li> <li>· Reboot bypass</li> </ul>
	Default setting: Disabled
<b>Password Change</b>	Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set.
	Default setting: <b>Allow Non-Admin Password Changes</b> is selected.
<b>Non-Admin Setup Changes</b>	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.
<b>TPM 2.0 Security</b>	Allows you to enable the Trusted Platform Module (TPM) during POST. The options are:
	<ul style="list-style-type: none"> <li>· UEFI capsule Firmware updates—enabled by default</li> <li>· TPM On—enabled by default</li> <li>· Clear</li> <li>· PPI Bypass for Enable Commands</li> <li>· PPI Bypass for Disabled Commands</li> <li>· Attestation enable—enabled by default</li> <li>· Key storage enable—enabled by default</li> <li>· SHA-256—enabled by default</li> <li>· Disabled</li> <li>· Enabled—enabled by default</li> </ul>

Option	Description
	<p> <b>NOTE:</b> To upgrade or downgrade TPM 2.0, download the TPM wrapper tool—software.</p>
<b>Computrace</b>	<p>Allows you to activate or disable the optional Computrace software. The options are:</p> <ul style="list-style-type: none"> <li>· Deactivate</li> <li>· Disable</li> <li>· Activate—enabled by default</li> </ul> <p> <b>NOTE:</b> The <b>Activate</b> and <b>Disable</b> options will permanently activate or disable the feature and no further changes are allowed</p>
<b>CPU XD Support</b>	<p>Allows you to enable the Execute Disable mode of the processor. Enable CPU XD Support—enabled by default</p>
<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>· Enabled</li> <li>· One Time Enable</li> <li>· Disable</li> </ul> <p>Default setting: Enable</p>
<b>Admin Setup Lockout</b>	<p>Allows you to prevent users from entering Setup when an Administrator password is set. Default Setting: This option is enabled</p>
<b>Master password lockout</b>	<p>This option is not enabled by default</p>

## Secure Boot screen options

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. The options are:</p> <ul style="list-style-type: none"> <li>· PK—enabled by default</li> <li>· KEK</li> <li>· db</li> <li>· dbx</li> </ul> <p>If you enable the <b>Custom Mode</b>, the relevant options for <b>PK, KEK, db, and dbx</b> appear. The options are:</p> <ul style="list-style-type: none"> <li>· <b>Save to File</b>—Saves the key to a user-selected file</li> <li>· <b>Replace from File</b>—Replaces the current key with a key from a user-selected file</li> <li>· <b>Append from File</b>—Adds a key to the current database from a user-selected file</li> </ul>



Option	Description
	<ul style="list-style-type: none"> <li>· <b>Delete</b>—Deletes the selected key</li> <li>· <b>Reset All Keys</b>—Resets to default setting</li> <li>· <b>Delete All Keys</b>—Deletes all the keys</li> </ul> <p> <b>NOTE:</b> If you disable the Custom Mode, all the changes made are erased and the keys restore to default settings.</p>

## Intel software guard extensions screen options

Option	Description
<b>Intel SGX Enable</b>	<p>This field specifies you 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>· Disabled</li> <li>· Enabled</li> </ul> <p>Default setting: Enabled</p>
<b>Enclave Memory Size</b>	<p>This option sets <b>SGX Enclave Reserve Memory Size</b>. The options are:</p> <ul style="list-style-type: none"> <li>· 32 MB</li> <li>· 64 MB</li> <li>· 128 MB—enabled by default</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. 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.</p> <ul style="list-style-type: none"> <li>· Enable Multi-Core Support</li> </ul> <p>Default setting: The option is enabled.</p>
<b>Intel SpeedStep</b>	<p>Allows you to enable or disable the Intel SpeedStep feature.</p> <ul style="list-style-type: none"> <li>· Enable Intel SpeedStep</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>· C states</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>· Enable Intel TurboBoost</li> </ul>

Option	Description
	Default setting: The option is enabled.
<b>HyperThread Control</b>	Allows you to enable or disable the Hyper-Threading in the processor. <ul style="list-style-type: none"> <li>· Disabled</li> <li>· Enabled</li> </ul> Default setting: Enabled is selected.

## Power management screen options

Option	Description
<b>AC Behavior</b>	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.
<b>Auto On Time</b>	Allows you to set the time at which the computer must turn on automatically. The options are: <ul style="list-style-type: none"> <li>· Disabled</li> <li>· Every Day</li> <li>· Weekdays</li> <li>· Select Days</li> </ul> Default setting: Disabled
<b>USB Wake Support</b>	Allows you to enable USB devices to wake the system from Standby. <p><b>NOTE:</b> 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.</p> <ul style="list-style-type: none"> <li>· Enable USB Wake Support</li> <li>· Wake on Dell USB-C dock</li> </ul> Default setting: The option is disabled.
<b>Wake on WLAN</b>	Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal. Default setting: Disabled
<b>Block Sleep</b>	This option lets you block entering to sleep (S3 state) in operating system environment. Block Sleep (S3 state)  Default setting: This option is disabled
<b>Peak Shift</b>	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.
<b>Advanced Battery Charge Configuration</b>	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



Option	Description
	Default setting: Disabled
<b>Primary Battery Charge Configuration</b>	<p data-bbox="331 218 1054 245">Allows you to select the charging mode for the battery. The options are:</p> <ul data-bbox="331 273 1461 472" style="list-style-type: none"> <li data-bbox="331 273 671 300">· Adaptive—enabled by default</li> <li data-bbox="331 310 938 338">· Standard—Fully charges your battery at a standard rate.</li> <li data-bbox="331 348 1461 401">· ExpressCharge—The battery charges over a shorter time using Dell's fast charging technology. This option is enabled by default.</li> <li data-bbox="331 411 536 438">· Primarily AC use</li> <li data-bbox="331 449 448 476">· Custom</li> </ul> <p data-bbox="331 499 1347 527">If Custom Charge is selected, you can also configure Custom Charge Start and Custom Charge Stop.</p> <p data-bbox="336 548 1441 604"><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>
Sleep mode	<ul data-bbox="331 663 820 690" style="list-style-type: none"> <li data-bbox="331 663 820 690">· OS Automatic selection—enabled by default</li> </ul> <p data-bbox="363 724 464 751">Force S3</p>
Type-C connector power	<ul data-bbox="331 819 671 884" style="list-style-type: none"> <li data-bbox="331 819 464 846">· 7.5 Watts</li> <li data-bbox="331 856 671 884">· 15 Watts—enabled by default</li> </ul>

## POST behavior screen options

Option	Description
<b>Adapter Warnings</b>	<p data-bbox="331 1079 1477 1106">Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters.</p> <p data-bbox="331 1117 746 1144">Default setting: Enable Adapter Warnings</p>
<b>Keypad (Embedded)</b>	<p data-bbox="331 1192 1401 1220">Allows you to choose one of two methods to enable the keypad that is embedded in the internal keyboard.</p> <ul data-bbox="331 1247 592 1314" style="list-style-type: none"> <li data-bbox="331 1247 592 1274">· Fn Key Only—default.</li> <li data-bbox="331 1285 491 1312">· By Numlock</li> </ul> <p data-bbox="336 1335 1275 1392"><b>NOTE: When setup is running, this option has no effect. Setup works in Fn Key Only mode.</b></p>
<b>Mouse/Touchpad</b>	<p data-bbox="331 1430 1241 1457">Allows you to define how the system handles mouse and touch pad input. The options are:</p> <ul data-bbox="331 1484 948 1587" style="list-style-type: none"> <li data-bbox="331 1484 501 1512">· Serial Mouse</li> <li data-bbox="331 1522 488 1549">· PS2 Mouse</li> <li data-bbox="331 1560 948 1587">· Touchpad/PS-2 Mouse: This option is enabled by default.</li> </ul>
<b>Numlock Enable</b>	<p data-bbox="331 1625 1018 1652">Allows you to enable the Numlock option when the computer boots.</p> <p data-bbox="331 1665 836 1692">Enable Network. This option is enabled by default.</p>
<b>Fn Key Emulation</b>	<p data-bbox="331 1738 1262 1766">Allows you to set the option where the Scroll Lock key is used to simulate the Fn key feature.</p> <p data-bbox="331 1778 676 1806">Enable Fn Key Emulation (default)</p>



Option	Description
<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:
<b>Extended BIOS POST Time</b>	Allows you to create an extra preboot delay. The options are: <ul style="list-style-type: none"> <li>• 0 seconds—enabled by default.</li> <li>• 5 seconds</li> <li>• 10 seconds</li> </ul>
<b>Full Screen Log</b>	<ul style="list-style-type: none"> <li>• Enable Full Screen Logo—not enabled</li> </ul>
<b>Warnings and errors</b>	<ul style="list-style-type: none"> <li>• Prompt on warnings and errors—enabled by default</li> <li>• Continue on warnings</li> <li>• Continue on warnings and errors</li> </ul>

## Manageability

Option	Description
<b>USB provision</b>	Enable USB provision is not selected by default
<b>MEBx Hotkey — enabled by default</b>	Allows you to specify whether the MEBx Hotkey function should enable, during the system boot. <ul style="list-style-type: none"> <li>• Disabled</li> <li>• Enabled</li> </ul> <p>Default setting: Disabled</p>

## Virtualization support screen options

Option	Description
<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>Enable VT for Direct I/O - enabled 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 the Virtualization technology for direct I/O must be enabled to use this feature. <p>Trusted Execution - disabled by default.</p>

## Wireless screen options

Option	Description
<b>Wireless Switch</b>	Allows to set the wireless devices that can be controlled by the wireless switch. The options are:





Option	Description
	<ul style="list-style-type: none"> <li>· WWAN</li> <li>· GPS (on WWAN Module)</li> <li>· WLAN/WiGig</li> <li>· Bluetooth</li> </ul> <p>All the options are enabled by default.</p> <p><b>NOTE:</b> For WLAN and WiGig enable or disable controls are tied together and they cannot be enabled or disabled independently.</p>

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

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>	This controls flashing of the system firmware to previous revisions. Option 'Allow BIOS downgrade' is enabled by default.
<b>Data Wipe</b>	<p>This field allows users to erase the data securely from all internal storage devices. Option 'Wipe on Next boot' is not enabled by default. The following is list of devices affected:</p> <ul style="list-style-type: none"> <li>· Internal SATA HDD/SSD</li> <li>· Internal M.2 SATA SDD</li> <li>· Internal M.2 PCIe SSD</li> <li>· Internal eMMC</li> </ul>
<b>BIOS Recovery</b>	<p>This field allows you to recover from certain corrupted BIOS conditions from a recover file on the user primary hard drive or an external USB key.</p> <ul style="list-style-type: none"> <li>· BIOS Recovery from Hard Drive—enabled by default</li> <li>· Always perform integrity check—disabled by default</li> </ul>

## 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.

# Updating the BIOS in Windows

It is recommended to update your BIOS (System Setup), on replacing the system board or if an update is available. For laptops, ensure that your computer battery is fully charged and connected to a power outlet

**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 the **Choose from all products**.
- 4 Choose the **Products** category from the list.

**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.

**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

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

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.

**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:** Your computer is shipped with the system and setup password feature is disabled.

## Assigning a system password and setup password

You can assign a new **System 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 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 and/or 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 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 reboots.

# 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.

**ℹ 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

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



# 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.