

Dell Latitude 7480

Owner's Manual



Notes, cautions, and warnings

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

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

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

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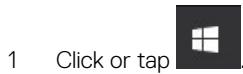
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Working on your computer

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**.

(i) 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**.

(i) 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 the 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

 **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.

Disassembly and reassembly

Recommended tools

The procedures in this document require the following tools:

- Phillips #0 screwdriver
- Phillips #1 screwdriver
- Small plastic scribe

Screw size list

Table 1. Latitude 7480 - Screw size list

Component	M2.5x 6.0	M2.5x5.0	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 screw)						
Battery (3-cell)			1				
Battery (4-cell)			2				
SSD module					1		
Heat sink module					4		
System fan	2	2					
WWAN card					1		
WLAN card					1		
Power connector port					1		
ESD bracket						2	
EDP bracket		1					
Touchpad buttons					2		
Fingerprint reader					1		
LED board					1		
Smart card reader cage					2		
Display hinge			6				
Display panel					. FHD - 2 . HD - 4		
Keyboard support plate						18	
Keyboard							5
System board			3				

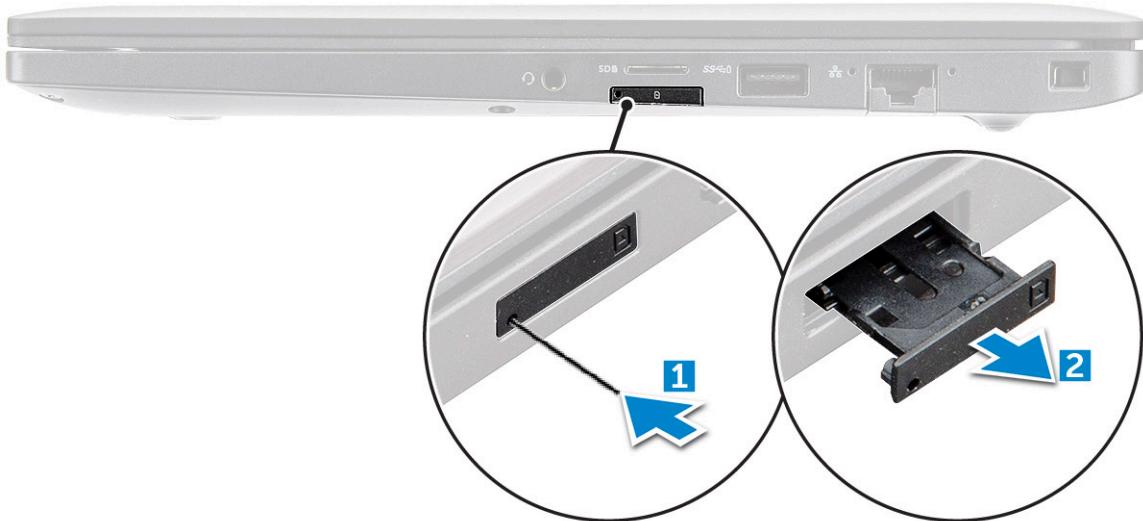
Subscriber Identification Module (SIM) card

Removing SIM card or SIM card tray

NOTE: SIM card or SIM card tray removal is only available on systems that are shipped with WWAN module. Hence, removing procedure is only applicable for systems that are shipped with WWAN module.

CAUTION: Removing the 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.

- 1 Insert a paperclip or a SIM card removal tool into the pinhole on the SIM card tray [1].
- 2 Use a scribe to pull the SIM card tray
- 3 Remove the SIM card, if a SIM card is available from the SIM card tray.



Replacing SIM card

- 1 Insert a paperclip or a SIM card removal tool into the pinhole on the SIM card tray.
- 2 Use a scribe to pull the SIM card tray
- 3 Place on the SIM card on the tray.
- 4 Insert the SIM card tray into the slot.

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.

Base cover

Removing base cover

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 To release the base cover:
 - a Loosen the M2.5 x 6.0 captive screws (8) that secure the base cover to the computer [1].

Remember: Exercise caution when loosening the screws. Angle the screw driver to match the head of the screw to avoid a possible stripped screw head.
 - b Use a plastic scribe to release the base cover from the edge and lift it from the computer [2].



3 Lift the base cover from the computer.



Installing 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 6.0 captive screws to secure the base cover to the computer.
- i | Remember:** Exercise caution when tightening the screws. Angle the screw driver to match the head of the screw to avoid a possible stripped screw head.
- 4 Follow the procedure in [After working inside your computer](#).

Battery

Lithium-ion battery precautions

△ CAUTION:

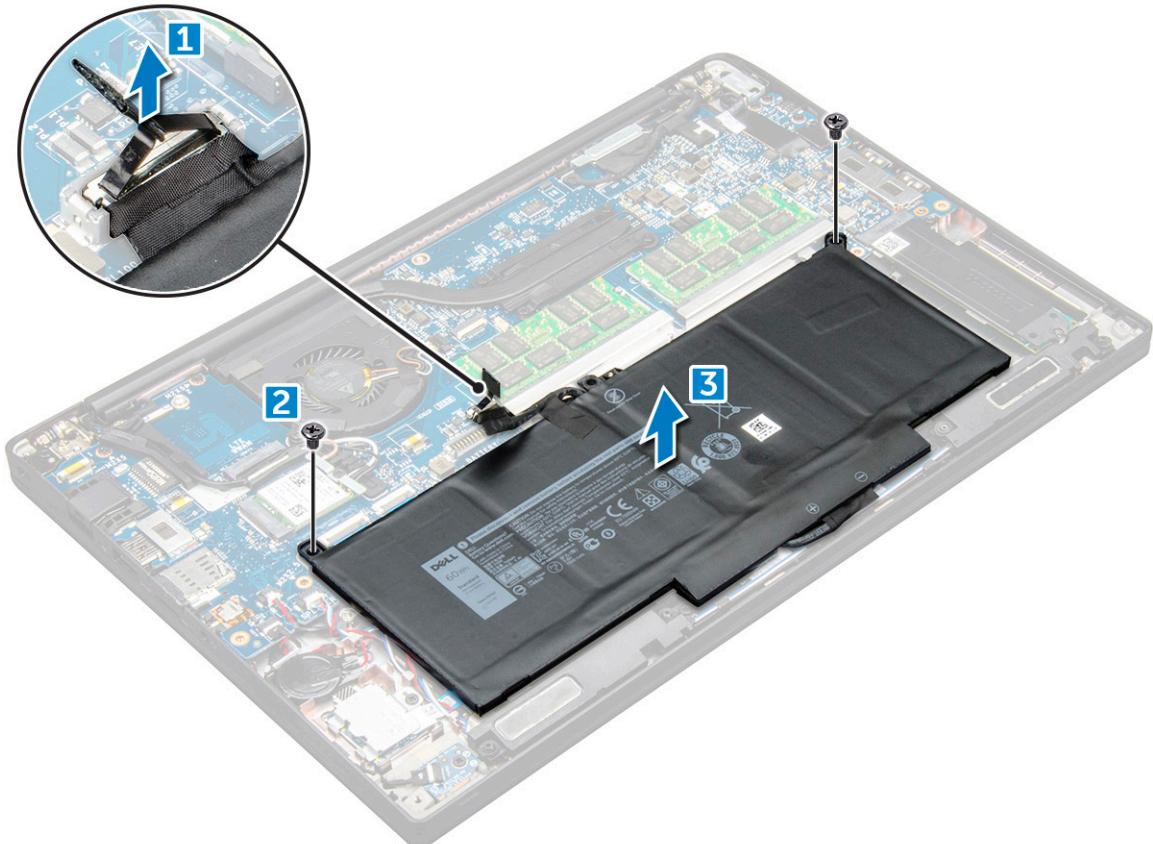
- Exercise caution when handling Lithium-ion batteries.
- Discharge the battery as much as possible before removing it from the system. This can be done by disconnecting the AC adapter from the system to allow the battery to drain.
- Do not crush, drop, mutilate, or penetrate the battery with foreign 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.
- 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, the entire system should be replaced. Contact <https://www.dell.com/support> for assistance and further instructions.
- Always purchase genuine batteries from <https://www.dell.com> or authorized Dell partners and re-sellers.

Removing battery

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the [base cover](#).
- 3 To remove the battery:
 - a Disconnect the battery cable from the connector on the system board [1].
 - b Remove the M2.0 x 5.0 screws that secure the battery to the computer [2].

i | NOTE: A 3-cell battery has a single screw, and a 4-cell battery has two screws. Hence, the image displayed below is a 4-cell battery.

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



Installing battery

- 1 Insert the battery into the slot on the computer.
 - 2 Route the battery cable through the routing clip and connect the battery cable to the connector on the system board.
- i | NOTE:** **Route the battery cable, if the cable at the base of the battery is un routed.**
- 3 Tighten the M2.0 x 5.0 screws to secure the battery to the computer.
- i | NOTE:** **A small battery (3-cell) has a single screw, a larger battery (4-cell) has two screws.**
- 4 Install the [base cover](#)
 - 5 Follow the procedure in [After working inside your computer](#).

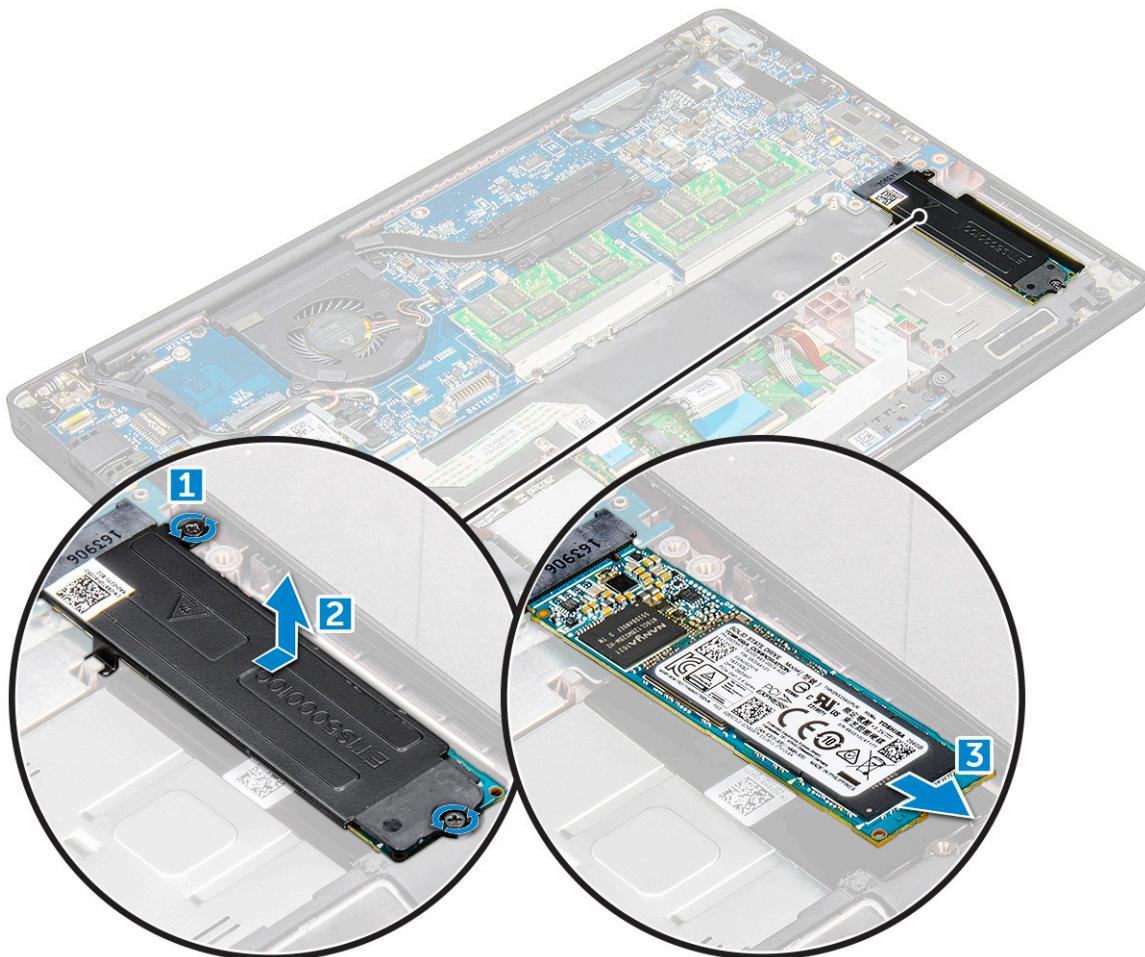
PCIe Solid State Drive (SSD)

Removing PCIe SSD

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the :
 - a [base cover](#)
 - b [battery](#)
- 3 To remove the PCIe SSD:
 - a Loosen the M2.0x3.0 captive screw that secure the SSD bracket [1].
 - b Remove the SSD bracket [2].

NOTE: Ensure to remove the SSD bracket, if the system is shipped with bracket.

- c Remove the PCIe SSD from the connector on the system board [3].



Installing PCIe SSD

- 1 Insert the PCIe SSD card into the connector.
- 2 Install the SSD bracket over the PCIe SSD card.

NOTE: When installing the SSD bracket, ensure that the tab on the bracket is held securely with the tab on the palm rest.

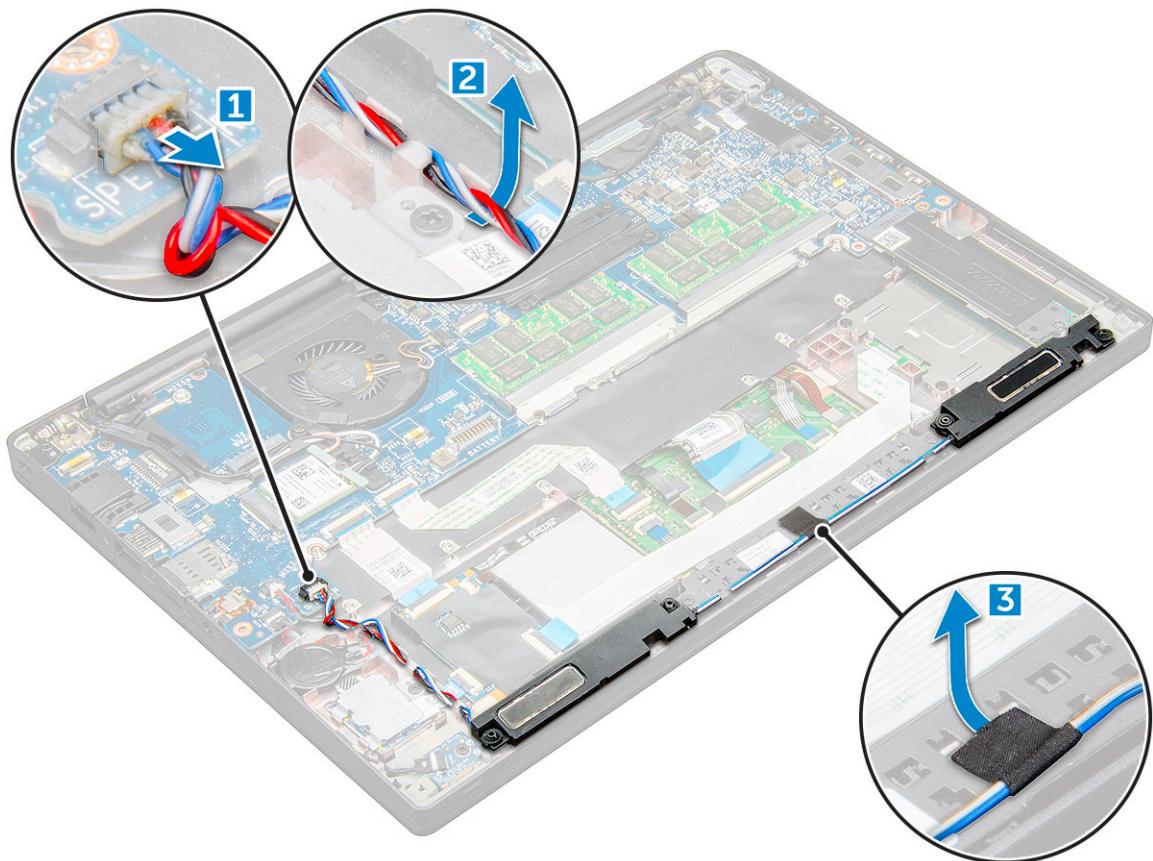
NOTE: Ensure to install the bracket is the system is shipped with bracket.

- 3 Tighten the M2.0x3.0 screws to secure it the SSD bracket.
- 4 Install the [base cover](#).
- 5 Follow the procedure in [After working inside your computer](#).

Speaker

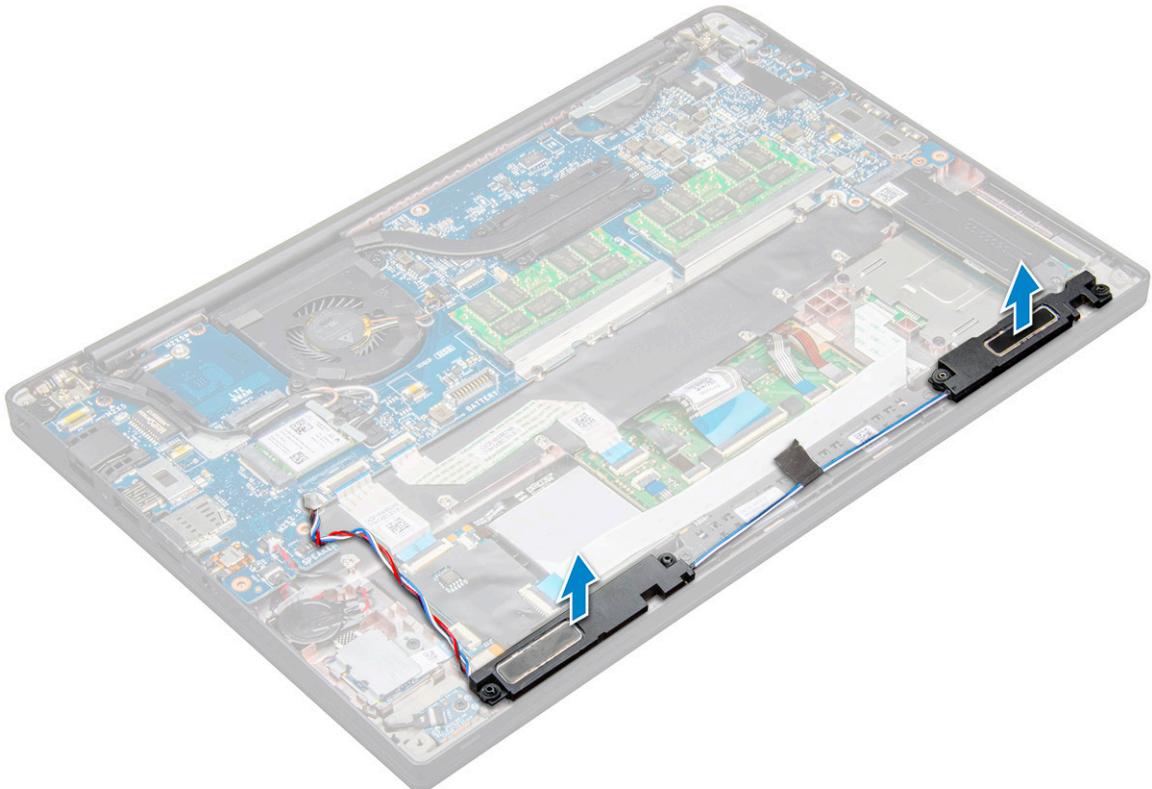
Removing speaker module

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [base cover](#)
 - b [battery](#)
- 3 To release the speaker module:
 - a Push the pin to disconnect the speaker cable from the connector on the system board [1].
NOTE: Ensure to unroute the speaker cable from the routing clip.
 - b Un-route the speaker cable from the routing clips [2,3].
NOTE: Use a plastic scribe to release the cable from the connector. Do not pull the cable as it may result in breakage.
 - c Remove the tape that secures the speaker cables to the touchpad board [4].



- 4 To remove the speaker module:
 - a Remove the M2.0x3.0 screws (4) that secure the speaker module to the computer [1].
 - b Lift the speaker module from the computer .

NOTE: Ensure to un-route the speaker cable from the routing clips.



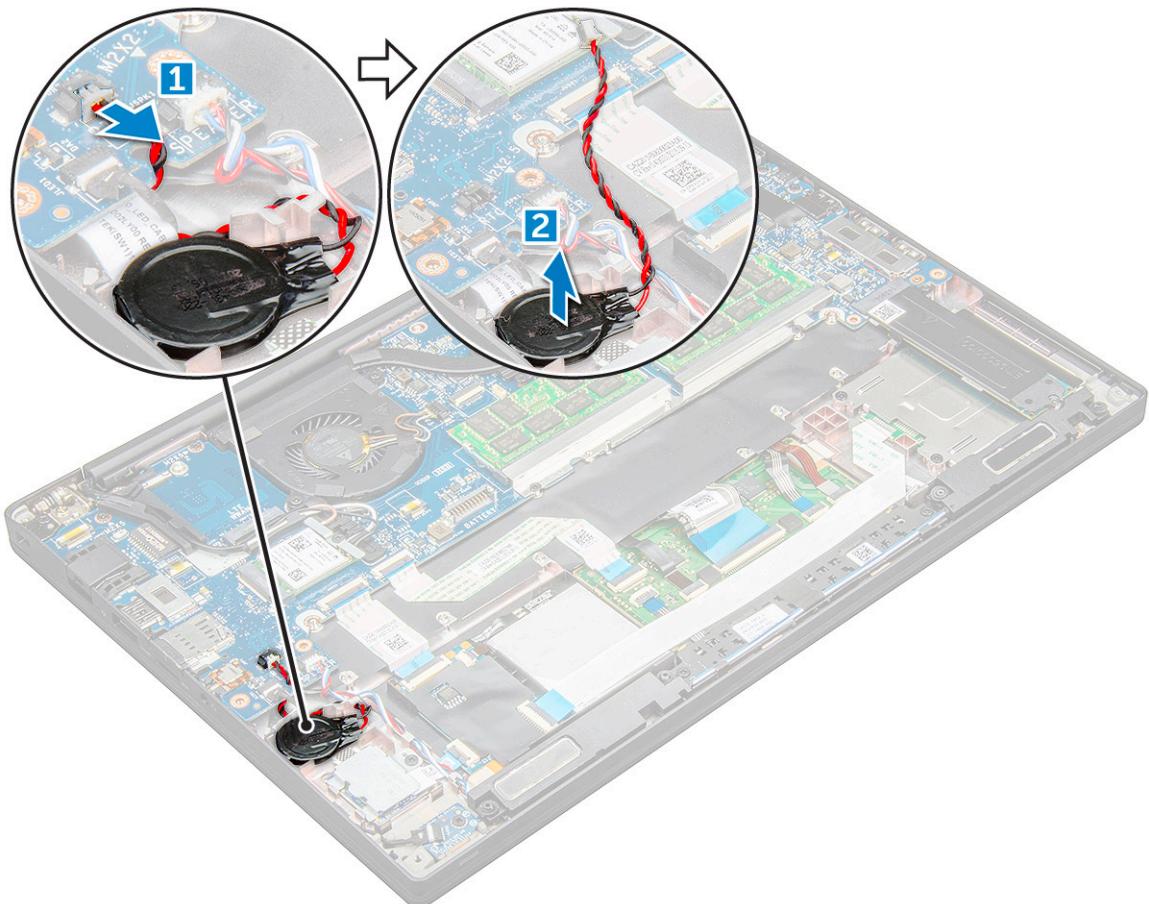
Installing speaker module

- 1 Place the speaker module into the slots on the computer.
- 2 Route the speaker cable through the retention clips on the computer.
- 3 Connect the speaker cable to the connector on the system board.
- 4 Install the:
 - a [battery](#)
 - b [base cover](#)
- 5 Follow the procedure in [After working inside your computer](#).

Coin cell battery

Removing the coin cell battery

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the :
 - a [base cover](#)
 - b [battery](#)
- 3 To remove the coin cell battery:
 - a Disconnect the coin cell battery cable from the connector on the system board [1].
 - b Lift the coin cell battery to release it from the adhesive [2].



Installing coin cell battery

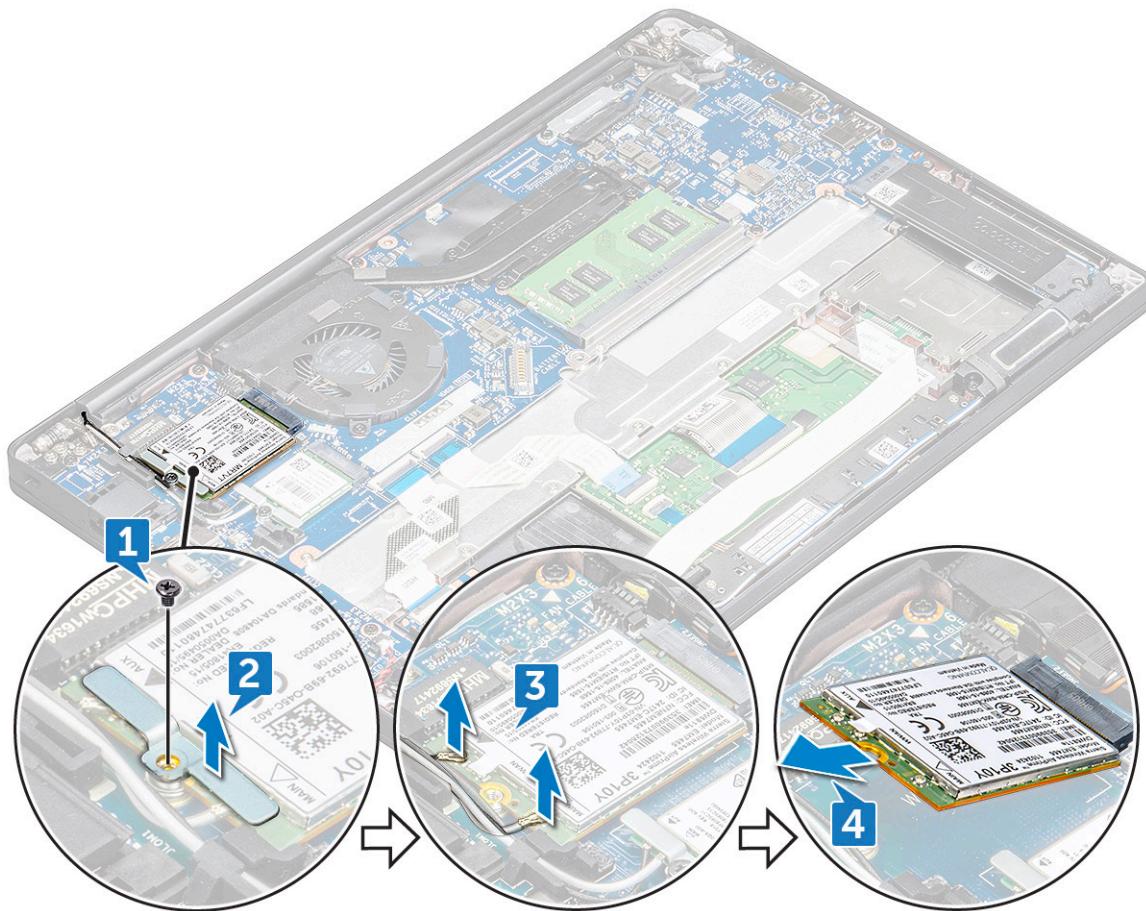
- 1 Affix the coin cell battery on the slot inside the computer.
- 2 Route the coin cell battery cable through the routing channel before connecting the cable.
- 3 Connect the coin cell battery cable to the connector on the system board.
- 4 Install the :
 - a [battery](#)
 - b [base cover](#)
- 5 Follow the procedure in [After working inside your computer](#).

WWAN card

Removing WWAN card

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the :
 - a [base cover](#)
 - b [battery](#)
- 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 with a plastic scribe..
- d .



Installing 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 tighten the M2.0 x 3.0 screw to secure it to the computer.
- 4 Install the :
 - a battery
 - b base cover
- 5 Follow the procedure in [After working inside your computer](#).

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

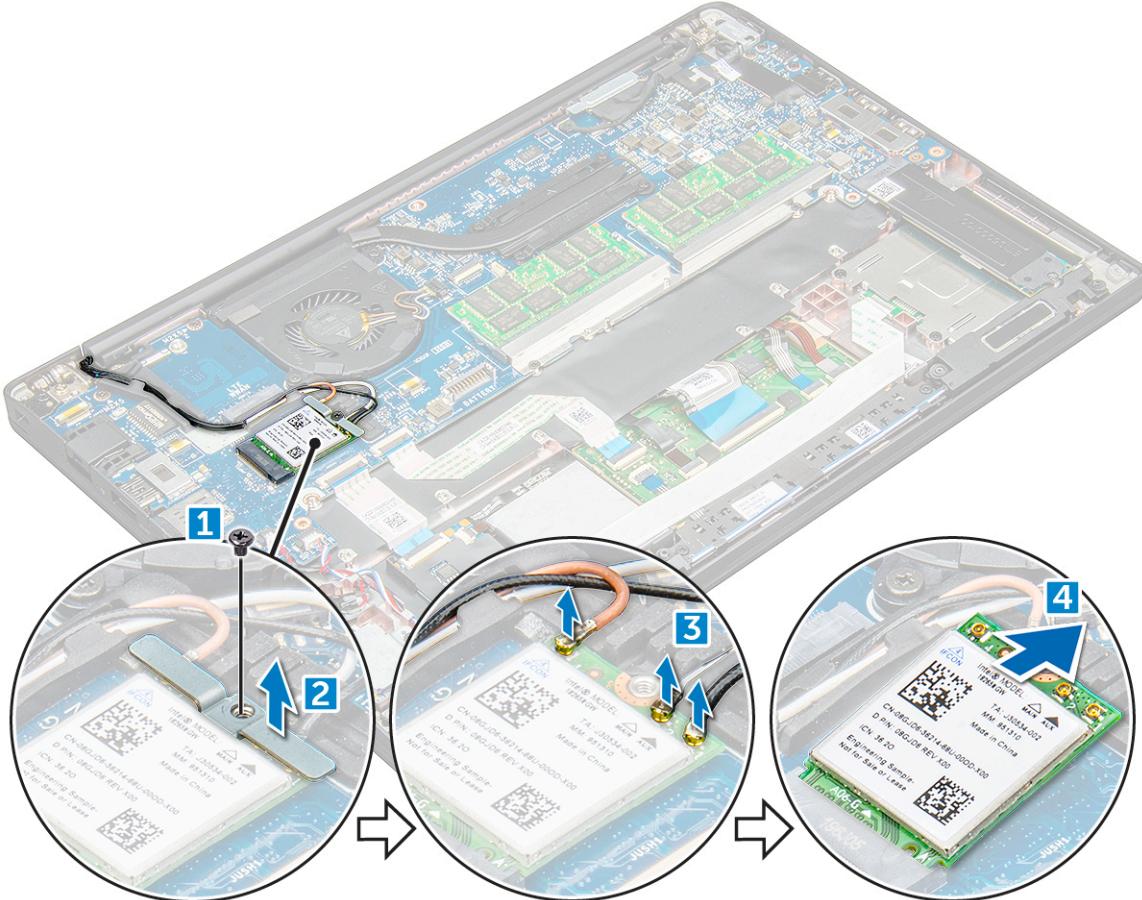
WLAN card

Removing WLAN card

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

- b [battery](#)
- 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].

 **NOTE:** Ensure NOT to pull the WLAN card more than 35°, to avoid damage to pin.



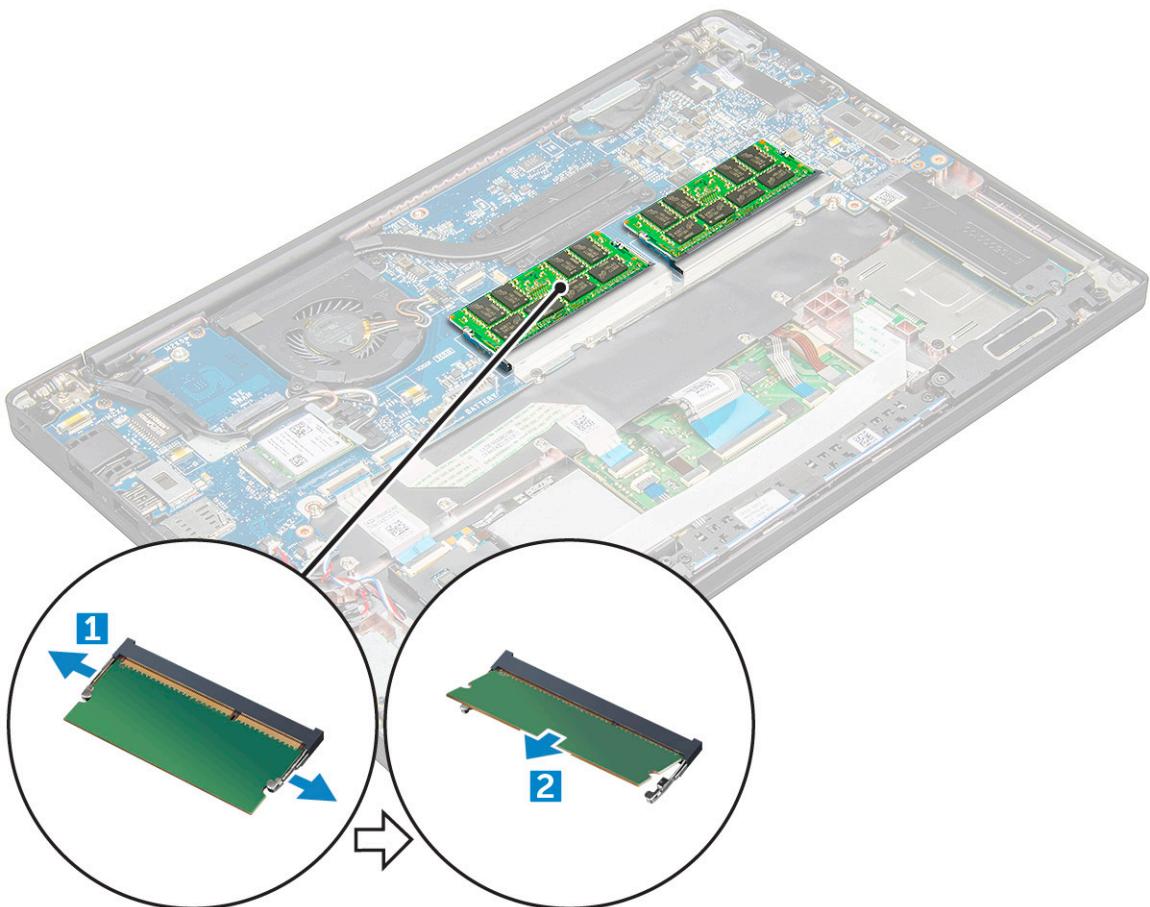
Installing WLAN card

- 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 tighten the M2.0 x 3.0 screw to secure it to the computer.
- 4 Install the :
 - a [battery](#)
 - b [base cover](#)
- 5 Follow the procedure in [After working inside your computer](#).

Memory modules

Removing memory module

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the :
 - a [base cover](#)
 - b [battery](#)
- 3 To remove the memory module:
 - a Pull the clips securing the memory module until the module snaps-out [1].
 - b Remove the memory module from the connector on the system board [2].



Installing memory module

- 1 Insert the memory module into the connector until snaps in.
- 2 Install the :
 - a [battery](#)
 - b [base cover](#)
- 3 Follow the procedures in [After working inside your computer](#).

Heat sink

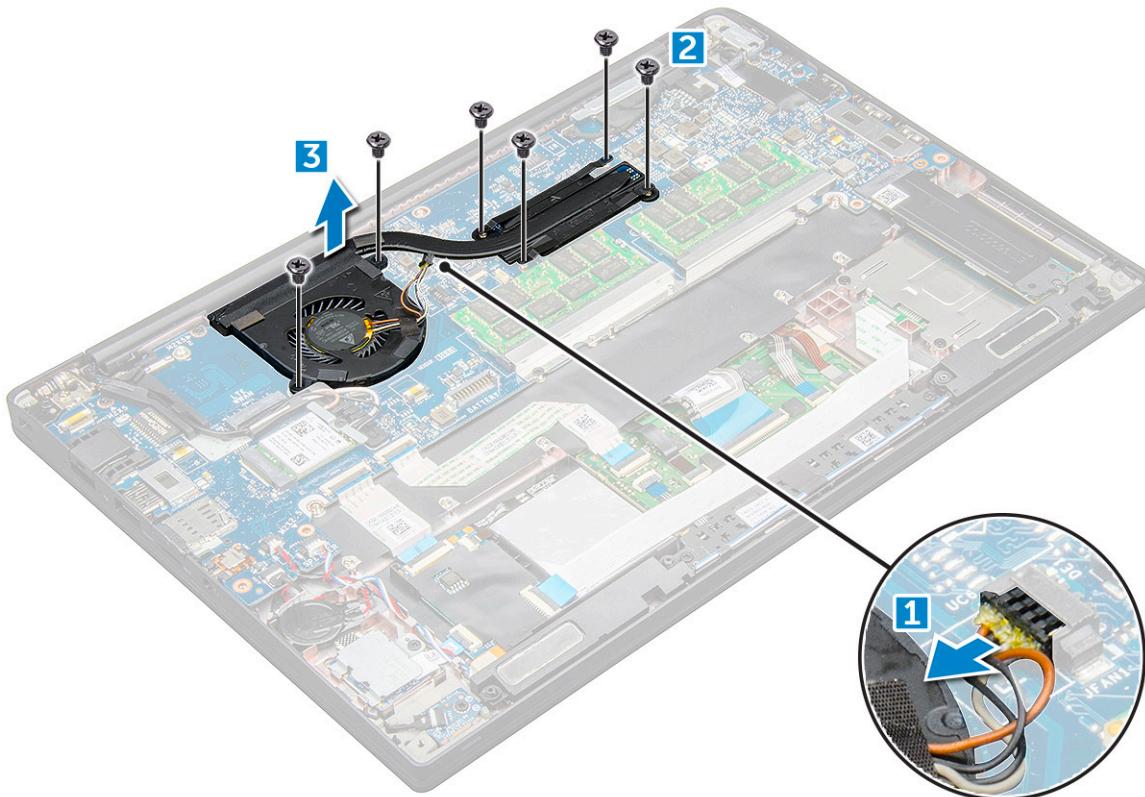
Removing heat sink assembly

Heat sink assembly comprises of heat sink and the system fan.

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [base cover](#)
 - b [battery](#)
- 3 To remove the heat sink assembly:

① | NOTE: To identify the number of screws, see [screw list](#).

- a Disconnect the fan cable from the system board [1].
- b Remove the M2.0 x 5.0 screws that secure the heat sink assembly to the system board [2].
- c Remove the screws in the order of the callout numbers as indicated on the heat sink.
- d Lift the heat sink assembly from the system board [3].



Installing heat sink assembly

Heat sink assembly comprises of heat sink and the system fan.

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

① | NOTE: Tighten the screws in the order of the callout numbers [1, 2, 3, 4] as indicated on the heat sink.

- 3 Connect the fan cable to the connector on the system board.
- 4 Install the :
 - a battery
 - b base cover
- 5 Follow the procedure in [After working inside your computer](#).

LED board

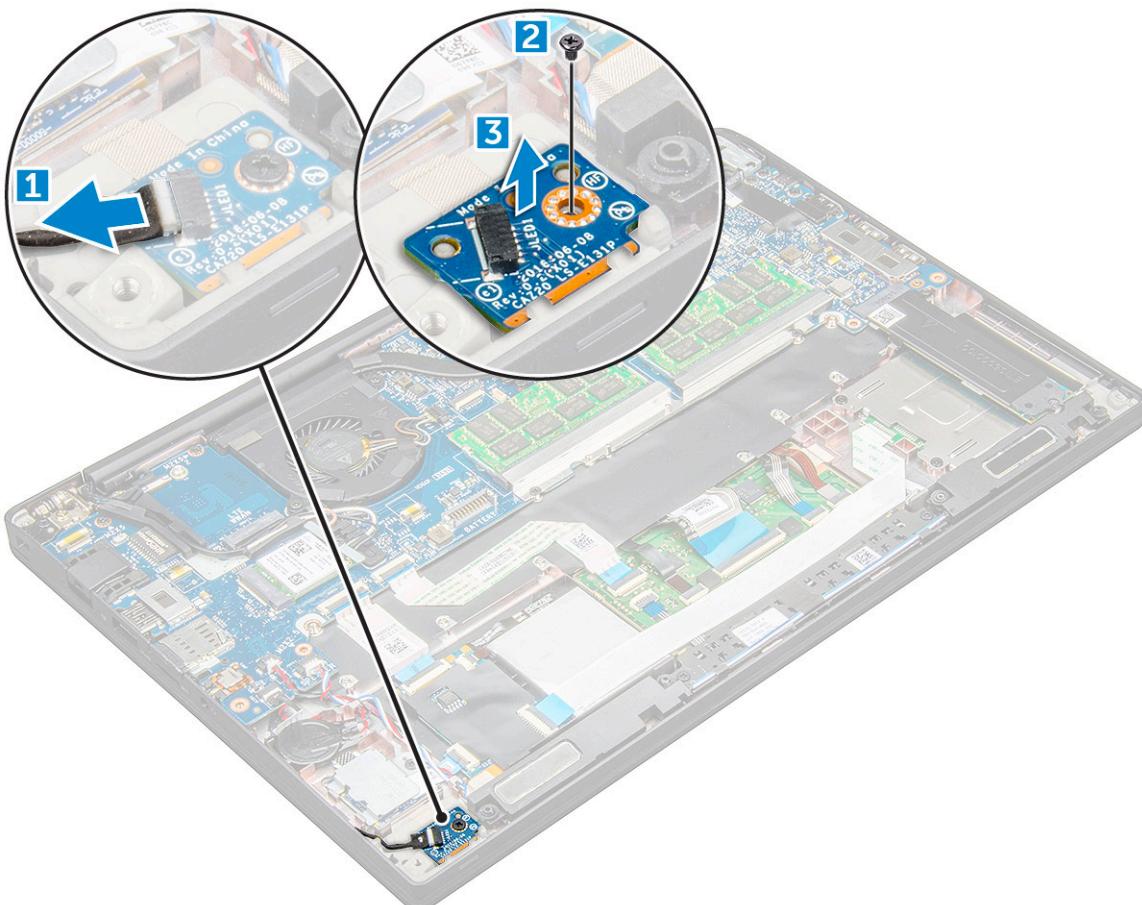
Removing LED board

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

- 2 Remove the :
 - a base cover
 - b battery
- 3 To remove the LED board:
 - a Disconnect the LED cable from the LED board [1].

CAUTION: Avoid pulling the cable as it would result in breaking the cable connector. Instead, use a scribe to push the edges of the cable connector to release the LED cable.

- b Remove the M2.0 x 3.0 screw that secures the LED board to the computer [2].
 - c Lift the LED board from the computer [3].



Installing LED board

- 1 Insert the LED board into the slot on the computer.
- 2 Tighten the M2.0 x 3.0screw to secure the LED board.
- 3 Connect the LED cable to the LED board.
- 4 Install the :
 - a battery
 - b base cover
- 5 Follow the procedure in [After working inside your computer](#).

Smart card module

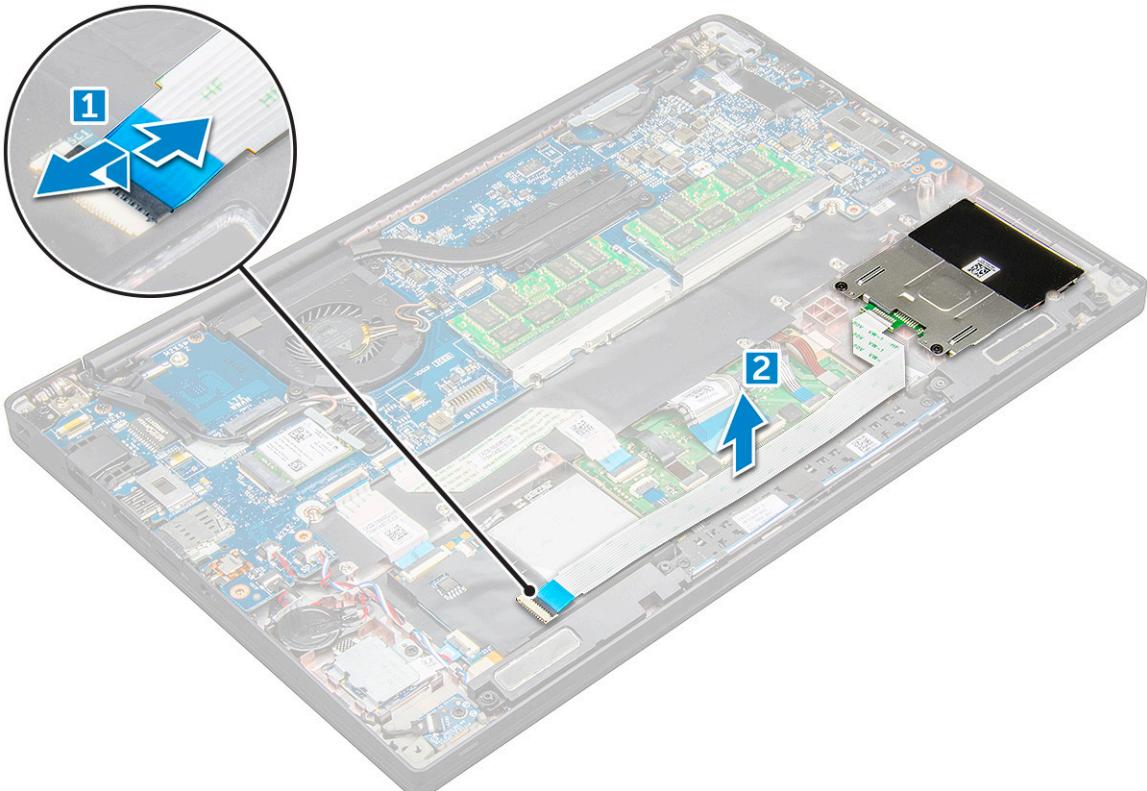
Removing smart card cage

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a base cover
 - b battery
 - c PCIe SSD card
- 3 To disconnect the smart card cable:
 - a Disconnect the smart card cable [1].

NOTE: Ensure to gently push the connector, to avoid damage to the smart card head.

- b Lift the smart card cable that is affixed to the touchpad module [2].

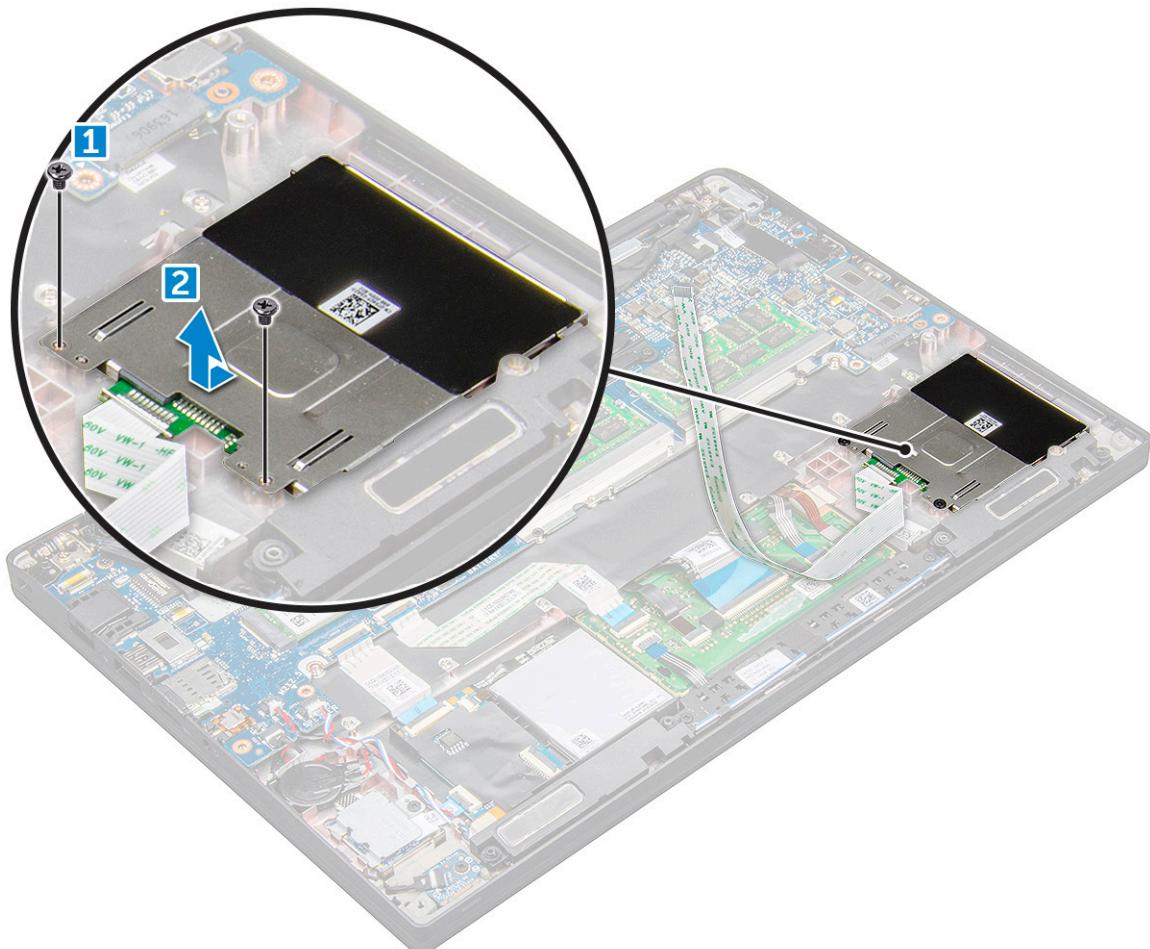
NOTE: Ensure to pull gently to release it with adhesive tape.



- 4 To remove the smart card cage:

NOTE: To identify the number of screws, see [screw list](#)

- a Remove the M2.0 x 3.0 screws (2) that secure the smart card cage to the computer [1].
- b Slide and lift the smart card cage from the computer [2].



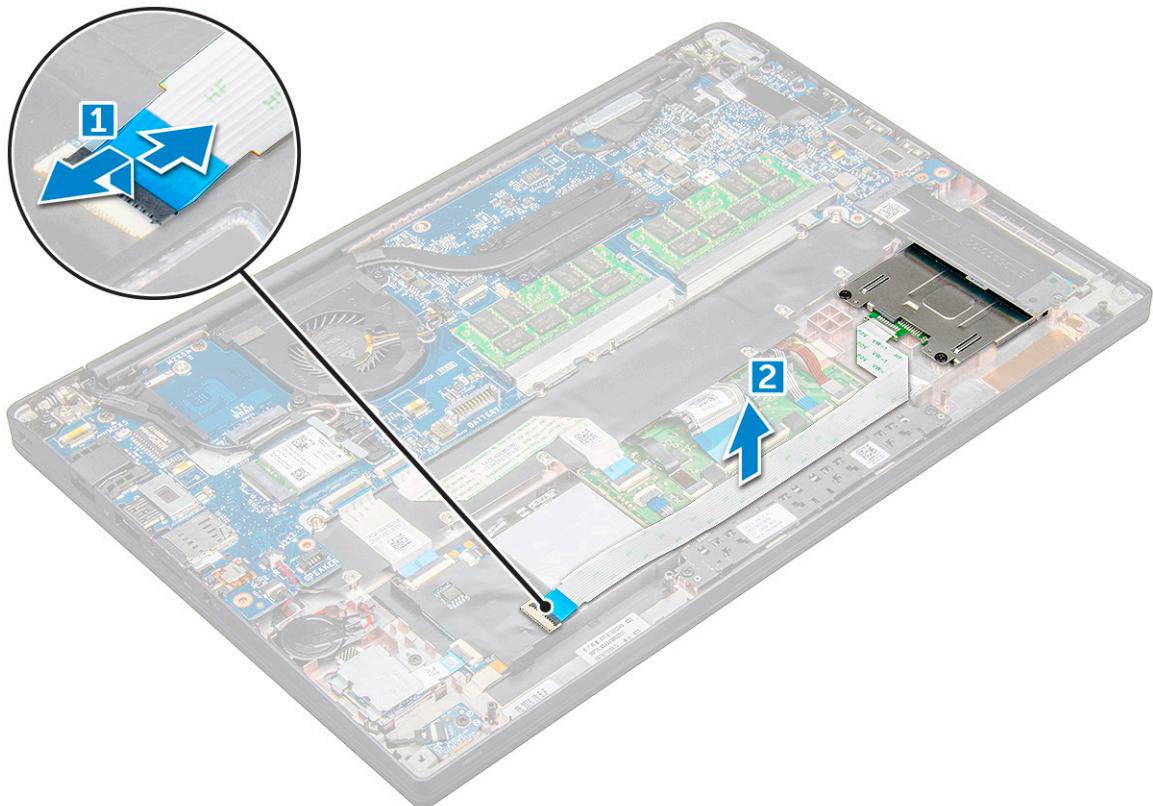
Installing smart card cage

- 1 Slide the smart card cage into the slot to align with the tabs on the computer.
- 2 Tighten the M2.0 x 3.0 screws to secure the smart card cage to the computer.
- 3 Affix the smart card cable and connect it to the connector on the computer .
- 4 Install the:
 - a PCIe SSD card
 - b battery
 - c base cover
- 5 Follow the procedure in [After working inside your computer](#).

Touchpad buttons board

Removing touchpad buttons board

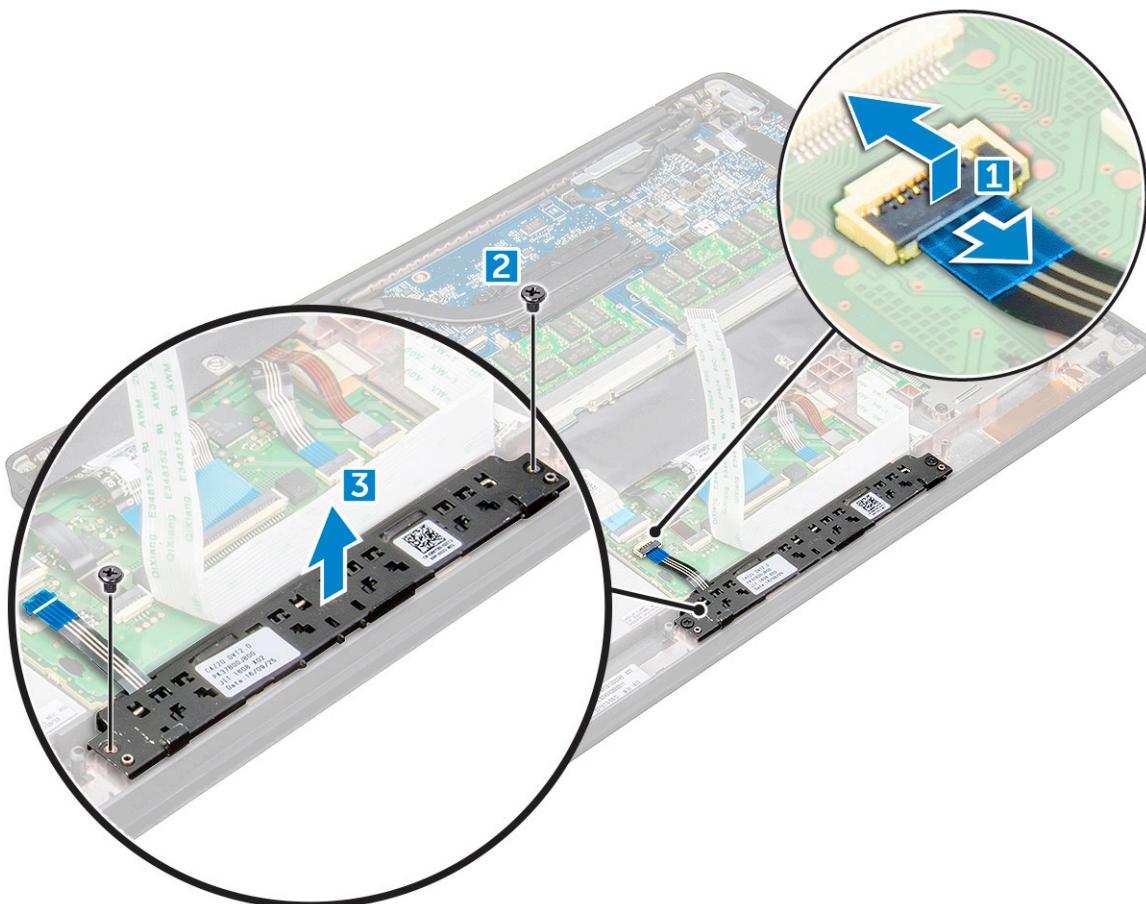
- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [base cover](#)
 - b [battery](#)
 - c [speaker](#)
- 3 To disconnect the smart card cable:
 - a Disconnect the smart card cable [1].
 - b Lift the smart card cable that is affixed to the computer [2] to reveal the touchpad buttons board cable.
 - c Remove the adhesive tape that secures the speaker cable to the touchpad panel [3].



- 4 To remove the touchpad buttons board:
 - a Disconnect the touchpad buttons board cable from the touchpad board [1].

NOTE: The touchpad buttons board cable is below the smart card cable. Ensure to lift the latch, to release the touchpad button board cable.
 - b Remove M2.0 x 3.0 screws (2) that secure the touchpad buttons board [2].

NOTE: To identify the screws, see [screw list](#).
 - c Lift the touchpad buttons board from the computer [3].



Installing touchpad buttons board

- 1 Insert the touchpad buttons board into the slot to align the tabs with the grooves on the computer.
- 2 Tighten the M2.0 x 3.0screws to secure the touchpad buttons board to the computer.
- 3 Connect the touchpad buttons board cable to the connector on the touchpad board.
- 4 Affix the smart card cable and connect it to the connector on the computer
- 5 Install the:
 - a speaker
 - b battery
 - c base cover
- 6 Follow the procedure in [After working inside your computer](#).

Power connector port

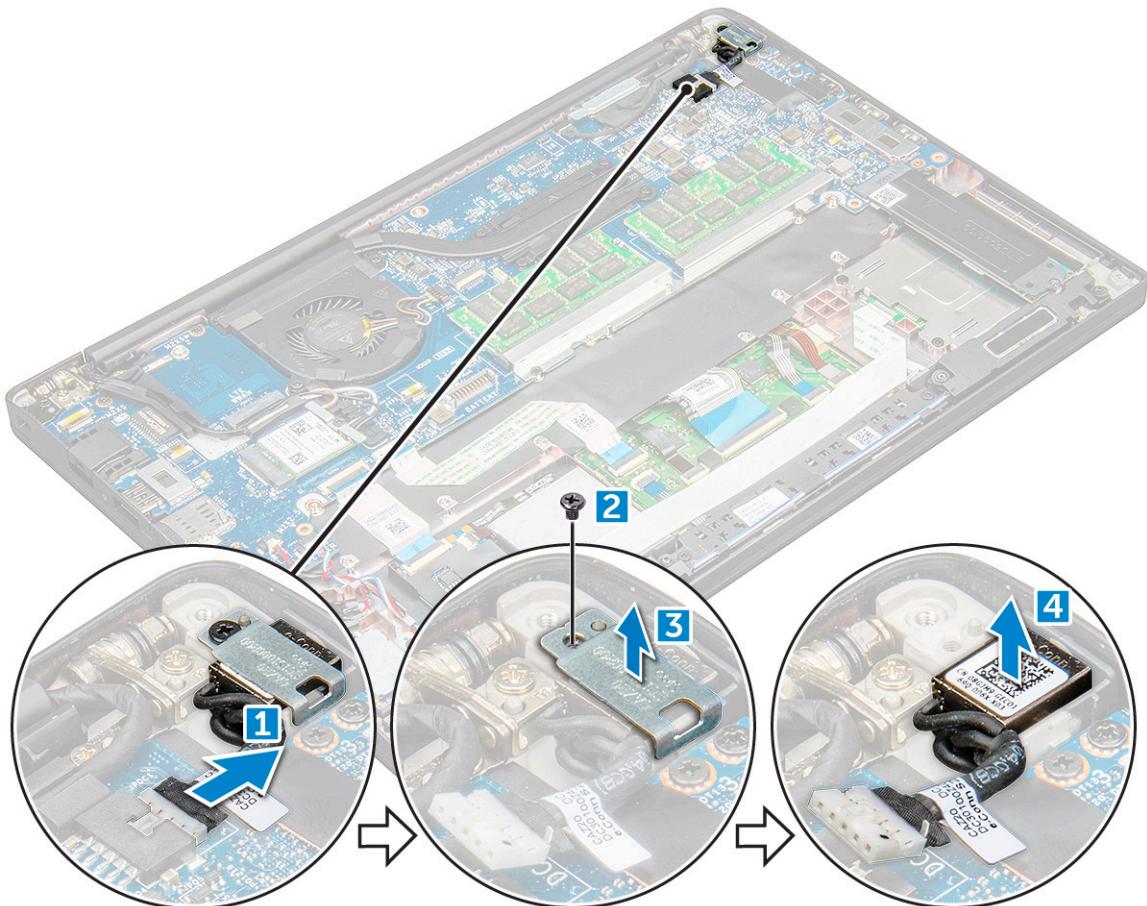
Removing power connector port

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the :
 - a base cover
 - b battery
- 3 To remove the power connector port:
 - a Disconnect the power connector port cable from the system board [1].

NOTE: Ensure to remove the adhesive tape that covers the connector.

NOTE: Use a plastic scribe to release the cable from the connector. Do not pull the cable as it may result in breakage

- b Remove the M2.0x3.0 screw (1) to release the metal bracket on the power connector port [2].
- c Lift the metal bracket from the computer [3].
- d the power connector port from the computer [4].



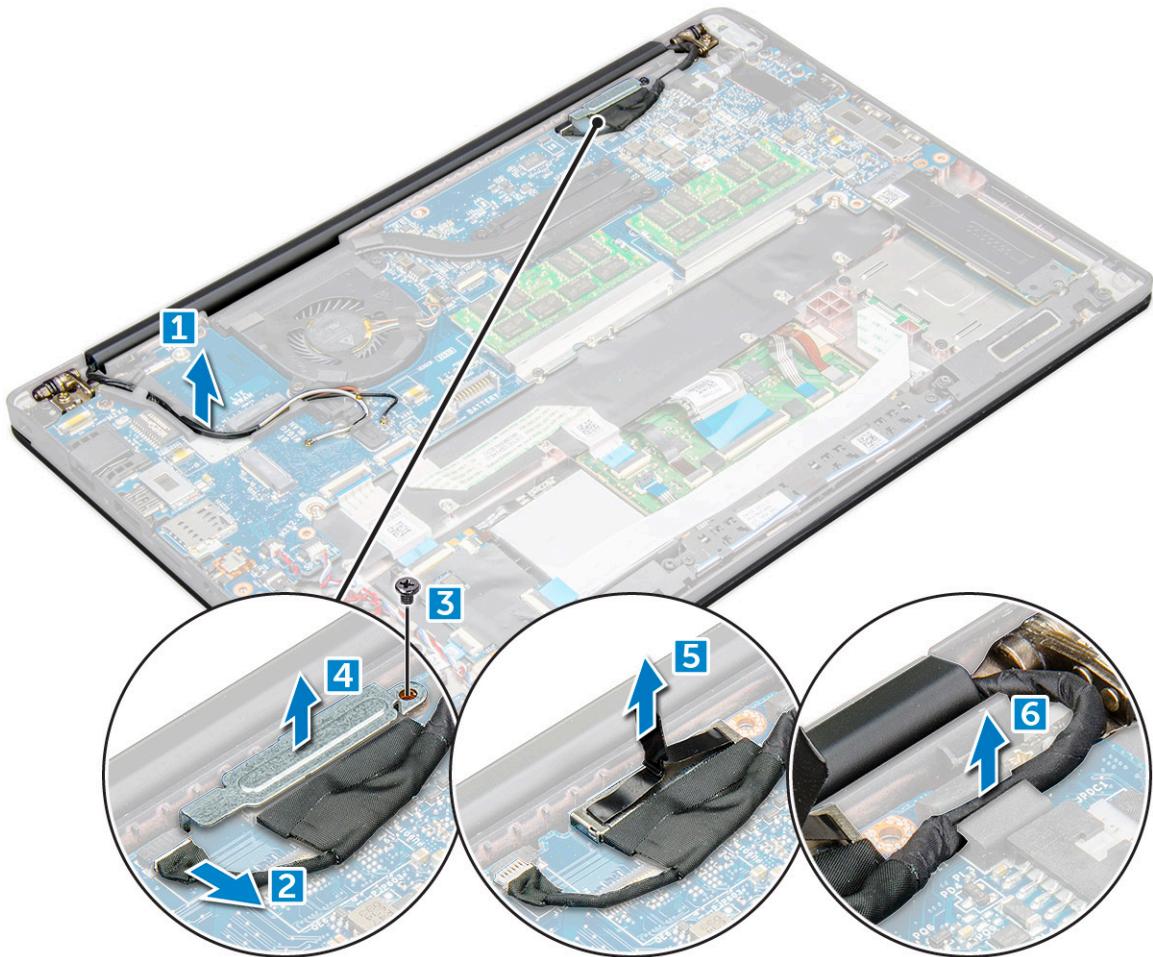
Installing power connector port

- 1 Install the power connector port into the slot on the computer.
- 2 Place the metal bracket on the power connector port.
- 3 Tighten the M2.0x3.0 screw to secure the power connector port to the computer.
- 4 Connect the power connector port 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](#).

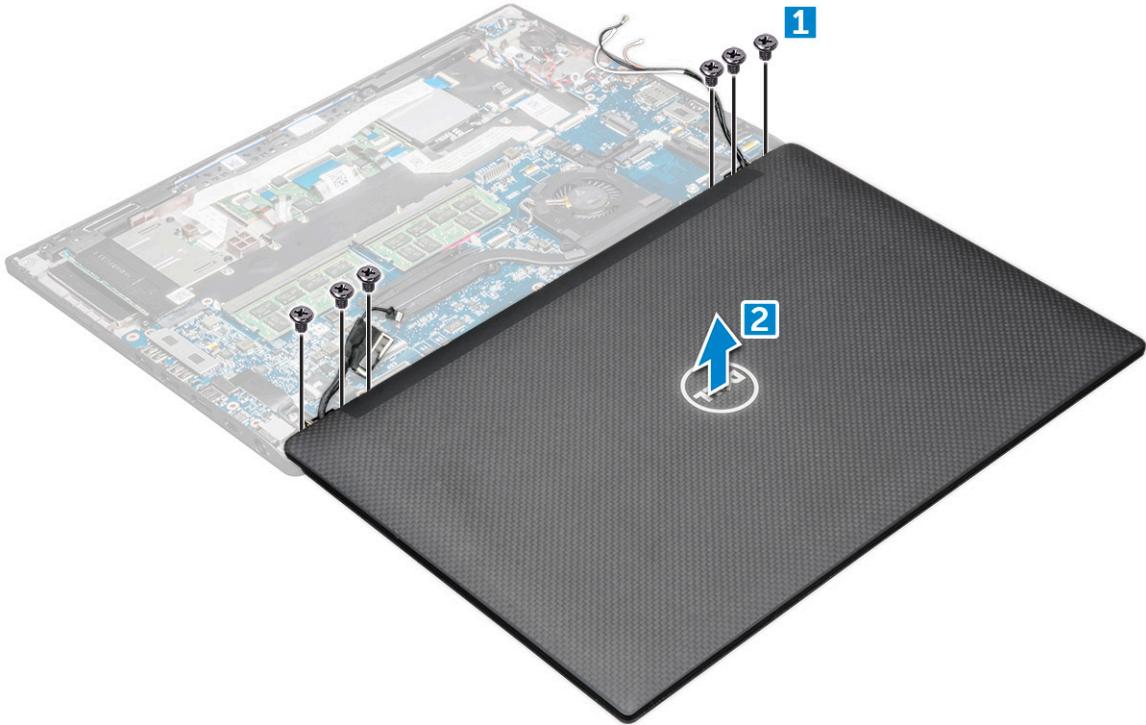
Display Assembly

Removing display assembly—with Touch

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a base cover
 - b battery
 - c WLAN card
 - d WWAN card
- 3 To remove the display assembly:
 - a Un route the WLAN and WWAN cables from the routing channels [1].
 - b Disconnect the IR camera cable from the system board [2].
 - c Remove the M2.0x3.0 screws that secures the eDP bracket [3].
 - d Lift the eDP bracket from the eDP cable [4].
 - e Lift the eDP cable to disconnect it from the connector on the system board [5].
 - f Un route the eDP cable from the routing channel [6].



- 4 To remove the display assembly:
 - a Open the display of the computer and lay it on a flat surface at 180 degree angle
 - b Remove the M2.5 x 4.0 screws that secure the display hinge to the display assembly [1].
 - c Lift the display assembly from the computer.



Installing display assembly—with touch

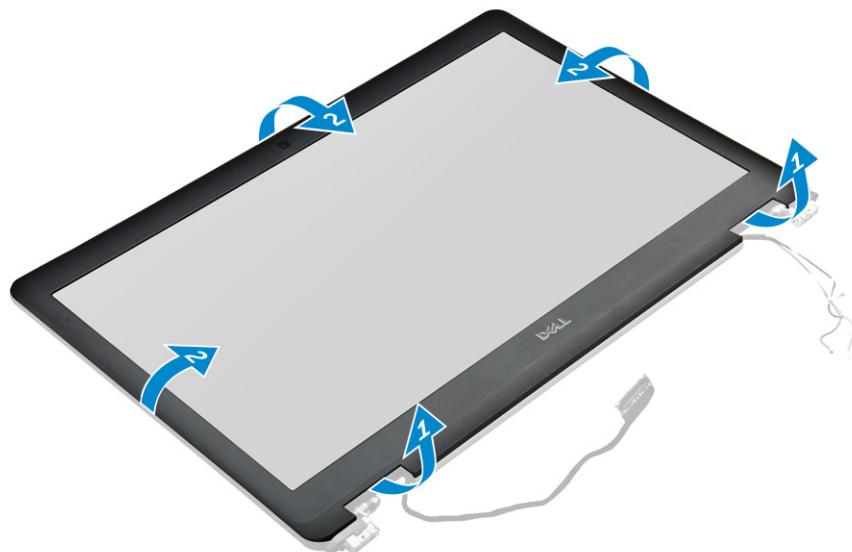
- 1 Place the base of the computer on a plane surface of a table and position it closer to the edge of the table.
- 2 Install the display assembly to align it with the display hinge holders on the system.
- 3 Holding the display assembly, tighten the M2.5 x 4.0 screws to secure the display hinges on the system display assembly with the system unit.
- 4 Affix the tapes to secure the eDP cable (display cable).
- 5 Connect the eDP cable to the connector on the system board.
- 6 Install the eDP metal bracket on the eDP cable and tighten the M2.0x3.0 screws.
- 7 Connect the IR camera cable to the system board.
- 8 Route the WLAN and WWAN cables through the routing channels.
- 9 Install the:
 - a [WLAN card](#)
 - b [WWAN card](#)
 - c [battery](#)
 - d [base cover](#)
- 10 Follow the procedure in [After working inside your computer](#).

Display Bezel

Removing display bezel

ⓘ | NOTE: The display bezel removal procedure is applicable only for non-touch systems.

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [base cover](#)
 - b [battery](#)
 - c [WLAN card](#)
 - d [WWAN card](#)
 - e [display assembly](#)
- 3 To remove the display bezel:
 - a Use a plastic scribe to loosen the bottom edge of the display [1].
 - b Loosen the tabs on the edges of the display [2].



ⓘ | NOTE: Adhesive is used to secure the display bezel to the display panel.

- 4 Remove the display bezel from the display assembly.

Installing display bezel

ⓘ | NOTE: The display bezel installation procedure is applicable only for non-touch systems.

- 1 Place the display bezel on the display assembly.
- 2 Press the edges of the display bezel until it clicks onto the display assembly.

ⓘ | NOTE: Adhesive is used to secure the display bezel to the display panel.

- 3 Install the:
 - a [display assembly](#)
 - b [WLAN card](#)
 - c [WWAN card](#)
 - d [battery](#)
 - e [base cover](#)
- 4 Follow the procedure in [After working inside your computer](#).

LCD panel

Removing LCD panel

NOTE: The LCD panel removal procedure is applicable only for touch systems.

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

2 Remove the:

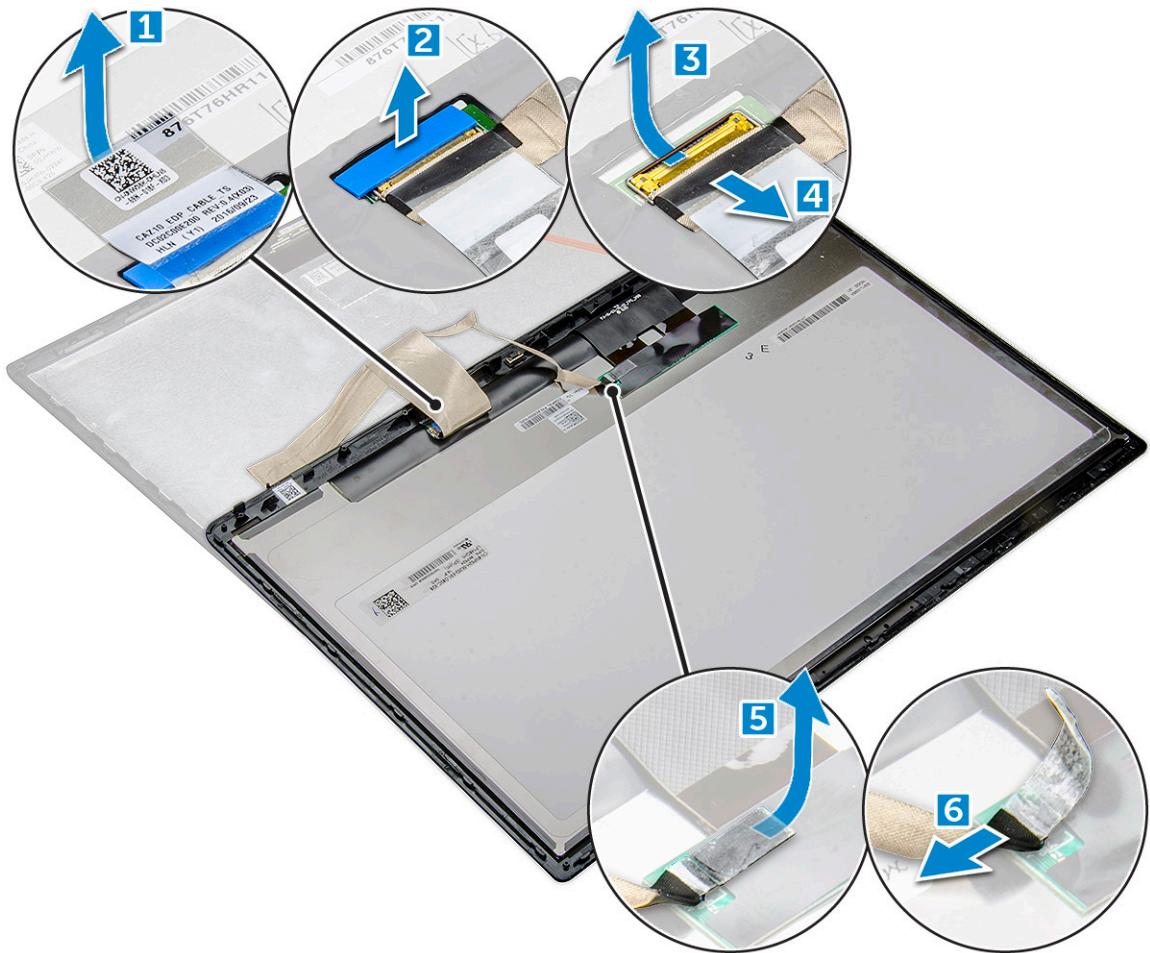
- a base cover
- b battery
- c WLAN card
- d WWAN card
- e display assembly

3 To remove the LCD panel:

- a Use a plastic scribe to loosen the edges of the LCD panel.



- b Flip the LCD screen over from the top.
- c Peel the adhesive tape [1], Mylar shield [2].
- d Release the latch [3], and disconnect the eDP cable [4].
- e Peel the adhesive tape [5], and disconnect the IR cable [6].



- 4 Remove the display bezel from the display assembly.

Installing LCD panel

NOTE: The LCD panel installation procedure is applicable only for touch systems.

- 1 Place the LCD panel on the display assembly.
- 2 Reconnect the IR cable and eDP cable.
- 3 Replace the adhesive tapes and the Mylar shield.
- 4 Press the edges of the LCD panel until it clicks into the display assembly.
- 5 Install the:
 - a display assembly
 - b WLAN card
 - c WWAN card
 - d battery
 - e base cover
- 6 Follow the procedure in [After working inside your computer](#).

Camera

Removing camera

The removal procedure of the camera is only for a touch display.

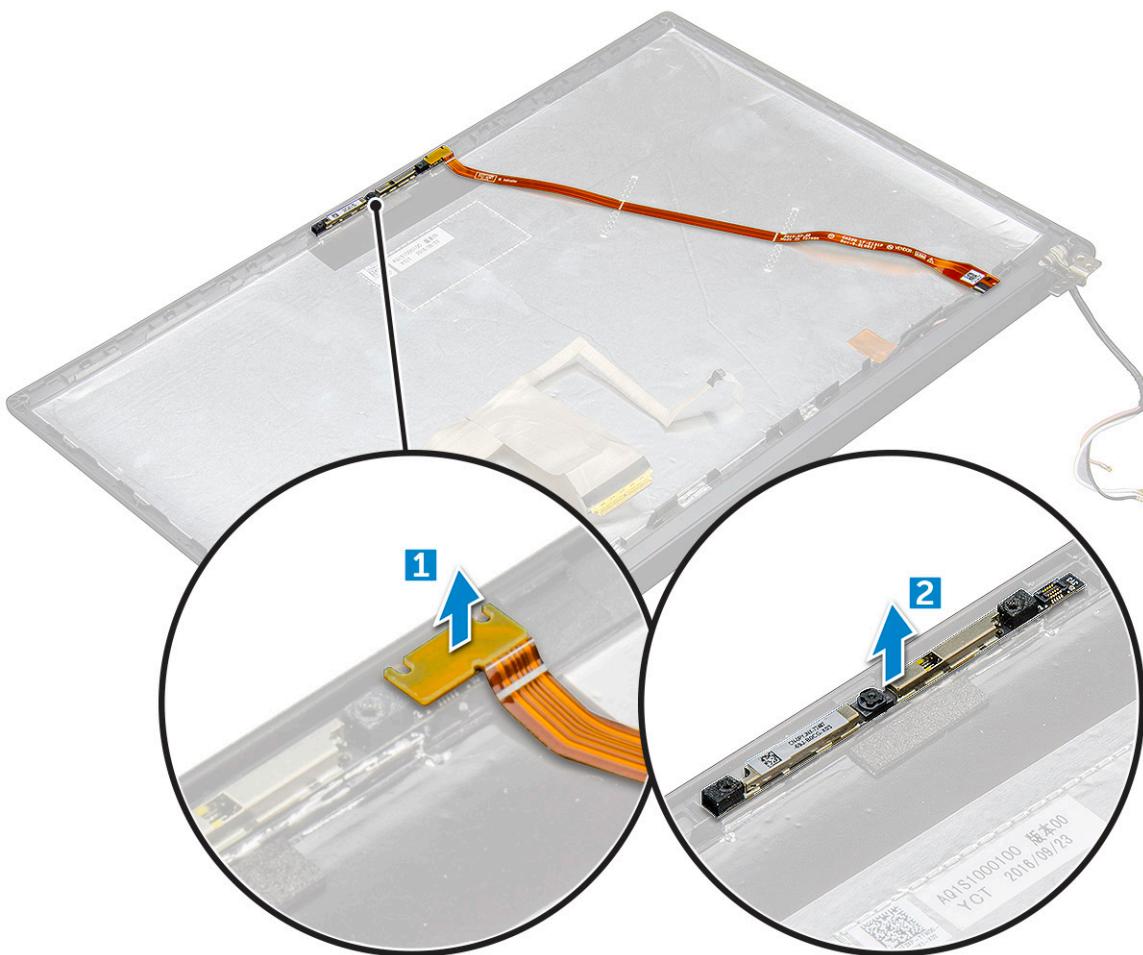
1 Follow the procedure in [Before working inside your computer](#).

2 Remove the:

- a base cover
- b WLAN card
- c WWAN card
- d battery
- e display assembly
- f display bezel

3 To remove the camera module:

- a Lift the plastic bracket to disconnect the camera cable [1].
- b Lift the camera from the display [2].



Installing camera

The installation procedure is applicable only for systems shipping with touch display assembly.

1 Insert the camera module into the slot on the display assembly.

2 Connect the camera cable.

3 Install the:

- a display bezel
- b display assembly
- c WLAN card
- d WWAN card
- e battery
- f base cover

4 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 of the Field Service Manual. 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 located 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](#).

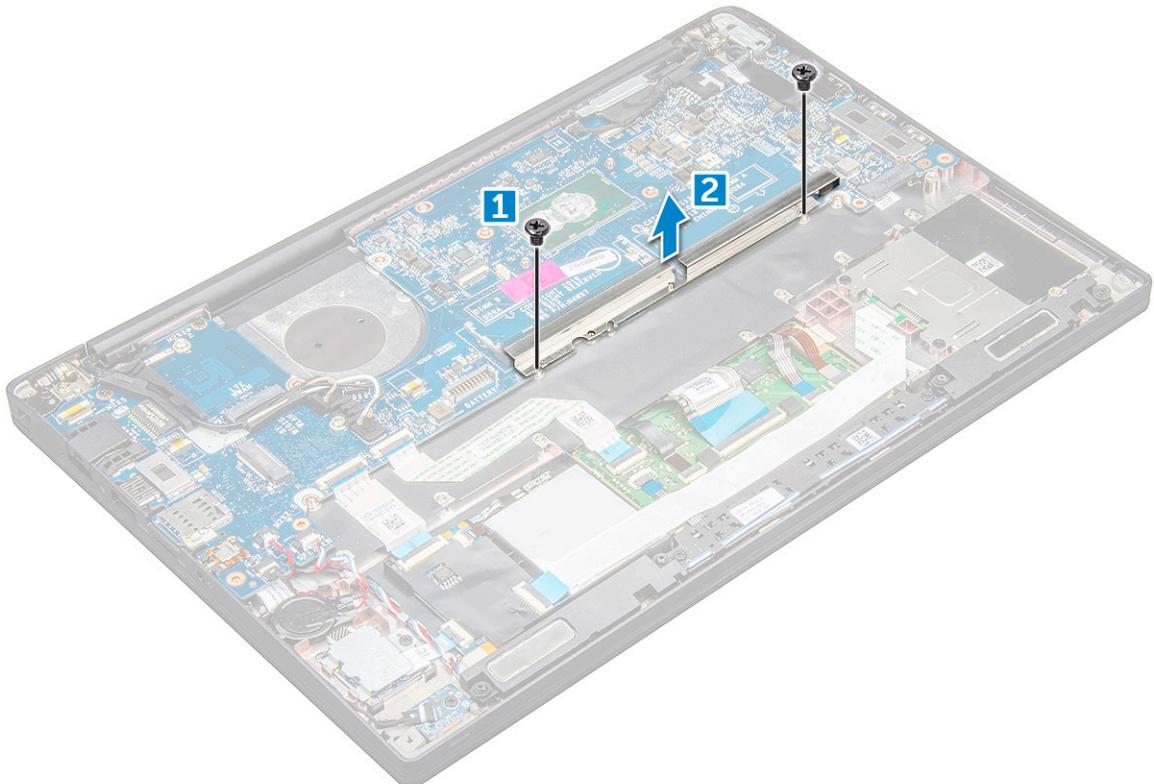
1 If your computer is shipped with a WWAN card, then the removal of a blank SIM card tray is a requirement.

2 Remove the:

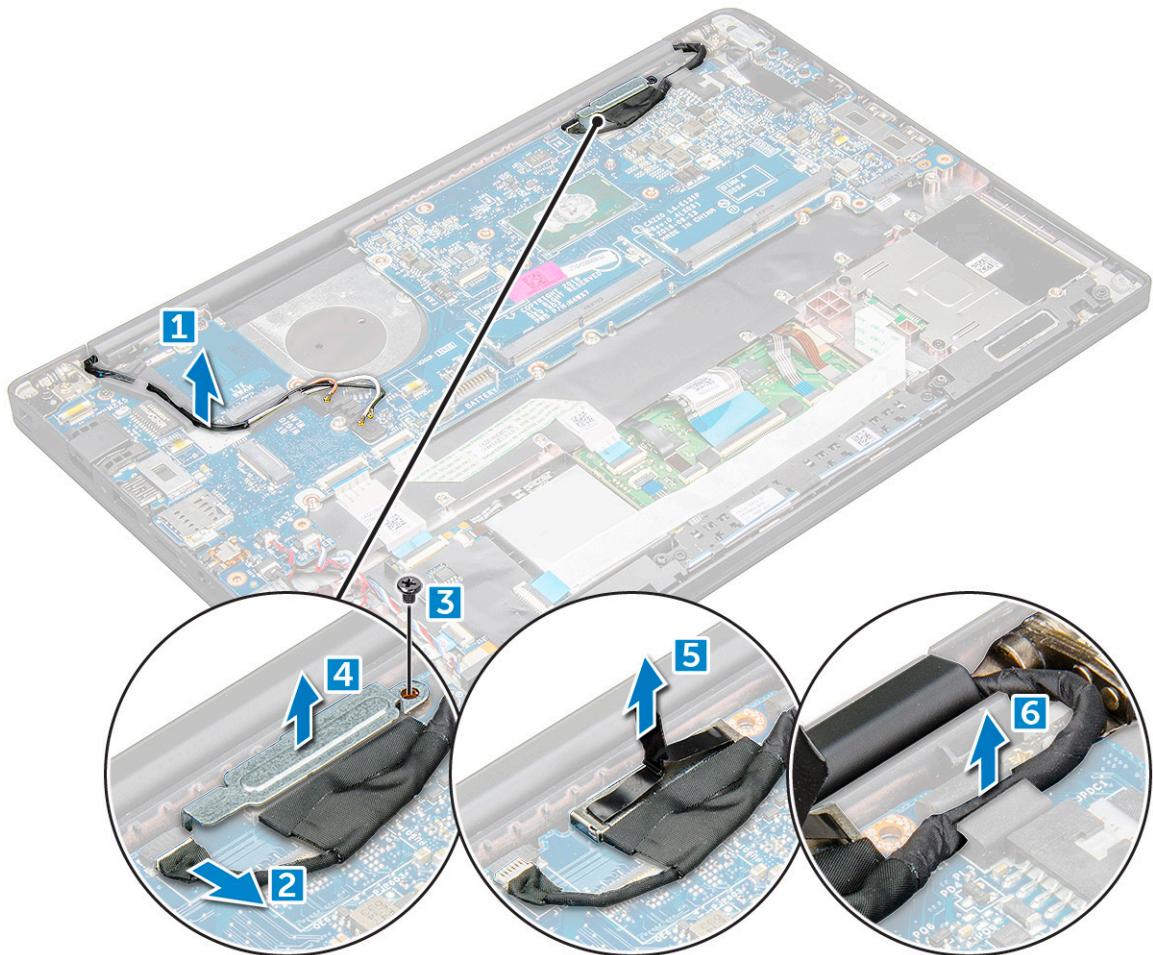
- a SIM card
- b dummy SIM card tray
- c base cover
- d battery
- e memory module
- f PCIe SSD
- g WLAN card
- h WWAN card
- i heat sink assembly

2 To identify the screws, see [screw list](#)

3 Remove the M2.0 x 3.0 screws that secure memory module bracket to the system board [1].



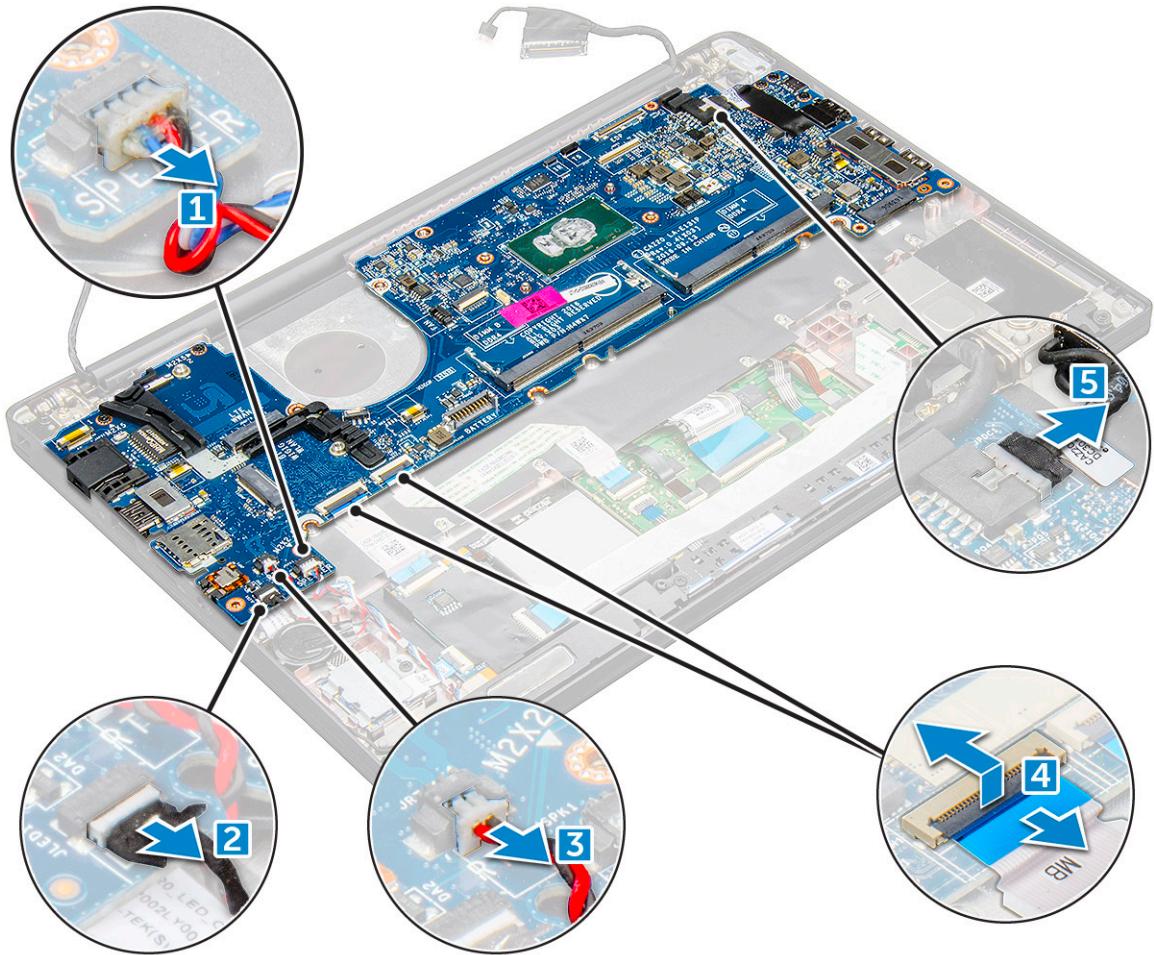
- 4 To disconnect the eDP cable:
 - a Unroute the WLAN and WWAN cables from the routing channels [1].
 - b Disconnect the IR cable from the system board [2].
 - c Remove the M2.0 x 3.0 screw that secures the eDP cable [3].
 - d Remove the eDP cable bracket [4].
 - e Disconnect the eDP cable from the system board [5].
 - f Unroute the eDP cable from the routing clip [6].



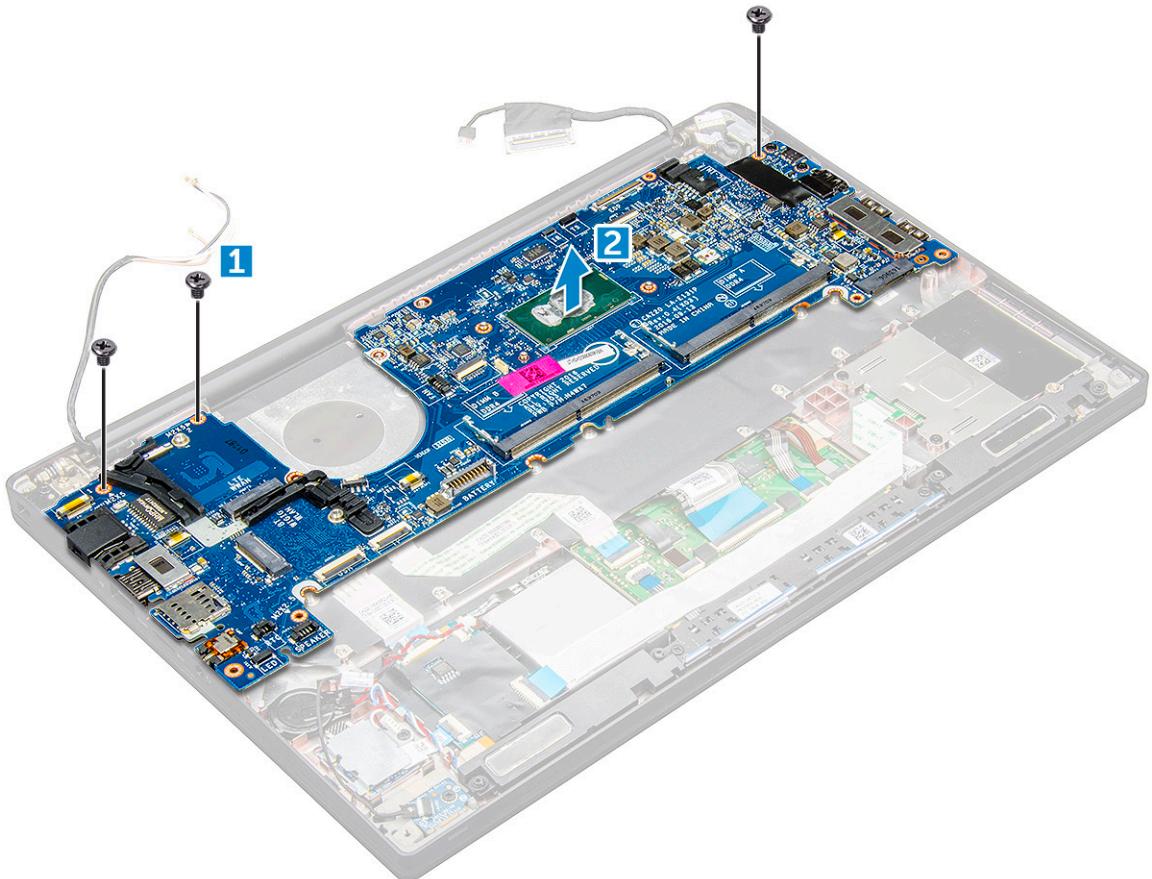
5 To disconnect the cables:

NOTE: To disconnect the speaker, LED board, coin cell battery and the power connector port cables, use a plastic scribe to release the cables from the connectors. Do not pull the cable as it may result in breakage

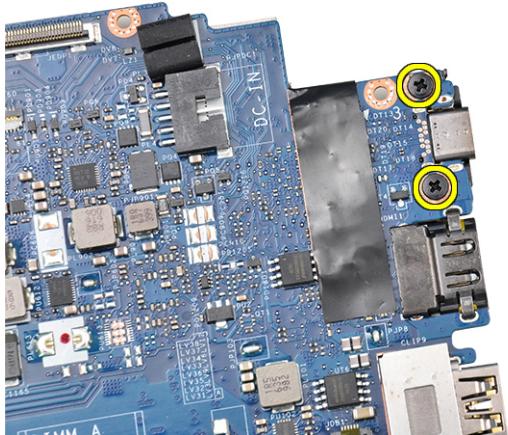
- a speaker cable [1]
- b LED board cable [2]
- c coin cell battery cable [3]
- d touchpad cable and USH board cable [4]
- e power connector port [5]



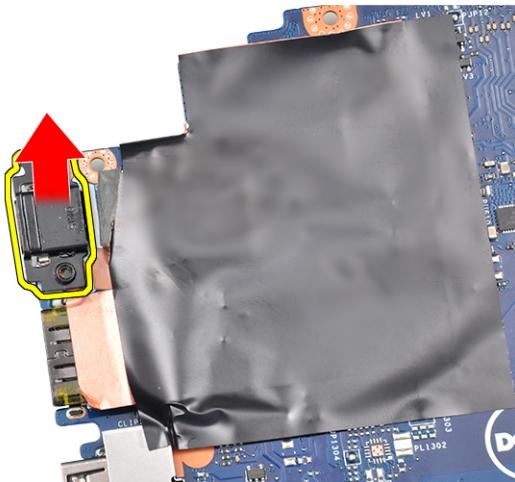
- 6 To remove the system board:
 - a Remove the USB type-C bracket.
Image does not display the USB type-C bracket removal.
 - b Remove the M2.0 x 5.0 screws that secure the system board [1].
 - c Lift the system board away from the computer.



- 7 Remove the M2.0x5.0 screws that secure the USB Type-C bracket.



- 8 Flip the system board, peel off the tapes securing the bracket and remove the USB Type-C port from the system board.



Installing system board

- 1 Place the USB Type-C port along with the bracket in the slot on the system board.
- 2 Affix the tape to secure the Type-C port bracket.
- 3 Flip the system board and tighten the M2.0x5.0 screws to secure the USB type-C port.
- 4 Align the system board with the screw holders on the computer.
- 5 Tighten the M2.0 x 5.0 screws to secure the system board to the computer.
- 6 Connect the speaker, power connector, LED board, touchpad, and USH cables to the connectors on the system board.
- 7 Connect the eDP cable to the connector on the system board.
- 8 Place the metal bracket over the eDP cable and tighten the M2.0 x 5.0 screws to secure it.
- 9 Remove the metal bracket from the memory module connectors of the system board that was removed.
- 10 Place the metal bracket over the memory module connectors and tighten the M2.0 x 3.0 screws to secure it to the computer.

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

- 11 Install the:
 - a coin cell battery
 - b heat sink
 - c WLAN card
 - d WWAN card
 - e SSD card
 - f memory module
 - g speaker
 - h battery
 - i base cover
- 12 Follow the procedure in [After working inside your computer](#).

Keyboard

Removing keyboard assembly

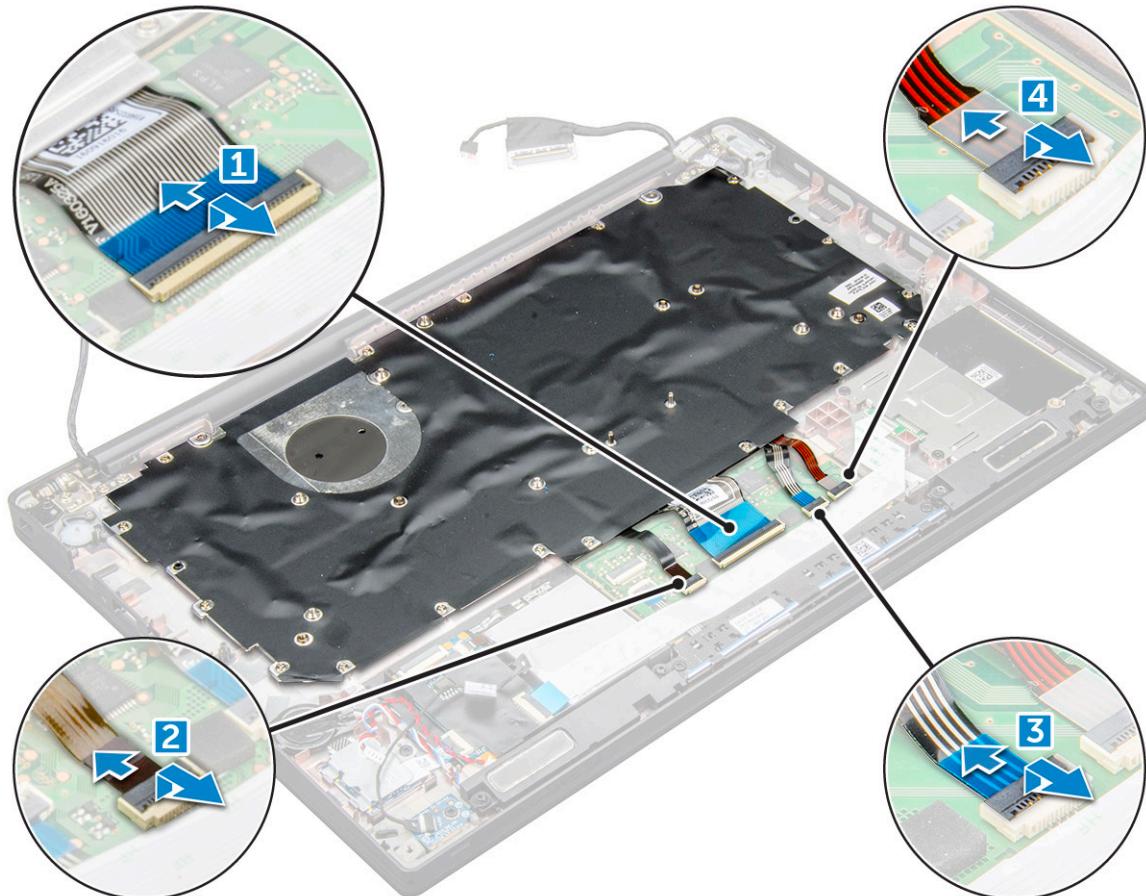
NOTE: The keyboard and the keyboard tray together are called the keyboard assembly.

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

- b battery
- c memory module
- d PCIe SSD
- e WLAN card
- f WWAN card
- g heat sink assembly
- h system board

3 Disconnect the cables from the palmrest end:

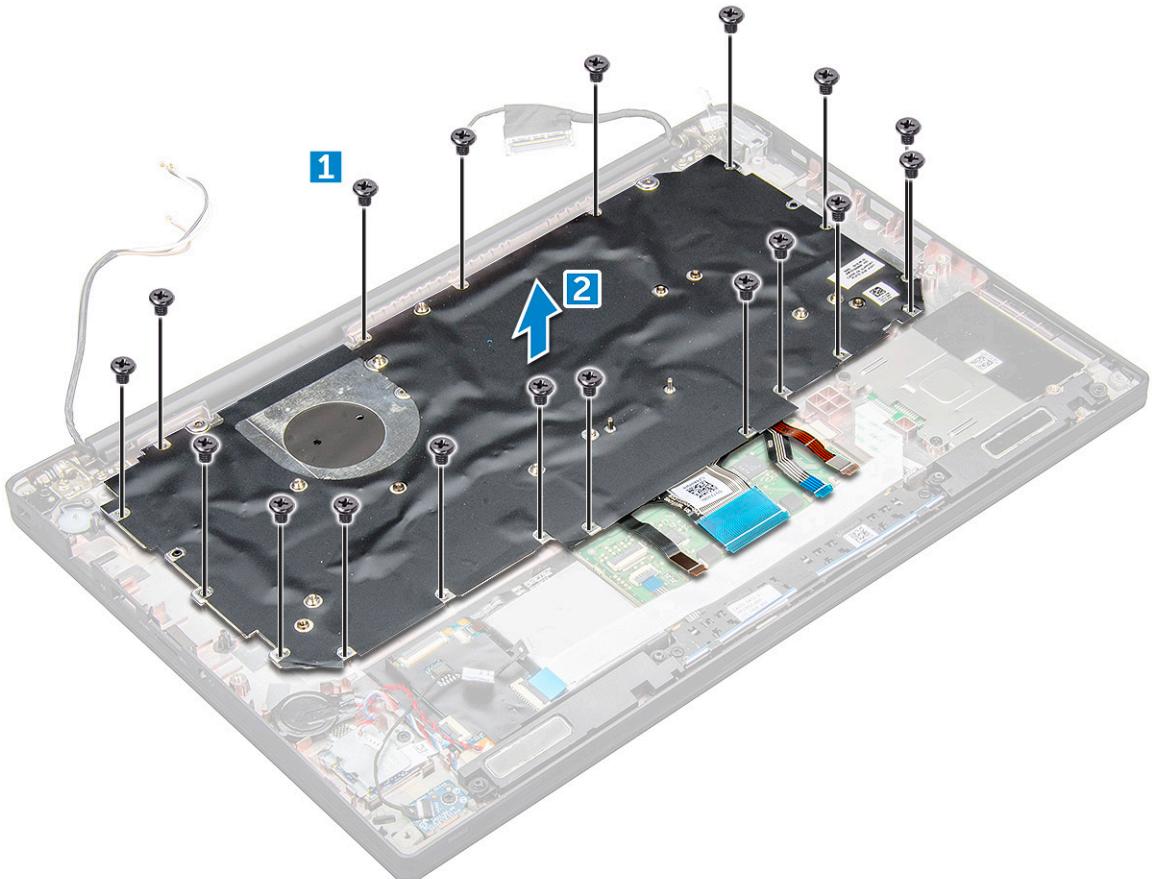
- a keyboard cable [1]
- b keyboard backlight cable [2]
- c Touchpad and USH board cables [3,4]



4 To remove the keyboard assembly:

i | NOTE: To identify the screws, see [screw list](#)

- a Remove the M2.0 x 2.5 screws that secure the keyboard [1].
- b Lift the keyboard assembly from the chassis [2].



Removing keyboard from keyboard tray

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

Installing keyboard to 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 assembly](#).

Installing keyboard assembly

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

- 1 Align the keyboard assembly with the screw holders on the computer.
- 2 Tighten the M2.0 x 2.5 screws that secure the keyboard to the chassis.
- 3 Connect the keyboard cable, keyboard backlight cable, and touchpad cable to the connectors on the touchpad buttons board.
- 4 Install the:

- a system board
- b heat sink
- c WLAN card
- d WWAN card
- e SSD card
- f memory module
- g battery
- h base cover

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

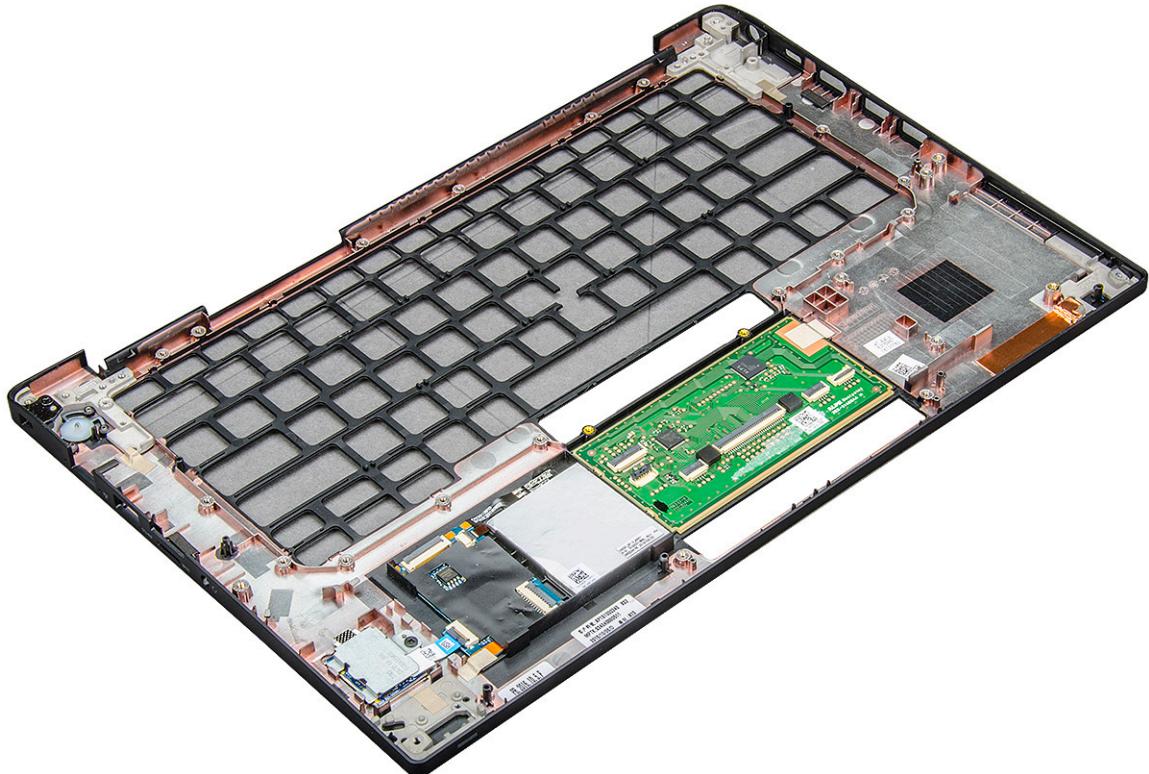
Palm rest

Replacing palm rest

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

2 Remove the:

- a base cover
- b battery
- c memory module
- d PCIe SSD
- e WLAN card
- f WWAN card
- g power connector port
- h heat sink assembly
- i coin cell battery
- j speaker
- k display assembly
- l system board
- m keyboard



The component you are left with is the palm rest.

- 3 Replace the palm rest.
- 4 Install the:
 - a keyboard
 - b system board
 - c display assembly
 - d speaker
 - e coin cell battery
 - f heatsink
 - g power connector port
 - h WLAN card
 - i WWAN card
 - j PCIe SSD
 - k memory
 - l battery
 - m base cover
- 5 Follow the procedure in [After working inside your computer](#).

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
- Updating BIOS using USB flash drive
- 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
System Information	This section lists the primary hardware features of your computer. <ul style="list-style-type: none">System Information: Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date, Manufacture Date, Express Service Code, the Signed Firmware update—enabled by defaultMemory Information: Displays Memory Installed, Memory Available, Memory Speed, Memory Channels Mode, Memory Technology, DIMM A Size, DIMM B Size,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 TechnologyDevice 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
Battery Information	Displays the battery status health and whether the AC adapter is installed.
Boot Sequence	Allows you to change the order in which the computer attempts to find an operating system. <ul style="list-style-type: none">Diskette DriveInternal HDDUSB Storage DeviceCD/DVD/CD-RW DriveOnboard NIC
Boot sequence options	<ul style="list-style-type: none">Windows boot managerWindowsIns

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

System Configuration screen options

Option	Description
Integrated NIC	Allows you to configure the integrated network controller. The options are:
	<ul style="list-style-type: none"> Disabled Enabled Enable UEFI network stack: This option is enabled by default. Enabled w/PXE
Parallel Port	Allows you to configure the parallel port on the docking station. The options are:
	<ul style="list-style-type: none"> Disabled AT: This option is enabled by default. PS2 ECP
Serial Port	Allows you to configure the integrated serial port. The options are:
	<ul style="list-style-type: none"> Disabled COM1: This option is enabled by default. COM2 COM3 COM4
SATA Operation	Allows you to configure the internal SATA hard-drive controller. The options are:
	<ul style="list-style-type: none"> Disabled AHCI RAID On: This option is enabled by default.
Drives	Allows you to configure the SATA drives on board. All drives are enabled by default. The options are:
	<ul style="list-style-type: none"> SATA-0 M.2 PCI-e SSD-0 SATA-2

Option	Description
SMART Reporting	This field controls whether hard drive errors for integrated drives are reported during system startup. This technology is part of the SMART (Self-Monitoring Analysis and Reporting Technology) specification. This option is disabled by default. <ul style="list-style-type: none"> • Enable SMART Reporting
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: <ul style="list-style-type: none"> • Enable USB Boot Support—enabled by default • Enable the Thunderbolt ports—enabled by default • Always Allow dell docks—enabled by default • Enable External USB Port—enabled by default • Enable Thunderbolt Boot Support • Enable Thunderbolt (and PCIE behind TBT) Preboot • Security level-no security • Security level-user configuration—enabled by default • Security level-secure connect • Security level- Display port only <p>(i) NOTE: USB keyboard and mouse always work in the BIOS setup irrespective of these settings.</p>
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: <ul style="list-style-type: none"> • Enable Microphone—by default enable • Enable Internal Speaker—by default enable
Keyboard Illumination	This field lets you choose the operating mode of the keyboard illumination feature. The keyboard brightness level can be set from 0% to 100%. The options are: <ul style="list-style-type: none"> • Disabled—enabled by default • Dim (50%) • Bright
Keyboard Backlight with AC	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.
Keyboard Backlight Timeout on AC	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: <ul style="list-style-type: none"> • 5 sec

Option	Description
	<ul style="list-style-type: none"> • 10 sec—enabled by default • 15 sec • 30 sec • 1 min • 5 min • 15 min • Never
Keyboard Backlight Timeout on Battery	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:
	<ul style="list-style-type: none"> • 5 sec • 10 sec—enabled by default • 15 sec • 30 sec • 1 min • 5 min • 15 min • Never
Touchscreen	It controls whether the screen is enabled or disabled. This option is enabled by default.
Unobtrusive Mode	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.
Miscellaneous Devices	Allows you to enable or disable the following devices: <ul style="list-style-type: none"> • Enable Camera—enabled by default • Secure Digital (SD) card—enabled by default • Secure Digital (SD) card boot • 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.

(i) | **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.
	(i) 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.
	(i) NOTE: Successful password changes take effect immediately.

Option	Description
	Default setting: Not set
System Password	Allows you to set, change, or delete the system password. i NOTE: Successful password changes take effect immediately. Default setting: Not set
Internal HDD-2 Password	Allows you to set, change, or delete the administrator password. i 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. i 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. <ul style="list-style-type: none"> • min-4—by default, if you want to change you can increase the number • 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: <ul style="list-style-type: none"> • Disabled • Reboot bypass Default setting: Disabled
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.
TPM 2.0 Security	Allows you to enable the Trusted Platform Module (TPM) during POST. The options are: <ul style="list-style-type: none"> • UEFI capsule Firmware updates—enabled by default • TPM On—enabled by default • Clear • PPI Bypass for Enable Commands • 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

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

Secure Boot screen options

Option	Description
Secure Boot Enable	<p>This option enables or disables the Secure Boot feature.</p> <ul style="list-style-type: none"> Disabled Enabled <p>Default setting: Enabled</p>
Expert Key Management	<p>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:</p> <ul style="list-style-type: none"> PK—enabled by default KEK db dbx <p>If you enable the Custom Mode, the relevant options for PK, KEK, db, and dbx appear. The options are:</p> <ul style="list-style-type: none"> 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

Option	Description
	<ul style="list-style-type: none"> • Delete—Deletes the selected key • Reset All Keys—Resets to default setting • Delete All Keys—Deletes all the keys <p>NOTE: 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
Intel SGX Enable	<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"> • Disabled • Enabled <p>Default setting: Enabled</p>
Enclave Memory Size	<p>This option sets SGX Enclave Reserve Memory Size. The options are:</p> <ul style="list-style-type: none"> • 32 MB • 64 MB • 128 MB—enabled by default

Performance screen options

Option	Description
Multi-Core Support	<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"> • Enable Multi-Core Support <p>Default setting: The option is enabled.</p>
Intel SpeedStep	<p>Allows you to enable or disable the Intel SpeedStep feature.</p> <ul style="list-style-type: none"> • Enable Intel SpeedStep <p>Default setting: The option is enabled.</p>
C-States Control	<p>Allows you to enable or disable the additional processor sleep states.</p> <ul style="list-style-type: none"> • C states <p>Default setting: The option is enabled.</p>
Intel TurboBoost	<p>Allows you to enable or disable the Intel TurboBoost mode of the processor.</p> <ul style="list-style-type: none"> • Enable Intel TurboBoost

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

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: <ul style="list-style-type: none"> · Disabled · Every Day · Weekdays · Select Days Default setting: Disabled
USB Wake Support	Allows you to enable USB devices to wake the system from Standby. <p>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.</p> <ul style="list-style-type: none"> · 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. 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.
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

Option	Description
	Default setting: Disabled
Primary Battery Charge Configuration	Allows you to select the charging mode for the battery. The options are: <ul style="list-style-type: none"> 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. <p>NOTE: All charging mode may not be available for all the batteries. To enable this option, disable the Advanced Battery Charge Configuration option.</p>
Sleep mode	<ul style="list-style-type: none"> OS Automatic selection—enabled by default Force S3
Type-C connector power	<ul style="list-style-type: none"> 7.5 Watts 15 Watts—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
Keypad (Embedded)	Allows you to choose one of two methods to enable the keypad that is embedded in the internal keyboard. <ul style="list-style-type: none"> Fn Key Only—default. By Numlock <p>NOTE: When setup is running, this option has no effect. Setup works in Fn Key Only mode.</p>
Mouse/Touchpad	Allows you to define how the system handles mouse and touch pad input. The options are: <ul style="list-style-type: none"> Serial Mouse PS2 Mouse Touchpad/PS-2 Mouse: This option is enabled by default.
Numlock Enable	Allows you to enable the Numlock option when the computer boots. Enable Network. This option is enabled by default.
Fn Key Emulation	Allows you to set the option where the Scroll Lock key is used to simulate the Fn key feature. Enable Fn Key Emulation (default)

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

Manageability

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

Virtualization support screen options

Option	Description
VT for Direct I/O	Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by Intel® Virtualization technology for direct I/O. Enable VT for Direct I/O - enabled by default.
Trusted Execution	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. Trusted Execution - disabled by default.

Wireless screen options

Option	Description
Wireless Switch	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"> WWAN GPS (on WWAN Module) WLAN/WiGig Bluetooth <p>All the options are enabled by default.</p> <p>NOTE: For WLAN and WiGig enable or disable controls are tied together and they cannot be enabled or disabled independently.</p>
Wireless Device Enable	<p>Allows you to enable or disable the internal wireless devices.</p> <ul style="list-style-type: none"> WWAN/GPS WLAN/WiGig Bluetooth <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
Service Tag	Displays the Service Tag of your computer.
Asset Tag	Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.
BIOS Downgrade	This controls flashing of the system firmware to previous revisions. Option 'Allow BIOS downgrade' is enabled by default.
Data Wipe	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: <ul style="list-style-type: none"> Internal SATA HDD/SSD Internal M.2 SATA SSD Internal M.2 PCIe SSD Internal eMMC
BIOS Recovery	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. <ul style="list-style-type: none"> BIOS Recovery from Hard Drive—enabled by default Always perform integrity check—disabled by default

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.

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. 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 **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.

Updating BIOS using USB flash drive

If the system cannot load into Windows but there is still a need to update the BIOS, download the BIOS file using another system and save it to a bootable USB Flash Drive.

- 1 Download the BIOS update .EXE file to another system.
- 2 Copy the file Example: O9010A12.exe onto the bootable USB Flash drive.
- 3 Insert the USB Flash drive into the system that requires the BIOS update.
- 4 Restart the system and press F12 when the Dell logo appears to display the boot menu.
- 5 Using arrow keys, select USB Storage Device and press Return.
- 6 The system will boot to a Diag C:\> prompt
- 7 Run the file by typing the full filename Example: O9010A12.exe and hit Return,
- 8 The BIOS Update Utility will load, follow the instructions on 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.

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

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 7480.

Table 3. Supported operating systems

Supported operating systems	Description
Windows 10	<ul style="list-style-type: none"> • Microsoft Windows 10 Pro 64-bit • Microsoft Windows 10 Home 64-bit
Other	<ul style="list-style-type: none"> • Ubuntu 16.04 LTS SP1 64-bit • NeoKylin v6.0 64-bit

Processor specifications

Feature	Specification
Types	6th generation Intel Core i3, i5 / i7 series

System specifications

Feature	Specification
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Chipset

DRAM bus width 64-bit

Flash EPROM SPI 128 Mbits

PCIe bus 100 MHz

External Bus DMI 3.0—8GT/s

Frequency

Memory specifications

Feature	Specification
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Memory connector Two SoDIMM slots

Memory capacity 4 GB, 8 GB, 16 GB, and 32 GB

Memory type DDR4 SDRAM—2133MHz

Minimum memory 4 GB

Maximum memory 32 GB

Storage specifications

This laptop supports M.2 SATA SSD and M.2 PCIe NVMe SSDs.

The options are:

- M.2 SATA SSD
 - 128 GB
 - 256 GB
 - 512 GB
 - 1 TB
- M.2 PCIe NVMe SSD
 - 128 GB
 - 256 GB
 - 512 GB
 - 1 TB

Video specifications

Feature	Specification
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Type Integrated on system board

UMA controller

- Intel Integrated HD Graphics 620
- Intel Integrated HD Graphics 520 (available with Intel 6th Gen Core I only)
- Intel Integrated HD Graphics 640 (available with Intel 7th Gen Core I 7660u only)

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

Audio specifications

Feature	Specification
Types	Four-channel high-definition audio
Controller	Realtek ALC3246
Stereo conversion	24-bit—analog-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"> 3-cell Lithium Prismatic battery with ExpressCharge 4-cell Lithium Prismatic battery with ExpressCharge

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"> Charge: 0°C to 50°C (32°F to 158°F) Discharge: 0°C to 70°C (32°F to 122°F)
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
i NOTE: The system is shipped with 65 W adapter and also supports 90 W adapter for fast charging.	
Input voltage	100 V AC to 240 V AC
Input current—maximum	1.7 A / 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	
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

i | NOTE: Docking stations are sold separately.

Options	<ul style="list-style-type: none"> Dell Dock WD15 Dell Dock Stand DS1000 Dell Thunderbolt Dock TB16
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Port and connector specifications

Feature	Specification
Audio	
Video	HDMI 1.4
Network adapter	One RJ-45 connector
USB	<ul style="list-style-type: none"> Two USB 3.0

Feature	Specification
	<ul style="list-style-type: none"> One DisplayPort over USB Type-C (optional Thunderbolt 3)
Memory card reader	
Micro Subscriber Identity Module (uSIM) card	
Docking port	
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)

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:	Sensor-active area
X-axis	
Y-axis	
X/Y position resolution	X: 1048cpi; Y: 984cpi
Multi-touch	Configurable single finger and multi-finger gestures

Display specifications

Feature	Specification
Type - 14.0"	Anti Glare HD WLED-Non Touch
Luminance	200 nits
Height	205.6 mm (8.09 inches)

Feature	Specification
Width	320.9 mm (12.63 inches)
Diagonal	355.6 mm (14.0 inches)
Maximum resolution	1366 x 768
Megapixels	1.05
Pixels per inch (PPI)	112
Contrast ratio (minimum)	300:2
Refresh rate	60 Hz
Maximum viewing angles—horizontal	+/-40°
Maximum viewing angles—vertical	+10/-30°
Pixel pitch	0.2265 x 0.2265 mm

Type- 14.0" :	Anti Glare FHD - Non Touch
Luminance	300 nits
Height	205.6 mm (8.09 inches)
Width	302.9 mm (12.63 inches)
Diagonal	355.6 mm (14.0 inches)
Maximum resolution	1920 x 1080
Megapixels	2.07
Pixels per inch (PPI)	157
Contrast ratio (minimum)	600:1
Refresh rate	60 Hz
Maximum viewing angles—horizontal	+/-80°
Maximum viewing angles—vertical	+/-80°
Pixel pitch	0.161 x 0.161 mm

Feature	Specification
Type - 14.0"	FHD Anti Glare IPDS - Touch
Luminance	270 nits
Height	205.05 mm (8.07 inches)
Width	327.8 mm (12.90 inches)
Diagonal	355.6 mm (14.0 inches)
Maximum resolution	1920 x 1080
Megapixels	2.07

Feature	Specification
Pixels per inch (PPI)	157
Contrast ratio (minimum)	600:1
Refresh rate	60 Hz
Maximum viewing angles—horizontal	+/-80°
Maximum viewing angles—vertical	+/-80°
Pixel pitch	0.161 x 0.161 mm
Type - 14.0":	QHD Anti Glare - Touch
Luminance	270
Height	206.6 mm (8.13 inches)
Width	327.8 mm(12.90 inches)
Diagonal	355.6 mm—14.0 inch
Maximum resolution	2560 x 1440
Megapixels	3.68
Pixels per inch (PPI)	210
Contrast ratio (minimum)	600:1
Refresh rate	60 Hz
Maximum viewing angles—horizontal	+/-80°
Maximum viewing angles—vertical	+/-80°
Pixel pitch	0.1209 x 0.1209 mm

Physical specifications

Feature	Specification
Front height—non-touch	11.58 mm (0.45 inch)
Back height—non-touch	18.41 mm (0.72 inch)
Back height—touch	18.41 mm (0.72 inch)
Width	331.0 mm (13.03nches)
Depth	220.9 mm (8.69 inches)
Weight—non-touch with 3-cell battery	1.36 kg (3.01 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	10% to 90% (non-condensing)
Operating	5% to 95% (non-condensing)
Altitude— maximum	Specifications
Operating	-15.2 m to 3048 m (-50 to 10,000 ft)
Storage	5% to 95% (non-condensing)
	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 Sequence
- 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 Sequence

Boot Sequence allows you to bypass the System Setup–defined boot device order and boot directly to a specific device (for example: optical drive or hard drive). During the Power-on Self Test (POST), when the Dell logo appears, you can:

- Access System Setup by pressing F2 key
- Bring up the one-time boot menu by pressing F12 key

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

- Removable Drive (if available)
- STXXXX Drive

i | NOTE: XXX denotes the SATA drive number.

- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

i | NOTE: Choosing Diagnostics, will display the ePSA diagnostics screen.

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

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
System Information	This section lists the primary hardware features of your computer. <ul style="list-style-type: none">System Information: Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date, Manufacture Date, Express Service Code, the Signed Firmware update—enabled by defaultMemory Information: Displays Memory Installed, Memory Available, Memory Speed, Memory Channels Mode, Memory Technology, DIMM A Size, DIMM B Size,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 TechnologyDevice 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
Battery Information	Displays the battery status health and whether the AC adapter is installed.
Boot Sequence	Allows you to change the order in which the computer attempts to find an operating system. <ul style="list-style-type: none">Diskette DriveInternal HDDUSB Storage DeviceCD/DVD/CD-RW DriveOnboard NIC
Boot sequence options	<ul style="list-style-type: none">Windows boot managerWindowsIns

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

System Configuration screen options

Option	Description
Integrated NIC	Allows you to configure the integrated network controller. The options are:
	<ul style="list-style-type: none"> Disabled Enabled Enable UEFI network stack: This option is enabled by default. Enabled w/PXE
Parallel Port	Allows you to configure the parallel port on the docking station. The options are:
	<ul style="list-style-type: none"> Disabled AT: This option is enabled by default. PS2 ECP
Serial Port	Allows you to configure the integrated serial port. The options are:
	<ul style="list-style-type: none"> Disabled COM1: This option is enabled by default. COM2 COM3 COM4
SATA Operation	Allows you to configure the internal SATA hard-drive controller. The options are:
	<ul style="list-style-type: none"> Disabled AHCI RAID On: This option is enabled by default.
Drives	Allows you to configure the SATA drives on board. All drives are enabled by default. The options are:
	<ul style="list-style-type: none"> SATA-0 M.2 PCI-e SSD-0 SATA-2

Option	Description
SMART Reporting	This field controls whether hard drive errors for integrated drives are reported during system startup. This technology is part of the SMART (Self-Monitoring Analysis and Reporting Technology) specification. This option is disabled by default. <ul style="list-style-type: none"> • Enable SMART Reporting
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: <ul style="list-style-type: none"> • Enable USB Boot Support—enabled by default • Enable the Thunderbolt ports—enabled by default • Always Allow dell docks—enabled by default • Enable External USB Port—enabled by default • Enable Thunderbolt Boot Support • Enable Thunderbolt (and PCIE behind TBT) Preboot • Security level-no security • Security level-user configuration—enabled by default • Security level-secure connect • Security level- Display port only <p>(i) NOTE: USB keyboard and mouse always work in the BIOS setup irrespective of these settings.</p>
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: <ul style="list-style-type: none"> • Enable Microphone—by default enable • Enable Internal Speaker—by default enable
Keyboard Illumination	This field lets you choose the operating mode of the keyboard illumination feature. The keyboard brightness level can be set from 0% to 100%. The options are: <ul style="list-style-type: none"> • Disabled—enabled by default • Dim (50%) • Bright
Keyboard Backlight with AC	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.
Keyboard Backlight Timeout on AC	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: <ul style="list-style-type: none"> • 5 sec

Option	Description
	<ul style="list-style-type: none"> • 10 sec—enabled by default • 15 sec • 30 sec • 1 min • 5 min • 15 min • Never
Keyboard Backlight Timeout on Battery	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:
	<ul style="list-style-type: none"> • 5 sec • 10 sec—enabled by default • 15 sec • 30 sec • 1 min • 5 min • 15 min • Never
Touchscreen	It controls whether the screen is enabled or disabled. This option is enabled by default.
Unobtrusive Mode	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.
Miscellaneous Devices	Allows you to enable or disable the following devices: <ul style="list-style-type: none"> • Enable Camera—enabled by default • Secure Digital (SD) card—enabled by default • Secure Digital (SD) card boot • 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.

(i) | **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.
	(i) 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.
	(i) NOTE: Successful password changes take effect immediately.

Option	Description
	Default setting: Not set
System Password	Allows you to set, change, or delete the system password. i NOTE: Successful password changes take effect immediately. Default setting: Not set
Internal HDD-2 Password	Allows you to set, change, or delete the administrator password. i 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. i 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. <ul style="list-style-type: none"> • min-4—by default, if you want to change you can increase the number • 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: <ul style="list-style-type: none"> • Disabled • Reboot bypass Default setting: Disabled
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.
TPM 2.0 Security	Allows you to enable the Trusted Platform Module (TPM) during POST. The options are: <ul style="list-style-type: none"> • UEFI capsule Firmware updates—enabled by default • TPM On—enabled by default • Clear • PPI Bypass for Enable Commands • 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

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

Secure Boot screen options

Option	Description
Secure Boot Enable	<p>This option enables or disables the Secure Boot feature.</p> <ul style="list-style-type: none"> Disabled Enabled <p>Default setting: Enabled</p>
Expert Key Management	<p>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:</p> <ul style="list-style-type: none"> PK—enabled by default KEK db dbx <p>If you enable the Custom Mode, the relevant options for PK, KEK, db, and dbx appear. The options are:</p> <ul style="list-style-type: none"> 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

Option	Description
	<ul style="list-style-type: none"> • Delete—Deletes the selected key • Reset All Keys—Resets to default setting • Delete All Keys—Deletes all the keys <p>NOTE: 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
Intel SGX Enable	<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"> • Disabled • Enabled <p>Default setting: Enabled</p>
Enclave Memory Size	<p>This option sets SGX Enclave Reserve Memory Size. The options are:</p> <ul style="list-style-type: none"> • 32 MB • 64 MB • 128 MB—enabled by default

Performance screen options

Option	Description
Multi-Core Support	<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"> • Enable Multi-Core Support <p>Default setting: The option is enabled.</p>
Intel SpeedStep	<p>Allows you to enable or disable the Intel SpeedStep feature.</p> <ul style="list-style-type: none"> • Enable Intel SpeedStep <p>Default setting: The option is enabled.</p>
C-States Control	<p>Allows you to enable or disable the additional processor sleep states.</p> <ul style="list-style-type: none"> • C states <p>Default setting: The option is enabled.</p>
Intel TurboBoost	<p>Allows you to enable or disable the Intel TurboBoost mode of the processor.</p> <ul style="list-style-type: none"> • Enable Intel TurboBoost

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

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: <ul style="list-style-type: none"> · Disabled · Every Day · Weekdays · Select Days Default setting: Disabled
USB Wake Support	Allows you to enable USB devices to wake the system from Standby. <p>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.</p> <ul style="list-style-type: none"> · 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. 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.
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

Option	Description
	Default setting: Disabled
Primary Battery Charge Configuration	Allows you to select the charging mode for the battery. The options are: <ul style="list-style-type: none"> 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. <p>NOTE: All charging mode may not be available for all the batteries. To enable this option, disable the Advanced Battery Charge Configuration option.</p>
Sleep mode	<ul style="list-style-type: none"> OS Automatic selection—enabled by default Force S3
Type-C connector power	<ul style="list-style-type: none"> 7.5 Watts 15 Watts—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
Keypad (Embedded)	Allows you to choose one of two methods to enable the keypad that is embedded in the internal keyboard. <ul style="list-style-type: none"> Fn Key Only—default. By Numlock <p>NOTE: When setup is running, this option has no effect. Setup works in Fn Key Only mode.</p>
Mouse/Touchpad	Allows you to define how the system handles mouse and touch pad input. The options are: <ul style="list-style-type: none"> Serial Mouse PS2 Mouse Touchpad/PS-2 Mouse: This option is enabled by default.
Numlock Enable	Allows you to enable the Numlock option when the computer boots. Enable Network. This option is enabled by default.
Fn Key Emulation	Allows you to set the option where the Scroll Lock key is used to simulate the Fn key feature. Enable Fn Key Emulation (default)

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

Manageability

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

Virtualization support screen options

Option	Description
VT for Direct I/O	Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by Intel® Virtualization technology for direct I/O. Enable VT for Direct I/O - enabled by default.
Trusted Execution	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. Trusted Execution - disabled by default.

Wireless screen options

Option	Description
Wireless Switch	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"> WWAN GPS (on WWAN Module) WLAN/WiGig Bluetooth <p>All the options are enabled by default.</p> <p>NOTE: For WLAN and WiGig enable or disable controls are tied together and they cannot be enabled or disabled independently.</p>

Wireless Device Enable	Allows you to enable or disable the internal wireless devices.
	<ul style="list-style-type: none"> WWAN/GPS WLAN/WiGig Bluetooth <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
Service Tag	Displays the Service Tag of your computer.
Asset Tag	Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.
BIOS Downgrade	This controls flashing of the system firmware to previous revisions. Option 'Allow BIOS downgrade' is enabled by default.
Data Wipe	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: <ul style="list-style-type: none"> Internal SATA HDD/SSD Internal M.2 SATA SSD Internal M.2 PCIe SSD Internal eMMC
BIOS Recovery	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. <ul style="list-style-type: none"> BIOS Recovery from Hard Drive—enabled by default Always perform integrity check—disabled by default

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.

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. 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 **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.

System and setup password

Table 4. System and setup password

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

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

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

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

ⓘ | NOTE: System and setup password feature is disabled.

Assigning a system setup password

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

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

- 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.

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

- 5 Press Esc and a message prompts you to save the changes.

- 6 Press Y to save the changes and exit from System Setup.

The computer reboot.

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.

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.