

Vostro 14-5468

Owner's Manual



© 2016 2018 Dell Inc. or its subsidiaries. All rights reserved. Dell, EMC, and other trademarks are trademarks of Dell Inc. or its subsidiaries. Other trademarks may be trademarks of their respective owners.

1 Working on your computer.....	7
Safety instructions.....	7
Before working inside your computer.....	7
Turning off your computer.....	8
After working inside your computer.....	8
2 Product overview.....	9
Front view.....	9
Left view.....	10
Right view.....	10
Top view.....	11
3 Removing and installing components.....	12
Recommended tools.....	12
Removing the back cover.....	12
Installing the back cover.....	13
Removing the battery.....	13
Installing the battery.....	14
Removing the battery cable.....	14
Installing the battery cable.....	15
Removing the memory module.....	15
Installing the memory module.....	16
Removing the solid state drive - SSD bracket.....	16
Installing the solid state drive - SSD bracket.....	17
Removing the solid state drive - SSD.....	17
Installing the Solid state drive - SSD.....	18
Removing the hard drive.....	18
Installing the hard drive.....	19
Removing the hard drive cable.....	19
Installing the hard drive cable.....	20
Removing the hard drive bracket.....	20
Installing the hard drive bracket.....	21
Removing the WLAN card.....	21
Installing the WLAN card.....	22
Removing the coin cell battery.....	22
Installing the coin cell battery.....	23
Removing the Input-Output board.....	23
Installing the Input-Output board.....	24
Removing the fan.....	24
Installing the fan.....	26
Removing the heatsink.....	26
Installing the heatsink.....	27
Removing the LED board.....	27

Installing the LED board.....	28
Removing the speakers.....	28
Installing the speakers.....	30
Removing the touchpad.....	30
Installing the touchpad.....	32
Removing the system board.....	32
Installing the system board.....	35
Removing the display assembly.....	35
Installing the display assembly.....	38
Removing the display bezel.....	38
Installing the display bezel.....	39
Removing the display panel hinges.....	39
Installing the display panel hinges.....	40
Removing the camera.....	40
Installing the camera.....	41
Removing the display.....	41
Installing the display	43
Keyboard.....	43
Removing the palmrest.....	43
Installing the palmrest.....	44
4 Technology and components.....	45
Power adapter.....	45
Processors.....	45
Identifying the processor in Windows 10 and Windows 8.....	45
Verifying the processor usage in Task Manager.....	45
Verifying the processor usage in Resource Monitor.....	46
Chipsets.....	46
Downloading the chipset driver.....	47
Identifying the chipset in Device Manager on Windows 10 and Windows 8.....	47
Graphic options.....	47
Downloading drivers.....	48
Identifying the display adapter.....	48
Changing the screen resolution.....	48
Rotating the display.....	48
Display options.....	49
Adjusting brightness in Windows 10.....	49
Adjusting brightness in Windows 8.....	49
Cleaning the display.....	49
Connecting to external display devices.....	49
Audio controller.....	50
Downloading the audio driver.....	50
Identifying the audio controller in Windows 10.....	50
Changing the audio settings.....	50
WLAN cards.....	51
Secure Boot screen options.....	51
Hard drive options.....	51



Identifying the hard drive in Windows 10 and Windows 8.....	51
Identifying the Hard Drive in the BIOS.....	52
Camera features.....	52
Identifying the camera in Device Manager on Windows 10.....	52
Identifying the camera in Device Manager on Windows 8.....	52
Starting the camera.....	53
Starting the camera application.....	53
Memory features.....	54
Verifying system memory in Windows 10.....	54
Verifying system memory in Windows 8.....	54
Verifying system memory in system setup BIOS.....	54
Testing memory using ePSA.....	54
Intel chipset drivers.....	55
Intel HD Graphics drivers.....	55
Realtek HD audio drivers.....	55
5 System Setup.....	57
System Setup overview.....	57
Boot Sequence.....	57
Navigation keys.....	57
Updating the BIOS	58
System Setup options.....	58
6 Technical Specifications.....	61
Physical dimension specifications.....	61
System information specifications.....	61
Processor specifications.....	61
Memory specifications.....	61
Audio specifications.....	62
Video specifications.....	62
Communication specifications.....	62
Battery specifications.....	62
Ports and connector specifications.....	63
Display specifications.....	63
Touchpad specifications.....	64
Keyboard specifications.....	64
Adapter specifications.....	64
Environmental specifications.....	64
7 System setup options.....	66
General screen options.....	66
System Configuration screen options.....	67
Video screen options.....	68
Security screen options.....	68
Secure Boot screen options.....	70
Performance screen options.....	70
Power Management screen options.....	71



POST Behavior screen options.....	72
Virtualization support screen options.....	73
Wireless screen options.....	73
Maintenance screen options.....	74
System Log screen options.....	74
8 Troubleshooting.....	75
Enhanced Pre-Boot System Assessment — ePSA diagnostics.....	75
LED error codes.....	75
Battery status lights.....	76
9 Contacting Dell.....	77
Contacting Dell.....	77



Working on your computer

Safety instructions

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

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

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

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

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

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

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

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

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

Before working inside your computer

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

- 1 Ensure that you follow the [Safety instructions](#).
- 2 Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
- 3 Turn off your computer, see [Turning off your computer](#).

⚠ CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.

- 4 Disconnect all the network cables from the computer.
- 5 Disconnect your computer and all attached devices from the electrical outlets.
- 6 Press and hold the power button while the computer is unplugged to ground the system board.
- 7 Remove the cover.

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



Turning off your computer

After working inside your computer

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

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

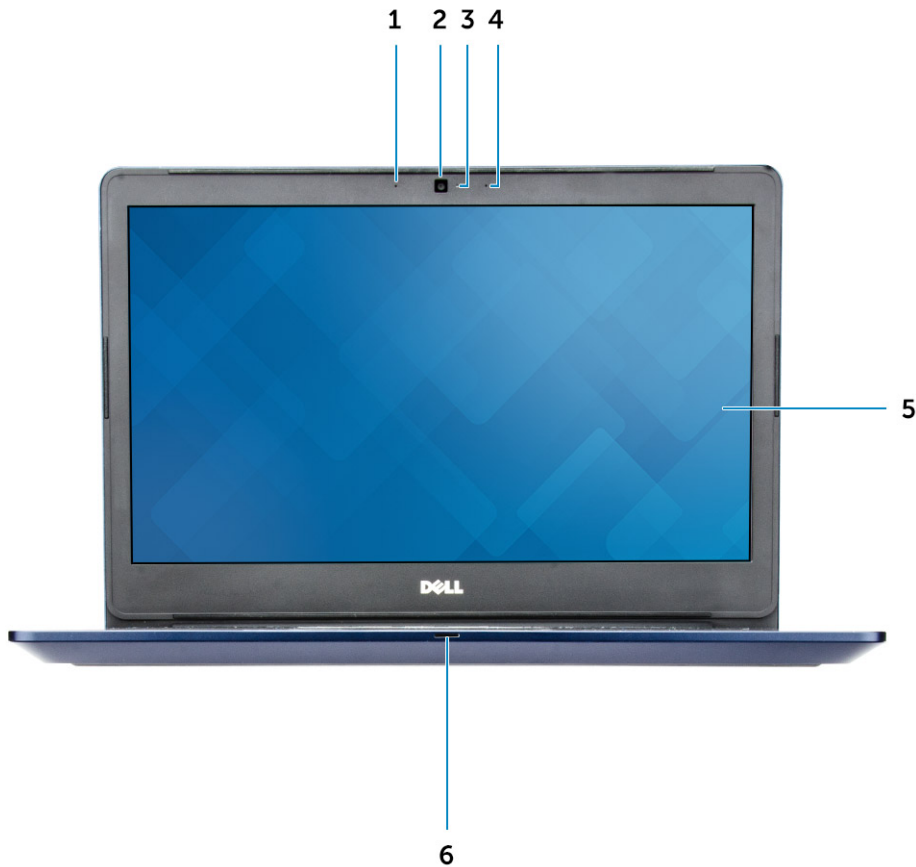
- 1 Connect any external devices, such as a port replicator or media base, and replace any cards, such as an ExpressCard.
- 2 Connect any telephone or network cables to your computer.

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

- 3 Replace the battery.
- 4 Replace the base cover.
- 5 Connect your computer and all attached devices to their electrical outlets.
- 6 Turn on your computer.

Product overview

Front view



- 1 Digital-array microphone
- 3 Camera-status light
- 5 Display

- 2 Camera
- 4 Digital-array microphone
- 6 Power and battery status light/hard-drive activity light

Left view



- | | | | |
|---|-------------------|---|-----------------------------------|
| 1 | Power connector | 2 | Network connector |
| 3 | HDMI connector | 4 | USB 3.0 connector with PowerShare |
| 5 | USB 3.0 connector | 6 | Headset connector |

Right view



- | | | | |
|---|--------------------|---|---------------------|
| 1 | Memory-card reader | 2 | USB 3.0 connector |
| 3 | VGA connector | 4 | Security cable slot |

Top view



- | | | | |
|---|---------------------|---|----------|
| 1 | Power button | 2 | Keyboard |
| 3 | Finger print reader | 4 | Palmrest |
| 5 | Touch pad | | |

Removing and installing components

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

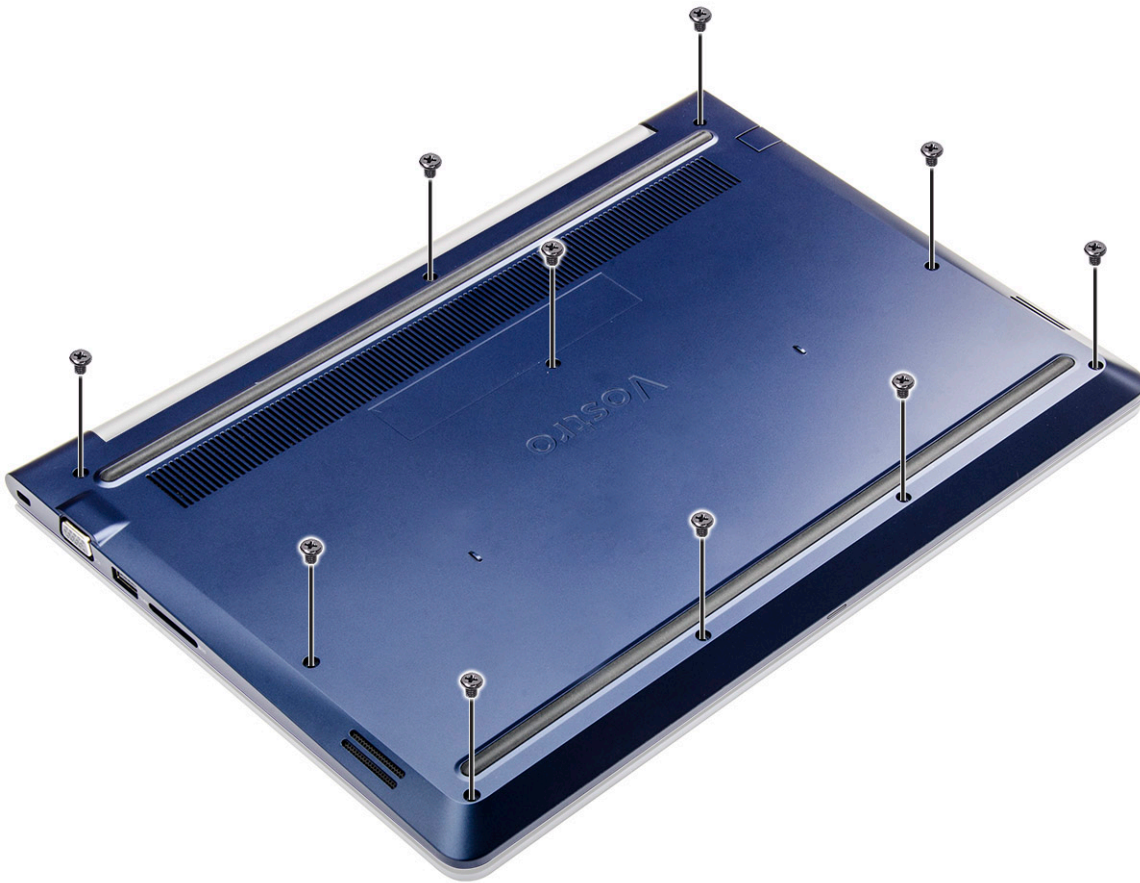
Recommended tools

The procedures in this document require the following tools:

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

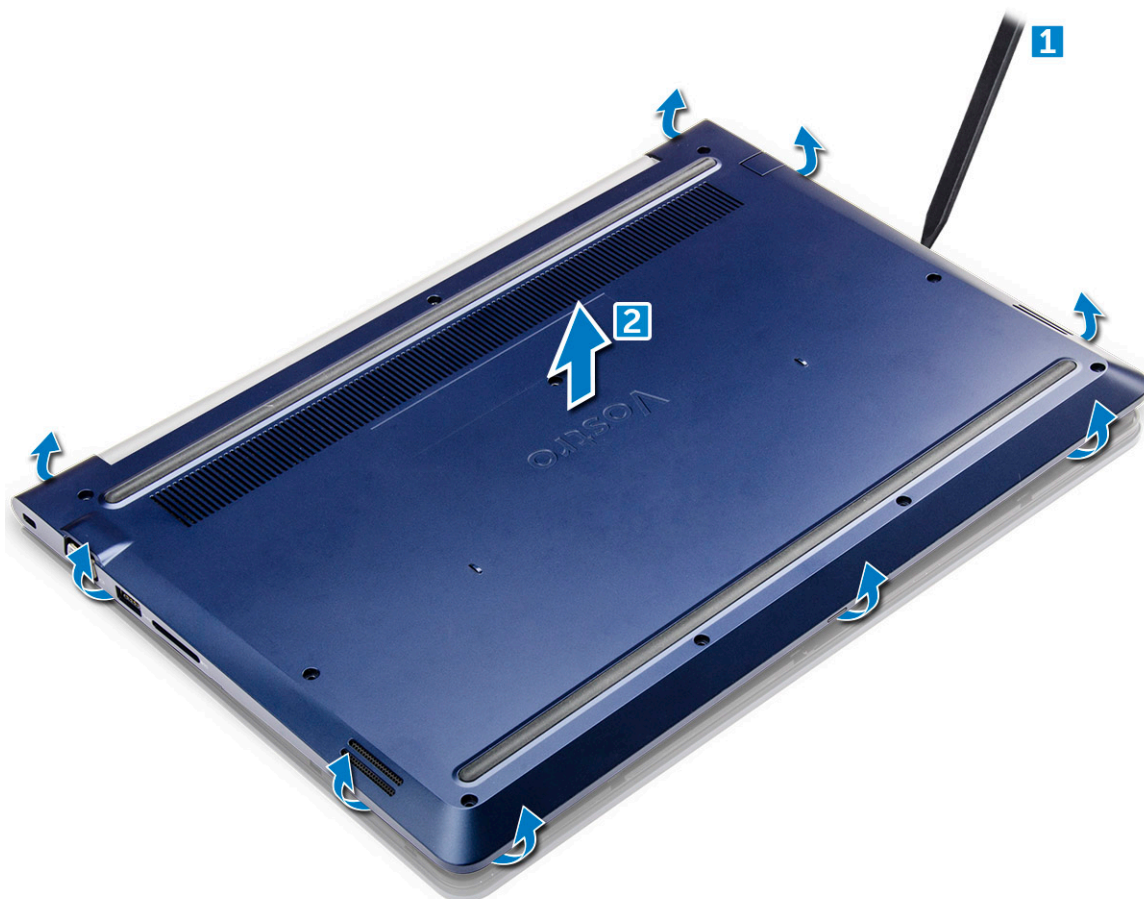
Removing the back cover

- 1 Follow the procedures in [Before working inside your computer](#).
- 2 Remove the screws that secure the back cover to the computer.



- 3 To remove the back cover:

- a Using a scribe, pry the edges of the back cover from all sides [1].
- b Lift the back cover from the computer [2].

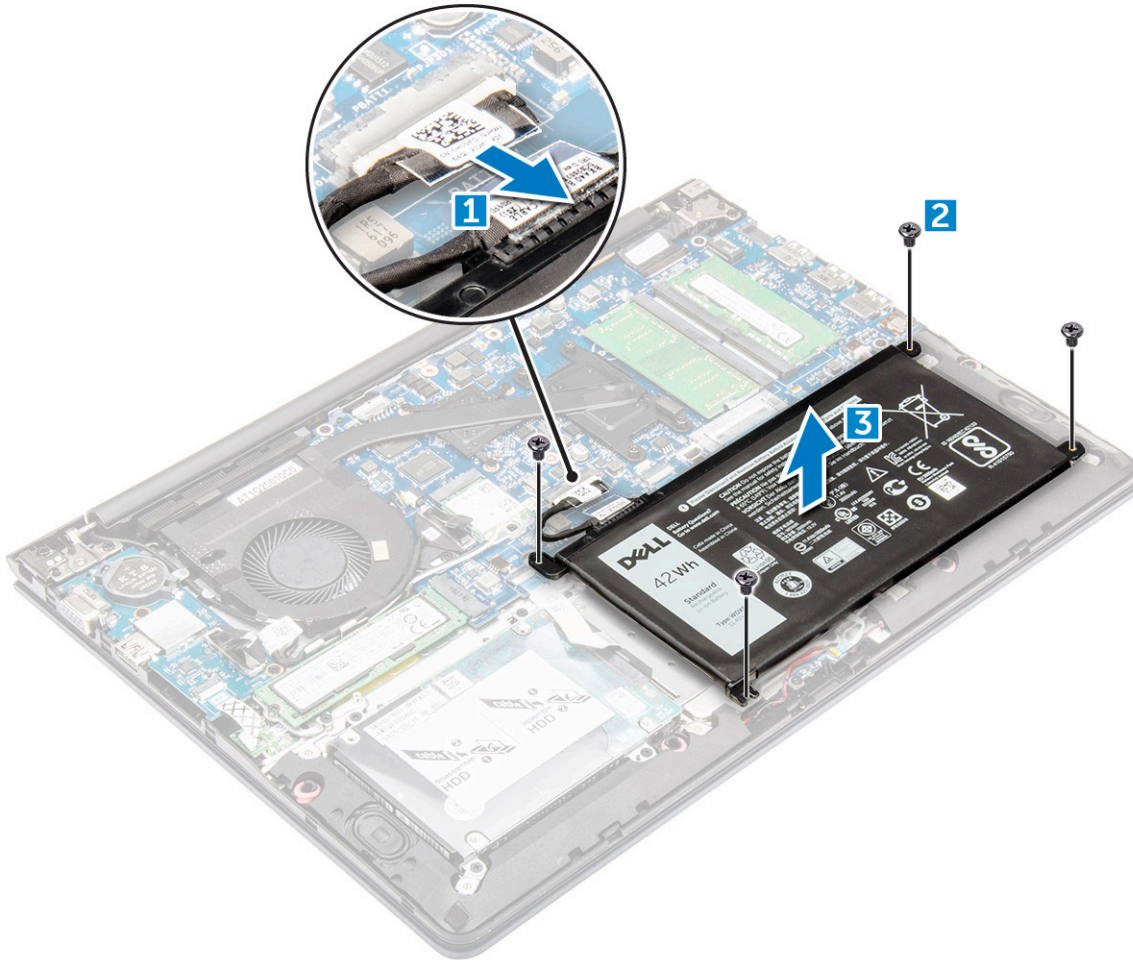


Installing the back cover

- 1 Align the back cover with the screw holes on the computer.
- 2 Tighten the screws to secure the base cover to the computer.
- 3 Follow the procedure in [After working inside your computer](#)

Removing the battery

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

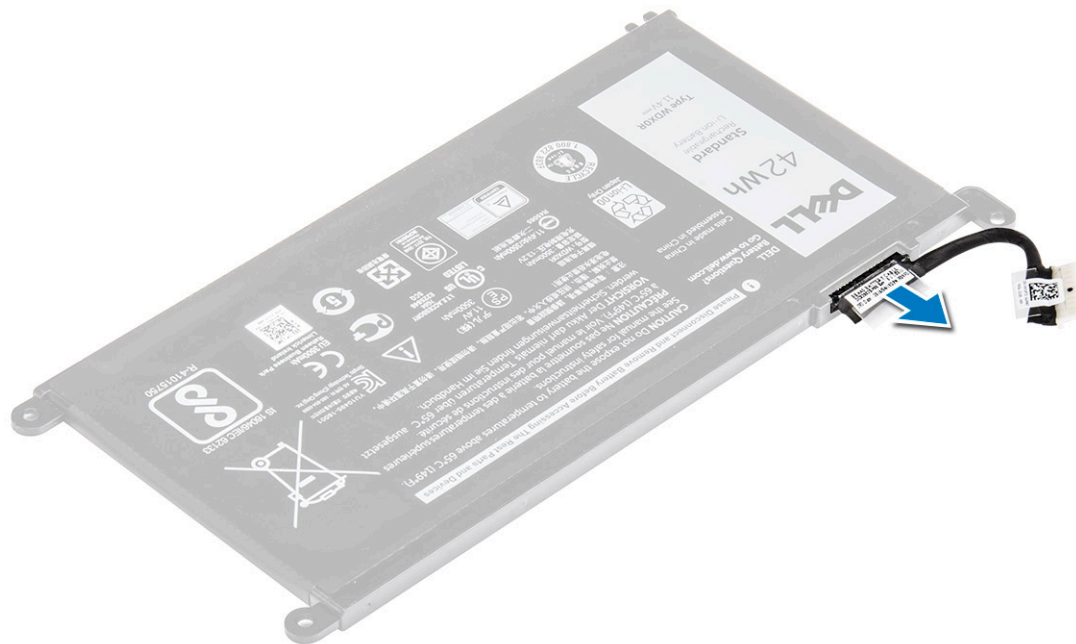


Installing the battery

- 1 Insert the battery into the slot on the computer.
- 2 Install the screws that secure the battery to the computer.
- 3 Connect the battery cable to the connector on the system board.
- 4 Install the [back cover](#).
- 5 Follow the procedure in [After working inside your computer](#)

Removing the battery cable

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#)
 - b [battery](#)
- 3 Disconnect the battery cable from its connector on the battery.

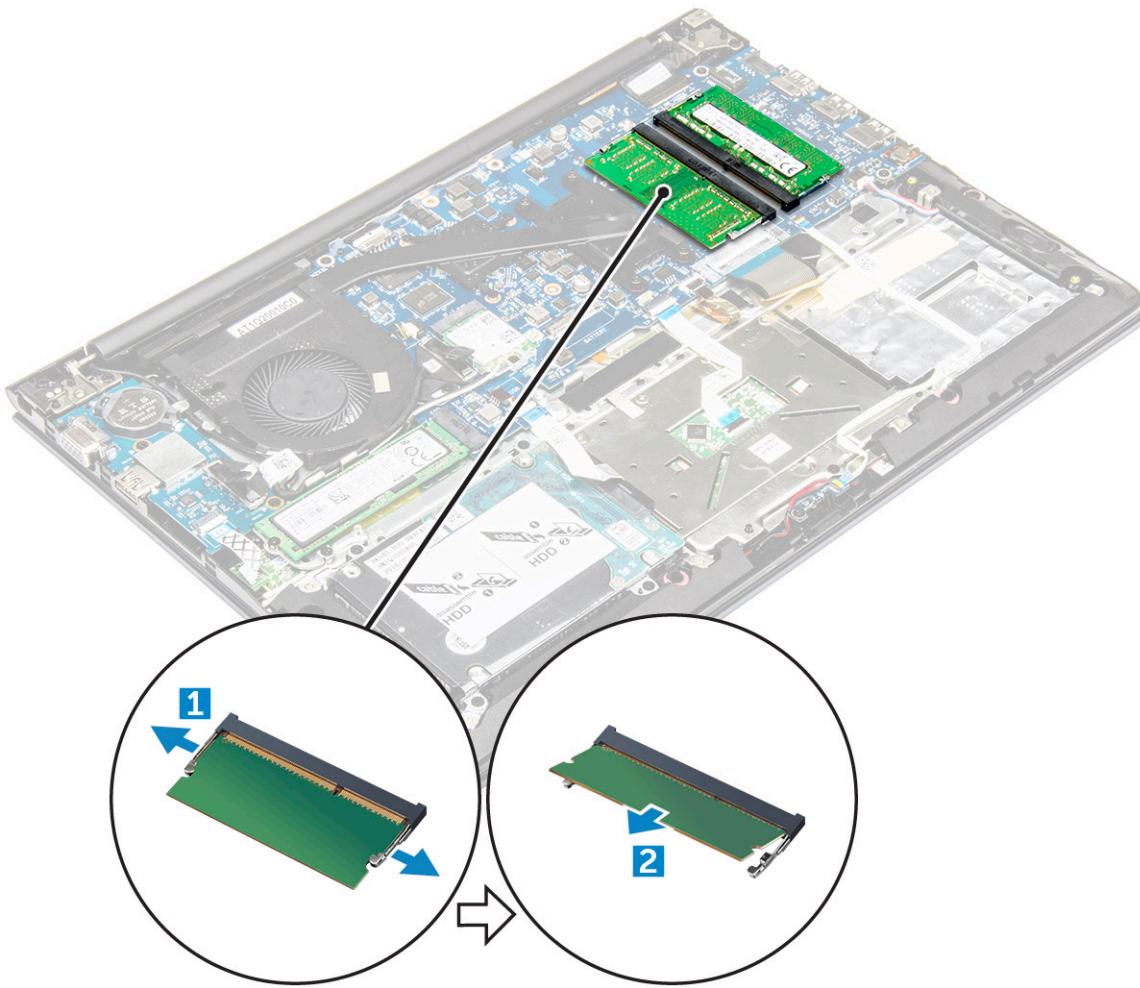


Installing the battery cable

- 1 Connect the battery cable to the battery cable on the battery.
- 2 Install the:
 - a [battery](#)
 - b [back cover](#)
- 3 Follow the procedure in [After working inside your computer](#)

Removing the memory module

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

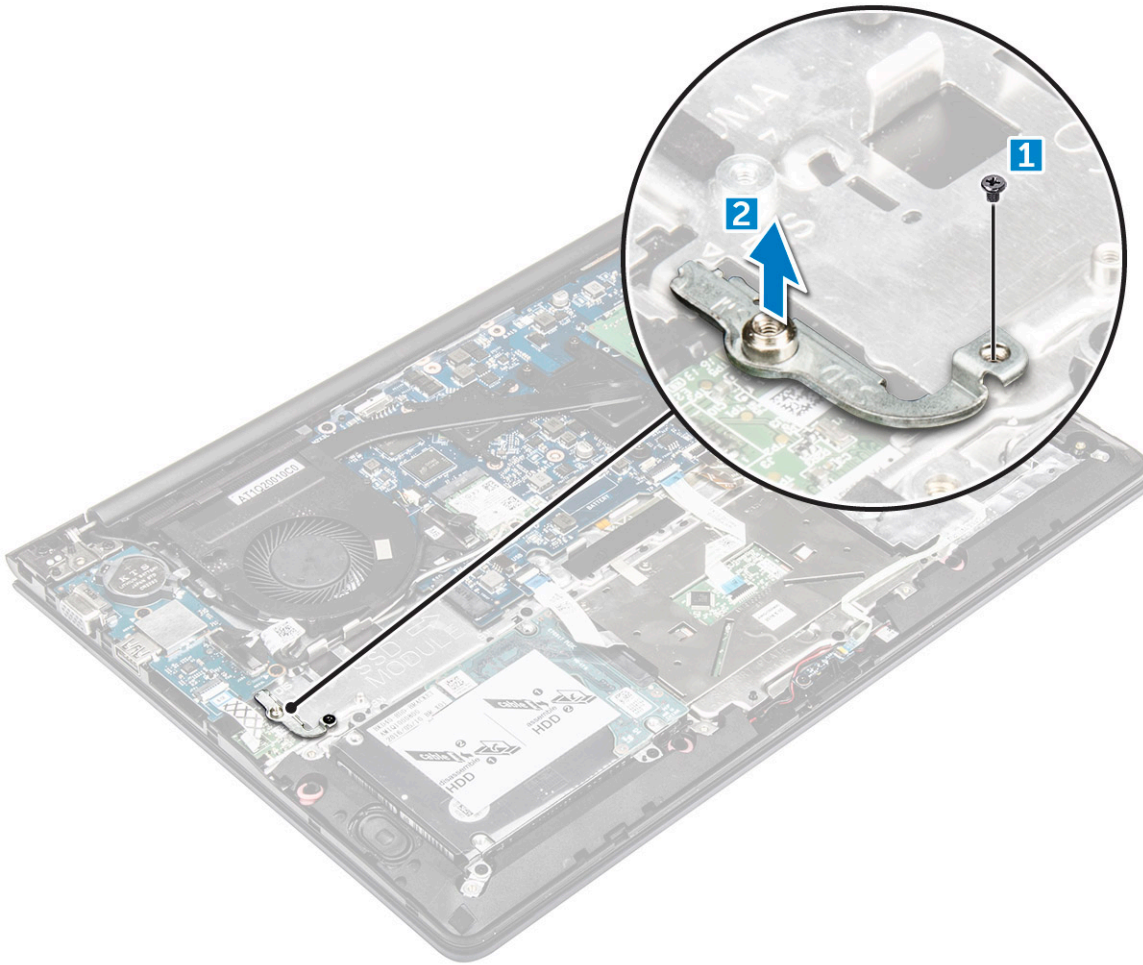


Installing the memory module

- 1 Insert the memory module into the memory module socket.
- 2 Press the memory module until it clicks into place.
- 3 Install the:
 - a [battery](#)
 - b [back cover](#)
- 4 Follow the procedure in [After working inside your computer](#)

Removing the solid state drive - SSD bracket

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#).
 - b [battery](#).
- 3 To remove the SSD bracket:
 - a Remove the screws that secure the SSD bracket [1] .
 - b Lift to remove the SSD bracket from the computer [2].

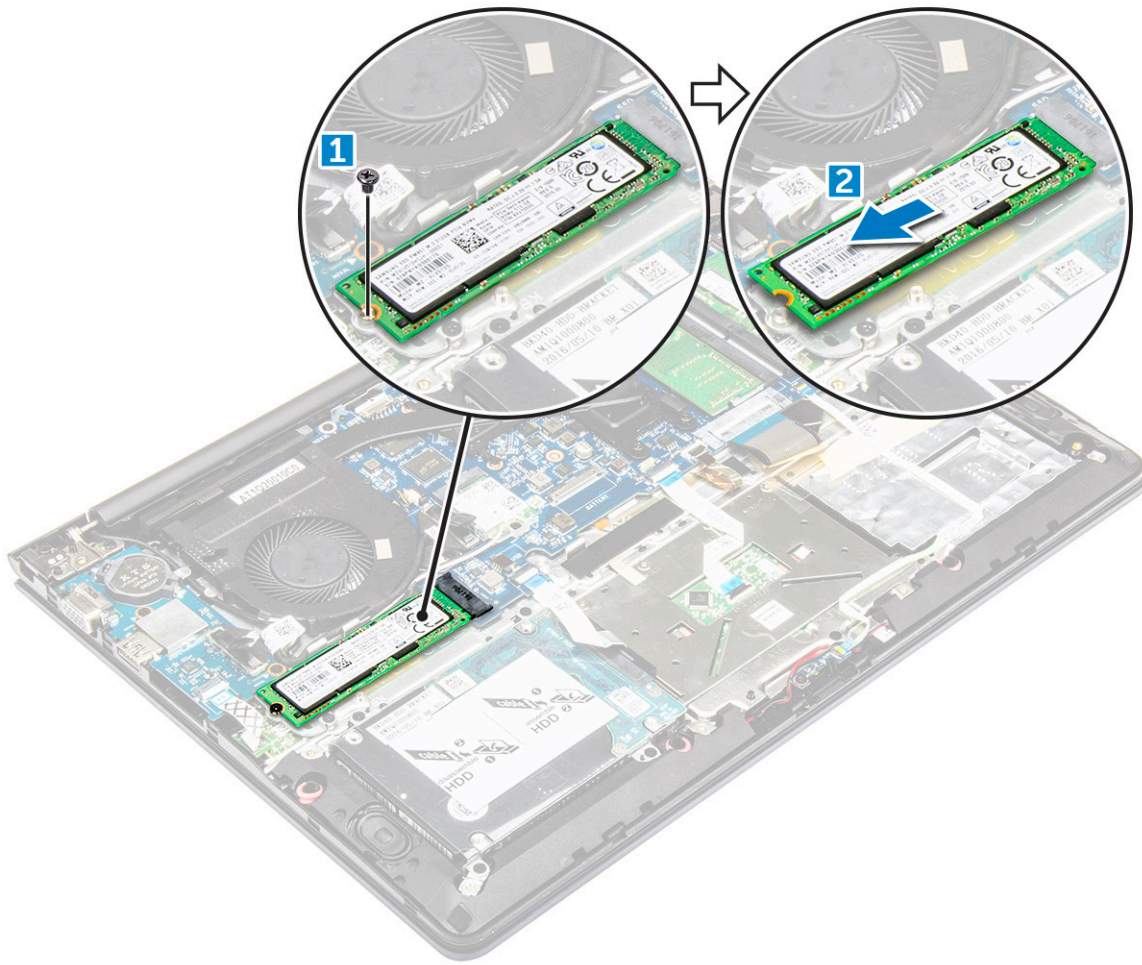


Installing the solid state drive - SSD bracket

- 1 Insert the SSD bracket into its slot on the computer.
- 2 Tighten the screws that secure the SSD bracket .
- 3 Install the:
 - a [battery](#).
 - b [back cover](#).
- 4 Follow the procedure in [After working inside your computer](#)

Removing the solid state drive - SSD

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#).
 - b [battery](#).
- 3 To remove the hard drive:
 - a Remove the screws that secure the SSD to the computer [1] .
 - b Disconnect the SSD from its connector on the system board [2].

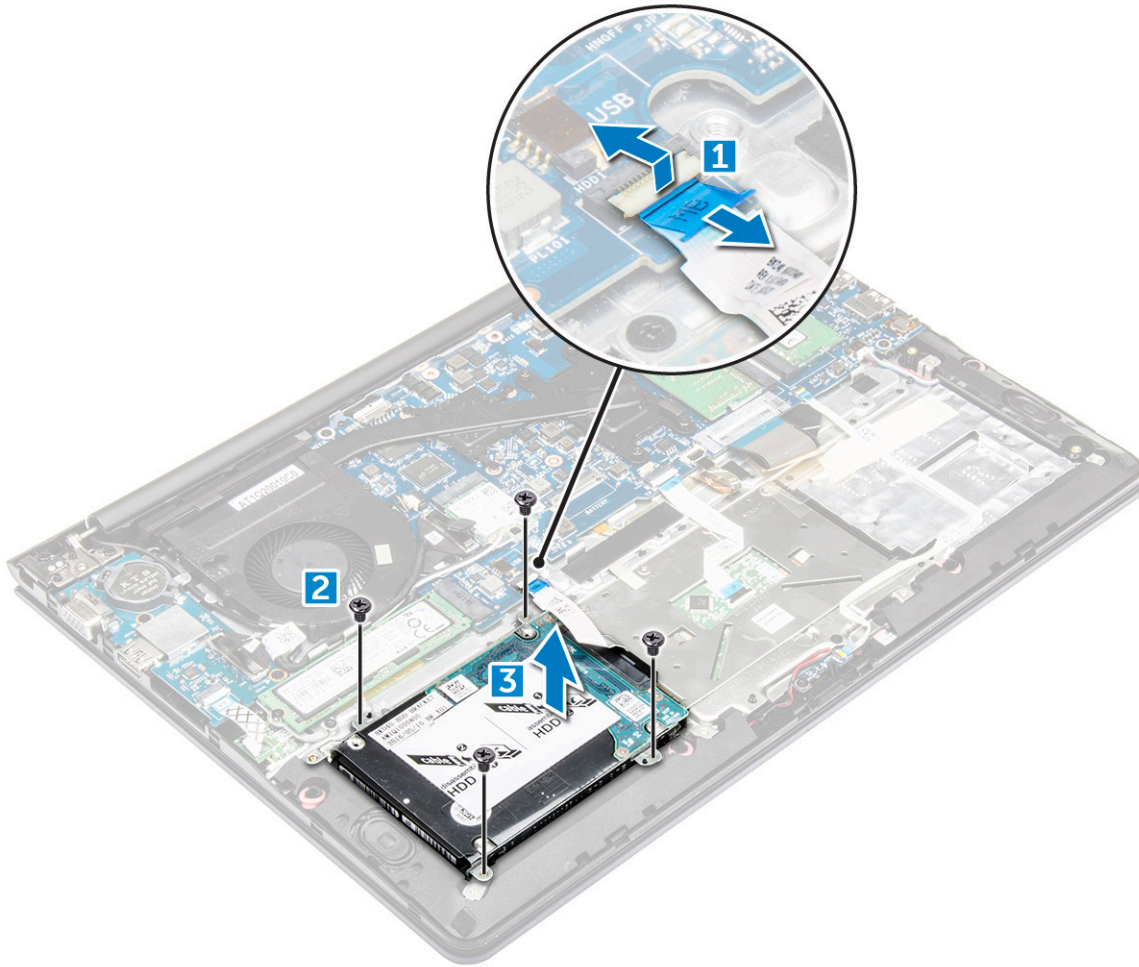


Installing the Solid state drive - SSD

- 1 Insert the SSD into its slot on the computer.
- 2 Tighten the screws that secure the SSD to the computer.
- 3 Install the:
 - a [battery](#).
 - b [back cover](#).
- 4 Follow the procedure in [After working inside your computer](#)

Removing the hard drive

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#)
 - b [battery](#)
- 3 To remove the hard drive:
 - a Lift the tab to disconnect the hard drive cable from the connector on the system board [1] .
 - b Remove the screws that secure the hard drive to the computer [2].
 - c Lift the hard drive from the computer [3].

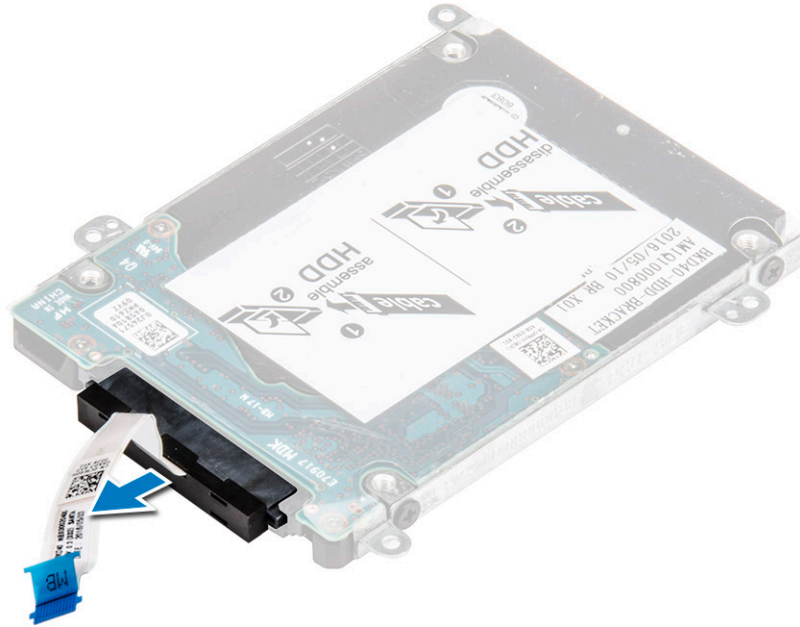


Installing the hard drive

- 1 Insert the hard drive assembly into its slot on the computer.
- 2 Tighten the screws that secure the hard drive to the computer
- 3 Connect the hard drive cable to the connector on the system board.
- 4 Install the:
 - a [battery](#).
 - b [back cover](#)
- 5 Follow the procedure in [After working inside your computer](#)

Removing the hard drive cable

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#)
 - b [battery](#)
 - c [hard drive](#)
- 3 Disconnect the hard drive cable from the connector on the hard drive.

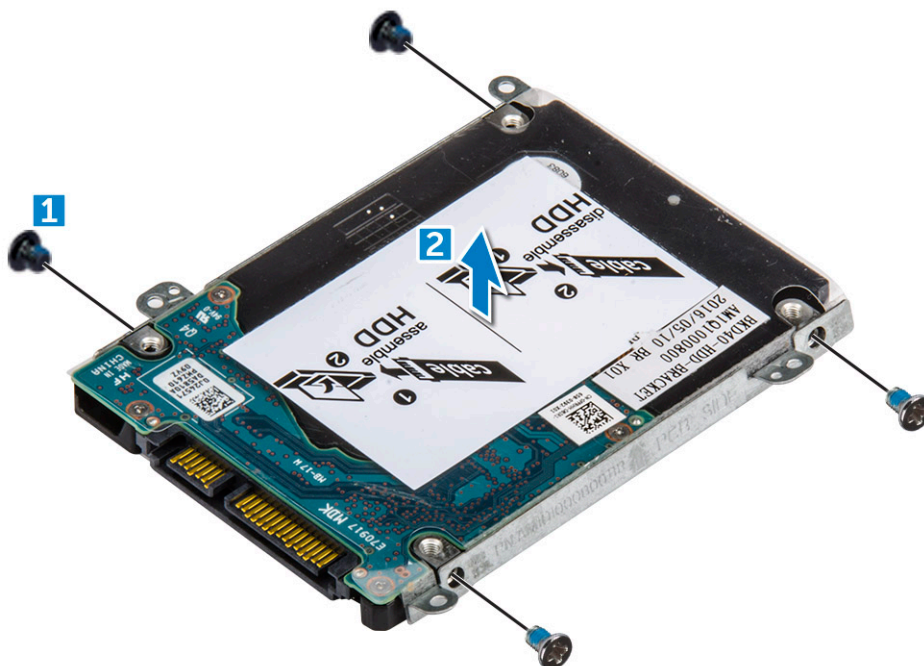


Installing the hard drive cable

- 1 Connect the hard drive cable to the hard drive.
- 2 Install the:
 - a [hard drive](#)
 - b [battery](#)
 - c [back cover](#)
- 3 Follow the procedure in [After working inside your computer](#)

Removing the hard drive bracket

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#)
 - b [battery](#)
 - c [hard drive](#)
 - d [hard-drive cable](#)
- 3 To remove the hard-drive bracket:
 - a Remove the screws that secure the hard-drive bracket to the hard drive.
 - b Lift and remove the hard-drive bracket.

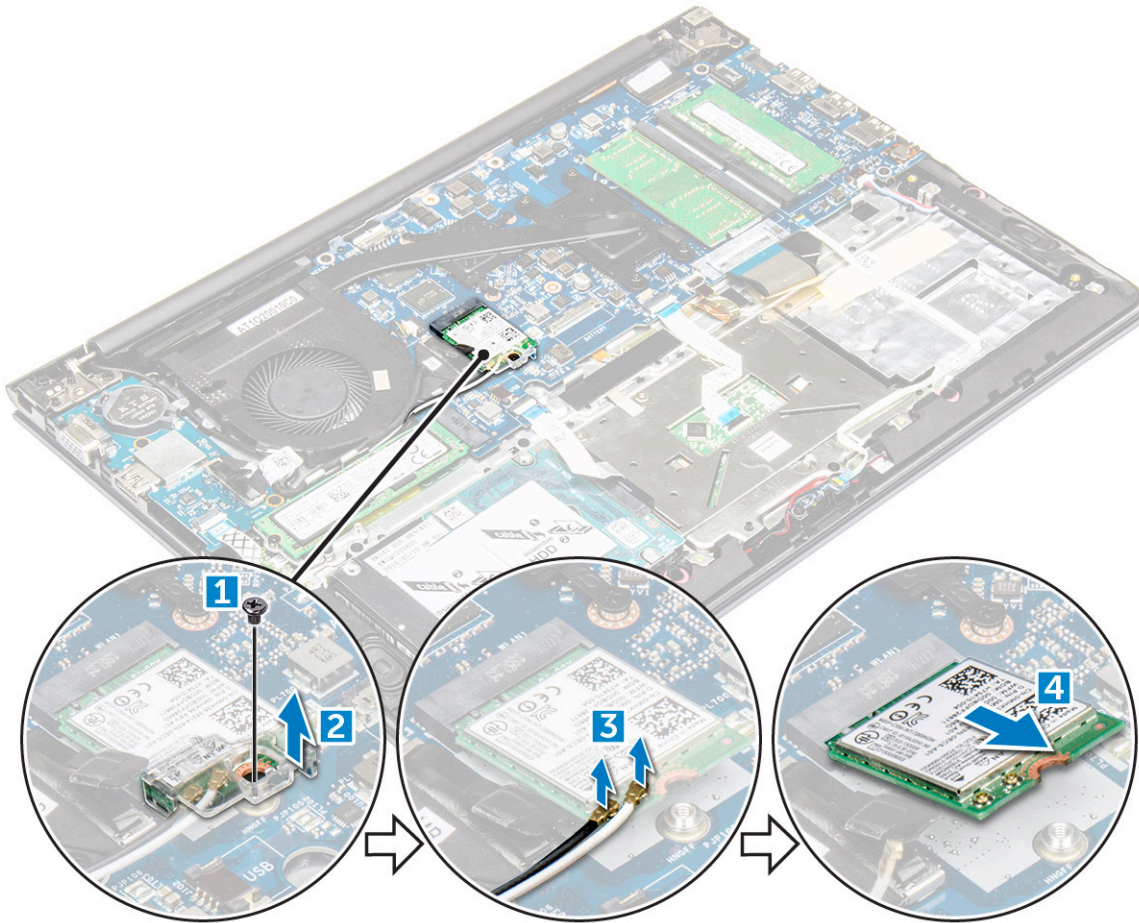


Installing the hard drive bracket

- 1 Place the hard drive bracket to align with the holes on the hard drive.
- 2 Install the screws that secure the hard drive bracket.
- 3 Install the:
 - a [hard-drive cable](#)
 - b [hard drive](#)
 - c [battery](#)
 - d [back cover](#)
- 4 Follow the procedure in [After working inside your computer](#)

Removing the WLAN card

- 1 Follow the procedures in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#)
 - b [battery](#)
- 3 To remove the WLAN card:
 - a Remove the screw that secures the WLAN card to the computer and lift the plastic tab [1] [2].
 - b Disconnect the antenna cables from the WLAN card [3].
 - c Remove the WLAN card from the slot on the system board [4].

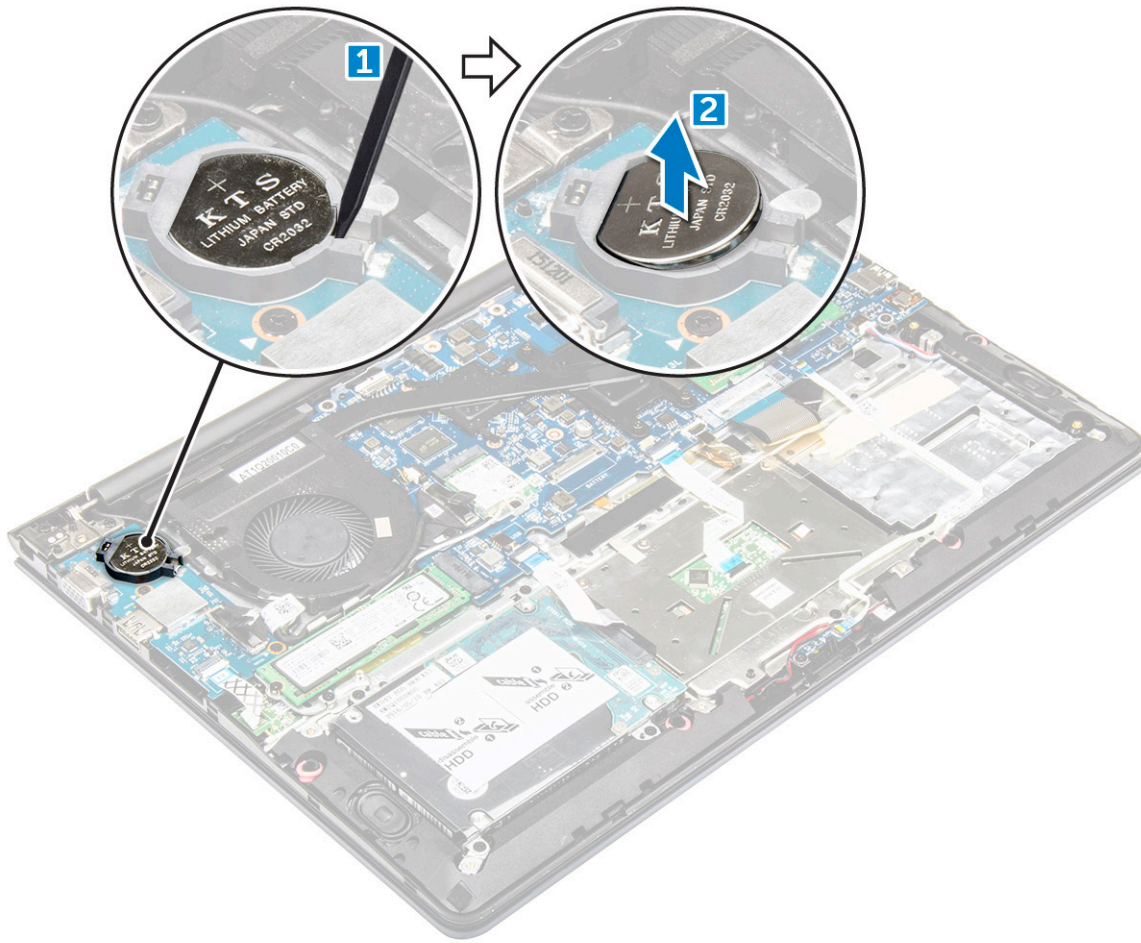


Installing the WLAN card

- 1 Insert the WLAN card into the connector at a 45-degree angle.
- 2 Close the plastic cover over the WLAN card.
- 3 Tighten the screw to secure the WLAN card to the computer.
- 4 Connect the antenna cables to the connectors marked on the WLAN card.
- 5 Install the:
 - a battery.
 - b back cover.
- 6 Follow the procedure in [After working inside your computer](#)

Removing the coin cell battery

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a back cover
 - b battery
- 3 To remove the coin cell battery:
 - a Pry the coin cell battery upwards from its slot using a scribe [1] .
 - b Lift and remove the coin cell battery [2].

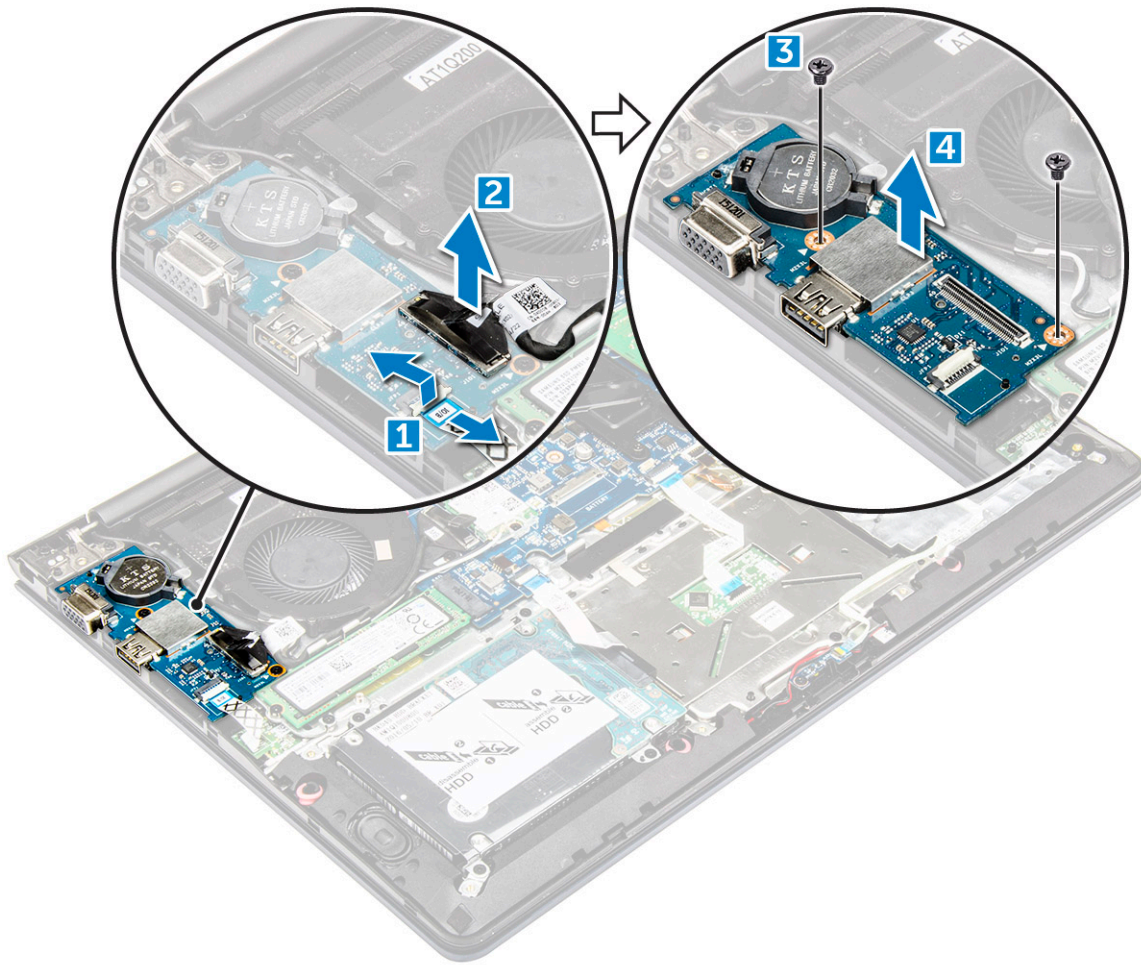


Installing the coin cell battery

- 1 Insert the coin cell battery into the slot until it snaps in place on the computer.
- 2 Install the :
 - a [battery](#)
 - b [back cover](#)
- 3 Follow the procedure in [After working inside your computer](#)

Removing the Input-Output board

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#)
 - b [battery](#)
 - c [WLAN card](#)
- 3 To remove the I/O board:
 - a Disconnect the I/O board connector cable from the system board [1] [2].
 - b Remove the screw that secures the I/O board to the system board [3].
 - c Lift and remove the I/O board from the computer [4].

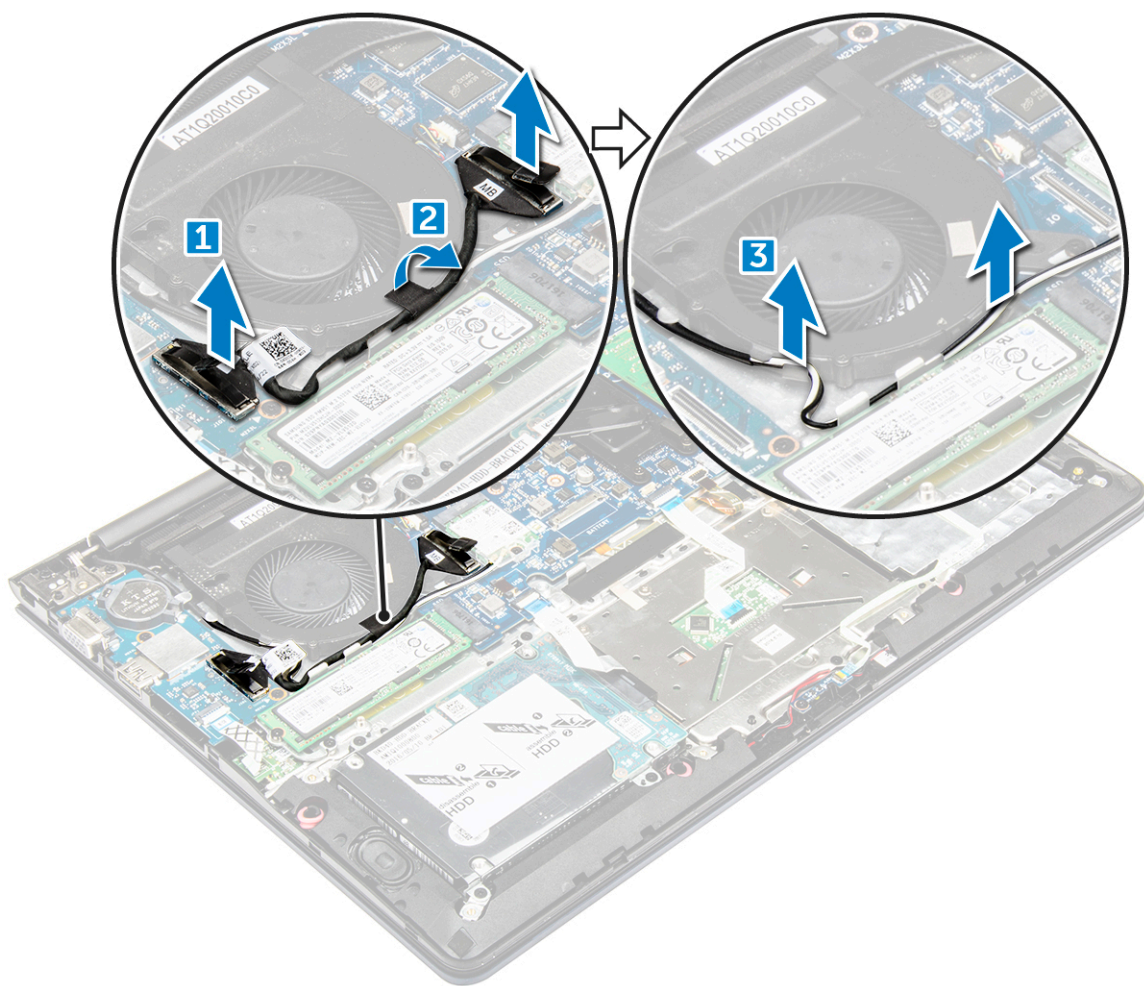


Installing the Input-Output board

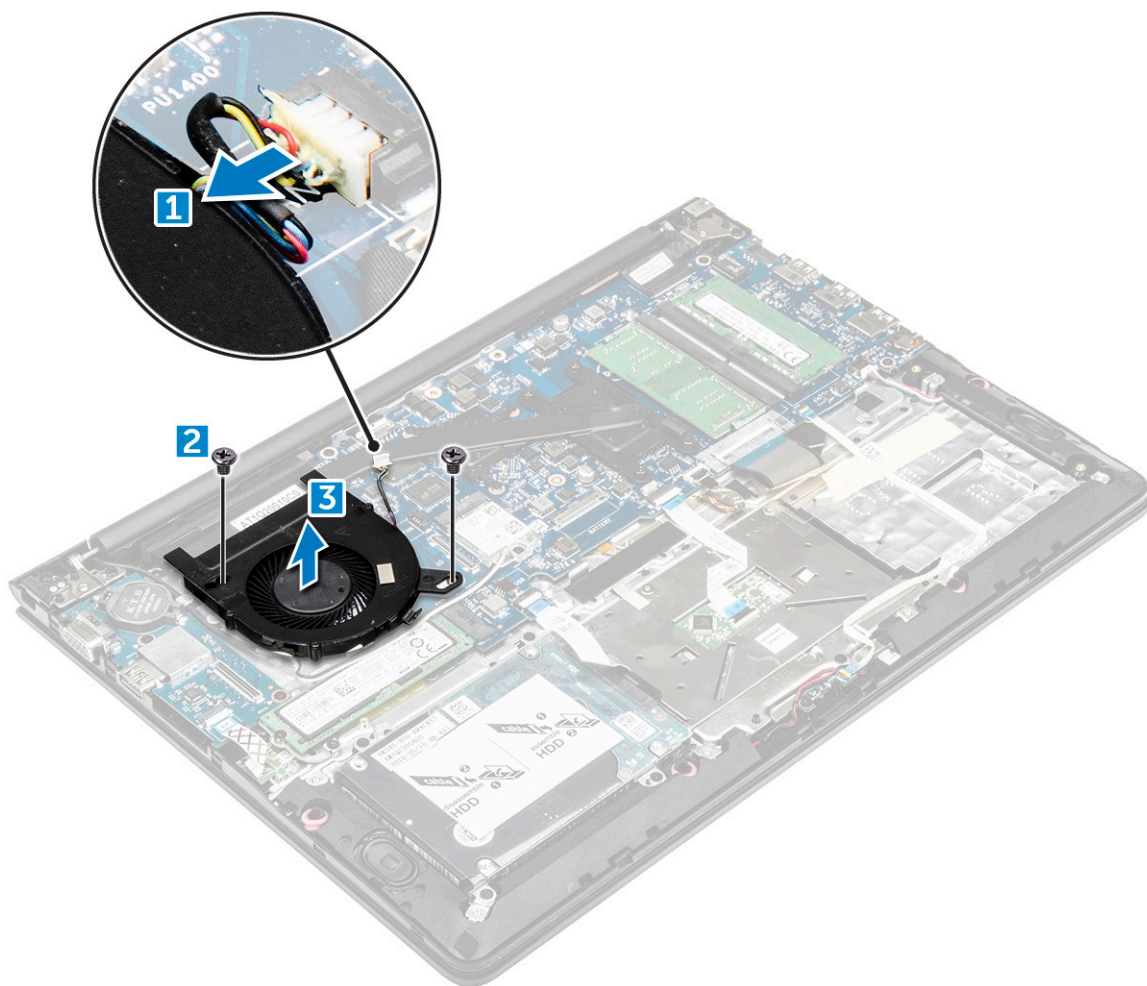
- 1 Insert the I/O board into the slot on the computer chassis.
- 2 Install the screw that secures the I/O board to the computer.
- 3 Connect the I/O board cables to the system board.
- 4 Install the:
 - a WLAN card
 - b battery
 - c back cover
- 5 Follow the procedure in [After working inside your computer](#)

Removing the fan

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a back cover
 - b battery
 - c WLAN card
- 3 To remove the fan:
 - a Disconnect the I/O board and system board cables from the connectors on the system board [1] [2].
 - b Unroute the WLAN connector cables from the fan module [3].



- 4 To remove the fan:
- a Disconnect the fan connector cable from the system board. [1]
 - b Remove the screws that secure the system fan to the system board. [2]
 - c Lift and remove the system fan from the computer. [3]



Installing the fan

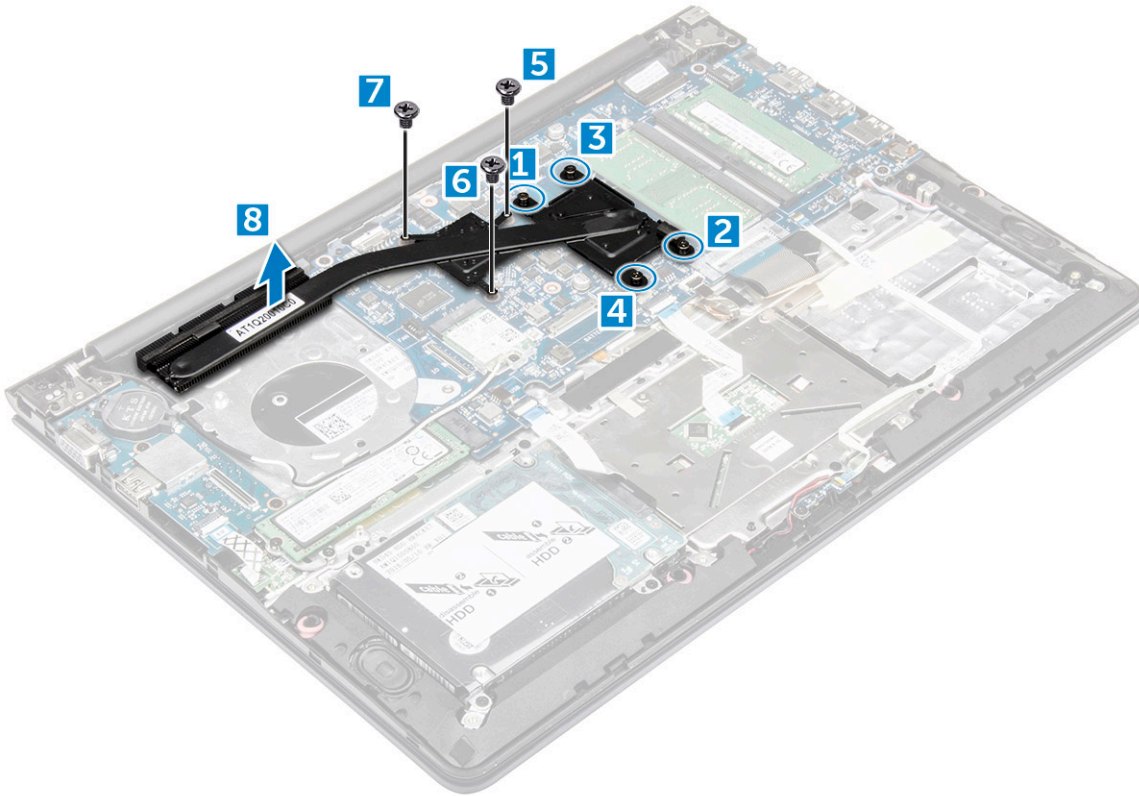
- 1 Install the fan into the slot on the system board.
- 2 Tighten the screws to secure the fan module.
- 3 Connect the I/O board and system fan cable to the system board connectors.
- 4 Install the:
 - a WLAN card
 - b battery
 - c back cover
- 5 Follow the procedure in [After working inside your computer](#)

Removing the heatsink

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a back cover
 - b battery
 - c system fan
- 3 To remove the heatsink:
 - a Remove the screws that secure the heatsink module to the computer chassis.

① **NOTE:** Loosen the screws in the order of the callout numbers [1, 2, 3, 4, 5, 6, 7]. Except for screws [5,6,7] the rest of the screws are retention screws and cannot be fully removed

- b Remove the heatsink module from the slot on the system board [8].



Installing the heatsink

- 1 Place the heatsink module into its slot on the system board.
- 2 Tighten the screws to secure the heatsink module to the computer.

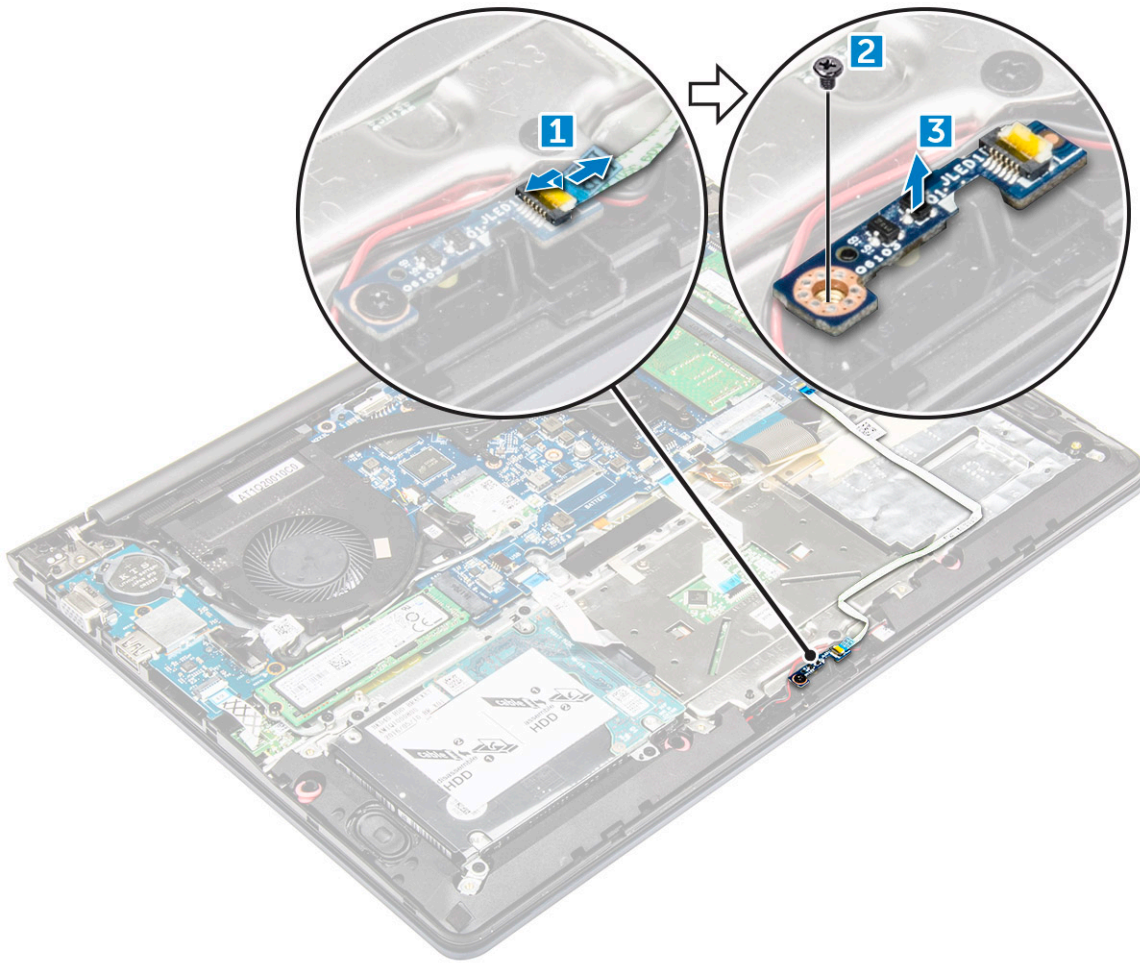
① **NOTE:** Secure the screws in the order of the callout numbers [1, 2, 3, 4] as seen on the heatsink module. Tighten the rest of the screws.

- 3 Install the:
 - a system fan
 - b battery
 - c back cover
- 4 Follow the procedure in [After working inside your computer](#)

Removing the LED board

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a back cover
 - b battery
- 3 To remove the LED board:
 - a Lift the tab to disconnect the LED board connector cables from the system board [1].
 - b Remove the screw that secures LED board to the computer [2].
 - c Remove the LED board from the computer [3].



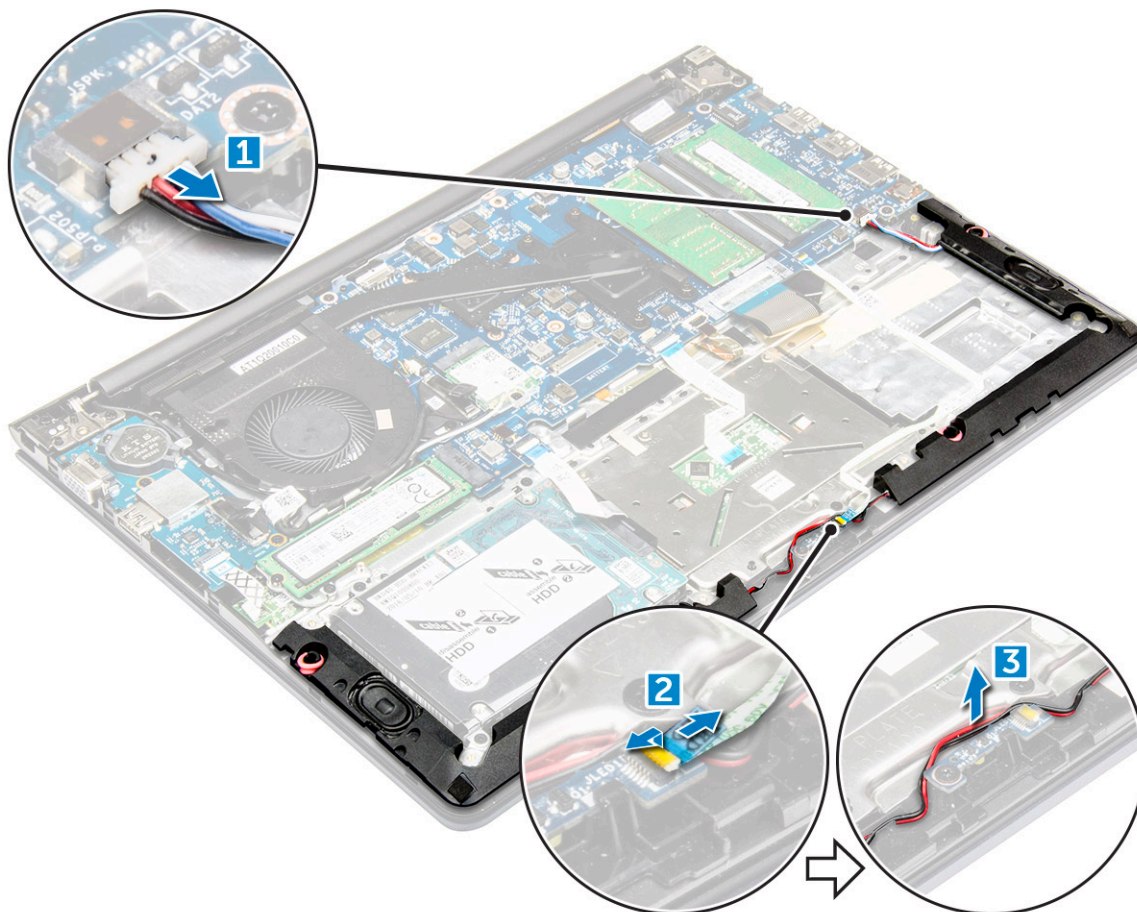


Installing the LED board

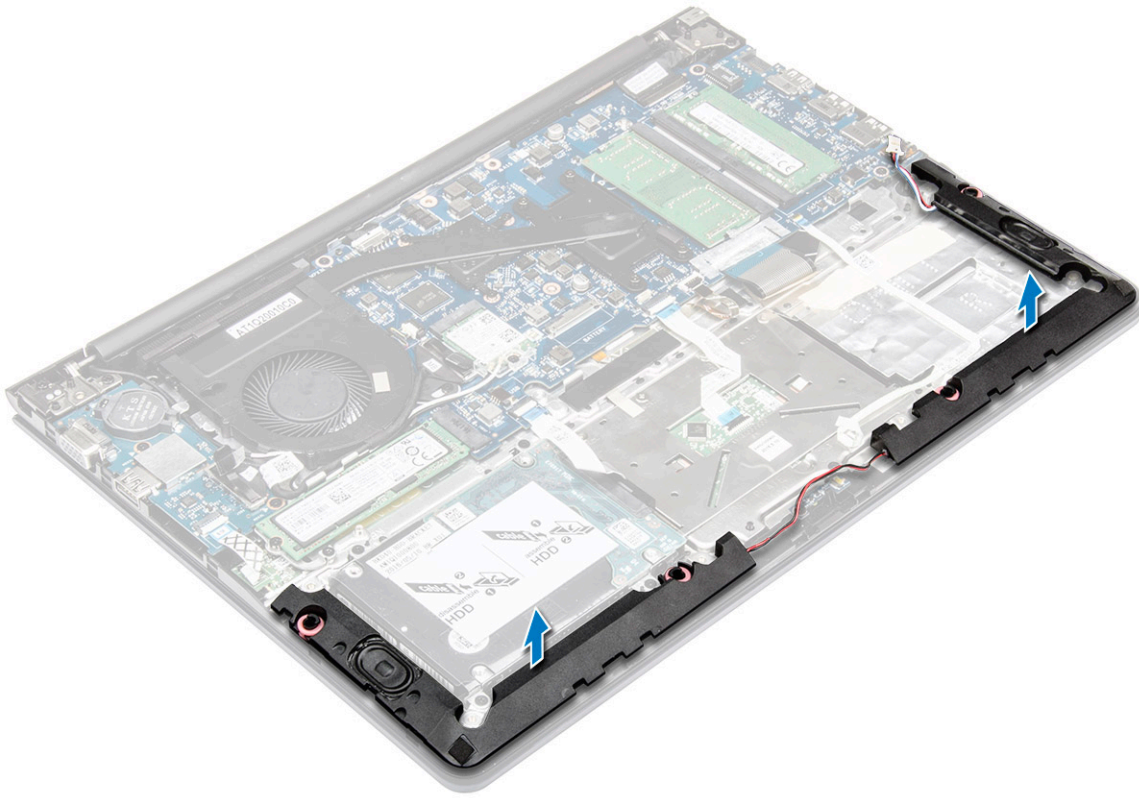
- 1 Place the LED module into its slot on the computer.
- 2 Tighten the screw to secure the LED module to the computer.
- 3 Connect the LED module cable to the computer.
- 4 Install the:
 - a [battery](#)
 - b [back cover](#)
- 5 Follow the procedure in [After working inside your computer](#)

Removing the speakers

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#)
 - b [battery](#)
- 3 To remove the speaker cables:
 - a Disconnect the speaker connector cables from the system board and the LED board. [1] [2].
 - b Unroute the speaker cable from around the LED board [3].



- 4 To remove the speakers:
- a Unroute the cables along the routing channels.
 - b Lift and remove the speakers from the computer.

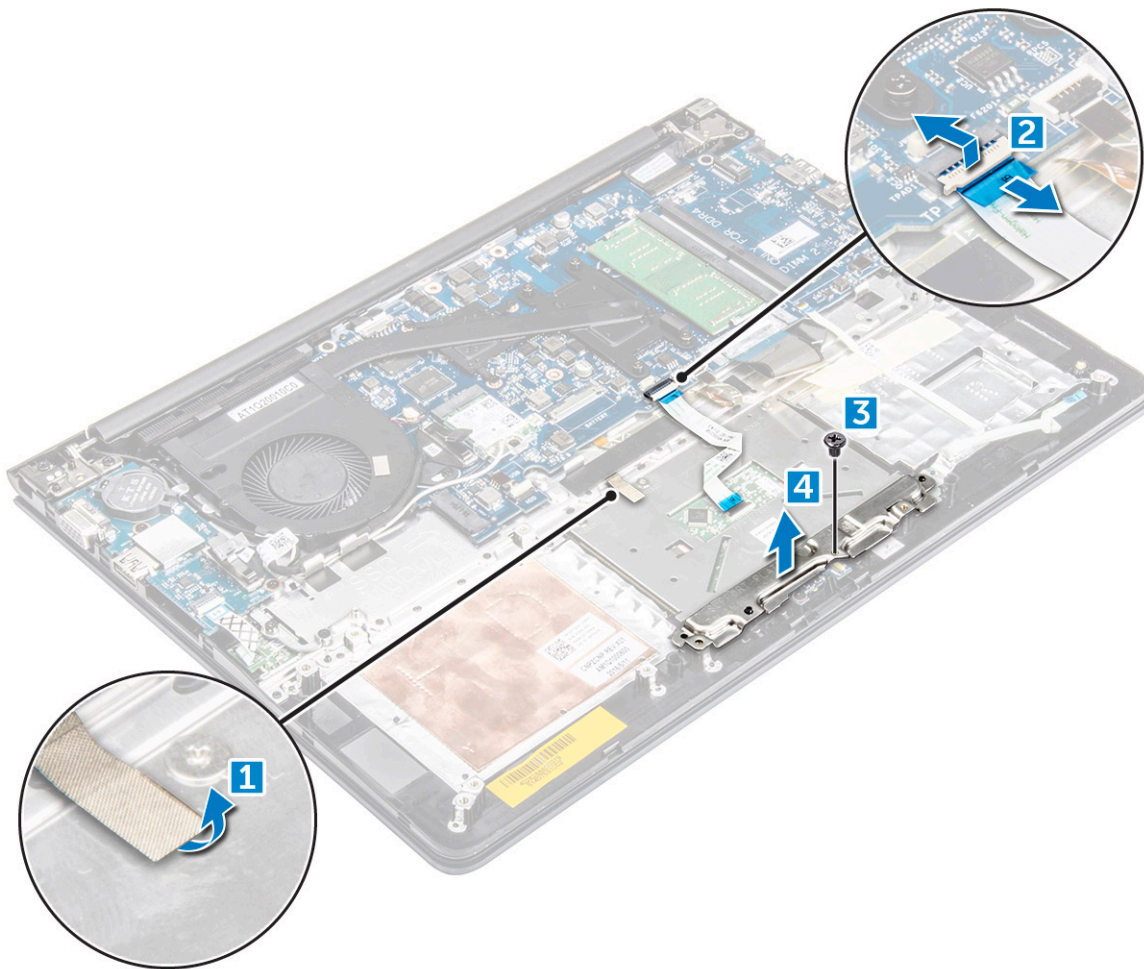


Installing the speakers

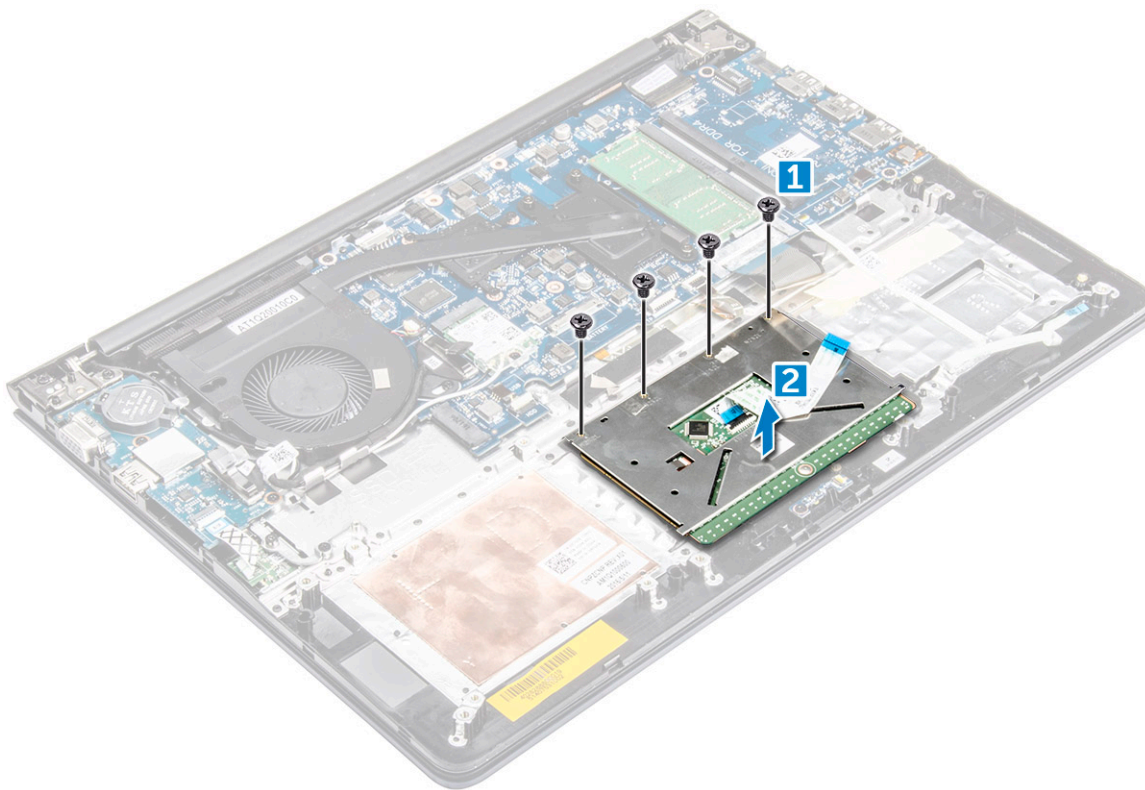
- 1 Insert the speakers into the slot on the computer chassis.
- 2 Route the speaker cable along the routing channel.
- 3 Connect the speaker cables to the connectors on the system board and the LED board.
- 4 Install the:
 - a [battery](#)
 - b [back cover](#)
- 5 Follow the procedure in [After working inside your computer](#)

Removing the touchpad

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#)
 - b [battery](#)
 - c [WLAN card](#)
- 3 To release the touchpad:
 - a Peel away the adhesive tape from over the touchpad [1].
 - b Lift the cable to disconnect the touchpad cable from the system board [2].
 - c Remove the screw that connects the touchpad bracket to the touchpad [3].
 - d Lift the bracket away from the touchpad assembly [4].



- 4 To remove the touchpad:
- a Remove the screws that secure the touchpad [1].
 - b Lift and remove the touchpad from the computer [2].

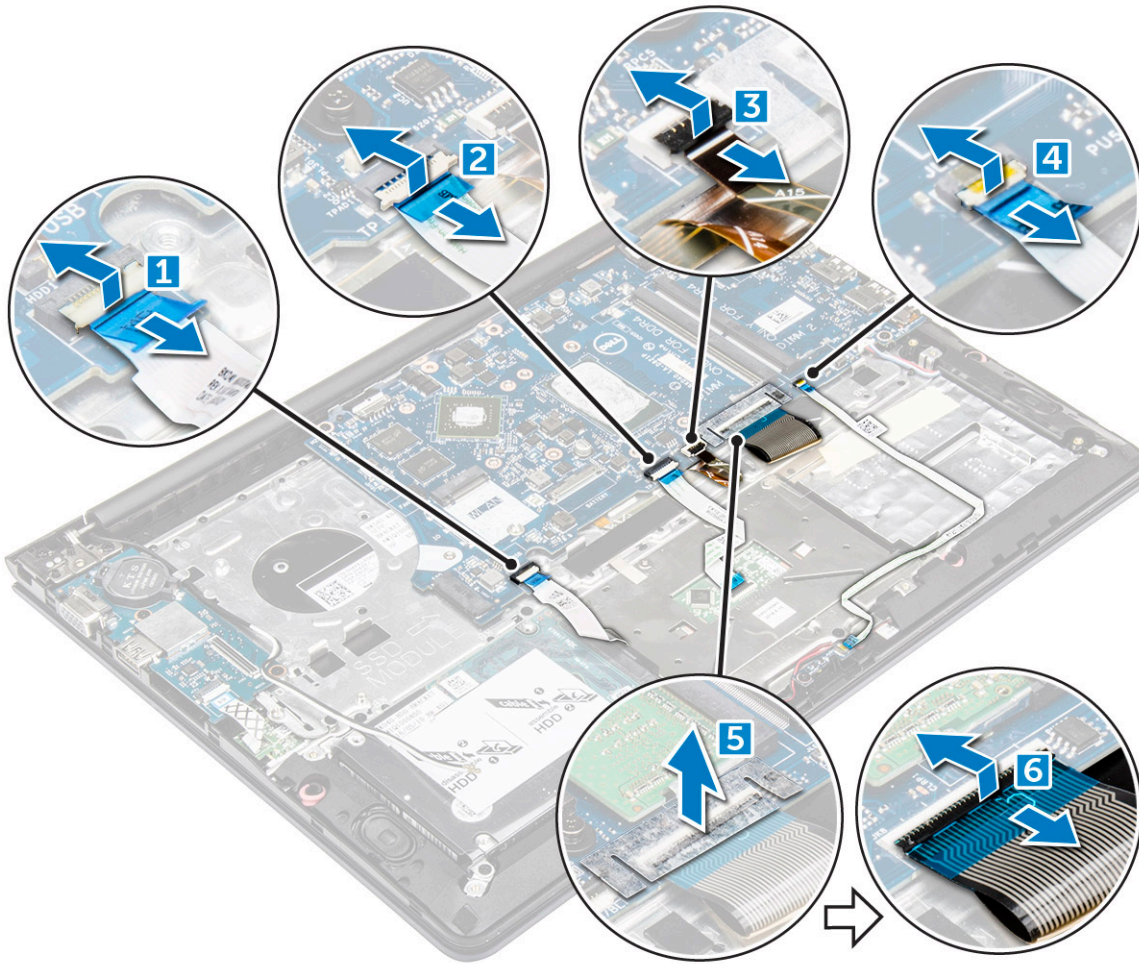


Installing the touchpad

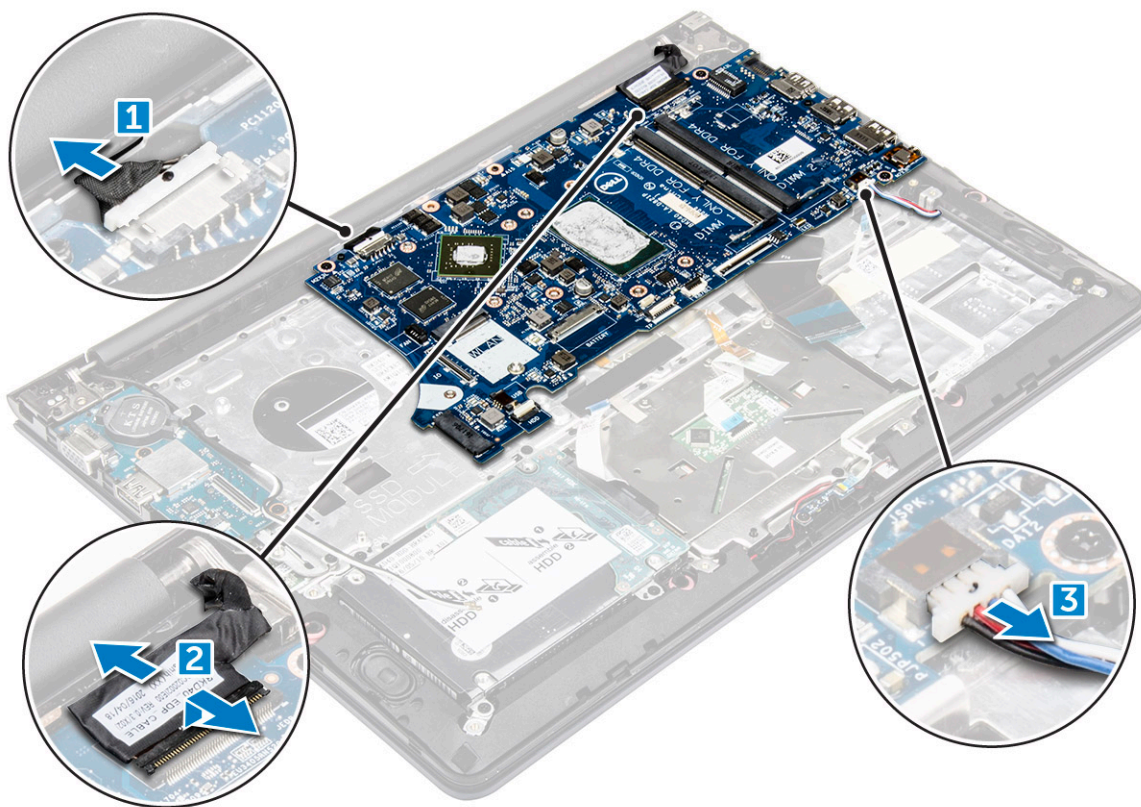
- 1 Align the touchpad with the computer chassis.
- 2 Tighten the screws that secure the touchpad.
- 3 Place the touchpad bracket over the touchpad and install the screws to secure it.
- 4 Install the touchpad connector cables and affix the adhesive tape.
- 5 Install the:
 - a [WLAN card](#)
 - b [battery](#)
 - c [back cover](#)
- 6 Follow the procedure in [After working inside your computer](#)

Removing the system board

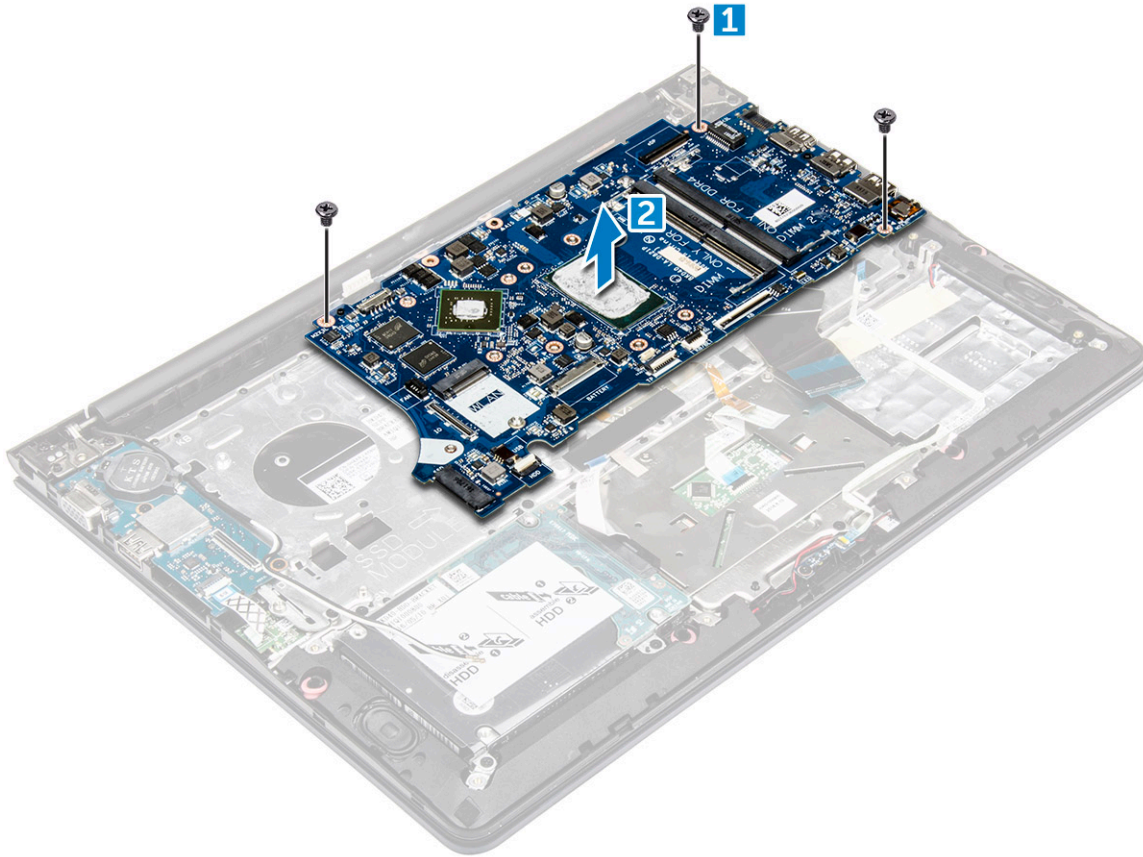
- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#)
 - b [battery](#)
 - c [SSD bracket](#)
 - d [SSD](#)
 - e [WLAN card](#)
 - f [system fan](#)
 - g [heat sink](#)
 - h [display assembly](#)
- 3 Lift the tab [1,2,3,4,6] to disconnect the cables [5] from their connectors on the system board.



- 4 To remove the system board cables:
- a Disconnect the display power supply cable [1].
 - b Lift the tab to disconnect the display connector cable [2].
 - c Disconnect the system board power supply cable. [3]



- 5 To remove the system board:
- a Remove the screws that secure the system board to the computer chassis. [1]
 - b Lift to remove the system board away from the computer. [2]



Installing the system board

- 1 Align the system board into its slot on the computer chassis.
- 2 Install the screws that secure the system board to the computer.
- 3 Connect the power supply and display cables to their connectors.
- 4 Connect the following cables:
 - a System board cable
 - b Display power supply cable
 - c Display connector cable
- 5 Install the:
 - a [display assembly](#)
 - b [system fan](#)
 - c [WLAN card](#)
 - d [heat sink](#)
 - e [SSD bracket](#)
 - f [SSD](#)
 - g [system fan](#)
 - h [battery](#)
 - i [back cover](#)
- 6 Follow the procedure in [After working inside your computer](#)

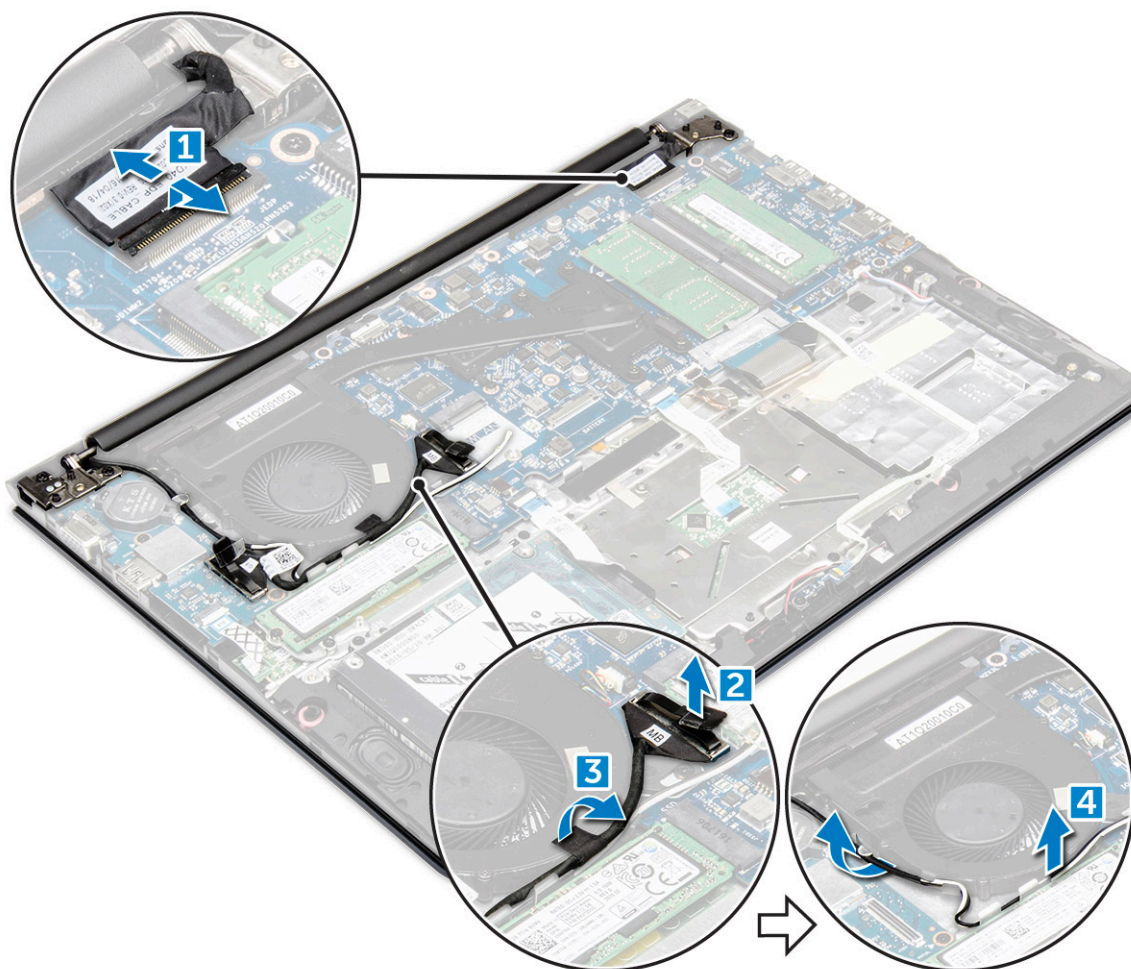
Removing the display assembly

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



NOTE: If you have purchased the touch version of this computer, you will not be able to further disassemble the display. Instead the entire display assembly needs to be replaced.

- 2 Remove the:
 - a back cover
 - b battery
 - c WLAN card
- 3 To remove the display hinges:
 - a Lift the tab to disconnect the display cables from the system board [1] [2].
 - b Unroute the display cable from around the system fan [3] [4].



- 4 Flip the computer base around to access the display panel.



- 5 To remove the display panel:
- a Place the computer on a flat surface as indicated.
 - b Remove the screws that secure the display hinges to the computer chassis [1].
 - c Lift to remove the display panel [2].



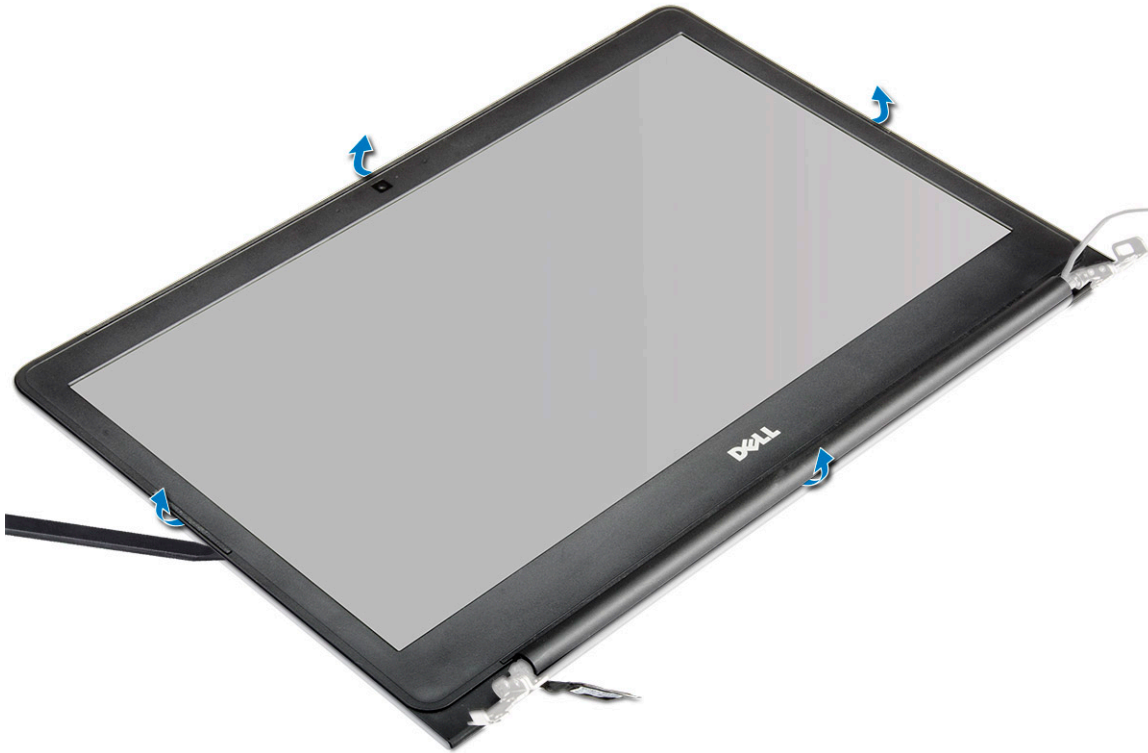
Installing the display assembly

- 1 Align the display assembly with the display hinges of the computer chassis.
- 2 Tighten the screws that secure the display hinges.
- 3 Connect the display cables to the connector on the system board.
- 4 Route the display cables along the system fan module on the chassis.
- 5 Install the:
 - a [WLAN card](#)
 - b [battery](#)
 - c [back cover](#)
- 6 Follow the procedure in [After working inside your computer](#)

Removing the display bezel

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#)
 - b [battery](#)
 - c [LED board](#)
 - d [WLAN card](#)
 - e [system fan](#)
 - f [display assembly](#)

- 3 To remove the display bezel:
 - a Lift the corners of the bezel with a plastic scribe to remove it .



Installing the display bezel

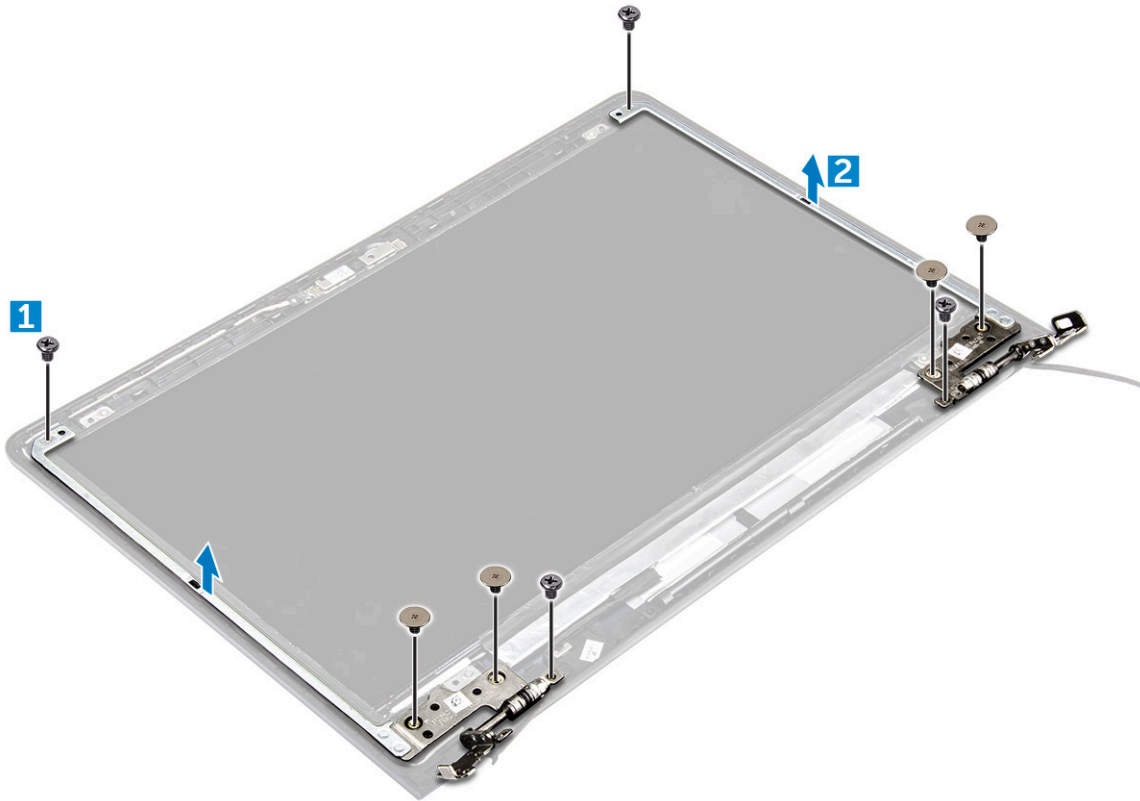
- 1 Place the display bezel on the display panel and press along the edges until it clicks in place.
- 2 Install the:
 - a [display assembly](#)
 - b [system fan](#)
 - c [WLAN card](#)
 - d [LED board](#)
 - e [battery](#)
 - f [back cover](#)
- 3 Follow the procedure in [After working inside your computer](#)

Removing the display panel hinges

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#)
 - b [battery](#)
 - c [LED board](#)
 - d [WLAN card](#)
 - e [system fan](#)
 - f [display assembly](#)
 - g [display bezel](#)
 - h [camera](#)
- 3 To remove the display panel hinges:



- a Remove the screws that secure the display panel hinges [1].
- b Lift and remove the display panel hinges from the computer [2].



Installing the display panel hinges

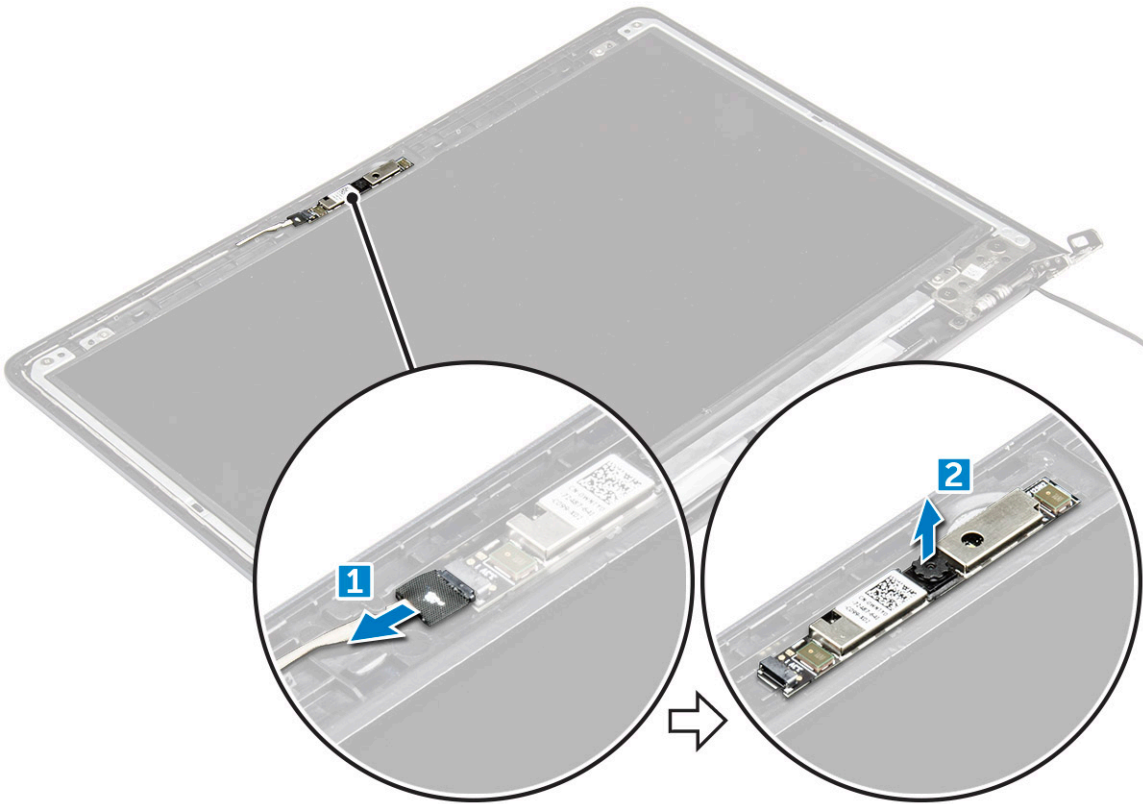
- 1 Align the display panel hinges on the display panel.
- 2 Install the screws that secure the display panel hinges to the display panel.
- 3 Install the:
 - a camera
 - b display bezel
 - c display assembly
 - d system fan
 - e WLAN card
 - f LED board
 - g battery
 - h back cover
- 4 Follow the procedure in [After working inside your computer](#)

Removing the camera

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the :
 - a back cover
 - b battery
 - c LED board
 - d WLAN card
 - e system fan
 - f display assembly

g [display bezel](#)

- 3 To remove the camera:
 - a Disconnect the camera connector cable [1].
 - b Lift to remove the camera from the computer [2].



Installing the camera

- 1 Align the camera to its slot on the display panel.
- 2 Connect the camera cable to its connector on the display panel.
- 3 Install the:
 - a [display bezel](#)
 - b [display assembly](#)
 - c [system fan](#)
 - d [WLAN card](#)
 - e [LED board](#)
 - f [battery](#)
 - g [back cover](#)
- 4 Follow the procedure in [After working inside your computer](#)

Removing the display

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [back cover](#)
 - b [battery](#)
 - c [LED board](#)
 - d [WLAN card](#)
 - e [system fan](#)

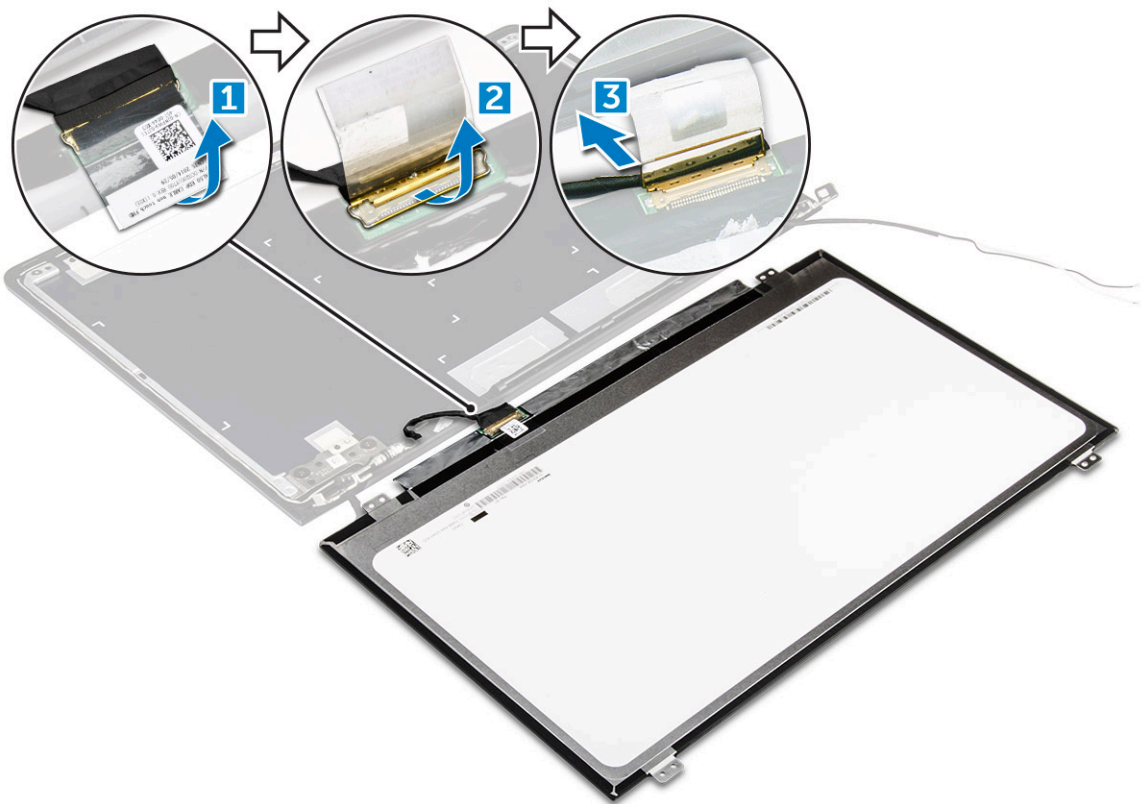


- f display assembly
- g display bezel
- h camera

- 3 To remove the display :
 - a Remove the screws that secure the display [1].
 - b Lift the display panel and turn it over [2].



- 4 To remove the display:
 - a Peel away the adhesive tape above the display connector [1].
 - b Disconnect the display connector and remove the display from the display panel [2] [3].



Installing the display

- 1 Connect the display connector cable to its connector on the display panel.
- 2 Affix the adhesive tape over the connector.
- 3 Flip the display around and align it along the edges of the display panel.
- 4 Install the screws that secure the display to the display panel.
- 5 Install the:
 - a camera
 - b display bezel
 - c display assembly
 - d system fan
 - e WLAN card
 - f LED board
 - g battery
 - h back cover
- 6 Follow the procedure in [After working inside your computer](#)

Keyboard

CAUTION: Do not try to remove the keyboard because keyboard is not a removable component. To replace the keyboard, you must replace the palmrest.

Removing the palmrest

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



- b battery
 - c SSD bracket
 - d SSD
 - e WLAN card
 - f system fan
 - g heat sink
 - h display assembly
 - i system board
- 3 The palmrest can be removed after all other components have been disassembled.



Installing the palmrest

- 1 Align the palmrest into its slot on the computer chassis.
- 2 Install the:
 - a system board
 - b display assembly
 - c system fan
 - d WLAN card
 - e heat sink
 - f SSD bracket
 - g SSD
 - h system fan
 - i battery
 - j back cover
- 3 Follow the procedure in [After working inside your computer](#)

Technology and components

Power adapter

This laptop is offered with the 45 W power adapter. This adapter uses a USB C connector.

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

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

Processors

This laptop is shipped with the following processors:

- 6th generation Intel core i3 sky lake processor
- 7th generation Intel core i3 kaby lake processor
- 7th generation Intel core i5 kaby lake processor
- 7th generation Intel core i7 kaby lake processor

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

Identifying the processor in Windows 10 and Windows 8

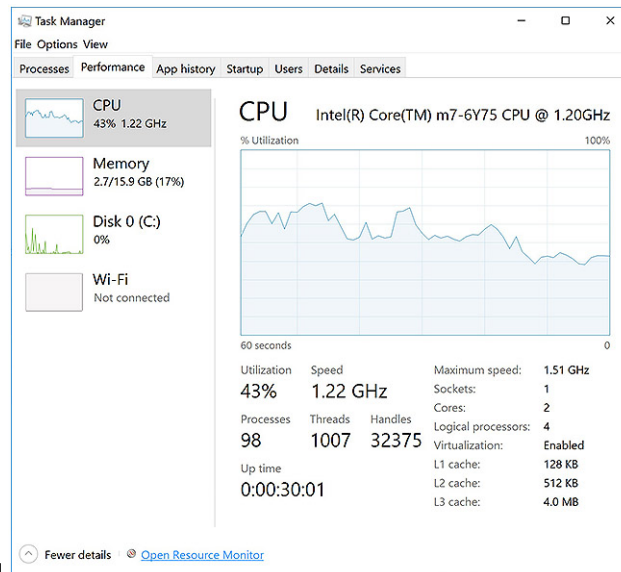
- 1 Tap **Search the Web and Windows**.
- 2 Type **Device Manager**.
- 3 Tap **Processor**.



The basic information of the processor is displayed.

Verifying the processor usage in Task Manager

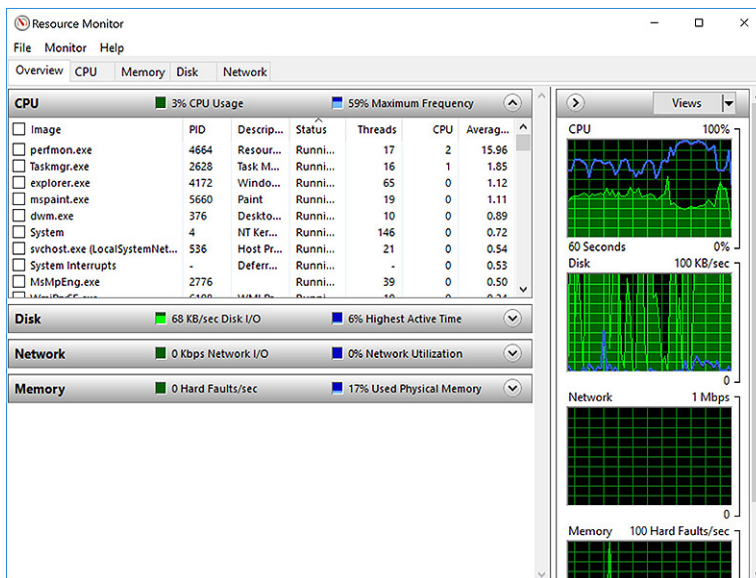
- 1 Press and hold the taskbar.
- 2 Select **Start Task Manager**.
The **Windows Task Manager** window is displayed.
- 3 Click the **Performance** tab in the **Windows Task Manager** window.



The processor performance details are displayed.

Verifying the processor usage in Resource Monitor

- 1 Press and hold the taskbar.
- 2 Select **Start Task Manager**.
The **Windows Task Manager** window is displayed.
- 3 Click the **Performance** tab in the **Windows Task Manager** window.
The processor performance details are displayed.
- 4 Click **Open Resource Monitor**.



Chipsets

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

Downloading the chipset driver

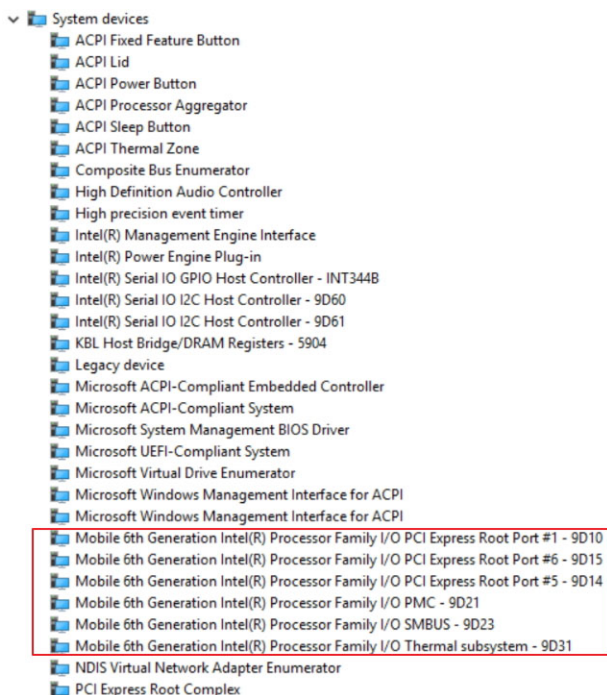
- 1 Turn on the laptop.
- 2 Go to **Dell.com/support**.
- 3 Click **Product Support**, enter the Service Tag of your laptop, and then click **Submit**.

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

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

Identifying the chipset in Device Manager on Windows 10 and Windows 8

- 1 Click **All Settings**  on the Windows 10 Charms Bar.
- 2 From the **Control Panel**, select **Device Manager**.
- 3 Expand **System Devices** and search for the chipset.



Graphic options

This laptop is shipped with the Intel HD Graphics 520 graphics chipset.



Downloading drivers

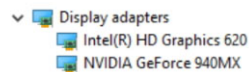
- 1 Turn on the laptop.
- 2 Go to **Dell.com/support**.
- 3 Click **Product Support**, enter the Service Tag of your laptop, and then click **Submit**.

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

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

Identifying the display adapter

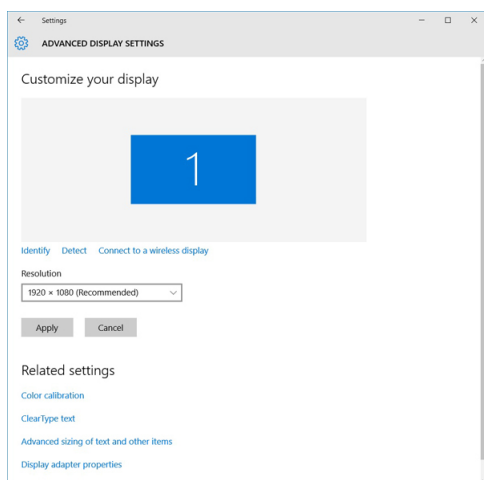
- 1 Start the **Search Charm** and select **Settings**.
- 2 Type **Device Manager** in the search box and tap **Device Manager** from the left pane.
- 3 Expand **Display adapters**.



The display adapters are displayed.

Changing the screen resolution

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



Rotating the display

- 1 Press and hold on the desktop screen.
A sub menu is displayed.
- 2 Select **Graphic Options > Rotation** and choose on of the following:
 - Rotate to Normal
 - Rotate to 90 Degrees

- Rotate to 180 Degrees
- Rotate to 270 Degrees

NOTE: The Display can also be rotated using the following key combinations:

- Ctrl + Alt + Up arrow key (Rotate to normal)
- Right arrow key (Rotate 90 degrees)
- Down arrow key (Rotate 180 degrees)
- Left arrow key (Rotate 270 degrees)

Display options

Adjusting brightness in Windows 10

To enable or disable automatic screen brightness adjustment:

- 1 Swipe-in from the right edge of the display to access the Action Center.
- 2 Tap or click **All Settings**  → **System** → **Display**.
- 3 Use the **Adjust my screen brightness automatically** slider to enable or disable automatic-brightness adjustment.

NOTE: You can also use the Brightness level slider to adjust the brightness manually.

Adjusting brightness in Windows 8

To enable or disable automatic screen brightness adjustment:

- 1 Swipe-in from the right edge of the display to access the Charms menu.
- 2 Tap or click **Settings**  → **Change PC Settings** → **PC and devices** → **Power and sleep**.
- 3 Use the **Adjust my screen brightness automatically** slider to enable or disable automatic-brightness adjustment.

Cleaning the display

- 1 Check for any smudges or areas that has to be cleaned.
- 2 Use a microfiber cloth to remove any obvious dust and gently brush off any dirt particles.
- 3 Proper cleaning kits should be used to clean and keep your display in a crisp clear pristine condition.

NOTE: Never spray any cleaning solutions directly on the screen; spray it to the cleaning cloth.

- 4 Gently wipe the screen in a circular motion. Do not press hard on the cloth.

NOTE: Do not press hard or touch the screen with your fingers or you may leave oily prints and smears.

NOTE: Do not leave any liquid on the screen.

- 5 Remove all excess moisture as it may damage your screen.
- 6 Let the display dry thoroughly before you turn it on.
- 7 For stains that are hard to remove, repeat this procedure till the display is clean.

Connecting to external display devices

Follow these steps to connect your laptop to an external display device:

- 1 Ensure that the projector is turned on and plug the projector cable into a video port on your laptop.
- 2 Press the Windows logo+P key.
- 3 Select one of the following modes:



- PC screen only
- Duplicate
- Extend
- Second Screen only

NOTE: For more information, see the document that shipped with your display device.

Audio controller

This laptop ships with integrated Realtek ALC3266–CG Waves MaxxAudio Pro controller. It is a High Definition audio codec designed for Windows desktop and laptops.

Downloading the audio driver

- 1 Turn on the laptop.
- 2 Go to **www.dell.com/support**.
- 3 Click **Product Support**, enter the Service Tag of your laptop and click **Submit**.

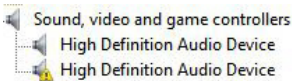
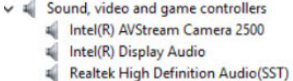
NOTE: If you do not have the Service Tag, use the autodetect feature or manually browse for your laptop model.

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

Identifying the audio controller in Windows 10

- 1 Start the **Search Charm** and select **All Settings** .
- 2 Type `Device Manager` in the search box and select **Device Manager** from the left pane.
- 3 Expand **Sound, video and game controllers**.
The audio controller is displayed.

Table 1. Identifying the audio controller in Windows 10

Before installation	After installation
	

Changing the audio settings

- 1 Start the **Search Charm** and type `Dell Audio` in the search box.
- 2 Start the Dell Audio utility from the left pane.

WLAN cards

This laptop supports the Intel Dual Band Wireless AC 8260 WLAN card.

Secure Boot screen options

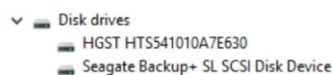
Option	Description
Secure Boot Enable	This option enables or disables the Secure Boot feature. • Disabled • Enabled Default setting: Enabled.
Expert Key Management	Allows you to manipulate the security key databases only if the system is in Custom Mode. The Enable Custom Mode option is disabled by default.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

Hard drive options

This laptop supports M.2 SATA drives.

Identifying the hard drive in Windows 10 and Windows 8

- 1 Tap or click **All Settings**  on the Windows 10 Charms Bar.
- 2 Tap or click **Control Panel**, select **Device Manager** , and expand **Disk drives**.



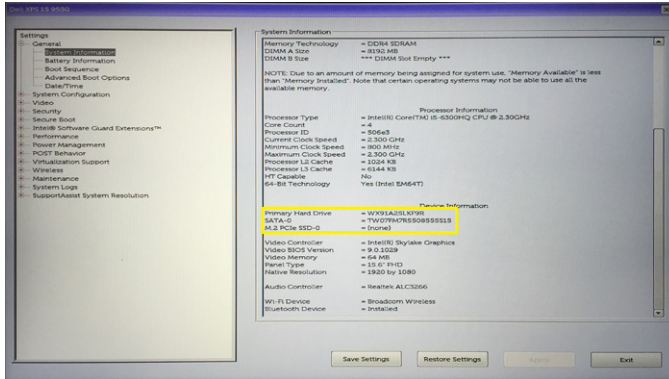
The hard drive is listed under **Disk drives**.



Identifying the Hard Drive in the BIOS

- 1 Turn on or restart your laptop.
- 2 When the Dell logo appears, perform one of the following actions to enter the BIOS setup program:
 - With keyboard — Tap F2 until the Entering BIOS setup message appears. To enter the Boot selection menu, tap F12.
 - Without keyboard — When the **F12 boot selection** menu is displayed, press the Volume Down button to enter BIOS setup. To enter the Boot selection menu, press the Volume Up button.

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



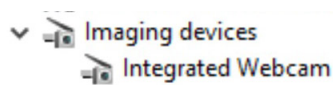
Camera features

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

NOTE: The camera is at the top center of the LCD.

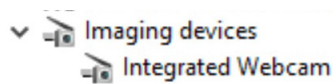
Identifying the camera in Device Manager on Windows 10

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



Identifying the camera in Device Manager on Windows 8

- 1 Start the Charms Bar from the desktop interface.
- 2 Select **Control Panel**.
- 3 Select **Device Manager** and expand **Imaging devices**.

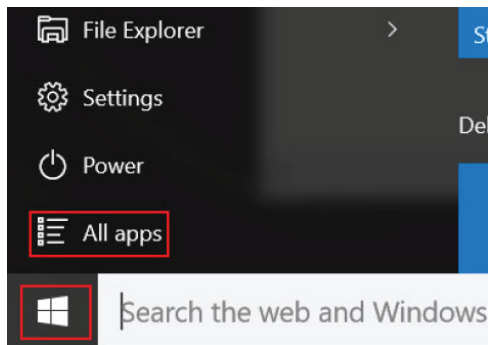


Starting the camera

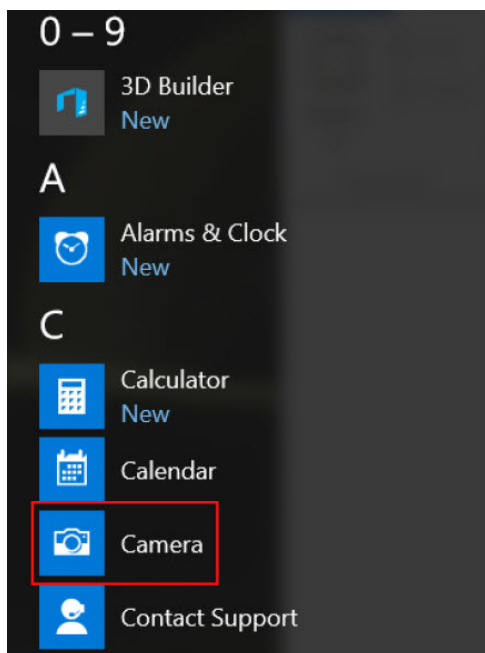
To start the camera, open an application that uses the camera. For instance, if you tap the Dell webcam central software or the Skype software that is shipped with the laptop, the camera turns on. Similarly, if you are chatting on the internet and the application requests to access the webcam, the webcam turns on.

Starting the camera application

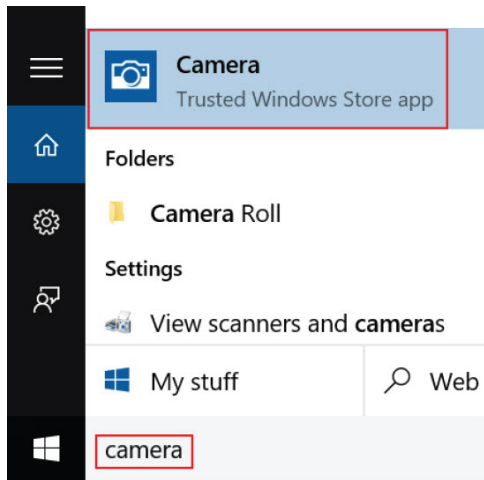
- 1 Tap or click the **Windows** button and select **All apps**.



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



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



Memory features

In this laptop, the memory (RAM) is a part of the system board. This laptop supports 4–16 GB LPDDR3 memory, up to 1600 MHz.

NOTE: Since memory is part of the system board, it cannot be upgraded as a separate module. If the technical support determines that the memory is the cause of an issue, replace the system board.

Verifying system memory in Windows 10

- 1 Tap the **Windows** button and select **All Settings**  **> System**.
- 2 Under **System**, tap **About**.

Verifying system memory in Windows 8

- 1 From your desktop, start the **Charms Bar**.
- 2 Select **Control Panel** and then select **System**.

Verifying system memory in system setup BIOS

- 1 Turn on or restart your system.
- 2 Perform the following actions after the Dell logo is displayed
 - With keyboard — Tap F2 until the Entering BIOS setup message appears. To enter the Boot selection menu, tap F12.
- 3 On the left pane, select **Settings > General > System Information**.
The memory information is displayed on the right pane.

Testing memory using ePSA

- 1 Turn on or restart your laptop.
- 2 Perform one of the following actions after the Dell logo is displayed:
 - With keyboard — Press F2.
 - Without keyboard — Press and hold the **Volume Up** button when the Dell logo is displayed on the screen. When the F12 boot selection menu is displayed, select **Diagnostics** from the boot menu, and press Enter.

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



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

Intel chipset drivers

Verify if the Intel chipset drivers are already installed in the laptop.

Table 2. Intel chipset drivers

Before installation	After installation
- Other devices - PCI Data Acquisition and Signal Processing Controller - PCI Device - PCI Memory Controller - PCI Simple Communications Controller - SM Bus Controller - Unknown device - System devices - ACPI Fan - ACPI Fan - ACPI Fan - ACPI Fan - ACPI Fan - ACPI Fixed Feature Button - ACPI Power Button - ACPI Processor Aggregator - ACPI Thermal Zone - ACPI Thermal Zone - Composite Bus Enumerator - High Definition Audio Controller - High precision event timer - Intel(R) Power Engine Plug-in - Legacy device - Microsoft ACPI-Compliant Embedded Controller - Microsoft ACPI-Compliant System - Microsoft System Management BIOS Driver - Microsoft UEFI-Compliant System - Microsoft Virtual Drive Enumerator - Microsoft Windows Management Interface for ACPI - Microsoft Windows Management Interface for ACPI - NDIS Virtual Network Adapter Enumerator - Numeric data processor - PCI Express Root Complex - PCI Express Root Port - PCI Express Root Port - PCI Express Root Port - PCI Express Root Port - PCI standard host CPU bridge - PCI standard ISA bridge - Plug and Play Software Device Enumerator - Programmable interrupt controller - Remote Desktop Device Redirector Bus - System CMOS/real time clock - System timer - UMBus Root Bus Enumerator	- Other devices - PCI Device - PCI Simple Communications Controller - Unknown device - System devices - ACPI Fan - ACPI Fan - ACPI Fan - ACPI Fan - ACPI Fan - ACPI Fixed Feature Button - ACPI Lid - ACPI Processor Aggregator - ACPI Sleep Button - ACPI Thermal Zone - ACPI Thermal Zone - ACPI Thermal Zone - Camera Sensor OV5670 - Camera Sensor OV8858 - Composite Bus Enumerator - High precision event timer - Intel(R) 100 Series Chipset Family LPC Controller/eSPI Controller - 9D46 - Intel(R) 100 Series Chipset Family PCI Express Root Port #10 - 9D19 - Intel(R) 100 Series Chipset Family PCI Express Root Port #9 - 9D18 - Intel(R) 100 Series Chipset Family PMIC - 9D21 - Intel(R) 100 Series Chipset Family SMBUS - 9D23 - Intel(R) 100 Series Chipset Family Thermal subsystem - 9D31 - Intel(R) C102 Host Controller - Intel(R) C102 Host Controller - Intel(R) Control Logic - Intel(R) Imaging Signal Processor 2500 - Intel(R) Integrated Sensor Solutions - Intel(R) Management Engine Interface - Intel(R) Power Engine Plug-in - Intel(R) Serial IO GPIO Host Controller - INT3448 - Intel(R) Serial IO I2C Host Controller - 9D60 - Intel(R) Serial IO I2C Host Controller - 9D61 - Intel(R) Serial IO I2C Host Controller - 9D62 - Intel(R) Serial IO I2C Host Controller - 9D63

Intel HD Graphics drivers

Verify if the Intel HD Graphics drivers are already installed in the laptop.

Table 3. Intel HD Graphics drivers

Before installation	After installation
- Display adapters - Microsoft Basic Display Adapter - Sound, video and game controllers - High Definition Audio Device - High Definition Audio Device	

Realtek HD audio drivers

Verify if the Realtek audio drivers are already installed in the laptop.



Table 4. Realtek HD audio drivers

Before installation	After installation
▼  Audio inputs and outputs  Microphone (High Definition Audio Device)  Speakers (High Definition Audio Device) ▼  Sound, video and game controllers  High Definition Audio Device  Intel(R) Display Audio	



System Setup

Topics:

- [System Setup overview](#)
- [Boot Sequence](#)
- [Navigation keys](#)
- [Updating the BIOS](#)
- [System Setup options](#)

System Setup overview

System Setup allows you to:

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

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

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

Boot Sequence

Boot Sequence allows you to bypass the System Setup-defined boot device order and boot directly to a specific device (for example: 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

① NOTE: XXX denotes the SATA drive number.

- Optical Drive
- Diagnostics

① 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

① 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.
F1	Displays the System Setup help file.

Updating the BIOS

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

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

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

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

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

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

System Setup options

Table 5. Main

System Time	Re-sets the time on the computer's internal clock.
System Date	Re-sets the date on the computer's internal calendar.

BIOS Version	Displays the BIOS revision.
Product Name	Displays the product name and the model number.
Service Tag	Displays the service tag of your computer.
Asset Tag	Displays the asset tag of your computer (if available).
CPU Type	Displays the type of processor.
CPU Speed	Displays the speed of the processor.
CPU ID	Displays the processor ID.
L1 Cache	Displays the processor L1 cache size.
L2 Cache	Displays the processor L2 cache size.
L3 Cache	Displays the processor L3 cache size.
Fixed HDD	Displays the model number and capacity of the hard drive.
mSATA Device	Displays the model number and capacity of the optical drive.
System Memory	Displays the memory in-built on the computer.
Extended Memory	Displays the memory installed on the computer.
Memory Speed	Displays the memory speed.

Table 6. Advanced

Intel SpeedStep	Enable or disable the Intel SpeedStep feature.	Default: Enabled
Virtualization	Enable or disable the Intel Virtualization feature.	Default: Enabled
Integrated NIC	Enable or disable the power supply to the on-board network card.	Default: Enabled
USB Emulation	Enable or disable the USB emulation feature.	Default: Enabled
USB Powershare	Enable or disable the USB powershare feature.	Default: Enabled
SATA Operation	Change the SATA controller mode to either ATA or AHCI.	Default: AHCI
Adapter Warnings	Enable or disable the Adapter Warnings.	Default: Enable
Function Key Behavior	Specifies the behavior of the function key <Fn>.	Default: Function key
Intel Smart Connect Technology	Enable or disable Intel Smart Connect Technology.	Default: Enable
Intel Rapid Start Technology	Enable or disable Inter Rapid Start Technology.	Default: Enable
Miscellaneous Devices	These fields let you enable or disable various on-board devices.	
Battery Health	Displays a message about the battery health.	

Table 7. Security

Set Asset Tag	This field displays your system's asset tag. If the asset tag is not already set, this field can be used to enter it.
Set Admin Password	Allows you to change or delete the administrator password.
Set System Password	Allows you to change or delete the system password.



Set HDD Password	Allows you to set a password on the computer's internal hard drive (HDD).
Password Change	Allows you to change the security password.
Password Bypass	Allows you to bypass the system password and the internal HDD password prompts during a system restart/resume from hibernate state.

Table 8. Boot

Boot Priority Order	Specifies the order of different devices in which the computer will boot through at start up.
Windows Boot Manager	Allows windows to search for a hard drive with windows files and boot from it.
Secure Boot	Species if the UEFI secure boot option is enabled or disabled.
Add Boot Option	Allows the user to add an additional boot device.
Delete Boot Option	Allows the user to remove an existing boot device from the boot order.

Exit

This section allows you to save, discard, and load default settings before exiting from System Setup.



Technical Specifications

Physical dimension specifications

Feature	Specification
Height	18.45 mm (0.72 inch)
Width	340 mm (13.38 inches)
Length	240 mm (9.44 inches)
Weight (minimum config)	1.6 Kg (3.52 lb)

System information specifications

Feature	Specification
DRAM bus width	64 bit
Flash EPROM	SPI 128 Mbits
PCIe 3.0 bus	8.0 GHz

Processor specifications

Feature	Specification
Types	• 7th generation Intel Core i3 kaby lake processor • 7th generation Intel Core i5 kaby lake processor • 7th generation Intel Core i7 kaby lake processor • 6th generation Intel Core i3 sky lake processor

Memory specifications

Feature	Specification
Memory connector	Two SODIMM slots
Memory capacity	32 GB
Memory type	DDR4
Speed	2133 MHz
Minimum memory	4 GB
Maximum memory	32 GB



Audio specifications

Feature	Specification
Controller	Realtek ALC3246 with Waves MaxxAudio Pro
Interface (internal)	HD audio
Interface (external)	microphone in/stereo headphones/external speakers connector
Speakers	two
Internal speaker amplifier	2 W (RMS)
Microphone	Digital array microphone
Volume controls	Media-control shortcut keys

Video specifications

Feature	Specification
Type	• Intel UMA (Integrated HD) • Intel Iris Gfx (15W & 28W) • nVidia GeForce 940MX upto 4 GB GDDR5
Controller (UMA) — Intel core i3/i5/i7	• Intel core i3/i5/i7 • Intel HD Graphics 610 • Intel HD Graphics 620 • Intel HD Graphics 635 • Intel Iris Graphics 640 • Intel Iris Graphics 650

Communication specifications

Feature	Specification
Network adapter	10/100/1000 Mb/s Ethernet (RJ-45)
Wireless	• WiFi 802.11 ac • Bluetooth 4.0

Battery specifications

Feature	Specification
Type	3-cell smart lithium ion (42 WHr)
Depth	184.15 mm (7.25 inches)
Height	5.9 mm (0.23 inches)
Width	97.15 mm (3.82 inches)

Feature	Specification
Weight	0.2 kg (0.44 lb)
Voltage	14.8 V DC
Life span	300 discharge per charge cycles
Temperature range	
Operating	0°C to 35°C (32°F to 95°F)
Storage	–40°C to 65°C (–40°F to 149°F)
Operating time	4 hours (when the computer is off)
Coin cell battery	3 V CR2032 lithium coin cell

Ports and connector specifications

Feature	Specification
Audio	one microphone/stereo headphone/speakers connector
Video	- one 19-pin HDMI port - one 15-pin VGA port
Network adapter	one RJ–45 connector
USB ports	- one USB 3.0-compliant port with PowerShare - two USB 3.0-compliant ports

Display specifications

Feature	Specification
Type	WLED display
Size	14.0 inches
Height	190.00 mm (7.48 inches)
Width	323.5 mm (12.59 inches)
Diagonal	375.2 mm (14.77 inches)
Active area (X/Y)	309.4 mm x 173.95 mm
Maximum resolution	1366 x 768 pixels
Refresh rate	60 Hz
Operating angle	0° (closed) to 180°
Maximum viewing angles (horizontal)	+/- 70° minimum for HD
Maximum viewing angles (vertical)	+/- 70° minimum for HD
Pixel pitch	0.1875 mm



Touchpad specifications

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

Active Area:

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

Y-axis	53.00 mm
--------	----------

Keyboard specifications

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

Number of keys

- 83 keys: US English, Thai, French-Canadian, Korean, Russian, Hebrew, English-International
- 84 keys: UK English, French Canadian Quebec, German, French, Spanish (Latin America), Nordic, Arabic, Canada Bilingual
- 85 keys: Brazilian Portuguese

Layout	QWERTY/AZERTY/Ka
--------	------------------

Adapter specifications

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

Type	45 W/65 W
------	-----------

Input voltage	100–240 V AC
---------------	--------------

Input current (maximum)	1.30 A/1.60 A/1.70 A
----------------------------	----------------------

Input frequency	50–60 Hz
-----------------	----------

Output current	2.31 A/3.34 A
----------------	---------------

Rated output voltage	19.5 V DC
-------------------------	-----------

Temperature range (operating)	0°C to 40°C (32°F to 104°F)
----------------------------------	-----------------------------

Temperature range (nonoperating)	–40°C to 70°C (–40°F to 158°F)
-------------------------------------	--------------------------------

Environmental specifications

Feature	Specifications
---------	----------------

Temperature — operating	– 0°C to 35°C (32°F to 95°F)
----------------------------	------------------------------

Temperature — storage	–40°C to 65°C (–40°F to 149°F)
--------------------------	--------------------------------

Relative humidity (maximum) — operating	10% to 90% (noncondensing)
---	----------------------------

Feature	Specifications
Relative humidity (maximum) — storage	0% to 95% (noncondensing)
Altitude (maximum) — operating	–15.2 m to 3048 m (–50 ft to 10,000 ft)
Altitude (maximum) — storage	–15.2 m to 10,668 m (–50 ft to 35,000 ft)



System setup options

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

Topics:

- General screen options
- System Configuration screen options
- Video screen options
- Security screen options
- Secure Boot screen options
- Performance screen options
- Power Management screen options
- POST Behavior screen options
- Virtualization support screen options
- Wireless screen options
- Maintenance screen options
- System Log screen options

General screen options

This section lists the primary hardware features of your computer.

Option	Description
System Information	This section lists the primary hardware features of your computer. • System Information: Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date, Manufacture Date, and the Express Service Code. • Memory Information: Displays Memory Installed, Memory Available, Memory Speed, Memory Channels Mode, Memory technology • Processor Information: Displays Processor Type, Core Count, Processor ID, Current Clock Speed, Minimum Clock Speed, Maximum Clock Speed, Processor L2 Cache, Processor L3 Cache, HT Capable, and 64-bit technology. • Device Information: SATA-0, M.2 PCIe SSD-0, Video Controller, Video BIOS Version, Video Memory, Panel Type, Native Resolution, Audio Controller, WiFi Device, WiGig Device, Cellular Device, Bluetooth Device.
Battery Information	Displays the battery status and the type of AC adapter connected to the computer.
Boot Sequence	Allows you to change the order in which the computer attempts to find an operating system. • Windows Boot Manager or UEFI • Legacy or UEFI
Boot Options	This option allows you the legacy option ROMs to load. By default, the Enable UEFI Network Stack is disabled.
Date/Time	Allows you to change the date and time.

System Configuration screen options

Option	Description
SATA Operation	Allows you to configure the internal SATA hard-drive controller. The options are: • 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: • SATA-1 • M.2 PCI-e SSD-0
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. • 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: • Enable USB Boot Support (by default enable) • Enable External USB Port (by default enable) • Enable Thunderbolt Port (by default enable). • Enable Thunderbolt Boot Support. This is an optional feature. • Always Allows Dell Docks. This is an optional feature. • Enables Thunderbolt (and PCIe behind TBT) Pre-boot  NOTE: USB keyboard and mouse always work in the BIOS setup irrespective of these settings.
USB PowerShare	This field configures the USB PowerShare feature behavior. This option allows you to charge external devices using the stored system battery power through the USB PowerShare port. By default, the Enable USB PowerShare is disabled.
Audio	This field enables or disables the integrated audio controller. By default, the Enable Audio option is selected. The options are: • Enable Microphone (by default enabled) • Enable Internal Speaker (by default enabled)
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: • Disabled • Dim



Option	Description
	Bright (enabled by default)
Keyboard Backlight Timeout on AC	This feature defines the time-out value for the keyboard backlight when an AC adapter is plugged into the system. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. Options are: 5 seconds 10 seconds — this option is selected by default 15 seconds 30 seconds 1 minute 5 minute 15 minute - never
Keyboard Backlight Time-out on Battery	The Keyboard Backlight Time-out dims out with Battery option. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. Options are: 5 seconds 10 seconds — this option is selected by default 15 seconds 30 seconds 1 minute 5 minute 15 minute - never
Miscellaneous Devices	Allows you to enable or disable various on board devices: - Enable Camera —enabled by default - Enable Secure Digital(SD) Card - 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).

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

Security screen options

Option	Description
Admin Password	Allows you to set, change, or delete the administrator (admin) password. NOTE: You must set the admin password before you set the system or hard drive password. Deleting the admin password automatically deletes the system password and the hard drive password. NOTE: Successful password changes take effect immediately.

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.</i> Default setting: Not set
Mini Card SSD-0 Password	Allows you to set, change or delete the password on the mini card Solid State Drive (SSD). <i>NOTE: Successful password changes take effect immediately.</i> 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, Admin and System passwords must contain at least one uppercase character, one lowercase character and be at least 8 characters long.</i>
Password Configuration	Allows you to determine the minimum and maximum length of Administrator and System passwords.
Password Bypass	Allows you to enable or disable the permission to bypass the System and the Internal HDD password, when they are set. The options are: - Disabled - 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.
UEFI Capsule Firmware Updates	Allows to control whether this system allows BIOS updates via UEFI capsule update packages. Default setting: Enable UEFI Capsule Firmware Updates is selected.
TPM 1.2/2.0 Security	Allows you to enable the Trusted Platform Module (TPM) during POST. The options are: - TPM On (enabled by default) - Clear - PPI Bypass for Enabled Commands - PPI Bypass for Disabled Commands - Activate - Deactivate <i>NOTE: To upgrade or downgrade TPM1.2/2.0, download the TPM wrapper tool (software).</i>
Computrace	Allows you to activate or disable the optional Computrace software The options are: Deactivate



Option	Description
	• Disable • Activate NOTE: The Activate and Disable options will permanently activate or disable the feature and no further changes will be allowed Default setting: Deactivate
CPU XD Support	Allows you to enable the Execute Disable mode of the processor. Enable CPU XD Support (default)
Admin Setup Lockout	Allows you to prevent users from entering Setup when an Administrator password is set. Default Setting: Disabled

Secure Boot screen options

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

Performance screen options

Option	Description
Multi Core Support	This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores. This option is enabled by default. Allows you to enable or disable multi-core support for the processor. The installed processor supports two cores. If you enable Multi Core Support, two cores are enabled. If you disable Multi Core Support, one core is enabled.

Option	Description
	Enable Multi Core Support Default setting: The option is enabled.
Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep feature. Enable Intel SpeedStep Default setting: The option is enabled.
C-States Control	Allows you to enable or disable the additional processor sleep states. C states Default setting: The option is enabled.
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor. Enable Intel TurboBoost Default setting: The option is enabled.
Hyper-Thread Control	Allows you to enable or disable the Hyper-Threading in the processor. - Disabled - Enabled Default setting: Enabled.
DDR Frequency	This option changes DDR frequency to 1600 or 1866 MHz. By default, 1600 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: - Disabled - Every Day - Weekdays - Select Days Default setting: Disabled
USB Wake Support	Allows you to enable USB devices to wake the system from Standby. NOTE: This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the system setup removes power from all the USB ports to conserve battery power. - Enable USB Wake Support - Wake on Trinity Dock - The option is selected by default.



Option	Description
Wake on LAN/ WLAN	Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal. • Disabled • WLAN Only Default setting: Disabled
Peak Shift	This option enables you to minimize the AC power consumption during the peak power times of day. After you enable this option, your system runs only in battery even if the AC is attached. • Enable Peak Shift Default setting: Disabled
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 non-work hours to improve the battery health. • Enabled Advanced Battery Charge Mode Default setting: Disabled
Primary Battery Charge Configuration	Allows you to select the charging mode for the battery. The options are: • Adaptive • Standard — Fully charges your battery at a standard rate. • ExpressCharge — The battery charges over a shorter period of 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.  NOTE: All charging mode may not be available for all the batteries. To enable this option, disable the Advanced Battery Charge Configuration option.

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. • Fn Key Only: This option is enabled by default. • By Numlock  NOTE: When setup is running, this option has no effect. Setup works in Fn Key Only mode.
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.

Option	Description
	Enable Fn Key Emulation (default)
Fn Lock Options	Allows you to let hot key combinations Fn + Esc toggle the primary behavior of F1–F12, between their standard and secondary functions. If you disable this option, you cannot toggle dynamically the primary behavior of these keys. The available options are: • Fn Lock. This option is selected by default. • Lock Mode Disable/Standard • Lock Mode Enable/Secondary
MEBx Hotkey	Allows you to specify whether the MEBx Hotkey function should enable, during the system boot. Default Setting: Enable MEBx Hotkey
Fastboot	Allows you to speed up the boot process by bypassing some of the compatibility steps. The options are: • Minimal • Thorough (default) • Auto
Extended BIOS POST Time	Allows you to create an additional preboot delay. The options are: • 0 seconds. This option is enabled by default. • 5 seconds • 10 seconds

Virtualization support screen options

Option	Description
Virtualization	Allows you to enable or disable the Intel Virtualization Technology. Enable Intel Virtualization Technology (default).
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 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: • WWAN • GPS (on WWAN Module)



Option	Description
	• WLAN/WiGig • Bluetooth All the options are enabled by default. NOTE: For WLAN and WiGig enable or disable controls are tied together and they cannot be enabled or disabled independently.
Wireless Device Enable	Allows you to enable or disable the internal wireless devices. • WWAN/GPS • WLAN/WiGig • Bluetooth All the options are enabled by default.

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.
Data Wipe	This field allows users to erase the data securely from all internal storage devices. The following is the device affected: • Internal M.2 SSD
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. • BIOS Recovery from Hard Drive (enabled by default)

System Log 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.

Troubleshooting

The following section describes common troubleshooting steps that can be performed to resolve certain problems on your computer.

Topics:

- [Enhanced Pre-Boot System Assessment — ePSA diagnostics](#)
- [LED error codes](#)
- [Battery status lights](#)

Enhanced Pre-Boot System Assessment — ePSA diagnostics

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

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

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

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

LED error codes

Table 9. LED error codes

LED flashes	Fault description
1,1	Bad system board
1,2	Bad system board, PSU or cabling
1,3	Bad system board, DIMMS or CPU
1,4	Bad coin cell battery
2,1	CPU problem
2,2	System board: BIOS ROM failure
2,3	Memory issue
2,4	Memory issue
2,5	Memory issue



2,6	System board: Chipset failure
2,7	Display failure (LCD)
3,1	RTC Power failure
3,2	PCI/video
3,3	BIOS recovery 1
3,4	BIOS recovery 2
4,1	CPU configuration or CPU failure
4,2	Generic POST video error (old LED pattern 1110)

Battery status lights

Table 10. Battery LED Behavior

Battery charge LED	Status	LED behavior
AC mode	All	White
	Fully charged	Off
Battery mode	Low to Fully charged	Off
	Discharging when Battery charge is $\leq 10\%$	Solid Yellow

Contacting Dell

Contacting Dell

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

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

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

