Dell OptiPlex 5250 All-In-One

Owners Manual

DELLEMC

Notes, cautions, and warnings

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

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

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

May 2020

Rev. A04

Contents

Identifier	GUID-9CCD6D90-C1D1-427F-9E77-D4F83F3AD2B6
Version	3
Status	Released

Working on your computer

Identifier	GUID-CEF5001C-74CA-41CA-8C75-25E2A80E8909
Version	17
Status	Released

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. Ensure you follow the Turning off your computer.
4. Disconnect all network cables from the computer.

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

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

   ⓘ **NOTE: 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.**

Identifier	GUID-9821EDD0-9810-4752-8B3C-AF89B67C2DB0
Version	5
Status	Released

Safety instructions

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

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

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

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

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

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

Identifier	GUID-CC927E5A-E514-4067-B6FA-84EC064F85E9
Version	6
Status	Released

Recommended tools

The procedures in this document require the following tools:

- Small flat blade screwdriver
- Phillips # 1 screwdriver
- Small plastic scribe

Identifier	GUID-52C8386F-7013-4A8E-912D-2DF589CA6CA4
Version	9
Status	Released

Turning off your computer

Identifier	GUID-8CC3ED6C-E9FF-44B2-B71A-231B2D871043
Version	1
Status	Released

Turning off your computer — Windows 7

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

1. Click **Start**.
2. Click **Shut Down**.

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

Identifier	GUID-B70C8BD7-328C-424F-8DF4-80728A0080AB
Version	3
Status	Released

Turning off your computer — Windows 10

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

1. Click or tap ⊞.

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

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

After working inside your computer

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

1. Replace the cover.
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.
5. If required, verify that the computer works correctly by running **ePSA diagnostics**.

Important Information

ⓘ **NOTE: Avoid using the touchscreen in dusty, hot, or humid environments.**

ⓘ **NOTE: Sudden change in temperature may cause condensation on the inner surface of the glass screen, which will disappear after a short time and does not affect normal usage.**

Identifier	GUID-7AAAE6E7-9D06-4C20-82BF-728ABC2DF3EF
Version	4
Status	Released

Removing and installing components

Identifier	GUID-8C1F5E66-1E60-4FCD-A91B-7CF35B61EE5F
Version	1
Status	Released

Stand

Identifier	GUID-1ABD59E3-D701-481B-8D38-B295F96E5F20
Version	7
Status	Released

Removing the stand

(i) **NOTE: The system is shipped with three different types of stands:**

- **Height Adjustable Stand**
- **Basic Stand**
- **Articulating Stand**

The removal procedure is the same for all the three stands.

1. Follow the procedure in Before working inside your computer.
2. Place the computer on clean, flat surface with the display facing downward.
3. To remove the stand:
   a) Press the tab on the cover to release the stand [1].
   b) Lift the stand upward [2].

   (i) **NOTE: Each of the three stands will attach and detach in the same manner.**

Figure 1. Height Adjustable Stand

Figure 2. Fix stand

Figure 3. Articulate stand

Identifier	GUID-A82988C4-8726-4E6A-9D9F-0D0AC35CB32E
Version	3
Status	Released

Installing the stand

1. Place the computer on a clean, flat surface and align the stand, and then slide it on the back of the computer.
2. Press the stand down till it snaps in.
3. Follow the procedure in After working inside your computer.

Identifier	GUID-56AEF6F7-F81F-4702-A5E9-C87C98D5BD4F
Version	1
Status	Released

Cable cover

Identifier	GUID-47FD06C0-86FC-4E37-B99C-C6EC44D873C5
Version	2
Status	Released

Removing the cable cover

1. Follow the procedure in Before working inside your computer.
2. Remove the stand.
3. To remove the cable cover:
    a) Remove the screw that secures the cable cover to the computer [1].
    b) Push the release tabs to release the cable cover [2].
    c) Lift the cable cover away from the computer [3].
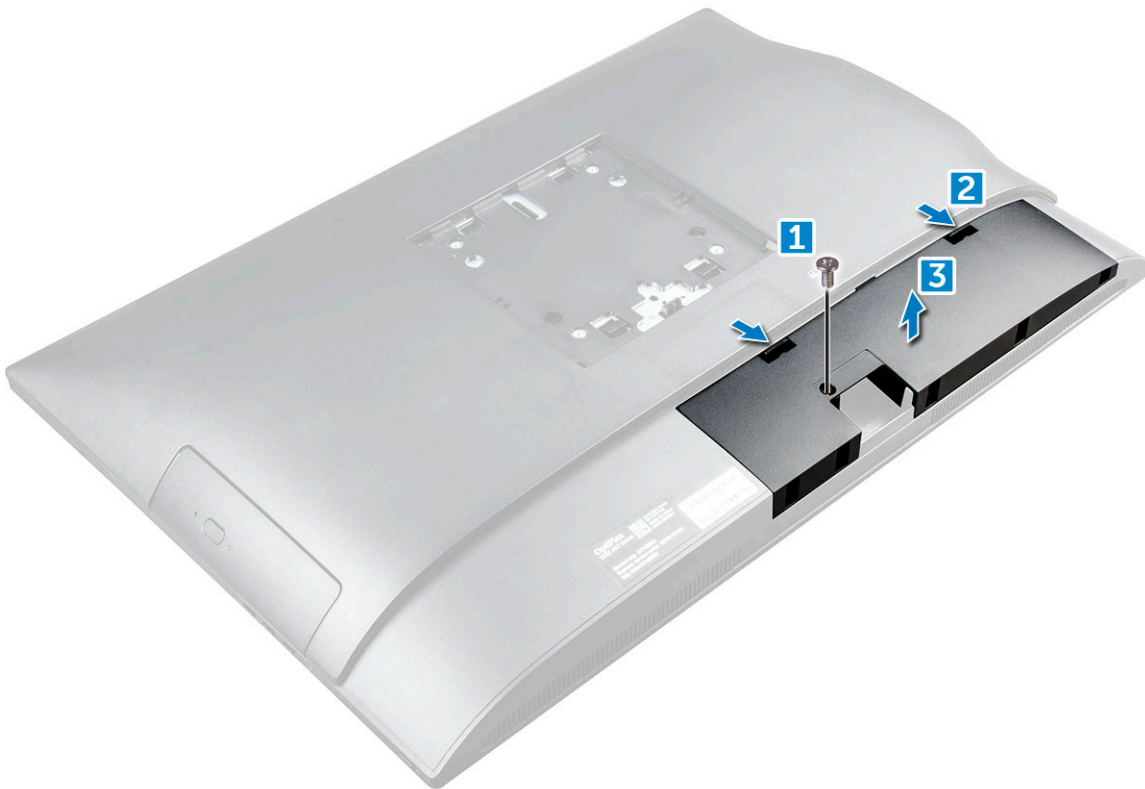
Identifier	GUID-2E1F1515-B7D9-4480-B827-707CAFF73E05
Version	3
Status	Released

Installing the cable cover

1. Align the notches on the cable cover to the holes on the computer and press the cable cover until it snaps in.
2. Tighten the screw to secure the cable cover to the computer.
3. Install the stand.
4. Follow the procedure in After working inside your computer.

Identifier	GUID-DB05E4C2-3322-4EDA-B0A7-196A94EB33C7
Version	1
Status	Released

Back cover

Identifier	GUID-FBCB15C9-48C1-4036-BF6B-79DA40173C7D
Version	2
Status	Released

Removing the back cover

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) cable cover
3. Pry the edges of the back cover from the bottom to release it from the computer.
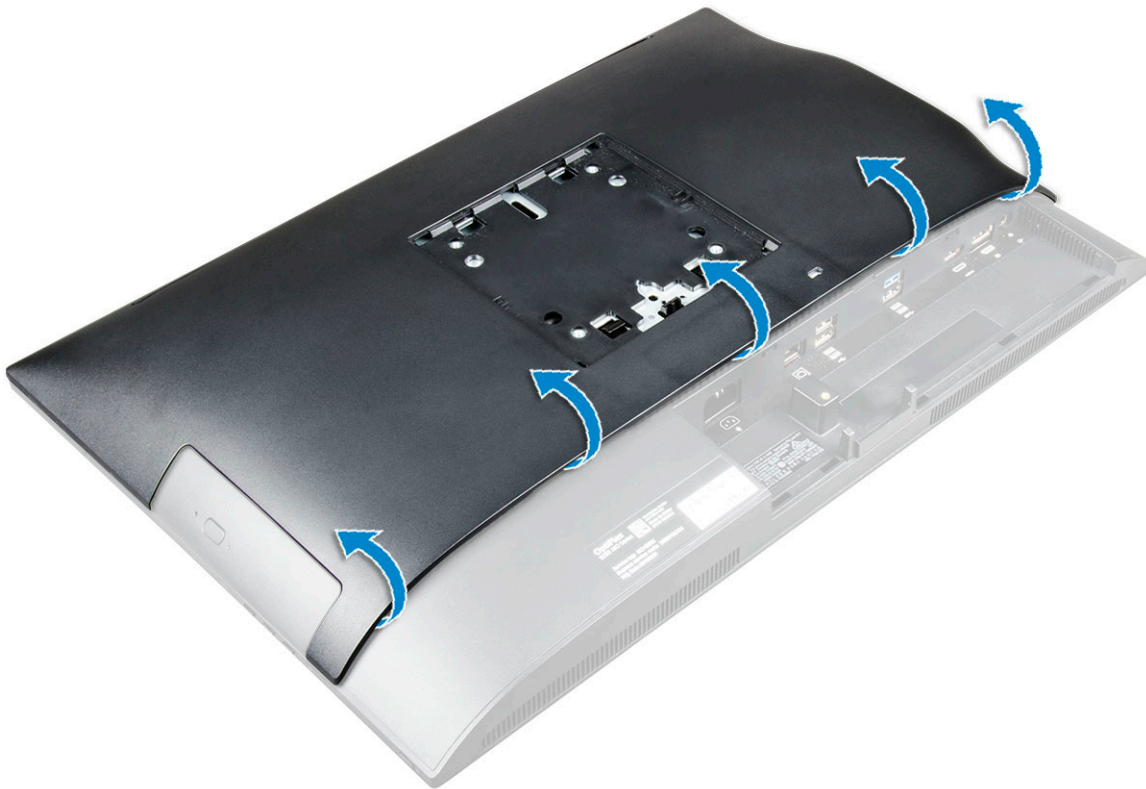
4. Lift the back cover from the computer.

Installing the back cover

1. Align the notches on the back cover to the holes on the computer, and press the back cover until it snaps in.
2. Install the:
   a) cable cover
   b) stand
3. Follow the procedure in After working inside your computer.

Speaker cover

Removing the speaker cover

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) cable cover
   c) back cover
3. Remove the screws that secure the speaker cover to the computer.

4. Pull and remove the speaker cover from the computer.

   (i) **NOTE: To avoid damage to the back cover, release it from the pull tabs.**
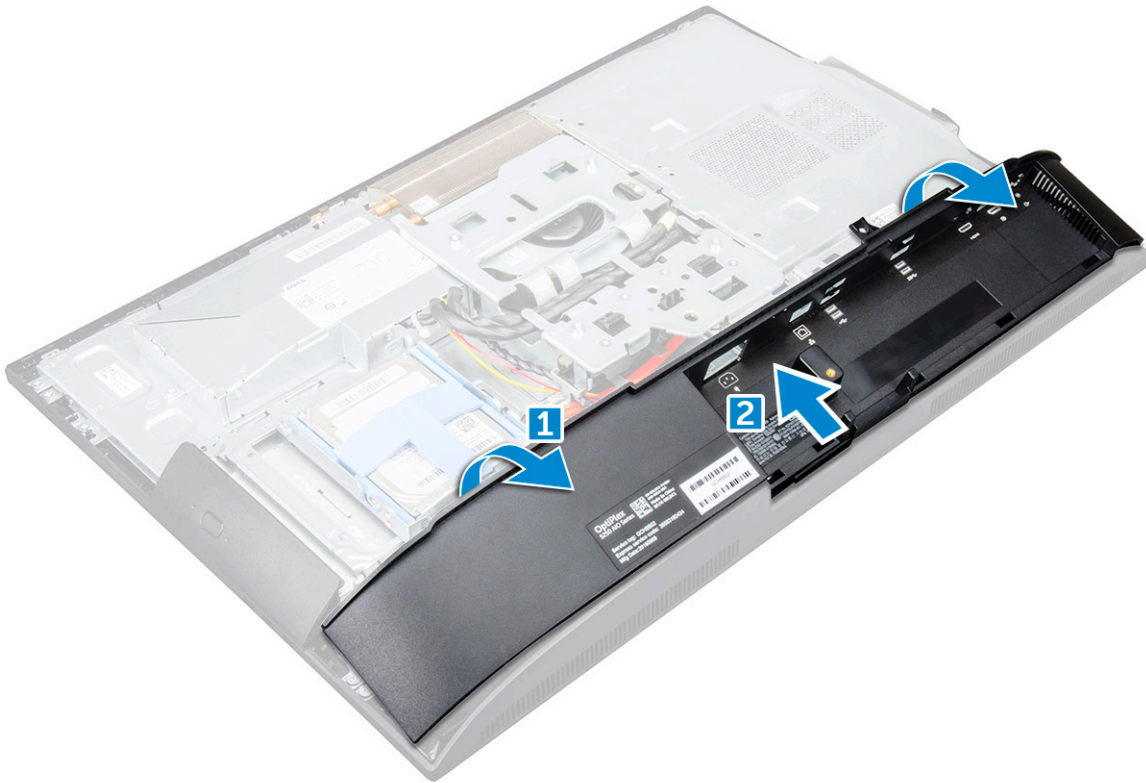
Identifier	GUID-2359918A-F262-4C2D-BF8D-24C018033579
Version	4
Status	Released

Installing the speaker cover

1. Align and push the speaker cover to pop tabs into its position on the back of the computer.
2. Tighten the screws to secure the speaker cover to the computer.
3. Install the:
   a) back cover
   b) cable cover
   c) stand
4. Follow the procedure in After Working Inside Your Computer.

Identifier	GUID-DA236FEA-AA29-400C-89C3-C25D4B9DE6F3
Version	1
Status	Released

Hard drive

Identifier	GUID-28DE9945-2701-465C-A538-8C584A7A2528
Version	3
Status	Released

Removing the hard drive assembly

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
3. To remove the hard drive assembly:
   a) Press the tab on the bracket, and slide the hard-drive assembly until the tabs are released from either side of the assembly [1].

b) Slide the hard-drive assembly upwards to remove it from the computer [2].
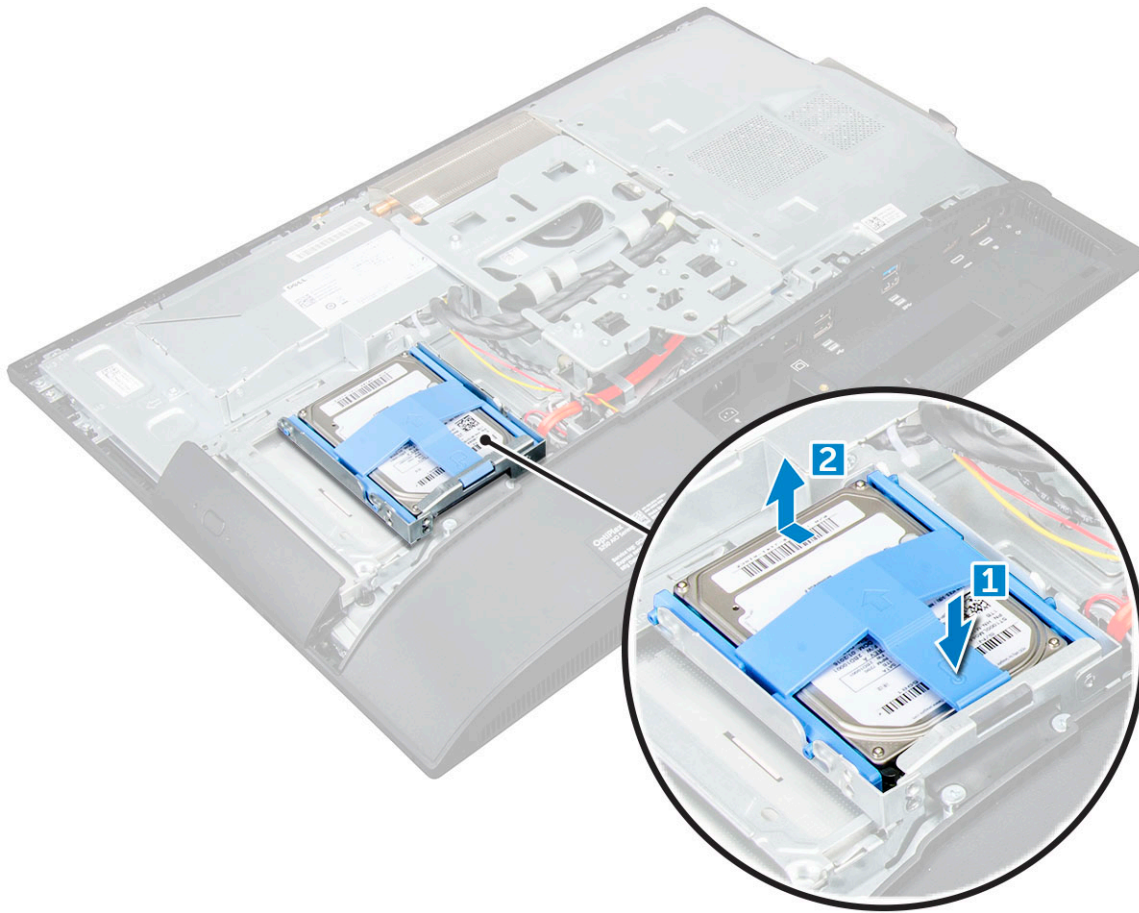
4. To remove the hard drive bracket:
   a) Pry the edges of the bracket to release the hard drive [1].
   b) Slide the hard drive and lift it away from the bracket [2].

Identifier	GUID-F8E0D7DF-28C1-49ED-A797-8C0F4D632585
Version	4
Status	Released

Installing the hard drive assembly

1. Align the hard drive until the notches are aligned and the hard drive is secured in the bracket.
2. Place the hard drive onto the hard drive cage until the notches are aligned, then slide the Hard Drive assembly until the tab locks into the cage.

3. Install the:
   a) back cover
   b) stand
4. Follow the procedure in After working inside your computer.

Identifier	GUID-78527CE0-7E4A-4B32-A077-A2DAA34B0418
Version	1
Status	Released

Optical drive

Identifier	GUID-73CE457C-A1CD-40DA-BDB7-187EEA0E2CC9
Version	2
Status	Released

Removing the optical drive assembly

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
3. To remove the optical drive assembly:
   a) Press the securing tab at the base of the drive to release the optical drive assembly [1].
   b) Slide the optical drive assembly to remove it away from the computer [2].
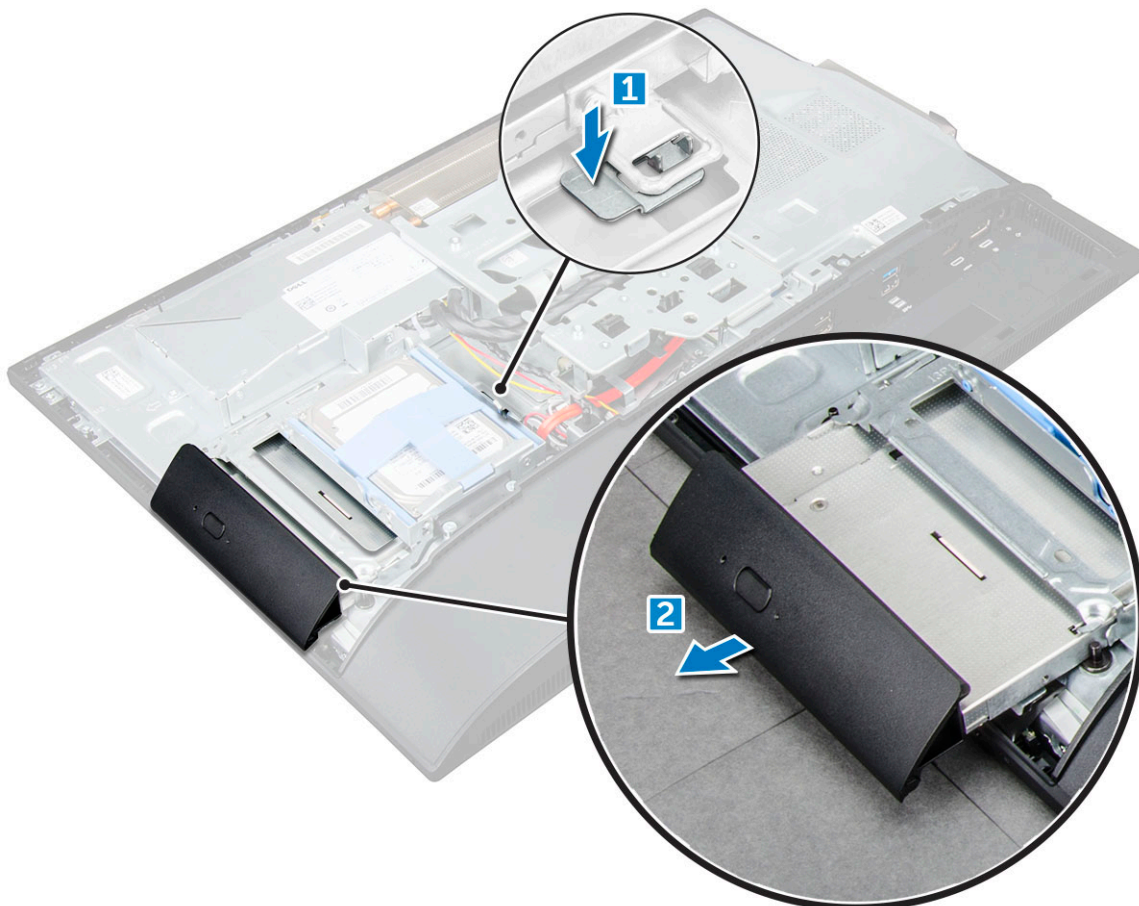
4. To remove the optical drive bracket:
   a) Remove the screws that secure the optical drive bracket [1].
   b) Remove the bracket away from the optical drive [2].
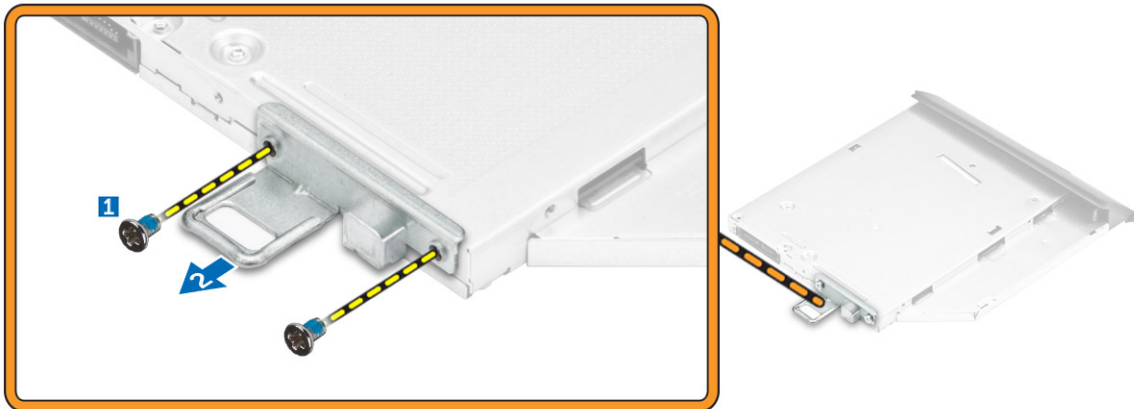
Identifier	GUID-52C81C40-7D4B-48C8-95CD-011AB917E2CA
Version	2
Status	Released

Installing the optical drive assembly

1. Place the bracket to align the screw holders on the optical drive.
2. Tighten the screws to secure the bracket to the optical drive.
3. Insert the optical drive assembly into the drive slot, until it snaps in.
4. Install the:
   a) back cover
   b) stand
5. Follow the procedure in After working inside your computer.

Identifier	GUID-33DB4570-1B11-40E9-9382-360DA839B91A
Version	1
Status	Released

System board shield

Identifier	GUID-63DB88A1-D144-428B-9466-BDC3C7ACCA1A
Version	2
Status	Released

Removing the system board shield

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
3. To remove the system board shield:
   a) Press the securing tab to release the system board shield from the slots on the computer [1].
   b) Slide the system board shield away from the computer [2].
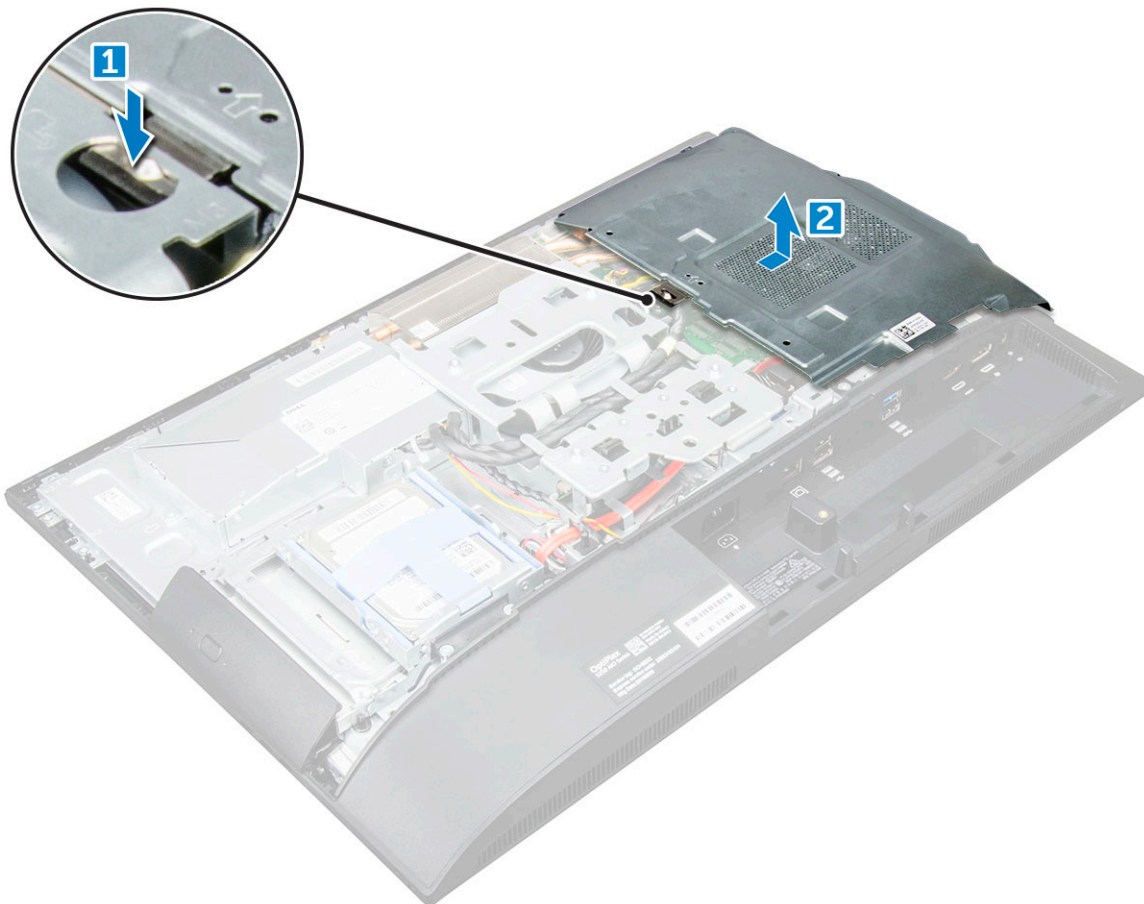
Installing the system board shield

1. Align and slide the system board shield until it snaps in.
2. Install the:
   a) back cover
   b) stand
3. Follow the procedure in After working inside your computer.

Memory modules

Removing the memory module

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
   c) system board shield

3. To remove the memory module:

   a) Pry the retention clips away from the memory module until it pops up [1].
   b) Lift the memory module from the connector [2].
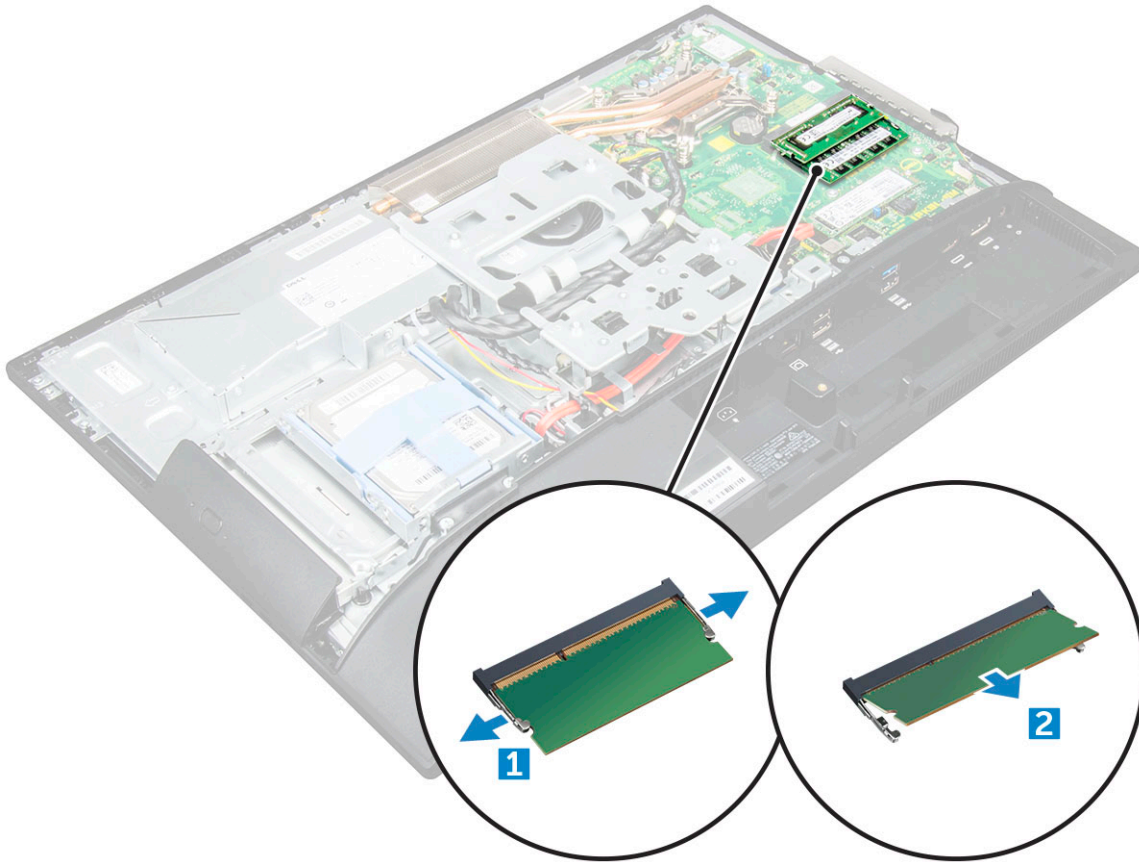
Identifier	GUID-B6441BB3-C3B6-4362-8311-3A49B2E14D77
Version	3
Status	Released

Installing the memory module

1. Insert the memory module on the memory connector until the clips secure the memory module.
2. Install the:

   a) system board shield
   b) back cover
   c) stand

3. Follow the procedure in After working inside your computer.

Identifier	GUID-BD5DA6BF-1EAB-4EAE-8294-A1AEE6C1C907
Version	3
Status	Released

Solid State Drive — optional

Identifier	GUID-A78C6DBC-6B92-4FB5-AF47-B2ACDB544847
Version	1
Status	Released

Removing the SSD card

1. Follow the procedure in Before working inside your computer.
2. Remove the:

a) stand
b) back cover
c) system board shield

3. To remove the SSD card:
   a) Remove the screw that secures the SSD card to the computer [1].
   b) Lift the SSD card away from the connector [2].
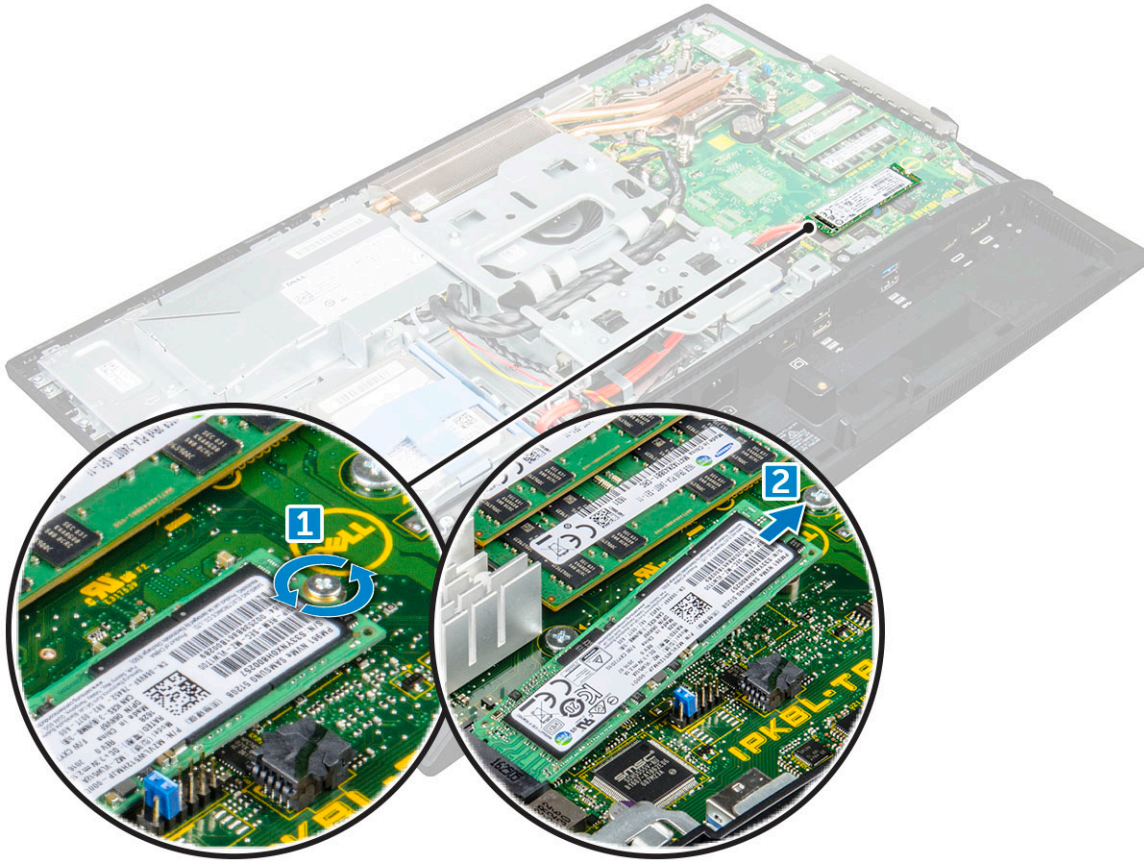
Identifier	GUID-ACEA12E1-6B7F-4578-A477-434D9B5ED241
Version	1
Status	Released

Installing the SSD card

1. Insert the SSD card into the connector.
2. Tighten the screw to secure the SSD card to the system board.
3. Install the:
   a) system board shield
   b) back cover
   c) stand
4. 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) stand
   b) back cover
   c) system board shield
3. Press the latch to release the coin cell battery and remove it from the computer.
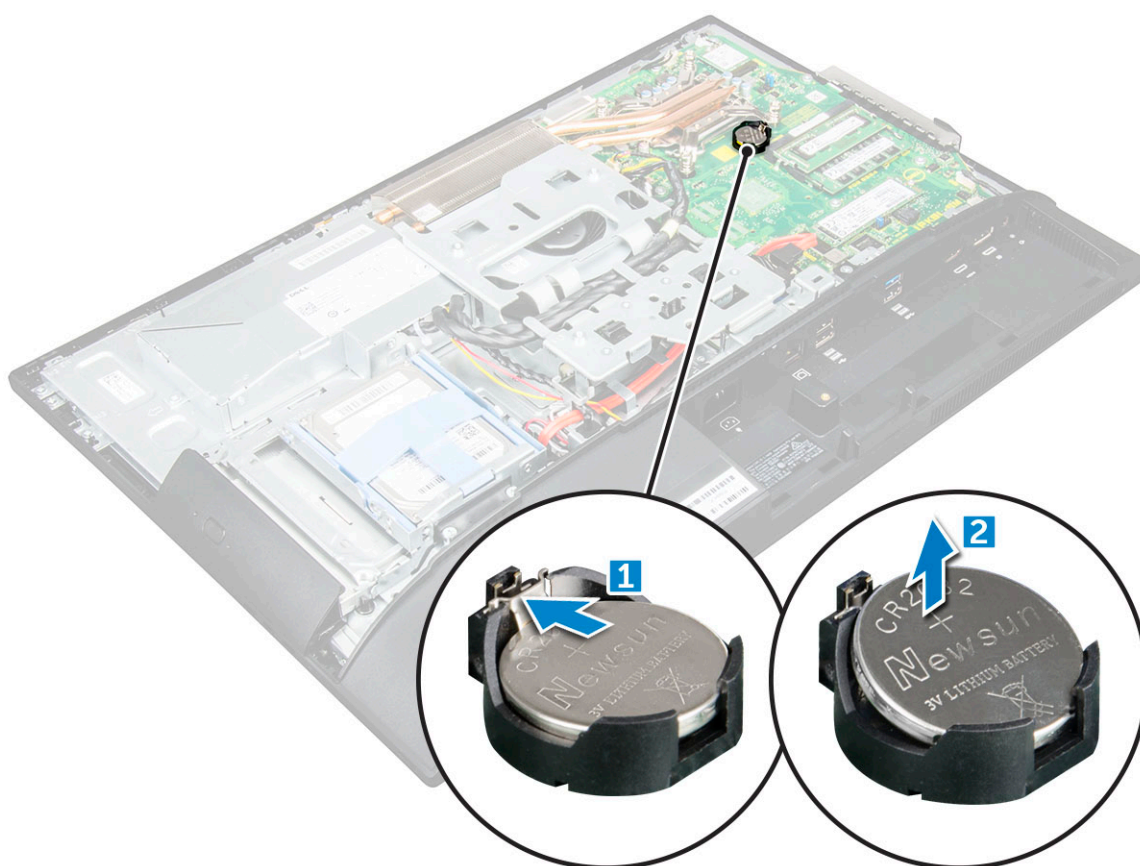
Installing the coin cell battery

1. Insert the coin cell battery into the slot on the system board until it fits securely.
2. Install the:
   a) system board shield
   b) back cover
   c) stand
3. Follow the procedure in After working inside your computer.

WLAN card

Removing the WLAN card

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
   c) system board shield
3. To remove the WLAN card:
   a) Disconnect the antenna cables from the connectors on the WLAN card [1].
   b) Remove the screw that secures the WLAN card to the system board [2].
   c) Hold the WLAN card and pull it from the connector on the system board [3].
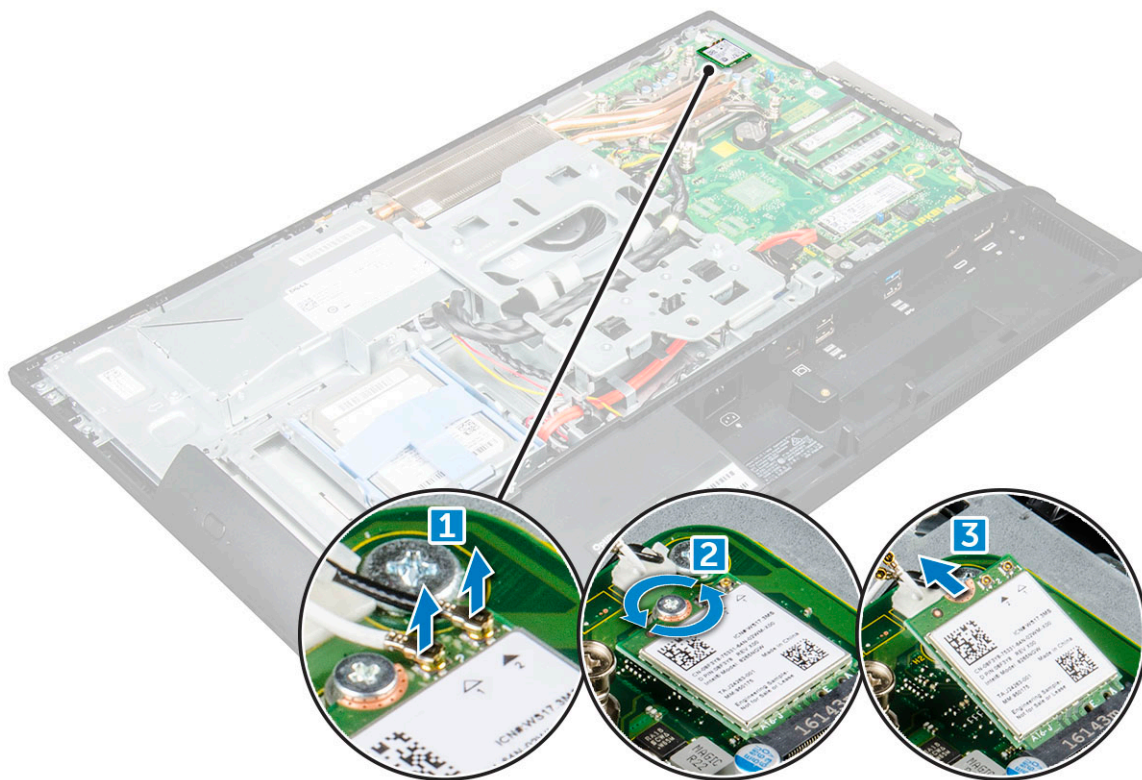
Installing the WLAN card

1. Align the WLAN card to the connector on the system board.
2. Tighten the screw to secure the WLAN card to the system board.
3. Connect the antenna cables to the connectors on the WLAN card.
4. Install the:
   a) system board shield

b) back cover

c) stand

5. Follow the procedure in After working inside your computer.

Heat sink

Removing the heat sink

1. Follow the procedure in Before working inside your computer.

2. Remove the:

a) stand

b) back cover

c) system board shield

3. To remove the heat sink:

a) Remove the screws that secure the heat sink to the chassis [1, 2].

b) Lift the heat sink away from the computer [3].
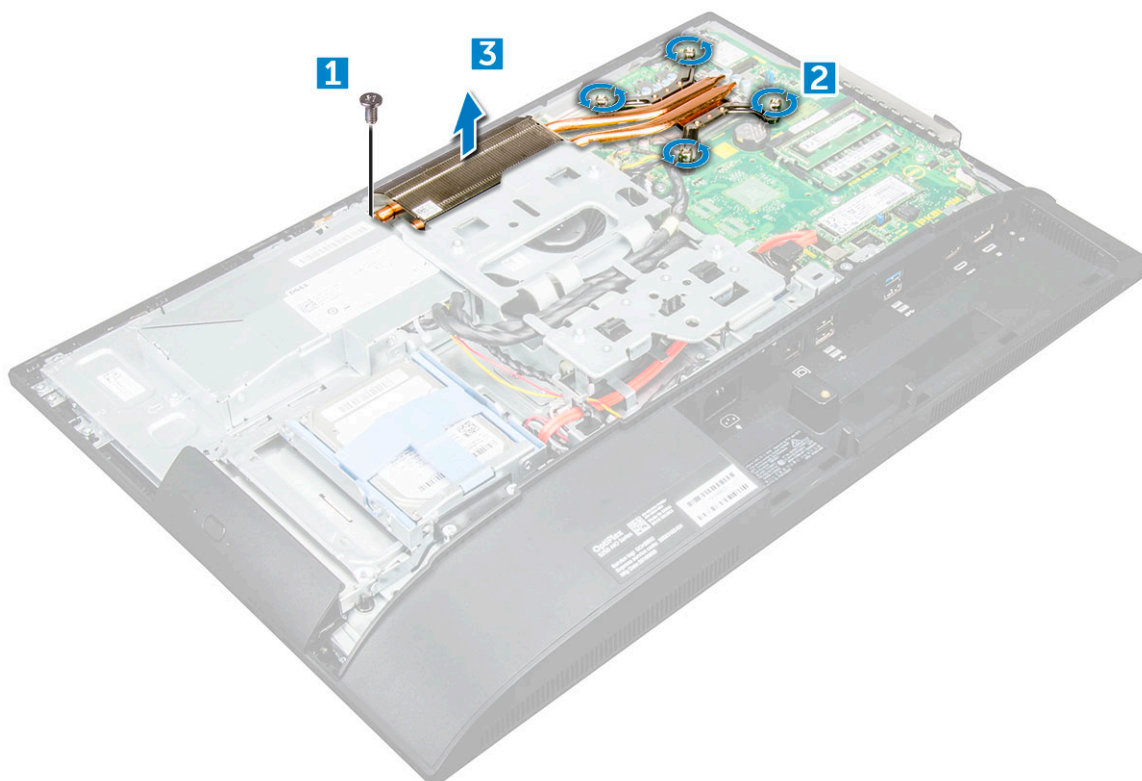
Installing the heat sink

1. Align and place the heat sink in the slot.

2. Tighten the screws to secure the heat sink to the computer.

3. Install the:
   a) system board shield
   b) back cover
   c) stand
4. Follow the procedure in After working inside your computer.

| Identifier	GUID-A72BE8BB-F2EE-4C6A-A2FE-38F3BD47692A
Version	1
Status	Released

Speaker

Identifier	GUID-267A91A2-E76B-4203-B4F6-8CCDD31EE6FE
Version	2
Status	Released

Removing the speaker module

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
   c) cable cover
   d) speaker cover
   e) system board shield
3. To release the speaker module:
   a) Disconnect the speaker cable from the connector on the system board [1].
   b) Unthread the speaker cables from the retention clips [2].
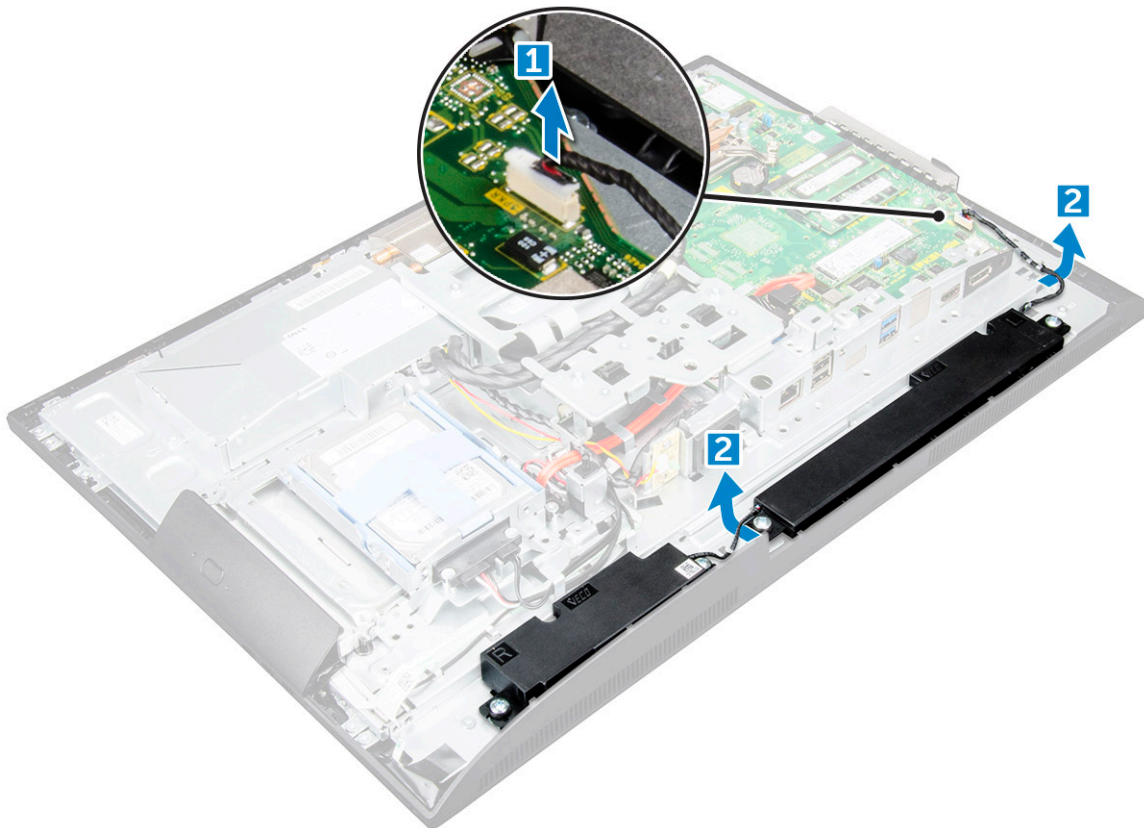
4. To remove the speaker module:
   a) Remove the screws that secure the speaker module to the chassis [1].
   b) Lift the speaker module and remove it from the chassis [2].
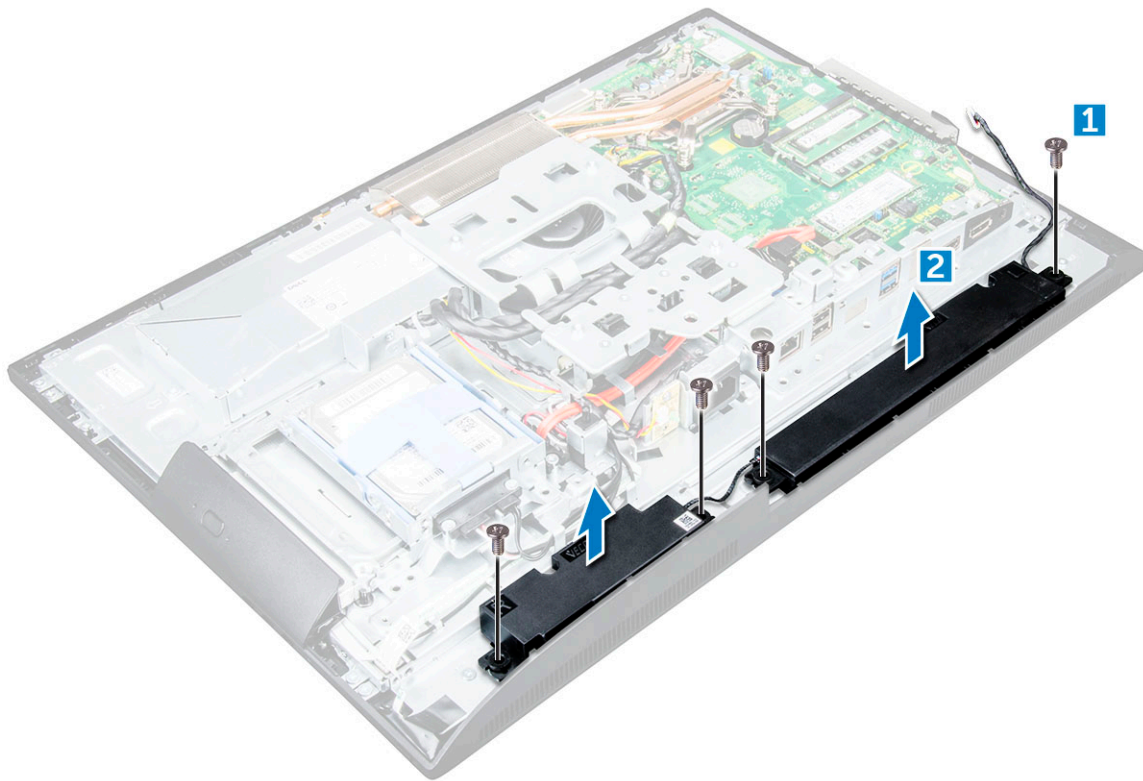
Installing the speaker module

1. Insert the speaker module into the slot on the chassis.
2. Tighten the screws to secure the speaker to the chassis.
3. Secure the speaker cables through the retention clips.
4. Connect the speaker cable to the connector on the system board.
5. Install the:
   a) system board shield
   b) speaker cover
   c) back cover
   d) cable cover
   e) stand
6. Follow the procedure in After working inside your computer.

Display panel

Removing the display panel

1. Follow the procedure in Before working inside your computer.
2. Remove the:

a) stand
b) back cover
c) cable cover
d) speaker cover
e) speaker
f) hard drive
g) optical drive
h) VESA mount bracket
i) system board shield
j) SSD card
k) WLAN card
l) memory
m) heat sink
n) system fan
o) processor
p) coin cell battery
q) power supply unit
r) system board
s) chassis frame

3. To remove the display panel:

   a) Remove the screws that secure the display panel to the bezel.[1].
   b) Lift the display panel away from the bezel. [2].
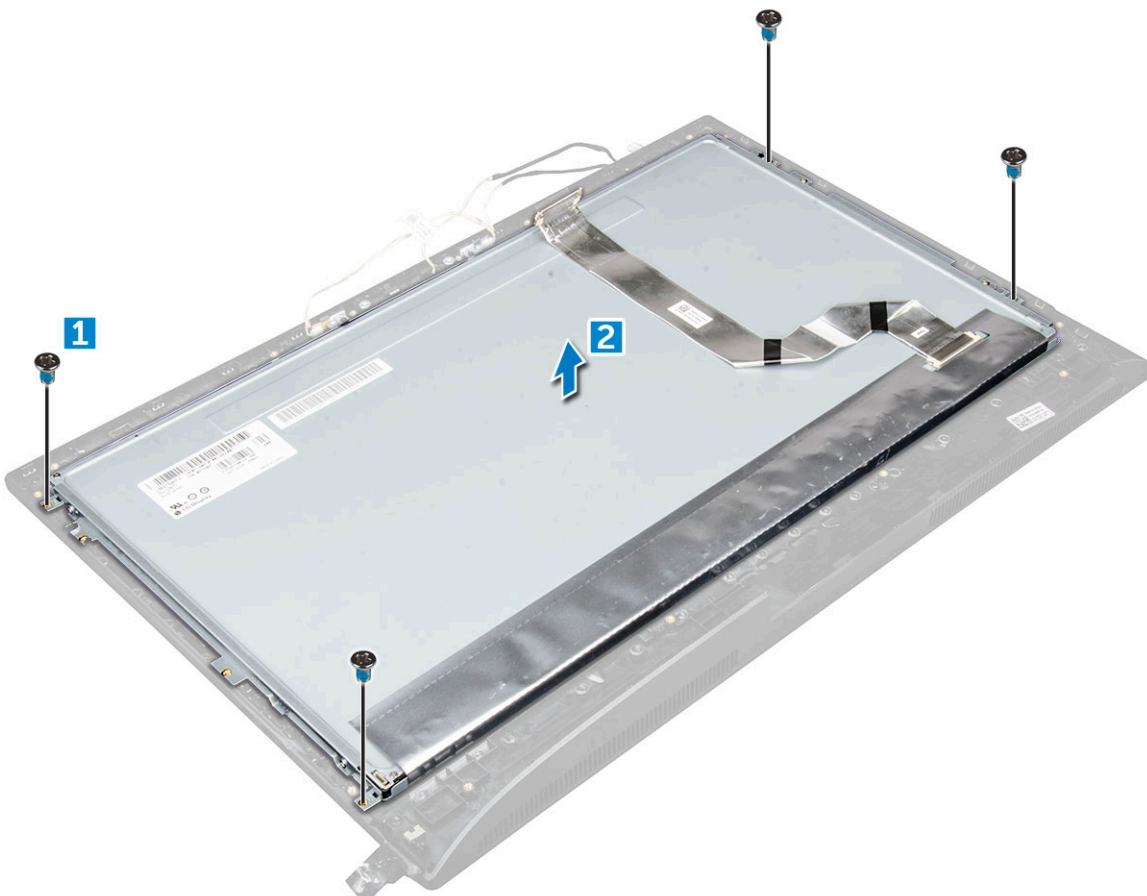
Installing the display panel

1. Align the display panel with the screw holes on the computer.
2. Tighten the screws to secure the display panel to the computer.
3. Install the:
   a) chassis frame
   b) system board
   c) power supply unit
   d) coin cell battery
   e) system fan
   f) processor
   g) heat sink
   h) memory
   i) WLAN card
   j) system board shield
   k) SSD card
   l) VESA mount bracket
   m) optical drive
   n) hard drive
   o) cable cover
   p) speaker
   q) speaker cover
   r) back cover
   s) stand
4. Follow the procedure in After working inside your computer.

Chassis frame

Removing the chassis frame

(i) **NOTE: These instructions are applicable only for systems with a non-touch screen display.**

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
   c) cable cover
   d) speaker cover
   e) speaker
   f) hard drive
   g) optical drive
   h) VESA mount bracket
   i) system board shield
   j) SSD card
   k) WLAN card
   l) memory

m) heat sink

n) system fan

o) processor

p) coin cell battery

q) power supply unit

r) system board

3. Unroute the cables though the retention clips.

4. To remove the chassis frame:

   · ⓘ **NOTE: There is a cable that is taped/glued down to the chassis frame. That cable runs down from the On-Screen Display (OSD) and into a connector on the Display Bezel for the Power Button board below the OSD Button board. Trying to lift the chassis frame without disconnecting this cable first could damage the connector.**

   a) Remove the screws that secure the chassis frame to the computer. [1].

   ⓘ **NOTE: Chassis frame screws have M3 stamped next to them.**

   b) Remove the cables from the chassis frame and lift the chassis frame away from the computer. [2].
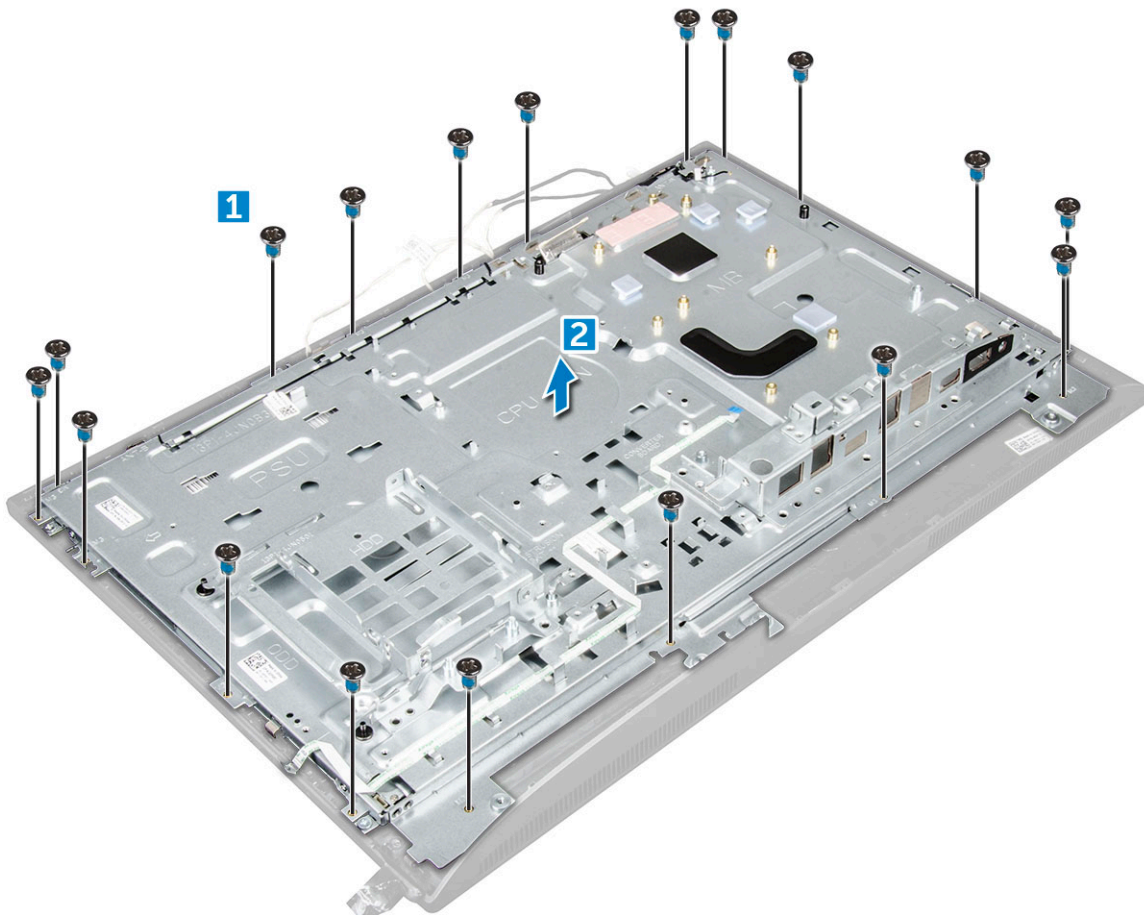
Identifier	GUID-DB6FFF7C-8D9B-41CD-8813-419E7DCD8F3B
Version	1
Status	Released

Installing the chassis frame

1. Place the chassis frame on the computer.
2. Tighten the screws to secure the chassis frame to the computer.
3. Route the cables through the retention clips.
4. Install the:
   a) system board
   b) power supply unit
   c) coin cell battery
   d) system fan
   e) processor
   f) heat sink
   g) memory
   h) WLAN card
   i) system board shield
   j) SSD card
   k) VESA mount bracket
   l) optical drive
   m) hard drive
   n) cable cover
   o) speaker
   p) speaker cover
   q) back cover
   r) stand

5. Follow the procedure in After working inside your computer.

Power supply unit

Removing the Power Supply Unit - PSU

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
   c) cable cover
   d) speaker cover
   e) system board shield
3. To release the PSU cable:
   a) Unthread the power supply cables from the retention clips in the chassis [1].
   b) Disconnect the power supply cable from the connector on the system board [2].

   > ⓘ NOTE: **Press lock clip to release the power supply cable from the system board.**
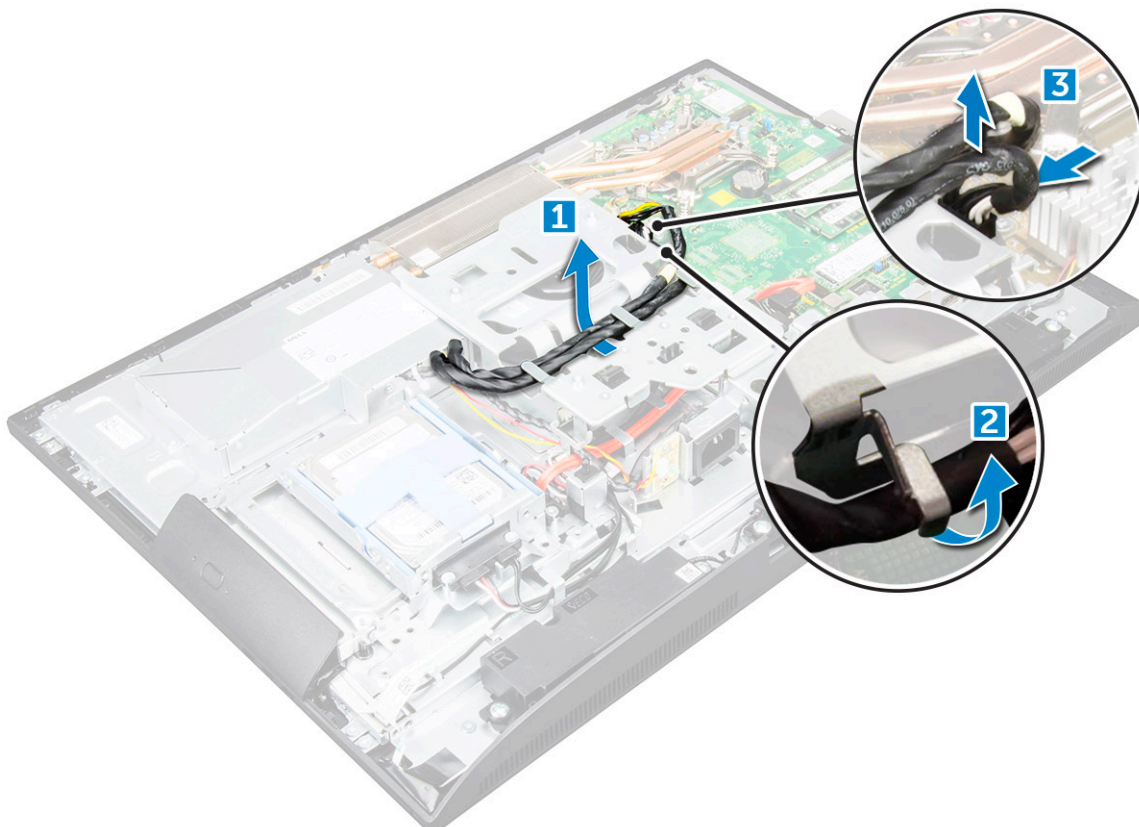
4. To release the PSU:

   · ⓘ NOTE: **There is an additional cable retention clip on the side of the VESA mount bracket. The PSU near that is not visible in the removing cables from retention clips image.**

   a) Remove the screw that secures the power supply socket to the chassis [1].
   b) Slide the socket to remove it from the computer [2].
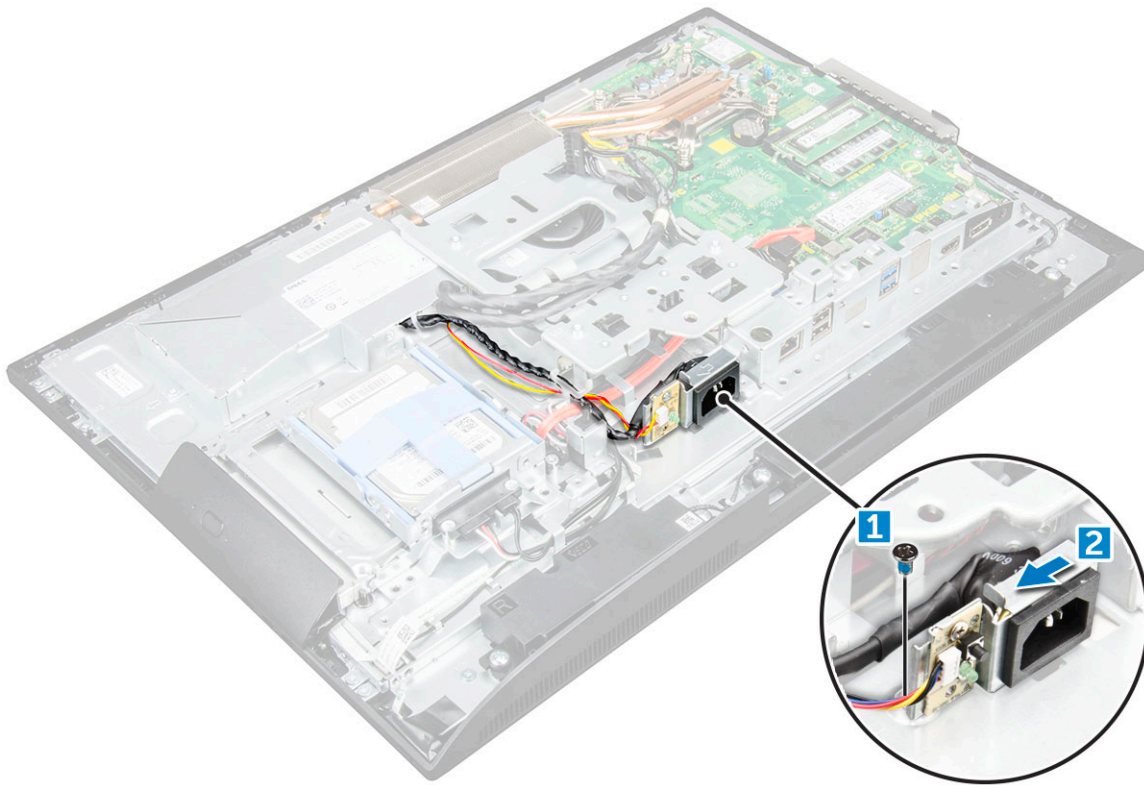
5. To remove the PSU:
   a) Remove the screw that secure the PSU to the chassis [1].
   b) Slide the PSU and lift it away from the chassis [2].
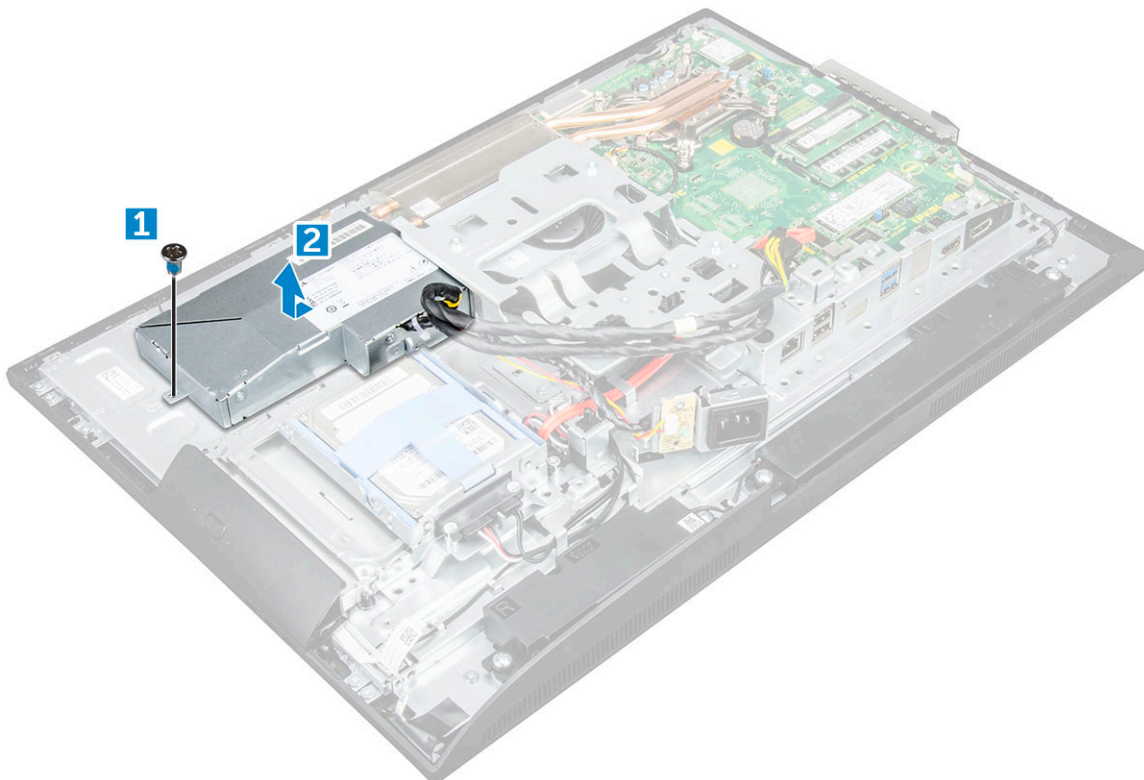
Installing the Power Supply Unit - PSU

1. Place the PSU on the chassis.
2. Tighten the screw to secure the PSU to the chassis.
3. Place the power supply socket in the slot on the chassis.
4. Tighten the screw to secure the power supply socket to the chassis.
5. Secure the power supply cable on the retention clips in the chassis.
6. Connect the power supply cables to the connectors on the system board.
7. Install the:
   a) system board shield
   b) speaker cover
   c) cable cover
   d) back cover
   e) stand
8. Follow the procedure in After working inside your computer.

VESA mount bracket

Removing the VESA mount bracket

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
   c) cable cover
   d) speaker cover
   e) system board shield
   f) power supply unit
3. To remove the VESA mount bracket:
   a) Remove the screws that secure the VESA mount bracket to the computer [1].
   b) Lift the bracket away from the computer [2].
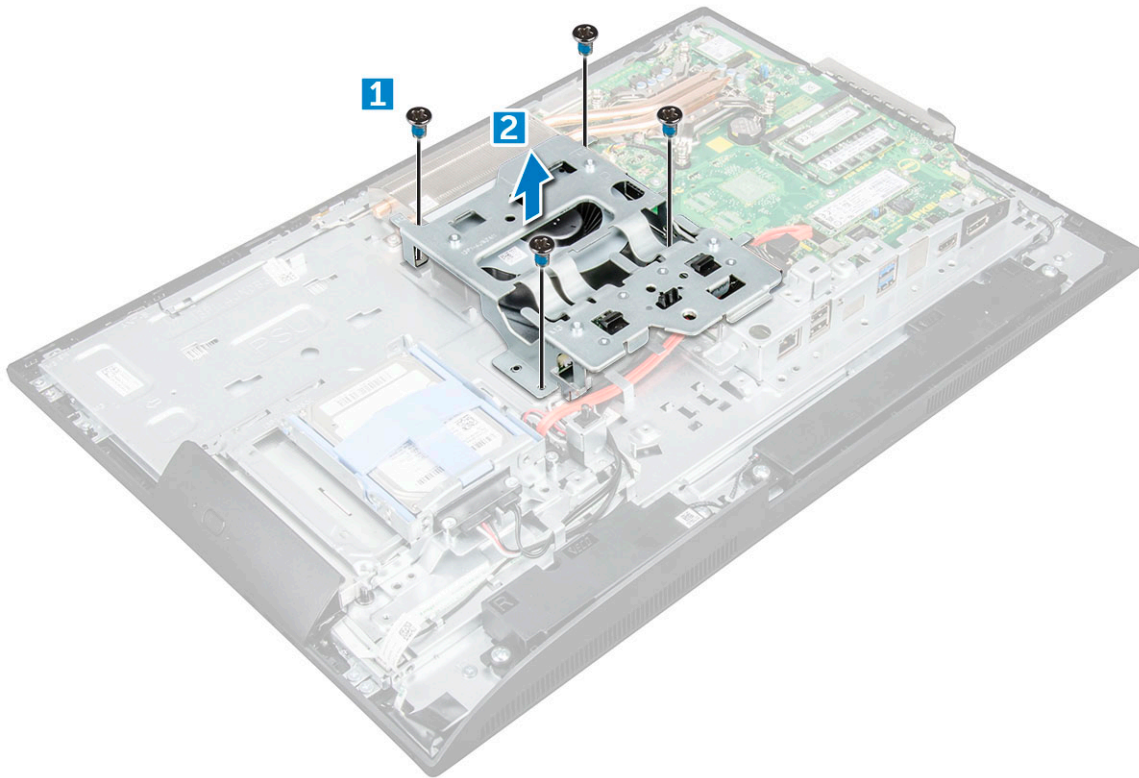
Identifier	GUID-C1C7CE73-5F96-4436-839D-0B3D537336CB
Version	2
Status	Released

Installing the VESA mount bracket

1. Align and place the bracket in the slot on the computer.
2. Tighten the screws that secure the VESA mount bracket to the computer.
3. Install the:
   a) power supply unit
   b) system board shield
   c) speaker cover
   d) cable cover
   e) back cover
   f) stand
4. Follow the procedure in After working inside your computer.

Identifier	GUID-57BD7B98-B742-48FA-97CC-CCFDF52ECAD6
Version	1
Status	Released

Converter board

Identifier	GUID-84F56EAA-56A7-449B-9734-A93C215EC860
Version	2
Status	Released

Removing the converter board

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover

c) cable cover

d) speaker cover

e) system board shield

f) power supply unit

g) VESA mount bracket

3. To remove the converter board:

a) Disconnect the convertor board cable from the converter board [1].

b) Disconnect the display backlight cable from the converter board [2].

c) Remove the screws that secure the converter board to the computer [3].

d) Lift the converter board away from the computer [4].
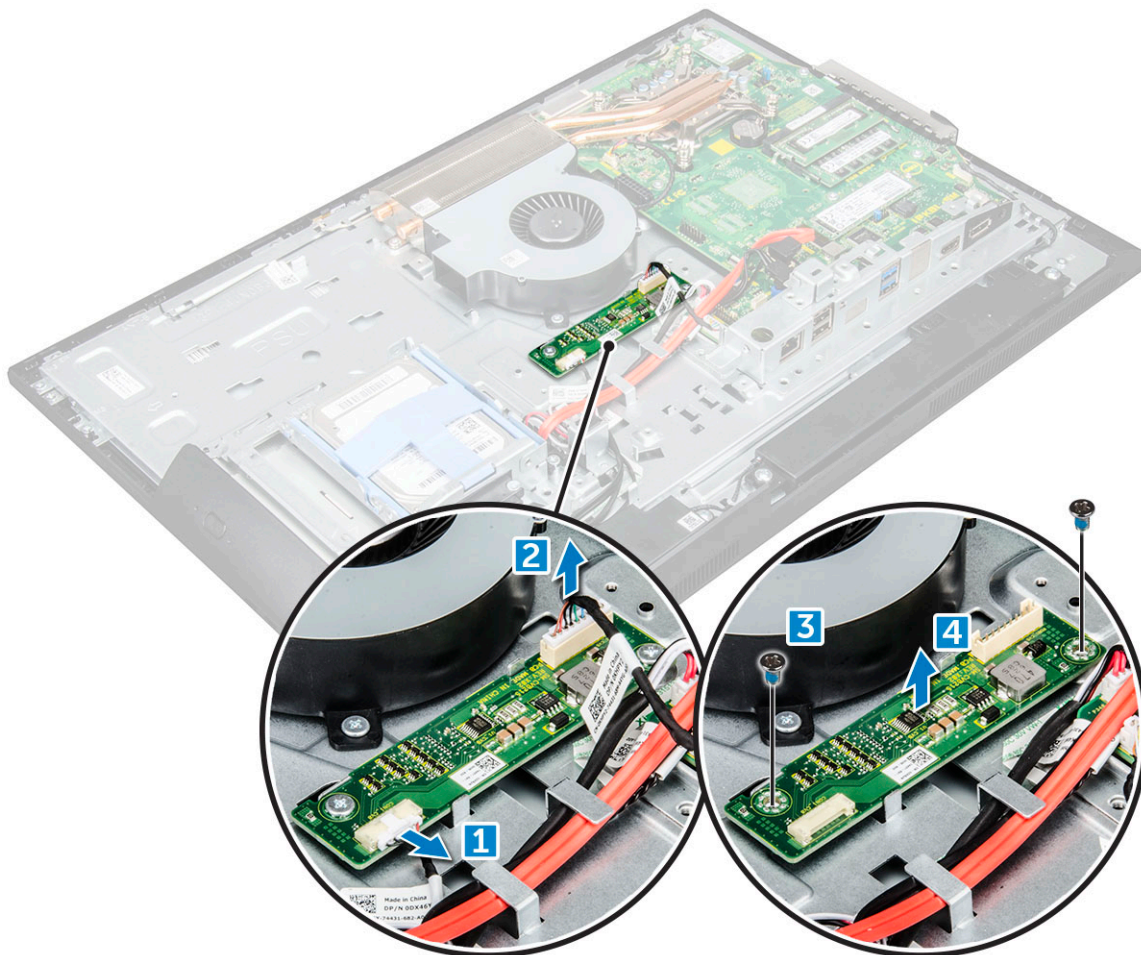
Identifier	GUID-2CC50476-83D7-4DB1-9A7B-1AEB090D3EDC
Version	2
Status	Released

Installing the converter board

1. Place the convertor board in the slot.

2. Tighten the screws to secure the converter board to the chassis.

3. Connect the converter board cable and display backlight cable to the connectors on the converter board.

4. Install the:

a) VESA mount bracket

b) power supply unit

c) system board shield

d) speaker cover

e) cable cover

f) back cover

g) stand

5. Follow the procedure in After working inside your computer.

System fan

Removing the system fan

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
   c) cable cover
   d) speaker cover
   e) system board shield
   f) power supply unit
   g) VESA mount bracket
3. To remove the system fan:
   a) Disconnect the system fan cable from the connector on the system board [1].
   b) Remove the screws that secure the system fan to the computer [2].
   c) Lift the system fan away from the computer [3].
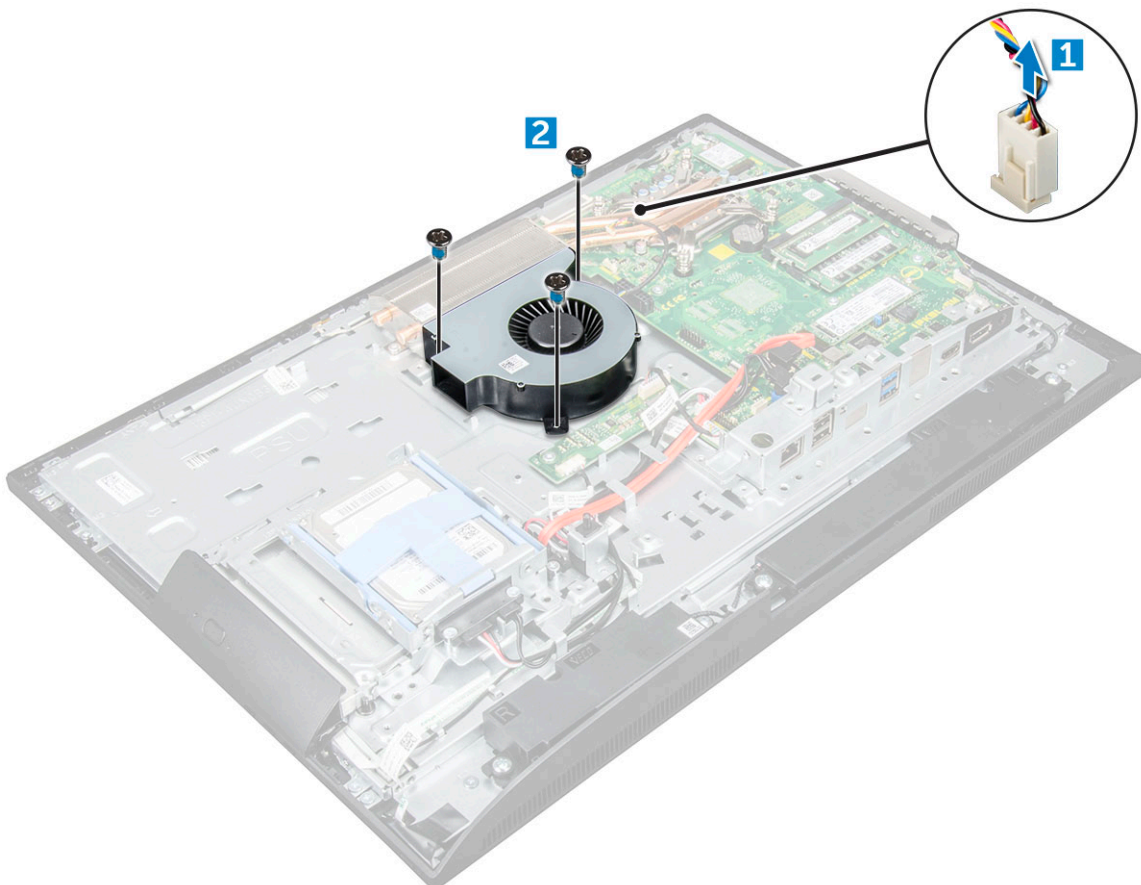
Installing the system fan

1. Align and place the system fan in the slot on the chassis.
2. Tighten the screws to secure the system fan to the system board.
3. Connect the system fan cable to the connector on the system board.
4. Install the:
   a) VESA mount bracket
   b) power supply unit
   c) system board shield
   d) speaker cover
   e) cable cover
   f) back cover
   g) stand
5. Follow the procedure in After working inside your computer.

Intrusion switch

Removing the intrusion switch

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
   c) cable cover
   d) speaker cover
   e) system board shield
   f) power supply unit
   g) VESA mount bracket
3. To remove the intrusion switch:
   a) Disconnect the intrusion switch cable from the connector on the system board [1].
   b) Unthread the intrusion switch cable from the retention clips on the computer [2].
   c) Remove the screw that secures the intrusion switch to the computer [3].
   d) Slide and lift the intrusion switch away from the computer [4].
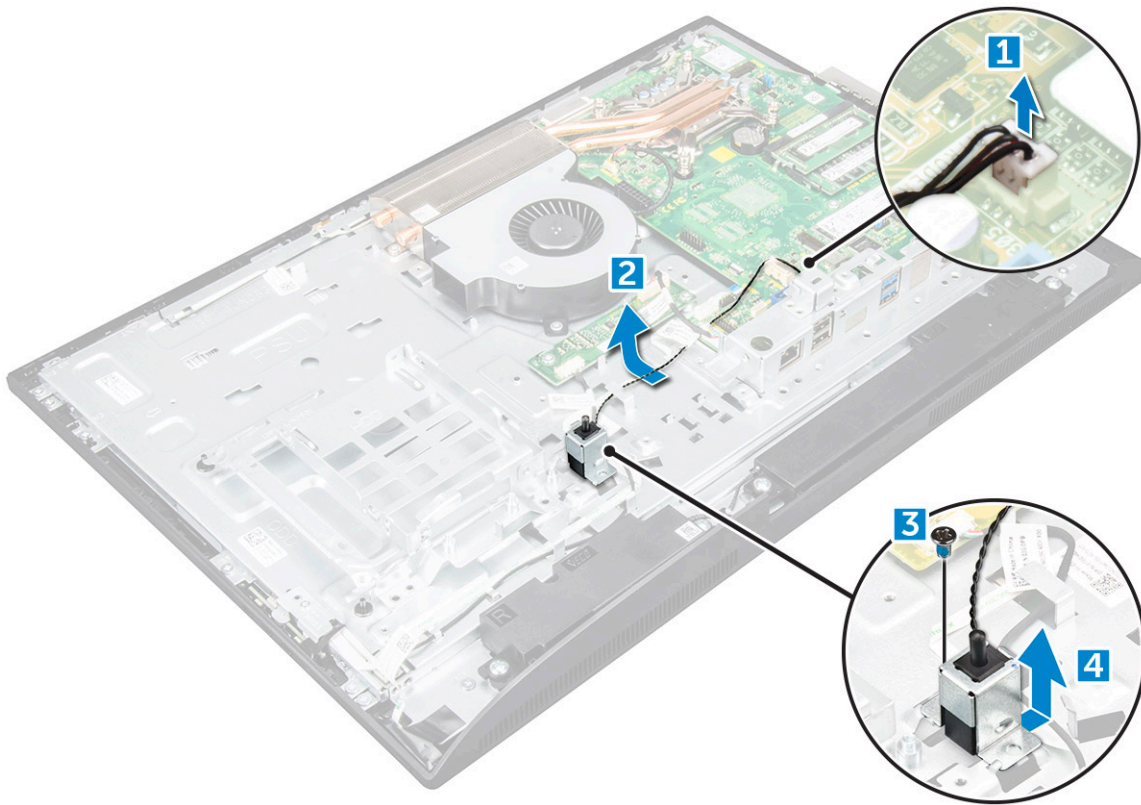
Identifier	GUID-1834E4CA-EE77-4FDA-926C-860F29F9F8AE
Version	2
Status	Released

Installing the intrusion switch

1. Place the intrusion switch in the slot on the computer.
2. Tighten the screw to secure the intrusion switch to the chassis.
3. Route intrusion switch cable along the retention clips on the chassis.
4. Connect the intrusion switch cable to the connector on the system board.
5. Install:
   a) VESA mount bracket
   b) power supply unit
   c) system board shield
   d) speaker cover
   e) cable cover
   f) back cover
   g) stand
6. Follow the procedures in After working inside your computer.

# Power and On-Screen Display buttons board

Removing the power and On-Screen Display- OSD buttons board

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
   c) optical drive
3. To remove the power and OSD buttons board:
   a) Remove the screw to remove the metal plate that secures the power and OSD buttons board to the computer [1].
   b) Peel off the tape from the OSD buttons board [2].
   c) Remove the power and OSD buttons board from the chassis.
   d) Disconnect the cables from the power and OSD buttons board to release the board from the computer [3].
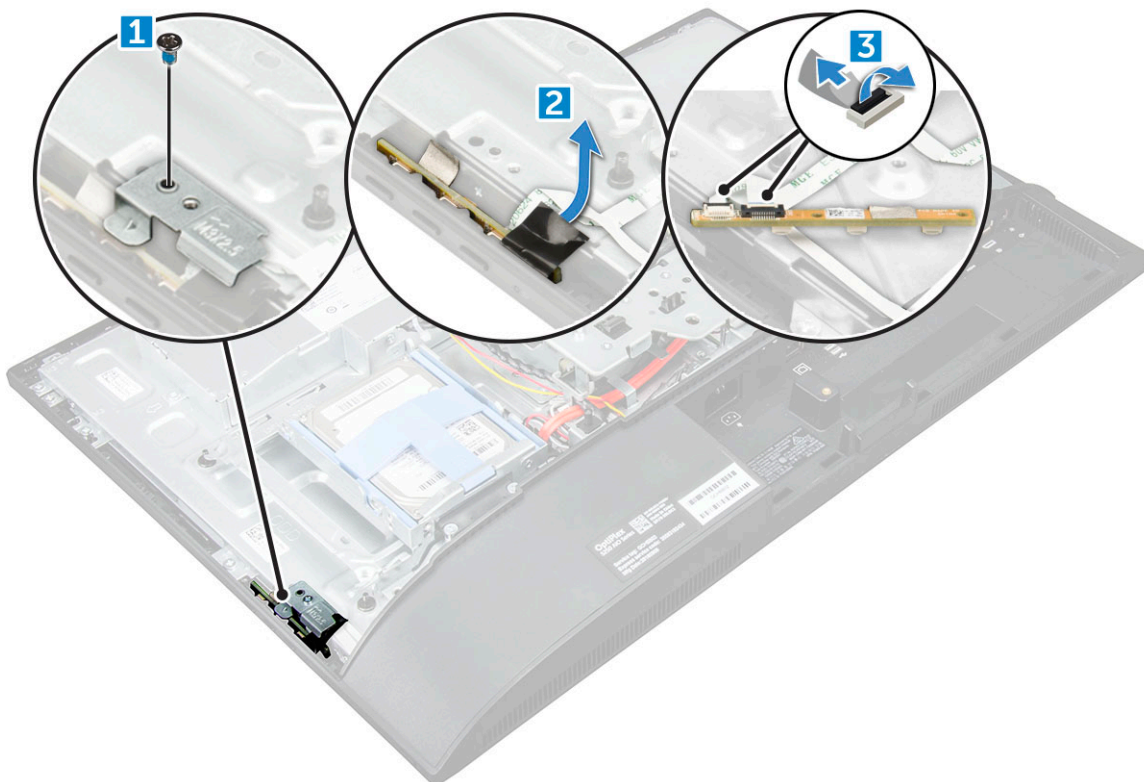
Installing the power and OSD buttons board

1. Connect the cable to the power and OSD buttons board.
2. Affix the tape on the OSD buttons board.

3. Insert the power and OSD buttons board into the slot.
4. Align the metal plate on the power and OSD buttons board.
5. Tighten the screw to secure the power and OSD buttons board.
6. Install the:
   a) optical drive
   b) back cover
   c) stand
7. Follow the procedure in After working inside your computer.

Identifier	GUID-6D80D2E4-6FDC-4158-B13A-DD044EFA533C
Version	1
Status	Released

Processor

Identifier	GUID-35439E7C-89AD-4D81-994B-7FFB075DDEC1
Version	2
Status	Released

Removing the processor

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
   c) cable cover
   d) speaker cover
   e) speaker
   f) VESA mount bracket
   g) system board shield
   h) SSD card
   i) WLAN card
   j) memory
   k) heat sink
   l) system fan
3. To remove the processor:
   a) Release the socket lever by pushing the lever down and out from under the tab on the processor shield [1].
   b) Lift the lever upward and lift the processor shield [2].

   ⚠ CAUTION: **The processor socket pins are fragile and can be permanently damaged. Be careful not to bend the pins in the processor socket when removing the processor out of the socket.**

   c) Lift the processor out of the socket [3].

   ⓘ NOTE: **After removing the processor, place it in an antistatic container for reuse, return, or temporary storage. Do not touch the bottom of the processor to avoid damage to the processor contacts. Touch only the side edges of the processor.**

Installing the processor

1. Align the processor with the socket keys.

   ⚠ **CAUTION: Do not use force to seat the processor. When the processor is positioned correctly, it engages easily into the socket.**

2. Align the pin-1 indicator of the processor with the triangle on the socket.
3. Place the processor on the socket such that the slots on the processor align with the socket keys.
4. Close the processor shield by sliding it under the retention screw.
5. Lower the socket lever and push it under the tab to lock it.
6. Install:
   a) system fan
   b) heat sink
   c) memory
   d) WLAN card
   e) SSD card
   f) system board shield
   g) VESA mount bracket
   h) cable cover
   i) speaker
   j) speaker cover
   k) back cover
   l) stand
7. Follow the procedure in After working inside your computer.

System board

Removing the system board

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) stand
   b) back cover
   c) cable cover
   d) speaker cover
   e) speaker
   f) hard drive
   g) optical drive
   h) VESA mount bracket
   i) system board shield
   j) SSD card
   k) WLAN card
   l) memory
   m) heat sink
   n) system fan
   o) processor

p) coin cell battery
q) power supply unit

3. Disconnect the following cables from the system board:

   a) display [1]
   b) system fan [2]
   c) SATA [3]
   d) side button cable [4]
   e) intrusion switch, hard drive and optical drive [5]
   f) speaker [6]
   g) camera and microphone [7]
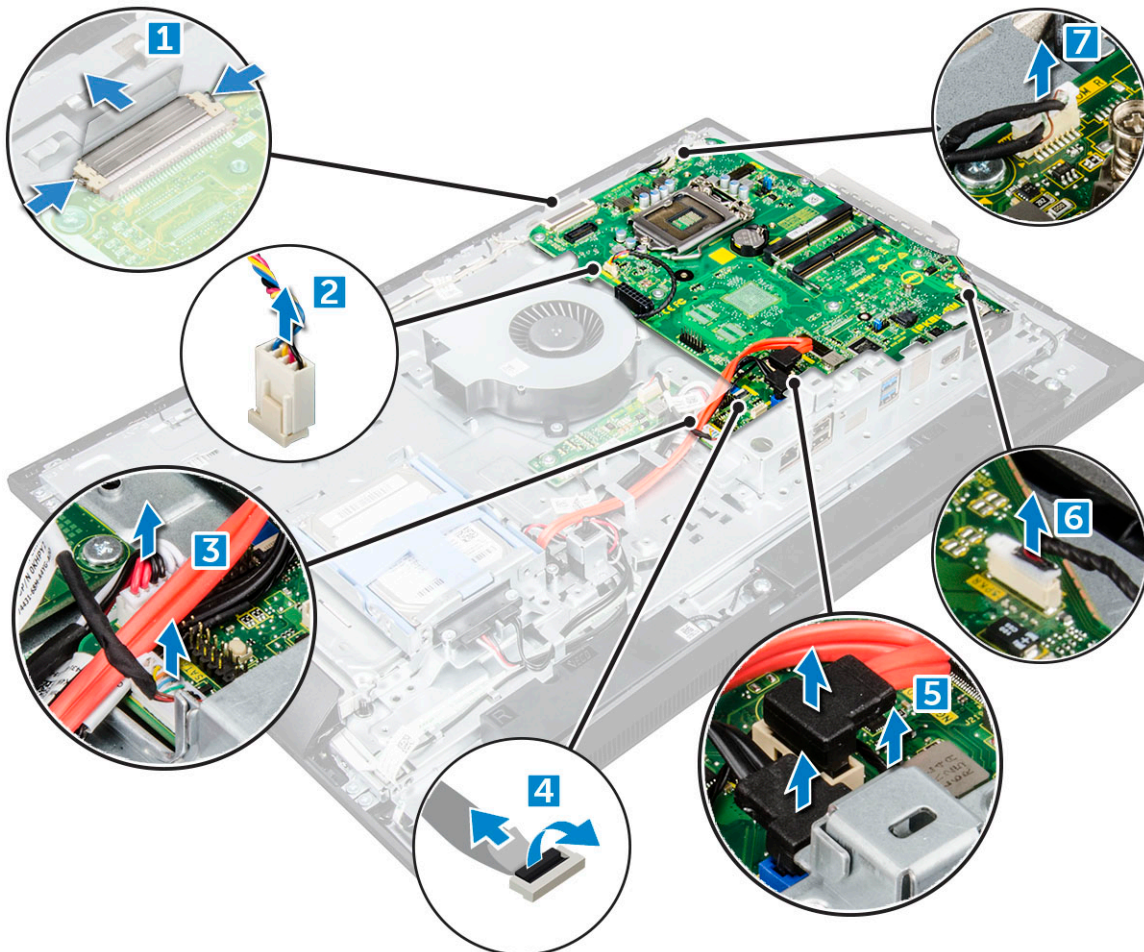
4. Remove the screws that secure the system board to the chassis.
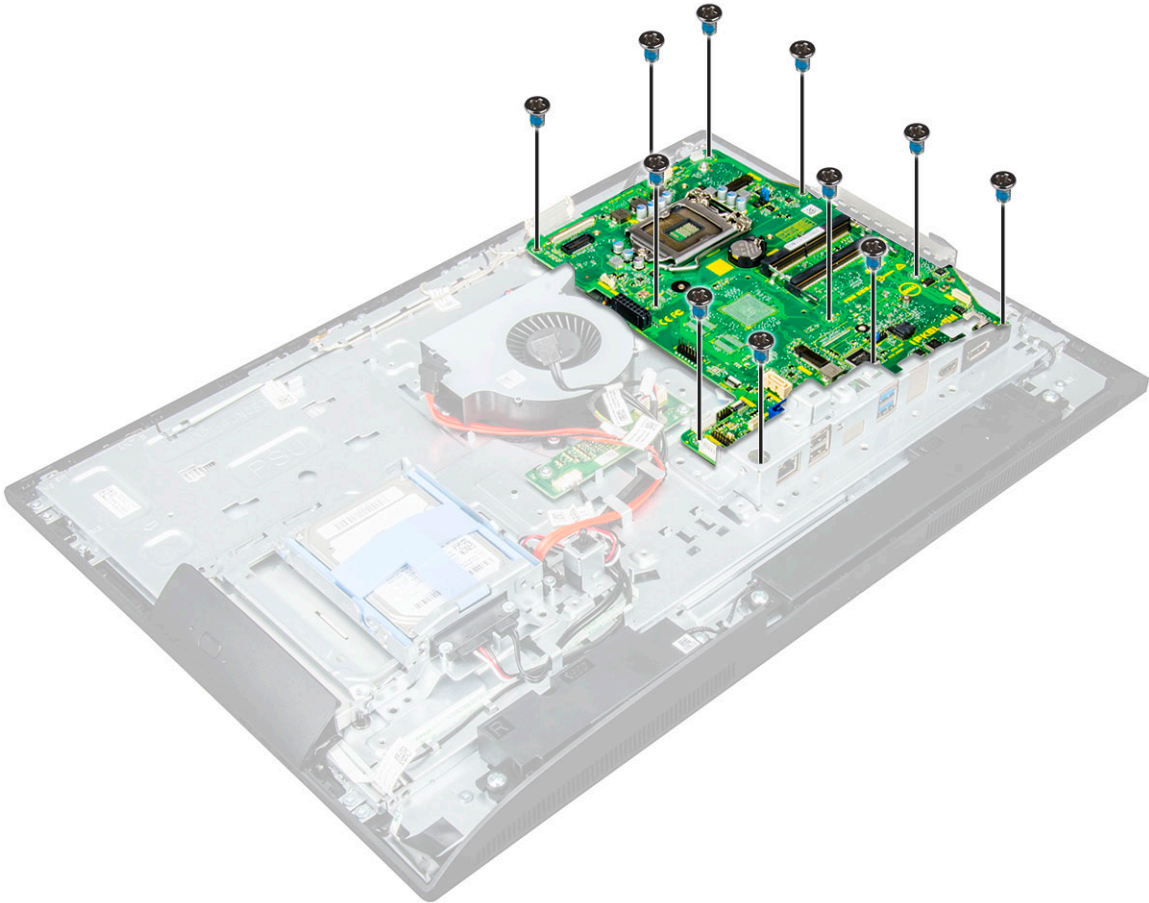
5. Slide and lift the system board to remove it from the computer.
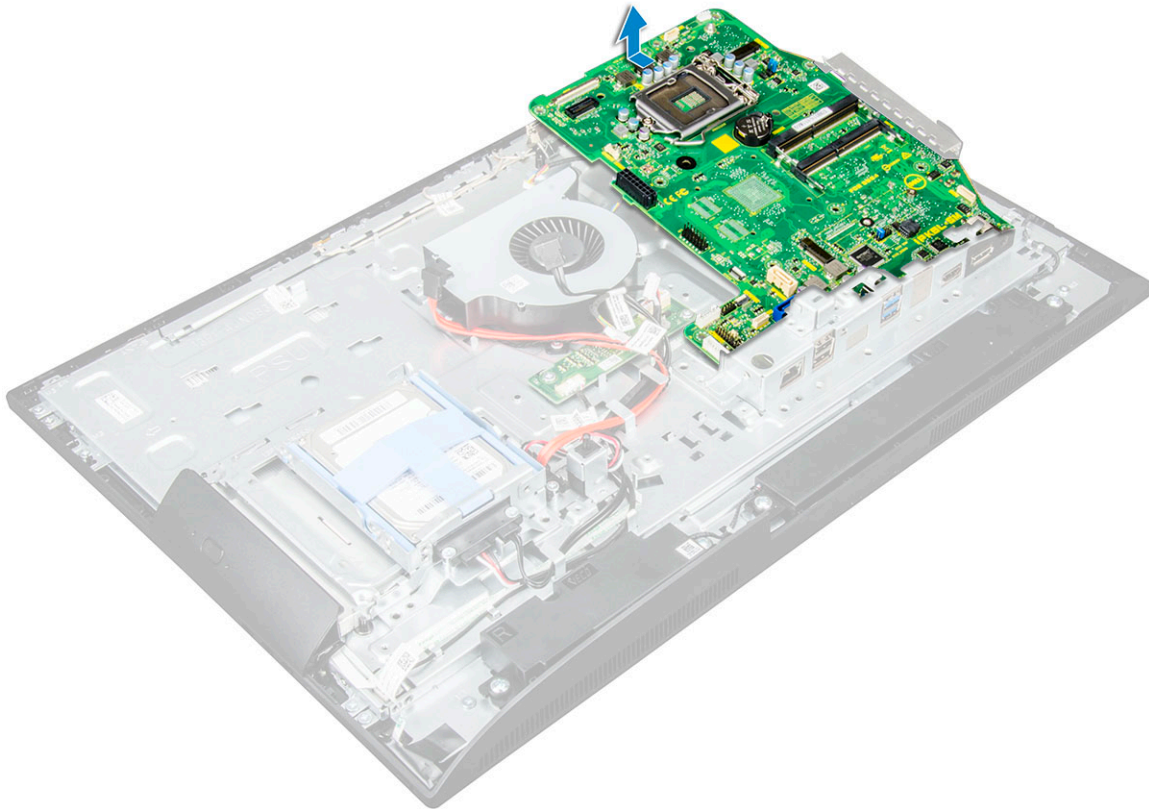
Installing the system board

1. Place the system board on the computer.
2. Connect all the cables to the system board.
3. Tighten the screws to secure the system board to the base panel.
4. Install the:
   a) power supply unit
   b) coin cell battery
   c) system fan
   d) processor
   e) heat sink
   f) memory
   g) WLAN card
   h) SSD card
   i) system board shield
   j) VESA mount bracket
   k) optical drive
   l) hard drive
   m) cable cover
   n) speaker
   o) speaker cover
   p) back cover
   q) stand
5. Follow the procedure in After working inside your computer.

System board layout
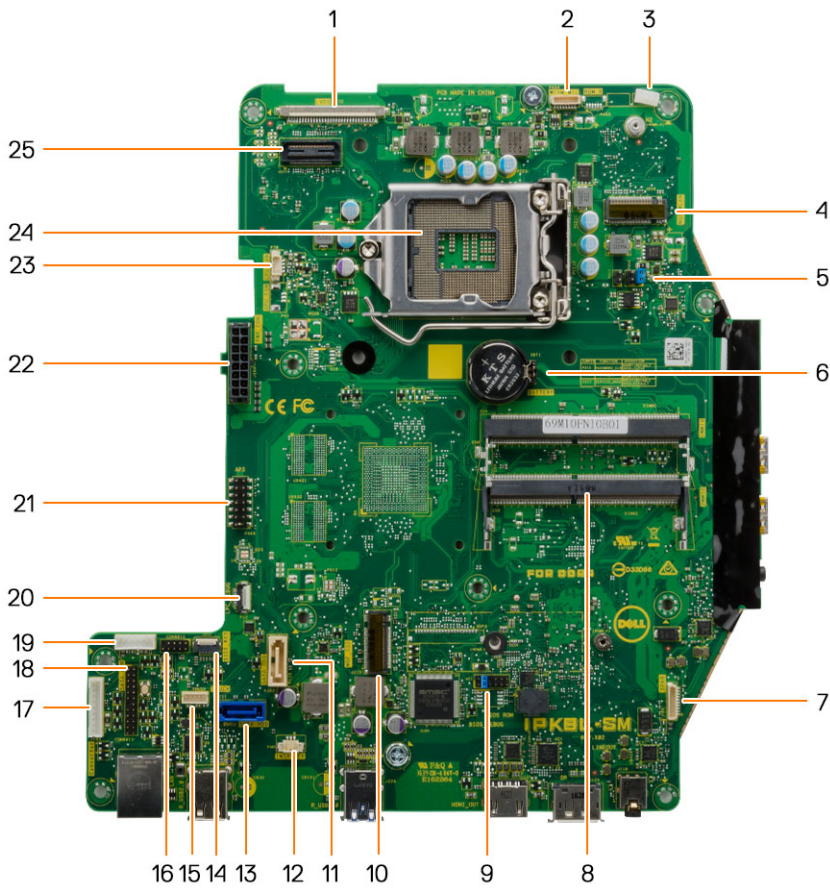
1. LVDS connector
2. Camera connector
3. Antenna wire clip
4. WLAN connector
5. Jumper connector
6. Coin cell battery
7. Speaker connector
8. Memory module connector
9. Jumper connector
10. M.2 SSD slot
11. Optical drive connector
12. Intrusion switch connector
13. Hard drive connector
14. Side buttons connector
15. Touchpad connector
16. CAC/PIV connector (reserved)
17. Converter board connector
18. Windows serial debug connector
19. HDD/ODD power connector
20. LPC debug connector
21. APS debug connector
22. Power supply connector
23. CPU fan connector
24. CPU socket

M.2 Intel Optane Memory Module 16 GB

Overview

This document describes the specifications and capabilities of the Intel® Optane™ memory module. The Intel® Optane™ memory is a system acceleration solution developed for 7th Generation Intel® Core™ processor-based platforms. The Intel® Optane™ memory module is architected with the high performance controller interface Non-Volatile Memory Express (NVMe*)- delivering outstanding performance, low latency and quality of service. NVMe uses a standardized interface that enables higher performance and lower latency than pervious interfaces. Intel® Optane™ memory module offers capacities of 16 GB and 32 GB in small M.2 form factors.

The Intel® Optane™memory module offers a system acceleration solution using the latest Intel® Rapid Storage Technology (Intel® RST) 15.5X.

The Intel® Optane™ memory module includes these key features:

- PCIe 3.0x2 with NVMe interface
- Uses Intel's revolutionary new storage technology, 3D Xpoint™ memory media
- Ultra-low latency; exceptional responsiveness
- Performance saturation at queue depth of 4 and lower
- Very high endurance capabilities

Intel®Optane™ Memory Module Driver Requirements

The following table describes the driver requirements for the Intel® Optane™ memory system acceleration us a component of Intel® Rapid Storgae Technology 15.5 or later and requires 7th generation Intel® Core ™ processor-based platforms to function.

Table 1. Driver Support

Support Level	Operating System Description
Intel® Optane™ Memory with System Acceleration Configuration Using Rapid Storage Technology Driver$_1$	Windows 10*64 bit

NOTES:

1. Intel® RST driver requires device to be attached to RST enabled PCIe lanes on 7th generation Intel® Core™.

Installing M.2 Intel Optane Memory Module 16 GB

1. Follow the procedure in Before working inside your computer.
2. Remove the:

a) stand
b) back cover
c) system board shield

3. To remove M.2 Intel optane memory module::
a) Remove white adhesive tape from the box.
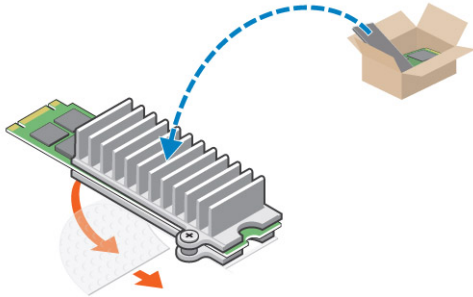
b) Place the M.2 Intel optane memory module into the slot on the computer.
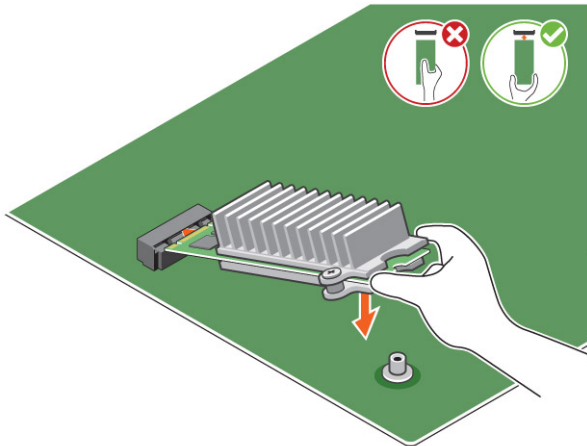
c) Tighten the screw that secures the M.2 Intel optane memory module on the computer.
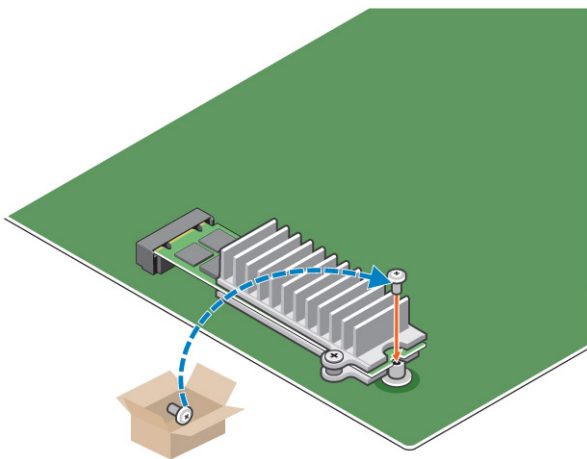
Product specifications

Table 2. Product specifications

Features	Specification
Capacities	16 GB, 32 GB
Expansion cards	PCIe 3.0 x 2
M.2 form factors (all densities)	2280–S3–B-M
Performace	• Seq R/W: Up to 1350/290 MS/s • QD4 4HB Random Read: 240K + IOPs • QD4 4HB Random Write: 240K + IOPs
Latency (average sequential)	• Read 8.25 µ • Write: 30 µ
Components	• Intel 3D XPoint Memory Media • Intel Controller and Firmware • PCIe 3.0x2 with NVMe Interface • Intel Rapid Storage Technology 15.2 or later
Operating System Support	Windows 10 64 bit
Supported Platforms	7th generation or newer Intel Core processor based platforms
Power	• 3.3V Supply Rail • Active: 3.5 W • Drive Idel :900mW to 1.2W
Compliance	• NVMe Express 1.1 • PCI Express Base specifiation rev 3.0 • PCI M.2 HS Spec
Certification and Declarationsµ	UL, CE, C-Tick, BSMI, KCC, Microsoft WHQL, Microsoft WHCK, VCCI
Endurance Rating	• 100 GB Writes per day • Upto 182.3 TBW (Terabytes written)
Temperature Specification	• Operating: 0 to 70º C • Non-Opearting: 10 to 85º C • Temperature monitoring
Shock	1500 G/0.5msec
Vibration	• Operating: 2.17 G_{RMs}(5–800Hz) • Non-Operating: 3.13 G_{RMS} (5–800Hz)
Altitude (Simulated)	• Operating: –1,000 ft to 10,000 ft • Non-Operating: –1,000 ft to 40,000 ft
Product Ecological Compliance	RoHS
Reliability	• Uncorrectable Bit Error Rate (UBER): 1 sector per 10^{15} bits read • Mean Time Between Failure (MTBF): 1.6 million hours

Environmental Conditions

Table 3. Temperature, Shock, Vibration

Temperature	M.2 2280 form factor
Operating[1]	0–70º C
Non-operating [2]	-10–85º C
Temperature Gradient[3]	
Operating	30º C/hr (Typical)
Non-operating	30º C/hr (Typical)
Humidity	
Operating	5–95%
Non-operating	5–95%
Shock and Vibration	Range
Shock [4]	
Operating	1500 G / 0.5 ms
Non-operating	230 G / 3 msec
Vibration[5]	
Operating	2.17 G_{RMS} (5–800Hz) Max
Non-operating	3.13 G_{RMS} (5–800Hz) Max

NOTES:

1. Operating temperature is targeted for 70º C.
2. Please contact your Intel representative for details on the non-operating temperature range.
3. Temperature gradient measured without condensation.
4. Shock specification assume the device is mounted securely with the input vibration applied to the drive-mounting screws. Stimulus may be applied in the X,Y, or Z axis shock specification is measured using Root Mean Squared (RMS) value.
5. Vibration specifications assume the device is mounted securely with the input vibration applied to the drive-mounting screws. Stimulus may be applied in the X, Y, or Z axis. Vibration specificities is measured using RMS value.

Troubleshooting

1. The Intel Optane Memory model name "NVME INTEL MEMPEK1W01" in Device Manager does not match in the Intel Rapid Storage Technology user interface; it only shows a part of the serial number information. This is a known issue and does not impede the functionality of the Intel Optane Memory.

   Device Manager: NVME INTEL MEMPEK1W01

   IRST UI: INTEL MEMPEK1W016GA
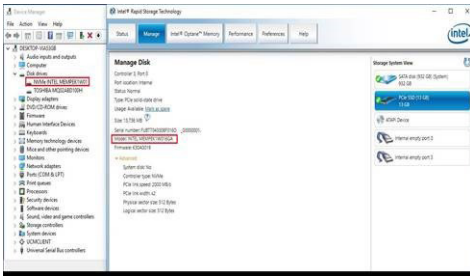
2. During the first-time boot up, the system will scan the pairing status as below screen shot after shutdown. It's working as designed and the message will not appear again in following boot ups.

Identifier	GUID-ED20F234-C5C4-4103-926C-774E57821BF4
Version	5
Status	Released

Technology and components

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

Topics:

- Storage options
- Memory configurations
- DDR4

Identifier	GUID-55A1EB46-6E47-4262-835B-BF47671190EF
Version	1
Status	Released

Storage options

This topic details the supported storage options.

Hard drives

Table 4. Hard drive

- 2.5" 500 GB SATA 5400 RPM Hard Disk Drive
- 2.5" 500 GB SATA 7200 RPM Hard Disk Drive
- 2.5" 500 GB SATA 5400 RPM Solid State Hybrid Drive with 8 GB Flash
- 2.5" 500 GB SATA 7200 RPM Self Encrypting Drive (OPAL FIPS)
- 2.5" 1.0 TB SATA 7200 RPM Hard Disk Drive
- 2.5" 1.0 TB SATA 5400 RPM Solid State Hybrid Drive w/ 8GB Flash
- 2.5" 2.0 TB SATA 5400 RPM Hard Disk Drive

Solid State Drives (SSD)

Table 5. SSD

- 2.5" 256 GB SATA Solid State Drive Class 20
- 2.5" 512 GB SATA Solid State Drive Class 20
- M.2 128 GB SATA Solid State Drive Class 20
- M.2 256 GB PCIe NVMe Solid State Drive Class 40
- M.2 256 GB PCIe NVMe Self Encrypting Solid State Drive Class 40
- M.2 512 GB PCIe NVMe Solid State DriveClass 40
- M.2 1 TB PCIe NVMe Solid State Drive Class 40

Identifying the hard drive in Windows 10

1. Click inside the **Cortana Search Box** and type **Control Panel** and then click or press **Enter** on the keyboard, for the appropriate search result
2. Click **Control Panel**, select **Device Manager**, and expand **Disk drives**.
   The hard drive is listed under **Disk drives**.

Entering BIOS setup

1. Turn on or restart your laptop.
2. When the Dell logo appears, perform the following action to enter the BIOS setup program:

   - Tap F2 until the **Entering BIOS** setup message appears.

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

3. On the left pane, select **Settings** > **General** > **System Information**.
   The memory information is displayed on the right pane.

Memory configurations

The supported memory configurations for are as follows:

- 4GB DDR4, 2400MHz, (1 x 4GB)
- 8GB DDR4, 2400MHz, (1 x 8GB)
- 8GB DDR4, 2400MHz, (2 x 4GB)
- 16GB DDR4, 2400MHz, (2 x 8GB)
- 32GB DDR4, 2400MHz, (2 x 16GB)

(i) **NOTE: If this computer is purchased with Intel 6th Generation CPUs, the maximum MHz the computer can achieve is 2133.**

Verifying system memory in Windows 10 and Windows 7

Windows 10

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

Windows 7

1. Click **Start** → **Control Panel** → **System**

DDR4

DDR4 (double data rate fourth generation) memory is a higher-speed successor to the DDR2 and DDR3 technologies and allows up to 512 GB in capacity, compared to the DDR3's maximum capacity of 128 GB per DIMM. DDR4 synchronous dynamic random-access memory is keyed differently from both SDRAM and DDR to prevent the user from installing the wrong type of memory into the system.

DDR4 needs 20 percent less or just 1.2 volts, compared to DDR3 which requires 1.5 volts of electrical power to operate. DDR4 also supports a new, deep power-down mode that allows the host device to go into standby without needing to refresh its memory. Deep power-down mode is expected to reduce standby power consumption by 40 to 50 percent.

Key Specifications

The following table lists the specifications' comparison between DDR3 and DDR4:

Table 6. DDR3 vs DDR4

Feature/Option	DDR3	DDR4	DDR 4 Advantages
Chip Densities	512 Mb-8 Gb	4 Gb-16 Gb	Larger DIMM capacities
Data rates	800 Mb/s-2133 Mb/s	1600 Mb/s-3200 Mb/s	Migration to higher speed I/O
Voltage	1.5 V	1.2 V	Reduced memory power demand
Low voltage standard	Yes (DDR3L at 1.35V)	Anticipated at 1.05V	Memory Power Reductions
Internal banks	8	16	Higher data rates
Bank groups (BG)	0	4	Faster burst accesses
VREF inputs	2 —DQs and CMD/ADDR	1 — CMD/ADDR	VREFDQ Now Internal
tCK — DLL Enabled	300 Mhz-800 Mhz	667Mhz-1.6Ghz	Higher data rates
tCK — DLL Disabled	10MHz – 125MHz (optional)	Undefined to 125MHz	DLL-off now fully supported
Read Latency	AL+CL	AL+CL	Expanded values
Write Latency	AL+CWL	AL+CWL	Expanded values
DQ Driver (ALT)	40&Omega	48&Omega	Optimal for PtP Applications
DQ Bus	SSTL15	POD12	Less I/O Noise and Power
RTT Values (in &Omega)	120,60,40,30,20	240,120,80,60,48,40,34	Support for higher data rates
RTT not allowed	READ Bursts	Disables during READ Bursts	Ease of use
ODT Modes	Nominal, Dynamic	Nominal, Dynamic,Park	Add'l Control Mode; OTF Value Change
ODT Control	ODT Signaling Required	ODT Signaling Not Required	Ease of ODT Control; Allows Non-ODT Routing, PtP Apps
Multi-Purpose Register	Four Registers – 1 Defined, 3 RFU	Four Registers – 3 Defined, 1 RFU	Provides Additional Specialty Readout
DIMM Types	RDIMM, LRDIMM, UDIMM, SODIMM	RDIMM, LRDIMM, UDIMM, SODIMM	
DIMM Pins	240 (R, LR, U); 204 (SODIMM)	288 (R, LR, U); 260 (SODIMM)	
RAS	ECC	CRC, Parity, Addressability, GDM	More RAS features; improved data integrity

DDR4 Details

There are subtle differences between DDR3 and DDR4 memory modules, as listed below.

Key notch difference

The key notch on a DDR4 module is in a different location from the key notch on a DDR3 module. Both notches are on the insertion edge, but the notch location on the DDR4 is slightly different, to prevent the module from being installed into an incompatible board or platform.
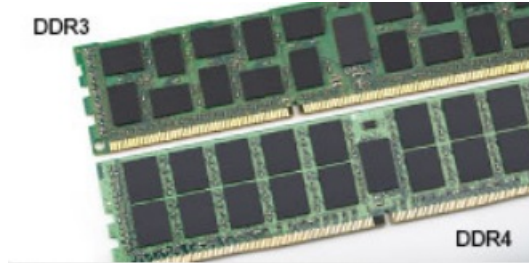
Figure 4. Notch difference

Increased thickness

DDR4 modules are slightly thicker than DDR3, to accommodate more signal layers.
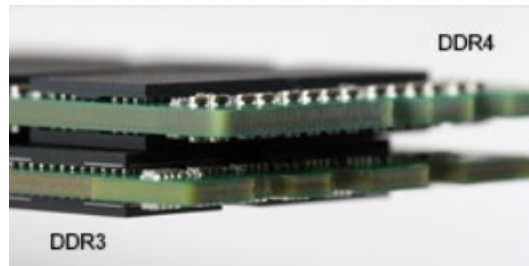
Figure 5. Thickness difference

Curved edge

DDR4 modules feature a curved edge to help with insertion and alleviate stress on the PCB during memory installation.
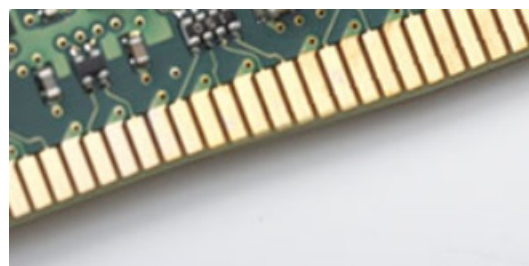
Figure 6. Curved edge

System setup

Identifier	GUID-A0100BF3-30E3-471A-8D1A-A77C0E46345F
Version	8
Status	Released

System setup enables you to manage your hardware and specify BIOS level options. From the System setup, you can:

- Change the NVRAM settings after you add or remove hardware
- View the system hardware configuration
- Enable or disable integrated devices
- Set performance and power management thresholds
- Manage your computer security

Topics:

- Boot Sequence
- Navigation keys
- System setup options
- System setup options
- Updating the BIOS
- Updating your system BIOS using a USB flash drive
- System and setup password

Identifier	GUID-39EA0288-9174-49B6-ABA2-37C542A11FC5
Version	6
Status	Released

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.

Identifier	GUID-7A7EB30A-4A48-422B-AE30-B8DC236A1790
Version	8
Status	Released

Navigation keys

(i) **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 computer and its installed devices, the items listed in this section may or may not appear.**

System setup options

ⓘ **NOTE: Depending on the 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. • 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, DIMM 1 Size, DIMM 2 Size, • PCI Information: Displays SLOT 1 and SLOT_M.2 • 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: Displays Primary Hard Drive, M.2 SATA2, M.2 SATA, M.2 PCIe SSD-0, LOM MAC Address, Video Controller, Video BIOS Version, Video Memory, Panel Type, Native Resolution, Audio Controller, Wi-Fi Device, WiGig Device, Cellular Device, Bluetooth Device.
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. • Diskette Drive • Internal HDD • USB Storage Device

Option	Description
	• CD/DVD/CD-RW Drive • Onboard NIC
Advanced Boot Options	This option allows you the legacy option ROMs to load. By default, the **Enable Legacy Option ROMs** is disabled.
UEFI Booth Path Security	This options controls whether or not the system will prompt the user to enter the Admin password when booting a UEFI boot path from the F12 Boot Menu. • Always, Except Internal HDD • Always • Never: This option is enabled by default.
Date/Time	Allows you to change the date and time.

System configuration screen options

Option	Description
Integrated NIC	If you enable UEFI network stack, UEFI network protocols will be available. UEFI network allows pre-os and early os networking features to use NICs that are enabled. This may be used without PXE turned on. When you enable Enabled w/PXE, the type of PXE boot (Legacy PXE or UEFI PXE) depends on the current boot mode and type of option ROMs in use. The UEFI Network Stack is required in order to have UEFI PXE functionality fully enabled. • Enabled UEFI Network Stack - This option is disabled by default. Allows you to configure the integrated network controller. The options are: • Disabled • Enabled • Enabled w/PXE: This option is enabled by default. ⓘ **NOTE: Depending on the computer and its installed devices, the items listed in this section may or may not appear.**
SATA Operation	Allows you to configure the internal SATA hard-drive controller. The options are: • Disabled • AHCI: 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-0 • SATA-1 • SATA-2 • SATA-3 • SATA-4
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 field configures the integrated USB controller. If Boot Support is enabled, the system is allowed to boot any type of USB Mass Storage Devices (HDD, memory key, floppy). If USB port is enabled, device attached to this port is enabled and available for OS. If USB port is disabled, the OS cannot see any device attached to this port. The options are:

Option	Description
	• Enable Boot Support • Enable Rear USB Ports: Include options for 6 ports • Enable Front USB Ports: Include options for 2 ports All the options are enabled by default. (i) **NOTE: USB keyboard and mouse always work in the BIOS setup irrespective of these settings.**
Side USB Configuration	This field allows you to enable or disable side USB ports. • Side Port1 (Top) • Side Port2 (Bottom)
Rear USB Configuration	This field allows you to enable or disable rear USB ports. • Rear Port (Rear Right) • Rear Port 2 (Front Right) • Rear Port 3 (Rear Left) (Rear Port 4 (Front Left))
Audio	This field enables or disables the integrated audio controller. By default, the **Enable Audio** option is selected. The options are: • Enable Microphone (by default enable) • Enable Internal Speaker (by default enable)
OSD Button Management	This field allows you to enable or disable the OSD (On-Screen Display) buttons on the All-In-One system. This option is disabled by default.
Touchscreen	This option allows you to enable or disable touchscreen.
Miscellaneous Devices	Allows you to enable or disable the following devices: • Enable PCI Slot (enabled by default) • Enable Secure Digital (SD) card (enabled by default) • Secure Digital (SD) Card Boot

Identifier	GUID-7ED15629-06B2-42CF-B671-94115F968A60
Version	1
Status	Released

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.** 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
Strong Password	Allows you to enforce the option to always set strong passwords. Default Setting: Enable Strong Password is not selected.

Option	Description
	ⓘ **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.**
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.
UEFI Capsule Firmware Updates	This option controls whether the system allows BIOS updates through UEFI capsule update packages. ⓘ **NOTE: Disabling this option will block the BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS).** This option is enabled by default.
TPM 2.0 Security	Allows you to enable the Trusted Platform Module (TPM) during POST. This option is enabled by default. The options are: · TPM On · Clear · PPI Bypass for Enabled Commands · PPI Bypass for Disabled Commands ⓘ **NOTE: Activation, deactivation, and clear options are not affected if you load the setup program's default values. Changes to this option take effect immediately.**
Computrace	Allows you to activate or disable the optional Computrace software The options are: · Deactivate · 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
Chassis Intrusion	This field controls the chassis intrusion feature. The options are: · Enabled · Disabled · On-slient Default Setting: Disabled
OROM Keyboard Access	Allows you to set an option to enter the Option ROM Configuration screens using hotkeys during boot. The options are: · Enabled · One Time Enable · Disabled Default Setting: Enabled
Admin Setup Lockout	Allows you to enable or disable the option to enter setup when an admin password is set. · Enable Admin Setup Lockout - This option is disabled by default.

Option	Description
Master Password Lockout	If enabled, this option disables the master password support. The Hard Disk passwords need to be cleared before the setting can be changed. Default setting: Disabled

Identifier	GUID-A83B327E-B3C3-4CE5-BEF9-954C4C7930E0
Version	1
Status	Released

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 (i) **NOTE: If you disable the Custom Mode, all the changes made will be erased and the keys will restore to default settings.**

Identifier	GUID-EE6C25A2-52E4-4A09-991E-D3D73B1A1520
Version	1
Status	Released

Intel Software Guard Extensions options

Option	Description
Intel SGX Enable	Allows you to enable or disable the Intel Software Guard Extensions to provide a secured environment for running code/storing sensitive information in the context of the main operating system. • Disabled (default) • Enabled
Enclave Memory Size	Allows you to set the Intel SGX Enclave Reserve Memory Size. • 32 MB • 64 MB • 128 MB

Identifier	GUID-CF342921-471A-46FD-9CA4-E6FAEA722104
Version	2
Status	Released

Performance screen options

Option	Description
Multi Core Support	Specifies whether the process will have one or all cores enabled. The performance of some applications will improve with the additional cores. • All - This option is enabled by default • 1 • 2 • 3
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.
Limit CPUID Value	Allows you to limit the maximum value of the Standard CPUID function support. Some operation systems will not complete installation when maximum CPUID Function supported is greater than 3. • Enable CPUID Limit - This option is disabled by default.
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor. • Enable Intel TurboBoost Default setting: The option is enabled.

Identifier	GUID-B316FA04-40A7-485E-8C8C-6A778DF3DCF4
Version	1
Status	Released

Power management screen options

Option	Description
AC Recovery	Specifies how the computer will respond when AC power is applied after an AC power loss. You can set the AC Recovery to: • Power Off (default) • Power On • Last Power State
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 ⓘ **NOTE: This feature does not work if you turn off your computer using the switch on a power strip or surge protector or if Auto Power is set to disabled.**
Deep Sleep Control	Allows you to define the controls when Deep Sleep is enabled. • Disabled

Option	Description
	• Enabled in S5 only • Enabled in S4 and S5 – This option is enabled by default.
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 Default setting: The option is disabled.
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 • LAN Only • WLAN Only • LAN or WLAN • LAN with PXE Boot 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
Intel Ready Mode	This option enables the capability of Intel Ready Mode technology.

Identifier	GUID-531EBD11-3A6C-448A-A8F4-9BE1F230EC09
Version	1
Status	Released

POST behavior screen options

Option	Description
Numlock LED	Specifies if the NumLock function can be enabled when the system boots. This option is enabled by default.
Keyboard Errors	Specifies whether keyboard related errors are reported when it boots. This option is enabled by default.
Fastboot	Allows you to speed up the boot process by bypassing some of the compatibility steps. The options are: • Minimal • Through (default) • Auto
Extended BIOS POST Time	This option creates an additional pre-boot delay and allows you to see the POST status messages. The options are: • 0 seconds (default) • 5 seconds • 10 seconds
Full screen Logo	This option displays the full screen logo if your image match the screen resolution. The option is disabled by default.
Warnings and Errors	This option causes the boot process to only pause when warnings or errors detected. The options are: • Prompt on Warnings and Errors • Continue on Warnings • Continue on Warnings and Errors

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.

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.
SERR Messages	Controls the SERR message mechanism. This option is enabled by default. Some graphics cards require that the SERR message mechanism be disabled.
BIOS Downgrade	This controls flashing of the system firmware to previous revisions.
	• Data Wipe
	• Wipe on Next boot
	• BIOS recovery
	• BIOS recovery from the hard drive
	Follow the procedure to recover BIOS from hard drive.
	1. Power on the system.
	2. While the blue Dell logo is visible, press the **F2** key to enter the System Setup.
	3. Press the **Num Lock** key, and verify that the Num Lock light is on.
	4. Press the **Caps Lock** key, and verify that the Caps Lock light is on.
	5. Press the **Scroll Lock** key, and verify that the Scroll Lock light is on.
	6. Press the **Alt** + **F** keys at the same time. The system will beep as the setup defaults are restored.
	7. Press the **Alt** + **F** keys at the same time to restart the system. The changes are automatically saved.
Data Wipe	This field allows your to securely erase data from all internal storage devices. The following is a list of devices affected by this operation:
	• Internal HDD
	• Internal SSD
	• Internal mSATA
	• Internal eMMC
	⚠ **WARNING: This operation will permanently delete all data from the devices.**
BIOS Recovery	This option enable you to recover from certain corrupted BIOS conditions from a recovery file on the primary hard drive or an external USB key.This option is enabled by default.

System Log screen options

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

Updating the BIOS

It is recommended to update your BIOS (system setup), on replacing the system board or if an update is available.

1. Re-start the computer.
2. Go to **dell.com/support**.
3. Enter the **Service Tag** or **Express Service Code** and click **Submit**.
   a) To locate the Service Tag, click **Where is my Service Tag?**
   b) 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 **Choose from all products.**
5. Choose the **Products** from the list.

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

6. Select your computer model and the **Product Support** page of your computer appears.
7. Click **Get drivers** and click **Drivers and Downloads**.
   The Drivers and Downloads page opens.
8. On the Drivers and Downloads screen, click **Find it myself**
9. Click**BIOS**to view the BIOS versions.
10. Identify the latest BIOS file and click **Download** .

    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.
11. Select your preferred download method in the **Please select your download method below**window; click **Download File**.
    The **File Download** window appears.
12. Click **Save** to save the file on your computer.
13. Click **Run** to install the updated BIOS settings on your computer.

    ⓘ **NOTE: Follow the instructions on the screen.**

Updating your system BIOS using a 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.

ⓘ **NOTE: You will need to use a bootable USB Flash drive. Please refer to the following article for further details: http:// www.dell.com/support/article/us/en/19/SLN143196/how-to-create-a-bootable-usb-flash-drive-using-dell-diagnostic-deployment-package--dddp-?lang=EN**

1. Download the BIOS update .EXE file to another system.
2. Copy the file e.g. 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 Splash logo appears to display the One Time Boot Menu.

5. Using arrow keys, select **USB Storage Device** and click Return.
6. The system will boot to a Diag C:\> prompt.
7. Run the file by typing the full filename e.g. O9010A12.exe and press Return.
8. The BIOS Update Utility will load, follow the instructions on screen.
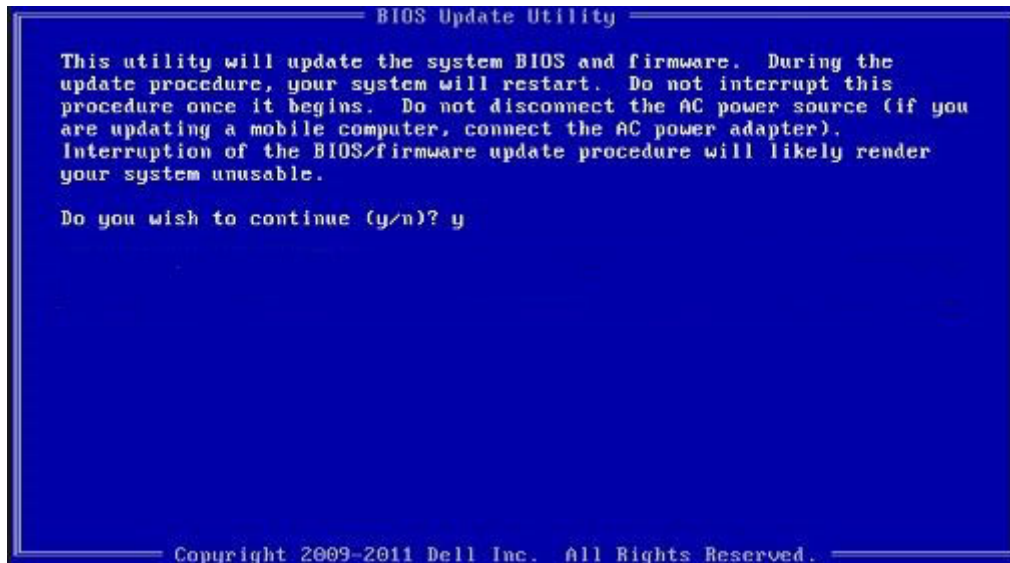
Figure 7. DOS BIOS Update Screen

Identifier	GUID-859887F0-B1B4-4530-855E-100D4FDE930A
Version	8
Status	Released

System and setup password

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

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

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

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

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

Identifier	GUID-D91DBF33-F0AB-477E-A22D-D6CD2D066BBE
Version	8
Status	Released

Assigning a system password and setup password

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

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

1. In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.
   The **Security** screen is displayed.
2. Select **System Password** and create a password in the **Enter the new password** field.
   Use the following guidelines to assign the system password:
   - A password can have up to 32 characters.
   - The password can contain the numbers 0 through 9.
   - Only lower case letters are valid, upper case letters are not allowed.

- Only the following special characters are allowed: space, ("), (+), (,), (-), (.), (/), (;), ([), (\), (]), (`).

3. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.

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

5. Press Y to save the changes.
   The computer reboots.

Deleting or changing an existing system and or setup password

Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing System and/or Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked.

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

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.
   The **System Security** screen is displayed.

2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.

3. Select **System Password**, alter or delete the existing system password and press Enter or Tab.

4. Select **Setup Password**, alter or delete the existing setup password and press Enter or Tab.

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

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

6. Press Y to save the changes and exit from System Setup.
   The computer reboots.

Identifier	GUID-500AE1E8-7F5D-4D62-AA86-04D1358B0E4A
Version	4
Status	Released

Troubleshooting your computer

Identifier	GUID-3A3576E1-EF1B-46DB-906F-9A07B70DACE5
Version	10
Status	Released

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.**

Identifier	GUID-5FC0D943-B848-4BDC-9A26-78A5E88FDA45
Version	8
Status	Released

Running the ePSA diagnostics

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

Identifier	GUID-6C8261B6-EE61-4B8B-AA38-5D29C61459CE
Version	2
Status	Released

Diagnostics

Power status light: Indicates the power status.

Solid Amber – The system is unable to boot to the operating system. This indicates that the power supply or another device in the system is failing.

Blinking Amber – The system is unable to boot to the operating system. This indicates that the power supply is normal but another device in the system is failing or not installed properly.

(i) **NOTE: To determine the device that is failing, see the light patterns .**

Off – System is in hibernation or turned off.

The power status light blinks amber along with beep codes indicating failures.

For example, the power status light blinks amber two times followed by a pause, and then blinks white three times followed by a pause. This 2,3 pattern continues until the computer is turned off indicating the Recovery image is not found.

The following table shows different light patterns and what they indicate:

Table 7. Diagnostic LED/Beep codes

LED # of Flashes	Problem description	Faults
2,1	Faulty system board	Faulty system board
2,2	Faulty system board, power supply unit (PSU), or cabling	Faulty system board, power supply unit (PSU), or cabling
2,3	Faulty system board, CPU, or DIMMS	Faulty system board, power supply unit (PSU), or DIMMS
2,4	Faulty coin cell battery	Faulty coin cell battery
2,5	BIOS Recovery	AutoRecovery trigger, recovery image is not found or is invalid
2,6	CPU	CPU Error
2,7	Memory	Memory SPD failure
3,3	Memory	No memory detected
3,5	Memory	Modules incompatible or invalid configuration
3,6	BIOS Recovery	On-demand trigger, recovery image is not found
3,7	BIOS Recovery	On-demand trigger, recovery image is invalid

The system may emit a series of beeps during start-up if the errors or problems cannot be displayed. The repetitive beep codes help the user troubleshoot problems with the system.

Identifier	GUID-3EAC4151-A64F-4901-898C-33456D1053ED
Version	2
Status	Released

Power supply-built in self test BIST

The Dell OptiPlex, and Desktops(AIO) features a new Power Supply Unit (PSU) Built -in Self Test (BIST). BIST can now be performed by simply connecting the AC power cord to the PSU.

1. Turn off the computer.
2. Disconnect the power cord from the PSU and wait for 15 seconds.
3. After 15 seconds, connect the power cord back to the PSU.

   a. If the LED stays on for 3 seconds and turns off, it indicates the PSU is functional. Continue with troubleshooting steps for other devices.
   b. If the LED does not come on, it indicates a hardware failure. The failed component can be PSU, system board or any device.

Step to confirm that PSU is Defective

⚠️ **CAUTION: Ensure that you take adequate safety precautions before accessing the internal components of your system. Go through the Service Manual to know the steps to access the PSU and its cables.**

1. Disconnect the power cord from the PSU.
2. Disconnect the PSU cables from the system board.

3. Connect the power cord to the PSU

   a. If the LED stays on for 3 seconds and turn off, it indicates the PSU is functional. Continue with troublehooting steps for other devices.

   b. If the LED does not come on, it indicates a PSU failure. Dispatch PSU only

| Identifier	GUID-2ECFBF64-5C0C-4BE0-BB0E-D4F4DFA6A21E
Version	4
Status	Released

Power supply

All power supply units include a self-test ability in an isolation mode.

Customers can test the health of the power system by pressing the test button. The button is lit by a signal in the power supply called Power Good (PG). When the +3.3v, +5v, and +12v rails are up and within spec, the PG signal turns on, lighting the self-test LED. By removing the cable harness in units that do not pass this test, the customer, or technician can isolate the failure's cause to an attached device of the power supply.

Identifier	GUID-084ACB7F-7FB1-49CD-A9E9-6C0CACE0883D
Version	2
Status	Released

LCD built in self test - BIST

All-in-One (AIO) systems supports LCD BIST similar to any other Dell systems that have BIST test implemented. It allows the user to isolate the LCD during troubleshooting to determine which sub-system is at fault. The main difference is the lack of an integrated keyboard scan controller in the AIO. When BIST is initiated, an internal generated pattern from the LCD will be emitted for user's observation. This pattern will go by sequence through this pattern. Black-White-Red-Green-Blue or a White-Black-Red-Green-Blue where each pattern is emitted for 2 to 3 seconds. The following images displays the pattern of the colors on the LCD.
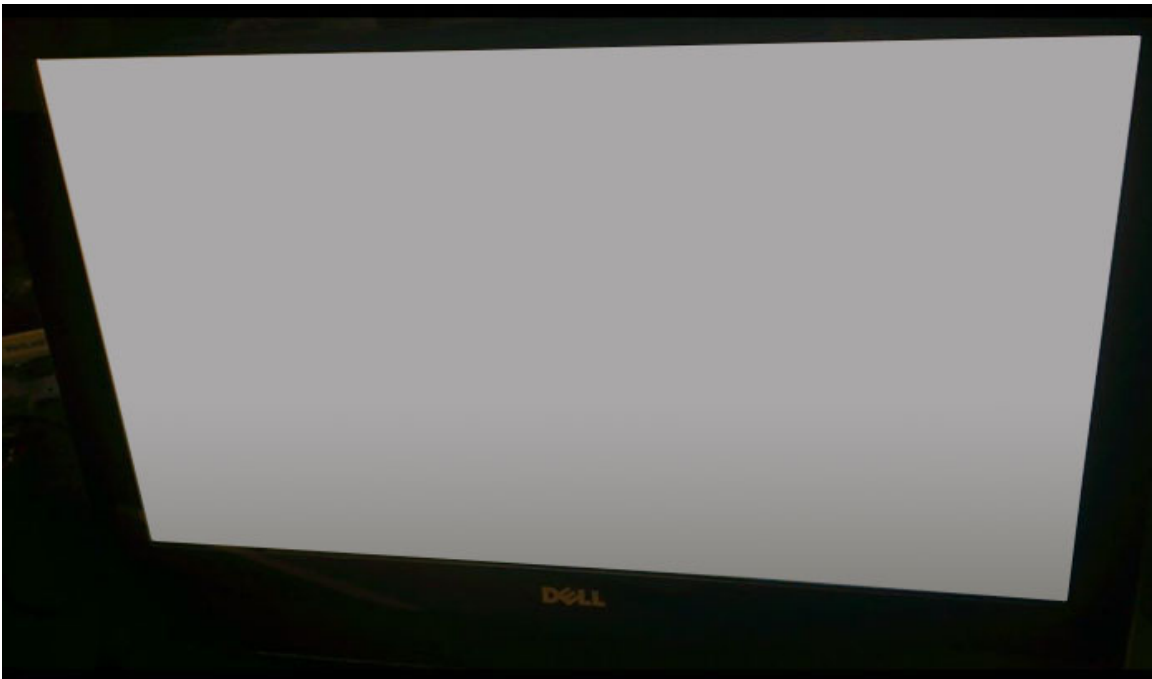
Invoking BIST with user modes

There are two methods to invoke the LCD BIST .

- OSD Toggle
- ePSA

OSD toggle

The first method of user initiation is via OSD toggle button. The user should press the OSD toggle button and hold it in while the power button is applied to turn the AIO on. This is the hardware-initiated method that does not require the CPU and BIOS to be functional. The panel will stay in BIST mode until the BIOS reboots the system. The test duration is approximately 20 seconds which allows 2 cycles of color bar patterns.

To invoke the BIST test via OSD Toggle:

1. Press and hold down the OSD toggle button.
2. Press the power button to turn on the computer while holding down on the OSD toggle button.

(i) NOTE: **The OSD toggle is located at the right side of the chassis, just above the Hard Disk indicator light.**

ePSA

The second method to troubleshoot is via ePSA entry. The user initiates a Pre-Boot POST via F12 function key and the system enters ePSA. The ePSA menu will have an LCD BIST selection that asserts the proper signals via BIOS commands. The BIST mode will loop for approximately 20 seconds giving 2 cycles of color bar patterns that the user can observe. The time period is controlled by BIOS. After the time period, the BIOS will return the system to the ePSA menu.

Technical specifications

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

* **Windows 10, click or tap Start** ⊞ **> Settings > System > About.**
* **Windows 8.1 and Windows 8, from the charms sidebar, click or tap Settings > Change PC settings. In the PC Settings window, select PC and devices > PC Info.**
* **Windows 7, click Start** ⊛ **, right-click My Computer, and then select Properties.**

Topics:

Processors

Processor numbers are not a measure of performance. Processor availability is subject to change and may vary by region or country. The following table lists the processors that are supported in OptiPlex 5250 AIO:

Feature	Specification
Processor type	ⓘ **NOTE: 7th generation Intel processors support Windows 10/ Linux only. 6th generation Intel processors support Windows 7/ 8.1/ 10/ Linux only.**
	* Intel Core i3-6100 Processor (Dual Core/ 3MB/ 4T/ 3.7GHz/ 47W)
* Intel Core i5-6400 Processor (Quad Core/ 6MB/ 4T/ 2.7GHz/ 65W)
* Intel Core i5-6500 Processor (Quad Core/ 6MB/ 4T/ 3.2GHz/ 65W)
* Intel Core i5-6600 Processor (Quad Core/ 6MB/ 4T/ 3.3GHz/ 65W)
* Intel Core i7-6700 Processor (Quad Core/ 8MB/ 8T/ 3.4GHz/ 65W)
* Intel Pentium Processor G4500 (Dual Core/ 3MB/ 2T/ 3.5GHz/ 51W)
* Intel Core i3-7100 Processor (Dual Core/ 3MB/ 4T/ 3.9GHz/ 51W)
* Intel Core i3-7300 Processor (Dual Core/ 4MB/ 4T/ 4.0GHz/ 51W)

Feature	Specification
	• Intel Core i5-7400 Processor (Quad Core/ 6MB / 4T/ 3.0GHz/ 65W) • Intel Core i5-7500 Processor (Quad Core/ 6MB/ 4T/ 3.4GHz/ 65W) • Intel Core i5-7600 Processor (Quad Core/ 6MB/ 4T/ 3.5GHz/ 65W) • Intel Core i7-7700 Processor (Quad Core/ 8MB/ 8T/ 3.6GHz/ 65W) • Intel Pentium G4560 Processor (Dual Core/ 3MB/ 2T/ 3.5GHz/ 54W)
Total cache	Up to 8 MB cache depending on processor type
Chipset	Intel Q270 chipset

Memory specifications

Feature	Specification
Memory type	up to 2400 MHz, unbuffered non-ECC, dual-channel DDR4 2133 configuration (2133 MHz on Intel 6th generation processors)
Memory capacity	4 GB, 8 GB and 16 GB
Memory connectors	two internally-accessible DDR4 SODIMM sockets
Minimum memory	2 GB
Maximum memory	32 GB

Video specifications

Feature	Specification
Video Controller	• Integrated Intel HD 630/610/530/510 Graphics • Optional AMD Radeon M465, 2GB
Video Memory	shared memory
External display support	DisplayPort, HDMI in and HDMI out (Optional only on FHD model configuration 7450 AIO)

Audio specifications

Feature	Specification
Controller	Intel High Definition Audio with Waves MaxxVoice Pro
Speaker	single 4-ohms speakers in both the left and right speaker assembly (4 W average per channel)
Internal speaker amplifier	up to 7.6 W at 4-ohm per channel

Feature	Specification
Internal microphone support	dual digital microphone
Volume controls	Program menus, and keyboard media-control keys

⚠️ **WARNING: Excessive sound pressure from earphones or headphones can cause hearing damage or loss. Adjustment of the volume control as well as the equalizer to settings other than the center position may increase the earphones or headphones output voltage, and therefore the sound pressure level. The use of factors influencing the earphones or headphones output other than those specified by the manufacturer(e.g. operating system, equalizer software, firmware, driver, etc.) may increase the earphones or headphones output voltage and therefore the sound pressure level. The use of earphones or headphones other than those specified by the manufacturer may lead to heightened sound pressure level.**

Communication specifications

Features	Specification
Network adapter	Intel 10/100/1000 Mbps RJ-45 Ethernet
Wireless	Combo M.2 card (Intel Wireless 8265 M.2 PCIe WLAN card (802.11n/ac) with Bluetooth)

Cards specifications

Feature	Specification
M.2 slots	• One SSD, 256GB, Encrypted-SED opal 2, SATAA3, M.2, 22mm/80mm/2.38mm, 512MB, Multi Level Cell, Hynix • SSD, 256GB, SATA3, M.2, 22mm/80mm/2.38mm, LiteOn

Display specifications

Drives specifications

Feature	Specification
Hard drive	one 2.5-inch SATA drive with an adapter bracket , one 2.5-inch SATA drive (optional) and SSD M.2 (optional)
Optical drive (optional)	one DVD-ROM SATA drive or DVD+/- RW SATA drive

Port and connector specifications

Feature	Specification
Audio	• one line-out connector at rear • one global headset port at side
Network adapter	One RJ-45 connector
USB 2.0 (Rear)	0(side)/2
USB 3.0 (Rear)	2(side)/4
USB port with PowerShare support	1(side) USB 3.0 Type C connector
Video	one display port
HDMI	• one 19–pin output port • one 19–pin input port
Media card reader	one 4-in-1 slot

Power specifications

Feature	Specification
155 Watt PSU for UMA	
200 Watt dGPU and UHD(4K)	
Frequency	47 Hz — 63 Hz
Voltage	90 VAC — 264 VAC
Input current	• Maximum 2.6 A (Low AC range) • Maximum 1.3 A (High AC range)

Camera specifications - optional

Feature	Specification
Image resolution	2.0 megapixel
Video resolution	FHD (1080p)
Diagonal viewing angle	74 degrees

Stand specifications

Feature	Specification
Tilt	−5 degrees to 30 degrees

Physical specifications

Feature	Specification
Width	575.24 mm (22.65 inches)
Height	392.90 mm (15.47 inches)
Depth:	
Non-touch	63.5 mm (2.5 inches)
Touch	62.79 mm (2.47 inches)
Weight:	
Non-touch	9.76 kg with stand (21.52 lb)
Touch	11.00 kg with stand (24.25 lb)

ⓘ **NOTE: The weight of your computer may vary depending on the configuration ordered and the manufacturing variability.**

Environmental specifications

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

Relative humidity (maximum)	Specifications
Operating	20 % to 80 % (non condensing)
Storage	20 % to 80 % (non condensing)

Maximum vibration	Specifications
Operating	0.26 GRMS at 5 to 350 Hz
Storage	1.37 GRMS at 5 to 200 Hz

Maximum shock	Specifications
Operating	40 G

Maximum shock	Specifications
Storage	105 G

Altitude (maximum)	Specifications
Operating	0 m to 5000 m (0 ft to 16,404 ft)
Non-operating	0 m to 5000 m (0 ft to 16,404 ft)
Airborne contaminant level	G2 or lower as defined by ANSI/ISA-S71.04-1985

8

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.