

Dell Vostro 3667/3668

Owner's Manual



Notes, cautions, and warnings

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

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

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

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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 network cables from the computer.
- 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.

⚠ 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

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.

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

- 2 Connect any telephone or network cables to your 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 **Dell Diagnostics**.

Removing and installing components

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

Recommended tools

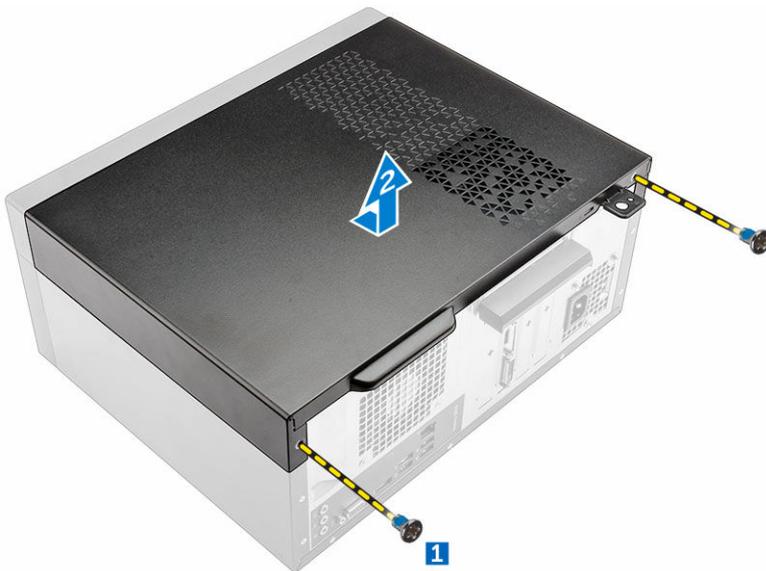
The procedures in this document require the following tools:

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

Cover

Removing the cover

- 1 Follow the procedure in [Before Working Inside Your Computer](#).
- 2 To remove the cover:
 - a Remove the 6-32xL6.35 screws that secure the cover to the computer [1].
 - b Slide the cover toward the back of the computer and lift it away from the computer [2].



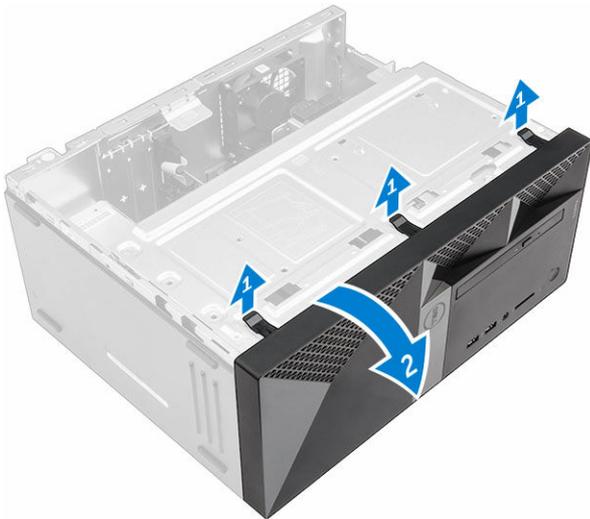
Installing the cover

- 1 Place the cover on the computer and slide the cover forward until it clicks into place.
- 2 Tighten the 6-32xL6.35 screws to secure the cover to the computer.
- 3 Follow the procedure in [After working inside your computer](#).

Front Bezel

Removing the bezel

- 1 Follow the procedure in [Before working inside your computer.](#)
- 2 Remove the [cover](#).
- 3 To remove the bezel:
 - a Lift the tabs to release the bezel from the chassis.
 - b Push the bezel to lift it away from the chassis.



Installing the bezel

- 1 Position the bezel to align the tab holders on the chassis.
- 2 Press the bezel until the tabs clicks into place.
- 3 Install the [cover](#).
- 4 Follow the procedure in [After working inside your computer.](#)

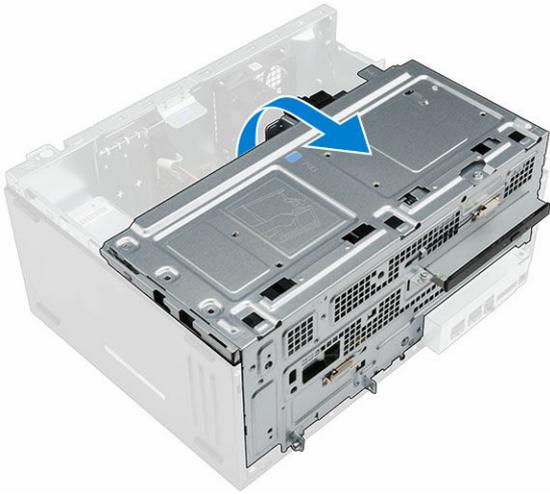
Opening the front panel door

- 1 Follow the procedure in [Before Working Inside Your Computer.](#)
- 2 Remove the:
 - a [cover](#)
 - b [bezel](#)

 **CAUTION:** The front panel door opens only to a limited extent. See the printed image for the maximum permissible level.

- 3 Pull the front panel door to open it.

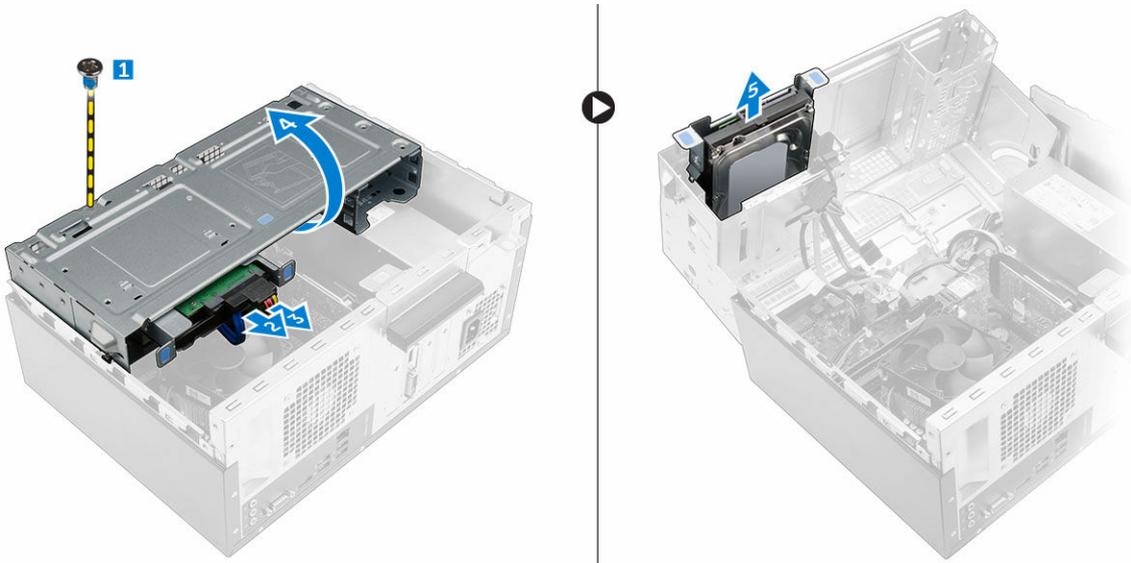




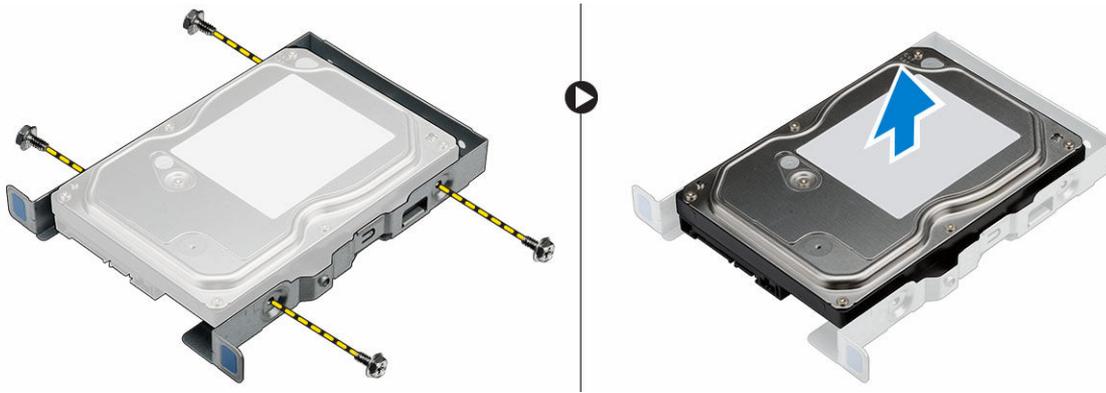
Hard drive

Removing the 3.5 inch hard drive assembly

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [cover](#)
 - b [bezel](#)
- 3 To remove the hard drive assembly:
 - a Remove the screw that secures the hard drive assembly to the front bezel door [1].
 - b Disconnect the hard drive assembly cables from the connectors on the hard drive [2, 3].
 - c Open the [front panel door](#) [4].
 - d Hold the metal tabs on both sides and pull the hard drive assembly out of the computer [6].



- 4 To remove the hard drive from the hard drive bracket:
 - a Remove the screws that secure the hard drive bracket to the hard drive.
 - b Remove the hard drive from the hard drive bracket.

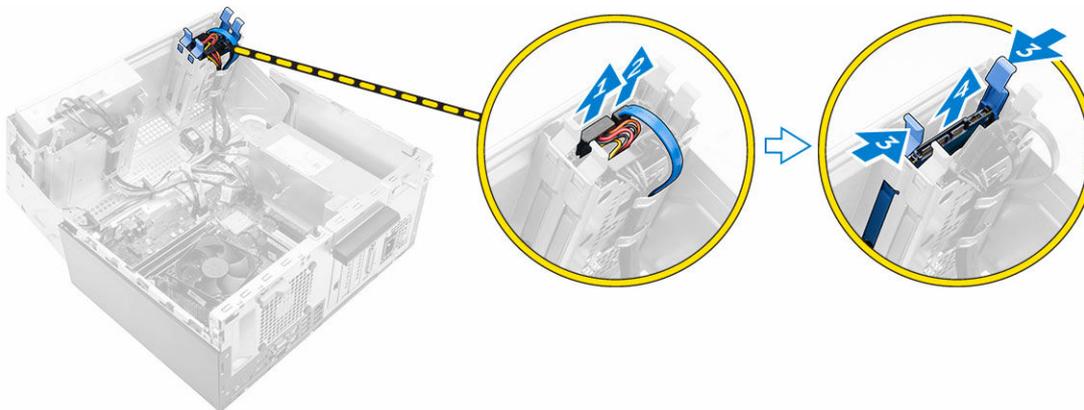


Installing the 3.5 inch hard drive assembly

- 1 Insert the hard drive into the hard drive bracket.
- 2 Secure the hard drive to the hard drive bracket by using the screws.
- 3 Insert the hard drive assembly into the slot on the computer until it clicks into place.
- 4 Close the front panel door.
- 5 Install the screw that secures the hard drive assembly to the front panel door.
- 6 Connect the SATA cable and the power cable to the connectors on the hard drive.
- 7 Install the:
 - a [bezel](#)
 - b [cover](#)
- 8 Follow the procedure in [After working inside your computer](#).

Removing the 2.5 inch hard drive assembly

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [cover](#)
 - b [bezel](#)
- 3 To remove the hard drive assembly:
 - a Disconnect the hard drive assembly cables from the connectors on the hard drive [1, 2].
 - b Open the [front panel door](#).
 - c Press the blue tabs on both sides [3] and pull the hard drive assembly out of the chassis [4].



- 4 To remove the hard drive from the hard drive bracket:



- a Pull one side of the hard drive bracket to disengage the pins on the bracket from the slots on the hard drive [1].
- b Lift the hard drive out of the hard drive bracket [2].



Installing the 2.5 inch hard drive assembly

- 1 Align and insert the pins on the hard drive bracket with the slots on one side of the hard drive.
- 2 Flex the other side of the hard drive bracket, and align and insert the pins on the bracket into the hard drive.
- 3 Slide the hard drive assembly into the slot on the computer until it clicks into place.
- 4 Close the front panel door.
- 5 Connect the SATA cable and the power cable to the connectors on the hard drive.
- 6 Install the:
 - a [bezel](#)
 - b [cover](#)
- 7 Follow the procedure in [After working inside your computer](#).

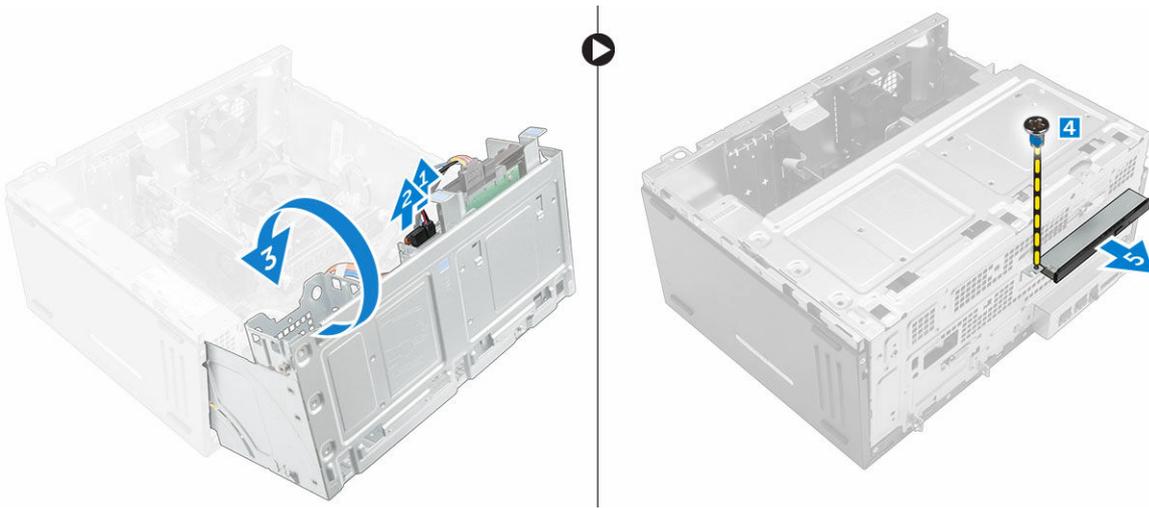
Optical drive

Removing the optical drive assembly

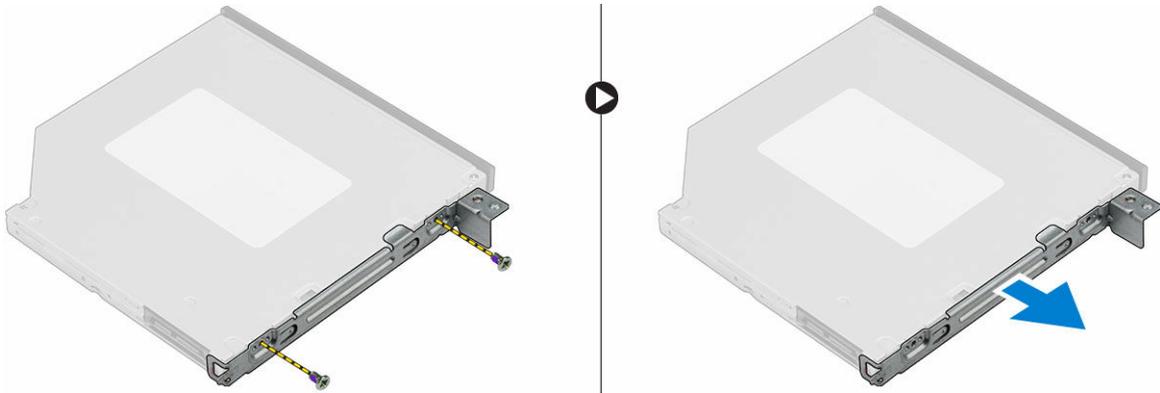
- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [cover](#)
 - b [bezel](#)
- 3 To remove the optical drive assembly:
 - a Open the [front panel door](#).
 - b Disconnect the data cable and power cable from the connectors on the optical drive assembly [1, 2].

NOTE: You may need to unroute the cables from the tabs under the drive cage to allow you to disconnect the cables from the connectors.

- c Close the front panel door [3].
- d Remove the 6-32xL3.6 screw that secures the optical drive assembly to the computer [4].
- e Slide the optical drive assembly out of the computer [5].



- 4 To remove the optical drive bracket:
- a Remove the M2L2 screws that secure the optical drive bracket to the optical drive.
 - b Remove the optical drive bracket from the optical drive.



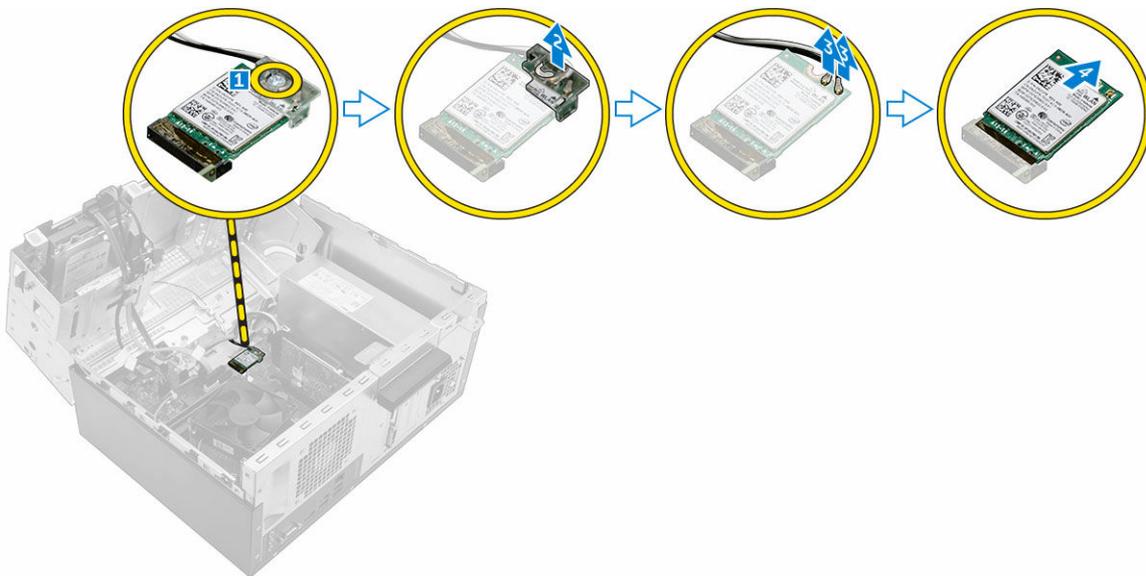
Installing the optical drive assembly

- 1 Place the optical drive bracket on the optical drive.
- 2 Tighten the M2L2 screws to secure the optical drive bracket to the optical drive.
- 3 Insert the optical drive assembly into the optical drive bay.
- 4 Tighten the 6-32xL3.6 screw to secure the optical drive assembly to the computer.
- 5 Open the [front panel door](#).
- 6 Route the data cable and power cable under the drive cage.
- 7 Connect the data cable and power cable to the connectors on the optical drive assembly .
- 8 Close the front panel door.
- 9 Install the:
 - a [bezel](#)
 - b [cover](#)
- 10 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 [cover](#)
 - b [bezel](#)
- 3 Open the [front panel door](#).
- 4 To remove the WLAN card:
 - a Loosen the M2.5*6.3 captive screw to release the plastic tab that secures the WLAN card to the computer [1].
 - b Remove the plastic tab to access the WLAN cables [2].
 - c Disconnect the WLAN cables from the connectors on the WLAN card [3].
 - d Lift the WLAN card from the connector on the system board [4].



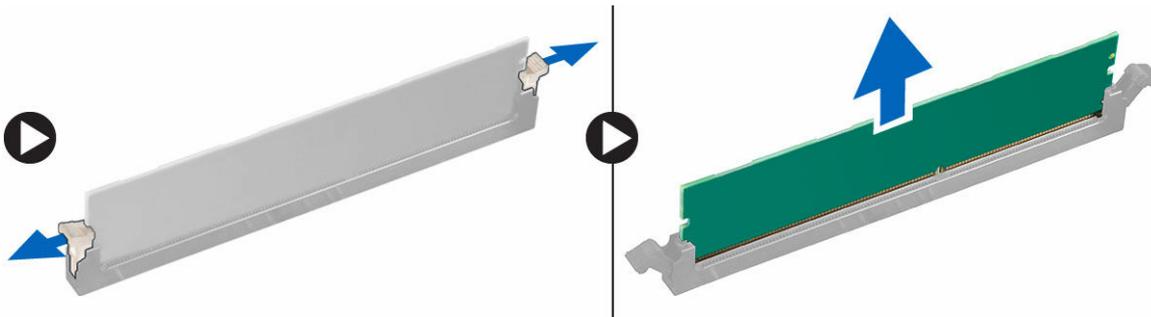
Installing the WLAN Card

- 1 Insert the WLAN card to the connector on the system board.
- 2 Connect the WLAN cables to the connectors on the WLAN card.
- 3 Place the plastic tab on the WLAN card and tighten the M2.5*6.3 screw to secure the WLAN card to the system board.
- 4 Close the front panel door.
- 5 Install the:
 - a [bezel](#)
 - b [cover](#)
- 6 Follow the procedure in [After working inside your computer](#).

Memory module

Removing the memory module

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [cover](#)
 - b [bezel](#)
- 3 Open the [front bezel door](#).
- 4 To remove the memory module:
 - a Push the memory module retention tabs on both sides of the memory module.
 - b Lift the memory module from the memory module connector on the system board.



Installing the memory module

- 1 Align the notch on the memory module with the tab on the memory module connector.
- 2 Insert the memory module into the memory module socket.
- 3 Press the memory module until the memory module retention tabs click into place.
- 4 Close the front panel door.
- 5 Install the:
 - a [cover](#)
 - b [bezel](#)
- 6 Follow the procedure in [After working inside your computer](#).

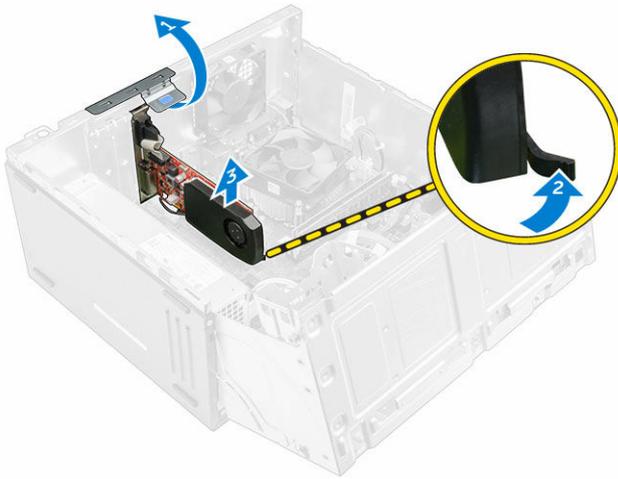
Expansion card

Removing the PCIe expansion card

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [cover](#)
 - b [bezel](#)
- 3 Open the [front panel door](#).
- 4 To remove the PCIe expansion card:
 - a Pull the release latch to unlock the PCIe expansion card [1].
 - b Push the release tab [2] and lift the PCIe expansion card out of the computer [3].



NOTE: The release tab is at the base of the expansion card.



Installing the PCIe expansion card

- 1 Pull the release latch backward to open.
- 2 Insert the PCIe expansion card to the connector on the system board.
- 3 Secure the PCIe expansion card by pushing the card retention latch until it clicks into place.
- 4 Close the release latch.
- 5 Close the front panel door.
- 6 Install the:
 - a [bezel](#)
 - b [cover](#)
- 7 Follow the procedure in [After working inside your computer](#).

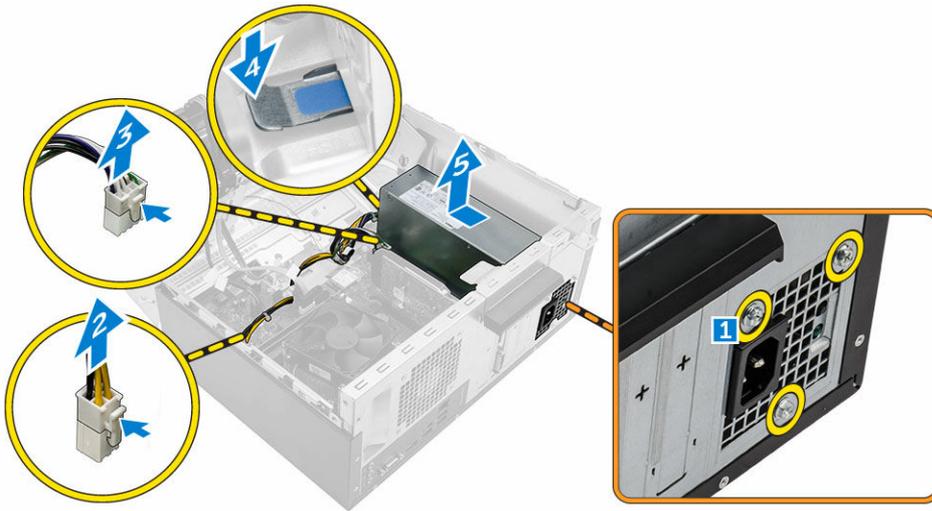
Power supply unit

Removing the power supply unit (PSU)

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [cover](#)
 - b [bezel](#)
- 3 Open the [front panel door](#).
- 4 To remove the PSU:
 - a Remove the 6-32xL6.35 screws that secure the PSU to the computer [1].
 - b Disconnect the PSU cables from the connectors on the system board [2, 3].

NOTE: Push the tabs on the cables to release it from the connectors.

 - c Unroute the PSU cables from the retention clips.
 - d Press the metal release tab [4], slide the PSU toward the back and lift it out of the computer [5].



Installing the power supply unit (PSU)

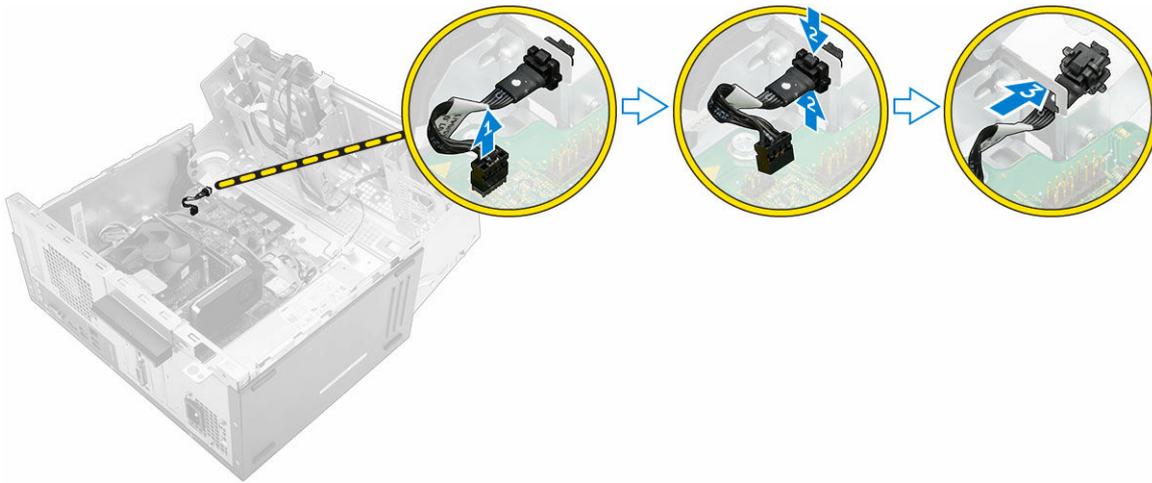
- 1 Insert the PSU into the PSU slot and slide it toward the back of the computer until it clicks into place.
- 2 Tighten the 6-32xL6.35 screws to secure the PSU to the computer.
- 3 Route the PSU cables through the retention tabs.
- 4 Connect the PSU cables to the connectors on the system board.
- 5 Close the front panel door.
- 6 Install the:
 - a [bezel](#)
 - b [cover](#)
- 7 Follow the procedure in [After working inside your computer](#).

Power switch

Removing the power switch

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [cover](#)
 - b [bezel](#)
- 3 Open the [front panel door](#).
- 4 To remove the power switch:
 - a Disconnect the power switch cable from the system board [1].
 - b Press the release tabs [2] and slide the power switch out from the front of the computer [3].

NOTE: It is recommended to move aside the power cables connected to the system board or disconnect the power cables from the system board.



Installing the power switch

- 1 Insert the power switch into the slot from the front of the computer and press it until it clicks into place.
- 2 Align the cable with the pins on the connector and connect the cable.
- 3 Close the front panel door.
- 4 Install the:
 - a [bezel](#)
 - b [cover](#)
- 5 Follow the procedure in [After working inside your computer](#).

Coin cell battery

Removing the coin cell battery

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [cover](#)
 - b [bezel](#)
- 3 Open the [front panel door](#).
- 4 To remove the coin cell battery:
 - a Press the release latch until the coin cell battery pops out.
 - b Remove the coin cell battery from the connector on the system board.



Installing the coin cell battery

- 1 Hold the coin cell battery with the "+" sign facing up and slide it under the securing tabs at the positive side of the connector.
- 2 Press the battery into the connector until it locks into place.
- 3 Close the front panel door.
- 4 Follow the procedure in [After working inside your computer](#).

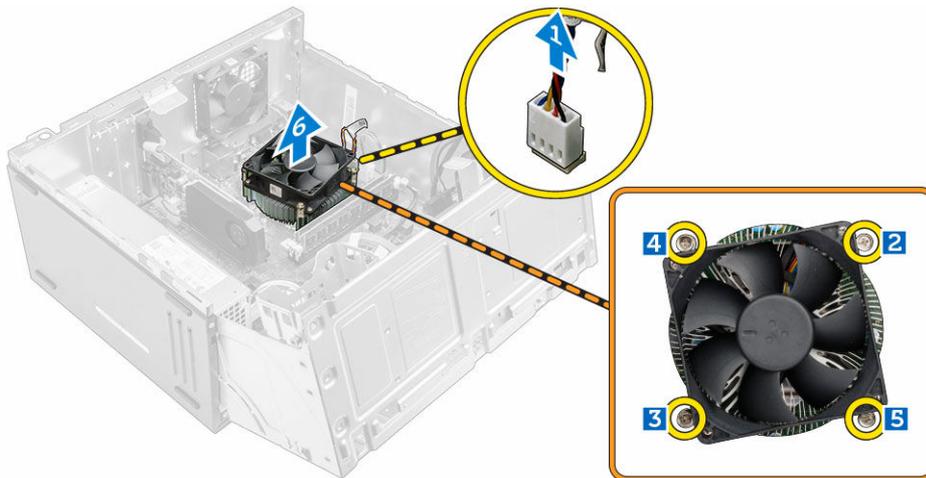
Heat sink

Removing the heat sink assembly

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a cover
 - b bezel
- 3 Open the [front panel door](#).
- 4 To remove the heat sink assembly:
 - a Disconnect the heat sink assembly cable from the connector on the system board [1].
 - b Loosen the captive screws that secure the heat sink assembly to the system board [2, 3, 4, 5].

NOTE: Loosen the screws that secure the heat sink to the system board in the order of the callout numbers [2, 3, 4, 5].

 - c Lift the heat sink assembly away from the computer [6].



Installing the heat sink assembly

- 1 Align the screws of the heat sink assembly with the holders on the system board.
- 2 Place the heat sink assembly on the processor.
- 3 Tighten the captive screws to secure the heat sink assembly to the system board.

NOTE: Tighten the screws on the system board in the order of the callout numbers as indicated in the removal instructions.
- 4 Connect the heat sink assembly cable to the connector on the system board.
- 5 Close the front panel door.



- 6 Install the:
 - a [bezel](#)
 - b [cover](#)
- 7 Follow the procedure in [After working inside your computer](#).

Processor

Removing the processor

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [cover](#)
 - b [bezel](#)
- 3 Open the [front panel door](#).
- 4 Remove the [heat sink assembly](#).
- 5 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].
 - c Lift the processor out of the socket [3].

CAUTION: Do not touch the processor socket pins, they 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.



Installing the processor

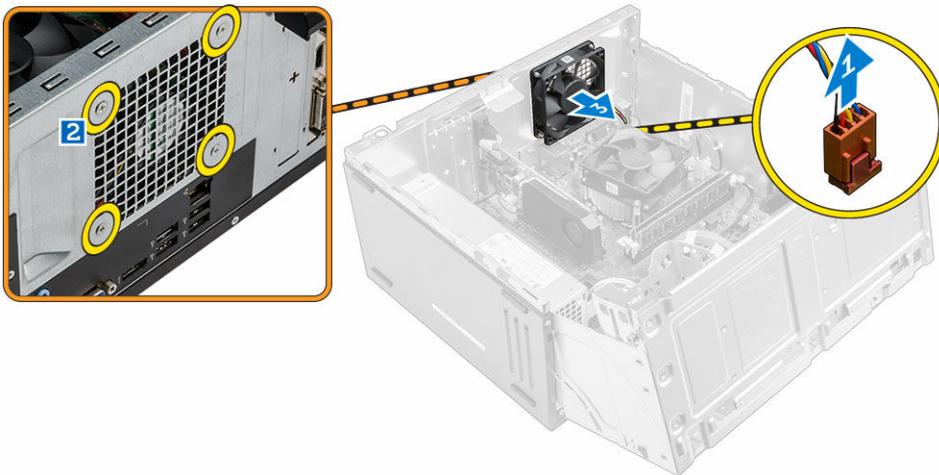
- 1 Align the processor with the socket keys.

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 the [heat sink assembly](#).
- 7 Close the front panel door.
- 8 Install the:
 - a [bezel](#)
 - b [cover](#)
- 9 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 [cover](#)
 - b [bezel](#)
- 3 Open the [front panel door](#).
- 4 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 Slide the system fan out of the computer [3].



Installing the system fan

- 1 Hold the system fan with the cable facing the bottom of the computer.
- 2 Align the system fan to the screws holders on the chassis wall.
- 3 Tighten the screws to secure the system fan to the computer.
- 4 Connect the system fan cable to the connector on the system board.
- 5 Close the front panel door.
- 6 Install the:
 - a [bezel](#)
 - b [cover](#)
- 7 Follow the procedure in [After working inside your computer](#).

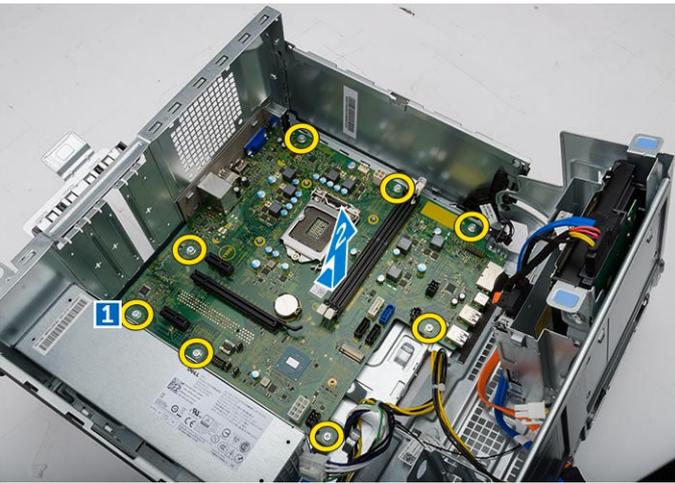
System board

Removing the system board

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



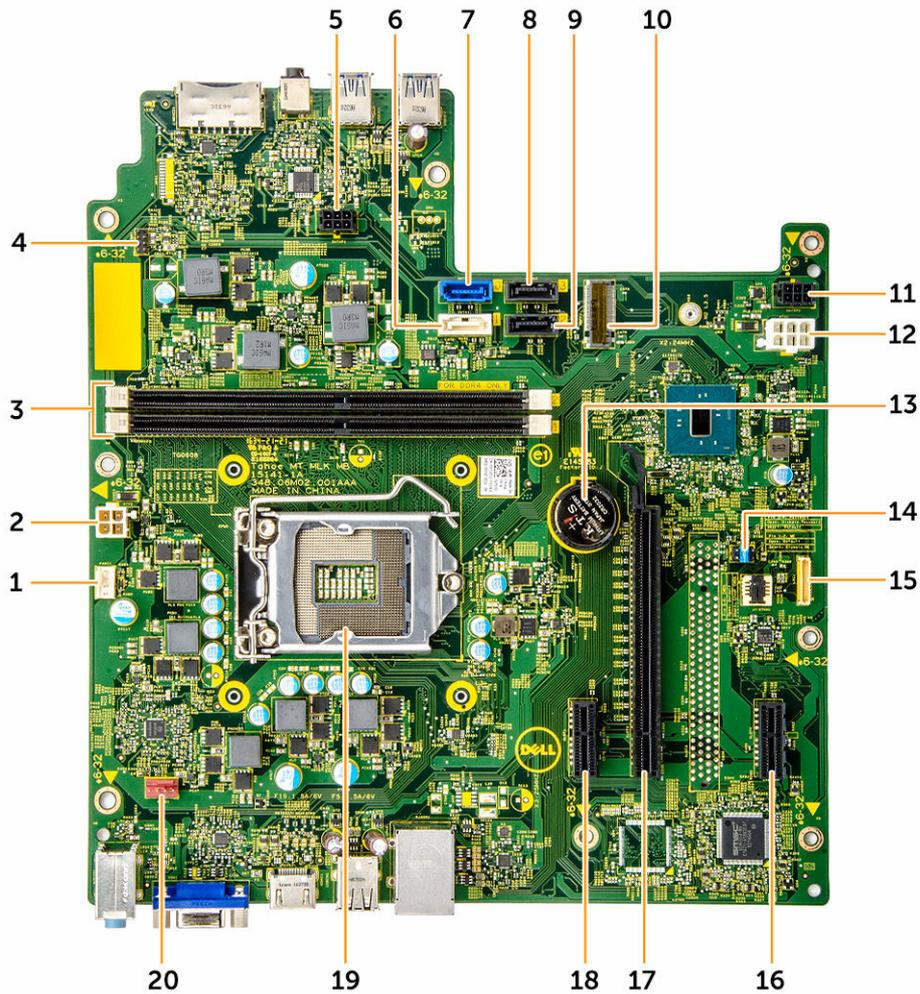
- a cover
- b bezel
- 3 Open the [front panel door](#).
- 4 Remove the:
 - a [heat sink assembly](#)
 - b [processor](#)
 - c [PCIe expansion card](#)
 - d [memory module](#)
 - e [WLAN card](#)
 - f [system fan](#)
- 5 Disconnect all the cables from the connectors on the system board.
- 6 To remove the system board:
 - a Remove the 6-32xL6.35 screws that secure the system board to the computer [1].
 - b Slide and lift the system board away from the chassis [2].



Installing the system board

- 1 Hold the system board by its edges and align it toward the back of the computer.
- 2 Lower the system board into the computer until the connectors at the back of the system board align with the slots on the chassis, and the screw holes on the system board align with the standoffs on the computer.
- 3 Tighten the 6-32xL6.35 screws to secure the system board to the computer.
- 4 Route all the cables through the routing tabs.
- 5 Align the cables with the pins on connectors on the system board and connect the cables.
- 6 Install the:
 - a [WLAN card](#)
 - b [memory module](#)
 - c [PCIe expansion card](#)
 - d [processor](#)
 - e [heat sink assembly](#)
 - f [system fan](#)
- 7 Close the front panel door.
- 8 Install the:
 - a [bezel](#)
 - b [cover](#)
- 9 Follow the procedure in [After working inside your computer](#).

System board layout



- | | | | |
|----|--------------------------|----|-------------------------------|
| 1 | CPU fan connector | 2 | PSU connector |
| 3 | Memory module connectors | 4 | Power switch connector |
| 5 | SATA power connector 1 | 6 | SATA1/optical drive connector |
| 7 | SATA0 connector | 8 | SATA3 connector |
| 9 | SATA2 connector | 10 | WLAN connector |
| 11 | SATA power connector 2 | 12 | PSU connector |
| 13 | Coin cell battery | 14 | CMOS/Password/ME jumper |
| 15 | LPC Debug Interface | 16 | PCIex1 card slot |
| 17 | PCIex16 card slot | 18 | PCIex1 card slot |
| 19 | Processor socket | 20 | System fan connector |



Technology and components

Processors

Vostro 3667 systems are shipped with Intel 6th generation core processor technology. Vostro 3668 systems are shipped with Intel 7th generation core processor technology.

Vostro 3667:

- Intel 6th Generation Celeron G3900 (2 MB Cache, 2.80 GHz)
- Intel 6th Generation Pentium G4400 (3 MB Cache, 3.30 GHz)
- Intel 6th Generation Core i3-6100 (3 MB Cache, 3.70 GHz)
- Intel 6th Generation Core i5-6400 (6 MB Cache, up to 3.30 GHz)

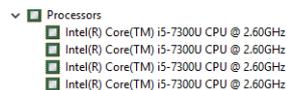
Vostro 3668:

- Intel 7th Generation Celeron G3930 (2 MB Cache, 2.90 GHz)
- Intel 7th Generation Pentium G4560 (3 MB Cache, 3.50 GHz)
- Intel 7th Generation Core i3-7100 (3 MB Cache, 3.90 GHz)
- Intel 7th Generation Core i5-7400 (6 MB Cache, up to 3.50 GHz)
- Intel 7th Generation Core i7-7700 (8 MB Cache, up to 4.20 GHz)

NOTE: The clock speed and performance varies depending on the workload and other variables. Total cache up to 8 MB cache depending on processor type.

Identifying processors in Windows 10

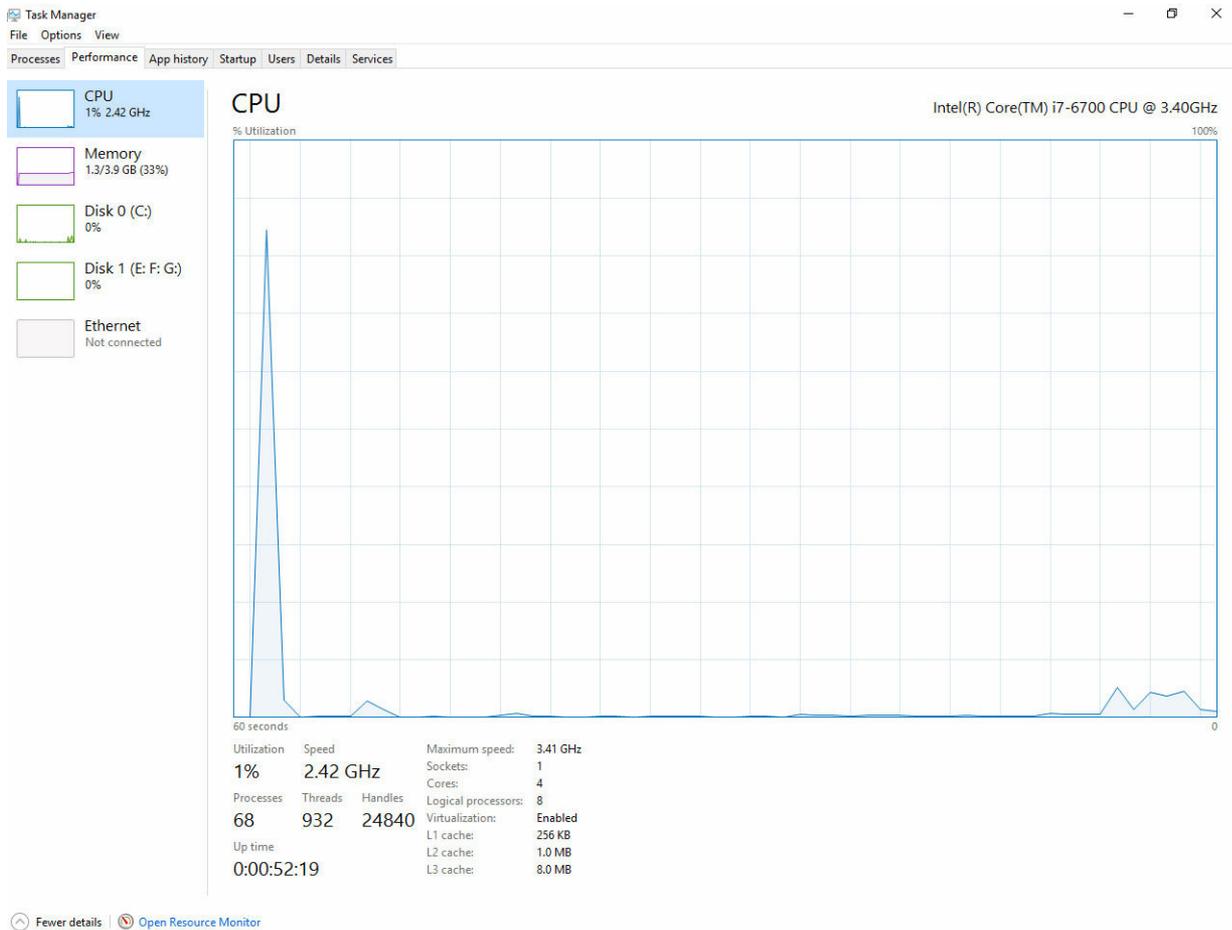
- 1 Tap **Search the Web and Windows**.
- 2 Type **Device Manager**.
- 3 Tap **Processor**.



The basic information of the processor is displayed.

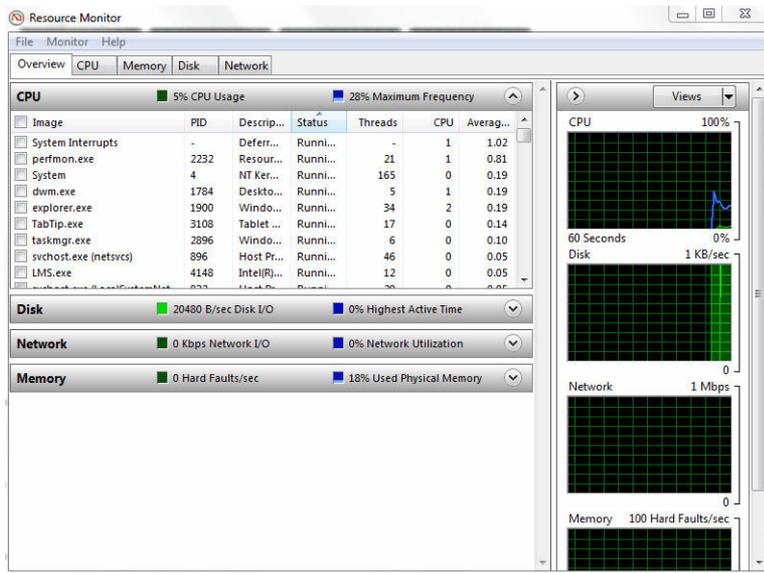
Verifying the processor usage in Task Manager

- 1 Right click on the desktop.
- 2 Select **Start Task Manager**.
The **Windows Task Manager** window is displayed.
- 3 Click the **Performance** tab in the **Windows Task Manager** window.



Verifying the processor usage in Resource Monitor

- 1 Right click the desktop.
- 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 Desktops communicate with the CPU through the chipset. This system is shipped with the Intel 100 Series chipset.

Downloading the chipset driver

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

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

- 4 Click **Drivers and Downloads**.
- 5 Select the operating system installed in your computer.
- 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 computer.
- 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

- 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.

- System devices
 - 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) 100 Series/C230 Series Chipset Family LPC Controller - A143
 - Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #7 - A116
 - Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #6 - A115
 - Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #5 - A114
 - Intel(R) 100 Series/C230 Series Chipset Family PMC - A121
 - Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123
 - Intel(R) 100 Series/C230 Series Chipset Family Thermal subsystem - A131
 - Intel(R) Management Engine Interface
 - Intel(R) Power Engine Plug-in
 - Intel(R) Xeon(R) E3 - 1200/1500 v5/6th Gen Intel(R) Core(TM) PCIe Controller (x16) - 1901
 - IWD Bus Enumerator
 - Legacy device
 - Microsoft ACPI-Compliant System
 - Microsoft System Management BIOS Driver
 - Microsoft UEFI-Compliant System
 - Microsoft Virtual Drive Enumerator
 - Microsoft Windows Management Interface for ACPI
 - NDIS Virtual Network Adapter Enumerator
 - Numeric data processor
 - PCI Express Root Complex
 - PCI Express to PCI/PCI-X Bridge
 - PCI standard host CPU 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

Intel chipset drivers

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

Table 1. Intel chipset drivers

Before 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 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 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

After installation

- System devices
 - 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) 100 Series/C230 Series Chipset Family LPC Controller - A143
 - Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #7 - A116
 - Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #6 - A115
 - Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #5 - A114
 - Intel(R) 100 Series/C230 Series Chipset Family PMC - A121
 - Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123
 - Intel(R) 100 Series/C230 Series Chipset Family Thermal subsystem - A131



Intel HD Graphics

This computer is shipped with the Intel HD Graphics graphics chipset.

Intel HD Graphics drivers

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

Table 2. Intel HD Graphics drivers

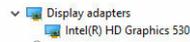
Before installation	After installation
	

Display options

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.

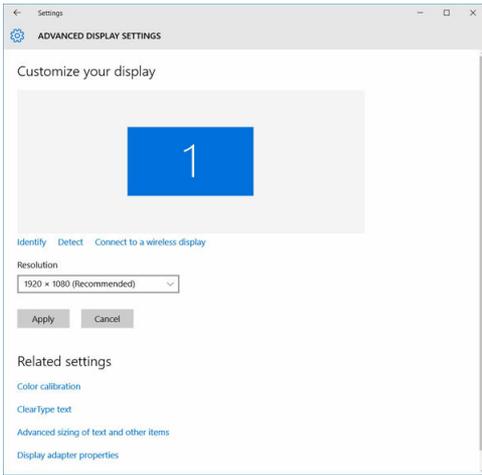


Downloading drivers

- 1 Turn on the computer.
- 2 Go to **Dell.com/support**.
- 3 Click **Product Support**, enter the Service Tag of your computer, and then click **Submit**.
NOTE: If you do not have the Service Tag, use the auto detect feature or manually browse for your computer model.
- 4 Click **Drivers and Downloads**.
- 5 Select the operating system installed on your computer.
- 6 Scroll down the page and select the graphic driver to install.
- 7 Click **Download File** to download the graphic driver for your computer.
- 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.

Changing the screen resolution

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



Adjusting brightness in Windows 10

To enable or disable automatic screen brightness adjustment:

- 1 Right click **All Settings**  → **System** → **Display**.
- 2 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.

Connecting to external display devices

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

- 1 Ensure that the projector is turned on and plug the projector cable into a video port on your computer.
- 2 Press the Windows logo+P key.
- 3 Select one of the following modes:
 - PC screen only
 - Duplicate
 - Extend
 - Second Screen only

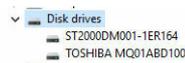
 **NOTE:** For more information, see the document that shipped with your display device.

Hard drive options

This computer supports HDD.

Identifying the hard drive in Windows 10

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



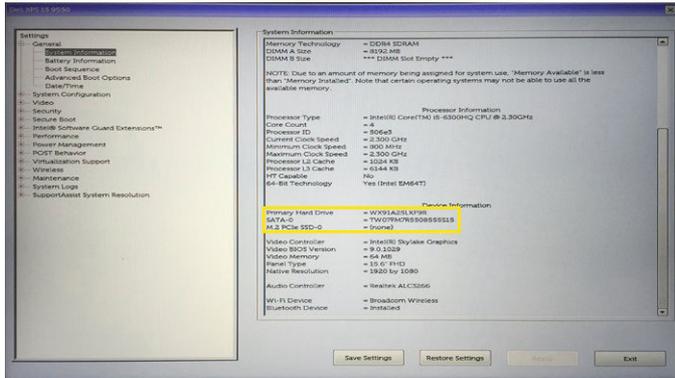
The hard drive is listed under **Disk drives**.



Entering BIOS setup

- 1 Turn on or restart your laptop.
- 2 When the Dell logo appears, perform 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.

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



USB features

The Universal Serial Bus, or well known as USB was introduced to the PC world in 1996 which dramatically simplified the connection between host computer and peripheral devices such as mice and keyboards, external hard drive or optical devices, Bluetooth and many more peripheral devices in the market.

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

Table 3. USB evolution

Type	Data Transfer Rate	Category	Introduction Year
USB 3.0	4.8 Gbps	Super Speed	2010
USB 2.0	480 Mbps	High Speed	2000
USB 1.1	12 Mbps	Full Speed	1998
USB 1.0	1.5 Mbps	Low Speed	1996

USB 3.0 (SuperSpeed USB)

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

- Higher transfer rates (up to 4.8 Gbps)
- Increased maximum bus power and increased device current draw to better accommodate power-hungry devices
- New power management features
- Full-duplex data transfers and support for new transfer types
- Backward USB 2.0 compatibility
- New connectors and cable

The topics below cover some of the most commonly asked questions regarding USB 3.0.



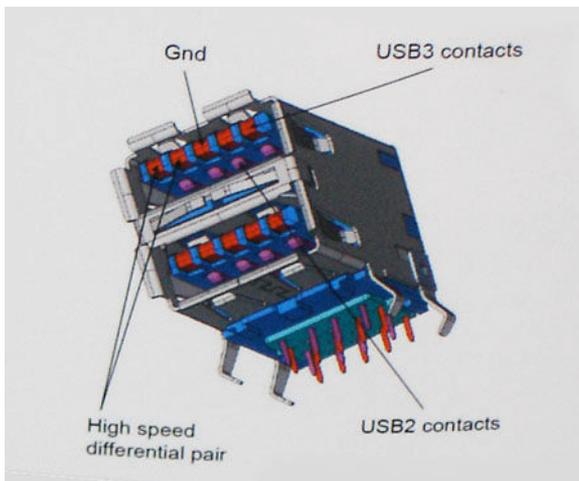


Speed

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

USB 3.0 achieves the much higher performance by the technical changes below:

- An additional physical bus that is added in parallel with the existing USB 2.0 bus (refer to the picture below).
- USB 2.0 previously had four wires (power, ground, and a pair for differential data); USB 3.0 adds four more for two pairs of differential signals (receive and transmit) for a combined total of eight connections in the connectors and cabling.
- USB 3.0 utilizes the bidirectional data interface, rather than USB 2.0's half-duplex arrangement. This gives a 10-fold increase in theoretical bandwidth.



With today's ever increasing demands placed on data transfers with high-definition video content, terabyte storage devices, high megapixel count digital cameras etc., USB 2.0 may not be fast enough. Furthermore, no USB 2.0 connection could ever come close to the 480Mbps theoretical maximum throughput, making data transfer at around 320Mbps (40MB/s) — the actual real-world maximum. Similarly, USB 3.0 connections will never achieve 4.8Gbps. We will likely see a real-world maximum rate of 400MB/s with overheads. At this speed, USB 3.0 is a 10x improvement over USB 2.0.

Applications

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

Listed below are some of the available SuperSpeed USB 3.0 products:

- External Desktop USB 3.0 Hard Drives
- Portable USB 3.0 Hard Drives



- USB 3.0 Drive Docks & Adapters
- USB 3.0 Flash Drives & Readers
- USB 3.0 Solid-state Drives
- USB 3.0 RAIDs
- Optical Media Drives
- Multimedia Devices
- Networking
- USB 3.0 Adapter Cards & Hubs

Compatibility

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

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

Microsoft announced that Windows 7 would have USB 3.0 support, perhaps not on its immediate release, but in a subsequent Service Pack or update. It is not out of the question to think that following a successful release of USB 3.0 support in Windows 7, SuperSpeed support would trickle down to Vista. Microsoft has confirmed this by stating that most of their partners share the opinion that Vista should also support USB 3.0.

Super-Speed support for Windows XP is unknown at this point. Given that XP is a seven-year-old operating system, the likelihood of this happening is remote.

HDMI 1.4

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

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

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

HDMI 1.4 Features

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

- **Automotive Connection System** - New cables and connectors for automotive video systems, designed to meet the unique demands of the motoring environment while delivering true HD quality

Advantages of HDMI

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

Memory features

In this computer, the memory (RAM) is a part of the system board. This computer supports a minimum of 2 GB and a maximum of 16 GB memory, with the following features:

- 2400 MHz DDR4 for Vostro 3669 systems
- 2133 MHz DDR4 for Vostro 3660 systems

NOTE: If this computer is purchased with Intel 6th Generation CPUs or 7th Generation Celeron dual core CPU, the maximum MHz this computer can achieve is 2133, though the memory material used is 2400 MHz.

Verifying system memory

Windows 10

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

Verifying system memory in setup

- 1 Turn on or restart your computer..
- 2 Perform one of 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.

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 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 table below shows the specifications comparison between DDR3 vs. DDR4:

Table 4. 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)	40Ω	48Ω	Optimal for PtP Applications
DQ Bus	SSTL15	POD12	Less I/O Noise and Power
RTT Values (in Ω;)	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.

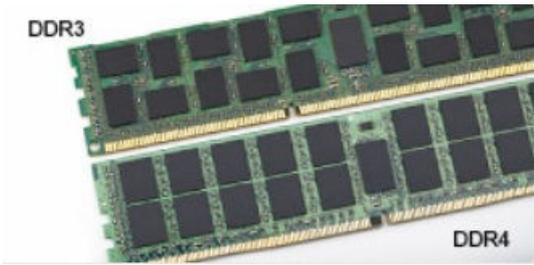


Figure 1. Notch difference

Increased thickness

DDR4 modules are slightly thicker than DDR3, to accommodate more signal layers.

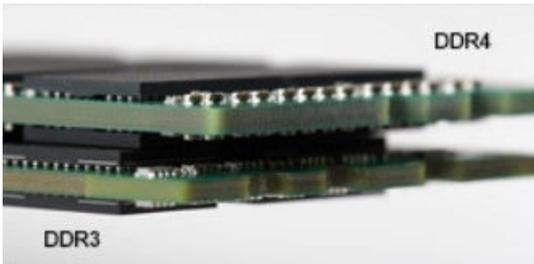


Figure 2. Thickness difference

Curved edge

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

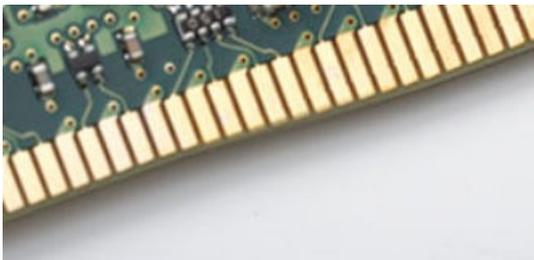


Figure 3. Curved edge

Troubleshooting

Memory errors on the system display the new ON-FLASH-FLASH or ON-FLASH-ON failure code. If all memory fails, the LCD does not turn on. Troubleshoot for possible memory failure by trying known good memory modules in the memory connectors on the bottom of the system or under the keyboard, as in some portable systems.

Testing memory using ePSA

- 1 Turn on or restart your computer.
- 2 Perform one of the following actions after the Dell logo is displayed:
 - With keyboard — Press F2.

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



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

Realtek HD audio drivers

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

Table 5. Realtek HD audio drivers

Before 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

After installation

- Sound, video and game controllers
 - Bluetooth Hands-free Audio
 - Intel(R) Display Audio
 - Realtek High Definition Audio



Troubleshooting your computer

You can troubleshoot your computer using indicators like diagnostic lights, beep codes, and error messages during the operation of the computer.

Diagnostics

The computer POST (Power On Self Test) ensures that it meets the basic computer requirements and the hardware is working appropriately before the boot process begins. If the computer passes the POST, the computer continues to start in a normal mode. However, if the computer fails the POST, the computer emits a series of LED codes during the start-up. The system LED is integrated on the Power button.

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

Table 6. Diagnostics

Number of LED flashes	Beep code	Problem description
2 amber	2	No memory or RAM detected
4 amber	4	Memory or RAM failure
5 amber	5	CMOS battery failure
3 amber, 4 white	3,4	Recovery image invalid
3 amber, 3 white	3,3	Recovery image not found

Diagnostic error messages

Table 7. Diagnostic error messages

Error messages	Description
AUXILIARY DEVICE FAILURE	The touchpad or external mouse may be faulty. For an external mouse, check the cable connection. Enable the Pointing Device option in the System Setup program.
BAD COMMAND OR FILE NAME	Ensure that you have spelled the command correctly, put spaces in the proper place, and used the correct path name.
CACHE DISABLED DUE TO FAILURE	The primary cache internal to the microprocessor has failed. Contact Dell
CD DRIVE CONTROLLER FAILURE	The optical drive does not respond to commands from the computer.
DATA ERROR	The hard drive cannot read the data.
DECREASING AVAILABLE MEMORY	One or more memory modules may be faulty or improperly seated. Reinstall the memory modules or, if necessary, replace them.
DISK C: FAILED INITIALIZATION	The hard drive failed initialization. Run the hard drive tests in Dell Diagnostics .



Error messages

Description

DRIVE NOT READY	The operation requires a hard drive in the bay before it can continue. Install a hard drive in the hard drive bay.
ERROR READING PCMCIA CARD	The computer cannot identify the ExpressCard. Reinsert the card or try another card.
EXTENDED MEMORY SIZE HAS CHANGED	The amount of memory recorded in non-volatile memory (NVRAM) does not match the memory module installed in the computer. Restart the computer. If the error appears again, Contact Dell
THE FILE BEING COPIED IS TOO LARGE FOR THE DESTINATION DRIVE	The file that you are trying to copy is too large to fit on the disk, or the disk is full. Try copying the file to a different disk or use a larger capacity disk.
A FILENAME CANNOT CONTAIN ANY OF THE FOLLOWING CHARACTERS: \ / : * ? " < > -	Do not use these characters in filenames.
GATE A20 FAILURE	A memory module may be loose. Reinstall the memory module or, if necessary, replace it.
GENERAL FAILURE	The operating system is unable to carry out the command. The message is usually followed by specific information. For example, Printer out of paper . Take the appropriate action.
HARD-DISK DRIVE CONFIGURATION ERROR	The computer cannot identify the drive type. Shut down the computer, remove the hard drive, and boot the computer from an optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. Run the Hard Disk Drive tests in Dell Diagnostics .
HARD-DISK DRIVE CONTROLLER FAILURE 0	The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive, and boot the computer from an optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in Dell Diagnostics .
HARD-DISK DRIVE FAILURE	The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive, and boot the computer from an optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in Dell Diagnostics .
HARD-DISK DRIVE READ FAILURE	The hard drive may be defective. Shut down the computer, remove the hard drive, and boot the computer from an optical. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in Dell Diagnostics .
INSERT BOOTABLE MEDIA	The operating system is trying to boot to non-bootable media, such as an optical drive. Insert bootable media.
INVALID CONFIGURATION INFORMATION-PLEASE RUN SYSTEM SETUP PROGRAM	The system configuration information does not match the hardware configuration. The message is most likely to occur after a memory module is installed. Correct the appropriate options in the system setup program.
KEYBOARD CLOCK LINE FAILURE	For external keyboards, check the cable connection. Run the Keyboard Controller test in Dell Diagnostics .



Error messages

Description

KEYBOARD CONTROLLER FAILURE	For external keyboards, check the cable connection. Restart the computer, and avoid touching the keyboard or the mouse during the boot routine. Run the Keyboard Controller test in Dell Diagnostics .
KEYBOARD DATA LINE FAILURE	For external keyboards, check the cable connection. Run the Keyboard Controller test in Dell Diagnostics .
KEYBOARD STUCK KEY FAILURE	For external keyboards or keypads, check the cable connection. Restart the computer, and avoid touching the keyboard or keys during the boot routine. Run the Stuck Key test in Dell Diagnostics .
LICENSED CONTENT IS NOT ACCESSIBLE IN MEDIADIRECT	Dell MediaDirect cannot verify the Digital Rights Management (DRM) restrictions on the file, so the file cannot be played.
MEMORY ADDRESS LINE FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory module or, if necessary, replace it.
MEMORY ALLOCATION ERROR	The software you are attempting to run is conflicting with the operating system, another program, or a utility. Shut down the computer, wait for 30 seconds, and then restart it. Run the program again. If the error message still appears, see the software documentation.
MEMORY DOUBLE WORD LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory module or, if necessary, replace it.
MEMORY ODD/EVEN LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory module or, if necessary, replace it.
MEMORY WRITE/READ FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory module or, if necessary, replace it.
NO BOOT DEVICE AVAILABLE	The computer cannot find the hard drive. If the hard drive is your boot device, ensure that the drive is installed, properly seated, and partitioned as a boot device.
NO BOOT SECTOR ON HARD DRIVE	The operating system may be corrupted. Contact Dell.
NO TIMER TICK INTERRUPT	A chip on the system board may be malfunctioning. Run the System Set tests in Dell Diagnostics .
NOT ENOUGH MEMORY OR RESOURCES. EXIT SOME PROGRAMS AND TRY AGAIN	You have too many programs open. Close all windows and open the program that you want to use.
OPERATING SYSTEM NOT FOUND	Reinstall the operating system. If the problem persists, Contact Dell.
OPTIONAL ROM BAD CHECKSUM	The optional ROM has failed. Contact Dell.
SECTOR NOT FOUND	The operating system cannot locate a sector on the hard drive. You may have a defective sector or corrupted File Allocation Table (FAT) on the hard drive. Run the Windows error-checking utility to check the file structure on the hard drive. See Windows Help and Support for instructions (click Start > Help and Support). If a large number of sectors are defective, back up the data (if possible), and then format the hard drive.
SEEK ERROR	The operating system cannot find a specific track on the hard drive.



Error messages

Error messages	Description
SHUTDOWN FAILURE	A chip on the system board may be malfunctioning. Run the System Set tests in Dell Diagnostics . If the message reappears, Contact Dell .
TIME-OF-DAY CLOCK LOST POWER	System configuration settings are corrupted. Connect your computer to an electrical outlet to charge the battery. If the problem persists, try to restore the data by entering the System Setup program, then immediately exit the program. If the message reappears, Contact Dell .
TIME-OF-DAY CLOCK STOPPED	The reserve battery that supports the system configuration settings may require recharging. Connect your computer to an electrical outlet to charge the battery. If the problem persists, Contact Dell .
TIME-OF-DAY NOT SET-PLEASE RUN THE SYSTEM SETUP PROGRAM	The time or date stored in the system setup program does not match the system clock. Correct the settings for the Date and Time options.
TIMER CHIP COUNTER 2 FAILED	A chip on the system board may be malfunctioning. Run the System Set tests in Dell Diagnostics .
UNEXPECTED INTERRUPT IN PROTECTED MODE	The keyboard controller may be malfunctioning, or a memory module may be loose. Run the System Memory tests and the Keyboard Controller test in Dell Diagnostics or Contact Dell .
X:\ IS NOT ACCESSIBLE. THE DEVICE IS NOT READY	Insert a disk into the drive and try again.

System error messages

Table 8. System error messages

System message	Description
Alert! Previous attempts at booting this system have failed at checkpoint [nnnn]. For help in resolving this problem, please note this checkpoint and contact Dell Technical Support	The computer failed to complete the boot routine three consecutive times for the same error.
CMOS checksum error	RTC is reset, BIOS Setup default has been loaded.
CPU fan failure	CPU fan has failed.
System fan failure	System fan has failed.
Hard-disk drive failure	Possible hard disk drive failure during POST.
Keyboard failure	Keyboard failure or loose cable. If reseating the cable does not solve the problem, replace the keyboard.
No boot device available	No bootable partition on hard disk drive, the hard disk drive cable is loose, or no bootable device exists. <ul style="list-style-type: none">• If the hard drive is your boot device, ensure that the cables are connected and that the drive is installed properly and partitioned as a boot device.• Enter system setup and ensure that the boot sequence information is correct.
No timer tick interrupt	A chip on the system board might be malfunctioning or motherboard failure.



System message**Description**

NOTICE - Hard Drive SELF MONITORING SYSTEM has reported that a parameter has exceeded its normal operating range. Dell recommends that you back up your data regularly. A parameter out of range may or may not indicate a potential hard drive problem

S.M.A.R.T error, possible hard disk drive failure.



System Setup

Topics:

- [Boot Sequence](#)
- [Navigation keys](#)

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

 **NOTE: XXX denotes the SATA drive number.**

- Optical Drive
- Diagnostics

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

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

Navigation keys

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

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
Enter	Selects a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
Tab	Moves to the next focus area.
	 NOTE: For the standard graphics browser only.
Esc	Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.
F1	Displays the System Setup help file.

System Setup Options

Table 9. — Main

System Time	Displays the system time. Allows you to reset the time on the computer's internal clock.
System Date	Displays the system date. Allows you to reset the date on the computer's internal calendar.
BIOS Version	Displays the BIOS revision.
Product Name	Displays the computer 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
CPU Cache	Displays the L1, L2, and L3 cache size of the processor.
HDD0	Displays the HDD0 size of the computer.
HDD1	Displays the HDD1 size of the computer.
HDD2	Displays the HDD2 size of the computer.
HDD3	Displays the HDD3 size of the computer.
System Memory	Displays the size of the memory installed.
Memory Speed	Displays the speed of the memory installed.

Table 10. — Advanced

Intel (R) SpeedStep (TM)	Allows you to enable or disable the Intel SpeedStep technology. Default: Enabled
Virtualization	Allows you to enable or disable the virtualization feature. Default: Enabled
VT for Direct I/O	Allows you to enable or disable the VT for direct I/O. Default: Enabled
Trusted Execution	Allows you to enable or disable the trusted execution. Default: Disabled
Integrated NIC	Allows you to enable to disable the integrated network Default: Enabled
SATA Operation	Allows you to change the SATA mode Default: AHCI
Intel Multi-Display	Allows you to enable or disable the multi-display feature.



	Default: disabled
USB Emulation	Allows you to enable or disable the USB emulation. Default: Enabled
SW Guard Extensions (SGX)	Allows you to enable or disable the SW guard extensions (SGX). Default: Disabled
USB Configuration	Allows you to enable or disable the USB ports. Front USB Ports: Enabled Rear USB Ports: Enabled
Power Options	Allows you to modify the power options. Wake up by Integrated LAN/WLAN: Disabled AC Recovery: Power Off Deep Sleep Control: Enabled in S4 and S5 modes Auto Power On: Disabled Auto Power On Mode: Allows you to select the day (Default: disabled) Auto Power On Date: Allows you to select the date Auto Power On Time: Allows you to select the time
SMART Settings	Allows you to enable to enable or disable the SMART feature. Default: Disabled

Table 11. — Security

Unlock Setup Status	Allows you to lock or unlock the system setup. Default: Unlocked
Admin Password Status	Displays the status indicating if the Administrator password is set. Default: Not Set
System Password Status	Displays the status indicating if the System password is set. Default: Not Set
HDD Password Status	Displays the status indicating if the System password is set. Default: Not Set
Asset Tag	Allows you to enter your service tag.
Admin Password	Allows you to create an admin password.
HDD Password	Allows you to create an HDD password.
System Password	Allows you to create a system password.
Password Change	Allows you to set the option to change password. Default: Permitted
Firmware TPM	Allows you to enable or disable the Firmware TPM. Default: Disabled



HDD Protection	Allows to modify the HDD protection feature. Default: Disabled
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Table 12. — Boot

Boot List Option	Displays the boot modes Default: UEFI File Browser Add Boot Option and File Browser Del Boot Option are activated
Secure Boot	Allows you to enable or disable the Secure Boot control. Default: Enabled
Legacy Option ROMs	Allows you to load the legacy option ROMs. Default: Disabled
Boot Option Priorities	Enables you to change the boot option priorities.

Table 13. — Exit

Save Changes and Reset	Allows to save or reset the changes made to the system setup. <ol style="list-style-type: none"> 1 Allows you to discard the changes made to the system setup. 2 Allows you to restore the system setup options to default. 3 Allows you to discard the changes made to the system setup. 4 Allows you to save the changes made to the system setup.
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Topics:

- [System Setup overview](#)
- [Accessing System Setup](#)
- [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.

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

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

Accessing System Setup

- 1 Turn on (or restart) your computer.
- 2 After the white Dell logo appears, press F2 immediately.
The System Setup page is displayed.



① **NOTE:** If you wait too long and the operating system logo appears, wait until you see the desktop. Then, shut down or restart your computer and try again.

① **NOTE:** After the Dell logo appears, you can also press F12 and then select BIOS setup.

System setup options

① **NOTE:** Depending on the computer 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	<ul style="list-style-type: none">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, Slot 2, and Slot 3.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, SATA-0, SATA-1, SATA-2, SATA-3, LOM MAC Address, Video Controller, Audio Controller.

Boot Sequence

Boot Sequence	<p>Allows you to specify the order in which the computer attempts to find an operating system. To change the boot order, select the device that you want to change in the list, which is available on the right-hand side. After you select the device, click up or down arrows or use your keyboard Page Up or Page Down keys to change the boot options order. You can also select or de-select from the list using the check-boxes available on the left hand side. You should enable the Legacy Option ROMs to setup the Legacy boot mode. This Legacy boot mode is not allowed when you enable the Secure Boot. The options are:</p> <ul style="list-style-type: none">Boot Sequence - By default, the Windows Boot Manager check box is selected.<ul style="list-style-type: none">① NOTE: The default option might differ based on the operating system of your computer.Boot List Option - The list options are Legacy and UEFI. By default, the option UEFI is selected.<ul style="list-style-type: none">① NOTE: The default option might differ based on the operating system of your computer.Add Boot Option - Enables you to add a boot option.Delete Boot Option - Enables you to delete an existing boot option.View - Enables you to view the current boot option in the computer.Restore Settings - Restores the default settings of the computer.Save Settings - Saves the settings of the computer.Apply - Enables you to apply the settings.Exit - Exits and starts the computer.
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Boot List Options	Allows you to change the boot list option:
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Option	Description
	<ul style="list-style-type: none"> Legacy UEFI (enabled by default)
Advanced Boot Options	This option allows you the legacy option ROMs to load. By default, the Enable Legacy Option ROMs is disabled.
Date/Time	Allows you to change the date and time.

System configuration screen options

Option	Description
Integrated NIC	<p>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.</p> <ul style="list-style-type: none"> Enabled UEFI Network Stack - This option is disabled by default. <p>Allows you to configure the integrated network controller. The options are:</p> <ul style="list-style-type: none"> Disabled Enabled Enabled w/PXE: This option is enabled by default. <p>NOTE: Depending on the computer and its installed devices, the items listed in this section may or may not appear.</p>
SATA Operation	<p>Allows you to configure the internal SATA hard-drive controller. The options are:</p> <ul style="list-style-type: none"> Disabled AHCI: This option is enabled by default.
Drives	<p>Allows you to configure the SATA drives on board. All drives are enabled by default. The options are:</p> <ul style="list-style-type: none"> SATA-0 SATA-1 SATA-2 SATA-3 SATA-4
SMART Reporting	<p>This field controls whether hard drive errors for integrated drives are reported during system startup. This technology is part of the SMART (Self Monitoring Analysis and Reporting Technology) specification. This option is disabled by default.</p> <ul style="list-style-type: none"> Enable SMART Reporting
USB Configuration	<p>This field configures the integrated USB controller. If Boot Support is enabled, the system is allowed to boot any type of USB Mass Storage Devices (HDD, memory key, floppy).</p> <p>If USB port is enabled, device attached to this port is enabled and available for OS.</p> <p>If USB port is disabled, the OS cannot see any device attached to this port.</p>



Option	Description
	<p>The options are:</p> <ul style="list-style-type: none"> · Enable Boot Support · Enable Rear USB Ports: Include options for 6 ports · Enable Front USB Ports: Include options for 2 ports <p>All the options are enabled by default.</p> <p> NOTE: USB keyboard and mouse always work in the BIOS setup irrespective of these settings.</p>
Front USB Configuration	<p>This field allows you to enable or disable front USB ports.</p> <ul style="list-style-type: none"> · Enable/Disable Front USB Ports
Rear USB Configuration	<p>This field allows you to enable or disable rear USB ports.</p> <ul style="list-style-type: none"> · Enable/Disable Rear USB Ports
Audio	<p>This field enables or disables the integrated audio controller. By default, the Enable Audio option is selected. The options are:</p> <ul style="list-style-type: none"> · Enable Microphone (by default enable) · Enable Internal Speaker (by default enable)
Miscellaneous Devices	<p>Allows you to enable or disable the following devices:</p> <ul style="list-style-type: none"> · Enable PCI Slot (enabled by default) · Enable Secure Digital (SD) card (enabled by default) · Secure Digital (SD) Card Boot

System Configuration screen options

Option	Description
Primary display	<p>This field determines which video controller is the primary display when multiple controllers are available in the system. If you select a device other than what you are currently using, you need to reconnect your video cable to your selected device.</p> <p> NOTE: When Auto is not selected, the onboard graphics device will be present and enabled.</p> <p>The options are:</p> <ul style="list-style-type: none"> · Auto - Enabled by default · Intel HD Graphics

Security screen options

Option	Description
Admin Password	Allows you to set, change, or delete the administrator (admin) password.

Option	Description
	<p data-bbox="339 142 1458 205">  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. </p> <p data-bbox="339 222 1046 260">  NOTE: Successful password changes take effect immediately. </p> <p data-bbox="331 281 571 310">Default setting: Not set</p>
System Password	<p data-bbox="331 352 912 386">Allows you to set, change or delete the system password.</p> <p data-bbox="339 403 1046 441">  NOTE: Successful password changes take effect immediately. </p> <p data-bbox="331 462 571 487">Default setting: Not set</p>
Internal HDD-0 Password	<p data-bbox="331 529 1123 562">Allows you to set, change or delete the system's internal hard disk's password.</p> <p data-bbox="331 571 571 600">Default setting: Not set</p> <p data-bbox="339 625 1046 663">  NOTE: Successful password changes take effect immediately. </p>
Strong Password	<p data-bbox="331 697 989 730">Allows you to enforce the option to always set strong passwords.</p> <p data-bbox="331 739 903 768">Default Setting: Enable Strong Password is not selected.</p> <p data-bbox="339 793 1385 856">  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. </p>
Password Configuration	<p data-bbox="331 890 1343 919">Allows you to determine the minimum and maximum length of Administrator and System passwords.</p>
Password Bypass	<p data-bbox="331 974 1461 1037">Allows you to enable or disable the permission to bypass the System and the Internal HDD password, when they are set. The options are:</p> <ul data-bbox="331 1058 520 1121" style="list-style-type: none"> <li data-bbox="331 1058 453 1087">· Disabled <li data-bbox="331 1096 520 1125">· Reboot bypass <p data-bbox="331 1146 577 1176">Default setting: Disabled</p>
Password Change	<p data-bbox="331 1218 1484 1281">Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set.</p> <p data-bbox="331 1289 1002 1323">Default setting: Allow Non-Admin Password Changes is selected.</p>
UEFI Capsule Firmware Updates	<p data-bbox="331 1365 1362 1398">This option controls whether the system allows BIOS updates through UEFI capsule update packages.</p> <p data-bbox="339 1415 1426 1478">  NOTE: Disabling this option will block the BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS). </p> <p data-bbox="331 1499 663 1524">This option is enabled by default.</p>
TPM 2.0 Security	<p data-bbox="331 1545 1439 1608">Allows you to enable the Trusted Platform Module (TPM) during POST. This option is enabled by default. The options are:</p> <ul data-bbox="331 1629 730 1873" style="list-style-type: none"> <li data-bbox="331 1629 456 1659">· TPM On <li data-bbox="331 1667 424 1696">· Clear <li data-bbox="331 1705 730 1734">· PPI Bypass for Enabled Commands <li data-bbox="331 1743 730 1772">· PPI Bypass for Disabled Commands <li data-bbox="331 1780 558 1810">· Attestation Enable <li data-bbox="331 1818 571 1848">· Key Storage Enable <li data-bbox="331 1856 475 1885">· SHA - 256



Option	Description
	<p>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.</p>
Computrace (R)	<p>Allows you to activate or disable the optional Computrace software. The options are:</p> <ul style="list-style-type: none"> · Deactivate · Disable · Activate <p>NOTE: The Activate and Disable options will permanently activate or disable the feature and no further changes will be allowed</p> <p>Default setting: Deactivate</p>
CPU XD Support	<p>Allows you to enable or disable the Execute Disable mode of the processor.</p> <p>Enable CPU XD Support (default)</p>
Admin Setup Lockout	<p>Allows you to enable or disable the option to enter setup when an admin password is set.</p> <ul style="list-style-type: none"> · Enable Admin Setup Lockout - This option is disabled by default.

Secure boot screen options

Option	Description
Secure Boot Enable	<p>This option enables or disables the Secure Boot feature.</p> <ul style="list-style-type: none"> · Disabled · Enabled <p>Default setting: Enabled.</p>
Expert Key Management	<p>Allows you to manipulate the security key databases only if the system is in Custom Mode. The Enable Custom Mode option is disabled by default. The options are:</p> <ul style="list-style-type: none"> · PK · KEK · db · dbx <p>If you enable the Custom Mode, the relevant options for PK, KEK, db, and dbx appear. The options are:</p> <ul style="list-style-type: none"> · Save to File—Saves the key to a user-selected file · Replace from File—Replaces the current key with a key from a user-selected file · Append from File—Adds a key to the current database from a user-selected file · Delete—Deletes the selected key · Reset All Keys—Resets to default setting · Delete All Keys—Deletes all the keys <p>NOTE: If you disable the Custom Mode, all the changes made will be erased and the keys will restore to default settings.</p>

Intel Software Guard Extensions options

Option	Description
Intel SGX Enable	<p>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.</p> <ul style="list-style-type: none">· Disabled (default)· Enabled
Enclave Memory Size	<p>Allows you to set the Intel SGX Enclave Reserve Memory Size.</p> <ul style="list-style-type: none">· 32 MB· 64 MB· 128 MB

Performance screen options

Option	Description
Multi Core Support	<p>Specifies whether the process will have one or all cores enabled. The performance of some applications will improve with the additional cores.</p> <ul style="list-style-type: none">· All - This option is enabled by default· 1· 2· 3
Intel SpeedStep	<p>Allows you to enable or disable the Intel SpeedStep feature.</p> <ul style="list-style-type: none">· Enable Intel SpeedStep <p>Default setting: The option is enabled.</p>
C-States Control	<p>Allows you to enable or disable the additional processor sleep states.</p> <ul style="list-style-type: none">· C states <p>Default setting: The option is enabled.</p>
Limit CPUID Value	<p>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.</p> <ul style="list-style-type: none">· Enable CPUID Limit - This option is disabled by default.
Intel TurboBoost	<p>Allows you to enable or disable the Intel TurboBoost mode of the processor.</p> <ul style="list-style-type: none">· Enable Intel TurboBoost <p>Default setting: The option is enabled.</p>



Power management screen options

Option	Description
AC Recovery	<p>Specifies how the computer will respond when AC power is applied after an AC power loss. You can set the AC Recovery to:</p> <ul style="list-style-type: none">· Power Off (default)· Power On· Last Power State
Auto On Time	<p>Allows you to set the time at which the computer must turn on automatically. The options are:</p> <ul style="list-style-type: none">· Disabled· Every Day· Weekdays· Select Days <p>Default setting: Disabled</p> <p>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.</p>
Deep Sleep Control	<p>Allows you to define the controls when Deep Sleep is enabled.</p> <ul style="list-style-type: none">· Disabled· Enabled in S5 only· Enabled in S4 and S5 – This option is enabled by default.
USB Wake Support	<p>Allows you to enable USB devices to wake the system from Standby.</p> <p>NOTE: This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the system setup removes power from all the USB ports to conserve battery power.</p> <ul style="list-style-type: none">· Enable USB Wake Support <p>Default setting: The option is disabled.</p>
Wake on LAN/ WLAN	<p>Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal.</p> <ul style="list-style-type: none">· Disabled· LAN Only· WLAN Only· LAN or WLAN· LAN with PXE Boot <p>Default setting: Disabled</p>
Block Sleep	<p>This option lets you block entering to sleep (S3 state) in operating system environment.</p> <p>Block Sleep (S3 state)</p> <p>Default setting: This option is disabled</p>

Option	Description
Intel Ready Mode	This option enables the capability of Intel Ready Mode technology.

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: <ul style="list-style-type: none"> Minimal Through (default) Auto

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. <ul style="list-style-type: none"> Data Wipe Wipe on Next boot BIOS recovery BIOS recovery from the hard drive <p>Follow the procedure to recover BIOS from hard drive.</p> <ol style="list-style-type: none"> Power on the system. While the blue Dell logo is visible, press the F2 key to enter the System Setup. Press the Num Lock key, and verify that the Num Lock light is on.



Option	Description
	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.

SupportAssist System Resolution options

Option	Description
Auto OS Recovery Threshold	<p>This option controls the automatic boot flow for SupportAssist System Resolution Console and for Dell OS Recovery Tool. If the primary OS experiences consecutive boot failures, and if the boot failures is greater than or equal to the value of the Auto OS Recovery Threshold setup option, then the system will boot to the SupportAssist System Resolution Console or Dell OS Recovery Tool, if enabled for remediation.</p> <p>The options are:</p> <ul style="list-style-type: none"> · Off · 1 · 2 - Enabled by default · 3
SupportAssist OS Recovery	<p>This option enables or disables the boot flow for SupportAssist System Resolution Console and for Dell OS Recovery Tool in the even of certain system errors. If this option is disabled, then all the automatic blow flow for SupportAssist OS Recovery Tool will be disabled. This option is disabled by default.</p>

Technical specifications

This topic lists out the technical specifications for Vostro 3667/3668 systems.

Table 14. Specifications

Type	Feature
Processor family	<p>For Vostro 3667 systems:</p> <ul style="list-style-type: none"> Intel 6th Generation Celeron G3900 (2 MB Cache, 2.80 GHz) Intel 6th Generation Pentium G4400 (3 MB Cache, 3.30 GHz) Intel 6th Generation Core i3-6100 (3 MB Cache, 3.70 GHz) Intel 6th Generation Core i5-6400 (6 MB Cache, up to 3.30 GHz) <p>For Vostro 3668 systems:</p> <ul style="list-style-type: none"> Intel 7th Generation Celeron G3930 (2 MB Cache, 2.90 GHz) Intel 7th Generation Pentium G4560 (3 MB Cache, 3.50 GHz) Intel 7th Generation Core i3-7100 (3 MB Cache, 3.90 GHz) Intel 7th Generation Core i5-7400 (6 MB Cache, up to 3.50 GHz) Intel 7th Generation Core i7-7700 (8 MB Cache, up to 4.20 GHz)
Memory	<ul style="list-style-type: none"> Up to 16 GB 2 UDIMM slots at 2133 MHz DDR4 for Vostro 3667 systems Up to 16 GB 2 UDIMM slots at 2400 MHz DDR4 for Vostro 3668 systems <p>NOTE: If this product is purchased with Intel 6th Gen CPUs or 7th Gen Celeron dual core CPU, the maximum MHz this product can achieve is 2133, though the memory material used is 2400 MHz.</p> <p>NOTE: The memory modules are customer replaceable units (CRU), and memory can be upgraded.</p>
Chipset	<ul style="list-style-type: none"> Integrated: Intel H110
Graphics	<ul style="list-style-type: none"> Intel HD graphics 510 – G3900 and G4400 Intel HD graphics 530 – Intel i3 - 6100, Intel i5 - 6400 Intel HD graphics 610 – G3930 and G4560 Intel HD graphics 630 – Intel i3 - 7100, Intel i5 - 7400, Intel i7 - 7700 Discrete Option: Nvidia GT710 2GB DDR3, GTX 750 Ti 2GB GDDR5 and AMD R9360 2GB GDDR5, Nvidia GTX 745 4GB DDR3 (Post-RTS), Nvidia GTX 1050 2GB GDDR5 (Post-RTS).
Storage options	<ul style="list-style-type: none"> 500 GB, 1 TB, 2 TB 7200 RPM SATA 3.5-inch hard drive Optional customer-kit upsell: 500 GB, 1 TB 5400 RPM 2.5-inch hard drive



- 2.5-inch 128 GB SSD as single storage
- 2.5-inch 256 GB SSD as single storage
- 2.5-inch 128 GB SSD + 500 GB 3.5-inch HDD as hybrid storage
- 2.5-inch 128 GB SSD + 1 TB 3.5-inch HDD as hybrid storage

Optical Drive options	DVDRW, Slim ODD tray type 9.5 mm
Multimedia	Audio software: Waves MaxxAudio Pro
Dimensions (H x W x D)	352.90 x 154 x 294.4 mm 13.90 x 6.06 x 11.59 inch
Weight	5.9 kg (13.01 lb)
Power options	240 W PSU (PFC, EPA)
Connectivity options	<ul style="list-style-type: none"> • Dell Wireless Combo Card DW1707 and DW1810ac, and Intel 3165ac • 10/100/1000 Gigabit Ethernet • Bluetooth v4.0 +LE
Ports, slots and chassis	<ul style="list-style-type: none"> • Front I/O Ports: (2) USB 3.0, headset port • Rear I/O Ports: (4) USB 2.0, RJ-45, HDMI, VGA, 3-stack audio jacks supporting 5.1 surround sound, (2) PCIe x 1, PCIe x 16.
Regulatory and Environmental Compliance	<ul style="list-style-type: none"> • ENERGY STAR 6.1 (includes Windows and Ubuntu OS) • EPEAT Registered. For specific country participation and rating, please visit www.epeat.net
Input device	<ul style="list-style-type: none"> • Dell Wired mouse (MS116) and keyboard (KB216) • Dell Wireless mouse and keyboard combo (KM636)



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.

