




Dell Vostro 24–5460 Owner's Manual

Regulatory Model: W12C
Regulatory Type: W12C007



Notes, cautions, and warnings

-  **NOTE:** A NOTE indicates important information that helps you make better use of your computer.
-  **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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Rev. A00

Working on your computer


Before working inside your computer

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

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. 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.**

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



Recommended tools



The procedures in this document require the following tools:

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

Turning off your computer

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


1. Turning off your computer :
 - Using a touch enabled device:
 - a. Swipe in from the right edge of the screen, opening the **Charms** menu and select **Settings**.
 - b. Select  and then select **Shut down**.or
 - a. On the **Home** screen, touch  and then select **Shut down**.

- Using a mouse:
 - a. Point to upper-right corner of the screen and click **Settings**.
 - b. Click  and then select **Shut down**.
or
 - a. On the **Home** screen, click  and then select **Shut down**.
- 2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 6 seconds to turn them off.

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.**

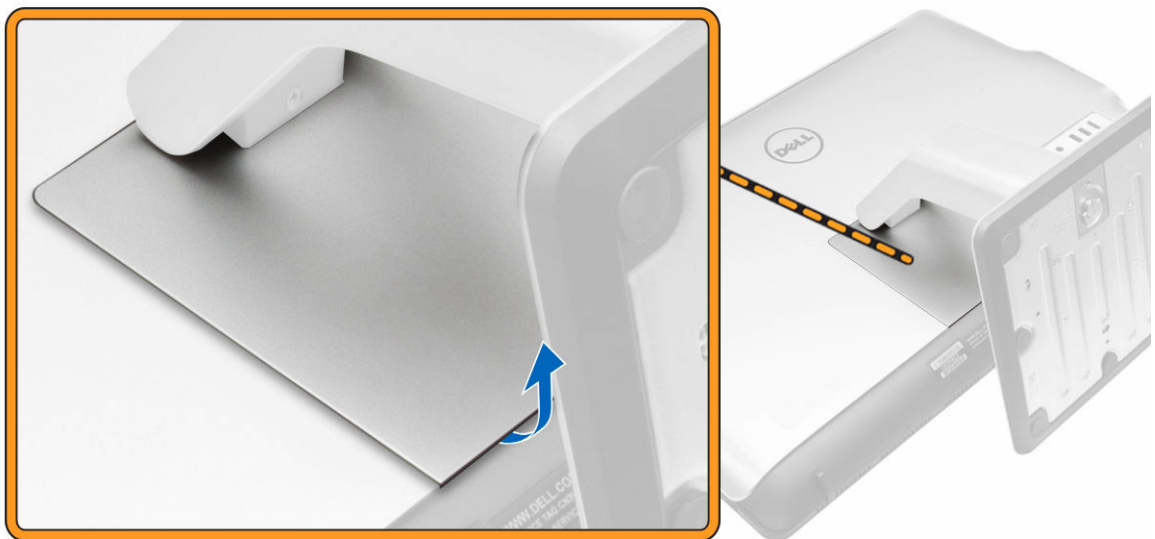
2. Connect any telephone or network cables to your computer.
3. Connect your computer and all attached devices to their electrical outlets.
4. Turn on your computer.
5. If required, verify that the computer works correctly by running **Dell Diagnostics**.

Removing and installing components

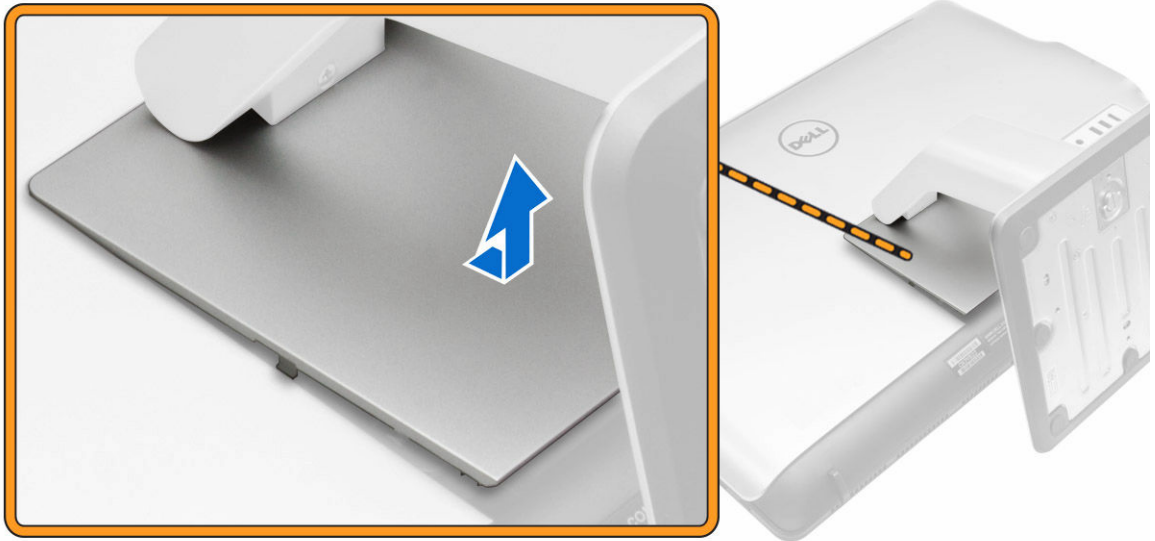
This section provides detailed information on how to remove or install the components from your computer.

Removing the Stand

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Place the computer on a flat surface with the display facing downwards.
3. Pry the hinge cover from the computer.



4. Slide and lift the hinge cover from the computer.



5. Perform the following steps:
 - a. Remove the screws that secure the stand to the computer [1].
 - b. Slide and lift the stand from the computer [2].



Installing the Stand

1. Align the stand to the screw holes on the back of the computer.
2. Tighten the screws to secure the stand to the computer.
3. Press the hinge cover on the computer until it clicks into place.
4. Follow the procedures in [After Working Inside Your Computer](#).

Removing the Back Cover

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove the [stand](#).
3. Pry the edges of the back cover to release it from the tabs.



4. Lift the back cover from the computer.



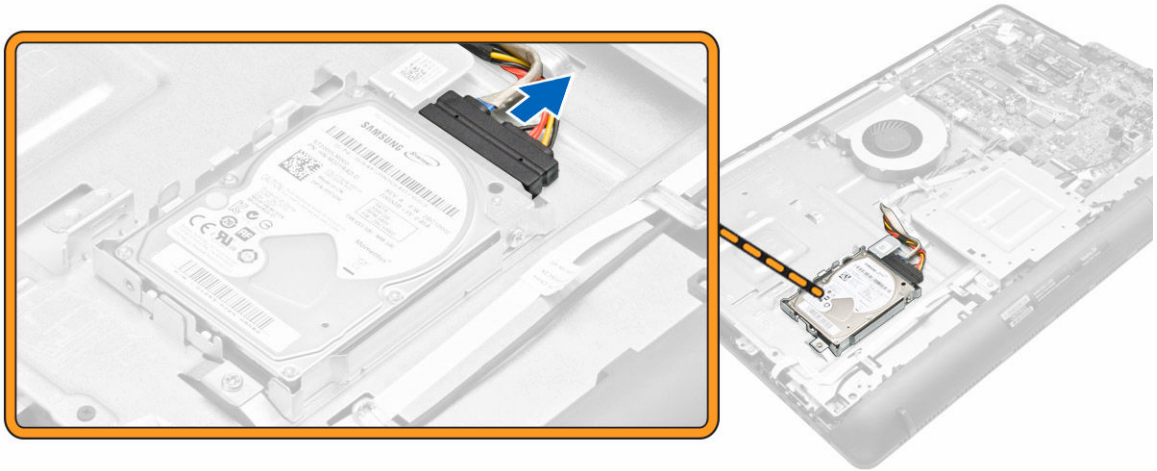
Installing the Back Cover

1. Align and press the back cover, until it clicks into place.
2. Install the [stand](#).

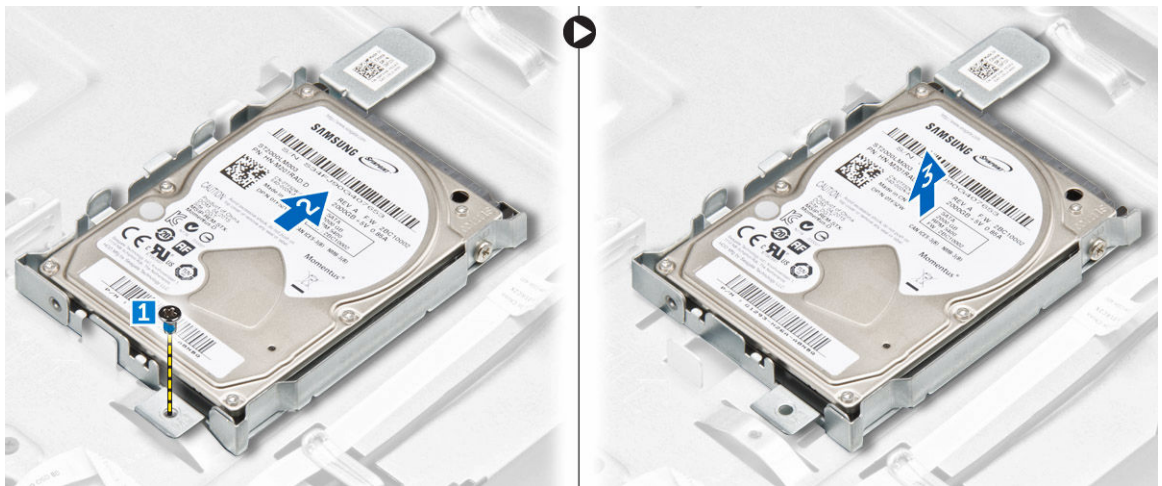
3. Follow the procedures in [After Working Inside Your Computer](#).

Removing the Hard Drive

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove:
 - a. [stand](#)
 - b. [back cover](#)
3. Disconnect the hard drive cable from the hard drive.



4. Perform the following:
 - a. Remove the screw that secures the hard drive to the computer [1].
 - b. Slide [2] and lift the hard drive from the slot [3].



5. Remove the screws that secure the hard drive to the bracket and lift the hard drive from bracket [1,2].

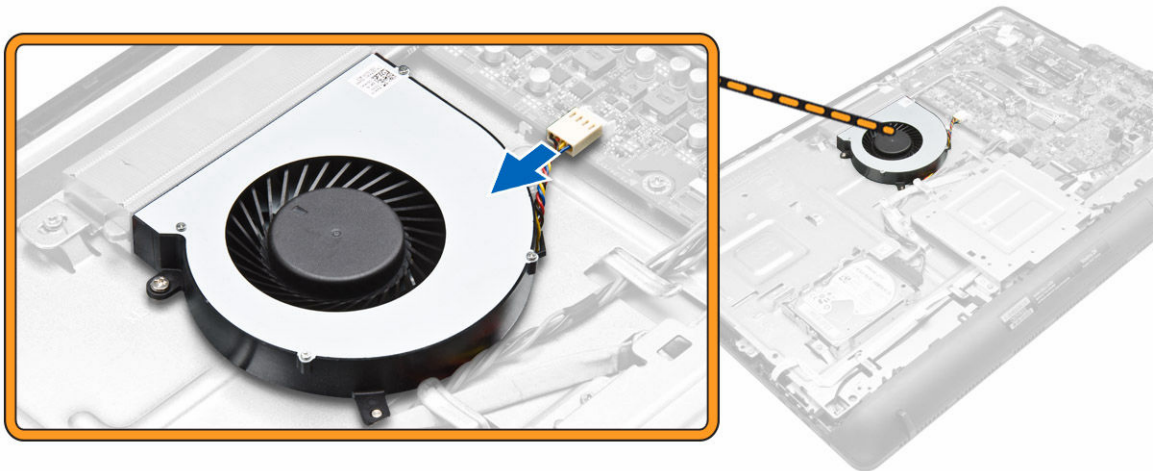


Installing the Hard Drive

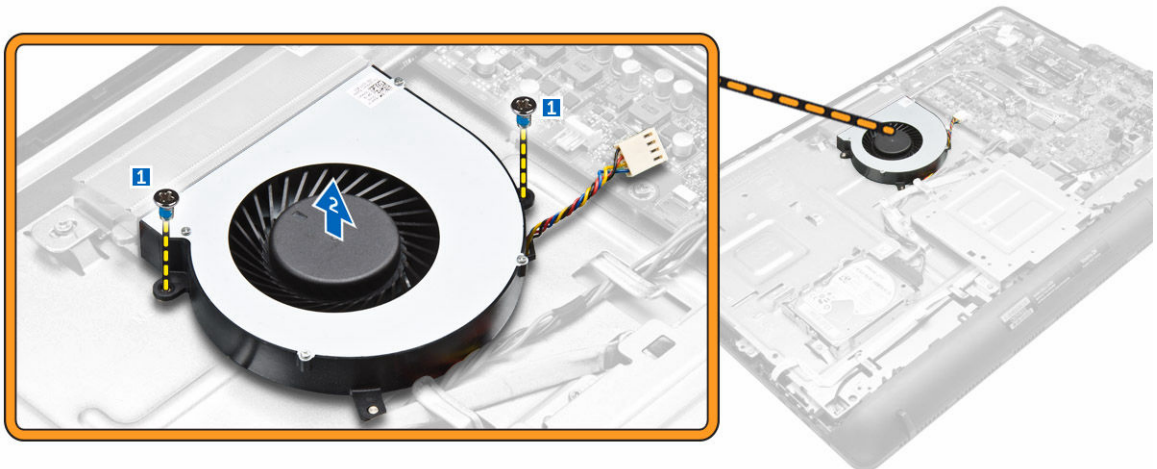
1. Place the hard drive in the bracket.
2. Tighten the screws to secure the hard drive to the bracket.
3. Slide the hard drive into the slot.
4. Tighten the screw that secures the hard drive to the computer.
5. Connect the hard drive cable.
6. Install:
 - a. [back cover](#)
 - b. [stand](#)
7. Follow the procedures in [After Working Inside Your Computer](#).

Removing the System Fan

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove:
 - a. [stand](#)
 - b. [back cover](#)
3. Disconnect the system-fan cable from the system board.



4. Perform the following:
 - a. Remove the screws that secure the system fan to the computer [1].
 - b. Lift the system fan from the computer [2].



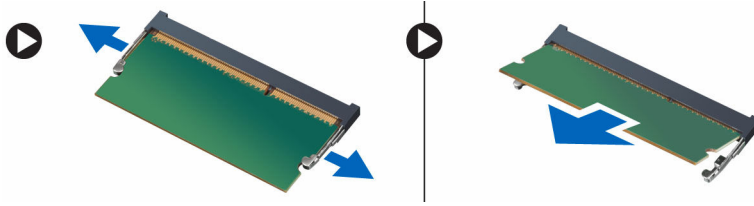
Installing the System Fan

1. Tighten the screws that secure the system fan to the computer.
2. Connect the system-fan cable to the system board.
3. Install:
 - a. [back cover](#)
 - b. [stand](#)
4. Follow the procedures in [After Working Inside Your Computer](#).


Removing the Memory module

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove:

- a. [stand](#)
 - b. [back cover](#)
3. Pry the retention clips away from the memory module until it pops-up. Lift and remove the memory module from its connector.




Installing the Memory module

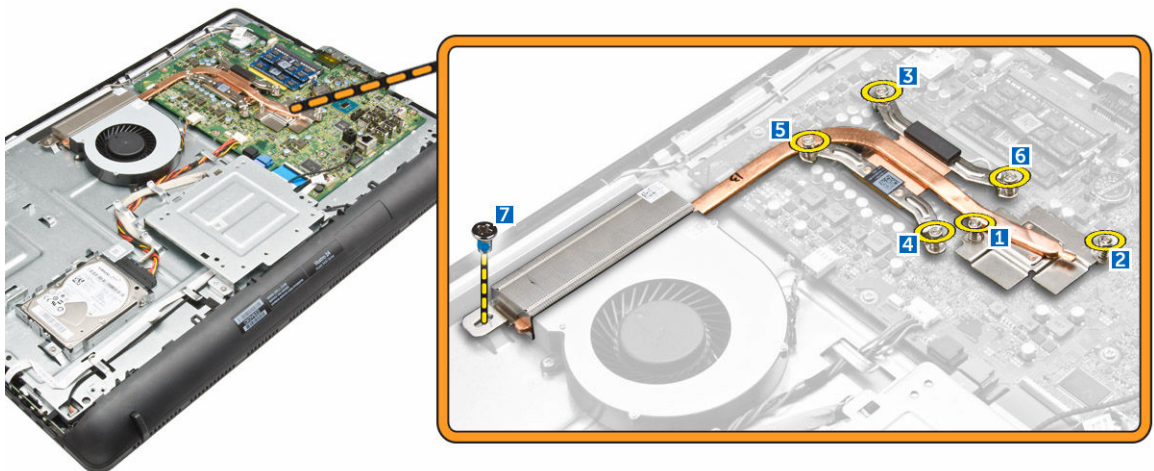
 **NOTE:** Please use DIMM 2 slot if there is only one memory module available.

1. Align the notch on the memory module with the tab on the system-board connector.
2. Press down on the memory module until the retention clip spring back to secure them in place.
3. Install:
 - a. [back cover](#)
 - b. [stand](#)
4. Follow the procedures in [After Working Inside Your Computer](#).

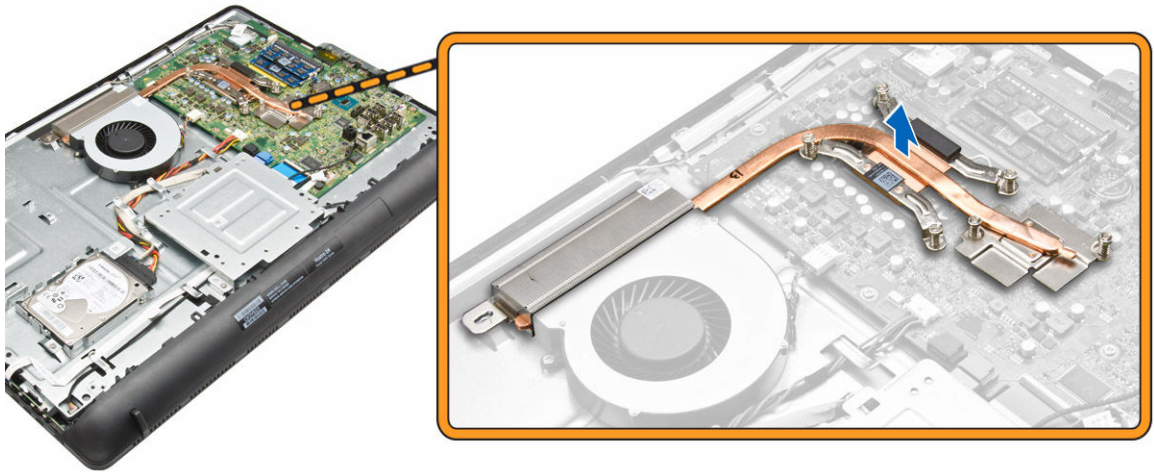
Removing the Heatsink

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove:
 - a. [stand](#)
 - b. [back cover](#)
3. Remove the screws that secure the heatsink to the system board [1,2,3,4,5,6,7].


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



4. Lift the heatsink from the system board.

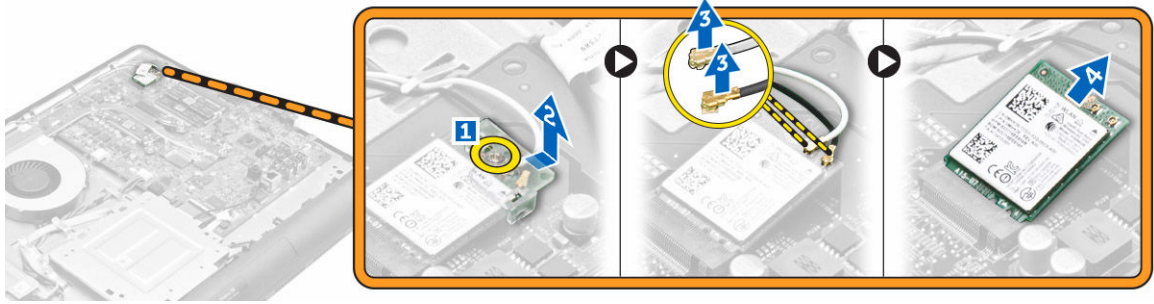


Installing the Heatsink

1. Install the heatsink to align with the screw holes on the system board.
2. Tighten the screws to secure the heatsink to the system board.
 -  **NOTE:** Secure the screws in the order of the callout numbers [1, 2, 3, 4, 5, 6] as seen on the heatsink module.
3. Install:
 - a. [back cover](#)
 - b. [stand](#)
4. Follow the procedures in [After Working Inside Your Computer](#).

Removing the WLAN Card

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove:
 - a. [stand](#)
 - b. [back cover](#)
3. To remove the WLAN card:
 - a. Remove the screw that secures the WLAN card [1].
 - b. Slide to remove the WLAN bracket from the system board [2].
 - c. Disconnect the antenna cables from the WLAN card.[3].
 - d. Remove the WLAN card from its slot [4].

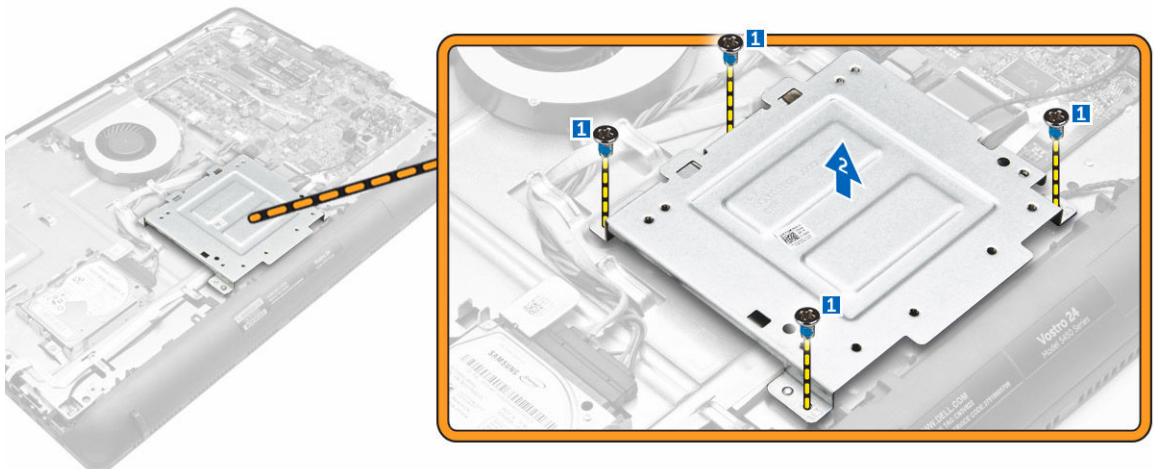


Installing the WLAN Card

1. Insert the WLAN card into its slot.
2. Connect the two antenna cables (black cable to the black triangle and white cable to the white triangle).
3. Place the WLAN bracket and tighten the screw to secure the WLAN card to the system board.
4. Install:
 - a. [back cover](#)
 - b. [stand](#)
5. Follow the procedures in [After Working Inside Your Computer](#).

Removing the Stand Cage

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove:
 - a. [stand](#)
 - b. [back cover](#)
3. Perform the following:
 - a. Remove the screws that secure the stand cage to the computer [1].
 - b. Lift the stand cage from the computer [2].

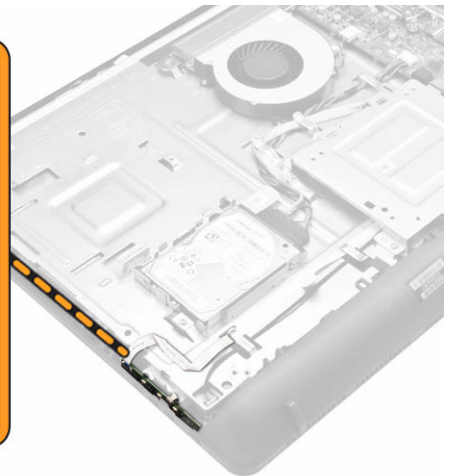
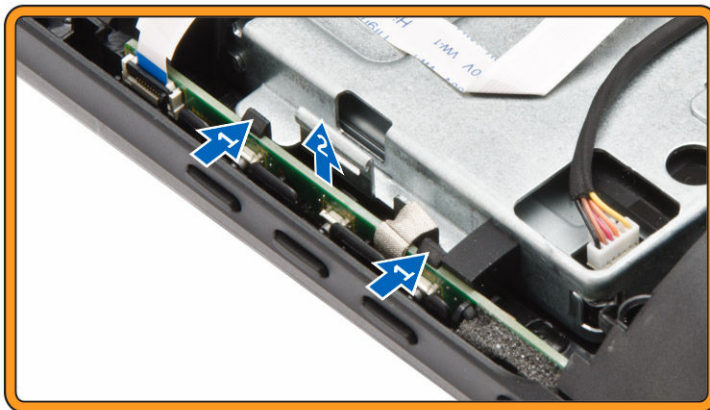


Installing the Stand Cage

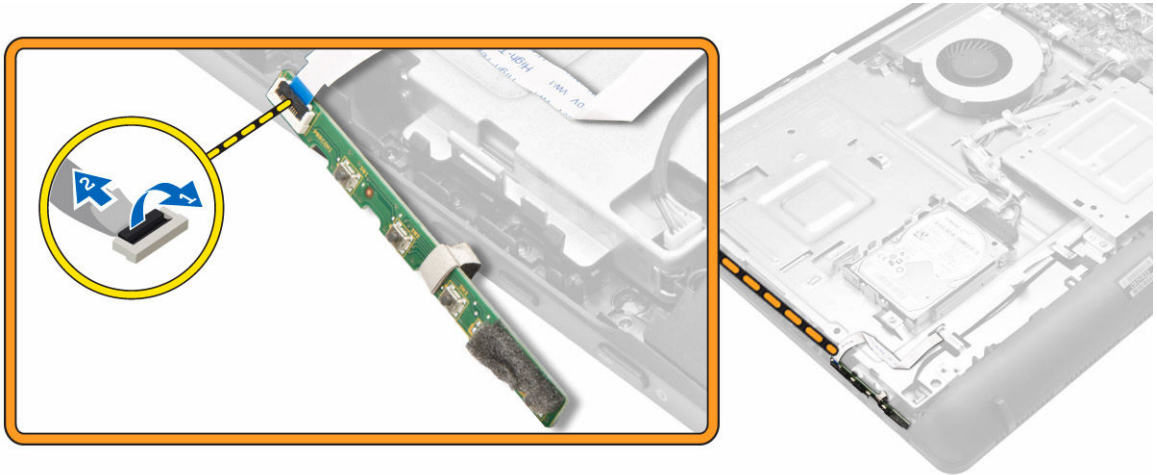
1. Align the stand cage with the screw holes and tighten the screws to secure it to the computer.
2. Install:
 - a. [back cover](#)
 - b. [stand](#)
3. Follow the procedures in [After Working Inside Your Computer](#).

Removing the Power-Switch Board

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove:
 - a. [stand](#)
 - b. [back cover](#)
3. Perform the following:
 - a. Press the locking tab that secures the power-switch to the computer [1].
 - b. Lift the power-switch board to release it from the slot [2].



4. Lift the lock tab and disconnect the power-switch cable from the power-switch board [1,2].

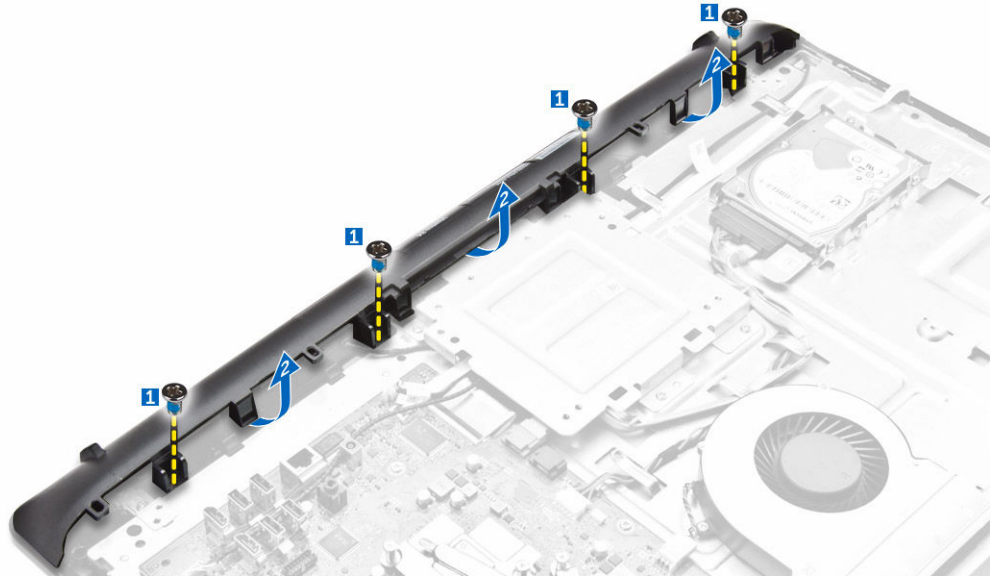


Installing the Power-Switch Board

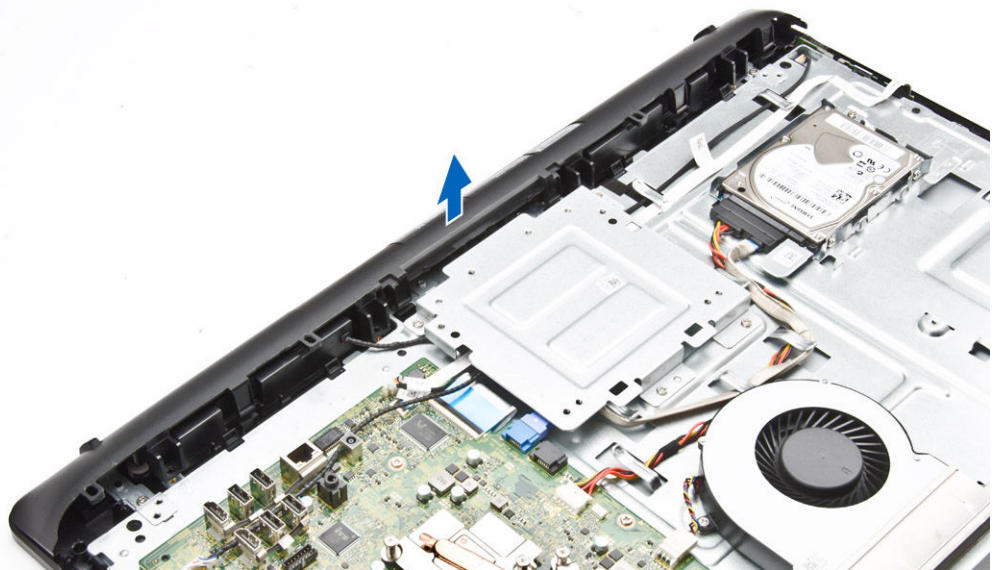
1. Connect the power-switch cable to the power-switch board.
2. Insert the power-switch board into its slot and secure it.
3. Install:
 - a. [back cover](#)
 - b. [stand](#)
4. Follow the procedures in [After Working Inside Your Computer](#).

Removing the Speaker module

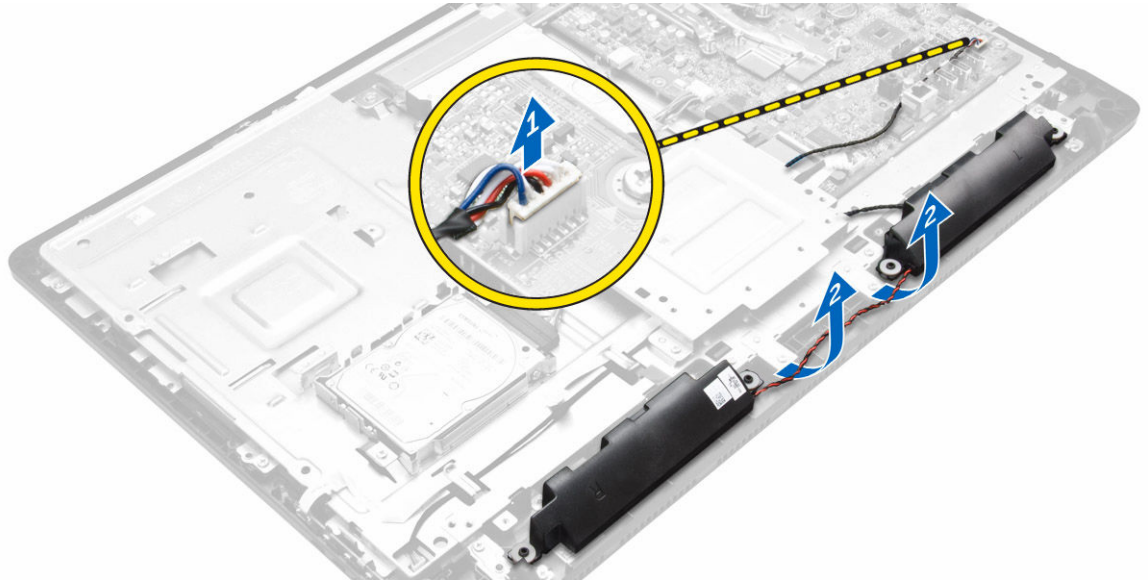
1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove:
 - a. [stand](#)
 - b. [back cover](#)
3. To release the speaker module:
 - a. Remove the screws that secure the speaker cover to the computer [1].
 - b. Pry the edges of the speaker cover to release it from the tabs [2].



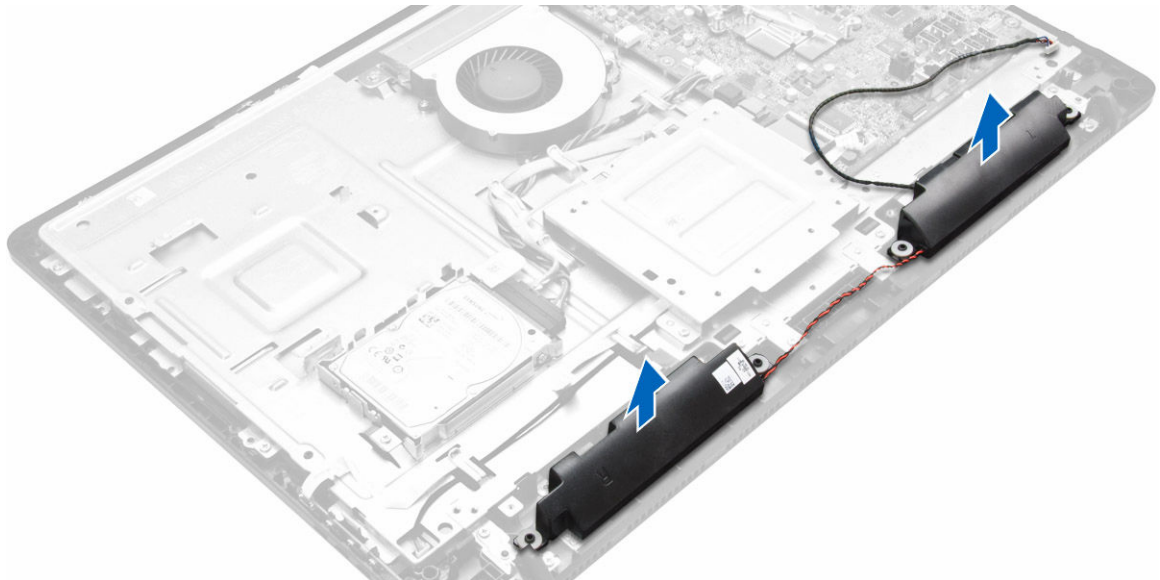
4. Lift the speaker cover.



5. To remove the speaker module:
 - a. Disconnect the speaker cable from the system board [1].
 - b. Unroute the speaker cable [2].



6. Lift the speaker from the chassis.



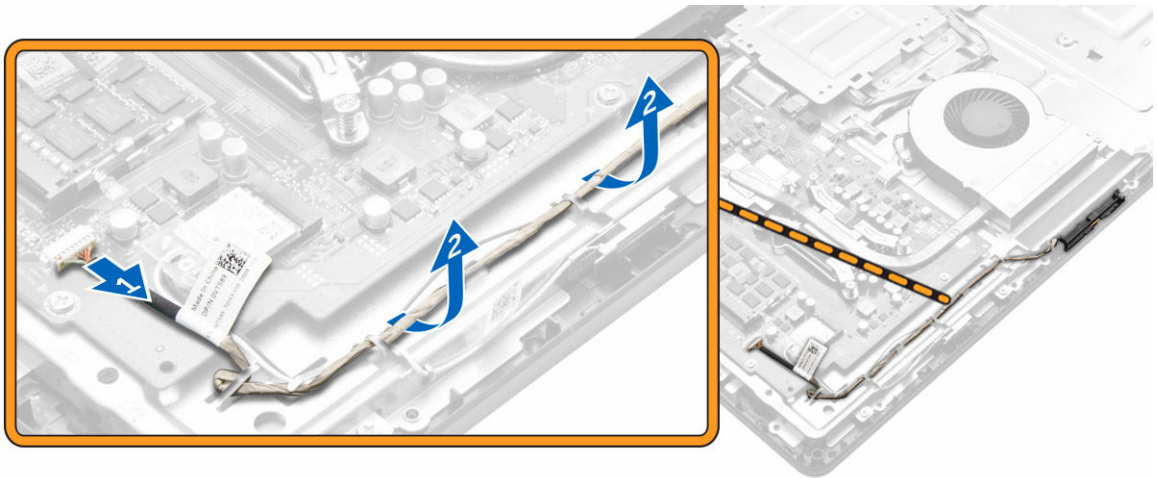
Installing the Speaker module

1. Align the speakers on the system board.
2. Route the speaker cables.
3. Connect the speaker cable to the system board.
4. Place the speaker cover on the computer.
5. Tighten the screws to secure the speaker cover to the computer.
6. Install:
 - a. [back cover](#)
 - b. [stand](#)

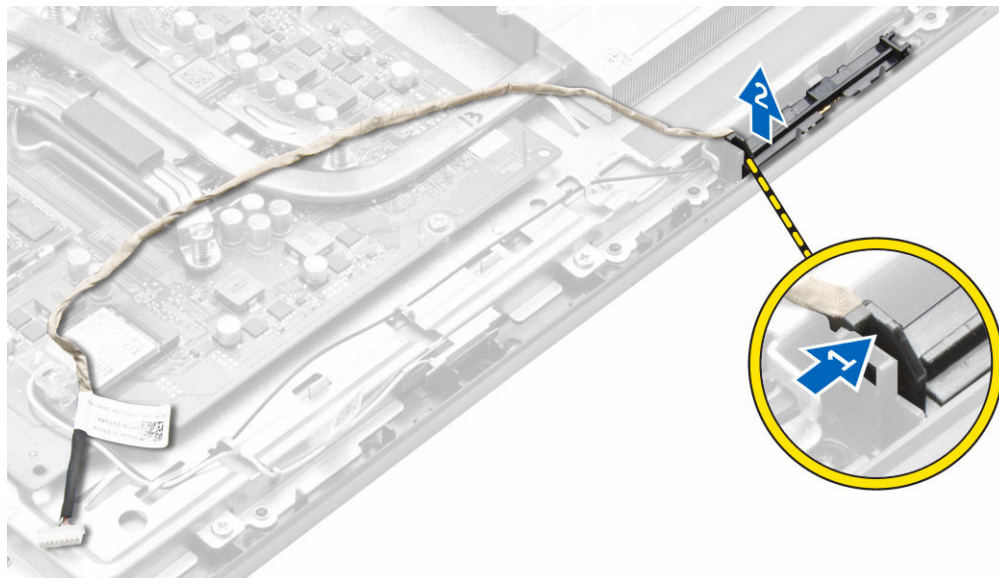
7. Follow the procedures in [After Working Inside Your Computer](#).

Removing the Camera module

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove:
 - a. [stand](#)
 - b. [back cover](#)
3. To release the camera module:
 - a. Disconnect the camera cable from the system board [1].
 - b. Unroute the camera cables from the securing clips [2].



4. To remove the camera module:
 - a. Press the locking tab that secures the camera to the chassis [1].
 - b. Lift the camera from the system board [2].

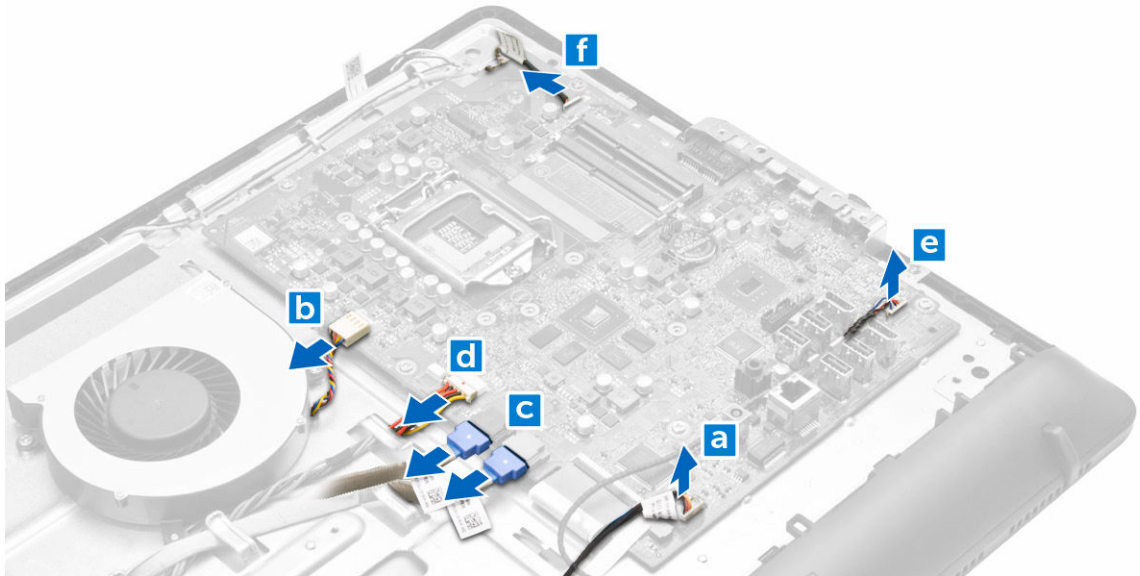


Installing the Camera module

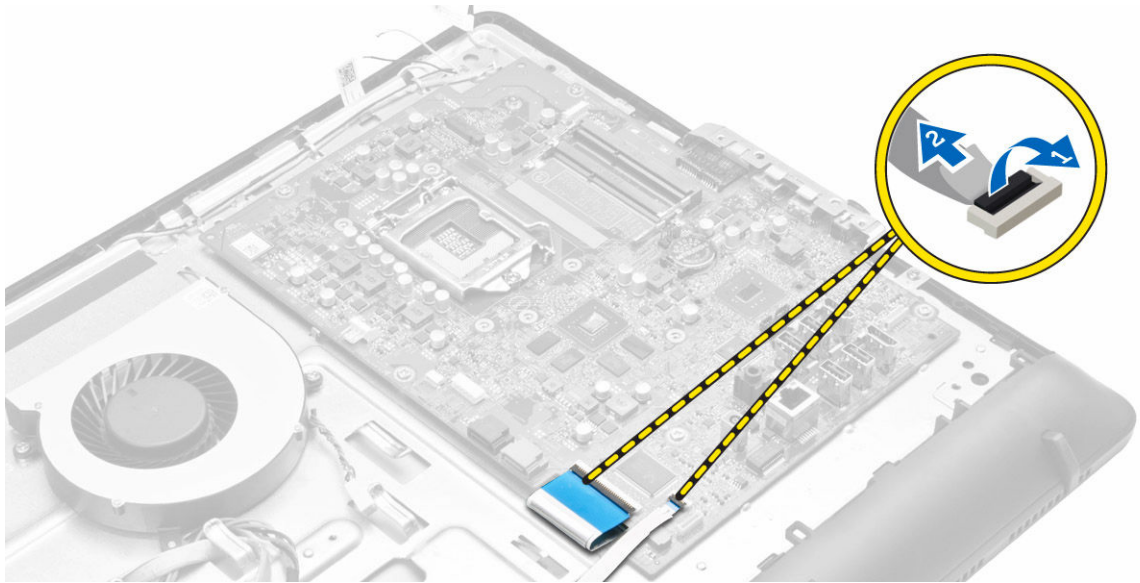
1. Place the camera module into its slot.
2. Press the locking tab until it clicks to the chassis.
3. Secure the camera cable using the securing clips.
4. Connect the camera cable to the system board.
5. Install:
 - a. [back cover](#)
 - b. [stand](#)
6. Follow the procedures in [After Working Inside Your Computer](#).

Removing the System Board

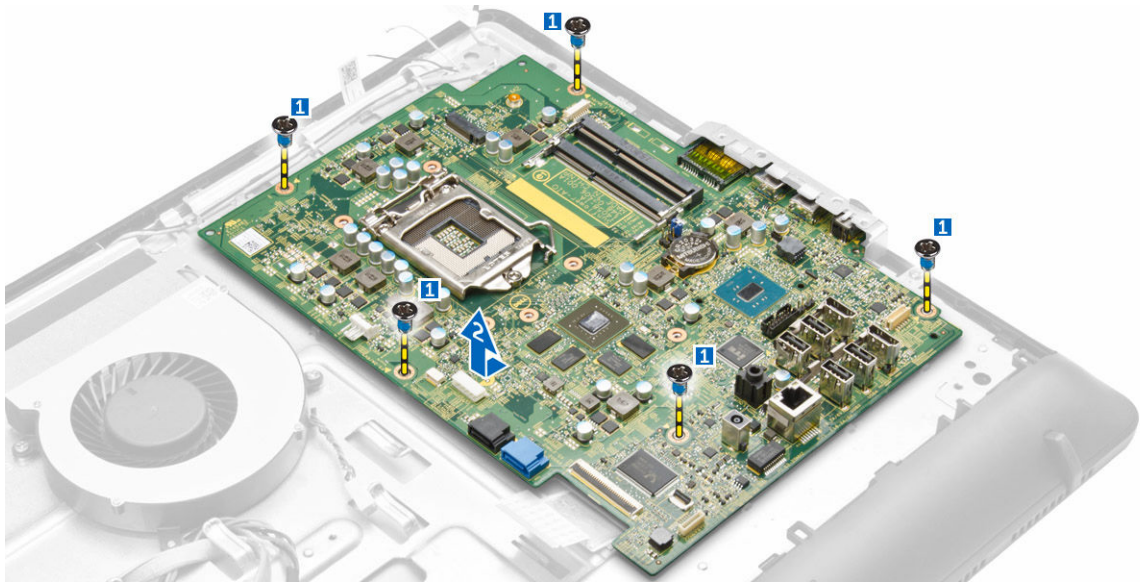
1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove:
 - a. [stand](#)
 - b. [back cover](#)
 - c. [heatsink assembly](#)
 - d. [stand cage](#)
 - e. [WLAN card](#)
3. Disconnect the following cables from the system board:
 - a. display-assembly cable
 - b. system-fan cable
 - c. hard-drive cable
 - d. hard-drive power cable
 - e. speaker cable
 - f. camera cable



4. Lift the tab and disconnect the LVDS and power-switch cables.



5. Remove the screws that secure the system board to the computer. Slide and remove the system board to release it from the computer [1,2].



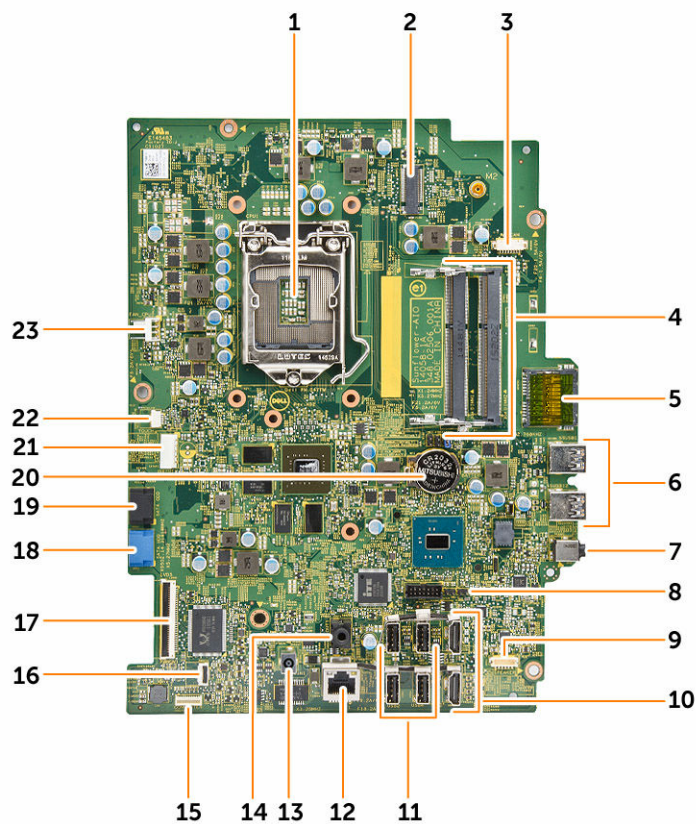
Installing the System Board

1. Align the system board on the computer.
2. Tighten the screws to secure the system board to the computer.
3. Connect the following cables to the system board:
 - a. camera cable
 - b. display-assembly cable
 - c. system fan cable
 - d. hard-drive cable

- e. hard-drive power cable
- f. speaker cable
- 4. Install:
 - a. [WLAN card](#)
 - b. [stand cage](#)
 - c. [heatsink assembly](#)
 - d. [back cover](#)
 - e. [stand](#)
- 5. Follow the procedures in [After Working Inside Your Computer](#).

System Board Layout

The following image displays the system board layout of the computer.

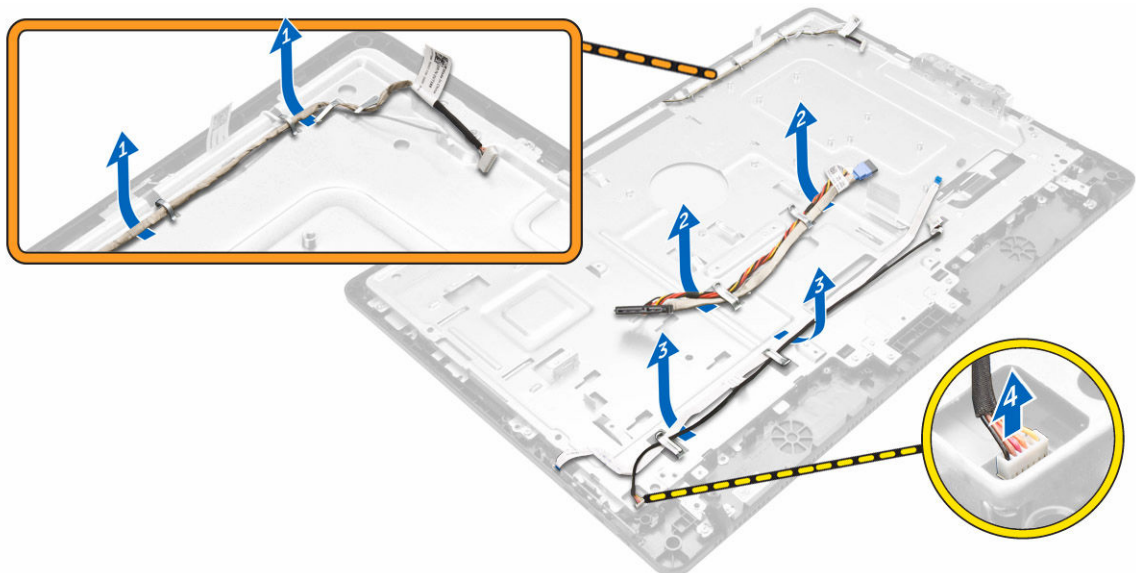


- | | |
|------------------------|-----------------------|
| 1. Processor connector | 2. WLAN connector |
| 3. Camera connector | 4. Memory module |
| 5. SD-Card connector | 6. USB 3.0 connector |
| 7. Audio-in connector | 8. Jumper connector |
| 9. Speaker connector | 10. HDMI connector |
| 11. USB 2.0 connector | 12. Network connector |

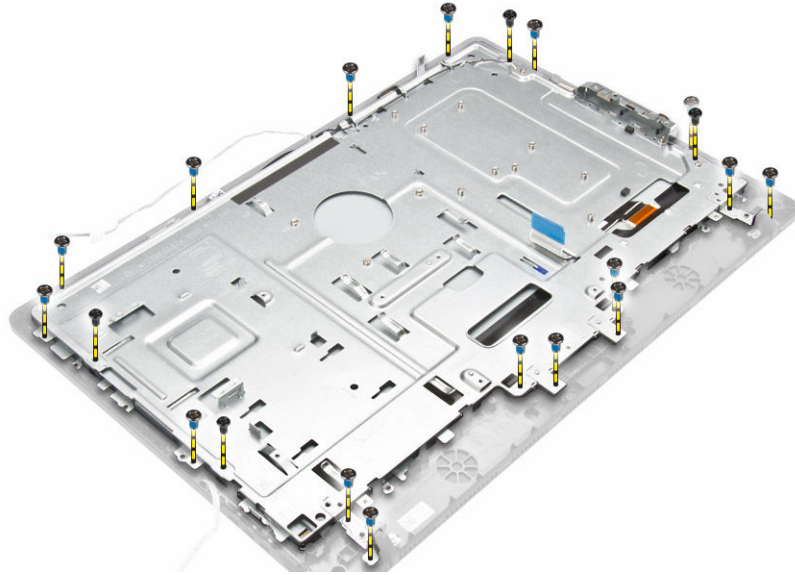
- | | |
|------------------------------------|--------------------------------|
| 13. DC-in connector | 14. Audio-out connector |
| 15. OSD with power knob flex cable | 16. LCD backlight cable |
| 17. Display-assembly connector | 18. Hard-drive connector |
| 19. SATA connector (Optional) | 20. Coin-cell battery |
| 21. SATA connector (Optional) | 22. Touch connector (Optional) |
| 23. System fan connector | |

Removing the Display Assembly

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Remove:
 - a. [stand](#)
 - b. [back cover](#)
 - c. [heatsink assembly](#)
 - d. [stand cage](#)
 - e. [WLAN card](#)
 - f. [hard drive](#)
 - g. [speakers](#)
 - h. [camera](#)
 - i. [system fan](#)
 - j. [system board](#)
 - k. [power switch](#)
3. Unroute and disconnect the following cables:
 - a. Unroute the camera, hard drive, convertor board cables [1.2.3].
 - b. Disconnect the power cable [4].



4. Remove the screws that secure the display assembly to the chassis.



5. To remove the display assembly:
 - a. Push the securing tab to release the display assembly from the chassis [1].
 - b. Lift the display assembly chassis from the computer [2].



6. Lift the display assembly from the computer.



Installing the Display Assembly

1. Place the display assembly to the computer.
2. Place the display assembly chassis to the computer.
3. Tighten the screws to secure the display assembly chassis to the computer.
4. Route the display assembly cable through the tabs on the display bracket.
5. Connect the power cable.
6. Install:
 - a. [power switch](#)
 - b. [system board](#)
 - c. [system fan](#)
 - d. [camera](#)
 - e. [speakers](#)
 - f. [hard drive](#)
 - g. [WLAN card](#)
 - h. [stand cage](#)
 - i. [heatsink assembly](#)
 - j. [back cover](#)
 - k. [stand](#)
7. Follow the procedures in [After Working Inside Your Computer](#).

Technology and components

Identifying processors in Windows 10

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

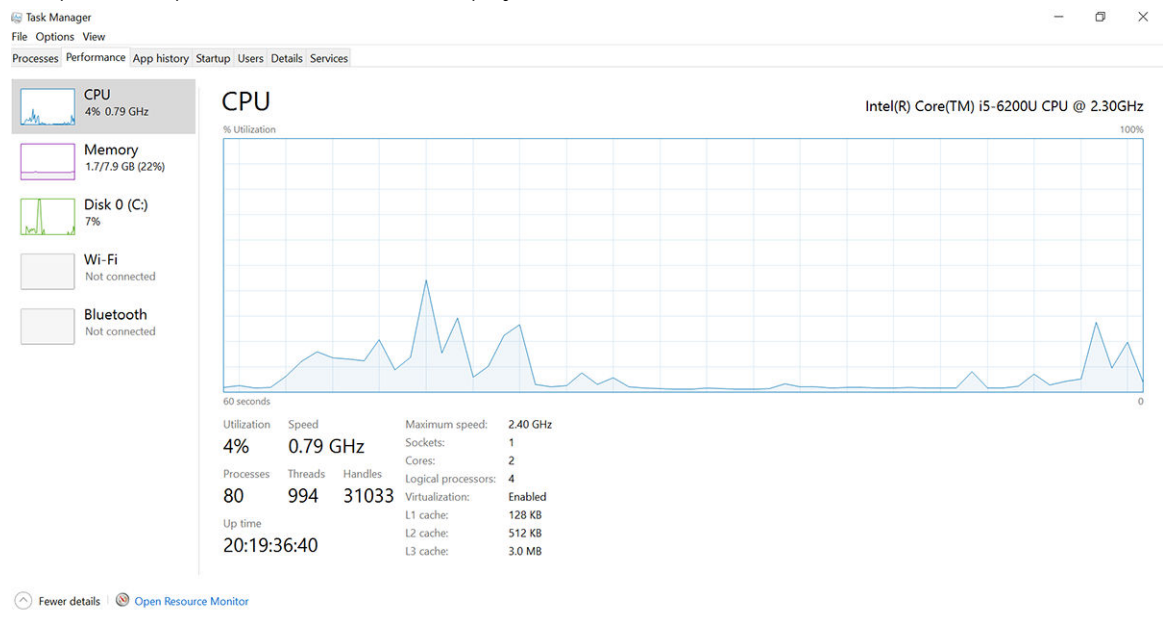


The basic information of the processor is displayed.

Verifying the processor usage in Task Manager

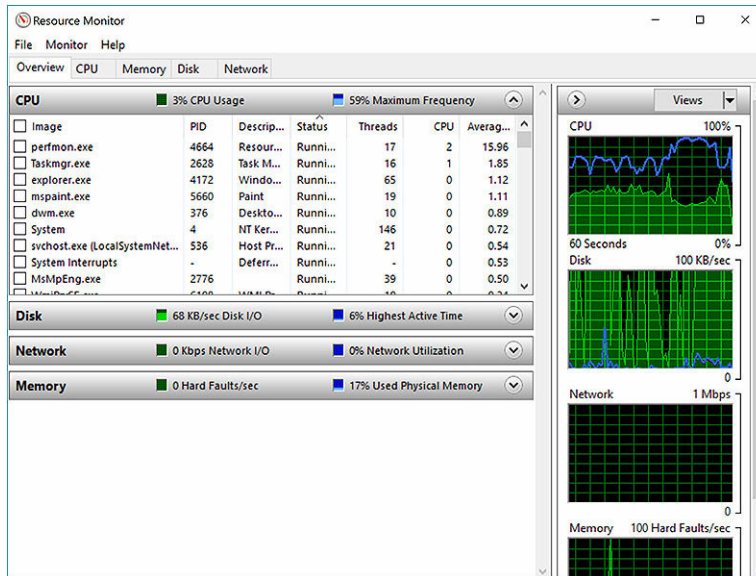
1. Press and hold the taskbar.
 2. Select **Start Task Manager**.
- The **Windows Task Manager** window is displayed.
3. Click the **Performance** tab in the **Windows Task Manager** window.

The processor performance details are displayed.



Verifying the processor usage in Resource Monitor

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




Chipsets

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


Downloading the chipset driver

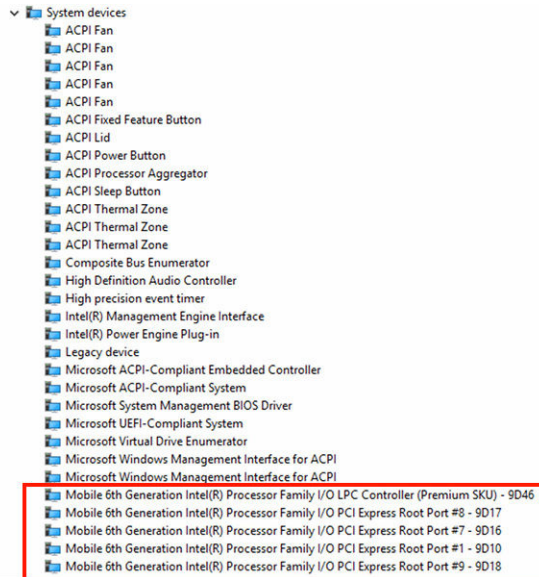
1. Turn on the laptop.
2. Go to **Dell.com/support**.
3. Click **Product Support**, enter the Service Tag of your laptop, and then click **Submit**.

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


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

Identifying the chipset in Device Manager on Windows 10

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

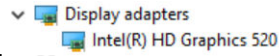


Downloading drivers

1. Turn on the laptop.
2. Go to **Dell.com/support**.
3. Click **Product Support**, enter the Service Tag of your laptop, and then click **Submit**.
 **NOTE:** If you do not have the Service Tag, use the auto detect feature or manually browse for your laptop model.
4. Click **Drivers and Downloads**.
5. Select the operating system installed on your laptop.
6. Scroll down the page and select the graphic driver to install.
7. Click **Download File** to download the graphic driver for your laptop.
8. After the download is complete, navigate to the folder where you saved the graphic driver file.
9. Double-click the graphic driver file icon and follow the instructions on the screen.

Identifying the display adapter

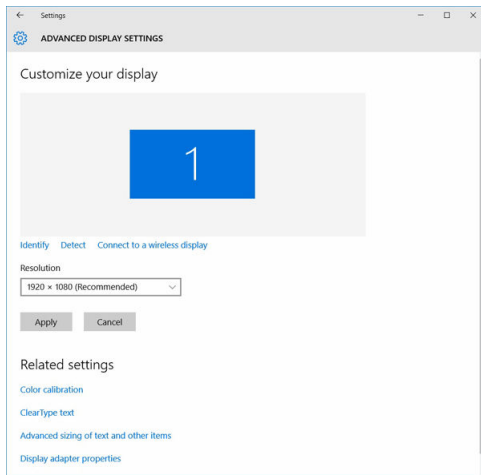
1. Start the **Search Charm** and select **Settings**.
2. Type `Device Manager` in the search box and tap **Device Manager** from the left pane.
3. Expand **Display adapters**.



The display adapters are displayed.

Changing the screen resolution

1. Press and hold the desktop screen and select **Display Settings**.
2. Tap or click **Display settings**.
The Setting window is displayed.
3. Scroll down and select **Advanced Display Settings**.
The Advanced Display Setting is displayed.
4. Select the required resolution from the drop-down list and tap **Apply**.



Rotating the display

1. Press and hold on the desktop screen.
A sub menu is displayed.
2. Select **Graphic Options** → **Rotation** and choose one of the following:
 - Rotate to Normal
 - Rotate to 90 Degrees
 - Rotate to 180 Degrees
 - Rotate to 270 Degrees



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


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


Display options

This laptop has 13.30– inch FHD with 1920 x 1080 resolution (maximum).

Adjusting brightness in Windows 10

To enable or disable automatic screen brightness adjustment:

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


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


Cleaning the display

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

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

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


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

 **NOTE:** Do not leave any liquid on the screen.

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

Using touch screen in Windows 10

Follow these steps to enable or disable the touch screen:

1. Go to the Charms Bar and tap **All Settings** .
2. Tap **Control Panel**.
3. Tap **Pen and Input Devices** in the **Control Panel**.
4. Tap the **Touch** tab.
5. Select **Use your finger as an input device** to enable the touch screen. Clear the box to disable the touch screen.

Connecting to external display devices

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


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

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

Realtek ALC3661 Waves MaxxAudio Pro controller

This laptop ships with integrated Realtek ALC3661–CG Waves MaxxAudio Pro controller. It is a High Definition audio codec designed for Windows desktop and laptops.

Downloading the audio driver

1. Turn on the laptop.
2. Go to www.dell.com/support.
3. Click **Product Support**, enter the Service Tag of your laptop and click **Submit**.
 -  **NOTE:** If you do not have the Service Tag, use the autodetect feature or manually browse for your laptop model.
4. Click **Drivers and Downloads**.
5. Select the operating system installed on your laptop.
6. Scroll down the page and expand **Audio**.
7. Select the audio driver.
8. Click **Download File** to download the latest version of the audio driver for your laptop.
9. After the download is complete, navigate to the folder where you saved the audio driver file.
10. Double-click the audio driver file icon and follow the instructions on the screen.

Identifying the audio controller in Windows 10


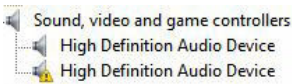
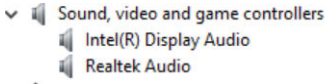
1. Start the **Search Charm** and select **All Settings** .
2. Type `Device Manager` in the search box and select **Device Manager** from the left pane.
3. Expand **Sound, video and game controllers**.
The audio controller is displayed.

Table 1. Identifying the audio controller in Windows 10

Before installation	After installation
	

Changing the audio settings

1. Tap or touch the **Search the web and Windows** and type **Dell Audio**.
2. Start the Dell Audio utility from the left pane.

WLAN cards

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

Hard drive options

This laptop supports SATA drives and SSDs.

Identifying the hard drive in Windows 10

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

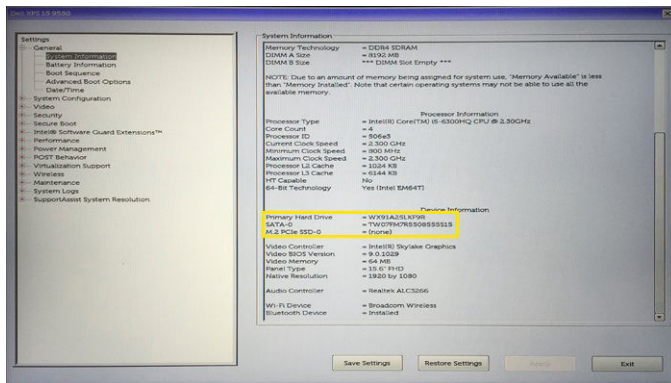


The hard drive is listed under **Disk drives**.

Identifying the Hard Drive in the BIOS


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

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



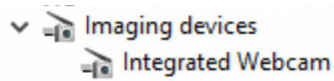
Camera features

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

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

Identifying the camera in Device Manager on Windows 10

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

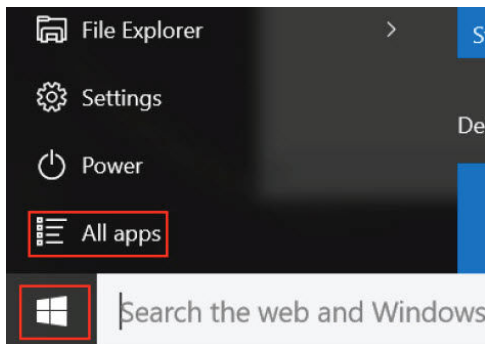


Starting the camera

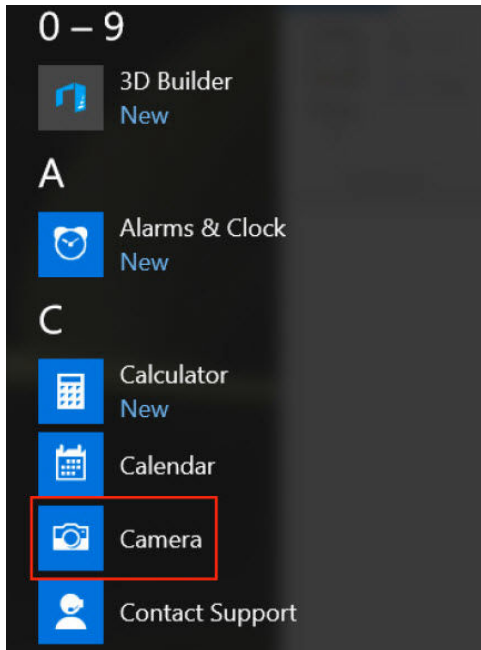
To start the camera, open an application that uses the camera. For instance, if you tap the Dell webcam central software or the Skype software that is shipped with the laptop, the camera turns on. Similarly, if you are chatting on the internet and the application requests to access the webcam, the webcam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

Starting the camera app

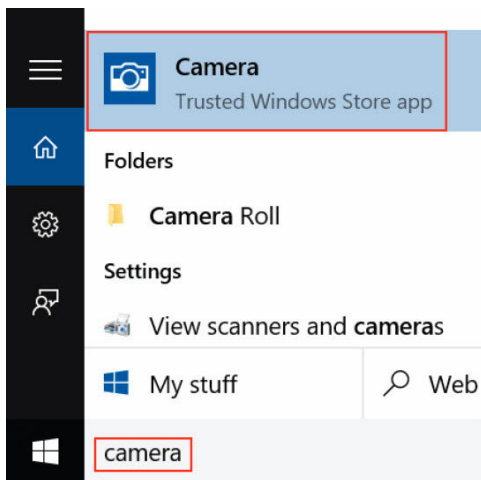
1. Tap or click the **Windows** button and select **All apps**.



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




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



Memory features

This laptop supports 4–16 GB DDR4 SODIMM memory, up to 2133 MHz.

Verifying system memory in Windows 10

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

Verifying system memory in setup

1. Turn on or restart your laptop.
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.
 - Without keyboard — When the **F12 boot selection** menu is displayed, press the Volume Down button to enter BIOS setup. To enter the Boot selection menu, press the Volume Up button.
3. On the left pane, select **Settings** → **General** → **System Information**.
The memory information is displayed on the right pane.

Testing memory using ePSA

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

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



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

Intel chipset drivers

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

Table 2. Intel chipset drivers

Before installation	After installation
<ul style="list-style-type: none"> Other devices <ul style="list-style-type: none"> PCI Data Acquisition and Signal Processing Controller PCI Device PCI Memory Controller PCI Simple Communications Controller SM Bus Controller Unknown device System devices <ul style="list-style-type: none"> ACPI Fan ACPI Fan ACPI Fan ACPI Fan ACPI Fan ACPI Fixed Feature Button ACPI Power Button ACPI Processor Aggregator ACPI Thermal Zone ACPI Thermal Zone Composite Bus Enumerator High Definition Audio Controller High precision event timer Intel(R) Power Engine Plug-in Legacy device Microsoft ACPI-Compliant Embedded Controller Microsoft ACPI-Compliant System Microsoft System Management BIOS Driver Microsoft UEFI-Compliant System Microsoft Virtual Drive Enumerator Microsoft Windows Management Interface for ACPI Microsoft Windows Management Interface for ACPI NDIS Virtual Network Adapter Enumerator Numeric data processor PCI Express Root Complex PCI Express Root Port PCI Express Root Port PCI Express Root Port PCI 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 	<ul style="list-style-type: none"> Other devices <ul style="list-style-type: none"> PCI Device PCI Simple Communications Controller Unknown device System devices <ul style="list-style-type: none"> ACPI Fan ACPI Fan ACPI Fan ACPI Fan ACPI Fan ACPI Fixed Feature Button ACPI Lid ACPI Processor Aggregator ACPI Sleep Button ACPI Thermal Zone ACPI Thermal Zone ACPI Thermal Zone Camera Sensor OV9210 Camera Sensor OV8858 Composite Bus Enumerator High precision event timer Intel(R) 100 Series Chipset Family LPC Controller/eSPI Controller - 9D46 Intel(R) 100 Series Chipset Family PCI Express Root Port #10 - 9D19 Intel(R) 100 Series Chipset Family PCI Express Root Port #9 - 9D18 Intel(R) 100 Series Chipset Family PMC - 9D21 Intel(R) 100 Series Chipset Family SMBUS - 9D23 Intel(R) 100 Series Chipset Family Thermal subsystem - 9D31 Intel(R) C2C2 Host Controller Intel(R) Control Logic Intel(R) Imaging Signal Processor 2500 Intel(R) Integrated Sensor Solution Intel(R) Management Engine Interface Intel(R) Power Engine Plug-in Intel(R) Serial IO GPIO Host Controller - INT344B Intel(R) Serial IO I2C Host Controller - 9D60 Intel(R) Serial IO I2C Host Controller - 9D61 Intel(R) Serial IO I2C Host Controller - 9D62 Intel(R) Serial IO I2C Host Controller - 9D63

Intel HD Graphics drivers

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

Table 3. Intel HD Graphics drivers

Before installation	After installation
<ul style="list-style-type: none"> Display adapters <ul style="list-style-type: none"> Microsoft Basic Display Adapter Sound, video and game controllers <ul style="list-style-type: none"> High Definition Audio Device High Definition Audio Device 	<ul style="list-style-type: none"> Display adapters <ul style="list-style-type: none"> Intel(R) HD Graphics 515 Sound, video and game controllers <ul style="list-style-type: none"> Intel(R) AVStream Camera 2500 Intel(R) Display Audio Realtek High Definition Audio(SST)

System Setup

System Setup enables you to manage your computer 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


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.

Keys	Navigation
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.

Setup Utility Options

Table 4. Main

System Time		Allows you to resets the time on the computer's internal clock.
System Date		Allows you to resets 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.
CPU Type		Displays the processor model number.
CPU Speed		Displays the processor speed.
CPU ID		Displays the processor ID.
CPU Cache		
	L1 Cache	Displays the processor L1 cache size.
	L2 Cache	Displays the processor L2 cache size.

L3 Cache	Displays the processor L3 cache size.
Fixed HDD	Displays the hard drive ID and capacity.
SATA ODD	Displays the type of optical drive.
AC Adapter Type	Displays the power adapter type.
System Memory	Displays the memory capacity and type.
Memory Speed	Displays the memory speed.

Table 5. Advanced

Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep.	Default: Enabled
Virtualization	Allows you to enable or disable the Virtualization.	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 or disable the Integrated NIC.	Default: Enabled
SATA Operation	Allows you to choose the SATA operation mode.	Default: AHCI
Adapter Warnings	Allows you to enable or disable the Adapter Warnings.	Default: Enabled
Intel Ready Mode Technology	Allows you to enable or disable the Intel Ready Mode Technology	Default: Disabled

Camera	Allows you to enable or disable the Camera mode.	Default: Enabled
Internal Bluetooth	Allows you to enable or disable the Internal Bluetooth.	Default: Enabled
Internal WLAN	Allows you to enable or disable the Internal WLAN	Default: Enabled
Media Card Reader	Allows you to enable or disable the Media Card Reader	Default: Enabled
Optical Device	Allows you to enable or disable the Optical Device	Default: Enabled
Boot Disable	Allows you to enable or disable the Boot Disable	Default: Disabled
USB Debug	Allows you to enable or disable the USB Debug	Default: Disabled
SW Guard Extensions (SGX)	Allows you to enable or disable the SW Guard Extensions (SGX)	Default: Enabled
USB Configuration		
Rear USB Ports	Allows you to enable or disable the rear USB ports.	Default: Enabled
Side USB Ports	Allows you to enable or disable the side USB ports.	Default: Enabled
Power Options		
Wake Up By Integrated LAN/WLAN	Allows the computer to be remotely turned on.	Default: Disabled
AC Recovery	Allows you to select the power state of the	Default: Power Off

	computer after an AC power loss.	
Deep Sleep Control	Allows you to select the Deep Sleep Control	Default: Enabled in S4 and S5
Auto Power On	Enable or disable the Auto Power On.	Default: Disabled
Auto Power On Mode	Allows you to control the power mode	
Auto Power On Date	Allows you to designate a specific date when the computer will turn on automatically	Default: Disabled
Auto Power On Time	Allows you to designate a specific time when the computer will turn on automatically	Default: Disabled

SMART Settings

SMART Self Test	Enable or disable the SMART Self Test	Default: Disabled
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Table 6. Security

Unlock Setup Status	Allows you to enable an Unlock Setup Status (Default: Unlocked)
Admin Password Status	Allows you to set, change or delete the administrator (admin) password status.
System Password Status	Allows you to set, change or delete the system password status.
HDD Passwords Status	Allows you to set, change or delete the password on the system hard-disk drive.
Asset Tag	
Admin Password	Allows you to set, change or delete the administrator (admin) password.
System Password	Allows you to set, change or delete the system password.
HDD Passwords	Allows you to set, change or delete the password on the system hard-disk drive.
Password Change	Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set.

Password Bypass	Allows you to enable or disable the permission to bypass the System when they are set
Firmware TPM	Allows you to enable or disable the permission to Firmware TPM
Secure Boot Mode	Allows you to enable or disable the permission to Secure Boot Mode
HDD Protection	Allows you to enable or disable the permission to HDD Protection

Table 7. Boot

Boot List Option	Allows you to change the order in which the computer attempts to find an operating system.	Default: UEFI
File Browser Add Boot Option	Allows you to add file browser boot option.	
File Browser Delete Boot Option	Allows you to delete file browser boot option.	
Secure Boot	Enable or disable the Secure Boot Control.	Default: Enabled
Load Legacy Option ROM	This option controls whether CSM should be loaded during POST.	Default: Disabled
Boot Option Priorities		
Boot Option 1	Allows you to select the 1st boot device preference	
Boot Option 2	Allows you to select the 2nd boot device preference	
Boot Option 3	Allows you to select the 3rd boot device preference	

Table 8. Exit

Save Changes and Reset	Allows you to Save Changes and Reset default setting before exiting from Setup Utility.
Discard Changes and Reset	Allows you to Discard Changes and Reset default setting before exiting from Setup Utility.
Restore Defaults	Allows you to Restore Default setting before exiting from Setup Utility.

Discard Changes

Allows you to Discard Changes setting before exiting from Setup Utility.

Save Changes


Allows you to Save Changes setting before exiting from Setup Utility.

Updating the BIOS


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

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

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

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

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

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


System and setup password

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

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


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

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

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

Assigning a system password and setup password

You can assign a new **System Password** and/or **Setup Password** or change an existing **System Password** and/or **Setup Password** only when **Password Status** is **Unlocked**. If the Password Status is **Locked**, you cannot change the System Password.

 **NOTE:** If the password jumper is disabled, the existing System Password and Setup Password are deleted and you need not provide the system password to log on to the computer.

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 **System Security** and press Enter.
The **System Security** screen appears.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password**, enter your system password, and press Enter or Tab.
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, ("), (+), (.), (-), (.), (/), (:), (|), (\), (|), (').Re-enter the system password when prompted.
4. Type the system password that you entered earlier and click **OK**.
5. Select **Setup Password**, type your system password and press Enter or Tab.
A message prompts you to re-type the setup password.
6. Type the setup password that you entered earlier and click **OK**.
7. Press Esc and a message prompts you to save the changes.
8. Press Y to save the changes.
The computer reboots.

Deleting or changing an existing system and/or setup password

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

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

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.
The **System Security** screen is displayed.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password**, alter or delete the existing system password and press Enter or Tab.
4. Select **Setup Password**, alter or delete the existing setup password and press Enter or Tab.

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

5. Press Esc and a message prompts you to save the changes.
6. Press Y to save the changes and exit from System Setup.
The computer reboots.

Technical Specifications


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

Table 9. System Information

Feature	Specification
Processor type	<ul style="list-style-type: none"> Intel Pentium Dual Core 6th Generation Intel core i3/i5/i7 series

Table 10. Memory

Feature	Specification
Type	up to 1600 MHz
Connectors	two DIMM slots
Capacity	2 GB, 4 GB, and 8 GB
Minimum Memory	2 GB
Maximum Memory	16 GB

Table 11. Video

Feature	Specification
Video Controller:	
Integrated	Intel HD 530 Graphics
Discrete	Nvidia GeForce 930M 2GB DDR3
Integrated video memory	Shared system memory

Table 12. Audio

Feature	Specification
Type	2 channel high-definition audio
Controller	Realtek ALC3661 with Waves Maxx Audio Pro
Speaker	2 x 3 W
Volume controls	Volume up/down buttons, program menus, and keyboard media-control keys

Table 13. Network

Feature	Specification
Network adapter	Realtek 10/100/1000 Mbps Ethernet

Table 14. System Information

Feature	Specification
Chipset	H110
BIOS chip (NVRAM)	16 MB SPI Flash ROM

Table 15. Ports and Connectors

Feature	Specification
Audio	one audio combo connector
Network adapter	one RJ45 connector
USB 2.0	four
USB 3.0	two
Media card reader	one 4-in-1 slot

Table 16. Power Adapter

Feature	Specification
Type	<ul style="list-style-type: none"> • 90 W (UMA) • 130 W (Discrete)
Frequency	50 Hz - 60 Hz
Voltage	100 VAC - 240 VAC
Input current:	2.60 A
Coin-cell battery	3 V CR2032 lithium coin cell

Table 17. Camera

Feature	Specification
Image resolution	2.0 Megapixels
Video resolution	HD / 720P / 0.92 Megapixel (1280 x 720 pixels)
Diagonal viewing angle	74 degrees

Table 18. Stand

Feature	Specification
Tilt	-5 degrees to 30 degrees

Table 19. Physical Dimensions

Feature	Without Stand
Width	385.33 mm (15.17 inches)
Height	576.62 mm (22.70 inches)
Depth:	39.3 mm (1.54 inches)
Weight(maximum)	7.106 kg (15.65 lb)
Without stand	7.33 kg (1.61 lb)
Stand	9.24 kg (2.07 lb)


Table 20. Controls and Lights

Feature	Specification
Power button light	White light — Solid white light indicates power-on state; blinking white light indicates sleep state of the computer. Amber light — Solid amber light indicates sleep/stand by state of the computer; blinking amber light indicates a problem with the system board.
Hard Drive activity light	White light — Blinking white light indicates that the computer is reading data from or writing data to the hard drive.

Table 21. Environmental

Feature	Specification
Temperature range:	
Operating	5 °C to 35 °C (41 °F to 95 °F)
Storage	-40 °C to 65 °C (-40 °F to 149 °F)
Relative humidity	20 % to 80 % (non-condensing)
Altitude:	
Operating	-15.2 m to 3048 m (-50 to 10,000 ft)
Storage	-15.20 m to 10,668 m (-50 ft to 35,000 ft)
Airborne contaminant level	G1 as defined by ISA-S71.04-1985

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.