

# Dell Vostro 24–5450 Owner's Manual

Regulatory Model: W12C  
Regulatory Type: W12C004



# 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


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](http://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.

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 may 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. Shut down the operating system:
    - In Windows 10:
      1. Click or touch **Start** .
      2. In the dropdown displayed select the  and select **Shut Down**.
    - In Windows 8:
      - Using a touch-enabled device:
        - a. Swipe in from the right edge of the screen, opening the Charms menu and select **Settings**.
        - b. Select the  and then select **Shut down**
      - Using a mouse:
        - a. Point to upper-right corner of the screen and click **Settings**.
        - b. Click the  and select **Shut down**.
    - In Windows 7:
      1. Click **Start** .
      2. Click **Shut Down**.
- or

1. Click **Start** .
2. Click the arrow in the lower-right corner of the **Start** menu as shown below, and then click




#### **Shut Down..**

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

## **After Working Inside Your Computer**

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

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.**

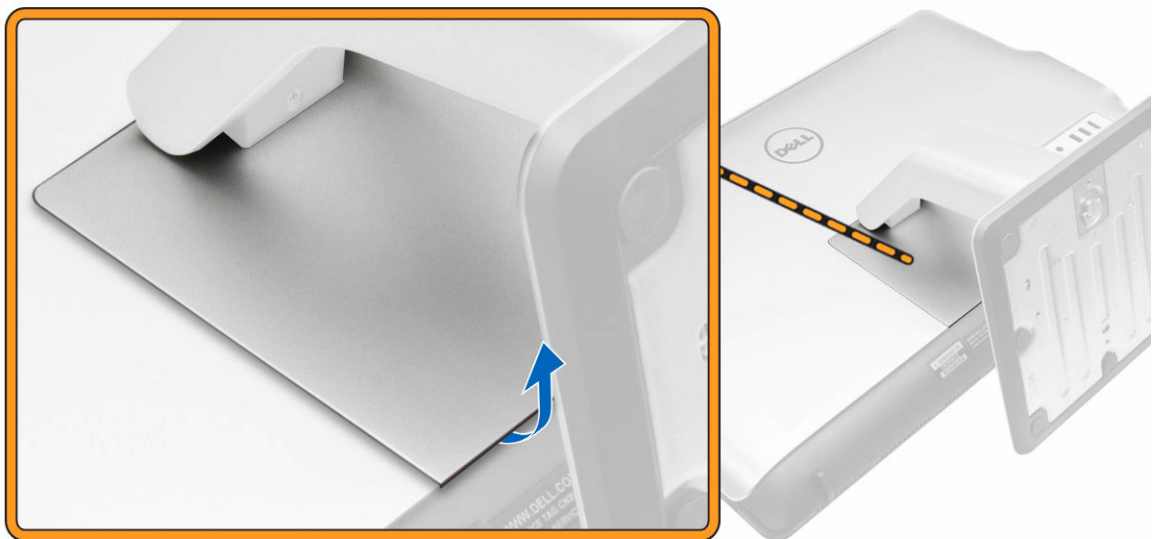
2. Connect any telephone or network cables to your computer.
3. Connect your computer and all attached devices to their electrical outlets.
4. Turn on your computer.
5. If required, verify that the computer works correctly by running the Dell Diagnostics.

## Removing and Installing Components

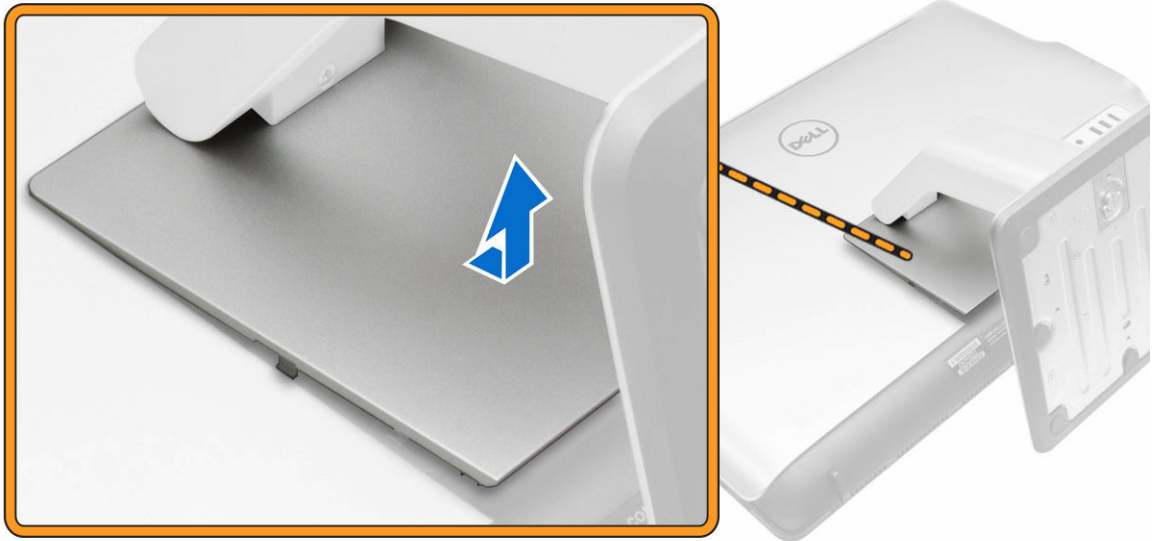
This section provides detailed information on how to remove or install the components from your computer.

### 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

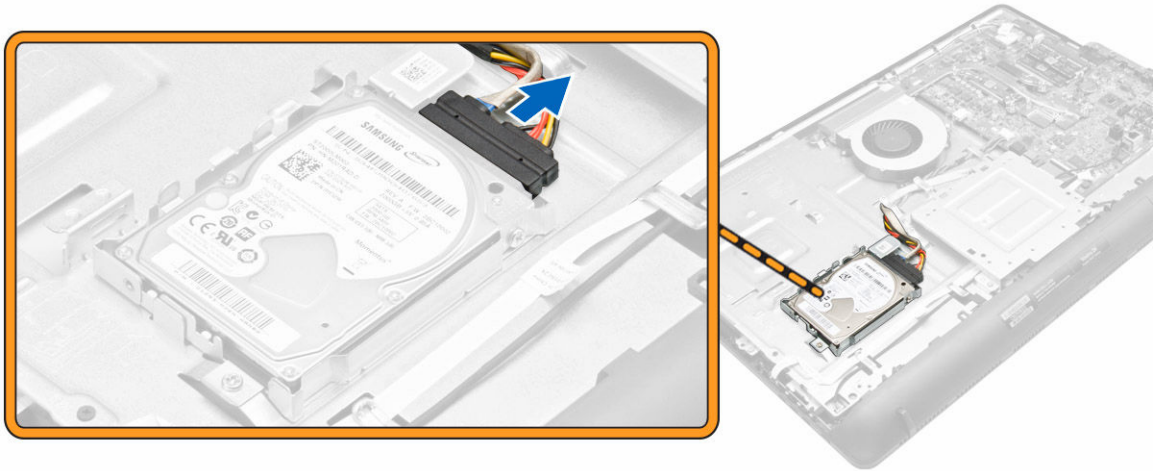
1. Align and press the back cover, until it clicks into place.
2. Install the [stand](#).



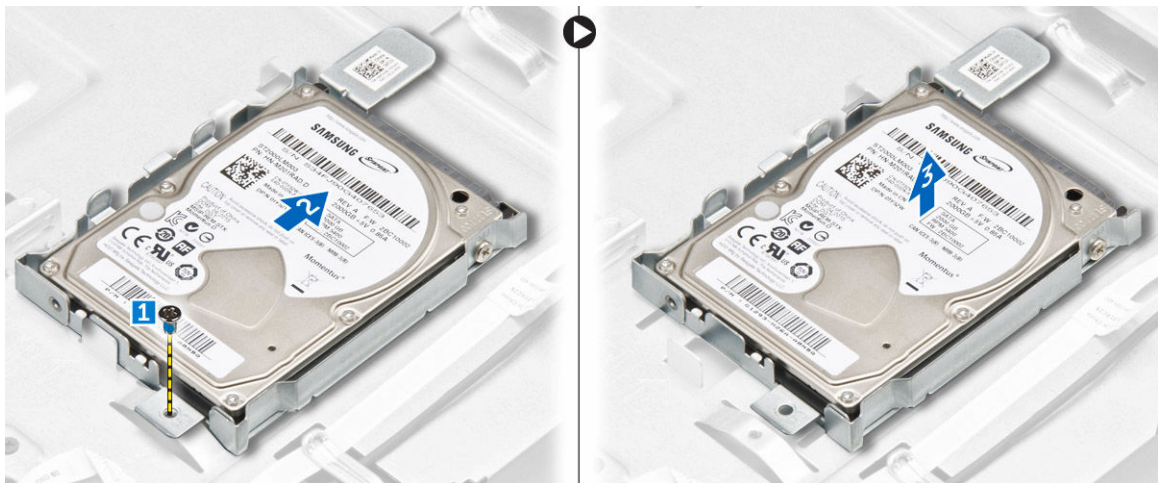
3. Follow the procedures in [After Working Inside Your Computer](#).

## 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].

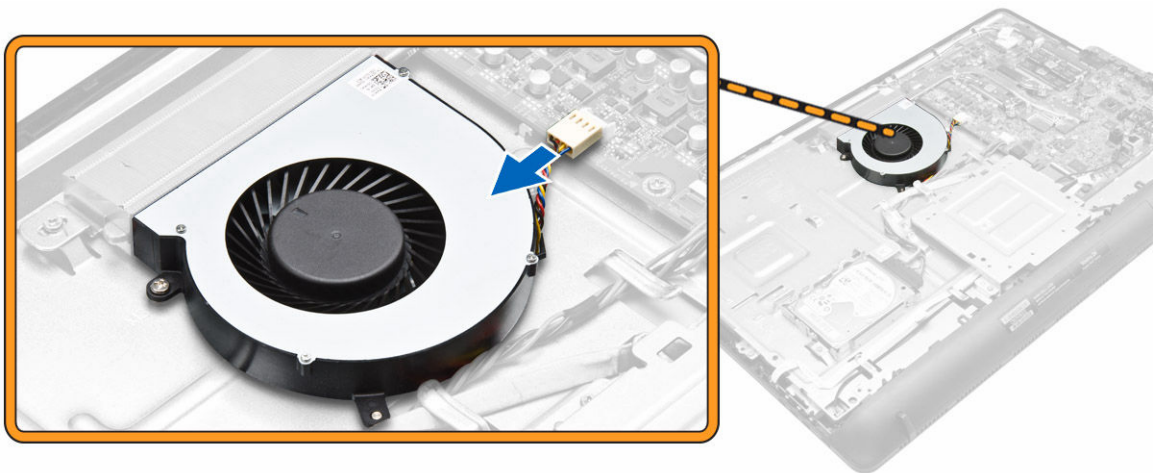


## Installing the Hard Drive

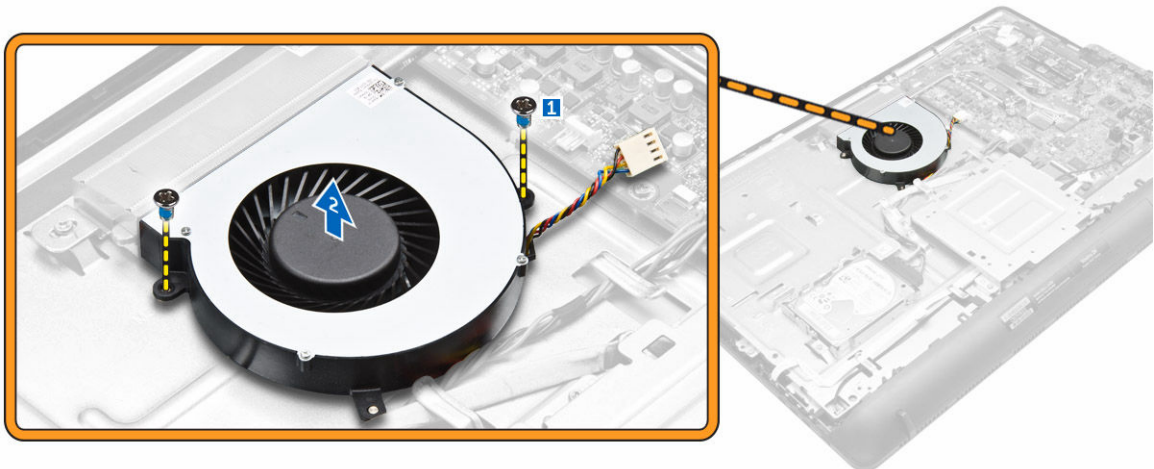
1. Place the hard drive in the bracket.
2. Tighten the screws to secure the hard drive to the bracket.
3. Slide the hard drive into the slot.
4. Tighten the screw that secures the hard drive to the computer.
5. Connect the hard drive cable.
6. Install:
  - a. [back cover](#)
  - b. [stand](#)
7. Follow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



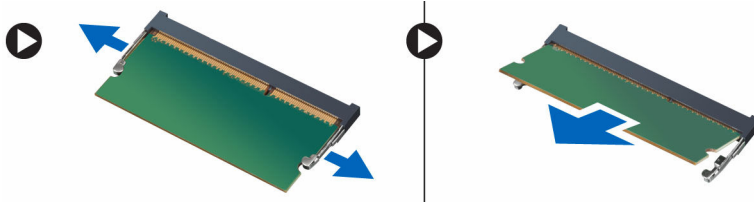
## Installing the System Fan

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

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.



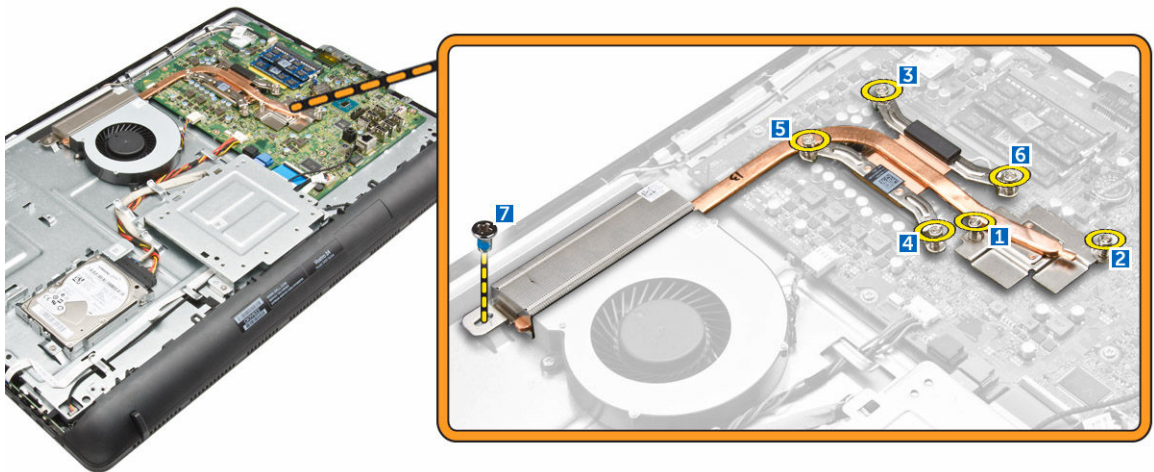
## Installing the Memory

 **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](#).

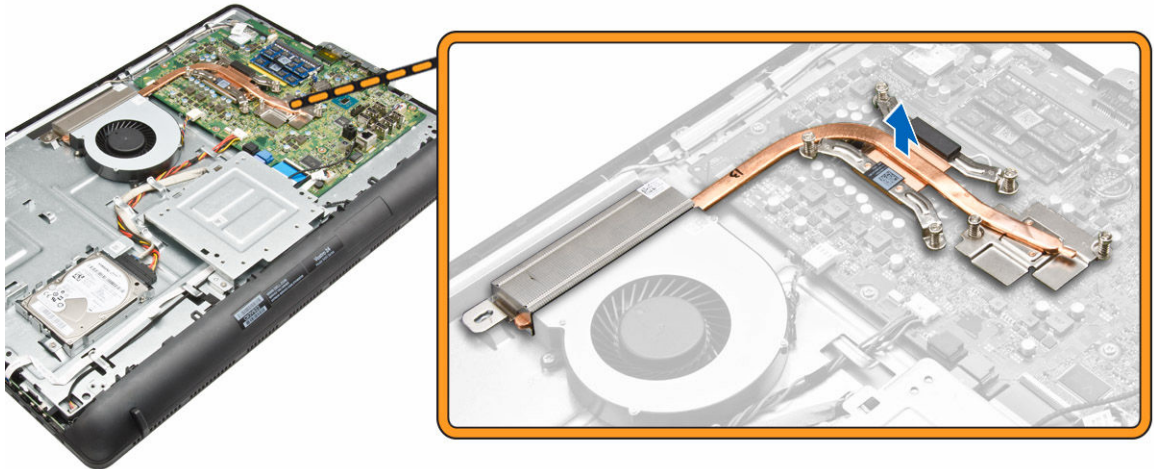
## Removing the Heatsink

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].



4. Lift the heatsink from the system board.



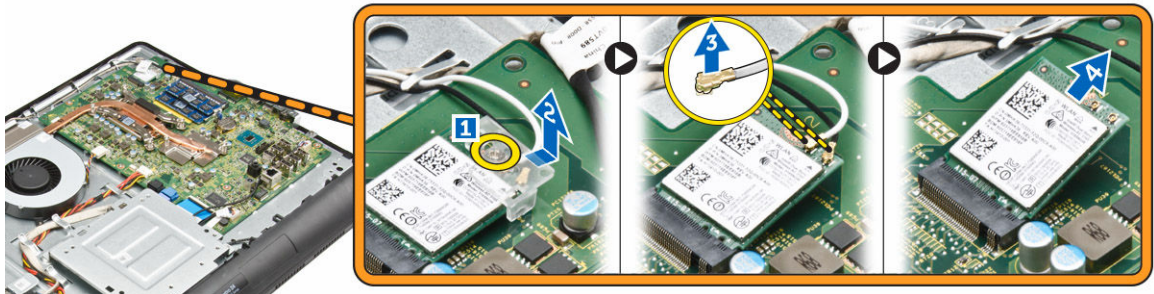


## Installing the Heatsink

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.
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. Perform the following steps as shown in the illustration:
  - 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 connectors that secure the WLAN card to the WLAN card [3].
  - d. Remove the WLAN card from its slot [4].

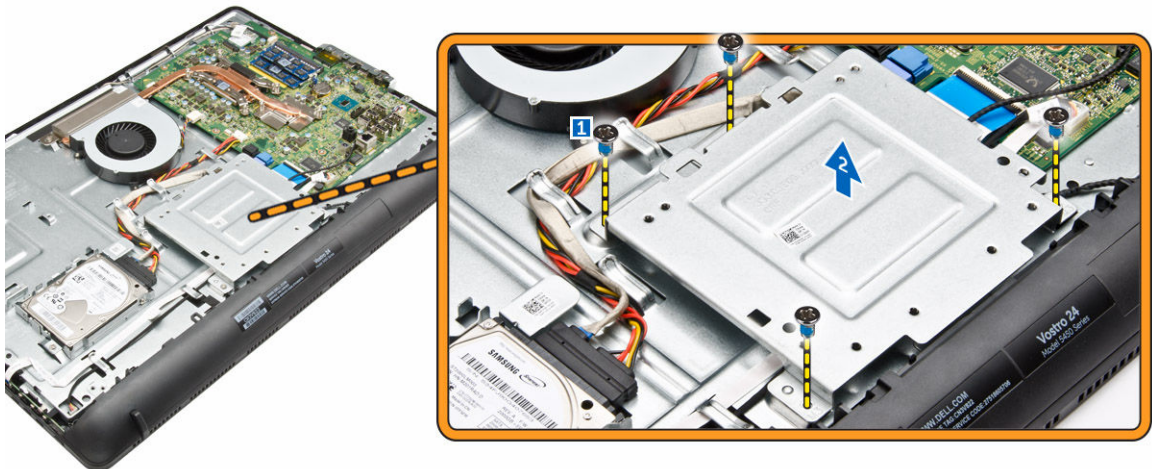


## Installing the WLAN Card

1. Insert the WLAN card into its slot.
2. Connect the two connectors (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].

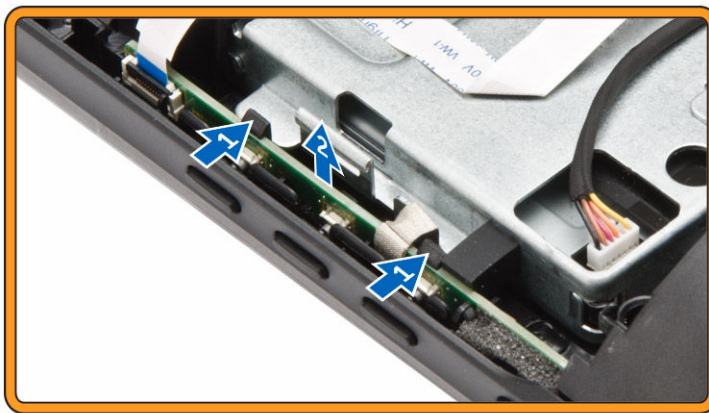


## Installing the Stand Cage

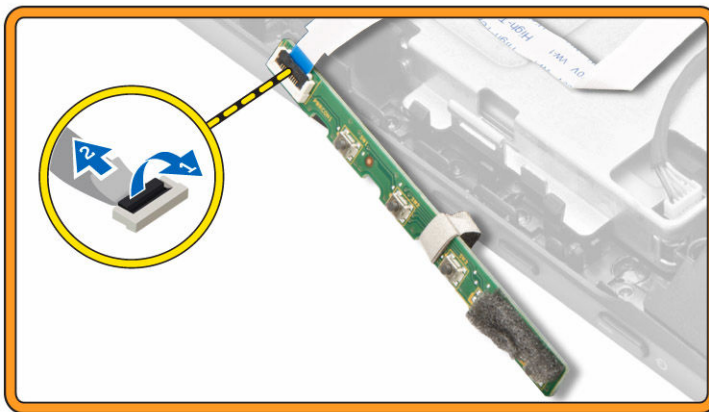
1. Align the stand cage with the screw holes and tighten the screws to secure it to the computer.
2. Install:
  - a. [back cover](#)
  - b. [stand](#)
3. Follow the procedures in [After Working Inside Your Computer](#).

## 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].



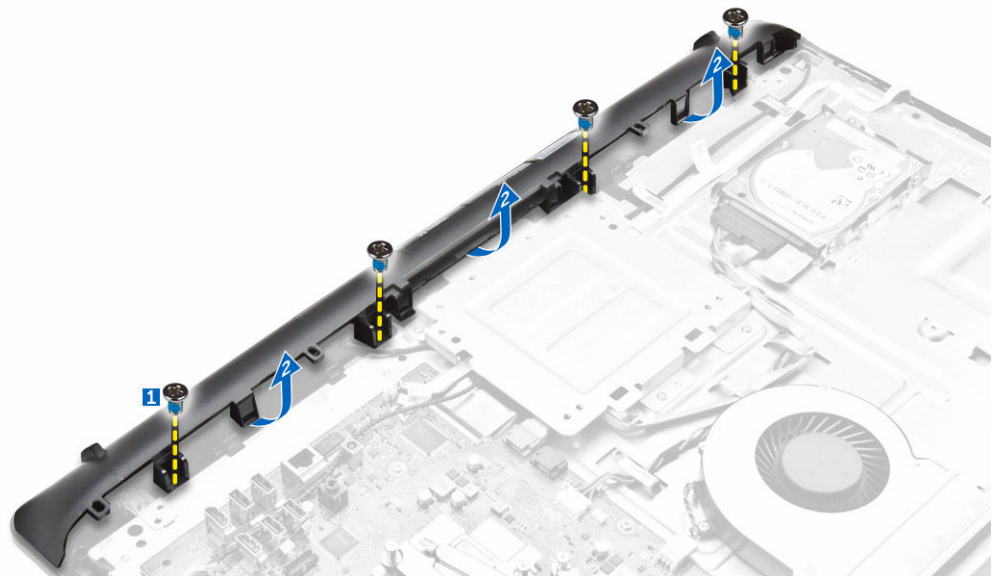
## Installing the Power-Switch Board

1. Connect the power-switch cable to the power-switch board.
2. Place the power-switch board into its slot on the computer.
3. Install:

- a. [back cover](#)
- b. [stand](#)
4. Follow the procedures in [After Working Inside Your Computer](#).

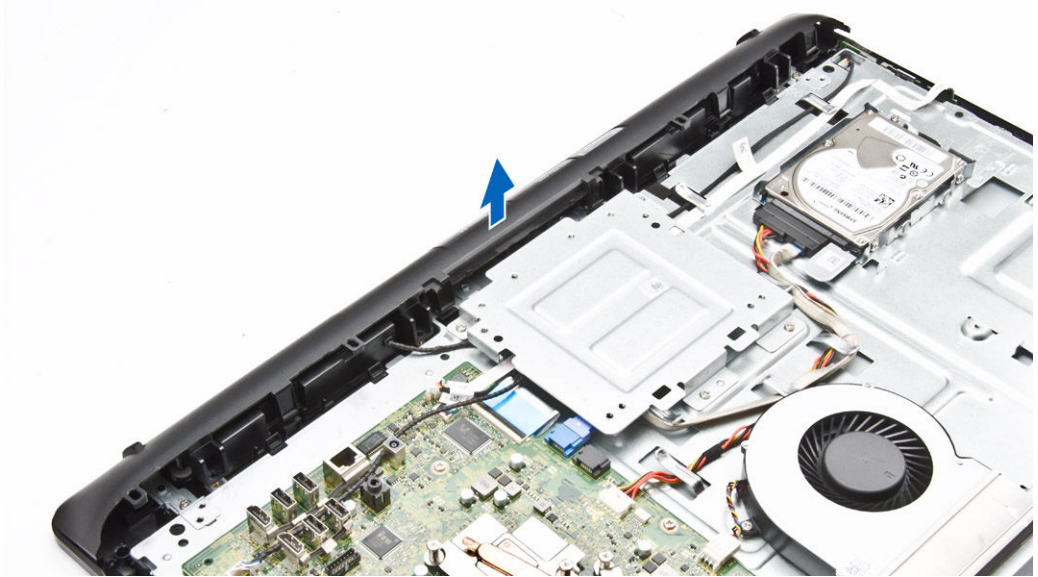
## Removing the Speakers

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 speaker cover to the computer [1].
  - b. Pry the edges of the speaker cover to release it from the tabs [2].

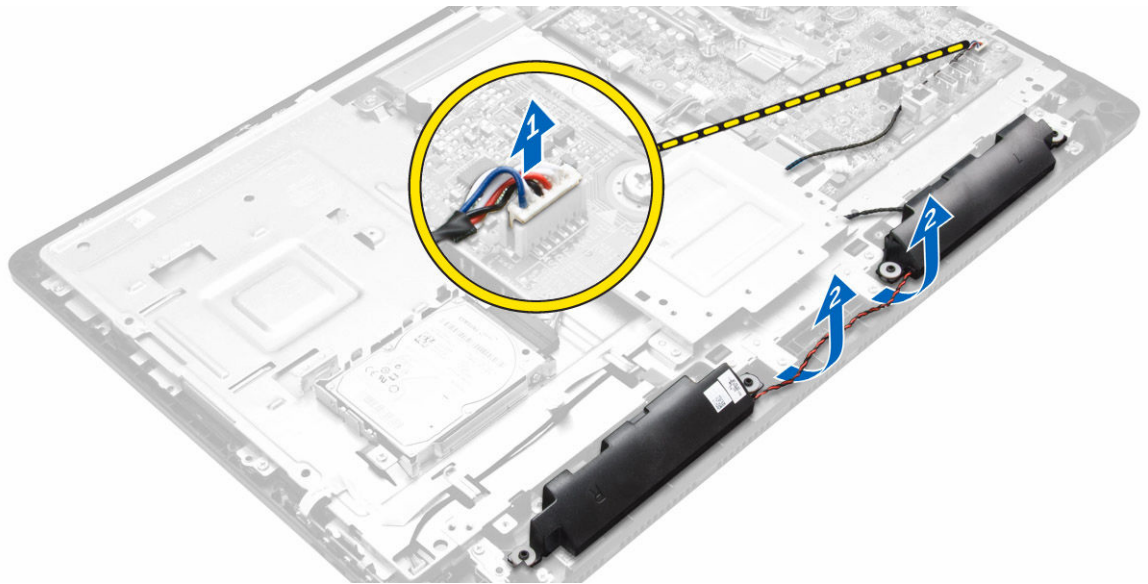


4. Lift the speaker cover.

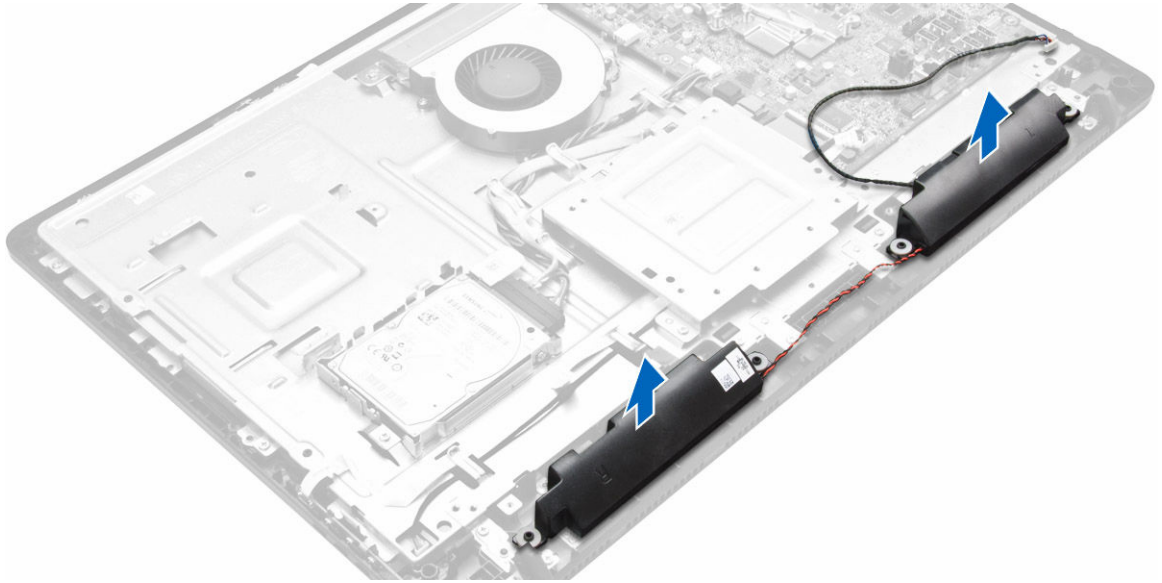




5. Perform the following:
  - a. Disconnect the speaker cable from the system board [1].
  - b. Unroute the speaker cable [2].



6. Lift the speaker from the chassis.

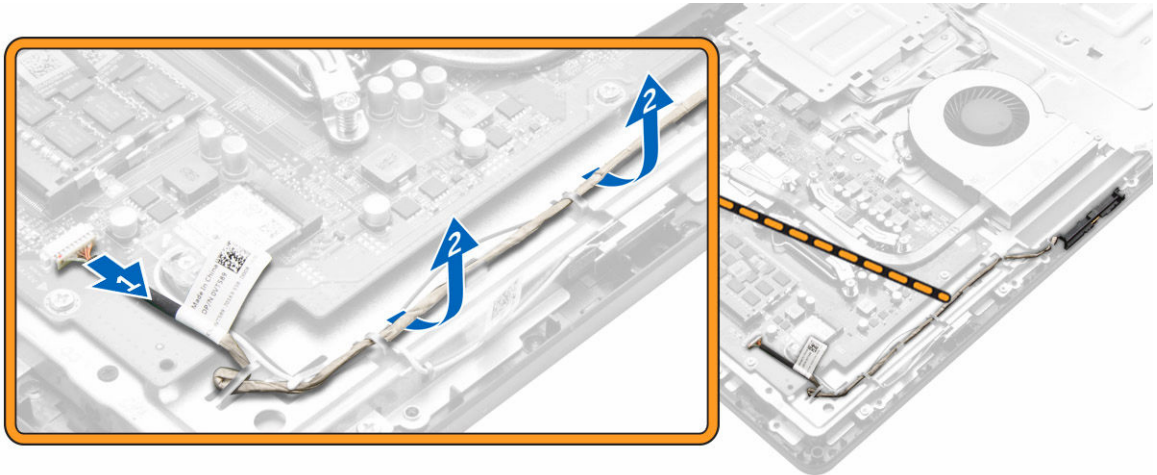


## Installing the Speakers

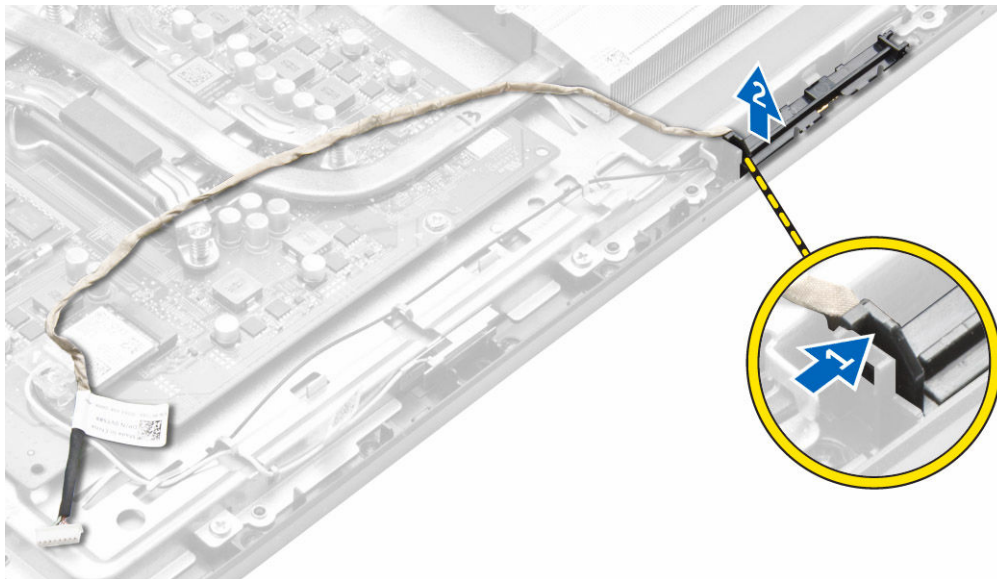
1. Align the speakers on the system board.
2. Route the speaker cables.
3. Connect the speaker cable to the system board.
4. Place the speaker cover on the computer.
5. Tighten the screws to secure the speaker cover to the computer.
6. Install:
  - a. [back cover](#)
  - b. [stand](#)
7. Follow the procedures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

## Removing the Camera

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



4. Perform the followin:
  - 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

1. Place the camera into its slot.
2. Press the locking tab until it clicks to the chassis.
3. Route the camera cable.
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](#).

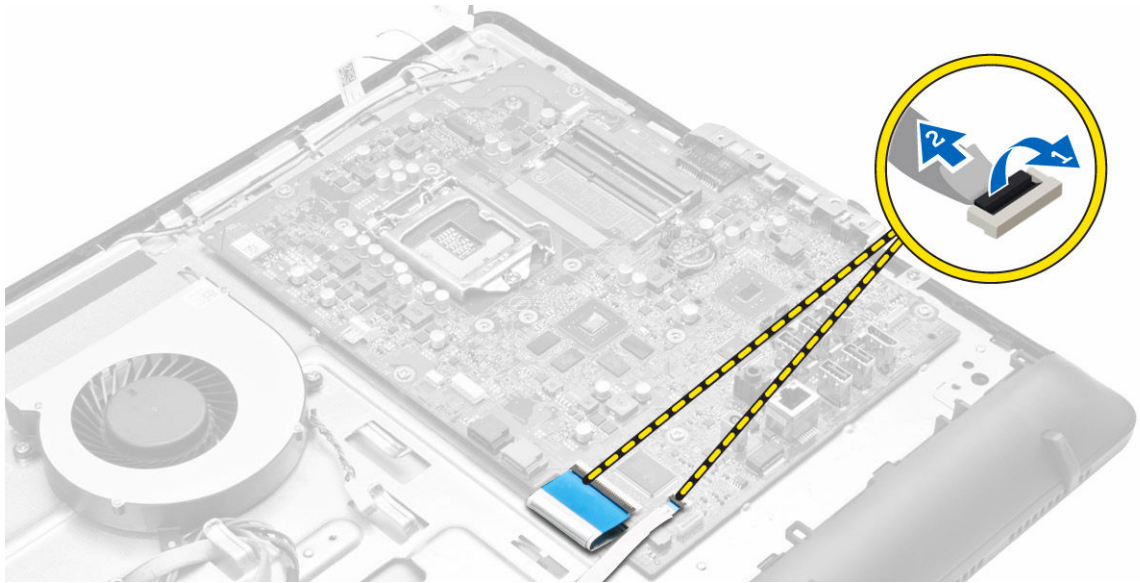
## Removing the System Board

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 from the system board:
  - a. display-assembly cable
  - b. system-fan cable
  - c. hard-drive cable
  - d. power-switch cable
  - e. speaker cable
  - f. camera cable

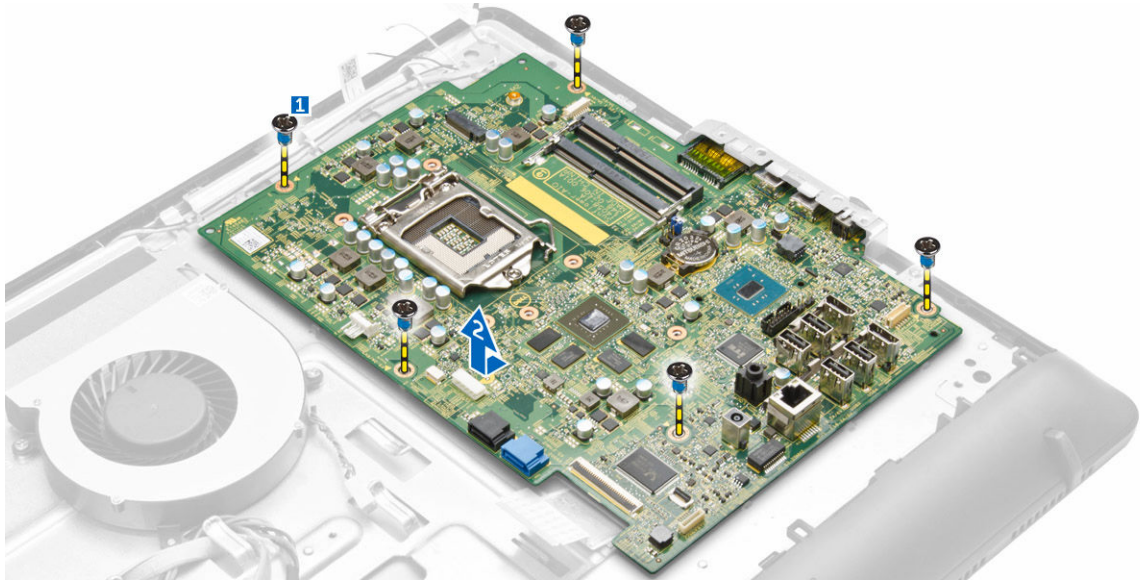


4. Lift the tab and disconnect the LVDS and power-switch cable.





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].



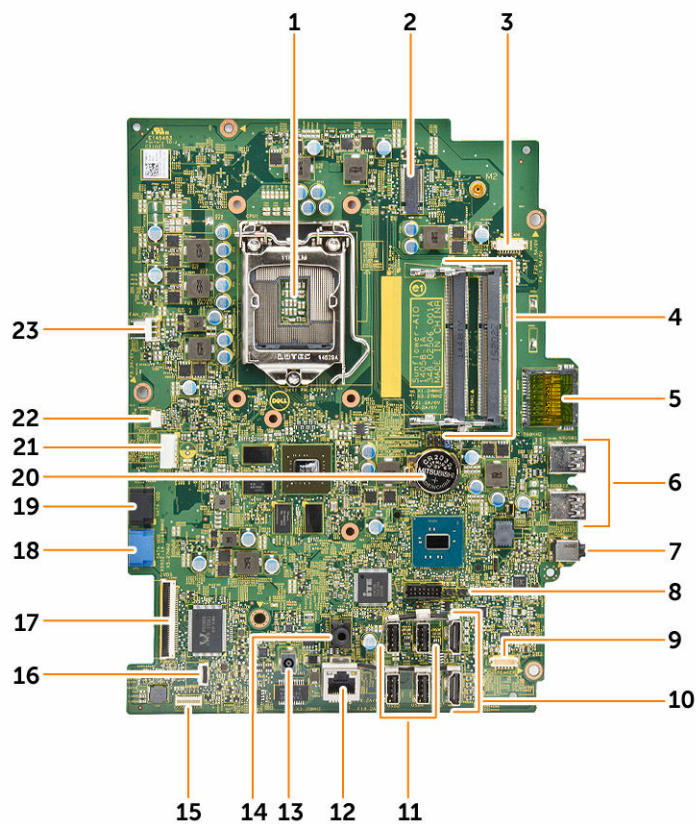
## Installing the System Board

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. power-switch 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.

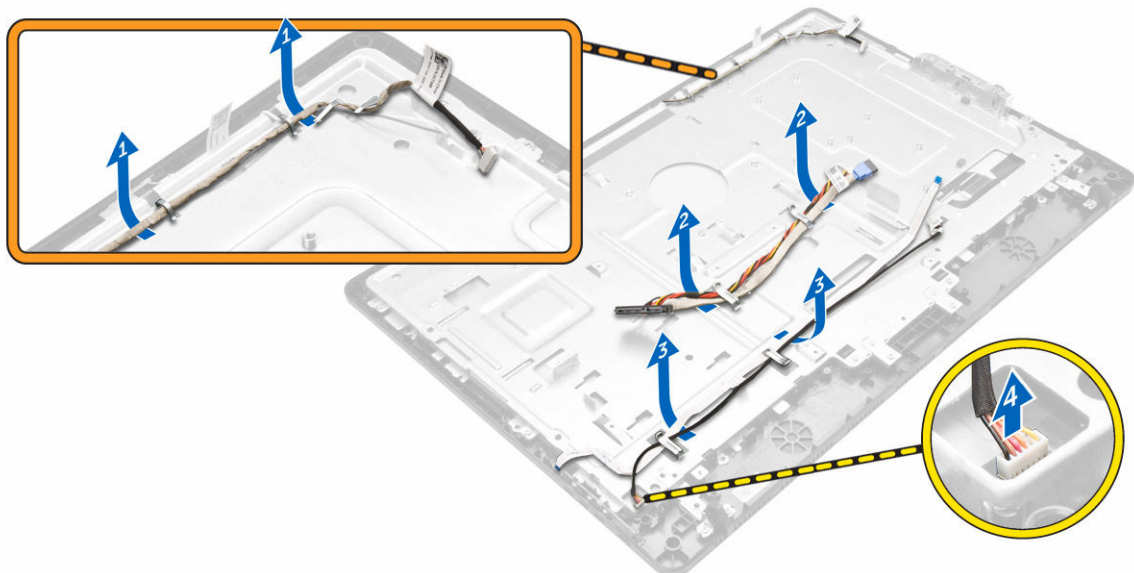


- |                        |                       |
|------------------------|-----------------------|
| 1. Processor connector | 2. WLAN connector     |
| 3. Camera connector    | 4. Memory module      |
| 5. SD-Card connector   | 6. USB 3.0 connector  |
| 7. Audio-in connector  | 8. Jumper connector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

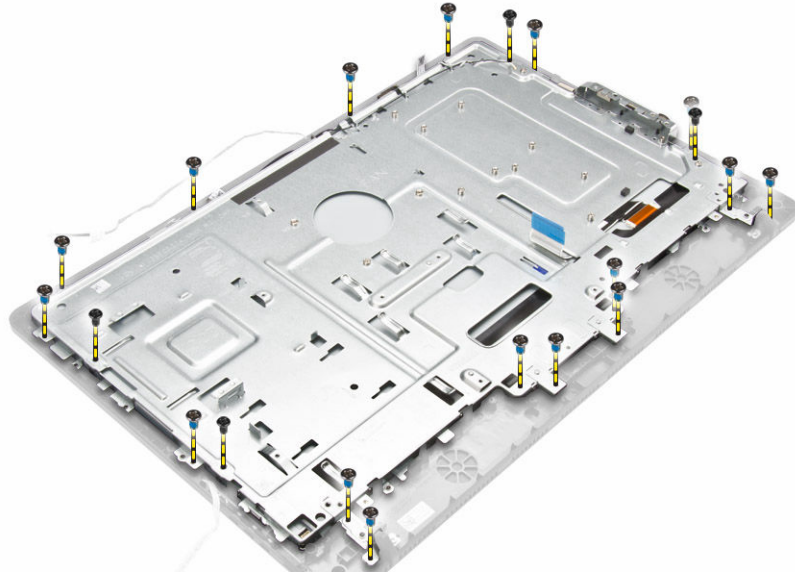
- |                                |                                |
|--------------------------------|--------------------------------|
| 13. DC-in connector            | 14. Audio-out connector        |
| 15. Converter-board connector  | 16. Power connector            |
| 17. Display-assembly connector | 18. Hard-drive connector       |
| 19. Optical-drive connector    | 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. Perform the following:
  - a. Unroute the camera, hard drive, converter board cables [1.2.3].
  - b. Disconnect the power cable [4].



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



5. Perform the following:
  - 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. Remove 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](#).

# 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

The following table displays the system setup navigation keys.

 **NOTE:** For most of the system setup options, changes that you make are recorded but do not take effect until you re-start the system.

**Table 1. Navigation Keys**

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
<Enter>	Allows you to select 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.
	 <b>NOTE:</b> For the standard graphics browser only.
<Esc>	Moves to the previous page till 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 2. Main**

<b>System Time</b>	Allows you to resets the time on the computer's internal clock.
<b>System Date</b>	Allows you to resets the date on the computer's internal calendar.
<b>BIOS Version</b>	Displays the BIOS revision.
<b>Product Name</b>	Displays the computer model number.
<b>Service Tag</b>	Displays the Service Tag of your computer.
<b>Asset Tag</b>	Displays the asset tag of your computer.
<b>CPU Type</b>	Displays the processor model number.
<b>CPU Speed</b>	Displays the processor speed.
<b>CPU ID</b>	Displays the processor ID.
<b>CPU Cache</b>	
	<b>L1 Cache</b>
	Displays the processor L1 cache size.

	<b>L2 Cache</b>	Displays the processor L2 cache size.
	<b>L3 Cache</b>	Displays the processor L3 cache size.
<b>Fixed HDD</b>		Displays the hard drive ID and capacity.
<b>SATA ODD</b>		Displays the type of optical drive.
<b>AC Adapter Type</b>		Displays the power adapter type.
<b>System Memory</b>		Displays the memory capacity and type.
<b>Memory Speed</b>		Displays the memory speed.

**Table 3. Advanced**

<b>Intel SpeedStep</b>	Allows you to enable or disable the Intel SpeedStep.	Default: Enabled
<b>Virtualization</b>	Allows you to enable or disable the Virtualization.	Default: Enabled
<b>VT for Direct I/O</b>	Allows you to enable or disable the VT for Direct I/O.	Default: Enabled
<b>Trusted Execution</b>	Allows you to enable or disable the Trusted Execution.	Default: Disabled
<b>Integrated NIC</b>	Allows you to enable or disable the Integrated NIC.	Default: Enabled
<b>SATA Operation</b>	Allows you to choose the SATA operation mode.	Default: AHCI
<b>Adapter Warnings</b>	Allows you to enable or disable the Adapter Warnings.	Default: Enabled
<b>Intel Ready Mode Technology</b>	Allows you to enable or disable	Default: Disabled

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

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

#### SMART Settings

<b>SMART Self Test</b>	Enable or disable the SMART Self Test	Default: Disabled
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#### Table 4. Security

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

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

**Table 5. Boot**

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

**Table 6. Exit**

<b>Save Changes and Reset</b>	Allows you to Save Changes and Reset default setting before exiting from Setup Utility.
<b>Discard Changes and Reset</b>	Allows you to Discard Changes and Reset default setting before exiting from Setup Utility.
<b>Restore Defaults</b>	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. Re-start 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.

## 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 a 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 the 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 7. System Information**

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

**Table 8. 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 9. Video**

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

**Table 10. Audio**

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

**Table 11. Network**

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

**Table 12. System Information**

Feature	Specification
Chipset	H110
BIOS chip (NVRAM)	8M SPI Flash ROM

**Table 13. 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 14. Power Adapter**

Feature	Specification
Type	<ul style="list-style-type: none"> <li>• 90 W (UMA)</li> <li>• 130 W (Discrete)</li> </ul>
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 15. 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 16. Stand**

Feature	Specification
Tilt	-5 degrees to 30 degrees

**Table 17. Physical Dimensions**

<b>Feature</b>	<b>Without Stand</b>
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 18. Controls and Lights**

<b>Feature</b>	<b>Specification</b>
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 19. Environmental**

<b>Feature</b>	<b>Specification</b>
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 **support.dell.com**.
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.