

Dell Vostro 23 – 3340 Owner's Manual

Regulatory Model: W10C
Regulatory Type: W10C001



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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2014 - 08

Rev. A00

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Before Working Inside Your Computer


 **CAUTION:** To avoid damaging the components and cards, handle them by their edges and avoid touching pins and contacts.

 **NOTE:** The images in this document may differ from your computer depending on the configuration you ordered.

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 8:
 - 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

 **CAUTION:** Leaving stray or loose screws inside your computer may severely damage your computer.

1. Replace all screws and make sure that no stray screws remain inside your computer.
2. Connect any external devices, peripherals, and cables you removed before working on your computer.

3. Replace any media cards, discs, and any other part(s) that you removed before working on your computer.
4. Connect your computer and all attached devices to their electrical outlets.
5. Turn on your computer.

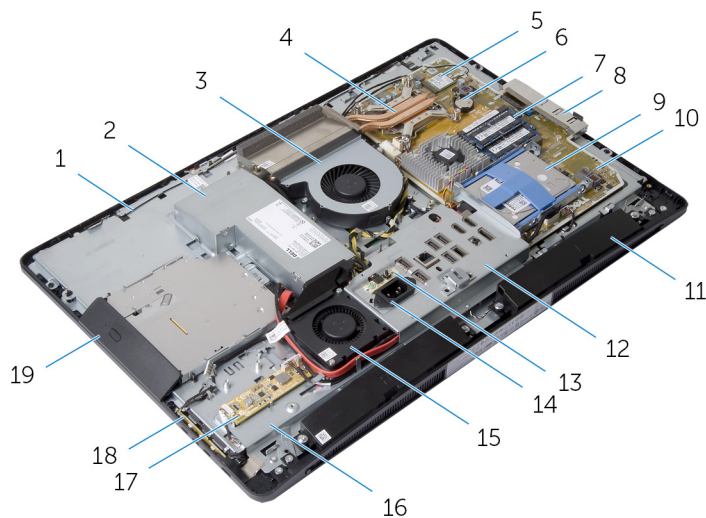
Removing and Installing Components

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

Technical Overview

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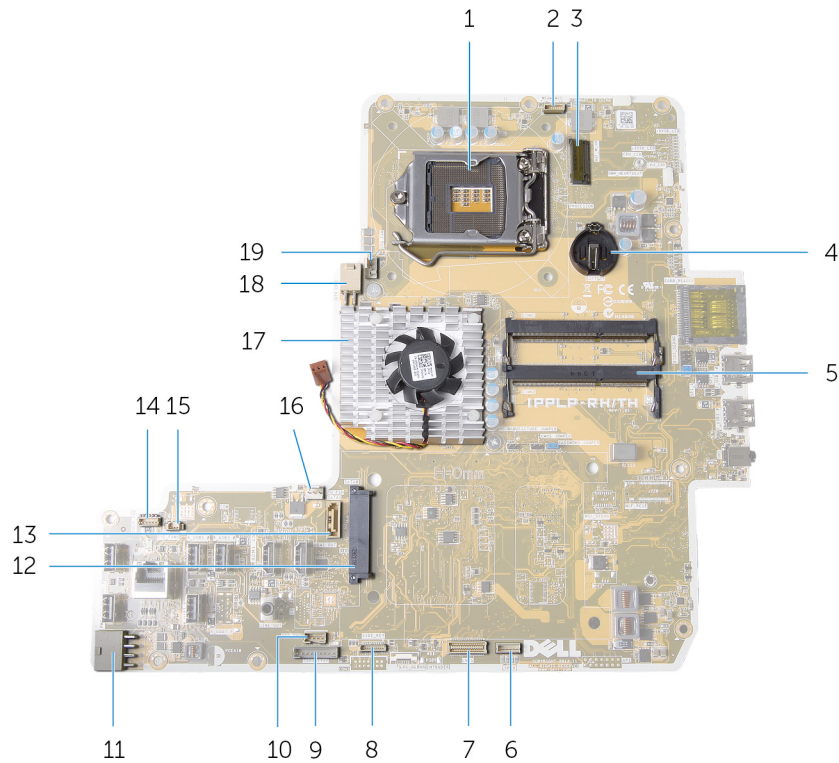
Inside View of Your Computer



- | | |
|-----------------------------------|------------------------|
| 1. antennas (2) | 2. power-supply unit |
| 3. processor fan | 4. processor heat-sink |
| 5. wireless card | 6. coin-cell battery |
| 7. memory modules (2) | 8. side I/O bracket |
| 9. hard-drive assembly | 10. system board |
| 11. speakers (2) | 12. I/O bracket |
| 13. power-supply diagnostic board | 14. power port |

- 15. power-supply fan
- 16. display-panel base
- 17. converter board
- 18. control-buttons board
- 19. optical-drive assembly

System Board Components



- 1. processor socket
- 2. camera-cable connector
- 3. Mini Card slot
- 4. coin-cell battery socket
- 5. memory-module connectors (2)
- 6. speaker-cable connector
- 7. display-cable connector
- 8. control-buttons board cable connector
- 9. converter-board cable connector
- 10. optical-drive power cable connector
- 11. main power-cable connector
- 12. hard-drive connector
- 13. optical-drive data cable connector
- 14. touch-control board cable connector
- 15. power-supply fan cable connector
- 16. video-card fan cable connector
- 17. video-card heat sink
- 18. processor power-cable connector
- 19. processor-fan cable connector

Removing the Stand Assembly

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Procedure

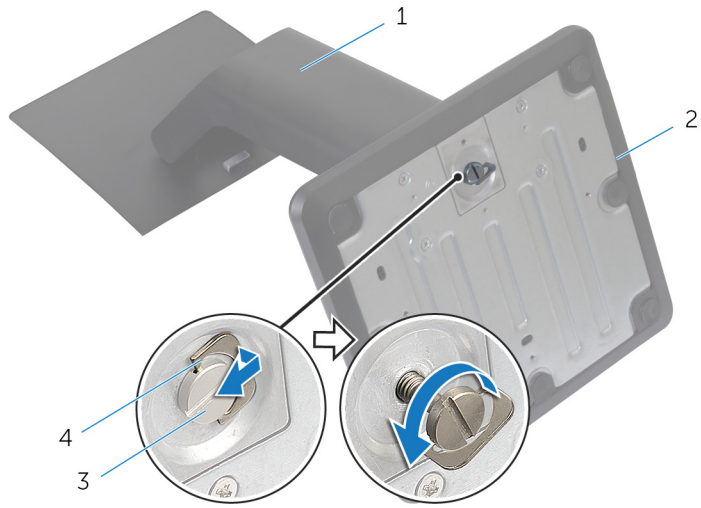
1. Press the stand-release button to release the stand.
2. Pivot the stand upward and remove the stand assembly away from the computer.



1. stand-release button

If you need to remove either the stand base or stand riser from the stand assembly, follow the steps below:

3. Release the screw handle on the stand base.
4. Using the screw handle, loosen the captive thumbscrew that secures the stand base to the stand riser.



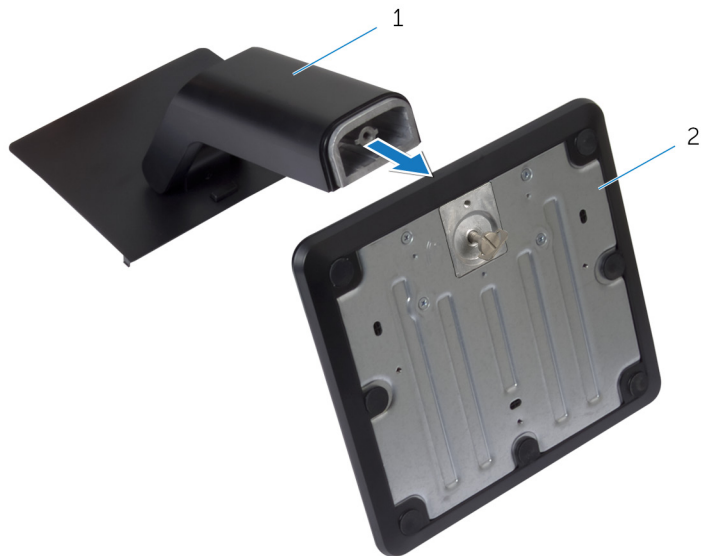
1. stand riser

2. stand base

3. captive thumbscrew

4. screw handle


5. Slide the stand base off the stand riser.



1. stand riser

2. stand base


Replacing the Stand Assembly

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Procedure

1. Slide the tabs on the stand assembly into the slots on the back cover.
2. Lower the stand assembly to lock it into place.
If you have removed the stand base from the stand riser, follow the steps below:
3. Align the captive thumbscrew on the stand base with the screw hole on the stand riser and tighten it.
4. Fold the screw handle on the stand base.

Removing the Back Cover

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Prerequisites

Remove the [stand assembly](#).

Procedure

 **CAUTION:** Do not remove the computer cover unless you need to install internal accessories for your computer.

1. Slide the release latches to the unlocked position indicated by a circle.



1. right release latch

2. left release latch

2. Using a plastic scribe, pry the back cover from the display bezel starting from the optical drive area.
3. Lift the back cover off the computer.



1. plastic scribe

2. back cover

Replacing the Back Cover

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Procedure

1. Align the tabs on the back cover with the slots on the display bezel and snap the back cover into place.
2. Slide the release latches to the locked position.

Post-requisites

Replace the [stand assembly](#).

Removing the Speaker Cover

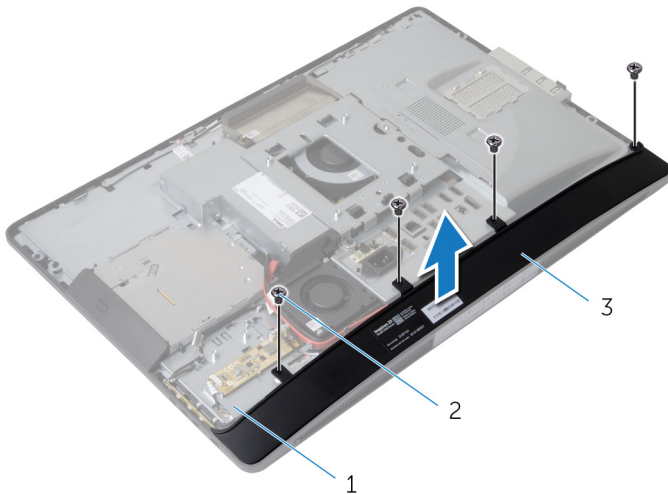
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).


Procedure

1. Remove the screws that secure the speaker cover to the display-panel base.
2. Lift the speaker cover off the computer.



1. display-panel base
2. screws (4)
3. speaker cover

Replacing the Speaker Cover

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Procedure

1. Align the screw holes on the speaker cover with the screw holes on the display-panel base.
2. Replace the screws that secure the speaker cover to the display-panel base.

Post-requisites

1. Replace the [back cover](#).
2. Replace the [stand assembly](#).

Removing the Speakers

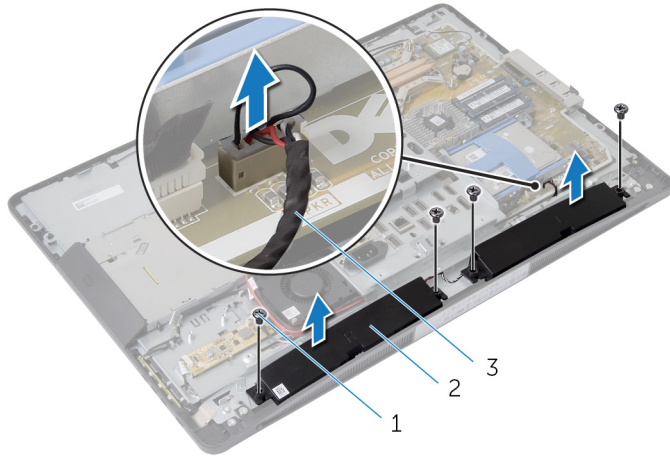
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [speaker cover](#).

Procedure

1. Disconnect the speaker cable from the system board.
2. Note the speaker-cable routing and remove the cable from the routing guide.
3. Remove the screws that secure the speakers to the display-panel base.
4. Lift the speakers off the display-panel base.



1. screws (4)
2. speakers (2)
3. speaker cable

Replacing the Speakers

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Procedure

1. Align the screw holes on the speakers with the screw holes on the display-panel base.
2. Replace the screws that secure the speakers to the display-panel base.
3. Route the speaker cables through the routing guide on the display-panel base.
4. Connect the speaker cable to the system board.

Post-requisites

1. Replace the [speaker cover](#).
2. Replace the [back cover](#).
3. Replace the [stand assembly](#).

Removing the Memory Module(s)

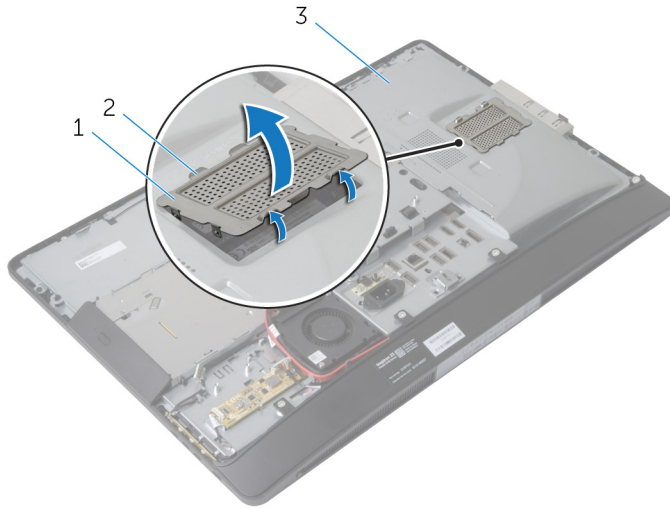
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).

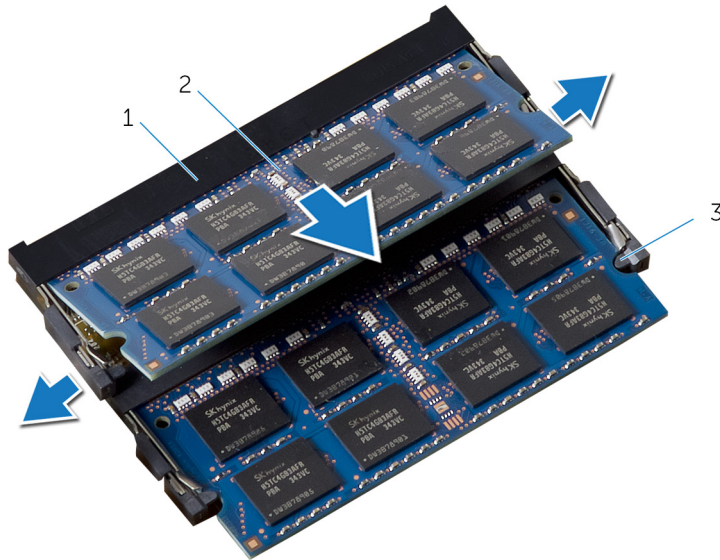
Procedure

1. Using the tabs, pry the memory-module shield off the system-board shield.



1. memory-module shield
2. tabs (6)
3. system-board shield

2. Use your fingertips to carefully spread apart the securing clips on each end of the memory-module connector until the memory module pops up.
3. Remove the memory module from the memory-module connector.



1. memory-module connector
2. memory modules (2)
3. securing clips (4)

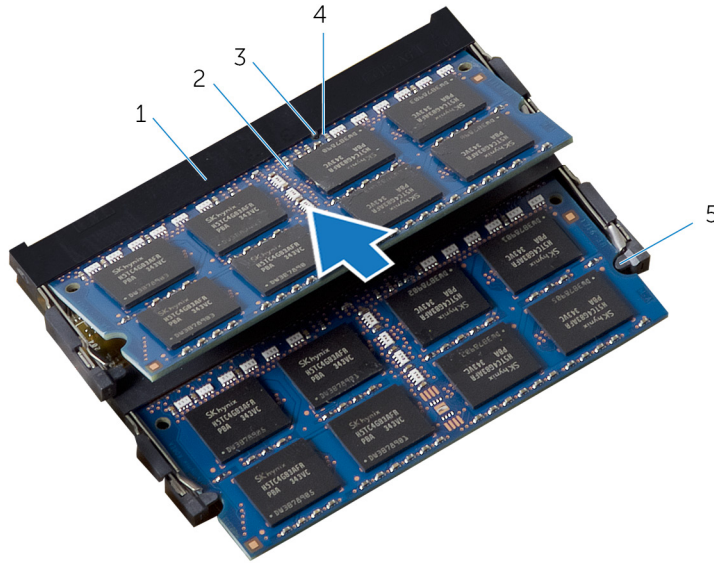
Replacing the Memory Module(s)

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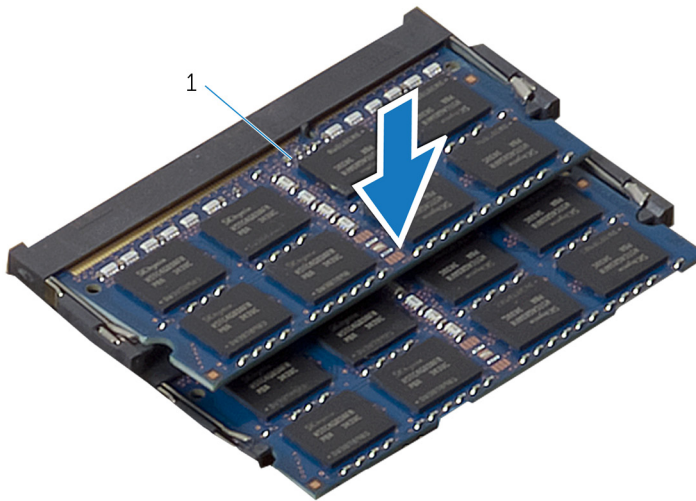
Procedure

1. Align the notch on the memory module with the tab on the memory-module connector.
2. Insert the memory module into the memory-module connector, and press the memory module down until it clicks into place.

🔧 NOTE: If you do not hear the click, remove the memory module and reinstall it.



- | | |
|----------------------------|-----------------------|
| 1. memory-module connector | 2. memory modules (2) |
| 3. tab | 4. notch |
| 5. securing clips (4) | |



1. memory modules (2)
3. Slide the tabs on the memory-module shield under the tabs on the system-board shield until the memory-module shield is fully secured.

Post-requisites

1. Replace the [back cover](#).
2. Replace the [stand assembly](#).

Removing the System-Board Shield

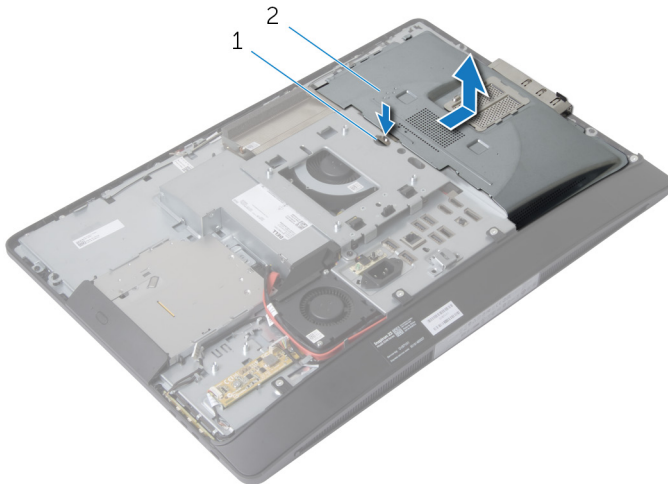
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).

Procedure

1. Press the securing tab down and slide the system-board shield to release it from the slots on the display-panel base.
2. Lift the system-board shield off the computer.



1. securing tab

2. system-board shield

Replacing the System-Board Shield

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Procedure

1. Align and place the system-board shield on the display-panel base.
2. Slide the tabs on the system-board shield into the slots on the display-panel base until it snaps into place.

Post-requisites

1. Replace the [back cover](#).
2. Replace the [stand assembly](#).

Removing the Hard Drive

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⚠ CAUTION: Hard drives are fragile. Exercise care when handling the hard drive.

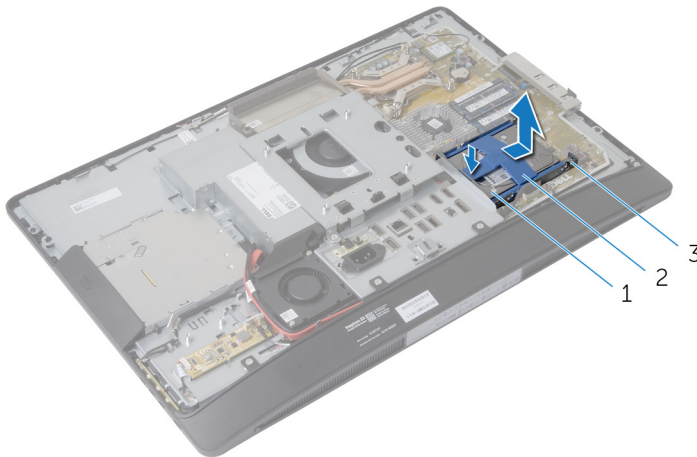
⚠ CAUTION: To avoid data loss, do not remove the hard drive while the computer is in Sleep or On state.

Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [system-board shield](#).

Procedure

1. Press down on the hard-drive bracket and slide the hard-drive assembly to release it from the hard-drive cage.
2. Lift the hard-drive assembly off the hard-drive cage.

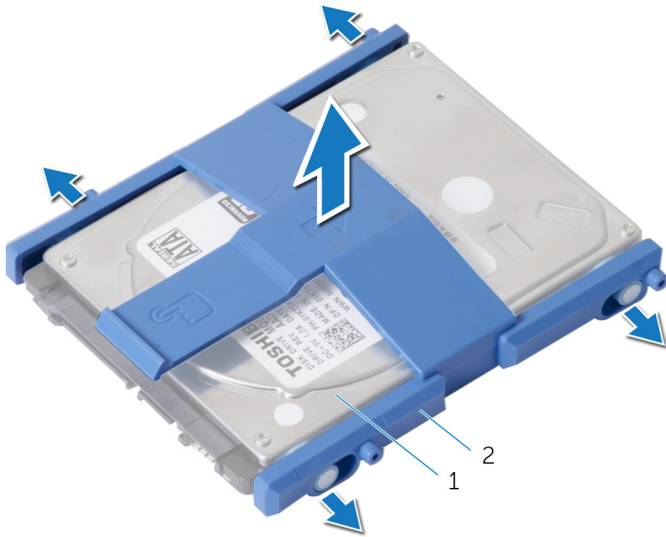


1. hard-drive assembly

2. hard-drive bracket

3. hard-drive cage

3. Gently pry the hard-drive bracket off the hard drive.

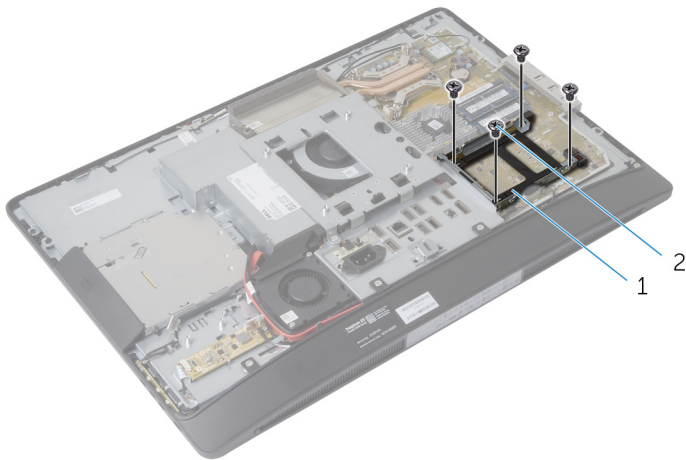


1. hard-drive

2. hard-drive bracket

4. Remove the screws that secure the hard-drive cage to the system board.


5. Lift the hard-drive cage off the system board.



1. hard-drive cage

2. screws (4)

Replacing the Hard Drive

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 **CAUTION:** Hard drives are fragile. Exercise care when handling the hard drive.


Procedure

1. Align the screw holes on the hard-drive cage with the screw holes on the system board.
2. Replace the screws that secure the hard-drive cage to the system board.
3. Replace the hard-drive bracket to the hard drive.
4. Align the tabs on the hard-drive assembly with the slots on the hard-drive cage.
5. Slide the hard-drive assembly into the hard-drive cage until it snaps into position.

Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [back cover](#).
3. Replace the [stand assembly](#).

Removing the VESA-Mount Bracket

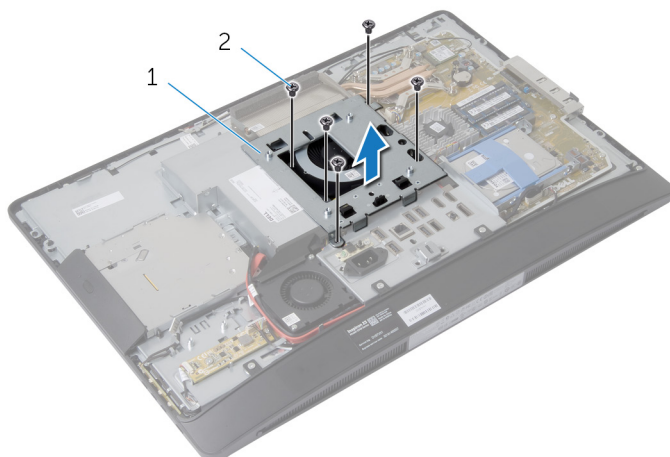
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [system-board shield](#).

Procedure

1. Remove the screws that secure the VESA-mount bracket to the display-panel base.
2. Lift the VESA-mount bracket off the display-panel base.



1. VESA-mount bracket

2. screws (5)

Replacing the VESA-Mount Bracket

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Procedure

1. Align the screw holes on the VESA-mount bracket with the screw holes on the display-panel base.
2. Replace the screws that secure the VESA-mount bracket to the display-panel base.

Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [back cover](#).
3. Replace the [stand assembly](#).

Removing the Control-Buttons Board

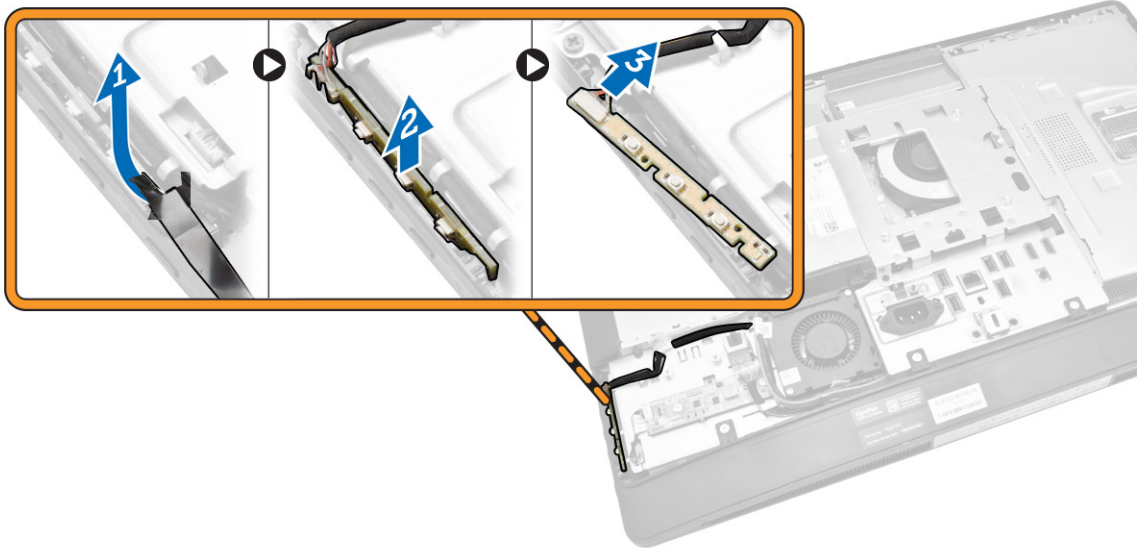
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).

Procedure

1. Slide and lift the bracket that secures the control-buttons board.
2. Carefully pry and lift the control-buttons board off the display bezel.
3. Disconnect the control-buttons board cable from the connector on the control-buttons board.



Replacing the Control-Buttons Board

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Procedure

1. Connect the control-buttons board cable to the connector on the control-buttons board.
2. Replace the control-buttons board into the slot on the display bezel.
3. Replace the bracket to secure the control-button board.

Post-requisites

1. Replace the [back cover](#).
2. Replace the [stand assembly](#).

Removing the Converter Board

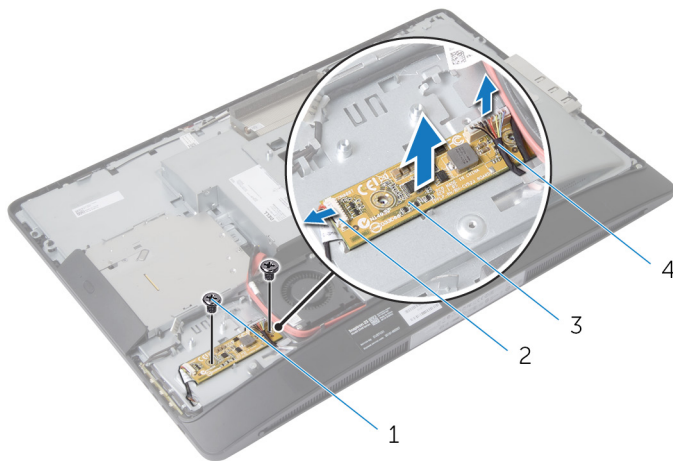
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).

Procedure

1. Disconnect the converter-board cable and display-backlight cable from the connectors on the converter board.
2. Remove the screws that secure the converter board to the display-panel base.
3. Lift the converter board off the display-panel base.



- | | |
|--------------------|----------------------------|
| 1. screws (2) | 2. display-backlight cable |
| 3. converter board | 4. converter-board cable |

Replacing the Converter Board

⚠ WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before Working Inside Your Computer](#). After working inside your computer, follow the instructions in [After Working Inside Your Computer](#). For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.


Procedure

1. Align the screw holes on the converter board with the screw holes on the display-panel base.
2. Replace the screws that secure the converter board to the display-panel base.
3. Connect the converter-board cable and display-backlight cable to the connectors on the convertor board.

Post-requisites

1. Replace the [back cover](#).
2. Replace the [stand assembly](#).

Removing the Power-Supply Diagnostic Board

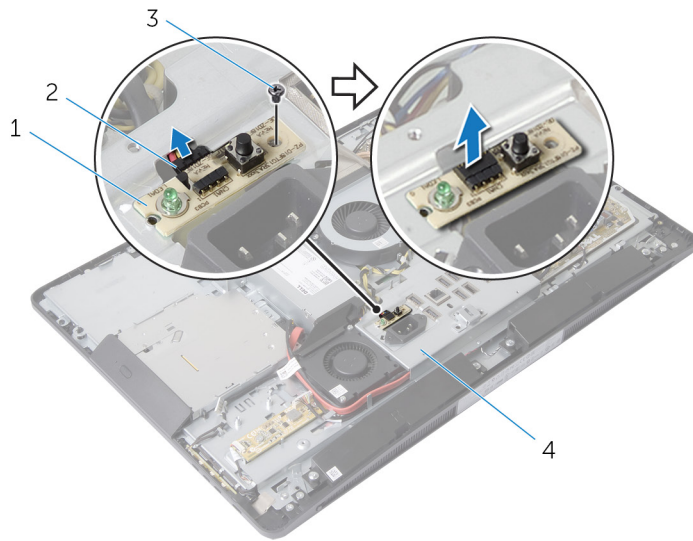
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [system-board shield](#).
4. Remove the [VESA-mount bracket](#).

Procedure

1. Disconnect the power-supply diagnostic board cable from the power-supply diagnostic board.
2. Remove the screw that secures the power-supply diagnostic board to the I/O bracket.
3. Lift the power-supply diagnostic board off the I/O bracket.



- | | |
|----------------------------------|--|
| 1. power-supply diagnostic board | 2. power-supply diagnostic board cable |
| 3. screw | 4. I/O bracket |

Replacing the Power-Supply Diagnostic Board

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Procedure

1. Connect the power-supply diagnostic board cable to the connector on the power-supply diagnostic board.
2. Align the screw hole on the power-supply diagnostic board with the screw hole on the I/O bracket.
3. Replace the screw that secures the power-supply diagnostic board to the I/O bracket.

Post-requisites

1. Replace the [VESA-mount bracket](#).
2. Replace the [system-board shield](#).
3. Replace the [back cover](#).
4. Replace the [stand assembly](#).

Removing the Microphone

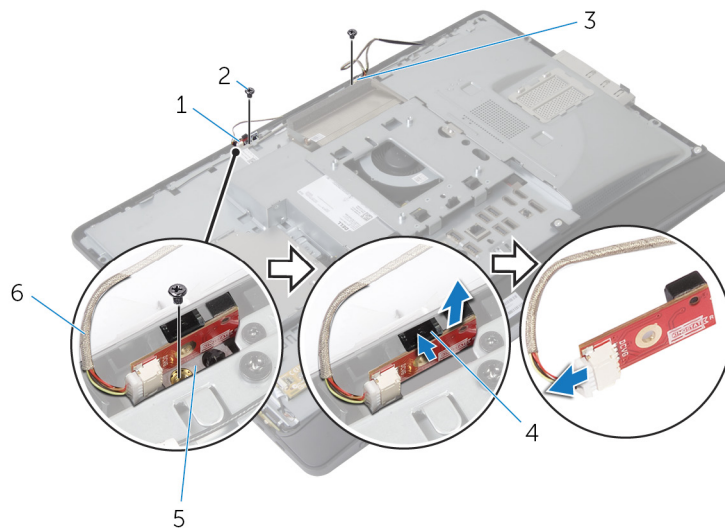
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).


Procedure

1. Remove the screws that secure the microphone bracket to the microphones.
2. Lift the microphone brackets off the display bezel.
3. Press the securing tabs to release the microphones and lift the microphones out of their slots on the display bezel.
4. Disconnect the microphone cables from the microphones.



- | | |
|----------------------------|--------------------------|
| 1. right microphone | 2. screws (2) |
| 3. left microphone | 4. securing tabs (2) |
| 5. microphone brackets (2) | 6. microphone cables (2) |

Replacing the Microphone

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Procedure

1. Connect the microphone cables to the microphones.
2. Slide the microphones into the slots on the display bezel and make sure the securing tabs are in position.
3. Align the screw holes on the microphone brackets with the screw holes on the display bezel.
4. Replace the screws that secure the microphone brackets to the microphones.

Post-requisites

1. Replace the [back cover](#).
2. Replace the [stand assembly](#).

Removing the Wireless Card

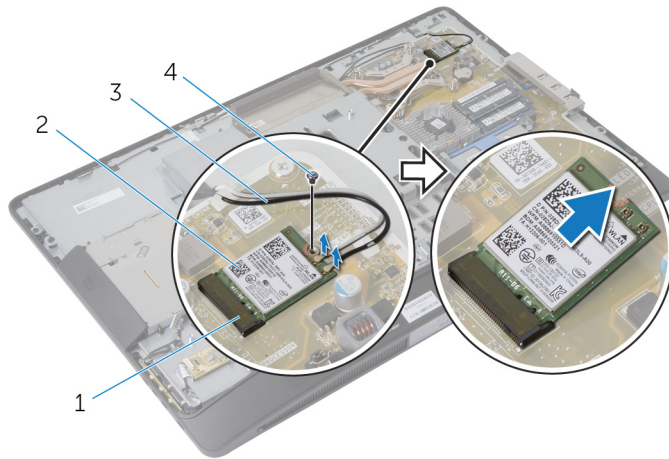
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [system-board shield](#).

Procedure

1. Disconnect the antenna cables from the connectors on the wireless card.
2. Remove the screw that secures the wireless card to the system board.
3. Slide and remove the wireless card out of the Mini Card slot on the system board.



- | | |
|-------------------|------------------|
| 1. Mini Card slot | 2. wireless card |
| 3. antenna cables | 4. screw |

Replacing the Wireless Card

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Procedure

1. Align the notch on the wireless card with the tab on the Mini Card slot.
2. Slide the wireless card at an angle into the Mini Card slot.
3. Press the other end of the wireless card down and replace the screw that secures the wireless card to the system board.
4. Connect the antenna cables to the wireless card.

The following table provides the antenna-cable color scheme for the wireless card supported by your computer:

| Connectors on the wireless card | Antenna-cable color |
|---------------------------------|---------------------|
| Main (white triangle) | White |
| Auxiliary (black triangle) | Black |

Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [back cover](#).
3. Replace the [stand assembly](#).

Removing the Coin-Cell Battery

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⚠ CAUTION: Removing the coin-cell battery resets the BIOS settings to default. It is recommended that you note the BIOS settings before removing the coin-cell battery.

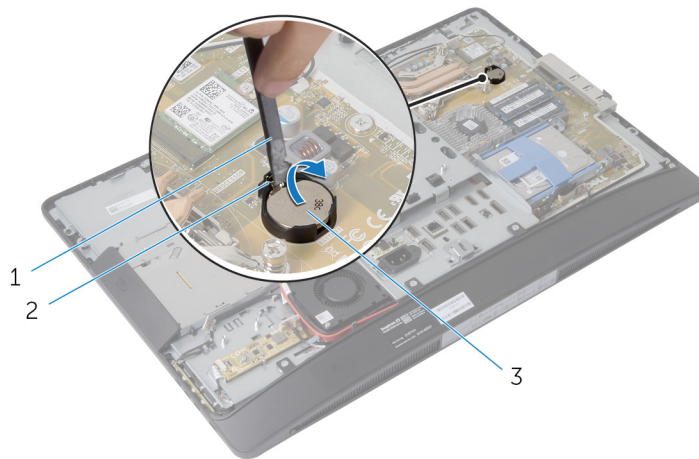
Prerequisites

1. Replace the [stand assembly](#).
2. Replace the [back cover](#).
3. Replace the [system-board shield](#).

Procedure


⚠ CAUTION: Removing the coin-cell battery resets the BIOS settings to default. It is recommended that you note the BIOS settings before removing the coin-cell battery.

1. Locate the coin-cell battery socket on the system board. For more information, see [System Board Components](#).
2. Using a plastic scribe, press the securing clip away from the coin-cell battery until the coin-cell battery pops out.



1. plastic scribe
2. securing clip
3. coin-cell battery

Replacing the Coin-Cell Battery

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Procedure

With the positive-side facing up, insert the coin-cell battery into the battery socket and press down the battery into place.

Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [back cover](#).
3. Replace the [stand assembly](#).

Removing the I/O Bracket

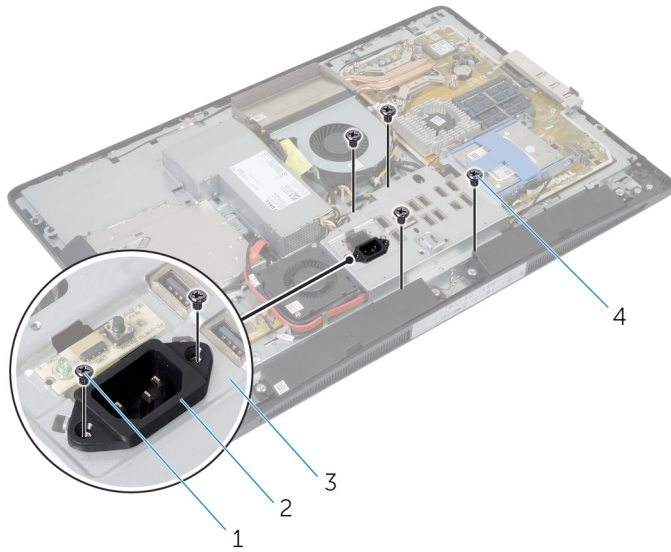
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [system-board shield](#).
4. Remove the [VESA-mount bracket](#).
5. Remove the [power-supply diagnostic board](#).

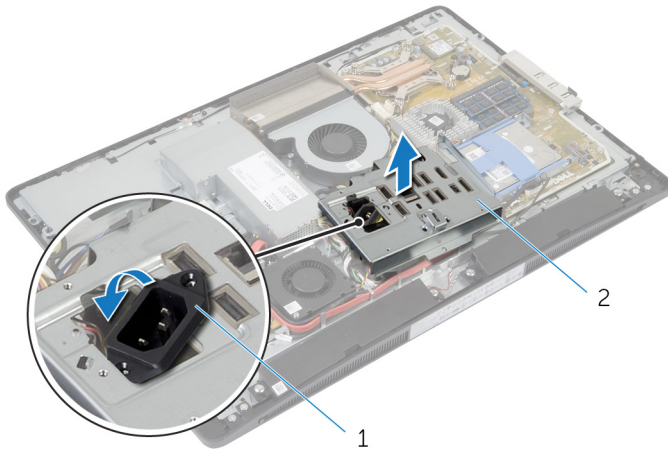
Procedure

1. Remove the screws that secure the power port to the I/O bracket.
2. Remove the screws that secure the I/O bracket to the display-panel base.



- | | |
|--------------------------|---------------------------|
| 1. power port screws (2) | 2. power port |
| 3. I/O bracket | 4. I/O bracket screws (4) |

3. Lift the I/O bracket slightly and slide the power port through the I/O bracket.
4. Lift the I/O bracket off the display-panel base.



- | | |
|---------------|----------------|
| 1. power port | 2. I/O bracket |
|---------------|----------------|

Replacing the I/O Bracket

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Procedure

1. Slide the power port through the I/O bracket.
2. Align the screw holes on the I/O bracket with the screw holes on the display-panel base.
3. Replace the screws that secure the I/O bracket to the display-panel base.
4. Align the screw holes on the power port with the screw holes on the I/O bracket.
5. Replace the screws that secure the power port to the I/O bracket.

Post-requisites

1. Replace the [power-supply diagnostic board](#).
2. Replace the [VESA-mount bracket](#).
3. Replace the [system-board shield](#).
4. Replace the [back cover](#).
5. Replace the [stand assembly](#).

Removing the Optical Drive

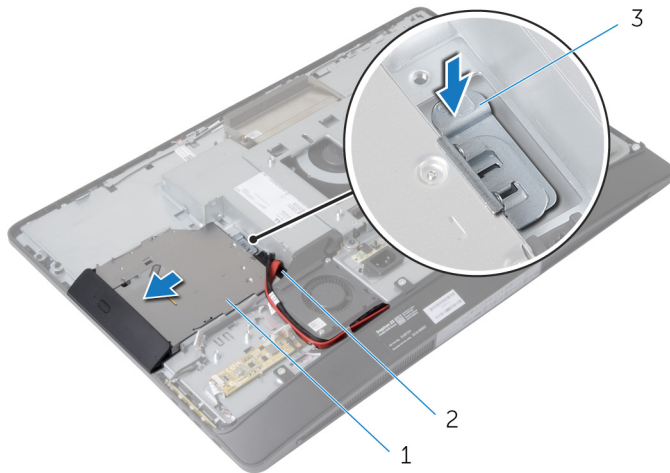
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [system-board shield](#).
4. Remove the [VESA-mount bracket](#).
5. Remove the [power-supply diagnostic board](#).
6. Remove the [I/O bracket](#).

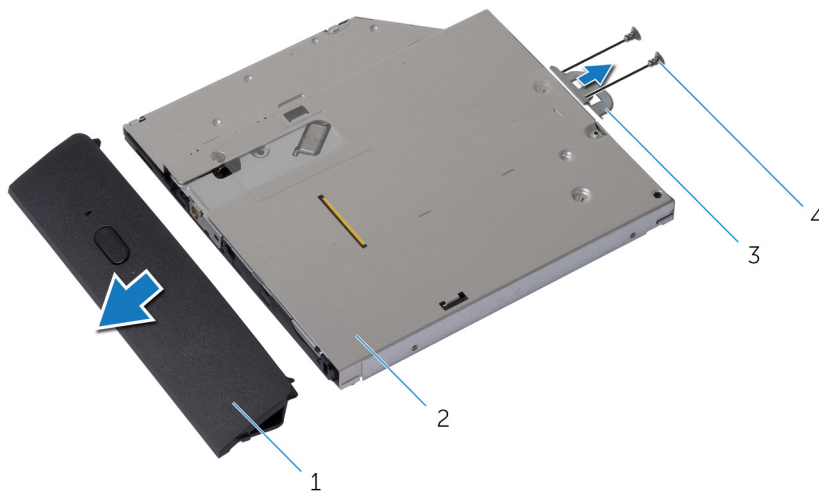
Procedure

1. Press the securing tab down and slide the optical-drive assembly to release it from the interposer.



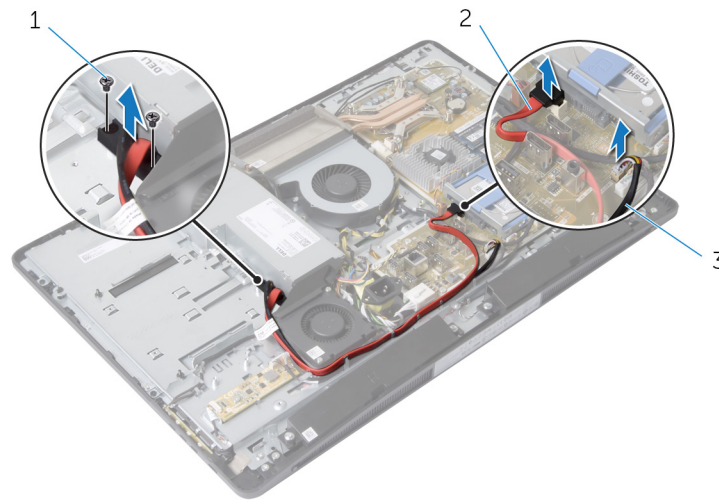
- | | |
|---------------------------|---------------|
| 1. optical-drive assembly | 2. interposer |
| 3. securing tab | |

2. Pivot the optical-drive bezel upward to release it from the optical-drive assembly.
3. Remove the screws that secure the optical-drive bracket to the optical drive.
4. Remove the optical-drive bracket from the optical drive.



- | | |
|--------------------------|------------------|
| 1. optical-drive bezel | 2. optical drive |
| 3. optical-drive bracket | 4. screws (2) |

5. Disconnect the power cable and data cable from the system board.
6. Remove the screws that secure the interposer to the display-panel base.
7. Remove the power cable and date cable from the routing guides on the display-panel base.
8. Lift the interposer off the display-panel base.



1. screws (2)
2. data cable
3. power cable

Replacing the Optical Drive

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Procedure

1. Route the power cable and data cable through the routing guides on the display-panel base.
2. Align the screw holes on the interposer with the screw holes on the display-panel base.
3. Replace the screws that secure the interposer to the display-panel base.
4. Connect the power and data cables to the system board.
5. Align the screw holes on the optical-drive bracket with the screw holes on the optical drive.
6. Replace the screws that secure the optical-drive bracket to the optical drive.
7. Align the tabs on the optical-drive bezel with the slots on the optical-drive assembly and snap it into place.
8. Slide the optical-drive assembly into the optical-drive bay until it snaps into position.

Post-requisites

1. Replace the [I/O bracket](#).
2. Replace the [power-supply diagnostic board](#).
3. Replace the [VESA-mount bracket](#).
4. Replace the [system-board shield](#).
5. Replace the [back cover](#).
6. Replace the [stand assembly](#).

Removing the Power-Supply Fan

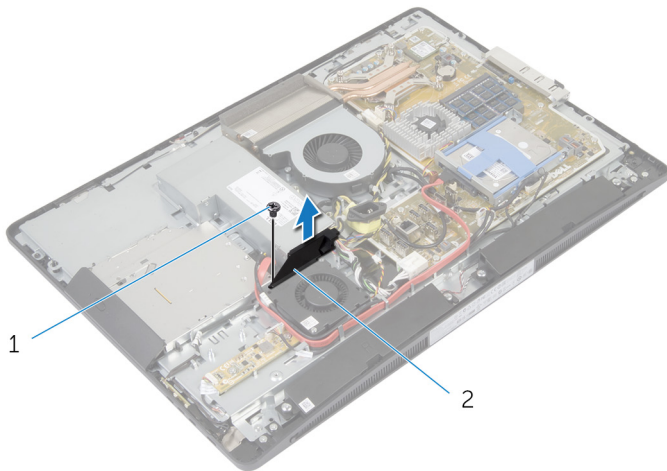
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [system-board shield](#).
4. Remove the [VESA-mount bracket](#).
5. Remove the [power-supply diagnostic board](#).
6. Remove the [I/O bracket](#).

Procedure

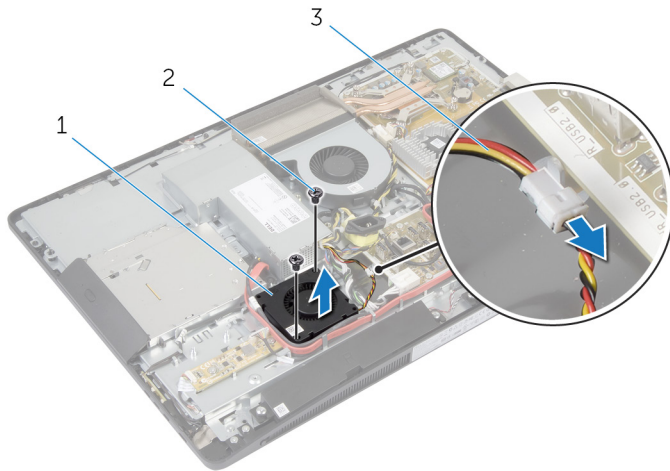
1. Remove the screw that secures the power-supply fan bracket to the display-panel base.
2. Lift the power-supply fan bracket off the display-panel base.



1. screw

2. power-supply fan bracket

3. Disconnect the power-supply fan cable from the power-supply unit.
4. Remove the screws that secure the power-supply fan to the display-panel base.



1. power-supply fan
2. screws (2)
3. power-supply fan cable

Replacing the Power-Supply Fan

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Procedure

1. Connect the power-supply fan cable to the power-supply unit.
2. Align the screw holes on the power-supply fan with the screw holes on the display-panel base.
3. Replace the screws that secure the power-supply fan to the display-panel base.
4. Align the screw holes on the power-supply fan bracket with the screw holes on the display-panel base.
5. Replace the screw that secures the power-supply fan bracket to the display-panel base.

Post-requisites

1. Replace the [I/O bracket](#).
2. Replace the [power-supply diagnostic board](#).
3. Replace the [VESA-mount bracket](#).
4. Replace the [system-board shield](#).
5. Replace the [back cover](#).
6. Replace the [stand assembly](#).

Removing the Power-Supply Unit

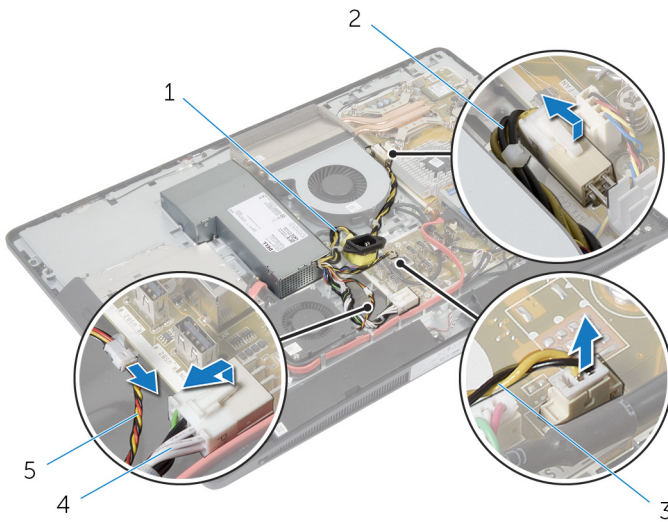
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [system-board shield](#).
4. Remove the [VESA-mount bracket](#).
5. Remove the [power-supply diagnostic board](#).
6. Remove the [I/O bracket](#).

Procedure

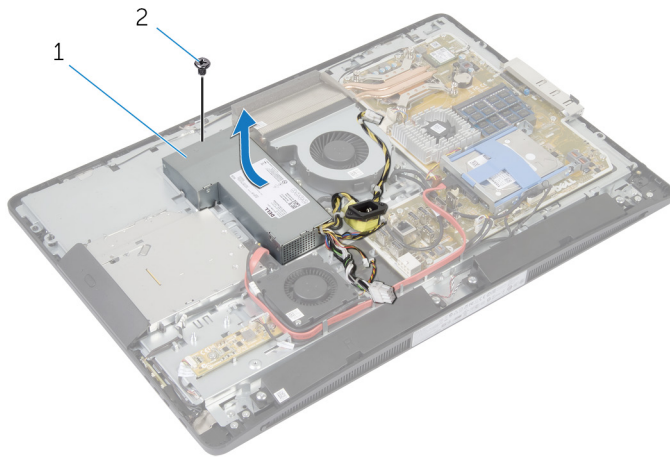
1. Disconnect the main power cable, processor power cable and power-supply fan cable from the system board.
2. Remove the main power cable, processor power cable and power-supply fan cable from the routing guides on the display-panel base.
3. Remove the power-port cable from the routing guides on the display-panel base.
4. Disconnect the power-supply fan cable from the power-supply unit.



- | | |
|---------------------------|--------------------------|
| 1. power-port cable | 2. processor power cable |
| 3. power-supply fan cable | 4. main power cable |
| 5. power-supply fan cable | |

5. Remove the screw that secures the power-supply unit to the display-panel base.

6. Slide and lift the power-supply unit to release it from the display-panel base.



1. power-supply unit

2. screw

Replacing the Power-Supply Unit

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Procedure

1. Place the power-supply unit on the display-panel base and slide it into position.
2. Align the screw hole and tabs on the power-supply unit with the screw hole and tabs on the display-panel base.
3. Replace the screw that secures the power-supply unit to the display-panel base.
4. Connect the power-supply fan cable to the power-supply unit.
5. Route the power-port cable through the routing guides on the display-panel base.
6. Route the main power cable, processor power cable and power-supply fan cable through the routing guides on the display-panel base.
7. Connect the main power cable, processor power cable and power-supply fan cable to the system board.

Post-requisites

1. Replace the [I/O bracket](#).
2. Replace the [power-supply diagnostic board](#).
3. Replace the [VESA-mount bracket](#).
4. Replace the [system-board shield](#).
5. Replace the [back cover](#).
6. Replace the [stand assembly](#).

Removing the Processor Heat-Sink

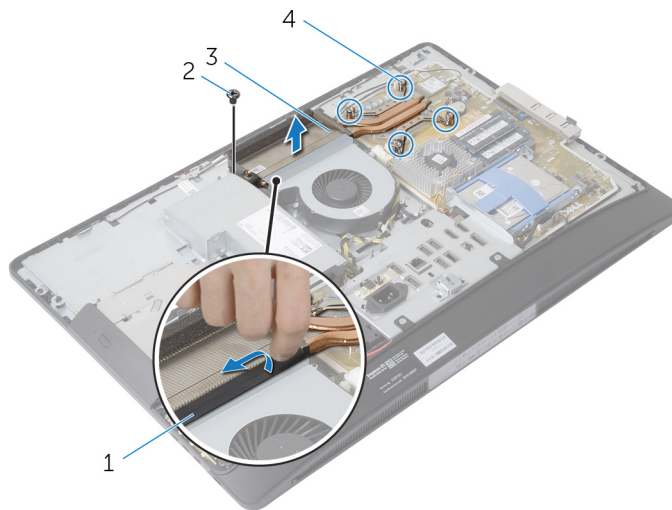
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [system-board shield](#).
4. Remove the [VESA-mount bracket](#).


Procedure

1. Loosen the captive screws that secure the processor heat-sink to the system board.
2. Remove the screw that secures the processor heat-sink to the display-panel base.
3. Peel off the Mylar from the processor heat-sink and fan.
4. Lift the processor heat-sink off the system board.




- | | |
|------------------------|-----------------------|
| 1. Mylar | 2. screw |
| 3. processor heat-sink | 4. captive screws (4) |

Replacing the Processor Heat-Sink

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Procedure


 **NOTE:** The original thermal grease can be reused, if the original processor and heat sink are reinstalled together. If either the processor or the heat sink is replaced, use the thermal pad provided in the kit to ensure that thermal conductivity is achieved.

1. Align the captive screws on the heat sink with the screw holes on the system board.
2. Tighten the captive screws that secure the processor heat-sink to the system board.
3. Adhere the Mylar to the processor heat-sink and fan.
4. Replace the screw that secures the processor heat-sink to the display-panel base.

Post-requisites

1. Replace the [VESA-mount bracket](#).
2. Replace the [system-board shield](#).
3. Replace the [back cover](#).
4. Replace the [stand assembly](#).

Removing the Processor Fan

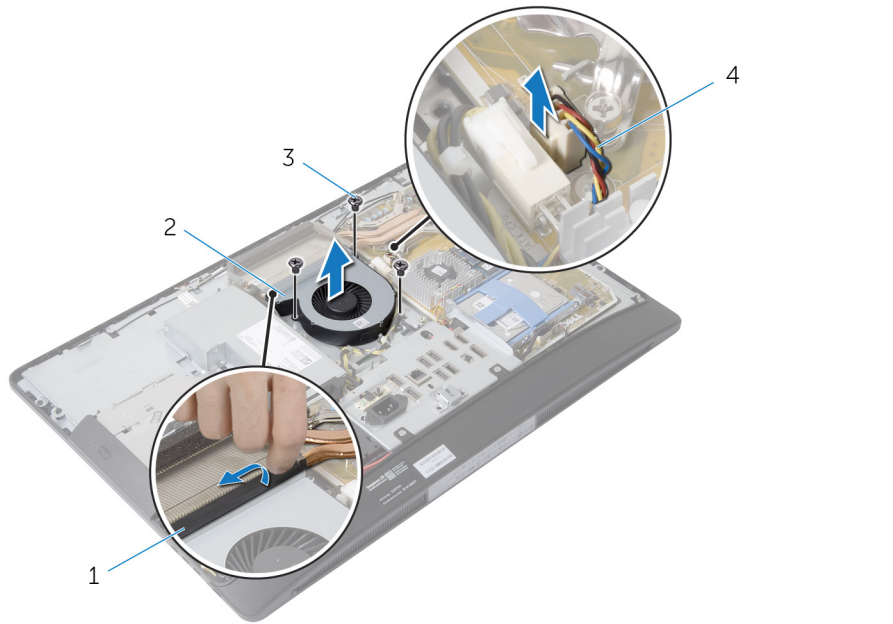
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [system-board shield](#).
4. Remove the [VESA-mount bracket](#).

Procedure

1. Disconnect the processor-fan cable from the system board.
2. Remove the screws that secure the processor fan to the display-panel base.
3. Peel off the Mylar from the processor heat-sink and fan.
4. Lift the processor fan off the display-panel base.



- | | |
|---------------|------------------------|
| 1. Mylar | 2. processor fan |
| 3. screws (3) | 4. processor-fan cable |

Replacing the Processor Fan

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Procedure

1. Align the screw holes on the processor fan with the screw holes on the display-panel base.
2. Adhere the Mylar on the processor fan and the processor heat-sink.
3. Replace the screws that secure the processor fan to the display-panel base.
4. Connect the processor-fan cable to the system board.

Post-requisites

1. Replace the [VESA-mount bracket](#).
2. Replace the [system-board shield](#).
3. Replace the [back cover](#).
4. Replace the [stand assembly](#).

Removing the Processor

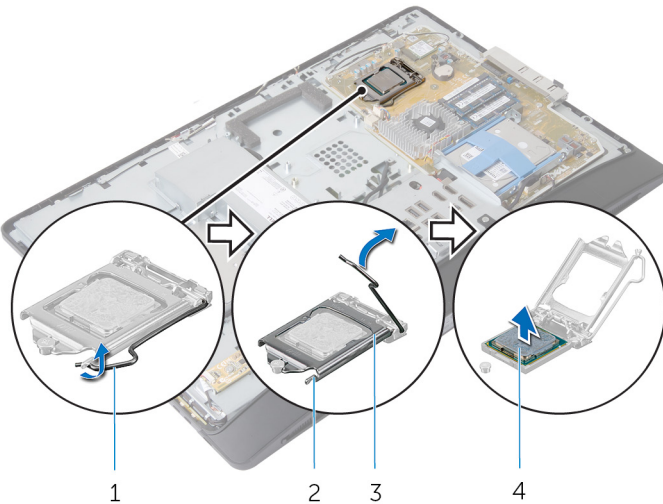
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Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [system-board shield](#).
4. Remove the [processor heat-sink](#).
5. Remove the [processor fan](#).

Procedure

1. Press the release lever down on the processor cover and then pull it outwards to release it from the tab that secures it.
2. Extend the release lever completely to open the processor cover.
3. Gently lift the processor and remove it from the processor socket.



- | | |
|--------------------|-----------------|
| 1. release lever | 2. securing tab |
| 3. processor cover | 4. processor |

Replacing the Processor

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CAUTION: If either the processor or the heat sink is replaced, use the thermal grease provided in the kit to make sure that thermal conductivity is achieved.

Procedure

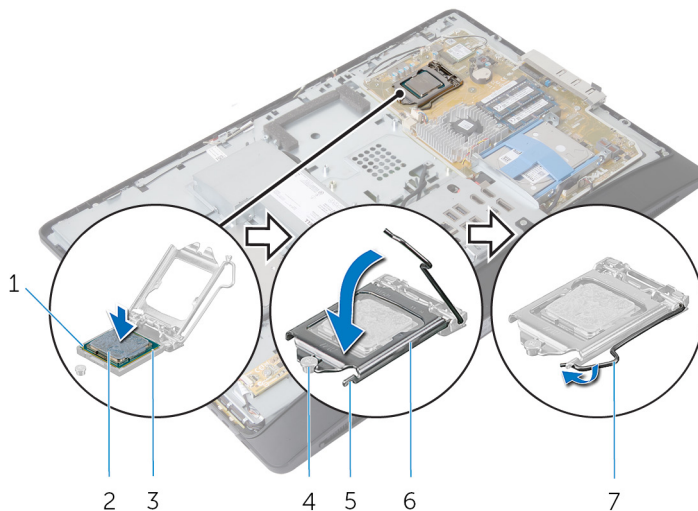
NOTE: The original thermal grease can be reused, if the original processor and heat sink are reinstalled together. If either the processor or the heat sink is replaced, use the thermal pad provided in the kit to ensure that thermal conductivity is achieved.

CAUTION: You must position the processor correctly in the processor socket to avoid permanent damage to the processor.

1. If the release lever on the socket is not fully extended, move it to that position.
2. Orient the alignment notches on the processor with the alignment tabs on the processor socket.
3. Align the pin-1 corner on the processor with the pin-1 corner on the processor socket, and then place the processor in the processor socket.

CAUTION: Ensure that the processor-cover notch is positioned underneath the alignment post.

4. When the processor is fully seated in the socket, close the processor cover.
5. Pivot the release lever down and place it under the tab on the processor cover.




- | | |
|------------------------------|--------------------|
| 1. processor pin-1 indicator | 2. processor |
| 3. alignment tabs (2) | 4. alignment post |
| 5. securing tab | 6. processor cover |


7. release lever


Post-requisites


1. Replace the [processor fan](#).
2. Replace the [processor heat-sink](#).
3. Replace the [system-board shield](#).
4. Replace the [back cover](#).
5. Replace the [stand assembly](#).

Removing the System Board

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 **NOTE:** Your computer's Service Tag is stored in the system board. You must enter the Service Tag in the BIOS setup program after you replace the system board.


 **NOTE:** Replacing the system board removes any changes you have made to the BIOS using the BIOS setup program. You must make the desired changes again after you replace the system board.

 **NOTE:** Before disconnecting the cables from the system board, note the location of the connectors so that you can reconnect them correctly after you replace the system board.

Prerequisites

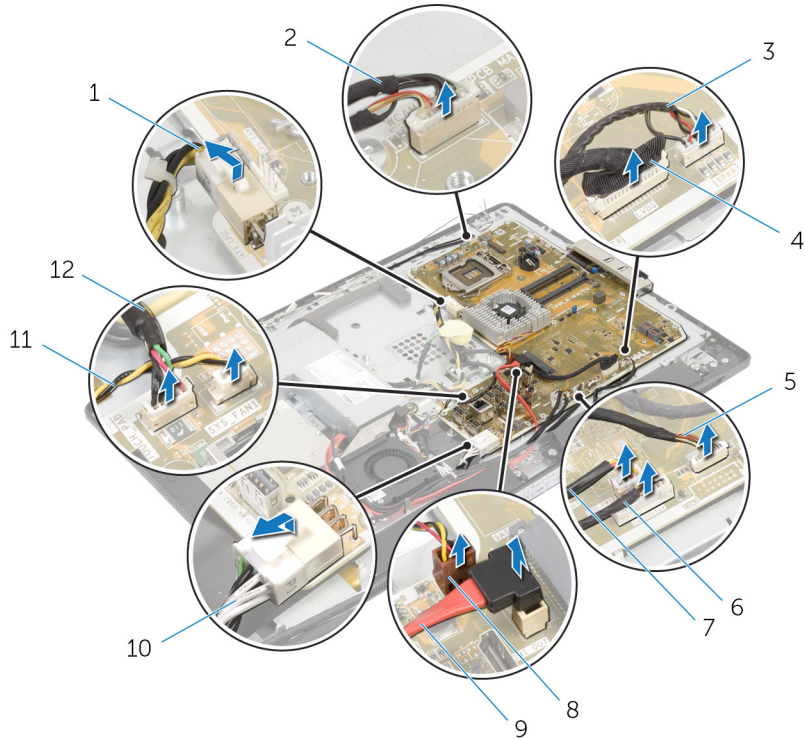
1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [memory module\(s\)](#).
4. Remove the [system-board shield](#).
5. Remove the [VESA-mount bracket](#).
6. Remove the [power-supply diagnostic board](#).
7. Remove the [I/O bracket](#).
8. Remove the [processor heat-sink](#).
9. Remove the [processor fan](#).
10. Remove the [processor](#).
11. Remove the [hard drive](#).
12. Remove the [wireless card](#).
13. Remove the [coin-cell battery](#).

Procedure

 **NOTE:** Your computer's Service Tag is stored in the system board. You must enter the Service Tag in the BIOS after you replace the system board.

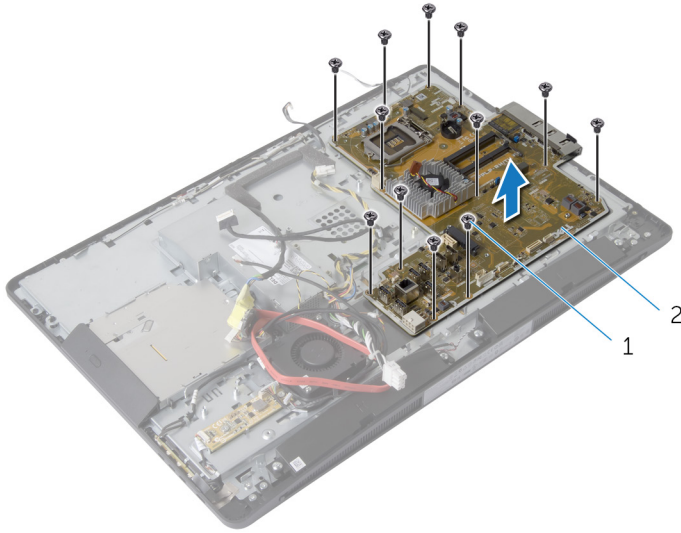
NOTE: Before disconnecting the cables from the system board, note the location of the connectors and routing of the cables so that you can reconnect them correctly after you replace the system board.

1. Disconnect all the cables connected to the system board.



- | | |
|--------------------------------|-------------------------------|
| 1. processor power cable | 2. camera cable |
| 3. speaker cable | 4. display cable |
| 5. control-buttons board cable | 6. converter-board cable |
| 7. optical-drive power cable | 8. video-card fan cable |
| 9. optical-drive data cable | 10. main-power cable |
| 11. power-supply fan cable | 12. touch-control board cable |

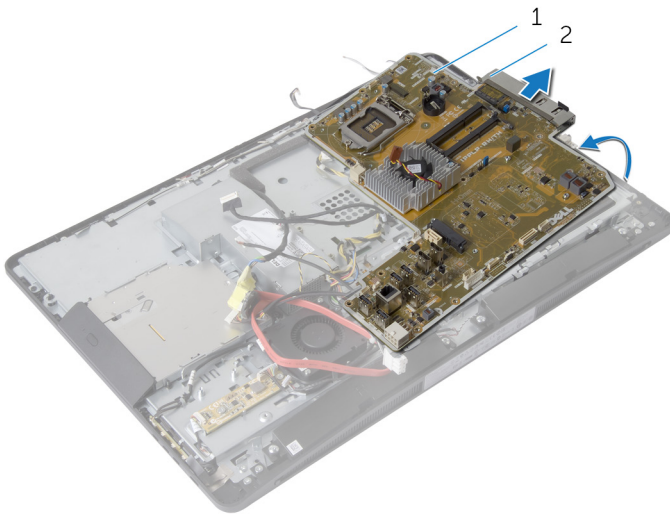
2. Remove the screws that secure the system board to the display-panel base.



1. screws (12)

2. system board

3. Gently lift the system board at an angle and remove the side I/O bracket off the system board.
4. Lift the system board off the display-panel bracket.



1. system board

2. side I/O bracket

Replacing the System Board

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NOTE: Your computer's Service Tag is stored in the system board. You must enter the Service Tag in the BIOS setup program after you replace the system board.

Procedure

1. Replace the side I/O bracket on the system board.
2. Align the screw holes on the system board with the screw holes on the display-panel base.
3. Replace the screws that secure the system board to the chassis.
4. Route and connect all the cables to the connectors on the system board.

Post-requisites

1. Replace the [coin-cell battery](#).
2. Replace the [wireless card](#).
3. Replace the [hard drive](#).
4. Replace the [processor](#).
5. Replace the [processor fan](#).
6. Replace the [processor heat-sink](#).
7. Replace the [I/O bracket](#).
8. Replace the [power-supply diagnostic board](#).
9. Replace the [VESA-mount bracket](#).
10. Replace the [system-board shield](#).
11. Replace the [memory module\(s\)](#).
12. Replace the [back cover](#).
13. Replace the [stand assembly](#).

Entering the Service Tag in the BIOS

1. Turn on the computer.
2. Press <F2> when the DELL logo is displayed to enter the system setup program.
3. Navigate to the main tab and enter the Service Tag in the Service Tag Input field.

Removing the Camera



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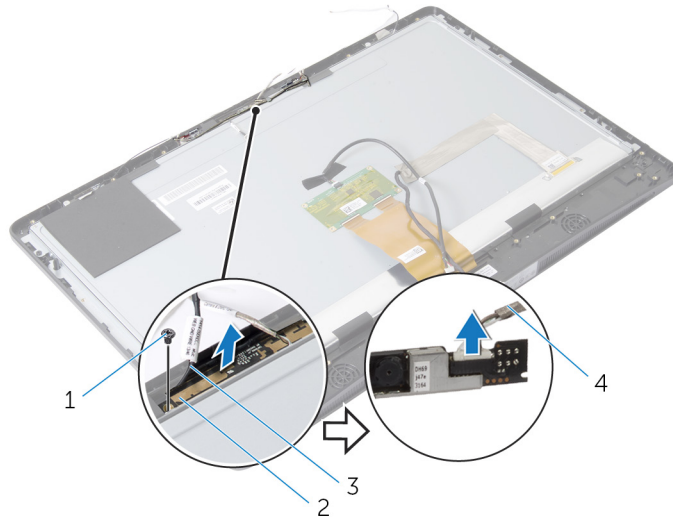
Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [memory module\(s\)](#).
4. Remove the [system-board shield](#).
5. Remove the [hard drive](#).
6. Remove the [VESA-mount bracket](#).

7. Remove the [control-buttons board](#).
8. Remove the [converter board](#).
9. Remove the [power-supply diagnostic board](#).
10. Remove the [I/O bracket](#).
11. Remove the [optical drive](#).
12. Remove the [power-supply fan](#).
13. Remove the [power-supply unit](#).
14. Remove the [processor heat sink](#).
15. Remove the [processor fan](#).
16. Remove the [processor](#).
17. Remove the [wireless card](#).
18. Remove the [coin-cell battery](#).
19. Remove the [system board](#).
20. Follow the procedure from step 1 to step 6 in "Removing the [Display Panel](#)".


Procedure

1. Remove the screw that secures the ground cable and the camera module to the display bezel.
2. Move the ground cable away to access the camera module.
3. Carefully lift the camera module out of the display bezel.
4. Disconnect the camera cable from the camera module.



- | | |
|-----------------|------------------|
| 1. screw | 2. camera module |
| 3. ground cable | 4. camera cable |

Replacing the Camera

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Procedure

1. Connect the camera cable to the camera module.
2. Align the screw hole on the ground cable and the camera module with the screw hole on the display bezel.
3. Replace the screw that secures the ground cable and the camera module to the display bezel.

Post-requisites

1. Follow the procedure from step 11 to step 17 in "Replacing the [Display Panel](#)".
2. Replace the [system board](#).
3. Replace the [coin-cell battery](#).
4. Replace the [wireless card](#).
5. Replace the [processor](#).
6. Replace the [processor fan](#).
7. Replace the [processor heat-sink](#).
8. Replace the [power-supply unit](#).
9. Replace the [power-supply fan](#).
10. Replace the [optical drive](#).
11. Replace the [I/O bracket](#).
12. Replace the [power-supply diagnostic board](#).
13. Replace the [converter board](#).
14. Replace the [control buttons board](#).
15. Replace the [VESA-mount bracket](#).
16. Replace the [hard drive](#).
17. Replace the [system-board shield](#).
18. Replace the [memory module\(s\)](#).
19. Replace the [back cover](#).
20. Replace the [stand assembly](#).

Removing the Antenna

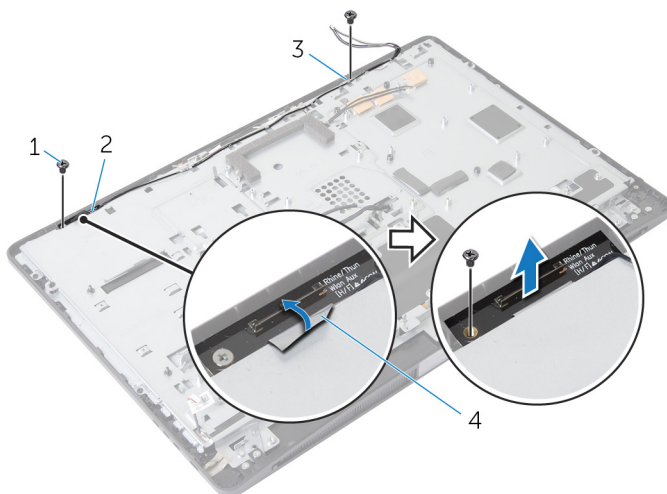
 **WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before Working Inside Your Computer](#). After working inside your computer, follow the instructions in [After Working Inside Your Computer](#). For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [memory module\(s\)](#).
4. Remove the [system-board shield](#).
5. Remove the [hard drive](#).
6. Remove the [VESA-mount bracket](#).
7. Remove the [control-buttons board](#).
8. Remove the [converter board](#).
9. Remove the [power-supply diagnostic board](#).
10. Remove the [I/O bracket](#).
11. Remove the [optical drive](#).
12. Remove the [power-supply fan](#).
13. Remove the [power-supply unit](#).
14. Remove the [processor heat sink](#).
15. Remove the [processor fan](#).
16. Remove the [processor](#).
17. Remove the [wireless card](#).
18. Remove the [coin-cell battery](#).
19. Remove the [system board](#).


Procedure

1. Peel the tape that secures the antenna modules to the display bezel.
2. Remove the screws that secure the antenna modules to the display bezel.
3. Note the antenna-cable routing and remove the antenna cables from the routing guides on the display-panel base.
4. Lift the antenna modules off the display bezel.



1. screws (2)
2. right antenna module
3. left antenna module
4. securing tape

Replacing the Antenna

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Procedure

1. Align the screw holes on the antenna modules with the screw holes on the display bezel.
2. Replace the screws that secure the antenna modules to the display bezel.
3. Route the antenna cables through the routing guides on the display-panel base.
4. Adhere the tape to secure the antenna modules to the display bezel.

Post-requisites

1. Replace the [system board](#).
2. Replace the [coin-cell battery](#).
3. Replace the [wireless card](#).
4. Replace the [processor](#).
5. Replace the [processor fan](#).
6. Replace the [processor heat-sink](#).
7. Replace the [power-supply unit](#).
8. Replace the [power-supply fan](#).
9. Replace the [optical drive](#).
10. Replace the [I/O bracket](#).
11. Replace the [power-supply diagnostic board](#).
12. Replace the [converter board](#).
13. Replace the [control buttons board](#).
14. Replace the [VESA-mount bracket](#).
15. Replace the [hard drive](#).
16. Replace the [system-board shield](#).
17. Replace the [memory module\(s\)](#).
18. Replace the [back cover](#).
19. Replace the [stand assembly](#).

Removing the Display Panel



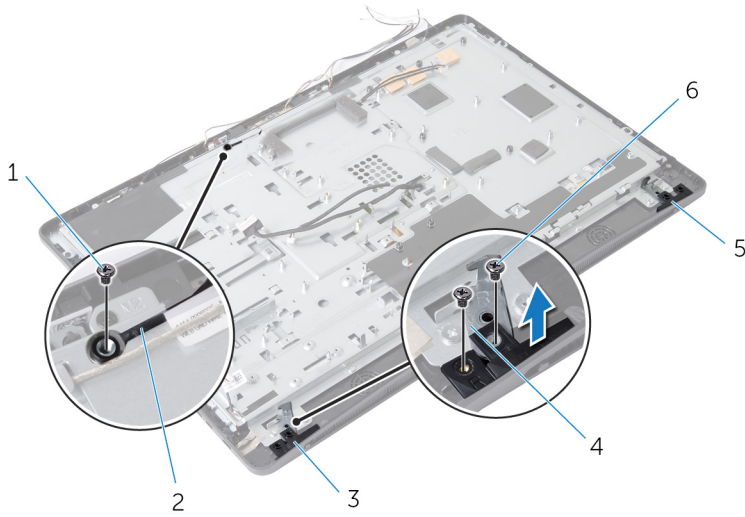
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before Working Inside Your Computer](#). After working inside your computer, follow the instructions in [After Working Inside Your Computer](#). For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the [stand assembly](#).
2. Remove the [back cover](#).
3. Remove the [memory module\(s\)](#).
4. Remove the [system-board shield](#).
5. Remove the [hard drive](#).
6. Remove the [VESA-mount bracket](#).
7. Remove the [converter board](#).
8. Remove the [power-supply diagnostic board](#).
9. Remove the [I/O bracket](#).
10. Remove the [optical drive](#).
11. Remove the [power-supply fan](#).
12. Remove the [power-supply unit](#).
13. Remove the [processor heat sink](#).
14. Remove the [processor fan](#).
15. Remove the [processor](#).
16. Remove the [wireless card](#).
17. Remove the [coin-cell battery](#).
18. Remove the [system board](#).
19. Remove the [speaker cover](#).
20. Remove the [speakers](#).
21. Remove the [camera](#).
22. Remove the [antennas](#).

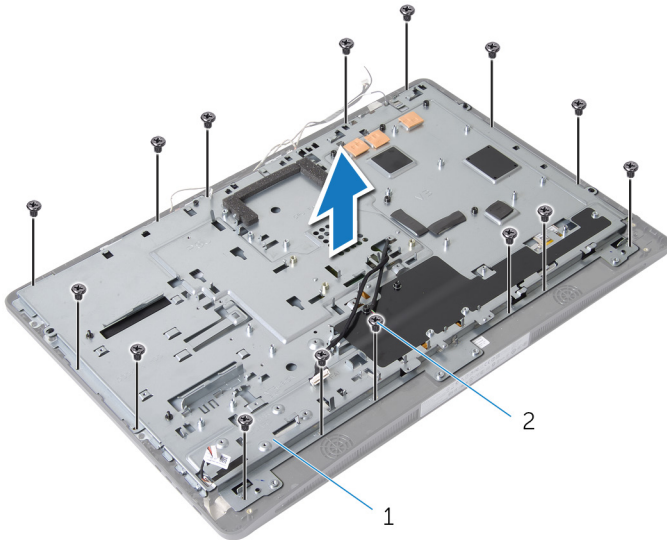
Procedure

1. Remove the screw that secures the ground cable to the display-panel base.
2. Remove the screws that secure the release latches to the display-panel base.
3. Lift the release latches off the display-panel base.
4. Rotate and lift the release-latch brackets off the display-panel base.



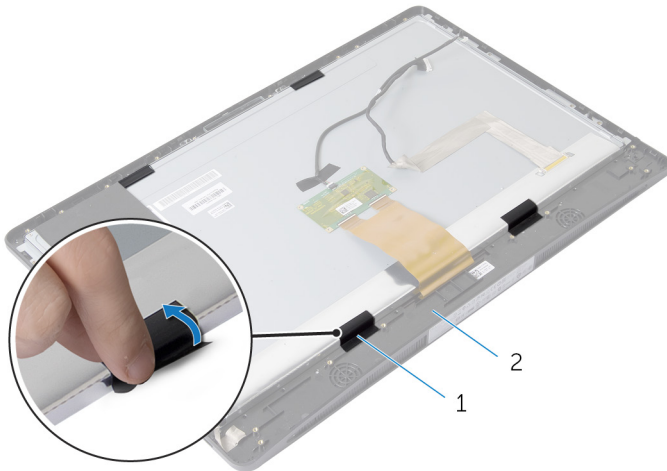
- | | |
|------------------------|-------------------------------|
| 1. ground cable screw | 2. ground cable |
| 3. right release latch | 4. release-latch brackets (2) |
| 5. left release latch | 6. release latch screws (4) |

5. Remove the screws that secure the display-panel base to the display bezel.
6. Slide all the cables through the slot on the display-panel base.
7. Lift the display-panel base off the display bezel.



- | | |
|-----------------------|----------------|
| 1. display-panel base | 2. screws (15) |
|-----------------------|----------------|

8. Peel the tape that secures the display panel to the display bezel.

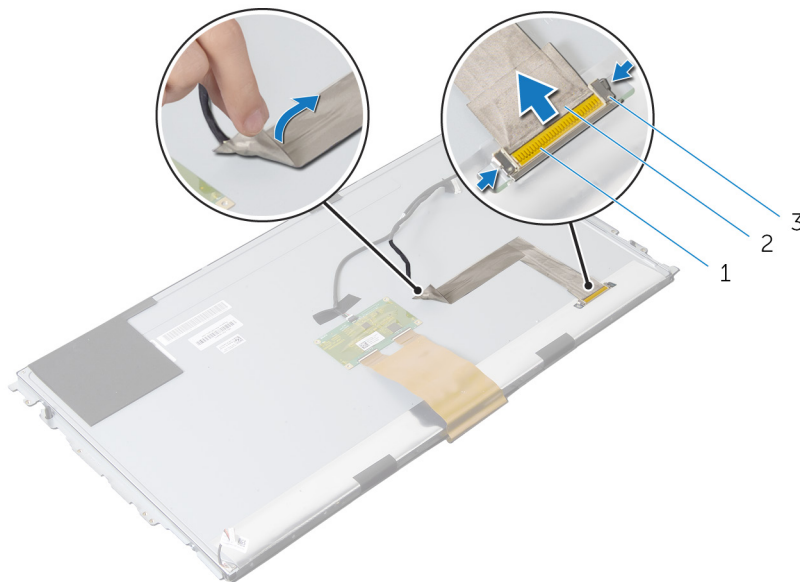


1. tape

2. display bezel

9. Press the release latch on either side of the display-cable connector and then pull the display cable to disconnect it from the display panel.

10. Peel off the display cable from the display panel.



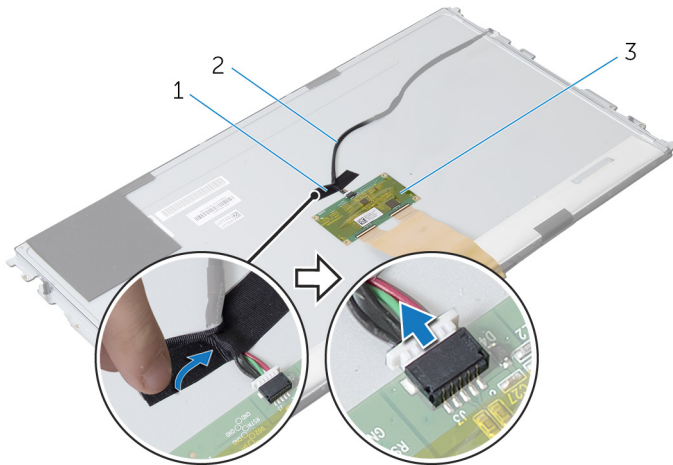
1. display-cable connector

2. display cable

3. release latches (2)

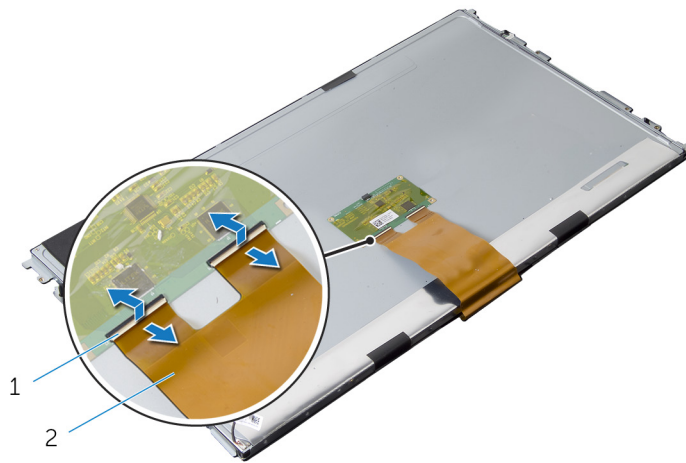
11. Peel off the Mylar from the touch-control board cable.

12. Disconnect the touch-control board cable from the touch-control board.



- 1. Mylar
- 2. touch-control board cable
- 3. touch-control board

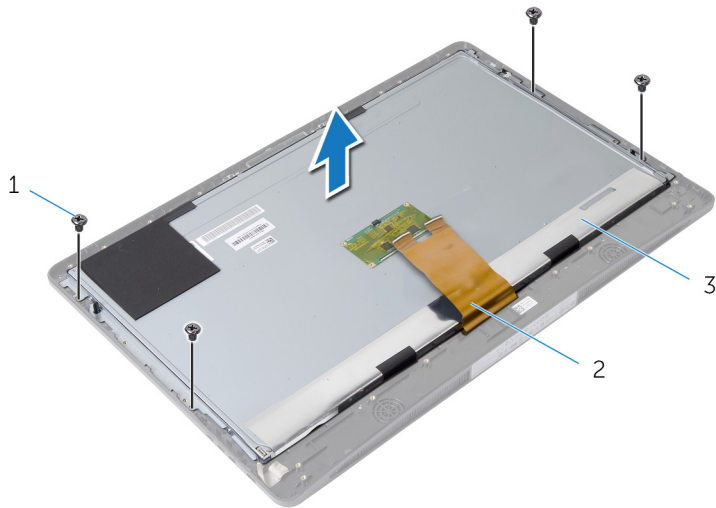
13. Lift the latches and disconnect the flex cable from the display panel.



- 1. connector latches
- 2. flex cable

14. Remove the screws that secure the display assembly to the display bezel.

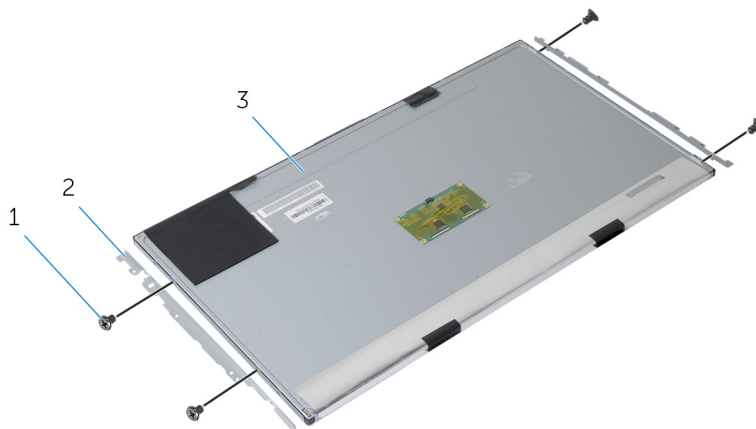
15. Gently lift the display assembly off the display bezel.



- 1. screws (4)
- 2. flex cable
- 3. display panel

16. Remove the screws that secure the display-panel brackets to the display panel.

17. Remove the display-panel brackets off the display panel.



- 1. screws (4)
- 2. display-panel brackets (2)
- 3. display panel

Replacing the Display Panel

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Procedure

1. Align the screw holes on the display-panel brackets with the screw holes on the display panel.
2. Replace the screws that secure the display-panel brackets to the display panel.
3. Align the screw holes on the display panel with the screw holes on the display bezel and place the display panel on the display bezel.



NOTE: Make sure that no cables are under the display panel.

4. Replace the screws that secure the display assembly to the display bezel.
5. Slide the flex cables into the connectors on the display panel and press down on the connector latches to secure the cables.
6. Connect the touch-control board cable to the touch-control board.
7. Adhere the Mylar to the touch-control board cable.
8. Adhere the display cable to the display panel.
9. Connect the display cable to the display panel.
10. Adhere the tape that secures the display panel to the display bezel.
11. Slide all the cables through the slot on the display-panel base.
12. Align the screw holes on the display-panel base with the screw holes on the display bezel.
13. Replace the screws that secure the display-panel base to the display bezel.
14. Replace the release-latch brackets and lock them in place in the display bezel.
15. Replace the release latches on the display bezel.
16. Replace the screws that secure the release latches to the display-panel base.
17. Replace the screw that secures the ground cable to the display-panel base.

Post-requisites

1. Replace the [antennas](#).
2. Replace the [camera](#).
3. Replace the [speakers](#).
4. Replace the [speaker cover](#).
5. Replace the [system board](#).
6. Replace the [coin-cell battery](#).
7. Replace the [wireless card](#).
8. Replace the [processor](#).
9. Replace the [processor fan](#).
10. Replace the [processor heat-sink](#).
11. Replace the [power-supply unit](#).
12. Replace the [power-supply fan](#).
13. Replace the [optical drive](#).
14. Replace the [I/O bracket](#).
15. Replace the [power-supply diagnostic board](#).
16. Replace the [converter board](#).
17. Replace the [VESA-mount bracket](#).
18. Replace the [hard drive](#).
19. Replace the [system-board shield](#).

20. Replace the [memory module\(s\)](#).
21. Replace the [back cover](#).
22. Replace the [stand assembly](#).

Troubleshooting Your Computer

You can troubleshoot your computer using indicators like Diagnostic Lights, Beep Codes, and Error Messages during the operation of the computer.

Diagnostic Power LED Codes

| Power LED Light Status | Possible Cause | Troubleshooting Steps |
|------------------------|---|---|
| Off | The computer is either turned off or is not receiving power. | <ul style="list-style-type: none"> • Re-seat the power cable in the power connector on the back of the computer and the electrical outlet. • If the computer is plugged into a power strip, ensure the power strip is plugged into an electrical outlet and is turned on. Also, bypass power protection devices, power strips, and power extension cables to verify the computer turns on properly. • Ensure the electrical outlet is working by testing it with another device, such as a lamp. |
| Blinking Amber | Computer fails to complete POST or processor failure. | <ul style="list-style-type: none"> • Remove and then reinstall any cards. • Remove and then reinstall the graphics card, if applicable. • Ensure the power cable is connected to the motherboard and processor. |
| Steady Amber | Computer is in standby or this is a computer fault error condition, including the power supply. Only the +5VSB rail on the power supply is working correctly. | <ul style="list-style-type: none"> • Press the power button to bring the computer out of standby mode. • Ensure all power cables are securely connected to the system board. • Ensure the main power cable and front panel cable are securely connected to the system board. |
| Steady White | The computer is fully functional and in the On state. | <p>If the computer is not responding, do the following:</p> <ul style="list-style-type: none"> • Ensure the display is connected and turned on. |

| Power LED Light Status | Possible Cause | Troubleshooting Steps |
|------------------------|----------------|--|
| | | <ul style="list-style-type: none"> If the display is connected and turned on, listen for a beep code. |

Diagnostic Error Messages

| Error Messages | Description |
|--|--|
| AUXILIARY DEVICE FAILURE | The touchpad or external mouse may be faulty. For an external mouse, check the cable connection. Enable the Pointing Device option in the system setup program. |
| BAD COMMAND OR FILE NAME | Ensure that you have spelled the command correctly, put spaces in the proper place, and used the correct pathname. |
| CACHE DISABLED DUE TO FAILURE | The primary cache internal to the microprocessor has failed. Contact Dell . |
| CD DRIVE CONTROLLER FAILURE | The optical drive does not respond to commands from the computer. |
| DATA ERROR | The hard drive cannot read the data. |
| DECREASING AVAILABLE MEMORY | One or more memory modules may be faulty or improperly seated. Reinstall the memory modules or, if necessary, replace them. |
| DISK C: FAILED INITIALIZATION | The hard drive failed initialization. Run the hard drive tests in the Dell Diagnostics. |
| DRIVE NOT READY | The operation requires a hard drive in the bay before it can continue. Install a hard drive in the hard drive bay. |
| ERROR READING PCMCIA CARD | The computer cannot identify the ExpressCard. Reinsert the card or try another card. |
| EXTENDED MEMORY SIZE HAS CHANGED | The amount of memory recorded in non-volatile memory (NVRAM) does not match the memory installed in the computer. Restart the computer. If the error appears again, contact Dell . |
| THE FILE BEING COPIED IS TOO LARGE FOR THE DESTINATION DRIVE | The file that you are trying to copy is too large to fit on the disk, or the disk is full. Try copying the file to a different disk or use a larger capacity disk. |
| A FILENAME CANNOT CONTAIN ANY OF THE FOLLOWING CHARACTERS: \ / : * ? " < > - | Do not use these characters in filenames. |
| GATE A20 FAILURE | A memory module may be loose. Reinstall the memory modules or, if necessary, replace them. |

| Error Messages | Description |
|---|--|
| GENERAL FAILURE | The operating system is unable to carry out the command. The message is usually followed by specific information. For example, Printer out of paper. Take the appropriate action. |
| HARD-DISK DRIVE CONFIGURATION ERROR | The computer cannot identify the drive type. Shut down the computer, remove the hard drive, and boot the computer from an optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. Run the Hard Disk Drive tests in the Dell Diagnostics. |
| HARD-DISK DRIVE CONTROLLER FAILURE 0 | The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive, and boot the computer from an optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in the Dell Diagnostics. |
| HARD-DISK DRIVE FAILURE | The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive, and boot the computer from an optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in the Dell Diagnostics . |
| HARD-DISK DRIVE READ FAILURE | The hard drive may be defective. Shut down the computer, remove the hard drive, and boot the computer from an optical. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the Hard Disk Drive tests in the Dell Diagnostics. |
| INSERT BOOTABLE MEDIA | The operating system is trying to boot to non-bootable media, such as a floppy disk or optical drive. Insert bootable media. |
| INVALID CONFIGURATION INFORMATION-PLEASE RUN SYSTEM SETUP PROGRAM | The system configuration information does not match the hardware configuration. The message is most likely to occur after a memory module is installed. Correct the appropriate options in the system setup program. |
| KEYBOARD CLOCK LINE FAILURE | For external keyboards, check the cable connection. Run the Keyboard Controller test in the Dell Diagnostics . |

| Error Messages | Description |
|---|---|
| KEYBOARD CONTROLLER FAILURE | For external keyboards, check the cable connection. Restart the computer, and avoid touching the keyboard or the mouse during the boot routine. Run the Keyboard Controller test in the Dell Diagnostics . |
| KEYBOARD DATA LINE FAILURE | For external keyboards, check the cable connection. Run the Keyboard Controller test in the Dell Diagnostics . |
| KEYBOARD STUCK KEY FAILURE | For external keyboards or keypads, check the cable connection. Restart the computer, and avoid touching the keyboard or keys during the boot routine. Run the Stuck Key test in the Dell Diagnostics . |
| LICENSED CONTENT IS NOT ACCESSIBLE IN MEDIADIRECT | Dell MediaDirect cannot verify the Digital Rights Management (DRM) restrictions on the file, so the file cannot be played. |
| MEMORY ADDRESS LINE FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE | A memory module may be faulty or improperly seated. Reinstall the memory modules or, if necessary, replace them. |
| MEMORY ALLOCATION ERROR | The software you are attempting to run is conflicting with the operating system, another program, or a utility. Shut down the computer, wait 30 seconds, and then restart it. Try to run the program again. If the error message still appears, see the software documentation. |
| MEMORY DOUBLE WORD LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE | A memory module may be faulty or improperly seated. Reinstall the memory modules or, if necessary, replace them. |
| MEMORY ODD/EVEN LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE | A memory module may be faulty or improperly seated. Reinstall the memory modules or, if necessary, replace them. |
| MEMORY WRITE/READ FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE | A memory module may be faulty or improperly seated. Reinstall the memory modules or, if necessary, replace them. |
| NO BOOT DEVICE AVAILABLE | The computer cannot find the hard drive. If the hard drive is your boot device, ensure that the drive is installed, properly seated, and partitioned as a boot device. |
| NO BOOT SECTOR ON HARD DRIVE | The operating system may be corrupted, contact Dell . |
| NO TIMER TICK INTERRUPT | A chip on the system board may be malfunctioning. Run the System Set tests in the Dell Diagnostics . |

| Error Messages | Description |
|--|---|
| NOT ENOUGH MEMORY OR RESOURCES. EXIT SOME PROGRAMS AND TRY AGAIN | You have too many programs open. Close all windows and open the program that you want to use. |
| OPERATING SYSTEM NOT FOUND | Reinstall the hard drive. If the problem persists, contact Dell . |
| OPTIONAL ROM BAD CHECKSUM SECTOR NOT FOUND | The optional ROM has failed. Contact Dell . The operating system cannot locate a sector on the hard drive. You may have a defective sector or corrupted FAT on the hard drive. Run the Windows error-checking utility to check the file structure on the hard drive. See Windows Help and Support for instructions (click Start > Help and Support). If a large number of sectors are defective, back up the data (if possible), and then reformat the hard drive. |
| SEEK ERROR | The operating system cannot find a specific track on the hard drive. |
| SHUTDOWN FAILURE | A chip on the system board may be malfunctioning. Run the System Set tests in the contact Dell . |
| TIME-OF-DAY CLOCK LOST POWER | System configuration settings are corrupted. Connect your computer to an electrical outlet to charge the battery. If the problem persists, try to restore the data by entering the system setup program, then immediately exit the program. If the message reappears, contact Dell . |
| TIME-OF-DAY CLOCK STOPPED | The reserve battery that supports the system configuration settings may require recharging. Connect your computer to an electrical outlet to charge the battery. If the problem persists, contact Dell . |
| TIME-OF-DAY NOT SET-PLEASE RUN THE SYSTEM SETUP PROGRAM | The time or date stored in the system setup program does not match the system clock. Correct the settings for the Date and Time options. |
| TIMER CHIP COUNTER 2 FAILED | A chip on the system board may be malfunctioning. Run the System Set tests in the Dell Diagnostics . |
| UNEXPECTED INTERRUPT IN PROTECTED MODE | The keyboard controller may be malfunctioning, or a memory module may be loose. Run the System Memory tests and the Keyboard Controller test in the System Setup or contact Dell . |
| X:\ IS NOT ACCESSIBLE. THE DEVICE IS NOT READY | Insert a disk into the drive and try again. |

System Error Messages

| System Message | Description |
|--|---|
| Alert! Previous attempts at booting this system have failed at checkpoint [nnnn]. For help in resolving this problem, please note this checkpoint and contact Dell Technical Support | The computer failed to complete the boot routine three consecutive times for the same error. |
| CMOS checksum error | Possible motherboard failure or Real-time clock (RTC) battery low. |
| CPU fan failure | CPU fan has failed |
| System fan failure | System fan has failed |
| Hard-disk drive failure | Possible hard disk drive failure during POST |
| Keyboard failure | Keyboard failure or loose cable. If reseating the cable does not solve the problem, replace the keyboard. |
| No boot device available | <p>No bootable partition on hard disk drive, the hard disk drive cable is loose, or no bootable device exists.</p> <ul style="list-style-type: none"> • If the hard drive is your boot device, ensure that the cables are connected and that the drive is installed properly and partitioned as a boot device. • Enter system setup and ensure that the boot sequence information is correct. |
| No timer tick interrupt | A chip on the system board might be malfunctioning or motherboard failure. |
| USB over current error | Disconnect the USB device. The USB device needs more power for it to function properly. Use an external power source to connect the USB device, or if the device has two USB cables, connect both of them. |
| CAUTION - Hard Drive SELF MONITORING SYSTEM has reported that a parameter has exceeded its normal operating range. Dell recommends that you back up your data regularly. A parameter out of range may or may not indicate a potential hard drive problem | S.M.A.R.T error, possible hard disk drive failure |

System Setup

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

System Setup Options


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

Table 1. General

| Option | Description |
|--------------------|--|
| System Information | <p>Displays the following information:</p> <ul style="list-style-type: none"> • System Information - Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date, Manufacture Date, and Express Service Code. • Memory Information - Displays Memory Installed, Memory Available, Memory Speed, Memory Channel Mode, Memory Technology, DIMM A Size, DIMM B Size. • PCI Information - Displays SLOT1 and SLOT2. • Processor Information - Displays Processor Type, Core Count, Processor ID, Current Clock Speed, Minimum Clock Speed, Maximum Clock Speed, Processor L2 Cache, Processor L3 Cache, HT Capable, and 64-Bit Technology. • Device Information - Displays SATA-0, SATA-1, LOM MAC Address, Video Controller, dGPU Video Controller, Audio Controller, Wi-Fi Device, and Bluetooth Device. |
| Boot Sequence | <p>Allows you to specify the order in which the computer attempts to find an operating system. To change the boot order, select the device that you want to change in the list, which is available on the right-hand side. After you select the device, click up/down arrows or use your keyboard PgUp / PgDn keys to change the boot options order. You can also select or de-select from the list using the check-boxes available on the left hand side. You should enable the Legacy Option ROMs to setup the Legacy boot mode. This Legacy boot mode is not allowed when you enable the Secure Boot. The options are:</p> <ul style="list-style-type: none"> • Boot Sequence - By default, the Windows Boot Manager check box is selected. |




| Option | Description |
|-----------------------|---|
| | <p> NOTE: The default option might differ based on the operating system of your computer.</p> <ul style="list-style-type: none"> • Boot List Option - The list options are Legacy and UEFI. By default, the option UEFI is selected. <p> NOTE: The default option might differ based on the operating system of your computer.</p> <ul style="list-style-type: none"> • Add Boot Option - Enables you to add a boot option. • Delete Boot Option - Enables you to delete an existing boot option. • View - Enables you to view the current boot option in the computer. • Load Defaults - Restores the default settings of the computer. • Apply - Enables you to apply the settings. • Exit - Exits and starts the computer. |
| Advanced Boot Options | <p>The Enable Legacy Option ROMs option will allow the legacy option ROMs to load, when in UEFI boot mode. Without this option, only UEFI option ROMs will load. This option is required for Legacy boot mode. This Legacy boot mode is not allowed when you enable the Secure Boot. By default, the Enable Legacy Option ROMs check-box is not selected. The other options are:</p> <ul style="list-style-type: none"> • Load Defaults - Restores the default settings of the computer. • Apply - Enables you to apply the settings. • Exit - Exits and starts the computer. |
| Date/Time | Allows you to set the date and time. The changes to the system date and time takes effect immediately. |

Table 2. System Configuration

| Option | Description |
|----------------|--|
| Integrated NIC | <p>If you enable UEFI network stack, UEFI network protocols will be available. UEFI network allows pre-os and early os networking features to use NICs that are enabled. This may be used without PXE turned on. When you enable Enabled w/PXE, the type of PXE boot (Legacy PXE or UEFI PXE) depends on the current boot mode and type of option ROMs in use. The UEFI Network Stack is required in order to have UEFI PXE functionality fully enabled.</p> <ul style="list-style-type: none"> • Enabled UEFI Network Stack - This option is disabled by default. <p>Allows you to enable or disable the integrated network card. You can set the integrated NIC to:</p> <ul style="list-style-type: none"> • Disabled • Enabled • Enabled w/PXE - This option is enabled by default. • Enabled w/Cloud Desktop <p> NOTE: Depending on the computer and its installed devices, the items listed in this section may or may not appear.</p> |
| SATA Operation | <p>Allows you to configure the operating mode of the integrated SATA hard drive controller.</p> <ul style="list-style-type: none"> • Disabled - The SATA controllers are hidden. |





| Option | Description |
|-----------------------|---|
| Drives | <ul style="list-style-type: none"> • ATA - SATA is configured for ATA mode. • AHCI - SATA is configured for AHCI mode. • RAID ON - SATA is configured to support RAID mode. This option is selected by default. <p>Allows you to enable or disable the various on-board drives:</p> <ul style="list-style-type: none"> • SATA-0 • SATA-1 |
| SMART Reporting | <p>This field controls if the hard drive errors for the integrated drives are reported during system startup. This technology is part of the SMART (Self Monitoring Analysis and Reporting Technology) specification.</p> <ul style="list-style-type: none"> • Enable SMART Reporting - This option is disabled by default. |
| USB Configuration | <p>This field configures the integrated USB controller. If <i>Boot Support</i> is enabled, the system is allowed to boot any type of USB mass storage devices (HDD, memory key, floppy).</p> <p>If USB port is enabled, device attached to this port is enabled and available for operation system.</p> <p>If USB port is disabled, the operation system cannot see any device attached to this port.</p> <ul style="list-style-type: none"> • Enable Boot Support • Rear USB Ports - Include options for 6 ports • Side USB Ports - Include options for 2 ports <p>All of the options are enabled by default.</p> <p> NOTE: USB keyboard and mouse always work in the BIOS setup irrespective of these settings.</p> |
| Audio | <p>Allows you to enable or disable the integrated audio controllers. By default, the Enable Audio option is selected. This option includes the following functions.</p> <ul style="list-style-type: none"> • Enable Microphone • Enable Internal Speaker |
| OSD Button Management | <p>Allows you to enable or disable the OSD (On-Screen Display) buttons on the All-In-One system.</p> <ul style="list-style-type: none"> • Disable OSD buttons - This option is unchecked by default. |
| Miscellaneous Devices | <p>Allows you to enable or disable various on-board devices.</p> <ul style="list-style-type: none"> • Enable Camera - This option is selected by default. • Enable Media Card - This option is selected by default. • Disable Media Card |

Table 3. Security

| Option | Description |
|-------------------------|---|
| Admin Password | <p>This field lets you set, change, or delete the administrator (admin) password (sometimes called the setup password). The admin password enables several security features.</p> <p>The drive does not have a password set by default.</p> <ul style="list-style-type: none">• Enter the old password• Enter the new password• Confirm the new password <p>The successful changes in the password will take effect immediately.</p> <p> NOTE: If you delete the admin password, the system password also gets deleted. You can also use the admin password to delete the HDD password. You cannot set an admin password if a system password or an HDD password is already set. You must set the admin password first, if you want to use the admin password with a system password and/or HDD password.</p> |
| System Password | <p>Allows you to set, change, or delete the computer password (previously called the primary password).</p> <p>The drive does not have a password set by default.</p> <ul style="list-style-type: none">• Enter the old password• Enter the new password• Confirm the new password <p>The successful changes in the password will take effect immediately.</p> |
| Internal HDD-0 Password | <p>Allows you to set, change, or delete the password on the computer's internal hard disk drive (HDD). Successful changes to this password take effect immediately.</p> <p>The drive does not have a password set by default.</p> <ul style="list-style-type: none">• Enter the old password• Enter the new password• Confirm the new password |
| Strong Password | <p>This field enforces strong passwords.</p> <p>Enable strong password - This option is disabled by default.</p> |
| Password Configuration | <p>This field controls the minimum and maximum number of characters allowed for the admin and system passwords.</p> <p>The minimum number of characters are 4 and maximum number of characters are 32 for both admin and system passwords.</p> <ul style="list-style-type: none">• Admin Password Min• Admin Password Max• System Password Min• System Password Max |

| Option | Description |
|-------------------|--|
| Password Bypass | <p>Allows you to bypass the <i>System Password</i> and the internal HDD password prompts during a system restart.</p> <ul style="list-style-type: none"> • Disabled - Always prompt for the system and internal HDD password when they are set. This option is enabled by default. • Reboot Bypass - Bypass the password prompts on restarts (warm boots). <p> NOTE: The system will always prompt for the system and internal HDD passwords when powered on from the off state (a cold boot). Also, the system will always prompt for passwords on any module bay HDDs that may be present.</p> |
| Password Change | <p>Allows you to determine whether changes to the system and hard disk passwords are permitted when an administrator password is set.</p> <ul style="list-style-type: none"> • Allow Non-Admin Password Changes - This option is enabled by default. |
| TPM Security | <p>This option lets you control whether the Trusted Platform Module (TPM) in the system is enabled and visible to the operating system.</p> <p>TPM Security - This option is disabled by default.</p> <p>If you enable TPM Security, following options will be displayed.</p> <ul style="list-style-type: none"> • TPM ACPI support • TPM PPI Deprivation Override • Deactivate • Active • Clear • TPM PPI Provision Override are shown <p> NOTE: Activation, deactivation, and clear options are not affected if you load the setup program's default values. Changes to this option take effect immediately.</p> |
| Computrace (R) | <p>This field lets you activate or disable the BIOS module interface of the optional <i>Computrace Service</i> from <i>Absolute Software</i>.</p> <ul style="list-style-type: none"> • Deactivate - This option is enabled by default. • Disable • Activate |
| Chassis Intrusion | <p>Clear intrusion warning - This option will be displayed when Enable and On-Silent options are selected. This option is disabled by default.</p> <p>This field controls the chassis intrusion feature. The options are:</p> <ul style="list-style-type: none"> • Disable • Enable - This option is enabled by default. • On-Silent |
| CPU XD Support | <p>Allows you to enable or disable the execute disable mode of the processor.</p> <ul style="list-style-type: none"> • Enable CPU XD Support - This option is enabled by default. |

| Option | Description |
|------------------------|---|
| Dell Encryption | <p>Allows you to permanently clear all user information from the Dell Encryption Accelerator which is used to encrypt your system. If the card has not been configured by Data Protection or Encryption , the option will be disabled.</p> <ul style="list-style-type: none"> • Clear Owner- This option is disabled by default. |
| OROM Keyboard Access | <p>Allows you to determine if you access the Option Read Only Memory (OROM) configuration screens via hotkeys during boot. These settings prevent access to the Intel RAID (CTRL+I) or Intel Management Engine BIOS Extension (CTRL+P/F12).</p> <ul style="list-style-type: none"> • Enable - User may enter OROM configuration screens via the hotkey. This option is enabled by default. • One-Time Enable - User can enter the OROM configuration screens via the hotkeys during the next boot. After the boot, the setting will revert to disabled. • Disable - User can not enter the OROM configuration screens via the hotkey. |
| Admin Setup Lockout | <p>Allows you to enable or disable the option to enter setup when an admin password is set.</p> <ul style="list-style-type: none"> • Enable Admin Setup Lockout - This option is disabled by default. |
| HDD Protection Support | <p>Allows you to enable or disable the HDD Protection feature.</p> <ul style="list-style-type: none"> • HDD Protection Support - This option is disabled by default. |

Table 4. Secure Boot

| Option | Description |
|-----------------------|---|
| Secure Boot Enable | <p>This option enables or disables the Secure Boot feature. To enable the Secure Boot, the computer has to be in UEFI boot mode and the Enable Legacy Option ROMs option needs to be turned-off.</p> <ul style="list-style-type: none"> • Disabled - This option is selected by default. • Enabled |
| Expert Key Management | <p>Allows you to manipulate the security key databases only if the system is in Custom Mode. The Enable Custom Mode option is disabled by default. The options of Custom Mode Key Management are:</p> <ul style="list-style-type: none"> • PK - This option is selected by default. • KEK • db • dbx <p>If you enable the Custom Mode, the relevant options for PK, KEK, db, and dbx appear. The options are:</p> <ul style="list-style-type: none"> • Save to File- Saves the key to a user-selected file • Replace from File- Replaces the current key with a key from a user-selected file • Append from File- Adds a key to the current database from a user-selected file • Delete- Deletes the selected key • Reset All Keys- Resets to default setting |


| Option | Description |
|--------|---|
| | <ul style="list-style-type: none"> • Delete All Keys- Deletes all the keys <p> NOTE: If you disable the Custom Mode, all the changes made will be erased and the keys will restore to default settings.</p> |

Table 5. Performance

| Option | Description |
|------------------------|--|
| Multi Core Support | <p>Specifies whether the process will have one or all cores enabled. The performance of some applications will improve with the additional cores.</p> <ul style="list-style-type: none"> • All - This option is enabled by default • 1 • 2 |
| Intel SpeedStep | <p>Allows you to enable or disable the Intel SpeedStep mode of the processor. This option is enabled by default.</p> |
| C-States Control | <p>Allows you to enable or disable the additional processor sleep states. This option is enabled by default.</p> |
| Limit CPUID Value | <p>Allows you to limit the maximum value of the Standard CPUID Function support. Some operation systems will not complete installation when maximum CPUID Function supported is greater than 3.</p> <ul style="list-style-type: none"> • Enable CPUID Limit - This option is disabled by default. |
| Intel TurboBoost | <p>Allows you to enable or disable Intel TurboBoost mode of the processor. This option is enabled by default.</p> <ul style="list-style-type: none"> • Disabled - Does not allow the TurboBoost driver to increase the performance state of the processor above the standard performance. • Enabled - Allows the Intel TurboBoost driver to increase the performance of the CPU or graphics processor. |
| Hyper-Thread Control | <p>Allows you to enable or disable the Hyper-Threading technology. This option is enabled by default.</p> |
| Rapid Start Technology | <p>Improves the battery life automatically by putting system into a low power state during Sleep, after a user-specified amount of time. Some increase in resume time from Sleep state may be experience, but the average resume times should be faster than the resume from Hibernate. The timer can be set starting from the value "0". By default, this option is disabled.</p> |

Table 6. Power Management

| Option | Description |
|--------------|---|
| AC Recovery | <p>Specifies how the computer will respond when AC power is applied after an AC power loss. You can set the AC Recovery to:</p> <ul style="list-style-type: none"> • Power Off (default) • Power On • Last Power State |
| Auto On Time | <p>This option sets the time of the day when you would like the system to turn on automatically. Time is kept in standard 12-hour format</p> |



| Option | Description |
|--------------------------------|--|
| | <p>(hour:minutes:seconds). The startup time can be changed by typing the values in the time and A.M./P.M. fields.</p> <ul style="list-style-type: none"> • Disabled - The system will not automatically power up. This option is selected by default. • Every Day - The system will power up every day at the time you specified above . • Weekdays - The system will power up Monday through Friday at the time you specified above. • Select Days - The system will power up on days selected above at the time you specified above. <p> NOTE: This feature does not work if you turn off your computer using the switch on a power strip or surge protector or if Auto Power is set to disabled.</p> |
| Deep Sleep Control | <p>Allows you to define the controls when Deep Sleep is enabled.</p> <ul style="list-style-type: none"> • Disabled • Enabled in S5 only • Enabled in S4 and S5– This option is enabled by default. |
| Fan Control Override | <p>Controls the speed of the system fan. This option is disabled by default.</p> <p> NOTE: When enabled, the fan runs at full speed.</p> |
| USB Wake Support | <p>This option allows you to enable USB devices to wake the computer from standby.</p> <ul style="list-style-type: none"> • Enable USB Wake Support - This option is enabled by default. |
| Wake on LAN / WLAN | <p>This option allows the computer to power up from the off state when triggered by a special LAN signal. Wake-up from the Standby state is unaffected by this setting and must be enabled in the operating system. This feature only works when the computer is connected to AC power supply. This option is disabled by default.</p> |
| Block Sleep | <p>This option lets you block entering to sleep (S3 state) in operating system environment.</p> <ul style="list-style-type: none"> • Block Sleep (S3 state) - This option is disabled by default. |
| Intel Smart Connect Technology | <p>This option is disabled by default. If this option is enabled, the feature will periodically sense the nearby wireless connection while the system is asleep. The Smart Connect will synchronize the email or social media applications that are open, when the computer enters the sleep state.</p> |

Table 7. POST Behavior

| Option | Description |
|-----------------|--|
| Numlock LED | Specifies if the NumLock function can be enabled when the system boots. This option is enabled by default. |
| Keyboard Errors | Specifies whether keyboard related errors are reported when it boots. This option is enabled by default. |
| Fastboot | Speeds up the boot process by bypassing some compatibility steps. The options are: |

| Option | Description |
|-------------|--|
| | <ul style="list-style-type: none"> Minimal Thorough - This option is selected by default. Auto |
| MEBx Hotkey | Specifies whether the MEBx Hotkey function should be enabled when the computer boots. This option is enabled by default. |

Table 8. Virtualization Support

| Option | Description |
|-------------------|--|
| Virtualization | <p>This option specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization technology.</p> <ul style="list-style-type: none"> Enable Intel Virtualization Technology - This option is enabled by default. |
| VT for Direct I/O | <p>Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by Intel® Virtualization technology for direct I/O.</p> <ul style="list-style-type: none"> Enable Intel Virtualization Technology for Direct I/O - This option is enabled by default. |
| Trusted Execution | <p>This option specifies whether a Measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities provided by Intel Trusted Execution technology. The TPM virtualization technology, and Virtualization technology for direct I/O must be enabled to use this feature.</p> <ul style="list-style-type: none"> Trusted Execution- This option is disabled by default. |









Table 9. Wireless

| Option | Description |
|------------------------|---|
| Wireless Device Enable | <p>Allows enabling/disabling the internal wireless devices. The options are:</p> <ul style="list-style-type: none"> WLAN/ WiGig Bluetooth <p>Both the options are enabled by default.</p> |

Table 10. Maintenance

| Option | Description |
|---------------|--|
| Service Tag | Displays the service tag of your computer. |
| Asset Tag | Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default. |
| SERR Messages | Controls the SERR message mechanism. This option is not set by default. Some graphics cards require that the SERR message mechanism be disabled. |

Table 11. Cloud Desktop

| Option | Description |
|-----------------------|--|
| Server Lookup Method | <p>This option specifies how the Cloud Desktop software will lookup the server address. The options are:</p> <ul style="list-style-type: none"> • Static IP - Uses the static IP address • DNS - Obtains several IP addresses using the Domain Name System (DNS) protocol. This option is selected by default <p> NOTE: This option is relevant only when the Integrated NIC control in the System Configuration group is set to Enable with Cloud Desktop.</p> |
| Server Name | <p>This option specifies the server name of the server.</p> <p> NOTE: This option is relevant only when the Integrated NIC control in the System Configuration group is set to Enable with Cloud Desktop, and when the server look up method is set to DNS.</p> |
| Server IP Address | <p>This option specifies the primary static IP address of the Cloud Desktop Server with which the client software communicates. The default Server IP Address is 255.255.255.255</p> <p> NOTE: This option is relevant only when the Integrated NIC control in the System Configuration group is set to Enable with Cloud Desktop.</p> |
| Server Port | <p>This option specifies the primary IP port of the Cloud Desktop with which the client software communicates. The default Server Port value is 06910.</p> <p> NOTE: This option is relevant only when the Integrated NIC control in the System Configuration group is set to Enable with Cloud Desktop.</p> |
| Client Address Method | <p>This option specifies how the client obtains its IP address. The options are:</p> <ul style="list-style-type: none"> • Static IP - Uses the static IP address • DHCP - Obtains IP address using Dynamic Host Configuration Protocol(DHCP). This option is selected by default. <p> NOTE: This option is relevant only when the Integrated NIC control in the System Configuration group is set to Enable with Cloud Desktop.</p> |
| Client IP Address | <p>This option specifies the static IP address of the client. The default IP Address is 255.255.255.255</p> <p> NOTE: This option is relevant only when the Integrated NIC control in the System Configuration group is set to Enable with Cloud Desktop.</p> |
| Client Subnet Mask | <p>This option specifies the subnet mask IP address of the client. The default IP Address is 255.255.255.255</p> <p> NOTE: This option is relevant only when the Integrated NIC control in the System Configuration group is set to Enable with Cloud Desktop.</p> |
| Client Gateway | <p>This option specifies the gateway IP address of the client. The default IP Address is 255.255.255.255</p> <p> NOTE: This option is relevant only when the Integrated NIC control in the System Configuration group is set to Enable with Cloud Desktop.</p> |
| DNS IP address | <p>This option specifies the DNS IP address of the client. The default IP Address is 255.255.255.255</p> |





| Option | Description |
|-------------|--|
| |  NOTE: This option is relevant only when the Integrated NIC control in the System Configuration group is set to Enable with Cloud Desktop. |
| Domain Name | This option specifies the domain name of the client. |
| |  NOTE: This option is relevant only when the Integrated NIC control in the System Configuration group is set to Enable with Cloud Desktop, and when the client address method is set to static IP. |
| Advanced | This option turns on the Verbose Mode for advanced debugging. By default, this option is disabled. |
| |  NOTE: This option is relevant only when the Integrated NIC control in the System Configuration group is set to Enable with Cloud Desktop. |

Table 12. System Logs


| Option | Description |
|-------------|--|
| BIOS events | Displays the system event log and allows you to clear the log. <ul style="list-style-type: none"> • Clear Log |

Flashing the BIOS

You may need to flash (update) the BIOS when an update is available or when you replace the system board. To flash the BIOS:

1. Turn on the computer.
2. Go to dell.com/support.
3. If you have your computer's Service Tag, type your computer's Service Tag and click **Submit**.
If you do not have your computer's Service Tag, click **Detect My Product** to allow automatic detection of the Service Tag.
 -  **NOTE:** If the Service Tag cannot be detected automatically, select your product under the product categories.
4. Click **Get Drivers and Downloads**.
5. Click **View All Drivers**.
6. In the **Operating System** drop-down, select the operating system installed on your computer.
7. Click **BIOS**.
8. Click **Download File** to download the latest version of the BIOS for your computer.
9. On the next page, select **Single-file download** and click **Continue**.
10. Save the file and once the download is complete, navigate to the folder where you saved the BIOS update file.
11. Double-click the BIOS update file icon and follow the instructions on the screen.

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.

| Processor | |
|-------------------------|--|
| Type | <ul style="list-style-type: none"> • Intel Pentium Dual Core (4th Generation) • Intel Core i3 (4th Generation) • Intel Core i5 (4th Generation) |
| L3 cache | Up to 8 MB |
| Memory | |
| Memory module connector | two SODIMM slots |
| Memory module capacity | 2 GB, 4 GB, and 6 GB |
| Type | Dual channel DDR3L |
| Minimum memory | 2 GB |
| Maximum memory | 16 GB |
| Video | |
| Video Type: | |
| Integrated | Intel HD 4600 Graphics |
| Discrete | AMD Radeon R7 A265 |
| Integrated video memory | Shared system memory |
| Audio | |
| Integrated | Integrated high-definition audio with Waves MaxxAudio |
| Network | |
| Integrated | Realtek 10/100/1000 Mbps Ethernet |

System Information

| | |
|-------------------|------------------|
| Chipset | Intel H87 |
| BIOS chip (NVRAM) | 8M SPI Flash ROM |

Ports and Connectors

External:

| | |
|-------------|--|
| Network | One RJ-45 port |
| USB | <ul style="list-style-type: none">• two USB 3.0 ports• five USB 2.0 ports |
| Audio/Video | <ul style="list-style-type: none">• One headset port• One audio-out port• One HDMI-in port• One HDMI-out port |

Internal:

| | |
|----------|--|
| M.2 card | one M.2 card slot for Wi-Fi and bluetooth combo card |
|----------|--|

Control Lights And Diagnostic Lights

| | |
|----------------------|---|
| power button light | <p>white light – solid white light indicates power-on state.</p> <p>amber light – solid amber light indicates sleep/stand by state of the computer; blinking amber light indicates a problem with the system board.</p> |
| drive activity light | <p>white light – blinking white light indicates that the computer is reading data from, or writing data to the hard drive.</p> |

Power

| | |
|-------------------|------------------------|
| Coin-cell battery | 3 V CR2032 lithium ion |
| Input voltage | 100 VAC – 240 VAC |
| Input frequency | 50 Hz – 60 Hz |
| Input current | 2.60 A |

Physical

| | |
|------------------|--------------------------|
| Height | 432.40 mm (17.00 inches) |
| Width | 567.50 mm (22.34 inches) |
| Depth | 433.1 mm (17.05 inches) |
| Weight (maximum) | |

Physical

| | |
|---------------|-------------------|
| Without stand | 7.33 kg (1.61 lb) |
| With stand | 9.24 kg (2.07 lb) |

Environmental

Temperature:

| | |
|-----------|--------------------------------|
| 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 | -15.20 m to 2000 m (-50 ft to 6560 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 top of page.
4. Select the appropriate service or support link based on your need.