Inspiron 23

Owner's Manual

Computer model: Inspiron 2350
Regulatory model: W07C
Regulatory type: W07C002

Notes, Cautions, and Warnings

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

CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

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

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Before You Begin

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

1. Save and close all open files and exit all open programs.
2. Move your mouse pointer to the upper-right or lower-right corner of the screen to open the Charms sidebar, and then click **Settings**→ **Power**→ **Shut down.**

   NOTE: If you are using a different operating system, see the documentation of your operating system for shut-down instructions.
3. Disconnect your computer and all attached devices from their electrical outlets.
4. Disconnect all telephone cables, network cables, and attached devices from your computer.
5. After the computer is unplugged, press and hold the power button for 5 seconds to ground the system board.

CAUTION: Place the computer on a soft and clean surface to avoid scratching the display.

6. Place the computer face down on a flat surface.

Safety Instructions

Use the following safety guidelines to protect your computer from potential damage and ensure your personal safety.

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

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

CAUTION: To avoid damaging the computer, make sure that the work surface is flat and clean.

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

CAUTION: Only a certified service technician is authorized to remove the computer cover and access any of the components inside the computer. See the safety instructions for complete information about safety precautions, working inside your computer, and protecting against electrostatic discharge.

CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs or thumb-screws that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending any connector pins. When connecting cables, make sure that the connectors and ports are correctly oriented and aligned.

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

CAUTION: Press and eject any installed card from the media-card reader.

Recommended Tools

The procedures in this document may require the following tools:

- Phillips screwdriver
- Torx T8 screwdriver
- Plastic scribe

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. Place the computer in an upright position.
3. Connect any external devices, cables, cards, and any other part(s) you removed before working on your computer.
4. Connect your computer and all attached devices to their electrical outlets.

Removing the Memory Module(s)

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

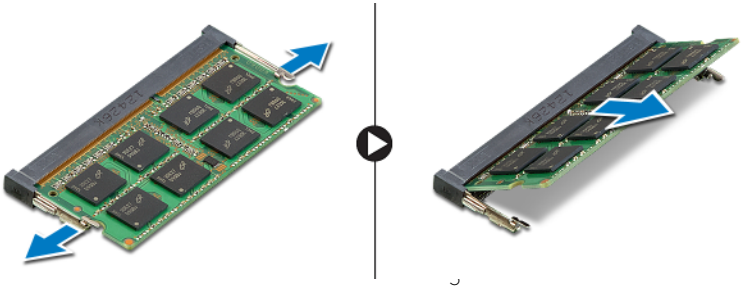
1. Loosen the captive screw that secures the memory-module cover to the base cover.
2. Slide and lift the memory-module cover off the base cover.

1	captive screw	2	memory-module cover
3	base cover		

NOTE: If the memory module accidentally slips and falls in the computer base, remove the base cover to retrieve the memory module. See "Removing the Base Cover" on page 15".

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

4 Remove the memory module from the memory-module connector.



1	memory-module connector	2	memory module
3	securing clips (2)		

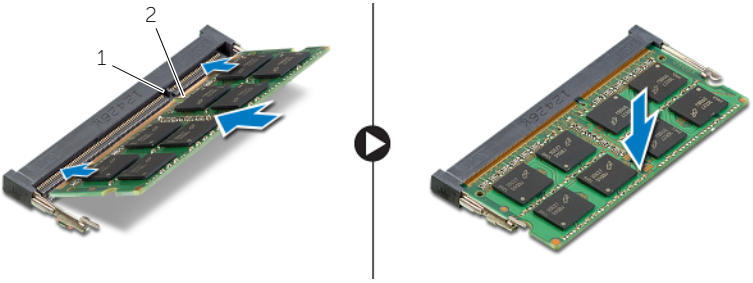
Replacing the Memory Module(s)

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

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	tab	2	notch

3. Insert the tabs on the memory-module cover into the slots on the base cover and then slide the memory-module cover into place.

   NOTE: Make sure that the captive screw on the memory-module cover aligns with the screw hole on the base cover.
4. Tighten the captive screw that secures the memory-module cover to the base cover.

Removing the Base Cover

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Procedure

1. Loosen the captive screw that secures the base cover to the computer base.
2. Remove the screws that secure the base cover to the computer base.

1	captive screw	2	base cover
3	screws (8)		

3 Starting from the right side, pry up the base cover to release the ports on the system board from the slots on the base cover.

4 Lift the base cover off the computer base.

Replacing the Base Cover

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Procedure

1. Slide the slots on the base cover into the ports on the system board and snap the base cover into place.
2. Replace the screws that secure the base cover to the computer base.
3. Tighten the captive screw that secures the base cover to the computer base.

Removing the Computer Base

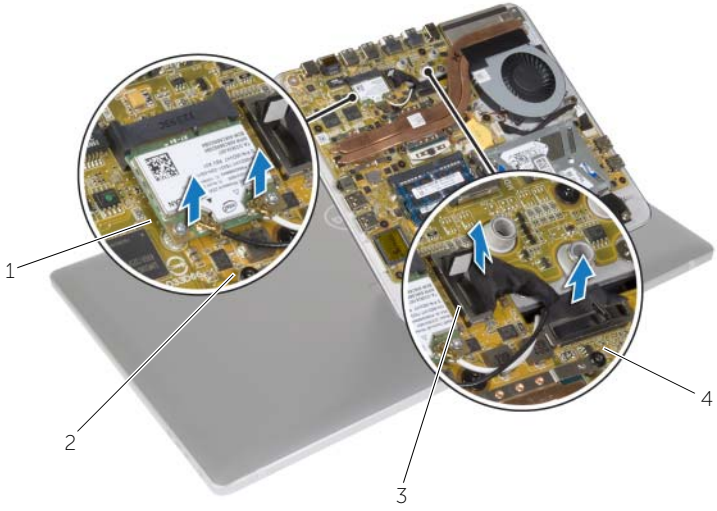
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

Remove the base cover. See "Removing the Base Cover" on page 15.

Procedure

1. Disconnect the antenna cables from the wireless mini-card.
2. Using the pull-tabs, disconnect the display cables from the system board.

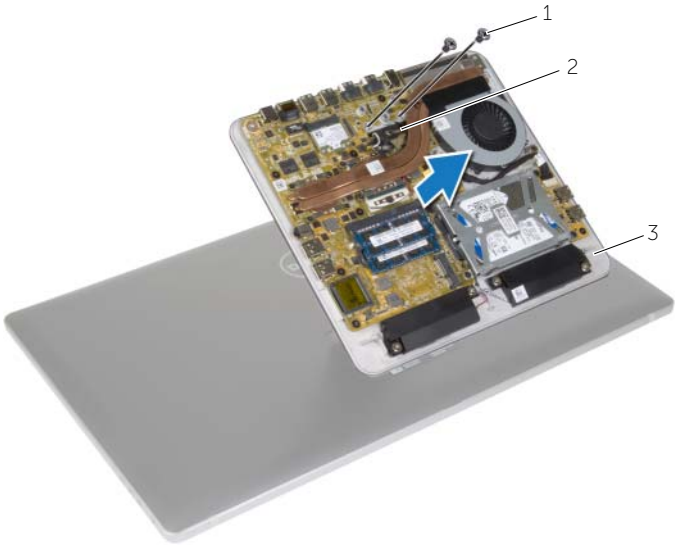


1	wireless mini-card	2	antenna cables (2)
3	pull-tabs (2)	4	display cables (2)

3 Remove the screws that secure the computer base to the stand assembly.

4 Lift the computer base slightly and slide the display cables and antenna cables through the slot on the computer base.

5 Lift the computer base away from the stand assembly.



1	screws (2)	2	slot
3	computer base		

Replacing the Computer Base

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Procedure

1. Slide the display cables and antenna cables through the slot on the computer base.
2. Place the computer base on the stand assembly and align the screw holes on the computer base with the screw holes on the stand assembly.
3. Replace the screws that secure the computer base to the stand assembly.
4. Connect the display cables to the system board.
5. Connect the antenna cables to the wireless mini-card.

Postrequisites

Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the Coin-Cell Battery

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

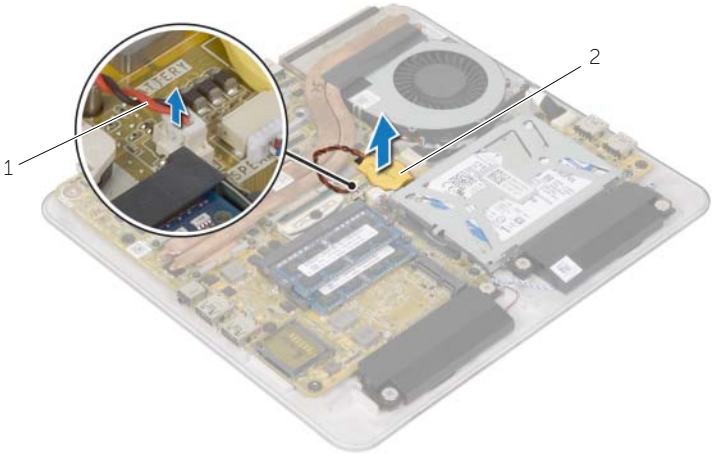
CAUTION: Removing the coin-cell battery resets the BIOS settings to default. It is recommended that you note the BIOS settings before removing the coin-cell battery.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.

Procedure

1. Disconnect the coin-cell battery cable from the system board.
2. Peel off the coin-cell battery from the system board.
3. Lift the coin-cell battery, along with its cable, off the system board.



1	coin-cell battery cable	2	coin-cell battery

Replacing the Coin-Cell Battery

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

WARNING: The battery may explode if installed incorrectly. Replace the battery only with the same or equivalent type. Discard used batteries according to the manufacturer's instructions.

Procedure

1. Adhere the coin-cell battery to the system board.
2. Connect the coin-cell battery cable to the system board.

Postrequisites

1. Replace the computer base. See "Replacing the Computer Base" on page 20.
2. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the Hard Drive

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

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

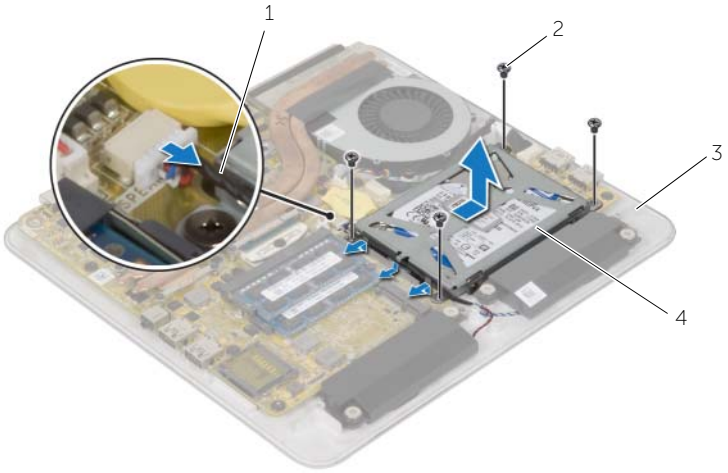
CAUTION: Hard drives are fragile. Exercise care when handling the hard drive.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.

Procedure

1. Disconnect the speaker cable from the system board.
2. Note the speaker-cable routing and remove the cable from the routing guides on the hard-drive assembly.
3. Remove the screws that secure the hard-drive assembly to the computer base.
4. Slide and lift the hard-drive assembly off the computer base.

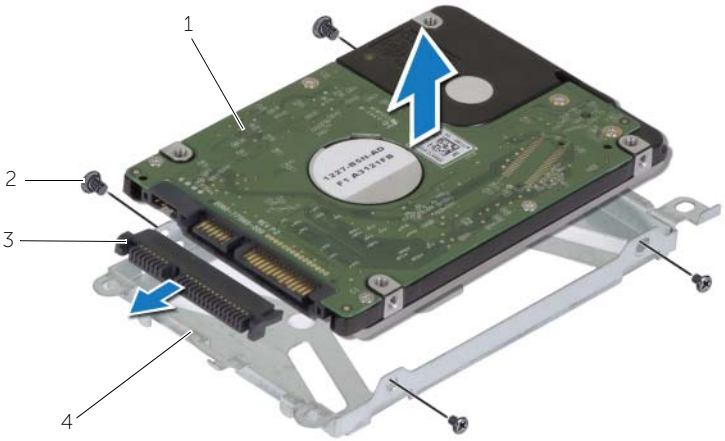


1	speaker cable	2	screws (4)
3	computer base	4	hard-drive assembly

5 Remove the screws that secure the hard-drive bracket to the hard drive.

6 Lift the hard-drive assembly off the hard-drive bracket.

7 Remove the interposer from the hard drive.



1	hard drive	2	screws (4)
3	interposer	4	hard-drive bracket

Replacing the Hard Drive

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

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

Procedure

1. Connect the interposer to the connector on the hard drive.
2. Place the hard drive in the hard-drive bracket.
3. Align the screw holes on the hard-drive bracket with the screw holes on the hard-drive assembly.
4. Replace the screws that secure the hard-drive bracket to the hard-drive assembly.
5. Place the hard-drive assembly on the computer base and slide the hard-drive assembly into place.
6. Replace the screws that secure the hard-drive assembly to the computer base.
7. Route the speaker cable through the routing guides on the hard-drive assembly.
8. Connect the speaker cable to the system board.

Postrequisites

1. Replace the computer base. See "Replacing the Computer Base" on page 20.
2. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the USB Board

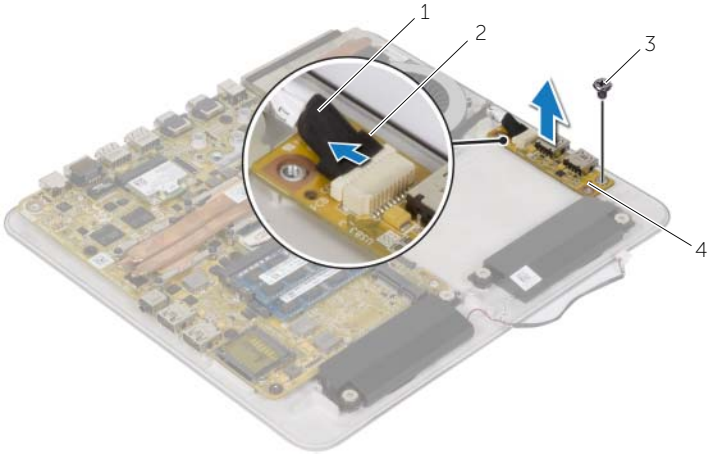
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.
3. Follow step 1 to step 4 in “Removing the Hard Drive” on page 23.

Procedure

1. Using the pull-tab, disconnect the USB-board cable from the USB board.
2. Remove the screw that secures the USB board to the computer base.
3. Lift the USB board off the computer base.



1	USB-board cable	2	pull-tab
3	screw	4	USB board

Replacing the USB board

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

1. Align the screw hole on the USB board with the screw hole on the computer base.
2. Replace the screw that secures the USB board to the computer base.
3. Connect the USB-board cable to the connector on the USB board.
4. Follow step 5 to step 8 in “Replacing the Hard Drive” on page 25.

Postrequisites

1. Replace the computer base. See "Replacing the Computer Base" on page 20.
2. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the Speakers

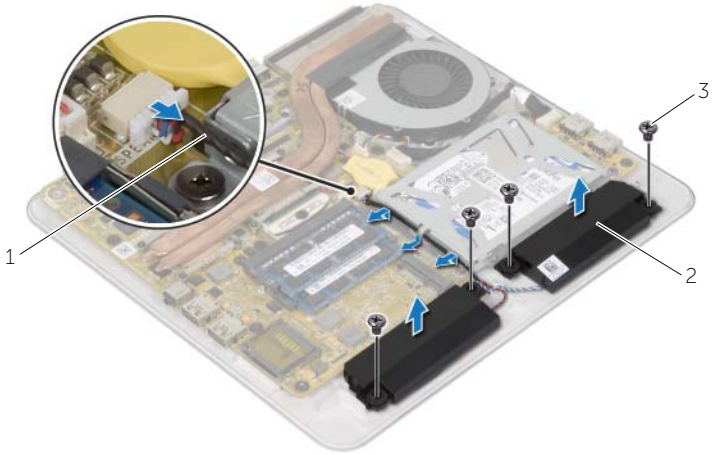
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.

Procedure

1. Disconnect the speaker cable from the system board.
2. Note of the speaker-cable routing and remove the cable from the routing guides.
3. Remove the screws that secure the speakers to the computer base.
4. Lift the speakers, along with the cable, off the computer base.



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

Replacing the Speakers

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Procedure

1. Align the screw holes on the speakers with the screw holes on the computer base.
2. Replace the screws that secure the speakers to the computer base.
3. Route the speaker cable through the routing guides.
4. Connect the speaker cable to the system board.

Postrequisites

1. Replace the computer base. See "Replacing the Computer Base" on page 20.
2. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the Fan

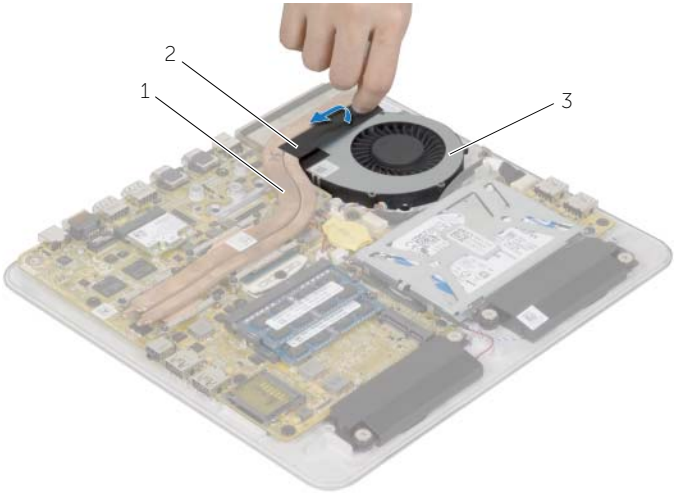
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.

Procedure

1. Peel off the Mylar from the heat sink and fan.

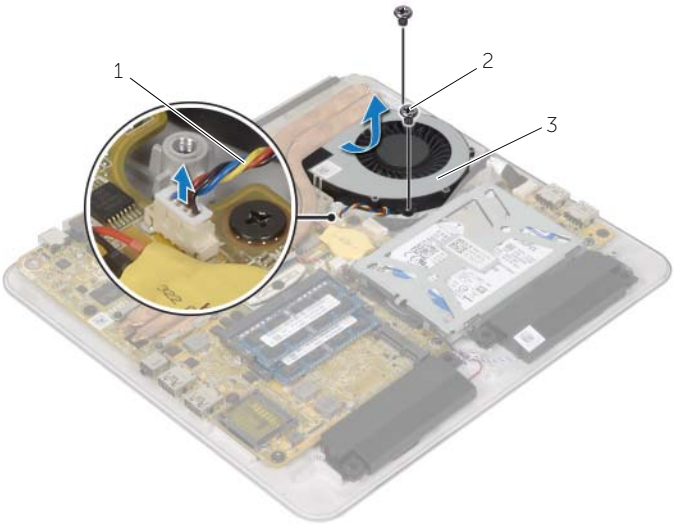


1	heat sink	2	Mylar
3	fan		

2 Disconnect the fan cable from the system board.

3 Remove the screws that secure the fan to the computer base.

4 Lift the fan, along with its cable, off the computer base.



1	fan cable	2	screws (2)
3	fan		

Replacing the Fan

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Procedure

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

Postrequisites

1. Replace the computer base. See "Replacing the Computer Base" on page 20.
2. Replace the base cover. See "Replacing the Back Cover" on page 44.

Removing the Heat Sink

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

WARNING: The heat sink may become hot during normal operation. Allow sufficient time for the heat sink to cool before you touch it.

CAUTION: To ensure maximum cooling for the processor, do not touch the heat transfer areas on the heat sink. The oils in your skin can reduce the heat transfer capability of the thermal grease.

Prerequisites

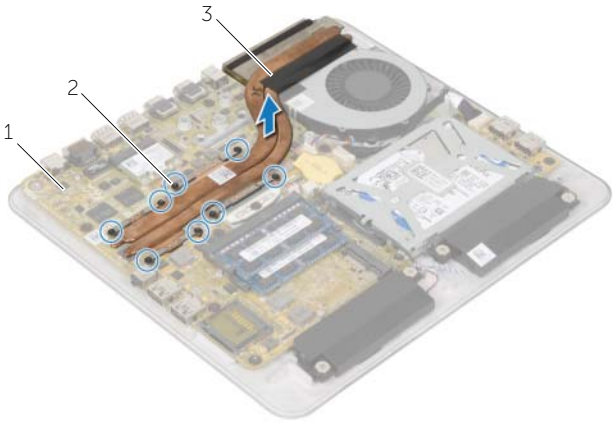
1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.

Procedure

1. In sequential order (indicated on the heat sink), loosen the captive screws that secure the heat sink to the system board.

   NOTE: The heat sink may look different on your computer depending on the configuration you ordered.

2. Lift the heat sink off the system board.



1	system board	2	captive screws (8)
3	heat sink		

Replacing the Heat Sink

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CAUTION: Incorrect alignment of the heat sink can cause damage to the system board and processor.

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 grease provided in the kit to make sure that thermal conductivity is achieved.

1. Clean the thermal grease from the bottom of the heat sink and reapply the thermal grease.
2. Align the captive screws on the heat sink with the screw holes on the system board.
3. In sequential order (indicated on the heat sink), tighten the captive screws that secure the heat sink to the system board.

Postrequisites

1. Replace the computer base. See "Replacing the Computer Base" on page 20.
2. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the Wireless Mini-Card

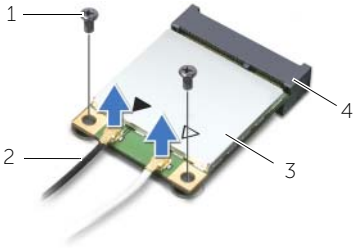
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For additional safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.

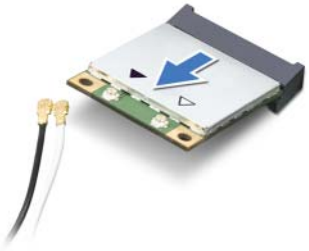
Procedure

1. Disconnect the antenna cables from the wireless mini-card.
2. Remove the screws that secure the wireless mini-card to the system board.



1	screws (2)	2	antenna cables (2)
3	wireless mini-card	4	mini-card connector

3. Slide and remove the wireless mini-card from the mini-card connector.



Replacing the Wireless Mini-Card

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

CAUTION: To avoid damage to the wireless mini-card, do not place any cables under it.

1. Align the notch on the wireless mini-card with the tab on the mini-card connector.
2. Slide the wireless mini-card at an angle into the system-board connector.
3. Press the other end of the wireless mini-card down and replace the screws that secure the wireless mini-card to the system board.
4. Connect the antenna cables to the wireless mini-card.

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

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

Postrequisites

1. Replace the computer base. See "Replacing the Computer Base" on page 20.
2. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the Processor

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

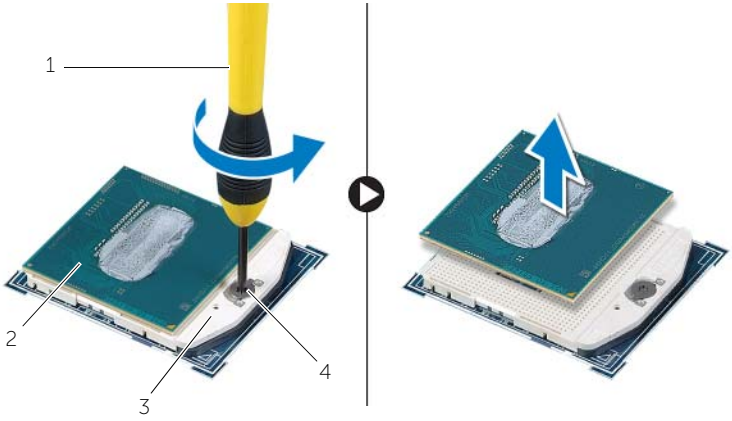
CAUTION: Processors are fragile. Handle the processor only by the edges and do not touch the metal pins.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.
3. Remove the heat sink. See "Removing the Heat Sink" on page 33.

Procedure

1. Using a Torx T8 screwdriver, loosen the ZIF-socket cam-screw.
2. Lift the processor off the ZIF socket.



1	Torx T8 screwdriver	2	processor
3	ZIF-socket	4	cam screw

Replacing the Processor

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

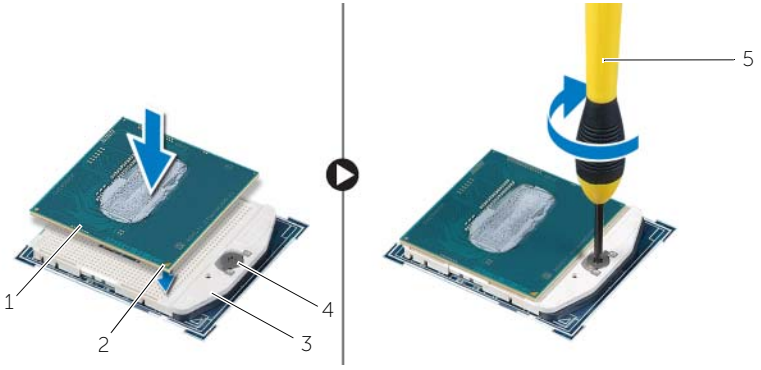
NOTE: A new processor ships with a thermal pad in the package. In some cases, the processor may ship with the thermal pad attached to it.

1 Align the pin-1 corner on the processor with the pin-1 corner of the ZIF socket.

NOTE: The pin-1 corner of the processor has a triangle that aligns with the triangle on the pin-1 corner of the ZIF socket. When the processor is properly seated, all four corners are aligned at the same height. If one or more corners of the processor are higher than the others, the processor is not seated properly.

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

2 Tighten the ZIF socket cam-screw to secure the processor to the system board.



1	processor	2	pin-1 corner
3	ZIF-socket	4	cam screw
5	Torx T8 screwdriver		

Postrequisites

1. Replace the heat sink. See "Replacing the Heat Sink" on page 34.
2. Replace the computer base. See "Replacing the Computer Base" on page 20.
3. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the System Board

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

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.

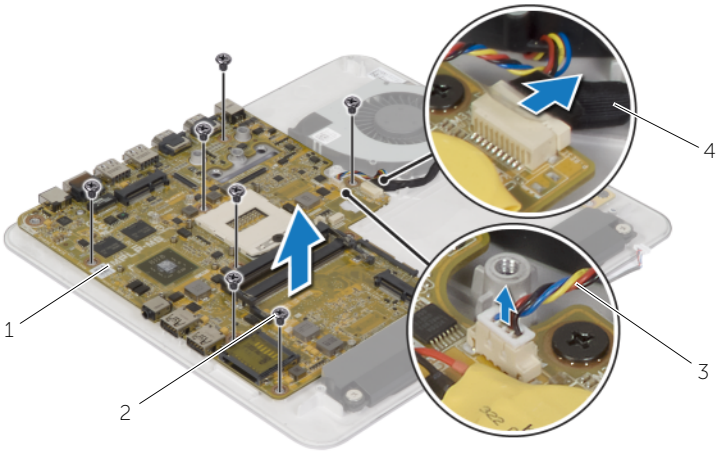
NOTE: Before disconnecting the cables from the system board, note the location of the connectors so that you can reconnect them correctly after you replace the system board.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.
3. Remove the memory modules. See "Removing the Memory Module(s)" on page 12.
4. Follow step 1 to step 4 in "Removing the Hard Drive" on page 23.
5. Remove the wireless mini-card. See "Removing the Wireless Mini-Card" on page 35.
6. Remove the coin-cell battery. See "Removing the Coin-Cell Battery" on page 21.
7. Remove the heat sink. See "Removing the Heat Sink" on page 33.
8. Remove the processor. See "Removing the Processor" on page 37.

Procedure

1. Disconnect the fan cable from the system board.
2. Disconnect the USB-board cable from the system board.
3. Remove the screws that secure the system board to the computer base.
4. Lift the system board off the computer base.



1	system board	2	screws (7)
3	fan cable	4	USB-board cable

Replacing the System Board

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

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

Procedure

1. Align the screw holes on the system board with the screw holes on the computer base.
2. Replace the screws that secure the system board to the computer base.
3. Connect the USB-board cable to the system board.
4. Connect the fan cable to the system board.

Postrequisites

1. Replace the processor. "Replacing the Processor" on page 38.
2. Replace the heat sink. See "Replacing the Heat Sink" on page 34.
3. Replace the coin-cell battery. See "Replacing the Coin-Cell Battery" on page 22.
4. Replace the wireless mini-card. See "Replacing the Wireless Mini-Card" on page 36.
5. Follow step 5 to step 8 in "Replacing the Hard Drive" on page 25.
6. Replace the memory modules. See "Replacing the Memory Module(s)" on page 14.
7. Replace the computer base. See "Replacing the Computer Base" on page 20.
8. Replace the base cover. See "Replacing the Base Cover" on page 17.

Entering the Service Tag in the BIOS

1. Turn on the computer.
2. Press <F2> when the DELL logo is displayed to enter System Setup.
3. Navigate to the main tab and enter the Service Tag in the **Service Tag Input** field. For more information on System Setup, see "System Setup Options" on page 64.

Removing the Back Cover

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.

Procedure

Gently pry the back cover from the sides and lift the back cover off the display assembly.

1	display assembly	2	back cover

Replacing the Back Cover

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

Align the tabs on the back cover with the tabs on the display bezel and snap the back cover into place.

Postrequisites

1. Replace the computer base. See "Replacing the Computer Base" on page 20.
2. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the Converter Board

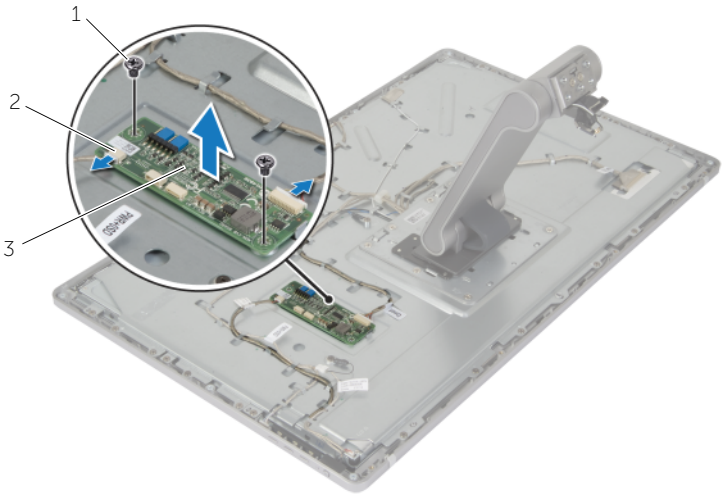
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.
3. Remove the back cover. See "Removing the Back Cover" on page 43.

Procedure

1. Disconnect the converter-board cables from the converter board.
2. Remove the screws that secure the converter board to the display bracket.
3. Lift the converter board away off the display assembly.



1	screws (2)	2	converter-board cables (2)
3	converter board		

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 You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. 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 bracket.
2. Replace the screws that secure the converter board to the display bracket.
3. Connect the converter-board cables to the converter board.

Postrequisites

1. Replace the back cover. See "Replacing the Back Cover" on page 44.
2. Replace the computer base. See "Replacing the Computer Base" on page 20.
3. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the Camera

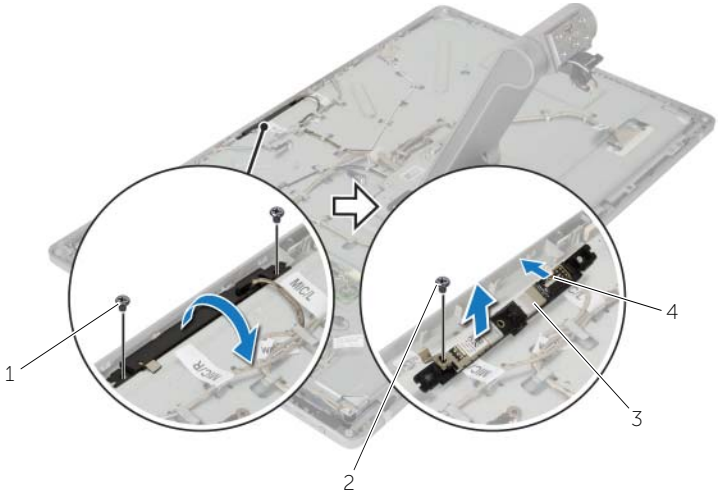
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.
3. Remove the back cover. See "Removing the Back Cover" on page 43.

Procedure

1. Remove the screws that secure the camera assembly to the display bezel.
2. Carefully lift the camera assembly and turn it over.
3. Disconnect the camera cable from the camera assembly.
4. Remove the screw that secures the camera to the camera bracket.
5. Slide and remove the camera from the camera bracket.



1	screws (2)	2	camera-bracket screw
3	camera	4	camera cable

Replacing the Camera

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

1. Slide the camera into the camera bracket and align the screw hole on the camera with the screw hole on the camera bracket.
2. Replace the screw that secures the camera to the camera bracket.
3. Connect the camera cable to the camera.
4. Align the screw holes on the camera assembly with the screw holes on the display bezel.
5. Replace the screws that secure the camera assembly to the display bezel.

Postrequisites

1. Replace the back cover. See "Replacing the Back Cover" on page 44.
2. Replace the computer base. See "Replacing the Computer Base" on page 20.
3. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the Microphones

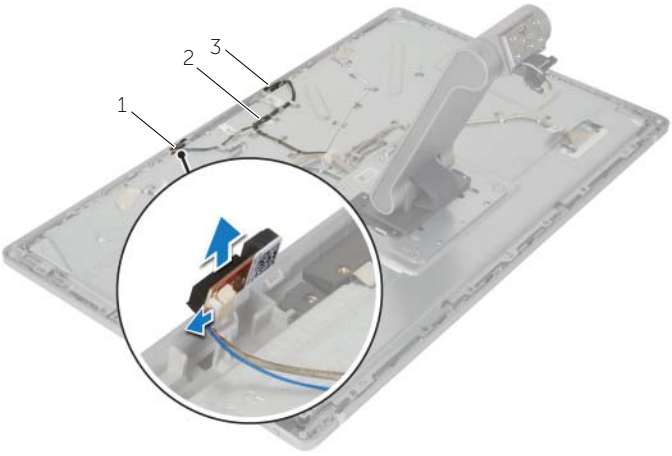
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.
3. Remove the back cover. See "Removing the Back Cover" on page 43.

Procedure

1. Carefully pry and lift the microphones out of their slots on the display bezel.
2. Disconnect the microphone cables from the microphones.



1	left microphone	2	microphone cable
3	right microphone		

Replacing the Microphones

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

1. Connect the microphone cable to the microphones.
2. Align the microphones with the slots on the display bezel and slide the microphones into the slots on the display bezel.

Postrequisites

1. Replace the back cover. See "Replacing the Back Cover" on page 44.
2. Replace the computer base. See "Replacing the Computer Base" on page 20.
3. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the Power-Button Assembly

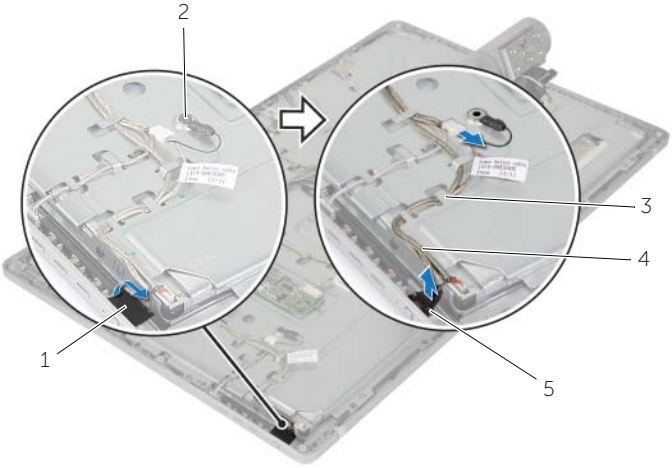
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.
3. Remove the back cover. See "Removing the Back Cover" on page 43.

Procedure

1. Note the power-button cable routing and remove it from the routing guides.
2. Remove the screw that secures the power button to the display bracket.
3. Disconnect the power-button cable from the control-buttons board cable.
4. Peel off the Mylar that covers the power button.
5. Lift the power button off the display bezel.



1	Mylar	2	screw
3	routing guides	4	power-button cable
5	power button		

Replacing the Power-Button Assembly

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

1. Place the power button in the display bezel and make sure that the power button fits in the slot on the display bezel.
2. Adhere the Mylar over the power button.
3. Route the power-button cable through the routing guides.
4. Connect the power-button cable to the control-buttons board cable.
5. Replace the screw that secures the power button to the display bracket.

Postrequisites

1. Replace the back cover. See "Replacing the Back Cover" on page 44.
2. Replace the computer base. See "Replacing the Computer Base" on page 20.
3. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the Control-Buttons Board

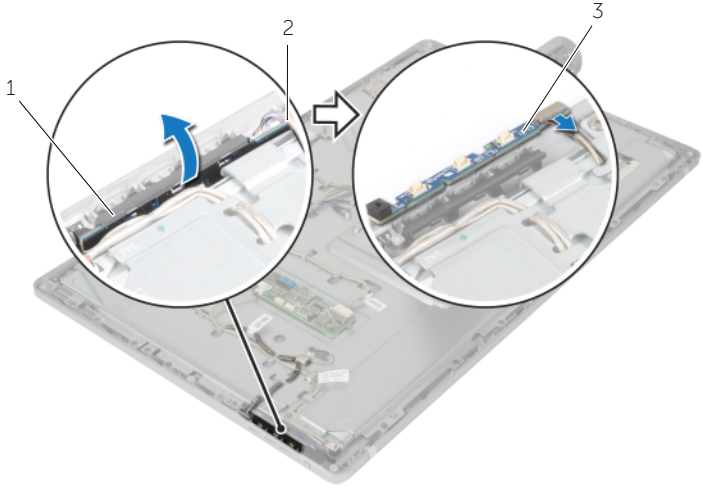
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.
3. Remove the back cover. See "Removing the Back Cover" on page 43.

Procedure

1. Pry up the control-buttons bezel to release the control-buttons board from the tabs.
2. Disconnect the control-buttons board cable from the control-buttons board.
3. Carefully pry and lift the control-buttons board away from the display bezel.



1	control-buttons bezel	2	control-buttons board cable
3	control-buttons board		

Replacing the Control-Buttons Board

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

1. Place the control-buttons board under the control-buttons bezel and make sure that the control-buttons board fits in the slot on the display bezel.
2. Connect the control-buttons board cable to the control-buttons board.

Postrequisites

1. Replace the back cover. See "Replacing the Back Cover" on page 44.
2. Replace the computer base. See "Replacing the Computer Base" on page 20.
3. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the Stand Assembly

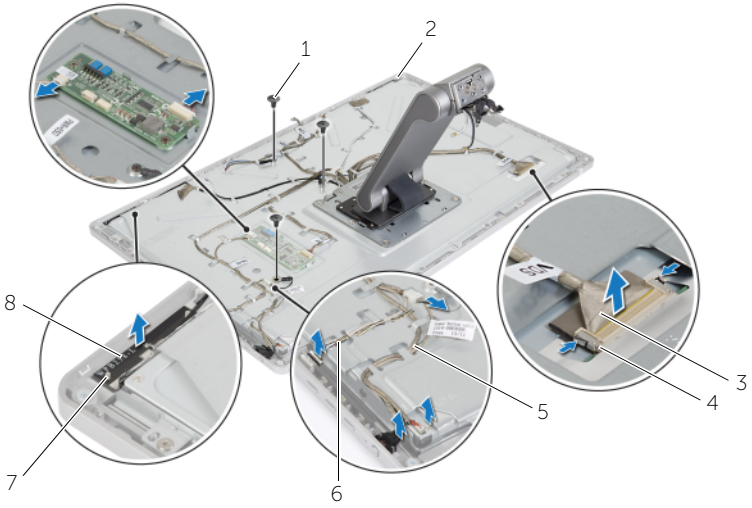
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.
3. Remove the back cover. See "Removing the Back Cover" on page 43.
4. Remove the camera. See "Removing the Camera" on page 47.
5. Remove the microphones. See "Removing the Microphones" on page 49.

Procedure

1. Gently peel off and release the antennas from the alignment posts on the display bezel.
2. Press the securing clips and disconnect the LVDS cable from the display panel.
3. Disconnect the control-buttons board cable from the control-buttons board.
4. Disconnect the power-button cable from the control-buttons board cable.
5. Remove the screws that secure the cables to the display bracket.

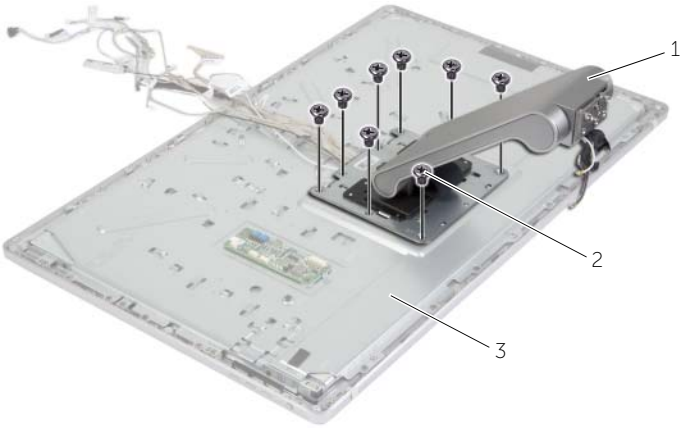


1	screws (3)	2	left antenna
3	LVDS cable	4	securing clips
5	power-button cable	6	control-buttons board cable
7	alignment posts (2)	8	right antenna

NOTE: Note the routing of the cables before you remove them so that you can route them correctly after you replace the stand assembly.

6 Remove all the cables from the routing guides.

7 Remove the screws that secure the stand assembly to the display bracket.



1	stand assembly	2	screws (8)
3	display assembly		

8 Slide and release the tabs on the stand assembly from the slots on the display bracket and turn the stand assembly over.

1	tabs (2)	2	stand assembly

9 Peel off the Mylar that covers the touchscreen cable and disconnect the touchscreen cable from the display panel.

10 Lift the stand assembly off the display assembly.

1	touchscreen cable	2	Mylar

Replacing the Stand Assembly

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Procedure

1. Connect the touchscreen cable to the display panel and adhere the Mylar over the touchscreen cable.
2. Place the stand assembly on the display assembly.
3. Slide the tabs on the stand assembly into the slots on the display bracket.
4. Align the screw holes on the stand assembly with the screw holes on the display bracket.
5. Replace the screws that secure the stand assembly to the display bracket.
6. Route all the cables through their routing guides.
7. Replace the screws that secure the cables to the display bracket.
8. Connect the power-button cable to the control-buttons board cable.
9. Connect the control-buttons board cable to the control-buttons board.
10. Connect the LVDS cable to the display assembly.
11. Align the antenna modules with the alignment posts and adhere them to the display bezel.

Postrequisites

1. Replace the microphones. See "Replacing the Microphones" on page 50.
2. Replace the camera. See "Replacing the Camera" on page 48.
3. Replace the back cover. See "Replacing the Back Cover" on page 44.
4. Replace the computer base. See "Replacing the Computer Base" on page 20.
5. Replace the base cover. See "Replacing the Base Cover" on page 17.

Removing the Display Panel

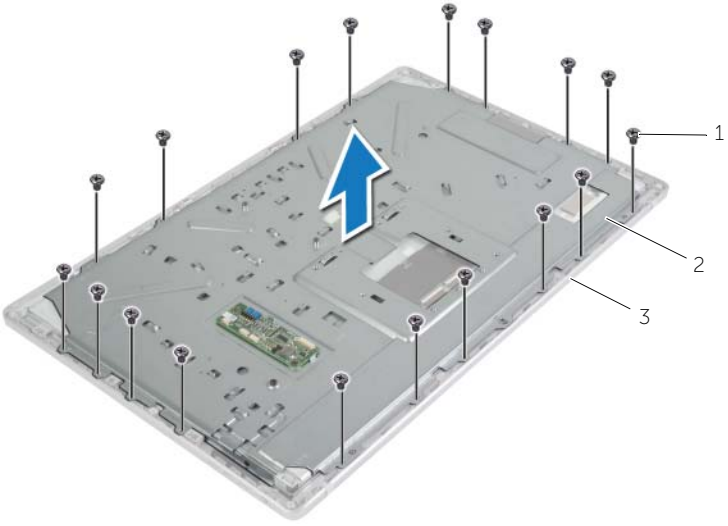
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

Prerequisites

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Remove the computer base. See "Removing the Computer Base" on page 18.
3. Remove the back cover. See "Removing the Back Cover" on page 43.
4. Remove the stand assembly. See "Removing the Stand Assembly" on page 55.

Procedure

1. Remove the screws that secure the display bracket to the display bezel.
2. Lift the display bracket off the display assembly.

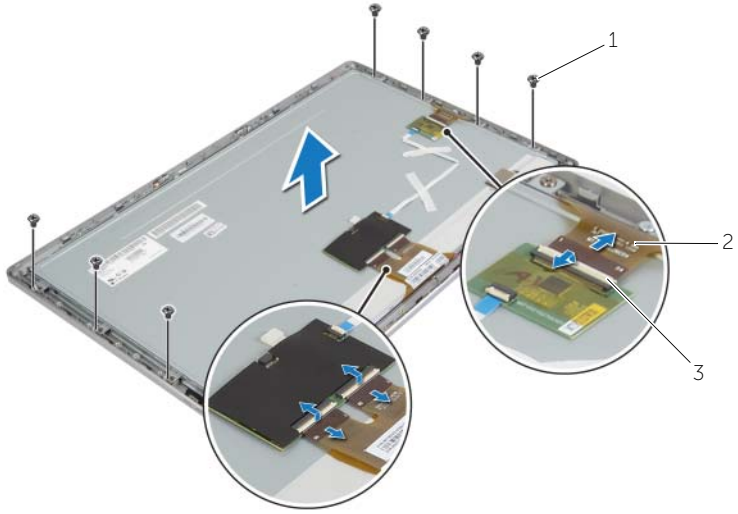


1	screws (18)	2	display bracket
3	display bezel		

3 Remove the screws that secure the display panel to the display bezel.

4 Lift the latches and disconnect the flex cables from the display panel.

5 Lift the display assembly off the display bezel and place it on a clean surface.



1	screws (7)	2	flex cables (2)
3	latches (2)		

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

7 Remove the display-panel brackets from the display panel.

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

Replacing the Display Panel

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices, see the Regulatory Compliance home page at dell.com/regulatory_compliance.

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. Slide the flex cables into the connectors on the display panel and press down on the connector latches to secure the cables.
5. Replace the screws that secure the display panel to the display bezel.
6. Replace the screws that secure the display bracket to the display bezel.

Postrequisites

1. Replace the stand assembly. See "Replacing the Stand Assembly" on page 59.
2. Replace the back cover. See "Replacing the Back Cover" on page 44.
3. Replace the computer base. See "Replacing the Computer Base" on page 20.
4. Replace the base cover. See "Replacing the Base Cover" on page 17.

System Setup

Use the system setup to utility to:

- Get information about the hardware installed on your computer, such as the amount of RAM, the size of the hard drive, and so on.
- Change the system configuration information.
- Set or change a user-selectable option, such as the user password, type of hard drive installed, enabling or disabling base devices, and so on.

CAUTION: Changing the settings in System Setup may result in incorrect configuration that can cause your computer to work incorrectly or damage your computer.

NOTE: It is recommended that you note the settings in System Setup before you make any changes.

Entering System Setup

1. Turn on (or restart) your computer.
2. When the DELL logo is displayed, wait for the F2 prompt to appear and then press <F2> immediately.

   NOTE: If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop. Then shut down your computer and try again.

System Setup Screens

The system setup screen displays current or changeable configuration information for your computer. Information on the screen is divided into three areas: the **setup item**, active **help screen**, and **key functions**.

Setup Item — This field appears on the left side of the system setup window. This field is a scrollable list containing features that define the configuration of your computer, including installed hardware, power conservation, and security features. Scroll up and down the list with the up- and down-arrow keys. As an option is highlighted, the **Help Screen** displays more information about that option and available settings.	**Help Screen** — This field appears on the right side of the system setup window and contains information about each option listed in the **Setup Item**. In this field you can view information about your computer and make changes to your current settings. Press the up-arrow and down-arrow keys to highlight an option. Press <Enter> to make that selection active and return to the **Setup Item**. **NOTE:** Not all settings listed in the **Setup Item** are changeable.
Key Functions — This field appears below the **Help Screen** and lists keys and their functions within the active system setup field.	

System Setup Options

NOTE: Depending on your computer and installed devices, the items listed in this section may appear, or may not appear exactly as listed.

NOTE: For information on changing the BIOS settings using System Setup options see Me and My Dell at **dell.com/support**.

Main — System Information	
BIOS Revision	Displays the BIOS revision number
BIOS Build Date	Displays the BIOS build date in mm/dd/yyyy format
System Name	Displays the computer model
System Time	Displays the current time in hh:mm:ss format
System Date	Displays the current date in mm/dd/yyyy format
Service Tag	Displays the Service Tag of the computer

Main — System Information (Continued)	
Service Tag Input	Allows you to enter the Service Tag of the computer if the Service Tag field is empty
Asset Tag	Displays the asset tag of the computer when the asset tag is present

Main — Processor Information	
Processor Type	Displays the processor type
Processor ID	Displays the processor ID
Processor Core Count	Displays the number of core(s)
Processor L1 Cache	Displays the processor L1 cache size
Processor L2 Cache	Displays the processor L2 cache size
Processor L3 Cache	Displays the processor L3 cache size

Main — Memory Information	
Memory Installed	Indicates the amount of memory installed in MB
Memory Available	Indicates the amount of memory available in MB
Memory Running Speed	Indicates the memory speed in MHz
Memory Technology	Indicates the type of installed memory

Main — SATA Information	
SATA 1	
Device Type	Displays the SATA device connected to the SATA 1 connector
Device ID	Displays the serial number of the SATA 1 device
Device Size	Displays the size of the SATA 1 device in GB, if the device is a hard drive

Main — SATA Information (Continued)	
SATA 2	
Device Type	Displays the SATA device connected to the SATA 2 connector
Device ID	Displays the serial number of the SATA 2 device
Device Size	Displays the size of the SATA 2 device in GB, if the device is a hard drive
mSATA	
Device Type	Displays the SATA device connected to the mSATA connector
Device ID	Displays the serial number of the mSATA device
Device Size	Displays the size of the mSATA device in GB

Advanced — Processor Configuration	
Intel Hyper-Threading Technology	Allows you to enable or disable Intel Hyper-Threading Technology feature for the processor — Enabled or Disabled (Enabled by default)
Intel(R) SpeedStep Technology	Allows you to enable or disable Intel SpeedStep Technology feature for the processor — Enabled or Disabled (Enabled by default)
Intel(R) Virtualization Technology	Allows you to enable or disable Intel Virtualization Technology feature for the processor — Enabled or Disabled (Enabled by default)
CPU XD Support	Allows you to enable or disable the execute disable mode for the processor — Enabled or Disabled (Enabled by default)
Limit CPUID Value	Allows you to limit the maximum value the processor standard CPUID function supports — Enabled or Disabled (Disabled by default)
Multi Core Support	Allows you to enable or disable multi-core processor — Enabled or Disabled (Enabled by default)
Intel(R) Turbo Boost Technology	Allows you to enable or disable Intel Turbo Boost Technology mode for the processor — Enabled or Disabled (Enabled by default) **NOTE:** The Intel Turbo Boost Technology option is displayed only if this feature is supported by the processor.

Advanced — USB Configuration	
Rear USB Ports	Allows you to enable or disable the rear USB ports — Enabled or Disabled (Enabled by default)
Side USB Ports	Allows you to enable or disable the side USB ports — Enabled or Disabled (Enabled by default)

Advanced — Onboard Device Configuration	
Onboard Audio Controller	Allows you to enable or disable the onboard audio controller Enabled or Disabled (Enabled by default)
SATA Mode	Displays the SATA mode on your computer (ATA by default)
Onboard LAN Controller	Allows you to enable or disable the onboard LAN controller Enabled or Disabled (Enabled by default)
Onboard LAN Boot ROM	Allows you to boot your computer from a network Enabled or Disabled (Disabled by default)

Boot	
Numlock Key	Allows you to set the status of the Num Lock key during boot On or Off (On by default)
Secure Boot Control	Allows you to enable or disable the secure boot control **NOTE:** To enable this feature, the computer must be in the UEFI boot mode.
Load Legacy OPROM	Allows you to load the legacy OPROM when in the UEFI boot mode.
Keyboard Errors	Allows you to enable or disable the display of keyboard-related errors during boot Report or Do Not Report (Report by default)
USB Boot Support	Allows you to enable or disable booting from USB mass storage devices such as hard drive, optical drive, USB key, and so on Enable or Disable (Enabled by default)

Boot (Continued)	
Boot Mode	Allows you to choose a boot mode for your computer Legacy or UEFI (Legacy by default)
1st Boot Device	Displays the first boot device
2nd Boot Device	Displays the second boot device
3rd Boot Device	Displays the third boot device
4th Boot Device	Displays the fourth boot device
5th Boot Device	Displays the fifth boot device
Hard Disk Drivers	Displays the boot sequence of the hard drive
USB Storage Drivers	Displays the boot sequence of the USB storage drive
CD/DVD ROM Drivers	Displays the boot sequence of the optical drive

Power	
Wake Up by Integrated LAN/WLAN	Allow the computer to be powered on by special LAN or wireless LAN signals Enabled or Disabled (Disabled by default)
AC Recovery	Allows you to configure the behavior of your computer after it recovers from a power failure Power Off, Power On, or Last Power State (Power Off by default)
Auto Power On	Allows you to enable or disable the computer from turning on automatically Enabled or Disabled (Disabled by default)
Auto Power On Mode	Allows you to set the computer to turn on automatically every day or on a preselected date. This option can be configured only if the Auto Power On mode is set to Enabled Everyday or Selected Day (Selected Day by default)
Auto Power On Date	Allows you to set the date on which the computer must turn on automatically. This option can be configured only if the Auto Power On mode is set to Enabled 1 to 31 (15 by default)

Power (Continued)	
Auto Power On Time	Allows you to set the time at which the computer must turn on automatically. This option can be configured only if the Auto Power On mode is set to Enabled hh:mm:ss (12:30:30 by default)

Security	
Supervisor Password	Displays the supervisor password
User Password	Displays the user password
Set User Password	Allows you to set, change, or delete the user password
Password Check	Allows you to enable password verification either when you attempt to enter system setup or each time the computer boots Setup or Always (Setup by default) **NOTE:** Password Check option is visible only when the user password is set.
Set Supervisor Password	Allows you to set, change, or delete the supervisor password. The supervisor password controls access to the system setup utility **NOTE:** Deleting the supervisor password deletes the user password. Set the supervisor password before setting the user password.
User Access Level	Allows you to restrict or provide access to the system setup utility No Access, View Only, Limited, or Full Access (Full Access by default) • No Access: Restricts users from editing system setup options • View Only: Allows users to only view system setup options • Limited: Allows users to edit limited system setup options • Full Access: Allows users to edit all system setup options except the supervisor password

Exit	
Save Changes and Reset	Allows you to exit system setup and save your changes
Discard Changes and Reset	Allows you to exit system setup and load previous values for all system setup options
Load Defaults	Allows you to load default values for all system setup options

Clearing Forgotten Passwords

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Disconnect the USB-board cable from the system board. See "Removing the System Board" on page 40.
3. Replace the base cover. See "Replacing the Base Cover" on page 17.
4. Turn on the computer to clear all BIOS passwords.
5. Remove the base cover. See "Removing the Base Cover" on page 15.
6. Connect the USB-board cable to the system board. See “Replacing the System Board” on page 42.
7. Replace the base cover. See "Replacing the Base Cover" on page 17.

Clearing CMOS Settings

WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in "Before You Begin" on page 9. After working inside your computer, follow the instructions in "After Working Inside Your Computer" on page 11. For more safety best practices information, see the Regulatory Compliance Homepage at dell.com/regulatory_compliance.

1. Remove the base cover. See "Removing the Base Cover" on page 15.
2. Disconnect the coin-cell battery cable from the system board.
3. Wait for approximately five seconds to clear the CMOS settings.
4. Connect the coin-cell battery cable to the system board.
5. Replace the base cover. See "Replacing the Base Cover" on page 17.

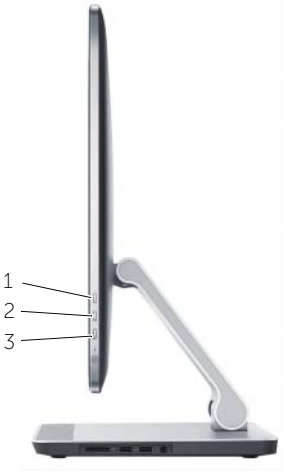
Display-Settings Controls

Use the display settings controls to:

- adjust volume
- adjust screen brightness
- select video source
- turn off the display

The functions of the controls vary when:

- your computer is not connected to any video input or video output devices
- your computer is connected to an external video input device such as an another computer, gaming console, camera, Blu-ray player, and so on
- your computer is connected to an external video output device such as a TV, monitor, projector, and so on



	No external input or output connected	External input connected	External output connected
1	increase display brightness	volume control	increase display brightness
2	decrease display brightness	brightness control	decrease display brightness
3	input source select/ display-off	input source select/ display-off	input source select/ display-off

The display settings controls functions as describe below:

- **Increase display brightness**: Press to increase the display brightness.
- **Decrease display brightness**: Press to decrease the display brightness.
- **Display off**: Press and hold to turn off the display.
- **Input source select**: Press and release to switch between video input sources.

The display settings controls provide an on-screen display (OSD) when your computer is connected to an external video output device.

NOTE: With the computer turned off, press the input source select/display-off button and the power button simultaneously to initialize display diagnostics.

The following table describes the OSD for each display settings control:

OSD	Display settings control	Description
	Volume	Touch to access the volume controls menu.
	Brightness	Touch to access the brightness controls menu. **NOTE:** Brightness control feature is disabled in Windows 8 charms.
	Input source select	Touch to switch between video input sources.
	Up	Touch to increase volume or brightness levels.
	Down	Touch to decrease volume or brightness levels.
	Close	Touch to close the OSD controls.

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 Service Tag** 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 **Drivers and Downloads**.
5. In the **Operating System** drop-down, select the operating system installed on your computer.
6. Click **BIOS**.
7. Click **Download File** to download the latest version of the BIOS for your computer.
8. On the next page, select **Single-file download** and click **Continue**.
9. Save the file and once the download is complete, navigate to the folder where you saved the BIOS update file.
10. Double-click the BIOS update file icon and follow the instructions on the screen.