Inspiron 24 5000 All-in-One

Service Manual

Computer Model: Inspiron 24-5477
Regulatory Model: W20C
Regulatory Type: W20C001

Identifier	GUID-5B8DE7B7-879F-45A4-88E0-732155904029
Status	Released

Notes, cautions, and warnings

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

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

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

Identifier	GUID-089FFA4B-3A62-4B51-BDE1-309C58A451D9
Status	Released

© 2018 Dell Inc. or its subsidiaries. All rights reserved. Dell, EMC, and other trademarks are trademarks of Dell Inc. or its subsidiaries. Other trademarks may be trademarks of their respective owners.

2018 - 04

Rev. A00

Contents

1 Before working inside your computer 9
Before you begin 9
Safety instructions 9
Recommended tools 10
Screw list 10

2 After working inside your computer 12

3 Technical overview 13
Inside view of your computer 13
System-board components 14

4 Removing the stand 15
Procedure 15
Procedure 15

5 Replacing the stand 17
Procedure 17
Procedure 18

6 Removing the back cover 20
Prerequisite 20
Procedure 20

7 Replacing the back cover 21
Procedure 21
Post-requisite 21

8 Removing the hard drive 22
Prerequisites 22
Procedure 22

9 Replacing the hard drive 24
Procedure 24
Post-requisites 25

10 Removing the memory modules 26
Prerequisites 26
Procedure 26

11 Replacing the memory modules 28
Procedure 28
Post-requisites 29

12 Removing the system-board shield....30
Prerequisites....30
Procedure....30

13 Replacing the system-board shield....31
Procedure....31
Post-requisites....31

14 Removing the camera....32
Prerequisites....32
Procedure....32

15 Replacing the camera....35
Procedure....35
Post-requisites....36

16 Removing the base panel....37
Prerequisites....37
Procedure....37

17 Replacing the base panel....39
Procedure....39
Post-requisites....39

18 Removing the rear-I/O bracket....40
Prerequisites....40
Procedure....40

19 Replacing the rear-I/O bracket....41
Procedure....41
Post-requisites....41

20 Removing the microphones....42
Prerequisites....42
Procedure....42

21 Replacing the microphones....44
Procedure....44
Post-requisites....44

22 Removing the speakers....46
Prerequisites....46
Procedure....46

23 Replacing the speakers....48
Procedure....48
Post-requisites....48

24 Removing the antennas..... 50
Prerequisites..... 50
Procedure..... 50

25 Replacing the antennas..... 52
Procedure..... 52
Post-requisites..... 53

26 Removing the side I/O-board..... 54
Prerequisites..... 54
Procedure..... 54

27 Replacing the side I/O-board..... 56
Procedure..... 56
Post-requisites..... 57

28 Removing the headset port..... 58
Prerequisites..... 58
Procedure..... 58

29 Replacing the headset port..... 60
Procedure..... 60
Post-requisites..... 60

30 Removing the power-button board..... 62
Prerequisites..... 62
Procedure..... 62

31 Replacing the power-button board..... 64
Procedure..... 64
Post-requisites..... 64

32 Removing the coin-cell battery..... 66
Prerequisites..... 66
Procedure..... 66

33 Replacing the coin-cell battery..... 68
Procedure..... 68
Post-requisites..... 68

34 Removing the wireless card..... 69
Prerequisites..... 69
Procedure..... 69

35 Replacing the wireless card..... 71
Procedure..... 71
Post-requisites..... 72

36 Removing the solid-state drive/Intel Optane....73
Prerequisites....73
Procedure....73

37 Replacing the solid-state drive/Intel Optane....75
Procedure....75
Post-requisites....75

38 Removing the fan....76
Prerequisites....76
Procedure....76

39 Replacing the fan....77
Procedure....77
Post-requisites....77

40 Removing the heat sink....78
Prerequisites....78
Procedure....78

41 Replacing the heat sink....80
Procedure....80
Post-requisites....81

42 Removing the processor....82
Prerequisites....82
Procedure....82

43 Replacing the processor....84
Procedure....84
Post-requisites....85

44 Removing the system board....86
Prerequisites....86
Procedure....86

45 Replacing the system board....88
Procedure....88
Post-requisites....89
Flashing the BIOS....89

46 Removing the power-adapter port....91
Prerequisites....91
Procedure....91

47 Replacing the power-adapter port....93
Procedure....93

Post-requisites....93

48 Removing the display panel....95
Prerequisites....95
Procedure....95

49 Replacing the display panel....98
Procedure....98
Post-requisites....100

50 Removing the middle frame....101
Prerequisites....101
Procedure....102

51 Replacing the middle frame....103
Procedure....103
Post-requisites....104

52 Removing the display-assembly base....105
Prerequisites....105
Procedure....106

53 Replacing the display-assembly base....107
Procedure....107
Post-requisites....107

54 Downloading drivers....109
Downloading the audio driver....109
Downloading the graphics driver....110
Downloading the USB driver....110
Downloading the chipset driver....111
Downloading the network driver....112

55 System setup....113
Boot Sequence....113
Navigation keys....113
BIOS overview....114
Entering BIOS setup program....114
Enabling or disabling the USB in BIOS setup program....114
Identifying the hard drive in BIOS setup program....115
Checking the system memory in BIOS setup program....115
System setup options....115
Flashing the BIOS....118

56 Troubleshooting....120
Flashing the BIOS....120
Reinstall Windows using a USB recovery drive....120
Enhanced Pre-Boot System Assessment (ePSA) diagnostics....121

Running the ePSA diagnostics..... 121
Display built-in self test..... 122
Diagnostics..... 122
Wi-Fi power cycle..... 123
Flea power release..... 123

57 Getting help and contacting Dell..... 124
Self-help resources..... 124
Contacting Dell..... 124

Identifier	GUID-5D3B1051-9384-409A-8D5B-
Status	Released

Before working inside your computer

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

Identifier	GUID-0CBCCCC8-AEDC-4C92-992B-45062AB0B176
Status	Released

Before you begin

1 Save and close all open files and exit all open applications.

2 Shut down your computer. Click **Start** > **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 attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.

5 Remove any media card and optical disc from your computer, if applicable.

6 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 flat, soft, and clean surface to avoid scratches on the display.

7 Place the computer face down.

Identifier	GUID-71128823-CE64-4E17-9439-DEE95AF668C4
Status	Released

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 www.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 electrical outlet.

CAUTION: To avoid damaging the computer, ensure 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: You should only perform troubleshooting and repairs as authorized or directed by the Dell technical assistance team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. See the safety instructions that shipped with the product or at www.dell.com/regulatory_compliance.

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, ensure that the ports and connectors are correctly oriented and aligned.

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

Identifier	GUID-DEA55279-6FE6-4A1F-A152-21F8A5572B33
Status	Released

Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #1
- Plastic scribe

Identifier	GUID-9A75B7DF-C68B-4CB9-AB00-6907D398A083
Status	Released

Screw list

The following table provides the list of screws that are used for securing different components to the computer.

Table 1. Screw list

Component	Secured to	Screw type	Quantity	Screw image
Stand (Pedestal)	Back cover	M3x5	2	
System-board shield	Display-assembly base	M3x5	5	
Wireless-card shield	System board	M2x2.5	2	
Wireless card	System board	M2x2.5	1	
Solid-state drive/Intel Optane memory	System board	M2x2.5	1	
Fan	Display-assembly base	M3x5	3	
Base panel	Rear-I/O bracket	M3x5	2	
Base panel	Display-assembly base	M3x5	2	

Component	Secured to	Screw type	Quantity	Screw image
Rear-I/O bracket	Display-assembly base	M3x5	3	
Speakers	Display-assembly base	M3x4+7.1	6	
Power-button board	Middle frame	M3x5	1	
Microphones (4 modules)	Middle frame	M2x2.5	4	
Side-I/O board and headphone-board shield	Display-assembly base	M3x5	2	
Side-I/O board	Display-assembly base	M2.5x3.5	2	
Headset port	Display-assembly base	M3x5	1	
Antenna modules	Display-assembly base	M2x2.5	2	
Retractable-camera assembly door	Display-assembly base	M3x5	2	
Retractable-camera bezel	Retractable-camera assembly	M3x5	3	
System board	Display-assembly base	M3x5	9	
Power-adapter port	Display-assembly base	M3x5	2	
Display panel	Display-assembly base	M3x5	11	
Middle frame	Display-assembly base	M3x5	17	

Identifier	GUID-06588814-2678-4667-9FF9-C
Status	Released

After working inside your computer

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

1 Replace all screws and ensure that no stray screws remain inside your computer.
2 Connect any external devices, peripherals, or cables you removed before working on your computer.
3 Replace any media cards, discs, or any other parts 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.

Identifier	GUID-93575C2B-9DA3-42EF-B01E-
Status	Released

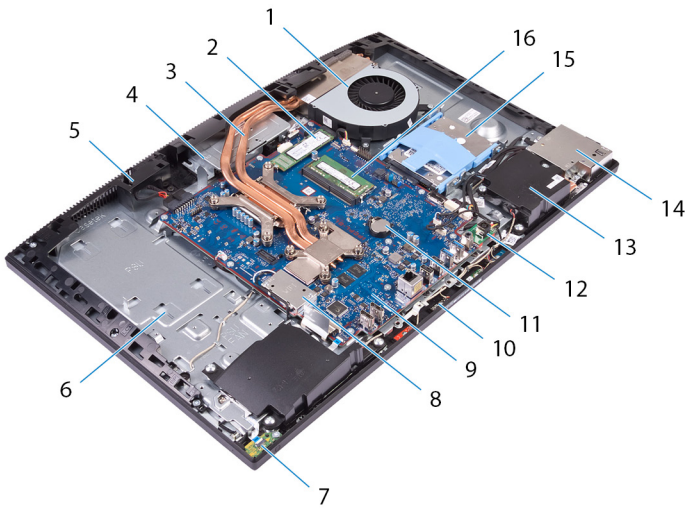
Technical overview

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 www.dell.com/regulatory_compliance.

Identifier	GUID-A1C284DA-0E06-4126-904A-CA45D69C364C
Status	Released

Inside view of your computer

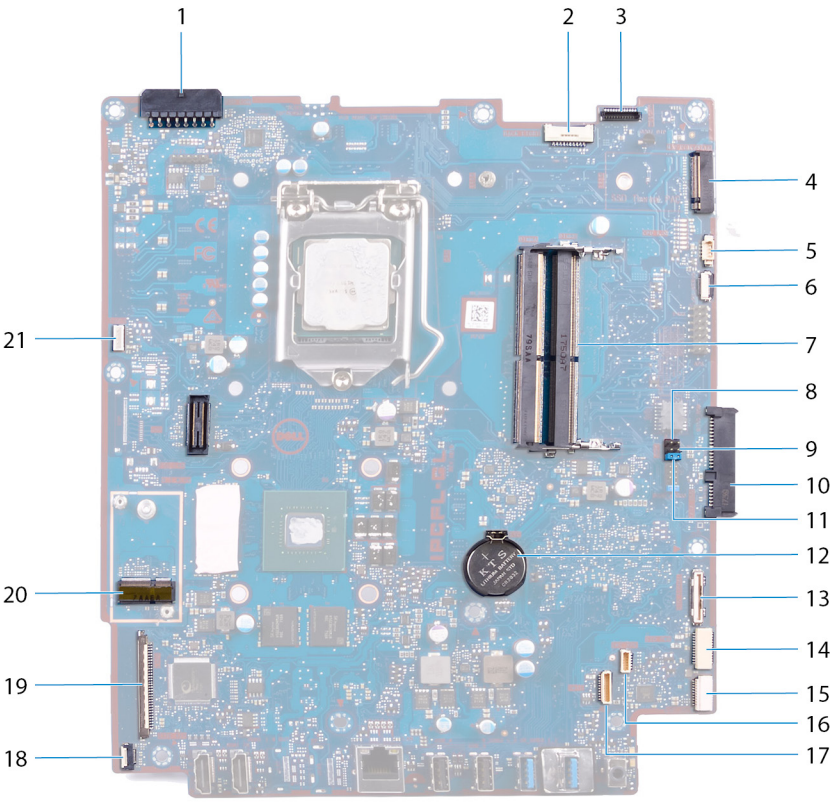
NOTE: The appearance of heat sink differs depending on the graphics configuration you ordered.



1	fan	2	solid-state drive/Intel Optane memory
3	heat sink	4	retractable-camera assembly
5	middle frame	6	display-assembly base
7	power-button board	8	wireless-card shield
9	system board	10	microphones (4)
11	coin-cell battery	12	power-adapter port
13	speakers (2)	14	side I/O-bracket
15	hard drive	16	memory modules

Identifier	GUID-E0813815-C2D4-477E-B251-AF9740A9DFCE
Status	Released

System-board components



1	power-adapter port connector	2	display-backlight cable
3	camera-cable connector	4	M.2 PCIe/SATA slot
5	fan-cable connector	6	low pin count debug header
7	memory-module slots (2)	8	service mode jumper
9	CMOS clear jumper	10	hard-drive connector
11	password clear jumper	12	coin-cell battery
13	side-I/O board connector	14	side-I/O power connector
15	headset-port board connector	16	speaker-cable connector
17	microphone-cable connector	18	power-button board cable connector
19	display-cable connector	20	M.2 wireless-card slot
21	touchscreen-cable connector		

Identifier	GUID-4BBD3587-8BDA-47F1-ACEE
Status	Released

Removing the stand

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 www.dell.com/regulatory_compliance.

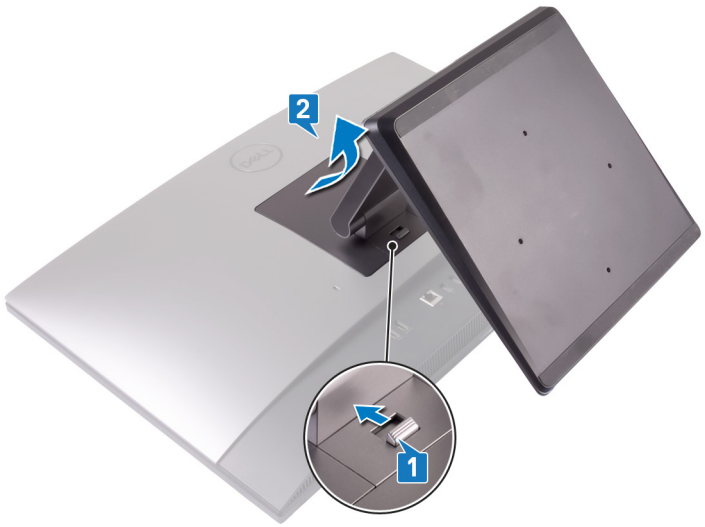
Identifier	GUID-50D8EC90-253A-433D-B011-356F94343361
Status	Released

Procedure

NOTE: The following procedure applies only to computers that are shipped with an articulating stand.

CAUTION: Place the computer on a flat, soft and clean surface to avoid damaging the display.

1 Push the release tab.
2 Hold the tab in the release position and lift the stand off the back cover.



Identifier	GUID-2C51F551-304E-4D0F-A968-F98F483A9C75
Status	Released

Procedure

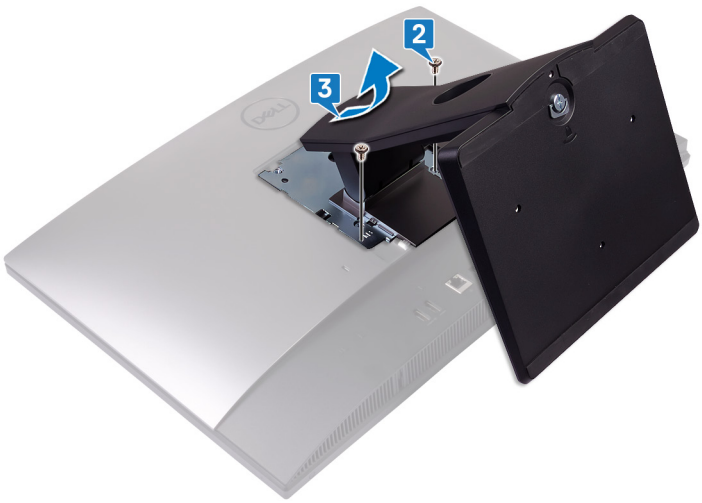
NOTE: The following procedure applies only to computers that are shipped with a pedestal stand.

CAUTION: Place the computer on a flat, clean, and even surface to avoid damaging the display.

1 Using a plastic scribe, pry the stand cover away from the back cover.

2 Remove the two screws (M3x5) that secure the stand to the back cover.

3 Slide and lift the stand off the back cover.



Identifier	GUID-A1A7E0D7-52BF-4F80-84FE-
Status	Released

Replacing the stand

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 www.dell.com/regulatory_compliance.

Identifier	GUID-201BF543-8773-44CE-A71D-9673987DA271
Status	Released

Procedure

NOTE: The following procedure applies only to computers that are shipped with an articulating stand.

Align the tabs on the stand with the slots on the back cover and snap the stand into place on the back cover.

Identifier	GUID-E25F5ADB-782D-45FD-A77C-23D8D19D3DBA
Status	Released

Procedure

NOTE: The following procedure applies only to computers that are shipped with a pedestal stand.

1 Align the tabs on the stand with the slots on the back cover, slide the stand into the slots, and then snap it into place.
2 Replace the two screws (M3x5) that secure the stand to the back cover.

3 Snap the tabs on the stand cover into the slots on the back cover.

3

Identifier	GUID-AE7F608F-4CAF-464A-B977-
Status	Released

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 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 www.dell.com/regulatory_compliance.

Identifier	GUID-6AFB841D-0244-4142-95CB-2ACA809EE627
Status	Released

Prerequisite

Remove the stand.

Identifier	GUID-E724C34B-E111-4B52-B714-7D13AD76AE9D
Status	Released

Procedure

1 Press the tab on the back cover and push it in the direction shown to release the back cover from the latch on the system-board shield.

2 Lift the back cover from the computer.

Identifier	GUID-411D5FFA-086D-432E-9CE3-
Status	Released

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 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 www.dell.com/regulatory_compliance.

Identifier	GUID-48958560-CB37-4F31-B0D2-4F443CDC3871
Status	Released

Procedure

1 Place the back cover on the middle frame and align the tabs on the back cover with the slots on the middle frame.

2 Slide the back cover towards the back panel to push the back cover tab under the latch on the system-board shield.

Identifier	GUID-9FB29BBC-29E9-43A8-8FC3-A43B10AB80DF
Status	Released

Post-requisite

Replace the stand.

Identifier	GUID-5DE1E07B-4633-4536-ACBF-
Status	Released

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 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 www.dell.com/regulatory_compliance.

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.

Identifier	GUID-284E791C-B598-4E66-ADC9-E375F8DA4A1F
Status	Released

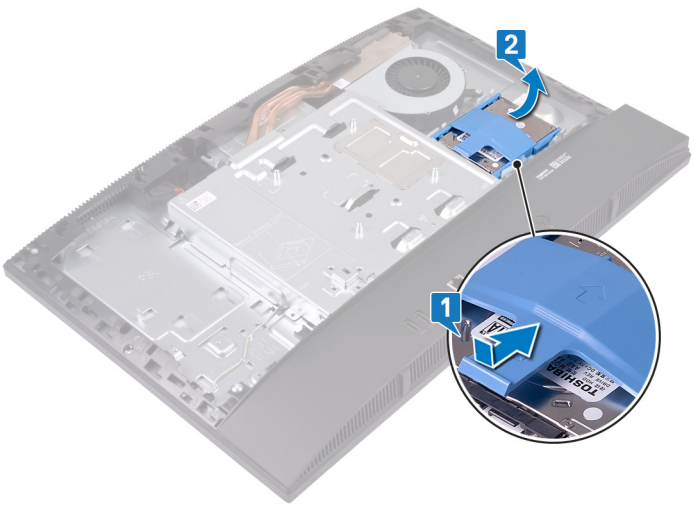
Prerequisites

1 Remove the stand.
2 Remove the back cover.

Identifier	GUID-284BA764-CA13-4145-A4EF-1348F6063296
Status	Released

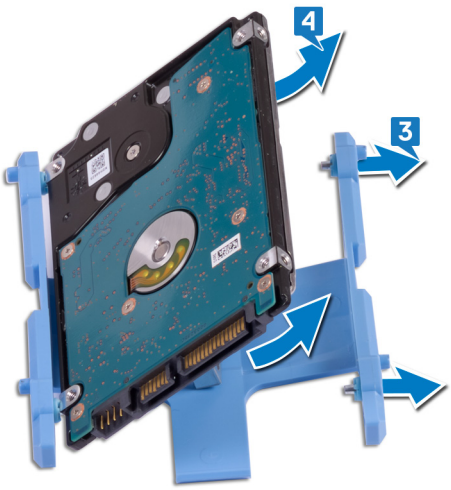
Procedure

1 Press down the tab securing the hard-drive assembly to the system-board shield.
2 Slide and lift the hard-drive assembly from its slot to release it from the display-assembly base.



3 Pry the tabs on hard-drive bracket from its slots on the hard drive.

4 Remove the hard drive off the hard-drive bracket.



Identifier	GUID-8D72BB77-0F8B-428E-A98E-
Status	Released

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 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 www.dell.com/regulatory_compliance.

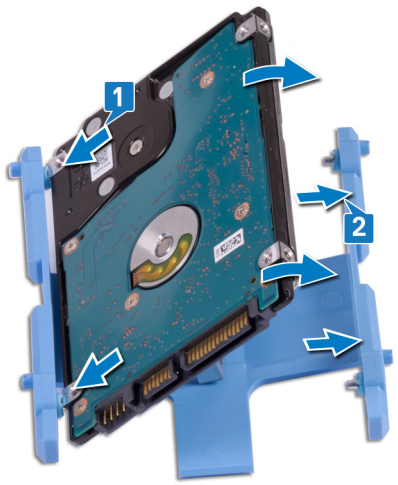
CAUTION: Hard drives are fragile. Exercise care when handling the hard drive.

Identifier	GUID-93792B41-A408-42D3-A10F-37E0156890DA
Status	Released

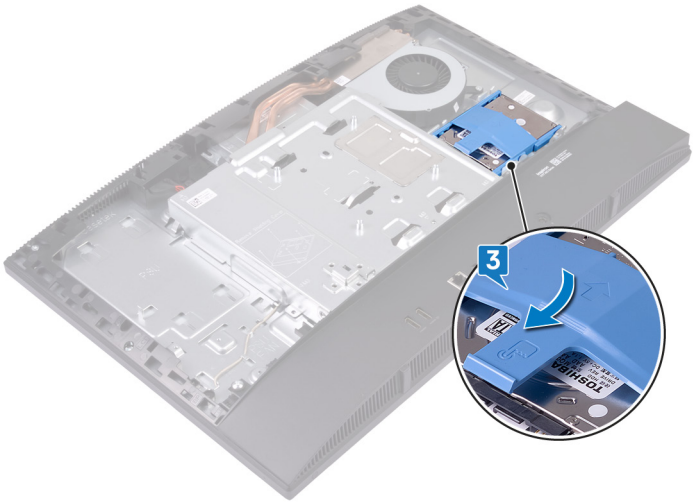
Procedure

1 Align the tabs on the hard-drive bracket with the slots on the hard drive.

2 Flex the hard-drive bracket and replace the remaining tabs on the hard-drive bracket with the slots on the hard drive.



3 Place the hard-drive assembly into its slot and slide to lock the hard-drive assembly to the display-assembly base.



Identifier	GUID-3C07FF4A-549D-4C06-963B-7FEB41308018
Status	Released

Post-requisites

1 Replace the back cover.
2 Replace the stand.

Identifier	GUID-AAC0DC5A-1680-492D-804F
Status	Released

Removing the memory modules

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 www.dell.com/regulatory_compliance.

Identifier	GUID-284E791C-B598-4E66-ADC9-E375F8DA4A1F
Status	Released

Prerequisites

1 Remove the stand.
2 Remove the back cover.

Identifier	GUID-F26C6CF1-E963-46AA-87E4-E5F6772D5CEF
Status	Released

Procedure

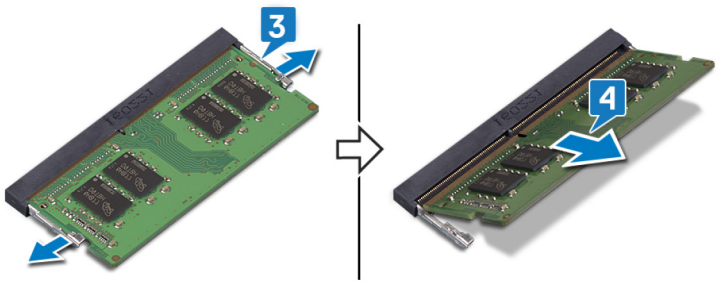
1 Pry the DIMM door on the system-board shield.

2 Locate the memory module on the system board.

NOTE: Depending on the configuration ordered, your computer may have up to two memory modules installed on the system board.

3 Using your fingertips, spread apart the securing clips at each end of the memory-module slot until the memory module pops up.

4 Slide and remove the memory module from the memory-module slot.



Identifier	GUID-1F5023F5-9868-4AAF-A9F5-[illegible]
Status	Released

Replacing the memory modules

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 www.dell.com/regulatory_compliance.

Identifier	GUID-6AE10B99-6224-4751-8C70-4DCFE7E271E0
Status	Released

Procedure

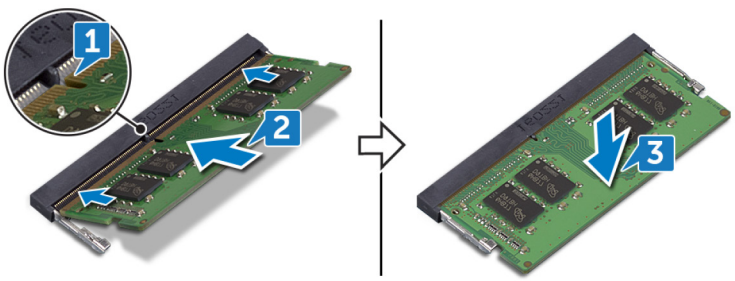
1 Align the notch on the memory module with the tab on the memory-module slot.

2 Slide the memory module firmly into the slot at an angle.

3 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.

NOTE: Repeat this procedure for each memory module shipped with your computer.



4 Align the tabs on the DIMM door with the slots on the system-board shield, and then snap the DIMM door until it clicks into place.

NOTE: If you do not hear the click, remove the DIMM door and realign it.

Identifier	GUID-3C07FF4A-549D-4C06-963B-7FEB41308018
Status	Released

Post-requisites

1 Replace the back cover.
2 Replace the stand.

Identifier	GUID-342B5CBF-63A8-4038-B670-
Status	Released

Removing the system-board shield

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 www.dell.com/regulatory_compliance.

Identifier	GUID-284E791C-B598-4E66-ADC9-E375F8DA4A1F
Status	Released

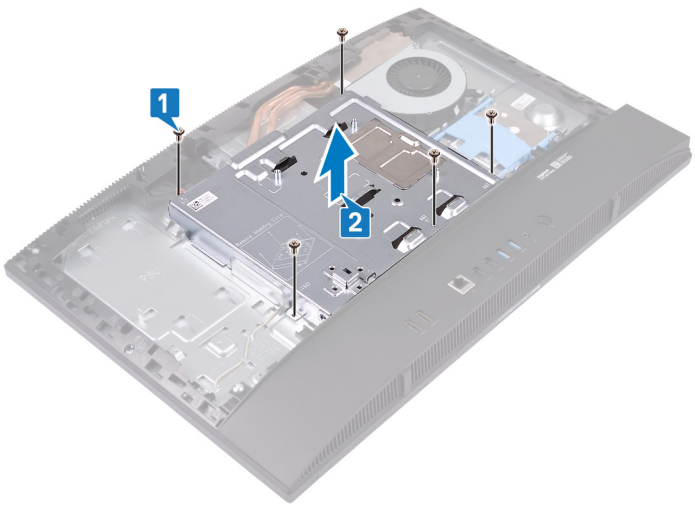
Prerequisites

1 Remove the stand.
2 Remove the back cover.

Identifier	GUID-A2571BD1-83FE-4AA2-9741-E3574735C9CB
Status	Released

Procedure

1 Remove the five (M3x5) screws that secure the system-board shield to the display-assembly base.
2 Lift the system-board shield off the display-assembly base.



Identifier	GUID-5274B19C-AEEA-4EF8-952E
Status	Released

Replacing the system-board shield

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 www.dell.com/regulatory_compliance.

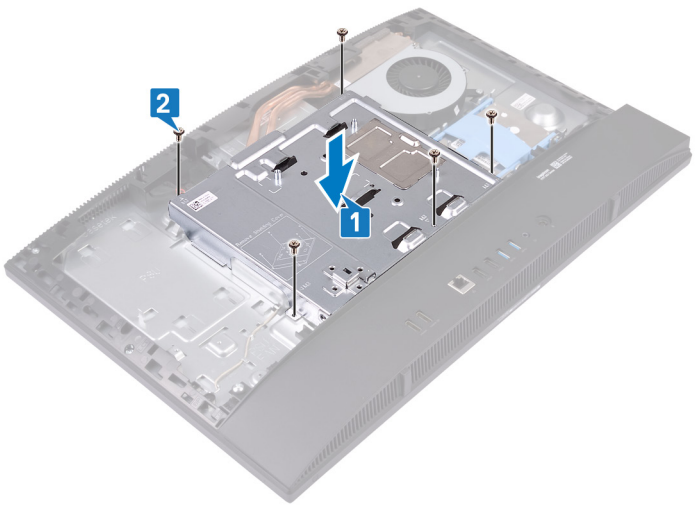
Identifier	GUID-04033FC7-CBF9-42D6-B23A-D121063D557B
Status	Released

Procedure

1 Align and place the screw holes on the system-board shield with the screw holes on the display-assembly base.

CAUTION: Before replacing the screws, ensure that cables connected to the system board are not being pinched.

2 Replace the five screws (M3x5) that secure the system-board shield to the display-assembly base.



Identifier	GUID-3C07FF4A-549D-4C06-963B-7FEB41308018
Status	Released

Post-requisites

1 Replace the back cover.

2 Replace the stand.

Identifier	GUID-1FB16E7C-AF0C-4FA0-8736-
Status	Released

Removing the camera

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 www.dell.com/regulatory_compliance.

Identifier	GUID-5DDEC110-A1C0-4987-A8D8-7B494F46E0D6
Status	Released

Prerequisites

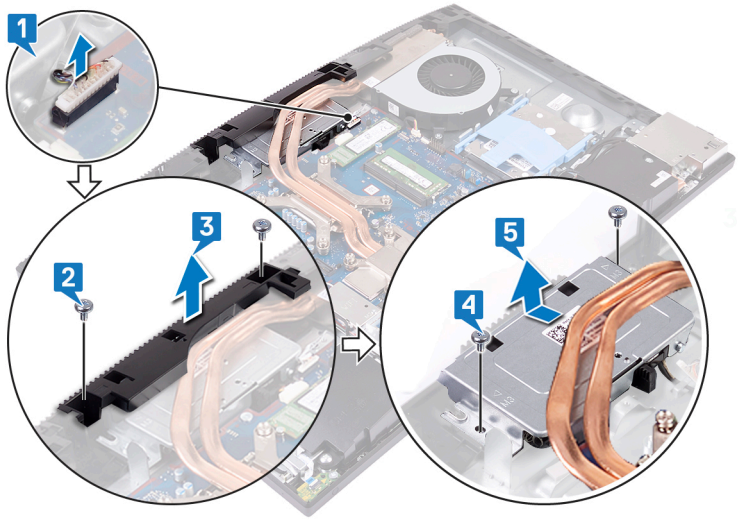
1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.

Identifier	GUID-4BB96A4D-D440-43D0-90EB-DD7D5F1F8087
Status	Released

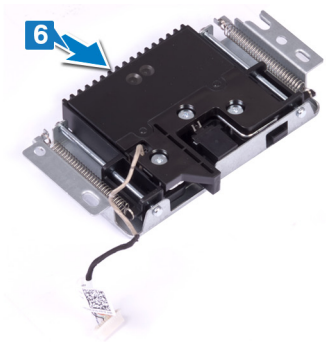
Procedure

NOTE: The size and configuration of the camera module may vary depending on the configuration ordered.

1 Disconnect the camera cable from the system board.
2 Remove the two screws (M3x5) that secure the retractable-camera assembly door to the middle frame.
3 Lift the retractable-camera assembly door out of the middle frame.
4 Remove the two screws (M3x5) that secure the retractable-camera assembly bracket to the middle frame.
5 Slide and lift the retractable-camera bracket off the middle frame.

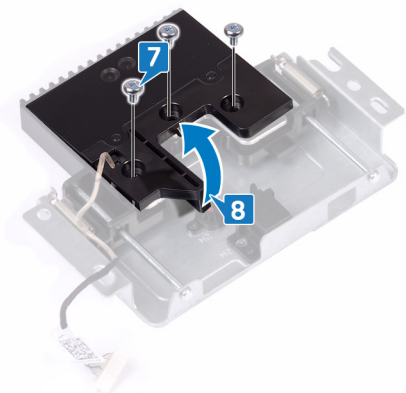


6 Press the top of the retractable-camera assembly to extend the retractable camera.

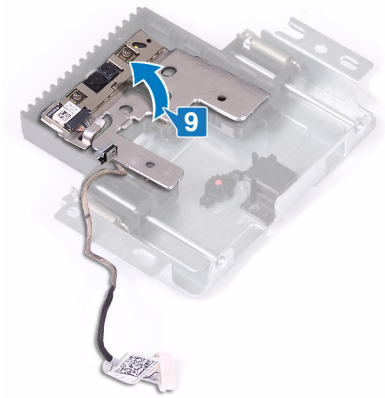


7 Remove the three screws (M3x5) that secure the retractable-camera bezel to the retractable-camera bracket.

8 Lift the retractable-camera bezel off the retractable-camera assembly.



9 Release the camera module from the tab and lift the camera module along with the camera bracket and camera cable, off the retractable-camera assembly.


9

Identifier	GUID-690FF12D-2581-4326-8270-C
Status	Released

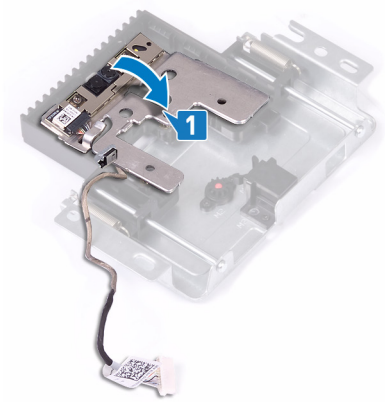
Replacing the camera

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 www.dell.com/regulatory_compliance.

Identifier	GUID-7438E783-C339-4E55-8F5E-D5BA1B21A020
Status	Released

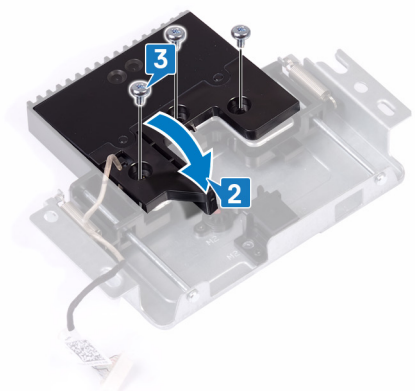
Procedure

1 Place the camera module along with the camera bracket and camera cable in the slot on the retractable-camera assembly and snap it in place.

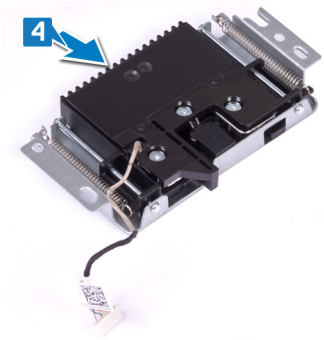


2 Align and place the retractable-camera bezel on the retractable-camera assembly.

3 Replace the three screws (M3x5) that secure the retractable-camera bezel to the retractable-camera bracket.



4 Press the top of the retractable-camera assembly to retract the retractable camera.



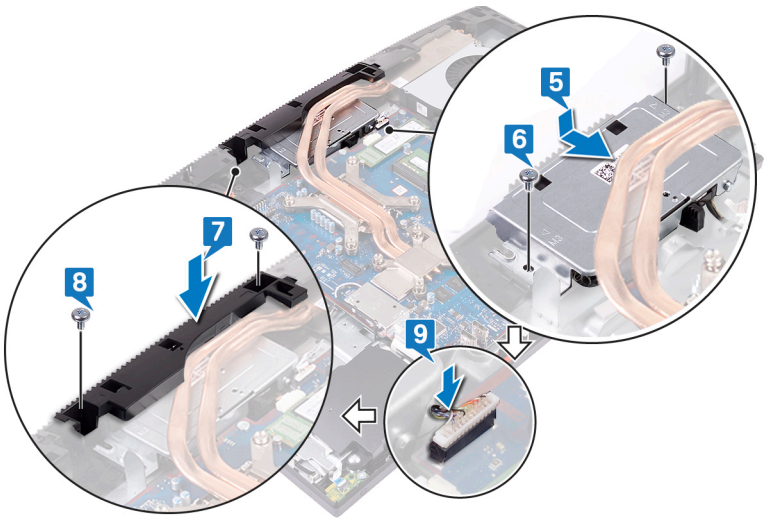
5 Slide and place the retractable-camera bracket on the middle frame.

6 Align the screw holes on the retractable-camera bracket with the screw holes on the middle frame and then replace the two screws (M3x5) that secure the retractable-camera assembly bracket to the middle frame.

7 Align and place the retractable-camera assembly door on the middle frame.

8 Replace the two screws (M3x5) that secure the retractable-camera assembly door to the middle frame.

9 Connect the camera cable to the system board.



Identifier	GUID-638ABCF2-04B1-4AB1-B503-BD53AC5206C4
Status	Released

Post-requisites

1 Replace the system-board shield.

2 Replace the back cover.

3 Replace the stand.

Identifier	GUID-00149281-8B26-4782-AFBA-2
Status	Released

Removing the base 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 www.dell.com/regulatory_compliance.

Identifier	GUID-9A6E5D48-5C74-4D12-B31F-3231B9CCF775
Status	Released

Prerequisites

1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.

Identifier	GUID-591DC02A-389D-475A-BAAF-193BFE3A0AFD
Status	Released

Procedure

1 Remove the two screws (M3x5) that secure the base panel to the display-assembly base.
2 Remove the two screws (M3x5) that secure the base panel to the rear-I/O bracket.

3 Lift the base panel off the middle frame.

3

Identifier	GUID-606EBFB0-4D37-40A1-8A69-
Status	Released

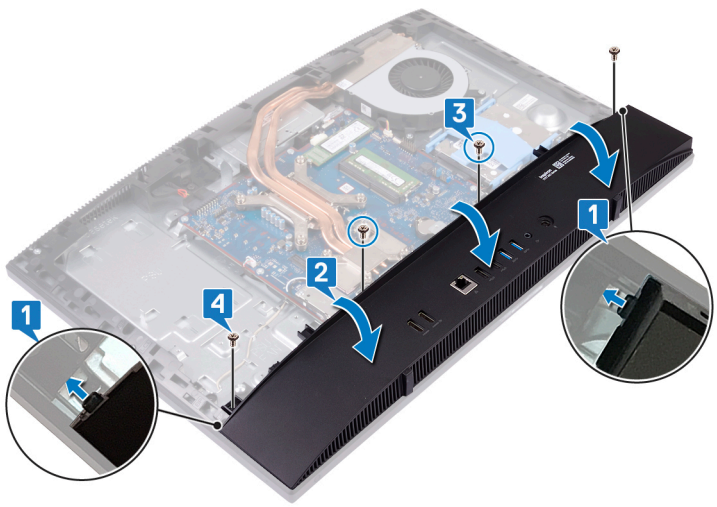
Replacing the base panel

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 www.dell.com/regulatory_compliance.

Identifier	GUID-C719684D-8CB0-4ED7-AFB2-F5B82EA51880
Status	Released

Procedure

1 Align the tabs on the base panel with the slots on the middle frame.
2 Align the slots on the base panel with the ports on the rear-I/O bracket, and snap it into place.
3 Replace the two screws (M3x5) that secure the base panel to the rear-I/O bracket.
4 Replace the two screws (M3x5) that secure the base panel to the display-assembly base.



Identifier	GUID-01B50DEF-DC7D-4F62-9B4E-46505C718967
Status	Released

Post-requisites

1 Replace the system-board shield.
2 Replace the back cover.
3 Replace the stand.

Identifier	GUID-3F983EA1-EFFD-4125-9D74-
Status	Released

Removing the rear-I/O bracket

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 www.dell.com/regulatory_compliance.

Identifier	GUID-EE50C4A3-0F7B-4D70-91BA-4753210842A4
Status	Released

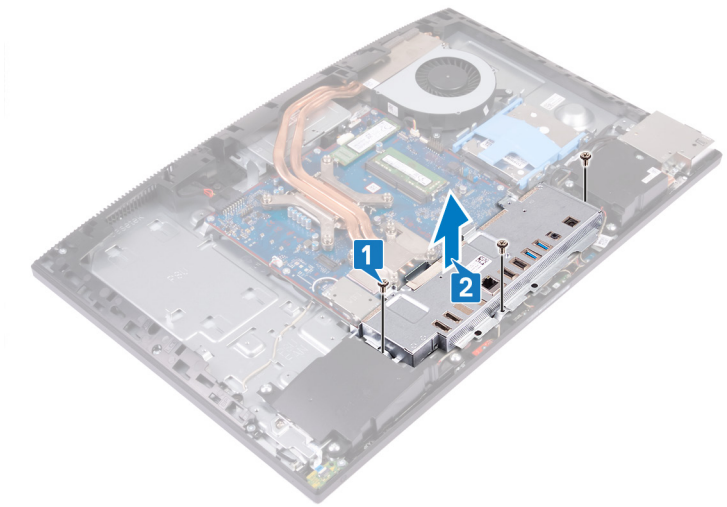
Prerequisites

1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the base panel.

Identifier	GUID-C6499B7E-6265-4A11-BAC6-6346C2B589CD
Status	Released

Procedure

1 Remove the three (M3x5) screws that secure the rear-I/O bracket to the display-assembly base.
2 Lift the rear-I/O bracket off the display-assembly base.



Identifier	GUID-570C5B22-5928-496B-B5B6-
Status	Released

Replacing the rear-I/O bracket

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 www.dell.com/regulatory_compliance.

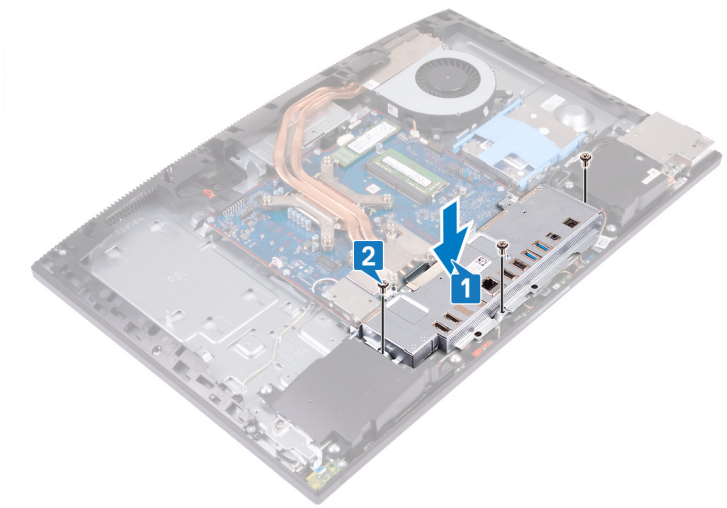
Identifier	GUID-1D2708B2-5EE0-4E01-BA00-2350A4021230
Status	Released

Procedure

1 Align the slots on the rear-I/O bracket with the ports on the system board.

CAUTION: Before replacing the screws, ensure that the cables connected to the system board are not being pinched.

2 Replace the three screws (M3x5) that secure the rear-I/O bracket to the display-assembly base.



Identifier	GUID-A5F22249-5114-455C-B9E4-E23F5140A03D
Status	Released

Post-requisites

1 Replace the base panel.
2 Replace the system-board shield.
3 Replace the back cover.
4 Replace the stand.

Identifier	GUID-4A66256A-A5D7-4E79-972B-
Status	Released

Removing the microphones

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 www.dell.com/regulatory_compliance.

Identifier	GUID-5D8DF756-770E-4914-987E-397BFAB9BB78
Status	Released

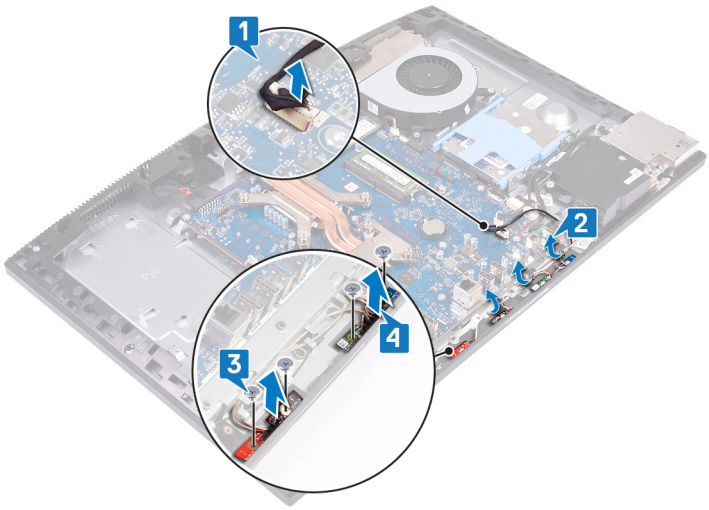
Prerequisites

1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the base panel.
5 Remove the rear-I/O bracket.

Identifier	GUID-C5790A59-2D12-4622-B800-633349280451
Status	Released

Procedure

1 Disconnect the microphone-module cable from the system board.
2 Remove the microphone-module cable from the routing guides on the display-assembly base.
3 Remove the four screws (M2x2.5) that secure the microphone modules (4) to the middle frame.
4 Lift the microphone modules off the slots on the middle frame.


1
2
3
4

Identifier	GUID-3A2F1E45-BFAC-42D9-984B
Status	Released

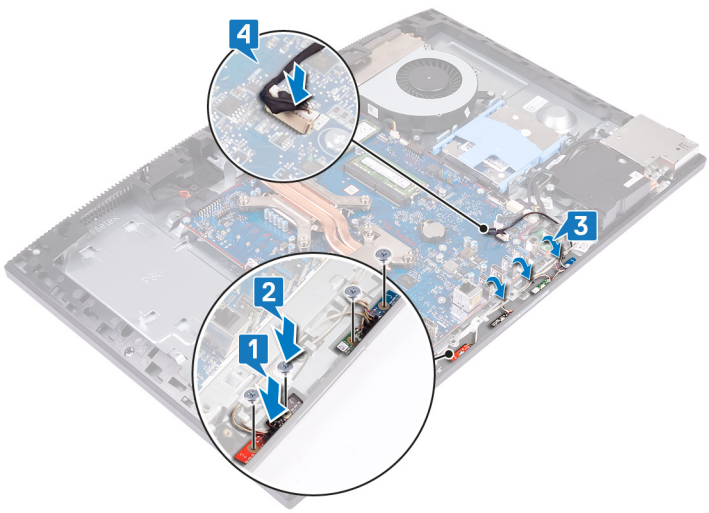
Replacing the microphones

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 www.dell.com/regulatory_compliance.

Identifier	GUID-B6BDE549-C801-4C9D-A5CB-3B62B7EEED67
Status	Released

Procedure

1 Align and place the microphone modules (4) to the slots on the middle frame.
2 Replace the four screws (M2x2.5) that secure the microphone modules to the middle frame.
3 Route the microphone-module cable through the routing guides on the display-assembly base.
4 Connect the microphone-module cable to the connector on the system board.



Identifier	GUID-70717A90-183E-4B2F-89C7-51DBDA0EF354
Status	Released

Post-requisites

1 Replace the rear-I/O bracket.
2 Replace the base panel.
3 Replace the system-board shield.

4 Replace the back cover.
5 Replace the stand.

Identifier	GUID-BF7F1ECA-BC62-4949-B1BE
Status	Released

Removing the speakers

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 www.dell.com/regulatory_compliance.

Identifier	GUID-6729F946-C582-4146-83B0-7A266CD3D617
Status	Released

Prerequisites

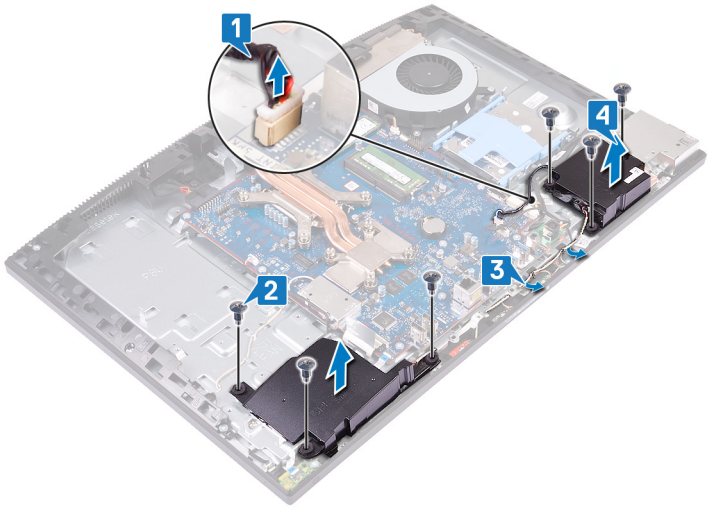
1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the base panel.
5 Remove the rear-I/O bracket.

Identifier	GUID-0FB77271-B0FD-4701-95B6-87F94FBAFEFA
Status	Released

Procedure

NOTE: Note the routing guides before the removal of the speaker cable.

1 Disconnect the speaker cable from the system board.
2 Remove the six screws (M3x4+7.1) that secure the speakers to the display-assembly base.
3 Remove the speaker cable from the routing guides on the display-assembly base.
4 Lift the speakers along with the cable off the display-assembly base.


1
2
3
4

Identifier	GUID-40DC76F7-B3EC-450A-848E-
Status	Released

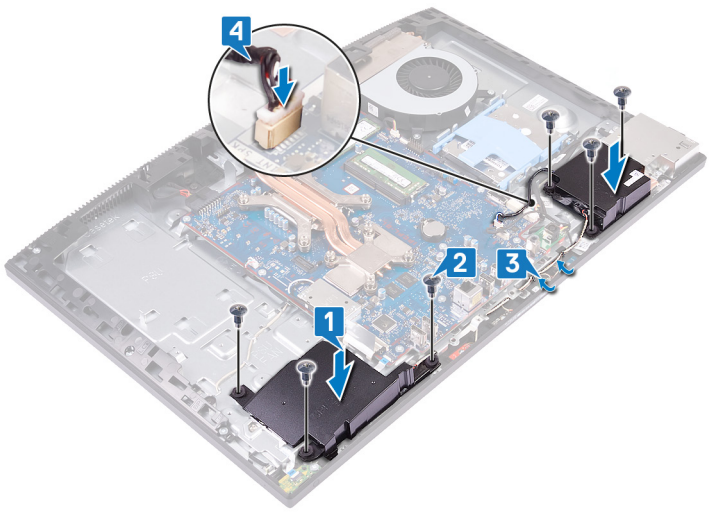
Replacing the speakers

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 www.dell.com/regulatory_compliance.

Identifier	GUID-06E70F40-38A1-45A7-B1A2-8CEB0C379656
Status	Released

Procedure

1 Place the speakers on the display-assembly base and align the screw holes on the speakers to the screw holes on the display-assembly base.
2 Replace the six screws (M3x4+7.1) that secure the speakers to the display-assembly base.
3 Route the speaker cable through the routing guides on the display-assembly base.
4 Connect the speaker cable to the system board.



Identifier	GUID-291B685D-1E78-491B-B5AD-2BE035768D8D
Status	Released

Post-requisites

1 Replace the rear-I/O bracket.
2 Replace the base panel.

3 Replace the system-board shield.
4 Replace the back cover.
5 Replace the stand.

Identifier	GUID-C93E16BC-C281-4F9C-BCD1
Status	Released

Removing the antennas

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 www.dell.com/regulatory_compliance.

Identifier	GUID-5988CD6E-6C00-40B4-ACAF-0C1F4E25E170
Status	Released

Prerequisites

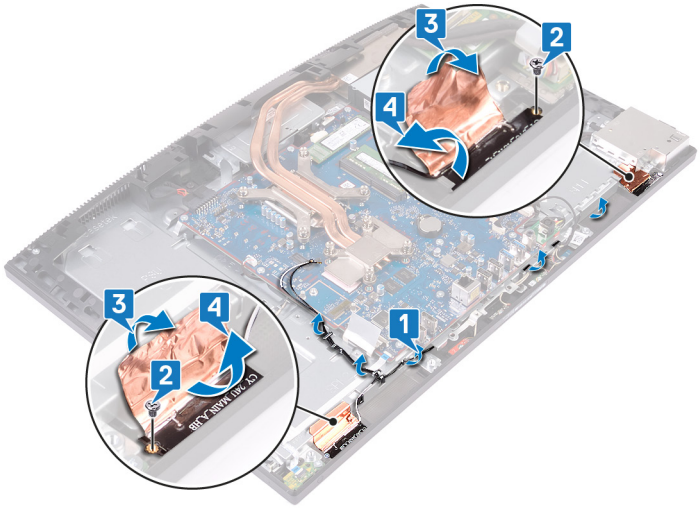
1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the wireless card.
5 Remove the base panel.
6 Remove the rear-I/O bracket.
7 Remove the speakers.

Identifier	GUID-D5931BF5-9BD9-4040-9631-AB3B51DF3024
Status	Released

Procedure

NOTE: Note the routing of the antenna cables, before removing the antenna cables form the routing guides. Also, note the location of the antenna modules printed on the display-assembly base as ANT-B (black) and ANT-W (white).

1 Remove the antenna cables from the routing guides on the display-assembly base.
2 Remove the two screws (M2x2.5) that secure the antenna modules (2) to the middle frame.
3 Carefully peel the tape that secures the antenna cables (2) to the middle frame.
4 Release the antenna modules (2) from the tabs and lift the antenna modules off the middle frame.


3
2
4
3
4
2
1

Identifier	GUID-4EA9E50B-4962-4DF8-BA6D
Status	Released

Replacing the antennas

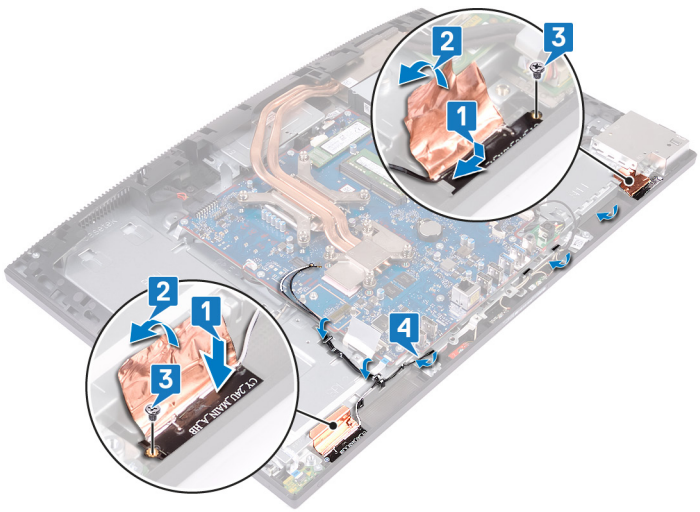
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see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

Identifier	GUID-61A716BE-69E4-4820-808E-F4AB0ACBA99D
Status	Released

Procedure

NOTE: Note the location of the antenna modules printed on the display-assembly base as ANT-B (black) and ANT-W (white).

1 Align the antenna modules (2) with the slots on the middle frame and adhere it in place.
2 Adhere the tape that secures the antenna cables (2) to the middle frame.
3 Replace the two screws (M2x2.5) that secure the antenna modules (2) to the middle frame.
4 Route the antenna cables through the routing guides on the display-assembly base.



Identifier	GUID-0A913B68-79A9-4C9E-96F5-37EFB633CE41
Status	Released

Post-requisites

1 Replace the speakers.
2 Replace the rear-I/O bracket.
3 Replace the base panel.
4 Replace the wireless card.
5 Replace the system-board shield.
6 Replace the back cover.
7 Replace the stand.

Identifier	GUID-7A647C13-3614-4248-8625-5
Status	Released

Removing the side I/O-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 www.dell.com/regulatory_compliance.

Identifier	GUID-6729F946-C582-4146-83B0-7A266CD3D617
Status	Released

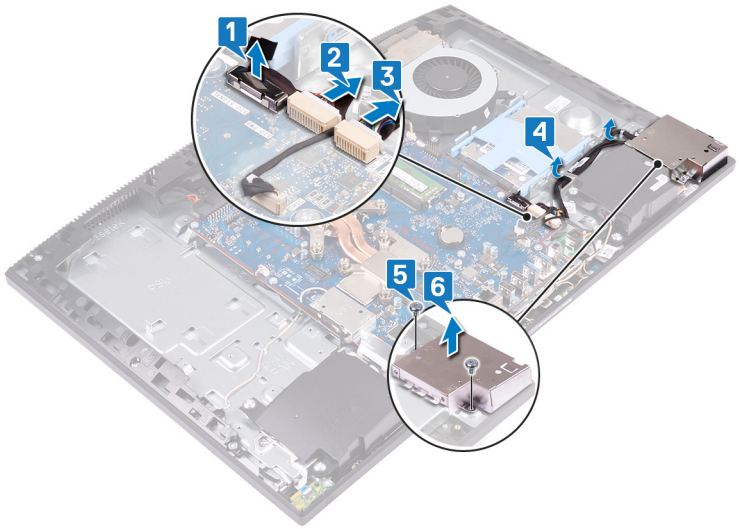
Prerequisites

1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the base panel.
5 Remove the rear-I/O bracket.

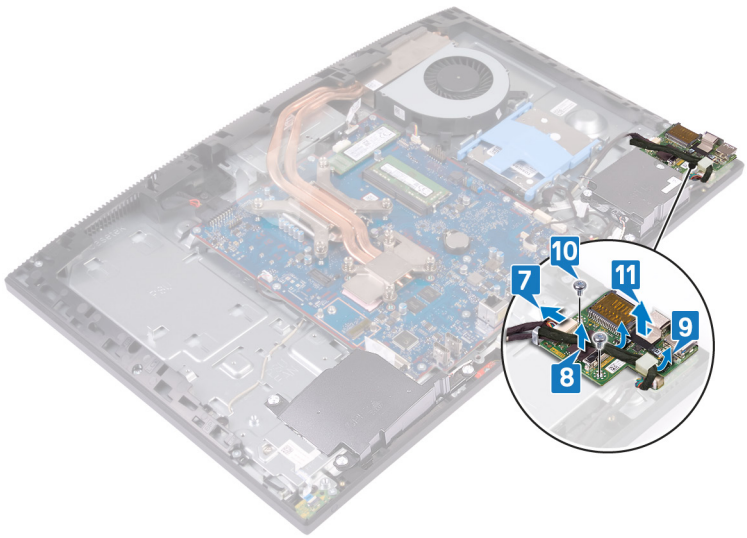
Identifier	GUID-7D01EA05-E090-4616-8490-0D86F3CBBD80
Status	Released

Procedure

1 Using the pull tab, disconnect the side-I/O cable from the system board.
2 Disconnect the side-I/O power cable from the system board.
3 Disconnect the headset-port cable from the system board.
4 Remove the side-I/O cable, side-I/O power cable, and headset-port cable from the routing guides on the display-assembly base.
5 Remove the two screws (M3x5) securing the side-I/O board shield to the display-assembly base.
6 Lift the side-I/O board shield off the display-assembly base.



7 Using the pull tab, disconnect the side-I/O cable from the side-I/O board.
8 Disconnect the side-I/O power cable from the side-I/O board.
9 Remove the headset-port cable from the routing guide on the side-I/O board.
10 Remove the two screws (M2.5x3.5) that secure the side-I/O board to the display-assembly base.
11 Slide and lift the side-I/O board off the display-assembly base.



Identifier	GUID-2EFE7E92-337F-4710-A2AB-
Status	Released

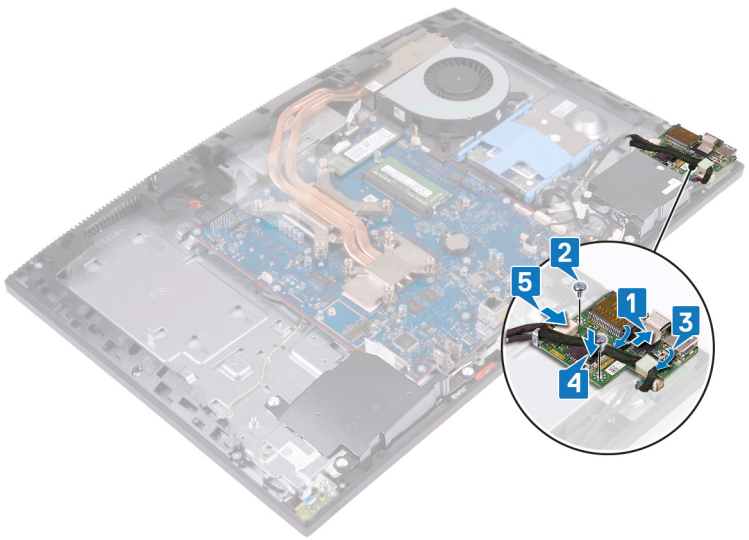
Replacing the side I/O-board

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 www.dell.com/regulatory_compliance.

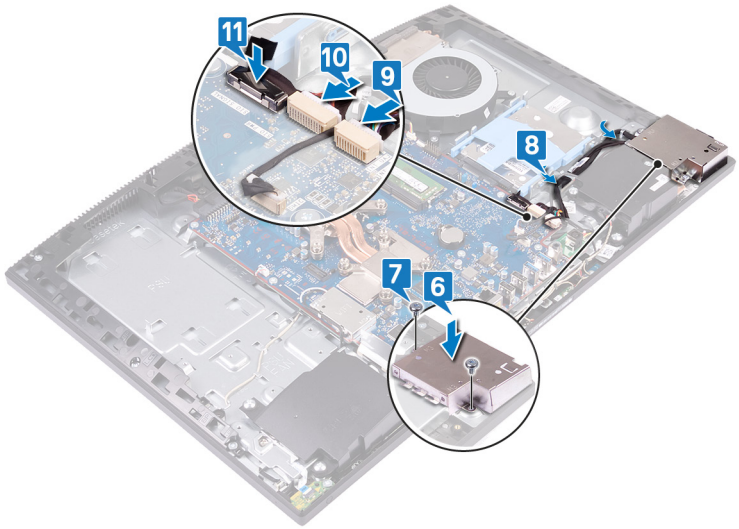
Identifier	GUID-7C30B643-5172-45A7-92D6-94B29515E0BB
Status	Released

Procedure

1 Align and place the side-I/O board onto the display-assembly base.
2 Replace the two screws (M2.5x3.5) that secure the side-I/O board to the display-assembly base.
3 Route the headset-port cable through the routing guide on the side-I/O board.
4 Connect the side-I/O power cable to the side-I/O board.
5 Connect the side-I/O cable to the side-I/O board.



6 Align the screw holes on the side-I/O board shield to the screw holes on the display-assembly base.
7 Replace the two screws (M3x5) that secure the side-I/O board shield to the display-assembly base.
8 Route the side-I/O cable, side-I/O power cable, and headset-port cable through the routing guides on the display-assembly base.
9 Connect the headset-port cable to the system board.
10 Connect the side-I/O power cable to the system board.
11 Connect the side-I/O cable to the system board.



Identifier	GUID-291B685D-1E78-491B-B5AD-2BE035768D8D
Status	Released

Post-requisites

1 Replace the rear-I/O bracket.
2 Replace the base panel.
3 Replace the system-board shield.
4 Replace the back cover.
5 Replace the stand.

Identifier	GUID-9BB83278-CCC6-4510-82E3-
Status	Released

Removing the headset port

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 www.dell.com/regulatory_compliance.

Identifier	GUID-DA459E43-6209-4536-83C1-157794CCF49F
Status	Released

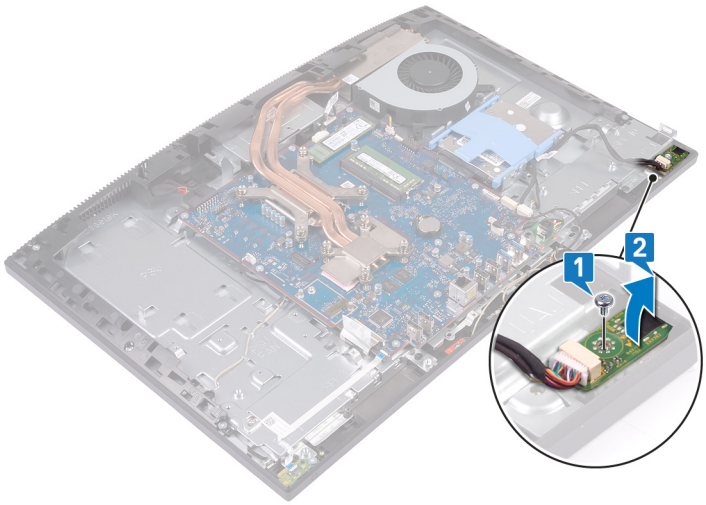
Prerequisites

1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the base panel.
5 Remove the rear-I/O bracket.
6 Remove the side I/O-board.

Identifier	GUID-52F7ACB8-1430-4D4E-B950-17505FDB8444
Status	Released

Procedure

1 Remove the screw (M3x5) that secures the headset-port board to the display-assembly base.
2 Lift the headset-port board, along with its cable off the display-assembly base.


1
2

Identifier	GUID-997AFA55-4952-4557-996A-5
Status	Released

Replacing the headset port

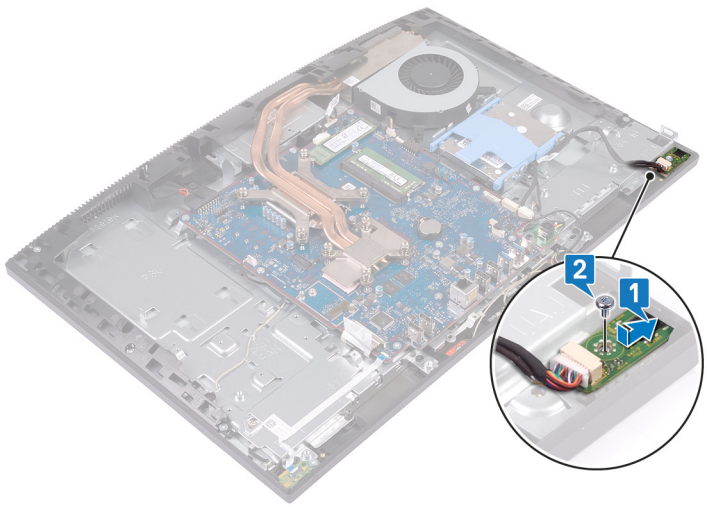
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see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

Identifier	GUID-2B49AB02-D7D2-4385-9EEE-6FF07ED81CB9
Status	Released

Procedure

1 Slide the headset port into its slot on the middle frame and align the screw hole on the headset port with the screw hole on the display-assembly base.

2 Replace the screw (M3x5) that secures the headset-port board to the display-assembly base.



Identifier	GUID-9D9A1590-B035-44CA-9DB9-EAFB4C143685
Status	Released

Post-requisites

1 Replace the side I/O-board.

2 Replace the rear-I/O bracket.

3 Replace the base panel.

4 Replace the system-board shield.

5 Replace the back cover.
6 Replace the stand.

Identifier	GUID-A35BD2D5-B3B3-4708-AF1C
Status	Released

Removing the power-button 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 www.dell.com/regulatory_compliance.

Identifier	GUID-47F60D4D-B870-4C6A-AE33-524319C3283F
Status	Released

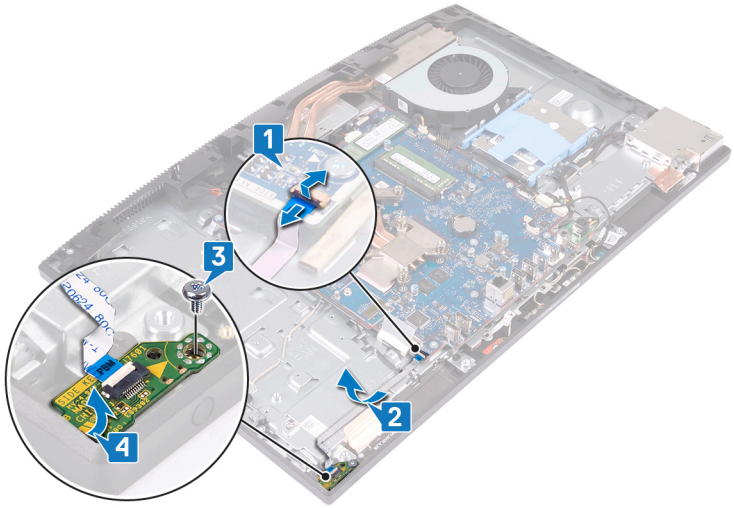
Prerequisites

1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the wireless card.
5 Remove the base panel.
6 Remove the rear-I/O bracket.
7 Remove the speakers.

Identifier	GUID-2B3F4621-1B93-41FB-A5AC-A4EE9241D176
Status	Released

Procedure

1 Open the latch, and disconnect the power-button board cable from the system board.
2 Peel off the power-button board cable from the display-assembly base.
3 Remove the screw (M3x5) that secures the power-button board to the display-assembly base.
4 Slide and lift the power-button board, along with its cable, off the display-assembly base.


1
2
3
4

Identifier	GUID-FBA68EE4-1E13-4F28-9B84-
Status	Released

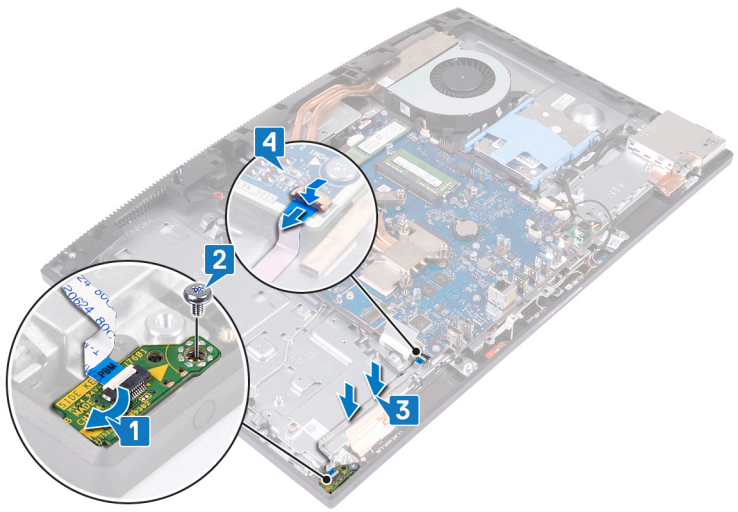
Replacing the power-button board

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 www.dell.com/regulatory_compliance.

Identifier	GUID-E06ED7EB-5EA6-419F-9D5B-46C75DCE3049
Status	Released

Procedure

1 Using the alignment post, place the power-button board into its slot on the middle frame.
2 Replace the screw (M3x5) that secures the power-button board to the middle frame.
3 Adhere the power-button board cable to the display-assembly base.
4 Slide the power-button board cable into the connector on the system board, and then close the latch to secure the cable.



Identifier	GUID-F442F890-951D-4317-BF8A-0E85F76B5B1A
Status	Released

Post-requisites

1 Replace the speakers.
2 Replace the rear-I/O bracket.
3 Replace the base panel.

4 Replace the wireless card.
5 Replace the system-board shield.
6 Replace the back cover.
7 Replace the stand.

Identifier	GUID-30EEBC49-DE3E-4C3F-8226
Status	Released

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 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 www.dell.com/regulatory_compliance.

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

Identifier	GUID-9A6E5D48-5C74-4D12-B31F-3231B9CCF775
Status	Released

Prerequisites

1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.

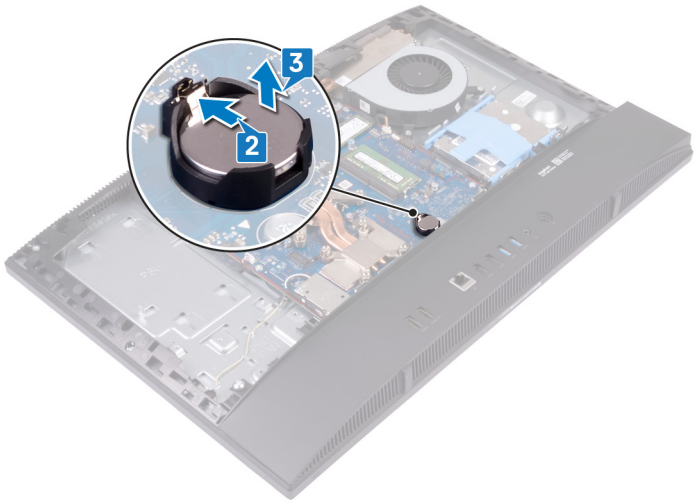
Identifier	GUID-4C87AA2E-20F1-4345-B365-B5B291E9600C
Status	Released

Procedure

1 Locate the coin-cell battery on the system board.

2 Using your fingertips, press on the metal clip to release the coin-cell battery from the coin-cell battery holder.

3 Lift the coin-cell battery from the coin-cell battery holder.



Identifier	GUID-5E22F4A0-F01F-4522-8155-E
Status	Released

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 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 www.dell.com/regulatory_compliance.

Identifier	GUID-97B8AC0E-786B-402F-B1EC-FB104E731222
Status	Released

Procedure

With the positive-side facing up, insert the coin-cell battery into the battery socket on the system board and snap the battery into place.

Identifier	GUID-01B50DEF-DC7D-4F62-9B4E-46505C718967
Status	Released

Post-requisites

1. Replace the system-board shield.
2. Replace the back cover.
3. Replace the stand.

Identifier	GUID-4AF7A7F4-79DC-43F4-A4DF
Status	Released

Removing the wireless card

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 www.dell.com/regulatory_compliance.

Identifier	GUID-9A6E5D48-5C74-4D12-B31F-3231B9CCF775
Status	Released

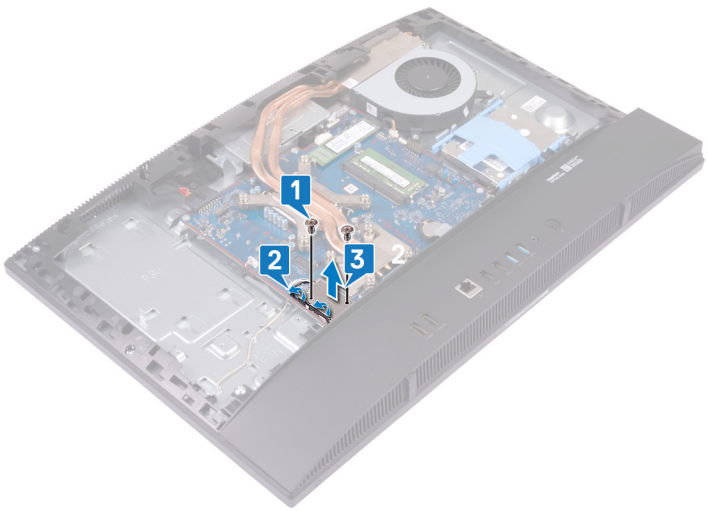
Prerequisites

1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.

Identifier	GUID-1AAB0422-30D8-426C-97ED-3253928DED96
Status	Released

Procedure

1 Remove the two screws (M2x2.5) that secure the wireless-card shield to the system board.
2 Remove the antenna cables from the routing guides on the wireless-card shield.
3 Remove the wireless-card shield from the system board.

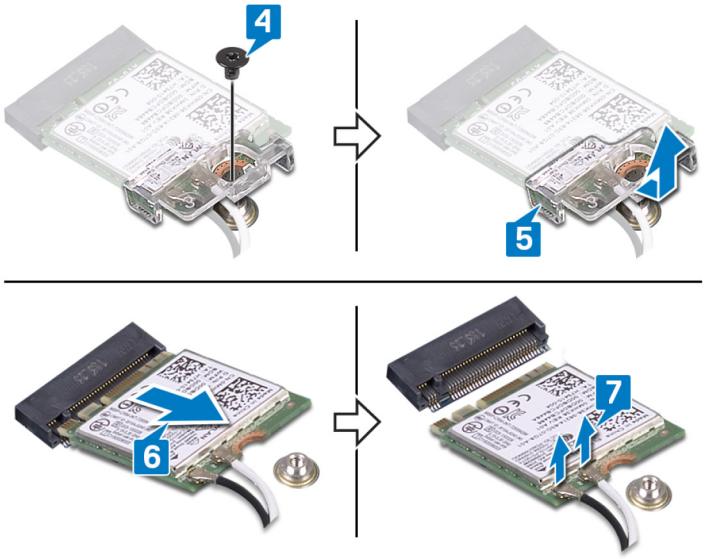


4 Remove the screw (M2x2.5) that secures the wireless card to the system board.

5 Slide and lift the wireless-card bracket off the wireless card.

6 Slide and remove the wireless card out of the wireless-card slot.

7 Disconnect the antenna cables from the wireless card.



Identifier	GUID-94E88AEC-6F12-4B0E-AA6A
Status	Released

Replacing the wireless card

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 www.dell.com/regulatory_compliance.

Identifier	GUID-18307A13-F844-43CC-B63B-5020DF4026B5
Status	Released

Procedure

CAUTION: To avoid damaging the wireless card, do not place any cables under it.

1 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.

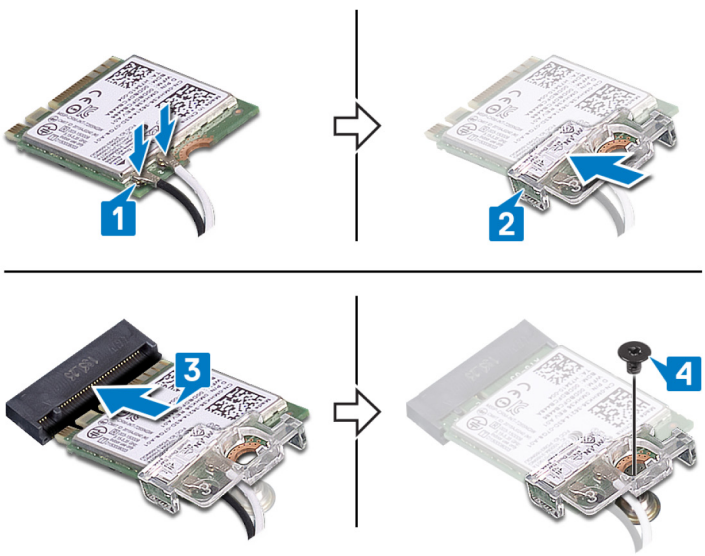
Table 2. Wireless card color scheme

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

2 Align and place the wireless-card bracket on the wireless card.

3 Slide the wireless card at an angle into the wireless-card slot.

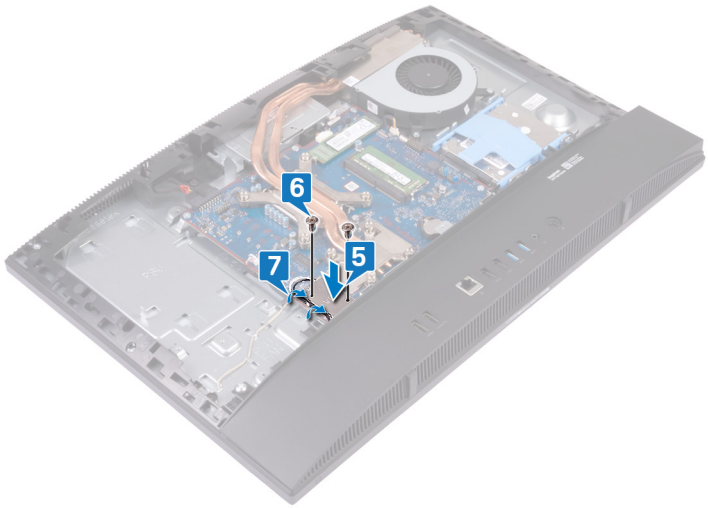
4 Replace the screw (M2x2.5) that secures the wireless-card bracket and the wireless card to the system board.



5 Align the screw holes on the wireless-card shield with the screw holes on the system board and place the wireless-card shield on the system board.

6 Replace the two screws (M2x2.5) that secure the wireless-card shield to the system board.

7 Route the antenna cables through the routing guides on the wireless-card shield.



Identifier	GUID-01B50DEF-DC7D-4F62-9B4E-46505C718967
Status	Released

Post-requisites

1 Replace the system-board shield.

2 Replace the back cover.

3 Replace the stand.

Identifier	GUID-EFFE3DA7-AFC7-4BB0-92C9
Status	Released

Removing the solid-state drive/Intel Optane

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 www.dell.com/regulatory_compliance.

Identifier	GUID-9A6E5D48-5C74-4D12-B31F-3231B9CCF775
Status	Released

Prerequisites

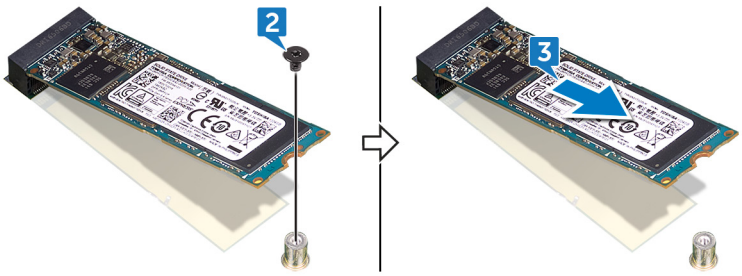
1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.

Identifier	GUID-86B93C17-2F8A-478F-8E2F-8E71B6C03191
Status	Released

Procedure

1 Locate the solid-state drive/Intel Optane memory on the system board.

2 Remove the screw (M2x2.5) that secures the solid-state drive/Intel Optane memory to the system board.
3 Slide and remove the solid-state drive/Intel Optane memory from the M.2 card slot on the system board.


2
3

Identifier	GUID-1876A74B-D56A-47F2-8EDF-
Status	Released

Replacing the solid-state drive/Intel Optane

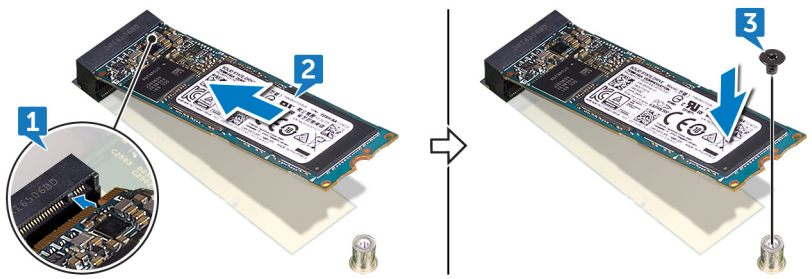
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see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

CAUTION: Solid-state drives are fragile. Exercise care when handling the solid-state drive.

Identifier	GUID-602CC132-E22C-49DF-9C14-242516406793
Status	Released

Procedure

1 Align the notch on the solid-state drive/Intel Optane memory with the tab on the M.2 card slot.
2 Slide the solid-state drive/Intel Optane memory into the M.2 card slot on the system board.
3 Replace the screw (M2x2.5) that secures the solid-state drive/Intel Optane memory to the system board.



Identifier	GUID-01B50DEF-DC7D-4F62-9B4E-46505C718967
Status	Released

Post-requisites

1 Replace the system-board shield.
2 Replace the back cover.
3 Replace the stand.

Identifier	GUID-FAA962E5-AD4D-4E85-BCA3
Status	Released

Removing the fan

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 www.dell.com/regulatory_compliance.

Identifier	GUID-9A6E5D48-5C74-4D12-B31F-3231B9CCF775
Status	Released

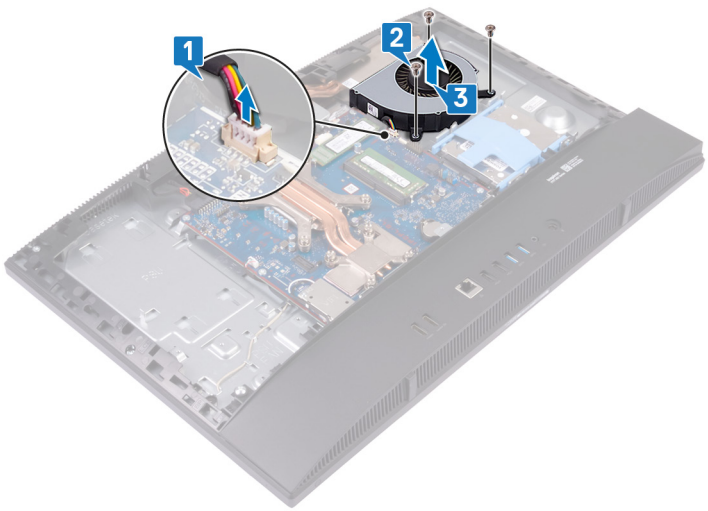
Prerequisites

1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.

Identifier	GUID-4004CC58-57B2-450A-86CA-AC3FB164BE02
Status	Released

Procedure

1 Disconnect the fan cable from its connector on the system board.
2 Remove the three screws (M3x5) that secure the fan to the display-assembly base.
3 Lift the fan off the display-assembly base.



Identifier	GUID-2596AFC0-F1E8-4A0E-A603-
Status	Released

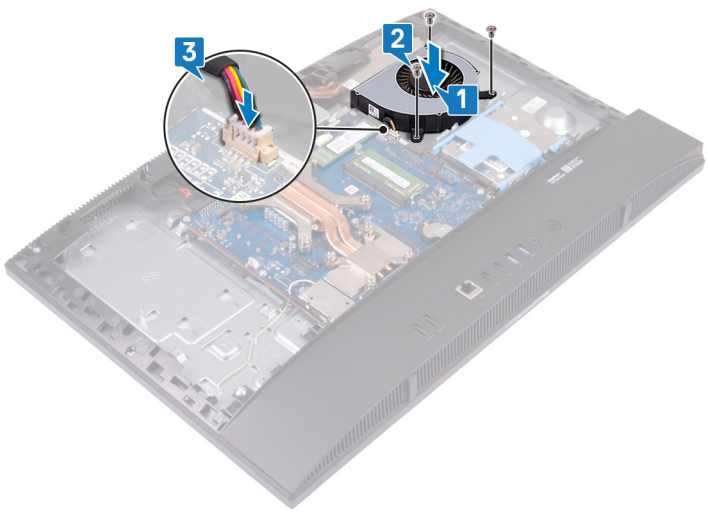
Replacing the fan

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 www.dell.com/regulatory_compliance.

Identifier	GUID-4C71525D-9E5C-4FBD-AB98-6BCC5D8DD76D
Status	Released

Procedure

1 Align the screw holes on the fan with the screw holes on the display-assembly base.
2 Replace the three screws (M3x5) that secure the fan to the display-assembly base.
3 Connect the fan cable to the system board.



Identifier	GUID-01B50DEF-DC7D-4F62-9B4E-46505C718967
Status	Released

Post-requisites

1 Replace the system-board shield.
2 Replace the back cover.
3 Replace the stand.

Identifier	GUID-3AE08A92-614C-4411-90FB-
Status	Released

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 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 www.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: For maximum cooling of 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.

Identifier	GUID-9AAF7A1A-4CAB-4D28-A4EA-B4BD4CA22CDA
Status	Released

Prerequisites

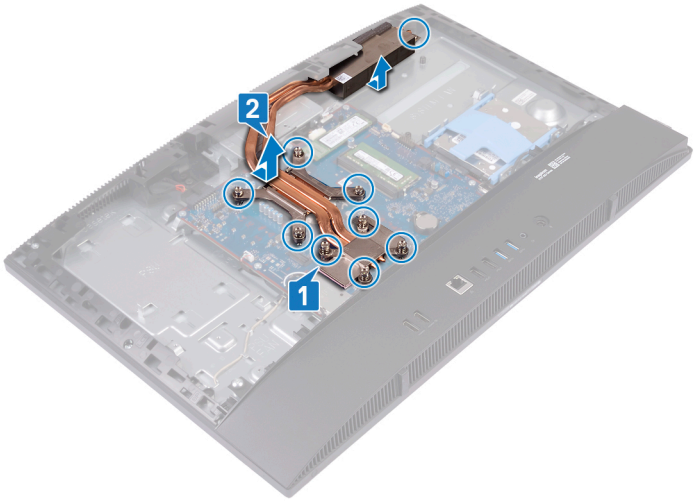
1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the fan.

Identifier	GUID-C434FFBF-31EB-449B-B312-8BE902A131FC
Status	Released

Procedure

NOTE: The location and number of captive screws on the heat sink may vary depending on the graphics configuration ordered.

1 In reverse sequential order (as indicated on the heat sink), loosen the captive screws that secure the heat sink to the system board and the display-assembly base.
2 Slide and lift the heat sink off the system board and display-assembly base.


2
1

Identifier	GUID-69332260-F504-4C70-A535-1
Status	Released

Replacing the heat sink

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 www.dell.com/regulatory_compliance.

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

NOTE: If either the system board or the heat sink is replaced, use the thermal pad provided in the kit to ensure that thermal conductivity is achieved.

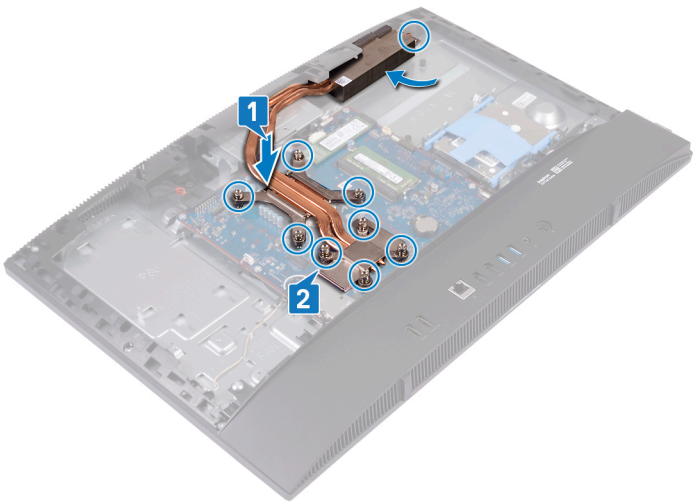
Identifier	GUID-D683A0E2-91A0-435B-AD27-111D511D1FCC
Status	Released

Procedure

NOTE: The location and number of captive screws on the heat sink may vary depending on the graphics configuration ordered.

1 Align the captive screws on the heat sink with the screw holes on the system board and the display assembly base.

2 In sequential order (as indicated on the heat sink), tighten the captive screws that secure the heat sink to the system board and display assembly base.



Identifier	GUID-FBA676BF-A115-43D6-B17B-CA3D55935FBA
Status	Released

Post-requisites

1 Replace the fan.
2 Replace the system-board shield.
3 Replace the back cover.
4 Replace the stand.

Identifier	GUID-54026723-901E-49A7-9E20-7
Status	Released

Removing the processor

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 www.dell.com/regulatory_compliance.

Identifier	GUID-382A37F6-1744-40AD-A362-B3FCE89782A0
Status	Released

Prerequisites

1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the fan.
5 Remove the heat sink.

Identifier	GUID-539519D6-31A9-4DF6-9475-73EA95F1EFC6
Status	Released

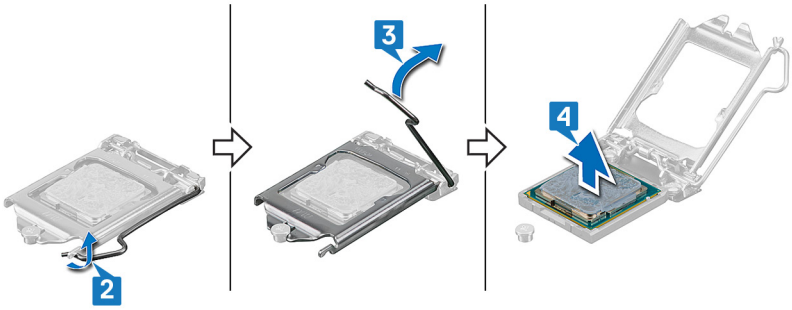
Procedure

1 Locate the processor on the system board.

2 Press the release-lever down and then pull it outwards to release it from the securing tab.

3 Pull up the release-lever completely to unlock the processor.

4 Gently lift the processor and remove it from the processor socket.



Identifier	GUID-08EA64DA-0940-45B5-9DEF-
Status	Released

Replacing the processor

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 www.dell.com/regulatory_compliance.

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

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.

Identifier	GUID-50BB6FD6-66D3-4D06-9420-09BD6029D38B
Status	Released

Procedure

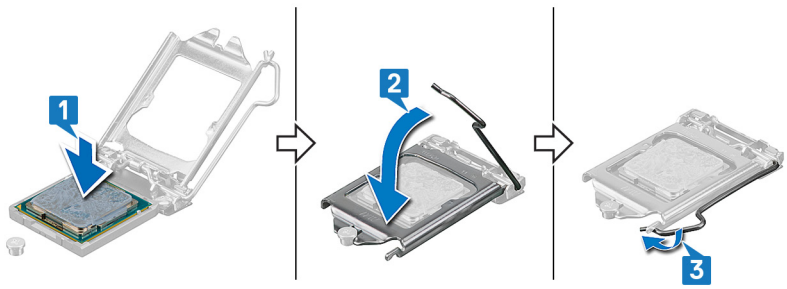
1 Ensure that the release lever on the processor socket is fully extended in the open position. Then align the notches on the processor with the tabs on the processor socket and place the processor in the processor socket.

CAUTION: The pin-1 corner of the processor has a triangle that aligns with the triangle on the pin-1 corner on the processor 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: Ensure that the processor-cover notch is positioned underneath the alignment post.

2 When the processor is fully seated in the socket, close the processor cover.

3 Pivot the release-lever down and place it under the tab on the processor cover.



Identifier	GUID-AE3B40DE-8ED2-4897-BAEB-712C55C91AB9
Status	Released

Post-requisites

1 Replace the heat sink.
2 Replace the fan.
3 Replace the system-board shield.
4 Replace the back cover.
5 Replace the stand.

Identifier	GUID-B54497E8-5AD5-4FF9-AD4A
Status	Released

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 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 www.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 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 appropriate 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 the cables correctly after you replace the system board.

Identifier	GUID-4B1E9389-5782-47DD-A32C-74EB2FF5DEE7
Status	Released

Prerequisites

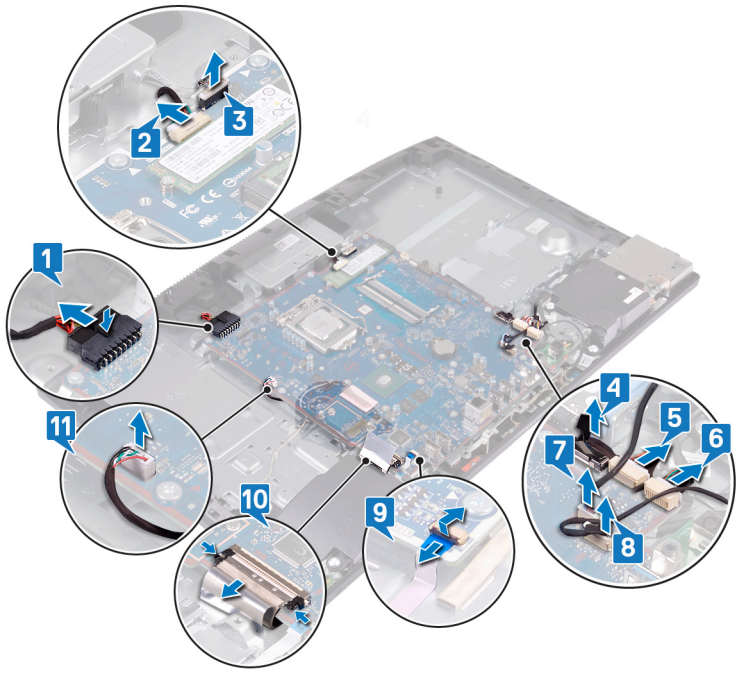
1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the base panel.
5 Remove the rear-I/O bracket.
6 Remove the hard drive.
7 Remove the memory modules.
8 Remove the wireless card.
9 Remove the solid-state drive/Intel Optane.
10 Remove the fan.
11 Remove the heat sink.
12 Remove the processor.

Identifier	GUID-BB13DFA3-4A35-470B-801C-DB5AB28CB282
Status	Released

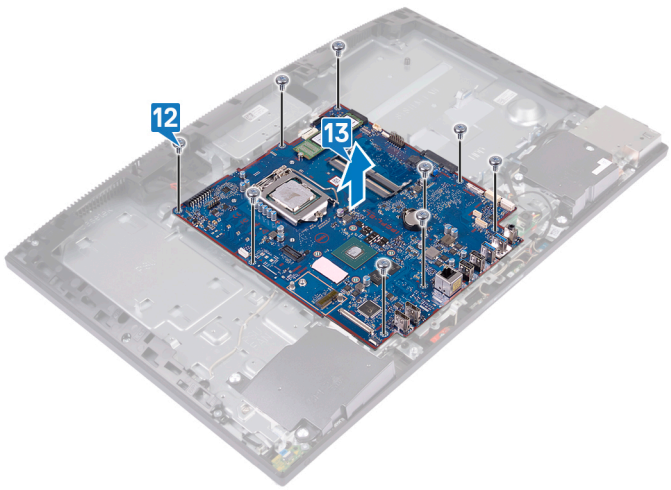
Procedure

1 Disconnect the power-adapter port cable from the system board.
2 Disconnect the display-backlit cable from the system board.
3 Disconnect the camera cable from the system board.
4 Using the pull tab, disconnect the side-I/O cable from the system board.

5 Disconnect the side-I/O power cable from the system board.
6 Disconnect the headset-port board cable from the system board.
7 Disconnect the speaker cable from the system board.
8 Disconnect the microphones cable from the system board.
9 Open the latch, and disconnect the power-button board cable from the system board.
10 Peel the tape and press the securing clip to disconnect the display cable from the system board.
11 Disconnect the touchscreen cable from the system board.



12 Remove the nine screws (M3x5) that secure the system board to the display-assembly base.
13 Lift the system board off the display-assembly base.



Identifier	GUID-67274E98-E2F1-4B7B-A903-
Status	Released

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 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 www.dell.com/regulatory_compliance.

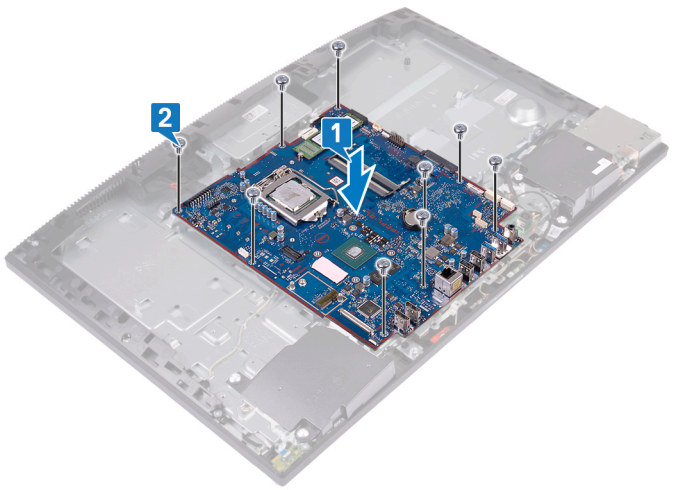
NOTE: Your computer's Service Tag is stored in the system board. You must enter the Service Tag in the BIOS setup program after you replace the system board.

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

Identifier	GUID-42EB252F-9330-4CCE-82DE-75948F756EDF
Status	Released

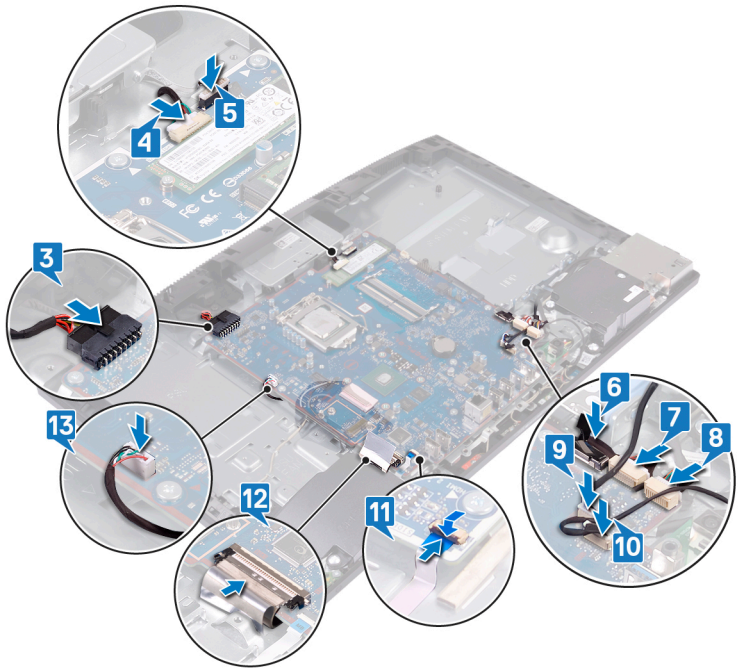
Procedure

1 Align the screw holes on the system board with the screw holes on the display-assembly base.
2 Replace the nine screws (M3x5) that secure the system board to the display-assembly base.



3 Connect the power-adapter cable to the system board.
4 Connect the display-backlit cable to the system board.
5 Connect the camera cable to the system board.
6 Connect the side-I/O cable to the system board.
7 Connect the side-I/O power cable to the system board.
8 Connect the headset-port board cable to the system board.
9 Connect the speaker cable to the system board.

10 Connect the microphones cable to the system board.
11 Connect the power-button board cable to the system board and close the latch to secure the cable.
12 Connect the display cable to the system board and adhere the tape that secures the display cable to the system board.
13 Connect the touchscreen cable to the system board.



Identifier	GUID-7CDD116E-283B-45FC-8BF3-70BEB818F381
Status	Released

Post-requisites

1 Replace the processor.
2 Replace the heat sink.
3 Replace the fan.
4 Replace the solid-state drive/Intel Optane.
5 Replace the wireless card.
6 Replace the memory modules.
7 Replace the hard drive.
8 Replace the rear-I/O bracket.
9 Replace the base panel.
10 Replace the system-board shield.
11 Replace the back cover.
12 Replace the stand.

Identifier	GUID-F5899359-C2E1-41C0-9663-4C79969506EB
Status	Released

Flashing the BIOS

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

Follow these steps to flash the BIOS:

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

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

4 Click **Drivers & downloads** > **Find it myself**.
5 Select the operating system installed on your computer.
6 Scroll down the page and expand **BIOS**.
7 Click **Download** to download the latest version of the BIOS for your computer.
8 After the download is complete, navigate to the folder where you saved the BIOS update file.
9 Double-click the BIOS update file icon and follow the instructions on the screen.

Identifier	GUID-35D5032D-9652-403C-9A8A-
Status	Released

Removing the power-adapter port

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 www.dell.com/regulatory_compliance.

Identifier	GUID-FC00E207-F2BD-474A-9B05-D041035D7889
Status	Released

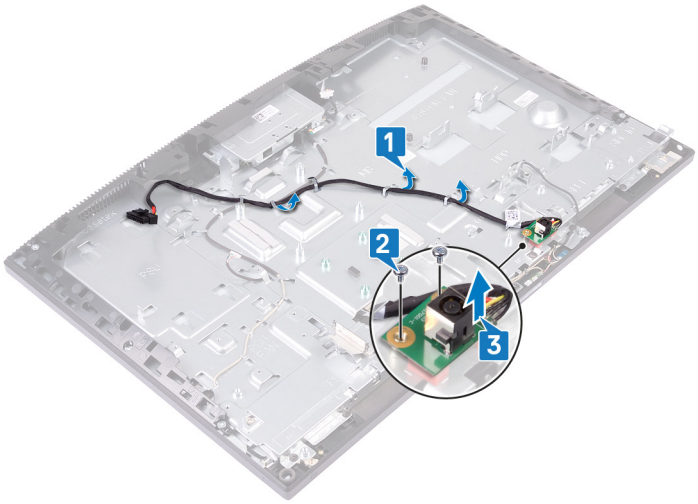
Prerequisites

1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the base panel.
5 Remove the rear-I/O bracket.
6 Remove the hard drive.
7 Remove the wireless card.
8 Remove the fan.
9 Remove the heat sink.
10 Remove the system board.

Identifier	GUID-E380CD42-EEE5-4637-962C-2EA423278740
Status	Released

Procedure

1 Remove the power-adapter port cable through the routing guides on the display-assembly base.
2 Remove the two screws (M3x5) that secure the power-adapter port to the display-assembly base.
3 Lift the power-adapter port, along with its cable, off the display-assembly base.


1
2
3

Identifier	GUID-A99140DB-7AF3-4218-B305-
Status	Released

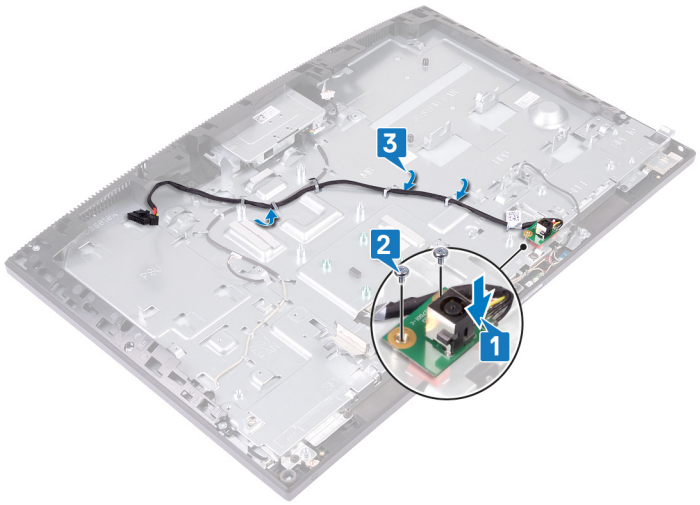
Replacing the power-adapter port

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 www.dell.com/regulatory_compliance.

Identifier	GUID-B4E7521C-2804-44F6-9E70-CBB0B5EC2DF3
Status	Released

Procedure

1 Align the screw hole on the power-adapter port with the screw hole on the display-assembly base and place the power-adapter port on the display-assembly base.
2 Replace the two screws (M3x5) that secures the power-adapter port to the display-assembly base.
3 Route the power-adapter cable through the routing guides on the display-assembly base.



Identifier	GUID-1C4E8589-1BC0-42FF-9736-2996E6EFCD94
Status	Released

Post-requisites

1 Replace the system board.
2 Replace the heat sink.
3 Replace the fan.

4 Replace the wireless card.
5 Replace the hard drive.
6 Replace the rear-I/O bracket.
7 Replace the base panel.
8 Replace the system-board shield.
9 Replace the back cover.
10 Replace the stand.

Identifier	GUID-7D2CEA1B-1FC0-4606-86EB
Status	Released

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 www.dell.com/regulatory_compliance.

Identifier	GUID-AA009E64-E8F7-4B71-924D-104D9EC8D7B5
Status	Released

Prerequisites

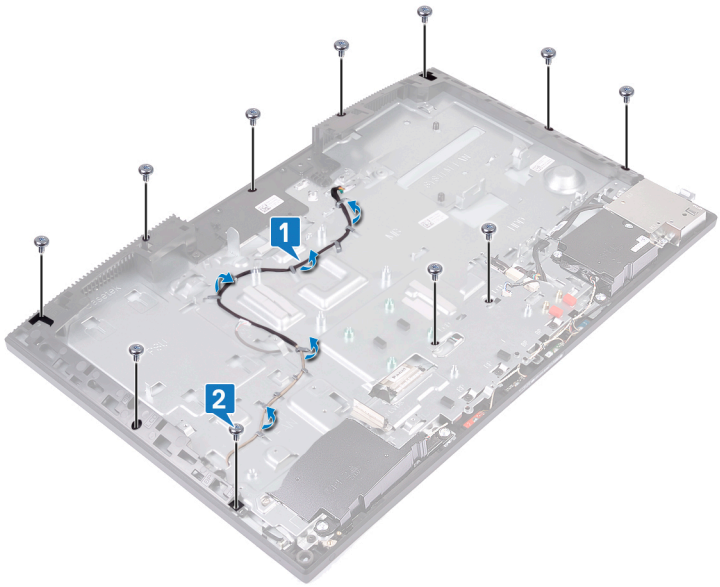
1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the base panel.
5 Remove the rear-I/O bracket.
6 Remove the hard drive.
7 Remove the wireless card.
8 Remove the fan.
9 Remove the heat sink.
10 Remove the system board.
11 Remove the camera.

Identifier	GUID-FDC5F9A0-5DFB-4DEC-99BF-2565A42571A8
Status	Released

Procedure

1 Remove the display-backlit cable from the routing guides on the display-assembly base.
2 Remove the 11 screws (M3x5) that secure the middle frame and display-assembly base to the display panel.

NOTE: The screws that secure the middle frame and display-assembly base to the display panel are silver in color and etched with "LCD" around the screw holes.



3 Place the computer in upright position, holding the display panel and display-assembly base, carefully release the display panel from middle frame and display-assembly base.

NOTE: To prevent damage to the display panel and the middle frame, hold the display panel as shown in the image when it is released from the display-assembly base.

4 Remove the touchscreen cable from the routing guide on the display-assembly base.

5 Slide the display-backlit cable through the slot on the display-assembly base.

6 Slide the display cable through the slot on the display-assembly base.

7 Lift the display panel off the middle frame and display-assembly base.

8 After performing the above steps, you are left with the display panel.

Identifier	GUID-6FD32244-34F4-4843-983D-E
Status	Released

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 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 www.dell.com/regulatory_compliance.

Identifier	GUID-0BB82D25-2FE9-466E-9B96-D9294835DB25
Status	Released

Procedure

1 Place the display panel on the middle frame and display-assembly base.

NOTE: Ensure the display cable has been fully threaded to the slot on the display-assembly base.

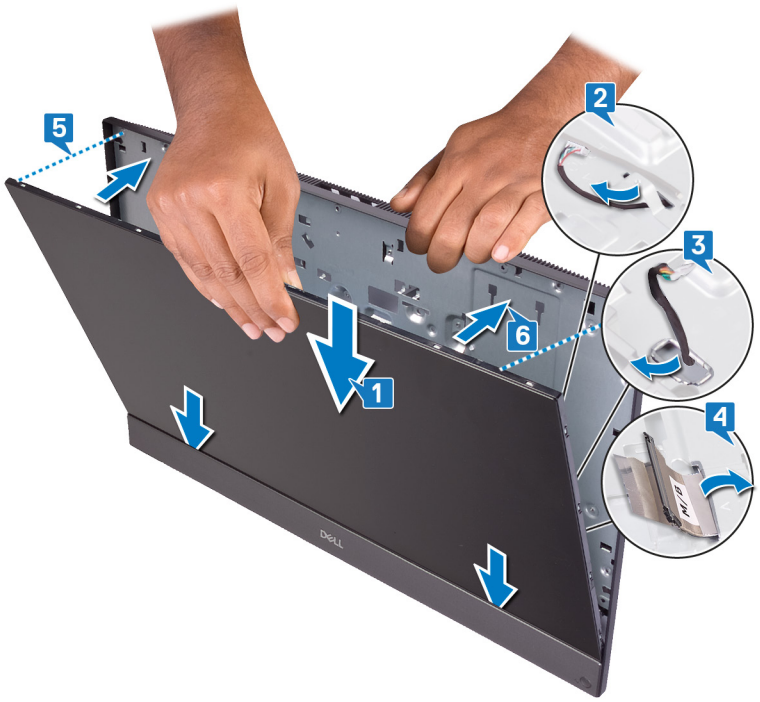
2 Route the touchscreen cable through the routing guide on the display-assembly base.

3 Slide the display-backlit cable through the slot on the display-assembly base.

4 Slide the display cable through the slot on the display-assembly base.

5 Push the display panel towards the display-assembly base.

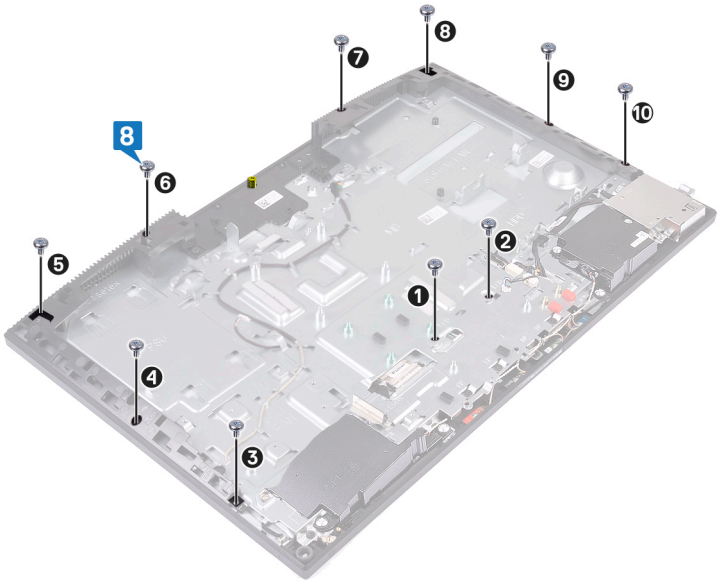
6 Close the gap between the display panel and the middle frame.



7 Place the display-assembly base on a clean and flat surface with the display panel facing down.

8 Replace the ten screws (M3x5) in the sequence as shown in the image, that secure the display panel to the middle frame and display-assembly base.

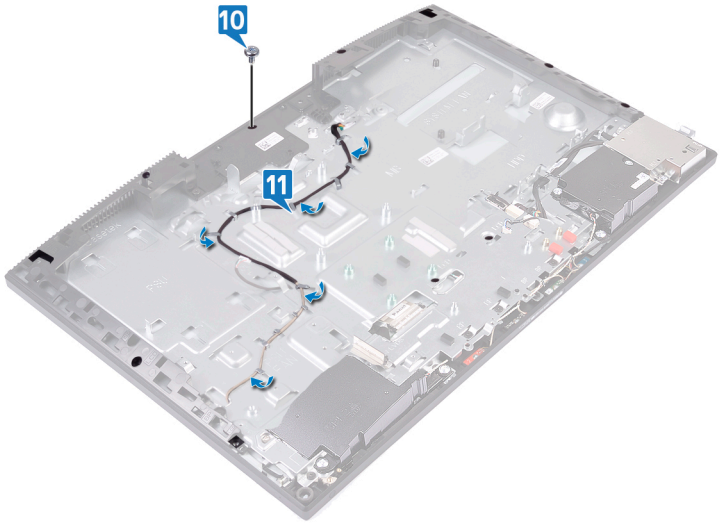
NOTE: The screws that secure the middle frame and display panel to the display-assembly base are silver in color and etched with "LCD" around the screw holes.



9 Remove the jig screw from the display panel.

10 Replace the screw (M3x5) that secure the display panel to the middle frame and display-assembly base.

11 Route the display-backlit cable through the routing guides on the display-assembly base.



Identifier	GUID-0499445C-5E90-417F-B180-461E07EAE593
Status	Released

Post-requisites

1 Replace the camera.
2 Replace the system board.
3 Replace the heat sink.
4 Replace the fan.
5 Replace the wireless card.
6 Replace the hard drive.
7 Replace the rear-I/O bracket.
8 Replace the base panel.
9 Replace the system-board shield.
10 Replace the back cover.
11 Replace the stand.

Identifier	GUID-665E66D0-54D4-403E-91DA-
Status	Released

Removing the middle frame

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 www.dell.com/regulatory_compliance.

Identifier	GUID-D8CA5321-4195-4AAD-81F5-D7025764CB5B
Status	Released

Prerequisites

1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the base panel.
5 Remove the rear-I/O bracket.
6 Remove the hard drive.
7 Remove the coin-cell battery.
8 Remove the memory modules.
9 Remove the wireless card.
10 Remove the solid-state drive/Intel Optane.
11 Remove the fan.
12 Remove the heat sink.
13 Remove the speakers.
14 Remove the power-button board.
15 Remove the microphones.
16 Remove the side-I/O board.
17 Remove the headset port.
18 Remove the antennas.
19 Remove the camera.
20 Remove the processor.
21 Remove the system board.
22 Remove the display panel.

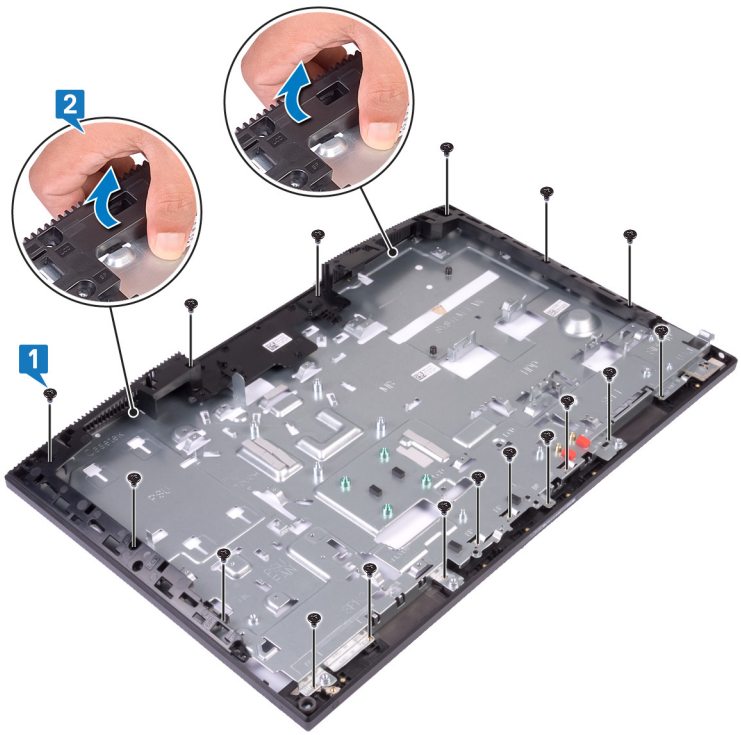
Identifier	GUID-24A87239-B214-43F9-BFBC-8E8082FE83BF
Status	Released

Procedure

1 Remove the 17 screws (M3x5) that secure the middle frame to the display-assembly base.

NOTE: The screws that secure the middle frame to the display-assembly base are black in color and etched with "BP" around the screw holes.

2 Slide and lift to release the tabs on the middle frame from the slots on the display-assembly base and lift the middle frame off the display-assembly base.



3 After performing the above steps, you are left with the middle frame.

Identifier	GUID-27CA34A0-72DA-4F52-8342-
Status	Released

Replacing the middle frame

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 www.dell.com/regulatory_compliance.

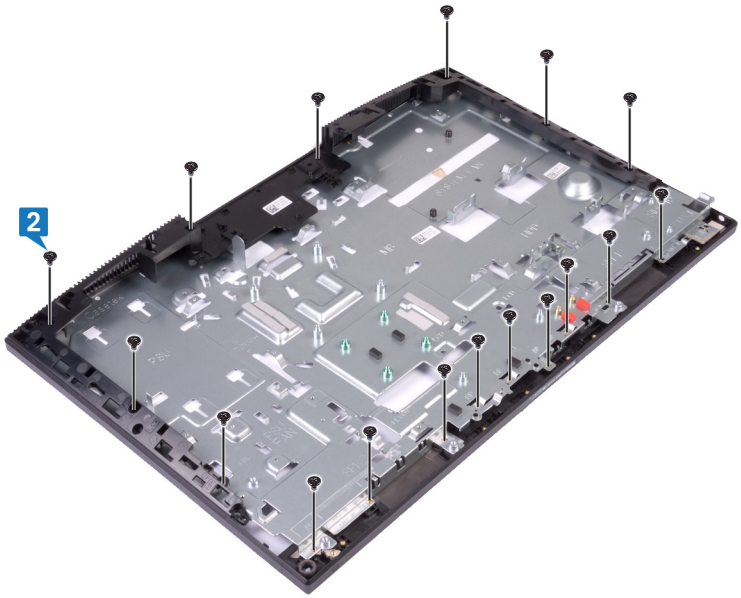
Identifier	GUID-ADA10CCA-A2FD-48B3-90FB-9D2AE4F8497A
Status	Released

Procedure

1 Starting from the location shown, slide and align the middle frame to the slots on the display-assembly base, and then snap the middle frame into place on the display-assembly base.

2 Replace the 17 screws (M3x5) that secure the middle frame to the display-assembly base.

NOTE: The screws that secure the middle frame to the display-assembly base are black in color and etched with "BP" around the screw holes.



Identifier	GUID-3A3642FC-66E8-45A1-B5B5-13073158A0B1
Status	Released

Post-requisites

1 Replace the display panel.
2 Replace the system board.
3 Replace the processor.
4 Replace the camera.
5 Replace the antennas.
6 Replace the headset port.
7 Replace the side-I/O board.
8 Replace the microphones.
9 Replace the power-button board.
10 Replace the speakers.
11 Replace the heat sink.
12 Replace the fan.
13 Replace the solid-state drive/Intel Optane.
14 Replace the wireless card.
15 Replace the memory modules.
16 Replace the coin-cell battery.
17 Replace the hard drive.
18 Replace the rear-I/O bracket.
19 Replace the base panel.
20 Replace the system-board shield.
21 Replace the back cover.
22 Replace the stand.

Identifier	GUID-70875D68-4C2A-4A2A-BD40
Status	Released

Removing the display-assembly base

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 www.dell.com/regulatory_compliance.

Identifier	GUID-BE8DF465-8A98-4F06-AE3C-1C5D5F33A418
Status	Released

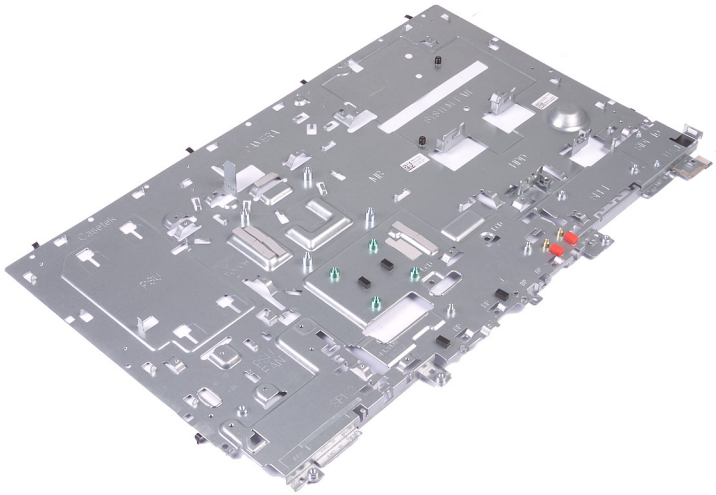
Prerequisites

1 Remove the stand.
2 Remove the back cover.
3 Remove the system-board shield.
4 Remove the base panel.
5 Remove the rear-I/O bracket.
6 Remove the hard drive.
7 Remove the coin-cell battery.
8 Remove the memory modules.
9 Remove the wireless card.
10 Remove the solid-state drive/Intel Optane.
11 Remove the fan.
12 Remove the heat sink.
13 Remove the speakers.
14 Remove the power-button board.
15 Remove the microphones.
16 Remove the side-I/O board.
17 Remove the headset port.
18 Remove the antennas.
19 Remove the camera.
20 Remove the processor.
21 Remove the system board.
22 Remove the display panel.
23 Remove the middle frame.

Identifier	GUID-059B08B1-0AC2-41B1-9C36-4B8595C7E383
Status	Released

Procedure

After performing all the pre-requisites, you are left with the display-assembly base.



Identifier	GUID-798FC7D7-D5DE-4A47-B19D
Status	Released

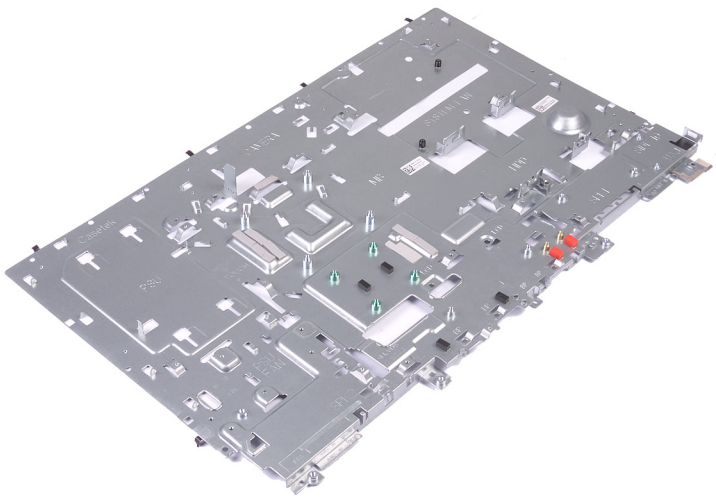
Replacing the display-assembly base

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 www.dell.com/regulatory_compliance.

Identifier	GUID-5B871AB3-7023-43C3-A5B3-74947AA67169
Status	Released

Procedure

Place the display-assembly base on a clean and flat surface.



Identifier	GUID-177CA69A-2D35-495C-9DE8-1E09F512FAED
Status	Released

Post-requisites

1. Replace the middle frame.
2. Replace the display panel.
3. Replace the system board.
4. Replace the processor.
5. Replace the camera.
6. Replace the antennas.

7 Replace the headset port.
8 Replace the side-I/O board.
9 Replace the microphones.
10 Replace the power-button board.
11 Replace the speakers.
12 Replace the heat sink.
13 Replace the fan.
14 Replace the solid-state drive/Intel Optane.
15 Replace the wireless card.
16 Replace the memory modules.
17 Replace the coin-cell battery.
18 Replace the hard drive.
19 Replace the rear-I/O bracket.
20 Replace the base panel.
21 Replace the system-board shield.
22 Replace the back cover.
23 Replace the stand.

Identifier	GUID-F4DA2E4B-976A-4AE4-A9ED
Status	Released

Downloading drivers

Identifier	GUID-F77D14EF-9B5C-46E7-94F3-D310A942C127
Status	Released

Downloading the audio driver

1 Turn on your computer.
2 Go to www.dell.com/support.
3 Enter the Service Tag of your computer, and then click **Submit**.

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

4 Click **Drivers & downloads**.
5 Click the **Detect Drivers** button.
6 Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7 If necessary, your computer starts to download and install **SupportAssist**.

NOTE: Review on-screen instructions for browser-specific instructions.

8 Click **View Drivers for My System**.
9 Click **Download and Install** to download and install all driver updates detected for your computer.
10 Select a location to save the files.
11 If prompted, approve requests from **User Account Control** to make changes on the system.
12 The application installs all drivers and updates identified.

NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13 For manual download and installation, click **Category**.
14 Click **Audio** in the drop-down list.
15 Click **Download** to download the audio driver for your computer.
16 After the download is complete, navigate to the folder where you saved the audio driver file.
17 Double-click the audio driver file icon and follow the instructions on the screen to install the driver.

Table 3. Audio controller before and after installation

Before installation	After installation
Sound, video and game controllers Intel(R) Display Audio NVIDIA Virtual Audio Device (Wave Extensible) (WDM) Realtek Audio	Sound, video and game controllers Intel(R) Display Audio NVIDIA High Definition Audio NVIDIA Virtual Audio Device (Wave Extensible) (WDM) Realtek Audio

Identifier	GUID-B76BB4B6-245C-4B0B-8AC2-28DBDF62DAE6
Status	Released

Downloading the graphics driver

1 Turn on your computer.
2 Go to www.dell.com/support.
3 Enter the Service Tag of your computer, and then click **Submit**.

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

4 Click **Drivers & downloads**.
5 Click the **Detect Drivers** button.
6 Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7 If necessary, your computer starts to download and install **SupportAssist**.

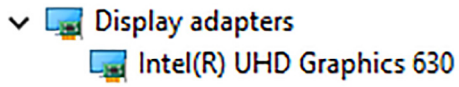
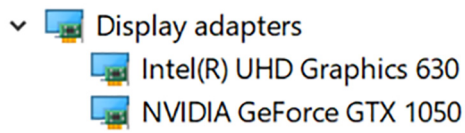
NOTE: Review on-screen instructions for browser-specific instructions.

8 Click **View Drivers for My System**.
9 Click **Download and Install** to download and install all driver updates detected for your computer.
10 Select a location to save the files.
11 If prompted, approve requests from **User Account Control** to make changes on the system.
12 The application installs all drivers and updates identified.

NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13 For manual download and installation, click **Category**.
14 Click **Video** in the drop-down list.
15 Click **Download** to download the graphics driver for your computer.
16 After the download is complete, navigate to the folder where you saved the graphics driver file.
17 Double-click the graphics driver file icon and follow the instructions on the screen to install the driver.

Table 4. Display adapters before and after installation

Before installation	After installation
	

Identifier	GUID-2DBCEF22-2FF5-426F-AC83-C70E2BDA816E
Status	Released

Downloading the USB driver

1 Turn on your computer.
2 Go to www.dell.com/support.
3 Enter the Service Tag of your computer, and then click **Submit**.

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

4 Click **Drivers & downloads**.
5 Click the **Detect Drivers** button.

6 Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7 If necessary, your computer starts to download and install **SupportAssist**.

NOTE: Review on-screen instructions for browser-specific instructions.

8 Click **View Drivers for My System**.
9 Click **Download and Install** to download and install all driver updates detected for your computer.
10 Select a location to save the files.
11 If prompted, approve requests from **User Account Control** to make changes on the system.
12 The application installs all drivers and updates identified.

NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13 For manual download and installation, click **Category**.
14 Click **Chipset** in the drop-down list.
15 Click **Download** to download the USB driver for your computer.
16 After the download is complete, navigate to the folder where you saved USB driver file.
17 Double-click the USB driver file icon and follow the instructions on screen to install the driver.

Identifier	GUID-DE8691CC-4E78-4370-A76A-0AFD933BF565
Status	Released

Downloading the chipset driver

1 Turn on your computer.
2 Go to www.dell.com/support.
3 Enter the Service Tag of your computer, and then click **Submit**.

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

4 Click **Drivers & downloads**.
5 Click the **Detect Drivers** button.
6 Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7 If necessary, your computer starts to download and install **SupportAssist**.

NOTE: Review on-screen instructions for browser-specific instructions.

8 Click **View Drivers for My System**.
9 Click **Download and Install** to download and install all driver updates detected for your computer.
10 Select a location to save the files.
11 If prompted, approve requests from **User Account Control** to make changes on the system.
12 The application installs all drivers and updates identified.

NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13 For manual download and installation, click **Category**.
14 Click **Chipset** in the drop-down list.
15 Click **Download** to download the appropriate chipset driver for your computer.
16 After the download is complete, navigate to the folder where you saved the chipset driver file.
17 Double-click the chipset driver file icon and follow the instructions on the screen to install the driver.

Identifier	GUID-510A1D86-CA02-42E6-943D-48039221D4B6
Status	Released

Downloading the network driver

1 Turn on your computer.
2 Go to www.dell.com/support.
3 Enter the Service Tag of your computer, and then click **Submit**.

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

4 Click **Drivers & downloads**.
5 Click the **Detect Drivers** button.
6 Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7 If necessary, your computer starts to download and install **SupportAssist**.

NOTE: Review on-screen instructions for browser-specific instructions.

8 Click **View Drivers for My System**.
9 Click **Download and Install** to download and install all driver updates detected for your computer.
10 Select a location to save the files.
11 If prompted, approve requests from **User Account Control** to make changes on the system.
12 The application installs all drivers and updates identified.

NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13 For manual download and installation, click **Category**.
14 Click **Network** in the drop-down list.
15 Click **Download** to download the network driver for your computer.
16 Save the file, and after the download is complete, navigate to the folder where you saved the network driver file.
17 Double-click the network driver file icon and follow the instructions on screen.

Table 5. Network driver before and after installation

Before installation	After installation
Network adapters Bluetooth Device (Personal Area Network) Bluetooth Device (RFCOMM Protocol TDI) Intel(R) Ethernet Connection (7) I219-V WAN Miniport (IKEv2) WAN Miniport (IP) WAN Miniport (IPv6) WAN Miniport (L2TP) WAN Miniport (Network Monitor) WAN Miniport (PPPOE) WAN Miniport (PPTP) WAN Miniport (SSTP)	Network adapters Bluetooth Device (Personal Area Network) Bluetooth Device (RFCOMM Protocol TDI) Intel(R) Ethernet Connection (7) I219-V Intel(R) Wireless-AC 9560 WAN Miniport (IKEv2) WAN Miniport (IP) WAN Miniport (IPv6) WAN Miniport (L2TP) WAN Miniport (Network Monitor) WAN Miniport (PPPOE) WAN Miniport (PPTP) WAN Miniport (SSTP)

Identifier	GUID-4D6759B1-4017-4F54-87E6-9
Status	Released

System setup

NOTE: Depending on the computer and its installed devices, the items listed in this section may or may not be displayed.

Identifier	GUID-39EA0288-9174-49B6-ABA2-37C542A11FC5
Status	Released

Boot Sequence

Boot Sequence allows you to bypass the System Setup–defined boot device order and boot directly to a specific device (for example: optical drive or hard drive). During the Power-on Self Test (POST), when the Dell logo appears, you can:

- Access System Setup by pressing F2 key
- Bring up the one-time boot menu by pressing F12 key

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot menu options are:

- Removable Drive (if available)
- STXXXX Drive

  NOTE: XXX denotes the SATA drive number.
- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

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

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

Identifier	GUID-7A7EB30A-4A48-422B-AE30-B8DC236A1790
Status	Released

Navigation keys

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

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
Enter	Selects a value in the selected field (if applicable) or follow the link in the field.

Keys	Navigation
Spacebar	Expands or collapses a drop-down list, if applicable.
Tab	Moves to the next focus area. **NOTE: For the standard graphics browser only.**
Esc	Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.

Identifier	GUID-E8E05C46-BC9D-4CF1-AC84-34B87FDCCFB7
Status	Released

BIOS overview

CAUTION: Unless you are an expert computer user, do not change the settings in the BIOS Setup program. Certain changes can make your computer work incorrectly.

NOTE: Before you change BIOS Setup program, it is recommended that you write down the BIOS Setup program screen information for future reference.

Use the BIOS Setup program for the following purposes:

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

Identifier	GUID-1432A924-49E9-4080-961D-2AFBDAF42039
Status	Released

Entering BIOS setup program

1 Turn on (or restart) your computer.
2 During POST, when the DELL logo is displayed, watch for the F2 prompt to appear, and then press F2 immediately.

NOTE: The F2 prompt indicates that the keyboard is initialized. This prompt can appear very quickly, so you must watch for it, and then press F2. If you press F2 before the F2 prompt, this keystroke is lost. If you wait too long and the operating system logo appears, continue to wait until you see the desktop. Then, turn off your computer and try again.

Identifier	GUID-F2030A94-5253-437C-BEC4-F8AE2241B7DD
Status	Released

Enabling or disabling the USB in BIOS setup program

1 Turn on or restart your computer.
2 Press F2 when the Dell logo is displayed on the screen to enter the BIOS setup program.
The BIOS setup program is displayed.
3 On the **Advanced** tab, select **USB configuration**.
4 Select the **Front USB Ports** or **Rear USB Ports** to enable or disable it, respectively.
5 Save the settings and exit.

Identifier	GUID-9B0676B7-1ACE-45FB-B60B-42C5DAF2D1F5
Status	Released

Identifying the hard drive in BIOS setup program

1 Turn on or restart your computer.
2 Press F2 when the Dell logo is displayed on the screen to enter the BIOS setup program.
A list of hard drives is displayed on the **Main** tab.

Identifier	GUID-A8CEA65D-97D8-4FBC-900F-785620F8C0FF
Status	Released

Checking the system memory in BIOS setup program

1 Turn on or restart your computer.
2 Press F2 when the Dell logo is displayed to enter the BIOS setup program.
The memory information is displayed on the **Main** tab.

Identifier	GUID-D67FAEA0-546D-4011-A11A-96D3EEEF5F07
Status	Released

System setup options

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

Table 6. System setup options—Main menu

Main	
System Time	Displays the current time in hh:mm:ss format.
System Date	Displays the current date in mm/dd/yyyy format.
BIOS Version	Displays the BIOS version number.
Product Name	Displays the product name.
Service Tag	Allows you to enter the service tag of your computer.
Asset Tag	Displays the asset tag of your computer.
CPU Type	Displays the CPU type.
CPU Speed	Displays the speed of the CPU.
CPU ID	Displays the CPU identification code.
Cache L1	Displays the processor L1 cache size.
Cache L2	Displays the processor L2 cache size.
Cache L3	Displays the processor L3 cache size.
First HDD	Displays the primary hard disk.
AC Adapter Type	Displays the power adapter type.
System Memory	Displays the total computer memory installed.

Main	
Memory Speed	Displays the memory speed.

Table 7. System setup options—Advanced menu

Advanced	
Advanced BIOS Features	
Intel(R)SpeedStep(TM)	Enable or disable the Intel SpeedStep feature. Default: Enabled.
Virtualization	Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology.
VT for Direct I/O	Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology for Direct I/O.
Integrated NIC	Controls the on-board LAN controller.
SATA Operation	This option configures the operating mode of the integrated SATA hard drive controller. Default: AHCI
Adapter Warnings	Enables or disables the power adapter warnings. Default: Enabled
Intel Software Guard Extensions	Enable/Disable/Software Controlled Intel® Software Guard Extensions (SGX). Default: Software controlled
BIOS Recovery from Hard Drive	Enable or disable BIOS recovery from hard drive. Default: Enabled
BIOS Auto-Recovery	Enable or disable BIOS Auto-Recovery. Default: Disabled
Always Perform Integrity Check	When enabled, BIOS checks the BIOS image integrity on every boot. When Disabled, BIOS checks the image integrity only if the previous boot did not complete. Default: Disabled
USB Configuration	
Rear USB Ports	Allows you to enable or disable the rear USB ports.
Sides USB ports	Allows you to enable or disable the side USB ports.
Power Options	
Wake Up by Integrated LAN	Enable or disable the computer to be powered on by special LAN signals. Default: Disabled
AC Recovery	Sets what action the computer takes when power is restored.
Deep Sleep Control	Enable or disable the Deep Sleep mode support.

Advanced	
	Default: Enabled
USB Wake support (S3)	Enable or disable USB devices to wake the system from Standby. Default: Enabled
USB Powershare Support State	Enable or disable charging USB devices. Default: Disabled
Auto Power On	This option sets the time of day when you would like the system to turn on automatically.
Auto Power On Mode	System turns on automatically.
Auto Power On Date	Auto power on date.
Auto Power On Time	Auto power on time.
Numlock Key	Allows you to set the status of the Numlock key during boot to On or Off.
SupportAssist System Resolution	
Auto OS Recovery Threshold	Control the automatic boot flow for SupportAssist System Resolution Console and for Dell OS Recovery tool.
SupportAssist OS Recovery	The SupportAssist OS Recovery option will enable or disable the boot flow for SupportAssist OS Recovery tool in the event of certain system errors. If the SupportAssist OS Recovery setup option is set to disabled then all automatic boot flow for SupportAssist OS Recovery tool will be disabled. Default: Disabled

Table 8. System setup options—Security menu

Security	
Unlock Setup Status	Displays the Unlock Setup status.
Admin Password Status	Displays the administrative password status.
System Password Status	Displays the system password status.
HDD Password Status	Displays the hard-drive password status.
Asset Tag	Displays the asset tag of your computer.
Admin Password	Allows you to set the admin password.
System Password	Allows you to set the system password.
HDD Password	Allows you to set the hard drive password.
Password change	Allows you determine whether changes to the System and Hard Disk passwords are permitted when an administrator password is set.
Computrance	Allows you to help track assets and provide recovery services in the event the computer is lost or stolen.
Firmware TPM	Allows you to enable or disable the firmware TPM function.
PPI Bypass for Clear Command	Allows you to control the TPM Physical Presence Interface (PPI). When enabled, this setting will allow the OS to skip BIOS

Security	
	PPI user prompts when issuing the Clear command. Changes to this setting take effect immediately..
UEFI Firmware Capsule Updates	Allows you to enable or disable the UEFI Firmware Capsule Updates function. Default: Enabled

Table 9. System setup options—Boot menu

Boot	
Boot List Option	Allows you to select system boot from Legacy or UEFI.
File Browser Add Boot Option	Allows you to browse into the file system of devices to select the bootloader.
File Browser Del Boot Option	Allows you to delete the boot menu.
Secure Boot	Allows you to enable or disable the secure boot control. Default: Disabled
Legacy option ROMs	Enable or disable the Legacy Option ROMs.
Attempt Legacy Boot	Allows the system to immediately boot the Legacy Boot List if system fails to boot the UEFI Boot List.
Boot Option Priorities	Displays the boot option priorities.
Boot Option #1	Displays the first boot option.
Boot Option #2	Displays the second boot option.
Boot Option #3	Displays the third boot option.

Table 10. System setup options—Exit menu

Exit	
Save Changes and Reset	Allows you to reset the system after saving the changes.
Discard Changes and Reset	Allows you to reset the system without saving any changes.
Restore defaults	Allows you to restore defaults.
Discard Changes	Allows you to discard your changes.
Save Changes	Allows you to save your changes.

Identifier	GUID-F5899359-C2E1-41C0-9663-4C79969506EB
Status	Released

Flashing the BIOS

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

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

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

4 Click **Drivers & downloads** > **Find it myself**.
5 Select the operating system installed on your computer.
6 Scroll down the page and expand **BIOS**.
7 Click **Download** to download the latest version of the BIOS for your computer.
8 After the download is complete, navigate to the folder where you saved the BIOS update file.
9 Double-click the BIOS update file icon and follow the instructions on the screen.

Identifier	GUID-F93F7E34-BE30-464B-886E-
Status	Released

Troubleshooting

Identifier	GUID-F5899359-C2E1-41C0-9663-4C79969506EB
Status	Released

Flashing the BIOS

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

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

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

4 Click **Drivers & downloads** > **Find it myself**.
5 Select the operating system installed on your computer.
6 Scroll down the page and expand **BIOS**.
7 Click **Download** to download the latest version of the BIOS for your computer.
8 After the download is complete, navigate to the folder where you saved the BIOS update file.
9 Double-click the BIOS update file icon and follow the instructions on the screen.

Identifier	GUID-3E5E47A3-671E-4E01-8949-53F6F26DA1D2
Status	Released

Reinstall Windows using a USB recovery drive

CAUTION: This process formats the hard drive and removes all data on your computer. Ensure that you back up data on your computer before beginning this task.

NOTE: Before reinstalling Windows, ensure your computer has more than 2 GB of memory and more than 32 GB of storage space.

NOTE: This process may take up to an hour to complete and your computer will restart during the recovery process.

1 Connect the USB recovery drive to your computer.
2 Restart your computer.
3 Press F12 after the Dell logo is displayed on the screen to access the boot menu.
A **Preparing one-time boot menu** message appears.
4 After the boot menu loads, select the USB recovery device under **UEFI BOOT**.
The system reboots and a screen to **Choose the keyboard layout** is displayed.
5 Choose your keyboard layout.
6 In the **Choose an option** screen, click **Troubleshoot**.

7 Click **Recover from a drive**.
8 Choose one of the following options:
   - **Just remove my files** to do a quick format.
   - **Fully clean the drive** to do a complete format.
9 Click **Recover** to start the recovery process.

Identifier	GUID-EE9A5D95-88BE-4EE7-983E-D97C680BDECD
Status	Released

Enhanced Pre-Boot System Assessment (ePSA) diagnostics

CAUTION: Use the ePSA diagnostics to test only your computer. Using this program with other computers may cause invalid results or error messages.

The ePSA diagnostics (also known as system diagnostics) performs a complete check of your hardware. The ePSA is embedded with the BIOS and is launched by the BIOS internally. The embedded system diagnostics provides a set of options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode
- Repeat tests
- Display or save test results
- Run thorough tests to introduce additional test options to provide extra information about the failed device(s)
- View status messages that inform you if tests are completed successfully
- View error messages that inform you of problems encountered during testing

NOTE: Some tests for specific devices require user interaction. Always ensure that you are present at the computer terminal when the diagnostic tests are performed.

For more information, see Dell EPSA Diagnostic 3.0.

Identifier	GUID-5FC0D943-B848-4BDC-9A26-78A5E88FDA45
Status	Released

Running the ePSA diagnostics

1 Power-on the computer.
2 As the computer boots, press the F12 key as the Dell logo appears.
3 On the boot menu screen, select the **Diagnostics** option.
4 Click the arrow key at the bottom left corner.
   Diagnostics front page is displayed.
5 Press the arrow in the lower-right corner to go to the page listing.
   The items detected are listed.
6 To run a diagnostic test on a specific device, press Esc and click **Yes** to stop the diagnostic test.
7 Select the device from the left pane and click **Run Tests**.
8 If there are any issues, error codes are displayed.
   Note the error code and validation number and contact Dell.

Identifier	GUID-3093CD1A-F3B5-466F-B23A-8F30FA44FD63
Status	Released

Display built-in self test

The following procedure provides the instructions on how to run the built-in self test for the display:

1 Turn off your computer.
2 Press and hold the display built-in self test button.
3 Press and hold the power button.
4 Release the power button.
5 Hold the display built-in self test button until the test starts.

Identifier	GUID-ADE3BA02-18FE-41C1-84CD-A2FD012A7DF5
Status	Released

Diagnostics

Power status light: Indicates the power status.

Solid Amber – The computer is unable to boot to the operating system. This indicates that the power supply or another device in the computer is failing.

Blinking Amber – The computer is unable to boot to the operating system. This indicates that the power supply is normal but another device in the computer is failing or not installed properly.

NOTE: See the light patterns to determine the device that is failing.

Off – Computer is in hibernation or turned off.

The power status light blinks amber along with beep codes indicating failures.

For example, the power status light blinks amber two times followed by a pause, and then blinks white three times followed by a pause. This 2,3 pattern continues until the computer is turned off indicating the Recovery image is not found.

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

Table 11. System diagnostic lights

Light pattern	Problem description
1	System board, BIOS corruption, or ROM error
2	Memory not found
3	System board, chipset failure
4	Memory or RAM failure
5	Coin-cell battery failure
6	GPU failure
7	CPU failure
8	Display failure
3,6	BIOS recovery image not found
3,7	BIOS recovery image found but invalid

Light pattern	Problem description
Solid Amber > 2,1	CPU failure

The computer may emit a series of beeps during start-up if the errors or problems cannot be displayed. The repetitive beep codes help the user troubleshoot problems with the computer.

Camera status light: Indicates whether the camera is in use.

- Solid white – Camera is in use.
- Off – Camera is not in use.

Identifier	GUID-7D2143EA-2C62-498E-97AF-DCEF3DA56624
Status	Released

Wi-Fi power cycle

If your computer is unable to access the internet due to Wi-Fi connectivity issues a Wi-Fi power cycle procedure may be performed. The following procedure provides the instructions on how to conduct a Wi-Fi power cycle:

NOTE: Some ISPs (Internet Service Providers) provide a modem/router combo device.

1. Turn off your computer.
2. Turn off the modem.
3. Turn off the wireless router.
4. Wait for 30 seconds.
5. Turn on the wireless router.
6. Turn on the modem.
7. Turn on your computer.

Identifier	GUID-8CEF1F7A-1327-43EB-9E2E-8EC169AEFE4A
Status	Released

Flea power release

Flea power is the residual static electricity that remains on the computer even after it has been powered off and the battery has been removed. The following procedure provides the instructions on how to conduct flea power release:

1. Turn off your computer.
2. Disconnect the power adapter from your computer.
3. Press and hold the power button for 15 seconds to drain the flea power.
4. Connect the power adapter to your computer.
5. Turn on your computer.

Getting help and contacting Dell

Self-help resources

You can get information and help on Dell products and services using these self-help resources:

Table 12. Self-help resources

Information about Dell products and services	www.dell.com
Dell Help & Support app	
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	www.dell.com/support/windows www.dell.com/support/linux
Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on.	www.dell.com/support
Dell knowledge base articles for a variety of computer concerns.	1 Go to www.dell.com/support. 2 Type the subject or keyword in the **Search** box. 3 Click **Search** to retrieve the related articles.
Learn and know the following information about your product: • Product specifications • Operating system • Setting up and using your product • Data backup • Troubleshooting and diagnostics • Factory and system restore • BIOS information	See *Me and My Dell* at www.dell.com/support/manuals. To locate the *Me and My Dell* relevant to your product, identify your product through one of the following: • Select **Detect Product**. • Locate your product through the drop-down menu under **View Products**. • Enter the **Service Tag number** or **Product ID** in the search bar.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see www.dell.com/contactdell.

NOTE: Availability varies by country and product, and some services may not be available in your country.

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.