Dell Vostro 3471

Service Manual

Regulatory Model: D13S
Regulatory Type: D13S003

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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.

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Identifier	GUID-9CCD6D90-C1D1-427F-9E77-D4F83F3AD2B6
Status	Released

Working on your computer

Identifier	GUID-9821EDD0-9810-4752-8B3C-AF89B67C2DB0
Status	Released

Safety instructions

GUID-9821EDD0-9810-4752-8B3C-AF89B67C2DB0

Use the following safety guidelines to protect your computer from potential damage and to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- You have read the safety information that shipped with your computer.
- A component can be replaced or, if purchased separately, installed by performing the removal procedure in reverse order.

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

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface at the same time as touching a connector on the back of the computer.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTE: The color of your computer and certain components may appear differently than shown in this document.

Identifier	GUID-7AC629FC-CB78-43E9-83EF-6B8836FDDAD4
Status	Released

Turning off your computer — Windows 10

GUID-7AC629FC-CB78-43E9-83EF-6B8836FDDAD4

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

1. Click or tap  .
2. Click or tap ⏻ and then click or tap **Shut down**.

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

Identifier	GUID-CEF5001C-74CA-41CA-8C75-25E2A80E8909
Status	Released

Before working inside your computer

GUID-CEF5001C-74CA-41CA-8C75-25E2A80E8909

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

1. Ensure that you follow the Safety Instruction.
2. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
3. Turn off your computer.
4. Disconnect all network cables from the computer.

   CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.
5. Disconnect your computer and all attached devices from their electrical outlets.
6. Press and hold the power button while the computer is unplugged to ground the system board.

   NOTE: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface at the same time as touching a connector on the back of the computer.

Identifier	GUID-F99E5E0D-8C96-4B55-A6C9-5722A035E20C
Status	Released

After working inside your computer

GUID-F99E5E0D-8C96-4B55-A6C9-5722A035E20C

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

1. Connect any telephone or network cables to your computer.

   CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.
2. Connect your computer and all attached devices to their electrical outlets.
3. Turn on your computer.
4. If required, verify that the computer works correctly by running **ePSA diagnostics**.

Identifier	GUID-185D6308-9C53-4477-B3DB-8203E60E623A
Status	Released

Technology and components

Identifier	GUID-2FE1F42C-4FCF-4580-9C68-D258E212454D
Status	Released

USB features

GUID-2FE1F42C-4FCF-4580-9C68-D258E212454D

Universal Serial Bus, or USB, was introduced in 1996. It dramatically simplified the connection between host computers and peripheral devices like mice, keyboards, external drivers, and printers.

Let's take a quick look on the USB evolution referencing to the table below.

Table 1. USB evolution

Type	Data Transfer Rate	Category	Introduction Year
USB 2.0	480 Mbps	High Speed	2000
USB 3.0/USB 3.1 Gen 1	5 Gbps	Super Speed	2010
USB 3.1 Gen 2	10 Gbps	Super Speed	2013

USB 3.0/USB 3.1 Gen 1 (SuperSpeed USB)

For years, the USB 2.0 has been firmly entrenched as the de facto interface standard in the PC world with about 6 billion devices sold, and yet the need for more speed grows by ever faster computing hardware and ever greater bandwidth demands. The USB 3.0/USB 3.1 Gen 1 finally has the answer to the consumers' demands with a theoretically 10 times faster than its predecessor. In a nutshell, USB 3.1 Gen 1 features are as follows:

- Higher transfer rates (up to 5 Gbps)
- Increased maximum bus power and increased device current draw to better accommodate power-hungry devices
- New power management features
- Full-duplex data transfers and support for new transfer types
- Backward USB 2.0 compatibility
- New connectors and cable

The topics below cover some of the most commonly asked questions regarding USB 3.0/USB 3.1 Gen 1.

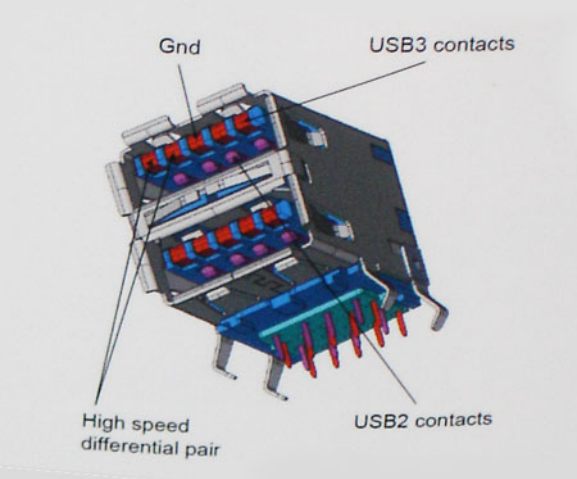
Speed

Currently, there are 3 speed modes defined by the latest USB 3.0/USB 3.1 Gen 1 specification. They are Super-Speed, Hi-Speed and Full-Speed. The new SuperSpeed mode has a transfer rate of 4.8Gbps. While the specification retains Hi-Speed, and Full-Speed USB mode, commonly known as USB 2.0 and 1.1 respectively, the slower modes still operate at 480Mbps and 12Mbps respectively and are kept to maintain backward compatibility.

USB 3.0/USB 3.1 Gen 1 achieves the much higher performance by the technical changes below:

- An additional physical bus that is added in parallel with the existing USB 2.0 bus (refer to the picture below).

- USB 2.0 previously had four wires (power, ground, and a pair for differential data); USB 3.0/USB 3.1 Gen 1 adds four more for two pairs of differential signals (receive and transmit) for a combined total of eight connections in the connectors and cabling.
- USB 3.0/USB 3.1 Gen 1 utilizes the bidirectional data interface, rather than USB 2.0's half-duplex arrangement. This gives a 10-fold increase in theoretical bandwidth.



With today's ever increasing demands placed on data transfers with high-definition video content, terabyte storage devices, high megapixel count digital cameras etc., USB 2.0 may not be fast enough. Furthermore, no USB 2.0 connection could ever come close to the 480Mbps theoretical maximum throughput, making data transfer at around 320Mbps (40MB/s) — the actual real-world maximum. Similarly, USB 3.0/USB 3.1 Gen 1 connections will never achieve 4.8Gbps. We will likely see a real-world maximum rate of 400MB/s with overheads. At this speed, USB 3.0/USB 3.1 Gen 1 is a 10x improvement over USB 2.0.

Applications

USB 3.0/USB 3.1 Gen 1 opens up the laneways and provides more headroom for devices to deliver a better overall experience. Where USB video was barely tolerable previously (both from a maximum resolution, latency, and video compression perspective), it's easy to imagine that with 5-10 times the bandwidth available, USB video solutions should work that much better. Single-link DVI requires almost 2Gbps throughput. Where 480Mbps was limiting, 5Gbps is more than promising. With its promised 4.8Gbps speed, the standard will find its way into some products that previously weren't USB territory, like external RAID storage systems.

Listed below are some of the available SuperSpeed USB 3.0/USB 3.1 Gen 1 products:

- External Desktop USB 3.0/USB 3.1 Gen 1 Hard Drives
- Portable USB 3.0/USB 3.1 Gen 1 Hard Drives
- USB 3.0/USB 3.1 Gen 1 Drive Docks & Adapters
- USB 3.0/USB 3.1 Gen 1 Flash Drives & Readers
- USB 3.0/USB 3.1 Gen 1 Solid-state Drives
- USB 3.0/USB 3.1 Gen 1 RAIDs
- Optical Media Drives
- Multimedia Devices
- Networking
- USB 3.0/USB 3.1 Gen 1 Adapter Cards & Hubs

Compatibility

The good news is that USB 3.0/USB 3.1 Gen 1 has been carefully planned from the start to peacefully co-exist with USB 2.0. First of all, while USB 3.0/USB 3.1 Gen 1 specifies new physical connections and thus new cables to take advantage of the higher speed capability of the new protocol, the connector itself remains the same rectangular shape with the four USB 2.0 contacts in the exact same location as before. Five new connections to carry receive and transmitted data independently are present on USB 3.0/USB 3.1 Gen 1 cables and only come into contact when connected to a proper SuperSpeed USB connection.

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Status	Released

HDMI 1.4

GUID-F015869F-9930-4CD6-A002-678BC87259A3

This topic explains the HDMI 1.4 and its features along with the advantages.

HDMI (High-Definition Multimedia Interface) is an industry-supported, uncompressed, all-digital audio/video interface. HDMI provides an interface between any compatible digital audio/video source, such as a DVD player, or A/V receiver and a compatible digital audio and/or video monitor, such as a digital TV (DTV). The intended applications for HDMI TVs, and DVD players. The primary advantage is cable reduction and content protection provisions. HDMI supports standard, enhanced, or high-definition video, plus multichannel digital audio on a single cable.

NOTE: The HDMI 1.4 will provide 5.1 channel audio support.

HDMI 1.4 Features

- **HDMI Ethernet Channel** - Adds high-speed networking to an HDMI link, allowing users to take full advantage of their IP-enabled devices without a separate Ethernet cable
- **Audio Return Channel** - Allows an HDMI-connected TV with a built-in tuner to send audio data "upstream" to a surround audio system, eliminating the need for a separate audio cable
- **3D** - Defines input/output protocols for major 3D video formats, paving the way for true 3D gaming and 3D home theater applications
- **Content Type** - Real-time signaling of content types between display and source devices, enabling a TV to optimize picture settings based on content type
- **Additional Color Spaces** - Adds support for additional color models used in digital photography and computer graphics
- **4K Support** - Enables video resolutions far beyond 1080p, supporting next-generation displays that will rival the Digital Cinema systems used in many commercial movie theaters
- **HDMI Micro Connector** - A new, smaller connector for phones and other portable devices, supporting video resolutions up to 1080p
- **Automotive Connection System** - New cables and connectors for automotive video systems, designed to meet the unique demands of the motoring environment while delivering true HD quality

Advantages of HDMI

- Quality HDMI transfers uncompressed digital audio and video for the highest, crispest image quality.
- Low -cost HDMI provides the quality and functionality of a digital interface while also supporting uncompressed video formats in a simple, cost-effective manner
- Audio HDMI supports multiple audio formats from standard stereo to multichannel surround sound
- HDMI combines video and multichannel audio into a single cable, eliminating the cost, complexity, and confusion of multiple cables currently used in A/V systems
- HDMI supports communication between the video source (such as a DVD player) and the DTV, enabling new functionality

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Status	Released

Removing and installing components

Identifier	GUID-6B3E81F5-5AC2-45BF-B1DD-36F28AC108A5
Status	Released

Recommended tools

GUID-6B3E81F5-5AC2-45BF-B1DD-36F28AC108A5

The procedures in this document require the following tools:

- Phillips # 1 screwdriver
- Phillips # 2 screwdriver
- Small plastic scribe

Identifier	GUID-9DC45B3A-E001-444B-B431-BDFD458CA89B
Status	Released

Screw size list

GUID-9DC45B3A-E001-444B-B431-BDFD458CA89B

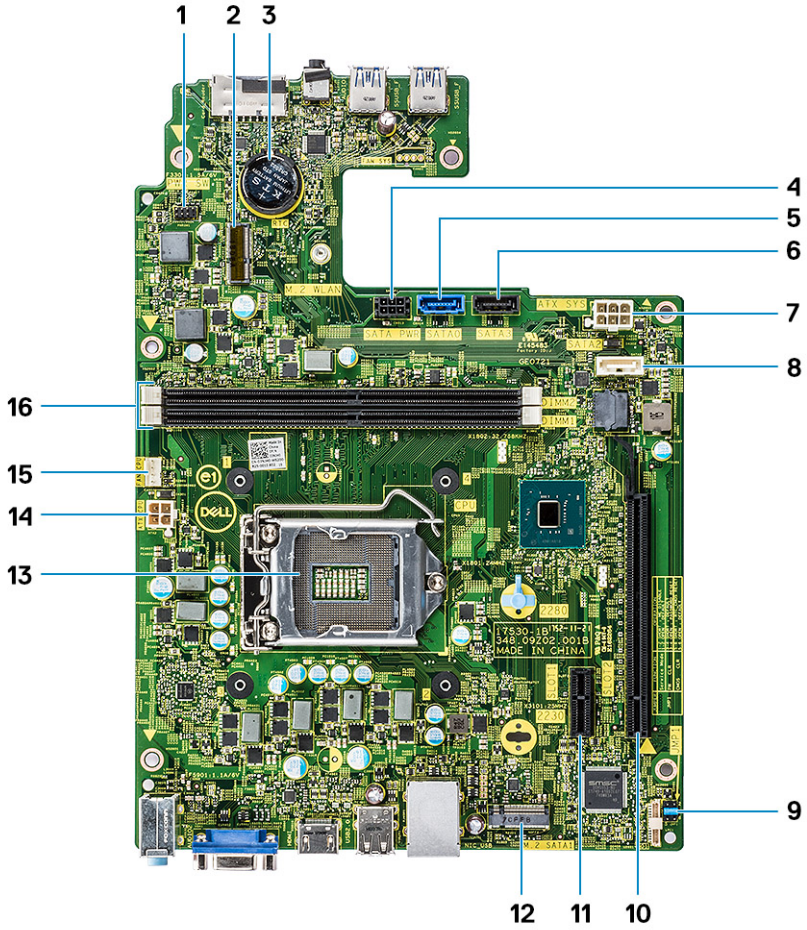
Table 2. Vostro 3471

Component	Screw type	Quantity	Image	Color
System board	6-32xL6.35	6		Black
Power Supply Unit	6-32xL6.35	3		
3.5-inch hard drive chassis	6-32xL6.35	2		
Drive cage	6-32xL6.35	1		
Cover	6-32xL6.35	2		
IO bracket	6-32xL6.35	1		
3.5-inch hard drive to 3.5- hard drive bracket	6-32xL3.6	2		Silver
2.5-inch hard drive chassis	6-32xL3.6	1		
2.5–inch hard drive to drive bracket	M3x3.5	4		Silver
Optical drive to optical drive bracket	M2x2	3		Black
WLAN card	M2x3.5	1		Silver

Identifier	GUID-0B939728-5042-4649-AE68-D97898E910B7
Status	Released

System board layout

GUID-0B939728-5042-4649-AE68-D97898E910B7



1. Power switch connector
2. M.2 connector for WIFI card
3. Coin cell battery connector
4. SATA power connector (Black)
5. SATA0 connector (Blue)
6. SATA3 connector (Black)
7. ATX Power Connector(ATX_SYS)
8. SATA2 connector (White)
9. Service mode / password clear/CMOS clear jumpers
10. PCI-e X16 Connector(SLOT2)
11. PCI-e X1 Connector(SLOT1)
12. M.2 SATA Connector for SSD
13. Processor socket
14. CPU Power Connector(ATX_CPU)
15. CPU Fan Connector(FAN_CPU)
16. Memory-module slots (DIMM1, DIMM2)

Identifier	GUID-E4057972-BBB3-4E21-904F-8F96933795B9
Status	Released

Cover

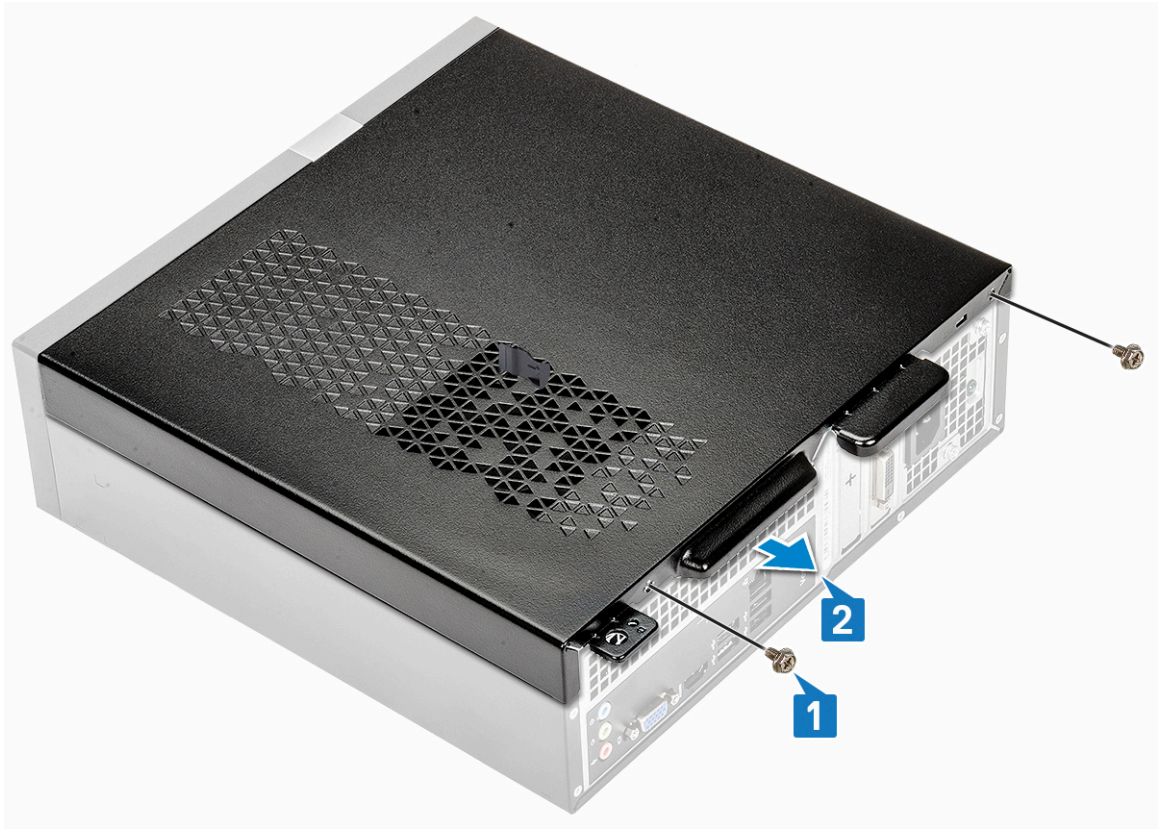
GUID-E4057972-BBB3-4E21-904F-8F96933795B9

Identifier	GUID-040FD613-8469-40DD-B4FA-D8BDF1FB6559
Status	Released

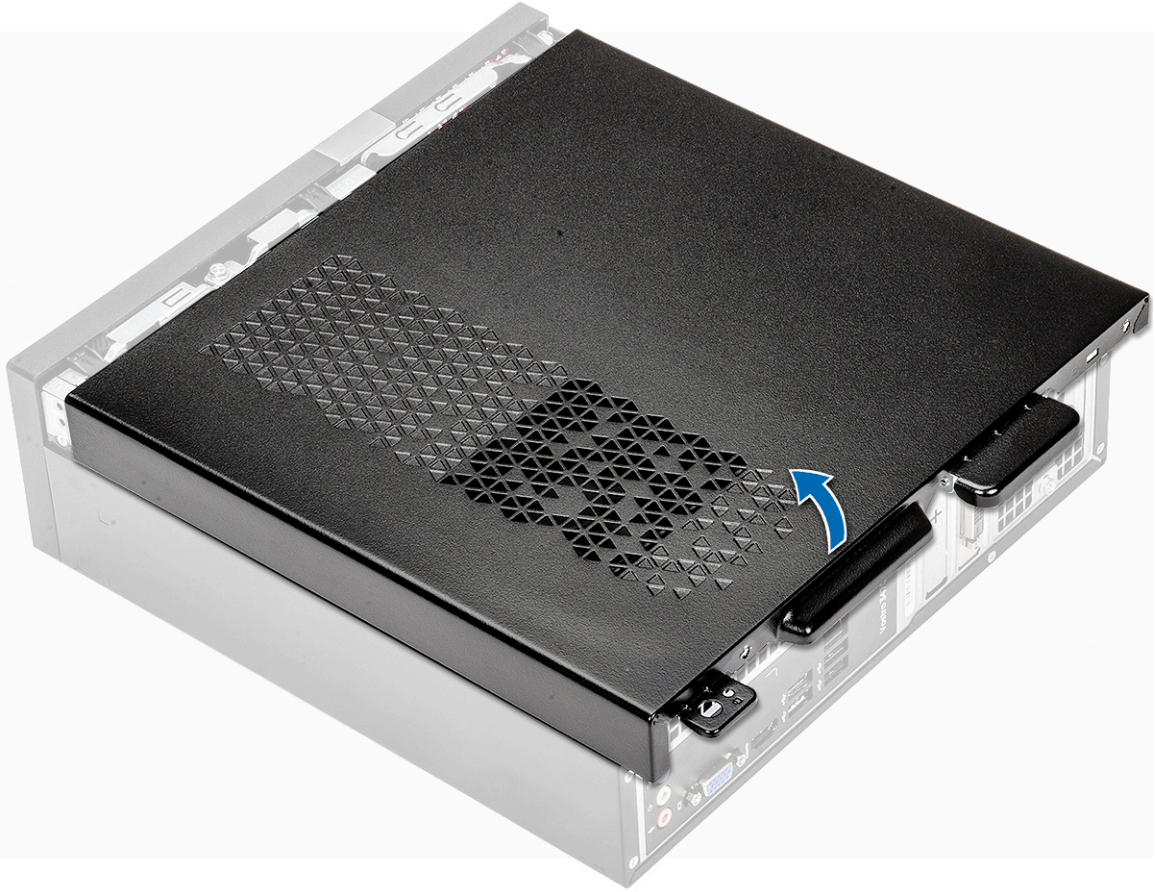
Removing the cover

GUID-040FD613-8469-40DD-B4FA-D8BDF1FB6559

1. Follow the procedure in Before working inside your computer.
2. Follow the steps to remove the cover:
   a) Remove the two 6-32xL6.35 screws that secure the cover to the computer [1].
   b) Slide the computer cover towards the back of the computer [2].



   c) Lift and remove the cover from the computer .

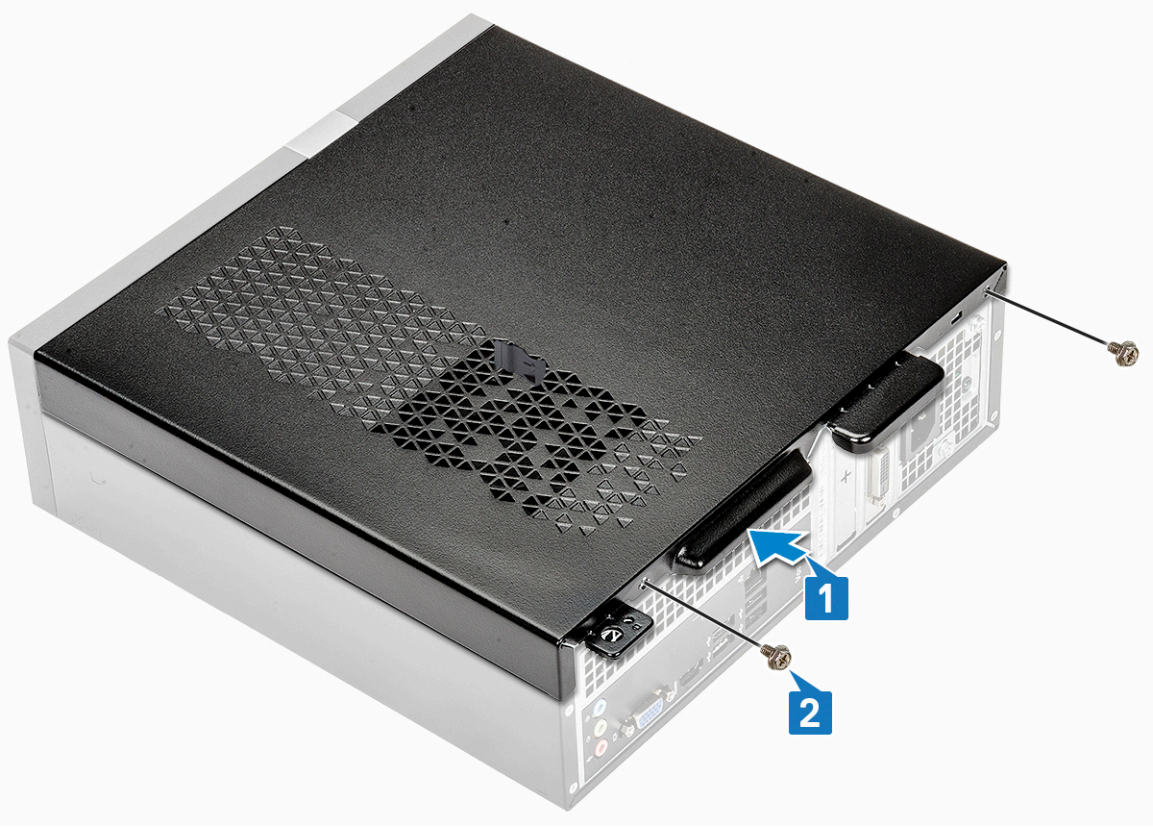


Identifier	GUID-CDC47A10-166B-4047-8DB6-F73859DC4177
Status	Released

Installing the cover

GUID-CDC47A10-166B-4047-8DB6-F73859DC4177

1. Slide the cover from the back of the computer, until the latches snap-in [1].
2. Replace the two 6-32xL6.35 screws to secure the cover [2].



3. Follow the procedures in After Working Inside Your Computer

Identifier	GUID-A73EBADB-AAC5-4773-9725-D58B244270EA
Status	Released

Front Bezel

GUID-A73EBADB-AAC5-4773-9725-D58B244270EA

Identifier	GUID-568701C6-B538-4379-B228-0F8EFECDDBF9
Status	Released

Removing the front bezel

GUID-568701C6-B538-4379-B228-0F8EFECDDBF9

1. Follow the procedure in Before working inside your computer.
2. Remove cover.
3. Follow the steps to remove the front bezel:
   a) Pull the tabs to remove the front bezel.

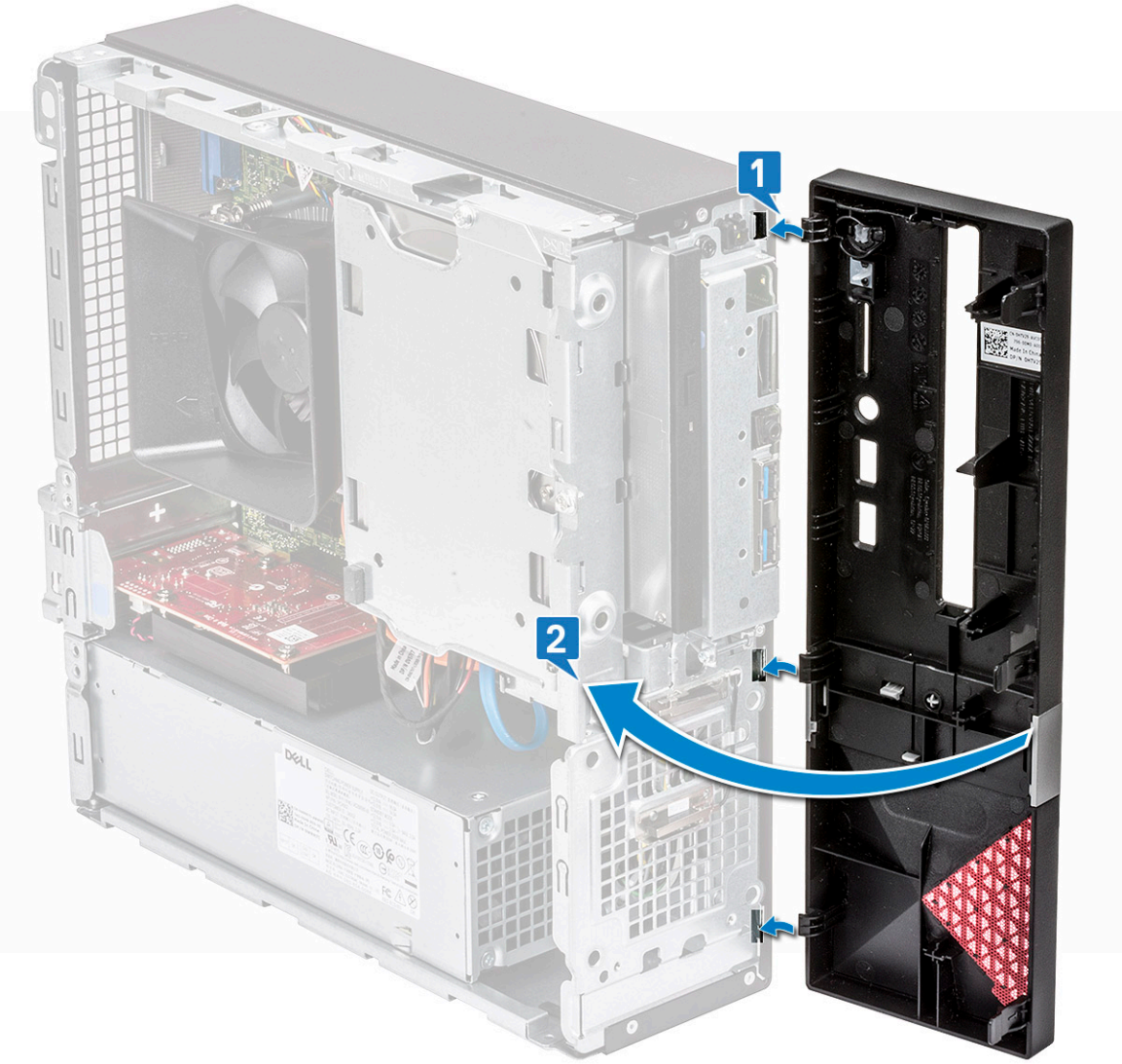
b) Rotate the front bezel away from the computer [1] and pull to release the tabs on the front bezel from the front-panel slots [2].

Identifier	GUID-15B3D0BB-388E-40BA-88D8-3E5AEDB338A4
Status	Released

Installing the front bezel

GUID-15B3D0BB-388E-40BA-88D8-3E5AEDB338A4

1. Hold the bezel and ensure that the hooks on the tabs snap into the notches on the computer [1].
2. Rotate the front bezel toward the front of the computer [2].



3. Press the front bezel until the tabs snap in.

4. Install the cover.
5. Follow the procedure in After Working Inside Your Computer.

Identifier	GUID-60A52EA6-2990-49F4-9800-B9A7C0A5D6BC
Status	Released

Cooling shroud

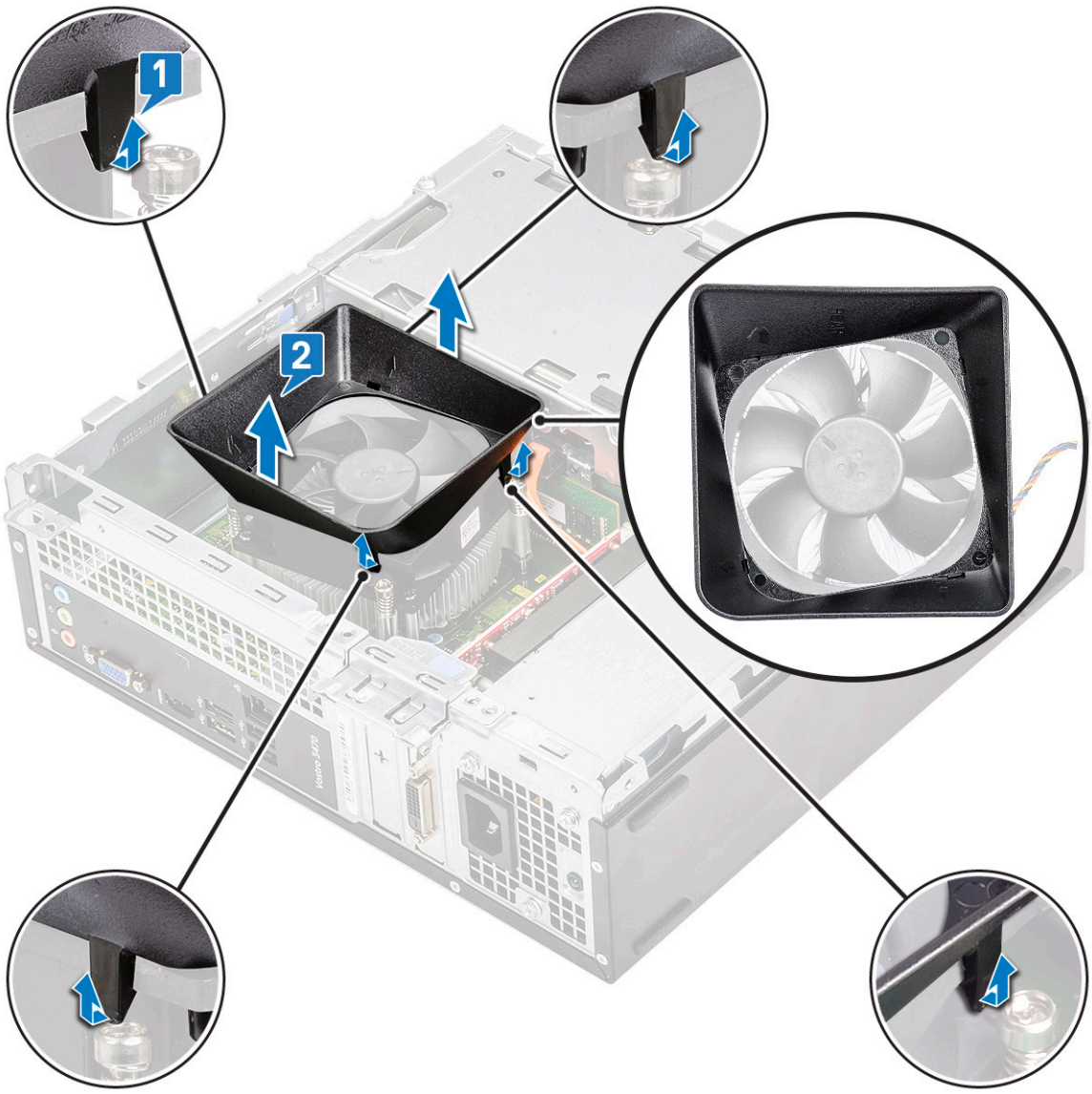
GUID-60A52EA6-2990-49F4-9800-B9A7C0A5D6BC

Identifier	GUID-6B576122-84FB-401B-8D7A-C21EA01FA0F6
Status	Released

Removing the cooling shroud

GUID-6B576122-84FB-401B-8D7A-C21EA01FA0F6

1. Follow the procedure in Before working inside your computer.
2. Remove the cover
3. Follow the steps to remove the heat sink fan cover:
   a) Pry the plastic notches that secure the fan cover in an outward direction [1].
   b) Remove the fan cover from the heat sink assembly [2].

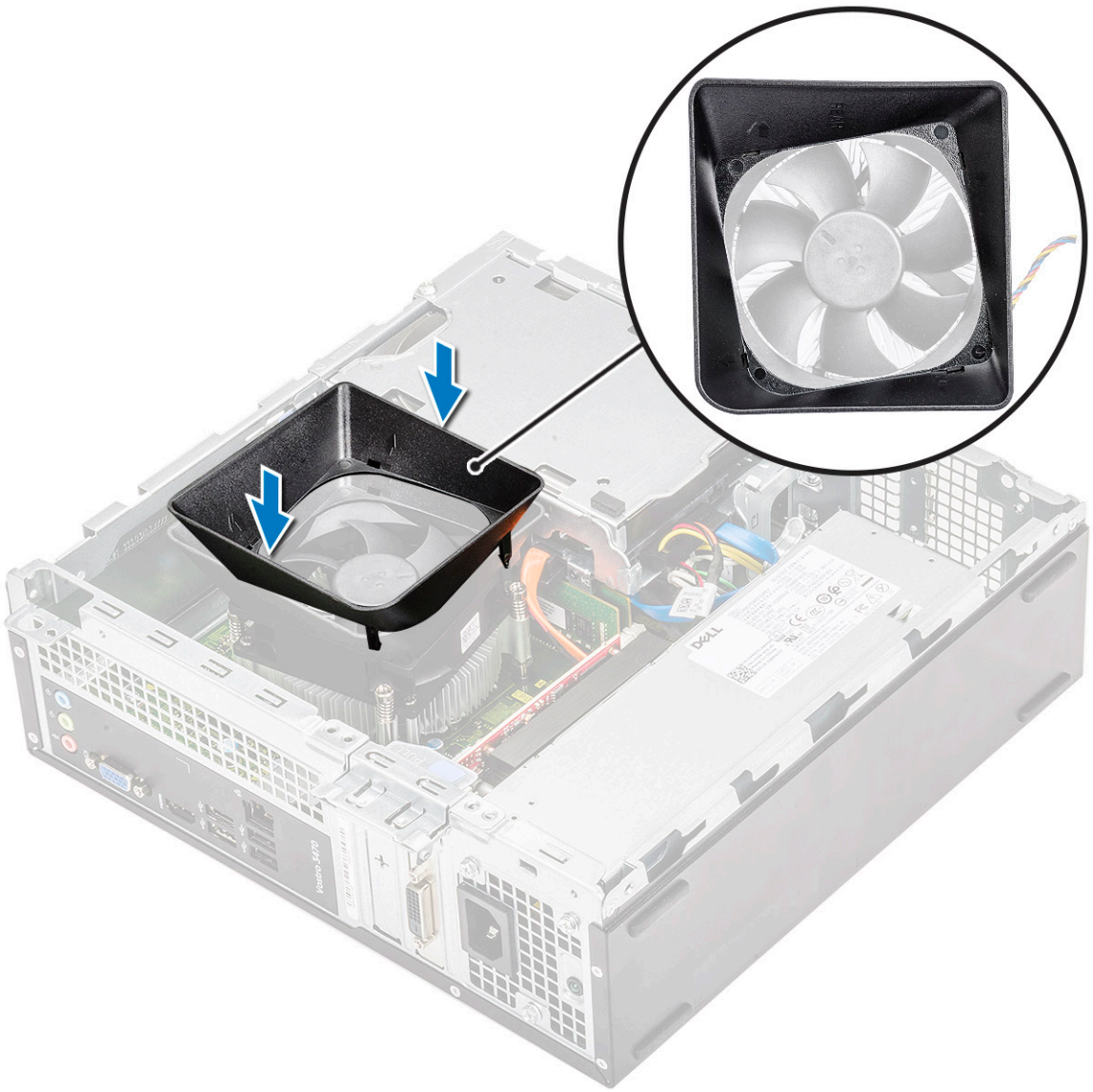


Identifier	GUID-28CDA800-289E-4E4C-9FCA-EE0C9C52D5C1
Status	Released

Installing the cooling shroud

GUID-28CDA800-289E-4E4C-9FCA-EE0C9C52D5C1

1. Align the tabs on the cooling shroud with the securing slots on the computer.
2. Lower the cooling shroud into the chassis until the notches secure with a click sound and the cooling shroud is firmly seated.



NOTE: Make sure the cooling shroud is placed such that the 'REAR' mark on the cooling shroud is towards the rear side of the system.

3. Install the cover.
4. Follow the procedure in After Working Inside Your Computer.

Identifier	GUID-14C0D031-FA0A-4269-B841-B2EBD0633192
Status	Released

Expansion card

GUID-14C0D031-FA0A-4269-B841-B2EBD0633192

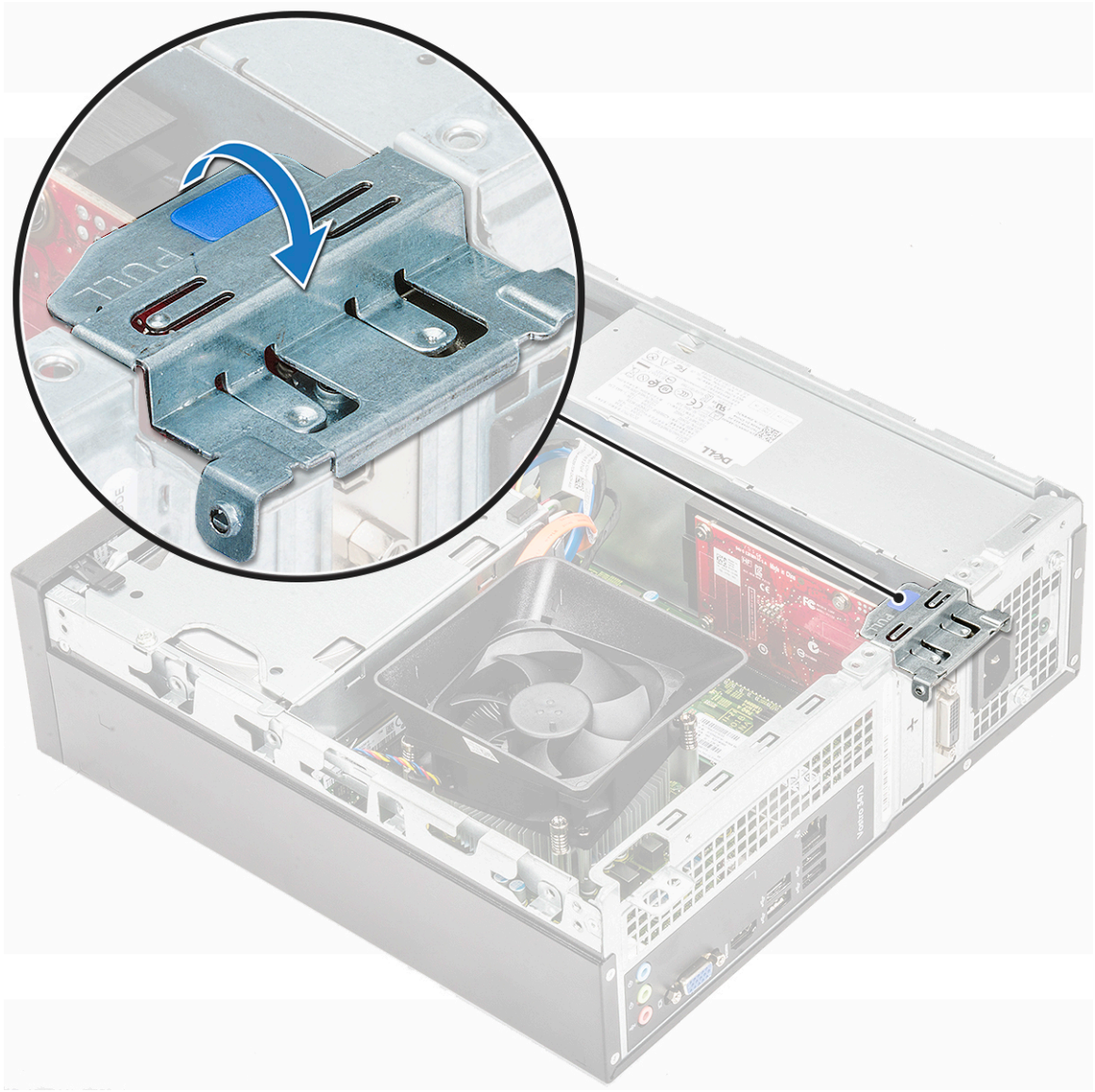
Identifier	GUID-4F12F1C3-22A1-4861-AEBA-F624D63B8F75
Status	Released

Removing the PCIe X1 expansion card-optional

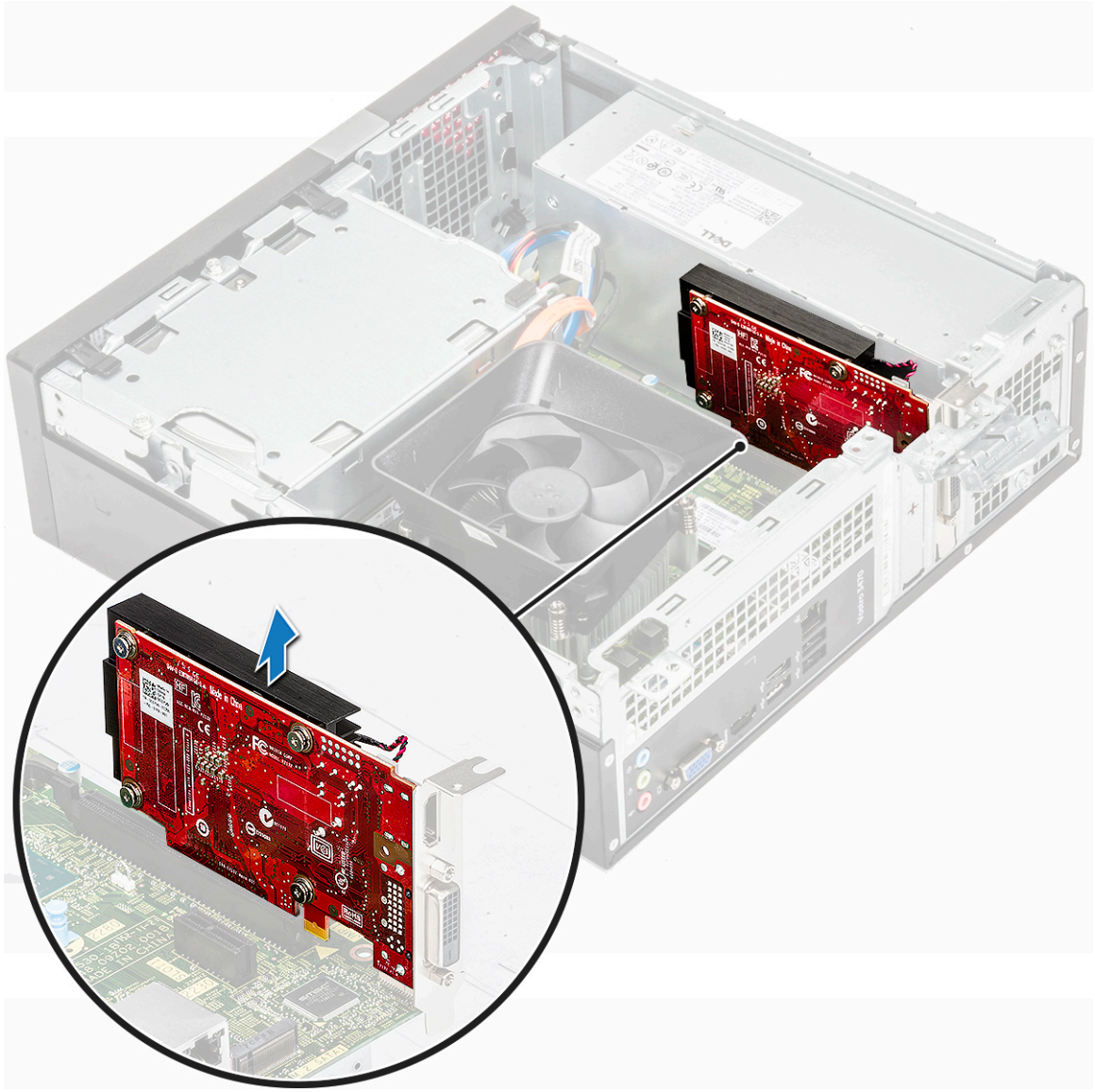
GUID-4F12F1C3-22A1-4861-AEBA-F624D63B8F75

1. Follow the procedure in Before working inside your computer.
2. Remove the cover.
3. Perform the following steps to remove the expansion card:

a) Pull the metal tab to release the expansion card.



b) Remove the expansion card from the slot on the computer

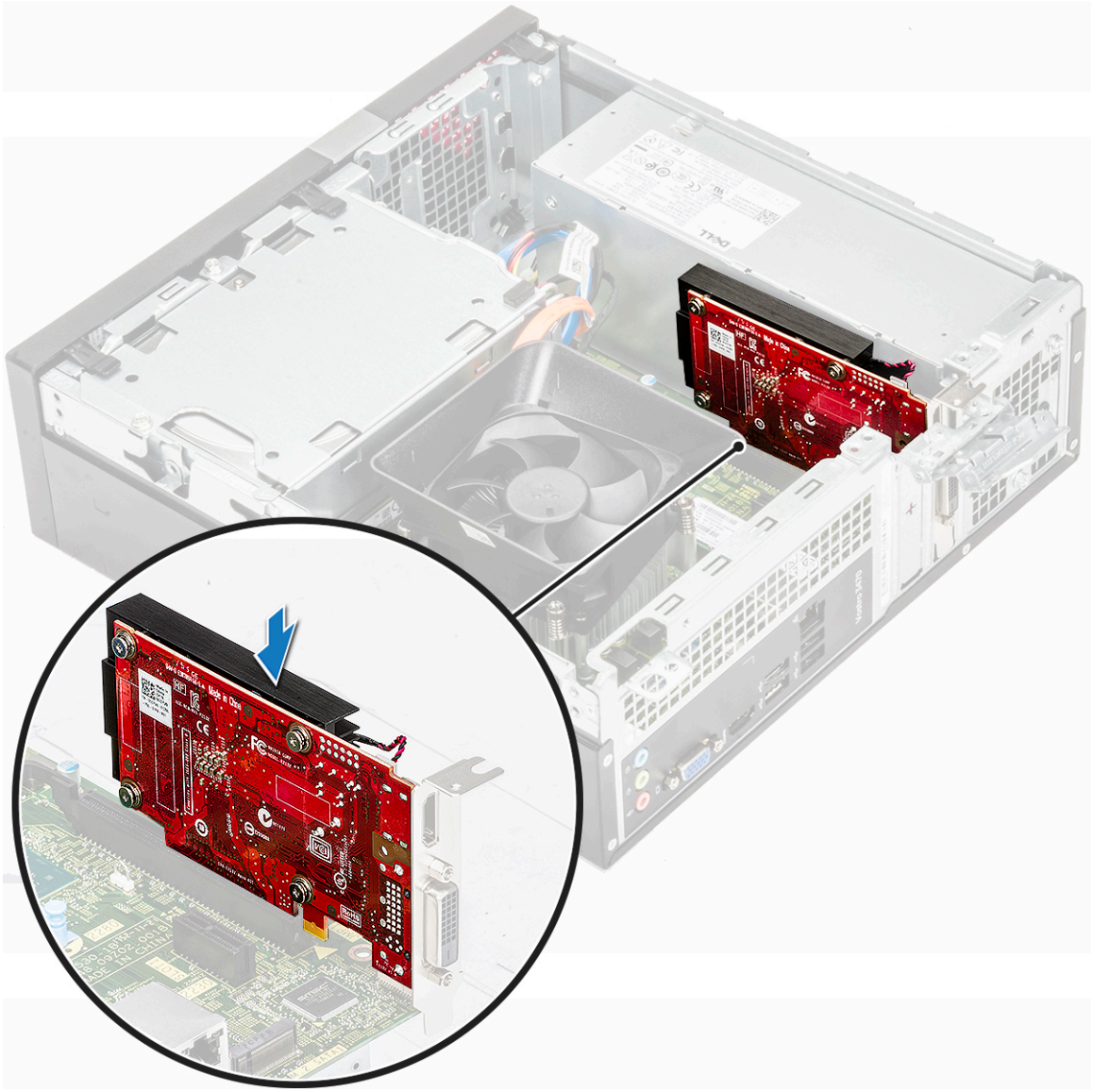


Identifier	GUID-2B8B9C30-2700-427F-9D78-840417C7153D
Status	Released

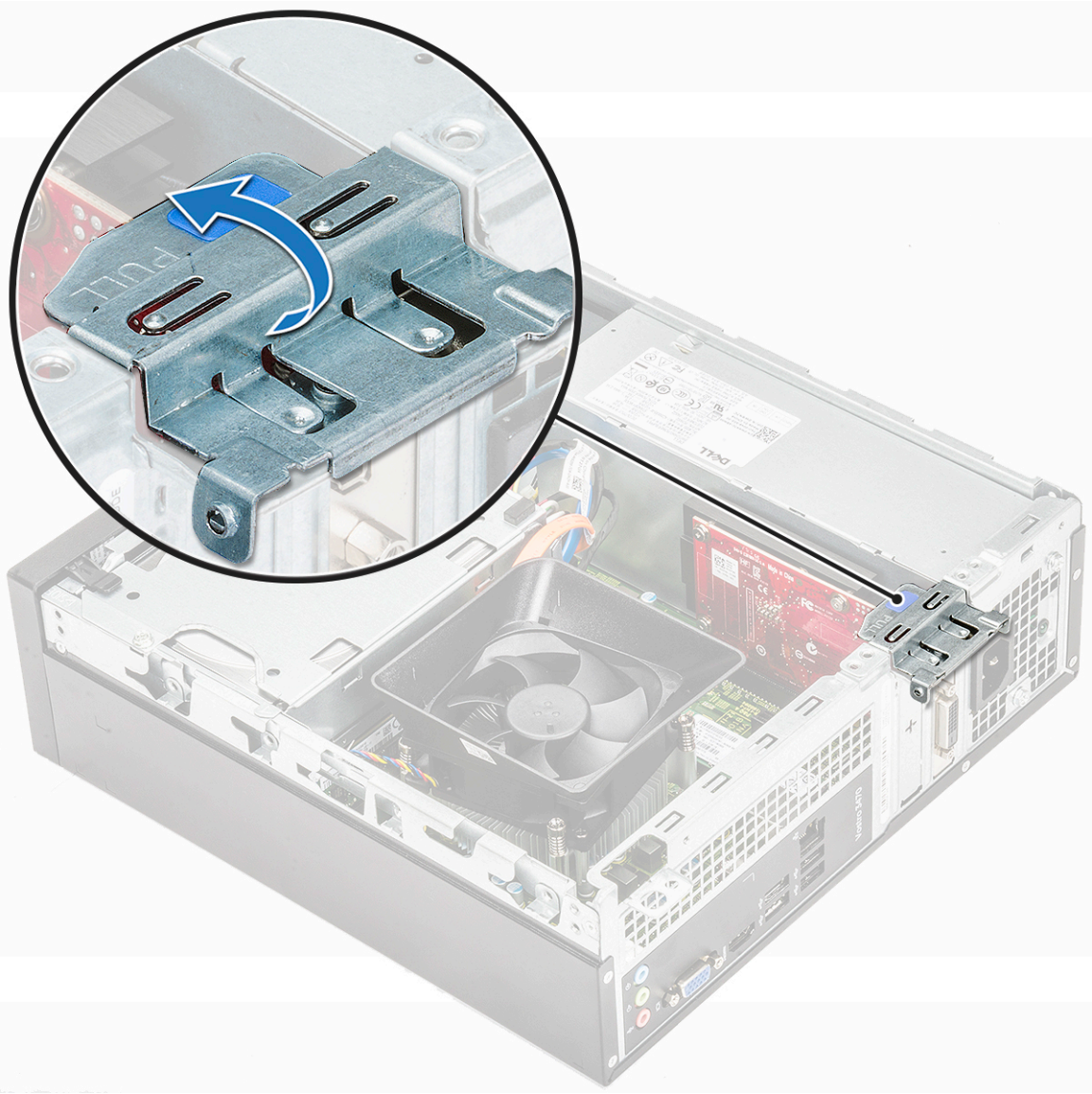
Installing the PCIe X1 expansion card–optional

GUID-2B8B9C30-2700-427F-9D78-840417C7153D

1. Insert the expansion card on the slot.



2. Push the metal tab until it snaps in place.



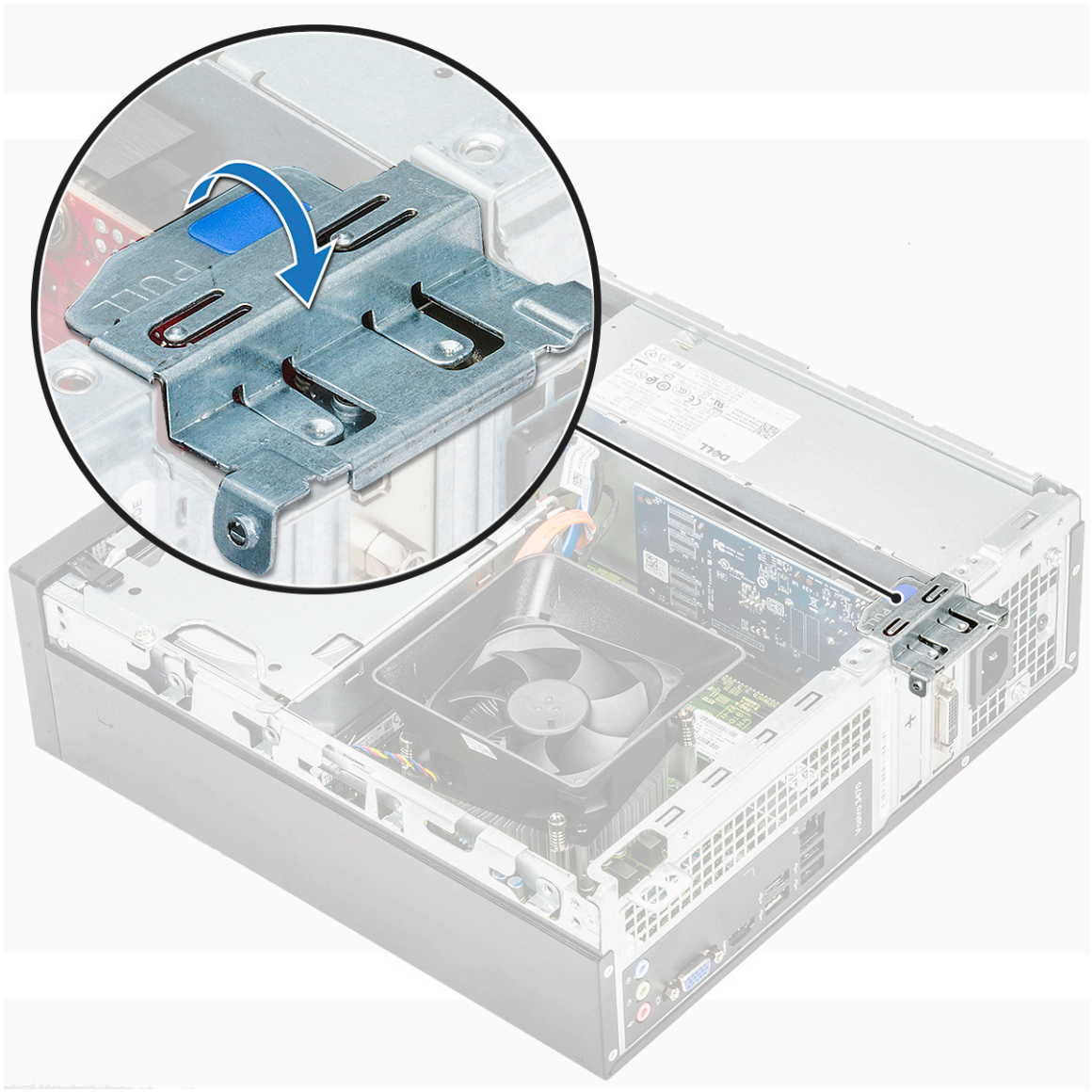
3. Install the cover
4. Follow the procedure in After Working Inside Your Computer.

Identifier	GUID-9CB95972-CD04-4F3C-8910-BC99DF8E6C6A
Status	Released

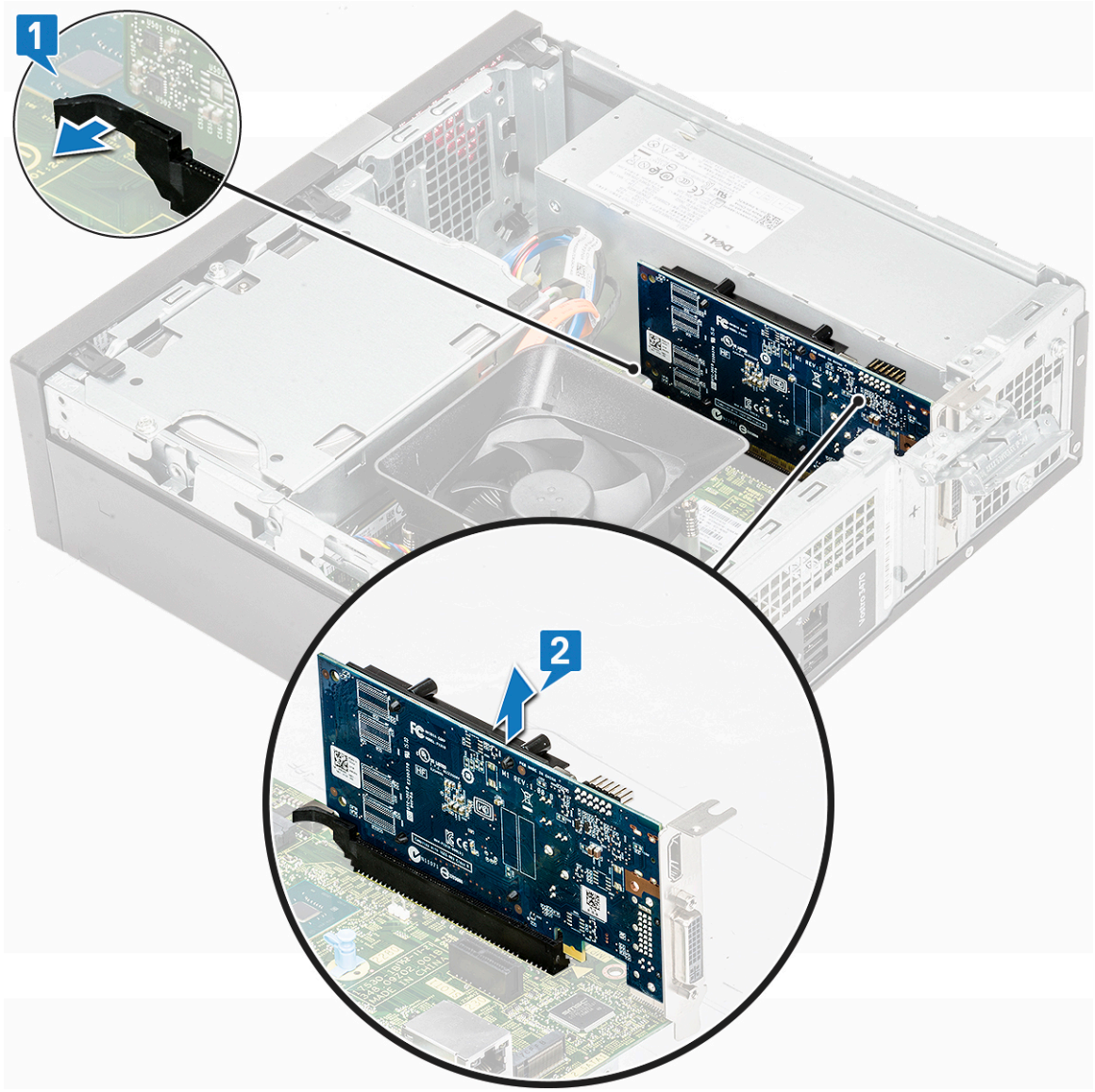
Removing the PCIe X16 expansion card–optional

GUID-9CB95972-CD04-4F3C-8910-BC99DF8E6C6A

1. Follow the procedure in Before working inside your computer.
2. Remove the cover.
3. Perform the following steps to remove the expansion card:
   a) Pull the metal tab to release the expansion card.



b) Pull the card-retention tab [1], and remove the expansion card from the slot on the computer [2].

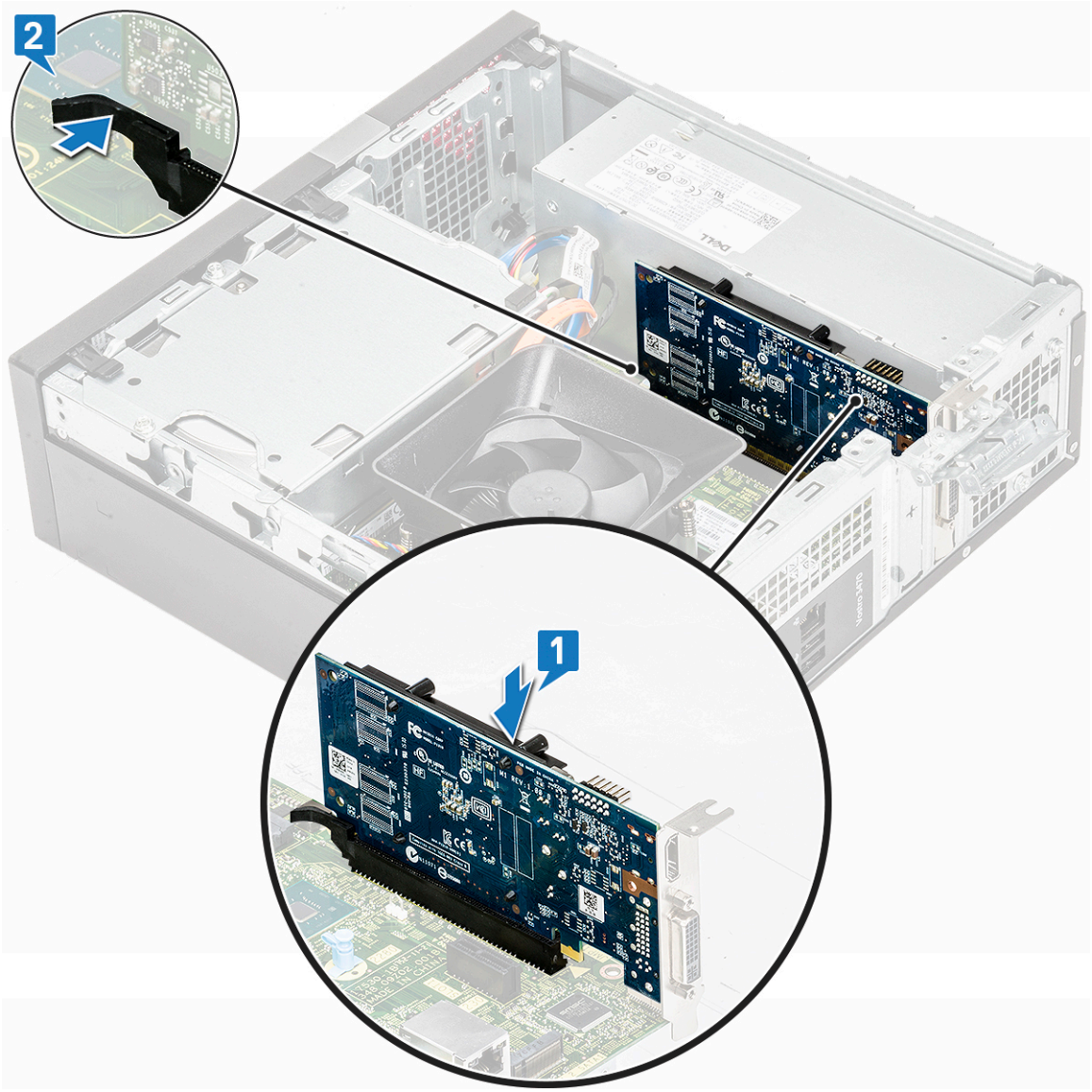


Identifier	GUID-E3A861CA-4F34-46F4-977A-0245E619E662
Status	Released

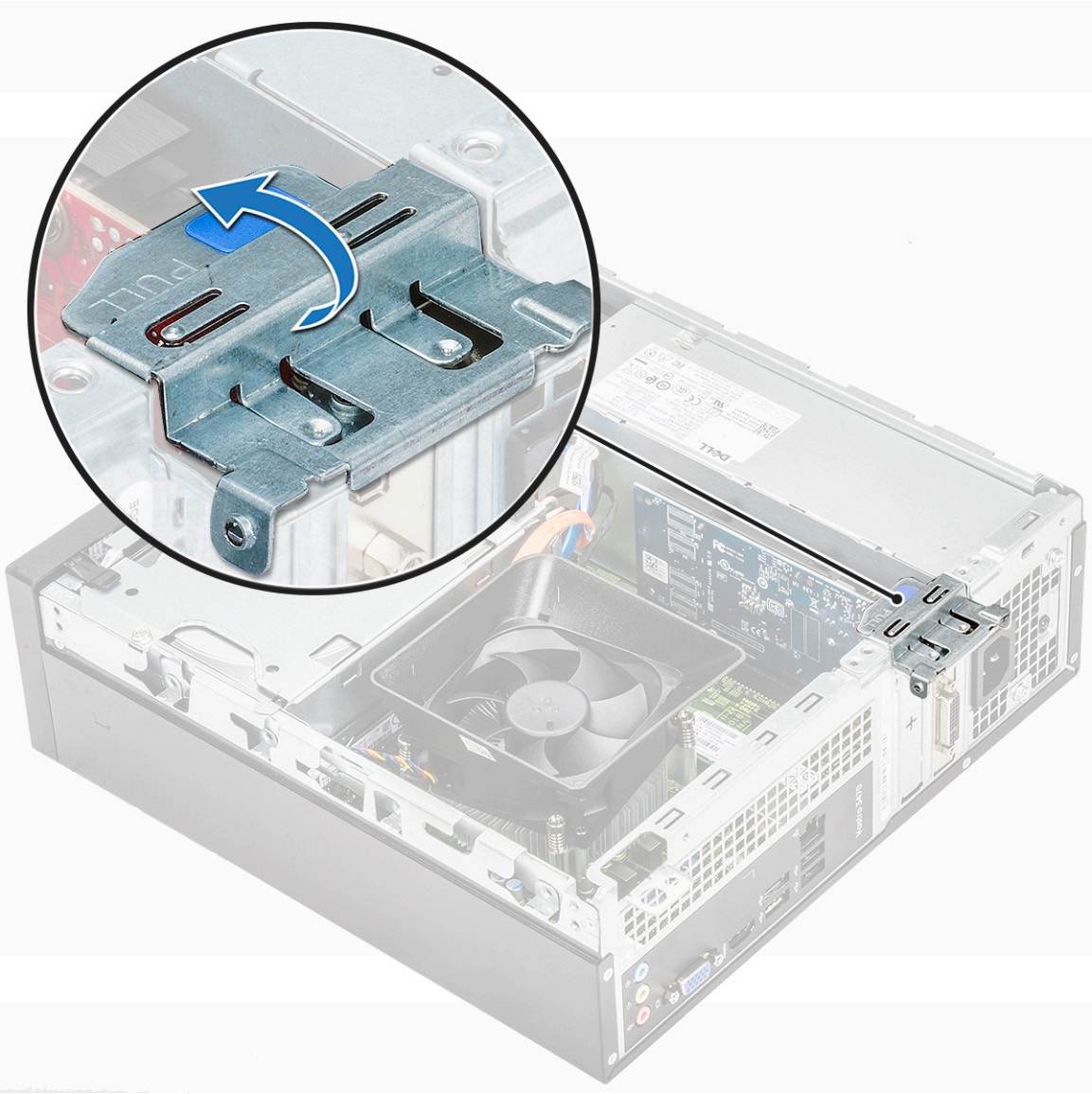
Installing the PCIe X16 expansion card–optional

GUID-E3A861CA-4F34-46F4-977A-0245E619E662

1. Insert the expansion card on the slot [1].
2. Push the card-retention latch to secure the expansion card [2].



3. Push the metal tab until it snaps in place.



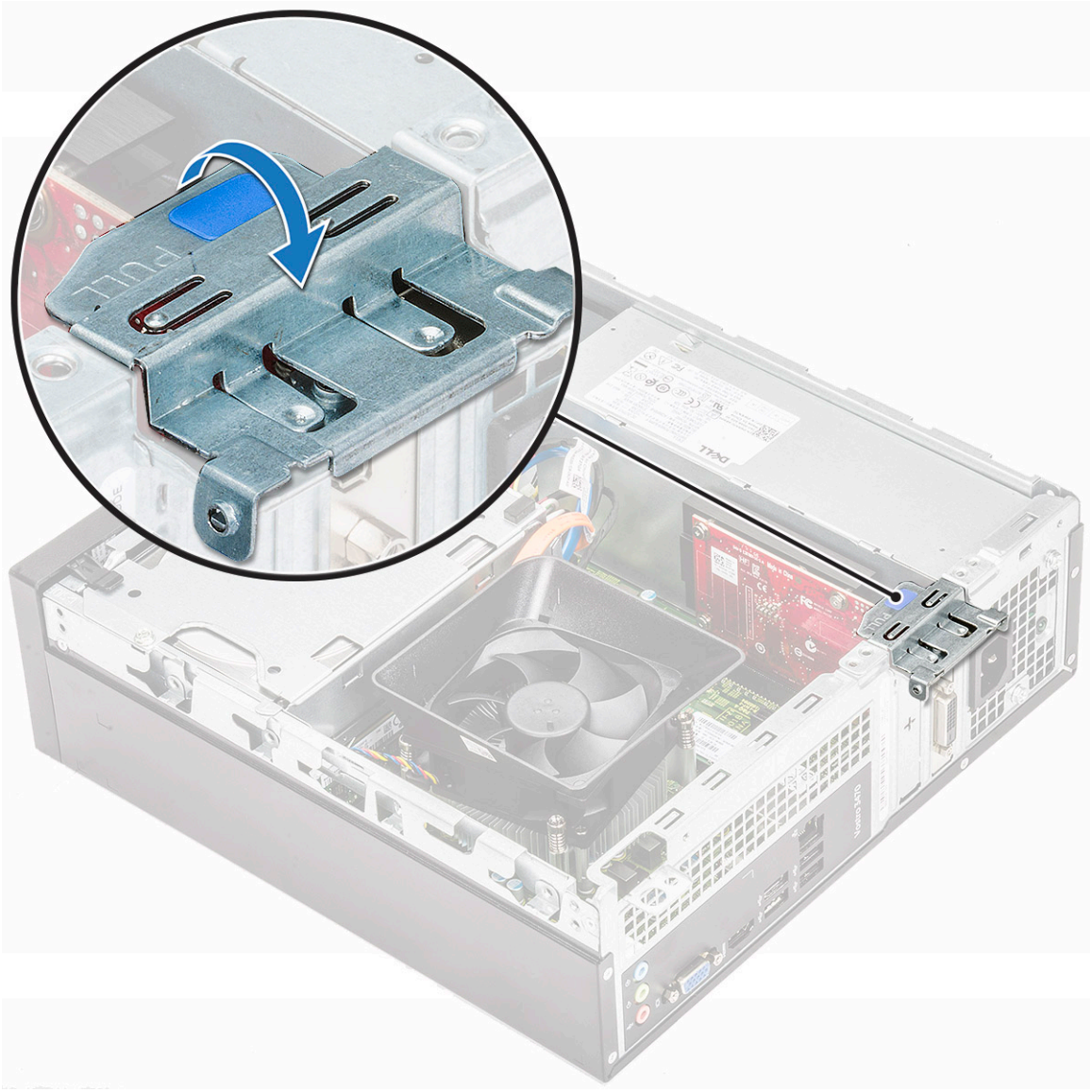
4. Install the cover
5. Follow the procedure in After Working Inside Your Computer.

Identifier	GUID-1FD8C8BB-5E57-4632-B82F-6BD5C3ED76B8
Status	Released

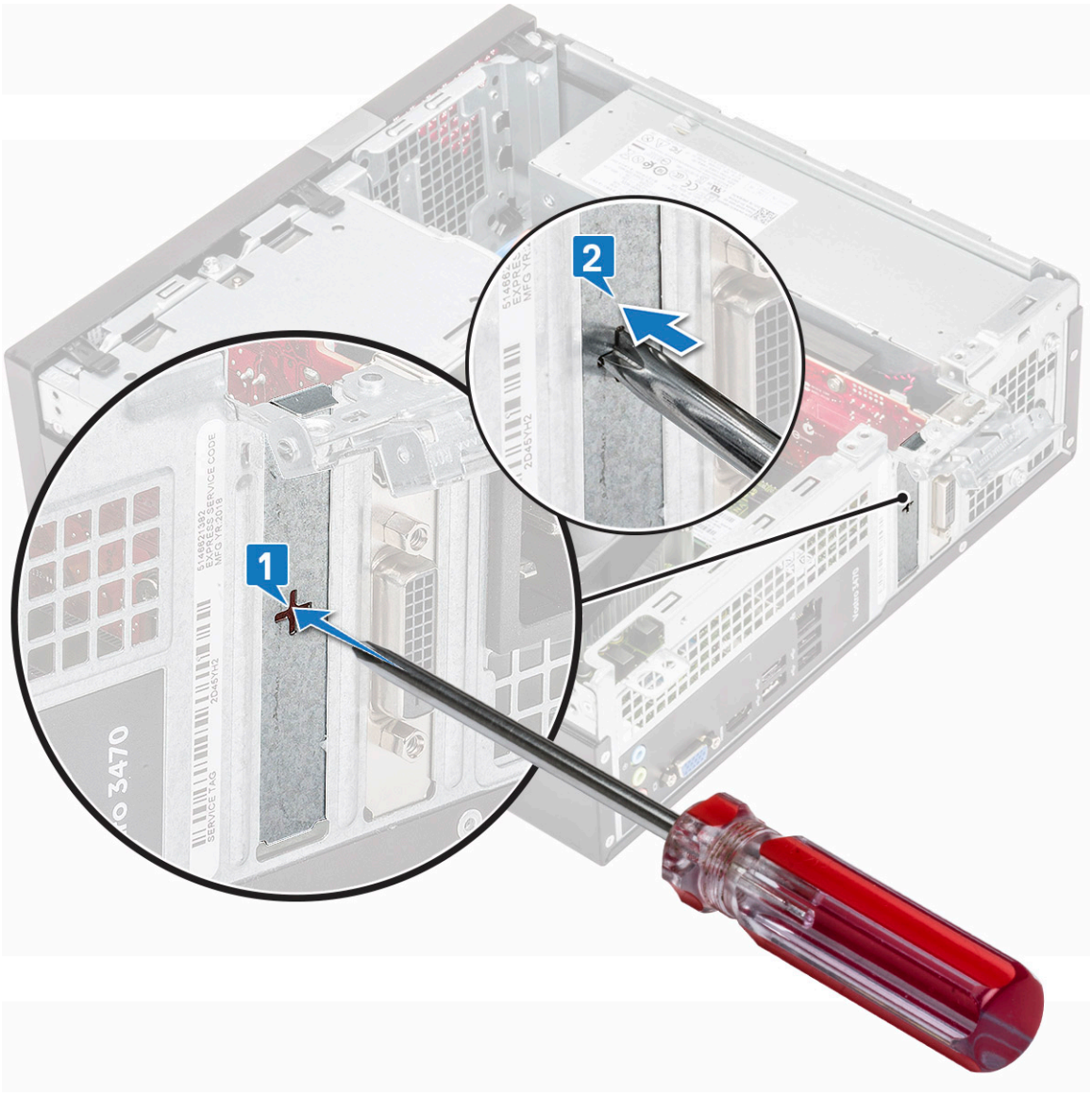
Installing PCIe expansion card in slot 1– optional

GUID-1FD8C8BB-5E57-4632-B82F-6BD5C3ED76B8

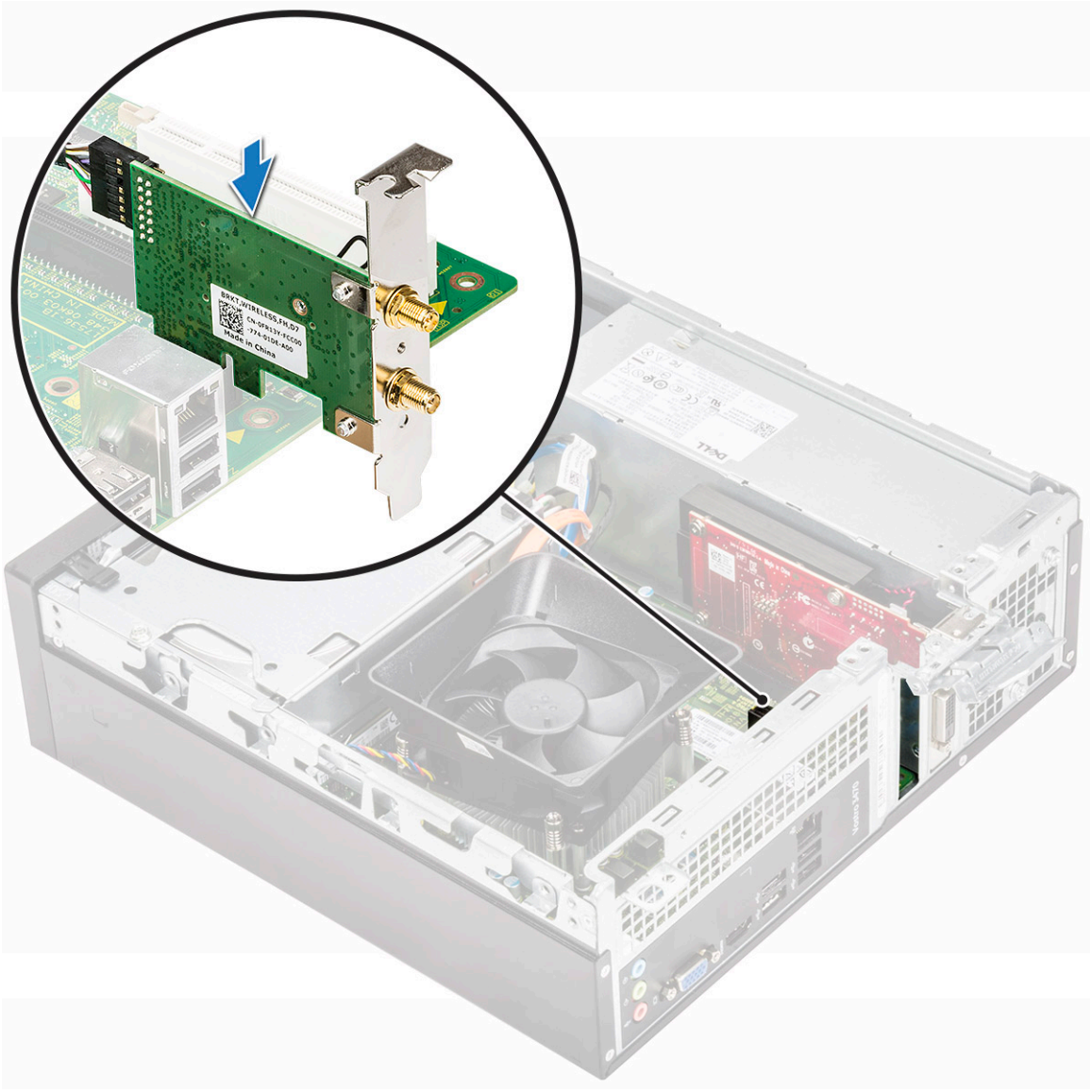
1. Pull the release latch to open .



2. To remove the PCIe bracket as shown below, insert a flathead screwdriver in the hole of PCIe bracket [1], and repeatedly spin screwdriver from 0-45 degrees to release the bracket [2].



3. Insert the PCIe expansion card to the connector on the system board.



4. Close the release latch.
5. Install the:
   a) cover
6. Follow the procedure in After working inside your computer.

Identifier	GUID-1183D437-9A73-41DC-895F-F1C2C5572202
Status	Released

3.5-inch hard drive chassis

GUID-1183D437-9A73-41DC-895F-F1C2C5572202

Identifier	GUID-C5C24213-AD5A-4A0C-8C8F-0A3151D2A02A
Status	Released

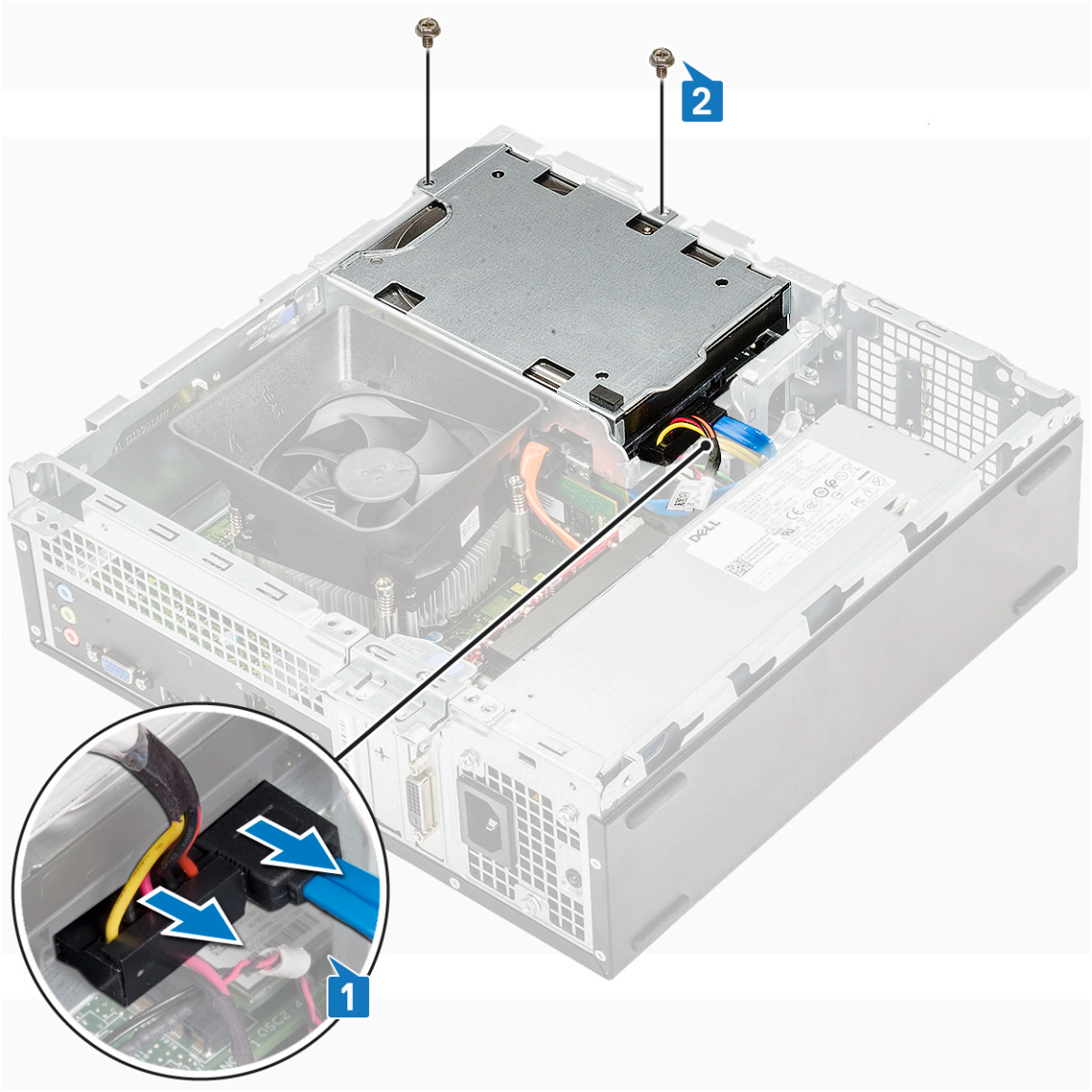
Removing the 3.5-inch hard drive chassis

GUID-C5C24213-AD5A-4A0C-8C8F-0A3151D2A02A

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) cover

b) front bezel

3. Disconnect the power and the data cables from the hard drive [1].
4. Remove the two 6-32xL6.35 screws that secure the 3.5-inch hard drive chassis to the drive bay [2].



5. Slide the 3.5-inch hard drive chassis and lift it from the system.

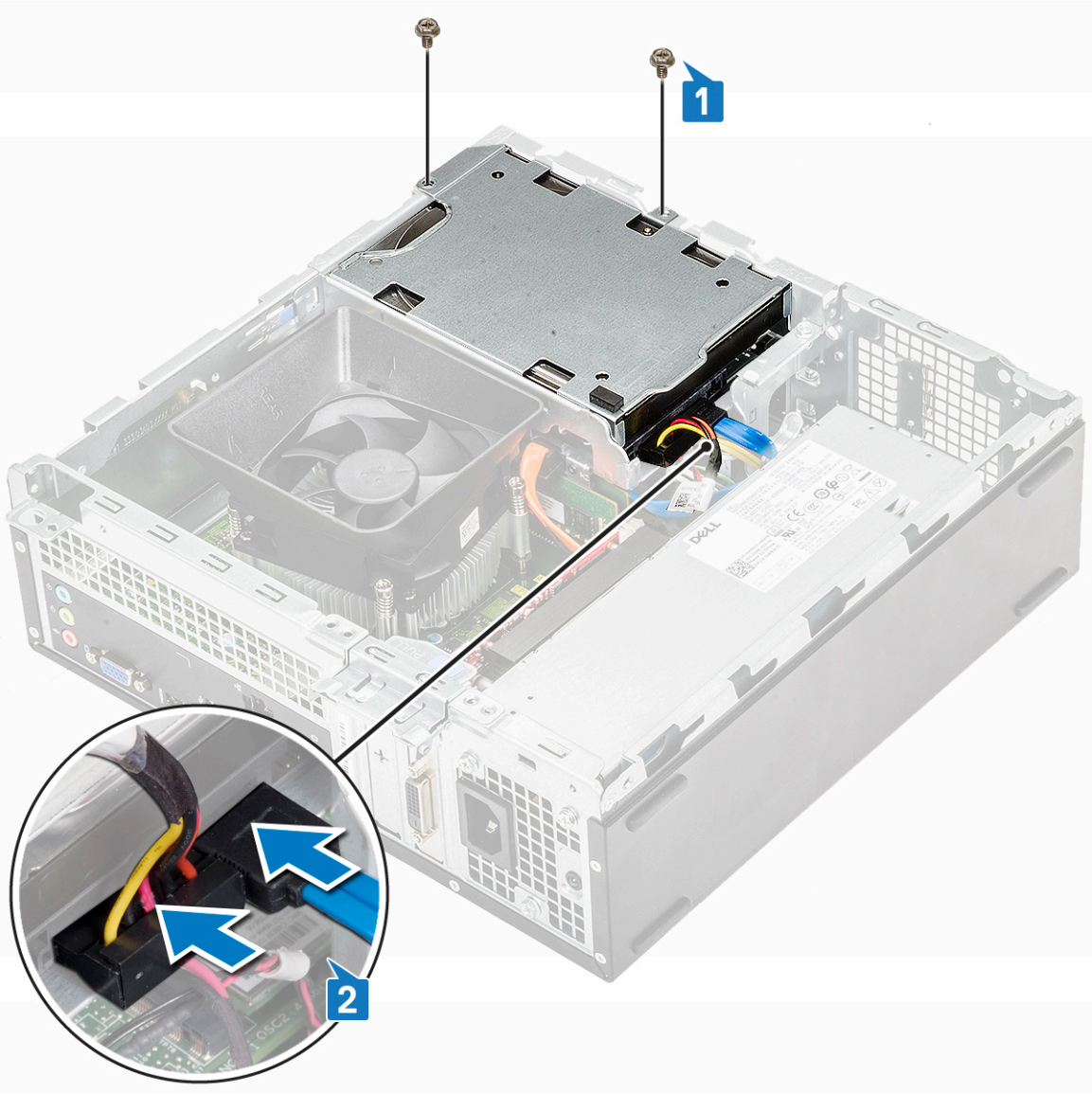
Identifier	GUID-51B06D73-6BA2-47AB-9DC6-8375EF6EB0BF
Status	Released

Installing the 3.5-inch hard drive chassis

GUID-51B06D73-6BA2-47AB-9DC6-8375EF6EB0BF

1. Slide the 3.5-inch hard drive chassis into the drive bay.

2. Replace the two 6-32xL3.5 screws to secure the 3.5-inch hard drive chassis to the computer [1].
3. Connect the data and power cables to the hard drive [2].



4. Install:
   a) front bezel
   b) cover
5. Follow the procedures in After Working Inside Your Computer.

Identifier	GUID-E483003F-ABE9-4947-A15F-DF6686A41352
Status	Released

3.5-inch hard drive

GUID-E483003F-ABE9-4947-A15F-DF6686A41352

Identifier	GUID-1279830A-4B0C-4AA7-9875-7BCC411DDE07
Status	Released

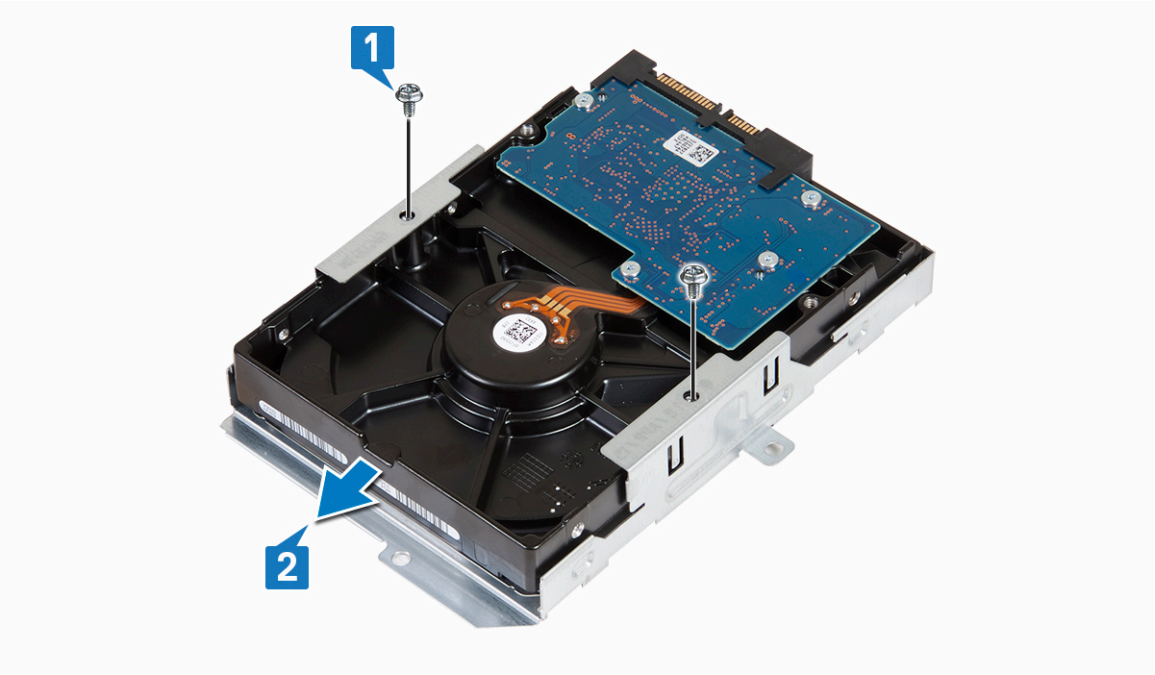
Removing the 3.5-inch hard drive from the hard drive bracket

GUID-1279830A-4B0C-4AA7-9875-7BCC411DDE07

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove:
   a) cover
   b) front bezel

c) 3.5-inch hard drive chassis

3. Follow the steps to remove hard drive:
   a) Remove the two 6-32xL3.6 screws that secure the hard drive to the bracket [1].
   b) Slide and remove the hard drive from the bracket [2].

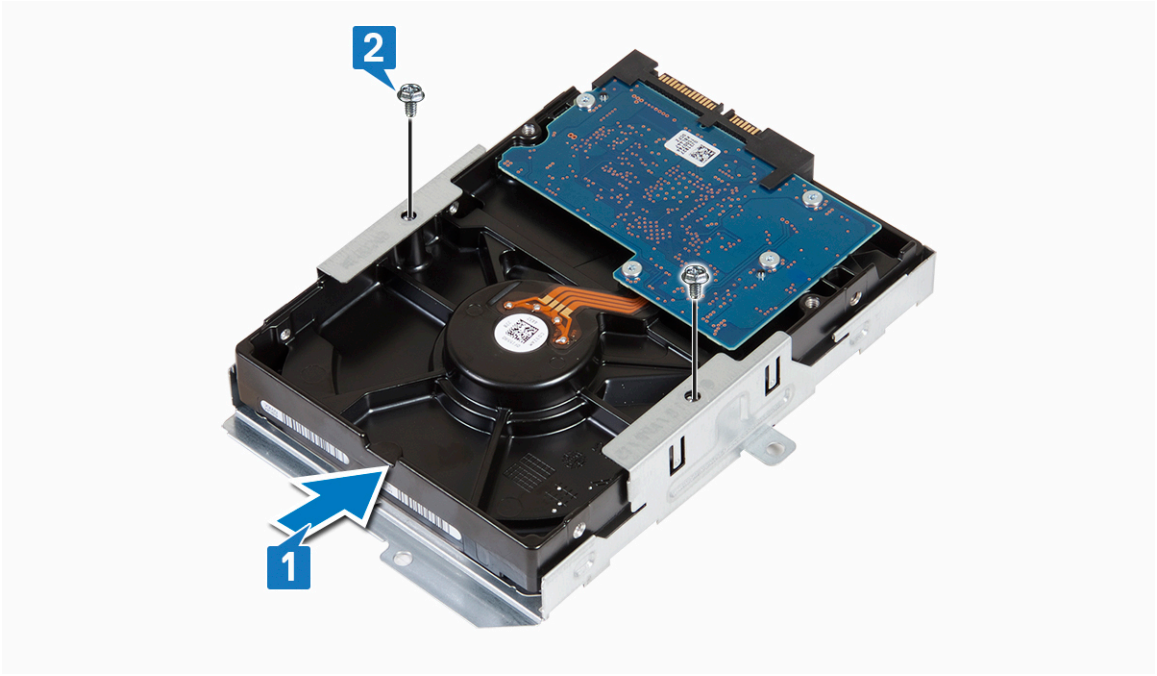


Identifier	GUID-74A2D1C5-B615-4D6E-A23E-F2F4ECDC9558
Status	Released

Installing the 3.5-inch hard drive into the hard drive bracket

GUID-74A2D1C5-B615-4D6E-A23E-F2F4ECDC9558

1. Slide the hard drive into the hard drive bracket [1].
2. Replace the two 6-32xL3.6 screws to secure the hard drive to the bracket [2].



3. Install:
   a) 3.5-inch hard drive chassis

b) front bezel
c) cover

4. Follow the procedure in After Working Inside Your Computer.

Identifier	GUID-7139C960-2B26-4445-B232-D6D7EBBFA587
Status	Released

Drive cage

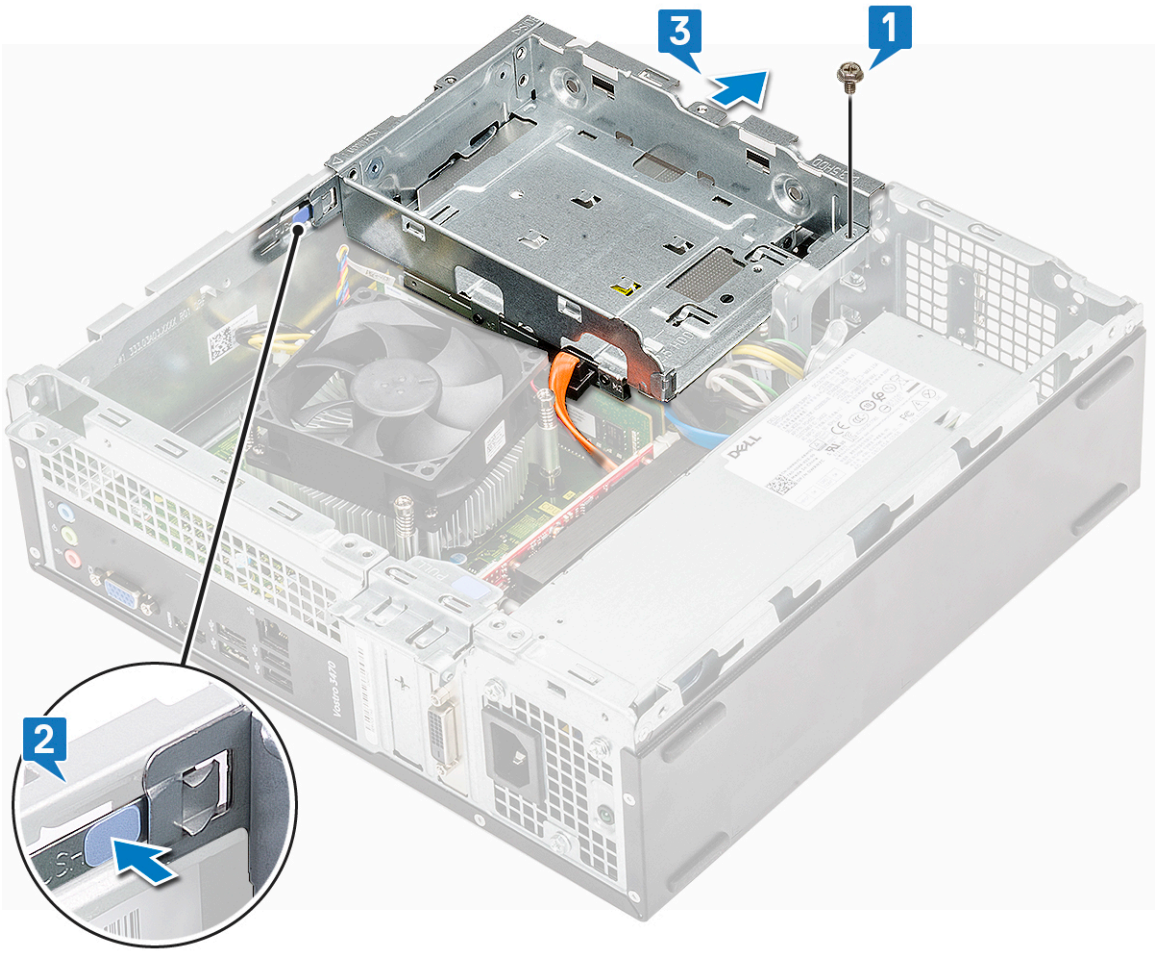
GUID-7139C960-2B26-4445-B232-D6D7EBBFA587

Identifier	GUID-CDA50E01-8EAC-4FCA-AAEA-4D158063E4B2
Status	Released

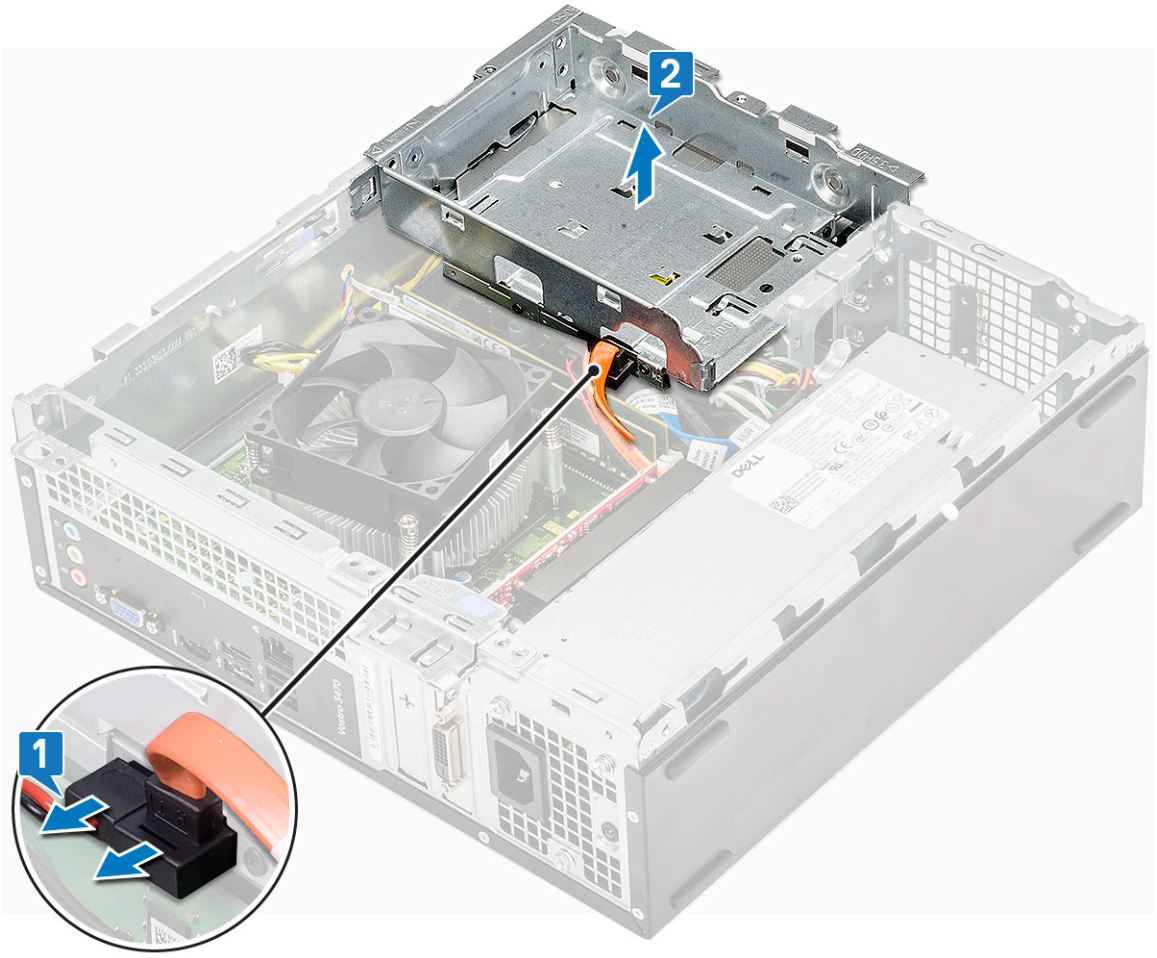
Removing the drive cage

GUID-CDA50E01-8EAC-4FCA-AAEA-4D158063E4B2

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) cover
   b) front bezel
   c) cooling shroud
   d) 3.5-inch hard drive chassis
3. Follow the steps to release the drive cage:
   a) Remove the 6-32xL6.35 screw that secures the drive cage to the drive bay [1].
   b) Press the blue tab to release the drive cage [2].
   c) Slide the drive cage from the computer [3].



4. Follow the steps to remove the drive cage:
   a) Disconnect the power and the data cables from the optical drive [1].
   b) Lift the optical drive cage from the system [2].

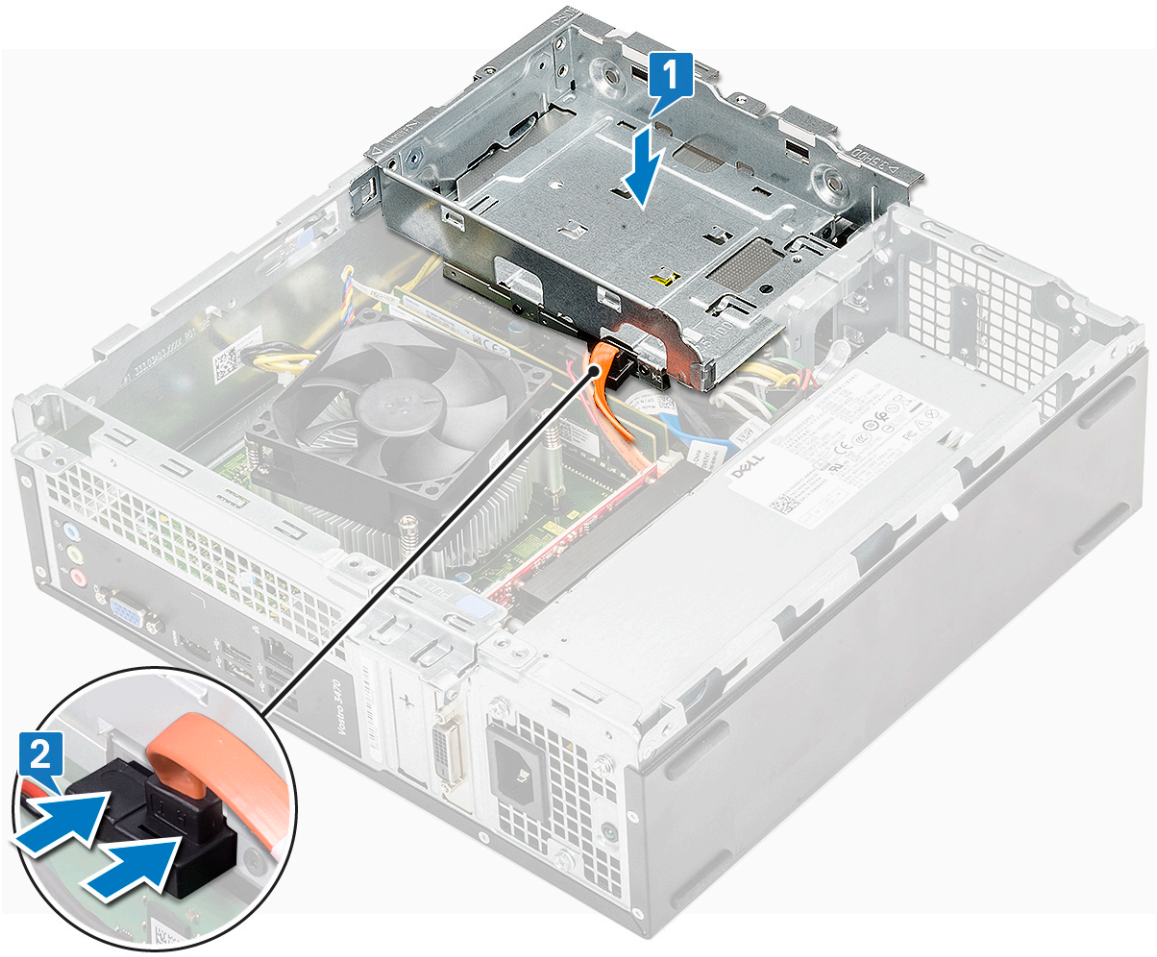


Identifier	GUID-22E0D8B4-3AD1-411D-86C9-11D432346C10
Status	Released

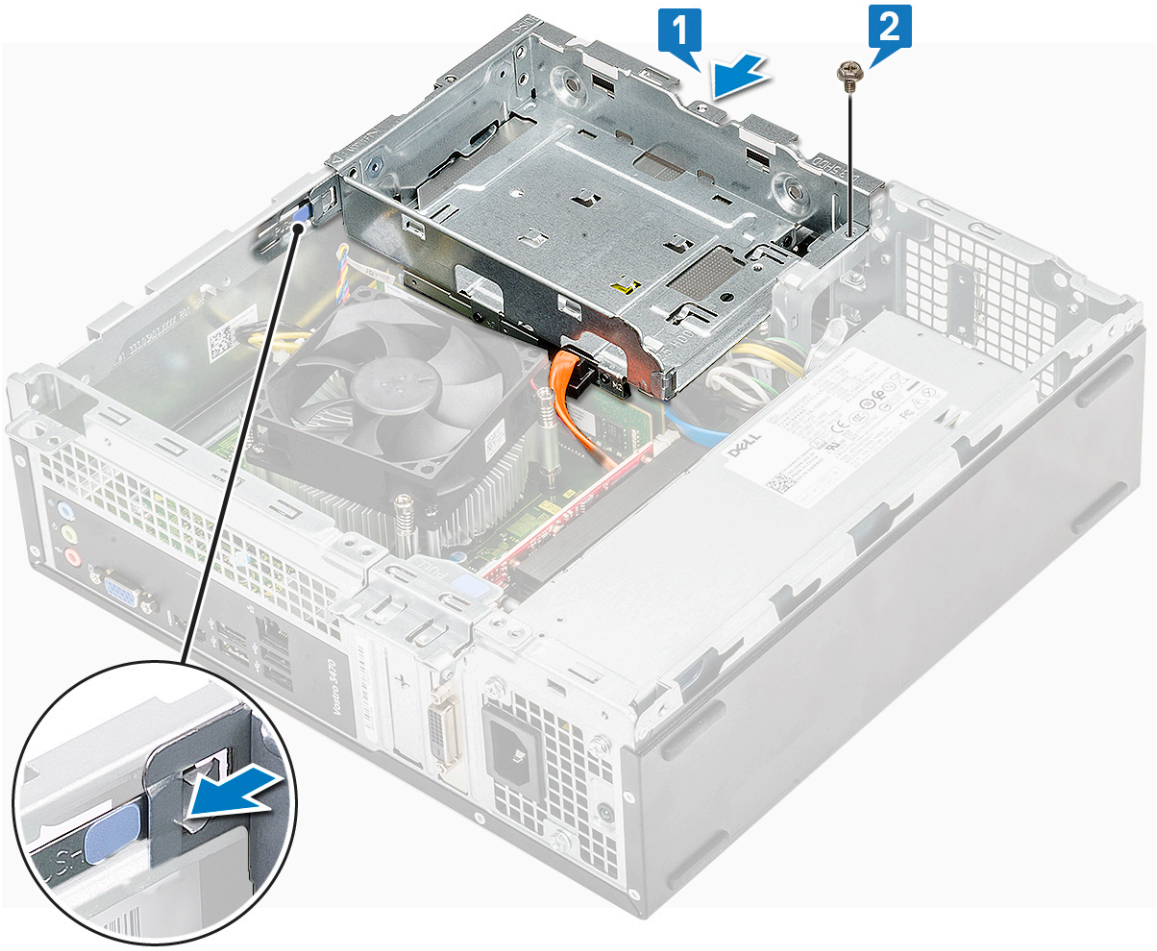
Installing the drive cage

GUID-22E0D8B4-3AD1-411D-86C9-11D432346C10

1. Place the drive cage in the chassis [1] and connect the data and power cables to the optical drive [2].



2. Insert the drive cage into the slot until it clicks into place [1].
3. Replace the 6-32xL6.35 screw to secure the drive cage to the chassis [2].



4. Install the:
   a) 3.5-inch hard drive chassis
   b) cooling shroud
   c) front bezel
   d) cover
5. Follow the procedure in After Working Inside Your Computer.

Identifier	GUID-78527CE0-7E4A-4B32-A077-A2DAA34B0418
Status	Released

Optical drive

GUID-78527CE0-7E4A-4B32-A077-A2DAA34B0418

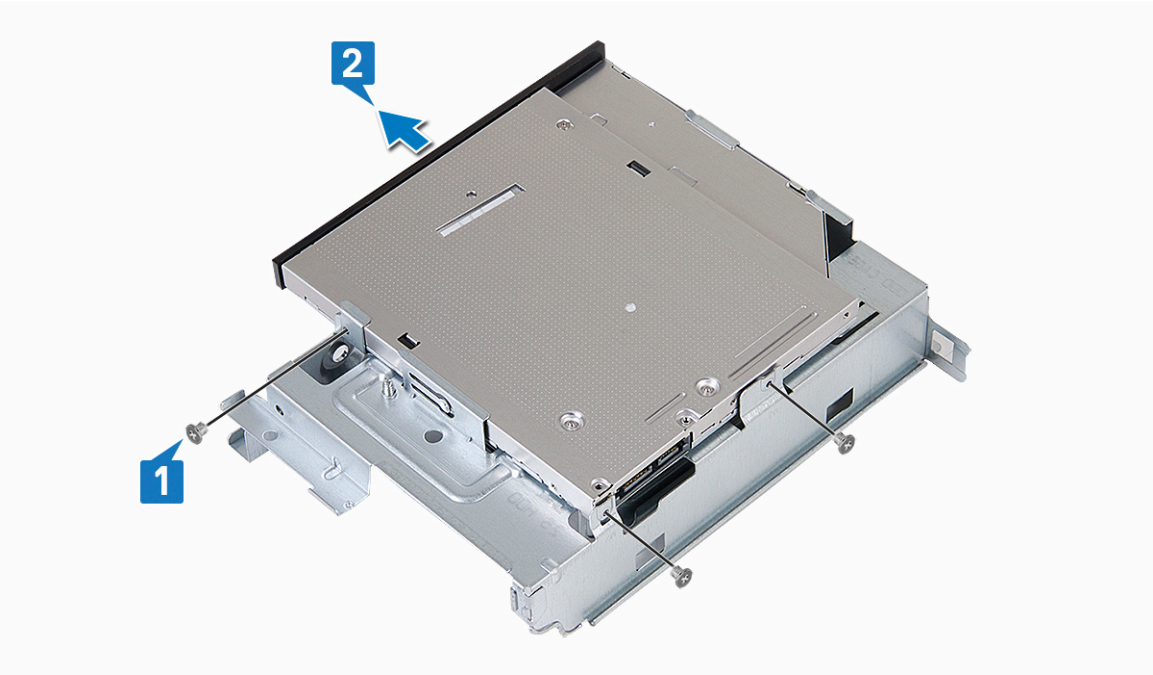
Identifier	GUID-B60C3226-F1CB-480B-89D1-FD3BA6B1E228
Status	Released

Removing the optical drive

GUID-B60C3226-F1CB-480B-89D1-FD3BA6B1E228

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) cover
   b) front bezel
   c) cooling shroud
   d) 3.5-inch hard drive chassis
   e) drive cage
3. Follow the steps to remove the bracket from the optical drive.

a) Remove the three M2x2 screws that secure the bracket to the optical drive [1].
b) Slide the optical drive from the bracket [2].

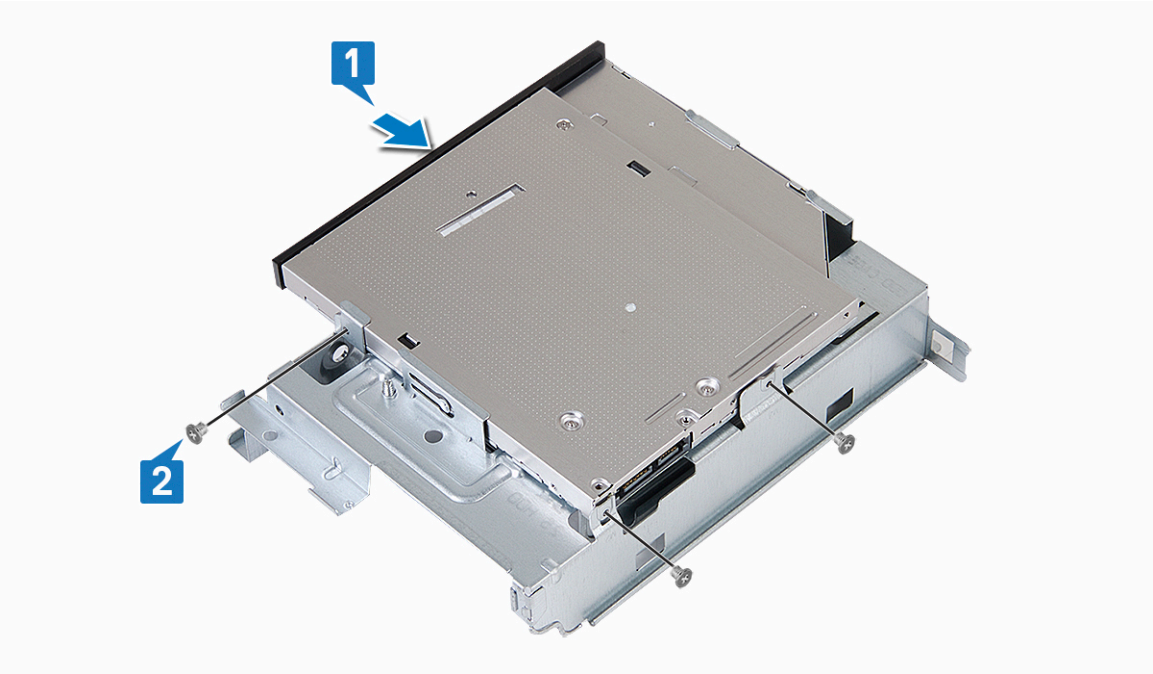


Identifier	GUID-8D368588-ECF8-404B-99FF-D12B1BC0860F
Status	Released

Installing the optical drive

GUID-8D368588-ECF8-404B-99FF-D12B1BC0860F

1. Slide the optical drive into the drive bay until it snaps [1].
2. Tighten the three M2x2 screws to secure the optical drive to the bracket [2].



3. Install the:
   a) drive cage
   b) 3.5-inch hard drive chassis
   c) cooling shroud

d) front bezel
e) cover

4. Follow the procedures in After working inside your computer.

Identifier	GUID-C26DFCD2-CBE7-4C53-BDD1-618DB16026C4
Status	Released

M.2 SATA SSD

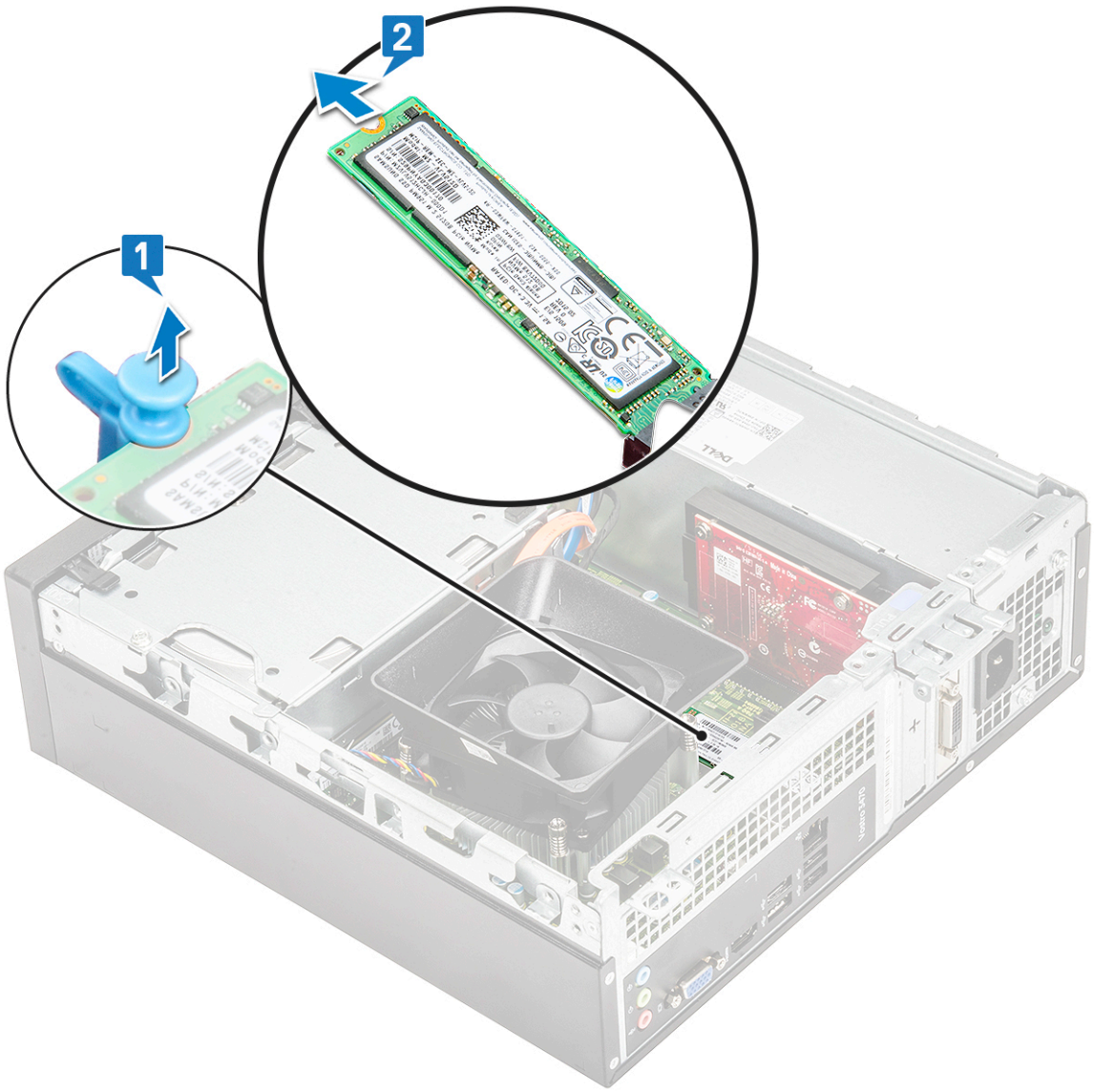
GUID-C26DFCD2-CBE7-4C53-BDD1-618DB16026C4

Identifier	GUID-F7018538-73CB-4866-B391-0E0FD6B607C0
Status	Released

Removing M.2 SATA SSD

GUID-F7018538-73CB-4866-B391-0E0FD6B607C0

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) cover
3. To remove the M.2 SATA SSD:
   a) Pull the blue tab that secures the M.2 SATA SSD to the system board [1].
   b) Slide out the M.2 SATA SSD from the connector on the system board [2].

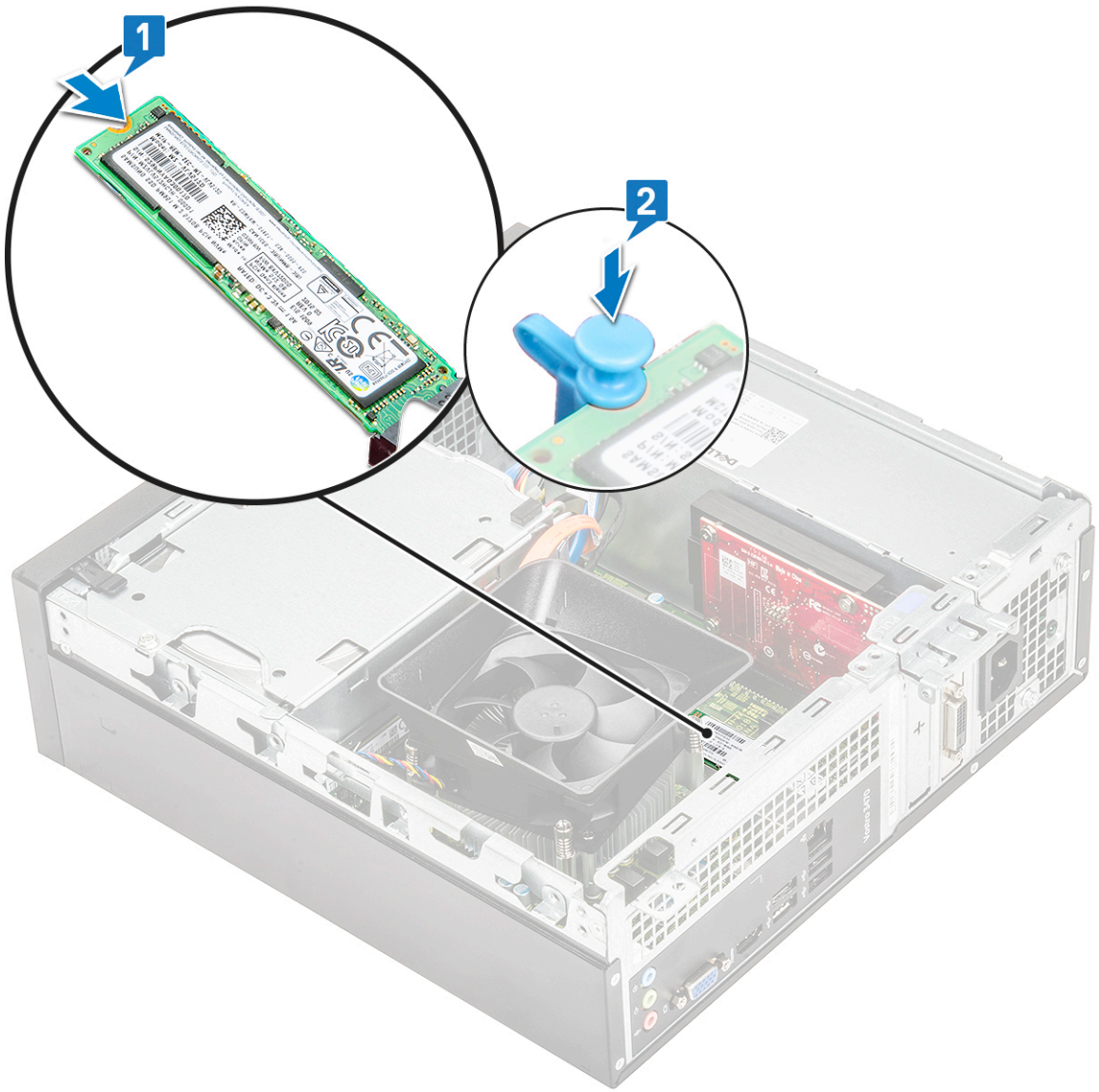


Identifier	GUID-A675B965-06A1-44B8-8CCC-33B114A1C157
Status	Released

Installing M.2 SATA SSD

GUID-A675B965-06A1-44B8-8CCC-33B114A1C157

1. Insert the M.2 SATA SSD to the connector [1].
2. Press the blue tab to secure the M.2 SATA SSD [2].



3. Install the:
   a) cover
4. Follow the procedure in After working inside your computer.

Identifier	GUID-CCAA203F-6E60-4861-BC9C-1EED5672FD0D
Status	Released

WLAN card

GUID-CCAA203F-6E60-4861-BC9C-1EED5672FD0D

Identifier	GUID-002EFD07-0446-4ED8-A98B-37DA7FAA0612
Status	Released

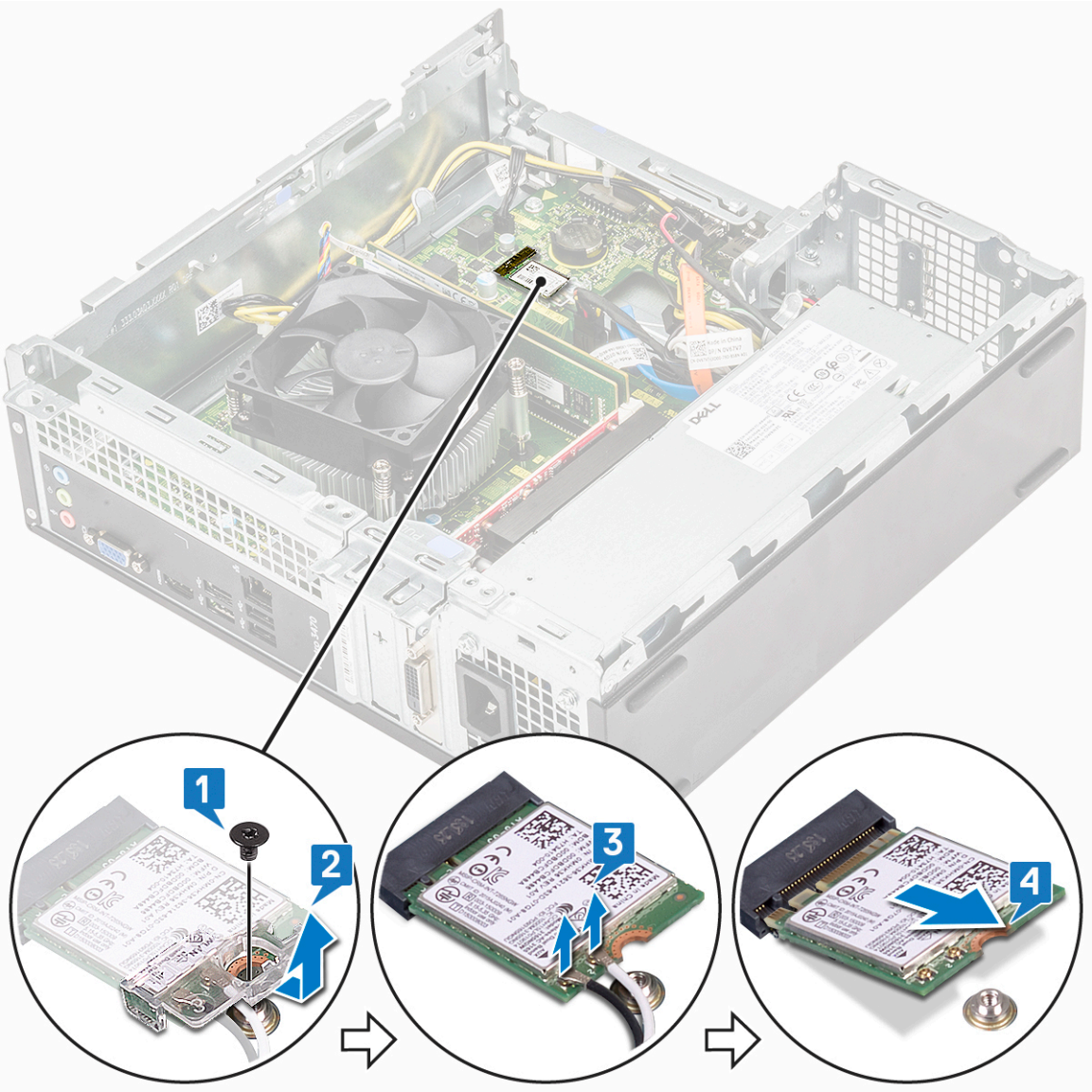
Removing the WLAN card

GUID-002EFD07-0446-4ED8-A98B-37DA7FAA0612

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) cover
   b) front bezel

c) cooling shroud
d) 3.5-inch hard drive chassis
e) drive cage

3. Perform the following steps to remove the WLAN card from the computer:
   a) Remove the M2L3.5 screw to release the plastic tab that secures the WLAN card to the computer [1, 2].
   b) Disconnect the WLAN cables from the connectors on the WLAN card [3].
   c) Remove the WLAN card from its connector on the system board [4].

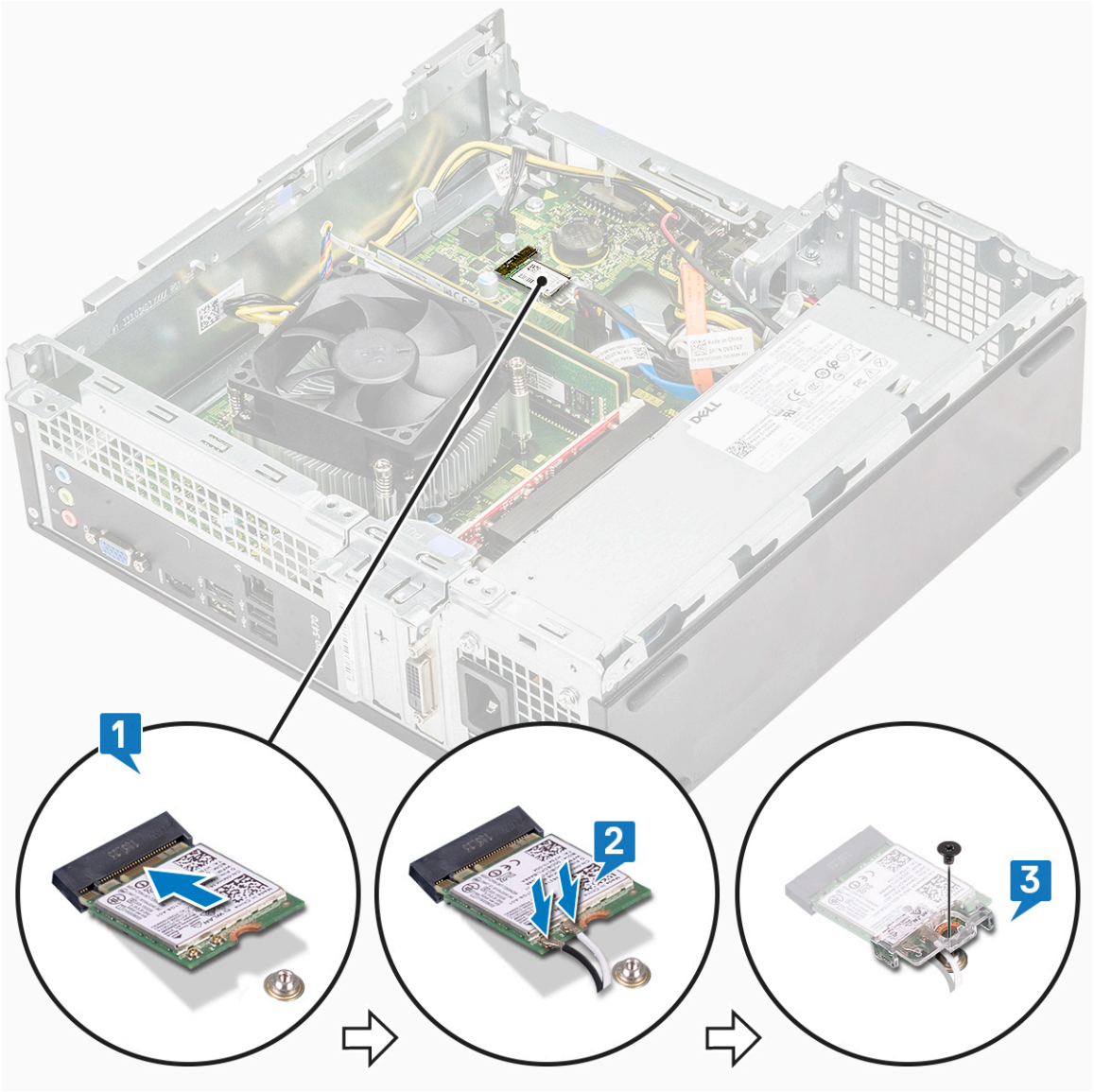


Identifier	GUID-3959438A-F195-4045-91A0-39F9C0CEDFCC
Status	Released

Installing the WLAN card

GUID-3959438A-F195-4045-91A0-39F9C0CEDFCC

1. Insert the WLAN card to the connector on the system board [1].
2. Connect the WLAN cables to the connectors on the WLAN card[2] .
3. Place the plastic tab and tighten the M2x3.5 screw to secure the WLAN card to the system board [3].



4. Install:
   a) drive cage
   b) 3.5-inch hard drive chassis
   c) cooling shroud
   d) front bezel
   e) cover
5. Follow the procedure in After Working Inside Your Computer.

Identifier	GUID-ED545F68-B25E-4947-9311-B6FAC5952525
Status	Released

Heat sink assembly

GUID-ED545F68-B25E-4947-9311-B6FAC5952525

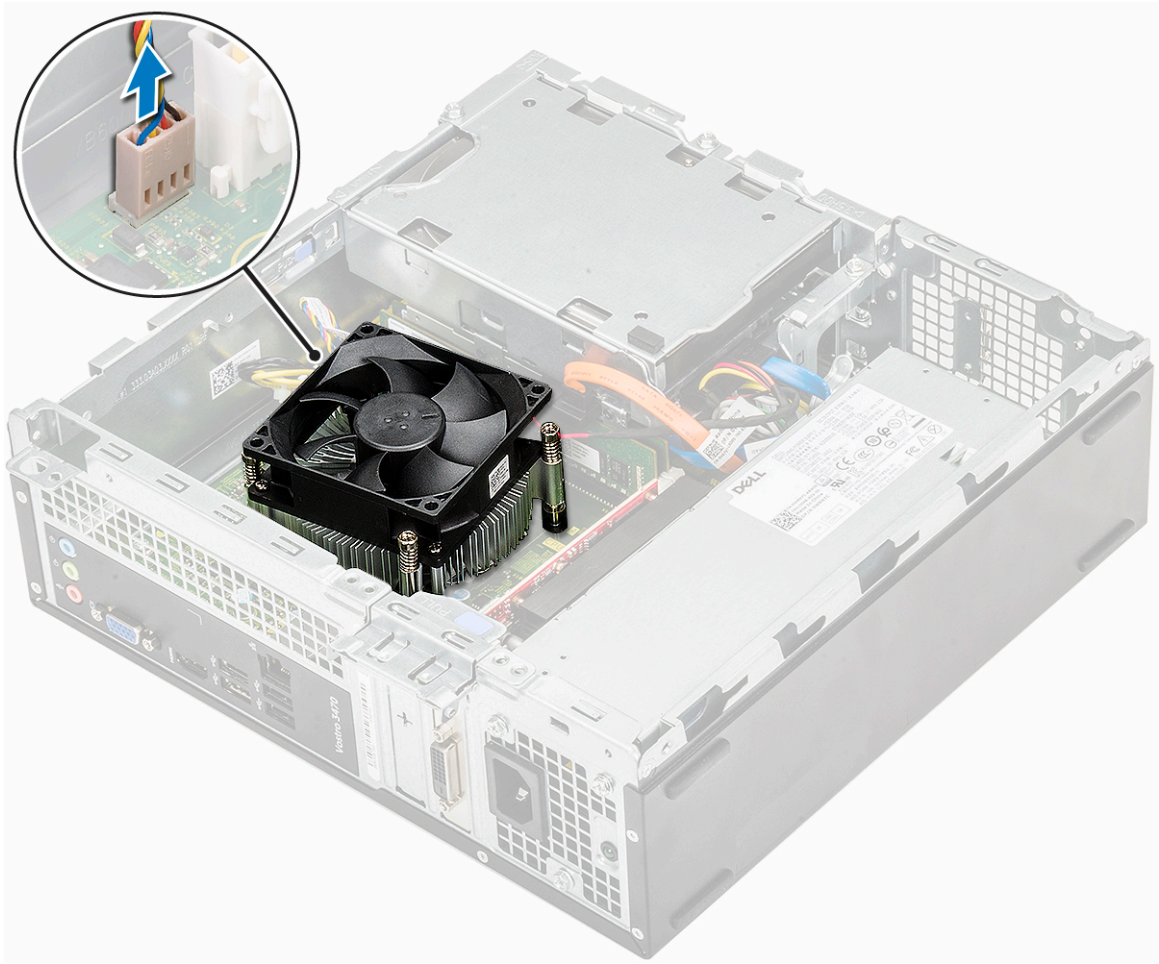
Identifier	GUID-AAAF0340-E497-4D36-9AB9-2D03BD9AA8D5
Status	Released

Removing the heat sink assembly

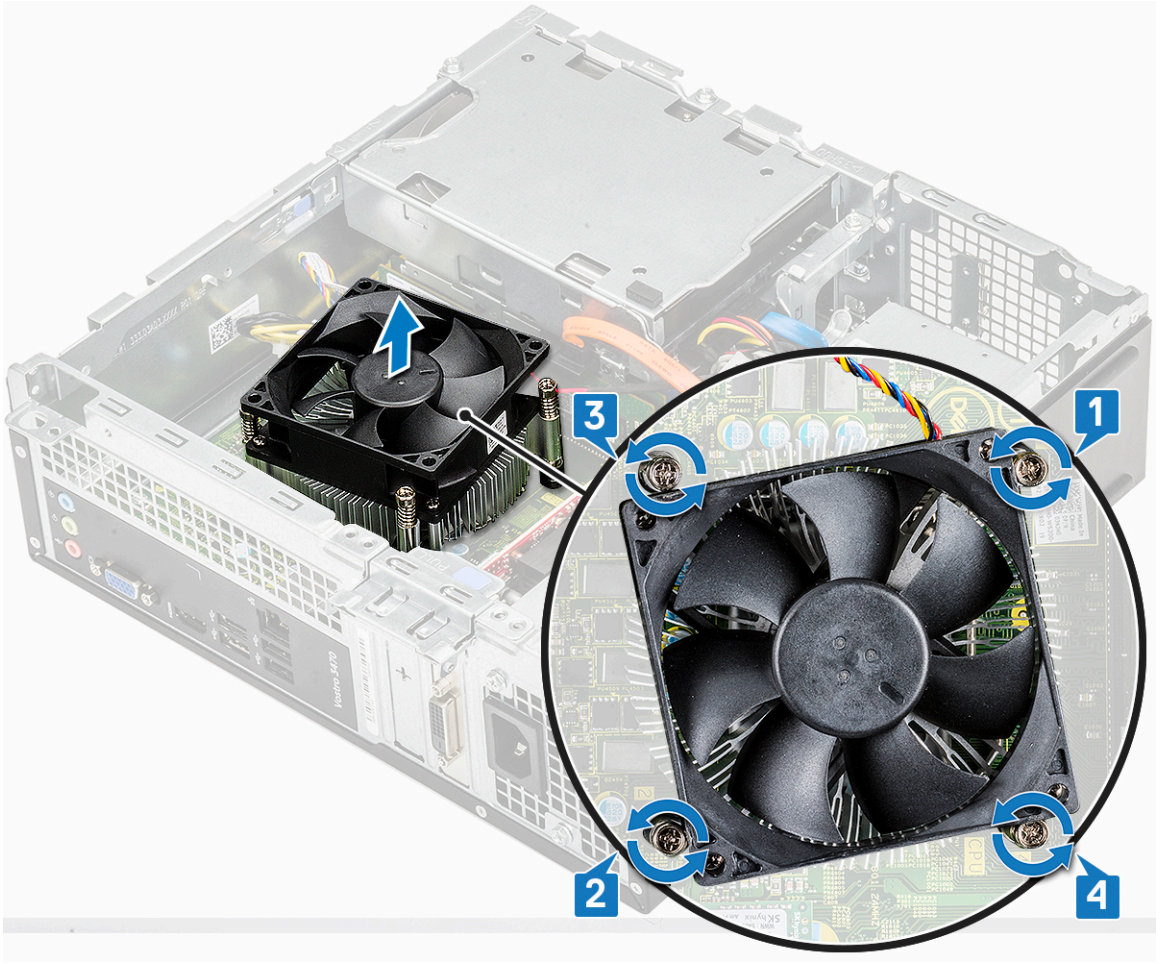
GUID-AAAF0340-E497-4D36-9AB9-2D03BD9AA8D5

1. Follow the procedure in Before working inside your computer.

2. Remove the:
   a) cover
   b) cooling shroud
3. Follow the steps to remove the heat sink assembly:
   a) Disconnect the heat sink assembly cable from the system board.



   b) Remove the screws securing the heatsink assembly in a sequential order [1,2,3,4].
   c) Lift the heat sink and remove it from the chassis.

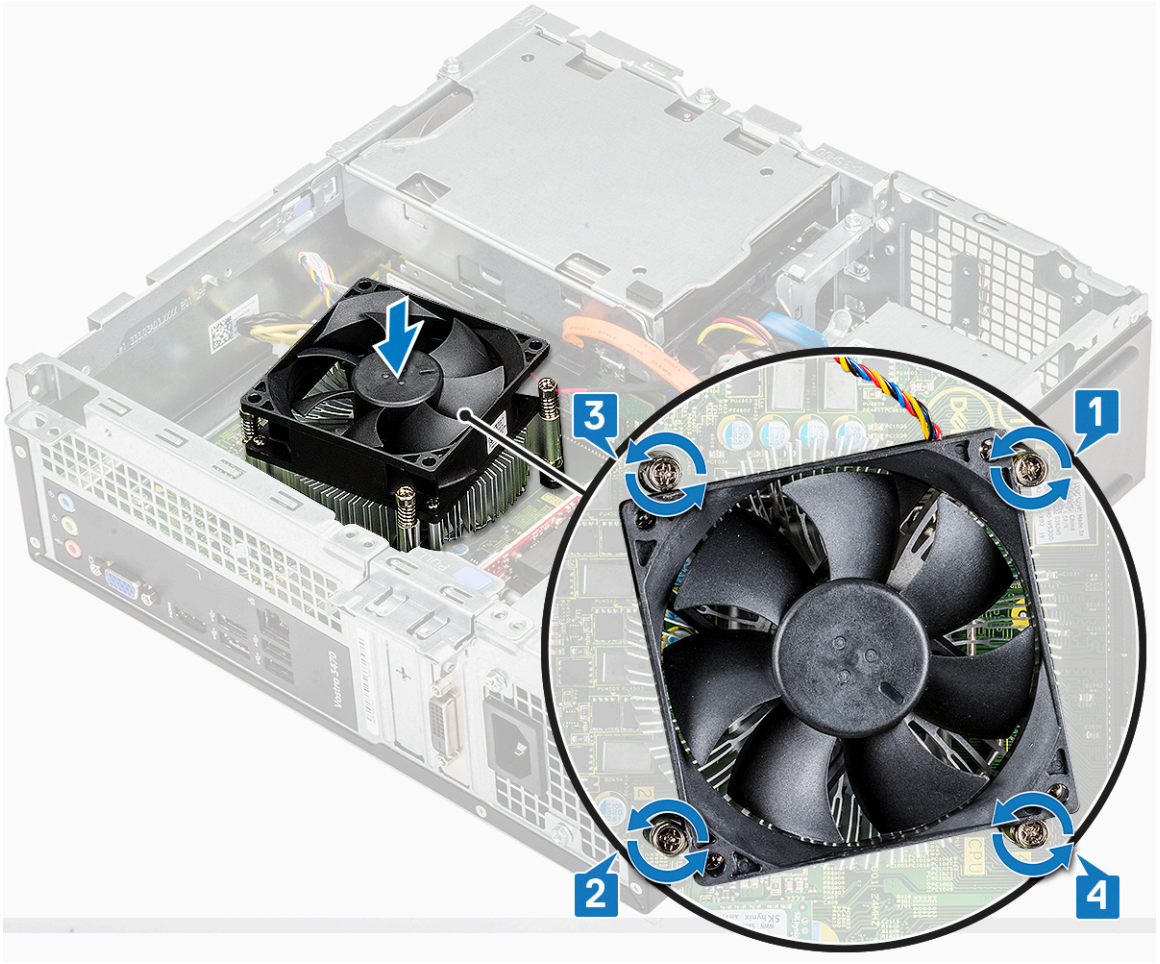


Identifier	GUID-07C04835-60BF-4F55-8646-2A39C38FB3FD
Status	Released

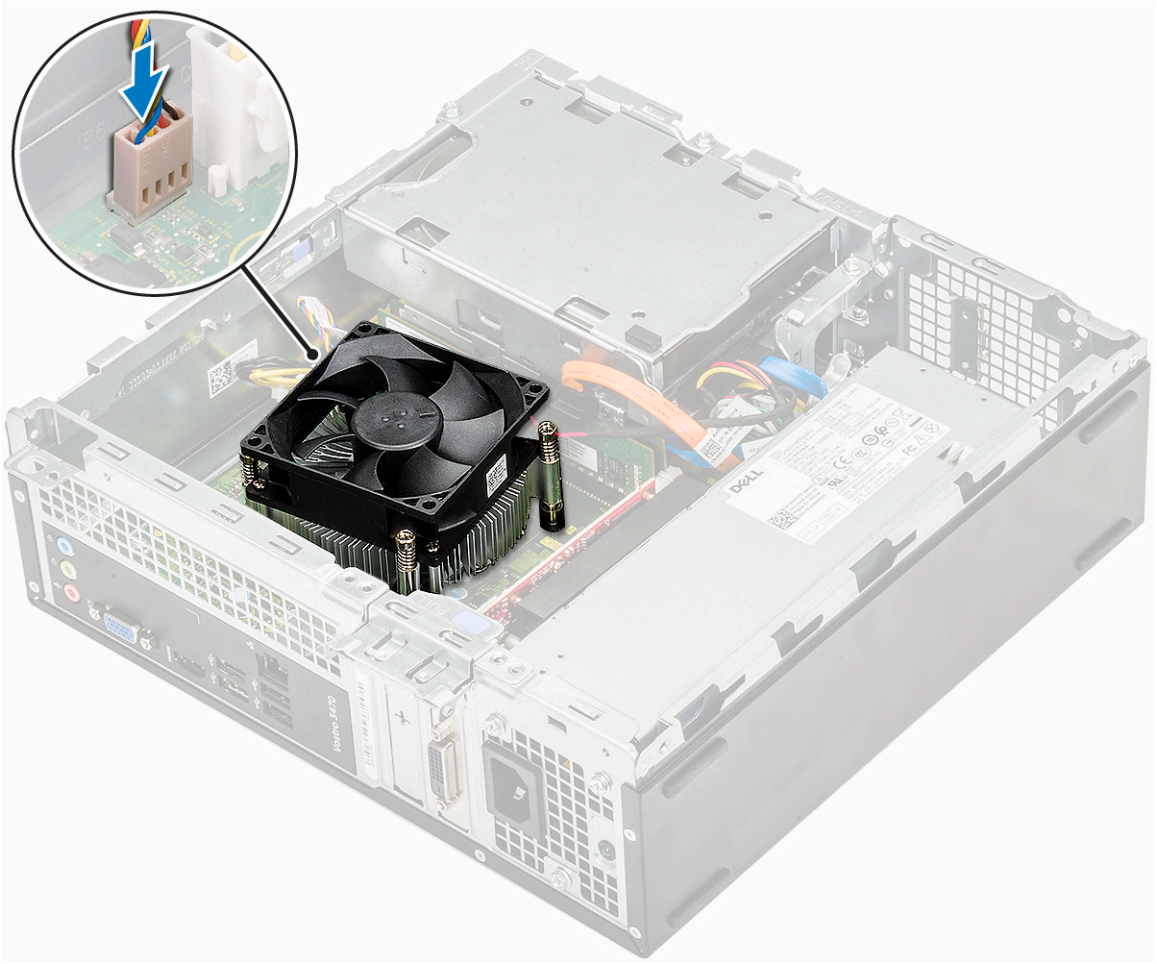
Installing the heat sink assembly

GUID-07C04835-60BF-4F55-8646-2A39C38FB3FD

1. Place the heat sink assembly in the slot by aligning with the screw holders.
2. Tighten the screws in a sequential order to secure the heat sink assembly to the system board [1,2,3,4].



3. Connect the heat sink assembly cable to the connector on the system board.



4. Install:
   a) cooling shroud
   b) cover
5. Follow the procedure in After Working Inside Your Computer.

Identifier	GUID-B4BFAFB3-4A6A-47FD-A777-9CA7EF95C20B
Status	Released

Memory modules

GUID-B4BFAFB3-4A6A-47FD-A777-9CA7EF95C20B

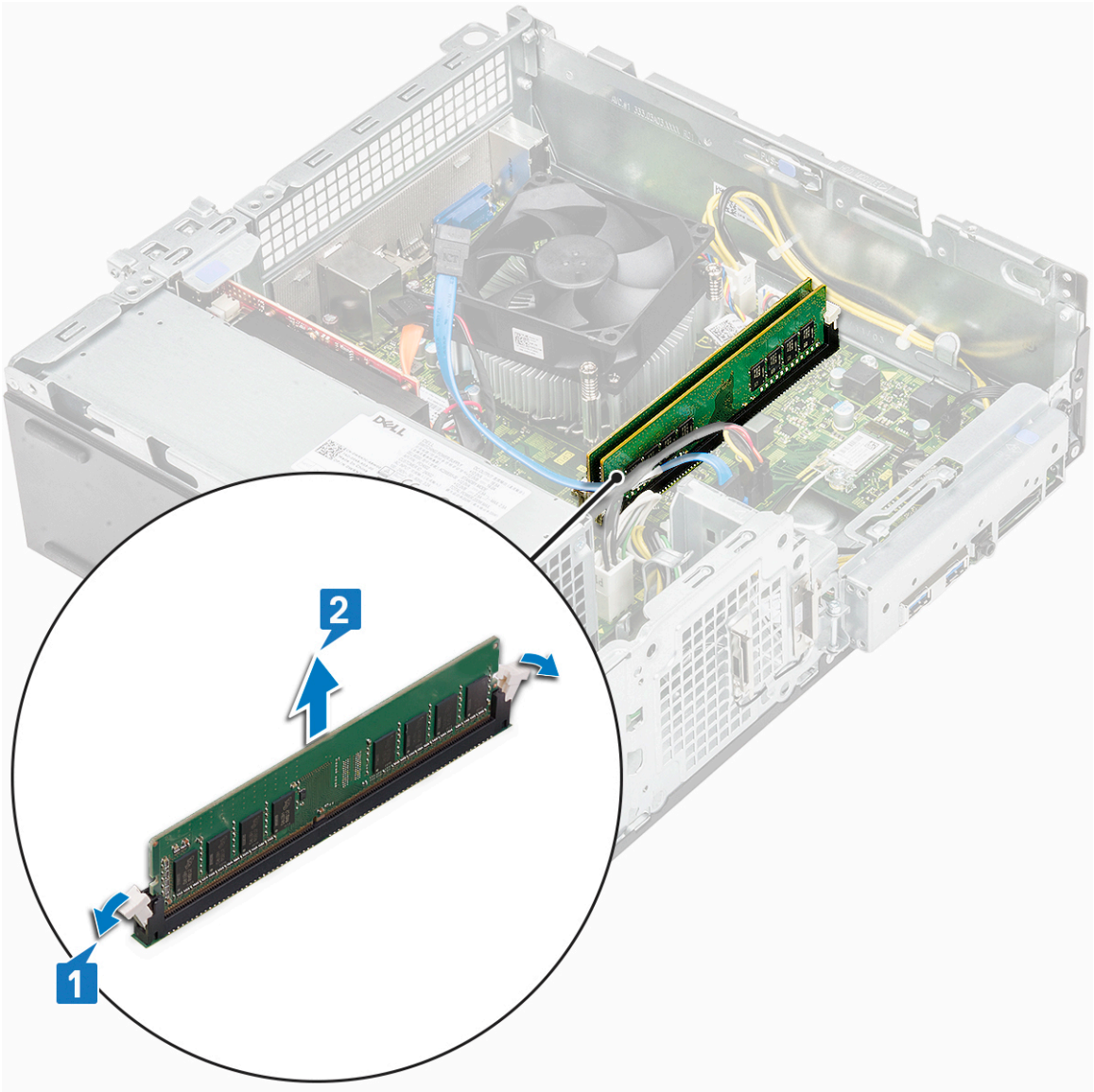
Identifier	GUID-0D6D66A9-4F4F-4CF9-8FB6-9955CF9ABB98
Status	Released

Removing the memory module

GUID-0D6D66A9-4F4F-4CF9-8FB6-9955CF9ABB98

1. Follow the procedure in Before working inside your computer.
2. Remove the: .
   a) cover
   b) front bezel
   c) 3.5-inch hard drive chassis
   d) drive cage
   e) Cooling shroud
3. To remove the front memory module:
   a) Pull the clips securing the memory module until the memory module pops up [1].

b) Remove the memory module from the system board [2].

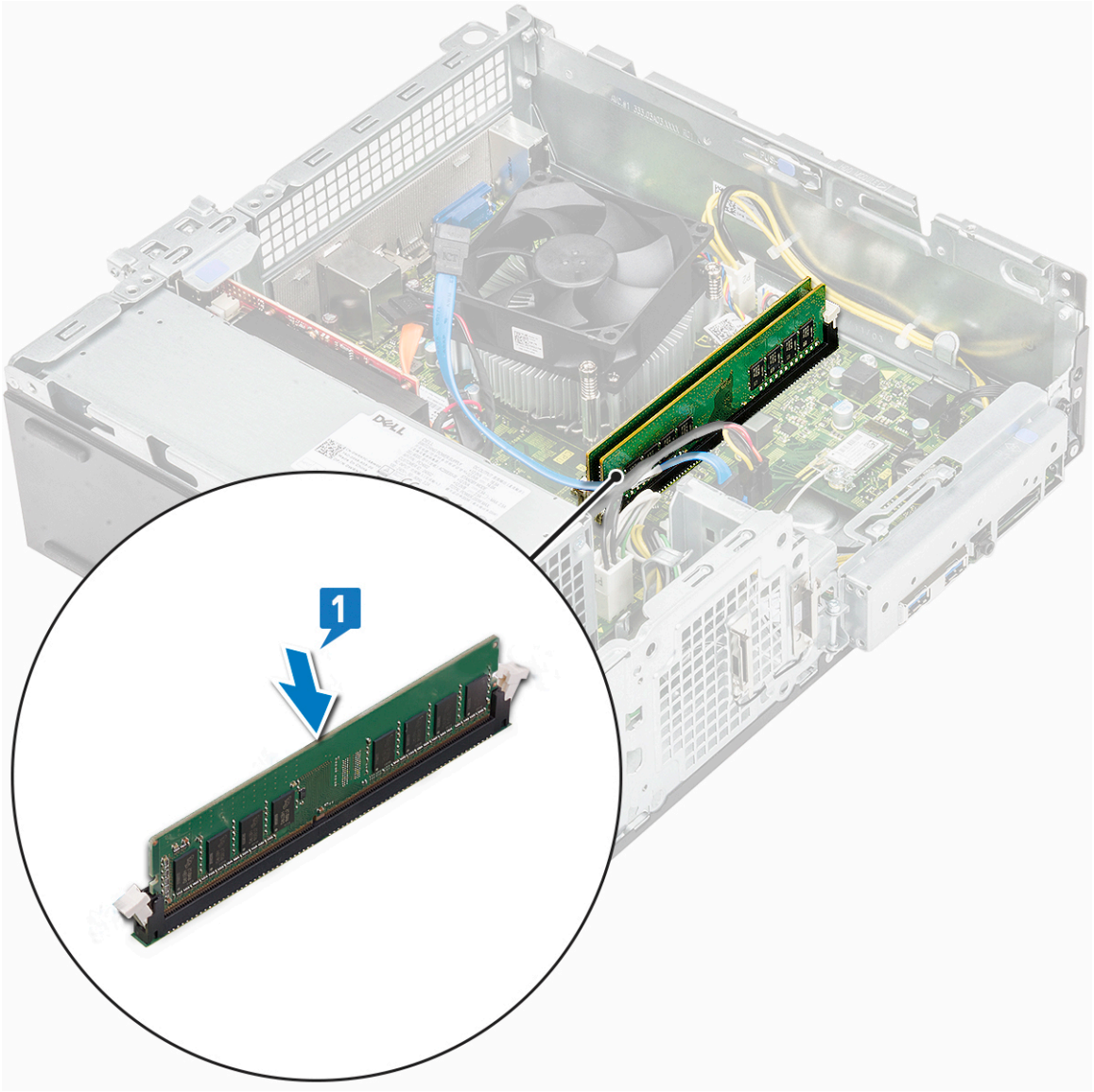


Identifier	GUID-DE8AF270-AA21-48F0-AF5D-C2BAAB193D1A
Status	Released

Installing the memory module

GUID-DE8AF270-AA21-48F0-AF5D-C2BAAB193D1A

1. Insert the memory module into the memory module socket until the clips secure the memory module.



2. Install the: .
   a) cooling shroud
   b) drive cage
   c) 3.5-inch hard drive chassis
   d) front bezel
   e) cover
3. Follow the procedure in After working inside your computer.

Identifier	GUID-D35BA2D9-0E49-4AD7-A90D-A8139F114BAA
Status	Released

Power switch

GUID-D35BA2D9-0E49-4AD7-A90D-A8139F114BAA

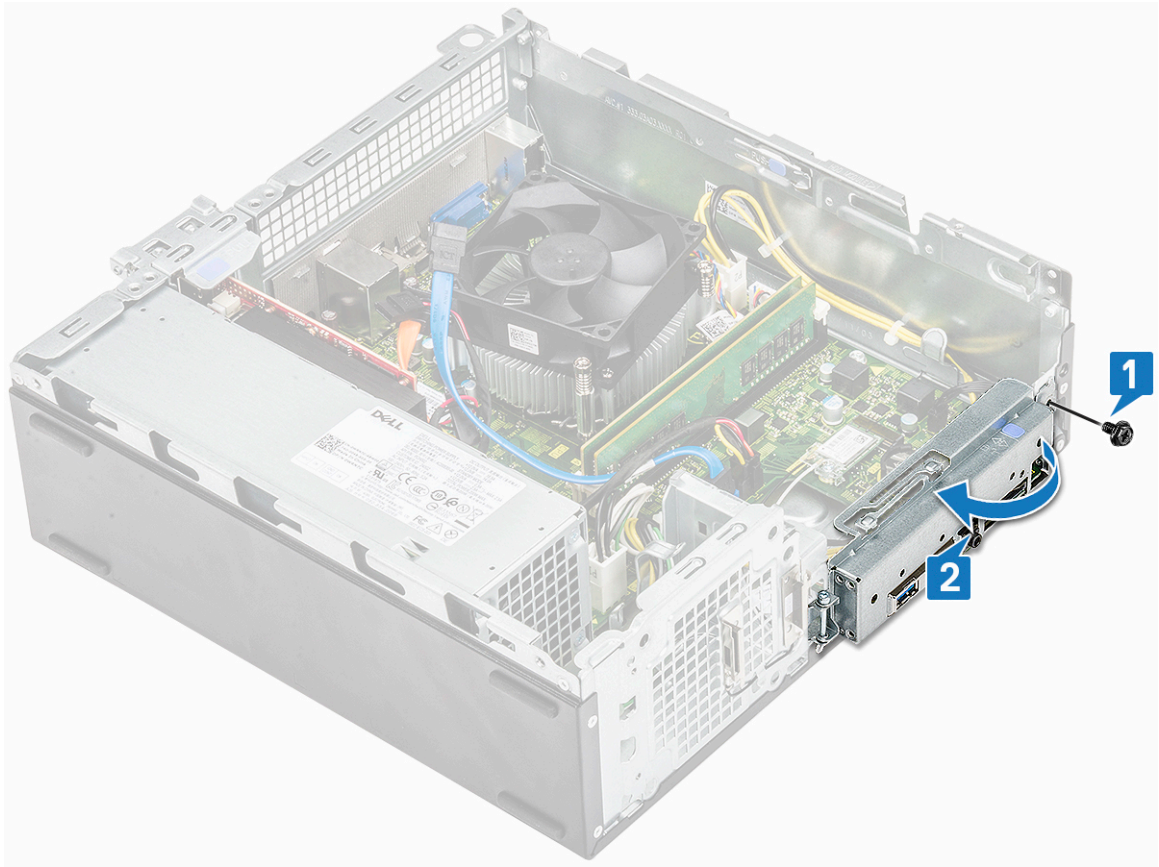
Identifier	GUID-965E28EE-77A9-4CBC-84DA-29013BDB1943
Status	Released

Removing power switch

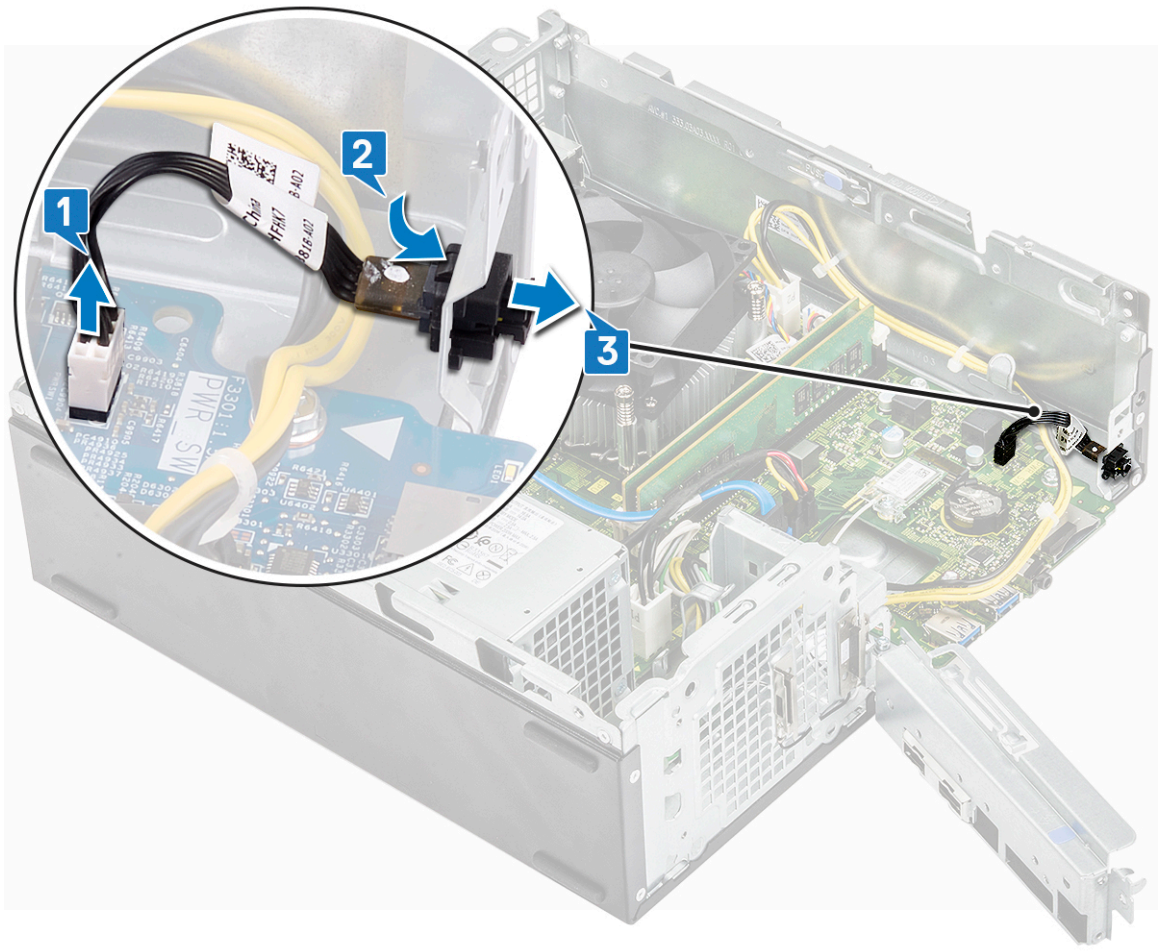
GUID-965E28EE-77A9-4CBC-84DA-29013BDB1943

1. Follow the procedure in Before working inside your computer.

2. Remove the:
   a) cover
   b) front bezel
   c) 3.5-inch hard drive chassis
   d) drive cage
3. To remove the power switch:
   a) Remove the 6-32xL6.35 screw that secures the IO bracket [1] to the chassis and open the IO bracket[2].



   b) Disconnect the power switch cable from the connector on the system board [1].
   c) Press the power switch retention tabs [2] and pull the power switch out from the computer [3].

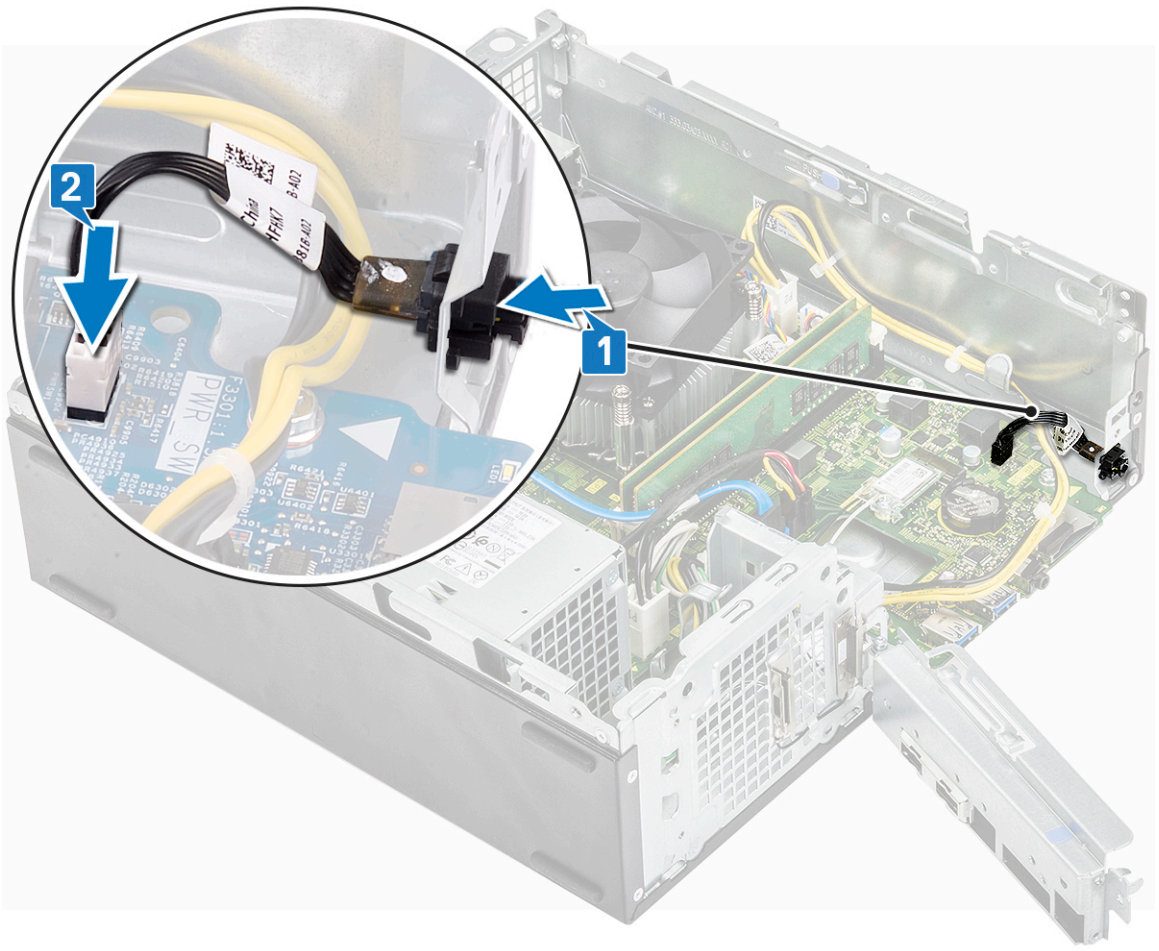


Identifier	GUID-C029358D-33F5-4A33-BC02-C40024F40841
Status	Released

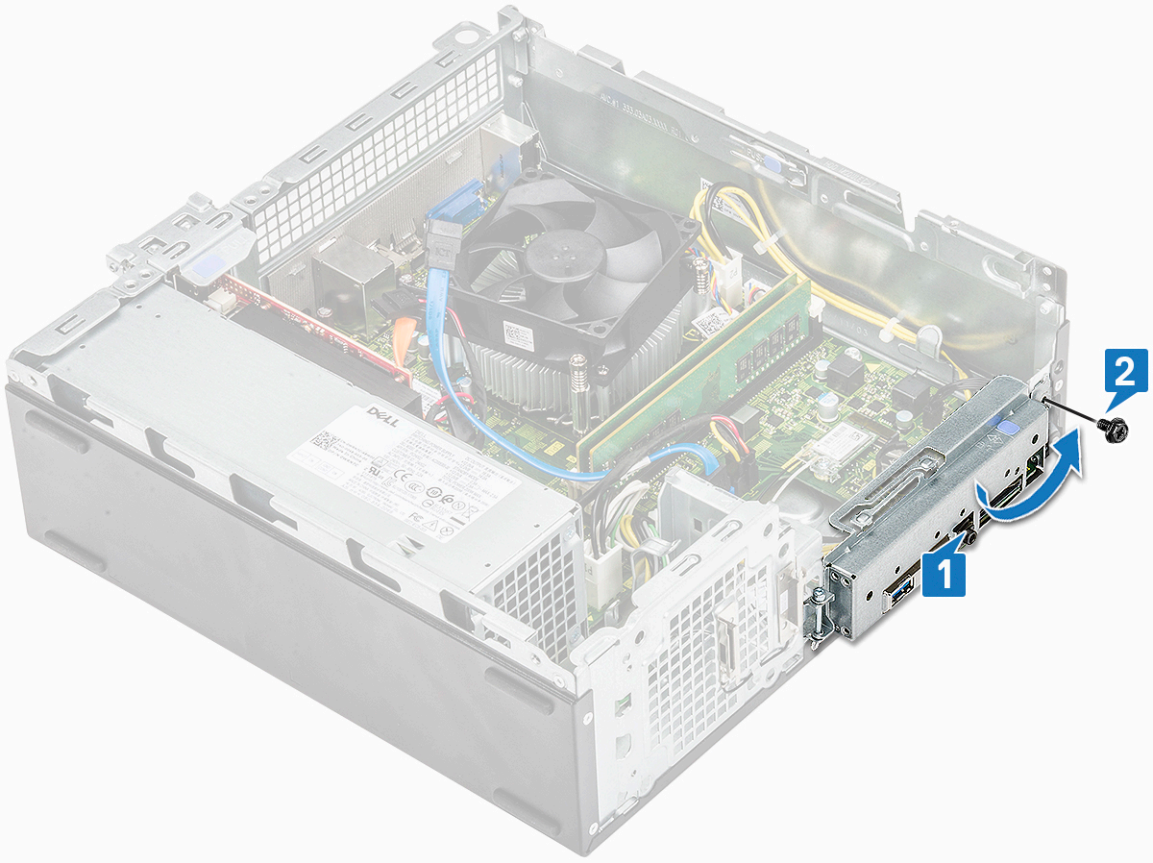
Installing the power switch

GUID-C029358D-33F5-4A33-BC02-C40024F40841

1. Slide the power switch module into the slot on the chassis until it clicks into place [1].
2. Connect the power switch cable to the connector on the system board [2].



3. Push the IO bracket until it secures to the chassis [1].
4. Replace the 6-32xL6.35 screw to secure the IO bracket to the system [2].



5. Install the:
   a) drive cage
   b) 3.5-inch hard drive chassis
   c) front bezel
   d) cover
6. Follow the procedure in After working inside your computer.

Identifier	GUID-F8164337-4D5F-47F7-AEB2-E426D33BEB4B
Status	Released

Power supply unit

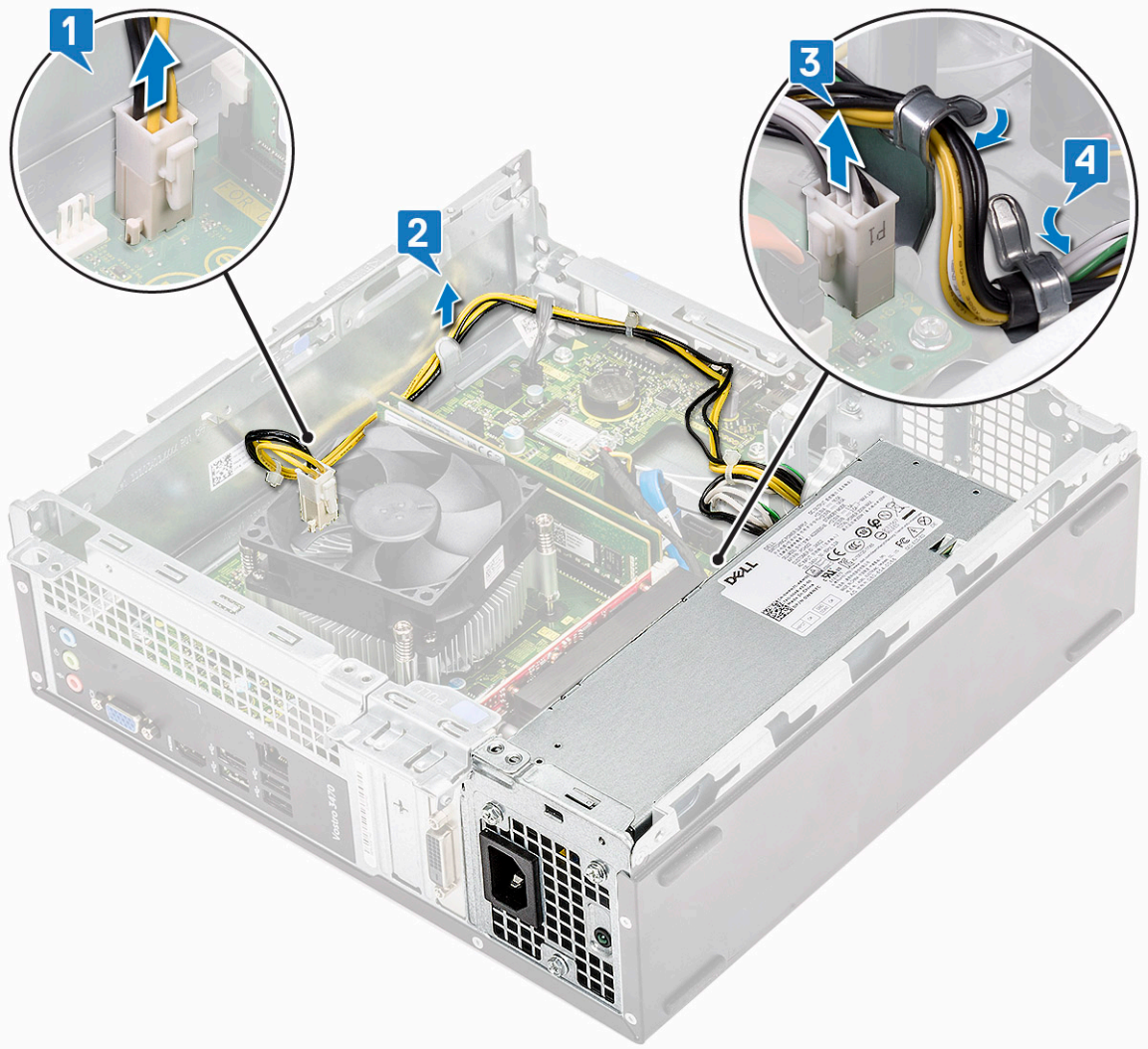
GUID-F8164337-4D5F-47F7-AEB2-E426D33BEB4B

Identifier	GUID-866F64E2-6B13-4A23-B28D-579386A20F67
Status	Released

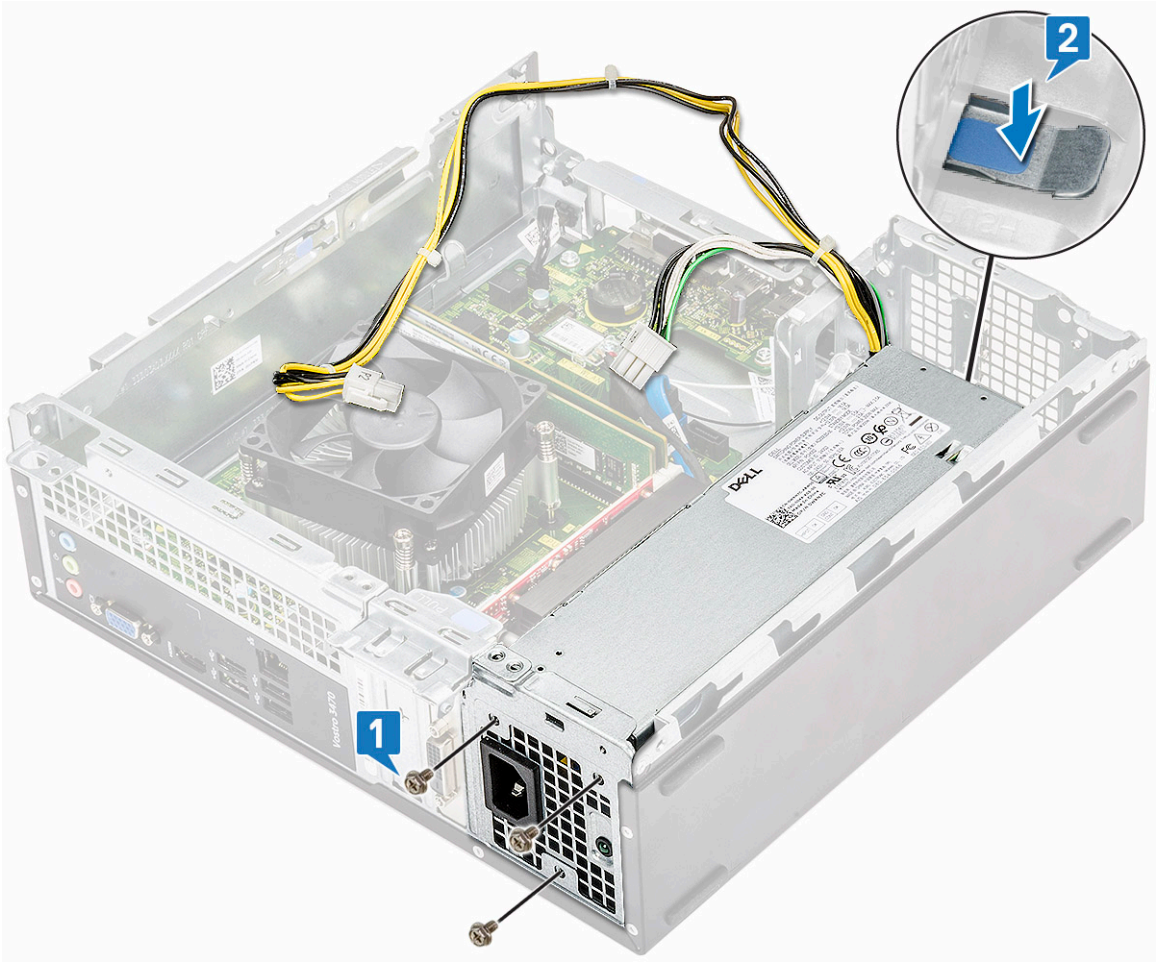
Removing the power supply unit PSU

GUID-866F64E2-6B13-4A23-B28D-579386A20F67

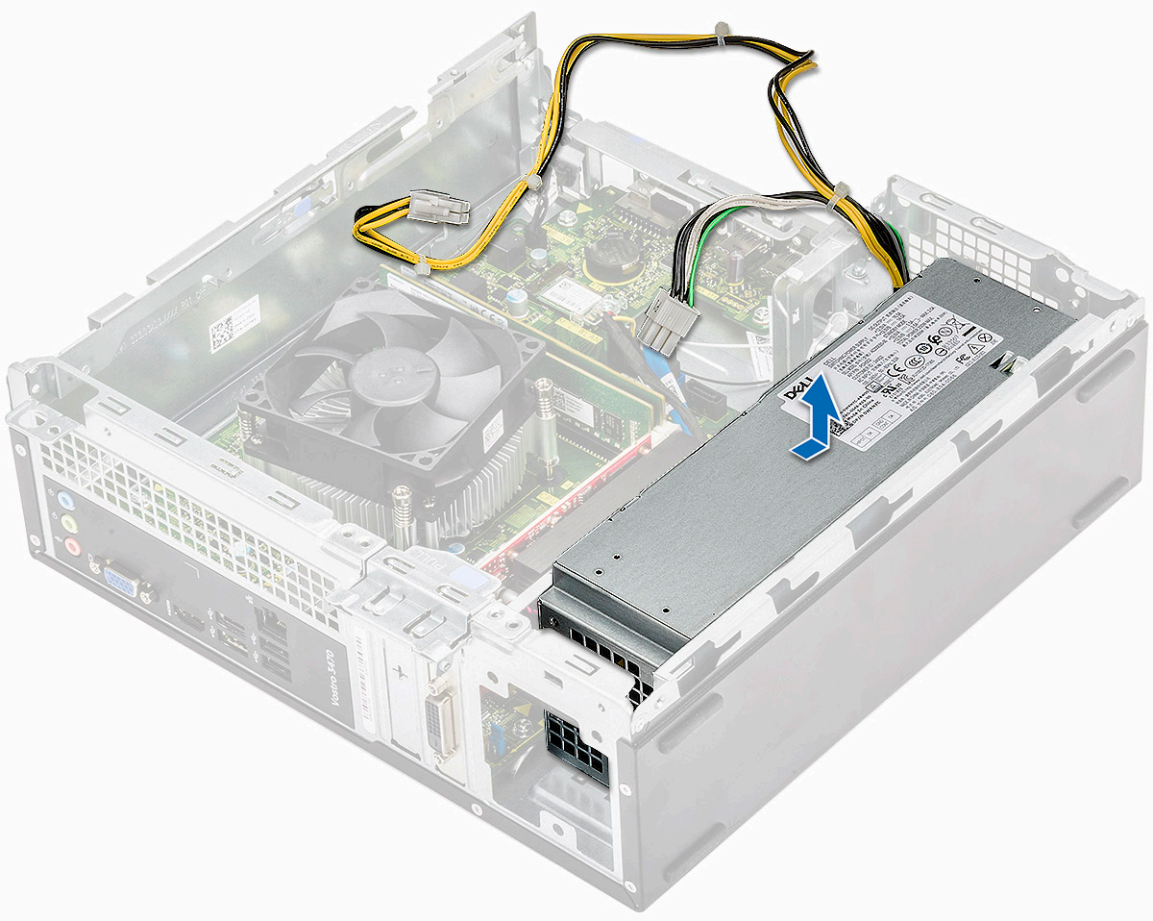
1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a) cover
   b) front bezel
   c) cooling shroud
   d) 3.5-inch hard drive chassis
   e) drive cage
3. Perform the following steps to remove the power supply unit (PSU) from the computer:
   a) Disconnect the PSU cables from the connectors on the system board [1, 3].
   b) Unroute the PSU cables from the metal clips [2,,4].



4. Perform the following steps to remove the PSU:
   a) Remove the three 6-32xL6.35 screws that secure the PSU [1].
   b) Press the blue release tab to release the PSU [2].



c) Slide and lift the PSU from the computer.

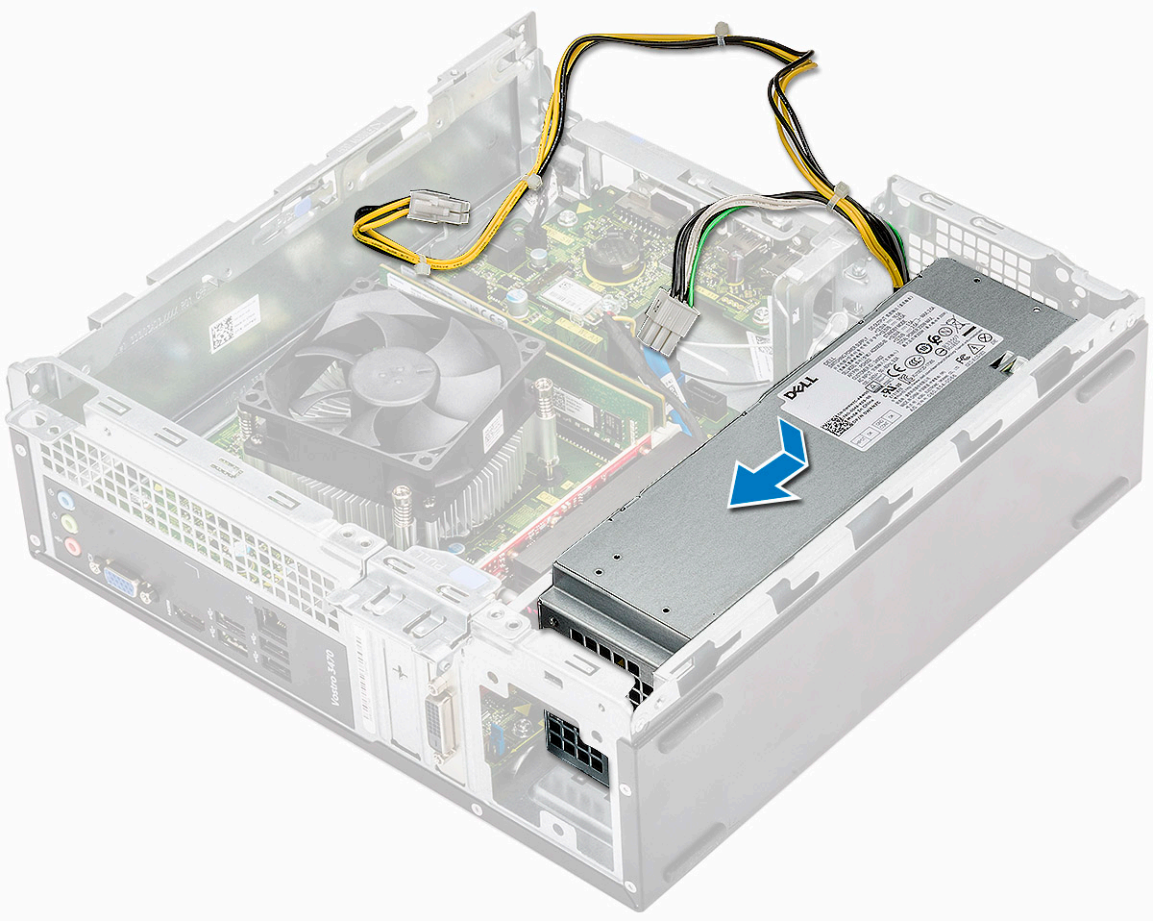


Identifier	GUID-928A874B-3531-4693-8B71-44D20F83892A
Status	Released

Installing the power supply unit PSU

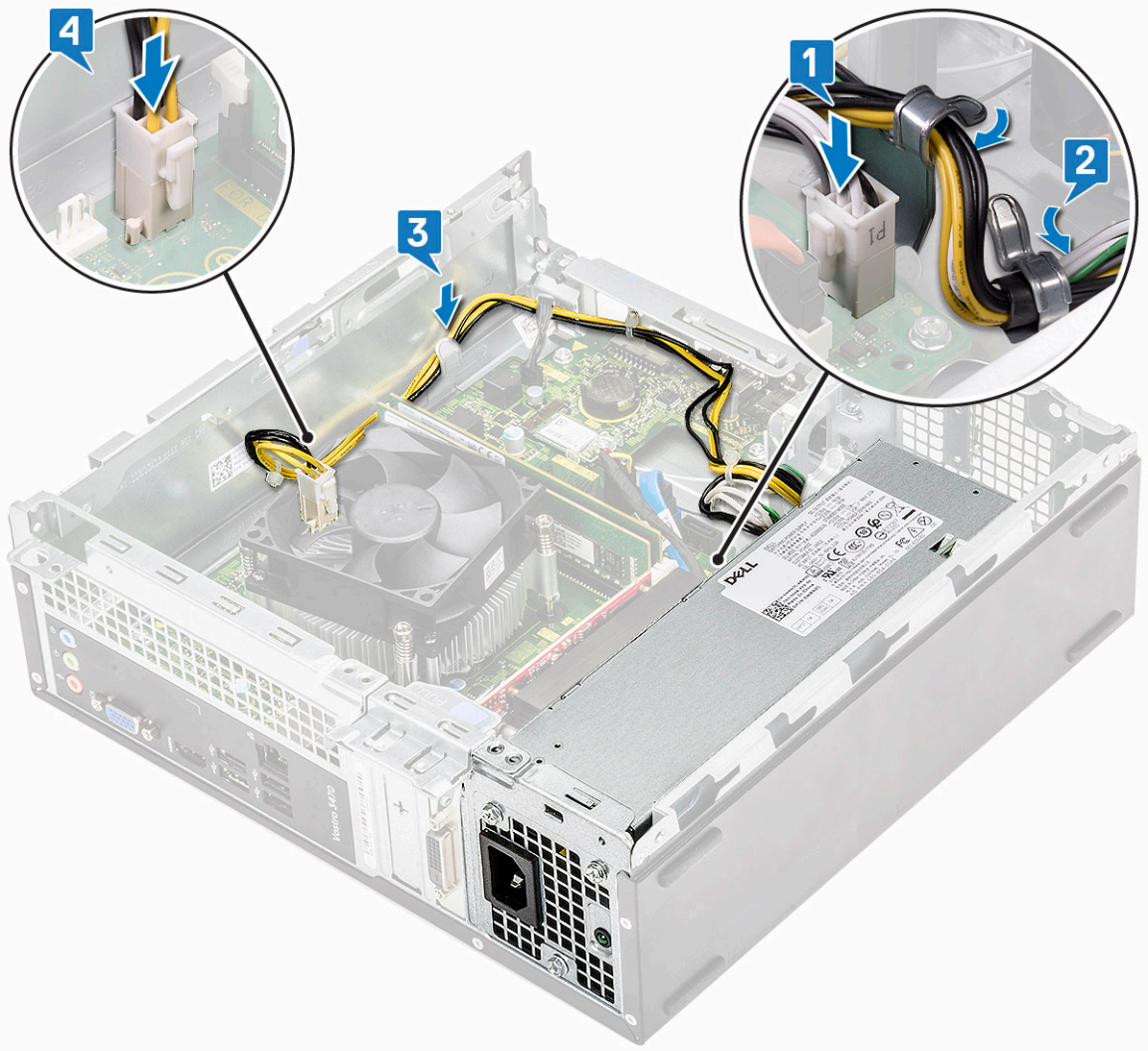
GUID-928A874B-3531-4693-8B71-44D20F83892A

1. Slide the PSU towards the back of the computer until it snaps into place.



2. Replace the three 6-32xL6.35 screws to secure the power supply unit to the computer.

3. Route the PSU cables through the placeholder.
4. Connect the PSU cables to their connectors on the system board.



5. Install the:
   a) drive cage
   b) 3.5-inch hard drive chassis
   c) cooling shroud
   d) front bezel
   e) cover
6. Follow the procedure in After Working Inside Your Computer.

Identifier	GUID-B369D04D-3080-4AE8-912A-8F95B80E032D
Status	Released

Coin-cell battery

GUID-B369D04D-3080-4AE8-912A-8F95B80E032D

Identifier	GUID-CF3AB38C-5385-472E-AC9E-124C3FDCDA03
Status	Released

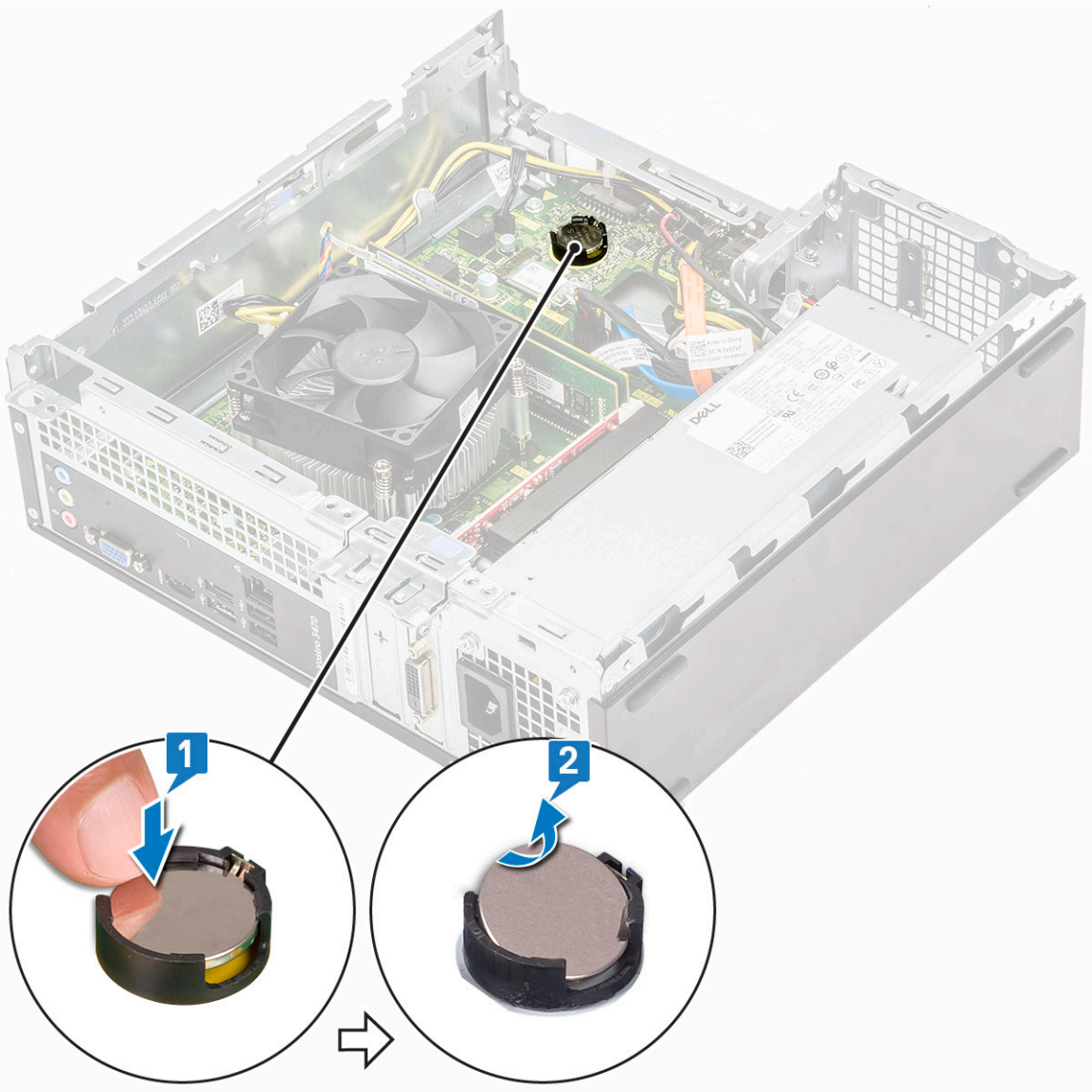
Removing the coin cell battery

GUID-CF3AB38C-5385-472E-AC9E-124C3FDCDA03

1. Follow the procedures in Before working inside your computer.
2. Remove the:
   a) cover

b) front bezel
c) cooling shroud
d) 3.5-inch hard drive chassis
e) drive cage

3. Perform the following steps to remove the coin cell battery:
   a) Press the coin cell battery on the open space of the socket using your finger so that the battery pops up from the socket [1].
   b) Lift the coin cell battery out of the computer [2].

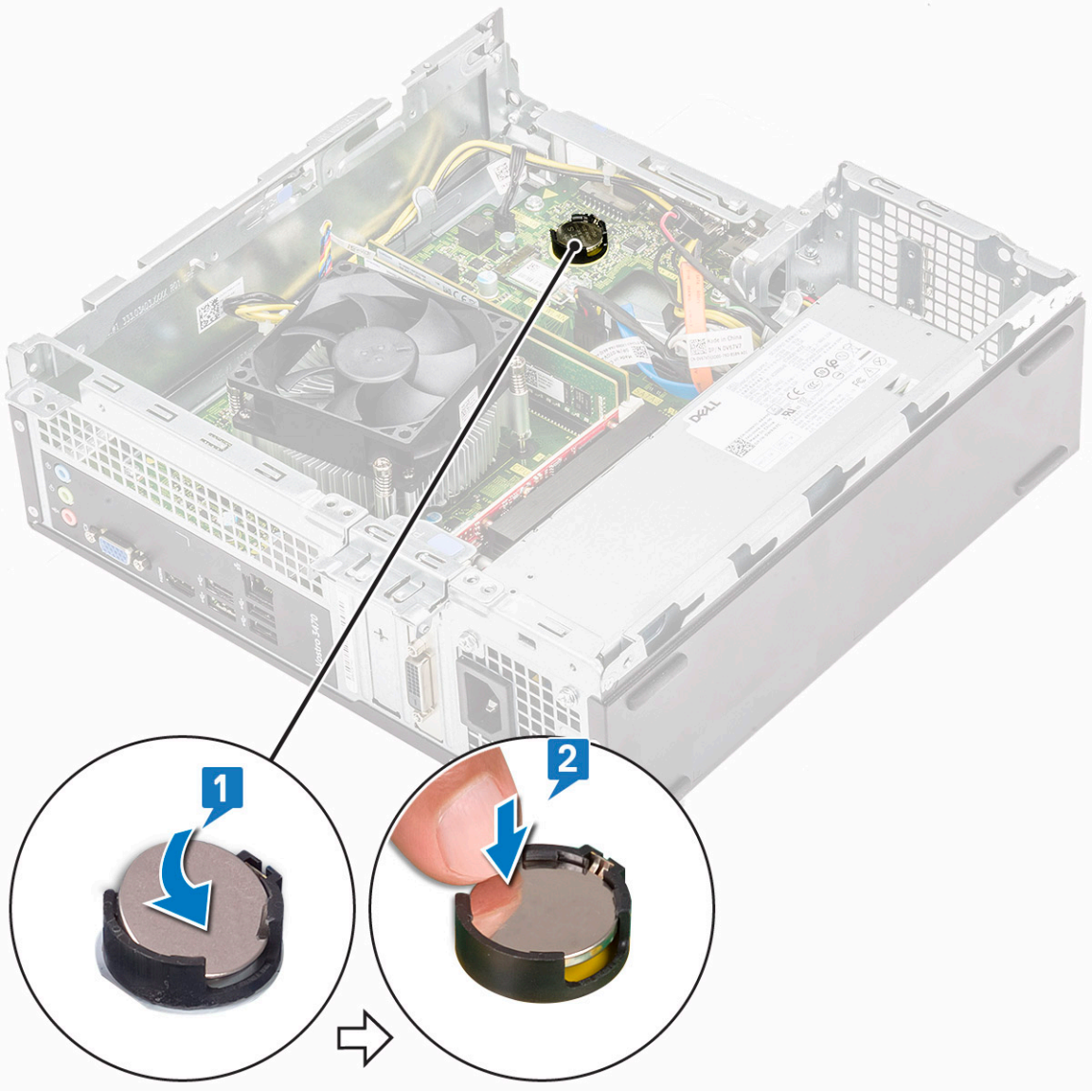


Identifier	GUID-272B046A-B6AF-47B3-BF00-1568291C36FC
Status	Released

Installing the coin cell battery

GUID-272B046A-B6AF-47B3-BF00-1568291C36FC

1. Place the coin cell battery in its slot on the system board [1] and press until it snaps in place [2]..



2. Install the:
   a) drive cage
   b) 3.5-inch hard drive chassis
   c) cooling shroud
   d) front bezel
   e) cover
3. Follow the procedures in After Working Inside Your Computer.

Identifier	GUID-6D80D2E4-6FDC-4158-B13A-DD044EFA533C
Status	Released

Processor

GUID-6D80D2E4-6FDC-4158-B13A-DD044EFA533C

Identifier	GUID-8B64C840-647C-4BC8-9855-E1FB8A7EF345
Status	Released

Removing the processor

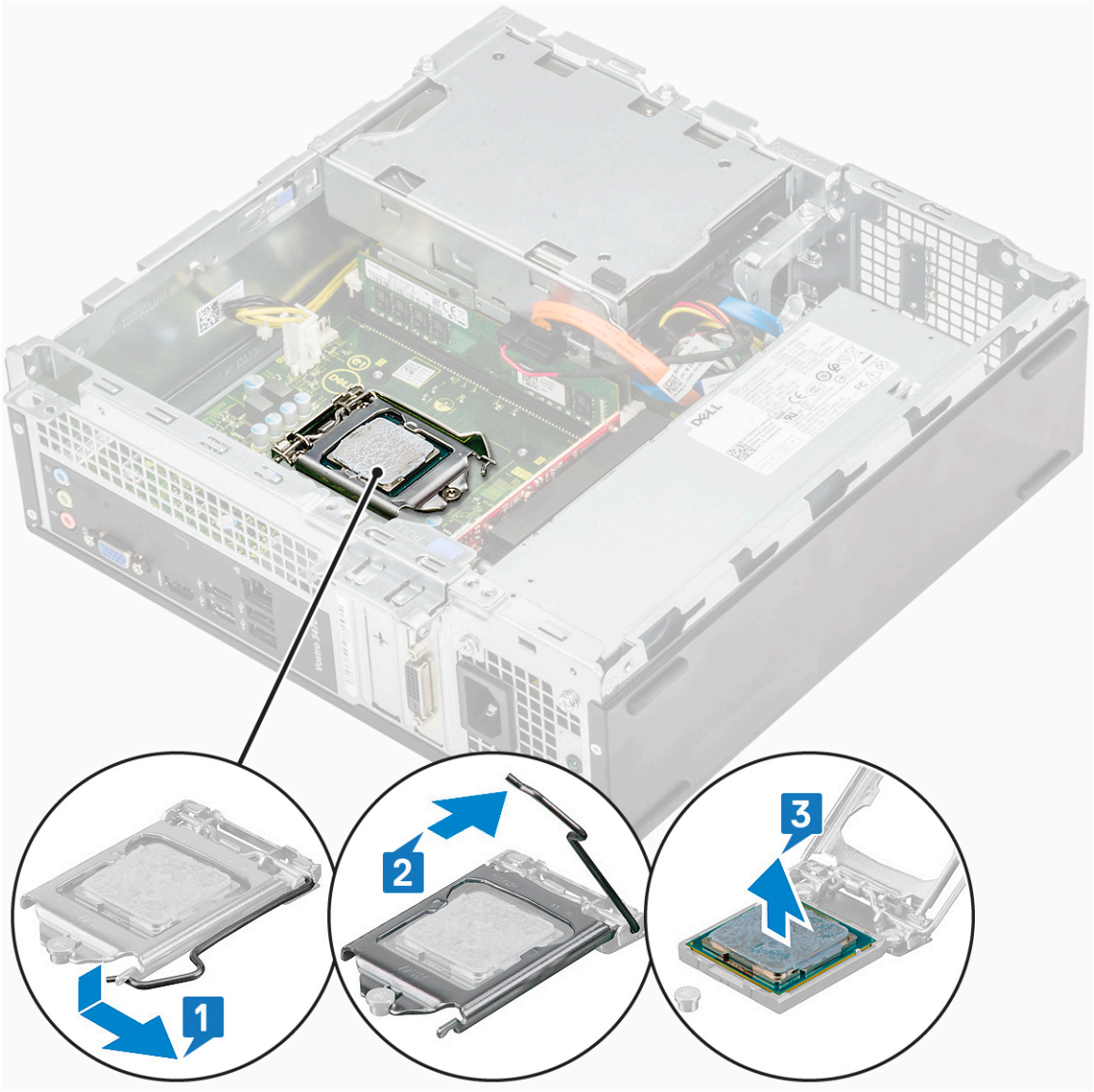
GUID-8B64C840-647C-4BC8-9855-E1FB8A7EF345

1. Follow the procedure in Before working inside your computer.

2. Remove the:
   a) cover
   b) cooling shroud
   c) heatsink assembly
3. To remove the processor:
   a) Press the release lever down and then move it outward to release it from the retention hook [1].

   CAUTION: The processor socket pins are fragile and can be permanently damaged. Be careful not to bend the pins in the processor socket when removing the processor out of the socket.

   b) Lift the processor cover [2], remove the processor from the socket and place it in an antistatic bag [3].



Identifier	GUID-DE671B53-9EB1-4B32-A29B-CEBFC8D29268
Status	Released

Installing the processor

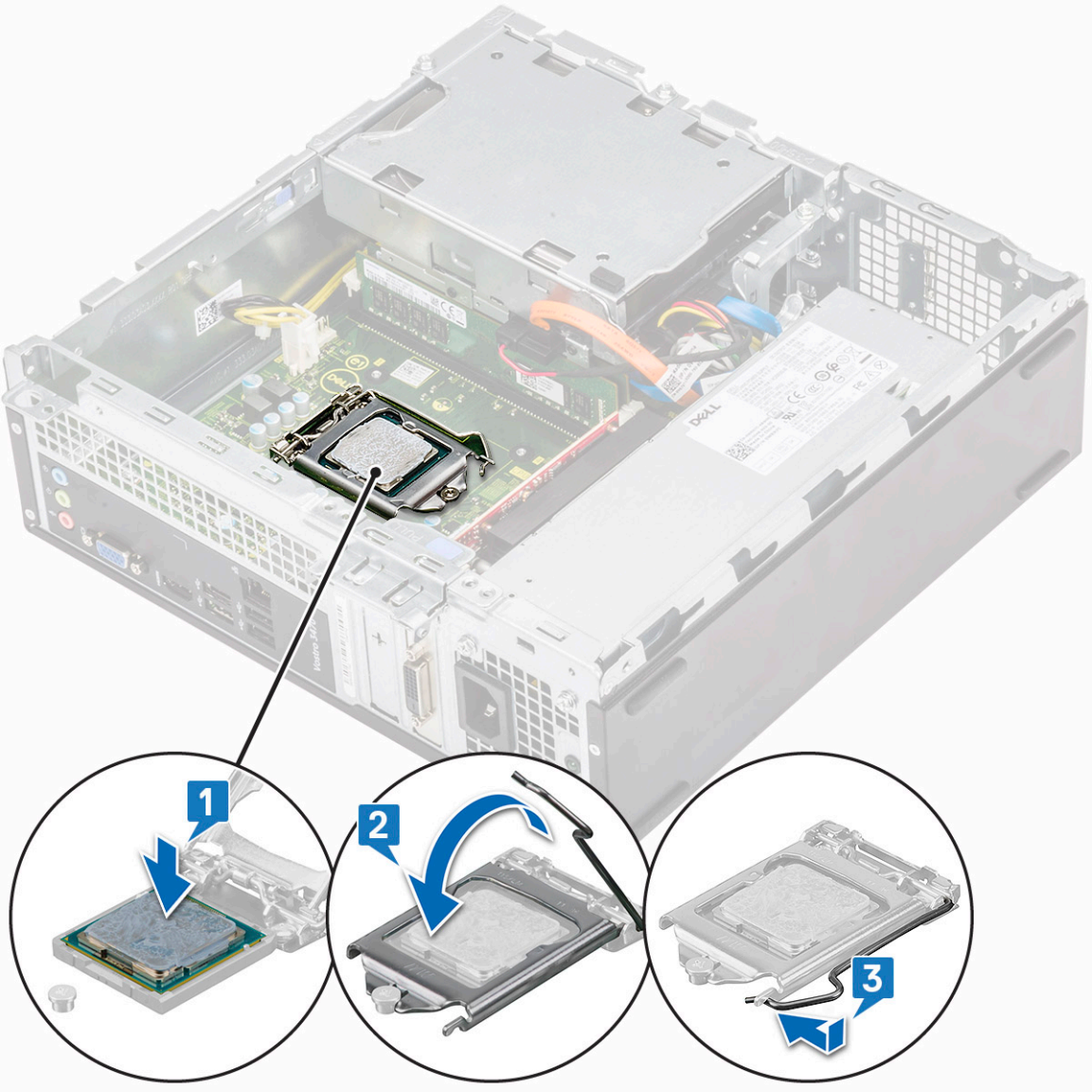
GUID-DE671B53-9EB1-4B32-A29B-CEBFC8D29268

1. Insert the processor in the processor socket. Ensure the processor is properly seated [1].

   CAUTION: Do not use force to seat the processor. When the processor is positioned correctly, it engages easily into the socket.

2. Lower the processor cover [2].

3. Press the release lever down and then move it inward to secure it with the retention hook [3].



4. Install the:
   a) heat sink assembly
   b) cooling shroud
   c) cover
5. Follow the procedure in After working inside your computer.

Identifier	GUID-57A55927-6E1E-400D-8732-224AC53A7435
Status	Released

System board

GUID-57A55927-6E1E-400D-8732-224AC53A7435

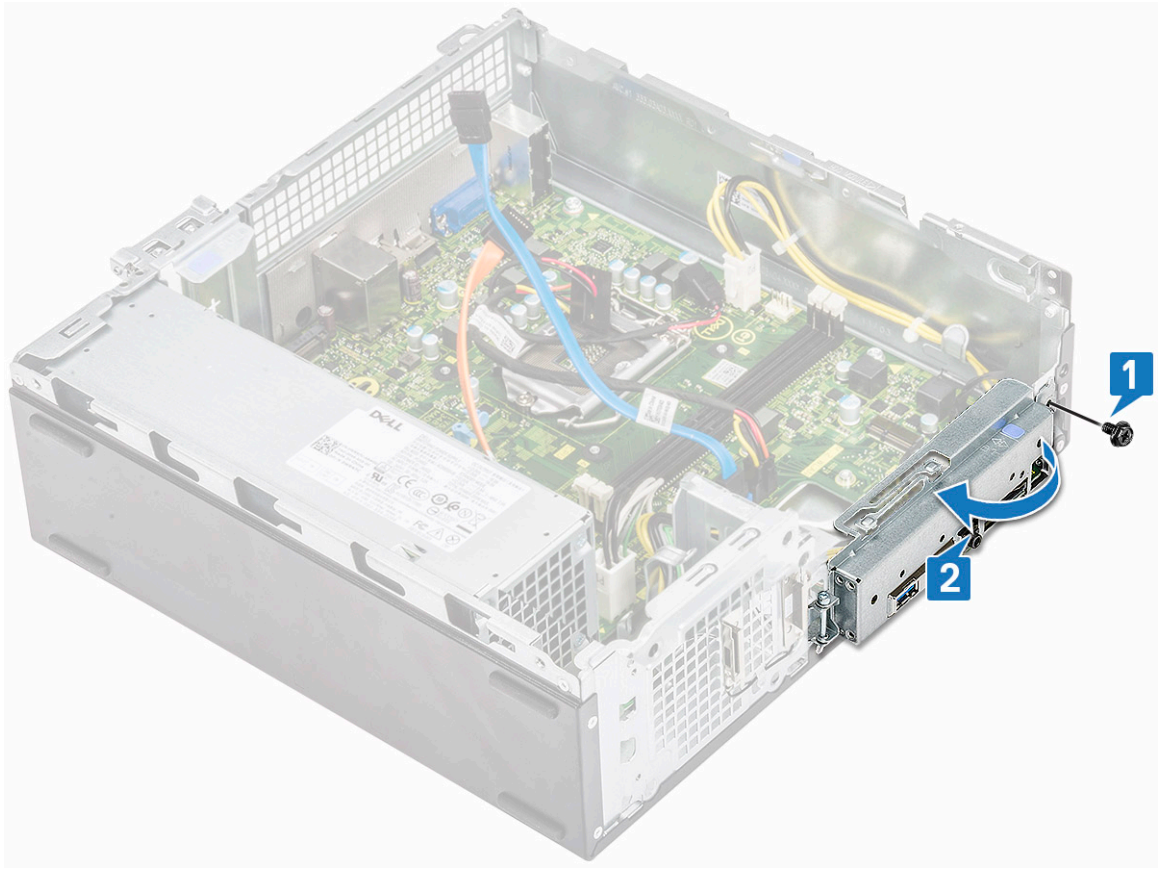
Identifier	GUID-E0DFA395-72BD-412A-9F1D-6E1110B68595
Status	Released

Removing the system board

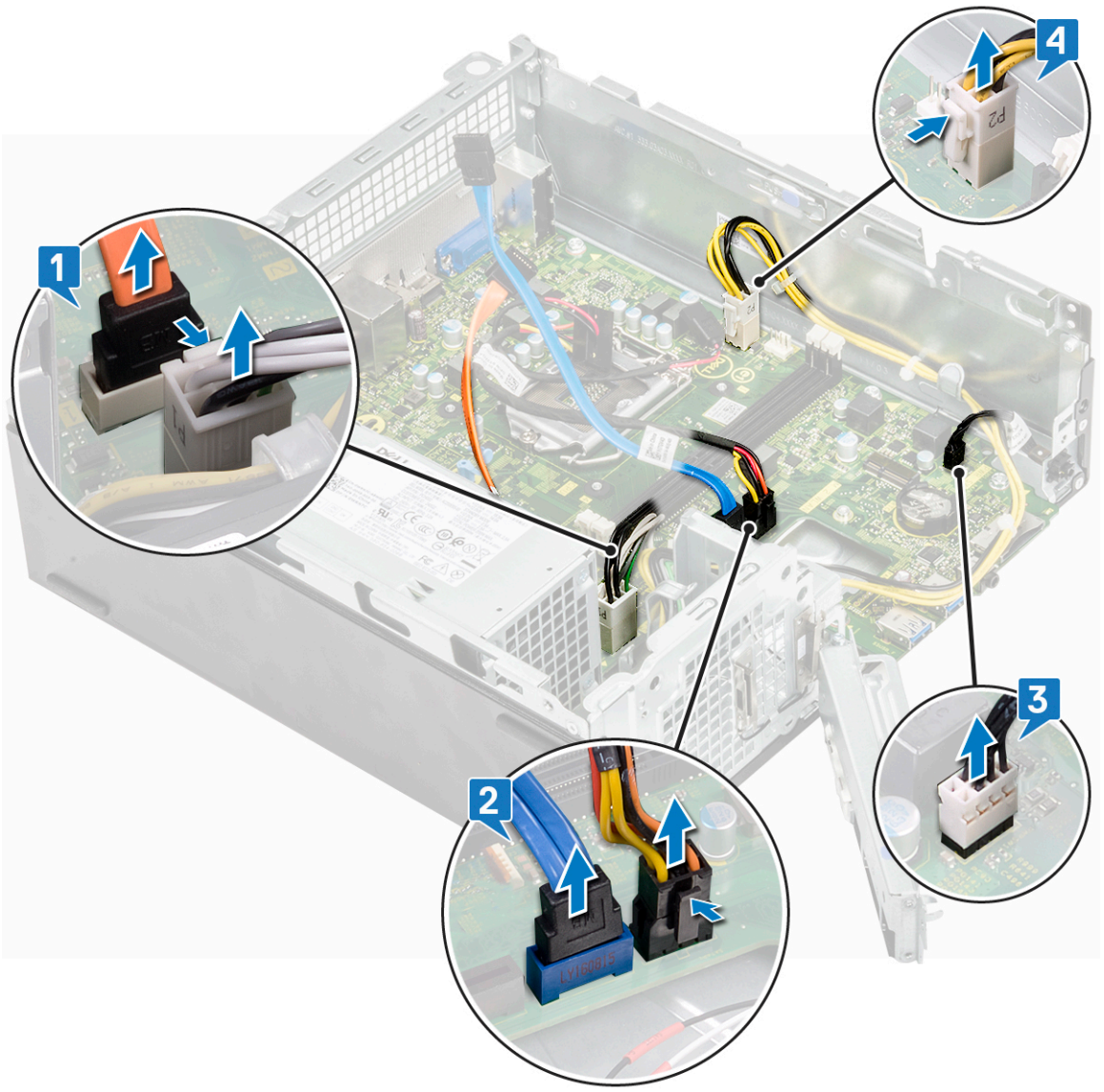
GUID-E0DFA395-72BD-412A-9F1D-6E1110B68595

1. Follow the procedure in Before working inside your computer.

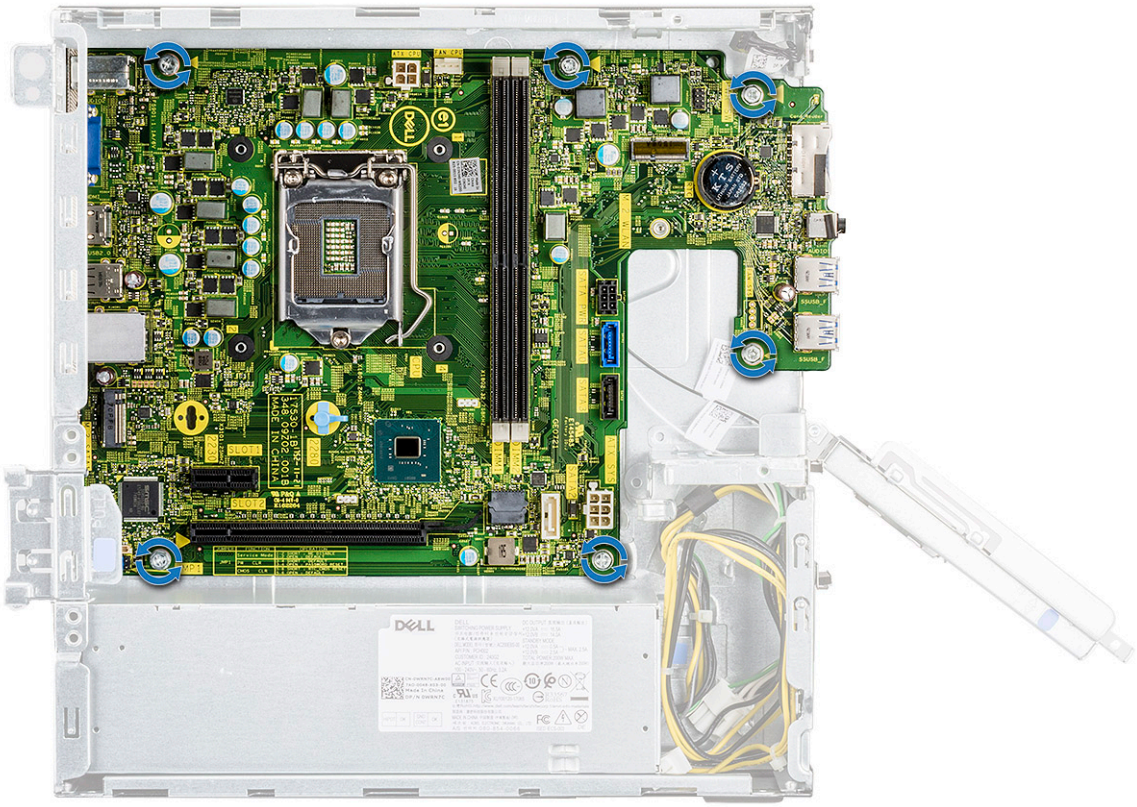
2. Remove the
   a) cover
   b) front bezel
   c) 3.5-inch hard drive chassis
   d) drive cage
   e) memory module
   f) cooling shroud
   g) expansion card (optional)
   h) M.2 SATA SSD
   i) heat sink assembly
   j) WLAN card
3. Follow the steps to open the IO bracket:
   a) Remove the 6-32xL6.35 screw that secures the IO bracket to the chassis [1].
   b) Pull the IO bracket to open the IO bracket [2].



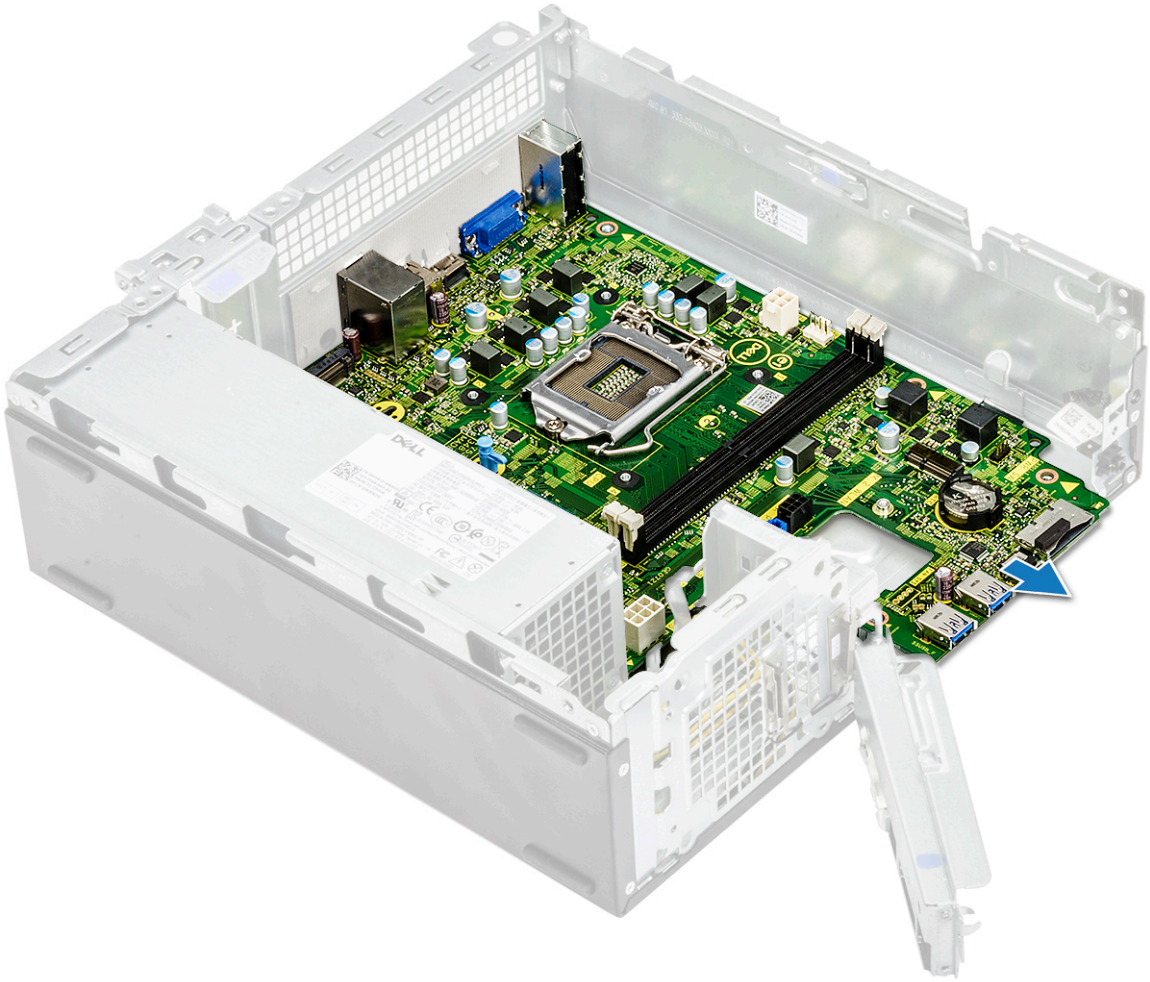
4. Disconnect the following cables from the system board- ODD SATA cable and PSU cable [1], HDD SATA cable and HDD/ODD power cable [2], power switch cable [3], and PSU cable [4]



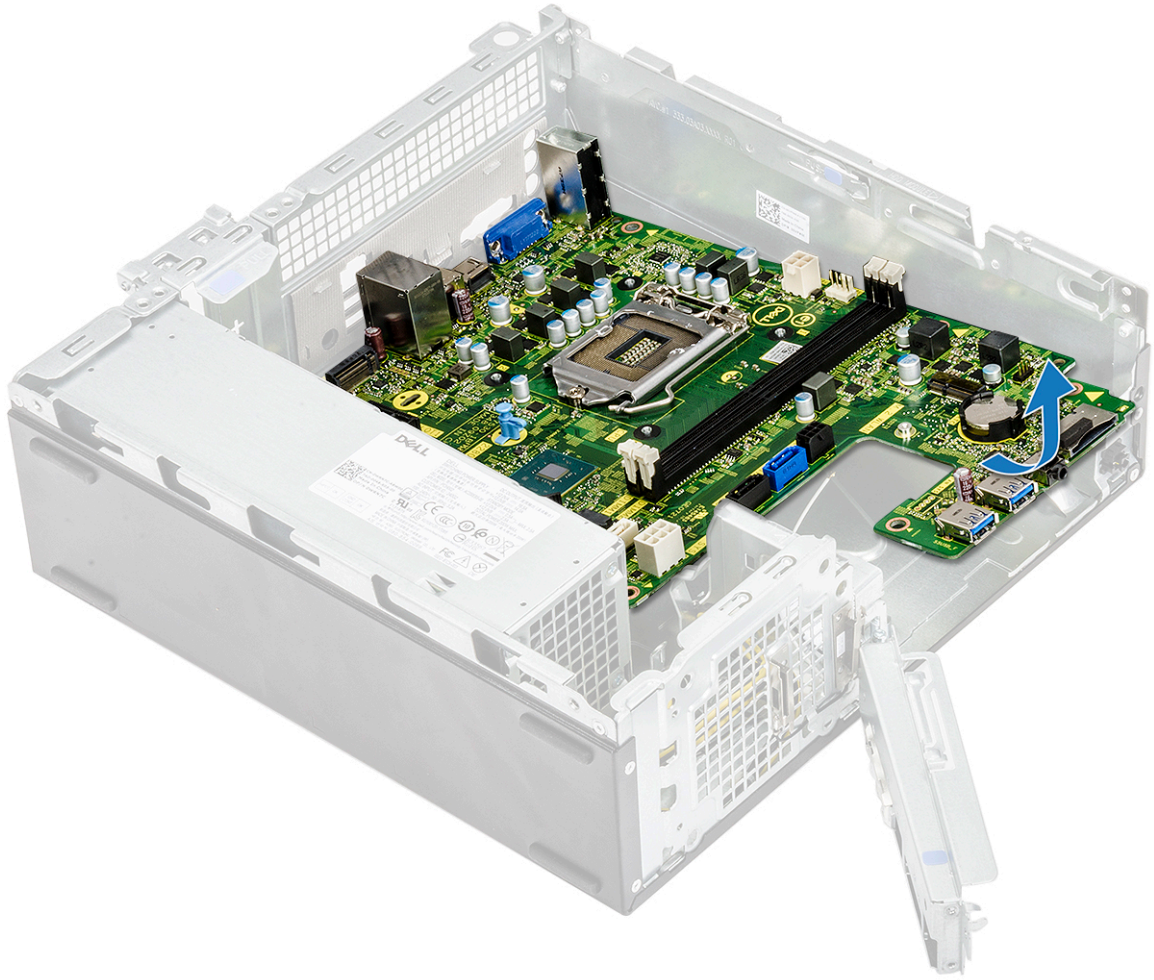
5. Follow the steps to remove the system board:
   a) Remove the six 6-32xL6.35 screws that secure system board to the chassis.



b) Pull the system board towards the front of the system.



c) Lift the system board from the chassis.



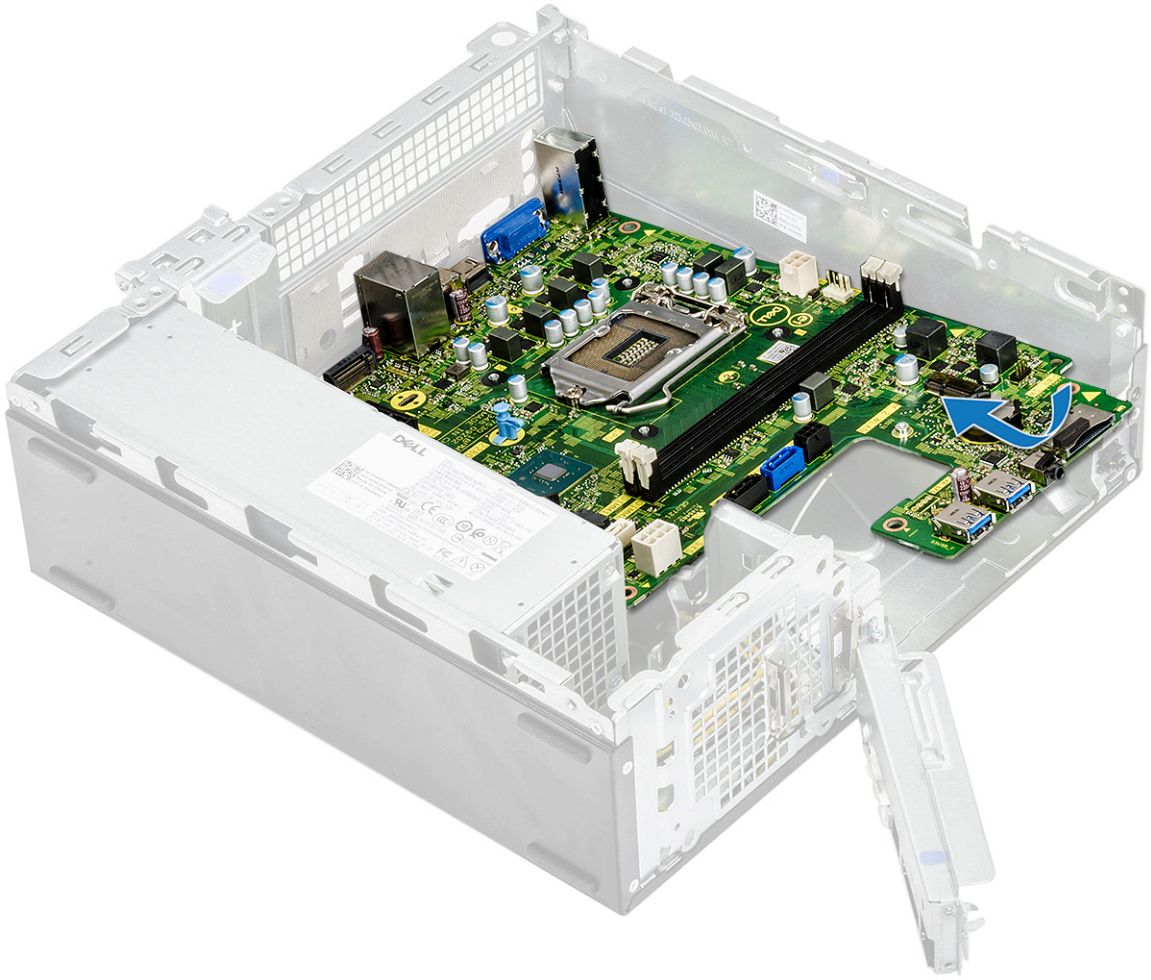
Identifier	GUID-5F353059-74DE-422D-AC4D-2870AE5EAA60
Status	Released

Installing the system board

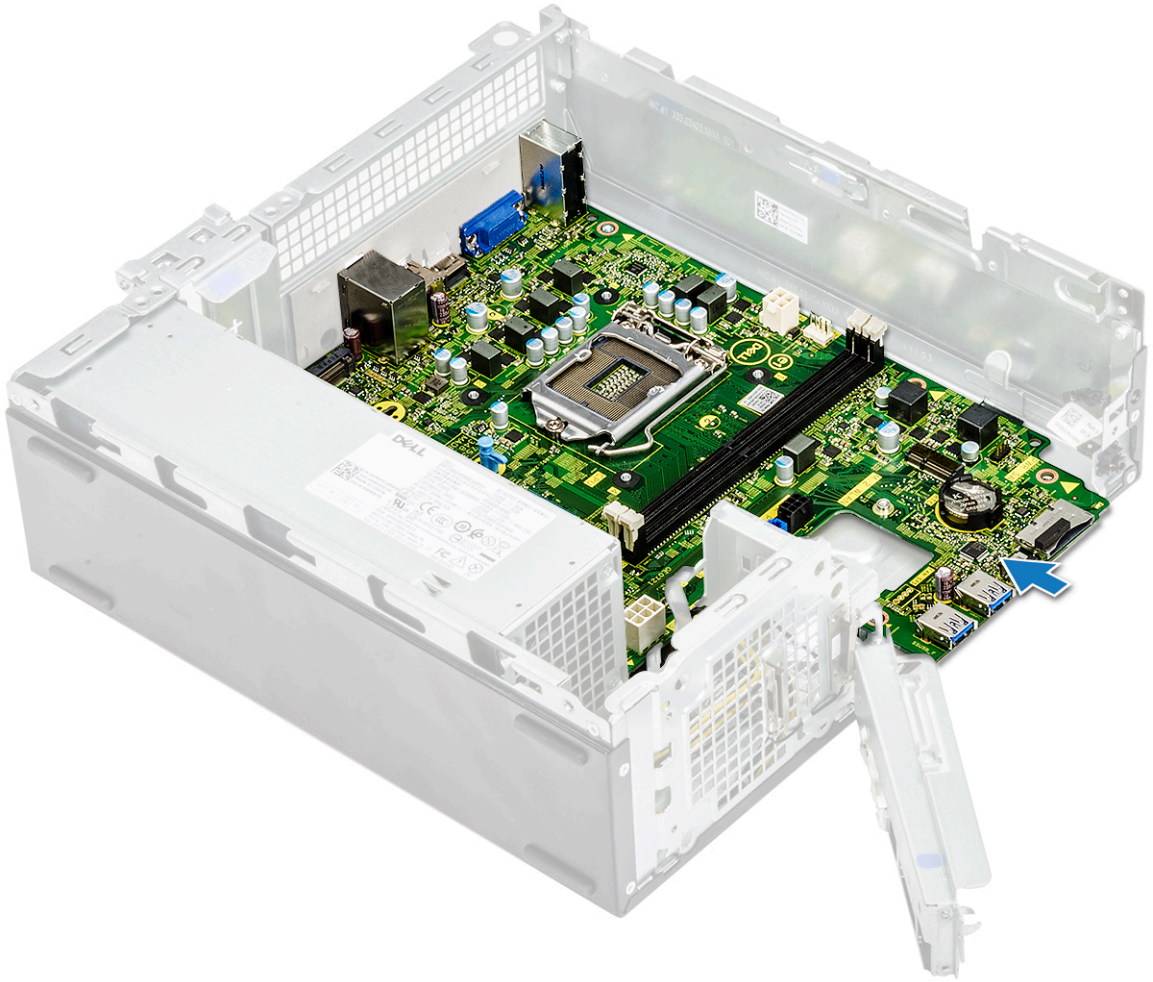
GUID-5F353059-74DE-422D-AC4D-2870AE5EAA60

1. Insert the system board and ensure that ports are aligned to the holes on the back panel.

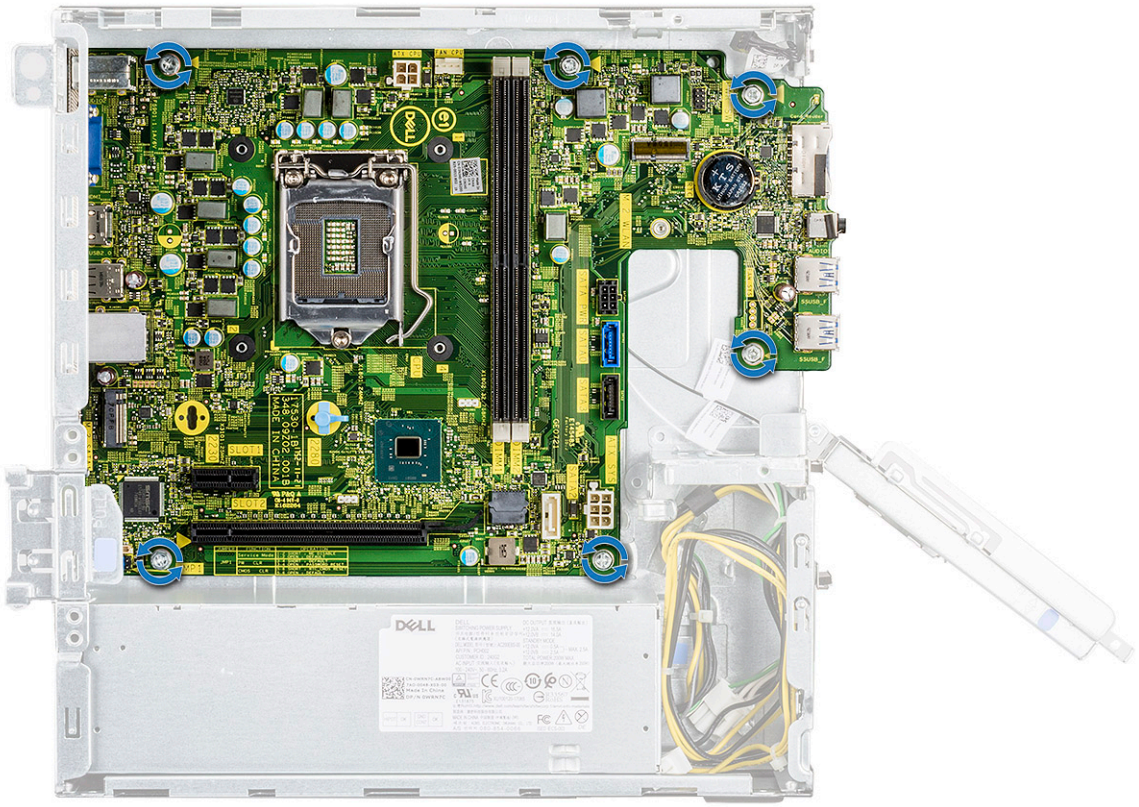
   NOTE: Make sure to open the IO bracket before placing the system board in the system.



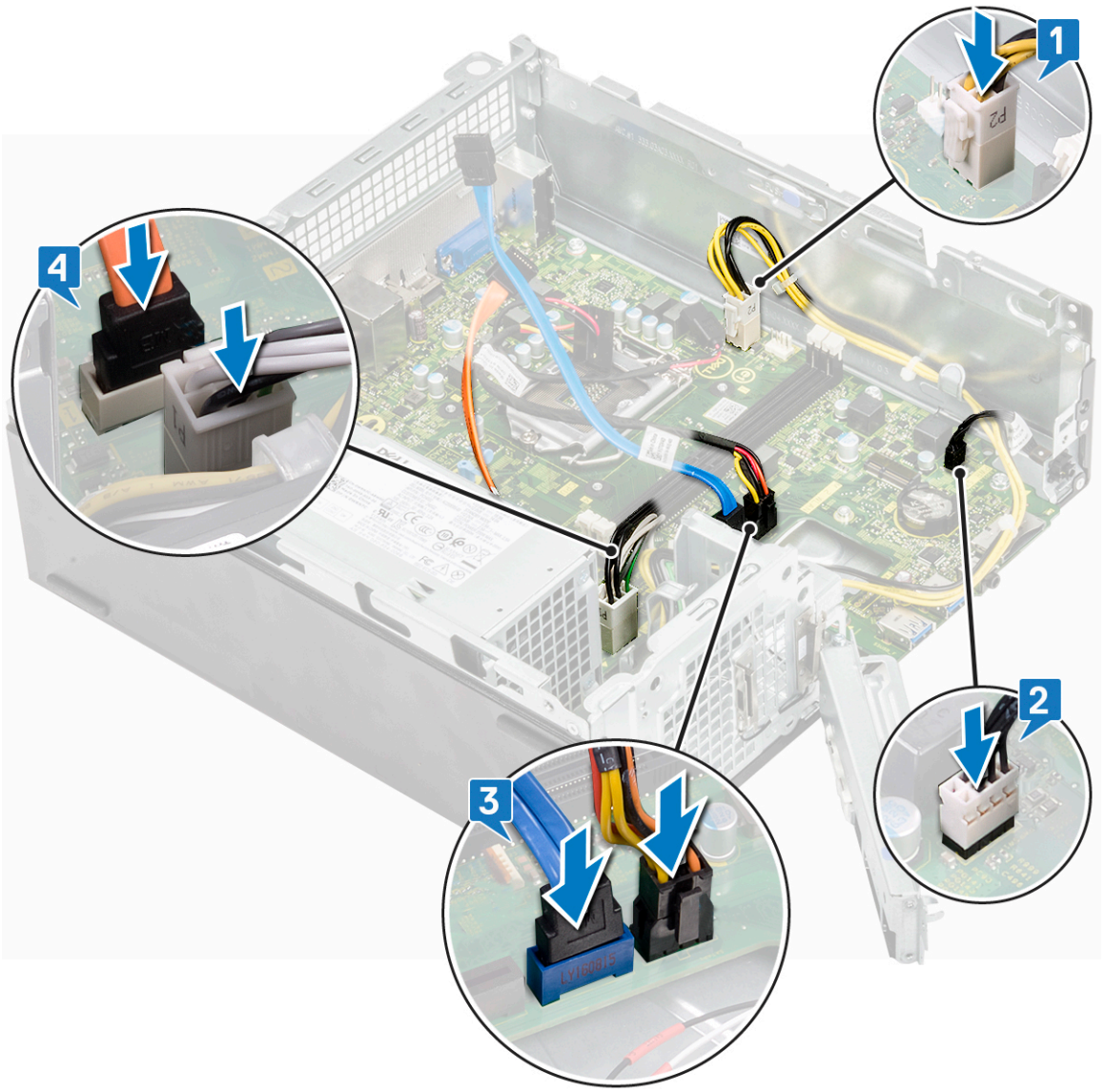
2. Push the system board towards the rear side of the system.



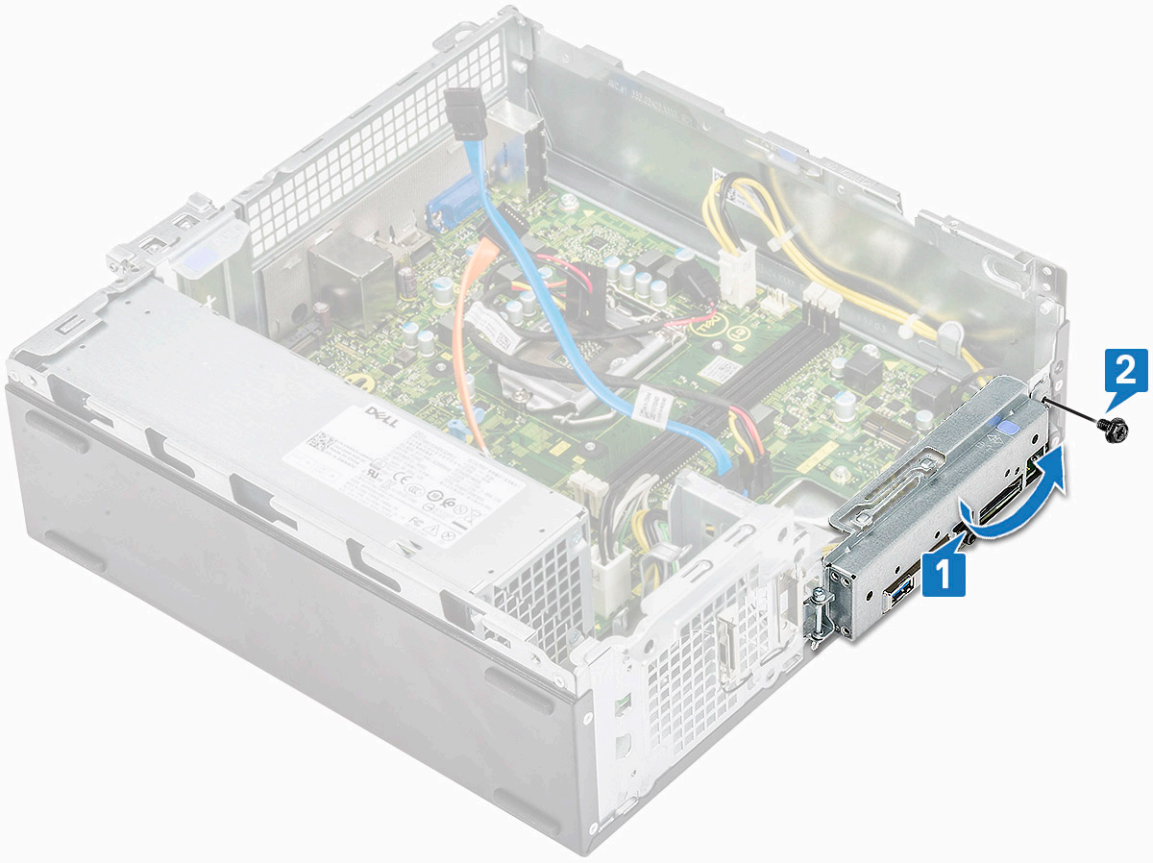
3. Replace the six 6-32xL6.35 screws to secure the system board.



4. Connect the following cables to the system board- PSU cable [1], power switch cable [2], HDD SATA cable and HDD/ODD power cable [3], ODD SATA cable and PSU cable [4].



5. Close the IO bracket [1] and replace the 6-32xL6.35 screw to secure the IO bracket to the chassis [2].



6. Install the:
   a) heat sink assembly
   b) WLAN card
   c) expansion card (optional)
   d) M.2 SATA SSD
   e) drive cage
   f) 3.5-inch hard drive chassis
   g) cooling shroud
   h) memory module
   i) front bezel
   j) cover
7. Follow the procedures in After Working Inside Your Computer.

Identifier	GUID-2FA9BA72-E6AB-49CE-BFF3-9501CCC4FD18
Status	Released

TPM 2.0 installation

GUID-2FA9BA72-E6AB-49CE-BFF3-9501CCC4FD18

When you replace the system board for Windows 10 systems, the TPM 2.0 utility needs to be downloaded from **Dell.com/support** and updated. The act of updating the TPM 2.0 is the customer's responsibility. Failure to update to TPM 2.0 does not cause any major functionality issues with the system. Without TPM 2.0, some of the new, advanced security features of TPM 2.0 cannot be enabled through Windows 10. At that point the customer can still update the system to TPM 2.0. While DSP technicians are encouraged to help customers update to TPM 2.0 where possible, the risks of unavailable internet connection and restrictions have been taken into account and as such this approach is flagged as a best effort basis.

Identifier	GUID-2C2FBB0C-C12A-4642-85C3-E92581A7641E
Status	Released

Installing Dell TPM Update Utility for Windows or DOS

GUID-2C2FBB0C-C12A-4642-85C3-E92581A7641E

1. Download the TPM.
   a) Click **Download File**, to download the file.
   b) When the File Download window appears, click **Save** to save the file to your hard drive.
2. Clear the TPM (See Notes 2, 3 and 4 below).
   a) Before running the TPM update utility, clear the TPM Owner.
3. Disable TPM Auto Provisioning in Windows (See Note 4).
   a) Boot to Windows.
   b) Launch the PowerShell Command window in Administrator mode.
   c) At the Powershell command prompt, execute the command: `> Disable-TpmAutoProvisioning`.
   d) Confirm the following results:- **AutoProvisioning: Disabled**.
   e) Reboot the system, to BIOS Setup by pressing **F2**.
   f) Navigate to **Security** > **TPM 1.2/2.0 Security** .
   g) Click the **Clear** checkbox and select **Yes** at the prompt to clear the TPM settings. (You can skip it if the item is grayed out).
   h) Click **Exit** to save changes.
   i) Reboot system to Windows.
   j) Confirm the TPM is not owned. The TPM should no longer be automatically provisioned by Windows.
   k) When the TPM update is finished, launch the PowerShell command in Administrator mode to re-enable the auto provisioning. Enable-TpmAutoProvisioning.
   l) Confirm the following results:- AutoProvisioning: Enabled.
4. Run the TPM update utility from Windows environment.
   a) Browse to the location where you downloaded the file and double-click the new file.
   b) Windows System will auto restart and update the TPM during the system startup.
   c) When the TPM update is finished, the system will auto reboot to take effect.
5. Run the TPM update utility from DOS environment, if Legacy Boot mode (Non-Windows users).
   a) Copy the downloaded file to a bootable DOS USB key.
   b) Power on the system, then Press **F12** key and Select **USB Storage Device** and Boot to DOS prompt.
   c) Run the file by typing copied file name where the executable is located.
   d) DOS system will auto restart and update the TPM during the system startup.
   e) When the TPM update is finished, the system will auto reboot to take effect.
6. Run the BIOS update utility from DOS environment if UEFI Boot Mode (Non-Windows users).

   Note 1:You will need to provide a bootable DOS USB key. This executable file does not create the DOS system files.

   Note 2: If BitLocker is enabled on your system, please make sure you suspend BitLocker encryption before updating TPM on a BitLocker enabled system.

   Note 3: The TPM must be ON and Enabled in BIOS Setup, and the TPM must not be owned. If the TPM is owned, go to BIOS Setup and clear the TPM before proceeding. You may need to run TPM.msc to re-initial the TPM under Windows OS.

   Note 4: When the TPM ownership is cleared, some operating system will automatically take ownership of the TPM on the next boot (TPM AutoProvisioning). This feature will need to be disabled in the OS to proceed with the update.

   a) Copy the downloaded file to a bootable DOS USB key.
   b) Power on the system, then go to BIOS Setup by pressing **F2** and go to **General** > **Boot Sequence** > **Boot List Option** .
   c) Change "UEFI" to "Legacy" of Boot List Option.
   d) Click **Apply**, **Exit** to save changes and reboot system.
   e) Press **F12**, then Select **USB Storage Device** and Boot to DOS prompt.
   f) Run the file by typing copied file name where the executable is located.
   g) When the TPM update is finished, the system will auto reboot to take effect.
   h) Go to BIOS Setup by pressing F2 and go to **General** > **Boot Sequence** > **Boot List Option**.
   i) Change "Legacy" to "UEFI" Boot Option.
   j) Click **Apply**, **Exit** to save changes and reboot system.

Identifier	GUID-F6B90CAA-F8BE-4D01-AE59-E4793ED160A0
Status	Released

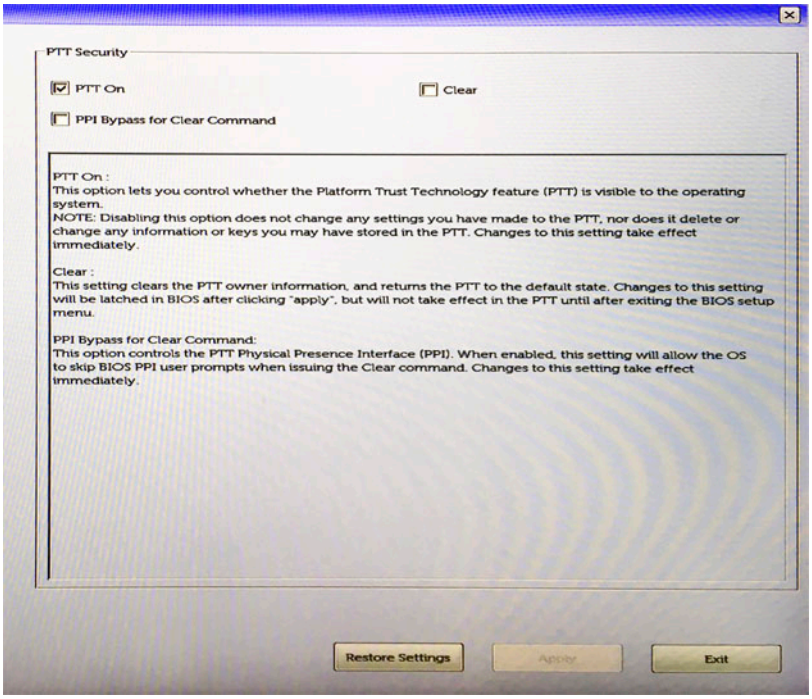
Enabling firmware TPM in China

GUID-F6B90CAA-F8BE-4D01-AE59-E4793ED160A0

Beginning May 2018, new systems with Windows 10 shipped to China region will be defaulted to firmware TPM (fTPM). The fTPM improves and provides added security.

To check fTPM setting in BIOS Setup:

User can check the fTPM setting in the BIOS under the **Security** option, as shown below. The option lets you control whether the Platform Trust Technology Feature (PTT) is visible to the operating system.



NOTE: The Enable Legacy Option ROMs option should be disabled to make the above setting.

4

Identifier	GUID-A27EB21E-BACD-423F-AC5C-DC2A051C2B48
Status	Released

Troubleshooting

Identifier	GUID-3A3576E1-EF1B-46DB-906F-9A07B70DACE5
Status	Released

Enhanced Pre-Boot System Assessment — ePSA diagnostics

GUID-3A3576E1-EF1B-46DB-906F-9A07B70DACE5

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:

The ePSA diagnostics can be initiated by the FN+PWR buttons while powering on the computer.

- 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.

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

Running the ePSA Diagnostics

GUID-5FC0D943-B848-4BDC-9A26-78A5E88FDA45

Invoke diagnostics boot by either of the methods that are suggested below:

1. Power on the computer.
2. As the computer boots, press the F12 key when the Dell logo is displayed.
3. In the boot menu screen, use Up/Down arrow key to select the **Diagnostics** option and then press **Enter**.

   NOTE: The Enhanced Pre-boot System Assessment window displays, listing all devices detected in the computer. The diagnostics starts running the tests on all the detected devices.
4. Press the arrow in the lower-right corner to go to the page listing.
   The detected items are listed and tested.
5. To run a diagnostic test on a specific device, press Esc and click **Yes** to stop the diagnostic test.
6. Select the device from the left pane and click **Run Tests**.
7. If there are any issues, error codes are displayed.
   Note the error code and contact Dell.

Identifier	GUID-60C17CE6-CCEB-4E5B-B208-324CC3996AB5
Status	Released

Diagnostics

GUID-60C17CE6-CCEB-4E5B-B208-324CC3996AB5

The computer POST (Power On Self Test) ensures that it meets the basic computer requirements and the hardware is working appropriately before the boot process begins. If the computer passes the POST, the computer continues to start in a normal mode. However, if the computer fails the POST, the computer emits a series of LED codes during the start-up. The system LED is integrated on the Power button.

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

Table 3. Diagnostics

Amber Blinking Pattern	Possible Problem	Problem Description
2, 1	System board	System board failure
2, 2	System board, PSU, or cabling	System board, PSU, or cabling failure
2, 3	System board, memory, CPU	System board, memory, or CPU failure
2, 4	CMOS (coin-cell) battery	Coin-cell battery failure
2, 5	BIOS	Corrupt BIOS. Recovery image is not found or is invalid during auto BIOS recovery process.
2, 6	CPU	CPU configuration error or CPU failure
2, 7	Memory	Memory failure
3, 1	PCI/video	PCI or video card / chip failure
3, 2	Storage/USB	Storage and USB configuration error or failure
3, 3	Memory	No memory detected
3, 4	System board	System board error
3, 5	Memory	Memory configuration error, incompatible memory, or invalid memory configuration
3, 6	BIOS	Recovery image not found
3, 7	BIOS	Recovery image found but invalid

Identifier	GUID-6C8A4AD6-8487-434C-8EF5-5E43DA8BAF61
Status	Released

Diagnostic error messages

GUID-6C8A4AD6-8487-434C-8EF5-5E43DA8BAF61

Table 4. Diagnostic error messages

Error messages	Description
`AUXILIARY DEVICE FAILURE`	The touchpad or external mouse may be faulty. For an external mouse, check the cable connection. Enable the **Pointing Device** option in the System Setup program.
`BAD COMMAND OR FILE NAME`	Ensure that you have spelled the command correctly, put spaces in the proper place, and used the correct path name.
`CACHE DISABLED DUE TO FAILURE`	The primary cache internal to the microprocessor has failed. Contact Dell
`CD DRIVE CONTROLLER FAILURE`	The optical drive does not respond to commands from the computer.

Error messages	Description
DATA ERROR	The hard drive cannot read the data.
DECREASING AVAILABLE MEMORY	One or more memory modules may be faulty or improperly seated. Reinstall the memory modules or, if necessary, replace them.
DISK C: FAILED INITIALIZATION	The hard drive failed initialization. Run the hard drive tests in **Dell Diagnostics**.
DRIVE NOT READY	The operation requires a hard drive in the bay before it can continue. Install a hard drive in the hard drive bay.
ERROR READING PCMCIA CARD	The computer cannot identify the ExpressCard. Reinsert the card or try another card.
EXTENDED MEMORY SIZE HAS CHANGED	The amount of memory recorded in non-volatile memory (NVRAM) does not match the memory module installed in the computer. Restart the computer. If the error appears again, Contact Dell
THE FILE BEING COPIED IS TOO LARGE FOR THE DESTINATION DRIVE	The file that you are trying to copy is too large to fit on the disk, or the disk is full. Try copying the file to a different disk or use a larger capacity disk.
A FILENAME CANNOT CONTAIN ANY OF THE FOLLOWING CHARACTERS: \ / : * ? " < > | -	Do not use these characters in filenames.
GATE A20 FAILURE	A memory module may be loose. Reinstall the memory module or, if necessary, replace it.
GENERAL FAILURE	The operating system is unable to carry out the command. The message is usually followed by specific information. For example, `Printer out of paper. Take the appropriate action.`
HARD-DISK DRIVE CONFIGURATION ERROR	The computer cannot identify the drive type. Shut down the computer, remove the hard drive, and boot the computer from an optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. Run the **Hard Disk Drive** tests in **Dell Diagnostics**.
HARD-DISK DRIVE CONTROLLER FAILURE 0	The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive, and boot the computer from an optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the **Hard Disk Drive** tests in **Dell Diagnostics**.
HARD-DISK DRIVE FAILURE	The hard drive does not respond to commands from the computer. Shut down the computer, remove the hard drive, and boot the computer from an optical drive. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the **Hard Disk Drive** tests in **Dell Diagnostics**.
HARD-DISK DRIVE READ FAILURE	The hard drive may be defective. Shut down the computer, remove the hard drive, and boot the computer from an optical. Then, shut down the computer, reinstall the hard drive, and restart the computer. If the problem persists, try another drive. Run the **Hard Disk Drive** tests in **Dell Diagnostics**.
INSERT BOOTABLE MEDIA	The operating system is trying to boot to non-bootable media, such as an optical drive. Insert bootable media.
INVALID CONFIGURATION INFORMATION-PLEASE RUN SYSTEM SETUP PROGRAM	The system configuration information does not match the hardware configuration. The message is most likely to occur after a memory module is installed. Correct the appropriate options in the system setup program.
KEYBOARD CLOCK LINE FAILURE	For external keyboards, check the cable connection. Run the **Keyboard Controller** test in **Dell Diagnostics**.

Error messages	Description
KEYBOARD CONTROLLER FAILURE	For external keyboards, check the cable connection. Restart the computer, and avoid touching the keyboard or the mouse during the boot routine. Run the **Keyboard Controller** test in **Dell Diagnostics**.
KEYBOARD DATA LINE FAILURE	For external keyboards, check the cable connection. Run the **Keyboard Controller** test in **Dell Diagnostics**.
KEYBOARD STUCK KEY FAILURE	For external keyboards or keypads, check the cable connection. Restart the computer, and avoid touching the keyboard or keys during the boot routine. Run the **Stuck Key** test in **Dell Diagnostics**.
LICENSED CONTENT IS NOT ACCESSIBLE IN MEDIADIRECT	Dell MediaDirect cannot verify the Digital Rights Management (DRM) restrictions on the file, so the file cannot be played.
MEMORY ADDRESS LINE FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory module or, if necessary, replace it.
MEMORY ALLOCATION ERROR	The software you are attempting to run is conflicting with the operating system, another program, or a utility. Shut down the computer, wait for 30 seconds, and then restart it. Run the program again. If the error message still appears, see the software documentation.
MEMORY DOUBLE WORD LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory module or, if necessary, replace it.
MEMORY ODD/EVEN LOGIC FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory module or, if necessary, replace it.
MEMORY WRITE/READ FAILURE AT ADDRESS, READ VALUE EXPECTING VALUE	A memory module may be faulty or improperly seated. Reinstall the memory module or, if necessary, replace it.
NO BOOT DEVICE AVAILABLE	The computer cannot find the hard drive. If the hard drive is your boot device, ensure that the drive is installed, properly seated, and partitioned as a boot device.
NO BOOT SECTOR ON HARD DRIVE	The operating system may be corrupted, Contact Dell.
NO TIMER TICK INTERRUPT	A chip on the system board may be malfunctioning. Run the **System Set** tests in **Dell Diagnostics**.
NOT ENOUGH MEMORY OR RESOURCES. EXIT SOME PROGRAMS AND TRY AGAIN	You have too many programs open. Close all windows and open the program that you want to use.
OPERATING SYSTEM NOT FOUND	Reinstall the operating system. If the problem persists, Contact Dell.
OPTIONAL ROM BAD CHECKSUM	The optional ROM has failed. Contact Dell.
SECTOR NOT FOUND	The operating system cannot locate a sector on the hard drive. You may have a defective sector or corrupted File Allocation Table (FAT) on the hard drive. Run the Windows error-checking utility to check the file structure on the hard drive. See **Windows Help and Support** for instructions (click **Start** > **Help and Support**). If a large number of sectors are defective, back up the data (if possible), and then format the hard drive.
SEEK ERROR	The operating system cannot find a specific track on the hard drive.
SHUTDOWN FAILURE	A chip on the system board may be malfunctioning. Run the **System Set** tests in **Dell Diagnostics**. If the message reappears, Contact Dell.
TIME-OF-DAY CLOCK LOST POWER	System configuration settings are corrupted. Connect your computer to an electrical outlet to charge the battery. If the problem persists, try to restore the data by entering the System Setup program, then immediately exit the program. If the message reappears, Contact Dell.

Error messages	Description
TIME-OF-DAY CLOCK STOPPED	The reserve battery that supports the system configuration settings may require recharging. Connect your computer to an electrical outlet to charge the battery. If the problem persists, Contact Dell.
TIME-OF-DAY NOT SET-PLEASE RUN THE SYSTEM SETUP PROGRAM	The time or date stored in the system setup program does not match the system clock. Correct the settings for the **Date and Time** options.
TIMER CHIP COUNTER 2 FAILED	A chip on the system board may be malfunctioning. Run the **System Set** tests in **Dell Diagnostics**.
UNEXPECTED INTERRUPT IN PROTECTED MODE	The keyboard controller may be malfunctioning, or a memory module may be loose. Run the **System Memory** tests and the **Keyboard Controller** test in **Dell Diagnostics** or Contact Dell.
X:\ IS NOT ACCESSIBLE. THE DEVICE IS NOT READY	Insert a disk into the drive and try again.

Identifier GUID-602C06E2-7AF7-4CD3-9446-4F5A4064DC18
Status Released

System error messages

GUID-602C06E2-7AF7-4CD3-9446-4F5A4064DC18

Table 5. System error messages

System message	Description
Alert! Previous attempts at booting this system have failed at checkpoint [nnnn]. For help in resolving this problem, please note this checkpoint and contact Dell Technical Support	The computer failed to complete the boot routine three consecutive times for the same error.
CMOS checksum error	RTC is reset, **BIOS Setup** default has been loaded.
CPU fan failure	CPU fan has failed.
System fan failure	System fan has failed.
Hard-disk drive failure	Possible hard disk drive failure during POST.
Keyboard failure	Keyboard failure or loose cable. If reseating the cable does not solve the problem, replace the keyboard.
No boot device available	No bootable partition on hard disk drive, the hard disk drive cable is loose, or no bootable device exists. · If the hard drive is your boot device, ensure that the cables are connected and that the drive is installed properly and partitioned as a boot device. · Enter system setup and ensure that the boot sequence information is correct.
No timer tick interrupt	A chip on the system board might be malfunctioning or motherboard failure.
NOTICE - Hard Drive SELF MONITORING SYSTEM has reported that a parameter has exceeded its normal operating range. Dell recommends that you back up your data regularly. A parameter out of range may or may not indicate a potential hard drive problem	S.M.A.R.T error, possible hard disk drive failure.

5

Identifier	GUID-BE16C181-0959-44C3-B434-E44A0A602A4C
Status	Released

Getting help

Topics:

- Contacting Dell

Identifier	GUID-7A3627F9-0363-4515-A1D4-1B7878F4B8C4
Status	Released

Contacting Dell

GUID-7A3627F9-0363-4515-A1D4-1B7878F4B8C4

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Go to **Dell.com/support.**
2. Select your support category.
3. Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4. Select the appropriate service or support link based on your need.