

# ThinkCentre<sup>®</sup>

## M810z



## User Guide and Hardware Maintenance Manual

### Machine Type (MT):

10NX, 10NY, 10Q0, 10Q1, 10Q2, 10RM, 10RQ

### Energy Star MT:

10NX, 10NY, 10Q0, 10Q1, 10Q2, 10RM, 10RQ

### Overview



Locations of indicators, connectors, and controls provided on your computer



### Specifications



Specifications of your computer



### Locking the computer



Locking devices for your computer



### Replaceable parts



Locations of the replaceable parts on your computer



### Replacing CRUs



Replacing instructions for Customer Replaceable Units (CRUs)



### Replacing FRUs



Replacing instructions for Field Replaceable Units (FRUs) (for technicians only)



# Contents

## Overview ..... 3

Front view.....	3
Rear view.....	5
System board.....	7
Adjusting the tilt-only stand.....	9
Adjusting the UltraFlex II Stand.....	9
Machine type and model label.....	10

## Specifications..... 11

## Locking the computer..... 12

Attaching a Kensington-style cable lock.....	12
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## Replacing hardware..... 13

Before replacing hardware.....	13
Handling static-sensitive devices.....	13
Knowing replaceable parts.....	14
Customer-Replaceable Units (CRUs).....	14
Field-Replaceable Units (FRUs).....	14
CRUs and FRUs locations.....	15

## Replacing CRUs..... 19

Before replacing CRUs.....	19
Replacing the wireless keyboard.....	20
Replacing the wireless mouse.....	21
Replacing the power cord.....	23
Replacing the computer stand.....	24
Removing the computer cover.....	26
Replacing the 2.5-inch storage drive.....	27
Replacing the control button board.....	29
Completing the parts replacement.....	30

## Replacing FRUs ..... 31

Before replacing FRUs.....	31
Replacing the system board shield.....	34
Replacing the VESA mount bracket.....	35
Replacing the power supply assembly.....	36
Replacing the optical drive.....	38
Replacing the integrated camera.....	40
Replacing the cover presence switch.....	41
Replacing the system fan.....	42
Replacing the I/O bracket.....	44
Replacing the internal speakers.....	45
Replacing the Wi-Fi card.....	46
Replacing the Wi-Fi antennas.....	48
Replacing the heat sink.....	49
Replacing the microprocessor.....	50
Replacing the memory module.....	52
Replacing the card reader.....	54
Replacing the M.2 storage drive.....	55
Replacing the serial connector module.....	57
Replacing the coin-cell battery.....	58
Replacing the system board.....	60
Replacing the LCD panel.....	62

## Notices & Trademarks ..... 65

Notices.....	65
Trademarks.....	66

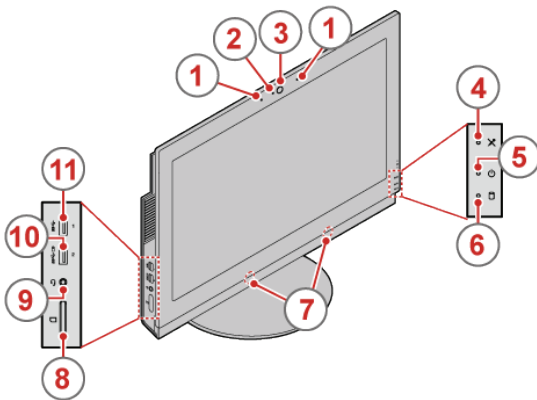
# Overview

## Front view

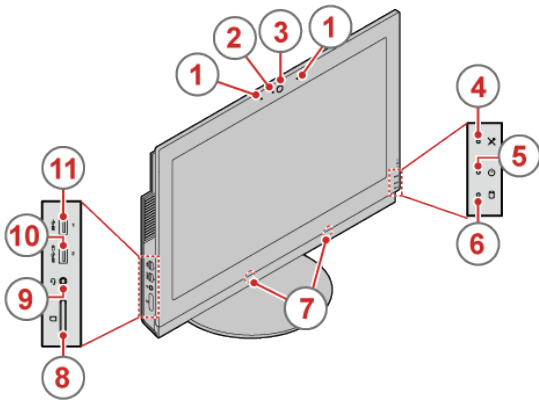


### Note

Your computer model might look slightly different from the illustration.



- 1 Integrated microphones (2) (optional)**  
Used to record sounds or use speech-recognition software without using a microphone.
- 2 Integrated camera activity indicator (optional)**  
When the indicator is on, the camera is in use.
- 3 Integrated camera (optional)**  
Used to take pictures or hold a video conference.
- 4 Microphone-mute indicator**  
When the microphone-mute indicator is on, the microphones are muted.
- 5 Power indicator**  
When the indicator is on, the computer is on.
- 6 Storage drive activity indicator**  
When the indicator is on, the storage drives are in use.
- 7 Internal speakers (2)**  
Used to listen to the sounds from your computer without using a headset or headphones.
- 8 Card reader slot (optional)**  
Used to read data from a supported memory card.
- 9 Headset connector**  
Used to connect a headset or headphones to your computer.



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**10 Always On USB 3.0 connector (for rapid charge)**

Used to connect a device that requires a USB 2.0 or USB 3.0 connection, such as a keyboard, a mouse, a scanner, a printer, or a personal digital assistant (PDA). With the ac power adapter connected, you can charge the automatically detected device even when the computer is in hibernation mode or turned off. If the Always On USB connector function is not enabled, open the Power Manager program and enable the function. To enable the Always On USB connector, refer to the help system of the Power Manager program.

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**11 USB 3.0 connector**

Used to connect a USB-compatible device, such as a USB keyboard, mouse, scanner, printer, or personal digital assistant (PDA). For optimal data transfer, connect a USB 3.0 device to a USB 3.0 connector instead of a USB 2.0 connector.

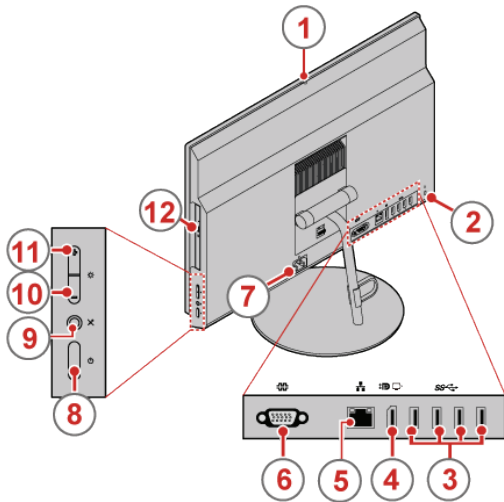
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# Rear view



## Note

Your computer model might look slightly different from the illustration.



### 1 Integrated camera shield control slider (optional)

Used to block the integrated camera.

### 2 Security-lock slot

Used to secure a Kensington-style cable lock.

### 3 USB 3.0 connectors (4)

Used to connect a USB-compatible device, such as a USB keyboard, mouse, scanner, printer, or personal digital assistant (PDA). For optimal data transfer, connect a USB 3.0 device to a USB 3.0 connector instead of a USB 2.0 connector.

### 4 DisplayPort®-out connector

Used to connect a high-performance monitor, a direct-drive monitor, or other devices that use a DisplayPort connector.

### 5 Ethernet connector

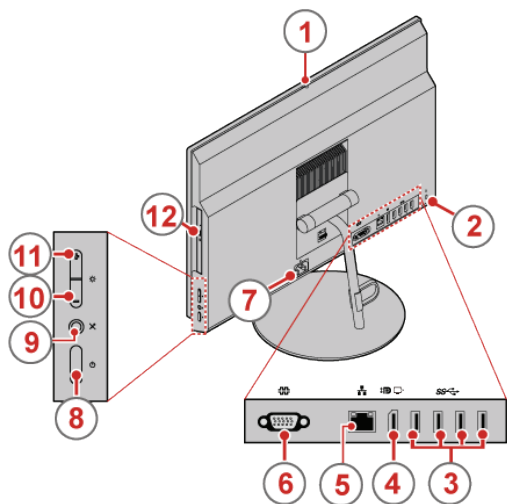
Used to connect an Ethernet cable for network access.

### 6 Serial connector (optional)

Used to connect an external modem, a serial printer, or other devices that use a 9-pin serial connector.

### 7 Power cord connector

Used to connect the power cord to your computer for power supply.



- 
- 8 Power button**  
Used to turn on your computer. You also can use the power button to turn off your computer only when you cannot use any Microsoft® Windows® shutdown procedure to turn off your computer.

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  - 9 Microphone-mute button**  
Used to mute or unmute the microphones.

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  - 10 Brightness-down control**  
Used to decrease the brightness.

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  - 11 Brightness-up control**  
Used to increase the brightness.

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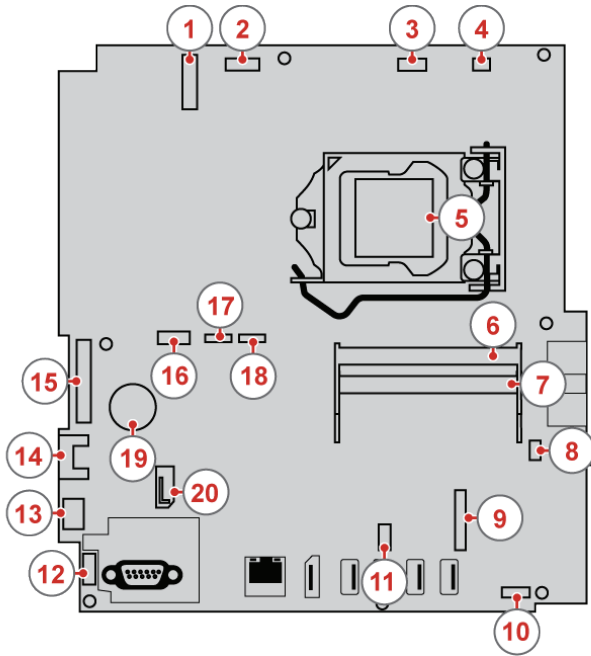
  - 12 Optical drive eject/close button**  
Used to eject the tray of the optical drive from the drive. After you insert a disc into the tray, press the eject/close button to close the tray.
-

# System board

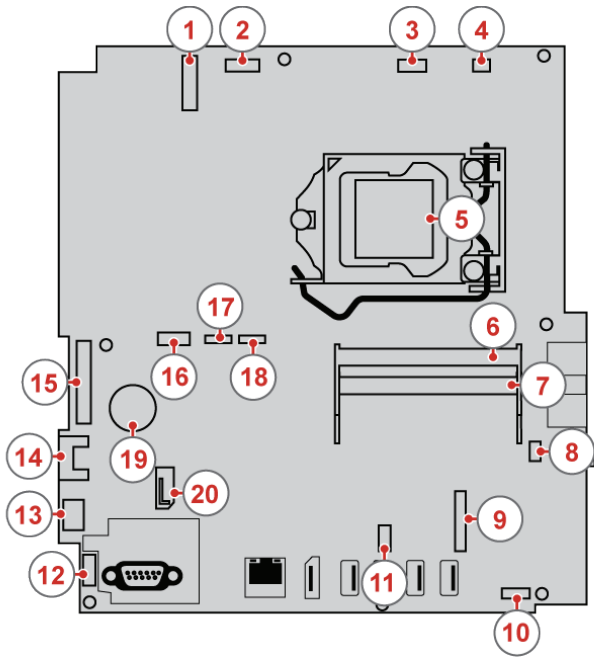


## Note

See [Front view](#) or [Rear view](#) for additional component descriptions.



- ① M.2 Wi-Fi card slot
- ② Converter board connector
- ③ Integrated camera connector
- ④ Cover presence switch connector (Intrusion switch connector)
- ⑤ Microprocessor
- ⑥ Memory slot (DIMM1)
- ⑦ Memory slot (DIMM2)
- ⑧ Card reader connector
- ⑨ M.2 storage drive slot
- ⑩ Internal speaker connector
- ⑪ Serial (COM2) connector
- ⑫ Control button board connector
- ⑬ Power supply assembly connector



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- 14 SATA 3.0 connector (for connecting a storage drive)

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  - 15 LCD panel signal connector

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  - 16 SATA power connector

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  - 17 System fan connector

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  - 18 Touch board connector

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  - 19 Coin-cell battery

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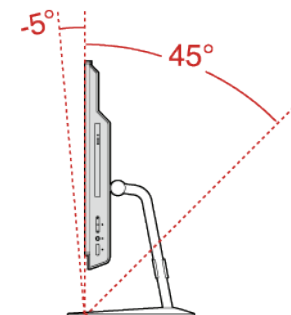
  - 20 SATA 3.0 connector (for connecting an optical drive or a secondary storage drive)
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## Adjusting the tilt-only stand



### Note

The tilt-only stand is available only on some models.



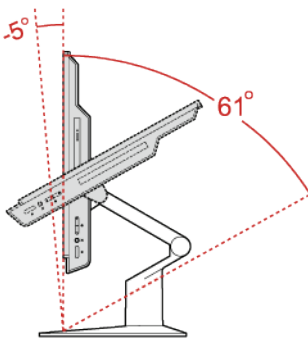
Adjust the vertical position of the computer between 5° forward and 45° back.

## Adjusting the UltraFlex II Stand

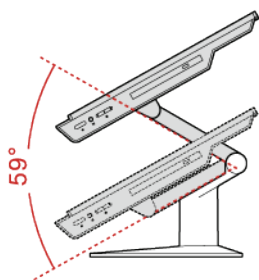


### Note

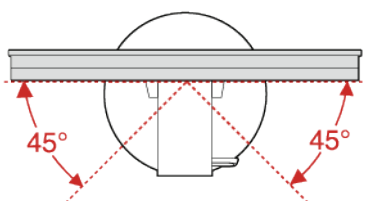
The UltraFlex II Stand is available only on some models.



Adjust the vertical position of the computer between 5° forward and 61° back.



After tilting your computer back, you can adjust the UltraFlex II Stand downward by up to 59°.

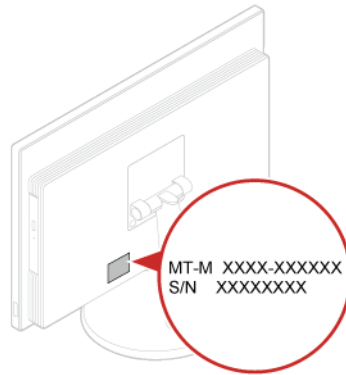


Turn the computer at an angle of 45° to the left and 45° to the right.

# Machine type and model label

The machine type and model label identifies your computer. When you contact Lenovo for help, the machine type and model information helps support technicians to identify your computer and provide faster service.

The machine type and model label is attached on the rear side of your computer as shown.



# Specifications

<b>Power supply</b>	<ul style="list-style-type: none"><li>• 150 watt automatic voltage-sensing power supply</li><li>• 180 watt automatic voltage-sensing power supply (optional)</li></ul>
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<b>Storage drives</b>	Up to two storage drives
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<b>Video features</b>	<ul style="list-style-type: none"><li>• DisplayPort-out connector</li></ul>
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<b>Audio features</b>	<p>The integrated audio card supports the following:</p> <ul style="list-style-type: none"><li>• Headset connector</li><li>• Integrated microphone (optional)</li><li>• Internal speaker</li></ul>
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<b>Input/Output (I/O) features</b>	<ul style="list-style-type: none"><li>• Card reader slot (optional)</li><li>• DisplayPort-out connector</li><li>• Ethernet connector</li><li>• Headset connector</li><li>• Serial connector (optional)</li><li>• USB connector</li></ul>
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<b>Expansion</b>	<ul style="list-style-type: none"><li>• Card reader (optional)</li><li>• Memory slots</li><li>• Optical drive (optional)</li><li>• Storage drive bay</li></ul>
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<b>Network features</b>	<ul style="list-style-type: none"><li>• Ethernet LAN</li><li>• Wireless LAN (optional)</li><li>• Bluetooth (optional)</li></ul>
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<b>Physical dimensions</b>	<ul style="list-style-type: none"><li>• Width: 535 mm (21.1 inches)</li><li>• Height: 363 mm (13.5 inches)</li><li>• Depth: 45 mm (1.5 inches)</li></ul>
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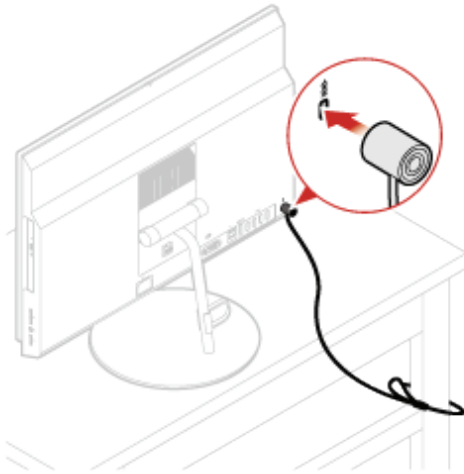
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<b>Weight (without the package)</b>	<ul style="list-style-type: none"><li>• Maximum configuration as shipped: 9.2 kg (20.3 lb)</li></ul>
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# Locking the computer

## Attaching a Kensington-style cable lock



You can use a Kensington-style cable lock to secure your computer to a desk, table, or other nonpermanent fixture. The cable lock connects to the security-lock slot at the rear of your computer. Depending on the type selected, the cable lock can be operated with a key or combination. The cable lock also locks the buttons used to open the computer cover. This is the same type of lock used with many notebook computers. You can order such a cable lock directly from Lenovo by searching for Kensington at: <http://www.lenovo.com/support>.

# Replacing hardware

## Before replacing hardware



### Attention

Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

Read these notes before replacing hardware:

- Some of the hardware components explained in this manual are optional.
- Use computer components provided only by Lenovo.
- When installing or replacing an option, use the appropriate instructions explained in this manual along with the instructions that come with the option.
- In most areas of the world, Lenovo requires the return of defective Customer Replaceable Units (CRUs). Information about this will come with the CRU or will come a few days after the CRU arrives.

## Handling static-sensitive devices

Do not open the static-protective package containing the new component until the defective component has been removed and you are ready to install the new component. Static electricity, although harmless to you, can seriously damage computer components.

When you handle parts and other computer components, take these precautions to avoid static damage:

- Limit your movement. Movement can cause static electricity to build up around you.
- Always handle computer components carefully. Handle PCI/PCI-Express cards, memory modules, system boards, and microprocessors by the edges. Never touch any exposed circuitry.
- Prevent others from touching the parts and other computer components.
- Touch the anti-static package containing the component to a metal expansion-slot cover or other unpainted metal surface on the computer for at least two seconds. This reduces static electricity from the package and your body before you install or replace a component.
- When possible, remove the new component from the anti-static package, and install it directly in the computer without setting the part down. When this is not possible, place the anti-static package that the component came in on a smooth, level surface and place the component on the package.
- Do not place the component on the computer cover or any other metal surface.

# Knowing replaceable parts

## Customer-Replaceable Units (CRUs)

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CRUs are computer parts that a user can upgrade or replace. There are two types of CRUs: self-service and optional-service.

### Self-service CRUs

You can install self-service CRUs easily. These CRUs might be standalone, latched, or secured by up to two screws.

Examples of self-service CRUs include the keyboard, mouse, any USB device, and the power cord. Other self-service CRUs might include memory modules, adapter cards, hard disk drives, and optical drives.



#### Note

Users are responsible for replacing all self-service CRUs.

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### Optional-service CRUs

Handling optional-service CRUs requires some technical skills and simple tools (such as a screwdriver).

These CRUs are isolated parts within the computer. They are usually concealed by an access panel that is secured by more than two screws. You must remove the screws and panel to access the specific CRU.

Optional-service CRUs can be removed and installed by users or, during the warranty period, by a Lenovo service technician.

## Field-Replaceable Units (FRUs)

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FRUs are computer parts that a trained technician can upgrade or replace.

For detailed FRU information, such as the FRU part numbers and supported computer models, go to:

<http://www.lenovo.com/serviceparts-lookup>

## CRUs and FRUs locations

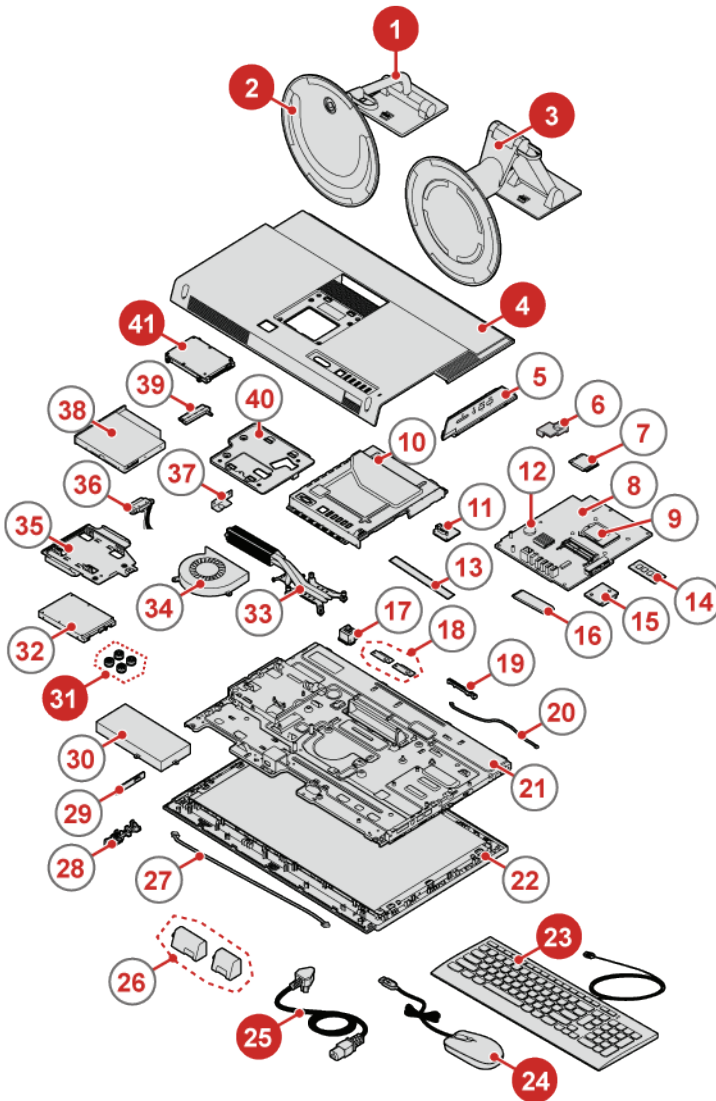
Refer to the following illustrations to check the locations of CRUs and FRUs within the computer.



### Note

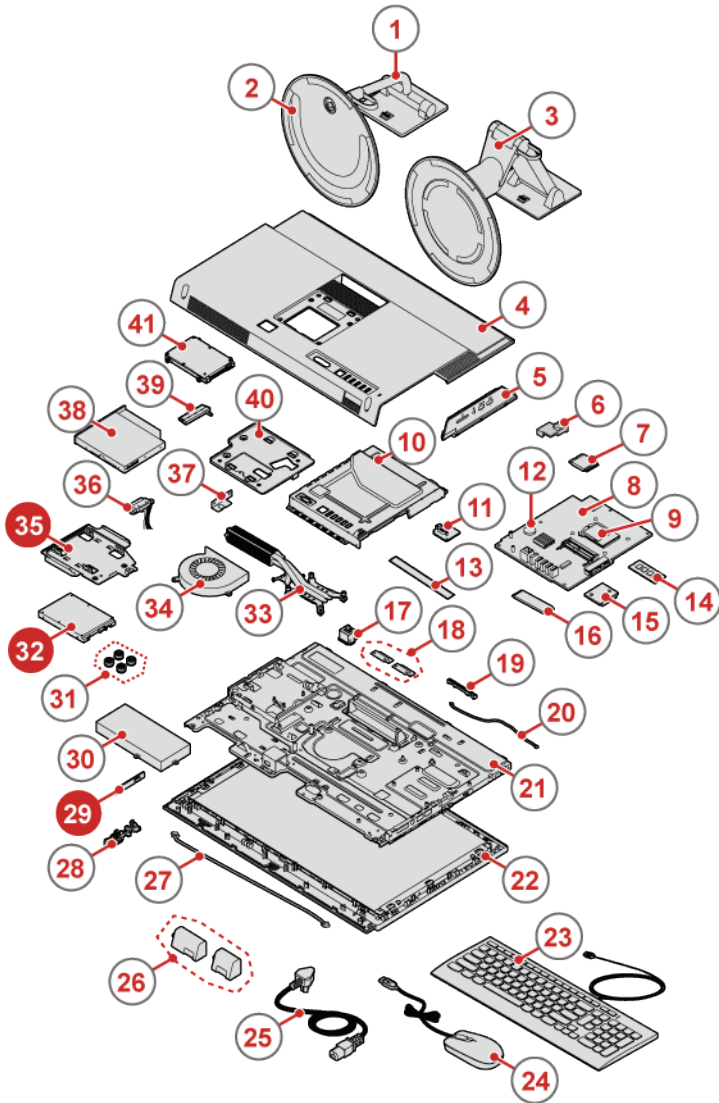
Some of the following parts are optional on some models.

### Self-service CRU



- 1 Tilt-only monitor stand [p. 24](#)
- 2 Tilt-only monitor stand base [p. 24](#)
- 3 UltraFlex II Stand [p. 24](#)
- 4 Computer cover [p. 26](#)
- 23 Keyboard [p. 20](#)
- 24 Mouse [p. 21](#)
- 25 Power cord [p. 23](#)
- 31 Storage drive rubber cushions (4) [p. 27](#)
- 41 Primary storage drive (a 2.5-inch storage drive) [p. 27](#)

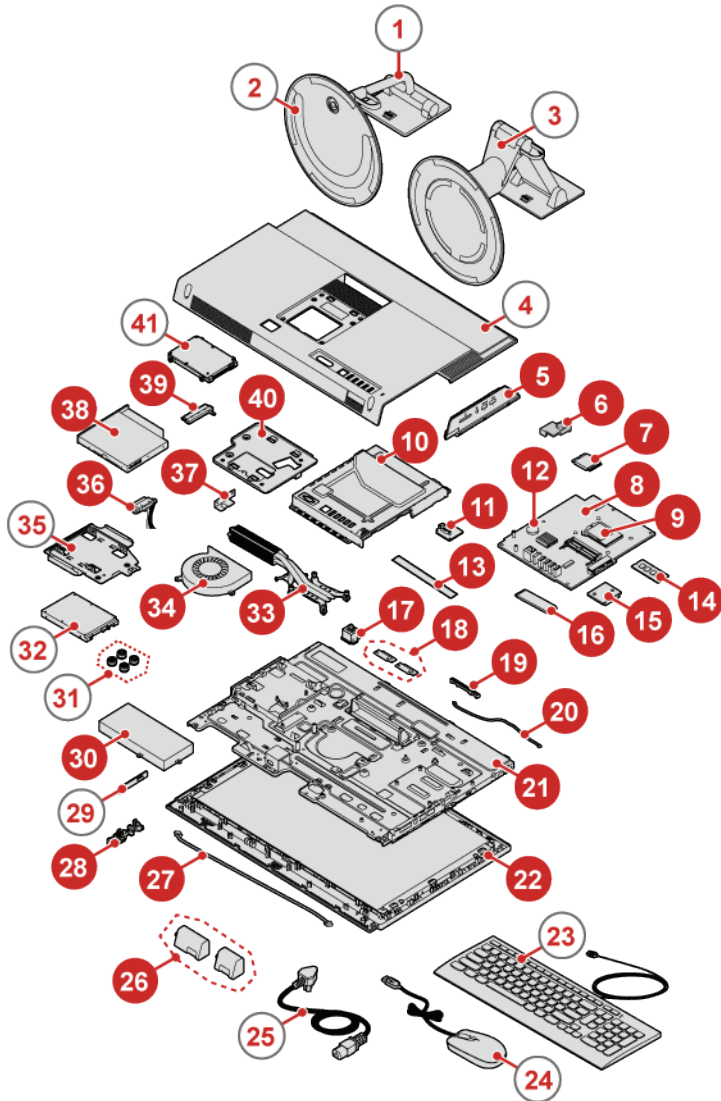
## Optional-service CRU



29 Control button board [p. 29](#)

32 Secondary storage drive  
(a 2.5-inch storage drive) [p. 27](#)

35 Storage drive bracket [p. 27](#)



- 5 I/O bracket [p. 44](#)

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- 6 Wi-Fi card shield [p. 46](#)

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- 7 Wi-Fi card [p. 46](#)

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- 8 System board [p. 60](#)

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- 9 Microprocessor [p. 50](#)

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- 10 System board shield [p. 34](#)

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- 11 Serial connector module [p. 57](#)

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- 12 Coin-cell battery [p. 58](#)

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- 13 Serial connector module cable [p. 57](#)

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- 14 Memory module [p. 52](#)

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- 15 Card reader [p. 54](#)

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- 16 M.2 storage drive [p. 55](#)

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- 17 Cover presence switch [p. 41](#)

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- 18 Wi-Fi antennas [p. 48](#)

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- 19 Integrated camera [p. 40](#)

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- 20 Integrated camera cable [p. 40](#)

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- 21 Chassis

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- 22 LCD panel [p. 62](#)

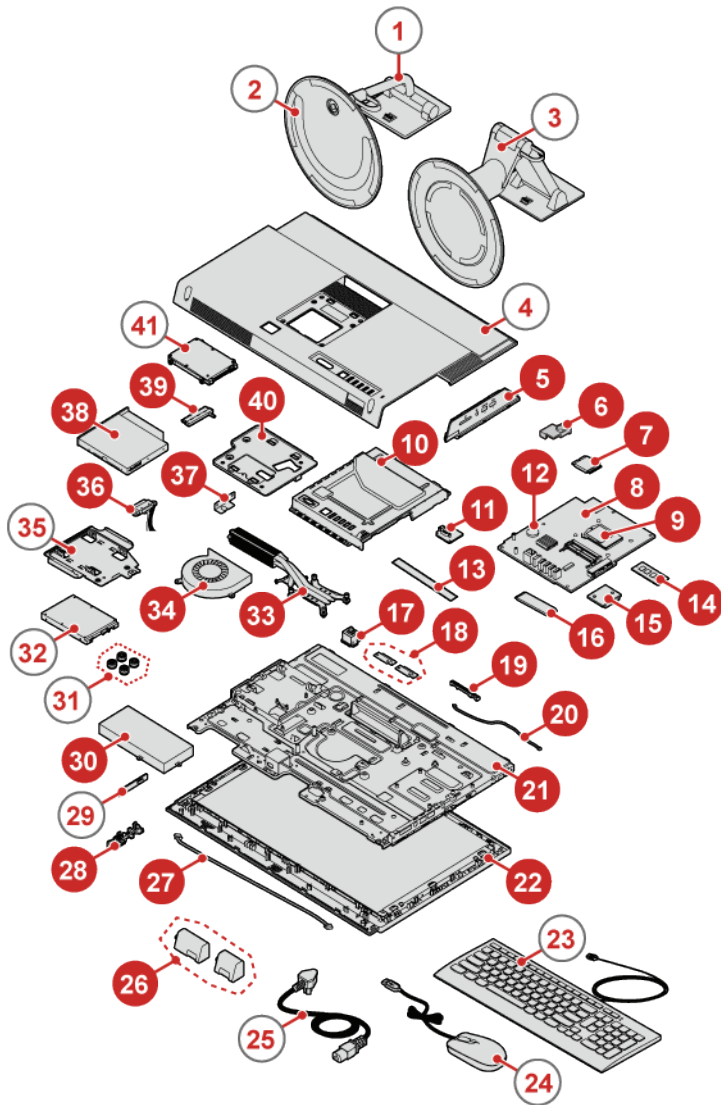
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- 26 Internal speakers [p. 45](#)

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- 27 Control button board cable [p. 29](#)

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- **28** Control button board holder
- **30** Power supply assembly [p. 36](#)
- **33** Heat sink [p. 49](#)
- **34** System fan [p. 42](#)
- **36** SATA cables (for connecting optical drive or secondary storage drive) [p. 38](#)
- **37** Optical drive holder [p. 38](#)
- **38** Optical drive [p. 38](#)
- **39** SATA cables (for connecting primary storage drive) [p. 27](#)
- **40** VESA mount bracket [p. 35](#)

# Replacing CRUs

## Before replacing CRUs

Customer Replaceable Units (CRUs) are computer parts that a user can upgrade or replace. There are two types of CRUs: self-service and optional-service.



### Attention

Do not open your computer or attempt any repair before reading the *Important Product Information Guide*.

Before replacing a CRU, click the illustration of the part to check the brief procedures.

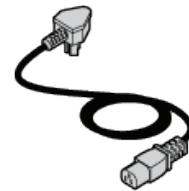
### Keyboard



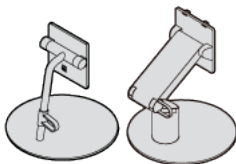
### Mouse



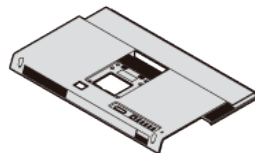
### Power cord



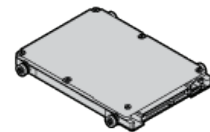
### Computer stand



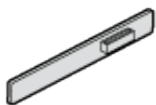
### Computer cover



### 2.5-inch storage drive



### Control button board



### Note

To replace a component that is not in the list above, contact a Lenovo service technician. The support phone numbers are available at <http://www.lenovo.com/support/phone>.

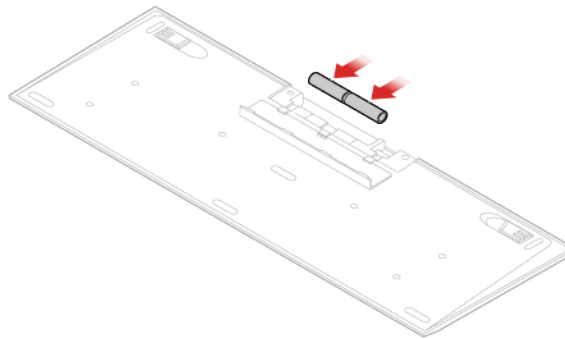
# Replacing the wireless keyboard



## Note

The wireless keyboard is available only on some models.

- 1 Remove your old wireless keyboard.
- 2 Take out the new wireless keyboard from the package.
- 3 Open the battery compartment cover, and install two AAA batteries according to the polarity indicators.



- 4 Remove the USB dongle from the keyboard compartment or from the wireless mouse compartment and connect it to an available USB connector on the computer.
- 5 Close the compartment cover. The keyboard is ready for use.

# Replacing the wireless mouse

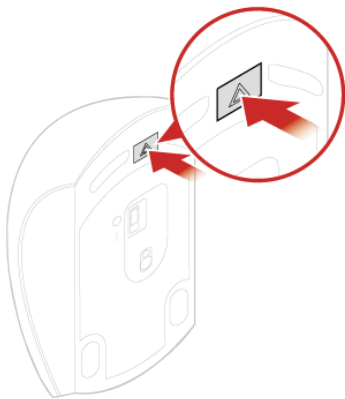


## Note

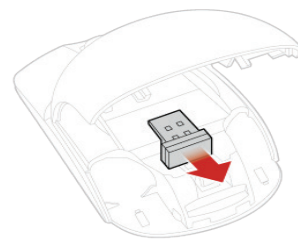
The wireless mouse is available only on some models.

- 1 Disconnect the USB dongle from your computer. Then, remove your old wireless mouse.
- 2 Remove the new wireless mouse from the package.
- 3 Replace the wireless mouse.

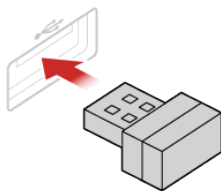
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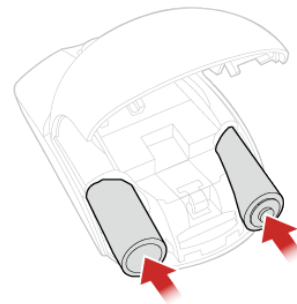
2



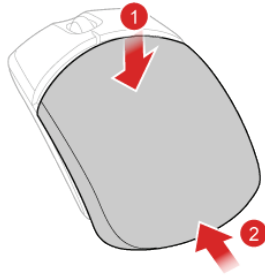
3



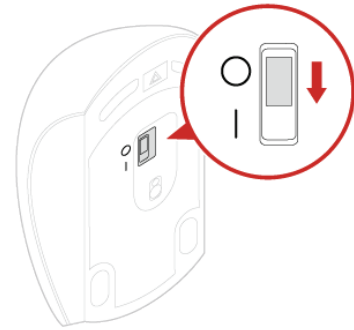
4



5



6



 **Note**

- The green LED indicates that the mouse is ready for use.
- The flashing amber LED indicates a low battery level.
- Push the power switch to the off position when you are not using the mouse to extend the battery life.
- After disconnecting the USB dongle from your computer, store it in the wireless mouse compartment or in the wireless keyboard compartment.

# Replacing the power cord



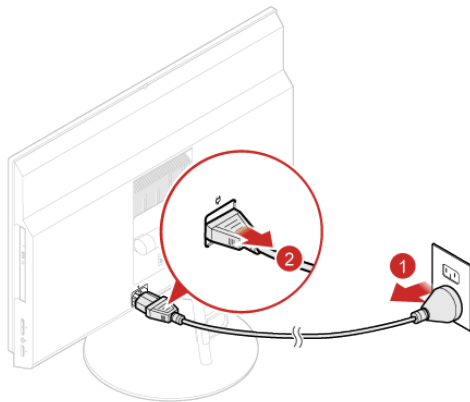
## Attention

Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

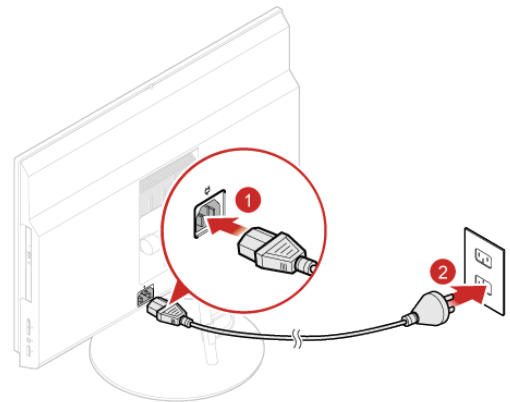
1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.

2 Replace the power cord.

1



2



# Replacing the computer stand



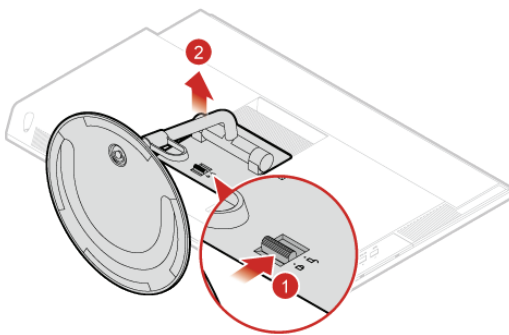
## Note

The computer stand is available only on some models.

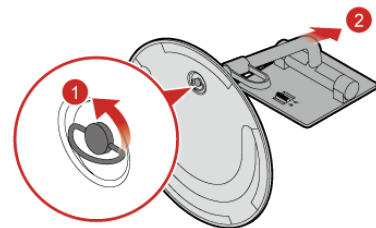
- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Replace the computer stand.

- Tilt-only stand

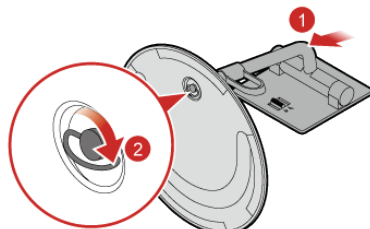
1



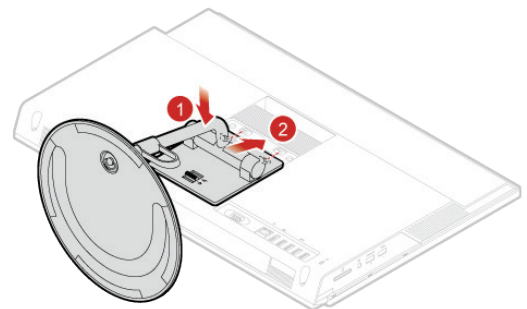
2



3

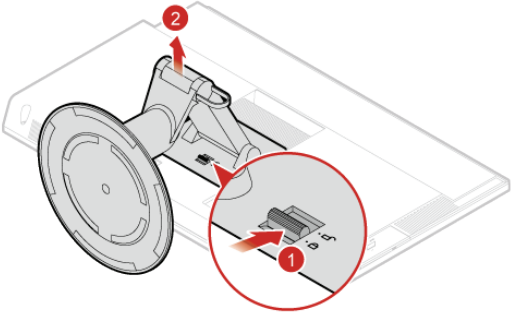


4

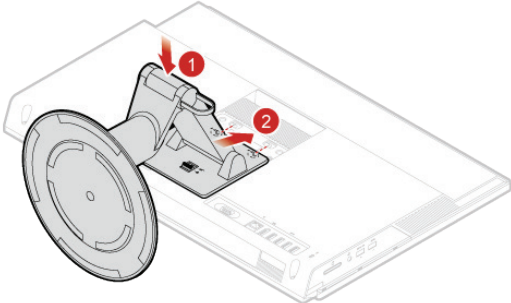


• UltraFlex II Stand

1



2



# Removing the computer cover

## Attention

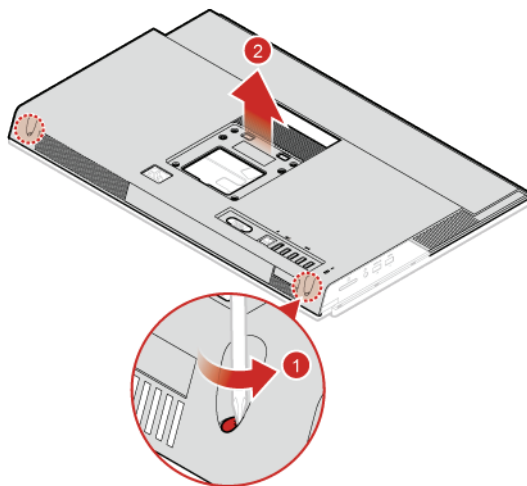
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.



## Caution

Before you open the computer cover, turn off the computer and wait several minutes until the computer is cool.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Unlock any locking device that secures the computer cover.
- 3 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 4 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 5 Remove the computer cover.



# Replacing the 2.5-inch storage drive

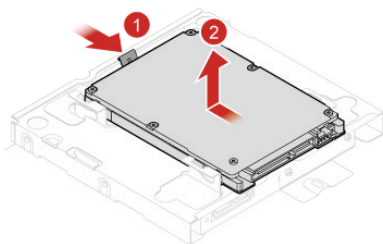


## Attention

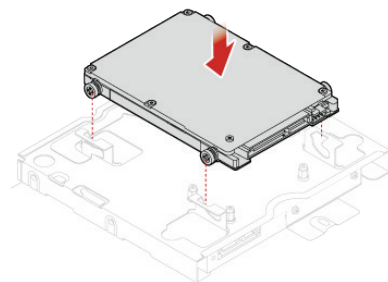
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Disconnect the storage drive cables from the storage drive.
- 6 Replace the 2.5-inch storage drive.
  - The 2.5-inch storage drive in the primary storage drive bay

1

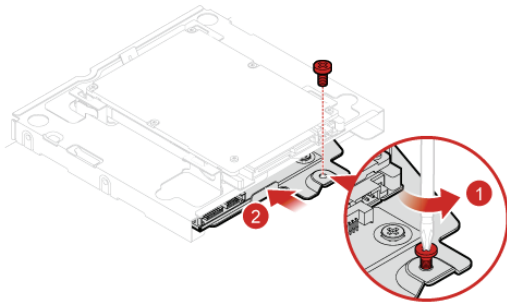


2

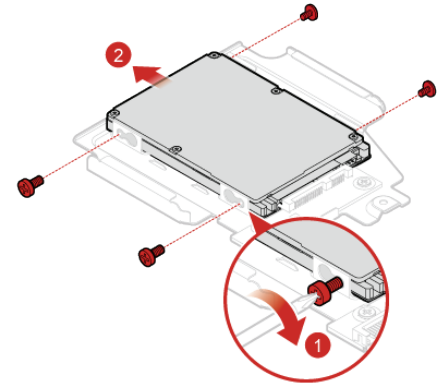


- The 2.5-inch storage drive in the secondary storage drive bay

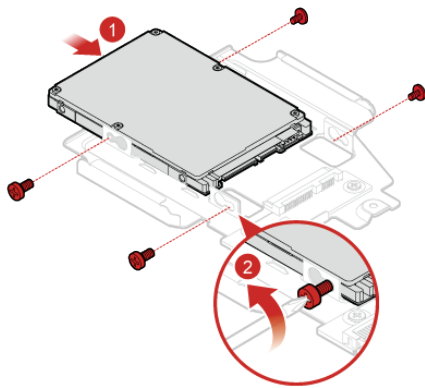
1



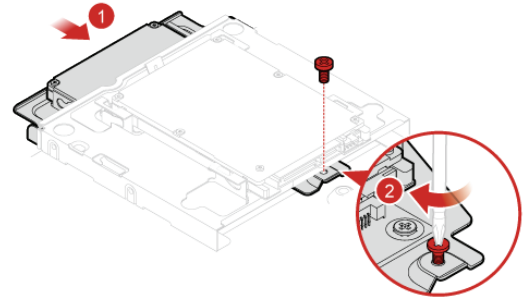
2



3



4



7 Reconnect the control button board cable to the control button board.

8 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the control button board

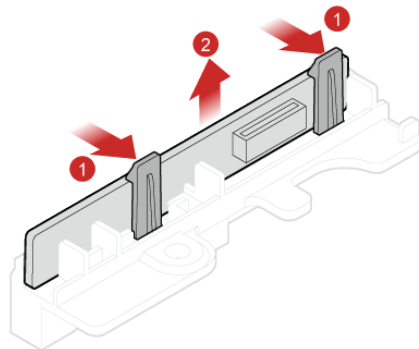


## Attention

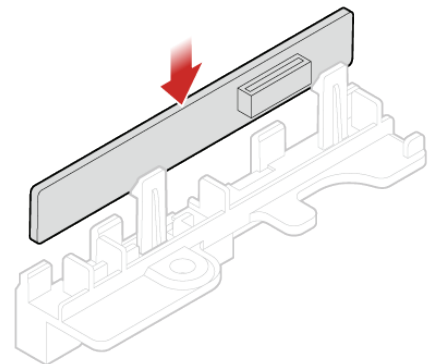
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Disconnect the control button board cable from the control button board.
- 6 Replace the control button board.

1



2



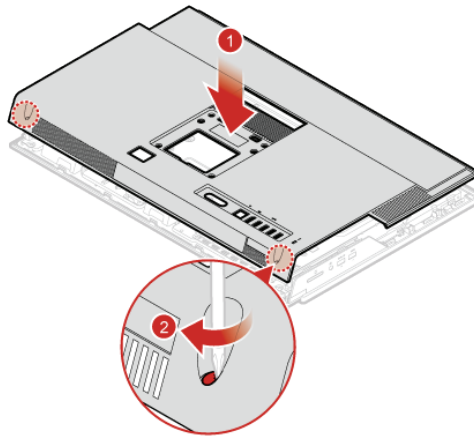
- 7 Reconnect the control button board cable to the control button board.
- 8 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Completing the parts replacement

After completing the installation or replacement for all parts, reinstall the computer cover and reconnect the cables.

To reinstall the computer cover and reconnect the cables to your computer, do the following:

- 1 Ensure that all components have been reassembled correctly and that no tools or loose screws are left inside your computer.
- 2 Ensure that the cables are routed correctly before reinstalling the computer cover. Keep cables clear of the hinges and sides of the computer chassis to avoid interference when reinstalling the computer cover.
- 3 Install the computer cover.



- 4 Install the computer stand. For details, see [Replacing the computer stand.](#)
- 5 Place the computer in an upright position.
- 6 If a locking device is available, use it to lock the computer.
- 7 Reconnect the external cables and power cords to the corresponding connectors on the computer.

# Replacing FRUs

## Before replacing FRUs

Before replacing any Field Replaceable Units (FRUs), read the following:

- **Only certified and trained personnel can service the computer.**
- **Before replacing an FRU, read the entire section on replacing the part.**
- **Be extremely careful during writing operations such as copying, saving, or formatting.**  
The sequence of the drives in the computer that you are servicing might have been altered. If you select an incorrect drive, data or programs might be overwritten.
- **Replace an FRU only with another FRU of the correct model.**  
When you replace an FRU, ensure that the model of the machine and the FRU part number are correct by referring to the website: <http://www.lenovo.com/serviceparts-lookup>
- **An FRU should not be replaced because of a single, unreproducible failure.**  
Single failures can occur for a variety of reasons that have nothing to do with a hardware defect, such as cosmic radiation, electrostatic discharge, or software errors. Consider replacing an FRU only when a problem recurs. If you suspect that an FRU is defective, clear the error log and run the test again. If the error does not recur, do not replace the FRU.
- **Only replace a defective FRU.**

To check the locations of FRUs, see [CRUs and FRUs locations.](#)

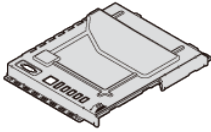


### Attention

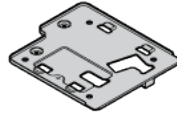
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

Before replacing an FRU, click the illustration of the part to check the brief procedures.

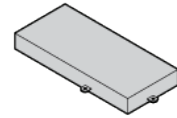
**System board shield**



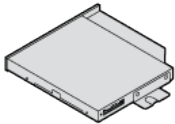
**VESA mount bracket**



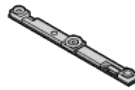
**Power supply assembly**



**Optical drive**



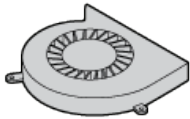
**Integrated camera**



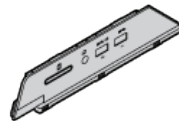
**Cover presence switch**



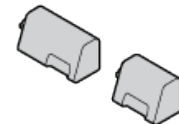
**System fan**



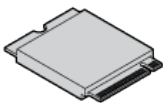
**I/O bracket**



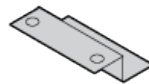
**Internal speakers**



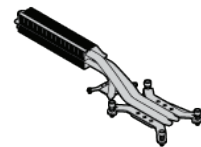
**Wi-Fi card**



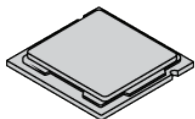
**Wi-Fi antennas**



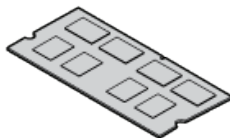
**Heat sink**



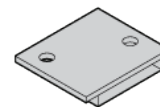
Microprocessor



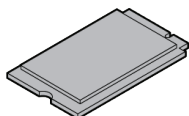
Memory module



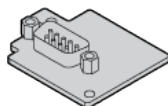
Card reader



M.2 storage drive



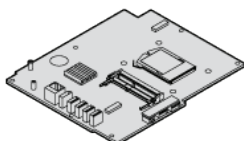
Serial connector module



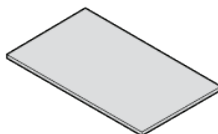
Coin-cell battery



System board



LCD panel



**Note**

To replace a component that is not in the list above, contact a Lenovo service technician. The support phone numbers are available at <http://www.lenovo.com/support/phone>.

# Replacing the system board shield

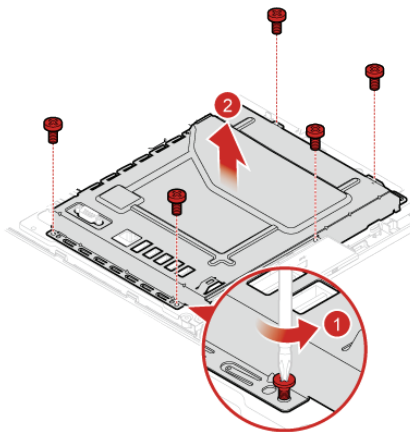


## Attention

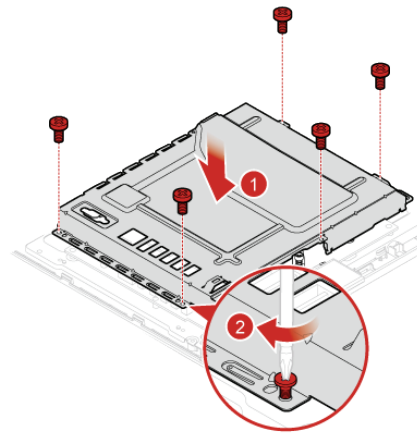
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Replace the system board shield.

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- 6 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the VESA mount bracket

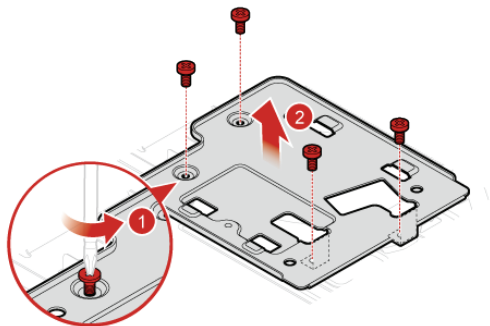


## Attention

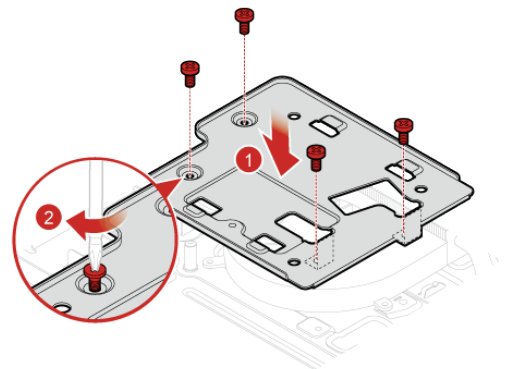
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Replace the VESA mount bracket.

1



2



- 7 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the power supply assembly



## Attention

Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

Although there are no moving parts in your computer after the power cord has been disconnected, the following warnings are required for your safety and proper Underwriters Laboratories (UL) certification.



## Caution

Never remove the cover on a power supply or any part that has the following label attached.

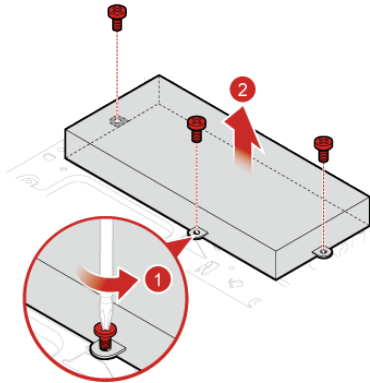


Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

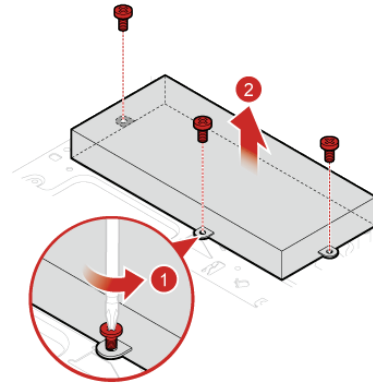
- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Remove the VESA mount bracket. For details, see [Replacing the VESA mount bracket](#).
- 7 Disconnect power supply assembly cables from the power cord connector and system board.

8 Replace the power supply assembly.

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9 Connect the new power supply assembly cables to the power cord connector and the system board.

10 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see **Completing the parts replacement.**

# Replacing the optical drive



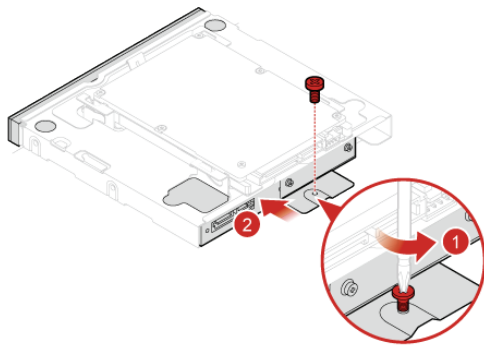
## Attention

Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

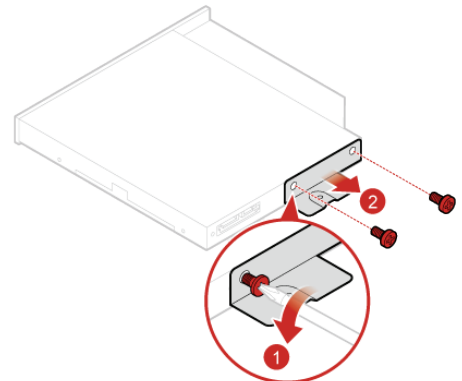
- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Disconnect the signal cable and the power cable from the storage drive.

6 Replace the optical drive.

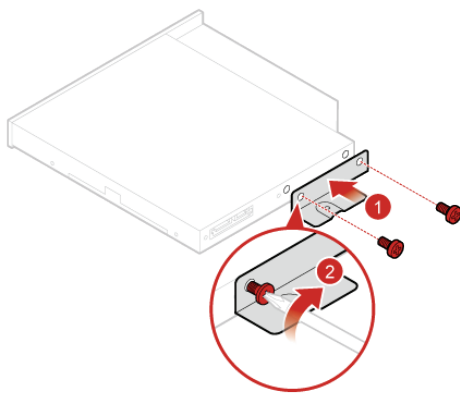
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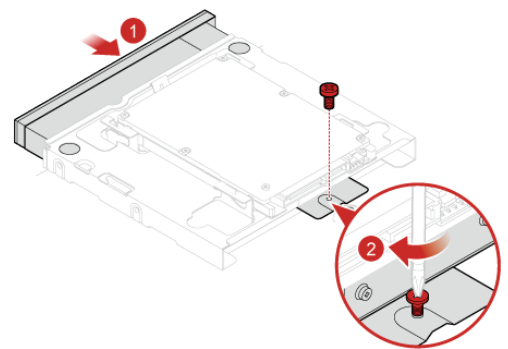
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7 Reconnect the signal cable and the power cable to the storage drive.

8 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

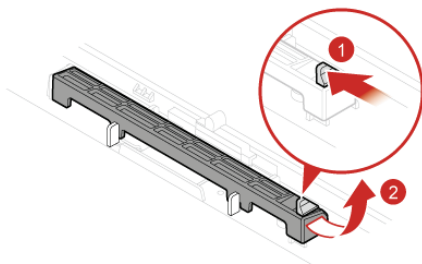
# Replacing the integrated camera

## Attention

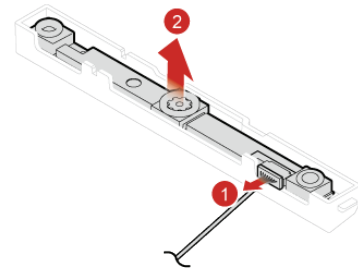
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Replace the integrated camera.

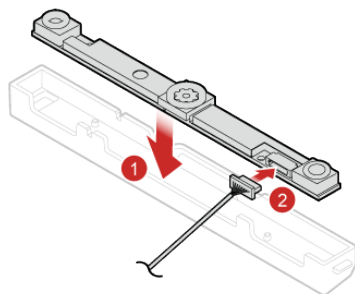
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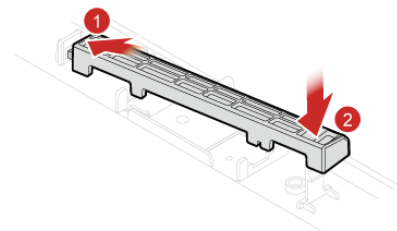
2



3



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- 6 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the cover presence switch

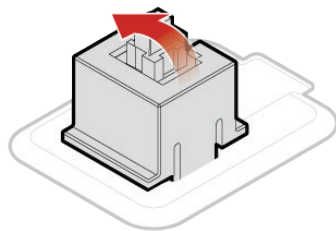


## Attention

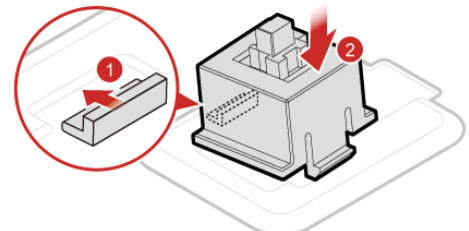
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Disconnect the cover presence switch cable from the system board.
- 7 Replace the cover presence switch.

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- 8 Connect the new cover presence switch cable to the system board.
- 9 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the system fan



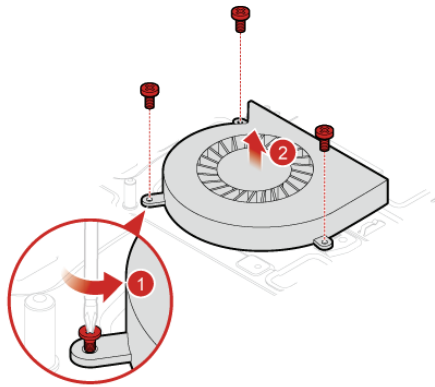
## Attention

Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

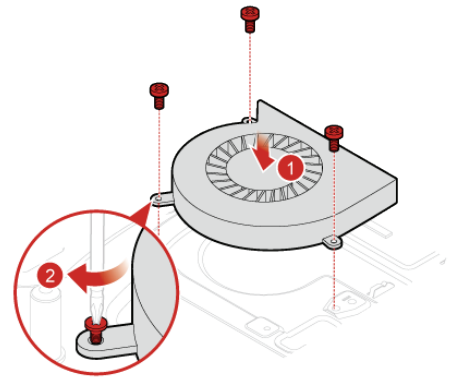
- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Remove the VESA mount bracket. For details, see [Replacing the VESA mount bracket](#).
- 7 Disconnect the system fan cable from the system board.

8 Replace the system fan.

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9 Connect the new system fan cable to the system board.

10 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the I/O bracket

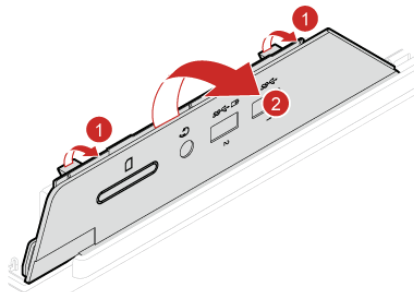


## Attention

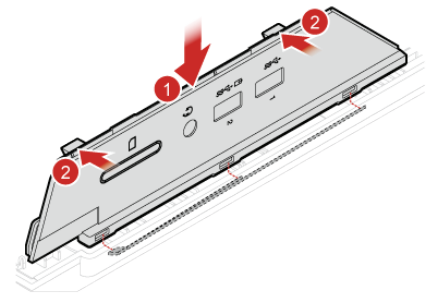
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Replace the I/O bracket.

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- 7 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the internal speakers

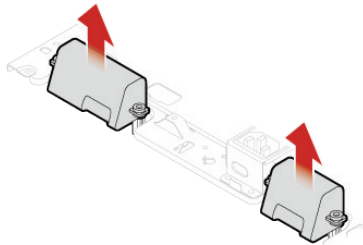


## Attention

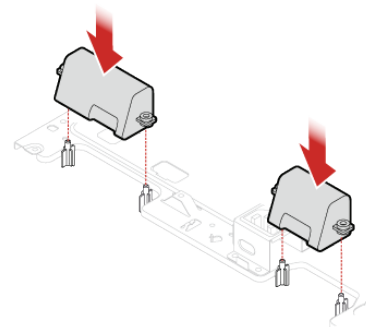
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Disconnect the internal speaker cable from the system board.
- 7 Replace the internal speakers.

1



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- 8 Connect the new internal speaker cable to the system board. For details, see [System board](#).
- 9 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the Wi-Fi card



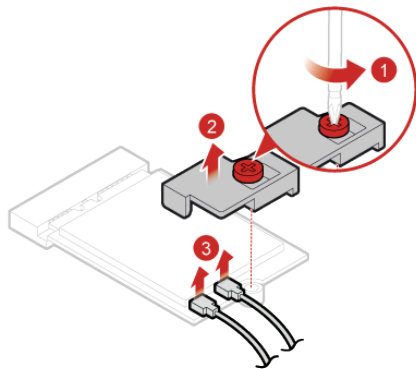
## Attention

Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

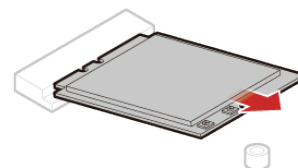
- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Replace the Wi-Fi card.

### • Type1

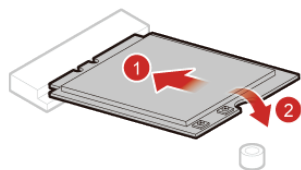
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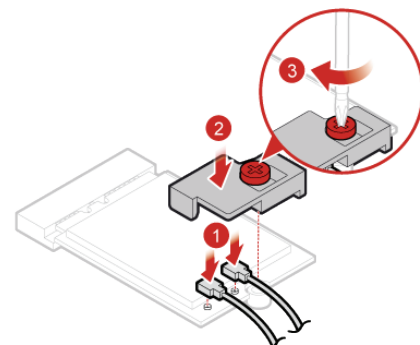
2



3

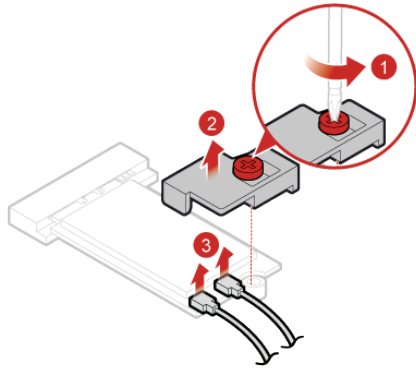


4

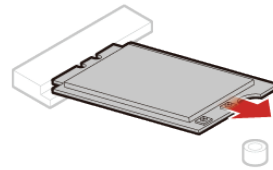


• Type2

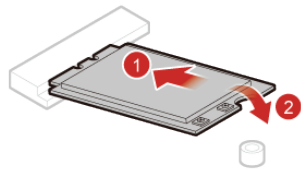
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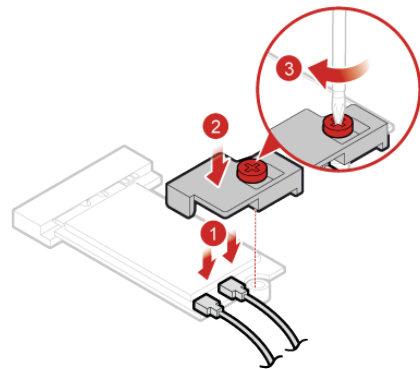
2



3



4



7 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see **Completing the parts replacement.**

# Replacing the Wi-Fi antennas

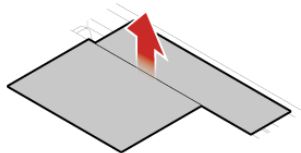


## Attention

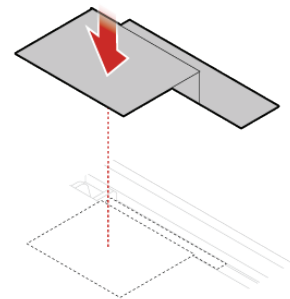
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Remove the Wi-Fi card shield and disconnect the antenna cables from the Wi-Fi card. For details, see [Replacing the Wi-Fi card](#).
- 7 Replace the Wi-Fi antennas.

1



2



- 8 Connect the new antenna cables to the Wi-Fi card and reinstall the Wi-Fi card shield. For details, see [Replacing the Wi-Fi card](#).
- 9 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the heat sink

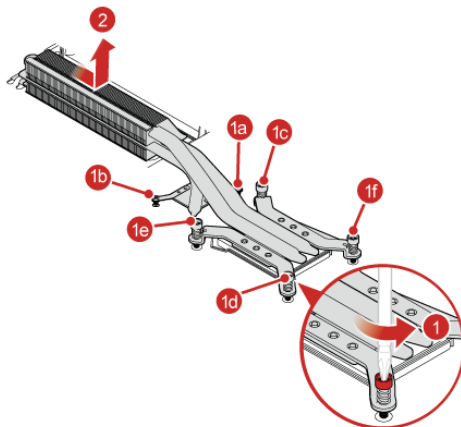


## Attention

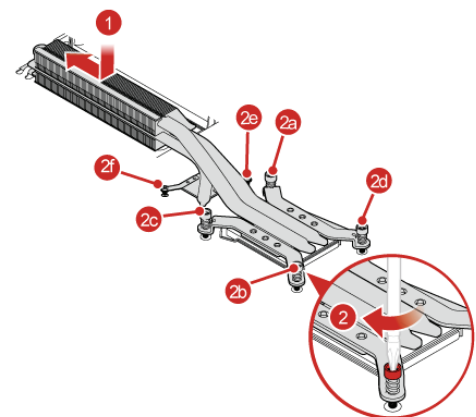
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Replace the heat sink.

1



2



- 7 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the microprocessor



## Attention

Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

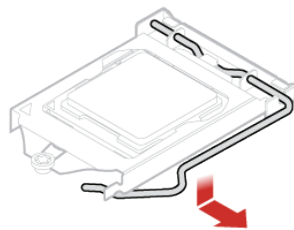
- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Remove the heat sink. For details, see [Replacing the heat sink](#).
- 7 Replace the microprocessor.



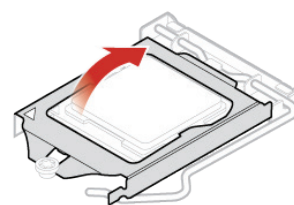
## Note

- Your microprocessor and socket might look different from the one illustrated.
- Touch only the edges of the microprocessor. Do not touch the gold contacts on the bottom.
- Do not drop anything onto the microprocessor socket while it is exposed. The socket pins must be kept as clean as possible.

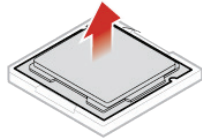
1



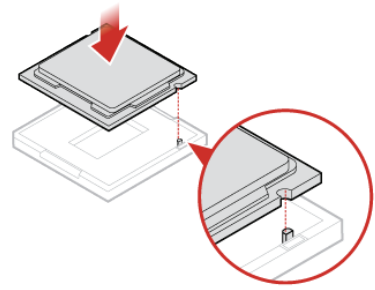
2



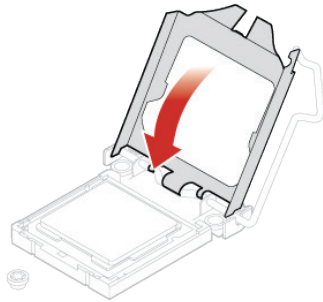
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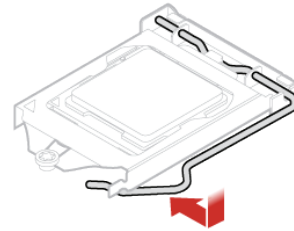
4



5



6



8

Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the memory module



## Attention

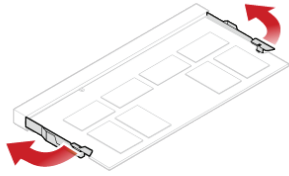
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

If your computer supports one memory module, install the module into the DIMM 1 slot. If your computer supports two memory modules, install one memory module into the DIMM 1 slot first and then install the other into the DIMM 2 slot.

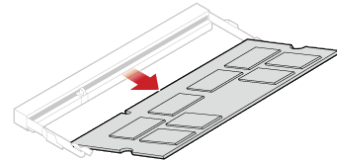
- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand.](#)
- 4 Remove the computer cover. For details, see [Removing the computer cover.](#)
- 5 Remove the system board shield. For details, see [Replacing the system board shield.](#)

6 Replace the memory module.

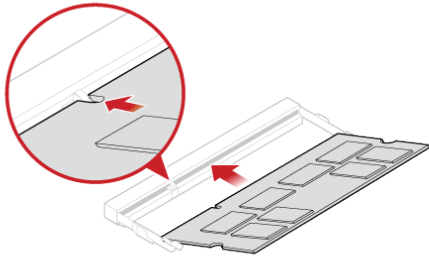
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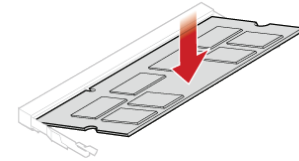
2



3



4



7 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the card reader

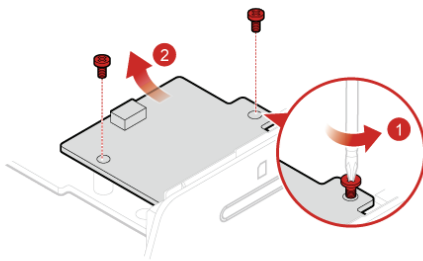


## Attention

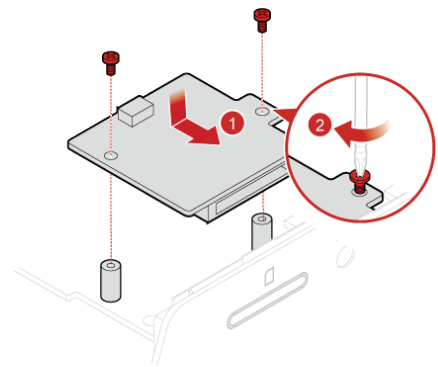
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Disconnect the card reader cable from the card reader.
- 7 Replace the card reader.

1



2



- 8 Reconnect the the card reader cable to the card reader.
- 9 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the M.2 storage drive



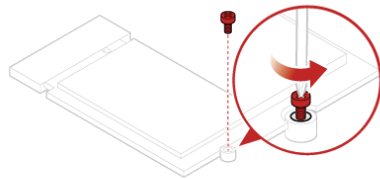
## Attention

Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

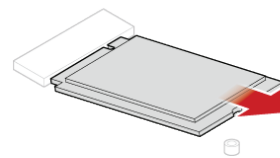
- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Replace the M.2 storage drive.

- Type1

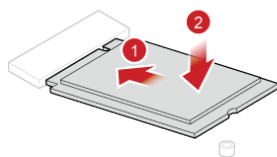
1



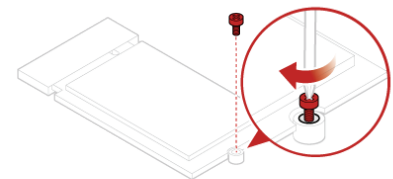
2



3

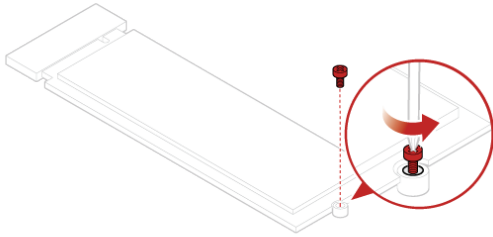


4

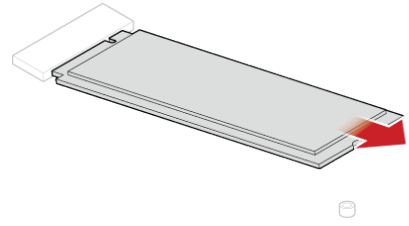


• Type2

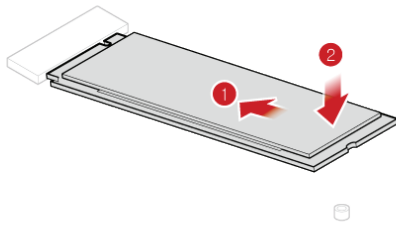
1



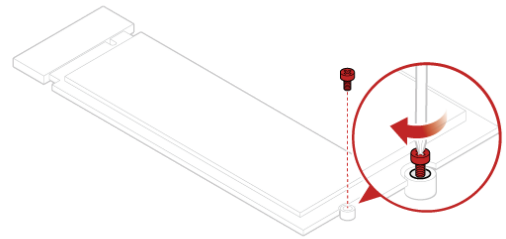
2



3



4



7 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the serial connector module

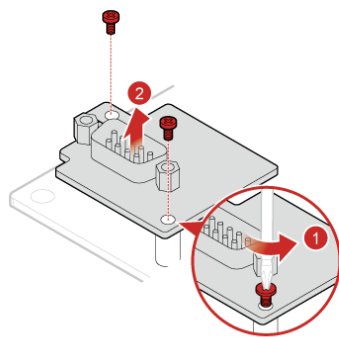


## Attention

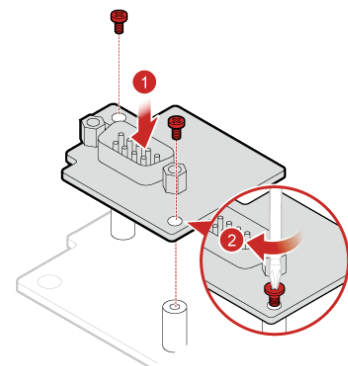
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Disconnect the serial connector module cable from the serial connector module.
- 7 Replace the serial connector module.

1



2



- 8 Reconnect the the serial connector module cable to the serial connector module.
- 9 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the coin-cell battery



## Attention

Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

Your computer has a special type of memory that maintains the date, time, and settings for built-in features, such as parallel connector assignments (configurations). A coin-cell battery keeps this information active when you turn off the computer.

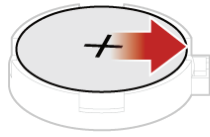
The coin-cell battery normally requires no charging or maintenance throughout its life; however, no coin-cell battery lasts forever. If the coin-cell battery fails, the date, time, and configuration information (including passwords) are lost. An error message is displayed when you turn on the computer.

To replace the coin-cell battery,

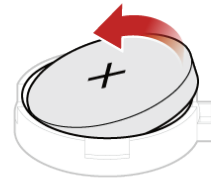
- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).

6 Replace the coin-cell battery.

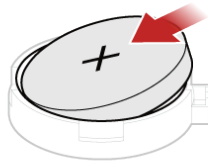
1



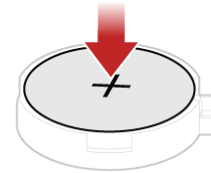
2



3



4



7 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

To dispose of the coin-cell battery, refer to the “Lithium coin-cell battery notice” in the *Safety and Warranty Guide*.

# Replacing the system board



## Attention

Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

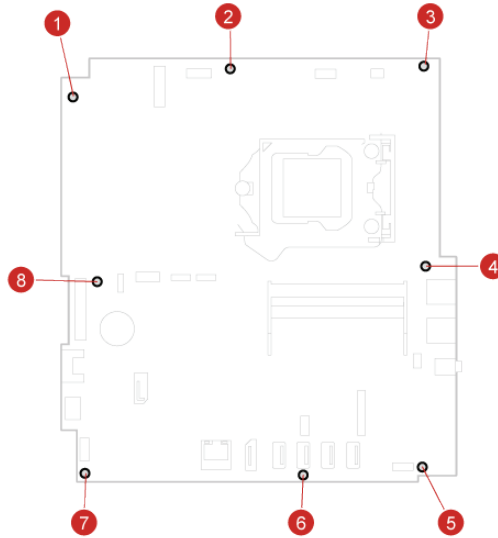
- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Remove the VESA mount bracket. For details, see [Replacing the VESA mount bracket](#).
- 7 Remove the heat sink. For details, see [Replacing the heat sink](#).
- 8 Remove the memory module. For details, see [Replacing the memory module](#).
- 9 Remove the card reader. For details, see [Replacing the card reader](#).
- 10 Remove the M.2 storage drive. For details, see [Replacing the M.2 storage drive](#).
- 11 Remove the serial connector module. For details, see [Replacing the serial connector module](#).
- 12 Remove the Wi-Fi card. For details, see [Replacing the Wi-Fi card](#).
- 13 Remove the microprocessor. For details, see [Replacing the microprocessor](#).
- 14 Record the cable routing and cable connections, and then disconnect all cables from the system board.

15 Replace the system board.



**Note**

Carefully handle the system board by its edges.



16 Route all the cables that you disconnected from the failing system board, and then reconnect the cables to the new system board. For details, see [System board](#).

17 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Replacing the LCD panel



## Attention

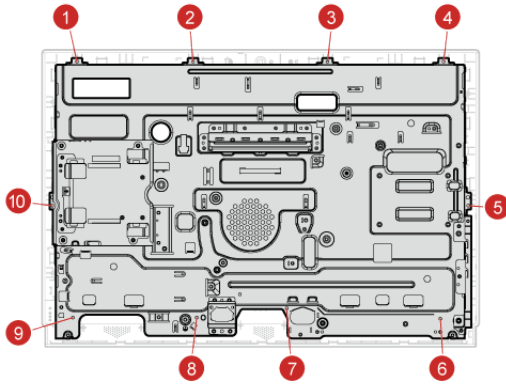
Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

- 1 Remove any media from the drives and turn off all connected devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 2 Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
- 3 Remove the computer stand. For details, see [Replacing the computer stand](#).
- 4 Remove the computer cover. For details, see [Removing the computer cover](#).
- 5 Remove the system board shield. For details, see [Replacing the system board shield](#).
- 6 Remove the VESA mount bracket. For details, see [Replacing the VESA mount bracket](#).
- 7 Remove the power supply assembly. For details, see [Replacing the power supply assembly](#).
- 8 Remove the 2.5-inch storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 9 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 10 Remove the integrated camera. For details, see [Replacing the integrated camera](#).
- 11 Remove the cover presence switch. For details, see [Replacing the cover presence switch](#).
- 12 Remove the system fan. For details, see [Replacing the system fan](#).
- 13 Remove the internal speakers. For details, see [Replacing the internal speakers](#).

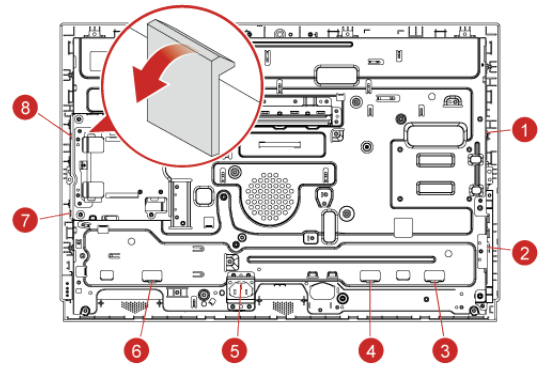
- 14 Remove the control button board. For details, see [Replacing the control button board.](#)
- 15 Remove the I/O bracket. For details, see [Replacing the I/O bracket.](#)
- 16 Remove the heat sink. For details, see [Replacing the heat sink.](#)
- 17 Remove the memory module. For details, see [Replacing the memory module.](#)
- 18 Remove the card reader. For details, see [Replacing the card reader.](#)
- 19 Remove the M.2 storage drive. For details, see [Replacing the M.2 storage drive.](#)
- 20 Remove the serial connector module. For details, see [Replacing the serial connector module.](#)
- 21 Remove the Wi-Fi card. For details, see [Replacing the Wi-Fi card.](#)
- 22 Remove the Wi-Fi antennas. For details, see [Replacing the Wi-Fi antennas.](#)
- 23 Remove the system board. For details, see [Replacing the system board.](#)
- 24 Disconnect the LCD cable from the LCD panel.

## 25 Replace the LCD panel.

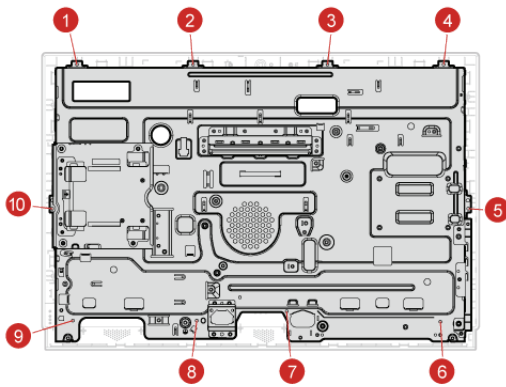
1



2



3



## 26 Connect the LCD cable to the new LCD panel.

## 27 Reinstall the removed parts and computer cover, and then reconnect the cables. For details, see [Completing the parts replacement](#).

# Notices & Trademarks

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