

ThinkCentre[®]

M910z

User Guide and Hardware Maintenance Manual

Machine Type (MT):

10NR, 10NS, 10NT, 10NU

Energy Star MT:

10NR, 10NS, 10NT, 10NU



Overview



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



Computer locks



Locking devices to keep your computer safe



Specifications



Specifications of 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)



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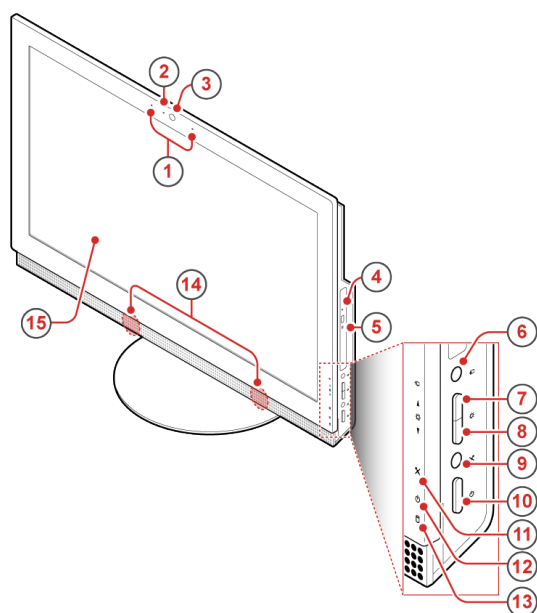
Overview

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 Optical drive eject/close button (optional)

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

5 Optical drive activity indicator (optional)

This indicator is on when the optical drive is in use.

6 Monitor/computer mode switch

Used to switch between the monitor mode and computer mode manually.

7 Brightness-up control (computer mode)

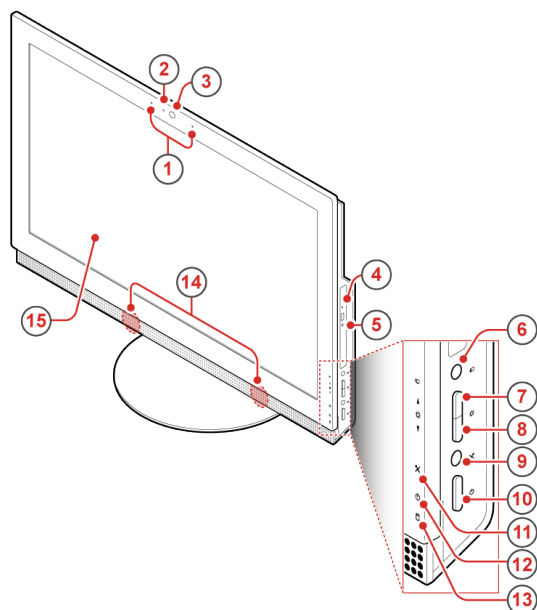
Used to enhance the screen brightness.

8 Brightness-down control (computer mode)

Used to reduce the screen brightness.

9 Microphone mute/unmute control (computer mode)

Used to mute or unmute the integrated microphones.



10 Power button

Used to turn on your computer. When you cannot shut down the computer from the operating system, press and hold the power button for four or more seconds to turn off the computer.

11 Microphone mute/unmute indicator

When the microphone mute/unmute indicator is on, the microphones are muted.

12 Power indicator

When the power indicator is on, the computer is on.

13 Storage drive activity indicator

When the storage drive activity indicator is on, the storage drives are in use.

14 Internal speakers (2)

Used to listen to the sounds from your computer without using a headset or headphones.

15 Screen

Depending on the computer model, your computer screen might support the multi-touch feature. This feature enables you to use one or two fingers to interact with the computer.



Note

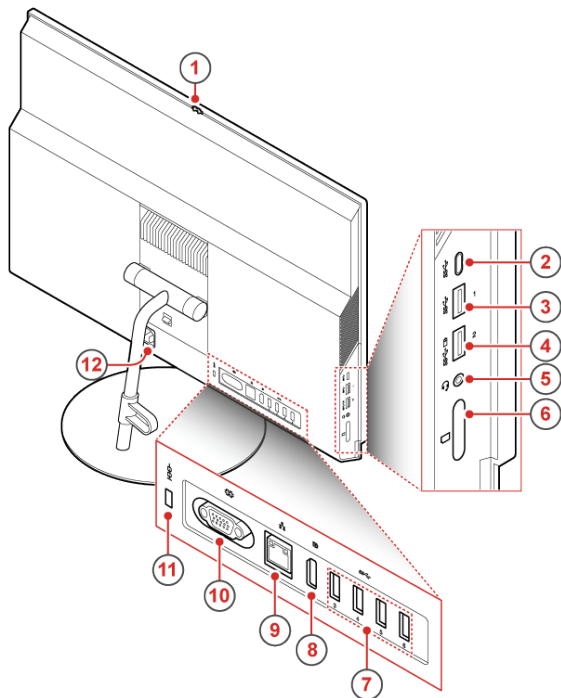
- To single click, tap the touch screen once with your finger.
- To double-click, tap the touch screen twice without pausing.
- To right-click, tap and hold the touch screen until a round circle is displayed. Then, lift your finger off the touch screen to display a context menu. You can make your selection from the menu.
- To make it easier to read or edit a document, use two fingers to zoom in, zoom out, scroll, or rotate on the touch screen.

Rear view



Note

Your computer model might look slightly different from the illustration.



1 Integrated camera shield control slider (optional)

Used to disable the integrated camera physically.

2 USB 3.0 Type-C connector (optional)

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.

3 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.

4 Always On USB 3.0 connector (for rapid charge)

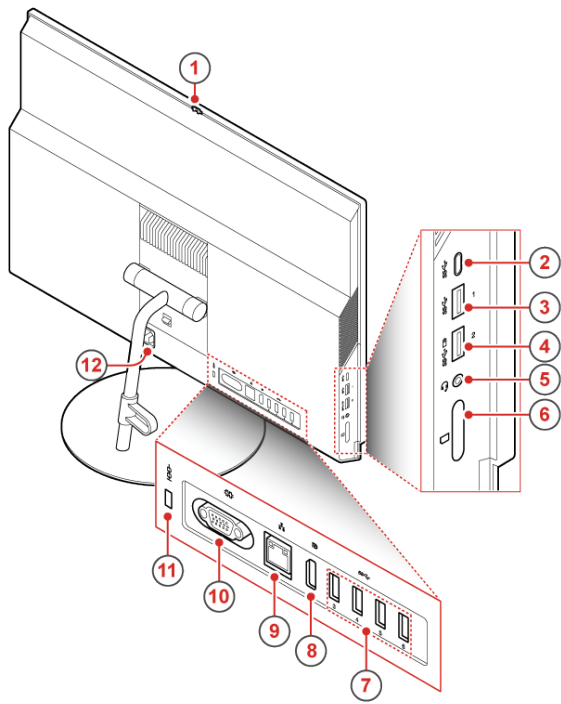
Used to connect a device that requires a USB 2.0 or USB 3.0 connection, such as a keyboard, a mouse, a scanner, a printer, or a personal digital assistant (PDA). With the ac power adapter connected, you can charge the automatically detected device even when the computer is in hibernation mode or turned off.

5 Headset connector

Used to connect a headset or headphones to your computer.

6 Card reader slot (optional)

Used to read data from a supported memory card.



7 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.

8 DisplayPort® in/out connector

Used to receive or send audio and video signals. When a high-performance monitor is attached to this connector, the computer automatically changes to the computer mode. When another computer is attached to this connector, the computer automatically changes to the monitor mode.

9 Ethernet connector

Used to connect an Ethernet cable for network access.

10 Serial connector (optional)

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

11 Security-lock slot

Used to secure a Kensington-style cable lock.

12 Power cord connector

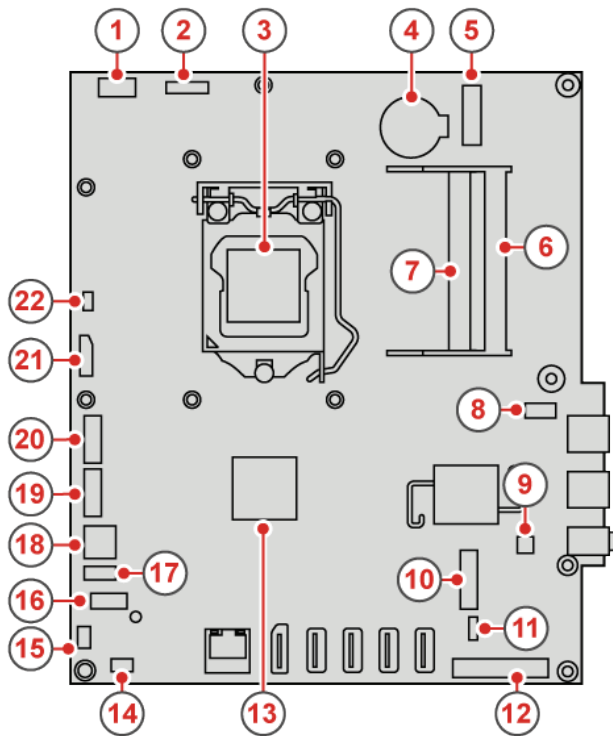
Used to connect the power cord to your computer for power supply.

System board

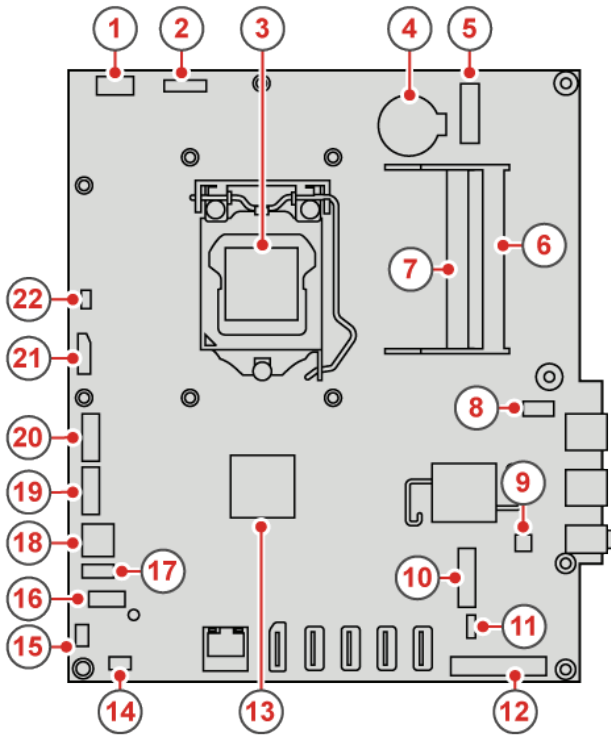


Note

See **Front view** or **Rear view** for additional component descriptions.



- 1 LCD power connector
- 2 Integrated camera connector
- 3 Microprocessor socket
- 4 Coin-cell battery
- 5 M.2 Wi-Fi card slot
- 6 Memory slot (DIMM2)
- 7 Memory slot (DIMM1)
- 8 USB 3.0 Type-C connector
- 9 Card reader connector
- 10 M.2 storage drive slot
- 11 Internal speaker connector
- 12 LCD panel connector
- 13 Graphics processor unit (GPU) (optional)
- 14 Serial connector
- 15 Thermal sensor connector



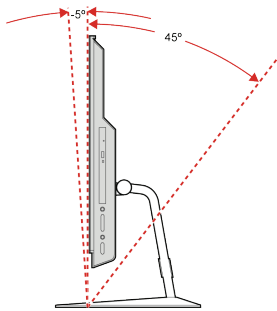
-
- 16 Control button board connector
-
- 17 Touch screen connector
-
- 18 Power supply assembly connector
-
- 19 SATA connector (for connecting an optical drive)
-
- 20 SATA connector (for connecting a storage drive)
-
- 21 Power connector (for connecting a storage drive or an optical drive)
-
- 22 System fan connector
-

Adjusting the monitor stand



Note

The monitor stand is available only on some models.



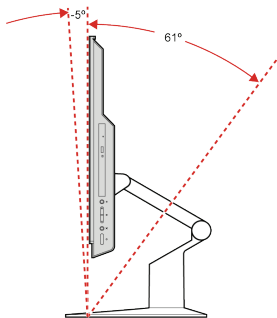
Adjust the vertical position of the computer between 5° forward and 45° back.

Adjusting the UltraFlex II Stand

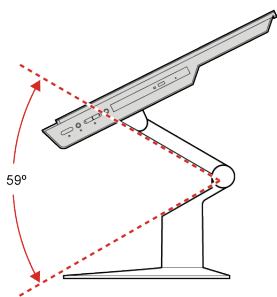


Note

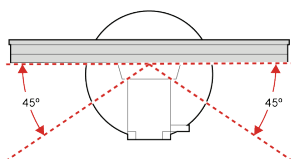
The UltraFlex II Stand is available only on some models.



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°.

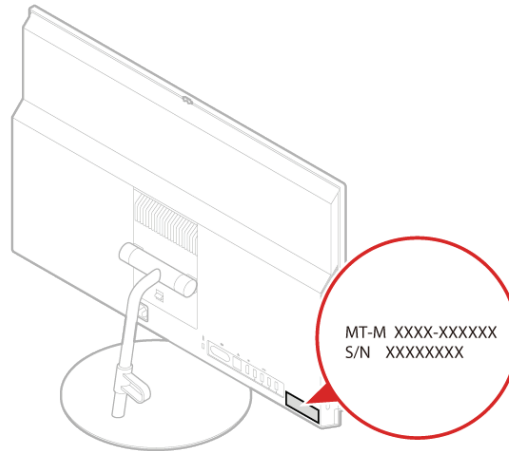


Turn the computer at an angle of 45° to the left and 45° to the right.

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.

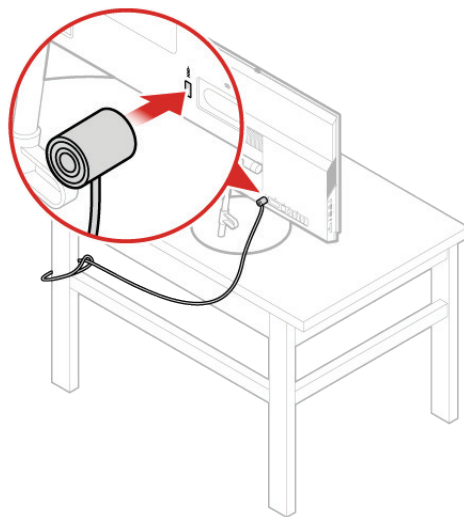
The machine type and model label is attached on the rear side of your computer as shown.



Computer locks

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>.



Specifications

Power supply	<ul style="list-style-type: none">• 150 watt automatic voltage-sensing power supply• 180 watt automatic voltage-sensing power supply (optional)
Storage drives	Up to two storage drives
Video features	The integrated graphics card supports the DisplayPort in/out connector on your computer.
Audio features	<p>The integrated audio card supports the following:</p> <ul style="list-style-type: none">• Headset connector• Integrated microphones (optional)• Internal speakers
Input/Output (I/O) features	<ul style="list-style-type: none">• Card reader slot (optional)• Ethernet connector• DisplayPort in/out connector• Headset connector• Serial connector (optional)• USB connectors• USB 3.0 Type-C connector (optional)
Expansion	<ul style="list-style-type: none">• Card reader slot (optional)• Memory slots• Optical drive (optional)• Storage drive bay
Network features	<ul style="list-style-type: none">• Ethernet LAN• Wireless LAN (optional)• Bluetooth (optional)
Physical dimensions (without a computer stand)	<ul style="list-style-type: none">• Width: 584 mm (23.0 inches)• Height: 390 mm (15.4 inches)• Depth: 45 mm (1.8 inches)
Weight (with a computer stand)	<ul style="list-style-type: none">• Maximum configuration as shipped: 10.3 kg (22.7 lb)

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)

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.

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)

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

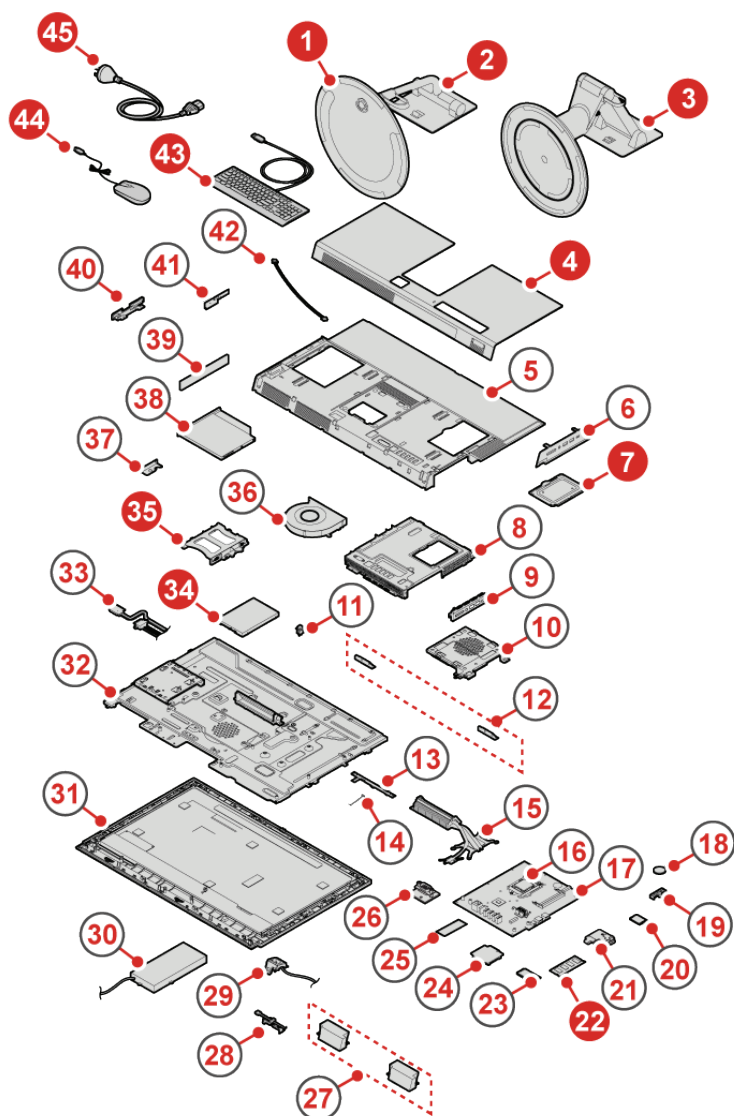
Refer to the following illustrations to check the locations of CRUs and FRUs within the computer.



Note

Some of the following parts are optional on some models.

Self-service CRU



1 Monitor stand base [p. 24](#)

2 Monitor stand [p. 24](#)

3 UltraFlex II Stand [p. 25](#)

4 Slide cover [p. 26](#)

7 Memory module shield [p. 30](#)

22 Memory module [p. 30](#)

34 Storage drive [p. 27](#)

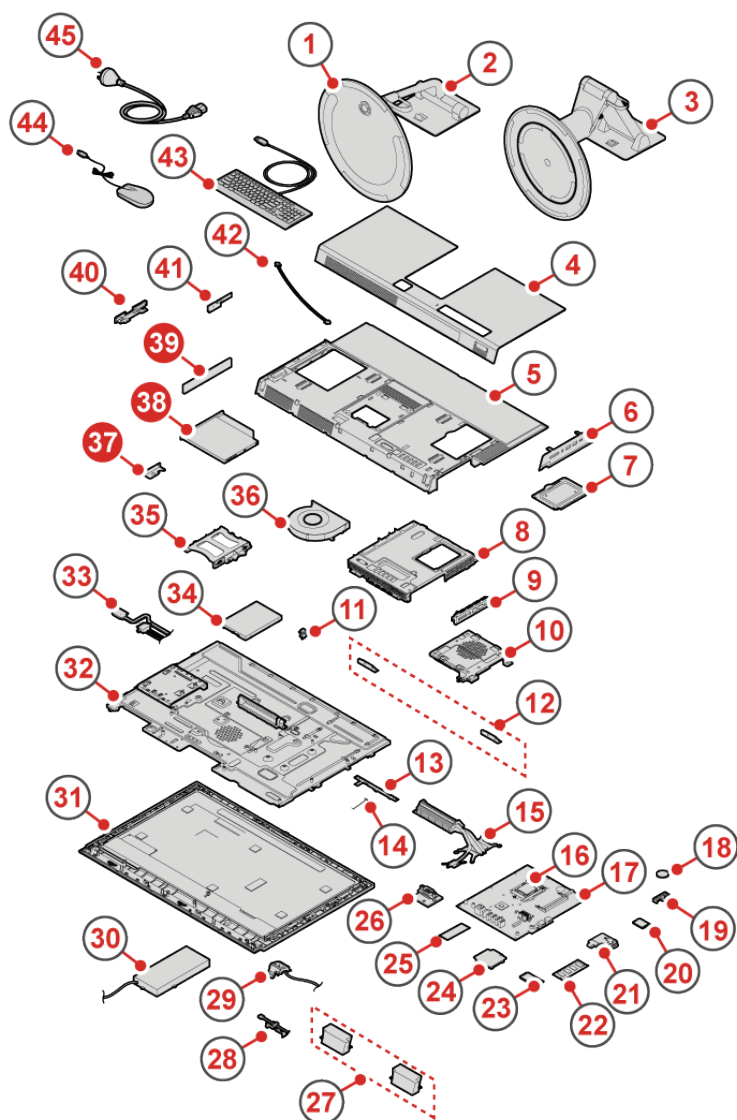
35 Storage drive bracket [p. 27](#)

43 Keyboard or wireless keyboard [p. 20](#)

44 Mouse or wireless mouse [p. 21](#)

45 Power cord [p. 23](#)

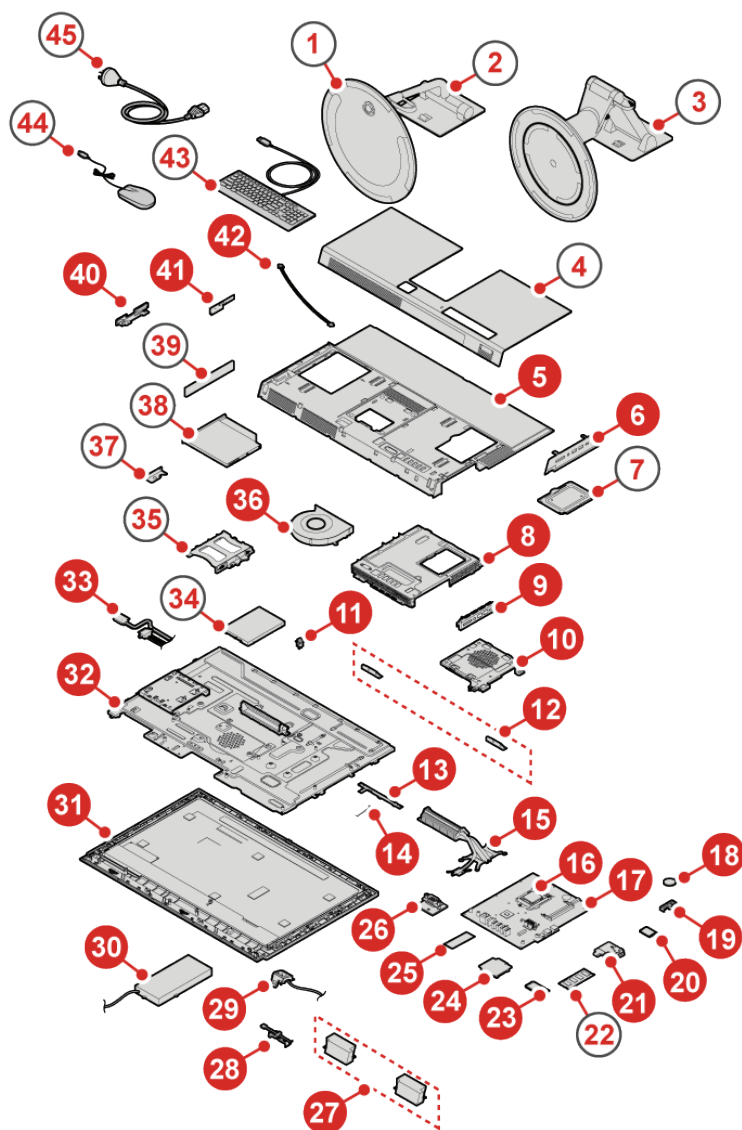
Optional-service CRU



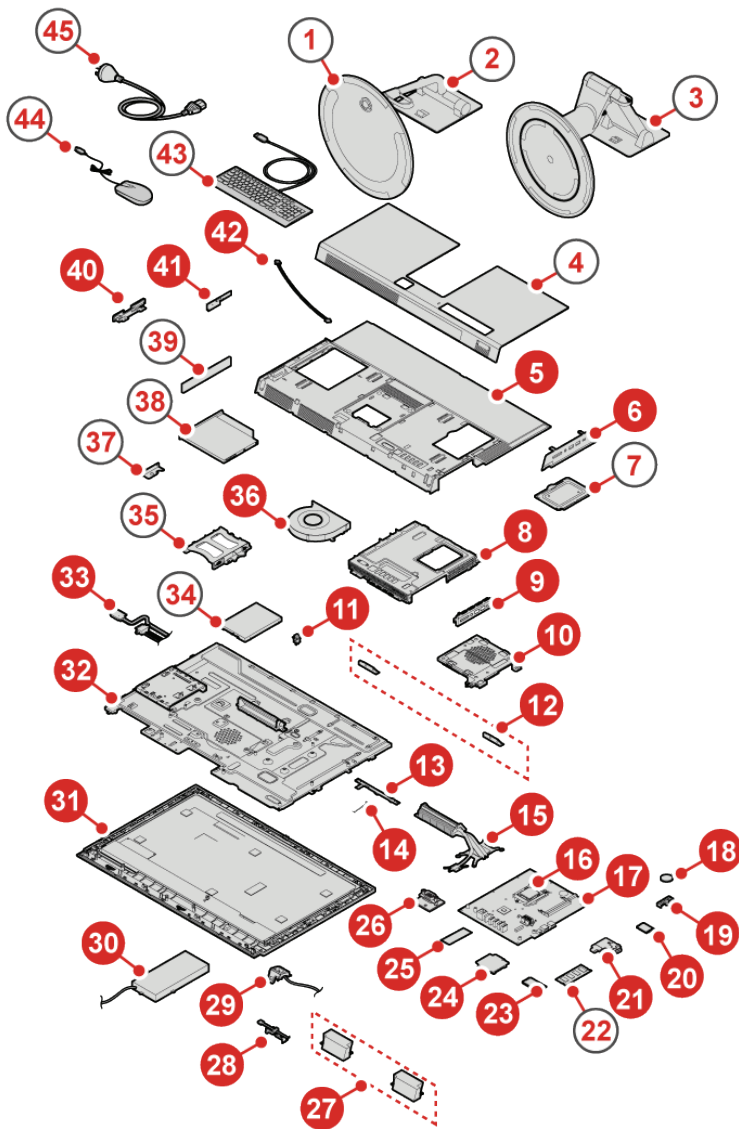
37 Optical drive holder [p. 28](#)

38 Optical drive [p. 28](#)

39 Optical drive bezel [p. 28](#)



- 5 Computer cover [p. 36](#)
- 6 Side I/O bezel [p. 36](#)
- 8 System board shield [p. 40](#)
- 9 Side I/O bracket [p. 40](#)
- 10 VESA® mount bracket [p. 41](#)
- 11 Cover presence switch (intrusion switch) [p. 41](#)
- 12 Wi-Fi antennas (2) [p. 51](#)
- 13 Integrated camera [p. 39](#)
- 14 Integrated camera cable [p. 39](#)
- 15 Heat sink [p. 45](#)
- 16 Microprocessor [p. 63](#)
- 17 System board [p. 65](#)
- 18 Coin-cell battery [p. 47](#)
- 19 Wi-Fi card shield [p. 49](#)
- 20 Wi-Fi card [p. 49](#)
- 21 USB 3.0 Type-C connector board [p. 53](#)
- 23 M.2 storage drive [p. 55](#)
- 24 Card reader [p. 54](#)
- 25 Thermal pad [p. 61](#)
- 26 Serial connector module [p. 57](#)
- 27 Internal speakers [p. 58](#)



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- 28 Thermal sensor [p. 61](#)
 - 29 ac-in cable [p. 59](#)
 - 30 Power supply assembly [p. 43](#)
 - 31 LCD panel [p. 67](#)
 - 32 Middle frame [p. 67](#)
 - 33 SATA cables [p. 62](#)
 - 36 System fan [p. 46](#)
 - 40 Control button board [p. 38](#)
 - 41 Control button board bracket [p. 38](#)
 - 42 Control button board cable [p. 38](#)
-

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.

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



Note

- Before replacing a CRU, ensure that you have read the instructions in the **Handling static-sensitive devices.**
- To replace a component that is not in the list below, contact a Lenovo service technician. The support phone numbers are available at <http://www.lenovo.com/support/phone>.

Keyboard or wireless keyboard >



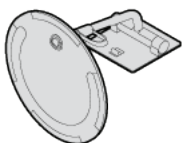
Mouse or wireless mouse >



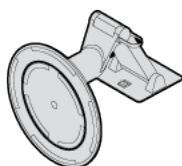
Power cord >



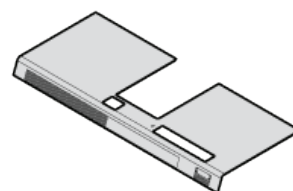
Monitor stand >



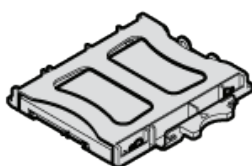
UltraFlex II Stand >



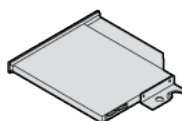
Slide cover >



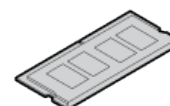
2.5-inch storage drive >



Optical drive >



Memory module >



Replacing the keyboard or wireless keyboard

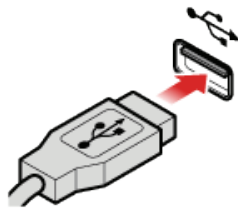


Note

The wireless keyboard is available only on some models.

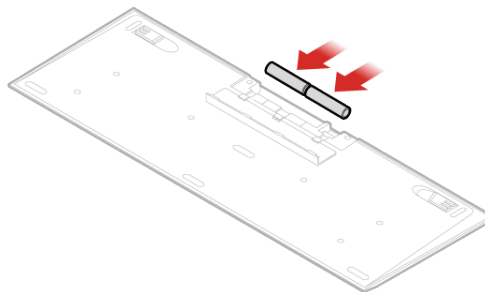
Replacing the keyboard

- 1 Turn off the computer and disconnect all power cords from electrical outlets.
- 2 Disconnect the old keyboard cable from the computer.
- 3 Connect a new keyboard to the appropriate connector on the computer.



Replacing the wireless keyboard

- 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 mouse or wireless mouse

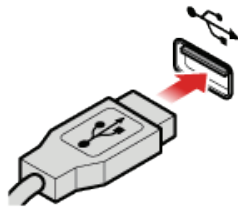


Note

The wireless mouse is available only on some models.

Replacing the mouse

- 1 Turn off the computer and disconnect all power cords from electrical outlets.
- 2 Disconnect the old mouse cable from the computer.
- 3 Connect a new mouse to the appropriate connector on the computer.



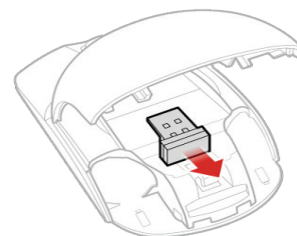
Replacing the wireless mouse

- 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.

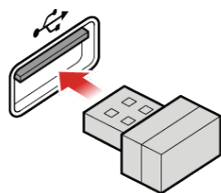
1



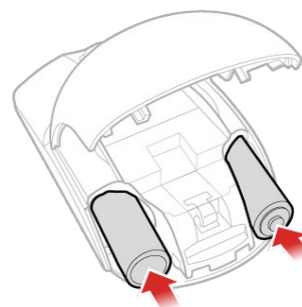
2



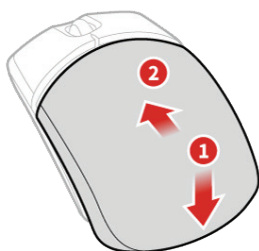
3



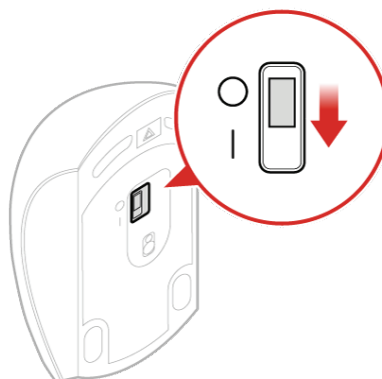
4



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*.

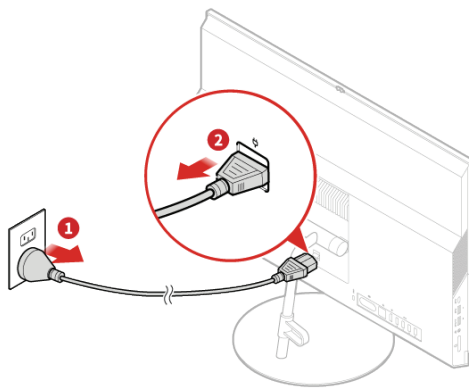
- 1 Remove any media from the drives and turn off all connected devices and the computer.
- 2 Disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 3 Replace the power cord.



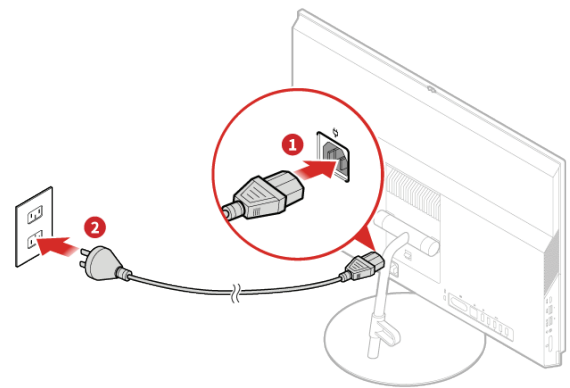
Note

Your power cord might look different from the one illustrated.

1



2



Replacing the monitor stand

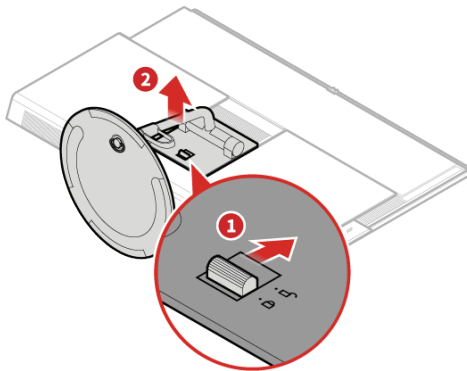


Note

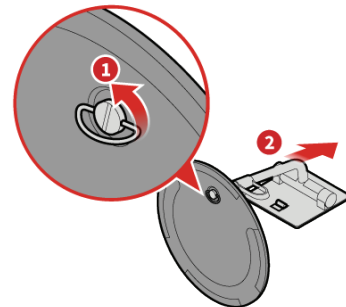
The monitor stand is available only on some models.

- 1 Remove any media from the drives and turn off all connected devices and the computer.
- 2 Disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 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 Replace the monitor stand.

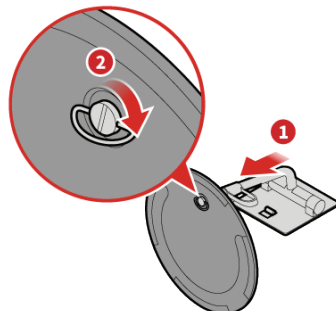
1



2



3



4



Replacing the UltraFlex II Stand

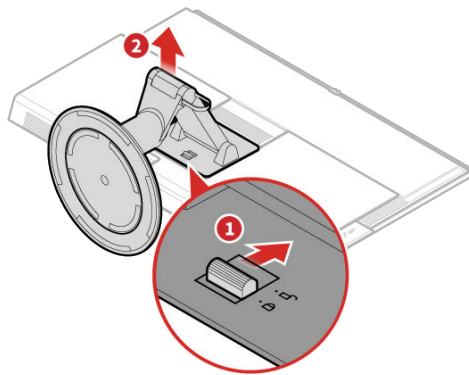


Note

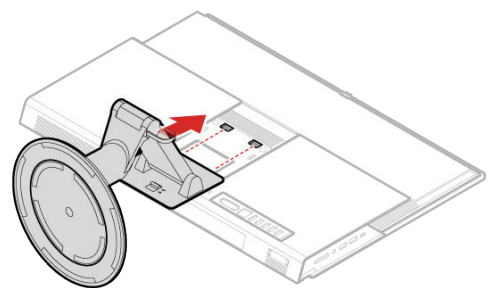
The UltraFlex II Stand is available only on some models.

- 1 Remove any media from the drives and turn off all connected devices and the computer.
- 2 Disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 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 Replace the UltraFlex II Stand.

1



2



Removing the slide cover



Attention

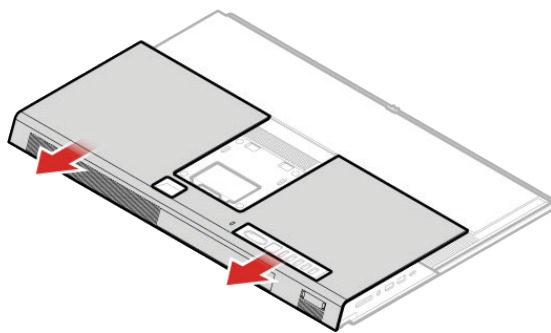
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).



Caution

Before you open the slide 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.
- 2 Disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
- 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 monitor stand](#) or [Replacing the UltraFlex II Stand](#).
- 5 Unlock any locking device that secures the cover.
- 6 Remove the slide 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*](#).

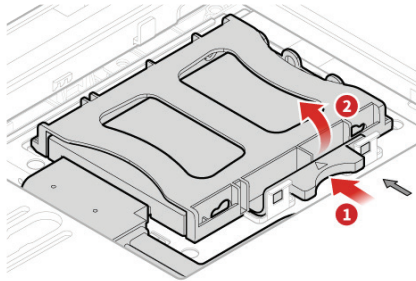
- 1 Remove the computer stand. For details, see [Replacing the monitor stand](#) or [Replacing the UltraFlex II Stand](#).
- 2 Remove the slide cover. For details, see [Removing the slide cover](#).
- 3 Replace the 2.5-inch storage drive.



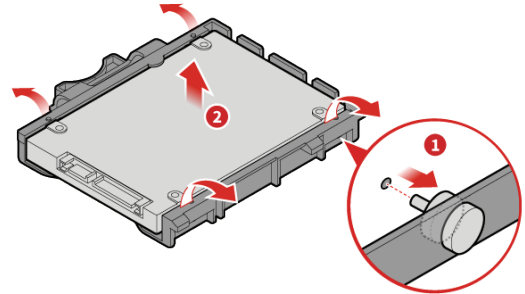
Note

Ensure that you disconnect or reconnect the storage drive cable during the replacement.

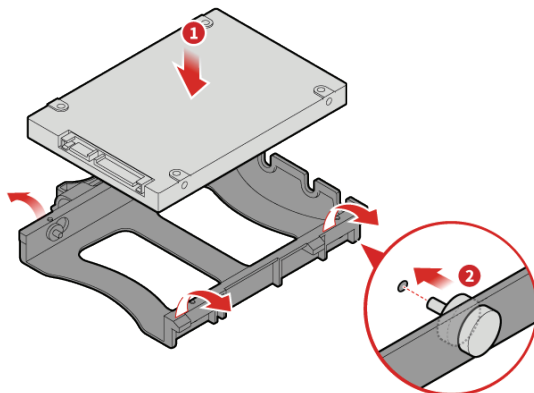
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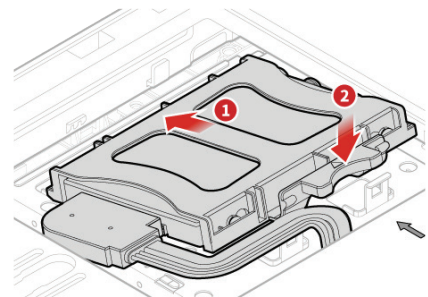
2



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- 4 Reinstall the slide cover and reconnect the cables. For details, see [Completing the parts replacement](#).

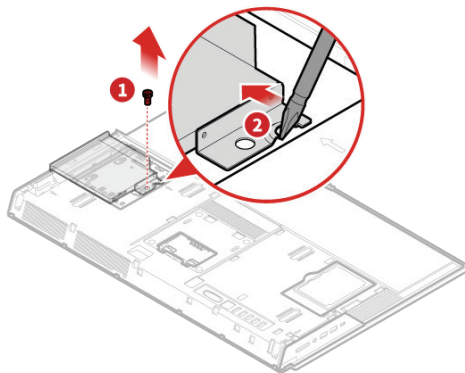
Replacing the optical drive

Attention

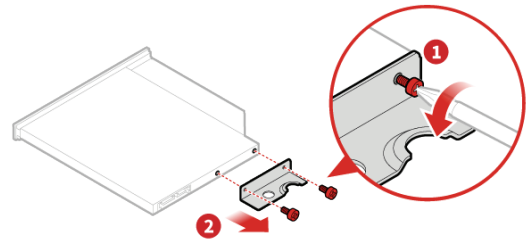
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the computer stand. For details, see [Replacing the monitor stand](#) or [Replacing the UltraFlex II Stand](#).
- 2 Remove the slide cover. For details, see [Removing the slide cover](#).
- 3 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 4 Replace the optical drive.

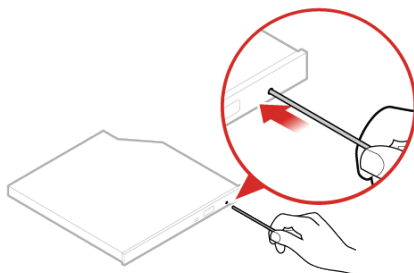
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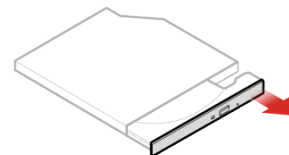
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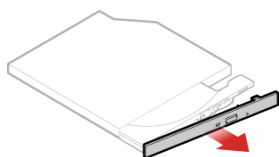
3



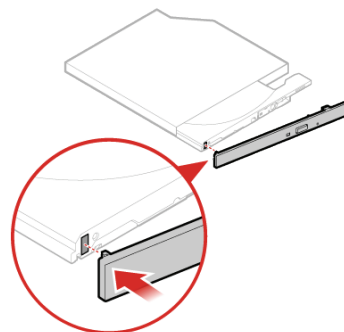
4



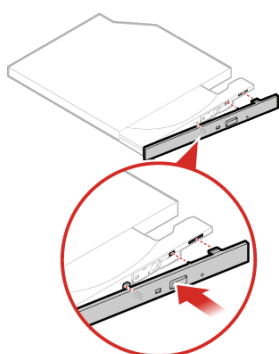
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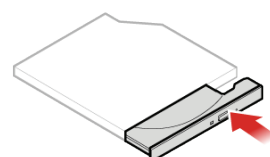
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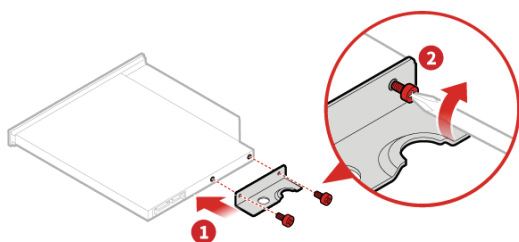
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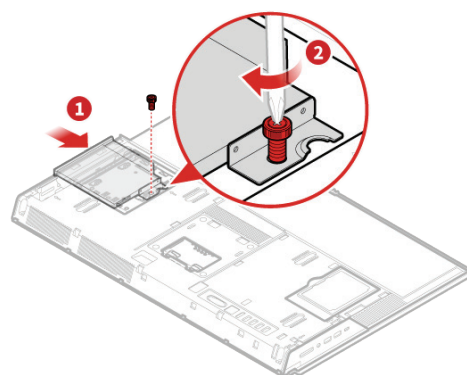
8



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10



5 Reinstall the removed parts and slide cover. For details, see **Completing the parts replacement.**

Replacing the memory module

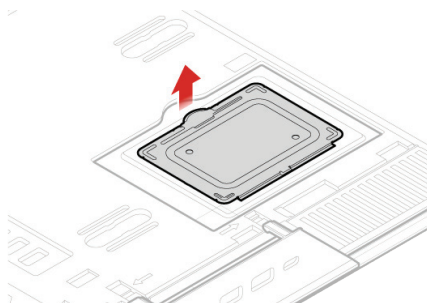
⚠ Attention

Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

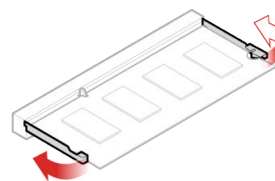
If your computer supports one memory module, install the module into the DIMM 1 slot. If your computer supports two memory modules, install one memory module into the DIMM 1 slot first and then install the other into the DIMM 2 slot.

- 1 Remove the computer stand. For details, see [Replacing the monitor stand](#) or [Replacing the UltraFlex II Stand](#).
- 2 Remove the slide cover. For details, see [Removing the slide cover](#).
- 3 Replace the memory module.

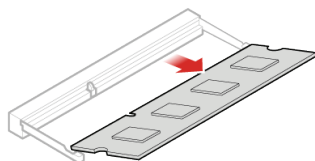
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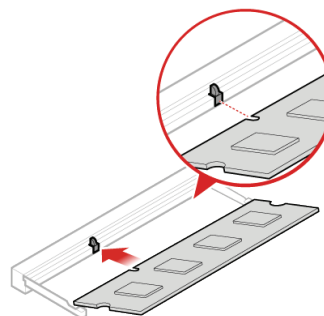
2



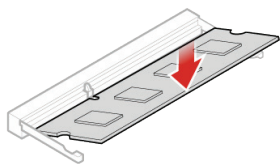
3



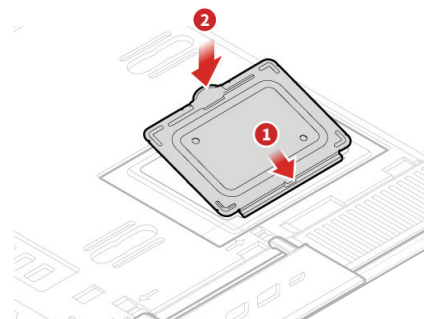
4



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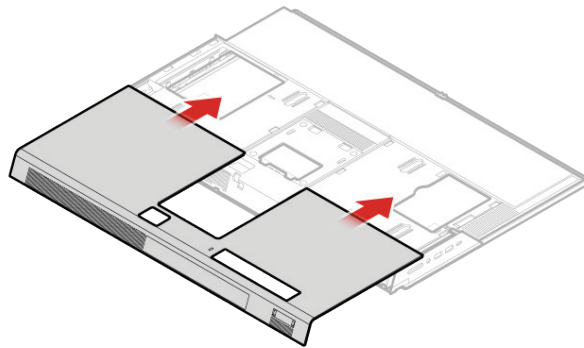
4 Reinstall the removed parts and slide cover. For details, see **Completing the parts replacement.**

Completing the parts replacement

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

To reinstall the slide 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 slide cover. Keep cables clear of the hinges and sides of the computer chassis to avoid interference when reinstalling the slide cover.
- 3 Install the slide cover.



- 4 Install the computer stand. For details, see [Replacing the monitor stand](#) or [Replacing the UltraFlex II 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.**

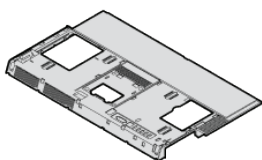
Before replacing a FRU, click the illustration of the part to check the brief procedures.



Note

- Before replacing a FRU, ensure that you have read the instructions in the **Handling static-sensitive devices.**
- To check the locations of FRUs, see **CRUs and FRUs locations.**
- To replace a component that is in the list below, contact a Lenovo service technician. The support phone numbers are available at <http://www.lenovo.com/support/phone>.

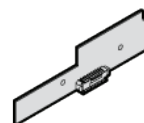
Computer cover



Side I/O bezel



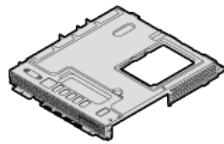
Control button board



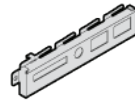
Integrated camera



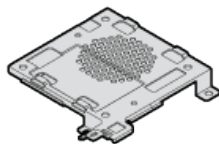
System board shield



Side I/O bracket



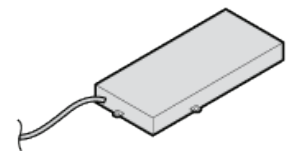
VESA mount bracket



Cover presence switch



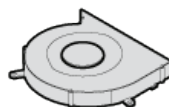
Power supply assembly



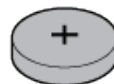
Heat sink



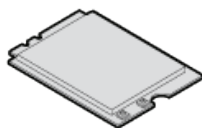
System fan



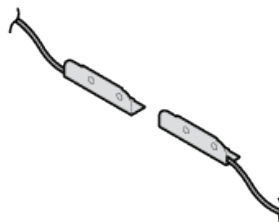
Coin-cell battery



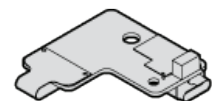
Wi-Fi card



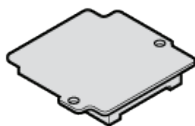
Wi-Fi antennas



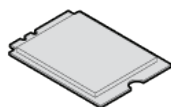
**USB 3.0 Type-C
connector board**



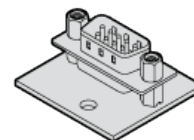
Card reader



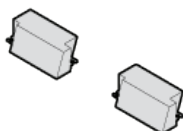
M.2 storage drive



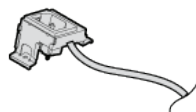
Serial connector module



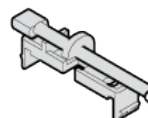
Internal speakers



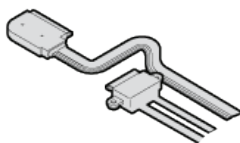
ac-in cables



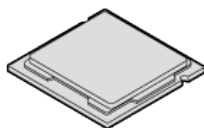
Thermal sensor



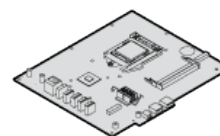
SATA cables



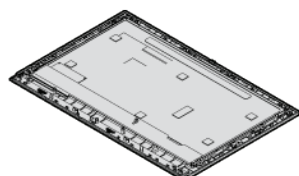
Microprocessor



System board



LCD panel



Replacing the computer cover and side I/O bezel

Attention

Do not open your computer or attempt any repairs before reading the *[Important Product Information Guide](#)*.

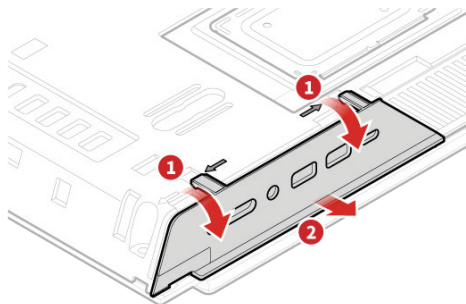


Caution

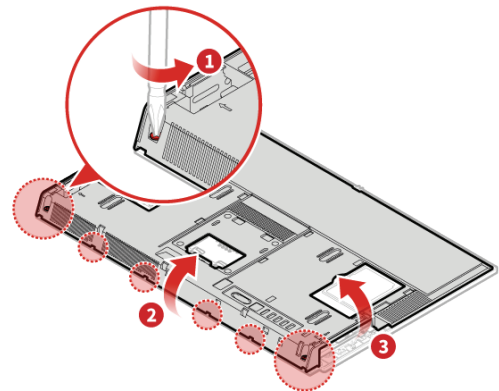
Before you open the computer cover, turn off the computer and wait several minutes until the computer is cool.

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Disconnect the control button board cable from the control button board.
- 5 Replace the computer cover and side I/O bezel.

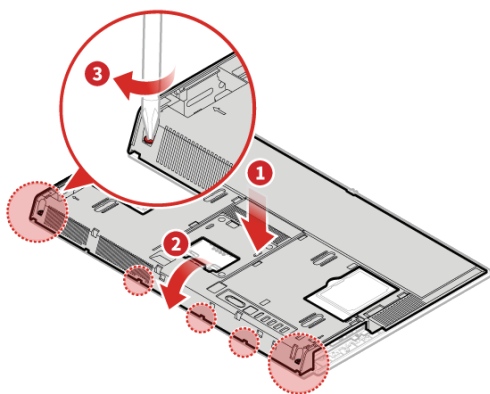
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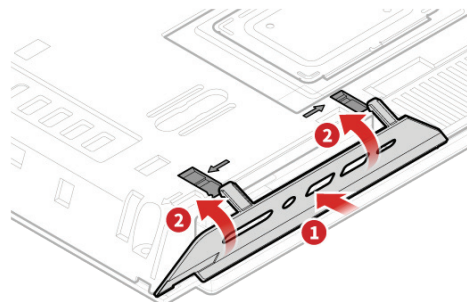
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6 Connect the control button board cable to the control button board.

7 Reinstall the removed parts and slide cover. For details, see [Completing the parts replacement](#).

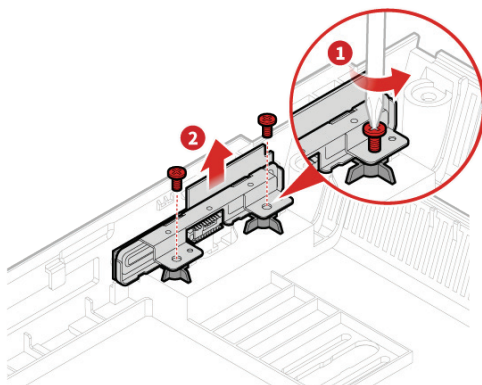
Replacing the control button board

Attention

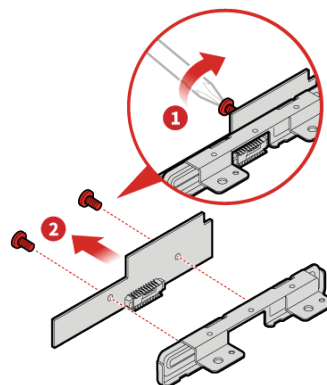
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Replace the control button board.

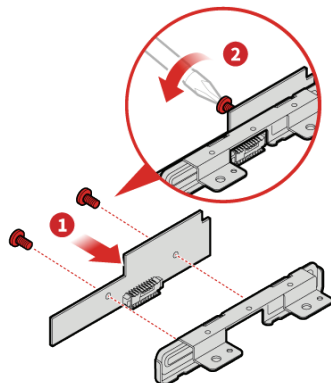
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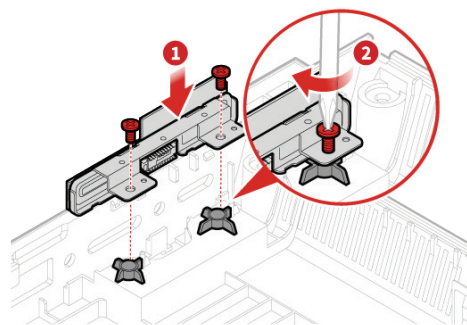
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- 6 Reinstall the removed parts and slide cover. For details, see [Completing the parts replacement](#).

Replacing the integrated camera

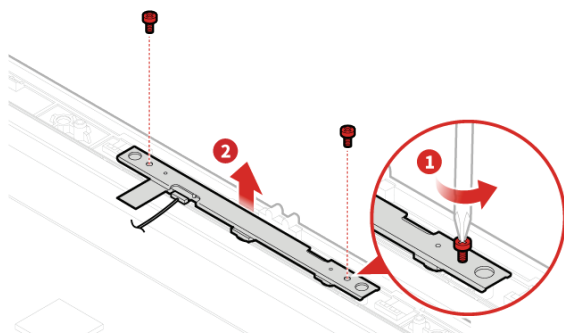


Attention

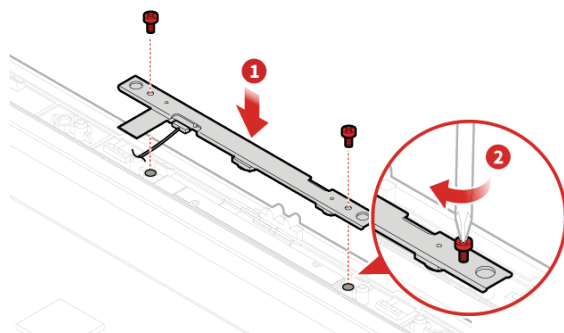
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Replace the integrated camera.

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

Replacing the system board shield and side I/O bracket



Attention

Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

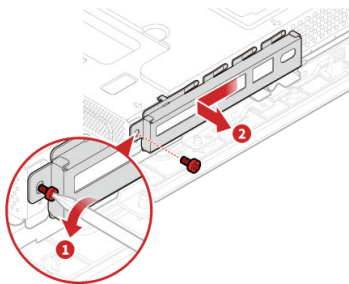
- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Replace the system board shield and side I/O bracket.



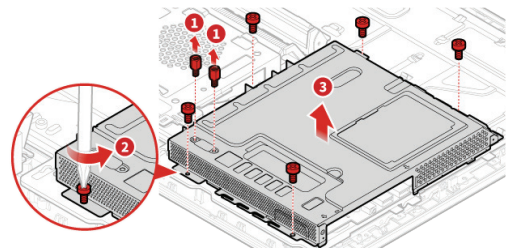
Note

If there is a thermal pad stuck on the system board shield, peel it off and stick the thermal pad on the new system board shield.

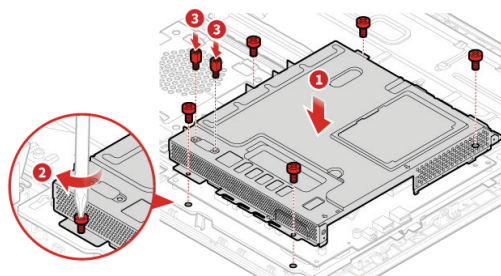
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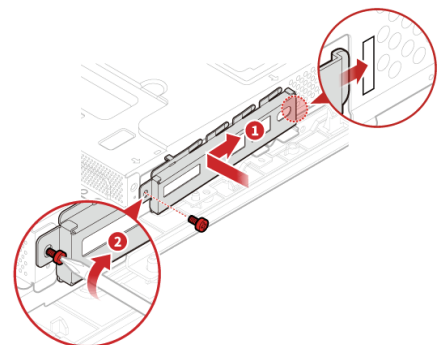
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- 6 Reinstall the removed parts and slide cover. For details, see [Completing the parts replacement](#).

Replacing the VESA mount bracket and cover presence switch

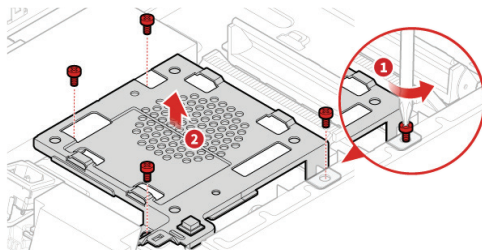


Attention

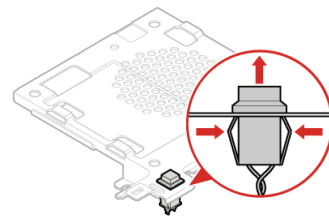
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Disconnect the cover presence switch cable from the system board. For details, see [System board](#).
- 7 Replace the VESA mount bracket and cover presence switch.

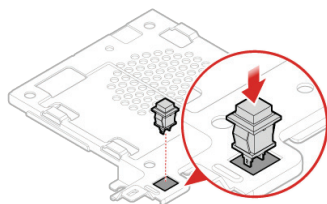
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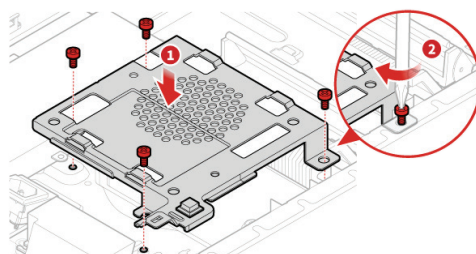
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4



- 8 Connect the cover presence switch cable to the system board. For details, see [System board](#).
- 9 Reinstall the removed parts and slide cover. 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.

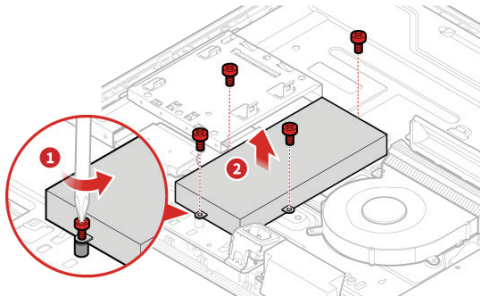


Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

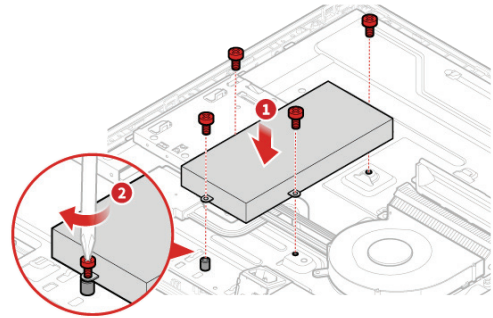
- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Remove the VESA mount bracket. For details, see [Replacing the VESA mount bracket and cover presence switch](#).
- 7 Disconnect the power supply assembly cables from the ac-in cables and system board. For details, see [System board](#).

8 Replace the power supply assembly.

1



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9 Connect the power supply assembly cables to the ac-in cables and system board. For details, see **System board**.

10 Reinstall the removed parts and slide cover. For details, see **Completing the parts replacement**.

Replacing the heat sink

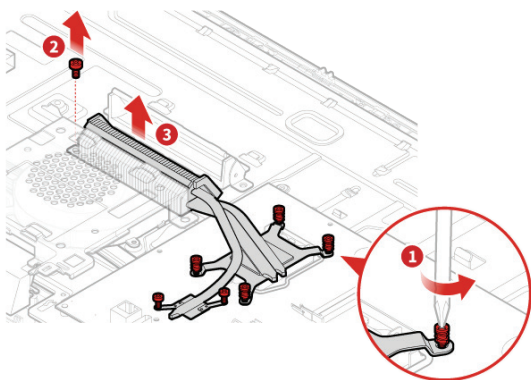


Attention

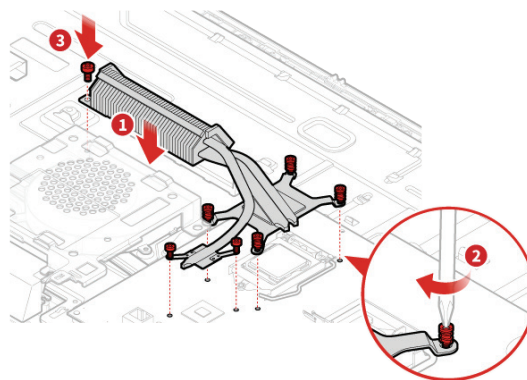
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Replace the heat sink.

1



2



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

Replacing the system fan

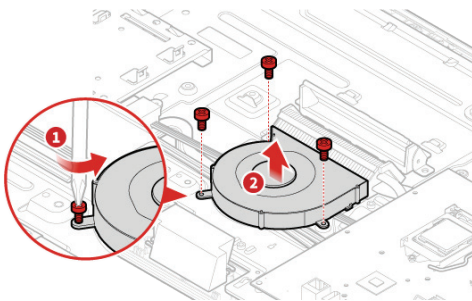


Attention

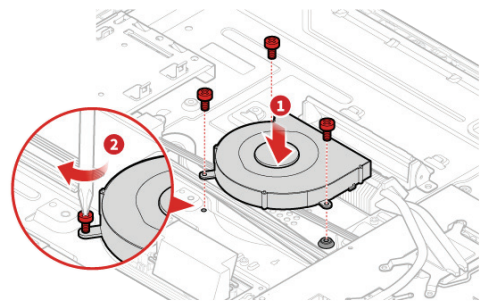
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Remove the VESA mount bracket. For details, see [Replacing the VESA mount bracket and cover presence switch](#).
- 7 Disconnect the microprocessor fan cable from the system board. For details, see [System board](#).
- 8 Replace the system fan.

1



2



- 9 Connect the microprocessor fan cable to the system board. For details, see [System board](#).
- 10 Reinstall the removed parts and slide cover. 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.

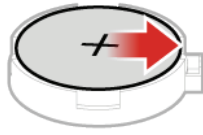
The coin-cell battery normally requires no charging or maintenance throughout its life; however, no coin-cell battery lasts forever. If the coin-cell battery fails, the date, time, and configuration information (including passwords) are lost. An error message is displayed when you turn on the computer.

To replace the coin-cell battery,

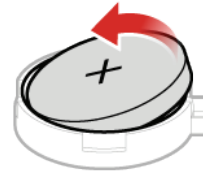
- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).

6 Replace the coin-cell battery.

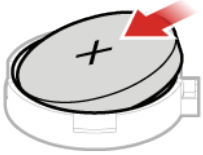
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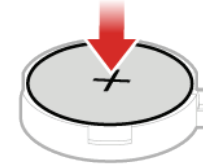
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7 Reinstall the removed parts and slide cover. For details, see [Completing the parts replacement](#).

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

Replacing the Wi-Fi card



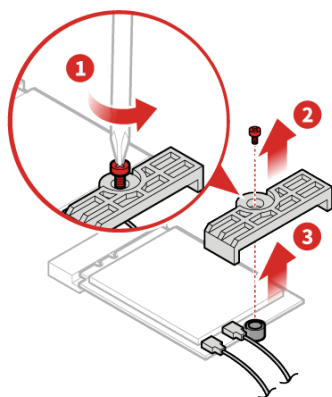
Attention

Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

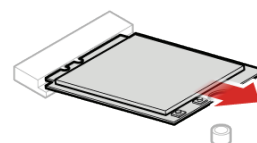
- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Depending on your computer model, refer to one of the following to replace the Wi-Fi card.

• Type1

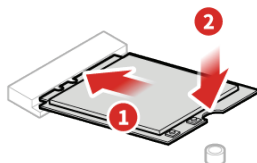
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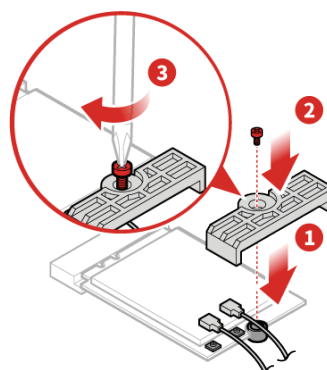
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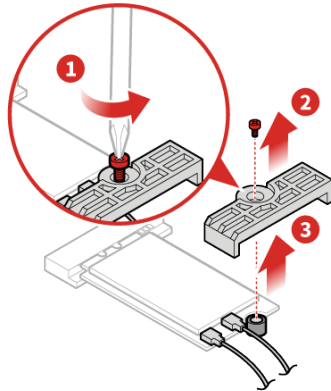


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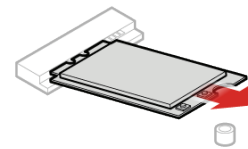


- Type2

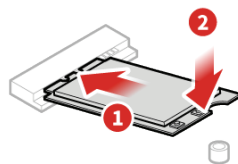
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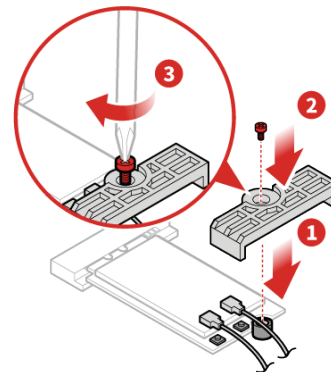
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7 Reinstall the removed parts and slide cover. For details, see **Completing the parts replacement.**

Replacing the Wi-Fi antennas

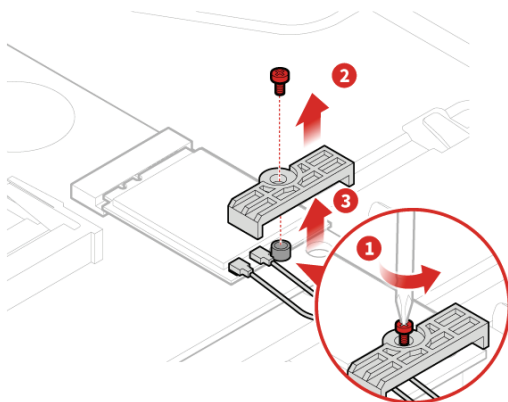


Attention

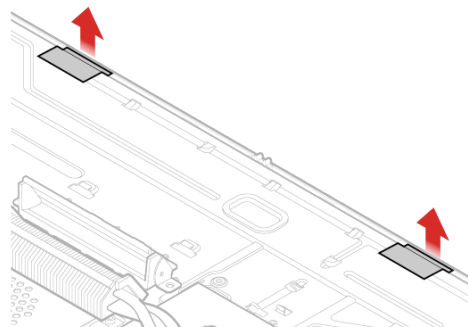
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Replace the Wi-Fi antennas.

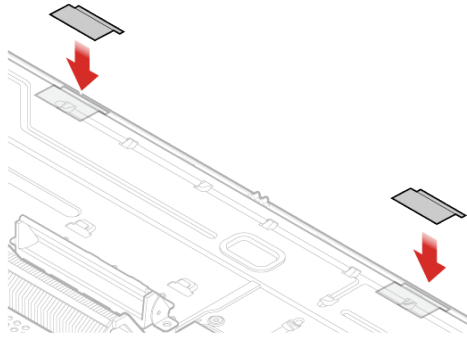
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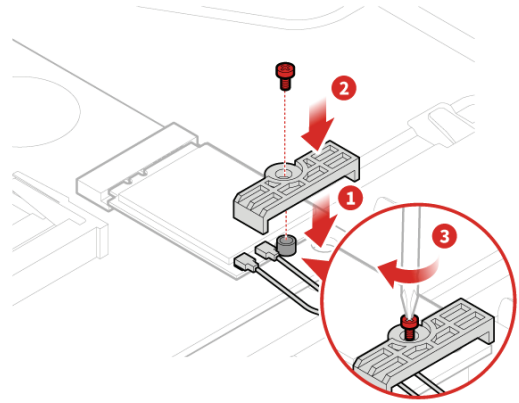
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7 Reinstall the removed parts and slide cover. For details, see [Completing the parts replacement.](#)

Replacing the USB 3.0 Type-C connector board

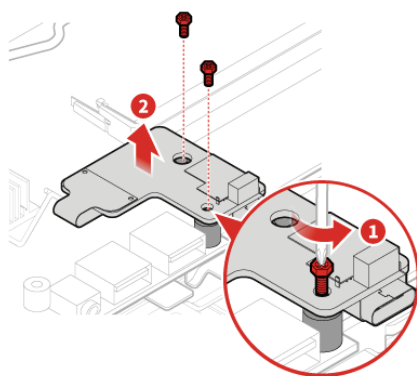


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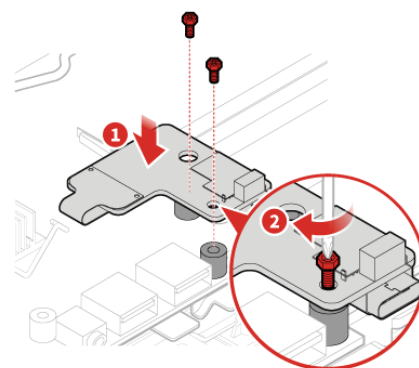
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Disconnect the USB 3.0 Type-C connector board cable from the system board. For details, see [System board](#).
- 7 Replace the USB 3.0 Type-C connector board.

1



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- 8 Connect the USB 3.0 Type-C connector board cable to the system board. For details, see [System board](#).
- 9 Reinstall the removed parts and slide cover. For details, see [Completing the parts replacement](#).

Replacing the card reader

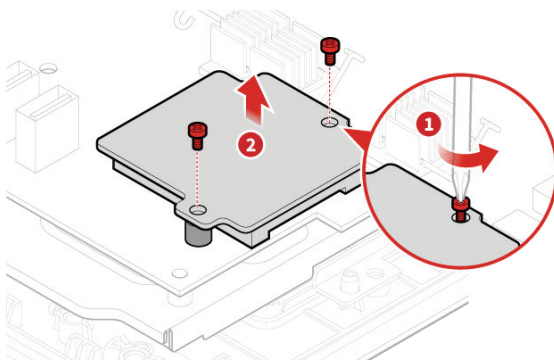


Attention

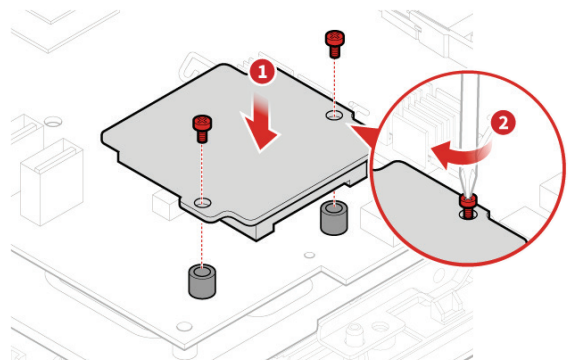
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Disconnect the card reader cable from the system board. For details, see [System board](#).
- 7 Replace the card reader.

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- 8 Connect the card reader cable to the system board. For details, see [System board](#).
- 9 Reinstall the removed parts and slide cover. 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 the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Depending on your computer model, refer to one of the following to replace the M.2 storage drive.

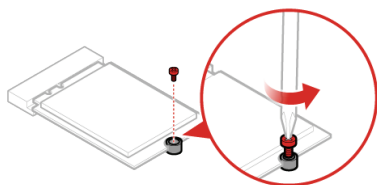


Note

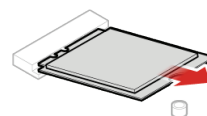
If necessary, you might need to replace the thermal pad stuck on the system board shield.

• Type 1

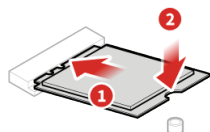
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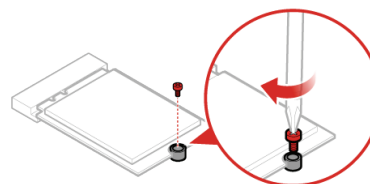
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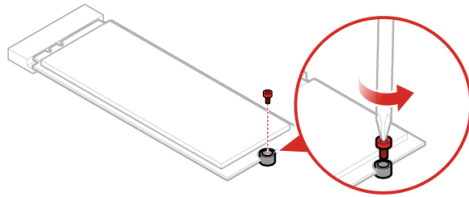


4

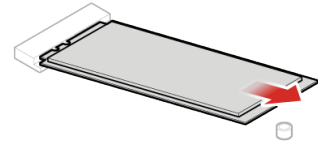


- Type 2

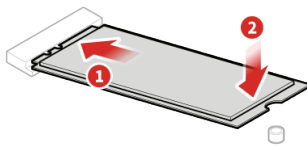
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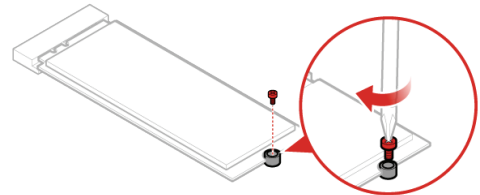
2



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7 Reinstall the removed parts and slide cover. For details, see [Completing the parts replacement.](#)

Replacing the serial connector module



Note

The serial connector module is available only on some models.

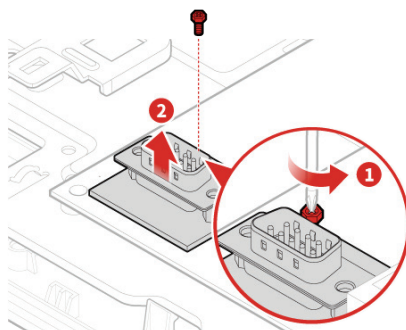


Attention

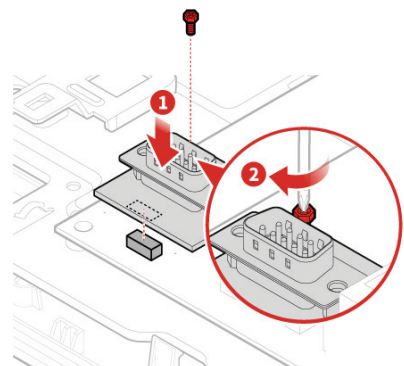
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Replace the serial connector module.

1



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

Replacing the internal speakers

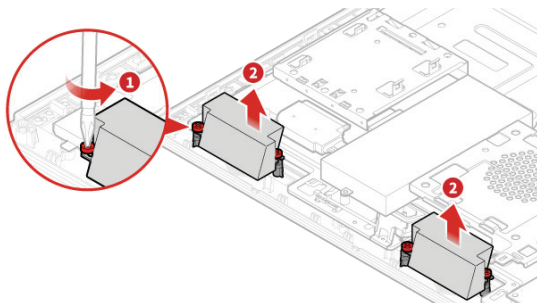


Attention

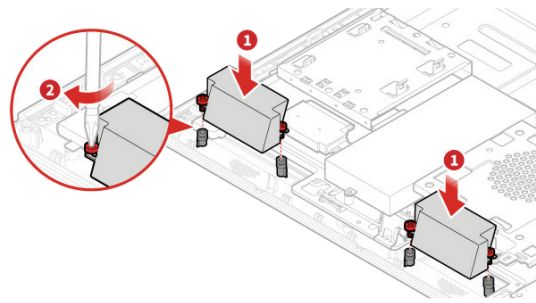
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Disconnect the internal speaker cables from the system board. For details, see [System board](#).
- 7 Replace the internal speakers.

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

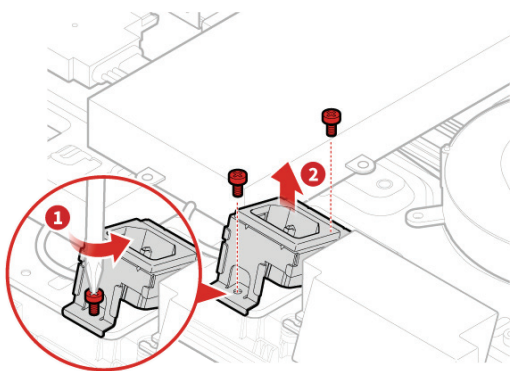
Replacing the ac-in cables

Attention

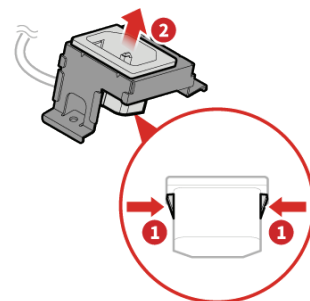
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Remove the VESA mount bracket. For details, see [Replacing the VESA mount bracket and cover presence switch](#).
- 7 Disconnect the ac-in cables from the power supply assembly and middle frame.
- 8 Replace the ac-in cables.

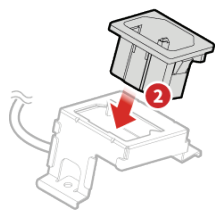
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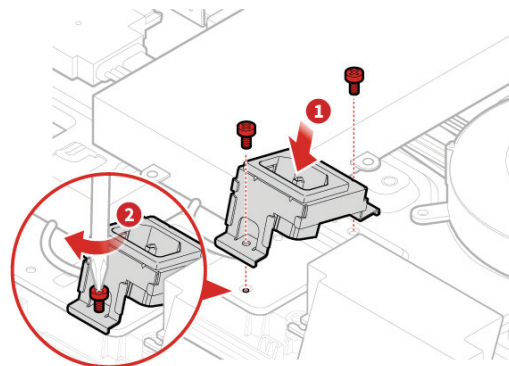
2



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4



9 Connect the ac-in cables to the power supply assembly and middle frame.

10 Reinstall the removed parts and slide cover. For details, see [Completing the parts replacement](#).

Replacing the thermal sensor

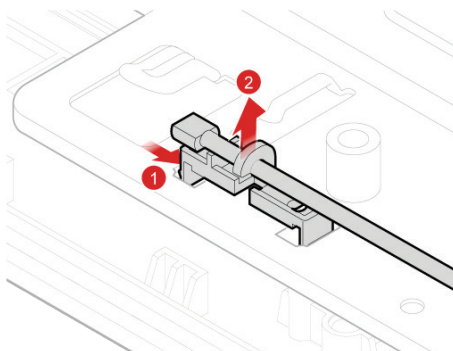


Attention

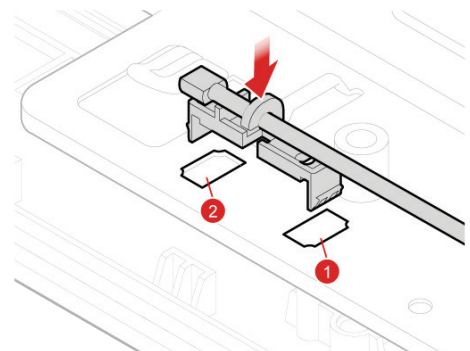
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Remove the VESA mount bracket. For details, see [Replacing the VESA mount bracket and cover presence switch](#).
- 7 Disconnect the thermal sensor cable from the system board. For details, see [System board](#).
- 8 Replace the thermal sensor.

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- 9 Connect the thermal sensor cable to the system board. For details, see [System board](#).
- 10 Reinstall the removed parts and slide cover. For details, see [Completing the parts replacement](#).

Replacing the SATA cables

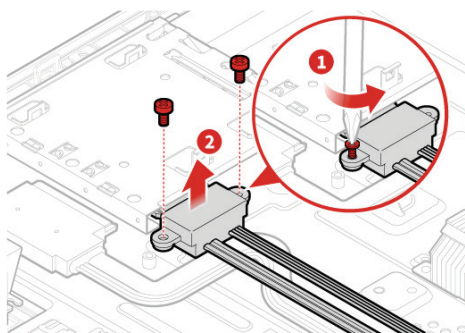


Attention

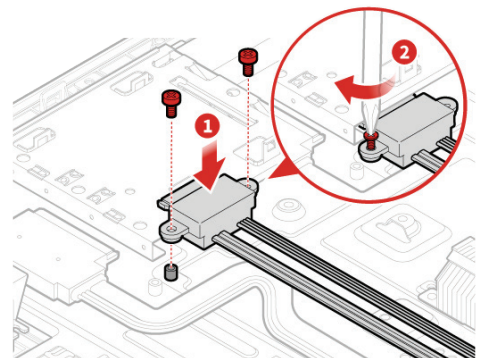
Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Remove the VESA mount bracket. For details, see [Replacing the VESA mount bracket and cover presence switch](#).
- 7 Remove the power supply assembly. For details, see [Replacing the power supply assembly](#).
- 8 Remove the system fan. For details, see [Replacing the system fan](#).
- 9 Disconnect the SATA cables from the system board. For details, see [System board](#).
- 10 Replace the SATA cables.

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- 11 Connect the SATA cables to the system board. For details, see [System board](#).
- 12 Reinstall the removed parts and slide cover. 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*](#).

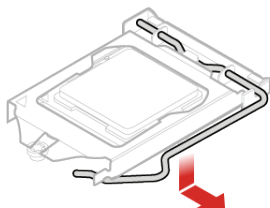
- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Remove the heat sink. For details, see [Replacing the heat sink](#).
- 7 Replace the microprocessor.



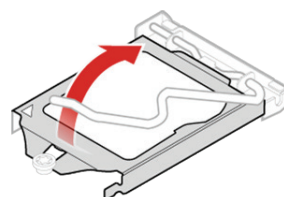
Note

- 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.

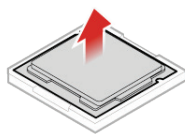
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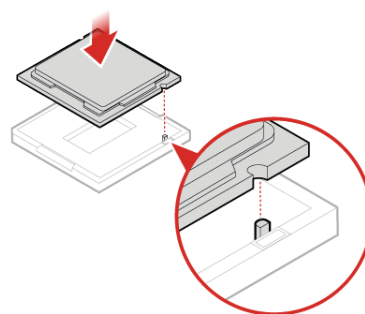
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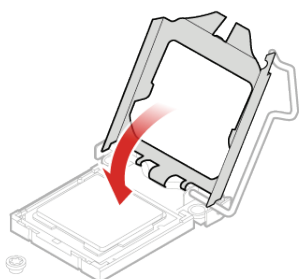
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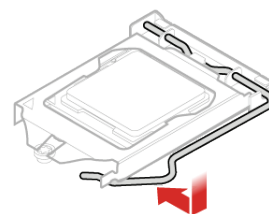
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6



8

Reinstall the removed parts and slide cover. For details, see [Completing the parts replacement](#).

Replacing the system board



Attention

Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 6 Remove the VESA mount bracket. For details, see [Replacing the VESA mount bracket and cover presence switch](#).
- 7 Remove the heat sink. For details, see [Replacing the heat sink](#).
- 8 Remove the microprocessor. For details, see [Replacing the microprocessor](#).
- 9 Remove the Wi-Fi card. For details, see [Replacing the Wi-Fi card](#).
- 10 Remove the USB 3.0 Type-C connector board. For details, see [Replacing the USB 3.0 Type-C connector board](#).
- 11 Remove the card reader. For details, see [Replacing the card reader](#).
- 12 Remove the M.2 storage drive. For details, see [Replacing the M.2 storage drive](#).
- 13 Remove the serial connector module. For details, see [Replacing the serial connector module](#).
- 14 Make a record of the cable routing and cable connections, and then disconnect all cables from the system board. For details, see [System board](#).

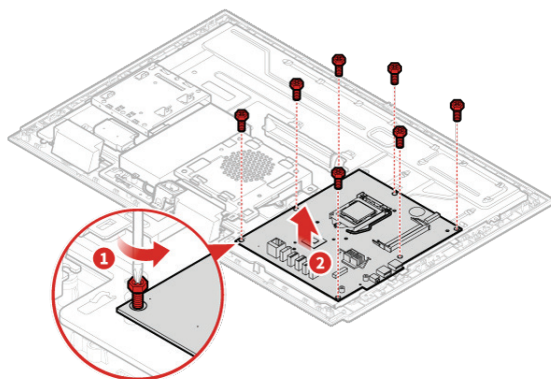
15 Replace the system board.



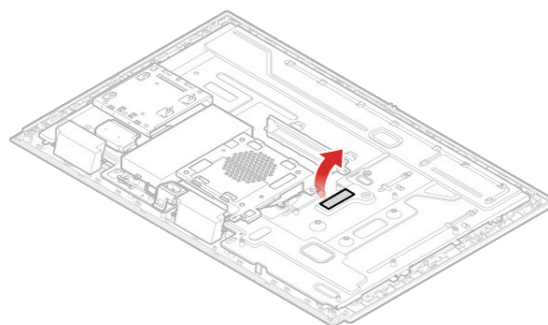
Note

Carefully handle the system board by its edges.

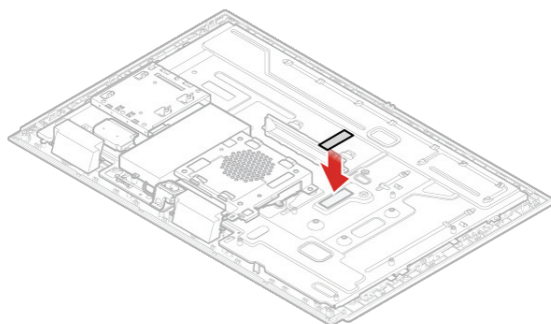
1



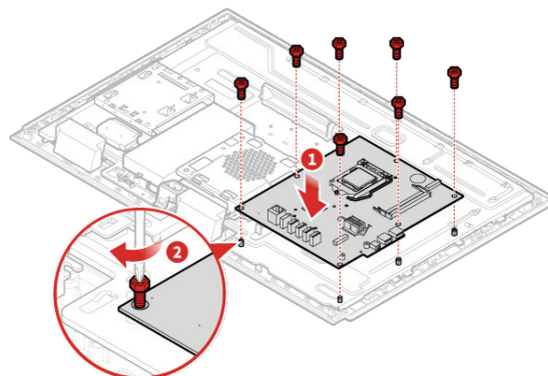
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3



4



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 slide cover. For details, see [Completing the parts replacement](#).

Replacing the LCD panel and middle frame



Attention

Do not open your computer or attempt any repairs before reading the [*Important Product Information Guide*](#).

- 1 Remove the slide cover. For details, see [Removing the slide cover](#).
- 2 Remove the storage drive. For details, see [Replacing the 2.5-inch storage drive](#).
- 3 Remove the optical drive. For details, see [Replacing the optical drive](#).
- 4 Remove the computer cover and side I/O bezel. For details, see [Replacing the computer cover and side I/O bezel](#).
- 5 Remove the integrated camera. For details, see [Replacing the integrated camera](#).
- 6 Remove the system board shield and side I/O bracket. For details, see [Replacing the system board shield and side I/O bracket](#).
- 7 Remove the VESA mount bracket and cover presence switch. For details, see [Replacing the VESA mount bracket and cover presence switch](#).
- 8 Remove the heat sink. For details, see [Replacing the heat sink](#).
- 9 Remove the system fan. For details, see [Replacing the system fan](#).
- 10 Remove the microprocessor. For details, see [Replacing the microprocessor](#).
- 11 Remove the Wi-Fi card. For details, see [Replacing the Wi-Fi card](#).
- 12 Remove the Wi-Fi antennas. For details, see [Replacing the Wi-Fi antennas](#).
- 13 Remove the USB 3.0 Type-C connector board. For details, see [Replacing the USB 3.0 Type-C connector board](#).
- 14 Remove the card reader. For details, see [Replacing the card reader](#).
- 15 Remove the M.2 storage drive. For details, see [Replacing the M.2 storage drive](#).

16 Remove the serial connector module. For details, see [Replacing the serial connector module.](#)

17 Remove the system board. For details, see [Replacing the system board.](#)

18 Remove the internal speakers. For details, see [Replacing the internal speakers.](#)

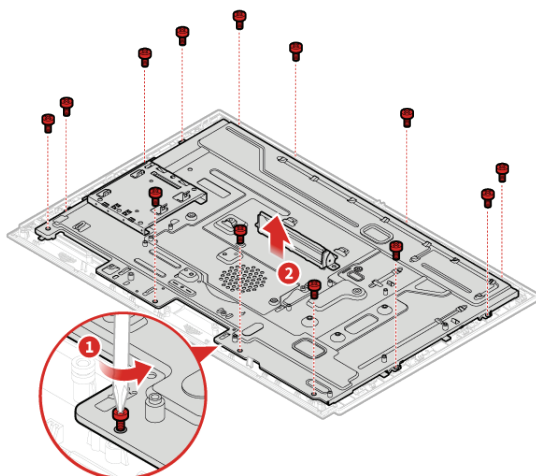
19 Remove the ac-in cables. For details, see [Replacing the ac-in cables.](#)

20 Remove the power supply assembly. For details, see [Replacing the power supply assembly.](#)

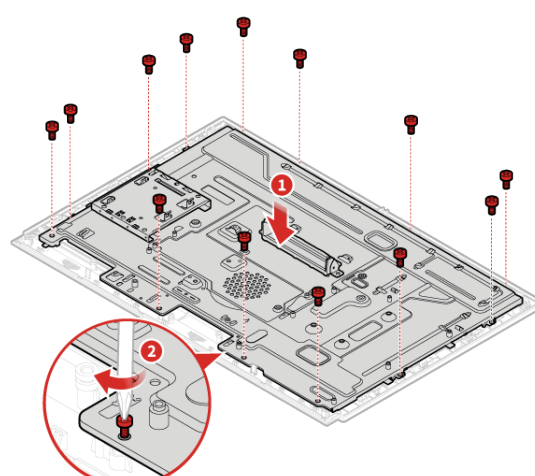
21 Remove the thermal sensor. For details, see [Replacing the thermal sensor.](#)

22 Replace the LCD panel and middle frame.

1



2



23 Reinstall the removed parts and slide cover. For details, see [Completing the parts replacement.](#)

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