Lenovo

V510z

User Guide and Hardware Maintenance Manual

Machine Type (MT):
10NH, 10NJ, 10NQ

Energy Star MT:
10NH, 10NJ, 10NQ

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)

Contents

Overview

Front view

①	**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.
②	**Optical drive activity indicator (optional)**
	This indicator is on when the optical drive is in use.
③	**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.
④	**Integrated camera activity indicator (optional)**
	When the indicator is on, the camera is in use.
⑤	**Integrated camera (optional)**
	Used to take pictures or hold a video conference.
⑥	**Infrared light-emitting diodes (LEDs) (2) (optional)**
	The LEDs will turn on when you try to log in to the computer using the Microsoft® Windows® Hello face authentication feature.

> **Note**   In the Windows 10 operating system, the Windows Hello face authentication feature enables you to log in to the computer using the face recognition. For more details, go to: **https://www.microsoft.com**
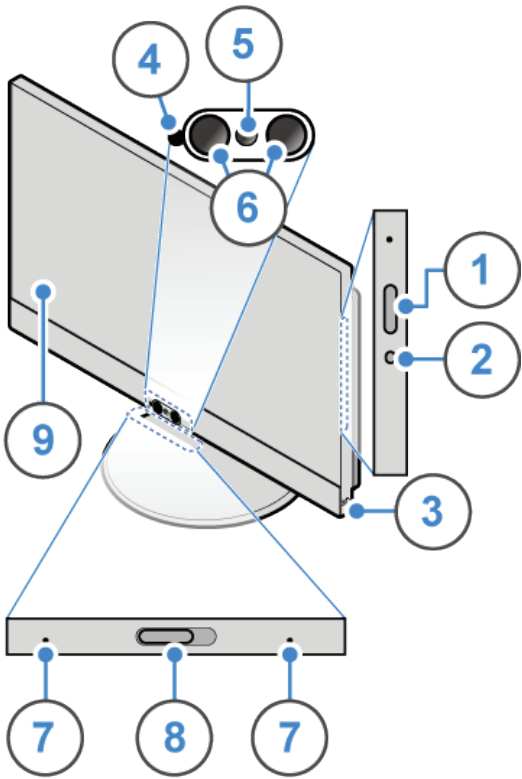
7 **Integrated microphones (2) (optional)**

Used to record sounds or use speech-recognition software without using a microphone.

8 **Integrated camera shield control slider (optional)**

Used to cover the integrated camera.

9 **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.
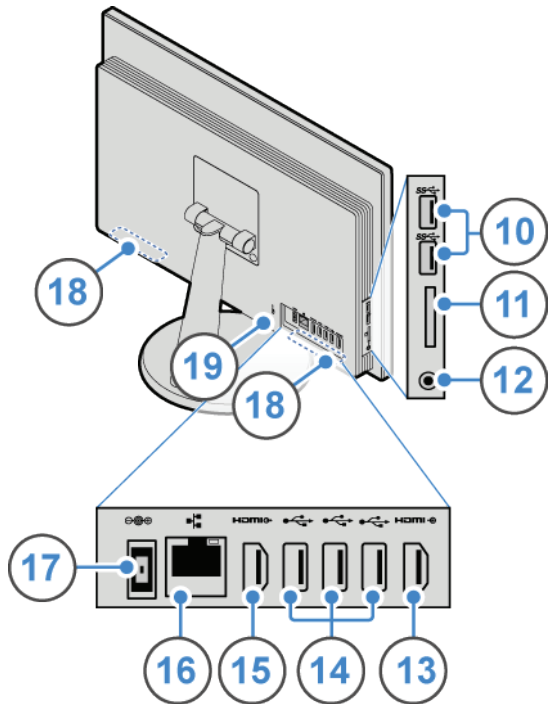
10 USB 3.0 connectors (2)

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.

11 Card reader slot

Used to read data from a supported memory card.

12 Headset connector

Used to connect a headset or headphones to your computer.

13 HDMI™-in connector

Used to receive video and audio signals from another audio or video device, such as an additional computer.

14 USB 2.0 connectors (3)

Used to connect a device that requires a USB 2.0 connection.

15 HDMI-out connector

Used to send video and audio signals from your computer to another audio or video device, such as a high-performance monitor.

16 Ethernet connector

Used to connect an Ethernet cable for network access.

17 Power adapter connector

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

18 Internal speakers (2)

Used to listen to the sounds from your computer without using a headset or headphones.
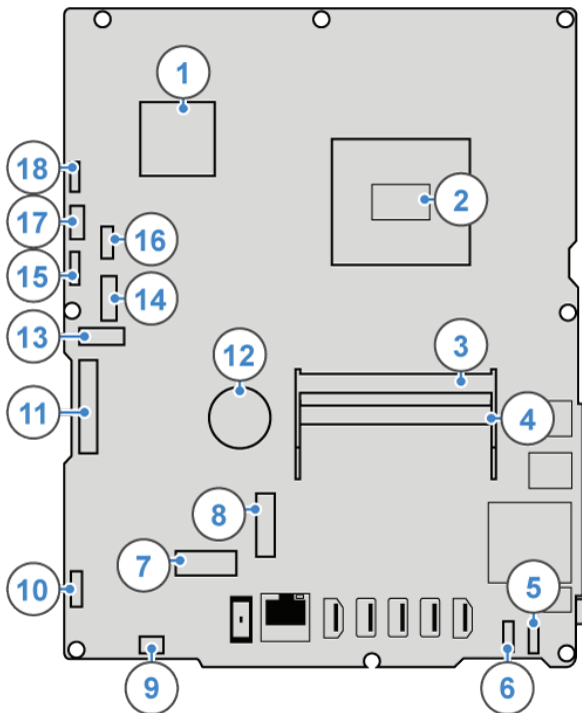
19 Security-lock slot

Used to secure a Kensington-style cable lock.

System board

|	
1	Graphics processor unit (GPU)
2	Microprocessor
3	Memory slot (DIMM2)
4	Memory slot (DIMM1)
5	Internal speaker connector
6	Integrated microphone connector
7	M.2 Wi-Fi card slot
8	M.2 storage drive slot (optional)
9	Integrated camera connector
10	LCD backlight connector
11	LCD panel connector
12	Coin-cell battery
13	SATA 3.0 connector (for connecting a storage drive)
14	Optical drive connector
15	Touch screen connector
16	Power connector (for connecting a storage drive)
17	Power connector (for connecting an optical drive)
18	Microprocessor fan connector

Adjusting the monitor stand

> 📝 **Note**   The monitor stand is available only on some models.
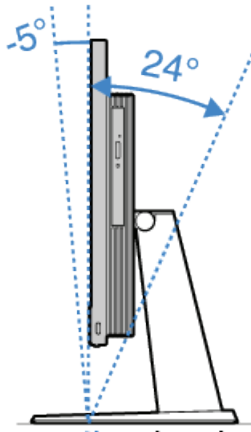
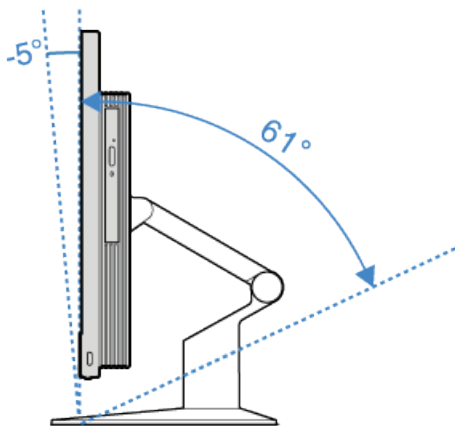Adjust the vertical position of the computer between 5° forward and 24° back.
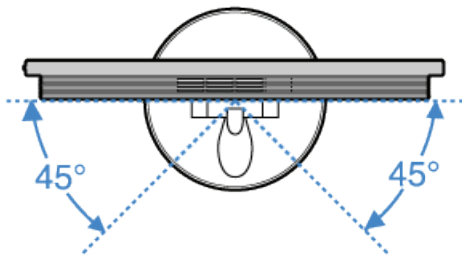
Adjust the angle of the computer between 45° to the left and 45° to the right.

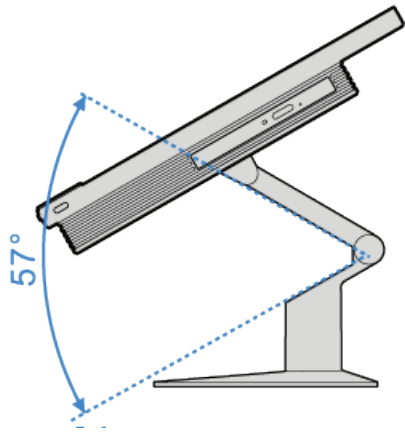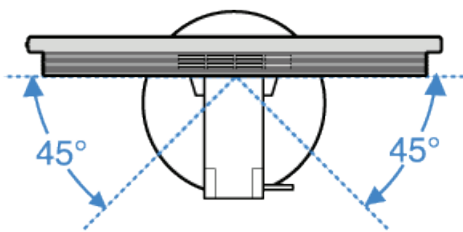# Adjusting the UltraFlex II Stand

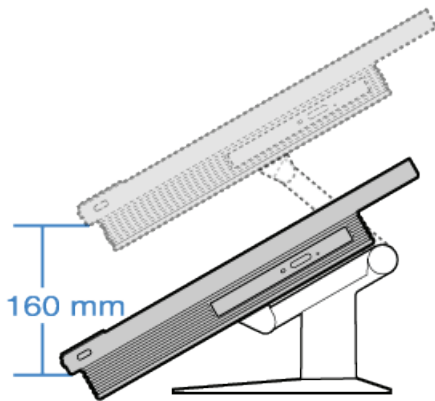> 📝 **Note**   The UltraFlex II Stand is available only on some models.

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 57°.

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

Adjust the height of the UltraFlex II Stand up to a length of 160 mm (6.3 inches).

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.
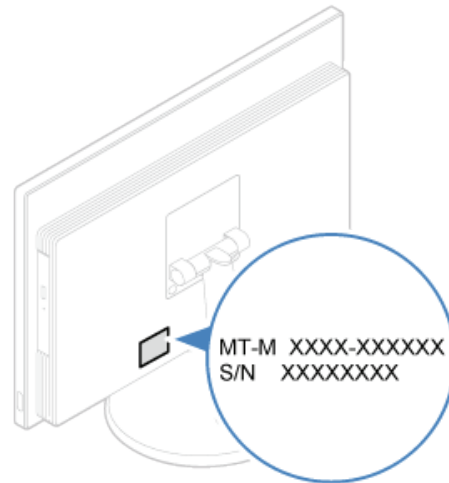
Computer locks

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.
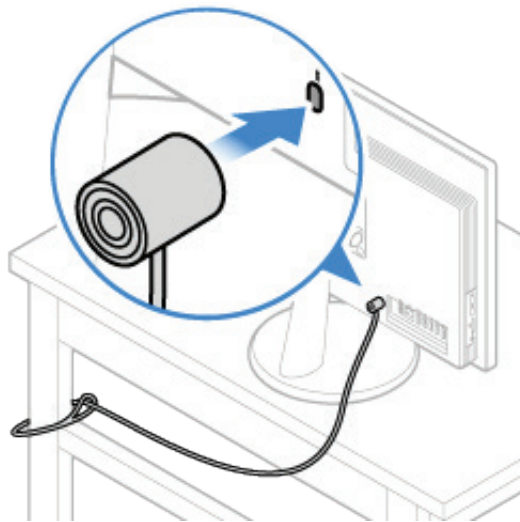
Specifications

Power supply	• 90 watt automatic voltage-sensing power supply • 120 watt automatic voltage-sensing power supply
Storage drives	Up to two storage drives
Video features	• HDMI-in connector • HDMI-out connector
Audio features	The integrated audio card supports the following: • Headset connector • Integrated microphone • Internal speaker The optional discrete audio card provides an enhanced audio experience and extended capabilities.
Input/Output (I/O) features	• Audio connectors (headset connector and integrated microphone connector) • Card reader slot • Ethernet connector • HDMI-in connector • HDMI-out connector • Headset connector • USB connectors
Expansion	• Memory slots • Optical drive (optional) • Storage drive bay

Network features	• Ethernet LAN
	• Wireless LAN (optional)
	• Bluetooth (optional)
Physical dimensions	• Width: 526 mm (20.7 inches)
	• Height: 339 mm (13.3 inches)
	• Depth: 47 mm (1.9 inches)
Weight (without the package)	Maximum configuration as shipped: 7.5 kg (16.5 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 might look different from the one illustrated.
> • Some of the following parts are optional on some models.

Self-service CRU
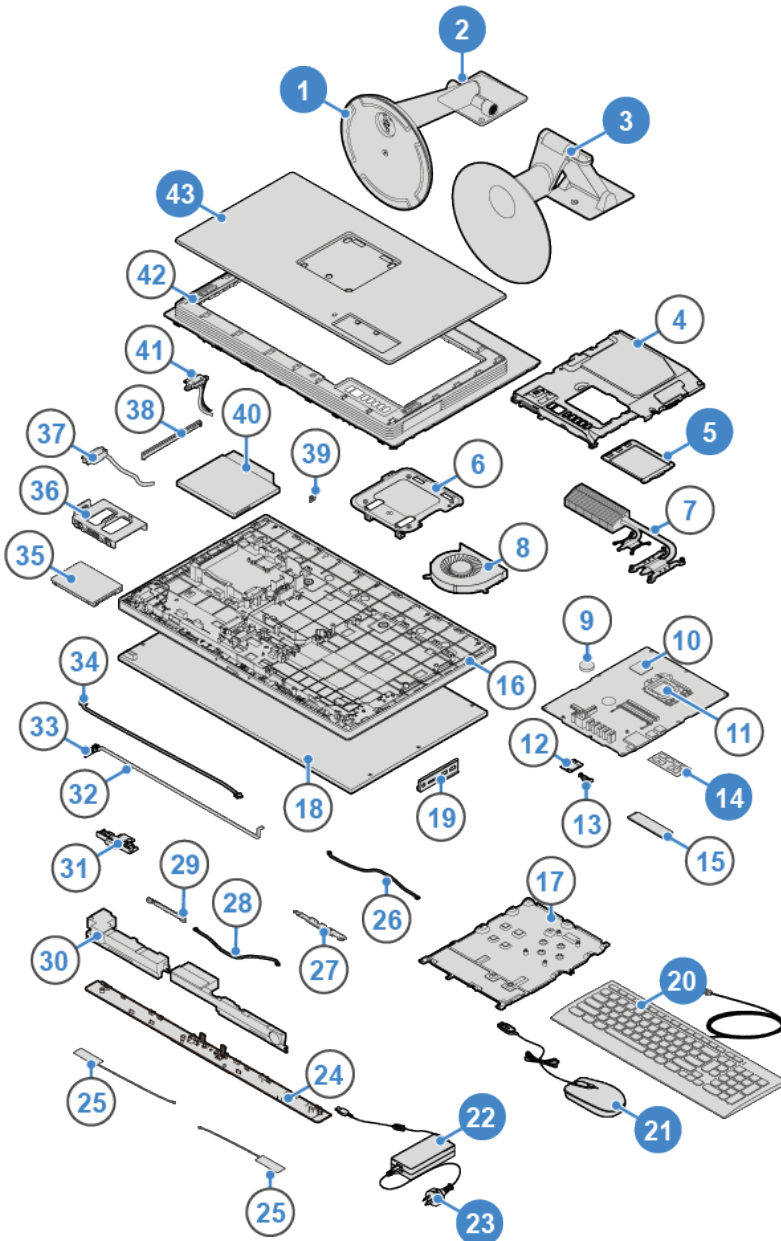
1	Monitor stand base *p. 23*
2	Monitor stand *p. 23*
3	UltraFlex II Stand *p. 24*
5	Memory module shield *p. 26*
14	Memory module *p. 26*
20	Keyboard or wireless keyboard *p. 19*
21	Mouse or wireless mouse *p. 20*
22	Power adapter *p. 22*
23	Power cord *p. 22*
43	Computer cover *p. 25*
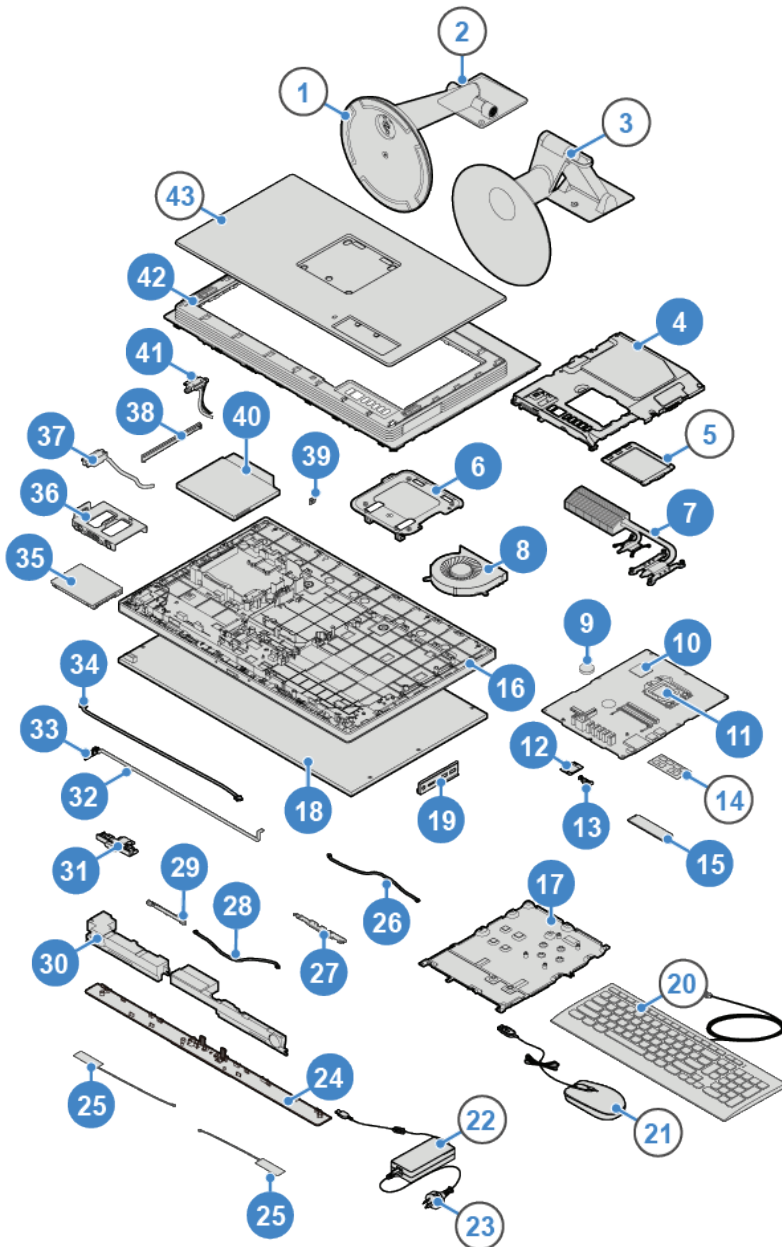
4	**System board shield** `p. 37`
6	**VESA® mount bracket** `p. 32`
7	**Heat sink** `p. 41`
8	**System fan** `p. 42`
9	**Coin-cell battery** `p. 47`
10	**System board** `p. 59`
11	**Microprocessor** `p. 52`
12	**Wi-Fi card** `p. 44`
13	**Wi-Fi card shield** `p. 44`
15	**M.2 solid-state drive** `p. 43`
16	**LCD bezel** `p. 54`
17	**System board frame** `p. 59`
18	**LCD panel** `p. 54`
19	**I/O bracket** `p. 59`
24	**Front decorative cover** `p. 38`
25	**Wi-Fi antennas (2)** `p. 49`
26	**Integrated microphone cable** `p. 51`
27	**Integrated microphone** `p. 51`
28	**Integrated camera cable** `p. 56`
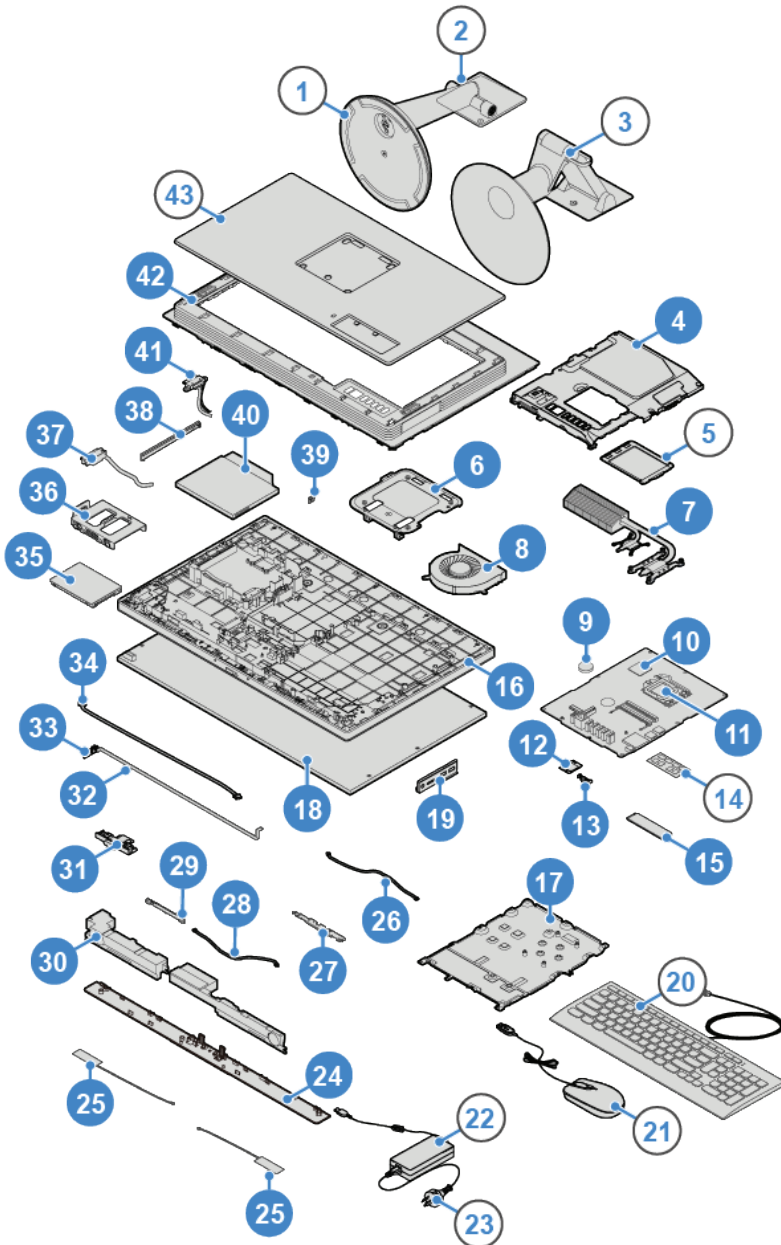
29	Integrated camera *p. 56*
30	Internal speakers *p. 46*
31	Integrated camera shield control slider *p. 58*
32	Power button board cable *p. 36*
33	Power button board *p. 36*
34	LCD cable *p. 54*
35	Storage drive *p. 31*
36	Storage drive bracket *p. 31*
37	Storage drive cable *p. 39*
38	Optical drive *p. 33*
39	Optical drive bezel *p. 33*
40	Optical drive bracket *p. 33*
41	Optical drive cable *p. 40*
42	Middle frame *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 repairs before reading the *Important Product Information Guide.*

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

| Keyboard or wireless keyboard ❯	Mouse or wireless mouse ❯	Power adapter ❯
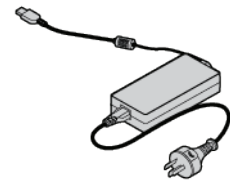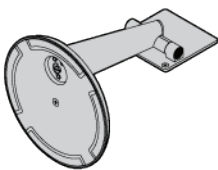
Monitor stand ❯	UltraFlex II Stand ❯	Computer cover ❯
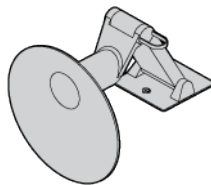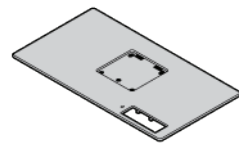
Memory module ❯
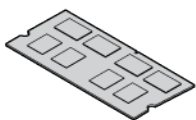
> 📝 **Note**   To replace a component that is not in the list above, contact a Lenovo service technician. The support phone numbers are available at http://www.lenovo.com/support/phone.

Replacing the 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.
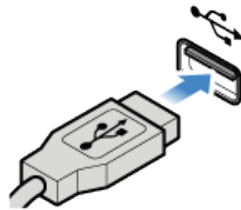
Replacing the wireless keyboard

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.
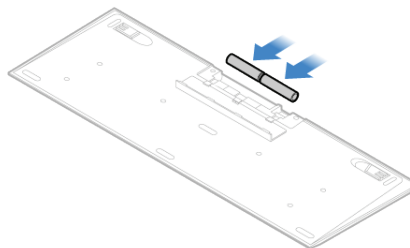
4   Remove the USB dongle from the keyboard compartment or from the wireless mouse compartment and connect it to an available USB connector on the computer.

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.
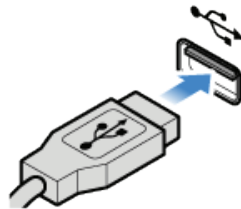
Replacing the wireless mouse

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.
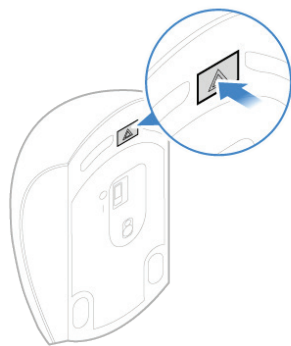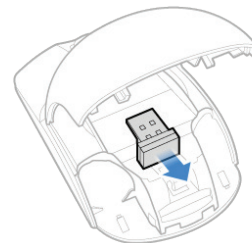
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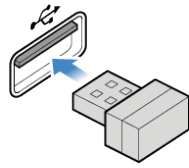
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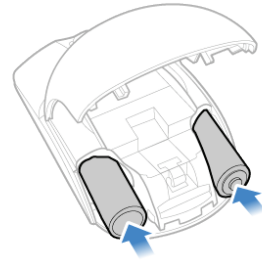
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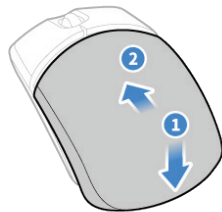
6
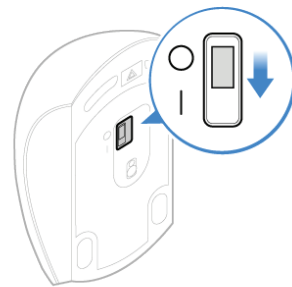
📝 **Note**	• The green LED indicates that the mouse is ready for use.
	• The flashing amber LED indicates a low battery level.
	• Push the power switch to the off position when you are not using the mouse to extend the battery life.
	• After disconnecting the USB dongle from your computer, store it in the wireless mouse compartment or in the wireless keyboard compartment.

Replacing the power adapter

> ⚠️ **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 adapter.

①
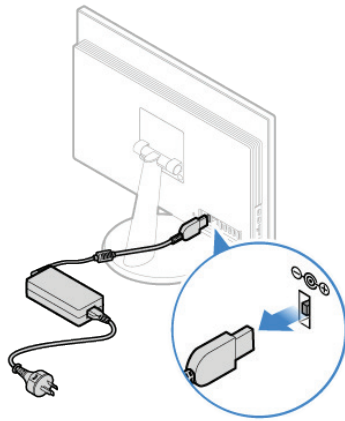
②
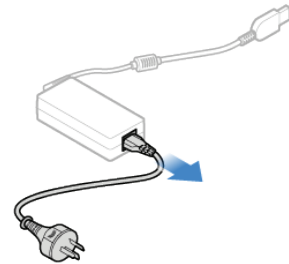
③
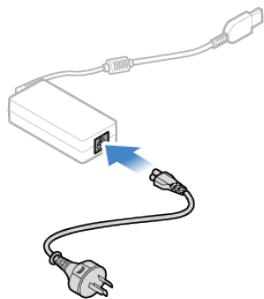
④
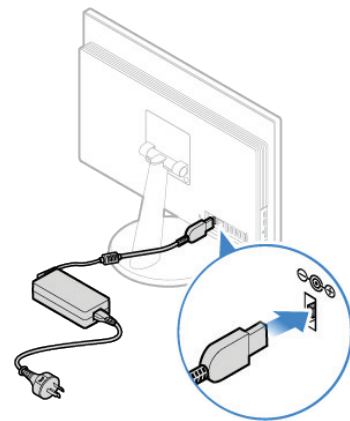
Replacing the monitor stand

> **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.
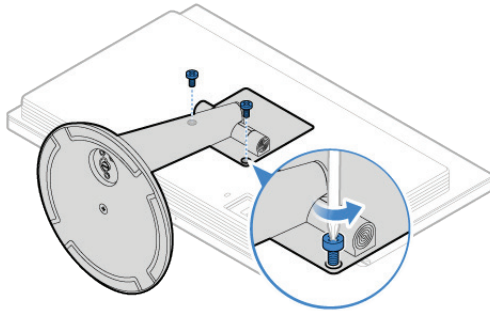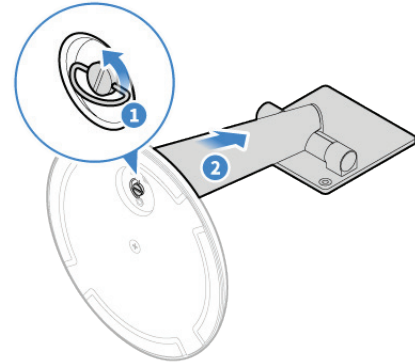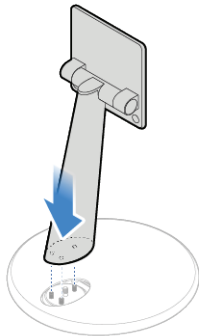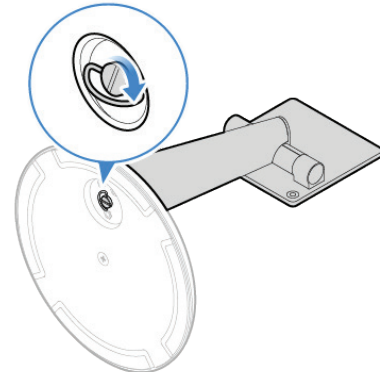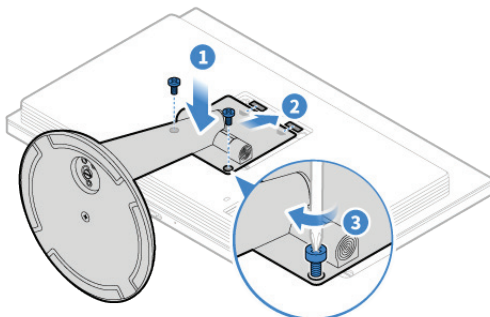
Replacing the UltraFlex II Stand

> 📝 **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.
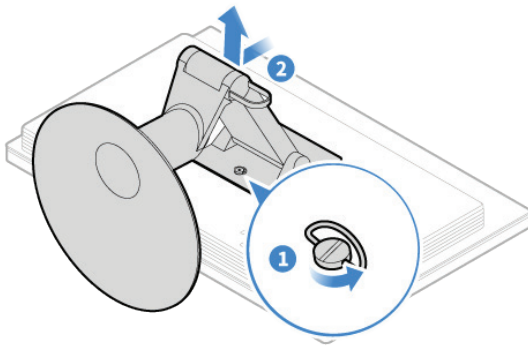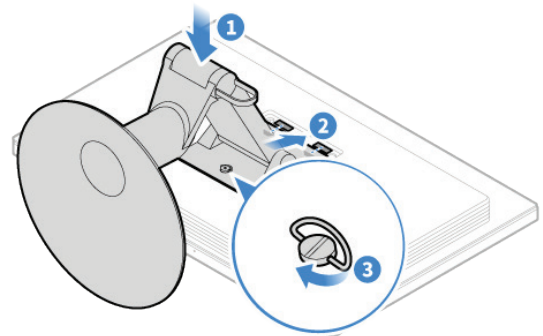
Removing the computer cover

> **⚠ 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.

2 Disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.

3 Remove the computer stand. For details, see *Replacing the monitor stand* or *Replacing the UltraFlex II Stand.*

4 Unlock any locking device that secures the computer cover.

5 Remove the computer cover.
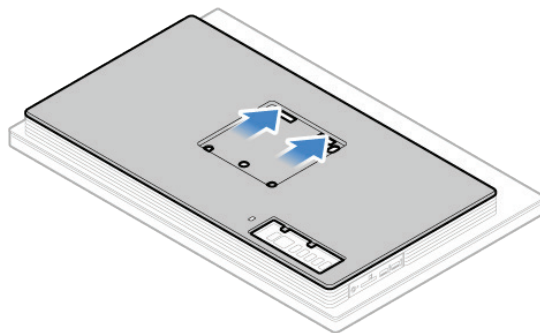
Replacing the memory module

> **⚠ 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 computer cover. For details, see `Removing the computer cover.`

3 Replace the memory module.
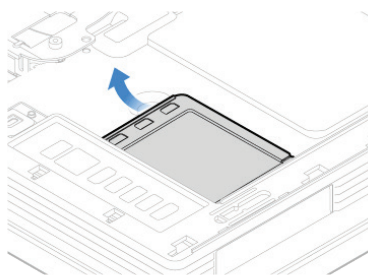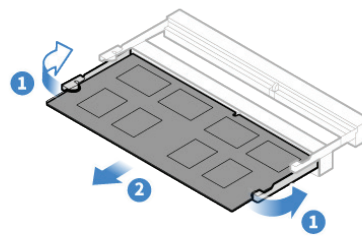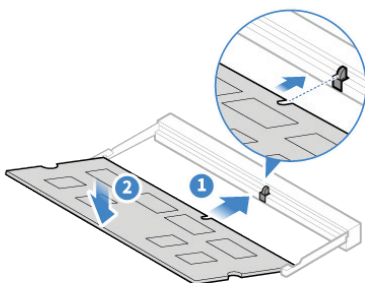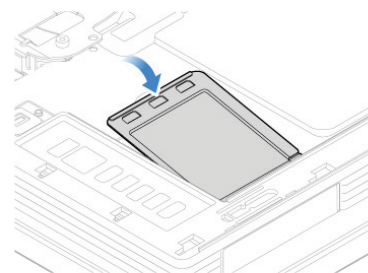
4 Reinstall the removed parts and computer cover. For details, see `Completing the parts replacement.`

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.
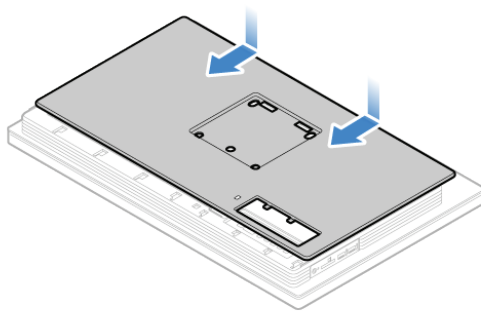
4. Install the computer stand. For details, see Replacing the monitor stand or Replacing the UltraFlex II Stand.

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.**

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.
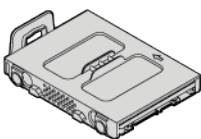
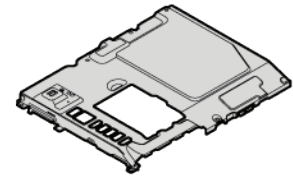| Storage drive ❯	VESA mount bracket ❯	Optical drive ❯
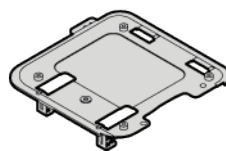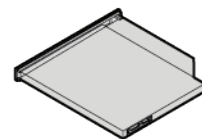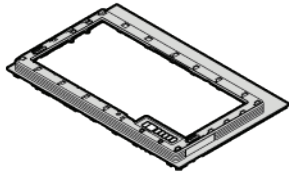
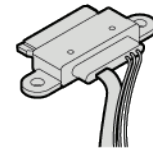| Middle frame >	Power button board >	System board shield >
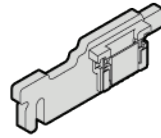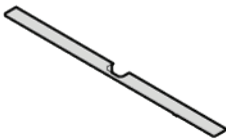
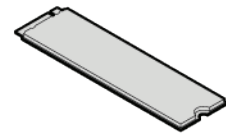| Front decorative cover >	Storage drive cable >	Optical drive cable >
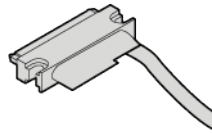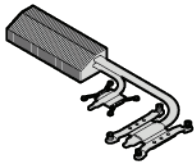
Heat sink >	System fan >	M.2 solid-state drive >
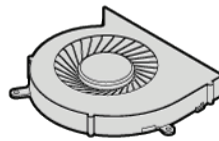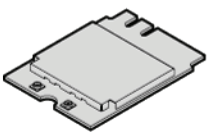
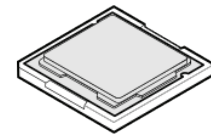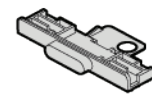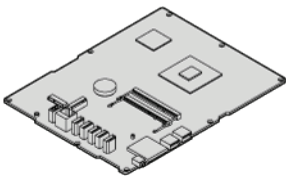| Wi-Fi card >	Internal speakers >	Coin-cell battery >
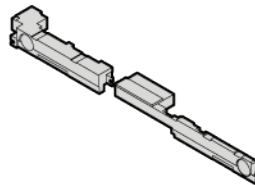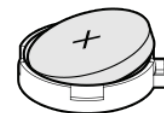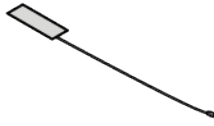
Wi-Fi antennas >	Integrated microphone >	Microprocessor >
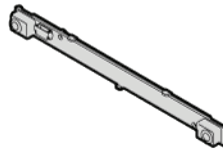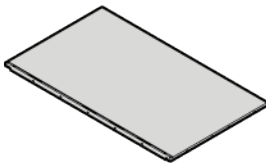
LCD panel >	Integrated camera >	Integrated camera shield control slider >
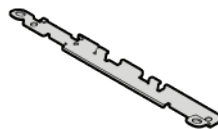
System board >	I/O bracket >
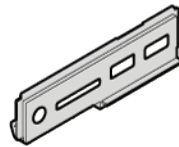
📝 **Note** To replace a component that is not in the list above, contact a Lenovo service technician. The support phone numbers are available at http://www.lenovo.com/support/phone.

Replacing the 2.5-inch storage drive
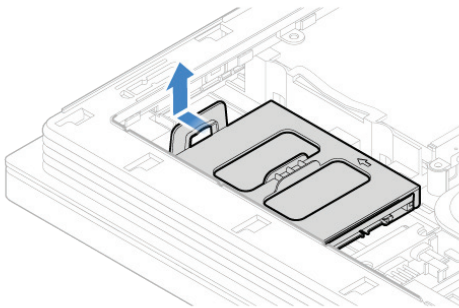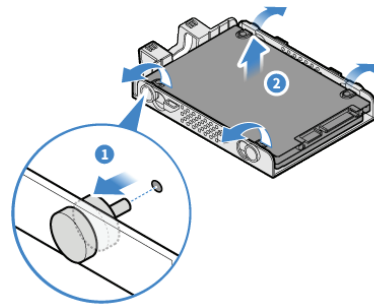
> ⊕ **Attention**   Do not open your computer or attempt any repairs before reading the *Important Product Information Guide.*

1   Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2   Remove the computer cover. For details, see `Removing the computer cover.`
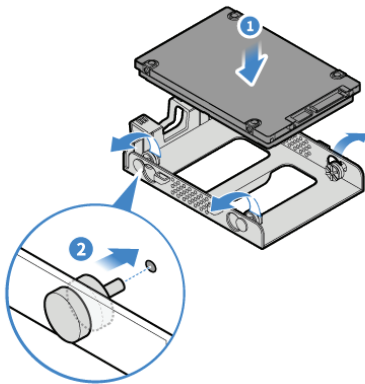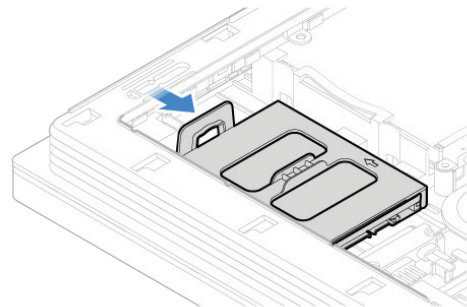
3   Replace the 2.5-inch storage drive.

4   Reinstall the computer cover and 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 the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2   Remove the computer cover. For details, see `Removing the computer cover.`

3   Replace the VESA mount bracket.

4   Reinstall the removed parts and computer cover. For details, see `Completing the parts replacement.`
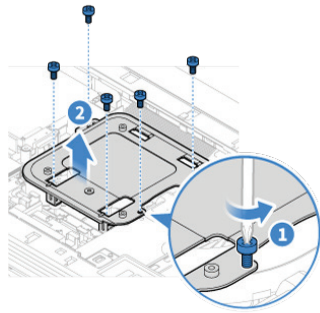
Replacing the optical drive
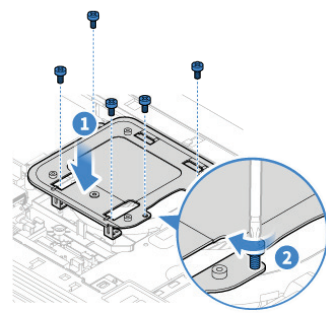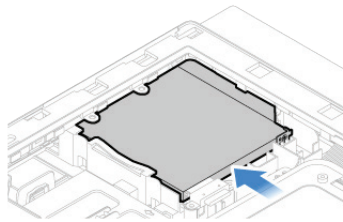
> **⚠ Attention** Do not open your computer or attempt any repairs before reading the *Important Product Information Guide.*

1 Remove the computer stand. For details, see *Replacing the monitor stand* or *Replacing the UltraFlex II Stand.*

2 Remove the computer cover. For details, see *Removing the computer cover.*

3 Replace the optical drive.

①

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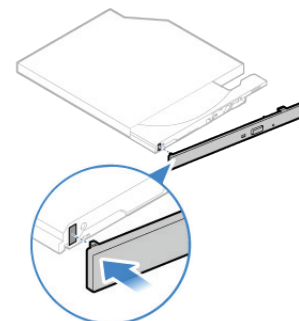
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4   Reinstall the removed parts and computer cover. For details, see *Completing the parts replacement.*

Replacing the middle frame

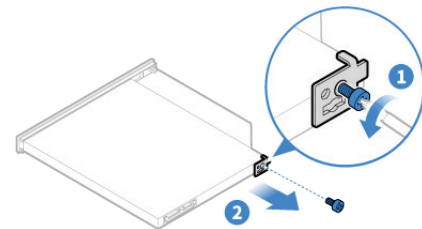> ⚠️ **Attention**   Do not open your computer or attempt any repairs before reading the *Important Product Information Guide.*

1. Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2. Remove the computer cover. For details, see `Removing the computer cover.`
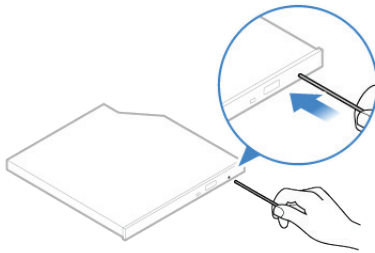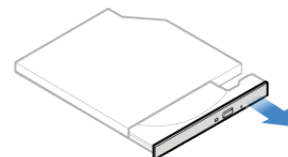
3. Remove the optical drive. For details, see `Replacing the optical drive.`

4. Replace the middle frame.

5. Reinstall the removed parts and computer cover. For details, see `Completing the parts replacement.`

Replacing the power button board

> ⚠️ **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 computer cover. For details, see `Removing the computer cover.`
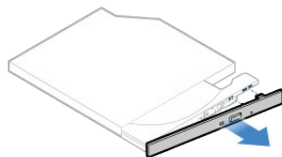
3   Remove the optical drive. For details, see `Replacing the optical drive.`

4   Remove the middle frame. For details, see `Replacing the middle frame.`

5   Disconnect the power button board cable.

6   Replace the power button board.

7   Connect the power button board cable to the new power button board.
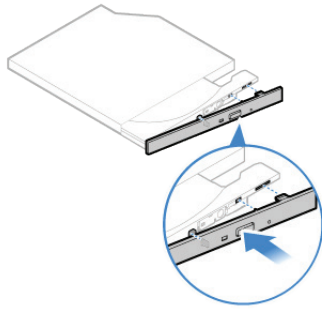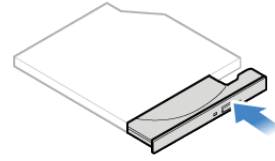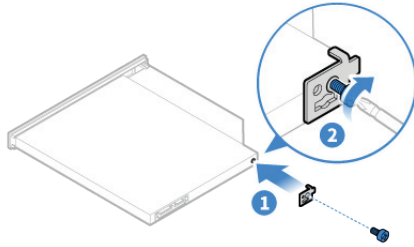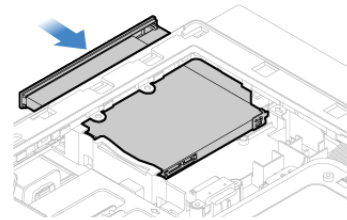
8   Reinstall the removed parts and computer cover. For details, see `Completing the parts replacement.`

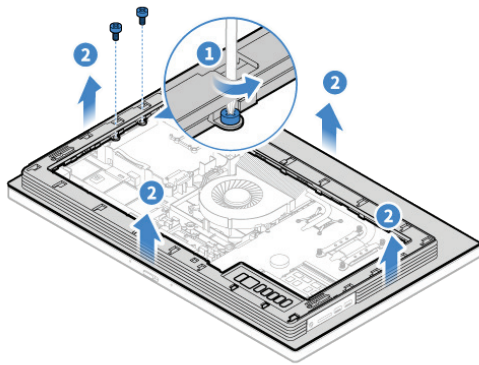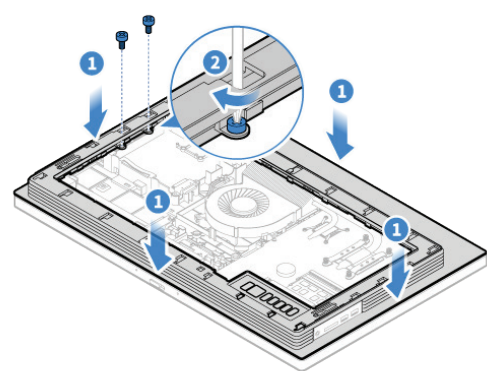# Replacing the system board shield

> ⚠️ **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 computer cover. For details, see *Removing the computer cover.*

3. Remove the optical drive. For details, see *Replacing the optical drive.*

4. Remove the VESA mount bracket. For details, see *Replacing the VESA mount bracket.*

5. Remove the middle frame. For details, see *Replacing the middle frame.*

6. Replace the system board shield.

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

Replacing the front decorative cover
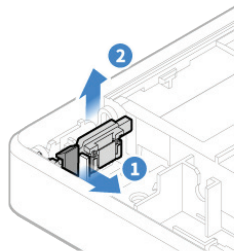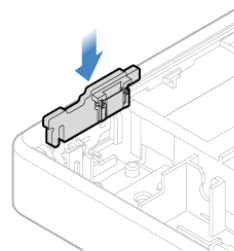
> ⚠️ **Attention**   Do not open your computer or attempt any repairs before reading the *Important Product Information Guide.*

1   Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2   Remove the computer cover. For details, see `Removing the computer cover.`

3   Remove the optical drive. For details, see `Replacing the optical drive.`

4   Remove the middle frame. For details, see `Replacing the middle frame.`

5   Replace the front decorative cover.

6   Reinstall the removed parts and computer cover. For details, see `Completing the parts replacement.`

Replacing the 2.5-inch storage drive cable
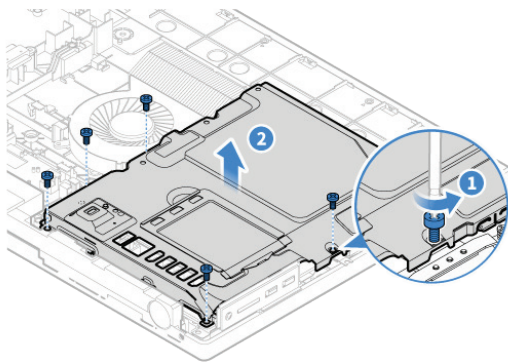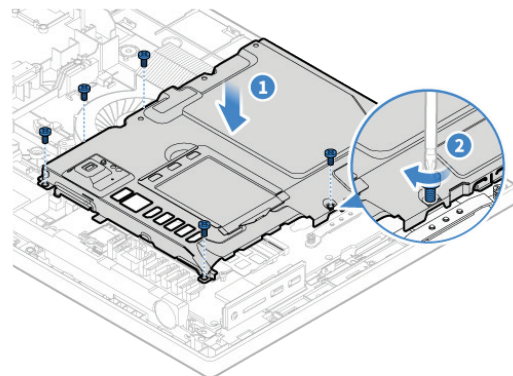
> **⚠ Attention**   Do not open your computer or attempt any repairs before reading the *Important Product Information Guide.*

1   Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2   Remove the computer cover. For details, see `Removing the computer cover.`

3   Remove the VESA mount bracket. For details, see `Replacing the VESA mount bracket.`

4   Remove the middle frame. For details, see `Replacing the middle frame.`

5   Remove the system board shield. For details, see `Replacing the system board shield.`

6   Disconnect the power cable and the signal cable from the system board. For details, see `System board.`

7   Replace the 2.5-inch storage drive cable.

8   Connect the power cable and the signal cable to the system board. For details, see `System board.`

9   Reinstall the removed parts and computer cover. For details, see `Completing the parts replacement.`

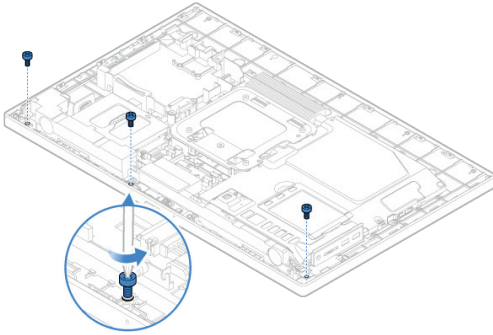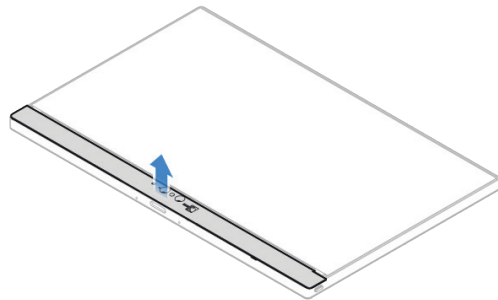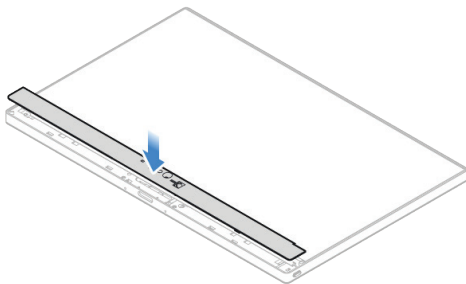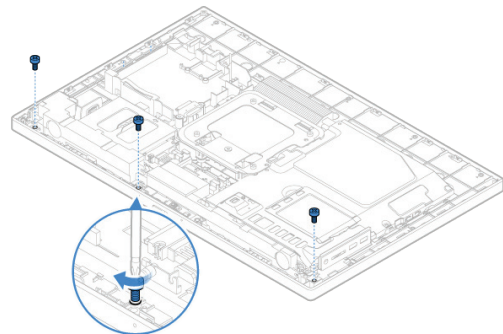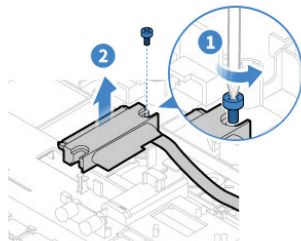# Replacing the optical drive cable

> ⚠️ **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 computer cover. For details, see `Removing the computer cover.`

3　Remove the VESA mount bracket. For details, see `Replacing the VESA mount bracket.`

4　Remove the middle frame. For details, see `Replacing the middle frame.`

5　Remove the system board shield. For details, see `Replacing the system board shield.`

6　Disconnect the power cable and the signal cable from the system board. For details, see `System board.`

7　Replace the optical drive cable.

8　Connect the power cable and the signal cable to the system board. For details, see `System board.`

9　Reinstall the removed parts and computer cover. For details, see `Completing the parts replacement.`
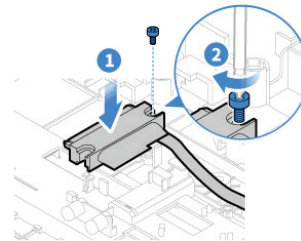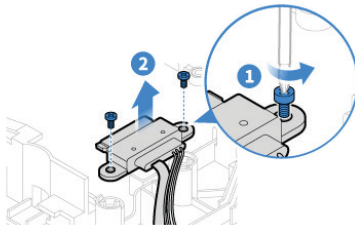
Replacing the heat sink

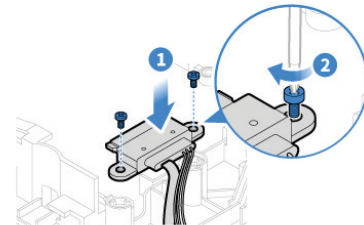> ⚠️ **Attention**   Do not open your computer or attempt any repairs before reading the *Important Product Information Guide*.

1   Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2   Remove the computer cover. For details, see `Removing the computer cover.`

3   Remove the optical drive. For details, see `Replacing the optical drive.`

4   Remove the VESA mount bracket. For details, see `Replacing the VESA mount bracket.`

5   Remove the middle frame. For details, see `Replacing the middle frame.`

6   Remove the system board shield. For details, see `Replacing the system board shield.`

7   Replace the heat sink.

8   Reinstall the removed parts and computer cover. For details, see `Completing the parts replacement.`
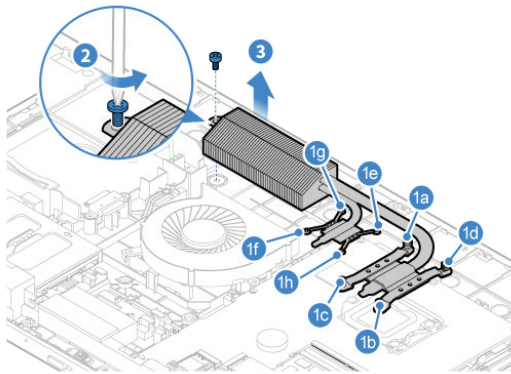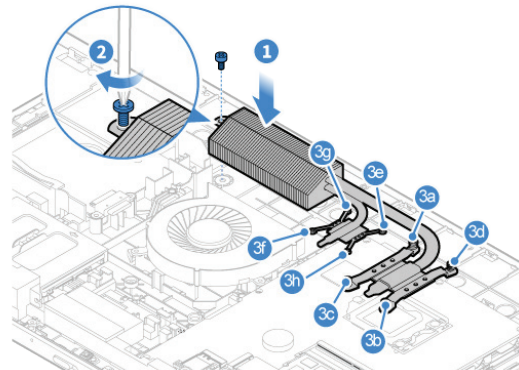
Replacing the system fan

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

1. Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2. Remove the computer cover. For details, see `Removing the computer cover.`

3. Remove the optical drive. For details, see `Replacing the optical drive.`

4. Remove the VESA mount bracket. For details, see `Replacing the VESA mount bracket.`

5. Remove the middle frame. For details, see `Replacing the middle frame.`

6. Remove the system board shield. For details, see `Replacing the system board shield.`

7. Disconnect the microprocessor fan cable from the system board. For details, see `System board.`

8. Replace the system fan.

9. Connect the microprocessor fan cable to the system board. For details, see `System board.`

10. Reinstall the removed parts and computer cover. For details, see `Completing the parts replacement.`
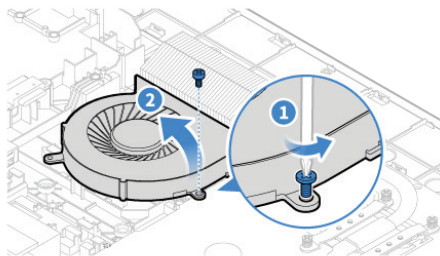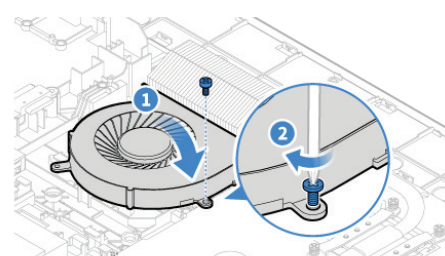
Replacing the M.2 storage drive

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

1   Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2   Remove the computer cover. For details, see `Removing the computer cover.`

3   Remove the optical drive. For details, see `Replacing the optical drive.`

4   Remove the VESA mount bracket. For details, see `Replacing the VESA mount bracket.`

5   Remove the middle frame. For details, see `Replacing the middle frame.`

6   Remove the system board shield. For details, see `Replacing the system board shield.`

7   Replace the M.2 storage drive.

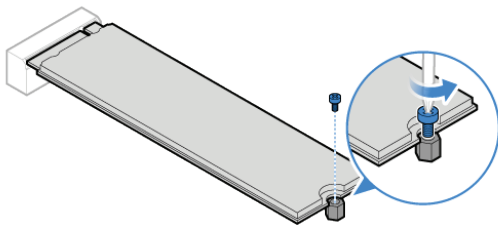8   Reinstall the removed parts and computer cover. For details, see `Completing the parts replacement.`

Replacing the Wi-Fi card
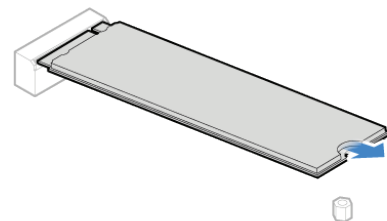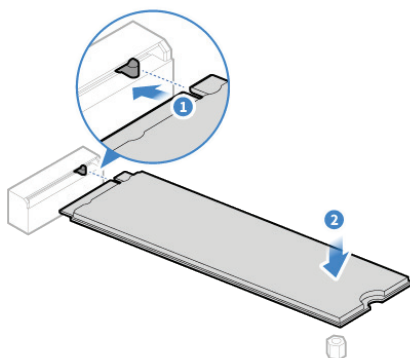
> ⚠ **Attention**   Do not open your computer or attempt any repairs before reading the *Important Product Information Guide.*

1   Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2   Remove the computer cover. For details, see `Removing the computer cover.`

3   Remove the optical drive. For details, see `Replacing the optical drive.`

4   Remove the VESA mount bracket. For details, see `Replacing the VESA mount bracket.`

5   Remove the middle frame. For details, see `Replacing the middle frame.`

6   Remove the system board shield. For details, see `Replacing the system board shield.`
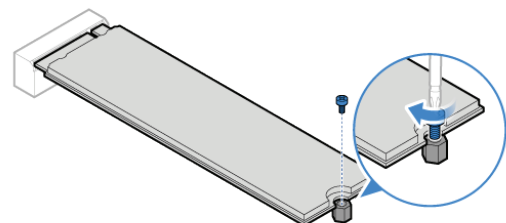
7   Replace the Wi-Fi card.

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8   Reinstall the removed parts and computer cover. For details, see *Completing the parts replacement.*
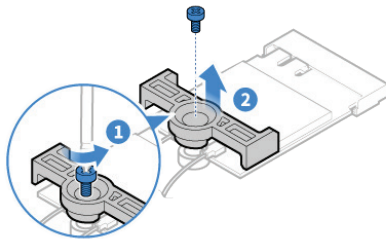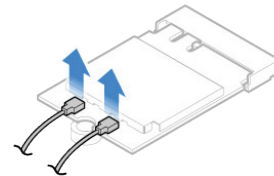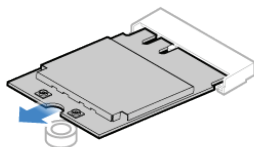
Replacing the internal speakers

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

1 Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2 Remove the computer cover. For details, see `Removing the computer cover.`

3 Remove the optical drive. For details, see `Replacing the optical drive.`

4 Remove the VESA mount bracket. For details, see `Replacing the VESA mount bracket.`

5 Remove the middle frame. For details, see `Replacing the middle frame.`

6 Remove the system board shield. For details, see `Replacing the system board shield.`

7 Disconnect the internal speaker cable from the system board. For details, see `System board.`

8 Replace the internal speakers.

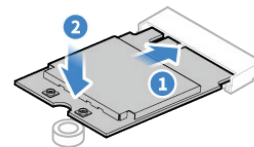9 Connect the internal speaker cable to the system board. For details, see `System board.`

10 Reinstall the removed parts and computer 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 computer stand. For details, see Replacing the monitor stand or Replacing the UltraFlex II Stand.

2   Remove the computer cover. For details, see Removing the computer cover.

3   Remove the optical drive. For details, see Replacing the optical drive.

4   Remove the VESA mount bracket. For details, see Replacing the VESA mount bracket.

5   Remove the middle frame. For details, see Replacing the middle frame.

6   Remove the system board shield. For details, see Replacing the system board shield.
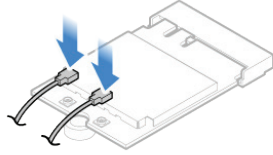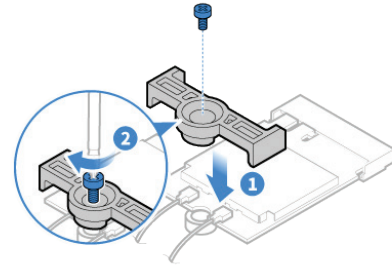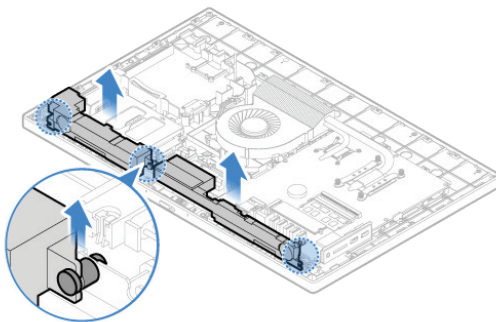
7   Replace the coin-cell battery.
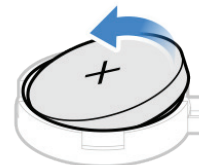
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8 Reinstall the removed parts and computer cover. For details, see Completing the parts replacement.

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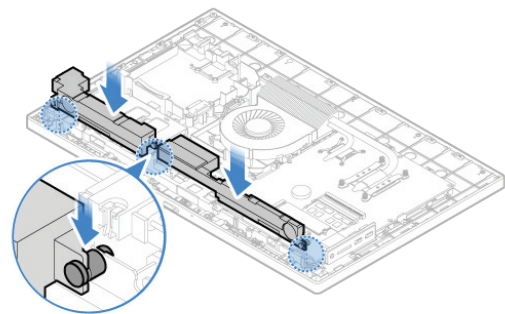
Replacing the Wi-Fi antennas

> ⚠ **Attention** Do not open your computer or attempt any repairs before reading the *Important Product Information Guide.*
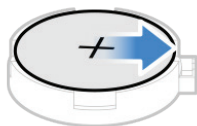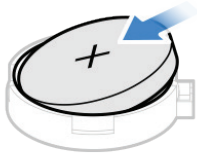
1 Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2 Remove the computer cover. For details, see `Removing the computer cover.`

3 Remove the optical drive. For details, see `Replacing the optical drive.`

4 Remove the VESA mount bracket. For details, see `Replacing the VESA mount bracket.`

5 Remove the middle frame. For details, see `Replacing the middle frame.`

6 Remove the system board shield. For details, see `Replacing the system board shield.`
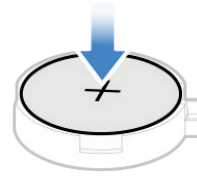
7 Replace the internal speakers. For details, see `Replacing the internal speakers.`

8 Replace the Wi-Fi antennas.

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9 Reinstall the removed parts and computer cover. For details, see *Completing the parts replacement.*

Replacing the integrated microphone
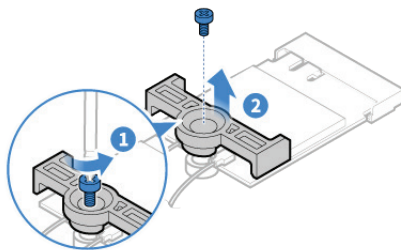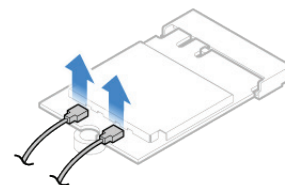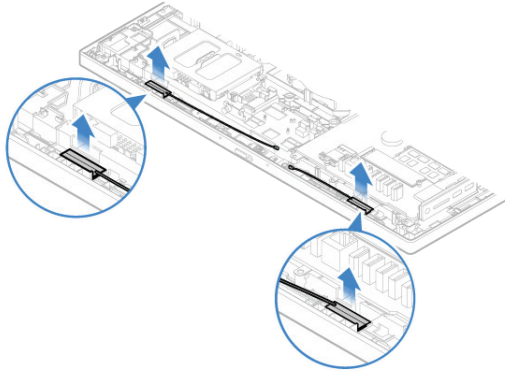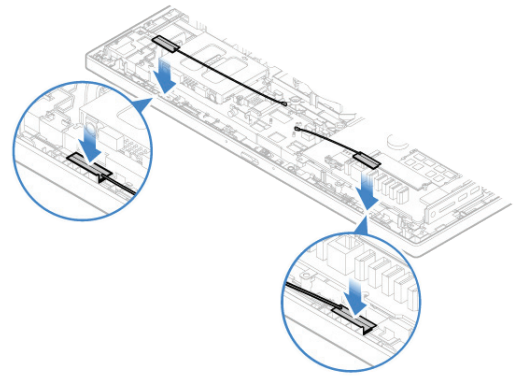
> ⚠️ **Attention**   Do not open your computer or attempt any repairs before reading the *Important Product Information Guide.*

1   Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2   Remove the computer cover. For details, see `Removing the computer cover.`

3   Remove the optical drive. For details, see `Replacing the optical drive.`

4   Remove the VESA mount bracket. For details, see `Replacing the VESA mount bracket.`

5   Remove the middle frame. For details, see `Replacing the middle frame.`

6   Remove the system board shield. For details, see `Replacing the system board shield.`

7   Replace the internal speakers. For details, see `Replacing the internal speakers.`

8   Disconnect the integrated microphone cable from the microphone.

9   Replace the integrated microphone.
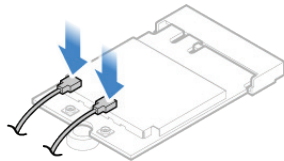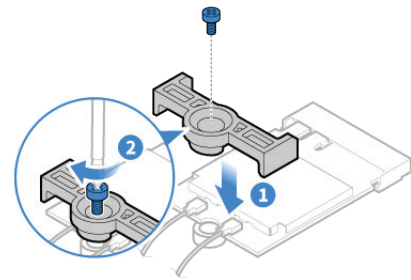

10   Connect the integrated microphone cable to the new microphone.

11   Reinstall the removed parts and computer cover. For details, see `Completing the parts replacement.`
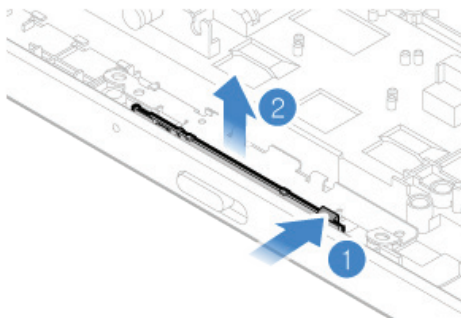
Replacing the microprocessor

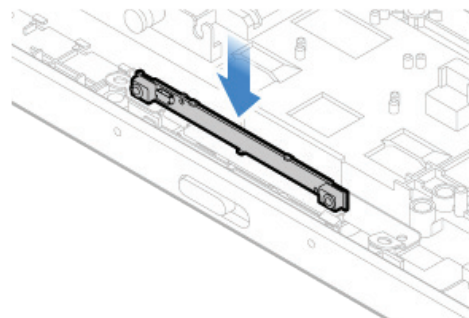> ⚠ **Attention** Do not open your computer or attempt any repairs before reading the *Important Product Information Guide.*

1   Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2   Remove the computer cover. For details, see `Removing the computer cover.`

3   Remove the optical drive. For details, see `Replacing the optical drive.`

4   Remove the VESA mount bracket. For details, see `Replacing the VESA mount bracket.`

5   Remove the middle frame. For details, see `Replacing the middle frame.`

6   Remove the system board shield. For details, see `Replacing the system board shield.`

7   Remove the heat sink. For details, see `Replacing the heat sink.`

8   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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9 Reinstall the removed parts and computer cover. 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*.
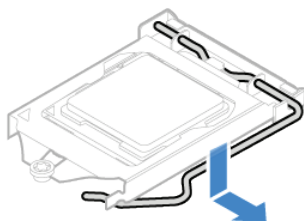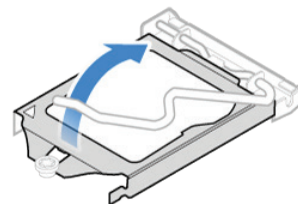
1   Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2   Remove the computer cover. For details, see `Removing the computer cover.`

3   Remove the optical drive. For details, see `Replacing the optical drive.`

4   Remove the VESA mount bracket. For details, see `Replacing the VESA mount bracket.`

5   Remove the middle frame. For details, see `Replacing the middle frame.`

6   Remove the system board shield. For details, see `Replacing the system board shield.`

7   Remove the front decorative cover. For details, see `Replacing the front decorative cover.`

8   Remove the heat sink. For details, see `Replacing the heat sink.`

9   Disconnect the LCD cable from the LCD panel.
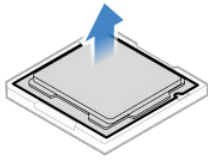
10   Replace the LCD panel.
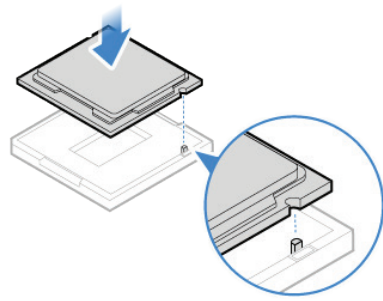
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11 Connect the LCD cable to the new LCD panel.

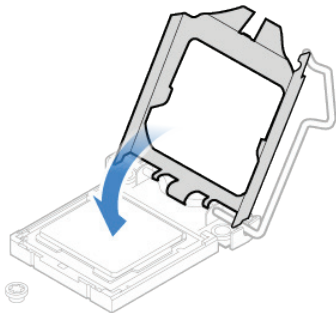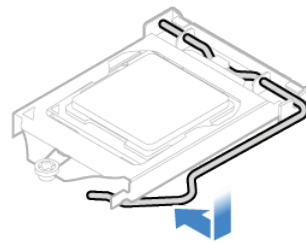*12* Reinstall the removed parts and computer cover. For details, see Completing the parts replacement.
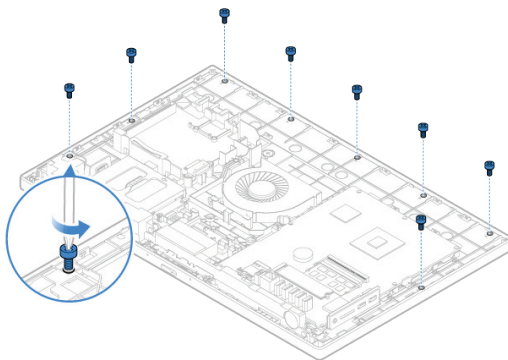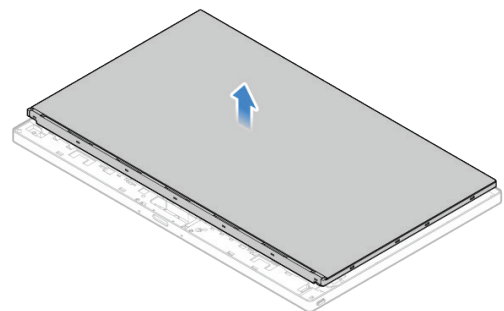
Replacing the integrated camera

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

1   Remove the computer stand. For details, see `Replacing the monitor stand` or `Replacing the UltraFlex II Stand.`

2   Remove the computer cover. For details, see `Removing the computer cover.`

3   Remove the optical drive. For details, see `Replacing the optical drive.`

4   Remove the VESA mount bracket. For details, see `Replacing the VESA mount bracket.`

5   Remove the middle frame. For details, see `Replacing the middle frame.`

6   Remove the system board shield. For details, see `Replacing the system board shield.`

7   Replace the internal speakers. For details, see `Replacing the internal speakers.`

8   Disconnect the integrated camera cable from the camera.

9   Depending on your computer model, refer to one of the following to replace the integrated camera.
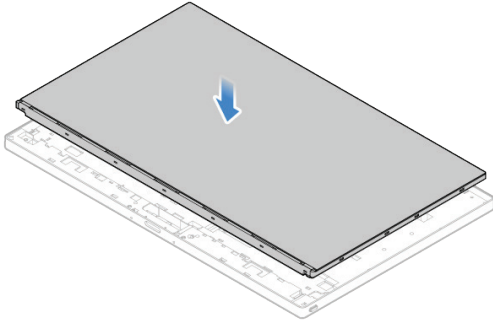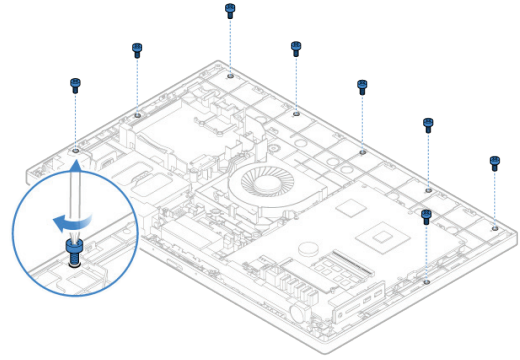
   • Type 1

• Type 2
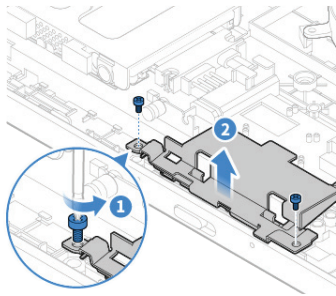
①   ②
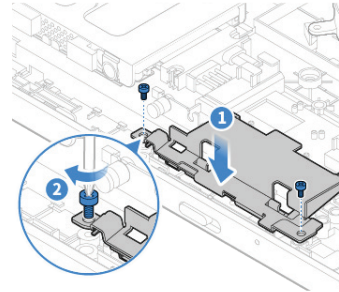
10   Connect the integrated camera cable to the new camera.

11   Reinstall the removed parts and computer cover.   For details, see *Completing the parts replacement.*

Replacing the integrated camera shield control slider

> **Note** The integrated camera shield control slider is available only on some models.
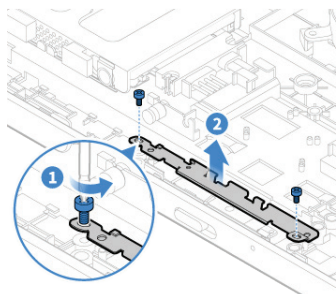
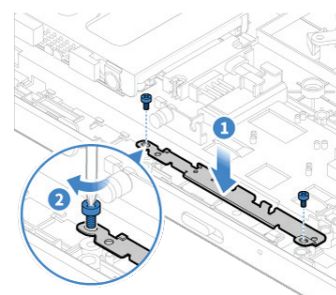> **Attention** Do not open your computer or attempt any repairs before reading the *Important Product Information Guide.*

1 Remove the computer stand. For details, see Replacing the monitor stand or Replacing the UltraFlex II Stand.

2 Remove the computer cover. For details, see Removing the computer cover.

3 Remove the VESA mount bracket. For details, see Replacing the VESA mount bracket.

4 Remove the middle frame. For details, see Replacing the middle frame.

5 Remove the system board shield. For details, see Replacing the system board shield.

6 Replace the internal speakers. For details, see Replacing the internal speakers.

7 Replace the integrated camera. For details, see Replacing the integrated camera.

8 Replace the integrated camera shield control slider.

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9 Reinstall the removed parts and computer cover. For details, see Completing the parts replacement.

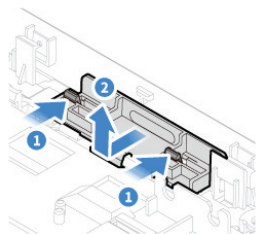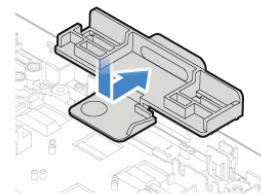# Replacing the system board and I/O bracket

> **⊘ 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 computer cover. For details, see `Removing the computer cover.`

3. Remove the optical drive. For details, see `Replacing the optical drive.`

4. Remove the memory module. For details, see `Replacing the memory module.`

5. Remove the VESA mount bracket. For details, see `Replacing the VESA mount bracket.`

6. Remove the middle frame. For details, see `Replacing the middle frame.`

7. Remove the system board shield. For details, see `Replacing the system board shield.`

8. Remove the heat sink. For details, see `Replacing the heat sink.`

9. Remove the M.2 storage drive. For details, see `Replacing the M.2 storage drive.`

10. Remove the Wi-Fi card. For details, see `Replacing the Wi-Fi card.`

11. Remove the microprocessor. For details, see `Replacing the microprocessor.`

12. Make a record of the cable routing and cable connections, and then disconnect all cables from the system board.   For details, see `System board.`

13. Replace the system board and I/O bracket.

> **📝 Note**   Carefully handle the system board by its edges.
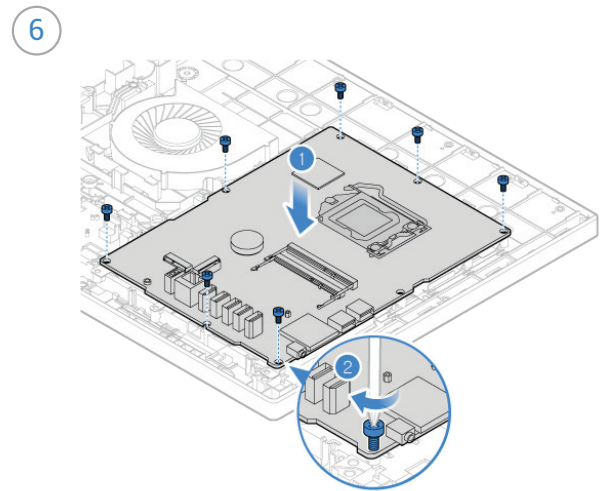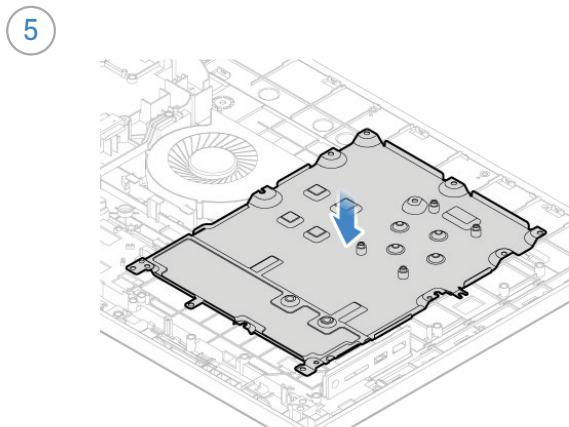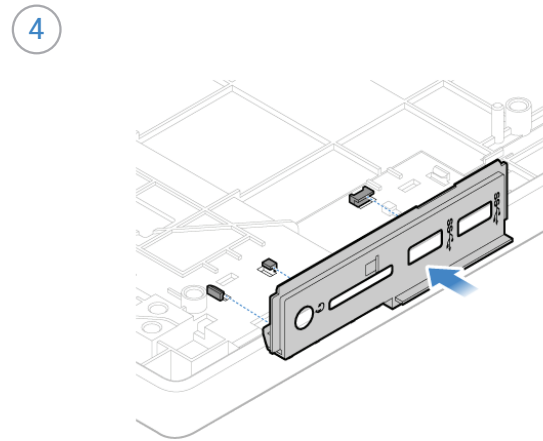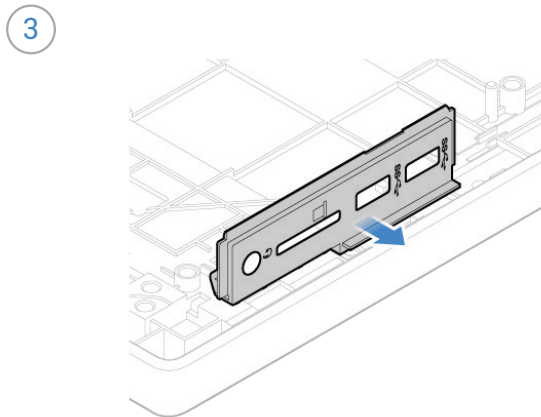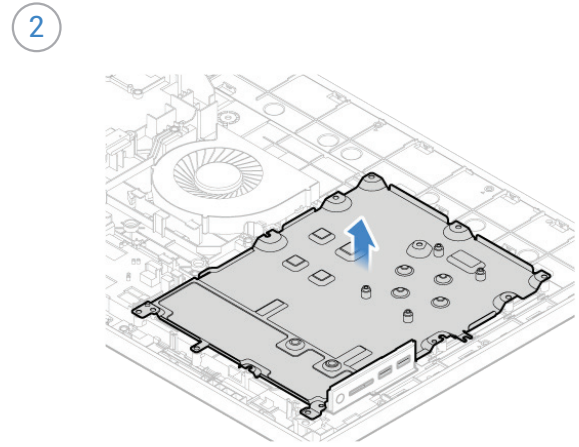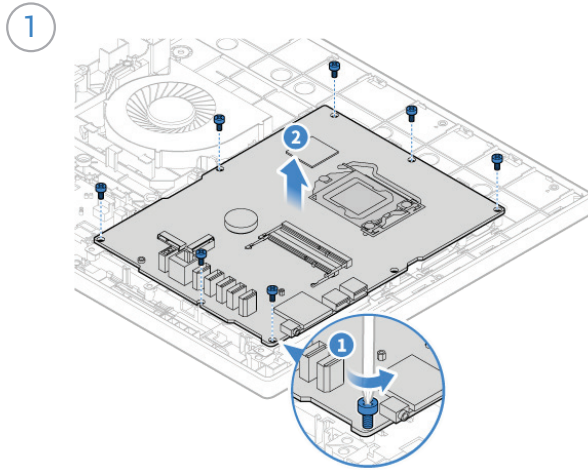
14 Route all the cables that you disconnected from the failing system board, and then reconnect the cables to the new system board.   For details, see `System board.`

15 ReinsReinstall the removed parts and computer cover. For details, see `Completing the parts replacement.`

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