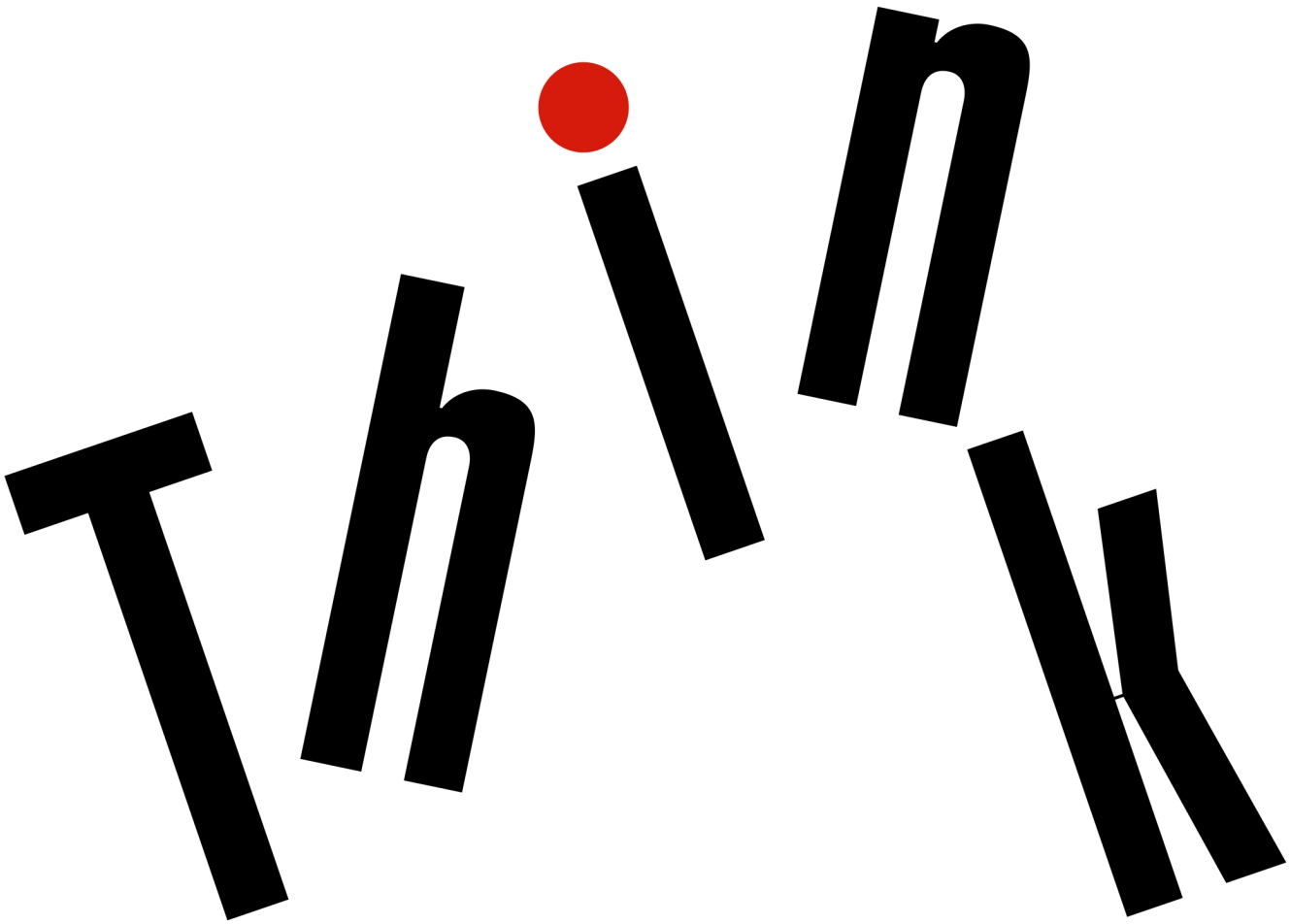
ThinkCentre®

M710e User Guide and Hardware Maintenance Manual



Lenovo

Energy Star Machine Types: 10UQ, 10UR, 10VB, and 10VC

Note: Before using this information and the product it supports, be sure to read and understand the *Important Product Information Guide* and Appendix A “Notices” on page 45.

Second Edition (August 2019)

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Chapter 1. Overview

This chapter provides basic information to help you get familiar with your computer.

Front view

Note: Your computer model might look slightly different from the illustration.

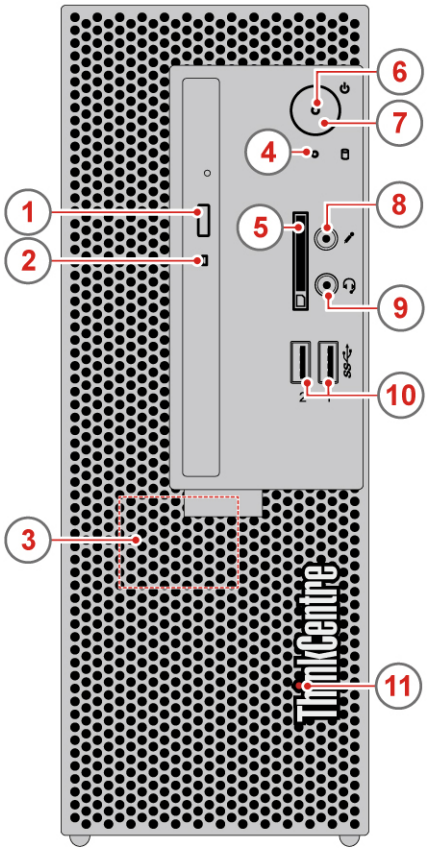

Figure 1. Front view

1 Optical drive eject/close button	2 Optical drive status indicator
3 Internal speaker (optional)	4 Storage drive status indicator
5 Card reader slot (optional)	6 Power indicator
7 Power button	8 Microphone connector
9 Headset connector	10 USB 3.1 Gen 1 connectors (2)
11 Illuminated red dot	

1 Optical drive eject/close button

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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 status indicator

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

3 Internal speaker (optional)

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

4 Storage drive status indicator

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

5 Card reader slot (optional)

Used to read data from a supported memory card.

6 Power indicator

This indicator is on when the computer is on.

7 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.

8 Microphone connector

Used to connect a microphone to your computer. You can use the microphone to record sounds or interact with the computer using speech-recognition software.

9 Headset connector

Used to connect headphones to your computer.

10 USB 3.1 Gen 1 connector

Used to connect a USB-compatible device. For optimal data transfer, connect a USB 3.1 device to a USB 3.1 connector instead of a USB 3.0 or USB 2.0 connector.

11 Illuminated red dot

This indicator is on when the computer is on.

Rear view

Note: Your computer model might look slightly different from the illustration.

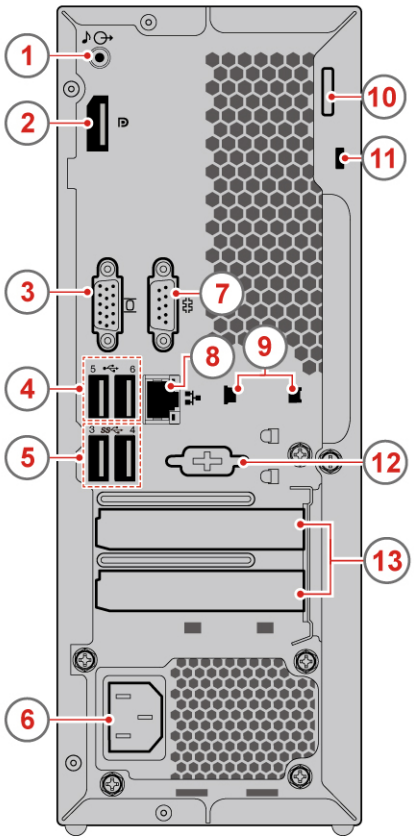

Figure 2. Rear view

1 Audio line-out connector	2 DisplayPort®-out connector
3 VGA-out connector	4 USB 2.0 connectors (2)
5 USB 3.1 Gen 1 connectors (2)	6 Power cord connector
7 Serial connector	8 Ethernet connector
9 Cable lock slots (2)	10 Padlock loop
11 Security-lock slot	12 Serial connector (optional)
13 PCI-Express card area	

1 Audio line-out connector

Used to send audio signals from the computer to external devices, such as powered stereo speakers, headphones, or multimedia keyboards. To connect a stereo system or other external recording device,

connect a cable between the audio line-in connector of the device and the audio line-out connector of the computer.

Note: If your computer has both an audio line-out connector and a headset or headphone connector, always use the headset connector or headphone connector for earphones, headphones, or a headset. The headphone connector does not support headset microphones.

2 DisplayPort connector

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

3 VGA-out connector

Used to send video signals from the computer to another video device, such as a monitor.

4 USB 2.0 connector

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

5 USB 3.1 Gen 1 connector

Used to connect a USB-compatible device. For optimal data transfer, connect a USB 3.1 Gen 1 device to a USB 3.1 or USB 3.1 Gen 1 connector instead of a USB 2.0 connector.

6 Power cord connector

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

7 Serial connector

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

8 Ethernet connector

Used to connect an Ethernet cable for network access.

9 Cable lock slots

Used to secure a cable lock.

10 Padlock loop

Used to secure a padlock.

11 Security-lock slot

Used to secure a Kensington-style cable lock.

12 Serial connector (optional)

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

13 PCI-Express card area

To improve the operating performance of the computer, you can connect PCI-Express cards into this area. Depending on the computer model, the connectors in this area vary.

System board

Note: See “Front view” on page 1 and “Rear view” on page 3 for additional component descriptions.

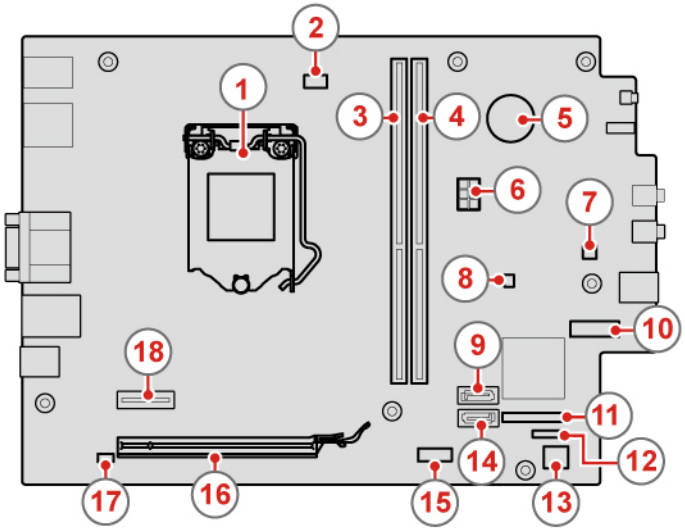

Figure 3. System board

1 Microprocessor socket	2 Microprocessor fan connector
3 Memory slot (DIMM1)	4 Memory slot (DIMM2)
5 Coin-cell battery	6 6-pin power connector
7 Internal speaker connector	8 Illuminated red dot connector
9 SATA 3.0 connector	10 M.2 storage drive slot
11 Parallel connector	12 Serial (COM2) connector
13 SATA power connector	14 SATA 3.0 connector
15 Card reader connector	16 PCI Express x16 graphics card slot
17 Cover presence switch connector (Intrusion switch connector)	18 PCI Express x1 card slot

Machine type and model label

The machine type and model label identifies the computer. When you contact Lenovo for help, the machine type and model information helps support technicians to identify the computer and provide faster service. The machine type and model label is attached on the top of the computer as shown.

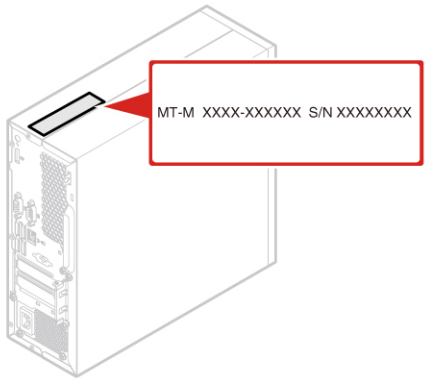

Figure 4. Machine type and model label

Chapter 2. Specifications

Power supply

- 180-watt automatic voltage-sensing power supply

Storage drives

- 3.5-inch storage drive
- 2.5-inch storage drive

Video features

- The integrated graphics card supports the following:
  - DP-out connector
  - VGA-out connector
- The optional discrete graphics card provides an enhanced audio experience and extended capabilities.

Audio features

- The integrated audio card supports the following:
  - Audio line-out connector
  - Headset connector
  - Internal speaker (optional)
  - Microphone connector
- The optional discrete audio card provides an enhanced audio experience and extended capabilities.

Input/Output (I/O) features

- Audio connectors (audio line-out, headset, and microphone)
- Card reader slot (optional)
- Display connectors (VGA-out)
- Ethernet connector
- Serial connectors
- USB connectors

Expansion

- Card reader slot
- Memory slots
- Optical drive
- PCI Express x1 card slot
- PCI Express x16 graphics card slot
- Storage drive bay

Network features

- Ethernet LAN

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Physical dimensions

- Width: 100.0 mm (3.9 inches)
- Height: 273.5 mm (10.8 inches)
- Depth: 303.5 mm (11.9 inches)

Weight (without the package)

Maximum configuration as shipped: 4.2 kg (11.3 lb)

Statement on USB transfer rate

Depending on many factors such as the processing capability of the host and peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and will be slower than the data rate listed below for each corresponding device.

USB device	Data rate (Gbit/s)
3.1 Gen 1	5
3.1 Gen 2	10
3.2	20

Chapter 3. Computer locks

This chapter provides instructions on how to lock your computer with the locking devices to keep your computer safe.

Locking the computer cover

Locking the computer cover helps prevent unauthorized access to the inside of your computer. Your computer features a padlock loop so that the computer cover cannot be removed when a padlock is installed.

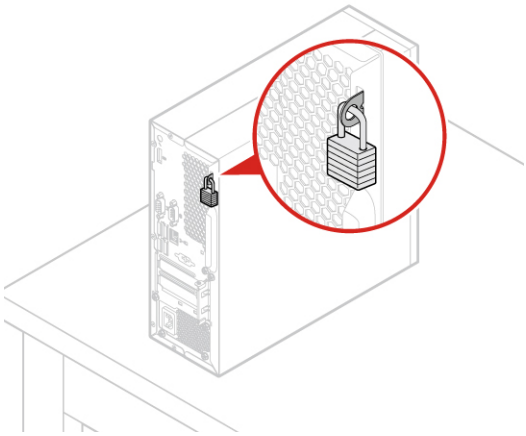

Figure 5. Locking the computer cover

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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

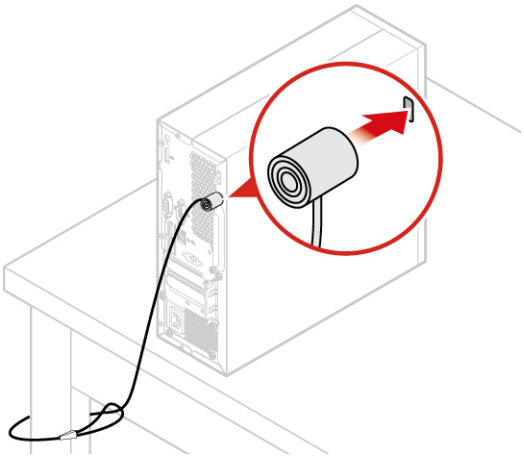

Figure 6. Attaching a Kensington-style cable lock

Attaching a cable lock

A cable lock can be used to secure devices, such as the keyboard and the mouse, by locking the device cables to the computer. The cable lock connects to the cable-lock slots on the rear of the computer. To install a cable lock, do the following:

1. Insert the clip **1** into the cable-lock slot **4**.
2. Pull the cables you want to lock through the dents in the cable lock.
3. Press the clip **2** into the cable-lock slot **3** until it snaps into position.

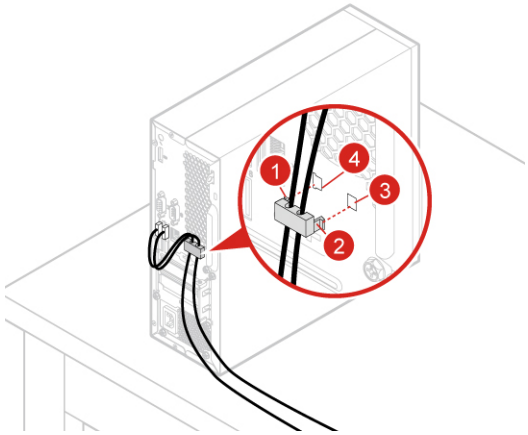

Figure 7. Attaching a cable lock

Chapter 4. Replacing hardware

This chapter provides instructions on how to replace hardware for your computer.

Before replacing hardware

Attention: Do not open your computer or attempt any repairs before reading this section and the *Important Product Information Guide*.

Notes before replacing hardware

- 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 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 part until the defective part has been removed and you are ready to install the new part. Static electricity, although harmless to you, can seriously damage computer components and options.

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

- Limit your movement. Movement can cause static electricity to build up around you.
- Always handle options and other computer components carefully. Handle PCI/PCIe cards, memory modules, system boards, and microprocessors by the edges. Never touch any exposed circuitry.
- Prevent others from touching the options and other computer components.
- Touch the static-protective package containing the part 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 new part.
- When possible, remove the new part from the static-protective package, and install it directly in the computer without setting the part down. When this is not possible, place the static-protective package on a smooth, level surface and place the part on the package.
- Do not place the part on the computer cover or other metal surface.

Knowing FRUs (including CRUs)

- Field Replaceable Units (FRUs) are computer parts that a trained technician can upgrade or replace. FRUs include all CRUs. For detailed FRU information, such as the FRU part numbers and supported computer models, go to:
  http://www.lenovo.com/serviceparts-lookup
- Customer Replaceable Units (CRUs) are computer parts that a user can upgrade or replace.
  - Self-service CRUs: You can install self-service CRUs easily. These CRUs might be stand-alone, latched, or secured by up to two screws. Examples of self-service CRUs include the keyboard, mouse, any USB device. You 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

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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.

Before replacing FRUs

Before replacing any FRU, read the following:

- Only certified and trained personnel can service the computer.
- Before replacing an FRU, read the entire section about 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.
- 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.

Locating CRUs and FRUs

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.

- Self-service CRUs: You can install self-service CRUs easily. These CRUs might be stand-alone, latched, or secured by up to two screws. Examples of self-service CRUs include the keyboard, mouse, any USB device. You 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) 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

Notes:

- 1, 5, 6, 7, 8, 9, 12, 13, 16, 17, 18, 19, 21 and 26 are optional-service CRUs. 4 and 20 are self-service CRUs. Other parts are Field Replaceable Units.
- Some of the following components are optional.
- To replace a component that is not in the list below, contact a Lenovo service technician. For a list of Lenovo Support phone numbers, go to: http://www.lenovo.com/support/phone

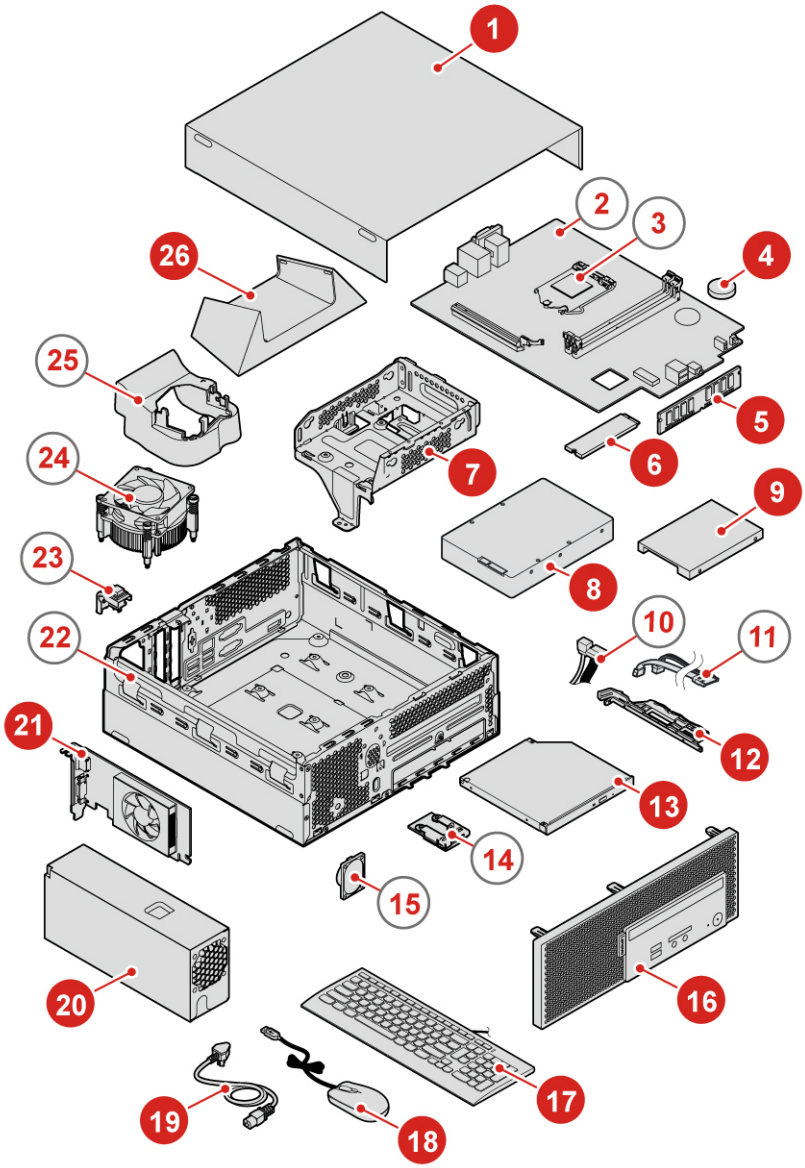

Figure 8. Locating CRUs and FRUs

1 Computer cover	2 System board
3 Microprocessor	4 Coin-cell battery
5 Memory module	6 M.2 storage drive
7 Storage drive bracket	8 3.5-inch storage drive
9 2.5-inch storage drive	10 Storage drive cable
11 Optical drive cable	12 Optical drive bracket
13 Optical drive	14 Card reader

15 Internal speaker	16 Front bezel
17 Keyboard	18 Mouse
19 Power cord	20 Power supply assembly
21 PCI Express card	22 Chassis
23 Cover presence switch	24 Heat sink and fan assembly
25 Fan duct	26 Vertical stand

Replacing the vertical stand

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 from the computer.
3. Replace the vertical stand.

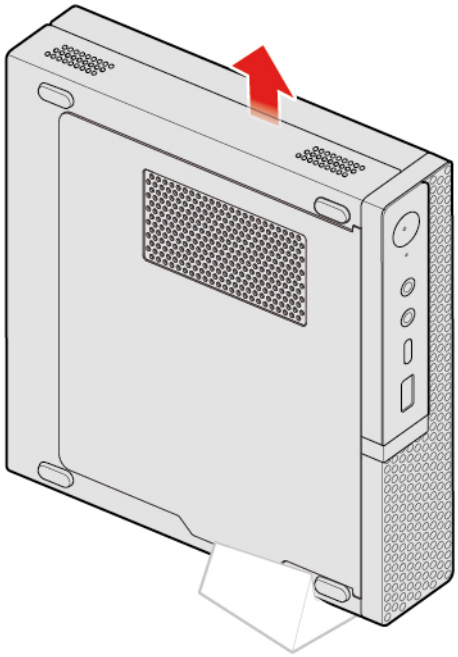

Figure 9. Removing the vertical stand

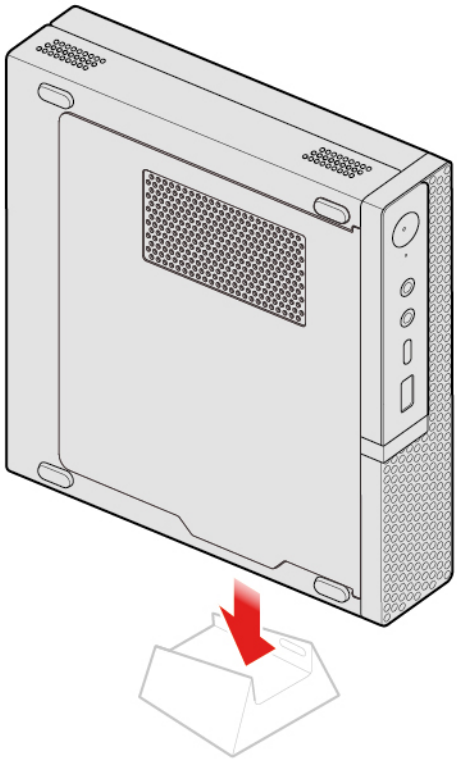

Figure 10. Installing the vertical stand

4. Complete the replacement. See “Completing the parts replacement” on page 43.

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 from the computer.
3. Replace the power cord.

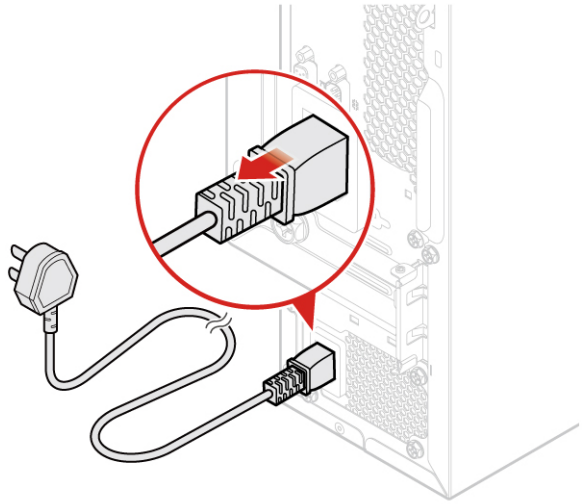

Figure 11. Removing the power cord

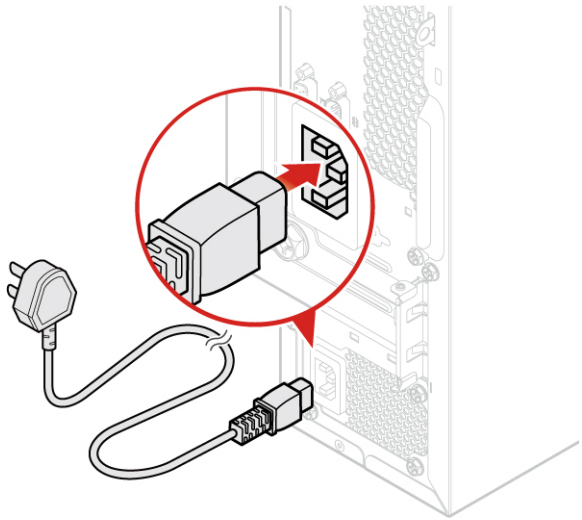

Figure 12. Installing the power cord

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 from the computer.

3. Unlock any locking device that secures the computer cover.
4. Remove the computer cover.

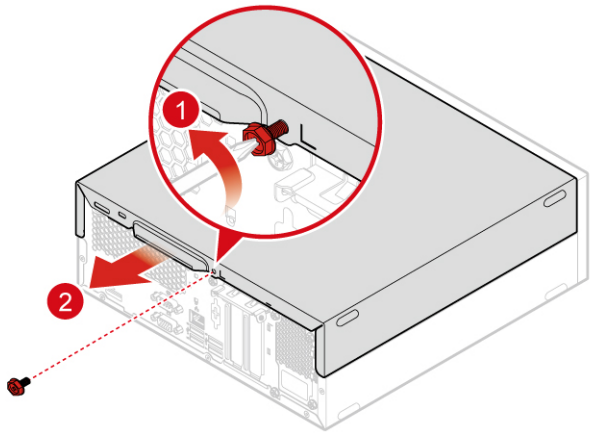

Figure 13. Removing the computer cover

5. Complete the replacement. See “Completing the parts replacement” on page 43.

Replacing the front bezel

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

1. Remove the computer cover. See “Removing the computer cover” on page 16.
2. Replace the front bezel.

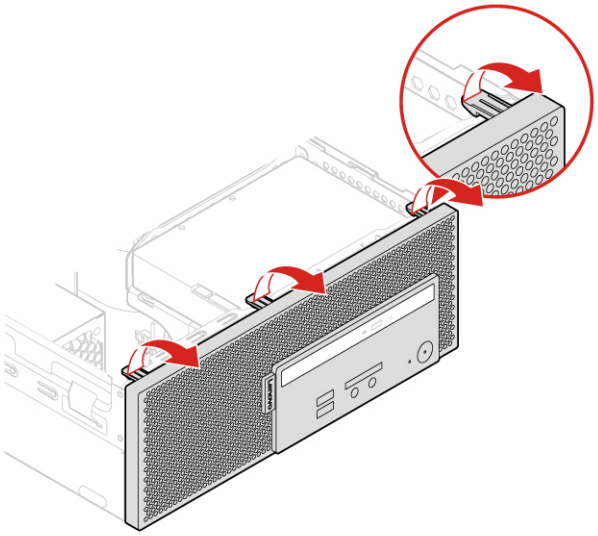

Figure 14. Removing the front bezel

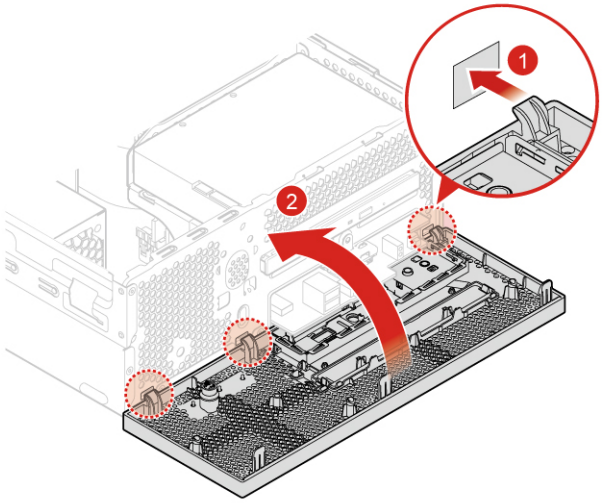

Figure 15. Installing the front bezel

3. Complete the replacement. See “Completing the parts replacement” on page 43.

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 cover. See “Removing the computer cover” on page 16.
2. Remove the front bezel. See “Replacing the front bezel” on page 17.

3. Disconnect the signal cable and the power cable from the optical drive.
4. Replace the optical drive.

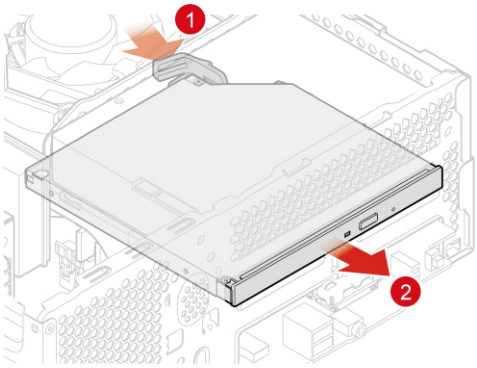

Figure 16. Removing the optical drive

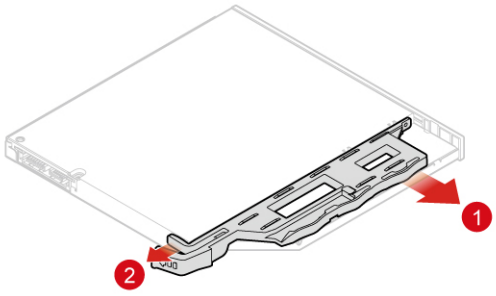

Figure 17. Removing the optical drive bracket

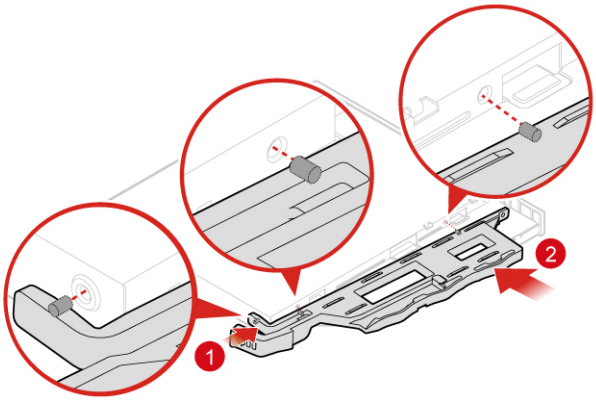

Figure 18. Installing the optical drive bracket

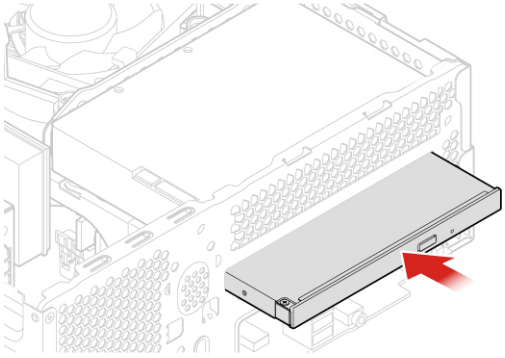

Figure 19. Installing the optical drive

5. Connect the signal cable and the power cable to the new optical drive.
6. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

Replacing the storage drive

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

1. Remove the computer cover. See “Removing the computer cover” on page 16.
2. Remove the front bezel. See “Replacing the front bezel” on page 17.
3. Remove the optical drive. See “Replacing the optical drive” on page 18.
4. Disconnect the signal cable and the power cable from the storage drive.

5. Remove the storage drive bracket.

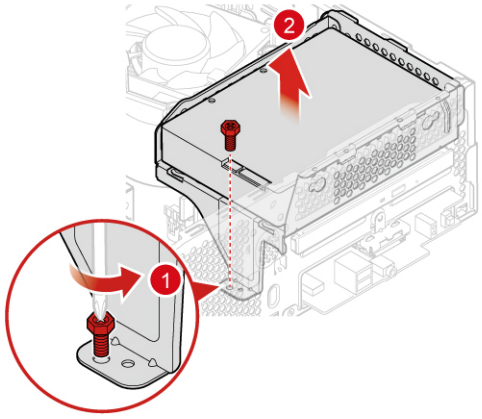

Figure 20. Removing the storage drive bracket

6. Replace the storage drive.
   - 3.5-inch storage drive

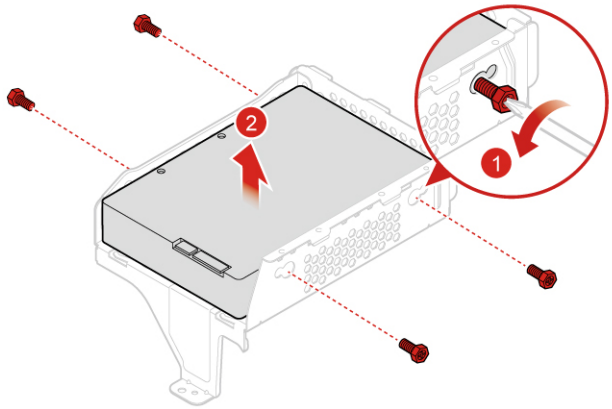

Figure 21. Removing the 3.5-inch storage drive

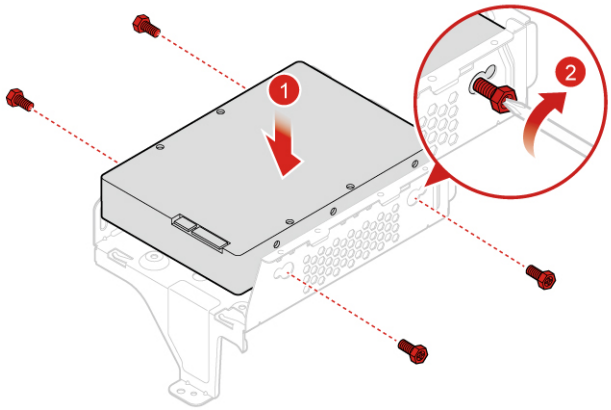

Figure 22. Installing the 3.5-inch storage drive

- 2.5-inch storage drive

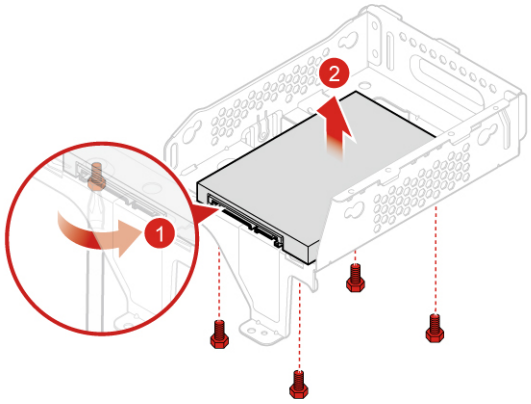

Figure 23. Removing the 2.5-inch storage drive

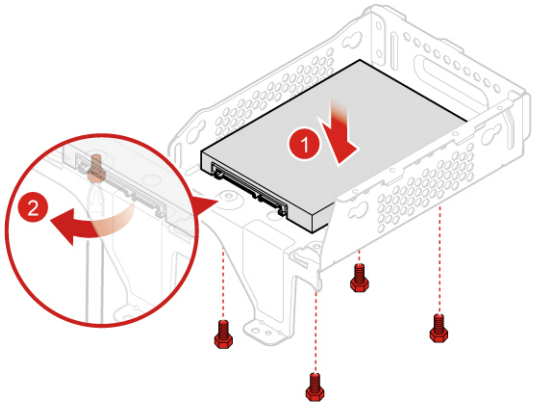

Figure 24. Installing the 2.5-inch storage drive

7. Install the storage drive bracket.

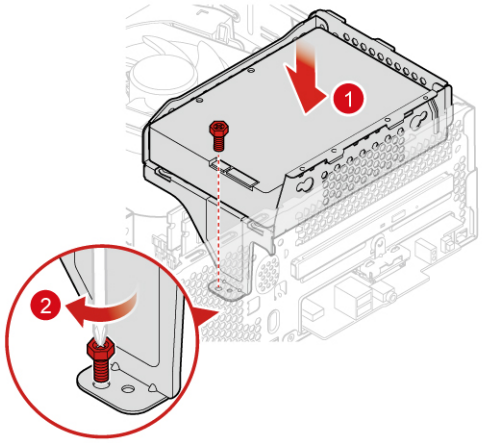

Figure 25. Installing the storage drive bracket

8. Connect the signal cable and the power cable to the new storage drive.
9. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

Replacing the card reader

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

1. Remove the computer cover. See “Removing the computer cover” on page 16.
2. Remove the front bezel. See “Replacing the front bezel” on page 17.
3. Remove the optical drive. See “Replacing the optical drive” on page 18.
4. Remove the storage drive bracket. See “Replacing the storage drive” on page 20.
5. Disconnect the card reader cable from the system board.
6. Replace the card reader.

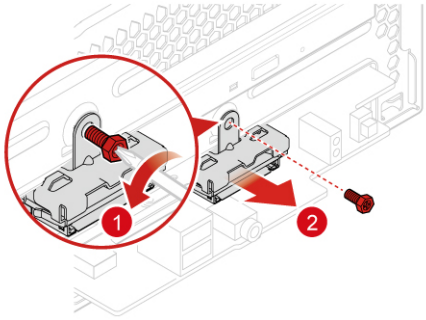

Figure 26. Removing the card reader bracket

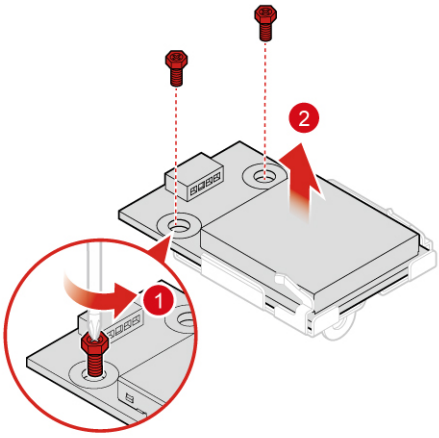

Figure 27. Removing the card reader

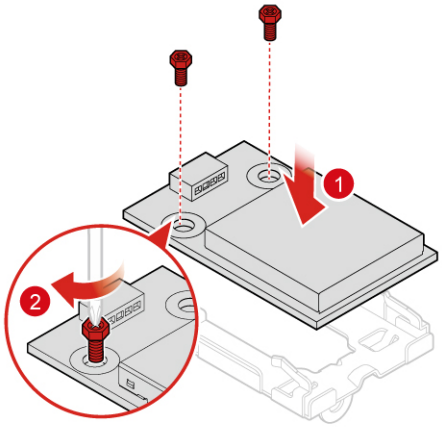

Figure 28. Installing the card reader

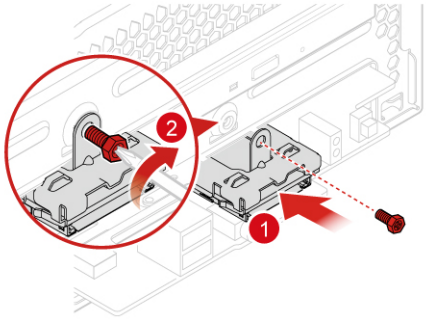

Figure 29. Installing the card reader bracket

7. Connect the new card reader cable to the system board.
8. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

Replacing the internal speaker

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

1. Remove the computer cover. See “Removing the computer cover” on page 16.
2. Remove the front bezel. See “Replacing the front bezel” on page 17.
3. Remove the optical drive. See “Replacing the optical drive” on page 18.
4. Remove the storage drive bracket. See “Replacing the storage drive” on page 20.
5. Disconnect the internal speaker cable from the system board.
6. Replace the internal speaker.

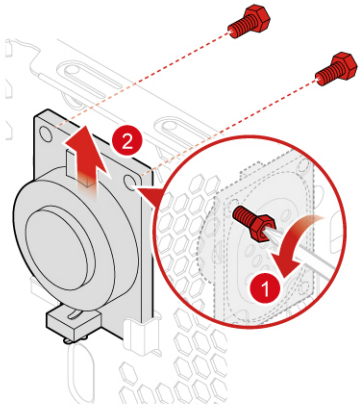

Figure 30. Removing the internal speaker

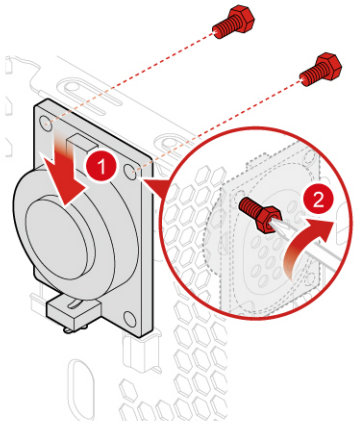

Figure 31. Installing the internal speaker

7. Connect the new internal speaker cable to the system board.
8. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

Replacing the illuminated red dot

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

1. Remove the computer cover. See “Removing the computer cover” on page 16.
2. Remove the front bezel. See “Replacing the front bezel” on page 17.
3. Remove the optical drive. See “Replacing the optical drive” on page 18.
4. Remove the storage drive bracket. See “Replacing the storage drive” on page 20.
5. Disconnect the illuminated red dot cable from the system board.
6. Replace the illuminated red dot.

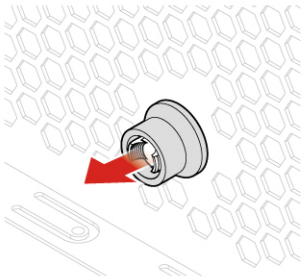

Figure 32. Removing the illuminated red dot cover

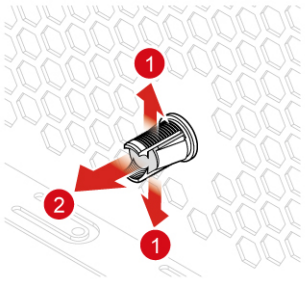

Figure 33. Removing the illuminated red dot

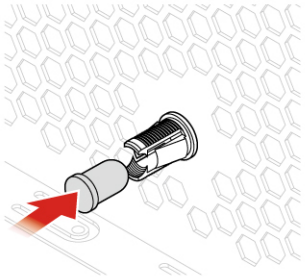

Figure 34. Installing the illuminated red dot

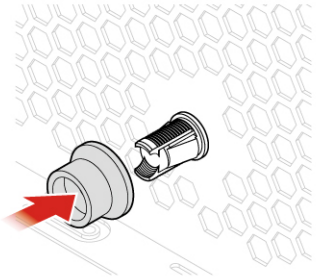

Figure 35. Installing the illuminated red dot cover

7. Connect the new illuminated red dot cable to the system board.
8. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

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 computer cover. See “Removing the computer cover” on page 16.
2. Remove the front bezel. See “Replacing the front bezel” on page 17.
3. Remove the optical drive. See “Replacing the optical drive” on page 18.
4. Remove the storage drive bracket. See “Replacing the storage drive” on page 20.
5. Disconnect the power supply assembly cable from the system board.
6. Replace the power supply assembly.

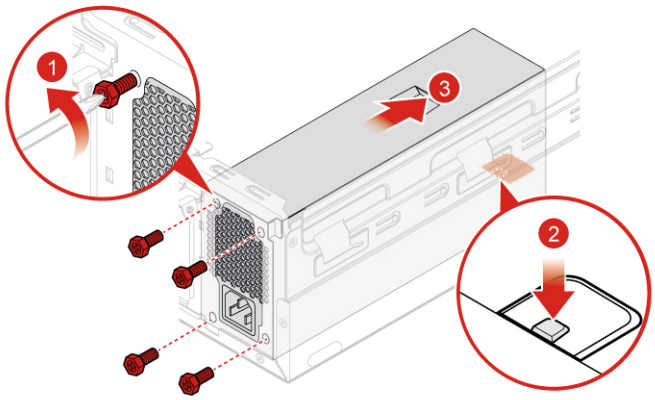

Figure 36. Removing the power supply assembly

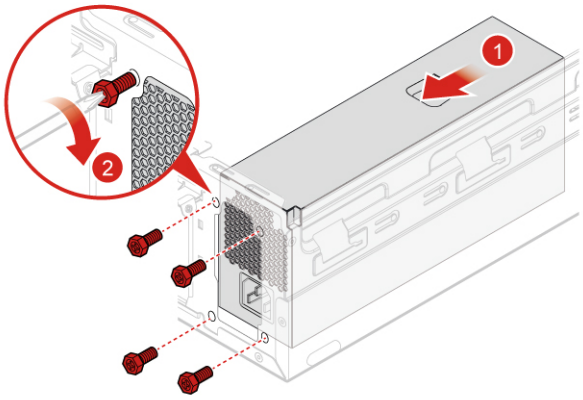

Figure 37. Installing the power supply assembly

7. Connect the new power supply assembly cable to the system board.
8. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

Replacing the cover presence switch

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

1. Remove the computer cover. See “Removing the computer cover” on page 16.
2. Remove a PCI Express card. See “Replacing a PCI Express card” on page 35.
3. Disconnect the cover presence switch cable from the system board.
4. Replace the cover presence switch.

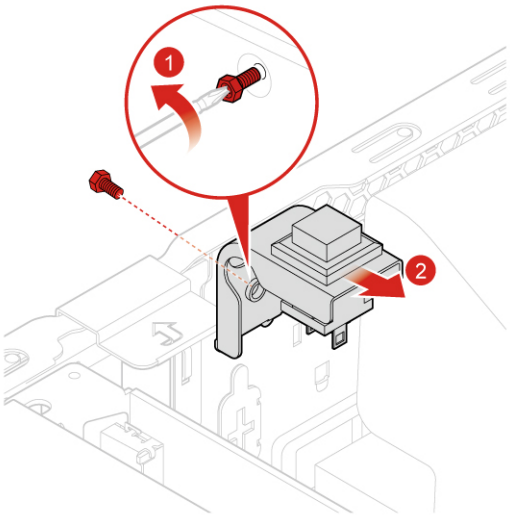

Figure 38. Removing the cover presence switch

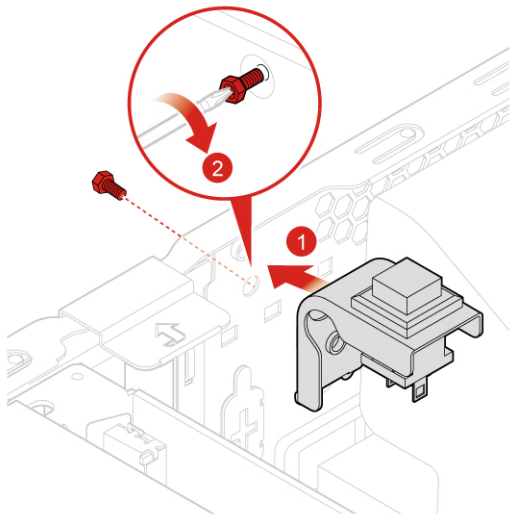

Figure 39. Installing the cover presence switch

5. Connect the new cover presence switch cable to the system board.
6. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

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 cover. See “Removing the computer cover” on page 16.
2. Remove the front bezel. See “Replacing the front bezel” on page 17.
3. Remove the optical drive. See “Replacing the optical drive” on page 18.
4. Remove the storage drive bracket. See “Replacing the storage drive” on page 20.
5. Replace the M.2 storage drive.

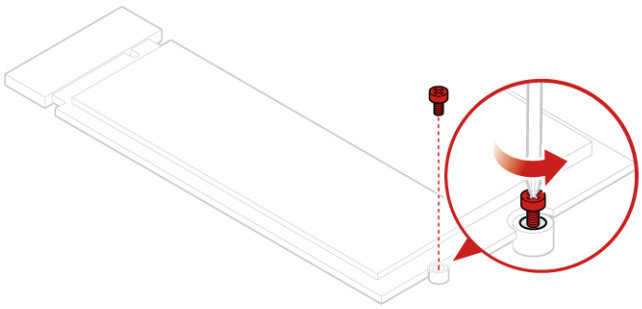

Figure 40. Removing the screw

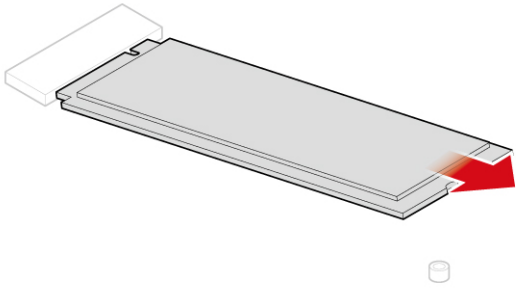

Figure 41. Removing the M.2 storage drive

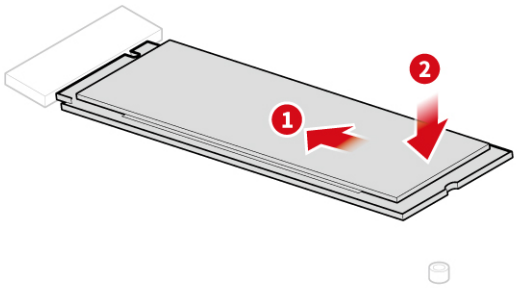

Figure 42. Installing the M.2 storage drive

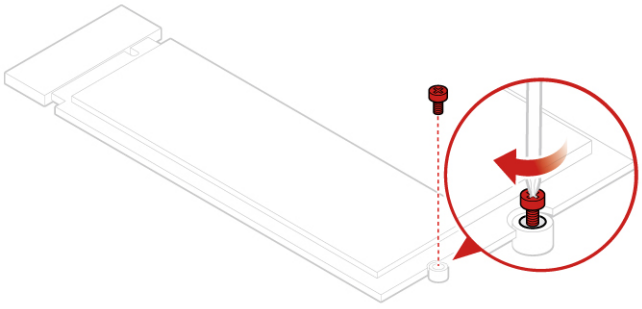

Figure 43. Installing the M.2 screw

6. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

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 cover. See “Removing the computer cover” on page 16.
2. Remove the front bezel. See “Replacing the front bezel” on page 17.
3. Remove the optical drive. See “Replacing the optical drive” on page 18.
4. Remove the storage drive bracket. See “Replacing the storage drive” on page 20.
5. Replace the coin-cell battery.

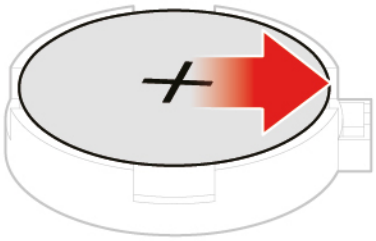

Figure 44. Removing the coin-cell battery

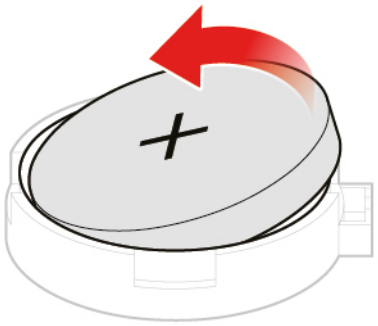

Figure 45. Removing the coin-cell battery

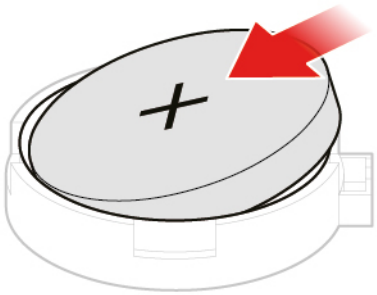

Figure 46. Installing the coin-cell battery

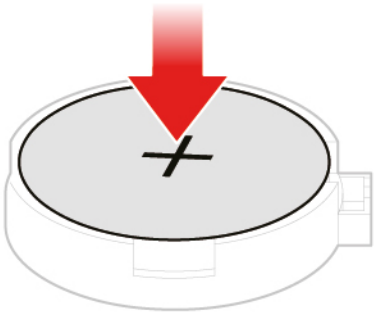

Figure 47. Installing the coin-cell battery

6. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

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

Replacing a 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 cover. See “Removing the computer cover” on page 16.
2. Remove the front bezel. See “Replacing the front bezel” on page 17.
3. Remove the optical drive. See “Replacing the optical drive” on page 18.
4. Remove the storage drive bracket. See “Replacing the storage drive” on page 20.
5. Replace a memory module.

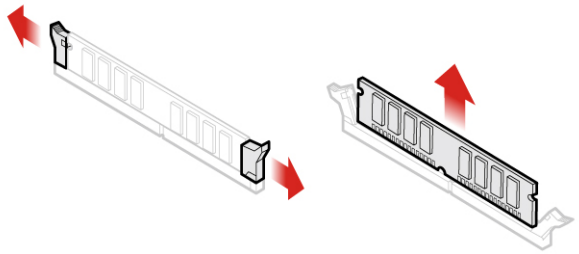

Figure 48. Removing a memory module

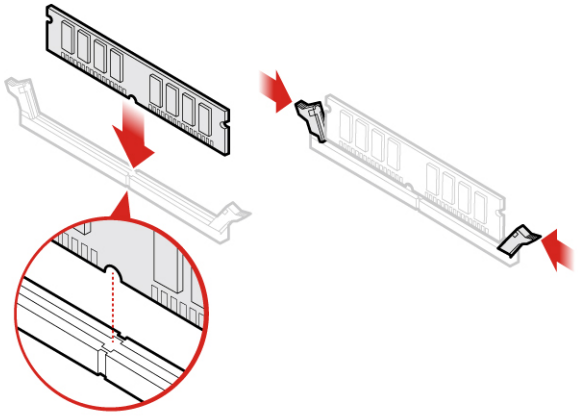

Figure 49. Installing a memory module

6. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

Replacing a PCI Express card

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

1. Remove the computer cover. See “Removing the computer cover” on page 16.
2. Replace a PCI Express card.

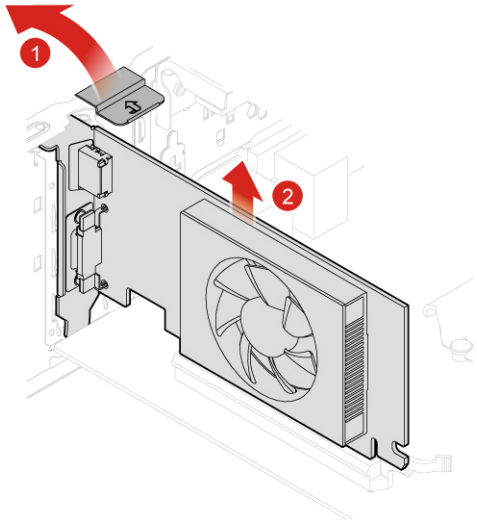

Figure 50. Removing a PCI Express card

Note: If the card is held in place by a retaining latch, press the latch **1** as shown to disengage the latch. Then, gently remove the card from the slot.

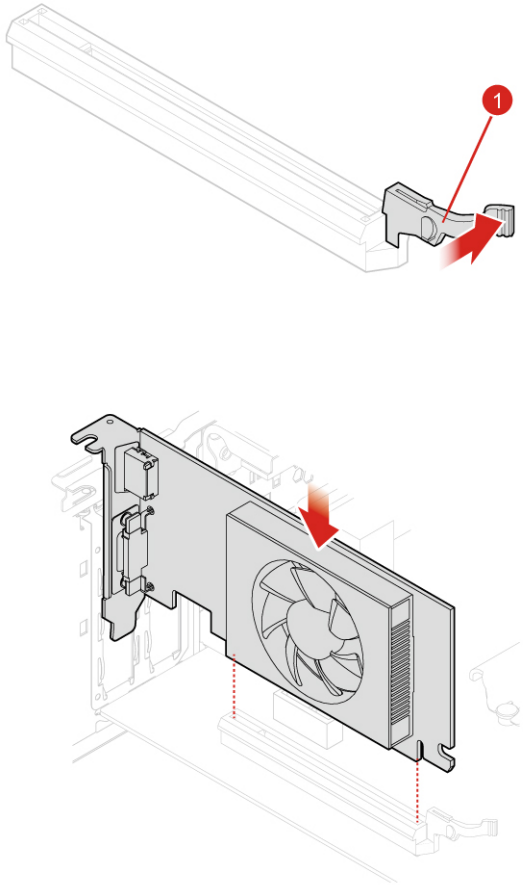

Figure 51. Installing a PCI Express card

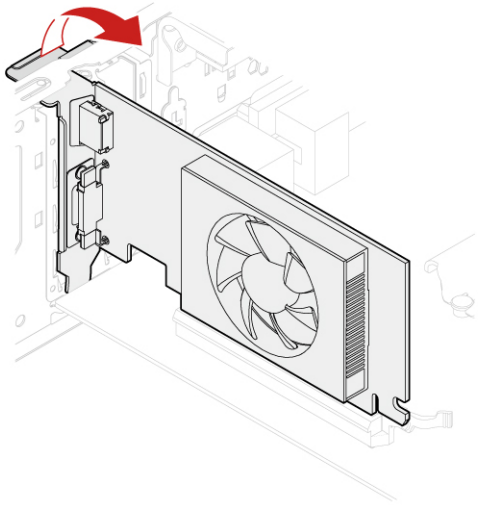

Figure 52. Installing a PCI Express card

3. Replace a PCI Express card.
4. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

Replacing the heat sink and fan assembly

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

1. Remove the computer cover. See “Removing the computer cover” on page 16.
2. Remove the fan duct.

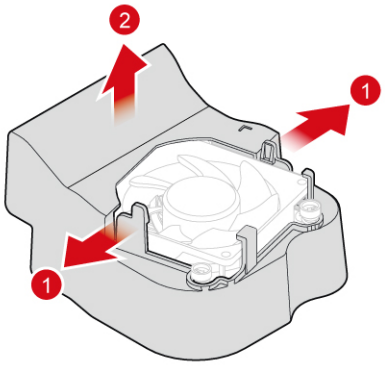

Figure 53. Removing the fan duct

3. Disconnect the heat sink and fan assembly cable from the system board.
4. Replace the heat sink and fan assembly.

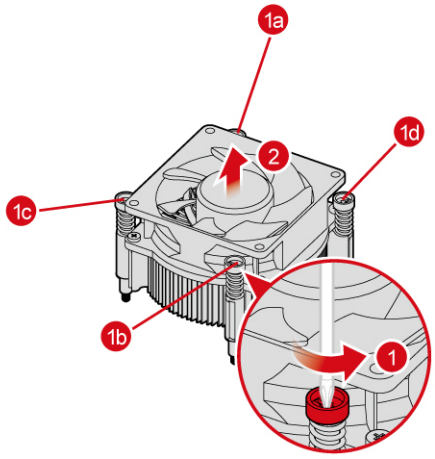

Figure 54. Removing the heat sink and fan assembly

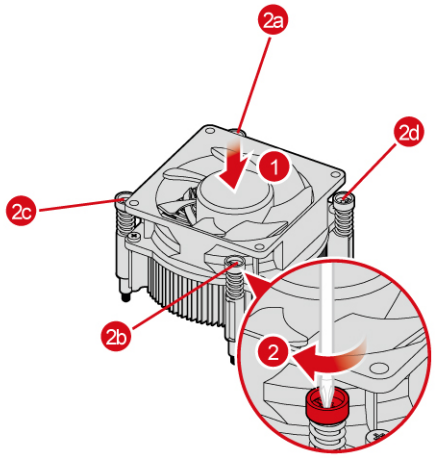

Figure 55. Installing the heat sink and fan assembly

5. Connect the new heat sink and fan assembly cable to the system board.

6. Install the fan duct.

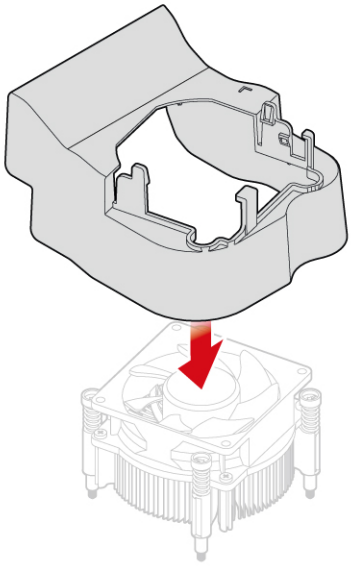

Figure 56. Installing the fan duct

7. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

Replacing the microprocessor

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

CAUTION:

The heat sink and microprocessor might be very hot. Before you open the computer cover, turn off the computer and wait several minutes until the computer is cool.

1. Remove the computer cover. See “Removing the computer cover” on page 16.
2. Remove the heat sink and fan assembly. See “Replacing the heat sink and fan assembly” on page 37.
3. Disconnect all cables connected to the system board.
4. Replace the microprocessor.

   Notes:

   - 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.

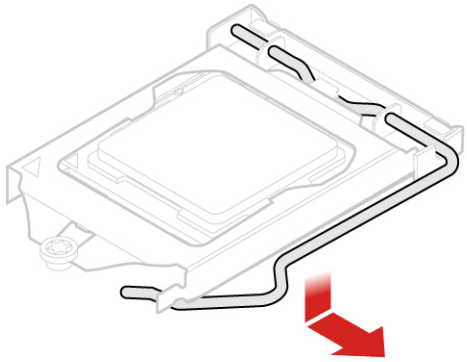

Figure 57. Releasing the holder

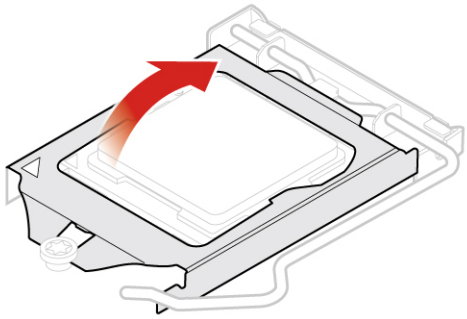

Figure 58. Pivoting up the socket

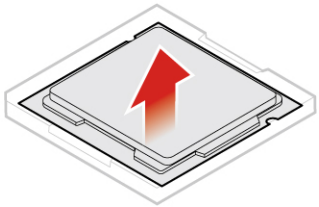

Figure 59. Removing the microprocessor

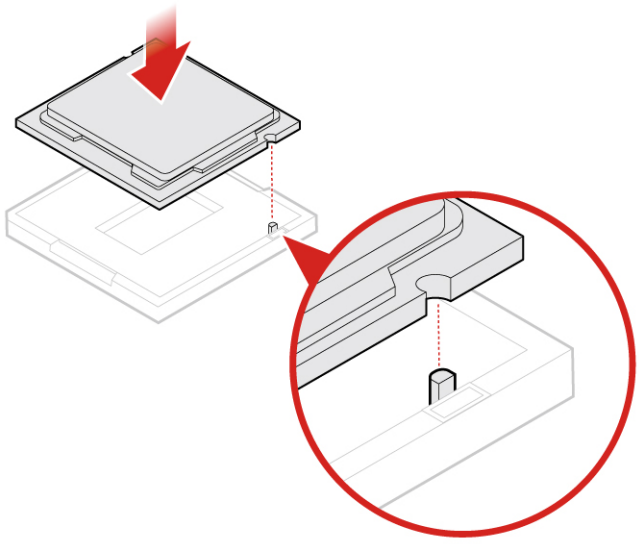

Figure 60. Installing the microprocessor

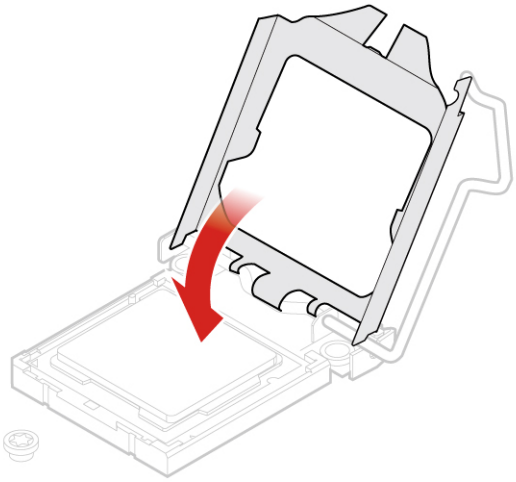

Figure 61. Pivoting the socket downward

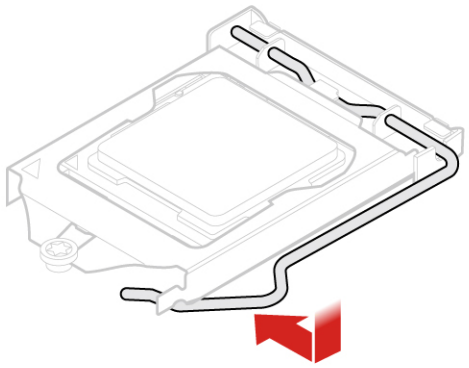

Figure 62. Securing the holder

5. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

Replacing the system board

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

1. Remove the computer cover. See “Removing the computer cover” on page 16.
2. Remove the front bezel. See “Replacing the front bezel” on page 17.
3. Remove the optical drive. See “Replacing the optical drive” on page 18.
4. Remove the storage drive bracket. See “Replacing the storage drive” on page 20.
5. Remove the card reader. See “Replacing the card reader” on page 23.
6. Remove a memory module. See “Replacing a memory module” on page 34.
7. Remove a PCI Express card. See “Replacing a PCI Express card” on page 35.
8. Remove the heat sink and fan assembly. See “Replacing the heat sink and fan assembly” on page 37.
9. Remove the microprocessor. See “Replacing the microprocessor” on page 39.
10. Record the cable routing and cable connections, and then disconnect all cables from the system board. See “System board” on page 5.

11. Replace the system board.

    Notes:

    - The numbers in the following figure show the locations of the screws instead of the removing and reinstalling order of the screws.
    - Handle the system board carefully by its edges.

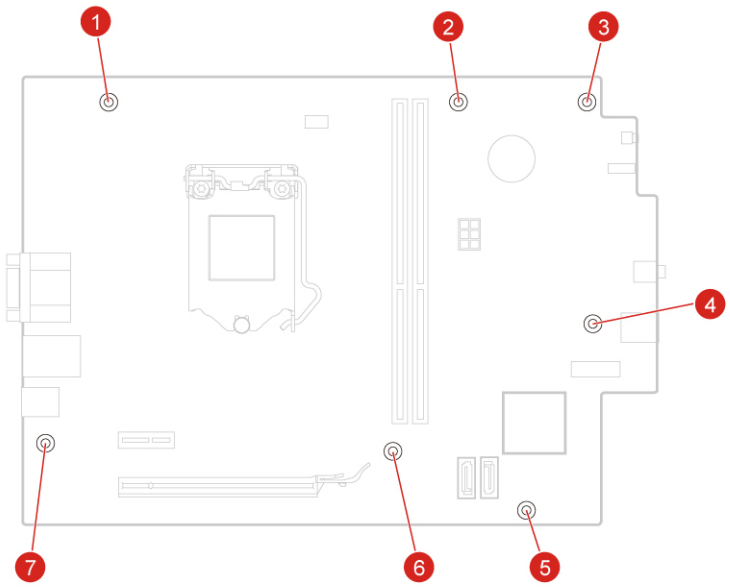

Figure 63. Removing the system board

12. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 43.

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. Reinstall the computer cover.

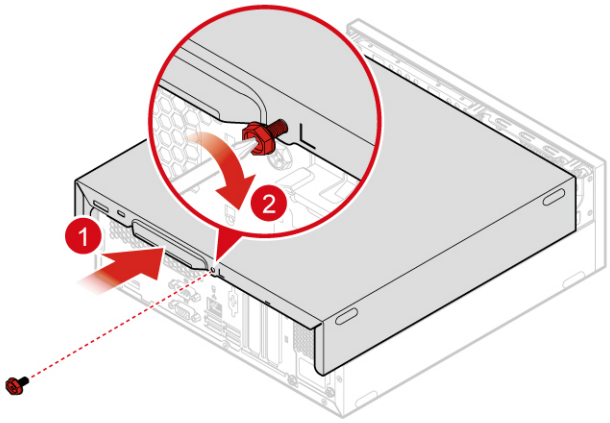

Figure 64. Reinstalling the computer cover

4. Place the computer in an upright position.
5. If a locking device is available, use it to lock the computer.
6. Reconnect the external cables and power cords to the corresponding connectors on the computer.

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