

V130–20IGM AIO User Guide and Hardware Maintenance Manual



Energy Star Machine Types: 10RX

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 51.

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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.

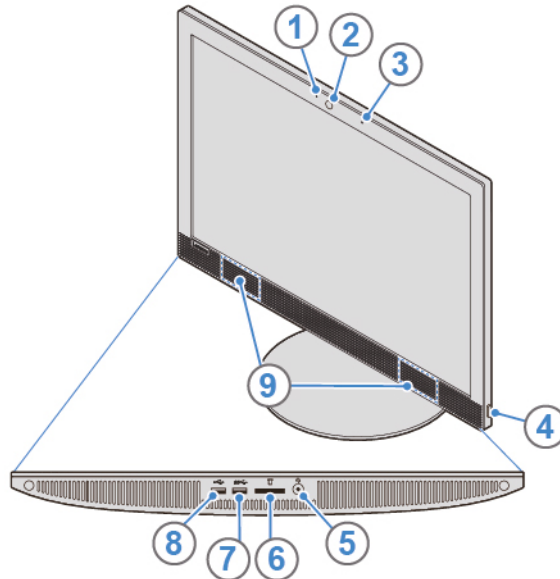


Figure 1. Front view

| | |
|--|---------------------------------------|
| 1 Integrated camera activity indicator (optional) | 2 Integrated camera (optional) |
| 3 Integrated microphone | 4 Power button |
| 5 Headset connector | 6 Card reader slot |
| 7 USB 3.1 Gen 1 connector | 8 USB 2.0 connector |
| 9 Internal speakers (2) | |

1 Integrated camera activity indicator

Used to indicate the integrated camera status. When the indicator is on, the camera is in use.

2 Integrated camera

Used to take pictures or hold a video conference.

3 Integrated microphone

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

4 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.

5 Headset connector

Used to connect a headset or a set of headphones to your computer. You can use the headset to record sounds, use speech-recognition software, and listen to the sounds from your computer without disturbing anyone. You can use the headphones only to listen to the sounds from your computer.

6 Card reader slot

Used to hold a card-shaped storage medium and make the data read by the card reader.

7 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 Gen 2 or USB 3.1 Gen 1 connector instead of a USB 2.0 connector.

8 USB 2.0 connector

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

9 Internal speaker

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

Rear view

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

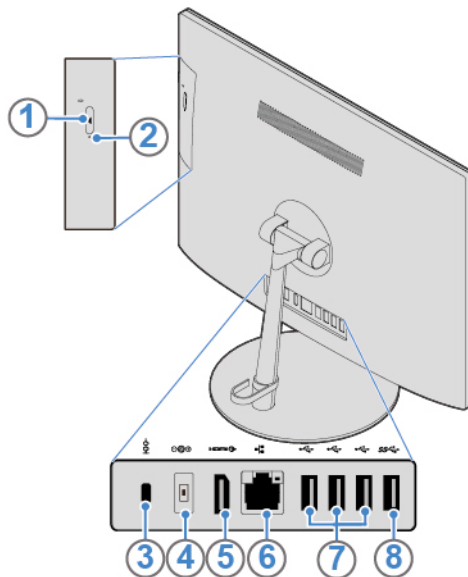


Figure 2. Rear view

| | |
|--|--|
| 1 Optical drive eject/close button (optional) | 2 Optical drive activity indicator (optional) |
| 3 Security-lock slot | 4 Power adapter connector |

| | |
|----------------------------------|----------------------------------|
| 5 HDMI™ 1.4 out connector | 6 Ethernet connector |
| 7 USB 2.0 connectors (3) | 8 USB 3.1 Gen 1 connector |

1 Optical drive eject/close button

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

2 Optical drive activity indicator

When the optical drive activity indicator is on, the optical drive is in use.

3 Security-lock slot

For information, see “Attaching a Kensington-style cable lock” on page 9.

4 Power adapter connector

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

5 HDMI 1.4 out connector

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

6 Ethernet connector

Used to connect an Ethernet cable for network access.

7 USB 2.0 connector

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

8 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 Gen 2 or USB 3.1 Gen 1 connector instead of a USB 2.0 connector.

System board

Note: See “Front view” on page 1 and “Rear view” on page 2 for additional component descriptions.

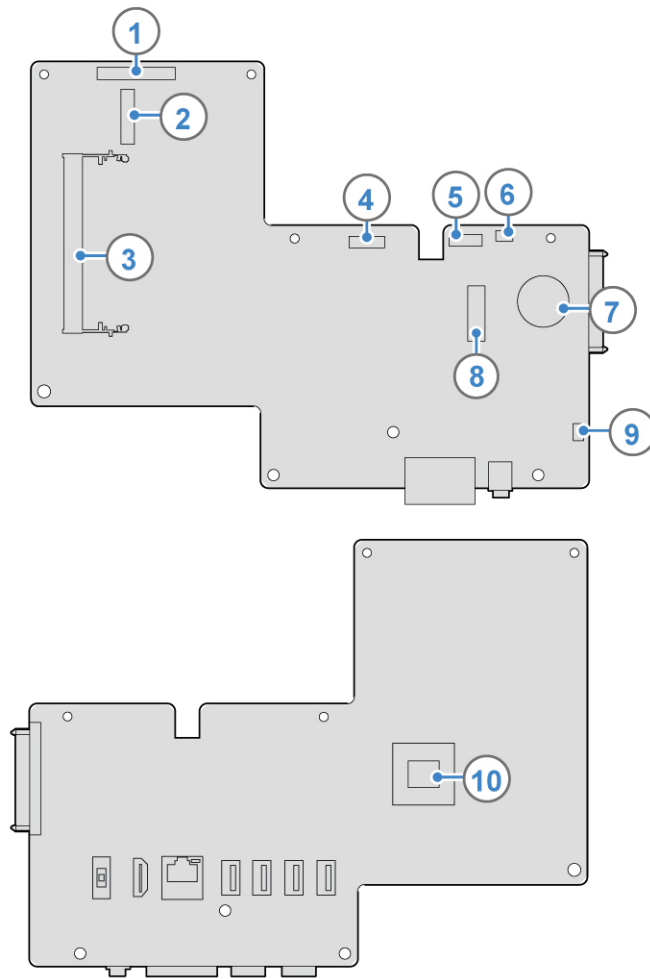


Figure 3. System board

| | |
|-------------------------------------|--------------------------------------|
| 1 LCD panel connector | 2 M.2 Wi-Fi card slot |
| 3 Memory slot | 4 Integrated camera connector |
| 5 Optical drive connector | 6 Power button connector |
| 7 Coin-cell battery | 8 M.2 storage drive slot |
| 9 Internal speaker connector | 10 Microprocessor |

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 rear side of the computer as shown.

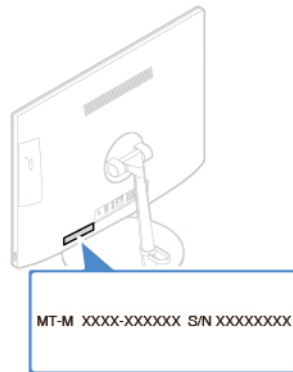


Figure 4. Machine type and model label

Chapter 2. Specifications

Power supply

- 65-watt power adapter

Storage drives

- 2.5-inch storage drive
- M.2 storage drive (optional)

Video features

The integrated graphics card supports the following:

- HDMI-out connector

Audio features

The integrated audio card supports the following:

- Headset connector

Input/Output (I/O) features

- Audio connector (headset)
- Card reader slot
- Display connectors (HDMI-out)
- Ethernet connector
- USB connectors

Expansion

- Card reader slot
- M.2 storage drive slot (optional)
- Memory slot
- Optical drive (optional)
- Storage drive bay

Network features

- Ethernet LAN
- Wireless LAN
- Bluetooth

Physical dimensions

- Width: 460.0 mm (18.1 inches)
- Height: 322.0 mm (12.7 inches)
- Depth: 44.0 mm (1.7 inches)

Weight (without the package)

Maximum configuration as shipped: 4.3 kg (9.5 lb)

Chapter 3. Computer locks

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

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>

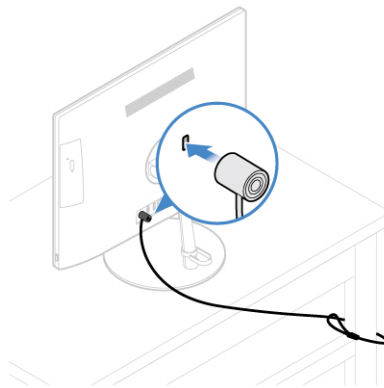


Figure 5. Attaching a Kensington-style cable lock

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

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 FRUs (including CRUs)

Notes:

- 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>

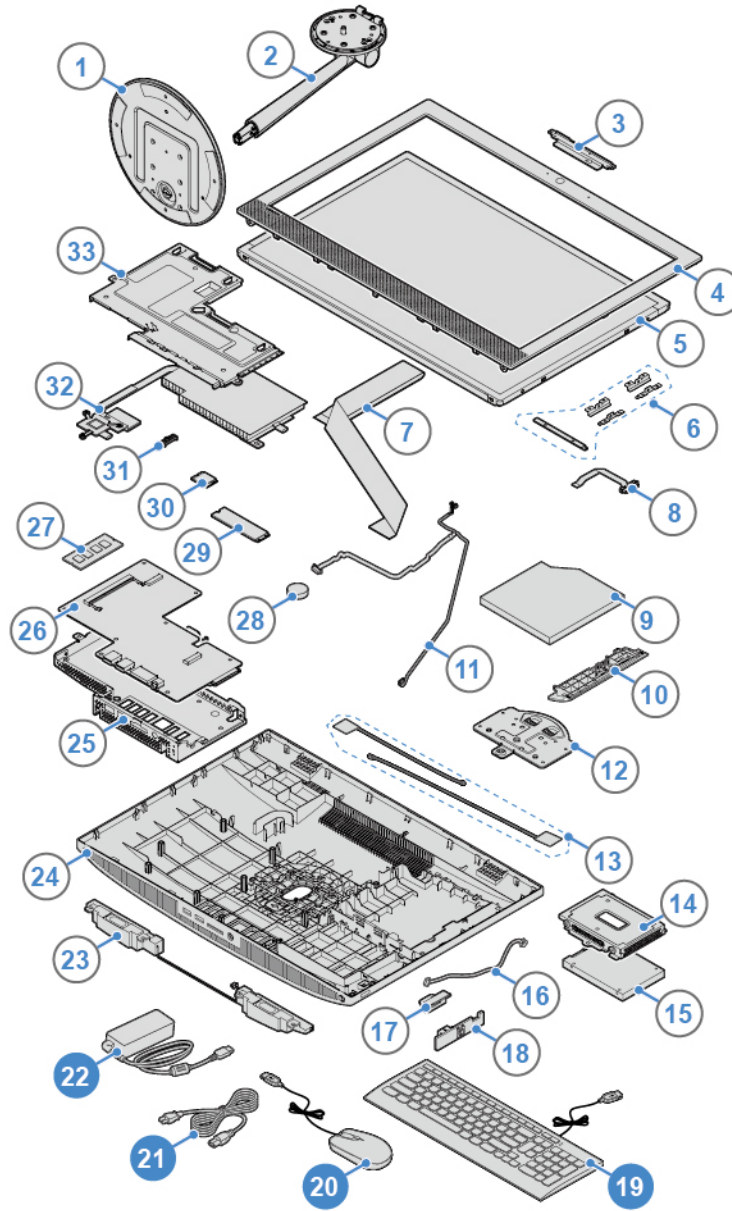


Figure 6. Locating FRUs (including CRUs)

| Number | FRU description | Self-service CRU | Optional-service CRU |
|----------|------------------------------|------------------|----------------------|
| 1 | Tilt-only monitor stand base | No | No |
| 2 | Tilt-only monitor stand | No | No |
| 3 | Integrated camera | No | No |
| 4 | LCD front bezel | No | No |
| 5 | LCD panel | No | No |
| 6 | LCD panel brackets | No | No |

| Number | FRU description | Self-service CRU | Optional-service CRU |
|-----------|--|------------------|----------------------|
| 7 | LCD panel cable | No | No |
| 8 | Optical drive cable | No | No |
| 9 | Optical drive | No | No |
| 10 | Optical drive bezel | No | No |
| 11 | Integrated camera and microphone cable | No | No |
| 12 | Computer stand bracket | No | No |
| 13 | Wi-Fi antennas | No | No |
| 14 | 2.5-inch storage drive | No | No |
| 15 | Storage drive bracket | No | No |
| 16 | Power button board cable | No | No |
| 17 | Power button board bracket | No | No |
| 18 | Power button board | No | No |
| 19 | Keyboard | Yes | No |
| 20 | Mouse | Yes | No |
| 21 | Power cord | Yes | No |
| 22 | Power adapter | Yes | No |
| 23 | Internal speakers | No | No |
| 24 | Computer cover | No | No |
| 25 | System board bracket | No | No |
| 26 | System board | No | No |
| 27 | Memory module | No | No |
| 28 | Coin-cell battery | No | No |
| 29 | M.2 storage drive | No | No |
| 30 | Wi-Fi card | No | No |
| 31 | Wi-Fi card shield | No | No |
| 32 | Heat sink | No | No |
| 33 | System board shield | No | No |

Adjusting the computer stand

You can use the computer stand to adjust the computer to a position comfortable for you.

Notes: The computer stand is available only on some models.

- If your computer comes with a computer stand, ensure that you use the computer with the stand installed. If you want to use the computer with the stand removed, do not turn on the computer before contacting the Lenovo Customer Support Center for the additional thermal solution.
- If your computer does not come with a computer stand, do not tear off the Mylar on the rear of the computer. After initial setup, you can use the computer.

Adjusting the tilt-only monitor stand

You can adjust the vertical position of the computer between 2° to the front and 60° to the rear as shown.

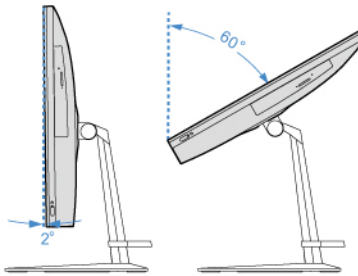


Figure 7. Adjusting the tilt-only monitor stand

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. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Replace the power cord.

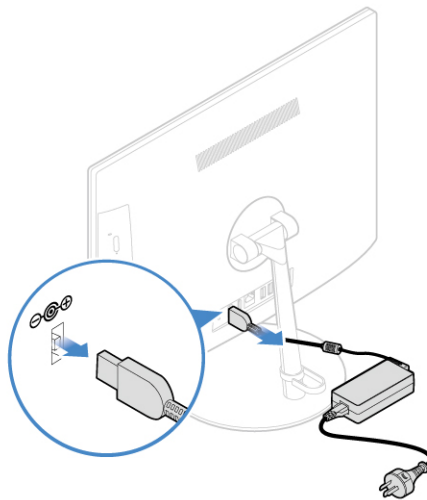


Figure 8. Removing the power adapter

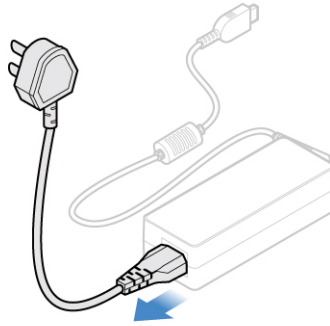


Figure 9. Removing the power cord

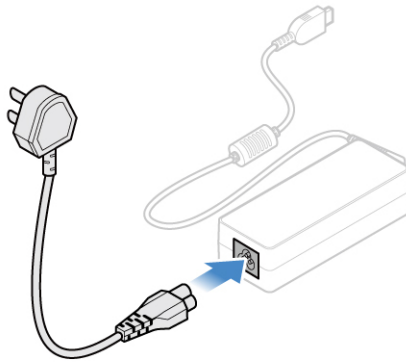


Figure 10. Installing the power cord

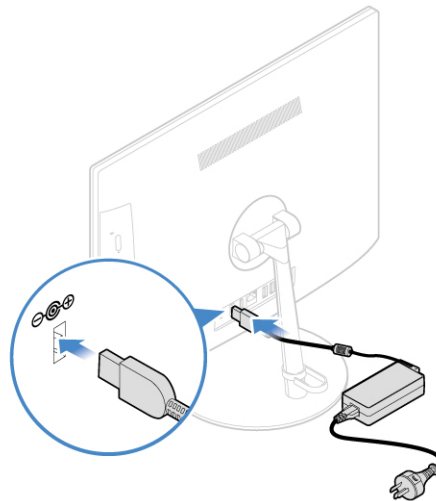


Figure 11. Installing the power adapter

Replacing the tilt-only monitor stand base

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. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the screen is against the surface and the computer cover is facing up.
3. Replace the tilt-only monitor stand base.

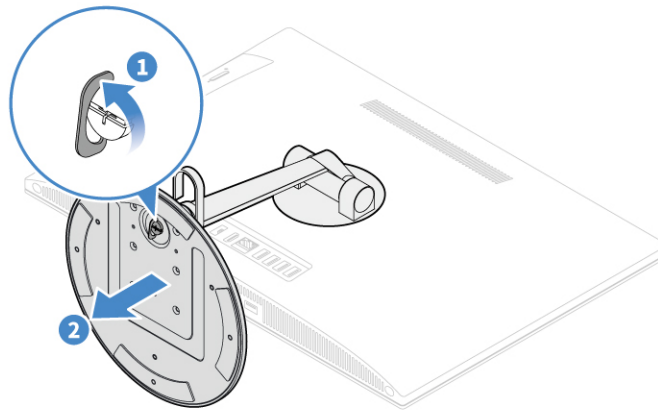


Figure 12. Removing the tilt-only monitor stand base

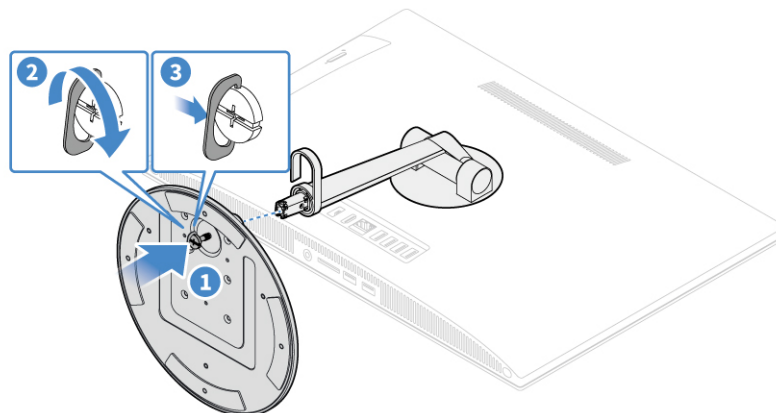


Figure 13. Installing the tilt-only monitor stand base

Removing the front cover

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

CAUTION:



Before you open the front 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. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Unlock any locking device that secures the computer cover.
4. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
5. Remove the front cover.

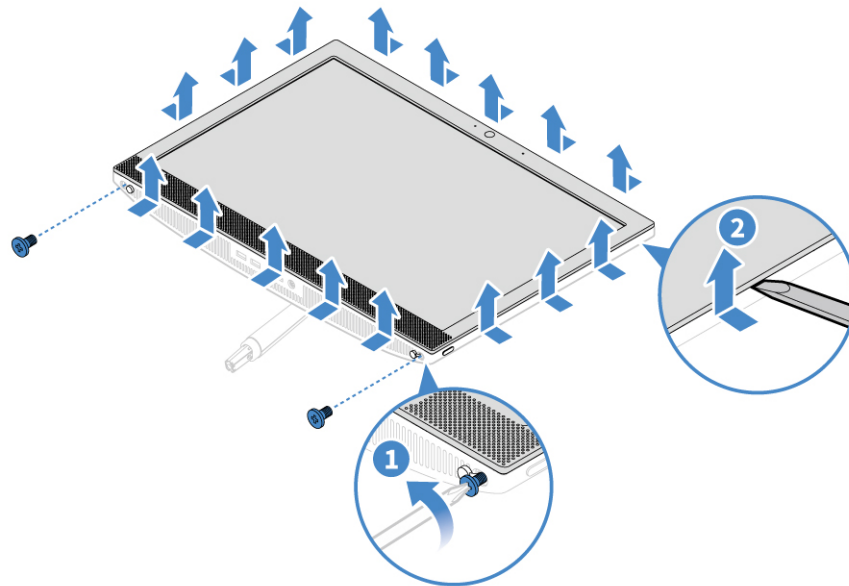


Figure 14. Removing the front cover

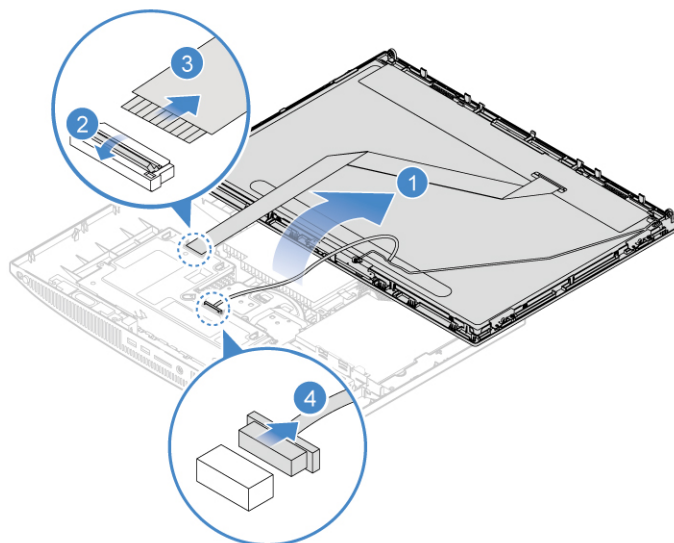


Figure 15. Removing the front cover

6. Complete the replacement. See “Completing the parts replacement” on page 49.

Replacing the tilt-only monitor 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. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Replace the tilt-only monitor stand.

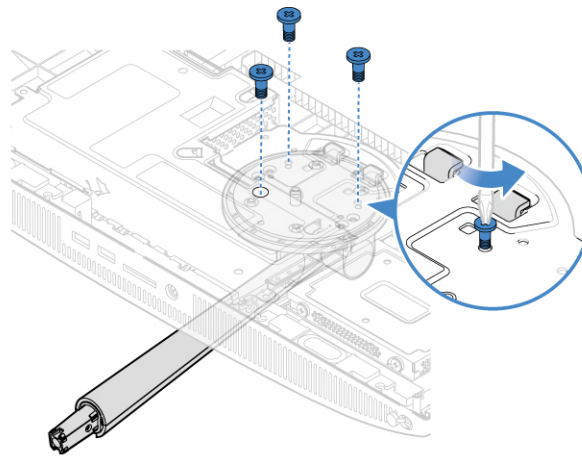


Figure 16. Removing the tilt-only monitor stand screws

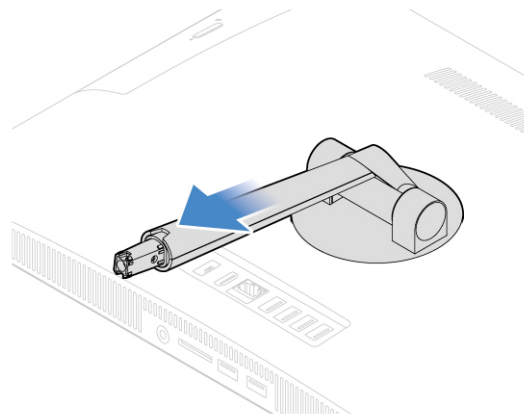


Figure 17. Removing the tilt-only monitor stand

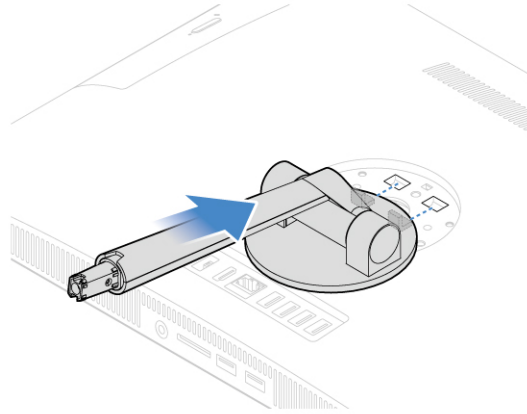


Figure 18. Installing the tilt-only monitor stand

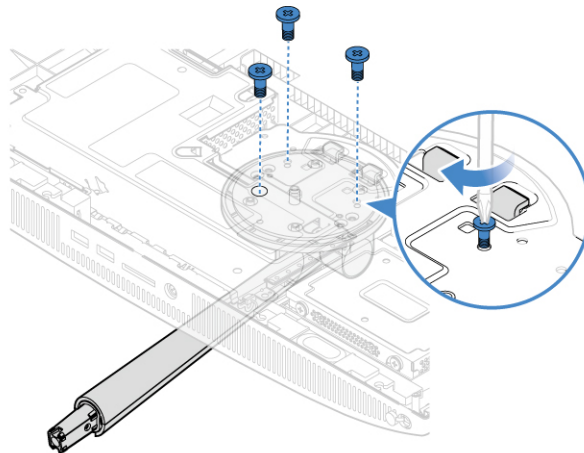


Figure 19. Installing the tilt-only monitor stand screws

6. Complete the replacement. See “Completing the parts replacement” on page 49.

Replacing the optical drive

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Remove the tilt-only monitor stand. See “Replacing the tilt-only monitor stand” on page 19.

6. Replace the optical drive.

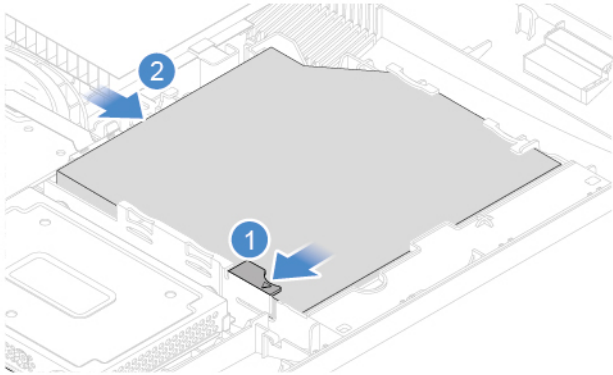


Figure 20. Removing the optical drive

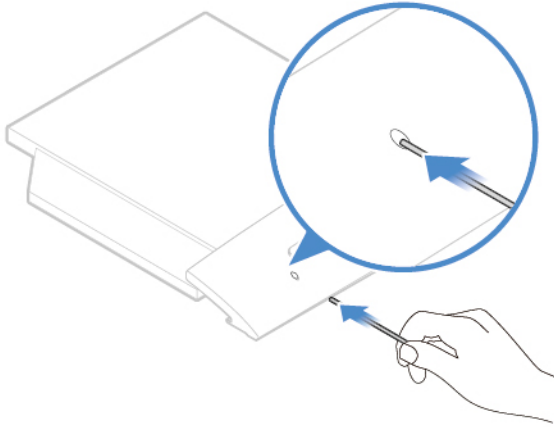


Figure 21. Removing the optical drive bezel

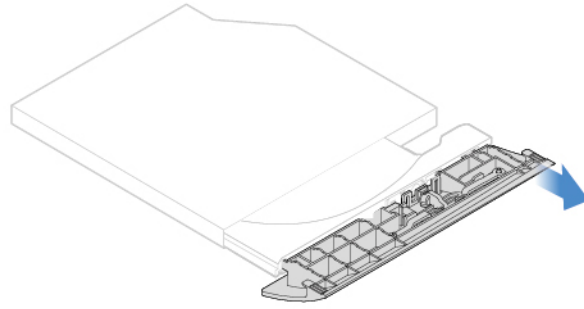


Figure 22. Removing the optical drive bezel

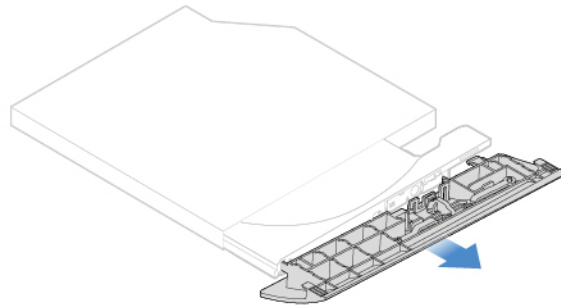


Figure 23. Removing the optical drive bezel

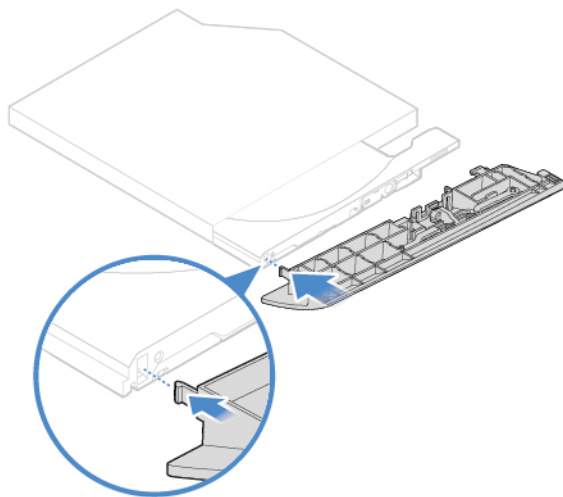


Figure 24. Installing the optical drive bezel

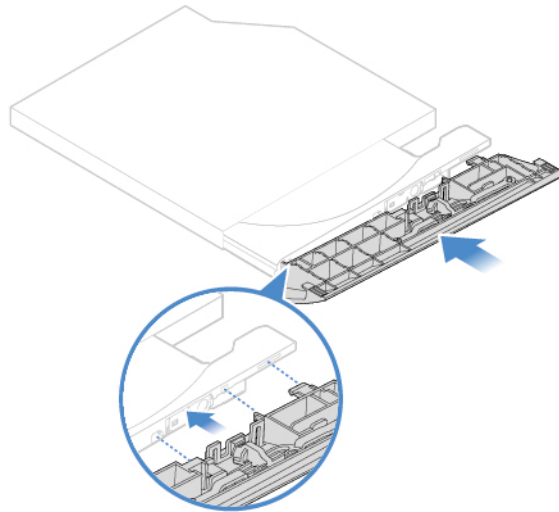


Figure 25. Installing the optical drive bezel

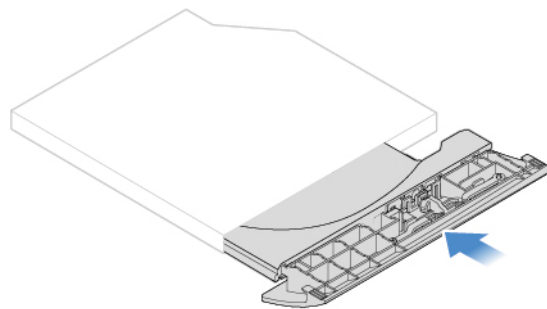


Figure 26. Installing the optical drive bezel

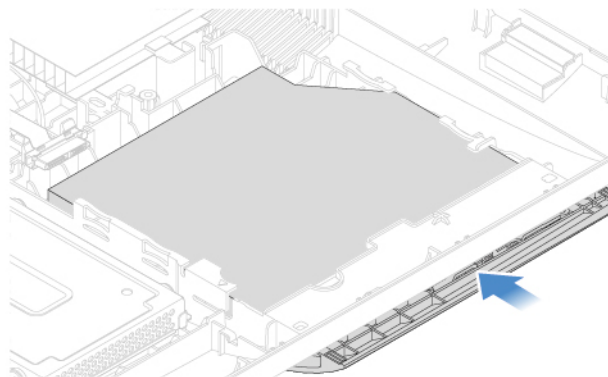


Figure 27. Installing the optical drive

7. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Replacing the 2.5-inch storage drive

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Replace the 2.5-inch storage drive.

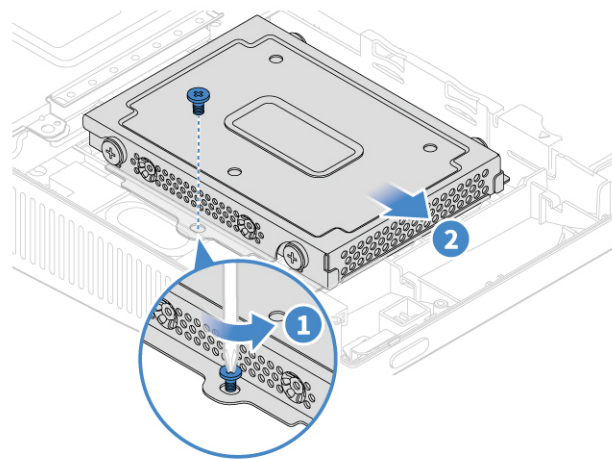


Figure 28. Removing the 2.5-inch storage drive bracket

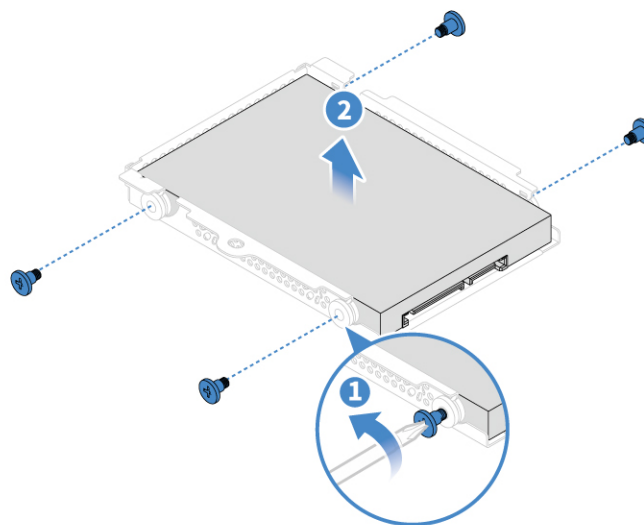


Figure 29. Removing the 2.5-inch storage drive

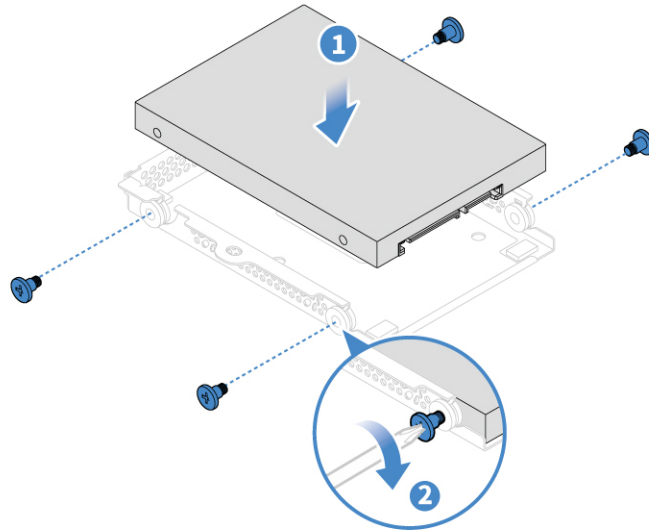


Figure 30. Installing the 2.5-inch storage drive

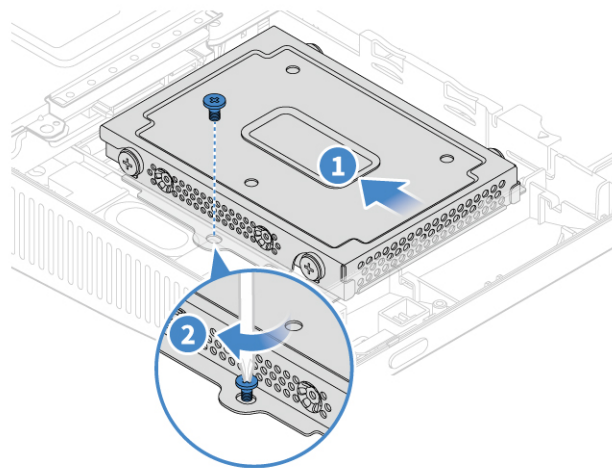


Figure 31. Installing the 2.5-inch storage drive bracket

6. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Replacing the power button board

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Remove the tilt-only monitor stand. See “Replacing the tilt-only monitor stand” on page 19.

6. Disconnect the power button board cable from the power button board.
7. Replace the power button board.

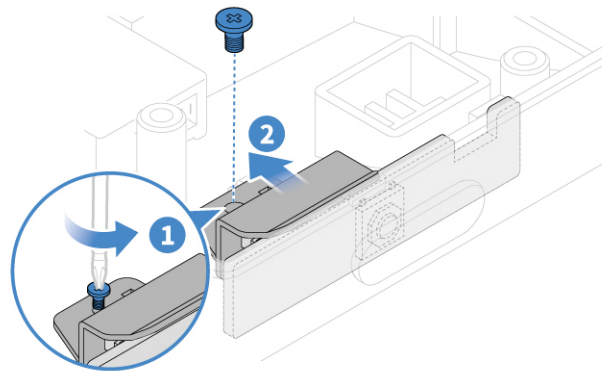


Figure 32. Removing the power button board screw

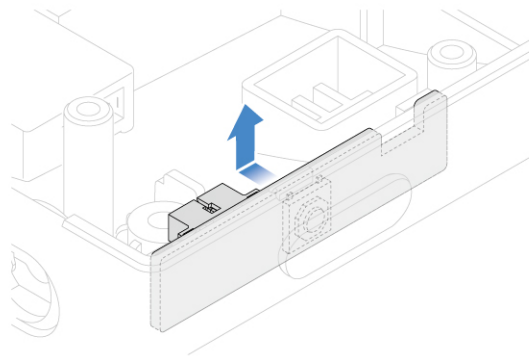


Figure 33. Removing the power button board

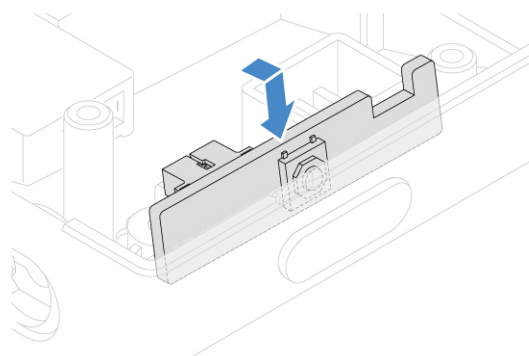


Figure 34. Installing the power button board

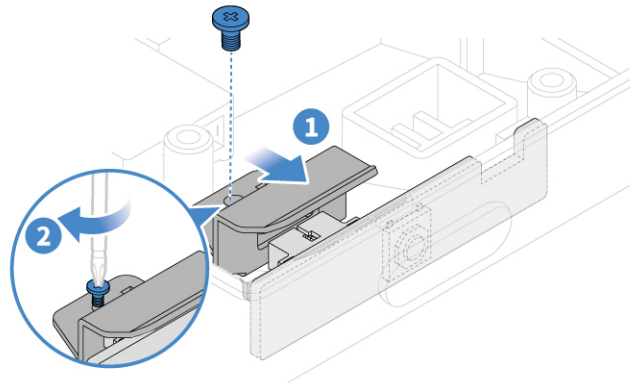


Figure 35. Installing the power button board screw

8. Connect the new power button board cable to the power button board.
9. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Replacing the system board shield

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Remove the tilt-only monitor stand. See “Replacing the tilt-only monitor stand” on page 19.
6. Replace the system board shield.

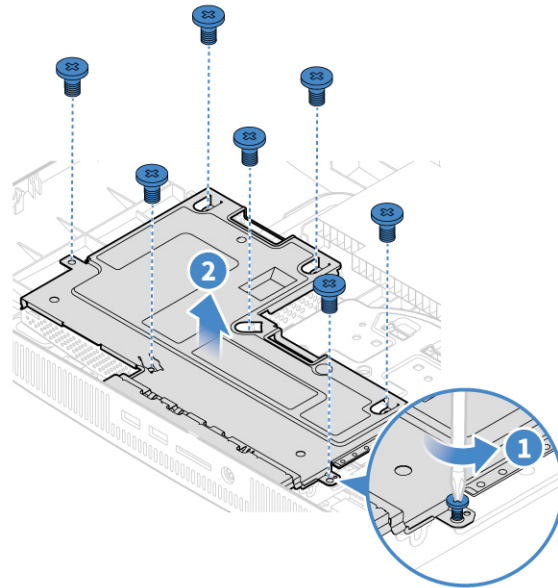


Figure 36. Removing the system board shield

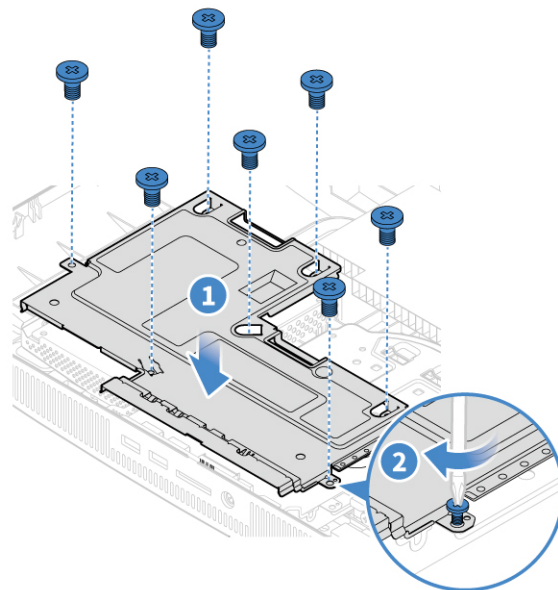


Figure 37. Installing the system board shield

7. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Replacing the internal speakers

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.

2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Remove the tilt-only monitor stand. See “Replacing the tilt-only monitor stand” on page 19.
6. Remove the system board shield. See “Replacing the system board shield” on page 27.
7. Disconnect the internal speaker cable from the system board.
8. Replace the internal speakers.

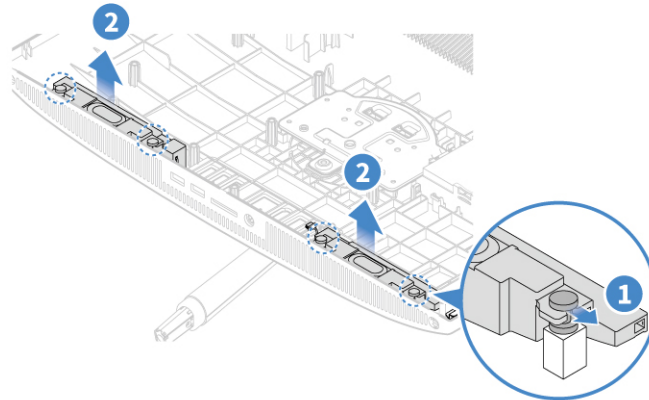


Figure 38. Removing the internal speakers

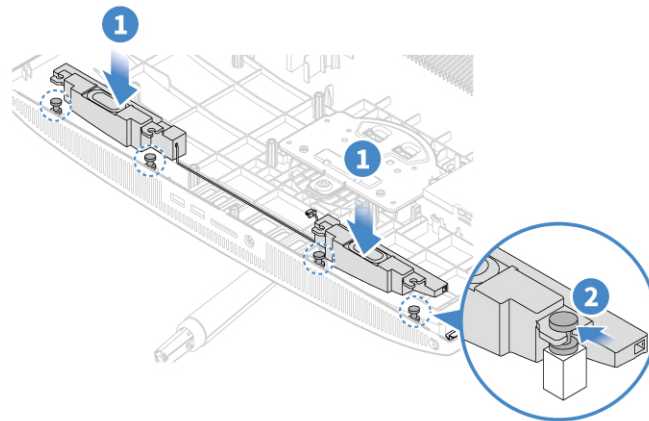


Figure 39. Installing the internal speakers

9. Connect the new internal speaker cable to the system board.
10. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Replacing the coin-cell battery

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

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

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

To replace the coin-cell battery,

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Remove the tilt-only monitor stand. See “Replacing the tilt-only monitor stand” on page 19.
6. Remove the system board shield. See “Replacing the system board shield” on page 27.
7. Replace the coin-cell battery.

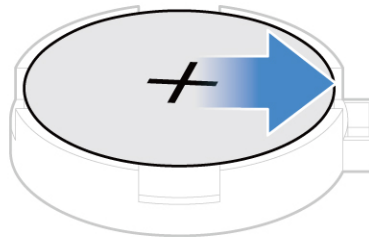


Figure 40. Removing the coin-cell battery

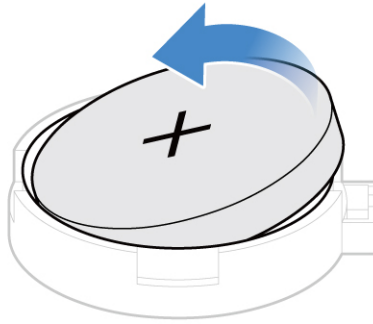


Figure 41. Removing the coin-cell battery

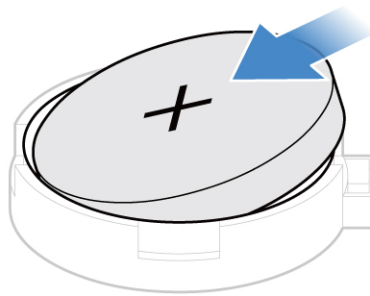


Figure 42. Installing the coin-cell battery

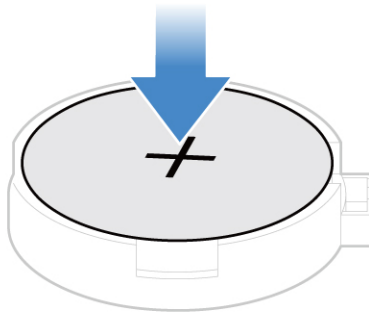


Figure 43. Installing the coin-cell battery

8. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

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

Replacing the M.2 storage drive

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Remove the tilt-only monitor stand. See “Replacing the tilt-only monitor stand” on page 19.
6. Remove the system board shield. See “Replacing the system board shield” on page 27.
7. Replace the M.2 storage drive.

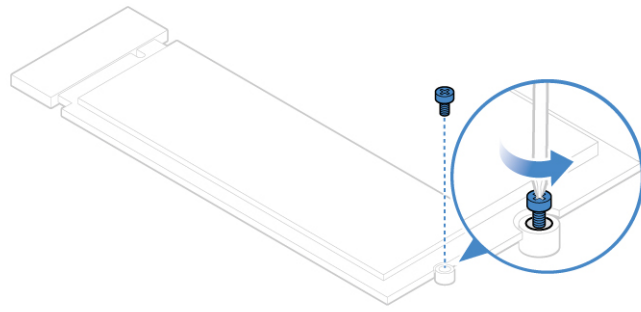


Figure 44. Removing the M.2 storage drive screw

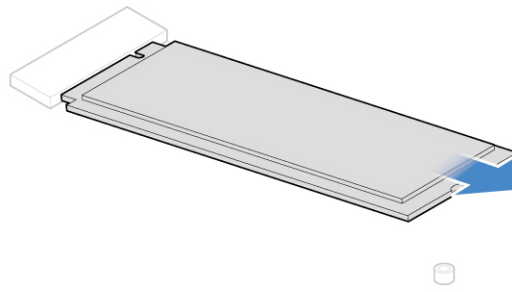


Figure 45. Removing the M.2 storage drive

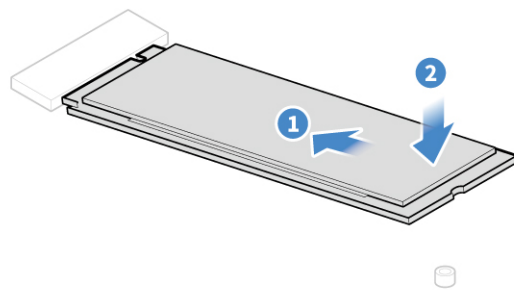


Figure 46. Installing the M.2 storage drive

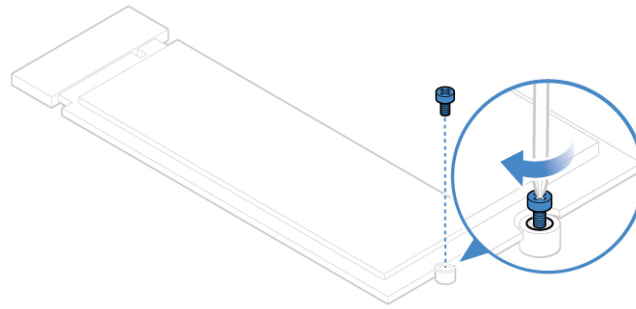


Figure 47. Installing the M.2 storage drive screw

8. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Replacing the memory module

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

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Remove the tilt-only monitor stand. See “Replacing the tilt-only monitor stand” on page 19.
6. Remove the system board shield. See “Replacing the system board shield” on page 27.
7. Replace the memory module.

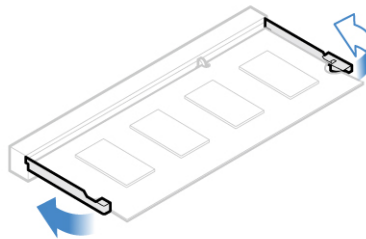


Figure 48. Removing the memory module

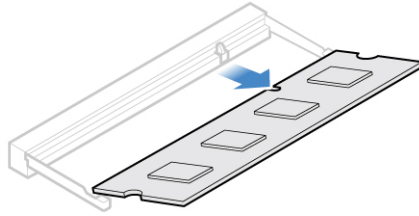


Figure 49. Removing the memory module

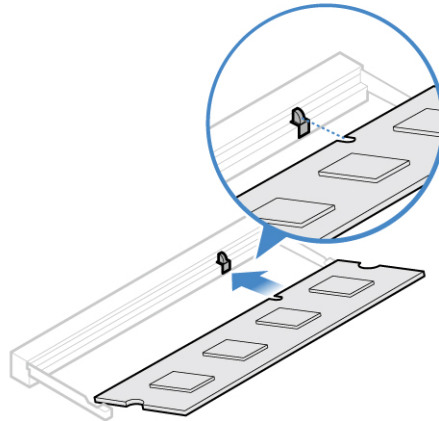


Figure 50. Installing the memory module

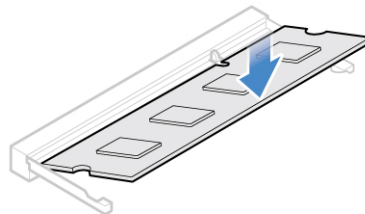


Figure 51. Installing the memory module

8. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Replacing the Wi-Fi card

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.

5. Remove the tilt-only monitor stand. See “Replacing the tilt-only monitor stand” on page 19.
6. Remove the system board shield. See “Replacing the system board shield” on page 27.
7. Replace the Wi-Fi card.
 - Type 1

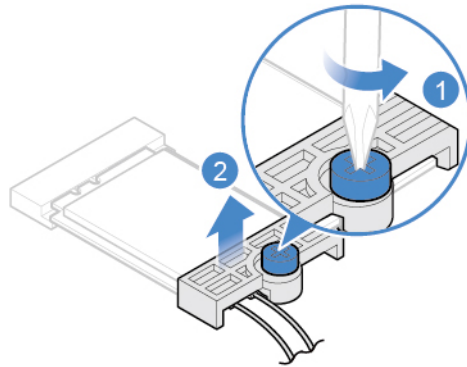


Figure 52. Removing the Wi-Fi card shield

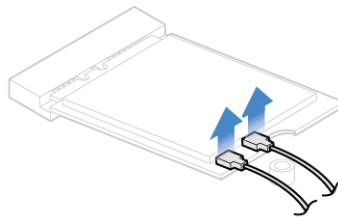


Figure 53. Disconnecting the antennas

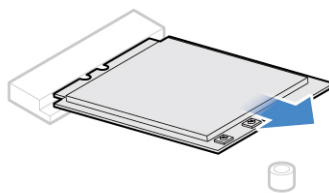


Figure 54. Removing the Wi-Fi card

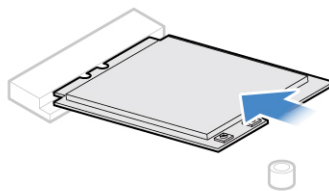


Figure 55. Installing the Wi-Fi card

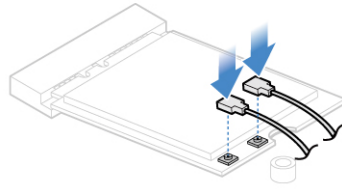


Figure 56. Connecting the antennas

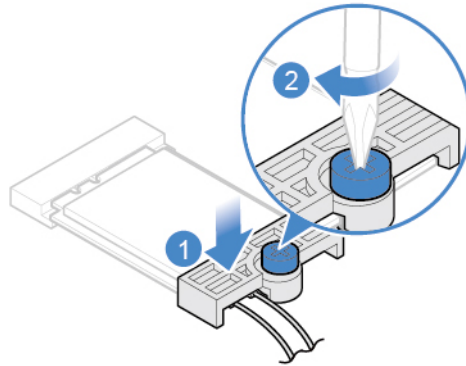


Figure 57. Installing the Wi-Fi card shield

- Type 2

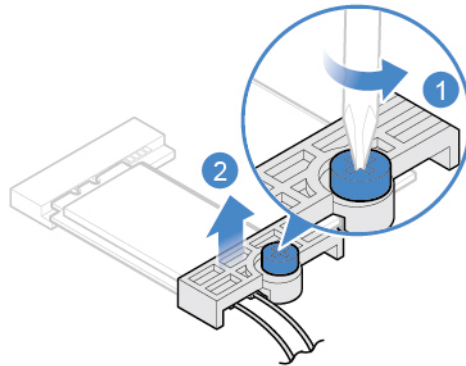


Figure 58. Removing the Wi-Fi card shield

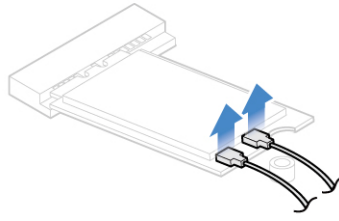


Figure 59. Disconnecting the antennas

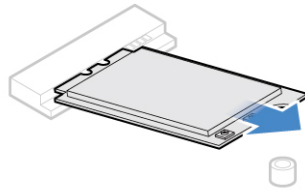


Figure 60. Removing the Wi-Fi card

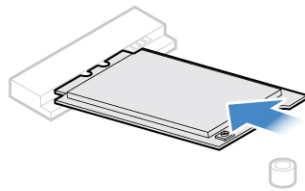


Figure 61. Installing the Wi-Fi card

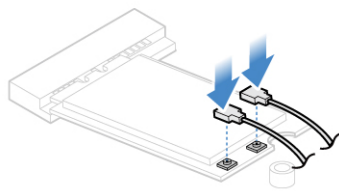


Figure 62. Connecting the antennas

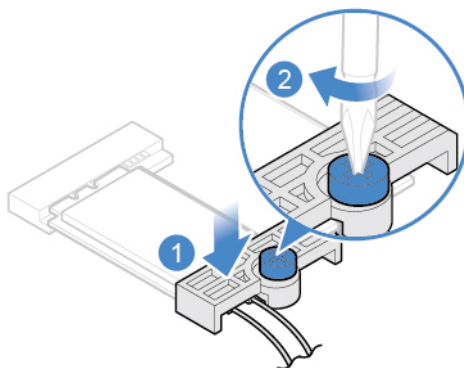


Figure 63. Installing the Wi-Fi card shield

8. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Replacing the system board and heat sink

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Remove the tilt-only monitor stand. See “Replacing the tilt-only monitor stand” on page 19.
6. Remove the system board shield. See “Replacing the system board shield” on page 27.
7. Remove the M.2 storage drive. See “Replacing the M.2 storage drive” on page 32.
8. Remove the memory module. See “Replacing the memory module” on page 34.
9. Remove the Wi-Fi card. See “Replacing the Wi-Fi card” on page 35.
10. Record the cable routing and cable connections, and then disconnect all cables from the system board. See “System board” on page 3.
11. Remove the system board and heat sink.

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.

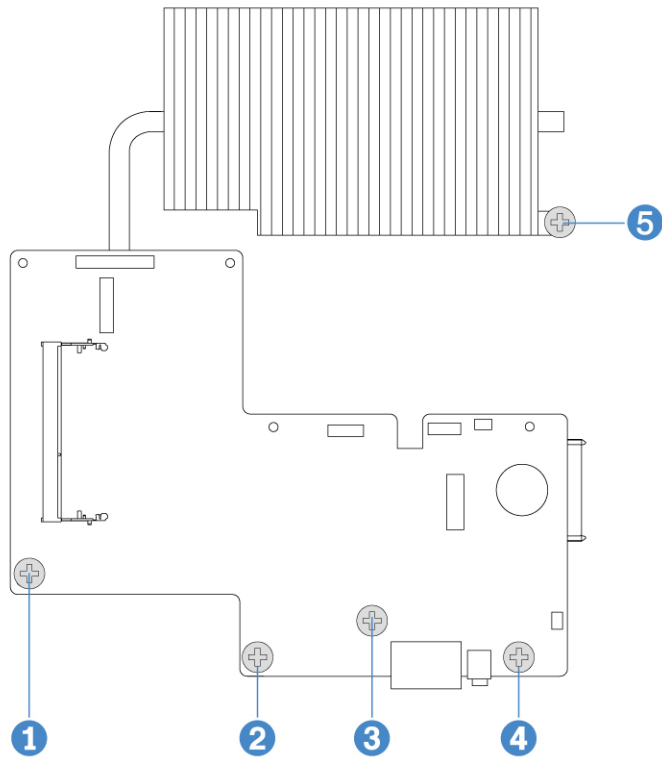


Figure 64. Removing the system board and heat sink

12. Replace the heat sink.

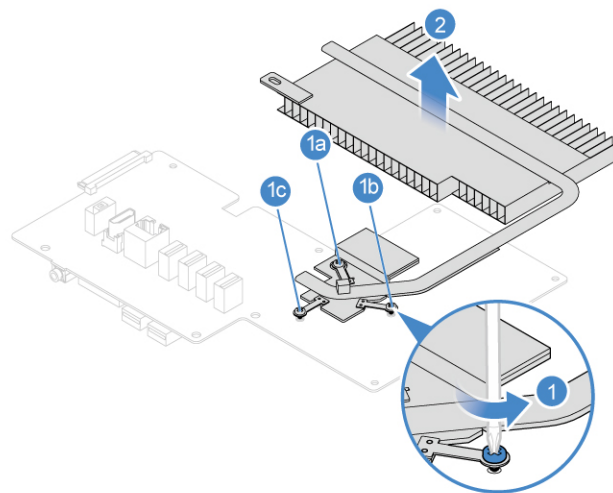


Figure 65. Removing the heat sink

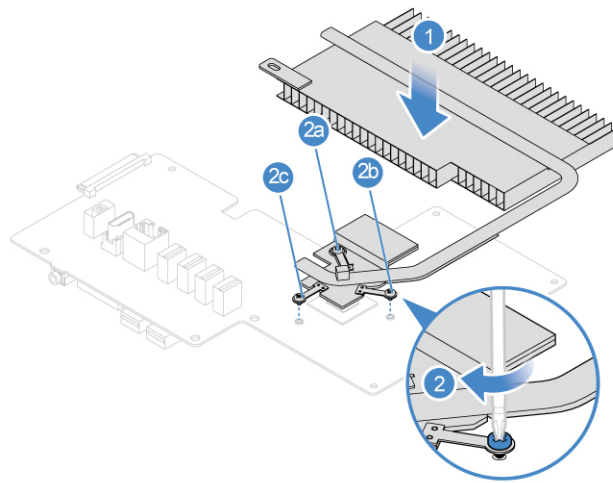


Figure 66. Installing the heat sink

13. Install the system board and heat sink.

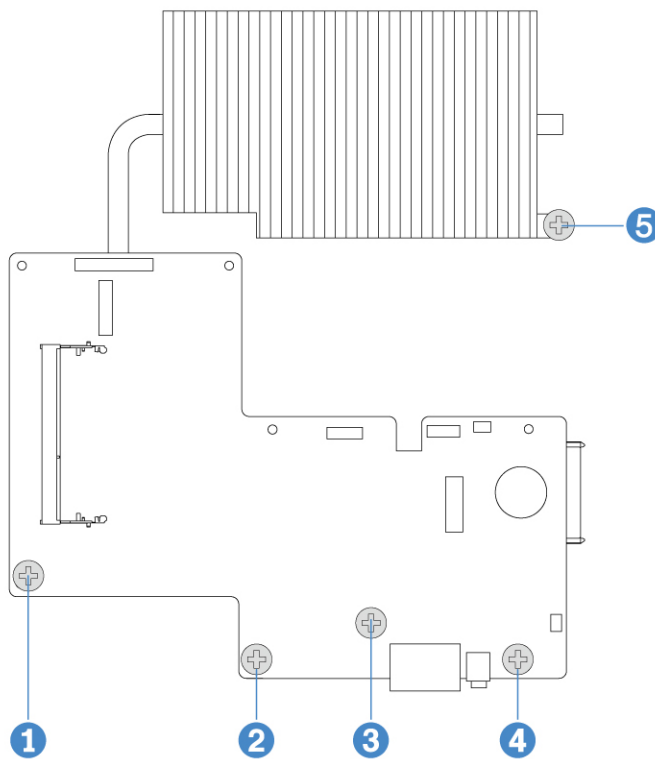


Figure 67. Installing the system board and heat sink

14. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Replacing the system board bracket

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Remove the tilt-only monitor stand. See “Replacing the tilt-only monitor stand” on page 19.
6. Remove the system board shield. See “Replacing the system board shield” on page 27.
7. Remove the M.2 storage drive. See “Replacing the M.2 storage drive” on page 32.
8. Remove the memory module. See “Replacing the memory module” on page 34.
9. Remove the Wi-Fi card. See “Replacing the Wi-Fi card” on page 35.
10. Remove the system board and heat sink. See “Replacing the system board and heat sink” on page 39.
11. Replace the system board bracket.

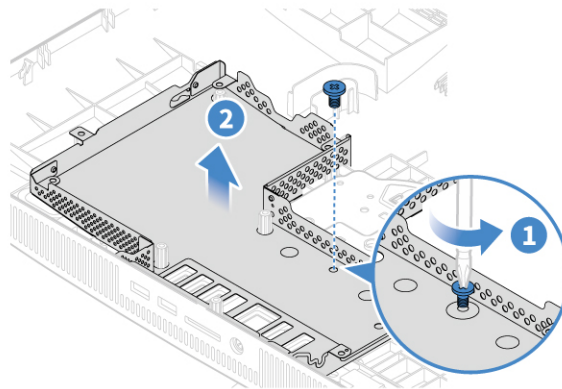


Figure 68. Removing the system board bracket

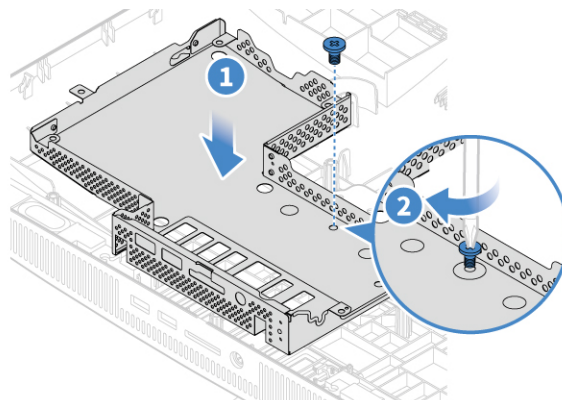


Figure 69. Installing the system board bracket

12. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Replacing the computer stand bracket

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Remove the tilt-only monitor stand. See “Replacing the tilt-only monitor stand” on page 19.
6. Remove the system board shield. See “Replacing the system board shield” on page 27.
7. Remove the M.2 storage drive. See “Replacing the M.2 storage drive” on page 32.
8. Remove the memory module. See “Replacing the memory module” on page 34.
9. Remove the Wi-Fi card. See “Replacing the Wi-Fi card” on page 35.
10. Remove the system board and heat sink. See “Replacing the system board and heat sink” on page 39.
11. Replace the computer stand bracket.

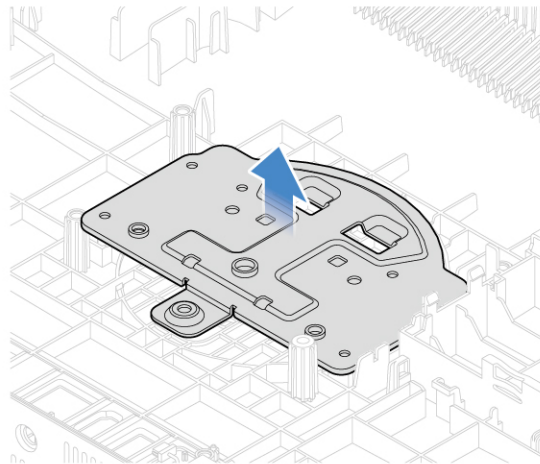


Figure 70. Removing the computer stand bracket

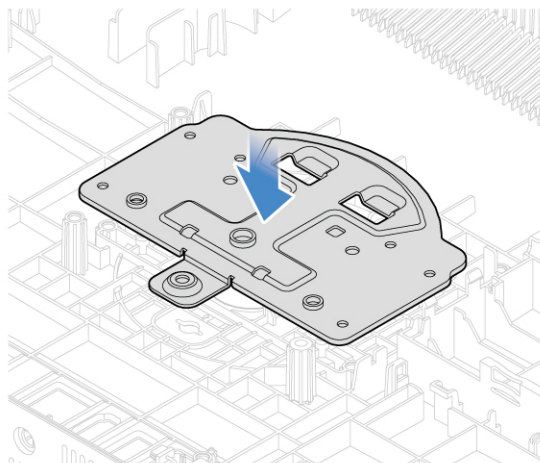


Figure 71. Installing the computer stand bracket

12. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Replacing the Wi-Fi antennas

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Remove the tilt-only monitor stand. See “Replacing the tilt-only monitor stand” on page 19.
6. Remove the system board shield. See “Replacing the system board shield” on page 27.
7. Remove the Wi-Fi card shield. See “Replacing the Wi-Fi card” on page 35.
8. Disconnect the antenna cables from the Wi-Fi card.
9. Replace the Wi-Fi antennas.

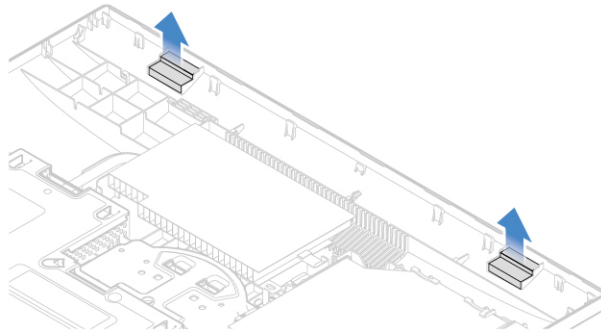


Figure 72. Removing the Wi-Fi antennas

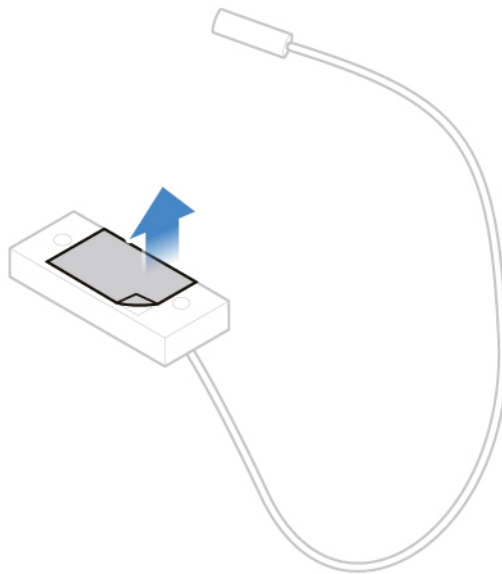


Figure 73. Peeling off the paper that protects the stickers

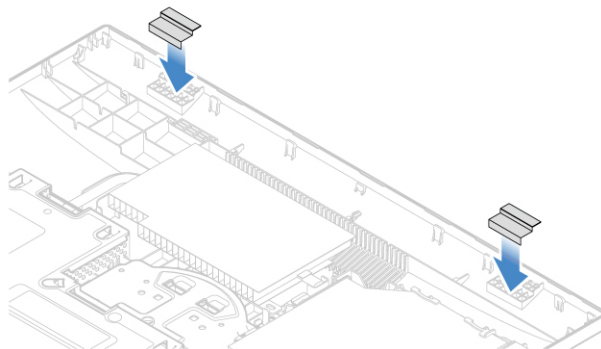


Figure 74. Installing the Wi-Fi antennas

10. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Replacing the integrated camera

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Replace the integrated camera.

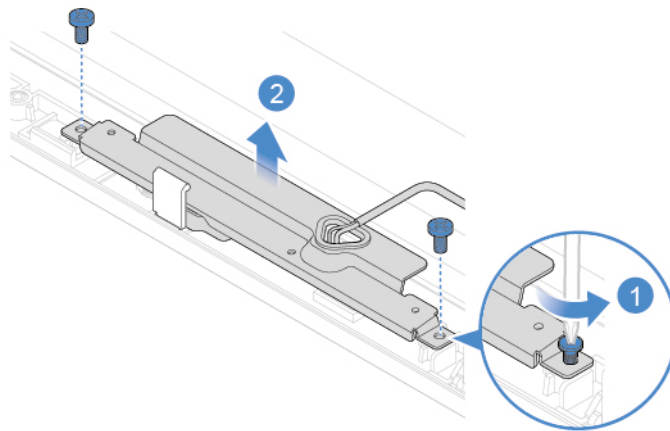


Figure 75. Removing the integrated camera

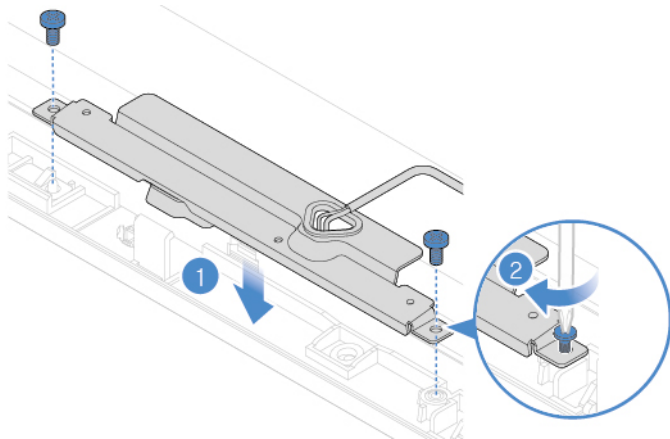


Figure 76. Installing the integrated camera

6. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Replacing the LCD panel

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

1. Remove any media from the drives and turn off all connected devices and the computer. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
2. Place a soft, clean towel or cloth on the desk or surface. Hold the sides of your computer and gently lay it down so that the computer cover is against the surface and the screen is facing up.
3. Remove the tilt-only monitor stand base. See “Replacing the tilt-only monitor stand base” on page 17.
4. Remove the front cover. See “Removing the front cover” on page 17.
5. Remove the integrated camera. See “Replacing the integrated camera” on page 46.
6. Replace the LCD panel.

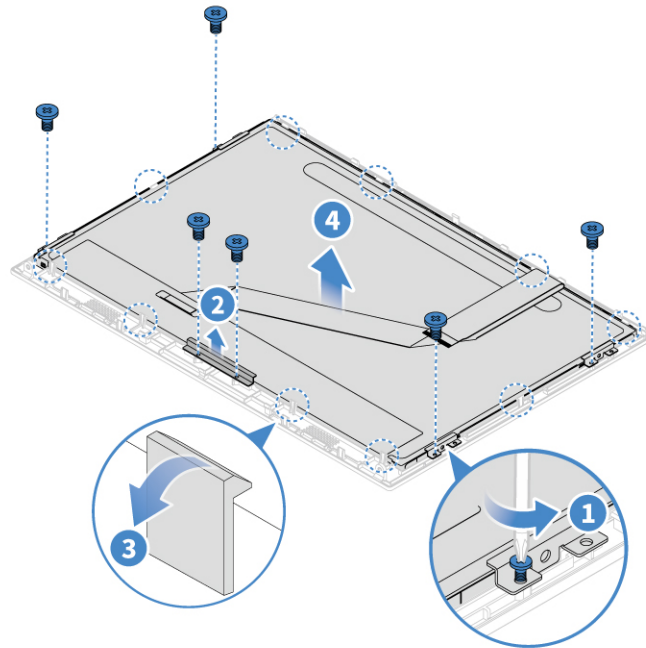


Figure 77. Removing the LCD panel

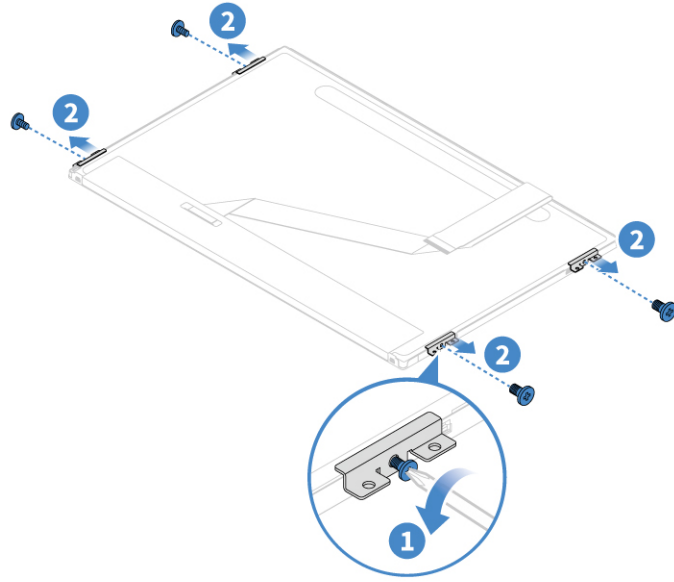


Figure 78. Removing the LCD panel

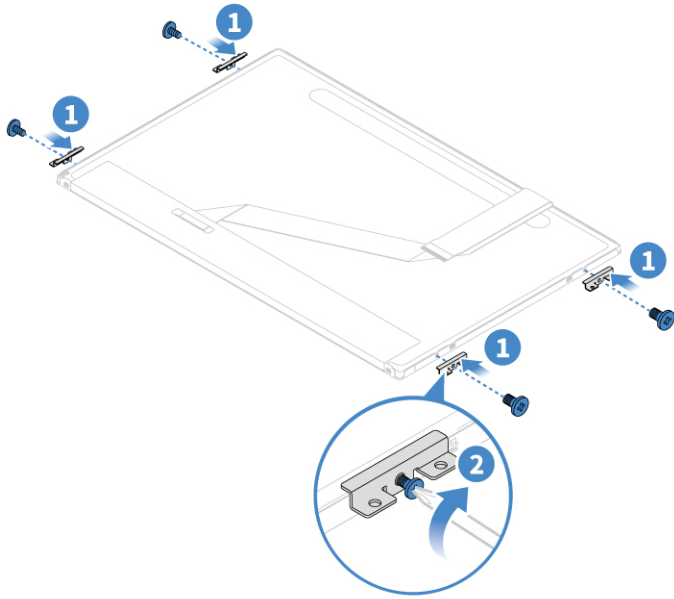


Figure 79. Installing the LCD panel

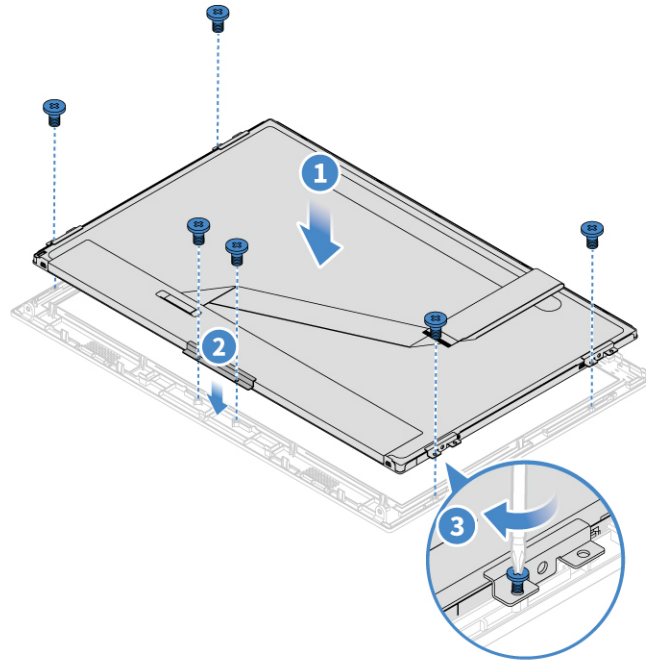


Figure 80. Installing the LCD panel

7. Reinstall the removed parts. To complete the replacement, see “Completing the parts replacement” on page 49.

Completing the parts replacement

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

To reinstall the front 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 front cover. Keep cables clear of the hinges and sides of the computer chassis to avoid interference when reinstalling the front cover.

3. Reinstall the front cover.

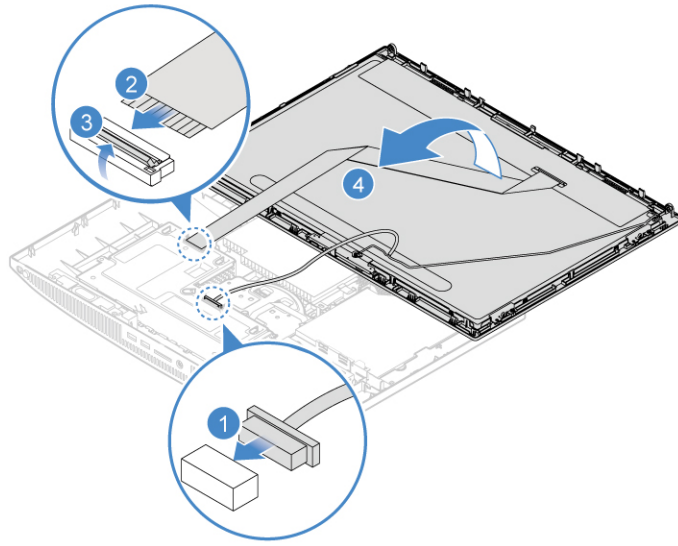


Figure 81. Reinstalling the front cover

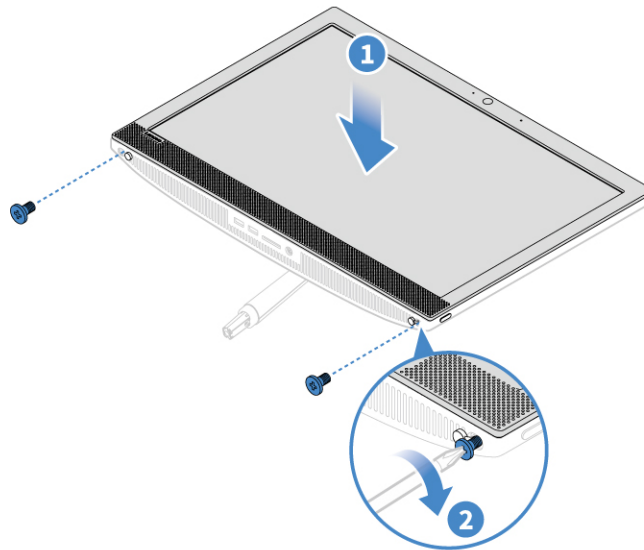


Figure 82. Reinstalling the front cover

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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