Linux User Guide

ThinkCentre neo 55q Gen 6

About this documentation

This documentation applies to the Lenovo product models listed below.

Model name	Machine types (MT)
ThinkCentre neo 55q Gen 6	13GN, 13GQ, 13GR, 13GS, 13GT, 13GU, 13GV, 13GW, 13GX, 13GY

Before using this documentation and the product it supports, ensure that you read and understand the following:

- *Safety and Warranty Guide*
- *Generic Safety and Compliance Notices*
  - For computers purchased in mainland China: https://iknow.lenovo.com.cn/detail/dc_191404.html
  - For computers purchased outside mainland China: https://pcsupport.lenovo.com/docs/generic_notices
- *Setup Guide (if provided with your computer)*

Notes:

- Illustrations in this documentation may look slightly different from your product model.
- For more compliance information, refer to:
  - For computers purchased in mainland China

    Generic Safety and Compliance Notices at https://iknow.lenovo.com.cn/detail/dc_191404.html
  - For computers purchased outside mainland China

    Regulatory Notice at https://support.lenovo.com/docs/common_commercial_rnhttps://support.lenovo.com/docs/common_consumer_dt_rn and *Generic Safety and Compliance Notices* at https://www.lenovo.com/compliance
- Depending on the model, some optional accessories, features, and software programs might not be available on your computer.
- Depending on the version of the operating systems and programs, some user interface instructions might not be applicable to your computer.
- Documentation content is subject to change without notice. Lenovo makes constant improvements to the documentation of your computer, including this *User Guide*. To get the latest documentation, go to:
  - For computers purchased in mainland China: https://newsupport.lenovo.com.cn
  - For computers purchased outside mainland China: https://pcsupport.lenovo.com

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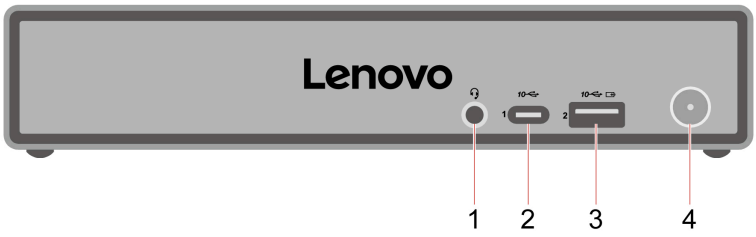
Chapter 1. Meet your computer

Front view



Item	Description	Item	Description
1	Headset connector	2	USB-C connector (USB 10Gbps)
3	USB-A connector (USB 10Gbps, Always On USB)	4	Power button with power indicator

Note: For more information about the USB connector name update, see Appendix B “Notice for USB connector name update” on page 43.

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 in the connector name or below for each corresponding device.

USB device	Data rate (Gbit/s)
Thunderbolt™ 3	40
Thunderbolt 4	40

Headset connector

The headset connector is compatible with:

- Headphones or earphones with a 3.5mm (0.14 inch), TRS (3-pole) plug
- Headsets with a 3.5mm (0.14 inch), CTIA-compliant TRRS (4-pole) plug

Note: This headset connector does not support standalone external microphones with a TRS (3-pole) plug or headsets with an OMTP-compliant TRRS (4-pole) plug.

USB-A connector (USB 10Gbps, Always On USB)

With the Always On USB feature enabled, the USB-A connector (USB 10Gbps, Always On USB) can charge a USB-A compatible device when the computer is on, off, in sleep mode, or in hibernation mode.

Power indicator

Show the system status of your computer.

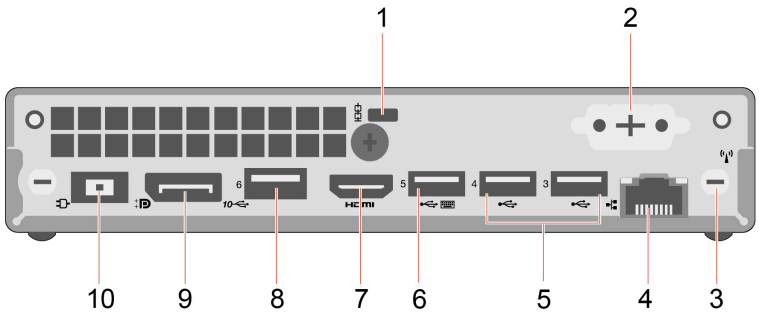
- **On:** The computer is starting up or working.

- **Off:** The computer is off or in hibernation mode.
- **Blinking:** The computer is in sleep mode.
- **Breathing:** The computer is in modern standby mode.

Related topics

- “USB specifications” on page 4
- “Set up the computer” on page 6

Rear view



Item	Description	Item	Description
1	Security-lock slot	2	Optional connector*
3	Wi-Fi® antenna slot	4	Ethernet connector (1G)
5	USB-A connectors (Hi-Speed USB)	6	USB-A connector (Hi-Speed USB) (with smart power-on feature)
7	HDMI™ out connector	8	USB-A connector (USB 10Gbps)
9	DisplayPort™ out connector	10	Power connector

* for selected models

Optional connector

Depending on the computer model, the connector might be an Ethernet connector (2.5G), a serial connector, a HDMI connector, a DisplayPort out connector, or a VGA-out connector.

Related topics

- “USB specifications” on page 4
- “Set up the computer” on page 6
- “Lock the computer” on page 12

Specifications

Specifications	Description
Dimensions	• Width: 179 mm (7.05 inches) • Height: 36.5 mm (1.44 inches) • Depth: 182.9 mm (7.2 inches)
Weight (without packaging)	Maximum configuration as shipped: 1.13 kg (2.49 lb)
Hardware configuration	• For Ubuntu® operating system: 1. Open the system menu from the top-right corner and click ⚙. 2. Click **System → About**. • For IGEL® operating system*: 1. Click the IGEL icon in the bottom-left corner to open the start menu. 2. Click the gear icon in the Quick Start Panel, then click **System Information** to open it.
Power supply	• 180-watt automatic voltage-sensing power supply • 210-watt automatic voltage-sensing power supply
Electrical input	90-watt automatic voltage-sensing power supply
CPU	To view the CPU information of your computer: • For Ubuntu operating system: 1. Open the system menu from the top-right corner and click ⚙. 2. Click **System → About**. • For IGEL operating system*: Enter **System Information** and click **Devices → Processor**.
Memory	Double data rate 5 (DDR5) small outline dual in-line memory module (SODIMM) Maximum memory capacity: 64 GB
Storage device	M.2 solid-state drive To view the storage drive capacity of your computer: • For Ubuntu operating system: Type **Disks** in the search box and use the **Disks** application. • For IGEL operating system*: Type **lsblk /dev/igfboot** in Local Terminal. **Note:** The storage drive capacity indicated by the system is less than the nominal capacity.
Video features	Maximum output resolutions: • DisplayPort out connector: 4096 × 2160 pixels, 60 Hz • HDMI out connector: 4096 × 2160 pixels, 60 Hz • VGA out connector*: 1920 × 1200 pixels, 60 Hz **Note:** The actual resolution of external displays may vary by the connected display device and the cable being used.

Specifications	Description
Expansion	• Memory slots • M.2 solid-state drive (SSD) slots
Network features	• Bluetooth* • Ethernet LAN • Wireless LAN*

* for selected models

Operating environment

Maximum altitude (without pressurization)

- Operating: From 0 m (0 ft) to 3048 m (10 000 ft)
- Storage: From 0 m (0 ft) to 12192 m (40 000 ft)

Temperature

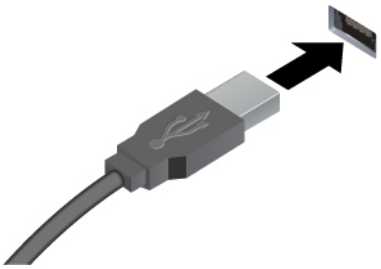
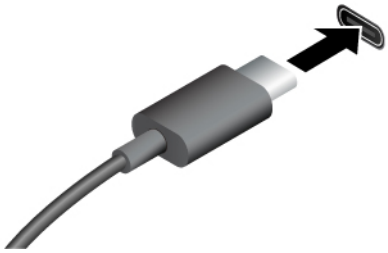
- Operating: From 10°C (50°F) to 35°C (95°F)
- Storage: From -40°C (-40°F) to 60°C (140°F)

Relative humidity

- Operating: 20%-80% (non-condensing)
- Storage: 20%-90% (non-condensing)

USB specifications

Note: Depending on the model, some USB connectors might not be available on your computer.

Connector name	Description
 • USB-A connector (Hi-Speed USB) • USB-A connector (USB 10Gbps)	Connect USB-A compatible devices, such as a USB-A keyboard, USB-A mouse, USB-A storage device, or USB-A printer.
 • USB-C connector (USB 10Gbps)	• Charge USB-C compatible devices with the output voltage and current of 5V and 3A. • Connect to USB-C accessories to help expand your computer functionality. To purchase USB-C accessories, go to https://www.lenovo.com/accessories.

Chapter 2. Get started with your computer

Get started with the operating system

Ubuntu operating system

Learn the basics of Ubuntu and start working with it right away. For more information about Ubuntu, see the Ubuntu documentation site at: https://help.ubuntu.com/lts/ubuntu-help/index.html.

The Gnome desktop is installed by default and is designed to be simple and easy to use. Details on using Gnome are available by launching the Help application or online at https://help.gnome.org/.

Launch an app

- Press the Super key (with the Windows logo) or open the Activities menu on the top left and type in the name of the application you want to launch.
- Click the **Show Apps** button on the lower left, and select the application you want to launch.

Launch settings

Open the system menu from the top-right corner and click ⚙.

IGEL operating system (for selected models)

For support on IGEL operating system, see the IGEL support site at https://www.igel.com/support/ or visit the knowledge base at https://kb.igel.com/.

1. Open Application Launcher on the taskbar.
2. Select the application as desired.

Note: The system tools available may depend on the configuration by the company administrator.

Launch settings

1. Click the IGEL icon in the bottom-left corner to open the start menu.
2. Click the gear icon in the Quick Start Panel to display available system settings tools.

Set up the computer

Step 1. Connect the cables of wired external displays to any of the following connectors on the computer:

- DisplayPort out connector
- HDMI out connector
- VGA-out connector (for selected models)

To change display settings, refer to “” on page .

Step 2. Connect the following peripheral devices on the computer if any.

- Keyboard and mouse
- Dust shield
- Air deflector

- Vertical stand

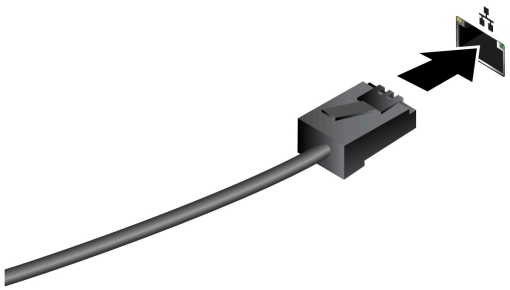
Step 3. Connect the power cord to the power cord connector on the computer and then connect it to a properly-grounded electrical outlet.

Step 4. Press the power button to turn on the computer.

Step 5. Follow the on-screen instructions to complete the setup procedures.

Step 6. Connect to a wired or wireless network.

- **Wired network:** Connect Ethernet cable of local network to the Ethernet connector on the computer.



- **Wireless network:** if your computer includes a wireless LAN module, you can connect your computer to Wi-Fi®networks.
  1. Open the system menu from the top-right corner and expand the Wi-Fi section of the menu.
  2. Click **Select Network**. A list of available wireless networks is displayed.
  3. Select a network available for connection. Provide required information, if needed.

Connect an external display

Connect a projector or a monitor to your computer to give presentations or expand your workspace.

Connect to a wired display

1. Connect the external display to an appropriate video connector on your computer.
2. Connect the external display to an electrical outlet.
3. Turn on the external display.

Change display settings

For Ubuntu operating system

1. Right-click a blank area on the desktop and select display settings.
2. Select the display that you want to configure and change display settings of your preference.

For IGEL operating system (for selected models)

You can use the IGEL Display Switch tool to detect the external display and change display settings. Do the following to launch the tool:

1. Click the gear icon in the Quick Start Panel to open Setup.
2. Select **User Interface → Display Settings**.

You can change the settings for both the computer display and the external display. For example, you can define which one is the main display and which one is the secondary display. You also can change the resolution and orientation.

Note: If you set a higher resolution for the computer display than the external display, only part of the screen can be displayed on the external display.

For more details on using Display Switch tool, see Display Settings in IGEL OS 12 | IGEL Knowledge Base.

Set the display mode (for selected models)

Press Fn+F7 and then select a display mode of your preference.

Access networks

This section helps you access networks through connecting to a wired or wireless network.

Connect to the wired Ethernet

Connect your computer to a local network through the Ethernet connector on your computer with an Ethernet cable.

Connect to Wi-Fi networks (for selected models)

If your computer includes a wireless LAN module, you can connect your computer to Wi-Fi® networks.

For Ubuntu operating system

1. Open the system menu from the top-right corner and turn on the Wi-Fi by clicking **Wi-Fi** button.
2. Click **>** to expand the Wi-Fi section of the menu. A list of available wireless networks is displayed. Click **All Networks** to see extra options.
3. Select an available network for connection. Provide required information if needed.

For IGEL operating system (for selected models)

1. Click the Wi-Fi tray icon and select **Manage Wireless Networks** to launch the Wireless Manager tool.

2. Search for available networks and select a network for connection.

Notes: Ensure that the Wireless Manager is enabled:

1. Click the gear icon in the Quick Start Panel to open Setup.
2. Select **Network → Wireless**.

Advanced settings are available under **Setup → Network → Wireless**.

For more details on managing Wi-Fi networks and advanced settings, see Wireless Connections in IGEL OS 12 | IGEL Knowledge Base.

Airplane mode (for selected models)

When the Airplane mode is enabled, all wireless features are disabled.

To enable or disable the Airplane mode, press Fn+F8.

Set the power plan

For ENERGY STAR® compliant computers, the following power plan takes effect when your computers have been idle for a specified duration:

- Turn off the display:
  - **For Ubuntu operating system**: After 5 minutes
  - **For IGEL operating system** (for selected models): After 20 minutes
- Put the computer to sleep: After 20 minutes

To awaken the computer from Sleep mode:

- **For Ubuntu operating system**:

  Press any key on your keyboard.
- **For IGEL operating system** (for selected models):
  1. Change the registry settings properly.
  2. Press any key on your keyboard.

To set the power plan:

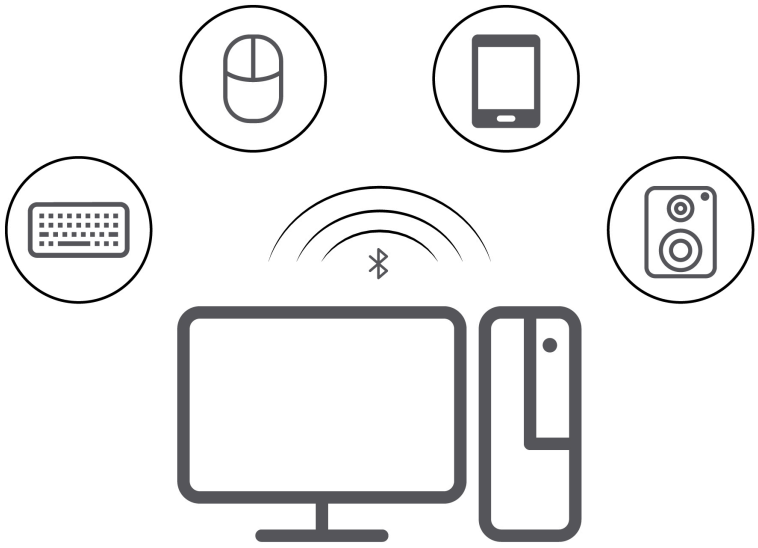
- **For Ubuntu operating system**:
  1. Go to **Settings → Power**.
  2. Choose or customize a power plan of your preference.
- **For IGEL operating system** (for selected models):
  1. Click the gear icon in the Quick Start Panel to open Setup.
  2. Select **System → Power Options → System**.
  3. Choose or customize a power plan of your preference.

Transfer data

Quickly share your files using the built-in Bluetooth technology among devices with the same features. You also can install a disc or media card to transfer data.

Connect to a Bluetooth-enabled device (for selected models)

You can connect all types of Bluetooth-enabled devices to your computer, such as a keyboard, a mouse, a smartphone, or speakers. Place the device that you are attempting to connect to less than 10 meters (33 feet) from the computer.



- To connect to a Bluetooth-enabled device in Ubuntu operating system:
  1. Open the system menu from the top-right corner and turn on the Bluetooth by clicking **Bluetooth** button.
  2. Click **>** to expand the Bluetooth section of the menu. A list of discoverable devices is displayed.
  3. Select a Bluetooth device, and then follow the on-screen instructions.
- To connect to a Bluetooth-enabled device in IGEL operating system (for selected models):
  1. Turn on Bluetooth on the computer:
     a. Click the gear icon in the Quick Start Panel to open Setup.
     b. Select **Devices → Bluetooth** and enable Bluetooth.
  2. Use the Bluetooth tool to connect to a Bluetooth-enabled device:
     a. Click the grid icon to open Application Launcher.
     b. Click the gear icon and choose **Bluetooth Tool**.

  For more details on using the Bluetooth tool, see Bluetooth in IGEL OS 12 | IGEL Knowledge Base.

Your Bluetooth-enabled device and computer will automatically connect the next time if the two devices are in range of each other with Bluetooth turned on. You can use Bluetooth for data transfer or remote control and communication.

Smart power-on feature (for selected models)

The smart power-on feature helps you start up or wake up the computer from the hibernation mode simply by pressing Alt+P.

Note: Ensure that the keyboard is connected to a USB connector supporting the smart power-on feature.

Enable or disable the smart power-on feature

To enable or disable the smart power-on feature:

Step 1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.

Step 2. Select **Power → Smart Power On** and press Enter.

Step 3. Enable or disable the feature as desired.

Step 4. Press F10 or Fn+F10 to save the changes and exit.

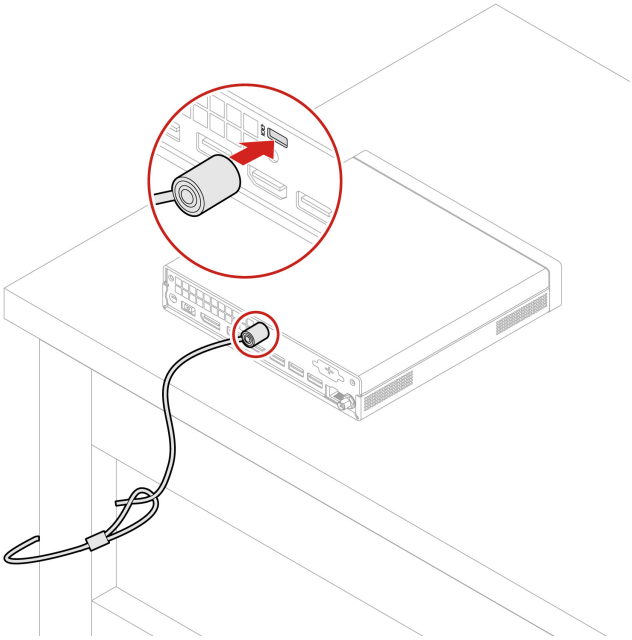
Chapter 3. Secure your computer and information

Lock the computer

Note: Lenovo makes no comments, judgments, or warranties about the function, quality, or performance of the locking device and security feature. You can purchase computer locks from Lenovo.

Security lock

Lock your computer to a desk, table, or other fixtures through a security lock.



Use BIOS security solutions

This section provides BIOS solutions to secure your computer and information.

Wipe the storage drive data (for selected models)

It is recommended that you wipe the storage drive data before recycling the storage drive or the computer.

To wipe the storage drive data:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Security → secure wipe → Enabled**.
3. Press F10 or Fn+F10 to save the changes and exit.
4. Restart the computer. When the logo screen is displayed, press F12 or Fn+F12.
5. Select **App Menu → secure wipe** and press Enter.
6. Select the storage drive you will wipe and click **NEXT**.
7. Select the entire storage drive or partition to wipe as desired.
8. Select the method as desired and click **NEXT**.
9. Click **Yes** to confirm your option when the prompting window is displayed.

10. If you have set a hard disk password for the storage drive, enter the password. Otherwise, set a temporary password following the on-screen instructions. Then, click **NEXT**. The wiping process begins.

    Note: Duration of the wiping process varies depending on the storage drive capacity.
11. Click **Reboot** when you are prompted to reset the system, and then one of the following will happen:
    - If the system storage drive data is wiped, you will be prompted that no operating system is found.
    - If the non-system storage drive data is wiped, the computer restarts automatically.

Cover presence switch

The cover presence switch prevents the computer from logging in to the operating system when the computer cover is not properly installed or closed.

To enable or disable the cover presence switch connector on the system board:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Security → Cover Tamper Detected** and press Enter.
3. Select **Enabled** or **Disabled** and press Enter.
4. Press F10 or Fn+F10 to save the changes and exit.

If the cover presence switch is enabled and the computer cover is not correctly installed or closed, an error message will be displayed when you turn on the computer. To bypass the error message and log in to the operating system, properly install and close the computer cover, and then enable the cover presence switch connector again in the BIOS menu.

Smart USB Protection

The Smart USB Protection function is a security function that helps prevent data from being copied from the computer to USB storage devices connected to the computer. You can set the Smart USB Protection function to one of the following modes:

- **Disabled** (default setting): You can use the USB storage devices without limitation.
- **Read Only**: You cannot copy data from the computer to the USB storage devices. However, you can access data on the USB storage devices.
- **No Access**: You cannot access the USB storage devices from the computer.

To configure the Smart USB Protection function:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Security → Smart USB Protection** and press Enter.
3. Select the desired setting and press Enter.
4. Press F10 or Fn+F10 to save the changes and exit.

UEFI BIOS passwords

You can set passwords in UEFI (Unified Extensible Firmware Interface) BIOS (Basic Input/Output System) to strengthen the security of your computer.

Password types

You can set a power-on password, supervisor password, or hard disk password in UEFI BIOS to prevent unauthorized access to your computer. However, you are not prompted to enter any UEFI BIOS password when your computer resumes from sleep mode.

- Power-on password

When a power-on password is set, you are prompted to enter a valid password each time the computer is turned on.

- Supervisor password

  Setting a supervisor password deters unauthorized users from changing configuration settings. If you are responsible for maintaining the configuration settings of several computers, you might want to set a supervisor password.

  When a supervisor password is set, you are prompted to enter a valid password each time you try to enter the BIOS menu.

  If both the power-on password and supervisor password are set, you can enter either password. However, you must use your supervisor password to change any configuration settings.

- Hard disk password

  Setting a hard disk password prevents unauthorized access to the data on the storage drive. When a hard disk password is set, you are prompted to enter a valid password each time you try to access the storage drive.

  Note: After you set a hard disk password, your data on the storage drive is protected even if the storage drive is removed from one computer and installed in another.

Set, change, and remove a password

Before you start, print these instructions.

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Security**.
3. Depending on the password type, select **Set Supervisor Password**, **Set Power-On Password**, or **Hard Disk Password** and press Enter.
4. Follow the on-screen instructions to set, change, or remove a password.
5. Press F10 or Fn+F10 to save the changes and exit.

You should record your passwords and store them in a safe place. If you forget the passwords, contact a Lenovo-authorized service provider.

Note: If the hard disk password is forgotten, Lenovo cannot remove the password or recover data from the storage drive.

Chapter 4. UEFI BIOS

Enter the UEFI BIOS menu

Turn on or restart the computer. When the logo screen is displayed, press F1 or Fn+F1 to enter the UEFI BIOS menu.

Note: If you have set UEFI BIOS passwords, enter the correct passwords when prompted. You also can select **No** or press Esc to skip the password prompt and enter the UEFI BIOS menu. However, you cannot change the system configurations that are protected by passwords.

Navigate the UEFI BIOS menu

Follow the on-screen instructions to navigate in the UEFI BIOS menu.

The table below introduces the available settings of the UEFI BIOS menu. You can follow the on-screen instruction to navigate in the UEFI BIOS menu.

Note: The UEFI BIOS menu might vary depending on system configurations.

Menu	Introduction
Main	This category provides the general product-related and firmware information including system summary, machine type, product serial number, UUID number, etc.
Devices	This category introduces how to configure various devices such as USB ports and audio controllers.
Advanced	This category provides advanced information about the computer such as the CPU features.
Power	This category introduces power and thermal management solutions.
Security	This category introduces various passwords, locks, and software to protect your computer.
Startup	This category introduces how to set the boot priority order.
Exit	This category introduces how to exit as you prefer.

You can go to Lenovo BIOS Simulator Center https://download.lenovo.com/bsco/index.html to explore the detailed settings by your product name.

Note: The Lenovo BIOS Simulator Center makes periodic updates of the settings. The UEFI BIOS simulator interface and description of settings might be different from that on your actual user interface.

Enable or disable the ErP LPS compliance mode

Lenovo computers meet the eco-design requirements of the ErP Lot 3 regulation. For more information, go to:
https://www.lenovo.com/us/en/compliance/eco-declaration

You can enable the ErP LPS compliance mode to reduce the consumption of electricity when the computer is off or in sleep mode.

To enable or disable the ErP LPS compliance mode:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.

2. Select **Power → Enhanced Power Saving Mode** and press Enter.
3. Depending on whether you select **Enabled** or **Disabled**, do one of the following:
   - If you select **Enabled**, press Enter. Then, select **Power → Automatic Power On** and press Enter. Check whether the Wake on LAN feature is disabled automatically. If no, disable it.
   - If you select **Disabled**, press Enter. Then, go to the next step.
4. Press F10 or Fn+F10 to save the changes and exit.

When the ErP LPS compliance mode is enabled, you can wake up the computer by doing one of the following:

- Press the power button.
- Enable the Wake Up on Alarm feature to make the computer wake up at a set time.

Update UEFI BIOS

When you install a new program, device driver, or hardware component, you might need to update UEFI BIOS. You can update the BIOS from your operating system or a flash update disc (supported only on selected models).

Download and install the latest UEFI BIOS update package by one of the following methods:

- Using the built-in software update service:
  - For Ubuntu operating system, Ubuntu software update will check the LVFS site for any firmware updates and notify you when updates are available.
  - For IGEL operating system (for selected models), update, downgrade, or reinstall the UEFI BIOS using the IGEL Universal Management Suite (UMS). See Universal Firmware Update in the IGEL UMS.
- From the Lenovo Support Web site:
  1. Go to https://pcsupport.lenovo.com.
  2. Download the flash BIOS update driver for the operating system version or the ISO image version (used to create a flash update disc). Then, download the installation instructions for the flash BIOS update driver you have downloaded.
  3. Print the installation instructions and follow the instructions to update the BIOS.

Chapter 5. CRU replacement

What is CRU

Important: For users in mainland China, the information provided in this chapter is for reference by professional maintenance service providers or technicians authorized by Lenovo only. Users shall not perform maintenance on their own. Any faults or damage due to improper operation, modification, or failure to use parts provided by Lenovo are not covered by the warranty for this product. For product warranty information, refer to the warranty document provided with the product or go to the official Lenovo website at https://newsupport.lenovo.com.cn.

Customer Replaceable Units (CRUs) are parts that can be replaced by the customer. Lenovo computers contain the following types of CRUs:

- **Self-service CRUs:** Refer to parts that can be replaced easily by customer themselves or by trained service technicians at an additional cost.
- **Optional-service CRUs:** Refer to parts that can be replaced by customers with a greater skill level. Trained service technicians can also provide service to replace the parts under the type of warranty designated for the customer's machine.

If you intend on installing the CRU, Lenovo will ship the CRU to you. CRU information and replacement instructions are shipped with your product and are available from Lenovo at any time upon request. You might be required to return the defective part that is replaced by the CRU. When return is required: (1) return instructions, a prepaid shipping label, and a container will be included with the replacement CRU; and (2) you might be charged for the replacement CRU if Lenovo does not receive the defective CRU within thirty (30) days of your receipt of the replacement CRU. For full details, see the Lenovo Limited Warranty documentation at:
https://www.lenovo.com/warranty/llw_02

CRU list

The following is the CRU list of your computer.

Self-service CRUs

- ac power adapter
- Dongle*
- External Wi-Fi antenna*
- Keyboard*
- Mouse*
- Power adapter bracket*
- Power cord
- Top cover
- Vertical stand*
- VESA mount bracket*

Optional-service CRUs

- Flexible IO board*
- CPU heat sink

- Internal speaker
- M.2 solid-state drive (SSD)
- Memory module
- System fan

* for selected models

Power adapter and power cord (without bracket)

Prerequisite

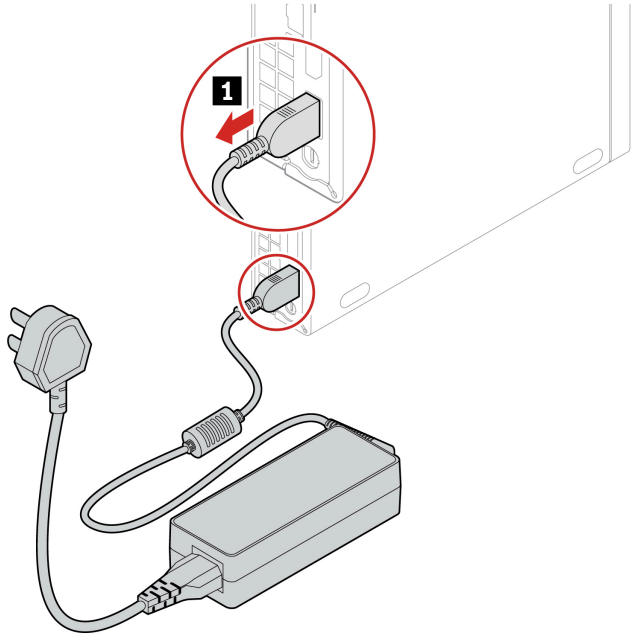
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, do the following:

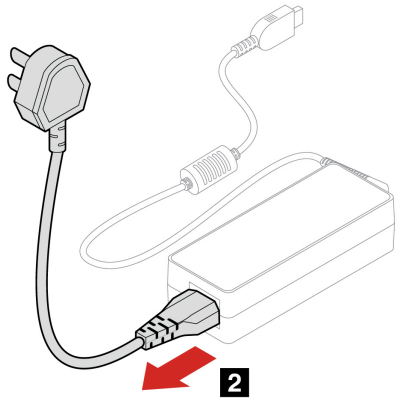
1. Turn off the computer and all connected devices.
2. Disconnect the computer from ac power.

Removal steps

1. Disconnect the ac power adapter from the computer back.



2. Disconnect the power cord from the ac power adapter.



3. Install the power cord and ac power adapter in reverse order.

Power adapter and power cord (with bracket)

Prerequisite

Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

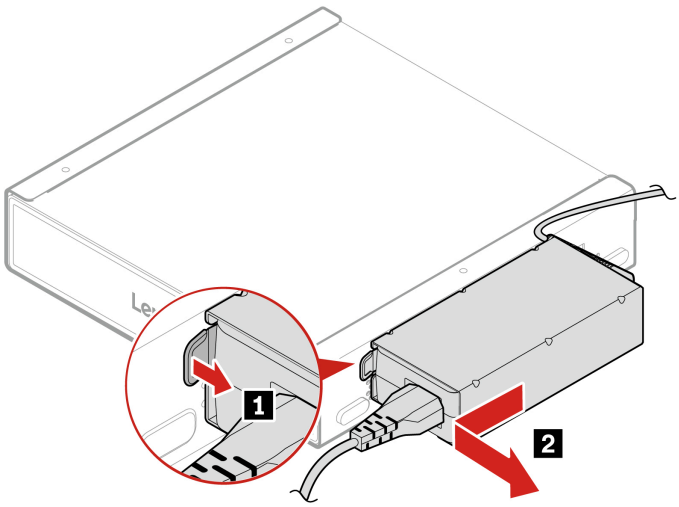
For access, do the following:

1. Turn off the computer and remove all connected devices and cables.
2. Disconnect the computer from ac power and all connected cables.

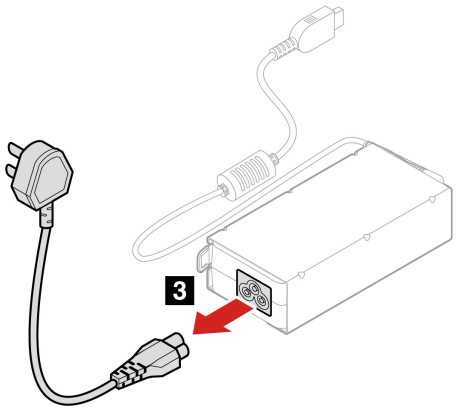
There are two types of power adapter brackets. Type 2 is for the 135-watt power supply, and Type 1 is for other power supplies.

Replacement steps (Type 1)

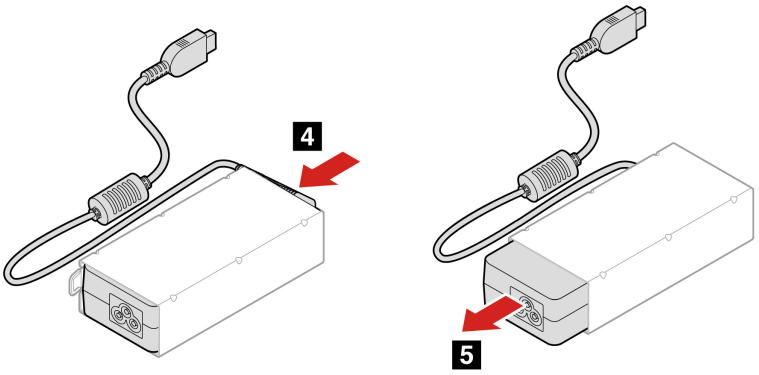
- **Removal**
  1. Unlock the power adapter bracket from the VESA mount bracket by pulling the retaining clip. Remove the power adapter bracket.



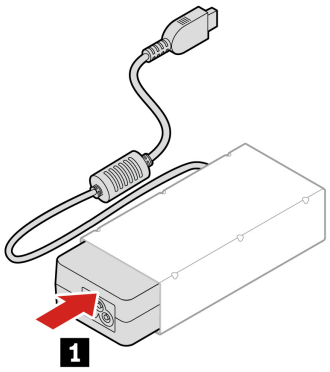
  2. Disconnect the power cord from the ac power adapter.



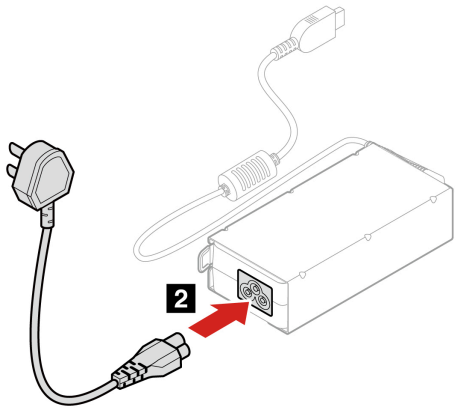
3. Push the ac power adapter out of the power adapter bracket. Remove the ac power adapter.



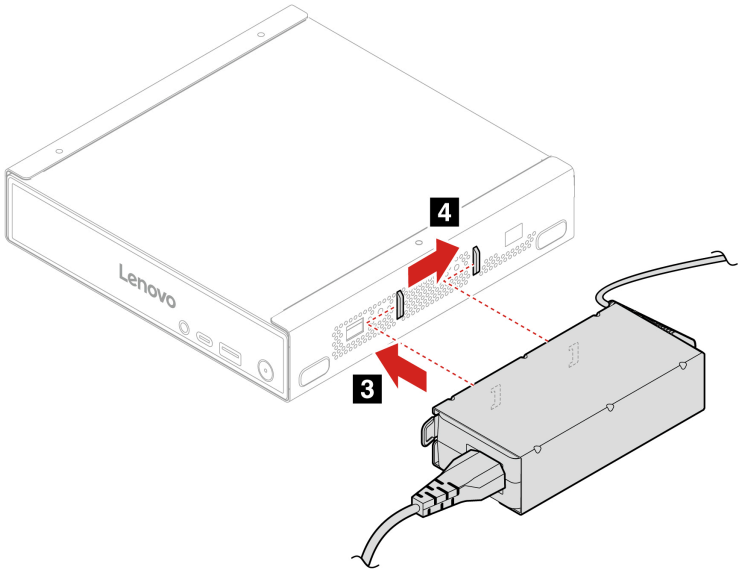
- **Installation**
  1. Insert the ac power adapter into the power adapter bracket.



  2. Connect the power cord to the ac power adapter.

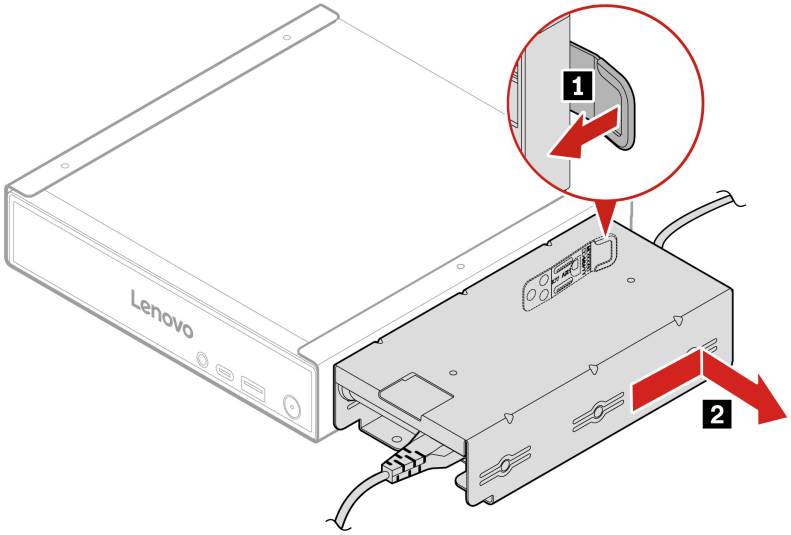


3. Align the two hooks on the power adapter bracket side with the two holes on the VESA mount bracket side. Push forward the power adapter bracket to secure it on the VESA mount bracket.



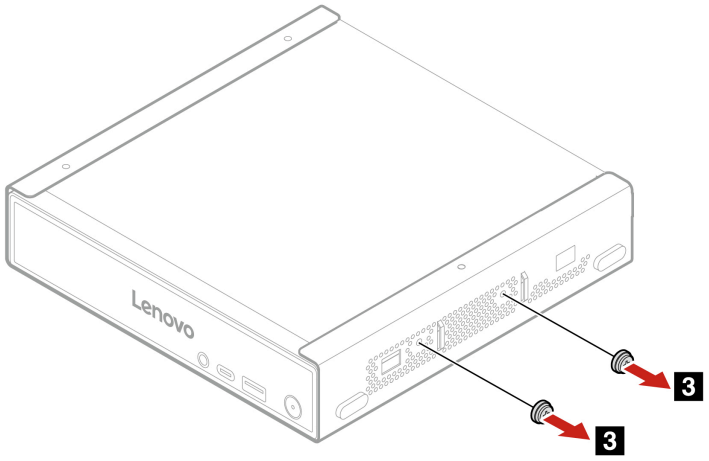
Replacement steps (Type 2)

- **Removal**
  1. Unlock the power adapter bracket from the VESA mount bracket by pulling the retaining clip. Remove the power adapter bracket.

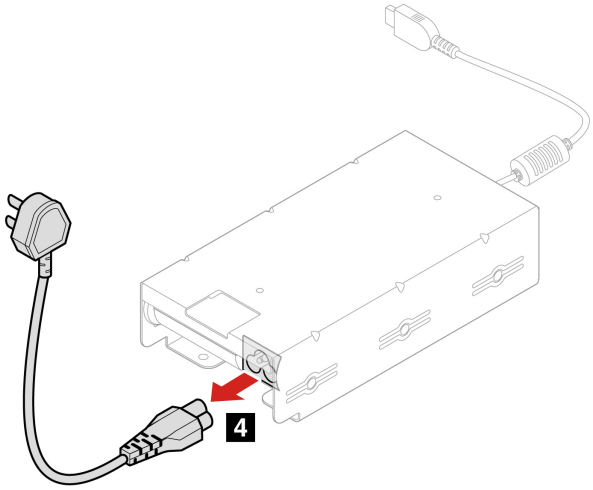


2. Remove the two screws on the side of the VESA mount bracket if needed. Find the screw specification in the following table.

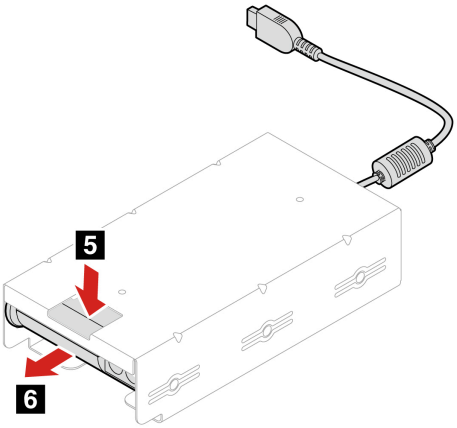
Screw	Quantity	Torque
M4 x L5 mm, Zn coated	2	3 ± 0.5 lb/in



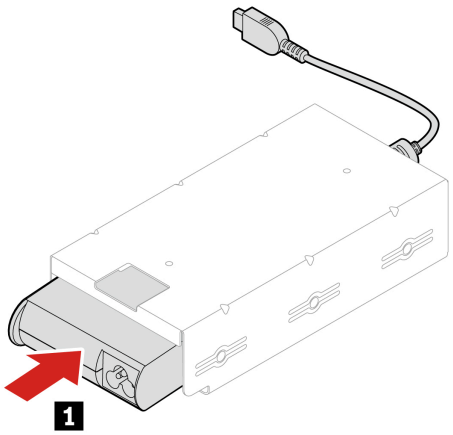
3. Disconnect the power cord from the ac power adapter.



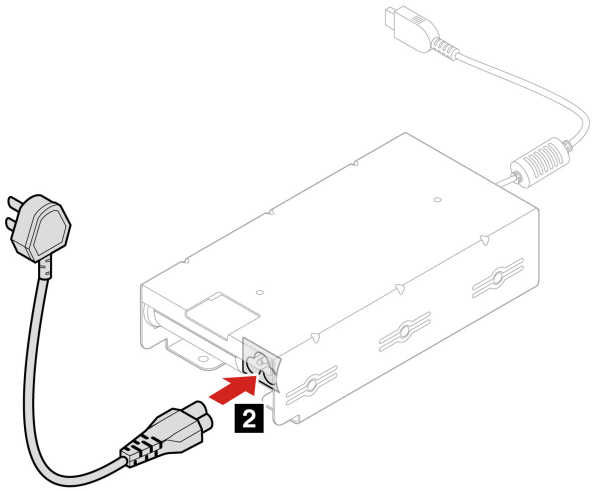
4. Push down the ac power adapter from the top hole of the power adapter bracket. Push the ac power adapter out of the power adapter bracket.



- **Installation**
  1. Insert the ac power adapter into the power adapter bracket.

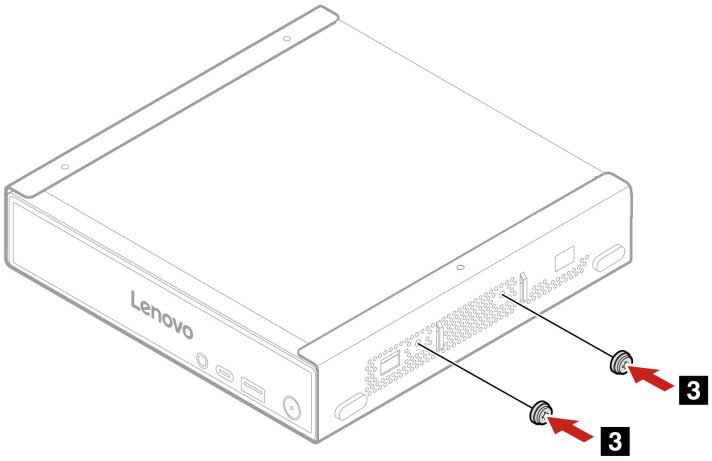


2. Connect the power cord to the ac power adapter.

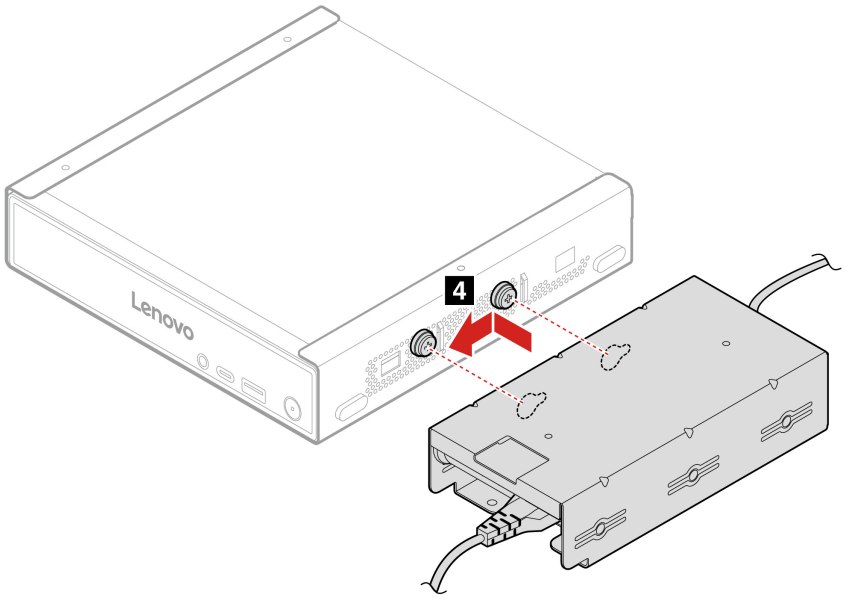


3. Install two screws to the VESA mount bracket. Find the screw specification in the following table.

Screw	Quantity	Torque
M4 x L5 mm, Zn coated	2	3 ± 0.5 lb/in



4. Align the two holes on the power adapter bracket side to the two screws on the VESA mount bracket side. Pull the power adapter bracket backward to secure it on the VESA mount bracket.



Vertical stand

Prerequisite

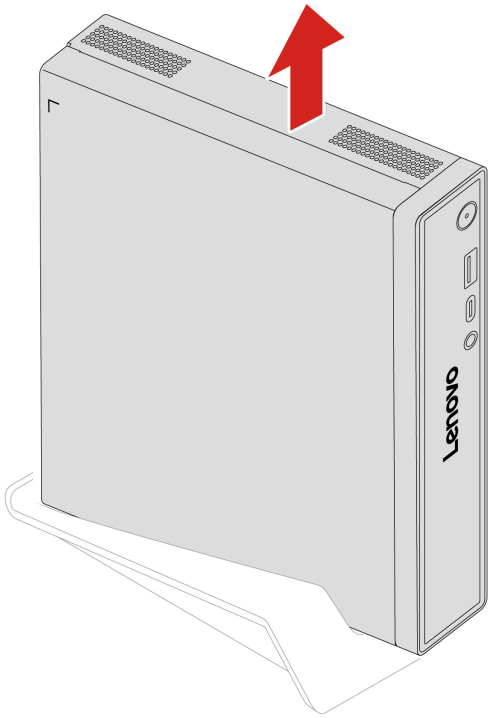
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, do the following:

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.

Removal steps

Lift the computer and remove the vertical stand.



VESA mount bracket

Prerequisite

Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, do the following:

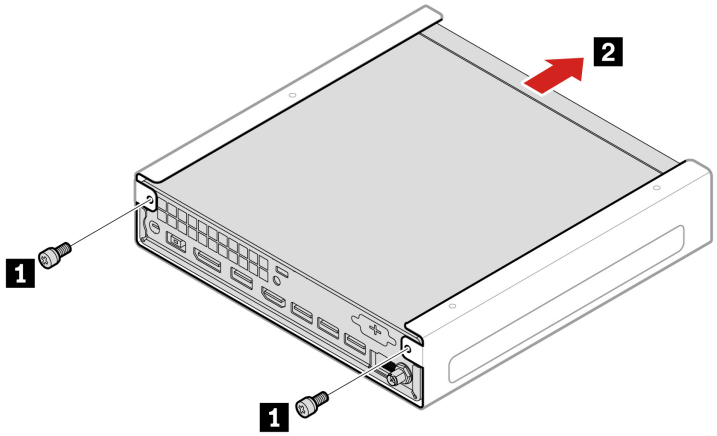
1. Turn off the computer and remove all connected devices and cables.
2. Disconnect the computer from ac power and all connected cables.

Replacement steps

1. Remove the two screws that secure the VESA mount bracket to the rear panel. Find the screw specification in the following table.

Screw	Quantity	Torque
M3 x L6 mm, Zn coated	2	1.5 ± 0.2 lb/in

2. Pull out the computer from the front panel.



3. Install a new VESA mount bracket in reverse order.

External Wi-Fi antenna

Prerequisite

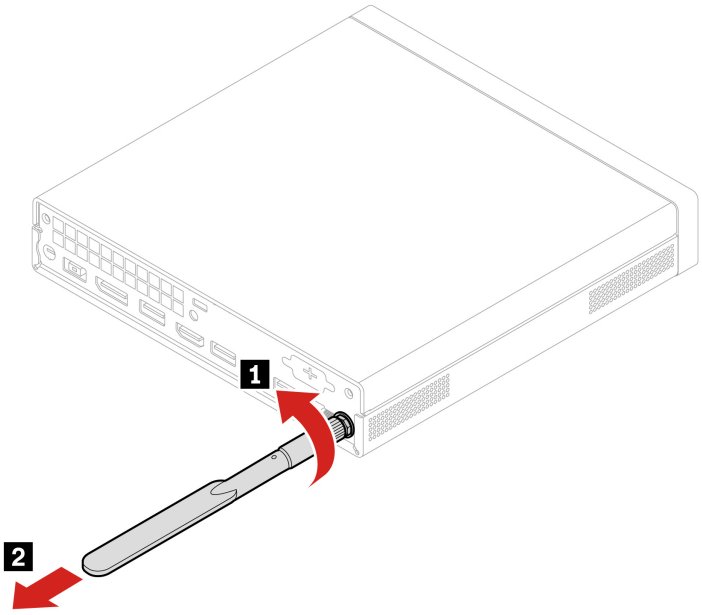
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, do the following:

1. Turn off the computer and remove all connected devices and cables.
2. Disconnect the computer from ac power and all connected cables.

Removal steps

Twist off the external Wi-Fi antenna counterclockwise.



Top cover

Prerequisite

Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

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

For access, do the following:

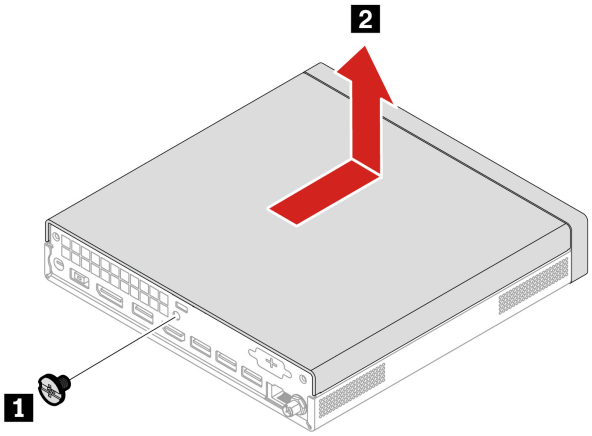
1. Turn off the computer and remove all connected devices and cables.
2. Disconnect the computer from ac power and all connected cables.
3. Unlock any locking device that secures the top cover.
4. Remove the following parts, if any, in order.
   - “VESA mount bracket” on page 26
   - “Vertical stand” on page 25
   - “External Wi-Fi antenna” on page 27

Replacement steps

1. Remove the thumb screw in the middle of the computer back. Find the screw specification in the following table.

Screw	Quantity	Torque
M4 x L5 mm, Zn coated	1	3 ± 0.5 lb/in

2. Push forward the top cover to remove it.



3. Install a new top cover in reverse order.

   Note: If a locking device is available, use it to lock the computer after installing the computer cover.

M.2 solid-state drive

Prerequisite

Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

Attention: The M.2 solid-state drive is sensitive. Inappropriate handling might cause damage and permanent loss of data. When handling the M.2 solid-state drive, observe the following guidelines:

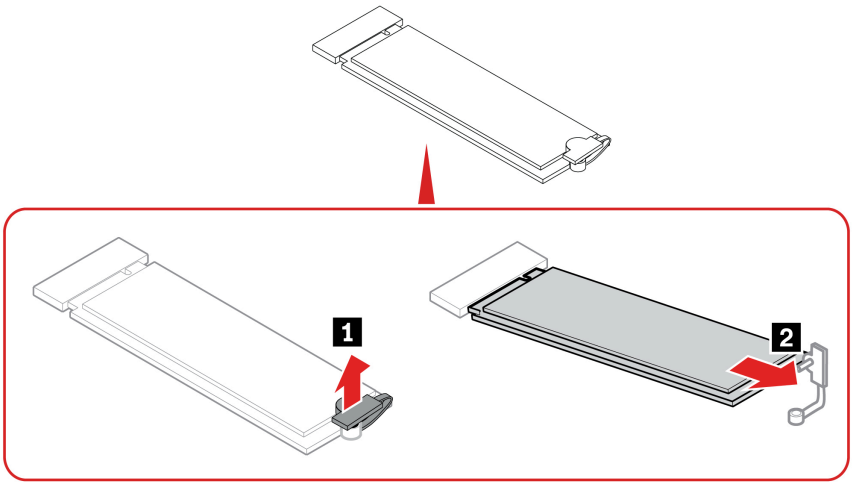
- Replace the M.2 solid-state drive only for repair. The M.2 solid-state drive is not designed for frequent changes or replacement.
- Before replacing the M.2 solid-state drive, make a backup copy of all the data that you want to keep.
- Do not touch the contact edge of the M.2 solid-state drive. Otherwise, the M.2 solid-state drive might get damaged.
- Do not apply pressure to the M.2 solid-state drive.
- Do not make the M.2 solid-state drive subject to physical shocks or vibration. Put the M.2 solid-state drive on a soft material, such as cloth, to absorb physical shocks.

For access, remove the following parts, if any, in order.

- “VESA mount bracket” on page 26
- “Vertical stand” on page 25
- “External Wi-Fi antenna” on page 27
- “Top cover” on page 28

Replacement steps

1. Pull the SSD clip out of the holder. Remove the SSD by pulling it away from the M.2 slot.



2. Install a new SSD in reverse order.

   Note: Before installing the SSD, replace the SSD thermal pads on the system board if necessary.

Internal speaker

Prerequisite

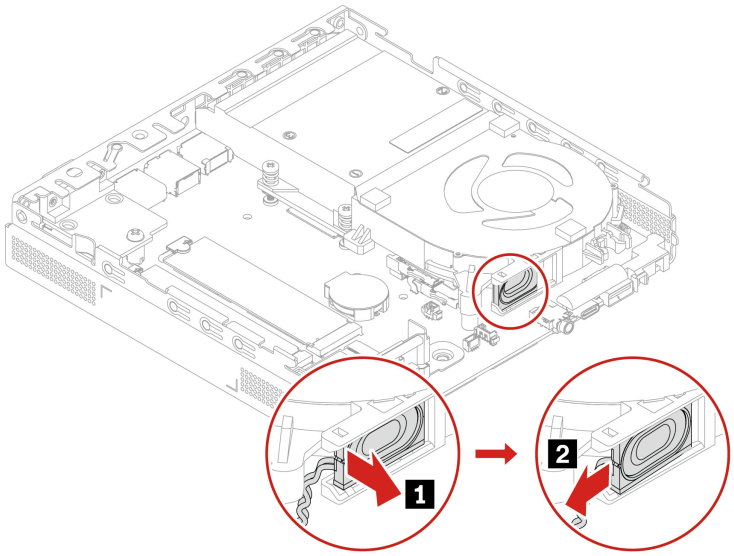
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, remove the following parts, if any, in order.

- “VESA mount bracket” on page 26
- “Vertical stand” on page 25
- “External Wi-Fi antenna” on page 27
- “Top cover” on page 28

Removal steps

1. Disconnect the internal speaker cable from the system board.
2. Pull out the internal speaker from the side bracket of the system fan.



System fan

Prerequisite

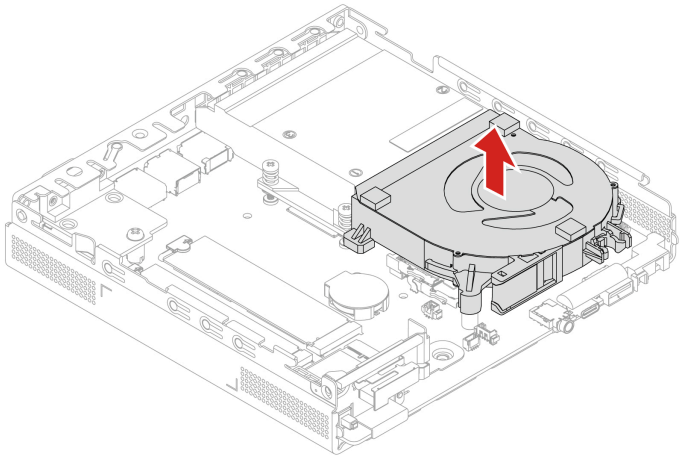
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, remove the following parts, if any, in order.

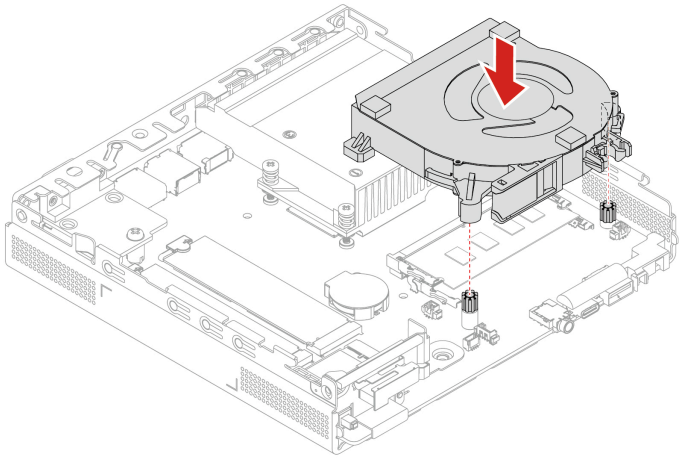
- “VESA mount bracket” on page 26
- “Vertical stand” on page 25
- “External Wi-Fi antenna” on page 27
- “Top cover” on page 28
- “Internal speaker” on page 30

Replacement steps

1. Disconnect the system fan from the system board and remove the fan.



2. Align the holes on the system fan with the two support rubbers and press down the system fan until it's installed in place.



CPU heat sink

Prerequisite

Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

CAUTION:

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

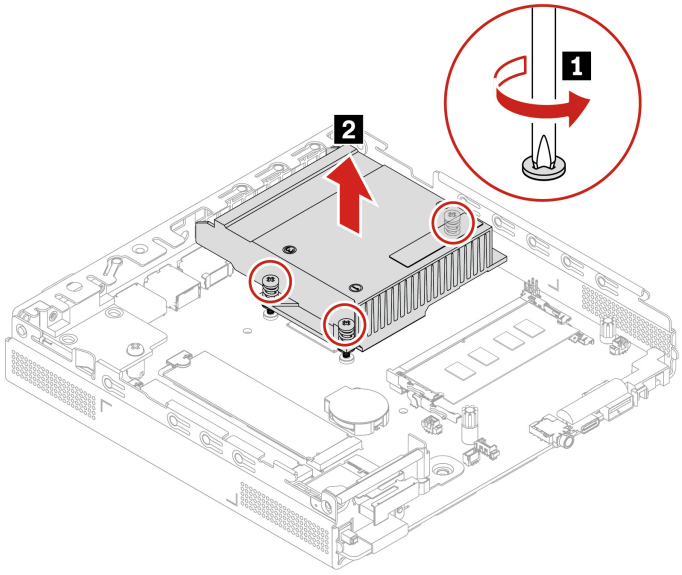
For access, remove the following parts, if any, in order.

- “VESA mount bracket” on page 26
- “Vertical stand” on page 25
- “External Wi-Fi antenna” on page 27
- “Top cover” on page 28
- “Internal speaker” on page 30
- “System fan” on page 30

Replacement steps

1. Loosen the three screws which secure the CPU heat sink to the system board. Ensure that the CPU heat sink is horizontal when loosening or fastening the screws.
2. Remove the CPU heat sink.

   Note: Do not touch the thermal grease while handling the CPU heat sink.



3. Install a new CPU heat sink in reverse order.

   Note: When you install a new CPU heat sink to the computer, clean all thermal grease that has been used on the CPU and apply new thermal grease at an amount of 0.5 grams on the new heat sink. Either too much or too little grease can cause a thermal problem due to imperfect contact with a component.

Memory module

Prerequisite

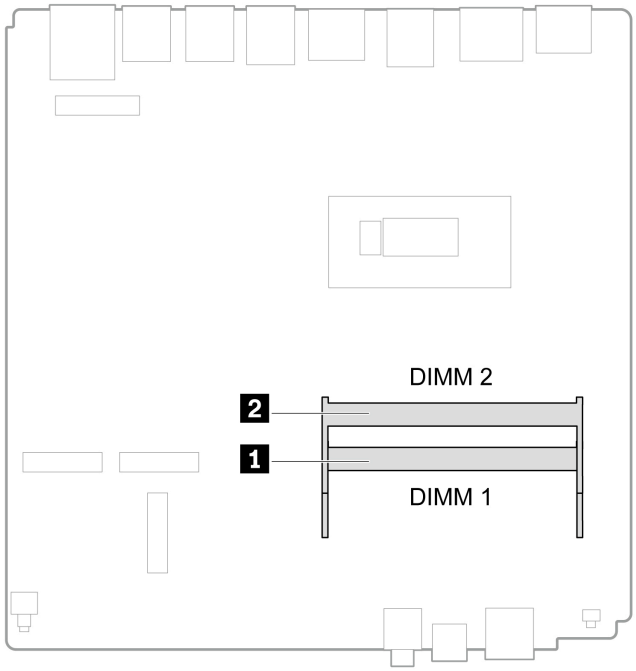
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, remove the following parts, if any, in order.

- “VESA mount bracket” on page 26
- “Vertical stand” on page 25
- “External Wi-Fi antenna” on page 27

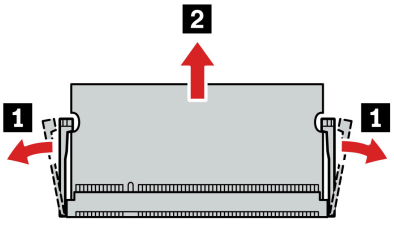
- “Top cover” on page 28
- “Internal speaker” on page 30
- “System fan” on page 30

This computer supports two memory slots beside the CPU. If you have only one memory module, install it in the slot that is farther from the CPU. If you have two memory modules, install them in both slots.

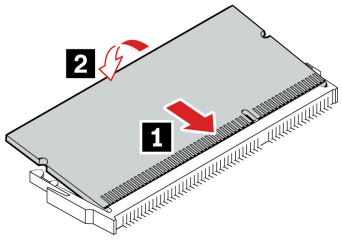


Replacement steps

1. Disengage the latches and remove the memory module.



2. Insert the memory into the slot and push it down to secure it.



Flexible I/O board

Prerequisite

Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, remove the following parts, if any, in order.

- “VESA mount bracket” on page 26
- “Vertical stand” on page 25
- “External Wi-Fi antenna” on page 27
- “Top cover” on page 28

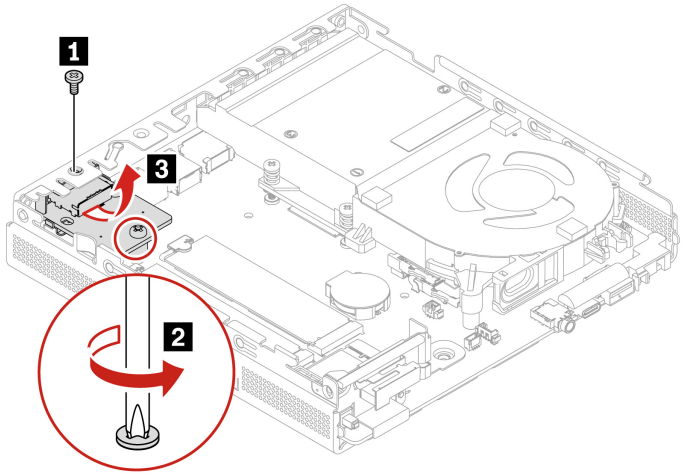
Depending on the model, the flexible I/O board can be the board of DisplayPort connector, VGA connector, serial connector, HDMI connector, or Ethernet connector. The following Type 1 is for the DisplayPort, HDMI connector board replacement, and the Type 2 is for the replacement of other connector boards.

Replacement steps (Type 1)

- **Removal**
  1. Remove the screw that fixes the flexible I/O board to the chassis top edge. Find the screw specification in the following table.

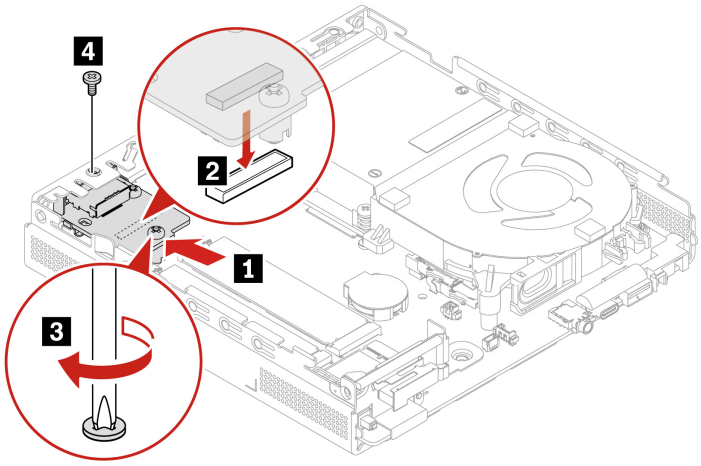
Screw	Quantity	Torque
M3 x L3.2 mm, Ni coated	1	3 ± 0.5 lb/in

  2. Loosen the screw that fixes the flexible I/O board to the system board. Remove the flexible I/O board.



- **Installation**
  1. Align and connect the flexible I/O board to the 80-pin BTB connector on the system board. Screw down the flexible I/O board on the system board.
  2. Install one screw to fix the board to the chassis top edge. Find the screw specification in the following table.

Screw	Quantity	Torque
M3 x L3.2 mm, Ni coated	1	3 ± 0.5 lb/in

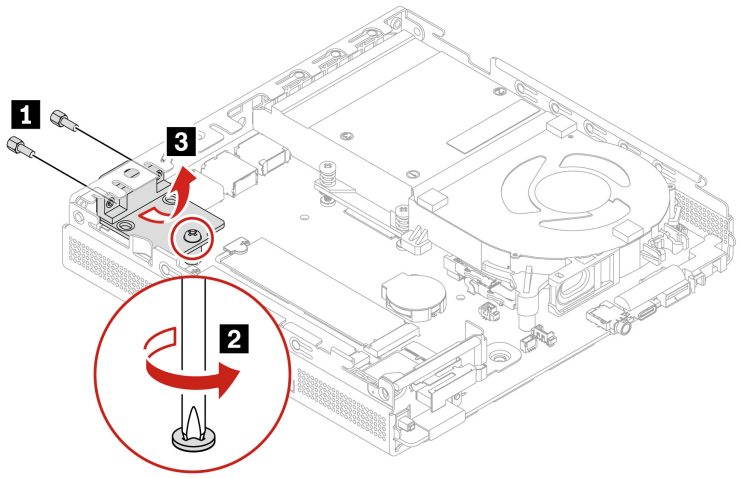


Replacement steps (Type 2)

- **Removal**
  1. Remove the two screws that fix the flexible I/O board to the chassis on the rear panel. Find the screw specification in the following table.

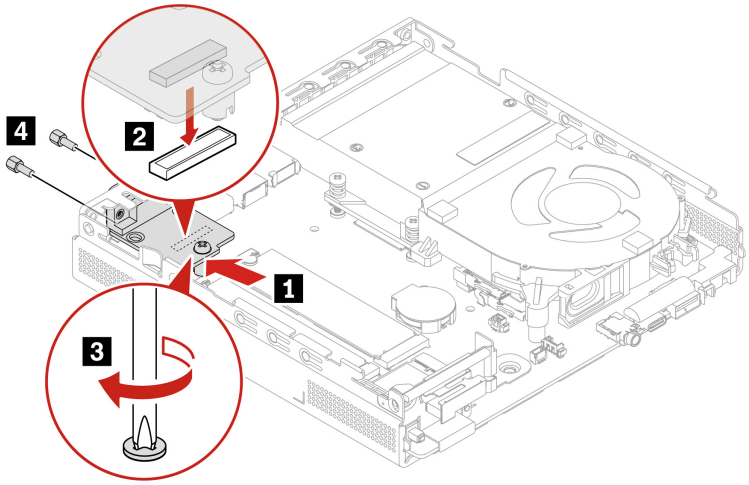
Screw	Quantity	Torque
– For VGA/serial connector board: #4-40 x 7, Ni coated – For Ethernet connector board: M3 x L5 mm, Zn coated	2	3 ± 0.5 lb/in

2. Loosen the screw that fixes the flexible I/O to the system board. Remove the flexible I/O board.



- **Installation**
  1. Align and connect the flexible I/O board to the 80-pin BTB connector on the system board. Screw down the flexible I/O board on the system board.
  2. Install two screws to fix the board to the rear panel. Find the screw specification in the following table.

Screw	Quantity	Torque
– For VGA/serial connector board: #4-40 x 7, Ni coated – For Ethernet connector board: M3 x L5 mm, Zn coated	2	3 ± 0.5 lb/in



Chapter 6. Help and support

Self-help resources

Use the following self-help resources to learn more about the computer and troubleshoot problems.

Resources	How to access?
Product documentation: • *Safety and Warranty Guide* • *Generic Safety and Compliance Notices* • *Setup Guide* • This *User Guide* • *Regulatory Notice*	Go to https://support.lenovo.com/documentation and search by product.
Lenovo Support Web site with the latest support information of the following: • Drivers and software • Diagnostic solutions • Product and service warranty • Product and parts details • Knowledge base and frequently asked questions	https://pcsupport.lenovo.com
Ubuntu help information	https://help.ubuntu.com/lts/ubuntu-help/index.html
IGEL support information	https://support.igel.com/

Lenovo diagnostic tools

For information about Lenovo diagnostic tools, go to:
https://pcsupport.lenovo.com/lenovodiagnosticsolutions

Call Lenovo

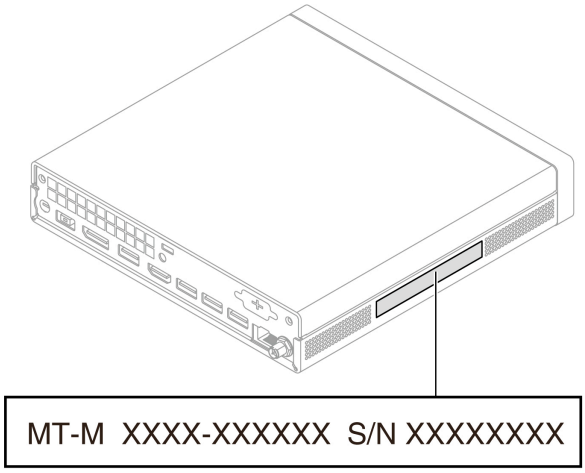
If you have tried to correct the problem yourself and still need help, you can call Lenovo Customer Support Center.

Before you contact Lenovo

Prepare the following before you contact Lenovo:

1. Record the problem symptoms and details:
   - What is the problem? Is it continuous or intermittent?
   - Any error message or error code?
   - What operating system are you using? Which version?
   - Which software applications were running at the time of the problem?
   - Can the problem be reproduced? If so, how?
2. Record the system information:
   - Product name
   - Machine type and serial number

     The following illustration shows where to find the machine type and serial number of your computer.



Lenovo Customer Support Center

During the warranty period, you can call Lenovo Customer Support Center for help.

Telephone numbers

For a list of the Lenovo Support phone numbers for your country or region, go to:
https://pcsupport.lenovo.com/supportphonelist

Note: Phone numbers are subject to change without notice. If the number for your country or region is not provided, contact your Lenovo reseller or Lenovo marketing representative.

Services available during the warranty period

- Problem determination - Trained personnel are available to assist you with determining if you have a hardware problem and deciding what action is necessary to fix the problem.

- Lenovo hardware repair - If the problem is determined to be caused by Lenovo hardware under warranty, trained service personnel are available to provide the applicable level of service.
- Engineering change management - Occasionally, there might be changes that are required after a product has been sold. Lenovo or your reseller, if authorized by Lenovo, will make selected Engineering Changes (ECs) that apply to your hardware available.

Services not covered

- Replacement or use of parts not manufactured for or by Lenovo or nonwarranted parts
- Identification of software problem sources
- Configuration of UEFI BIOS as part of an installation or upgrade
- Changes, modifications, or upgrades to device drivers
- Installation and maintenance of network operating systems (NOS)
- Installation and maintenance of programs

For the terms and conditions of the Lenovo Limited Warranty that apply to your Lenovo hardware product, see *Safety and Warranty Guide* that comes with your computer.

Purchase accessories or additional services

This topic provides instructions on how to purchase accessories or additional services.

Accessories

Lenovo has a number of hardware accessories and upgrades to help expand the functionalities of your computer. Accessories include memory modules, storage devices, network cards, power adapters, keyboards, mice, and so on.

To shop at Lenovo, go to https://www.lenovo.com/accessories.

Additional services

During and after the warranty period, you can purchase additional services from Lenovo at https://pcsupport.lenovo.com/warrantyupgrade.

Service availability and service names might vary by country or region.

Accessibility features

Lenovo is committed to making information technology accessible to everyone, including those with hearing, vision, or mobility limitations. Lenovo supports accessibility features in the following ways to help all users better engage with Lenovo products.

Accessible documentation

Lenovo documentation is designed to meet users' accessibility needs. Users can read the documentation with assistance as needed. For example:

- Text and images are in high contrast. Color contrast can enhance the visual experience. In this mode, all contents are highlighted to be more visible.
- Text is logical and readable. Images are also readable with alternative text provided. A screen reader can enhance the hearing or listening experience. In this mode, all contents are clearer and easier to understand.
- Text is large and clear, making it easier to read. A magnifier can enlarge the text to improve readability.

For more information, watch the video at:

https://support.lenovo.com/docs/pc_pub_accessibility

Accessible product design

Lenovo product design also supports accessibility features.

Note: The accessibility features vary by product. Depending on the product model, some accessibility features listed below might not be applicable to the product. To get the most up-to-date accessibility information for the product, go to https://www.lenovo.com/accessibility. For additional support from Lenovo, users can find phone numbers for their country or region from https://support.lenovo.com/supportphonelist.

- **Keyboards**

  Lenovo keyboards support various accessibility features. For example:

  - Consistent layout of keyboards for easier use
  - Tactile markings on some keys for easier identification
  - Appropriate spacing between keys for typing efficiency
  - Sufficient contrast of keys, controls, and labels for better visibility
  - On-screen notification or lighted notification for some keys for ease of use
  - Keys and controls that can be reached and operated using one hand and require minimal dexterity for ease of use

- **Industry-standard connectors**

  The industry-standard connectors on Lenovo products enable better compatibility with peripheral devices.

- **Operating systems**

  The accessibility features of the operating systems can be configured to assist users in the following ways:

  - Vision features make the screen contents easier to see.
  - Hearing features make the screen contents easier to hear.
  - Interaction features make the product easier to control.

  To access the accessibility features of the Ubuntu or Fedora operating system, go to **Settings** → **Accessibility**.

Appendix A. Supplemental information about the Ubuntu operating system

In limited countries or regions, Lenovo offers customers an option to order computers with the preinstalled Ubuntu® operating system.

If the Ubuntu operating system is available on your computer, read the following information before you use the computer. Ignore any information related to Windows-based programs, utilities, and Lenovo preinstalled applications in this documentation.

Access the Lenovo Limited Warranty

This product is covered by the terms of the Lenovo Limited Warranty (LLW), version L505-0010-02 08/2011. You can view the LLW in a number of languages from the following Web site. Read the Lenovo Limited Warranty at:
https://www.lenovo.com/warranty/llw_02

The LLW also is preinstalled on the computer. To access the LLW, go to the following directory:

```
/opt/Lenovo
```

If you cannot view the LLW either from the Web site or from your computer, contact your local Lenovo office or reseller to obtain a printed version of the LLW.

Access the Ubuntu help system

The Ubuntu help system provides information about how to use the Ubuntu operating system. To access the help system from Home Screen, move your pointer to the Launch bar, and then click the **Help** icon. If you cannot find the **Help** icon from the Launch bar, click the **Search** icon on the bottom left, and type Help to search it.

To learn more about the Ubuntu operating system, go to:
https://www.ubuntu.com

Access IGEL distributions

To learn more about the IGEL operating system, go to https://www.igel.com/support.

Get support information

If you need help, service, technical assistance, or more information about the Ubuntu operating system or other applications, contact the provider of the Ubuntu operating system or the provider of the application. If you need the service and support for hardware components shipped with your computer, contact Lenovo. For more information about how to contact Lenovo, refer to the *User Guide* and *Safety and Warranty Guide*.

To access the latest *User Guide* and *Safety and Warranty Guide*, go to:
https://pcsupport.lenovo.com

Access open-source information

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You may obtain a copy of the corresponding source code for any such open source software licensed under the General Public License and/or the Lesser General Public License (or any other license requiring us to

make a written offer to provide corresponding source code to you) from Lenovo for a period of three years without charge except for the cost of media, shipping, and handling, upon written request to Lenovo. This offer is valid to anyone in receipt of this device.

You may send your request in writing to the address below accompanied by a check or money order for $15 to:

Lenovo Legal Department
Attn: Open Source Team / Source Code Requests
8001 Development Dr.
Morrisville, NC 27560

Please include the version of the OS and the version of the Linux Kernel pre-shipped on this Device as part of your request. Be sure to provide a return address.

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To view additional information regarding licenses, acknowledgments and required copyright notices for the open source software shipped on your Device, go to `/usr/share/doc/*/copyright`.

Appendix B. Notice for USB connector name update

The USB Implementers Forum published a revision of the guideline for USB connector names in September, 2022. Lenovo follows the revised guideline and updates USB connector names accordingly. You can refer to the table below for naming update details.

Current name	Previous name
USB-A connector (Hi-Speed USB)	USB-A 2.0 connector
USB-A connector (USB 5Gbps)	USB-A 3.2 Gen 1 connector
USB-A connector (USB 10Gbps)	USB-A 3.2 Gen 2 connector
USB-A connector (USB 5Gbps, Always On USB)	Always on USB-A 3.2 Gen 1 connector
USB-A connector (USB 10Gbps, Always On USB)	Always on USB-A 3.2 Gen 2 connector
USB-C connector (USB 5Gbps)	USB-C (3.2 Gen 1) connector
USB-C connector (USB 10Gbps)	USB-C (3.2 Gen 2) connector
USB-C connector (USB 20Gbps)	USB 3.2 Gen 2x2
USB-C connector (USB4 20Gbps)	USB 4 Gen 2x2
USB-C connector (USB4 40Gbps)	USB-C (USB 4) connector
USB-C connector (Thunderbolt 3)	USB-C (Thunderbolt 3) connector
USB-C connector (Thunderbolt 4)	USB-C (Thunderbolt 4) connector

Approval code of different models

- ThinkCentre M770e CMIIT ID: 25J11874D063
- ThinkCentre K70-06 CMIIT ID: 25J11874D017

Appendix C. Notices and trademarks

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