

# ThinkCentre neo 50q Gen 4 User Guide

**ThinkCentre**



## **Read this first**

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*
- *Setup Guide*

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## Discover your Lenovo computer

**Thank you for choosing a Lenovo computer! We are dedicated to delivering the best solution to you.**

Before starting your tour, please read the following information:

- Illustrations in this documentation might look different from your product.
- Depending on the model, some optional accessories, features, software programs, and user interface instructions might not be applicable to your computer.
- Documentation content is subject to change without notice. To get the latest documentation, go to <https://pcsupport.lenovo.com>.

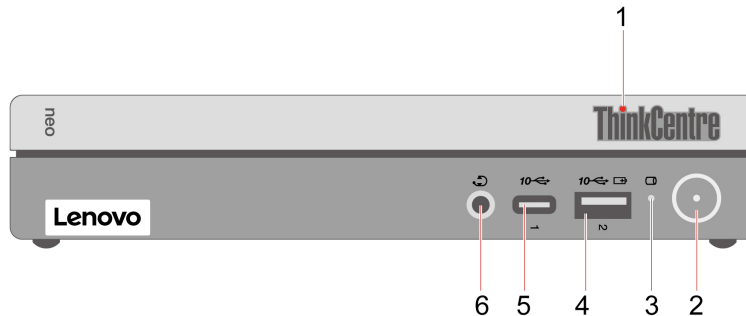


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# Chapter 1. Meet your computer

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## Front



Item	Description	Item	Description
1	ThinkCentre® LED	2	Power button with power indicator
3	Storage drive activity indicator	4	Always On USB-A 3.2 Gen 2 connector
5	USB-C® (3.2 Gen 2) connector	6	Headset connector

\* for selected models

### Statement on USB transfer rate

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

USB device	Data rate (Gbit/s)
3.2 Gen 1	5
3.2 Gen 2	10
3.2 Gen 2 × 2	20
Thunderbolt 3	40
Thunderbolt 4	40

### 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.
- **Breathing:** The computer is in sleep mode.

### Always On USB-A 3.2 Gen 2 connector

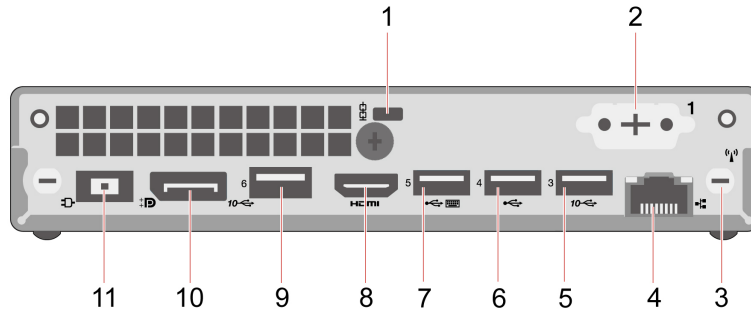
With the Always On USB feature enabled, the Always On USB-A 3.2 Gen 2 connector can charge a USB-A compatible device when the computer is on, off, in sleep mode, or in hibernation mode.

## Related topics

- “USB specifications” on page 3.

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## Rear



Item	Description	Item	Description
1.	Security-lock slot	2.	Optional connector*
3.	Wi-Fi® antenna slot	4.	Ethernet connector
5.	USB-A 3.2 Gen 2 connector	6.	USB-A 2.0 connector
7.	USB-A 2.0 connector (with smart power-on feature)	8.	HDMI™ out connector
9.	USB-A 3.2 Gen 2 connector	10.	DisplayPort™ connector
11.	Power adapter connector		

\* for selected models

### Optional connector

Depending on the computer model, the connector might be a DisplayPort out connector, a VGA connector, or a serial connector.

## Related topics

- “Lock the computer” on page 11.
- “Connect an external display” on page 6.
- “USB specifications” on page 3.
- “Enable or disable the ErP LPS compliance mode” on page 17.



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## Features and specifications

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Specification	Description
<b>Dimensions</b>	<ul style="list-style-type: none"><li>• Width: 179 mm (7 inches)</li><li>• Height: 34.5 mm (1.4 inches)</li><li>• Depth: 182.9 mm (7.2 inches)</li></ul>
<b>Weight (without packaging)</b>	Maximum configuration as shipped: 1.3 kg (2.8 lb)
<b>Hardware configuration</b>	<ol style="list-style-type: none"><li>1. Open the system menu from the top-right corner and click <b>Settings</b>.</li><li>2. Click <b>About</b>.</li></ol>
<b>Power supply</b>	<ul style="list-style-type: none"><li>• 65-watt automatic voltage-sensing power supply</li><li>• 90-watt automatic voltage-sensing power supply</li><li>• 135-watt automatic voltage-sensing power supply</li></ul>
<b>Electrical input</b>	<ul style="list-style-type: none"><li>• Input voltage: From 100 V ac to 240 V ac</li><li>• Input frequency: 50/60 Hz</li></ul>
<b>Memory</b>	Up to two double data rate 4 (DDR4) small outline dual in-line memory module (SODIMM)  Maximum memory capacity: 32 GB
<b>Storage device</b>	<ul style="list-style-type: none"><li>• 2.5-inch hard disk drive*</li><li>• M.2 solid-state drive*</li></ul> <p>To view the storage drive capacity of your computer, use the <b>Disks</b> application.</p> <p><b>Note:</b> The storage drive capacity indicated by the system is less than the nominal capacity.</p>
<b>Expansion</b>	<ul style="list-style-type: none"><li>• Hard disk drive cage*</li><li>• M.2 solid-state drive slot</li><li>• Memory slots</li></ul>
<b>Network features</b>	<ul style="list-style-type: none"><li>• Bluetooth*</li><li>• Ethernet LAN</li><li>• Wireless LAN*</li></ul>

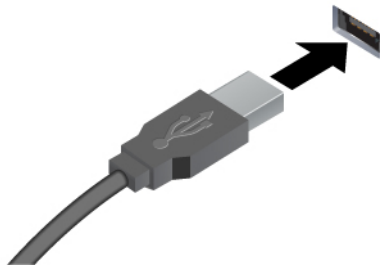
\* for selected models

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
## USB specifications

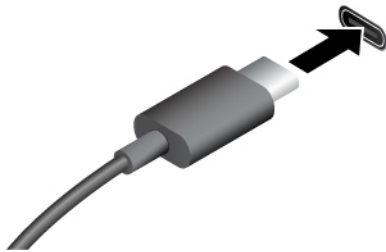
**Note:** Depending on the model, some USB connectors might not be available on your computer.

Connector name	Description
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




Connect USB-A compatible devices, such as a USB-A keyboard, USB-A mouse, USB-A storage device, or USB-A printer.

-  USB-A 2.0 connector
-  USB-A 3.2 Gen 1 connector
-  USB-A 3.2 Gen 2 connector



- Charge USB-C compatible devices with the output voltage and current of 5 V and 0.9 A.
- Connect to an external display:
  - USB-C to VGA: 1920 x 1200 pixels, 60 Hz
  - USB-C to DP: 3840 x 2160 pixels, 60 Hz
- Connect to USB-C accessories to help expand your computer functionality. To purchase USB-C accessories, go to <https://www.lenovo.com/accessories>.

-  USB-C (3.2 Gen 1) connector
-  USB-C (3.2 Gen 2) connector
-  USB-C (Thunderbolt 3) connector
-  USB-C (Thunderbolt 4) connector

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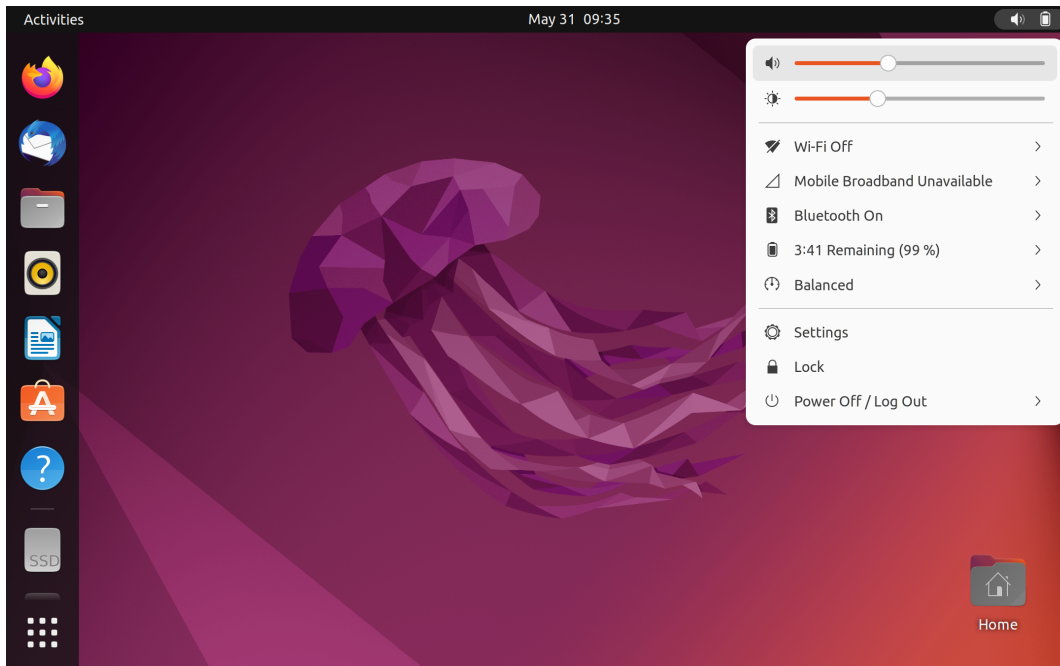
## Chapter 2. Get started with your computer

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### Get started with Ubuntu Desktop

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/its/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/users/>.



#### 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 Applications** 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 **Settings**.

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### 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.

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.

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## Connect an external display

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

### Change display settings

Right-click a blank area on the desktop and select **Display settings**. Then, you can change display settings as you prefer.

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## Chapter 3. Explore your computer

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### Night light

Blue light is the high-energy visible light in the light spectrum. Excessive exposure to blue light might damage your vision. Night light is a feature that reduces the blue light emitted by computer displays. When the night light is on, your computer display shows warmer colors that help you reduce eye strain.

To turn on or turn off the night light:

- Type **Night light** in the search box. Click **Night light**. Then, follow the on-screen instructions.
- Open the system menu from the top-right corner and then click **Settings** → **Displays** → **Night Light**. Then, turn on or turn off the **Night light** switch.

**Note:** Selected Lenovo computers are low blue-light certified. These computers are tested with night light turned on and color temperature set to the default value of 48.

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### 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:

For Ubuntu operating system:

- Turn off the display: After 5 minutes
- Put the computer to sleep: After 20 minutes

To awaken the computer from Sleep mode, press any key on your keyboard.

To reset the power plan to achieve the best balance between performance and power saving:

1. Open the system menu from the top-right corner and click **Settings**.
2. Click **Power**.
3. Choose or customize a power plan of your preference.

For IGEL® operating system:

- Turn off the display: After 10 minutes
- Put the computer to sleep: After 20 minutes

To awaken the computer from Sleep mode, press the power button.

To reset the power plan to achieve the best balance between performance and power saving:

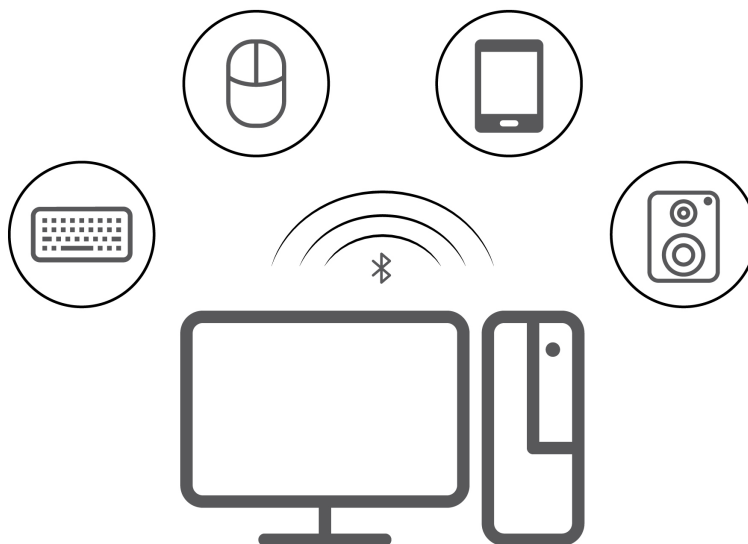
1. Open the system menu from the bottom-left corner and click **Settings**.
  2. Click **Power Options**.
  3. Choose or customize a power plan of your preference.
- 

### 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.



1. Turn on Bluetooth on the computer.
  - a. Open the system menu from the top-right corner and then click **Settings → Bluetooth**.
  - b. In the Bluetooth section enable Bluetooth with the toggle button at the top.
2. Any discoverable devices will be shown in the **Devices** list.
3. Select a Bluetooth device, and then follow the on-screen instructions.

## Use the optical drive (for selected models)

If your computer has an optical drive, read the following information.

### Install or remove a disc

1. With the computer on, press the eject button on the optical drive. The tray slides out of the drive.
2. Insert a disc into the tray or remove a disc from the tray, and then push the tray back into the drive.

**Note:** If the tray does not slide out of the drive when you press the eject button, turn off the computer. Then, insert a straightened paper clip into the emergency-eject hole adjacent to the eject button. Use the emergency eject only in an emergency.

### Record a disc

1. Insert a recordable disc into the optical drive that supports recording.
2. In the **Blank CD/DVD-R Disc** notification that pops up at the bottom of the screen, select **Open with CD/DVD Creator**.
3. Follow the on-screen instructions.

## Use a media card (for selected models)

If your computer has an SD-card slot, read the following information.

### **Install a media card**

1. Locate the SD-card slot.
2. Ensure that the metal contacts on the card are facing the ones in the SD-card slot. Insert the card firmly into the SD-card slot until it is secured in place.

### **Remove a media card**

**Attention:** Before removing a media card, unmount the card from the operating system first. Otherwise, data on the card might get corrupted or lost.

1. Launch the **Files** application.
2. Select the unmount icon next to the card and unmount the card from the operating system.
3. Press the card and remove it from your computer. Store the card safely for future use.

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## **Purchase accessories**

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

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





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## Chapter 4. Secure your computer and information

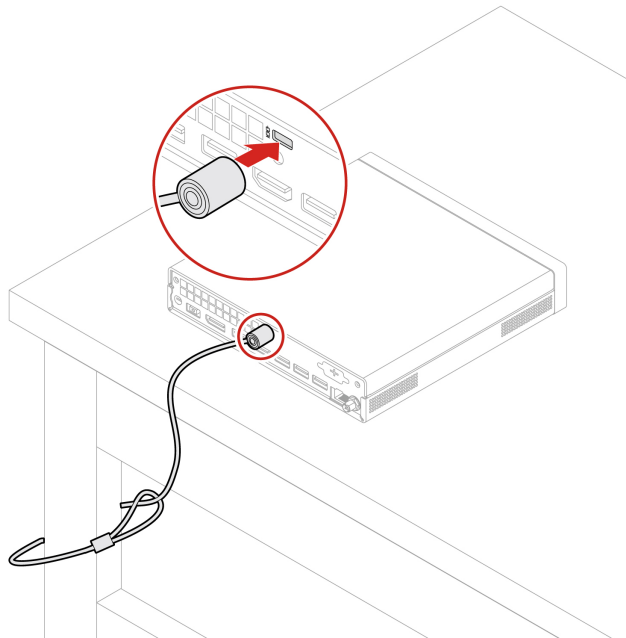
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### Lock the computer

**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.

#### Kensington-style cable lock

Lock your computer to a desk, table, or other fixtures through a Kensington-style cable lock.



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### 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, system management 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.

- **System management password (for selected models)**

You can enable the system management password to have the same authority as the supervisor password to control security related features. To customize the authority of the system management password through the UEFI BIOS menu:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Security** → **System Management Password Access Control**.
3. Follow the on-screen instructions.

If you have set both the supervisor password and the system management password, the supervisor password overrides the system management password.

### **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**, **Set System Management 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.

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## **Certificate-based BIOS management**

Certificate-based BIOS authentication (also called the password-less management mode) provides more secure UEFI BIOS management with password-free solution. It is used to replace the supervisor password / system management password for authentication if you have set one.

**Note:** Supervisor password / system management password are disabled automatically when certificate mode is enabled. But the power-on password / hard disk password still can be used normally in certificate mode if you have set one.

For certificate enrollment, see *Certificate Enrollment Guide* at: [https://support.lenovo.com/docs/certificate\\_enrollment\\_guide](https://support.lenovo.com/docs/certificate_enrollment_guide)

### **Enter the BIOS menu with certificate**

Once you have enrolled the certificate, you can enter the BIOS menu with the certificate.

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

2. The QR code is displayed. Scan the QR code to save the request data and send the request data to IT admin by e-mail or phone.

**Note:** If you choose to authenticate without the QR code, save the request data in a USB key and send the request data to IT admin by e-mail or phone.

3. Enter the unlock code provided by IT admin and click **OK**.

#### **Notes:**

- The unlock encode is a one-time password and is valid only during logon prompt (in one power-on cycle) for up to two hours.
- If you click **Skip**, you can enter the BIOS setup menu without BIOS management authority. But certificate reset is allowed.

#### **Reset certificate**

The enrolled certificate cannot be disabled. You can reset or remove it:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Enter the BIOS menu with the certificate or skip the certification authentication process.
3. Select **Security** → **Certificate-based BIOS Authentication** → **Reset Certificate**.
4. Follow the on-screen instructions to enter the reset code provided by IT admin.

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## **Computrace Agent software embedded in firmware (for selected models)**

The Computrace Agent software is an IT asset management and computer theft recovery solution. The software detects if changes have been made on the computer, such as hardware, software, or the computer call-in location. You might have to purchase a subscription to activate the Computrace Agent software.

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## **Use BIOS security solutions**

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

### **Wipe the storage drive data**

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 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** 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:

1. Properly install or close the computer cover.
2. Enter the BIOS menu, save and then exit.

## Intel BIOS guard

The Intel BIOS Guard module cryptographically verifies all BIOS updates. This hardware-based security helps prevent software and malware attacks on the computers BIOS.

## 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.

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## Chapter 5. Advanced configurations

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### What is UEFI BIOS

**Note:** The operating system settings might override any similar settings in UEFI BIOS.

UEFI BIOS is the first program that the computer runs when the computer is turned on. UEFI BIOS initializes the hardware components and loads the operating system and other programs. Your computer comes with a setup program with which you can change UEFI BIOS settings.

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### Enter the BIOS menu

Restart the computer. When the logo screen is displayed, press F1 or Fn+F1 to enter the BIOS menu.

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

---

### Navigate in the BIOS interface

**Attention:** The default configurations are already optimized for you in **boldface**. Improper change of the configurations might cause unexpected results.

Depending on your keyboard, you can navigate in the BIOS interface by pressing the following keys, or combinations of Fn and the following keys:

Key	Function
F1 or Fn+F1	General Help
Esc or Fn+Esc	Exit the submenu
↑ ↓ or Fn+↑ ↓	Locate an item
← → or Fn+← →	Move keyboard focus
+/- or Fn++/-	Change value
Enter	Enter the submenu
F9 or Fn+F9	Setup Defaults
F10 or Fn+F10	Save and exit

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### Change the display language of UEFI BIOS

UEFI BIOS supports three or four display languages: English, French, simplified Chinese, and Russian (for selected models).

To change the display language of UEFI BIOS:

1. Select **Main** → **Language** and press Enter.
2. Set the display language as desired.

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## Change the display mode of UEFI BIOS (for selected models)

You can use UEFI BIOS in the graphic mode or the text mode according to your needs.

The keys on the keyboard used to perform various tasks are displayed at the bottom of the screen. In addition to the keyboard, you also can use the mouse to make selections.

To change the display mode of UEFI BIOS:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Main** → **Setup Mode Select** and press Enter.
3. Set the display mode as desired.

---

## Set the system date and time

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Main** → **System Time & Date** and press Enter.
3. Set the system date and time as desired.
4. Press F10 or Fn+F10 to save the changes and exit.

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## Change the priority boot order

If the computer does not boot from a device as expected, you can change the boot priority order permanently or select a temporary boot device.

### Change the priority boot order permanently

1. Depending on the type of the storage device, do one of the following:
  - If the storage device is internal, go to step 2.
  - If the storage device is a disc, ensure that the computer is on or turn on the computer. Then, insert the disc into the optical drive.
  - If the storage device is an external device other than a disc, connect the storage device to the computer.
2. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
3. Select **Startup** → **Priority Boot Order**, and then follow the on-screen instructions to change the boot priority order.
4. You can also select the first priority device group by selecting **Startup** → **First Boot Device**, and then follow the on-screen instructions to select the first boot device within this group. Your computer will boot from the first boot device before trying the boot priority order you set in the previous step.
5. Press F10 or Fn+F10 to save the changes and exit.

### Select a temporary boot device

**Note:** Not all discs and storage drives are bootable.

1. Depending on the type of the storage device, do one of the following:
  - If the storage device is internal, go to step 2.
  - If the storage device is a disc, ensure that the computer is on or turn on the computer. Then, insert the disc into the optical drive.
  - If the storage device is an external device other than a disc, connect the storage device to the computer.

2. Restart the computer. When the logo screen is displayed, press F12 or Fn+F12.
3. Select the storage device as desired and press Enter.

If you want to change the boot priority order permanently, select **Enter Setup** on Startup Device Menu and press Enter to enter the BIOS menu.

---

## Enable or disable the configuration change detection feature

If you enable configuration change detection, when the POST detects configuration changes of some hardware devices (such as storage drives or memory modules), an error message will be displayed when you turn on the computer.

To enable or disable the configuration change detection feature:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Security → Configuration Change Detection** and press Enter.
3. Enable or disable the feature as desired.
4. Press F10 or Fn+F10 to save the changes and exit.

To bypass the error message and log in to the operating system, press F2 or Fn+F2. To clear the error message, enter the BIOS menu, save and then exit.

---

## Enable or disable the automatic power-on feature

The Automatic Power On item in UEFI BIOS provides various options for you to make your computer start up automatically.

To enable or disable the automatic power-on feature:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Power → Automatic Power On** and press Enter.
3. Select the feature as desired and press Enter.
4. Enable or disable the feature as desired.
5. Press F10 or Fn+F10 to save the changes and exit.

---

## Enable or disable the smart power-on feature (for selected models)

Ensure that the keyboard is connected to a USB connector supporting the smart power-on feature. With the smart power-on feature enabled, you can start up or wake up the computer from the hibernation mode by pressing Alt+P.

To enable or disable the smart power-on feature:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Power → Smart Power On** and press Enter.
3. Enable or disable the feature as desired.
4. Press F10 or Fn+F10 to save the changes and exit.

---

## 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.

---

## Change the ITS performance mode

You can adjust the acoustic and thermal performance of your computer by changing the ITS performance mode. Three options are available:

- **Balance mode:** The computer works at the balance mode with balanced noise and better performance.
- **Performance mode** (default setting): The computer works at the best performance with normal acoustic level.

**Note:** The term “best” only refers to the best effect among different settings of the product itself.

- **Full Speed:** All fans in the computer will run at full speed.

To change the ITS performance mode:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Power → Intelligent Cooling** and press Enter.
3. Select **Performance Mode** and press Enter.
4. Set the performance mode as desired.
5. Press F10 or Fn+F10 to save the changes and exit.

---

## Change BIOS settings before installing a new operating system

BIOS settings vary by operating system. Change the BIOS settings before installing a new operating system.

To change the BIOS settings:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. From the main interface, select **Security → Secure Boot** and press Enter.
3. Depending on the operating system to be installed, do one of the following:
  - To install the Windows 10 (64-bit) and most of Linux operating system, select **Enabled** for **Secure Boot**.
  - To install an operating system that does not support secure boot, select **Disabled** for **Secure Boot**.



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

---

## 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:  
Ubuntu software update will check the LVFS site for any firmware updates and notify you when updates are available.
- 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.

---

## Customize BIOS Defaults

The feature provides a solution to backup your preferred BIOS Setup settings. It helps you to save the BIOS Setup settings as customized BIOS default settings, load them to current BIOS settings when needed, and reset the settings to Setup Defaults.

### Save the customized settings configuration

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1 to enter the BIOS menu.
2. Select **Exit → Save Custom Defaults**.
3. Click **Yes** to save the settings configuration you customized.

### Load the customized settings configuration

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1 to enter the BIOS menu.
2. Select **Exit → Load Custom Defaults**.
3. Click **Yes** to load the customized settings configuration you saved.

You can also press F9 and click **Custom Defaults** to load the customized settings configuration.

**Note:** **Load Custom Defaults** is unavailable if no customized BIOS default settings are saved.

### Reset the settings configuration to Setup Defaults

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1 to enter the BIOS menu.
2. Select **Exit → Load Factory Defaults**.
3. Click **Yes** to reset the settings configuration to Setup Defaults.

You can also press F9 and click **Factory Defaults** to reset the settings configuration to Setup Defaults.



---

## Chapter 6. CRU replacement

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](https://www.lenovo.com/warranty/llw_02)

---

### CRU list

The following is the CRU list of your computer.

#### Self-service CRUs

- ac power adapter
- Adapter cage\*
- Cable lock\*
- External dongle\*
- External Wi-Fi antenna\*
- Keyboard\*
- Mouse\*
- Power cord
- Top cover
- Vertical stand\*
- VESA® mount bracket\*

#### Optional-service CRUs

- CPU Heatsink
- Hard disk drive\*
- Hard disk drive cage\*
- Internal speaker
- M.2 solid-state drive\*
- Memory module
- Speaker and LED bracket\*
- System fan\*

\* for selected models

---

## Power adapter and power cord (without bracket)

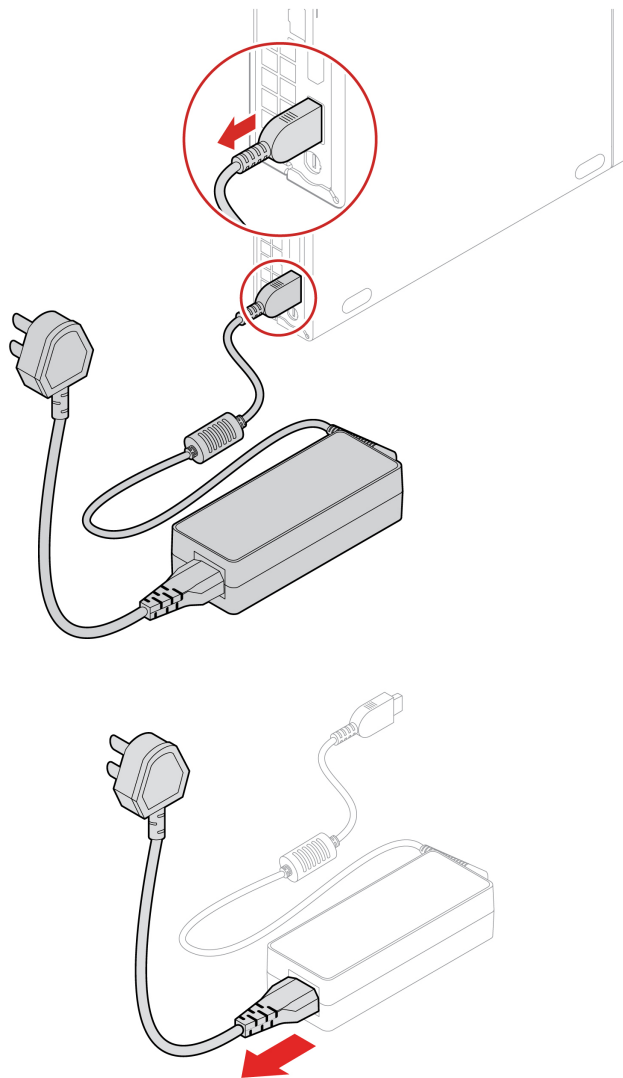
### Prerequisite

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

### Removal steps



---

## Vertical stand

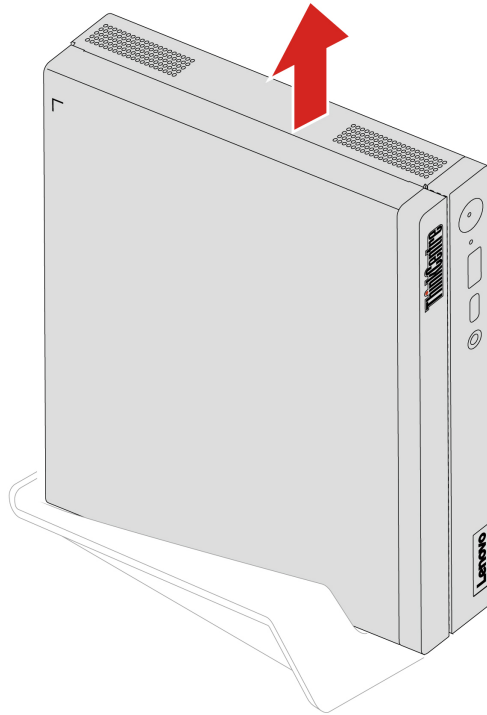
### Prerequisite

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 step



---

## Power adapter and power cord (with bracket)

### Prerequisite

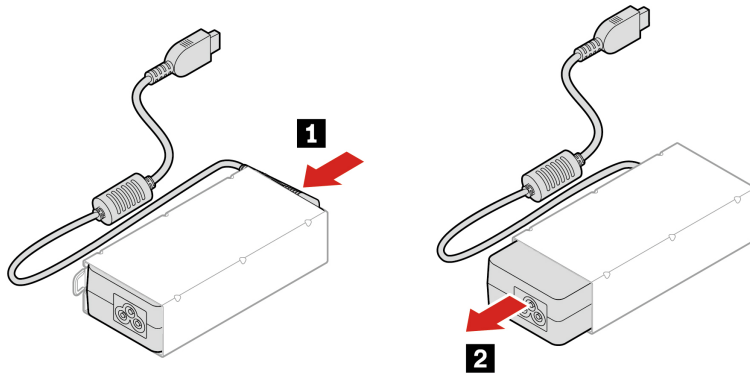
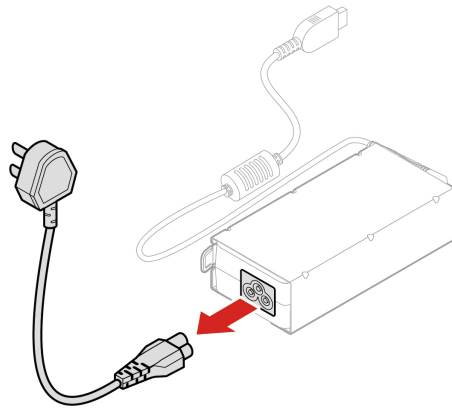
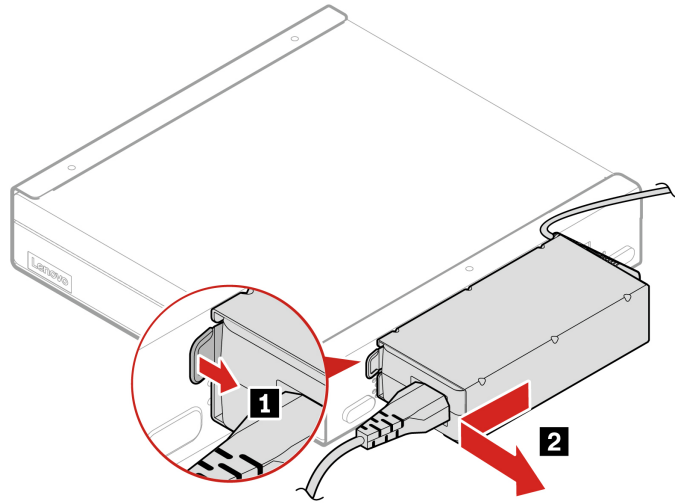
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

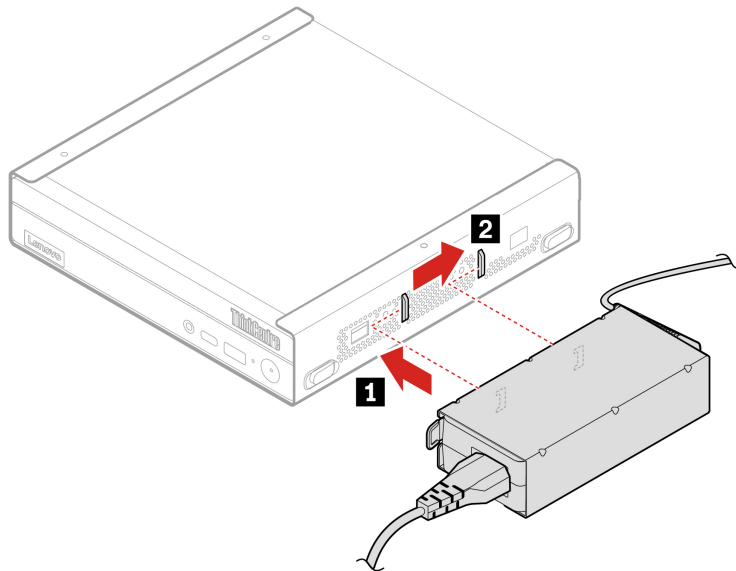
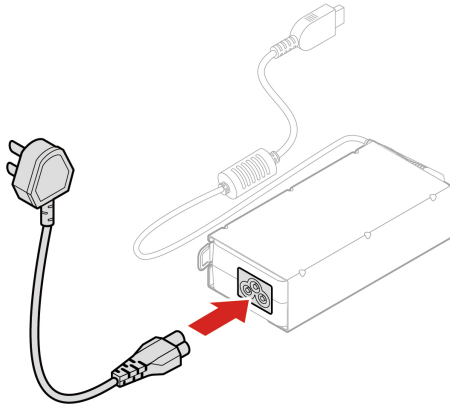
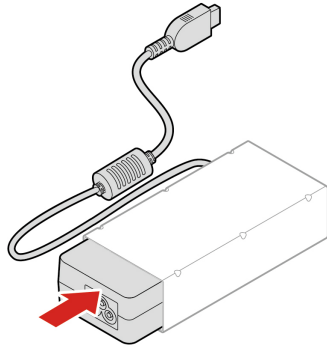
For access, do the following:

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

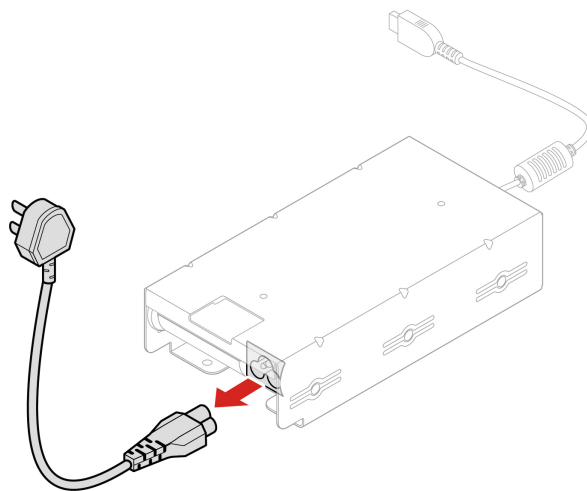
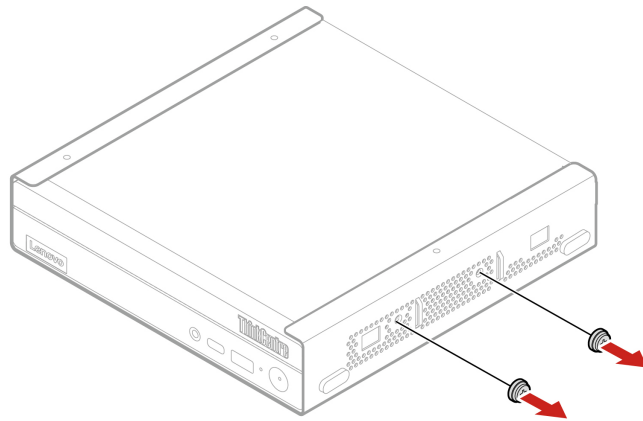
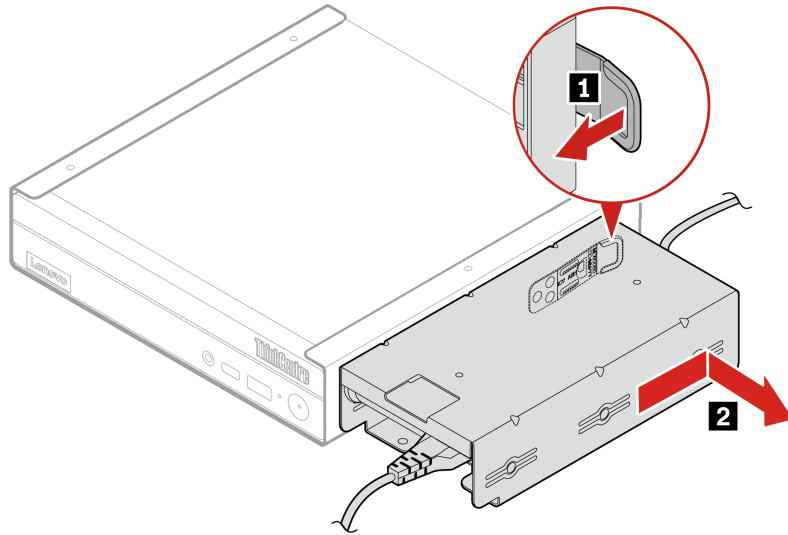
### Replacement procedure

- Type-1

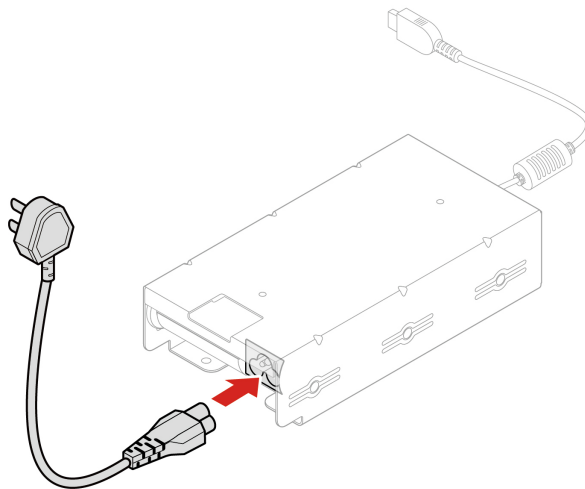
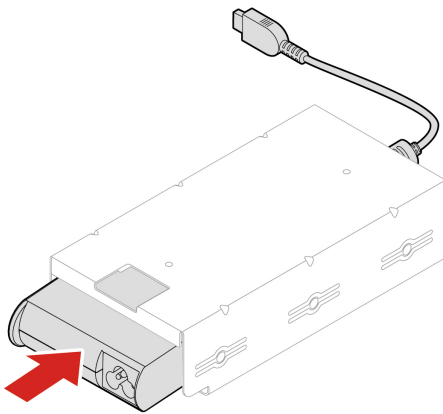
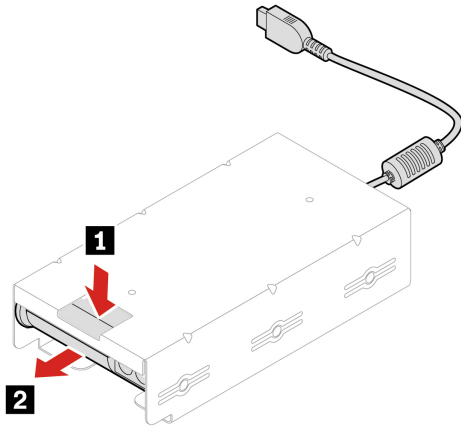


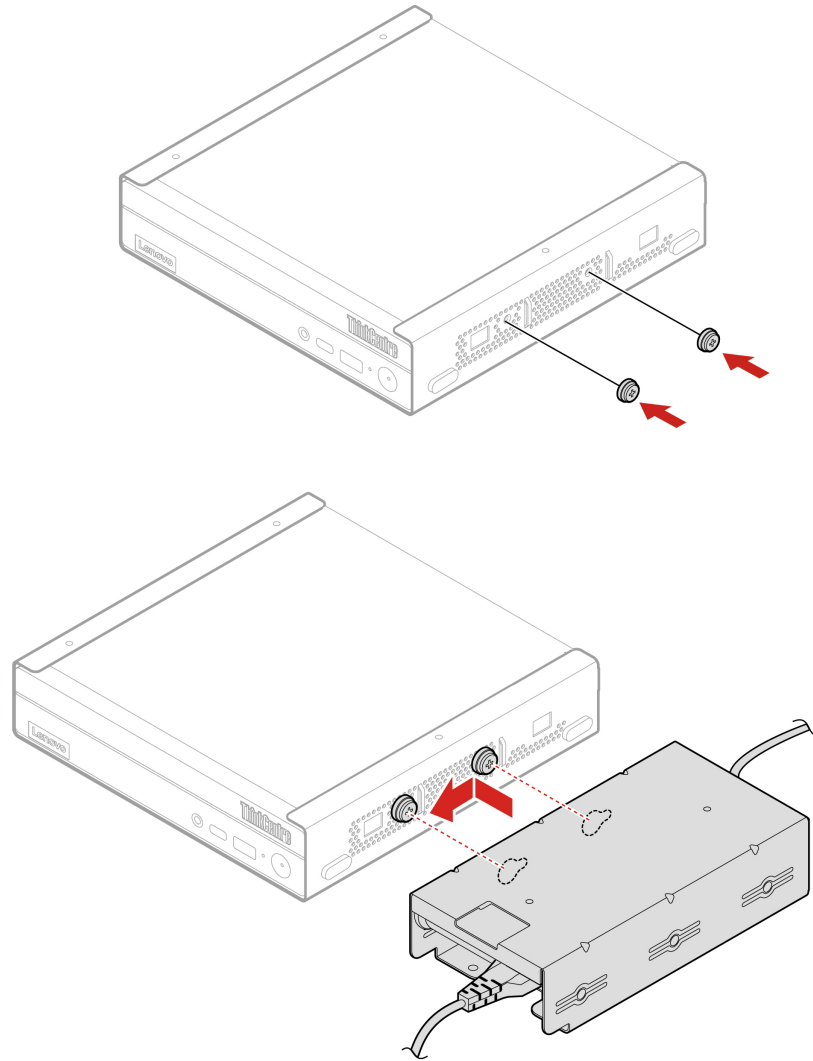


- Type-2









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## VESA mount bracket

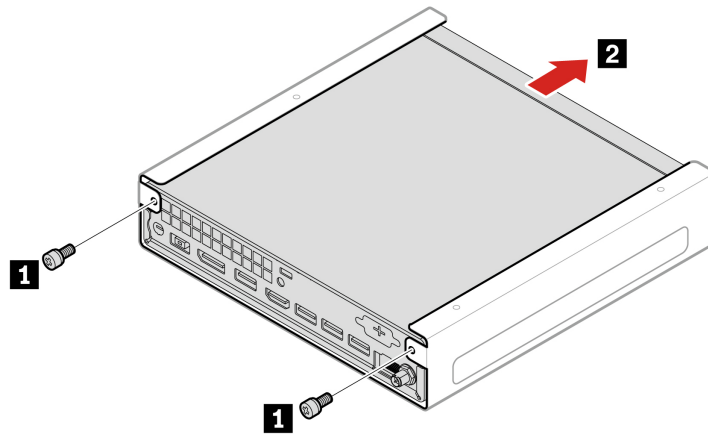
### Prerequisite

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.

## Removal steps



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## External Wi-Fi antenna

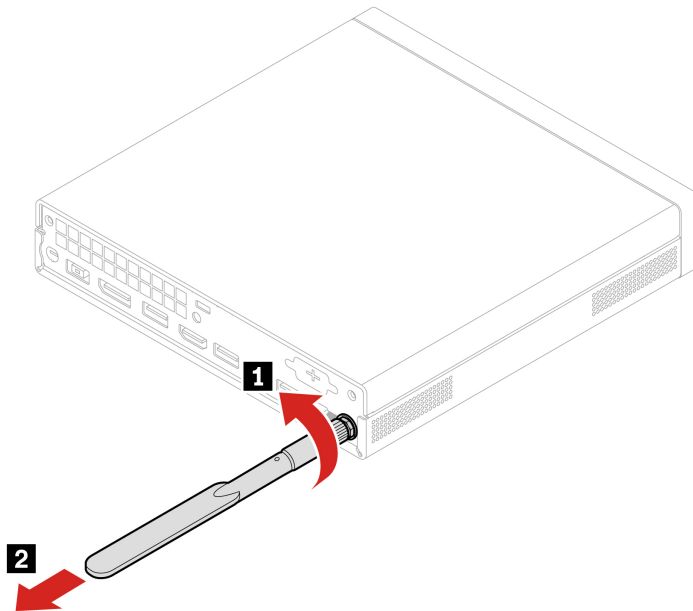
### Prerequisite

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



---

## Top cover

### Prerequisite

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

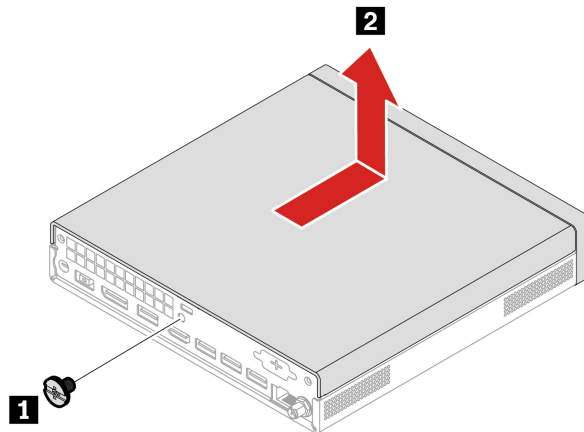


Before you open the top cover, turn off the computer and wait several minutes until the computer is cool.

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 in order, if any:
  - a. “VESA mount bracket” on page 28
  - b. “Vertical stand” on page 23
  - c. “External Wi-Fi antenna” on page 29

### Removal steps



---

## CPU heat sink (for fanless model)

### Prerequisite

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



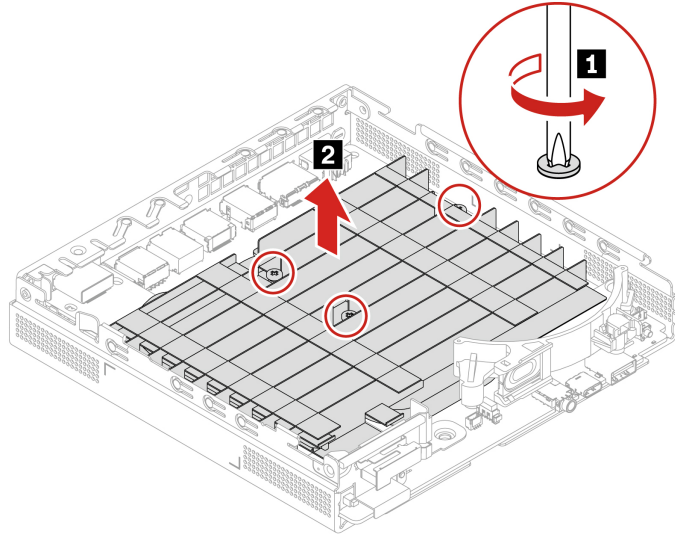
Before you open the top cover, turn off the computer and wait several minutes until the computer is cool.

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 top cover. See “Top cover” on page 30.

### Removal steps



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## Internal speaker

### Prerequisite

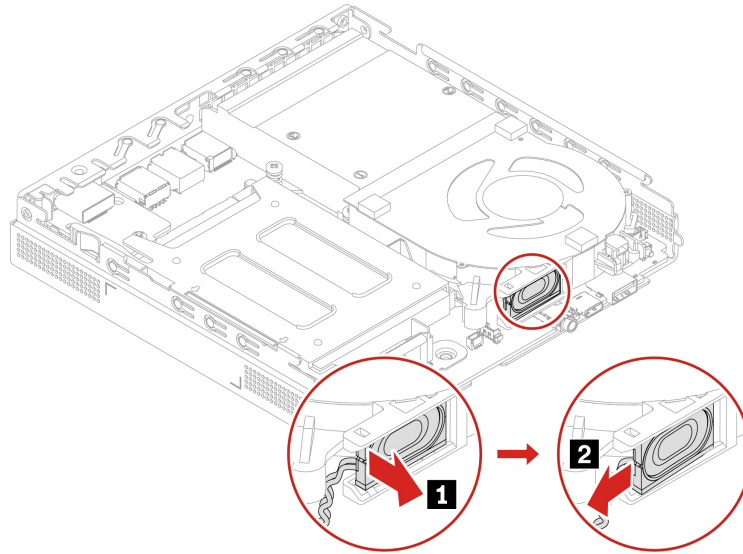
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

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

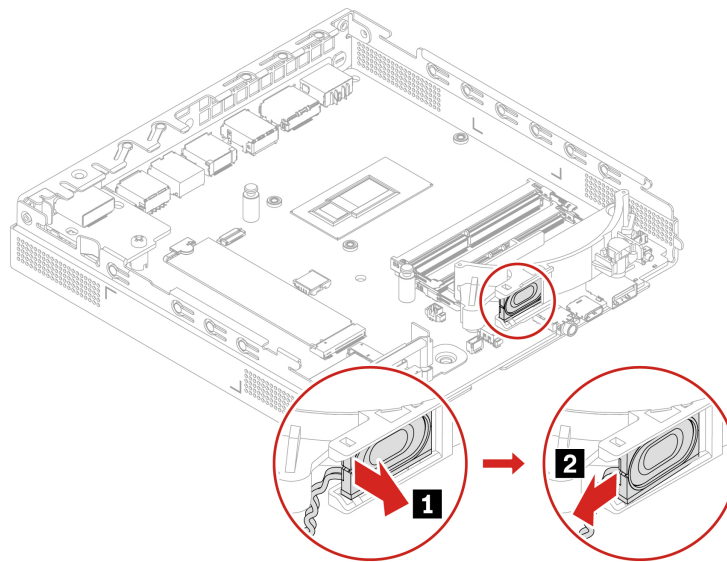
1. “Top cover” on page 30
2. “CPU heat sink (for fanless model)” on page 30

### Removal steps

- Type-1



- Type-2



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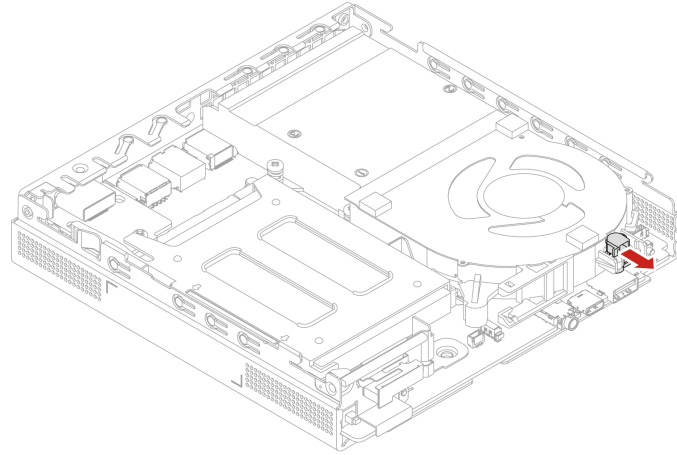
## System fan

### Prerequisite

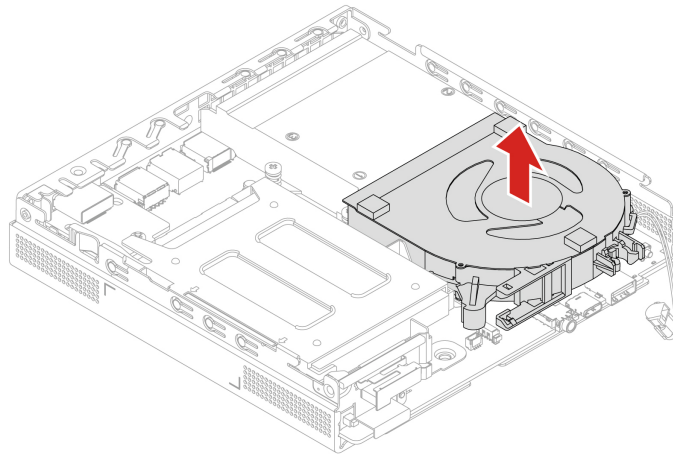
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, do the following:

1. Remove the following parts in order, if any:
  - a. “Top cover” on page 30
  - b. “Internal speaker” on page 31
2. Detach the LED cable from the system fan.



## Removal steps



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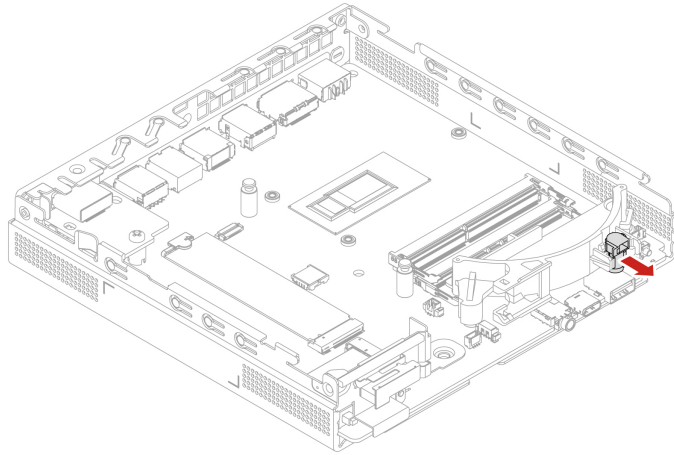
## Speaker and LED bracket

### Prerequisite

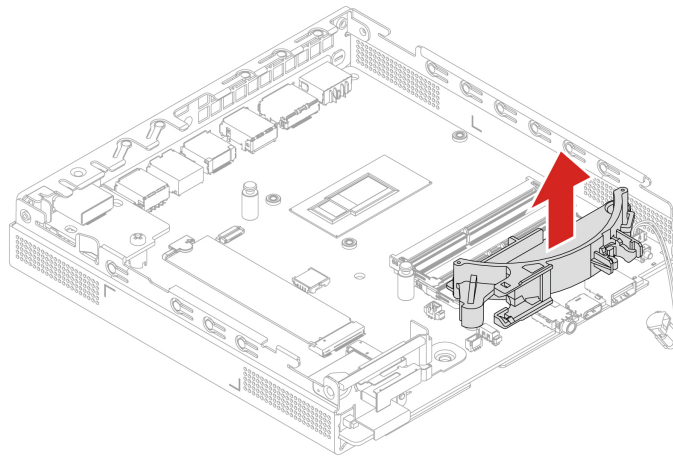
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, do the following:

1. Remove the following parts in order, if any:
  - a. “Top cover” on page 30
  - b. “CPU heat sink (for fanless model)” on page 30
  - c. “Internal speaker” on page 31
2. Detach the LED cable from the speaker and LED bracket.



## Removal steps



---

## CPU heat sink (for model with fan)

### Prerequisite

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



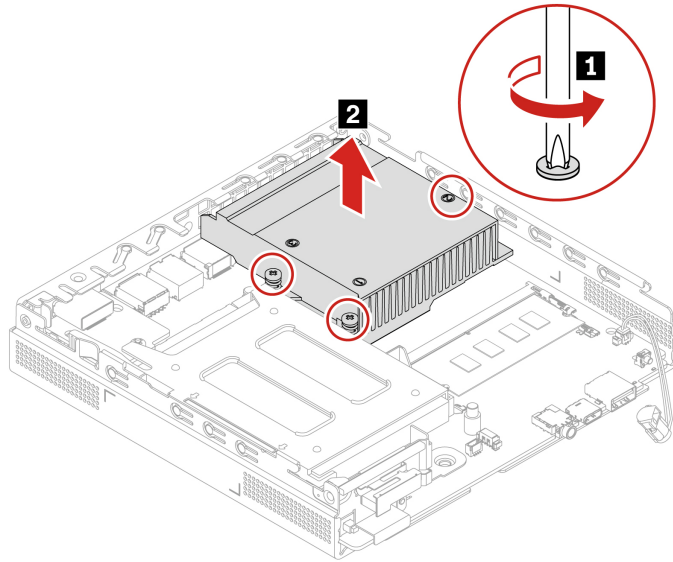
Before you open the top cover, turn off the computer and wait several minutes until the computer is cool.

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

1. “Top cover” on page 30
2. “Internal speaker” on page 31
3. “System fan” on page 32



## Removal steps



---

## Hard disk drive and hard disk drive bracket

### Prerequisite

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

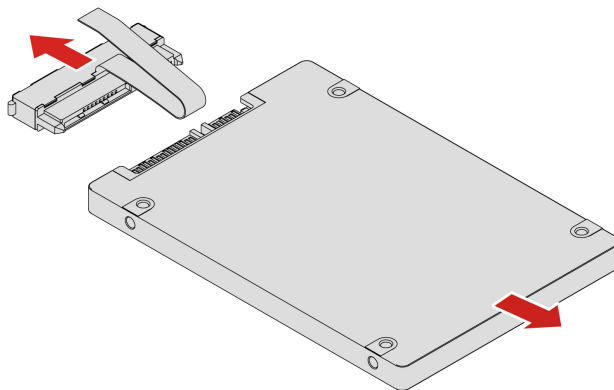
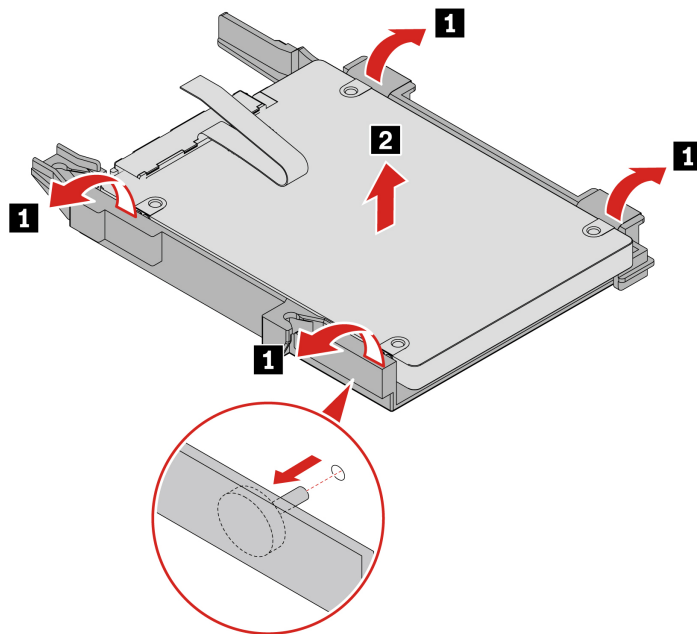
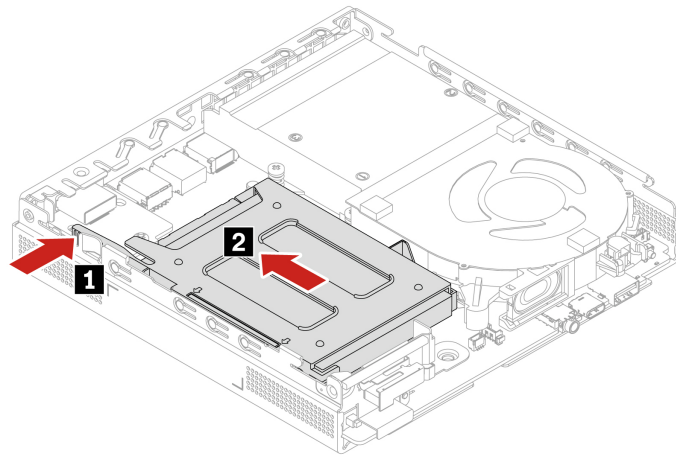
**Attention:** The internal storage drive is sensitive. Inappropriate handling might cause damage and permanent loss of data. When handling the internal storage drive, observe the following guidelines:

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

For access, do the following:

1. Remove the top cover. See “Top cover” on page 30.
2. Disconnect the hard disk drive cable from the system board.

## Replacement procedure



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## M.2 solid-state drive

### Prerequisite

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

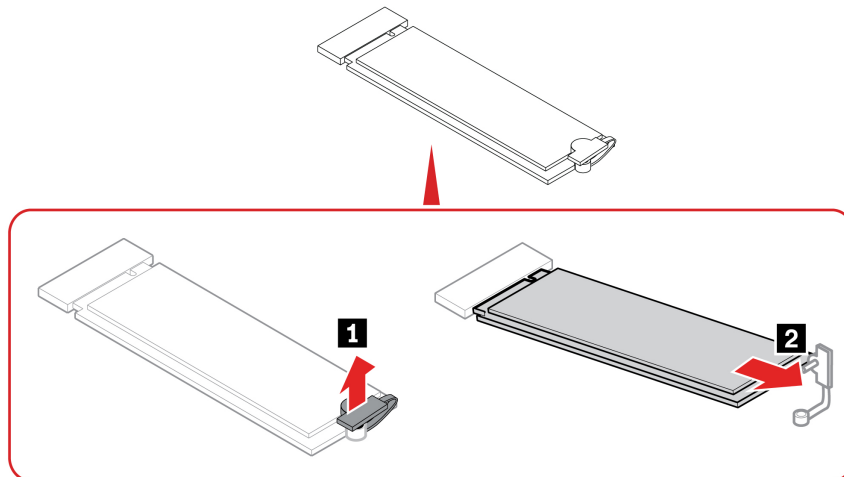
**Attention:** The M.2 solid-state drive is sensitive. Inappropriate handling might cause damage and permanent loss of data. When handling the M.2 solid-state drive, observe the following guidelines:

- 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 in order, if any:

- “Top cover” on page 30
- “CPU heat sink (for fanless model)” on page 30
- “Hard disk drive” on page 35

### Removal steps



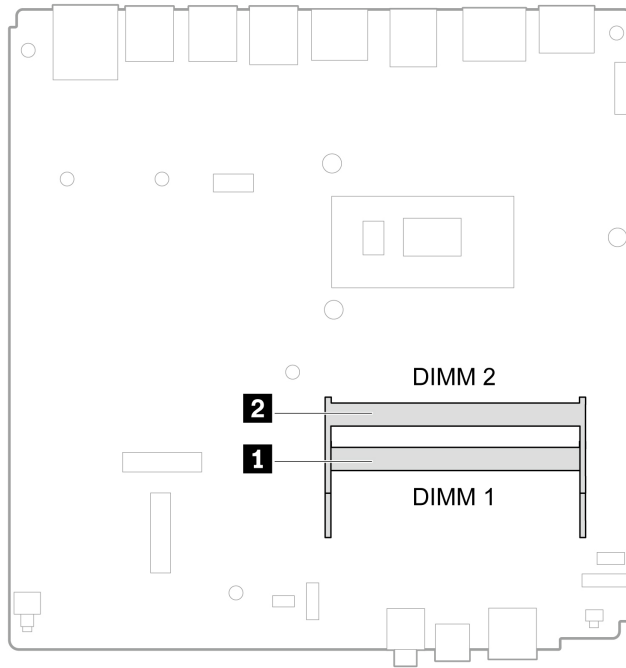
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## Memory module

### Prerequisite

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

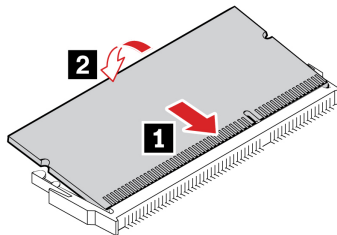
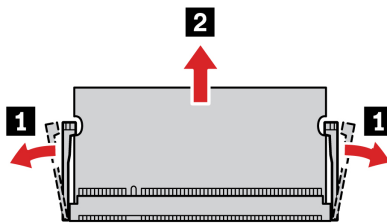
Ensure that you follow the installation order for memory modules shown in the following illustration.



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

- “Top cover” on page 30
- “CPU heat sink (for fanless model)” on page 30
- “Internal speaker” on page 31
- “Speaker and LED bracket” on page 33
- “System fan” on page 32

### Replacement procedure



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## Chapter 7. Help and support

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### Self-help resources

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

Resources	How to access?
Product documentation: <ul style="list-style-type: none"><li>• <i>Safety and Warranty Guide</i></li><li>• <i>Generic Safety and Compliance Notices</i></li><li>• <i>Setup Guide</i></li><li>• <i>This User Guide</i></li><li>• <i>Regulatory Notice</i></li></ul>	Go to <a href="https://pcsupport.lenovo.com">https://pcsupport.lenovo.com</a> . Then, follow the on-screen instructions to filter out the documentation you want.
Lenovo Support Web site with the latest support information of the following: <ul style="list-style-type: none"><li>• Drivers and software</li><li>• Diagnostic solutions</li><li>• Product and service warranty</li><li>• Product and parts details</li><li>• Knowledge base and frequently asked questions</li></ul>	<a href="https://pcsupport.lenovo.com">https://pcsupport.lenovo.com</a>
Ubuntu help information	<a href="https://help.ubuntu.com/its/ubuntu-help/index.html">https://help.ubuntu.com/its/ubuntu-help/index.html</a>
IGEL support information	<a href="https://support.igel.com/">https://support.igel.com/</a>

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### Lenovo diagnostic tools

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

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### Call Lenovo

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

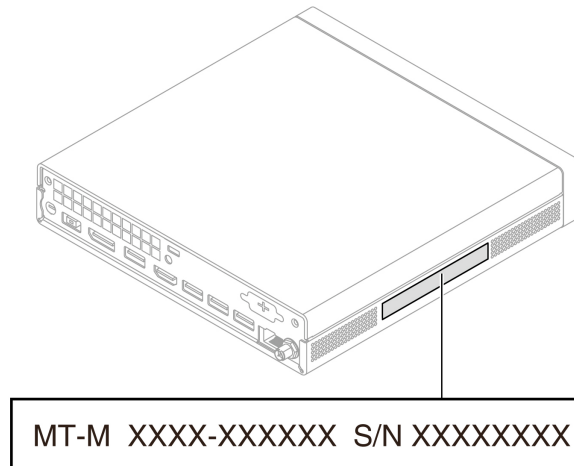
#### Before you contact Lenovo

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/supportphonenumberlist>

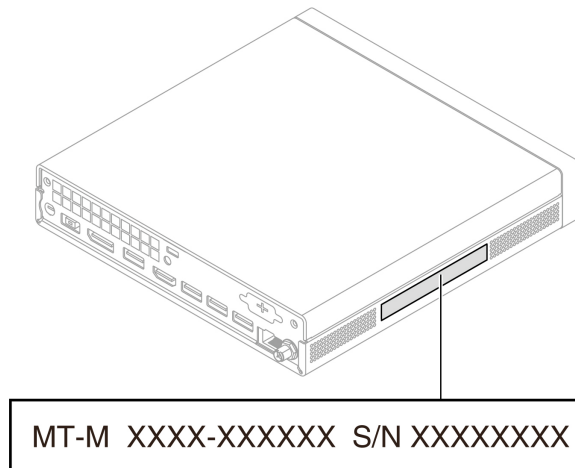
**Note:** Phone numbers are subject to change without notice. If the number for your country or region is not provided, contact your Lenovo reseller or Lenovo marketing representative.

## 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/supportphonenumberlist>

**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.

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## Purchase 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 name might vary by country or region.



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## 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](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>

### 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

This device includes software made publicly available by Lenovo, including software licensed under the General Public License and/or the Lesser General Public License (the open source software).

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`.

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## Appendix B. Compliance information

**Note:** For more compliance information, refer to *Generic Safety and Compliance Notices* at <https://pcsupport.lenovo.com>.

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### Certification-related information

**Product name:** ThinkCentre neo 50q Gen 4

**Machine types:**

Operation system	Machine types
Windows	12LM, 12LN, 12LQ, 12LR, 12LW, 12LX, 12LY, and 12MO
Thin Client (Win10 IOT-VXL)	12M1, 12M2, 12M3, 12M4, 12LH, 12LJ, 12LK, 12LL, 12M5, 12M6, 12LS, and 12LT

Further compliance information related to your product is available at <https://www.lenovo.com/compliance>.

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### 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 5°C (41°F) to 35°C (95°F)
- Storage:
  - For common desktop computers: From -40°C (-40°F) to 60°C (140°F)
  - For all-in-one desktop computers: From -20°C (-4°F) to 60°C (140°F)

**Relative humidity**

- Operating: 20%-80% (non-condensing)
- Storage: 10%–90% (non-condensing)





**Lenovo**