

# User Guide



Lenovo V100q

## About this document

This guide applies to the Lenovo product models listed below. Illustrations in this guide may look slightly different from your product model.

Model name	Machine types (MT)
Lenovo V100q	13GE, 13GF, 13GJ, 13GK, 13GG, 13GH, 13GL, 13GM

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](https://iknow.lenovo.com.cn/detail/dc_191404.html)
  - For computers purchased outside mainland China: [https://pcsupport.lenovo.com/docs/generic\\_notices](https://pcsupport.lenovo.com/docs/generic_notices)
- *Setup Guide (if provided with your computer)*

### Notes:

- For more compliance information on computers purchased outside mainland China, see *Regulatory Notice* at [https://support.lenovo.com/docs/common\\_commercial\\_rn](https://support.lenovo.com/docs/common_commercial_rn) or go to <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>
- Microsoft® makes periodic feature changes to the Windows® operating system through Windows Update. As a result, some information in this documentation might become outdated. Refer to Microsoft resources for the latest information.

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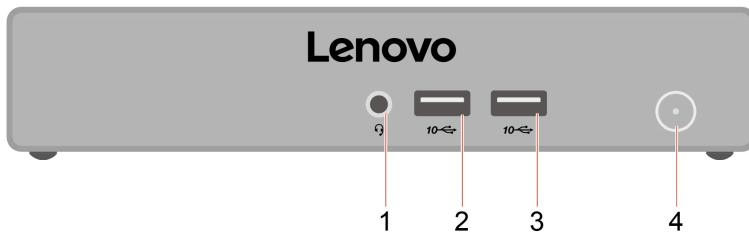
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# Chapter 1. Meet your computer

## Front view



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

**Note:** For more information about the USB connector name update, see Appendix A “Supplementary information” on page 35.

### 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.

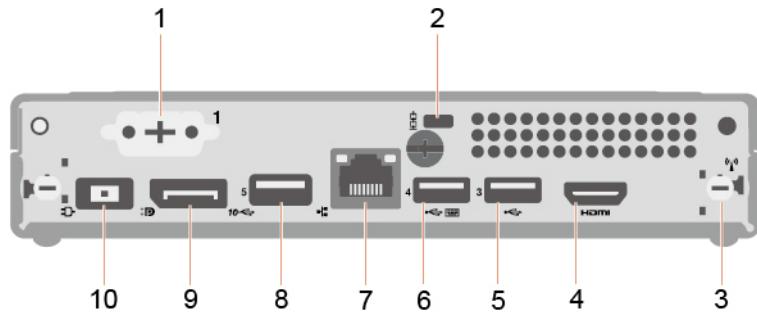
- **Breathing:** The computer is in sleep mode.

#### Related topics

- “USB specifications” on page 5

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## Rear view



Item	Description	Item	Description
1	Optional connector*	2	Security-lock slot
3	Wi-Fi® antenna slot	4	HDMI™ out connector
5	USB-A connector (Hi-Speed USB)	6	USB-A connector (Hi-Speed USB) (with smart power-on feature)
7	Ethernet connector (1G)	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 DisplayPort out connector, or a VGA-out connector.

#### Smart power-on feature

When your keyboard is connected to the USB connector supporting the smart power-on feature, you can start up or wake up the computer from hibernation mode simply 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.

#### Related topics

- “USB specifications” on page 5
- “Lock the computer” on page 8



## Specifications

Specification	Description
<b>Dimensions</b>	<ul style="list-style-type: none"><li>Width: 36.5 mm (1.4 inches)</li><li>Height: 179 mm (7 inches)</li><li>Depth: 182.9 mm (7.2 inches)</li></ul>
<b>Weight (without packaging)</b>	Maximum configuration as shipped: 0.89 kg (1.96 lb)
<b>Hardware configuration</b>	Type Device Manager in the Windows search box and then press Enter. Type the administrator password or provide confirmation, if prompted.
<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></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>	Double data rate 5 (DDR5) small outline dual in-line memory module (SODIMM) Maximum memory capacity: 16 GB
<b>Storage device</b>	M.2 solid-state drive  To view the storage drive capacity of your computer, type Disk Management in the Windows search box and then press Enter.  <b>Note:</b> The storage drive capacity indicated by the system is less than the nominal capacity.
<b>Video features</b>	Maximum output resolutions: <ul style="list-style-type: none"><li>DisplayPort out connector: 4096 × 2160 pixels, 60 Hz</li><li>HDMI out connector: 1920 × 1200 pixels, 60 Hz</li><li>VGA out connector*: 1920 × 1200 pixels, 60 Hz</li></ul> <b>Note:</b> The actual resolution of external displays may vary by the connected display device and the cable being used.
<b>Expansion</b>	<ul style="list-style-type: none"><li>Memory slots</li><li>M.2 solid-state drive (SSD) 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

### 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)

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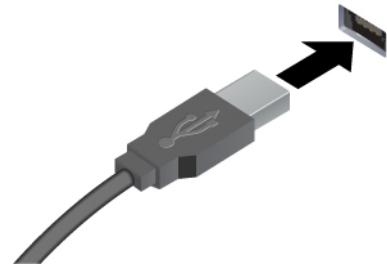
## USB specifications

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

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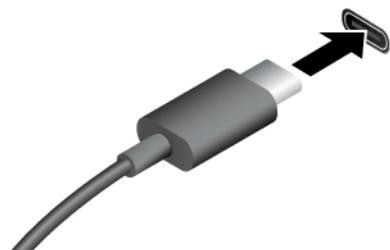
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Connect USB-A compatible devices, such as a USB-A keyboard, USB-A mouse, USB-A storage device, or USB-A printer.

- USB-A connector (Hi-Speed USB)
- USB-A connector (USB 10Gbps)

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- 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>.

- USB-C connector (USB 10Gbps)

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## Chapter 2. Get started with your computer

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### Set up the computer

Step 1. Connect wired or wireless external displays on the computer.

- **Wired external displays:** 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)
- **Wireless external displays:** Press Windows logo key + K and then select a wireless display to connect. Ensure that both your computer and the wireless display support Miracast®.

To change display settings, refer to “Change display settings” on page 6.

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

- Keyboard and mouse
- 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:** Click  on the bottom right of your display to connect to an available network. Provide required information if needed.

**Note:** The wireless LAN module on your computer may support different standards. For some countries or regions, use of 802.11ax may be disabled according to local regulations.

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### Change display settings

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.

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## Connect to a Wi-Fi network (for selected models)

Click the network icon  on the bottom right of your display to connect to an available network. Provide required information, if needed.

**Note:** The wireless LAN module on your computer may support different standards. For some countries or regions, the use of 802.11ax and 802.11be may be disabled according to local regulations.

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## Connect to a Bluetooth 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. To ensure successful connection, place the devices at most 10 meters (33 feet) from the computer.

### Conventional pair

This topic helps you connect to a Bluetooth device by conventional pair.

- Step 1. Type **Bluetooth** in the Windows search box and then press Enter.
- Step 2. Turn on both the Bluetooth on your computer and the Bluetooth device. Make sure the device is discoverable.
- Step 3. Select the device when it is displayed on the **Add a device** list, and then follow the on-screen instructions.

**Notes:** If the Bluetooth connection failed, do the following:

1. Type **Device Manager** in the Windows search box and then press Enter.
2. Locate the Bluetooth adapter. Right-click and select **Update driver**.
3. Select **Search automatically for drivers**, and then follow the on-screen instructions.

### Swift pair

This topic helps you connect to a Bluetooth device by swift pair.

If your Bluetooth device supports swift pair, do the following:

- Step 1. Enable swift pair notification on Bluetooth settings page.
- Step 2. Turn on both the Bluetooth on your computer and the Bluetooth device. Make sure the device is discoverable.
- Step 3. Click **Connect** when a swift pair notification appears on your computer.

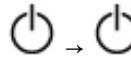
**Notes:** If the Bluetooth connection failed, do the following:

1. Type **Device Manager** in the Windows search box and then press Enter.
2. Locate the Bluetooth adapter. Right-click and select **Update driver**.
3. Select **Search automatically for drivers**, and then follow the on-screen instructions.

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## Shut down the computer

To prevent damage to hardware/software systems or loss of data, do not arbitrarily use the power button to shut down the computer. Instead, shut down the computer as follows.

Step 1. Click  →  →  **Shut down**.

Step 2. Wait for the computer to shut down and then turn off the monitor and other peripheral devices.

**Note:** After you turn off the system, please wait at least 20 seconds before turning the computer back on to avoid hardware faults.

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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:

- Turn off the display: After 10 minutes
- Put the computer to sleep: After 25 minutes

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

To set the power plan:

1. Type **Power Options** in the Windows search box and then press Enter.
2. Choose or customize a power plan of your preference.

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## Intel Turbo Boost Technology

Intel Turbo Mode capability is designed to allow the processor to assess its own thermals, current, and power to come up with a dynamic upper limit on its frequency. This means that the processor can run at frequency higher than the advertised base frequency, and at any frequency in the inclusive range between maximum turbo frequency and the advertised base frequency at any time.

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## Security

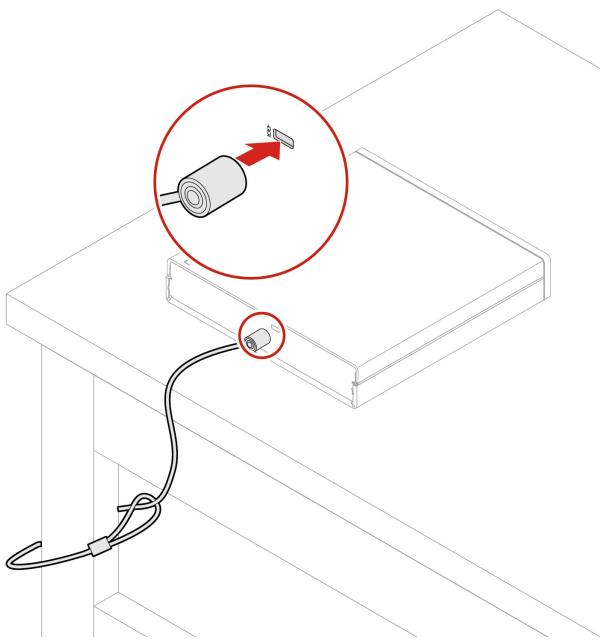
This computer offers a wealth of security measures to protect both the device and data safety.

### 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 software security solutions

The following software solutions help secure your computer and information.

- **Windows Security**

Windows Security is a software built-in to the operating system. It continually scans for malicious software, viruses, and other security threats. Besides, Windows updates are downloaded automatically to help keep your computer safe. Windows Security also enables you to manage tools including firewall, account protection, application and browser control, and so on.

- **Antivirus programs (for selected models)**

Lenovo preinstalls a full-version antivirus software on selected models of computer. It helps defend the computer against viruses, safeguard your identity, and keep your personal information secured.

**Note:** For more information about how to use these software solutions, refer to their help systems respectively.

## 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.

### **Erase all storage drive data (for selected models)**

It is recommended that you erase all storage drive data before recycling a storage drive or the computer.

To erase all storage drive data:

1. Set a hard disk password for the storage drive you will recycle. See “UEFI BIOS passwords” on page 11.
2. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
3. Select **Security** → **Hard Disk Password** → **Security Erase HDD Data** and press Enter.
4. Select the storage drive you will recycle and press Enter.
5. A message is displayed, prompting you to confirm the operation. Select **Yes** and press Enter. The erasing process begins.

**Note:** During the erasing process, the power button and the keyboard are disabled.

6. After the erasing process is completed, a message is displayed, prompting you to reset the system. Select **Continue**.

**Note:** Depending on the storage drive capacity, the erasing process will take half an hour to three hours.

7. After the resetting process is completed, one of the following will happen:
  - If the data on the system storage drive is erased, you will be prompted that no operating system is available.
  - If the data on the non-system storage drive is erased, the computer restarts automatically.

### **Cover presence switch (for selected models)**

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.

## 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.

## Absolute Persistence (for computers with Windows operating system and purchased outside mainland China)

Absolute Persistence technology is embedded in BIOS. It detects changes that happen on the hardware, software, or the call-in location. It keeps you always knowing what condition the computer is in. To activate the technology, you have to purchase a subscription to Absolute.

## 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 (for selected models)

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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## Chapter 3. UEFI BIOS

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### 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.

To explore the detailed settings:

- For computers purchased in mainland China  
You can contact Lenovo Customer Support Center as shown at <https://newsupport.lenovo.com.cn/contacts.html>.
- For computers purchased outside mainland China  
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.

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### Enable or disable the ErP LPS compliance mode

Lenovo computers meet the eco-design requirements of the ErP Lot 3 regulation. Follow the instruction to enable or disable the ErP LPS compliance mode.

For more information about the eco-design requirements, 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. To enable or disable the ErP LPS compliance mode:

- Step 1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
- Step 2. Select **Power → Enhanced Power Saving Mode** and press Enter.
- Step 3. Enable or disable the feature as desired.

**Note:** Please note that when the Enhanced Power Saving Mode is disabled, the power consumption might be increased when the computer is off.

- 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.

To meet the off mode requirement of ErP compliance, you need to disable the Fast Startup function.

1. Go to **Control Panel** and view by large icons or small icons.
2. Click **Power Options → Choose what the power buttons do → Change settings that are currently unavailable.**
3. Clear the **Turn on fast startup (recommended)** option from the **Shutdown settings** list.

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## Update the UEFI BIOS

When you install a new program, device driver, or hardware component, you might need to update the UEFI BIOS.

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

### From the Lenovo Support Web site

Follow the instructions to update the UEFI BIOS from the Lenovo Support Web site.

#### For computers purchased in mainland China

1. Go to <https://newsupport.lenovo.com.cn>.
2. Click **Download drivers and software**, and select or search product.
3. Follow the on-screen instructions to download and install the latest UEFI BIOS update package.

#### For computers purchased outside mainland China

1. Go to <https://pcsupport.lenovo.com> and select the entry for your computer.
2. Click **Drivers & Software → Manual Update → BIOS/UEFI**.
3. Follow the on-screen instructions to download and install the latest UEFI BIOS update package.

### From the Windows Update

Follow the instructions to update the UEFI BIOS from the Windows Update.

- Step 1. Type **Settings** in the Windows search box and press Enter.
- Step 2. Click **Windows Update → Check for Updates**.
- Step 3. If a BIOS update package appears in your update list, click **Download or Install** to initiate the update.

---

## Chapter 4. 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/lw\\_02](https://www.lenovo.com/warranty/lw_02)

---

### CRU list

The following is the CRU list of your computer.

#### Self-service CRUs

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

#### Optional-service CRUs

- CPU heat sink
- Flexible I/O board
- Internal speaker

- M.2 solid-state drive (SSD)
- Memory module

\* for selected models

---

## Power adapter and power cord (without bracket)

### Prerequisite

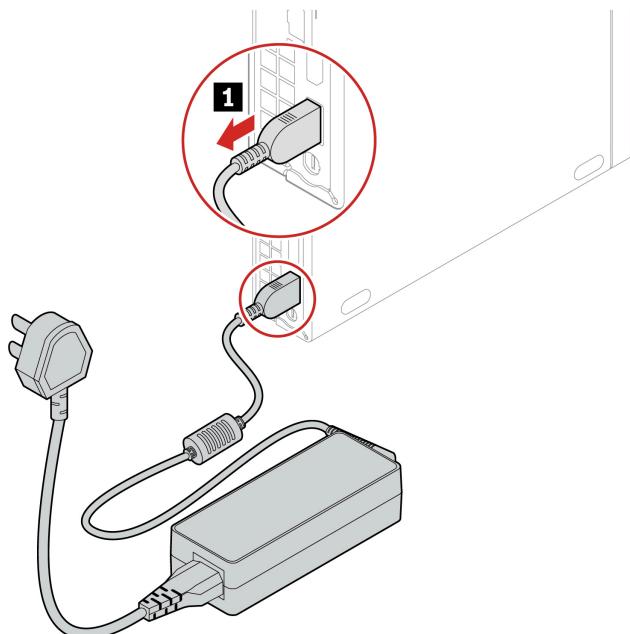
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, do the following:

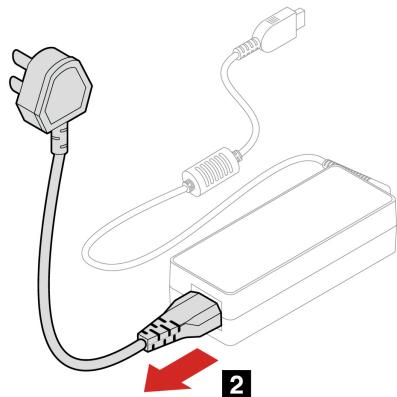
1. Turn off the computer and all connected devices.
2. Disconnect the computer from ac power.

### Replacement 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.

---

## Vertical stand

### Prerequisite

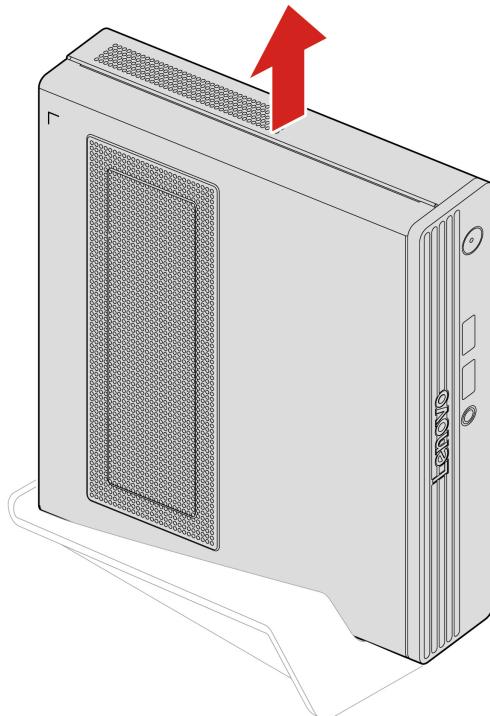
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

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 step

Lift the computer and remove the vertical stand.



## 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:

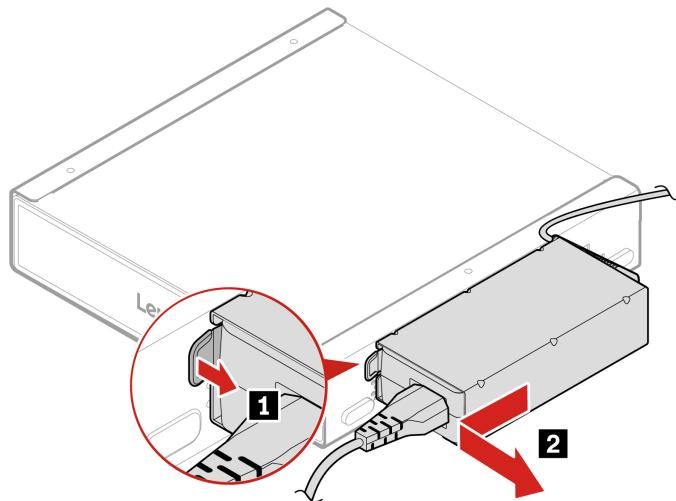
1. Turn off the computer and remove all connected devices and cables.
2. Disconnect the computer from ac power and all connected cables.

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.

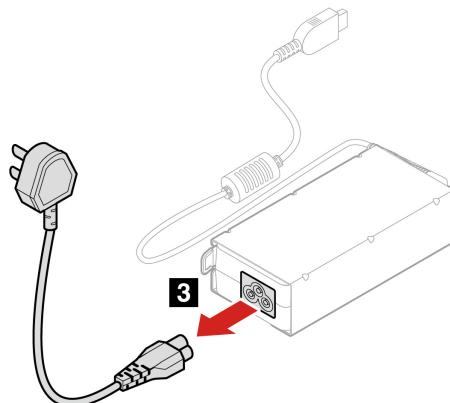
### Replacement steps

- **Removal**

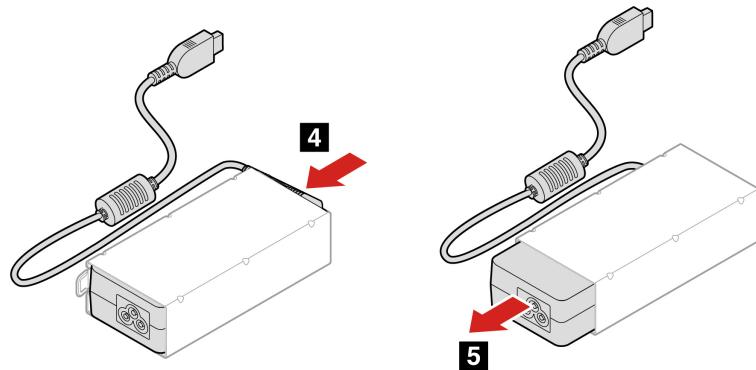
1. Unlock the power adapter bracket from the VESA mount bracket by pulling the retaining clip. Remove the power adapter bracket.



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

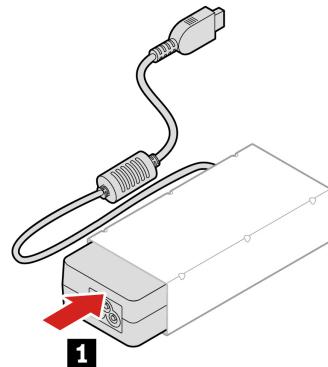


3. Push the ac power adapter out of the power adapter bracket. Remove the ac power adapter.

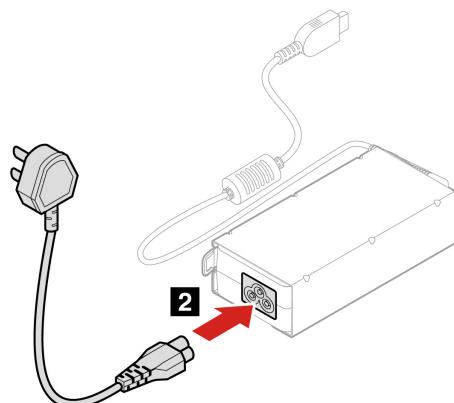


- **Installation**

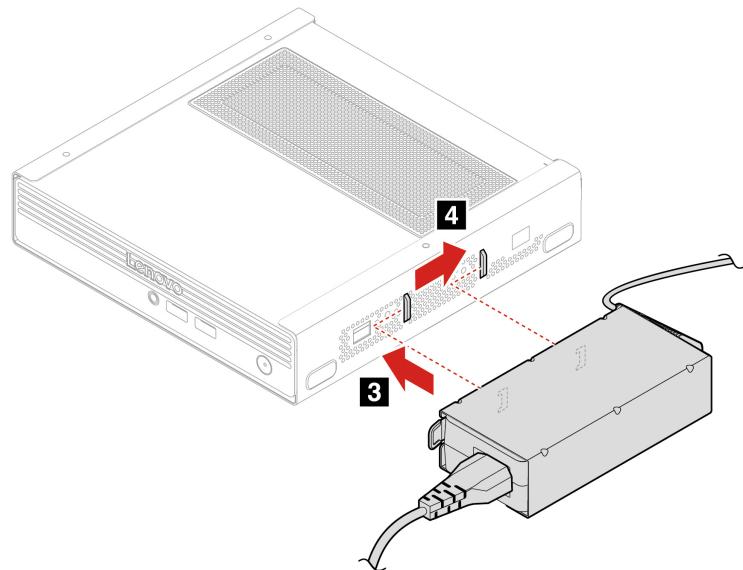
1. Insert the ac power adapter into the power adapter bracket.



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.



## VESA mount bracket

### Prerequisite

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

For access, do the following:

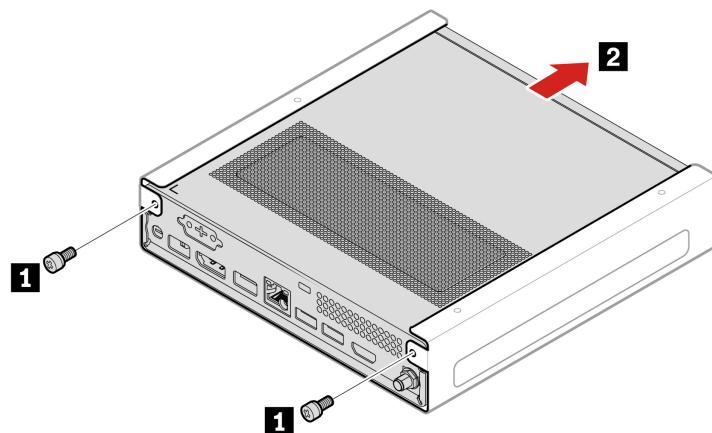
1. Turn off the computer and remove all connected devices and cables.
2. Disconnect the computer from ac power and all connected cables.

### 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

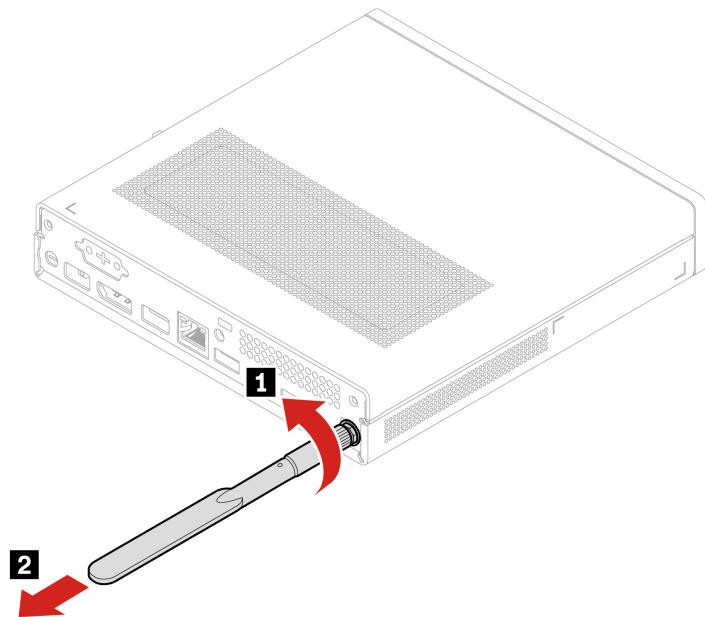
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

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.

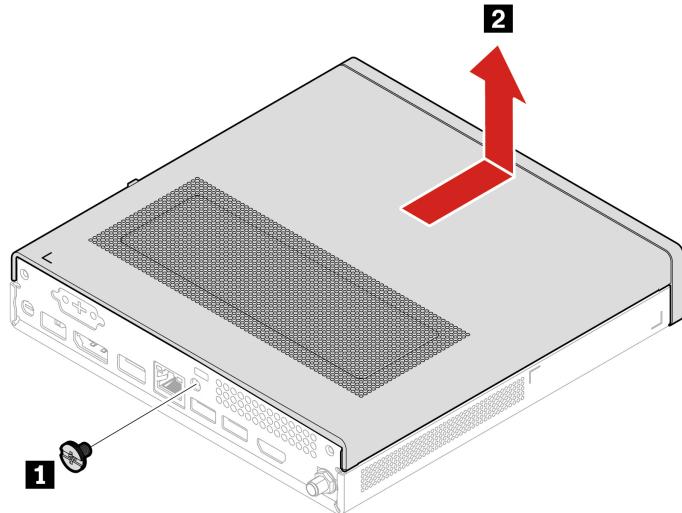
4. Remove the following parts, if any, in order.
  - “VESA mount bracket” on page 21
  - “Vertical stand” on page 18
  - “External Wi-Fi antenna” on page 22

### 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.

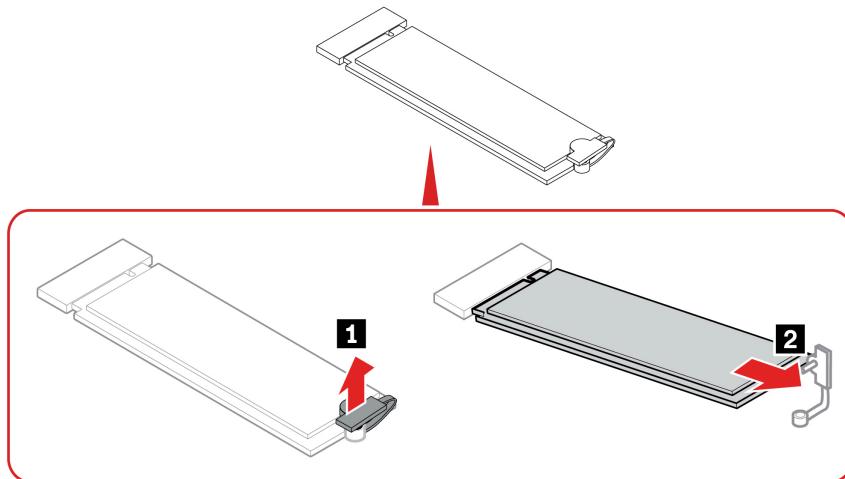
- Do not make the M.2 solid-state drive subject to physical shocks or vibration. Put the M.2 solid-state drive on a soft material, such as cloth, to absorb physical shocks.

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

- “VESA mount bracket” on page 21
- “Vertical stand” on page 18
- “External Wi-Fi antenna” on page 22
- “Top cover” on page 22

### 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

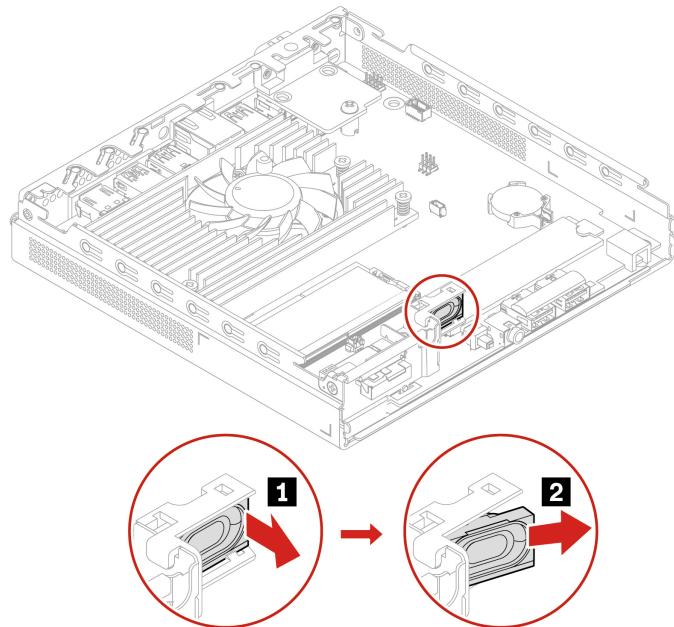
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

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

- “VESA mount bracket” on page 21
- “Vertical stand” on page 18
- “External Wi-Fi antenna” on page 22
- “Top cover” on page 22

### Replacement 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.



3. Install a new internal speaker in reverse order.

---

## 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.

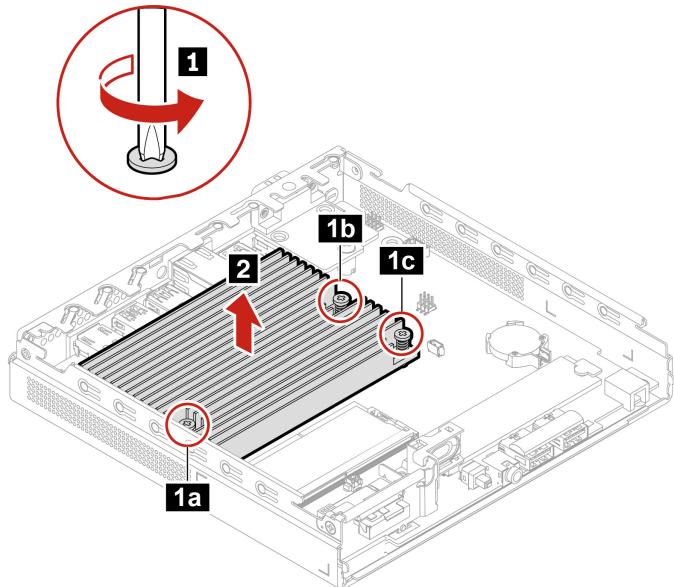
- “VESA mount bracket” on page 21
- “Vertical stand” on page 18
- “External Wi-Fi antenna” on page 22
- “Top cover” on page 22
- “Internal speaker” on page 24

### Replacement steps

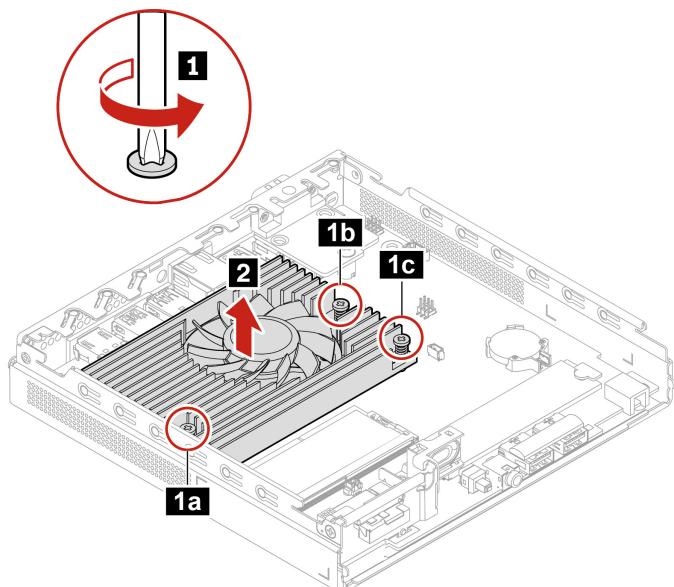
1. Loosen the three screws which secure the CPU heat sink to the system board. Ensure that the CPU heat sink is horizontal when loosening or fastening the screws.
2. Remove the CPU heat sink.

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

- Type 1



- Type 2



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 0.35 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

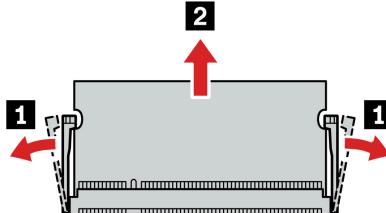
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

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

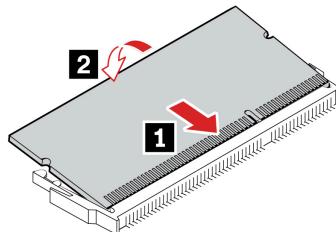
- “VESA mount bracket” on page 21
- “Vertical stand” on page 18
- “External Wi-Fi antenna” on page 22
- “Top cover” on page 22
- “Internal speaker” on page 24

### 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 21
- “Vertical stand” on page 18
- “External Wi-Fi antenna” on page 22
- “Top cover” on page 22

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

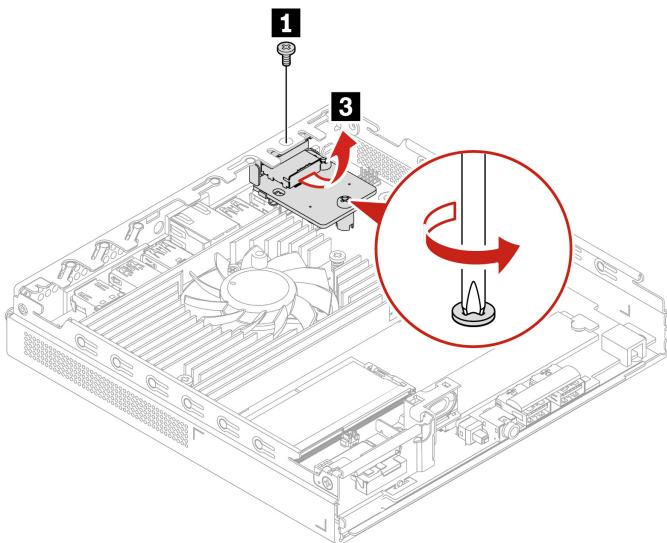
### Replacement steps (Type 1)

- **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

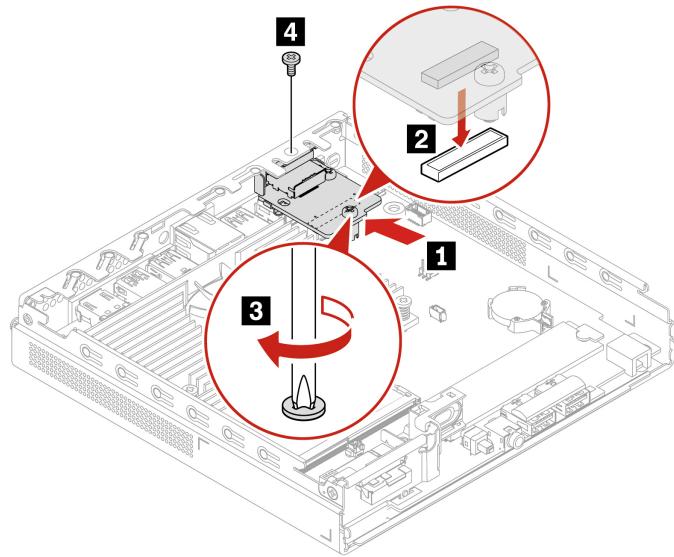
2. Loosen the screw that fixes the flexible I/O board to the system board. Remove the flexible I/O board.



- **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



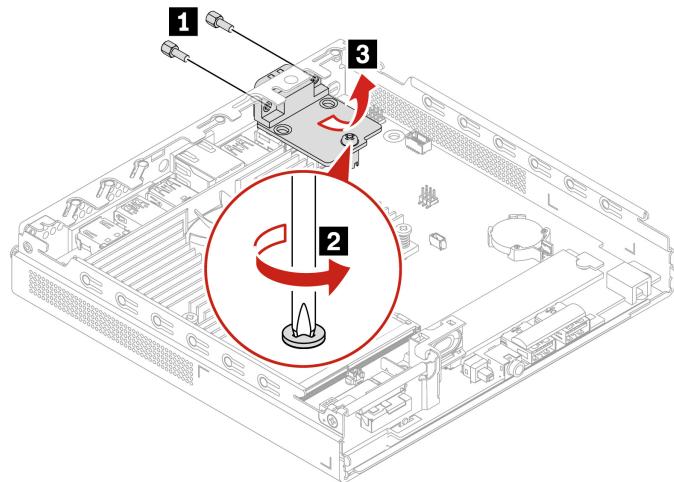
### Replacement steps (Type 2)

- **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	2	3 ± 0.5 lb/in
– For Ethernet connector board: M3 x L5 mm, Zn coated		

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

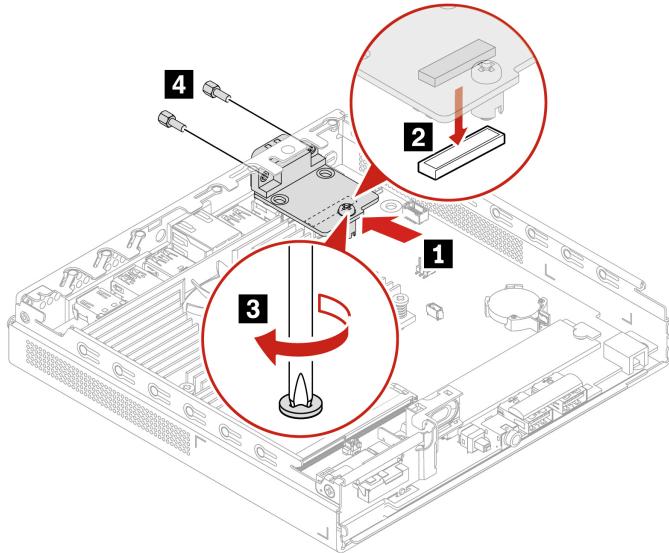


- **Installation**

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	2	3 ± 0.5 lb/in
– For Ethernet connector board: M3 x L5 mm, Zn coated		



---

## Chapter 5. Help and support

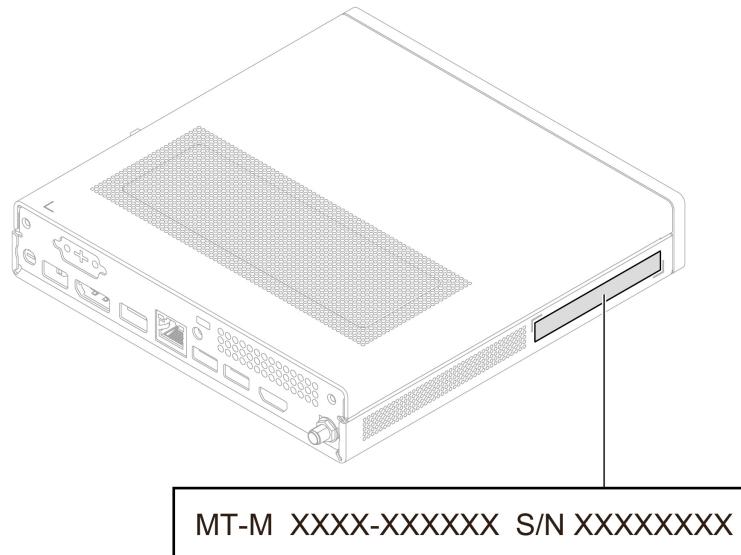
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### Find your serial number

This topic helps you find computer serial number.

You can find your serial number via:

- The label on the left side of your computer (shown as below illustration)



---

### Diagnose and troubleshoot your computer

This section provides introduction to a set of diagnostics and troubleshooting tools at Lenovo Support Web site and the Vantage app. They can help you diagnose common software and hardware issues.

The following table lists these diagnostics tools and the recommended conditions for each tool.

Diagnostics tool	Recommended scenario
Troubleshoot and diagnose at Lenovo Support Web site	You want to have an online troubleshooting or scan of hardware and drivers on your computer.
Hardware scan	<ul style="list-style-type: none"><li>• Your computer is installed with the Vantage app.</li><li>• You want to perform basic examinations of the hardware components.</li></ul>

### Troubleshoot and diagnose at Lenovo Support Web site

Lenovo provides two different diagnosing solutions to help you identify and resolve problems on your computer.

## For computers purchased in mainland China

1. Go to <https://newsupport.lenovo.com.cn/>.
2. Enter the troubleshooting section and find the question you are encountering.

## For computers purchased outside mainland China

1. Go to <https://www.pcsupport.lenovo.com/> and enter your product name in the search box.
2. Click **Troubleshoot & Diagnose** and select the option that fits your need.

### Notes:

- Before launching any automatic diagnosing process, a pop-up window will be prompted to install Lenovo Service Bridge. Lenovo Service Bridge helps to connect your computer with Lenovo diagnosing tools.
- Lenovo Support Web site makes periodic updates of the sections to keep improving your experience with your computer. The Web site interface and descriptions of sections might be different from that on your actual interface.
- If you are unaware of what problem your computer goes with, it is recommended that you select **Easy** and follow on-screen instructions to get your firmware updated and obtain the hardware status.
- If you have identified the problem on your computer, you can select **Custom** and follow on-screen instructions to resolve the problem.

If solutions can not resolve problems on your computer, you can follow on-screen instructions to submit an e-ticket or contact Lenovo for professional assistance.

## Hardware scan

Hardware scan is an effective hardware testing tool to help you identify existing hardware issues.

To run the Hardware scan:

- Step 1. Type **Vantage** in the Windows search box and then press Enter.
- Step 2. Click **Hardware scan** or **Support** → **Hardware scan**.
- Step 3. Select **QUICK SCAN** or **CUSTOMIZE** and then follow the on-screen instructions to run the hardware scan.

### Notes:

- The Quick Scan tool contains a pre-selected suite of tests that performs basic examinations of the hardware components found in the system. The Customize tool enables you to select one or several hardware components to perform the examinations.
- Before selecting **QUICK SCAN**, click **Refresh Modules** to ensure that the list of hardware components is the components currently available for the computer.

- Step 4. If any hardware failure is detected, the result varies depending on the warranty status and varies by country or region. Follow the on-screen instructions to resolve the issue.

---

## Recover your Windows operating system

When you encounter some unexpected issues with your operating system, you can choose to recover your operating system by yourself or call Lenovo Customer Support Center.

**Note:** Microsoft constantly makes updates to the Windows operating system. Before installing a particular Windows version, check the compatibility list for the Windows version. For details, go to <https://support.lenovo.com/us/en/solutions/ht512575>.

## For computers purchased in mainland China

Go to [https://iknow.lenovo.com.cn/detail/199198\\_1.html](https://iknow.lenovo.com.cn/detail/199198_1.html).

## For computers purchased outside mainland China

To recover your operating system to...	See.
Factory defaults	Refer to the instructions in <a href="https://support.lenovo.com/HowToCreateLenovoRecovery">https://support.lenovo.com/HowToCreateLenovoRecovery</a>
A previous system point	Refer to the instructions in Popular Topics: <a href="https://support.lenovo.com/solutions/ht118590">https://support.lenovo.com/solutions/ht118590</a>

## 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 needed information 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.

## Self-help resources

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

Resources	How to access?
Lenovo Support Web Site	<ul style="list-style-type: none"><li>• For computers purchased in mainland China <a href="https://www.lenovo.com.cn">https://www.lenovo.com.cn</a></li><li>• For computers purchased outside mainland China <a href="https://pcsupport.lenovo.com">https://pcsupport.lenovo.com</a></li></ul>
Tips	<ul style="list-style-type: none"><li>• For computers purchased in mainland China <a href="https://iknow.lenovo.com.cn">https://iknow.lenovo.com.cn</a></li><li>• For computers purchased outside mainland China <a href="https://www.lenovo.com/tips">https://www.lenovo.com/tips</a></li></ul>

Resources	How to access?
Lenovo Community	<ul style="list-style-type: none"><li>For computers purchased in mainland China <a href="https://iknow.lenovo.com.cn">https://iknow.lenovo.com.cn</a></li><li>For computers purchased outside mainland China <a href="https://forums.lenovo.com">https://forums.lenovo.com</a></li></ul>
Accessibility information (for computers purchased outside China)	<a href="https://www.lenovo.com/accessibility">https://www.lenovo.com/accessibility</a>
Windows help information	<ul style="list-style-type: none"><li>Open the Start menu and click <b>Get Help or Tips</b>.</li><li>Use Windows Search.</li><li>Microsoft support Web site: <a href="https://support.microsoft.com">https://support.microsoft.com</a></li></ul>

## 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:

- For computers purchased in mainland China  
<https://www.lenovo.com.cn>
- For computers purchased outside mainland China  
<https://www.lenovo.com/accessories>

### Additional services

During and after the warranty period, you can purchase additional services from Lenovo at:

- For computers purchased in mainland China  
<https://newsupport.lenovo.com.cn>
- For computers purchased outside mainland China  
<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 individuals with hearing, vision, mobility, cognitive, or speech disabilities. To get the most up-to-date and detailed accessibility features information for the product, go to [https://support.lenovo.com/docs/product\\_accessibility\\_features](https://support.lenovo.com/docs/product_accessibility_features).

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## Appendix A. Supplementary information

This section contains the 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.

### Notice for USB connector name update

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

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## Appendix B. Notices and trademarks

### Notices

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