User Guide

ThinkCentre M70s Gen 6, ThinkCentre M90s Gen 6

About this documentation

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

Model name	Machine types (MT)
ThinkCentre M70s Gen 6	12YJ, 12YK, 12YN, 12YQ, 13DT, 13EM, 13ES, 13ET, 13BQ, and 13BR
ThinkCentre M90s Gen 6	12YT, 12YU, 12YX, and 12YY

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

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

Notes:

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

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

    Regulatory Notice at https://support.lenovo.com/docs/common_commercial_rn and *Generic Safety and Compliance Notices* at https://www.lenovo.com/compliance
- Depending on the model, some optional accessories, features, and software programs might not be available on your computer.
- Depending on the version of the operating systems and programs, some user interface instructions might not be applicable to your computer.
- Documentation content is subject to change without notice. Lenovo makes constant improvements to the documentation of your computer, including this *User Guide*. To get the latest documentation, go to:
  - For computers purchased in mainland China: https://newsupport.lenovo.com.cn
  - For computers purchased outside mainland China: https://pcsupport.lenovo.com
- 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 As a result, some information in this documentation might become outdated.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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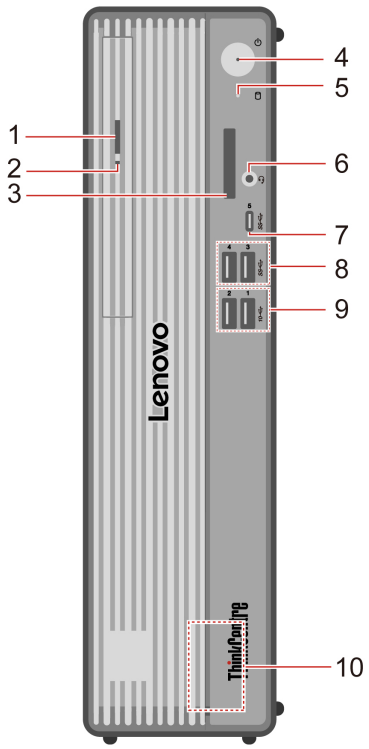
Chapter 1. Meet your computer

Front view

Front view of M70s Gen 6



Item	Description	Item	Description
1	Optical drive eject button*	2	Optical drive activity indicator*
3	SD-card slot*	4	Power button and power indicator
5	Storage drive activity indicator*	6	Headset connector
7	USB-C® connector (USB 5Gbps)	8	USB-A connectors (USB 5Gbps)
9	USB-A connectors (USB 10Gbps)	10	Internal speaker

* for selected models

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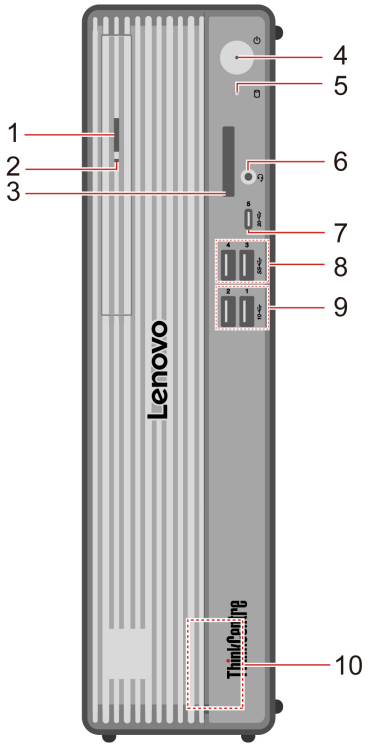
Front view of M90s Gen 6



Item	Description	Item	Description
1	Optical drive eject button*	2	Optical drive activity indicator*
3	SD-card slot*	4	Power button and power indicator
5	Storage drive activity indicator*	6	Headset connector
7	USB-C connector (USB 20Gbps)	8	USB-A connectors (USB 5Gbps)
9	USB-A connectors (USB 10Gbps)	10	Internal speaker

* for selected models

Note: For more information about the USB connector name update, see Appendix A “Supplementary information” on page 53.

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

Power indicator

Show the system status of your computer.

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

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 or OMTP-compliant TRRS (4-pole) plug

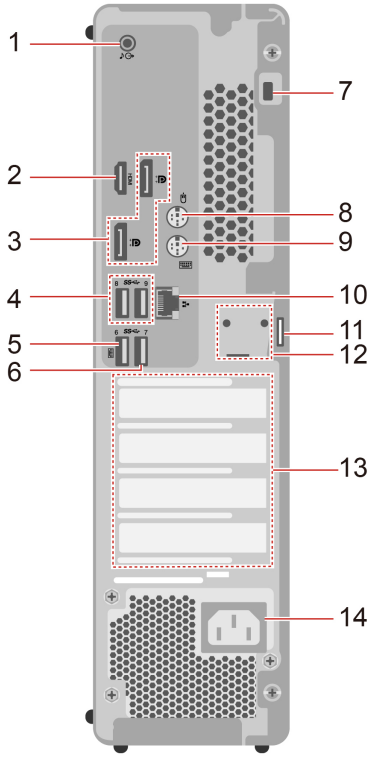
Note: This headset connector does not support standalone external microphones with a TRS (3-pole) plug.

Related topics

- “USB specifications” on page 7.
- “Use a media card (for selected models)” on page 13.

Rear view

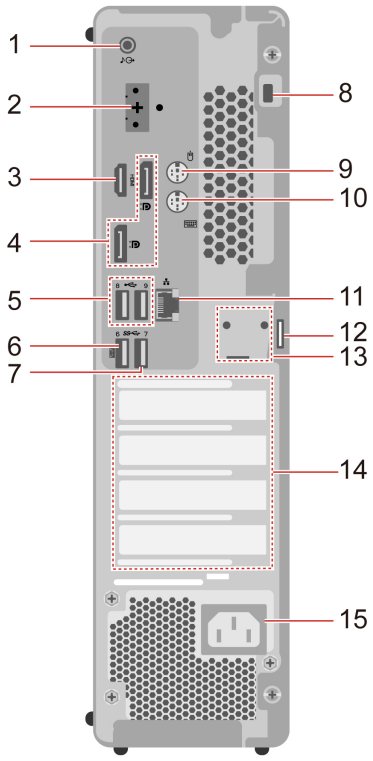
Rear view of M70s Gen 6



Item	Description	Item	Description
1	Audio line-out connector	2	HDMI™ out connector
3	DisplayPort™ out connectors	4	USB-A connectors (USB 5Gbps)
5	USB-A connector (USB 5Gbps) with smart power-on feature	6	USB-A connector (USB 5Gbps)
7	Security-lock slot	8	PS/2 mouse connector*
9	PS/2 keyboard connector*	10	Ethernet connector
11	Padlock loop	12	E-lock slots
13	PCI-Express card area	14	Power cord connector

* for selected models

Rear view of M90s Gen 6



Item	Description	Item	Description
1	Audio line-out connector	2	Optional connector*
3	HDMI out connector	4	DisplayPort out connectors
5	USB-A connectors (Hi-Speed USB)	6	USB-A connector (USB 5Gbps) with smart power-on feature
7	USB-A connector (USB 5Gbps)	8	Security-lock slot
9	PS/2 mouse connector*	10	PS/2 keyboard connector*
11	Ethernet connector	12	Padlock loop

Item	Description	Item	Description
13	E-lock slots	14	PCI-Express card area
15	Power cord connector		

* for selected models

Optional connector

Depending on the computer model, the connector might be a DisplayPort out connector, a USB-C connector (USB 5Gbps), a VGA out connector, or an HDMI out connector.

Related topics

- “USB specifications” on page 7.
- “Set up the computer” on page 11.
- “Lock the computer” on page 15.
- “PCIe cards” on page 43.

Specifications

Specification	Description
Dimensions	• Width: 92.5 mm (3.6 inches) • Height: 339.5 mm (13.4 inches) • Depth: 299.7 mm (11.8 inches)
Weight (without packaging)	Maximum configuration as shipped: • **M70s Gen 6:** 5.1kg (11.2 lb) • **M90s Gen 6:** 5.3 kg (11.7 lb)
Hardware configuration	Type `Device Manager` in the Windows search box and then press Enter. Type the administrator password or provide confirmation, if prompted.
Power supply	**M70s Gen 6:** • 200-watt automatic voltage-sensing power supply • 260-watt automatic voltage-sensing power supply • 310-watt automatic voltage-sensing power supply **M90s Gen 6:** • 260-watt automatic voltage-sensing power supply • 310-watt automatic voltage-sensing power supply • 400-watt automatic voltage-sensing power supply
Electrical input	• Input voltage: From 100 V ac to 240 V ac • Input frequency: 50/60 Hz
Memory	Up to four double data rate 5 (DDR5) unbuffered dual in-line memory modules (UDIMMs) Maximum memory capacity: 64 GB

Specification	Description
Storage device	• 3.5-inch hard disk drive* • 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. **Note:** The storage drive capacity indicated by the system is less than the nominal capacity.
Video features	• The integrated graphics card supports the following: – **M70s Gen 6:** – DisplayPort out connector – HDMI out connector – **M90s Gen 6:** – DisplayPort out connector – HDMI out connector – VGA-out connector* – USB-C connector (USB 5Gbps)* (on the rear panel) • The optional discrete graphics card provides an enhanced video experience and extended capabilities.
Expansion	• Card reader* • Memory slots • M.2 solid-state drive slots • Optical drive* • Storage drive bay **M70s Gen 6** • PCI-Express x1 card slots • PCI-Express x16 graphics card slot, Gen 4 **M90s Gen 6** • PCI-Express x1 card slots • PCI-Express x16 graphics card slot, Gen 5 • PCI-Express card slot (physical link width x16; negotiable link width x4)
Network features	• Bluetooth* • Ethernet LAN • Wireless LAN*

* for selected models

Operating environment

Maximum altitude (without pressurization)

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

Temperature

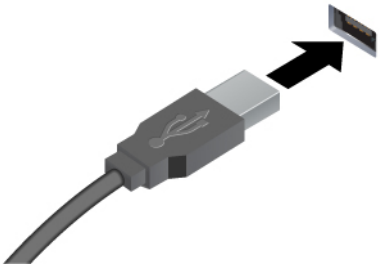
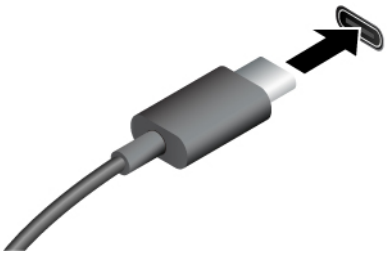
- Operating: From 5°C (41°F) to 35°C (95°F)
- Storage:
  - For common desktop computers: From -40°C (-40°F) to 60°C (140°F)
  - For all-in-one desktop computers: From -20°C (-4°F) to 60°C (140°F)

Relative humidity

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

USB specifications

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

Connector name	Description
 • USB-A connector (Hi-Speed USB) • USB-A connector (USB 5Gbps) • USB-A connector (USB 10Gbps)	Connect USB-A compatible devices, such as a USB-A keyboard, USB-A mouse, USB-A storage device, or USB-A printer.
 • USB-C connector (USB 5Gbps) • USB-C connector (USB 20Gbps)	• Charge USB-C compatible devices with the output voltage and current of 5 V and 3 A. • Connect to USB-C accessories to help expand your computer functionality. To purchase USB-C accessories, go to https://www.lenovo.com/accessories.

The Vantage app

The Vantage app is a customized one-stop solution to help you maintain your computer with automated updates and fixes, configure hardware settings, and get personalized support.

To access the Vantage app, type **Vantage** in the Windows search box.

Notes:

- The available features vary depending on the computer model.
- The Vantage app makes periodic updates of the features to keep improving your experience with your computer. The description of features might be different from that on your actual user interface. You can download the latest version of Vantage app from Microsoft Store.

The Vantage app enables you to:

- Know the device status easily and customize device settings.
- Download and install UEFI BIOS, firmware, and driver to keep your computer up-to-date.
- Monitor your computer health, and secure your computer against outside threats.
- Scan your computer hardware and diagnose hardware problems.
- Look up warranty status (online).
- Access *User Guide* and helpful articles.

Lenovo AI Now or Lenovo Xiaotian (for selected models)

Lenovo AI Now or Lenovo Xiaotian is a personal and private AI assistant to help with inspiration, writing, summarizing, and quick settings for your computer. Depending on the country or region, either of them might be available.

Access the apps

- Use the Lenovo AI Now icon or Lenovo Xiaotian icon if present on the taskbar.
- Or type the app name in the Windows search box and press Enter.

Explore key features

- Import files to create your personal knowledge base and start searching, Q&A, summarization, and generation based on it.
- Set up your computer or find service information. For example, you can ask it to help turn on the Eye Care mode or find the nearest service center.

Notes:

- For more information about Lenovo AI Now or Lenovo Xiaotian, see the User Guide in the apps' Help Center.
- Software features may vary by computer model and be subject to change. Explore the apps based on your actual user interface.

Lenovo AI Turbo Engine (for selected models)

Lenovo AI Turbo Engine is a smart audio and video enhancement software. Powered by plentiful sensing and computing adaption technologies, it can optimize your experience in video and audio capture and playback.

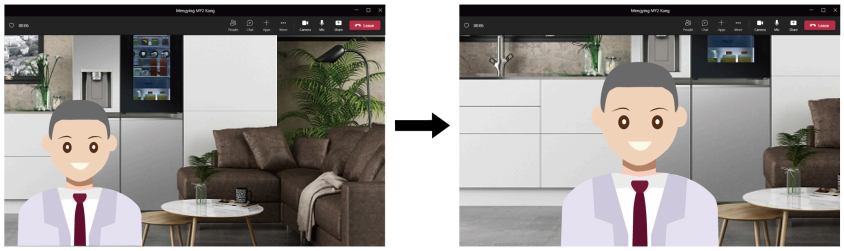
Access the app

- Use the Lenovo AI Turbo Engine icon if present on the taskbar.
- Or type the app name in the Windows search box and press Enter.

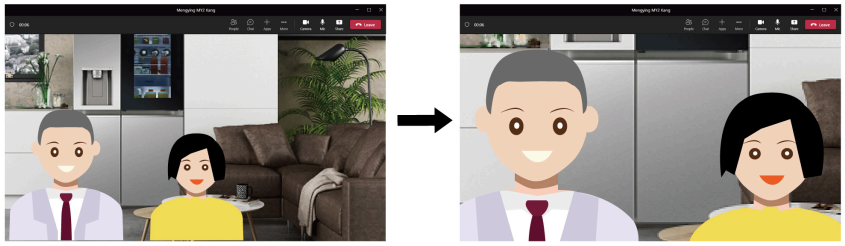
Explore key features

- **Video enhancement**

- **Auto framing mode** (for a single person): Automatically track and keep your face centered in the video.

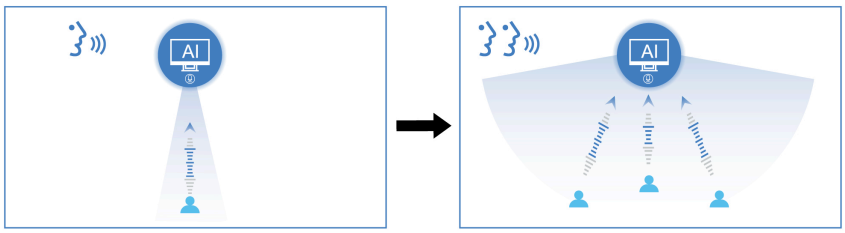


- **Auto framing mode** (for multiple persons): Automatically crop the video to capture all persons' faces.



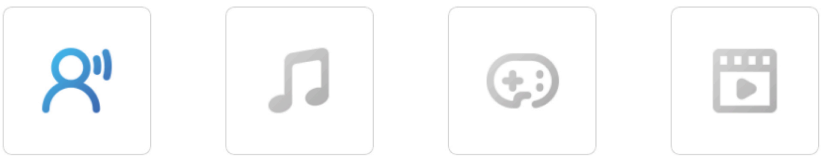
- **Single-person tracking mode**: You can manually select this mode to track only one person's face even if others are present.

- **Audio enhancement**
  - **Microphone capture effect auto adaption**: The microphone capture scope can change based on the number of persons captured by the camera.

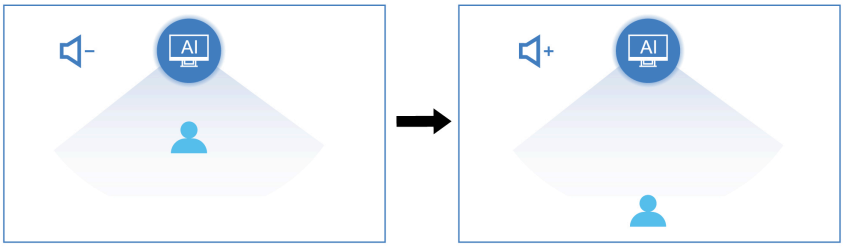


Note: You can also manually switch between personal, shared, or music modes based on your needs.

  - **Speaker playback effect auto adaption**: The speaker playback effect can change depending on the audio type.



  - **Speaker playback volume auto adaption** (for models with a radar card): System volume can change according to the user's distance from the speaker.



Notes:

- The available features vary depending on computer models.
- This app might not be available in your country or region.
- This app makes periodic updates of the features. Explore this app on your actual user interface.

Chapter 2. Get started with your computer

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)
  - USB-C connector (USB 5Gbps), on the rear panel (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 12.

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

- Keyboard and mouse
- Dust shield
- Air deflector
- Vertical stand

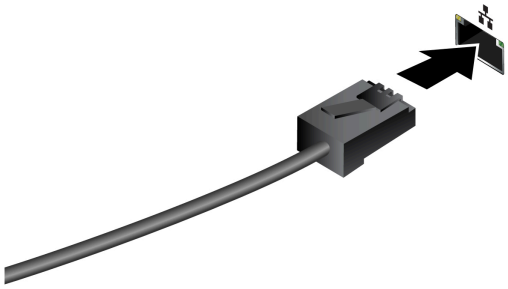
Step 3. Connect the power cord to the power cord connector on the computer and then connect it to a properly-grounded electrical outlet.

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

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

Step 6. Connect to a wired or wireless network.

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



- **Wireless network:** 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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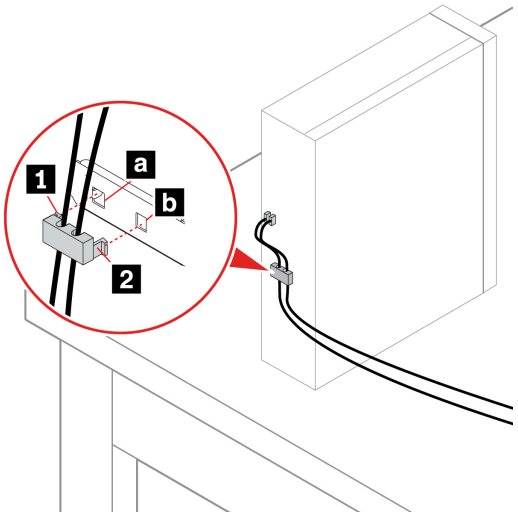
Use a smart cable clip (for selected models)

You can purchase a smart cable clip from Lenovo to lock devices (such as the keyboard and the mouse) to your computer.

Step 1. Insert the clip 1 into the cable-lock slot a.

Step 2. Pull the cables you want to lock through the dents in the smart cable clip.

Step 3. Press the clip 2 into the cable-lock slot b until it snaps into position.



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.

1. Click → → **Shut down**.
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.

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.

Transfer data

You can install a disc or media card to transfer data.

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.

Use a media card (for selected models)

If your computer has a 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 (for selected models)

Attention: Before removing the card:

1. Click the triangular icon in the Windows notification area to show hidden icons. Right-click the icon prompting you to safely remove hardware and eject media.
2. Select the corresponding item to eject the card from the Windows operating system.
3. Press the card and remove it from your computer. Store the card safely for future use.

Use the optical drive (for selected models)

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

Know the type of your optical drive

1. Type `Device Manager` in the Windows search box and then press Enter. Type the administrator password or provide confirmation, if prompted.
2. Select an optical drive, and then follow the on-screen instructions.

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. Do one of the following:
   - Type `AutoPlay` in the Windows search box and then press Enter. Turn on **Use AutoPlay for all media and devices**.
   - Open Windows Media Player.
   - Double-click the ISO file.
3. Follow the on-screen instructions.

Smart power-on feature (for selected models)

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

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

Enable or disable the smart power-on feature

To enable or disable the smart power-on feature:

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

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

Step 3. Enable or disable the feature as desired.

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

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.

Security

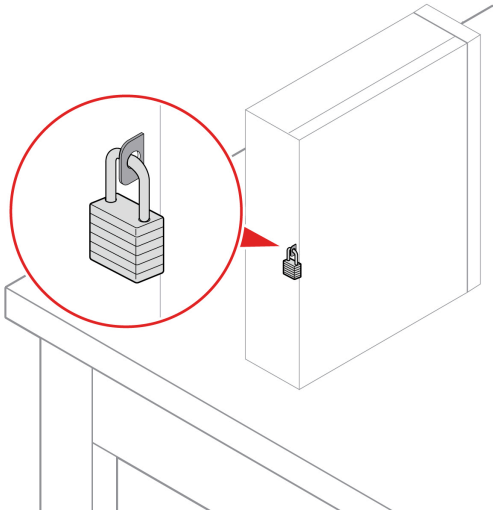
This computer offers a wealth of security measures to protect both the device and data safety.

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.

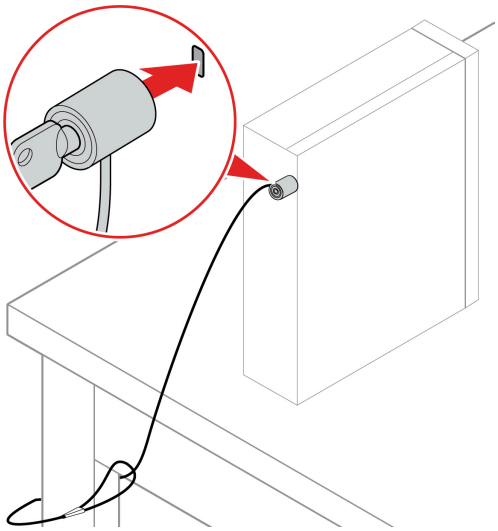
Padlock

Locking the computer cover through a padlock prevents unauthorized access to the inside of your computer.



Security lock

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

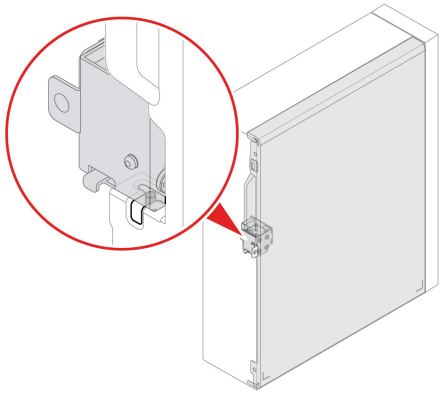


E-lock

Your computer might have a security lock solution installed to protect the computer from unauthorized tampering of the internal components. Using the E-Lock, you can mechanically lock or unlock the computer cover.

To enable or disable the E-Lock:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Security → Electronic Lock** to enable or disable the E-lock.
3. Press F10 or Fn+F10 to save the changes and exit. Your computer will restart automatically and then changes take effect.



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

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.

Absolute Persistence (for computers 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

  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.

Chapter 3. UEFI BIOS

Enter the UEFI BIOS menu

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

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

Navigate the UEFI BIOS menu

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

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

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

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

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.

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.

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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.

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 Vantage app

Follow the instructions to update the UEFI BIOS from the Vantage app.

Step 1. Open the Vantage app, and then click **System Update**.

Step 2. If the latest UEFI BIOS update package is available, follow the on-screen instructions to download and install the package.

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.

ICE performance mode

The ICE performance mode helps you adjust the acoustic and thermal performance of your computer. 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.

Change the ICE performance mode

To change the ICE performance mode:

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

Step 2. Select **Power → Intelligent Cooling** and press Enter.

Step 3. Select **Performance Mode** and press Enter.

Step 4. Set the performance mode as desired.

Step 5. Press F10 or Fn+F10 to save the changes and exit.

Chapter 4. RAID

What is RAID

Redundant Array of Independent Disks (RAID) is a technology that provides increased storage functions and reliability through redundancy. It also can improve data storage reliability and fault tolerance compared with single-drive storage systems. Data loss resulting from a drive failure can be prevented by reconstructing missing data from the remaining drives.

When a group of independent physical storage drives is set up to use RAID technology, they are in a RAID array. This array distributes data across multiple storage drives, but the array appears to the host computer as one single storage unit. Creating and using RAID arrays provides high performance, such as the expedited I/O performance, because several drives can be accessed simultaneously.

Configure RAID with Intel Rapid Storage Technology

If your computer comes with the Intel RSTe configuration utility, you can follow the sections below to configure RAID with Intel RSTe.

Storage drive requirements for RAID levels

Your computer supports the following RAID levels:

- RAID 0: striped disk array
  - Consists of at least two SATA storage drives
  - Supported strip size: 4 KB, 8 KB, 16 KB, 32 KB, 64 KB, or 128 KB
  - Better performance without fault tolerance
- RAID 1: mirrored disk array
  - Consists of two SATA storage drives
  - Improved reading performance and 100% redundancy
- RAID 5 (for M90s Gen 6): block-level striped disk array with distributed parity
  - Consists of at least three SATA storage drives
  - Supported strip size: 16 KB, 32 KB, 64 KB, or 128 KB
  - Better performance and fault tolerance

Create a RAID volume

Attention: All the existing data stored on the selected drives will be erased while the RAID volume is being created.

Step 1. Enable **RAID** by doing the following:

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

b. Select **Devices → Storage Setup** and press Enter.

c. Select **Configure Storage as** and press Enter. Then, select **RAID** and press Enter.

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

Step 2. Enter the BIOS menu again.

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Step 3. Select **Storage Setup → Intel Rapid Storage Technology** and press Enter.

Step 4. Select **Create RAID Volume** and press Enter.

Step 5. Select and configure the options one by one.

a. **Name**: You can use the default name **Volume1** or type a preferred name for the RAID volume.

b. **RAID Level**: You can set the RAID level to one of the following:

- **RAID0(Stripe)**
- **RAID1(Mirror)**
- **RAID5(Parity)**

c. **Select Disks**: Select a storage drive and press Enter. Then, select **X** and press Enter to add it to a group.

d. **Strip Size** (if applicable): Select a strip size and press Enter.

e. **Capacity**: Customize the capacity of the RAID volume. The default RAID volume is the largest value.

Step 6. Select **Create Volume** and press Enter to create a RAID volume.

Step 7. Exit the BIOS menu.

View the information about a RAID volume

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

Step 2. Select **Devices → Storage Setup** and press Enter.

Step 3. Select **Intel Rapid Storage Technology** and press Enter.

Step 4. Select a RAID volume and press Enter to view the detailed information.

Step 5. Press F10 or Fn+F10 to save the changes and exit.

Delete a RAID volume

Attention: All the existing data stored on the selected drives will be erased after you delete RAID volumes.

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

Step 2. Select **Devices → Storage Setup** and press Enter.

Step 3. Select **Intel Rapid Storage Technology** and press Enter.

Step 4. Select a RAID volume and press Enter.

Step 5. Select **Delete** and press Enter. When prompted, select **Yes** and press Enter to confirm the deletion of the selected RAID volume.

Step 6. Press F10 or Fn+F10 to save the changes and exit.

Chapter 5. CRU replacement

What is CRU

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

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

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

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

CRU list

The following is the CRU list of your computer.

Self-service CRUs

- 2.5-inch hard disk drive tray*
- 3.5-inch hard disk drive tray*
- 3.5-inch hard disk drive*
- Air deflector*
- Chassis rubber foot
- Computer cover
- Computer cover screws
- DisplayPort connector cover*
- Dongle DisplayPort to DVI*
- Dongle HDMI to VGA*
- Drive bay assembly
- Dust shield*
- Front bezel
- HDMI connector cover*

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- Heat sink for the M.2 solid-state drive*
- Keyboard*
- M.2 solid-state drive
- M.2 solid-state drive bracket*
- Memory module
- Mouse*
- Optical drive bezel*
- Optical drive latch*
- Optical drive*
- PCI cable lock bracket*
- PCIe slot cover*
- Power cord
- Slim ODD EMI shielding*
- Smart cable clip*
- Smart cable*
- Vertical stand*

Optional-service CRUs

- E-lock*
- PCIe cards*
- Power supply assembly

* for selected models

Tool-less replacement

You can remove or replace the devices of this computer without tools.

Related topics

- “Vertical stand” on page 29.
- “Air deflector” on page 29.
- “Dust shield” on page 30.
- “Optical drive and optical drive latch” on page 39.
- “Optical drive bezel” on page 40.
- “Front bezel” on page 42.
- “Drive bay assembly” on page 45.
- “3.5-inch hard disk drive and its tray” on page 32.
- “2.5-inch hard disk drive tray” on page 33.
- “Slim ODD EMI shielding” on page 34.
- “PCIe slot cover” on page 36.
- “Memory module” on page 46.
- “M.2 solid-state drive” on page 36.
- “M.2 solid-state drive bracket” on page 33.

- “PCIe cards” on page 43.

Vertical stand

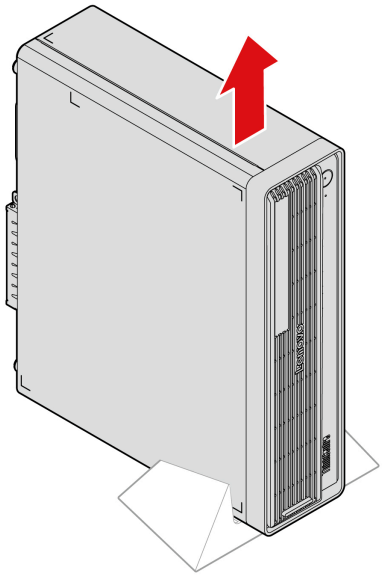
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

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.

Step 1. Pick up the computer and remove the vertical stand.

Step 2. Install the new vertical stand in reverse order.

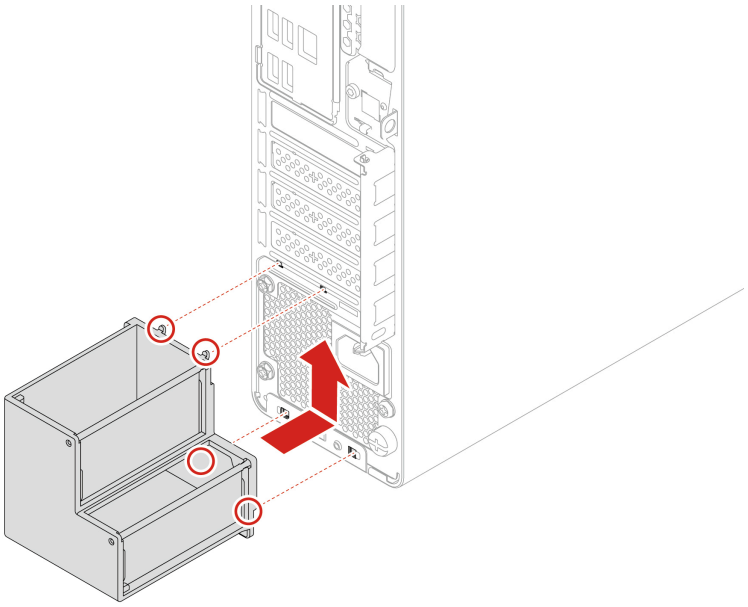


Air deflector

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

For access, disconnect all power cords from electrical outlets and disconnect all cables from the computer.

Push the air deflector toward the center of the rear panel to remove it.



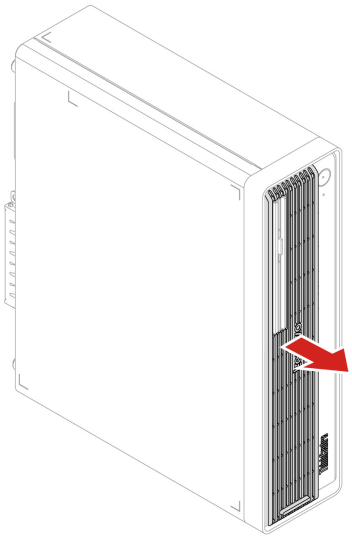
Dust shield

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

For access, remove the “Vertical stand” on page 29.

Step 1. Gently pull the dust shield out of the front bezel.

Step 2. Install the new dust shield in reverse order.



Computer cover

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. Remove any media from the drives and turn off all connected devices and the computer.
2. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
3. Unlock any locking device that secures the computer cover.
4. Remove the following parts in order, if any:
   a. “Vertical stand” on page 29
   b. “Dust shield” on page 30
   c. “Air deflector” on page 29
5. Lay down the computer to place the computer cover facing up.

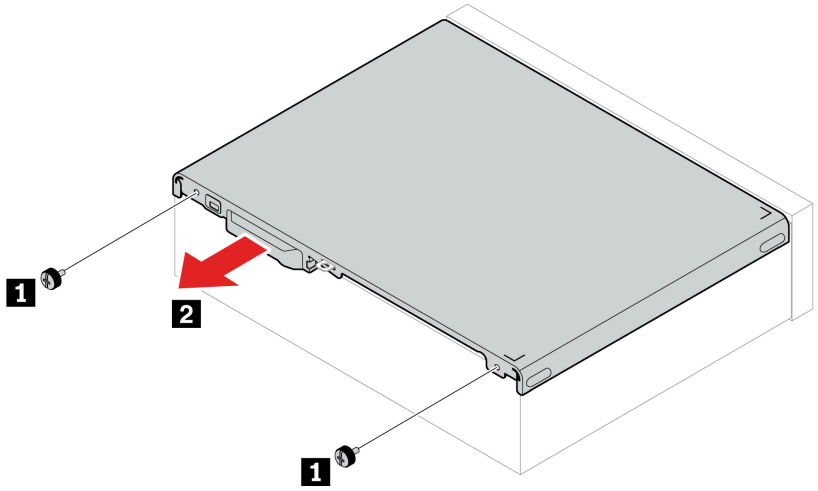
Step 1. Remove the two screws which secure the computer cover to the chassis. Find screw specification like torque in the following screw table.

Screw	Quantity	Torque
M6–32 x L7.5 mm, Ni coated	2 pcs	3 ± 0.5 lb/in

Step 2. Remove the computer cover.

Step 3. Install the new computer cover in reverse order.

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



3.5-inch hard disk drive and its tray

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 these parts in order if any:
   a. “Computer cover” on page 31.
   b. “Optical drive and optical drive latch” on page 39.
   c. “Front bezel” on page 42
   d. “Drive bay assembly” on page 45
2. Disconnect the signal cable and the power cable from the hard disk drive.

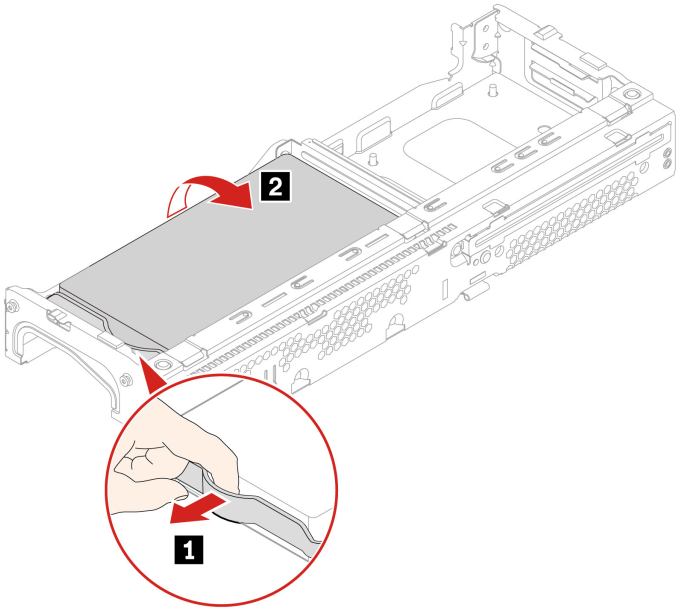
Step 1. Pivot the hard disk drive tray upward.

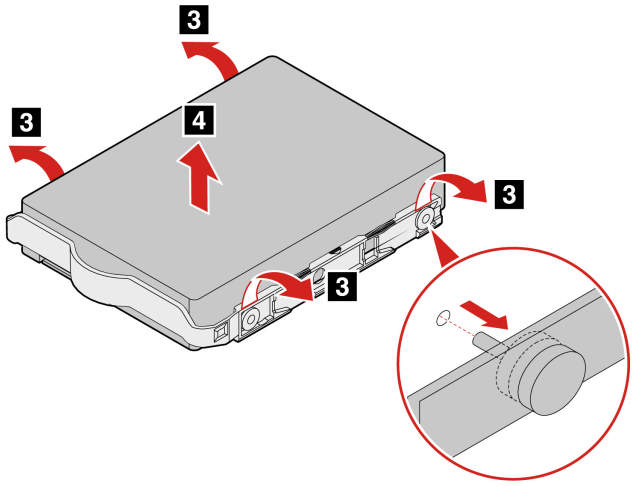
Step 2. Remove it from the drive bay assembly.

Step 3. Release the hard disk drive from its tray.

Step 4. Remove the hard disk drive.

Step 5. Install the new hard disk drive or the new hard disk drive tray in reverse order.





2.5-inch hard disk drive tray

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

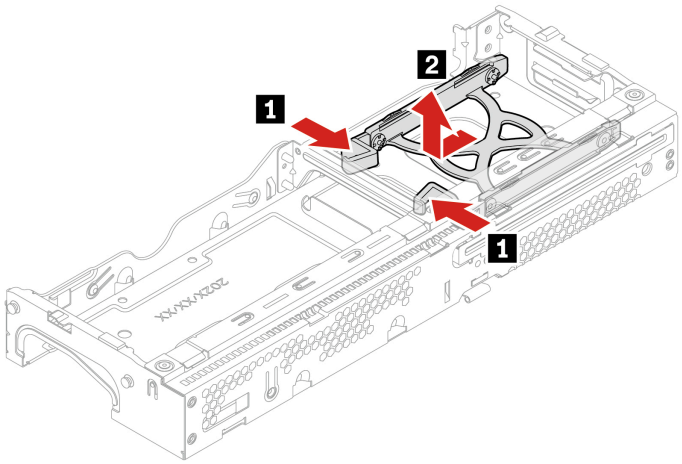
For access, remove these parts in order if any:

1. “Computer cover” on page 31.
2. “Optical drive and optical drive latch” on page 39.
3. “Front bezel” on page 42
4. “Drive bay assembly” on page 45

Step 1. Release the hard disk drive tray from the drive bay assembly by pinching the two latches on end of the hard disk drive tray.

Step 2. Remove the hard disk drive tray.

Step 3. Install the new hard disk drive tray in reverse order.



M.2 solid-state drive bracket

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

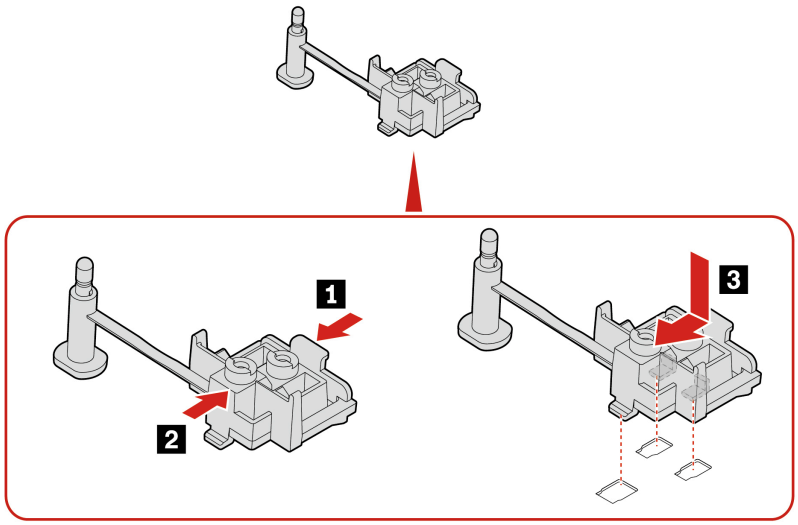
For access, remove these parts in order if any:

1. “Computer cover” on page 31.
2. “Optical drive and optical drive latch” on page 39.
3. “Front bezel” on page 42
4. “Drive bay assembly” on page 45
5. “M.2 solid-state drive” on page 36

Step 1. Release the M.2 solid-state drive bracket from chassis by pushing its retaining clip toward the chassis.

Step 2. Remove the M.2 solid-state drive bracket.

Step 3. There are three holes on the chassis to locate the M.2 solid-state drive bracket. Insert the new M.2 solid-state drive bracket into the three holes.



Slim ODD EMI shielding

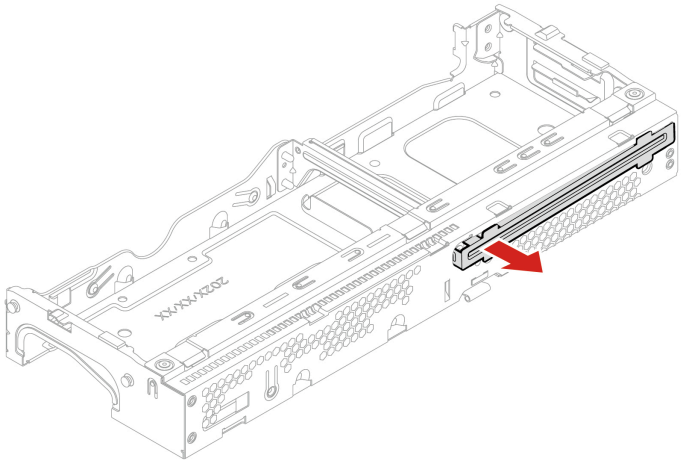
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, remove these parts in order if any:

1. “Computer cover” on page 31.
2. “Optical drive and optical drive latch” on page 39.
3. “Front bezel” on page 42

Step 1. Push the slim ODD EMI shielding outwards to remove it.

Step 2. Install the new one in reverse order.



E-lock

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

For access, do the following:

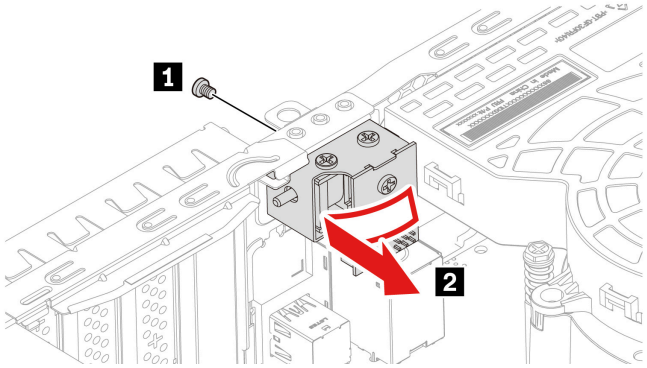
- Remove these parts in order if any:
  - “Computer cover” on page 31
  - “PCIe cards” on page 43
- Disconnect the E-lock cable from the system board

Step 1. Use a special tool (T15 star wrench) to remove the screw which secures the E-lock to the chassis. Find screw specification like torque in the following screw table.

Screw	Quantity	Torque
M3 x L5-T15-SCREW	1 pc	5 ± 0.5 lb/in

Step 2. Pull the E-lock toward the PCIe card to remove it.

Step 3. Install the new E-lock in reverse order.



PCIe slot cover

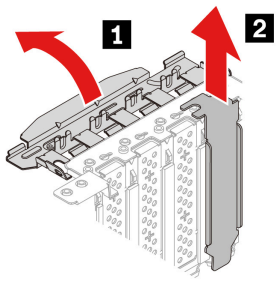
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, remove the “Computer cover” on page 31 first.

Step 1. Pivot the PCIe slot cover outwards.

Step 2. Remove the PCIe slot cover.

Step 3. Install the new one in reverse order.



M.2 solid-state drive

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

The 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.

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, remove these parts in order if any:

1. “Computer cover” on page 31.
2. “Optical drive and optical drive latch” on page 39.
3. “Front bezel” on page 42
4. “Drive bay assembly” on page 45

Type-1 M.2 solid-state drive

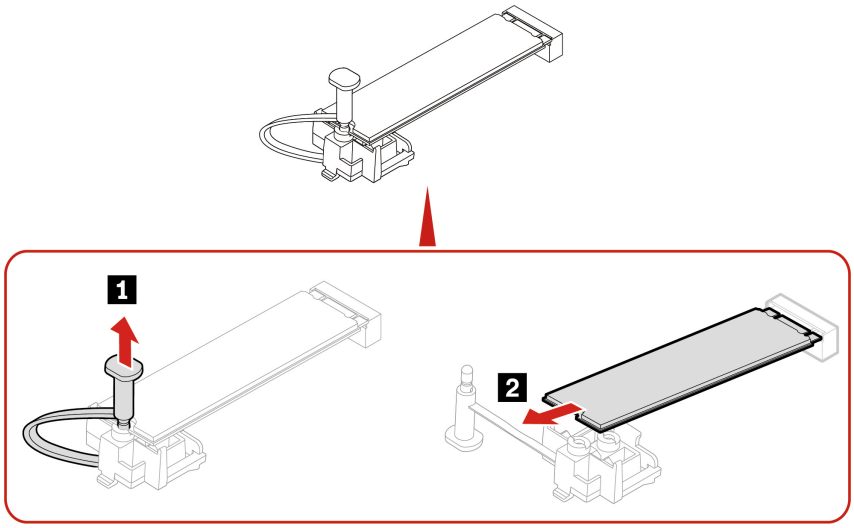
The type-1 M.2 solid-state drive is installed on the system board.

Step 1. Release the M.2 solid-state drive from the system board by pulling the SSD clip out of its holder.

Step 2. Remove the M.2 solid-state drive and thermal pad (if any).

Step 3. Install the new M.2 solid-state drive in reverse order.

Note: Remove the film that covers the thermal pad (if any) when installing the M.2 solid-state drive, heat sink, and thermal pad.



Type-2 M.2 solid-state drive

The type-2 M.2 solid-state drive is installed in its heatsink, and the heatsink is installed on the system board.

Step 1. Release the heatsink from the system board by pulling the SSD clip out of its holder.

Step 2. Remove the heatsink.

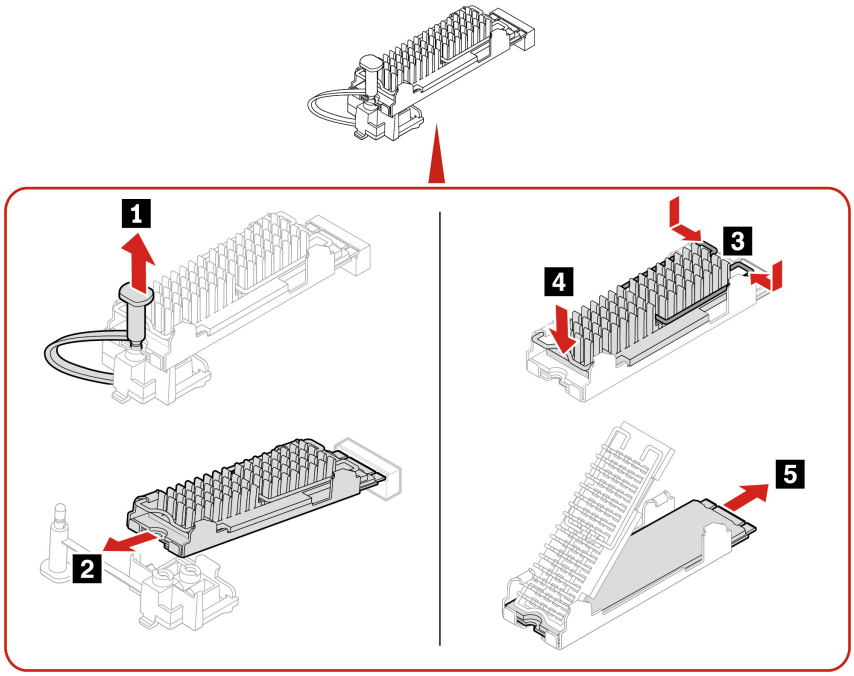
Step 3. Pinch the two latches on top of the heatsink.

Step 4. Press the other end of the heatsink downward.

Step 5. Remove the M.2 solid-state drive and thermal pad (if any).

Step 6. Install the new M.2 solid-state drive in reverse order.

Note: Remove the film that covers the thermal pad (if any) when installing the M.2 solid-state drive, heat sink, and thermal pad.



Type-3 M.2 solid-state drive

The type-3 M.2 solid-state drive is installed in its heatsink, and the heatsink is installed on the system board.

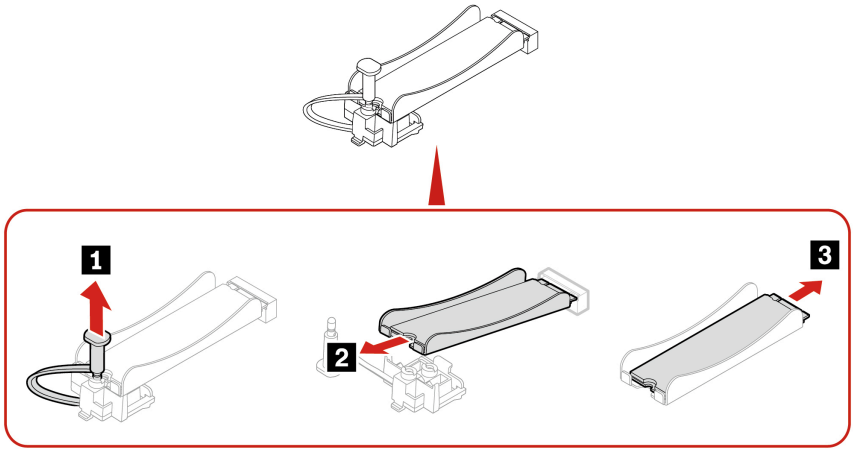
Step 1. Release the heatsink from the system board by pulling the SSD clip out of its holder.

Step 2. Remove the heatsink.

Step 3. Remove the M.2 solid-state drive and thermal pad (if any).

Step 4. Install the new M.2 solid-state drive in reverse order.

Note: Remove the film that covers the thermal pad (if any) when installing the M.2 solid-state drive, heat sink, and thermal pad.



Optical drive and optical drive latch

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

For access, do the following:

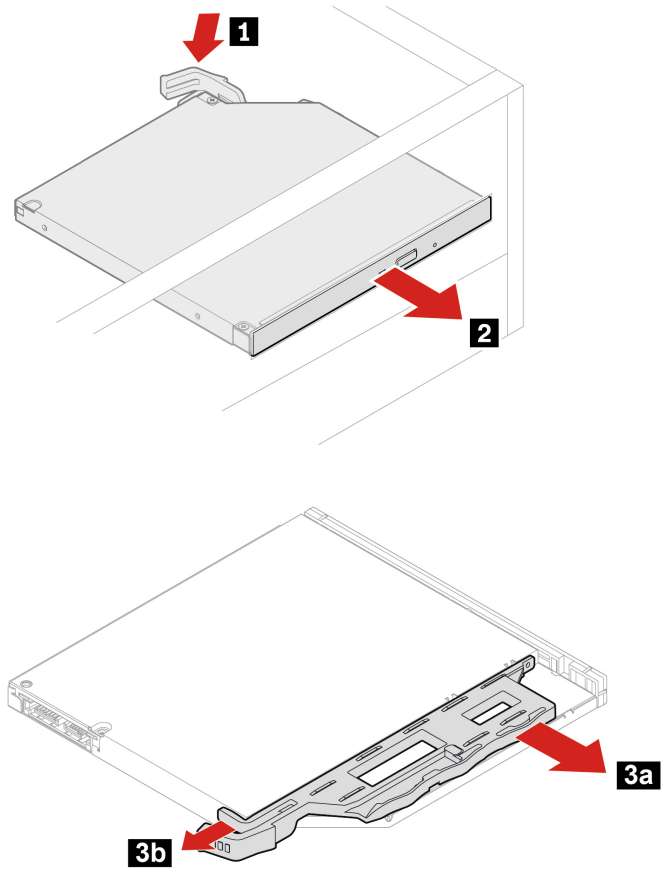
1. Remove the “Computer cover” on page 31.
2. Disconnect the signal and power cable from the optical drive.

Removal steps

Step 1. Push the optical drive latch toward the front panel of the computer.

Step 2. Remove the optical drive.

Step 3. Pull the optical drive latch out of the optical drive.

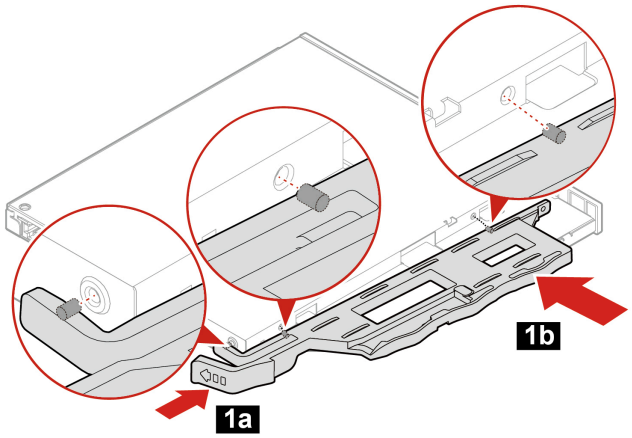


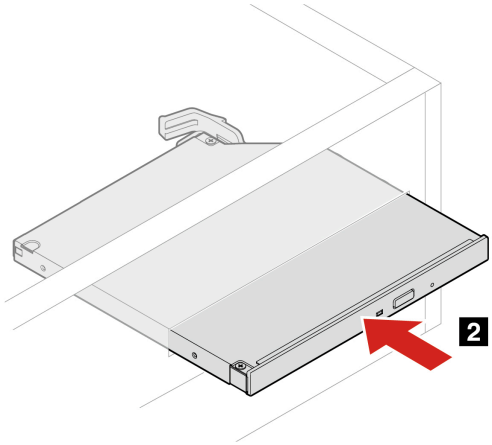
Installation steps

There are three holes on the optical drive to locate the optical drive latch.

Step 1. Install the optical drive latch to the optical drive and make sure that it is inserted into these holes.

Step 2. Insert the optical drive to the chassis.





Optical drive bezel

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

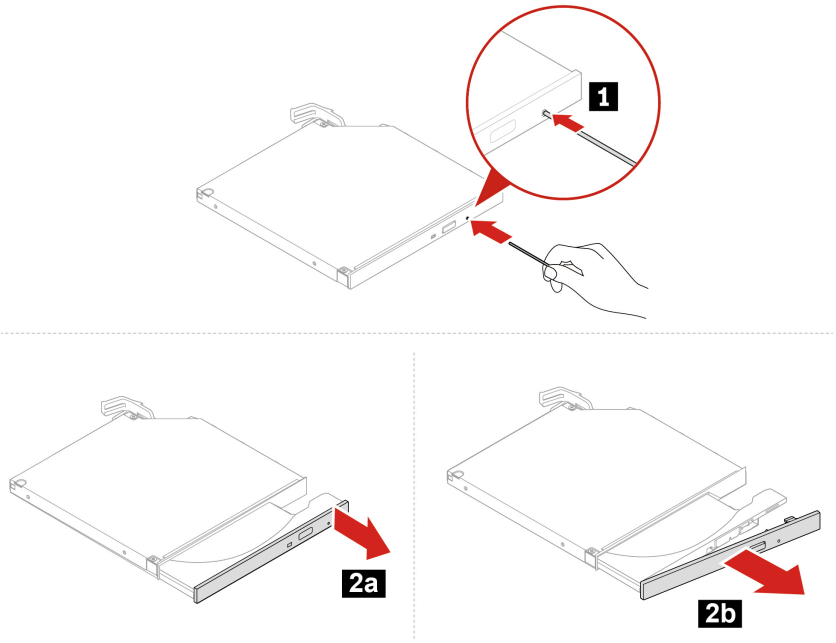
For access, do the following:

1. Remove the “Computer cover” on page 31.
2. Remove the “Optical drive and optical drive latch” on page 39.

Removal steps

Step 1. Use an ejector like paper clip to eject the optical drive tray.

Step 2. Remove the optical drive bezel from the optical drive.

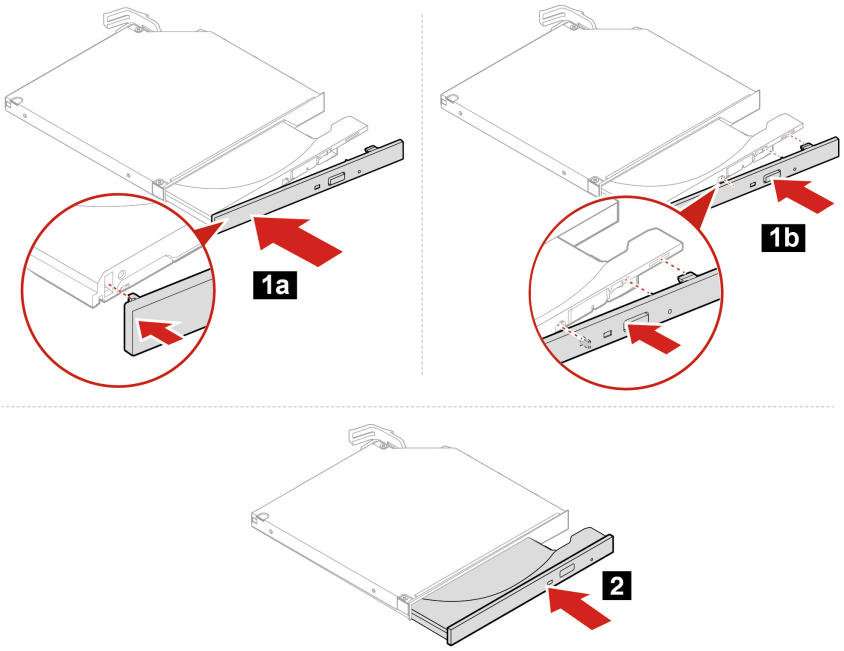


Installation steps

There are four holes on the optical drive tray to locate the optical drive bezel.

Step 1. Install the optical drive bezel to the optical drive tray, and make sure that it is inserted into these holes.

Step 2. Install the optical drive tray back to the optical drive.



Front bezel

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

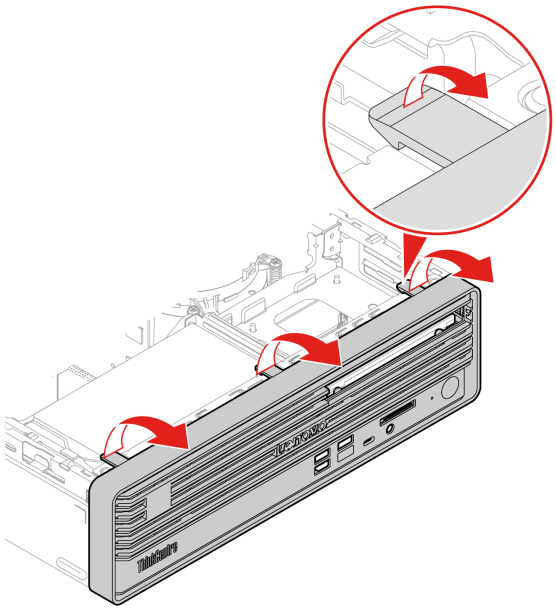
For access, remove these parts in order if any:

1. “Computer cover” on page 31.
2. “Optical drive and optical drive latch” on page 39.

Removal steps

Step 1. Release three elastic hooks from the top of the front bezel.

Step 2. Pivot the front bezel upward and remove it.

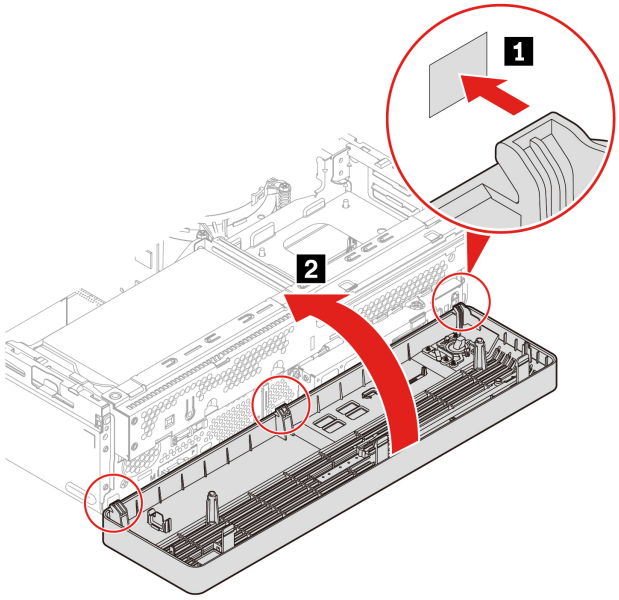


Installation steps

There are three swivel hooks at the bottom of the front bezel. and there are three hook slots at the bottom of the front panel.

Step 1. Insert the three swivel hooks to each hook slot.

Step 2. Pivot the front bezel inwards to install it to the chassis.



PCIe cards

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

Installation rule:

Install the graphics card to the PCIe slot 1 shown in the following illustration.

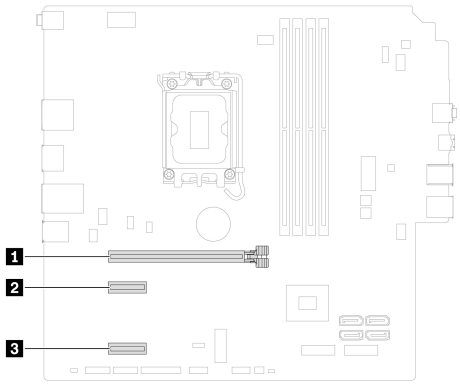


Figure 1. Illustration of PCIe slot location of M70s Gen 6

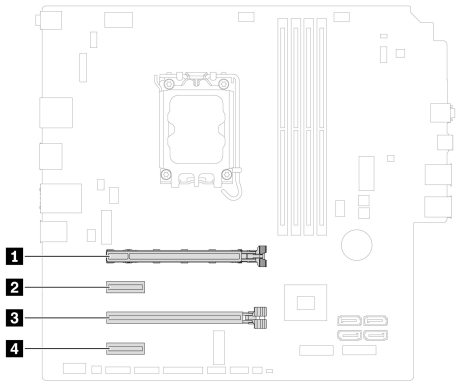


Figure 2. Illustration of PCIe slot location of M90s Gen 6

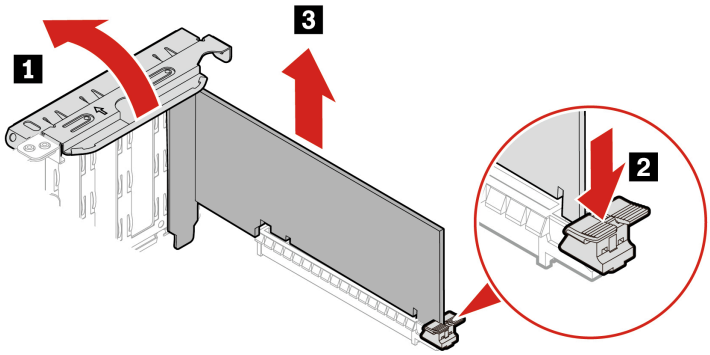
For access, remove the “Computer cover” on page 31 first.

Removal steps

Step 1. Pivot the PCIe latch outwards.

Step 2. Press the retaining latch at the end of PCIe slot to unsecure PCIe card.

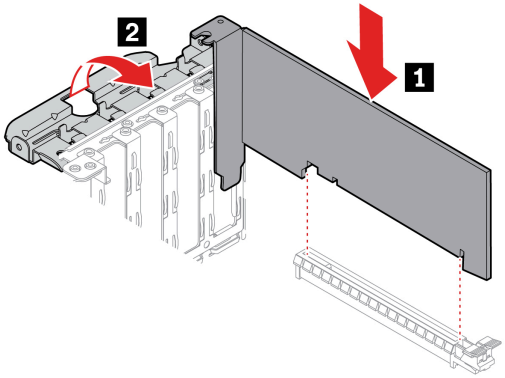
Step 3. Gently pull the PCIe card out of the PCIe slot.



Installation steps

Step 1. Align the PCIe card to the slot and press down until the retaining latch is fully engaged with a click.

Step 2. Pivot the PCIe latch inwards.



Drive bay assembly

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

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

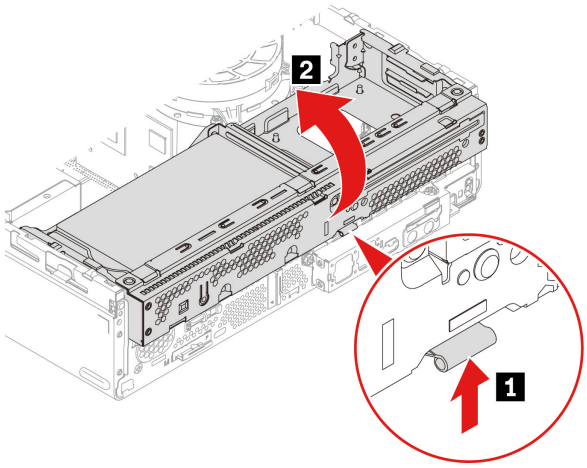
For access, remove these parts in order if any:

1. “Computer cover” on page 31.
2. “Optical drive and optical drive latch” on page 39.
3. “Front bezel” on page 42

Removal steps

Step 1. Release the drive bay assembly from the chassis by pulling the retaining clip upward.

Step 2. Pivot the drive bay assembly upward, then remove it.

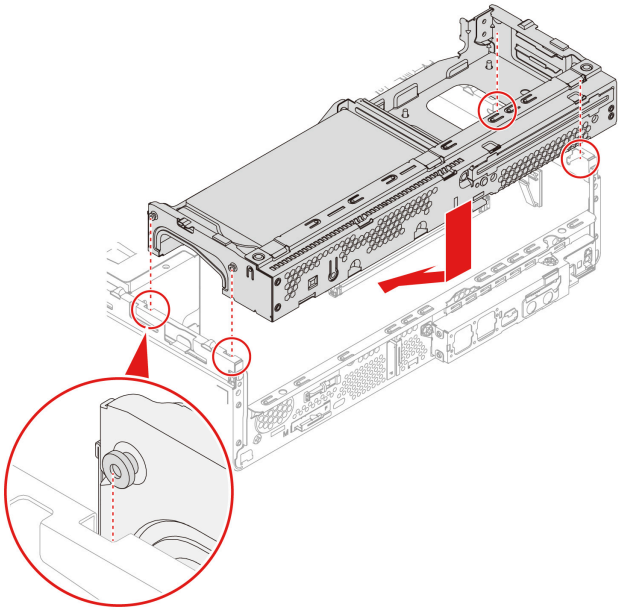


Installation steps

There are four holes on the chassis to locate the drive bay assembly.

Step 1. Insert the drive bay assembly into the four holes.

Step 2. Press down the drive bay assembly.

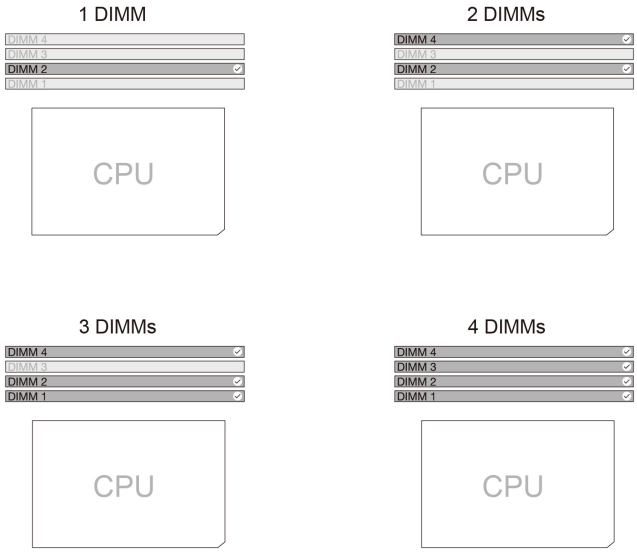


Memory module

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

Ensure that you install memory modules in the order shown in the following illustration.

Note: Priority order: DIMM 2 slot, DIMM 4 slot, DIMM 1 slot, then DIMM 3 slot.



For access, remove these parts in order if any:

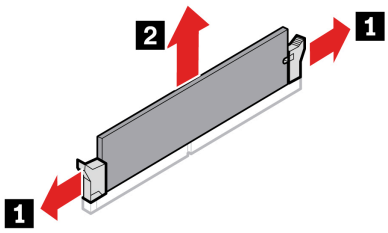
1. “Computer cover” on page 31.

2. “Optical drive and optical drive latch” on page 39.
3. “Front bezel” on page 42
4. “Drive bay assembly” on page 45

Removal steps

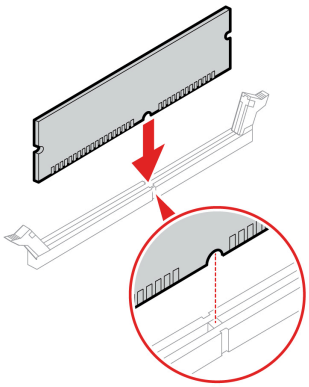
Step 1. Open the two retaining clips.

Step 2. Gently pull the memory module out of the memory slot.



Installation steps

Align the memory module to the slot and press down on both ends until the latches are fully engaged with a click.



Power supply assembly

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

Although there are no moving parts in the computer after the power cord has been disconnected, the following warnings are required for your safety.

Keep fingers and other parts of your body away from hazardous, moving parts. If you suffer an injury, seek medical care immediately. Never remove the cover on a power supply or any part that has the following label attached.

Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

For access, do the following:

1. Remove these parts in order if any:
   a. “Computer cover” on page 31.
   b. “Optical drive and optical drive latch” on page 39.
   c. “Front bezel” on page 42
   d. “Drive bay assembly” on page 45
2. Disconnect the power supply assembly cables from the system board.

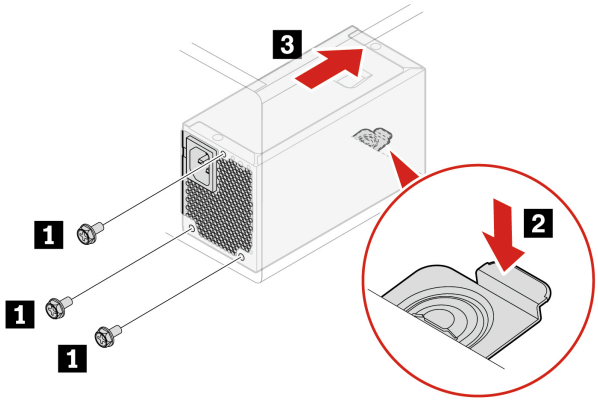
Step 1. Remove the three screws which secure the power supply assembly to the chassis. Find screw specification like torque in the following screw table.

Screw	Quantity	Torque
Screw, #6-32 x L8, Hexhead	3 pcs	5 ± 0.5 lb/in

Step 2. Press the retaining clip from inside of the chassis.

Step 3. Push the power supply assembly inwards to remove it.

Step 4. Install the new power supply assembly in reverse order.



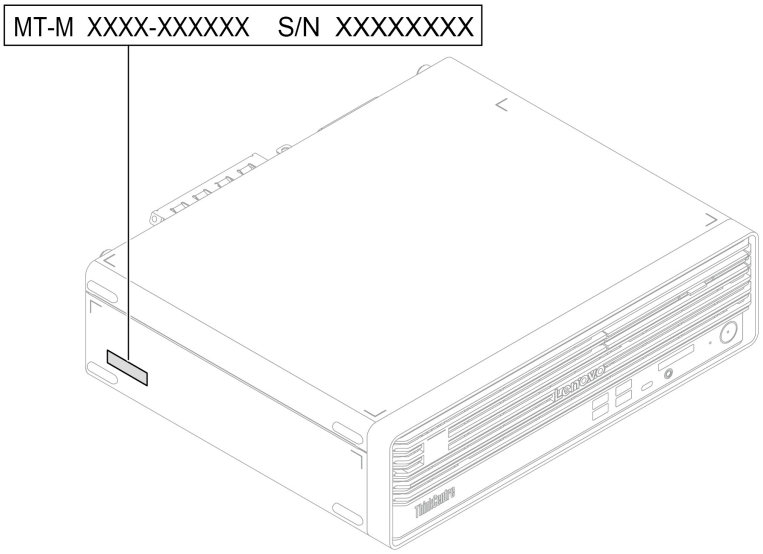
Chapter 6. Help and support

Find your serial number

This topic helps you find computer serial number.

You can find your serial number via:

- **Dashboard** or **Device** in the **Vantage** app
- Bottom 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	• Your computer is installed with the Vantage app. • You want to perform basic examinations of the hardware components.

Troubleshoot and diagnose at Lenovo Support Web site

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

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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.

For computers purchased outside mainland China

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

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	• For computers purchased in mainland China https://www.lenovo.com.cn • For computers purchased outside mainland China https://pcsupport.lenovo.com
Tips	• For computers purchased in mainland China https://iknow.lenovo.com.cn • For computers purchased outside mainland China https://www.lenovo.com/tips

Resources	How to access?
Lenovo Community	• For computers purchased in mainland China https://iknow.lenovo.com.cn • For computers purchased outside mainland China https://forums.lenovo.com
Accessibility information (for computers purchased outside China)	https://www.lenovo.com/accessibility
Windows help information	• Open the Start menu and click **Get Help** or **Tips**. • Use Windows Search. • Microsoft support Web site: https://support.microsoft.com

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.

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

효율관리기자재 소비전력량

효율관리기자재 표시사항	소비효율 정보 **(ThinkCentre M70s Gen 6)**	소비효율 정보 **(ThinkCentre M90s Gen 6)**
컴퓨터 유형	D	D
연간소비 전력량 (kWh)	59.5	67.5
슬립모드 소비전력 (W)	1.25	1.13
오프모드 소비전력 (W)	0.89	0.9

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