

User Guide

Lenovo
ThinkCentre



Lenovo

ThinkCentre M70q Gen 6, ThinkCentre M90q Gen 6

Read this first

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

- *Safety and Warranty Guide*
- *Generic Safety and Compliance Notices*
- *Setup Guide*

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Discover your Lenovo computer

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

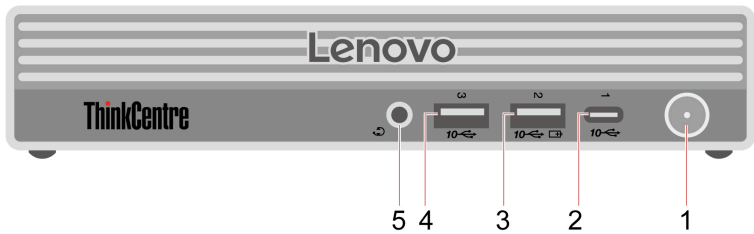
Before starting your tour, please read the following information:

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

Chapter 1. Meet your computer

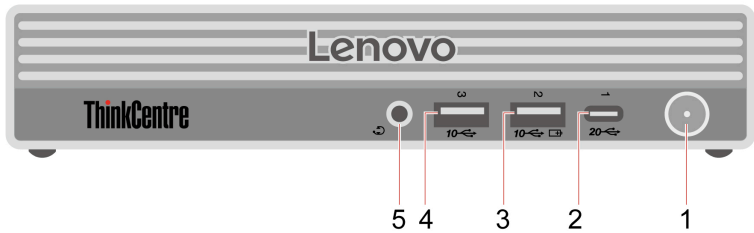
Front

M70q Gen 6



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

M90q Gen 6



Item	Description	Item	Description
1	Power button with power indicator	2	USB-C® connector (USB 20Gbps)
3	USB-A connector (USB 10Gbps, Always On USB)	4	USB-A connector (USB 10Gbps)
5	Headset connector		

Note: For more information about the USB connector name update, see Appendix C “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.

- **Blinking for three times:** The computer is initially connected to power.
- **On:** The computer is starting up or working.
- **Off:** The computer is off or in hibernation mode.
- **Blinking rapidly:** The computer is entering sleep or hibernation mode.
- **Blinking slowly:** The computer is in sleep mode.

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.

To enable the Always On USB feature, do the following:

1. Enter the UEFI BIOS menu. See “Enter the UEFI BIOS menu” on page 19.
2. Click **Devices → USB Setup → Front USB Ports → USB Port 2** to enable the Always On USB feature.

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

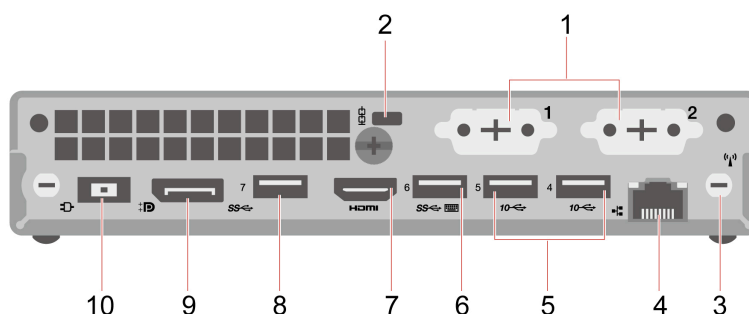
Note: This headset connector does not support standalone external microphones with a TRS (3-pole) plug or headsets with an OMTP-compliant TRRS (4-pole) plug.

Related topics

- “USB specifications” on page 6.

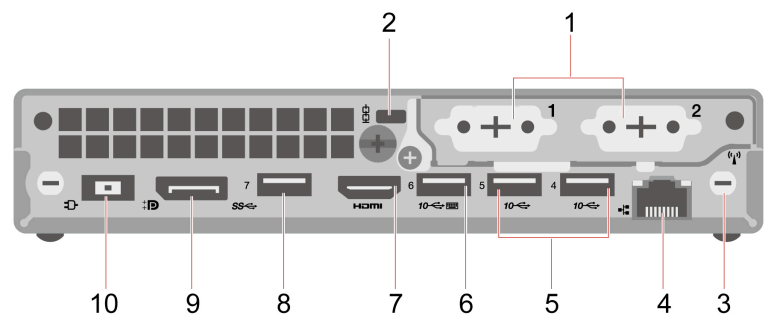
Rear

M70q Gen 6



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

M90q Gen 6



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

* for selected models

Optional connector

Depending on the computer model, the connector might be one of the following:

- DisplayPort out connector
- Ethernet connector
- HDMI out connector
- Serial connector
- Thunderbolt connector
- Two-port USB-A connector (USB 10Gbps) (only for M90q Gen 6)
- Four-port USB-A connector (USB 10Gbps) (only for M90q Gen 6)
- USB-C connector (USB 10Gbps) (only for optional connector 1)
- VGA-out connector

Related topics

- “Change display settings” on page 8.
- “Lock the computer” on page 15.
- “Smart power-on feature (for selected models)” on page 13.
- “USB specifications” on page 6.

Features and specifications

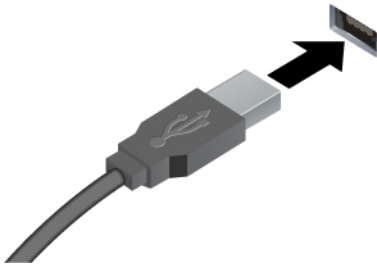
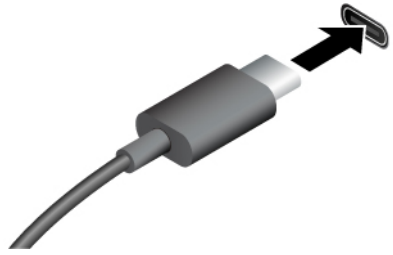
Specifications	Description
Dimensions	• Width: 36.5 mm (1.4 inches) • Height: 179 mm (7 inches) • Depth: 182.9 mm (7.2 inches)
Weight (without packaging)	Maximum configuration as shipped: • M70q Gen 6: 1.21 kg (2.67 lb) • M90q Gen 6: 1.36 kg (3 lb)
Hardware configuration	• For Ubuntu® operating system: 1. Open the system menu from the top-right corner and click . 2. Click System → About. • For IGEL® operating system: 1. Click the IGEL icon in the bottom-left corner to open the start menu. 2. Click the gear icon in the Quick Start Panel, then click System Information to open it.
Power supply	• 65-watt automatic voltage-sensing power supply • 90-watt automatic voltage-sensing power supply • 135-watt automatic voltage-sensing power supply • 230-watt automatic voltage-sensing power supply (only for M90q Gen 6)
Electrical input	• Input voltage: From 100 V ac to 240 V ac • Input frequency: 50/60 Hz
Microprocessor	To view the microprocessor information of your computer: • For Ubuntu operating system: 1. Open the system menu from the top-right corner and click . 2. Click System → About. • For IGEL operating system: Enter System Information and click Devices → Processor.
Memory	Up to two double data rate 5 (DDR5) small outline dual in-line memory modules (SODIMMs) Maximum memory capacity: 64 GB
Storage device	M.2 solid-state drive To view the storage drive capacity of your computer: • For Ubuntu operating system: Type Disks in the search box and use the Disks application. • For IGEL operating system: Type lsblk /dev/igfbboot in Local Terminal. Note: The storage drive capacity indicated by the system is less than the nominal capacity.

Specifications	Description
Video features	- The integrated graphics card supports the following: - DisplayPort out connector - HDMI out connector - VGA-out connector* - The optional discrete graphics card provides an enhanced video experience and extended capabilities.
Expansion	- Memory slots - M.2 solid-state drive slots - PCI-Express slot (only for M90q Gen 6)
Network features	- Bluetooth* - Ethernet LAN - Wireless LAN*

* for selected models

USB specifications

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

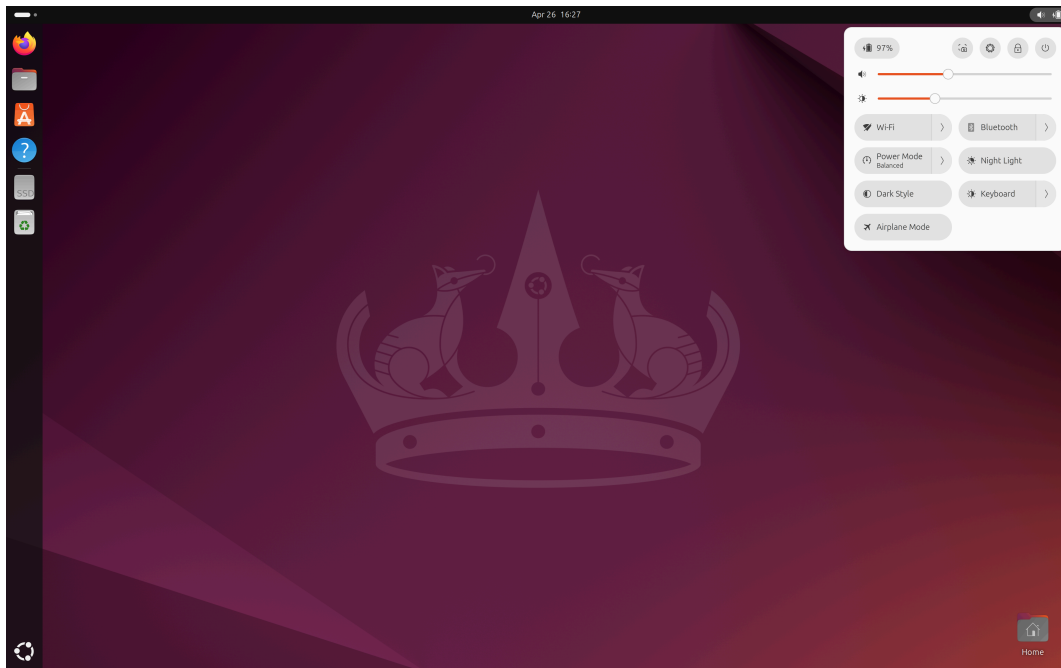
Connector name	Description
  USB-A connector (Hi-Speed USB)  USB-A connector (USB 10Gbps)	Connect USB-A compatible devices, such as a USB-A keyboard, USB-A mouse, USB-A storage device, or USB-A printer.
  USB-C connector (USB 10Gbps)  USB-C connector (USB 20Gbps)	- Charge USB-C compatible devices with 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.

Chapter 2. Get started with your computer

Get started with Ubuntu Desktop

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

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



Launch an app

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

Launch settings

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

Access networks

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

Connect to the wired Ethernet

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

Connect to Wi-Fi networks (for selected models)

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

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

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.

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 5 minutes
- Put the computer to sleep: After 20 minutes

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

To set the power plan:

1. Go to **Settings → Power**.
2. Choose or customize a power plan of your preference.

Note: Disabling automatic suspend will result in higher power consumption. It is recommended to keep automatic suspend enabled.

Transfer data

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

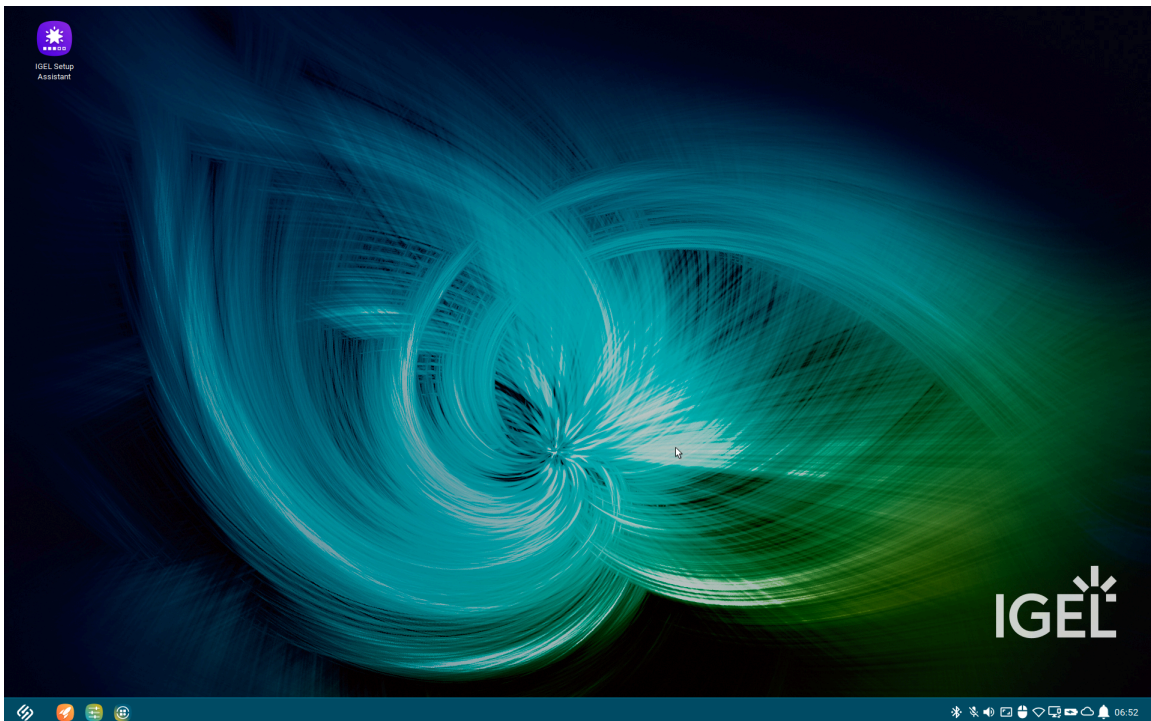
Connect to a Bluetooth-enabled device (for selected models)

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



1. Open the system menu from the top-right corner and turn on the Bluetooth by clicking **Bluetooth** button.
2. Click > to expand the Bluetooth section of the menu. A list of discoverable devices is displayed.
3. Select a Bluetooth device, and then follow the on-screen instructions.

Get started with IGEL desktop



Launch an app

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

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

Launch settings

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

Get support

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

Access networks

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

Connect to Wi-Fi networks (for selected models)

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



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

Notes: Ensure that the Wireless Manager is enabled:

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

For more details on managing Wi-Fi networks, see https://kb.igel.com/base_system/12.4/en/wi-fi-networks-122896032.html.

Advanced settings are available under **Setup → Network → Wireless**. For more details, see https://kb.igel.com/base_system/12.4/en/wireless-122896021.html.

Airplane mode

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

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

Connect an external display

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

Connect to a wired display and change display settings

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

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

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

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

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

For more details on using Display Switch tool, see https://kb.igel.com/base_system/12.4/en/display-settings-122896709.html.

Set the display mode

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

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 15 minutes
- Put the computer to suspend: After 20 minutes

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

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

1. Click the gear icon in the Quick Start Panel to open Setup.
2. Select **System** → **Power Options** → **System**.
3. Choose or customize a power plan of your preference.

Transfer data

Quickly share your files using the built-in Bluetooth technology among devices with the same features.

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

You can connect all types of Bluetooth-enabled devices to your computer, such as a keyboard, a mouse, a smartphone, or speakers. To ensure the connection is successful, place the devices 10 meters (33 feet), at most, from the computer.

1. Turn on Bluetooth on the computer:
 - a. Click the gear icon in the Quick Start Panel to open Setup.
 - b. Select **Devices** → **Bluetooth** and enable Bluetooth.
2. Use the Bluetooth tool to connect to a Bluetooth-enabled device:
 - a. Click the grid icon to open Application Launcher.
 - b. Click the gear icon and choose **Bluetooth Tool**.

For more details on using the Bluetooth tool, see https://kb.igel.com/base_system/12.4/en/bluetooth-122896116.html.

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

Chapter 3. Explore your computer

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.

Purchase accessories

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

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

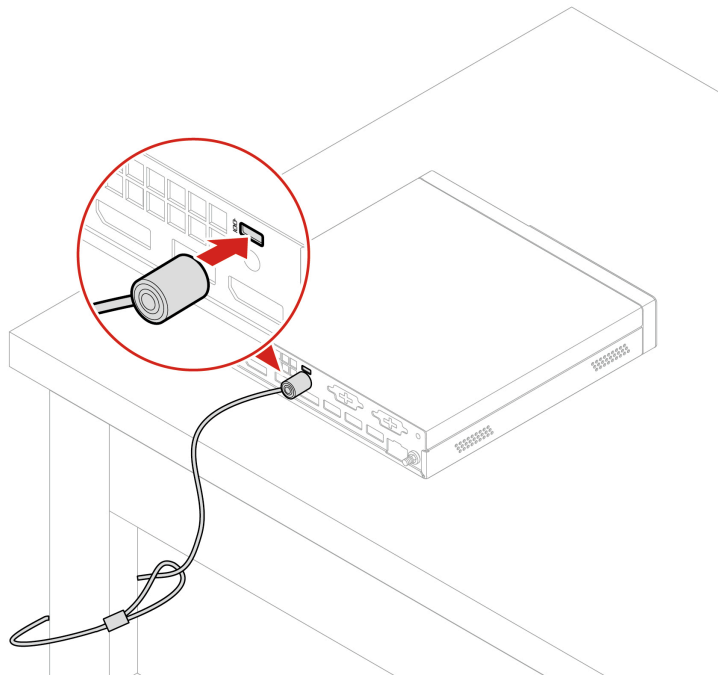
Chapter 4. Secure your computer and information

Lock the computer

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

Security lock

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



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.

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 15.
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

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.

Chapter 5. UEFI BIOS

Enter the UEFI BIOS menu

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

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

Navigate the UEFI BIOS menu

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

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

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

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

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

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

Enable or disable the ErP LPS compliance mode

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

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

To enable or disable the ErP LPS compliance mode:

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

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

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

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

Update UEFI BIOS

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

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

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

Chapter 6. CRU replacement

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

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

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

https://www.lenovo.com/warranty/llw_02

CRU list

The following is the CRU list of your computer.

Self-service CRUs

- ac power adapter
- Bottom cover (only for M90q Gen 6)
- Computer cover
- Dust filter*
- External Wi-Fi antenna*
- Keyboard*
- M.2 solid-state drive*
- Memory module
- Mouse*
- Power adapter cage*
- Power cord
- Thumb screw
- Vertical stand*
- VESA mount bracket*

Optional-service CRUs

- Chassis rubber
- I/O bracket* (only for M90q Gen 6)
- Internal speaker
- M.2 solid-state drive clip*
- Optional card module*

- PCI-Express card and PCI-Express converter* (only for M90q Gen 6)
- System fan and heat sink
- ThinkCentre LED cable

* for selected models

Remove or replace a CRU

This section provides instructions on how to remove or replace a CRU.

Power cord and ac power adapter

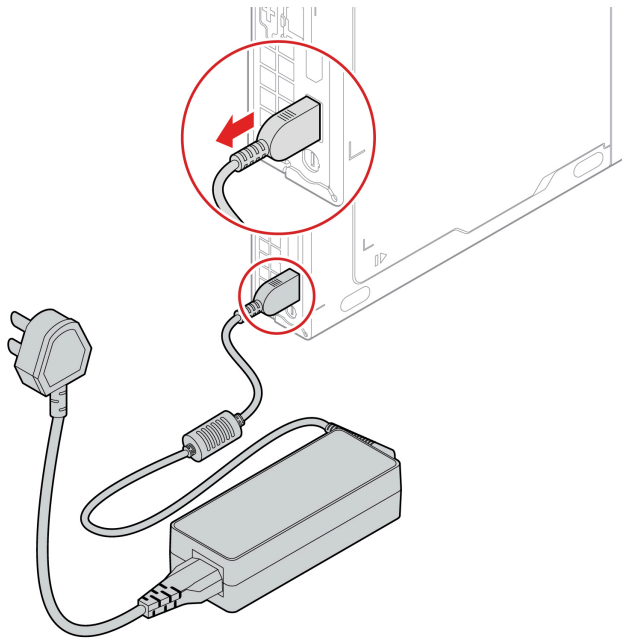
Prerequisite

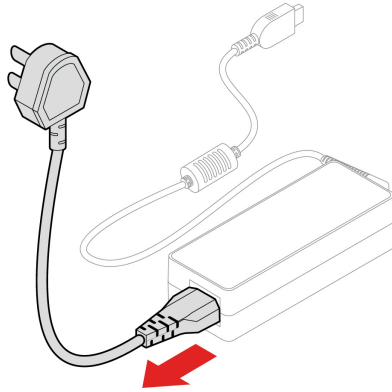
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

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





Power adapter cage

Prerequisite

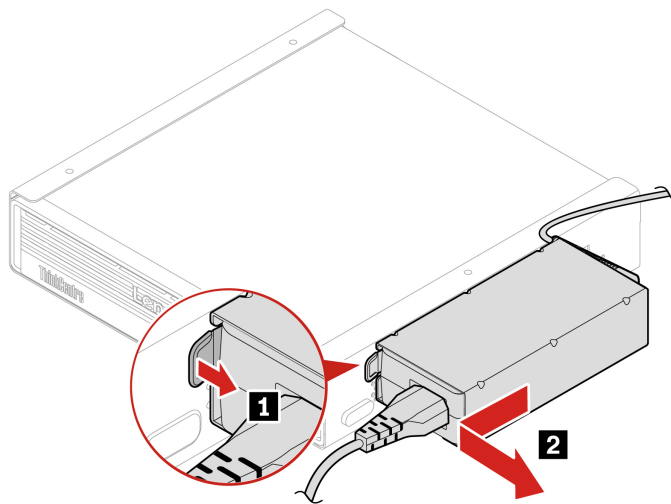
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

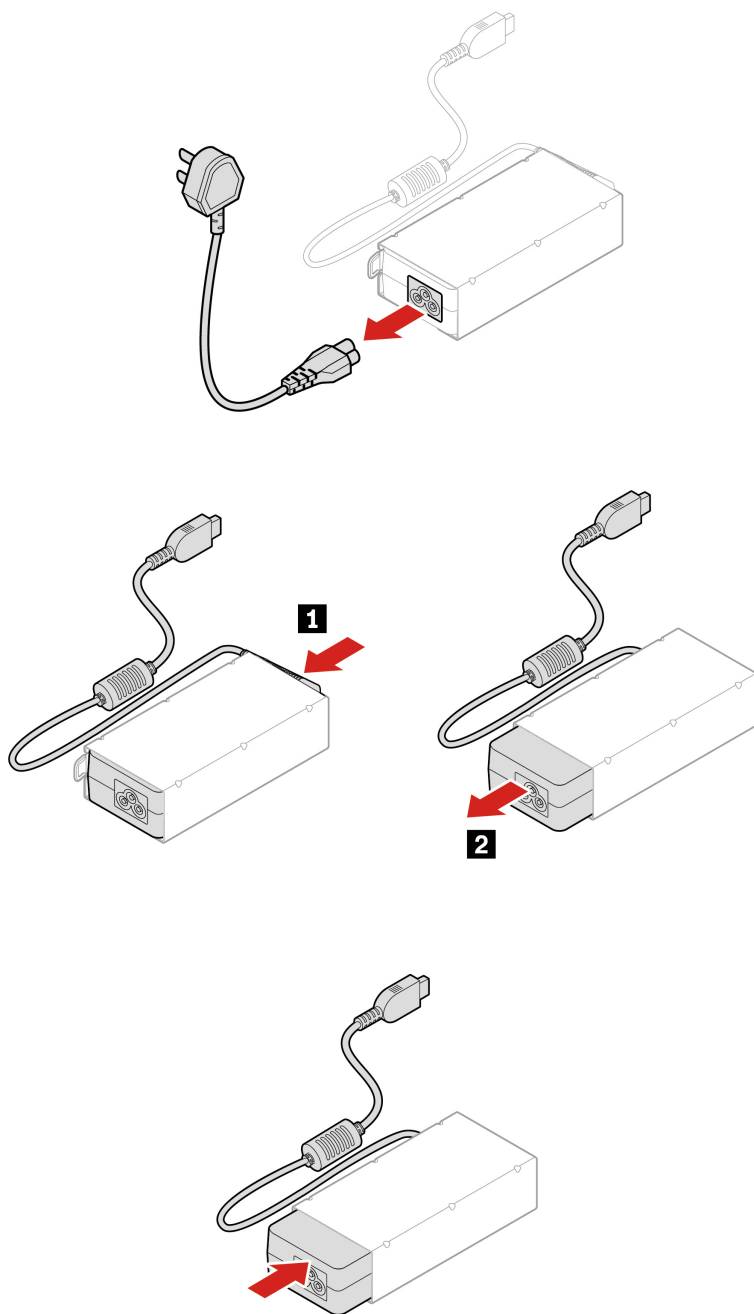
For access, do the following:

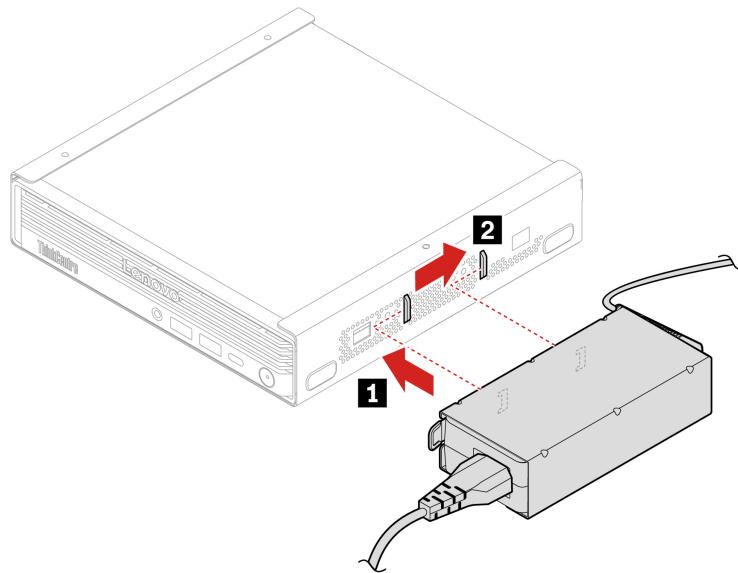
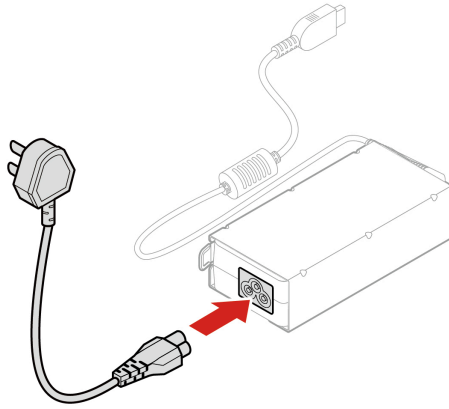
1. Turn off the computer and remove all connected devices and cables.
2. Disconnect the computer from ac power and all connected cables.

Replacement procedure

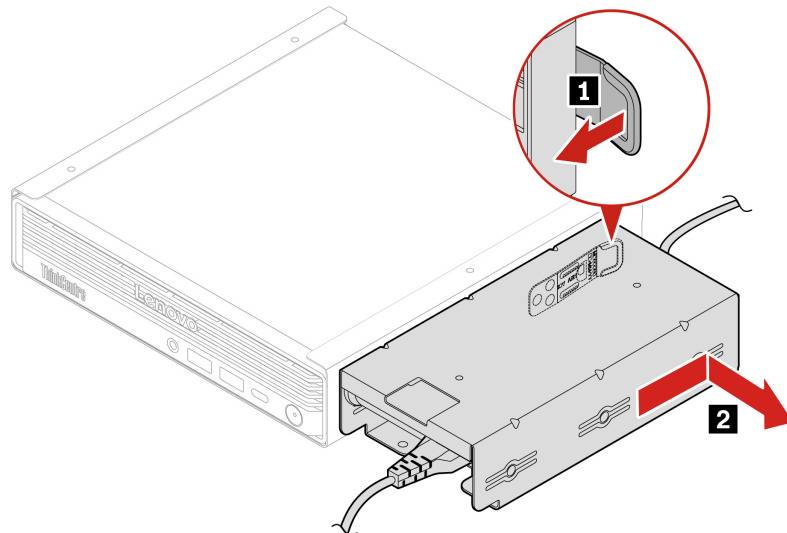
- Type-1

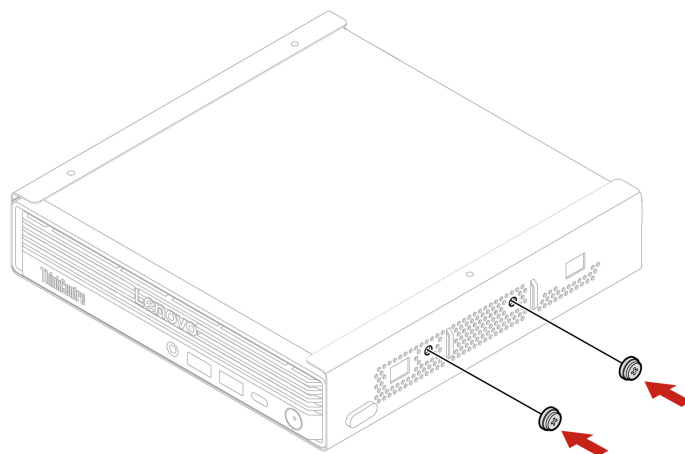
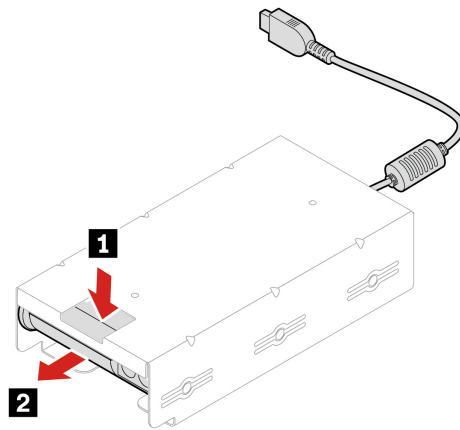
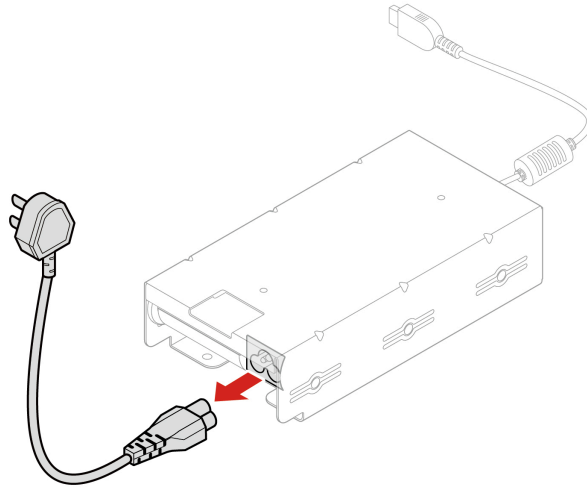


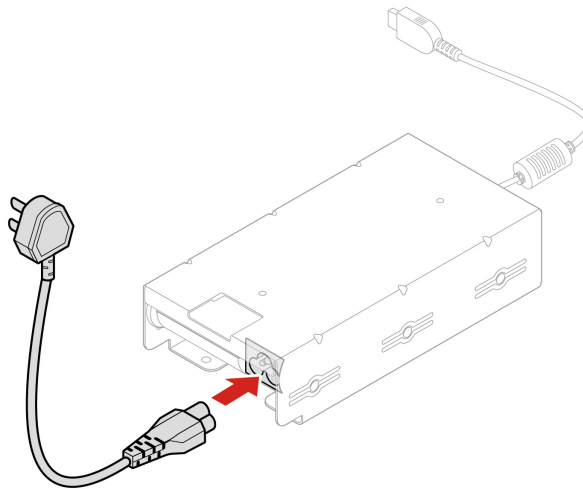
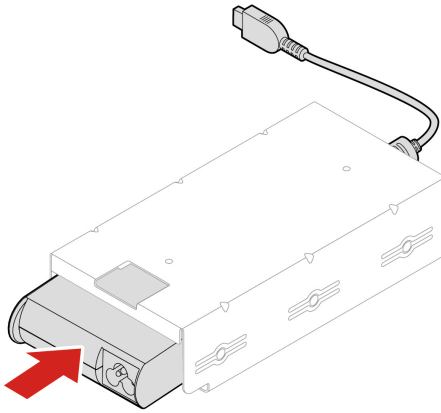


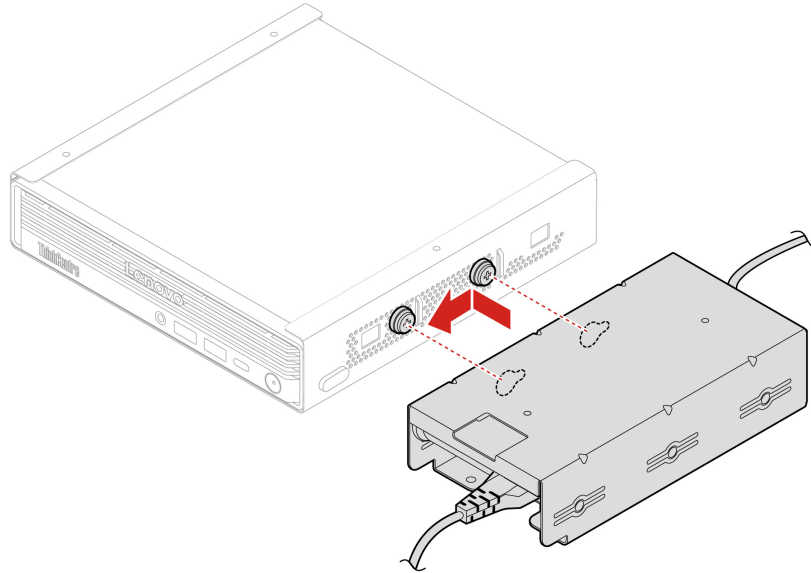


- **Type-2**









VESA mount bracket

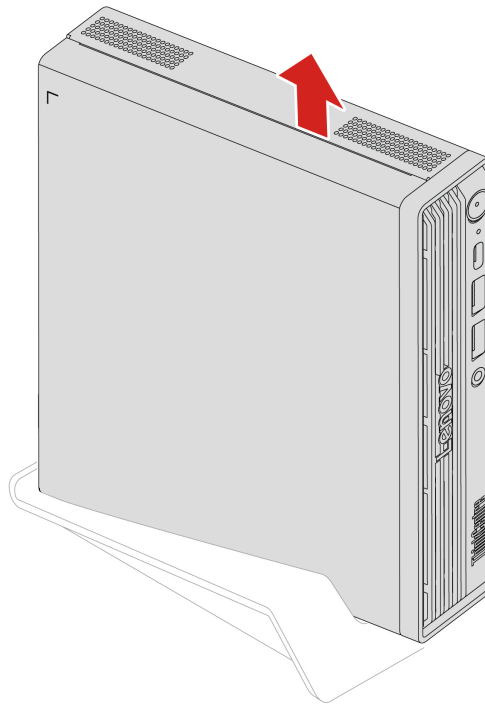
Prerequisite

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

For access, do the following:

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

Removal steps



Vertical stand

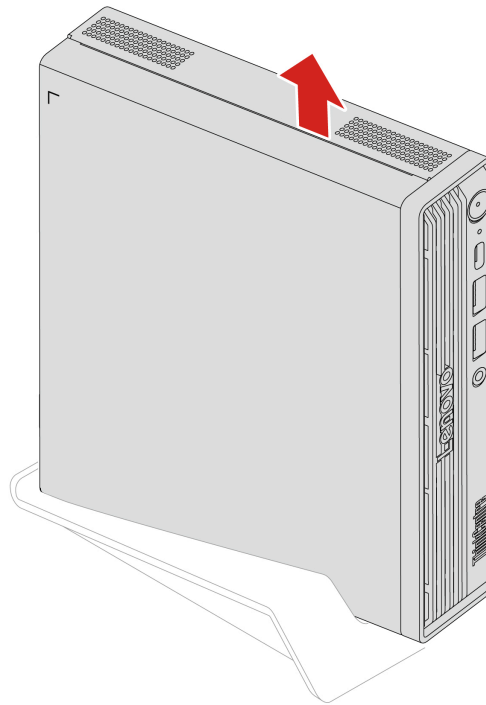
Prerequisite

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

For access, do the following:

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

Removal step



External Wi-Fi antenna

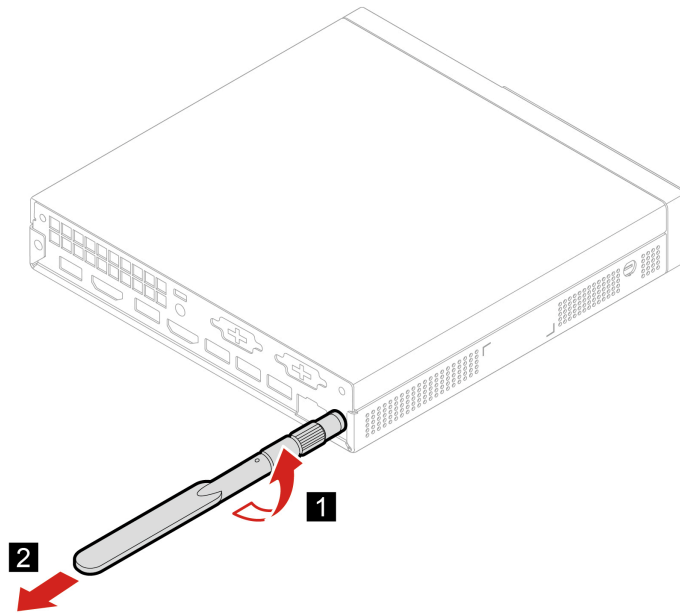
Prerequisite

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



Dust filter

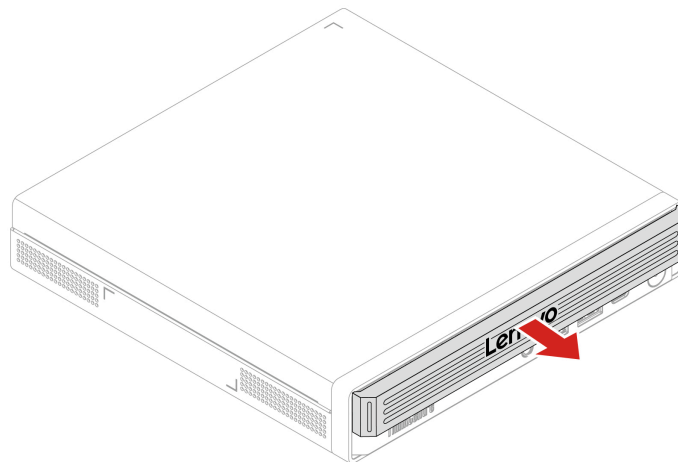
Prerequisite

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

For access, do the following:

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

Removal step



Computer cover

Prerequisite

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

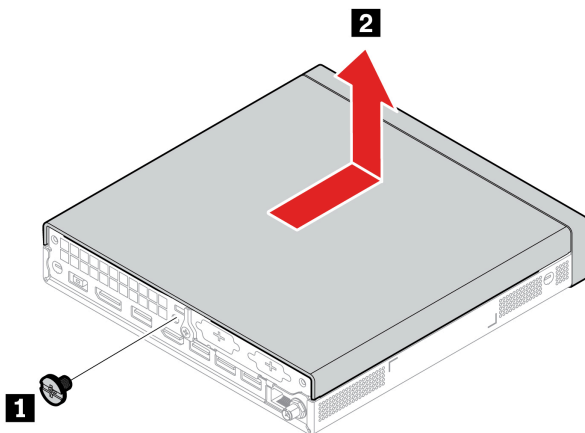


Before you open the computer cover, turn off the computer and wait several minutes until the computer is cool.

For access, 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 computer cover.
4. Remove these parts, if any:
 - “Power adapter cage” on page 23
 - “VESA mount bracket” on page 28
 - “Vertical stand” on page 29
 - “External Wi-Fi antenna” on page 30
 - “Dust filter” on page 31

Removal steps



Screw (quantity)	Torque
M4 x L5 mm, Black Zn coated (1)	3.0 ± 0.5 lb/in

Internal speaker

Prerequisite

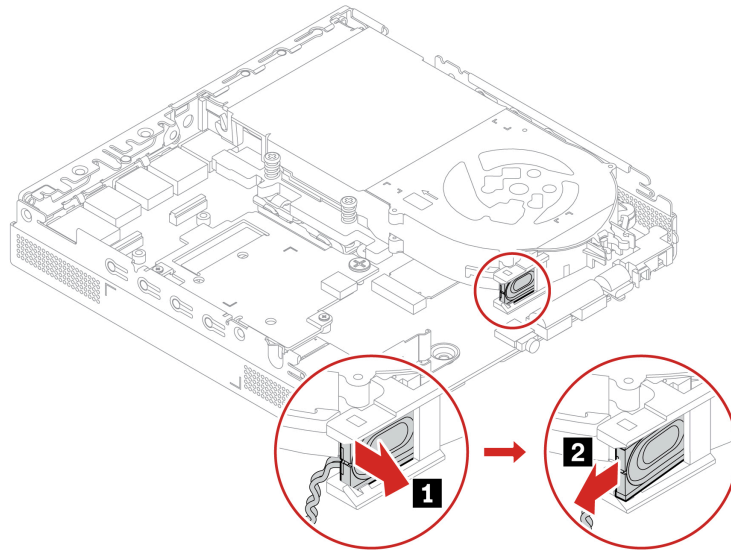
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, do the following:

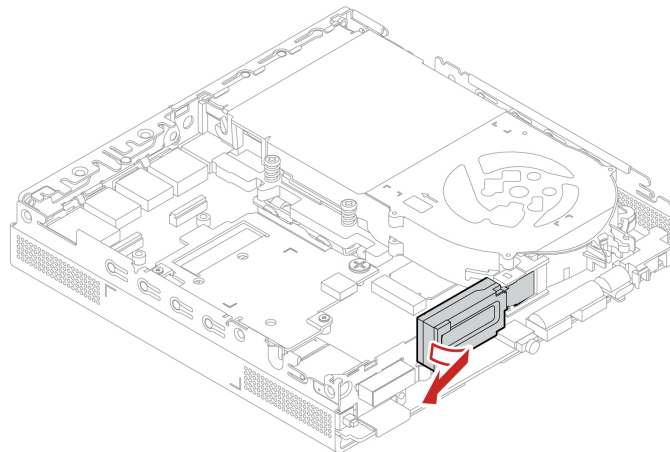
1. Remove the computer cover. See “Computer cover” on page 32.
2. Disconnect the internal speaker cable from the internal speaker connector on the system board.

Removal steps

- **Type-1**



- **Type-2**



System fan and heat sink

Prerequisite

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



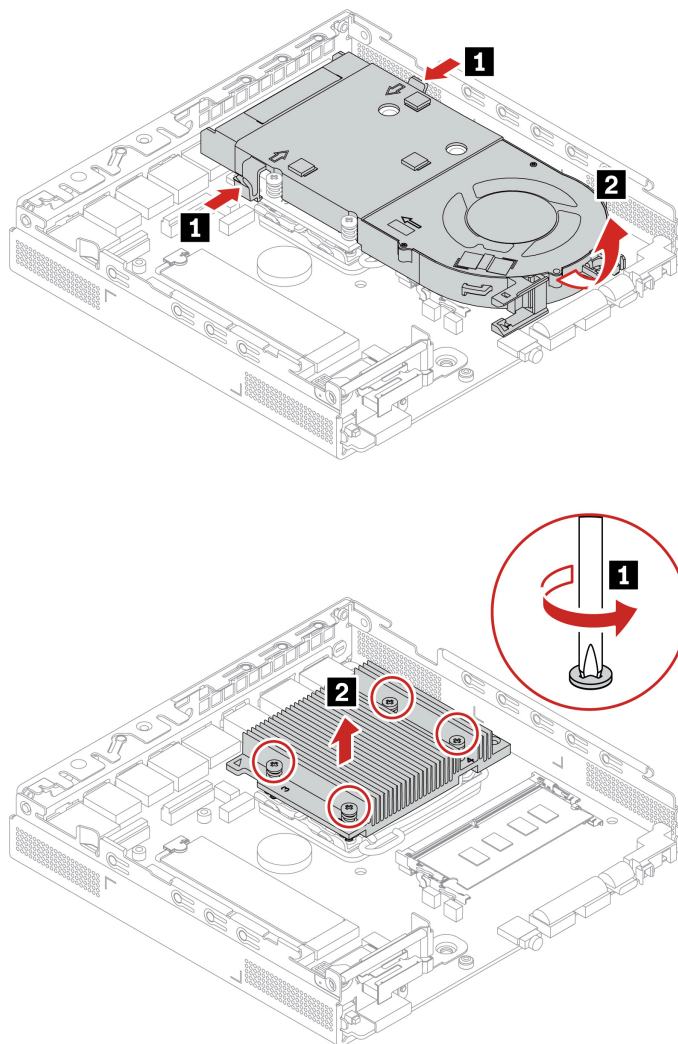
The heat sink might be very hot. Before you open the computer cover, turn off the computer and wait several minutes until the computer is cool.

For access, do the following:

1. Remove these parts, if any:
 - “Computer cover” on page 32.
 - “PCI-Express card and PCI-Express converter (only for M90q Gen 6)” on page 36.
 - “Internal speaker” on page 32.
2. Disconnect the system fan cable from the system fan connector on the system board.

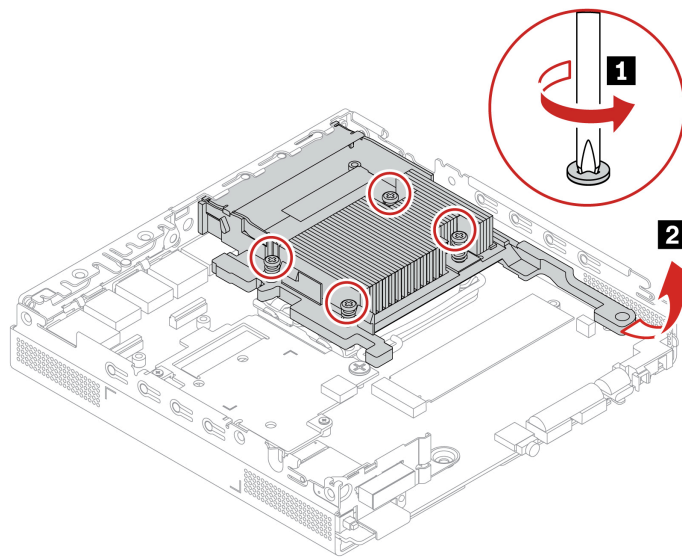
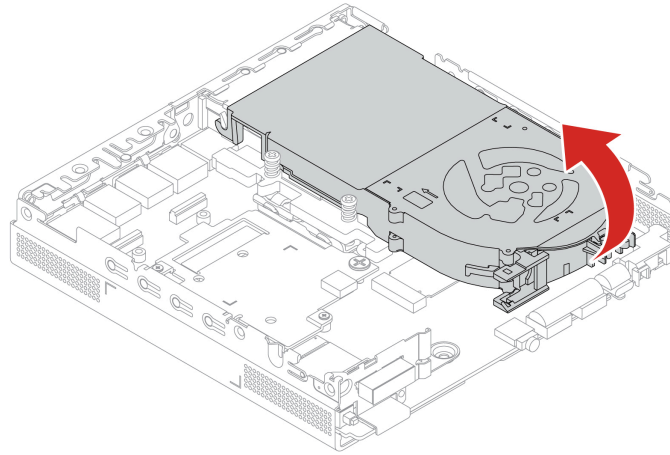
Removal procedure

- **Type-1**



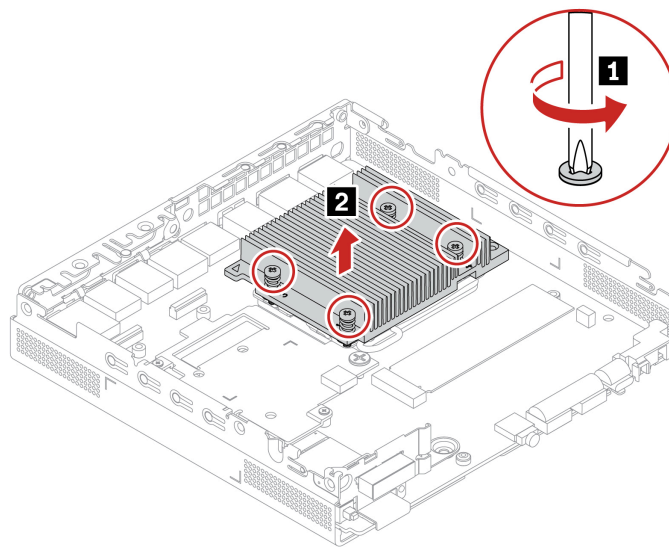
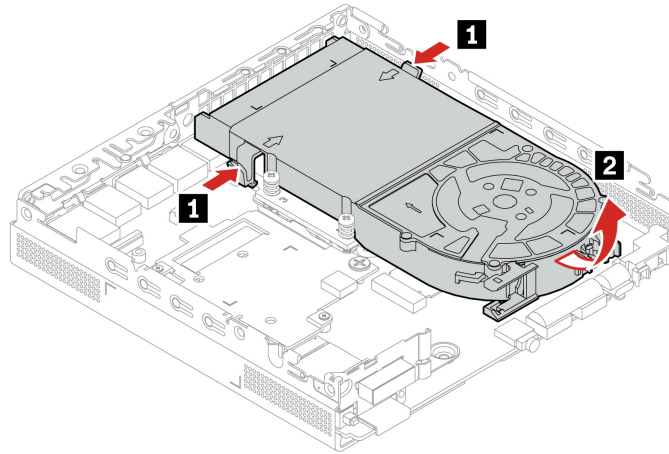
Screw (quantity)	Torque
M3 x L3 mm, Ni coated (4)	3.0 ± 0.5 lb/in

- **Type-2 (only for M90q Gen 6)**



Screw (quantity)	Torque
M3 x L3 mm, Ni coated (4)	3.0 ± 0.5 lb/in

- Type-3 (only for M90q Gen 6)



Screw (quantity)	Torque
M3 x L3 mm, Ni coated (4)	3.0 ± 0.5 lb/in

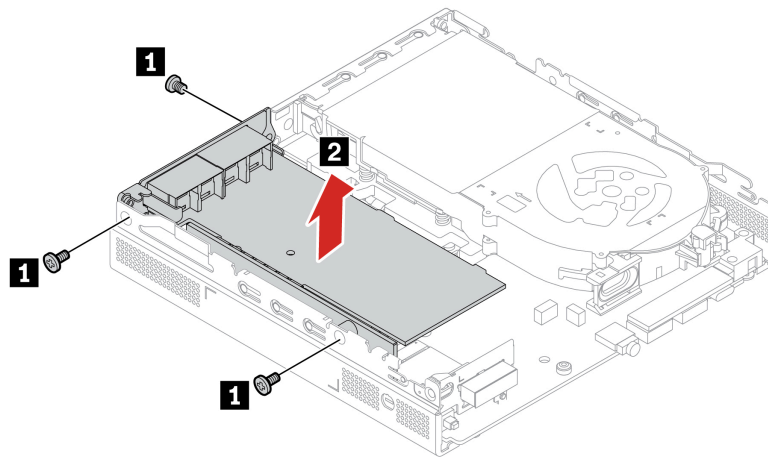
PCI-Express card and PCI-Express converter (only for M90q Gen 6)

Prerequisite

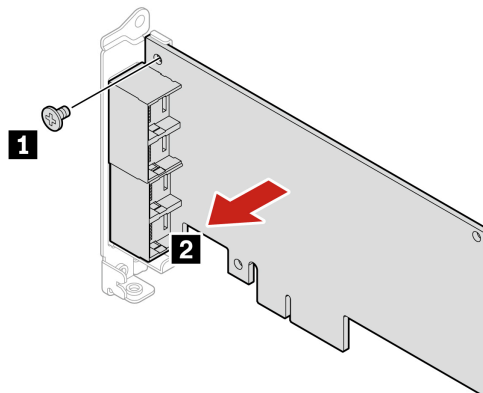
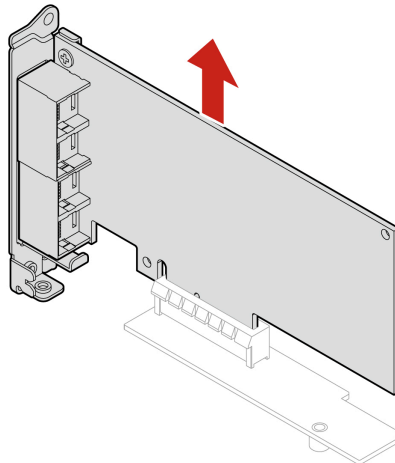
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, remove the computer cover. See “Computer cover” on page 32.

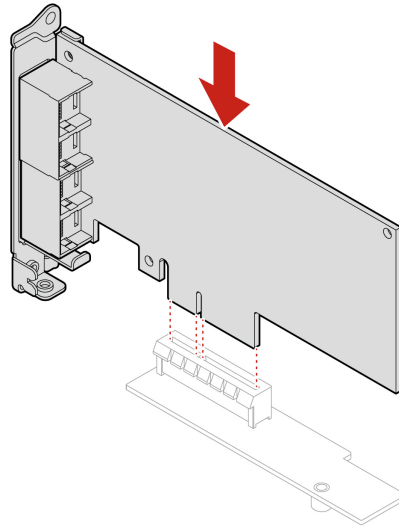
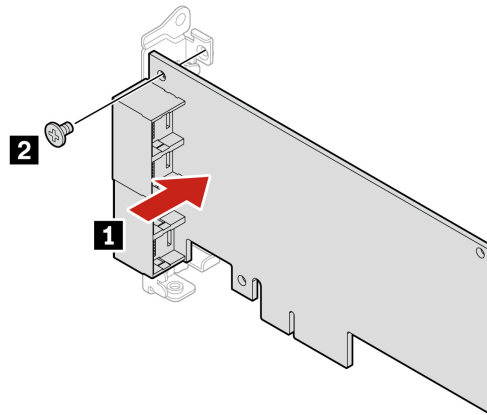
Replacement procedure

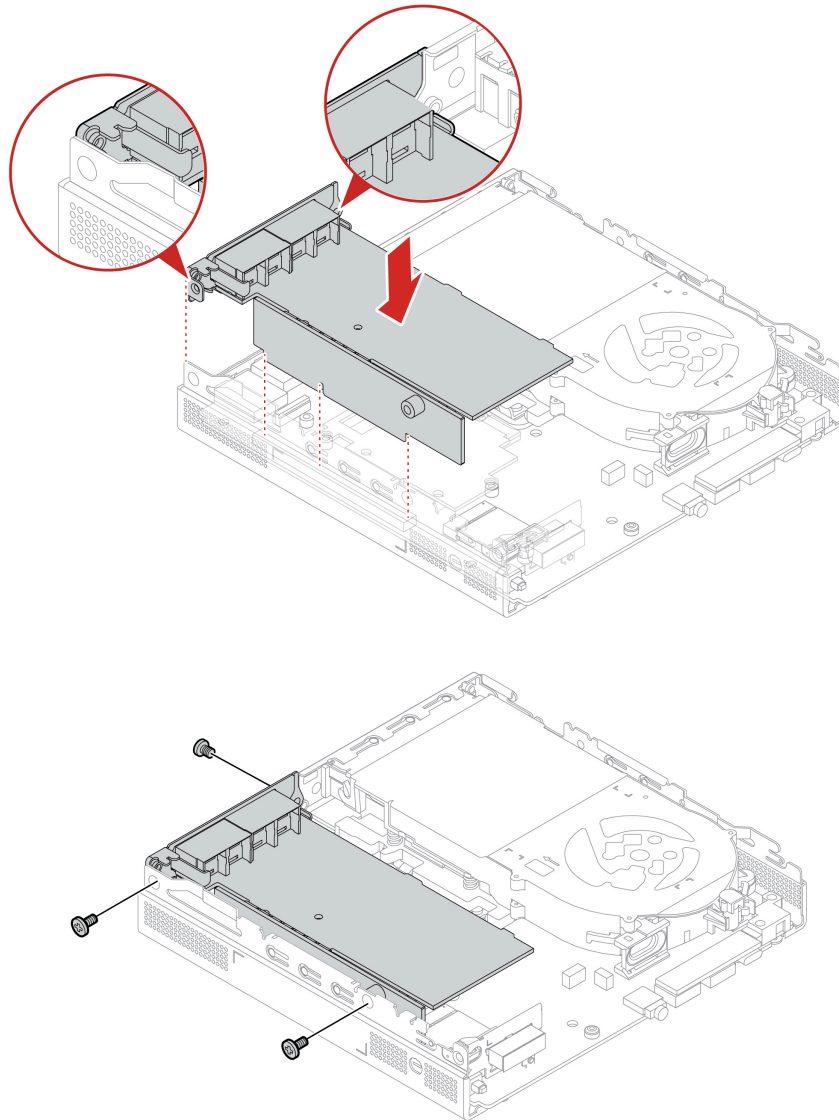


Screw (quantity)	Torque
M3 x L3.2 mm, Ni coated (2)	3.0 ± 0.5 lb/in
M3 x L6.8 mm, Black Zn coated (1)	3.0 ± 0.5 lb/in



Screw (quantity)	Torque
M3 x L3.2 mm, Ni coated (1)	3.0 ± 0.5 lb/in





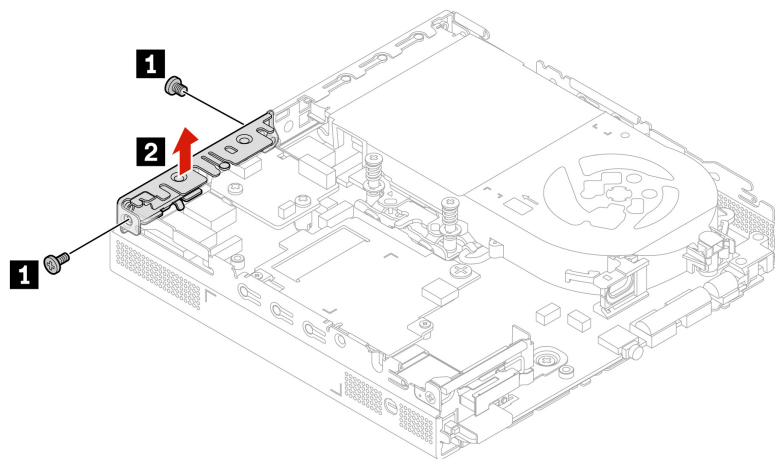
I/O bracket (only for M90q Gen 6)

Prerequisite

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

For access, remove the computer cover. See “Computer cover” on page 32.

Removal steps



Screw (quantity)	Torque
M3 x L4 mm, Black Zn coated (2)	3.0 ± 0.5 lb/in

Optional card module

Prerequisite

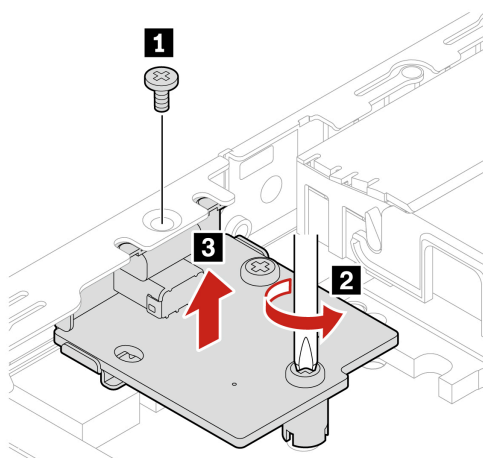
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

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

- “Computer cover” on page 32.
- “PCI-Express card and PCI-Express converter (only for M90q Gen 6)” on page 36.

Removal steps

Note: Depending on the model, the optional card module might look differently from illustration below.



Screw (quantity)	Torque
M3 x L3.2 mm, Ni coated (2)	3.0 ± 0.5 lb/in

Bottom cover (only for M90q Gen 6)

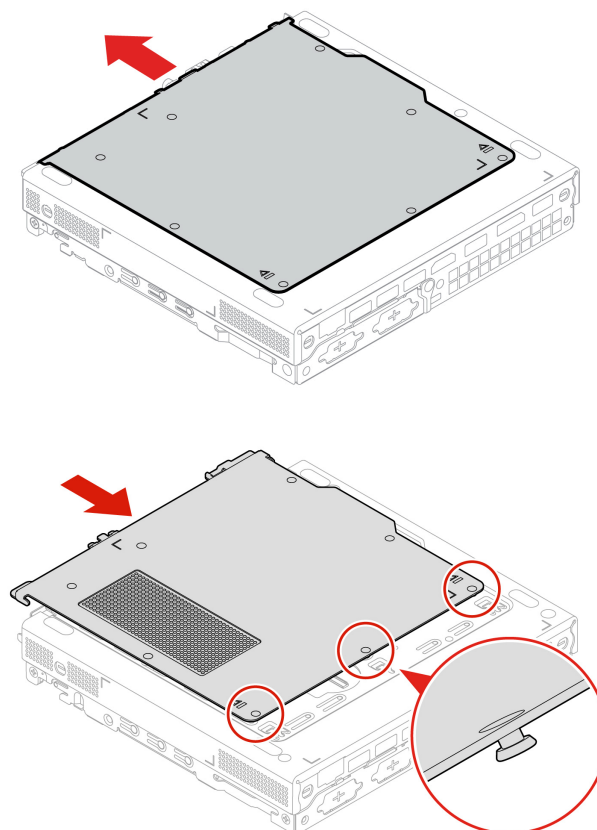
Prerequisite

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

For access, do the following:

- Remove the computer cover. See “Computer cover” on page 32.
- Turn over the computer so that the bottom cover is facing up.

Replacement procedure



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:

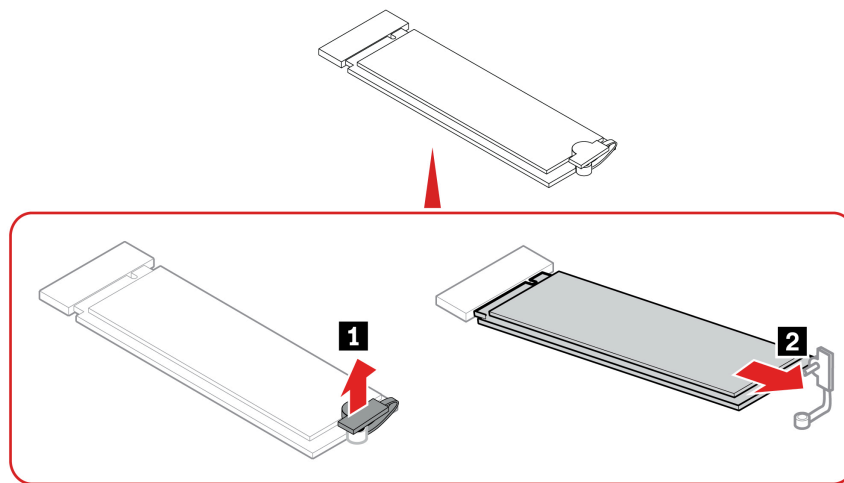
- Replace the M.2 solid-state drive only for upgrade or repair. The M.2 solid-state drive is not designed for frequent changes or replacement.
- Before replacing the M.2 solid-state drive, make a backup copy of all the data that you want to keep.
- Do not touch the contact edge of the M.2 solid-state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

For access, remove the following parts in order:

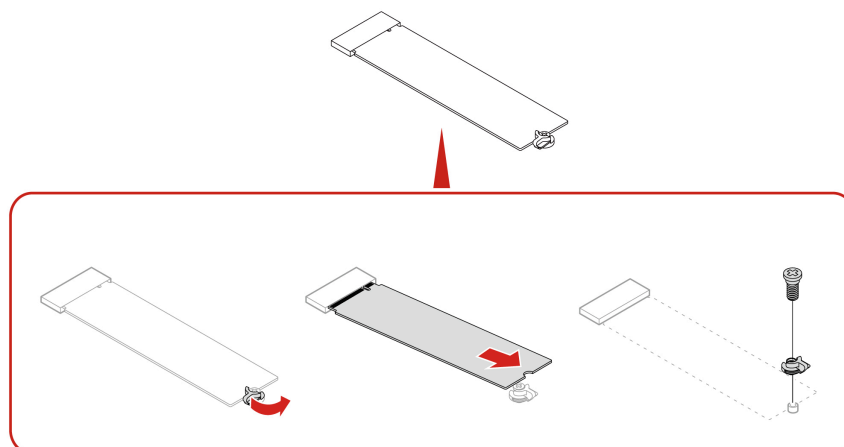
- “Computer cover” on page 32.
- “Bottom cover (only for M90q Gen 6)” on page 41.

Removal steps

- **Type-1**



- **Type-2 (only for M90q Gen 6)**



Screw (quantity)	Torque
M2 x L3 mm, Ni coated (1)	1.5 ± 0.2 lb/in

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

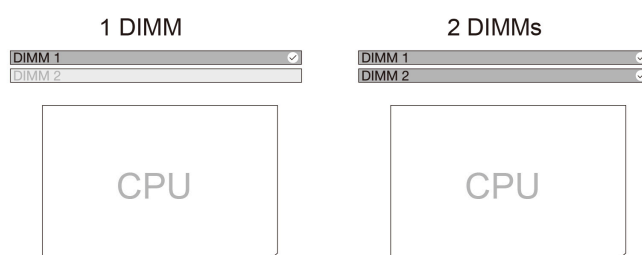
Memory module

Prerequisite

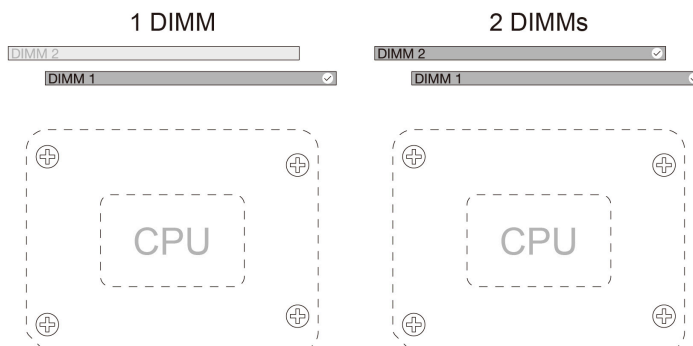
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

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

- **M70q Gen 6**



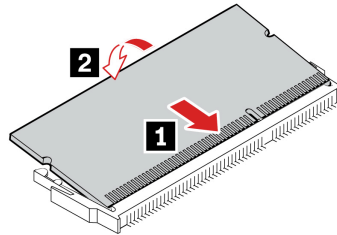
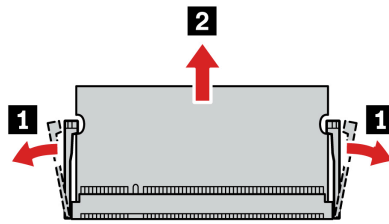
- **M90q Gen 6**



For access, do the following:

1. Remove these parts, if any:
 - “Computer cover” on page 32.
 - “Bottom cover (only for M90q Gen 6)” on page 41.
2. For M70q Gen 6, remove the system fan.

Replacement procedure



Chapter 7. Help and support

Self-help resources

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

Resources	How to access?
Product documentation: • <i>Safety and Warranty Guide</i> • <i>Generic Safety and Compliance Notices</i> • <i>Setup Guide</i> • <i>This User Guide</i> • <i>Regulatory Notice</i>	Go to https://pcsupport.lenovo.com . Then, follow the on-screen instructions to filter out the documentation you want.
Lenovo Support Web site with the latest support information of the following: • Drivers and software • Diagnostic solutions • Product and service warranty • Product and parts details • Knowledge base and frequently asked questions	https://pcsupport.lenovo.com
Ubuntu help information	https://help.ubuntu.com/its/ubuntu-help/index.html
IGEL support information	https://support.igel.com/

Lenovo diagnostic tools

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

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.

Lenovo Customer Support Center

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

Telephone numbers

For a list of the Lenovo Support phone numbers for your country or region, go to:

<https://pcsupport.lenovo.com/supportphonenumberlist>

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

Services available during the warranty period

- Problem determination - Trained personnel are available to assist you with determining if you have a hardware problem and deciding what action is necessary to fix the problem.
- Lenovo hardware repair - If the problem is determined to be caused by Lenovo hardware under warranty, trained service personnel are available to provide the applicable level of service.
- Engineering change management - Occasionally, there might be changes that are required after a product has been sold. Lenovo or your reseller, if authorized by Lenovo, will make selected Engineering Changes (ECs) that apply to your hardware available.

Services not covered

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

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

Purchase additional services

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

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

Accessibility features

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

Accessible documentation

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

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

For more information, watch the video at:

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

Accessible product design

Lenovo product design also supports accessibility features.

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

- **Keyboards**

Lenovo keyboards support various accessibility features. For example:

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

- **Industry-standard connectors**

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

- **Operating systems**

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

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

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

Appendix A. Supplemental information about the Ubuntu operating system

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

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

Access the Lenovo Limited Warranty

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

https://www.lenovo.com/warranty/llw_02

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

`/opt/Lenovo`

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

Access the Ubuntu help system

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

To learn more about the Ubuntu operating system, go to:

<https://www.ubuntu.com>

Access IGEL distributions

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

Get support information

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

To access the latest *User Guide* and *Safety and Warranty Guide*, go to:

<https://pcsupport.lenovo.com>

Access open-source information

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

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

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

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Appendix B. Compliance information

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

Certification-related information

Product name: xxxxxx

Machine types: xxxx and xxxx

The latest compliance information is available at:
<https://www.lenovo.com/us/en/compliance>

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)

Appendix C. 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 M70q Gen 6	소비효율 정보 ThinkCentre M90q Gen 6
컴퓨터 유형	D	D
연간소비 전력량 (kWh)	21.6	62.8
슬립모드 소비전력 (W)	0.76	0.83
오프모드 소비전력 (W)	0.53	0.48

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