Linux User Guide

ThinkStation P3 Tiny

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

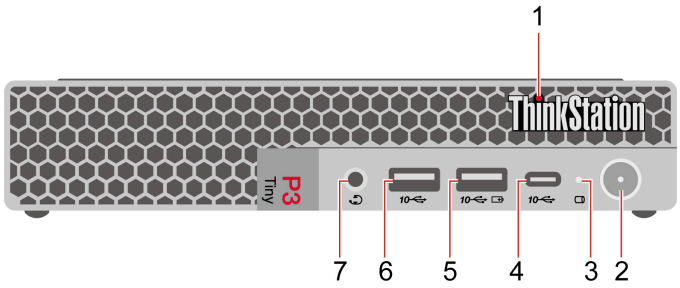
Thank you for choosing a Lenovo® computer! We are dedicated to delivering the best solution to you.

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://support.lenovo.com/documentation.

Chapter 1. Meet your computer

Front



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

Statement on USB transfer rate

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

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

Power indicator

Show the system status of your computer.

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

Always On USB-A 3.2 Gen 2 connector

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

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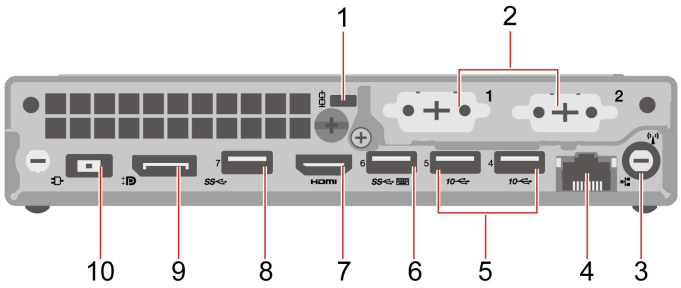
Rear



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

* for selected models

Optional connector

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

- DisplayPort out connector
- HDMI out connector
- Serial connector
- VGA out connector
- USB-A 3.2 Gen 1 connector
- USB-C (3.2 Gen 1) connector (only for optional connector 1)
- Ethernet connector (only for optional connector 2)

Features and specifications

Specifications	Description
Dimensions	• Width: 37 mm (1.5 inches) • Height: 179 mm (7 inches) • Depth: 182.9 mm (7.2 inches)
Weight (without packaging)	Maximum configuration as shipped: 1.4 kg (3 lb)
Hardware configuration	1. Open the system menu from the top-right corner and click **Settings**. 2. Click **About**.

Specifications	Description
Power supply	• 170-watt automatic voltage-sensing power supply • 230-watt automatic voltage-sensing power supply • 300-watt automatic voltage-sensing power supply
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, enter **Settings** and click **About**.
Memory	Up to two double data rate 5 (DDR5) small outline dual in-line memory modules (SODIMMs) Maximum memory capacity: 96 GB
Storage device	Up to two M.2 solid-state drives Type **Disks** in the search box and use the **Disks** application to view the storage drive capacity of your computer. **Note:** The storage drive capacity indicated by the system is less than the nominal capacity.
Video features	• The integrated graphics card supports the following: – DisplayPort out connector – HDMI out connector – USB-C (3.2 Gen 1) connector* (on rear panel) – VGA out connector* • The optional discrete graphics card provides an enhanced video experience and extended capabilities.
Expansion	• External optical drive* • M.2 solid-state drive slots • Memory slots • PCI-Express slot
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: From -40°C (-40°F) to 60°C (140°F)

Relative humidity

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

System memory speed

The Intel Core™ microprocessor families compatible with this ThinkStation computer feature an integrated memory controller. The memory controller provides the microprocessor with direct access to the system memory. Therefore, the system memory speed will be determined by the memory module type, frequency, size (capacity), the number of memory modules installed, and the microprocessor model.

Notes:

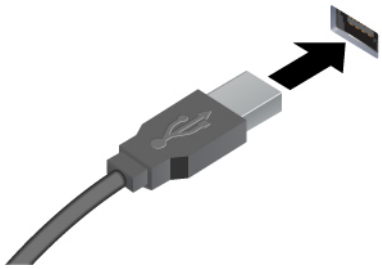
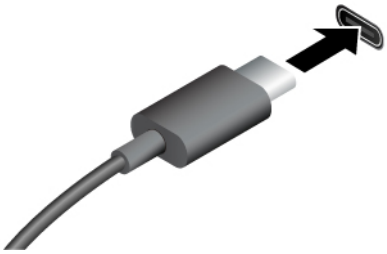
- The actual system memory speed of the memory modules varies depending on the microprocessor model. For example, your computer comes with 5600 MT/s memory modules, but the microprocessor only supports up to 5200 MT/s memory modules. Then the system memory speed will be no faster than 5200 MT/s.
- The microprocessor models supported in your computer might vary. For a list of supported microprocessor models, contact the Lenovo Customer Support Center.

Refer to the following information about the system memory speed:

- **Memory module types**: DDR5 non-ECC SODIMMs
- **Memory module operating voltage**: 1.1V
- **Memory module speed**: 5600 MT/s

USB specifications

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

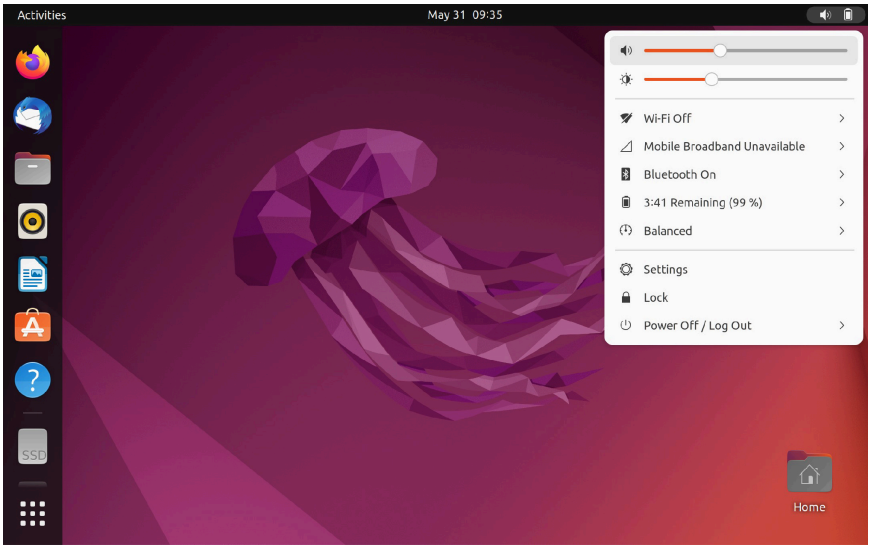
Connector name	Description
 • USB-A 3.2 Gen 1 connector • USB-A 3.2 Gen 2 connector	Connect USB-A compatible devices, such as a USB-A keyboard, USB-A mouse, USB-A storage device, or USB-A printer.
 • USB-C (3.2 Gen 1) connector • USB-C (3.2 Gen 2) connector • USB-C (Thunderbolt 4) connector	• Charge USB-C compatible devices with the output voltage and current of 5V and 0.9A. • 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/lts/ubuntu-help/index.html.

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



Launch an app

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

Launch settings

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

Access networks

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

Connect to the wired Ethernet

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

Connect to Wi-Fi networks (for selected models)

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

1. Open the system menu from the top-right corner and expand the Wi-Fi section of the menu.
2. Click **Select Network**. A list of available wireless networks is displayed.

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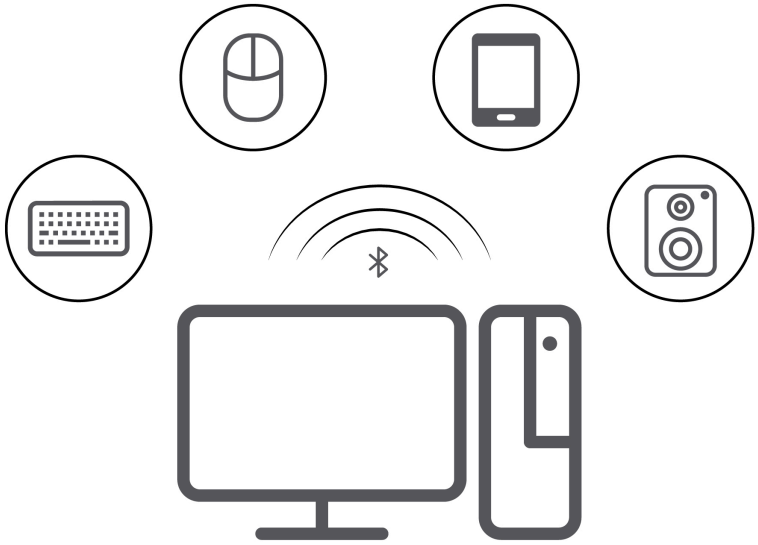
3. Select a network available for connection. Provide required information, if needed.

Connect an external display

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.

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

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



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

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.

Chapter 3. Advanced configurations

Security solutions

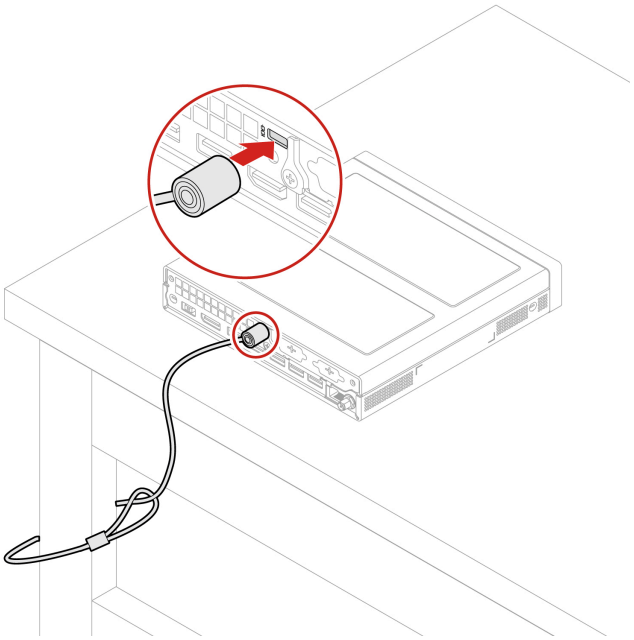
Lenovo values your information security. Your computer can be secured by physical locks and BIOS solutions. They can protect your computer from harm, theft, or unauthorized use.

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

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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

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

What is UEFI BIOS

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

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

Enter the BIOS menu

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

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

Navigate in the BIOS interface

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

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

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

Change the display language of UEFI BIOS

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

To change the display language of UEFI BIOS:

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

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

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

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

To change the display mode of UEFI BIOS:

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

Set the system date and time

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

Change the boot priority order

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

Change the boot priority order permanently

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

Select a temporary boot device

Note: Not all discs and storage drives are bootable.

1. Depending on the type of the storage device, do one of the following:
   - If the storage device is internal, go to step 2.

- If the storage device is a disc, ensure that the computer is on or turn on the computer. Then, insert the disc into the optical drive.
- If the storage device is an external device other than a disc, connect the storage device to the computer.

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

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

Enable or disable the configuration change detection feature

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

To enable or disable the configuration change detection feature:

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

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

Enable or disable the automatic power-on feature

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

To enable or disable the automatic power-on feature:

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

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

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

To enable or disable the smart power-on feature:

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

Change the ITS performance mode

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

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

  Note: The term “best” only refers to the best effect among different settings of the product itself.
- **Full Speed**: All fans in the computer will run at full speed.

To change the ITS performance mode:

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

Change BIOS settings before installing a new operating system

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

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/windows-support

To change the BIOS settings:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. From the main interface, select **Security → Secure Boot** and press Enter.
3. Depending on the operating system to be installed, do one of the following:
   - To install a Windows operating system that supports secure boot, select **Enabled** for **Secure Boot**.
   - To install an operating system that does not support secure boot, such as some Linux operating systems, select **Disabled** for **Secure Boot**.
4. Press F10 or Fn+F10 to save the changes and exit.

Update UEFI BIOS

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

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

- From the Vantage app:

  Open the Vantage app to check the available update packages. 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:
  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 4. CRU replacement

What is CRU

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
- Top cover
- I/O bracket*
- External Wi-Fi antenna*
- External optical drive*
- External optical drive box*
- Keyboard*
- M.2 solid-state drive
- Memory module
- Mouse*
- Power cord
- Thumb screw
- Vertical stand*
- VESA® mount bracket*

Optional-service CRUs

- PCIe card*
- Thunderbolt 4 card module*

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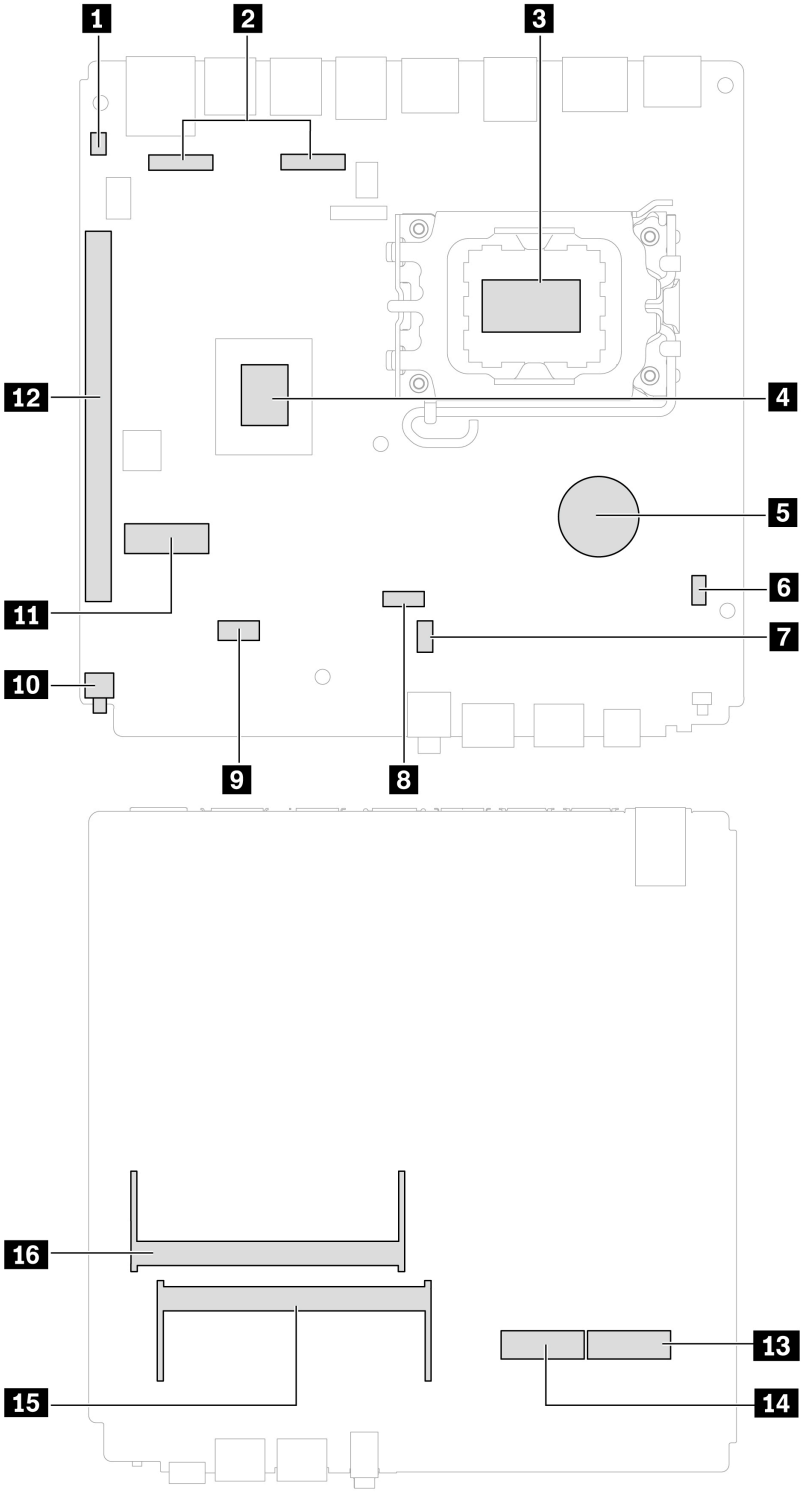
- PCIe converter*
- System fan and heat sink
- Internal speaker
- ThinkStation LED

* for selected models

System board illustration



Connector	Connector
1 Clear CMOS	2 I/O board connector
3 Microprocessor socket	4 PCH
5 Coin-cell battery	6 ThinkStation LED connector
7 Internal speaker connector	8 System fan connector
9 SATA connector for hard disk drive	10 Cover presence switch connector (intrusion switch connector)
11 M.2 Wi-Fi card slot	12 PCIe slot
13 M.2 solid-state drive slot (SSD1)	14 M.2 solid-state drive slot (SSD2)
15 Memory slot (DIMM2)	16 Memory slot (DIMM1)

Remove or replace a CRU

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

Power adapter and power cord

Prerequisite

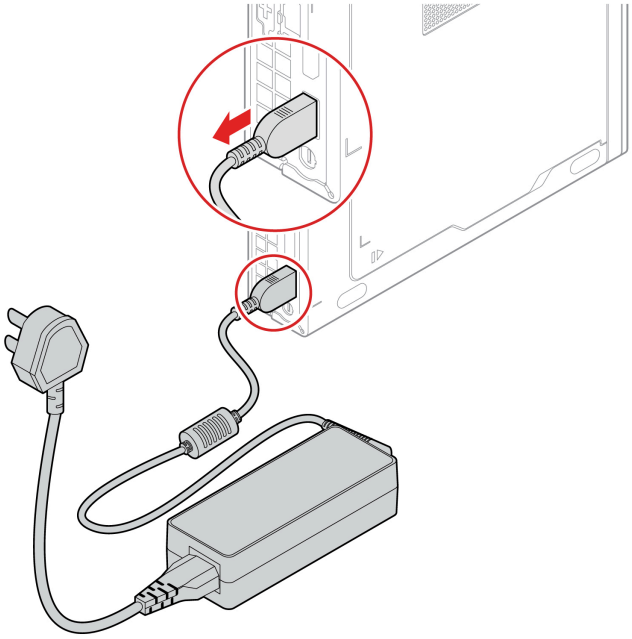
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, do the following:

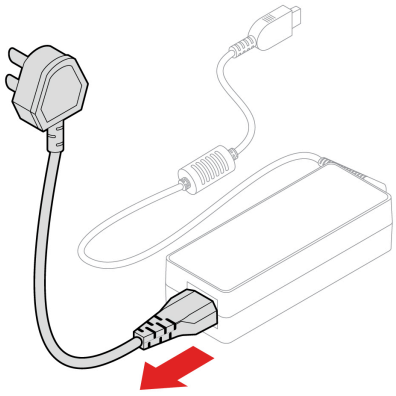
1. Turn off the computer and remove all connected devices and cables.
2. Disconnect the computer from ac power and all connected cables.

Removal steps

1. Remove the power adapter.



2. Remove the power cord.



VESA mount bracket

Prerequisite

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

For access, do the following:

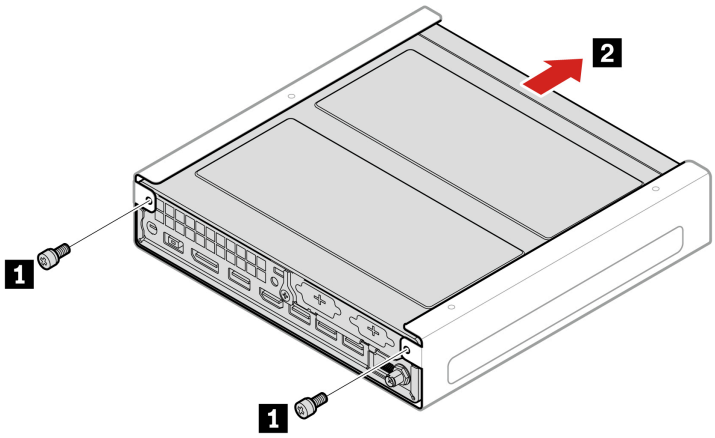
1. Turn off the computer and remove all connected devices and cables.
2. Disconnect the computer from ac power and all connected cables.

Removal steps

1. Remove the two screws which secure the VESA mount bracket to the chassis. Find screw specification in the following screw table.

Screw	Quantity	Torque
M3 × L6, flat-head	2	5 ± 0.5 lb/in

2. Slide the VESA mount bracket to remove it.



Vertical stand

Prerequisite

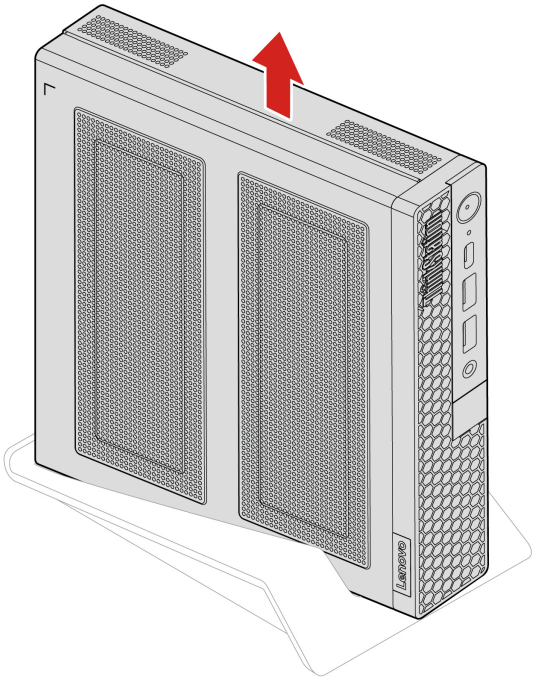
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

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

Lift the chassis to remove it from the vertical stand.



External Wi-Fi antenna

Prerequisite

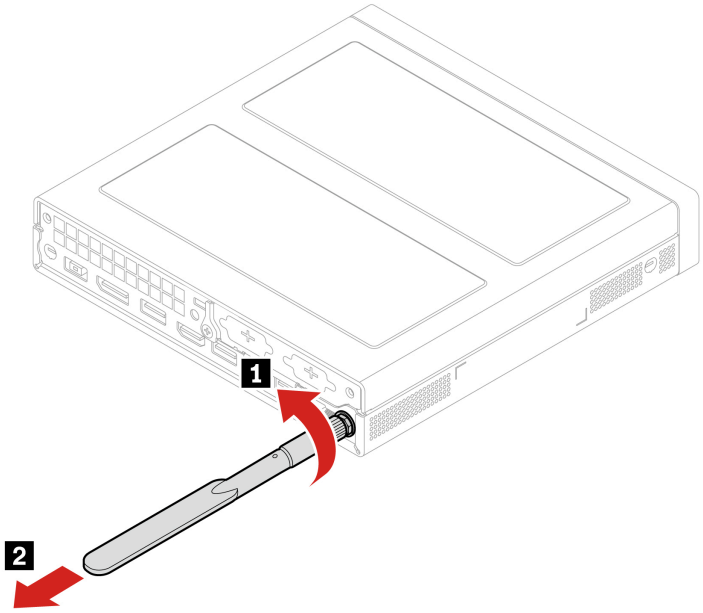
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

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

Contrarotate the external Wi-Fi antenna until it’s released from the chassis.



External optical drive box and external optical drive

Prerequisite

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

For access, do the following:

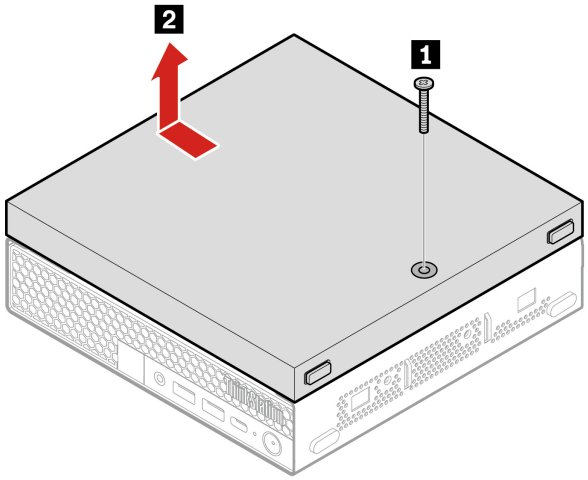
1. Turn off the computer and remove all connected devices and cables.
2. Disconnect the computer from ac power and all connected cables.

Removal steps

1. Loose the screw which secures the optical drive box to the chassis. Find screw specification in the following screw table.

Screw	Quantity	Torque
M3 × L21, flat-head	1	3 ± 0.5 lb/in

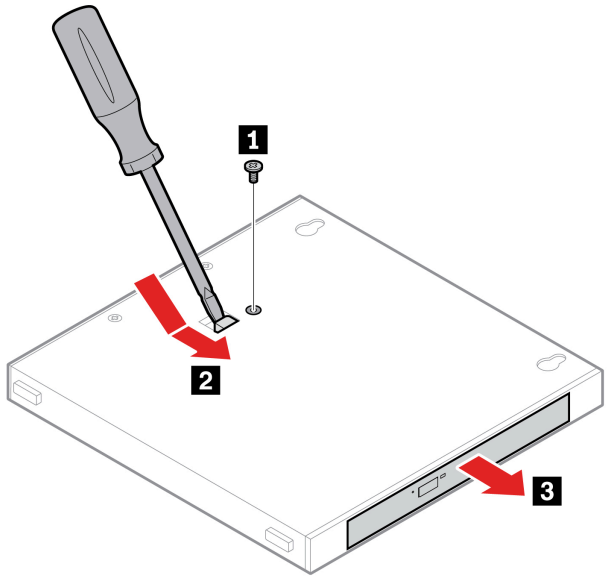
2. Remove the optical drive box.



3. Remove the screw which secures the optical drive to the optical drive box. Find screw specification in the following screw table.

Screw	Quantity	Torque
M3 × L2.2, flat-head	1	3 ± 0.5 lb/in

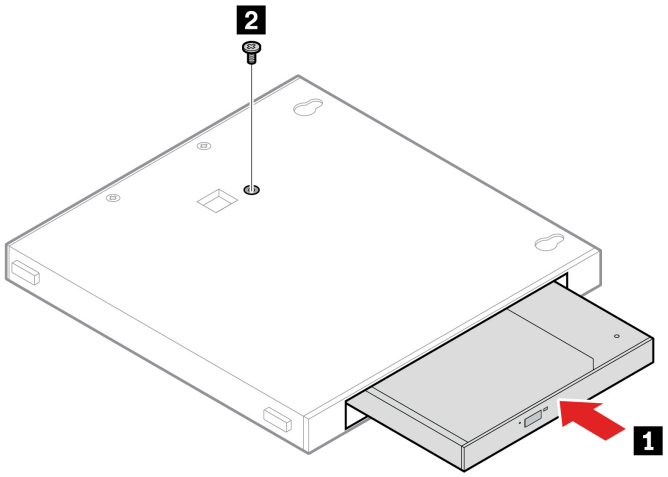
4. Pry up the tab on the optical drive box. Then pull the optical drive out of the box.



Installation steps

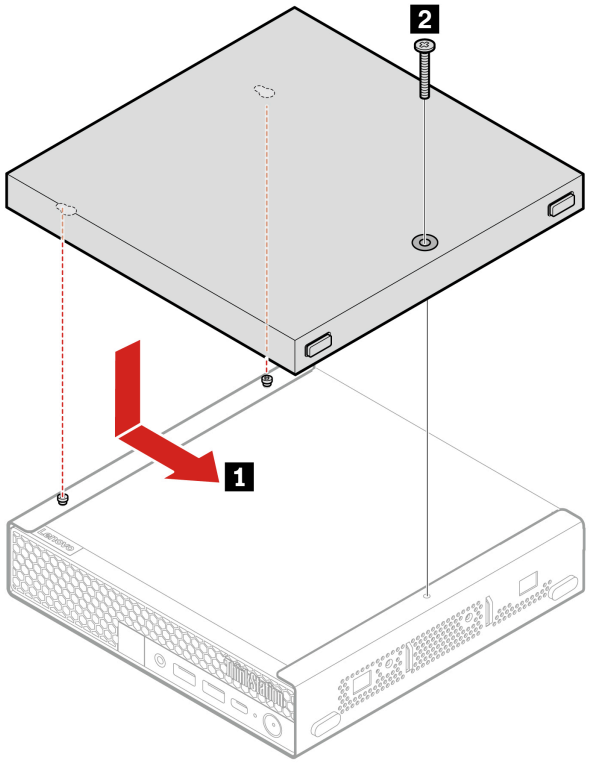
1. Align the optical drive to the optical drive box and secure with a screw. Find screw specification in the following screw table.

Screw	Quantity	Torque
M3 × L2.2, flat-head	1	3 ± 0.5 lb/in



2. Align the optical drive box with the chassis and tighten the screw to secure the box to the chassis. Find screw specification in the following screw table.

Screw	Quantity	Torque
M3 × L21, flat-head	1	3 ± 0.5 lb/in



Top cover and front cover

Prerequisite

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

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

For access, do the following:

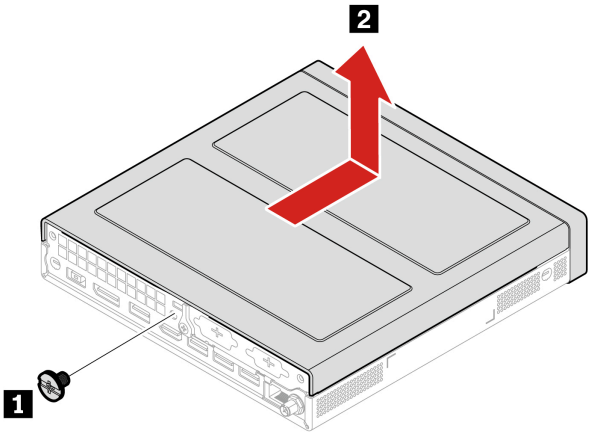
1. Turn off the computer and remove all connected devices and cables.
2. Disconnect the computer from ac power and all connected cables.
3. Unlock any locking device that secures the top cover.
4. Remove these parts, if any:
   - “VESA mount bracket” on page 20
   - “Vertical stand” on page 21
   - “External Wi-Fi antenna” on page 22
   - “External optical drive box and external optical drive” on page 23

Removal steps

1. Remove the screw which secure the top cover to the chassis. Find screw specification in the following screw table.

Screw	Quantity	Torque
M4 × L5, flat-head	1	3 ± 0.5 lb/in

2. Lift the top cover and front cover.



I/O bracket

Prerequisite

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

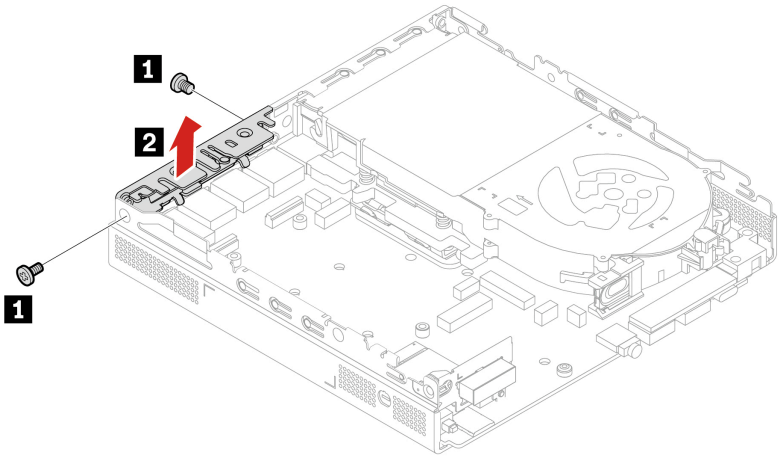
For access, remove the top cover. See “Top cover” on page 25.

Removal procedure

1. Remove the two screws which secure the I/O bracket to the chassis. Find screw specification in the following screw table.

Screw	Quantity	Torque
M3 × L4, countersunk	2	3 ± 0.5 lb/in

2. Remove the I/O bracket.



Internal speaker

Prerequisite

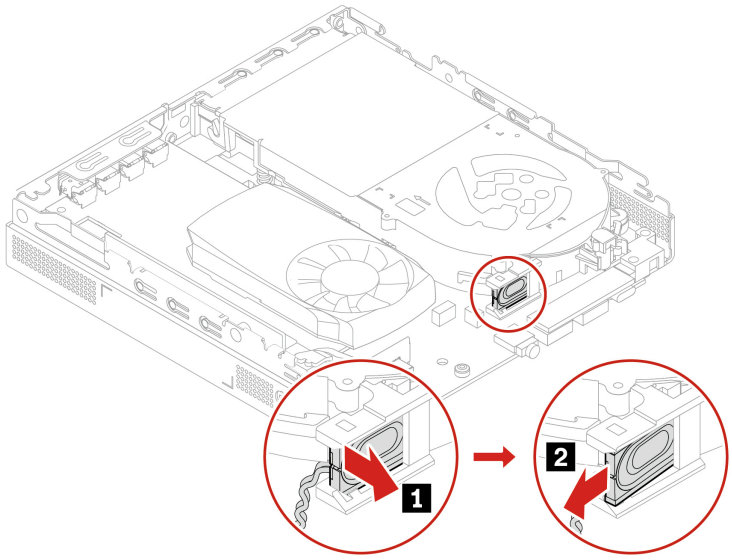
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

For access, do the following:

1. For access, remove the top cover. See “Top cover” on page 25.
2. Disconnect the internal speaker cable from the internal speaker connector on the system board.

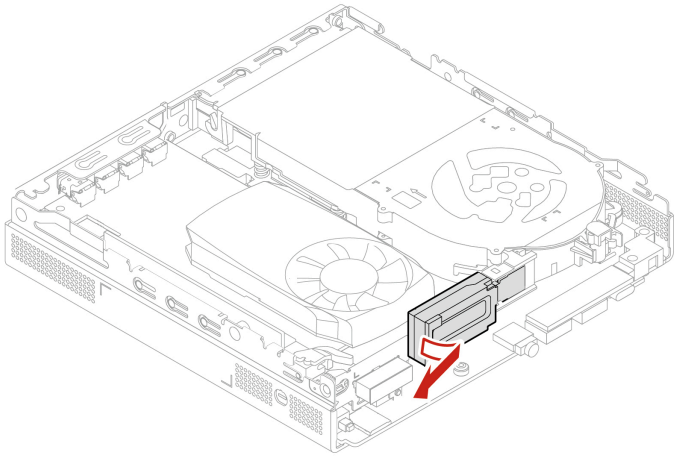
Removal steps for type 1 internal speaker

Push the internal speaker outward and pull horizontally to remove it.



Removal steps for type 2 internal speaker

Push the internal speaker outward and pull horizontally to remove it.



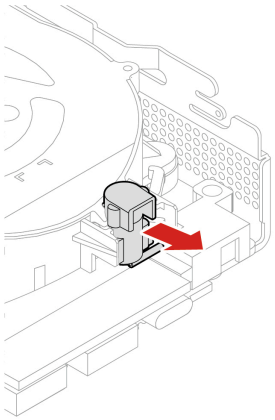
System fan

Prerequisite

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

For access, do the following:

1. Remove the top cover. See “Top cover” on page 25.
2. Remove the internal speaker. See “Internal speaker” on page 27.
3. Remove the ThinkStation LED bracket with the LED and cable.

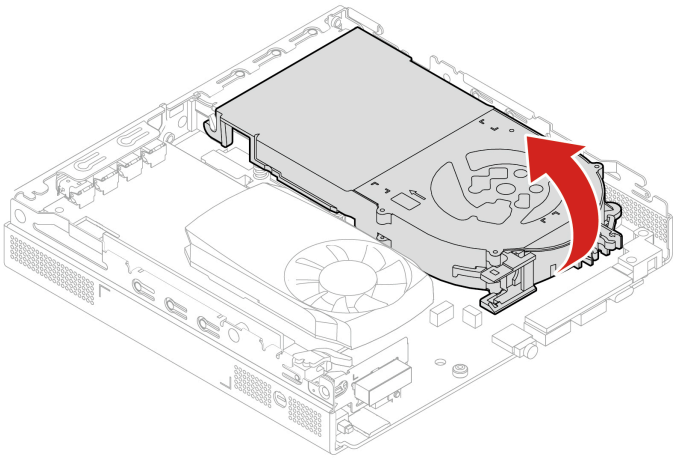


4. Disconnect the system fan cable from the system board.

Replacement procedure

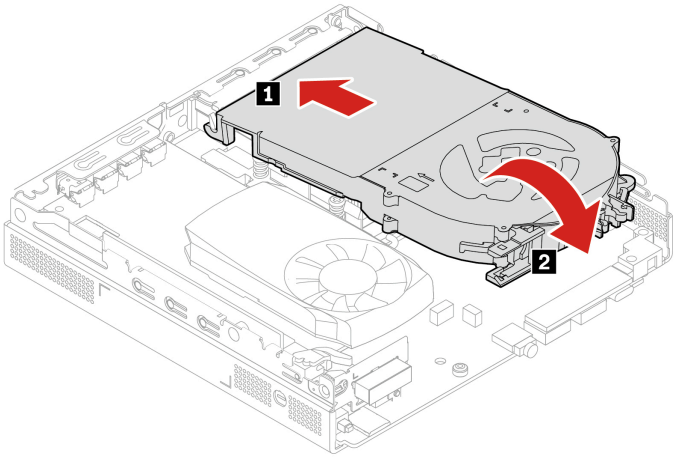
Removal steps

Lift the system fan to remove it.



Installation steps

Align the hooks of the system fan with the tabs on the heat sink and mount the system fan on the heat sink.



PCIe card and PCIe converter

Prerequisite

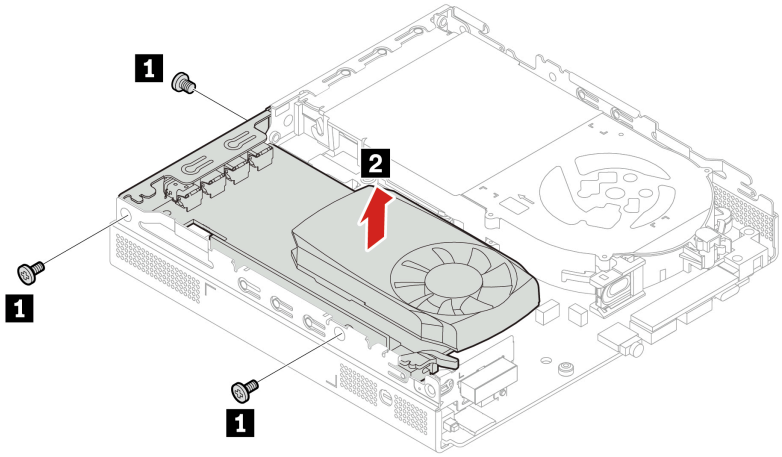
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

Removal steps

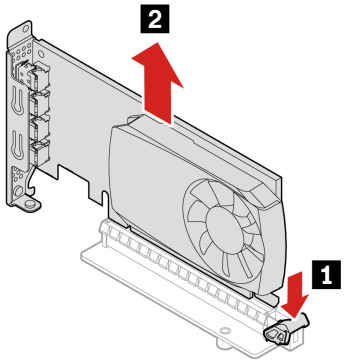
- Type 1
  1. For access, remove the top cover, see “Top cover” on page 25.
  2. Remove the three screws which secure the PCIe card and PCIe converter to the chassis. Find screw specification in the following screw table.

Screw	Quantity	Torque
M3 × L4, countersunk	3	3 ± 0.5 lb/in

  3. Remove the PCIe card and PCIe converter.



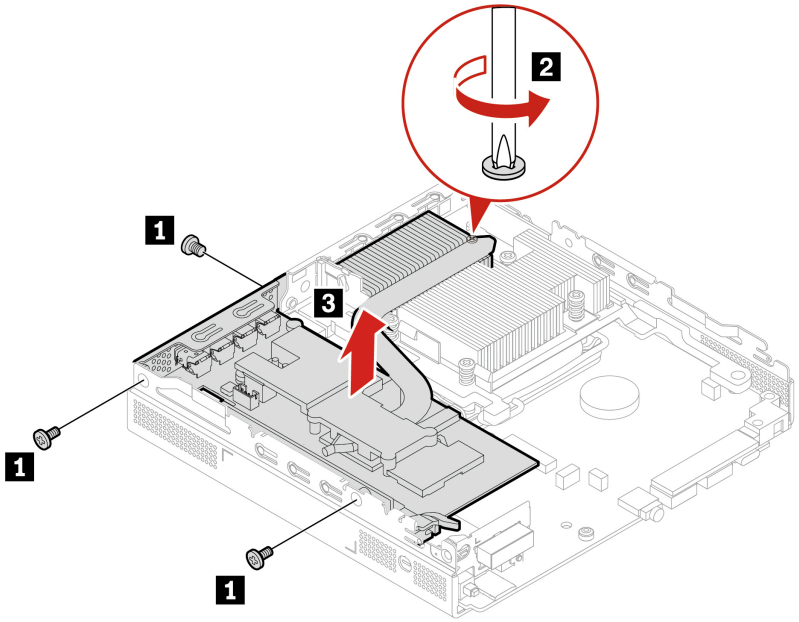
4. Open the clip and pull the PCIe card out of the PCIe converter slot.



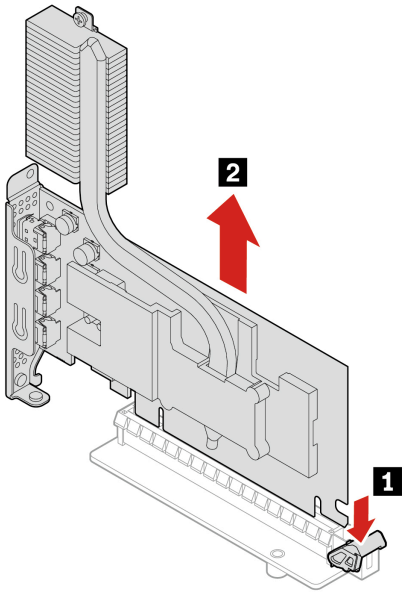
- Type 2
  1. For access, remove the following parts in order:
     - “Top cover” on page 25
     - “System fan” on page 28
  2. Remove the three screws which secure the PCIe card and PCIe converter to the chassis. Find screw specification in the following screw table.

Screw	Quantity	Torque
M3 × L4, countersunk	3	3 ± 0.5 lb/in

  3. Remove the PCIe card and PCIe converter.



4. Open the clip and pull the PCIe card out of the PCIe converter slot.



Heat sink

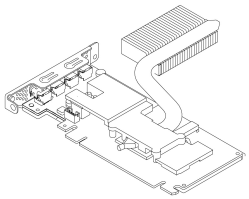
Prerequisite

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

For access, remove the following parts in order:

- “Top cover” on page 25
- “Internal speaker” on page 27
- “System fan” on page 28
- “PCIe card and PCIe converter” on page 29 (for Type-2 only)



Notes:

- Carefully remove the following screws from the system board to avoid any possible damage to the system board. The screws cannot be removed from the heat sink.
- You might have to gently twist the heat sink to free it from the microprocessor.
- Do not touch the thermal grease while handling the heat sink.

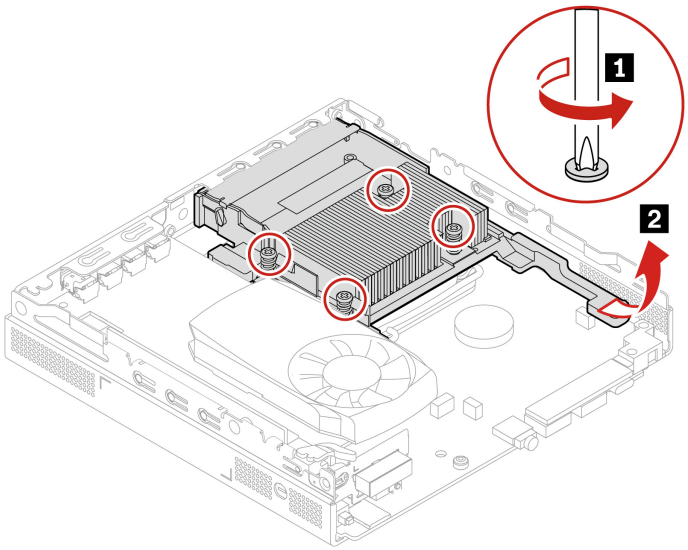
Removal steps

Type-1

1. Remove the four screws which secure the heat sink to the system board. Find screw specification in the following screw table.

Screw	Quantity	Torque
M3 × L7, flat-head	4	3 ± 0.5 lb/in

2. Lift the heat sink.

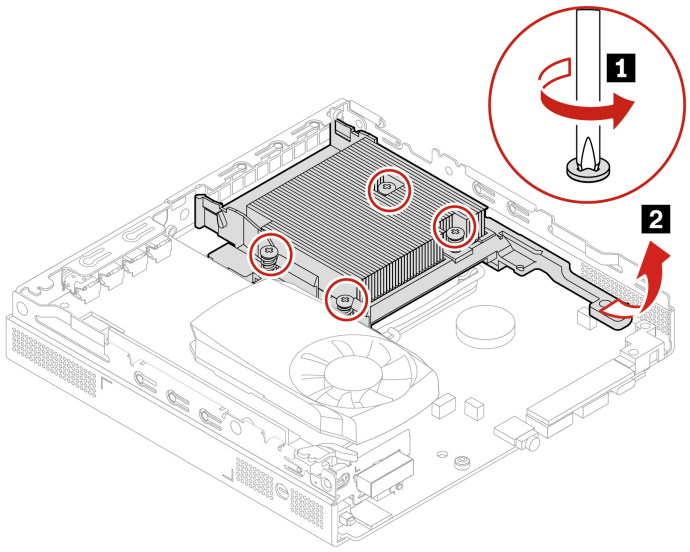


Type-2

1. Remove the four screws which secure the heat sink to the system board. Find screw specification in the following screw table.

Screw	Quantity	Torque
M3 × L7, flat-head	4	3 ± 0.5 lb/in

2. Lift the heat sink.



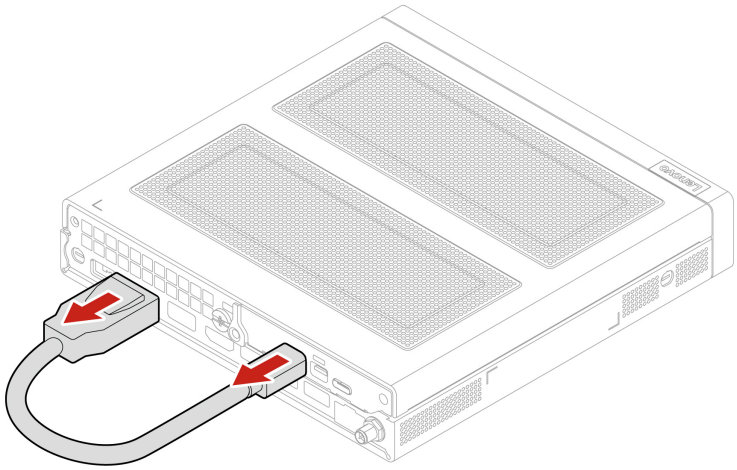
Thunderbolt 4 card module

Prerequisite

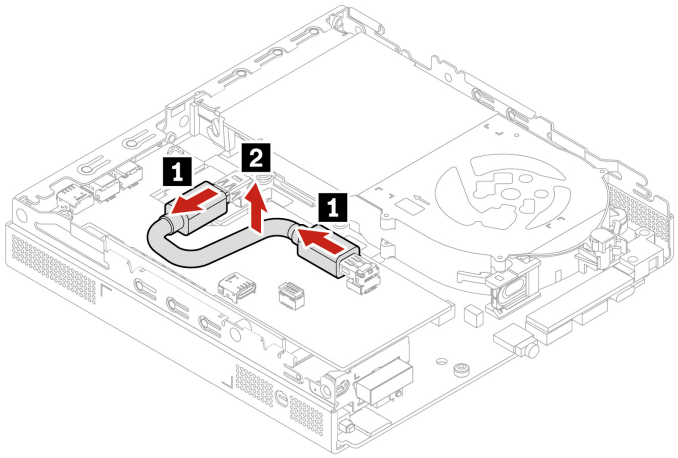
Before you start, read *Generic Safety and Compliance Notices*, and print the following instructions.

Removal steps

1. For access, remove the top cover, see “Top cover” on page 25.
2. Disconnect the DisplayPort to Mini DisplayPort cable.

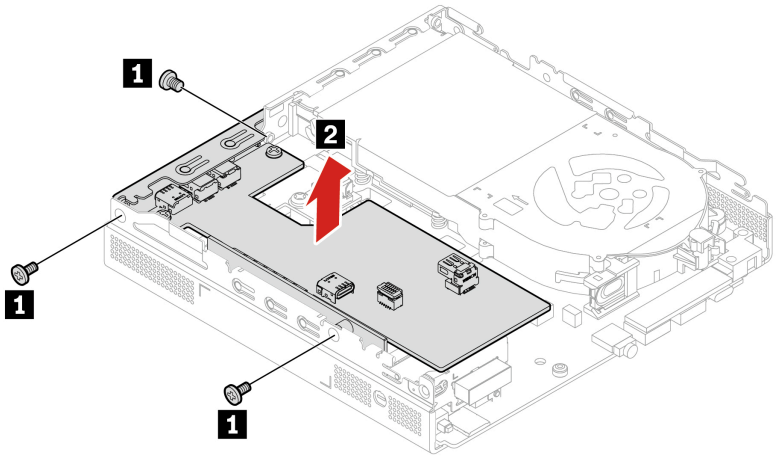


3. Remove the cable connecting the Thunderbolt 4 expansion card to the system board connector.

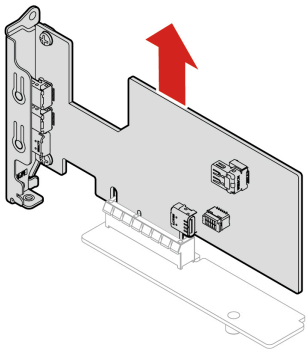


4. Remove the three screws which secure the Thunderbolt 4 expansion card and PCIe converter to the chassis. Find screw specification in the following screw table.

Screw	Quantity	Torque
M3 × L4, countersunk	3	3 ± 0.5 lb/in



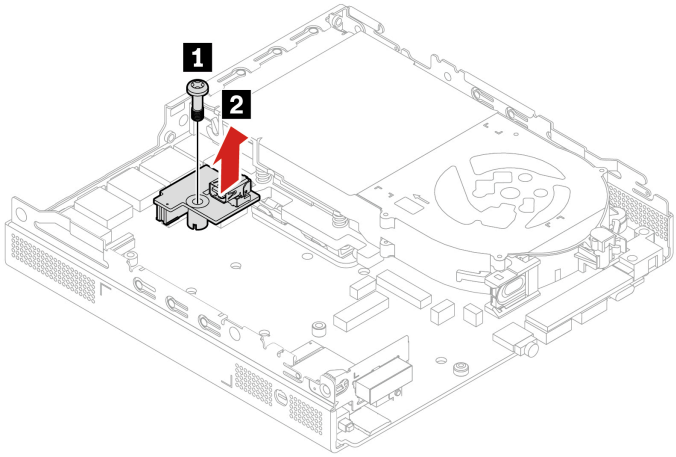
5. Remove the Thunderbolt 4 expansion card from the PCIe converter.



6. Remove the screw which secures the Thunderbolt 4 card to the system board. Find screw specification in the following screw table.

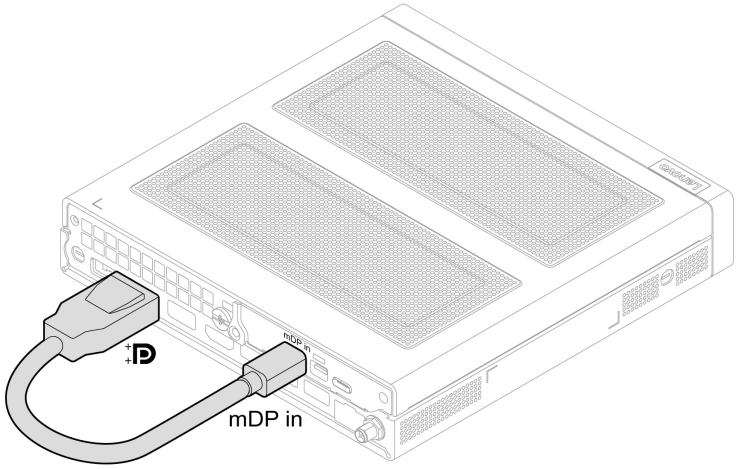
Screw	Quantity	Torque
M3 × L4, countersunk	1	3 ± 0.5 lb/in

7. Remove the Thunderbolt 4 card.



Cable connection

When installing the Thunderbolt 4 card module, ensure to connect the DisplayPort to Mini DisplayPort cable.



Bottom cover

Prerequisite

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

For access, do the following:

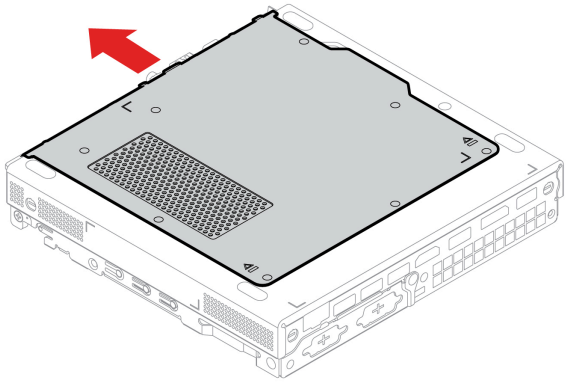
- Remove the top cover. See “Top cover” on page 25.

- Turn over the computer so that the bottom cover is facing up.

Replacement procedure

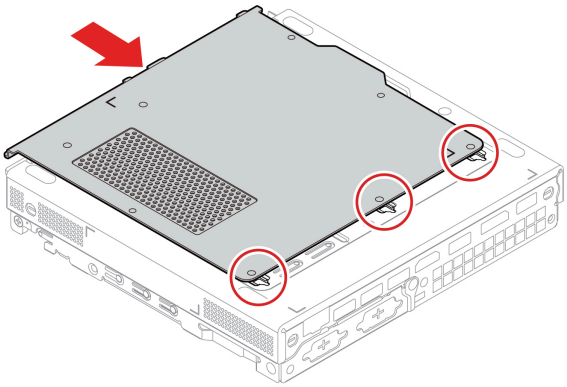
Removal steps

Slide the bottom cover towards the front panel to remove it from the chassis.



Installation steps

1. Align the three hooks on the bottom cover with the holes on the chassis.
2. Slide the bottom cover towards the rear panel until it's clicked into place.



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.

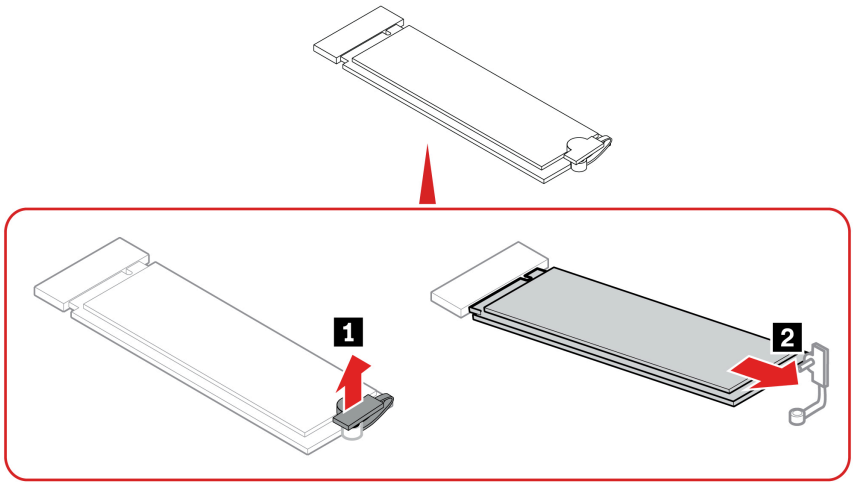
- Do not touch the contact edge of the M.2 solid-state drive. Otherwise, the M.2 solid-state drive might get damaged.
- Do not apply pressure to the M.2 solid-state drive.
- Do not make the M.2 solid-state drive subject to physical shocks or vibration. Put the M.2 solid-state drive on a soft material, such as cloth, to absorb physical shocks.

For access, remove the following parts in order:

- “Top cover” on page 25
- “Bottom cover” on page 35

Removal steps

Open the clip and remove the M.2 solid-state drive from the slot.



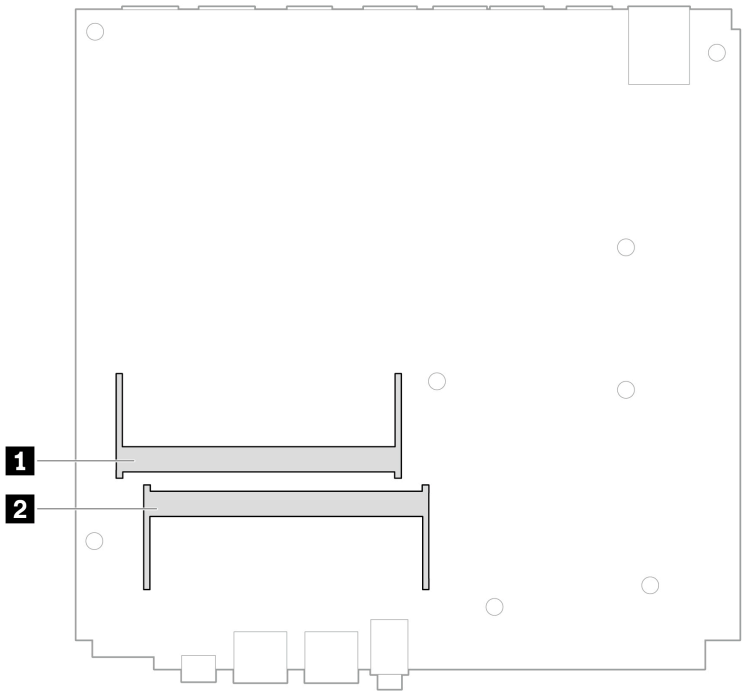
Memory module

Prerequisite

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

Notes:

- To remove or install the memory module, wait at least 20 seconds after disconnecting power cords from the system. It allows the system to be completely discharged of electricity.
- Ensure that you follow the installation order for memory modules shown in the following illustration.

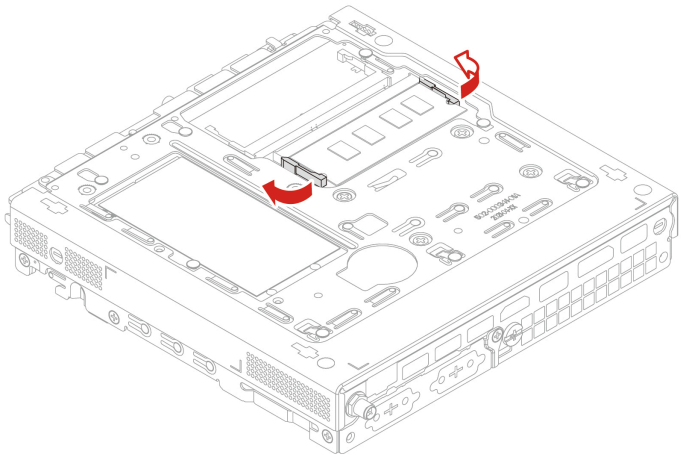


For access, remove the following parts in order:

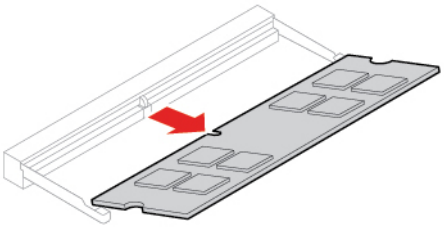
- “Top cover” on page 25
- “Bottom cover” on page 35

Removal steps

1. Open the latches on both sides to release the memory module.



2. Pull the memory module out of the slot.



Chapter 5. Help and support

Self-help resources

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

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

Lenovo diagnostic tools

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

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Call Lenovo

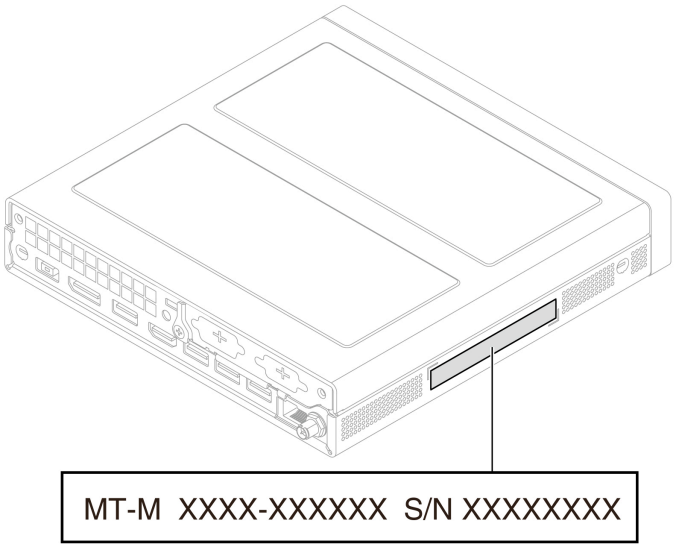
If you have tried to correct the problem yourself and still need help, you can call Lenovo Customer Support Center.

Before you contact Lenovo

Prepare the following before you contact Lenovo:

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

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



Lenovo Customer Support Center

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

Telephone numbers

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

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

Services available during the warranty period

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

Services not covered

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

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

Certification-related information

Product name: ThinkStation P3 Tiny

Machine types: 30H0, 30H1, 30H2, 30H3, 30H4, 30H5, 30H6, and 30H7

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

Compliance information

For more compliance information, refer to *Regulatory Notice* at https://support.lenovo.com/docs/common_commercial_rn and *Generic Safety and Compliance Notices* at https://pcsupport.lenovo.com/docs/generic_notices.

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.

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.

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. 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 Linux 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

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

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

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

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

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https://pcsupport.lenovo.com

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