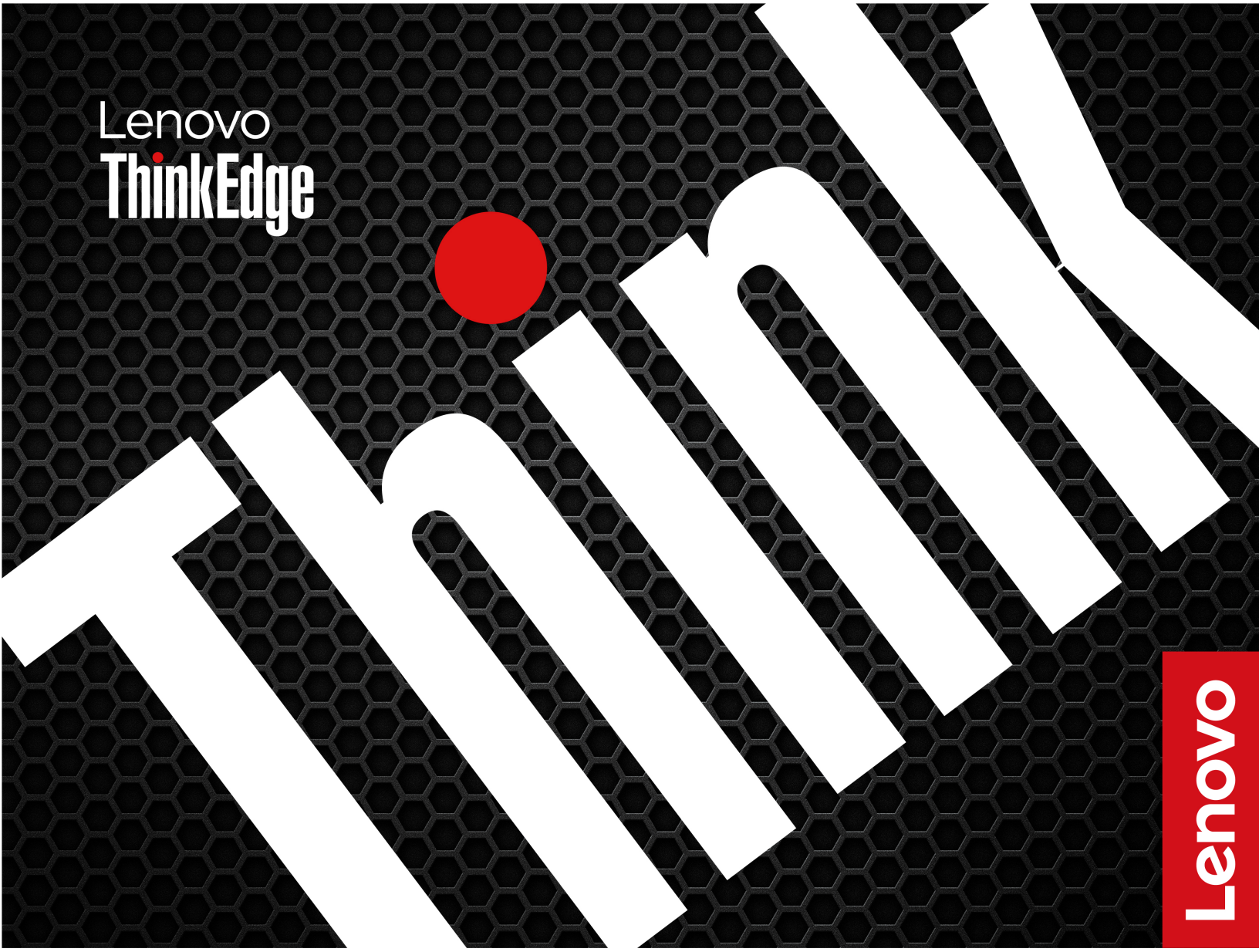
User Guide



ThinkEdge SE60n Gen2

About this documentation

This guide applies to Lenovo product model(s) listed below:

Product name: ThinkEdge SE60n Gen2

Machine types	Machine volume	Operating temperature
13NN, 13NQ, 13RJ, and 13RK	SE60n Gen2 (without IET): 2.1 L	-20°C–60°C (-4°F–140°F)
13NR and 13NS	SE60n Gen2 (with IET): 3.06 L	
13MC, 13MD, 13RG, and 13RH	SE60n Gen2 (without IET): 2.1 L	0°C–50°C (32°F–122°F)
13NT and 13NU	SE60n Gen2 (with IET): 3.06 L	

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

Notes:

- Illustrations in this documentation might look different from your product.
- Depending on the model, some optional accessories, features, and software programs might not be available on your computer.
- Depending on the version of operating systems and programs, some user interface instructions might not be applicable to your computer.
- Documentation content is subject to change without notice. Lenovo makes constant improvements on the documentation of your computer, including this *User Guide*. To get the latest documentation, go to: https://smartsupport.lenovo.com
- Microsoft® makes periodic feature changes to the Windows® operating system through Windows Update. As a result, some information in this documentation might become outdated. Refer to Microsoft resources for the latest information.

Restricted access location statement



“Equipment intended for Restricted Access Location” or equivalent. (instruction)

First Edition (January 2026)

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Attention: This product is used in restricted access location. During operation, the temperature of the computer surface might become very high and burn the skin. Avoid keeping your hands or any other part of your body in contact with the computer.

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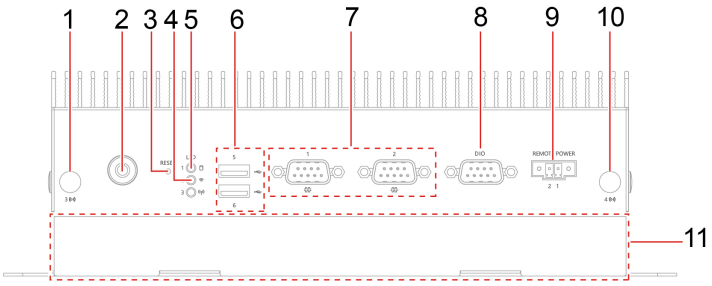
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Chapter 1. Product overview

Attention: During operation, the computer surface might become very hot and burn the skin. Avoid keeping your hands or any other part of your body in contact with the computer.

Front view



Item	Description	Item	Description
1	Wireless LAN antenna slot	2	Power button
3	Reset hole	4	Wireless LAN status indicator
5	Storage drive activity indicator	6	USB-A connectors (Hi-Speed USB)
7	Serial connectors	8	Digital Input/Output connector
9	Remote power button connector	10	Wireless LAN antenna slot
11	Intelligent Expansion Technology (IET) module*		

* for selected models

Statement on USB transfer rate

Depending on many factors such as the processing capability of the host and peripheral devices, file attributes, and other factors related to system configuration and operating environments, the actual transfer rate using the various USB connectors on this device will vary and will be slower than the data rate listed in “USB specifications” on page 9.

Wireless LAN antenna slot

Used to install the wireless LAN antenna cable connector that is available only on some models.

Power button

Press to turn on the computer.

To turn off the computer, open the Start menu, click **Power**, and then select **Shut down**.

The indicator in the power button shows the system status of your computer.

- **On:** The computer is starting up or working.

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- **Off:** The computer is off or in hibernation mode.

Reset hole

Insert a straightened paper clip into the hole and press the reset button to reset your computer if the computer stops responding and you cannot turn it off by pressing the power button.

Storage drive activity indicator

LED status	Indication
Blinking yellow	The indicator is showing data transfer status.
Off	The computer is off or in sleep mode.

Wireless LAN status indicator

LED status	Indication
Solid green	The indicator is showing successful wireless network connection.
Off	The computer is off or in sleep mode. Or the Wi-Fi is disabled.

Serial connectors

Use the connectors to connect an external modem, a serial printer, or other devices that use a serial connector.

Digital Input/Output connector

Use the connector to connect digital control devices.

Remote power button connector

Use the remote power button connector for remote or convenient system control.

IET module

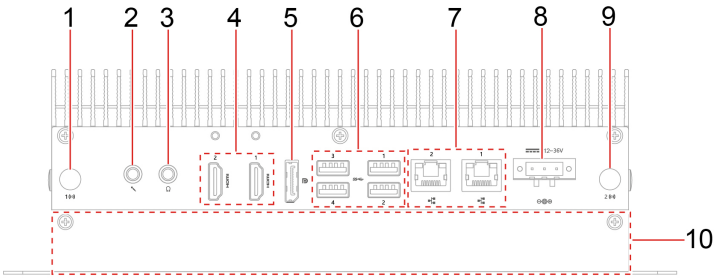
Four optional IET modules are available for you to customize your computer.

Note: Only the rear side of the IET module has connectors.

Related topics

- “Serial connectors” on page 11
- “Digital Input and Digital Output connector” on page 12
- “Remote power button connector” on page 13
- “IET modules” on page 13

Rear view



Item	Description	Item	Description
1	Antenna slot	2	Microphone connector
3	Headphone connector	4	HDMI™ out connectors
5	DP++ out connector	6	USB-A connectors (USB 5Gbps)
7	Ethernet connectors (2.5G)	8	DC power connector (DC in 12-36 V)
9	Antenna slot	10	IET module*

Antenna slot

Use the slot to install the antenna that is available only on some models.

Microphone connector

The microphone connector connects a microphone.

Headphone connector

The headphone connector is compatible with headphones or earphones with a 3.5 mm (0.14 inch), TRS (3-pole) plug.

HDMI out connector

Send audio and video signals from the computer to another audio or video device, such as a high-performance monitor. HDMI 2.0b supports a maximum resolution of 4096 × 2304 (60 Hz).

DP++ out connector

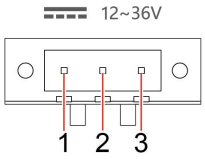
The connector supports max 4096 × 2304 (60 Hz).

Ethernet connector (2.5G)

In industrial environments, it is recommended to use shielded network cables.

Connect to a local area network (LAN). When the yellow indicator is on, the computer is connected to a LAN. When the green/orange indicator blinks, data is being transmitted.

DC power connector (DC in 12-36 V)



Pin	Signal
1	GND
2	GND
3	V+ (DC in)

Notes:

- Use the 3-pin phoenix terminal provided by Lenovo in box.
- Connections made to this connector must use solid wire (28–12 AWG) or stranded wire (30–12 AWG). Connector temperature range is from -40°C to +115°C.
- The power supply voltage tolerance is ±10%.
- Torque the screws at 0.3 N.m.

Note: For protection and stable operation, the computer must be powered through a regulated power supply, such as a UPS, to maintain input voltage fluctuations within ±10%.

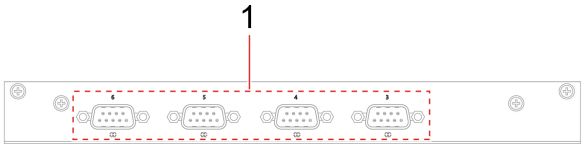
Note: For models with PoE (Power over Ethernet) capability, power must be supplied via the WDCIN input. The WDCIN input voltage must be higher than 12 V and the WDCIN input supports a maximum current of 13 A (10% tolerance).

IET module

Four optional IET modules are available for you to customize your computer.

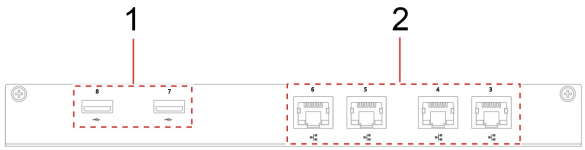
Note: Only the rear side of the IET module has connectors.

- **4-COM Module**



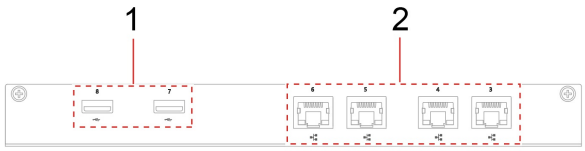
Item	Signal
1	RS232, RS422, or RS485 connectors

- **4-LAN PoE IEEE 802.3af Module**



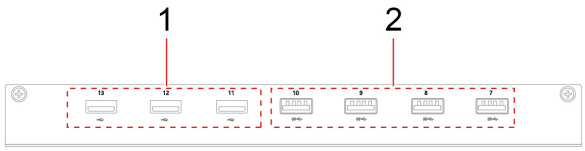
Item	Signal
1	USB-A connectors (Hi-Speed USB)
2	PoE IEEE 802.3af connectors

- **4-LAN Module**



Item	Signal
1	USB-A connectors (Hi-Speed USB)
2	Ethernet connectors

- **7-USB Module**



Item	Signal
1	USB-A connectors (Hi-Speed USB)
2	USB-A connectors (USB 5Gbps)

Related topics

- “Ethernet connectors” on page 12
- “IET modules” on page 13

Side view

Right view

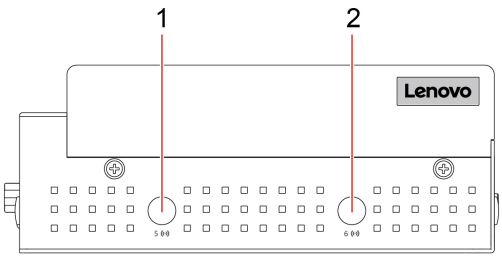


Figure 1. Right view

Item	Description	Item	Description
1	Antenna slot	2	Antenna slot

Antenna slot

Use the slot to install the antenna that is available only on some models.

Left view

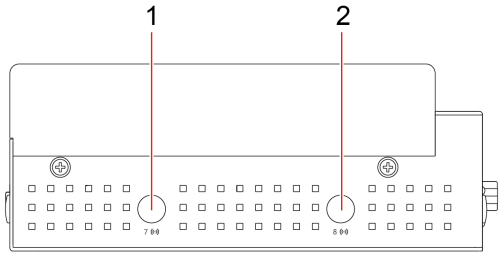


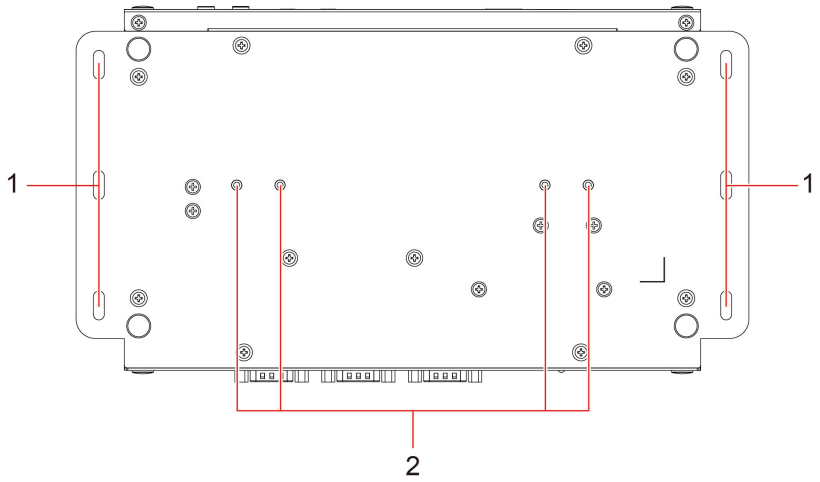
Figure 2. Left view

Item	Description	Item	Description
1	Antenna slot	2	Antenna slot

Antenna slot

Use the slot to install the antenna that is available only on some models.

Bottom view



Item	Description	Item	Description
1	Wall mount holes	2	DIN rail holes

Wall mount holes

Use the holes to install the computer on a wall.

DIN rail holes

Connect the matched DIN rail bracket kit with the screws provided by Lenovo when you install the computer on a wall or other non-flammable mounting surface.

Related topics

- “Mount on wall” on page 18

Features and specifications

Specification	Description
Dimensions	• Width: 240 mm (9.45 inches) • Depth: 150 mm (5.91 inches) • Height: – Without IET: 59 mm (2.32 inches) – With IET: 85 mm (3.35 inches)
Weight (without packaging)	Maximum configuration as shipped: • Without IET: 2.3 kg (5.07 lb) • With IET: 2.6 kg (5.73 lb)
Hardware configuration	Type `Device Manager` in the Windows search box and then press Enter. Type the administrator password or provide confirmation, if prompted.
Power supply	150-watt industrial power supply **Notes:** • From -20°C (-4°F) to 40°C (104°F): 150-watt • From -20°C (-4°F) to 50°C (122°F): 120-watt • From -20°C (-4°F) to 60°C (144°F): 100-watt
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, right-click the **Start** button and then click **System**. **Note:** The Intel® Turbo Boost is disabled. The maximum Thermal Design Power (TDP) of microprocessor might be 12W, 15W, or 28W, which depends on different microprocessor series. The max frequency might not be obtainable at high work levels, so the microprocessor will adjust the frequency to obtain the maximum TDP allowed.
Memory	Double data rate 5 (DDR5) memory module, 2 × SO-DIMM
Storage device	Your computer supports up to two M.2 solid-state drives: To view the storage drive capacity of your computer, type `Disk Management` in the Windows search box and then press Enter. **Notes:** • The storage drive capacity indicated by the system is less than the nominal capacity. • The Percentage Used value reflects the cumulative wear level of the M.2 solid-state drive. If this value exceeds 100%, it indicates that the M.2 solid-state drive has reached its maximum rated endurance. To safeguard your data and mitigate potential loss, it is recommended that you back up all files on the M.2 solid-state drive promptly and then replace it with a new one.
Video features	The integrated graphics card supports: • HDMI out connectors • DP++ out connector

Specification	Description
Audio features	The integrated audio card supports the following: • Headphone connector • Microphone connector
Expansion	• M.2 solid state drive slot • 4-COM Module • 4-LAN PoE IEEE 802.3af Module • 4-LAN Module • 7-USB Module
Network features	• Ethernet LAN • Wireless LAN • Bluetooth*

* for selected models

Operating environment

The operating environment is not applicable for hardware accessories. The operating temperature of various accessories depends on the corresponding accessory temperature specification.

The operating environment should be compatible with the industrial device's protection level of IP50.

Temperature

- Operating: 2.1 L/3.06 L (150-watt) ambient temperature from -20°C (-4°F) to 40°C (104°F) (with the air flow speed at 0.7 m/s)
- Operating: 2.1 L/3.06 L (120-watt) ambient temperature from -20°C (-4°F) to 50°C (122°F) (with the air flow speed at 0.7 m/s)
- Operating: 2.1 L/3.06 L (100-watt) ambient temperature from -20°C (-4°F) to 60°C (144°F) (with the air flow speed at 0.7 m/s)

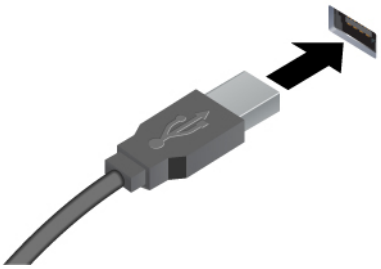
Note: If your computer is stored or transported in temperatures less than -20°C (-4°F), allow the computer to rise slowly to an optimal operating temperature before use. Using the computer in a lower operating temperature might result in irreparable damage to your computer.

Relative humidity

- Operating: 95% (non-condensing) at 40°C (104°F)

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) • SS USB-A connector (USB 5Gbps)	Connect USB-A compatible devices, such as a USB-A keyboard, USB-A mouse, USB-A storage device, or USB-A printer.

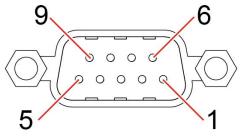
Chapter 2. Customize your computer

Connect your computer with an external display, a keyboard, and a mouse before deployment.

Configurable connectors

You can customize or configure the following connectors with compatible peripheral equipment based on your needs.

Serial connectors



Used to connect an external modem, a serial printer, or other devices that use a serial connector.

For serial connectors 1-2, you can change the serial mode among RS232 (default), RS422, and RS485. For more information, see “Change the Serial Port UART type” on page 29.

Note: A 4-COM Module adds four serial connectors 3-6. The pin definitions for these connectors are identical to those for serial connectors 1-2. However, the method for configuring their serial mode differs. For more information, see “4-COM Module” on page 13.

Table 1. RS232 Pin definition mapping table

Pin number	Pin definition
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Table 2. RS422 Pin definition mapping table

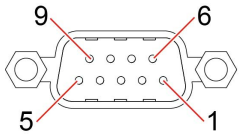
Pin number	Pin definition
1	TX-
2	TX+
3	RX+
4	RX-
5	GND

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Table 3. RS485 Pin definition mapping table

Pin number	Pin definition
1	DATA-
2	DATA+
5	GND

Digital Input and Digital Output connector

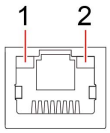


Used to connect digital control devices. To customize this connector, see “Use the software development kit (SDK)” on page 17.

Table 4. Digital Input and Digital Output Pin definition mapping table

Pin number	Pin definition
1	DIO_GP20 (digital input)
2	DIO_GP21 (digital input)
3	DIO_GP22 (digital input)
4	DIO_GP23 (digital input)
5	GND
6	DIO_GP10 (digital output)
7	DIO_GP11 (digital output)
8	DIO_GP12 (digital output)
9	DIO_GP13 (digital output)

Ethernet connectors



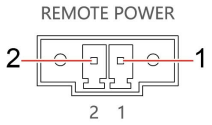
Ethernet connectors are equipped with Intel I226 Ethernet controllers that support 10/100/1000/2500 Mbps. The Ethernet port provides a standard RJ-45 jack connector with LED indicators on left and right side.

Note: In industrial environments, it is recommended to use shielded network cables.

Label	LED status	Indication	Note
1: Activity	Off	The indicator is showing no Ethernet connection.	In S3, S4, or S5 power modes, this indicator is subject to the configured network function.

Label	LED status	Indication	Note
	Blinking yellow	The indicator is showing successful Ethernet connection.	
2: Link	Off	The indicator is showing the lowest data transfer speed.	In S3, S4, or S5 power modes, this indicator remains inactive.
	Solid green	The indicator is showing an intermediate data transfer speed.	
	Solid orange	The indicator is showing the highest data transfer speed.	

Remote power button connector



Pin	Signal
1	PWRBTN#_R
2	GND

These pins are normally open (NO).

Notes:

- Use the 2-pin phoenix terminal provided by Lenovo in box.
  - Dimensions:
    - Distance from center of pin #1 to center of pin #2: 0.12″ (3.05 mm)
    - Width of connector: 0.693″ (17.60 mm)
- Connections made to this connector must use the wire (28 AWG–14 AWG). Connector temperature range is from -40°C to +105°C.

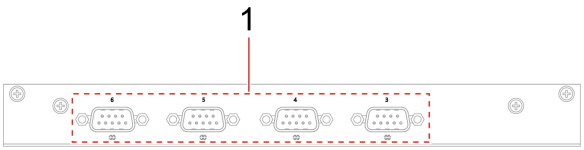
IET modules

Four optional IET modules are available for you to customize your computer.

Note: Only the rear side of the IET module has connectors.

4-COM Module

Used to connect an external modem, a serial printer, or other devices that use a serial connector.



Item	Signal
1	RS232, RS422, or RS485 connectors

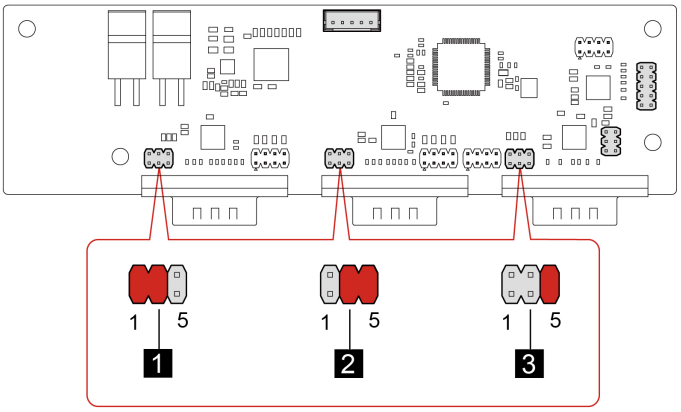
Pin definitions for serial connectors 3-6

The pin definitions for connectors 3-6 are identical to those for serial connectors 1-2. For pin definitions for serial connectors 3-6, see “Serial connectors” on page 11.

Change the serial mode

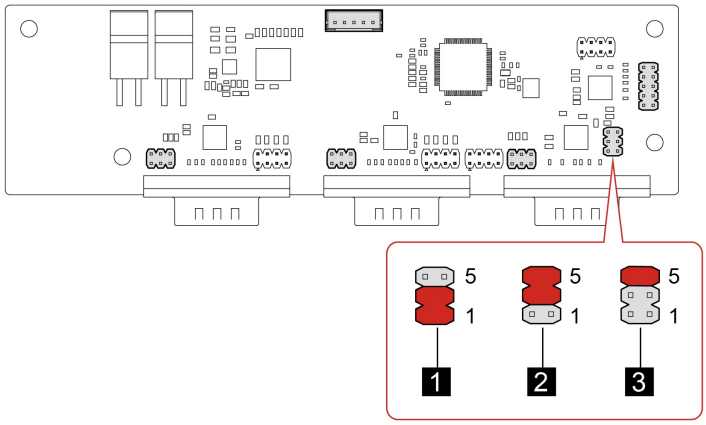
You can change the serial mode among RS232 (default), RS422, and RS485.

Set the serial connector port 3–5 jumper



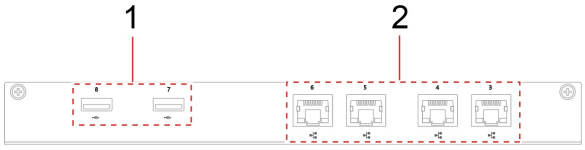
Item	Description	Item	Description
1	RS232 (default)	2	RS422
3	RS485		

Set the serial connector port 6 jumper



Item	Description	Item	Description
1	RS232 (default)	2	RS422
2	RS485		

4-LAN PoE IEEE 802.3af Module

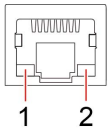


Item	Signal
1	USB-A connectors (Hi-Speed USB)
2	PoE IEEE 802.3af connectors

PoE IEEE 802.3af connectors

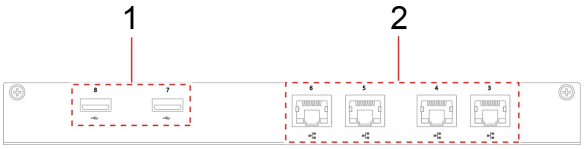
Ethernet connectors support PoE IEEE 802.3af 15.4W.

The Ethernet port provides a standard RJ-45 jack connector with LED indicators on left and right side.

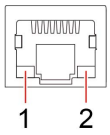


Label	LED status	Indication	Note
1: Activity	Off	The indicator is showing no Ethernet connection.	In S3, S4, or S5 power modes, this indicator is subject to the configured network function.
	Blinking yellow	The indicator is showing successful Ethernet connection.	
2: Link	Off	The indicator is showing the lowest data transfer speed.	In S3, S4, or S5 power modes, this indicator remains inactive.
	Solid green	The indicator is showing an intermediate data transfer speed.	
	Solid orange	The indicator is showing the highest data transfer speed.	

4-LAN Module

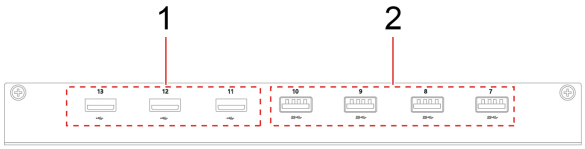


Item	Signal
1	USB-A connectors (Hi-Speed USB)
2	Ethernet connectors



Label	LED status	Indication	Note
1: Activity	Off	The indicator is showing no Ethernet connection.	In S3, S4, or S5 power modes, this indicator is subject to the configured network function.
	Blinking yellow	The indicator is showing successful Ethernet connection.	
2: Link	Off	The indicator is showing the lowest data transfer speed.	In S3, S4, or S5 power modes, this indicator remains inactive.
	Solid green	The indicator is showing an intermediate data transfer speed.	
	Solid orange	The indicator is showing the highest data transfer speed.	

7-USB Module



Item	Signal
1	USB-A connectors (Hi-Speed USB)
2	USB-A connectors (USB 5Gbps)

Use the software development kit (SDK)

Lenovo provides a software development kit (SDK) for your computer. You can use the SDK to develop or configure the following functions or connectors based on your needs.

- **Digital Input and Digital Output connector (DI/DO connector)**: You can collect signals and transfer data with sensors, transducers, and relay modules connected to the DI/DO connectors. For example, you can control output of lamps, 7-segment LED displays, relays, and other products which are used as an interface for digital communication with controllers such as a Programmable Logic Controller (PLC).
- **Serial connector**: You can use this connector as serial communication. For example, you can collect serial logs connected to a peripheral equipment to your computer.
- **Watchdog timer**: You can create a watchdog timer to monitor whether your computer is running correctly and to restart your computer automatically when your computer hangs without human intervention.

To download the software development kit (SDK):

1. Go to https://support.lenovo.com/docs/thinkedge_sdk.
2. Follow the on-screen instructions to select the correct software development kit for your computer.

Get started with Win11 IoT Enterprise 2024 LTSC

You can access the following web site to learn more details on the Win11 IoT Enterprise 2024 LTSC OS: https://learn.microsoft.com/windows/iot/iot-enterprise/getting_started.

Chapter 3. Use your computer

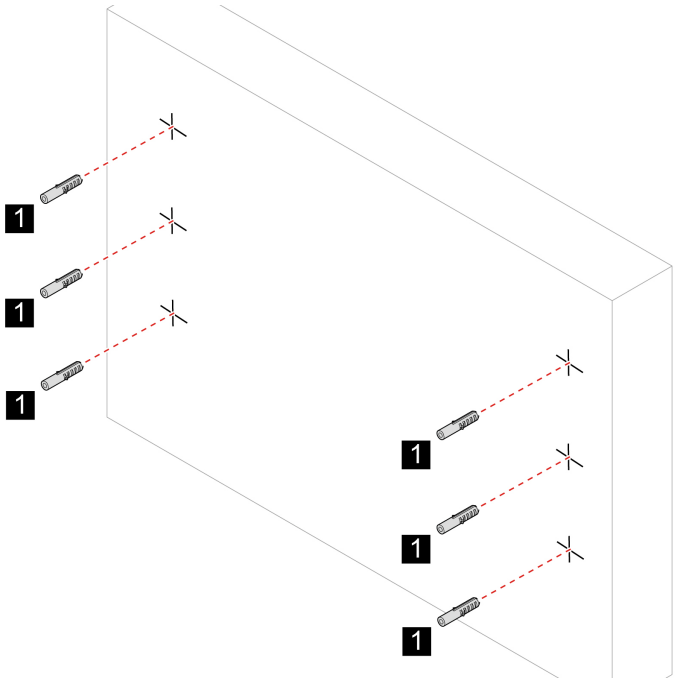
Mount on wall

You can mount your computer on the wall by using the following tools.

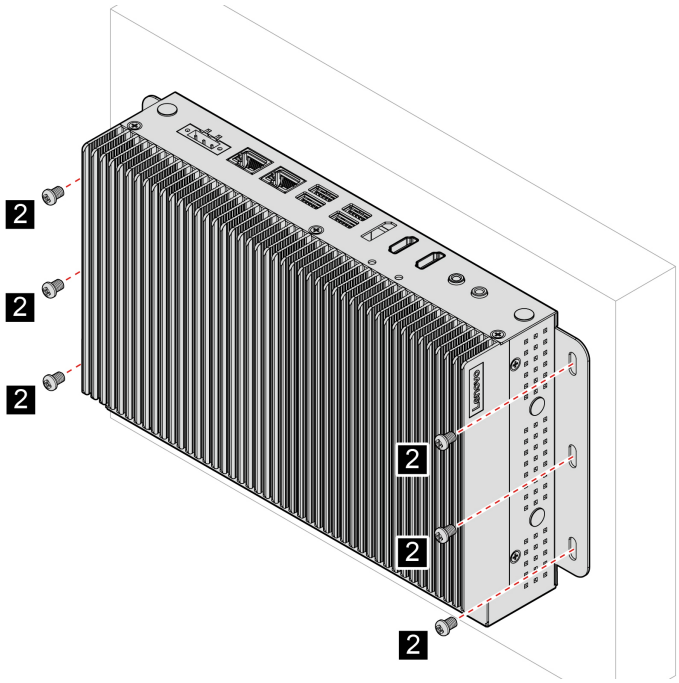
Wall mount kit

Use the wall mount holes on the bottom cover to mount your computer on the wall. Do the following:

1. Install the computer to the wall.



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Attention: Use the screws provided by Lenovo to avoid any unpredictable damage to your computer.

Screw (quantity)	Color	Torque
M4 × L6 mm, pan head (6)	Black	0.71–0.78 Nm (7.2–8.0 kgf-cm)

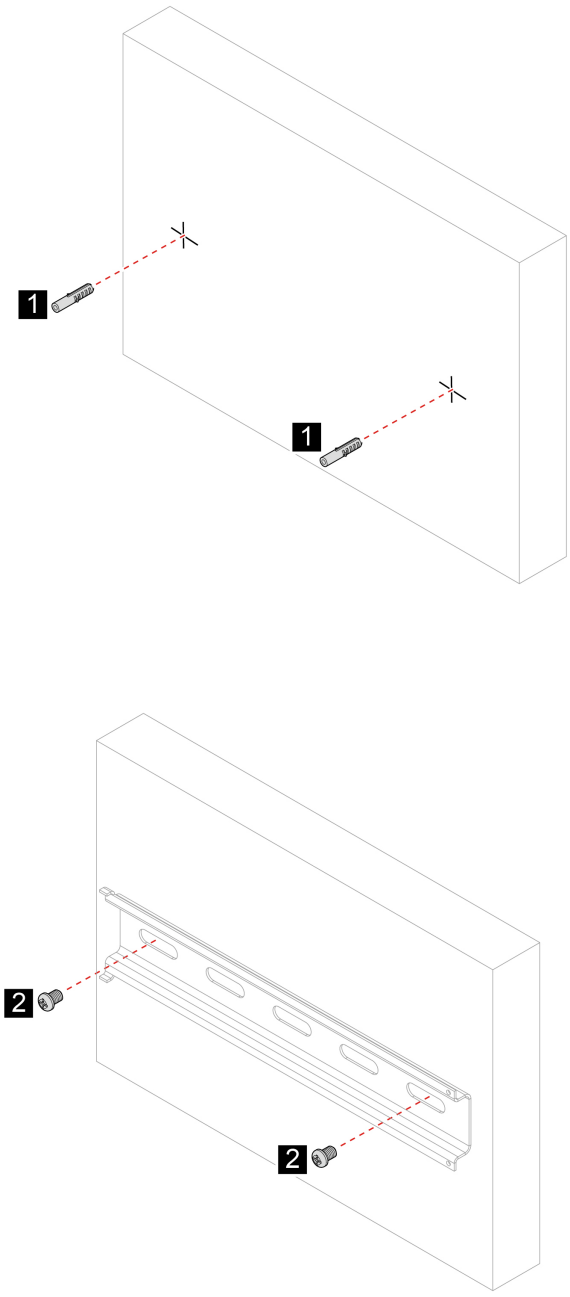
DIN rail bracket kit

To use the DIN rail bracket it, do the following:

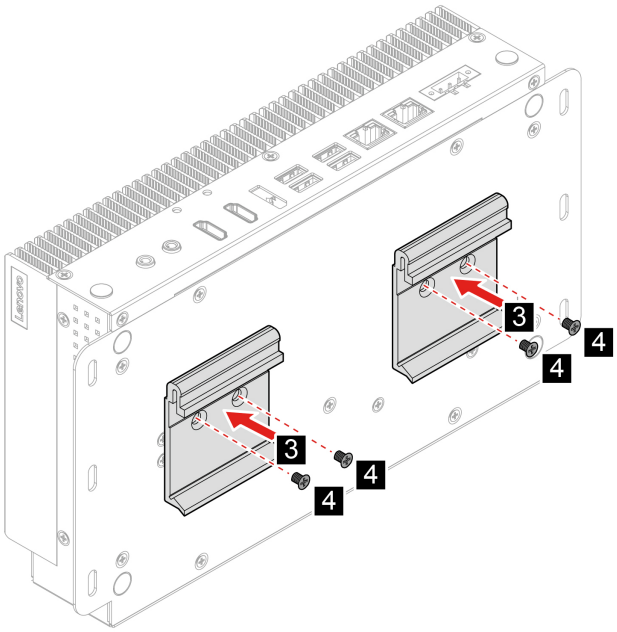
1. Install a rail to the wall.

   Note: Prepare a rail in advance if needed.

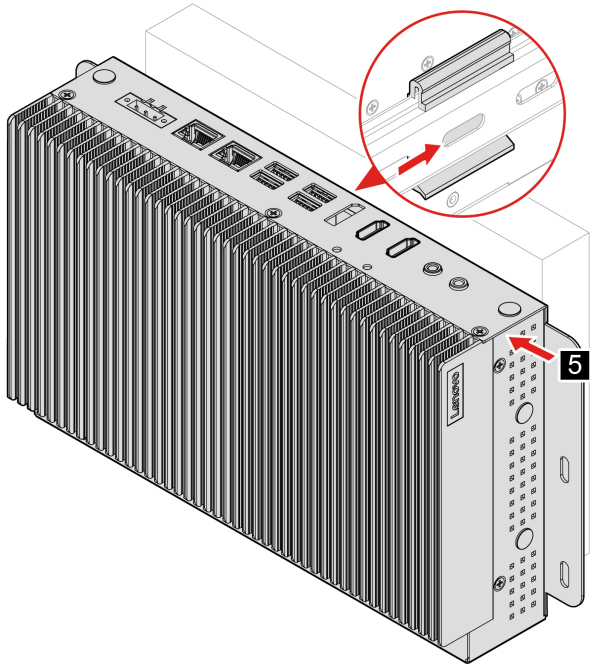




2. Install the DIN brackets to the computer.



3. Install the computer with the DIN rail brackets to the rail.

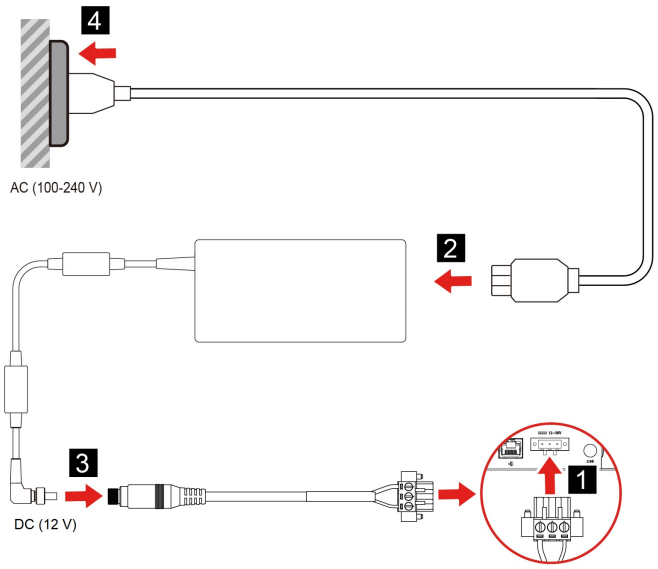


Attention: Use the screws provided by Lenovo to avoid any unpredictable damage to your computer.

Screw (quantity)	Color	Torque
M3 × L5 mm, flat head (4)	Silver	0.39 ± 0.039 Nm (4.0 ± 0.4 kgf-cm)

Connect an AC/DC power adapter to the DC power connector

For selected models, you can connect an AC/DC power adapter to the DC power connector through a power cable. Use the power cable provided by Lenovo in box.



Connect an external display

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

Connect a wireless display

Ensure that both your computer and the wireless display support Miracast®.

Press Windows logo key + K and then select a wireless display to connect.

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.

Antenna location and cable connection

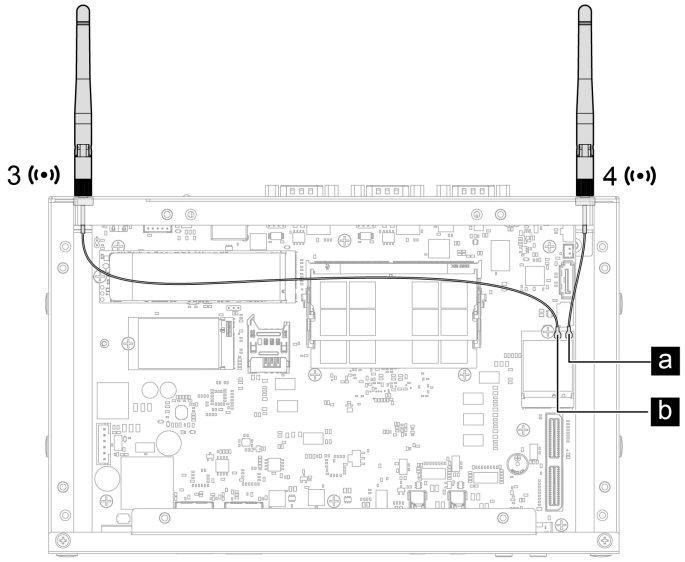


Figure 3. Antenna location and cable connection

External antennas	Location	Cable connection
3, 4 Wireless LAN antennas*	Front panel	a: Wireless LAN auxiliary antenna (gray) b: Wireless LAN main antenna (black)

* for selected models

Access networks

Your computer helps you connect to the world through 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. The wireless LAN module on your computer may support different standards. For some countries or regions, use of 802.11ax may be disabled according to local regulations.

1. Install wireless LAN antennas if any. See “Antenna location and cable connection” on page 23. Pay attention to the silk print number of each wireless LAN antenna and ensure that it matches the silk print number of the corresponding wireless LAN antenna slot.
2. Turn on your computer.
3. Click the network icon in the Windows notification area. A list of available wireless networks is displayed.
4. Select a network available for connection. Provide required information, if needed.

Set power button behaviors

You can define what the power button does according to your preference. For example, by pressing the power button, you can turn off the computer or put the computer to hibernation mode.

To change what the power button does:

1. Go to **Control Panel** and view by large icons or small icons.
2. Click **Power Options** → **Choose what the power buttons do**.
3. Change the settings as you prefer.

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. Type `Bluetooth` in the Windows search box and then press Enter.
2. Turn on Bluetooth, if it is off.
3. Select a Bluetooth device, and then follow the on-screen instructions.

Your Bluetooth 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 4. Secure your computer and information

Use software security solutions

The following software solution helps secure your computer and information.

Windows Security

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

Note: For more information about how to use the software solution, refer to its help system respectively.

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 user password, an administrator password, or HDD security configuration 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.

- User password

  When a user password is set, you are prompted to enter a valid password each time the computer is turned on.

- Administrator password

  Setting an administrator 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 an administrator password.

  When an administrator password is set, you are prompted to enter a valid password each time you try to enter the BIOS menu.

  If both the user password and the administrator password are set, you can enter either password. However, you must use your administrator password to change any configuration settings.

- HDD security configuration (for selected models)

  Setting the HDD security configuration prevents unauthorized access to the data on the storage drive. When the HDD security configuration is set, you are prompted to enter a valid password each time you try to access the storage drive.

  Note: After you set the HDD security configuration, your data on the storage drive is protected even if the storage drive is removed from one computer and installed in another.

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**.

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3. Depending on the password type, select **Set Administrator Password**, **Set User Password**, or **HDD Security Configuration** 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 HDD security configuration is forgotten, Lenovo cannot remove the password or recover data from the storage drive.

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.
Advanced	This category: • Provides advanced information about the computer such as the CPU features. • Introduces how to configure various devices such as USB ports and audio controllers. • Introduces power and thermal management solutions.
Security	This category introduces various passwords, locks, and software to protect your computer.
Startup	This category introduces how to set the boot priority order.
Exit	This category introduces how to exit as you prefer.

To explore the detailed settings:

- For computers purchased in mainland China

  You can contact Lenovo Customer Support Center as shown at https://newsupport.lenovo.com.cn/contacts.html.

- For computers purchased outside mainland China

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

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

Enable or disable the ErP LPS compliance mode

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

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

To enable or disable the ErP LPS compliance mode:

1. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
2. Select **Advanced → Board & Panel Configuration → ErP Function** and press Enter.
3. Depending on whether you select **Enabled** or **Disabled**, do one of the following:
   - If you select **Enabled**, press Enter. Then, go to the next step.
   - If you select **Disabled**, press Enter. You can change setting for the following features as you preferred:
     - You can select **Off**, **On**, or **Last State** the PWR-On After PWR-Fail feature.
     - You can select **Enabled** or **Disabled** the Wake Up by Ring feature.
     - Select **Automatic Power On** and press Enter. You can select **Enabled** or **Disabled** the Wake on LAN feature and the Wake from Serial Port Ring feature.

     Note: When the Enhanced Power Saving Mode is disabled, the computer power consumption might be increased in standby mode.
4. Press F10 or Fn+F10 to save the changes and exit.

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

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

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

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

Update the UEFI BIOS

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

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

From the Lenovo Support Web site

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

For computers purchased in mainland China

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

For computers purchased outside mainland China

1. Go to https://pcsupport.lenovo.com and select the entry for your computer.

2. Click **Drivers & Software → Manual Update → BIOS/UEFI**.
3. Follow the on-screen instructions to download and install the latest UEFI BIOS update package.

From the Windows Update

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

Step 1. Type **Settings** in the Windows search box and press Enter.

Step 2. Click **Windows Update → Check for Updates**.

Step 3. If a BIOS update package appears in your update list, click **Download or Install** to initiate the update.

Change the Serial Port UART type

1. “Set the serial connector port 1–2 jumper (JCOM_SEL1/JCOM_SEL2)” on page 45 to the required position.
2. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
3. Select **Advanced → Super IO Configuration** and press Enter. You can do the following:
   - Select **Serial Port1 Configuration → UART 232 422 485** and press Enter. You can select **UART 232**, **UART 422** or **UART 485** for Serial Port1 as you preferred.
   - Select **Serial Port2 Configuration → UART 232 422 485** and press Enter. You can select **UART 232**, **UART 422** or **UART 485** for Serial Port2 as you preferred.
4. Press F10 or Fn+F10 to save the changes and exit.

Chapter 6. Troubleshooting and recovery

This chapter provides solutions to resolve computer problems. Use the basic procedure as a starting point for resolving computer problems.

Basic procedure for resolving computer problems

Prerequisite

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

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

1. Check that:
   a. The cables for all connected devices are connected correctly and securely.
   b. All components have been reassembled correctly.
   c. All connected devices that require ac power are connected to properly grounded and working electrical outlets.
   d. All connected devices are enabled in UEFI BIOS.
2. Use an antivirus program (if any) to see if the computer has been infected by a virus. If the program detects a virus, remove the virus.
3. See “Troubleshooting” on page 30 to resolve the problem you are experiencing and recover your operating system.
4. If the problem persists, contact Lenovo. See Chapter 8 “Help and support” on page 57.

Troubleshooting

Use the troubleshooting information to find solutions to problems that have definite symptoms.

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Startup problems

Problem	Solution
The computer does not start up when you press the power button.	• Ensure that the power cord is correctly connected to the rear of the computer and to a working electrical outlet. • If the computer has a secondary power switch on the rear of the computer, ensure that it is switched on. • The power indicator on the front of the computer is on. • The computer voltage matches the voltage available at the electrical outlet for your country or region.
The operating system does not start up from the correct storage drive or fails to start up	• Ensure that all storage drive signal cables and power cables are connected correctly. • Ensure that the storage drive the computer starts up from is listed as the first startup device in UEFI BIOS. • In rare cases, the storage drive with the operating system might get corrupted or damaged. In such cases, you might need to replace the storage drive. • If the computer is installed with an Optane memory: – Ensure that the Optane memory is not removed. – Ensure that the Optane memory is not damaged. Check the Optane memory using diagnostic tools.
The computer beeps multiple times before the operating system starts up.	Ensure that no keys are stuck.

Audio problems

Problem	Solution
The audio cannot be heard on the Windows operating system.	• If you are using powered external speakers that have an On/Off control, ensure that: – The On/Off control is set to the **On** position. – The speaker power cable is connected to a properly grounded, functional ac electrical outlet. • If your external speakers have a volume control, ensure that the volume is not set too low. • Click the volume icon in the Windows notification area on the taskbar. Check the speaker and volume settings. Do not mute the speaker or set the volume at a very low level. • If your computer has a front audio panel, ensure that the volume is not set too low. • Ensure that your external speakers (and headphones, if used) are connected to the correct audio connector on the computer. Most speaker cables are color-coded to match the audio connector. **Note:** When external-speaker or headphone cables are connected to the audio connector, the internal speaker, if present, is disabled. In most cases, if an audio adapter is installed in one of the expansion slots, the audio function built into the system board is disabled. Therefore, you must use the audio connectors on the audio adapter. • Ensure that the program you are running is designed for use in the Microsoft Windows operating system. If the program is designed to run in DOS, the program does not use the Windows sound feature. The program must be configured to use SoundBlaster Pro or SoundBlaster emulation. • Ensure that the audio device drivers are correctly installed.
The sound does not come from the headset or headphones.	Select the headset or headphones as the default audio output device in advanced sound settings.
The sound comes from one of the external speakers.	• Ensure that the speaker cable is inserted completely into the connector on the computer. • Ensure that the cable that connects the left speaker to the right speaker is securely connected. • Ensure that the balance settings are set correctly. 1. Right-click the volume icon in the Windows notification area on the taskbar. Then, click **Open Volume Mixer** and select the desired speaker. 2. Click the speaker icon on top of the volume control, and then click the **Levels** tab.

Network problems

Note: The Wi-Fi and Bluetooth features are optional.

Problem	Solution
The computer cannot connect to an Ethernet LAN.	• Connect the cable from the Ethernet connector to the RJ45 connector of the hub. • Enable the Ethernet LAN feature in UEFI BIOS. • Enable the Ethernet LAN adapter. 1. Go to **Control Panel** and view by large icons or small icons. 2. Click **Network and Sharing Center → Change adapter settings**. 3. Right-click the Ethernet LAN adapter icon and click **Enable**. • Update or reinstall the Ethernet LAN driver. • Install all networking software that is necessary for your network environment. Check with your LAN administrator for the necessary networking software. • Set the same duplex for the switch port and the adapter. If you configured the adapter for full duplex, ensure that the switch port is also configured for full duplex. Setting a wrong duplex mode might degrade performance, cause data loss, or result in lost connections.
When a Gigabit Ethernet model computer is used at a speed of 1000 Mbps, the Ethernet LAN connection fails or errors occur.	Connect the network cable to the Ethernet connector using Category 5 wiring and a 100 BASE-T hub/switch (not 100 BASE-X).
The Wake On LAN (WOL) feature does not work.	Enable the Wake On LAN feature in UEFI BIOS.
The Wi-Fi feature does not work.	• Enable the Wi-Fi feature in UEFI BIOS. • Enable all Wi-Fi devices. 1. Right-click the **Start** button to open the **Start** context menu. 2. Click **Device Manager**. Type the administrator password or provide confirmation, if prompted. 3. Expand **Network adapters** to display all network devices. 4. Right-click each Wi-Fi device, and then click **Enable device**. • Enable the Wi-Fi feature in Windows Settings. 1. Open the **Start** menu. 2. Click **Settings → Network & Internet → Wi-Fi**. 3. Enable the Wi-Fi feature. • Update or reinstall the Wi-Fi driver.

Problem	Solution
The Bluetooth feature does not work.	• Enable the Bluetooth feature in UEFI BIOS. • Enable all Bluetooth devices. 1. Right-click the **Start** button to open the **Start** context menu. 2. Click **Device Manager**. Type the administrator password or provide confirmation if prompted. 3. Expand **Bluetooth** to display all Bluetooth devices. Right-click each Bluetooth device, and then click **Enable device**. 4. Expand **Network adapters** to display all network devices. Right-click each Bluetooth device, and then click **Enable device**. • Turn on the Bluetooth radio. 1. Open the **Start** menu. 2. Click **Settings → Devices → Bluetooth & other devices**. 3. Turn on the **Bluetooth** switch to enable the Bluetooth feature. • Update or reinstall the Bluetooth driver.
Sound does not come from the Bluetooth headset or headphones.	Select the Bluetooth headset or headphones as the default audio output device in advanced sound settings.

Performance problems

Problem	Solution
Excessive fragmented files exist on the storage drives.	**Note:** Depending on the volume of the storage drives and amount of data stored on the storage drives, the disk-defragmentation process might take up to several hours. 1. Close any open programs and windows. 2. Open the **Start** menu. 3. Click **Windows System** → **File Explorer** → **This PC**. 4. Right-click your C drive and then click **Properties**. 5. Click the **Tools** tab. 6. Click **Optimize**. Select the drive as desired, and then click **Optimize**. 7. Follow the on-screen instructions.
The free storage drive space is insufficient.	• Clean out your Inbox, Sent Items, and Deleted Items folders from your e-mail application. • Clean up your C drive. 1. Open the **Start** menu. 2. Click **Windows System** → **File Explorer** → **This PC**. 3. Right-click your C drive and then click **Properties**. 4. Check the amount of free space, and then click **Disk Cleanup**. 5. A list of unnecessary file categories is displayed. Select the category you want to delete, and then click **OK**. • Disable some Windows features or remove some unnecessary programs. 1. Go to **Control Panel** and view by large icons or small icons. 2. Click **Programs and Features**. 3. Do one of the following: – To disable some Windows features, click **Turn Windows features on or off**. Follow the on-screen instructions. – To remove some unnecessary programs, select the program you want to remove, and then click **Uninstall/Change** or **Uninstall**.
The free memory space is insufficient.	• Right-click a blank area on the taskbar and open Task Manager. Then, end some tasks you are not performing. • Install additional memory modules.

Storage drive problems

Problem	Solution
Some or all storage drives are missing from the BIOS menu.	• Ensure that the signal cables and power cables for all the storage drives are connected correctly. • Ensure that the computer is configured correctly to support the storage drives. – If the computer is installed with SATA storage drives, ensure that the SATA storage drive enablement module (one to five storage drives) is installed. – If the computer is installed with SAS storage drives, ensure that the SAS storage drive enablement module (one to five storage drives) or the LSI MegaRAID SAS adapter is installed.

Serial connector problems

Problem	Solution
The serial connector cannot be accessed.	• Connect the serial cable from the serial connector on the computer to the serial device. If the serial device has its own power cord, connect the power cord to a grounded electrical outlet. • Turn on the serial device and keep the device online. • Install any programs supplied with the serial device. Refer to the documentation that comes with the serial device for more information. • If you added one serial-connector adapter, ensure that the adapter is installed correctly.

USB device problems

Problem	Solution
A USB device cannot be accessed.	• Connect the USB cable from the USB connector to the USB device. If the USB device has its own power cord, connect the power cord to a grounded electrical outlet. • Turn on the USB device and keep the device online. • Install any device drivers or programs supplied with the USB device. Refer to the documentation that comes with the USB device for more information. • Disconnect and reconnect the USB connector to reset the USB device. • Ensure that the Smart USB Protection function is disabled in UEFI BIOS.

Software problems

Problem	Solution
Some programs do not work as expected.	1. Check whether the problem is caused by a program. a. Ensure that the software is compatible with the computer. Refer to the information supplied with the software for more information. b. Verify that other software works correctly on the computer. c. Verify that the software you are using works on another computer. 2. If the problem is caused by a program: • Refer to the printed documentation that comes with the program or the help system of the program. • Update the program. • Uninstall the program and then reinstall it. To download a program that is preinstalled on your computer, go to https://smartsupport.lenovo.com and follow the on-screen instructions.

Recovery

This section introduces the recovery information of the Windows 10 operating system. Ensure that you read and follow the on-screen recovery instructions. The data on your computer might be deleted during the recovery process. To avoid data loss, make a backup copy of all the data that you want to keep.

Restore system image to factory image

Lenovo provides a Digital Download for your computer. For example, you can restore system image to factory image.

To download the Digital Download:

1. Go to https://smartsupport.lenovo.com.
2. Search by your computer product name to enter the support web page for your computer.
3. Click **Drivers & Software**.
4. Click **Order Now** at the **Get Recovery Media** tab and follow the on-screen instructions.

Restore system files and settings to an earlier point

1. Go to **Control Panel** and view by large icons or small icons.
2. Click **Recovery** → **Open System Restore**. Then, follow the on-screen instructions.

Restore your files from a backup

Note: If you use the File History tool to restore your files from a backup, ensure that you backed up your data earlier with the tool.

1. Go to **Control Panel** and view by large icons or small icons.
2. Click **File History** → **Restore personal files**. Then, follow the on-screen instructions.

Reset your computer

In the resetting process, you can choose to keep your files or remove them when you reinstall the operating system.

Note: The items in the graphical user interface (GUI) might change without notice.

1. Open the **Start** menu, and then click **Settings → Update & Security → Recovery**.
2. In the **Reset this PC** section, click **Get started**.
3. Follow the on-screen instructions to reset your computer.

Use advanced options

1. Open the **Start** menu, and then click **Settings → Update & security → Recovery**.
2. In the **Advanced startup** section, click **Restart now → Troubleshoot → Advanced options**.
3. Select a preferred option, and then follow the on-screen instructions.

Windows automatic recovery

Note: Ensure that your computer is connected to ac power during the recovery process.

The Windows recovery environment on your computer operates independently from the Windows 10 operating system. It enables you to recover or repair the operating system even if the Windows 10 operating system fails to start.

After two consecutive failed boot attempts, the Windows recovery environment starts automatically. Then, you can choose repair and recovery options by following the on-screen instructions.

Update the device driver

Attention: Reinstalling device drivers will change the current configuration of the computer.

You should download the latest driver for a component when you notice poor performance from that component or when you added a component. This action might eliminate the driver as the potential cause of a problem. Download and install the latest driver by one of the following methods:

- From the Lenovo Support Web site:

  Go to https://smartsupport.lenovo.com and select the entry for your computer. Then, follow the on-screen instructions to download and install necessary drivers and software.
- From Windows Update:

  Note: The device drivers provided by Windows Update might not be tested by Lenovo. It is recommended that you get device drivers from Lenovo.

  1. Open the **Start** menu.
  2. Click **Settings → Update & Security → Windows Update**.
  3. Follow the on-screen instructions.

Chapter 7. CRU replacement

What is CRU

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

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

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

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

CRU list

The following is the CRU list of your computer.

Self-service CRUs

- DIN rail bracket kit*
- External wireless LAN antenna*
- I/O port cover kit
- Power adapter*
- Power phoenix cable
- Power cord*
- Rubber foot
- Wall mount kit*

Optional-service CRUs

- Bottom cover
- Power connector
- M.2 solid-state drive*
- Memory

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- Remote power connector

* for selected models

System board

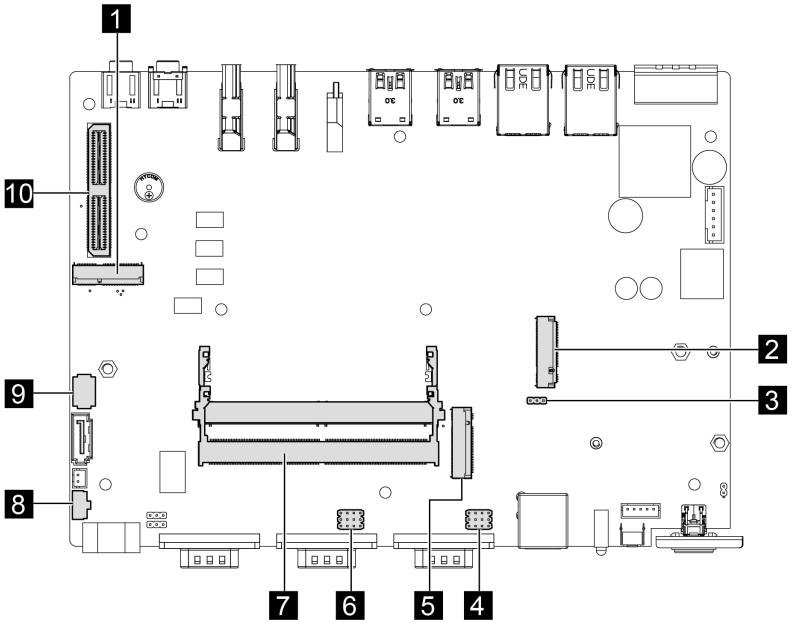


Figure 4. System board — front view

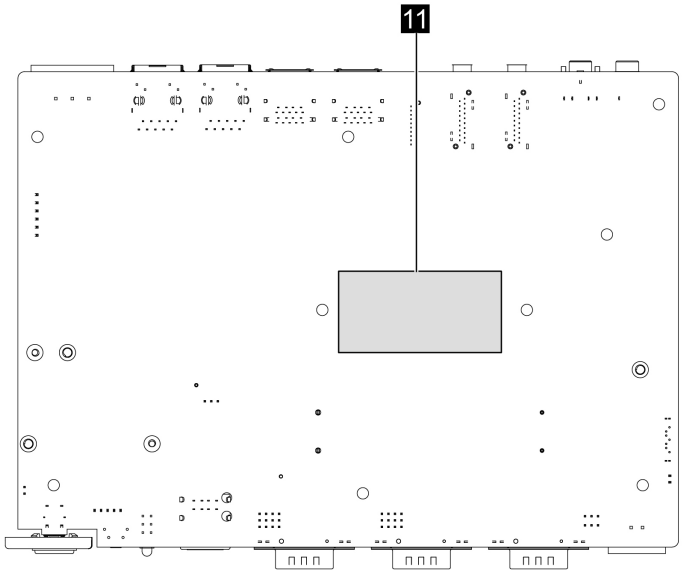


Figure 5. System board — back view

Item	Description	Item	Description
1	M.2 Key E, Wi-Fi card slot (2230)	2	M.2 Key B, can be used as: • Wireless WAN slot • SATA solid-state drive slot (2242)
3	Clear CMOS (Complementary Metal Oxide Semiconductor) / Recovery jumper	4	Serial connector port 1 jumper (JCOM_SEL1)
5	M.2 Key M, NVMe solid-state drive slot (2280)	6	Serial connector port 2 jumper (JCOM_SEL2)
7	Memory slots	8	CMOS battery connector
9	Flexible I/O connector (for 4-COM Module)	10	Flexible I/O connector (for 7-USB Module, 4-LAN Module, or 4-LAN PoE IEEE 802.3af Module)
11	Microprocessor		

System board diagram

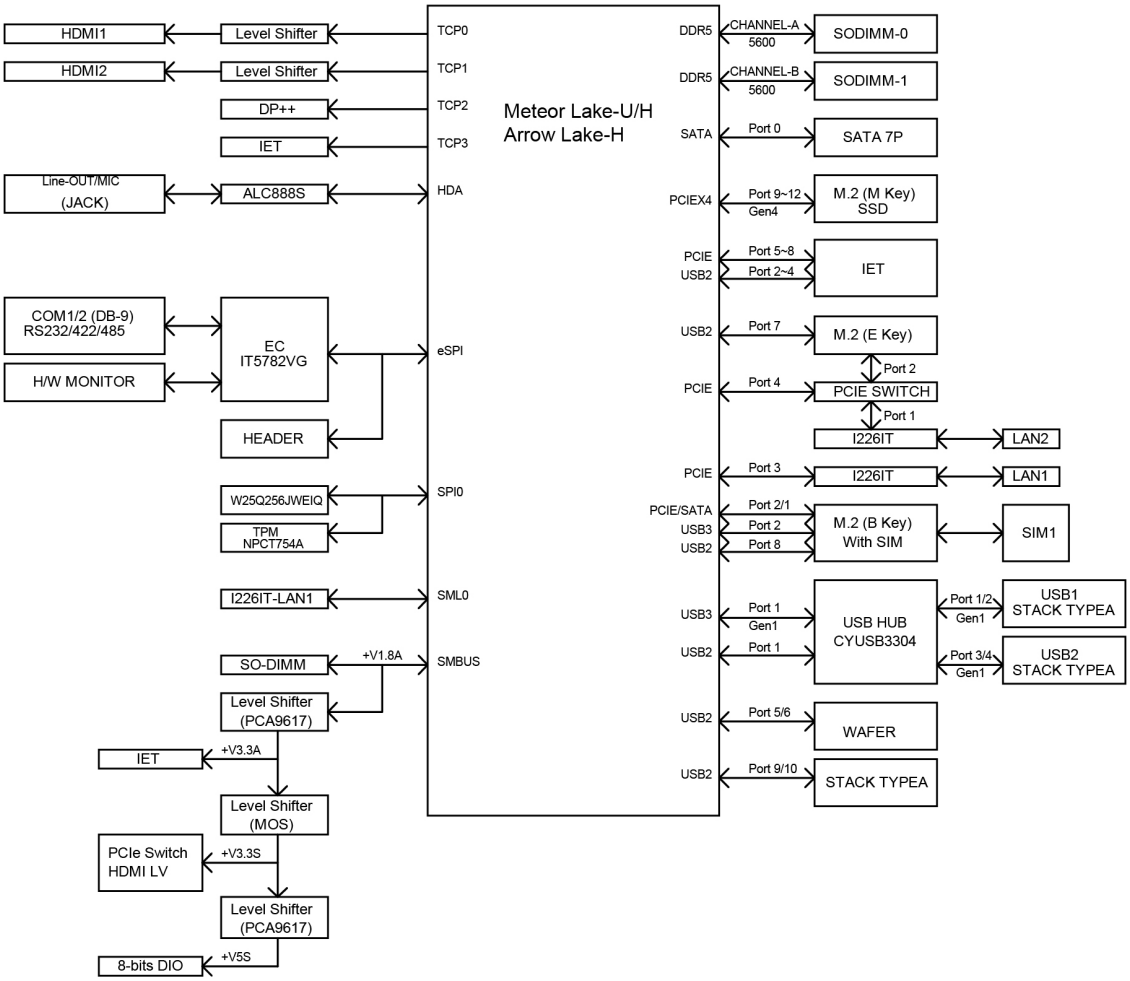
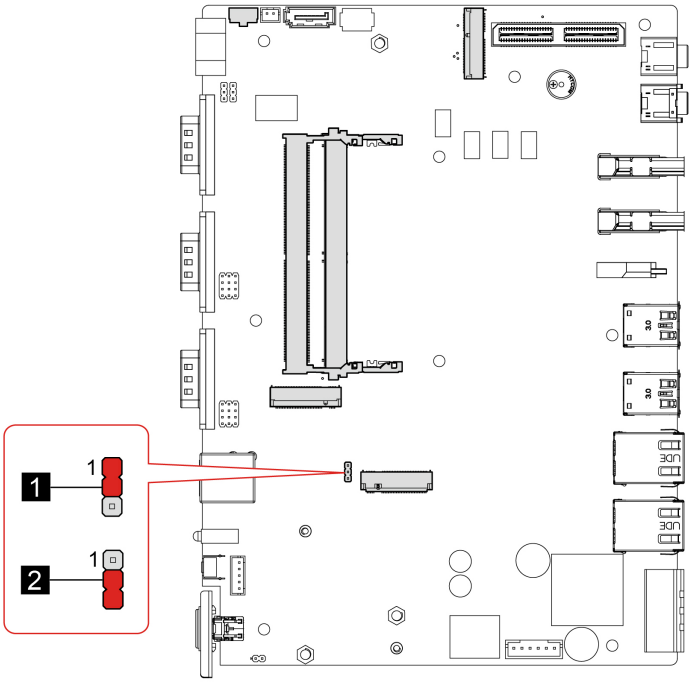


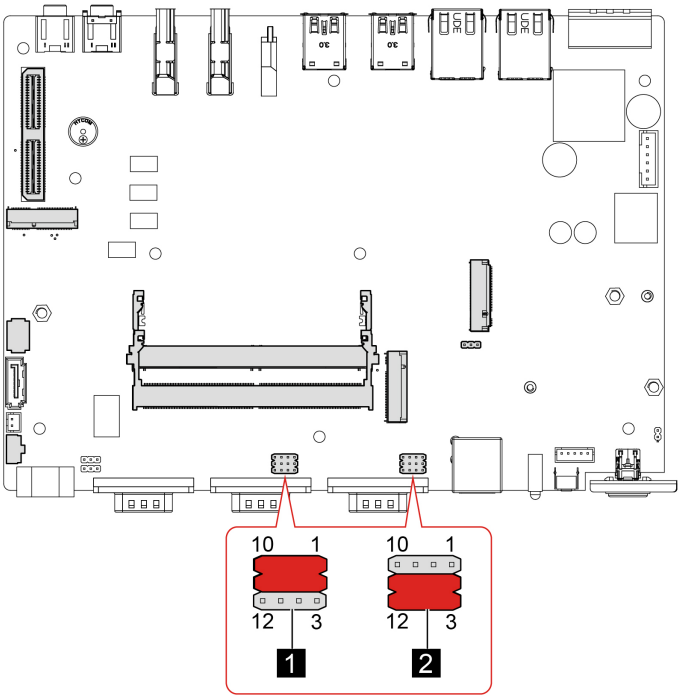
Figure 6. System board diagram

Clear CMOS jumper



Item	Description	Item	Description
1	Default position	2	Clear CMOS position

Set the serial connector port 1–2 jumper (JCOM_SEL1/JCOM_SEL2)



Item	Description	Item	Description
1	RS232 (default)	2	RS422 or RS485

Power adapter, power cord, and power phoenix cable

Prerequisite

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

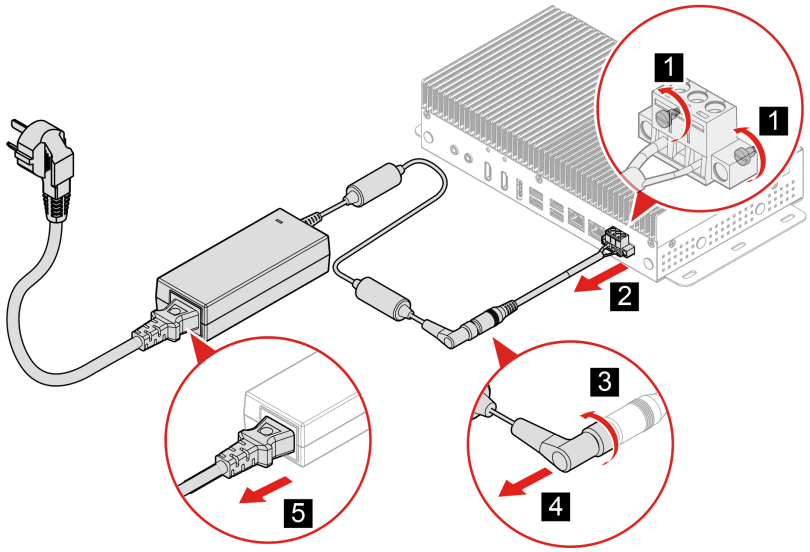
Avoid contact with the hot computer. During operation, the computer becomes hot enough to burn the skin. Before you touch the computer, turn off the computer, disconnect power, and wait approximately 30 minutes for the computer to cool.

For access, do the following:

1. Remove any media from the drives and turn off all connected devices and the computer.
2. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.

Removal steps

1. Remove the power cord, the ac power adapter, and the power phoenix cable.



External wireless LAN antennas

Prerequisite

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



Avoid contact with the hot computer. During operation, the computer becomes hot enough to burn the skin. Before you touch the computer, turn off the computer, disconnect power, and wait approximately 30 minutes for the computer to cool.

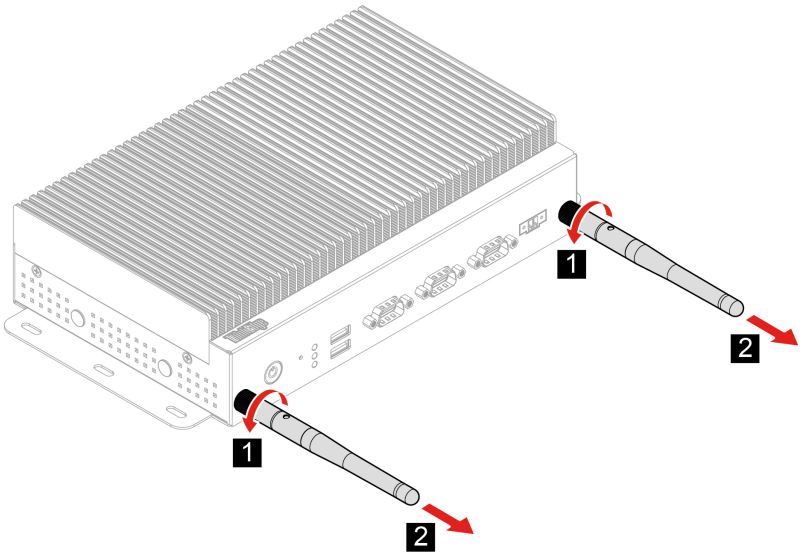
Note: Install wireless LAN antennas if any. See “Antenna location and cable connection” on page 23. Pay attention to the silk print number of each wireless LAN antenna and ensure that it matches the silk print number of the corresponding wireless LAN antenna slot.

For access, do the following:

1. Turn off all connected devices and the computer.
2. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
3. Unlock any locking device that secures the computer cover.
4. Remove the bracket, if any. See “DIN rail bracket kit” on page 19.

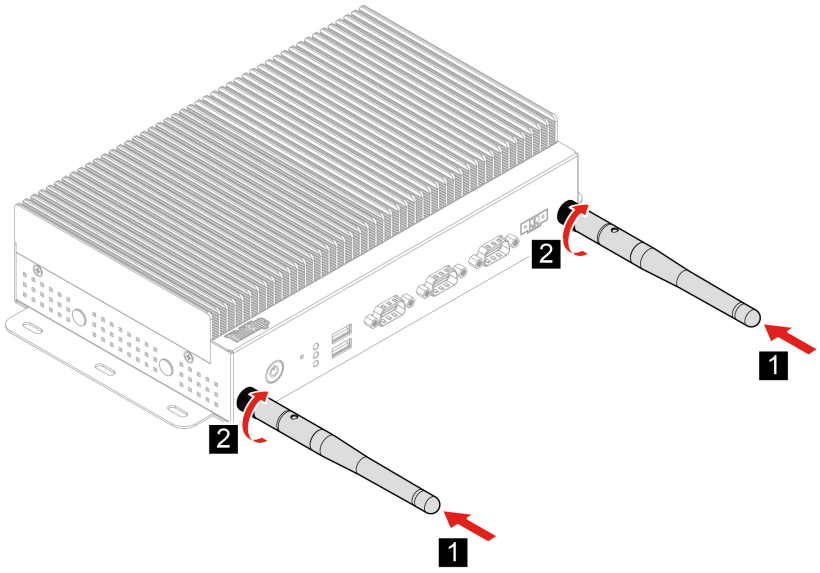
Removal steps

1. Remove the wireless LAN antennas.



Installation steps

1. Install the wireless LAN antennas.



Power connector

Prerequisite

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

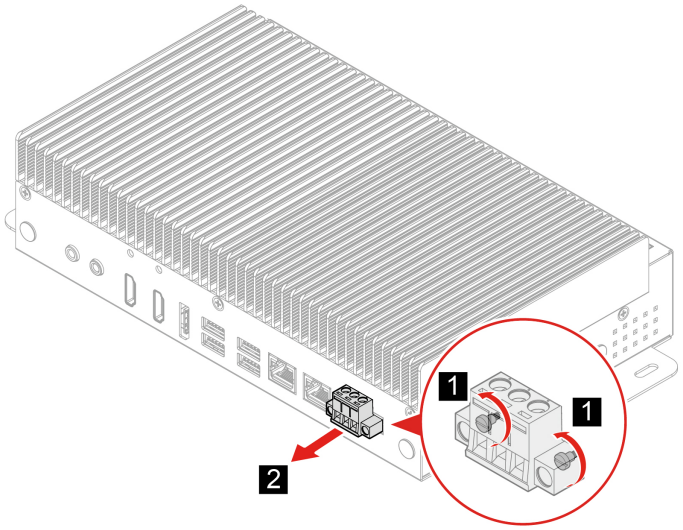
Avoid contact with the hot computer. During operation, the computer becomes hot enough to burn the skin. Before you touch the computer, turn off the computer, disconnect power, and wait approximately 30 minutes for the computer to cool.

For access, do the following:

1. Turn off all connected devices and the computer.
2. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
3. Unlock any locking device that secures the computer cover.
4. Remove the bracket, if any. See “DIN rail bracket kit” on page 19.
5. Turn the computer so that the rear cover is facing you.

Removal steps

1. Loosen the screws and then pull out the power connector from the rear cover.



Screw (quantity)	Color	Torque
M2.5 mm, flat head (2)	Silver	0.29–0.32 Nm (3–3.3 kgf-cm)

Remote power connector

Prerequisite

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

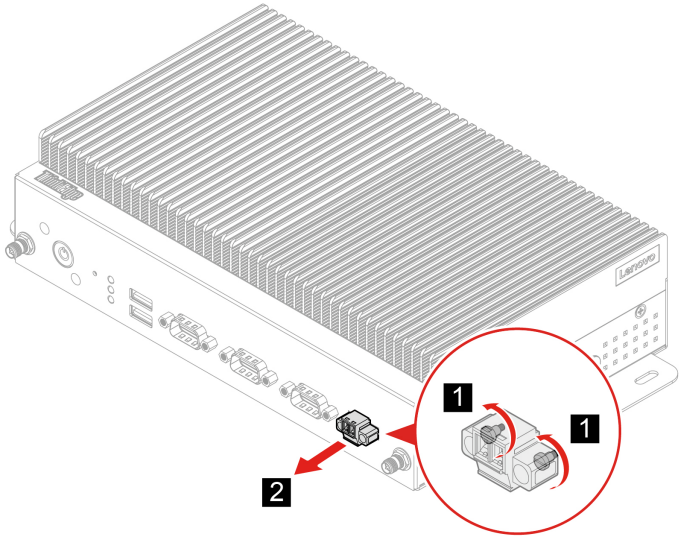
Avoid contact with the hot computer. During operation, the computer becomes hot enough to burn the skin. Before you touch the computer, turn off the computer, disconnect power, and wait approximately 30 minutes for the computer to cool.

For access, do the following:

1. Turn off all connected devices and the computer.
2. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
3. Unlock any locking device that secures the computer cover.
4. Remove the bracket, if any. See “DIN rail bracket kit” on page 19.
5. Turn the computer so that the front cover is facing you.

Removal steps

1. Loosen the screws and then pull out the remote power connector from the rear cover.



Screw (quantity)	Color	Torque
M2.5 mm, flat head (2)	Silver	0.19–0.22 Nm (2–2.2 kgf-cm)

Bottom cover

Prerequisite

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



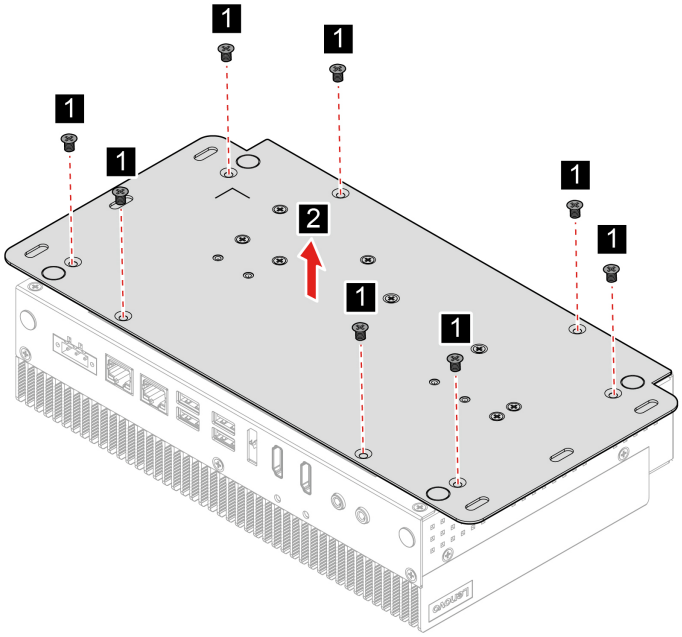
Avoid contact with the hot computer. During operation, the computer becomes hot enough to burn the skin. Before you touch the computer, turn off the computer, disconnect power, and wait approximately 30 minutes for the computer to cool.

For access, do the following:

1. Turn off all connected devices and the computer.
2. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
3. Unlock any locking device that secures the computer cover.
4. Remove the bracket, if any. See “DIN rail bracket kit” on page 19.
5. Turn over the computer so that the bottom cover is facing up.

Removal steps

1. Remove the bottom cover.



Attention: Use the screws provided by Lenovo to avoid any unpredictable damage to your computer.

Screw (quantity)	Color	Torque
M3 × L5 mm, flat head (8)	Black	0.39 ± 0.039 Nm (4 ± 0.4 kgf-cm)

M.2 solid-state drives

Prerequisite

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



Avoid contact with the hot computer. During operation, the computer becomes hot enough to burn the skin. Before you touch the computer, turn off the computer, disconnect power, and wait approximately 30 minutes for the computer to cool.

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

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

For access, do the following:

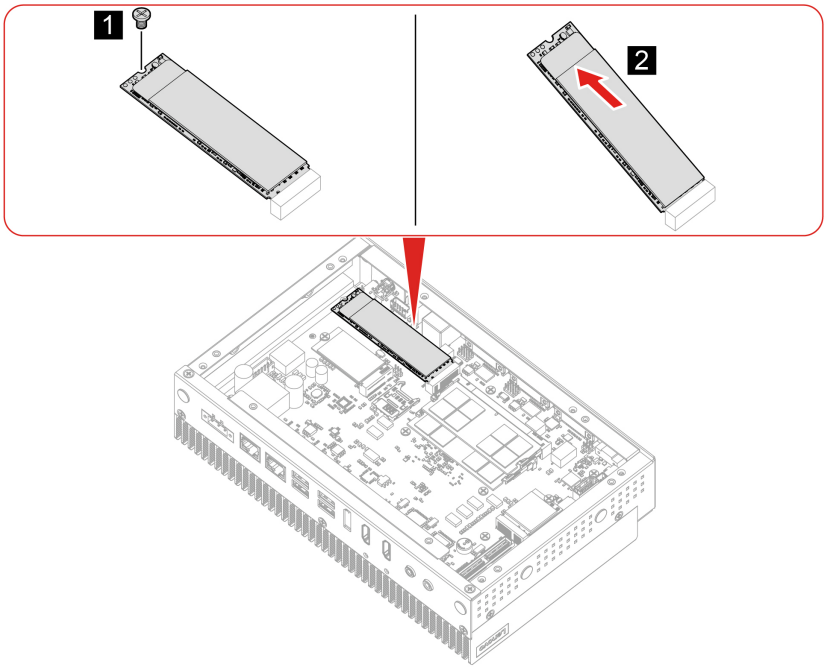
1. Turn off all connected devices and the computer.
2. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
3. Remove the bottom cover. See “Bottom cover” on page 49.

Type 1: 2280

Removal steps:

Remove the M.2 solid-state drive.

Note: A thermal pad might cover the M.2 solid-state drive. To access the M.2 solid-state drive, peel off the thermal pad first.



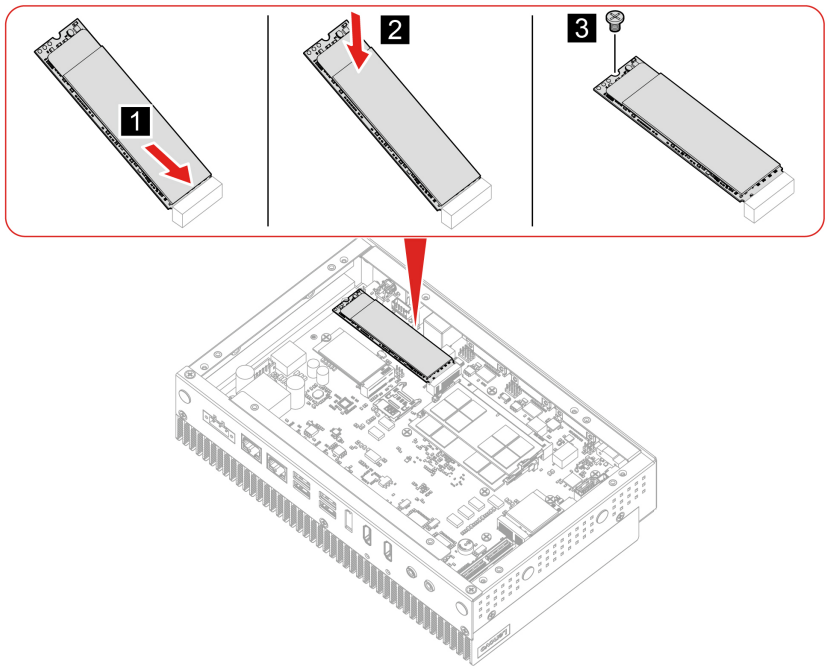
Attention: Use the screws provided by Lenovo to avoid any unpredictable damage to your computer.

Screw (quantity)	Color	Torque
M3 × L4 mm, binding head (1)	Silver	0.39 ± 0.039 Nm (4 ± 0.4 kgf-cm)

Installation steps:

Install the M.2 solid-state drive.

Note: After installing the new M.2 solid-state drive, ensure that you attach the new thermal pad to the new M.2 solid-state drive.



Attention: Use the screws provided by Lenovo to avoid any unpredictable damage to your computer.

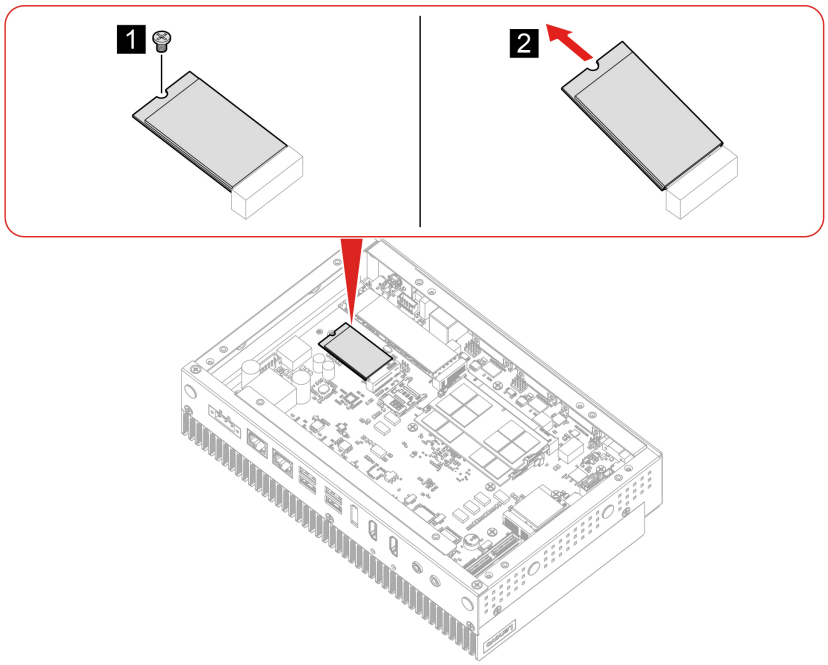
Screw (quantity)	Color	Torque
M3 × L4 mm, binding head (1)	Silver	0.39 ± 0.039 Nm (4 ± 0.4 kgf-cm)

Type 2: 2242

Removal steps:

Remove the M.2 solid-state drive.

Note: A thermal pad might cover the M.2 solid-state drive. To access the M.2 solid-state drive, peel off the thermal pad first.



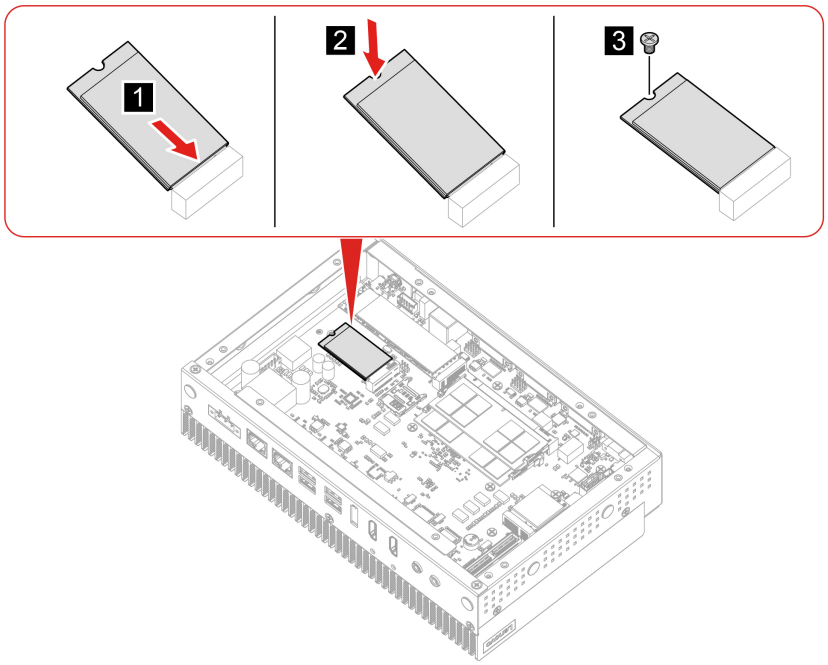
Attention: Use the screws provided by Lenovo to avoid any unpredictable damage to your computer.

Screw (quantity)	Color	Torque
M3 × L4 mm, binding head (1)	Silver	0.39 ± 0.039 Nm (4 ± 0.4 kgf-cm)

Installation steps:

Install the M.2 solid-state drive.

Note: After installing the new M.2 solid-state drive, ensure that you attach the new thermal pad to the new M.2 solid-state drive.



Attention: Use the screws provided by Lenovo to avoid any unpredictable damage to your computer.

Screw (quantity)	Color	Torque
M3 × L4 mm, binding head (1)	Silver	0.39 ± 0.039 Nm (4 ± 0.4 kgf-cm)

Memory

Prerequisite

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



Avoid contact with the hot computer. During operation, the computer becomes hot enough to burn the skin. Before you touch the computer, turn off the computer, disconnect power, and wait approximately 30 minutes for the computer to cool.

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

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

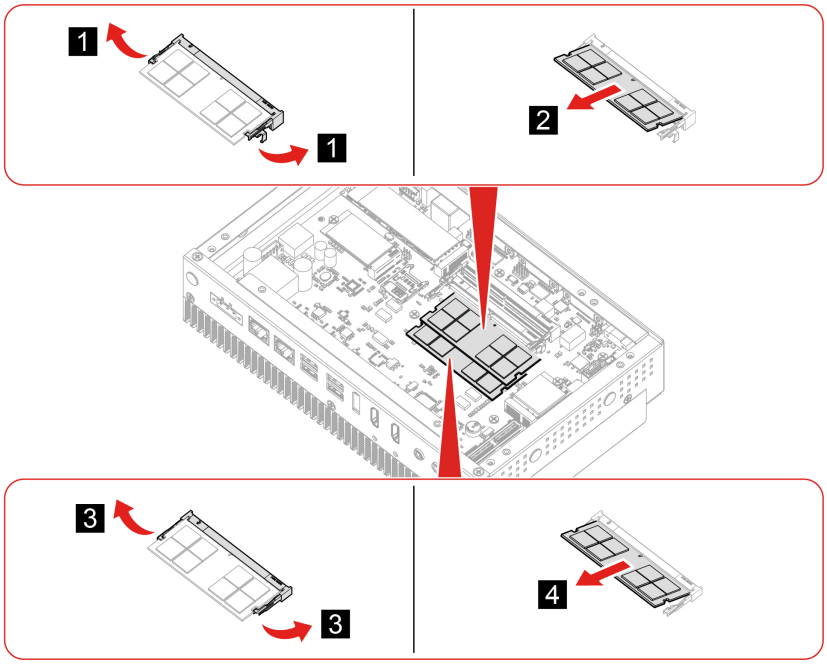
For access, do the following:

1. Turn off all connected devices and the computer.
2. Disconnect all power cords from electrical outlets and disconnect all cables from the computer.
3. Remove the bottom cover. See “Bottom cover” on page 49.

Removal steps:

Remove the DDR5 memory.

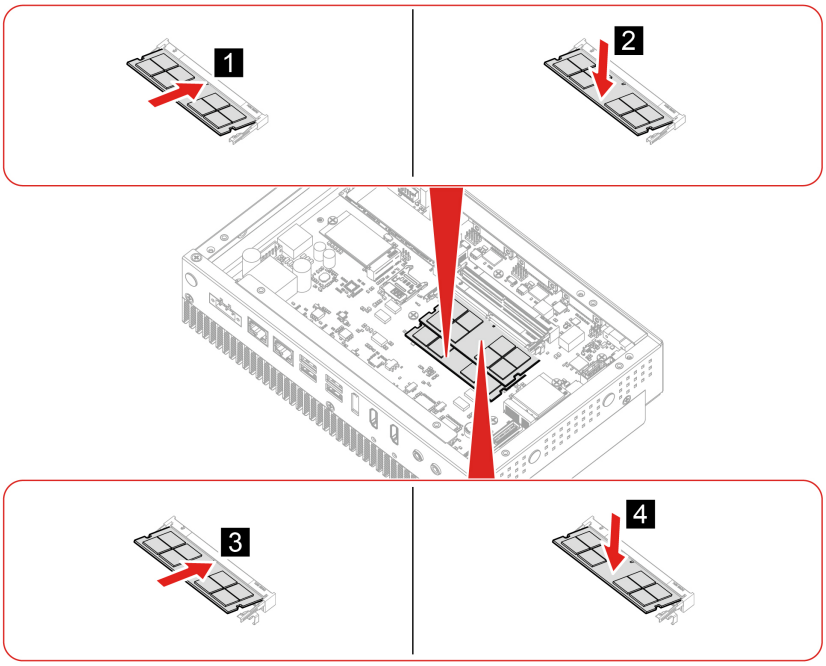
Note: A thermal pad might cover the memory. To access the memory, peel off the thermal pad first.



Installation steps:

Install the memory.

Note: After installing the new memory, ensure that you attach the new thermal pad to the new memory.


1
2
3
4

Chapter 8. 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* • *Setup Guide* • This *User Guide* • *Regulatory Notice*	Go to https://smartsupport.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://smartsupport.lenovo.com
Windows help information	• Use Windows Search. • Microsoft support Web site: https://support.microsoft.com

Call Lenovo

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

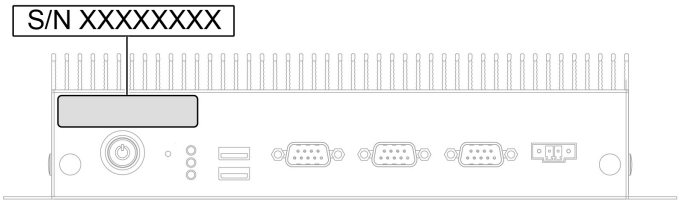
Before you contact Lenovo

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

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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://smartsupport.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.

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.

Purchase additional services

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

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

Appendix A. Important notice for Quebec consumers

In regard to section 79.18 of Quebec's Regulation respecting the application of the Consumer Protection Act, Lenovo in no way guarantees the availability of (a) replacement parts; (b) repair services; and (c) information necessary to maintain or repair the goods. For up-to-date information on the technical support and parts available for your purchase, please consult https://support.lenovo.com/ca/en.

En ce qui concerne l'article 79.18 du Règlement d'application de la Loi sur la protection du consommateur du Québec, Lenovo ne garantit en aucune façon la disponibilité des éléments suivants : (a) les pièces de rechange ; (b) les services de réparation ; et (c) les renseignements nécessaires à l'entretien à la réparation du bien. Pour obtenir des renseignements à jour sur le soutien technique et les pièces disponibles pour votre achat, veuillez consulter https://support.lenovo.com/ca/fr.

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Appendix B. 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.

Current name	Previous name
USB-A connector (Hi-Speed USB)	USB-A 2.0 connector
USB-A connector (USB 5Gbps)	USB-A 3.2 Gen 1 connector
USB-A connector (USB 10Gbps)	USB-A 3.2 Gen 2 connector
USB-A connector (USB 5Gbps, Always On USB)	Always on USB-A 3.2 Gen 1 connector
USB-A connector (USB 10Gbps, Always On USB)	Always on USB-A 3.2 Gen 2 connector
USB-C connector (USB 5Gbps)	USB-C (3.2 Gen 1) connector
USB-C connector (USB 10Gbps)	USB-C (3.2 Gen 2) connector
USB-C connector (USB 20Gbps)	USB 3.2 Gen 2x2
USB-C connector (USB4 20Gbps)	USB 4 Gen 2x2
USB-C connector (USB4 40Gbps)	USB-C (USB 4) connector
USB-C connector (Thunderbolt 3)	USB-C (Thunderbolt 3) connector
USB-C connector (Thunderbolt 4)	USB-C (Thunderbolt 4) connector

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Appendix C. Notices and trademarks

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8001 Development Drive
Morrisville, NC 27560
U.S.A.
Attention: Lenovo Director of Licensing

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Changes are made periodically to the information herein; these changes will be incorporated in new editions of the publication. To provide better service, Lenovo reserves the right to improve and/or modify the products and software programs described in the manuals included with your computer, and the content of the manual, at any time without additional notice.

The software interface and function and hardware configuration described in the manuals included with your computer might not match exactly the actual configuration of the computer that you purchase. For the configuration of the product, refer to the related contract (if any) or product packing list, or consult the distributor for the product sales. Lenovo may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

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Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

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https://support.lenovo.com

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