

User Guide

Lenovo
ThinkEdge



Lenovo

ThinkEdge SE50

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

Restricted access location statement



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

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.

Sixth Edition (May 2025)

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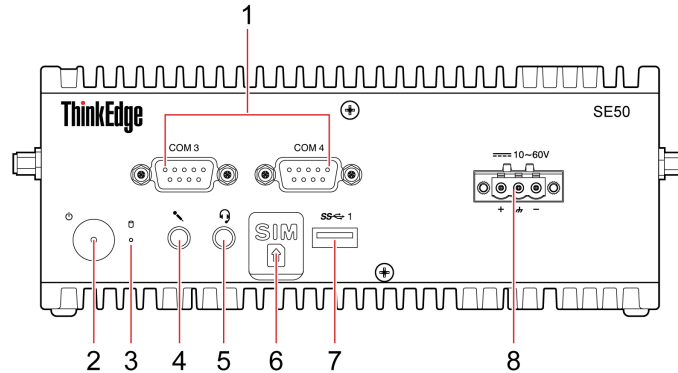
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About this documentation

- 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://pcsupport.lenovo.com>
- Microsoft® makes periodic feature changes to the Windows® operating system through Windows Update. As a result, some information in this documentation might become outdated. Refer to Microsoft resources for the latest information.

Chapter 1. Meet your computer

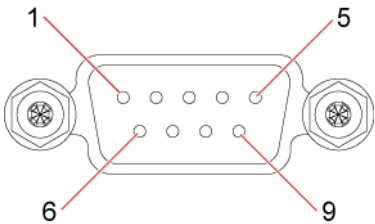
Front



1. Serial connectors* (2)	Used to connect an external modem, a serial printer, or other devices that use a serial connector. Press to turn on the computer. To turn off the computer, open the Start menu, click Power , and then select Shut down .
2. Power button	The indicator in the power button shows the system status of your computer. • On: The computer is on. • Off: The computer is off or in hibernation mode. • Blinking: The computer is in sleep mode.
3. Storage drive activity indicator	This indicator is on when the storage drive is in use.
4. Microphone connector	Connect a microphone.
5. Headset connector	Connect a headset or headphones to your computer.
6. SIM card slot	Insert an SIM card.
7. USB 3.1 connectors Gen 1 (2)	Connect USB-compatible devices, such as a USB keyboard, USB mouse, USB storage device, or USB printer.
8. DC Power cord connector	Connect the power cord to your computer for power supply. Notes: • Connections made to this connector must use the cable (24 AWG-14 AWG / 105°C). • Torque the screws at 0.4N.m.

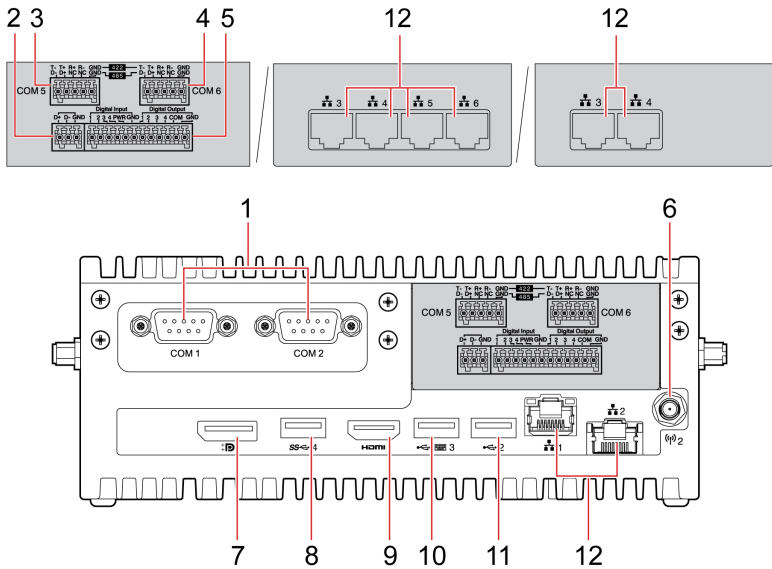
* for selected models

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

Rear

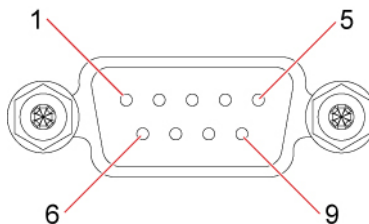


1. Serial connectors (2)	Used to connect an external modem, a serial printer, or other devices that use a serial connector.
2. CANbus*	Used to connect to a CANbus enabled device or dongle. Note: Connections made to this connector must use the cable (26 AWG-18 AWG / 105°C).

3. RS422 or RS485 connector*	Used to connect an RS422 or RS485 device. Note: Connections made to this connector must use the cable (26 AWG-18 AWG / 105°C).
4. RS422 or RS485 connector*	Used to connect an RS422 or RS485 device. Note: Connections made to this connector must use the cable (26 AWG-18 AWG / 105°C).
5. Digital Input and Digital Output*	Used to connect an external modem, a serial printer, or other devices that use a serial connector. - Output Voltage Range: 3.5 V to 30 V - Normal Output Current: 500 mA / Channel Note: Connections made to this connector must use the cable (26 AWG-18 AWG / 105°C).
6. Antenna slot*	Used to install the antenna that is available only on some models.
7. DisplayPort® out connector	Send audio and video signals from the computer to another audio or video device, such as a high-performance monitor.
8. USB 3.1 connector Gen 1	Connect USB-compatible devices, such as a USB keyboard, USB mouse, USB storage device, or USB printer.
9. HDMI™ connector	Send audio and video signals from the computer to another audio or video device, such as a high-performance monitor.
10. USB 2.0 connector	Connect USB-compatible devices, such as a USB keyboard, USB mouse, USB storage device, or USB printer. This connector supports the smart power-on feature. For more information, see “Enable or disable the smart power-on feature” on page 23.
11. USB 2.0 connector	Connect USB-compatible devices, such as a USB keyboard, USB mouse, USB storage device, or USB printer.
12. Ethernet connectors*	Connect to a local area network (LAN). When the yellow indicator is on, the computer is connected to a LAN. When the yellow indicator blinks, data is being transmitted.

* for selected models

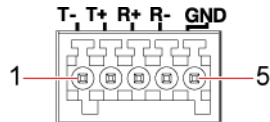
RS232 Pin definition mapping table



Pin number	Pin definition
1	DCD
2	RXD
3	TXD
4	DTR
5	GND

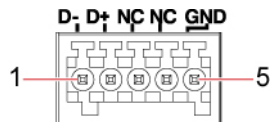
Pin number	Pin definition
6	DSR
7	RTS
8	CTS
9	RI

RS422 Pin definition mapping table



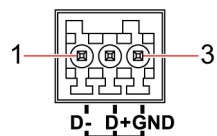
Pin number	Pin definition
1	TX-
2	TX+
3	RX+
4	RX-
5	GND

RS485 Pin definition mapping table



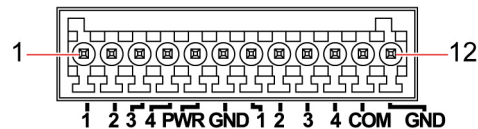
Pin number	Pin definition
1	D-
2	D+
3	NC
4	NC
5	GND

CANbus Pin definition mapping table



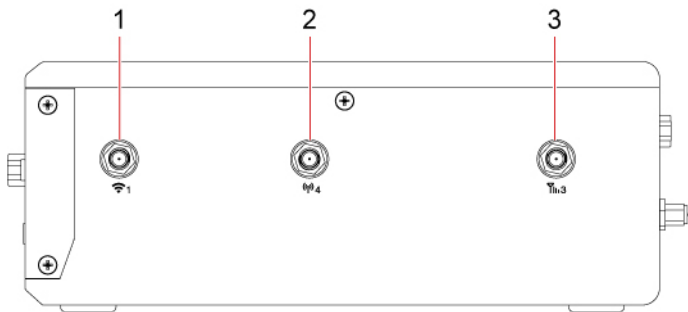
Pin number	Pin definition
1	D-
2	D+
3	GND

Digital Input and Digital Output Pin definition mapping table



Pin number	Pin definition
1	Digital Output-1
2	Digital Output-2
3	Digital Output-3
4	Digital Output-4
5	Power
6	GND
7	Digital Input-1
8	Digital Input-2
9	Digital Input-3
10	Digital Input-4
11	COM
12	GND

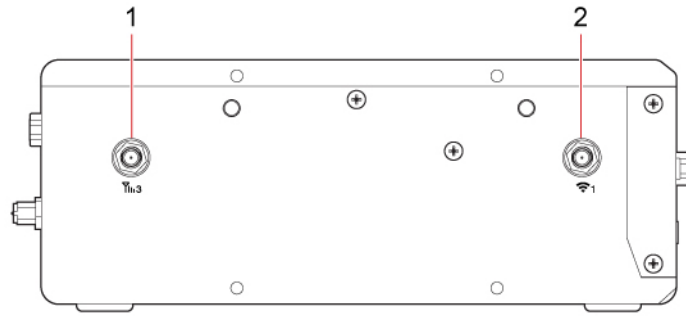
Left



1. Antenna slot*	Used to install the Wi-Fi® antenna that is available only on some models.
2. Antenna slot*	Used to install the antenna that is available only on some models.
3. Antenna slot*	Used to install the antenna that is available only on some models.

* for selected models

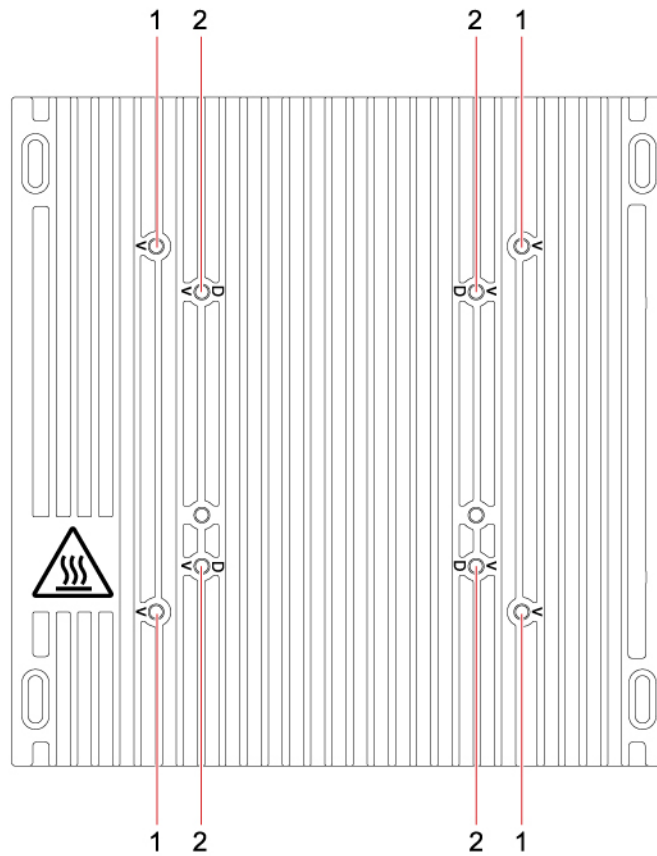
Right



-
- | | |
|------------------|--|
| 1. Antenna slot* | Used to install the antenna that is available only on some models. |
| 2. Antenna slot* | Used to install the Wi-Fi antenna that is available only on some models. |
-

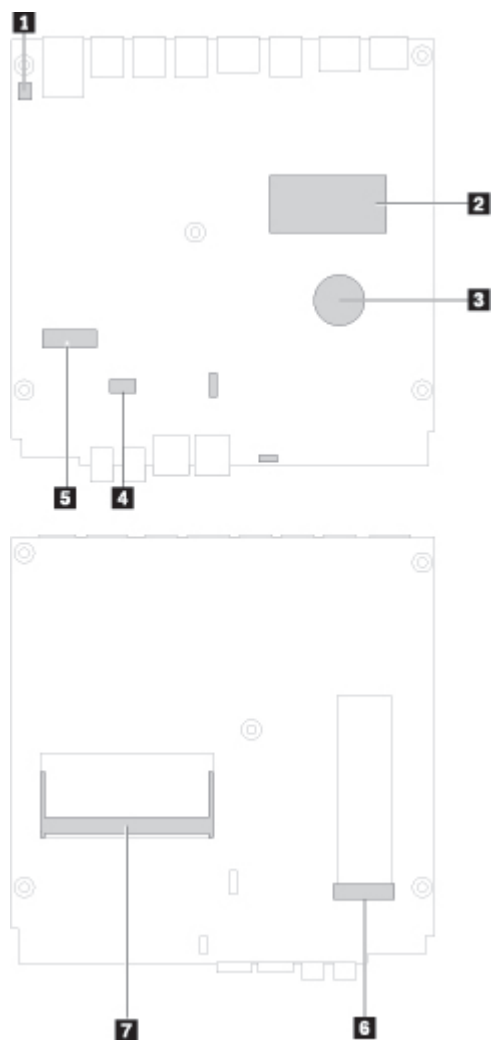
* for selected models

Bottom



1. VESA® threaded holes (screws: M4 x 8mm x 4 pcs)	Connect the matched VESA mount with the matched screws when you install the computer on a wall. Note: Torque the screws at 5±0.5 cm-kg
2. VESA threaded or Din rail holes (screws: M4 x 8mm x 4 pcs)	Connect the matched VESA mount or Din rail with the matched screws when you install the computer on a wall. Note: Torque the screws at 5±0.5 cm-kg

System board



1 Clear CMOS (Complementary Metal Oxide Semiconductor) / Recovery jumper	2 Microprocessor
3 Coin-cell battery	4 Storage drive connector
5 Wi-Fi card slot	6 M.2 solid-state drive slot
7 Memory slot	

Features and specifications

Dimensions	• Width: 179 mm (7.0 inches) • Height: 70 mm (2.8 inches) • Depth: 182.9 mm (7.2 inches)
Weight (without the package)	Maximum configuration as shipped: 6 kg (13.2 lb)
Hardware configuration	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.
Electrical input	• Input voltage: From 10 V DC to 60 V DC • Input current: From 1.1 A to 6.5 A
Microprocessor	To view the microprocessor information of your computer, right-click the Start button and then click System .
Memory	Double data rate 4 (DDR4) small outline dual in-line memory module (SODIMM)
Storage device	• 2.5-inch form factor, 7-mm (0.28-inch) height hard disk drive • M.2 solid-state drive To know the storage drive capacity: 1. Right-click the Start button to open the Start context menu. 2. Click Disk Management. 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 the following: • DisplayPort 1.2 out connector • HDMI 1.4 out connector
Audio features	• The integrated audio card supports the following: – Audio line-in connector – Audio line-out connector – Headset connector – Microphone connector • The optional discrete audio card provides an enhanced audio experience and extended capabilities.

Expansion	• Memory slots • M.2 solid-state drive slot • Storage drive bay • SIM card slot
Network features	• Bluetooth* • Ethernet LAN • Wireless LAN*

* 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 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

Chapter 2. Get started with your computer

Get started with Windows 10

Learn the basics of Windows 10 and start working with it right away. For more information about Windows 10, see the Windows help information.

Windows account

A user account is required to use the Windows operating system. It can either be a Windows user account or a Microsoft account.

Windows user account

When you start Windows for the first time, you are prompted to create a Windows user account. This first account you created is of the “Administrator” type. With an Administrator account, you can create additional user accounts or change account types by doing the following:

1. Open the **Start** menu and select **Settings → Accounts → Family & other users**.
2. Follow the on-screen instructions.

Microsoft account

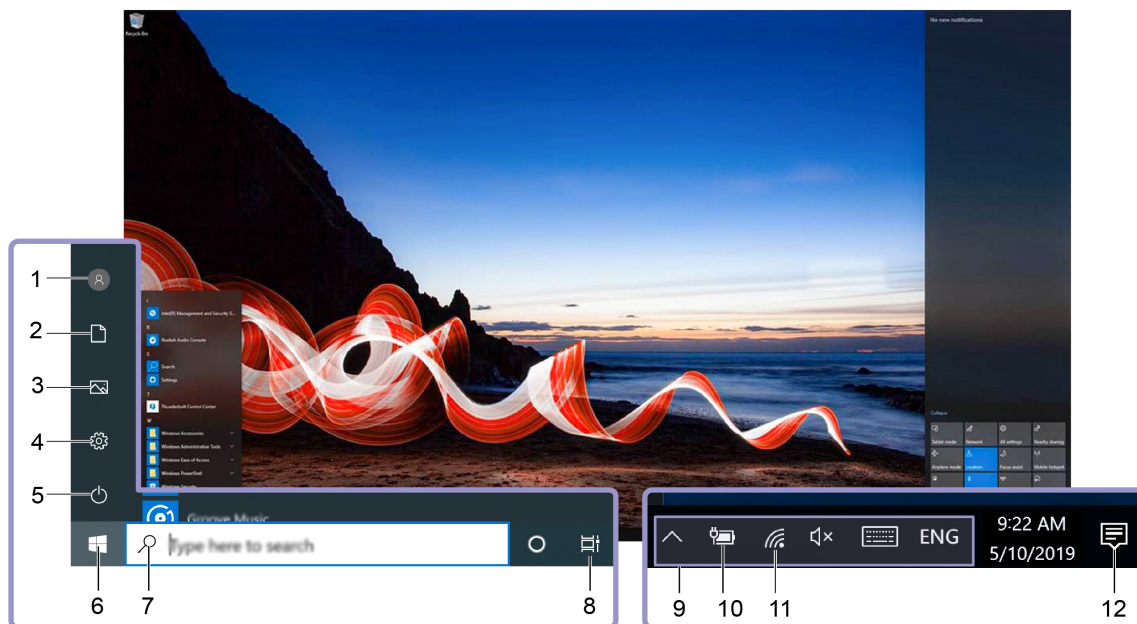
You can also log in to the Windows operating system with a Microsoft account.

To create a Microsoft account, go to the Microsoft sign-up page at <https://signup.live.com> and follow the on-screen instructions.

With a Microsoft account, you can:

- Enjoy one-time signing in if you are using other Microsoft services, such as OneDrive, Skype, and Outlook.com.
- Sync personalized settings across other Windows-based devices.

Windows user interface



1. Account 	Change account settings, lock the computer, or sign out from the current account.
2. Documents 	Open the Documents folder, a default folder to save your received files.
3. Pictures 	Open the Pictures folder, a default folder to save your received pictures.
4. Settings 	Launch Settings.
5. Power 	Shut down, restart, or put the computer into sleep mode.
6. Start button 	Open the Start menu.
7. Windows Search 	Type what you are looking for in the search box and get search results from your computer and the Web.
8. Task View 	Display all opened apps and switch among them.
9. Windows notification area	Display notifications and status of some features.
10. Battery status icon	Display power status and change battery or power settings. When your computer is not connected to ac power, the icon changes to  .
11. Network icon	Connect to an available wireless network and display the network status. When connected to a wired network, the icon changes to  .
12. Action center 	Display the latest notifications from apps and provide quick access to some features.

Open the Start menu

- Click the **Start** button.
- Press the Windows logo key on the keyboard.

Open the Start context menu

Right-click the **Start** button.

Access Control Panel

- Open the **Start** menu and click **Windows System → Control Panel**.
- Use Windows Search.

Launch an app

- Open the **Start** menu and select the app you want to launch.
- Use Windows Search.

Connect to 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. Click the network icon in the Windows notification area. A list of available wireless networks is displayed.
2. Select a network available for connection. Provide required information, if needed.

Use multimedia

Use your computer for business or entertainment with the devices (such as a camera, a monitor, or speakers).

Use audio

To enhance the audio experience, connect speakers, headphones, or a headset to the audio connector.

Adjust the volume

1. Click the volume icon in the Windows notification area on the taskbar.
2. Follow the on-screen instructions to adjust the volume. Click the speaker icon to mute the audio.

Change the sound settings

1. Type **Control Panel** in the Windows search box and then press Enter. View by category.
2. Click **Hardware and Sound → Sound**.
3. Change the settings as you prefer.

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.

Use the software development kit (SDK)

Lenovo provides a software development kit (SDK) for your computer. You can use the SDK to develop functions based on your needs. For example, you can collect signals and transfer data with sensors and relay modules connected to the serial connectors and CANbus/DI/DO connectors.

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.

Chapter 3. Explore your computer

Manage power

Use the information in this section to achieve the best balance between performance and power efficiency.

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 sleep or hibernation mode.

To change what the power button does:

1. Right-click the battery status icon and select **Power Options → Change what the power buttons do**.
2. Change the settings as you prefer.

Transfer data

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

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

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

1. 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.

Purchase accessories

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

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

Chapter 4. Secure your computer and information

Log in to your computer securely

This section provides secure ways to log in to your computer.

Use passwords

Password types

You can set the following passwords in UEFI (Unified Extensible Firmware Interface) BIOS (Basic Input/Output System) 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. The computer cannot be used until the valid password is entered.

- Supervisor password

Setting a supervisor password deters unauthorized users from changing configuration settings. If you are responsible for maintaining the configuration settings of several computers, you might want to set a supervisor password.

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

If both the power-on password and supervisor password are set, you can enter either password. However, you must use your supervisor password to change any configuration settings.

- Hard disk password

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

Note: After you set a hard disk password, your data on the storage drive is protected even if the storage drive is removed from one computer and installed in another.

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**, 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, see “Clear CMOS” on page 24 to remove them by yourself. You can also contact a Lenovo-authorized service provider to have the passwords removed.

Notes:

- If the supervisor password is forgotten, it might not be removed by clearing CMOS depending on your BIOS settings.
- If the hard disk password is forgotten, Lenovo cannot remove the password or recover data from the storage drive.

Use software security solutions

This section provides software solutions to secure your computer and information.

Use Windows firewalls

A firewall can be hardware, software, or a combination of both depending on the level of security required. Firewalls work on a set of rules to determine which inbound and outbound connections are authorized. If the computer is preinstalled with a firewall program, it helps protect against computer Internet security threats, unauthorized access, intrusions, and Internet attacks. It also protects your privacy. For more information about how to use the firewall program, refer to the help system of your firewall program.

To use Windows firewalls:

1. Type **Control Panel** in the Windows search box and then press Enter. View by large icons or small icons.
2. Click **Windows Defender Firewall**, and then follow the on-screen instructions.

Use Computrace Agent software embedded in firmware (for selected models)

The Computrace Agent software is an IT asset management and computer theft recovery solution. The software detects if changes have been made on the computer, such as hardware, software, or the computer call-in location. You might have to purchase a subscription to activate the Computrace Agent software.

Use BIOS security solutions

This section provides BIOS solutions to secure your computer and information.

Erase all storage drive data

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

To erase all storage drive data:

1. Set a hard disk password for the storage drive you will recycle. See “Use passwords” on page 17.
2. Restart the computer. When the logo screen is displayed, press F1 or Fn+F1.
3. Select **Security → Hard Disk Password → Security Erase HDD Data** and press Enter.
4. Select the storage drive you will recycle and press Enter.
5. A message is displayed, prompting you to confirm the operation. Select **Yes** and press Enter. The erasing process begins.

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

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

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

7. After the resetting process is completed, one of the following will happen:

- If the data on the system storage drive is erased, you will be prompted that no operating system is available.
- If the data on the non-system storage drive is erased, the computer restarts automatically.

Use 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 or modify 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.

Chapter 5. UEFI BIOS

This chapter provides information about configuring and updating UEFI BIOS, and clearing CMOS.

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:

Keys	Description
F1 or Fn+F1	Display the General Help screen.
Esc or Fn+Esc	Exit the submenu and return to the parent menu.
↑ ↓ or Fn+↑ ↓	Locate an item.
← → or Fn+← →	Select a tab.
+/- or Fn++/-	Change to a higher or lower value.
Enter	Enter the selected tab or submenu.
F9 or Fn+F9	Restore to the default settings.
F10 or Fn+F10	Save your configuration 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.

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 startup sequence

If the computer does not start up from a device as expected, you can change the startup device sequence permanently or select a temporary startup device.

Change the startup device sequence 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**, and then follow the on-screen instructions to change the startup sequence.
4. Press F10 or Fn+F10 to save the changes and exit.

Select a temporary startup 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 startup device sequence 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

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 or Fn+F1.
2. Select **Power → Smart Power On** and press Enter.
3. Enable or disable the feature as desired.
4. Press F10 or Fn+F10 to save the changes and exit.

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 from the Lenovo Support Web site:

1. Go to <https://support.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.

Recover from a BIOS update failure

1. Remove all media from the drives and turn off all connected devices.
2. Insert the BIOS update disc into the optical drive, and then turn off the computer.
3. Disconnect all power cords from electrical outlets. Then, remove any parts that impede access to the Clear CMOS jumper.
4. Move the jumper from the standard position to the maintenance position.
5. Reconnect the power cords for the computer and the monitor to electrical outlets.
6. Turn on the computer and the monitor. When the computer beeps, the recovery process begins.
7. After the recovery process is completed, the computer will be turned off automatically.

Note: Depending on the computer model, the recovery process will take two to three minutes.

8. Disconnect all power cords from electrical outlets.
9. Move the jumper back to the standard position.
10. Reinstall all the parts that have been removed. Then, reconnect the power cords for the computer and the monitor to electrical outlets.
11. Turn on the computer and the monitor. When the logo screen is displayed, press F1 or Fn+F1.
12. To prevent data loss, ensure that BIOS settings are restored to an earlier point.

Clear CMOS

1. Remove all media from the drives and turn off all connected devices and the computer.
2. Disconnect all power cords from electrical outlets. Then, remove any parts that impede access to the Clear CMOS jumper.
3. Move the jumper from the standard position to the maintenance position.
4. Reconnect the power cords for the computer and the monitor to electrical outlets.
5. Turn on the computer and the monitor. When the computer beeps, wait for approximately 10 seconds.
6. Turn off the computer by holding the power button for approximately four seconds.
7. Disconnect all power cords from electrical outlets.
8. Move the jumper back to the standard position.
9. Reinstall all the parts that have been removed. Then, reconnect the power cords for the computer and the monitor to electrical outlets.
10. Turn on the computer and the monitor. When the logo screen is displayed, press F1 or Fn+F1.
11. To prevent data loss, ensure that BIOS settings are restored to an earlier point.

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.

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 25 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 37.

Troubleshooting

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

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.

Create and use a recovery USB device

It is recommended that you create a recovery USB drive as early as possible as a backup for the Windows recovery programs. With the recovery USB drive, you can troubleshoot and fix the problems even if the preinstalled Windows recovery programs are damaged. If you did not create a recovery USB drive as a precautionary measure, you can contact Lenovo Customer Support Center and purchase one from Lenovo. For a list of the Lenovo Support phone numbers for your country or region, go to:

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

Create a recovery USB drive

Attention: The creation process deletes anything stored on the USB drive. To avoid data loss, make a backup copy of all the data that you want to keep.

1. Ensure that your computer is connected to ac power.
2. Prepare a USB drive with capacity of at least 16 GB. The actual USB capacity required depends on the size of the recovery image.
3. Connect the prepared USB drive to the computer.
4. Type **recovery** in the search box. Then, click **Create a recovery drive**.
5. Click **Yes** in the User Account Control window to allow the Recovery Media Creator program to start.
6. In the Recovery Drive window, follow the on-screen instructions to create a recovery USB drive.

Use the recovery USB drive

If your computer cannot be started, go to Chapter 8 “Help and support” on page 37 first to try to solve the problem by yourself. If the problem persists, use the recovery USB drive to recover your computer.

1. Ensure that your computer is connected to ac power.
2. Connect the recovery USB drive to the computer.
3. Turn on or restart the computer. When the logo screen is displayed, press F12. The Boot Menu window opens.

4. Select the recovery USB drive as the boot device. Then, follow the on-screen instructions to complete the process.

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 are CRUs

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

- **Self-service CRUs:** Refer to parts that can be installed or replaced easily by customer themselves or by trained service technicians at an additional cost.
- **Optional-service CRUs:** Refer to parts that can be installed or replaced by customers with a greater skill level. Trained service technicians can also provide service to install or 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

Refer to the following CRU list for your computer.

Self-service CRUs

- Power terminal*
- Keyboard*
- Mouse*

* for selected models

Replace a CRU

Follow the replacement procedure to replace a CRU.

Power terminal

Prerequisite

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

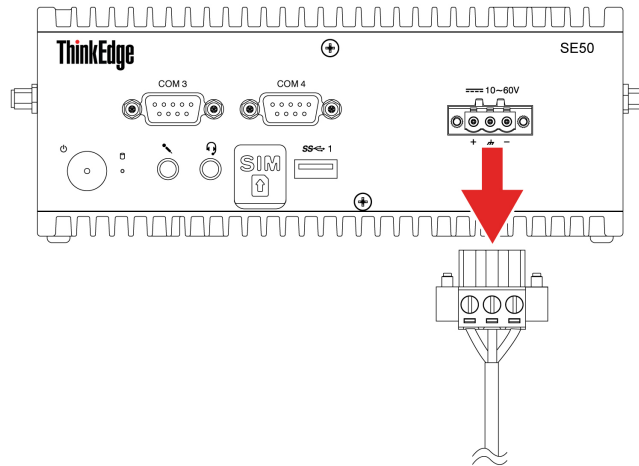


Avoid contact with the hot computer. During operation, the computer becomes hot enough to burn the skin. Before you touch the computer, turn off the computer, disconnect power, and wait approximately 30 minutes for the computer to cool.

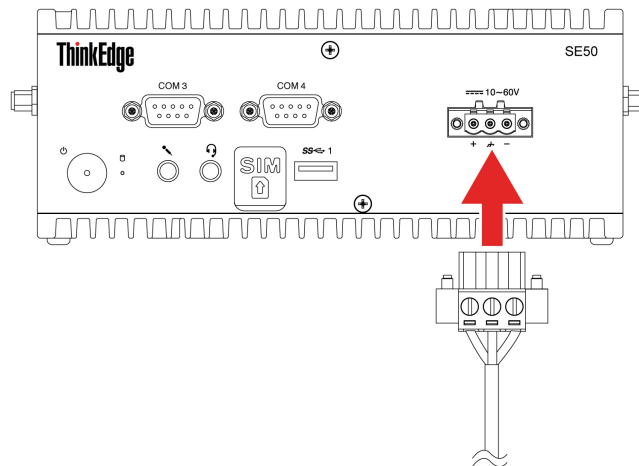
Replacement procedure

1. Remove any media from the drives and turn off all connected devices and the computer.

2. Disconnect the power cord from the electrical outlet and disconnect all cables from the computer.
3. Disconnect the power terminal from the computer.



4. Connect the power terminal to the computer.



5. Reconnect the external cables to the corresponding connectors on the computer, and then reconnect the power cord to the electrical outlet.

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: • <i>Safety and Warranty Guide</i> • <i>Setup Guide</i> • <i>This User Guide</i> • <i>Regulatory Notice</i>	1. Go to https://support.lenovo.com. 2. Detect your computer or select computer model manually. 3. Select Documentation and 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://support.lenovo.com
Windows help information	• Open the Start menu and click Get Help or Tips. • Use Windows Search or the Cortana® personal assistant. • Microsoft support Web site: https://support.microsoft.com

Call Lenovo

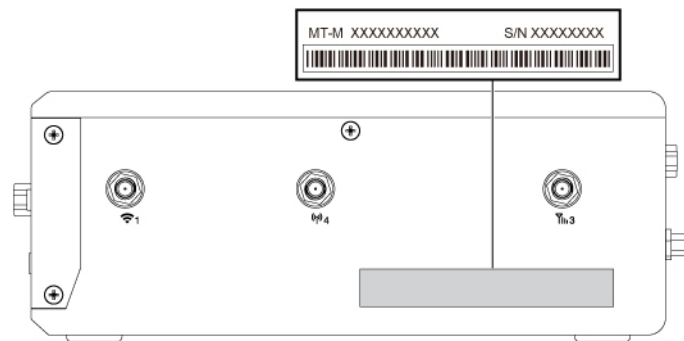
If you have tried to correct the problem yourself and still need help, you can call Lenovo Customer Support Center.

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

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/supportphonenumberlist>

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

Services available during the warranty period

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

Services not covered

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

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

Certification-related information

Product name	Machine types
ThinkEdge SE50	11RH, 11RJ, 11RK, and 11RL

The latest compliance information is available at:

<https://www.lenovo.com/us/en/compliance>

Compliance information

For more compliance information, refer to *Regulatory Notice* at <https://smartsupport.lenovo.com> and *Generic Safety and Compliance Notices* at https://support.lenovo.com/docs/generic_notices_a.

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.

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>

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>

Appendix B. Notices and trademarks

Notices

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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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