



ideacentre All-In-One 910 Hardware Maintenance Manual

Machine Types: F0C2 [AIO 910-27ISH / Energy Star]



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Chapter 1. About this manual

This manual contains service and reference information for Lenovo All-In-One 300 computers listed on the cover. It is intended only for trained servicers who are familiar with Lenovo computer products.

Before servicing a Lenovo product, be sure to read the Safety Information.

The description of the TV-tuner card in this manual applies only to computers with a TV-tuner card installed. It does not apply to computers without a TV-tuner card.

Important Safety Information

Be sure to read all CAUTION and DANGER sections in this manual before following any of the instructions.

Veillez lire toutes les consignes de type DANGER et ATTENTION du présent document avant d'exécuter les instructions.

Lesen Sie unbedingt alle Hinweise vom Typ "ACHTUNG" oder "VORSICHT" in dieser Dokumentation, bevor Sie irgendwelche Vorgänge durchführen

Leggere le istruzioni introdotte da ATTENZIONE e PERICOLO presenti nel manuale prima di eseguire una qualsiasi delle istruzioni

Certifique-se de ler todas as instruções de cuidado e perigo neste manual antes de executar qualquer uma das instruções

Es importante que lea todas las declaraciones de precaución y de peligro de este manual antes de seguir las instrucciones.

执行任何说明之前，请确保已阅读本书中的所有警告和危险声明。

執行任何指示前，請確實閱讀本書中的所有警告及危險聲明。

Chapter 2. Safety information

This chapter contains the safety information that you need to be familiar with before servicing a computer.

General safety

Follow these rules to ensure general safety:

- Keep the areas around the computer clear and clean during and after maintenance.
- When lifting any heavy object:
 1. Ensure you can stand safely without slipping.
 2. Distribute the weight of the object equally across both feet.
 3. Lift slowly. Never move suddenly or twist when you attempt to lift.
 4. Lift by standing or by pushing up with your leg muscles; this action removes the strain from the muscles in your back.
Do not attempt to lift any objects that weigh more than 16 kg (35 lb) or objects that you think are too heavy for you.
- Do not perform any action that would create a hazard for the customer, or would make the computer unsafe.
- Before you start the computer, ensure that other service representatives and customer personnel are not in a position that would create a hazard for them.
- Place removed covers and other parts in a safe place, away from all personnel, while you are servicing the computer.
- Keep your tool case away from areas that people may walk through to ensure no-one trips over it.
- Do not wear loose clothing that can be trapped in the moving parts of a machine. Ensure that your sleeves are fastened or rolled up above your elbows. If your hair is long, tie or fasten it back.
- Insert the ends of your necktie or scarf inside clothing or fasten it with a non-conductive clip, approximately 8 centimeters (3 inches) from the end.
- Do not wear jewelry, chains, metal-frame eyeglasses, or metal fasteners for your clothing.
Remember: Metal objects are good electrical conductors.
- Wear safety glasses when you are: hammering, drilling soldering, cutting wire, attaching springs, using solvents, or working in any other conditions that might be hazardous to your eyes.
- After service, reinstall all safety shields, guards, labels, and ground wires. Replace any safety device that is worn or defective.
- Reattach all covers correctly before returning the computer to the customer.

Electrical safety



CAUTION:

Electrical current from power, telephone, and communication cables can be hazardous. To avoid personal injury or equipment damage, disconnect any attached power cords, telecommunication cables, network cables, and modem cables before you open the computer covers, unless instructed otherwise in the installation and configuration procedures.

Observe the following rules when working on electrical equipment.

Important: Use only approved tools and test equipment. Some hand tools have handles covered with a soft material that does not insulate you when working with live electrical currents. Many customers have rubber floor mats near their equipment that contain small conductive fibers to decrease electrostatic discharge.

- Find the room emergency power-off (EPO) switch, disconnecting switch, or electrical outlet. If an electrical accident occurs, you can then operate the switch or unplug the power cord quickly.
- Do not work alone under hazardous conditions or near equipment that has hazardous voltages.
- Disconnect all power before:
 - Performing a mechanical inspection
 - Working near power supplies
 - Removing or installing Field Replaceable Units (FRUs)
- Before you start to work on the computer, unplug the power cord. If you cannot unplug it, ask the customer to power-off the electrical outlet that supplies power to the machine and to lock the electrical outlet in the off position.
- If you need to work on a computer that has exposed electrical circuits, observe the following precautions:
 - Ensure that another person, familiar with the power-off controls, is near you.
Remember: Another person must be there to switch off the power, if necessary.
 - Use only one hand when working with powered-on electrical equipment; keep the other hand in your pocket or behind your back.
Remember: There must be a complete circuit to cause electrical shock. By observing the above rule, you may prevent a current from passing through your body.
 - When using a tester, set the controls correctly and use the approved probe leads and accessories for that tester.
 - Stand on suitable rubber mats (obtained locally, if necessary) to insulate you from grounds such as metal floor strips and machine frames.

Observe the special safety precautions when you work with very high voltages; these instructions are in the safety sections of the maintenance information. Use extreme care when measuring high voltages.

- Regularly inspect and maintain your electrical hand tools to ensure they are safe to use.
- Do not use worn or broken tools and testers.
- *Never assume* that power has been disconnected from a circuit. First, *check* that it has been powered off.
- Always look carefully for possible hazards in your work area. Examples of these hazards are wet floors, non-grounded power extension cables, conditions that may cause or allow power surges, and missing safety grounds.
- Do not touch live electrical circuits with the reflective surface of a plastic dental mirror. This surface is conductive, and touching a live circuit can cause personal injury and damage to the computer.
- Do not service the following parts with the power on when they are removed from their normal operating positions in a computer:
 - Power supply units
 - Pumps
 - Blowers and fans
 - Motor generatorsand similar units. (This practice ensures correct grounding of the units.)
- If an electrical accident occurs:
 - Use caution; do not become a victim yourself.

- Switch off power.
- Send another person to get medical aid.

Safety inspection guide

The intent of this inspection guide is to assist you in identifying potential hazards posed by these products. Each computer, as it was designed and built, had required safety items installed to protect users and service personnel from injury. This guide addresses only those items. However, good judgment should be used to identify potential safety hazards due to attachment of features or options not covered by this inspection guide.

If any hazards are present, you must determine how serious the apparent hazard could be and whether you can continue without first resolving the problem.

Consider the following items and the safety hazards they present:

- Electrical hazards, especially primary power (primary voltage on the frame can cause serious or fatal electrical shock).
- Explosive hazards, such as a damaged CRT face or bulging capacitor
- Mechanical hazards, such as loose or missing hardware

The guide consists of a series of steps presented as a checklist. Begin the checks with the power off, and the power cord disconnected.

Checklist:

1. Check exterior covers for damage (loose, broken, or sharp edges).
2. Power-off the computer. Disconnect the power cord.
3. Check the power cord for:
 - a. A third-wire ground connector in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and frame ground.
 - b. The power cord should be the appropriate type as specified in the parts listings.
 - c. Insulation must not be frayed or worn.
4. Remove the cover.
5. Check for any obvious alterations. Use good judgment as to the safety of any alterations.
6. Check inside the unit for any obvious hazards, such as metal filings, contamination, water or other liquids, or signs of fire or smoke damage.
7. Check for worn, frayed, or pinched cables.
8. Check that the power-supply cover fasteners (screws or rivets) have not been removed or tampered with.

Handling electrostatic discharge-sensitive devices

Any computer part containing transistors or integrated circuits (ICs) should be considered sensitive to electrostatic discharge (ESD). ESD damage can occur when there is a difference in charge between objects. Protect against ESD damage by equalizing the charge so that the computer, the part, the work mat, and the person handling the part are all at the same charge.

Notes:

1. Use product-specific ESD procedures when they exceed the requirements noted here.
2. Make sure that the ESD protective devices you use have been certified (ISO 9000) as fully effective.

When handling ESD-sensitive parts:

- Keep the parts in protective packages until they are inserted into the product.
- Avoid contact with other people while handling the part.
- Wear a grounded wrist strap against your skin to eliminate static on your body.
- Prevent the part from touching your clothing. Most clothing is insulative and retains a charge even when you are wearing a wrist strap.
- Use the black side of a grounded work mat to provide a static-free work surface. The mat is especially useful when handling ESD-sensitive devices.
- Select a grounding system, such as those listed below, to provide protection that meets the specific service requirement.

Note: The use of a grounding system is desirable but not required to protect against ESD damage.

- Attach the ESD ground clip to any frame ground, ground braid, or green-wire ground.
- Use an ESD common ground or reference point when working on a double-insulated or battery-operated system. You can use coax or connector-outside shells on these systems.
- Use the round ground-prong of the AC plug on AC-operated computers.

Grounding requirements

Electrical grounding of the computer is required for operator safety and correct system function. Proper grounding of the electrical outlet can be verified by a certified electrician.

Safety notices

The CAUTION and DANGER safety notices in this section are provided in the language of English.



DANGER

Electrical current from power, telephone and communication cables is hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet.**
- **Connect any equipment that will be attached to this product to a properly wired outlet.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications cables, network cables, and modem cables before you open the device covers, unless instructed otherwise in the installation and configuration procedures.**
- **Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.**

To Connect	To Disconnect
<ol style="list-style-type: none"> 1. Turn everything OFF. 2. First, attach all cables to devices. 3. Attach signal cables to connectors. 4. Attach power cords to outlet. 5. Turn device ON. 	<ol style="list-style-type: none"> 1. Turn everything OFF. 2. First, remove power cords from outlets. 3. Remove signal cables from connectors. 4. Remove all cables from devices.



CAUTION:

When replacing the lithium battery, use only Part Number 45C1566 or an equivalent type battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

Do not:

- Throw into or immerse in water
- Heat to more than 100°C (212°F)
- Repair or disassemble

Dispose of the battery as required by local ordinances or regulations.



CAUTION:

When laser products (such as CD-ROMs, DVD-ROM drives, fiber optic devices, or transmitters) are installed, note the following:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.



 **DANGER**

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following:

These diodes emit radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

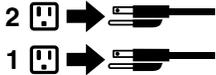


		
≥18 kg (37 lbs)	≥32 kg (70.5 lbs)	≥55 kg (121.2 lbs)

CAUTION:
Use safe practices when lifting.



CAUTION:
The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.



CAUTION:
Do not place any object weighing more than 82 kg (180 lbs.) on top of rack-mounted devices.



Chapter 3. General information

This chapter provides general information that applies to all computer models covered by this manual.

Specifications

This section lists the physical specifications for your computer.

This section lists the physical specifications for your computer.

Type ideacentre All-In-One 910

This section lists the physical specifications.

Environment

Air temperature:

Operating: 10° to 35°C

Transit: -20° to 55°C

Humidity:

Operating: 35% to 80%

Transit: 20% to 90% (40°C)

Altitude: 86KPa to 106KPa

Electrical input:

Input voltage: 90V-264V(AC)

Input frequency: 47Hz-63Hz

Chapter 4. General Checkout

Attention: The drives in the computer you are servicing might have been rearranged or the drive startup sequence may have been changed. Be extremely careful during write operations such as copying, saving, or formatting. Data or programs can be overwritten if you select an incorrect drive.

General error messages appear if a problem or conflict is found by an application, the operating system, or both. For an explanation of these messages, refer to the information supplied with that software package.

Use the following procedure to help determine the cause of the problem:

1. Power-off the computer and all external devices.
2. Check all cables and power cords.
3. Set all display controls to the middle position.
4. Power-on all external devices.
5. Power-on the computer.
 - Look for displayed error codes.
 - Look for readable instructions or a main menu on the display.

If you did not receive the correct response, proceed to step 6.

If you did receive the correct response, proceed to step 7.

6. If one of the following happens, follow the instruction given:
 - If the computer displays a POST error, go to “POST error codes”.
 - If the computer hangs and no error is displayed, continue at step 7.
7. If the test stops and you cannot continue, replace the last device tested.

Chapter 5. Using the Setup Utility

The Setup Utility program is used to view and change the configuration settings of your computer, regardless of which operating system you are using. However, the operating system settings might override any similar settings in the Setup Utility program.

Starting the Lenovo BIOS Setup Utility program

To start the Lenovo BIOS Setup Utility program, do the following:

1. If your computer is already on when you start this procedure, shut down the operating system and turn off the computer.
2. Press and hold the **F1** key then turn on the computer. When the Lenovo BIOS Setup Utility program is displayed, release the **F1** key.

Note: If a Power-On Password or an Administrator Password has been set, the Setup Utility program menu will not be displayed until you type your password. For more information, see “Using passwords.”

Viewing and changing settings

System configuration options are listed in the Lenovo BIOS Setup Utility program menu. To view or change settings, see “Starting the Setup Utility program.”

You must use the keyboard when using the Lenovo BIOS Setup Utility menu. The keys used to perform various tasks are displayed on the bottom of each screen.

Using passwords

You can use the Lenovo BIOS Setup Utility program to set passwords to prevent unauthorized persons from gaining access to your computer and data. See “Starting the Setup Utility program.” The following types of passwords are available:

- Administrator Password
- Power-On Password

You do not have to set any passwords to use your computer. However, if you decide to set passwords, read the following sections.

Password considerations

A password can be any combination of letters and numbers up to 16 characters (a-z and 0-9). For security reasons, it is a good idea to use a strong password that cannot be easily compromised. We suggest that passwords should follow these rules:

- For a strong password, use 7-16 characters and a mix of letters and numbers.
- Do not use your name or your user name.
- Do not use a common word or a common name.
- Use something significantly different from your previous password.

Attention: Administrator and Power-On passwords are not case sensitive.

Administrator Password

Setting an Administrator Password deters unauthorized persons from changing configuration settings. You might want to set an Administrator Password if you are responsible for maintaining the settings of several computers.

After you set an Administrator Password, a password prompt is displayed every time you access the Lenovo BIOS Setup Utility program.

If both the Administrator and Power-On Password are set, you can type either password. However, you must use your Administrator Password to change any configuration settings.

Setting, changing, or deleting an Administrator password

To set an Administrator Password, do the following:

Note: A password can be any combination of letters and numbers up to 16 characters (a-z and 0-9). For more information, see “Password considerations” on page 13.

1. Start the Lenovo BIOS Setup Utility program (see “Starting the Lenovo BIOS Setup Utility program” on page 13).
2. From the **Security** menu, select **Set Administrator Password** and press the **Enter** key.
3. The password dialog box will be displayed. Type the password then press the **Enter** key.
4. Re-type the password to confirm, then press the **Enter** key. If you typed the password correctly, the password will be installed.

To change an Administrator Password, do the following:

1. Start the Lenovo BIOS Setup Utility program (see “Starting the Lenovo BIOS Setup Utility program” on page 13).
2. From the **Security** menu, select **Set Administrator Password** and press the **Enter** key.
3. The password dialog box will be displayed. Type the current password then press the **Enter** key.
4. Type the new password, then press the **Enter** key. Re-type the password to confirm the new password. If you typed the new password correctly, the new password will be installed. A Setup Noticed confirming that changes have been saved will be displayed.

To delete a previously set Administrator Password, do the following :

1. From the **Security** menu, select **Set Administrator Password** and press the **Enter** key.
2. The password dialog box will be displayed. Type the current password and press the **Enter** key.
3. To delete an **Administrator Password**, leave each new password line item blank, then press the **Enter** key. A Setup Notice confirming that changes have been saved will be displayed.
4. Return to the Lenovo BIOS Setup Utility program menu and select the **Exit** option.
5. Select **Save changes and Exit** from the menu.

Power-On Password

When a Power-On Password is set, you cannot start the Lenovo BIOS Setup Utility program until a valid password is typed from the keyboard.

Setting, changing, or deleting a Power-On Password

Note: A password can be any combination of letters and numbers up to 16 characters (a-z and 0-9).

To set a Power-On Password, do the following:

1. Start the Lenovo BIOS Setup Utility program (See "Starting the Lenovo BIOS Setup Utility program" on page 13.)
2. From the **Security** menu, select **Set Power-On Password** and press the **Enter** key.
3. The password dialog box will be displayed. Type the password, then press the **Enter** key.
4. Re-type the password to confirm. If you typed the password correctly, the password will be installed.

To change a Power-On Password, do the following:

1. Start the Lenovo BIOS Setup Utility program (See "Starting the Lenovo BIOS Setup Utility program" on page 13.)
2. From the **Security** menu, select **Set Power-On Password** and press the **Enter** key.
3. The password dialog box will be displayed. Type the current password then press the **Enter** key.
4. Type the new password, then press the **Enter** key. Re-type the password to confirm the new password. If you typed the new password correctly, the new password will be installed. A Setup Noticed confirming that changes have been saved will be displayed.

To delete a previously set Power-On Password, do the following :

1. From the **Security** menu, select **Set Power-On Password** and press the **Enter** key.
2. The password dialog box will be displayed. Type the current password and press the **Enter** key.
3. To delete the **Power-On Password**, leave each new password line item blank, then press Enter. A Setup Notice confirming that changes have been saved will be displayed.
4. Return to the Lenovo BIOS Setup Utility program menu and select the **Exit** option.
5. Select **Save changes and Exit** from the menu.

Enabling or disabling a device

The Devices options is used to enable or disable user access to the following devices:	
USB Functions	Select whether to enable or disable USB (Universal Serial Bus) functions. If the functions are disabled, no USB devices can be used.
SATA Mode	When this feature is set to Disabled , all devices connected to the SATA connectors (e.g. hard disk drives or the optical disk drive) are disabled and cannot be accessed.
Onboard Audio Controller	Select whether to enable or disable the Onboard Audio Controller . When this feature is set to Disabled all devices connected to the audio connectors (e.g. headphones or a microphone) are disabled and cannot be used.
Onboard Ethernet Controller or LAN Boot Agent	Select whether to enable or disable the Onboard Ethernet Controller , or select whether to enable or disable load onboard PXE (Preboot Execution Environment) .

To enable or disable a device, do the following:

1. Start the Setup Utility program (see "Starting the Setup Utility program" on page 13).
2. From the Setup Utility program menu, select **Devices**.
3. Select an option as follows:

Select **USB Setup**, press the **Enter** key, then select **USB Functions**.

Select **ATA Device Setup**, press the **Enter** key, then select **SATA Mode**.

Select **Audio Setup**, press the **Enter** key, then select **Onboard Audio Controller**.

Select **Network Setup**, press the **Enter** key, then select **Onboard Ethernet Support** or **LAN Boot Agent**.

4. Select **Disabled** or **Enabled** and press the **Enter** key.
5. Return to the Lenovo BIOS Setup Utility program menu and select the **Exit** option.
6. Select **Save changes and Exit** from the menu.

Notes:

- a. If you do not want to save the settings, select **Discard changes and Exit** from the menu.
- b. Select IDE/AHCI Mode: Device driver support is required for AHCI. Depending on how the hard disk image was installed, changing this setting may prevent the system from booting.

Selecting a startup device

If your computer does not boot from a device such as the CD/DVD-ROM drive disk or hard disk as expected, follow one of the procedures below.

Selecting a temporary startup device

Use this procedure to start up from any boot device.

Note: Not all CDs, DVDs or hard disk drives are bootable.

1. Turn off your computer.
2. Press and hold the **F12** key then turn on the computer. When the **Startup Device Menu** appears, release the **F12** key.

Note: If the **Startup Device Menu** does not display using these steps, repeatedly press and release the **F12** key rather than keeping it pressed when turning on the computer.

3. Use **↑** and **↓** arrows to select the desired startup device from the **Startup Device Menu** and press the **Enter** key to begin.

Note: Selecting a startup device from the **Startup Device Menu** does not permanently change the startup sequence.

Selecting or changing the startup device sequence

To view or permanently change the configured startup device sequence, do the following:

1. Start the Lenovo BIOS Setup Utility program (see “Starting the Lenovo BIOS Setup Utility program” on page 13).
2. From the Lenovo BIOS Setup Utility program main menu, select the **Startup** option.
3. Press the **Enter** key, and select the devices for the **Primary Boot Sequence**. Read the information displayed on the right side of the screen.
4. Use **-** and **←** arrows to select a device. Use the **<+>** or **<->** keys to move a device up or down. Use the **<x>** key to exclude the device from or include the device in the boot sequence.
5. Return to the Lenovo BIOS Setup Utility program menu and select the **Exit** option.
6. Select **Save changes and Exit** from the menu.

Notes:

- a. If you do not want to save the settings, select **Discard changes and Exit** from the menu.
- b. If you have changed these settings and want to return to the default settings, select **Load Optimal Defaults** from the menu.

Exiting the Lenovo BIOS Setup Utility program

After you finish viewing or changing settings, press the **Esc** key to return to the Lenovo BIOS Setup Utility program main menu. You might have to press the **Esc** key several times. Do one of the following:

- If you want to save the new settings, select **Save changes and Exit** from the menu. When the **Save & reset** window shows, select the **Yes** button, and then press the **Enter** key to exit the Lenovo BIOS Setup Utility program.
- If you do not want to save the settings, select **Discard changes and Exit** from the menu. When the **Reset Without Saving** window shows, select the **Yes** button, and then press the **Enter** key to exit the Lenovo BIOS Setup Utility program.

Chapter 6. Symptom-to-FRU Index

The Symptom-to-FRU index lists error symptoms and possible causes. The most likely cause is listed first. Always begin with Chapter 4, “General Checkout,” on page 11. This index can also be used to help you decide which FRUs to have available when servicing a computer. If you are unable to correct the problem using this index, go to “Undetermined problems” on page 20.

Notes:

- If you have both an error message and an incorrect audio response, diagnose the error message first.
- If you cannot run the diagnostic tests or you get a diagnostic error code when running a test but did receive a POST error message, diagnose the POST error message first.
- If you did not receive any error message look for a description of your error symptoms in the first part of this index.

Hard disk drive boot error

A hard disk drive boot error can be caused by the following.

Error	FRU/Action
The startup drive is not included in the boot sequence configuration.	Check the configuration and ensure the startup drive is in the boot sequence.
No operating system is installed on the boot drive.	Install an operating system on the boot drive.
The boot sector on the startup drive is corrupted.	The drive must be formatted. Do the following: <ol style="list-style-type: none">1. Attempt to back up the data on the failing hard disk drive.2. Use the operating system to format the hard disk drive.
The drive is defective.	Replace the hard disk drive.

Power Supply Problems

Follow these procedures if you suspect there is a power supply problem.

Check/Verify	FRU/Action
Check that the following are properly installed: <ul style="list-style-type: none">• Power Cord• On/Off Switch connector• System Board Power Supply connectors• Microprocessor connections	Reseat connectors
Check the power cord.	Power Cord
Check the power-on switch.	Power-on Switch

POST error codes

Each time you turn the computer on, it performs a series of tests to check that the system is operating correctly and that certain options are set. This series of tests is called the *Power-On Self-Test*, or *POST*. POST does the following:

- Checks some basic motherboard operations
- Checks that the memory is working correctly
- Starts video operations
- Verifies that the boot drive is working

POST Error Message	Description/Action
Keyboard error	Cannot initialize the keyboard. Make sure the keyboard is properly connected to the computer and that no keys are held pressed during POST. To purposely configure the computer without a keyboard, select Keyboardless operation in Startup and set the option to Enabled . The BIOS then ignores the missing keyboard during POST.
Reboot and Select proper Boot device or Insert Boot Media in selected Boot device	The BIOS was unable to find a suitable boot device. Make sure the boot drive is properly connected to the computer. Make sure you have bootable media in the boot device.

Undetermined problems

1. Power-off the computer.
2. Remove or disconnect the following components (if connected or installed) one at a time.
 - a. External devices (modem, printer, or mouse)
 - b. Extended video memory
 - c. External Cache
 - d. External Cache RAM
 - e. Hard disk drive
 - f. Disk drive
3. Power-on the computer to re-test the system.
4. Repeat steps 1 through 3 until you find the failing device or component.

If all devices and components have been removed and the problem continues, replace the system board.

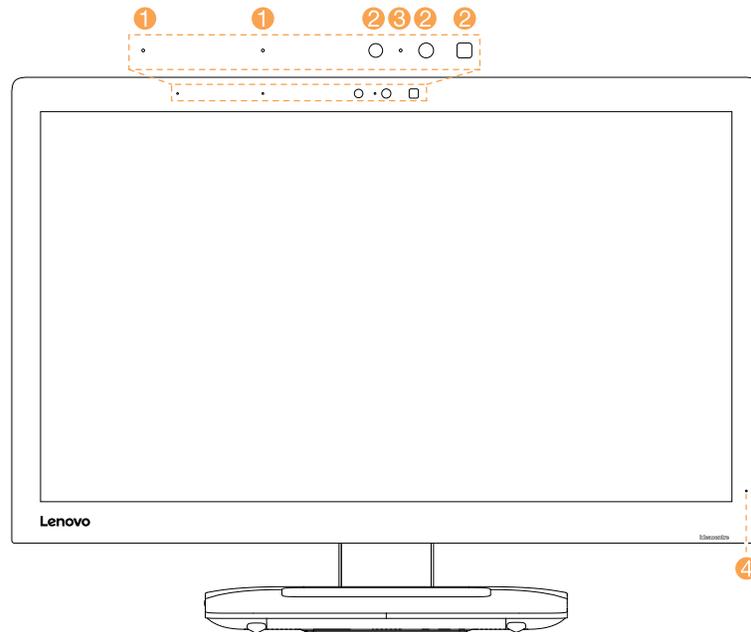
Chapter 7. Locating connectors, controls and components

This section provides illustrations to help locate the various connectors, controls and components of the computer.

Front view

The following illustration shows the location of controls and components on the front of the computer.

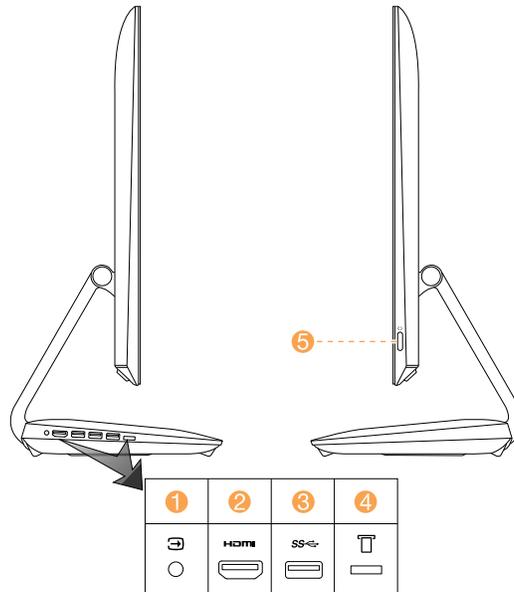
Attention: Be careful not to block any air vents on the computer. Blocked air vents can cause overheating.



1. Built-in microphone	3. Camera LED indicator
2. Built-in camera	4. Power LED indicator

Left and right view

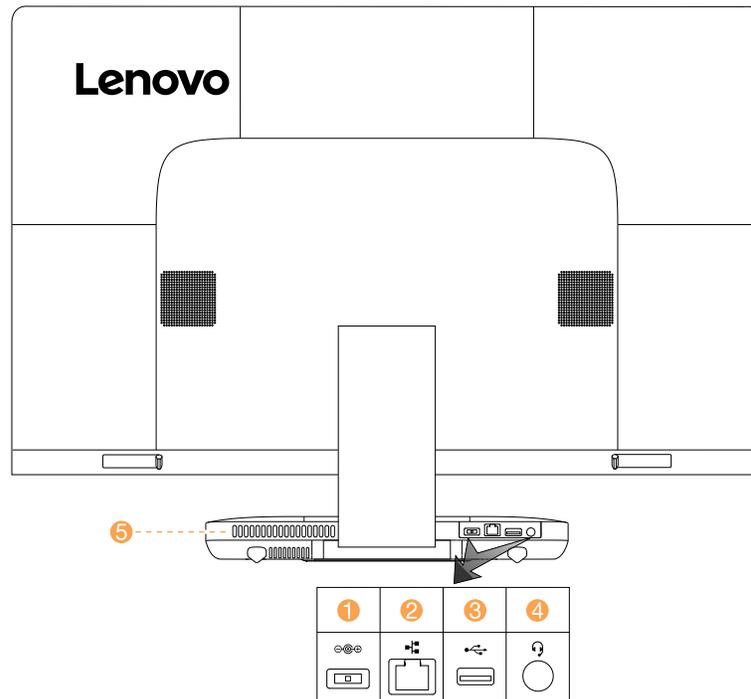
The following illustration shows the location of connectors, controls and components on the left and right side of the computer.



1. HDMI in/out switch	4. Memory card reader
2. HDMI in/out connector	5. Power button
3. USB 3.0 connector (3)	

Rear view

The following illustration shows the location of connectors and components on the rear of the computer.

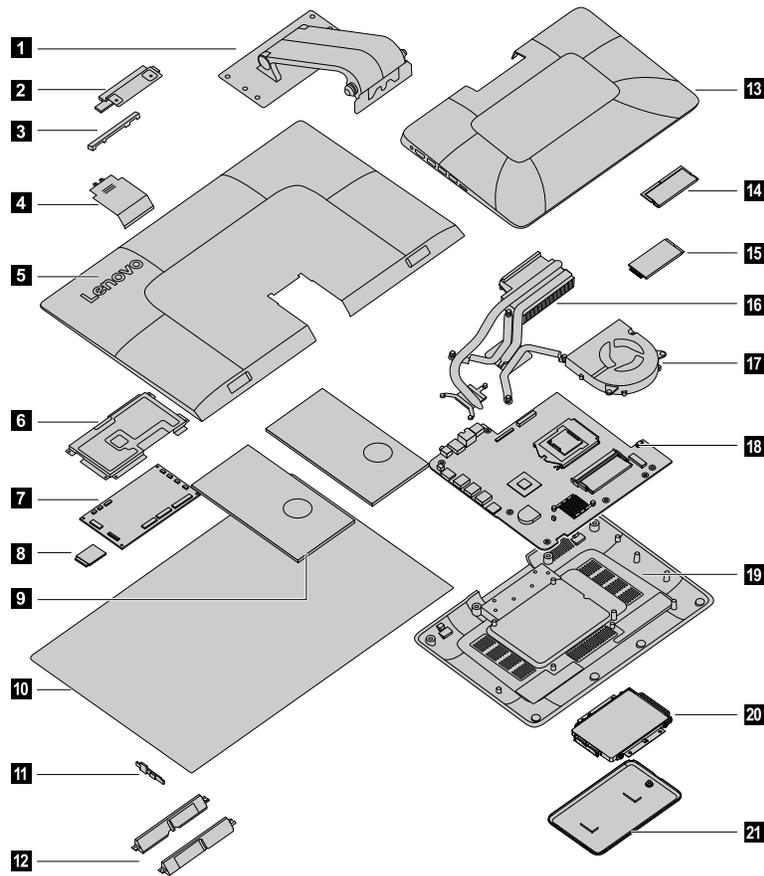


1. Power connector	4. Combo audio jack ¹
2. Ethernet connector	5. Air vents
3. USB 2.0 connector	

1. Combo audio jack: Used to connect headsets.

Hardware components

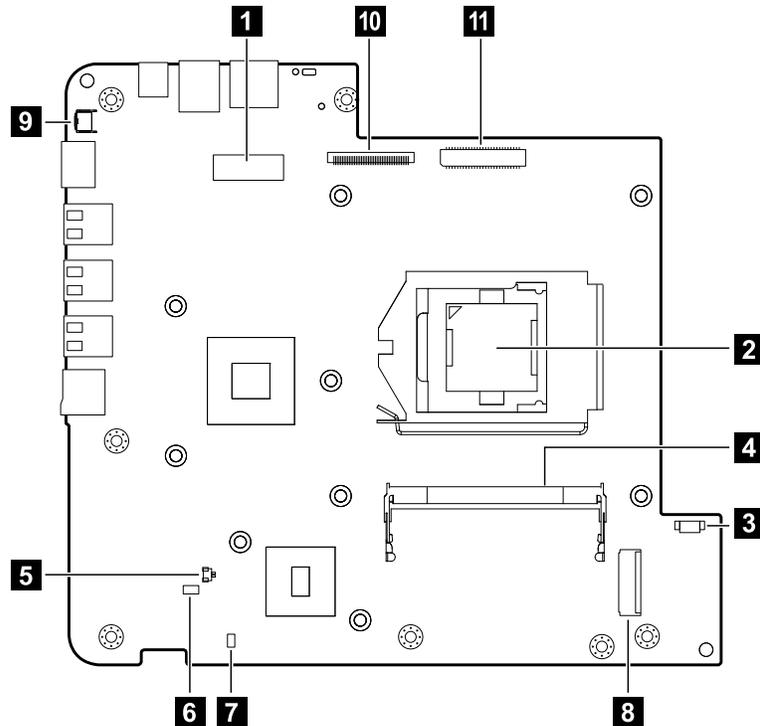
The following illustration shows the components that make up your computer.



1. Computer stand	12. Speakers (2)
2. Camera with bracket	13. Base top cover
3. Microphone module	14. Memory
4. Rear cover deco	15. Solid state disk
5. Rear cover	16. Heat Sink
6. Scalar board shield	17. System fan
7. Scalar board	18. Motherboard
8. Wi-Fi card	19. Base bottom cover
9. Subwoofer (2)	20. Hard disk drive
10. LED Panel	21. Hard disk drive door
11. Power switch board	

Identifying parts on the motherboard

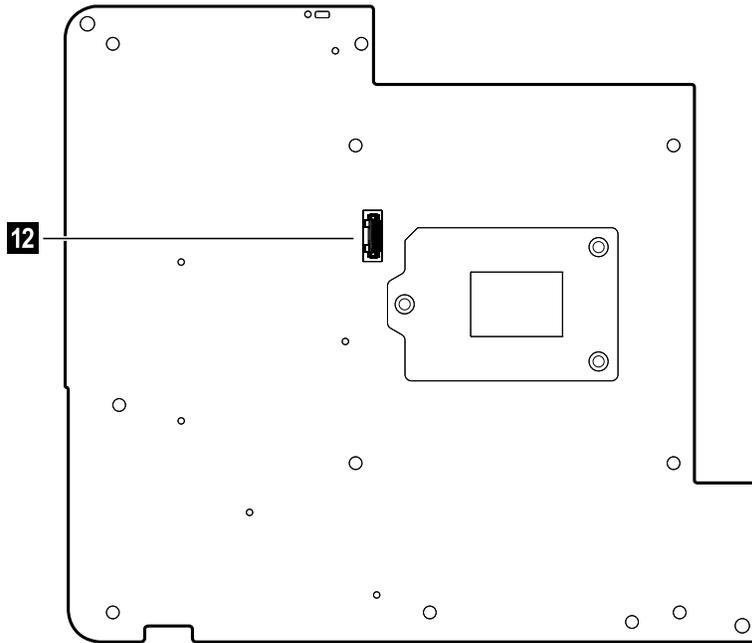
The motherboard (sometimes called the planar or system board) is the main circuit board in your computer. It provides basic computing functions and supports a variety of devices that are factory-installed or that you can install later. The following illustration shows the location of connectors and components on the front of the motherboard.



1. 8-pin power connector (DCIN1)	7. Clear CMOS Switch
2. Microprocessor (CPU1)	8. M.2 connector (SATA SSD1)
3. System fan connector	9. HDMI switch
4. Memory Slot 1 (DIMM1)	10. Scalar 1 connector
5. Battery power connector	11. Scalar 2 connector
6. ME disable switch	

Identifying parts on the back of the LED panel

The following illustration shows the components and controls on the back of LED panel.



12. SATA1 connector (HDD1)	
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Chapter 8. Replacing hardware

Attention: Do not remove the computer cover or attempt any repair before reading the “Important safety information” in the Safety and Warranty Guide that was included with your computer. To obtain copies of the Safety and Warranty Guide, go to the Support Web site at: <http://consumersupport.lenovo.com>.

Note: Use only parts provided by Lenovo.

General information

Pre-disassembly instructions

Before starting the disassembly procedure, make sure that you do the following:

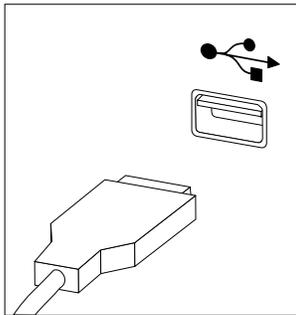
1. Turn off the power to the system and all peripherals.
2. Unplug all power and signal cables from the computer.
3. Place the system on a flat, stable surface.

Replacing the keyboard and mouse

Note: Your keyboard will be connected to a USB connector at either side or at the rear of the computer.

To replace the keyboard:

- Step 1. Remove any media (disks, CDs, or memory cards) from the drives, shut down the computer, and turn off all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Locate the connector for the keyboard. Refer to “Side view of the computer” and “Rear view of the computer”.

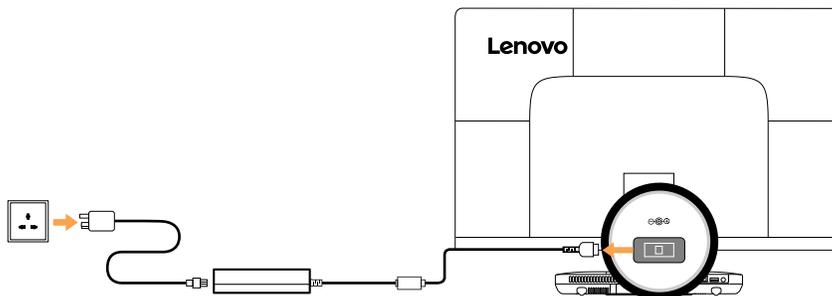


- Step 4. Disconnect the defective keyboard cable from the computer and connect the new keyboard cable to the same connector.
- Step 5. The mouse can be replaced using the same method.

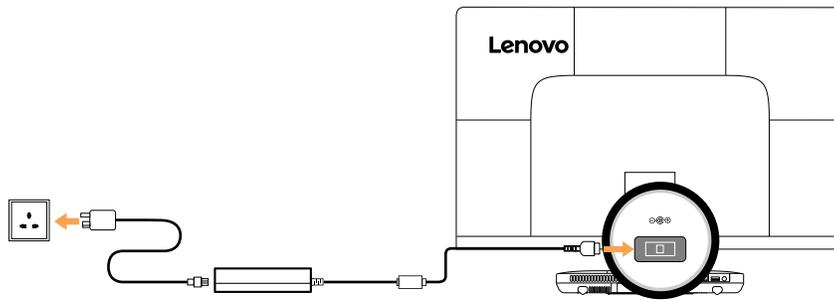
Replacing the adapter

Attention: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

- Step 1. Remove any media (disks, CDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Disconnect the adapter from the connector on the computer, then unplug the adapter from electrical outlet.



Step 3. Connect the new adapter as shown.

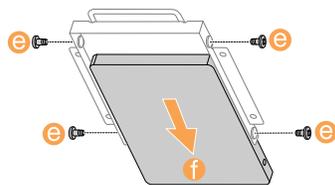
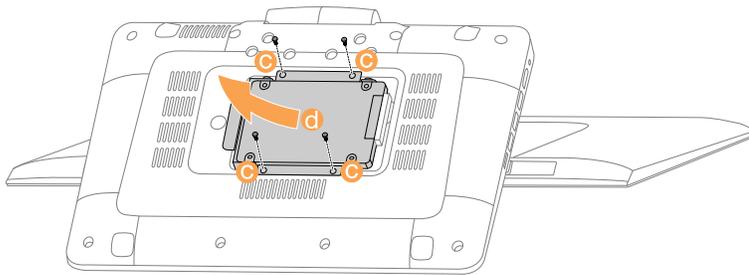
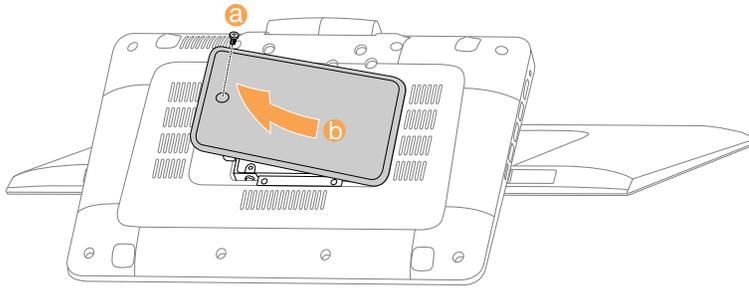


Replacing the hard disk drive

Attention: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

To replace the hard disk drive

- Step 1. Remove any media (disks, CDs, DVDs or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove one screw that secure the hard disk drive cover to the base stand **a**, and then remove the HDD cover **b**.
- Step 5. Remove the 4 screws that secure the hard disk drive bracket to the base stand **c**.
- Step 6. Disconnect the data and power cable from the hard disk drive **d**.
- Step 7. Remove the 4 screws that secure the hard disk drive to the bracket **e**. Slide the hard disk drive out of the bay as shown **f**.



Step 8. Install the new hard disk drive as follows:

- a. Slide the hard disk drive into the hard disk drive bay and secure them with 4 screws.
- b. Connect the data and power cable to the new hard disk.
- c. Secure the new hard disk drive bay to the base stand with the 4 screws.

Step 9. Reattach the hard disk drive cover and secure it with the screws.

Removing the rear cover

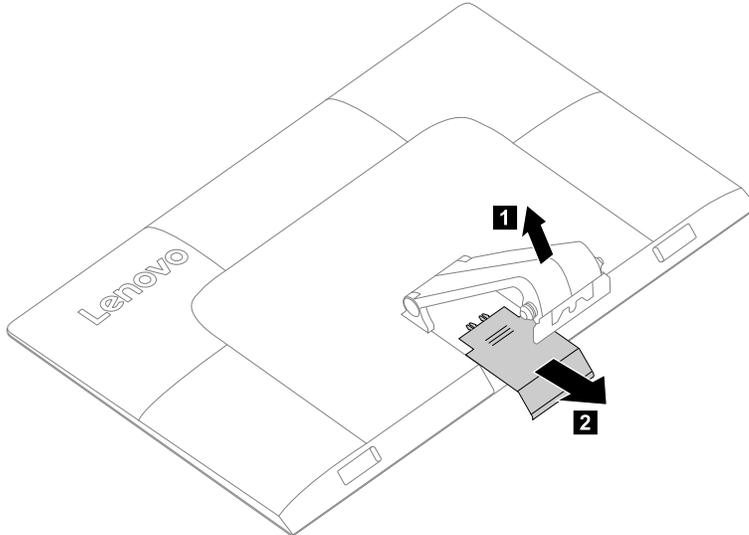
Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

To remove the rear cover

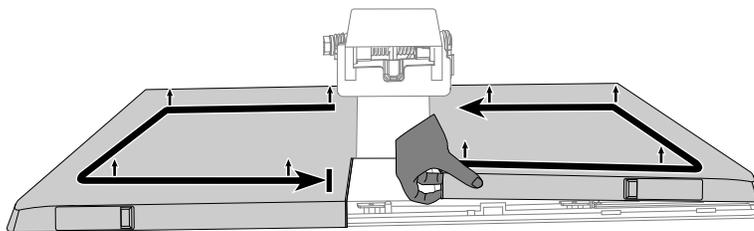
Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.

Step 2. Unplug all power cords from electrical outlets.

- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove the base cover. Refer to “Removing the base cover”.
- Step 5. Raise the hinge **1** and slide the rear deco out as shown. **2**



- Step 6. Working around the edge in an anti-clockwise direction, use your fingers to prise up the rear cover. The rear cover is pinned into place, use short, sharp movements to prise it up.



- Step 7. Press down the hinge and slide out the rear cover.
- Step 8. To reattach the rear cover:
 - a. Raise the hinge, line up the rear cover with the LED panel and slide it back into position.
 - b. Press the edge of rear cover to lock the cover to the LED panel with the pins.
 - c. Slide the rear deco back into position.

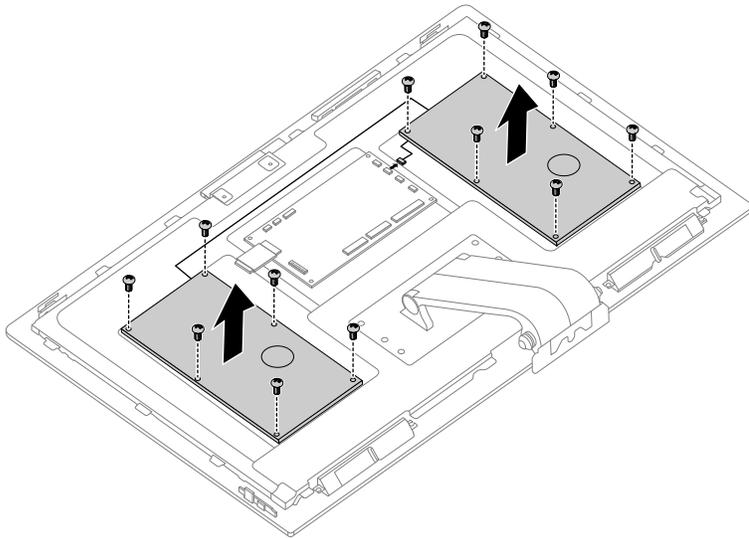
Removing the subwoofer speakers

Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

To remove the rear cover

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.

- Step 4. Remove the rear cover. Refer to “Removing the rear cover”.
- Step 5. Remove the 12 screws that secure the subwoofer speakers to the LED Panel bracket, then lift up the two subwoofer speakers to remove them.



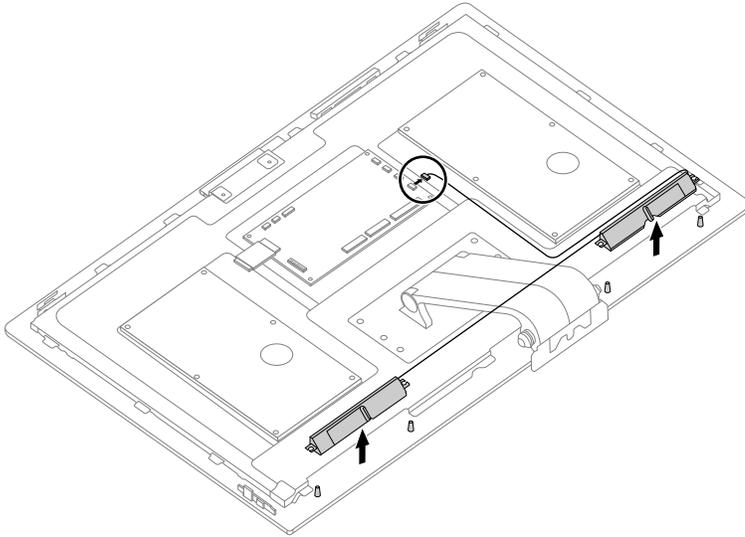
- Step 6. To install new subwoofer speakers:
- Place the new subwoofer speakers into position, then secure them with 12 screws.
 - Press the edge of rear cover to lock the cover to the LED panel with the pins.
 - Slide the rear deco back into position.

Removing the speakers system

Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

To remove the rear cover

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove the rear cover. Refer to “Removing the rear cover”.
- Step 5. Disconnect the speaker cable from the connectors on the scalar board, and then lift up the two speakers to remove them.



Step 6. To install new speaker system:

- a. Place the new speakers into position.
- b. Connect the new speaker cables to the connector on the scalar board.
- c. Press the edge of rear cover to lock the cover to the LED panel with the pins.
- d. Slide the rear deco back into position.

Replacing the Wi-Fi card

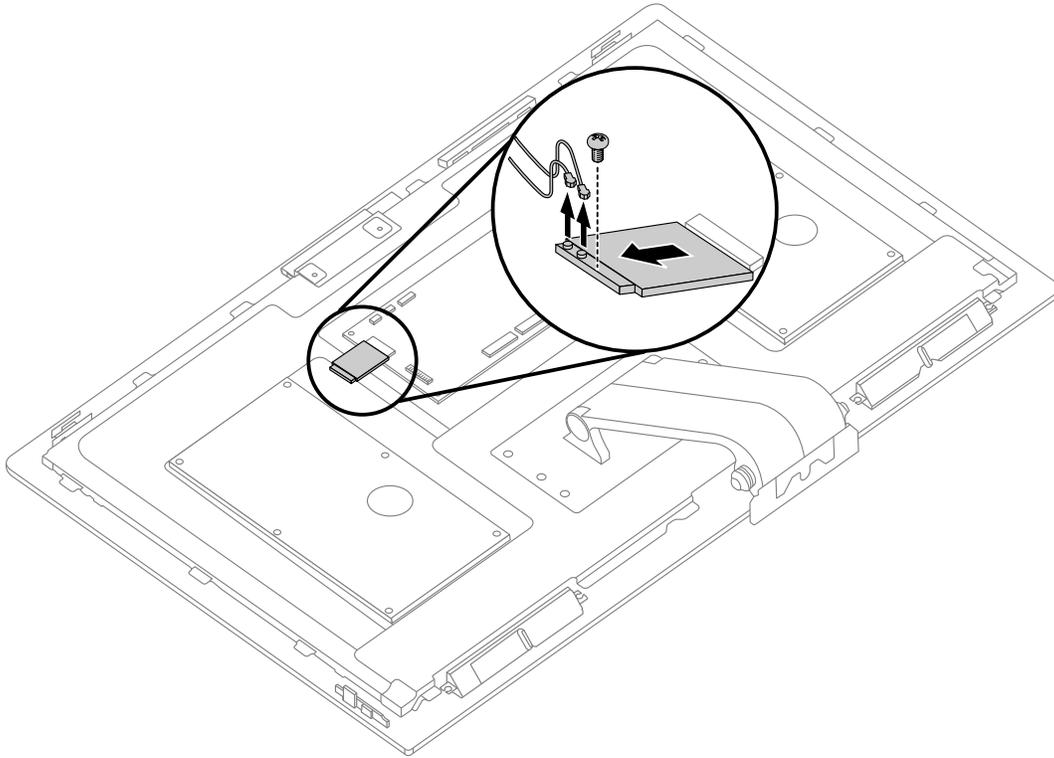
Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the computer screen from scratches or other damage.

To replace the Wi-Fi card:

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove the rear cover. Refer to “Removing the rear cover”.

- Step 5. Disconnect the antenna cables from the Wi-Fi card.
- Step 6. Remove the screw that secures the Wi-Fi card to the motherboard.
- Step 7. Lift up the Wi-Fi card to remove it from the socket.



- Step 8. To install the new Wi-Fi card:
 - a. Insert the notched end of the Wi-Fi card into the card port on the scalar board.
 - b. Secure new the Wi-Fi card to the scalar board. with the screw.
 - c. Connect the antenna cables to the new Wi-Fi card.
 - d. Press the edge of rear cover to lock the cover to the LED panel with the pins.
 - e. Slide the rear deco back into position.

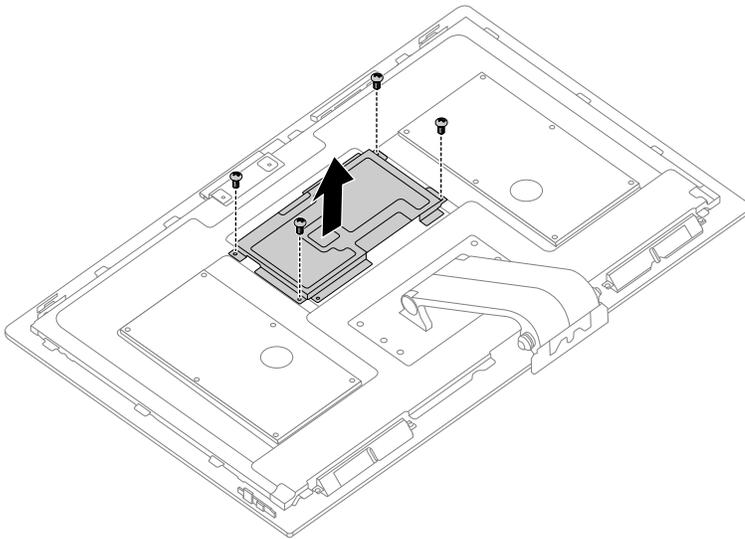
Replacing the scalar board

Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

To replace the scalar board

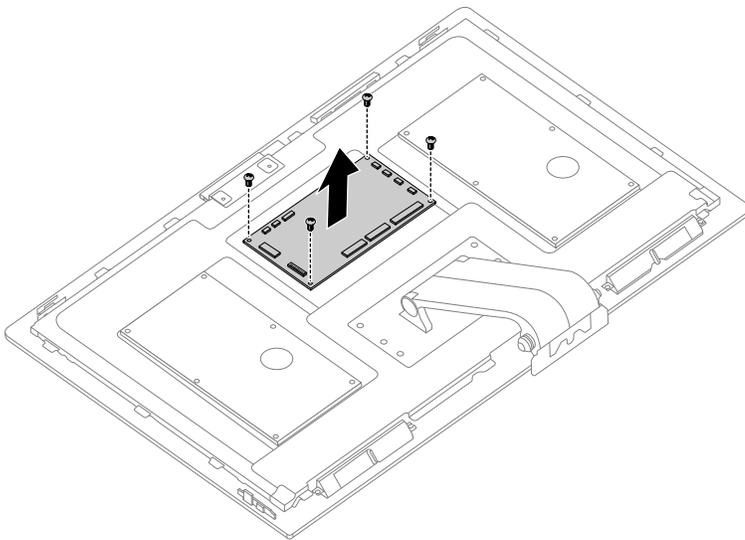
- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove the rear cover. Refer to “Removing the rear cover”.
- Step 5. Remove the 4 screws that secure the scalar board to the LED panel bracket.

Step 6. Remove the scalar shielding and set it aside.



Step 7. Disconnect all the cables from the scalar board.

Step 8. Remove the 4 screws that secure the scalar board to the middle frame and lift it up to remove it.



Step 9. To install the new scalar board:

- a. Line up the holes on the new scalar board with the mounting holes on the middle frame and secure it with the 4 screws.
- b. Connect all the cables to the new scalar board.
- c. Reattach the scalar shielding to the middle frame with the 4 screws.

Step 10. Reattach the rear cover to the LED panel.

Step 11. Press the edge of rear cover to lock the cover to the LED panel with the pins.

Step 12. Slide the rear deco back into position.

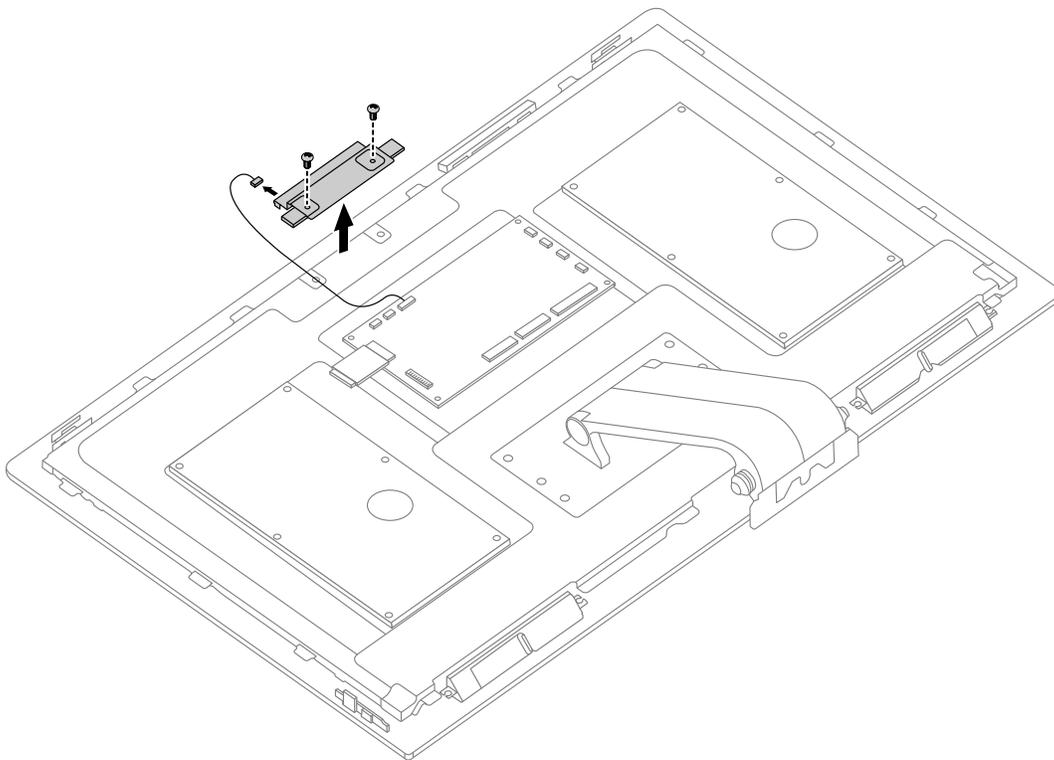
Replacing the camera with bracket

Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the computer screen from scratches or other damage.

To replace the camera:

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove the rear cover. Refer to “Removing the rear cover”.
- Step 5. Remove the two screws that secure camera with bracket to the front bezel.



- Step 6. Disconnect the camera data cable from the connector on the camera.
- Step 7. To install the new camera:
 - a. Connect the data cable to the new camera.
 - b. Place the new camera with bracket into position, secure the camera bracket to the front bezel with the two screws.
- Step 8. Reattach the rear cover.

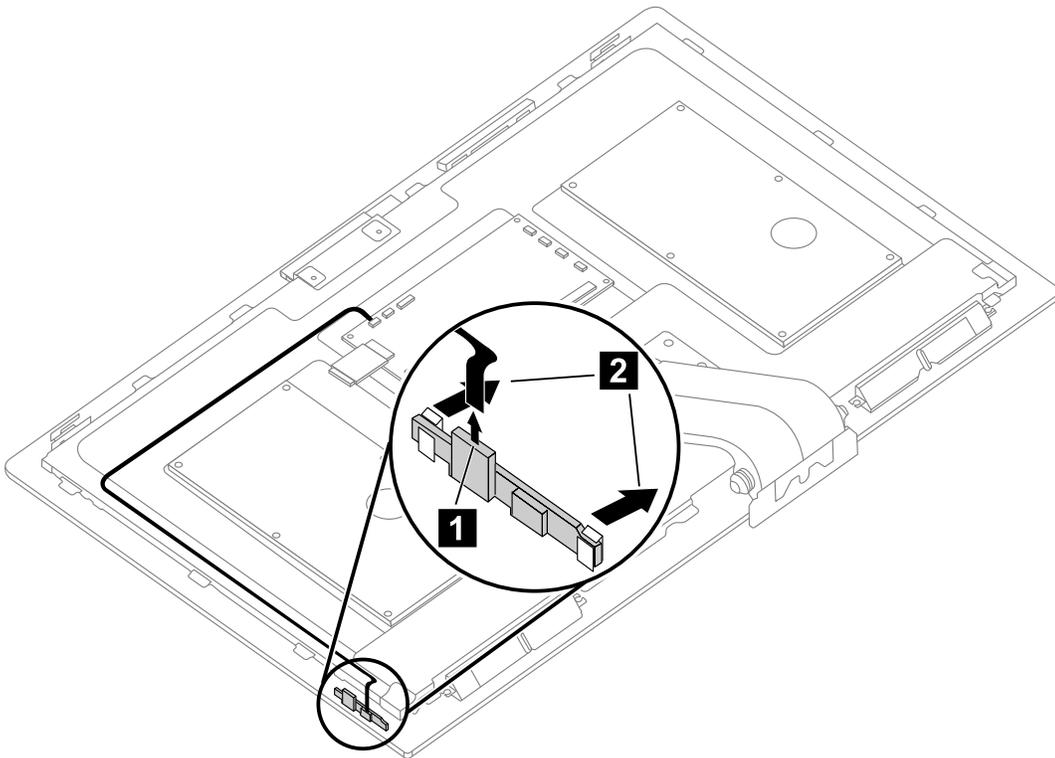
Replacing the power switch board

Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the computer screen from scratches or other damage.

To replace the power switch board

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove the rear cover. Refer to “Removing the rear cover”.
- Step 5. Disconnect the data cable from the power switch board **1**.
- Step 6. Push the locking pin outward to release the power switch board **2**, then lift up the power switch board to remove it.



- Step 7. To install the power switch board:
 - a. Connect the cable to the new power switch board.
 - b. Attach the new power switch board to the chassis.
 - c. Secure the power switch board with the locking pins.
- Step 8. Reattach the rear cover.

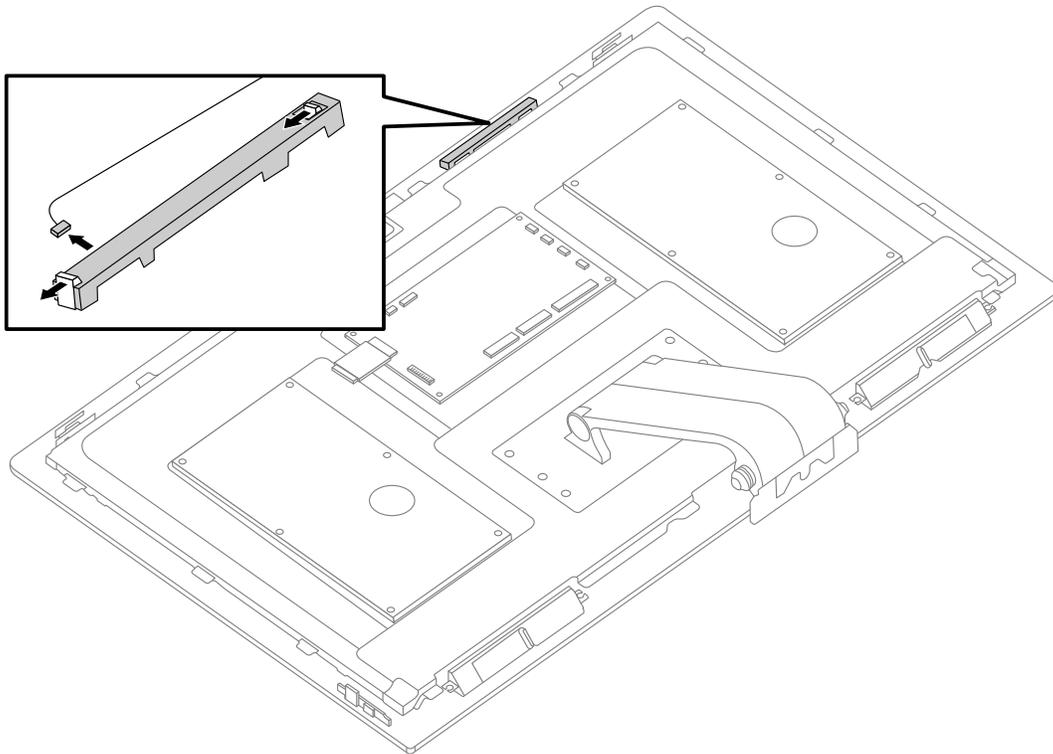
Replacing the microphone

Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the computer screen from scratches or other damage.

To replace the power switch board

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove the rear cover. Refer to “Removing the rear cover”.
- Step 5. Disconnect the microphone data cable from the connector on the microphone.
- Step 6. Push the locking pin outward to release the microphone, then lift up the microphone to remove it.



- Step 7. To install the new microphone:
 - a. Connect the cable to the new microphone.
 - b. Place the new microphone with bracket into position and secure the microphone with the locking pins.
- Step 8. Reattach the rear cover.

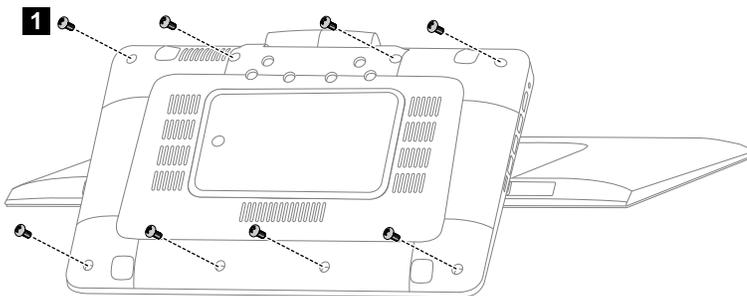
Removing the base cover

Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

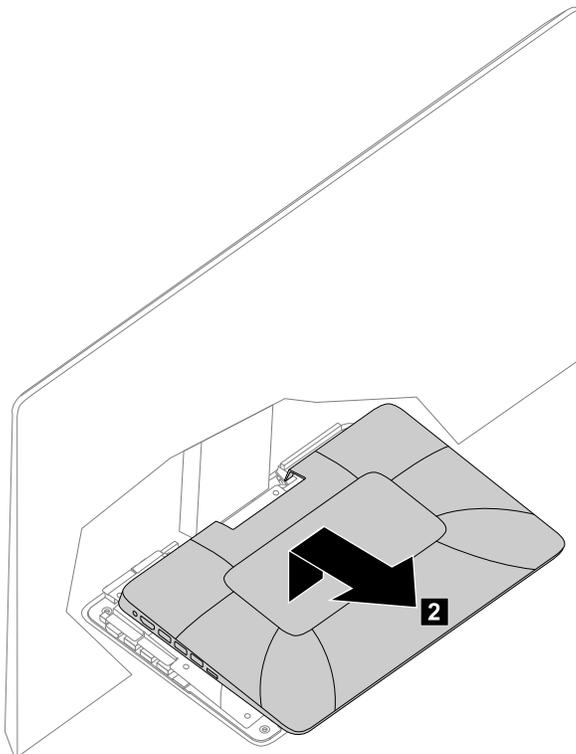
Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the computer screen from scratches or other damage.

To remove the base cover

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Place the computer face-down on a soft flat surface, then remove the 8 screws that secure the base bottom cover to the base.



- Step 5. Return the computer to an upright position, then lift the base top cover up and slide it out as shown.



- Step 6. To reattach the base cover:
 - a. Line up the base top cover with the base, slide it back and snap it into position.

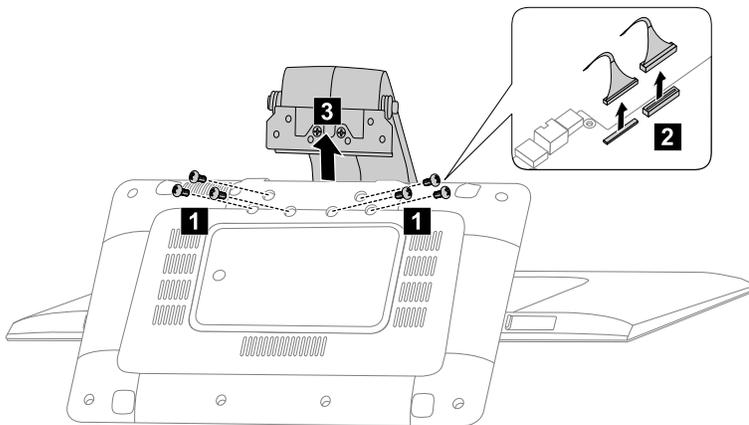
- b. Place the computer face-down on a soft flat surface, then secure the base bottom cover to the base with the 8 screws.

Removing the hinge from the stand base cover

Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

To remove the hinge from the chassis

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove the base cover. Refer to “Removing the base cover”.
- Step 5. Remove the 6 screws that secure the hinge to the stand base cover **1**, and disconnect the touch and LED panel cables from the connectors on the motherboard **2**, and then raise the hinge to remove it from the base cover. **3**



- Step 6. To reattach the hinge to the stand base cover:
 - a. Line up the hinge with the stand base bottom cover and slide the hinge into position.
 - b. Reconnect the touch and LED panel cables to the motherboard.
 - c. Secure the hinge to the base cover with the 6 screws.
- Step 7. Reattach the base cover and secure it with the screws.

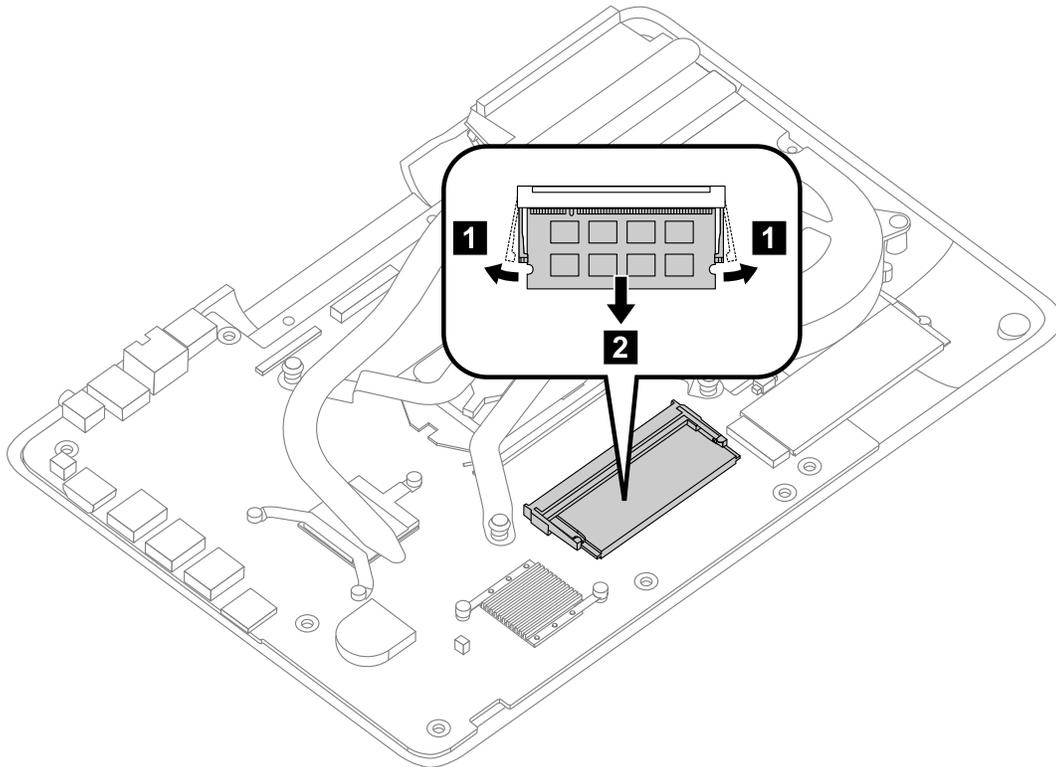
Replacing the memory module

Attention: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the touch screen from scratches or other damage.

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.

- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove the base cover. Refer to “Removing the base cover”.
- Step 5. Push out the latches on both sides of the memory socket to release the memory module and gently pull the memory module upward to remove it from its socket.



- Step 6. To install the new memory module:
 - a. Align the new memory module with the memory socket, then insert it and push down on the top edge. Make sure the latches lock the memory module in place.
- Step 7. Reattach the EMI cover, rear cover, hinge, foot cover and stand base.

Replacing the solid state disk

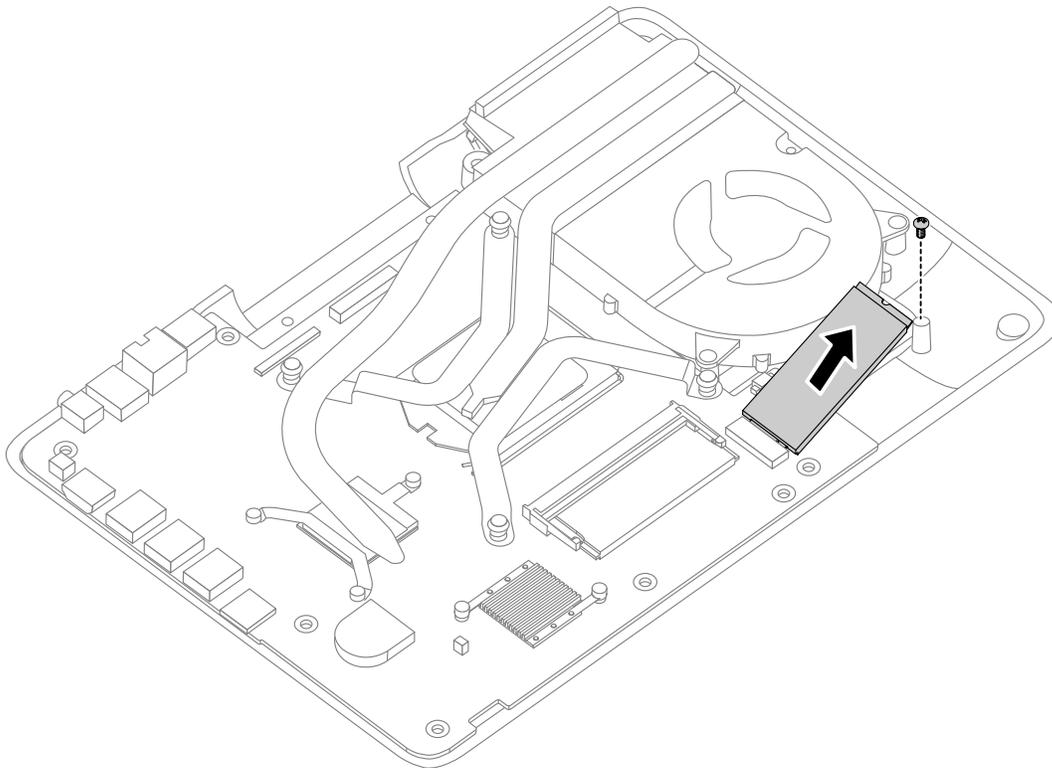
Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the computer screen from scratches or other damage.

To replace the system fan

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.

- Step 4. Remove the base cover. Refer to “Removing the base cover”.
- Step 5. Remove the screw that secure the solid state disk to the base bottom cover.
- Step 6. Lift up the solid state disk to remove it.



- Step 7. To install the new solid state disk:
 - a. Insert the notched end of the new solid state disk into the card port on the motherboard.
 - b. Secure new the solid state disk to the base bottom cover with the screw.
- Step 8. Reattach the base cover.

Replacing the heat-sink

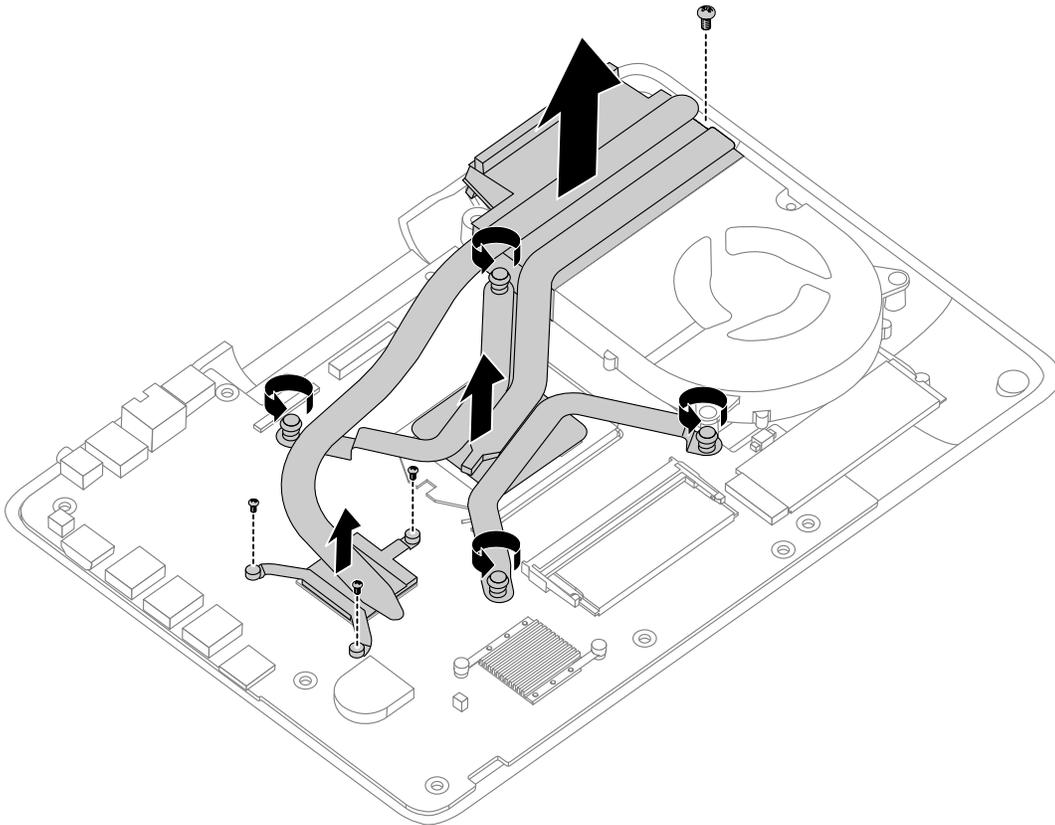
Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the computer screen from scratches or other damage.

To replace the heat-sink:

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove the base cover. Refer to “Removing the base cover”.

- Step 5. Remove the screws that secure the heat-sink to the motherboard and base bottom cover.
Step 6. Slide then lift up the heat-sink to remove it.



Attention: Place the heat-sink upside down on a flat surface to prevent thermal grease from contaminating other components.

Attention: Use an alcohol pad to wipe the thermal grease off the CPU.

- Step 7. To install the new heat-sink:
- Line up the new heat-sink with mounting holes on the motherboard, then place it into position.
 - Follow the numbers printed on the new heat-sink to secure it in order using the screws.
- Step 8. Reattach the base cover.

Replacing the system fan

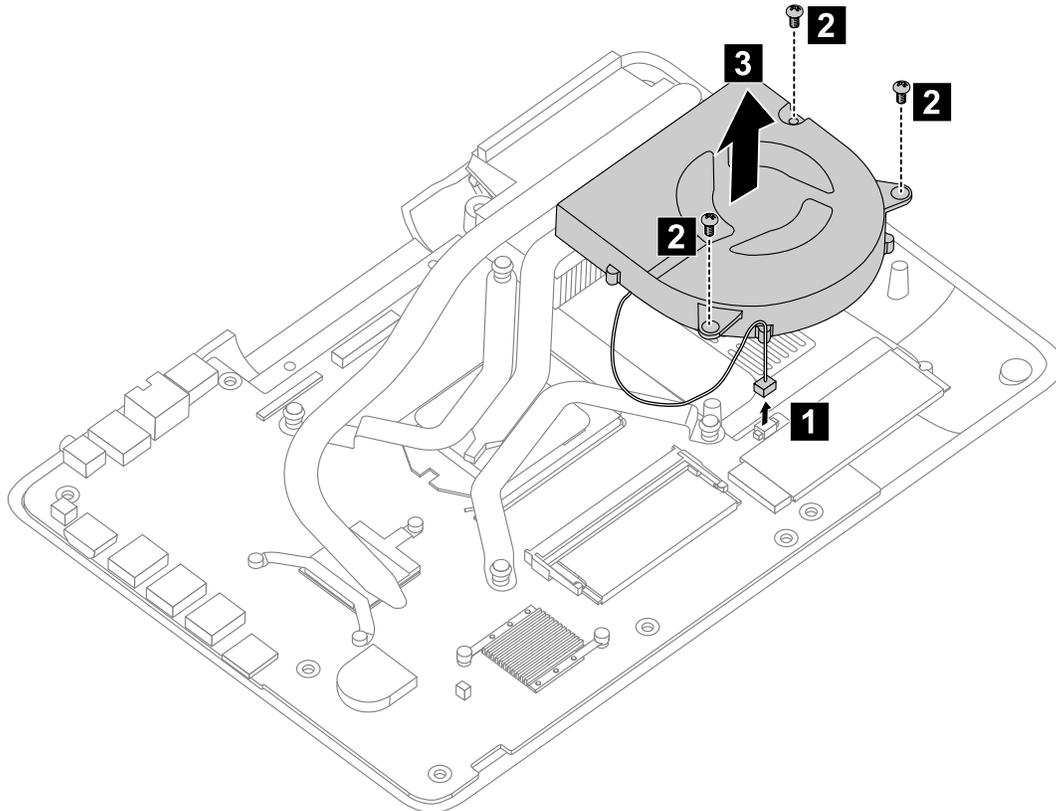
Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the computer screen from scratches or other damage.

To replace the system fan

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.

- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove the base cover. Refer to “Removing the base cover”.
- Step 5. Disconnect the power cable from the motherboard **1**.
- Step 6. Remove the three screws that secure the system fan to the base bottom cover **2**.
- Step 7. Lift up the system fan to remove it **3**.



- Step 8. To install the new system fan:
 - a. Place the new system fan into position, and then secure it to the base bottom cover with three screws.
 - b. Connect the system fan power cable to the connector on the motherboard.
- Step 9. Reattach the base cover.

Replacing the CPU

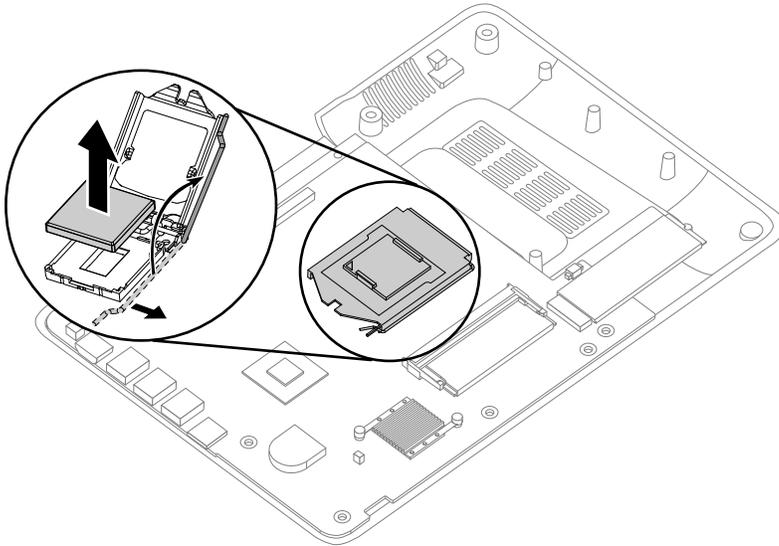
Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the computer screen from scratches or other damage.

To replace the CPU

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.

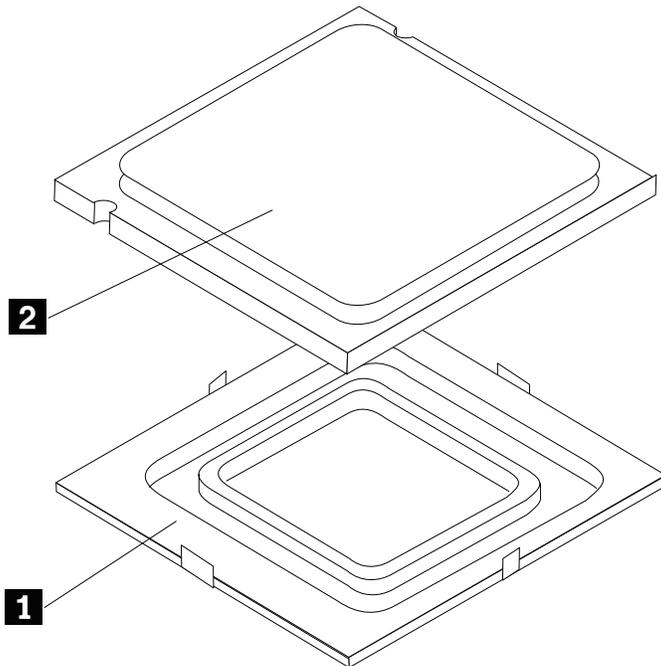
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove the base cover. Refer to “Removing the base cover”.
- Step 5. Remove the heat-sink. Refer to “Replacing the heat sink”.
- Step 6. Lift the small handle and open the retainer.
- Step 7. Lift the microprocessor straight up and out of the socket.



Attention: Do not touch the gold contacts on the bottom of the microprocessor. When handling the microprocessor, touch only the sides.

Note: Do not drop anything onto the microprocessor socket while it is exposed. The socket pins must be kept as clean as possible.

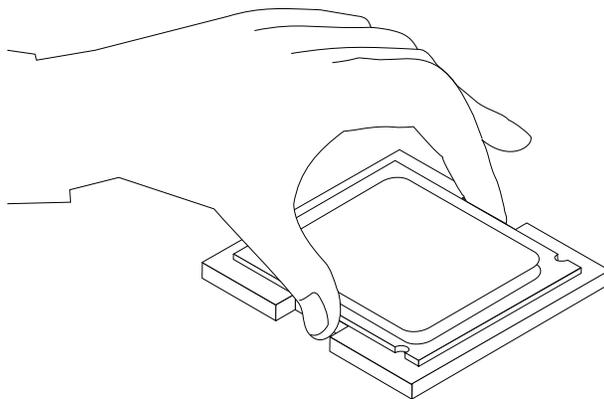
Step 8. Holding the sides of the microprocessor with your fingers, remove the protective cover **1** that protects the gold contacts on the new microprocessor. **2**



Step 9. Holding the sides of the microprocessor with your fingers, position the microprocessor so that the notches on the microprocessor are aligned with the tabs in the microprocessor socket.

Important: To avoid damaging the microprocessor contacts, keep the microprocessor completely level while installing it into the socket.

Step 10. Lower the microprocessor straight down into its socket on the motherboard.



Step 11. To secure the microprocessor in the socket, close the microprocessor retainer and lock it into position with the small handle.

Step 12. Use a thermal grease syringe to place 5 drops of grease on the top of the microprocessor. Each drop of grease should be 0.03ml (3 tick marks on the grease syringe).

Step 13. Reattach the heat-sink and base cover.

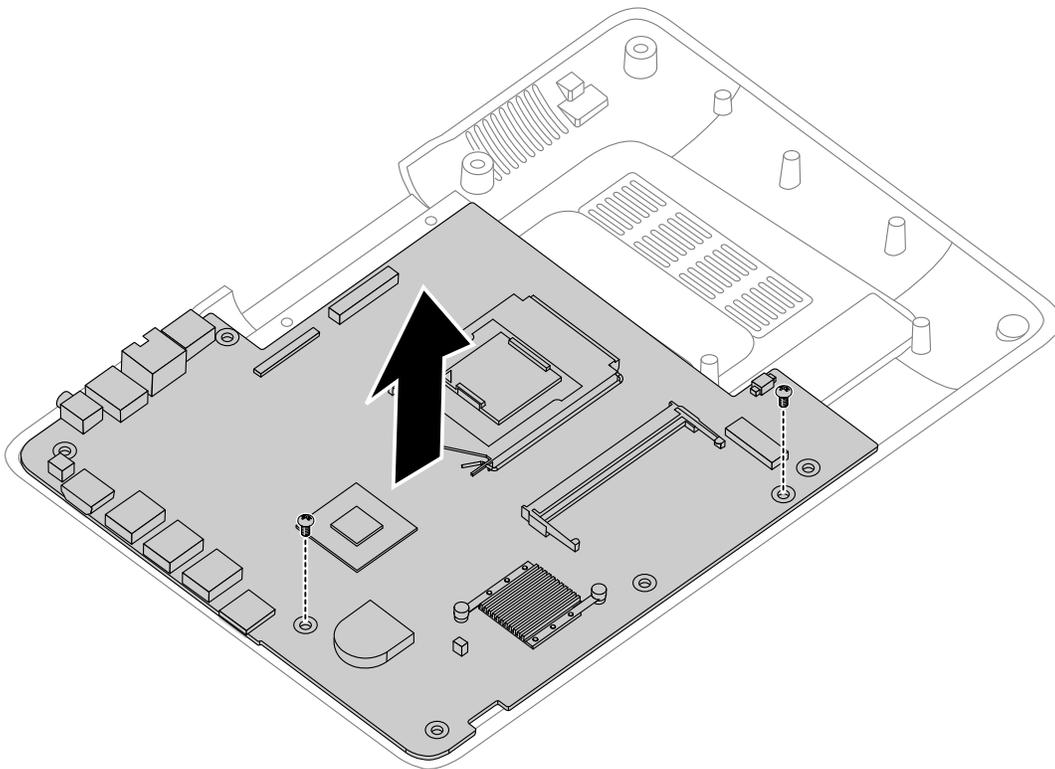
Replacing the motherboard

Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the computer screen from scratches or other damage.

To replace the motherboard:

- Step 1. Remove any media (disks, CDs, DVDs, or memory cards) from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to “Left and right view” and “Rear view” for help with locating the various connectors.
- Step 4. Remove the base cover. Refer to “Removing the base cover”.
- Step 5. Remove the hinge. Refer to “Removing the hinge”.
- Step 6. Remove the memory modules. Refer to “Replacing a memory module”.
- Step 7. Remove the heat-sink. Refer to “Replacing the heat-sink”.
- Step 8. Remove all the cables from the motherboard.
- Step 9. Remove the two screws that secure the motherboard to the base bottom cover and lift the motherboard up to remove it.



- Step 10. To install the new motherboard:
 - a. Line up the holes on the new motherboard with the mounting holes chassis and place the new motherboard into position.
 - b. Use the screws to secure the new motherboard to the base bottom cover.
 - c. Connect all the cables to the new motherboard.
- Step 11. Install the following parts to the new motherboard:

- Heat-sink
- Memory module

Step 12. Reattach the hinge and base cover.

Chapter 9. FRU lists

This chapter lists the information on the field replaceable units (FRUs) for ideacentre All-In-One 910 desktop computer.

AIO 910-27ISH Service Parts Listing	
MT: F0C2	
FruP/N	Description
ADAPTERS	
54Y8926	AC_ADAPTER,150W,100-240V,3P
54Y8975	170W,100-240Vac,3Pin
PLANARS	
00UW154	GTX950A 2G 3D UHD WIN DPK
00UW155	GTX950A 2G 3D UHD NO DPK
00UW156	GT940A 2G 3D FHD WIN DPK
00UW157	GT940A 2G 3D FHD NO DPK
CABLES	
01EF250	C.A. POWER_A910
01EF251	C.A. 3D_WEBCAM_A910
01EF252	C.A. DMIC_A910
01EF361	C.A. SATA_A910
CAMERA	
00PC579	Intel F200 FW2.50 3D CAM
Board	
01AJ778	FHD scalar board W A900
01AJ777	UHD scalar board W A900
01AJ776	SW Board W A900
KEYBOARDS	
00PC217	SK-8861(CH) 2.4G KB-improved8
01AH600	2.4G SK-8861 improved8 KB HBW
FAN	
00PC723	FAN 90x15mm Sysfan for S5130
HEATSINK	
01EF135	Heatsink 35+40W AIO910
KEYBOARDS & Mouse	
25216269	Liteon SK-8861(EN-FR) 2.4G KB-improved8
25216266	Liteon SK-8861(FR) 2.4G KB-improved8
25216263	Liteon SK-8861(TR) 2.4G KB-improved8
25216253	Liteon SK-8861(TH) 2.4G KB-improved8

25216252	Liteon SK-8861(TW) 2.4G KB-improved8
25216261	Liteon SK-8861(SA) 2.4G KB-improved8
25216256	Liteon SK-8861(RU) 2.4G KB-improved8
25216262	Liteon SK-8861(DE) 2.4G KB-improved8
25216265	Liteon SK-8861(IT) 2.4G KB-improved8
25216251	Liteon SK-8861(US) 2.4G KB-improved8
25216271	Liteon SK-8861(US-EU) 2.4G KB-improved8
25216258	Liteon SK-8861(Nordic) 2.4G KB-improved8
25216255	Liteon SK-8861(US-IN) 2.4G KB-improved8
25216267	Liteon SK-8861(KR) 2.4G KB-improved8
25216254	Liteon SK-8861(CS-SK) 2.4G KB-improved8
25216259	Liteon SK-8861(LA) 2.4G KB-improved8
25216257	Liteon SK-8861(GB) 2.4G KB-improved8
25216270	Liteon SK-8861(BE-EN) 2.4G KB-improved8
25216043	Liteon ZTM600 2.4G Mouse (WW) Silver
25216264	Liteon SK-8861(ES) 2.4G KB-improved8
25216268	Liteon SK-8861(JP) 2.4G KB-improved8
LINECORDS	
00XL078	Fru, LINECORD,AU,1M,3P,NON-LH
00XL067	Fru, LINECORD,DK,1M,3P,NON-LH
00XL068	Fru, LINECORD,DK,1M,3P,NON-LH
00XL069	Fru, LINECORD,CH,1M,3P,NON-LH
00XL089	Fru, LINECORD,CN,1M,3P,NON-LH
00XL086	Fru, LINECORD,IL,1M,3P,NON-LH
00XL092	Fru, LINECORD,TW,1M,3P,NON-LH
00XL061	Fru, LINECORD,BR,1M,3P,NON-LH
00XL053	Fru, US/CA,1M,3P,NON-LH
00XL066	Fru, LINECORD,DK,1M,3P,NON-LH
00XL074	Fru, LINECORD,IT,1M,3P,NON-LH
00XL057	Fru, LINECORD,AR,1M,3P,NON-LH
00XL096	Fru, LINECORD,IN,1M,3P,NON-LH
00XL082	Fru, LINECORD,ZA,1M,3P,NON-LH
00XL052	Fru, US/CA,1M,3P,NON-LH
00XL071	Fru, LINECORD,CH,1M,3P,NON-LH
00XL097	Fru, LINECORD,TH,1M,3P,NON-LH
00XL075	Fru, LINECORD,GB,1M,3P,NON-LH
00XL091	Fru, LINECORD,TW,1M,3P,NON-LH
00XL003	Fru, JP,Anti-TR,1M,2P,NON-LH
00XL094	Fru, LINECORD,IN,1M,3P,NON-LH
00XL079	Fru, LINECORD,AU,1M,3P,NON-LH

00XL090	Fru, LINECORD,CN,1M,3P,NON-LH
00XL059	Fru, LINECORD,AR,1M,3P,NON-LH
00XL062	Fru, LINECORD,BR,1M,3P,NON-LH
00XL073	Fru, LINECORD,IT,1M,3P,NON-LH
00XL093	Fru, LINECORD,TW,1M,3P,NON-LH
00XL081	Fru, LINECORD,ZA,1M,3P,NON-LH
00XL077	Fru, LINECORD,GB,1M,3P,NON-LH
00XL070	Fru, LINECORD,CH,1M,3P,NON-LH
00XL085	Fru, LINECORD,IL,1M,3P,NON-LH
00XL076	Fru, LINECORD,GB,1M,3P,NON-LH
00XL065	Fru, EU/KR,1M,3P,NON-LH
00XL064	Fru, EU/KR,1M,3P,NON-LH
00XL080	Fru, LINECORD,AU,1M,3P,NON-LH
00XL063	Fru, EU/KR,1M,3P,NON-LH
00XL051	Fru,US/CA,1M,3P,NON-LH
00XL084	Fru, LINECORD,IL,1M,3P,NON-LH
00XL083	Fru, LINECORD,ZA,1M,3P,NON-LH
00XL058	Fru, LINECORD,AR,1M,3P,NON-LH
00XL072	Fru, LINECORD,IT,1M,3P,NON-LH
00XL002	Fru, JP,Anti-TR,1M,2P,NON-LH
00XL060	Fru, LINECORD,BR,1M,3P,NON-LH
MECHANICALS	
01EF195	EMI_GASKET.TAPE.AL FOIL_A910
01EF177	Base_Top_Cover_A910
01EF178	Base_Bottom_Cover_A910
01EF172	Main Base T A910
01EF183	WIFI_ANTENNA_L
01EF176	Rear Cover Deco A910
01EF193	Main Base NT A910
01EF169	FHD 27.0' Panel A910 touch
01EF170	UHD 27.0' Panel A910 touch
01EF182	Silvery A910 with Dule mic
01AH904	Speaker Harman Kardon_A910
01EF168	FHD 27.0' Panel A910 non-touch
01AH918	Woofer Harman Kardon_A910
01EF181	Silvery A910 with 3D webcam
01EF192	EMI_SCALAR_BD_SHIELDING_A900
01EF179	HDD_DOOR_A910
01EF180	BRKT_HDD_A900
01EF171	DCIN With Cable A910

01EF175	Rear Cover A910
01EF194	BRKT_PANEL_SIDE_MID_A910
MEMORY	
03T7414	8G,SODIMM,DDR4,2133MHz
03T7415	16G,SODIMM,DDR4,2133MHz
MICROPHONE	
01AH401	AIO910 Digital Microphone
ODD DRIVE	
00XG043	EX-ODD DVD Burner DB65
SCREW	
04X2185	SCREW,SCREW LIST,
04X2205	ALL SCREW LIST
04X2400	ALL SCREW LIST, Cordoba
01EF185	SCREW LIST,A910
Processor	
01AG002	I I7-6700T 2.8GHz/4C/8M 35W
01AG044	Intel I7-6700T 2.8GHz/4C/8M 35W
00XG111	Intel Core i3-6100T 3.2GHz 35W
01AG047	I I5-6400T 2.2GHz/4C/6M 35W
01AG005	I I5-6400T 2.2GHz/4C/6M 35W
HARD DISK DRIVES	
00FC430	HDD,1TB,5400,7mm,DT2,SATA3,STD
00JT087	256G,M.2,2280,SATA6G,LTON,STD
00JT086	128G,M.2,2280,SATA6G,LTON,STD
00JT064	256G,M.2,2280,SATA6G,SAMSG,STD
00JT008	128G,M.2,2280,SATA6G,SAMSG,STD
STAND	
01EF167	Stand Units with cable, A910
WIRELESS	
00JT477	Wireless,CMB,LTN,NFA435
00JT507	Wireless,CMB,IN,3165 ac Ind
00JT497	Wireless,CMB,IN,3165 ac

Chapter 10. General information

This chapter provides general information that applies to all computer models covered by this manual.

Additional Service Information

This chapter provides additional information that the service representative might find helpful.

Power management

Power management reduces the power consumption of certain components of the computer such as the system power supply, processor, hard disk drives, and some monitors.

Advanced configuration and power interface (ACPI) BIOS

As this computer has an ACPI BIOS system, the operating system is allowed to control the power management features of the computer and the settings for Advanced Power Management (APM) BIOS mode is ignored. Not all operating systems support ACPI BIOS mode.

Automatic Power-On features

The Automatic Power-On features within the Power Management menu allow you to enable and disable features that turn on the computer automatically.

- **Wake Up on Alarm:** You can specify a date and time at which the computer will be turned on automatically. This can be either a single event, a daily event or a weekly event.
- **Wake Up on LAN:** This feature allows LAN adapter card to wake the System.