



ideacentre AIO 300 Series Hardware Maintenance Manual

Machine Types: F0D8 [AIO 330-20AST/Energy Star]/F0D7 [AIO 330-20IGM/Energy Star]



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Chapter 1. About this manual

This manual contains service and reference information for Lenovo ideacentre 620S desktop 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 card in this manual is only used for the machines which have the TV card. It is invalid for those machines which do not have TV card.

Important Safety Information

Be sure to read all caution and danger statements in this book before performing 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:

- Observe good housekeeping in the area of the machines 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 between your feet.
 3. Use a slow lifting force. 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 causes hazards to the customer, or that makes the equipment unsafe.
- Before you start the machine, ensure that other service representatives and the customer's personnel are not in a hazardous position.
- Place removed covers and other parts in a safe place, away from all personnel, while you are servicing the machine.
- Keep your tool case away from walk areas so that other people will not trip 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, fasten it.
- Insert the ends of your necktie or scarf inside clothing or fasten it with a nonconductive 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.
- Reinstall all covers correctly before returning the machine 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 the attached power cords, telecommunication systems, networks, and modems 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, near their equipment, rubber floor mats that contain small conductive fibers to decrease electrostatic discharges. Do not use this type of mat to protect yourself from electrical shock.

- 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 machine, unplug the power cord. If you cannot unplug it, ask the customer to power-off the wall box that supplies power to the machine and to lock the wall box in the off position.
- If you need to work on a machine 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 maintenance information. Use extreme care when measuring high voltages.

- Regularly inspect and maintain your electrical hand tools for safe operational condition.
- 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 moist floors, nongrounded power extension cables, power surges, and missing safety grounds.
- Do not touch live electrical circuits with the reflective surface of a plastic dental mirror. The surface is conductive; such touching can cause personal injury and machine damage.
- Do not service the following parts with the power on when they are removed from their normal operating places in a machine:
 - 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 potentially unsafe conditions on these products. Each machine, 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 unsafe conditions are present, you must determine how serious the apparent hazard could be and whether you can continue without first correcting the problem.

Consider these conditions 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 in 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 unsafe conditions, 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 machine, 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 to properly wired outlets any equipment that will be attached to this product.**
- **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 systems, networks, and modems 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 outlet. 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 or immerse into 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: Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

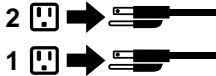


		
≥18 kg(37 lbs)	≥32 kg(70.5 lbs)	≥55 kg(121.2 lbs)

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 machine types supported by this publication.

Specifications

This section lists the physical specifications for your computer.

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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 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 program, 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 do receive the correct response, proceed to step 7.
6. Look at the following conditions and follow the instructions:
 - 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, and 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 is not 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 character (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:

- Strong passwords contain 7-16 characters, combine letters and numbers.
- Do not use your name or your user name.
- Do not use a common word or a common name.
- Be 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 character (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, and then press the **Enter** key.
4. Re-type the password to confirm, and then press the **Enter** key. If you type 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, and then press **Enter** key.
4. Type the new password, and then press **Enter** key. Re-type the password to confirm the new password, if you type the new password correctly, the new password will be installed. A Setup Notice will display that changes have been saved.

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**, **Enter** blank fields for each new password line item. A setup notice will display that changes have been saved.
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 character (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, and press the **Enter** key.
4. Re-type the password to confirm, if you type 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, and then press the **Enter** key.
4. Type the new password, and then press the **Enter** key. Re-type the password to confirm the new password, if you type the new password correctly, the new password will be installed. A setup notice will display that changes have been saved.

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**, **Enter** blank fields for each new password line item. A setup notice will display that changes have been saved.
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:	
Serial Port Setup	Select this option to enable or disable Serial Port (com).
USB Functions	Select whether to enable or disable USB (Universal Serial Bus) functions. If it is disabled, the USB keyboard and/or USB mouse may be not able to be used without device driver support.
ATA Drive Setup	Select IDE, ACHI mode or disable SATA controller. Device driver support is required for ACHI mode. Depending on how the hard disk image was installed, changing this setting may prevent the system from booting.
Video Setup	To configure video related functions. This option allows you to configure system's initiate graphic adapter from either IGD (Integrated Graphics Device) or PEG (PCI Express Graphics). Keep on the IGD enabled based on the setup options.

Onboard Audio Controller	Select whether to enable or disable the Onboard Audio Controller , when feature is set to Disabled all devices connected to the audio connectors (e.g. a headphone or a microphone) are disabled and can't be used.
Onboard Ethernet Controller or LAN Boot Agent	Select whether to enable or disable Onboard Ethernet Controller , or select whether to enable or disable load onboard PXE (Preboot Execution Environment) , or SMC (Secure Managed Client) . This feature will allow the computer to boot from a server image.

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:
 - Serial Port Setup** press the **Enter** key, and then select **Serial Port Setup**.
 - USB Setup** press the **Enter** key, and then select **USB Functions**.
 - ATA Device Setup** press the **Enter** key. Select **Configure SATA as**, press the **Enter** key, and then select SATA mode.
 - Video Setup** press the **Enter** key, and then select **Video Setup**.
 - Audio Setup** press the **Enter** key, and then select **Onboard Audio Controller**.
 - Network Setup** press the **Enter** key, and then select **Onboard Ethernet Support** or **LAN Boot Agent**.
4. Select **Disabled** or **Enabled** and then 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.

Note: If you do not want to save the settings, select **Discard changes and Exit** from the menu.

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 startup 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, and 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 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 have the following causes.

Error	FRU/Action
The startup drive is not included in the boot sequence in configuration.	Check the configuration and ensure the startup drive is in the boot sequence.
No operating system 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(s) connection	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 system-board 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 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.

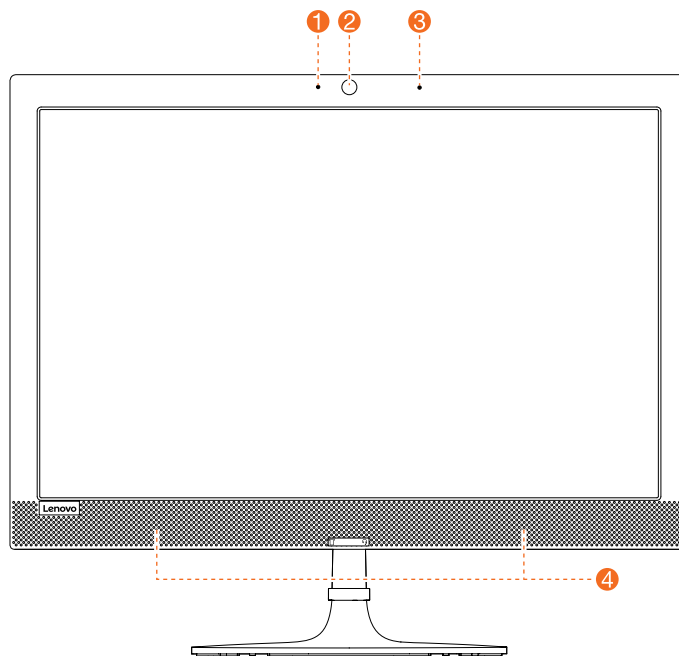
Chapter 7. Locating connectors, controls and components

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 connectors, controls and components on the computer.

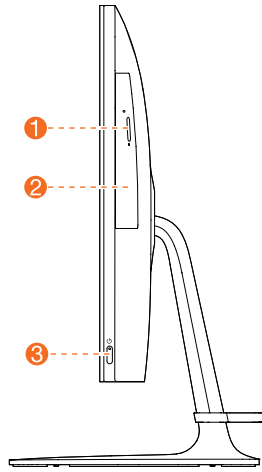
Attention: Be careful not to block any air vents on the computer. Blocked air vents can cause overheating.



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

Rear view

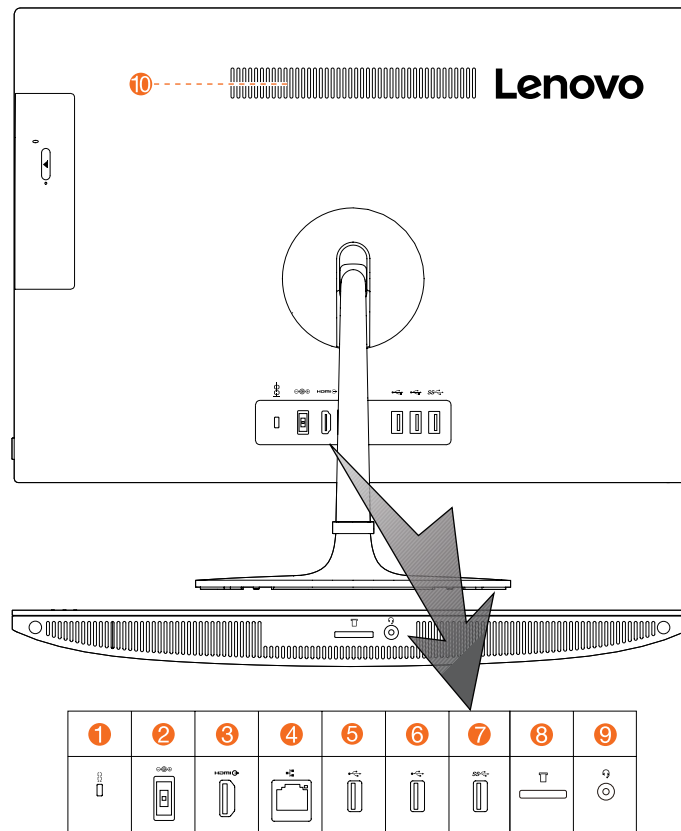
The following illustration shows the location of connectors and components on the rear of the computer.



1. Optical drive eject button (optional)	2. Optical drive (Optional)
3. Power button	

Left and right view

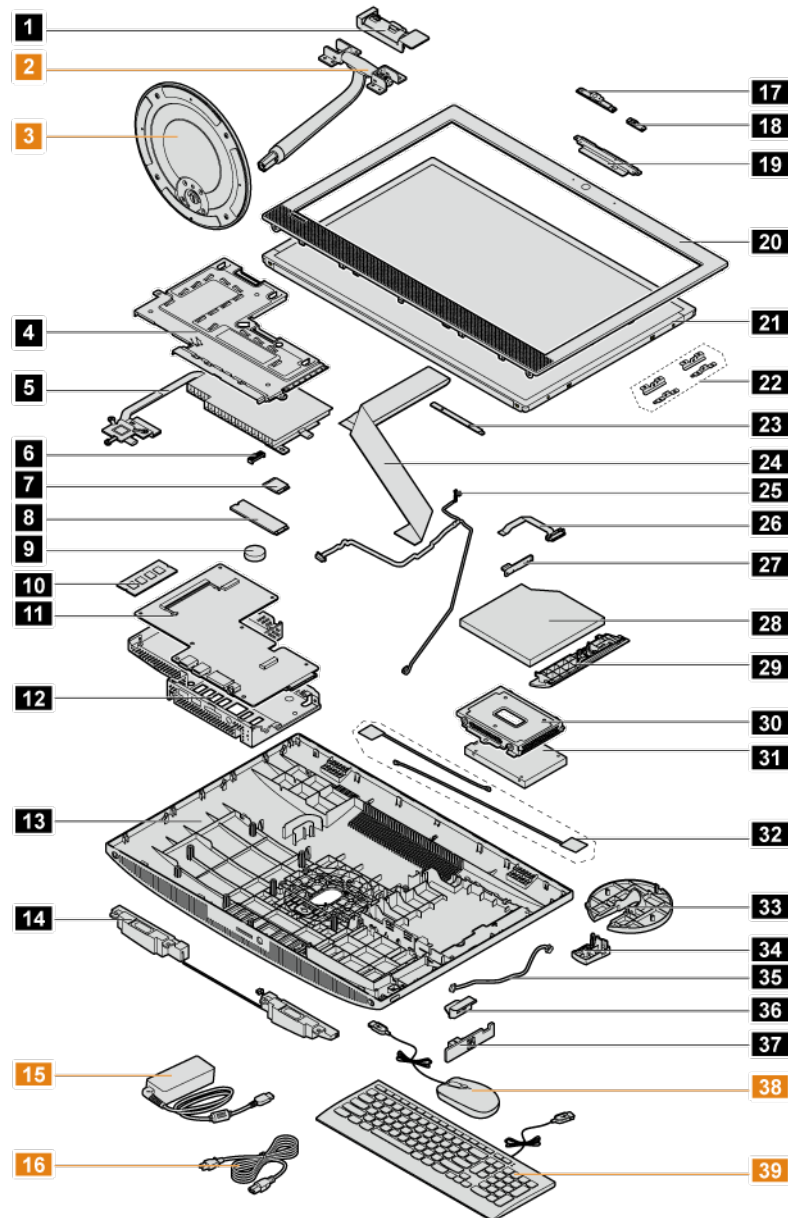
The following illustration shows the location of connectors, controls and components on the left and right side of the computer.



1. Security cable slot	2. Power connector
3. HDMI-out connector	4. Ethernet connector
5. USB 2.0 connector	6. USB 2.0 connector
7. USB 3.0 connector	8. Memory card reader
9. Combo audio jack	10. Air vents

Hardware components

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

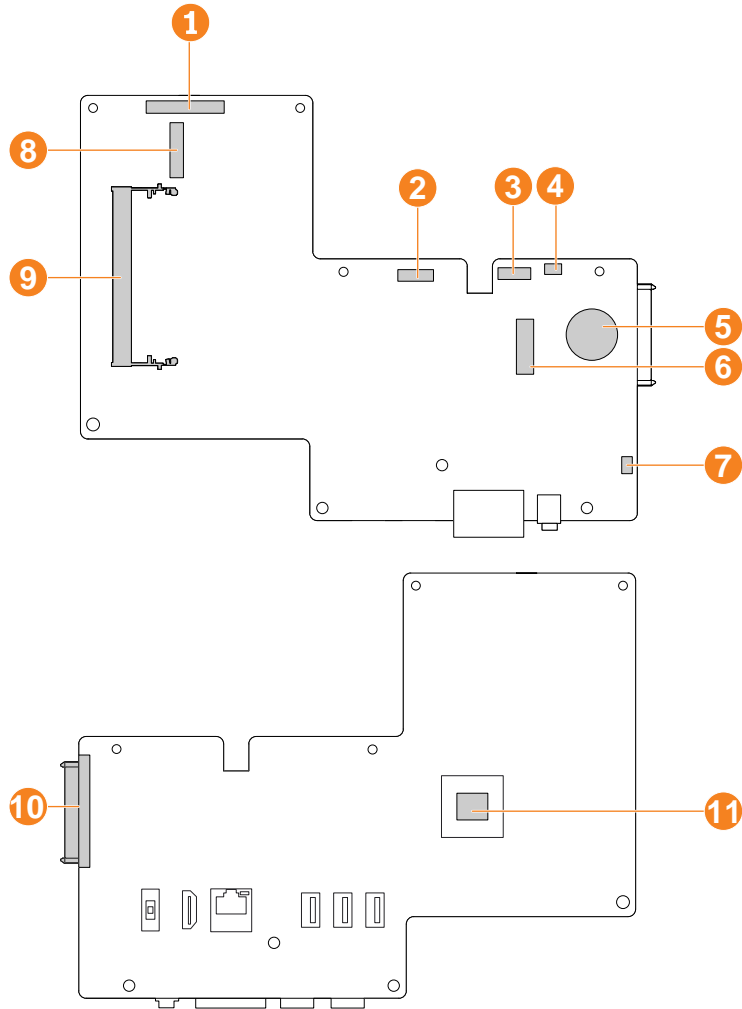


1. Hinge cover	2. Stand holder
3. Stand base	4. Front EMI cover
5. Heat-sink	6. Wi-Fi card cover
7. Wi-Fi card	8. M.2 storage drive
9. Battery	10. Memory card

11. Motherboard	12. Rear EMI cover
13. Rear computer cover	14. Speaker system
15. Power adapter	16. Power cord
17. Camera module	18. Mic board
19. Camera bracket	20. Main frame
21. LCD panel	22. LCD panel brackets 1 (4)
23. LCD panel bracket 2	24. LVDS cable
25. Camera and Mic cable	26. Storage and optical drive cable
27. Optical drive bracket	28. Optical drive
29. Optical drive bezel	30. Storage drive bracket
31. Storage drive	32. Wi-Fi antennas (2)
33. Stand holder cover 1	34. Stand holder cover 2
35. Power button board cable	36. power button board bracket
37. Power button board	38. Mouse
39. Keyboard	

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. LVDS connector	2. Camera connector
3. SATA ODD connector	4. Power button board connector
5. Battery	6. M.2 storage drive connector
7. Speakers connector	8. M.2 Wi-Fi card slot
9. Memory card slot	10. SATA HDD connector
11. CPU	

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

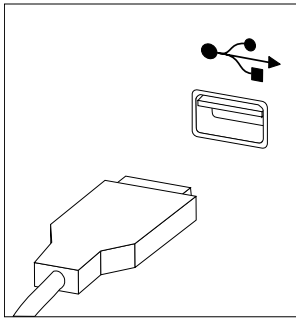
Before proceeding with the disassembly procedure, make sure that you do the following:

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

To replace the keyboard and mouse

- 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.



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

- Step 4. Disconnect the defective keyboard cable from the computer and connect the new keyboard cable to the same connector.

Note: The mouse can be replaced using the same method.

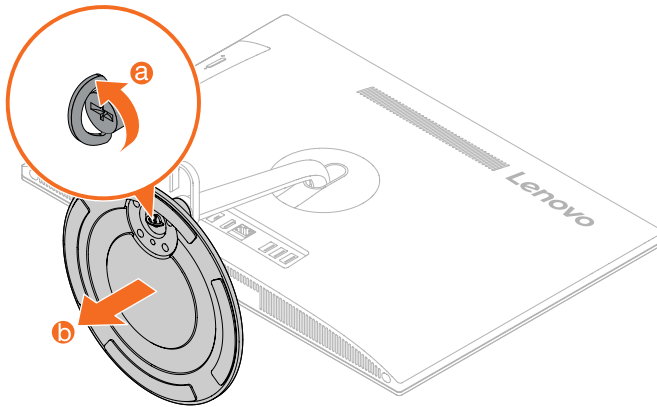
Removing the stand base

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

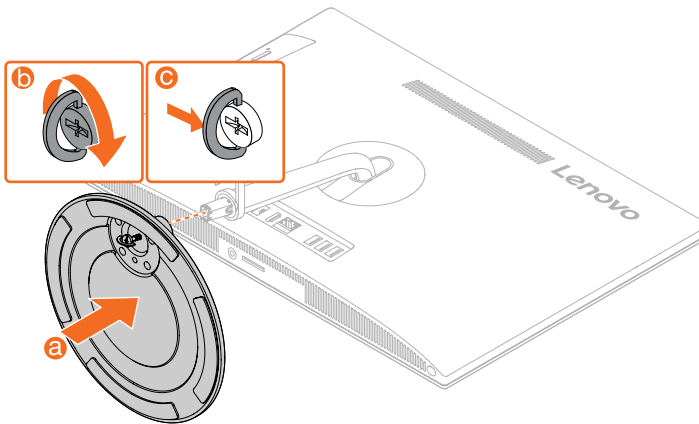
Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure, with the bottom of the computer facing up. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the computer screen from scratches or other damage.

To remove the stand base:

- Step 1. Remove any media 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 Locating connectors, controls and components to locate the various connectors.
- Step 4. To remove the stand base, twist the hand screw ring counter-clockwise until the stand base is loosened.
- Step 5. Remove the stand base from the stand holder and put it aside.



Step 6. To reattach the stand base, refer to the following figure.



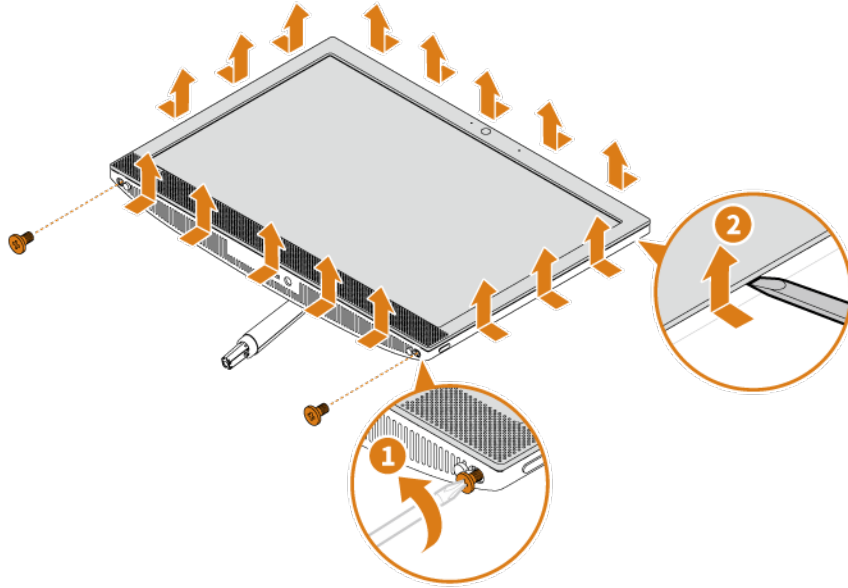
Removing the front cover assembly

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

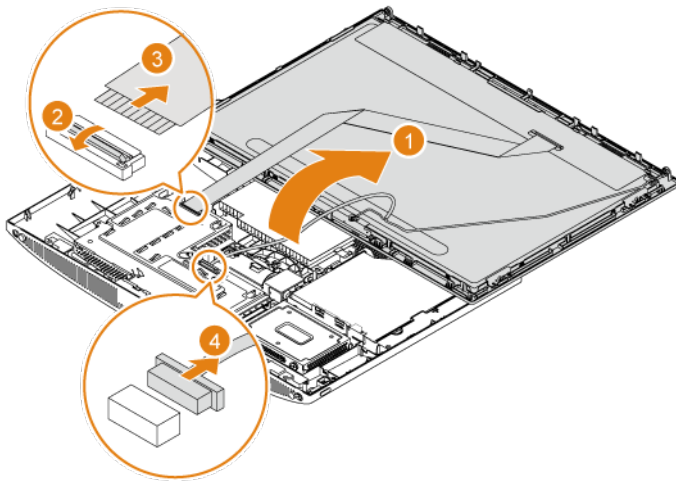
Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the computer screen from scratches or other damage.

To remove the front cover assembly:

- Step 1. Remove any media 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 Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.
- Step 5. Remove the two screws that secure the front and rear computer covers together at the bottom of the chassis **1**. And then release all the clips with a lever **2**.

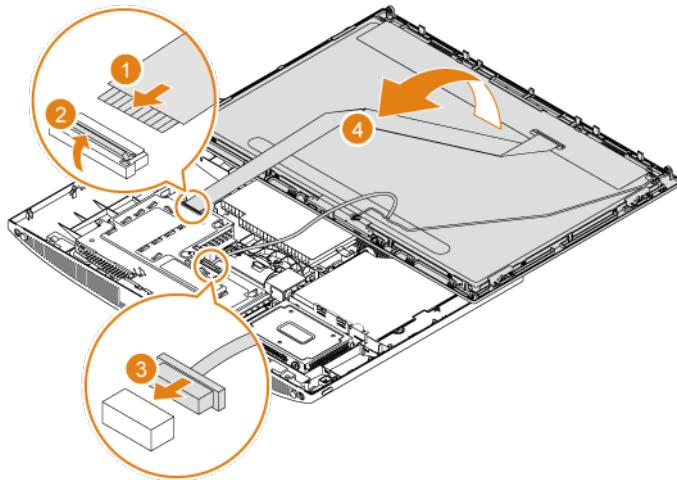


Step 6. Disconnect the LVDS, camera and backlight cables from the motherboard, and then remove the front cover assembly.

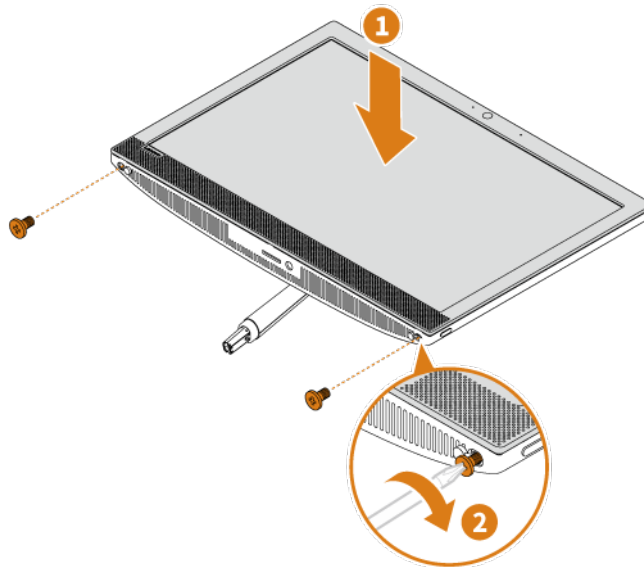


Step 7. To reinstall the front cover assembly:

- a. Connect the LVDS and camera and backlight cables to the connectors on the motherboard. **1**
2 3
- b. Attach the front cover assembly to the rear cover **4**.



- c. Secure the front cover assembly to the rear cover with two screws.



Replacing the camera module or mic board

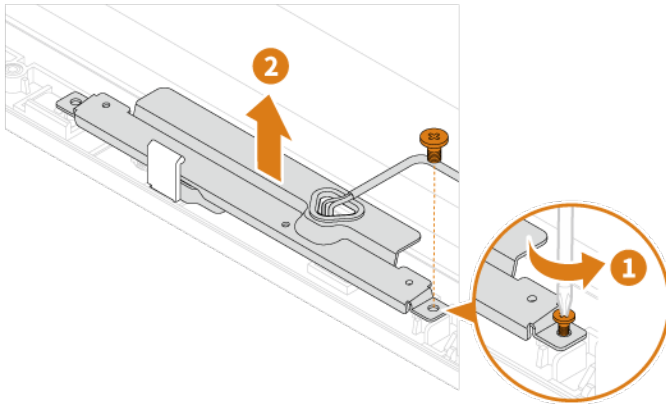
Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

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.

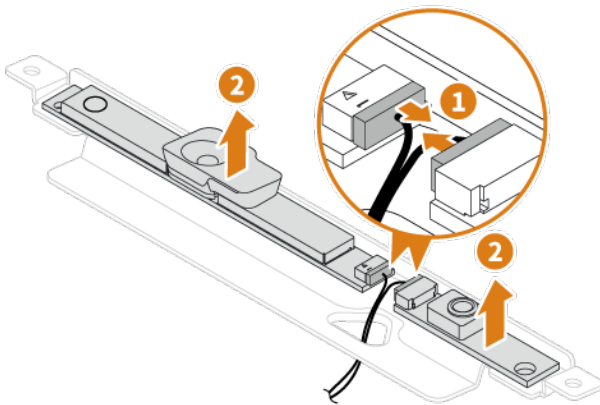
To replace the camera module or mic board:

- Step 1. Remove any media 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.

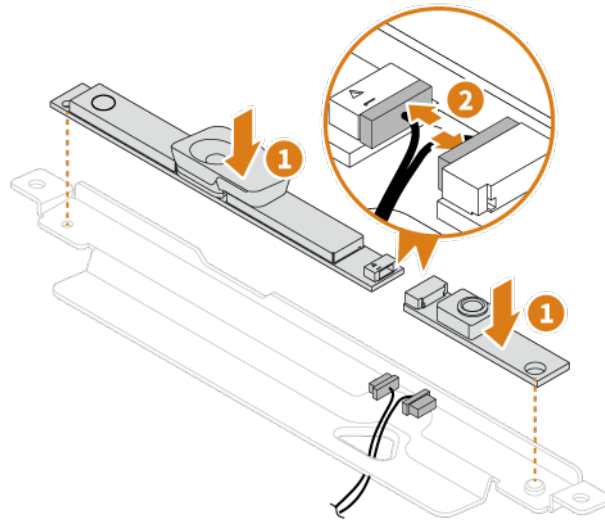
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
- Step 6. Remove the screws that secure the camera bracket to main frame, and then remove the bracket.



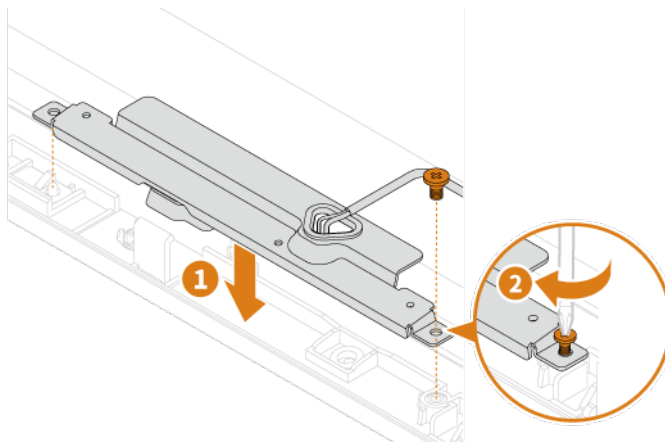
- Step 7. Disconnect the camera module or mic board cable from their connector, and then lift up the camera module or mic board to remove it.



- Step 8. To install the new camera module or mic board:
- Align the new camera module or mic board into position, and then secure it to the main frame with screws. **1**
 - Connect the camera module or mic board cable to the corresponding connector on the motherboard. **2**



- c. Reinstall the camera bracket and secure it to the main frame with two screws.



Step 9. Reinstall all the removed parts, and then reconnect all the disconnected cables.

Replacing the LCD panel module

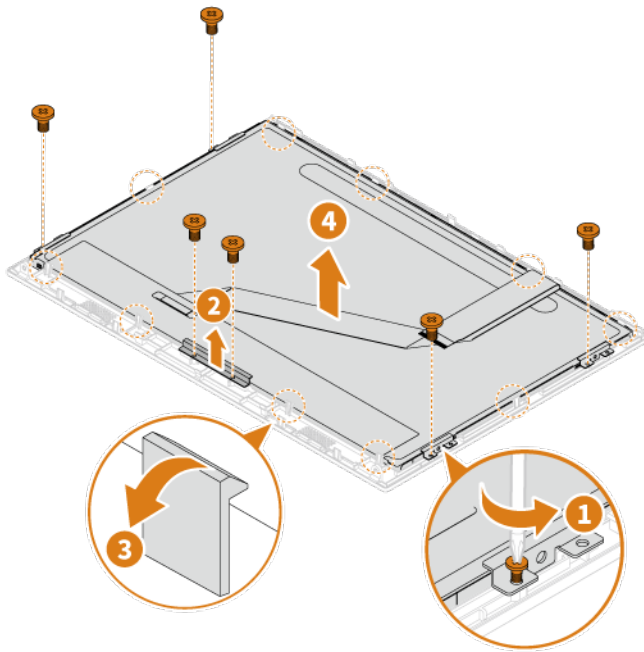
Note: Turn off the computer and wait 3 to 5 minutes to let it cool down before removing the cover.

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.

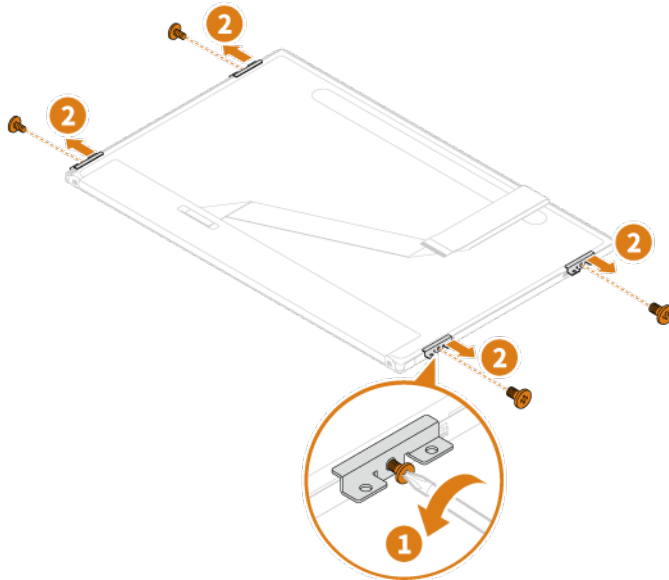
To replace the LCD panel module:

- Step 1. Remove any media 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 Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.

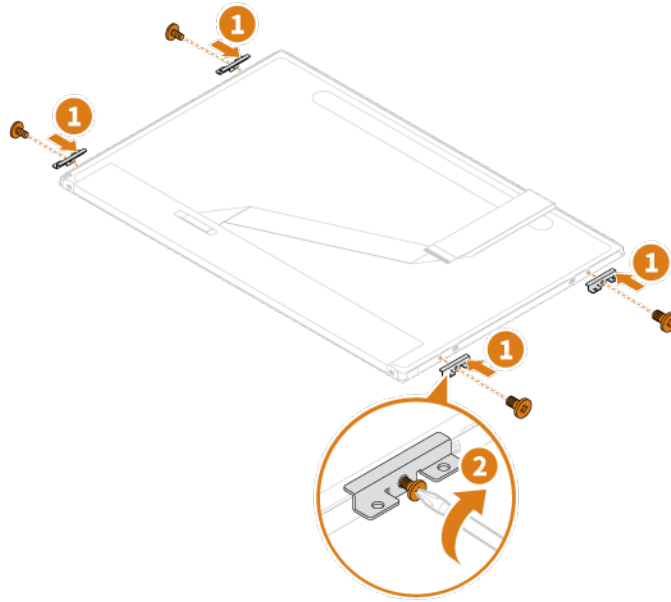
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
Step 6. Remove the LCD panel from the main frame by referring to the following figure.



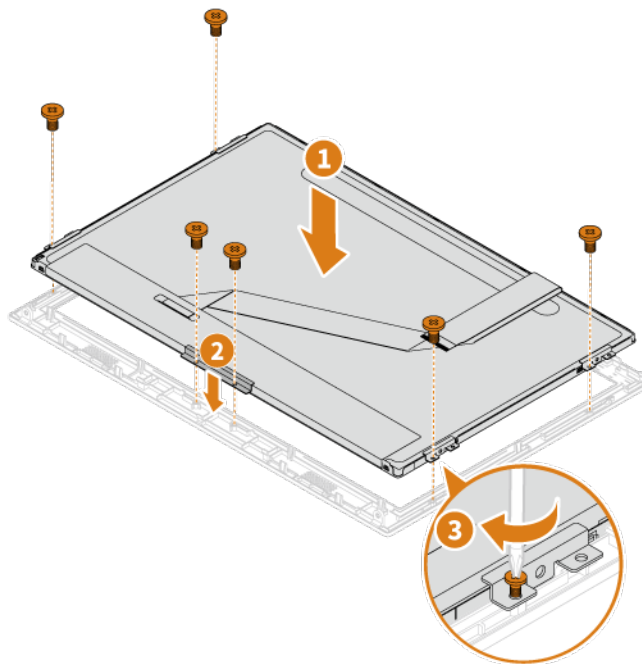
- Step 7. Remove the four brackets from the LCD panel.



- Step 8. To install the new the LCD panel module:
a. Install the four brackets to the LCD panel.



b. Install the LCD panel to the main frame.



Step 9. Reinstall all the removed parts, and then reconnect the cables.

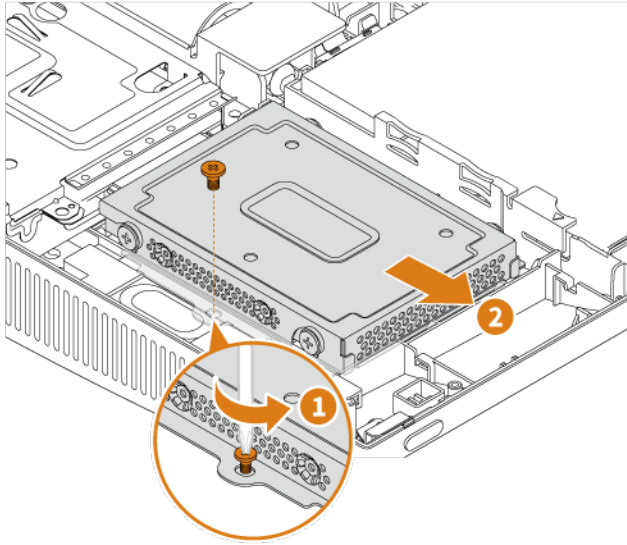
Replacing the storage drive

Note: For this procedure, it helps to lay the computer flat.

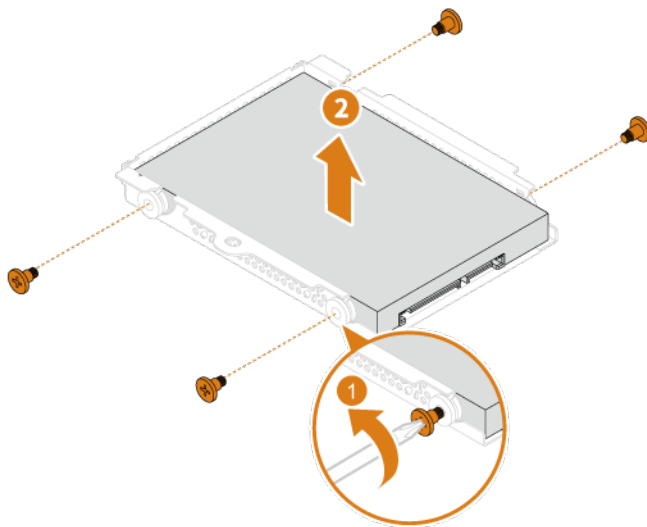
To replace the storage drive:

Step 1. Remove any media from the drives, shut down the operating system, and turn off the computer and all attached devices.

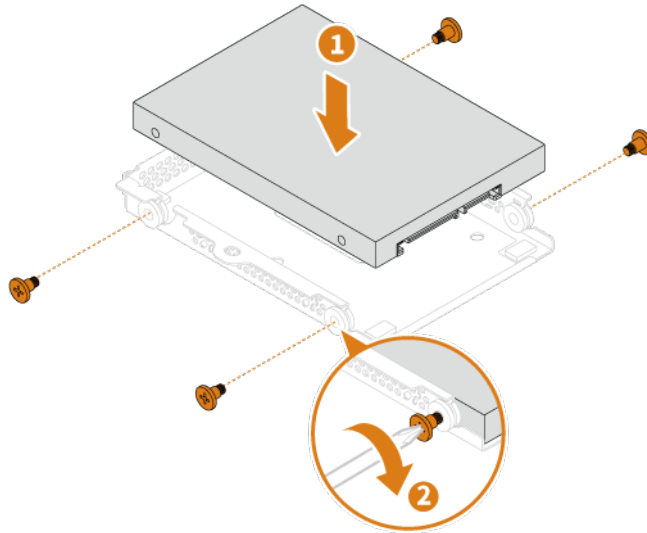
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
- Step 6. Remove the screw that secures the storage drive assembly to the rear cover **1** , and then pull the storage drive assembly out **2**.



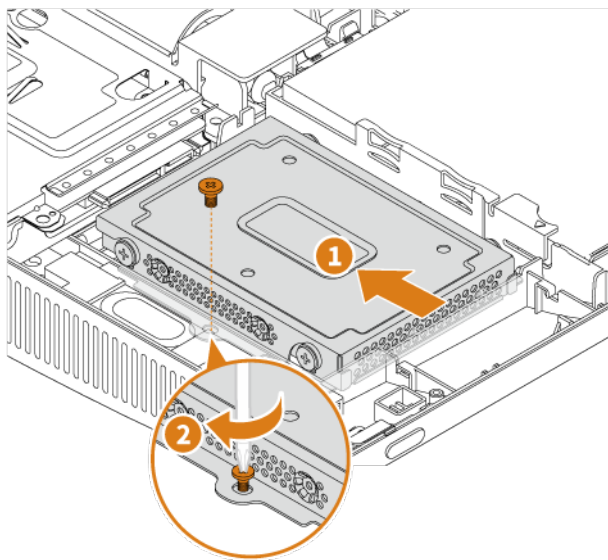
- Step 7. Remove the four screws that secure the storage drive to the bracket, and then lift the storage drive upward to remove it.



- Step 8. To install the new storage drive :
- Put the new storage drive into the storage drive bracket, and secure it with four screws.



- b. Align the holes in new storage drive assembly with the hole in the rear cover, and then secure it to the rear cover with one screw.



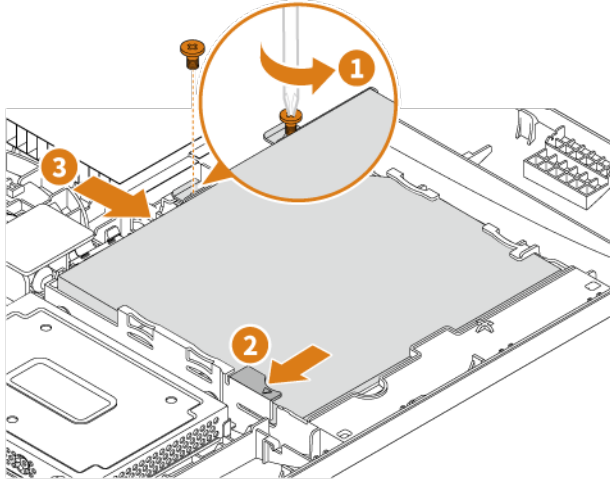
Step 9. Reinstall all the removed parts, and then reconnect the cables.

Replacing the optical drive

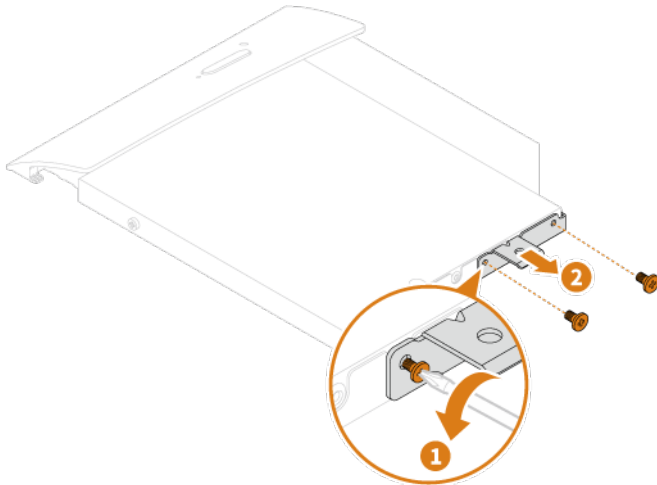
To replace the optical drive:

- Step 1. Remove any media 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 Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.

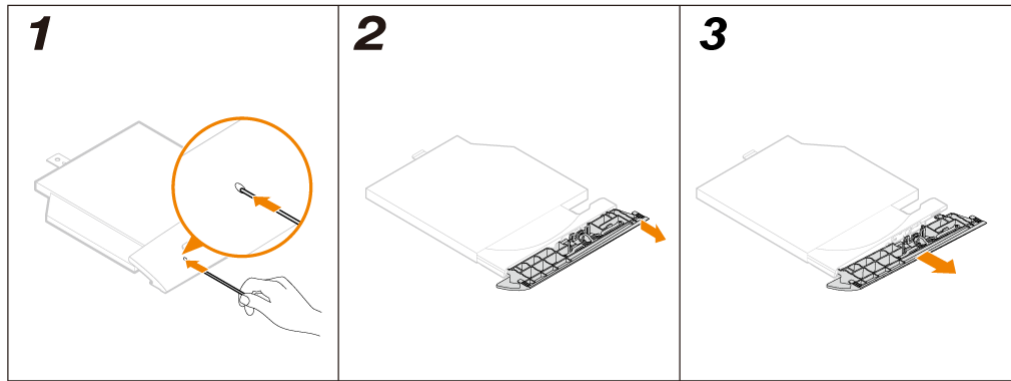
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
- Step 6. Remove the screw that secures the optical drive assembly to the rear cover. **1**
- Step 7. Push the clip outward to release the optical drive assembly **2**, and then push the optical drive assembly outward to remove it **3**.



- Step 8. Remove the optical drive bracket by referring the following figure.

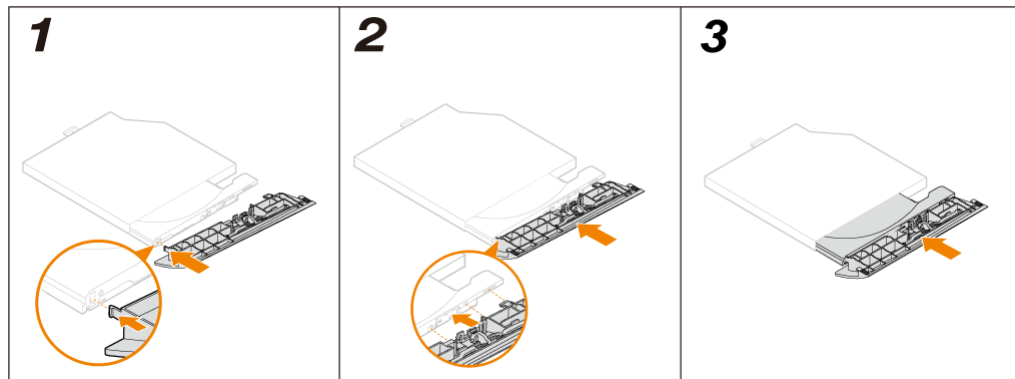


- Step 9. Remove the optical drive bezel by referring to the following figure.

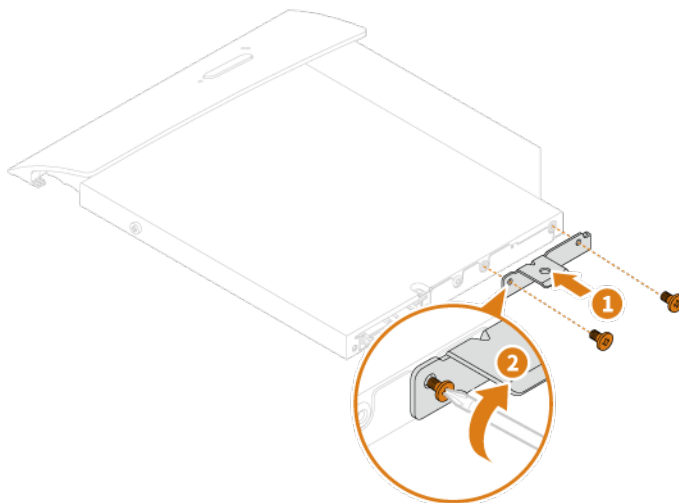


Step 10. To install the new optical drive:

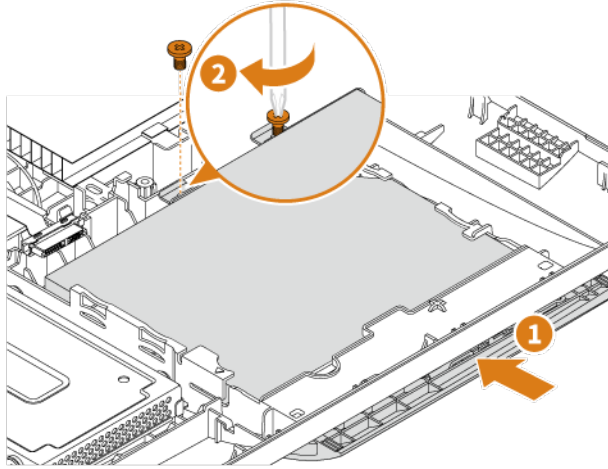
- a. Refer to the following figure to install the optical drive bezel.



- b. Refer to the following figure to install the optical drive bracket.



- c. Refer to the following figure to reinstall the optical drive assembly.



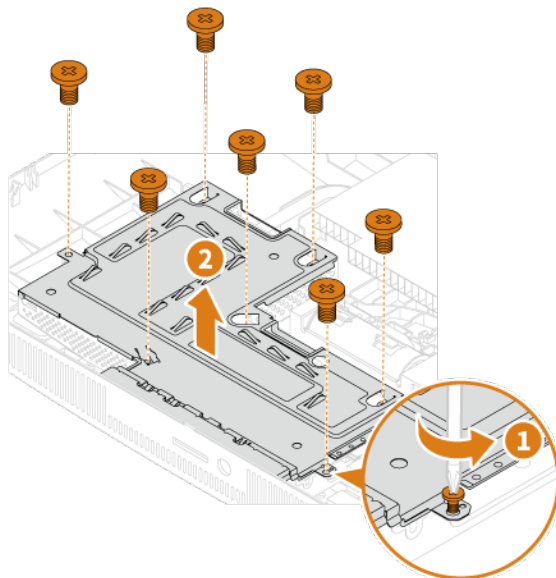
Step 11. Reinstall all the removed parts, and then reconnect the cables.

Replacing the front EMI cover

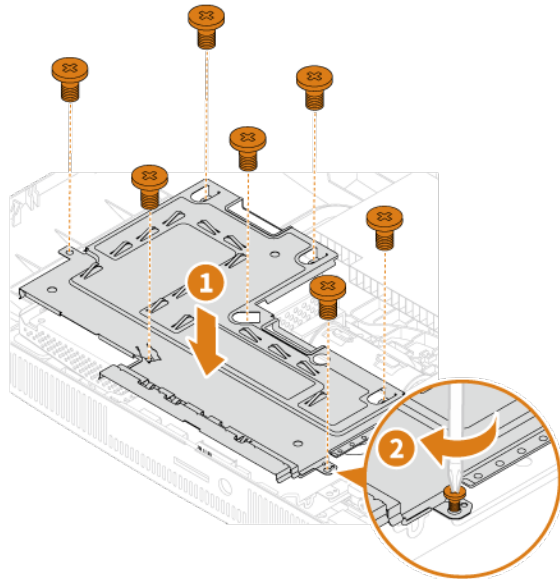
Note: For this procedure, it helps to lay the computer flat.

To replace the front EMI cover:

- Step 1. Remove any media 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 Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
- Step 6. To remove the front EMI cover, refer to the following figure.



Step 7. To install the front EMI cover, refer to the following figure.



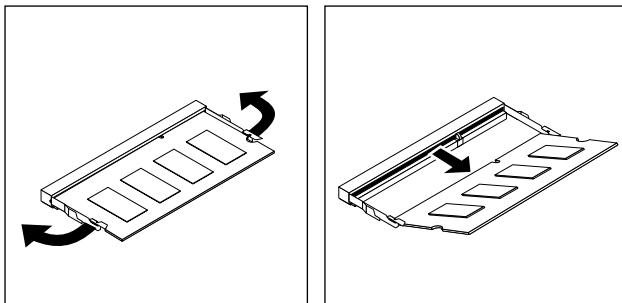
Step 8. Reinstall all the removed parts, and then reconnect the cables.

Replacing the memory module

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

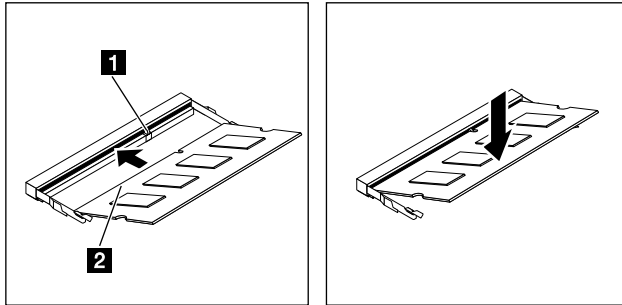
Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the touch screen from scratches or other damage.

- Step 1. Remove any media 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 Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
- Step 6. Remove the front EMI cover. Refer to Replacing the front EMI cover.
- Step 7. Open the retaining clips, and then gently pull the memory module out of the memory slot.



Step 8. To install the new memory module:

- a. Position the new memory module over the memory slot. Ensure that the notch on the memory module aligns correctly with the slot key in the memory slot. Press the memory module down until snaps into position.



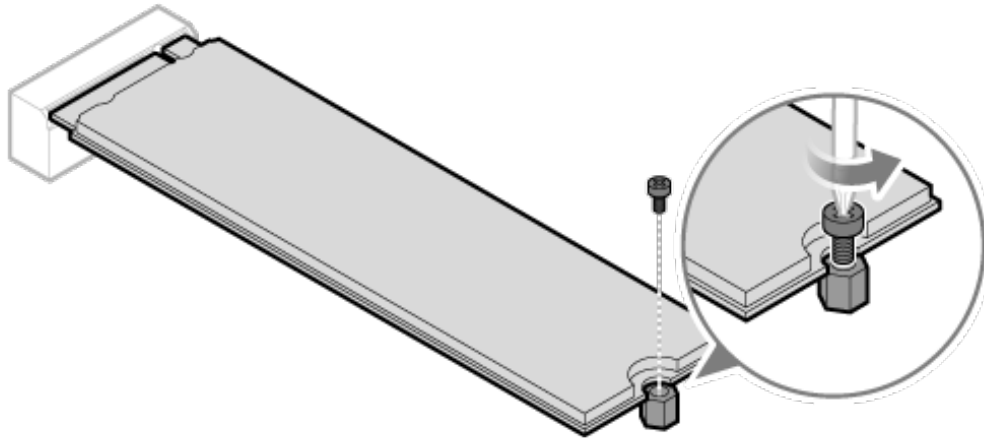
Step 9. Reinstall all the removed parts, and then reconnect the cables.

Replacing the M.2 storage drive

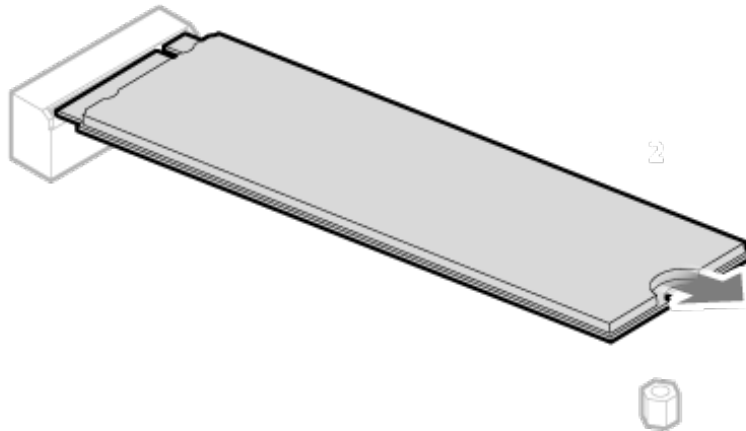
Note: For this procedure, it helps to lay the computer flat.

To replace the M.2 storage drive:

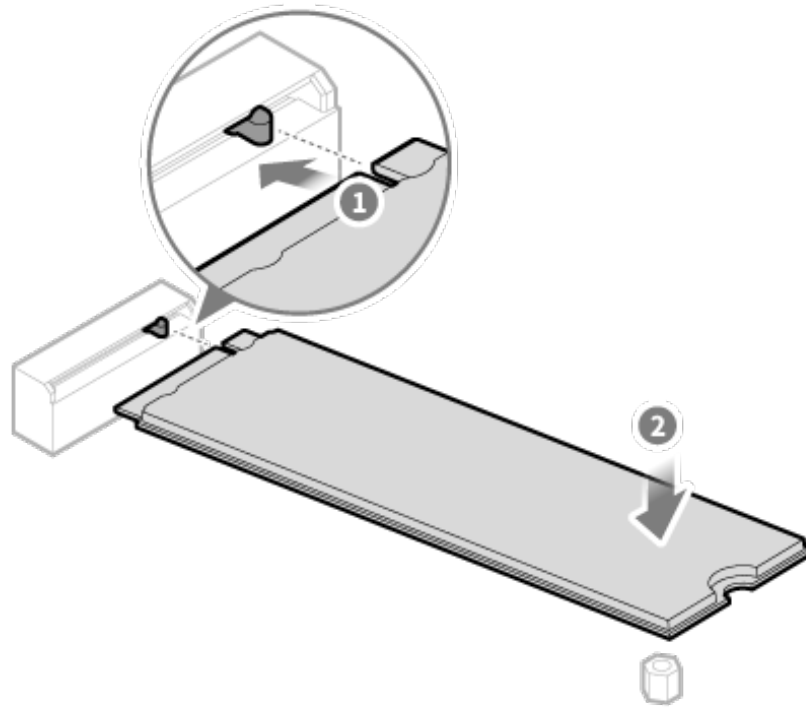
- Step 1. Remove any media from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
- Step 6. Remove the front EMI cover. Refer to Replacing the front EMI cover.
- Step 7. Remove the screw that secures the M.2 storage drive to the motherboard.



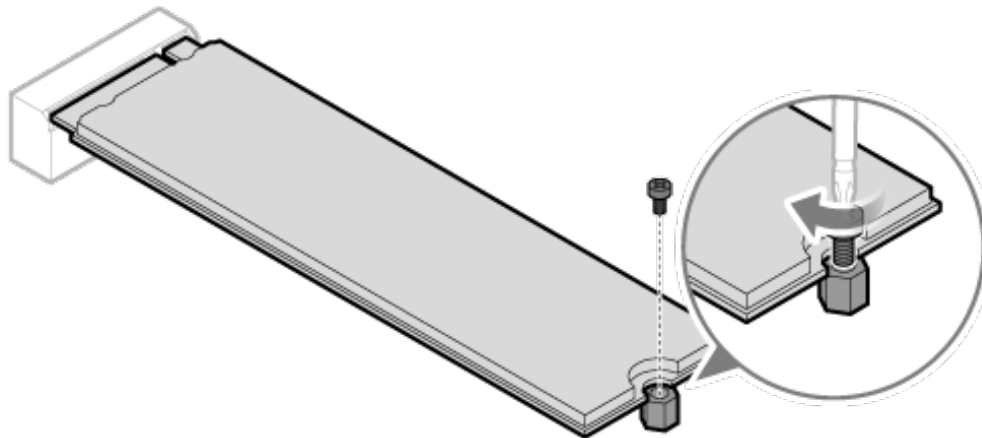
Step 8. Pull the M.2 storage drive out.



Step 9. To install the new M.2 storage drive :
a. Insert the new M.2 storage drive into the M.2 slot.



- b. Secure the new M.2 storage drive to the motherboard with one screw.



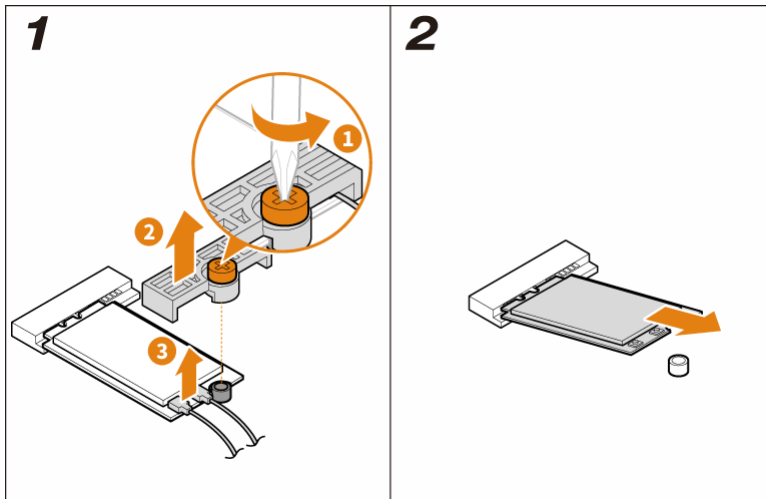
Step 10. Reinstall all the removed parts, and then reconnect the cables.

Replacing the Wi-Fi card

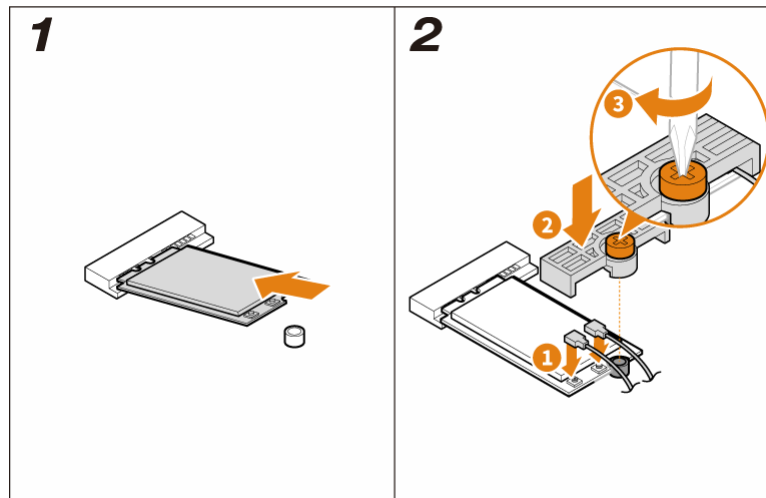
Note: For this procedure, it helps to lay the computer flat.

To replace the Wi-Fi card:

- Step 1. Remove any media 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 Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
- Step 6. Remove the front EMI cover. Refer to Replacing the front EMI cover.
- Step 7. To remove the Wi-Fi card, refer to the following figure.



- Step 8. To install the Wi-Fi card, refer to the following figure.



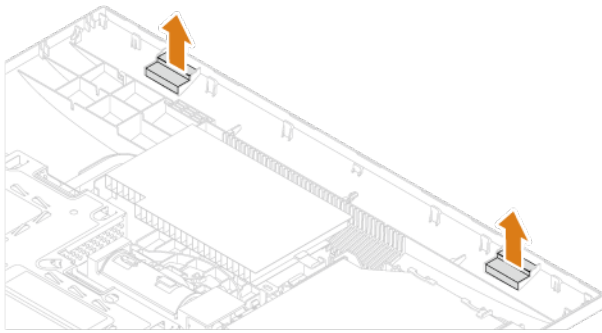
- Step 9. Reinstall all the removed parts, and then reconnect the cables.

Replacing the Wi-Fi antenna

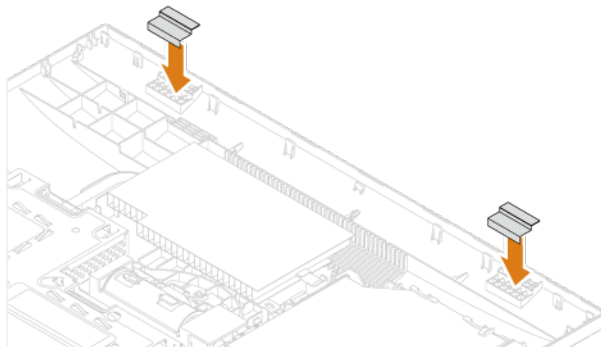
Note: For this procedure, it helps to lay the computer flat.

To replace the Wi-Fi antenna:

- Step 1. Remove any media 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 Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
- Step 6. Remove the front EMI cover. Refer to Replacing the front EMI cover.
- Step 7. Disconnect the Wi-Fi antenna cables from the Wi-Fi card. Refer to Replacing the Wi-Fi card.
- Step 8. Peel off the two Wi-Fi antennas from the main bracket.



- Step 9. Install the new Wi-Fi antenna:
 - a. Peel off the release paper on the adhesive surface of the new Wi-Fi antennas.
 - b. Stick the new Wi-Fi antenna to the corresponding position.



- c. Connect the new Wi-Fi antenna cables to the Wi-Fi card.

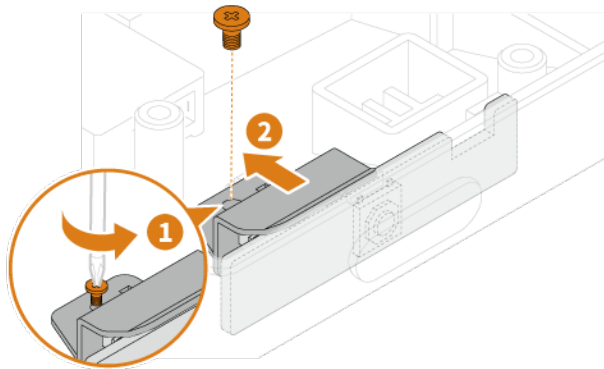
- Step 10. Reinstall all the removed parts, and then reconnect the cables.

Replacing the power button board

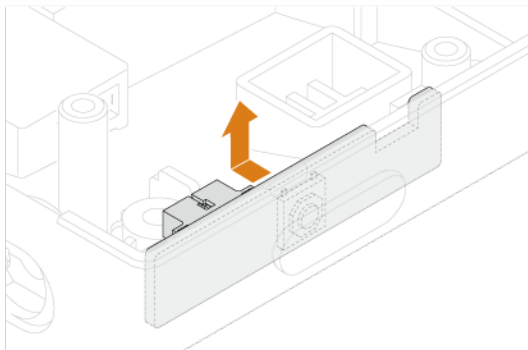
Note: For this procedure, it helps to lay the computer flat.

To replace the power button board:

- Step 1. Remove any media 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 Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
- Step 6. Remove the front EMI cover. Refer to Replacing the front EMI cover.
- Step 7. Remove the screw that secures the power button bracket to the rear cover, and then remove the bracket.



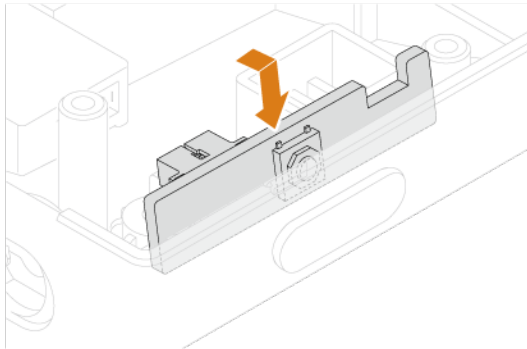
- Step 8. Slide the power button board out of the slot.



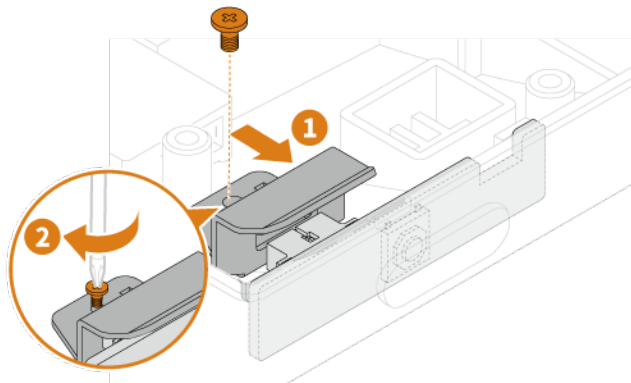
Step 9. Disconnect the signal cable from the corresponding connector on the motherboard.

Step 10. To install the new power button board :

- a. Connect the signal cable of the new power button board to the connector on the motherboard.
- b. Insert the new power button board into its slot.



- c. Reinstall the bracket that secures the power button board to the rear cover.



Step 11. Reinstall all the removed parts, and then reconnect the cables.

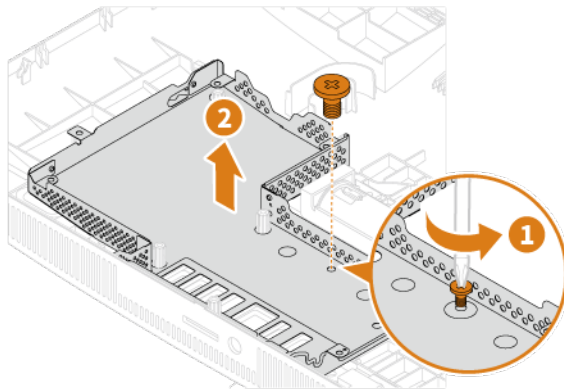
Replacing the rear EMI cover

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

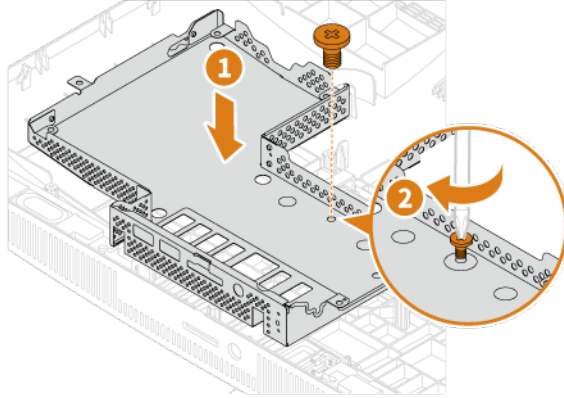
Note: It may be helpful to place the computer face-down on a soft flat surface for this procedure. Lenovo recommends that you use a blanket, towel, or other soft cloth to protect the computer screen from scratches or other damage.

To replace the rear EMI cover:

- Step 1. Remove any media 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 Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
- Step 6. Remove the front EMI cover. Refer to Replacing the front EMI cover.
- Step 7. Remove the memory module. Refer to Replacing the memory module.
- Step 8. Remove Wi-Fi card. Refer to Replacing the Wi-Fi card.
- Step 9. Remove the M.2 solid state drive. Refer to Replacing the M.2 storage drive.
- Step 10. Disconnect all the cables from the connectors on motherboard.
- Step 11. Remove the rear EMI cover and motherboard assembly from the rear computer cover.
- Step 12. To remove the rear EMI cover, refer to the following figure.



- Step 13. To install the rear EMI cover:
 - a. Refer to the following figure to install the rear EMI cover to the motherboard.



- b. Reinstall the rear EMI cover and motherboard assembly to the rear computer cover.
- c. Reconnect all the cables to the connectors on the motherboard.

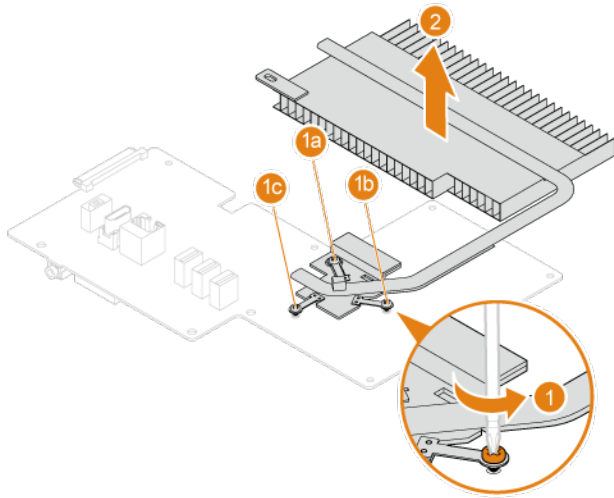
Step 14. Reinstall all the removed parts, and then reconnect the cables.

Replacing the heat-sink

Note: For this procedure, it helps to lay the computer flat.

To replace the heat-sink:

- Step 1. Remove any media 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 *Locating connectors, controls and components* to locate the various connectors.
- Step 4. Remove the stand base. Refer to *Removing the stand base*.
- Step 5. Remove the front cover assembly. Refer to *Removing the front cover assembly*.
- Step 6. Remove the front EMI cover. Refer to *Replacing the front EMI cover*.
- Step 7. Remove the memory module. Refer to *Replacing the memory module*.
- Step 8. Remove Wi-Fi card. Refer to *Replacing the Wi-Fi card*.
- Step 9. Remove the M.2 solid state drive. Refer to *Replacing the M.2 storage drive*.
- Step 10. Remove the rear EMI cover. Refer to *Replacing the rear EMI cover*.
- Step 11. Loosen the three screws that secure the heat-sink to the motherboard, and then lift up the heat-sink to remove it.

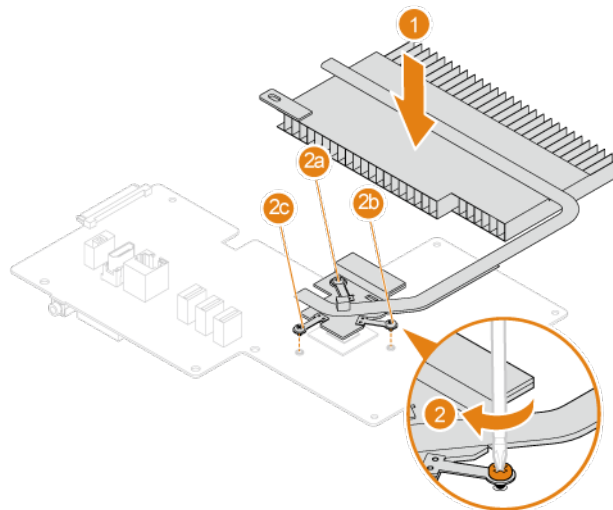


Attention: Place the heat-sink upside down on a flat surface to prevent thermal grease from contaminating other components.

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

Step 12. To install the new heat-sink:

- a. Position the new heat-sink on the motherboard so that the three screws are aligned with the holes on the motherboard.
- b. Tighten the three screws to secure the new heat-sink to the motherboard.



Step 13. Reinstall all the removed parts, and then reconnect the cables.

Replacing the motherboard

Note: For this procedure, it helps to lay the computer flat.

To replace the motherboard:

- Step 1. Remove any media 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 Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
- Step 6. Remove the front EMI cover. Refer to Replacing the front EMI cover.
- Step 7. Remove the memory module. Refer to Replacing the memory module.
- Step 8. Remove Wi-Fi card. Refer to Replacing the Wi-Fi card.
- Step 9. Remove the M.2 solid state drive. Refer to Replacing the M.2 storage drive.
- Step 10. Disconnect all the cables from the connectors on motherboard.
- Step 11. Remove the rear EMI cover. Refer to Replacing the rear EMI cover.
- Step 12. Remove the heat-sink from the motherboard. Refer to Replacing the heat-sink.
- Step 13. To install the new motherboard:
 - a. Reinstall the heat-sink to the new motherboard.
 - b. Reinstall the rear EMI cover to the new motherboard.
- Step 14. Reinstall all the removed parts, and then reconnect the cables.

Replacing the speaker system

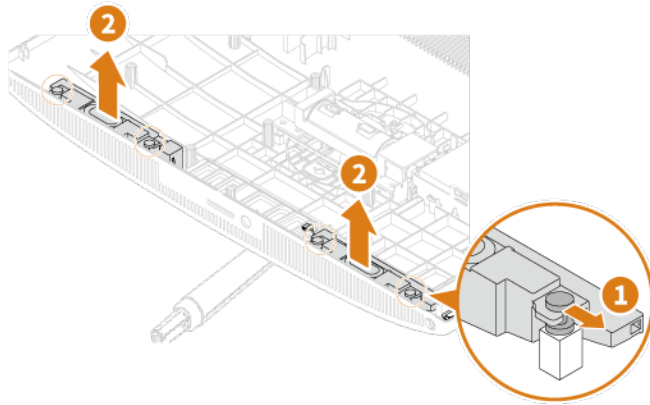
Note: For this procedure, it helps to lay the computer flat.

To replace the speaker system:

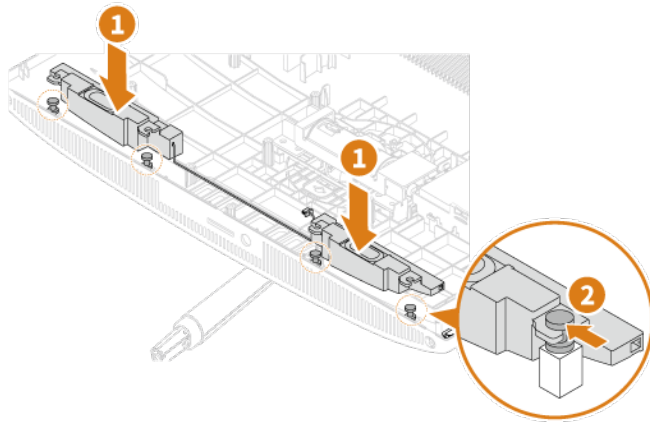
- Step 1. Remove any media from the drives, shut down the operating system, and turn off the computer and all attached devices.
- Step 2. Unplug all power cords from electrical outlets.
- Step 3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer. Refer to Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
- Step 6. Remove the front EMI cover. Refer to Replacing the front EMI cover.
- Step 7. Remove the memory module. Refer to Replacing the memory module.
- Step 8. Remove Wi-Fi card. Refer to Replacing the Wi-Fi card.
- Step 9. Remove the M.2 solid state drive. Refer to Replacing the M.2 storage drive.
- Step 10. Disconnect all the cables from the connectors on motherboard.

Step 11. Remove the rear EMI cover and motherboard assembly from the rear computer cover.

Step 12. To remove the speaker system, refer to the following figure.



Step 13. To install the new speaker system, refer to the following figure.



Step 14. Reinstall all the removed parts, and then reconnect the cables.

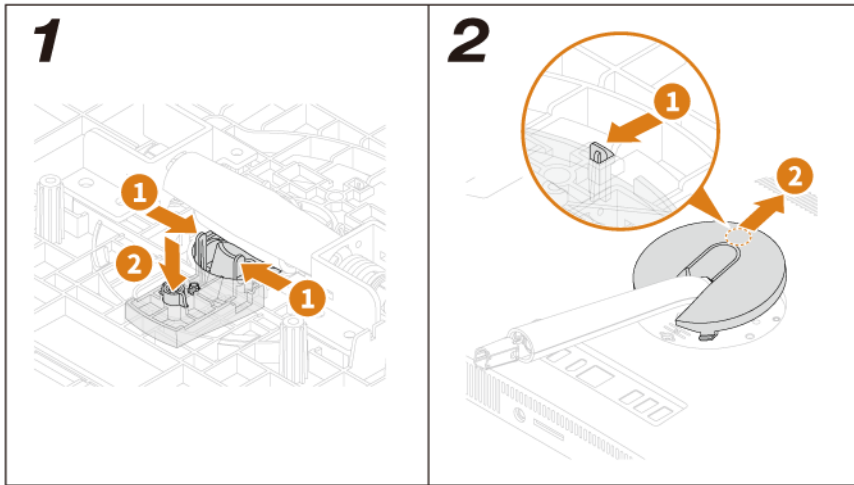
Replacing the stand holder

Note: For this procedure, it helps to lay the computer flat.

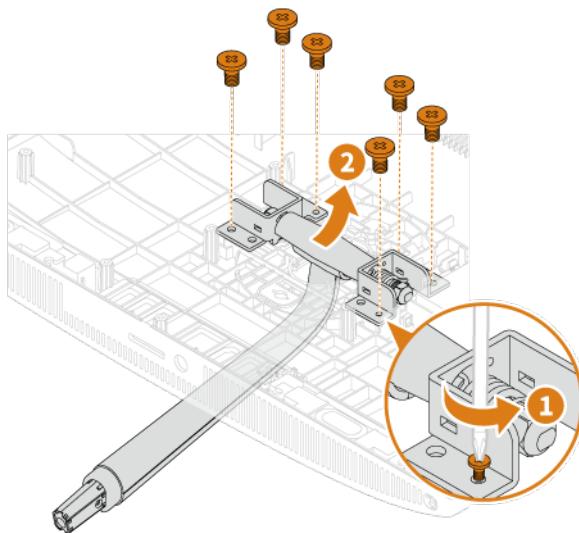
To replace the stand holder:

- Step 1. Remove any media 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 Locating connectors, controls and components to locate the various connectors.
- Step 4. Remove the stand base. Refer to Removing the stand base.
- Step 5. Remove the front cover assembly. Refer to Removing the front cover assembly.
- Step 6. Remove the front EMI cover. Refer to Replacing the front EMI cover.

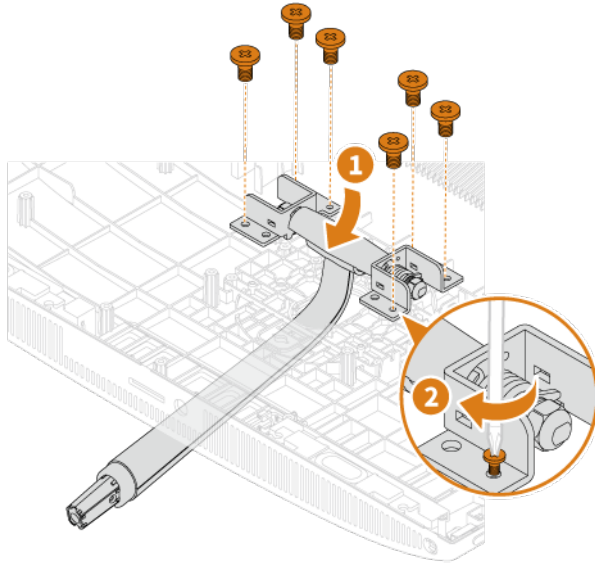
- Step 7. Remove the memory module. Refer to Replacing the memory module.
- Step 8. Remove Wi-Fi card. Refer to Replacing the Wi-Fi card.
- Step 9. Remove the M.2 solid state drive. Refer to Replacing the M.2 storage drive.
- Step 10. Disconnect all the cables from the connectors on motherboard.
- Step 11. Remove the rear EMI cover and motherboard assembly from the rear computer cover.
- Step 12. Refer to the following figure to remove the round stand holder cover.



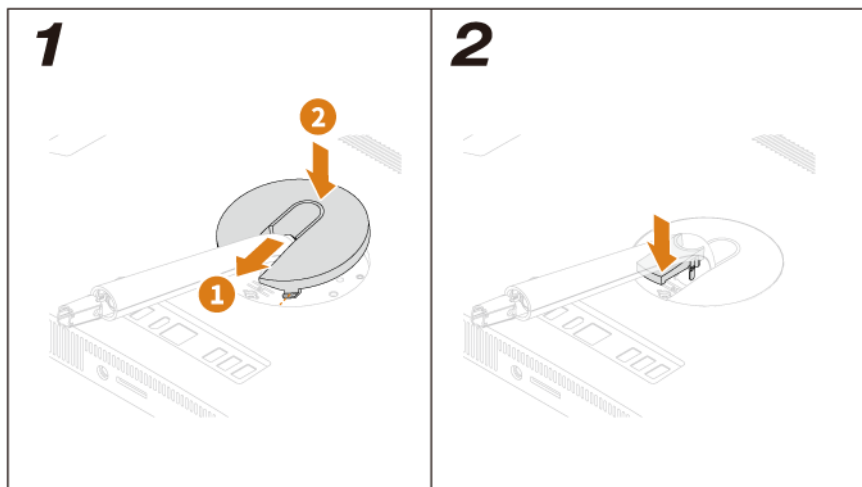
- Step 13. Remove the six screws that secure the stand holder to the rear computer cover, and then slide up the stand holder to remove it.



- Step 14. To install the new stand holder:
- Slide in the stand holder and align the holes on the new stand holder with the mounting holes on the rear computer cover, and then secure it with six screws.



b. Install the round stand holder cover by referring to the following figure.



Step 15. Reinstall all the removed parts, and then reconnect the cables.

Chapter 9. FRU lists-H50-05

This chapter lists the information on the field replaceable units (FRUs) of ideacentre AIO 330 series computers.

Attention: Be sure to read and understand all the safety information before replacing any FRUs.

Table 1. AIO 330-20AST

FRU P/N	Description
AC_ADAPTER	
54Y8998	AC_ADAPTER,45W,100-240Vac,3P
00PC756	AC_ADAPTER,45W,100-240Vac,3P
ANTENNA	
00XJ123	Fru, AIO 330 520/210mm antenna
BDPLANAR	
01LM284	MB E2-9000,UMA, NO DPK
01LM283	MB A6-9200,UMA, WIN DPK
01LM282	MB A6-9200,UMA, NO DPK
01LM358	MB A9-9400,UMA, WIN DPK
01LM357	MB A9-9400,UMA, NO DPK
01LM285	MB E2-9000,UMA, WIN DPK
CABLE	
00XL400	ODD SATA cable_125mm_30V
CAMERA	
01AH346	HD Camera
DISPLAY	
01AG915	LGD 19.5WIPS
DT_KYB	
00XH651	USB,Calliope,KB,WH,GER
00XH680	USB,Calliope,KB,WH,IND,ENG
00XH669	USB,Calliope,KB,WH,SPA
00XH608	USB Calliope KB BK JPN
00XH610	USB Calliope KB BK KOR
00XH648	USB,Calliope,KB,WH,FRA
00XH633	USB Calliope KB BK NORDIC
00XH637	USB,Calliope,KB,WH,ENG
00XH676	USB,Calliope,KB,WH,EURO,ENG
00XH611	USB,Calliope,KB,BK,LA SPA

Table 1. AIO 330-20AST (continued)

00XH671	USB,Calliope,KB,WH,SWS
00XH683	USB,Calliope,KB,WH,NORDIC
00XH591	USB,Calliope,KB,BK,BEL ENG
00XH675	USB,Calliope,KB,WH,UKE
00XH641	USB,Calliope,KB,WH,BEL ENG
00XH604	USB Calliope KB BK HBW
00XH605	USB Calliope KB BK HUN
00XH638	USB,Calliope,KB,WH,ARA
00XH635	USB Calliope KB BK CAN ENG/FRA
00XH607	USB Calliope KB BK ITA
00XH626	USB Calliope KB BK EURO ENG
00XH627	USB Calliope KB BK SLV
00XH664	USB,Calliope,KB,WH,POR
00XH598	USB Calliope KB BK FRA
00XH660	USB,Calliope,KB,WH,KOR
00XH601	USB Calliope KB BK GER
00XH602	USB Calliope KB BK GRE
00XH661	USB Calliope KB WH LA SPA
00XH652	USB,Calliope,KB,WH,GRE
00XH622	USB Calliope KB BK THAI
00XH624	USB Calliope KB BK TUR
00XH625	USB Calliope KB BK UKE
00XH630	USB Calliope KB BK IND ENG
00XH668	USB,Calliope,KB,WH,SLK
00XH593	USB Calliope KB BK BUL
00XH594	USB Calliope KB BK TC/ENG
00XH595	USB Calliope KB BK CZE
00XH666	USB,Calliope,KB,WH,RUS
00XH621	USB Calliope KB BK SWS
00XH587	USB Calliope KB BK ENG
00XH588	USB Calliope KB BK ARA
00XH674	USB,Calliope,KB,WH,TUR
00XH618	USB Calliope KB BK SLK
00XH677	USB,Calliope,KB,WH,SLV
00XH672	USB,Calliope,KB,WH,THAI

Table 1. AIO 330-20AST (continued)

00XH654	USB,Calliope,KB,WH,HBW
00XH685	USB,Calliope,KB,WH,CAN,ENG/FRA
00XH655	USB,Calliope,KB,WH,HUN
00XH619	USB Calliope KB BK SPA
00XH644	USB,Calliope,KB,WH,TC/ENG
00XH614	USB Calliope KB BK POR
00XH993	USB Calliope KB BK CZE/SLK
00XH616	USB Calliope KB BK RUS
00XH658	USB,Calliope,KB,WH,JPN
00XH643	USB,Calliope,KB,WH,BUL
00XH657	USB,Calliope,KB,WH,ITA
00XH998	USB KB WHT_CZ-SL
00XH645	USB,Calliope,KB,WH,CZE
HDD_ASM	
00PC557	HDD,1TB,5400,7mm,DT2,SATA3,SMR
00FC428	HDD,500G,5400,7mm,DT2,SATA3,STD
HEATSINK	
01MN364	I/A GL/SR UMA TM w/o BP
MOUSE	
00PH131	USB Calliope Mouse Black(Orange wh
00PH132	USB,Calliope,Mouse,White
LINECORD	
00XL073	Fru, LINECORD,IT,1M,3P,NON-LH
00XL052	Fru, US/CA,1M,3P,NON-LH
00XL057	Fru, LINECORD,AR,1M,3P,NON-LH
00XL089	Fru, LINECORD,CN,1M,3P,NON-LH
00XL064	Fru, EU/KR,1M,3P,NON-LH
00XL059	Fru, LINECORD,AR,1M,3P,NON-LH
00XL094	Fru, LINECORD,IN,1M,3P,NON-LH
00XL072	Fru, LINECORD,IT,1M,3P,NON-LH
00XL076	Fru, LINECORD,GB,1M,3P,NON-LH
00XL053	Fru, US/CA,1M,3P,NON-LH
00XL090	Fru, LINECORD,CN,1M,3P,NON-LH
00XL075	Fru, LINECORD,GB,1M,3P,NON-LH
00XL065	Fru, EU/KR,1M,3P,NON-LH
00XL084	Fru, LINECORD,IL,1M,3P,NON-LH

Table 1. AIO 330-20AST (continued)

00XL077	Fru, LINECORD,GB,1M,3P,NON-LH
00XL086	Fru, LINECORD,IL,1M,3P,NON-LH
00XL096	Fru, LINECORD,IN,1M,3P,NON-LH
00XL074	Fru, LINECORD,IT,1M,3P,NON-LH
00XL063	Fru, EU/KR,1M,3P,NON-LH
00XL058	Fru, LINECORD,AR,1M,3P,NON-LH
00XL085	Fru, LINECORD,IL,1M,3P,NON-LH
00XL051	Fru,US/CA,1M,3P,NON-LH
MECH_ASM	
01MN681	ASSY_ODD_Bezel_AIO330, W_N
01MN694	AIO330_HINGE LOCK_W
01MN695	AIO330_HINGE LOCK_B
01MN683	ASSY_ODD_Bezel_AIO330, B_N
01MN686	A330_FRONT-COVER-ASSY,W
01EF636	ASSY-C2-HDD-BKT
01MN688	A330_FRONT-COVER-ASSY,B
01MN689	A330_BACK-COVER-ASSY,B
01MN687	A330_BACK-COVER-ASSY,W
01MN680	ASSY_ODD_Bezel_AIO330,White
01MN679	monitor stand,AIO 330,Black
01MN678	monitor stand,AIO 330,White
01MN682	ASSY_ODD_Bezel_AIO330,Black
MECHANICAL	
01MN699	A330_M_B-SHIELDING_TOP
01MN698	A330_M_B-SHIELDING
01MN693	hinge cover Black
01MN692	hinge cover White
01EF630	C2_panel_bkt
01EF631	C2_panel_bkt2
01MN696	A330_camera_bkt
MEMORY	
01FR300	4G DDR4 2400 SODIMM
01AG708	4GB DDR4 2400 SoDIMM
01AG818	8GB DDR4 2666 SoDIMM,Ramaxel
01AG711	8GB DDR4 2400 SoDIMM
01AG709	4GB DDR4 2400 SoDIMM

Table 1. AIO 330-20AST (continued)

01AG701	4GB DDR4 2400 SoDIMM
01FR301	8G DDR4 2400 SODIMM
MICROPHONE	
01AH597	Single MIC Module,AVC
SCREW	
00XD903	Screw with bracket WIFI card
01MN704	Screw list A310
OPT_DRIVE	
45K0494	9.0mm DVD Rambo without bezel
WIRELESS	
01AX709	Wireless,CMB,LTN,NFA435A

Chapter 10. General information

This chapter provides general information that applies to all machine types supported by this publication.

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.