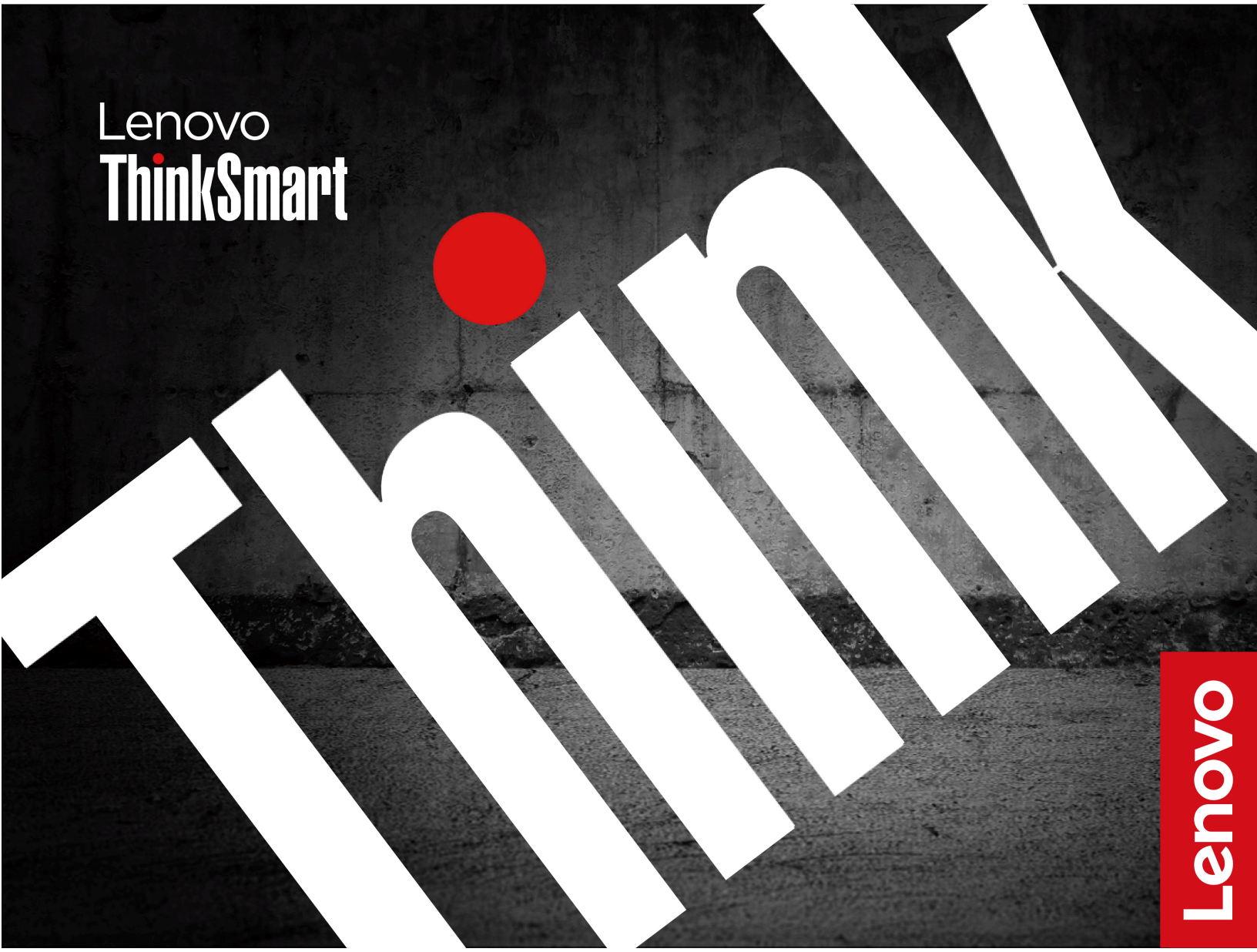
Hardware Maintenance Manual



ThinkSmart Core Gen 2

Third Edition (December 2025)

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About this manual

This manual provides service and reference information for ThinkSmart® devices listed on the front cover.

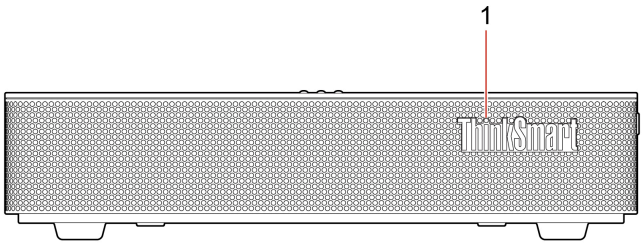
Illustrations in this manual might look different from your product.

Use this manual along with the advanced diagnostic tests to troubleshoot problems.

Important: This manual is intended only for trained service technicians who are familiar with ThinkSmart devices. Use this manual along with the advanced diagnostic tests to troubleshoot problems effectively. Before servicing a ThinkSmart device, be sure to read and understand *Generic Safety and Compliance Notices* at https://smartsupport.lenovo.com.

Chapter 1. Product overview

Front



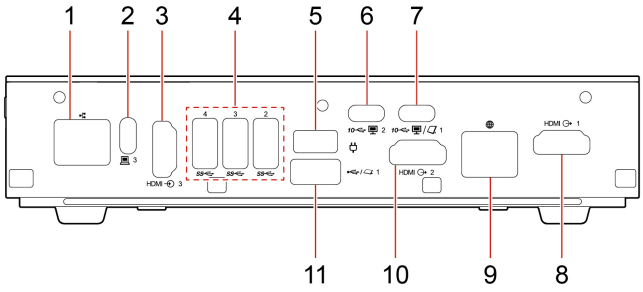
Item	Description
1	ThinkSmart® LED

ThinkSmart LED

Show the system status of your device.

- **On:** The device is starting up or working.
- **Off:** The device is off.

Rear



Item	Description	Item	Description
1	Ethernet connector (2.5 Gbps) (for audio or video device)*	2	Bring Your Own (BYO) connector*
3	HDMI™-in connector*	4	USB-A connectors (USB 5Gbps) (with BYO)
5	Power connector	6	USB-C® connector (USB 10Gbps)
7	USB-C connector (USB 10Gbps) (with ThinkSmart Controller)	8	HDMI-out connector
9	Ethernet connector (1 Gbps) (for network access)	10	HDMI-out connector
11	USB-A connector (Hi-Speed USB) (with Lenovo IP Controller)		

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* for selected models

Statement on USB transfer rate

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

Ethernet connector (2.5 Gbps) (for audio or video device)

Connect to an IP-based audio or video device with a transfer rate up to 2.5 Gbps.

HDMI-in connector

Support up to 3840 x 2160 @ 60 Hz.

HDMI-out connector

Support up to 3840 x 2160 @ 60 Hz.

BYO connector

Connect to your computer. Then, you can use the camera, microphones, and speakers that are connected to the USB-A connectors (USB 5Gbps) (with BYO) on ThinkSmart Core Gen 2 for the BYO feature.

USB-A connectors (USB 5Gbps) (with BYO)

Connect to a camera, microphones, speakers, or other USB-A accessories to help expand your device functionality and support the BYO feature.

USB-C connector (USB 10Gbps)

Connect to an external display (recommended) or other USB-C accessories.

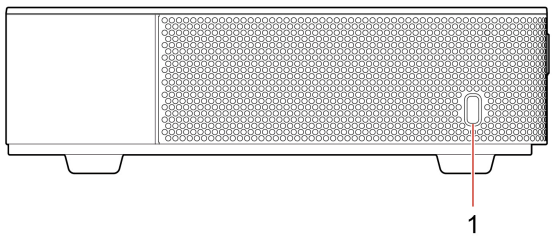
USB-C connector (USB 10Gbps) (with ThinkSmart Controller)

Connect to a ThinkSmart Controller (recommended), external display, or other USB-C accessories.

USB-A connector (Hi-Speed USB) (with Lenovo IP Controller)

Connect to a Lenovo IP Controller (recommended) or other USB-A accessories.

Left



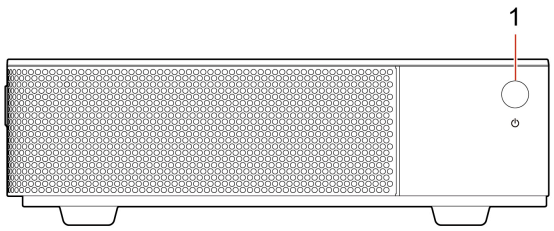
Item	Description
1	Security-lock slot

Security-lock slot

Lock your device to a desk, table, or other fixtures through a security lock.

Note: Lenovo makes no comments, judgments, or warranties about the function, quality, or performance of the locking device and security feature. You can purchase security locks from Lenovo.

Right



Item	Description
1	Power button

Chapter 2. Service checkout and symptom-to-FRU index

This chapter provides information about general service checkout and symptom-to-FRU index.

Service checkout

Attention: The drives in the device 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 a 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. Turn off the device and all external devices.
2. Check all cables and power cords.
3. Set all display controls to the middle position.
4. Turn on all external devices.
5. Turn on the device.
   - 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 on page 4.

   If you *do* receive the correct response, proceed to step 7 on page 4.
6. Look at the following conditions and follow the instructions:
   - If the device displays a POST error, go to “POST error codes” on page 6.
   - If the device hangs and no error is displayed, continue at step 7 on page 4.
7. Run the Diagnostic programs.
   - If you receive an error, replace the part that the diagnostic program calls out.
   - If the test stops and you cannot continue, replace the last device tested.

Problem determination tips

Due to the variety of hardware and software combinations that can be encountered, use the following information to assist you in problem determination. If possible, have this information available when requesting assistance from Service Support and Engineering functions.

- Machine type and model
- Processor or hard disk drive upgrades
- Failure symptom
  - Do diagnostics indicate a failure?
  - What, when, where, single, or multiple systems?
  - Is the failure repeatable?
  - Has this configuration ever worked?
  - If it has been working, what changes were made prior to its failing?
  - Is this the original reported failure?

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- Diagnostics version
  - Type and version level
- Hardware configuration
  - Print (print screen) configuration currently in use
  - BIOS level
- Operating system software
  - Type and version level

Notes: To eliminate confusion, identical systems are considered identical only if they:

1. Are the exact machine types and models
2. Have the same BIOS level
3. Have the same adapters/attachments in the same locations
4. Have the same address jumpers/terminators/cabling
5. Have the same software versions and levels
6. Have the same Diagnostic Diskettes (version)
7. Have the same configuration options set in the system
8. Have the same setup for the operating system control files

Comparing the configuration and software set-up between “working and non-working” systems will often lead to problem resolution.

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 “Service checkout” on page 4. This index can also be used to help you decide which FRUs to have available when servicing a device.

Notes:

- The Symptom-to-FRU index is not specific to any machine type and are applicable to all devices.
- 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.

Power supply problems

If you suspect a power problem, use the following procedures.

Check/Verify	FRU/Action
Check the following for proper installation. • Power cord • On/Off switch connector • On/Off switch power supply connector • System board power supply connectors • Microprocessor connection	Reseat connectors
Check the power cord for continuity.	Power cord
Check the power-on switch for continuity.	Power-on switch

POST error codes

Each time you turn on the system, it performs a series of tests that check the operation of the system and some options. This series of tests is called the *Power-On Self-Test*, or *POST*. POST checks the following operations:

- Some basic system-board operations
- Memory operation
- Video operation
- Whether the boot drive is working

If the POST detects a problem, an error message appears on the screen. A single problem might cause several error messages to appear. When you correct the cause of the first error message, the other error messages probably will not appear on the screen the next time.

Error code	POST error message	Description/Action
0135	CPU fan failure System fan failure Power fan failure Front fan failure Rear fan failure Auxiliary fan failure ODD fan failure	This error message is displayed when a fan fails and the system might be overheating. Press F10 to exit.
0162	Setup data integrity check failure	This error indicates the checksum of BIOS Setup data in NVRAM is bad. In BIOS Setup, the “Save Changes and Exit” operation is needed in order to clear this error.
0164	Memory configuration change has occurred	This error message is displayed when the memory size is changed. Press F10 to exit.
1762	Storage device configuration change has occurred	This error message is displayed when a hard disk drive change or an optical drive change has been made. Press F10 to exit.

Error code	POST error message	Description/Action
8998	Not enough shadow RAM resources for OPTION ROM, not all devices initialized. Suggest removing some add-on cards, or changing to UEFI mode in BIOS setup.	This error message is displayed when the shadow RAM resources for option ROM are insufficient. If the legacy option ROM is insufficient, remove some add-in cards. For the system that supports UEFI, set UEFI as the first priority.
8999	Not enough PCIe/PCI MMIO resources. Currently only one video card is enabled. Remove some PCIe cards.	This error message is displayed when the PCIe/PCI MMIO (memory mapped input/output) resources are insufficient. Remove some add-in cards.

Chapter 3. Hardware removal and installation

This chapter provides instructions on how to remove and install hardware for your device.

Handling static-sensitive devices

Do not open the static-protective package containing the new part until the defective part has been removed and you are ready to install the new part. Static electricity, although harmless to you, can seriously damage device components and options.

When you handle options and other device components, take these precautions to avoid static-electricity damage:

- Limit your movement. Movement can cause static electricity to build up around you.
- Always handle options and other device components carefully. Handle PCI/PCIe cards, memory modules, system boards, and microprocessors by the edges. Never touch any exposed circuitry.
- Prevent others from touching the options and other device components.
- Touch the static-protective package containing the part to a metal expansion-slot cover or other unpainted metal surface on the device for at least two seconds. This reduces static electricity from the package and your body before you install or replace a new part.
- When possible, remove the new part from the static-protective package, and install it directly in the device without setting the part down. When this is not possible, place the static-protective package on a smooth, level surface and place the part on the package.
- Do not place the part on the device cover or other metal surface.

Service tool kit

Ensure that the following common service tool kit is prepared before you service the device.

No.	Tool name	Specification	Product scope	Tool type
1	Screwdriver: Phillips Head 0	PH0	All	Common tool
2	Screwdriver: Phillips Head 00	PH00	All	Common tool
3	Screwdriver: Phillips Head 01	1	All	Common tool
4	Screwdriver: Phillips Head 01	1, Shank length greater than 6 inches	ThinkStation/DT	Common tool
5	Screwdriver: Phillips Head 02	2, Shank length greater than 6 inches	ThinkStation/SC/DT	Common tool
6	Screwdriver: Torx Head T5	T5	IdeaPad	Common tool

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No.	Tool name	Specification	Product scope	Tool type
7	Screwdriver: Torx Head T15	T15, for Chassis outside	ThinkStation	Common tool
8	Screwdriver: Torx Head T20	T20, Shank length greater than 6 inches, for heatsink and CPU	ThinkStation	Common tool
9	Screwdriver: Torx Head T30	T30, Shank length greater than 6 inches, for heatsink and CPU	ThinkStation	Common tool
10	Pry tools 1	N/A	All	Common tool
11	Tweezers (conductive)	N/A	All	Common tool
12	Tweezers (isolated)	N/A	All	Common tool
13	Suction cup	N/A	All	Common tool
14	Hexagonal socket (for VGA)	H5 mm or 4.8 mm	ThinkCentre/Tiny	Common tool
15	Hexagonal socket (for Tinyantenna)	H8 mm	ThinkCentre/Tiny	Common tool
16	Ajustable Torque Screwdriver	0.2 Nm to 4.0 Nm, Threadripper CPU, CAMM, etc	All	Common tool
17	ESD Mat	ESD Mat	All	Common tool
18	USB Flash Drives	For Golden Key, Chrome Reloads, AutoPilot, etc	All	Common tool
19	USB-C to USB-A Converter	For USB-C only systems	All	Common tool
20	SSD/WWAN/IC Thermal pad	Thermal pads are typically used under the SSD/WWAN/IC in different thicknesses, the most common being 0.5 mm.	All	Consumable
21	Thermal grease	Standard thermal grease. Honeywell PTM 7958SP is recommended.	All	Consumable
22	Polyamide tape	N/A	All	Consumable

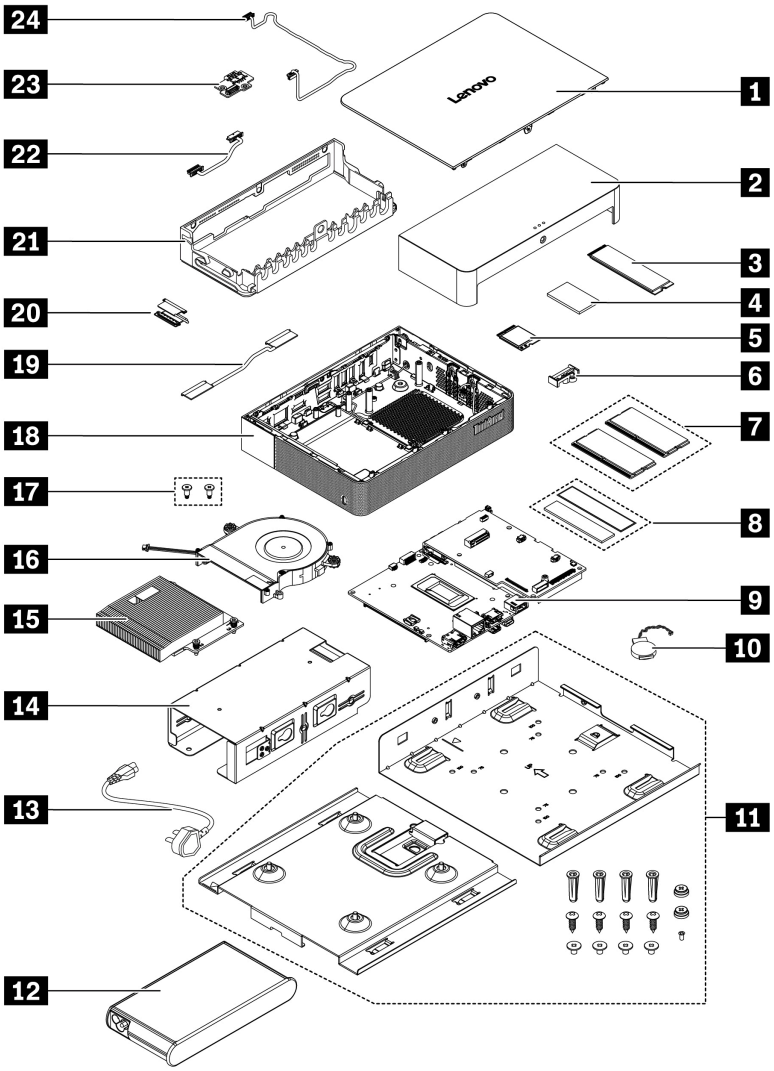
No.	Tool name	Specification	Product scope	Tool type
23	Mylar tape	N/A	All	Consumable
24	Eraser	N/A	All	Consumable
25	Electrical tape	N/A	All	Consumable
26	Double sided tape	N/A	All	Consumable
27	Conductive tape	N/A	All	Consumable
28	Cleaning pads/wipes	N/A	All	Consumable
29	Heat gun	N/A	All	Special Tool (Depot only)
30	Brown brush	25 mm to 35 mm wide	All	Special tool
31	Contact Cleaner Spray	WD-40 Contact Cleaner for battery connector	ThinkPad X1 Carbon	Special tool
32	Hexagonal socket	17 mm	Yoga AIO 7 27ACH6/ Yoga AIO 7 27ARH6	Special tool

Note: The silicone grease can be applied to the surfaces of the microprocessor and heat sink to eliminate air gaps. For parts with silicone grease applied, it is suggested that you apply new grease during the installation.

Major FRUs and CRUs

Your device contains the following types of CRUs and FRUs:

- **Self-service CRUs:** Refer to parts that can be replaced easily by customers themselves or by trained service technicians at an additional cost.
- **Optional-service CRUs:** Refer to parts that can be replaced by customers with a greater skill level. Trained service technicians can also provide service to replace the parts under the type of warranty designated for the customer's machine.
- **FRUs:** Refer to parts that are more complicated to replace and it is recommended that these should be replaced by trained service technicians. If customers elect to replace the FRUs by themselves, we recommend that you ensure the correct instructions provided by Lenovo are carefully followed.



Number	Description	Self-service CRU	Optional-service CRU
1	Top cover assembly	Yes	No
2	Cable management top cover*	Yes	No
3	M.2 solid-state drive	Yes	No
4	M.2 solid-state drive thermal pad	Yes	No
5	Wi-Fi card	No	No
6	Wi-Fi card shield	No	No
7	Memory modules	Yes	No
8	Memory module thermal pads	Yes	No
9	System board and I/O board assembly	No	No
10	CMOS battery	No	No
11	VESA® mount brackets and screws*	Yes	No
12	Power adapter	Yes	No

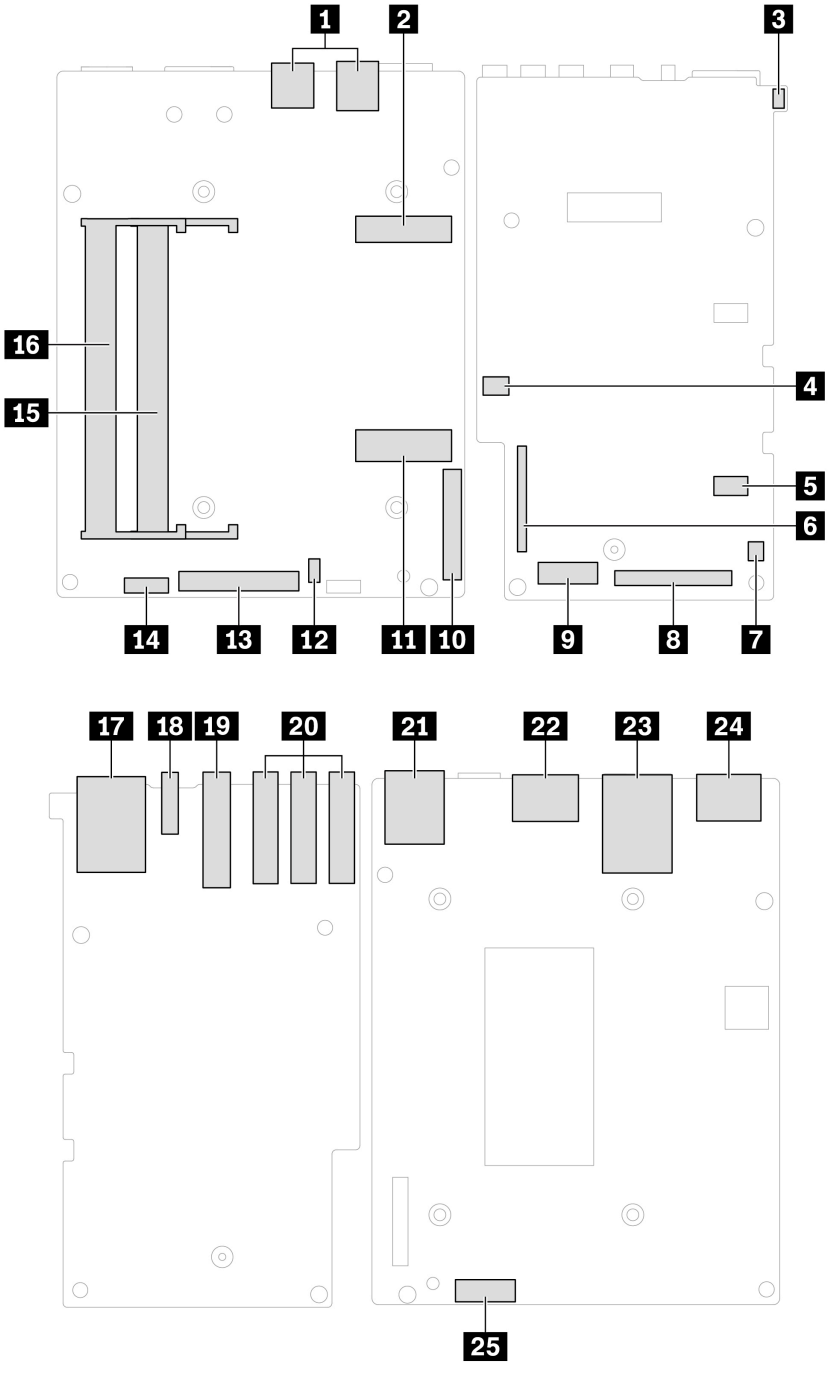
Number	Description	Self-service CRU	Optional-service CRU
13	Power cord	Yes	No
14	Power adapter cage*	Yes	No
15	Heat sink	No	No
16	System fan	No	No
17	System fan step screw kits	No	No
18	Chassis assembly	No	No
19	60-pin signal main cable	No	No
20	50-pin signal slave cable*	No	No
21	Cable management bottom cover*	Yes	No
22	I/O power cable	No	No
23	USB board	No	No
24	USB board cable	No	No

* for selected models

For detailed FRU and CRU information, such as the FRU part numbers and supported device models, go to: http://www.lenovo.com/serviceparts-lookup

System board and I/O board assembly and USB board illustration

System board and I/O board assembly

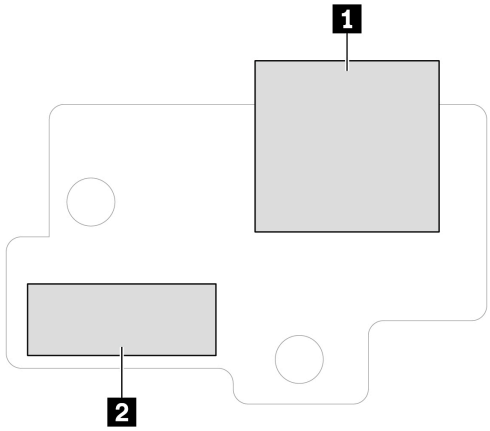


Item	Description	Item	Description
1	USB-C connectors	2	M.2 solid-state drive slot
3	Power button	4	System fan cable connector

Item	Description	Item	Description
5	LED cable connector	6	50-pin signal slave cable connector
7	Intrusion switch	8	60-pin signal main cable connector
9	I/O power cable connector	10	50-pin signal slave cable connector
11	M.2 Wi-Fi card slot	12	Clear CMOS (Complementary Metal Oxide Semiconductor)/Recovery jumper
13	60-pin signal main cable connector	14	USB board cable connector
15	Memory slot (DIMM1)	16	Memory slot (DIMM2)
17	Ethernet connector (2.5 Gbps) (for audio or video device)*	18	Bring Your Own (BYO) connector*
19	HDMI-in connector*	20	USB-A connectors
21	Power connector	22	HDMI-out connector
23	Ethernet connector (1 Gbps) (for network access)	24	HDMI-out connector
25	I/O power cable connector		

* for selected models

USB board



Item	Description	Item	Description
1	USB-A connector	2	USB board cable connector

Removing and installing hardware

This section provides instructions on how to remove and install hardware for your device.

Attention: Do not open your device or attempt any repair before reading and understanding the *Generic Safety and Compliance Notices* at https://smartsupport.lenovo.com.

External options

You can connect external options to your device, such as a keyboard, mouse, audio device, or camera. For some external options, you must install additional software in addition to making the physical connection. When installing an external option, see Chapter 1 “Product overview” on page 1 to identify the required connector. Then, use the instructions that come with the option to help you make the connection and install any required software or device drivers.

Power adapter, power cord, and power adapter cage

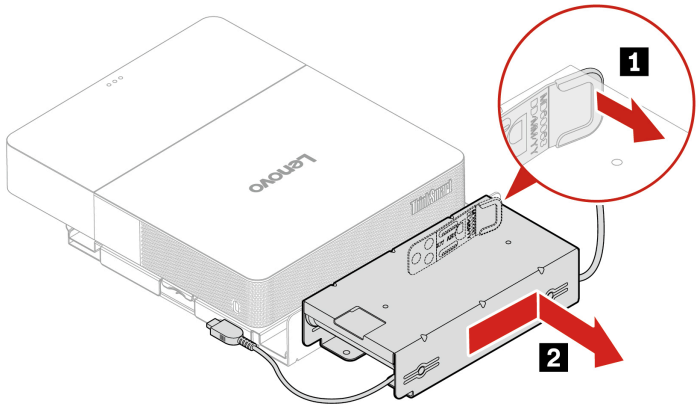
Prerequisite

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

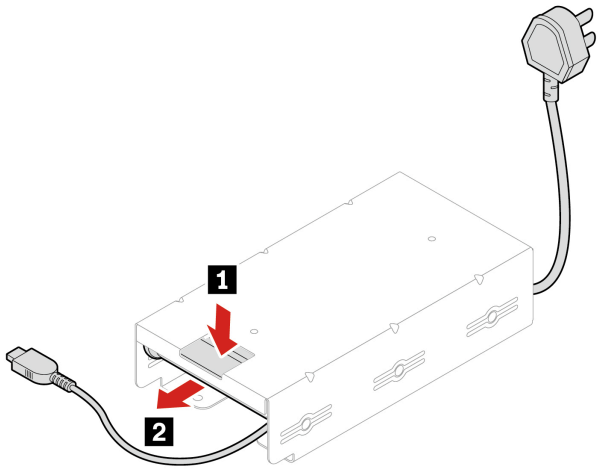
For access, do the following:

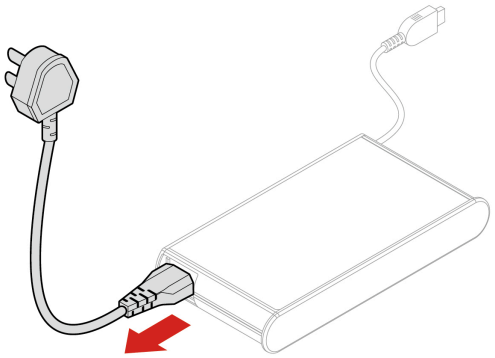
1. Turn off the device and remove all connected devices and cables.
2. Disconnect the device from ac power and all connected cables.

Removal steps



Note: Hold the latch in step 1 when removing the power adapter cage.





VESA mount brackets and screws

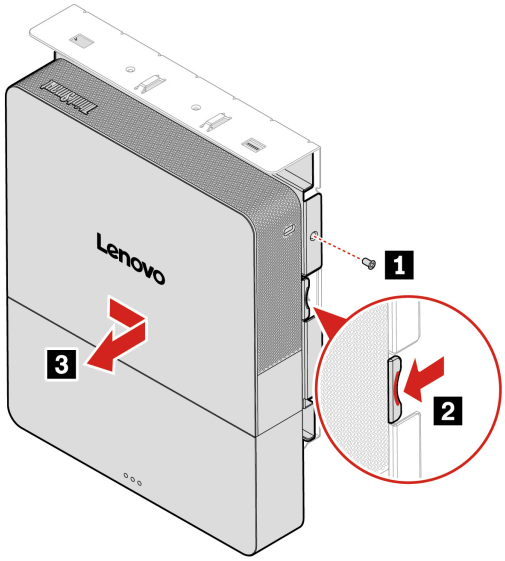
Prerequisite

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

For access, do the following:

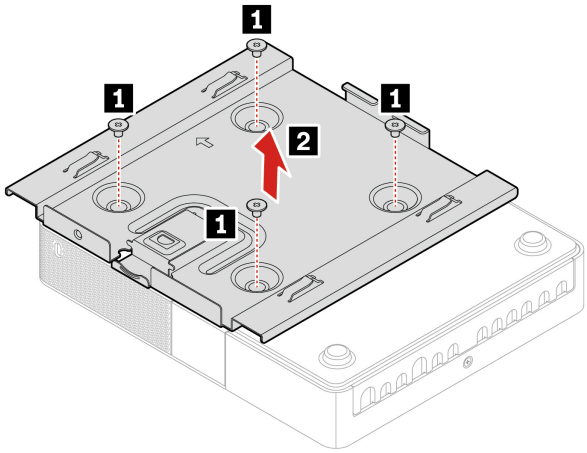
1. Turn off the device and remove all connected devices and cables.
2. Disconnect the device from ac power and all connected cables.
3. Unlock any locking device that secures the device.
4. Remove the power adapter cage, if any. See “Power adapter, power cord, and power adapter cage” on page 15

Removal steps

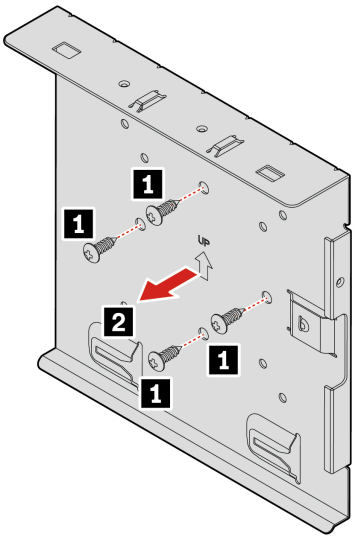


Note: Hold the latch in step 2 when removing the top bracket.

Screw (quantity)	Color	Torque
M3 x 3.3 mm, Zn coated (1)	Black	5.0 ± 0.5 lb/in



Screw (quantity)	Color	Torque
M4 x 5.8 mm, Ni coated (4)	Black	5.0 ± 0.5 lb/in



Screw (quantity)	Color	Torque
M5 x 16 mm, Zn coated (4)	Black	5.0 ± 0.5 lb/in

Cable management top cover and bottom cover

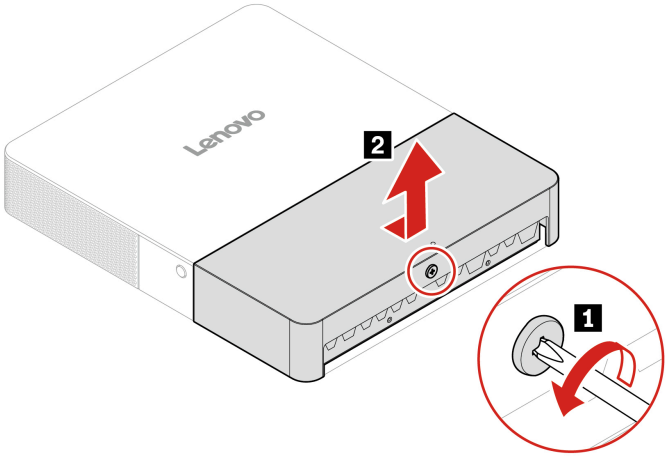
Prerequisite

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

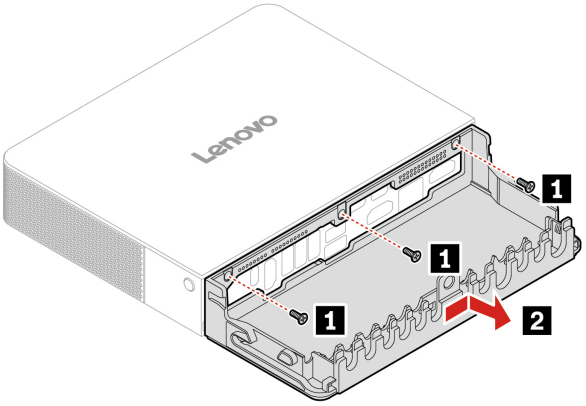
For access, do the following:

1. Turn off the device and remove all connected devices and cables.
2. Disconnect the device from ac power and all connected cables.
3. Unlock any locking device that secures the device.
4. Remove the following parts in order, if any:
   - “Power adapter, power cord, and power adapter cage” on page 15
   - “VESA mount brackets and screws” on page 16

Removal steps



Screw (quantity)	Color	Torque
M2 x 2 + 8 mm, Zn coated (1)	Black	1.2 ± 0.2 lb/in



Screw (quantity)	Color	Torque
M2 x 6.5 mm, Zn coated (3)	Black	1.2 ± 0.2 lb/in

Top cover assembly

Prerequisite

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

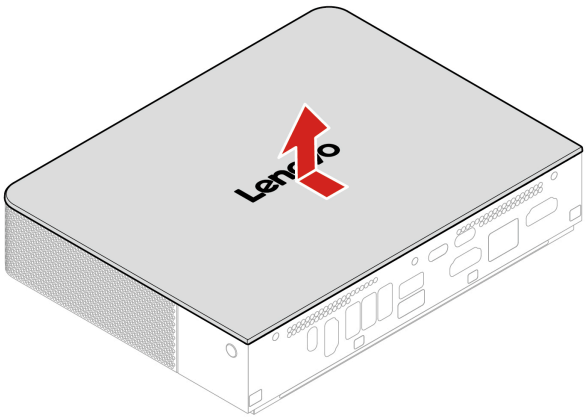


Before you open the device cover, turn off the device and wait several minutes until the device is cool.

For access, do the following:

1. Turn off the device and remove all connected devices and cables.
2. Disconnect the device from ac power and all connected cables.
3. Unlock any locking device that secures the device.
4. Remove the following parts in order, if any:
   - “Power adapter, power cord, and power adapter cage” on page 15
   - “VESA mount brackets and screws” on page 16
   - “Cable management top cover and bottom cover” on page 17

Removal step



Note: Ensure that the internal parts are installed correctly and the internal cables are routed correctly before installing the top cover assembly.

Memory modules and thermal pads

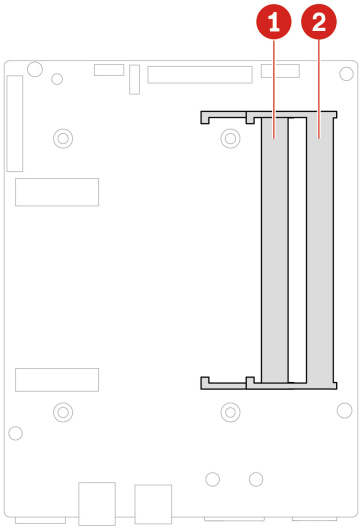
Prerequisite

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



The heat sink might be very hot. Before you open the device cover, turn off the device and wait several minutes until the device is cool.

Ensure that you follow the installation order for memory modules shown in the following illustration.

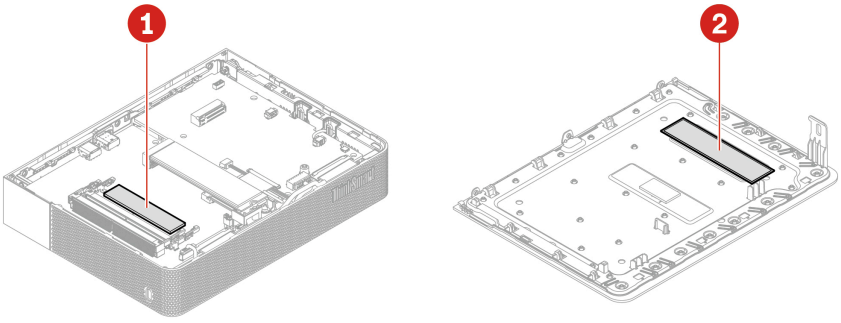


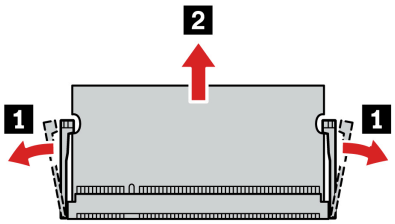
For access, do the following:

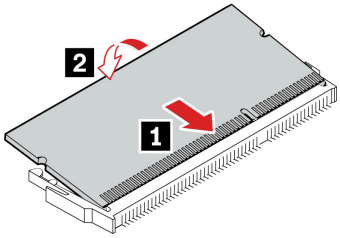
1. Turn off the device and remove all connected devices and cables.
2. Disconnect the device from ac power and all connected cables.
3. Unlock any locking device that secures the device.
4. Remove the following parts in order, if any:
   - “Power adapter, power cord, and power adapter cage” on page 15
   - “VESA mount brackets and screws” on page 16
   - “Cable management top cover and bottom cover” on page 17
   - “Top cover assembly” on page 19

Replacement procedures

Replace the thermal pad(s) according to the location of the memory module(s).







Note: When installing, remove the film that covers the thermal pad (if any).

60-pin signal main cable

Prerequisite

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

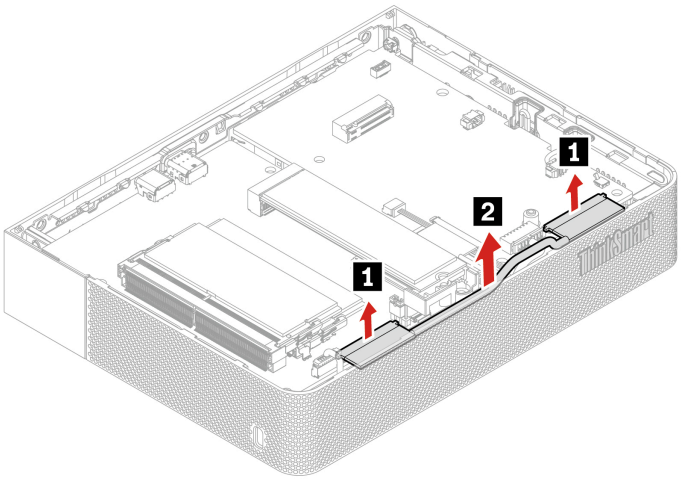


Before you open the device cover, turn off the device and wait several minutes until the device is cool.

For access, do the following:

1. Turn off the device and remove all connected devices and cables.
2. Disconnect the device from ac power and all connected cables.
3. Unlock any locking device that secures the device.
4. Remove the following parts in order, if any:
   - “Power adapter, power cord, and power adapter cage” on page 15
   - “VESA mount brackets and screws” on page 16
   - “Cable management top cover and bottom cover” on page 17
   - “Top cover assembly” on page 19

Removal steps



M.2 solid-state drive and thermal pad

Prerequisite

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



The heat sink might be very hot. Before you open the device cover, turn off the device and wait several minutes until the device is cool.

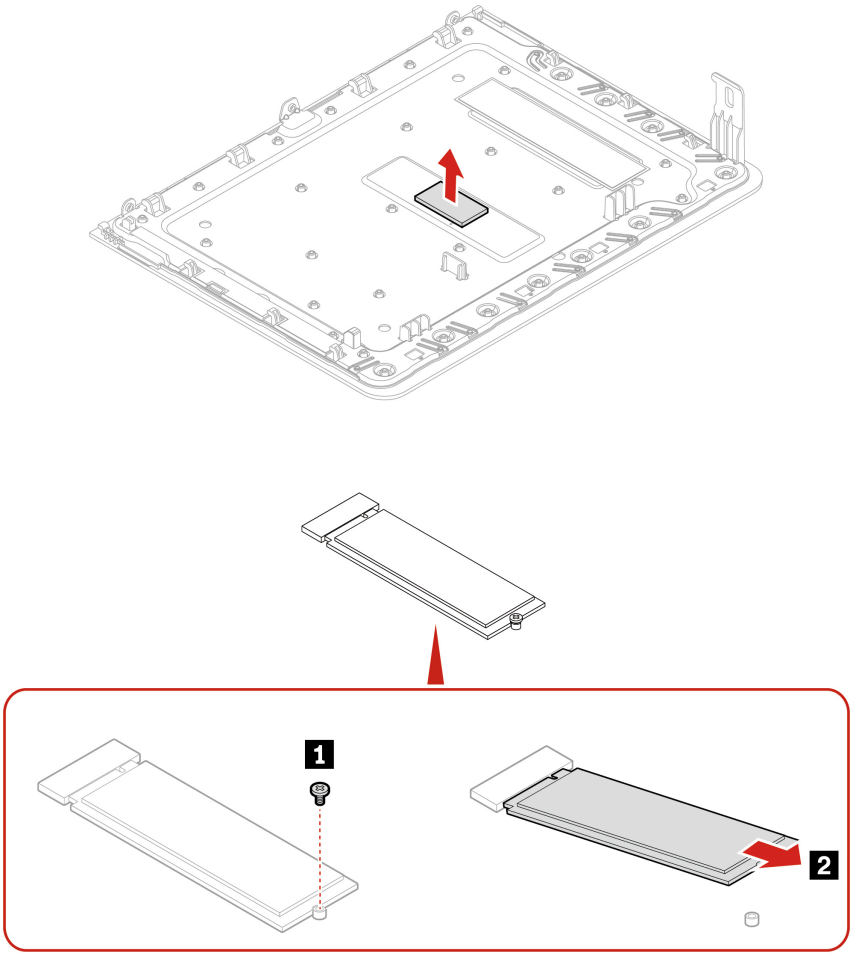
Attention: The internal storage drive is sensitive. Inappropriate handling might cause damage and permanent loss of data. When handling the internal storage drive, observe the following guidelines:

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

For access, do the following:

1. Turn off the device and remove all connected devices and cables.
2. Disconnect the device from ac power and all connected cables.
3. Unlock any locking device that secures the device.
4. Remove the following parts in order, if any:
   - “Power adapter, power cord, and power adapter cage” on page 15
   - “VESA mount brackets and screws” on page 16
   - “Cable management top cover and bottom cover” on page 17
   - “Top cover assembly” on page 19

Removal steps



Screw (quantity)	Color	Torque
M2 x 6.5 mm, Zn coated (1)	Black	1.5 ± 0.2 lb/in

Wi-Fi card and shield

Prerequisite

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



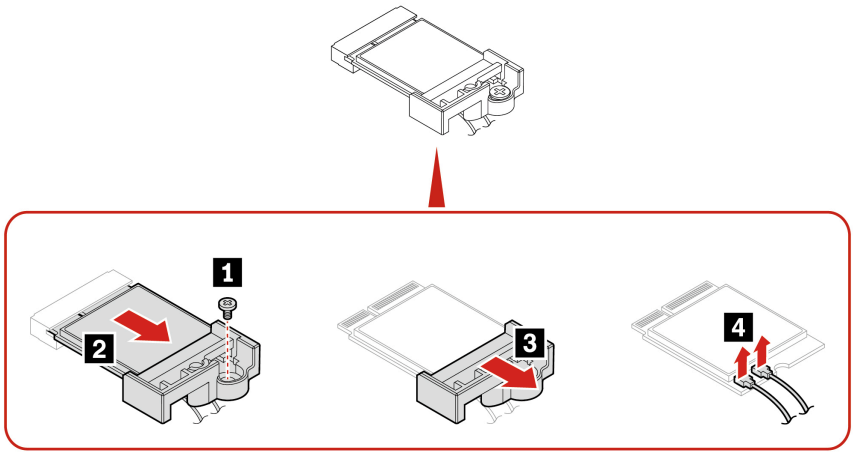
Before you open the device cover, turn off the device and wait several minutes until the device is cool.

For access, do the following:

1. Turn off the device and remove all connected devices and cables.
2. Disconnect the device from ac power and all connected cables.
3. Unlock any locking device that secures the device.

4. Remove the following parts in order, if any:
    - “Power adapter, power cord, and power adapter cage” on page 15
    - “VESA mount brackets and screws” on page 16
    - “Cable management top cover and bottom cover” on page 17
    - “Top cover assembly” on page 19
    - “M.2 solid-state drive and thermal pad” on page 22

Removal steps



Screw (quantity)	Color	Torque
M2 x 6.5 mm, Zn coated (1)	Black	1.5 ± 0.2 lb/in

50-pin signal slave cable

Prerequisite

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



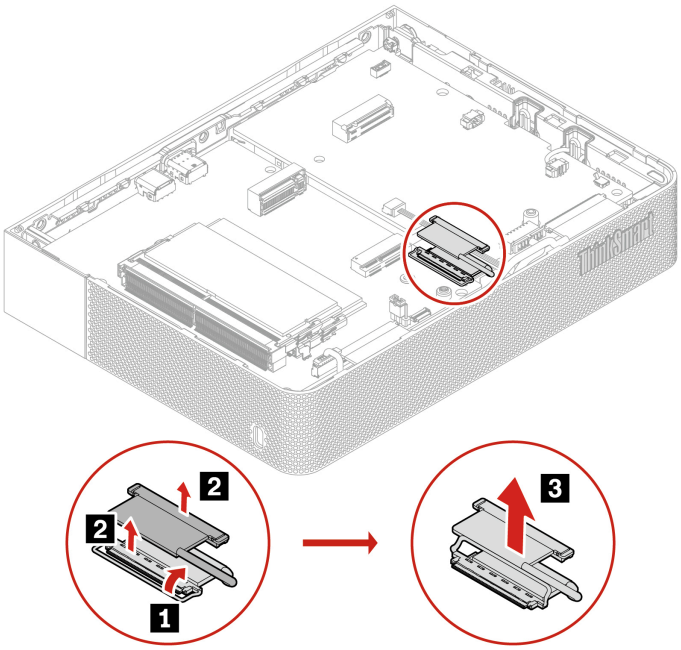
Before you open the device cover, turn off the device and wait several minutes until the device is cool.

For access, do the following:

1. Turn off the device and remove all connected devices and cables.
2. Disconnect the device from ac power and all connected cables.
3. Unlock any locking device that secures the device.
4. Remove the following parts in order, if any:
    - “Power adapter, power cord, and power adapter cage” on page 15
    - “VESA mount brackets and screws” on page 16
    - “Cable management top cover and bottom cover” on page 17
    - “Top cover assembly” on page 19
    - “M.2 solid-state drive and thermal pad” on page 22

- “Wi-Fi card and shield” on page 23

Removal steps



System board and I/O board assembly, heat sink, system fan, and step screw kits

Prerequisite

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



The heat sink might be very hot. Before you open the device cover, turn off the device and wait several minutes until the device is cool.

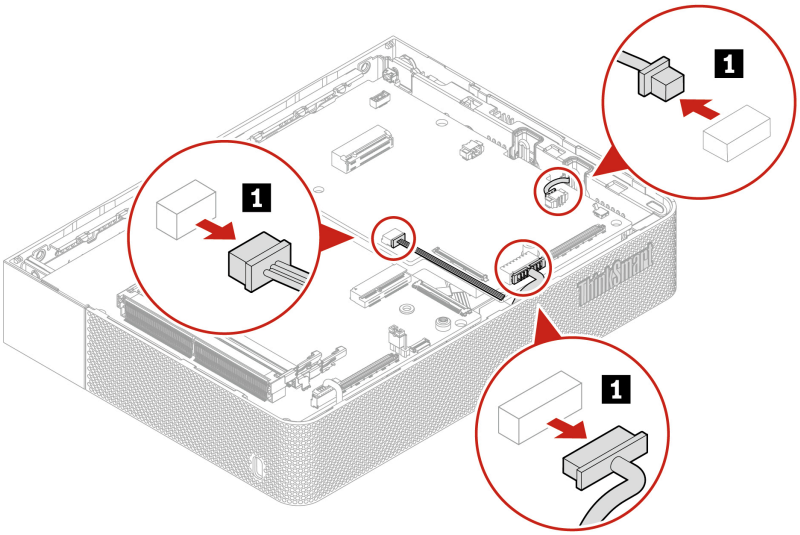
For access, do the following:

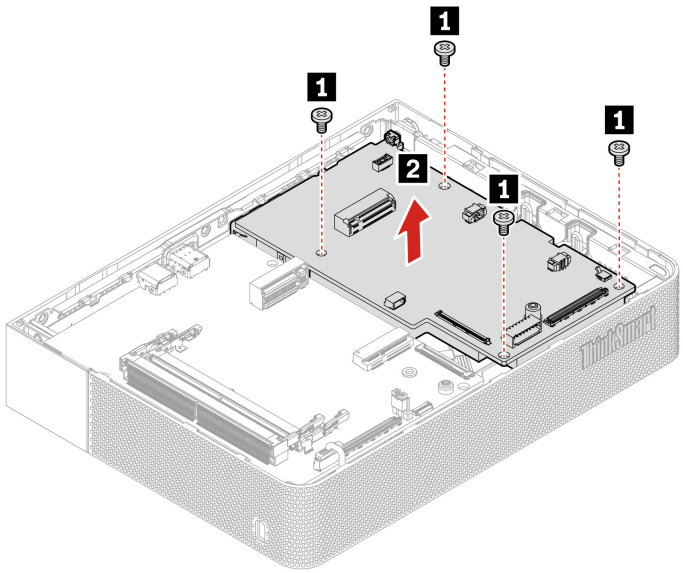
1. Turn off the device and remove all connected devices and cables.
2. Disconnect the device from ac power and all connected cables.
3. Unlock any locking device that secures the device.
4. Remove the following parts in order, if any:
   - “Power adapter, power cord, and power adapter cage” on page 15
   - “VESA mount brackets and screws” on page 16
   - “Cable management top cover and bottom cover” on page 17
   - “Top cover assembly” on page 19
   - “Memory modules and thermal pads” on page 19
   - “60-pin signal main cable” on page 21
   - “M.2 solid-state drive and thermal pad” on page 22

- “Wi-Fi card and shield” on page 23
- “50-pin signal slave cable” on page 24

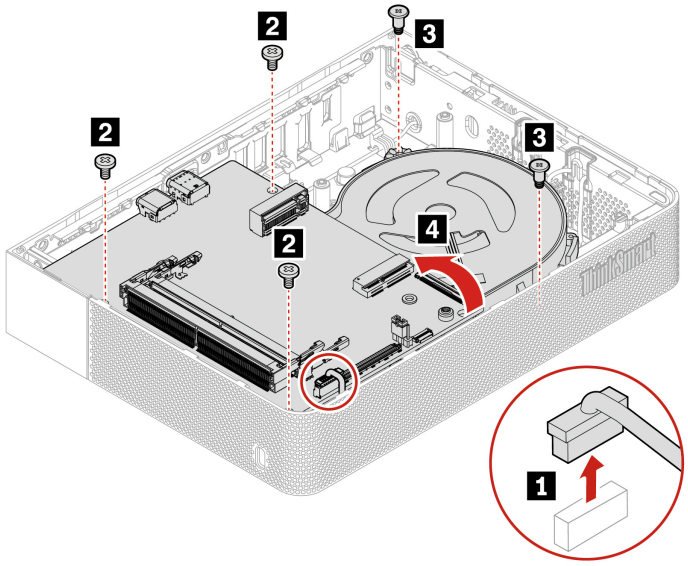
Removal steps of system board and I/O board assembly and step screws

Attention: The system board and I/O board are designed as an assembly FRU and must be replaced together in case either of them is damaged.





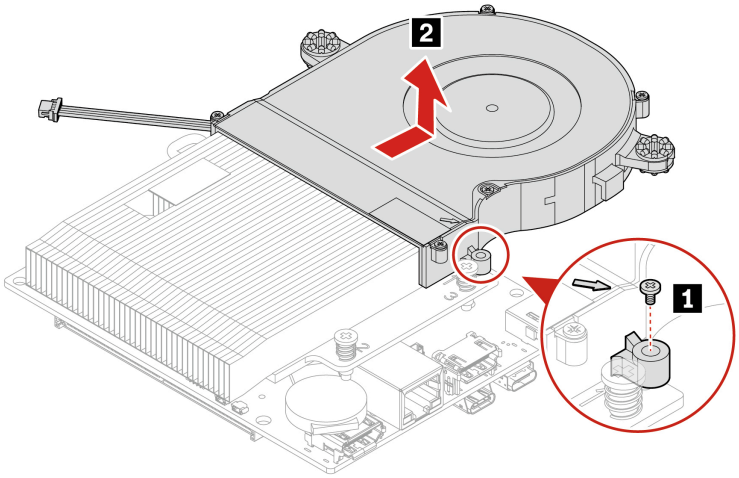
Screw (quantity)	Color	Torque
M2 x 6.5 mm, Zn coated (4)	Black	1.5 ± 0.2 lb/in



Note: The screws removed in step 3 are step screws.

Step	Screw (quantity)	Color	Torque
2	M2 x 6.5 mm, Zn coated (3)	Black	1.5 ± 0.2 lb/in
3	M3 x 3.6 + 6.4 mm, Zn coated (2)	Black	1.5 ± 0.2 lb/in

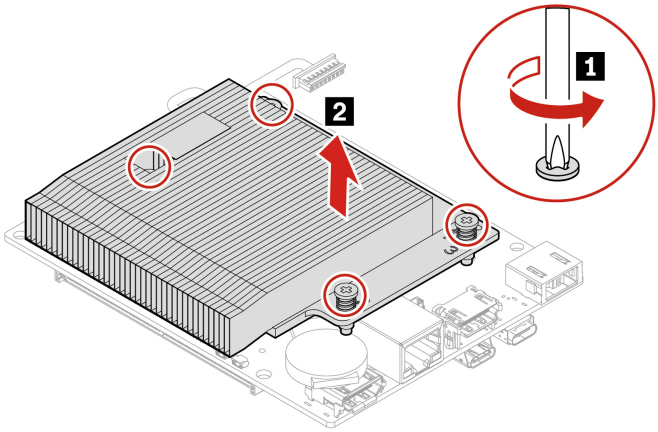
Removal steps of system fan



Note: Remove the screw indicated by the arrow in step 1 when removing the system fan.

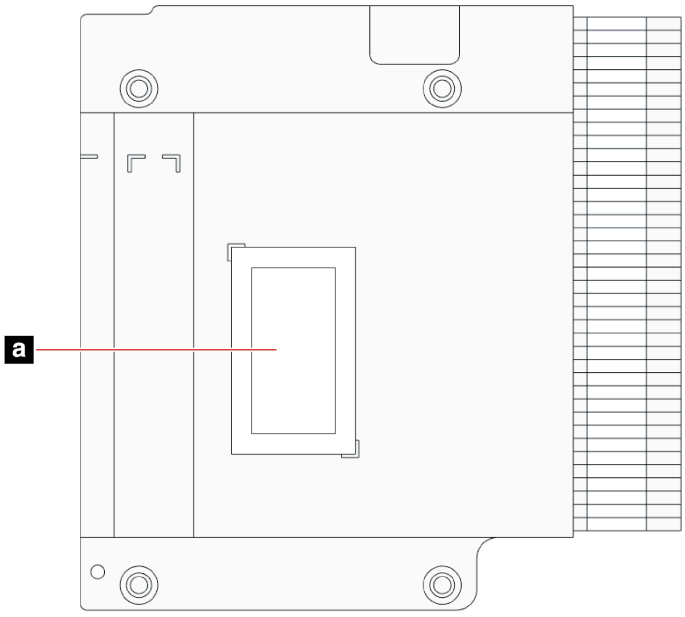
Screw (quantity)	Color	Torque
M2 x 6.5 mm, Zn coated (1)	Black	1.5 ± 0.2 lb/in

Remove steps of heat sink



Screw (quantity)	Color	Torque
M2.5 x 12.45 mm, Nickel coated (4)	Silver	1.5 ± 0.2 lb/in

Note: Clean all thermal grease that have been used and then apply new thermal grease. Apply new thermal grease at an amount of about 0.36 grams, on the part marked a as shown in the following illustration. Either too much or too less application of grease can cause a thermal problem due to imperfect contact with a component.



CMOS battery

Prerequisite

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

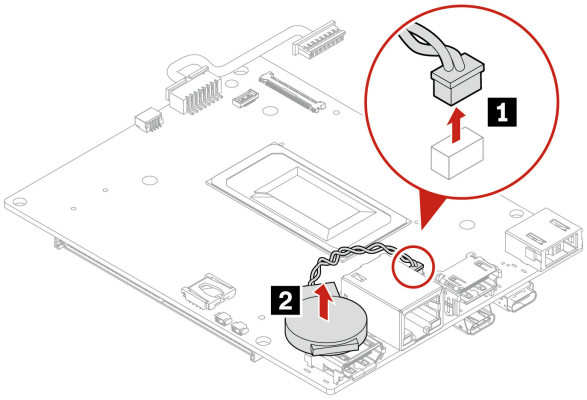


The heat sink might be very hot. Before you open the device cover, turn off the device and wait several minutes until the device is cool.

For access, do the following:

1. Turn off the device and remove all connected devices and cables.
2. Disconnect the device from ac power and all connected cables.
3. Unlock any locking device that secures the device.
4. Remove the following parts in order, if any:
   - “Power adapter, power cord, and power adapter cage” on page 15
   - “VESA mount brackets and screws” on page 16
   - “Cable management top cover and bottom cover” on page 17
   - “Top cover assembly” on page 19
   - “Memory modules and thermal pads” on page 19
   - “60-pin signal main cable” on page 21
   - “M.2 solid-state drive and thermal pad” on page 22
   - “Wi-Fi card and shield” on page 23
   - “50-pin signal slave cable” on page 24
   - “System board and I/O board assembly, heat sink, system fan, and step screw kits” on page 25

Removal steps



I/O power cable

Prerequisite

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

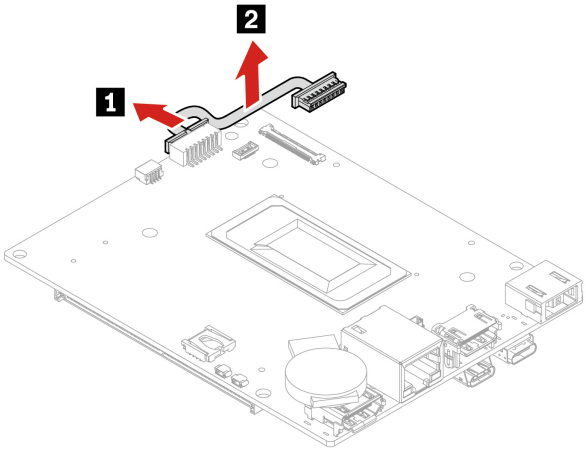


The heat sink might be very hot. Before you open the device cover, turn off the device and wait several minutes until the device is cool.

For access, do the following:

1. Turn off the device and remove all connected devices and cables.
2. Disconnect the device from ac power and all connected cables.
3. Unlock any locking device that secures the device.
4. Remove the following parts in order, if any:
   - “Power adapter, power cord, and power adapter cage” on page 15
   - “VESA mount brackets and screws” on page 16
   - “Cable management top cover and bottom cover” on page 17
   - “Top cover assembly” on page 19
   - “Memory modules and thermal pads” on page 19
   - “60-pin signal main cable” on page 21
   - “M.2 solid-state drive and thermal pad” on page 22
   - “Wi-Fi card and shield” on page 23
   - “50-pin signal slave cable” on page 24
   - “System board and I/O board assembly, heat sink, system fan, and step screw kits” on page 25

Removal steps



USB board and cable

Prerequisite

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

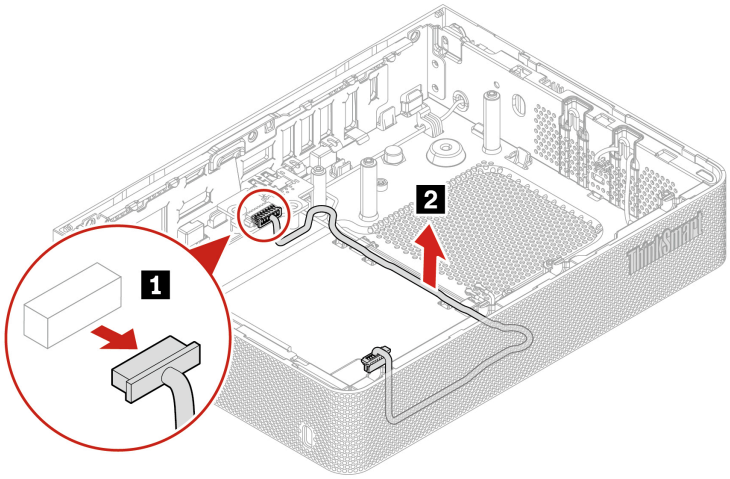


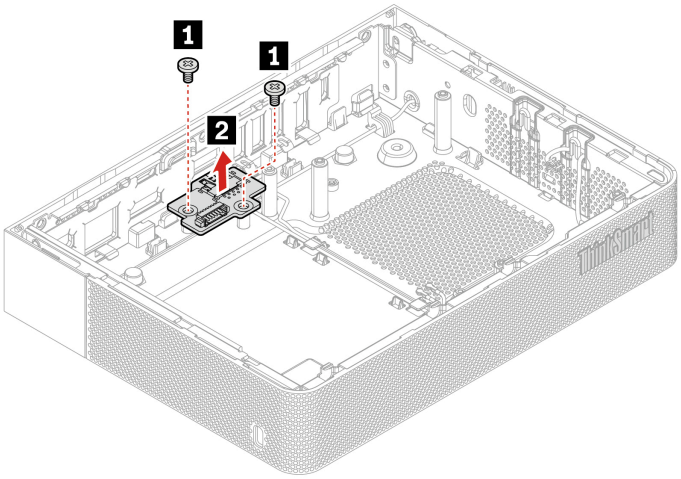
The heat sink might be very hot. Before you open the device cover, turn off the device and wait several minutes until the device is cool.

For access, do the following:

1. Turn off the device and remove all connected devices and cables.
2. Disconnect the device from ac power and all connected cables.
3. Unlock any locking device that secures the device.
4. Remove these parts, if any:
   - “Power adapter, power cord, and power adapter cage” on page 15
   - “VESA mount brackets and screws” on page 16
   - “Cable management top cover and bottom cover” on page 17
   - “Top cover assembly” on page 19
   - “Memory modules and thermal pads” on page 19
   - “60-pin signal main cable” on page 21
   - “M.2 solid-state drive and thermal pad” on page 22
   - “Wi-Fi card and shield” on page 23
   - “50-pin signal slave cable” on page 24
   - “System board and I/O board assembly, heat sink, system fan, and step screw kits” on page 25

Removal steps





Screw (quantity)	Color	Torque
M2 x 6.5 mm, Zn coated (2)	Black	1.5 ± 0.2 lb/in

Chapter 4. Help and support

This chapter provides help and support information for your product.

Self-help resources

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

Resources	How to access?
Lenovo Support Web site	https://smartsupport.lenovo.com
Product specifications	https://psref.lenovo.com
Serial number information	https://smartsupport.lenovo.com/solutions/ht512857
Windows help information	• Open the **Start** menu and click **Get Help** or **Tips**. • Use Windows Search. • Microsoft support Web site: https://support.microsoft.com
ThinkSmart Manager Services	https://support.lenovo.com/solutions/tsm
Microsoft Teams Rooms	https://learn.microsoft.com/MicrosoftTeams/rooms
Zoom Help Center	https://support.zoom.us/hc/categories/200108436
Lenovo Community	https://forums.lenovo.com

Additional services

Thank you, Lenovo customer, for your purchase of a ThinkSmart device.

During and after the warranty period, you can purchase additional services from Lenovo at: https://pcsupport.lenovo.com/warrantyupgrade. Service availability and service name might vary by country or region.

Call Lenovo

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

Before you contact Lenovo

Prepare the following before you contact Lenovo:

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

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2. Record the system information:
   - Product name
   - Machine type and serial number

Lenovo Customer Support Center

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

Telephone numbers

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

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

Services available during the warranty period

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

Services not covered

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

For the terms and conditions of the Lenovo Limited Warranty (LLW) that apply to your Lenovo hardware product, see the LLW documentation at:
https://www.lenovo.com/warranty/llw_02

The LLW is also preinstalled on your device. To access the LLW, go to the following directory:
`C:\Windows\System32\oobe\info\default`

Appendix A. Notices and trademarks

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Morrisville, NC 27560
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https://smartsupport.lenovo.com

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