

ThinkSmart Core Hardware Maintenance Manual

Lenovo
ThinkSmart

Lenovo

Read this first

Before using this documentation and the product it supports, ensure that you read and understand the following:

- *Generic Safety and Compliance Notices* at <https://smartsupport.lenovo.com/>
- Documentation in the box

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Contents

About this manual	.iii
------------------------------------	-------------

Chapter 1. Meet your device	1
--	----------

Chapter 2. General checkout	3
--	----------

Chapter 3. Service checkout and symptom-to-FRU index	5
---	----------

Service checkout	5
Problem determination tips	5
Symptom-to-FRU index	6
Power supply problems	6
POST error codes	7

Chapter 4. Hardware removal and installation	9
---	----------

Handling static-sensitive devices	9
Service tool kit	9
Major FRUs and CRUs	11
System board and Skype board	15
Looking up FRU information	16
Removing hardware	16
External options	16

Top cover	16
M.2 solid-state drive	18
Wi-Fi card	19
System board and heat sink	20
Video capture card	21
Skype board	22
System fan	23
Thermal sensor	24
Cable cover	25
Decor cover	25
Wi-Fi antenna cables	26

Chapter 5. Help and support	29
--	-----------

Self-help resources	29
Additional services	29
Call Lenovo	30
Before you contact Lenovo	30
Lenovo Customer Support Center	30

Chapter 6. Notices and trademarks	33
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About this manual

Illustrations in this manual might look different from your product.

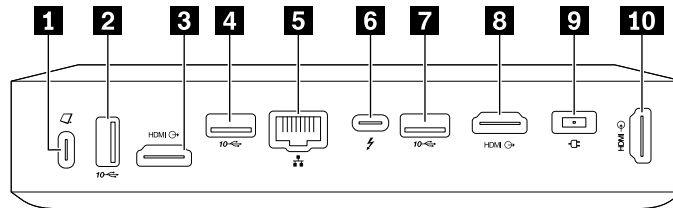
Use this manual along with the advanced diagnostic tests to troubleshoot problems.

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

Chapter 1. Meet your device

ThinkSmart Core is a modular conferencing solution to transform conferencing into a collaborative, productive, and smart experience. End users will enjoy the familiar conferencing application and IT administrators will enjoy the easily deployed and managed Windows operating system.

Connector overview



1 USB-C® (3.2 Gen 1) connector	Connect a USB-C compatible device for data transfer, such as ThinkSmart Controller.
2 USB 3.2 Gen 1 connector	Connect a USB-compatible device, such as a USB keyboard or USB mouse.
3 8 HDMI-out connector	Connect to an external HDMI™ display. This HDMI 1.4 connector supports display resolutions up to 3840 x 2160 pixels, 24 Hz.
4 7 USB 3.2 Gen 2 connector	Connect a USB-compatible device, such as a USB audio device or USB video device.
5 Ethernet connector	Connect to a local area network (LAN).
6 USB-C (Thunderbolt™ 4) connector	Connect a USB-C device for data transfer.
9 Power connector	Connect to a power supply.
10 HDMI-in connector*	Connect to your computer only. Note: Do not connect an external HDMI display to this connector.

* For selected models

Statement on USB transfer rate

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

USB device	Data rate (Gbit/s)
3.2 Gen 1 / 3.1 Gen 1	5
3.2 Gen 2 / 3.1 Gen 2	10
Thunderbolt 4	40

Chapter 2. General checkout

Some descriptions in this chapter might not apply to your particular product.

Before you go to the checkout guide, be sure to read the following important notes.

Important notes:

- **Only certified trained personnel should service the product.**
- **Before replacing any FRU, read the entire page on removing and replacing FRUs.**
- **When you replace FRUs, it is recommended to use new nylon-coated screws.**
- **Be extremely careful during such write operations as copying, saving, or formatting.** Drives in the product that you are servicing sequence might have been altered. If you select an incorrect drive, data or programs might be overwritten.
- **Replace a FRU only with another FRU of the correct model.** When you replace a FRU, ensure that the model of the machine and the FRU part number are correct.
- **a FRU should not be replaced because of a single, unreproducible failure.** Single failures can occur for a variety of reasons that have nothing to do with a hardware defect, such as cosmic radiation, ESD, or software errors. Consider replacing a FRU only when a problem recurs. If you suspect that a FRU is defective, clear the error log and run the test again. If the error does not recur, do not replace the FRU.
- **Be careful not to replace a nondefective FRU.**

What to do first

When you return a FRU, you must include the following information in the parts exchange form or parts return form that you attach to it:

1. Name and phone number of service technician
2. Date of service
3. Date on which the machine failed
4. Date of purchase
5. Failure symptoms, error codes appearing on the display, and beep symptoms
6. Procedure index and page number in which the failing FRU was detected
7. Failing FRU name and part number
8. Machine type, model number, and serial number
9. Customer's name and address

Note: During the warranty period, the customer may be responsible for repair costs if the product damage was caused by misuse, accident, modification, unsuitable physical or operating environment, or improper maintenance by the customer. Following is a list of some common items that are not covered under warranty and some symptoms that might indicate that the system was subject to stress beyond normal use.

Before checking problems with the product, determine whether the damage is covered under the warranty by referring to the following list:

The following are not covered under warranty:

- Display cracked from the application of excessive force or from being dropped
- Scratched (cosmetic) component
- Distortion, deformation, or discoloration of the cosmetic component
- Plastic parts, latches, pins, or connectors that have been cracked or broken by excessive force
- Damage caused by liquid spilled into the system
- Damage caused by the improper insertion of a PC Card or the installation of an incompatible card
- Forgotten product password (making the product unusable)

- Use of an incorrect ac power adapter on laptop products

The following symptoms might indicate damage caused by nonwarranted activities:

- Missing parts might be a symptom of unauthorized service or modification.
- Check for obvious damage to a hard disk drive. If the spindle of a hard disk drive becomes noisy, the hard disk drive might have been dropped or subject to excessive force.

Chapter 3. 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 product 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 product 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 product.
 - 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 5.

If you *do* receive the correct response, proceed to step 7 on page 5.
6. Look at the following conditions and follow the instructions:
 - If the product displays a POST error, go to “POST error codes” on page 7.
 - If the product hangs and no error is displayed, continue at step 7 on page 5.
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?

- 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 type 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 5. This index can also be used to help you decide which FRUs to have available when servicing a product.

Notes:

- The Symptom-to-FRU index is not specific to any machine type and are applicable to all products.
- 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 are 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 to remove some add-on cards, or change 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 4. Hardware removal and installation

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

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 product components and options.

When you handle options and other product 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 product 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 product components.
- Touch the static-protective package containing the part to a metal expansion-slot cover or other unpainted metal surface on the product 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 product 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 product cover or other metal surface.

Service tool kit

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

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

No.	Tool name	Specific	Product scope	Tool type
7	Screw driver: Torx Head T15	T15, for Chassis outside	ThinkStation	Common tool
8	Screw driver: Torx Head T20	T20, Shank length greater than 6 inches, for heatsink and CPU	ThinkStation	Common tool
9	Screw driver: 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 Tiny antenna)	H8 mm	ThinkCentre/Tiny	Common tool
16	Silicone grease for CPU or heatsink repairing	N/A	All	Consumable
17	Polyamide tape	N/A	All	Consumable
18	Mylar tape	N/A	All	Consumable
19	Eraser	N/A	All	Consumable
20	Electrical tape	N/A	All	Consumable
21	Double sided tape	N/A	All	Consumable
22	Conductive tape	N/A	All	Consumable
23	Cleaning pads/wipes	N/A	All	Consumable

No.	Tool name	Specific	Product scope	Tool type
24	Heat gun	N/A	All	Special tool
25	Brown brush	25 mm to 35 mm wide	All	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.

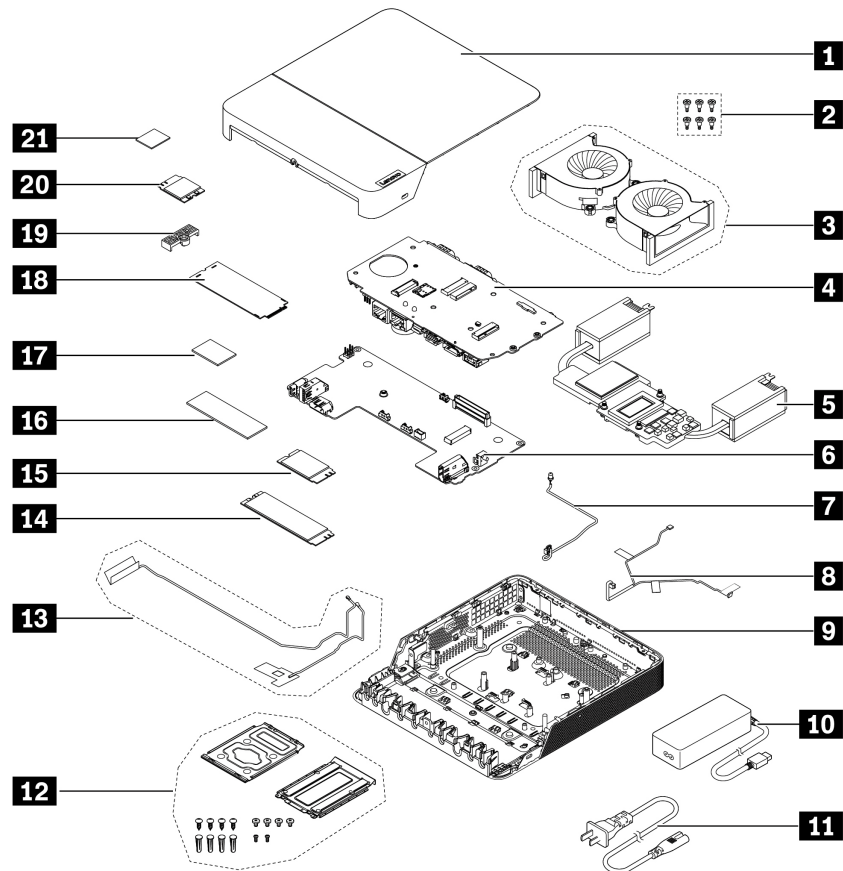
Major FRUs and CRUs

Your product contains the following types of CRUs and FRUs:

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

For detailed FRU and CRU information, such as the FRU part numbers and supported models, go to:

<http://www.lenovo.com/serviceparts-lookup>

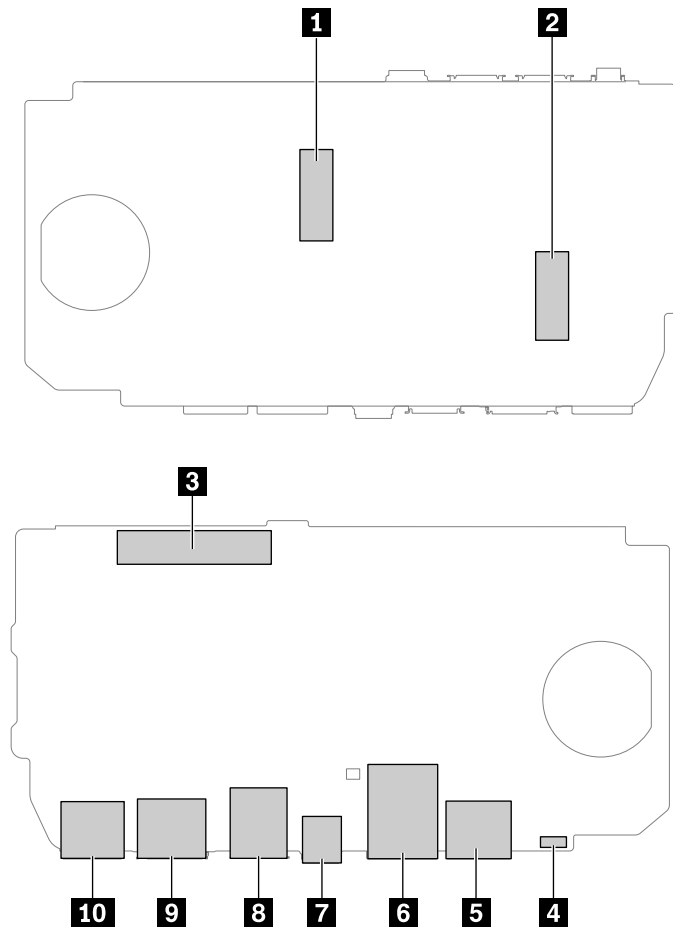


Number	Description	Self-service CRU	Optional-service CRU
1	Top cover	No	No
2	Fan screws	Yes	No
3	System fan	No	No
4	System board	No	No
5	Heat sink	No	No
6	Skype board	No	No
7	LED cable	No	No
8	Thermal sensor	No	No
9	Bottom chassis	No	No
10	Power adapter	Yes	No
11	Power cord	Yes	No
12	Accessory bag (including VESA mount brackets and screws)	Yes	No
13	Wi-Fi antenna cables (2)	No	No
14 15	Solid-state drive	No	No
16 17	Solid-state drive thermal pad	No	No

Number	Description	Self-service CRU	Optional-service CRU
18	Video capture card	No	No
19	Wi-Fi card shield	No	No
20	Wi-Fi card	No	No
21	Wi-Fi card thermal pad	No	No

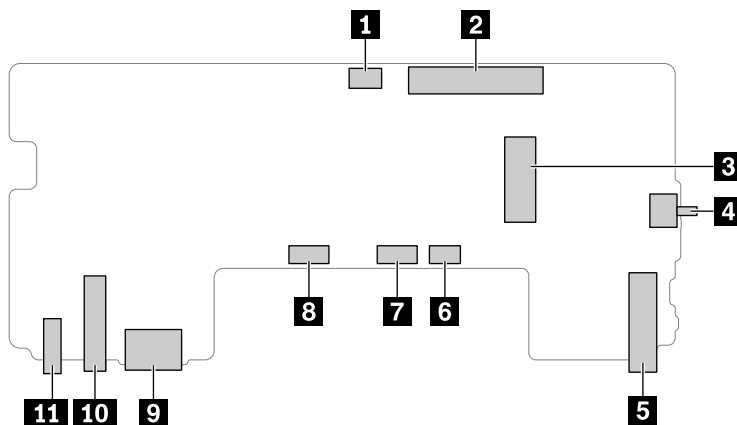
System board and Skype board

System board



1 M.2 solid-state drive slot	2 Wi-Fi card slot
3 Board-to-board connector	4 Clear CMOS (Complementary Metal Oxide Semiconductor)
5 USB-A connector	6 Ethernet connector
7 USB-C connector	8 USB-A connector
9 HDMI-out connector	10 DC-in connector

Skype board



1 LED cable connector	2 Board-to-board connector
3 Video capture card slot	4 Power button
5 HDMI-in connector	6 Thermal sensor connector
7 8 System fan cable connector	9 HDMI-out connector
10 USB-A connector	11 USB-C connector

Looking up FRU information

For detailed FRU information, including part numbers, descriptions, and substitution part numbers, go to:
<https://support.lenovo.com/partslookup>

Removing hardware

This section provides instructions on how to remove and install hardware for ThinkSmart Core. You can expand the capabilities of your product and maintain your product by removing or installing hardware.

To remove and install the ThinkSmart Bar, ThinkSmart Bar XL, and ThinkSmart Cam, refer to the *Quick Start Guide*.

Attention: Do not open your product 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 the ThinkSmart Core. For some external options, you must install additional software in addition to making the physical connection. When installing an external option, see “ThinkSmart Core connector overview” on page 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.

Top cover

Prerequisite

Before you start, read *Generic Safety and Compliance Notices* at <https://smartsupport.lenovo.com/> and print the following instructions.

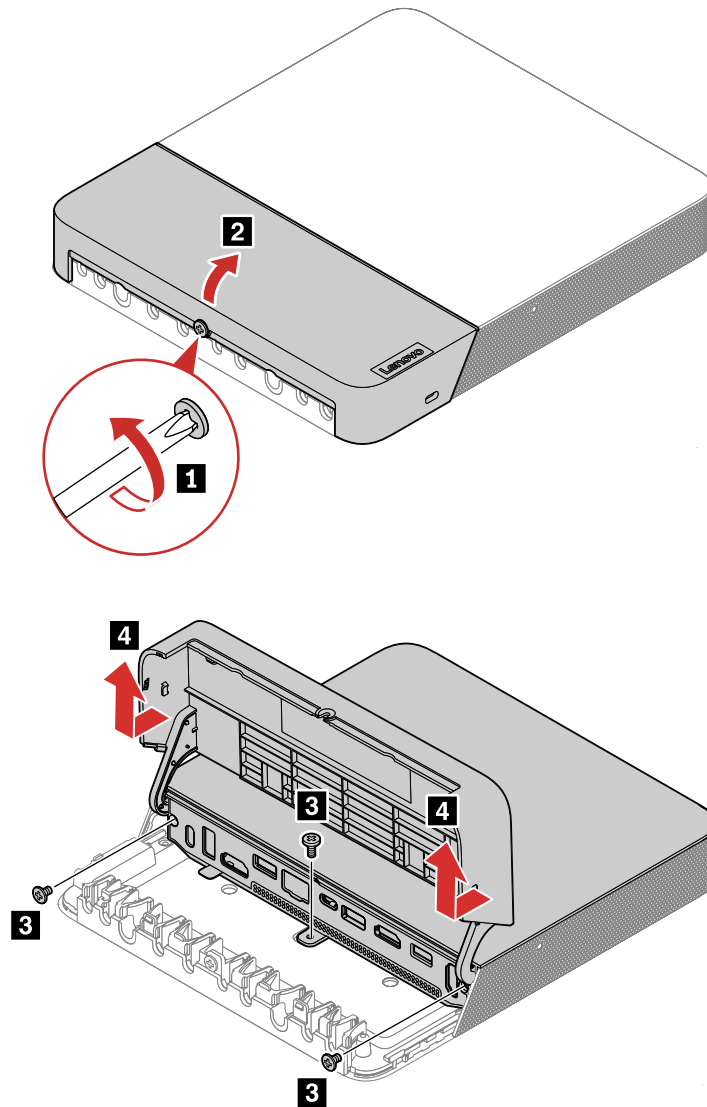


Before you open the top cover, turn off the Core and wait several minutes until the Core is cool.

For access, do the following:

1. Disconnect the power cord from electrical outlet and disconnect all the cables from the Core.
2. Place a clean soft cloth, and then lay down the Core with the top cover facing up.

Removal step



Step	Screw (quantity)	Color	Torque
1	M2 × 10 mm, zinc-nickel alloy, flat head (1)	Black	0.18 ± 0.015 Nm (1.85 ± 0.15 kgf-cm)
3	M2 × 3.5 mm, nickel, flat head (3)	Black	0.18 ± 0.015 Nm (1.85 ± 0.15 kgf-cm)

M.2 solid-state drive

Prerequisite

Before you start, read *Generic Safety and Compliance Notices* at <https://smartsupport.lenovo.com/> and print the following instructions.



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

Attention:

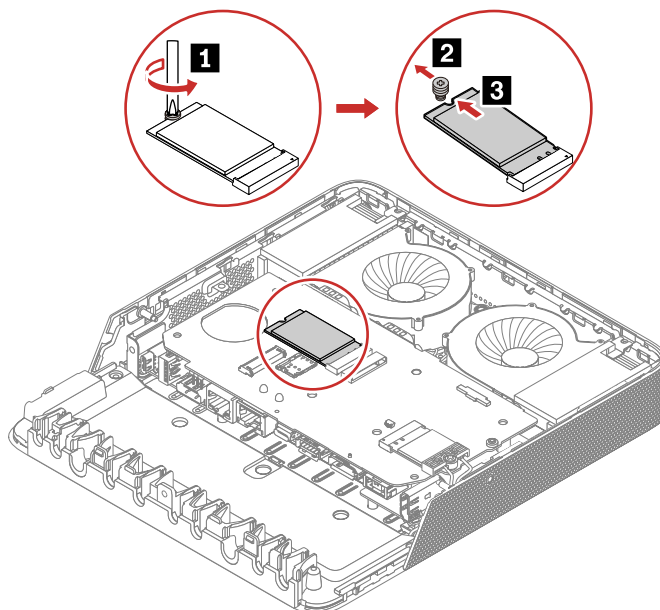
- The M.2 solid-state drive is sensitive. Inappropriate handling might cause damage and permanent loss of data. When handling the M.2 solid-state drive, observe the following guidelines:
 - Replace the M.2 solid-state drive only for upgrade or repair. The M.2 solid-state drive is not designed for frequent changes or replacement.
 - Before replacing the M.2 solid-state drive, make a backup copy of all the data that you want to keep.
 - Do not touch the contact edge of the M.2 solid-state drive. Otherwise, the M.2 solid-state drive might get damaged.
 - Do not apply pressure to the M.2 solid-state drive.
 - Do not make the M.2 solid-state drive subject to physical shocks or vibration. Put the M.2 solid-state drive on a soft material, such as cloth, to absorb physical shocks.

For access:

1. Remove the top cover. See “Top cover” on page 16.
2. Remove the thermal pad if any.

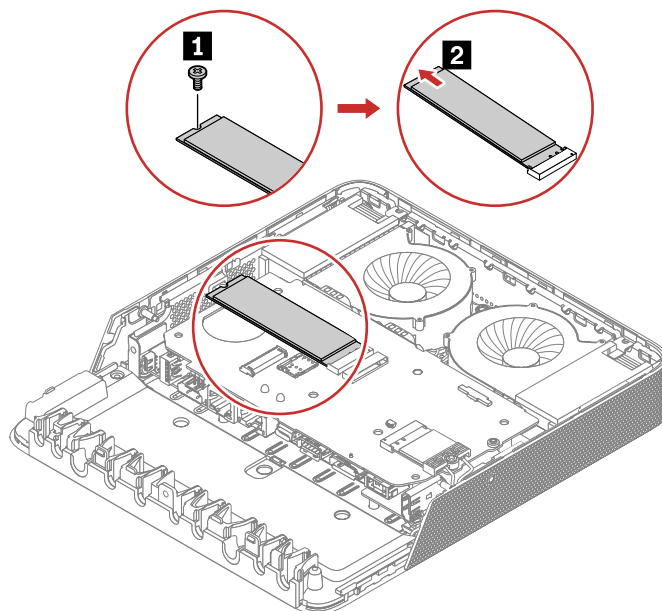
Removal step

- Type I



Step	Screw (quantity)	Color	Torque
2	M2 × 4 mm, nickel, flat head (1)	Black	0.18 ± 0.015 Nm (1.85 ± 0.15 kgf-cm)

- Type II



Step	Screw (quantity)	Color	Torque
1	M2 × 3.5 mm, nickel, flat head (1)	Black	0.18 ± 0.015 Nm (1.85 ± 0.15 kgf-cm)

Wi-Fi card

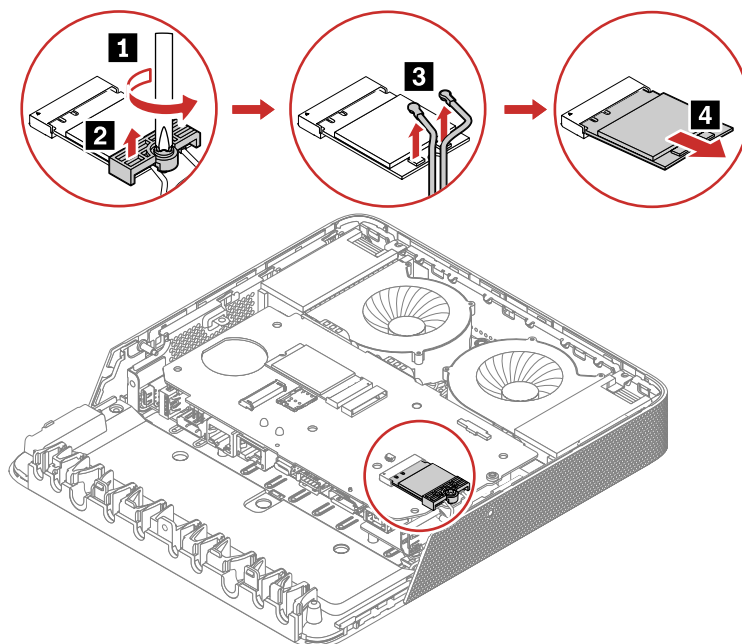
Prerequisite

Before you start, read *Generic Safety and Compliance Notices* at <https://smartsupport.lenovo.com/> and print the following instructions.

For access:

1. Remove the top cover. See “Top cover” on page 16.
2. Remove the thermal pad if any.

Removal step



Step	Screw (quantity)	Color	Torque
1	M2 × 3 mm, nickel, with cover, round head (1)	Silver	0.18 ± 0.015 Nm (1.85 ± 0.15 kgf-cm)

System board and heat sink

Prerequisite

Before you start, read *Generic Safety and Compliance Notices* at <https://smartsupport.lenovo.com/> and print the following instructions.

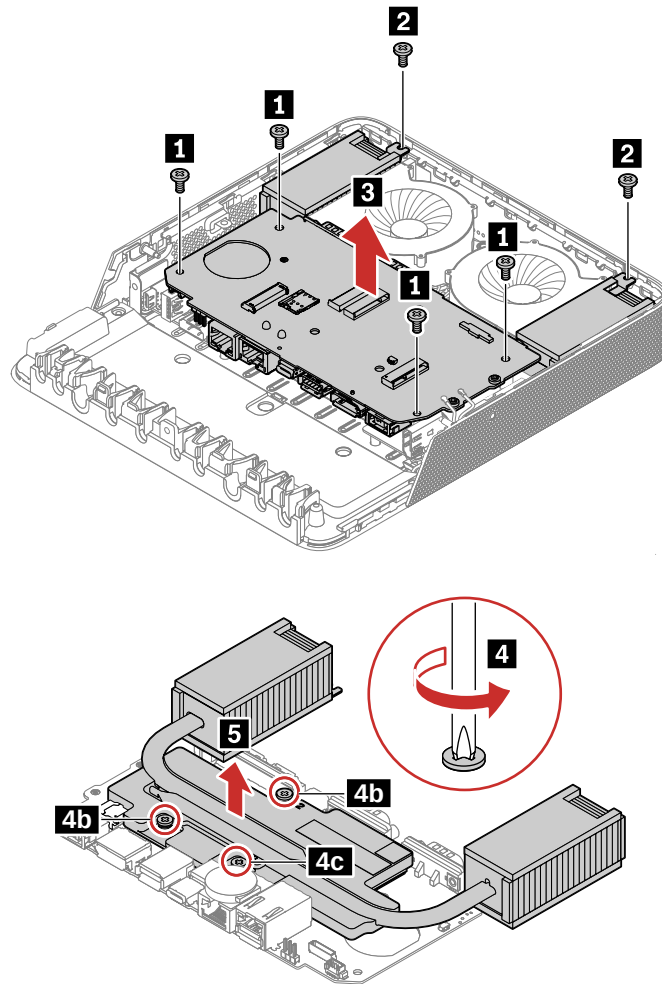


The heat sink might be very hot. Before you open the bottom cover, turn off the Core and wait several minutes until the Core is cool.

For access, remove the following FRUs:

- “Top cover” on page 16
- “M.2 solid-state drive” on page 18
- “Wi-Fi card” on page 19

Removal steps



Step	Screw (quantity)	Color	Torque
1 2	M2 × 3.5 mm, nickel, flat head (6)	Black	0.18 ± 0.015 Nm (1.85 ± 0.15 kgf-cm)
4	M2 × 12 mm, flat head (3)	Silver	0.18 ± 0.015 Nm (1.85 ± 0.15 kgf-cm)

Video capture card

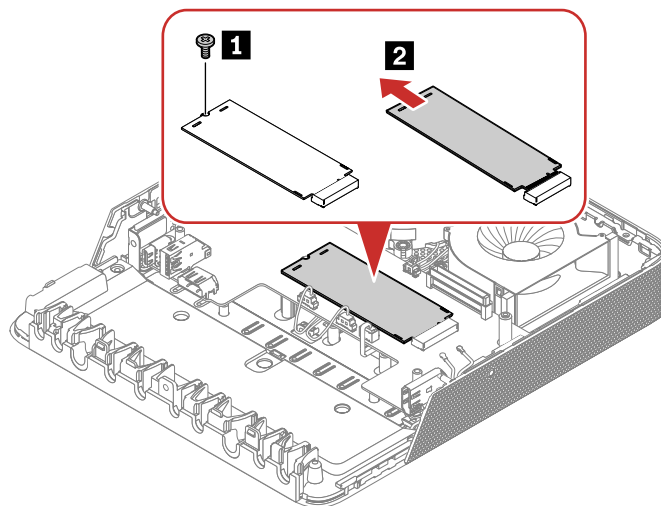
Prerequisite

Before you start, read *Generic Safety and Compliance Notices* at <https://smartsupport.lenovo.com/> and print the following instructions.

For access, remove the following FRUs:

- “Top cover” on page 16
- “M.2 solid-state drive” on page 18
- “Wi-Fi card” on page 19
- “System board and heat sink” on page 20

Removal step



Step	Screw (quantity)	Color	Torque
1	M2 × 3.5 mm, nickel, flat head (1)	Black	0.18 ± 0.015 Nm (1.85 ± 0.15 kgf-cm)

Skype board

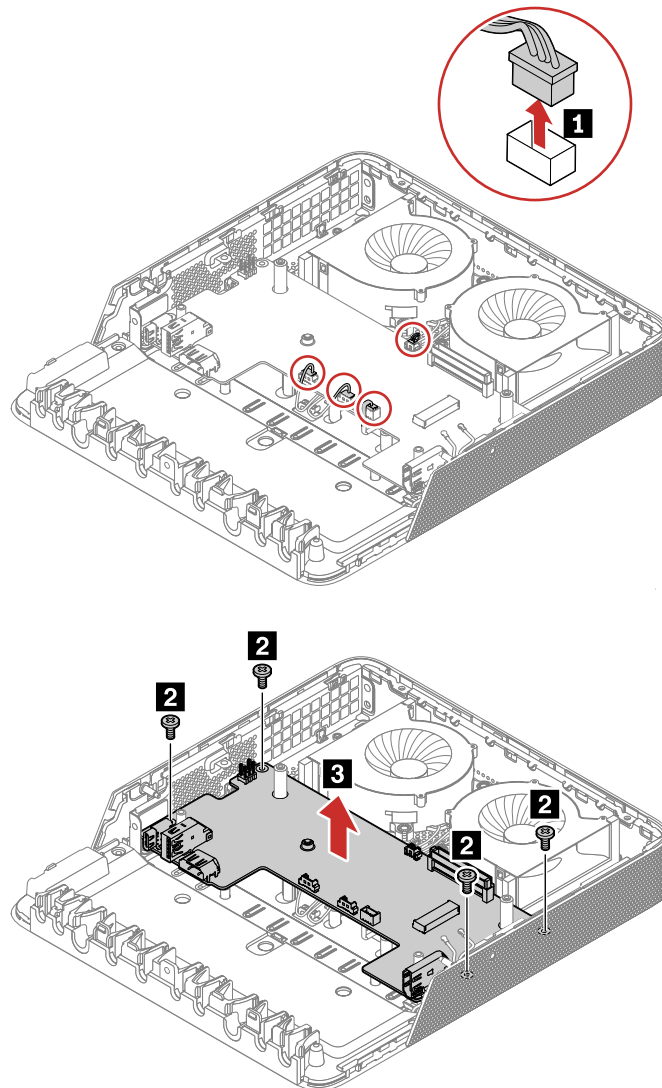
Prerequisite

Before you start, read *Generic Safety and Compliance Notices* at <https://smartsupport.lenovo.com/> and print the following instructions.

For access, remove the following FRUs:

- “Top cover” on page 16
- “M.2 solid-state drive” on page 18
- “Wi-Fi card” on page 19
- “System board and heat sink” on page 20
- “Video capture card” on page 21

Removal steps



Step	Screw (quantity)	Color	Torque
2	M2 × 3.5 mm, nickel, flat head (4)	Black	0.18 ± 0.015 Nm (1.85 ± 0.15 kgf-cm)

System fan

Prerequisite

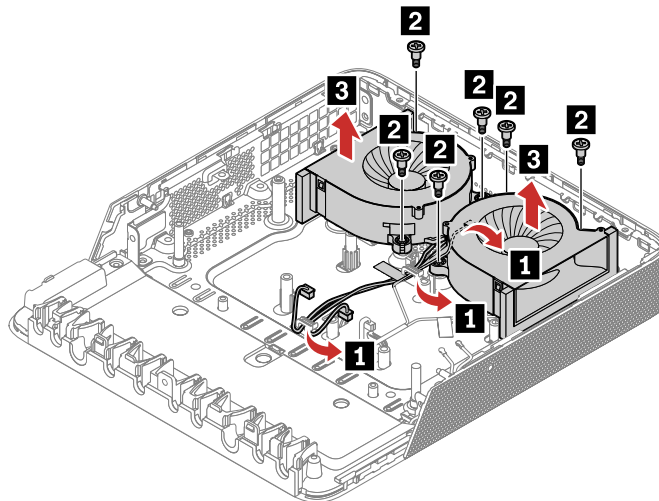
Before you start, read *Generic Safety and Compliance Notices* at <https://smartsupport.lenovo.com/> and print the following instructions.

For access, remove the following FRUs:

- “Top cover” on page 16
- “M.2 solid-state drive” on page 18
- “Wi-Fi card” on page 19

- “System board and heat sink” on page 20
- “Video capture card” on page 21
- “Skype board” on page 22

Removal step



Step	Screw (quantity)	Color	Torque
2	M2 × 8.1 mm, nickel, flat head (6)	Black	0.18 ± 0.015 Nm (1.85 ± 0.15 kgf-cm)

Thermal sensor

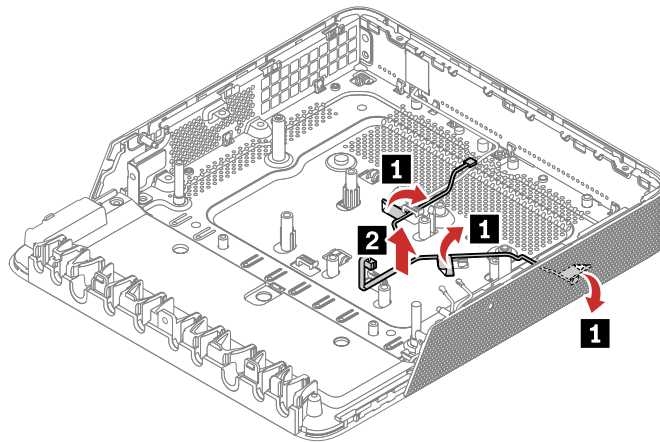
Prerequisite

Before you start, read *Generic Safety and Compliance Notices* at <https://smartsupport.lenovo.com/> and print the following instructions.

For access, remove the following FRUs:

- “Top cover” on page 16
- “M.2 solid-state drive” on page 18
- “Wi-Fi card” on page 19
- “System board and heat sink” on page 20
- “Video capture card” on page 21
- “Skype board” on page 22
- “System fan” on page 23

Removal step



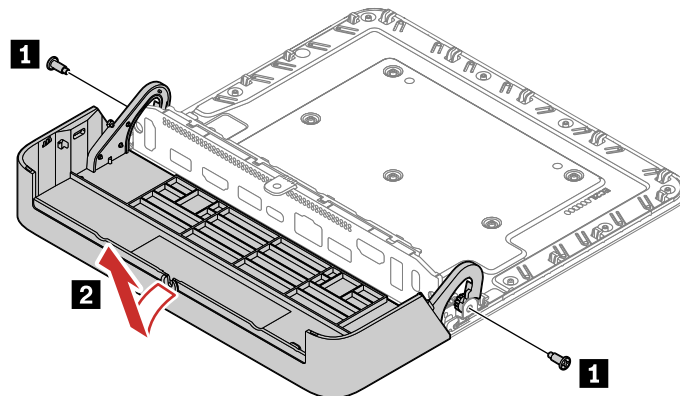
Cable cover

Prerequisite

Before you start, read *Generic Safety and Compliance Notices* at <https://smartsupport.lenovo.com/> and print the following instructions.

For access, remove the top cover. See “Top cover” on page 16.

Removal step



Step	Screw (quantity)	Color	Torque
1	M2 × 8.1 mm, nickel, flat head (2)	Black	0.18 ± 0.015 Nm (1.85 ± 0.15 kgf-cm)

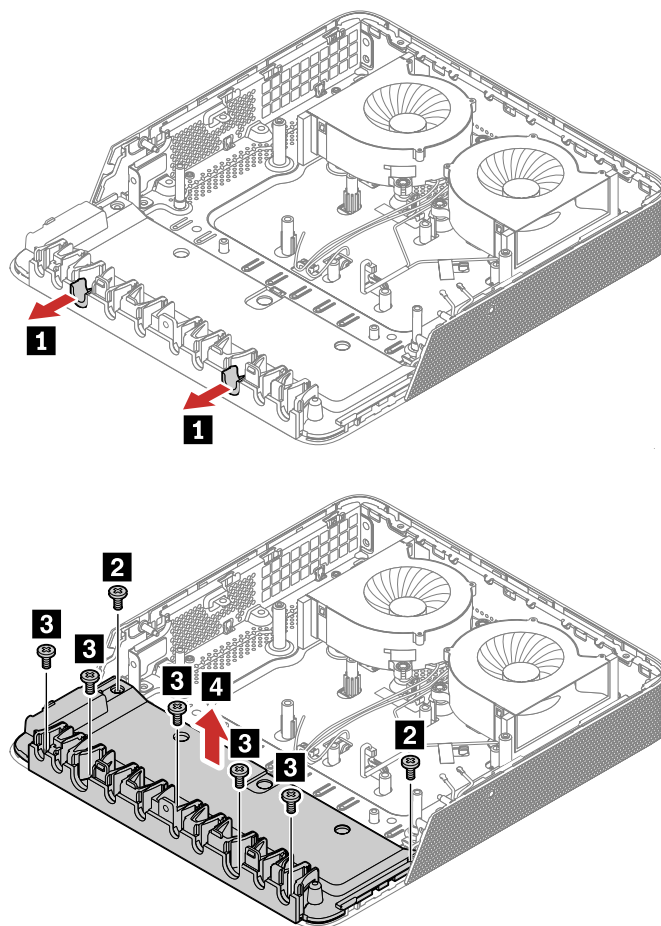
Decor cover

Prerequisite

Before you start, read *Generic Safety and Compliance Notices* at <https://smartsupport.lenovo.com/> and print the following instructions.

For access, remove the top cover. See “Top cover” on page 16.

Removal step



Step	Screw (quantity)	Color	Torque
2 3	M2 × 3.5 mm, nickel, flat head (7)	Black	0.18 ± 0.015 Nm (1.85 ± 0.15 kgf-cm)

Wi-Fi antenna cables

Prerequisite

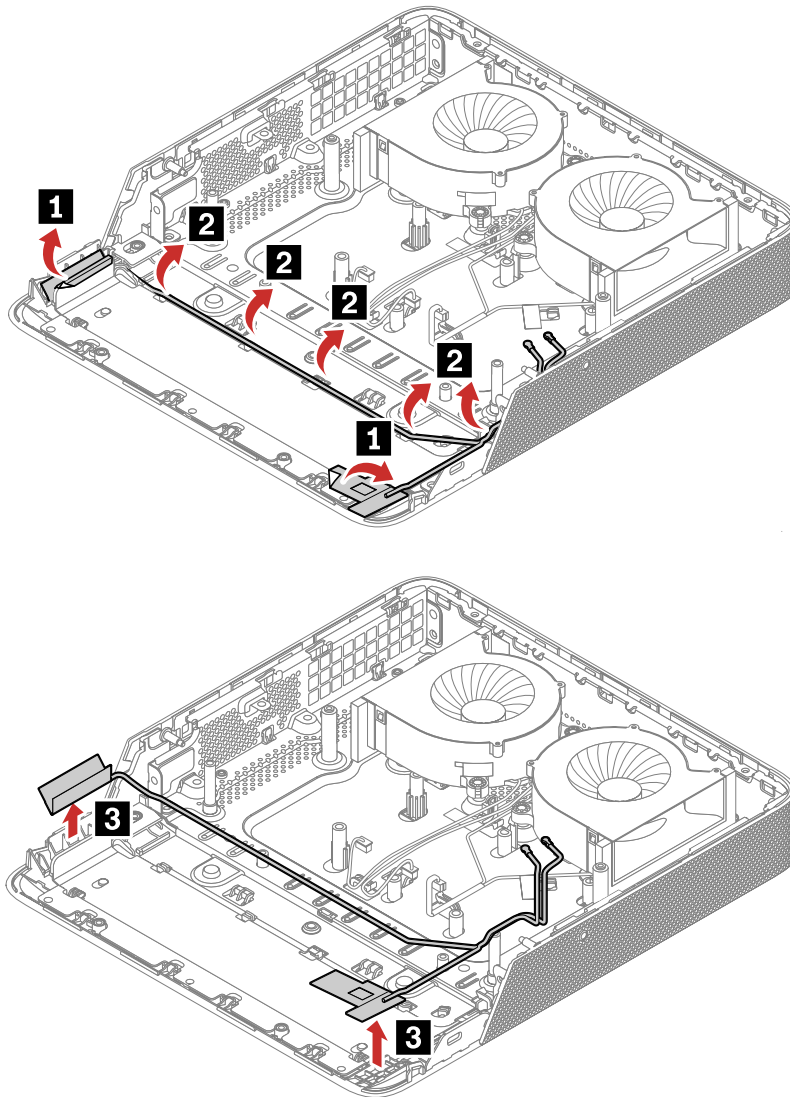
Before you start, read *Generic Safety and Compliance Notices* at <https://smartsupport.lenovo.com/> and print the following instructions.

For access, remove the following FRUs:

- “Top cover” on page 16
- “M.2 solid-state drive” on page 18
- “Wi-Fi card” on page 19
- “System board and heat sink” on page 20
- “Video capture card” on page 21
- “Skype board” on page 22

- “Decor cover” on page 25

Removal step



Chapter 5. 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?
Product documentation: • <i>Deployment and User Guide</i> • Documentation in the box • This <i>Hardware Maintenance Manual</i> • <i>Regulatory Notice</i>	Go to https://smartsupport.lenovo.com/ . Then, follow the on-screen instructions to filter out the documentation you want.
Lenovo Support Web site with the latest support information of the following: • Drivers and software • Diagnostic solutions • Product and service warranty • Product and parts details • Knowledge base and frequently asked questions	https://smartsupport.lenovo.com/
Windows help information	• Open the Start menu and click Get Help or Tips. • Use Windows Search or the Cortana® personal assistant. • Microsoft support Web site: https://support.microsoft.com
Accessibility information	https://www.lenovo.com/accessibility

Additional services

Thank you, Lenovo customer, for your purchase of a Lenovo product.

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.

We expect you will have years of productive meeting experiences with our collaboration solution. To assist you in getting this collaboration solution installed in your environment, we have included two of our most popular ThinkSmart services: Deploy and Maintain.

Customer Action

You must register this service with Lenovo so a service technician can contact you to schedule initial deployment service:

<https://support.lenovo.com/us/en/professionalserviceregistration>

To register, please provide the contact information for the person we should engage with, along with purchase information (place and date of purchase along with sales order or invoice number).

Included Services

- **Deploy:** A ThinkSmart service to help setup, configure and integrate collaboration solution devices into your environment. All deployments include full documentation reports after complete.
- **Maintain:** A one-year (renewable) maintenance contract where technicians will assist with updates and device changes and provide easy to follow Do's and Don'ts. Device operability health check ins will ensure collaboration solution is healthy and running smoothly. Redeployment of solution, if required, into a different meeting space is included.

Note: These services are delivered virtually, with multi-lingual technicians available WW, ready to handle live support via video meeting, phone, email, or IM.

Call Lenovo

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

Before you contact Lenovo

Prepare the following before you contact Lenovo:

1. Record the problem symptoms and details:
 - What is the problem? Is it continuous or intermittent?
 - Any error message or error code?
 - What operating system are you using? Which version?
 - Which software applications were running at the time of the problem?
 - Can the problem be reproduced? If so, how?
2. Record the system information:
 - Product name
 - Machine type and serial number (on the bottom of the product)

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/supportphonenumberlist>

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

Services available during the warranty period

- Problem determination - Trained personnel are available to assist you with determining if you have a hardware problem and deciding what action is necessary to fix the problem.
- Lenovo hardware repair - If the problem is determined to be caused by Lenovo hardware under warranty, trained service personnel are available to provide the applicable level of service.

- Engineering change management - Occasionally, there might be changes that are required after a product has been sold. Lenovo or your reseller, if authorized by Lenovo, will make selected Engineering Changes (ECs) that apply to your hardware available.

Services not covered

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

For the terms and conditions of the Lenovo Limited Warranty that apply to your Lenovo hardware product, see the Lenovo Limited Warranty documentation at:

https://www.lenovo.com/warranty/llw_02

The LLW also is preinstalled on ThinkSmart Core. To access the LLW, go to the following directory:

C:\Windows\System32\oobe\info\default

Chapter 6. Notices and trademarks

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