

Notebook Computer

NS70AU / NS71AU

Service Manual

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Version 1.0
April 2023

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About this Manual

This manual is intended for service personnel who have completed sufficient training to undertake the maintenance and inspection of personal computers.

It is organized to allow you to look up basic information for servicing and/or upgrading components of the *NS70AU* / *NS71AU* series notebook PC.

The following information is included:

Chapter 1, Introduction, provides general information about the location of system elements and their specifications.

Chapter 2, Disassembly, provides step-by-step instructions for disassembling parts and subsystems and how to upgrade elements of the system.

Appendix A, Part Lists

Appendix B, Schematic Diagrams

IMPORTANT SAFETY INSTRUCTIONS

Follow basic safety precautions, including those listed below, to reduce the risk of fire, electric shock and injury to persons when using any electrical equipment:

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit with an AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19V, 4.74A (**90** Watts) minimum AC/DC Adapter.

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

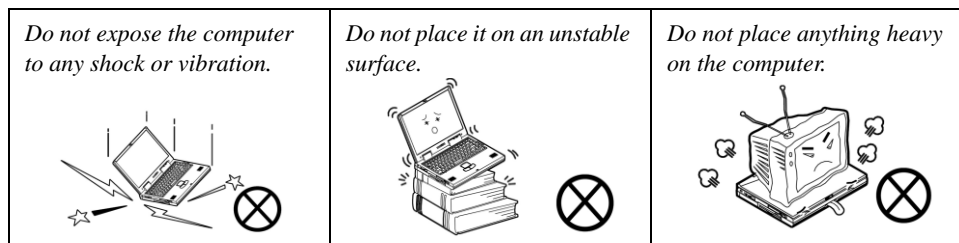
This device may not cause harmful interference.

This device must accept any interference received, including interference that may cause undesired operation.

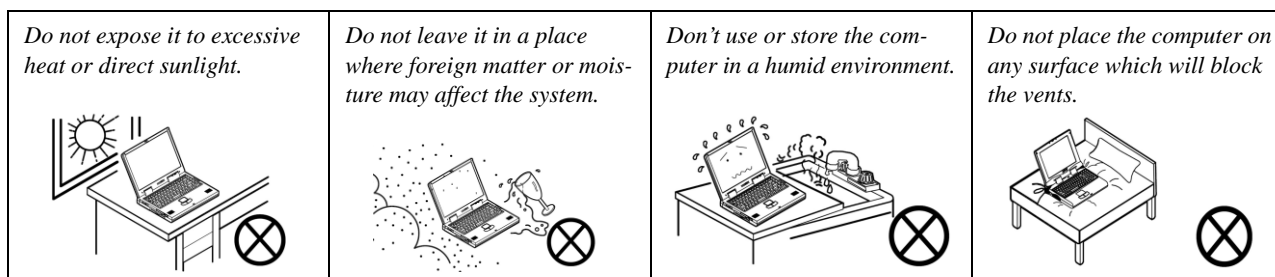
Instructions for Care and Operation

The notebook computer is quite rugged, but it can be damaged. To prevent this, follow these suggestions:

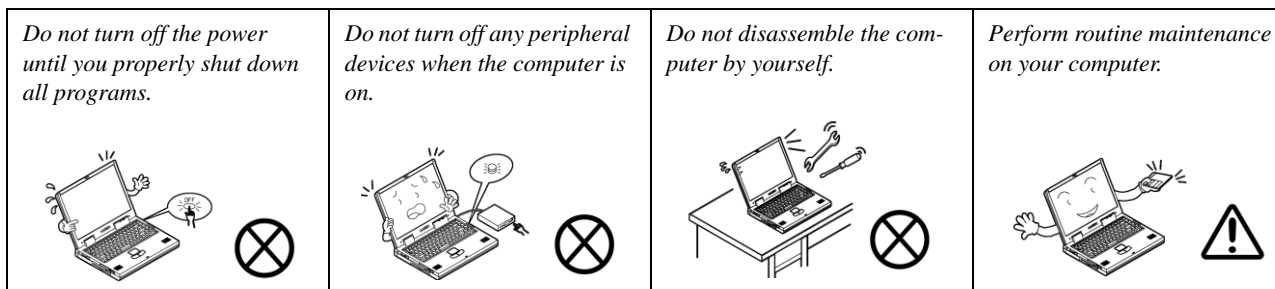
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



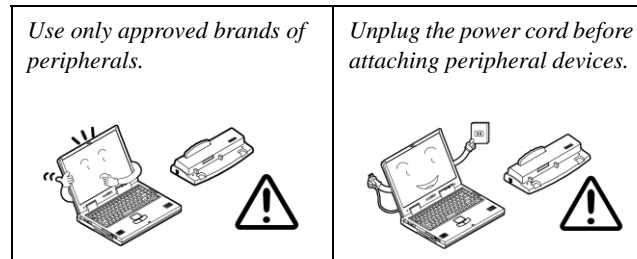
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.



3. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.



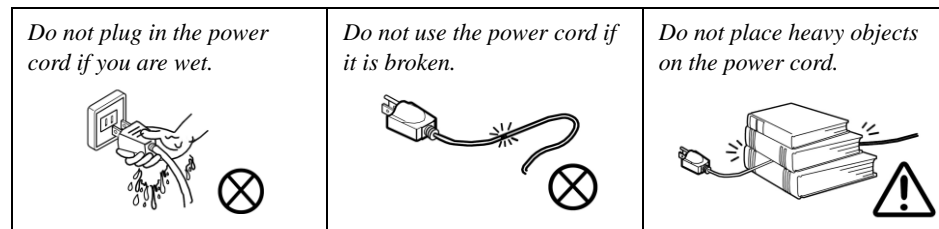
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



Power Safety

The computer has specific power requirements:

- Only use a power adapter approved for use with this computer.
- Your AC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your service representative or local power company.
- The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.
- When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.
- Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.
- Before cleaning the computer, make sure it is disconnected from any external power supplies.



Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not continue to use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire.
- Recharge the batteries using the notebook's system. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack. Refer any battery pack repair or replacement to your service representative or qualified service personnel.
- Keep children away from, and promptly dispose of a damaged battery. Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.
- Keep the battery away from metal appliances.
- Affix tape to the battery contacts before disposing of the battery.
- Do not touch the battery contacts with your hands or metal objects.

Battery Guidelines

The following can also apply to any backup batteries you may have.

- If you do not use the battery for an extended period, then remove the battery from the computer for storage.
- Before removing the battery for storage charge it to 60% - 70%.
- Check stored batteries at least every 3 months and charge them to 60% - 70%.




Battery Disposal

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

Caution

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

Battery Level

Click the battery icon  in the taskbar to see the current battery level and charge status. A battery that drops below a level of 10% will not allow the computer to boot up. Make sure that any battery that drops below 10% is recharged within one week.

Related Documents

You may also need to consult the following manual for additional information:

User's Manual on CD/DVD

This describes the notebook PC's features and the procedures for operating the computer and its ROM-based setup program. It also describes the installation and operation of the utility programs provided with the notebook PC.

System Startup

1. Remove all packing materials.
2. Place the computer on a stable surface.
3. Securely attach any peripherals you want to use with the computer (e.g. keyboard and mouse) to their ports.
4. **When first setting up the computer use the following procedure** (as to safeguard the computer during shipping, the battery will be locked to not power the system until first connected to the AC/DC adapter and initially set up as below):
 - Attach the AC/DC adapter cord to the DC-In jack on the left of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter. The battery will now be unlocked.
5. Use one hand to raise the lid/LCD to a comfortable viewing angle (do not exceed 180 degrees); use the other hand (as illustrated in Figure 1) to support the base of the computer (**Note: Never** lift the computer by the lid/LCD).
6. Press the power button on the left side of the computer to turn it on (note that the lid/LCD must be open for the power button to function).

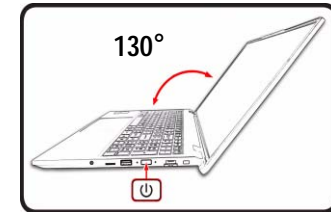
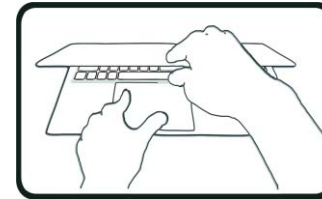
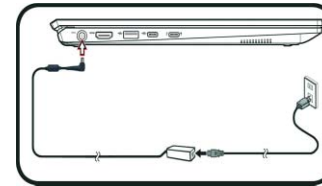




Figure 1
Opening the Lid/LCD/Computer with AC/DC Adapter Plugged-In

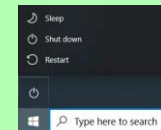
Powering the Computer On

After every disassembly, make sure that the bottom case's screws are all inserted and tightened before turning the computer on.

Shut Down

Note that you should always shut your computer down by choosing the **Shut down** command in **Windows** (see below). This will help prevent hard disk or system problems.

1. Click the Start Menu icon .
2. Click the **Power** item .
3. Choose **Shut down** from the menu.



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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the *NS70AU / NS71AU* series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in the *User's Manual*. The manual is shipped with the computer.

Operating systems (e.g. *Windows 11*, etc.) have their own manuals as do application softwares (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The *NS70AU / NS71AU* series notebook is designed to be upgradeable. See [Disassembly on page 2 - 1](#) for a detailed description of the upgrade procedures for each specific component. Please take note of the warning and safety information indicated by the “” symbol.

The balance of this chapter reviews the computer's technical specifications and features.

Introduction

Specifications



Latest Specification Information

The specifications listed in this section are correct at the time of going to press. Certain items (particularly processor types/speeds) may be changed, delayed or updated due to the manufacturer's release schedule. Check with your service center for details.

Note that this computer model series may support a range of CPUs and/or video adapters.

To find out which CPU is installed on your system go to the **Start** menu and select **Settings**, and then select **System** and click **About**. This will also provide information on the amount of **Installed RAM** etc.

To get information on your system's **video adapter** go to the **Start** menu and select **Settings**, and then select **System** and click **Display > Advanced display settings > Display adapter properties**.



CPU

The CPU is not a user serviceable part. Accessing the CPU in any way may violate your warranty.

Processor Options

i7-1355U (1.70GHz), TDP 15W
i5-1335U (1.30GHz), TDP 15W
i3-1315U (1.20GHz), TDP 15W

BIOS

256Mb SPI Flash ROM
Insyde BIOS

Memory

Dual Channel DDR5
Two 262 Pin SO-DIMM Socket Supporting **DDR5 5600MHz** Memory
Memory Expandable up to **64GB**
Compatible with 8GB,16GB or 32GB Modules

(The real memory operating frequency depends on the processor and memory modules.)

LCD Options

LCD, 17.3" (43.94cm), 16:9, FHD (1920x1080)

Storage

Two M.2 2280 **PCIe Gen4 x4** SSDs supporting RAID level 0/1

Security

Security (Kensington® Type) Lock Slot
BIOS Password
Intel PTT for Systems Without TPM Hardware
(**Factory Option**) TPM 2.0

Video Adapter

Intel® Iris Xe Graphics (i7-1355U / i5-1335U)
Intel Xe Micro Architecture
Variable Rate Shading
Microsoft DirectX® 12 Compatible
Intel® DLBoost: DP4A
Intel UHD Graphics (i3-1315U)
HDR Support
Rec. 2020
Microsoft DirectX® 12 Compatible

Pointing Device

Built-in Touchpad (with Microsoft PTP Multi Gesture & Scrolling Functionality)

Keyboard

Full-size Keyboard
Or
(**Factory Option**) Full-size **White-LED** Keyboard

Audio

High Definition Audio Compliant Interface
Sound Blaster Studio
Built-In Array Microphone
Two Speakers

M.2 Slots

Slot 1 for **WLAN and Bluetooth** Combo Module
Slot 2 for **PCIe Gen4 x4 SSD**
Slot 3 for **SATA or PCIe Gen3 x4 SSD**

Card Reader

MicroSD Card Reader

Interface

One USB 2.0 Port

One USB 3.2 Gen 2 Type-A Port

Or

(Factory Option) One Powered USB 3.2 Gen 2 Type-A Port

One USB 3.2 Gen 2 Type-C Port*

**The maximum amount of current supplied by USB Type-C ports is 500mA (USB 2.0)/900mA (USB3.2).*

One Thunderbolt 4 Port with Power Delivery (DC-In)**

***The power output of the Thunderbolt 4 port is 5V/3A in AC mode or 5V/1.5A in DC mode.*

One HDMI-Out Port

One 2- In-1 Audio Jack (Headphone / Microphone)

One RJ-45 LAN Jack

One DC-In Jack

Communication

Built-In 10/100/1000Mb Base-TX Ethernet LAN

1.0M HD Webcam

Or

(Factory Option) Windows Hello Camera Module

WLAN/ Bluetooth M.2 Modules:

(Factory Option) Intel® Dual Band Wi-Fi 6E AX211, 2x2 AX Wireless LAN + Bluetooth

(Factory Option) Intel® Dual Band Wi-Fi 6E AX210, 2x2 AX Wireless LAN + Bluetooth

(Factory Option) Intel® Dual Band Wi-Fi 6 AX201, 2x2 AX Wireless LAN + Bluetooth

(Factory Option) Intel® Dual Band Wi-Fi 5 Wireless-AC 9462, 1x1 AC Wireless LAN + Bluetooth

Power

Full Range AC/DC Adapter

AC Input: 100 - 240V, 50 - 60Hz

DC Output: 19V, 4.74A (**90W**)

Embedded Lithium-Ion Polymer Battery Pack, 36WH

(Factory Option) Embedded Lithium-Ion Polymer Battery Pack, 73WH

Environmental Spec

Temperature

Operating: 5°C - 35°C

Non-Operating: -20°C - 60°C

Relative Humidity

Operating: 20% - 80%

Non-Operating: 10% - 90%

Dimensions & Weight

395mm (w) * 250.7mm (d) * 19.8mm (h)

2.05kg (Barebone with 36WH Battery)

Or

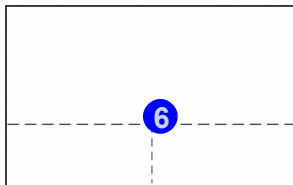
2.25kg (Barebone with 73WH Battery)

Introduction

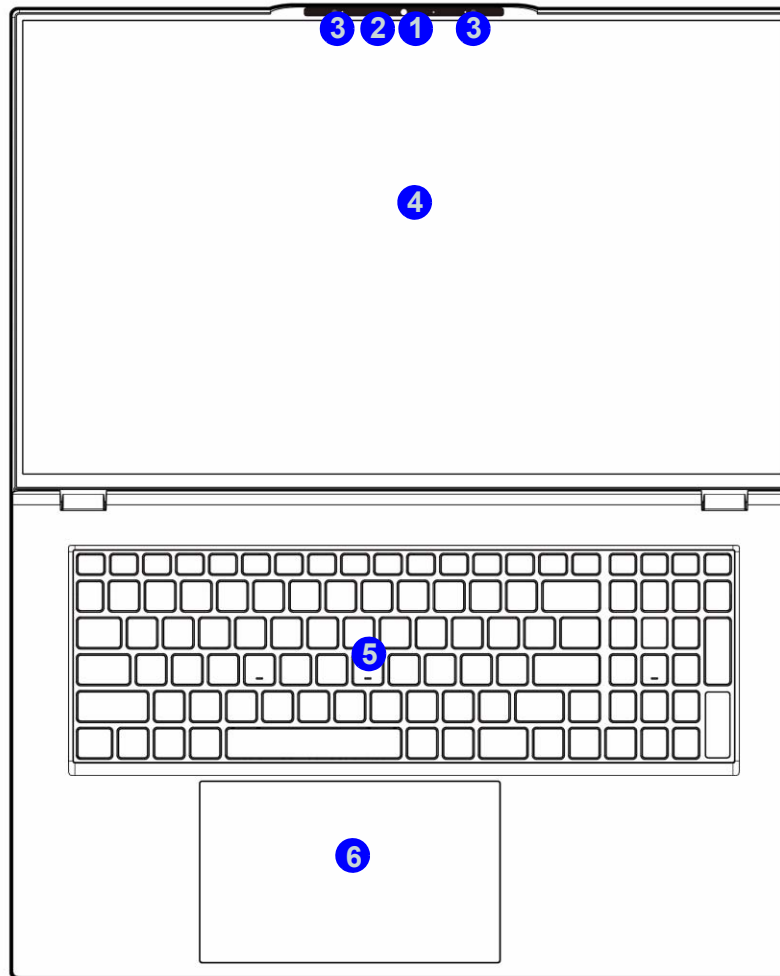
Figure 1
Top View

External Locator - Top View with LCD Panel Open

1. Webcam
Or
(Factory Option)
Windows Hello
Camera
2. *Camera LED
**When the camera is in use, the LED will be illuminated.*
3. Built-In Array
Microphone
4. Display
5. Keyboard
6. Clickpad and
Buttons



Note that the Clickpad and Buttons has a valid operational area indicated within the dotted lines.



External Locator - Front & Right Side Views

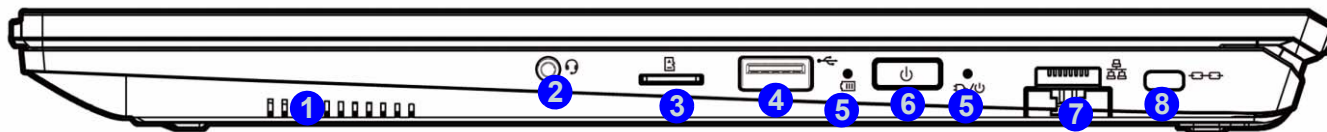
Figure 2
Front View

FRONT VIEW



Figure 3
Right Side View

RIGHT SIDE VIEW



1. Speaker
2. 2-In-1 Audio Jack (Headphone and Microphone)
3. MicroSD Card Reader
4. USB 2.0 Port
5. LED Indicators
6. Power Button
7. RJ-45 LAN Jack
8. Security Lock Slot

Introduction

External Locator - Left Side & Rear View

Figure 4
Left Side View

1. DC-In Jack
2. HDMI-Out Port
3. USB 3.2 Gen 2 Type-A Port
Or
(Factory Option)
Powered USB 3.2 Gen 2 Type-A Port
4. USB 3.2 Gen 2 Type-C Port
5. Thunderbolt 4 Port with Power Delivery (DC-In)
6. Speaker

LEFT SIDE VIEW

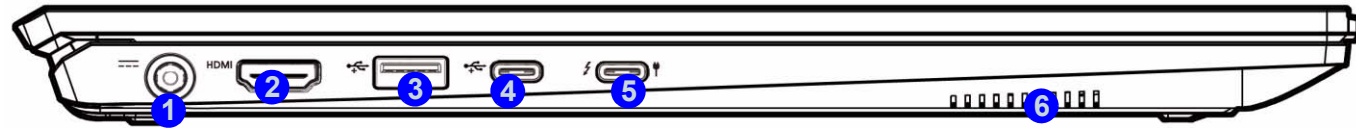


Figure 5
Rear View

1. Vent

REAR VIEW



External Locator - Bottom View

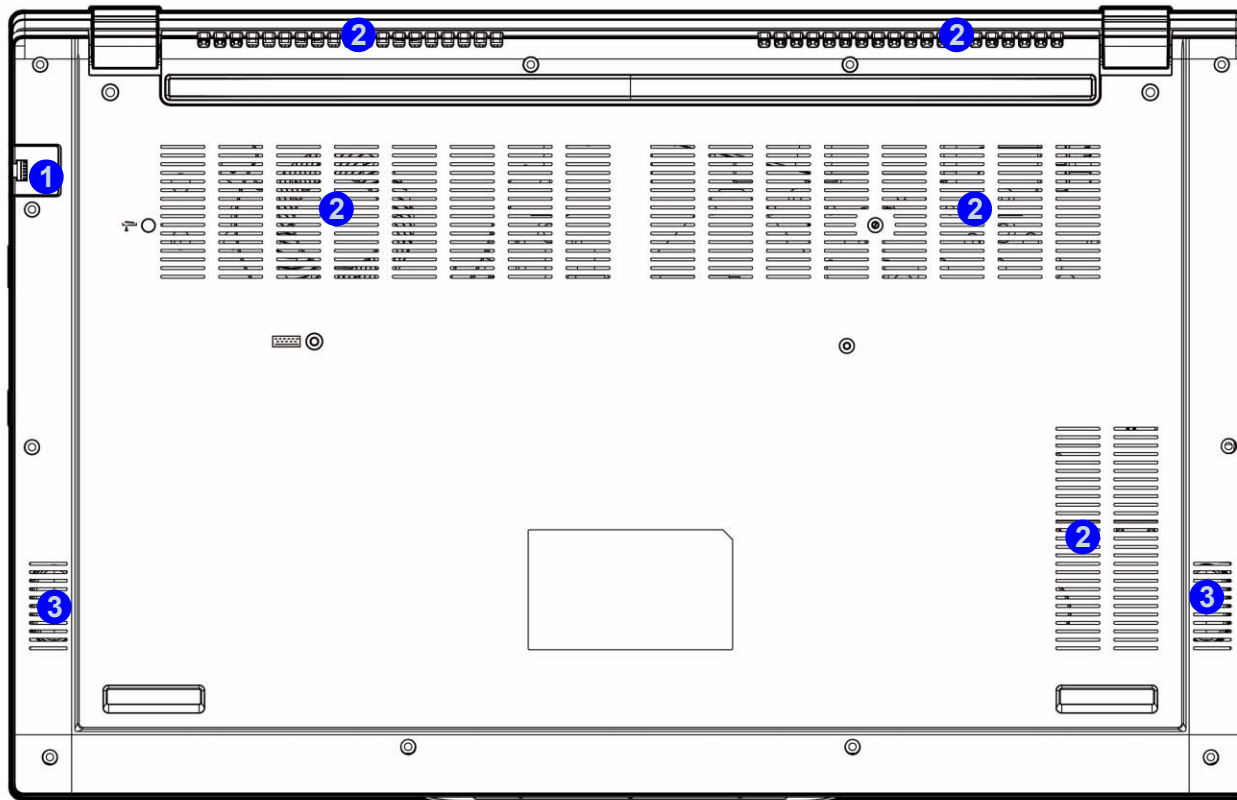


Figure 6
Bottom View

- 1. RJ-45 LAN Jack
- 2. Vent
- 3. Speakers

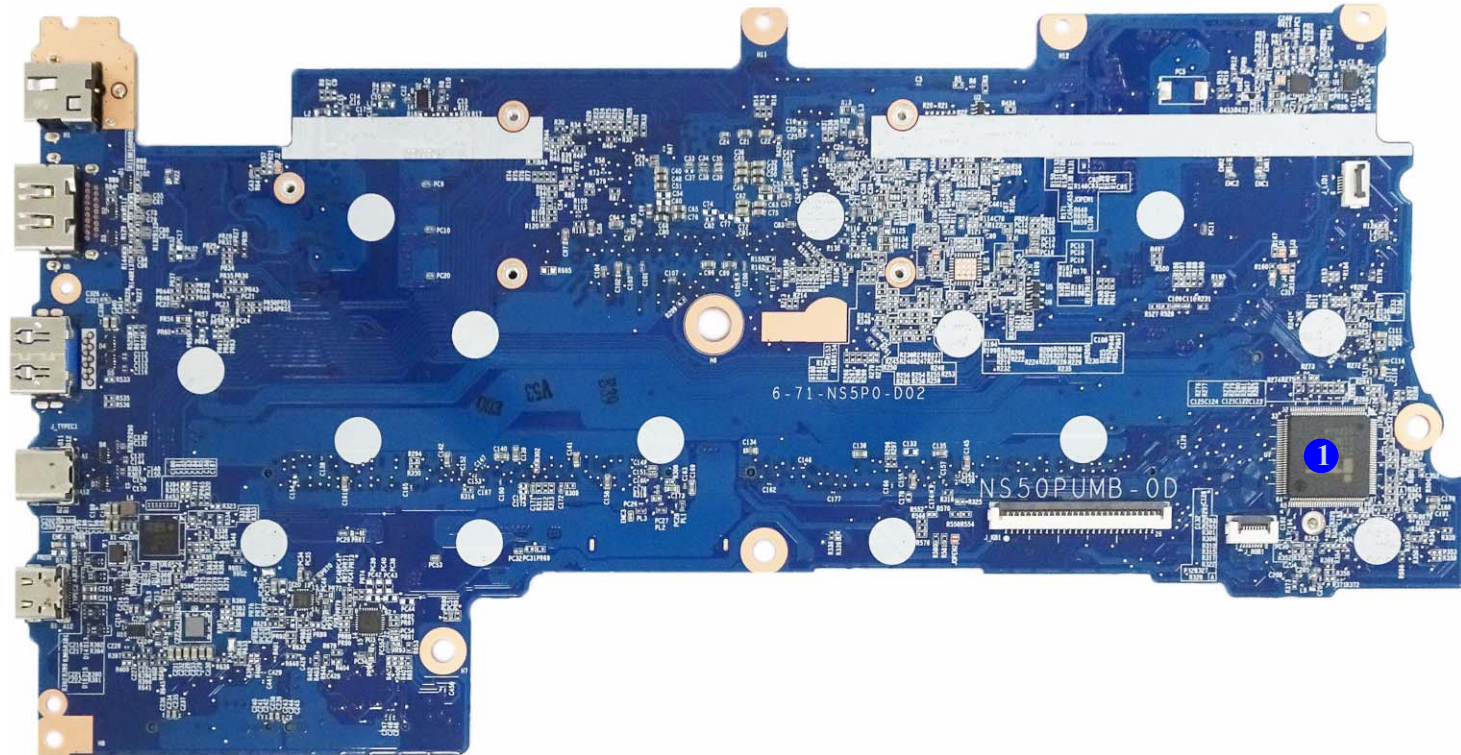

Overheating
To prevent your computer from overheating, make sure nothing blocks any vent while the computer is in use.

Introduction

Figure 7
Mainboard Top
Key Parts

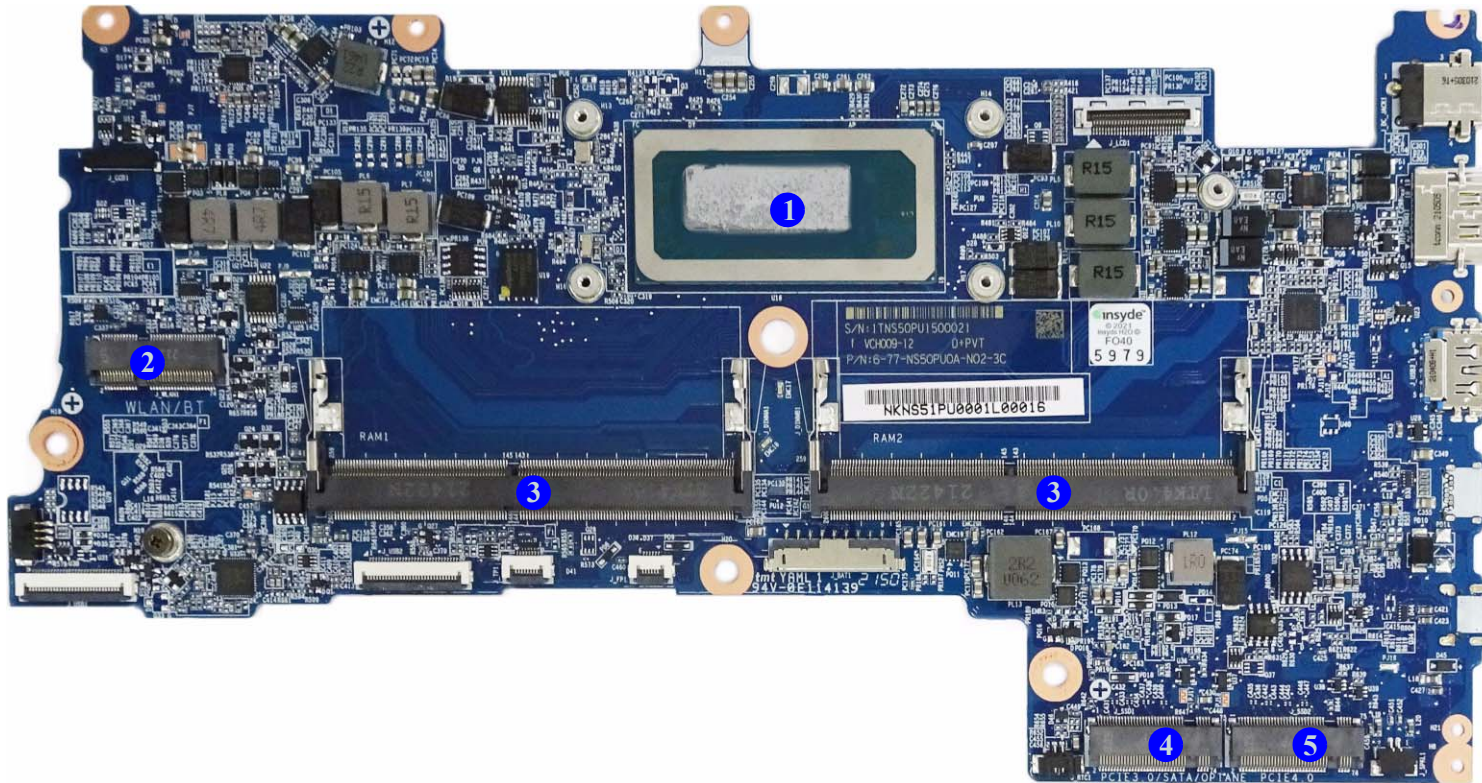
Mainboard Overview - Top (Key Parts)

1. KBC-ITE IT5570



Mainboard Overview - Bottom (Key Parts)

Figure 8
Mainboard Bottom
Key Parts



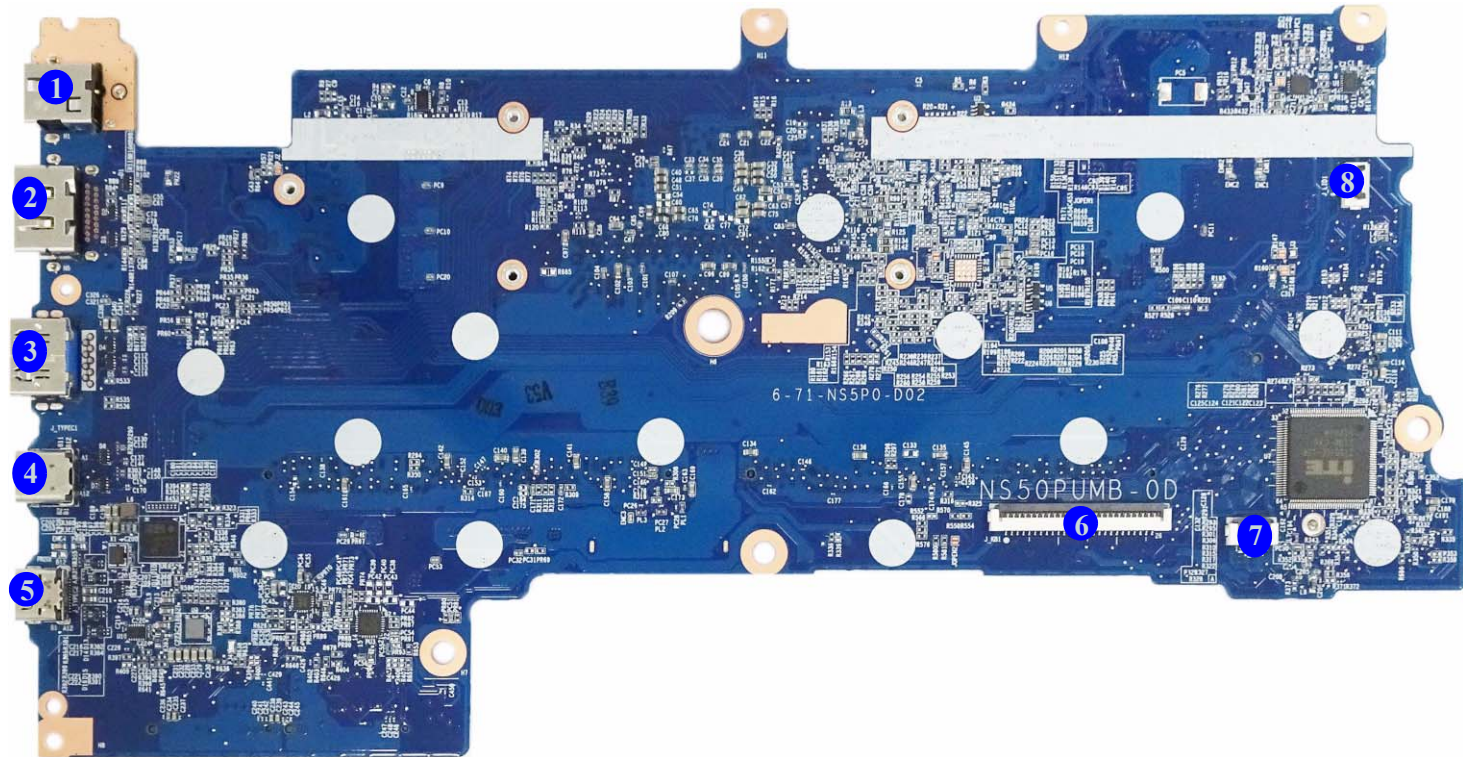
1. CPU
2. Mini-Card Connector (WLAN/BT Module)
3. Memory Slots (DDR5 SO-DIMM)
4. Mini-Card Connector (M.2 PCIE SSD Module)
5. Mini-Card Connector (M.2 PCIE SSD Module)

Introduction

Figure 9
Mainboard Top Connectors

1. DC-In Jack
2. HDMI-Out Port
3. USB 3.2 Gen 2 Type-A Port
4. USB 3.2 Gen 2 Type-C Port
5. Thunderbolt 4 Port with Power Delivery (DC-In)
6. Keyboard Cable Connector
7. LED KB Connector
8. LID Connector

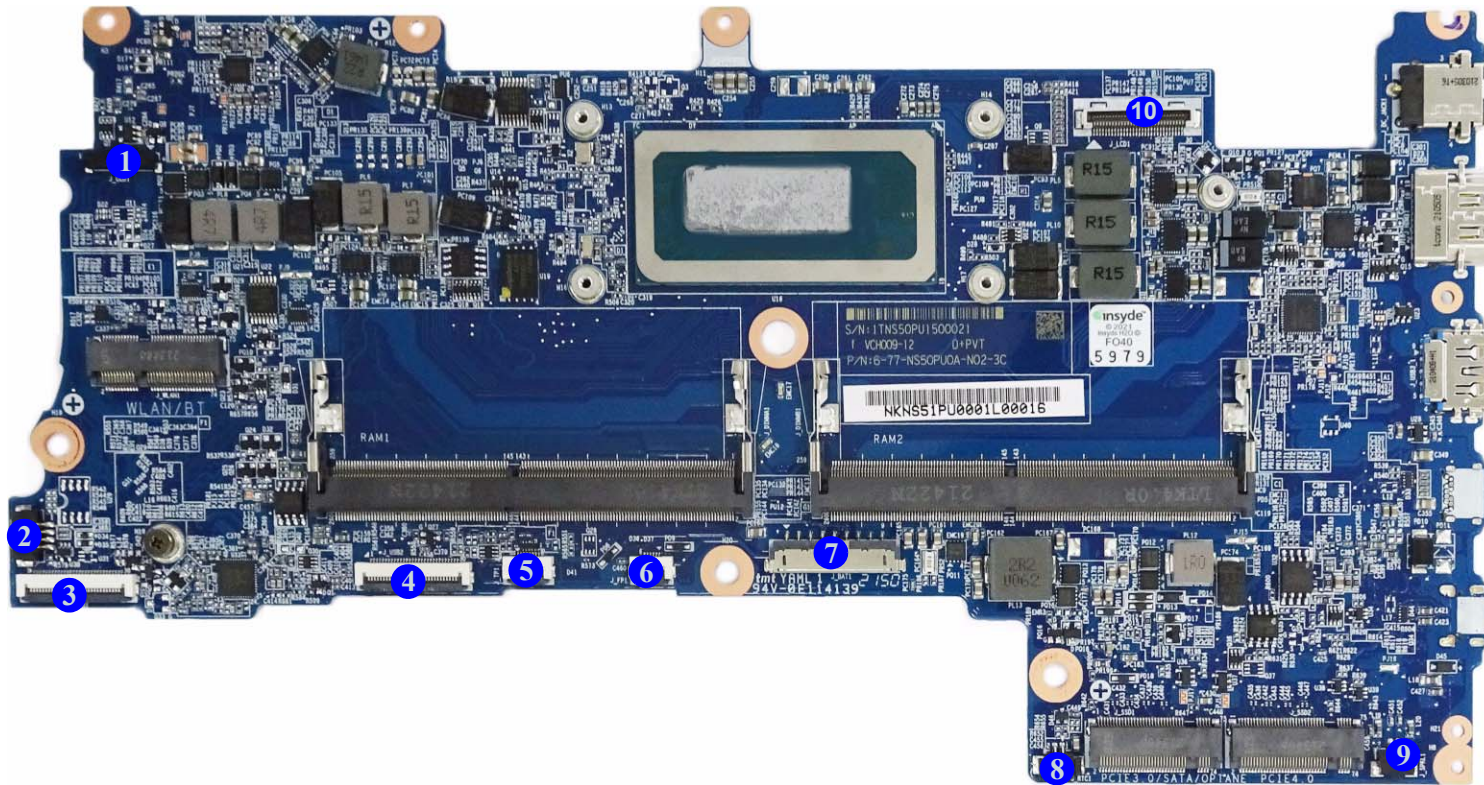
Mainboard Overview - Top (Connectors)



Mainboard Overview - Bottom (Connectors)

Figure 10
Mainboard Bottom
Connectors

- 1. CCD Connector
- 2. Fan Connector
- 3. USB Board Connector
- 4. USB Connector
- 5. Touchpad Cable Connector
- 6. Fingerprint Connector
- 7. Battery Connector
- 8. RTC Connector
- 9. Speaker Connector
- 10. LCD Connector



Chapter 2: Disassembly



Disassembly


Note that for the disassembly of any key parts, **the bottom case must be properly closed before opening the upper part of the LCD** to avoid any damage caused by the nature of the structure.



Overview

This chapter provides step-by-step instructions for disassembling the *NS70AU / NS71AU* series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

We suggest you completely review any procedure before you take the computer apart.

Procedures such as upgrading/replacing the RAM, optical device and hard disk are included in the User's Manual but are repeated here for your convenience.

To make the disassembly process easier each section may have a box in the page margin. Information contained under the figure # will give a synopsis of the sequence of procedures involved in the disassembly procedure. A box with a  lists the relevant parts you will have after the disassembly process is complete. **Note:** The parts listed will be for the disassembly procedure listed ONLY, and not any previous disassembly step(s) required. Refer to the part list for the previous disassembly procedure. The amount of screws you should be left with will be listed here also.

A box with a  will also provide any possible helpful information. A box with a  contains warnings.

An example of these types of boxes are shown in the sidebar.



Information



Warning

Disassembly

NOTE: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

Maintenance Tools

The following tools are recommended when working on the notebook PC:

- M3 Philips-head screwdriver
- M2.5 Philips-head screwdriver (magnetized)
- M2 Philips-head screwdriver
- Small flat-head screwdriver
- Pair of needle-nose pliers
- Anti-static wrist-strap



Connections

Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors

To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.

Pressure sockets for multi-wire connectors

To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.

Pressure sockets for ribbon connectors

To release these connectors, use a small pair of needle-nose pliers to gently lift the connector away from its socket. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.

Board-to-board or multi-pin sockets

To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.

Maintenance Precautions

The following precautions are a reminder. To avoid personal injury or damage to the computer while performing a removal and/or replacement job, take the following precautions:

1. **Don't drop it.** Perform your repairs and/or upgrades on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it.** Note the proximity of any heating elements. Keep the computer out of direct sunlight.
3. **Avoid interference.** Note the proximity of any high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage components and/or data. You should also monitor the position of magnetized tools (i.e. screwdrivers).
4. **Keep it dry.** This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power.** Avoid accidental shocks, discharges or explosions.
 - Before removing or servicing any part from the computer, turn the computer off and detach any power supplies.
 - When you want to unplug the power cord or any cable/wire, be sure to disconnect it by the plug head. Do not pull on the wire.
6. **Peripherals** – Turn off and detach any peripherals.
7. **Beware of static discharge.** ICs, such as the CPU and main support chips, are vulnerable to static electricity. Before handling any part in the computer, discharge any static electricity inside the computer. When handling a printed circuit board, do not use gloves or other materials which allow static electricity buildup. We suggest that you use an anti-static wrist strap instead.
8. **Beware of corrosion.** As you perform your job, avoid touching any connector leads. Even the cleanest hands produce oils which can attract corrosive elements.
9. **Keep your work environment clean.** Tobacco smoke, dust or other air-born particulate matter is often attracted to charged surfaces, reducing performance.
10. **Keep track of the components.** When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.

Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.

Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.

(For Computer Models Supplied with Light Blue Cleaning Cloth) Some computer models in this series come supplied with a light blue cleaning cloth. To clean the computer case with this cloth follow the instructions below.

- Power off the computer and peripherals.
- Disconnect the AC/DC adapter from the computer.
- Use a little water to dampen the cloth slightly.
- Clean the computer case with the cloth.
- Dry the computer with a dry cloth, or allow it time to dry before turning on.
- Reconnect the AC/DC adapter and turn the computer on.



Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Disassembly Steps

The following table lists the disassembly steps, and on which page to find the related information. **PLEASE PERFORM THE DISASSEMBLY STEPS IN THE ORDER INDICATED.**

To remove the Battery:

1. Remove the battery-1 *page 2 - 5*
1. Remove the battery-2 *page 2 - 6*

To remove the Keyboard:

1. Remove the battery *page 2 - 5*
2. Remove the keyboard *page 2 - 7*
- 3.

To remove the System Memory:

1. Remove the battery *page 2 - 5*
2. Remove the system memory *page 2 - 8*

To remove the Wireless LAN Module:

1. Remove the battery *page 2 - 5*
2. Remove the WLAN *page 2 - 10*

To remove the M.2 SSD Module:

1. Remove the battery *page 2 - 5*
2. Remove the SSD-1 module *page 2 - 12*
3. Remove the SSD-2 module *page 2 - 13*

To remove the CCD Module:

1. Remove the battery *page 2 - 5*
2. Remove the CCD module *page 2 - 14*

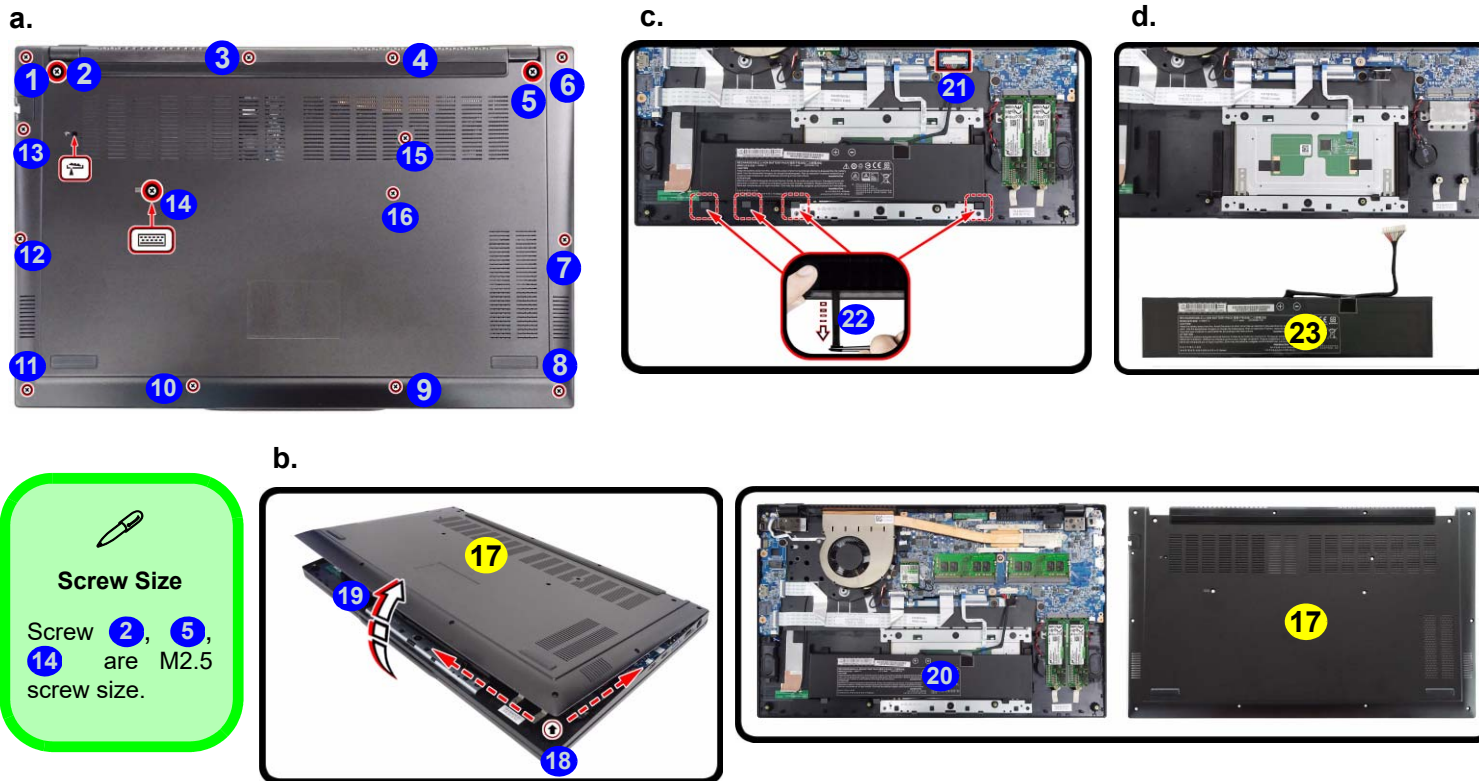
Removing the Battery

Battery-1 Removal Procedure

1. Turn **off** the computer, turn it over.
2. Remove screws **1** - **16** from the bottom case (*Figure 1a*). (**Note:** use 1.5 kg torque when reinserting screws except for M2.5 screws **2**, **5**, **14**).
3. Carefully lift the bottom case **17** up from point **18** - **19** as shown. The battery will be visible at point **20** on the computer (*Figure 1b*).
4. Carefully disconnect the cable **21**, then remove the adhesive mylar **22** as shown (*Figure 1c*).
5. Lift the battery **23** off the computer (*Figure 1d*).
6. Reverse the process to install a new battery (do not forget to replace all the screws and bottom cover).

Figure 1
Battery-1 Removal

- a. Remove the screws.
- b. Remove the bottom case and locate the battery.
- c. Disconnect the cable and remove the adhesive mylar.
- d. Lift the battery off the computer.



Screw Size
Screw **2**, **5**, **14** are M2.5 screw size.

Powering the Computer On
After every disassembly, make sure that the bottom case's screws are all inserted and tightened before turning the computer on.

17. Bottom Cover
23. Battery
• 16 Screws

Disassembly

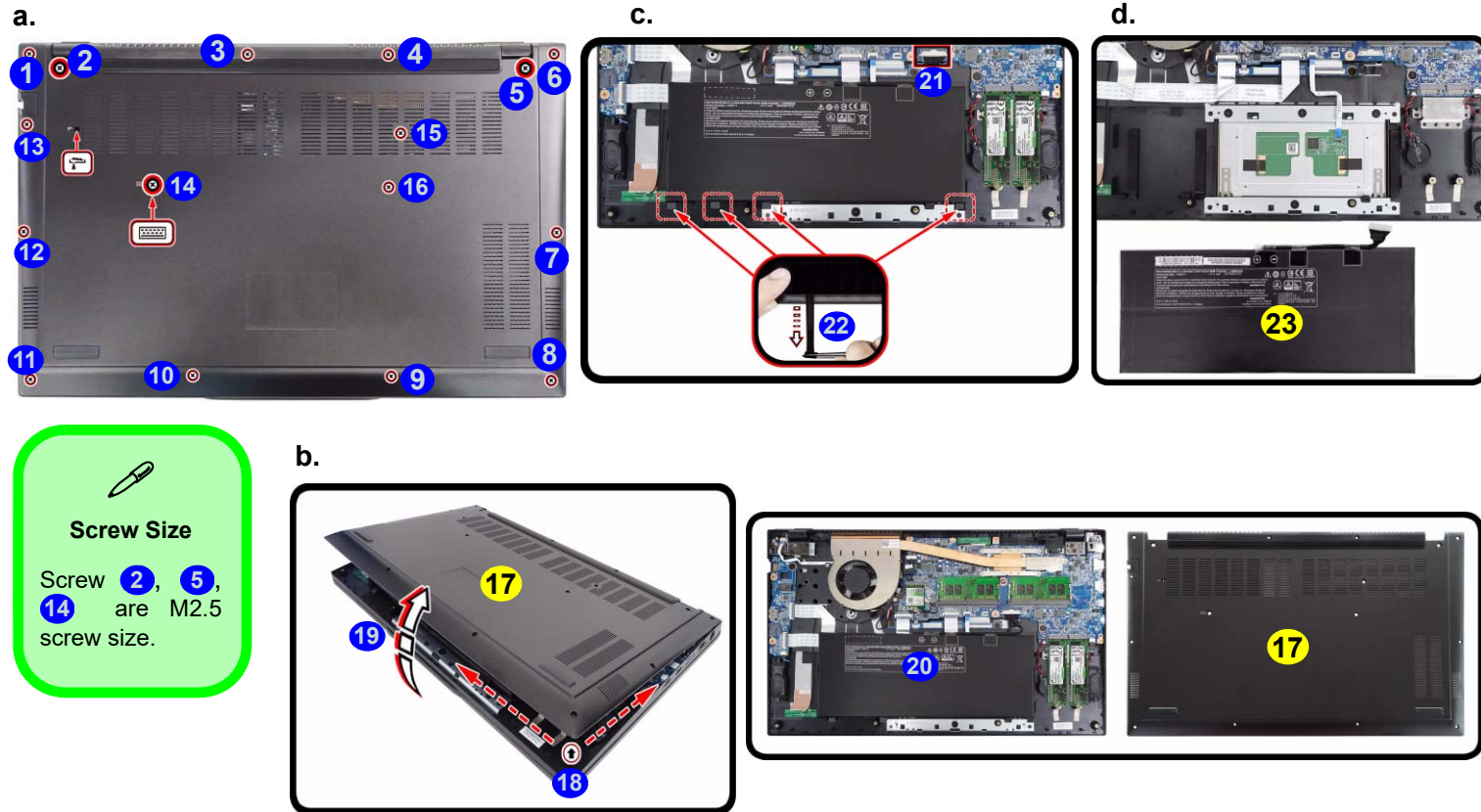
Figure 2

Battery-2 Removal

- Remove the screws.
- Remove the bottom case and locate the battery.
- Disconnect the cable and remove the adhesive mylar
- Lift the battery off the computer.

Battery-2 Removal Procedure

- Turn off the computer, turn it over.
- Remove screws ① - ⑯ from the bottom case (*Figure 2a*). (**Note:** use 1.5 kg torque when reinserting screws except for M2.5 screws ②, ⑤, ⑭).
- Carefully lift the bottom case ⑰ up from point ⑱ - ⑲ as shown. The battery will be visible at point ⑳ on the computer (*Figure 2b*).
- Carefully disconnect the cable ㉑, then remove the adhesive mylar ㉒ as shown (*Figure 2c*).
- Lift the battery ㉓ off the computer (*Figure 2d*).
- Reverse the process to install a new battery (do not forget to replace all the screws and bottom cover).



Powering the Computer On

After every disassembly, make sure that the bottom case's screws are all inserted and tightened before turning the computer on.

Screw Size

Screw ②, ⑤, ⑭ are M2.5 screw size.

17. Bottom Cover
23. Battery

- 16 Screws

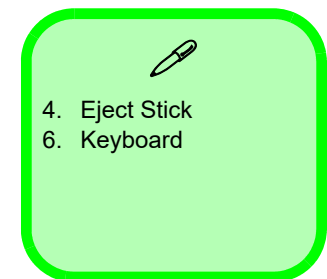
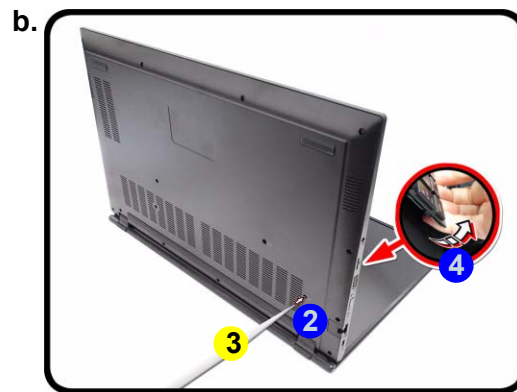
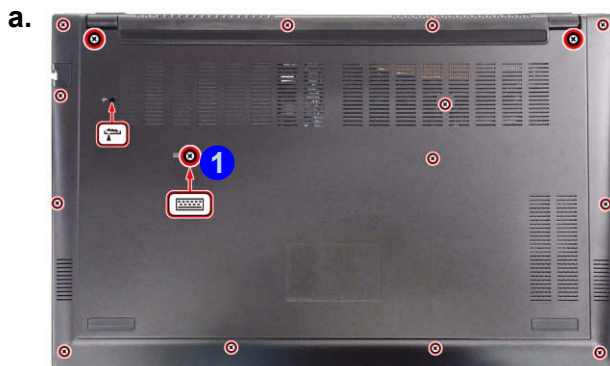
Removing the Keyboard

Keyboard Removal Procedure

1. Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)).
2. Locate the release points **1** from the open bottom case ([Figure 3a](#)).
3. Open it up with the LCD on a flat surface before pressing at point **2** to release the keyboard module (use the specific eject stick **3** to do this) while releasing the keyboard in the direction of the arrow **4** as shown ([Figure 3b](#)).
4. Carefully lift the keyboard **5** up, being careful not to bend the keyboard ribbon cable **6**. Disconnect the keyboard ribbon cable from the locking collar socket **7** ([Figure 3c](#)).
5. Carefully lift up the keyboard **5** off the computer ([Figure 3d](#)).
6. Reverse the process to install the keyboard (be careful not to bend the keyboard ribbon cable).

Figure 3
Keyboard Removal

- a. Remove the screws.
- b. Release the keyboard by pressing at point **2**.
- c. Disconnect the keyboard ribbon cable from the locking collar socket.
- d. Remove the keyboard.



Disassembly

Figure 4
RAM Module Removal

- The RAM modules will be visible at point **1** on the mainboard.
- Pull the release latches.
- Remove the module.

Removing the System Memory (RAM)

The computer has one memory sockets for 262 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR5 5600MHz. The main memory can be expanded up to 64GB. The total memory size is automatically detected by the POST routine once you turn on your computer.

Memory Upgrade Process

- Turn **off** the computer, turn it over to remove the bottom case ([page 2 - 5](#)).
- The RAM modules will be visible at point **1** on the mainboard ([Figure 4b](#)).
- Gently pull the two release latches (**2** & **3**) on the sides of the memory socket in the direction indicated by the arrows ([Figure 4b](#)).
- The RAM module **4** will pop-up ([Figure 4c](#)), and you can then remove it.

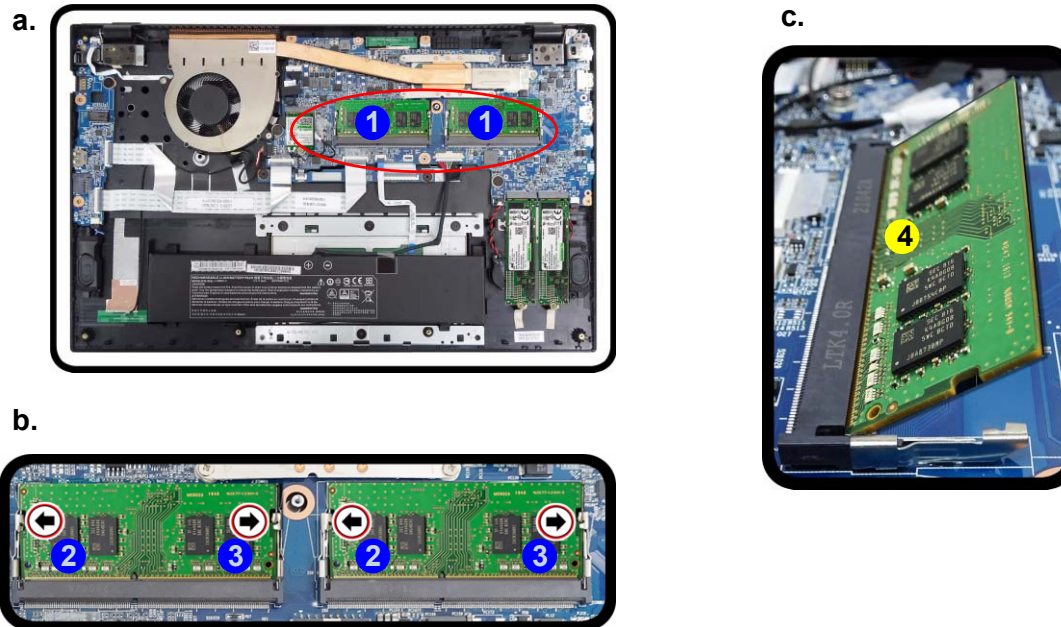


Contact Warning

Be careful not to touch the metal pins on the module's connecting edge. Even the cleanest hands have oils which can attract particles, and degrade the module's performance.



4. RAM Module



5. Pull the latches to release the second module if necessary.
6. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
7. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE IT; it should fit without much pressure.
8. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
9. Replace the bottom case and the screws (see [page 2 - 5](#)).
10. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

Disassembly

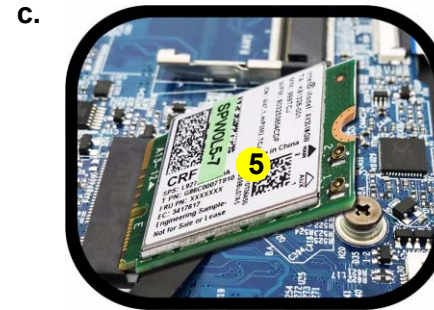
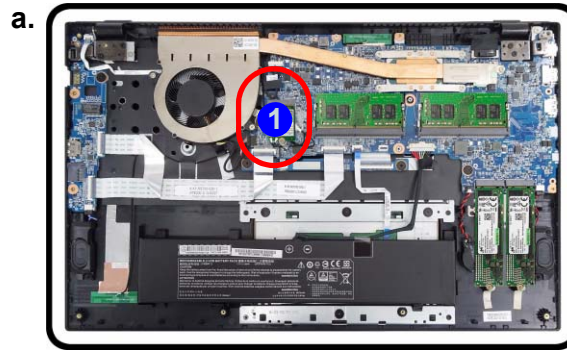
Figure 5
Wireless LAN
Module Removal

- Locate the WLAN.
- Disconnect the cable and remove the screw.
- The WLAN module will pop up and lift it out of the computer.

Note: Make sure you reconnect the antenna cable to the “1 + 2” socket (Figure 5b).

Removing the Wireless LAN Module

- Turn **off** the computer, turn it over to remove the bottom case (page 2 - 5).
- The Wireless LAN module will be visible at point **1** on the mainboard (Figure 5a).
- Carefully disconnect the cables **2** & **3**, and then remove the screw **4** (Figure 5b)
- The Wireless LAN module **5** (Figure 5c) will pop-up, and you can remove it from the computer.
- Reverse the process to install a new module (do not forget to replace all the screws and bottom cover).



 5. Wireless LAN Module

- 1 Screw

Wireless LAN, and Combo Module Cables

Note that the cables for connecting to the antennae on WLAN, WLAN & Bluetooth Combo, 3G and LTE modules are not labelled. The cables/covers (each cable will have either a black or transparent cable cover) are color coded for identification as outlined in the table below.

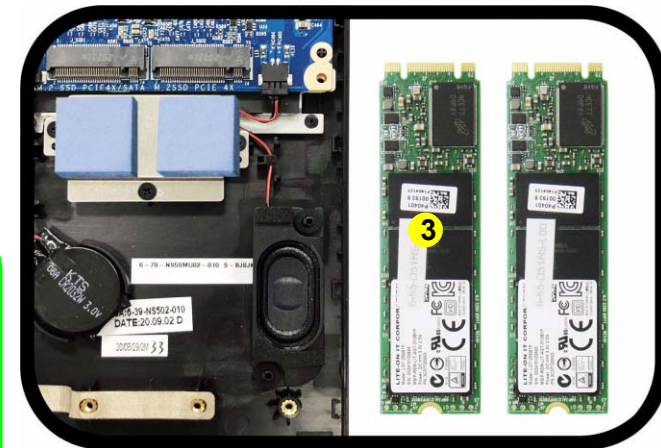
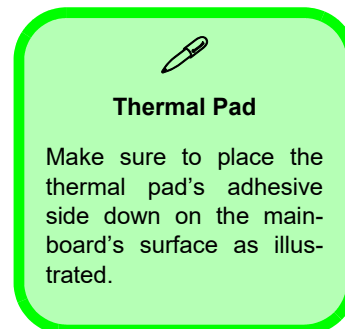
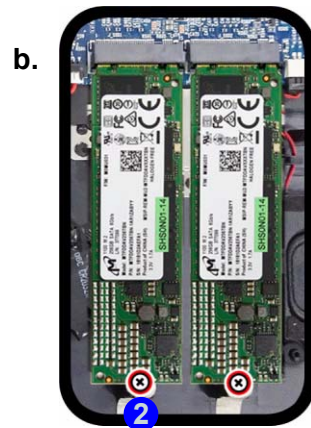
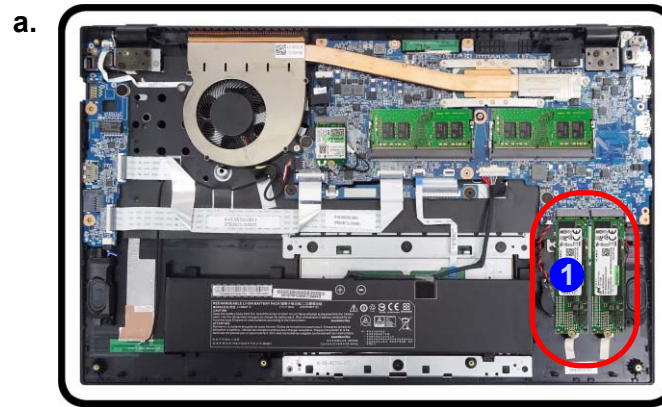
Module Type	Antenna Type	Cable Color	Cable Cover Type
WLAN/WLAN & Bluetooth Combo	WL 1	Black	Transparent
	WL 2	Black	White

Cable 1 is usually connected to antenna 1 (Main) on the module, and cable 2 to antenna 2 (Aux).

Disassembly

Figure 6
M.2 SSD-1 Module
Removal

- Locate the M.2 SSD.
 - Remove the screw.
 - The M.2 SSD module will pop up.
- Turn off the computer, turn it over to remove the bottom case ([page 2 - 5](#)).
 - The M.2 SSD module will be visible at point **1** on the mainboard ([Figure 6a](#)).
 - Remove the screw **2** ([Figure 6b](#)).
 - The M.2 SSD module **3** ([Figure 6c](#)) will pop-up, and you can remove it from the computer.

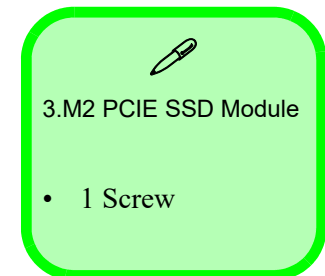
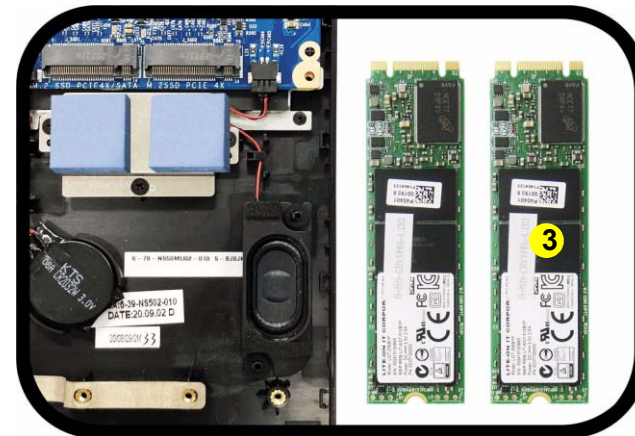
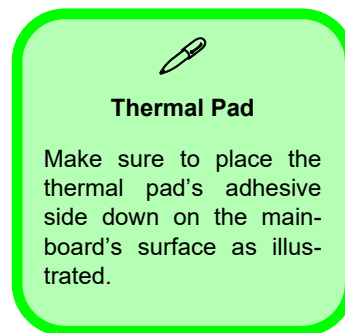
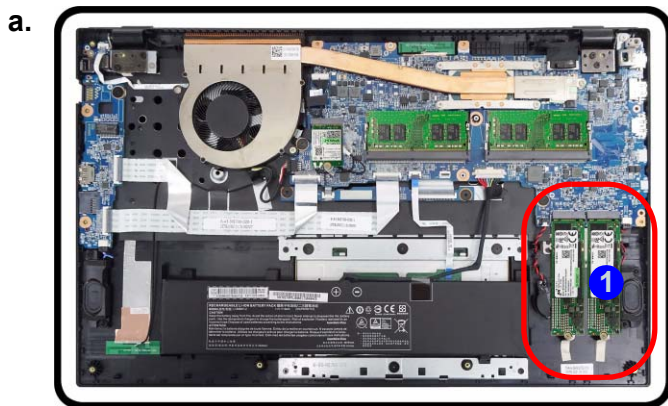


M.2 SSD-2 Removal Procedure

1. Turn **off** the computer, turn it over to remove the bottom case ([page 2 - 5](#)).
2. The M.2 SSD module will be visible at point **1** on the mainboard ([Figure 7a](#)).
3. Remove the screw **2** ([Figure 7b](#)).
4. The M.2 SSD module **3** ([Figure 7c](#)) will pop-up, and you can remove it from the computer.
5. Reverse the process to install a new module (do not forget to replace the thermal pad, screws and bottom cover).

Figure 7
M.2 SSD-2 Module Removal

- a. Locate the M.2 SSD.
- b. Remove the screw.
- c. The M.2 SSD module will pop up.



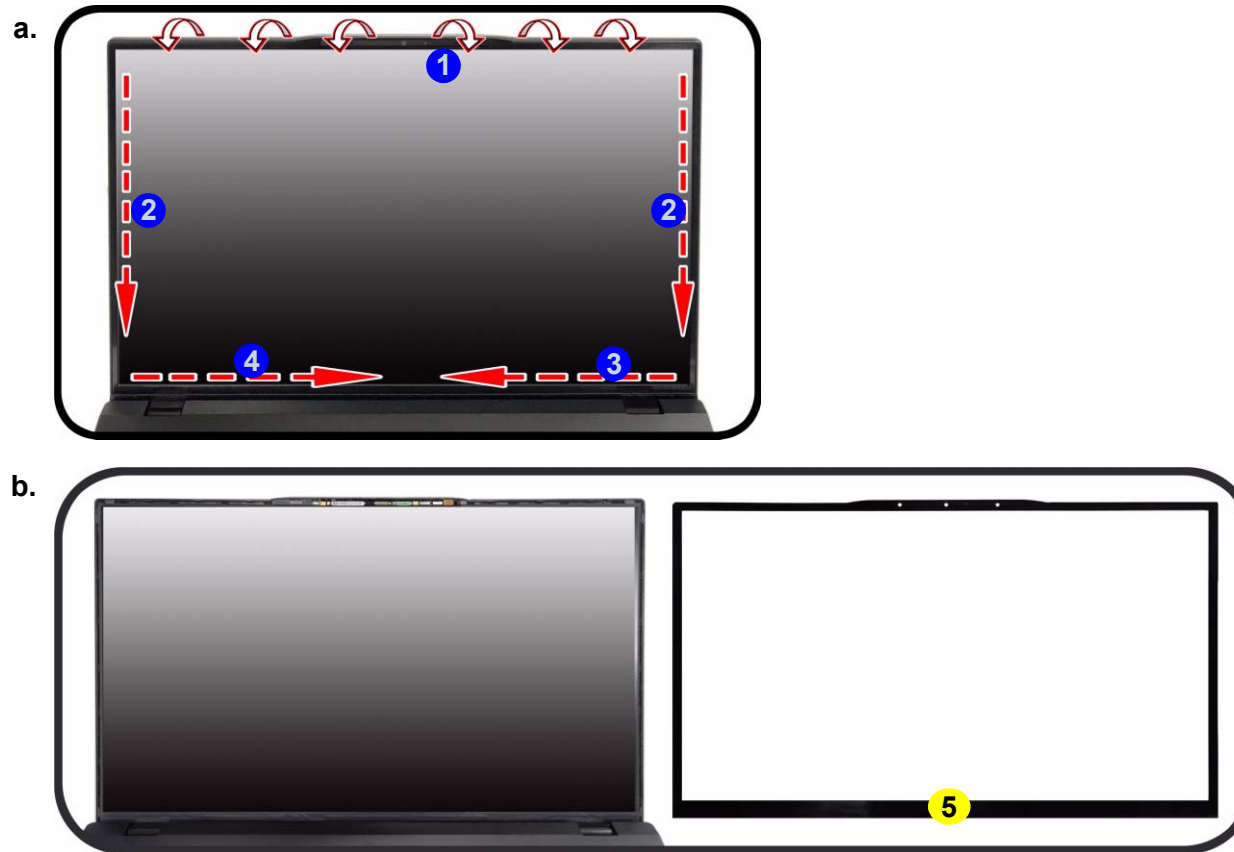
Disassembly

Figure 8
CCD Removal

- a. Carefully release the inner frame of the LCD panel at the points indicated by the arrows.
- b. Remove the LCD front cover.

Removing the CCD

1. Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)).
2. Lay the computer down on a flat surface with the top case up forming a 90 degree angle.
3. Carefully run your fingers around the inner frame of the LCD panel to lift at points **1** - **4** as indicated by the arrows ([Figure 8a](#)).
4. Remove the LCD front cover **5** ([Figure 8b](#)).



5. LCD Front Cover

Disassembly

5. Disconnect the cable **6** from the locking collar socket by using a flat-head screwdriver to pry the locking collar pins **7** away from the base (*Figure 9c*).
6. Remove the CCD module **8** (*Figure 9d*).
7. Reverse the process to install a new CCD module.



Figure 9
CCD Removal
(cont'd)

- c. Disconnect the cable from the locking collar socket.
- d. Remove the CCD module.

