Notebook Computer
PB70ED / PB71ED
Service Manual
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Version 1.0
February 2019

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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 PB70ED / PB71ED 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
Appendix C, Updating the FLASH ROM BIOS
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 as follows:

- AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19.5V, 9.23A (180 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.**

<table>
<thead>
<tr>
<th>Use only approved brands of peripherals.</th>
<th>Unplug the power cord before attaching peripheral devices.</th>
</tr>
</thead>
</table>

### 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.

<table>
<thead>
<tr>
<th>Do not plug in the power cord if you are wet.</th>
<th>Do not use the power cord if it is broken.</th>
<th>Do not place heavy objects on the power cord.</th>
</tr>
</thead>
</table>
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.
Preface

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. Insert the battery and make sure it is locked in position.
4. Securely attach any peripherals you want to use with the computer (e.g. keyboard and mouse) to their ports.
5. **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 and **leave it there for 6 seconds or longer**.
   - Remove the adapter cord from the computer’s DC-In jack, and then plug it back in again; the battery will now be unlocked.
6. Use one hand to raise the lid/LCD to a comfortable viewing angle (do not exceed 130 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).
7. Press the power button to turn 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.
# Contents

**Introduction** ..............................................1-1
Overview .................................................................1-1
Specifications ...........................................................1-2
External Locator - Top View with LCD Panel Open ........1-4
External Locator - Front & Right Side Views ...............1-5
External Locator - Left Side & Rear View ..................1-6
External Locator - Bottom View ...............................1-7
Mainboard Overview - Top (Key Parts) .......................1-8
Mainboard Overview - Bottom (Key Parts) .................1-9
Mainboard Overview - Top (Connectors) .......................1-10
Mainboard Overview - Bottom (Connectors) ................1-11

**Disassembly** ....................................................2-1
Overview .................................................................2-1
Maintenance Tools ..................................................2-2
Connections ........................................................................2-2
Maintenance Precautions ........................................2-3
Disassembly Steps ....................................................2-4
Removing the Battery ..................................................2-5
Removing the Keyboard .............................................2-6
Removing the Hard Disk Drive ....................................2-7
Removing the System Memory (RAM) .........................2-9
Removing the M.2 SSD Module ...................................2-10
Removing the Wireless LAN Module .........................2-11
Wireless LAN, Combo Module Cables .........................2-12
Removing the CCD ....................................................2-13

**Part Lists** ..........................................................A-1
Part List Illustration Location ..................................A-2
Top ...........................................................................A-3
Bottom ........................................................................A-4

**Main Board** .........................................................A-5
HDD ...........................................................................A-6
LCD ...........................................................................A-7

**Schematic Diagrams** .............................................B-1
System Block Diagram ............................................B-2
Processor 1/6 .........................................................B-3
Processor 2/6 ........................................................B-4
Processor 3/6 ........................................................B-5
Processor 4/6 ........................................................B-6
Processor 5/6 ........................................................B-7
Processor 6/6 ........................................................B-8
DDR4 CHA SO-DIMM_0 ..........................................B-9
DDR4 CHB SO-DIMM_0 ..........................................B-10
Panel ..........................................................................B-11
HDMI ..........................................................................B-12
Mini DP Port ..........................................................B-13
PS8330B ....................................................................B-14
PS8331 .......................................................................B-15
GPU 1/6 .......................................................................B-16
GPU 2/6 .......................................................................B-17
Frame Buffer Partition A ...........................................B-18
Frame Buffer Partition B ...........................................B-19
Frame Buffer Partition B ...........................................B-20
Frame Buffer Partition B ...........................................B-21
GPU 3/6 .......................................................................B-22
Frame Buffer Partition C ...........................................B-23
Frame Buffer Partition C ...........................................B-24
Frame Buffer Partition D ...........................................B-25
Frame Buffer Partition D ...........................................B-26
GPU 4/6 .......................................................................B-27
<table>
<thead>
<tr>
<th>Component</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPU 5/6</td>
<td>B-28</td>
</tr>
<tr>
<td>IFP I/O Interface</td>
<td>B-29</td>
</tr>
<tr>
<td>GPU 6/6</td>
<td>B-30</td>
</tr>
<tr>
<td>GPU NVVDD, FBVDDQ</td>
<td>B-31</td>
</tr>
<tr>
<td>GPU GND</td>
<td>B-32</td>
</tr>
<tr>
<td>GPU Decoupling</td>
<td>B-33</td>
</tr>
<tr>
<td>GPU Decoupling 2</td>
<td>B-34</td>
</tr>
<tr>
<td>GPU Pwr Ctrl, Level Shift</td>
<td>B-35</td>
</tr>
<tr>
<td>PCH 1/9</td>
<td>B-36</td>
</tr>
<tr>
<td>PCH 2/9</td>
<td>B-37</td>
</tr>
<tr>
<td>PCH 3/9</td>
<td>B-38</td>
</tr>
<tr>
<td>PCH 4/9</td>
<td>B-39</td>
</tr>
<tr>
<td>PCH 5/9</td>
<td>B-40</td>
</tr>
<tr>
<td>PCH 6/9</td>
<td>B-41</td>
</tr>
<tr>
<td>PCH 7/9</td>
<td>B-42</td>
</tr>
<tr>
<td>PCH 8/9</td>
<td>B-43</td>
</tr>
<tr>
<td>PCH 9/9</td>
<td>B-44</td>
</tr>
<tr>
<td>HDD Port</td>
<td>B-45</td>
</tr>
<tr>
<td>M.2 WLAN+BT</td>
<td>B-46</td>
</tr>
<tr>
<td>M.2 PCIEX4 SATA</td>
<td>B-47</td>
</tr>
<tr>
<td>CCD, FP</td>
<td>B-48</td>
</tr>
<tr>
<td>USB</td>
<td>B-49</td>
</tr>
<tr>
<td>USB Redriver</td>
<td>B-50</td>
</tr>
<tr>
<td>ANX7440</td>
<td>B-51</td>
</tr>
<tr>
<td>USB+DP Type-C</td>
<td>B-52</td>
</tr>
<tr>
<td>TPM</td>
<td>B-53</td>
</tr>
<tr>
<td>LAN RTL8111H</td>
<td>B-54</td>
</tr>
<tr>
<td>ALC1220</td>
<td>B-55</td>
</tr>
<tr>
<td>EC ITE8587</td>
<td>B-56</td>
</tr>
<tr>
<td>Fan, TP, Smart AMP PWR</td>
<td>B-57</td>
</tr>
<tr>
<td>LED Keyboard Ctrl</td>
<td>B-58</td>
</tr>
<tr>
<td>LID</td>
<td>B-59</td>
</tr>
<tr>
<td>TR-TBT</td>
<td>B-60</td>
</tr>
<tr>
<td>AR_TBT_SP PWR</td>
<td>B-61</td>
</tr>
<tr>
<td>TPS65987</td>
<td>B-62</td>
</tr>
<tr>
<td>TBT/Type C</td>
<td>B-63</td>
</tr>
<tr>
<td>Conn_to Extend Board</td>
<td>B-64</td>
</tr>
<tr>
<td>3.3VA, 3.3V, 3.3VS, 5VS</td>
<td>B-65</td>
</tr>
<tr>
<td>PWR_SW VCCST, STG, SFR_OC</td>
<td>B-66</td>
</tr>
<tr>
<td>PWR_SW 1V8_AON, RUN</td>
<td>B-67</td>
</tr>
<tr>
<td>VDD3, VDD5</td>
<td>B-68</td>
</tr>
<tr>
<td>DDR 1.2V, 0.6VS, 2.5V</td>
<td>B-69</td>
</tr>
<tr>
<td>1.8VA, 1.05VA</td>
<td>B-70</td>
</tr>
<tr>
<td>VCCIO</td>
<td>B-71</td>
</tr>
<tr>
<td>VCore, VCCGT, VCCSA</td>
<td>B-72</td>
</tr>
<tr>
<td>VCore Output Stage</td>
<td>B-73</td>
</tr>
<tr>
<td>VCCGT, VCCSA</td>
<td>B-74</td>
</tr>
<tr>
<td>NVVDD 1 &amp; 2</td>
<td>B-75</td>
</tr>
<tr>
<td>NVVDD 3</td>
<td>B-76</td>
</tr>
<tr>
<td>PEX_VDD</td>
<td>B-77</td>
</tr>
<tr>
<td>FBVDDQ</td>
<td>B-78</td>
</tr>
<tr>
<td>AC-In, Charger</td>
<td>B-79</td>
</tr>
<tr>
<td>LED Board</td>
<td>B-80</td>
</tr>
<tr>
<td>Power Board</td>
<td>B-81</td>
</tr>
<tr>
<td>HDD Board</td>
<td>B-82</td>
</tr>
<tr>
<td>Audio Board, Fan</td>
<td>B-83</td>
</tr>
<tr>
<td>Audio Board_USB</td>
<td>B-84</td>
</tr>
<tr>
<td>Audio Board_AMP, Jack</td>
<td>B-85</td>
</tr>
<tr>
<td>Per Keyboard</td>
<td>B-86</td>
</tr>
<tr>
<td>RTS5250</td>
<td>B-87</td>
</tr>
<tr>
<td>AMP TPA2008D2</td>
<td>B-88</td>
</tr>
<tr>
<td>Subwoofer</td>
<td>B-89</td>
</tr>
<tr>
<td>Smart AMP</td>
<td>B-90</td>
</tr>
<tr>
<td>Smart AMP for Subwoofer</td>
<td>B-91</td>
</tr>
</tbody>
</table>
Speaker Con ................................................................................ B-92
Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the PB70ED / PB71ED 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 10, 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 PB70ED / PB71ED 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 here are correct at the time of sending them to the 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 more details.

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

BIOS
128Mb SPI Flash ROM
INSYDE BIOS

Memory
Dual Channel DDR4
Two 260 Pin SO-DIMM Sockets
Supporting DDR4 2666MHz Memory Modules
Memory Expandable from 8GB (minimum) up to 64GB (maximum)
Compatible with 4GB, 8GB, 16GB or 32GB Modules
(The real memory operating frequency depends on the FSB of the processor.)
Supports XMP 3000MHz (XMP is processor dependent)

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

Video Adapter Options
Microsoft Hybrid Graphics Mode or Discrete Graphics Mode
Supports up to 4 Active Displays
Supports NVIDIA Surround View via HDMI x 1, MiniDP x1 and Display Port over Type-C

Intel Integrated GPU
Intel® UHD Graphics 630
Dynamic Frequency
Intel Dynamic Video Memory Technology
Microsoft DirectX®12 Compatible

NVIDIA® Discrete GPU
NVIDIA® GeForce RTX 2060
6GB GDDR6 Video RAM
Microsoft DirectX®12 Compatible

Pointing Device
(Factory Option) Built-in Touchpad/Secure Pad (with Microsoft PTP Multi Gesture & Scrolling Functionality)

Keyboard
Full Size Multi Full Color LED Keyboard (with numeric keypad)
Or
(Factory Option) Full Size Full Color “Per Key” LED Keyboard (with numeric keypad)

Storage
One changeable 2.5” (6cm) 7.0mm (h) SATA (Serial) Hard Disk Drive/Solid State Drive (SSD)
(Factory Option) One M.2 SATA/PCIe Gen3 x4 Solid State Drive (SSD)
### Audio
- High Definition Audio Compliant Interface
- S/PDIF Digital Output
- Built-In Array Microphone
- Two Speakers
- One Subwoofer
- Sound BlasterX® Pro-Gaming 360°

### Communication
- 1.0M HD PC Camera Module
- Built-In 10/100/1000Mb Base-TX Ethernet LAN

**WLAN/ Bluetooth M.2 Modules:**
- **(Factory Option)** Intel® Dual Band Wireless-AC 9260 Wireless LAN (802.11ac) + Bluetooth
- **(Factory Option)** Intel® Dual Band Wireless-AC 9560 Wireless LAN (802.11ac) + Bluetooth
- **(Factory Option)** Intel® Dual Band Wireless-AC 9462 Wireless LAN (802.11ac) + Bluetooth
- **(Factory Option)** Qualcomm® Atheros Killer™ Wireless-AC 1550i Wireless LAN (802.11ac) + Bluetooth

### Card Reader
- Embedded Multi-In-1 Push-Push Card Reader
  - MMC (MultiMedia Card) / RS MMC
  - SD (Secure Digital) / Mini SD / SDHC/ SDXC

### M.2 Slots
- Slot 1 for **Combo WLAN and Bluetooth Module**
- Slot 2 for **SATA or PCIe Gen3 x4 SSD**
- Slot 3 for **PCIe Gen3 x4 SSD**

### Interface
- One USB 3.1 Gen 2 Type-C Port*
  *The maximum amount of current supplied by USB Type-C ports is 500mA (USB 2.0)/900mA (USB 3.1).
  Or
  **(Factory Option)** One Thunderbolt 3 Port**
  **The maximum amount of current supplied by Thunderbolt 3 port is 3000mA.**

  - Three USB 3.0 (USB 3.1 Gen 1) Type-A Ports (Including one AC/DC Powered USB Port)
  - One DisplayPort 1.3 over USB 3.1 Gen 2 Type-C Port
  - One Mini DisplayPort 1.3
  - One HDMI-Out Port
  - One 2- In-1 Audio Jack (Microphone and S/PDIF Optical)
  - One 2- In-1 Audio Jack (Headphone and Microphone)
  - One RJ-45 LAN Jack
  - One DC-In Jack

---

#### Introduction

**Audio**

- High Definition Audio Compliant Interface
- S/PDIF Digital Output
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- Two Speakers
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  - One 2- In-1 Audio Jack (Headphone and Microphone)
  - One RJ-45 LAN Jack
  - One DC-In Jack

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#### Environmental Spec

**Temperature**

- Operating: 5°C - 35°C
- Non-Operating: -20°C - 60°C

**Relative Humidity**

- Operating: 20% - 80%
- Non-Operating: 10% - 90%

**Power**

- Removable 6 Cell Smart Lithium-Ion Battery Pack, 62WH
- **(Factory Option)** Removable 6-Cell Polymer Battery Pack, 47WH

**Dimensions & Weight**

- 399mm (w) * 275mm (d) * 29.9mm (h)
- 2.9kg (Barebone with 62WH Battery)
Introduction

1. PC Camera
2. *PC Camera LED
   *When the PC camera is in use, the LED will be illuminated.
3. Built-In Array Microphone
4. LCD
5. Power Button
6. Keyboard
7. Touchpad & Buttons
8. Fingerprint Sensor (Optional)
External Locator - Front & Right Side Views

**Figure 2**
Front View
1. LED Indicator
2. Multi-in-1 Card Reader

**Figure 3**
Right Side View
1. USB 3.1 Gen 2 Type-C Port
Or
(Factory Option)
Thunderbolt 3 Port
2. USB 3.0 (USB 3.1 Gen 1) Type-A Port
3. Vent
Introduction

External Locator - Left Side & Rear View

**Figure 4**
Left Side View
1. Security Lock Slot
2. Vent
3. Powered USB 3.0 (USB 3.1 Gen 1) Type-A Port
4. 2-In-1 Audio Jack (Microphone and S/PDIF Optical)
5. 2-In-1 Audio Jack (Headphone and Microphone)

**Figure 5**
Rear View
1. Vent
2. RJ-45 LAN Jack
3. HDMI-Out Port
4. Mini DisplayPort 1.3
5. DisplayPort 1.3 over USB 3.1 Gen 2 Type-C Port
6. USB 3.0 (USB 3.1 Gen 1) Type-A Port
7. DC-In Jack
Introduction

1. Vent
2. Battery
3. Speakers
4. Subwoofer

Overheating

To prevent your computer from overheating, make sure nothing blocks any vent while the computer is in use.
1. KBC-ITE IT8587
Figure 8
Mainboard Bottom
Key Parts

1. PCH
2. GPU
3. CPU
4. Memory Slots
   DDR4 SO-DIMM
5. Mini-Card
   Connector (M.2
   PCIE/SATA SSD
   Module)
6. Mini-Card
   Connector (M.2
   PCIE Module)
7. Mini-Card
   Connector (WLAN
   Module)
Mainboard Overview - Top (Connectors)

1. Per Key Cable Connector
2. Keyboard Cable Connector
3. RGB Keyboard Cable Connector
4. Power Switch Connector
5. Multi-in-1 Card Reader
6. USB 3.1 Gen 2 Type-C Port
   Or
   (Factory Option) Thunderbolt 3 Port
7. USB 3.0 (USB 3.1 Gen 1) Type-A Port
1. RJ-45 LAN Jack
2. HDMI-Out Port
3. Mini DisplayPort 1.3
4. DisplayPort 1.3 over USB 3.1 Gen 2 Type-C Port
5. USB 3.0 (USB 3.1 Gen 1) Type-A Port
6. DC-In Jack
7. Battery Connector
8. HDD Cable Connector
9. Touchpad Cable Connector
10. LED Indicator Connector
11. Audio Board Connector
12. Panel Connector
13. CCD Connector
1. Introduction
Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the PB70ED / PB71ED 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.
**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.
## 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.

<table>
<thead>
<tr>
<th>To remove the Keyboard:</th>
<th>To remove the Battery:</th>
<th>To remove the HDD:</th>
<th>To remove the System Memory:</th>
<th>To remove and install the M.2 SSD:</th>
<th>To remove the Wireless LAN Module:</th>
<th>To remove the CCD Module:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Remove the battery</td>
<td>1. Remove the battery</td>
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</tr>
<tr>
<td>page 2 - 5</td>
<td>page 2 - 5</td>
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<td>page 2 - 5</td>
<td>page 2 - 5</td>
<td>page 2 - 5</td>
<td>page 2 - 5</td>
</tr>
<tr>
<td>2. Remove the keyboard</td>
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<td>2. Remove the HDD</td>
<td>2. Remove the keyboard</td>
<td>2. Remove the keyboard</td>
<td>2. Remove the HDD</td>
<td>2. Remove the CCD module</td>
</tr>
<tr>
<td>page 2 - 6</td>
<td>page 2 - 6</td>
<td>page 2 - 7</td>
<td>page 2 - 6</td>
<td>page 2 - 6</td>
<td>page 2 - 7</td>
<td>page 2 - 13</td>
</tr>
<tr>
<td>3. Remove the HDD</td>
<td>3. Remove the HDD</td>
<td>3. Remove the HDD</td>
<td>3. Remove the system memory</td>
<td>3. Remove the M.2 SSD</td>
<td>4. Remove the WLAN</td>
<td></td>
</tr>
<tr>
<td>page 2 - 6</td>
<td>page 2 - 7</td>
<td>page 2 - 9</td>
<td>page 2 - 9</td>
<td>page 2 - 10</td>
<td>page 2 - 11</td>
<td></td>
</tr>
</tbody>
</table>

**PLEASE PERFORM THE DISASSEMBLY STEPS IN THE ORDER INDICATED.**
Removing the Battery

1. Turn off the computer, turn it over.
2. Remove screws 1 - 2 (Figure 1a).
3. Carefully lift the battery 3 up in the direction of the arrow at point 4 (Figure 1b).
4. Remove the battery 3 off the computer (Figure 1c).
5. Reverse the process to install a new battery (do not forget to replace all the screws and bottom cover).

Figure 1
Battery Removal

- a. Remove the screws.
- b. Lift the battery up.
- c. Remove the battery.

- 2 Screws
Disassembly

**Removing the Keyboard**

1. Turn **off** the computer, turn it over.
2. Remove screws 1 - 2 from the bottom of the computer.
3. Open it up with the LCD on a flat surface before pressing at point 3 to release the keyboard module (use the special eject stick 4 to do this) while releasing the keyboard in the direction of the arrow 5 as shown (*Figure 2a*).
4. Carefully lift the keyboard 6 up, being careful not to bend the keyboard ribbon cable 7. Disconnect the keyboard ribbon cable 7 from the locking collar socket by using a flat-head screwdriver to pry the locking collar pins 8 away from the base (*Figure 2b*).
5. Carefully lift the keyboard 6 off the computer (*Figure 2c*).

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**Figure 2**

*Keyboard Removal*

a. Remove the screws from the bottom of the computer and then eject the keyboard using a special eject stick to push the keyboard out while releasing the keyboard as shown.

b. Lift the keyboard up and disconnect the keyboard ribbon cable from the locking collar socket.

c. Remove the keyboard.

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**Re-inserting the Keyboard**

When re-inserting the keyboard firstly, align the keyboard tabs at the bottom of the keyboard with the slots in the case.

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4. Eject Stick
6. Keyboard
- 2 Screws

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**2 - 6 Removing the Keyboard**
Removing the Hard Disk Drive

The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 7mm (h). Follow your operating system’s installation instructions, and install all necessary drivers and utilities (as outlined in Chapter 4 of the User’s Manual) when setting up a new hard disk.

Hard Disk Disassembly Process
1. Turn off the computer, turn it over and remove the battery (page 2 - 5) and keyboard (page 2 - 5).
2. Remove the screw (Figure 3a).
3. Remove the SD card cover and screws (Figure 3b).
4. Carefully lift the bottom case up in the direction of the arrow at point and remove it (Figure 3c).
5. The HDD will be visible at point 23 on the mainboard (Figure 4d).
6. Remove screws 26 - 29 from the HDD assembly and disconnect the ribbon cable 29 from the locking collar socket by using a flat-head screwdriver to pry the locking collar pins 30 away from the base (Figure 4e).
7. Lift the hard disk assembly 31 out of the bay 32 (Figure 4f).
8. Remove screws 33 - 35 and bracket 35 from the hard disk 36 (Figure 4g).
9. Reverse the process to install a new hard disk (do not forget to carefully reinsert the bottom case in reverse order (see Figure 3c) and to replace the screws).

d. Locate the HDD.
e. Remove the screw.
f. Slide and pull the HDD assembly out of the bay.
g. Remove the screws and bracket from the HDD.

31. HDD Assembly
35. HDD Bracket
36. HDD
• 5 Screws
Removing the System Memory (RAM)

The computer has four memory sockets for 260 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR4 Up to 2400 MHz. 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

1. Turn off the computer, remove the battery (page 2 - 5), keyboard (page 2 - 6) and bottom case (page 2 - 7).
2. The RAM-2 modules will be visible at point 1 on the mainboard (Figure 5a).
3. Gently pull the two release latches (2 & 3) on the sides of the memory socket in the direction indicated by the arrows (Figure 5b). The RAM module 4 will pop-up (Figure 5c), and you can then remove it.
4. Pull the latches to release the second module if necessary.
5. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
6. 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.
7. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
8. Replace the bottom cover and the screws (see page 2 - 5).
9. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

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.
Disassembly

Removing the M.2 SSD Module

M.2 SSD-1 Removal Procedure
1. Turn off the computer, remove the battery (page 2 - 5), keyboard (page 2 - 6) and bottom case (page 2 - 7).
2. The M.2 SSD module will be visible at point 1 on the mainboard (Figure 6a).
3. Remove the screw 2 (Figure 6b).
4. The M.2 SSD module 3 (Figure 6c) 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 screws and thermal pad).

Figure 6
M.2 SSD-1 Module Removal
a. Locate the M.2 SSD.
b. Remove the screw.
c. The M.2 SSD module will pop up.

3.M2 SSD Module
• 1 Screw
Removing the Wireless LAN Module

1. Turn off the computer, remove the battery (page 2 - 5), keyboard (page 2 - 6) and bottom case (page 2 - 7).
2. The Wireless LAN module will be visible at point 1 on the mainboard (Figure 7a).
3. Carefully disconnect the cables 2 & 3, and then remove the screw 1 (Figure 7b)
4. The Wireless LAN module 5 (Figure 7c) will pop-up, and you can remove it from the computer.

Note: Make sure you reconnect the antenna cable to the “1 + 2” socket (Figure 7b).
Disassembly

**Wireless LAN, Combo Module Cables**

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

<table>
<thead>
<tr>
<th>Module Type</th>
<th>Antenna Type</th>
<th>Cable Color</th>
<th>Cable Cover Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>WLAN/WLAN &amp; Bluetooth Combo</td>
<td>WM 1</td>
<td>Black</td>
<td>Transparent</td>
</tr>
<tr>
<td></td>
<td>WM 2</td>
<td>Black</td>
<td>White</td>
</tr>
</tbody>
</table>

Cable 1 is usually connected to antenna 1 on the module, and cable 2 to antenna 2.
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 130 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).
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.

8. CCD Module