

SERVICE MANUAL

P770ZM

notebook



Notebook Computer

P770ZM

Service Manual

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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 *P770ZM* 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 with an AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19.5V, 11.8A (**230** Watts) minimum AC/DC Adapter.

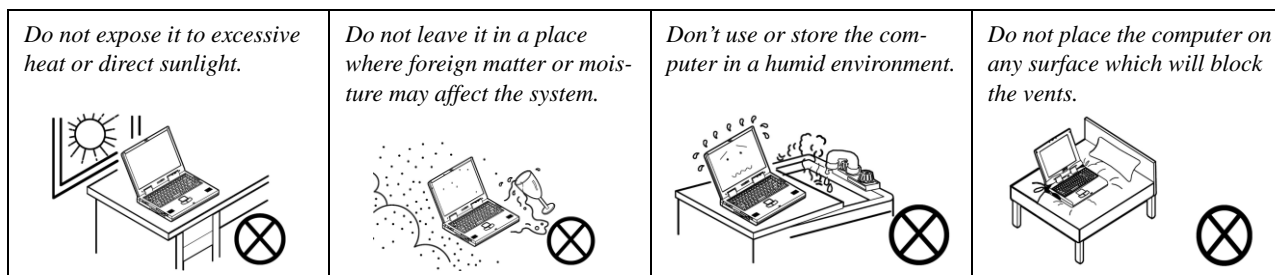
Instructions for Care and Operation

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

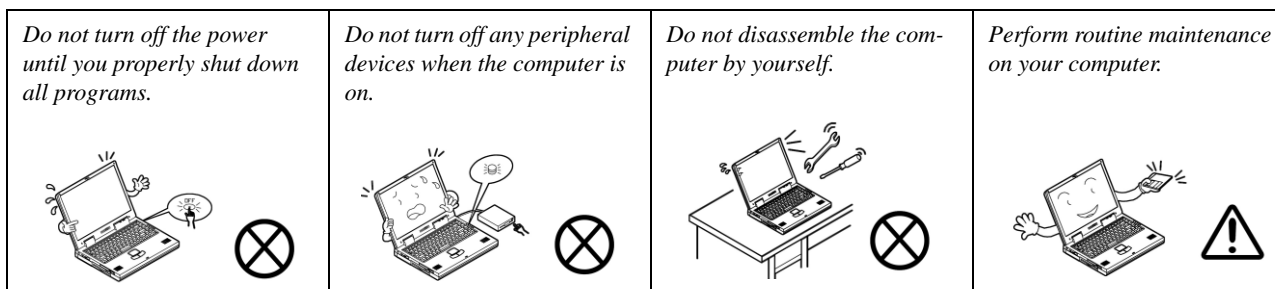
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



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.



Preface



Removal Warning

When removing any cover(s) and screw(s) for the purposes of device upgrade, remember to replace the cover(s) and screw(s) before restoring power to the system.

Also note the following when the cover is removed:

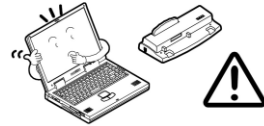
- Hazardous moving parts.
- Keep away from moving fan blades

Power Safety Warning

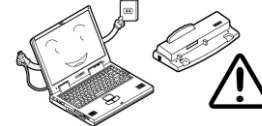
Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord). You must also remove your battery in order to prevent accidentally turning the machine on.

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.**

Use only approved brands of peripherals.



Unplug the power cord before attaching peripheral devices.



Power Safety

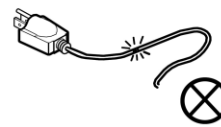
The computer has specific power requirements:

- 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.

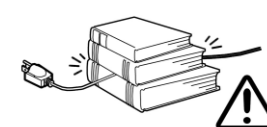
Do not plug in the power cord if you are wet.



Do not use the power cord if it is broken.



Do not place heavy objects on the power cord.



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 Disc

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. Attach the AC/DC adapter to the DC-In jack at the rear of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter (**make sure you use the adapter when first setting up the computer**, 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).
6. Use one hand to raise the lid/LCD to a comfortable viewing angle (do not to exceed **135** 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".

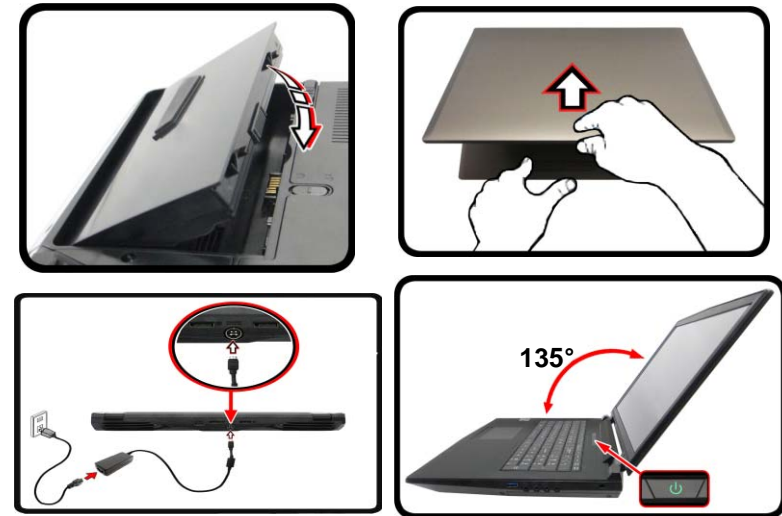


Figure 1
**Opening the Lid/LCD/
Computer with AC/DC
Adapter Plugged-In**

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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **P770ZM** 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 *User's Manual*. That manual is shipped with the computer.

Operating systems (e.g. *Windows 8.1*, etc.) have their own manuals as do application software (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The **P770ZM** 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 note the warning and safety information indicated by the “” symbol.

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

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.



CPU

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

Processor Options

Intel® Core™ i7 Processor

i7-4790K (4.00GHz)

8MB L3 Cache, 22nm, DDR3L-1600MHz, TDP 88W

i7-4790 (3.60GHz)

8MB L3 Cache, 22nm, DDR3L-1600MHz, TDP 84W

i7-4790S (3.20GHz)

8MB L3 Cache, 22nm, DDR3L-1600MHz, TDP 65W

Intel® Core™ i5 Processor

i5-4690K (3.50GHz)

6MB L3 Cache, 22nm, DDR3L-1600MHz, TDP 88W

i5-4460 (3.20GHz)

6MB L3 Cache, 22nm, DDR3L-1600MHz, TDP 84W

Core Logic

Intel® Z97 Chipset

BIOS

AMI BIOS (64Mb SPI Flash-ROM)

LCD Options

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

Video Adapter Options

NVIDIA® GeForce GTX 980M PCIe Video Card

8GB GDDR5 Video RAM on board

Microsoft DirectX® 12 Compatible

NVIDIA® GeForce GTX 970M PCIe Video Card

6GB GDDR5 Video RAM

Microsoft DirectX®12 Compatible

NVIDIA® GeForce GTX 965M PCIe Video Card

4GB GDDR5 Video RAM

Microsoft DirectX®12 Compatible

Memory

Four 204 Pin SO-DIMM Sockets Supporting **DDR3L 1600MHz** Memory

(The real memory operating frequency depends on the FSB of the processor.)

Memory Expandable from **4GB (minimum)** up to **32GB (maximum)**

Pointing Device

Built-in Touchpad (scrolling key functionality integrated)

Keyboard

Full-size Winkey **Illuminated LED** Keyboard (with numeric keypad)

Security

Security (Kensington® Type) Lock Slot

BIOS Password

(**Factory Option**) Fingerprint Reader Module

Trusted Platform Module 2.0

Storage

Two changeable 2.5" (6cm) 7.0mm (h)/ 9.5mm (h) SATA (Serial) Hard Disk Drives/Solid State Drives (SSD) supporting RAID level 0/1

(**Factory Option**) Two M.2 **SATA** 2280 SSDs supporting RAID level 0/1

Or

(**Factory Option**) Two M.2 **PCIe** 2280 SSDs

Card Reader

Embedded Multi-In-1 Push-Push Card Reader

MMC (MultiMedia Card) / RS MMC

SD (Secure Digital) / Mini SD / SDHC/ SDXC (up to UHS-II)

Audio

High Definition Audio Compliant Interface
S/PDIF Digital Output
Two Speakers
Sound Blaster Audio
ANSP™ 3D sound technology on headphone output
Built-In Array Microphone
Sub-Woofer

External 7.1CH Audio Output Supported by Headphone, Microphone, Line-In and S/PDIF Out Jacks

Interface

Four USB 3.0 Ports (Including one AC/DC Powered USB port)
One eSATA Port (USB 3.0 Port Combined)
One HDMI-Out Port
Two DisplayPorts (1.2)
One S/PDIF Out Jack
One Headphone/Speaker-Out Jack
One Microphone-In Jack
One Line-In Jack
One RJ-45 LAN Jack
One DC-In Jack

M.2 Slots

Slot 1 for **Combo WLAN and Bluetooth** Module
Slot 2 for **SATA** or **PCIe x2** or **PCIe x4 SSD**
Slot 3 for **SATA** or **PCIe x2 SSD**

Communication

Built-In Gigabit Ethernet LAN
2.0M FHD PC Camera Module

WLAN/ Bluetooth M.2 Modules:

(**Factory Option**) Intel® Wireless-AC 7265 Wireless LAN (802.11ac) + Bluetooth 4.0

(**Factory Option**) Intel® Wireless-N 7265 Wireless LAN (802.11b/g/n) + Bluetooth 4.0

(**Factory Option**) Intel® Wireless-AC 3160 Wireless LAN (802.11ac) + Bluetooth 4.0

(**Factory Option**) Third-Party Wireless LAN 802.11b/g/n + Bluetooth 4.0

(**Factory Option**) Qualcomm® Atheros Killer Wireless-AC 1525 Wireless LAN (802.11ac) + Bluetooth 4.0

Environmental Spec

Temperature

Operating: 10°C - 35°C
Non-Operating: -20°C - 60°C

Relative Humidity

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

Power

Removable 8-cell Smart Lithium-Ion Battery Pack, 82WH

Full Range AC/DC Adapter
AC Input: 100 - 240V, 50 - 60Hz
DC Output: 19.5V, 11.8A (**230W**)

Dimensions & Weight

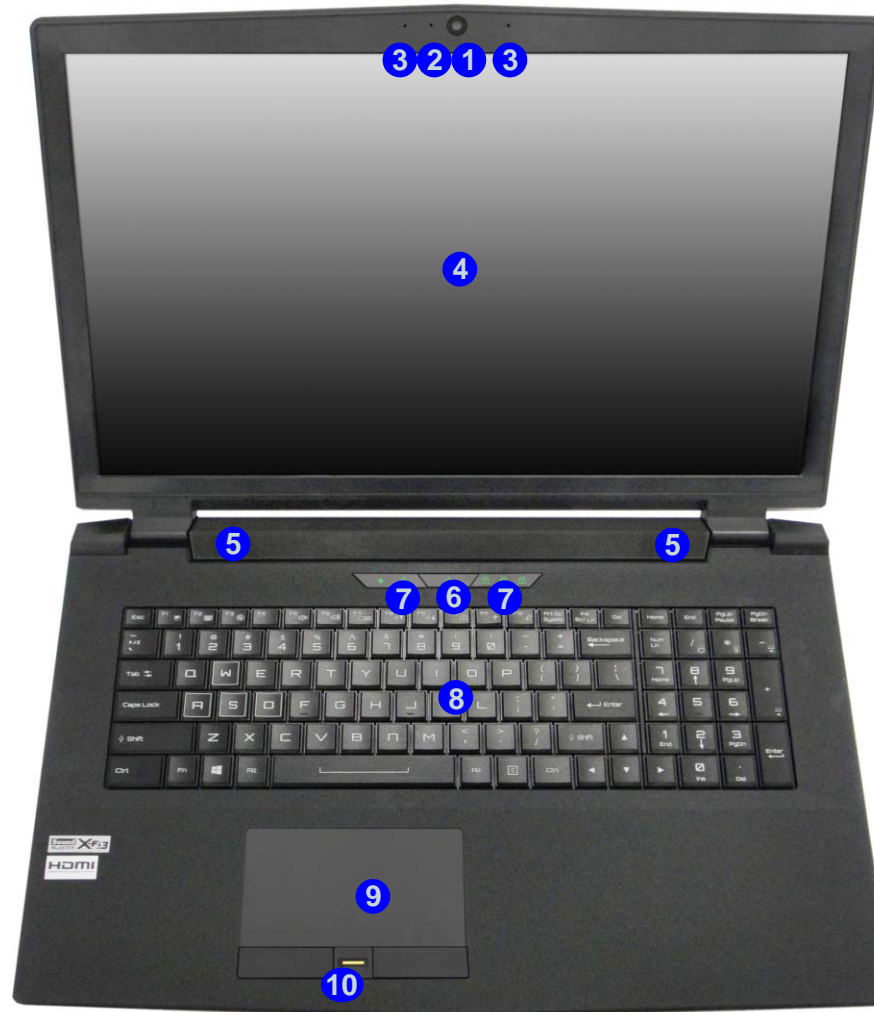
418mm (w) * 282mm (d) * 16 - 38.7mm (h)
3.9kg (Barebone System with Video Card and 82WH Battery)

Introduction

External Locator - Top View with LCD Panel Open

Figure 1
Top View

1. PC Camera
2. PC Camera LED
3. Built-In Microphone
4. LCD
5. Speakers
6. Power Button
7. LED Lock Indicators
8. Keyboard
9. TouchPad and Buttons
10. Fingerprint Reader (Optional)



External Locator - Front & Right side Views



Figure 2
Front Views

1. Light Bar
2. LED Power Indicators



Figure 3
Right Side Views

1. USB 3.0 Port
2. S/PDIF-Out Jack
3. Headphone Jack
4. Microphone Jack
5. Line-In Jack
6. Security Lock Slot

Introduction

External Locator - Left Side & Rear View

Figure 4
Left Side View

1. RJ-45 LAN Jack
2. USB 3.0 Port
3. USB 3.1 Ports
4. Multi-in-1 Card Reader
5. Combined eSATA/Powered USB 3.0 Port



Figure 5
Rear View

1. Vent/Fan Intake
2. HDMI-Out Port
3. Display Ports
4. DC-In Jack



External Locator - Bottom View



Figure 6
Bottom View

1. Vent
2. Battery
3. Sub Woofer
4. HDD Bay



Overheating

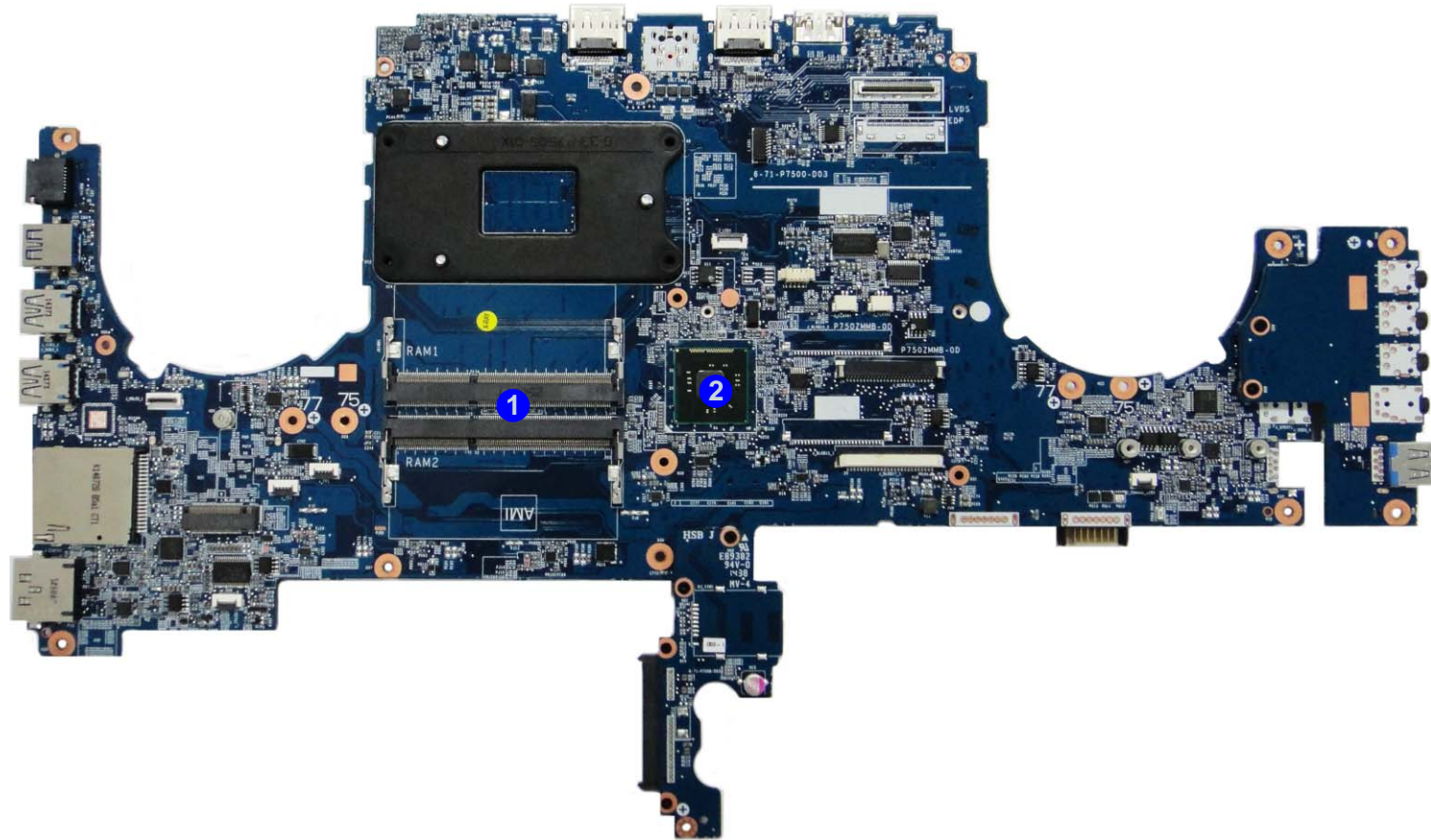
To prevent your computer from overheating make sure nothing blocks the vent/fan intakes while the computer is in use.

Introduction

Figure 7
**Mainboard Top
Key Parts**

1. Memory Slots
DDR3L SO-DIMM
2. Platform
Controller Hub

Mainboard Overview - Top (Key Parts)



Mainboard Overview - Bottom (Key Parts)

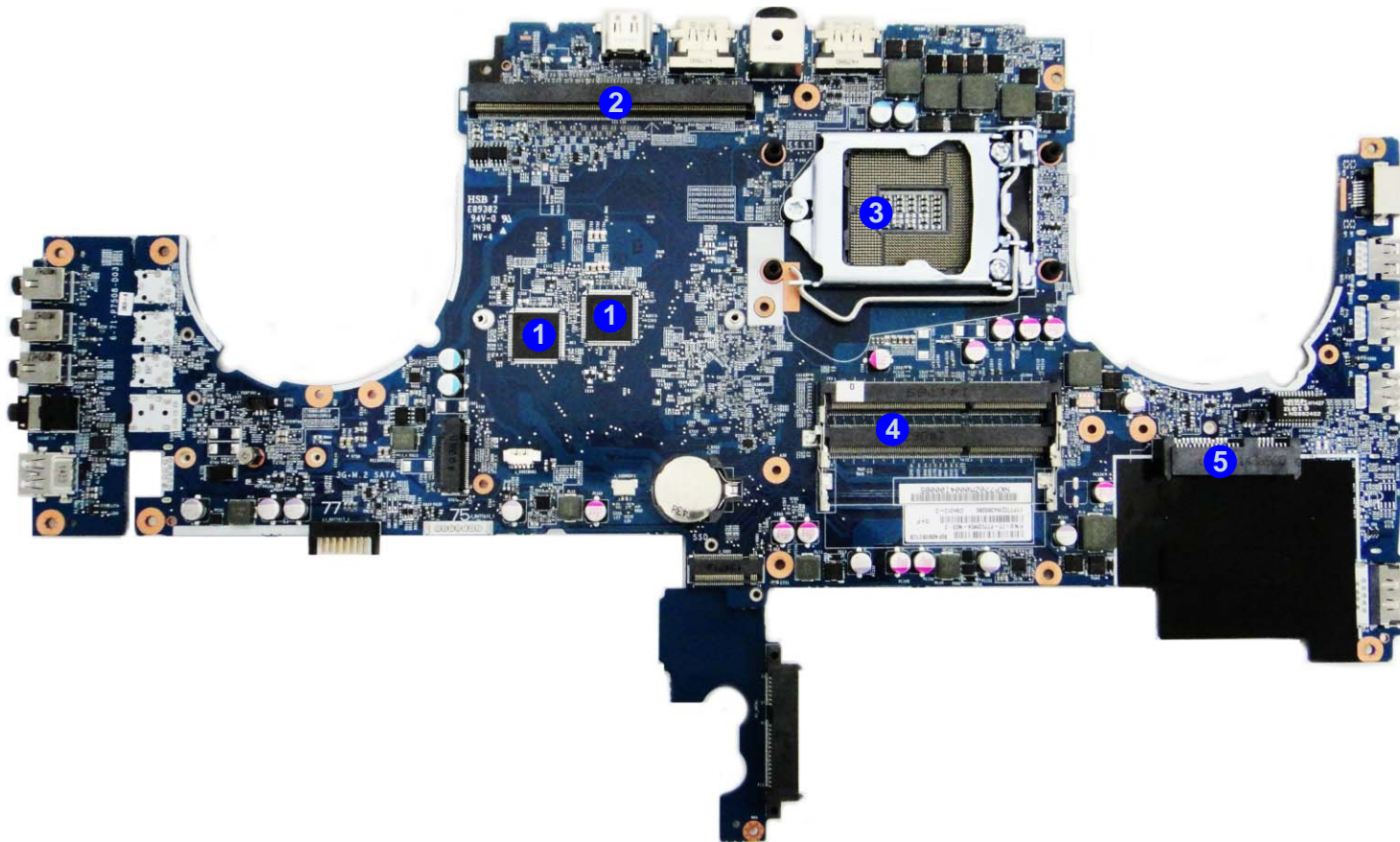


Figure 8
**Mainboard Bottom
Key Parts**

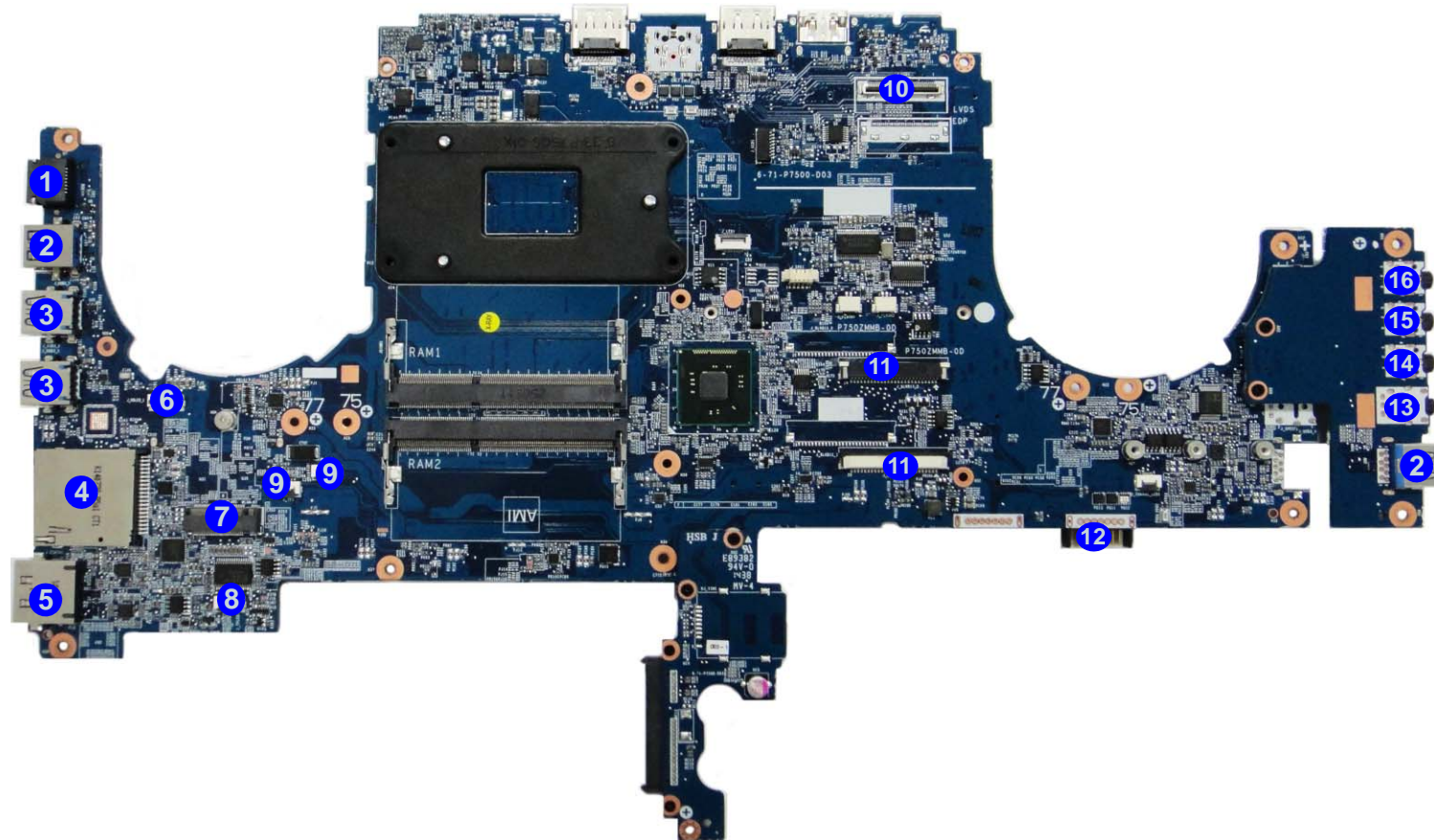
1. KBC ITE IT8587
2. VGA-Card Connector
3. CPU Socket (no CPU installed)
4. Memory Slots DDR3L SO-DIMM (Primary)
5. Hard Disk Connector

Introduction

Mainboard Overview - Top (Connectors)

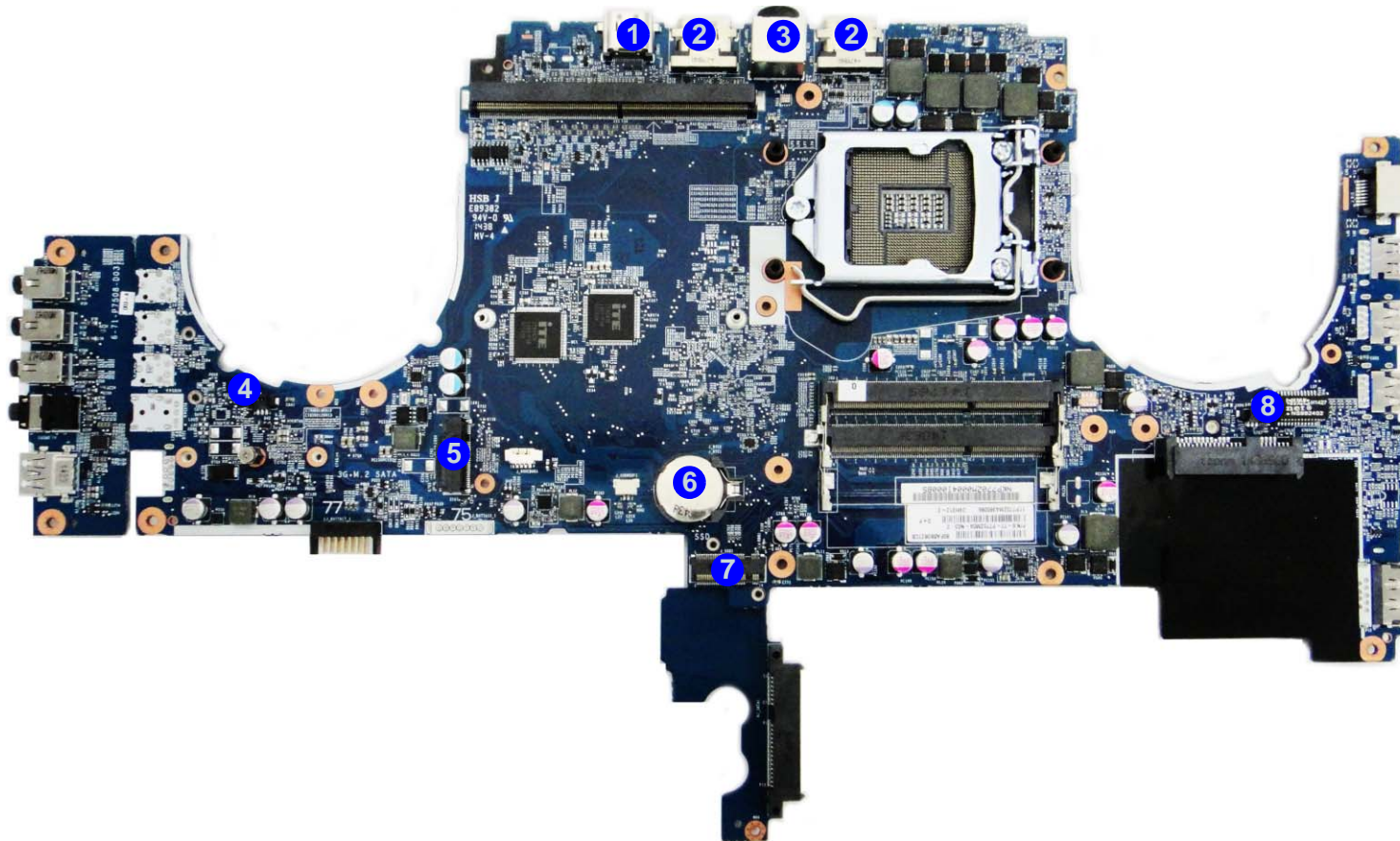
Figure 9
**Mainboard Top
Connectors**

1. RJ-45 LAN Jack
2. USB 3.0 Port
3. USB 3.1 Port
4. Multi-in-1 Card Reader
5. USB 3.0 Port / e-SATA
6. KB LED Connector
7. WLAN Card Connector
8. Button LED Connector
9. TP FFC Cable Connector
10. Panel Cable Connector
11. Keyboard Cable Connector
12. Battery Connector
13. S/PDIF-Out Jack
14. Headphone Jack
15. Microphone Jack
16. Line-In Jack



Mainboard Overview - Bottom (Connectors)

Figure 10
Mainboard Bottom Connectors



1. HDMI-Out Port
2. Display Port
3. DC-In Jack
4. VGA Fan Cable Connector
5. 3G / SSD Connector
6. CMOS Battery
7. SSD Connector
8. CPU Fan Cable Connector


Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the *P770ZM* 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-borne 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.



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). You must 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 [page 2 - 5](#)

To remove the HDD:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Install the HDD [page 2 - 8](#)

To remove the M.2 SSD:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Remove the M.2 SSD [page 2 - 10](#)

To remove the Primary System Memory:

1. Remove the battery [page 2 - 5](#)
2. Remove the system memory [page 2 - 11](#)

To remove the System Memory under the Keyboard:

1. Remove the battery [page 2 - 5](#)
2. Remove the keyboard [page 2 - 13](#)
3. Remove the system memory [page 2 - 14](#)

To remove and install the Processor:

1. Remove the battery [page 2 - 5](#)
2. Remove the system memory [page 2 - 11](#)
3. Remove the processor [page 2 - 15](#)
4. Install the processor [page 2 - 17](#)

To remove the WLAN Module:

1. Remove the battery [page 2 - 5](#)
2. Remove the keyboard [page 2 - 11](#)
3. Remove the wireless LAN [page 2 - 18](#)

To remove and install the M.2 SATA:

1. Remove the battery [page 2 - 5](#)
2. Remove the system memory [page 2 - 11](#)
3. Remove the M.2 SATA [page 2 - 20](#)
4. Install the M.2 SATA [page 2 - 21](#)

To remove and install the Video Card:

1. Remove the battery [page 2 - 5](#)
2. Remove the video card [page 2 - 22](#)
3. Install the video card [page 2 - 23](#)

Removing the Battery

1. Turn the computer **off**, and turn it over.
2. Slide the latch **1** in the direction of the arrow (*Figure 1a*).
3. Slide the latch **2** in the direction of the arrow, and hold it in place (*Figure 1a*).
4. Lift the battery in the direction of the arrow **3**.
5. Lift the battery **4** out of the compartment (*Figure 1c*).

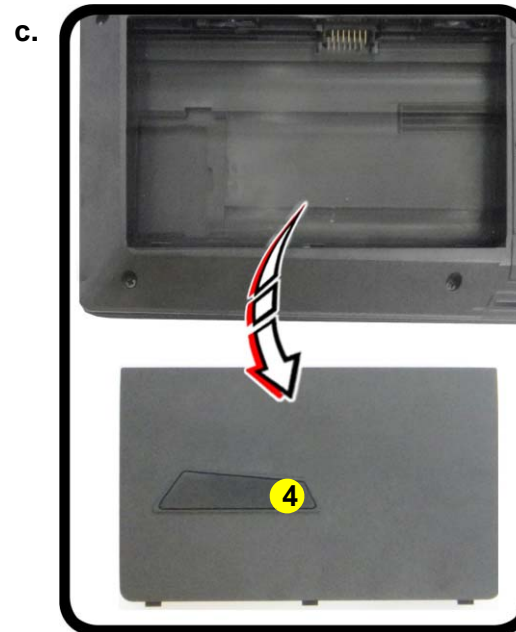
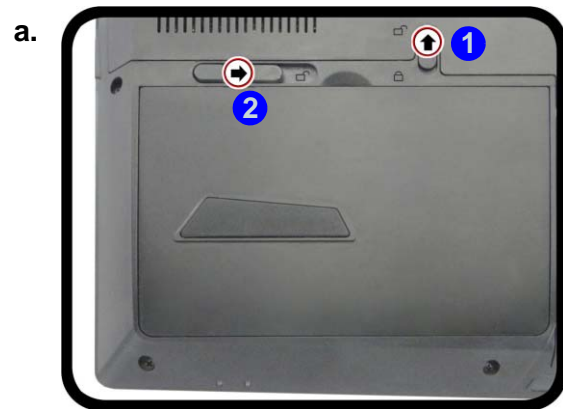
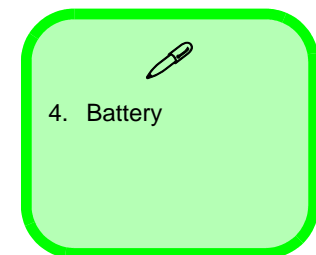


Figure 1
Battery Removal

- a. Slide the latch and hold in place.
- b. Lift the battery up toward the direction of the arrow.
- c. Lift the battery out.



Disassembly

Figure 2
**HDD Assembly
Removal**

- Locate the HDD bay cover and remove the screws.
- Remove the hard disk bay cover by sliding the cover at point ③.

Removing and Installing 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/ 9.5mm (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.

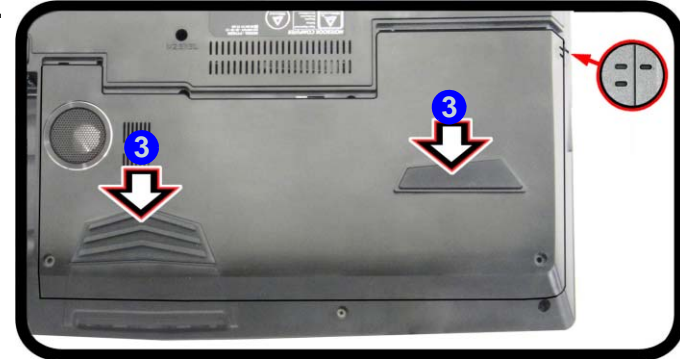
Hard Disk Removal Process

- Turn **off** the computer, and remove the battery ([page 2 - 5](#)).
- Locate the hard disk bay cover and remove screws ① - ② ([Figure 2a](#)).
- Remove the hard disk bay cover by sliding the cover at point ③ ([Figure 2b](#)).

a.



b.



- 2 Screws



HDD System Warning

New HDD's are blank. Before you begin make sure:

You have backed up any data you want to keep from your old HDD.

You have all the CD-ROMs and FDDs required to install your operating system and programs.

If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

4. Lift the hard disk bay cover **4** off the computer (*Figure 3c*)
5. Slightly lift and pull the HDD-1 assembly in the direction of the arrow **5** to remove the hard disk assembly **6** (*Figure 3d*).
6. Slightly lift and pull the HDD-2 assembly (if available) in the direction of the arrow **7** to remove the hard disk assembly **8** (*Figure 3e*).
7. Remove screws **9** - **12** and the adhesive cover **13** from the hard disk **14** (*Figure 3f*).
8. Reverse the process to install a new hard disk (do not forget to replace all the screws and covers).

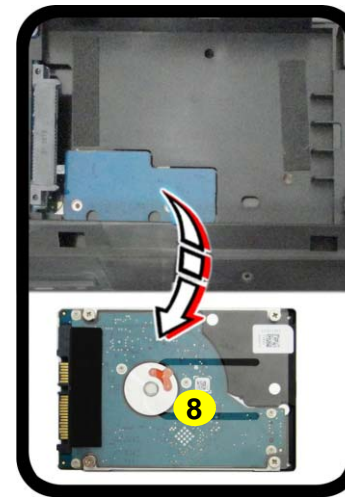
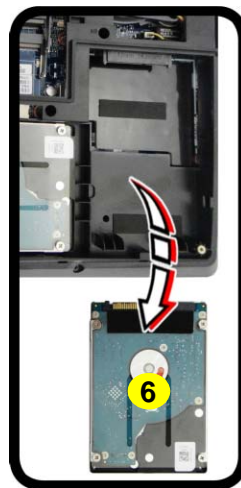
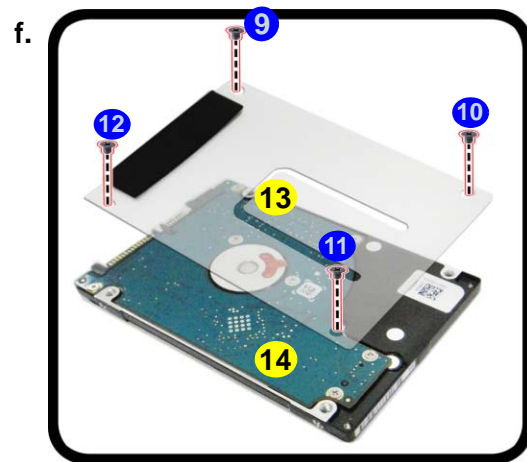
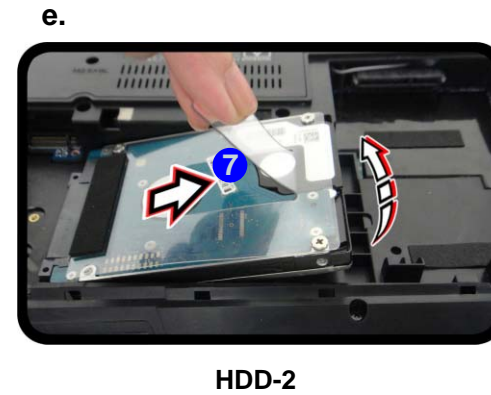
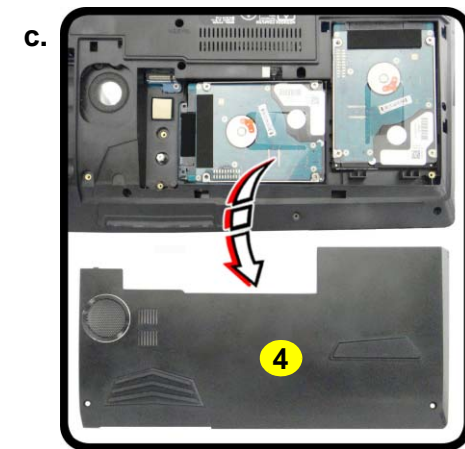


Figure 3
HDD Assembly Removal (cont'd.)

- c. Remove the HDD bay cover.
- d. Lift and pull the HDD-1 assembly in the direction of the arrow to remove the hard disk assembly.
- e. Lift and pull the HDD-2 assembly in the direction of the arrow to remove the hard disk assembly.
- f. Remove the screws and the adhesive cover.



- 4. HDD Bay Cover
- 6. HDD-1 Assembly
- 8. HDD-2 Assembly
- 13. Adhesive Cover
- 14. HDD
- 4 Screws

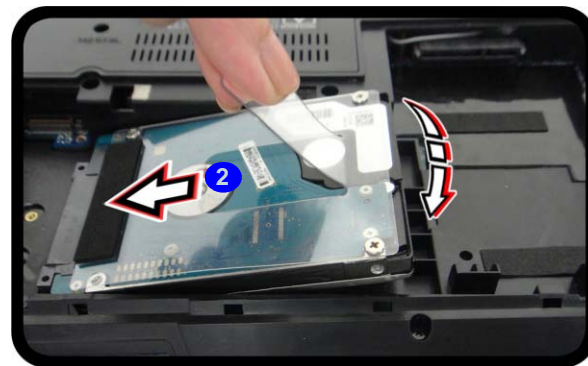
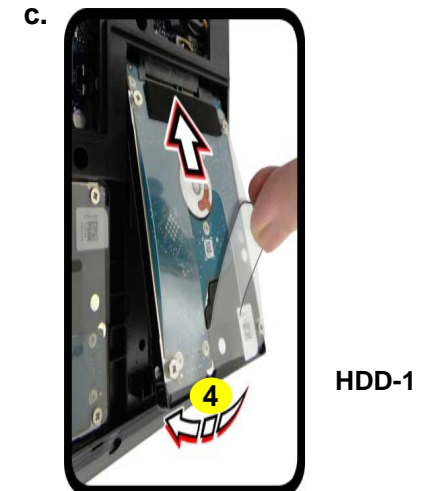
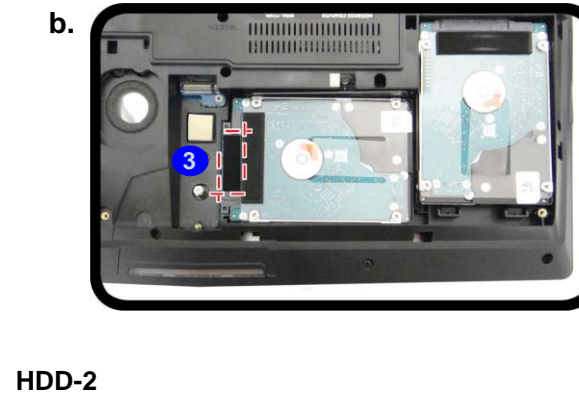
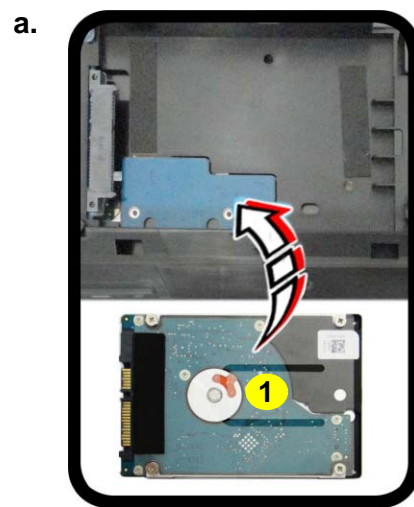
Disassembly

Figure 4 HDD Assembly Installation

- Insert the HDD-2 assembly in the direction of the arrow to install the hard disk assembly.
- Place the rubber foam insert as shown
- Insert the HDD-1 assembly in the direction of the arrow to install the hard disk assembly.

Hard Disk Installation Process

- Turn off the computer, and remove the battery ([page 2 - 5](#)).
- Insert the HDD-2 assembly **1** (if available) in the direction of the arrow **2** to install it ([Figure 3a](#)).
- After installing HDD-2 assembly, place the rubber foam insert **3** as shown ([Figure 3b](#)).
- Insert the HDD-1 assembly **4** in the direction of the arrow **5** to install it ([Figure 3c](#)).
- Replace the hard disk bay cover and screws (see [page 2 - 6](#)).



- HDD-1 Assembly
- HDD-2 Assembly

Hard Disk Size Note (Foam Rubber Insert)

Note that the hard disks pictured on the following pages are all 9.5mm(H) hard disk drives. In some cases 7mm(H) hard disk drives will be installed.

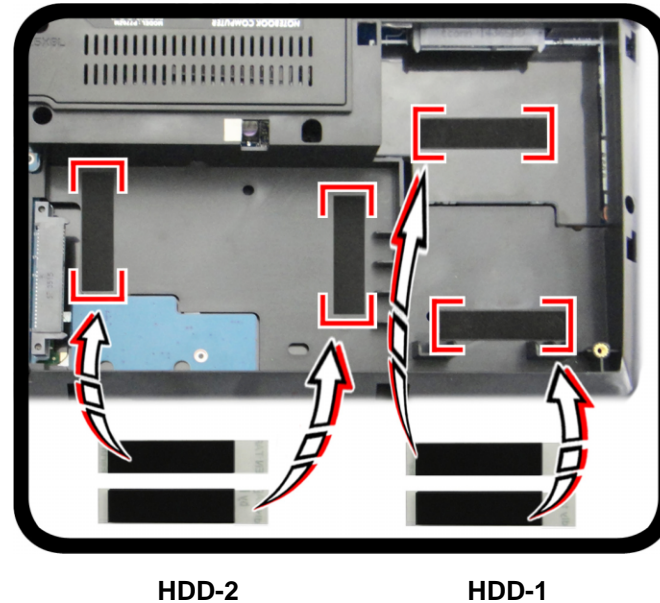


Figure 5
**Foam Rubber
Insert for 7mm(H)
HDDs**

- If you are replacing a 9.5mm(H) HDD with a 7mm(H) HDD then insert the foam rubber insert.
- If you are replacing a 7mm(H) HDD with a 9.5mm(H) HDD then remove the foam rubber insert.

Disassembly

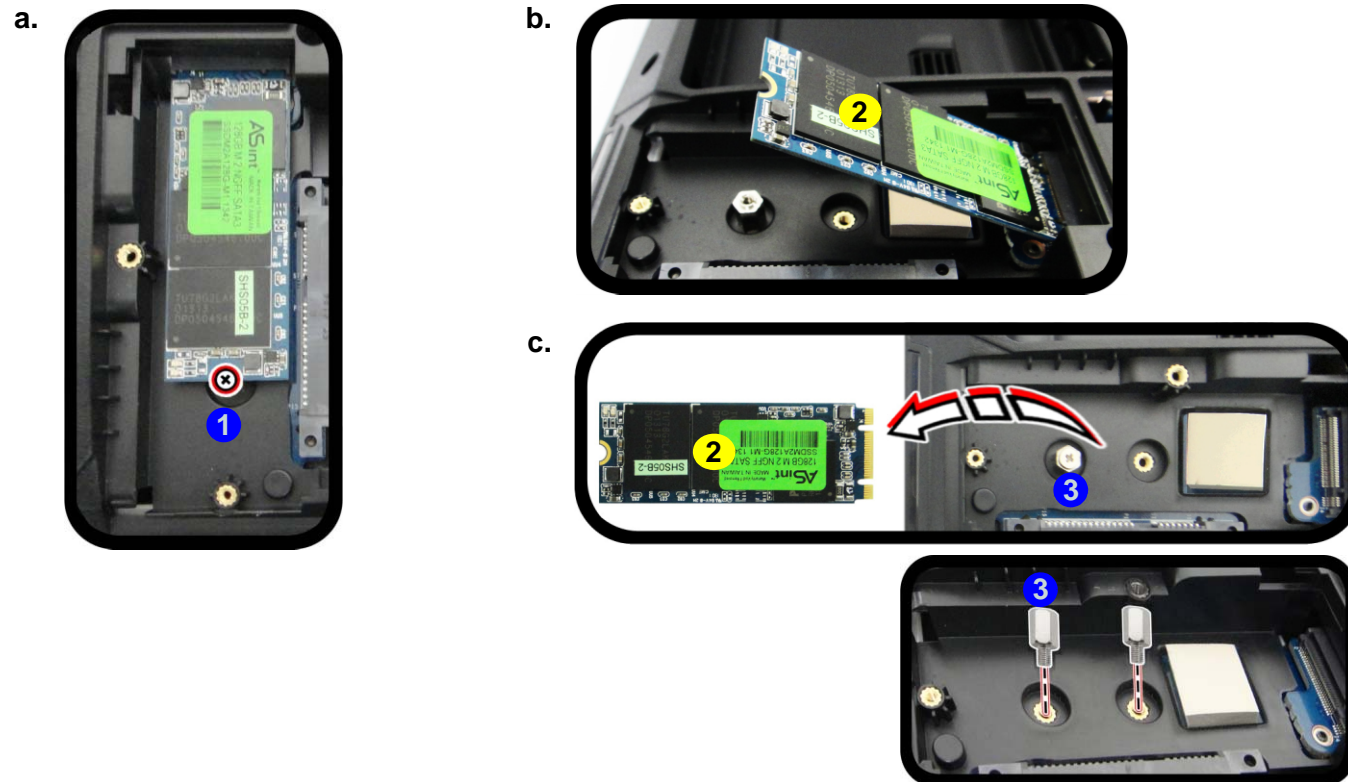
Figure 6
**M.2 SSD Module
 Removal**

- Remove the screws.
- The module will pop up.
- Lift the module out.

Removing the M.2 SSD Module

Note that the SSD (if installed) is beside the HDD bay.

- Turn **off** the computer, and turn it over, remove the battery ([page 2 - 5](#)).
- Remove the screw **1** from the SSD ([Figure 6a](#)).
- The M.2 SSD module **2** will pop-up ([Figure 6b](#)).
- Lift the M.2 SSD module **2** up and off the computer ([Figure 6c](#)).
- Reverse the process to install a new SSD (make sure that the hexagonal screw **3** is in the correct location depending upon the size of the module).



2. M.2 SSD Module

- 1 Screw

Removing the Primary System Memory (RAM)

The computer has **four** memory sockets for 204 pin Small Outline Dual In-line (SO-DIMM) **DDR 3L** type memory modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

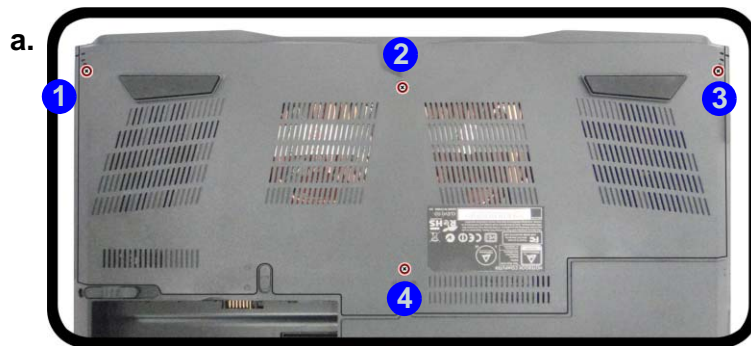
Note that **four SO-DIMMs are only supported by Quad-Core CPUs; Dual-Core CPUs support two SO-DIMMs maximum.**

Two primary memory sockets are located under component bay cover (the bottom case cover), and two secondary memory sockets are located under the keyboard (not user upgradable). If you are installing only two RAM modules then they should be installed in the primary memory sockets under the component bay cover.

Note that the RAM located under the keyboard is not user upgradable.

Memory Upgrade Process

1. Turn **off** the computer, and turn it over, remove the battery ([page 2 - 5](#)).
2. Remove screws **1** - **4**.
3. Slide the bottom cover until the cover and case indicators **5** are aligned ([Figure 7a](#)).



- Note that the size of screw **4** is M2.5 x 8L.

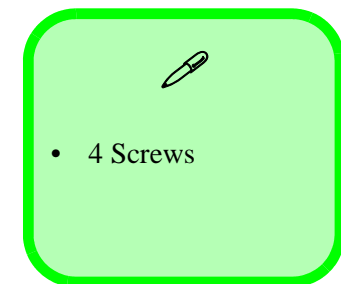


Figure 7
RAM Module Removal

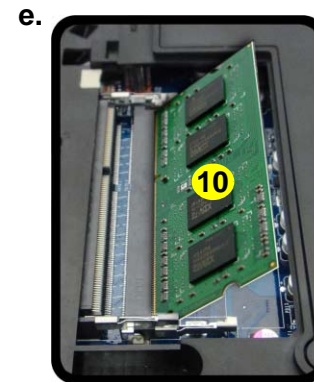
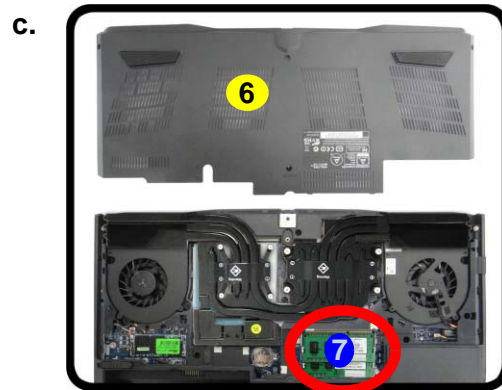
- a. Remove the screws. Slide the bottom cover until the cover and case indicators are aligned.

Disassembly

Figure 8 RAM Module Removal (cont'd.)

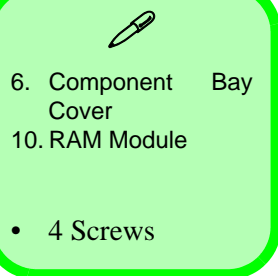
- c. Lift the component bay cover off the computer case. The modules will be visible at point 7.
- d. Gently pull the two release latches on the sides of the memory socket(s) in the direction indicated below.
- e. The RAM module will pop-up, and you can remove it.

4. Lift the component bay cover 6 off the computer case. The modules will be visible at point 7 (Figure 8c).
5. Gently pull the two release latches (8 & 9) on the sides of the memory socket(s) in the direction indicated below (Figure 8d).
6. The RAM module 10 will pop-up, and you can remove it (Figure 8e).
7. Pull the latches to release the second module if necessary.
8. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
9. The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE the module; it should fit without much pressure.
10. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
11. Replace the bay cover and screws.
12. 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.



Removing the System Memory (RAM) from Under the Keyboard

The computer has **four** memory sockets for 204 pin Small Outline Dual In-line (SO-DIMM) DDR 3L type memory modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

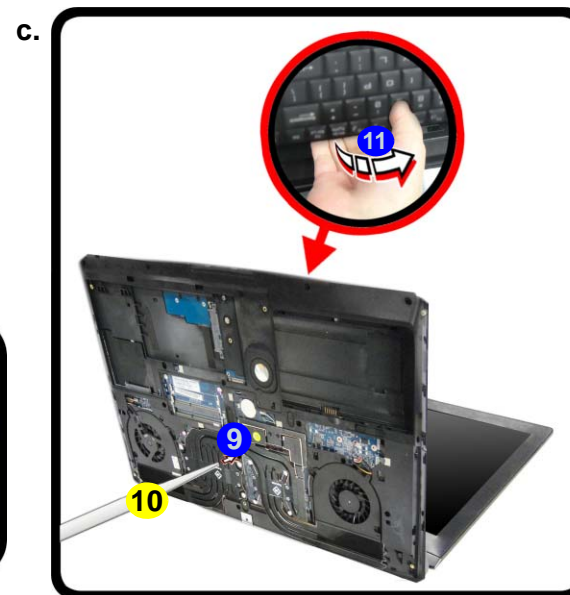
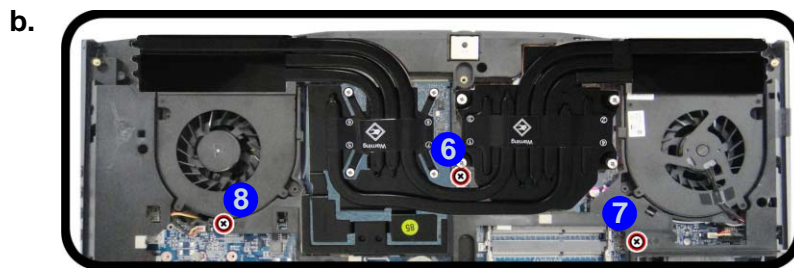
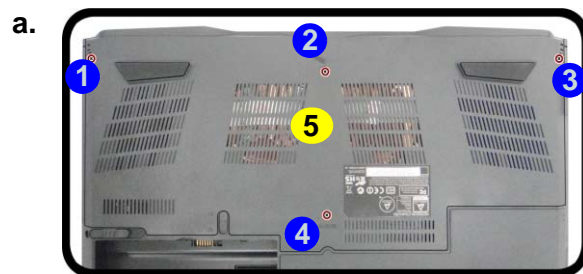
Two primary memory sockets are located under component bay cover (the bottom case cover), and two secondary memory sockets are located under the keyboard. If you are installing only two RAM modules then they should be installed in the primary memory sockets under the component bay cover.

Memory Upgrade Process

1. Turn **off** the computer, and turn it over, remove the battery ([page 2 - 5](#)).
2. Remove screws **1** - **4** and the component bay cover **5** ([Figure 9a](#)).
3. Remove screws **6** - **8** from the bottom of the computer ([Figure 9b](#)).
4. Open it up with the LCD on a flat surface before pressing at point **9** to release the keyboard module (use an eject stick **10** to do this with a diameter no bigger than 2.5mm) while releasing the keyboard in the direction of the arrow **11** as shown ([Figure 9c](#)).

Figure 9
Keyboard Removal

- Remove the screws and component bay cover.
- Remove the screws.
- Eject the keyboard using a special eject stick to push the keyboard out while releasing the keyboard as shown.



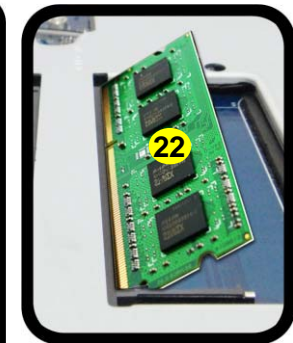
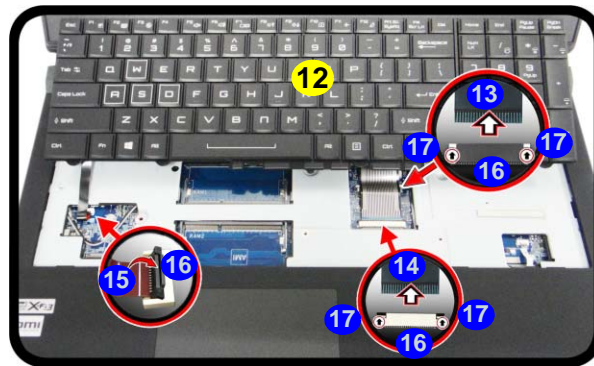
5. Top Cover Module
10. Eject Stick

- 7 Screws

Disassembly

Figure 10
RAM Module Removal

- d. Lift the keyboard up, and disconnect the keyboard ribbon cable from the locking collar socket.
 - e. Remove the keyboard and the memory sockets will be visible.
 - f. Pull the two release latches on the sides of the memory socket(s) in the direction indicated.
5. Carefully lift the keyboard **12** up, being careful not to bend the keyboard ribbon cables **13** - **15**.
 6. Disconnect the keyboard ribbon cables **13** - **15** from the locking collar socket **16** by using a small flat-head screwdriver to pry the locking collar pins **17** away from the base (*Figure 10d*).
 7. Remove the keyboard and the memory sockets **18** & **19** will be visible.
 8. Gently pull the two release latches (**20** & **21**) on the sides of the memory socket(s) in the direction indicated below.
 9. The RAM module **22** will pop-up, and you can remove it.
 10. Pull the latches to release the second module if necessary.
 11. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
 12. The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the slot as it will go. **DO NOT FORCE** the module; it should fit without much pressure.
 13. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
 14. Replace the bay cover and screws.
 15. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.



12. Keyboard
22. RAM Modules



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.

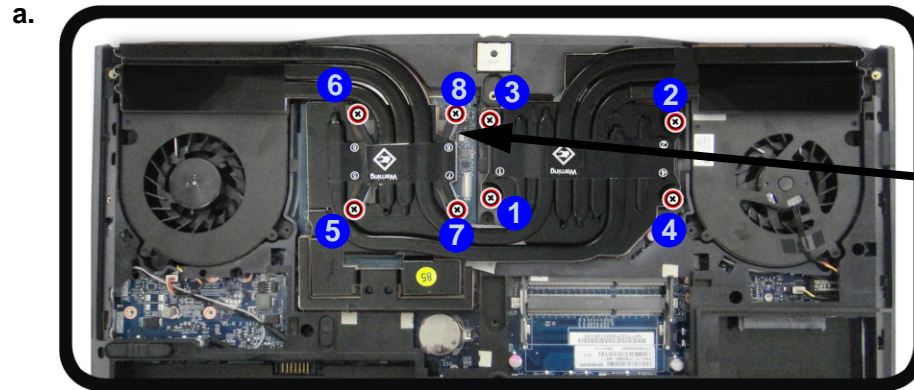
Removing and Installing the Processor

Processor Removal Procedure

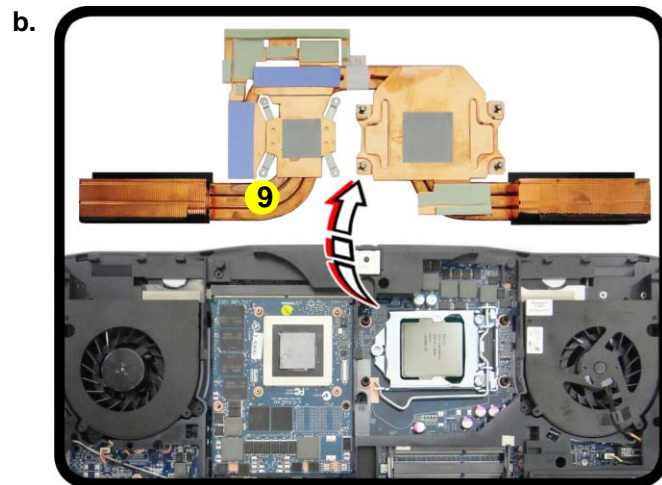
1. Turn **off** the computer, remove the battery ([page 2 - 5](#)), and component bay cover ([page 2 - 11](#)).
2. Remove screws **1** - **8** from the heat sink unit in the order indicated on the label (i.e screw **8** first through to screw **1** last [Figure 11a](#)).
3. Carefully (it may be hot) remove the heat sink unit **9** ([Figure 11b](#)).


Figure 11
Processor Removal Procedure

- a. Remove the screws in the correct order.
- b. Carefully remove the heat sink unit.



Note:
Loosen the screws in the reverse order 8-7-6-5-4-3-2-1 as indicated.





9. Heat Sink Unit

- 8 Screws

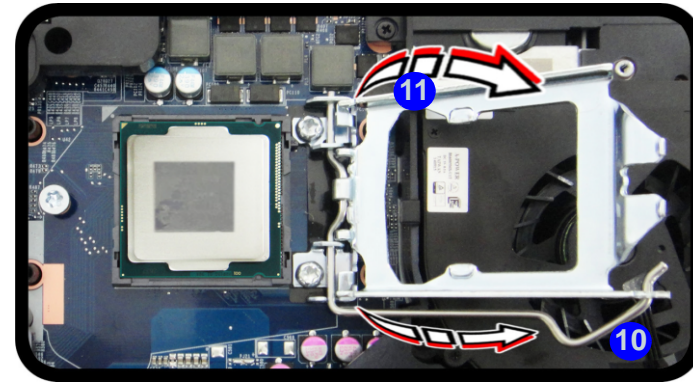
Disassembly

Figure 12 Processor Removal (cont'd)

- c. Move the latch and bracket fully in the direction indicated to unlock the CPU.
- d. Lift the CPU out of the socket.

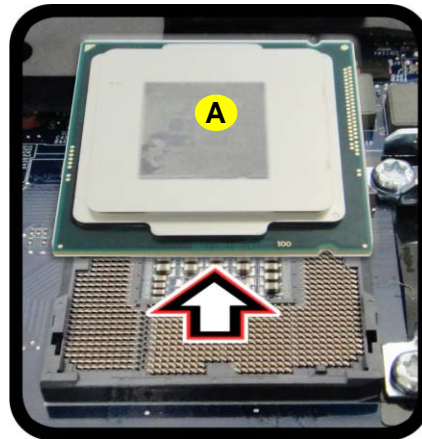
4. Press down and hold the latch **10** (with the latch held down you will be able to release it).
5. Move the latch **10** and bracket **11** fully in the direction indicated to unlock the CPU (*Figure 12c*).
6. Carefully (it may be hot) lift the CPU **A** up out of the socket (*Figure 12d*).
7. See [page 2 - 17](#) for information on inserting a new CPU.
8. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).

c.



Unlock

d.



Caution

The heat sink, and CPU area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.



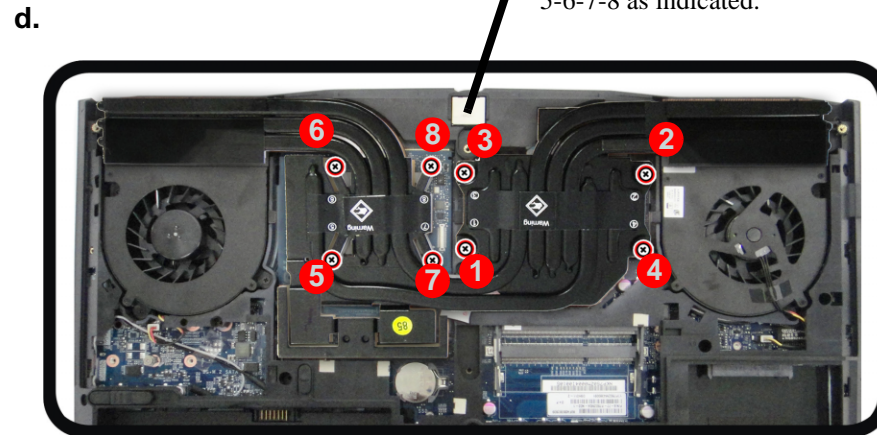
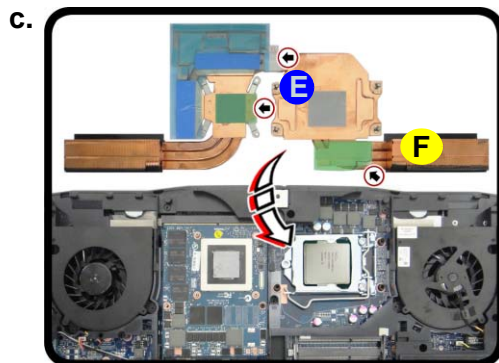
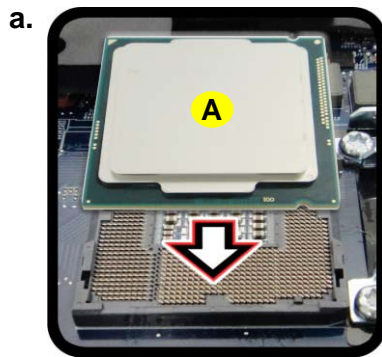
A. CPU

Processor Installation Procedure

1. Insert the CPU **A**; pay careful attention to the pin alignment (*Figure 13a*), it will fit only one way (DO NOT FORCE IT!).
2. Move the bracket **B** and latch **C** fully in the direction indicated to lock the CPU.
3. Apply the thermal grease **D** to the top of the CPU as shown (*Figure 13b*).
4. **Remove the sticker **E**** (*Figure 13c*) from the heat sink unit (if it is a new unit).
5. Insert the heat sink unit **F** as indicated in *Figure 13c*.
6. Tighten the CPU heat sink screws in the order **1** - **8** (the order as indicated on the label and *Figure 13d*).
7. Replace the CPU fan, component bay cover and tighten the screws (*page 2 - 15*).

Figure 13
Processor Installation

- a. Insert the CPU.
- b. Move the latch and bracket fully in the direction indicated to lock the CPU. Apply thermal grease.
- c. Remove the sticker from the heat sink unit and insert the heat sink.
- d. Tighten the screws.



Note:
Tighten the screws in the order 1-2-3-4-5-6-7-8 as indicated.

A. CPU
F. Heat Sink

- 8 Screws

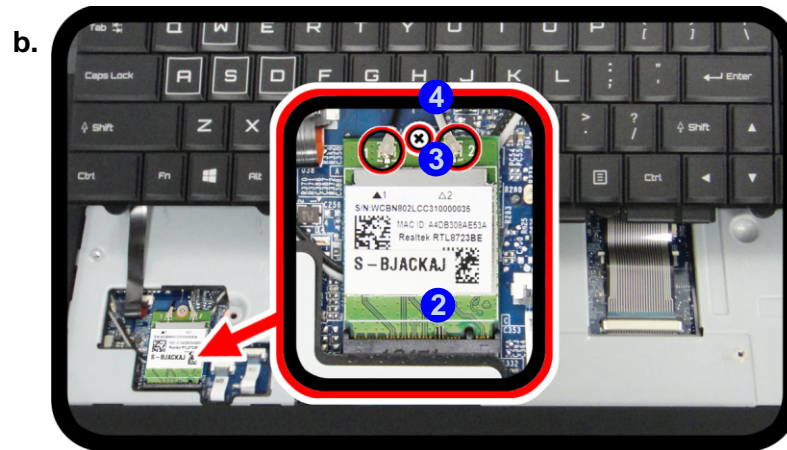
Disassembly

Figure 14
Wireless LAN
Module Removal

- The Wireless LAN module will be visible at point 1 under the keyboard.
- Disconnect the cables and remove the screw.
- The WLAN module will pop up.
- Lift the WLAN module out.

Removing the Wireless LAN Module

- Turn off the computer, remove the battery (page 2 - 5) and the keyboard (page 2 - 13).
- The Wireless LAN module will be visible at point 1 under the keyboard (Figure 14a).
- Carefully disconnect cables 2 - 3, then remove screw 4 from the module socket (Figure 14b).
- The Wireless LAN module 5 will pop-up (Figure 14c).
- Lift the Wireless LAN module (Figure 14d) up and off the computer.



5. WLAN Module

- 1 Screw

Wireless LAN, 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	WM 1	Black	Transparent
	WM 2	Gray	
	WM 3	White	

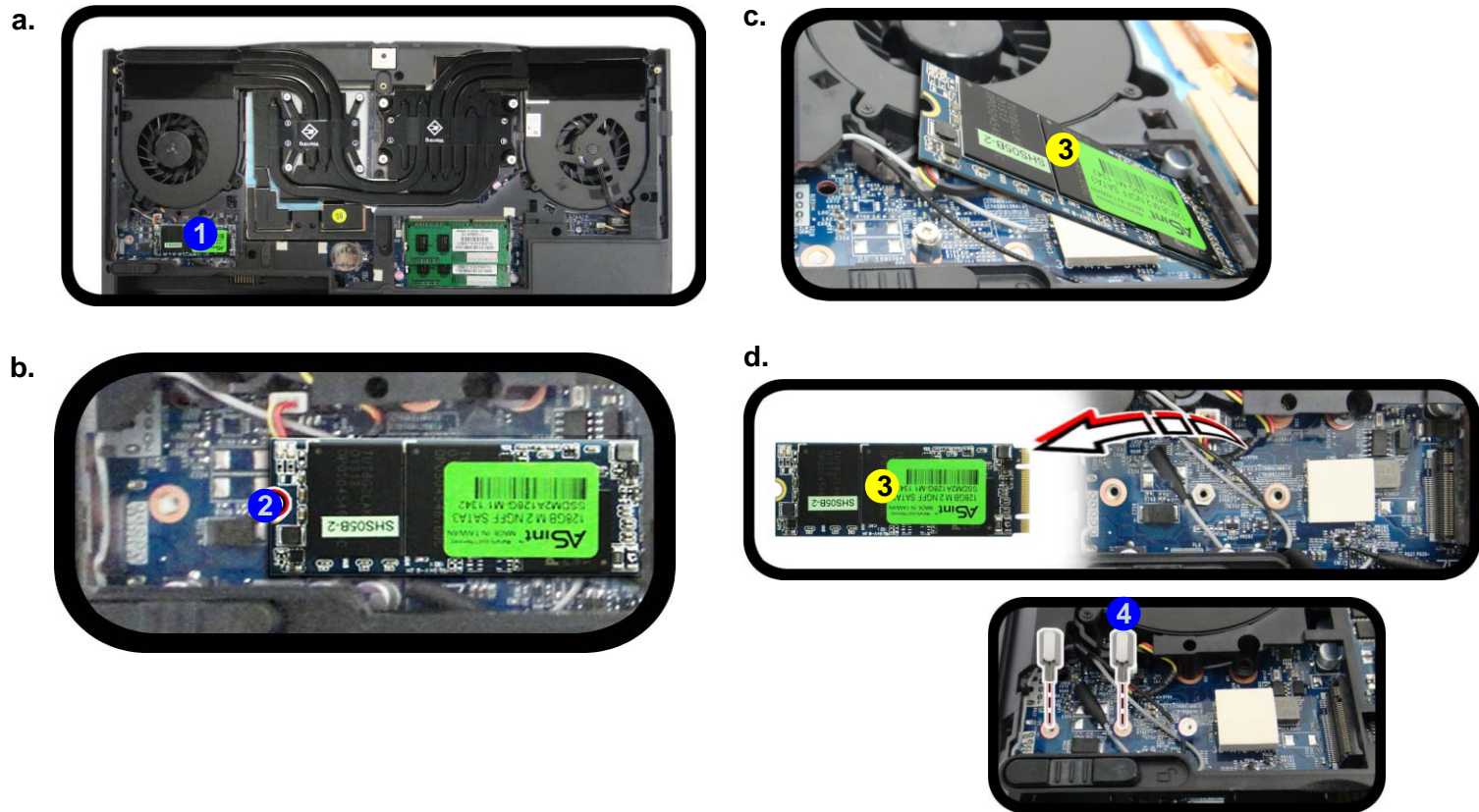
Cable 1 is usually connected to antenna 1 (Main) on the module, and cable 2 to antenna 2 (Aux).

Disassembly

Figure 15
M.2 SATA Module Removal

Removing the M.2 SATA Module

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)), and component bay cover ([page 2 - 11](#)).
 2. Locate the module; it is visible at point **1** ([Figure 15a](#)).
 3. Carefully remove the screw **2** from the module ([Figure 15b](#)).
 4. The M.2 SATA module **3** will pop-up ([Figure 15c](#)).
 5. Lift the M.2 SATA module **3** up and off the computer ([Figure 15d](#)).
 6. Reverse the process to install a new SSD (make sure that the hexagonal screw **4** is in the correct location).
- a. Locate the module.
b. Remove the screw.
c. The module will pop-up.
d. Lift the module up off the socket.



3. MSATA Module

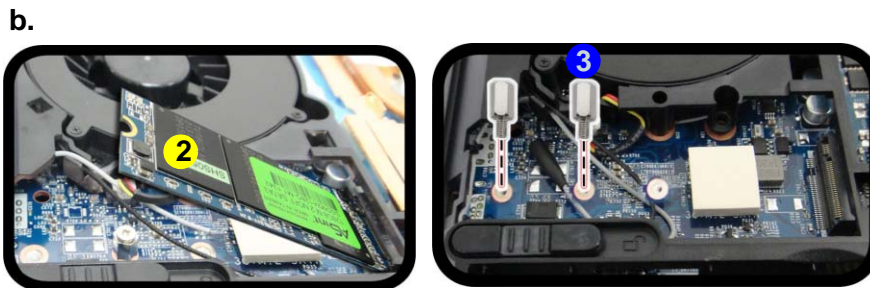
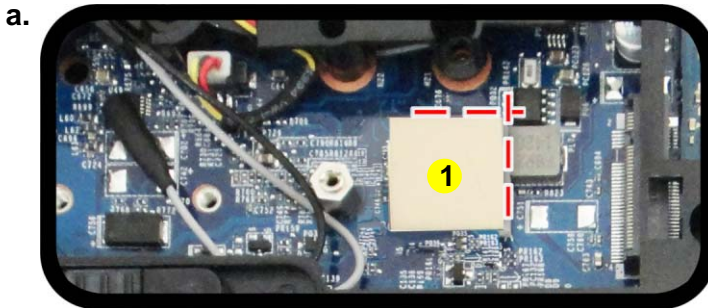
- 1 Screw


M.2 SATA Installation Procedure

1. Place the thermal pad **1** on the computer as shown (*Figure 16a*).
2. Insert the module **2** in the computer. Make sure that the hexagonal screw **3** is in the correct location (*Figure 16b*).
3. Tighten the screw **4** to secure it in place (*Figure 16c*).

Figure 16
M.2 SATA Module Installation

- a. Place the thermal pad.
- b. Insert the module.
- c. Tighten the screw.

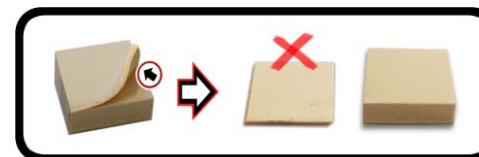
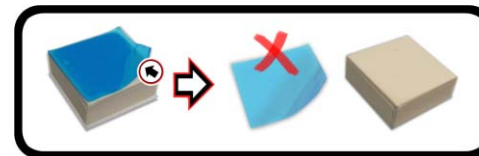




Thermal Pad

Make sure you place the thermal pad's adhesive side down onto the computer surface as illustrated.

The usage of the thermal pad will depend upon the thickness of the module being used.

- If you are using the thinner module, then apply the whole thermal pad provided on the computer.
- If you are using the thicker module, separate the pad into its two parts. Use the larger part and place the adhesive side onto the computer (discard the smaller part that you have separated).





1. Thermal Pad
2. M.2 SATA Module

- 1 Screw

Disassembly

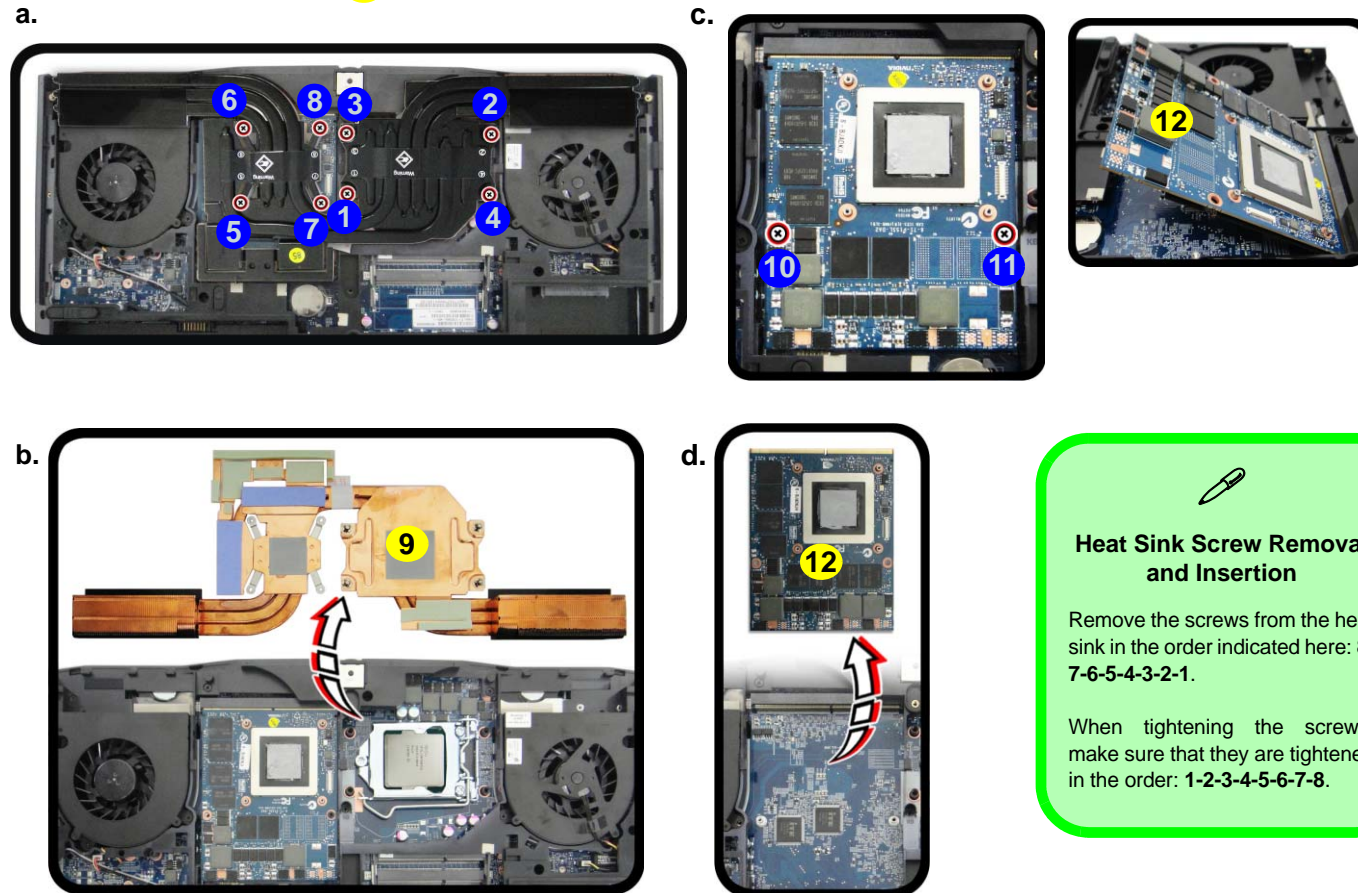
Figure 17 Video Card Removal Procedure

- Remove the screws in the correct order.
- Carefully remove the heat sink units.
- Remove the video card screws. The video card will pop up.
- Remove the video card.

Removing and Installing the Video Card

Video Card Removal Procedure

- Turn **off** the computer, turn it over and remove the battery ([page 2 - 5](#)) and component cover ([page 2 - 11](#)).
- Remove screws **1** - **8** from the heat sink unit in the order indicated on the label (i.e screw **8** first through to screw **1** last) ([Figure 17a](#)).
- Carefully (**it may be hot**) remove the heat sink unit **9** ([Figure 17b](#)).
- Remove screws **10** & **11** from the video card. The video card **12** will pop up ([Figure 17c](#)).
- Remove the video card **12** ([Figure 17d](#)).



Caution

The heat sink, and video card area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.



9. Heat Sink Units
12. Video Card

- 10 Screws



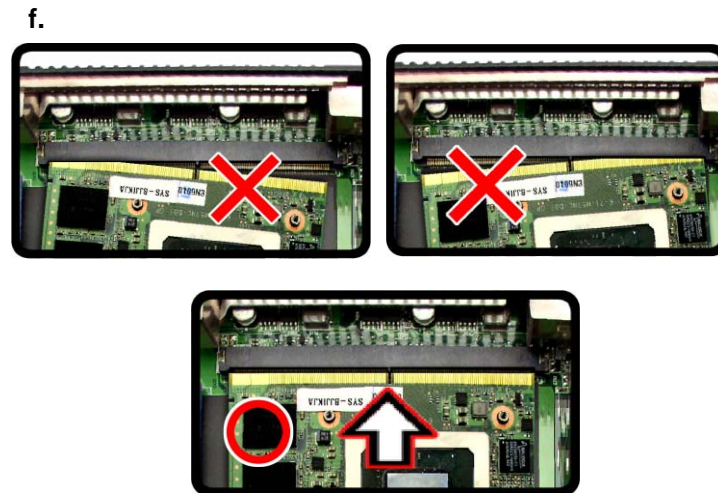
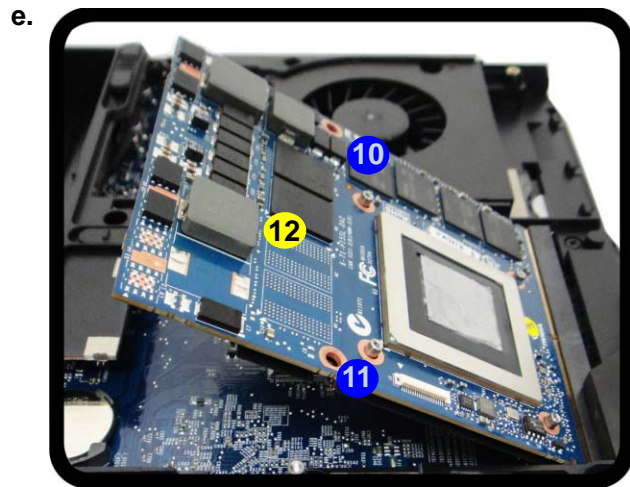
Heat Sink Screw Removal and Insertion

Remove the screws from the heat sink in the order indicated here: **8-7-6-5-4-3-2-1**.

When tightening the screws, make sure that they are tightened in the order: **1-2-3-4-5-6-7-8**.

Installing a New Video Card

1. Prepare to fit the video card **12** into the slot by holding it at about a 30° angle (*Figure 18e*).
2. The card needs to be fully into the slot, and the video card and socket have a guide-key and pin which align to allow the card to fit securely (*Figure 18f*).
3. Fit the connectors firmly into the socket, straight and evenly.



4. DO NOT attempt to push one end of the card in ahead of the other.
5. The card's pin alignment will allow it to only fit one way. **Make sure the module is seated as far into the socket as it will go.** DO NOT FORCE the card; it should fit without much pressure.
6. Secure the card with screws **10** & **11** (*Figure 17 on page 2 - 22*).
7. Place the heat sink back on the card, and secure the screws in the order indicated in *Figure 17 on page 2 - 22*.
8. Reinsert the component bay cover, and secure with the screws as indicated in *Figure 9 on page 2 - 13*.

Figure 18
Installing a New Video Card

- e. Insert the video card at a 30 degree angle.
- f. Fit the connectors straight and even, and secure the card with the screws.



Caution

The heat sink, and video card area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.



12. Video Card

- 2 Screws

Appendix A: Part Lists

This appendix breaks down the *P770ZM* series notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

Note: This section indicates the *manufacturer's* part numbers. Your organization may use a different system, so be sure to cross-check any relevant documentation.

Note: Some assemblies may have parts in common (especially screws). However, the part lists DO NOT indicate the total number of duplicated parts used.

Note: Be sure to check any update notices. The parts shown in these illustrations are appropriate for the system at the time of publication. Over the product life, some parts may be improved or re-configured, resulting in *new* part numbers.

Part List Illustration Location

The following table indicates where to find the appropriate part list illustration.

Table A-1
**Part List Illustration
Location**

Parts	
Top	<i>page A - 3</i>
Bottom	<i>page A - 4</i>
LCD	<i>page A - 5</i>
MB	<i>page A - 6</i>
HDD	<i>page A - 7</i>

Top

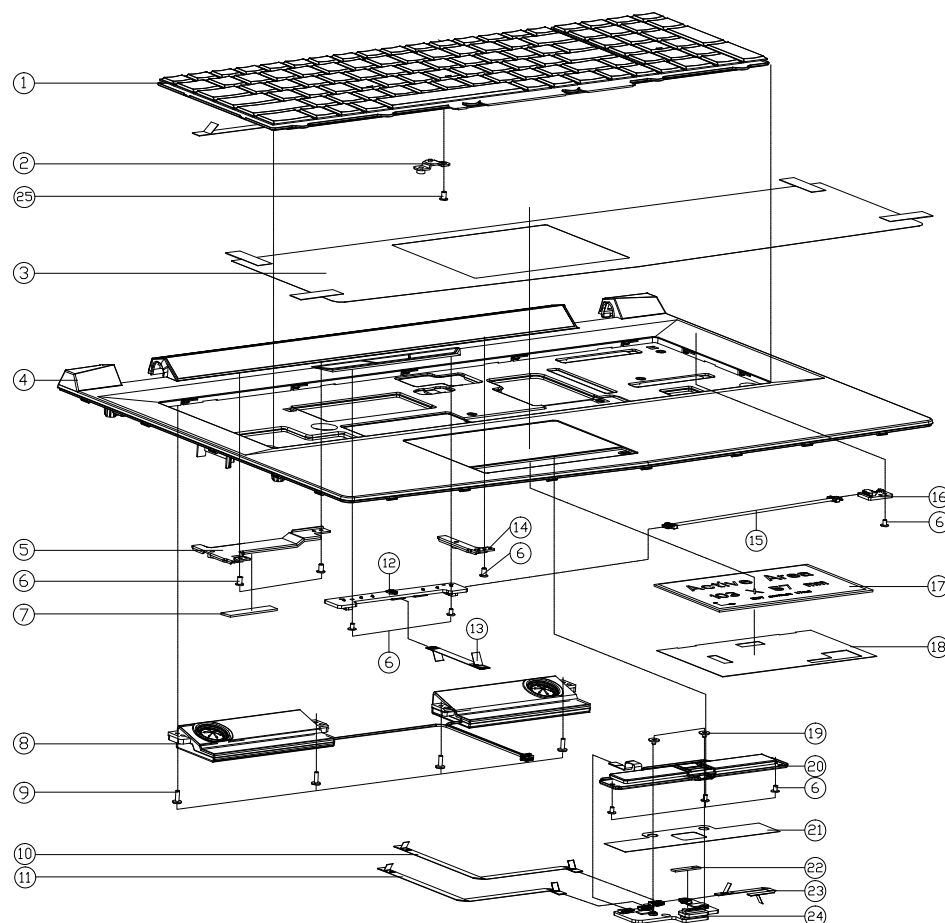


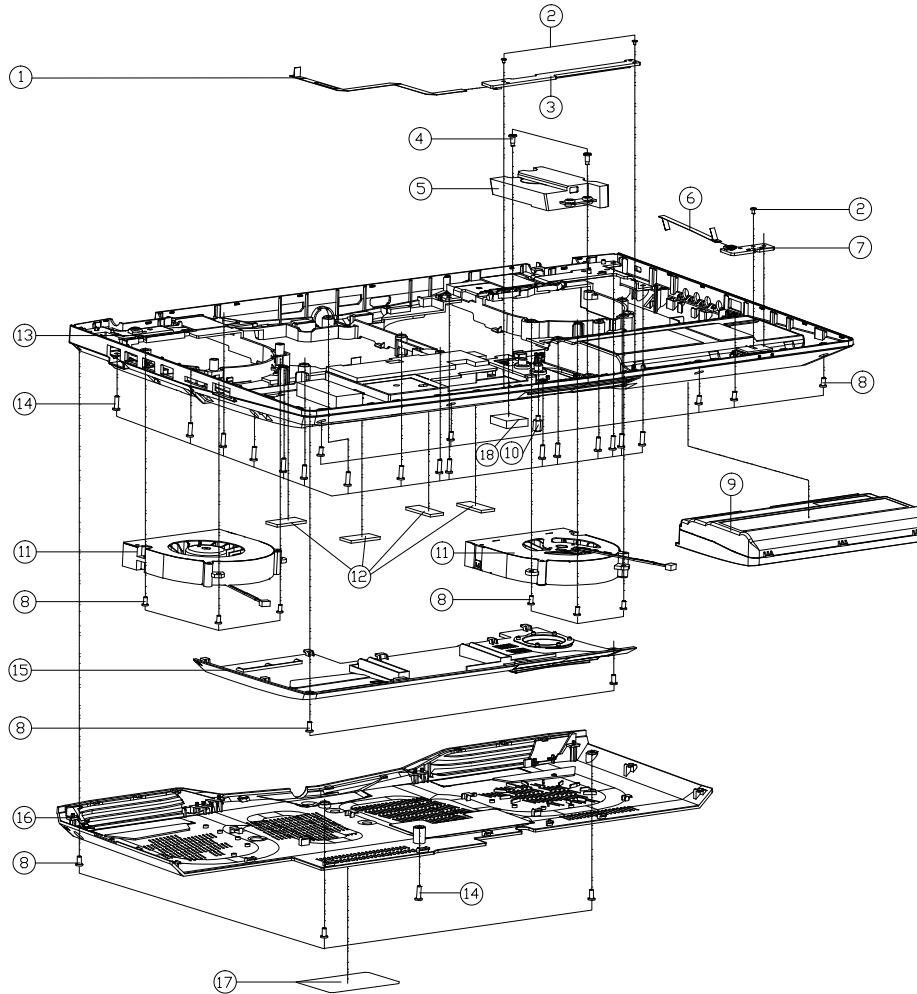
Figure A - 1
Top

ITEM	PART NAME	PART NO	REMARK
1	MULTI BL KB AMERICA V#P550A02 US P750ZM BLACK GRING WITH VIBO KEY	6-80-P7500-01A-3	
2	TDP KB_BKT SECC P770ZM	6-33-P7702-011	
3	TOP CASE PROTECT MYLAR PET P770ZM	6-40-P7708-040	
4	TOP CASE MODULECINKEYO SPEAKERP770ZM	6-39-P7702-013-N	
5	TOP THERMAL BKT L SECC P770ZM	6-33-P7702-022	
6	SCREW M2*3L K1 NI ICT NY (DD=04.5,DT=0.4)	6-35-B1120-3RE	
7	THERMAL PAD BKT MOS PAD T-FLEX 340 304*14.75 P750ZM	6-48-P7503-031	
8	SPEAKER FRONT R/L R 50MM X 16MM CW 41 ELB9220A P750ZM	6-23-5P750-0S2	
9	SCREW M2*5L K1CT=0.8 D=4.0 BK/Z ICT NY	6-35-B6120-5R0	
10	CLICK TO MB FFC CABLE L=159.2MM P770ZM	6-43-P7700-020	ONLY FOR W/FINGER
11	CLICK TO MB FFC CABLE L=159.2MM P770ZM	6-43-P7700-020	
12	POWER LED BOARD V3.0A P770ZM	6-77-P750C-D03A-A	
13	FFC CABLE FOR POWER BD TO MB 54MM 9V 12PIN P750ZM	6-43-P7500-022	
14	TOP CASE BKT SECC P750ZM	6-33-P7502-023	
15	WIRE CABLE FOR HALL SENOR TO MB 167MM 3V 3PIN (HL) P750ZM	6-43-P7500-012-1	
16	LID SWITCH BOARD V3.0A P750ZM	6-77-P750S-D03A	
17	TOUCH PAD SYNAPTICS TM-01474-003 P3775NF	6-49-P3773-010	
18	TOP TP MYLAR PET P750ZM	6-40-P7502-051	
19	SCREW M2*2L K1 BK/Z ICT NY(0.8,T=0.6)	6-35-B6120-2RE	
20	FUNCTION KEY FOR CLICK BUTTON MODULE W/FP P750ZM	6-23-KP750-011	FOR W/FINGER
20	FUNCTION KEY FOR CLICK BUTTON MODULE W/D FP P750ZM	6-23-KP750-021	FOR W/D FINGER
21	CLICK MYLAR FOR FINGER P770ZM	6-40-P7702-011	
22	TOP TP RUBBER (23*35*0.95) SILICONE P750ZM	6-47-P7502-021	ONLY FOR W/D FINGER
23	FFC CABLE FOR CLICK TO TP 65MM 9V 6PIN P750ZM	6-43-P7502-022	
24	CLICK BOARD V3.0A (W/FP)FINGER SENOR BOARD V2.0 P750ZM	6-77-P750A-N03A	ONLY FOR V/FINGER
24	CLICK BOARD V3.0A (W/D FP) P750ZM	6-77-P7502-D03A-1	ONLY FOR W/D FINGER
25	SCREW M2.5*3L K1 BZ ICT NY	6-35-B6125-3R0	

A.Part Lists

Bottom

Figure A - 2
Bottom



ITEM	PART NAME	PART NO	REMARK
1	FFC CABLE FOR BOTTOM LENS TO MB 1783MM SV 9PIN P770ZM	6-43-P7700-011	
2	SCREW M2*4L KI BZ ICT NY	6-35-B6120-4RA	
3	BOT LED2 BOARD V1.0 P750ZM	6-77-P7505-D01	
4	SCREW M2*6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
5	SPK CABLE SUBWOOFER 7.85*42*MM 25W 4T SK3035399A P370EM	6-23-5P37E-0W1	
6	FFC CABLE FOR FRONT LED TO MB 110MM SV 6PIN P750ZM	6-43-P7502-012	
7	CHARGER LED BOARD V1.0 P770ZM	6-77-P770E-D01	
8	SCREW M2.5*5L 300P/0.4MM KI BK/Z ICT NY	6-35-B6125-5R0	
9	IMP YU HONGSHAN DIE VAN EXCISE REP OFFER INDUS SENSORS E TOLLG HBT P70M	6-87-P750S-4U73	
9	IMP YU HONGSHAN DIE VAN EXCISE REP OFFER INDUS SENSORS E TOLLG HBT P70M	6-87-P750S-4272	
10	SCREW M2.5*3L 0H-65 D-5I NI ICT NY FOR NEFF CARD	6-35-Z1125-3R0	
11	FAN MODULE (APOWER) P750ZM	6-31-P750S-102	
12	7MM HDD SPONGE<40*10*2.15T> CR4382 P750ZM	6-47-0019A-409	ONLY FOR 7MM HDD
13	BOTTOM CASE MODULE P770ZM	6-39-P7703-013	
14	SCREW M2.5*8L KI BK/Z NY ICT	6-35-B6125-8R0	
15	HDD COVER MODULE P770ZM	6-42-P770J-101	
16	CPU COVER MODULE P770ZM	6-42-P7708-102	
16	CPU COVER MODULE P771ZM	6-42-P7718-101	
17	PRODUCT LABEL FOR P770ZM	6-45-P770ZM03-010	
17	PRODUCT LABEL FOR P771ZM	6-45-P771ZM03-010	
17	SSD-5.0MM THERMAL PAD R3300 15*15*5.0MM P750ZM	6-48-P7503-051	

LCD

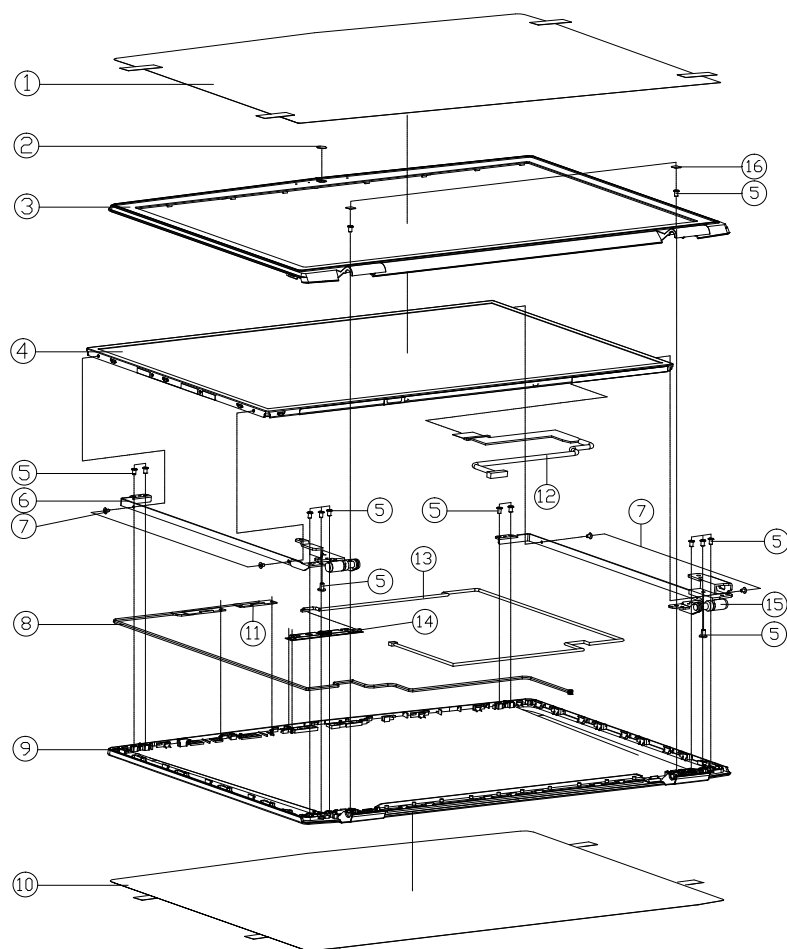


Figure A - 3
LCD

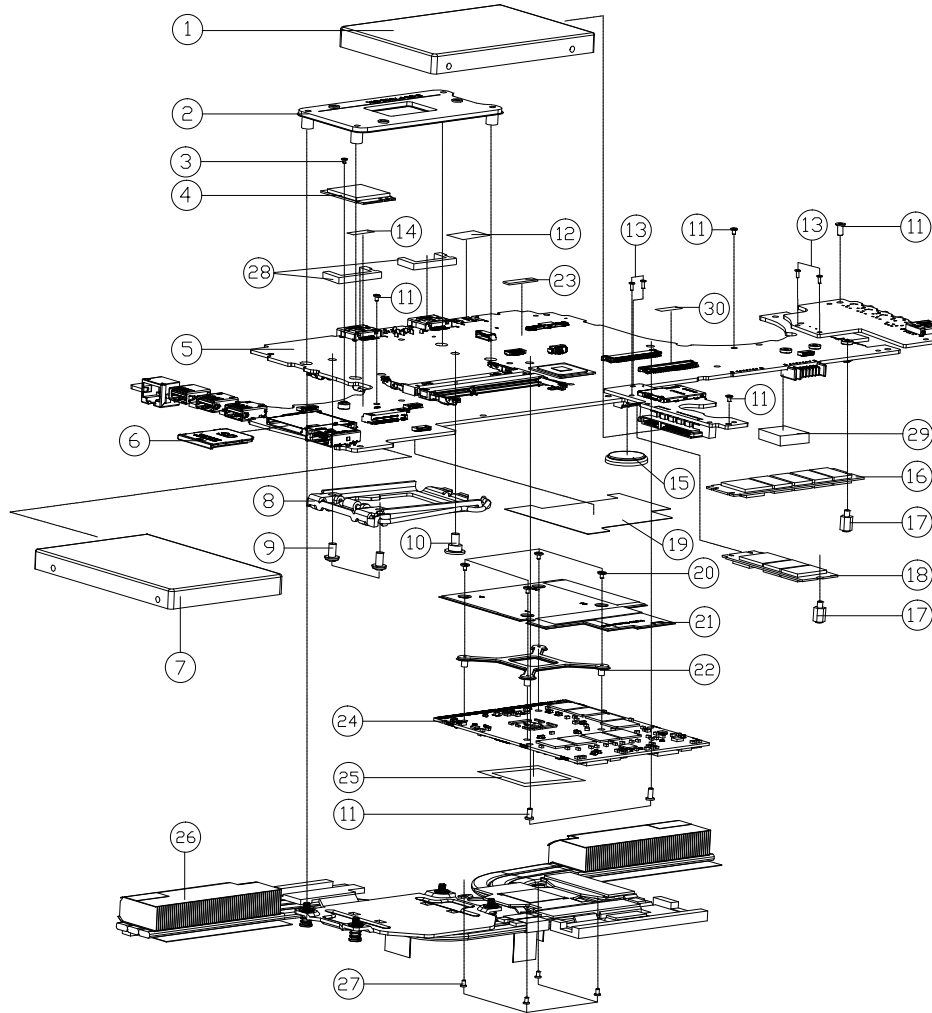
ITEM	PART NAME	PART NO	REMARK
1	FRONT COVER PROTECTION PET MYLAR P770ZM	6-40-P7701-020	
2	CCD LENS PMMA P750ZM	6-42-P7501-011	
3	LCD FRONT COVER MODULE P770ZM	6-39-P7701-012	
4	LCD 15.6" WHD (CCP) (GLARE TYPE 1) SHARP LINES/LAND (L00K)PRO 2040X250 LED 320PM	6-50-NB260-D01	
4	LCD 15.6" WHD (GLARE TYPE (CCP) (IPS)LED) SAMSUNG LINES/L02-L01 (LED) 240PM	6-50-NB260-G04	
4	LCD 15.6" FHD/IPS/EDP AU B156HAN01.2(AHVA) (LED)322MM	6-50-NB260-D03	
5	SCREW M2.5*SL 9000P 0.4MM K1 BK/2 ICT NY	6-35-B6125-5R0	
6	LCD HINGE L (SECC+SK7) SNR P770ZM	6-33-P7701-0L2	
7	SCREW M2*3L K1 NI ICT NY (DD=04.5,DT=0.4)	6-35-B1120-3RE	
8	ANTENNA IPEX-4 WLAN WGT VL-2 PCB 246/56 VL-2-700MM (BLACK CABLE) P750ZM	6-23-7P750-021	
9	LCD BACK COVER MODULE P770ZM	6-39-P7701-023	
10	BACK COVER PROTECTION PET MYLAR P770ZM	6-40-P7701-010	
11	ANTENNA IPEX-4 WLAN WGT VL-1 PCB 246/56 VL-1-750MM P770ZM	6-23-7P770-010	
12	WIRE CABLE FOR LVDS CABLE 499MM 30V 40P (CMU/THL COM4LX09002)	6-43-P7701-021-C	
12	WIRE CABLE FOR EDP CABLE 499MM 30V 40P (CMU/THL COM4LX09003) P770ZM	6-43-P7701-011-C	
13	WIRE CABLE FOR CCD TO MB 701MM 5V 8PIN (CMU) P770ZM	6-43-P770T-012-1	
14	IPC CAMERA L00N 17X 280X65X110 2X FIBER 012224 1530CE FIBER5 VALD Warray MC	6-88-P650C-4900	OPTION
15	LCD HINGE R (SECC+SK7) SNR P770ZM	6-33-P7701-0R2	
16	FRONT COVER SCREW MYLAR PC P750ZM	6-40-P7508-030	

A.Part Lists

Part Lists

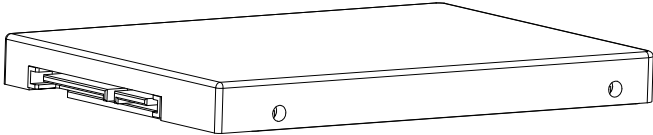
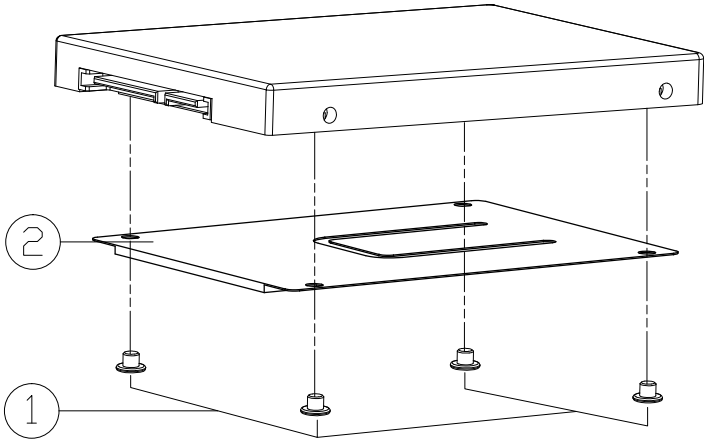
MB

Figure A - 4
MB



ITEM	PART NAME	PART NO	REMARK
1	W/D HDD ASS'Y P750ZM	6-79-P750ZM0J-010	
1	W/HDD ASS'Y P750ZM	6-79-P750ZM0J-020	
2	CPU SUPPORT FDR LGA 1150 SPOC P750ZM	6-33-P750S-012	
3	SCREW M2x3L KT NI ICT NY (OD=44.5,DT=0.4)	6-35-B1120-3RE	
4	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-88-P6502-4210	
4	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-88-P6502-4230	
4	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-88-S210F-9400	
4	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-88-P6502-4220	
4	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-88-P6502-4250	
4	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-88-P650F-8100	
5	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-77-P7702M0A-N03A	
5	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-77-P7702M0A-N03A-1	
5	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-77-P7702M0A-N03A-2	
5	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-77-P7702M0A-N03A-3	
6	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-42-V9708-010	
7	W/D 2ND HDD ASS'Y P750ZM	6-79-P750ZM0J-030	
7	W/2ND HDD ASS'Y P750ZM	6-79-P750ZM0J-040	
8	ILM FOR CPU SOCKET(HEAT) LGA 1150SP 0714L3H-6400	6-86-25850-010-S	
9	SCREW T20-H6-32*6.35L D BZ/Z ACT	6-35-D2306-6R3	
10	SCREW T20-H6-32*6L Z BZ/Z ACT	6-35-Z2306-6R0	
11	SCREW M2.5x5L M3 0.4MM KT BK/Z ICT NY	6-35-B6125-5R0	
12	HDMI CABLE MYLAR 1.8M (20140151) P750ZM	6-40-P750S-030	
13	SCREW M2*6L KT BK/Z ICT NY(0935 t=0.4)	6-35-B6120-6RB	
14	TAPE MYLAR TRANSPARENT (20140105) P180MM	6-40-P1803-020	
15	BATTERY 3V 220MA BBBCR2032B (KTS)	6-23-6A2B2-030	
16	SSD 2280 SATA 3 SSD 256GB C1750MS53300 (V9) MBL CDRICAL W/BLK SDRS	6-85-D4000-101	OPTION
16	SSD 2280 SATA 3 SSD 512GB C1750MS53300 (V9) MBL CDRICAL W/BLK SDRS	6-85-D405B-S00	OPTION
16	SSD 2280 SATA 3 SSD 1TB C1750MS53300 (V9) MBL CDRICAL W/BLK SDRS	6-85-D404J-101	OPTION
16	SSD 2280 SATA 3 SSD 256GB CDRICAL C1750MS53300 (V9) MBL CDRICAL W/BLK SDRS	6-85-D515B-100	OPTION
16	SSD 2280 SATA 3 SSD 512GB CDRICAL C1750MS53300 (V9) MBL CDRICAL W/BLK SDRS	6-85-D4000-202	OPTION
17	SCREW M2.5x5L M3 0.45 D=5.5 NI CT NY FDR NEFF CARD	6-35-Z1125-3R0	
18	SSD 2280 SATA 3 SSD 256GB C1750MS53300 (V9) MBL CDRICAL W/BLK SDRS	6-85-D404J-101	OPTION
18	SSD 2280 SATA 3 SSD 512GB CDRICAL C1750MS53300 (V9) MBL CDRICAL W/BLK SDRS	6-85-D4000-202	OPTION
18	SSD 2280 SATA 3 SSD 1TB CDRICAL C1750MS53300 (V9) MBL CDRICAL W/BLK SDRS	6-85-D4000-101	OPTION
19	MB HDD MYLAR (PET+3M467) P750ZM	6-40-P750S-011	
20	SCREW M1.6x1.8L KTT+1.0 D=4.2 BZ ICT NY	6-35-B2116-1R8	
21	CPU SHIELDING MIDDLE FDR N15E-GX P3705M-A	6-33-P3705-100-A	
22	VGA SUPPORTER SUS430 X7200	6-33-X720S-040	
23	SPONGE FDR MB CR2030 (30*6*2.15) P770ZM	6-47-0019A-30G	
24	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-77-P155L-1A2-H	
24	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-77-P155L-AA2-A	
24	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-77-P155L-2A2-H	
24	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-77-P155L-1A2-2	
24	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-77-P155L-2A2-2	
24	W/BAND COVER MBL BLK W/ADHESIVE AC TAPES COVER FOR A2, B2, C2, D2, E2, F2, G2, H2, I2, J2, K2, L2, M2, N2, O2, P2, Q2, R2, S2, T2, U2, V2, W2, X2, Y2, Z2	6-77-P155L-AA2-2	
25	N16E-GX CHIP MYLAR (29*29*0.1) P177SM-A	6-40-P1778-010-A	
26	CPU-VGA HEATSINK MODULE P750ZM	6-31-P7503-103	
27	SCREW M1.6x3.5L KTT+1.2 D=4.5 BZ ICT NY	6-35-B2116-3R5	
28	DISPLAY PORT RUBBER P770ZM	6-47-P770S-010	
29	SSD-50MM THERMAL PAD R3000 15*15*0.5MM P750ZM	6-48-P7503-051	
30	M/B KEYBOARD MYLAR PET M810L	6-40-M810S-011	

HDD



ITEM	PART NAME	PART NO	REMARK
1	SCREW M3*2.5L KI NI ICT NY	6-35-B1130-2R5	
2	HDD MYLAR (PET+CR) P750ZM	6-40-P750J-010	

Figure A - 5
HDD

A.Part Lists

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *P770ZM* notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
<i>Block Diagram - Page B - 2</i>	<i>Lynix Point 5/6 - Page B - 21</i>	<i>TPM SLB9655TT & NPCT420 - Page B - 40</i>
<i>Processor 1/5 - Page B - 3</i>	<i>Lynix Point 6/6 - Page B - 22</i>	<i>Power 1.05V/1.05VM/LAN_M - Page B - 41</i>
<i>Processor 2/5 - Page B - 4</i>	<i>USB + eSATA, USB Charging - Page B - 23</i>	<i>DDR 1.35V/0.75VS - Page B - 42</i>
<i>Processor 3/5 - Page B - 5</i>	<i>CCD, USB 3.0 Port3 - Page B - 24</i>	<i>VDD3, VDD5, 1.5VS - Page B - 43</i>
<i>Processor 4/5 - Page B - 6</i>	<i>USB - Page B - 25</i>	<i>12V, 5VS, 3.3VS, 3.3VA - Page B - 44</i>
<i>Processor 5/5 - Page B - 7</i>	<i>M.2 3G + MSATA - Page B - 26</i>	<i>5VS_2 - Page B - 45</i>
<i>DDR3 CHA SO-DIMM_0 - Page B - 8</i>	<i>M.2 WLAN + BT, PCIE4X SSD - Page B - 27</i>	<i>Power Charger, DC IN - Page B - 46</i>
<i>DDR3 CHA SO-DIMM_1 - Page B - 9</i>	<i>Realtek ALC892 - Page B - 28</i>	<i>Power V-Core1 - Page B - 47</i>
<i>DDR3 CHB SO-DIMM_0 - Page B - 10</i>	<i>PCMI808 + TASS766DCA - Page B - 29</i>	<i>Power V-Core1 - Page B - 48</i>
<i>DDR3 CHB SO-DIMM_1 - Page B - 11</i>	<i>Subwoofer - Page B - 30</i>	<i>P750ZM HDD Board - Page B - 49</i>
<i>Panel, Inverter, CRT - Page B - 12</i>	<i>Audio Jack - Page B - 31</i>	<i>P750ZM Power LED Board - Page B - 50</i>
<i>Display Port A - Page B - 13</i>	<i>EC IT8587 - Page B - 32</i>	<i>P750ZM Click Board - Page B - 51</i>
<i>Display Port B - Page B - 14</i>	<i>Second EC IT8587 - Page B - 33</i>	<i>P750ZM Audio Board - Page B - 52</i>
<i>HDMI - Page B - 15</i>	<i>Backlight Keyboard - Page B - 34</i>	<i>P750ZM BOT LED Board - Page B - 53</i>
<i>MXM PCI-E - Page B - 16</i>	<i>LID SW, Fan, LED Conn - Page B - 35</i>	<i>P750ZM Charge LED Board - Page B - 54</i>
<i>Lynix Point 1/6 - Page B - 17</i>	<i>TP, FP, Multi-Con - Page B - 36</i>	<i>P750ZM LID Switch Board - Page B - 55</i>
<i>Lynix Point 2/6 - Page B - 18</i>	<i>ASM1182e PCIE 1 to 2 - Page B - 37</i>	<i>Finger Sensor Board - Page B - 56</i>
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<i>Lynix Point 4/6 - Page B - 20</i>	<i>Card Reader RTS5250 - Page B - 39</i>	<i>P750ZM BOT LED Board - Page B - 58</i>

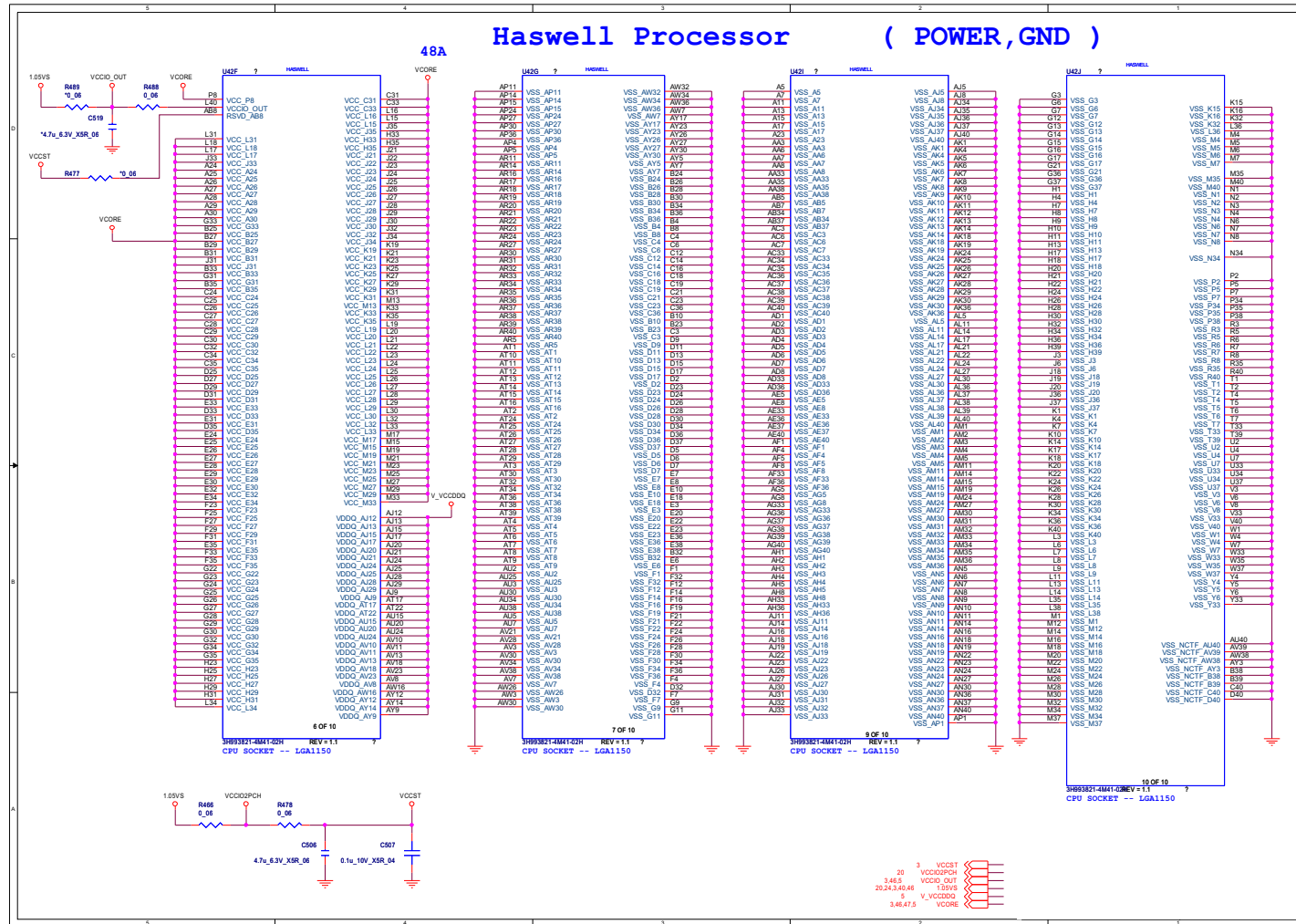
Table B - 1
**Schematic
Diagrams**



Version Note

The schematic diagrams in this chapter are based upon version 6-7P-P750A-001. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

Processor 5/5



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Processor 5/5

B.Schematic Diagrams

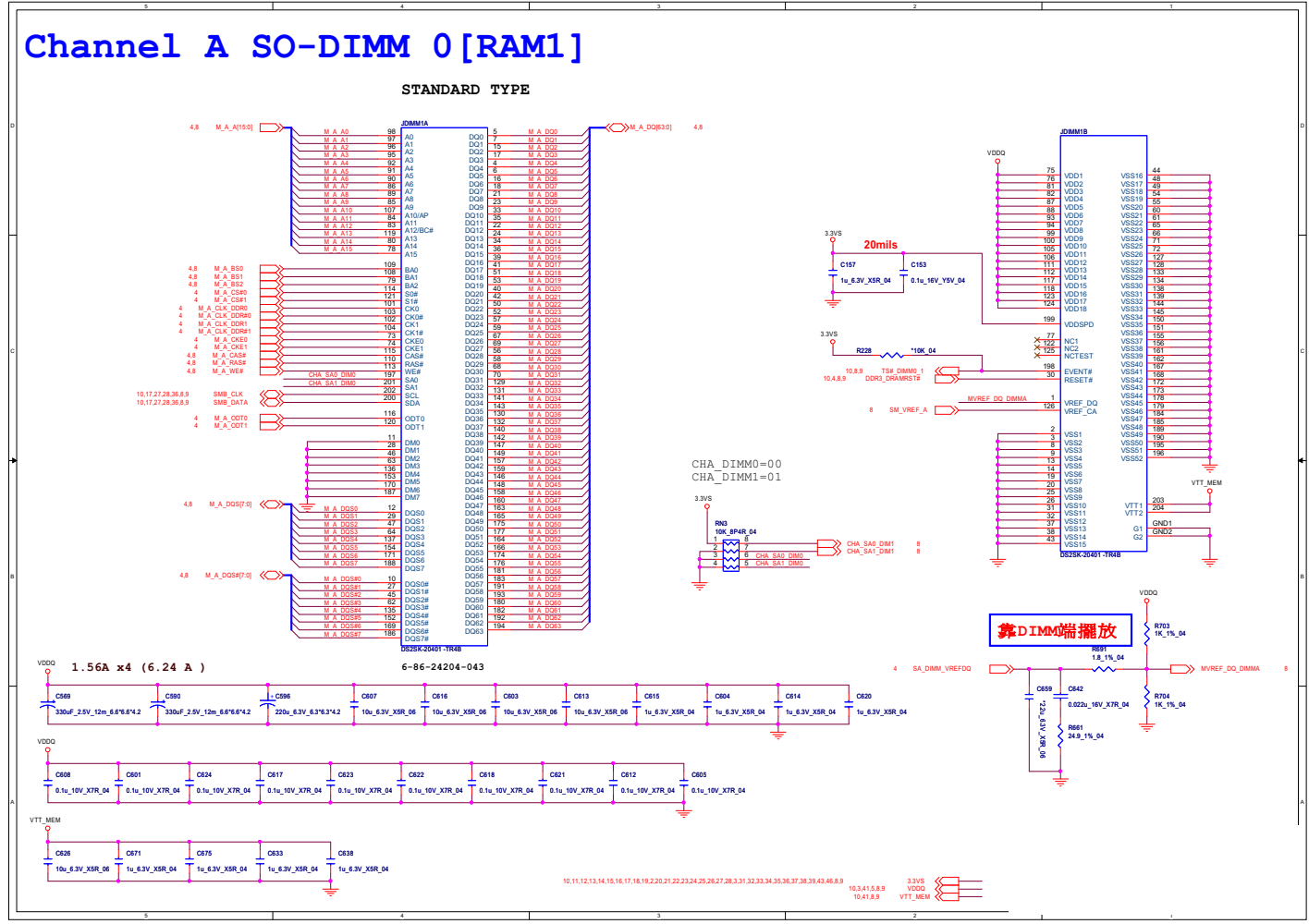
DDR3 CHA SO-DIMM_0

Channel A SO-DIMM 0 [RAM1]

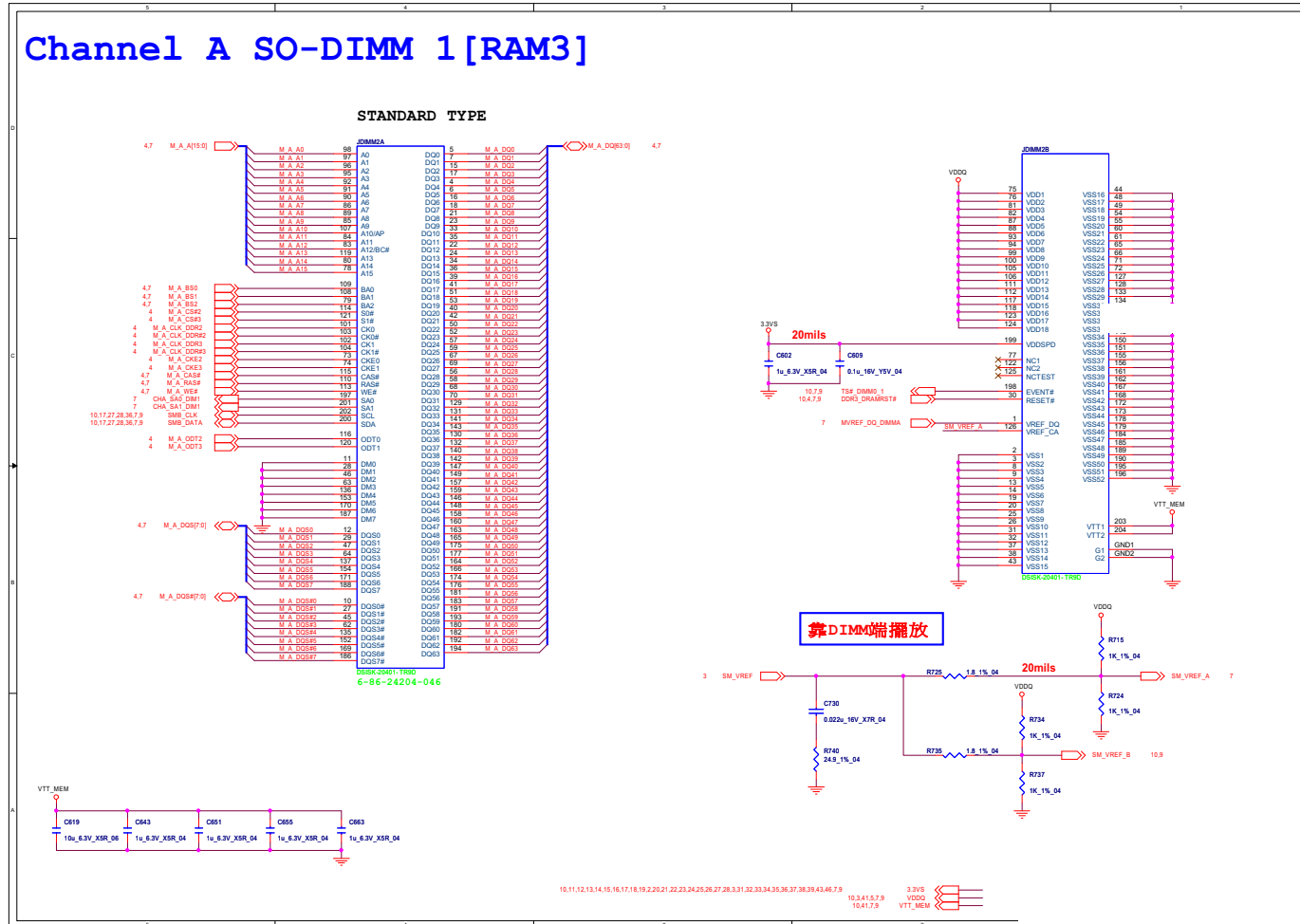
STANDARD TYPE

B.Schematic Diagrams

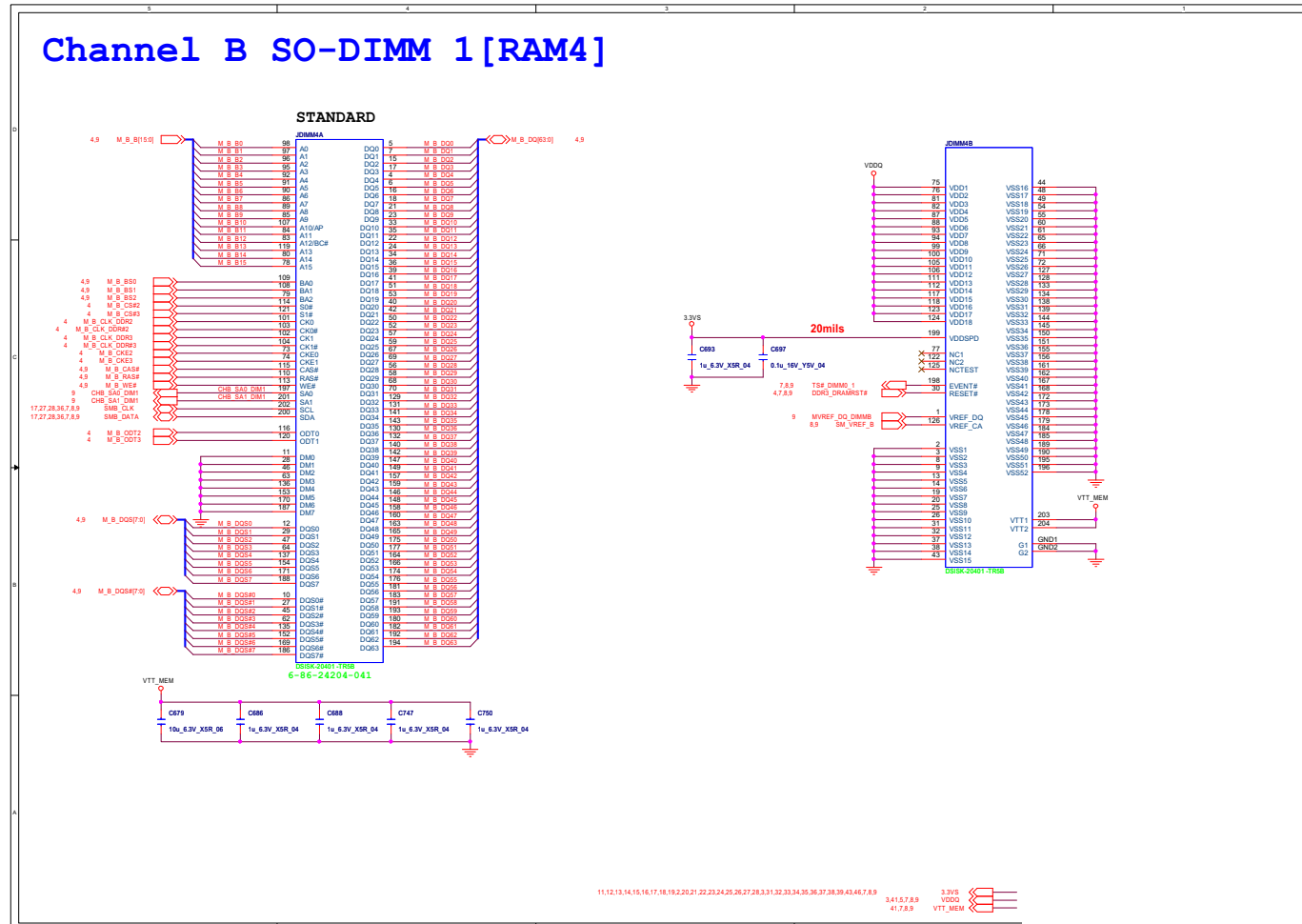
Sheet 7 of 57
DDR3 CHA SO-DIMM_0



DDR3 CHA SO-DIMM_1

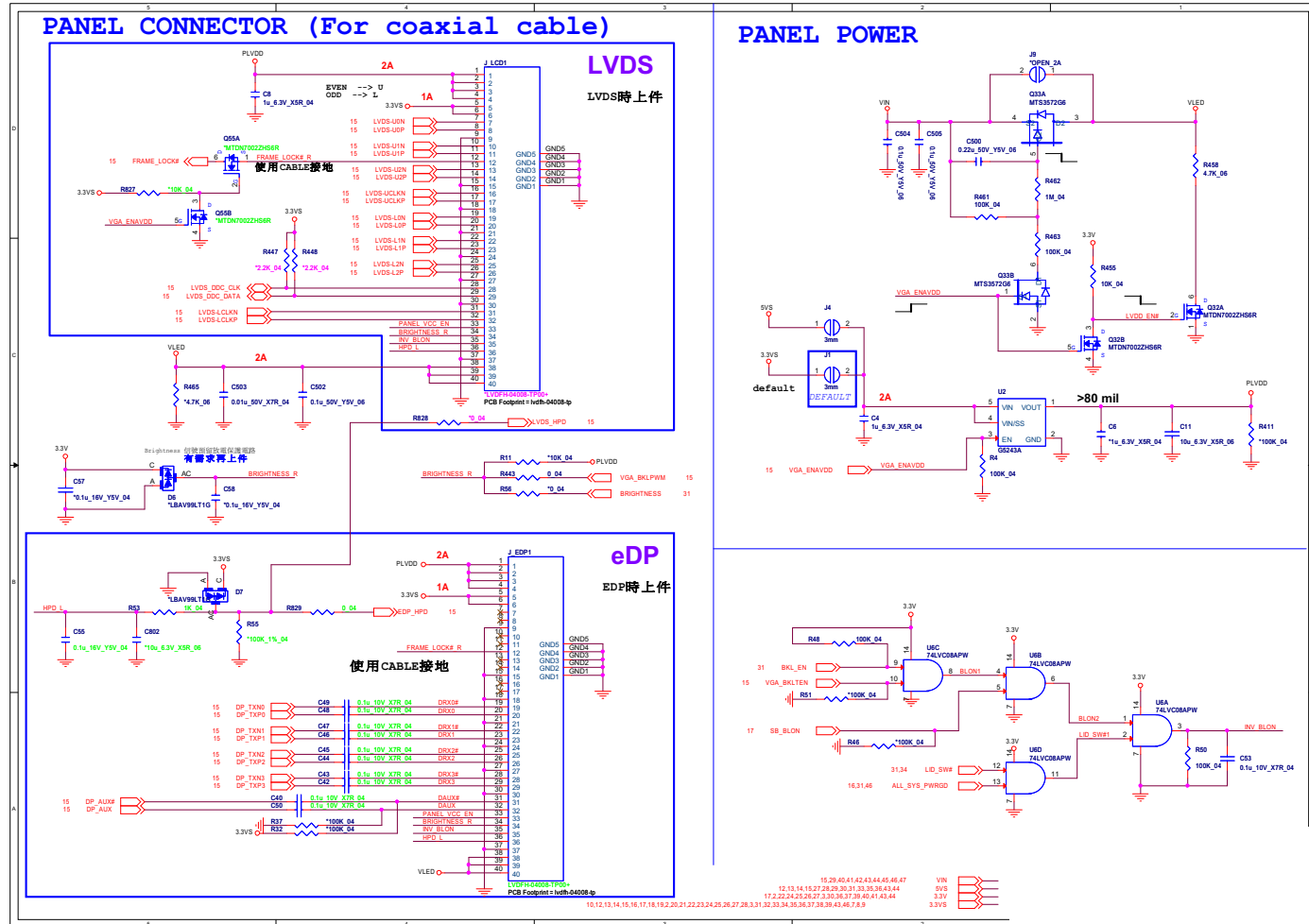


DDR3 CHB SO-DIMM_1



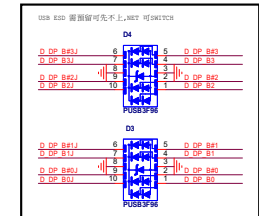
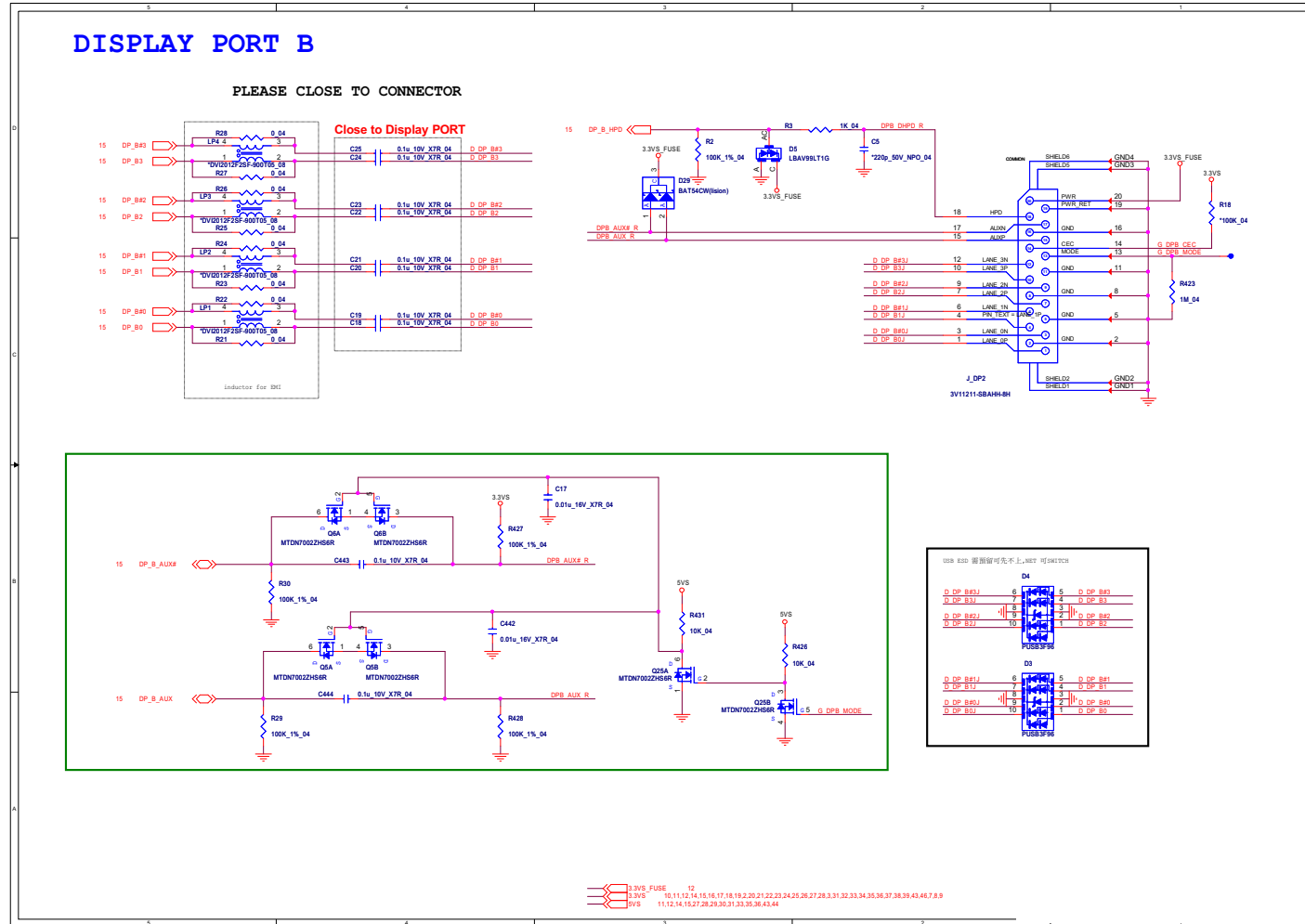
Panel, Inverter, CRT

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Panel, Inverter,
CRT

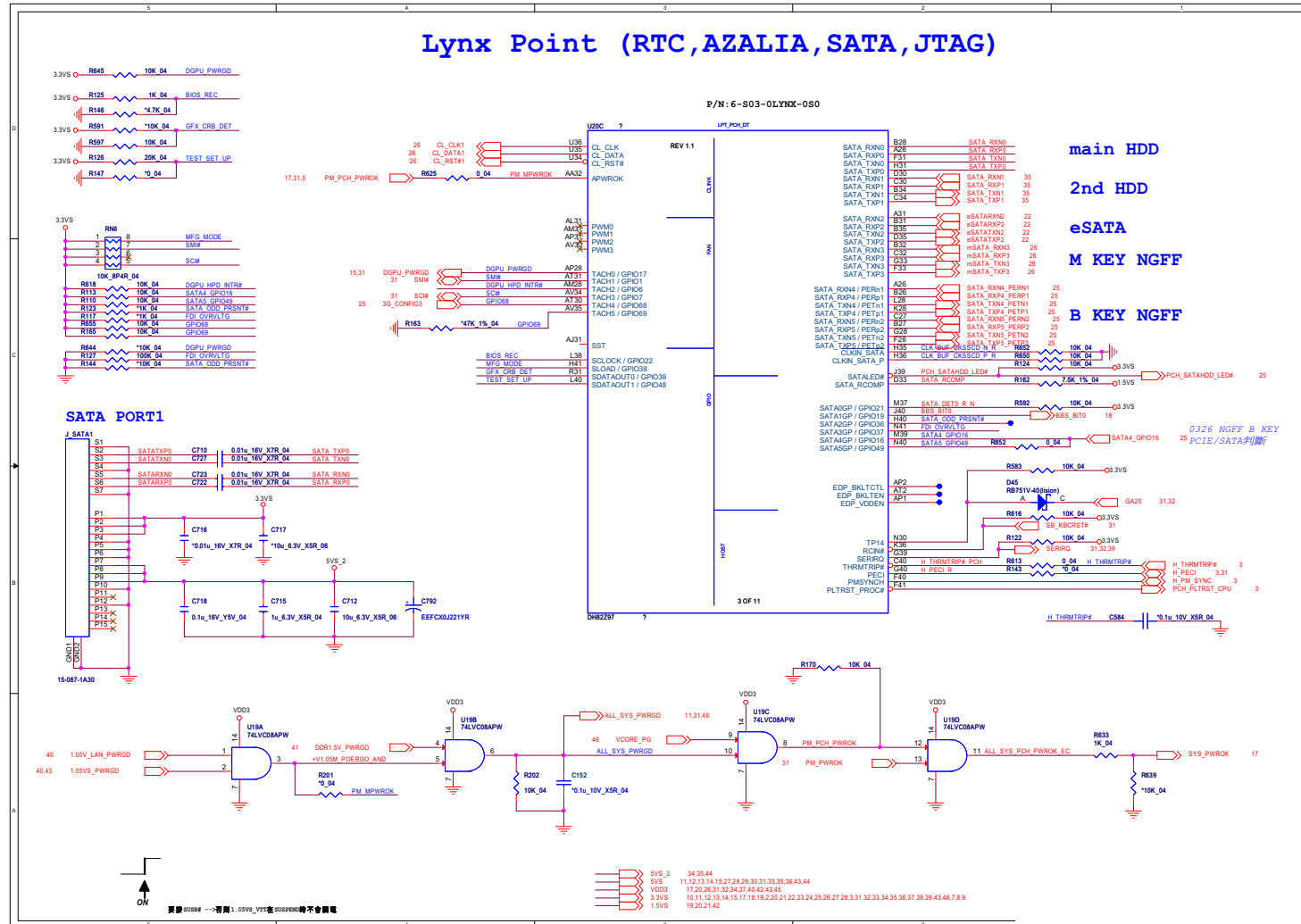


Display Port B

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Display Port B



Lynx Point 1/6

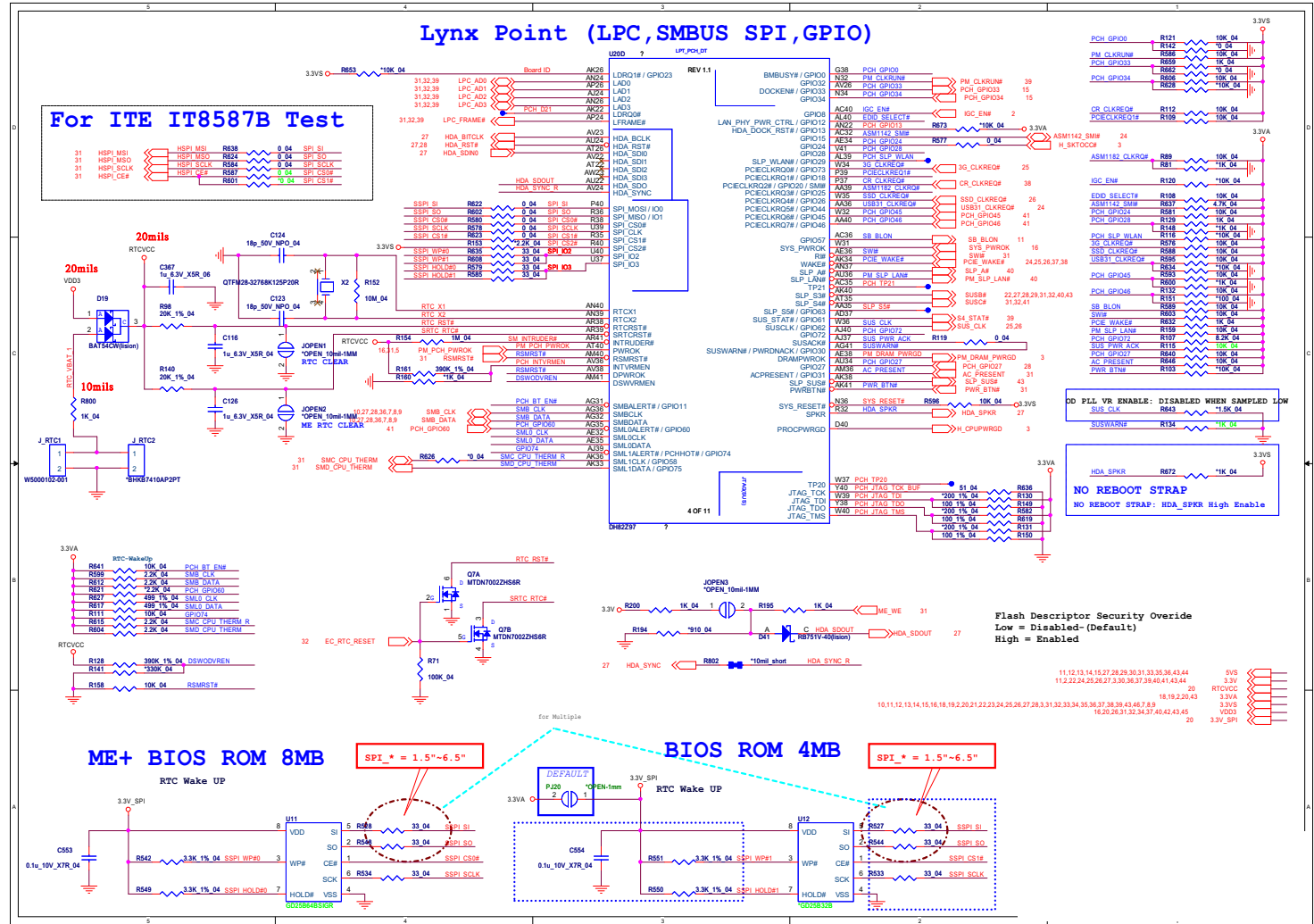


B. Schematic Diagrams

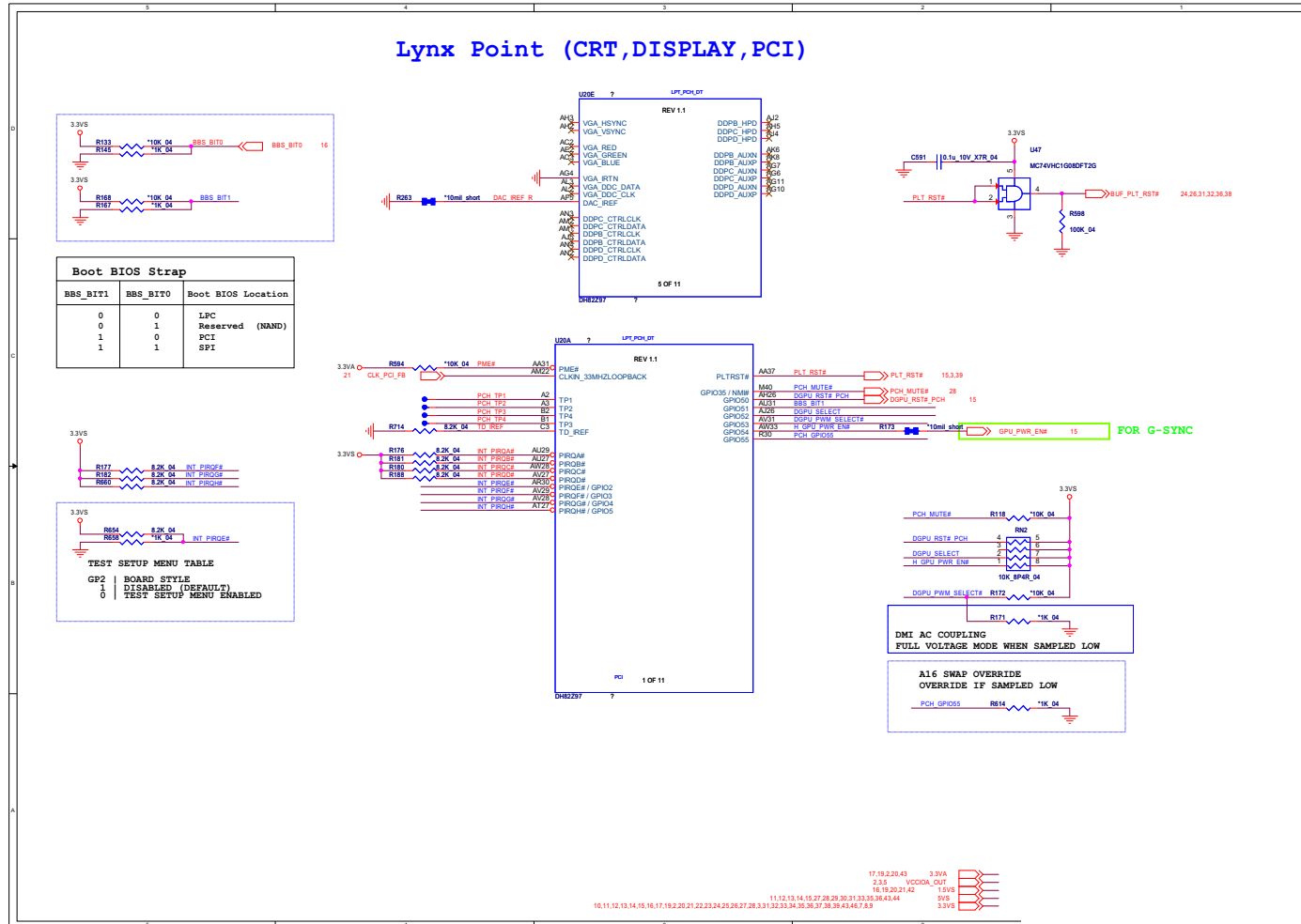
Sheet 16 of 57
Lynx Point 1/6

Lynx Point 2/6

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Lynx Point 2/6



Lynx Point 3/6

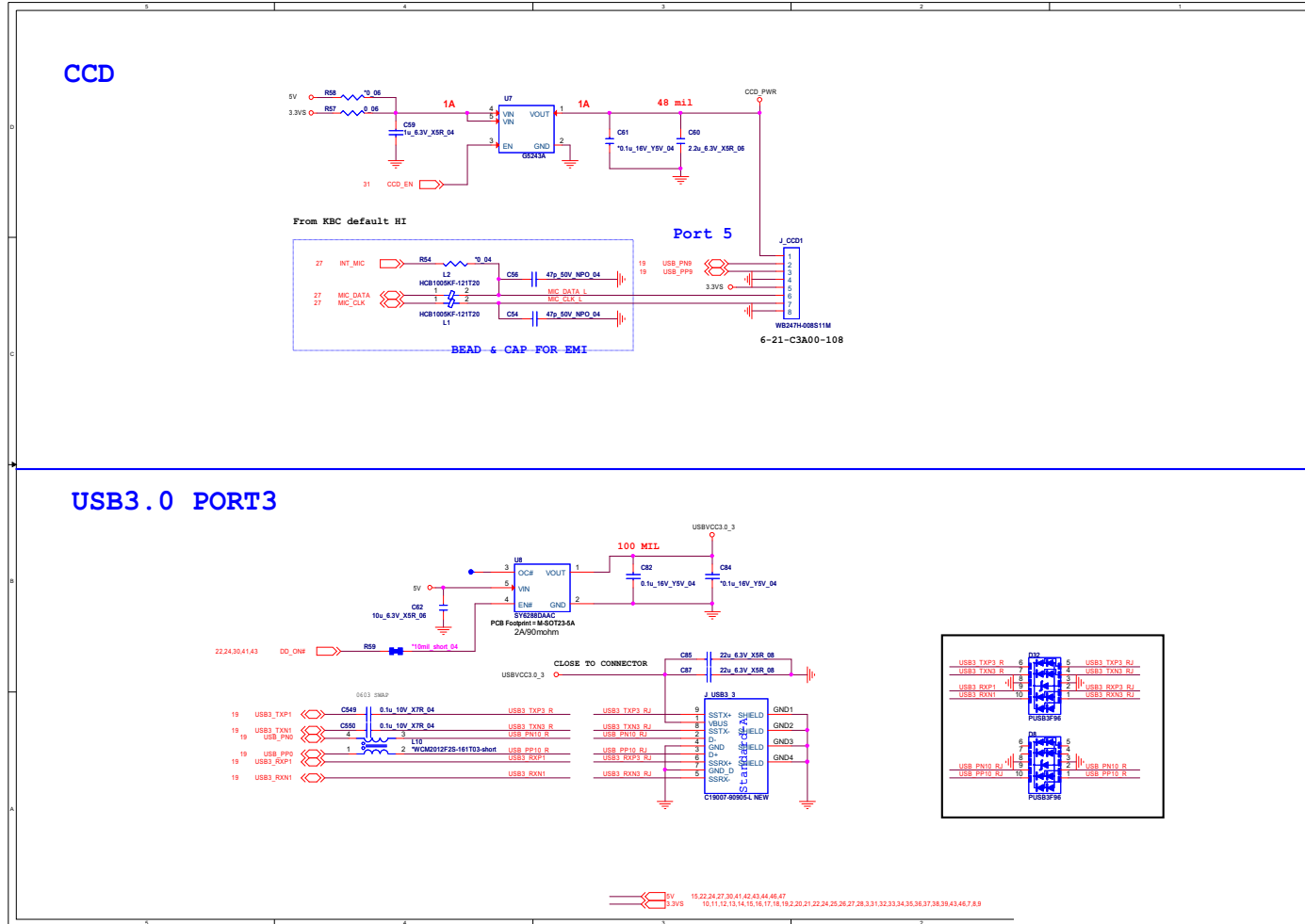


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Lynx Point 3/6

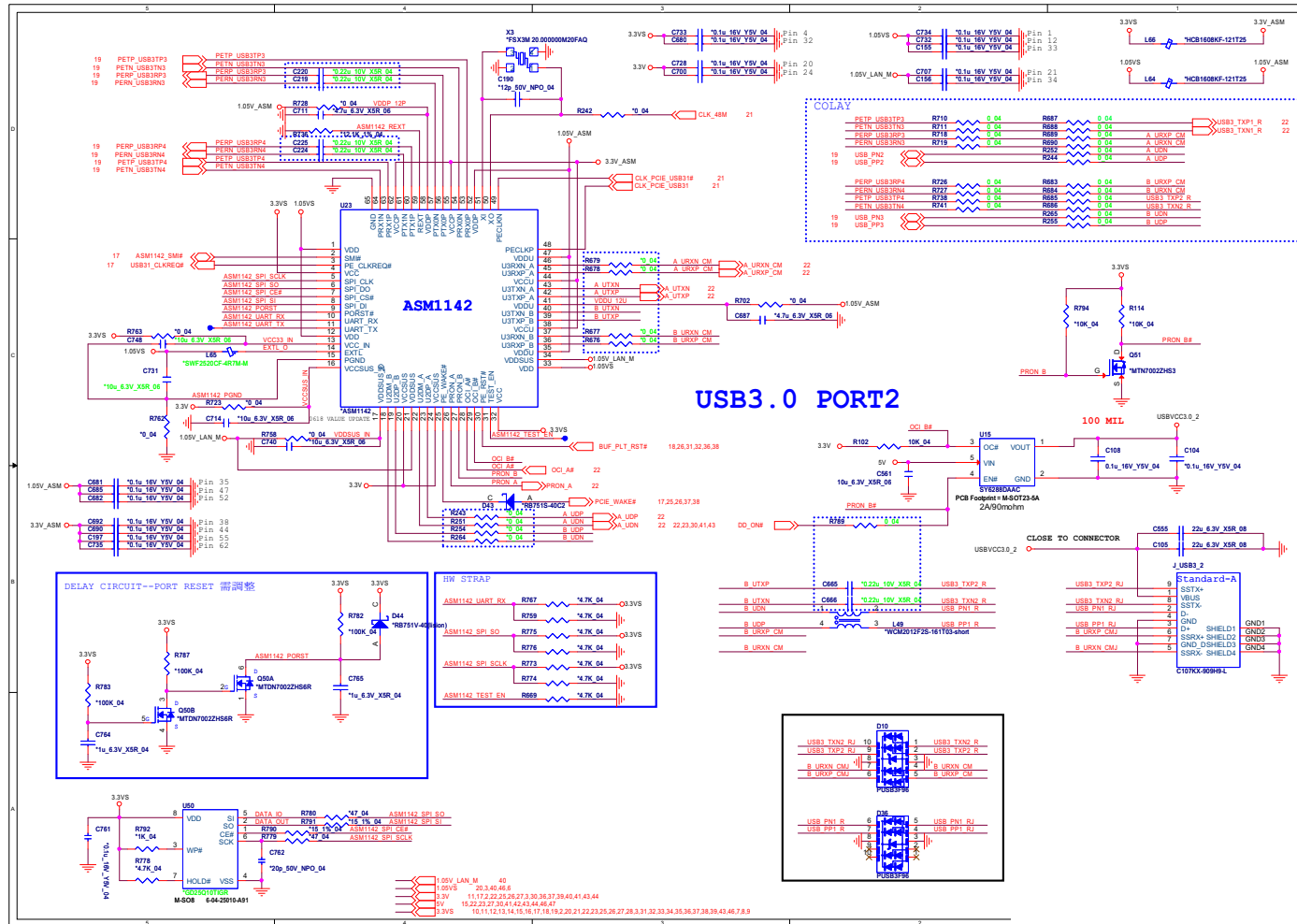
B.Schematic Diagrams

CCD, USB 3.0 Port3

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CCD, USB 3.0 Port3



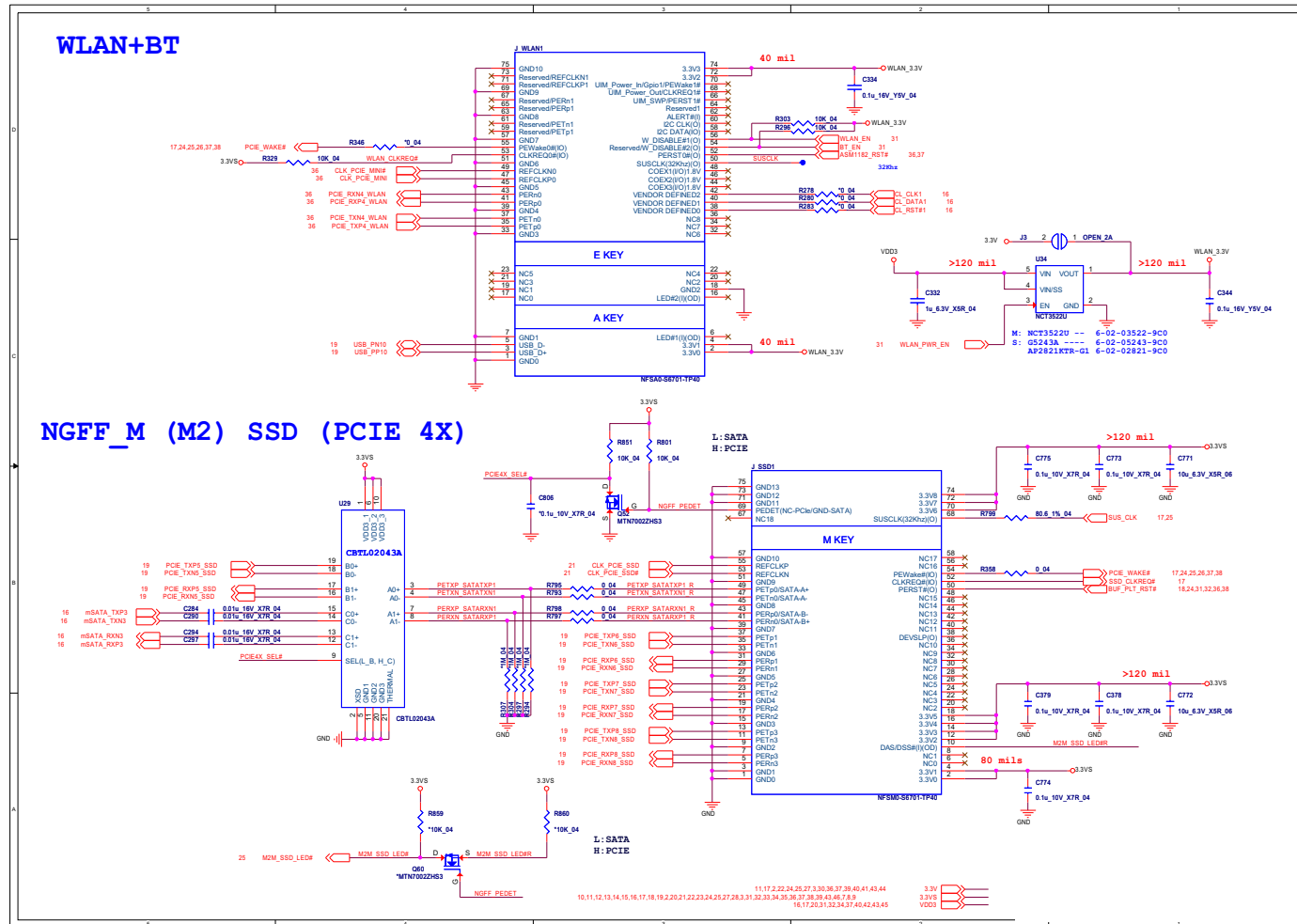
USB



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USB

B.Schematic Diagrams

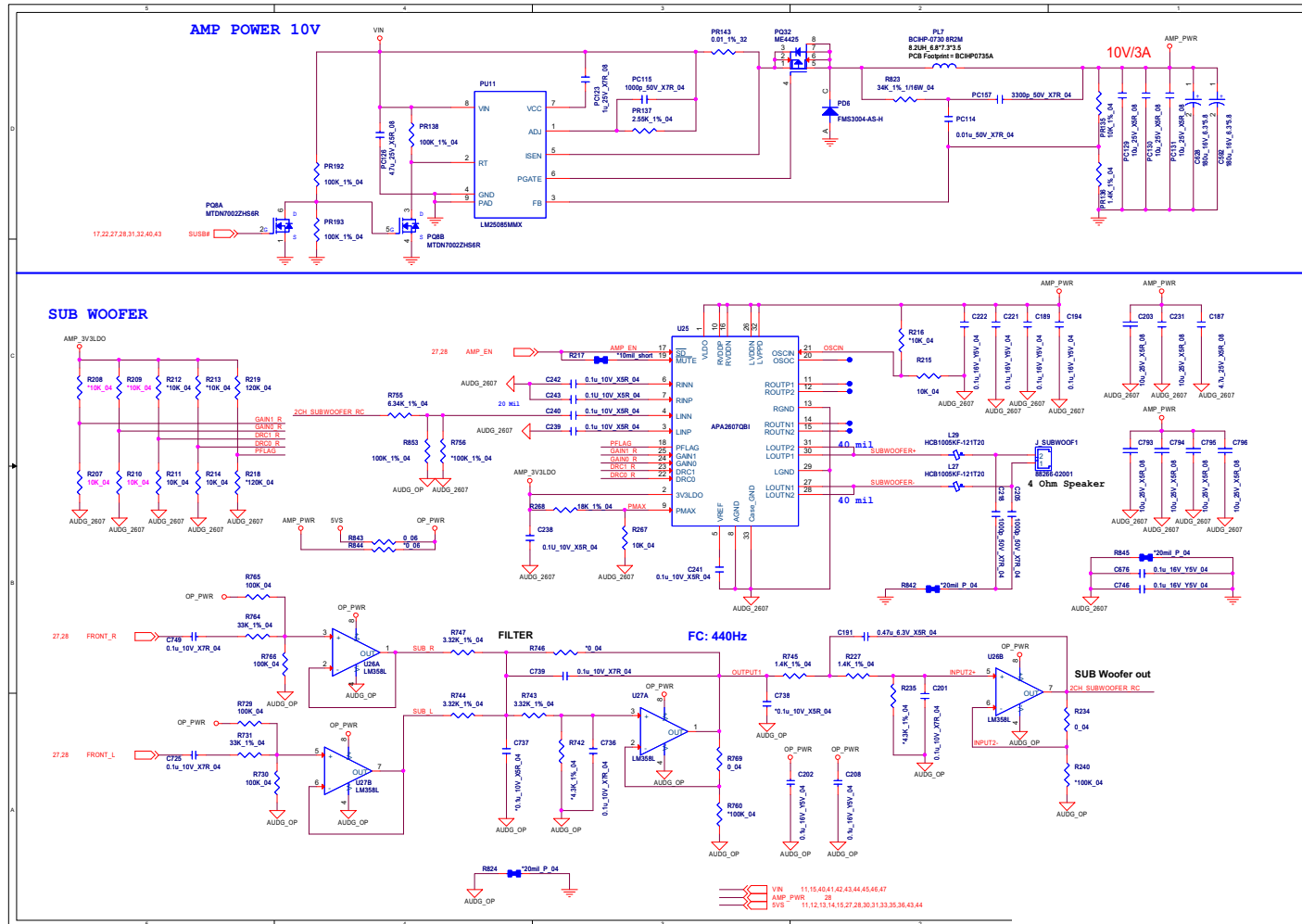
M.2 WLAN + BT, PCIE4X SSD



B.Schematic Diagrams

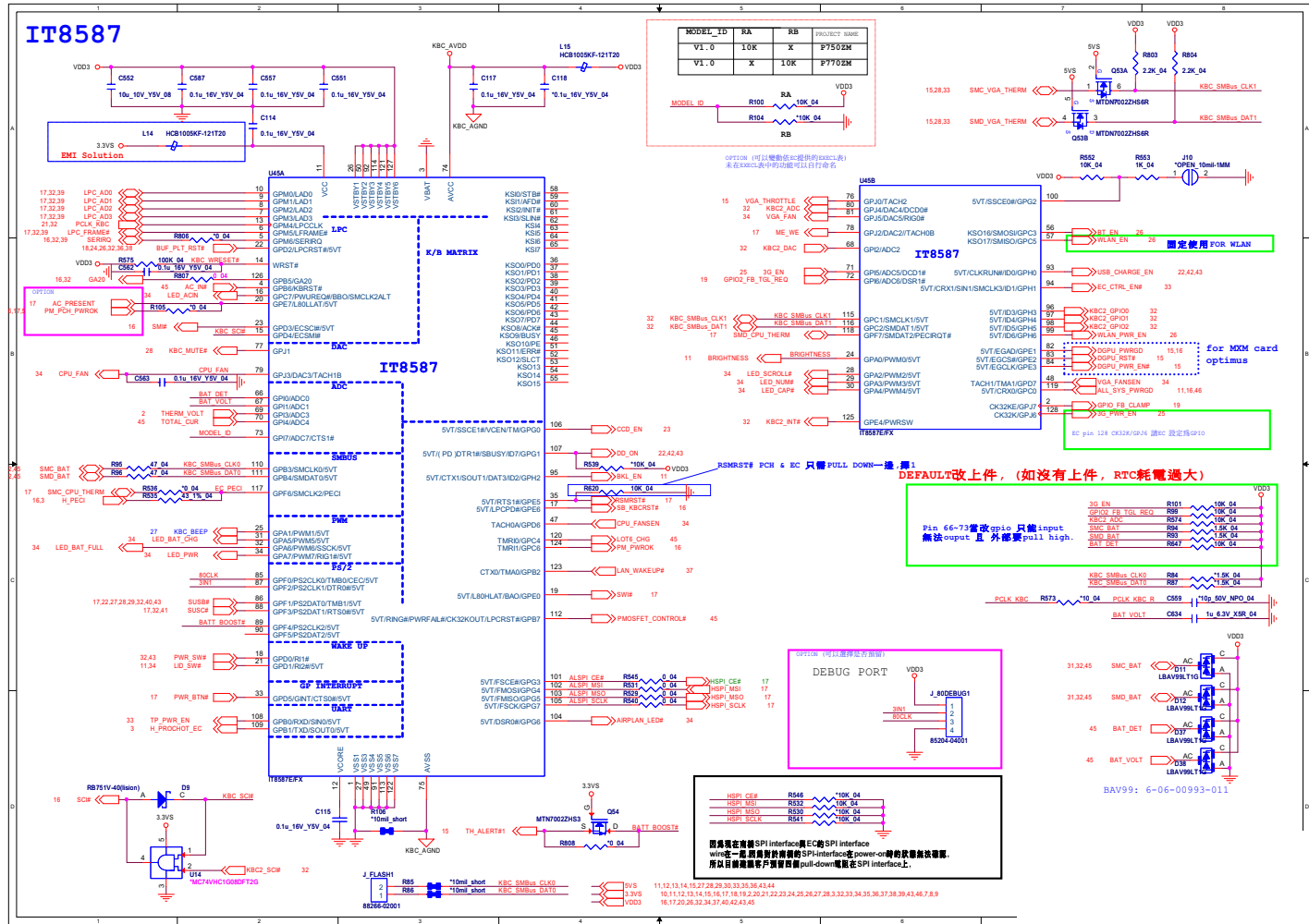
Subwoofer

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Subwoofer

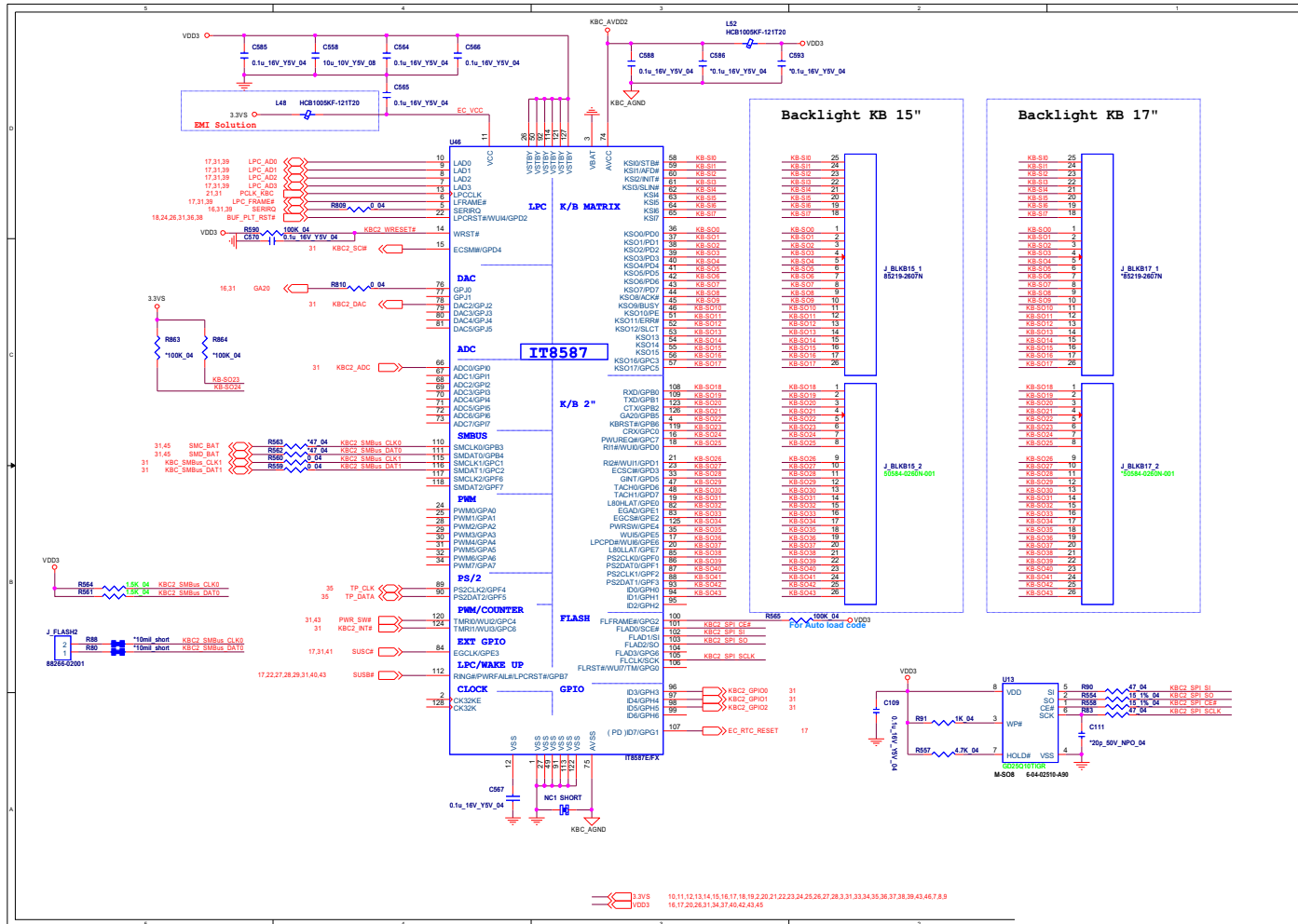


EC IT8587

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EC IT8587



Second EC IT8587

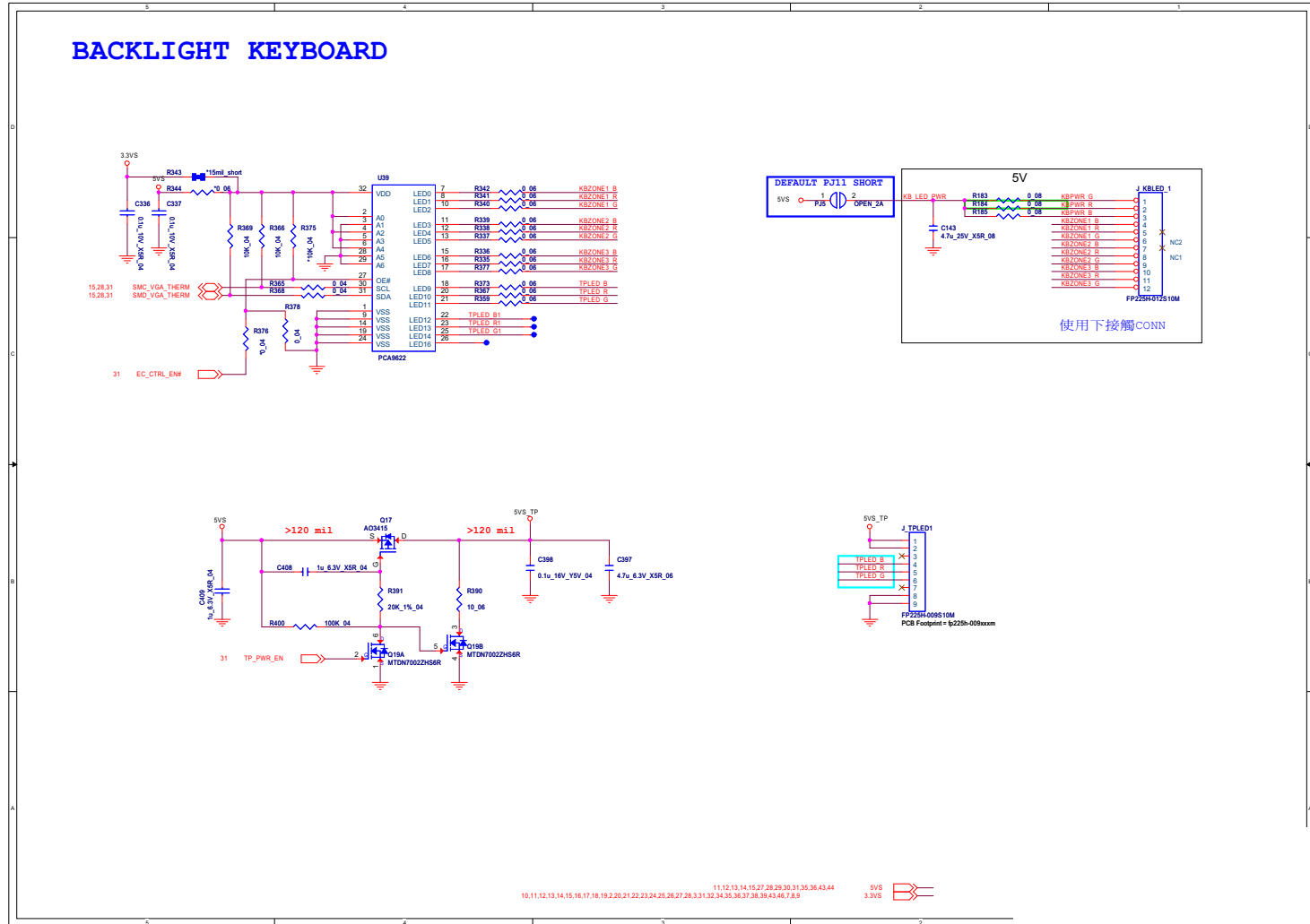


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Second EC IT8587

B.Schematic Diagrams

Backlight Keyboard

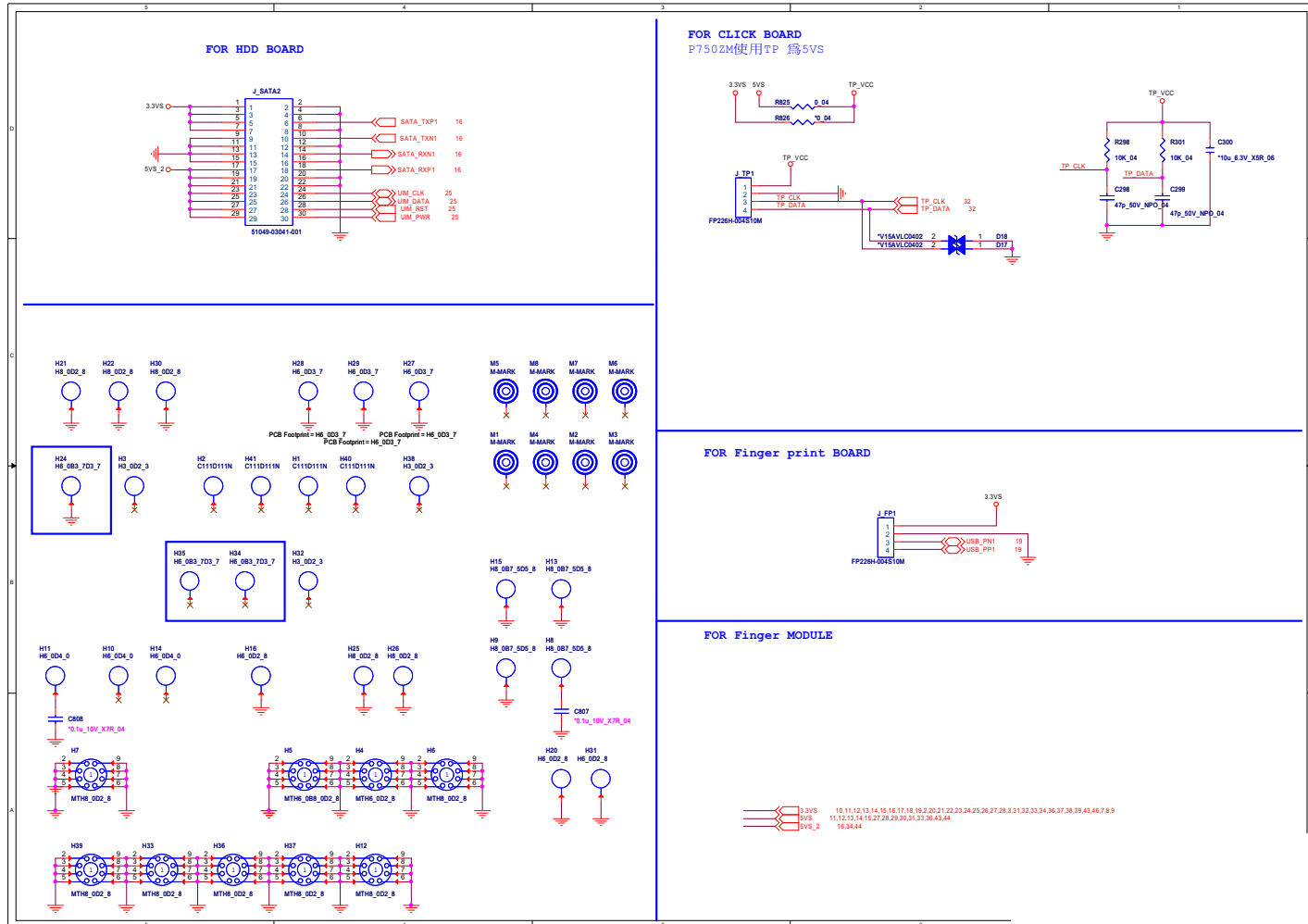
Sheet 33 of 57
Backlight
Keyboard



Schematic Diagrams

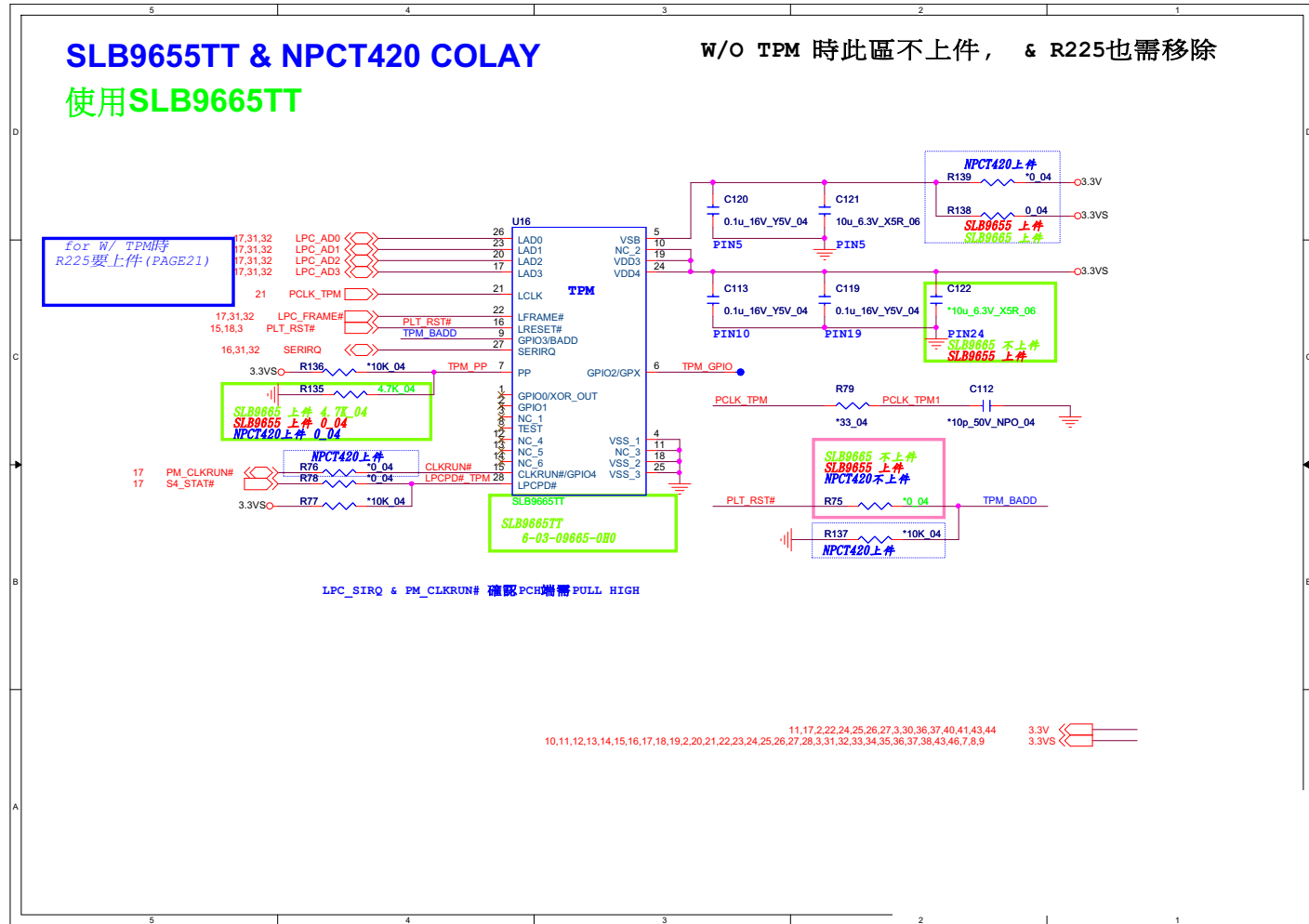
TP, FP, Multi-Con

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TP, FP, Multi-Con

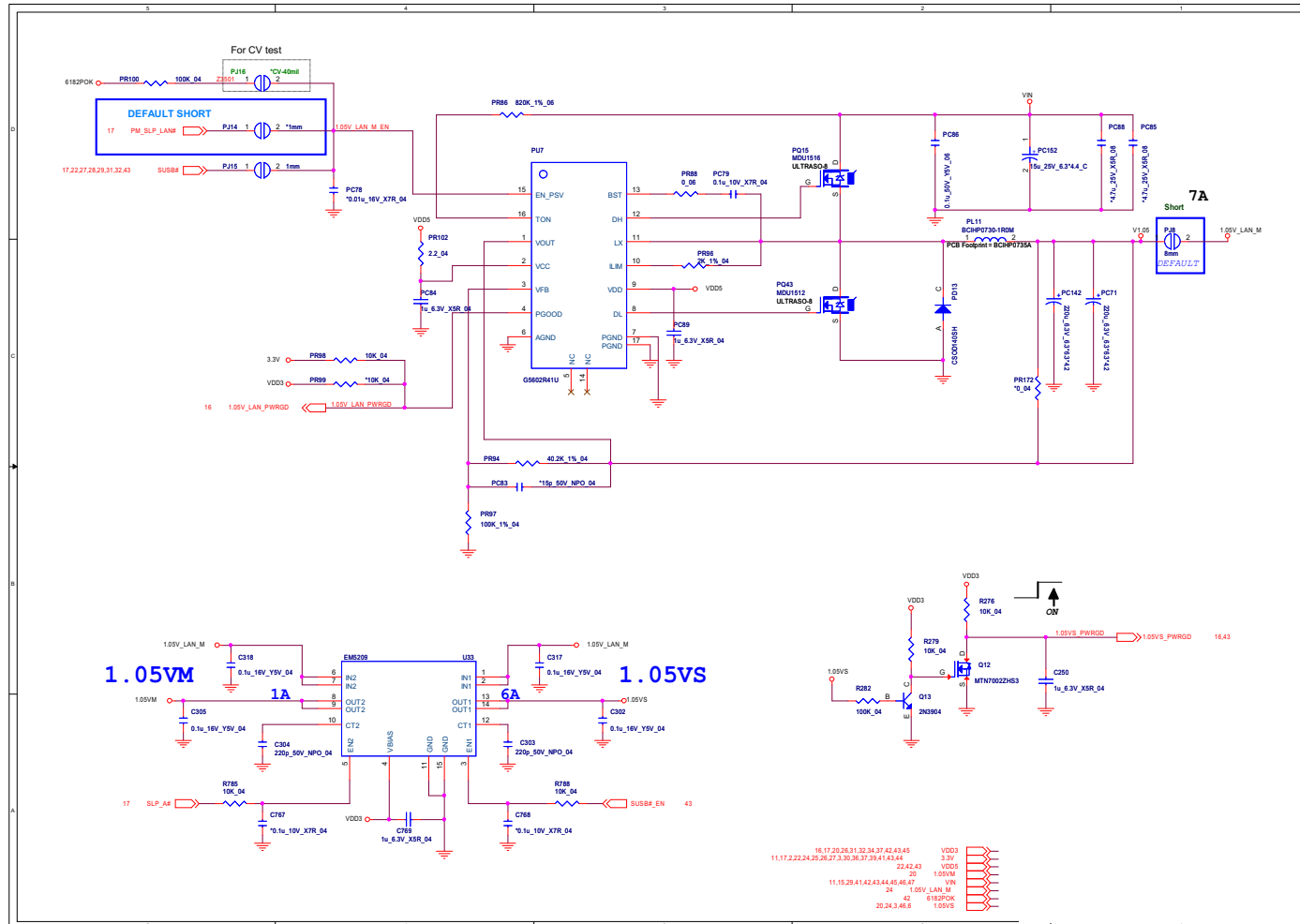


TPM SLB9655TT & NPCT420

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TPM SLB9655TT & NPCT420



Power 1.05V/1.05VM/LAN_M

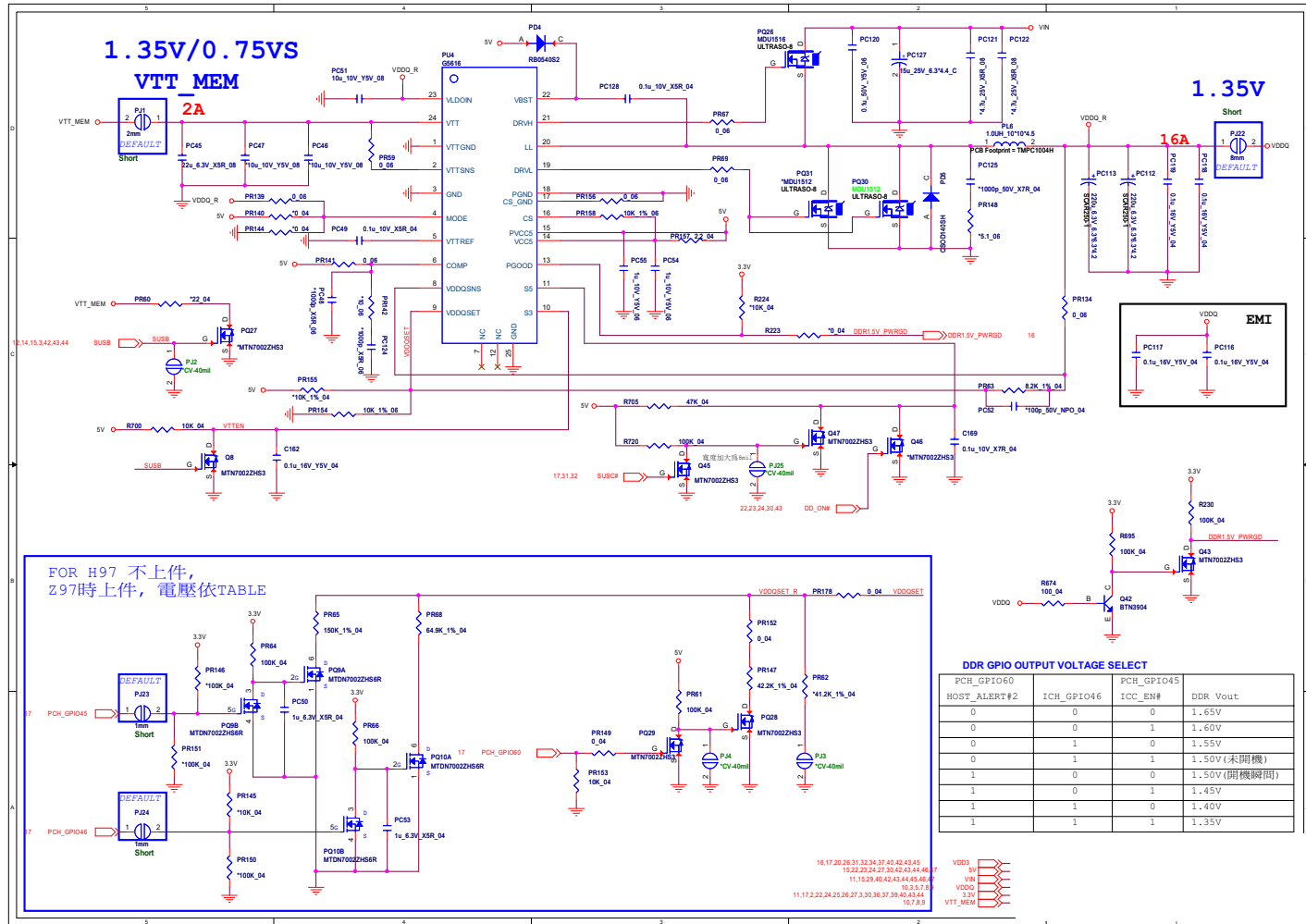


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Power 1.05V/
1.05VM/LAN_M

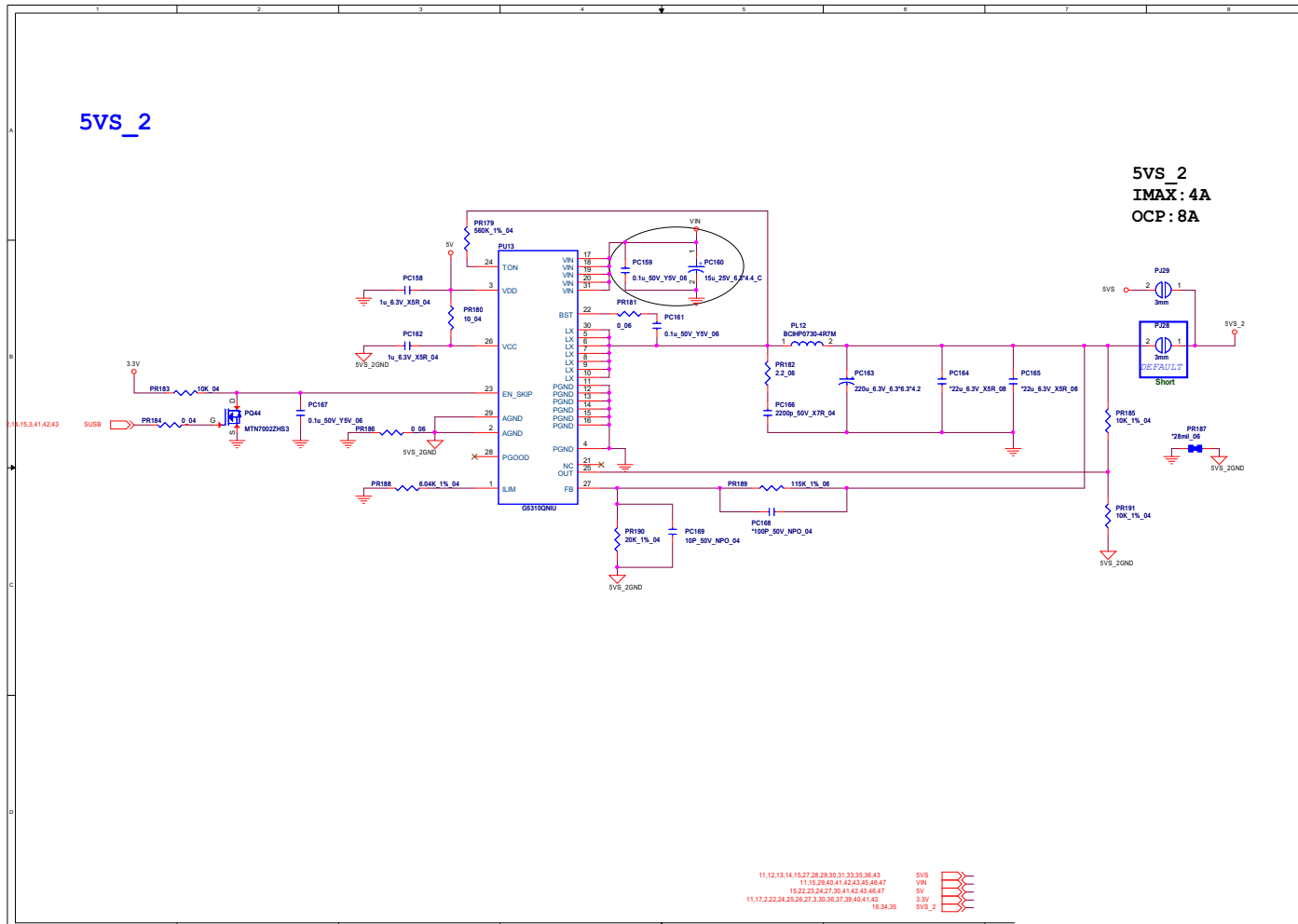
B.Schematic Diagrams

DDR 1.35V/0.75VS

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DDR 1.35V/0.75VS



5VS_2



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 5VS_2

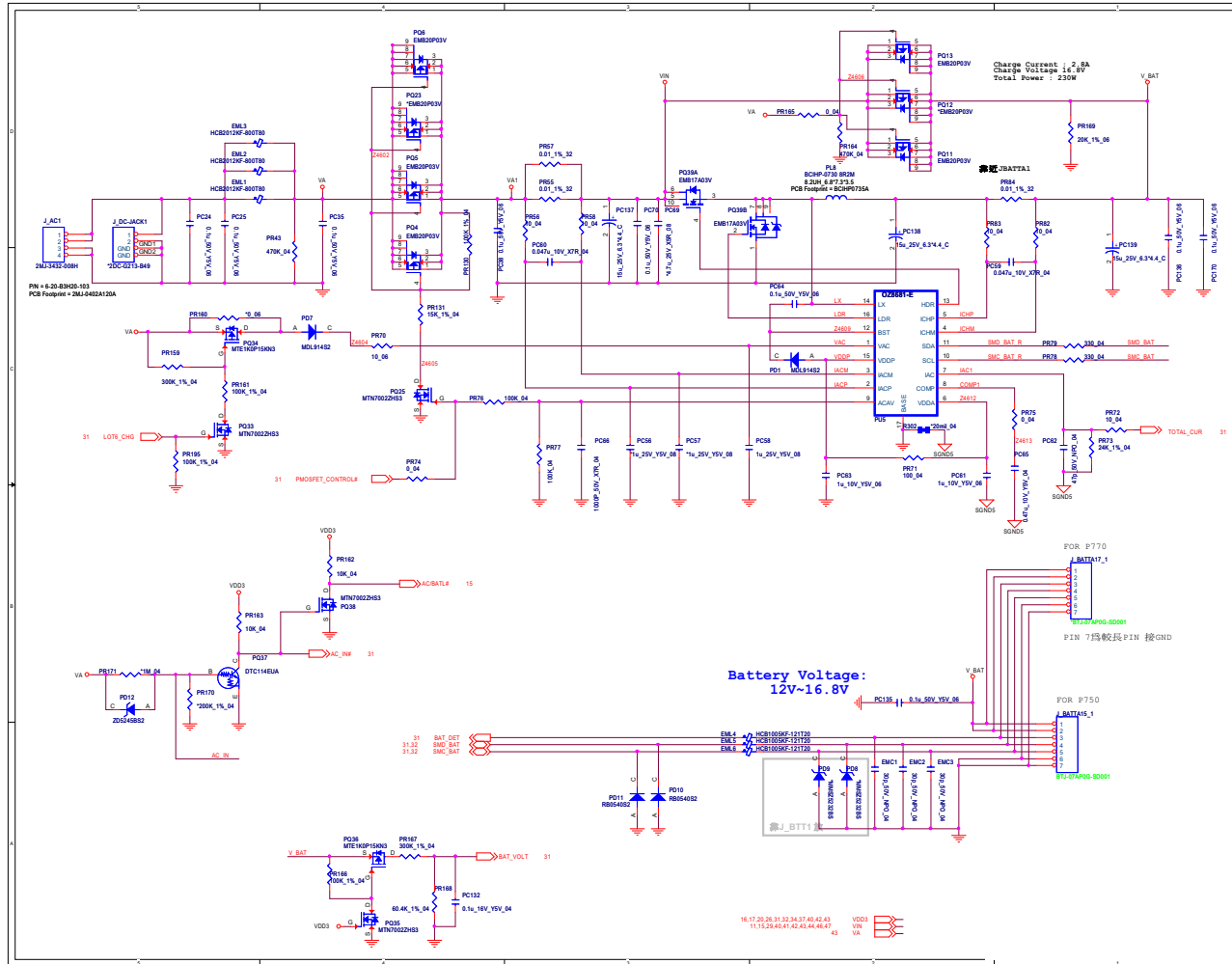
B.Schematic Diagrams

Schematic Diagrams

Power Charger, DC IN

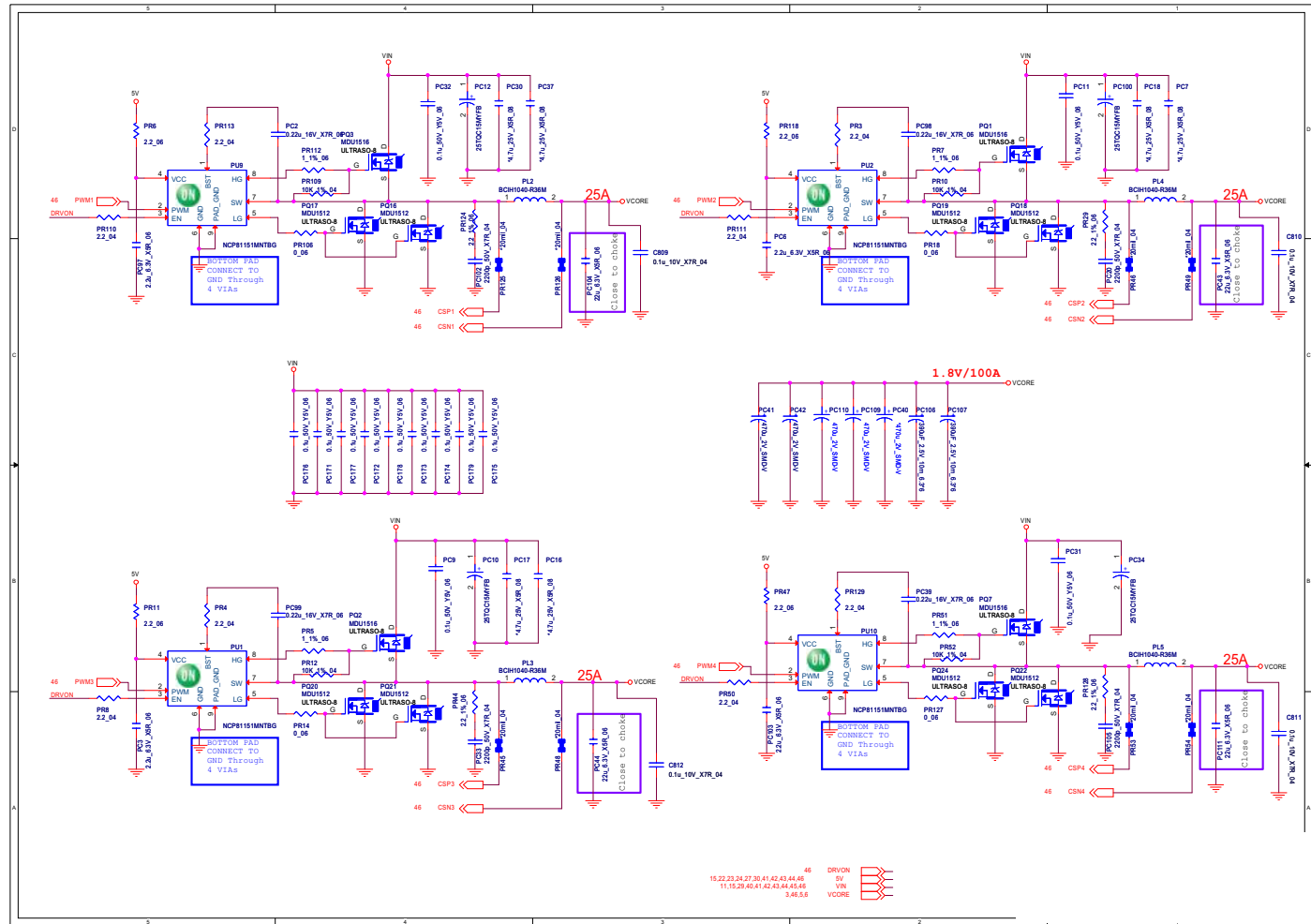
B.Schematic Diagrams

Sheet 45 of 57
Power Charger,
DC IN



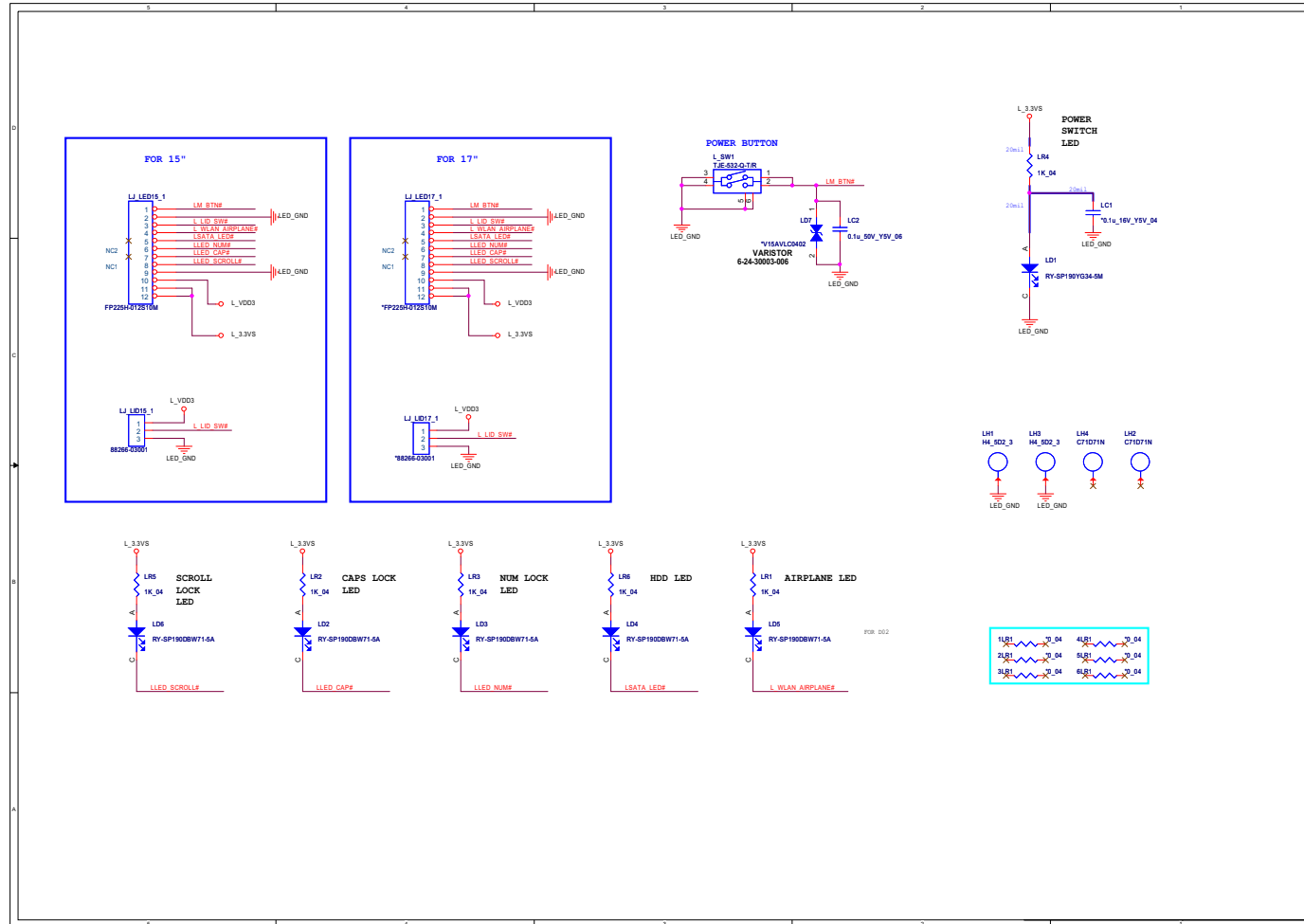
Power V-Core1

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Power V-Core1

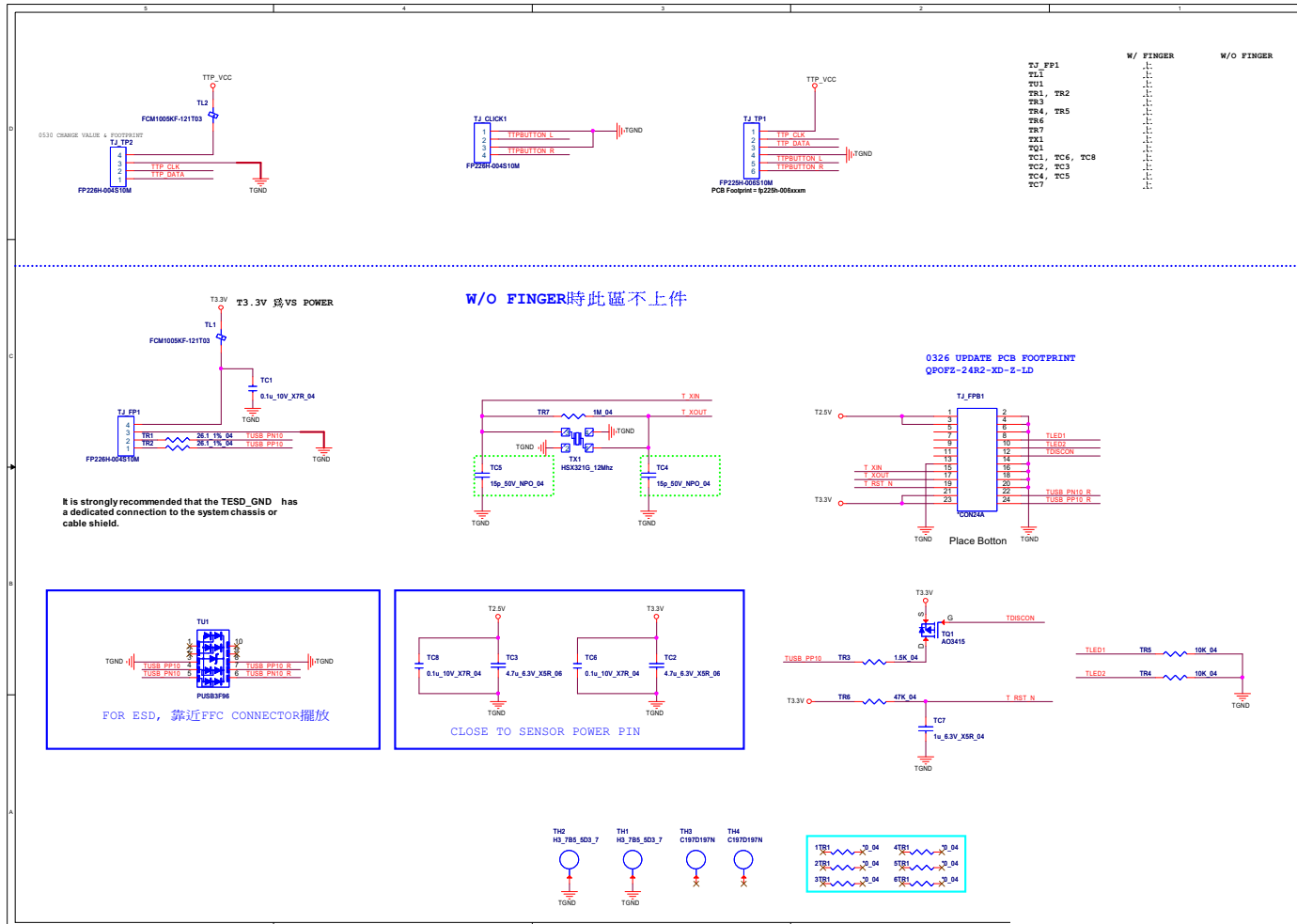


P750ZM Power LED Board

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P750ZM Power LED Board



P750ZM Click Board



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P750ZM Click Board

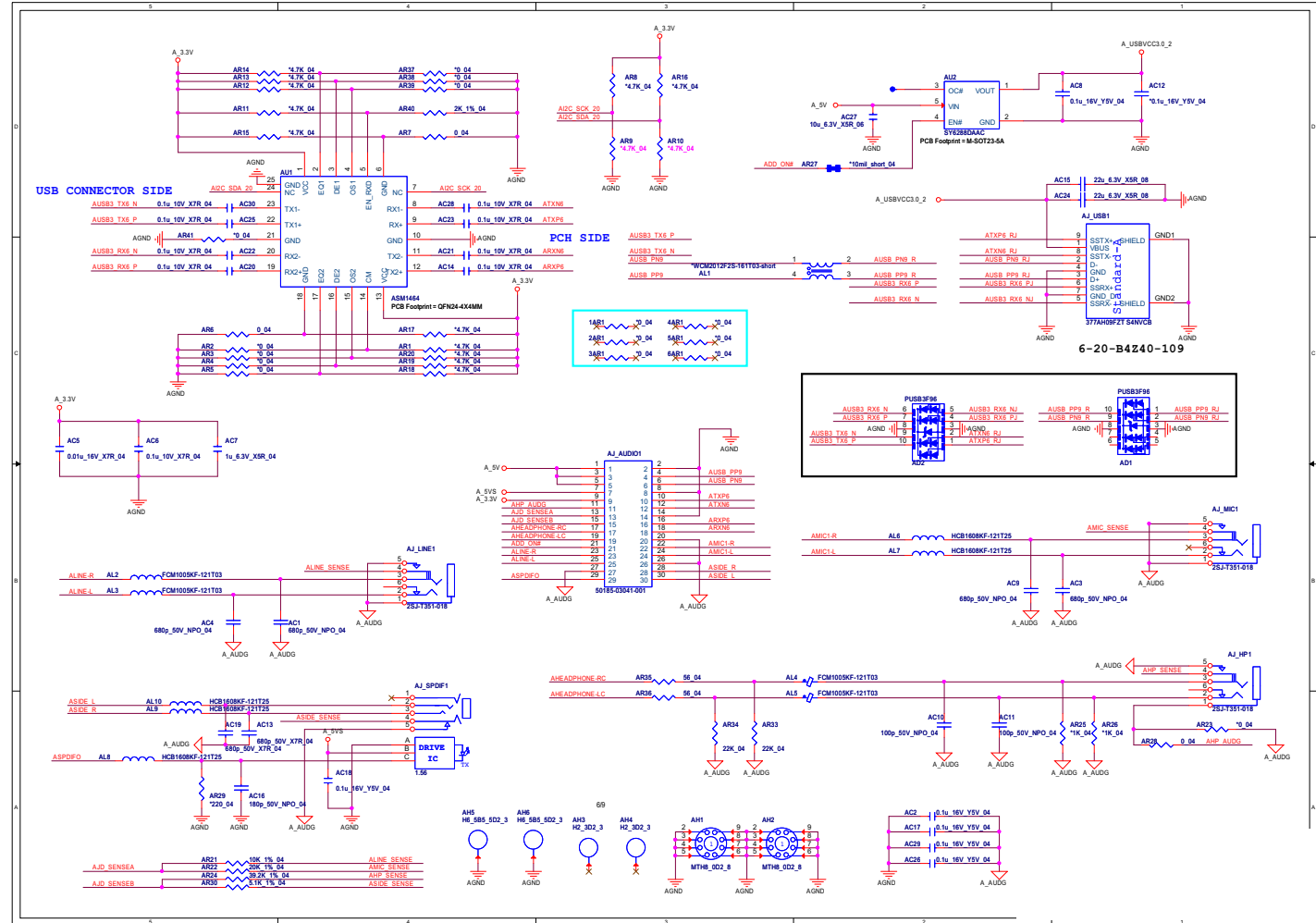
B.Schematic Diagrams

Schematic Diagrams

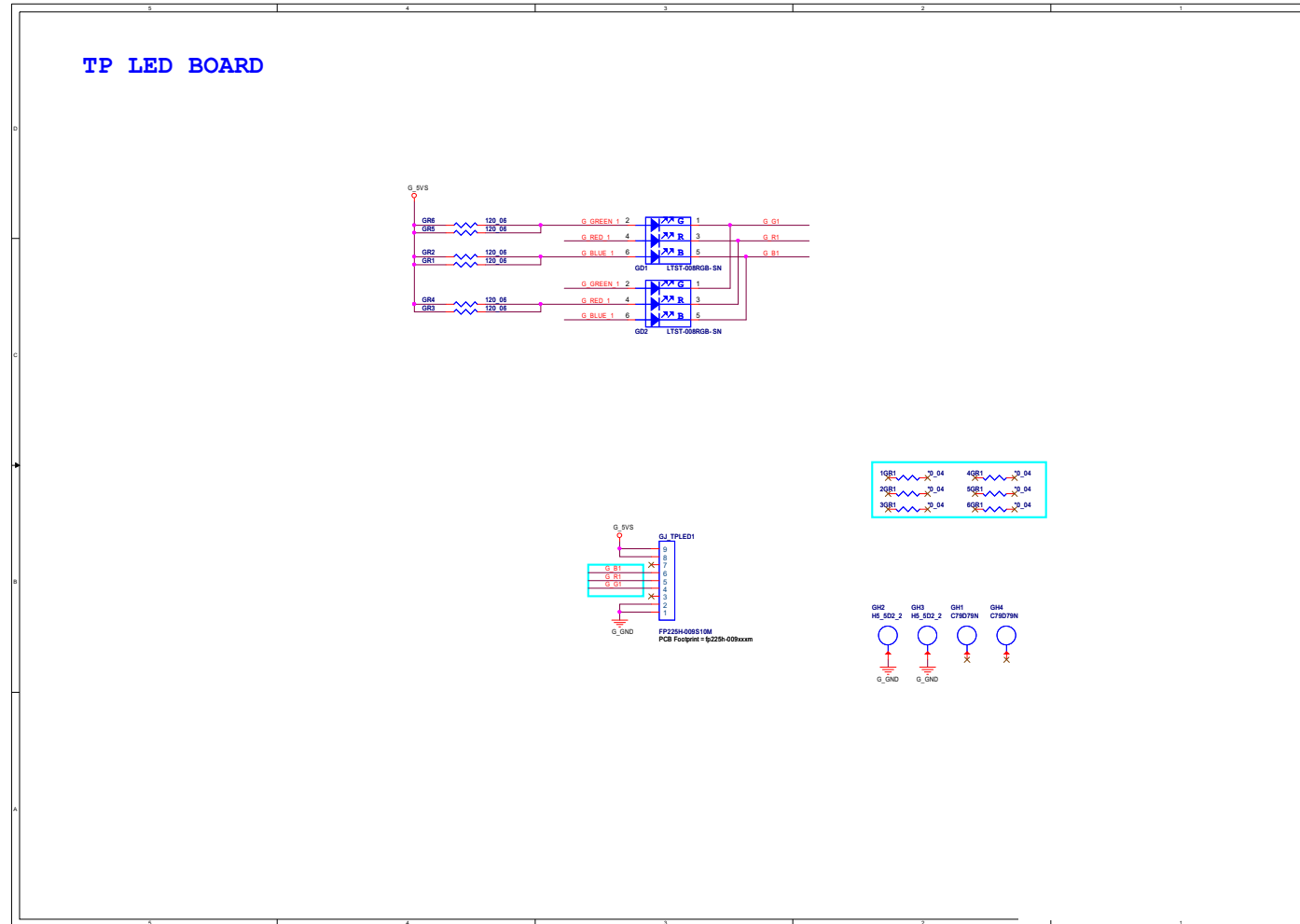
P750ZM Audio Board

B.Schematic Diagrams

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P750ZM Audio
Board



P750ZM BOT LED Board

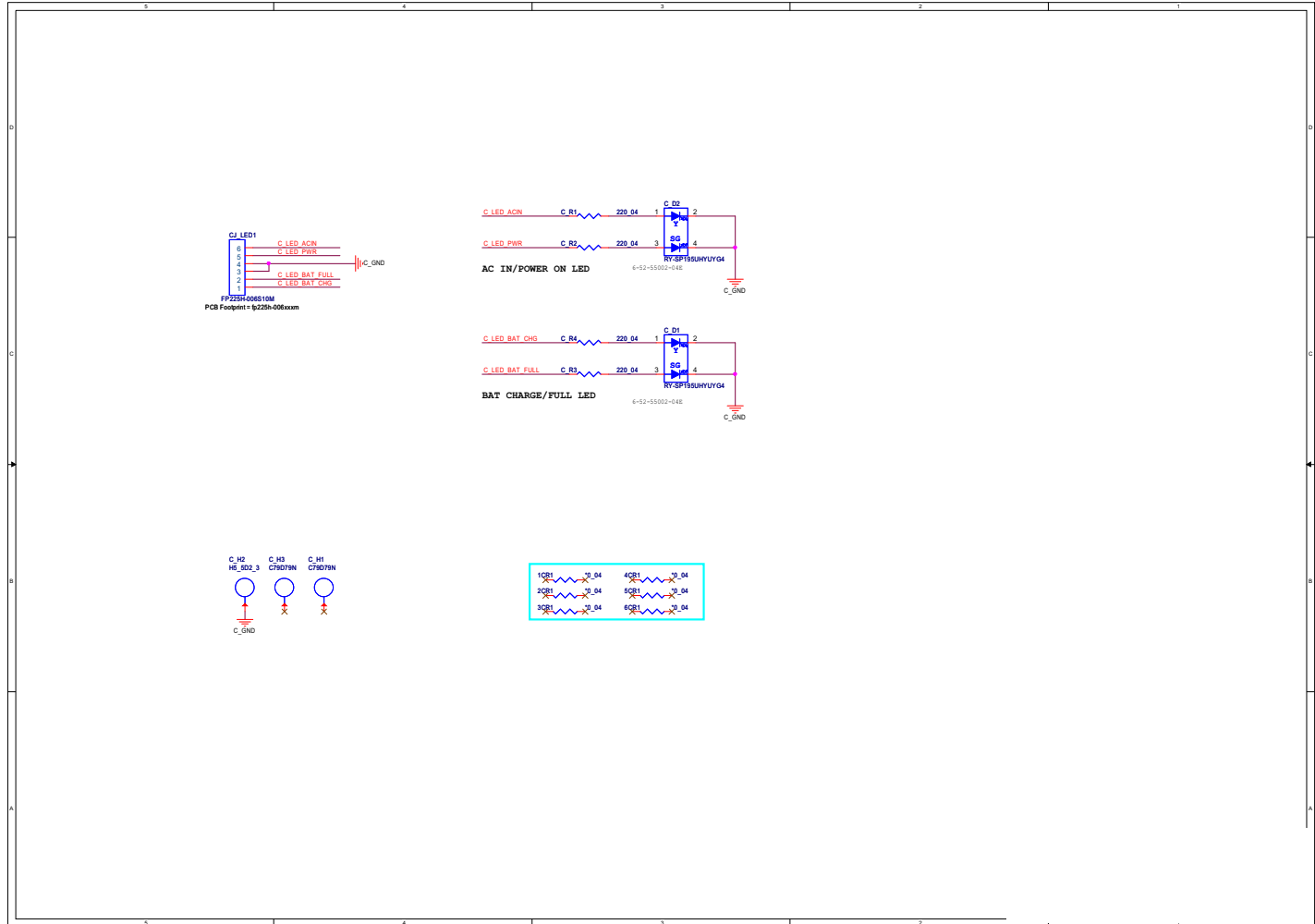


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P750ZM BOT LED
Board

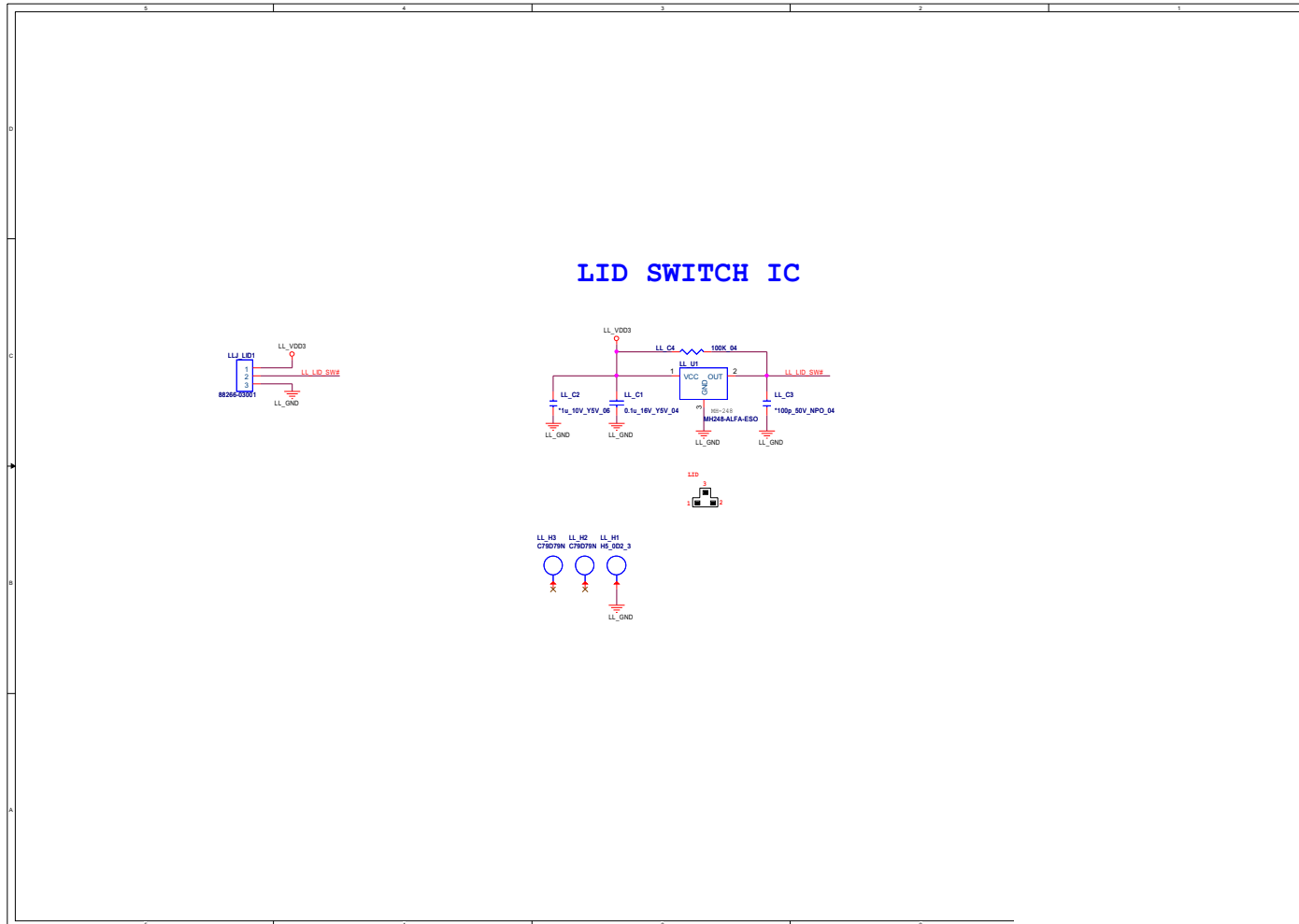
Schematic Diagrams

P750ZM Charge LED Board

Sheet 53 of 57
P750ZM Charge
LED Board

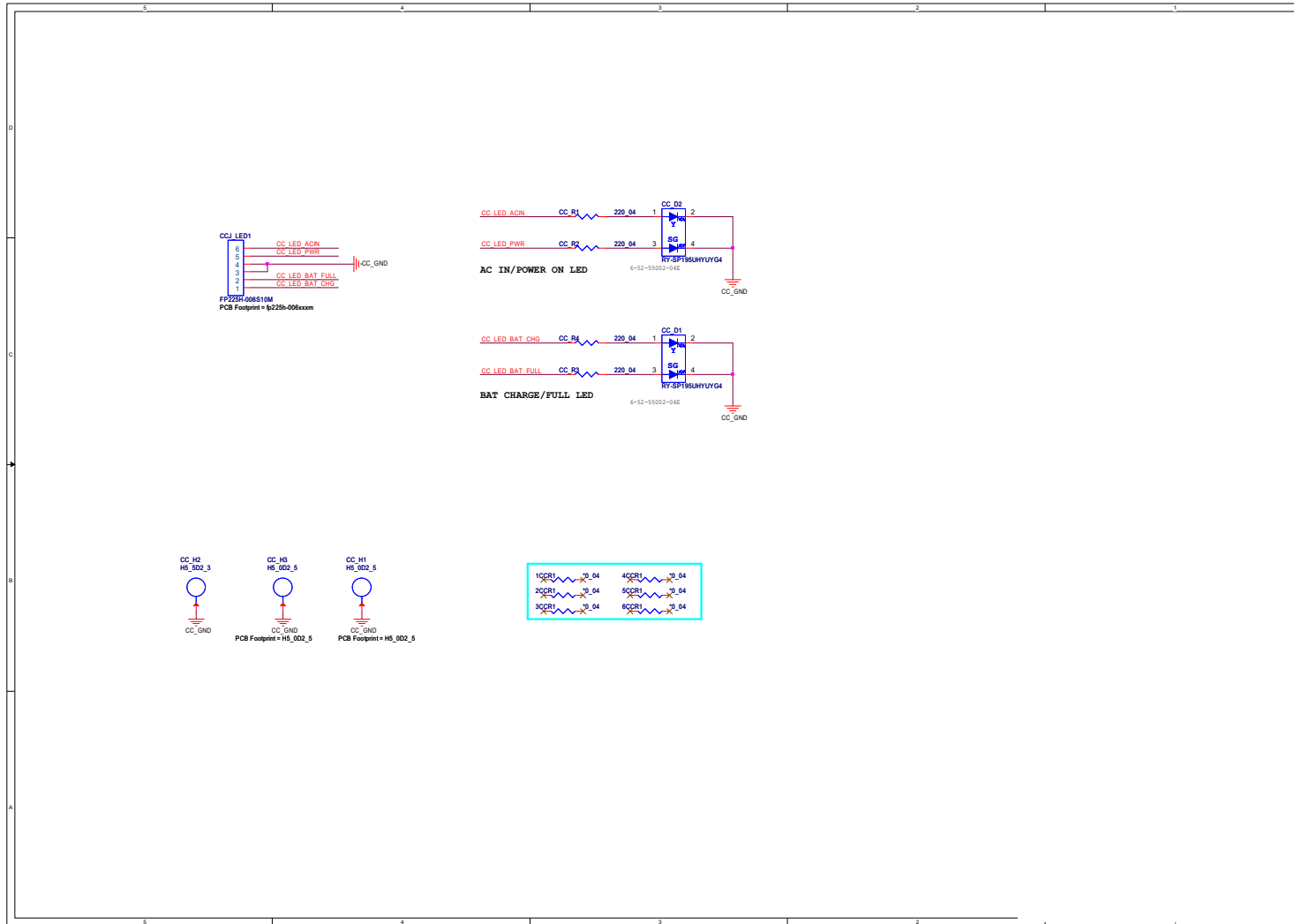


P750ZM LID Switch Board



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P750ZM LID Switch
Board

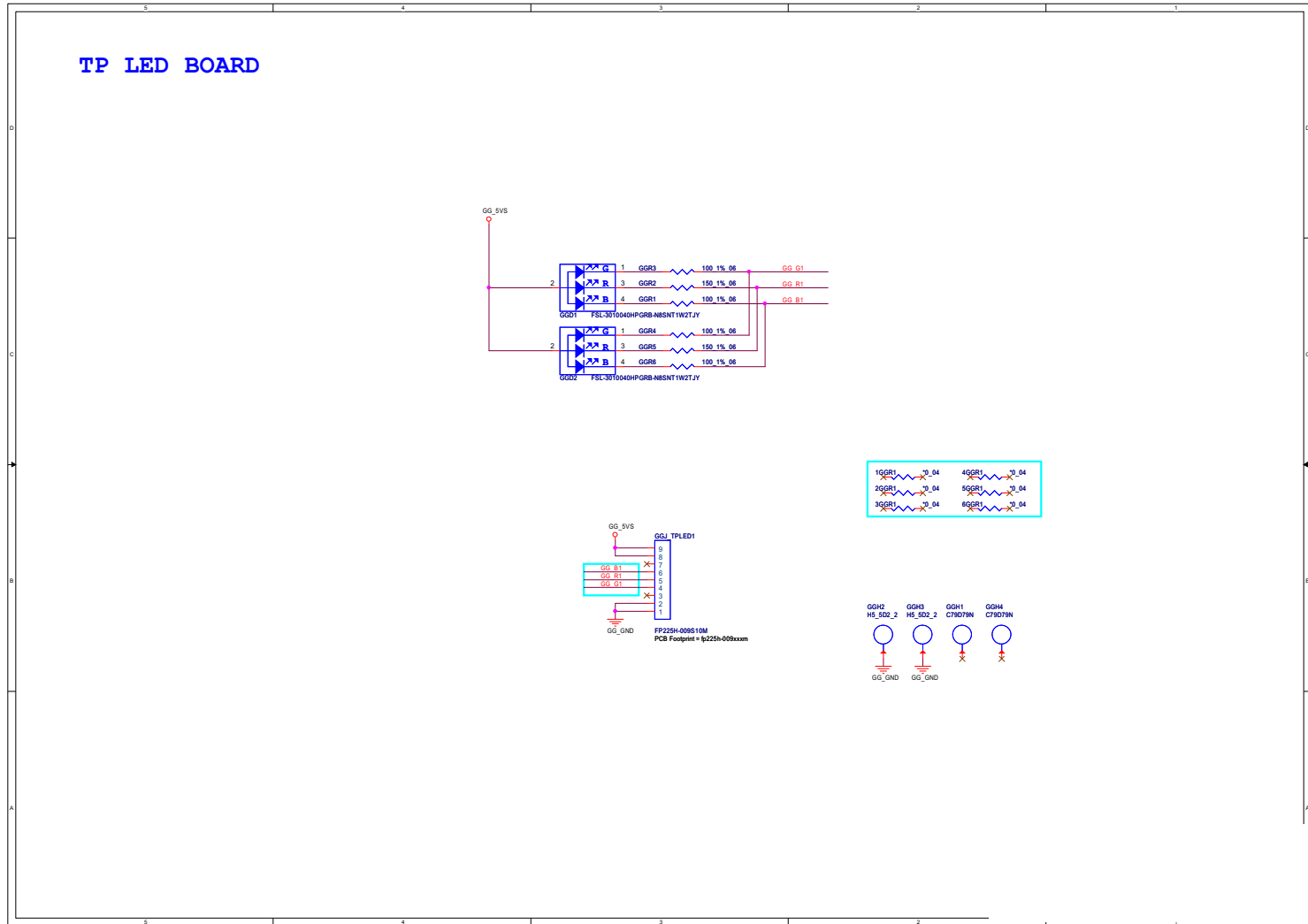
P750ZM Charge LED Board



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P750ZM Charge
LED Board

P750ZM BOT LED Board

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P750ZM BOT LED
Board



Appendix C: Updating the FLASH ROM BIOS

To update the FLASH ROM BIOS, you must:

- Download the BIOS update from the web site.
- Unzip the files onto a bootable CD/DVD/USB Flash Drive.
- Reboot your computer from an external CD/DVD/USB Flash Drive.
- Use the flash tools to update the flash BIOS using the commands indicated below.
- Restart the computer booting from the HDD and press **F2** at startup enter the BIOS.
- Load setup defaults from the BIOS and save the default settings and exit the BIOS to restart the computer.
- After rebooting the computer you may restart the computer again and make any required changes to the default BIOS settings.

Download the BIOS

1. Go to www.clevo.com.tw and point to **E-Services** and click **E-Channel**.
2. Use your user ID and password to access the appropriate download area (BIOS), and download the latest BIOS files (the BIOS file will be contained in a batch file that may be run directly once unzipped) for your computer model (see sidebar for important information on BIOS versions).

Unzip the downloaded files to a bootable CD/DVD/ or USB Flash drive

1. Insert a bootable CD/DVD/USB flash drive into the CD/DVD drive/USB port of the computer containing the downloaded files.
2. Use a tool such as Winzip or Winrar to unzip all the BIOS files and refresh tools to your bootable CD/DVD/USB flash drive (you may need to create a bootable CD/DVD with the files using a 3rd party software).

Set the computer to boot from the external drive

1. With the bootable CD/DVD/USB flash drive containing the BIOS files in your CD/DVD drive/USB port, restart the computer and press **F2** (in most cases) to enter the BIOS.
2. Use the arrow keys to highlight the **Boot** menu.
3. Use the “+” and “-” keys to move boot devices up and down the priority order.
4. Make sure that the CD/DVD drive/USB flash drive is set first in the boot priority of the BIOS.
5. Press **F4** to save any changes you have made and exit the BIOS to restart the computer.



BIOS Version

Make sure you download the latest correct version of the BIOS appropriate for the computer model you are working on.

You should only download BIOS versions that are **V1.01.XX or higher** as appropriate for your computer model.

Note that BIOS versions are not backward compatible and therefore **you may not downgrade your BIOS to an older version** after upgrading to a later version (e.g if you upgrade a BIOS to ver 1.01.05, you **MAY NOT** then go back and flash the BIOS to ver 1.01.04).

BIOS Update

Use the flash tools to update the BIOS

1. Make sure you are not loading any memory management programs such as HIMEM by holding the **F8** key as you see the message “**Starting MS-DOS**”. You will then be prompted to give “**Y**” or “**N**” responses to the programs being loaded by DOS. Choose “**N**” for any memory management programs.
2. You should now be at the DOS prompt e.g: DISK C:\> (C is the designated drive letter for the CD/DVD drive/USB flash drive).
3. **Type the following command** at the DOS prompt:

C:\> Flash.bat

4. The utility will then proceed to flash the BIOS.
5. You should then be prompted to press any key to restart the system or turn the power off, and then on again but make sure you remove the CD/DVD/USB flash drive from the CD/DVD drive/USB port before the computer restarts.

Restart the computer (booting from the HDD)

1. With the CD/DVD/USB flash drive removed from the CD/DVD drive/USB port the computer should restart from the HDD.
2. Press **F2** as the computer restarts to enter the BIOS.
3. Use the arrow keys to highlight the **Exit** menu.
4. Select **Load Setup Defaults** (or press **F3**) and select “**Yes**” to confirm the selection.
5. Press **F4** to save any changes you have made and exit the BIOS to restart the computer.

Your computer is now running normally with the updated BIOS

You may now enter the BIOS and make any changes you require to the default settings.