SERVICE MANUAL

P750DM / P751DM / P750DM-G / P751DM-G

notebook

Notebook Computer

P750DM / P751DM / P750DM-G / P751DM-G

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 ***P750DM / P751DM / P750DM-G / P751DM-G***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

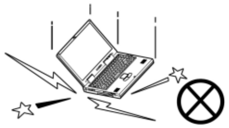
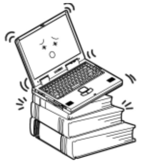
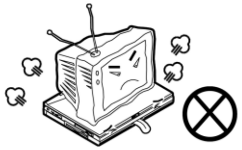
Follow basic safety precautions, including those listed below, to reduce the risk of fire, electric shock and injury to persons when using any electrical equipment:

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.

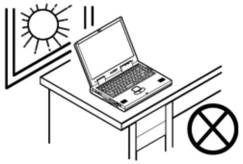
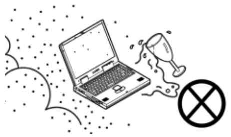
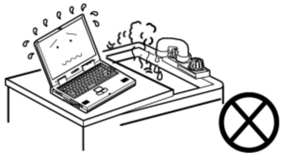
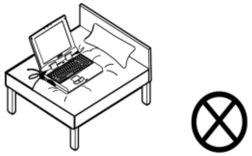
Instructions for Care and Operation

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

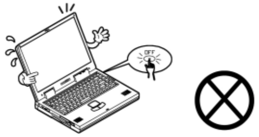
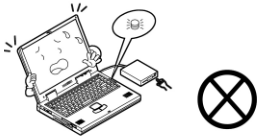
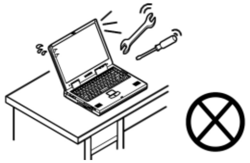
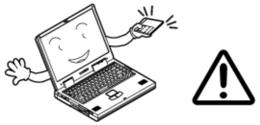
1. **Don’t drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.

Do not expose the computer to any shock or vibration. 	*Do not place it on an unstable surface.* 	*Do not place anything heavy on the computer.* 

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.

Do not expose it to excessive heat or direct sunlight. 	*Do not leave it in a place where foreign matter or moisture may affect the system.* 	*Don’t use or store the computer in a humid environment.* 	*Do not place the computer on any surface which will block the vents.* 

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.

Do not turn off the power until you properly shut down all programs. 	*Do not turn off any peripheral devices when the computer is on.* 	*Do not disassemble the computer by yourself.* 	*Perform routine maintenance on your computer.* 

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.

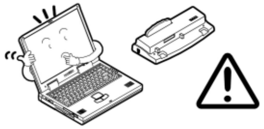
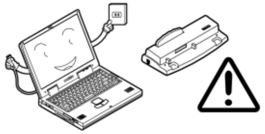
Also note the following when the cover is removed:

- 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.

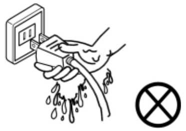
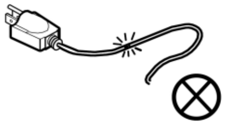
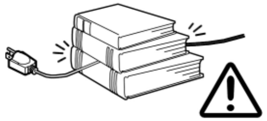
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices**.

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”.

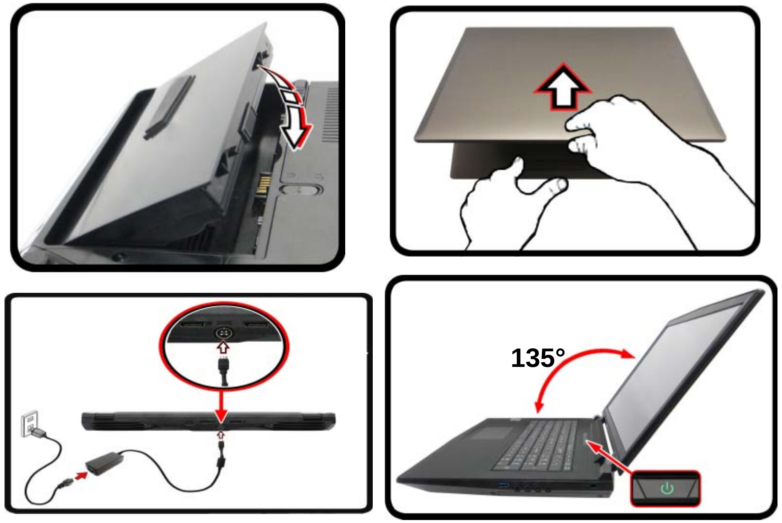


Figure 1
Opening the Lid/LCD/ Computer with AC/DC Adapter Plugged-In

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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the ***P750DM / P751DM / P750DM-G / P751DM-G***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 ***P750DM / P751DM / P750DM-G / P751DM-G***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

i7-6700K (4.00GHz)*

8MB L3 Cache, **14nm**, DDR4-2133MHz, TDP 91W

Intel® Core™ i5 Processor

i5-6600K (3.50GHz)*

6MB L3 Cache, **14nm**, DDR4-2133MHz, TDP 91W

i5-6500 (3.20GHz)

6MB L3 Cache, **14nm**, DDR4-2133MHz, TDP 65W

i5-6400 (2.70GHz)

6MB L3 Cache, **14nm**, DDR4-2133MHz, TDP 65W

**Support Intel® XTU over-clocking technology*

LCD Options

15.6" (39.62cm), 16:9, QFHD (3840x2160)/FHD (1920x1080)

Video Adapter Options

NVIDIA® GeForce GTX 980M PCIe Video Card

8GB GDDR5 Video RAM on board

NVIDIA® GeForce GTX 970M PCIe Video Card

6GB GDDR5 Video RAM

NVIDIA® GeForce GTX 965M PCIe Video Card

4GB GDDR5 Video RAM

Core Logic

Intel® Z170 Chipset

BIOS

AMI BIOS (64Mb SPI Flash-ROM)

Memory

Four 260 Pin SO-DIMM Sockets Supporting **DDR4 2133MHz** Memory

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

Memory Expandable from **4GB** (**minimum**) up to **64GB** (**maximum**)

Pointing Device

Built-in Touchpad (scrolling key functionality integrated)

Keyboard

Full Color **Illuminated** Full-size Winkey Keyboard (with numeric keypad and anti-ghost keys)

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

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

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**

Gen3 x4 2280 SSDs supporting RAID level 0/1

Security

Security (Kensington® Type) Lock Slot

BIOS Password

(**Factory Option**) Fingerprint Reader Module

Trusted Platform Module 2.0

Interface

One USB 3.1 Port/Thunderbolt Port

Three USB 3.0 Ports

One eSATA/Powered 3.0 USB Port

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 Gen3 x4 SSD**

Slot 3 for **SATA** or **PCIe Gen3 x4 SSD**

Slot 4 for **3G/4G** Module

Note: (**Factory Option**) LTE-1/LTE-2 Antenna

Communication

Built-In Gigabit Ethernet LAN

2.0M FHD PC Camera Module

(**Factory Option - Model A Only**) M.2 3042 3G/4G Module

WLAN/ Bluetooth M.2 Modules:

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

(**Factory Option**) Intel® Wireless-AC 3165 Wireless LAN (**802.11ac**) + Bluetooth **4.0**

(**Factory Option**) Intel® Wireless-AC 8260 Wireless LAN (**802.11ac**) + Bluetooth **4.1**

(**Factory Option**) Qualcomm® Atheros Killer™ Wireless-AC 1535 Wireless LAN (**802.11ac**) + Bluetooth **4.1**

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

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)

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**)

(**Factory Option**) DC Output: 19.5V, 16.9A (**330W**)

Dimensions & Weight

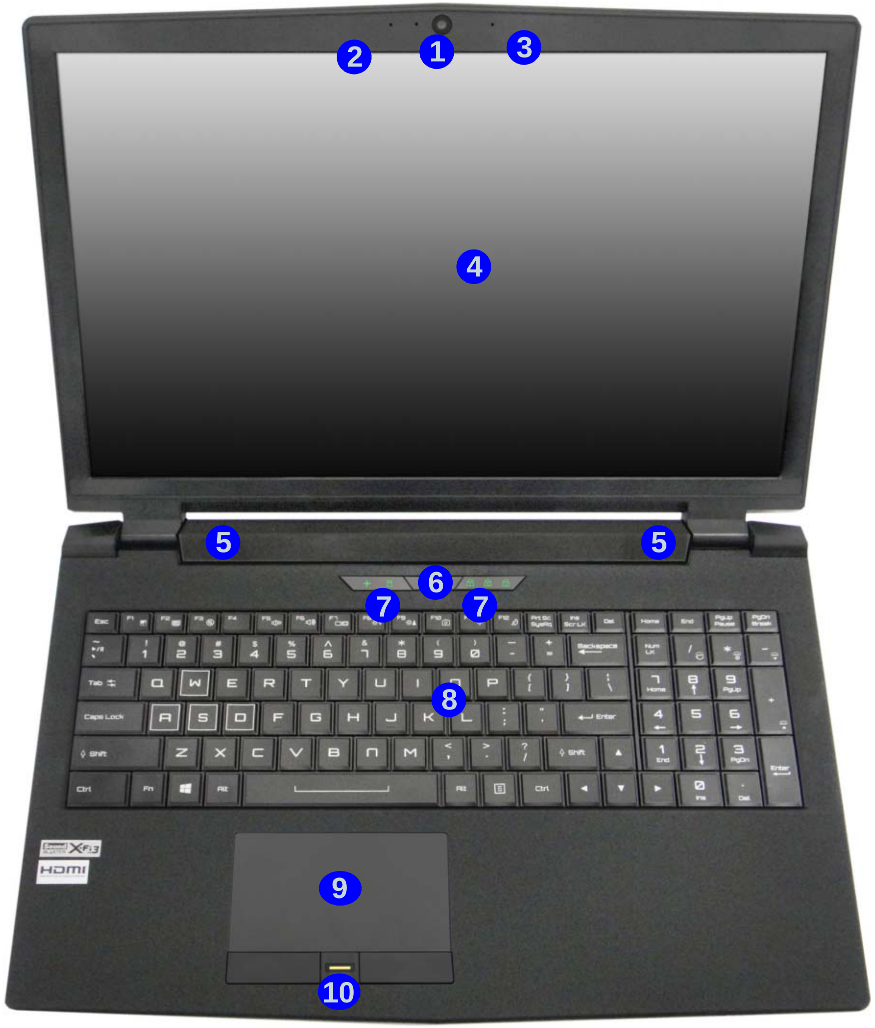
386mm (w) * 262mm (d) * 7 - 35.7mm (h)

3.4kg (Barebone System with Video Card and 82WH Battery)

External Locator - Top View with LCD Panel Open

Figure 1
Top View

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



External Locator - Front & Right side Views

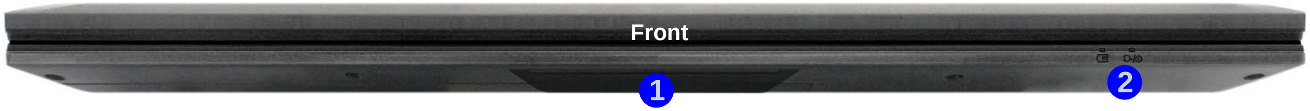


Figure 2
Front Views

1. Light Bar
2. LED Power Indicators

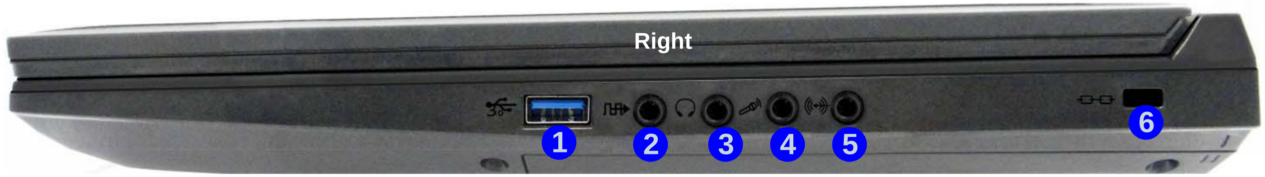


Figure 3
Right Side Views

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

External Locator - Left Side & Rear View

Figure 4
Left Side View

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

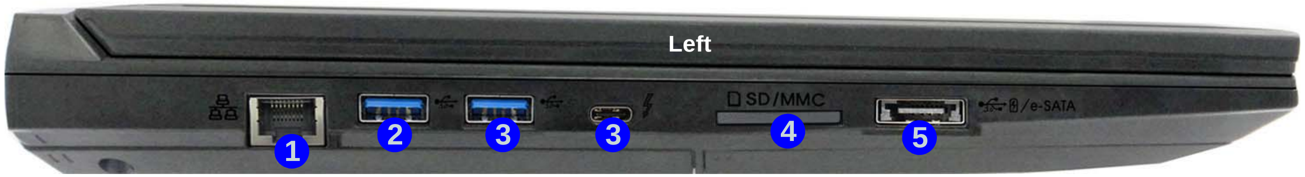
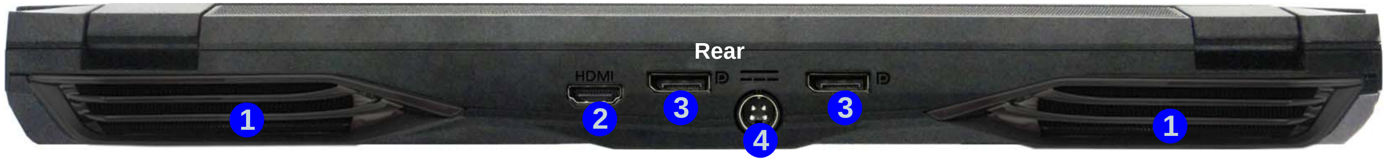

Left
SD/MMC
/e-SATA
1
2
3
3
4
5

Figure 5
Rear View

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


Rear
HDMI
1
2
3
4
3
1

External Locator - Bottom View

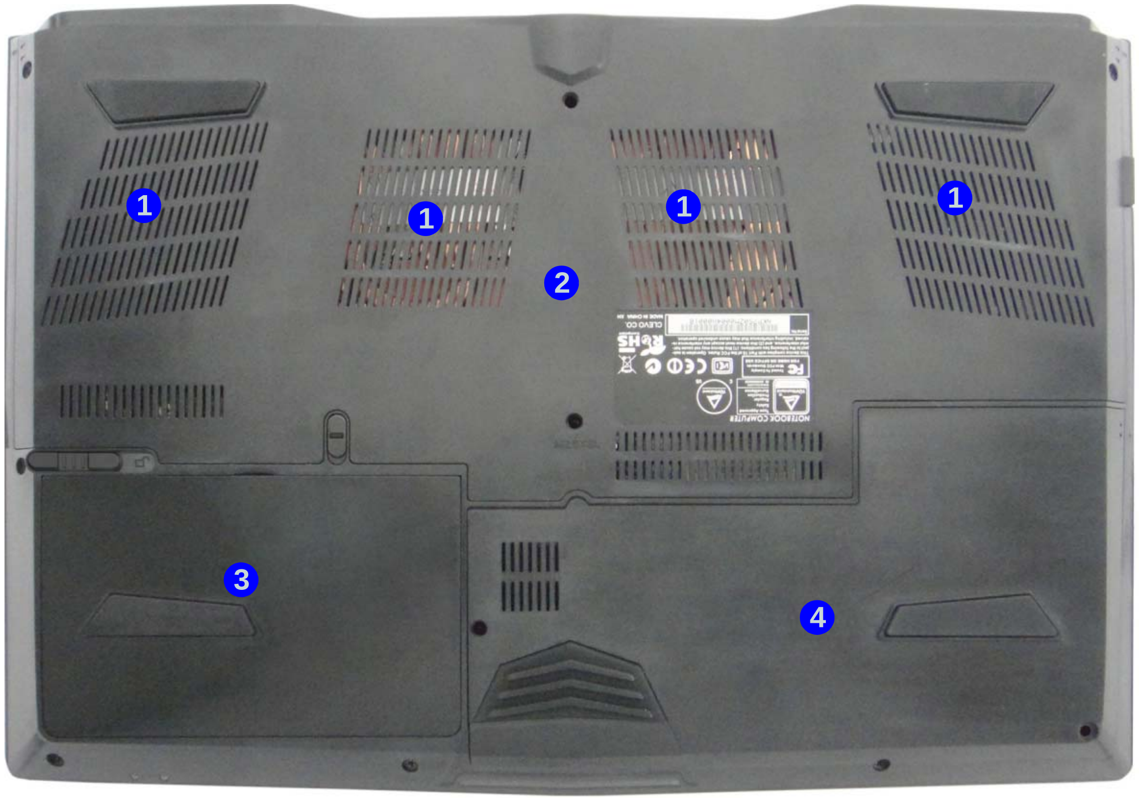


Figure 6
Bottom View

1. Vent
2. Component Bay Cover
3. Battery
4. HDD Bay

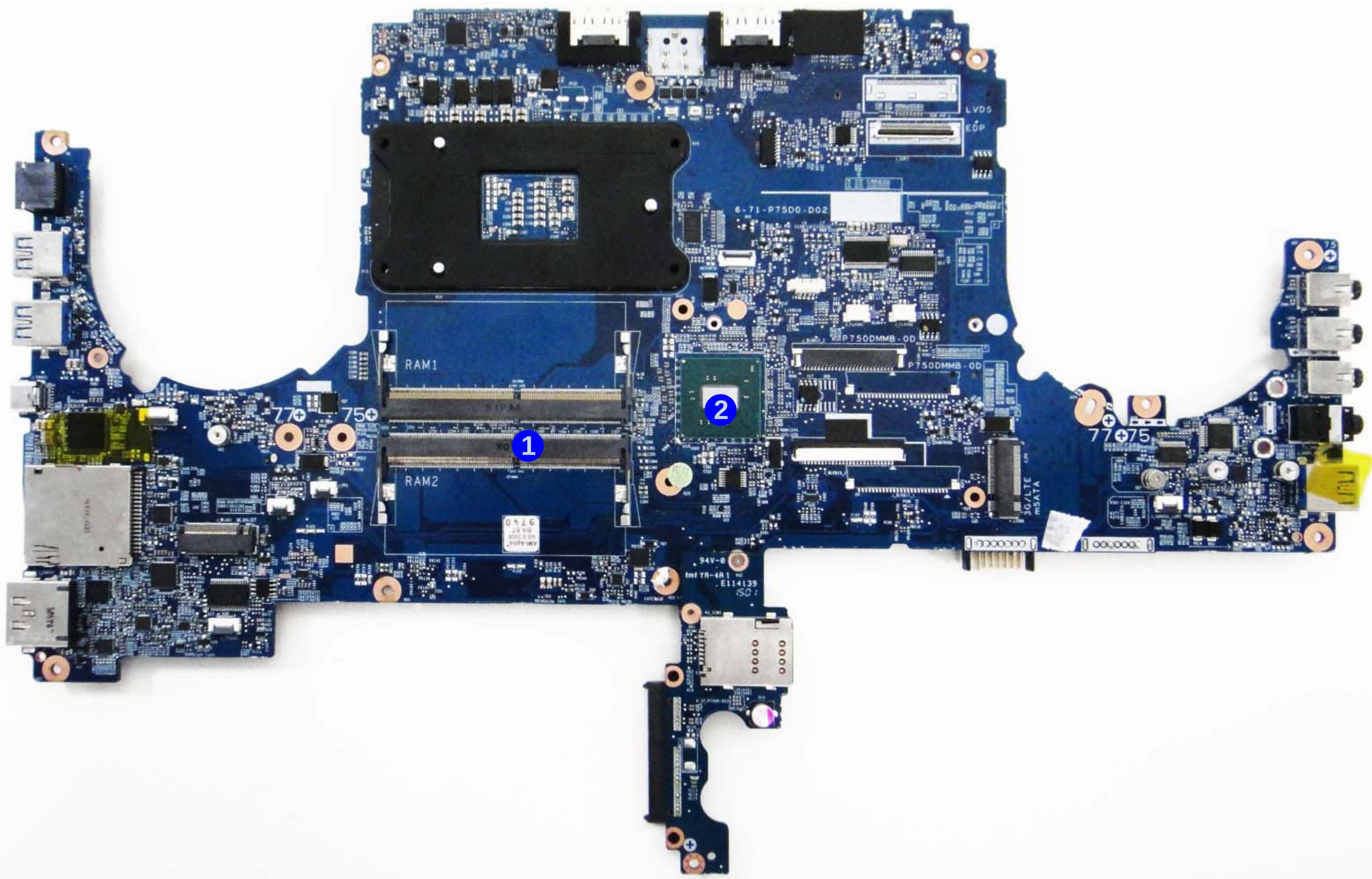
Overheating

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

Mainboard Overview - Top (Key Parts)

Figure 7
Mainboard Top Key Parts

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



Mainboard Overview - Bottom (Key Parts)

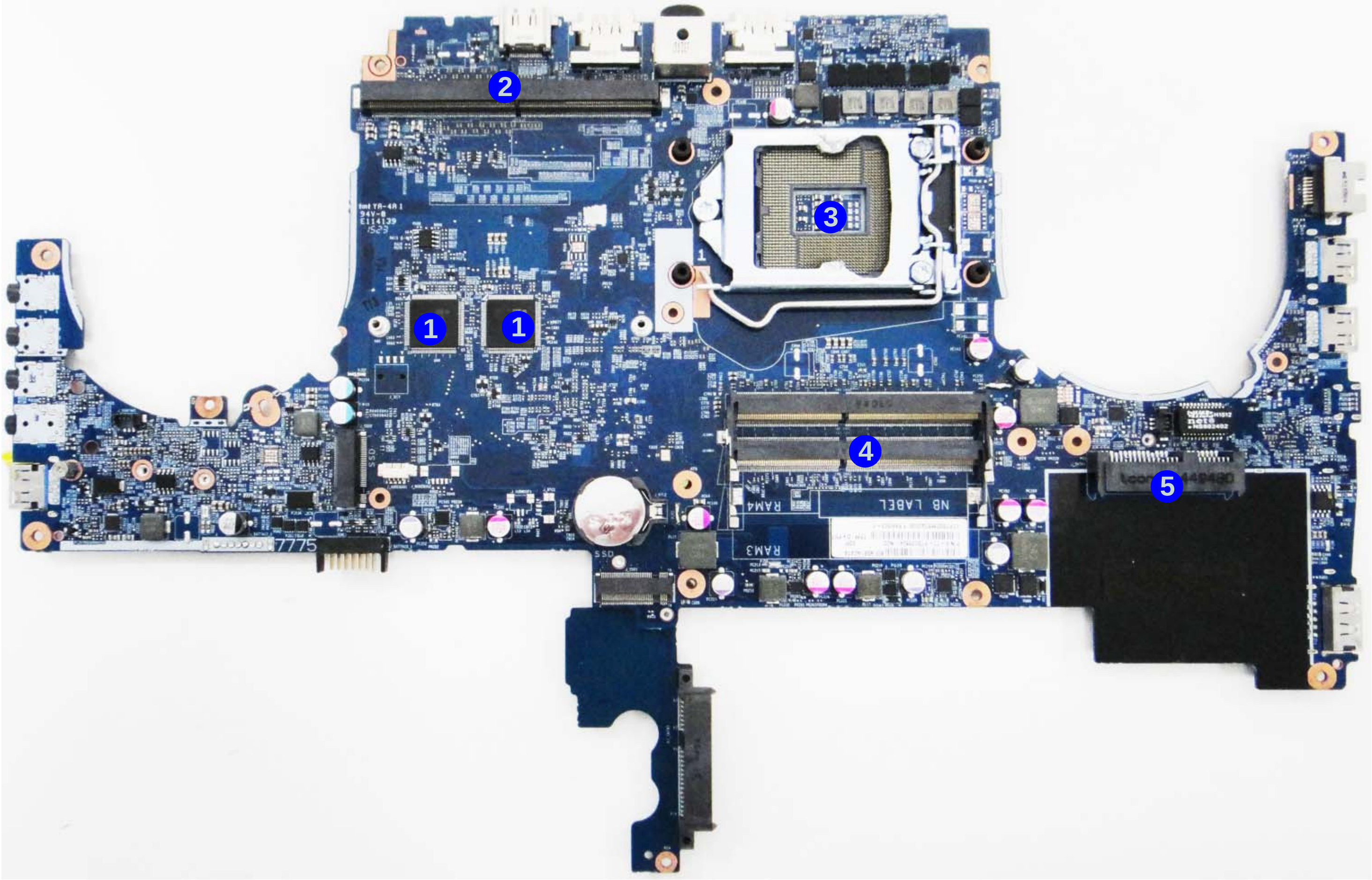


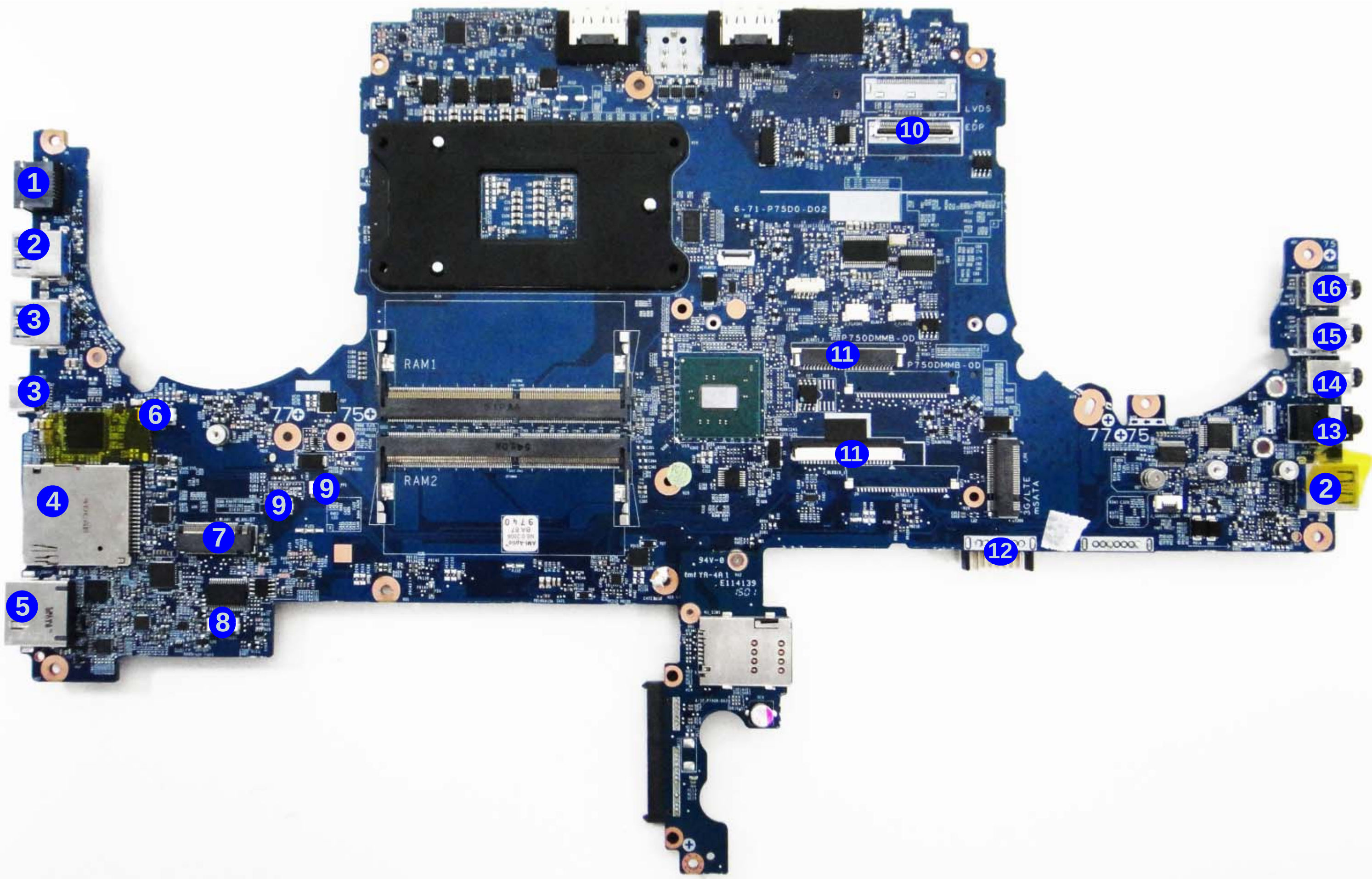
Figure 8
Mainboard Bottom Key Parts

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

Mainboard Overview - Top (Connectors)

Figure 9
Mainboard Top Connectors

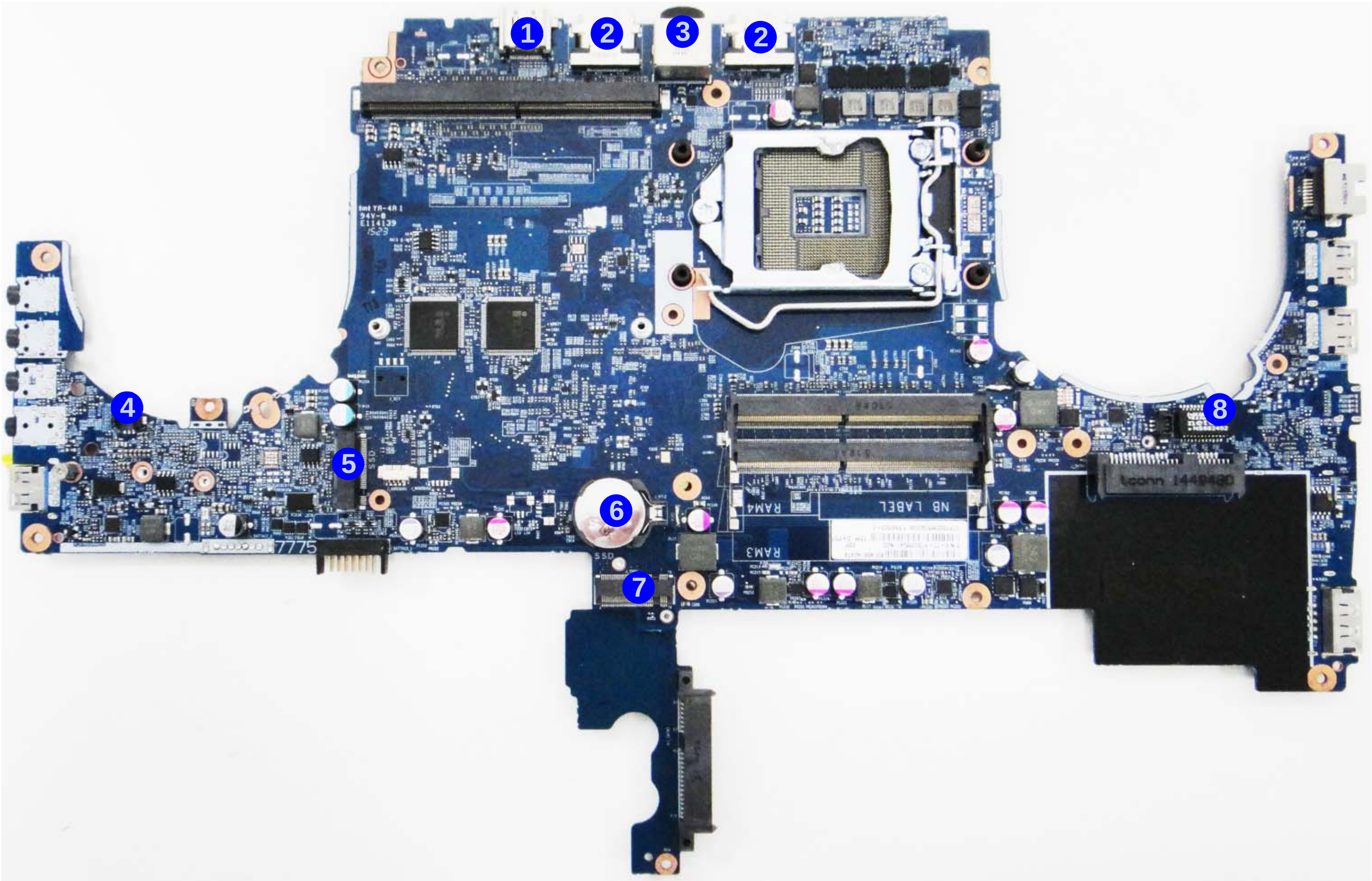
1. RJ-45 LAN Jack
2. USB 3.0 Port
3. USB 3.1 Ports
4. Multi-in-1 Card Reader
5. USB 3.0 Port / e-SATA
6. KB LED Connector
7. WLAN Card Connector
8. Button LED Connector
9. TP FFC Cable Connector
10. Panel Cable Connector
11. Keyboard Cable Connector
12. Battery Connector
13. S/PDIF-Out Jack
14. Headphone 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 / mSATA 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 ***P750DM / P751DM / P750DM-G / P751DM-G***series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

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

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

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

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

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

✎
Information

🔔
Warning

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.

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.

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.

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***

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 - 9***

To remove the Primary System Memory:

1.	Remove the battery	***page 2 - 5***
2.	Remove the system memory	***page 2 - 10***

To remove the System Memory under the Keyboard:

1.	Remove the battery	***page 2 - 5***
2.	Remove the keyboard	***page 2 - 12***
3.	Remove the system memory	***page 2 - 13***

To remove and install the Processor:

1.	Remove the battery	***page 2 - 5***
2.	Remove the system memory	***page 2 - 10***
3.	Remove the processor	***page 2 - 14***
4.	Install the processor	***page 2 - 16***

To remove the WLAN Module:

1.	Remove the battery	***page 2 - 5***
2.	Remove the keyboard	***page 2 - 12***
3.	Remove the wireless LAN	***page 2 - 17***

To remove and install the M.2 SATA Module:

1.	Remove the battery	***page 2 - 5***
2.	Remove the system memory	***page 2 - 10***
3.	Remove the M.2 SATA	***page 2 - 19***
4.	Install the M.2 SATA	***page 2 - 20***

To remove and install the Video Card:

1.	Remove the battery	***page 2 - 5***
2.	Remove the video card	***page 2 - 21***
3.	Install the video card	***page 2 - 22***

To remove the Mainboard:

1.	Remove the battery	***page 2 - 5***
2.	Remove the HDD	***page 2 - 6***
3.	Remove the M.2 SSD	***page 2 - 9***
4.	Remove the system memory	***page 2 - 10***
5.	Remove the keyboard	***page 2 - 12***
6.	Remove the processor	***page 2 - 14***
7.	Remove the wireless LAN	***page 2 - 17***
8.	Remove the M.2 SATA	***page 2 - 19***
9.	Remove the video card	***page 2 - 21***
10.	Remove the mainboard	***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***).

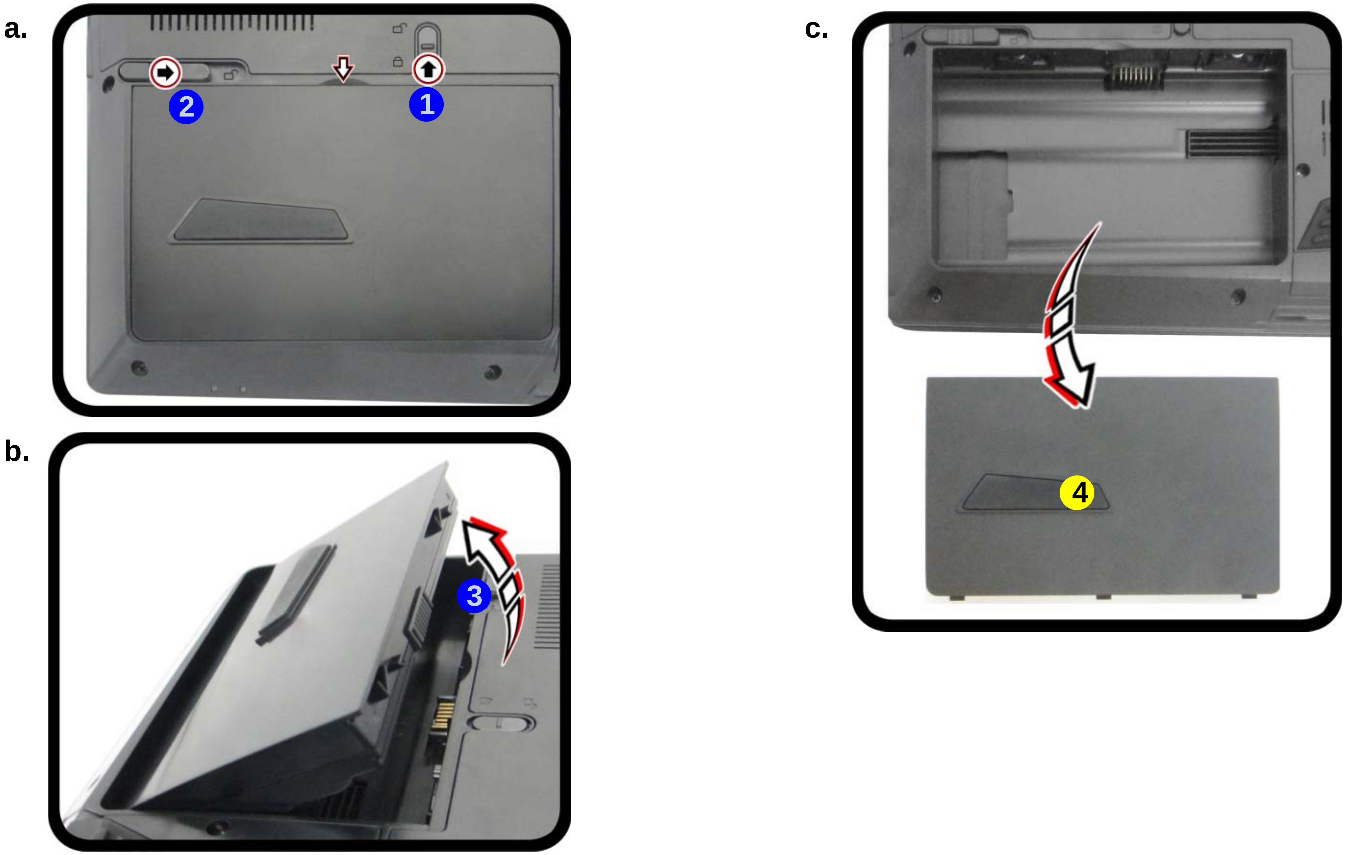


Figure 1
Battery Removal

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

4. Battery

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/ 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 Upgrade Process

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

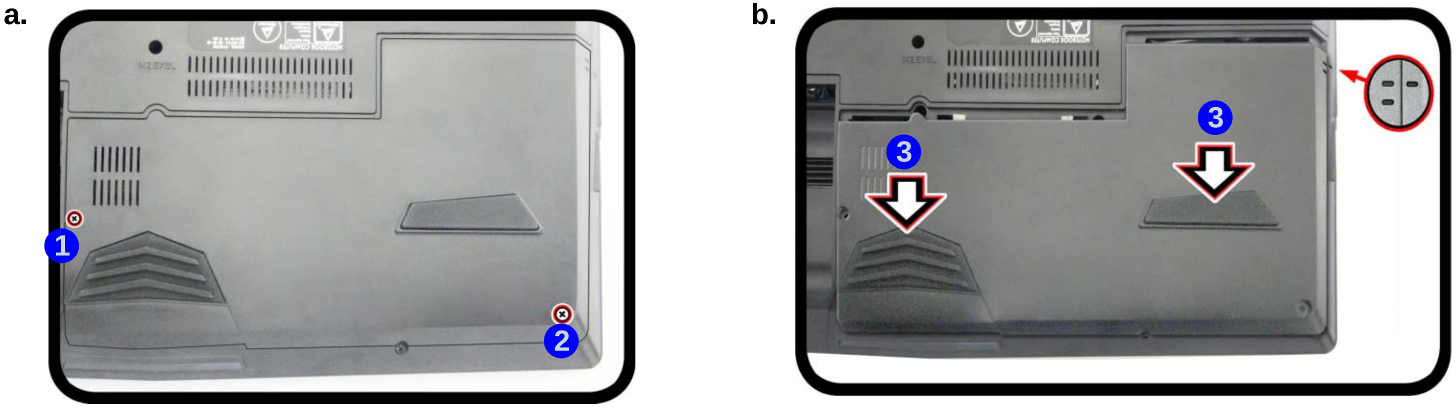


Figure 2
HDD Assembly Removal

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

- 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.

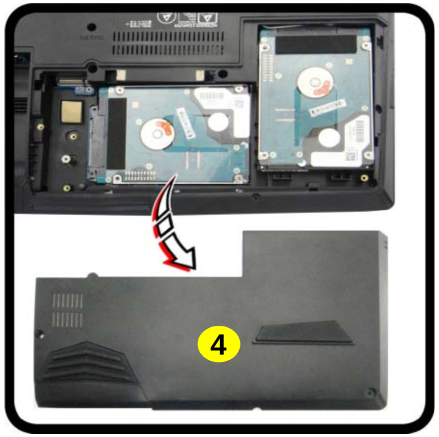
If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

4. Lift the hard disk bay cover ④ off the computer (***Figure 3c***)
5. Slightly lift and pull the HDD-2 assembly (if available) in the direction of the arrow ⑤ to remove the hard disk assembly ⑥ (***Figure 3d***).
6. Slightly lift and pull the HDD-1 assembly 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-2 assembly in the direction of the arrow to remove the hard disk assembly.
e. Lift and pull the HDD-1 assembly in the direction of the arrow to remove the hard disk assembly.
f. Remove the screws and the adhesive cover.

c.



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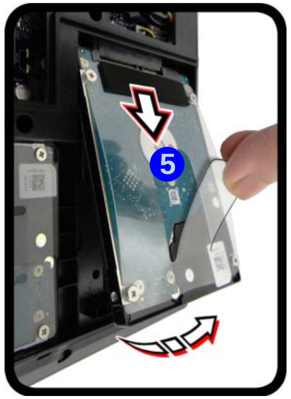

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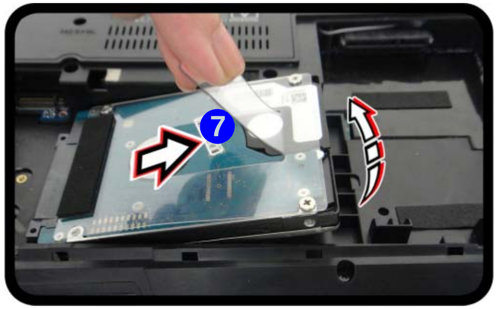
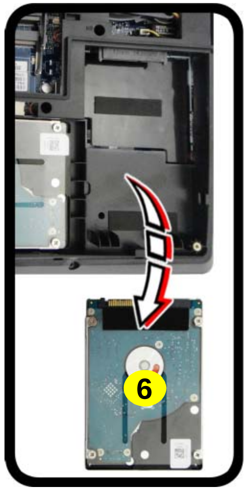
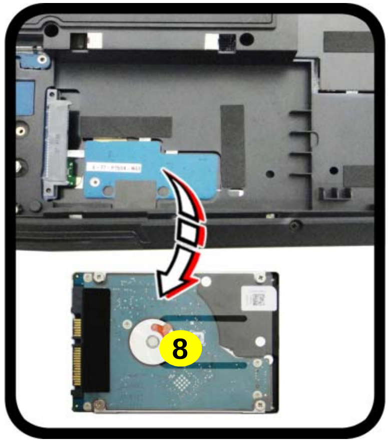


HDD-1



HDD-2



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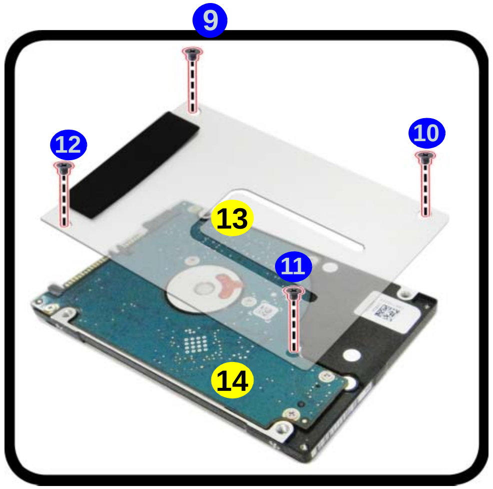


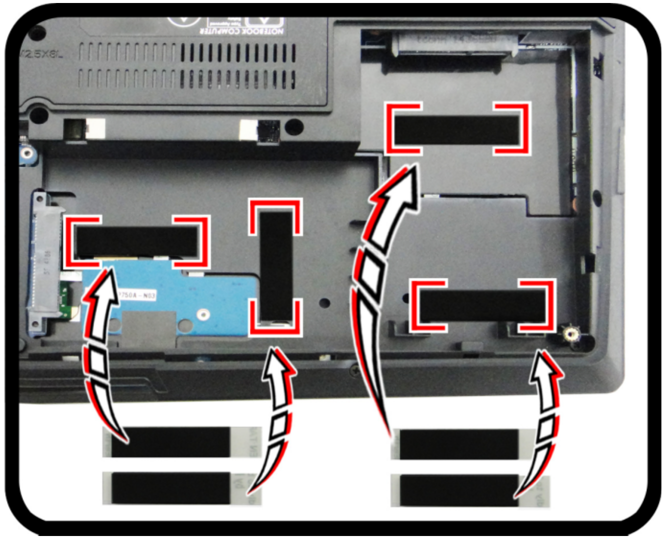
4. HDD Bay Cover
6. HDD-2 Assembly
8. HDD-1 Assembly
13. Adhesive Cover
14. HDD

- 4 Screws

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 4
Foam Rubber Insert for 7mm(H) HDDs



HDD-2 **HDD-1**

- 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.

Removing the M.2 SSD Module

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

1. Turn **off** the computer, and turn it over, remove the battery (***page 2 - 5***).
2. Remove the screw ① from the SSD (***Figure 5a***).
3. The SSD module ② will pop-up (***Figure 5b***).
4. Lift the SSD module ② up and off the computer (***Figure 5c***).
5. 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).

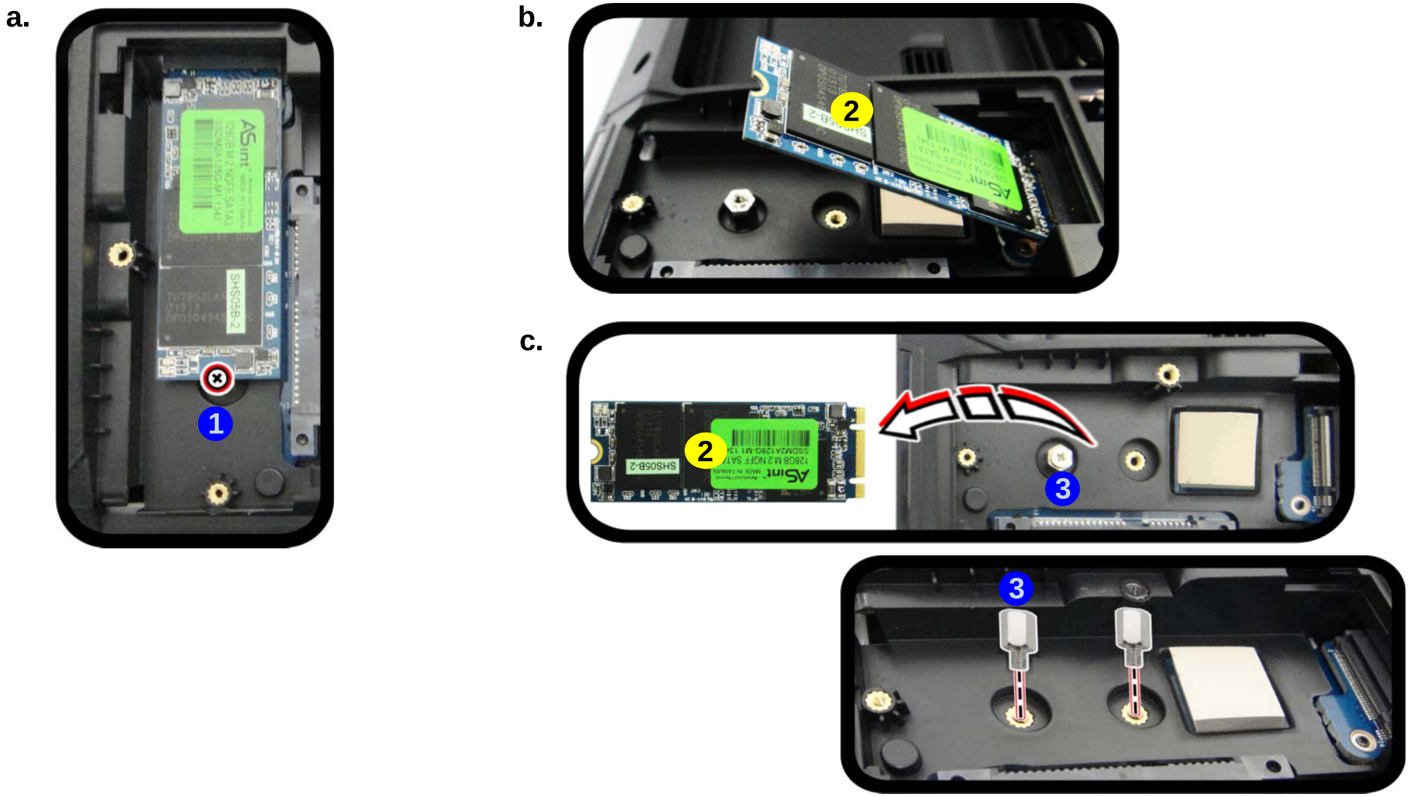


Figure 5
M.2 SSD Module Removal

a. Remove the screws.
b. The SSD module will pop up.
c. Lift the SSD module out.

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 6a***).

a.

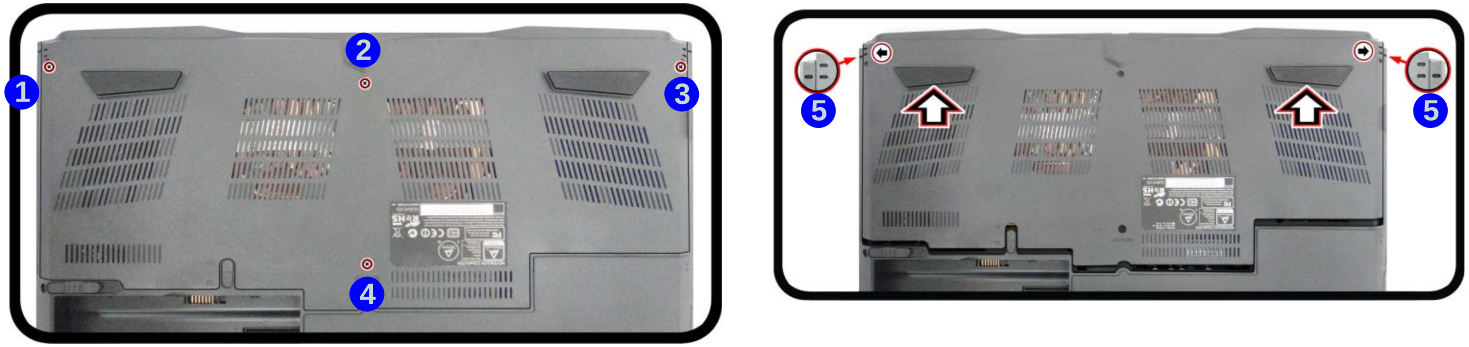


Figure 6
RAM Module Removal

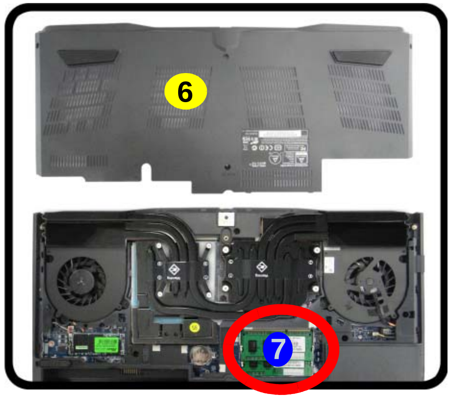
a. Remove the screws. Slide the bottom cover until the cover and case indicators are aligned.

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

- 4 Screws

4. Lift the component bay cover ⑥ off the computer case. The modules will be visible at point ⑦ (***Figure 7c***).
5. Gently pull the two release latches (⑧ & ⑨) on the sides of the memory socket(s) in the direction indicated below (***Figure 7d***).
6. The RAM module ⑩ will pop-up, and you can remove it (***Figure 7e***).
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.

c.



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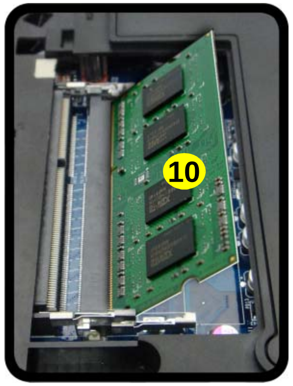

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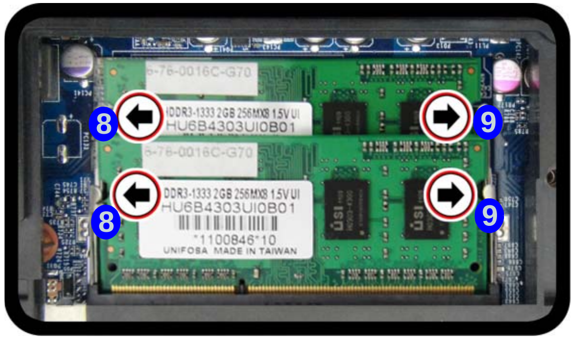


Contact Warning

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.

Figure 7
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.

6. Component Bay Cover
10. RAM Module

- 4 Screws

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 component bay cover ⑤ (***Figure 8a***).
3. Remove screws ⑥ - ⑦ from the bottom of the computer (***Figure 8b***) .
4. Open it up with the LCD on a flat surface before pressing at point ⑧ to release the keyboard module (use an eject stick ⑨ to do this with a diameter no bigger than 2.5mm) while releasing the keyboard in the direction of the arrow ⑩ as shown (***Figure 8c***).

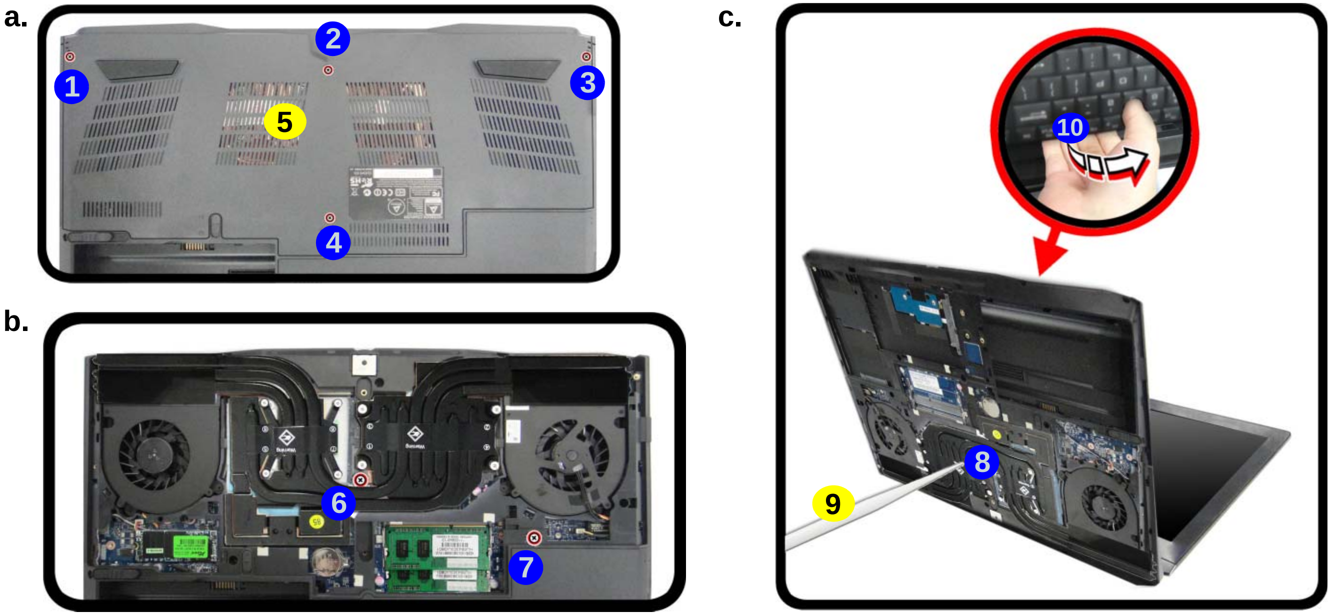


Figure 8
Keyboard Removal

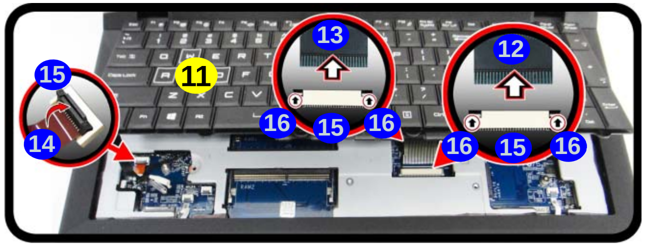
a. Remove the screws and component bay cover.
b. Remove the screws.
c. Eject the keyboard using a special eject stick to push the keyboard out while releasing the keyboard as shown.

5. Top Cover Module
9. Eject Stick

- 6 Screws

5. Carefully lift the keyboard ⑪ up, being careful not to bend the keyboard ribbon cables ⑫ - ⑭.
6. Disconnect the keyboard ribbon cables ⑫ - ⑭ from the locking collar socket ⑮ by using a small flat-head screwdriver to pry the locking collar pins ⑯ away from the base (***Figure 9d***).
7. Remove the keyboard and the memory sockets ⑰ & ⑱ will be visible.
8. Gently pull the two release latches (⑲ & ⑳) on the sides of the memory socket(s) in the direction indicated below.
9. The RAM module ㉑ 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.

d.



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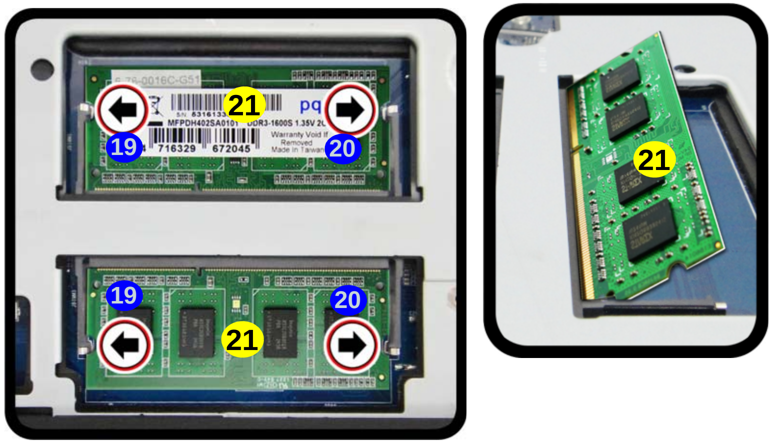

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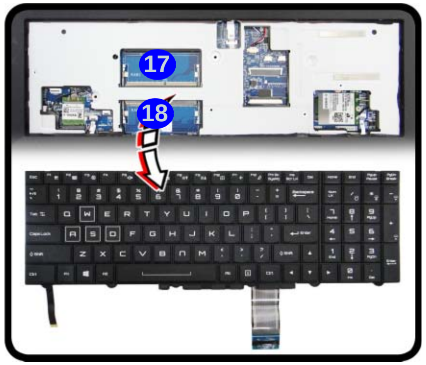


Figure 9
RAM Module Removal

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.

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.

11. Keyboard
21. RAM Modules

Figure 10
Processor Removal Procedure

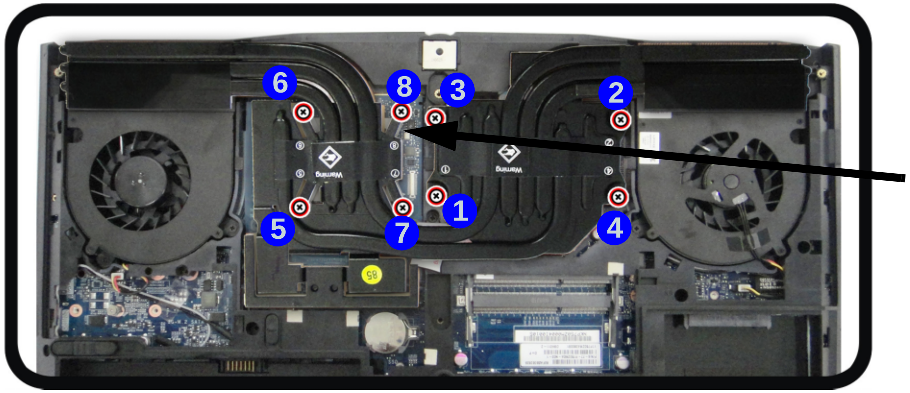
a. Remove the screws in the correct order.
b. Carefully remove the heat sink unit.

Removing and Installing the Processor

Processor Removal Procedure

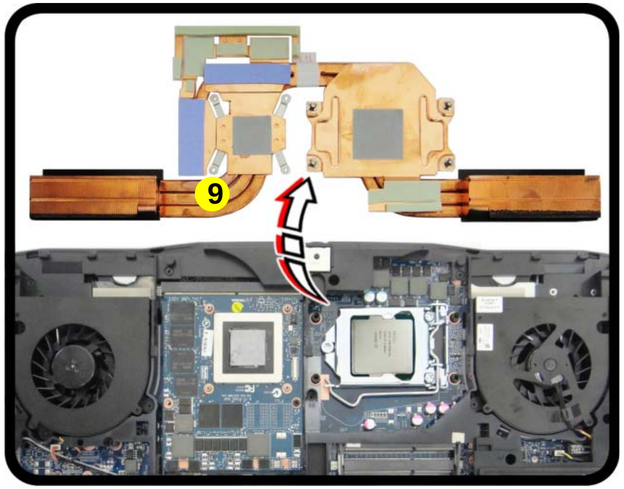
1. Turn **off** the computer, remove the battery (***page 2 - 5***), and component bay cover (***page 2 - 10***).
2. Remove screws 1 - 8 from the heat sink unit in the order indicated on the label (i.e screw 8 first through to screw 1 last ***Figure 10a***).
3. Carefully (it may be hot) remove the heat sink unit 9 (***Figure 10b***).

a.



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

b.



9. Heat Sink Unit

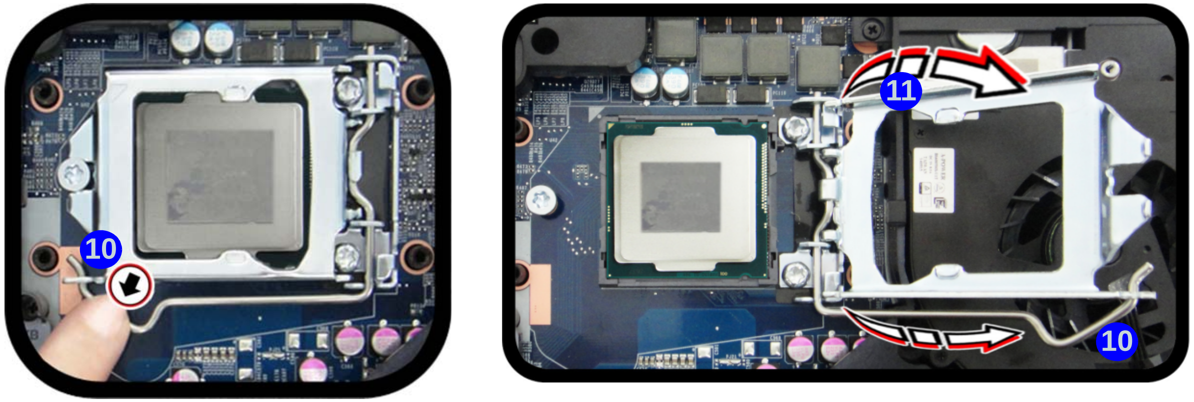
- 8 Screws

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 11c***).
6. Carefully (it may be hot) lift the CPU A up out of the socket (***Figure 11d***).
7. See ***page 2 - 16*** 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!).

Figure 11
Processor Removal (cont'd)

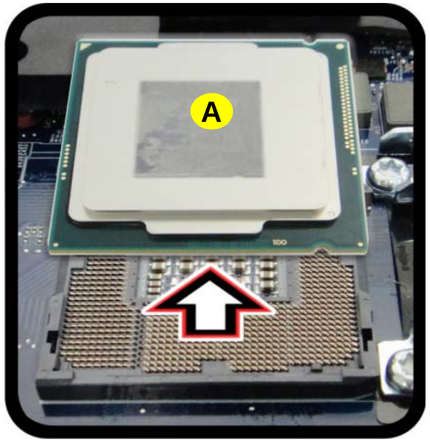
c. Move the latch and bracket fully in the direction indicated to unlock the CPU.
d. Lift the CPU out of the socket.

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

Figure 12
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.

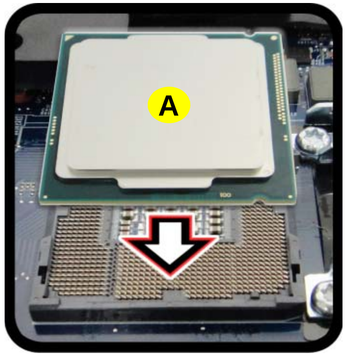
A. CPU
F. Heat Sink

- 8 Screws

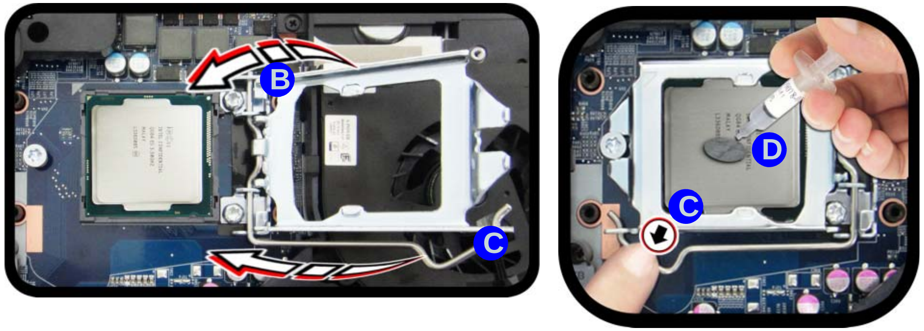
Processor Installation Procedure

1. Insert the CPU A; pay careful attention to the pin alignment (***Figure 12a***), 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 12b***).
4. **Remove the sticker** E (***Figure 12c***) from the heat sink unit (if it is a new unit).
5. Insert the heat sink unit F as indicated in ***Figure 12c***.
6. Tighten the CPU heat sink screws in the order 1 - 8 (the order as indicated on the label and ***Figure 12d***).
7. Replace the CPU fan, component bay cover and tighten the screws (***page 2 - 14***).

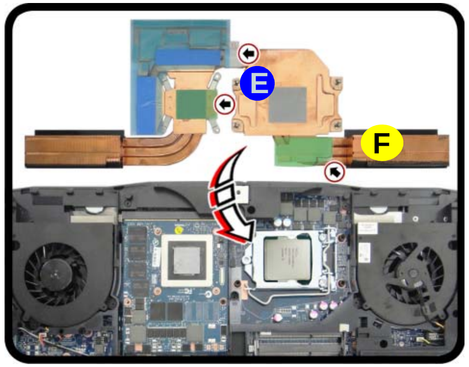
a.



b.

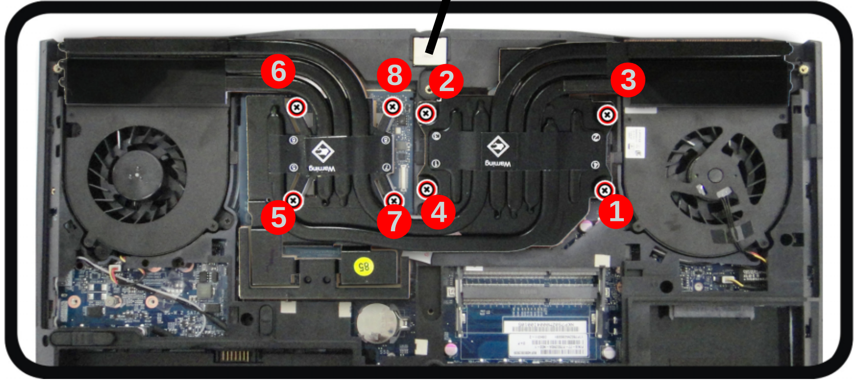


c.



d.

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



Removing the Wireless LAN Module

1. Turn **off** the computer, remove the battery (***page 2 - 5***) and the keyboard (***page 2 - 12***).
2. The Wireless LAN module will be visible at point ① under the keyboard (***Figure 13a***).
3. Carefully disconnect cables ② - ③, then remove screw ④ from the module socket (***Figure 13b***).
4. The Wireless LAN module ⑤ will pop-up (***Figure 13c***).
5. Lift the Wireless LAN module (***Figure 13d***) up and off the computer.

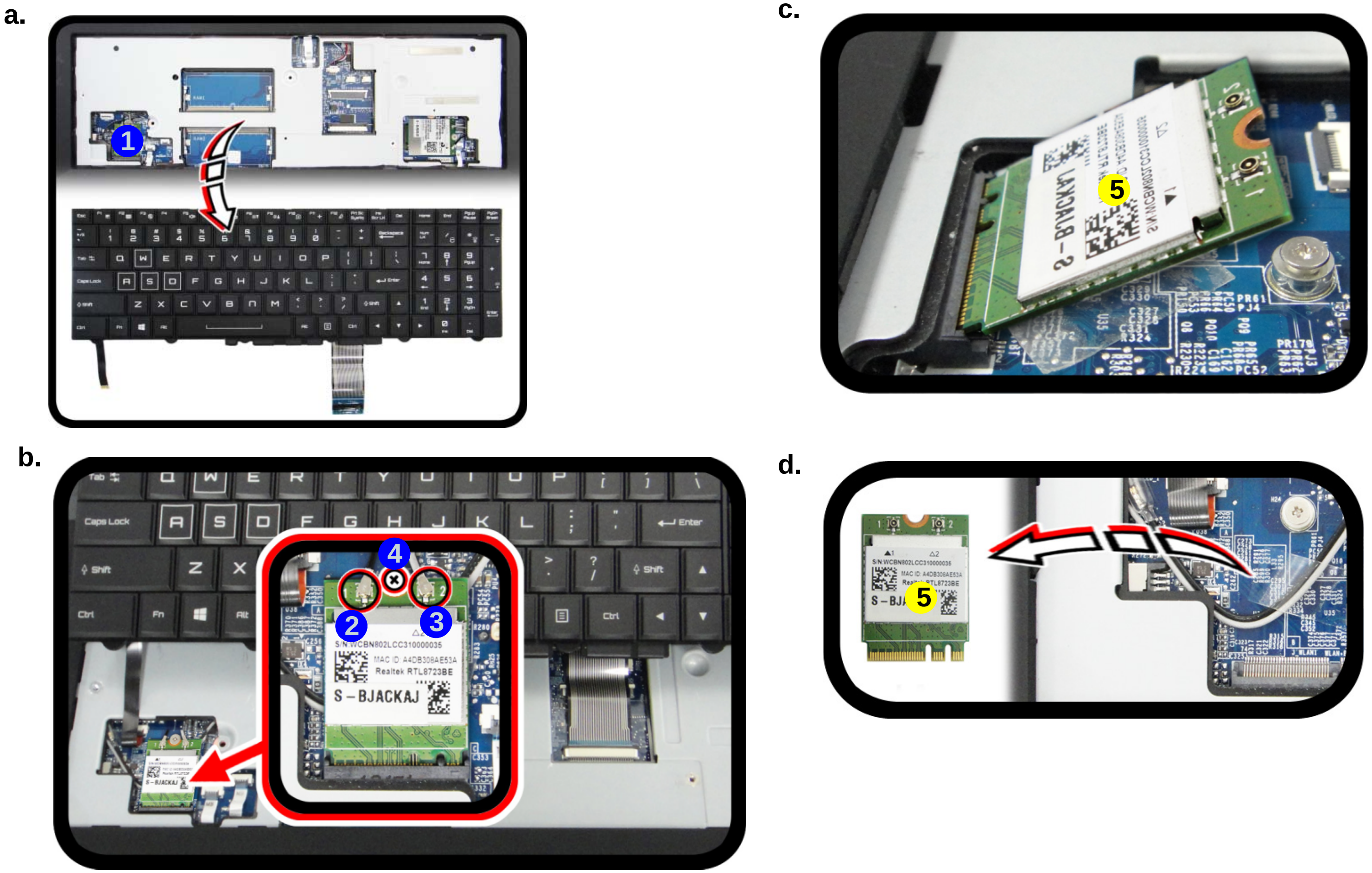


Figure 13
Wireless LAN Module Removal

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

5. WLAN Module

- 1 Screw

Wireless LAN, Combo, 3G & LTE 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	
LTE Broadband	LTE 1	Black	Black
	LTE 2	Gray	
3G Broadband	3G 1	Black	Black
	3G 2	Gray	

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

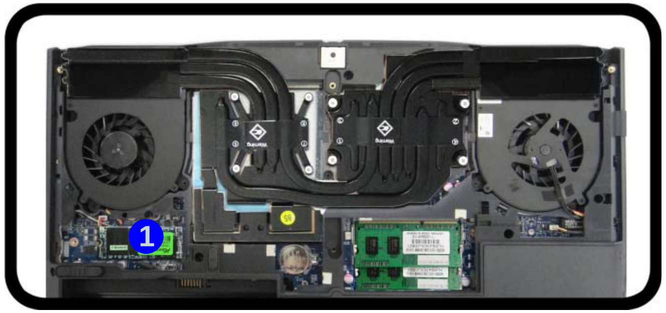
Removing the M.2 SATA Module

1. Turn **off** the computer, remove the battery (***page 2 - 5***), and component bay cover (***page 2 - 10***).
2. Locate the module; it is visible at point ① (***Figure 14a***).
3. Carefully remove the screw ② from the module (***Figure 14b***).
4. The MSATA module ③ will pop-up (***Figure 14c***).
5. Lift the MSATA module ③ up and off the computer (***Figure 14d***).
6. Reverse the process to install a new SSD (make sure that the hexagonal screw ④ is in the correct location).

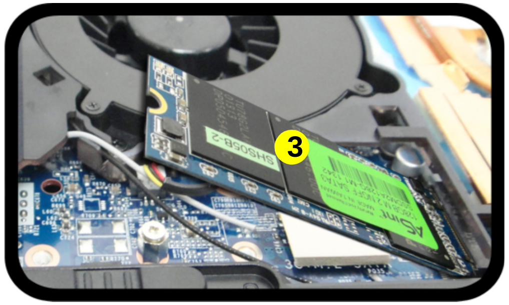
Figure 14
M.2 SATA Module Removal

a. Locate the module.
b. Remove the screw.
c. The module will pop-up.
d. Lift the module up off the socket.

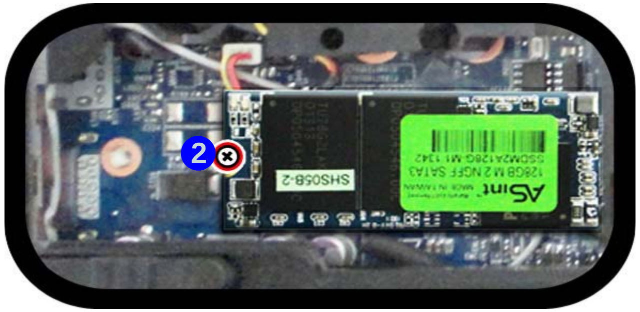
a.



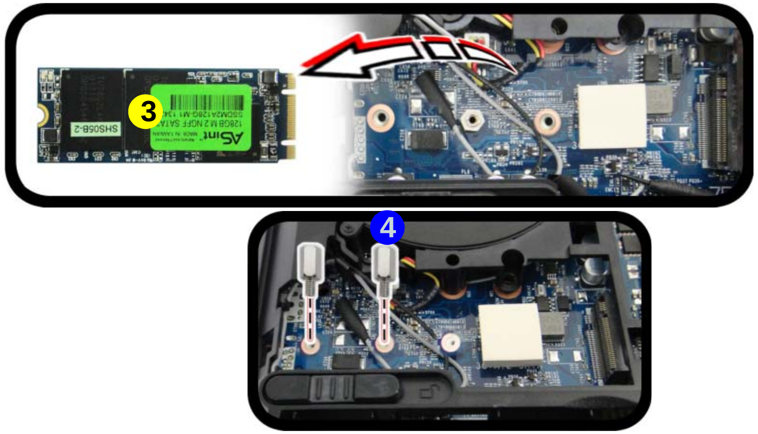
c.



b.



d.



3. MSATA Module

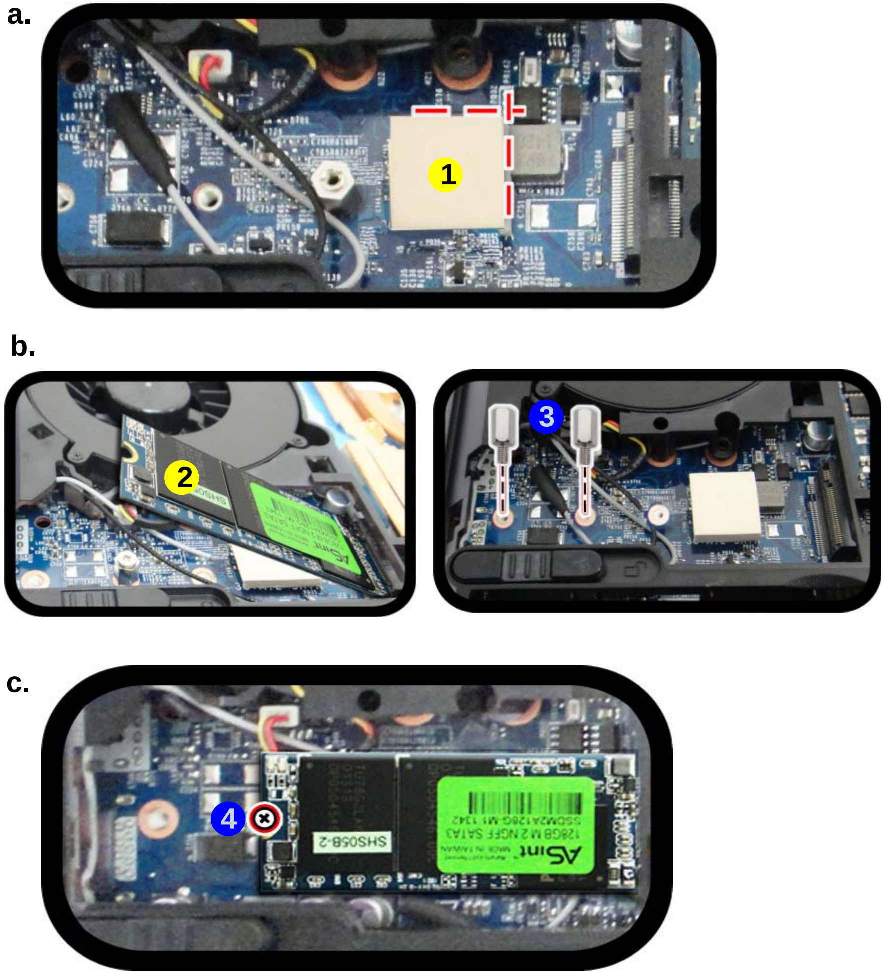
- 1 Screw

Figure 15
M.2 SATA Module Installation

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

M.2 SATA Installation Procedure

1. Place the thermal pad **1** on the computer as shown (***Figure 15a***).
2. Insert the module **2** in the computer. Make sure that the hexagonal screw **3** is in the correct location (***Figure 15b***).
3. Tighten the screw **4** to secure it in place (***Figure 15c***).

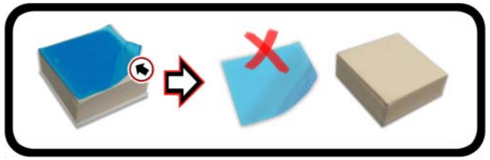


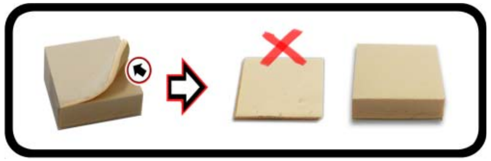
Thermal Pad

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

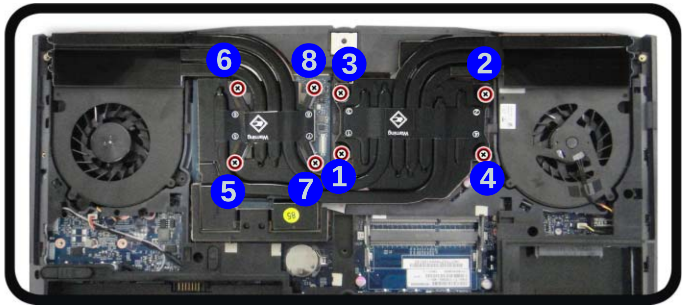
- 1 Screw

Removing and Installing the Video Card

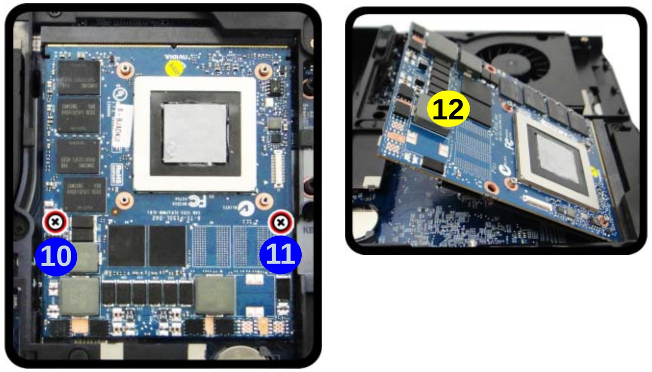
Video Card Removal Procedure

1. Turn **off** the computer, turn it over and remove the battery (***page 2 - 5***) and component cover (***page 2 - 10***).
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 16a***).
3. Carefully (**it may be hot**) remove the heat sink unit ⑨ (***Figure 16b***).
4. Remove screws ⑩ & ⑪ from the video card. The video card ⑫ will pop up (***Figure 16c***).
5. Remove the video card ⑫ (***Figure 16d***).

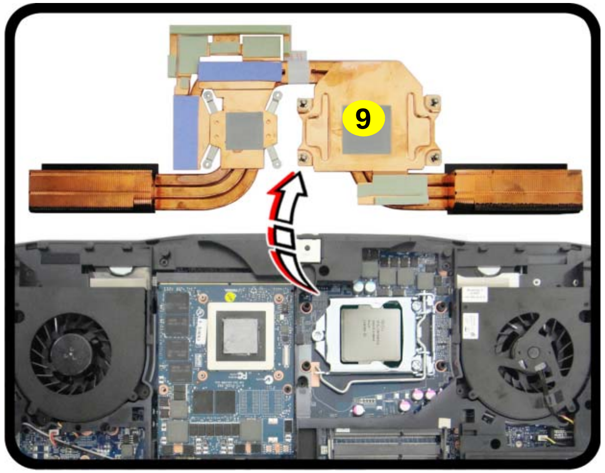
a.



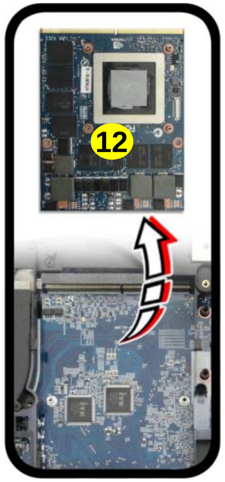
c.



b.



d.



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**.

Figure 16
Video Card Removal Procedure

a. Remove the screws in the correct order.
b. Carefully remove the heat sink units.
c. Remove the video card screws. The video card will pop up.
d. Remove the video card.

Caution

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

9. Heat Sink Units
12. Video Card

- 10 Screws

Figure 17
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.

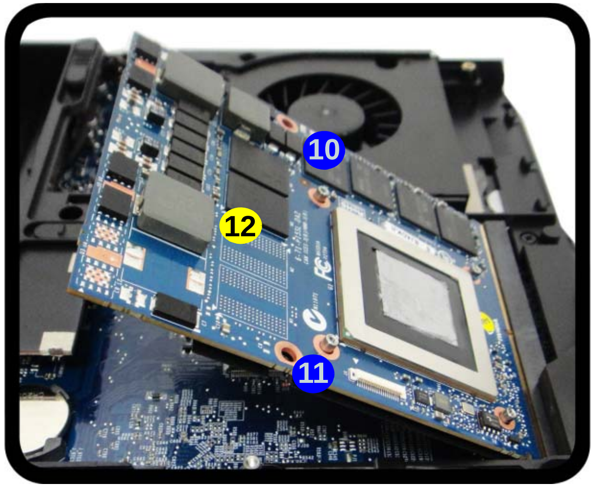
12. Video Card

- 2 Screws

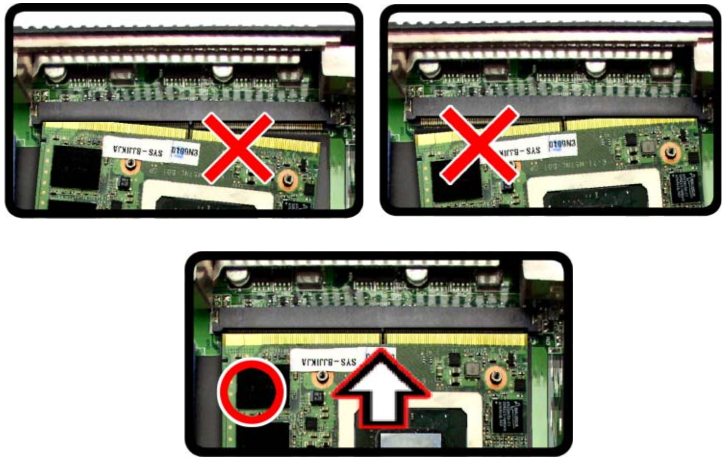
Installing a New Video Card

1. Prepare to fit the video card ⑫ into the slot by holding it at about a 30° angle (***Figure 17e***).
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 17f***).
3. Fit the connectors firmly into the socket, straight and evenly.

e.



f.



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 16 on page 2 - 21***).
7. Place the heat sink back on the card, and secure the screws in the order indicated in ***Figure 16 on page 2 - 21***.
8. Reinsert the component bay cover, and secure with the screws as indicated in ***Figure 8 on page 2 - 12***.

Removing the Mainboard

1. Turn **off** the computer, remove the battery (***page 2 - 5***), HDD (***page 2 - 6***), M.2 SSD (***page 2 - 9***), RAM (***page 2 - 10***), CPU (***page 2 - 14***),WLAN (***page 2 - 17***), M.2 SATA (***page 2 - 19***), and keyboard (***page 2 - 12***).
2. Carefully disconnect cables ① - ⑤ (***Figure 18a***).
3. Lift the top case ⑥ up and off the computer (***Figure 18b***).
4. Release the rear ports ⑦ - ⑨ from the bottom case, and carefully lift the main board as shown (***Figure 18c***).
5. Remove the main board ⑩ from the bottom case ⑪ (***Figure 18d***).

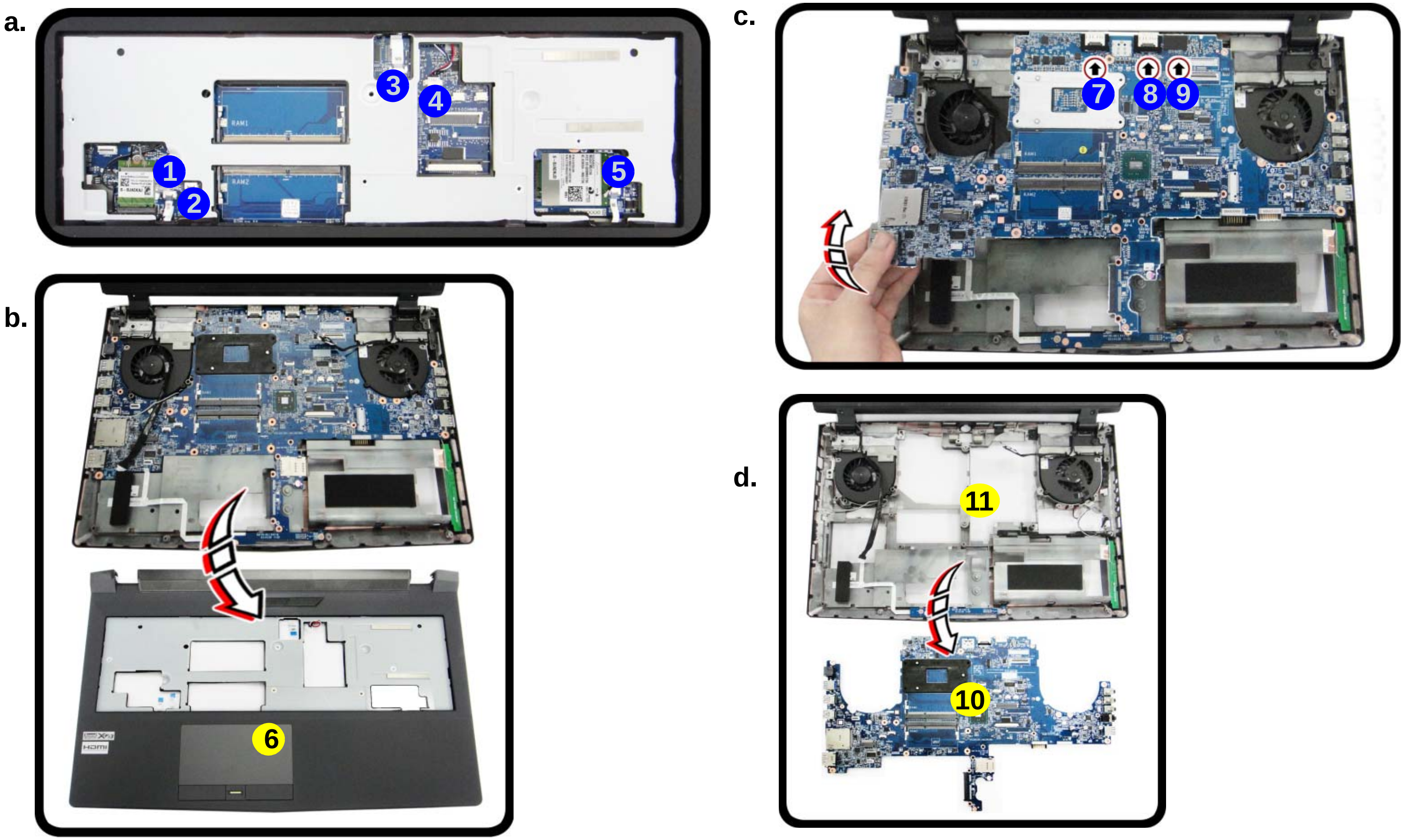


Figure 18
Mainboard Removal

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

6. Top Case
10. Main Board
11. Bottom Case

Appendix A: Part Lists

This appendix breaks down the ***P750DM / P751DM / P750DM-G / P751DM-G***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.

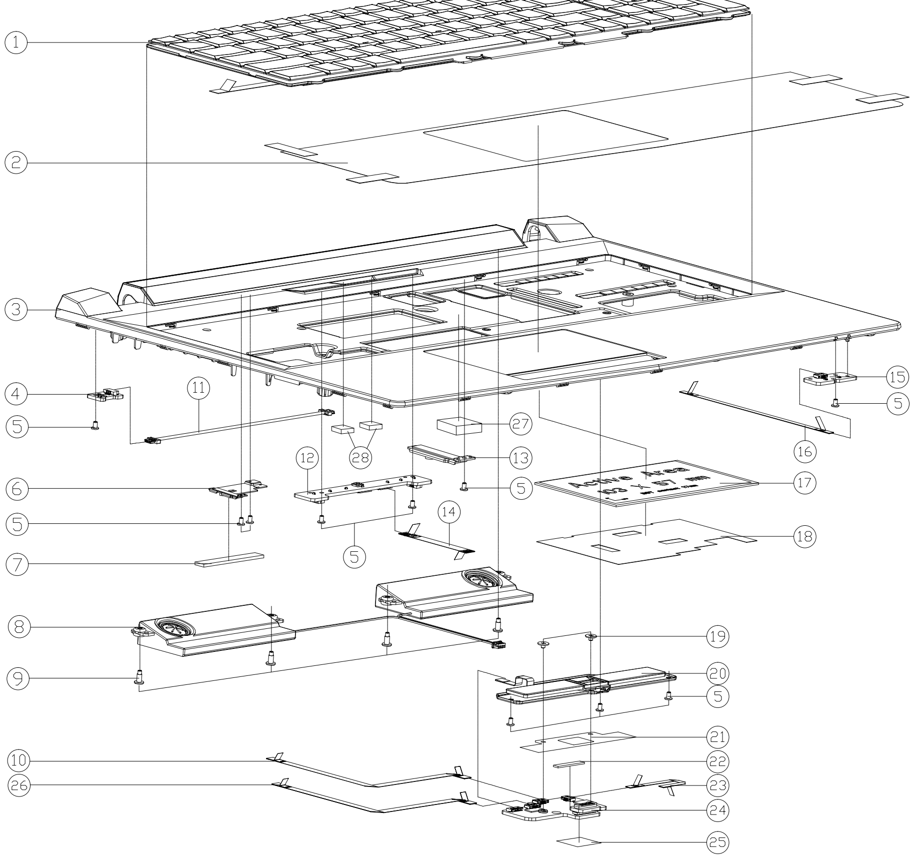
Part List Illustration Location

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

Table A- 1
Part List Illustration Location

Parts	
Top	*page A - 3*
Bottom	*page A - 4*
LCD - Samsung	*page A - 5*
LCD - Chimei	*page A - 6*
LCD - Sharp	*page A - 7*
MB	*page A - 8*
VGA	*page A - 9*
HDD	*page A - 10*

Top

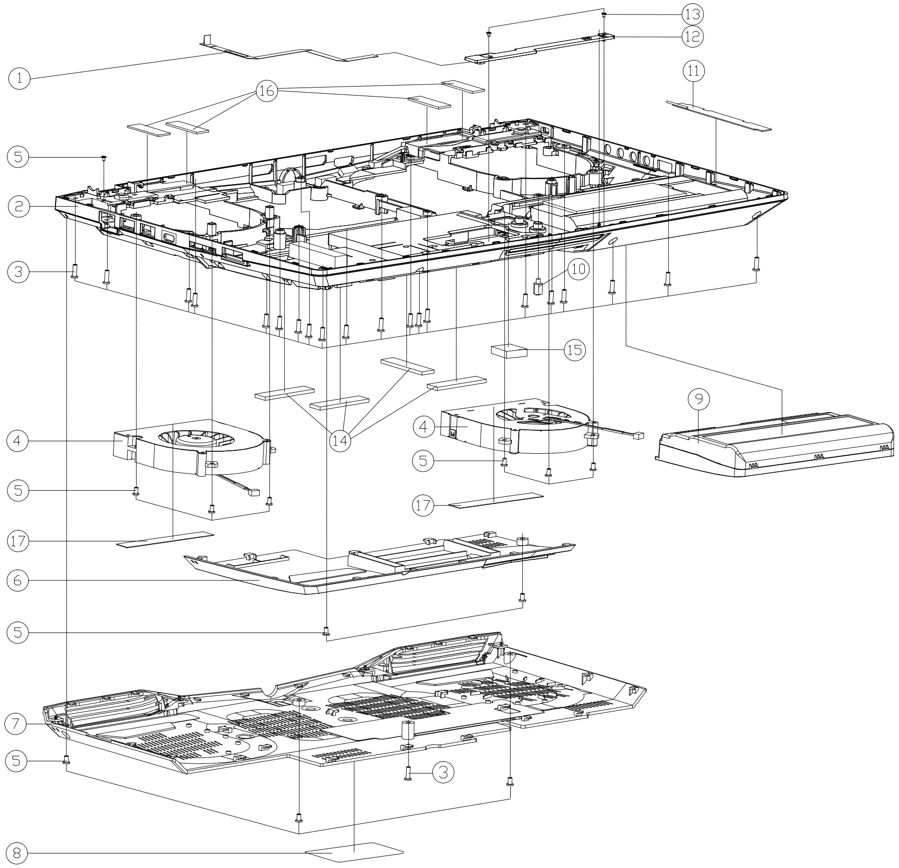


ITEM	PART NAME	PART NO	REMARK
1	MULTI BL KB USA V149550AS1 US P750ZM BLACK GAMING WITH WIN8 KEY (CHANGE REFLECTOR PLATE)	6-80-P7500-013-3	
2	TOP CASE PROTECT FILM PET+3M8915 P750ZM	6-40-P7508-041	
3	TOP CASE MODULE ONKYO(KAPOK) P750ZM	6-39-P7502-016-N	
3	TOP CASE MODULE P750ZM	6-39-P7502-015	
4	LID SWITCH BOARD V1.0 P750DM	6-77-P75DS-D01	
5	SCREW M2*3L KI NI ICT NY (DD=ø4.5,DT=0.4)	6-35-B1120-3RE	
6	TOP CASE THERMAL BKT SECC P750ZM	6-33-P7502-043	
7	THERMAL PAD BKT MOS PAD T-FLEX 340 30*7*1.75 P750ZM	6-48-P7503-031	
8	SPK+CABLE FRONT R&L R 90MM/L 160MM 2W 4? EE09220A	6-23-5P750-0S4	
9	SCREW M2*5L KI(T=0.8 D=4.0) BK/Z ICT NY	6-35-B6120-5R0	
10	FFC CABLE FOR CILK TO MB 160MM 5V 6P P770DM	6-43-P77D0-011	ONLY FOR W/FINGER
11	WIRE CABLE FOR HALL SENSOR TO MB 167MM 3V 3PIN (CMI) P750ZM	6-43-P7500-012-1	
12	POWER LED BOARD V1.0 P750DM	6-77-P75DC-D01	
13	TOP CASE BKT SECC P750ZM	6-33-P7502-024	
14	FFC CABLE FOR POWER BD TO MB 54MM 9V 12PIN P750ZM	6-43-P7500-022	
15	CHARGER LED BOARD V1.0 P750DM	6-77-P75DE-D01	
16	FFC CABLE FOR FRONT LED TO MB 110MM 9V 6PIN P750ZM	6-43-P7502-012	
17	TOUCH PAD SYNAPTICS TM-03163-001 P750DM (108*61MM)	6-49-P75D3-010	
18	TOP TP MYLAR PET P750ZM	6-40-P7502-051	
19	SCREW M2*2L KI BK/Z ICT NY(ø8,T=0.6)	6-35-B6120-2RE	
20	FUNCTION KEY FOR CLICK BUTTON MODULE W/FP P750DM	6-23-KP75D-011	FOR W/FINGER
20	FUNCTION KEY FOR CLICK BUTTON MODULE W/O FP P750DM	6-23-KP75D-021	FOR W/O FINGER
21	CLICK MYLAR FOR FINGER P770ZM	6-40-P7702-011	
22	TOP TP RUBBER (23*3.5*0.95T) SILICONE P750ZM	6-47-P7502-021	ONLY FOR W/O FINGER
23	FFC CABLE FOR TP TO CLICK70MM 5V 8P P770DM	6-43-P77D2-011	
24	CLICK BOARD V2.0 (W/FP)+FINGER SENSOR BOARD V2.0 P750DM	6-77-P75DA-N02	ONLY FOR W/FINGER
24	CLICK BOARD V2.0 (W/O FP) P750DM	6-77-P75D2-D02-1	ONLY FOR W/O FINGER
25	FINGER BOARD MYLAR DFR-117 P750ZM	6-40-P750S-021	ONLY FOR W/FINGER
26	FFC CABLE FOR CILK TO MB 160MM 5V 6P P770DM	6-43-P77D0-011	
27	THERMAL PAD MA500 (17*17*4.0mm) W650SR	6-48-W6503-010	
28	POWER BUTTON SM55 (6*5*3.15T) P750ZM	6-47-P7502-050	

Figure A - 1
Top

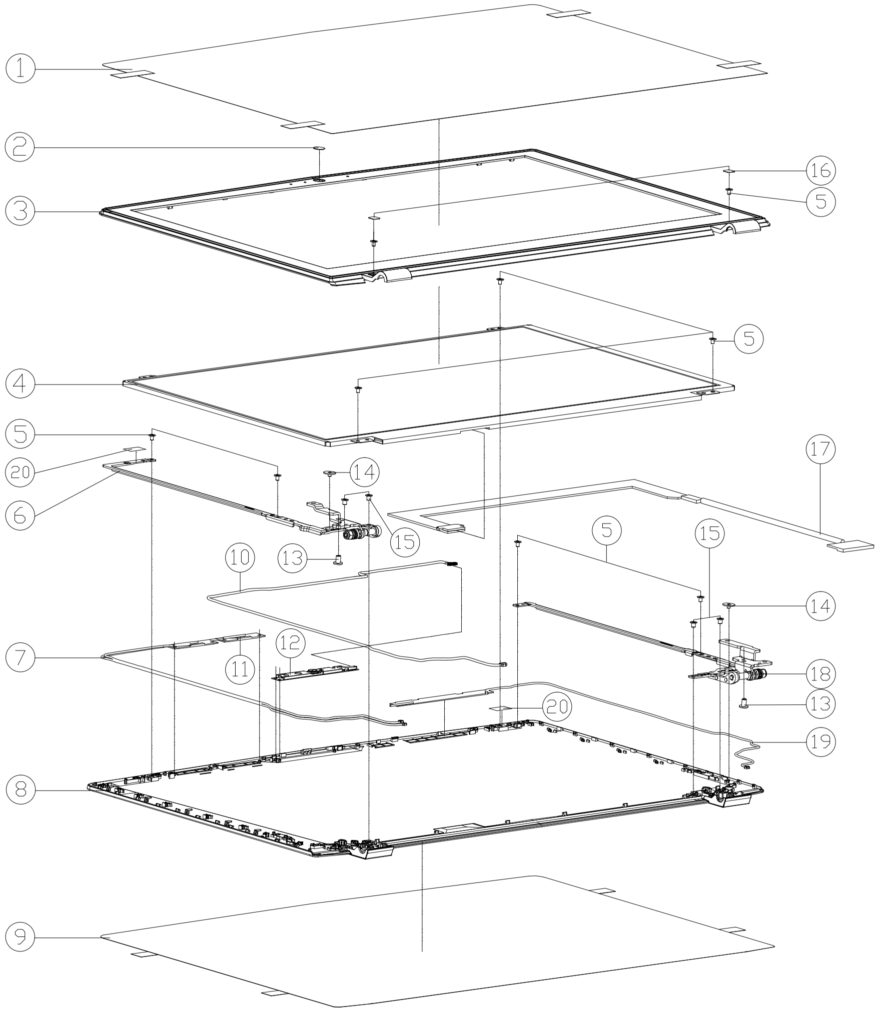
Bottom

Figure A - 2
Bottom



ITEM	PART NAME	PART NO	REMARK
1	FFC CABLE FOR BOTTOM LENS TO MB 155MM 5V 9PIN P750ZM	6-43-P7503-012	
2	BOTTOM CASE MODULE P750DM	6-39-P75D3-011	
3	SCREW M2.5*8L KI BK/Z NY ICT	6-35-B6125-8R0	
4	FAN MODULE (APOWER) P750ZM	6-31-P750S-102	
5	SCREW M2.5*4L KI(T=0.5 D=4.5) BK/Z ICT	6-35-B6125-4R0	
6	HDD COVER MODULE (SABIC C7230P) P750ZM	6-42-P750J-105	
7	(PRE-PROCESS)CPU COVER MODULE+CPU COVER RING R+CPU COVER RING L FOR P750DM	6-78-P750DM08-001	
7	(PRE-PROCESS)CPU COVER MODULE+CPU COVER RING R+CPU COVER RING L FOR P751DM	6-78-P751DM08-001	
8	PRODUCT LABEL FOR P750DM	6-45-P750DM03-010	
8	PRODUCT LABEL FOR P751DM	6-45-P751DM03-010	
8	PRODUCT LABEL FOR P750DM-G	6-45-P750DMG3-010	
8	PRODUCT LABEL FOR P751DM-G	6-45-P751DMG3-010	
9	BAT.P S LI 14.8V/5.6AH/82WH CASE WITH TEXTURE 4S2P GETAC/SANYO BQ30Z55 541386980001 ME TOOLING MODIFY P750ZM	6-87-P750S-4U73	
9	BAT.P S LI 14.8V/5.6AH /82WH CASE WITH TEXTURE 4S2P SMP/SDI BQ30Z55 980T/02149F ME TOOLING MODIFY P750ZM	6-87-P750S-4272	
10	SCREW M2.5*3L (H=6.5 D=5) NI ICT NY FOR NGFF CARD	6-35-Z1125-3R0	
11	ANTENNA IPEX-4 3G+LTE WGT LTE-2 PCB 0.7G/0.8G/0.9G/1.4G/1.8G/1.9G/2.1G/2.6GHZ L=150MM P750ZM	6-23-7P750-040	
12	BOT LED2 BOARD V2.0 P750DM	6-77-P75D5-D02	
13	SCREW M2*3L KI NI ICT NY (DD=ø4.5,DT=0.4)	6-35-B1120-3RE	
14	7MM HDD SPONGE(40*10*2.15T) CR4382 P750ZM	6-47-0019A-409	ONLY FOR 7MM HDD
15	SSD-5.8MM THERMAL PAD RS300 15*15*5.8MM P750ZM	6-48-P7503-051	
16	BOTTOM CASE SPONGE FOR SPK CR4382 (30*10*1.15T) P750ZM	6-47-0019A-30K	
17	FAN SPONGE FOR SPK CR4382 (77*8*0.65T) P750ZM	6-47-0019A-773	

LCD - Samsung

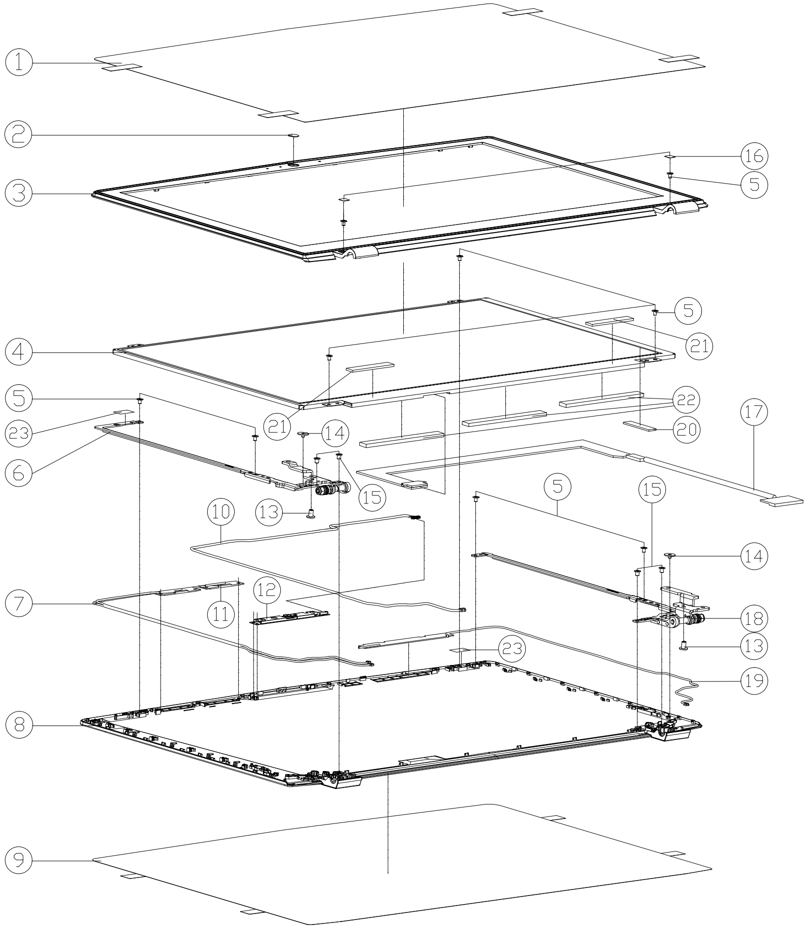


ITEM	PART NAME	PART NO	REMARK
1	FRONT COVER PROTECTION PET MYLAR P750ZM	6-40-P7508-020	
2	CCD LENS PMMA P750ZM	6-42-P7501-011	
3	LCD FRONT COVER MODULE P750ZM	6-39-P7501-015	
4	LCD 15.6" FHD EDP (PLS) SAMSUNG LTN156HL01-102 (N7) LED 3.2MM	6-50-LB232-M02	
4	LCD 15.6" UHD (PLS)(EDP) SAMSUNG LTN156FL02-101 " SUPPORT S/W G-SYNC "(LED) 2.6MM	6-50-L1226-M03	
4	LCD 15.6" FHD/IPS/EDP LG LP156WF6-SPB1 (N7) (LED)" SUPPORT S/W G-SYNC " 3.2MM	6-50-LB232-L04	
4	LCD 15.6" FHD (EDP) CHIMEI N156HGE-EA1 (LED) 3.2 MM	6-50-LB232-D03	
4	LCD 15.6" FHD/IPS/EDP AU B156HAN01.2(AHVA) (LED)3.2MM	6-50-LB232-G01	
4	LCD 15.6" FHD /EDP AU B156HTN03.6 (LED) 3.2MM	6-50-LB232-G08	
4	LCD 15.6" FHD LG LP156WF4-SLB5 (3.4MM) LED IPS	6-50-LB234-L01	
4	LCD 15.6" QFHD GLARE TYPE (EDP) (PLS) SAMSUNG LTN156FL02-L01 (LED) 2.6MM (REWORK 60HZ)	6-50-L1226-M01	
4	LCD 15.6" QFHD GLARE TYPE (EDP) (PLS) SAMSUNG LTN156FL02-P01 " SUPPORT S/W G-SYNC "(LED) 2.6MM (60HZ)	6-50-L1226-M02	
4	LCD 15.5" WQHD+ / EDP (IPS PRO) PANASONIC(V VX16T020G00) LED 3.0MM	6-50-L6230-P00	
5	SCREW M2*3L KI NI ICT NY (DD=Ø4.5,DT=0.4)	6-35-B1120-3RE	
6	LCD HINGE L (SECC+SK7) SNR P750ZM	6-33-P7501-0L4	
7	ANTENNA IPEX-4 WLAN WGT WL-1 PCB 2.4G/5G WL-1= 650MM P750ZM	6-23-7P750-010	
8	LCD BACK COVER MODULE(PAINT) FOR P750ZM(KAPOK)	6-39-P7501-125-W	
9	BACK COVER PROTECTION PET MYLAR P750ZM	6-40-P7508-010	
10	WIRE CABLE FOR CCD TO MB 700MM 5V 8PIN (CMI) P750ZM	6-43-P750T-011-1	
11	ANTENNA IPEX-4 WLAN WGT WL-2 PCB 2.4G/5G WL-2= 700MM (BLACK CABLE) P750ZM	6-23-7P750-021	
12	UVC CAMERA BISON FIX BN8VU6VTH-020 2M FHD slim OV2724 P650SE FW0605 W/LED W/array MIC	6-88-P650C-4900	OPTION
13	SCREW M2.5*4L KI(T=0.5 D=4.5) BK/Z ICT	6-35-B6125-4R0	
14	SCREW M2*2L KI BK/Z ICT NY(Ø8,T=0.6)	6-35-B6120-2RE	
15	SCREW M2.5*3L KI NI ICT NY	6-35-B1125-3R0	
16	FRONT COVER SCREW MYLAR PC P750ZM	6-40-P7508-030	
17	COAXIAL CABLE FOR EDP(SAMSUNG) 499MM 30V 40P (CMI/THL CON:HLX09002) P750ZM	6-43-P7501-022-1C	
17	COAXIAL CABLE FOR EDP(AUO) 501MM 30V 30P (CMI/THL CON:HLX09008) P750ZM	6-43-P7501-042-1C	
17	COAXIAL CABLE FOR EDP(PANASONIC) 499MM 30V 40P (HL/LA CON:L01M40S) P750ZM	6-43-P7501-050-P	
17	WIRE CABLE FOR LVDS(CHIMEI) 499MM 30V 40P (CMI/THL CON:HLX09002) P750ZM	6-43-P7501-032-1C	
18	LCD HINGE R (SECC+SK7) SNR P750ZM	6-33-P7501-0R3	
19	ANTENNA IPEX-4 3G+LTE WGT LTE-1 PCB 0.7G/0.8G/0.9G/1.4G/1.8G/1.9G/2.1G/2.6GHZ L=550MM P750ZM	6-23-7P750-030	
20	TOP FFC MYLAR (PET+3M 467) E5120Q	6-40-E51Q2-080	

Figure A - 3
LCD - Samsung

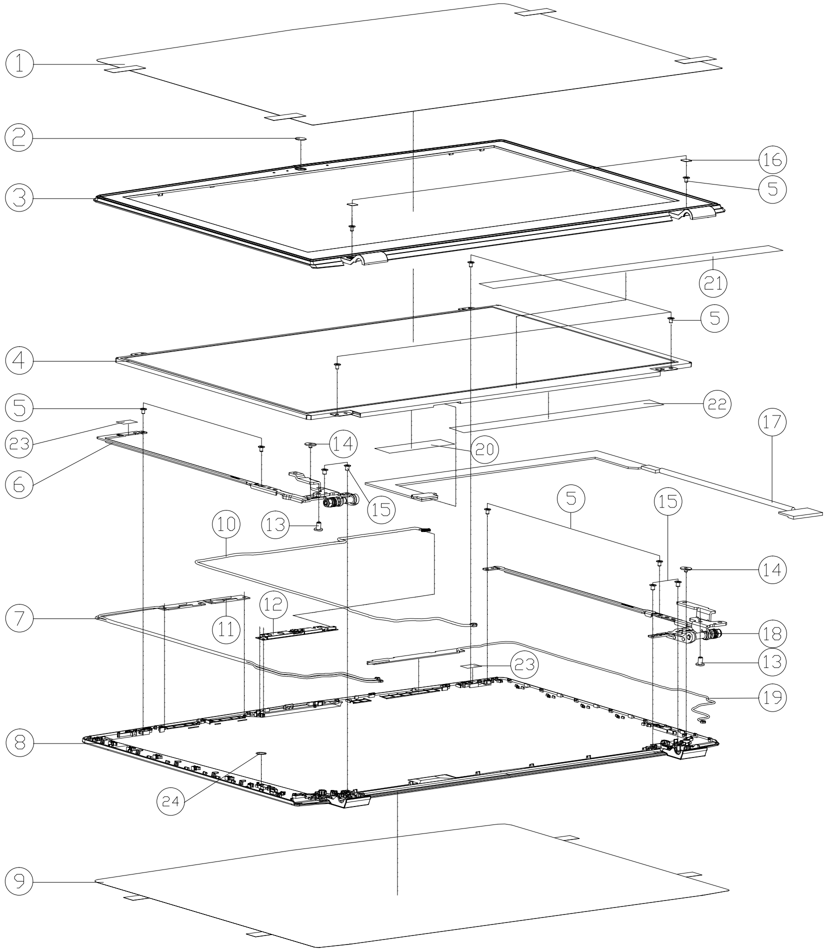
LCD - Chimei

Figure A - 4
LCD - Chimei



ITEM	PART NAME	PART NO	REMARK
1	FRONT COVER PROTECTION PET MYLAR P750ZM	6-40-P7508-020	
2	CCD LENS PMMA P750ZM	6-42-P7501-011	
3	LCD FRONT COVER MODULE P750ZM	6-39-P7501-015	
4	LCD 15.6" FHD CHIMEI N156HGE-LA1 (LED) 3.2 MM	6-50-LB232-D01	
5	SCREW M2*3L KI NI ICT NY (DD=Ø4.5,DT=0.4)	6-35-B1120-3RE	
6	LCD HINGE L (SECC+SK7) SNR P750ZM	6-33-P7501-0L4	
7	ANTENNA IPEX-4 WLAN WGT WL-1 PCB 2.4G/5G WL-1= 650MM P750ZM	6-23-7P750-010	
8	LCD BACK COVER MODULE(PAINT) FOR P750ZM(KAPOK)	6-39-P7501-125-W	
9	BACK COVER PROTECTION PET MYLAR P750ZM	6-40-P7508-010	
10	WIRE CABLE FOR CCD TO MB 700MM 5V 8PIN (CMI) P750ZM	6-43-P750T-011-1	
11	ANTENNA IPEX-4 WLAN WGT WL-2 PCB 2.4G/5G WL-2= 700MM (BLACK CABLE) P750ZM	6-23-7P750-021	
12	UVC CAMERA BISON FIX BN8VU6VTH-020 2M FHD slim OV2724 P650SE FW0605 W/LED W/array MIC	6-88-P650C-4900	OPTION
13	SCREW M2.5*4L KI(T=0.5 D=4.5) BK/Z ICT	6-35-B6125-4R0	
14	SCREW M2*2L KI BK/Z ICT NY(Ø8,T=0.6)	6-35-B6120-2RE	
15	SCREW M2.5*3L KI NI ICT NY	6-35-B1125-3R0	
16	FRONT COVER SCREW MYLAR PC P750ZM	6-40-P7508-030	
17	WIRE CABLE FOR LVDS(CHIMEI) 499MM 30V 40P (CMI/THL CON:HLX09002) P750ZM	6-43-P7501-032-1C	
18	LCD HINGE R (SECC+SK7) SNR P750ZM	6-33-P7501-0R3	
19	ANTENNA IPEX-4 3G+LTE WGT LTE-1 PCB 0.7G/0.8G/0.9G/1.4G/1.8G/1.9G/2.1G/2.6GHZ L=550MM P750ZM	6-23-7P750-030	
20	SPONGE CR 45*6*0.5T P170EM	6-47-0019A-007	
21	LCD RUBBER SUPPORT B SILICONE (45*9.5*0.5T) P750ZM	6-47-P7501-030	
22	LCD RUBBER SUPPORT A SILICONE (66*9.5*1.3T) P750ZM	6-47-P7501-020	
23	TOP FFC MYLAR (PET+3M 467) E5120Q	6-40-E51Q2-080	

LCD - Sharp

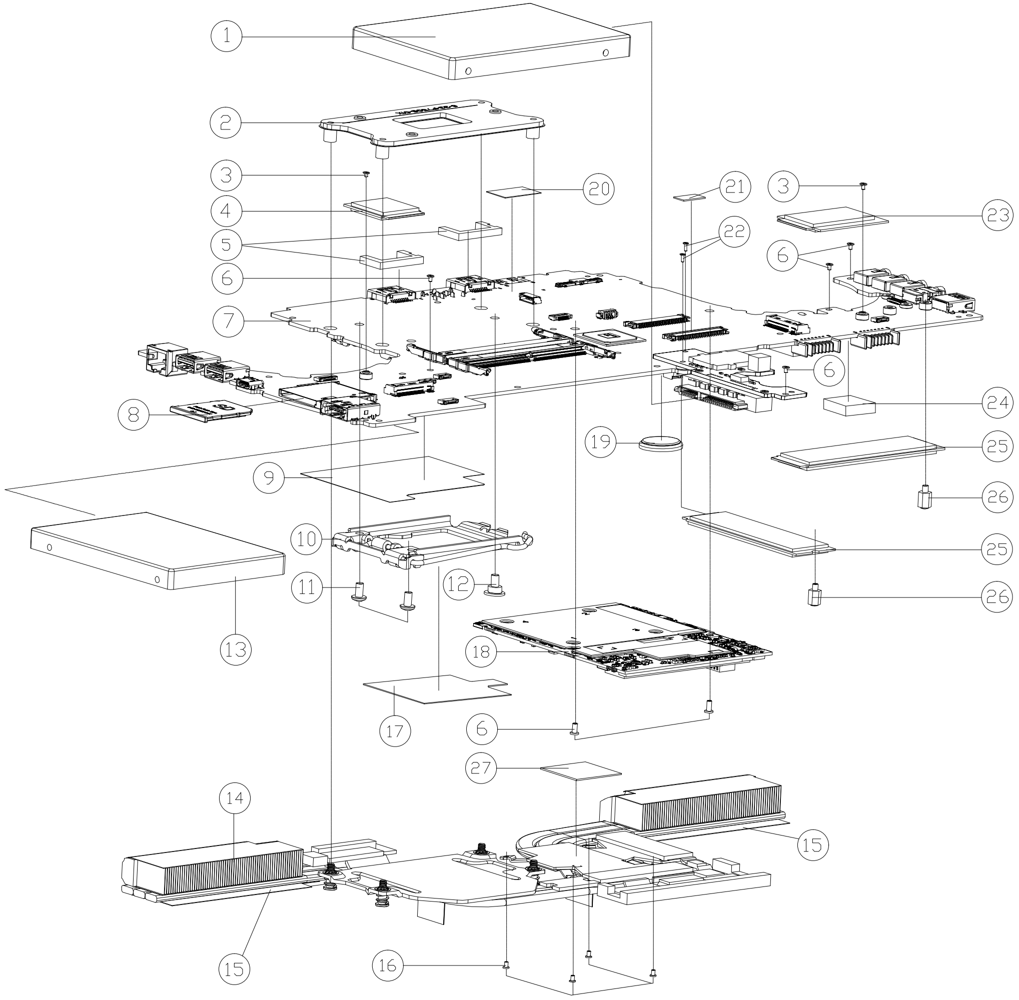


ITEM	PART NAME	PART NO	REMARK
1	FRONT COVER PROTECTION PET MYLAR P750ZM	6-40-P7508-020	
2	CCD LENS PMMA P750ZM	6-42-P7501-011	
3	LCD FRONT COVER MODULE P750ZM	6-39-P7501-015	
4	LCD 15.6" QFHD (EDP) IPS MODE SHARP LQ156D1JW04 LED 3.14MM F/W UPDATE	6-50-L1231-A01	
5	SCREW M2*3L KI NI ICT NY (DD=ø4.5,DT=0.4)	6-35-B1120-3RE	
6	LCD HINGE L (SECC+SK7) SNR P750ZM	6-33-P7501-0L4	
7	ANTENNA IPEX-4 WLAN WGT WL-1 PCB 2.4G/5G WL-1= 650MM P750ZM	6-23-7P750-010	
8	LCD BACK COVER MODULE(PAINT) FOR P750ZM(KAPOK)	6-39-P7501-125-W	
9	BACK COVER PROTECTION PET MYLAR P750ZM	6-40-P7508-010	
10	WIRE CABLE FOR CCD TO MB 700MM 5V 8PIN (CMI) P750ZM	6-43-P750T-011-1	
11	ANTENNA IPEX-4 WLAN WGT WL-2 PCB 2.4G/5G WL-2= 700MM (BLACK CABLE) P750ZM	6-23-7P750-021	
12	UVC CAMERA BISON FIX BN8VU6VTH-020 2M FHD slim OV2724 P650SE FW0605 W/LED W/array MIC	6-88-P650C-4900	OPTION
13	SCREW M2.5*4L KI(T=0.5 D=4.5) BK/Z ICT	6-35-B6125-4R0	
14	SCREW M2*2L KI BK/Z ICT NY(ø8,T=0.6)	6-35-B6120-2RE	
15	SCREW M2.5*3L KI NI ICT NY	6-35-B1125-3R0	
16	FRONT COVER SCREW MYLAR PC P750ZM	6-40-P7508-030	
17	COAXIAL CABLE FOR EDP(SHARP) 510MM 30V 40P (NX(HL/I-PEX CON:20524-040T-01) P750ZM	6-43-P7501-060	
18	LCD HINGE R (SECC+SK7) SNR P750ZM	6-33-P7501-0R3	
19	ANTENNA IPEX-4 3G+LTE WGT LTE-1 PCB 0.7G/0.8G/0.9G/1.4G/1.8G/1.9G/2.1G/2.6GHZ L=550MM P750ZM	6-23-7P750-030	
20	SHARP PANEL MYLAR C PET(47*13*0.15T) P750ZM	6-40-P7501-040	
21	SHARP PANEL MYLAR A PET(286*13*0.15T) P750ZM.	6-40-P7501-020	
22	SHARP PANEL MYLAR B PET(213*13*0.15T) P750ZM	6-40-P7501-030	
23	TOP FFC MYLAR (PET+3M 467) E5120Q	6-40-E51Q2-080	
24	PANEL NUT MYLAR PC P750ZM	6-40-P7501-010	

Figure A - 5
LCD - Sharp

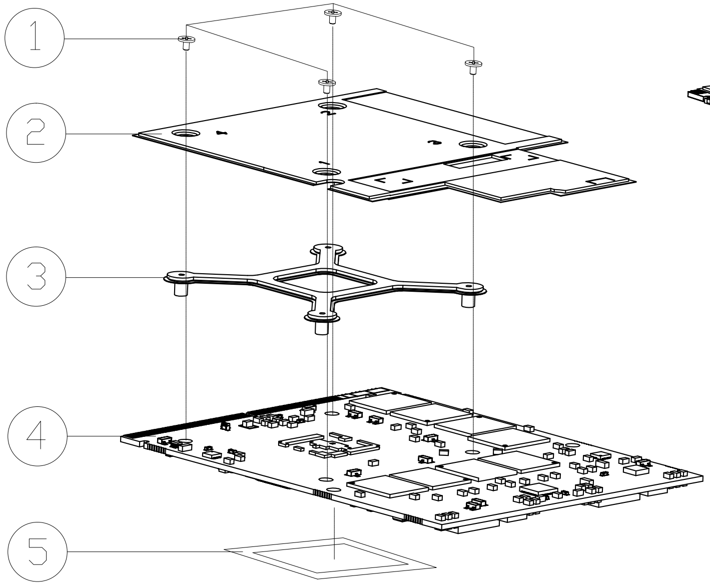
MB

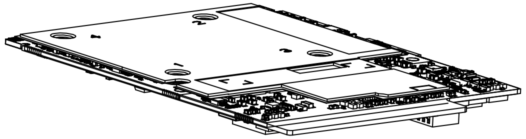
Figure A - 6
MB



ITEM	PART NAME	PART NO	REMARK
1	W/O MAIN HDD ASS?Y P750ZM	6-79-P750ZM0J-010	
1	W/MAIN HDD ASS?Y P750ZM	6-79-P750ZM0J-020	
2	CPU SUPPORT FOR LGA 1150 SPCC P750ZM	6-33-P750S-013	
3	SCREW M2*3L KI NI ICT NY (DD=ø4.5,DT=0.4)	6-35-B1120-3RE	
4	WLAN+BT COMBO INTEL STONE PEAK 7265NGWBNGW D0 STEPPING PCI-E M2 2230 2X2 BGN+BT GENERIC W950LU	6-88-W95LF-4240	
4	WLAN+ BT COMBO ATHEROS (QCNFA364A)KILLER 1535 DUAL BAND 2X2 AC+BT 4.1 LE M2 2230 P750DM	6-88-P75DF-9601	
4	WLAN+BT COMBO INTEL STONE PEAK 7265NGWG.W D0 STEPPING PCI-E M2 2230 2X2 AC+BT GENERIC W950LU	6-88-W95LF-4220	
4	WLAN+BT COMBO INTEL WIRELESS-AC 3165 (STONE PEAK 1), 1X1 AC + BT 3165NGWGA PCI-E M2 2230 N240LU	6-88-N240F-4200	
4	WLAN+ BT COMBO LITEON WCBN802L-CC (RTL8723BE) 802.11BGN 1X1 (PCI-E) +BT4.0 LE (USB) WLAN+REALTEK BT SOFTWARE NGFF CARD S210TU	6-88-S210F-9400	
4	WLAN+ BT COMBO ATHEROS KILLER 1535 DUAL BAND 2X2 AC+BT 4.1 LE M2 2230 P750DM	6-88-P75DF-9600	
4	WLAN+BT COMBO DUAL BAND INTEL SNOWFIELD PEAK 8260NGW 2X2 AC+BT 4.1 LE C1 STEPPING M2 2230 GENERIC N250JU	6-88-N25JF-4200	
5	DISPLAY PORT RUBBER P770ZM	6-47-P770S-010	
6	SCREW M2.5*4L KI(T=0.5 D=4.5) BK/Z ICT	6-35-B6125-4R0	
7	MAIN BOARD V3.0 (EDP)(W/TPM)+HDD BOARD V1.0 P750DM	6-77-P750DM0A-N03	
7	MAIN BOARD V3.0 (EDP)(W/O TPM)+HDD BOARD V1.0 P750DM	6-77-P750DM0A-N03-1	
7	MAIN BOARD V3.0 (LVDS)(W/TPM)+HDD BOARD V1.0 P750DM	6-77-P750DM0A-N03-2	
7	MAIN BOARD V3.0 (LVDS)(W/O TPM)+HDD BOARD V1.0 P750DM	6-77-P750DM0A-N03-3	
7	MAIN BOARD V3.0 (EDP)(W/TPM)+HDD BOARD V1.0 P750DM-G	6-77-P750DMGA-N03	
7	MAIN BOARD V3.0 (EDP) (W/O TPM)+HDD BOARD V1.0 P750DM-G	6-77-P750DMGA-N03-1	
8	DUMMY SD PSUH PUSH TYPE PC+ABS (C7230P-701DE) W970SUW	6-42-W9708-010	
9	MB HDD MYLAR (PET+3M467) P750ZM	6-40-P750S-012	
10	ILM FOR CPU SOCKET(METAL) LGA 1150P (PT44L31-6401)	6-86-25B50-001-S	
11	SCREW T20-#6-32*6.35L D BZ/Z ACT	6-35-D2306-6R3	
12	SCREW T20-#6-32*6L Z BZ/Z ACT	6-35-Z2306-6R0	
13	W/O 2ND HDD ASS'Y P750ZM	6-79-P750ZM0J-030	
13	W/2ND HDD ASS'Y P750ZM	6-79-P750ZM0J-040	
14	CPU+VGA HEATSINK MODULE P750DM	6-31-P75D3-100	
15	HEATSINK SPONGE FOR SPK CR4382 (77*16*0.65T) P750ZM	6-47-0019A-772	
16	SCREW M1.6*3.5L K(T=1.2 D=4.5) BZ ICT NY	6-35-82116-3R5	
17	CPU SOCKET MYLAR FOR D900F	6-40-D90FS-070	
18	VGA BOARD NVIDIA N16E-GX MP GDDR5(SAMSUNG 8G/512M*16) MXM-III V2.0 P750DM(NV BOM)	6-77-P15SL-DA2-S	
18	VGA BOARD NVIDIA N16E-GT MP GDDR5(SAMSUNG 6G/512M*12) MXM-III V2.0 P750DM(NV BOM)	6-77-P15SL-DA2-T	
18	VGA BOARD NVIDIA N16E-GS MP GDDR5(SAMSUNG 4G/512M*8) MXM-III V2.0 P750DM	6-77-P15SL-DA2-U	
18	VGA BOARD NVIDIA N16E-GX MP GDDR5(SAMSUNG 8G/512M*16) MXM-III V2.0 P750DM-G(NV BOM) FOR G-SYNC	6-77-P15SL-DA2-V	
18	VGA BOARD NVIDIA N16E-GT MP GDDR5(SAMSUNG 6G/512M*12) MXM-III V2.0 P750DM-G (NV BOM) FOR G-SYNC	6-77-P15SL-DA2-W	
18	VGA BOARD NVIDIA N16E-GS MP GDDR5(SAMSUNG 4G/512M*8) MXM-III V2.0 P750DM-G FOR G-SYNC	6-77-P15SL-DA2-X	
19	BATTERY 3V 220MA BBBCR2032B (KTS)	6-23-6A2B2-030	
20	HDMI CONN MYLAR DFR-117 (20*13*0.15T) P750ZM	6-40-P750S-030	
21	M/B KEYBOARD MYLAR PET M810L	6-40-M810S-011	
22	SCREW M2*6L KI BK/Z ICT NY(ø3.5 t=0.4)	6-35-B6120-6RB	
23	COMBO WCDMA+GPS HUAWEI MU736 HSPA+ NGFF CARD USB INTERFACE S210TU	6-88-S210W-8800	OPTION
23	LTE 4G GPS DISABLED MODULE HUAWEI ME936 FIRMWARE VER 11.350.20.00.00 FOR EUROPE NGFF M2 CARD USB INTERFACE W330SU2	6-88-W3306-8841	OPTION
23	LTE 4G GPS DISABLED MODULE (NTTDOCOMO)HUAWEI ME906J FOR JAPAN NGFF M2 CARD USB INTERFACE W330SU2	6-88-W3306-8830	OPTION
24	SSD-5.8MM THERMAL PAD RS300 15*15*5.8MM P750ZM	6-48-P7503-051	
25	SSD M.2 2280 500GB CRUCIAL CT500MX200SSD4 (MX200) SATA3 MLC	6-85-D515A-100	OPTION
25	SSD M.2 2280 512GB CRUCIAL MTFDDAV512MBF (M600) SATA3 MLC	6-85-D515B-101	OPTION
25	SSD M.2 2280 256GB BIWIN (CNF82DS2301-256) (SATA3) (MLC)	6-85-D51R6-B00	OPTION
25	SSD M.2 2280 256GB LITE-ON (LGT-256B1P) (PCIE G2*2) (MLC)	6-85-D51R6-L00	OPTION
25	SSD M2 2280 512GB SAMSUNG MZNLN512HCJH00000 (PM871) SATA3 V2 EVO	6-85-D515B-S01	OPTION
25	SSD M.2 2280 512GB LITEON CX1-GB512 (CX1) PCIE G2X2	6-85-D515B-L03	OPTION
25	SSD M.2 2280 512GB SAMSUNG MZHPV512HDGL-XXXXX (SM951) PCIE G3X4 MLC	6-85-D515B-S00	OPTION
26	SCREW M2.5*3L (H=6.5 D=5) NI ICT NY FOR NGFF CARD	6-35-Z1125-3R0	
27	VGA-PLATE (C1100+PSX) 25*25*0.5MM P750ZM	6-31-P7503-010	ONLY FOR N16P-Q1

VGA



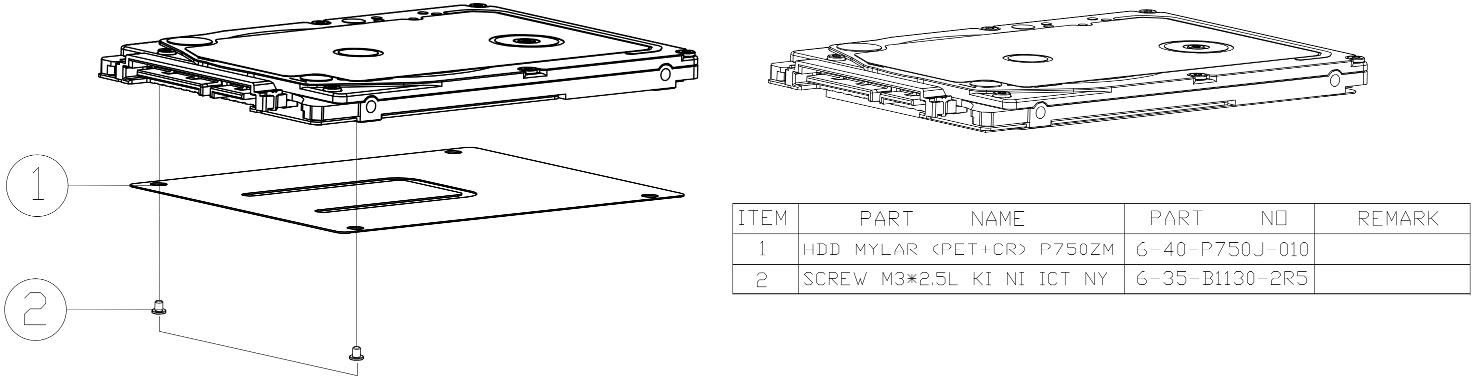


ITEM	PART NAME	PART NO	REMARK
1	SCREW M1.6*1.8L K(T=1.0 D=4.2) BZ ICT NY	6-35-82116-1R8	
2	GPU1 SHIELDING MODULE FOR N15E-GX P370SM-A	6-33-P370S-100-A	
3	VGA SUPPORTER SUS430 X7200	6-33-X720S-040-1	
4	VGA BOARD NVIDIA N16E-GX MP GDDR5(SAMSUNG 8G/512M*16) MXM-III V2.0 --SMT(TOP/BOT) P150SM-A(NV BOM)	6-77-P15SL-AA2-2	
4	VGA BOARD NVIDIA N16E-GX MP GDDR5(SAMSUNG 8G/512M*16) MXM-III V2.0 --SMT/TOP P750ZM (NV BOM) FOR G-SYNC	6-77-P15SL-1A2-K	
4	VGA BOARD NVIDIA N16E-GX MP GDDR5(SAMSUNG 8G/512M*16) MXM-III V2.0 --SMT/BOT P750ZM (NV BOM) FOR G-SYNC	6-77-P15SL-2A2-K	
4	VGA BOARD NVIDIA N16E-GX MP GDDR5(SAMSUNG 8G/512M*16) MXM-III V2.0 --SMT/TOP P150SM-A(NV BOM)	6-77-P15SL-1A2-2	
4	VGA BOARD NVIDIA N16E-GX MP GDDR5(SAMSUNG 8G/512M*16) MXM-III V2.0 --SMT/BOT P150SM-A(NV BOM)	6-77-P15SL-2A2-2	
4	VGA BOARD NVIDIA N16E-GT MP GDDR5(SAMSUNG 6G/512M*12) MXM-III V2.0 --SMT/TOP P370SM-A (NV BOM)	6-77-P15SL-1A2-H	
4	VGA BOARD NVIDIA N16E-GT MP GDDR5(SAMSUNG 6G/512M*12) MXM-III V2.0 --SMT/TOP P750ZM (NV BOM) FOR G-SYNC	6-77-P15SL-1A2-L	
4	VGA BOARD NVIDIA N16E-GT MP GDDR5(SAMSUNG 6G/512M*12) MXM-III V2.0 --SMT/BOT P750ZM (NV BOM) FOR G-SYNC	6-77-P15SL-2A2-L	
4	VGA BOARD NVIDIA N16E-GT MP GDDR5(SAMSUNG 6G/512M*12) MXM-III V2.0 --SMT(TOP/BOT) P370SM-A	6-77-P15SL-AA2-A	
4	VGA BOARD NVIDIA N16E-GT MP GDDR5(SAMSUNG 6G/512M*12) MXM-III V2.0 --SMT/BOT P370SM-A(NV BOM)	6-77-P15SL-2A2-H	
4	VGA BOARD NVIDIA N16E-GS MP GDDR5(SAMSUNG 4G/512M*8) MXM-III V2.0 --SMT/TOP P750ZM	6-77-P15SL-1A2-F	
4	VGA BOARD NVIDIA N16E-GS MP GDDR5(SAMSUNG 4G/512M*8) MXM-III V2.0 --SMT(TOP/BOT) P750ZM	6-77-P15SL-AA2-F	
4	VGA BOARD NVIDIA N16E-GS MP GDDR5(SAMSUNG 4G/512M*8) MXM-III V2.0 --SMT/TOP P750ZM FOR G-SYNC	6-77-P15SL-1A2-N	
4	VGA BOARD NVIDIA N16E-GS MP GDDR5(SAMSUNG 4G/512M*8) MXM-III V2.0 --SMT/BOT P750ZM FOR G-SYNC	6-77-P15SL-2A2-N	
4	VGA BOARD NVIDIA N16E-GS MP GDDR5(SAMSUNG 4G/512M*8) MXM-III V2.0 --SMT/BOT P750ZM	6-77-P15SL-2A2-F	
5	N16E-GX CHIP MYLAR (29*29*0.1) P177SM-A	6-40-P1778-010-A	

Figure
VG

HDD

Figure A - 8
HDD



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

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the ***P750DM / P751DM / P750DM-G / P751DM-G*** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
Block Diagram - Page B - 2	*Lynix Point 7/7 - Page B - 23*	*VCCIO / 1P0A - Page B - 44*
Processor 1/5 - Page B - 3	*USB + eSATA, USB Charging - Page B - 24*	*DDR 1.2V/0.6VS/VCCPLL_OC - Page B - 45*
Processor 2/5 - Page B - 4	*CCD, USB Port3 - Page B - 25*	*VDD3, VDD5 - Page B - 46*
Processor 3/5 - Page B - 5	*M.2 3G+USB & WLAN+BT - Page B - 26*	*12V, 5VS, 3.3VS, 3.3VA - Page B - 47*
Processor 4/5 - Page B - 6	*M.2 PCIE4X SSD1 & SSD2 - Page B - 27*	*5VS_2 - Page B - 48*
Processor 5/5 - Page B - 7	*Realtek ALC892 - Page B - 28*	*VCore / VCCGT - Page B - 49*
DDR4 CHA SO-DIMM_0 - Page B - 8	*PCM1861 + TAS5766DCA - Page B - 29*	*VCore Output Stage - Page B - 50*
DDR4 CHA SO-DIMM_1 - Page B - 9	*Subwoofer - Page B - 30*	*VCCSA / VCCGT - Page B - 51*
DDR4 CHB SO-DIMM_0 - Page B - 10	*Audio Jack - Page B - 31*	*Power Charger, DC-In - Page B - 52*
DDR4 CHB SO-DIMM_1 - Page B - 11	*EC IT8587 - Page B - 32*	*P750DM HDD Board - Page B - 53*
Panel, Inverter, CRT - Page B - 12	*Second EC IT8587 - Page B - 33*	*P750DM Power LED Board - Page B - 54*
Display Port A - Page B - 13	*Backlight Keyboard - Page B - 34*	*P750DM Click Board - Page B - 55*
Display Port B - Page B - 14	*LID SW, Fan, LED Conn - Page B - 35*	*P750DM Audio Board - Page B - 56*
HDMI - Page B - 15	*TP, FP, Multi-Con - Page B - 36*	*P750DM Charge LED Board - Page B - 57*
MXM PCI-E - Page B - 16	*LAN E2400 - Page B - 37*	*P750DM LID Switch Board - Page B - 58*
Lynix Point 1/7 - Page B - 17	*PS8338B + PS8330B - Page B - 38*	*P750DM Finger Sensor Board - Page B - 59*
Lynix Point 2/7 - Page B - 18	*TBT - Page B - 39*	*P770DM Charge LED Board - Page B - 60*
Lynix Point 3/7 - Page B - 19	*Power - Page B - 40*	*P750DM BOT LED Board - Page B - 61*
Lynix Point 4/7 - Page B - 20	*TPS65982 - Page B - 41*	*P775DM Power LED Board - Page B - 62*
Lynix Point 5/7 - Page B - 21	*Cardreader RTS5250 - Page B - 42*	*Power On Sequence - Page B - 63*
Lynix Point 6/7 - Page B - 22	*TPM SLB9655TT & NPCT420 - Page B - 43*	

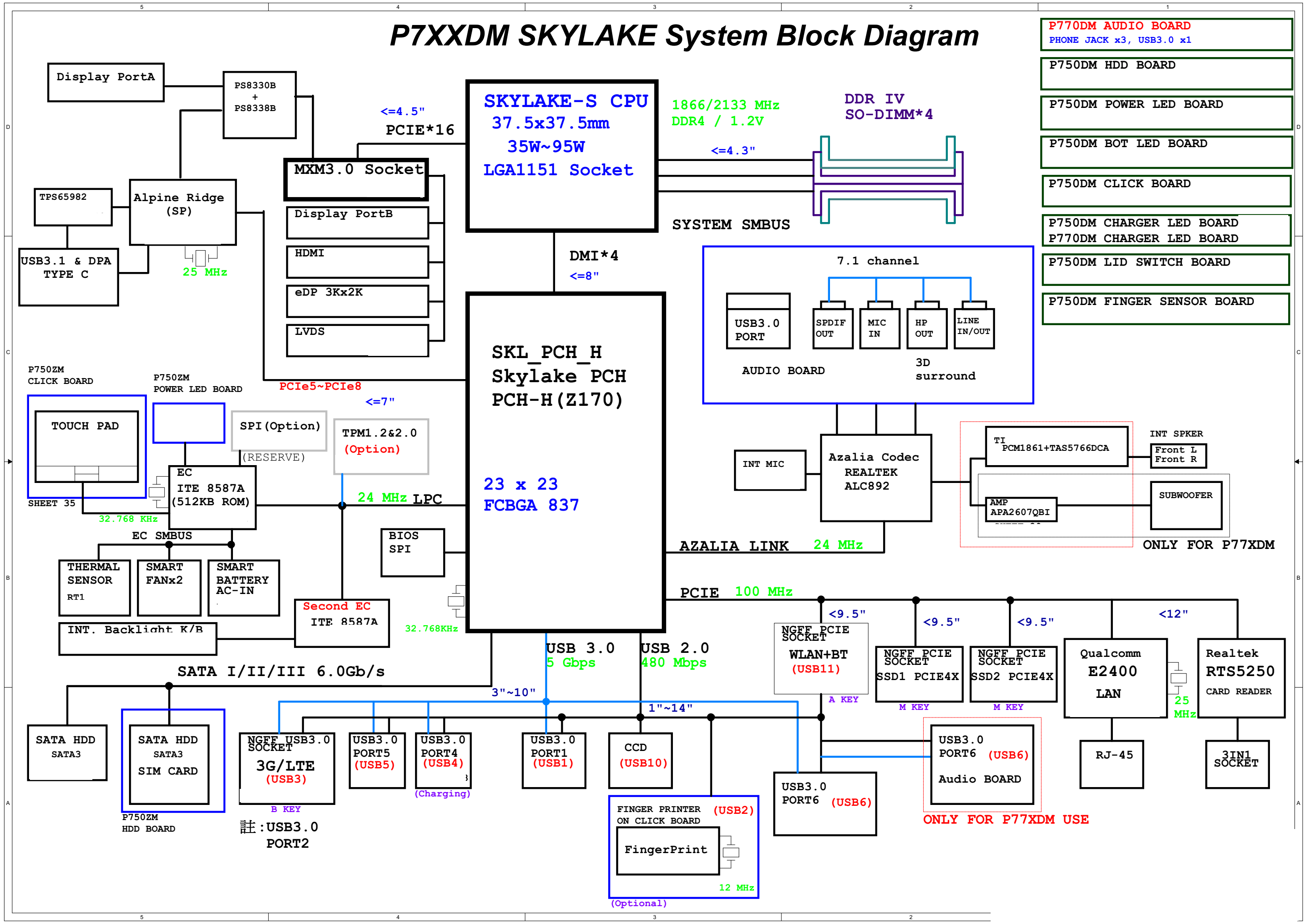
Table B - 1
Schematic Diagrams

Version Note

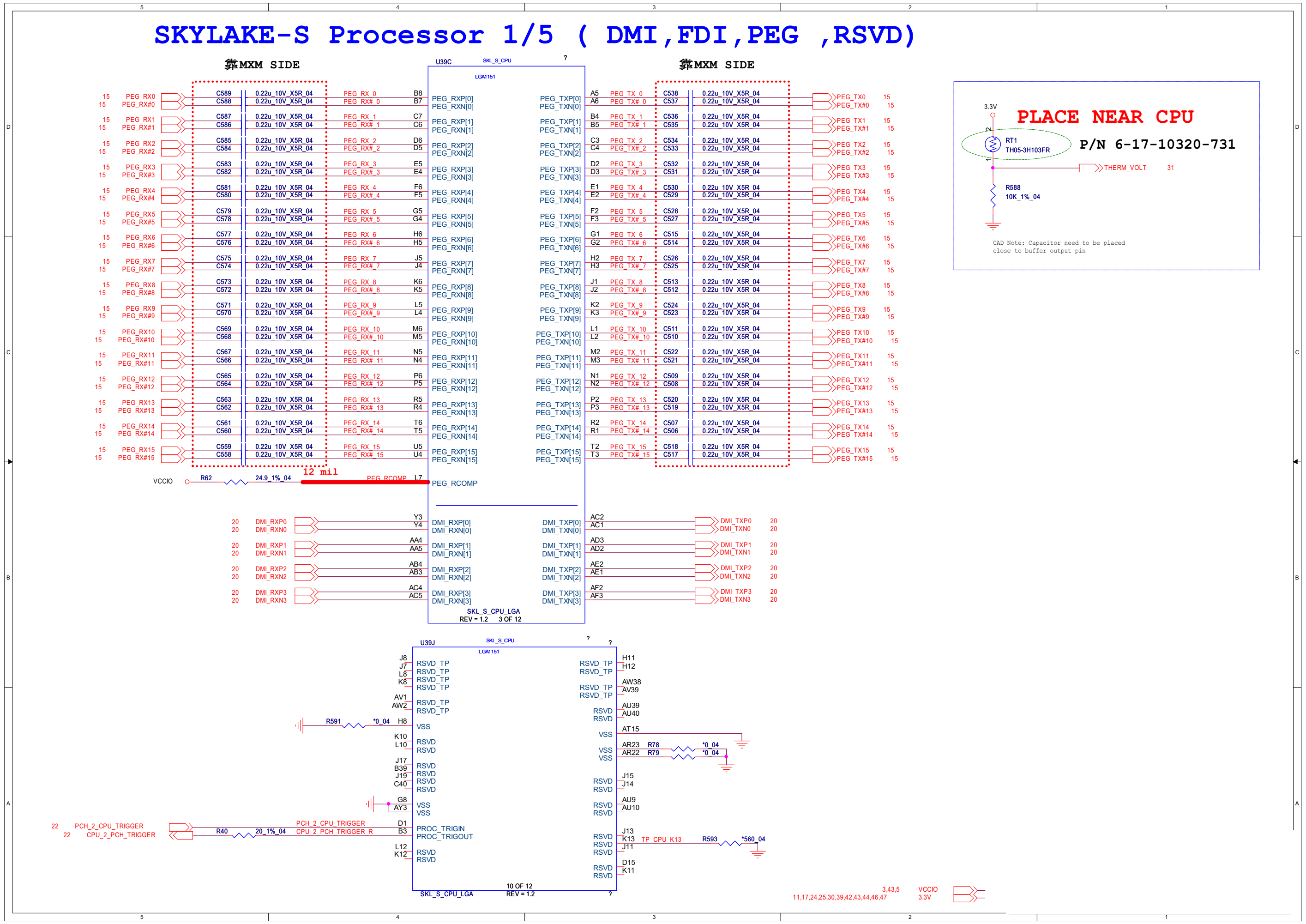
The schematic diagrams in this chapter are based upon version 6-7P-P75DB-001. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

Block Diagram

Sheet 1 of 62
Block Diagram


P7XXDM SKYLAKE System Block Diagram
P770DM AUDIO BOARD
PHONE JACK x3, USB3.0 x1
P750DM HDD BOARD
P750DM POWER LED BOARD
P750DM BOT LED BOARD
P750DM CLICK BOARD
P750DM CHARGER LED BOARD
P770DM CHARGER LED BOARD
P750DM LID SWITCH BOARD
P750DM FINGER SENSOR BOARD
Display PortA
PS8330B + PS8338B
<=4.5"
PCIE*16
SKYLAKE-S CPU
37.5x37.5mm
35W~95W
LGA1151 Socket
1866/2133 MHz
DDR4 / 1.2V
DDR IV
SO-DIMM*4
<=4.3"
SYSTEM SMBUS
TPS65982
Alpine Ridge (SP)
USB3.1 & DPA TYPE C
25 MHz
MXM3.0 Socket
Display PortB
HDMI
eDP 3Kx2K
LVDS
DMI*4
<=8"
7.1 channel
USB3.0 PORT
SPDIF OUT
MIC IN
HP OUT
LINE IN/OUT
AUDIO BOARD
3D surround
P750ZM CLICK BOARD
P750ZM POWER LED BOARD
PCIe5~PCIe8
<=7"
TOUCH PAD
SPI(Option)
(RESERVE)
TPM1.2&2.0 (Option)
SKL_PCH_H
Skylake PCH
PCH-H(Z170)
23 x 23
FCBGA 837
INT MIC
Azalia Codec
REALTEK
ALC892
TI PCM1861+TAS5766DCA
INT SPKER
Front L
Front R
AMP APA2607QBI
SUBWOOFER
ONLY FOR P77XDM
SHEET 35
EC
ITE 8587A
(512KB ROM)
32.768 KHz
24 MHz LPC
EC SMBUS
BIOS SPI
AZALIA LINK
24 MHz
THERMAL SENSOR RT1
SMART FANx2
SMART BATTERY AC-IN
Second EC
ITE 8587A
32.768KHz
INT. Backlight K/B
PCIE
100 MHz
<9.5"
<9.5"
<9.5"
<12"
NGFF PCIE SOCKET
WLAN+BT
(USB11)
A KEY
NGFF PCIE SOCKET
SSD1 PCIE4X
M KEY
NGFF PCIE SOCKET
SSD2 PCIE4X
M KEY
Qualcomm
E2400
LAN
25 MHz
Realtek
RTS5250
CARD READER
SATA I/II/III 6.0Gb/s
USB 3.0
5 Gbps
USB 2.0
480 Mbps
3"~10"
1"~14"
SATA HDD SATA3
SATA HDD SATA3
SIM CARD
P750ZM HDD BOARD
NGFF USB3.0 SOCKET
3G/LTE
(USB3)
B KEY
註:USB3.0 PORT2
USB3.0 PORT5 (USB5)
USB3.0 PORT4 (USB4)
(Charging)
USB3.0 PORT1 (USB1)
CCD (USB10)
FINGER PRINTER ON CLICK BOARD
(USB2)
FingerPrint
12 MHz
(Optional)
USB3.0 PORT6 (USB6)
USB3.0 PORT6 (USB6)
Audio BOARD
ONLY FOR P77XDM USE
RJ-45
3IN1 SOCKET

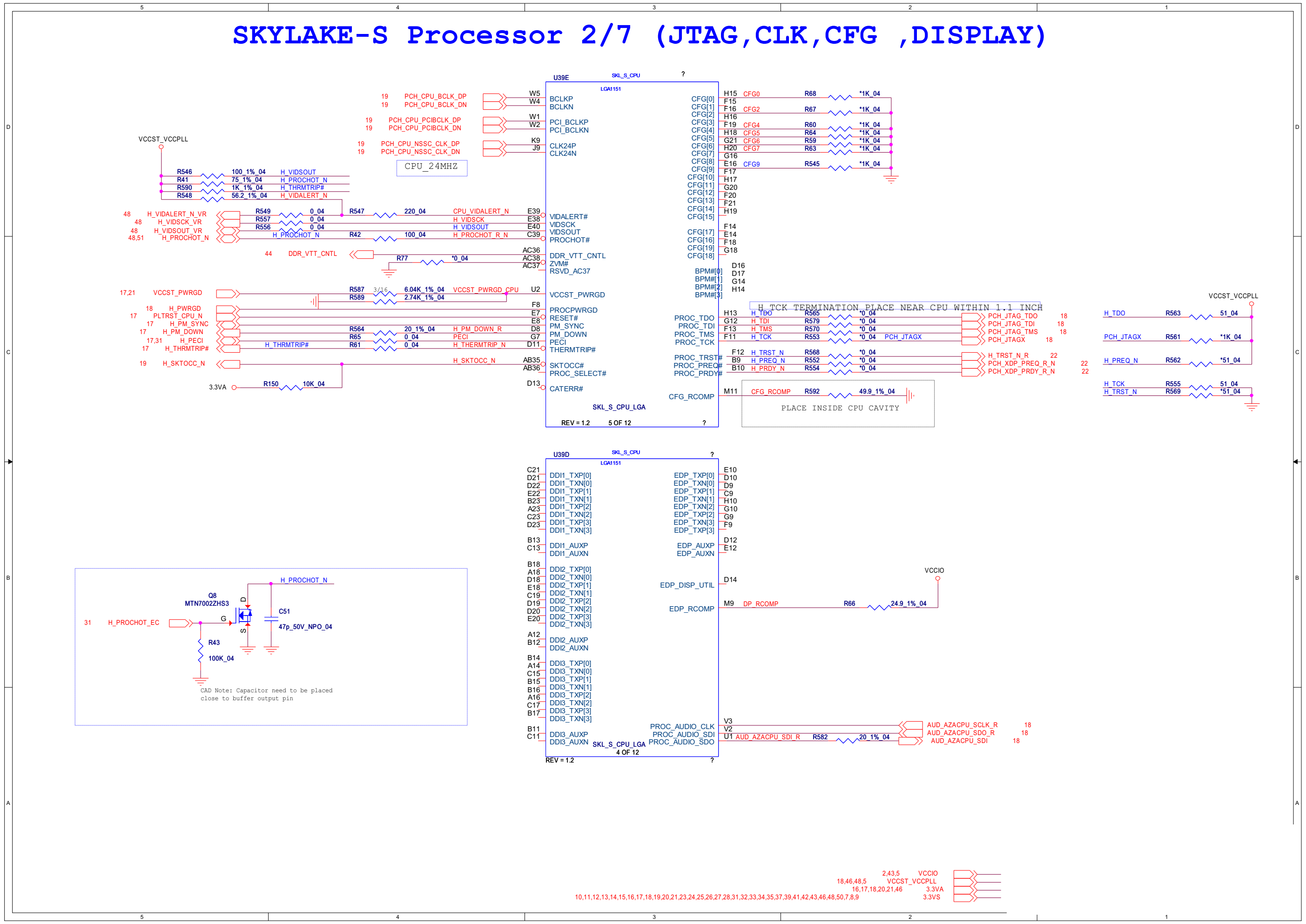
Processor 1/5


SKYLAKE-S Processor 1/5 (DMI,FDI,PEG ,RSVD)
MXM SIDE
U39C
SKL_S_CPU
LGA1151
PEG_RXP[0]…PEG_RXP[15]
PEG_RXN[0]…PEG_RXN[15]
PEG_TXP[0]…PEG_TXP[15]
PEG_TXN[0]…PEG_TXN[15]
0.22u_10V_X5R_04
PEG_RCOMP
12 mil
R62
24.9_1%_04
VCCIO
DMI_RXP[0]…DMI_RXP[3]
DMI_RXN[0]…DMI_RXN[3]
DMI_TXP[0]…DMI_TXP[3]
DMI_TXN[0]…DMI_TXN[3]
SKL_S_CPU_LGA
REV = 1.2
3 OF 12
PLACE NEAR CPU
3.3V
RT1
TH05-3H103FR
P/N 6-17-10320-731
THERM_VOLT
R588
10K_1%_04
CAD Note: Capacitor need to be placed close to buffer output pin
U39J
RSVD_TP
RSVD
VSS
R591
R78
R79
PROC_TRIGIN
PROC_TRIGOUT
PCH_2_CPU_TRIGGER
CPU_2_PCH_TRIGGER
R40
20_1%_04
TP_CPU_K13
R593
*560_04
10 OF 12
REV = 1.2
VCCIO
3.3V

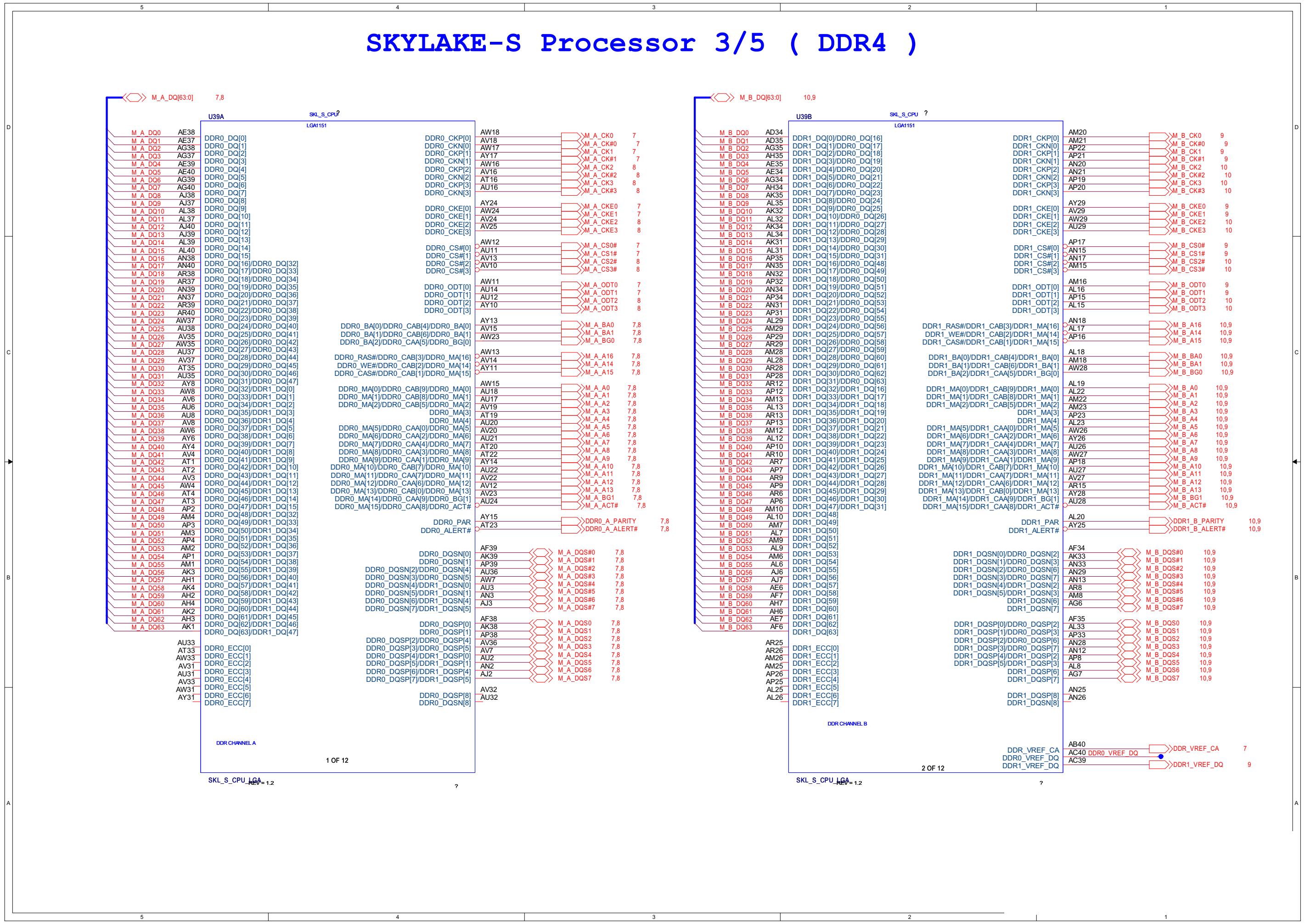
Sheet 2 of 62
Processor 1/5

Processor 2/5

Sheet 3 of 62
Processor 2/5


SKYLAKE-S Processor 2/7 (JTAG,CLK,CFG ,DISPLAY)
U39E
SKL_S_CPU
LGA1151
BCLKP
BCLKN
PCI_BCLKP
PCI_BCLKN
CLK24P
CLK24N
CPU_24MHZ
PCH_CPU_BCLK_DP
PCH_CPU_BCLK_DN
PCH_CPU_PCIBCLK_DP
PCH_CPU_PCIBCLK_DN
PCH_CPU_NSSC_CLK_DP
PCH_CPU_NSSC_CLK_DN
VCCST_VCCPLL
H_VIDSOUT
H_PROCHOT_N
H_THRMTRIP#
H_VIDALERT_N
VIDALERT#
VIDSCK
VIDSOUT
PROCHOT#
DDR_VTT_CNTL
ZVM#
RSVD_AC37
VCCST_PWRGD
PROCPWRGD
RESET#
PM_SYNC
PM_DOWN
PECI
THERMTRIP#
SKTOCC#
PROC_SELECT#
CATERR#
CFG[0]–CFG[19]
BPM#[0]–BPM#[3]
PROC_TDO
PROC_TDI
PROC_TMS
PROC_TCK
PROC_TRST#
PROC_PREQ#
PROC_PRDY#
CFG_RCOMP
H_TCK TERMINATION PLACE NEAR CPU WITHIN 1.1 INCH
PLACE INSIDE CPU CAVITY
SKL_S_CPU_LGA
REV = 1.2
5 OF 12
U39D
DDI1_TXP[0]–DDI1_TXN[3]
DDI1_AUXP
DDI1_AUXN
DDI2_TXP[0]–DDI2_TXN[3]
DDI2_AUXP
DDI2_AUXN
DDI3_TXP[0]–DDI3_TXN[3]
DDI3_AUXP
DDI3_AUXN
EDP_TXP[0]–EDP_TXN[3]
EDP_AUXP
EDP_AUXN
EDP_DISP_UTIL
EDP_RCOMP
DP_RCOMP
VCCIO
PROC_AUDIO_CLK
PROC_AUDIO_SDI
PROC_AUDIO_SDO
AUD_AZACPU_SCLK_R
AUD_AZACPU_SDO_R
AUD_AZACPU_SDI
4 OF 12
Q8
MTN7002ZHS3
H_PROCHOT_EC
C51
47p_50V_NPO_04
R43
100K_04
CAD Note: Capacitor need to be placed close to buffer output pin
VCCIO
VCCST_VCCPLL
3.3VA
3.3VS

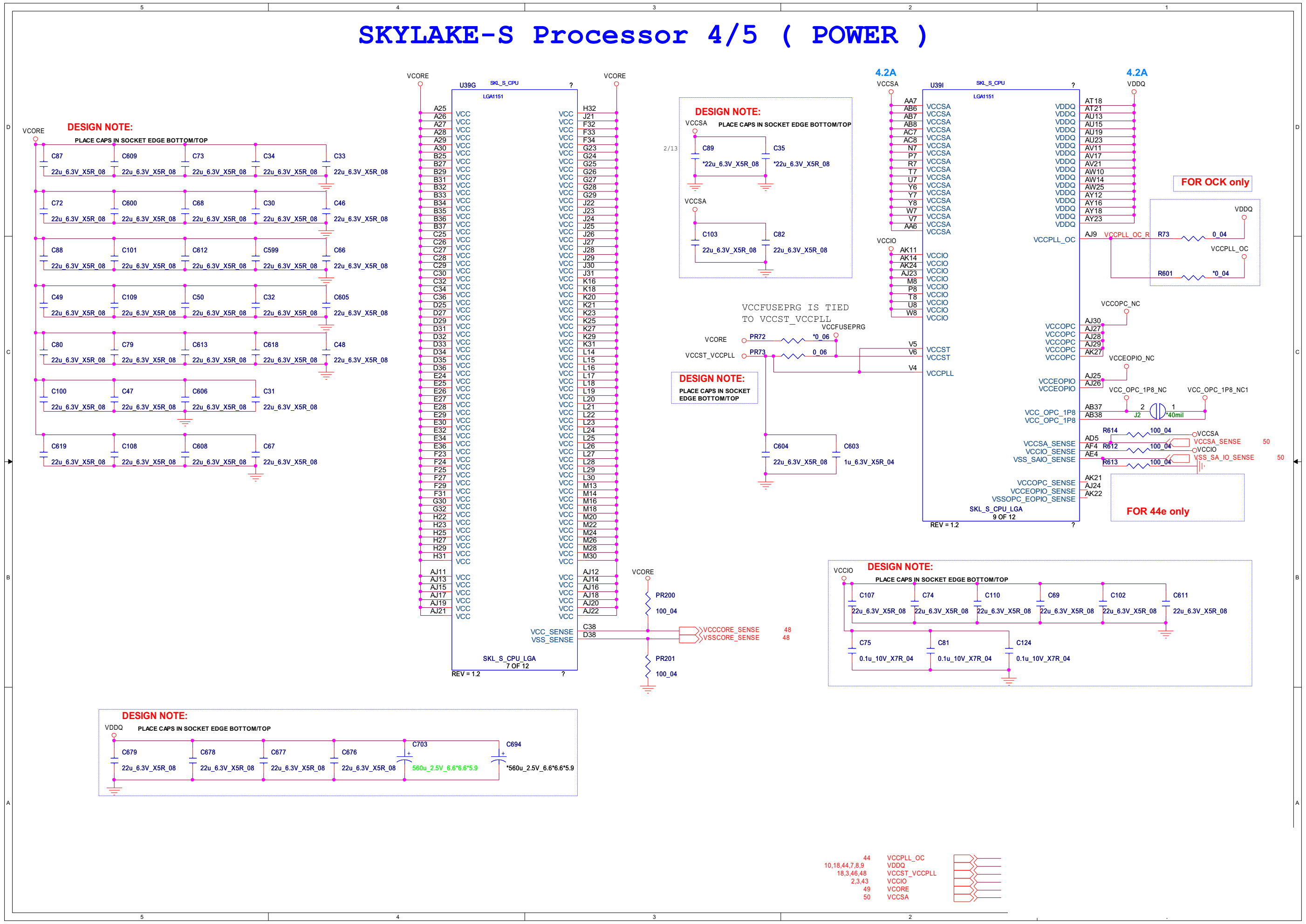
Processor 3/5


SKYLAKE-S Processor 3/5 (DDR4)
M_A_DQ[63:0]
U39A
SKL_S_CPU
LGA1151
DDR CHANNEL A
1 OF 12
SKL_S_CPU_LGA
REV = 1.2
M_B_DQ[63:0]
U39B
DDR CHANNEL B
2 OF 12
DDR_VREF_CA
DDR0_VREF_DQ
DDR1_VREF_DQ
DDR0_A_PARITY
DDR0_A_ALERT#
DDR1_B_PARITY
DDR1_B_ALERT#

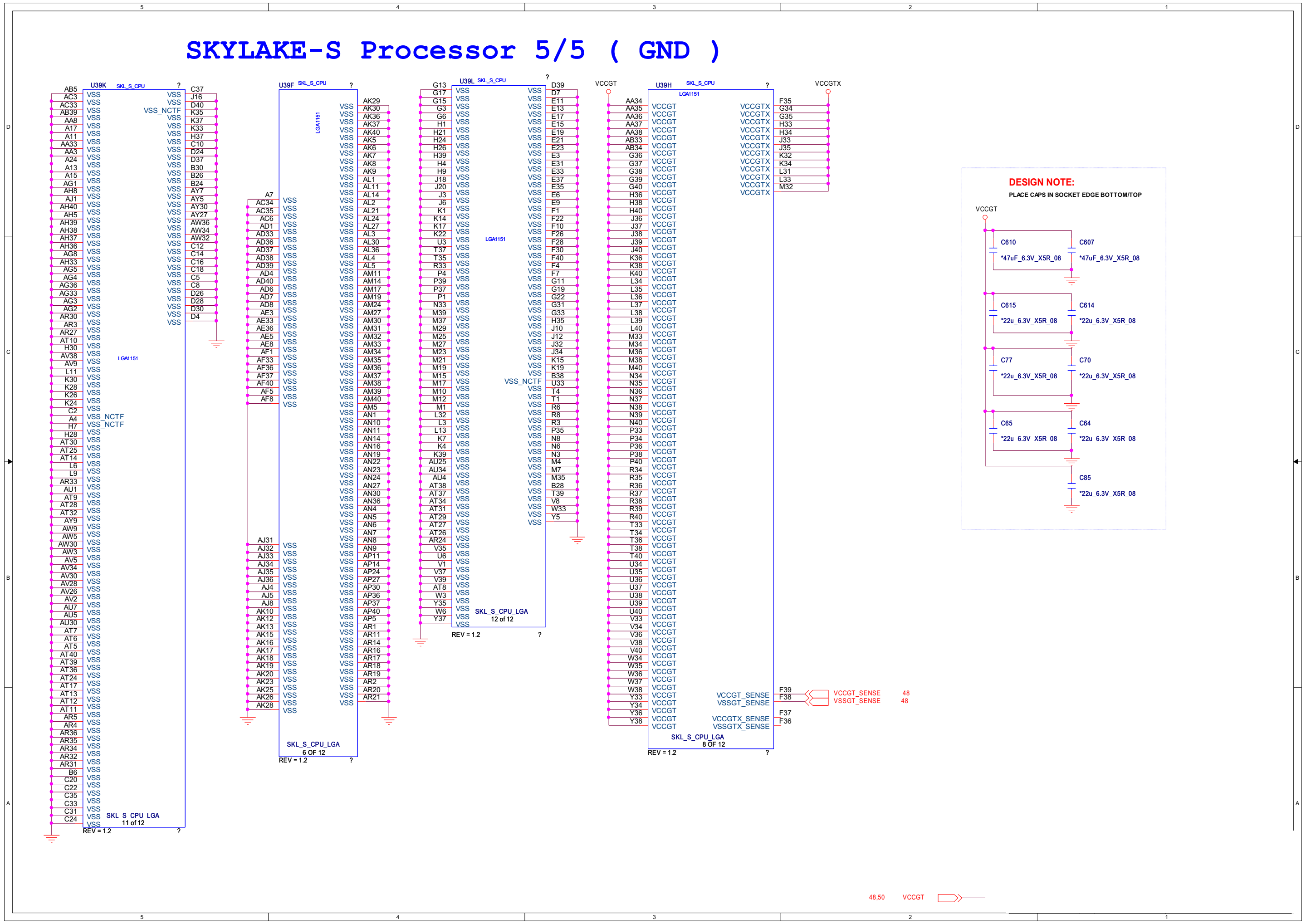
Sheet 4 of 62
Processor 3/5

Processor 4/5

Sheet 5 of 62
Processor 4/5


SKYLAKE-S Processor 4/5 (POWER)
DESIGN NOTE:
PLACE CAPS IN SOCKET EDGE BOTTOM/TOP
VCORE
U39G
SKL_S_CPU
LGA1151
VCC
VCC_SENSE
VSS_SENSE
SKL_S_CPU_LGA
7 OF 12
REV = 1.2
PR200
100_04
PR201
100_04
VCCCORE_SENSE
VSSCORE_SENSE
48
VCCSA
C89
C35
*22u_6.3V_X5R_08
C103
C82
22u_6.3V_X5R_08
VCCFUSEPRG IS TIED
TO VCCST_VCCPLL
VCCFUSEPRG
PR72
PR73
*0_06
0_06
VCCST_VCCPLL
C604
C603
1u_6.3V_X5R_04
4.2A
U39I
VCCIO
VCCST
VCCPLL
VDDQ
VCCPLL_OC
VCCOPC
VCCEOPIO
VCC_OPC_1P8
VCCA_SENSE
VCCIO_SENSE
VSS_SAIO_SENSE
VCCOPC_SENSE
VCCEOPIO_SENSE
VSSOPC_EOPIO_SENSE
SKL_S_CPU_LGA
9 OF 12
FOR OCK only
R73
0_04
R601
*0_04
VCCOPC_NC
VCCEOPIO_NC
VCC_OPC_1P8_NC
VCC_OPC_1P8_NC1
J2
*40mil
R614
R612
R613
100_04
VCCSA_SENSE
VSS_SA_IO_SENSE
50
FOR 44e only
C107
C74
C110
C69
C102
C611
C75
C81
C124
0.1u_10V_X7R_04
VDDQ
C679
C678
C677
C676
C703
C694
560u_2.5V_6.6*6.6*5.9
*560u_2.5V_6.6*6.6*5.9
44 VCCPLL_OC
10,18,44,7,8,9 VDDQ
18,3,46,48 VCCST_VCCPLL
2,3,43 VCCIO
49 VCORE
50 VCCSA

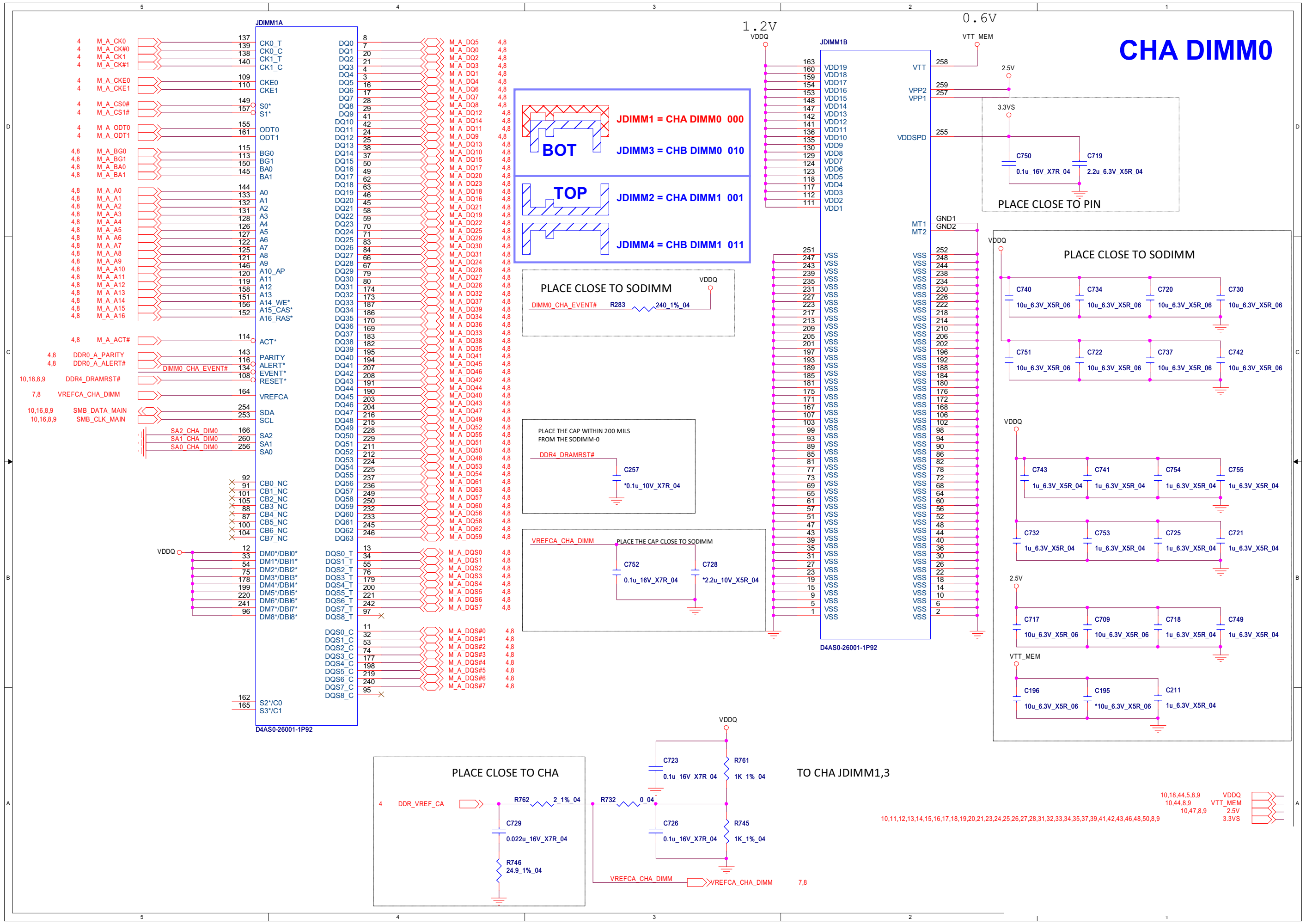
Processor 5/5


SKYLAKE-S Processor 5/5 (GND)
U39K
SKL_S_CPU
LGA1151
SKL_S_CPU_LGA
11 of 12
REV = 1.2
VSS
VSS_NCTF
U39F
SKL_S_CPU
LGA1151
SKL_S_CPU_LGA
6 OF 12
REV = 1.2
U39L
SKL_S_CPU
LGA1151
SKL_S_CPU_LGA
12 of 12
REV = 1.2
VCCGT
VCCGTX
U39H
SKL_S_CPU
LGA1151
SKL_S_CPU_LGA
8 OF 12
REV = 1.2
VCCGT_SENSE
VSSGT_SENSE
VCCGTX_SENSE
VSSGTX_SENSE
VCCGT_SENSE 48
VSSGT_SENSE 48
DESIGN NOTE:
PLACE CAPS IN SOCKET EDGE BOTTOM/TOP
VCCGT
C610 *47uF_6.3V_X5R_08
C607 *47uF_6.3V_X5R_08
C615 *22u_6.3V_X5R_08
C614 *22u_6.3V_X5R_08
C77 *22u_6.3V_X5R_08
C70 *22u_6.3V_X5R_08
C65 *22u_6.3V_X5R_08
C64 *22u_6.3V_X5R_08
C85 *22u_6.3V_X5R_08
48,50 VCCGT

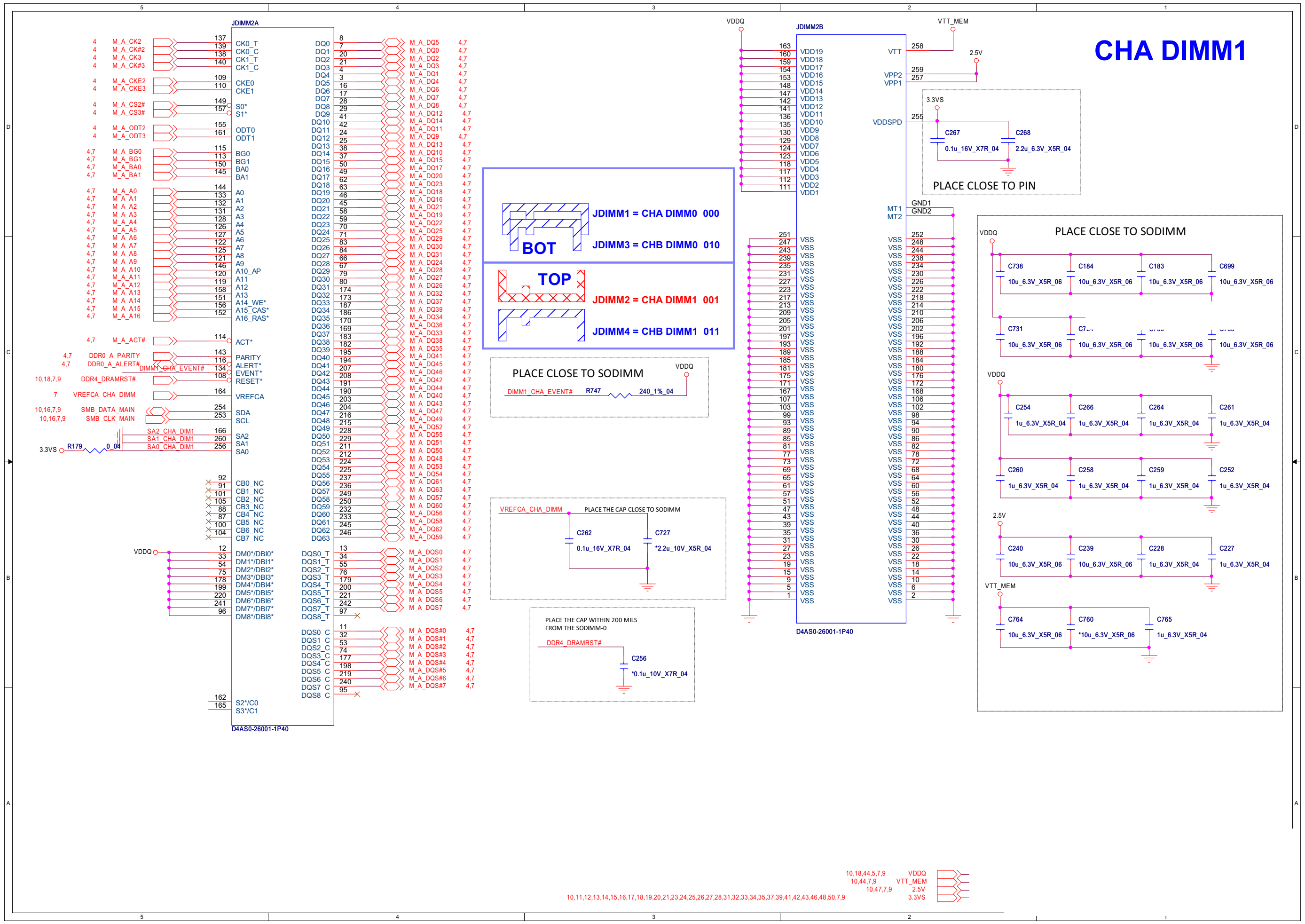
Sheet 6 of 62
Processor 5/5

DDR4 CHA SO-DIMM_0

Sheet 7 of 62
DDR4 CHA SO-
DIMM _0


CHA DIMM0
JDIMM1A
JDIMM1B
1.2V
VDDQ
0.6V
VTT_MEM
BOT
TOP
JDIMM1 = CHA DIMM0 000
JDIMM3 = CHB DIMM0 010
JDIMM2 = CHA DIMM1 001
JDIMM4 = CHB DIMM1 011
PLACE CLOSE TO SODIMM
PLACE CLOSE TO PIN
PLACE THE CAP WITHIN 200 MILS
FROM THE SODIMM-0
PLACE THE CAP CLOSE TO SODIMM
PLACE CLOSE TO CHA
TO CHA JDIMM1,3
D4AS0-26001-1P92
DDR_VREF_CA
VREFCA_CHA_DIMM
DDR4_DRAMRST#
DIMM0_CHA_EVENT#
SMB_DATA_MAIN
SMB_CLK_MAIN
2.5V
3.3VS
VDDSPD

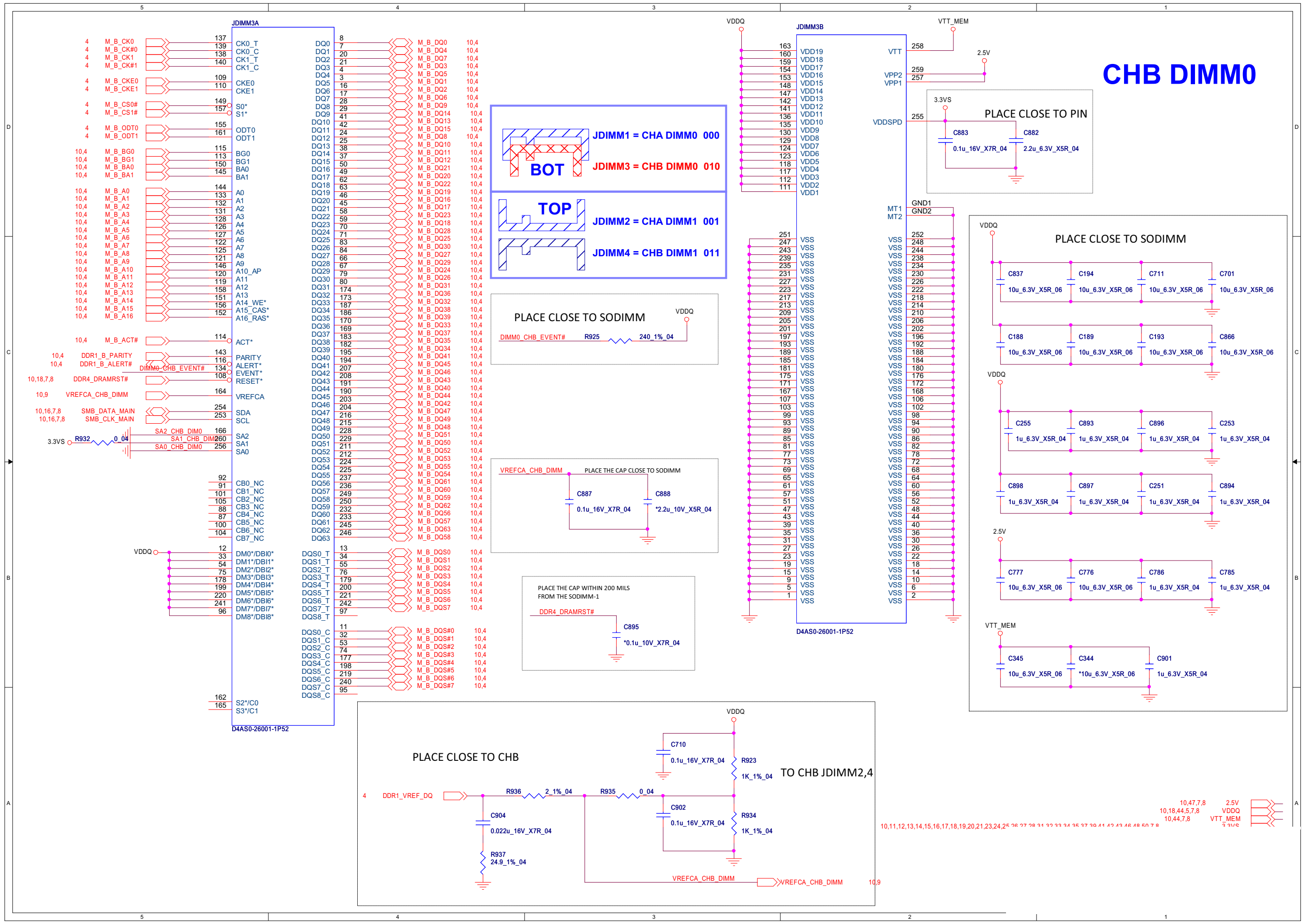
DDR4 CHA SO-DIMM_1


JDIMM2A
CK0_T
CK0_C
CK1_T
CK1_C
CKE0
CKE1
S0*
S1*
ODT0
ODT1
BG0
BG1
BA0
BA1
A10_AP
A14_WE*
A15_CAS*
A16_RAS*
ACT*
PARITY
ALERT*
EVENT*
RESET*
VREFCA
SDA
SCL
SA2
SA1
SA0
R179
3.3VS
VDDQ
S2*/C0
S3*/C1
D4AS0-26001-1P40
JDIMM2B
VDD19
VTT
VPP2
VPP1
VDDSPD
VSS
MT1
MT2
GND1
GND2
VTT_MEM
2.5V
3.3VS
C267
0.1u_16V_X7R_04
C268
2.2u_6.3V_X5R_04
PLACE CLOSE TO PIN
CHA DIMM1
BOT
JDIMM1 = CHA DIMM0 000
JDIMM3 = CHB DIMM0 010
TOP
JDIMM2 = CHA DIMM1 001
JDIMM4 = CHB DIMM1 011
PLACE CLOSE TO SODIMM
DIMM1_CHA_EVENT#
R747
240_1%_04
VREFCA_CHA_DIMM
PLACE THE CAP CLOSE TO SODIMM
C262
0.1u_16V_X7R_04
C727
*2.2u_10V_X5R_04
PLACE THE CAP WITHIN 200 MILS FROM THE SODIMM-0
DDR4_DRAMRST#
C256
*0.1u_10V_X7R_04
PLACE CLOSE TO SODIMM
C738
C184
C183
C699
10u_6.3V_X5R_06
C731
C254
C266
C264
C261
1u_6.3V_X5R_04
C260
C258
C259
C252
C240
C239
C228
C227
C764
C760
C765
*10u_6.3V_X5R_06
VDDQ
VTT_MEM
2.5V
3.3VS

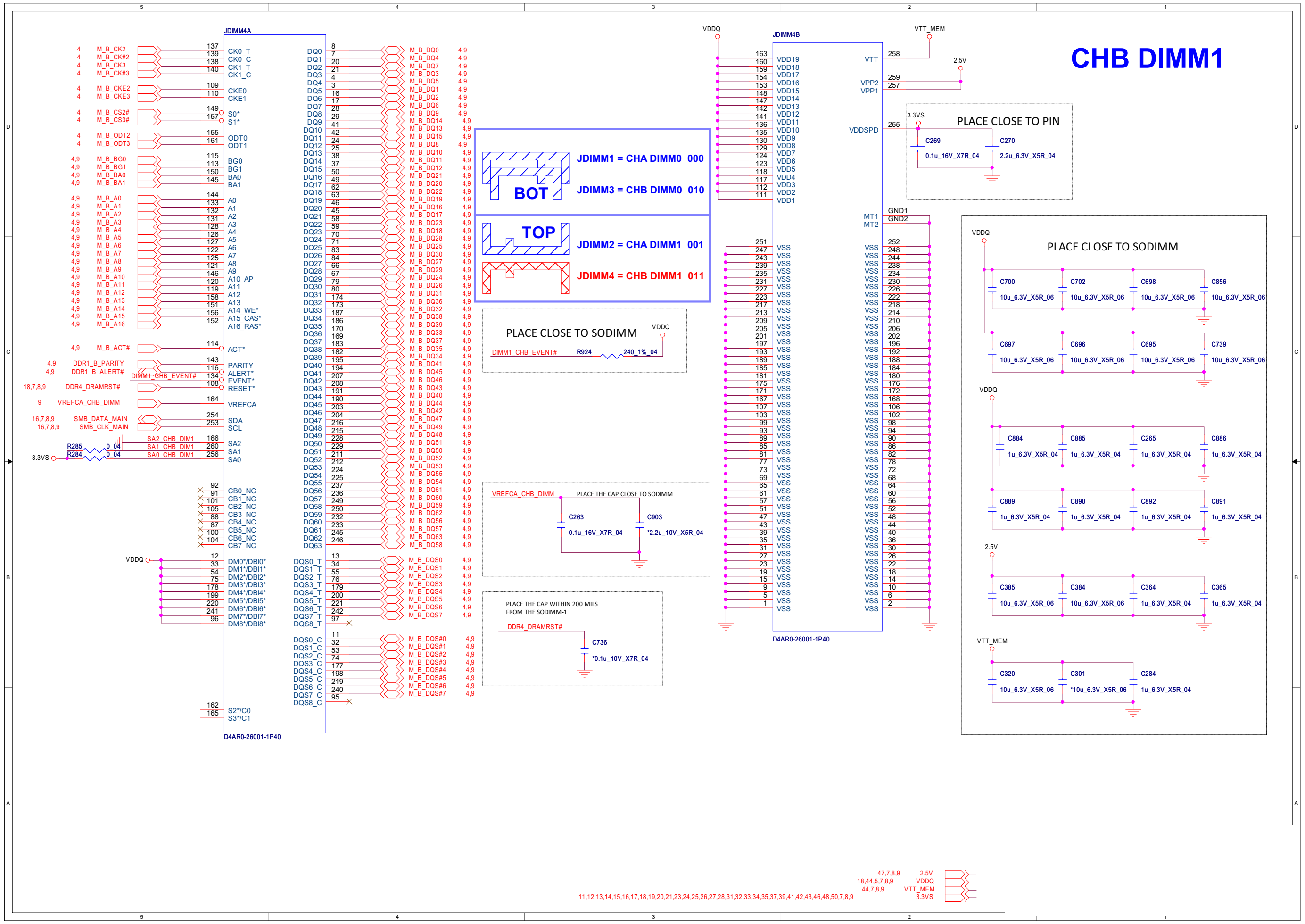
Sheet 8 of 62
DDR4 CHA SO-DIMM _1

DDR4 CHB SO-DIMM_0

Sheet 9 of 62
DDR4 CHB SO-DIMM _0


CHB DIMM0
JDIMM3A
JDIMM3B
D4AS0-26001-1P52
BOT
TOP
JDIMM1 = CHA DIMM0 000
JDIMM3 = CHB DIMM0 010
JDIMM2 = CHA DIMM1 001
JDIMM4 = CHB DIMM1 011
PLACE CLOSE TO PIN
PLACE CLOSE TO SODIMM
PLACE THE CAP CLOSE TO SODIMM
PLACE THE CAP WITHIN 200 MILS FROM THE SODIMM-1
PLACE CLOSE TO CHB
TO CHB JDIMM2,4
VDDQ
VTT_MEM
2.5V
3.3VS
VREFCA_CHB_DIMM
DDR1_VREF_DQ
DDR4_DRAMRST#
DIMM0_CHB_EVENT#

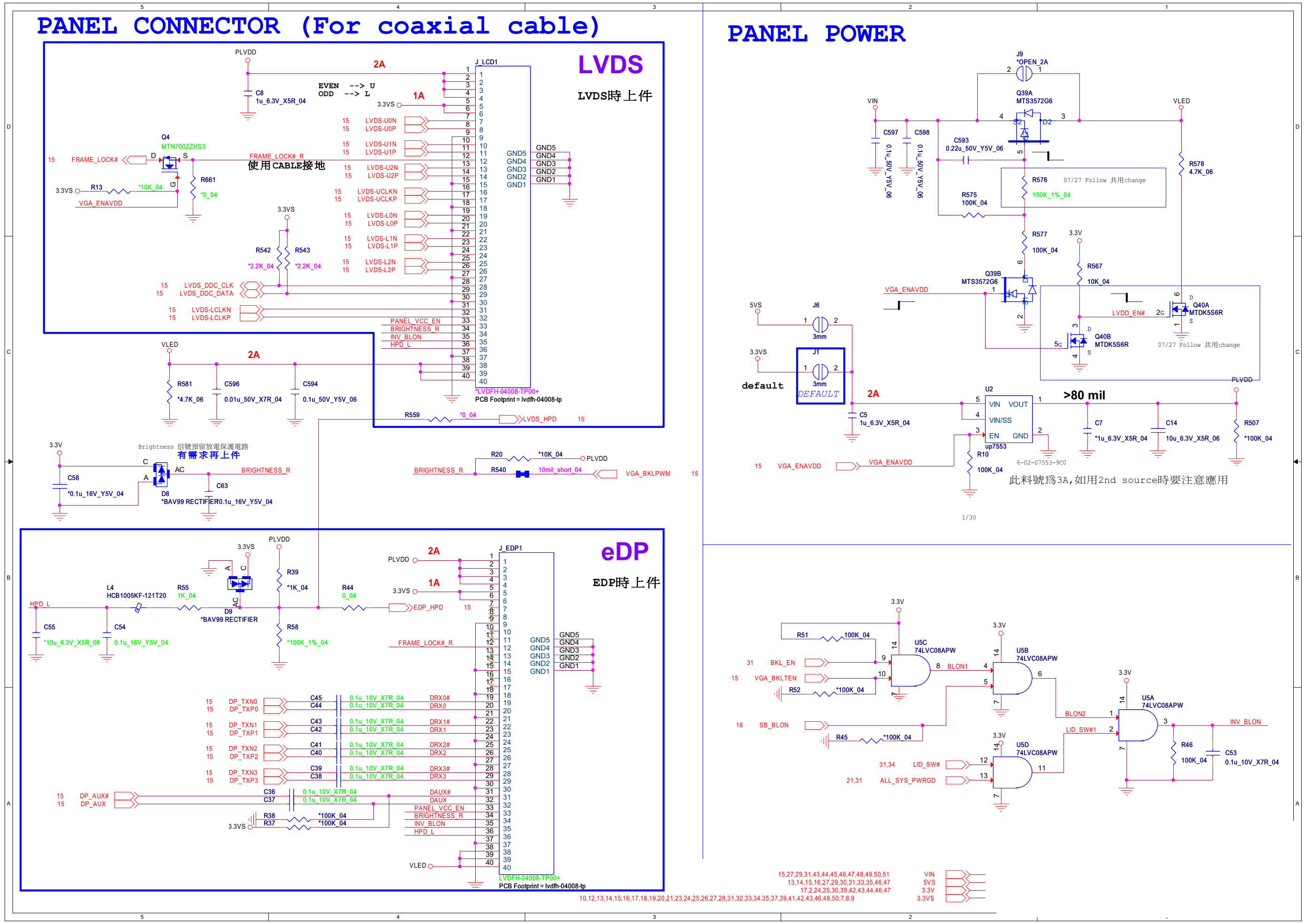
DDR4 CHB SO-DIMM_1


JDIMM4A
JDIMM4B
CHB DIMM1
VDDQ
VTT_MEM
2.5V
3.3VS
JDIMM1 = CHA DIMM0 000
JDIMM3 = CHB DIMM0 010
JDIMM2 = CHA DIMM1 001
JDIMM4 = CHB DIMM1 011
BOT
TOP
PLACE CLOSE TO PIN
C269
0.1u_16V_X7R_04
C270
2.2u_6.3V_X5R_04
PLACE CLOSE TO SODIMM
DIMM1_CHB_EVENT#
R924
240_1%_04
VREFCA_CHB_DIMM
PLACE THE CAP CLOSE TO SODIMM
C263
0.1u_16V_X7R_04
C903
*2.2u_10V_X5R_04
PLACE THE CAP WITHIN 200 MILS FROM THE SODIMM-1
DDR4_DRAMRST#
C736
*0.1u_10V_X7R_04
C700
C702
C698
C856
C697
C696
C695
C739
10u_6.3V_X5R_06
C884
C885
C265
C886
C889
C890
C892
C891
1u_6.3V_X5R_04
C385
C384
C364
C365
C320
C301
C284
*10u_6.3V_X5R_06
VDD1
VDD19
VPP1
VPP2
VTT
VDDSPD
VSS
GND1
GND2
MT1
MT2
D4AR0-26001-1P40
R285
R284
0_04
SA2_CHB_DIM1
SA1_CHB_DIM1
SA0_CHB_DIM1
SMB_DATA_MAIN
SMB_CLK_MAIN
DDR1_B_PARITY
DDR1_B_ALERT#
DIMM1_CHB_EVENT#
M_B_ACT#
11,12,13,14,15,16,17,18,19,20,21,23,24,25,26,27,28,31,32,33,34,35,37,39,41,42,43,46,48,50,7,8,9

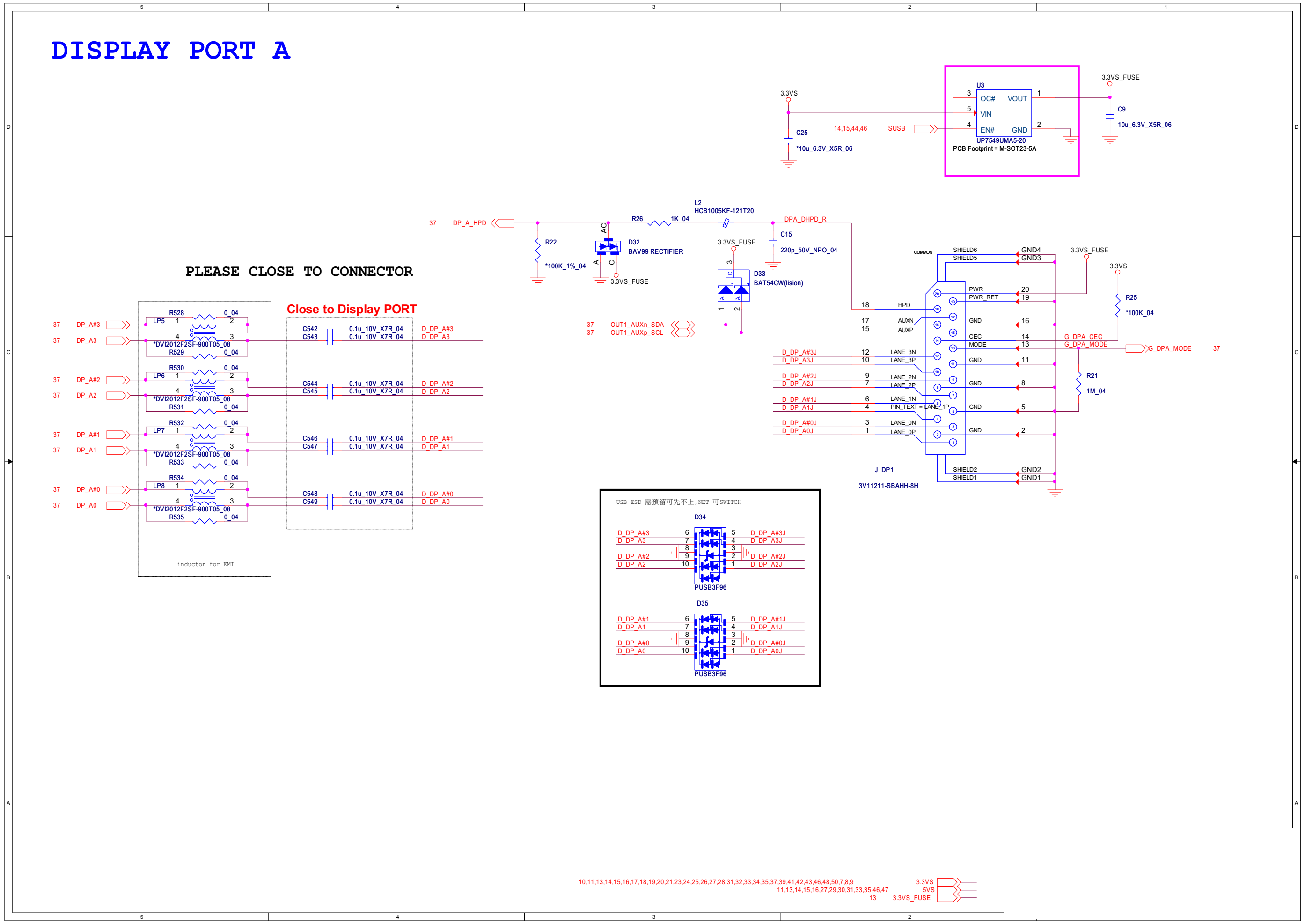
Sheet 10 of 62
DDR4 CHB SO-DIMM _1

Panel, Inverter, CRT

Sheet 11 of 62
Panel, Inverter, CRT


PANEL CONNECTOR (For coaxial cable)
LVDS
LVDS時上件
使用CABLE接地
EVEN --> U
ODD --> L
PLVDD
2A
1A
J_LCD1
GND5
GND4
GND3
GND2
GND1
FRAME_LOCK#
FRAME_LOCK#_R
Q4
MTN7002ZHS3
R13
R661
VGA_ENAVDD
LVDS-U0N
LVDS-U0P
LVDS-U1N
LVDS-U1P
LVDS-U2N
LVDS-U2P
LVDS-UCLKN
LVDS-UCLKP
LVDS-L0N
LVDS-L0P
LVDS-L1N
LVDS-L1P
LVDS-L2N
LVDS-L2P
LVDS_DDC_CLK
LVDS_DDC_DATA
LVDS-LCLKN
LVDS-LCLKP
R542
R543
PANEL_VCC_EN
BRIGHTNESS_R
INV_BLON
HPD_L
VLED
R581
C596
C594
LVDS_HPD
R559
PCB Footprint = lvdfh-04008-tp
Brightness 信號預留放電保護電路
有需求再上件
BRIGHTNESS_R
D8
*BAV99 RECTIFIER
C58
C63
R20
R540
VGA_BKLPWM
eDP
EDP時上件
J_EDP1
EDP_HPD
L4
HCB1005KF-121T20
R55
D9
*BAV99 RECTIFIER
R39
R44
R58
C55
C54
DP_TXN0
DP_TXP0
DP_TXN1
DP_TXP1
DP_TXN2
DP_TXP2
DP_TXN3
DP_TXP3
DP_AUX#
DP_AUX
DRX0#
DRX0
DRX1#
DRX1
DRX2#
DRX2
DRX3#
DRX3
DAUX#
DAUX
R38
R37
PANEL POWER
J9
*OPEN_2A
Q39A
MTS3572G6
VIN
VLED
C597
C598
C593
R576
07/27 Follow 共用change
R578
R575
R577
R567
Q39B
MTS3572G6
Q40A
MTDK5S6R
Q40B
MTDK5S6R
LVDD_EN#
5VS
3.3VS
J6
J1
3mm
DEFAULT
default
2A
>80 mil
U2
VIN VOUT
VIN/SS
EN GND
up7553
C5
C7
C14
R507
R10
VGA_ENAVDD
此料號爲3A,如用2nd source時要注意應用
R51
R52
R45
R46
C53
U5C
U5B
U5A
U5D
74LVC08APW
BKL_EN
VGA_BKLTEN
SB_BLON
BLON1
BLON2
LID_SW#
ALL_SYS_PWRGD
INV_BLON
VIN
5VS
3.3V
3.3VS

Display Port A

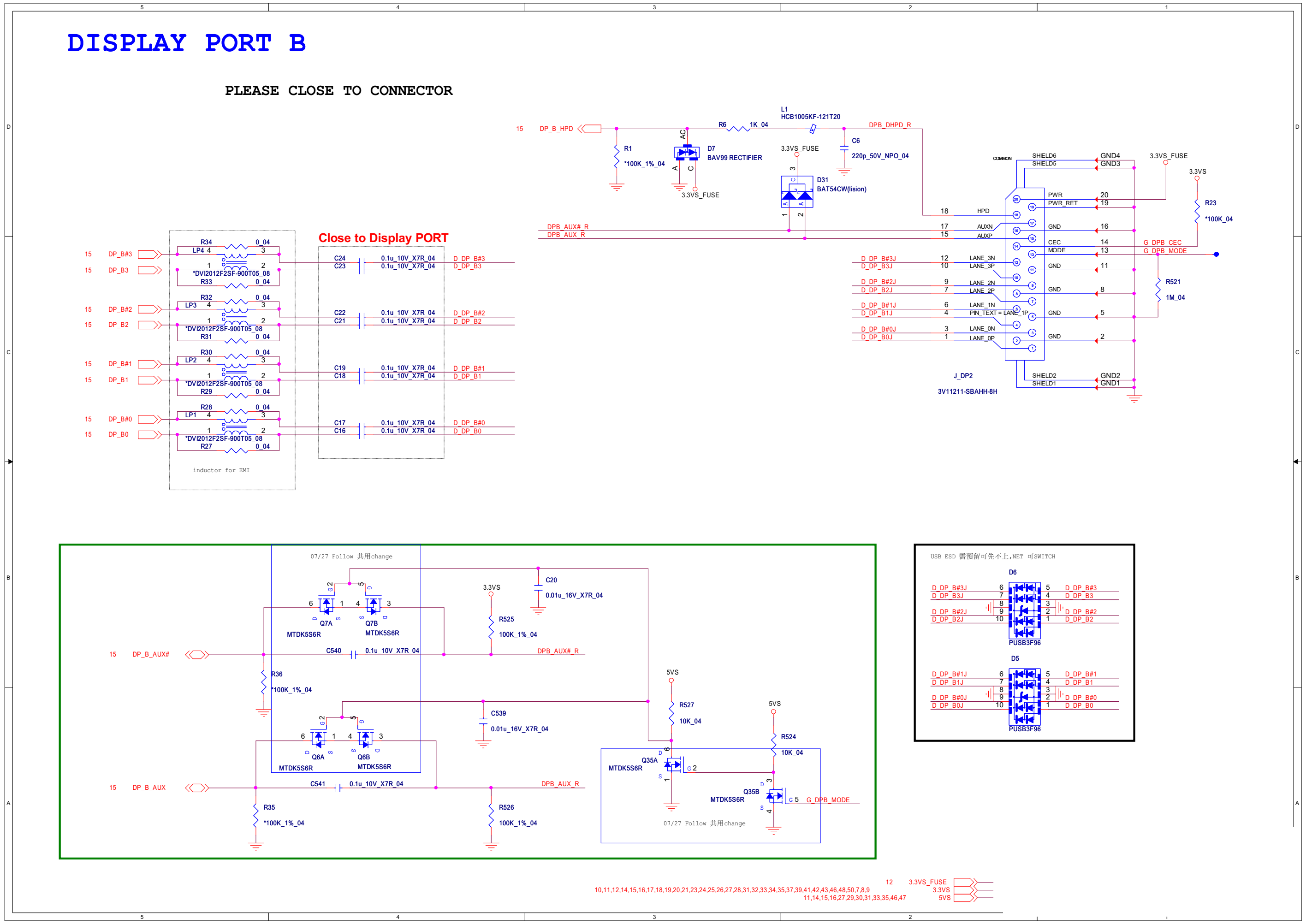

DISPLAY PORT A
PLEASE CLOSE TO CONNECTOR
Close to Display PORT
U3
OC#
VOUT
VIN
EN#
GND
UP7549UMA5-20
PCB Footprint = M-SOT23-5A
3.3VS
3.3VS_FUSE
C25
*10u_6.3V_X5R_06
C9
10u_6.3V_X5R_06
14,15,44,46
SUSB
DP_A_HPD
R22
*100K_1%_04
D32
BAV99 RECTIFIER
R26
1K_04
L2
HCB1005KF-121T20
DPA_DHPD_R
C15
220p_50V_NPO_04
D33
BAT54CW(lision)
OUT1_AUXn_SDA
OUT1_AUXp_SCL
J_DP1
3V11211-SBAHH-8H
HPD
AUXN
AUXP
LANE_3N
LANE_3P
LANE_2N
LANE_2P
LANE_1N
PIN_TEXT = LANE_1P
LANE_0N
LANE_0P
PWR
PWR_RET
GND
CEC
MODE
SHIELD6
SHIELD5
SHIELD2
SHIELD1
GND4
GND3
GND2
GND1
R25
*100K_04
R21
1M_04
G_DPA_CEC
G_DPA_MODE
G_DPA_MODE
D_DP_A#3J
D_DP_A3J
D_DP_A#2J
D_DP_A2J
D_DP_A#1J
D_DP_A1J
D_DP_A#0J
D_DP_A0J
DP_A#3
DP_A3
DP_A#2
DP_A2
DP_A#1
DP_A1
DP_A#0
DP_A0
LP5
LP6
LP7
LP8
*DVI2012F2SF-900T05_08
R528
R529
R530
R531
R532
R533
R534
R535
0_04
inductor for EMI
C542
C543
C544
C545
C546
C547
C548
C549
0.1u_10V_X7R_04
D_DP_A#3
D_DP_A3
D_DP_A#2
D_DP_A2
D_DP_A#1
D_DP_A1
D_DP_A#0
D_DP_A0
USB ESD 需預留可先不上,NET 可SWITCH
D34
D35
PUSB3F96
10,11,13,14,15,16,17,18,19,20,21,23,24,25,26,27,28,31,32,33,34,35,37,39,41,42,43,46,48,50,7,8,9
11,13,14,15,16,27,29,30,31,33,35,46,47
13
3.3VS
5VS
3.3VS_FUSE

Sheet 12 of 62
Display Port A

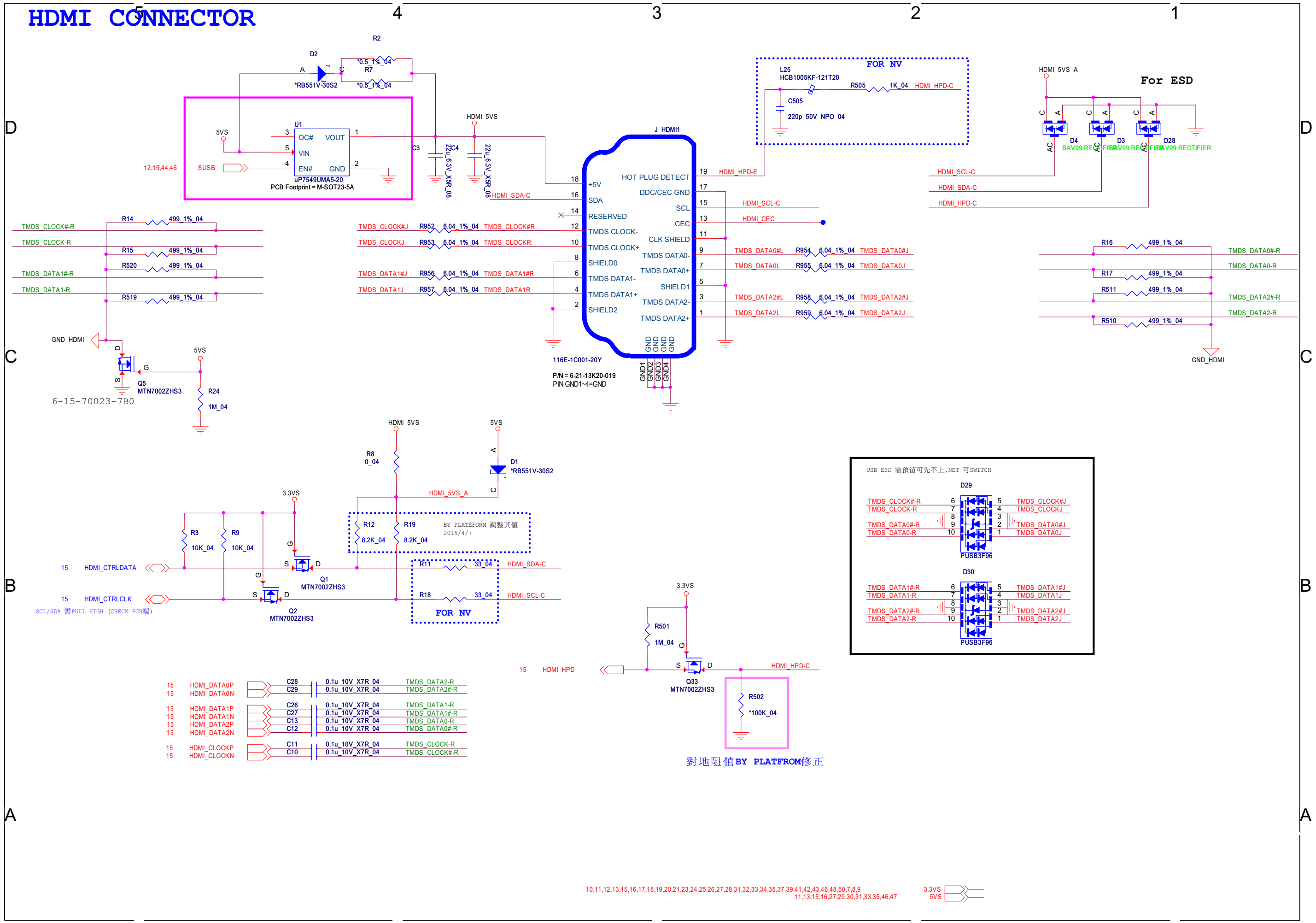
B.Schematic Diagrams

Display Port B

Sheet 13 of 62
Display Port B


DISPLAY PORT B
PLEASE CLOSE TO CONNECTOR
Close to Display PORT
DP_B_HPD
R1 *100K_1%_04
D7 BAV99 RECTIFIER
R6 1K_04
L1 HCB1005KF-121T20
DPB_DHPD_R
3.3VS_FUSE
C6 220p_50V_NPO_04
D31 BAT54CW(lision)
DPB_AUX#_R
DPB_AUX_R
DP_B#3
DP_B3
DP_B#2
DP_B2
DP_B#1
DP_B1
DP_B#0
DP_B0
LP4 LP3 LP2 LP1
*DVI2012F2SF-900T05_08
R34 R33 R32 R31 R30 R29 R28 R27 0_04
inductor for EMI
C24 C23 C22 C21 C19 C18 C17 C16 0.1u_10V_X7R_04
D_DP_B#3 D_DP_B3 D_DP_B#2 D_DP_B2 D_DP_B#1 D_DP_B1 D_DP_B#0 D_DP_B0
D_DP_B#3J D_DP_B3J D_DP_B#2J D_DP_B2J D_DP_B#1J D_DP_B1J D_DP_B#0J D_DP_B0J
HPD AUXN AUXP LANE_3N LANE_3P LANE_2N LANE_2P LANE_1N LANE_1P LANE_0N LANE_0P
PWR PWR_RET GND CEC MODE
SHIELD6 SHIELD5 SHIELD2 SHIELD1 GND4 GND3 GND2 GND1
J_DP2
3V11211-SBAHH-8H
3.3VS
R23 *100K_04
G_DPB_CEC
G_DPB_MODE
R521 1M_04
07/27 Follow 共用change
Q7A Q7B Q6A Q6B MTDK5S6R
3.3VS
C20 0.01u_16V_X7R_04
R525 100K_1%_04
DP_B_AUX#
C540 0.1u_10V_X7R_04
DPB_AUX#_R
R36 *100K_1%_04
C539 0.01u_16V_X7R_04
5VS
R527 10K_04
R524 10K_04
Q35A Q35B MTDK5S6R
DP_B_AUX
C541 0.1u_10V_X7R_04
DPB_AUX_R
R35 *100K_1%_04
R526 100K_1%_04
G_DPB_MODE
USB ESD 番捆留可先不上,NET 可SWITCH
D6 D5 PUSB3F96
3.3VS_FUSE
3.3VS
5VS
10,11,12,14,15,16,17,18,19,20,21,23,24,25,26,27,28,31,32,33,34,35,37,39,41,42,43,46,48,50,7,8,9
11,14,15,16,27,29,30,31,33,35,46,47

HDMI


HDMI CONNECTOR
D2
*RB551V-30S2
R2
R7
*0.5_1%_04
U1
uP7549UMA5-20
PCB Footprint = M-SOT23-5A
OC#
VOUT
VIN
EN#
GND
5VS
SUSB
12,15,44,46
HDMI_5VS
C3
C4
22u_6.3V_X5R_08
J_HDMI1
HOT PLUG DETECT
DDC/CEC GND
SCL
CEC
CLK SHIELD
TMDS DATA0-
TMDS DATA0+
SHIELD1
TMDS DATA2-
TMDS DATA2+
+5V
SDA
RESERVED
TMDS CLOCK-
TMDS CLOCK+
SHIELD0
TMDS DATA1-
TMDS DATA1+
SHIELD2
116E-1C001-20Y
P/N = 6-21-13K20-019
PIN GND1~4=GND
HDMI_HPD-E
HDMI_SCL-C
HDMI_CEC
HDMI_SDA-C
FOR NV
L25
HCB1005KF-121T20
R505
1K_04
HDMI_HPD-C
C505
220p_50V_NPO_04
HDMI_5VS_A
For ESD
D4
D3
D28
BAV99 RECTIFIER
HDMI_SCL-C
HDMI_SDA-C
HDMI_HPD-C
TMDS_CLOCK#-R
TMDS_CLOCK-R
TMDS_DATA1#-R
TMDS_DATA1-R
R14
R15
R520
R519
499_1%_04
R952
R953
R956
R957
6.04_1%_04
TMDS_CLOCK#J
TMDS_CLOCKJ
TMDS_DATA1#J
TMDS_DATA1J
TMDS_CLOCK#R
TMDS_CLOCKR
TMDS_DATA1#R
TMDS_DATA1R
R954
R955
R958
R959
TMDS_DATA0#L
TMDS_DATA0L
TMDS_DATA2#L
TMDS_DATA2L
TMDS_DATA0#J
TMDS_DATA0J
TMDS_DATA2#J
TMDS_DATA2J
R16
R17
R511
R510
TMDS_DATA0#-R
TMDS_DATA0-R
TMDS_DATA2#-R
TMDS_DATA2-R
GND_HDMI
Q5
MTN7002ZHS3
R24
1M_04
6-15-70023-7B0
R8
0_04
D1
*RB551V-30S2
HDMI_5VS_A
3.3VS
R3
R9
10K_04
R12
R19
8.2K_04
BY PLATEFORM 調整其值
2015/4/7
Q1
MTN7002ZHS3
Q2
MTN7002ZHS3
HDMI_CTRLDATA
HDMI_CTRLCLK
SCL/SDA 需PULL HIGH (CHECK PCH端)
R11
R18
33_04
HDMI_SDA-C
HDMI_SCL-C
FOR NV
USB ESD 需預留可先不上,NET 可SWITCH
D29
D30
PUSB3F96
R501
1M_04
Q33
MTN7002ZHS3
HDMI_HPD
HDMI_HPD-C
R502
*100K_04
對地阻值BY PLATFROM修正
HDMI_DATA0P
HDMI_DATA0N
HDMI_DATA1P
HDMI_DATA1N
HDMI_DATA2P
HDMI_DATA2N
HDMI_CLOCKP
HDMI_CLOCKN
C28
C29
C26
C27
C13
C12
C11
C10
0.1u_10V_X7R_04
TMDS_DATA2-R
TMDS_DATA2#-R
TMDS_DATA1-R
TMDS_DATA1#-R
TMDS_DATA0-R
TMDS_DATA0#-R
TMDS_CLOCK-R
TMDS_CLOCK#-R
10,11,12,13,15,16,17,18,19,20,21,23,24,25,26,27,28,31,32,33,34,35,37,39,41,42,43,46,48,50,7,8,9
11,13,15,16,27,29,30,31,33,35,46,47
3.3VS
5VS

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HDMI

MXM PCI-E

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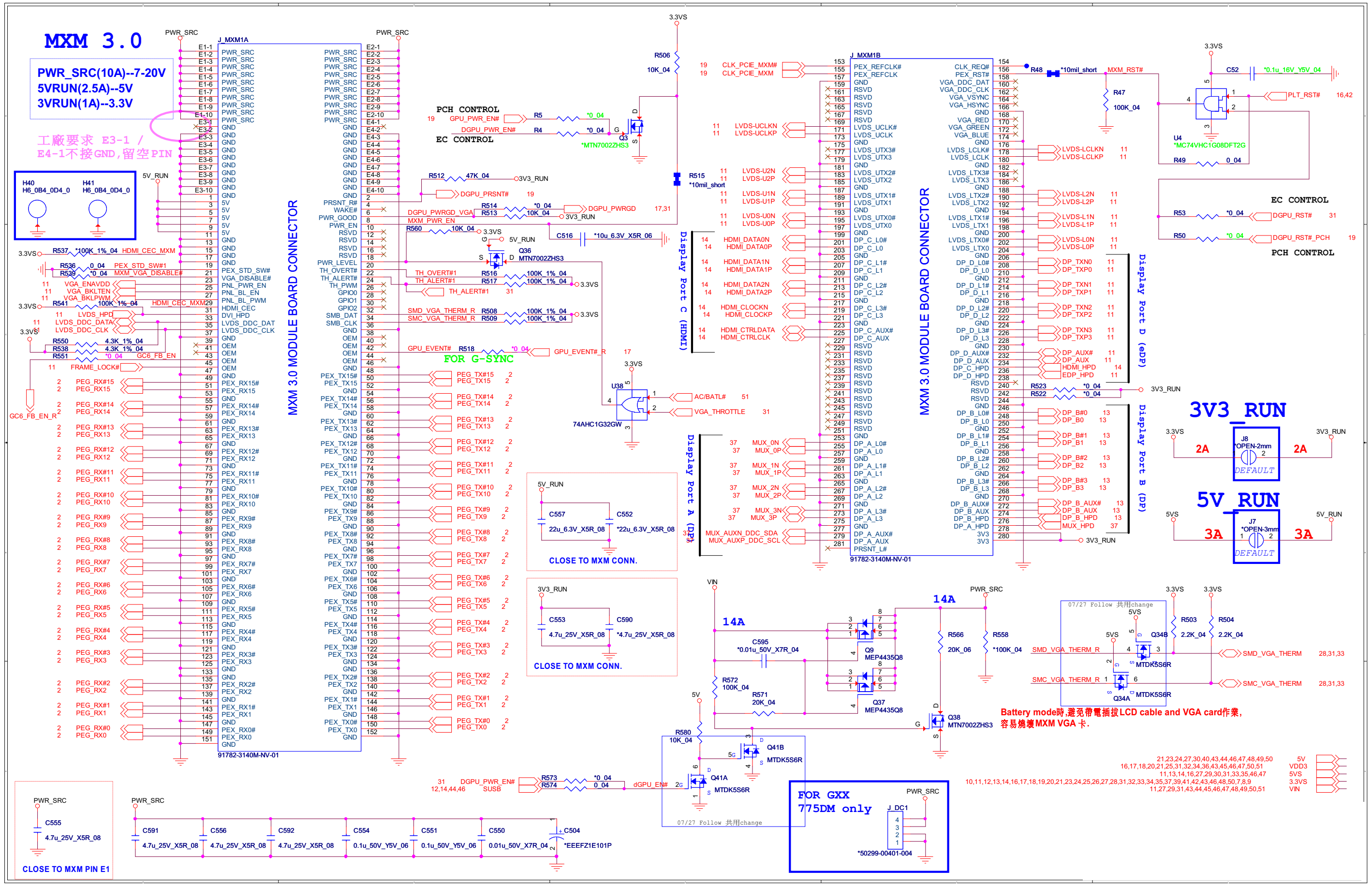
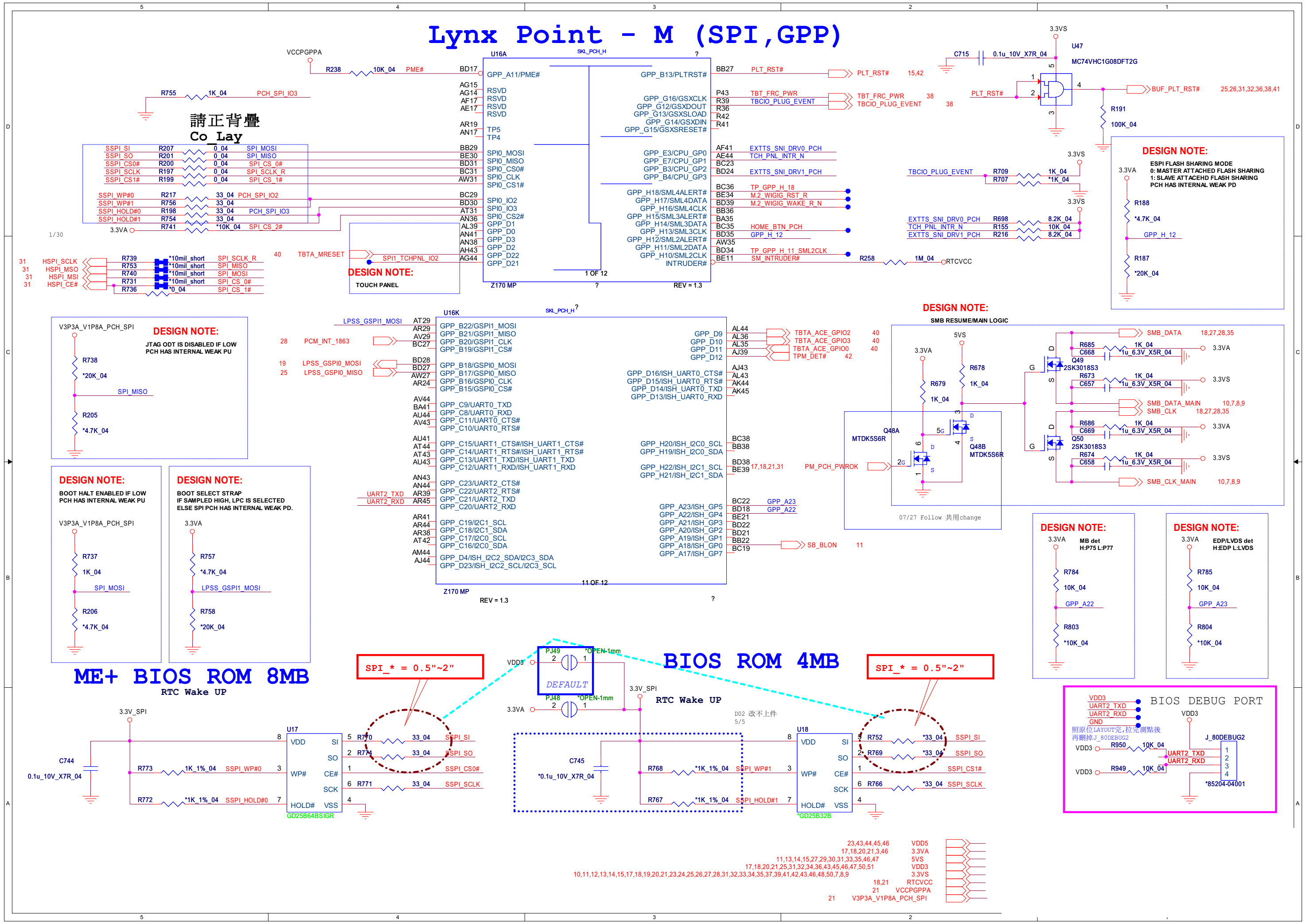
MXM PCI-e


MXM 3.0
PWR_SRC(10A)--7-20V
5VRUN(2.5A)--5V
3VRUN(1A)--3.3V
工廠要求 E3-1 / E4-1不接GND,留空PIN
J_MXM1A
J_MXM1B
MXM 3.0 MODULE BOARD CONNECTOR
91782-3140M-NV-01
PCH CONTROL
EC CONTROL
FOR G-SYNC
Display Port C (HDMI)
Display Port D (eDP)
Display Port A (DP)
Display Port B (DP)
CLOSE TO MXM CONN.
3V3_RUN
5V_RUN
2A
3A
14A
DEFAULT
Battery mode時,避免帶電插拔LCD cable and VGA card作業,
容易燒壞MXM VGA卡.
FOR GXX
775DM only
CLOSE TO MXM PIN E1

Lynix Point 1/7


Lynx Point - M (SPI,GPP)
U16A
SKL_PCH_H
U16K
Z170 MP
REV = 1.3
1 OF 12
11 OF 12
請正背疊
Co Lay
DESIGN NOTE:
TOUCH PANEL
JTAG ODT IS DISABLED IF LOW
PCH HAS INTERNAL WEAK PU
BOOT HALT ENABLED IF LOW
PCH HAS INTERNAL WEAK PU
BOOT SELECT STRAP
IF SAMPLED HIGH, LPC IS SELECTED
ELSE SPI PCH HAS INTERNAL WEAK PD.
ESPI FLASH SHARING MODE
0: MASTER ATTACHED FLASH SHARING
1: SLAVE ATTACEHD FLASH SHARING
PCH HAS INTERNAL WEAK PD
SMB RESUME/MAIN LOGIC
MB det
H:P75 L:P77
EDP/LVDS det
H:EDP L:LVDS
ME+ BIOS ROM 8MB
RTC Wake UP
BIOS ROM 4MB
RTC Wake UP
SPI_* = 0.5"~2"
DEFAULT
BIOS DEBUG PORT
J_80DEBUG2
U17
U18
U47
MC74VHC1G08DFT2G
Q48A
Q48B
MTDK5S6R
Q49
Q50
2SK3018S3
07/27 Follow 共用change

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Lynix Point 1/7

B.Schematic Diagrams

Lynix Point 2/7

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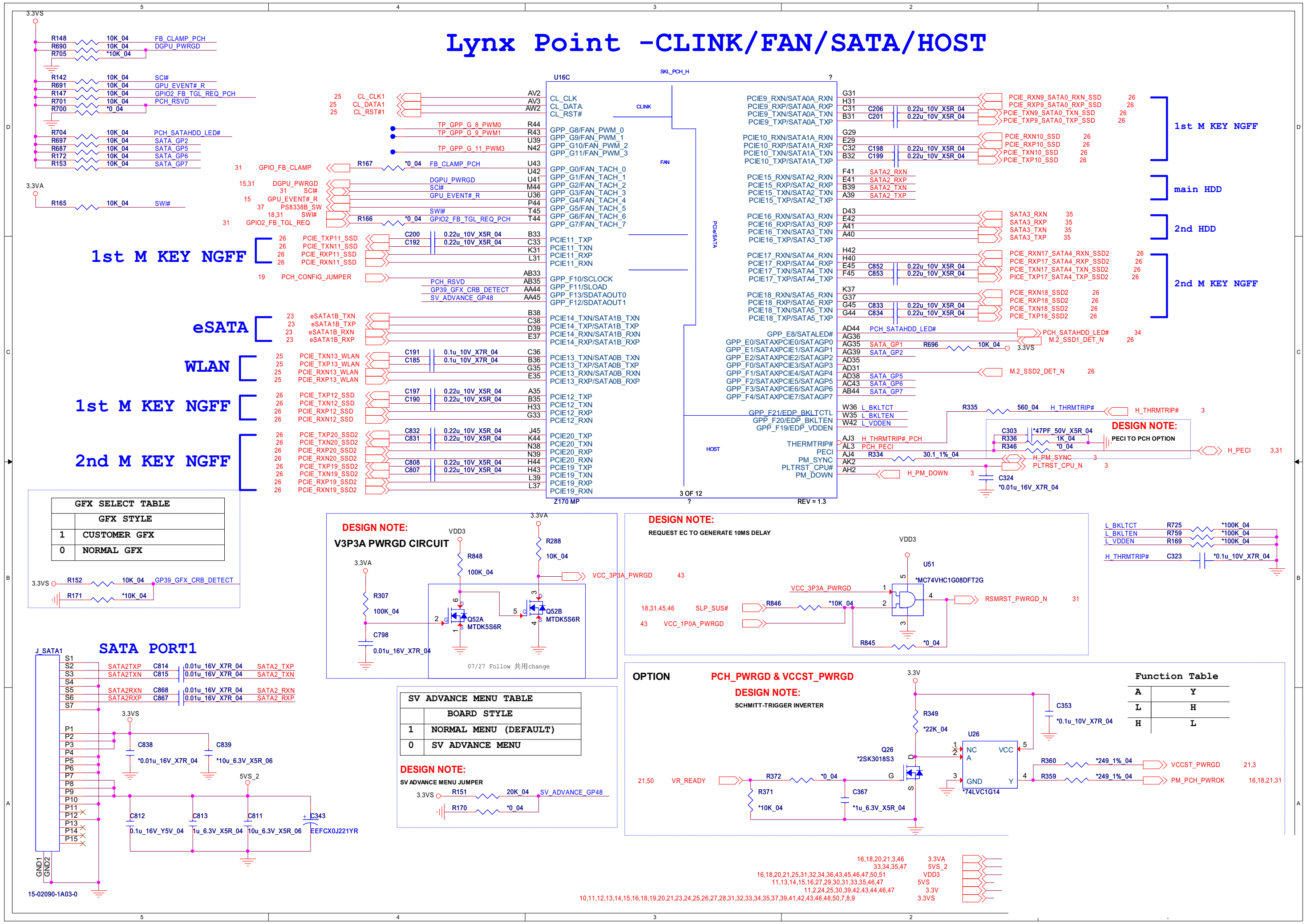
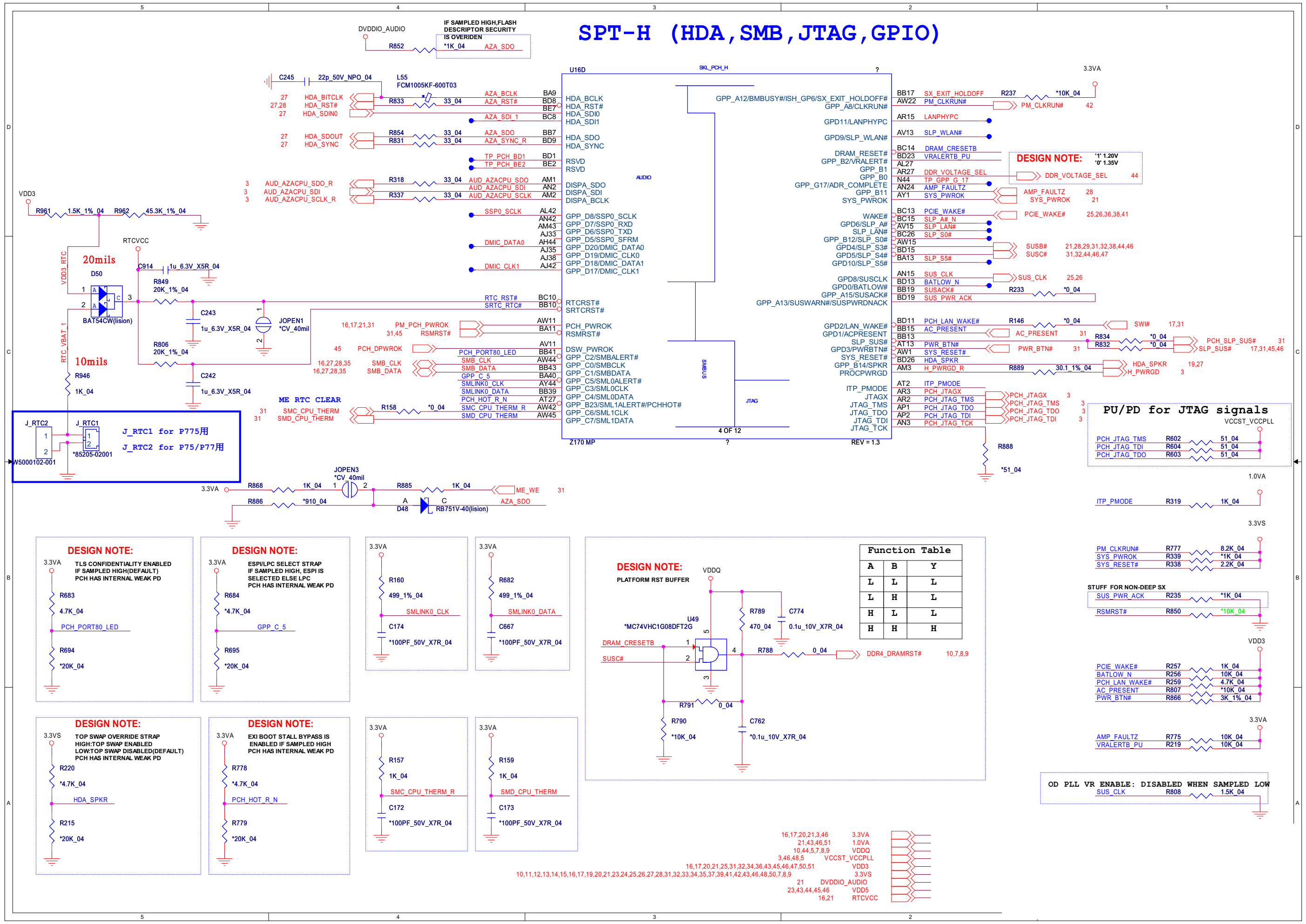
Lynix Point 2/7


Lynx Point -CLINK/FAN/SATA/HOST
U16C
CL_CLK
CL_DATA
CL_RST#
CLINK
FAN
HOST
PCIE/SATA
Z170 MP
3 OF 12
REV = 1.3
1st M KEY NGFF
main HDD
2nd HDD
2nd M KEY NGFF
eSATA
WLAN
1st M KEY NGFF
2nd M KEY NGFF
GFX SELECT TABLE
GFX STYLE
1 CUSTOMER GFX
0 NORMAL GFX
SATA PORT1
J_SATA1
15-02090-1A03-0
DESIGN NOTE:
V3P3A PWRGD CIRCUIT
Q52A MTDK5S6R
Q52B MTDK5S6R
VCC_3P3A_PWRGD
07/27 Follow 共用change
DESIGN NOTE:
REQUEST EC TO GENERATE 10MS DELAY
U51
*MC74VHC1G08DFT2G
RSMRST_PWRGD_N
SV ADVANCE MENU TABLE
BOARD STYLE
1 NORMAL MENU (DEFAULT)
0 SV ADVANCE MENU
DESIGN NOTE:
SV ADVANCE MENU JUMPER
OPTION
PCH_PWRGD & VCCST_PWRGD
DESIGN NOTE:
SCHMITT-TRIGGER INVERTER
U26
*74LVC1G14
Q26
*2SK3018S3
VCCST_PWRGD
PM_PCH_PWROK
VR_READY
Function Table
A Y
L H
H L
DESIGN NOTE:
PECI TO PCH OPTION
H_PECI
H_THRMTRIP#
3.3VS
3.3VA
VDD3
5VS_2
3.3V

Lynix Point 3/7


SPT-H (HDA,SMB,JTAG,GPIO)
U16D
SKL_PCH_H
IF SAMPLED HIGH,FLASH DESCRIPTOR SECURITY IS OVERIDEN
DVDDIO_AUDIO
R852
*1K_04
AZA_SDO
C245
22p_50V_NPO_04
L55
FCM1005KF-600T03
HDA_BITCLK
HDA_RST#
HDA_SDIN0
HDA_SDOUT
HDA_SYNC
HDA_BCLK
HDA_RST#
HDA_SDI0
HDA_SDI1
HDA_SDO
HDA_SYNC
RSVD
AUDIO
DISPA_SDO
DISPA_SDI
DISPA_BCLK
AUD_AZACPU_SDO_R
AUD_AZACPU_SDI
AUD_AZACPU_SCLK_R
SSP0_SCLK
DMIC_DATA0
DMIC_CLK1
GPP_D8/SSP0_SCLK
GPP_D7/SSP0_RXD
GPP_D6/SSP0_TXD
GPP_D5/SSP0_SFRM
GPP_D20/DMIC_DATA0
GPP_D19/DMIC_CLK0
GPP_D18/DMIC_DATA1
GPP_D17/DMIC_CLK1
RTC_RST#
SRTC_RTC#
RTCRST#
SRTCRST#
PM_PCH_PWROK
RSMRST#
PCH_PWROK
RSMRST#
PCH_DPWROK
DSW_PWROK
PCH_PORT80_LED
SMB_CLK
SMB_DATA
GPP_C_5
SMLINK0_CLK
SMLINK0_DATA
PCH_HOT_R_N
SMC_CPU_THERM_R
SMD_CPU_THERM
GPP_C2/SMBALERT#
GPP_C0/SMBCLK
GPP_C1/SMBDATA
GPP_C5/SML0ALERT#
GPP_C3/SML0CLK
GPP_C4/SML0DATA
GPP_B23/SML1ALERT#/PCHHOT#
GPP_C6/SML1CLK
GPP_C7/SML1DATA
Z170 MP
4 OF 12
REV = 1.3
SPI/GPIO
JTAG
GPP_A12/BMBUSY#/ISH_GP6/SX_EXIT_HOLDOFF#
GPP_A8/CLKRUN#
GPD11/LANPHYPC
GPD9/SLP_WLAN#
DRAM_RESET#
GPP_B2/VRALERT#
GPP_B1
GPP_B0
GPP_G17/ADR_COMPLETE
GPP_B11
SYS_PWROK
WAKE#
GPD6/SLP_A#
SLP_LAN#
GPP_B12/SLP_S0#
GPD4/SLP_S3#
GPD5/SLP_S4#
GPD10/SLP_S5#
GPD8/SUSCLK
GPD0/BATLOW#
GPP_A15/SUSACK#
GPP_A13/SUSWARN#/SUSPWRDNACK
GPD2/LAN_WAKE#
GPD1/ACPRESENT
SLP_SUS#
GPD3/PWRBTN#
SYS_RESET#
GPP_B14/SPKR
PROCPWRGD
ITP_PMODE
JTAGX
JTAG_TMS
JTAG_TDO
JTAG_TDI
JTAG_TCK
SX_EXIT_HOLDOFF
PM_CLKRUN#
LANPHYPC
SLP_WLAN#
DRAM_CRESETB
VRALERTB_PU
DDR_VOLTAGE_SEL
TP_GPP_G_17
AMP_FAULTZ
SYS_PWROK
PCIE_WAKE#
SLP_A#_N
SLP_LAN#
SLP_S0#
SUSB#
SUSC#
SLP_S5#
SUS_CLK
BATLOW_N
SUSACK#
SUS_PWR_ACK
PCH_LAN_WAKE#
AC_PRESENT
PWR_BTN#
SYS_RESET#
HDA_SPKR
H_PWRGD_R
ITP_PMODE
PCH_JTAGX
PCH_JTAG_TMS
PCH_JTAG_TDO
PCH_JTAG_TDI
PCH_JTAG_TCK
DESIGN NOTE:
'1' 1.20V
'0' 1.35V
SW#
PCH_SLP_SUS#
SLP_SUS#
HDA_SPKR
H_PWRGD
3.3VA
VDD3
R961
1.5K_1%_04
R962
45.3K_1%_04
RTCVCC
20mils
10mils
D50
BAT54CW(lision)
C914
1u_6.3V_X5R_04
R849
20K_1%_04
C243
1u_6.3V_X5R_04
JOPEN1
*CV_40mil
R806
20K_1%_04
C242
R946
1K_04
ME RTC CLEAR
J_RTC2
J_RTC1
*85205-02001
W5000102-001
J_RTC1 for P775用
J_RTC2 for P75/P77用
JOPEN3
*CV_40mil
R868
1K_04
R885
ME_WE
R886
*910_04
D48
RB751V-40(lision)
AZA_SDO
PU/PD for JTAG signals
VCCST_VCCPLL
PCH_JTAG_TMS
PCH_JTAG_TDI
PCH_JTAG_TDO
R602
R604
R603
51_04
R888
*51_04
1.0VA
ITP_PMODE
R319
1K_04
3.3VS
PM_CLKRUN#
SYS_PWROK
SYS_RESET#
R777
R339
R338
8.2K_04
*1K_04
2.2K_04
STUFF FOR NON-DEEP SX
SUS_PWR_ACK
R235
*1K_04
RSMRST#
R850
*10K_04
PCIE_WAKE#
BATLOW_N
PCH_LAN_WAKE#
AC_PRESENT
PWR_BTN#
R257
R256
R259
R807
R866
1K_04
10K_04
4.7K_04
*10K_04
3K_1%_04
AMP_FAULTZ
VRALERTB_PU
R775
R219
10K_04
OD PLL VR ENABLE: DISABLED WHEN SAMPLED LOW
SUS_CLK
R808
1.5K_04
DESIGN NOTE:
TLS CONFIDENTIALITY ENABLED
IF SAMPLED HIGH(DEFAULT)
PCH HAS INTERNAL WEAK PD
R683
4.7K_04
PCH_PORT80_LED
R694
*20K_04
DESIGN NOTE:
ESPI/LPC SELECT STRAP
IF SAMPLED HIGH, ESPI IS SELECTED ELSE LPC
PCH HAS INTERNAL WEAK PD
R684
*4.7K_04
GPP_C_5
R695
*20K_04
R160
499_1%_04
SMLINK0_CLK
C174
*100PF_50V_X7R_04
R682
499_1%_04
SMLINK0_DATA
C667
*100PF_50V_X7R_04
DESIGN NOTE:
TOP SWAP OVERRIDE STRAP
HIGH:TOP SWAP ENABLED
LOW:TOP SWAP DISABLED(DEFAULT)
PCH HAS INTERNAL WEAK PD
R220
*4.7K_04
HDA_SPKR
R215
*20K_04
DESIGN NOTE:
EXI BOOT STALL BYPASS IS ENABLED IF SAMPLED HIGH
PCH HAS INTERNAL WEAK PD
R778
*4.7K_04
PCH_HOT_R_N
R779
*20K_04
R157
1K_04
SMC_CPU_THERM_R
C172
*100PF_50V_X7R_04
R159
1K_04
SMD_CPU_THERM
C173
*100PF_50V_X7R_04
DESIGN NOTE:
PLATFORM RST BUFFER
VDDQ
U49
*MC74VHC1G08DFT2G
DRAM_CRESETB
SUSC#
R789
470_04
C774
0.1u_10V_X7R_04
R788
0_04
DDR4_DRAMRST#
10,7,8,9
R791
0_04
R790
*10K_04
C762
*0.1u_10V_X7R_04
Function Table
3.3VA
1.0VA
VDDQ
VCCST_VCCPLL
VDD3
3.3VS
DVDDIO_AUDIO
VDD5
RTCVCC

A	B	Y
L	L	L
L	H	L
H	L	L
H	H	H

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Lynix Point 4/7

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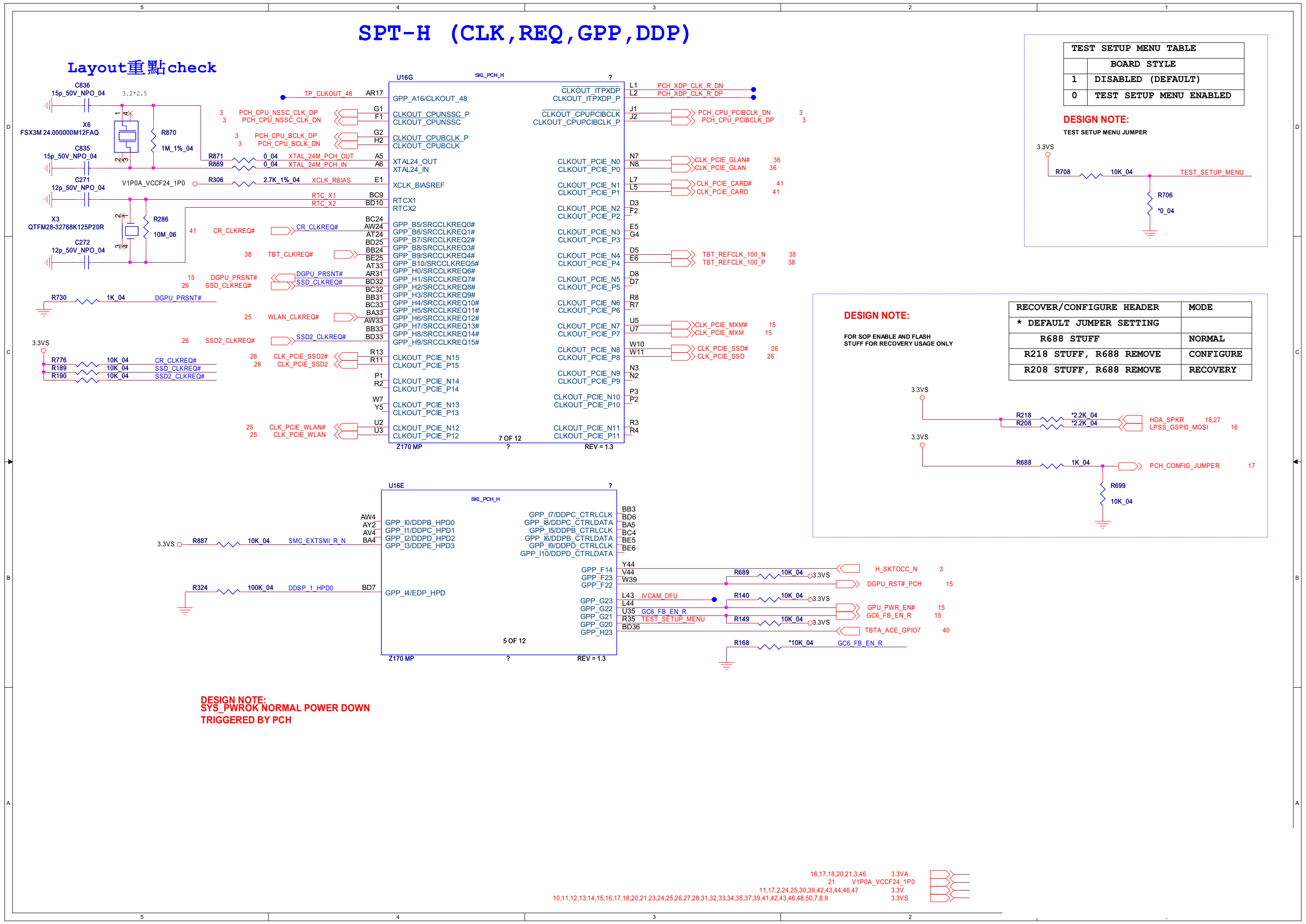
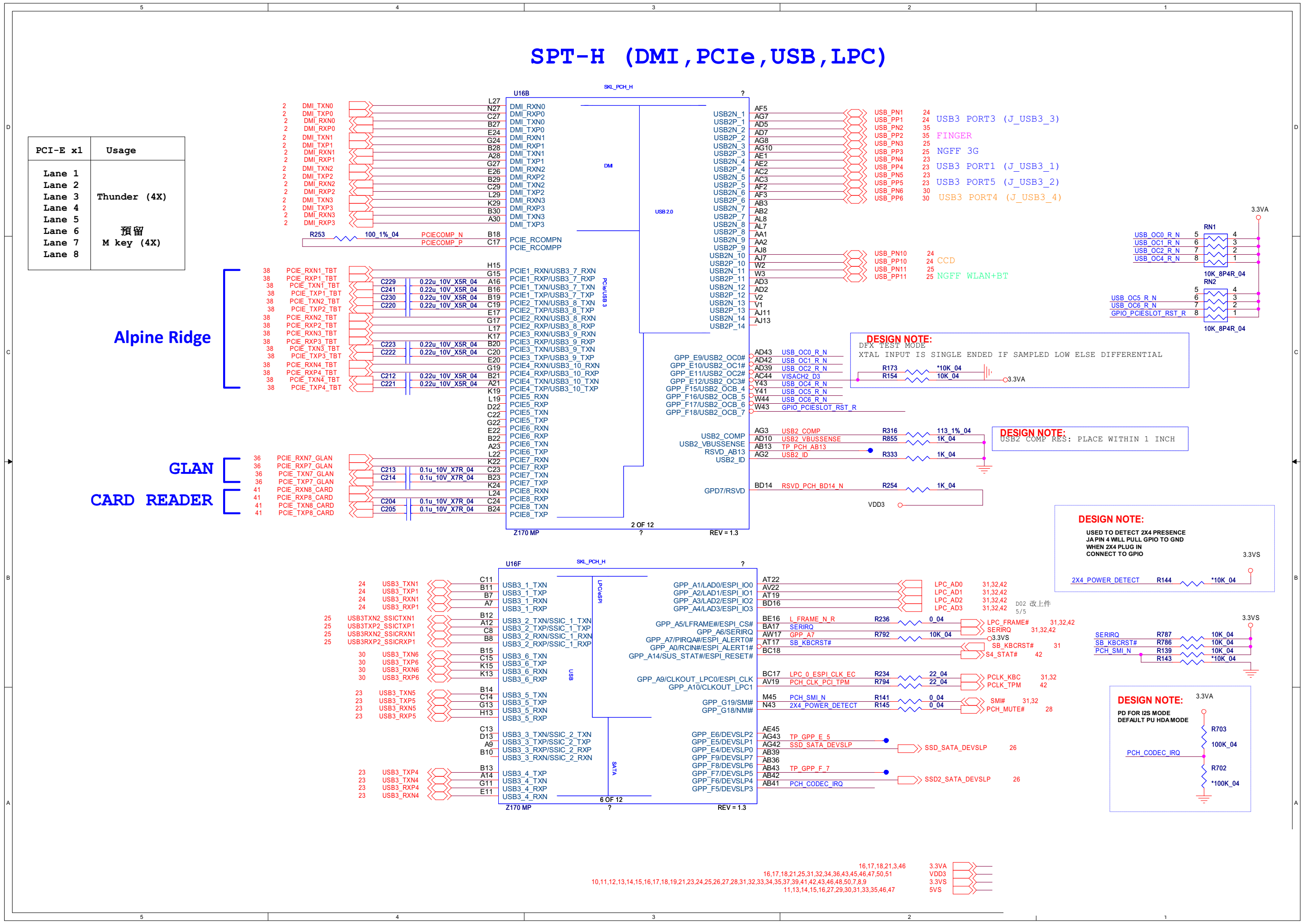
Lynix Point 4/7


SPT-H (CLK,REQ,GPP,DDP)
Layout重點check
U16G
SKL_PCH_H
GPP_A16/CLKOUT_48
CLKOUT_CPUNSSC_P
CLKOUT_CPUNSSC
CLKOUT_CPUBCLK_P
CLKOUT_CPUBCLK
XTAL24_OUT
XTAL24_IN
XCLK_BIASREF
RTCX1
RTCX2
CLKOUT_ITPXDP
CLKOUT_ITPXDP_P
CLKOUT_CPUPCIBCLK
CLKOUT_CPUPCIBCLK_P
PCH_XDP_CLK_R_DN
PCH_XDP_CLK_R_DP
PCH_CPU_PCIBCLK_DN
PCH_CPU_PCIBCLK_DP
CLK_PCIE_GLAN#
CLK_PCIE_GLAN
CLK_PCIE_CARD#
CLK_PCIE_CARD
TBT_REFCLK_100_N
TBT_REFCLK_100_P
CLK_PCIE_MXM#
CLK_PCIE_MXM
CLK_PCIE_SSD#
CLK_PCIE_SSD
CLK_PCIE_SSD2#
CLK_PCIE_SSD2
CLK_PCIE_WLAN#
CLK_PCIE_WLAN
CR_CLKREQ#
TBT_CLKREQ#
DGPU_PRSNT#
SSD_CLKREQ#
WLAN_CLKREQ#
SSD2_CLKREQ#
TP_CLKOUT_48
PCH_CPU_NSSC_CLK_DP
PCH_CPU_NSSC_CLK_DN
PCH_CPU_BCLK_DP
PCH_CPU_BCLK_DN
XTAL_24M_PCH_OUT
XTAL_24M_PCH_IN
XCLK_RBIAS
RTC_X1
RTC_X2
V1P0A_VCCF24_1P0
X6 FSX3M 24.000000M12FAQ
X3 QTFM28-32768K125P20R
C836 15p_50V_NPO_04
C835 15p_50V_NPO_04
C271 12p_50V_NPO_04
C272 12p_50V_NPO_04
R870 1M_1%_04
R286 10M_06
R871 0_04
R869 0_04
R306 2.7K_1%_04
R730 1K_04
R776 10K_04
R189 10K_04
R190 10K_04
3.3VS
7 OF 12
Z170 MP
REV = 1.3
U16E
GPP_I0/DDPB_HPD0
GPP_I1/DDPC_HPD1
GPP_I2/DDPD_HPD2
GPP_I3/DDPE_HPD3
GPP_I4/EDP_HPD
GPP_I7/DDPC_CTRLCLK
GPP_I8/DDPC_CTRLDATA
GPP_I5/DDPB_CTRLCLK
GPP_I6/DDPB_CTRLDATA
GPP_I9/DDPD_CTRLCLK
GPP_I10/DDPD_CTRLDATA
GPP_F14
GPP_F23
GPP_F22
GPP_G23
GPP_G22
GPP_G21
GPP_G20
GPP_H23
R887 10K_04
SMC_EXTSMI_R_N
R324 100K_04
DDSP_1_HPD0
R689 10K_04
R140 10K_04
R149 10K_04
R168 *10K_04
H_SKTOCC_N
DGPU_RST#_PCH
IVCAM_DFU
GC6_FB_EN_R
TEST_SETUP_MENU
GPU_PWR_EN#
TBTA_ACE_GPIO7
5 OF 12
DESIGN NOTE:
SYS_PWROK NORMAL POWER DOWN
TRIGGERED BY PCH
DESIGN NOTE:
TEST SETUP MENU JUMPER
R708 10K_04
R706 *0_04
DESIGN NOTE:
FOR SOP ENABLE AND FLASH
STUFF FOR RECOVERY USAGE ONLY
R218 *2.2K_04
R208 *2.2K_04
HDA_SPKR 18,27
LPSS_GSPI0_MOSI 16
R688 1K_04
R699 10K_04
PCH_CONFIG_JUMPER 17
3.3VA
V1P0A_VCCF24_1P0
3.3V
3.3VS

TEST SETUP MENU TABLE	
	BOARD STYLE
1	DISABLED (DEFAULT)
0	TEST SETUP MENU ENABLED

RECOVER/CONFIGURE HEADER	MODE
* DEFAULT JUMPER SETTING	
R688 STUFF	NORMAL
R218 STUFF, R688 REMOVE	CONFIGURE
R208 STUFF, R688 REMOVE	RECOVERY

Lynix Point 5/7


SPT-H (DMI,PCIe,USB,LPC)
PCI-E x1
Usage
Lane 1
Lane 2
Lane 3
Lane 4
Lane 5
Lane 6
Lane 7
Lane 8
Thunder (4X)
預留
M key (4X)
Alpine Ridge
GLAN
CARD READER
U16B
SKL_PCH_H
DMI
USB 2.0
USB3 PORT3 (J_USB3_3)
FINGER
NGFF 3G
USB3 PORT1 (J_USB3_1)
USB3 PORT5 (J_USB3_2)
USB3 PORT4 (J_USB3_4)
CCD
NGFF WLAN+BT
RN1
10K_8P4R_04
RN2
10K_8P4R_04
3.3VA
DESIGN NOTE:
DFX TEST MODE
XTAL INPUT IS SINGLE ENDED IF SAMPLED LOW ELSE DIFFERENTIAL
DESIGN NOTE:
USB2 COMP RES: PLACE WITHIN 1 INCH
2 OF 12
Z170 MP
REV = 1.3
U16F
SKL_PCH_H
DESIGN NOTE:
USED TO DETECT 2X4 PRESENCE
JAPIN 4 WILL PULL GPIO TO GND
WHEN 2X4 PLUG IN
CONNECT TO GPIO
2X4_POWER_DETECT
3.3VS
DESIGN NOTE:
PD FOR I2S MODE
DEFAULT PU HDA MODE
PCH_CODEC_IRQ
SSD_SATA_DEVSLP
SSD2_SATA_DEVSLP
6 OF 12
Z170 MP
REV = 1.3
3.3VA
VDD3
3.3VS
5VS

Sheet 20 of 62
Lynix Point 5/7

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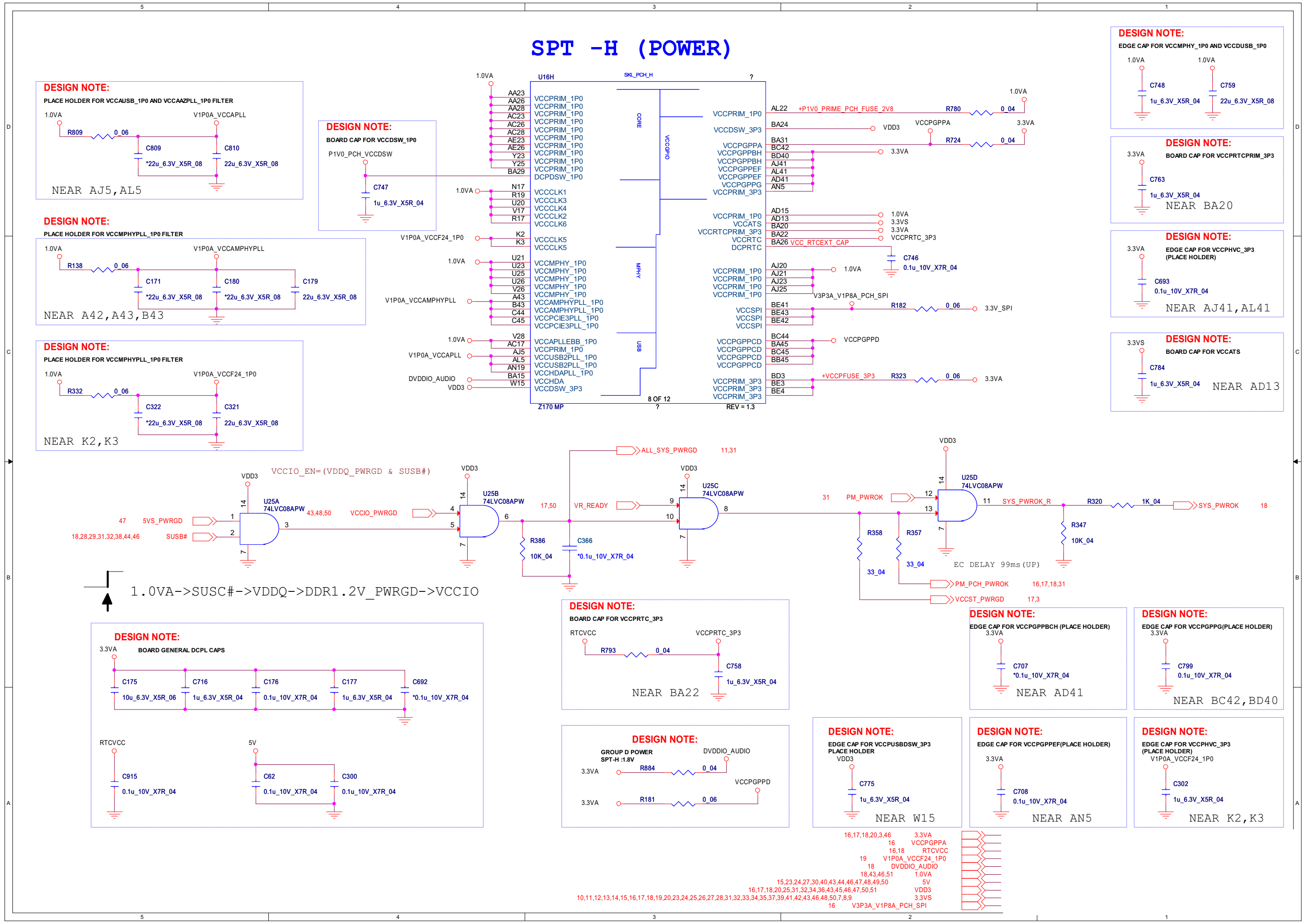
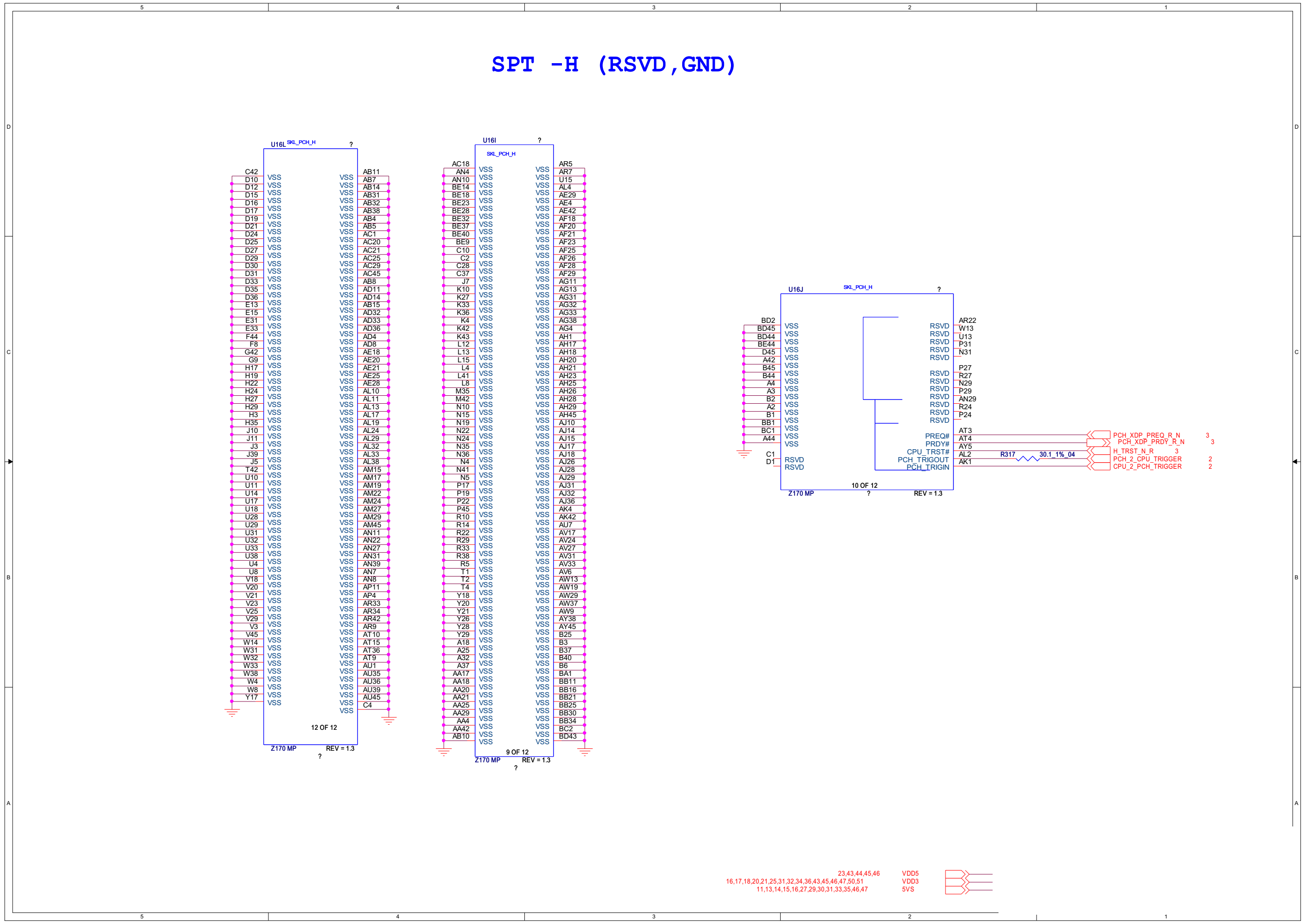
Sheet 21 of 62
Lynix Point 6/7


SPT -H (POWER)
U16H
SKL_PCH_H
DESIGN NOTE:
PLACE HOLDER FOR VCCAUSB_1P0 AND VCCAAZPLL_1P0 FILTER
NEAR AJ5,AL5
DESIGN NOTE:
BOARD CAP FOR VCCDSW_1P0
P1V0_PCH_VCCDSW
DESIGN NOTE:
PLACE HOLDER FOR VCCMPHYPLL_1P0 FILTER
V1P0A_VCCAMPHYPLL
NEAR A42,A43,B43
DESIGN NOTE:
PLACE HOLDER FOR VCCMPHYPLL_1P0 FILTER
V1P0A_VCCF24_1P0
NEAR K2,K3
VCCPRIM_1P0
DCPDSW_1P0
VCCCLK1
VCCCLK3
VCCCLK4
VCCCLK2
VCCCLK6
VCCCLK5
VCCMPHY_1P0
VCCAMPHYPLL_1P0
VCCPCIE3PLL_1P0
VCCAPLLEBB_1P0
VCCUSB2PLL_1P0
VCCHDAPLL_1P0
VCCHDA
VCCDSW_3P3
VCCDSW_3P3
VCCPGPPA
VCCPGPPBH
VCCPGPPEF
VCCPGPPG
VCCPRIM_3P3
VCCATS
VCCRTCPRIM_3P3
VCCRTC
DCPRTC
VCCSPI
VCCPGPPCD
8 OF 12
Z170 MP
REV = 1.3
+P1V0_PRIME_PCH_FUSE_2V8
VCC_RTCEXT_CAP
V3P3A_V1P8A_PCH_SPI
+VCCPFUSE_3P3
DESIGN NOTE:
EDGE CAP FOR VCCMPHY_1P0 AND VCCDUSB_1P0
DESIGN NOTE:
BOARD CAP FOR VCCPRTCPRIM_3P3
NEAR BA20
DESIGN NOTE:
EDGE CAP FOR VCCPHVC_3P3 (PLACE HOLDER)
NEAR AJ41,AL41
DESIGN NOTE:
BOARD CAP FOR VCCATS
NEAR AD13
VCCIO_EN=(VDDQ_PWRGD & SUSB#)
U25A 74LVC08APW
U25B 74LVC08APW
U25C 74LVC08APW
U25D 74LVC08APW
5VS_PWRGD
SUSB#
VCCIO_PWRGD
VR_READY
ALL_SYS_PWRGD
PM_PWROK
SYS_PWROK_R
SYS_PWROK
PM_PCH_PWROK
VCCST_PWRGD
EC DELAY 99ms(UP)
1.0VA->SUSC#->VDDQ->DDR1.2V_PWRGD->VCCIO
DESIGN NOTE:
BOARD GENERAL DCPL CAPS
DESIGN NOTE:
BOARD CAP FOR VCCPRTC_3P3
NEAR BA22
DESIGN NOTE:
EDGE CAP FOR VCCPGPPBCH (PLACE HOLDER)
NEAR AD41
DESIGN NOTE:
EDGE CAP FOR VCCPGPPG(PLACE HOLDER)
NEAR BC42,BD40
DESIGN NOTE:
GROUP D POWER
SPT-H :1.8V
DESIGN NOTE:
EDGE CAP FOR VCCPUSBDSW_3P3
PLACE HOLDER
NEAR W15
DESIGN NOTE:
EDGE CAP FOR VCCPGPPEF(PLACE HOLDER)
NEAR AN5
DESIGN NOTE:
EDGE CAP FOR VCCPHVC_3P3
(PLACE HOLDER)
NEAR K2,K3
3.3VA
VCCPGPPA
RTCVCC
V1P0A_VCCF24_1P0
DVDDIO_AUDIO
1.0VA
5V
VDD3
3.3VS
V3P3A_V1P8A_PCH_SPI

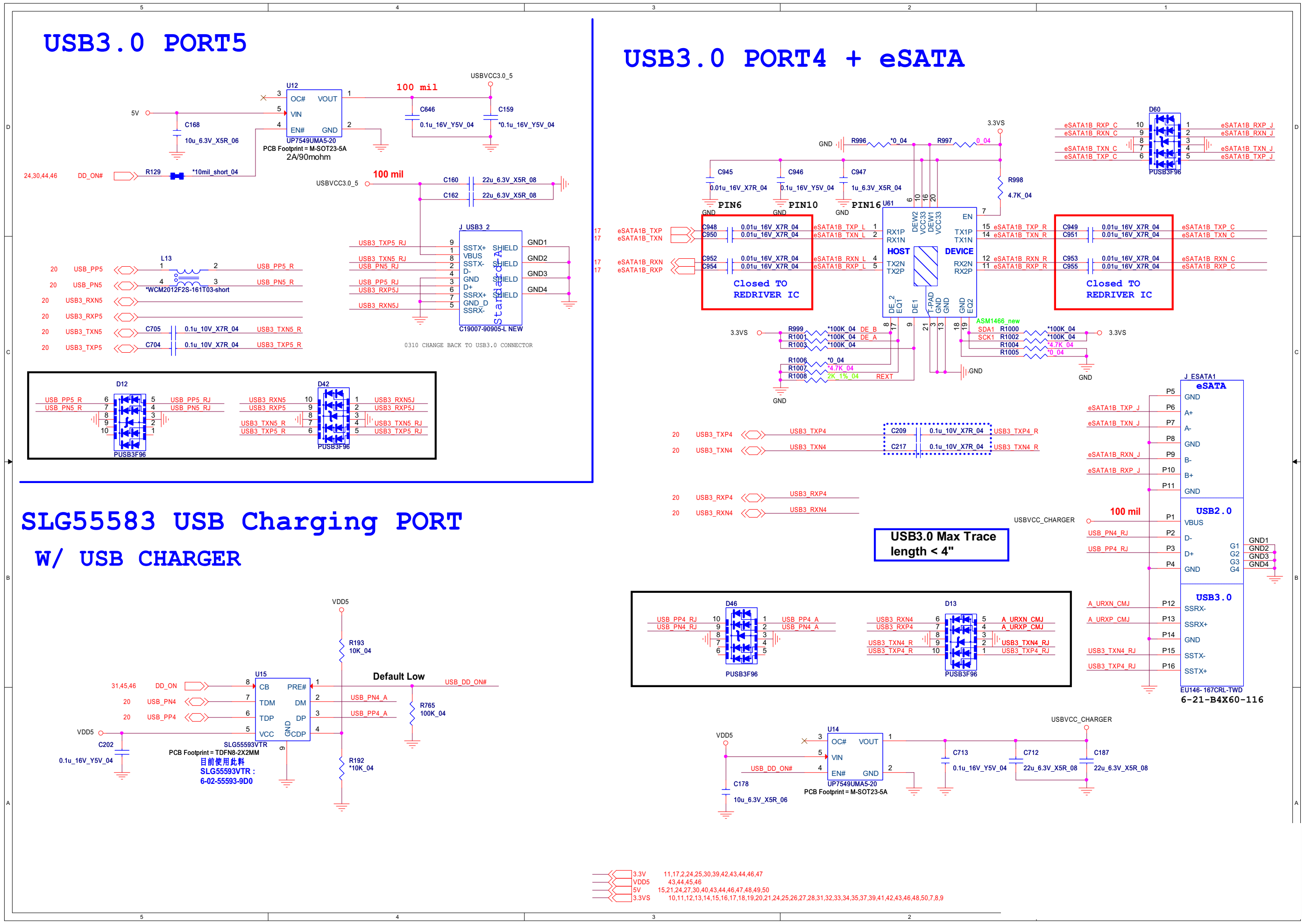
Lynix Point 7/7


SPT -H (RSVD,GND)
U16L
SKL_PCH_H
12 OF 12
Z170 MP
REV = 1.3
U16I
9 OF 12
U16J
10 OF 12
VSS
RSVD
PREQ#
PRDY#
CPU_TRST#
PCH_TRIGOUT
PCH_TRIGIN
R317
30.1_1%_04
PCH_XDP_PREQ_R_N
PCH_XDP_PRDY_R_N
H_TRST_N_R
PCH_2_CPU_TRIGGER
CPU_2_PCH_TRIGGER
VDD5
VDD3
5VS

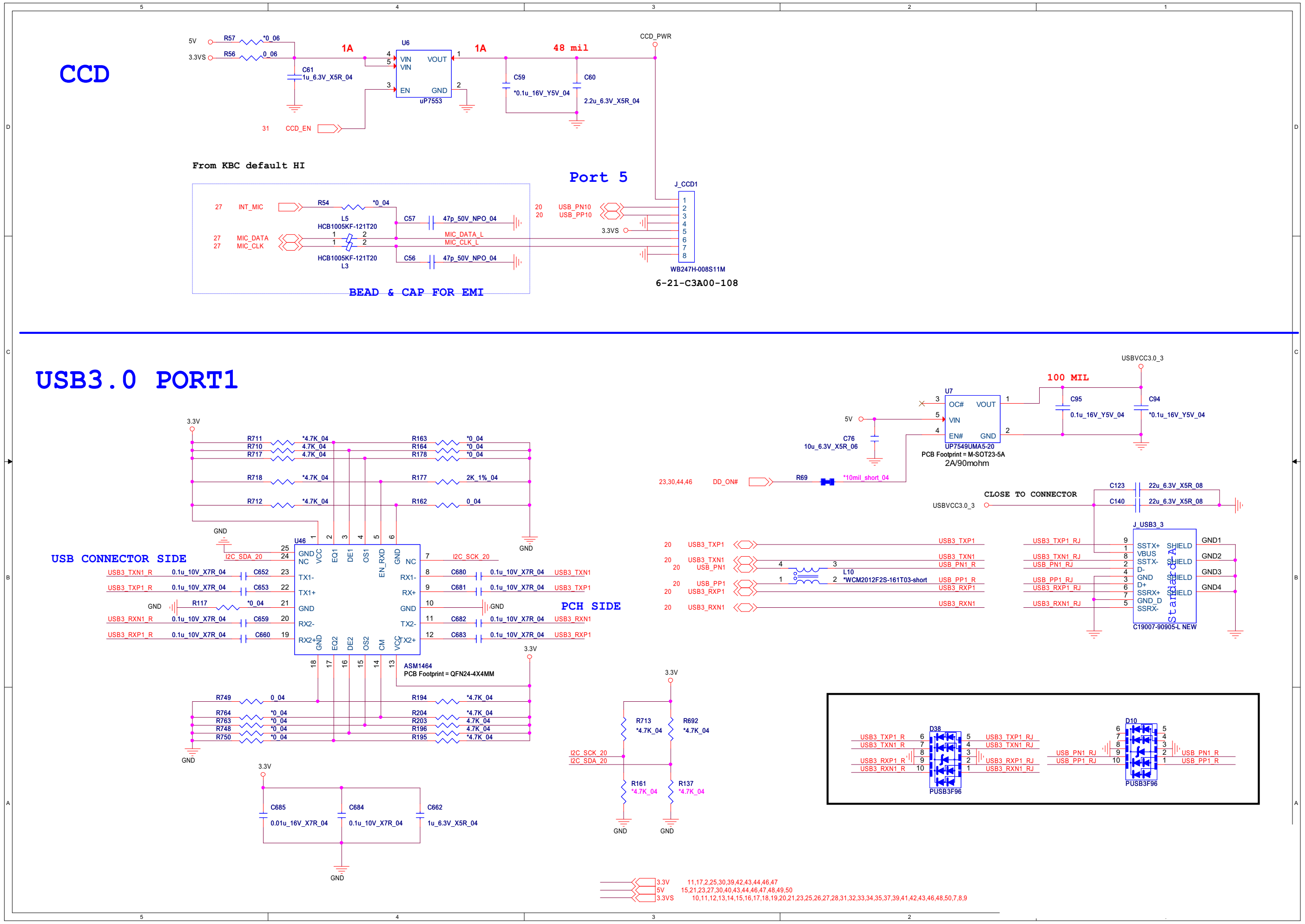
Sheet 22 of 62
Lynix Point 7/7

USB + eSATA, USB Charging

Sheet 23 of 62
USB + eSATA, USB Charging


USB3.0 PORT5
USB3.0 PORT4 + eSATA
SLG55583 USB Charging PORT
W/ USB CHARGER
U12
UP7549UMA5-20
PCB Footprint = M-SOT23-5A
2A/90mohm
100 mil
J_USB3_2
C19007-90905-L NEW
0310 CHANGE BACK TO USB3.0 CONNECTOR
D12
D42
PUSB3F96
U61
HOST
DEVICE
Closed TO REDRIVER IC
Closed TO REDRIVER IC
PIN6
PIN10
PIN16
D60
J_ESATA1
eSATA
USB2.0
USB3.0
EU146-167CRL-TWD
6-21-B4X60-116
USB3.0 Max Trace length < 4"
D46
D13
U15
SLG55593VTR
PCB Footprint = TDFN8-2X2MM
Default Low
U14
UP7549UMA5-20
PCB Footprint = M-SOT23-5A
3.3V
VDD5
5V
3.3VS

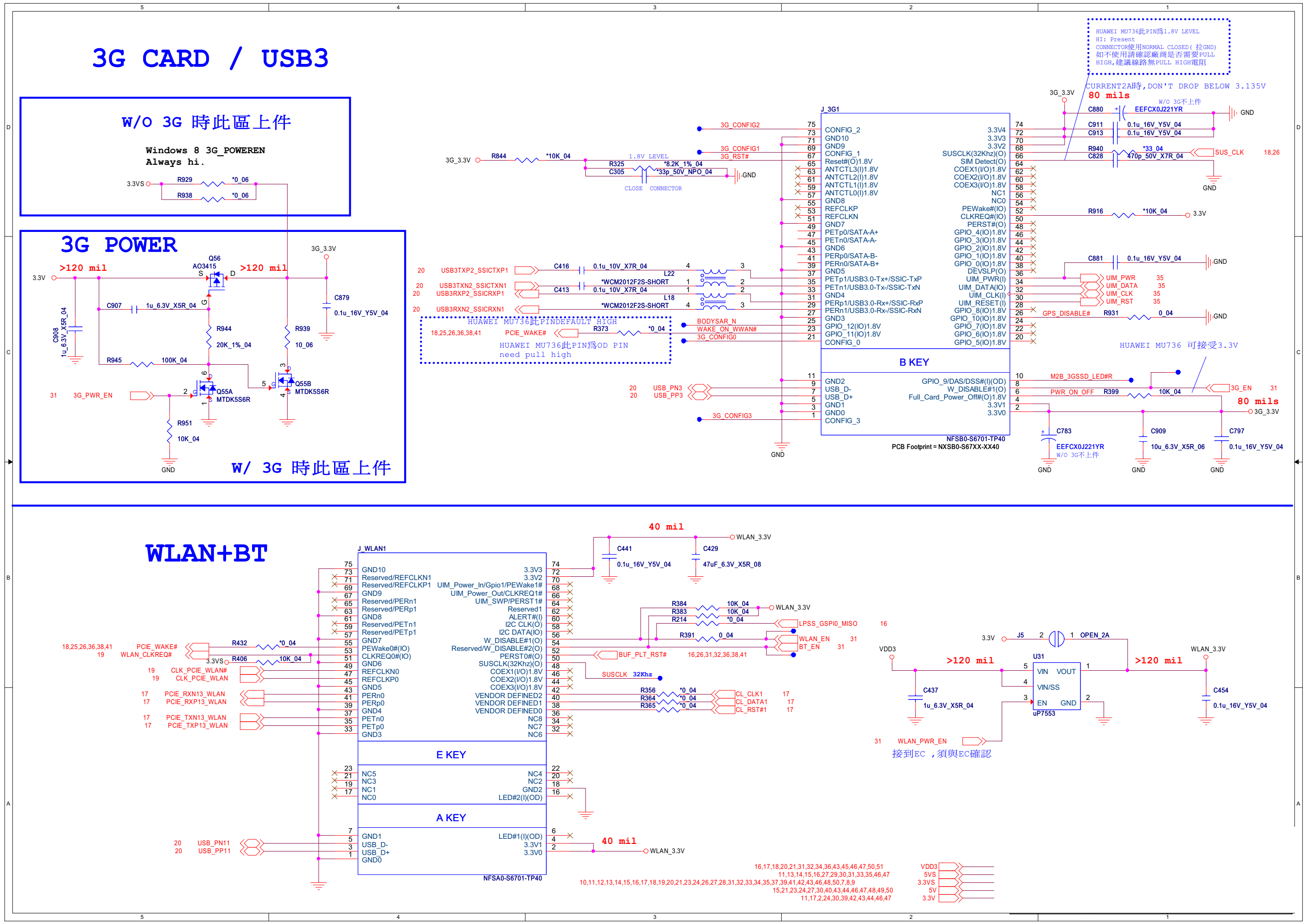
CCD, USB Port3


CCD
USB3.0 PORT1
5V
3.3VS
R57
R56
C61
1u_6.3V_X5R_04
U6
VIN
VOUT
EN
GND
uP7553
1A
48 mil
CCD_PWR
C59
*0.1u_16V_Y5V_04
C60
2.2u_6.3V_X5R_04
CCD_EN
From KBC default HI
Port 5
J_CCD1
R54
INT_MIC
L5
HCB1005KF-121T20
C57
47p_50V_NPO_04
MIC_DATA
MIC_CLK
USB_PN10
USB_PP10
3.3VS
MIC_DATA_L
MIC_CLK_L
L3
C56
WB247H-008S11M
6-21-C3A00-108
BEAD & CAP FOR EMI
USBVCC3.0_3
100 MIL
U7
OC#
VOUT
VIN
EN#
GND
UP7549UMA5-20
PCB Footprint = M-SOT23-5A
2A/90mohm
C95
0.1u_16V_Y5V_04
C94
*0.1u_16V_Y5V_04
C76
10u_6.3V_X5R_06
DD_ON#
R69
*10mil_short_04
CLOSE TO CONNECTOR
C123
22u_6.3V_X5R_08
C140
22u_6.3V_X5R_08
J_USB3_3
SSTX+
VBUS
SSTX-
D-
GND
D+
SSRX+
GND_D
SSRX-
SHIELD
Standard-A
GND1
GND2
GND3
GND4
C19007-90905-L NEW
USB3_TXP1
USB3_TXN1
USB_PN1
USB_PP1
USB3_RXP1
USB3_RXN1
L10
*WCM2012F2S-161T03-short
USB CONNECTOR SIDE
PCH SIDE
U46
ASM1464
PCB Footprint = QFN24-4X4MM
I2C_SDA_20
I2C_SCK_20
USB3_TXN1_R
USB3_TXP1_R
USB3_RXN1_R
USB3_RXP1_R
C652
C653
C659
C660
C680
C681
C682
C683
0.1u_10V_X7R_04
R117
R711
R710
R717
R718
R712
R163
R164
R178
R177
R162
R749
R764
R763
R748
R750
R194
R204
R203
R196
R195
*4.7K_04
4.7K_04
*0_04
0_04
2K_1%_04
R713
R692
R161
R137
C685
0.01u_16V_X7R_04
C684
0.1u_10V_X7R_04
C662
1u_6.3V_X5R_04
D38
D10
PUSB3F96
USB3_TXP1_RJ
USB3_TXN1_RJ
USB3_RXP1_RJ
USB3_RXN1_RJ
USB_PN1_RJ
USB_PP1_RJ
USB_PN1_R
USB_PP1_R
3.3V
5V
GND

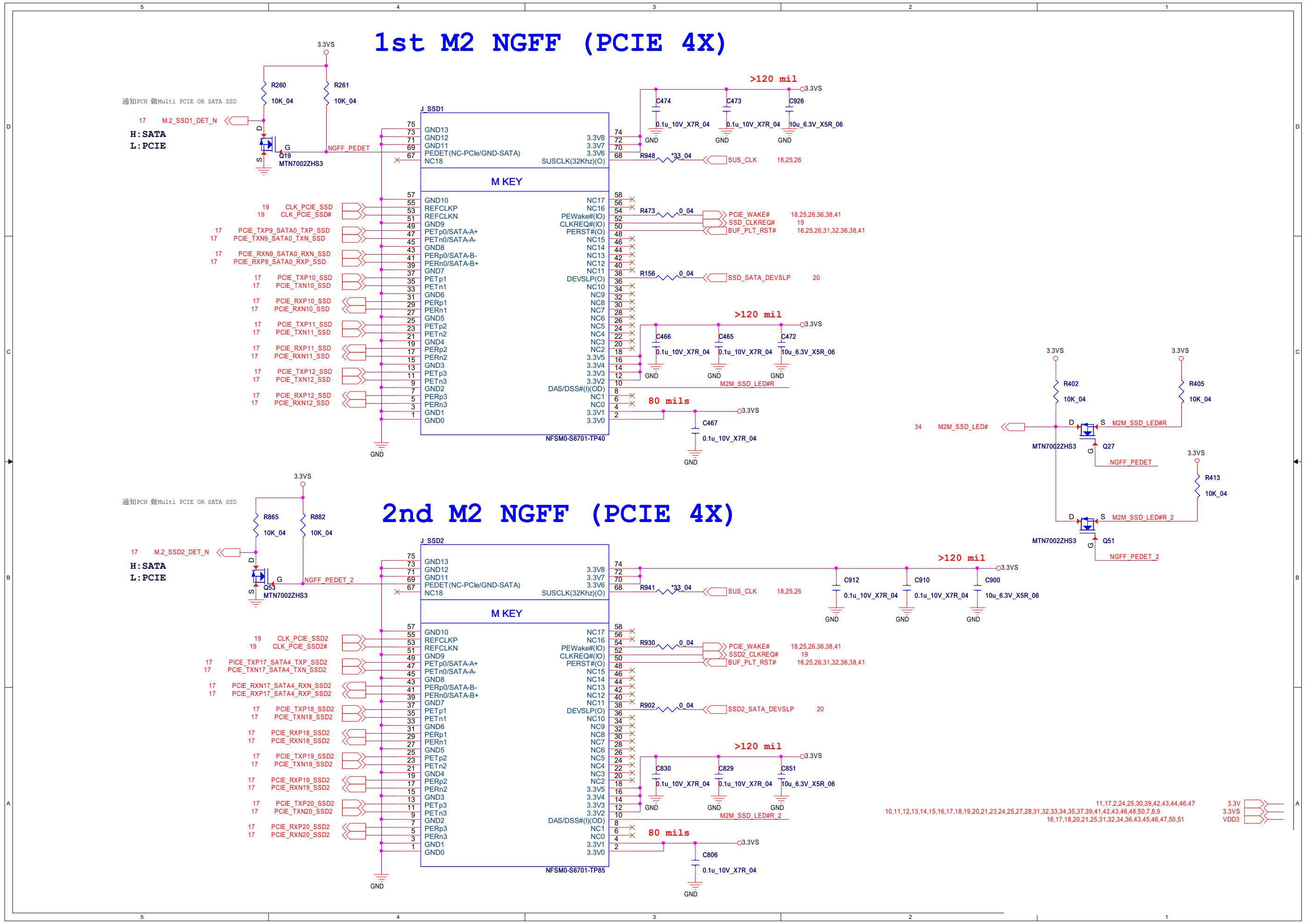
Sheet 24 of 62
CCD, USB Port3

M.2 3G+USB & WLAN+BT

Sheet 25 of 62
M.2 3G+USB &
WLAN+BT


3G CARD / USB3
W/O 3G 時此區上件
Windows 8 3G_POWEREN
Always hi.
3.3VS
R929 *0_06
R938 *0_06
3G POWER
3.3V
>120 mil
Q56
AO3415
S
D
G
>120 mil
3G_3.3V
C879
0.1u_16V_Y5V_04
C907 1u_6.3V_X5R_04
C908 1u_6.3V_X5R_04
R944 20K_1%_04
R939 10_06
R945 100K_04
31 3G_PWR_EN
Q55A MTDK5S6R
Q55B MTDK5S6R
R951 10K_04
GND
W/ 3G 時此區上件
3G_3.3V R844 *10K_04
1.8V LEVEL
R325 *8.2K_1%_04
C305 *33p_50V_NPO_04
CLOSE CONNECTOR
GND
3G_CONFIG2
3G_CONFIG1
3G_RST#
20 USB3TXP2_SSICTXP1
20 USB3TXN2_SSICTXN1
20 USB3RXP2_SSICRXP1
20 USB3RXN2_SSICRXN1
C416 0.1u_10V_X7R_04
C413 0.1u_10V_X7R_04
L22 *WCM2012F2S-SHORT
L18 *WCM2012F2S-SHORT
HUAWEI MU736此PINDEFAULT HIGH
18,25,26,36,38,41 PCIE_WAKE#
R373 *0_04
HUAWEI MU736此PIN爲OD PIN
need pull high
BODYSAR_N
WAKE_ON_WWAN#
3G_CONFIG0
20 USB_PN3
20 USB_PP3
3G_CONFIG3
J_3G1
CONFIG_2
GND10
GND9
CONFIG_1
Reset#(O)1.8V
ANTCTL3(I)1.8V
ANTCTL2(I)1.8V
ANTCTL1(I)1.8V
ANTCTL0(I)1.8V
GND8
REFCLKP
REFCLKN
GND7
PETp0/SATA-A+
PETn0/SATA-A-
GND6
PERp0/SATA-B-
PERn0/SATA-B+
GND5
PETp1/USB3.0-Tx+/SSIC-TxP
PETn1/USB3.0-Tx-/SSIC-TxN
GND4
PERp1/USB3.0-Rx+/SSIC-RxP
PERn1/USB3.0-Rx-/SSIC-RxN
GND3
GPIO_12(IO)1.8V
GPIO_11(IO)1.8V
CONFIG_0
3.3V4
3.3V3
3.3V2
SUSCLK(32Khz)(O)
SIM Detect(O)
COEX1(I/O)1.8V
COEX2(I/O)1.8V
COEX3(I/O)1.8V
NC1
NC0
PEWake#(IO)
CLKREQ#(IO)
PERST#(O)
GPIO_4(IO)1.8V
GPIO_3(IO)1.8V
GPIO_2(IO)1.8V
GPIO_1(IO)1.8V
GPIO_0(IO)1.8V
DEVSLP(O)
UIM_PWR(I)
UIM_DATA(IO)
UIM_CLK(I)
UIM_RESET(I)
GPIO_8(IO)1.8V
GPIO_10(IO)1.8V
GPIO_7(IO)1.8V
GPIO_6(IO)1.8V
GPIO_5(IO)1.8V
B KEY
GND2
USB_D-
USB_D+
GND1
GND0
CONFIG_3
GPIO_9/DAS/DSS#(I)(OD)
W_DISABLE#1(O)
Full_Card_Power_Off#(O)1.8V
3.3V1
3.3V0
NFSB0-S6701-TP40
PCB Footprint = NXSB0-S67XX-XX40
HUAWEI MU736此PIN爲1.8V LEVEL
HI: Present
CONNECTOR使用NORMAL CLOSED(拉GND)
如不使用請確認廠商是否需要PULL
HIGH,建議線路無PULL HIGH電阻
CURRENT2A時,DON'T DROP BELOW 3.135V
80 mils
W/O 3G不上件
C880 EEFCX0J221YR
C911 0.1u_16V_Y5V_04
C913 0.1u_16V_Y5V_04
R940 *33_04
C828 470p_50V_X7R_04
SUS_CLK 18,26
R916 *10K_04 3.3V
C881 0.1u_16V_Y5V_04
UIM_PWR 35
UIM_DATA 35
UIM_CLK 35
UIM_RST 35
GPS_DISABLE# R931 0_04
HUAWEI MU736 可接受3.3V
M2B_3GSSD_LED#R
PWR_ON_OFF R399 10K_04
3G_EN 31
80 mils
3G_3.3V
C783 EEFCX0J221YR
W/O 3G不上件
C909 10u_6.3V_X5R_06
C797 0.1u_16V_Y5V_04
WLAN+BT
J_WLAN1
GND10
Reserved/REFCLKN1
Reserved/REFCLKP1
GND9
Reserved/PERn1
Reserved/PERp1
GND8
Reserved/PETn1
Reserved/PETp1
GND7
PEWake0#(IO)
CLKREQ0#(IO)
GND6
REFCLKN0
REFCLKP0
GND5
PERn0
PERp0
GND4
PETn0
PETp0
GND3
3.3V3
3.3V2
UIM_Power_In/Gpio1/PEWake1#
UIM_Power_Out/CLKREQ1#
UIM_SWP/PERST1#
Reserved1
ALERT#(I)
I2C CLK(O)
I2C DATA(IO)
W_DISABLE#1(O)
Reserved/W_DISABLE#2(O)
PERST0#(O)
SUSCLK(32Khz)(O)
COEX1(I/O)1.8V
COEX2(I/O)1.8V
COEX3(I/O)1.8V
VENDOR DEFINED2
VENDOR DEFINED1
VENDOR DEFINED0
NC8
NC7
NC6
E KEY
NC5
NC3
NC1
NC0
NC4
NC2
GND2
LED#2(I)(OD)
A KEY
GND1
USB_D-
USB_D+
GND0
LED#1(I)(OD)
3.3V1
3.3V0
NFSA0-S6701-TP40
18,25,26,36,38,41 PCIE_WAKE#
19 WLAN_CLKREQ#
R432 *0_04
3.3VS R406 10K_04
19 CLK_PCIE_WLAN#
19 CLK_PCIE_WLAN
17 PCIE_RXN13_WLAN
17 PCIE_RXP13_WLAN
17 PCIE_TXN13_WLAN
17 PCIE_TXP13_WLAN
20 USB_PN11
20 USB_PP11
40 mil
WLAN_3.3V
C441 0.1u_16V_Y5V_04
C429 47uF_6.3V_X5R_08
R384 10K_04
R383 10K_04
R214 *0_04
LPSS_GSPI0_MISO 16
R391 0_04
WLAN_EN 31
BT_EN 31
BUF_PLT_RST# 16,26,31,32,36,38,41
SUSCLK 32Khz
R356 *0_04
R364 *0_04
R365 *0_04
CL_CLK1 17
CL_DATA1 17
CL_RST#1 17
40 mil
WLAN_3.3V
3.3V J5 OPEN_2A
VDD3
>120 mil
U31
VIN
VOUT
VIN/SS
EN
GND
uP7553
>120 mil
WLAN_3.3V
C437 1u_6.3V_X5R_04
C454 0.1u_16V_Y5V_04
31 WLAN_PWR_EN
接到EC ,須與EC確認
16,17,18,20,21,31,32,34,36,43,45,46,47,50,51 VDD3
11,13,14,15,16,27,29,30,31,33,35,46,47 5VS
10,11,12,13,14,15,16,17,18,19,20,21,23,24,26,27,28,31,32,33,34,35,37,39,41,42,43,46,48,50,7,8,9 3.3VS
15,21,23,24,27,30,40,43,44,46,47,48,49,50 5V
11,17,2,24,30,39,42,43,44,46,47 3.3V

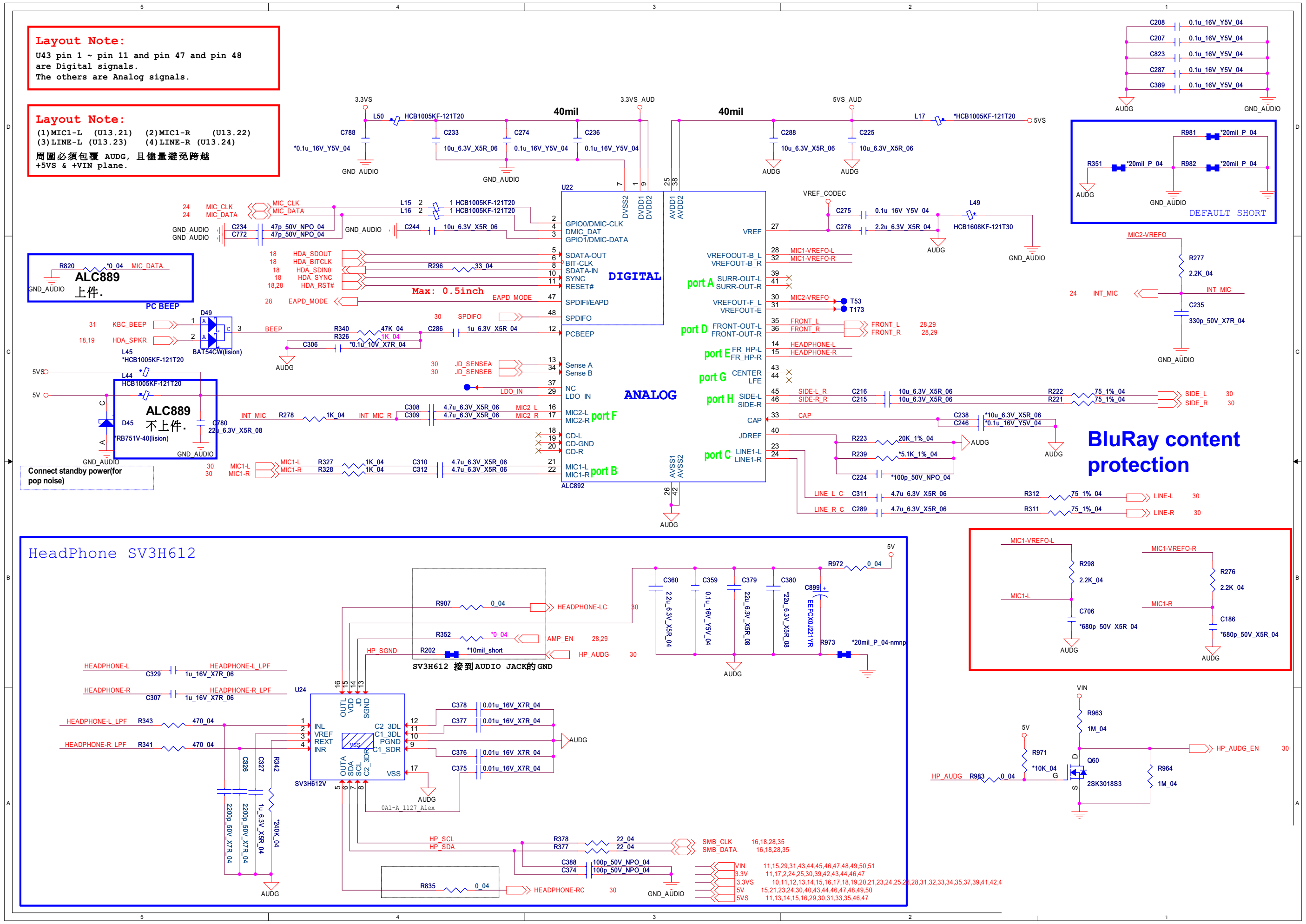
M.2 PCIE4X SSD1 & SSD2


1st M2 NGFF (PCIE 4X)
2nd M2 NGFF (PCIE 4X)
J_SSD1
J_SSD2
M KEY
NFSM0-S6701-TP40
NFSM0-S6701-TP85
H:SATA
L:PCIE
M.2_SSD1_DET_N
M.2_SSD2_DET_N
NGFF_PEDET
NGFF_PEDET_2
Q19
Q53
Q27
Q51
MTN7002ZHS3
R260
R261
R865
R882
R402
R405
R413
10K_04
3.3VS
>120 mil
80 mils
C474
C473
C926
C466
C465
C472
C467
C912
C910
C900
C830
C829
C851
C806
0.1u_10V_X7R_04
10u_6.3V_X5R_06
GND
R948
R941
33_04
SUS_CLK
R473
R930
R156
R902
0_04
PCIE_WAKE#
SSD_CLKREQ#
SSD2_CLKREQ#
BUF_PLT_RST#
SSD_SATA_DEVSLP
SSD2_SATA_DEVSLP
M2M_SSD_LED#R
M2M_SSD_LED#R_2
M2M_SSD_LED#
CLK_PCIE_SSD
CLK_PCIE_SSD#
CLK_PCIE_SSD2
CLK_PCIE_SSD2#
PCIE_TXP9_SATA0_TXP_SSD
PCIE_TXN9_SATA0_TXN_SSD
PCIE_RXN9_SATA0_RXN_SSD
PCIE_RXP9_SATA0_RXP_SSD
PCIE_TXP17_SATA4_TXP_SSD2
PCIE_TXN17_SATA4_TXN_SSD2
PCIE_RXN17_SATA4_RXN_SSD2
PCIE_RXP17_SATA4_RXP_SSD2
3.3V
VDD3

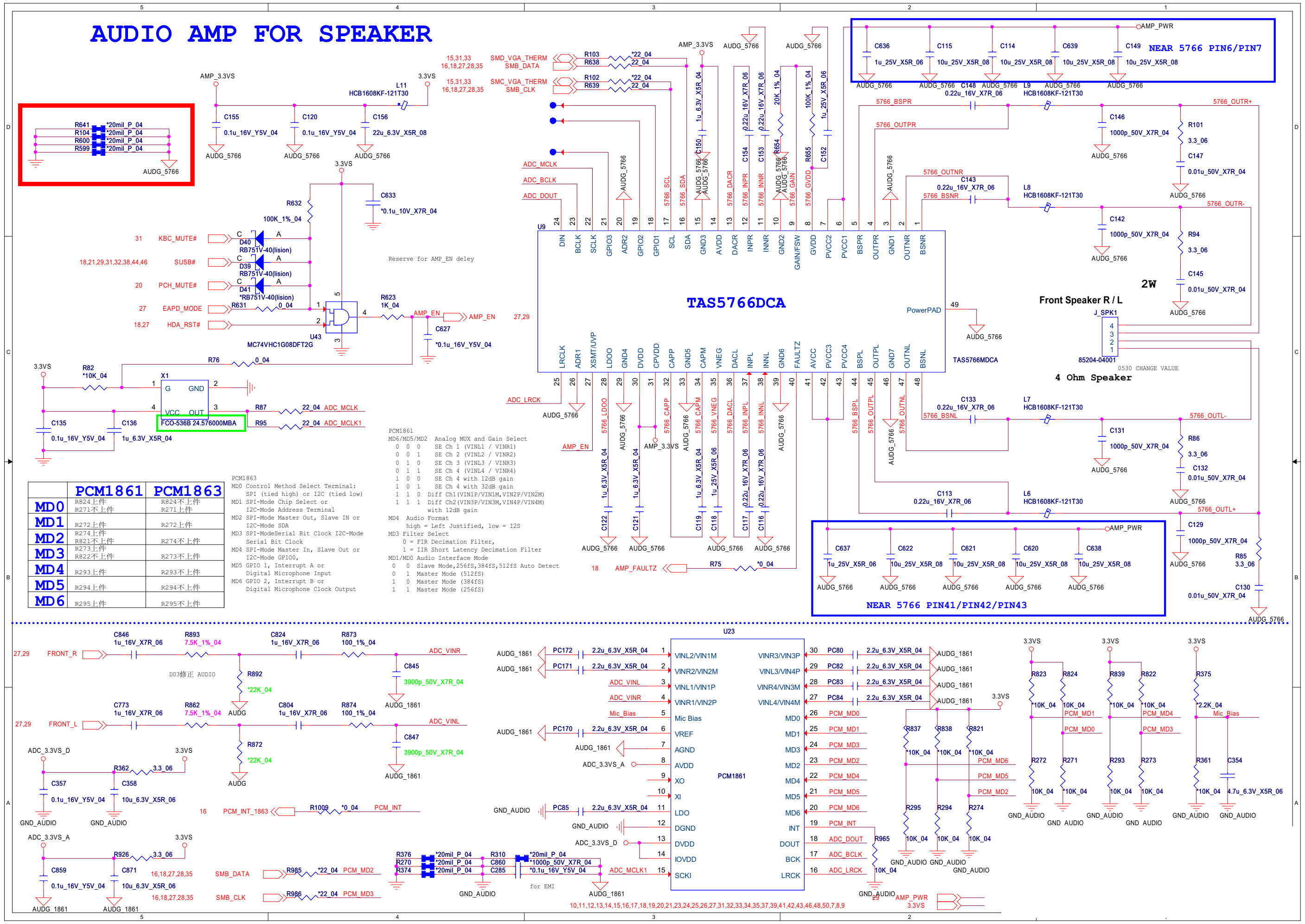
Sheet 26 of 62
M.2 PCIE4X SSD1 &
SSD2

Realtek ALC892

Sheet 27 of 62
Realtek ALC892


Layout Note:
U43 pin 1 ~ pin 11 and pin 47 and pin 48
are Digital signals.
The others are Analog signals.
Layout Note:
(1)MIC1-L (U13.21) (2)MIC1-R (U13.22)
(3)LINE-L (U13.23) (4)LINE-R (U13.24)
周圍必須包覆 AUDG, 且儘量避免跨越
+5VS & +VIN plane.
3.3VS
3.3VS_AUD
5VS_AUD
40mil
40mil
U22
DIGITAL
ANALOG
Max: 0.5inch
ALC889
上件.
PC BEEP
ALC889
不上件.
Connect standby power(for pop noise)
port A
port D
port E
port G
port H
port F
port B
port C
ALC892
DEFAULT SHORT
BluRay content protection
HeadPhone SV3H612
SV3H612 接到AUDIO JACK的GND
U24
SV3H612V
2SK3018S3
Q60
VIN
5V
AUDG
GND_AUDIO

PCM1861 + TAS5766DCA

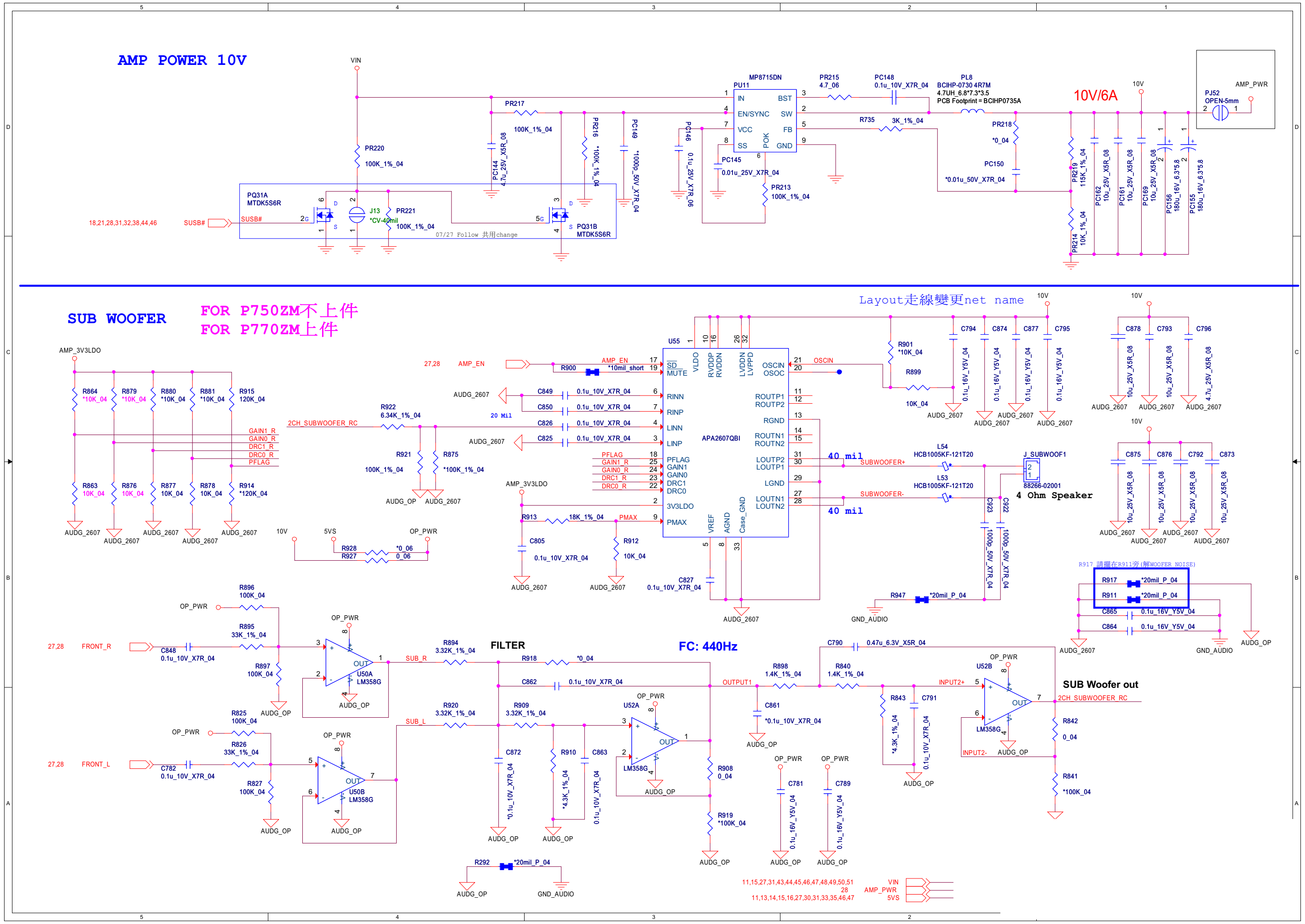

AUDIO AMP FOR SPEAKER
TAS5766DCA
U9
TAS5766MDCA
PowerPAD
NEAR 5766 PIN6/PIN7
NEAR 5766 PIN41/PIN42/PIN43
Front Speaker R / L
J_SPK1
85204-04001
2W
4 Ohm Speaker
0530 CHANGE VALUE
Reserve for AMP_EN deley
MC74VHC1G08DFT2G
U43
FCO-536B 24.576000MBA
X1
HCB1608KF-121T30
AMP_3.3VS
AMP_PWR
AUDG_5766
KBC_MUTE#
SUSB#
PCH_MUTE#
EAPD_MODE
HDA_RST#
AMP_EN
AMP_FAULTZ
ADC_MCLK
ADC_BCLK
ADC_DOUT
ADC_LRCK
SMD_VGA_THERM
SMB_DATA
SMC_VGA_THERM
SMB_CLK
U23
PCM1861
VINL2/VIN1M
VINR2/VIN2M
VINL1/VIN1P
VINR1/VIN2P
Mic Bias
VREF
AGND
AVDD
XO
XI
LDO
DGND
DVDD
IOVDD
SCKI
VINR3/VIN3P
VINL3/VIN4P
VINR4/VIN3M
VINL4/VIN4M
MD0
MD1
MD3
MD2
MD4
MD5
MD6
INT
DOUT
BCK
LRCK
FRONT_R
FRONT_L
ADC_VINR
ADC_VINL
AUDG_1861
GND_AUDIO
ADC_3.3VS_D
ADC_3.3VS_A
PCM_INT_1863
for EMI
D03修正 AUDIO
PCM1861 PCM1863
MD0 R824上件 R824不上件
R271不上件 R271上件
MD1 R272上件 R272上件
MD2 R274上件 R274不上件
R821不上件
MD3 R273上件 R273不上件
R822不上件
MD4 R293上件 R293不上件
MD5 R294上件 R294不上件
MD6 R295上件 R295不上件
PCM1863
MD0 Control Method Select Terminal:
SPI (tied high) or I2C (tied low)
MD1 SPI-Mode Chip Select or
I2C-Mode Address Terminal
MD2 SPI-Mode Master Out, Slave IN or
I2C-Mode SDA
MD3 SPI-ModeSerial Bit Clock I2C-Mode
Serial Bit Clock
MD4 SPI-Mode Master In, Slave Out or
I2C-Mode GPIO0,
MD5 GPIO 1, Interrupt A or
Digital Microphone Input
MD6 GPIO 2, Interrupt B or
Digital Microphone Clock Output
PCM1861
MD6/MD5/MD2 Analog MUX and Gain Select
0 0 0 SE Ch 1 (VINL1 / VINR1)
0 0 1 SE Ch 2 (VINL2 / VINR2)
0 1 0 SE Ch 3 (VINL3 / VINR3)
0 1 1 SE Ch 4 (VINL4 / VINR4)
1 0 0 SE Ch 4 with 12dB gain
1 0 1 SE Ch 4 with 32dB gain
1 1 0 Diff Ch1(VIN1P/VIN1M,VIN2P/VIN2M)
1 1 1 Diff Ch2(VIN3P/VIN3M,VIN4P/VIN4M) with 12dB gain
MD4 Audio Format
high = Left Justified, low = I2S
MD3 Filter Select
0 = FIR Decimation Filter,
1 = IIR Short Latency Decimation Filter
MD1/MD0 Audio Interface Mode
0 0 Slave Mode,256fS,384fS,512fS Auto Detect
0 1 Master Mode (512fS)
1 0 Master Mode (384fS)
1 1 Master Mode (256fS)

Sheet 28 of 62
PCM1861 +
TAS5766DCA

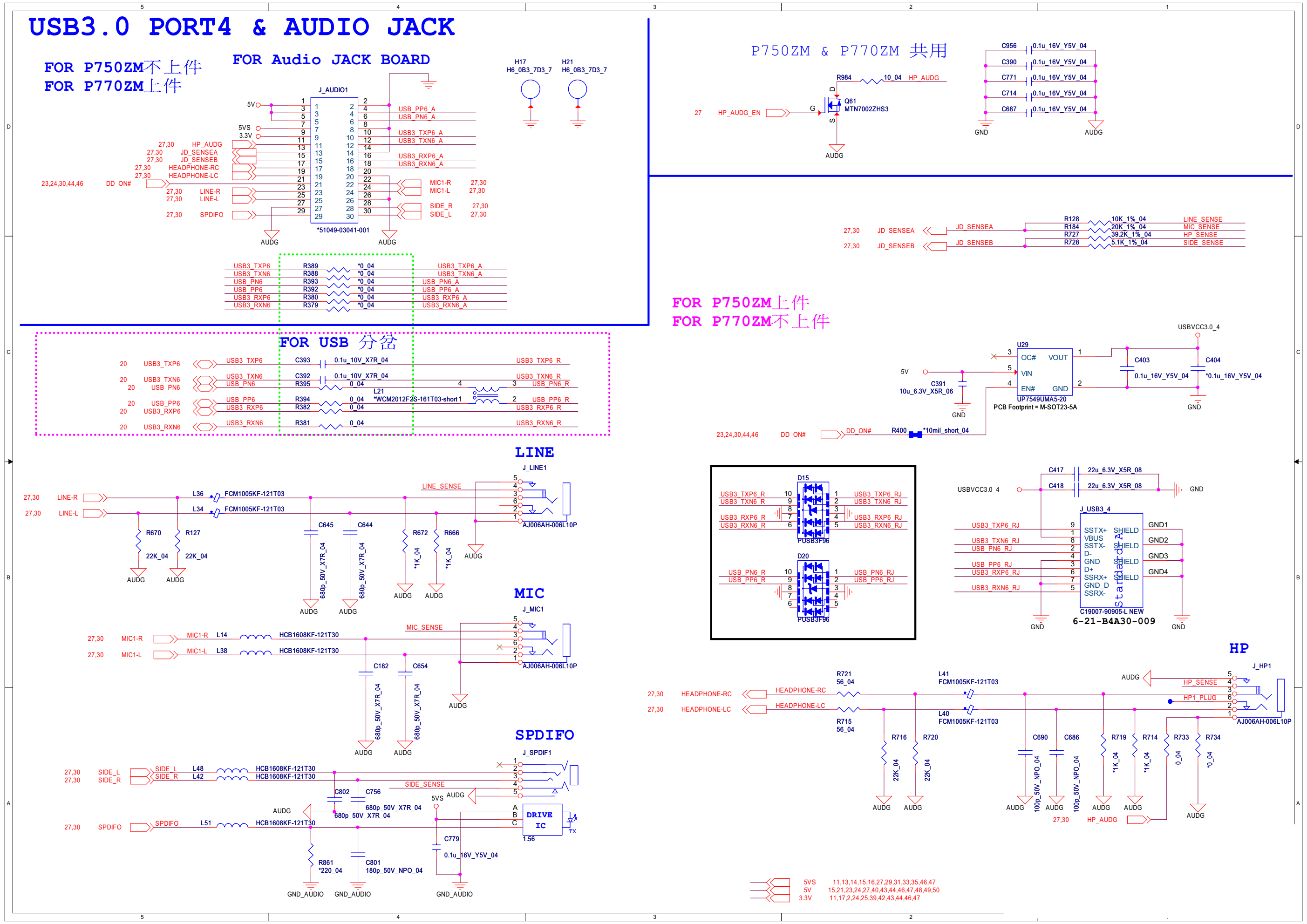
B.Schematic Diagrams

Subwoofer

Sheet 29 of 62
Subwoofer


AMP POWER 10V
VIN
MP8715DN
PU11
IN
EN/SYNC
VCC
SS
BST
SW
FB
GND
POK
PR215
4.7_06
PC148
0.1u_10V_X7R_04
PL8
BCIHP-0730 4R7M
4.7UH_6.8*7.3*3.5
PCB Footprint = BCIHP0735A
10V/6A
10V
AMP_PWR
PJ52
OPEN-5mm
PR217
100K_1%_04
PR220
100K_1%_04
PR216
*100K_1%_04
PC149
*1000p_50V_X7R_04
PC146
0.1u_25V_X7R_06
PC144
4.7u_25V_X5R_08
PC145
0.01u_25V_X7R_04
PR213
100K_1%_04
R735
3K_1%_04
PR218
*0_04
PC150
*0.01u_50V_X7R_04
PR219
115K_1%_04
PR214
10K_1%_04
PC162
10u_25V_X5R_08
PC161
10u_25V_X5R_08
PC169
10u_25V_X5R_08
PC156
180u_16V_6.3*5.8
PC155
180u_16V_6.3*5.8
PQ31A
MTDK5S6R
PQ31B
MTDK5S6R
J13
*CV-40mil
PR221
100K_1%_04
18,21,28,31,32,38,44,46
SUSB#
07/27 Follow 共用change
SUB WOOFER
FOR P750ZM不上件
FOR P770ZM上件
Layout走線變更net name
AMP_3V3LDO
R864
*10K_04
R879
*10K_04
R880
*10K_04
R881
*10K_04
R915
120K_04
R863
10K_04
R876
10K_04
R877
10K_04
R878
10K_04
R914
*120K_04
GAIN1_R
GAIN0_R
DRC1_R
DRC0_R
PFLAG
2CH_SUBWOOFER_RC
R922
6.34K_1%_04
R921
100K_1%_04
R875
*100K_1%_04
27,28
AMP_EN
R900
*10mil_short
U55
APA2607QBI
SD
MUTE
RINN
RINP
LINN
LINP
PFLAG
GAIN1
GAIN0
DRC1
DRC0
3V3LDO
PMAX
VREF
AGND
Case_GND
OSCIN
OSCO
ROUTP1
ROUTP2
RGND
ROUTN1
ROUTN2
LOUTP2
LOUTP1
LGND
LOUTN1
LOUTN2
C849
C850
C826
C825
0.1u_10V_X7R_04
20 Mil
AUDG_2607
R913
18K_1%_04
C805
0.1u_10V_X7R_04
R912
10K_04
C827
0.1u_10V_X7R_04
R901
*10K_04
R899
10K_04
OSCIN
40 mil
SUBWOOFER+
SUBWOOFER-
L54
HCB1005KF-121T20
L53
HCB1005KF-121T20
J_SUBWOOF1
88266-02001
4 Ohm Speaker
C923
1000p_50V_X7R_04
C922
1000p_50V_X7R_04
C794
C874
C877
C795
0.1u_16V_Y5V_04
C878
C793
C796
10u_25V_X5R_08
4.7u_25V_X5R_08
C875
C876
C792
C873
R947
*20mil_P_04
GND_AUDIO
R917 請擺在R911旁(解WOOFER NOISE)
R917
*20mil_P_04
R911
*20mil_P_04
C865
0.1u_16V_Y5V_04
C864
0.1u_16V_Y5V_04
AUDG_OP
10V
5VS
OP_PWR
R928
*0_06
R927
0_06
R896
100K_04
R895
33K_1%_04
R897
100K_04
FRONT_R
C848
0.1u_10V_X7R_04
U50A
LM358G
OUT
R825
100K_04
R826
33K_1%_04
R827
100K_04
FRONT_L
C782
0.1u_10V_X7R_04
U50B
LM358G
FILTER
SUB_R
SUB_L
R894
3.32K_1%_04
R920
3.32K_1%_04
R918
*0_04
C862
0.1u_10V_X7R_04
R909
3.32K_1%_04
C872
*0.1u_10V_X7R_04
R910
*4.3K_1%_04
C863
0.1u_10V_X7R_04
U52A
LM358G
FC: 440Hz
OUTPUT1
C861
*0.1u_10V_X7R_04
R908
0_04
R919
*100K_04
R898
1.4K_1%_04
R840
1.4K_1%_04
C790
0.47u_6.3V_X5R_04
INPUT2+
INPUT2-
R843
*4.3K_1%_04
C791
0.1u_10V_X7R_04
U52B
LM358G
C781
0.1u_16V_Y5V_04
C789
0.1u_16V_Y5V_04
SUB Woofer out
2CH_SUBWOOFER_RC
R842
0_04
R841
*100K_04
R292
*20mil_P_04
11,15,27,31,43,44,45,46,47,48,49,50,51
28
11,13,14,15,16,27,30,31,33,35,46,47
VIN
AMP_PWR
5VS

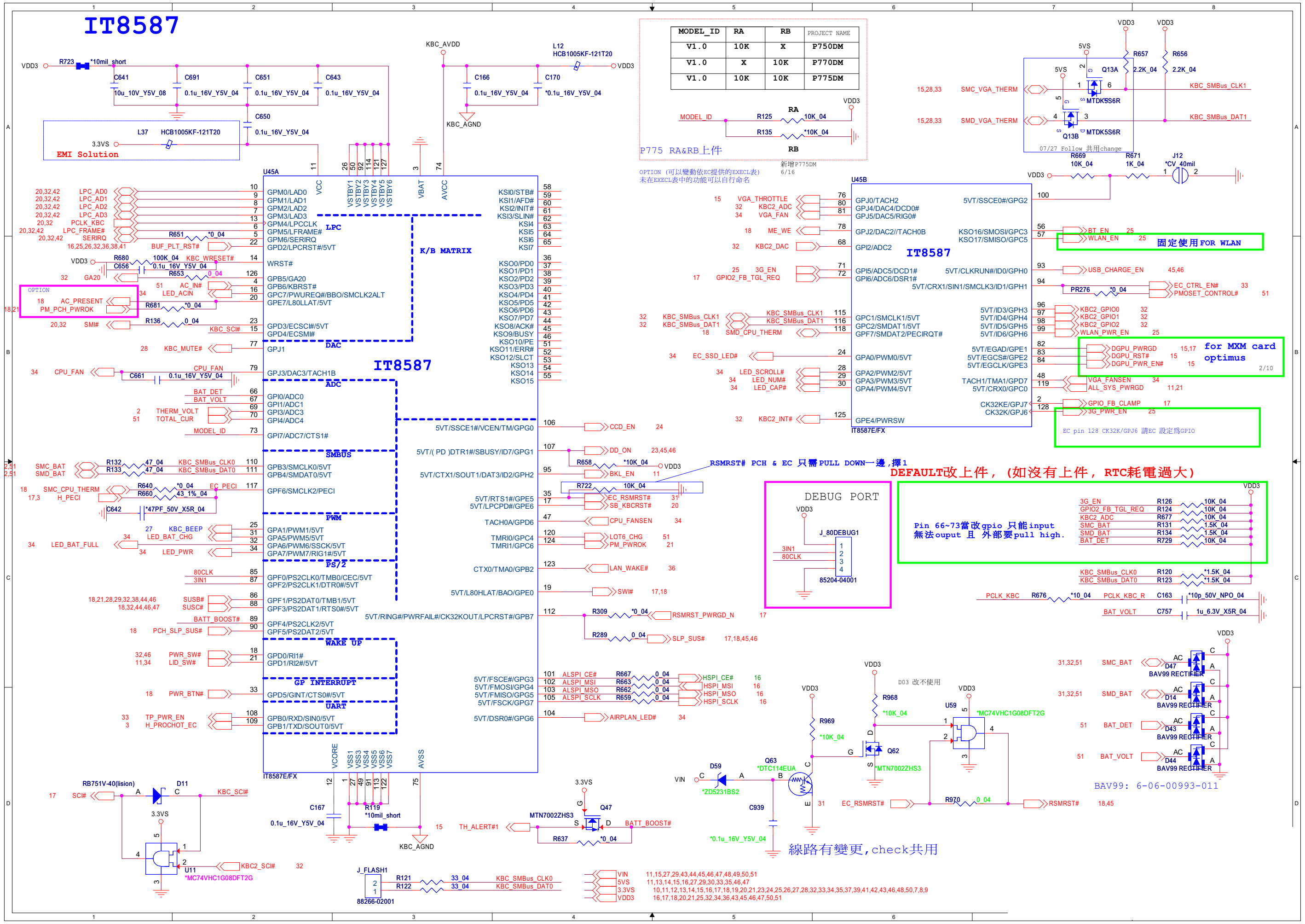
Audio Jack


USB3.0 PORT4 & AUDIO JACK
FOR P750ZM不上件
FOR P770ZM上件
FOR Audio JACK BOARD
J_AUDIO1
*51049-03041-001
P750ZM & P770ZM 共用
Q61
MTN7002ZHS3
HP_AUDG_EN
FOR P750ZM上件
FOR P770ZM不上件
U29
UP7549UMA5-20
PCB Footprint = M-SOT23-5A
FOR USB 分岔
LINE
J_LINE1
AJ006AH-006L10P
MIC
J_MIC1
SPDIFO
J_SPDIF1
DRIVE IC
D15
D20
PUSB3F96
J_USB3_4
C19007-90905-L NEW
6-21-B4A30-009
HP
J_HP1
5VS
5V
3.3V

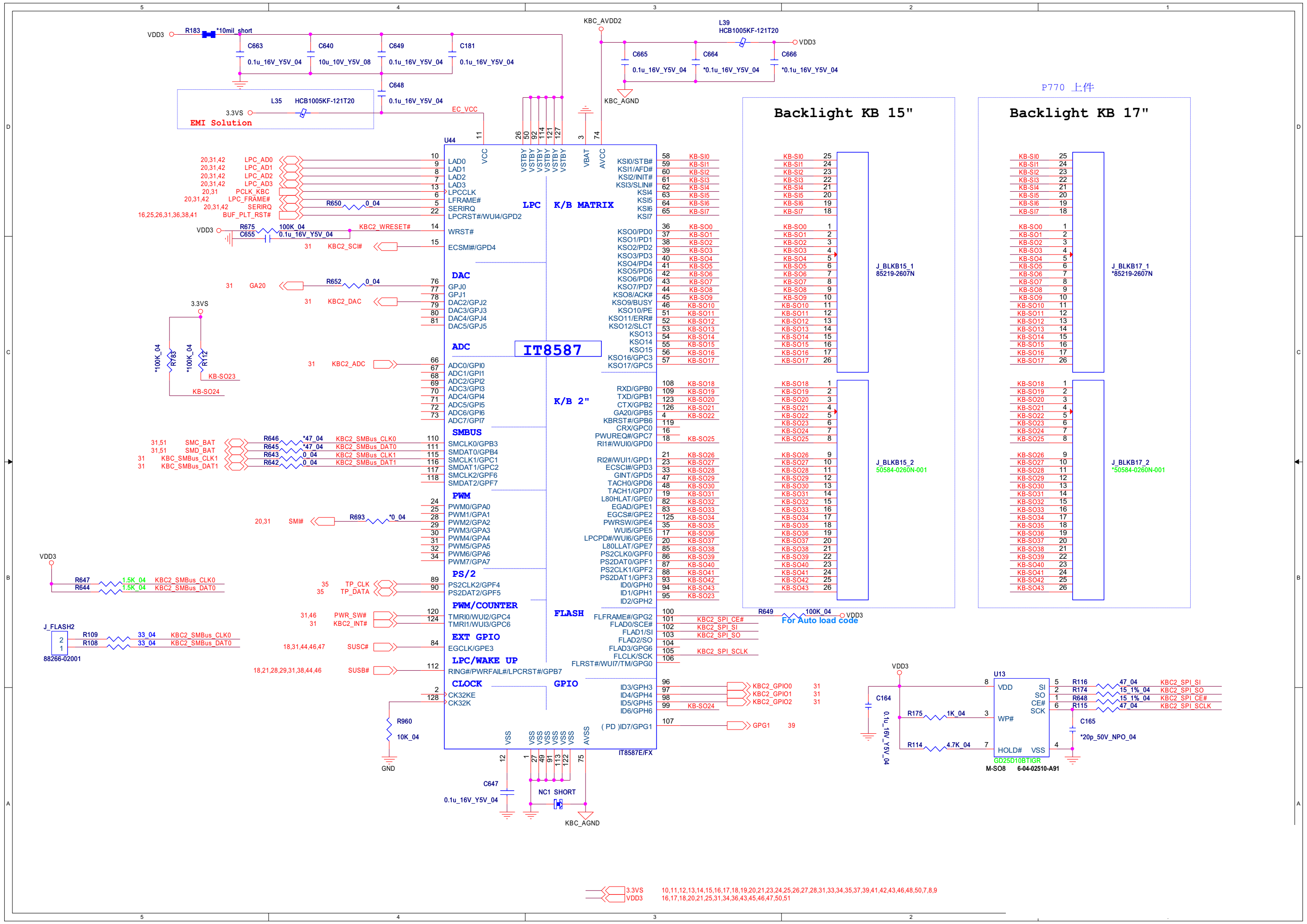
Sheet 30 of 62
Audio Jack

EC IT8587

Sheet 31 of 62
EC IT8587


IT8587
EMI Solution
U45A
LPC
K/B MATRIX
DAC
IT8587
ADC
SMBUS
PWM
PS/2
WAKE UP
GP INTERRUPT
UART
IT8587E/FX
U45B
IT8587
IT8587E/FX
MODEL_ID
RA
RB
PROJECT NAME
V1.0
10K
X
P750DM
X
10K
P770DM
10K
10K
P775DM
P775 RA&RB上件
固定使用 FOR WLAN
for MXM card
optimus
RSMRST# PCH & EC 只需PULL DOWN一邊，擇1
DEFAULT改上件，(如沒有上件，RTC耗電過大)
DEBUG PORT
J_80DEBUG1
Pin 66~73當改gpio 只能input
無法ouput 且 外部要pull high.
線路有變更,check共用
BAV99: 6-06-00993-011
KBC_AVDD
KBC_AGND
VDD3
3.3VS
5VS
VIN
J_FLASH1
U11
U59
Q47
Q62
Q63
Q13A
Q13B
MTDK5S6R
BAV99 RECTIFIER
EC_RSMRST#
RSMRST#
KBC_SMBus_CLK0
KBC_SMBus_DAT0
KBC_SMBus_CLK1
KBC_SMBus_DAT1
SMC_VGA_THERM
SMD_VGA_THERM
CPU_FAN
SMC_BAT
SMD_BAT
BAT_DET
BAT_VOLT
TH_ALERT#1
BATT_BOOST#
AIRPLAN_LED#

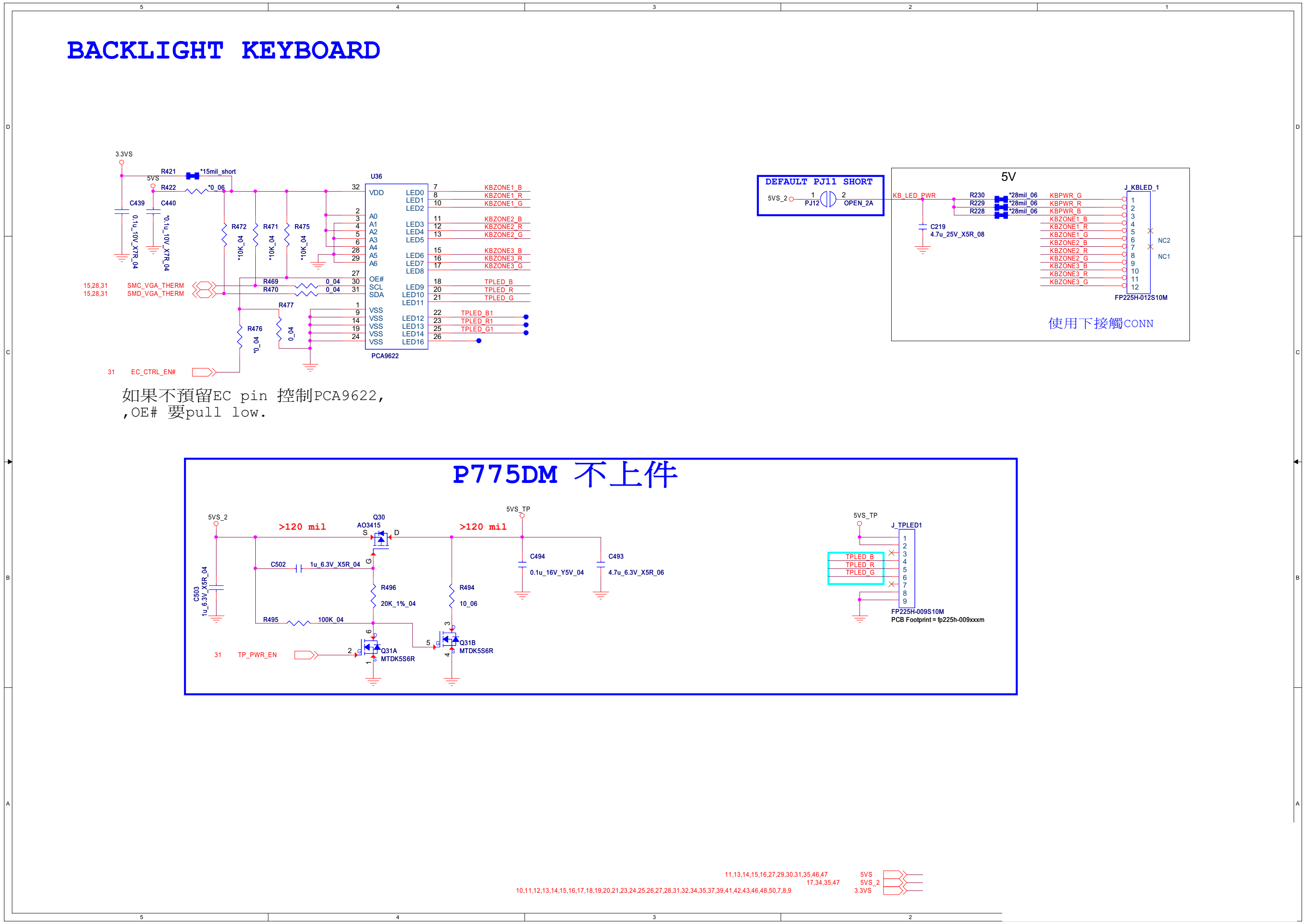
Second EC IT8587


IT8587
EMI Solution
LPC
K/B MATRIX
DAC
ADC
SMBUS
PWM
PS/2
PWM/COUNTER
EXT GPIO
LPC/WAKE UP
CLOCK
K/B 2"
FLASH
GPIO
Backlight KB 15"
Backlight KB 17"
P770 上件
J_BLKB15_1
85219-2607N
J_BLKB15_2
50584-0260N-001
J_BLKB17_1
*85219-2607N
J_BLKB17_2
*50584-0260N-001
J_FLASH2
88266-02001
For Auto load code
U44
U13
IT8587E/FX
KBC_AVDD2
KBC_AGND
VDD3
3.3VS
GND
NC1 SHORT

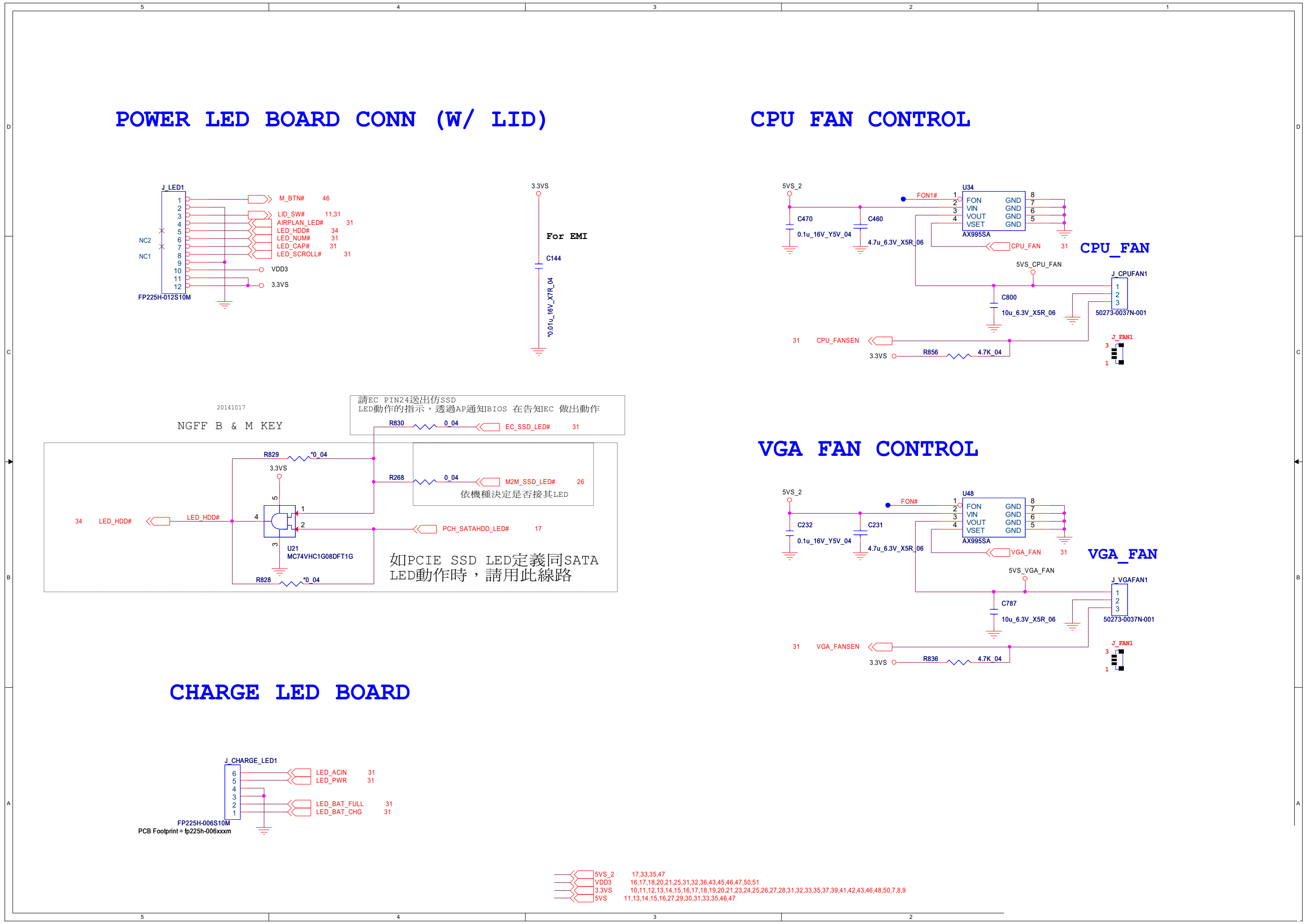
Sheet 32 of 62
Second EC IT8587

Backlight Keyboard

Sheet 33 of 62
Backlight
Keyboard


BACKLIGHT KEYBOARD
3.3VS
5VS
R421
*15mil_short
R422
*0_06
C439
0.1u_10V_X7R_04
C440
*0.1u_10V_X7R_04
R472
*10K_04
R471
*10K_04
R475
*10K_04
U36
VDD
A0
A1
A2
A3
A4
A5
A6
OE#
SCL
SDA
VSS
LED0
LED1
LED2
LED3
LED4
LED5
LED6
LED7
LED8
LED9
LED10
LED11
LED12
LED13
LED14
LED16
PCA9622
KBZONE1_B
KBZONE1_R
KBZONE1_G
KBZONE2_B
KBZONE2_R
KBZONE2_G
KBZONE3_B
KBZONE3_R
KBZONE3_G
TPLED_B
TPLED_R
TPLED_G
TPLED_B1
TPLED_R1
TPLED_G1
15,28,31 SMC_VGA_THERM
15,28,31 SMD_VGA_THERM
R469
R470
0_04
R477
0_04
R476
*0_04
31 EC_CTRL_EN#
如果不預留EC pin 控制PCA9622,
,OE# 要pull low.
DEFAULT PJ11 SHORT
5VS_2
PJ12
OPEN_2A
5V
KB_LED_PWR
C219
4.7u_25V_X5R_08
R230
R229
R228
*28mil_06
KBPWR_G
KBPWR_R
KBPWR_B
J_KBLED_1
NC2
NC1
FP225H-012S10M
使用下接觸CONN
P775DM 不上件
5VS_2
>120 mil
Q30
AO3415
S
D
G
5VS_TP
>120 mil
C503
1u_6.3V_X5R_04
C502
1u_6.3V_X5R_04
R496
20K_1%_04
R494
10_06
C494
0.1u_16V_Y5V_04
C493
4.7u_6.3V_X5R_06
R495
100K_04
Q31A
MTDK5S6R
Q31B
MTDK5S6R
31 TP_PWR_EN
5VS_TP
J_TPLED1
FP225H-009S10M
PCB Footprint = fp225h-009xxxm
11,13,14,15,16,27,29,30,31,35,46,47 5VS
17,34,35,47 5VS_2
10,11,12,13,14,15,16,17,18,19,20,21,23,24,25,26,27,28,31,32,34,35,37,39,41,42,43,46,48,50,7,8,9 3.3VS

LID SW, Fan, LED Conn


POWER LED BOARD CONN (W/ LID)
J_LED1
1
2
3
4
5
6
7
8
9
10
11
12
NC2
NC1
FP225H-012S10M
M_BTN# 46
LID_SW# 11,31
AIRPLAN_LED# 31
LED_HDD# 34
LED_NUM# 31
LED_CAP# 31
LED_SCROLL# 31
VDD3
3.3VS
3.3VS
For EMI
C144
*0.01u_16V_X7R_04
CPU FAN CONTROL
5VS_2
FON1#
U34
FON
VIN
VOUT
VSET
GND
GND
GND
GND
AX995SA
C470
0.1u_16V_Y5V_04
C460
4.7u_6.3V_X5R_06
CPU_FAN 31
CPU_FAN
5VS_CPU_FAN
J_CPUFAN1
C800
10u_6.3V_X5R_06
50273-0037N-001
31 CPU_FANSEN
3.3VS
R856
4.7K_04
J_FAN1
20141017
NGFF B & M KEY
R830
0_04
EC_SSD_LED# 31
R829
*0_04
3.3VS
R268
0_04
M2M_SSD_LED# 26
34 LED_HDD#
LED_HDD#
PCH_SATAHDD_LED# 17
U21
MC74VHC1G08DFT1G
R828
*0_04
VGA FAN CONTROL
5VS_2
FON#
U48
FON
VIN
VOUT
VSET
GND
GND
GND
GND
AX995SA
C232
0.1u_16V_Y5V_04
C231
4.7u_6.3V_X5R_06
VGA_FAN 31
VGA_FAN
5VS_VGA_FAN
J_VGAFAN1
C787
10u_6.3V_X5R_06
50273-0037N-001
31 VGA_FANSEN
3.3VS
R836
4.7K_04
J_FAN1
CHARGE LED BOARD
J_CHARGE_LED1
6
5
4
3
2
1
FP225H-006S10M
PCB Footprint = fp225h-006xxxm
LED_ACIN 31
LED_PWR 31
LED_BAT_FULL 31
LED_BAT_CHG 31
5VS_2 17,33,35,47
VDD3 16,17,18,20,21,25,31,32,36,43,45,46,47,50,51
3.3VS 10,11,12,13,14,15,16,17,18,19,20,21,23,24,25,26,27,28,31,32,33,35,37,39,41,42,43,46,48,50,7,8,9
5VS 11,13,14,15,16,27,29,30,31,33,35,46,47
5
4
3
2
1
D
C
B
A

請EC PIN24送出仿SSD
LED動作的指示，透過AP通知BIOS 在告知EC 做出動作

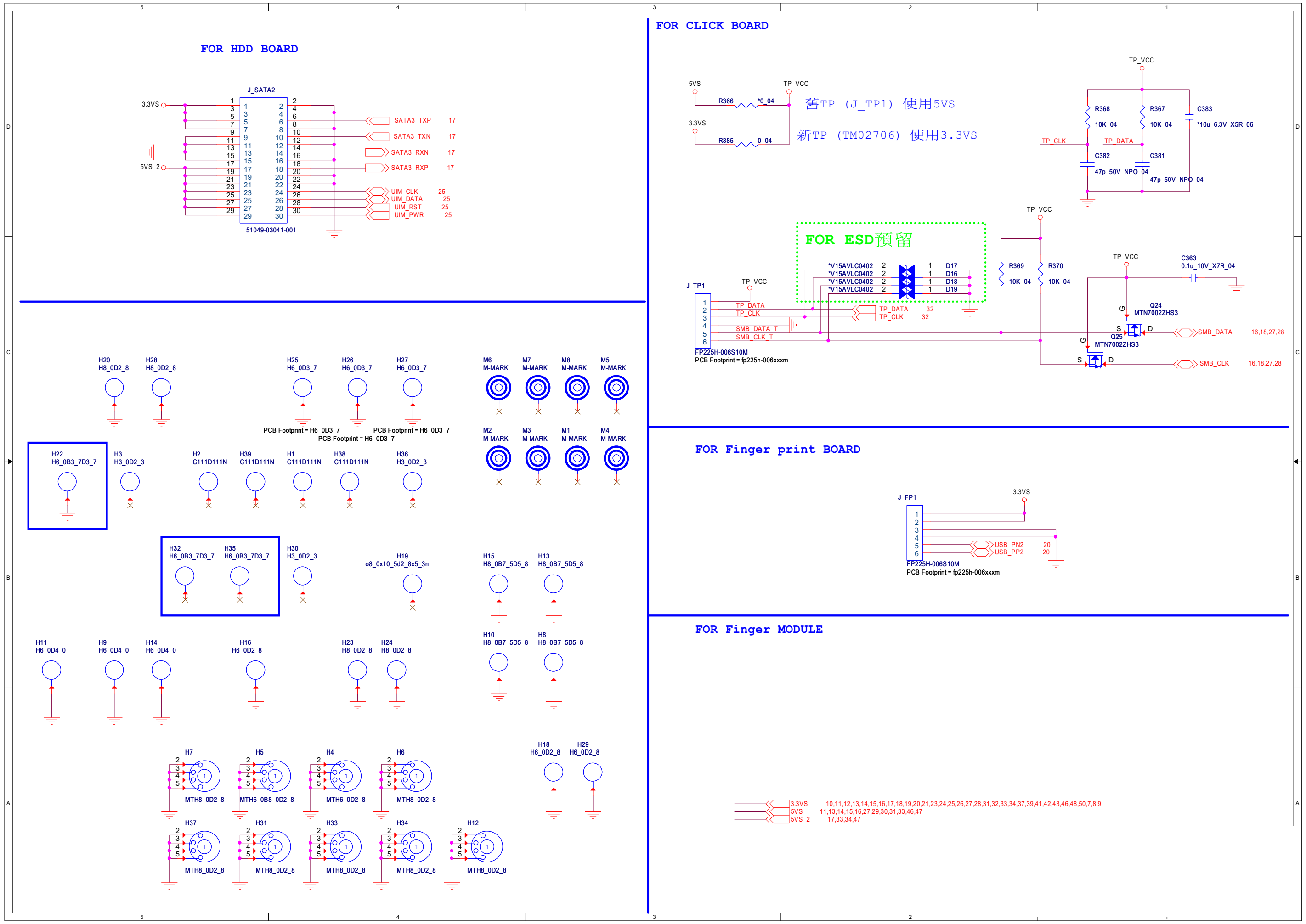
依機種決定是否接其LED

如PCIE SSD LED定義同SATA
LED動作時，請用此線路

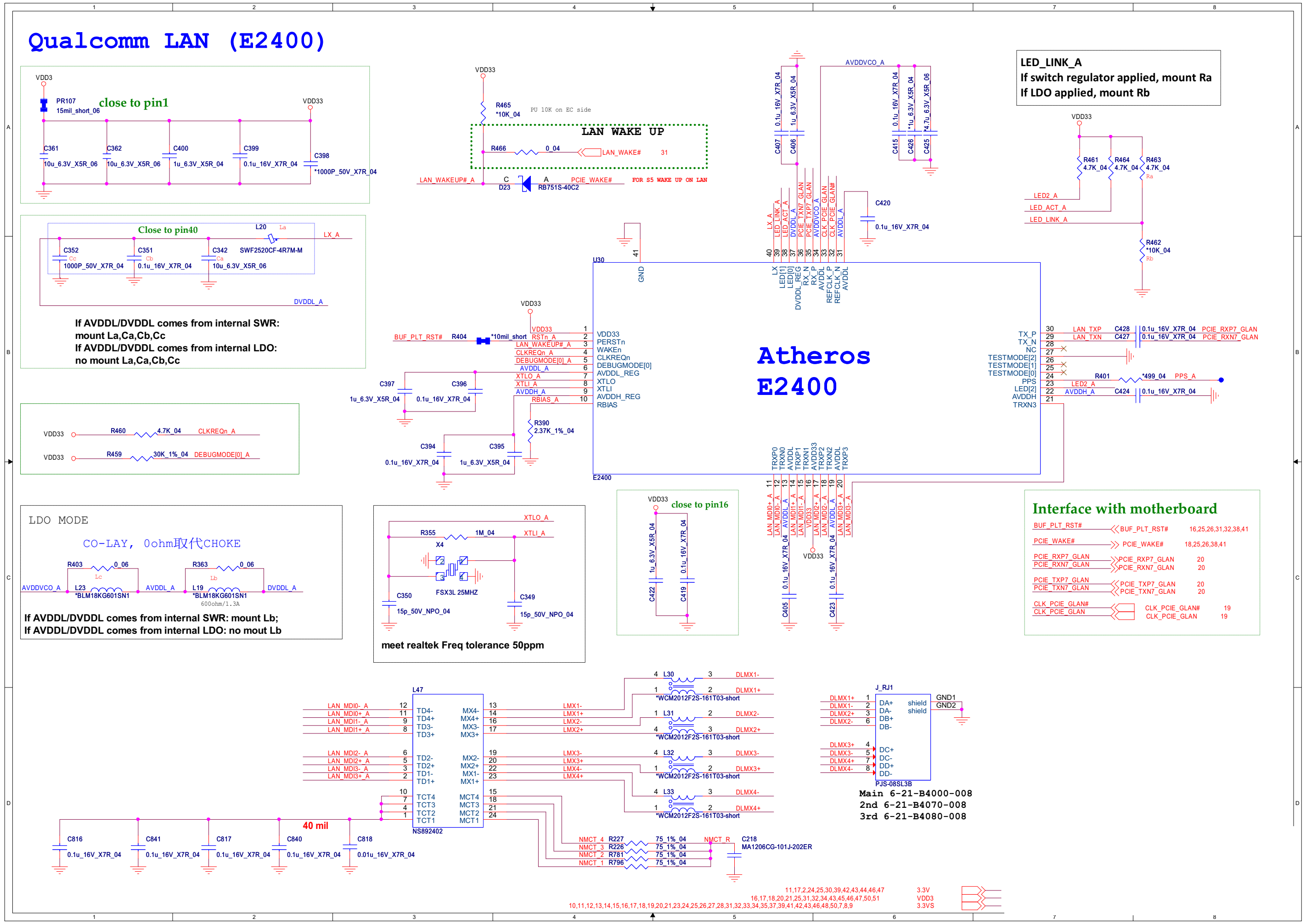
Sheet 34 of 62
LID SW, Fan,
LED Conn

TP, FP, Multi-Con

Sheet 35 of 62
TP, FP, Multi-Con


FOR HDD BOARD
J_SATA2
3.3VS
5VS_2
SATA3_TXP 17
SATA3_TXN 17
SATA3_RXN 17
SATA3_RXP 17
UIM_CLK 25
UIM_DATA 25
UIM_RST 25
UIM_PWR 25
51049-03041-001
FOR CLICK BOARD
5VS
TP_VCC
R366 *0_04
舊TP (J_TP1) 使用5VS
3.3VS
R385 0_04
新TP (TM02706) 使用3.3VS
R368 10K_04
R367 10K_04
C383 *10u_6.3V_X5R_06
TP_CLK
TP_DATA
C382 47p_50V_NPO_04
C381 47p_50V_NPO_04
FOR ESD預留
*V15AVLC0402
D17
D16
D18
D19
R369 10K_04
R370 10K_04
C363 0.1u_10V_X7R_04
J_TP1
SMB_DATA_T
SMB_CLK_T
FP225H-006S10M
PCB Footprint = fp225h-006xxxm
Q24 MTN7002ZHS3
Q25 MTN7002ZHS3
SMB_DATA 16,18,27,28
SMB_CLK 16,18,27,28
FOR Finger print BOARD
J_FP1
USB_PN2 20
USB_PP2 20
FOR Finger MODULE
3.3VS 10,11,12,13,14,15,16,17,18,19,20,21,23,24,25,26,27,28,31,32,33,34,37,39,41,42,43,46,48,50,7,8,9
5VS 11,13,14,15,16,27,29,30,31,33,46,47
5VS_2 17,33,34,47
H20 H8_0D2_8
H28 H8_0D2_8
H25 H6_0D3_7
H26 H6_0D3_7
H27 H6_0D3_7
PCB Footprint = H6_0D3_7
M6 M-MARK
M7 M-MARK
M8 M-MARK
M5 M-MARK
M2 M-MARK
M3 M-MARK
M1 M-MARK
M4 M-MARK
H22 H6_0B3_7D3_7
H3 H3_0D2_3
H2 C111D111N
H39 C111D111N
H1 C111D111N
H38 C111D111N
H36 H3_0D2_3
H32 H6_0B3_7D3_7
H35 H6_0B3_7D3_7
H30 H3_0D2_3
H19 o8_0x10_5d2_8x5_3n
H15 H8_0B7_5D5_8
H13 H8_0B7_5D5_8
H10 H8_0B7_5D5_8
H8 H8_0B7_5D5_8
H11 H6_0D4_0
H9 H6_0D4_0
H14 H6_0D4_0
H16 H6_0D2_8
H23 H8_0D2_8
H24 H8_0D2_8
H18 H6_0D2_8
H29 H6_0D2_8
H7 MTH8_0D2_8
H5 MTH6_0B8_0D2_8
H4 MTH6_0D2_8
H6 MTH8_0D2_8
H37 MTH8_0D2_8
H31 MTH8_0D2_8
H33 MTH8_0D2_8
H34 MTH8_0D2_8
H12 MTH8_0D2_8

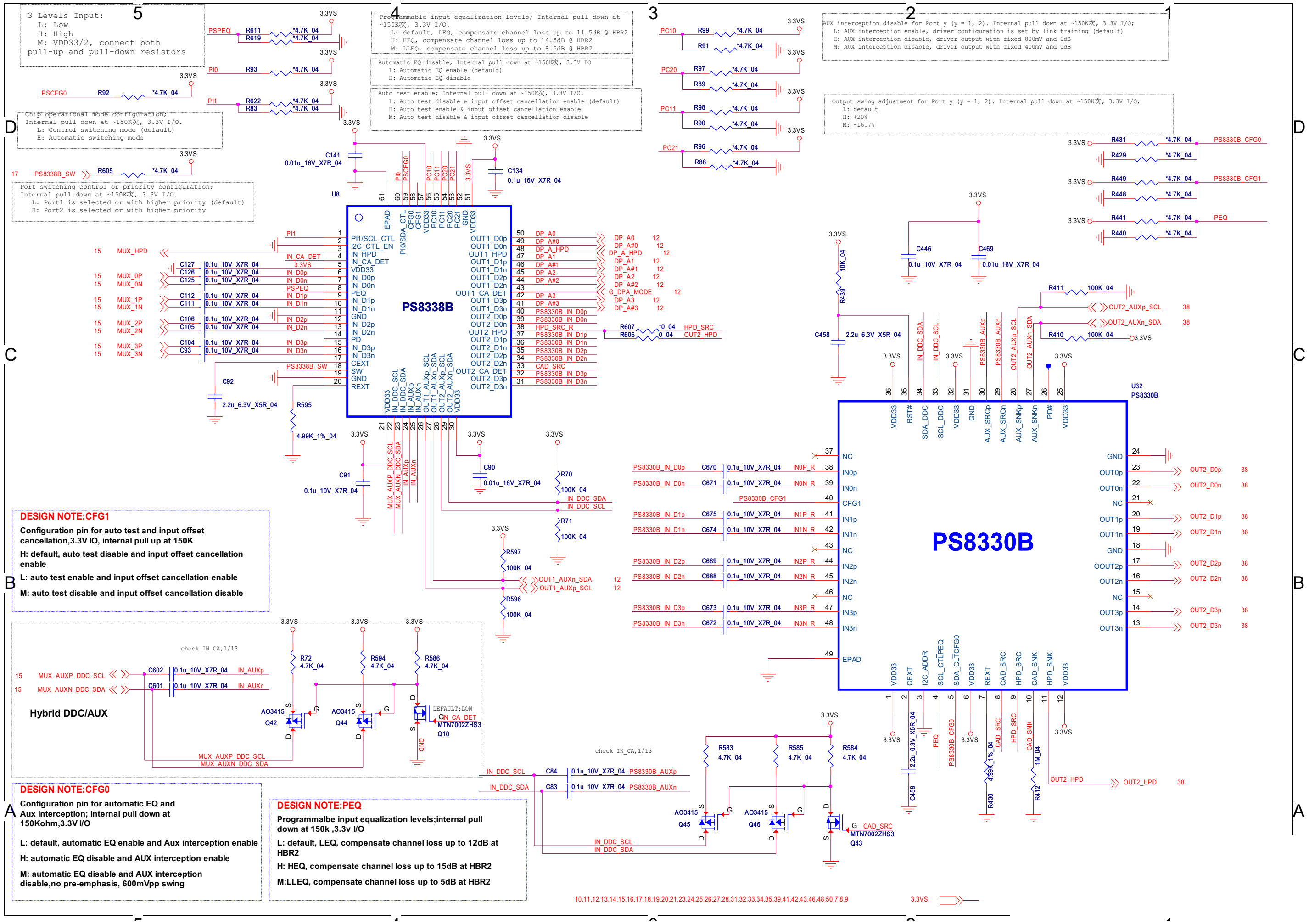
LAN E2400


Qualcomm LAN (E2400)
close to pin1
Close to pin40
If AVDDL/DVDDL comes from internal SWR:
mount La,Ca,Cb,Cc
If AVDDL/DVDDL comes from internal LDO:
no mount La,Ca,Cb,Cc
LAN WAKE UP
PU 10K on EC side
FOR S5 WAKE UP ON LAN
LED_LINK_A
If switch regulator applied, mount Ra
If LDO applied, mount Rb
Atheros
E2400
LDO MODE
CO-LAY, 0ohm取代CHOKE
If AVDDL/DVDDL comes from internal SWR: mount Lb;
If AVDDL/DVDDL comes from internal LDO: no mout Lb
meet realtek Freq tolerance 50ppm
close to pin16
Interface with motherboard
BUF_PLT_RST#
PCIE_WAKE#
PCIE_RXP7_GLAN
PCIE_RXN7_GLAN
PCIE_TXP7_GLAN
PCIE_TXN7_GLAN
CLK_PCIE_GLAN#
CLK_PCIE_GLAN
40 mil
NS892402
J_RJ1
PJS-08SL3B
Main 6-21-B4000-008
2nd 6-21-B4070-008
3rd 6-21-B4080-008
3.3V
VDD3
3.3VS

Sheet 36 of 62
LAN E2400

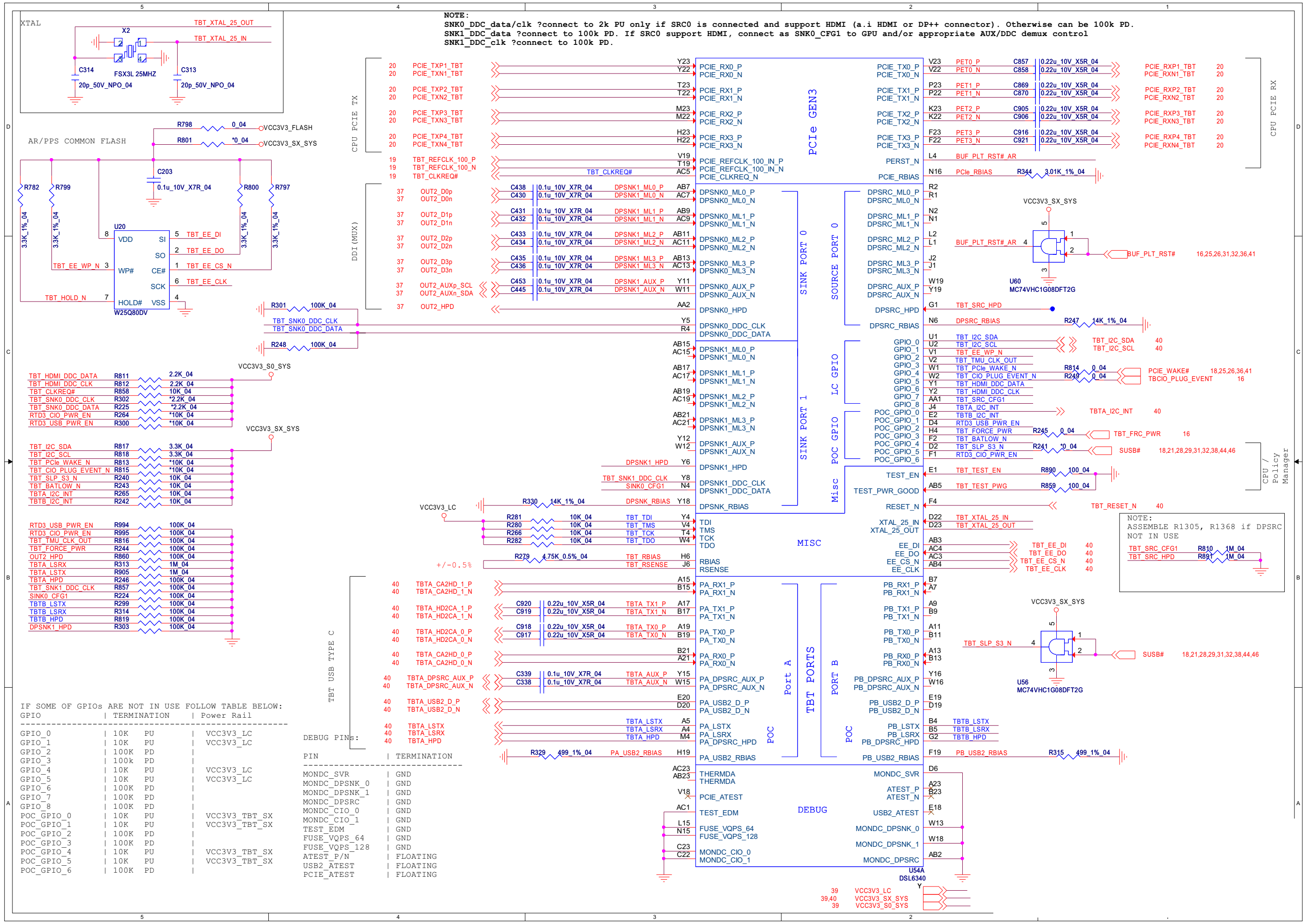
PS8338B + PS8330B

Sheet 37 of 62
PS8338B +
PS8330B


PS8338B
PS8330B
U8
U32
3 Levels Input:
L: Low
H: High
M: VDD33/2, connect both pull-up and pull-down resistors
Chip operational mode configuration; Internal pull down at ~150KΩ, 3.3V I/O.
L: Control switching mode (default)
H: Automatic switching mode
Port switching control or priority configuration; Internal pull down at ~150KΩ, 3.3V I/O.
L: Port1 is selected or with higher priority (default)
H: Port2 is selected or with higher priority
Programmable input equalization levels; Internal pull down at ~150KΩ, 3.3V I/O.
L: default, LEQ, compensate channel loss up to 11.5dB @ HBR2
H: HEQ, compensate channel loss up to 14.5dB @ HBR2
M: LLEQ, compensate channel loss up to 8.5dB @ HBR2
Automatic EQ disable; Internal pull down at ~150KΩ, 3.3V IO
L: Automatic EQ enable (default)
H: Automatic EQ disable
Auto test enable; Internal pull down at ~150KΩ, 3.3V I/O.
L: Auto test disable & input offset cancellation enable (default)
H: Auto test enable & input offset cancellation enable
M: Auto test disable & input offset cancellation disable
AUX interception disable for Port y (y = 1, 2). Internal pull down at ~150KΩ, 3.3V I/O;
L: AUX interception enable, driver configuration is set by link training (default)
H: AUX interception disable, driver output with fixed 800mV and 0dB
M: AUX interception disable, driver output with fixed 400mV and 0dB
Output swing adjustment for Port y (y = 1, 2). Internal pull down at ~150KΩ, 3.3V I/O;
L: default
H: +20%
M: -16.7%
DESIGN NOTE:CFG1
Configuration pin for auto test and input offset cancellation,3.3V IO, internal pull up at 150K
H: default, auto test disable and input offset cancellation enable
L: auto test enable and input offset cancellation enable
M: auto test disable and input offset cancellation disable
Hybrid DDC/AUX
check IN_CA,1/13
DESIGN NOTE:CFG0
Configuration pin for automatic EQ and Aux interception; Internal pull down at 150Kohm,3.3V I/O
L: default, automatic EQ enable and Aux interception enable
H: automatic EQ disable and AUX interception enable
M: automatic EQ disable and AUX interception disable,no pre-emphasis, 600mVpp swing
DESIGN NOTE:PEQ
Programmalbe input equalization levels;internal pull down at 150k ,3.3V I/O
L: default, LEQ, compensate channel loss up to 12dB at HBR2
H: HEQ, compensate channel loss up to 15dB at HBR2
M:LLEQ, compensate channel loss up to 5dB at HBR2
MTN7002ZHS3
AO3415
3.3VS

TBT

Sheet 38 of 62
TBT


XTAL
X2
FSX3L 25MHZ
TBT_XTAL_25_OUT
TBT_XTAL_25_IN
AR/PPS COMMON FLASH
U20
W25Q80DV
PCIe GEN3
SINK PORT 0
SOURCE PORT 0
SINK PORT 1
LC GPIO
POC GPIO
Misc
MISC
TBT PORTS
Port A
PORT B
POC
DEBUG
U54A
DSL6340
CPU PCIE TX
CPU PCIE RX
DDI (MUX)
TBT USB TYPE C
CPU / Policy Manager
U60
MC74VHC1G08DFT2G
U56
MC74VHC1G08DFT2G
VCC3V3_LC
VCC3V3_SX_SYS
VCC3V3_S0_SYS
+/-0.5%

NOTE:
SNK0_DDC_data/clk ?connect to 2k PU only if SRC0 is connected and support HDMI (a.i HDMI or DP++ connector). Otherwise can be 100k PD.
SNK1_DDC_data ?connect to 100k PD. If SRC0 support HDMI, connect as SNK0_CFG1 to GPU and/or appropriate AUX/DDC demux control
SNK1_DDC_clk ?connect to 100k PD.

NOTE:
ASSEMBLE R1305, R1368 if DPSRC NOT IN USE

IF SOME OF GPIOs ARE NOT IN USE FOLLOW TABLE BELOW:

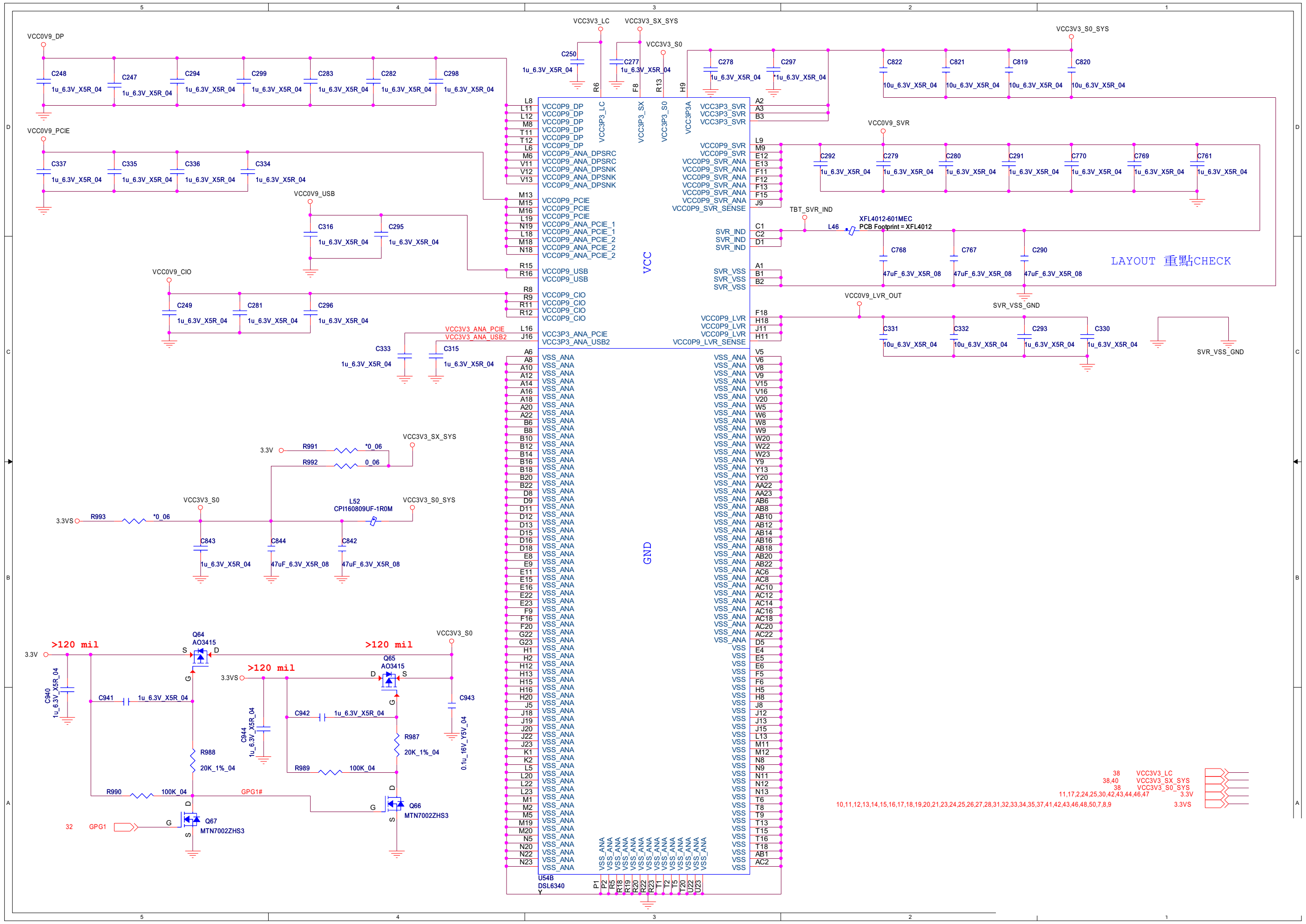
GPIO	TERMINATION	Power Rail
GPIO_0	10K PU	VCC3V3_LC
GPIO_1	10K PU	VCC3V3_LC
GPIO_2	100K PD	
GPIO_3	100k PD	
GPIO_4	10K PU	VCC3V3_LC
GPIO_5	10K PU	VCC3V3_LC
GPIO_6	100K PD	
GPIO_7	100K PD	
GPIO_8	100K PD	
POC_GPIO_0	10K PU	VCC3V3_TBT_SX
POC_GPIO_1	10K PU	VCC3V3_TBT_SX
POC_GPIO_2	100K PD	
POC_GPIO_3	100K PD	
POC_GPIO_4	10K PU	VCC3V3_TBT_SX
POC_GPIO_5	10K PU	VCC3V3_TBT_SX
POC_GPIO_6	100K PD	

DEBUG PINs:

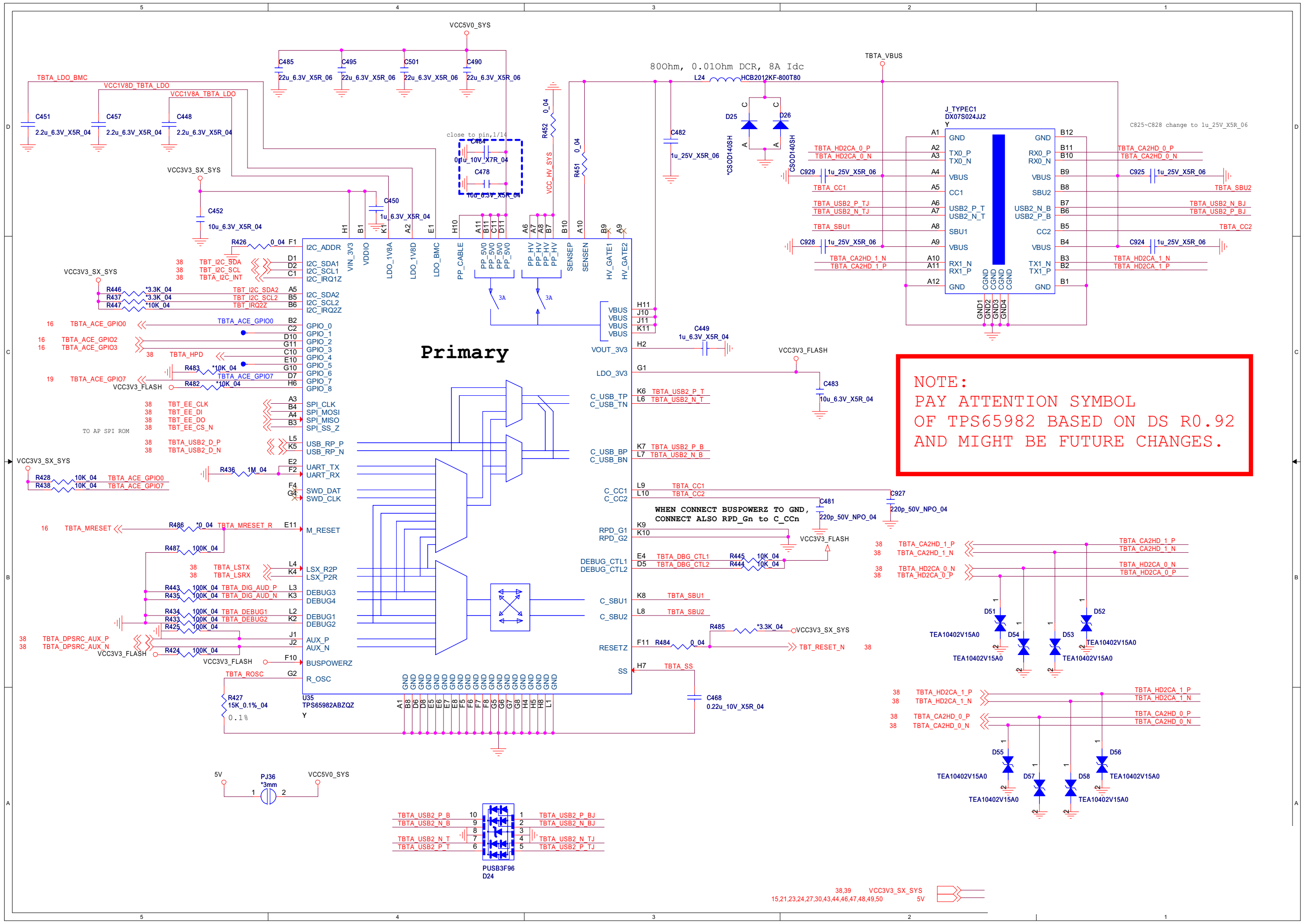
PIN	TERMINATION
MONDC_SVR	GND
MONDC_DPSNK_0	GND
MONDC_DPSNK_1	GND
MONDC_DPSRC	GND
MONDC_CIO_0	GND
MONDC_CIO_1	GND
TEST_EDM	GND
FUSE_VQPS_64	GND
FUSE_VQPS_128	GND
ATEST_P/N	FLOATING
USB2_ATEST	FLOATING
PCIE_ATEST	FLOATING

Power

Sheet 39 of 62
Power


VCC0V9_DP
VCC0V9_PCIE
VCC0V9_USB
VCC0V9_CIO
VCC3V3_LC
VCC3V3_SX_SYS
VCC3V3_S0
VCC3V3_S0_SYS
VCC0V9_SVR
VCC0V9_LVR_OUT
SVR_VSS_GND
TBT_SVR_IND
XFL4012-601MEC
PCB Footprint = XFL4012
L46
LAYOUT 重點CHECK
C248
C247
C294
C299
C283
C282
C298
C337
C335
C336
C334
C316
C295
C249
C281
C296
C333
C315
C250
C277
C278
C297
C822
C821
C819
C820
C292
C279
C280
C291
C770
C769
C761
C768
C767
C290
C331
C332
C293
C330
1u_6.3V_X5R_04
10u_6.3V_X5R_04
47uF_6.3V_X5R_08
VCC3V3_ANA_PCIE
VCC3V3_ANA_USB2
VCC
GND
U54B
DSL6340
3.3V
R991
*0_06
R992
0_06
3.3VS
R993
L52
CPI160809UF-1R0M
C843
C844
C842
>120 mil
Q64
AO3415
Q65
AO3415
C940
C941
C942
C943
C944
R988
20K_1%_04
R987
R989
100K_04
R990
GPG1#
GPG1
32
Q67
MTN7002ZHS3
Q66
MTN7002ZHS3
0.1u_16V_Y5V_04
38 VCC3V3_LC
38,40 VCC3V3_SX_SYS
38 VCC3V3_S0_SYS
11,17,2,24,25,30,42,43,44,46,47 3.3V
10,11,12,13,14,15,16,17,18,19,20,21,23,24,25,26,27,28,31,32,33,34,35,37,41,42,43,46,48,50,7,8,9 3.3VS

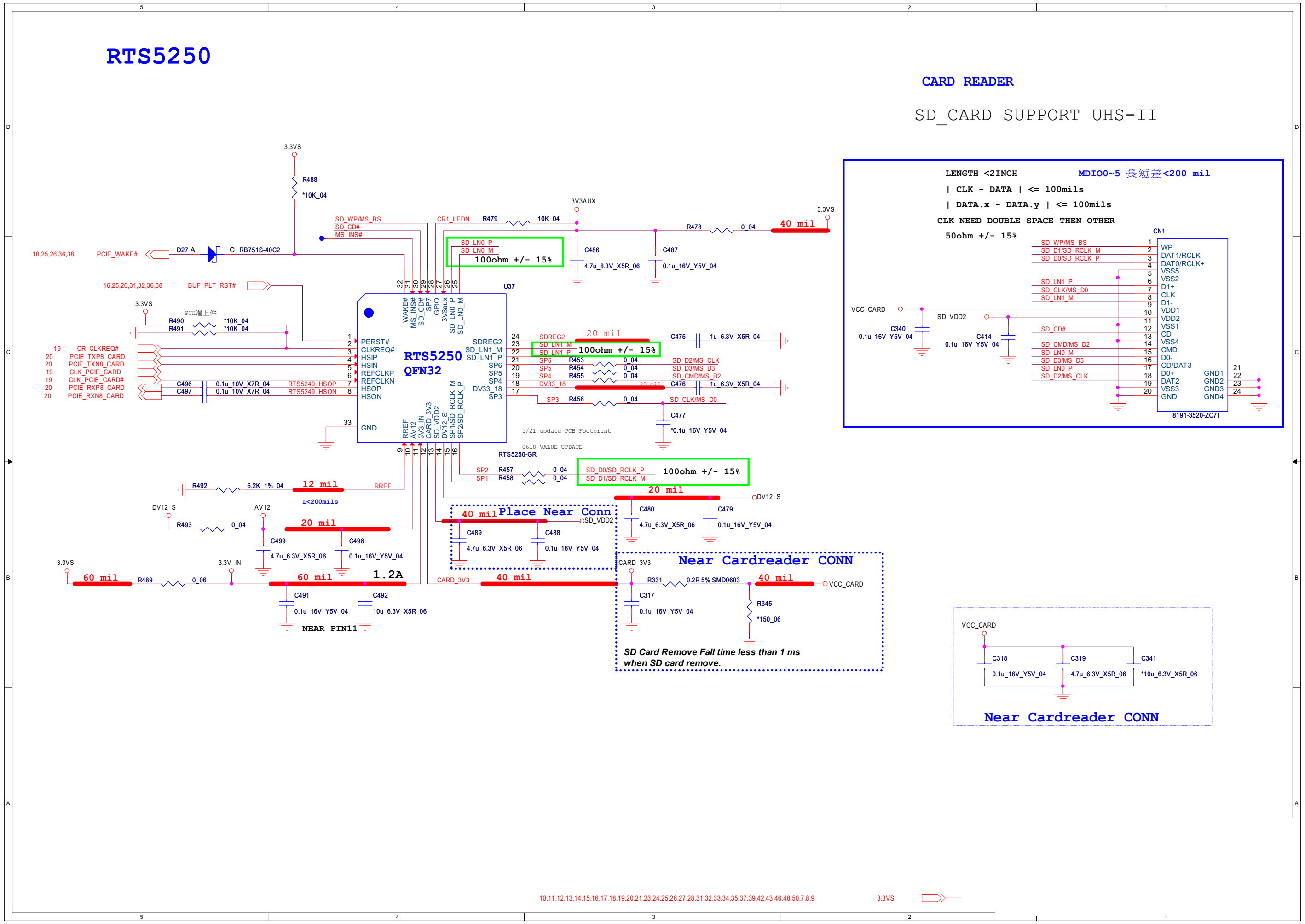
TPS65982


VCC5V0_SYS
TBTA_VBUS
80Ohm, 0.01Ohm DCR, 8A Idc
L24 HCB2012KF-800T80
J_TYPEC1
Primary
U35
TPS65982ABZQZ
PUSB3F96
D24
TEA10402V15A0
NOTE:
PAY ATTENTION SYMBOL
OF TPS65982 BASED ON DS R0.92
AND MIGHT BE FUTURE CHANGES.
WHEN CONNECT BUSPOWERZ TO GND,
CONNECT ALSO RPD_Gn to C_CCn
TO AP SPI ROM
close to pin,1/1
C825~C828 change to 1u_25V_X5R_06
PJ36
5V
VCC3V3_SX_SYS
VCC3V3_FLASH
TBTA_LDO_BMC
VCC1V8D_TBTA_LDO
VCC1V8A_TBTA_LDO

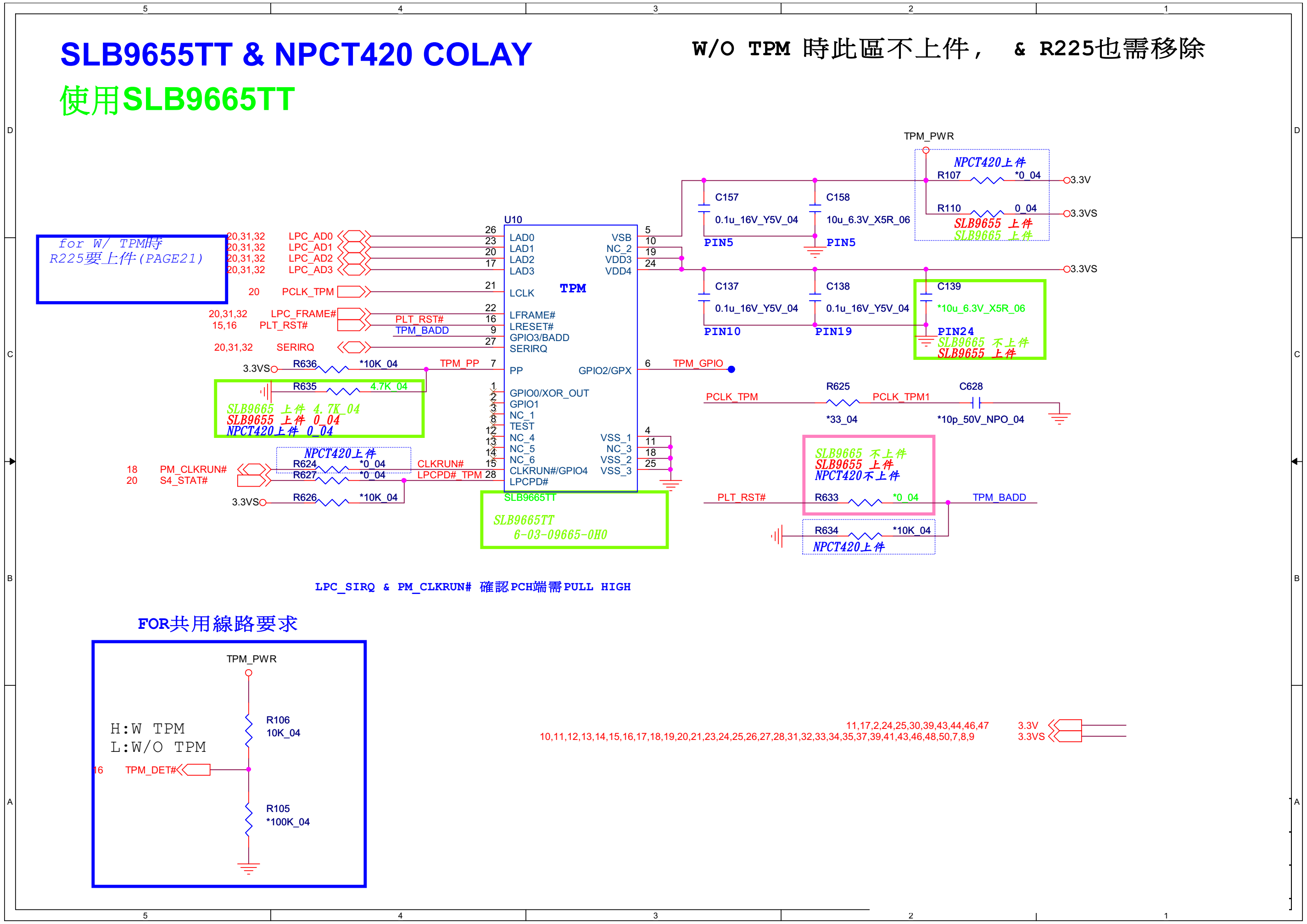
Sheet 40 of 62
TPS65982

Cardreader RTS5250

Sheet 41 of 62
Cardreader
RTS5250


RTS5250
CARD READER
SD_CARD SUPPORT UHS-II
LENGTH <2INCH
MDIO0~5 長短差<200 mil
| CLK - DATA | <= 100mils
| DATA.x - DATA.y | <= 100mils
CLK NEED DOUBLE SPACE THEN OTHER
50ohm +/- 15%
CN1
WP
DAT1/RCLK-
DAT0/RCLK+
VSS5
VSS2
D1+
CLK
D1-
VDD1
VDD2
VSS1
CD
VSS4
CMD
D0-
CD/DAT3
D0+
DAT2
VSS3
GND
GND1
GND2
GND3
GND4
8191-3520-ZC71
SD_WP/MS_BS
SD_D1/SD_RCLK_M
SD_D0/SD_RCLK_P
SD_LN1_P
SD_CLK/MS_D0
SD_LN1_M
SD_CD#
SD_CMD/MS_D2
SD_LN0_M
SD_D3/MS_D3
SD_LN0_P
SD_D2/MS_CLK
VCC_CARD
SD_VDD2
C340
0.1u_16V_Y5V_04
C414
0.1u_16V_Y5V_04
3.3VS
R488
*10K_04
18,25,26,36,38
PCIE_WAKE#
D27 A
C RB751S-40C2
16,25,26,31,32,36,38
BUF_PLT_RST#
PCH端上件
R490
R491
*10K_04
19 CR_CLKREQ#
20 PCIE_TXP8_CARD
20 PCIE_TXN8_CARD
19 CLK_PCIE_CARD
19 CLK_PCIE_CARD#
20 PCIE_RXP8_CARD
20 PCIE_RXN8_CARD
C496
C497
0.1u_10V_X7R_04
RTS5249_HSOP
RTS5249_HSON
U37
RTS5250
QFN32
PERST#
CLKREQ#
HSIP
HSIN
REFCLKP
REFCLKN
HSOP
HSON
GND
WAKE#
MS_INS#
SD_CD#
SP7
GPIO
3V3aux
SD_LN0_P
SD_LN0_M
SDREG2
SD_LN1_M
SD_LN1_P
SP6
SP5
SP4
DV33_18
SP3
RREF
AV12
3V3_IN
CARD_3V3
SD_VDD2
DV12_S
SP1/SD_RCLK_M
SP2/SD_RCLK_P
RTS5250-GR
SD_WP/MS_BS
SD_CD#
MS_INS#
CR1_LEDN
R479
10K_04
3V3AUX
R478
0_04
40 mil
100ohm +/- 15%
C486
4.7u_6.3V_X5R_06
C487
0.1u_16V_Y5V_04
SDREG2
20 mil
C475
1u_6.3V_X5R_04
R453
R454
R455
0_04
SD_D2/MS_CLK
SD_D3/MS_D3
SD_CMD/MS_D2
DV33_18
20 mil
C476
1u_6.3V_X5R_04
SP3
R456
SD_CLK/MS_D0
C477
*0.1u_16V_Y5V_04
5/21 update PCB Footprint
0618 VALUE UPDATE
SP2 R457
SP1 R458
SD_D0/SD_RCLK_P
SD_D1/SD_RCLK_M
100ohm +/- 15%
20 mil
DV12_S
C480
4.7u_6.3V_X5R_06
C479
0.1u_16V_Y5V_04
R492
6.2K_1%_04
12 mil
RREF
L<200mils
DV12_S
R493
0_04
AV12
20 mil
C499
4.7u_6.3V_X5R_06
C498
0.1u_16V_Y5V_04
40 mil
Place Near Conn
SD_VDD2
C489
4.7u_6.3V_X5R_06
C488
0.1u_16V_Y5V_04
3.3VS
60 mil
R489
0_06
3.3V_IN
60 mil
1.2A
C491
0.1u_16V_Y5V_04
C492
10u_6.3V_X5R_06
NEAR PIN11
CARD_3V3
40 mil
Near Cardreader CONN
CARD_3V3
R331
0.2R 5% SMD0603
40 mil
VCC_CARD
C317
0.1u_16V_Y5V_04
R345
*150_06
SD Card Remove Fall time less than 1 ms
when SD card remove.
VCC_CARD
C318
0.1u_16V_Y5V_04
C319
4.7u_6.3V_X5R_06
C341
*10u_6.3V_X5R_06
Near Cardreader CONN
10,11,12,13,14,15,16,17,18,19,20,21,23,24,25,26,27,28,31,32,33,34,35,37,39,42,43,46,48,50,7,8,9
3.3VS

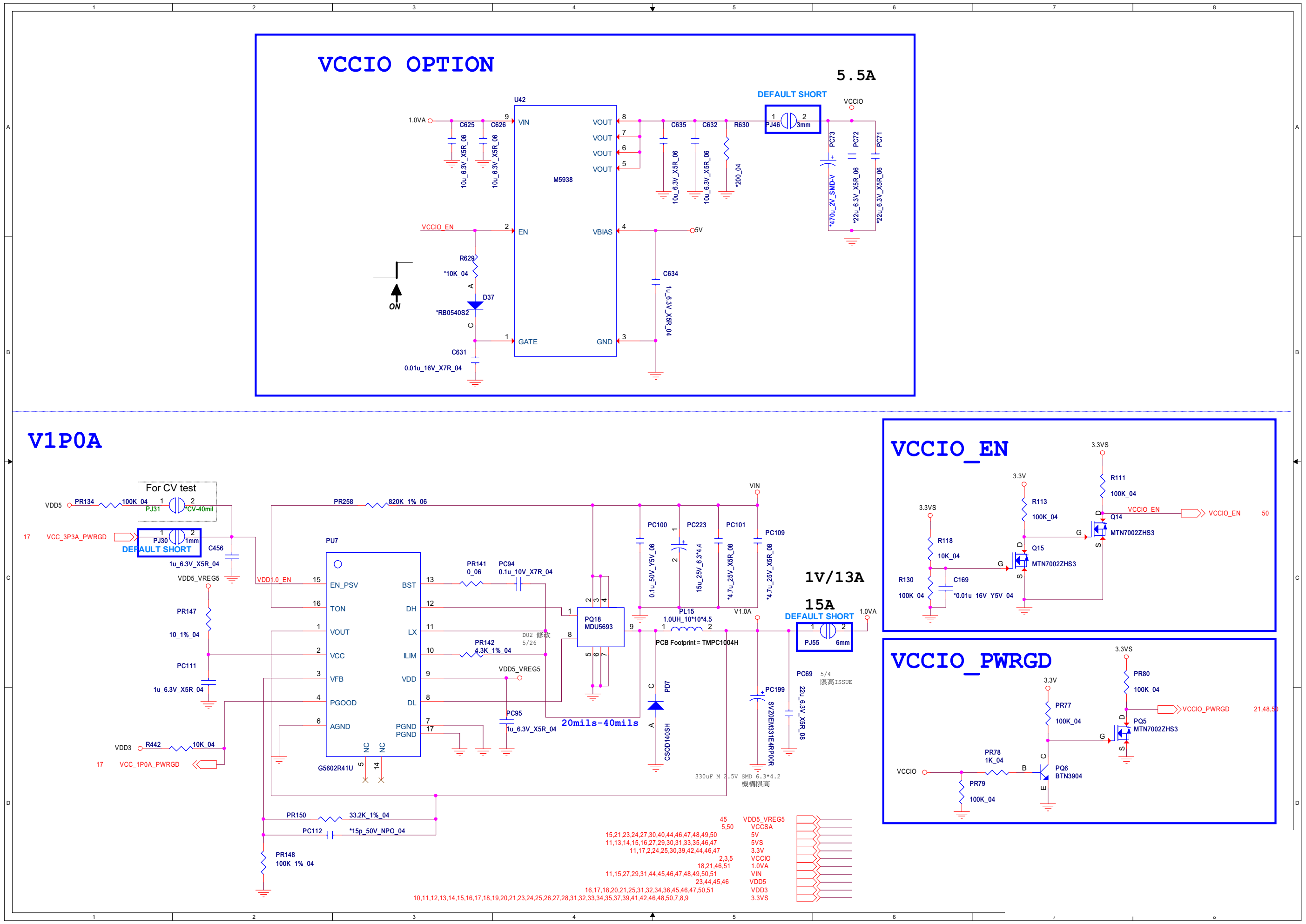
TPM SLB9655TT & NPCT420


SLB9655TT & NPCT420 COLAY
使用SLB9665TT
W/O TPM 時此區不上件， & R225也需移除
for W/ TPM時
R225要上件(PAGE21)
U10
TPM
LAD0
LAD1
LAD2
LAD3
LCLK
LFRAME#
LRESET#
GPIO3/BADD
SERIRQ
PP
GPIO0/XOR_OUT
GPIO1
NC_1
TEST
NC_4
NC_5
NC_6
CLKRUN#/GPIO4
LPCPD#
VSB
NC_2
VDD3
VDD4
GPIO2/GPX
VSS_1
NC_3
VSS_2
VSS_3
LPC_AD0
LPC_AD1
LPC_AD2
LPC_AD3
PCLK_TPM
LPC_FRAME#
PLT_RST#
PLT_RST#
TPM_BADD
SERIRQ
TPM_PP
TPM_GPIO
3.3VS
R636 *10K_04
R635 4.7K_04
SLB9665 上件 4.7K_04
SLB9655 上件 0_04
NPCT420上件 0_04
NPCT420上件
R624 *0_04
R627 *0_04
R626 *10K_04
PM_CLKRUN#
S4_STAT#
CLKRUN#
LPCPD#_TPM
SLB9665TT
SLB9665TT
6-03-09665-0H0
TPM_PWR
NPCT420上件
R107 *0_04
R110 0_04
SLB9655 上件
SLB9665 上件
3.3V
3.3VS
C157 0.1u_16V_Y5V_04
C158 10u_6.3V_X5R_06
PIN5
PIN5
C137 0.1u_16V_Y5V_04
C138 0.1u_16V_Y5V_04
C139 *10u_6.3V_X5R_06
PIN10
PIN19
PIN24
SLB9665 不上件
SLB9655 上件
R625 *33_04
PCLK_TPM
PCLK_TPM1
C628 *10p_50V_NPO_04
SLB9665 不上件
SLB9655 上件
NPCT420不上件
R633 *0_04
R634 *10K_04
NPCT420上件
TPM_BADD
LPC_SIRQ & PM_CLKRUN# 確認PCH端需PULL HIGH
FOR共用線路要求
TPM_PWR
H:W TPM
L:W/O TPM
TPM_DET#
R106 10K_04
R105 *100K_04
11,17,2,24,25,30,39,43,44,46,47
10,11,12,13,14,15,16,17,18,19,20,21,23,24,25,26,27,28,31,32,33,34,35,37,39,41,43,46,48,50,7,8,9
3.3V
3.3VS

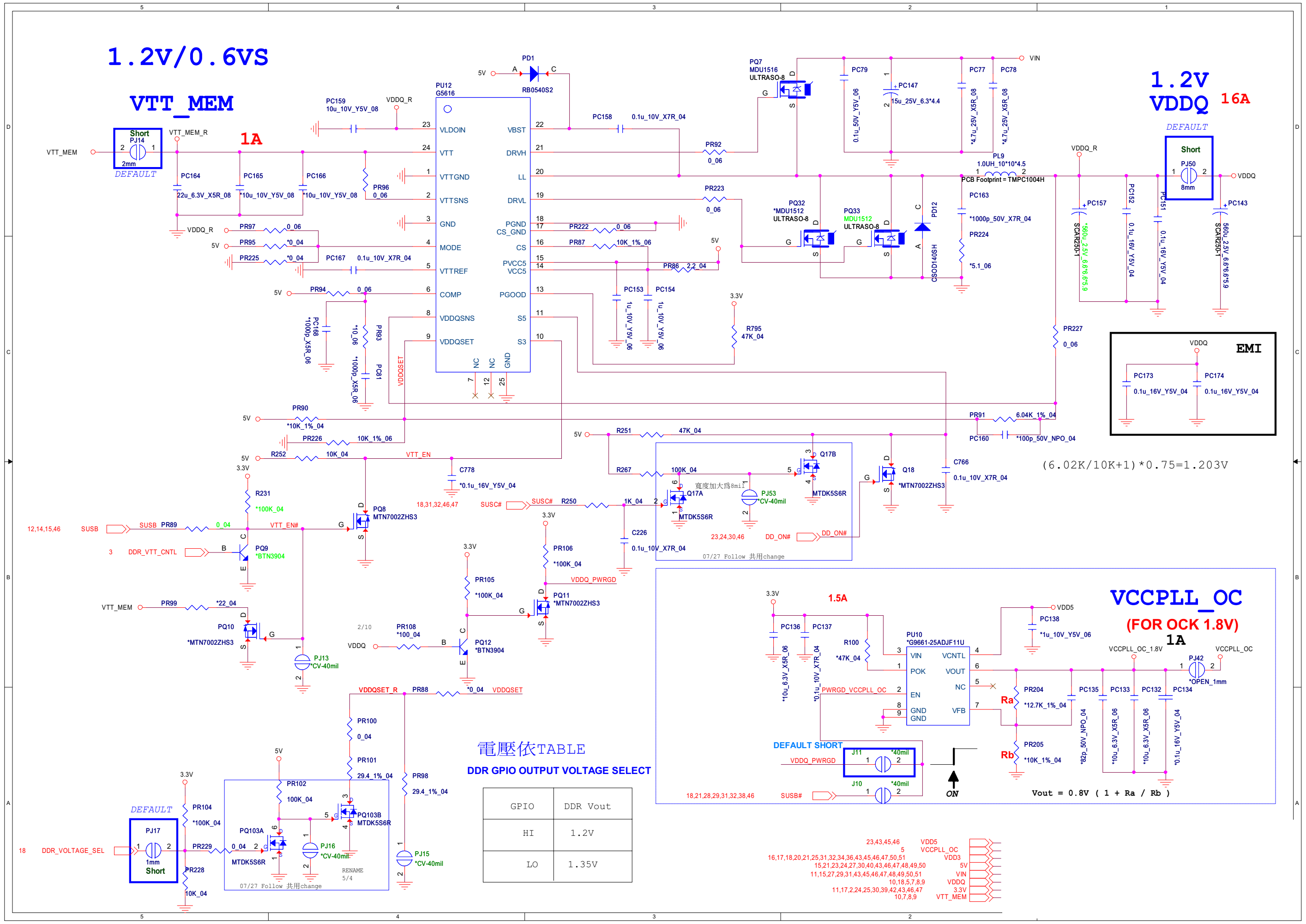
Sheet 42 of 62
TPM SLB9655TT &
NPCT420

VCCIO / 1P0A

Sheet 43 of 62
VCCIO / 1P0A


VCCIO OPTION
5.5A
DEFAULT SHORT
VCCIO
U42
M5938
1.0VA
C625
C626
10u_6.3V_X5R_06
10u_6.3V_X5R_06
9 VIN
8 VOUT
7 VOUT
6 VOUT
5 VOUT
C635
C632
R630
10u_6.3V_X5R_06
10u_6.3V_X5R_06
*200_04
PJ46 1 2 3mm
PC73
PC72
PC71
*470u_2V_SMD-V
*22u_6.3V_X5R_06
*22u_6.3V_X5R_06
VCCIO_EN
2 EN
4 VBIAS
5V
C634
1u_6.3V_X5R_04
R629
*10K_04
A
D37
*RB0540S2
C
ON
1 GATE
3 GND
C631
0.01u_16V_X7R_04
V1P0A
For CV test
VDD5
PR134
100K_04
PJ31
*CV-40mil
17
VCC_3P3A_PWRGD
PJ30
1mm
DEFAULT SHORT
C456
1u_6.3V_X5R_04
VDD5_VREG5
PR147
10_1%_04
PC111
1u_6.3V_X5R_04
VDD3
R442
10K_04
17
VCC_1P0A_PWRGD
PR258
820K_1%_06
PU7
VDD1.0_EN
15 EN_PSV
16 TON
1 VOUT
2 VCC
3 VFB
4 PGOOD
6 AGND
13 BST
12 DH
11 LX
10 ILIM
9 VDD
8 DL
7 PGND
17 PGND
NC 5
NC 14
G5602R41U
PR141
0_06
PC94
0.1u_10V_X7R_04
PR142
4.3K_1%_04
D02 修改
5/26
VDD5_VREG5
PC95
1u_6.3V_X5R_04
20mils-40mils
PQ18
MDU5693
VIN
PC100
PC223
PC101
PC109
0.1u_50V_Y5V_06
15u_25V_6.3*4.4
*4.7u_25V_X5R_08
*4.7u_25V_X5R_08
PL15
1.0UH_10*10*4.5
V1.0A
PCB Footprint = TMPC1004H
PD7
CSOD140SH
1V/13A
15A
DEFAULT SHORT
1.0VA
PJ55
6mm
PC69
5/4
限高ISSUE
PC199
SVZ0EM331E4RP00R
22u_6.3V_X5R_08
330uF M 2.5V SMD 6.3*4.2
機構限高
PR150
33.2K_1%_04
PC112
*15p_50V_NPO_04
PR148
100K_1%_04
45 VDD5_VREG5
5,50 VCCSA
15,21,23,24,27,30,40,44,46,47,48,49,50 5V
11,13,14,15,16,27,29,30,31,33,35,46,47 5VS
11,17,2,24,25,30,39,42,44,46,47 3.3V
2,3,5 VCCIO
18,21,46,51 1.0VA
11,15,27,29,31,44,45,46,47,48,49,50,51 VIN
23,44,45,46 VDD5
16,17,18,20,21,25,31,32,34,36,45,46,47,50,51 VDD3
10,11,12,13,14,15,16,17,18,19,20,21,23,24,25,26,27,28,31,32,33,34,35,37,39,41,42,46,48,50,7,8,9 3.3VS
VCCIO_EN
3.3VS
3.3V
3.3VS
R111
100K_04
R113
100K_04
R118
10K_04
R130
100K_04
C169
*0.01u_16V_Y5V_04
Q15
MTN7002ZHS3
Q14
MTN7002ZHS3
VCCIO_EN
VCCIO_EN
50
VCCIO_PWRGD
3.3VS
3.3V
PR80
100K_04
PR77
100K_04
PQ5
MTN7002ZHS3
VCCIO_PWRGD
21,48,50
VCCIO
PR78
1K_04
PR79
100K_04
PQ6
BTN3904

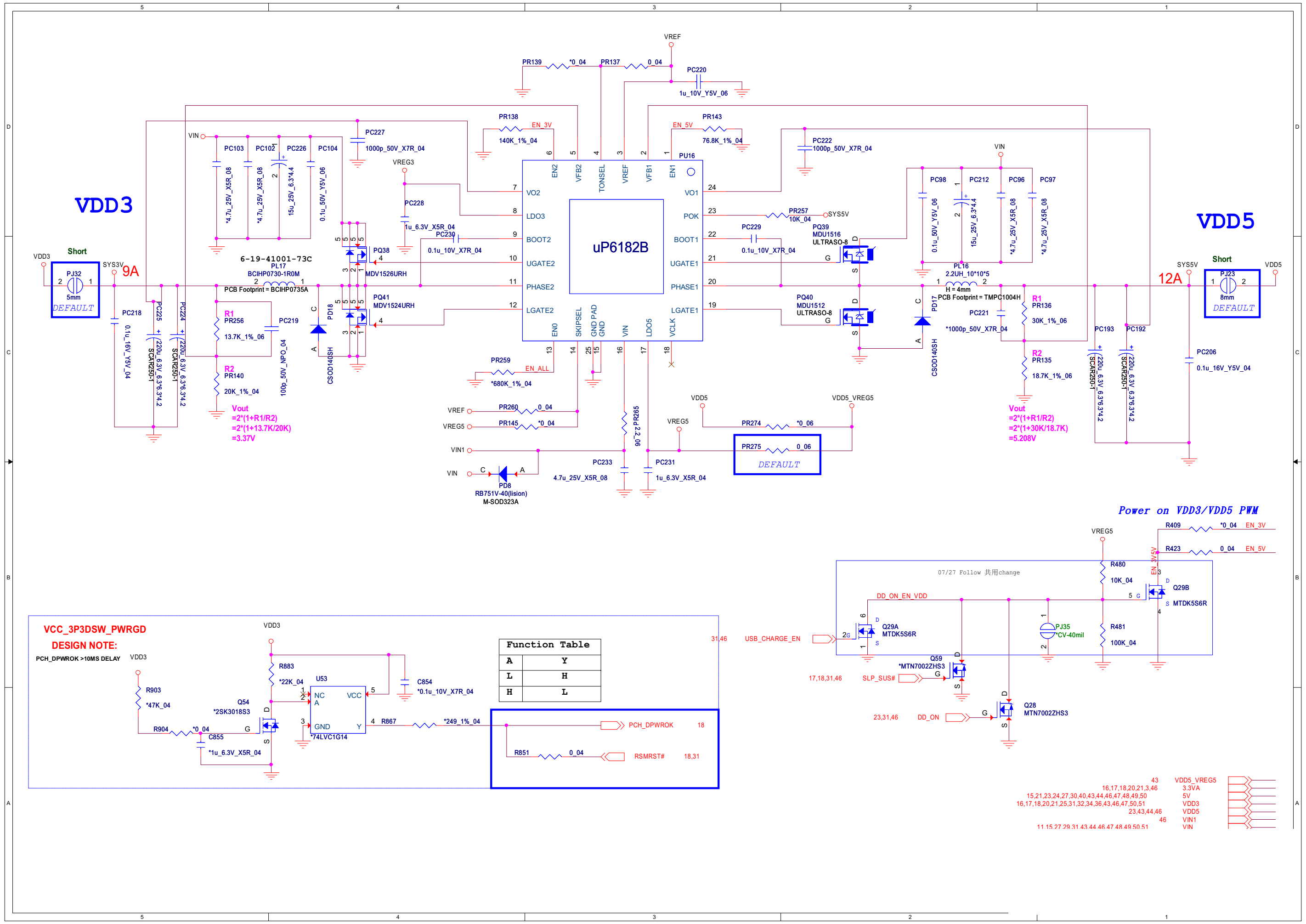
DDR 1.2V/0.6VS/VCCPLL_OC


1.2V/0.6VS
VTT_MEM
1A
VTT_MEM
Short
PJ14
2mm
DEFAULT
VTT_MEM_R
PC164
22u_6.3V_X5R_08
PC165
10u_10V_Y5V_08
PC166
10u_10V_Y5V_08
PC159
10u_10V_Y5V_08
VDDQ_R
PU12
G5616
VLDOIN
VTT
VTTGND
VTTSNS
GND
MODE
VTTREF
COMP
VDDQSNS
VDDQSET
VBST
DRVH
LL
DRVL
PGND
CS_GND
CS
PVCC5
VCC5
PGOOD
S5
S3
NC
GND
PD1
RB0540S2
5V
PC158
0.1u_10V_X7R_04
PR92
0_06
PR223
0_06
PR96
0_06
PR97
0_06
PR95
*0_04
PR225
*0_04
PC167
0.1u_10V_X7R_04
PR94
0_06
PR222
0_06
PR87
10K_1%_06
PR86
2.2_04
PC153
PC154
R795
47K_04
3.3V
PQ7
MDU1516
ULTRASO-8
PQ32
*MDU1512
ULTRASO-8
PQ33
MDU1512
ULTRASO-8
PC79
0.1u_50V_Y5V_06
PC147
15u_25V_6.3*4.4
PC77
PC78
*4.7u_25V_X5R_08
VIN
PL9
1.0UH_10*10*4.5
PCB Footprint = TMPC1004H
PD12
GSOD1405H
PC163
*1000p_50V_X7R_04
PR224
*5.1_06
1.2V
VDDQ
16A
DEFAULT
Short
PJ50
8mm
VDDQ_R
VDDQ
PC157
SCAR250-T
*560u_2.5V_6.6*6.6*5.9
PC152
0.1u_16V_Y5V_04
PC151
0.1u_16V_Y5V_04
PC143
560u_2.5V_6.6*6.6*5.9
SCAR250-T
PR227
0_06
EMI
PC173
0.1u_16V_Y5V_04
PC174
0.1u_16V_Y5V_04
PR91
6.04K_1%_04
PC160
*100p_50V_NPO_04
(6.02K/10K+1)*0.75=1.203V
PR90
*10K_1%_04
PR226
10K_1%_06
R252
10K_04
VTT_EN
C778
*0.1u_16V_Y5V_04
R231
*100K_04
PQ8
MTN7002ZHS3
SUSB
PR89
0_04
VTT_EN#
12,14,15,46
DDR_VTT_CNTL
PQ9
*BTN3904
VTT_MEM
PR99
*22_04
PQ10
*MTN7002ZHS3
PJ13
*CV-40mil
PR251
47K_04
R267
100K_04
Q17B
MTDK5S6R
Q17A
PJ53
*CV-40mil
寬度加大為8mil
Q18
*MTN7002ZHS3
C766
0.1u_10V_X7R_04
SUSC#
R250
1K_04
18,31,32,46,47
C226
0.1u_10V_X7R_04
23,24,30,46
DD_ON#
07/27 Follow 共用change
PR106
*100K_04
VDDQ_PWRGD
PQ11
*MTN7002ZHS3
PR105
*100K_04
PR108
*100_04
2/10
PQ12
*BTN3904
VDDQSET_R
PR88
*0_04
VDDQSET
PR100
0_04
PR101
29.4_1%_04
PR98
29.4_1%_04
PJ15
*CV-40mil
PR102
100K_04
PQ103B
MTDK5S6R
PQ103A
MTDK5S6R
PJ16
*CV-40mil
RENAME 5/4
07/27 Follow 共用change
DEFAULT
PJ17
1mm
Short
PR104
*100K_04
PR229
0_04
PR228
10K_04
18
DDR_VOLTAGE_SEL
電壓依TABLE
DDR GPIO OUTPUT VOLTAGE SELECT
GPIO | DDR Vout
HI | 1.2V
LO | 1.35V
VCCPLL_OC
(FOR OCK 1.8V)
1A
1.5A
3.3V
PC136
*10u_6.3V_X5R_06
PC137
*0.1u_10V_X7R_04
R100
*47K_04
PU10
*G9661-25ADJF11U
VIN
POK
EN
GND
VCNTL
VOUT
NC
VFB
PWRGD_VCCPLL_OC
PC138
*1u_10V_Y5V_06
VDD5
VCCPLL_OC_1.8V
VCCPLL_OC
PJ42
*OPEN_1mm
PR204
*12.7K_1%_04
Ra
PR205
*10K_1%_04
Rb
PC135
*82p_50V_NPO_04
PC133
*10u_6.3V_X5R_06
PC132
*10u_6.3V_X5R_06
PC134
*0.1u_16V_Y5V_04
DEFAULT SHORT
J11
*40mil
VDDQ_PWRGD
J10
*40mil
18,21,28,29,31,32,38,46
SUSB#
ON
Vout = 0.8V (1 + Ra / Rb)
23,43,45,46
VDD5
5
VCCPLL_OC
16,17,18,20,21,25,31,32,34,36,43,45,46,47,50,51
VDD3
15,21,23,24,27,30,40,43,46,47,48,49,50
5V
11,15,27,29,31,43,45,46,47,48,49,50,51
VIN
10,18,5,7,8,9
VDDQ
11,17,2,24,25,30,39,42,43,46,47
3.3V
10,7,8,9
VTT_MEM

Sheet 44 of 62
DDR 1.2V/0.6VS/
VCCPLL_OC

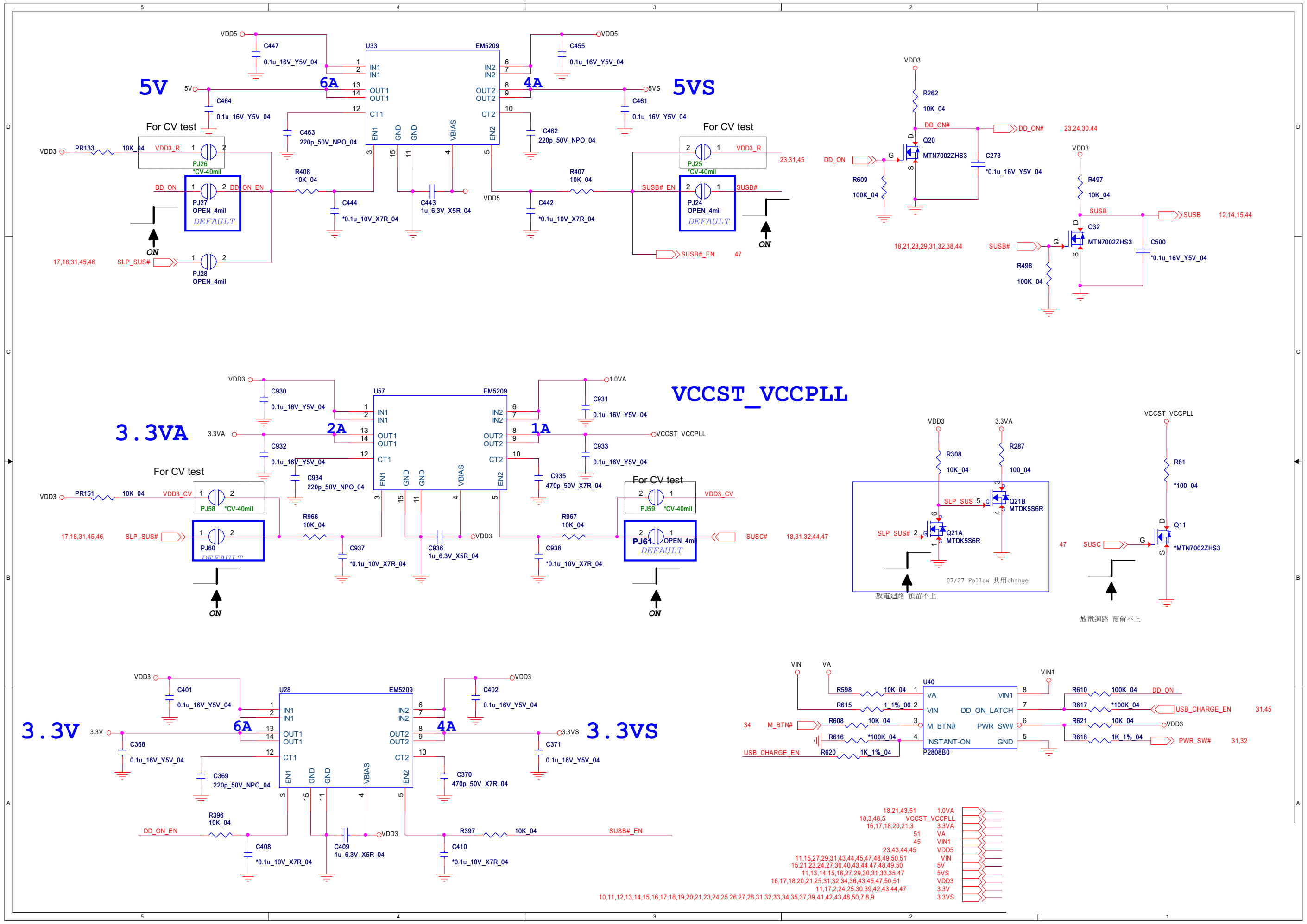
VDD3, VDD5

Sheet 45 of 62
VDD3, VDD5


VDD3
VDD5
uP6182B
PU16
9A
12A
Short
PJ32
5mm
DEFAULT
PJ23
8mm
VREF
VIN
VREG3
VREG5
SYS3V
SYS5V
PL17
BCIHP0730-1R0M
6-19-41001-73C
PCB Footprint = BCIHP0735A
PL16
2.2UH_10*10*5
H = 4mm
PCB Footprint = TMPC1004H
PQ38
PQ41
MDV1526URH
MDV1524URH
PQ39
MDU1516
ULTRASO-8
PQ40
MDU1512
ULTRASO-8
PD18
PD17
CSOD140SH
PD8
RB751V-40(lision)
M-SOD323A
EN2
VFB2
TONSEL
VREF
VFB1
EN1
VO2
LDO3
BOOT2
UGATE2
PHASE2
LGATE2
VO1
POK
BOOT1
UGATE1
PHASE1
LGATE1
EN0
SKIPSEL
GND PAD
GND
VIN
LDO5
VCLK
EN_3V
EN_5V
EN_ALL
Vout
=2*(1+R1/R2)
=2*(1+13.7K/20K)
=3.37V
Vout
=2*(1+R1/R2)
=2*(1+30K/18.7K)
=5.208V
R1
R2
PR256
13.7K_1%_06
PR140
20K_1%_04
PR136
30K_1%_06
PR135
18.7K_1%_06
PR138
140K_1%_04
PR143
76.8K_1%_04
PR139
PR137
PC220
1u_10V_Y5V_06
PR257
10K_04
Power on VDD3/VDD5 PWM
07/27 Follow 共用change
DD_ON_EN_VDD
USB_CHARGE_EN
SLP_SUS#
DD_ON
Q29A
Q29B
MTDK5S6R
Q59
*MTN7002ZHS3
Q28
MTN7002ZHS3
PJ35
*CV-40mil
R480
10K_04
R481
100K_04
R409
R423
VCC_3P3DSW_PWRGD
DESIGN NOTE:
PCH_DPWROK >10MS DELAY
U53
74LVC1G14
Q54
*2SK3018S3
R883
*22K_04
R903
*47K_04
R904
C855
C854
R867
*249_1%_04
PCH_DPWROK
R851
RSMRST#
VDD5_VREG5
3.3VA
5V
VDD3
VDD5
VIN1
VIN

Function Table	
A	Y
L	H
H	L

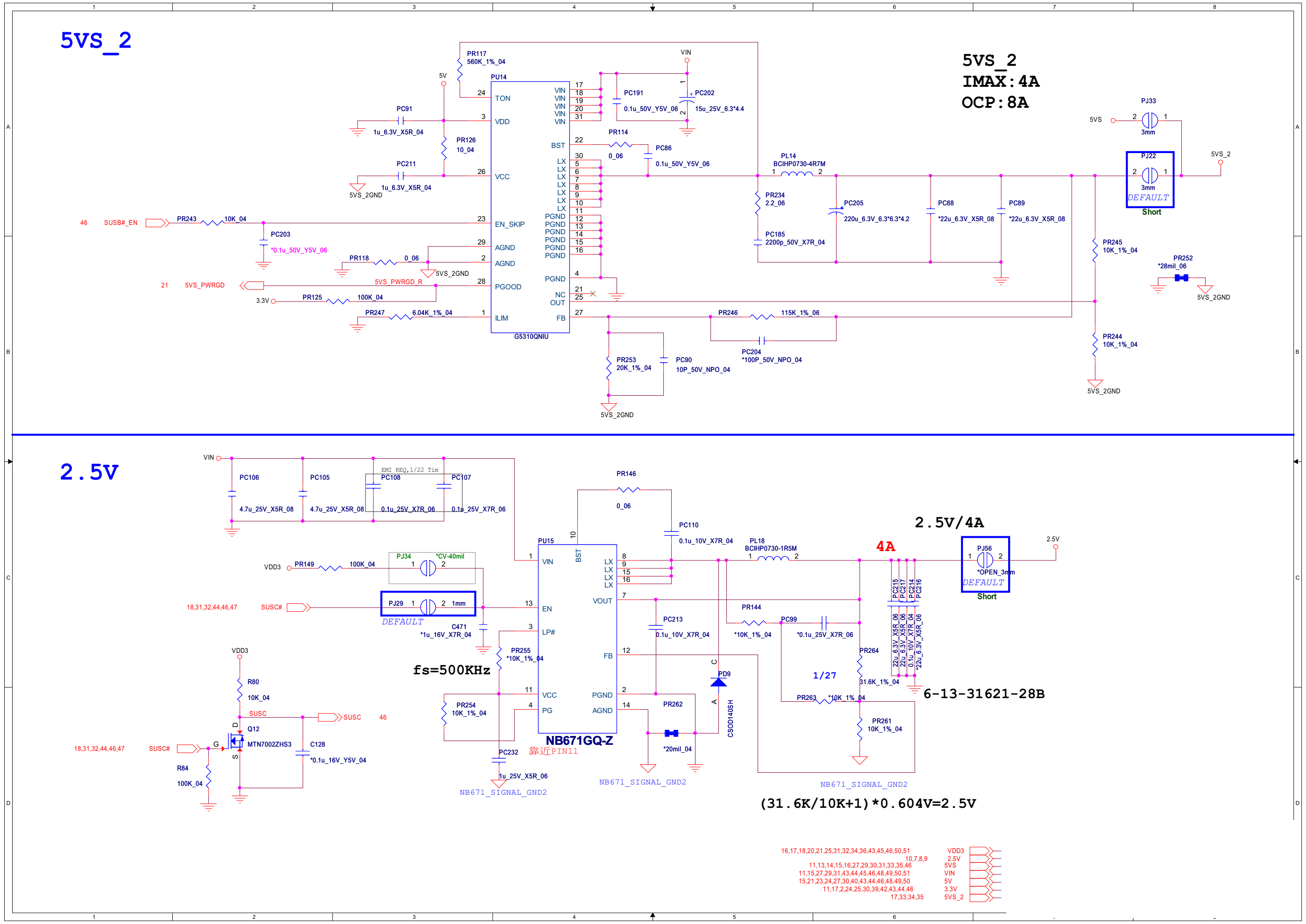
12V, 5VS, 3.3VS, 3.3VA


5V
5VS
6A
4A
U33
EM5209
For CV test
ON
DEFAULT
VDD5
VDD3
DD_ON
DD_ON#
SUSB#
SUSB
SLP_SUS#
Q20
MTN7002ZHS3
Q32
3.3VA
VCCST_VCCPLL
2A
1A
U57
EM5209
Q21A
Q21B
MTDK5S6R
Q11
SUSC
SUSC#
07/27 Follow 共用change
放電迴路 預留不上
3.3V
3.3VS
U28
EM5209
U40
P2808B0
VIN
VA
VIN1
DD_ON_LATCH
M_BTN#
PWR_SW#
INSTANT-ON
GND
USB_CHARGE_EN
1.0VA

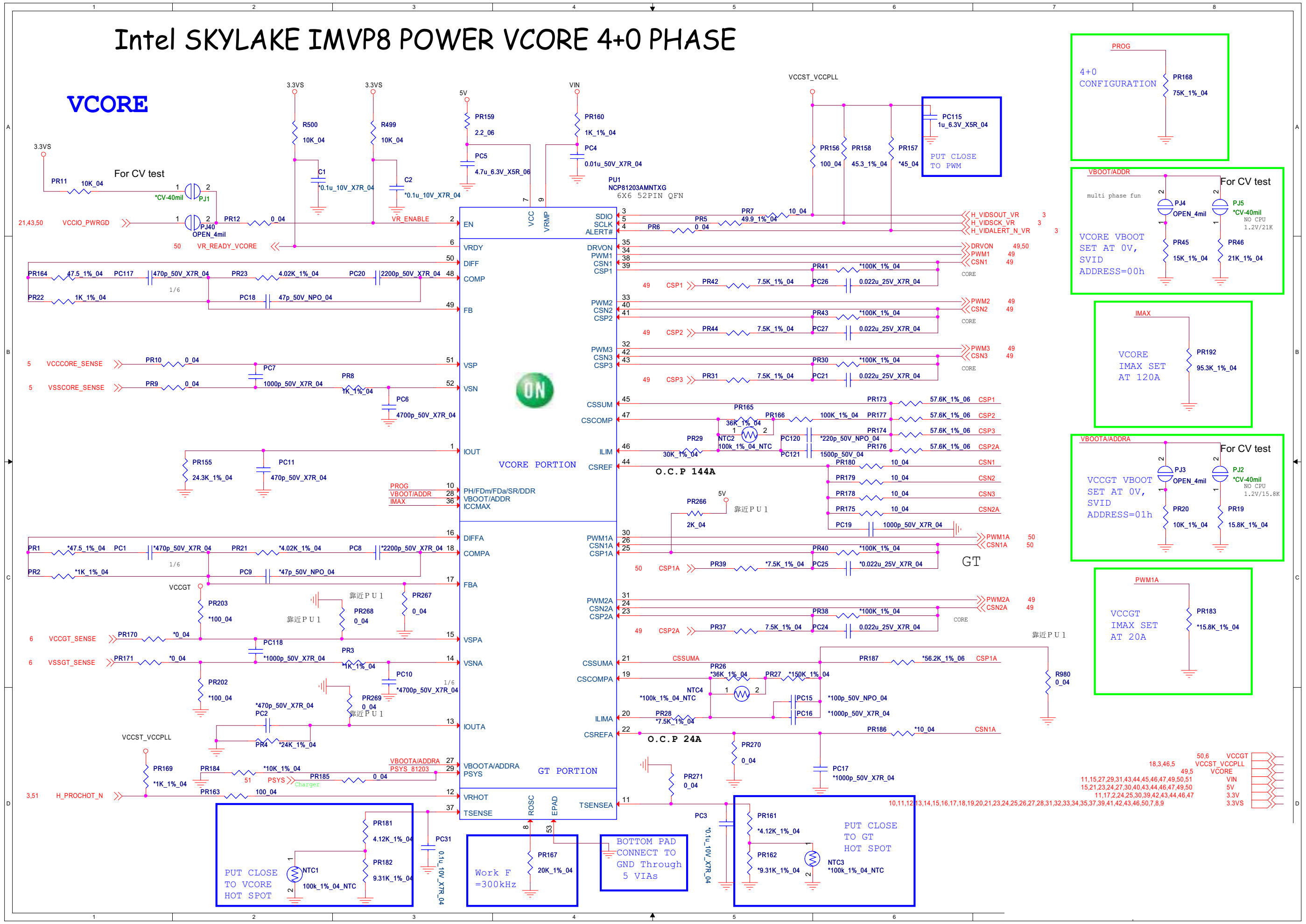
Sheet 46 of 62
12V, 5VS, 3.3VS,
3.3VA

5VS_2

Sheet 47 of 62
5VS_2


5VS_2
5VS_2
IMAX:4A
OCP:8A
PU14
G5310QNIU
TON
VDD
VCC
EN_SKIP
AGND
PGOOD
ILIM
VIN
BST
LX
PGND
NC
OUT
FB
PR117
560K_1%_04
PR126
10_04
PC91
1u_6.3V_X5R_04
PC211
1u_6.3V_X5R_04
5VS_2GND
SUSB#_EN
PR243
10K_04
PC203
*0.1u_50V_Y5V_06
PR118
0_06
5VS_PWRGD
5VS_PWRGD_R
PR125
100K_04
3.3V
PR247
6.04K_1%_04
PC191
0.1u_50V_Y5V_06
PC202
15u_25V_6.3*4.4
PR114
0_06
PC86
0.1u_50V_Y5V_06
PL14
BCIHP0730-4R7M
PR234
2.2_06
PC165
2200p_50V_X5R_04
PC205
220u_6.3V_6.3*4.2
PC88
*22u_6.3V_X5R_08
PC89
*22u_6.3V_X5R_08
PJ33
3mm
PJ22
3mm
DEFAULT
Short
5VS
PR245
10K_1%_04
PR252
*28mil_06
PR244
10K_1%_04
PR246
115K_1%_06
PC204
*100P_50V_NPO_04
PR253
20K_1%_04
PC90
10P_50V_NPO_04
2.5V
VIN
PC106
4.7u_25V_X5R_08
PC105
4.7u_25V_X5R_08
EMI REQ.1/22 Tim
PC108
0.1u_25V_X7R_06
PC107
0.1u_25V_X7R_06
PR146
0_06
PC110
0.1u_10V_X7R_04
PL18
BCIHP0730-1R5M
2.5V/4A
4A
PJ56
*OPEN_3mm
DEFAULT
Short
VDD3
PR149
100K_04
PJ34
*CV-40mil
SUSC#
PJ29
1mm
DEFAULT
C471
*1u_16V_X7R_04
PR255
*10K_1%_04
fs=500KHz
PU15
NB671GQ-Z
EN
LP#
VCC
PG
VOUT
FB
PGND
AGND
PC213
0.1u_10V_X7R_04
PR144
*10K_1%_04
PC99
*0.1u_25V_X7R_06
PC215
PC217
PC214
PC216
PR264
31.6K_1%_04
1/27
PR263
*10K_1%_04
PR261
10K_1%_04
6-13-31621-28B
PD9
CSOD140SH
PR262
*20mil_04
PR254
10K_1%_04
PC232
1u_25V_X5R_06
靠近PIN11
NB671_SIGNAL_GND2
R80
10K_04
SUSC
Q12
MTN7002ZHS3
C128
*0.1u_16V_Y5V_04
R84
100K_04
(31.6K/10K+1)*0.604V=2.5V
VDD3
2.5V
5VS
VIN
5V
3.3V
5VS_2

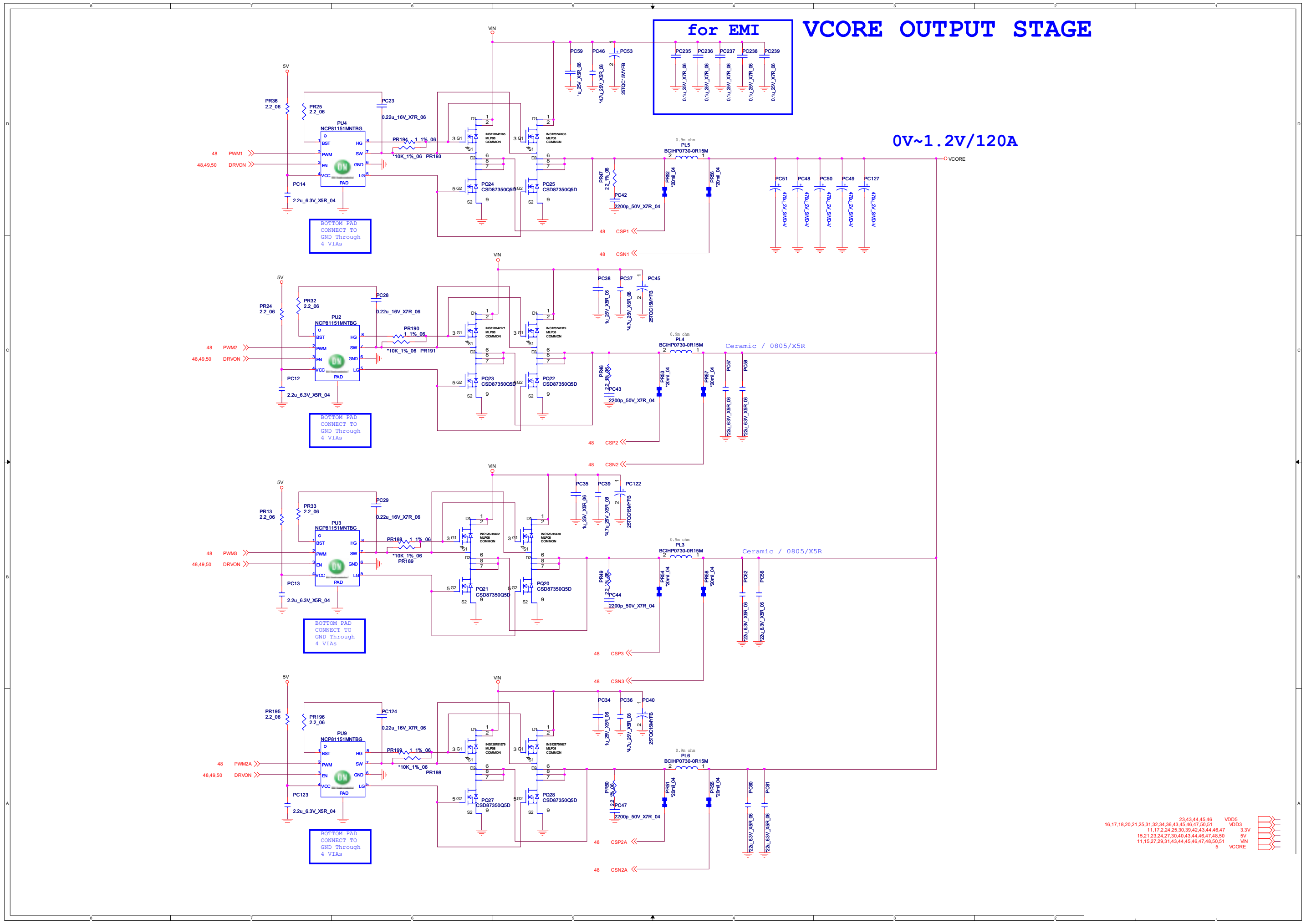
VCore / VCCGT


Intel SKYLAKE IMVP8 POWER VCORE 4+0 PHASE
VCORE
For CV test
PU1
NCP81203AMNTXG
6X6 52PIN QFN
VCORE PORTION
GT PORTION
O.C.P 144A
O.C.P 24A
GT
PUT CLOSE TO PWM
4+0 CONFIGURATION
PR168
75K_1%_04
VCORE VBOOT SET AT 0V, SVID ADDRESS=00h
VCORE IMAX SET AT 120A
PR192
95.3K_1%_04
VCCGT VBOOT SET AT 0V, SVID ADDRESS=01h
VCCGT IMAX SET AT 20A
PR183
*15.8K_1%_04
PUT CLOSE TO VCORE HOT SPOT
Work F =300kHz
BOTTOM PAD CONNECT TO GND Through 5 VIAs
PUT CLOSE TO GT HOT SPOT
VCCST_VCCPLL
VCCIO_PWRGD
VR_READY_VCORE
VCCCORE_SENSE
VSSCORE_SENSE
VCCGT_SENSE
VSSGT_SENSE
H_PROCHOT_N
H_VIDSOUT_VR
H_VIDSCK_VR
H_VIDALERT_N_VR
靠近P U 1

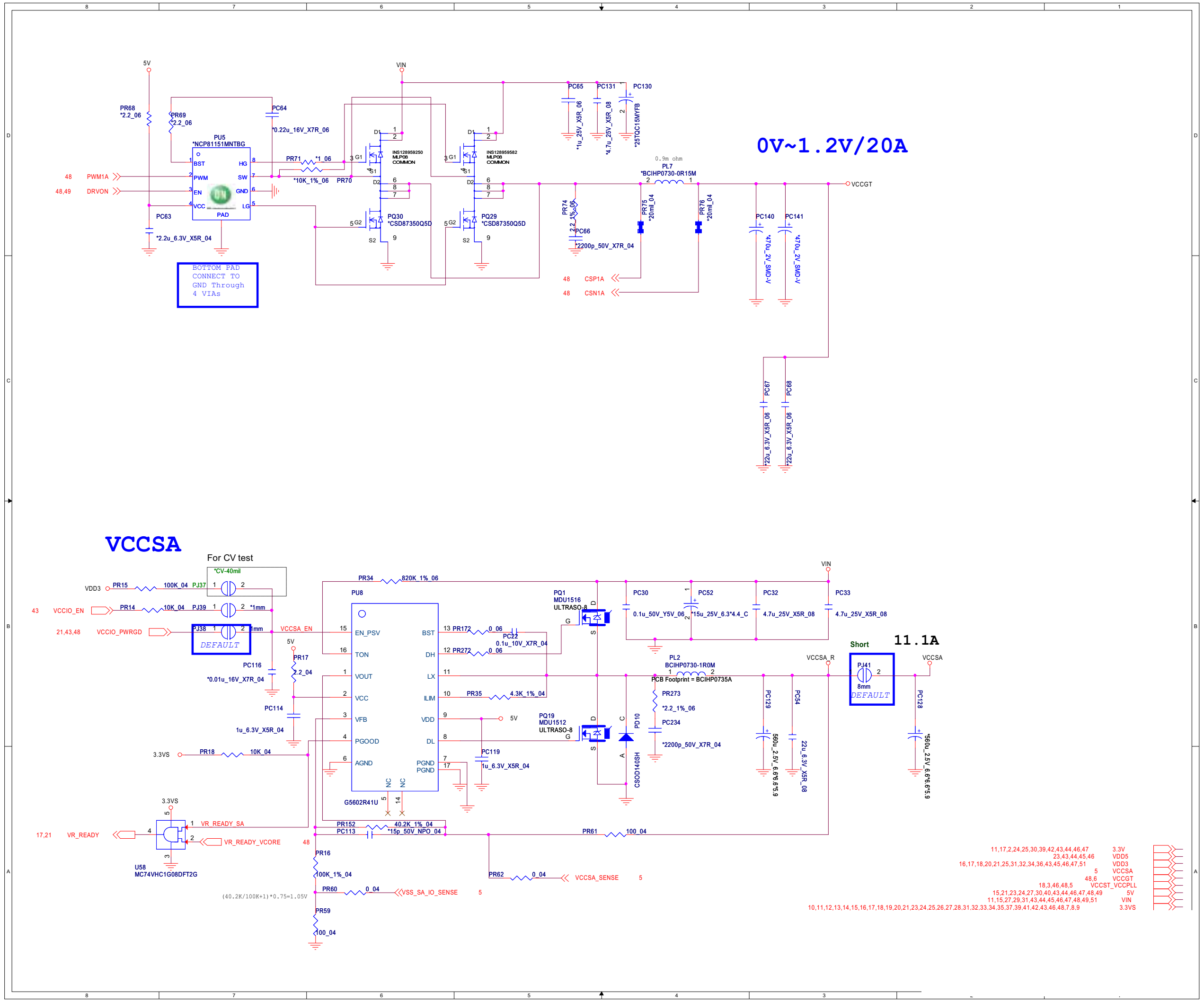
Sheet 48 of 62
VCore / VCCGT

VCore Output Stage

Sheet 49 of 62
VCore Output Stage


VCORE OUTPUT STAGE
for EMI
0V~1.2V/120A
VCORE
VIN
5V
Ceramic / 0805/X5R
BOTTOM PAD CONNECT TO GND Through 4 VIAs
NCP81151MNTBG
CSD87350Q5D
BCIHP0730-0R15M
PWM1
PWM2
PWM3
PWM2A
DRVON
CSP1
CSN1
CSP2
CSN2
CSP3
CSN3
CSP2A
CSN2A

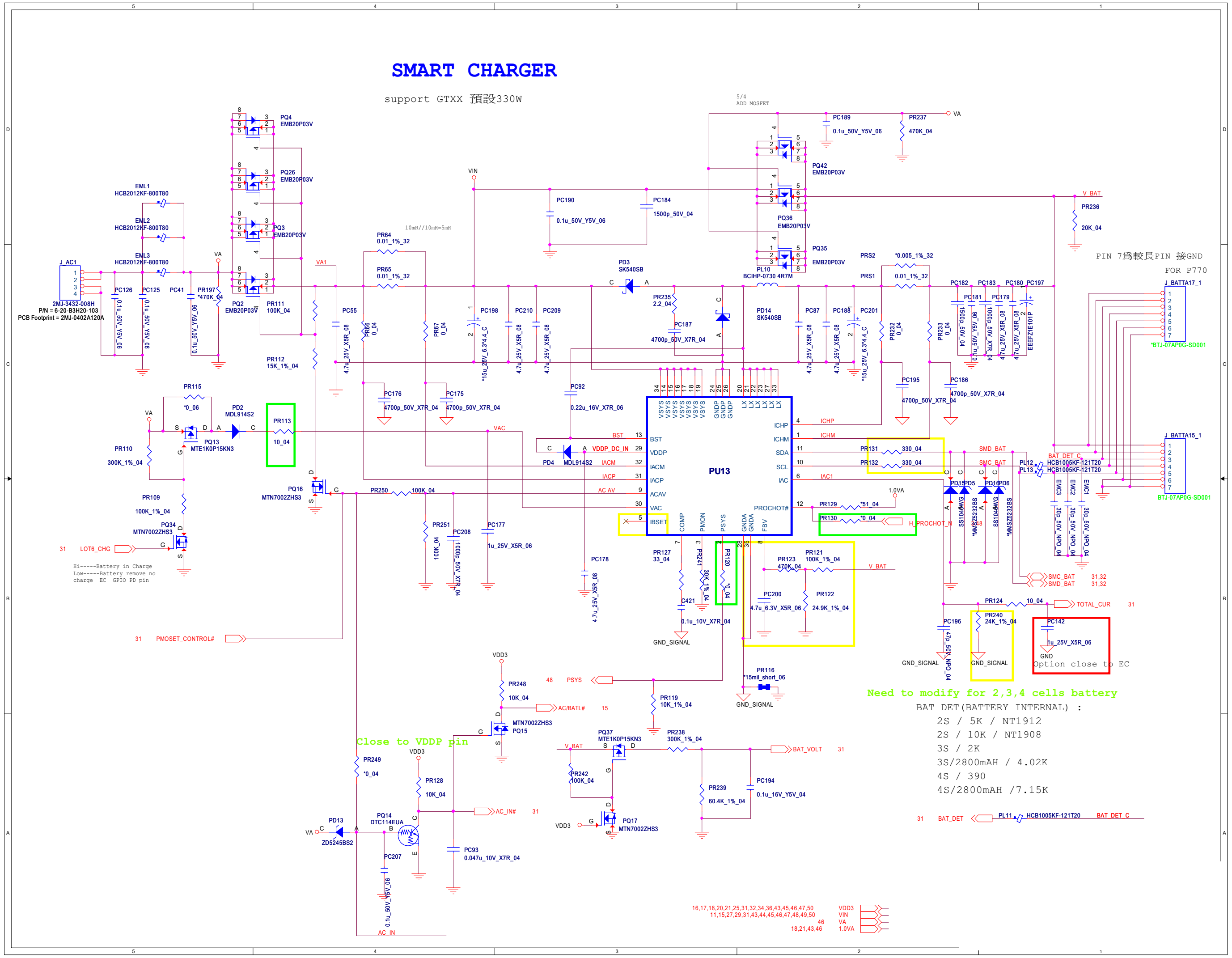
VCCSA / VCCGT


0V~1.2V/20A
5V
VIN
PR68
*2.2_06
PR69
*2.2_06
PC64
*0.22u_16V_X7R_06
PU5
*NCP81151MNTBG
BST
HG
PWM
SW
EN
GND
VCC
LG
PAD
48 PWM1A
48,49 DRVON
PC63
*2.2u_6.3V_X5R_04
BOTTOM PAD CONNECT TO GND Through 4 VIAs
PR71
*1_06
*10K_1%_06
PR70
INS128959250 MLP08 COMMON
INS128959582 MLP08 COMMON
PQ30
*CSD87350Q5D
PQ29
*CSD87350Q5D
PC65
*1u_25V_X5R_06
PC131
*4.7u_25V_X5R_08
PC130
*25TQC15MYFB
0.9m ohm
PL7
*BCIHP0730-0R15M
PR74
2.2_1%_06
PC66
*2200p_50V_X7R_04
PR75
*20mil_04
PR76
*20mil_04
48 CSP1A
48 CSN1A
VCCGT
PC140
*470u_2V_SMD-V
PC141
*470u_2V_SMD-V
PC67
*22u_6.3V_X5R_06
PC68
*22u_6.3V_X5R_06
VCCSA
For CV test
*CV-40mil
VDD3
PR15
100K_04
PJ37
43 VCCIO_EN
PR14
10K_04
PJ39
*1mm
21,43,48 VCCIO_PWRGD
PJ38
1mm
DEFAULT
VCCSA_EN
PC116
*0.01u_16V_X7R_04
PR17
2.2_04
PC114
1u_6.3V_X5R_04
3.3VS
PR18
10K_04
PR34
820K_1%_06
PU8
EN_PSV
TON
VOUT
VCC
VFB
PGOOD
AGND
BST
DH
LX
ILIM
VDD
DL
PGND
NC
G5602R41U
PR172
0_06
PC22
0.1u_10V_X7R_04
PR272
0_06
PR35
4.3K_1%_04
PC119
1u_6.3V_X5R_04
PQ1
MDU1516
ULTRASO-8
PQ19
MDU1512
ULTRASO-8
PD10
CSOD140SH
PC30
0.1u_50V_Y5V_06
PC52
*15u_25V_6.3*4.4_C
PC32
4.7u_25V_X5R_08
PC33
4.7u_25V_X5R_08
PL2
BCIHP0730-1R0M
PCB Footprint = BCIHP0735A
PR273
*2.2_1%_06
PC234
*2200p_50V_X7R_04
PC129
560u_2.5V_6.6*6.6*5.9
PC54
22u_6.3V_X5R_08
VCCSA_R
Short
11.1A
PJ41
8mm
DEFAULT
VCCSA
PC128
*560u_2.5V_6.6*6.6*5.9
U58
MC74VHC1G08DFT2G
17,21 VR_READY
VR_READY_SA
VR_READY_VCORE 48
PR152
40.2K_1%_04
PC113
*15p_50V_NPO_04
PR61
100_04
PR16
100K_1%_04
PR60
0_04
VSS_SA_IO_SENSE 5
(40.2K/100K+1)*0.75=1.05V
PR59
100_04
PR62
0_04
VCCSA_SENSE 5
11,17,2,24,25,30,39,42,43,44,46,47 3.3V
23,43,44,45,46 VDD5
16,17,18,20,21,25,31,32,34,36,43,45,46,47,51 VDD3
5 VCCSA
48,6 VCCGT
18,3,46,48,5 VCCST_VCCPLL
15,21,23,24,27,30,40,43,44,46,47,48,49 5V
11,15,27,29,31,43,44,45,46,47,48,49,51 VIN
10,11,12,13,14,15,16,17,18,19,20,21,23,24,25,26,27,28,31,32,33,34,35,37,39,41,42,43,46,48,7,8,9 3.3VS

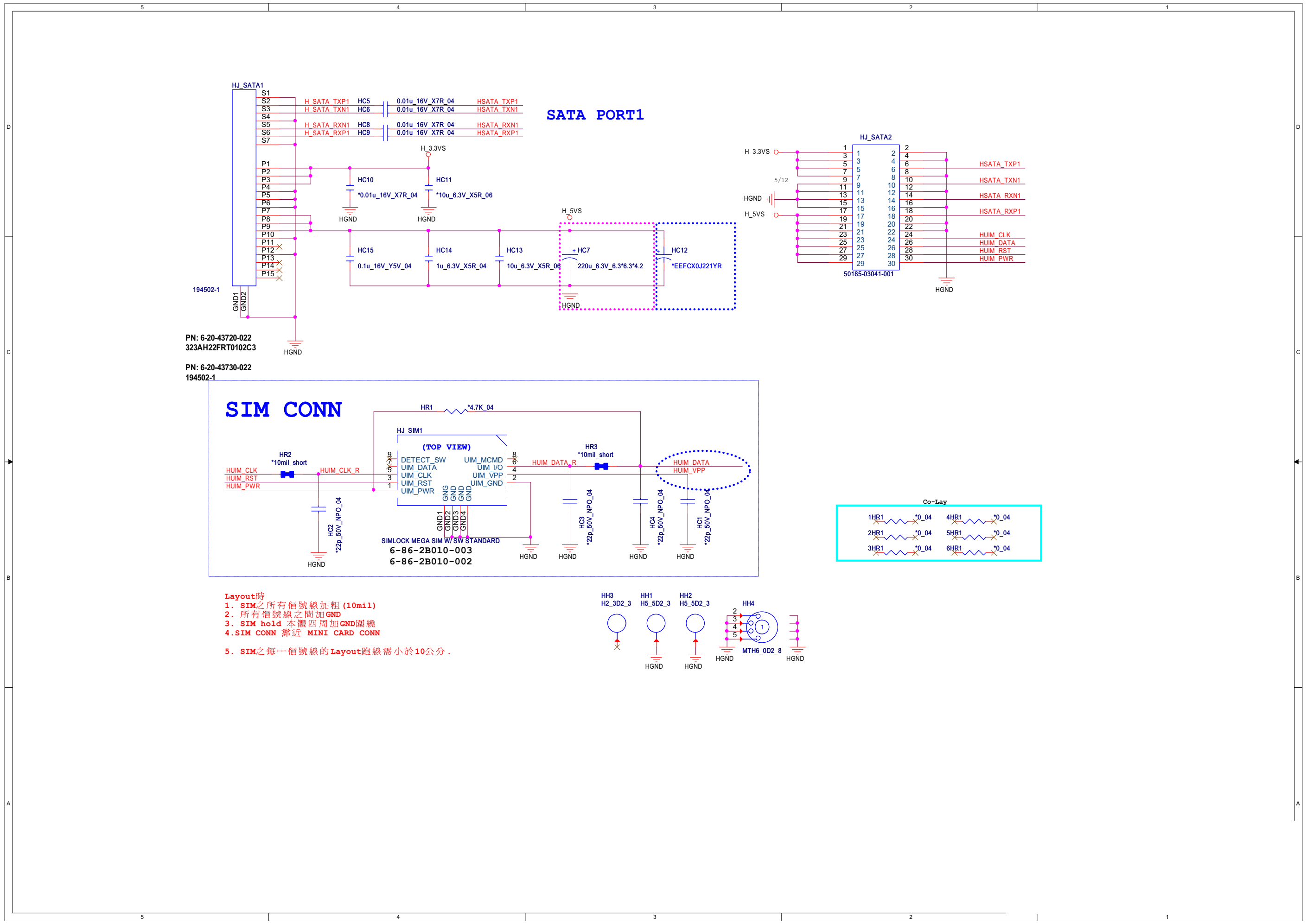
Sheet 50 of 62
VCCSA / VCCGT

Power Charger, DC-In

Sheet 51 of 62
Power Charger,
DC-In


SMART CHARGER
support GTXX 預設330W
5/4
ADD MOSFET
PU13
VIN
VA
V_BAT
VDD3
1.0VA
J_AC1
2MJ-3432-008H
P/N = 6-20-B3H20-103
PCB Footprint = 2MJ-0402A120A
EML1
HCB2012KF-800T80
EML2
HCB2012KF-800T80
EML3
HCB2012KF-800T80
PQ4
EMB20P03V
PQ26
EMB20P03V
PQ3
EMB20P03V
PQ2
EMB20P03V
PQ42
EMB20P03V
PQ36
EMB20P03V
PQ35
EMB20P03V
PD3
SK540SB
PD14
SK540SB
PL10
BCIHP-0730 4R7M
PRS1
0.01_1%_32
PRS2
*0.005_1%_32
PR64
0.01_1%_32
PR65
0.01_1%_32
10mR//10mR=5mR
PQ13
MTE1K0P15KN3
PD2
MDL914S2
PD4
MDL914S2
PR113
10_04
PQ16
MTN7002ZHS3
PQ34
MTN7002ZHS3
LOT6_CHG
Hi-----Battery in Charge
Low-----Battery remove no
charge EC GPIO PD pin
PMOSET_CONTROL#
PIN 7為較長PIN 接GND
FOR P770
J_BATTA17_1
J_BATTA15_1
BTJ-07AP0G-SD001
BAT_DET_C
HCB1005KF-121T20
SMC_BAT
SMD_BAT
TOTAL_CUR
PSYS
AC/BATL#
AC_IN#
BAT_VOLT
PQ15
MTN7002ZHS3
PQ37
MTE1K0P15KN3
PQ17
MTN7002ZHS3
PQ14
DTC114EUA
PD13
ZD5245BS2
Close to VDDP pin
GND_SIGNAL
PR116
*15mil_short_06
PC196
47p_50V_NPO_04
PR240
24K_1%_04
PC142
1u_25V_X5R_06
GND
Option close to EC
Need to modify for 2,3,4 cells battery
BAT DET(BATTERY INTERNAL) :
2S / 5K / NT1912
2S / 10K / NT1908
3S / 2K
3S/2800mAH / 4.02K
4S / 390
4S/2800mAH /7.15K
31 BAT_DET PL11 HCB1005KF-121T20 BAT_DET_C

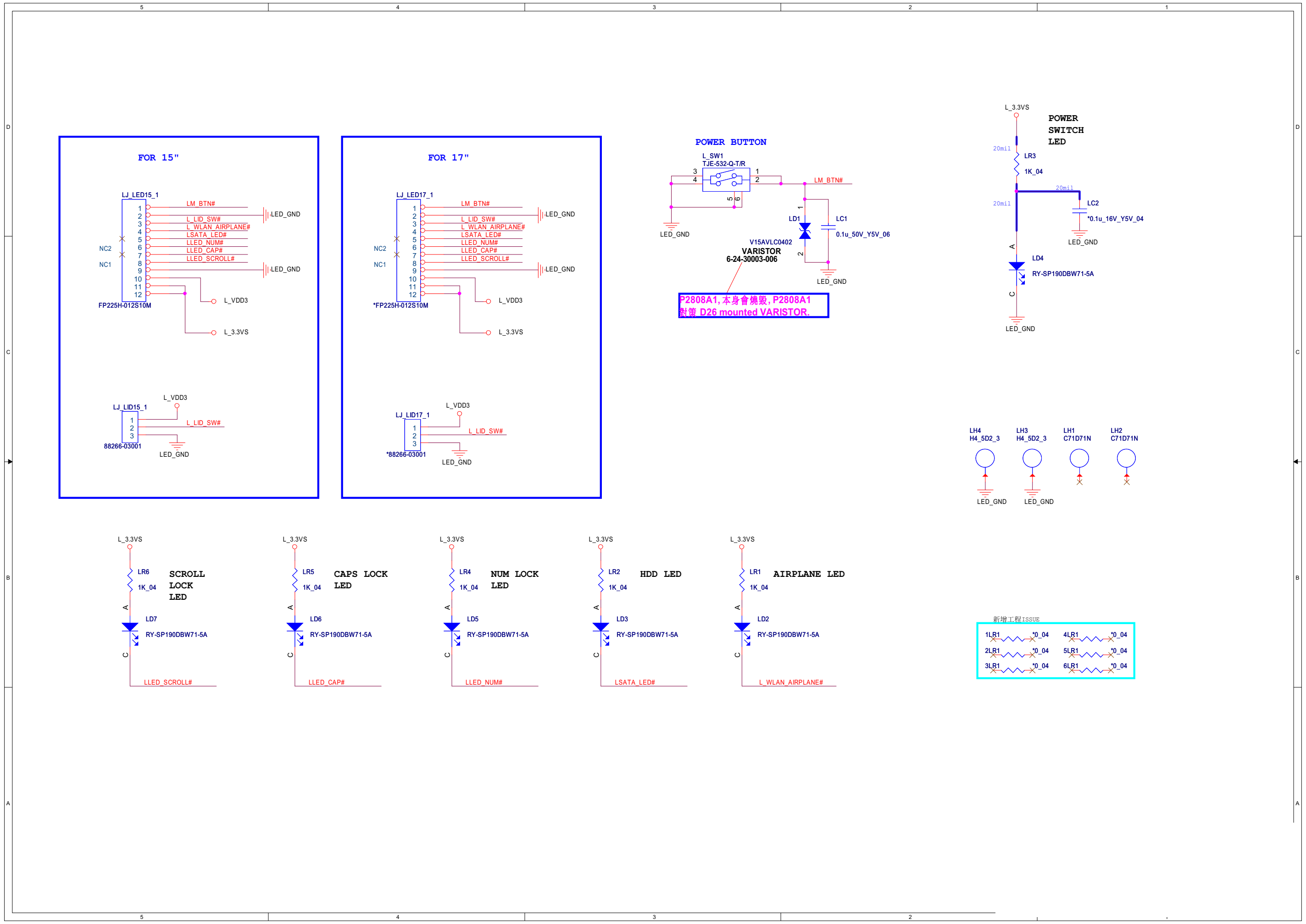
P750DM HDD Board


SATA PORT1
HJ_SATA1
S1
S2
S3
S4
S5
S6
S7
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11
P12
P13
P14
P15
GND1
GND2
194502-1
H_SATA_TXP1
H_SATA_TXN1
H_SATA_RXN1
H_SATA_RXP1
HC5
HC6
HC8
HC9
0.01u_16V_X7R_04
HSATA_TXP1
HSATA_TXN1
HSATA_RXN1
HSATA_RXP1
H_3.3VS
HC10
*0.01u_16V_X7R_04
HC11
*10u_6.3V_X5R_06
H_5VS
HC15
0.1u_16V_Y5V_04
HC14
1u_6.3V_X5R_04
HC13
10u_6.3V_X5R_06
HC7
220u_6.3V_6.3*6.3*4.2
HC12
*EEFCX0J221YR
HGND
PN: 6-20-43720-022
323AH22FRT0102C3
PN: 6-20-43730-022
194502-1
HJ_SATA2
50185-03041-001
5/12
HUIM_CLK
HUIM_DATA
HUIM_RST
HUIM_PWR
SIM CONN
HR1
*4.7K_04
HJ_SIM1
(TOP VIEW)
DETECT_SW
UIM_DATA
UIM_CLK
UIM_RST
UIM_PWR
UIM_MCMD
UIM_I/O
UIM_VPP
UIM_GND
GNG
GND
GND1
GND2
GND3
GND4
HR2
*10mil_short
HUIM_CLK_R
HR3
*10mil_short
HUIM_DATA_R
HUIM_VPP
HC2
HC3
HC4
HC1
*22p_50V_NPO_04
SIMLOCK MEGA SIM W/ SW STANDARD
6-86-2B010-003
6-86-2B010-002
Layout時
1. SIM之所有信號線加粗(10mil)
2. 所有信號線之間加GND
3. SIM hold 本體四周加GND圍繞
4.SIM CONN 靠近 MINI CARD CONN
5. SIM之每一信號線的Layout跑線需小於10公分.
HH3
H2_3D2_3
HH1
H5_5D2_3
HH2
H5_5D2_3
HH4
MTH6_0D2_8
Co-Lay
1HR1
2HR1
3HR1
4HR1
5HR1
6HR1
*0_04

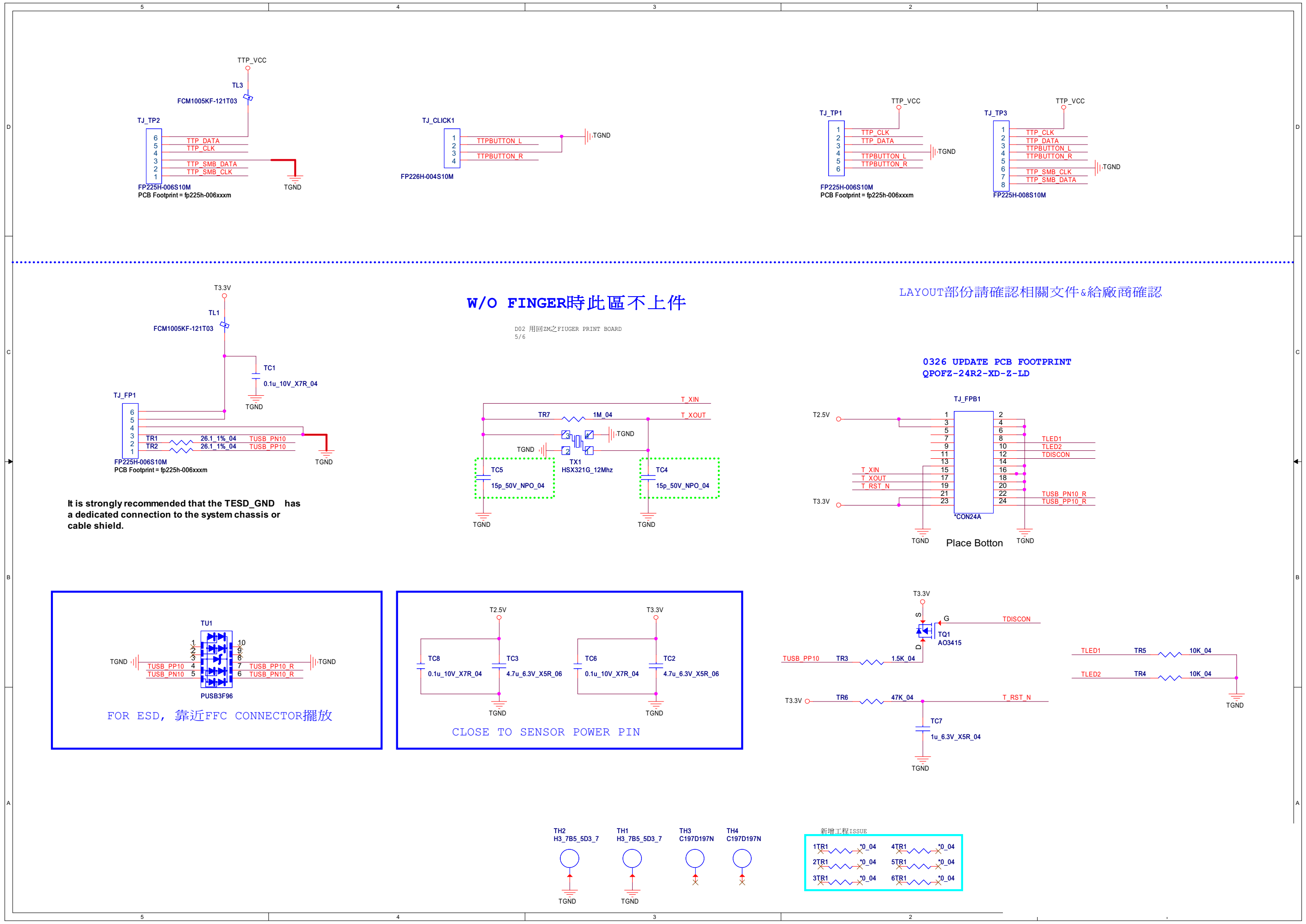
Sheet 52 of 62
P750DM HDD
Board

P750DM Power LED Board

Sheet 53 of 62
P750DM Power
LED Board


FOR 15"
LJ_LED15_1
FP225H-012S10M
NC2
NC1
1
2
3
4
5
6
7
8
9
10
11
12
LM_BTN#
L_LID_SW#
L_WLAN_AIRPLANE#
LSATA_LED#
LLED_NUM#
LLED_CAP#
LLED_SCROLL#
LED_GND
LED_GND
L_VDD3
L_3.3VS
LJ_LID15_1
88266-03001
L_VDD3
L_LID_SW#
LED_GND
FOR 17"
LJ_LED17_1
*FP225H-012S10M
NC2
NC1
LM_BTN#
L_LID_SW#
L_WLAN_AIRPLANE#
LSATA_LED#
LLED_NUM#
LLED_CAP#
LLED_SCROLL#
LED_GND
LED_GND
L_VDD3
L_3.3VS
LJ_LID17_1
*88266-03001
L_VDD3
L_LID_SW#
LED_GND
POWER BUTTON
L_SW1
TJE-532-Q-T/R
LM_BTN#
LED_GND
LD1
V15AVLC0402
VARISTOR
6-24-30003-006
LC1
0.1u_50V_Y5V_06
LED_GND
P2808A1, 本身會燒毀, P2808A1
對策 D26 mounted VARISTOR.
L_3.3VS
POWER
SWITCH
LED
20mil
LR3
1K_04
20mil
20mil
LC2
*0.1u_16V_Y5V_04
LED_GND
A
LD4
RY-SP190DBW71-5A
C
LED_GND
LH4
H4_5D2_3
LH3
H4_5D2_3
LH1
C71D71N
LH2
C71D71N
LED_GND
LED_GND
L_3.3VS
LR6
1K_04
SCROLL
LOCK
LED
LD7
RY-SP190DBW71-5A
LLED_SCROLL#
L_3.3VS
LR5
1K_04
CAPS LOCK
LED
LD6
RY-SP190DBW71-5A
LLED_CAP#
L_3.3VS
LR4
1K_04
NUM LOCK
LED
LD5
RY-SP190DBW71-5A
LLED_NUM#
L_3.3VS
LR2
1K_04
HDD LED
LD3
RY-SP190DBW71-5A
LSATA_LED#
L_3.3VS
LR1
1K_04
AIRPLANE LED
LD2
RY-SP190DBW71-5A
L_WLAN_AIRPLANE#
新增工程ISSUE
1LR1 *0_04
2LR1 *0_04
3LR1 *0_04
4LR1 *0_04
5LR1 *0_04
6LR1 *0_04

P750DM Click Board

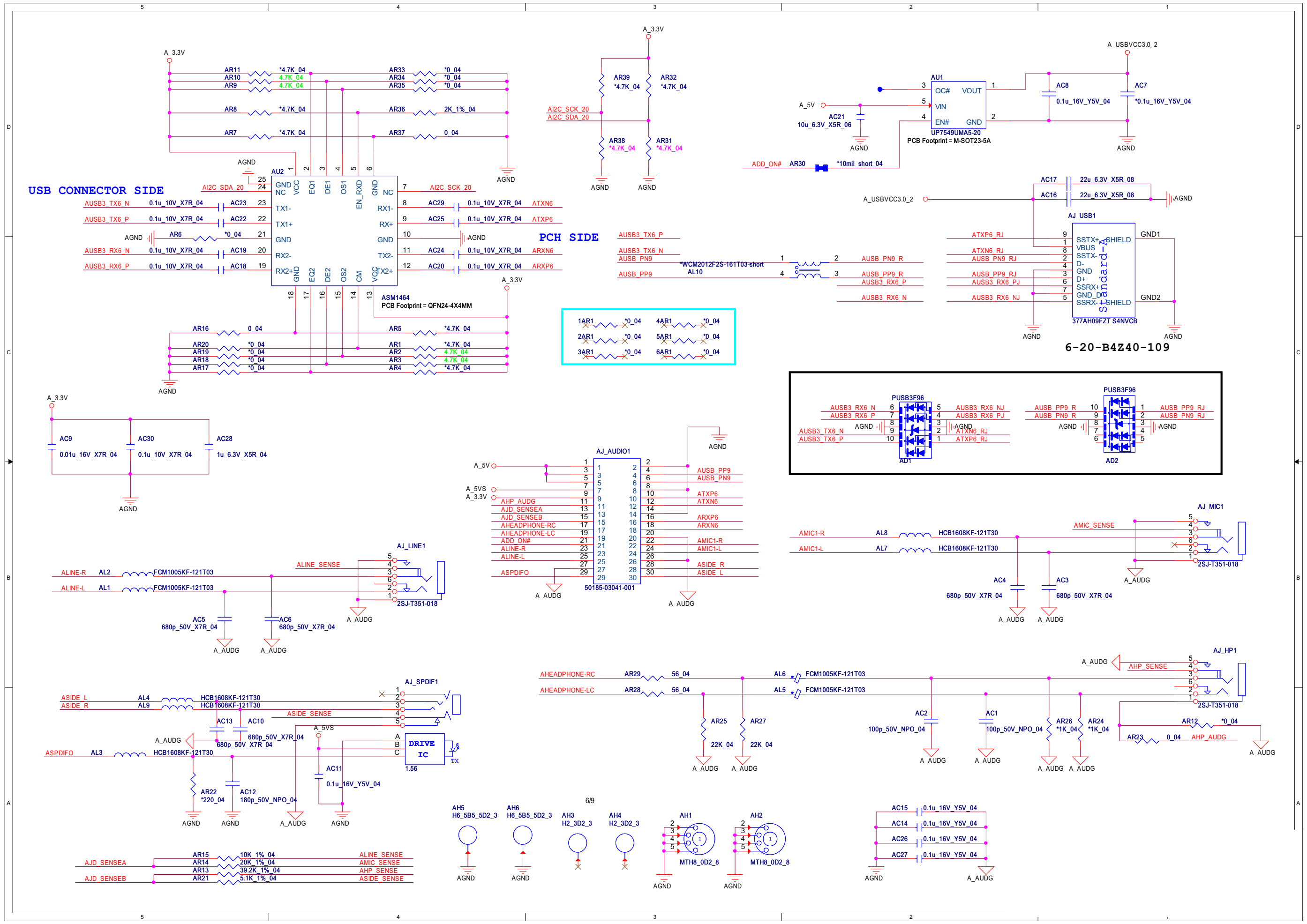

TTP_VCC
TL3
FCM1005KF-121T03
TJ_TP2
TTP_DATA
TTP_CLK
TTP_SMB_DATA
TTP_SMB_CLK
TGND
FP225H-006S10M
PCB Footprint = fp225h-006xxxm
TJ_CLICK1
TTPBUTTON_L
TTPBUTTON_R
FP226H-004S10M
TJ_TP1
TTP_CLK
TTP_DATA
TTPBUTTON_L
TTPBUTTON_R
FP225H-006S10M
PCB Footprint = fp225h-006xxxm
TJ_TP3
TTP_SMB_CLK
TTP_SMB_DATA
FP225H-008S10M
T3.3V
TL1
FCM1005KF-121T03
TC1
0.1u_10V_X7R_04
TJ_FP1
TR1
TR2
26.1_1%_04
TUSB_PN10
TUSB_PP10
FP225H-006S10M
PCB Footprint = fp225h-006xxxm
W/O FINGER時此區不上件
D02 用回ZM之FINGER PRINT BOARD
5/6
T_XIN
TR7
1M_04
T_XOUT
TX1
HSX321G_12Mhz
TC5
15p_50V_NPO_04
TC4
15p_50V_NPO_04
LAYOUT部份請確認相關文件&給廠商確認
0326 UPDATE PCB FOOTPRINT
QPOFZ-24R2-XD-Z-LD
TJ_FPB1
T2.5V
TLED1
TLED2
TDISCON
T_RST_N
TUSB_PN10_R
TUSB_PP10_R
CON24A
Place Botton
TU1
PUSB3F96
FOR ESD, 靠近FFC CONNECTOR擺放
T2.5V
T3.3V
TC8
0.1u_10V_X7R_04
TC3
4.7u_6.3V_X5R_06
TC6
0.1u_10V_X7R_04
TC2
4.7u_6.3V_X5R_06
CLOSE TO SENSOR POWER PIN
TQ1
AO3415
TR3
1.5K_04
TR6
47K_04
TC7
1u_6.3V_X5R_04
TR5
10K_04
TR4
10K_04
TH2
H3_7B5_5D3_7
TH1
H3_7B5_5D3_7
TH3
C197D197N
TH4
C197D197N
新增工程ISSUE
1TR1
2TR1
3TR1
4TR1
5TR1
6TR1
*0_04

It is strongly recommended that the TESD_GND has a dedicated connection to the system chassis or cable shield.

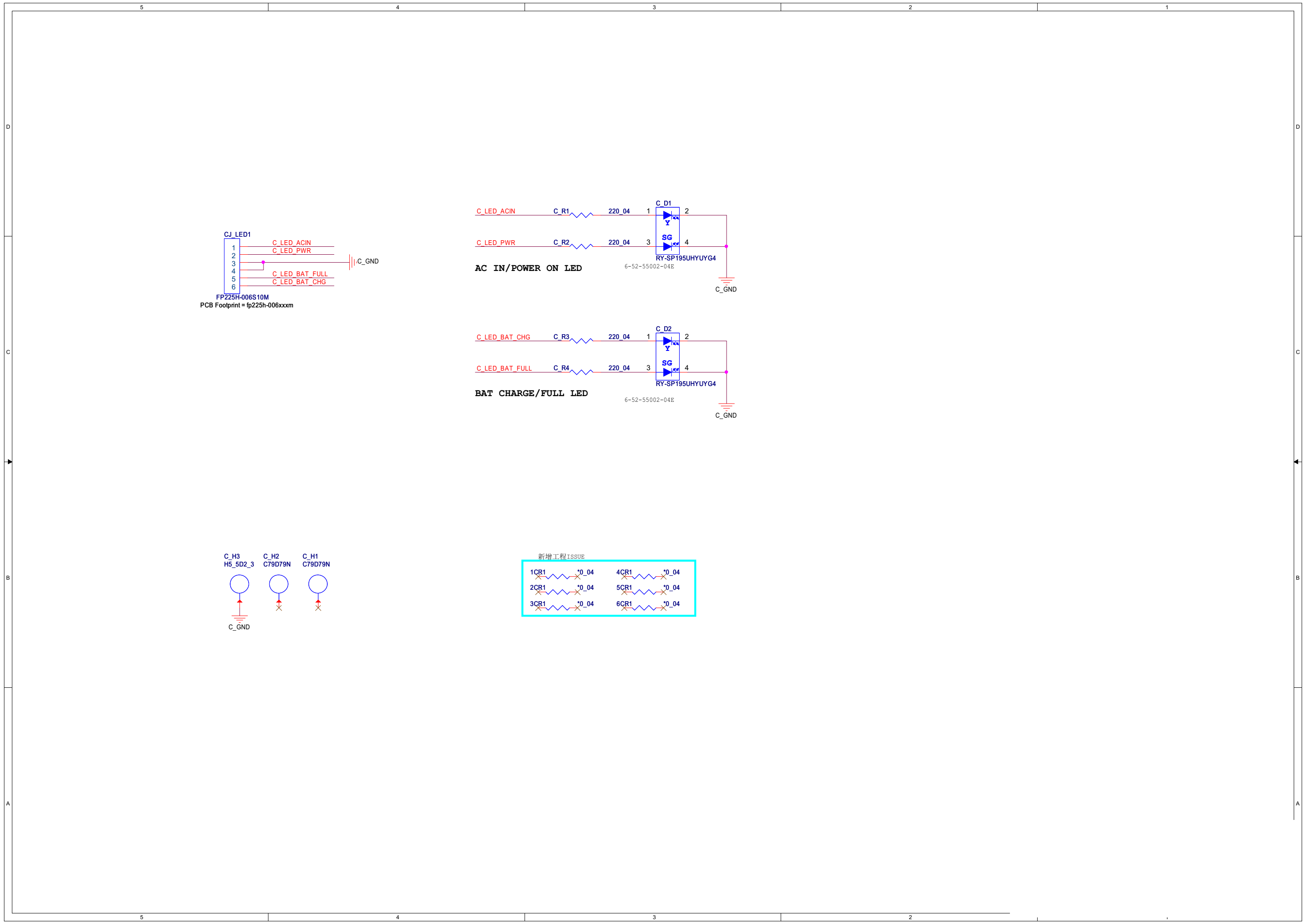
Sheet 54 of 62
P750DM Click
Board

P750DM Audio Board

**Sheet 55 of 62
P750DM Audio
Board**


USB CONNECTOR SIDE
PCH SIDE
AU2
ASM1464
PCB Footprint = QFN24-4X4MM
A_3.3V
AGND
AU1
UP7549UMA5-20
PCB Footprint = M-SOT23-5A
A_USBVCC3.0_2
A_5V
AJ_USB1
377AH09FZT S4NVCB
6-20-B4Z40-109
AL10
PUSB3F96
AD1
AD2
AJ_AUDIO1
50185-03041-001
AJ_LINE1
2SJ-T351-018
AJ_SPDIF1
DRIVE IC
AJ_MIC1
AJ_HP1
A_AUDG
AH5
AH6
AH3
AH4
AH1
AH2

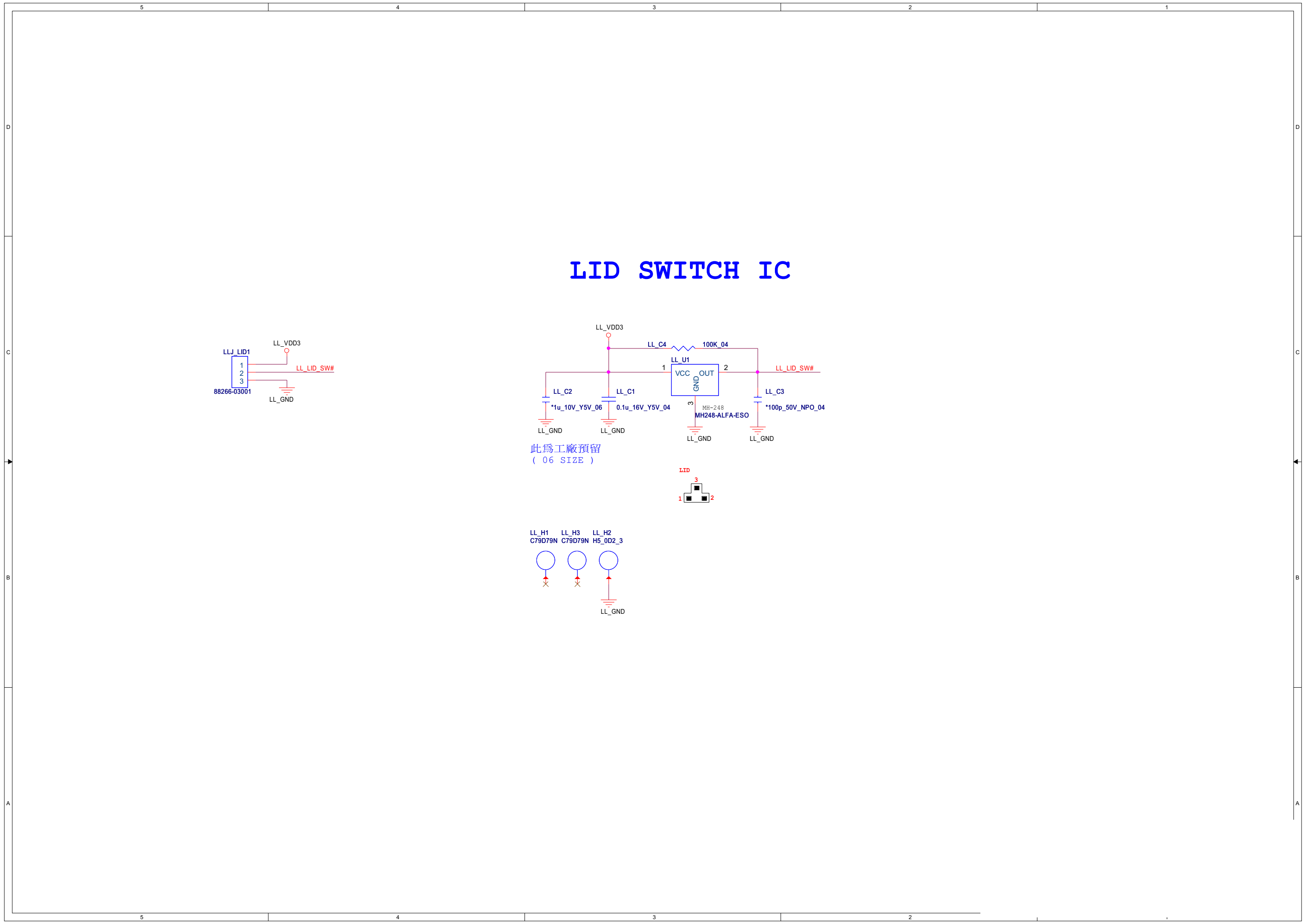
P750DM Charge LED Board


5
4
3
2
1
D
C
B
A
CJ_LED1
1
2
3
4
5
6
C_LED_ACIN
C_LED_PWR
C_GND
C_LED_BAT_FULL
C_LED_BAT_CHG
FP225H-006S10M
PCB Footprint = fp225h-006xxxm
C_LED_ACIN
C_R1
220_04
C_D1
1
2
Y
SG
C_LED_PWR
C_R2
220_04
3
4
RY-SP195UHYUYG4
6-52-55002-04E
C_GND
AC IN/POWER ON LED
C_LED_BAT_CHG
C_R3
220_04
C_D2
1
2
Y
SG
C_LED_BAT_FULL
C_R4
220_04
3
4
RY-SP195UHYUYG4
6-52-55002-04E
C_GND
BAT CHARGE/FULL LED
C_H3
H5_5D2_3
C_H2
C79D79N
C_H1
C79D79N
C_GND
新增工程ISSUE
1CR1
*0_04
2CR1
*0_04
3CR1
*0_04
4CR1
*0_04
5CR1
*0_04
6CR1
*0_04

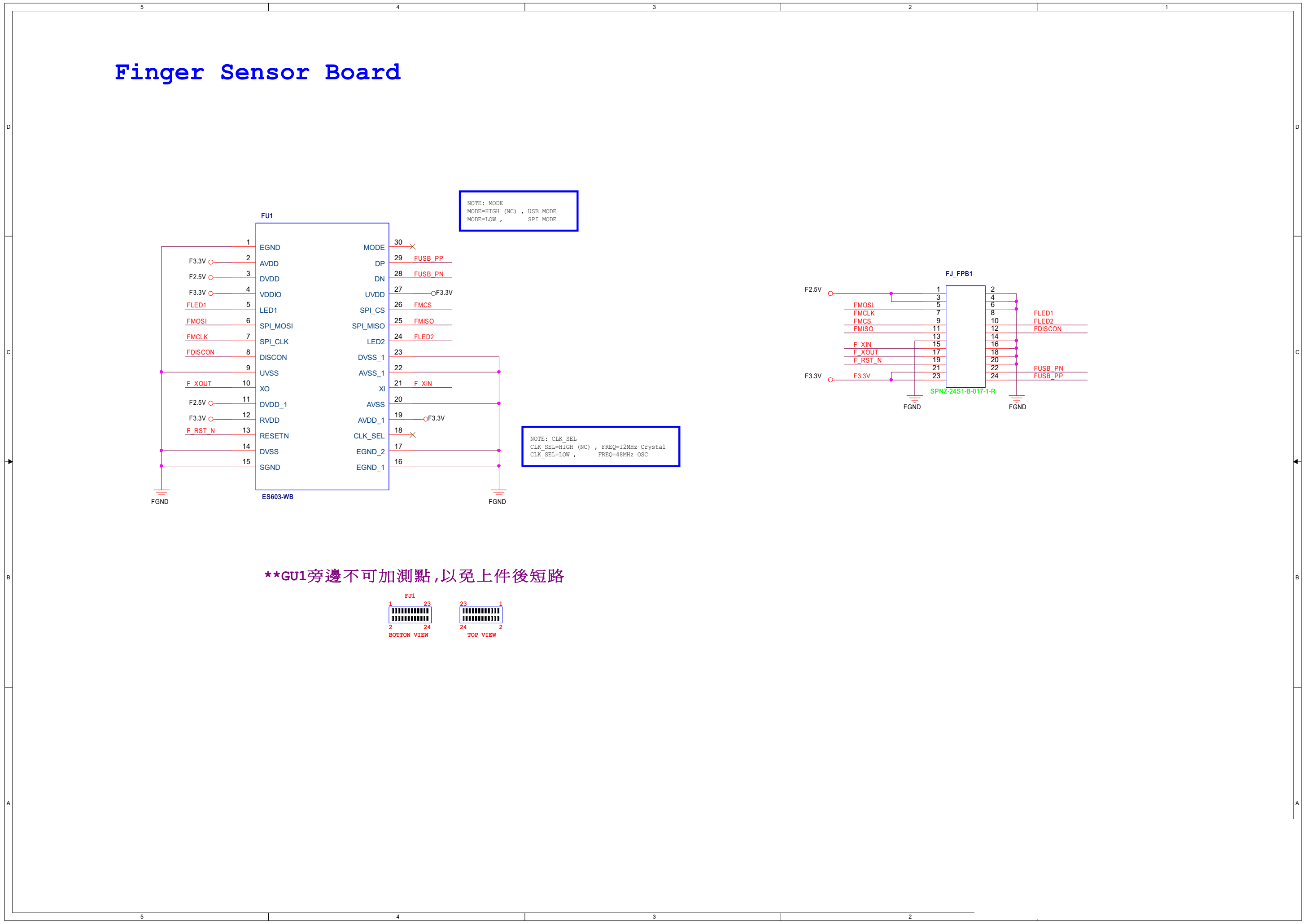
Sheet 56 of 62
P750DM Charge
LED Board

P750DM LID Switch Board

Sheet 57 of 62
P750DM LID Switch
Board


LID SWITCH IC
LL_VDD3
LLJ_LID1
1
2
3
88266-03001
LL_LID_SW#
LL_GND
LL_VDD3
LL_C4
100K_04
LL_U1
1
VCC
OUT
GND
2
3
LL_LID_SW#
LL_C2
*1u_10V_Y5V_06
LL_C1
0.1u_16V_Y5V_04
MH-248
MH248-ALFA-ESO
LL_C3
*100p_50V_NPO_04
LL_GND
LL_GND
LL_GND
LL_GND
此爲工廠預留
(06 SIZE)
LID
3
1
2
LL_H1
C79D79N
LL_H3
C79D79N
LL_H2
H5_0D2_3
LL_GND
5
4
3
2
1
D
C
B
A

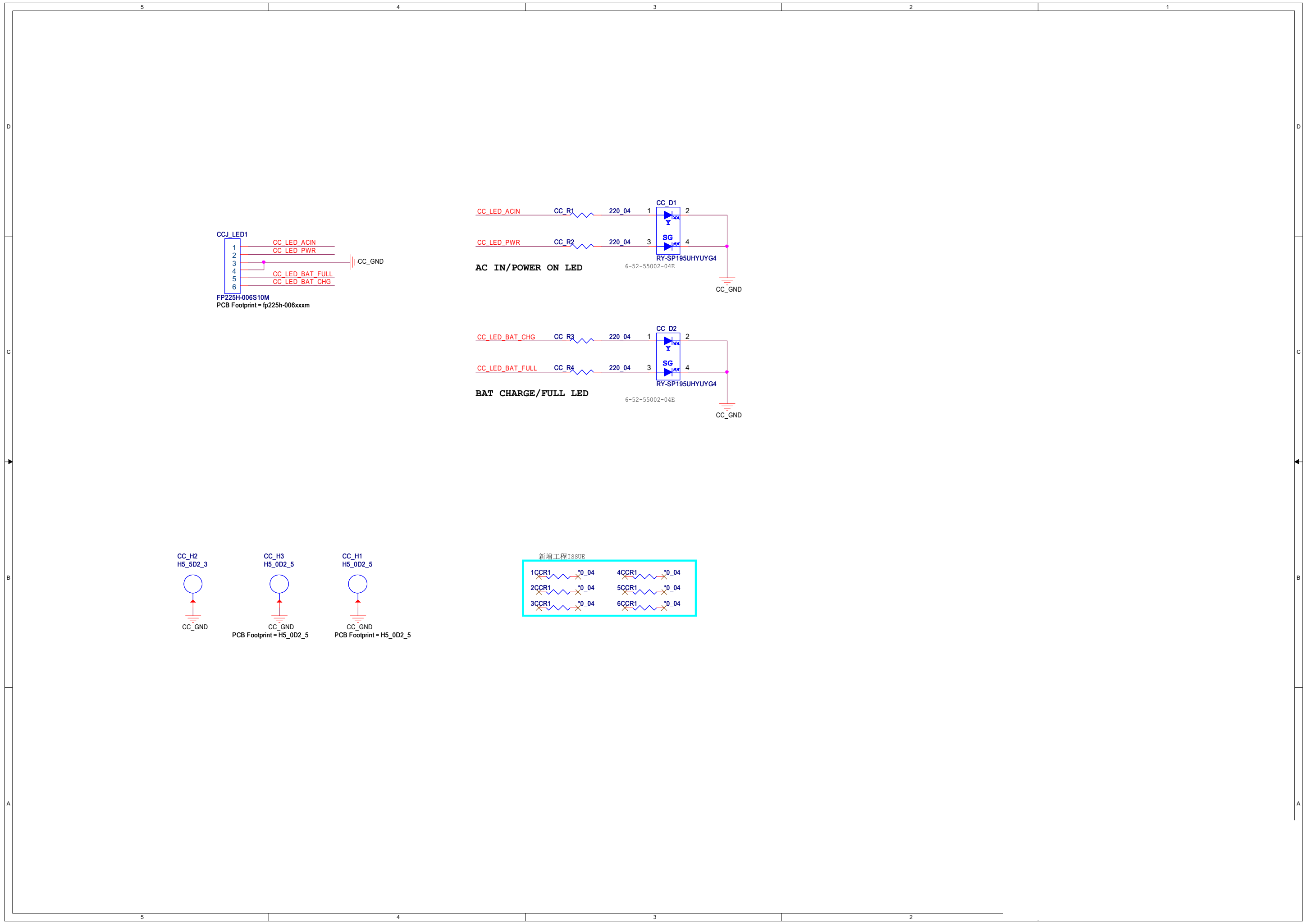
P750DM Finger Sensor Board


Finger Sensor Board
FU1
ES603-WB
1 EGND
2 AVDD F3.3V
3 DVDD F2.5V
4 VDDIO F3.3V
5 LED1 FLED1
6 SPI_MOSI FMOSI
7 SPI_CLK FMCLK
8 DISCON FDISCON
9 UVSS
10 XO F_XOUT
11 DVDD_1 F2.5V
12 RVDD F3.3V
13 RESETN F_RST_N
14 DVSS
15 SGND
30 MODE
29 DP FUSB_PP
28 DN FUSB_PN
27 UVDD F3.3V
26 SPI_CS FMCS
25 SPI_MISO FMISO
24 LED2 FLED2
23 DVSS_1
22 AVSS_1
21 XI F_XIN
20 AVSS
19 AVDD_1 F3.3V
18 CLK_SEL
17 EGND_2
16 EGND_1
FGND
FGND
NOTE: MODE
MODE=HIGH (NC) , USB MODE
MODE=LOW , SPI MODE
NOTE: CLK_SEL
CLK_SEL=HIGH (NC) , FREQ=12MHz Crystal
CLK_SEL=LOW , FREQ=48MHz OSC
FJ_FPB1
SPNZ-24S1-B-017-1-R
F2.5V
F3.3V
FMOSI
FMCLK
FMCS
FMISO
F_XIN
F_XOUT
F_RST_N
F3.3V
FLED1
FLED2
FDISCON
FUSB_PN
FUSB_PP
FGND
FGND
**GU1旁邊不可加測點,以免上件後短路
FJ1
1 23
2 24
BOTTON VIEW
23 1
24 2
TOP VIEW
5
4
3
2
1
D
C
B
A

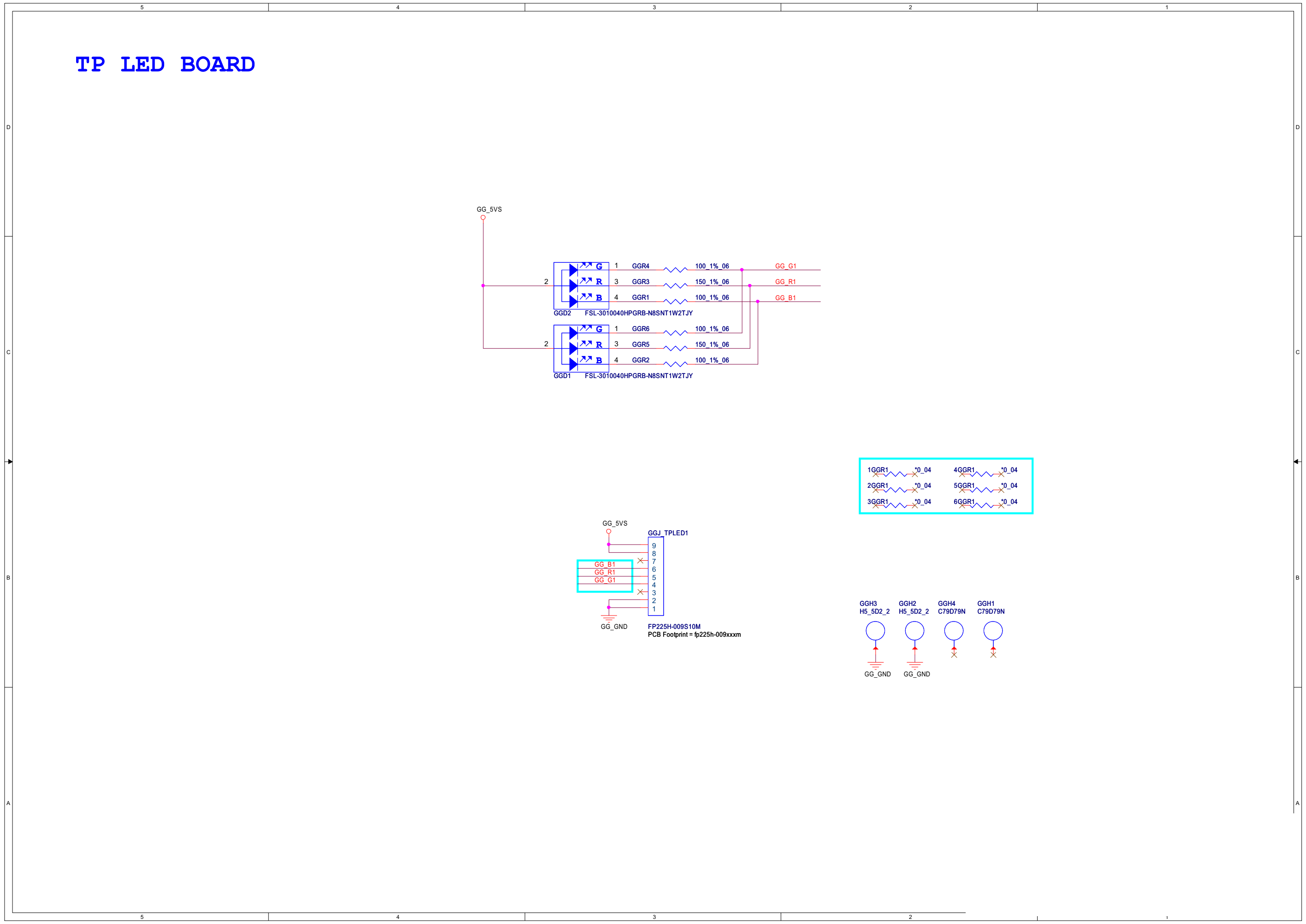
Sheet 58 of 62
P750DM Finger
Sensor Board

P770DM Charge LED Board

Sheet 59 of 62
P770DM Charge
LED Board


CCJ_LED1
1
2
3
4
5
6
CC_LED_ACIN
CC_LED_PWR
CC_GND
CC_LED_BAT_FULL
CC_LED_BAT_CHG
FP225H-006S10M
PCB Footprint = fp225h-006xxxm
CC_LED_ACIN
CC_R1
220_04
CC_LED_PWR
CC_R2
220_04
CC_D1
1
2
Y
SG
3
4
RY-SP195UHYUYG4
6-52-55002-04E
AC IN/POWER ON LED
CC_GND
CC_LED_BAT_CHG
CC_R3
220_04
CC_LED_BAT_FULL
CC_R4
220_04
CC_D2
1
2
Y
SG
3
4
RY-SP195UHYUYG4
6-52-55002-04E
BAT CHARGE/FULL LED
CC_GND
CC_H2
H5_5D2_3
CC_GND
CC_H3
H5_0D2_5
CC_GND
PCB Footprint = H5_0D2_5
CC_H1
H5_0D2_5
CC_GND
PCB Footprint = H5_0D2_5
新增工程ISSUE
1CCR1
*0_04
2CCR1
*0_04
3CCR1
*0_04
4CCR1
*0_04
5CCR1
*0_04
6CCR1
*0_04
5
4
3
2
1
D
C
B
A

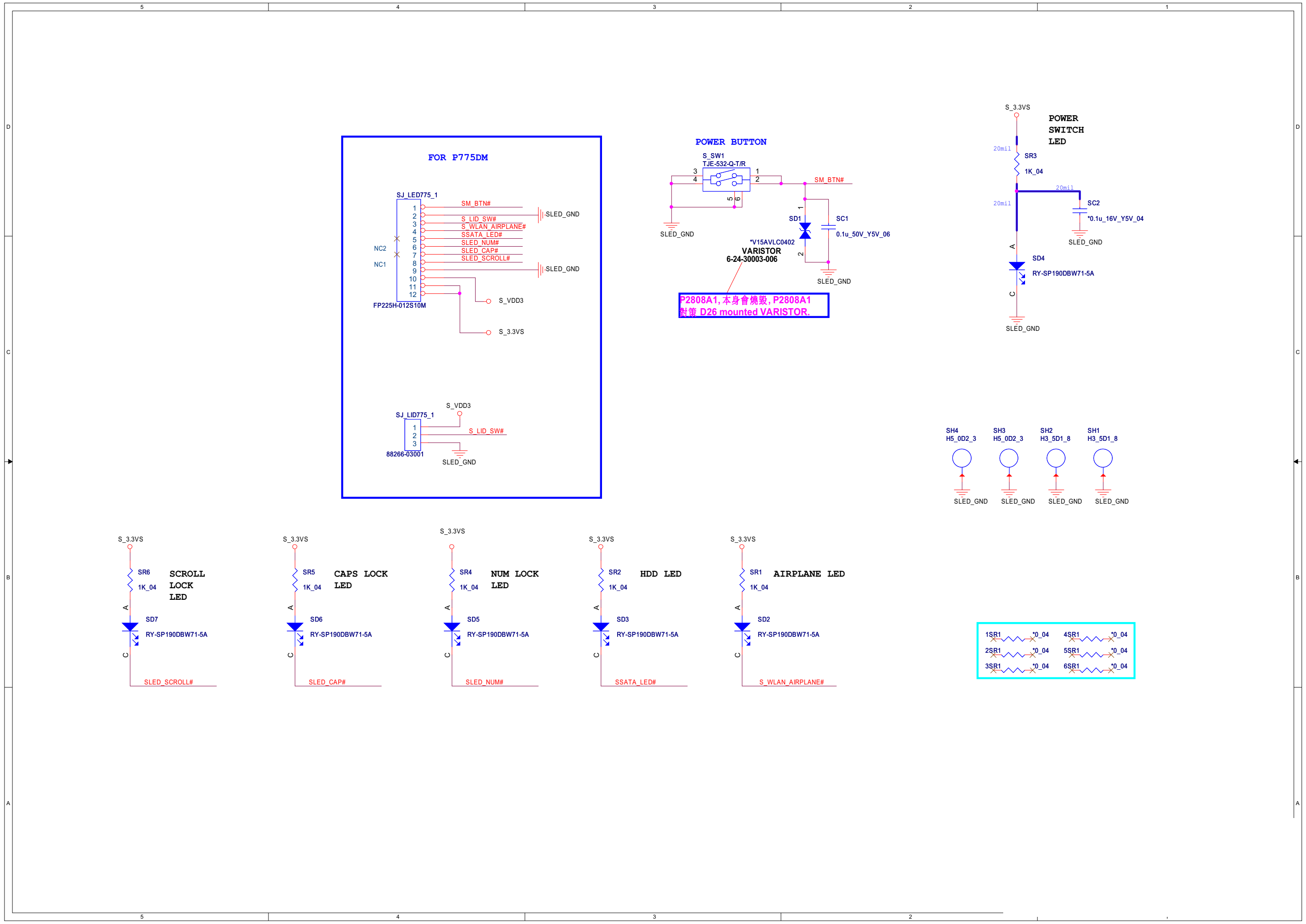
P750DM BOT LED Board


TP LED BOARD
GG_5VS
GGD2
FSL-3010040HPGRB-N8SNT1W2TJY
G
R
B
1
2
3
4
GGR4
100_1%_06
GGR3
150_1%_06
GGR1
100_1%_06
GG_G1
GG_R1
GG_B1
GGD1
FSL-3010040HPGRB-N8SNT1W2TJY
GGR6
100_1%_06
GGR5
150_1%_06
GGR2
100_1%_06
1GGR1 *0_04
2GGR1 *0_04
3GGR1 *0_04
4GGR1 *0_04
5GGR1 *0_04
6GGR1 *0_04
GG_5VS
GGJ_TPLED1
9
8
7
6
5
4
3
2
1
GG_B1
GG_R1
GG_G1
GG_GND
FP225H-009S10M
PCB Footprint = fp225h-009xxxm
GGH3
H5_5D2_2
GGH2
H5_5D2_2
GGH4
C79D79N
GGH1
C79D79N
GG_GND
GG_GND
5
4
3
2
1
D
C
B
A

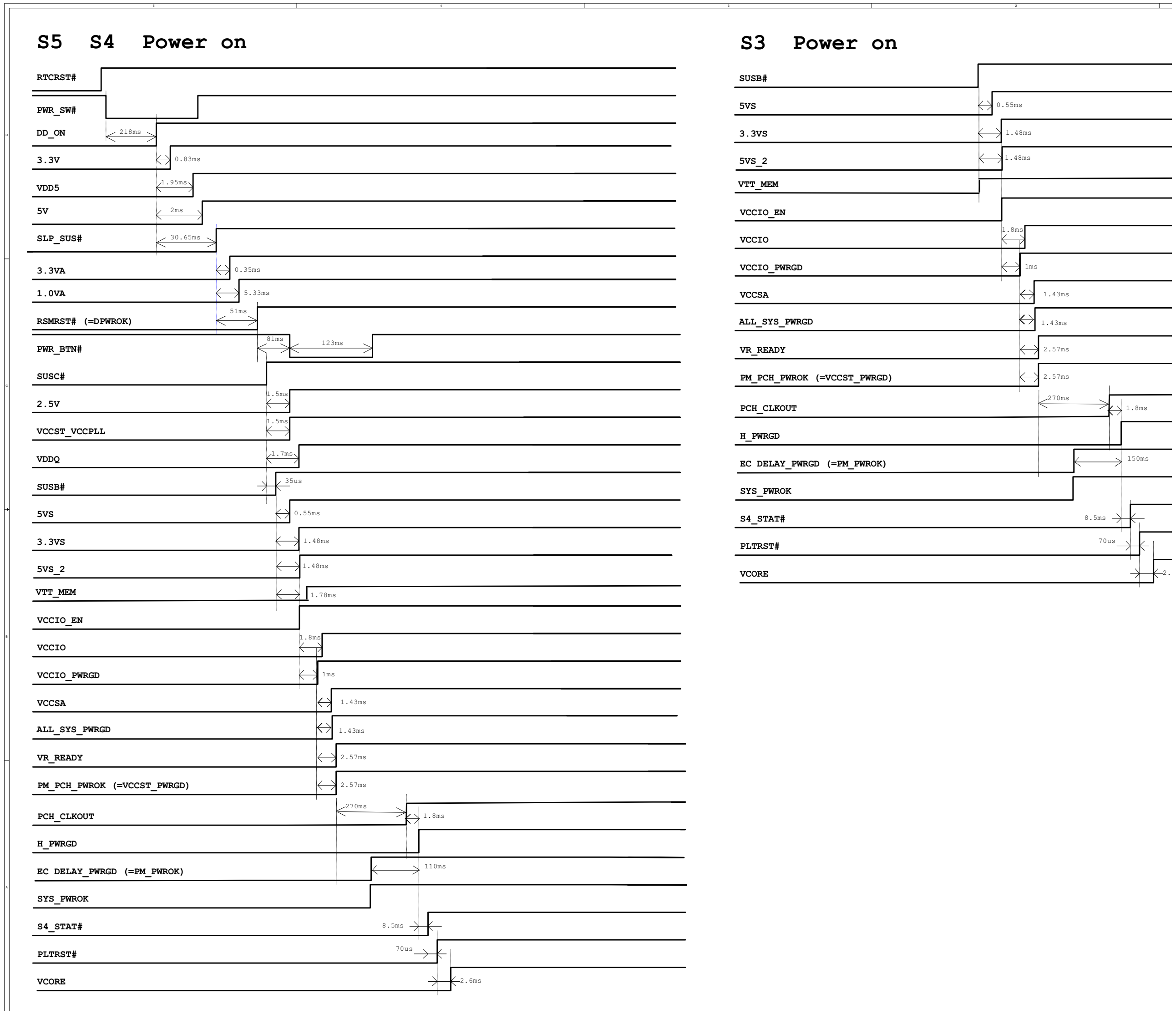
Sheet 60 of 62
P750DM BOT LED
Board

P775DM Power LED Board

Sheet 61 of 62
P775DM Power
LED Board


FOR P775DM
SJ_LED775_1
FP225H-012S10M
NC2
NC1
SM_BTN#
SLED_GND
S_LID_SW#
S_WLAN_AIRPLANE#
SSATA_LED#
SLED_NUM#
SLED_CAP#
SLED_SCROLL#
SLED_GND
S_VDD3
S_3.3VS
SJ_LID775_1
88266-03001
S_VDD3
S_LID_SW#
SLED_GND
POWER BUTTON
S_SW1
TJE-532-Q-T/R
SM_BTN#
SLED_GND
SD1
SC1
0.1u_50V_Y5V_06
*V15AVLC0402
VARISTOR
6-24-30003-006
SLED_GND
P2808A1, 本身會燒毀, P2808A1
對策 D26 mounted VARISTOR.
S_3.3VS
POWER
SWITCH
LED
20mil
SR3
1K_04
20mil
20mil
SC2
*0.1u_16V_Y5V_04
SLED_GND
SD4
RY-SP190DBW71-5A
SLED_GND
SH4
H5_0D2_3
SH3
H5_0D2_3
SH2
H3_5D1_8
SH1
H3_5D1_8
SLED_GND
SLED_GND
SLED_GND
SLED_GND
S_3.3VS
SR6
1K_04
SCROLL
LOCK
LED
SD7
RY-SP190DBW71-5A
SLED_SCROLL#
S_3.3VS
SR5
1K_04
CAPS LOCK
LED
SD6
RY-SP190DBW71-5A
SLED_CAP#
S_3.3VS
SR4
1K_04
NUM LOCK
LED
SD5
RY-SP190DBW71-5A
SLED_NUM#
S_3.3VS
SR2
1K_04
HDD LED
SD3
RY-SP190DBW71-5A
SSATA_LED#
S_3.3VS
SR1
1K_04
AIRPLANE LED
SD2
RY-SP190DBW71-5A
S_WLAN_AIRPLANE#
1SR1 *0_04
2SR1 *0_04
3SR1 *0_04
4SR1 *0_04
5SR1 *0_04
6SR1 *0_04

Power On Sequence


S5 S4 Power on
RTCRST#
PWR_SW#
DD_ON
218ms
3.3V
0.83ms
VDD5
1.95ms
5V
2ms
SLP_SUS#
30.65ms
3.3VA
0.35ms
1.0VA
5.33ms
RSMRST# (=DPWROK)
51ms
PWR_BTN#
81ms
123ms
SUSC#
2.5V
1.5ms
VCCST_VCCPLL
1.5ms
VDDQ
1.7ms
SUSB#
35us
5VS
0.55ms
3.3VS
1.48ms
5VS_2
1.48ms
VTT_MEM
1.78ms
VCCIO_EN
VCCIO
1.8ms
VCCIO_PWRGD
1ms
VCCSA
1.43ms
ALL_SYS_PWRGD
1.43ms
VR_READY
2.57ms
PM_PCH_PWROK (=VCCST_PWRGD)
2.57ms
PCH_CLKOUT
270ms
1.8ms
H_PWRGD
EC DELAY_PWRGD (=PM_PWROK)
110ms
SYS_PWROK
S4_STAT#
8.5ms
PLTRST#
70us
VCORE
2.6ms
S3 Power on
SUSB#
5VS
0.55ms
3.3VS
1.48ms
5VS_2
1.48ms
VTT_MEM
VCCIO_EN
VCCIO
1.8ms
VCCIO_PWRGD
1ms
VCCSA
1.43ms
ALL_SYS_PWRGD
1.43ms
VR_READY
2.57ms
PM_PCH_PWROK (=VCCST_PWRGD)
2.57ms
PCH_CLKOUT
270ms
1.8ms
H_PWRGD
EC DELAY_PWRGD (=PM_PWROK)
150ms
SYS_PWROK
S4_STAT#
8.5ms
PLTRST#
70us
VCORE
2.

Sheet 62 of 62
Power On
Sequence

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.X 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 1.01.5, you **MAY NOT** then go back and flash the BIOS to ver 1.01.4).

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.