

# SERVICE MANUAL

P370SM3

*notebook*





**Notebook Computer**

**P370SM3**

**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 *P370SM3* series notebook PC.

The following information is included:

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

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

Appendix A, Part Lists

Appendix B, Schematic Diagrams

### **IMPORTANT SAFETY INSTRUCTIONS**

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

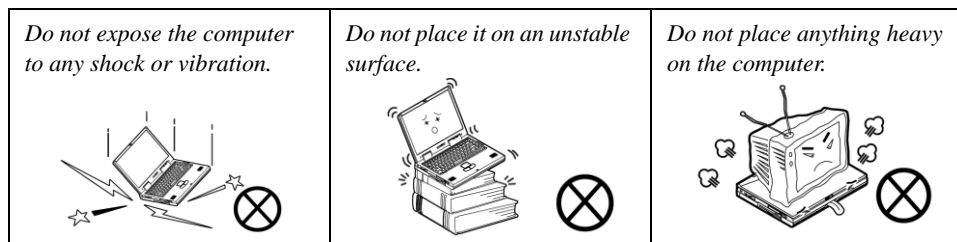
1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit (Full Range AC/DC Adapter – AC Input 100 - 240V, 50 - 60Hz, DC Output 19.5V, 16.9A (330W) minimum).

**This Computer's Optical Device is a Laser Class 1 Product**

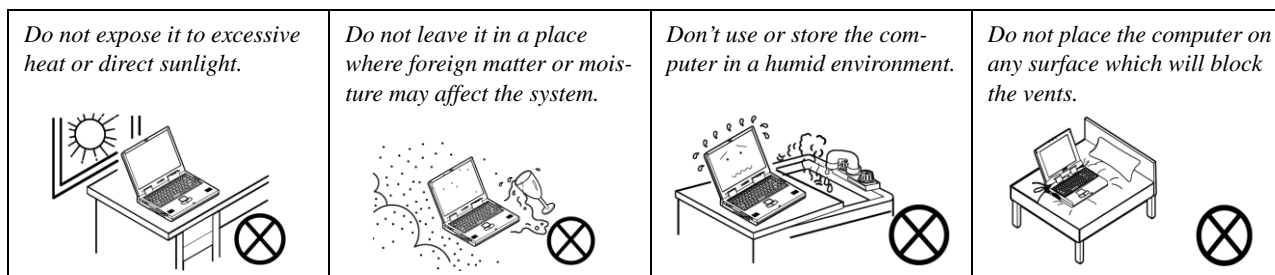
## Instructions for Care and Operation

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

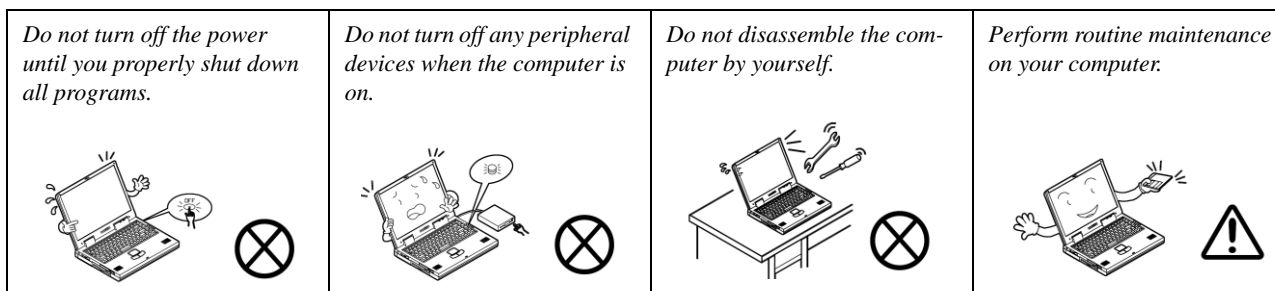
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



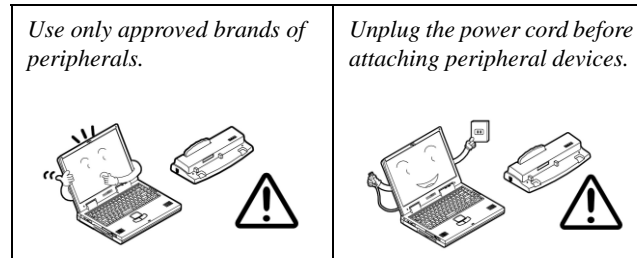
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.



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



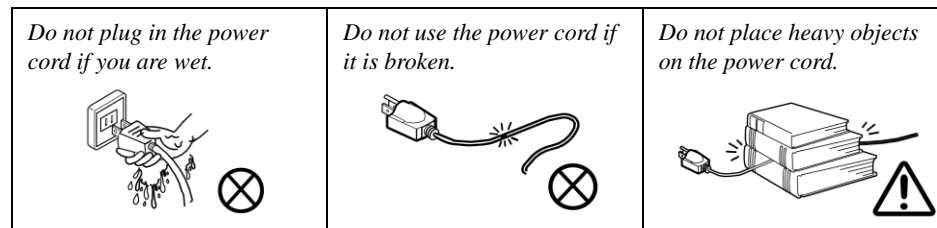
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



## Power Safety

The computer has specific power requirements:

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



### Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord).

You must also remove your battery in order to prevent accidentally turning the machine on. **Before removing the battery disconnect the AC/DC adapter from the computer.**

## Battery Precautions

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

## Battery Guidelines

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

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




### Battery Disposal

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

### Caution

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

### Battery Level

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

### Related Documents

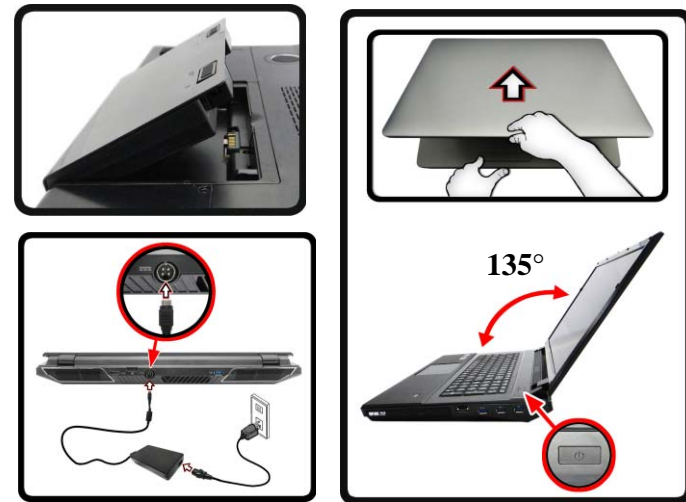
You may also need to consult the following manual for additional information:

#### User's Manual on CD

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, and place the computer on a stable surface.
2. Insert the battery and make sure it is locked in position.
3. Securely attach any peripherals you want to use with the notebook (e.g. keyboard and mouse) to their ports.
4. 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.
5. Use one hand to raise the lid/LCD to a comfortable viewing angle (it is preferable not to exceed 135 degrees); use the other hand to support the base of the computer (**Note: Never** lift the computer by the lid/LCD).
6. Raise the lid/LCD to a comfortable viewing angle, and press the power button.



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

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# Chapter 1: Introduction

## Overview

This manual covers the information you need to service or upgrade the **P370SM3** 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*, 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 **P370SM3** 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.

# System Specifications

## Processor Options

### Intel® Core™ i7 Processor

#### i7-4930MX (3.00GHz)

8MB L3 Cache, 22nm, DDR3L-1600MHz, TDP 57W

#### i7-4900MQ (2.80GHz)

8MB L3 Cache, 22nm, DDR3L-1600MHz, TDP 47W

#### i7-4800MQ (2.70GHz), i7-4700MQ (2.40GHz)

6MB L3 Cache, 22nm, DDR3L-1600MHz, TDP 47W

## Core Logic

Intel® HM87 Chipset

## BIOS

AMI BIOS (48Mb SPI Flash-ROM)

## LCD

17.3" (43.94cm) FHD (1920 \* 1080), 120Hz  
Supports 3D solution with NV 3D VISION Kit  
Built-in 3D IR Emitter

## Memory

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

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

Memory Expandable up to 32GB

## Security

Security (Kensington® Type) Lock Slot

BIOS Password

Fingerprint Reader Module

Trusted Platform Module 1.2

## Storage

Up to Two (**Factory Option**) Changeable 2.5" (6cm) 9.5mm (h) **SATA** (Serial) Hard Disk Drives/Solid State Drives (SSD) supporting RAID level 0/1

(**Factory Option**) Two mSATA Solid State Drives (SSD) supporting RAID level 0/1

(**Factory Option**) One 12.7mm(h) Optical Device Type Drive (Super Multi Drive/Blu-Ray Combo Drive/Blu-Ray Writer Drive)

## Video Adapter

### NVIDIA® GeForce GTX 780M PCIe Video Card

4GB GDDR5 Video RAM on board

Microsoft DirectX® 11.1 Compatible

Supports nVIDIA® SLI Technology

Supports 3DTV Play

## Pointing Device

Built-in Touchpad (scrolling key functionality integrated)

## Keyboard

**Illuminated** Full-size "WinKey" keyboard (with numeric keypad)

## Audio

High Definition Audio Compliant Interface

S/PDIF Digital Output

Two Speakers

One Sub Woofer

Sound Blaster Audio

Built-In Microphone

## Interface

Four USB 3.0 Ports (Including one AC/DC Powered USB port)

One eSATA Port (USB 2.0 Port Combined)

One HDMI-Out Port

One Thunderbolt™ Port

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

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

## Mini-Card Slots

Slot 1 for **WLAN** Module or **Combo WLAN and Bluetooth** Module

Slots 2 & 3 for mSATA **SSD**

## Card Reader

Embedded Multi-In-1 Push-Push Card Reader

MMC (MultiMedia Card) / RS MMC

SD (Secure Digital) / Mini SD / SDHC/ SDXC

MS (Memory Stick) / MS Pro / MS Duo

### Communication

Built-In Giga Base-TX Ethernet LAN  
2.0M FHD PC Camera Module

#### **WLAN/ Bluetooth Half Mini-Card Modules:**

**(Factory Option)** Intel® Centrino® Ultimate-N  
6300 Wireless LAN (**802.11a/g/n**)

**(Factory Option)** Intel® Centrino® Advanced-N  
6235 Wireless LAN (**802.11a/g/n**) + Bluetooth  
**4.0**

**(Factory Option)** Intel® Centrino® Wireless-N  
2230 Wireless LAN (**802.11b/g/n**) + Bluetooth  
**4.0**

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

### Environmental Spec

#### Temperature

Operating: 5°C - 35°C

Non-Operating: -20°C - 60°C

#### Relative Humidity

Operating: 20% - 80%

Non-Operating: 10% - 90%

### Power

Full Range AC/DC Adapter

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

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

Removable 8-cell Smart Lithium-Ion Battery  
Pack 89.21WH

### Dimensions & Weight

419mm (w) \* 293mm (d) \* 39.3 - 49.7mm (h)

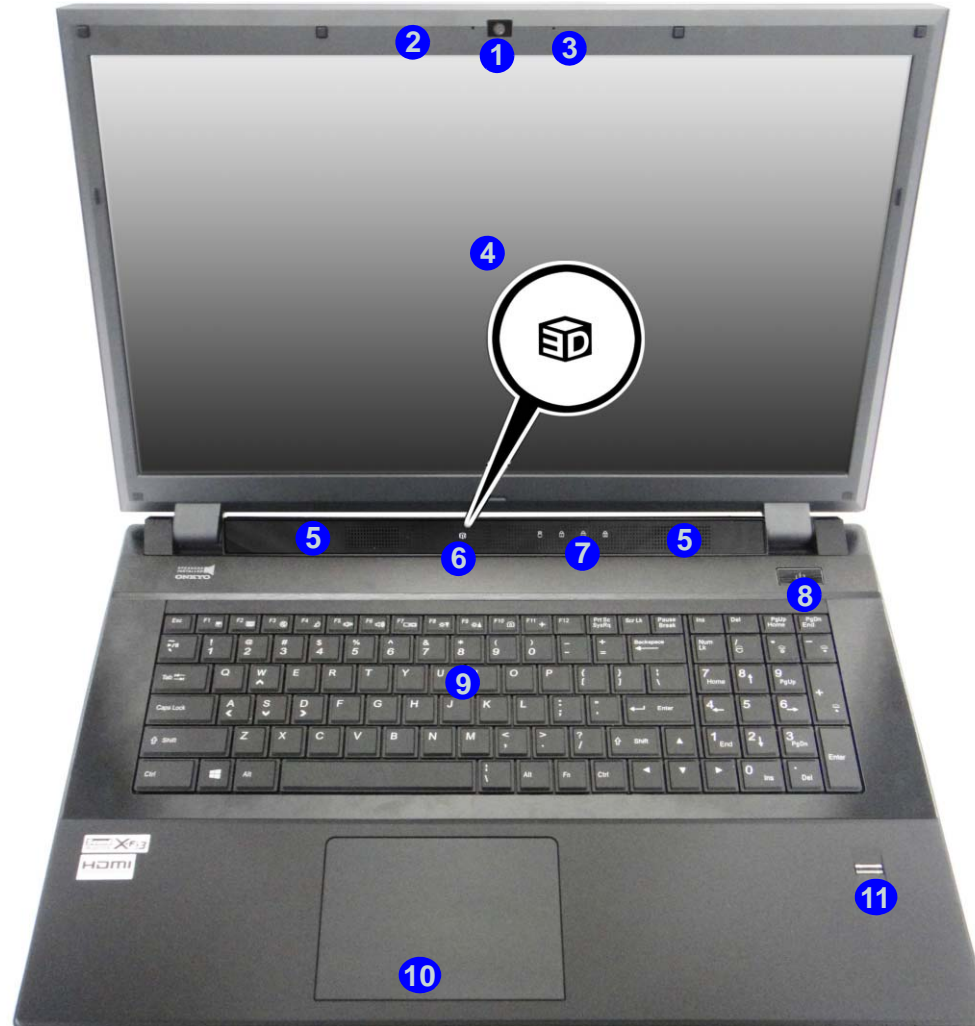
Around 3.9kg with 1 Video Card, Battery and  
ODD

## Introduction

*Figure 1*  
**Top View**

1. Built-In PC Camera
2. PC Camera LED
3. Built-In Microphone
4. LCD
5. Speakers
6. 3D Emitter
7. LED Status Indicators
8. Power Button
9. Keyboard
10. Clickpad and Buttons
11. Fingerprint Reader Module

## External Locator - Top View with LCD Panel Open



## External Locator - Front & Right side Views

*Figure 2*  
**Front Views**

1. LED Power Indicators



*Figure 3*  
**Right Side Views**

1. Optical Device Drive Bay
2. Emergency Eject Hole
3. Combined eSATA/USB 2.0 Port
4. Powered USB 3.0 Port
5. USB 3.0 Port
6. Thunderbolt Port



## Introduction

### External Locator - Left Side & Rear View

*Figure 4*  
**Left Side View**

1. Security Lock Slot
2. RJ-45 LAN Jack
3. Multi-In-1 Card Reader
4. Line-In Jack
5. S/PDIF-Out Jack
6. Microphone-In Jack
7. Headphone-Out Jack

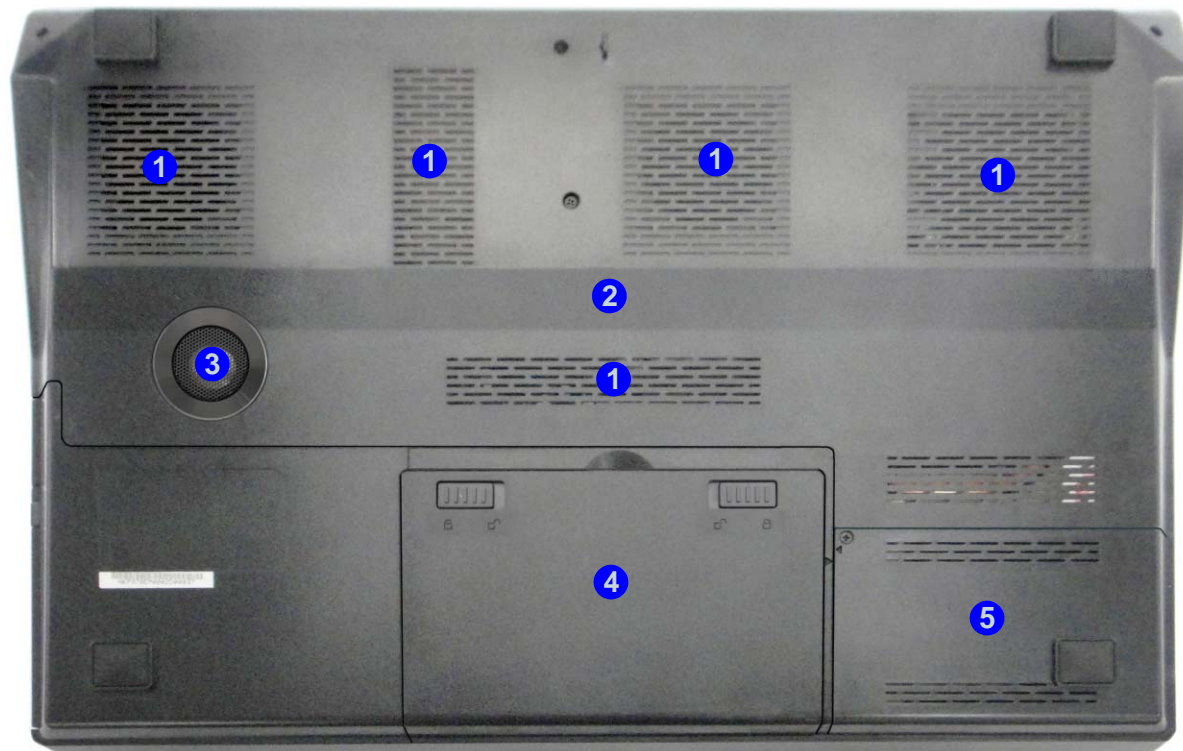


*Figure 5*  
**Rear View**

1. Fan Outlet/Intake
2. HDMI-Out Port
3. Display Port
4. DC-In Jack
5. 1 \* USB 3.0 Port



## External Locator - Bottom View



*Figure 6*  
**Bottom View**

1. Fan Outlet/Intake
2. Component Bay Cover
3. Sub Woofer
4. Battery
5. HDD Bay



### Overheating

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

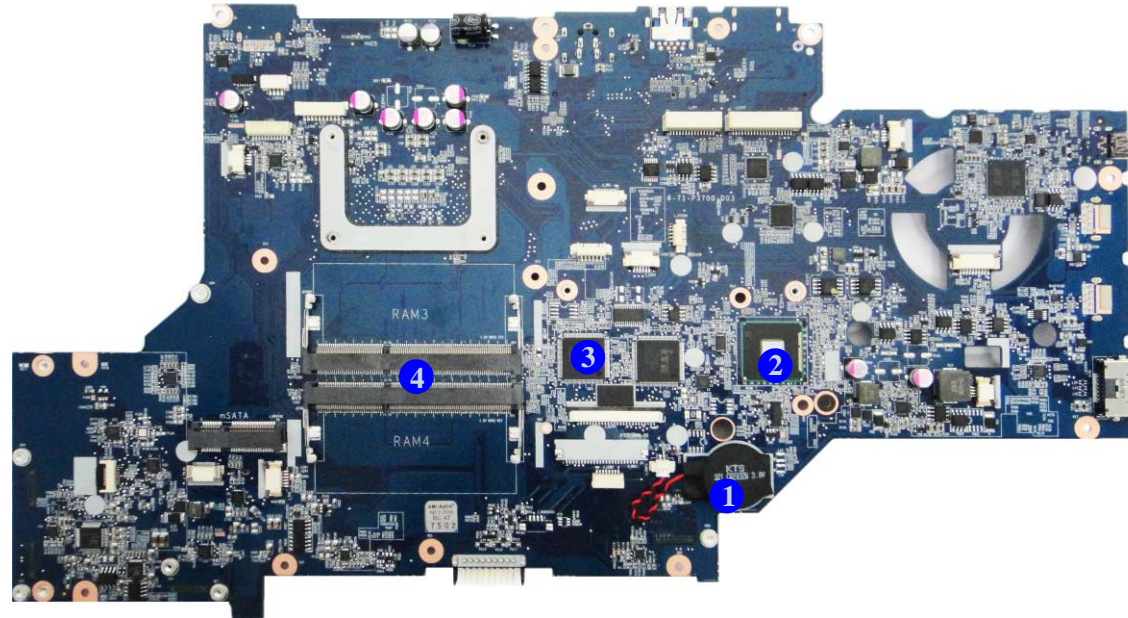


## Introduction

*Figure 7*  
**Mainboard Top  
Key Parts**

1. CMOS Battery
2. LynxPoint Controller Hub
3. ITE8587
4. Memory Slots DDR3 So-DIMM

## Mainboard Overview - Top (Key Parts)

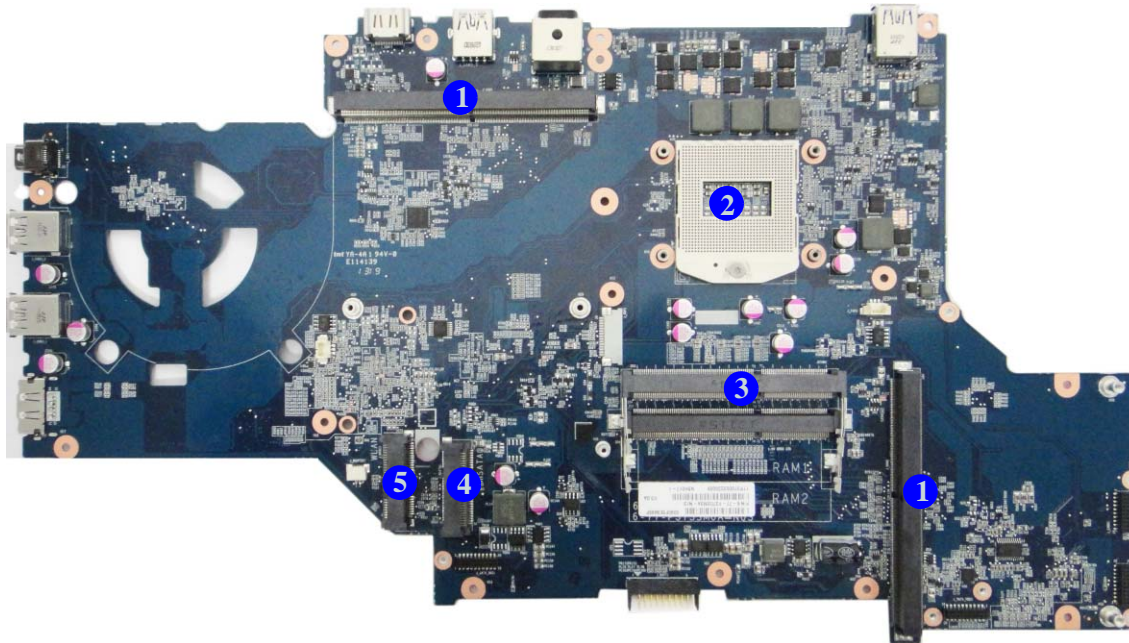




## Mainboard Overview - Bottom (Key Parts)

*Figure 8*  
**Mainboard Bottom  
Key Parts**

1. VGA Sockets
2. CPU Socket
3. Memory Slots DDR3 So-DIMM
4. Mini-Card Connector (SSD Module)
5. Mini-Card Connector (WLAN/3G Module)

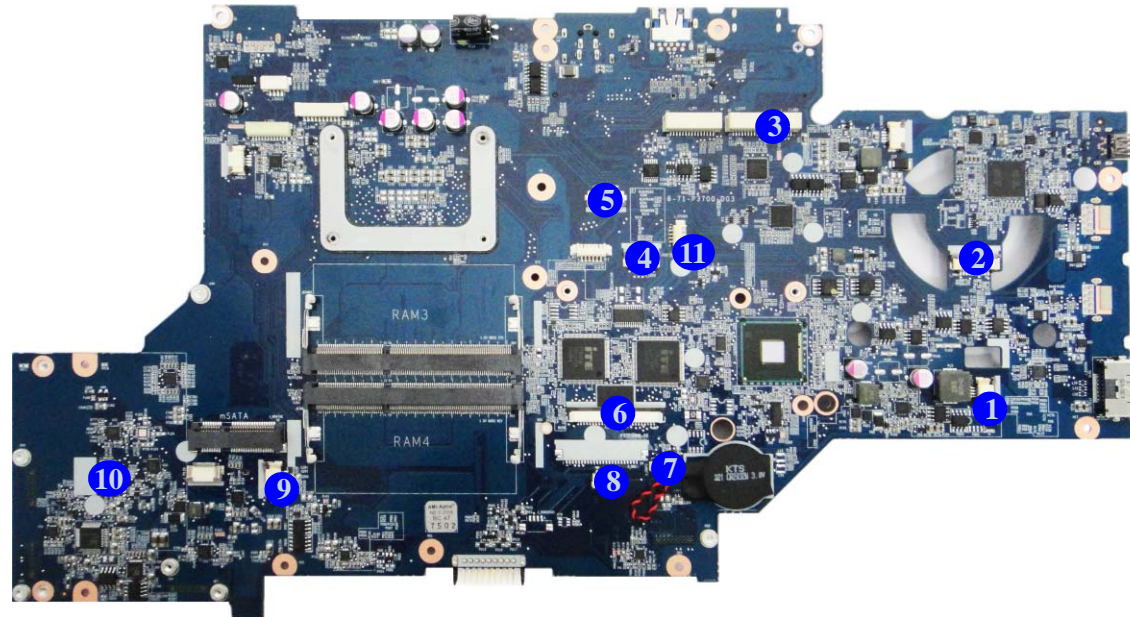


## Introduction

*Figure 9*  
**Mainboard Top  
Connectors**

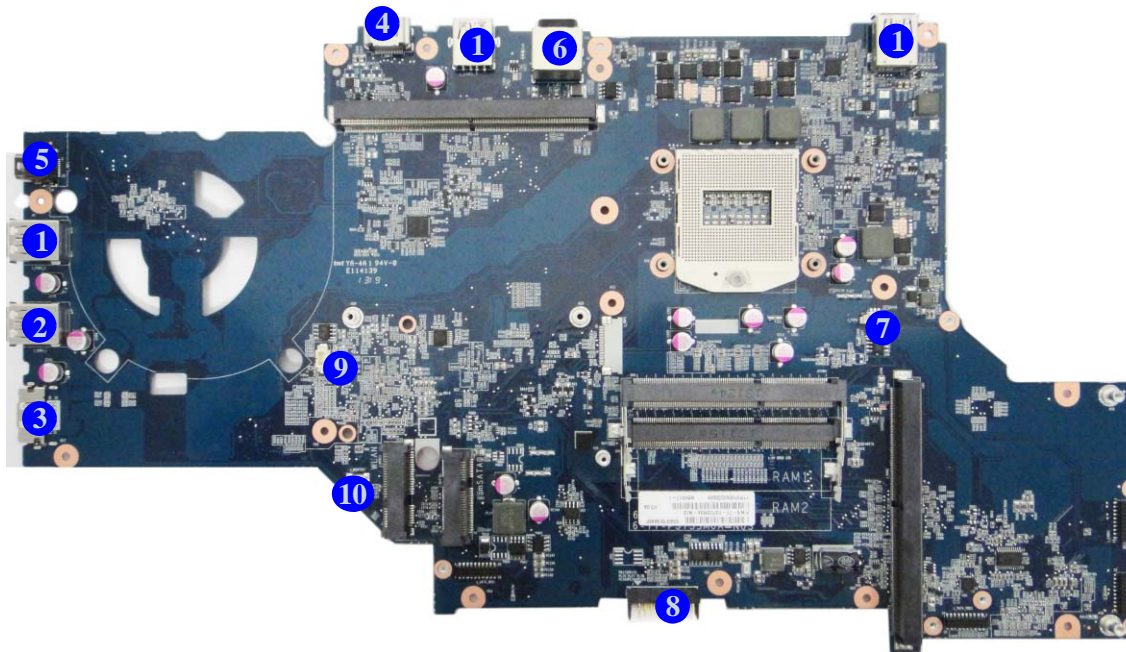
## Mainboard Overview - Top (Connectors)

1. Fingerprint Cable Connector
2. Power Cable Connector
3. LCD Cable Connector
4. Keyboard Indicator LED Connector
5. 3D Emitter Cable Connector
6. Keyboard Cable Connector
7. CMOS Battery Connector
8. Power Indicator LED Connector
9. Touch Pad Connector
10. Keyboard LED Cable Connector
11. Speaker Connector



## Mainboard Overview - Bottom (Connectors)

*Figure 10*  
**Mainboard Bottom  
Connectors**



1. 3\* USB 3.0 Port
2. Powered USB 3.0 Port
3. eSATA/USB 2.0 Port
4. HDMI-Out Port
5. Thunderbolt Port
6. DC-In Jack
7. CPU Fan Connector
8. Battery Connector
9. VGA Fan Connector
10. Subwoofer Connector




# Chapter 2: Disassembly

## Overview

This chapter provides step-by-step instructions for disassembling the *P370SM3* series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

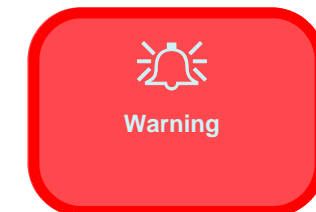
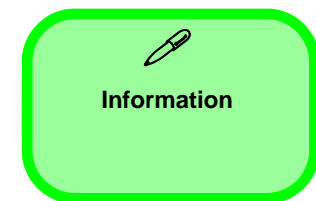
We suggest you completely review any procedure before you take the computer apart.

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

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

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

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



## Disassembly

---

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

### Maintenance Tools

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

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

### Connections

Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors	To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Pressure sockets for multi-wire connectors	To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.
Pressure sockets for ribbon connectors	To release these connectors, use a small pair of needle-nose pliers to gently lift the connector away from its socket. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Board-to-board or multi-pin sockets	To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.



## Maintenance Precautions

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

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

## Cleaning

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

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



### Power Safety Warning

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

### Disassembly Steps

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

#### To remove the Battery:

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

#### To remove the Optical Device:

1. Remove the battery [page 2 - 5](#)
2. Remove the Optical device [page 2 - 6](#)

#### To remove the HDD:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 7](#)

#### To remove the Keyboard:

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

#### To remove the System Memory:

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

#### To remove and install the Processor:

1. Remove the battery [page 2 - 5](#)
2. Remove the processor [page 2 - 16](#)
3. Install the processor [page 2 - 18](#)

#### To remove the VGA card:

1. Remove the battery [page 2 - 5](#)
2. Remove the VGA card [page 2 - 19](#)
3. Install the VGA card [page 2 - 23](#)

#### To remove the Wireless LAN Module:

1. Remove the battery [page 2 - 5](#)
2. Remove the Keyboard [page 2 - 11](#)
3. Remove the Wireless LAN [page 2 - 27](#)



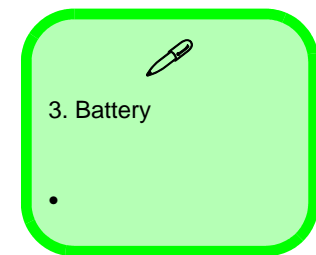
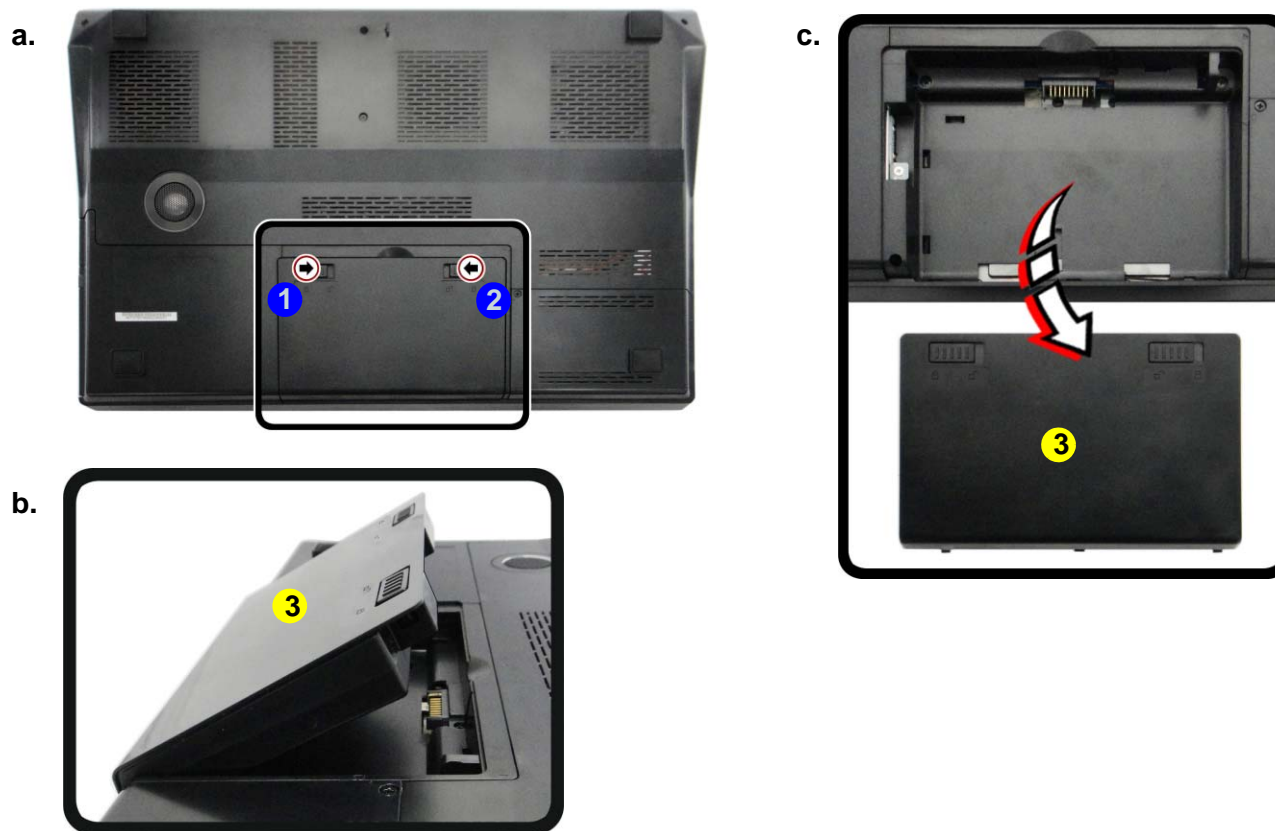
## Removing the Battery

If you are confident in undertaking upgrade procedures yourself, for safety reasons it is best to remove the battery.

1. Turn the computer off, remove the AC/DC adapter and turn it over.
2. Slide the latch **1** - **2** in the direction of the arrow and carefully pull the battery **3** up.
3. Lift the battery **3** up (*Figure b*) and out of the battery bay.

*Figure 1*  
**Battery Removal**

- a. Slide the latch and hold it in place.
- b. Pull the battery up.
- c. Lift the battery out of the bay as indicated.



## Disassembly

*Figure 2*  
**Optical Device  
 Removal**

- Remove the screws.
- Remove the cover.
- Remove the screw.
- Push the optical device out of the computer.

## Removing the Optical (CD/DVD) Device

- Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)).
- Locate the hard disk bay cover and remove screws **1** - **2**, and remove the bay cover **3**.
- Remove the screw at point **4**, and use a screwdriver to carefully push out the optical device at point **5**.
- Push the optical device drive **6** out of the bay and reverse the process to install the new device.



- 3. Hard Disk Bay Cover
- 6. Optical Device

- 3 Screws

## Removing the Hard Disk Drive

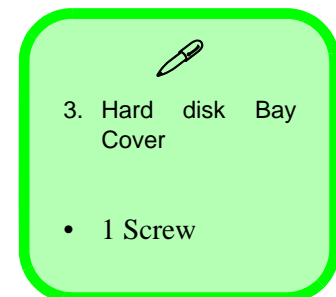
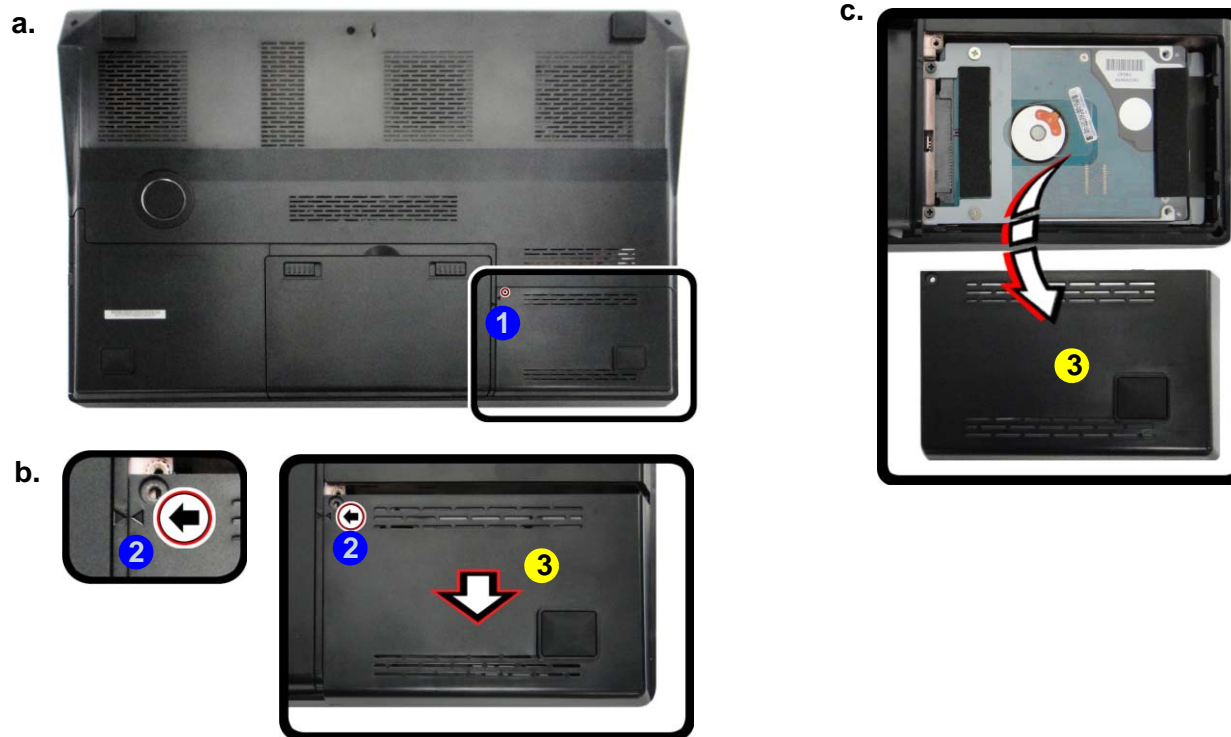
The hard disk drive is mounted in a removable case and can be taken out to accommodate other 2.5" SATA hard disk drives with a height of 9.5mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

### Hard Disk Upgrade Process

1. Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)).
2. Locate the Hard disk bay cover and remove the screw **1**.
3. Slide the bay cover **3** until the case markers **2** align.
4. Carefully lift the bay cover **3** off the computer ([Figure 3c](#)).

*Figure 3*  
**HDD Assembly Removal**

- a. Remove the screw.
- b. Slide the cover until the case markers align.
- c. Remove the bay cover.

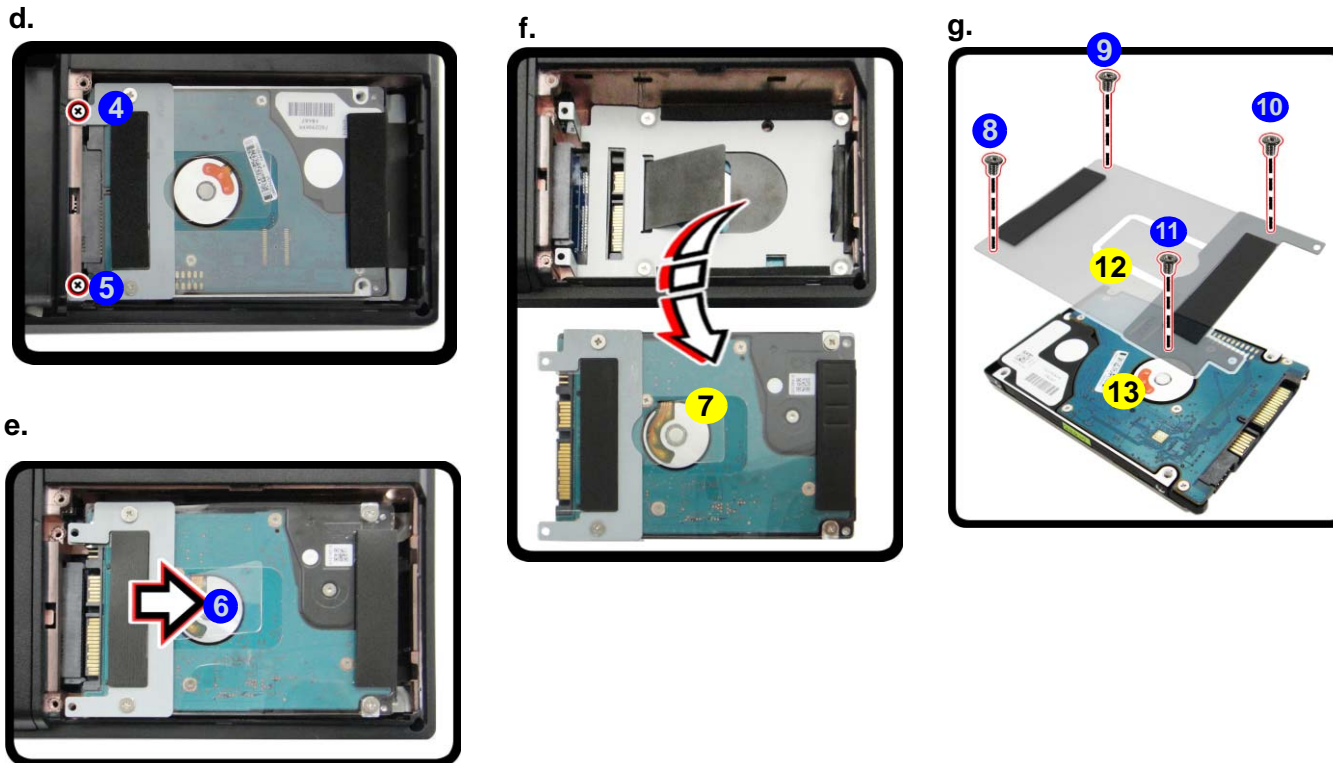


## Disassembly

### Figure 4 HDD Assembly Removal (cont'd.)

- d. Remove the screws.  
e. Slide the HDD in the direction of the arrow.  
f. Lift the hard disk assembly out of the bay.  
g. Remove the screws and mylar from HDD.

5. Remove screws ④ - ⑤ from the hard disk assembly.  
6. Grip the tab and slide the hard disk assembly in the direction of the arrow ⑥ (Figure 4e).  
7. Carefully lift the hard disk assembly ⑦ out of the bay (Figure 4f).  
8. Remove screws ⑧ - ⑪ and hard disk mylar ⑫ from the hard disk(s) ⑬ (Figure 4g).  
9. Reverse the process to install a new hard disk (do not forget to replace the mylar, screws and cover).

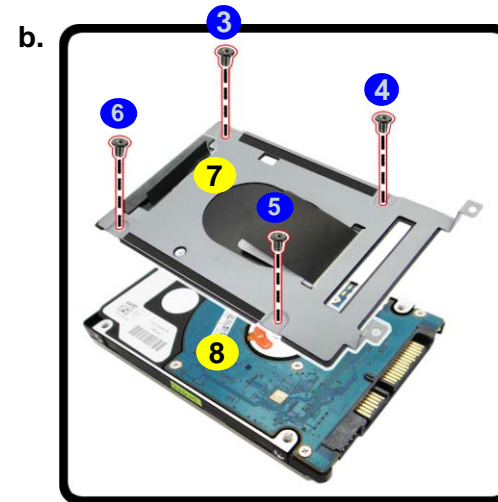
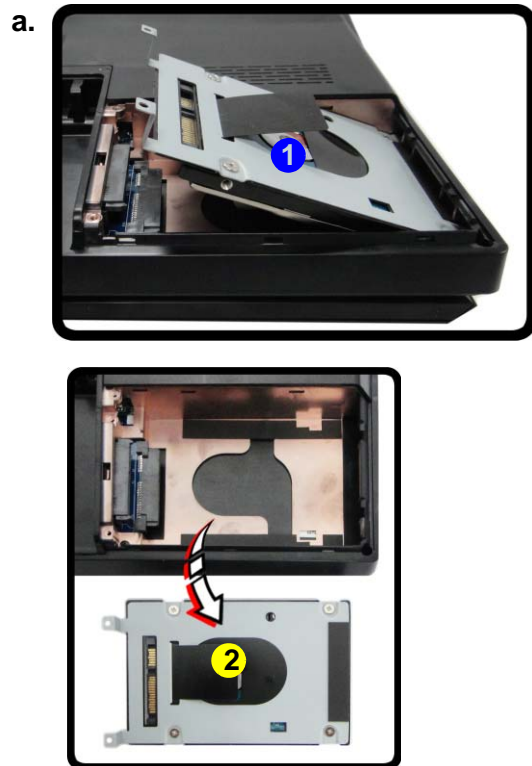


⑦ Hard Disk Assembly  
⑫ Hard Disk Mylar  
⑬ Hard Disk

- 6 Screws

## Removing the Hard Disk(s) in the Secondary HDD Bay

1. Turn **off** the computer, and turn it over and remove the battery and any HDD in the upper slot.
2. The secondary hard disk bay is located under the first hard disk.
3. Grip the tab and raise the hard disk assembly up at an angle **1** as illustrated (*Figure 5a*).
4. Lift the hard disk assembly **2** out of the bay compartment.
5. Remove the screws **3** - **6** to release the hard disk **8** from the case **7** (*Figure 5b*).
6. Reverse the process to install any new hard disk(s).



*Figure 5*  
**Secondary HDD  
 Assembly Removal**

- a. Lift the secondary hard disk assembly out off the computer.
- b. Remove the screws to release the hard disk from the case.



- 2. Hard Disk Assembly
- 7. Hard Disk Case
- 8. Hard Disks
- 4 Screws

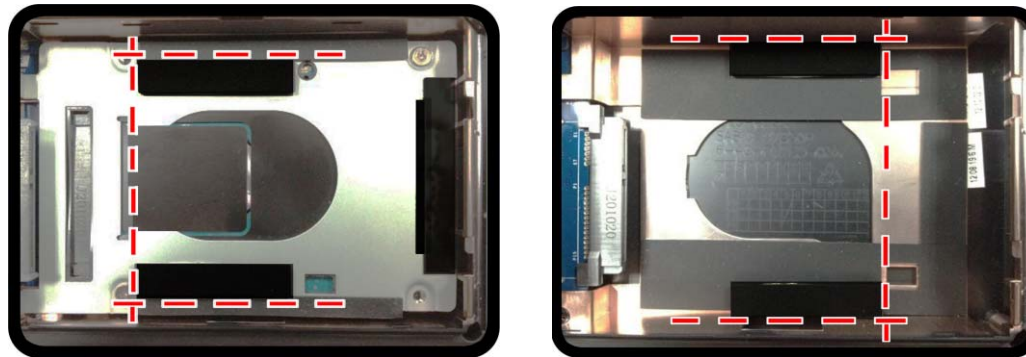


## Disassembly

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### 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. For more information contact your distributor/supplier, and bear in mind your warranty terms.



*Figure 6*  
Foam Rubber  
Insert for 7mm(H)  
HDDs

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

## Removing the Keyboard

1. Turn off the computer, and turn it over and remove the battery ([page 2 - 5](#)).
2. Turn the computer over, open the Lid/LCD, and carefully unsnap the center cover module **1** from point **2** (between F11 & F12) using non-metallic instrument.
3. Lift up the center cover module **1**.
4. Remove screws **3** - **7** from the keyboard.
5. Carefully lift the keyboard **8** up, being careful not to bend the keyboard ribbon cable.
6. Disconnect the keyboard ribbon cable **9** from the locking collar socket **10**, and the keyboard LED cable **11** from its locking collar socket **12**.
7. Remove the keyboard **8**.
8. Reverse the process to replace the keyboard (make sure to reconnect the keyboard cable).

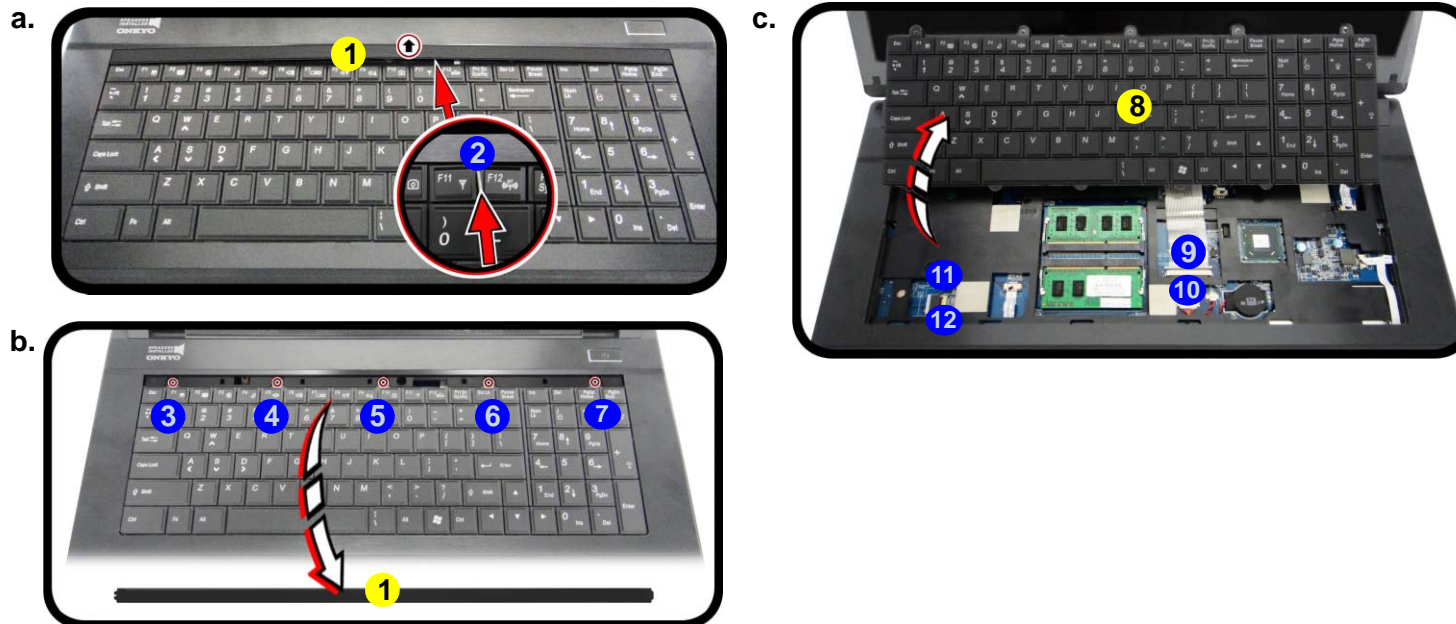


Figure 7  
Keyboard  
Removal

- a. Open the lid/LCD and unsnap the LED cover at point 2.
- b. Lift the LED cover module and remove the screws from the keyboard.
- c. Disconnect the cables from the locking collar.
- d. Remove the keyboard.



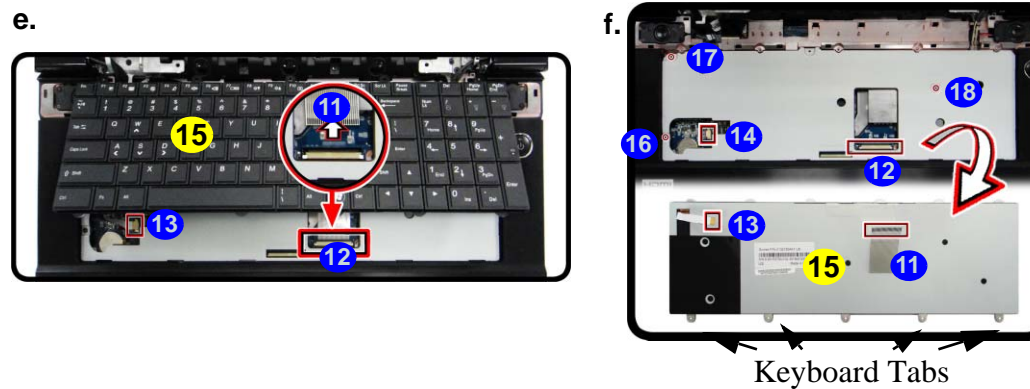
- 1. Center Cover Module
- 8. Keyboard
- 5 Screws

## Disassembly

*Figure 8*  
**Keyboard Removal**  
**(cont'd.)**

- e. Disconnect the cable from the locking collar.  
 f. Remove the keyboard.  
 g. Push the center cover on the left side and the slide toward the right to secure it in place.

9. Remove the keyboard **15**, and screws **16** - **18** from the keyboard shielding plate.



### Re-Inserting the Keyboard

When re-inserting the keyboard firstly align the **five** keyboard tabs at the bottom (*Figure 8f*) at the bottom of the keyboard with the slots in the case.

10. Reverse the process to replace the keyboard (make sure to reconnect the keyboard cable).  
 11. Push the center cover module down on the left side at point **19**, and then slide the module to the right (as illustrated) and snap down to secure it in place.  
 12. Replace the screws on the bottom of the computer.



15. Keyboard

- 3 Screws

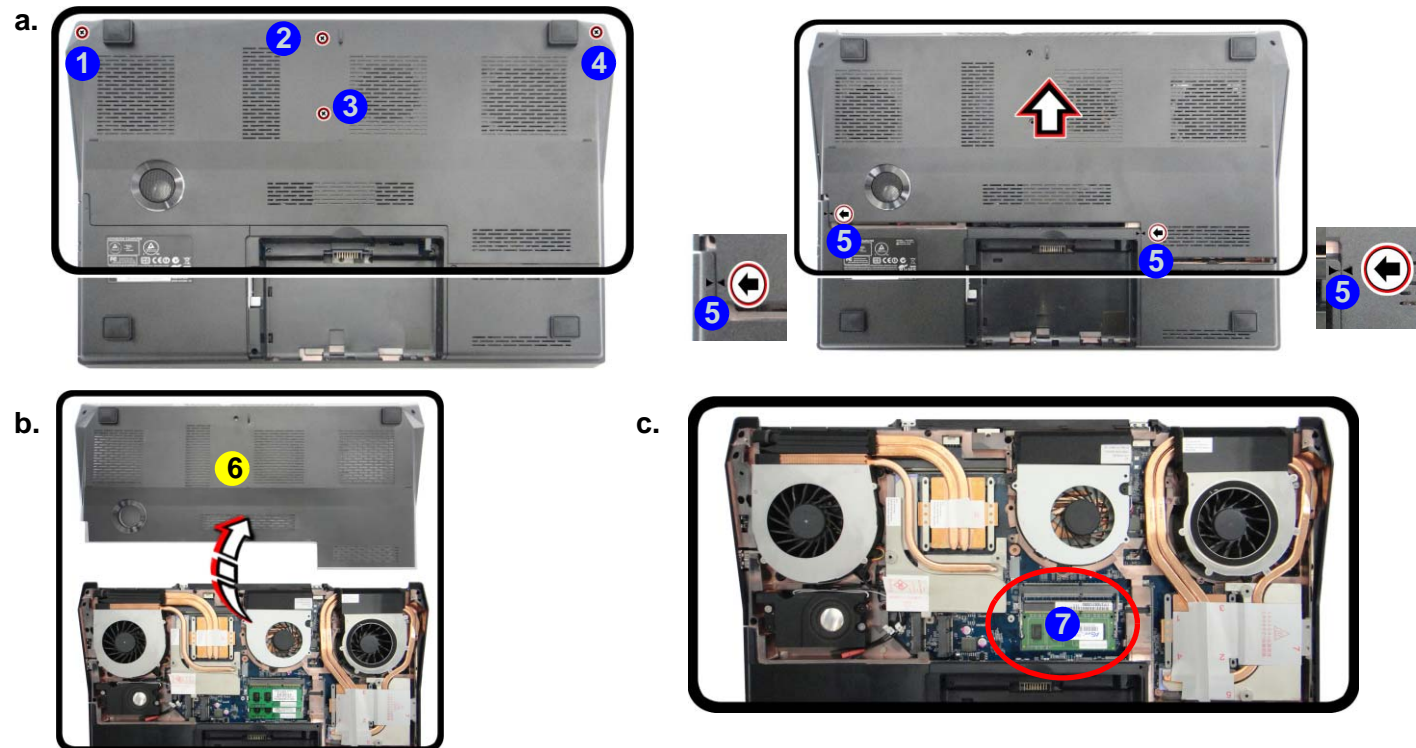


## Removing the System Memory (RAM)

The computer has three memory sockets for 204 pin Small Outline Dual In-line Memory Modules (SO-DIMM) DDR III (DDR3) supporting 1600 MHz. The main memory can be expanded up to 32GB. The total memory size is automatically detected by the POST routine once you turn on your computer.

### Primary System Memory Upgrade Process

1. Turn off the computer, and turn it over to remove the battery ([page 2 - 5](#)).
2. Remove screws **1** - **4** and slide the component bay cover until the cover and case indicators **5** are aligned.
3. Remove the component bay cover **6**.
4. The RAM module will be visible at point **7** on the mainboard ([Figure 9c](#)).



*Figure 9*  
**RAM-1 Module Removal**

- a. Remove screws and slide the component bay cover as indicated.
- b. Remove the component bay cover.
- c. Locate the module.



#### 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.



6. Component Bay Cover

- 4 Screws

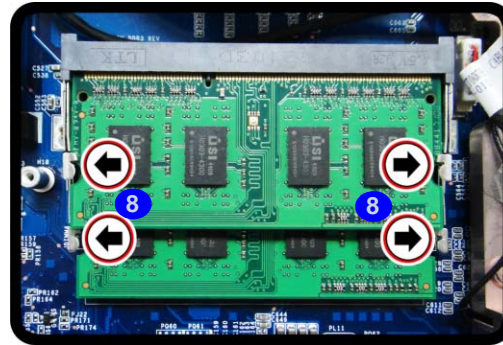
## Disassembly

Figure 10  
RAM-1 Module  
Removal (cont'd.)

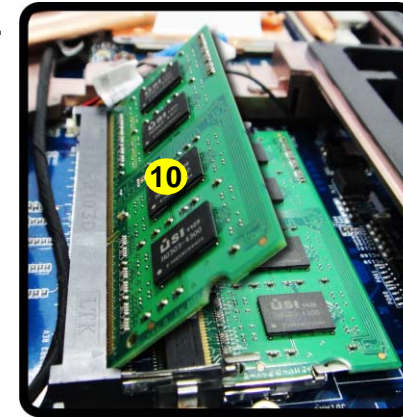
- d. Gently pull the release latch in the direction indicated.
- e. Remove the module.

5. Gently pull the two **release latches 8 & 9** on the sides of the memory socket in the direction indicated by the arrows (**Figure 10d**).
6. The RAM module **10** will pop-up, and you can then remove it.
7. Pull the latches to release the second module if necessary

d.



e.



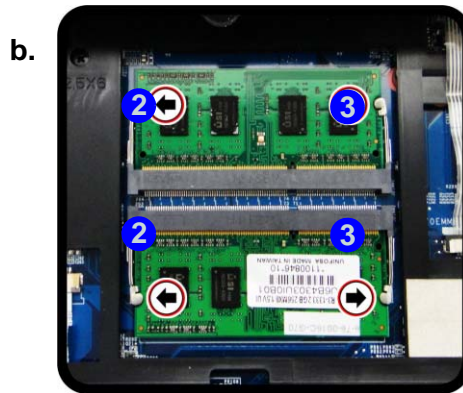
8. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
9. The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the socket as it will go. **DO NOT FORCE** the module; it should fit without much pressure.
10. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
11. Replace the component bay cover and screws.
12. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.



10. RAM Module

## Secondary System Memory Upgrade Process

1. Turn off the computer, and turn it over to remove the battery ([page 2 - 5](#)), and keyboard ([page 2 - 11](#)).
2. The RAM module will be visible at point **1** on the mainboard ([Figure 11a](#)).



3. Gently pull the two **release latches 2 & 3** on the sides of the memory socket in the direction indicated by the arrows ([Figure 10c](#)).
4. The RAM module **4** will pop-up, and you can then remove it.
5. Pull the latches to release the second module if necessary
6. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
7. The module'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 module; it should fit without much pressure.
8. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
9. Replace the screws and keyboard.
10. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

*Figure 11*  
**RAM-2 Module Removal**

- a. Locate the module.
- b. Gently pull the release latch in the direction indicated.
- c. Remove the module.



### Contact Warning

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



### 4. RAM Module



## Disassembly

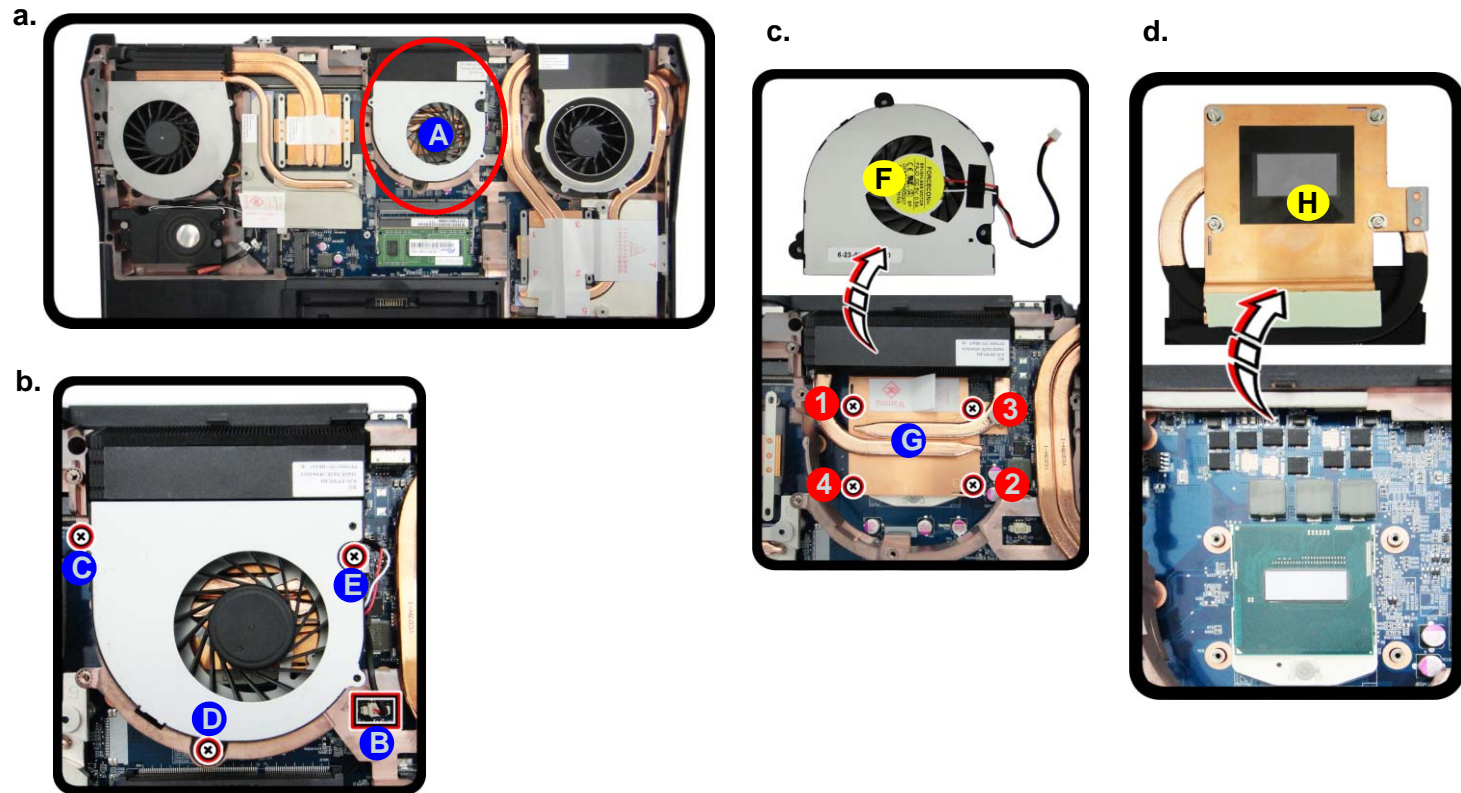
Figure 12  
Processor Removal

- Locate the heat sink.
- Remove the CPU fan cables and screws. Lift up the CPU fan off the computer.
- Remove the screws.
- Remove the heat sink.

## Removing and Installing the Processor

### Processor Removal Procedure

- Turn off the computer, and turn it over to remove the battery ([page 2 - 5](#)), and component bay cover ([page 2 - 13](#)).
- The heat sink fan and heat sink will be visible at point **A** on the mainboard.
- Carefully disconnect heat sink fan cable **B**, and remove screws **C** - **E** ([Figure 12b](#)).
- Lift up the heat sink fan **F** off the computer.
- Remove screws **4**, **3**, **2**, **1**, the reverse order indicated on the label ([Figure 12c](#)) and carefully pull the tabs **G** to disconnect the heat sink.
- Carefully (it may be hot) lift up the heat sink **H** off the computer ([Figure 12d](#)).




#### 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.



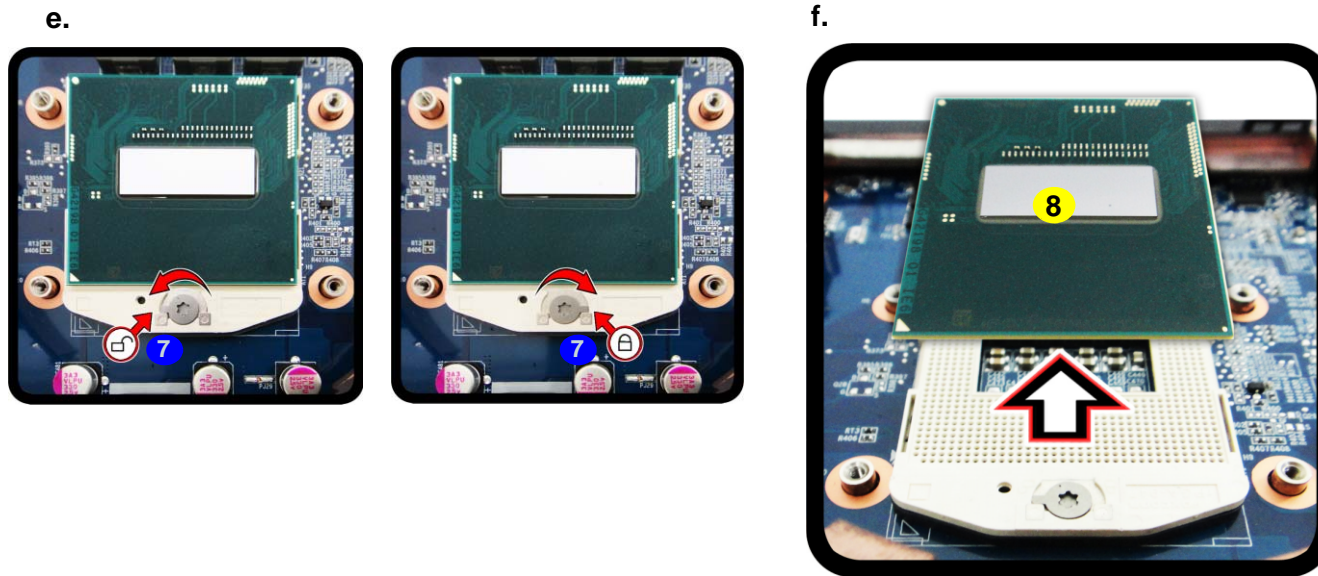
F. Heat Sink Fan  
H. Heat Sink

- 7 Screws

7. Turn the release latch **7** (towards the unlock symbol , to release the CPU (*Figure 13e*).
8. Carefully (it may be hot) lift the CPU **8** up out of the socket (*Figure 13e*).
9. See [page 2 - 18](#) for information on inserting a new CPU.
10. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT).

*Figure 13*  
**Processor Removal**  
**(cont'd)**

- e. Turn the release latch to unlock the CPU.
- f. Lift the CPU out of the socket.



### 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.




8. CPU

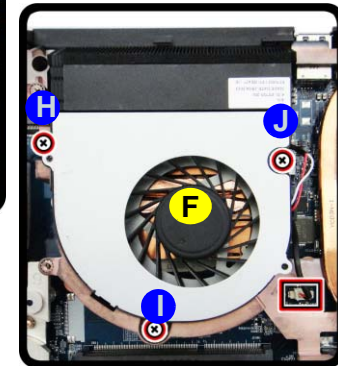
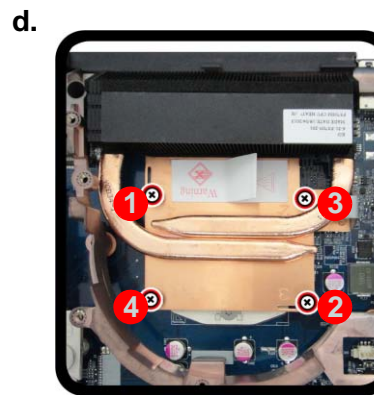
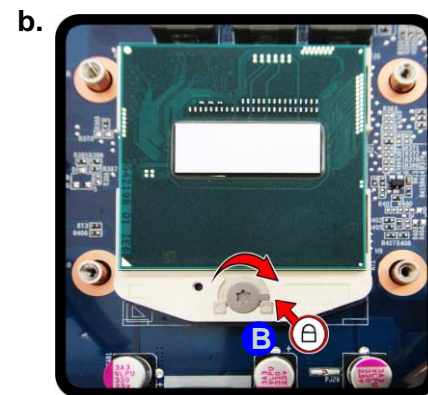
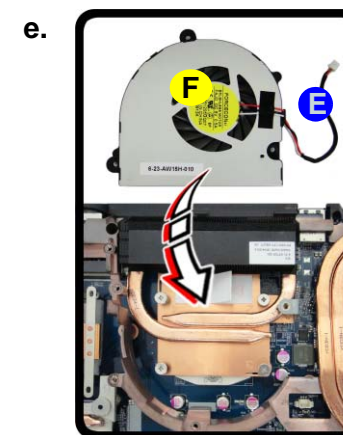
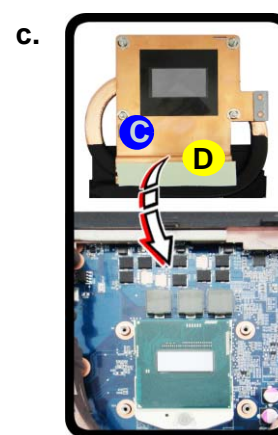
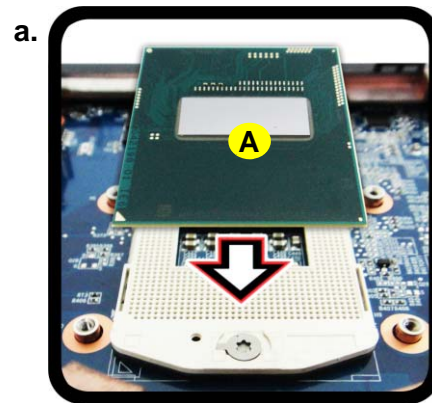
## Disassembly

*Figure 14*  
**Processor Installation**

- Insert the CPU.
- Turn the release latch towards the lock symbol  as indicated.
- Remove the sticker from the heat sink and Insert the heat sink.
- Tighten the screws.
- Connect the heat sink fan cables and insert the heat sink fan. Tighten the screws.

### Processor Installation Procedure

- Insert the CPU **A**, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).
- Turn the release latch **B** towards the lock symbol  as indicated.
- Remove the sticker C** from the heat sink unit (if it is a new unit).
- Insert the heat sink **D** as indicated in *Figure 14c*.
- Tighten the CPU heat sink screws **1**, **2**, **3** & **4** (*Figure 14d*) and connect the CPU fan cables **E** (make sure that the CPU fan cable is tucked underneath the bracket **G**).
- Insert heat sink fan **F** and tighten the screws **H** - **J** (*Figure 14e*).
- Replace the component bay cover and tighten the screws (*page 2 - 16*).



- A. CPU
- D. Heat Sink
- F. Heat Sink Fan

- 7 Screws

**Note:**

Tighten the screws in the order 1-2-3-4 as indicated on the label.

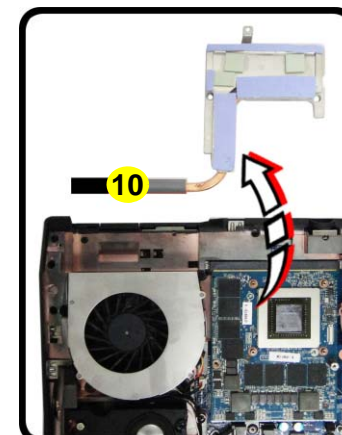
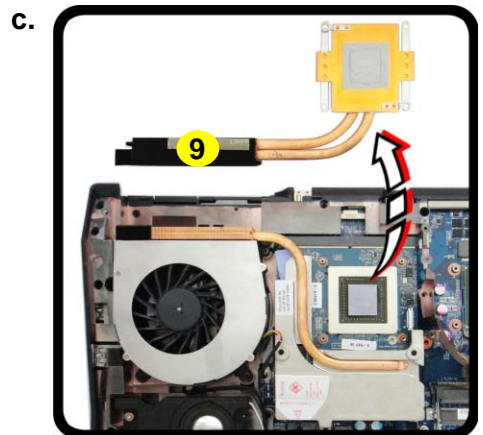
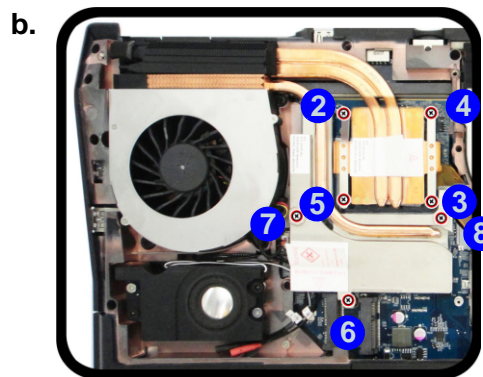
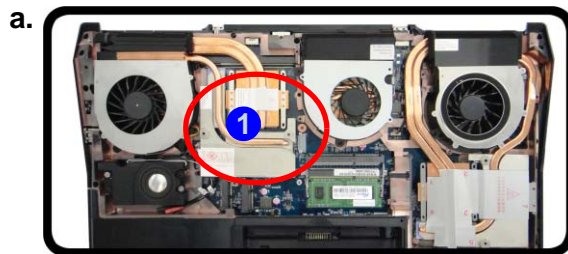



## Removing the VGA-1 Card

1. Turn off the computer, and turn it over to remove the battery ([page 2 - 5](#)) and component bay cover ([page 2 - 5](#)).
2. The VGA-1 card will be visible at point **1** on the mainboard ([Figure 15a](#)).
3. Remove screws **2** - **5** and **6** - **8** from the heat sink **in the order indicated on the label** (and on the heat sink unit itself).
4. Carefully (**they may be hot**) remove the heat sink-1 **9** from VGA assembly.
5. Carefully (**they may be hot**) remove the heat sink-2 **10** from VGA assembly.

*Figure 15*  
**VGA-1 Card Removal**

- a. Locate the VGA card.
- b. Remove the screws and VGA heat sink-1.
- c. Remove the screws and VGA heat sink-2.





**Heat Sink Screw Removal and Insertion**


Remove the screws from the heat sink in the order indicated here: **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**.



**Caution**

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



9. VGA Heat sink-1  
10. VGA Heat sink-2

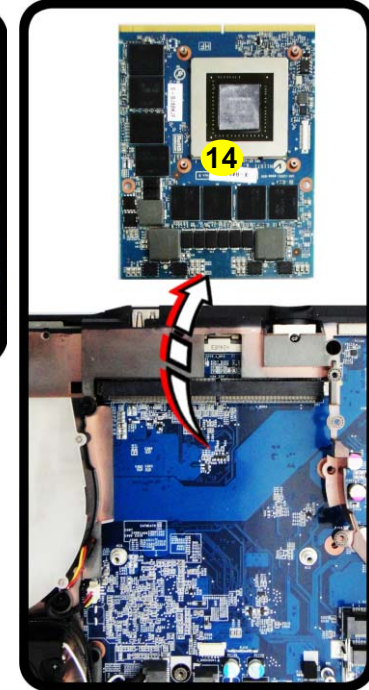
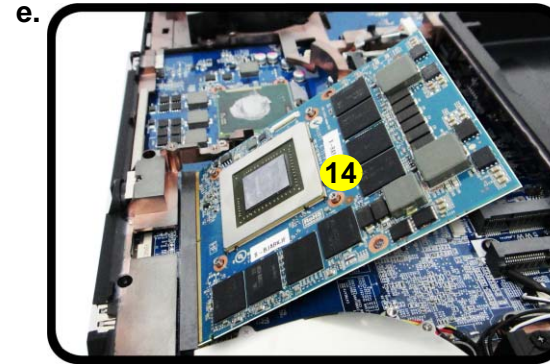
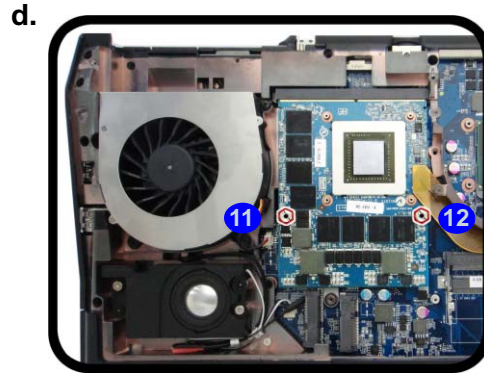
- 7 Screws

## Disassembly

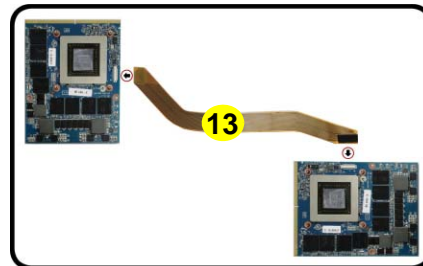
### Figure 16 VGA-1 Card Removal (cont'd)

- d. Remove the screws and disconnect the VGA cable if applicable.  
e. Lift the VGA-1 card out.

6. Remove screws 11 & 12 from the VGA-1 assembly.
7. If your system includes two video cards you will need to disconnect the cable 13 between the master and slave cards (do not forget to reconnect the cable if you are replacing two cards).
8. Carefully lift the VGA-1 card 14 off the mainboard.



NVidia VGA Cable



13. VGA Cable  
14. VGA-2 Card

- 2 Screws

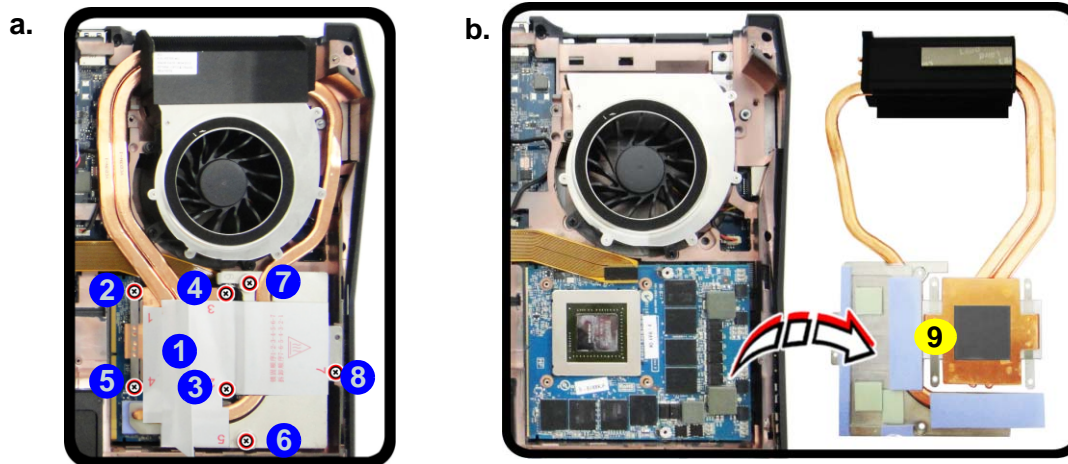



## Removing the VGA-2 Card

1. Turn off the computer, and turn it over to remove the battery ([page 2 - 5](#)), component bay cover ([page 2 - 13](#)) and CPU ([page 2 - 16](#)).
2. The VGA-2 card will be visible at point **1** on the mainboard ([Figure 17a](#)).
3. Remove screws **2** - **8** from the heat sink **in the order indicated on the label** (and on the heat sink unit itself).
4. Carefully (**it may be hot**) remove the VGA heat sink **9**.

*Figure 17*  
**VGA-2 Card Removal**

- a. Remove the screws.
- b. Remove the VGA heat sink.






**Heat Sink Screw Removal and Insertion**


Remove the screws from the heat sink in the order indicated here: **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**.



**Caution**

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



9. VGA Heat sink

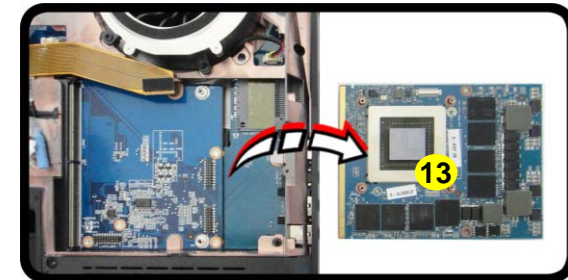
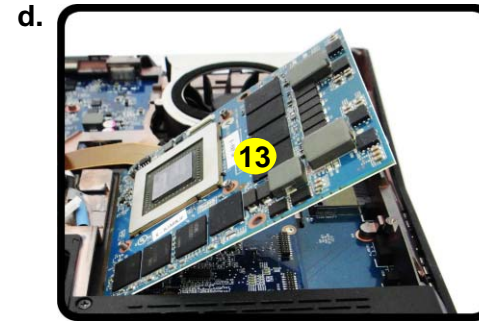
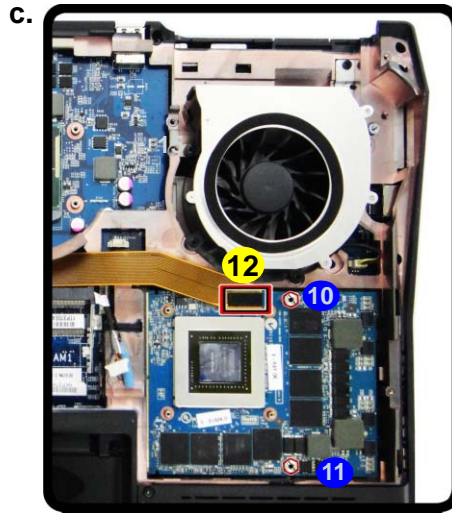
- 7 Screws

## Disassembly

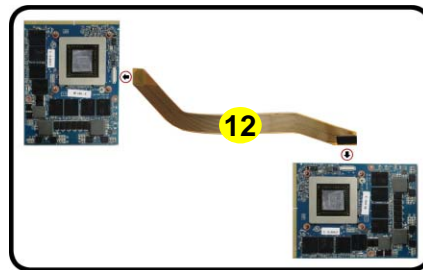
### Figure 18 VGA-2 Card Removal (cont'd)

- c. Remove the screws and disconnect the VGA cable.
- d. Lift the VGA-2 card out.

5. Remove screws **10** & **11** from the VGA-1 assembly.
6. Disconnect the VGA cable **12** between the master and slave cards (do not forget to reconnect the cable if you are replacing two cards).
7. Carefully lift the VGA-2 card **13** off the mainboard.



NVidia VGA Cable

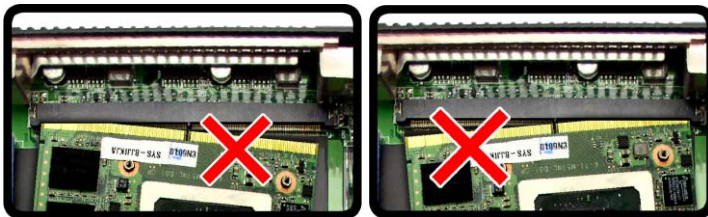
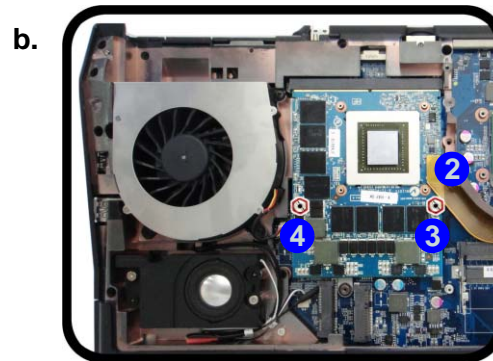
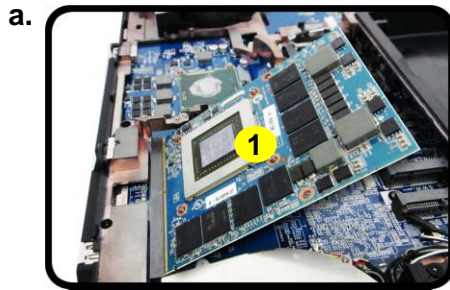


12. VGA Cable  
13. VGA-2 Card

- 2 Screws

## Installing the VGA-1 Card

1. Do not forget to replace the master and slave cable if you are replacing two video cards.
2. Prepare to fit the VGA card **1** into the slot by holding it at about a 30° angle.
3. The card needs to be fully into the slot, and the VGA card and socket have a guide-key and pin which align to allow the card to fit securely. Fit the connectors firmly into the socket, straight and evenly.
4. DO NOT attempt to push one end of the card in ahead of the other.
5. The card's pin alignment will allow it to only fit one way. **Make sure the module is seated as far into the socket as it will go** (none of the gold colored contact should be showing). DO NOT FORCE the card; it should fit without much pressure.
6. Replace the master and slave cable **2** by connecting it to the two VGA cards (if applicable).
7. Secure the card with screws **3** & **4**.



*Figure 19*  
**VGA-1 Card  
Installation**

- a. Carefully Insert the VGA Card.
- b. Tighten the screws.



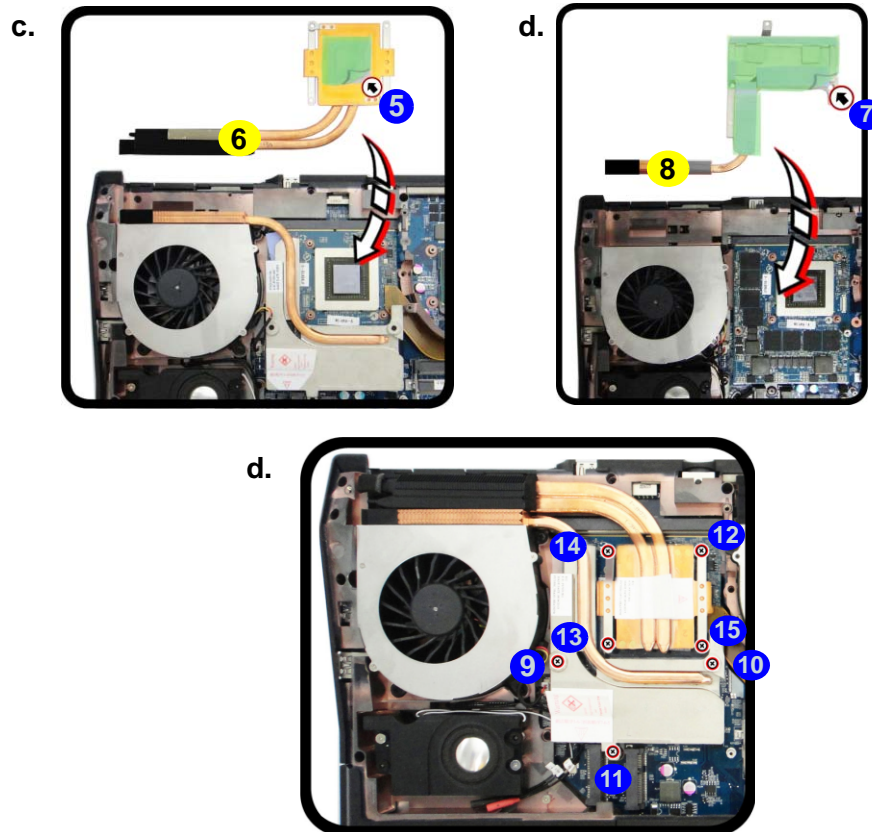
1. VGA-1 card Module

## Disassembly

### Figure 20 VGA-1 Card Installation (cont'd)

- c. Remove the sticker from the heat sink-2 and Insert the VGA heat sink-2.
- d. Remove the sticker from the heat sink-1 and Insert the VGA heat sink-1.
- e. Tighten the screws.

8. Remove the sticker **5** from the heat sink (*Figure 20c*).
9. Hold the VGA heatsink-2 **6** by the tab and insert it back on the card (*page 2 - 21*).
10. Remove the sticker **10** from the heat sink (*Figure 20d*).
11. Hold the VGA heatsink-1 **11** by the tab and insert it back on the card and
12. Secure screws **9** - **15** in the order indicated in (*page 2 - 21*).
13. Reinsert the component bay cover, and secure with the screws as indicated in (*page 2 - 13*).



#### Heat Sink Screw Removal and Insertion

Remove the screws from the heat sink in the order indicated here: 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.



6. VGA Heat sink-2  
11. VGA Heat sink-1

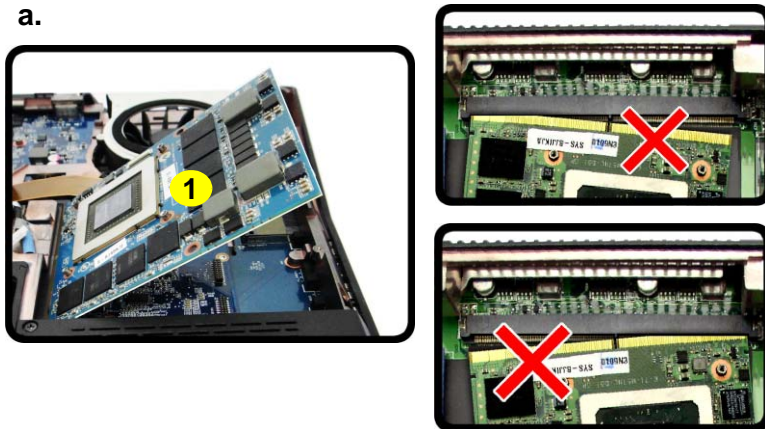
- 7 Screws



## Installing the VGA-2 Card

1. Connect the master and slave cable **2** to the two VGA cards before preparing to fit the VGA-2 card **1** into the slot by holding it at about a 30° angle.
2. The card needs to be fully into the slot, and the VGA card and socket have a guide-key and pin which align to allow the card to fit securely.
3. Fit the connectors firmly into the socket, straight and evenly.
4. DO NOT attempt to push one end of the card in ahead of the other.
5. The card's pin alignment will allow it to only fit one way. **Make sure the module is seated as far into the socket as it will go** (none of the gold colored contact should be showing). DO NOT FORCE the card; it should fit without much pressure.
6. Secure the card with screws **3** & **4** (*Figure 21b*).

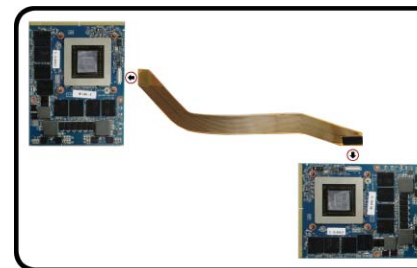
a.



b.



NVidia VGA Cable



*Figure 21*  
**VGA-2 Card**  
**Installation**

- a. Carefully connect the VGA cable before inserting the VGA Card.
- b. Tighten the screws.



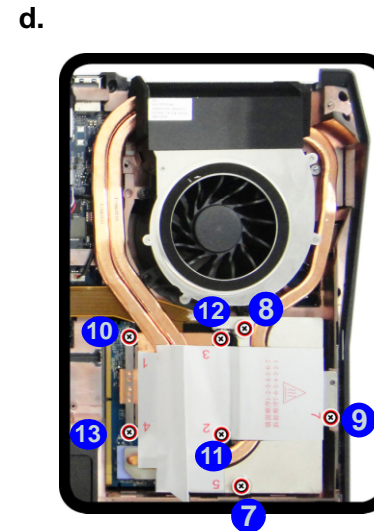
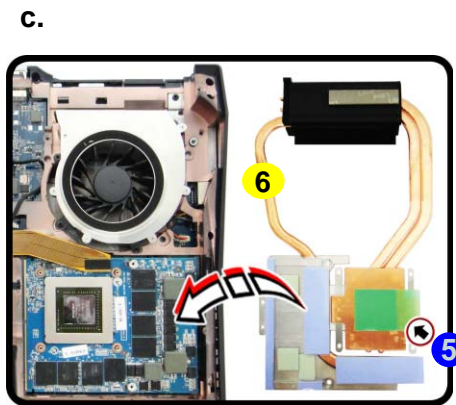
1. VGA-2 card Module
- 2 Screws

## Disassembly

### Figure 22 VGA-2 Card Installation (cont'd)

- c. Remove the sticker from the heat sink and Insert the VGA heat sink.  
d. Tighten the screws.

7. Remove the sticker **5** from the heat sink (*Figure 22c*).
8. Hold the VGA heatsink **6** by the tab and insert it back on the card and
9. secure screws **7** - **13** in the order indicated in (*Figure 22d*).
10. Reinsert the component bay cover, and secure with the screws as indicated in (*page 2 - 13*).



#### Heat Sink Screw Removal and Insertion

Remove the screws from the heat sink in the order indicated here: **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**.

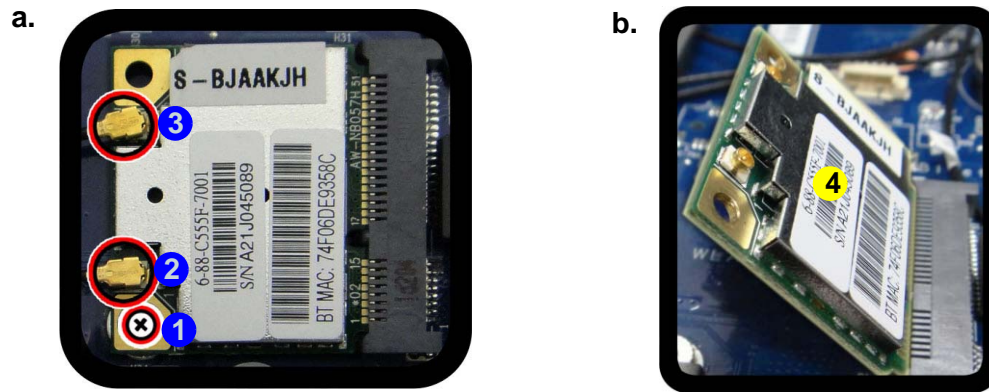


6. VGA Heat sink

- 7 Screws

## Removing the Wireless LAN Module


1. Turn off the computer, and turn it over, remove the battery ([page 2 - 5](#)), keyboard and keyboard shielding plate ([page 2 - 11](#)).
2. Remove the screw **1** and carefully disconnect cables **2** - **3**.
3. The Wireless LAN Module **4** ([Figure 23b](#)) will pop-up, and you can remove it.



*Figure 23*  
**Wireless LAN  
Module Removal**

- a. Remove the screw and disconnect the cables.
- b. Remove the WLAN module.

Note: Make sure you reconnect the antenna cables.



4. Wireless LAN Module

- 1 Screw





# Appendix A: Part Lists

This appendix breaks down the *P370SM3* series notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

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

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

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

## Part List Illustration Location

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

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

Parts	
Top	<i>page A - 3</i>
Bottom	<i>page A - 4</i>
LCD with CCD	<i>page A - 5</i>
Mainboard	<i>page A - 6</i>
HDD	<i>page A - 7</i>
2nd HDD	<i>page A - 8</i>
DVD	<i>page A - 9</i>
COMBO	<i>page A - 10</i>

Top

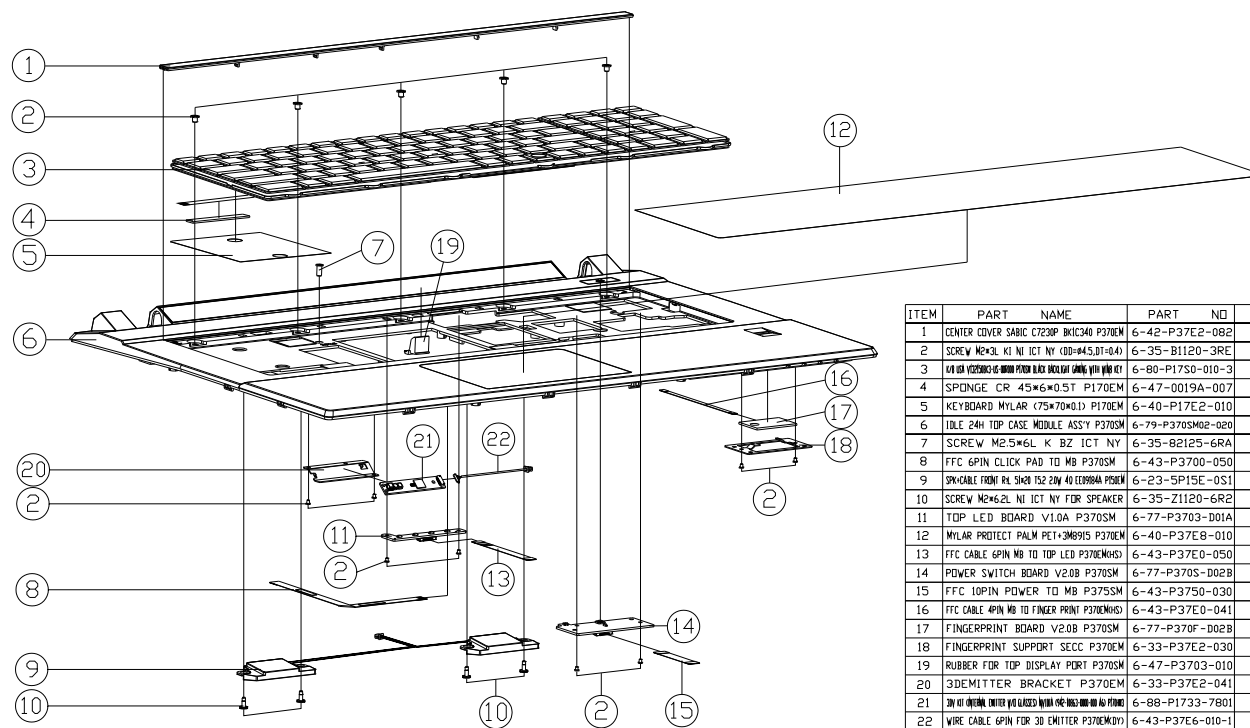


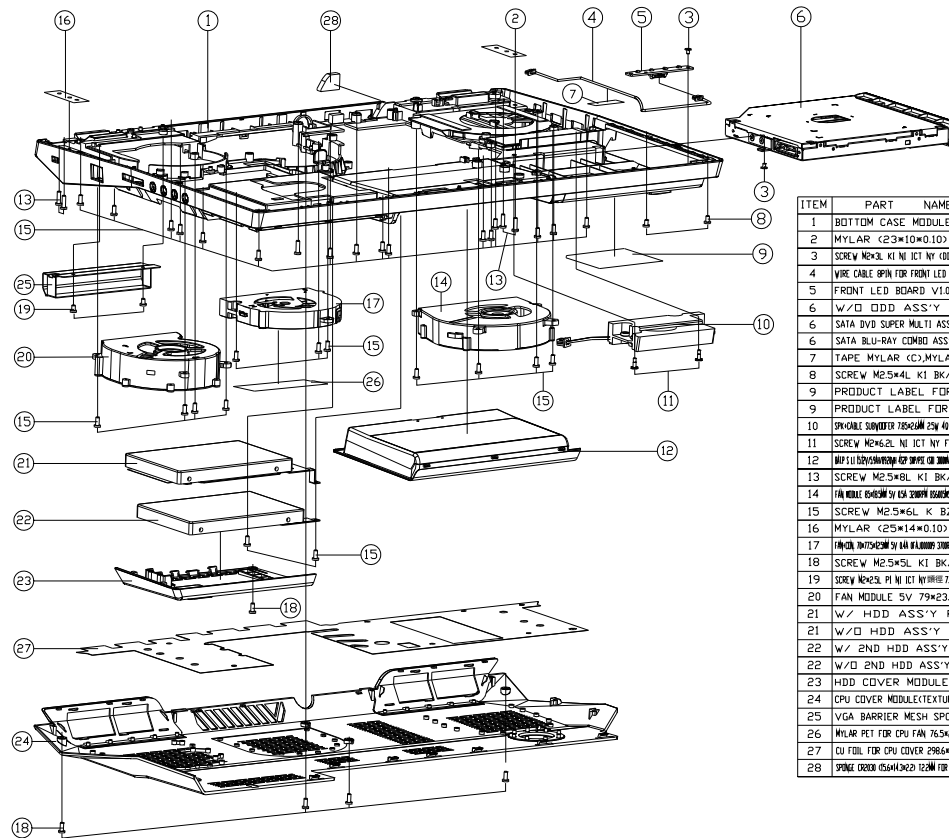
Figure A - 1  
Top

ITEM	PART NAME	PART NO	REMARK
1	CENTER COVER SABIC C7230P BKIC340 P370EM	6-42-P37E2-082	
2	SCREW M2x3L KI NI ICT NY C00-#45,0T-04	6-35-B1120-3RE	
3	KEYBOARD MYLAR (75*70*0.1) P170EM	6-80-P1750-010-3	
4	SPONGE CR 45*6*0.5T P170EM	6-47-0019A-007	
5	KEYBOARD MYLAR (75*70*0.1) P170EM	6-40-P17E2-010	
6	IDLE 24H TOP CASE MODULE ASSY P370SM	6-79-P370SM02-020	
7	SCREW M2.5*6L K BZ ICT NY	6-35-02125-6RA	
8	FFC 6PIN CLICK PAD TO MB P370SM	6-43-P3700-050	
9	SPK CABLE FRONT RL 5K20 152 20V 40 0E098A P05EW	6-23-5P15E-0S1	
10	SCREW M2*6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
11	TOP LED BOARD V1.0A P370SM	6-77-P3703-D01A	
12	MYLAR PROTECT PALM PET-3M915 P370EM	6-40-P37E8-010	
13	FFC CABLE 6PIN MB TO TOP LED P370EMH03	6-43-P37E0-050	
14	POWER SWITCH BOARD V2.0B P370SM	6-77-P3705-D02B	
15	FFC 10PIN POWER TO MB P375SM	6-43-P3750-030	
16	FFC CABLE 4PIN MB TO FINGER PRINT P370EMH03	6-43-P37E0-041	
17	FINGERPRINT BOARD V2.0B P370SM	6-77-P370F-D02B	
18	FINGERPRINT SUPPORT SECC P370EM	6-33-P37E2-030	
19	RUBBER FOR TOP DISPLAY PORT P370SM	6-47-P3703-010	
20	3DEMITTER BRACKET P370EM	6-33-P37E2-041	
21	3D AT OPTICAL CENTER 3D Emitter WITH 3D Emitter (3D Emitter)	6-88-P1733-7801	
22	WIRE CABLE 6PIN FOR 3D Emitter P370EM011	6-43-P37E6-010-1	

A.Part Lists

# Bottom

Figure A - 2  
Bottom



ITEM	PART NAME	PART NO	REMARK
1	BOTTOM CASE MODULE P370SM	6-39-P3703-011	
2	MYLAR (23*10*0.10) P370EM	6-40-P37E1-040	
3	SCREW M2*3. KI NI ICT NY (DB#45,DT#64)	6-35-B1120-3RE	
4	WIRE CABLE SPIN FOR FRONT LED (CND) P370EM	6-43-P3757-030-1	
5	FRONT LED BOARD V1.0A P370SM	6-77-P3704-D01A	
6	W/D HDD ASS'Y P370EM	6-79-P370EM02-000	
6	SATA DVD SUPER MULTI ASS'Y (OPT)DND	6-79-P370EM00-000	
6	SATA BLU-RAY COMBO ASS'Y (OPT)DND	6-79-P370EM0W-000	
7	TAPE MYLAR (C)MYLAR M550J	6-40-M55J2-030	
8	SCREW M2.5*4L KI BK/D ICT NY	6-35-B4125-4RA	
9	PRODUCT LABEL FOR P370SM	6-45-P370SM03-010	
9	PRODUCT LABEL FOR P370SM3	6-45-P370SM03-010	
10	SPEAKER DRIVER 7850UM 25W 4Ω 303039H FRONT	6-23-5P37E-0V1	
11	SCREW M2*6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
12	W/D HDD ASS'Y FOR 9MM 2.5" WIDE P370EM	6-87-P37ES-4271	
13	SCREW M2.5*6L KI BK/Z NY ICT	6-35-B6125-8R0	
14	FAN MODULE 5V 79*23.6 P270EM	6-31-X720S-101	
15	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
16	MYLAR (25*14*0.10) P370EM	6-40-P37E1-030	
17	FAN COVER 7850UM 25W 4Ω 303039H FRONT	6-23-AV15H-010	
18	SCREW M2.5*5L KI BK/Z ICT NY	6-35-B6125-5RA	
19	SCREW M2*3L PI NI ICT NY (DB# 784, DT#104)	6-35-A1120-2R5	
20	FAN MODULE 5V 79*23.6 P270EM	6-31-P270S-100	
21	W/ HDD ASS'Y P370EM	6-79-P370EMJ-020	
21	W/D HDD ASS'Y P370EM	6-79-P370EMJ-010	
22	W/ 2ND HDD ASS'Y P370EM	6-79-P370EMJ-848	
22	W/D 2ND HDD ASS'Y P370EM	6-79-P370EMJ-030	
23	HDD COVER MODULE P370EM	6-42-P37EJ-102	
24	CPU COVER MODULE (TEXTURE) P370EM	6-42-P37ES-103	
25	VGA BARRIER MESH SPEC P370EM	6-33-P37ES-010	ONLY FOR W-FH
26	MYLAR PET FOR CPU FAN 765*28.3 P370SM	6-40-P3703-010	
27	CU FOIL FOR CPU COVER 2966*95.6 P370SM	6-47-P370B-010	
28	SPRING BRUSH (5641*22) 122MM FOR PIN CASE P370SM	6-47-0019A-137	

# LCD with CCD

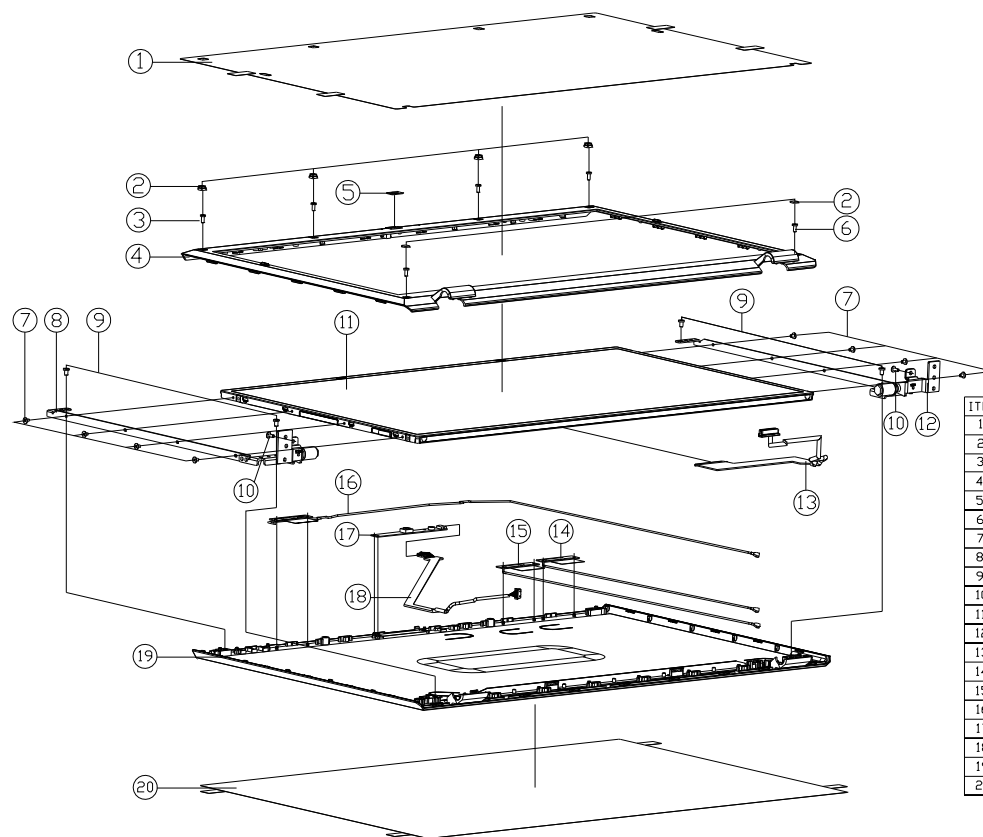


Figure A - 3  
LCD with CCD

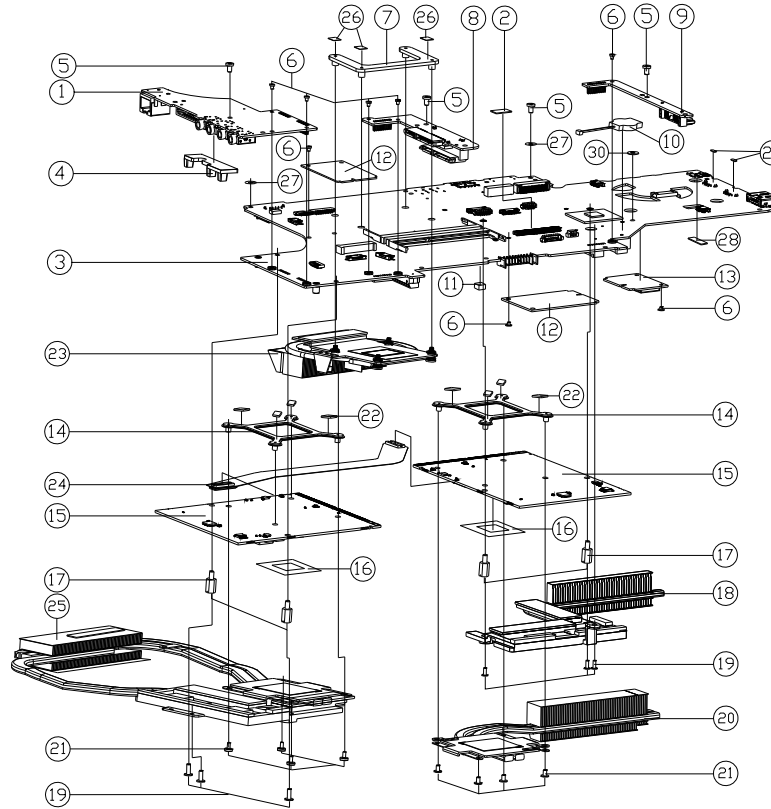
ITEM	PART NAME	PART NO	REMARK
1	FRONT COVER PRO PET P370EM	6-40-P37E1-020	
2	LCD FRONT UP RUBBER P370EM	6-47-P37E1-060	
3	SCREW M2*SL KKT-08 D=4.0 BK/Z ICT NY	6-35-B6120-5R0	
4	LCD FRONT COVER MODULE P370EM	6-39-P37E1-012	
5	LCD CCD LENS P370EM	6-42-P37E1-070	OPTION
6	LCD FRONT DOWN RUBBER P370EM	6-47-P37E1-040	
7	SCREW M2*SL KI NI ICT NY (DD=44.5,DT=04)	6-35-B1120-3RE	
8	LCD HINGE L SECC (MPI) P370EM	6-33-P37E1-0L2	
9	SCREW M2.5*4L K1 BK/O ICT NY	6-35-B4125-4RA	
10	SCREW M2.5*SL K1 BK/Z ICT NY	6-35-B6125-SRA	
11	LED 173° FHD LG LP173M2-1PBI QLED 65MM	6-50-NB265-L04	
12	LCD HINGE R SECC (MPI) P370EM	6-33-P37E1-0R2	
13	WIRE CABLE FOR US IN PANEL TO NORMAL/IC CONT-PPAD P370EM	6-43-P37E1-020-J	
14	ANTENNA VIBRA VET VET PCB 24G/2500/5G VME-50MM P370EM	6-23-7P170-011	
15	ANTENNA VIBRA VET VET PCB 24G/2500/5G L-50MM P370EM	6-23-7P170-031	
16	ANTENNA VIBRA VET VET PCB 24G/2500/5G VME-75MM P370EM	6-23-7P37E-021	
17	WIRE CABLE FOR US IN PANEL TO NORMAL/IC CONT-PPAD P370EM	6-88-P37EC-4903	OPTION
18	WIRE CABLE FOR US IN PANEL TO CCD-IC CONT (45MM) P370EM	6-43-P37E1-012	
19	LCD BACK MODULE (MPI) P370EM	6-39-P37E1-022	
20	BACK COVER PRO PET P370EM	6-40-P37E1-010	

A.Part Lists

Part Lists

# Mainboard

Figure A - 4  
Mainboard



ITEM	PART NAME	PART NO	REMARK
1	AUDIO BOARD V3.0A P370SM	6-77-P3708-003A	
2	M/B KEYBOARD MYLAR PET M810L	6-40-M810S-011	
3	MAIN BOARD V3.0 (W/TPM) P370SM	6-77-P370SM00-003	
3	MAIN BOARD V3.0 (W/TPM) P370SM	6-77-P370SM00-003-1	
3	MAIN BOARD V3.0 (W/TPM) P370SM3	6-77-P370SM30-003	
4	VGA SUPPORT RUBBER(46x46x26x7) P370SM	6-47-P37ES-022	
5	SCREW M2.5x4L K1 BK/VD ICT NY	6-35-B412S-4RA	
6	SCREW M2x3L K1 NI ICT NY (DD#44S,11#4)	6-35-B1120-3RE	
7	CPU SUPPORT BRACKET SECC T115 P370SM	6-33-X510S-011	
8	DUAL HDD BOARD V2.0A P370SM	6-77-P370J-002A	
9	DDI BRIDGE BOARD V1.0 P370SM	6-77-P370N-001	
10	HAT 20M 2V 200MH V(CABLE) 50MM 90X292X5	6-23-2201S-TC0	
11	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-47-X510S-010	
12	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-85-D4040-200	
12	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-85-D4032-L02	
12	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-85-D4032-L01	
12	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-85-D4032-000	
13	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-W77C2-4220	(OPTION)
13	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-W345F-9400	(OPTION)
13	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-W255F-4200	(OPTION)
13	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-P17EF-4200	(OPTION)
13	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-W345F-8700	(OPTION)
13	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-W345F-7000	(OPTION)
13	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-P3702-9400	(OPTION)
13	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-P3702-7000	(OPTION)
14	VGA SUPPORT TER. SUS430 X7200	6-33-X720S-040	FOR NI44E NI44E-GTX
15	VGA SUPPORT TER. SUS430 X7200	6-77-P370L-102	FOR NI44E-GTX MP
15	VGA SUPPORT TER. SUS430 X7200	6-77-P370L-202	FOR NI44E-GTX MP
15	VGA SUPPORT TER. SUS430 X7200	6-77-PISSL-101A-1	FOR NI44E-GC-B
15	VGA SUPPORT TER. SUS430 X7200	6-77-PISSL-201A-1	FOR NI44E-GC-B
16	VGA CHIP MYLAR FOR NV NI44E-GTX P370SM	6-40-P15ES-020	
16	NI44E-GS CHIP MYLAR (26x26x26x1) P370SM	6-40-P17SS-010	
17	SCREW M2.5x4L(B) B(S)NI ICT NY FOR VGA CARD	6-35-Z112S-4RB-1	
18	VORANGE-GTX HEATSINK MODULE-1 P370SM	6-31-P370N-501	
19	SCREW M2x4L K1CT-B8 D=4.0 BK/Z ICT NY	6-35-B6120-6R0	
20	GRUNAL-GTX HEATSINK MODULE-1 P370SM	6-31-P370N-301	
21	SCREW M1.6x3.5L K1T+1.2 D=4.5 BZ ICT NY	6-35-82116-3R5	
22	POXIN (106x31) FOR M2.5x4L SUPPORTER P370SM	6-47-X510S-030	
23	CPU HEATSINK MODULE P370SM	6-31-P370N-201	
24	PC CASE FOR M2.5x4L CPU HEATSINK SUPPORTER P370SM	6-43-P370E-012	ONLY FOR 1#+1#
25	GRUNAL-GTX AND VORAN HEATSINK MODULE P370SM	6-31-P370N-401	
26	MYLAR PET B8 103MM FOR M2 BRACKET P370SM	6-40-P370S-020	
27	WASHER AL T(D)1.0x6x#2#425 MHO	6-37-02000-602	
28	WASHER AL(D)1.0x6x#2#425 MHO	6-40-00150-807	
29	GASCT(10x34x31) FOR M2 BOTTOM TROM	6-47-00190-09F	
30	MYLAR PET B8 103MM FOR M2 P370SM	6-40-P370S-010	



HDD

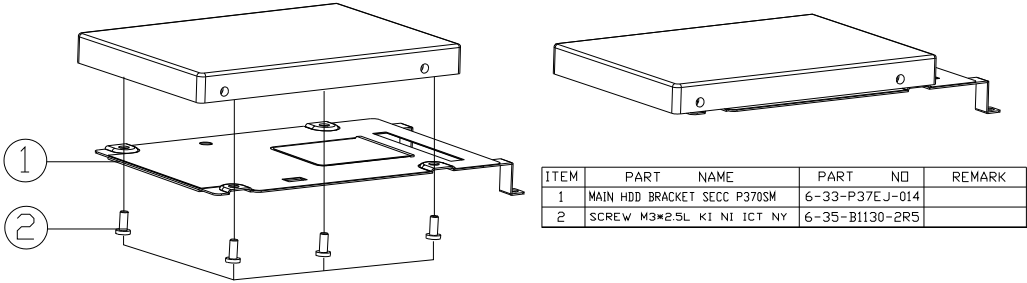
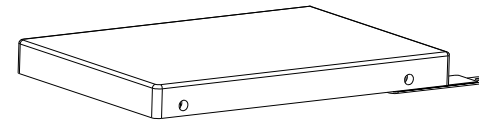
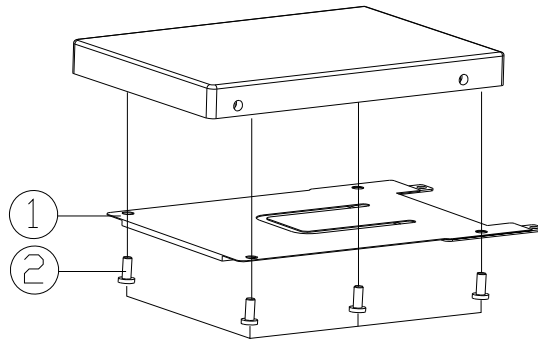


Figure A - 5  
HDD

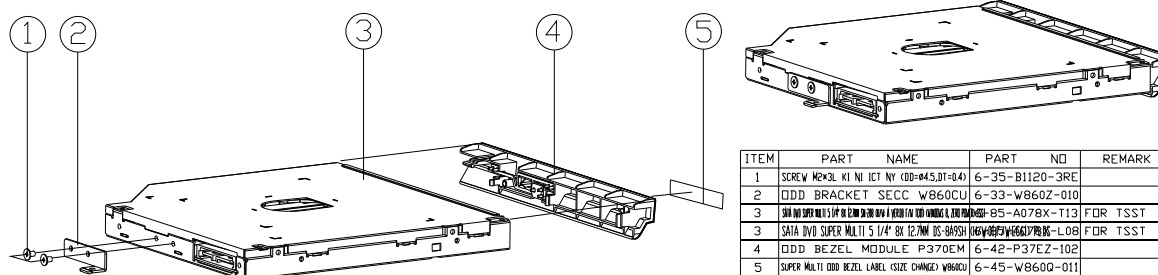
# 2nd HDD

Figure A - 6  
2nd HDD



ITEM	PART NAME	PART NO	REMARK
1	SECOND HDD BRACKET SECC P370EM	6-33-P37EJ-022	
2	SCREW M3*2.5L KI NI ICT NY	6-35-B1130-2R5	

DVD

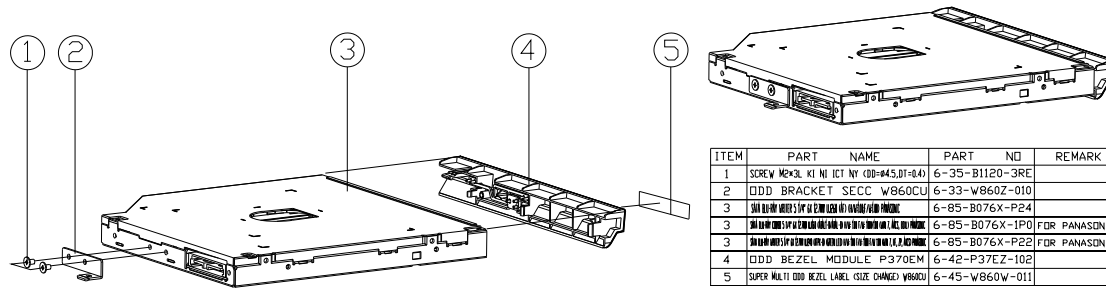


ITEM	PART NAME	PART NO	REMARK
1	SCREW M2X3L KI NI ICT NY (DD=045,DF=04)	6-35-B1120-3RE	
2	DDD BRACKET SECC W860CU	6-33-W860Z-010	
3	SATA DVD SUPER MULTI 5 1/4" BK 12.7MM DC 8450H (6450H) W860CU/860Z-L08	6-45-A078X-T13	FDR TSST
4	DDD BEZEL MODULE P370EM	6-42-P37EZ-102	
5	SUPER MULTI DDD BEZEL LABEL (SIZE CHANGED) W860CU	6-45-W860Q-011	

Figure A - 7  
DVD

# COMBO

Figure A - 8  
COMBO



ITEM	PART NAME	PART NO	REMARK
1	SCREW M4X3L KI NI ICT NY (D)=#45,01=64	6-35-B1120-3RE	
2	ODD BRACKET SECC W860CU	6-33-W860Z-010	
3	ODD BEZEL MODULE P370EM	6-85-B076X-P24	
3	ODD BEZEL MODULE P370EM	6-85-B076X-IP0	FOR PANASONIC
3	ODD BEZEL MODULE P370EM	6-85-B076X-P22	FOR PANASONIC
4	ODD BEZEL MODULE P370EM	6-42-P37EZ-102	
5	SUPER MULTI ODD BEZEL LABEL (SIZE CHANGED) W860CU	6-45-W860W-011	

# Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *P370SM3* notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
<i>System Block Diagram - Page B - 2</i>	<i>PCH 3/9 - DMI, FDI, PWRGRD - Page B - 21</i>	<i>Power 1.05VS - Page B - 40</i>
<i>Processor 1/7 - DMI, FDI, PEG - Page B - 3</i>	<i>PCH 4/9 - LVDS, DDI, CRT - Page B - 22</i>	<i>Power 1.5V / VTT_MEM - Page B - 41</i>
<i>Processor 2/7 - CLK, MISC - Page B - 4</i>	<i>PCH 5/9 - PCI, USB, RSVD - Page B - 23</i>	<i>Power 1V, 1.8VS - Page B - 42</i>
<i>Processor 3/7 - DDR3 - Page B - 5</i>	<i>PCH 6/9 - GPIO, CPU - Page B - 24</i>	<i>Power V-Core1 - Page B - 43</i>
<i>Processor 4/7 - POWER - Page B - 6</i>	<i>PCH 7/9 - Power - Page B - 25</i>	<i>Power V-Core2 - Page B - 44</i>
<i>Processor 5/7 - GFX PWR - Page B - 7</i>	<i>PCH 8/9 - Power - Page B - 26</i>	<i>Power 0.85VS - Page B - 45</i>
<i>Processor 6/7 - GND - Page B - 8</i>	<i>PCH 9/9 - GND - Page B - 27</i>	<i>Audio Board - Page B - 46</i>
<i>Processor 7/7 - RSVD - Page B - 9</i>	<i>USB+eSATA, USB Charging - Page B - 28</i>	<i>LAN (RTL8411) - Page B - 47</i>
<i>DDR3 CHA SO-DIMM 0 - Page B - 10</i>	<i>GEN-III SATA HDD Re-driver - Page B - 29</i>	<i>Power Charger, DC IN - Page B - 48</i>
<i>DDR3 CHA SO-DIMM 1 - Page B - 11</i>	<i>BT, CCD+MIC, MINI PCIE - Page B - 30</i>	<i>ODD Board - Page B - 49</i>
<i>DDR3 CHB SO-DIMM 0 - Page B - 12</i>	<i>Fan Control - Page B - 31</i>	<i>HDD Board - Page B - 50</i>
<i>DDR3 CHB SO-DIMM 1 - Page B - 13</i>	<i>Codec Realtek ALC892 - Page B - 32</i>	<i>Power Board - Page B - 51</i>
<i>MXM 3.0 MASTER - Page B - 14</i>	<i>APA2607 / TPA2008D2 - Page B - 33</i>	<i>Front LED Board - Page B - 52</i>
<i>MXM 3.0 SLAVE - Page B - 15</i>	<i>KBC-ITEIT8518E - Page B - 34</i>	<i>Top LED Board - Page B - 53</i>
<i>Panel, Inverter, eDP - Page B - 16</i>	<i>mSATA, Fan, TP, FP, MULTI CON - Page B - 35</i>	<i>Fingerprint Board - Page B - 54</i>
<i>Display Port - Page B - 17</i>	<i>Backlight Keyboard - Page B - 36</i>	<i>TPM - Page B - 55</i>
<i>HDMI - Page B - 18</i>	<i>USB3.0 - Page B - 37</i>	<i>Power On Sequence - Page B - 56</i>
<i>PCH 1/9 - RTC, HDA, SATA - Page B - 19</i>	<i>VDD3, VDD5 - Page B - 38</i>	
<i>PCH 2/9 - PCIE, SMBUS, CLK - Page B - 20</i>	<i>5VS, 3.3VS, 1.5VS - Page B - 39</i>	

*Table B - 1*  
**Schematic  
Diagrams**

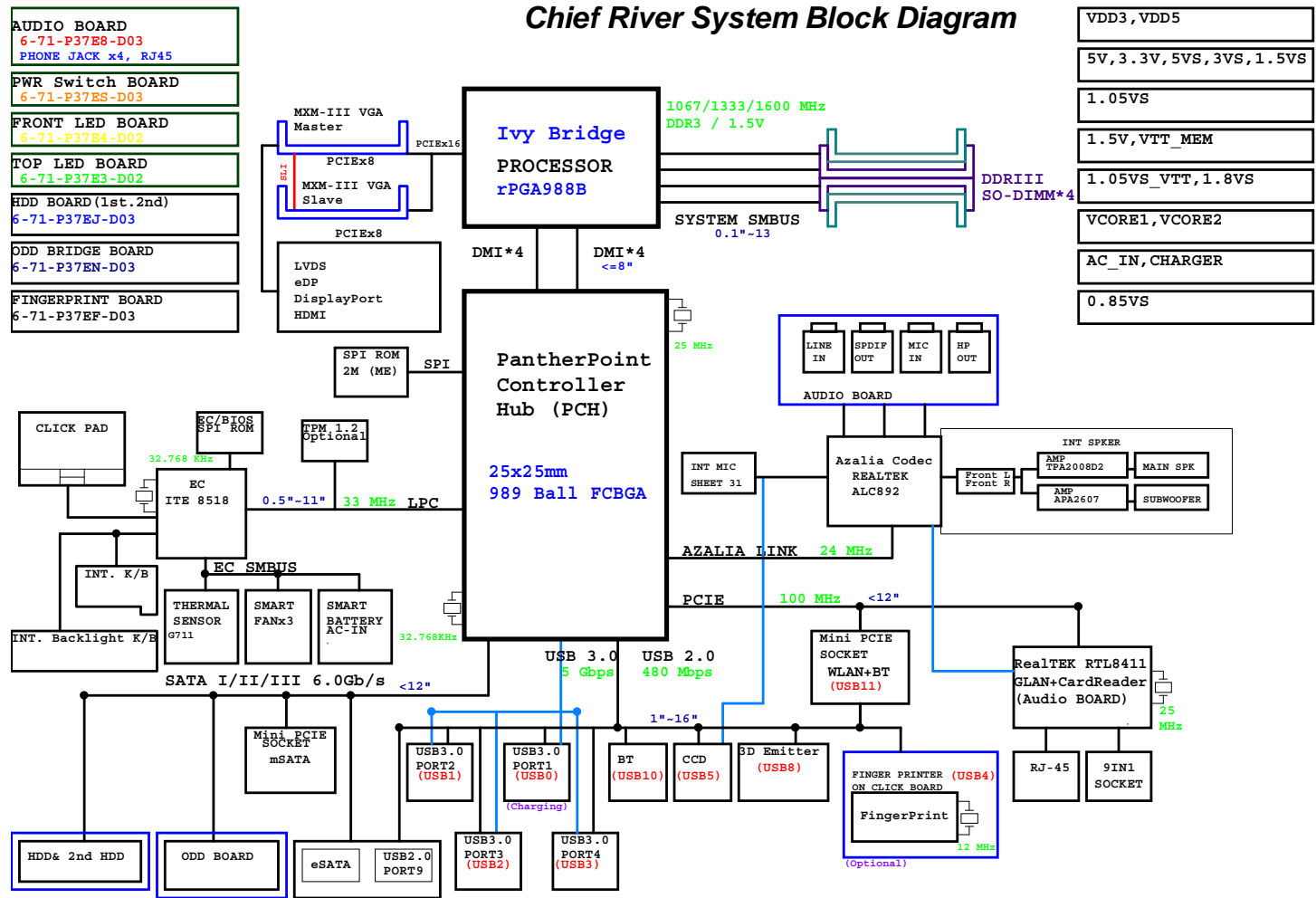


### Version Note

The schematic diagrams in this chapter are based upon version 6-7P-P3708-007. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

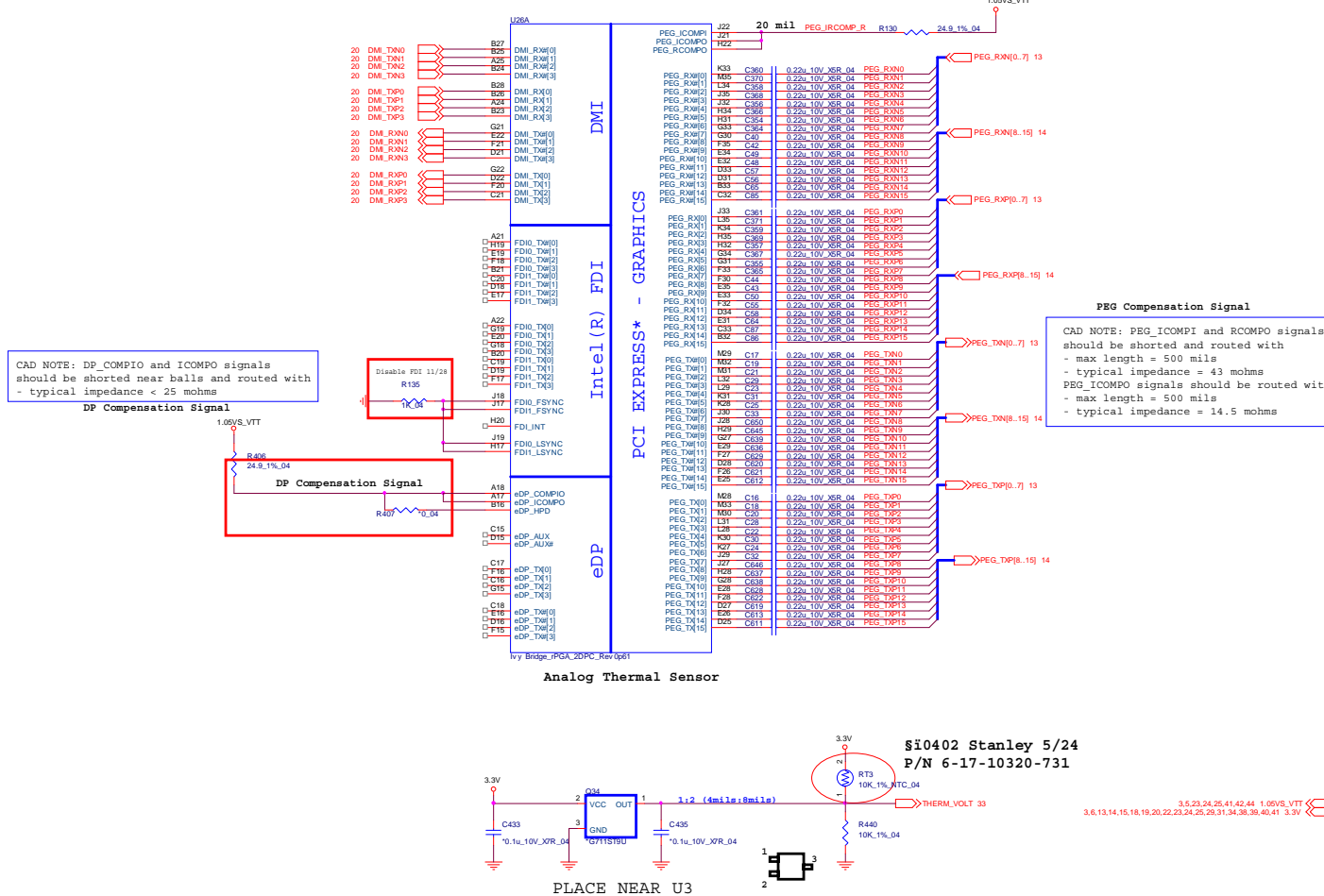
# System Block Diagram

Sheet 1 of 54  
System Block  
Diagram



# Processor 1/7 - DMI, FDI, PEG

## Ivy Bridge Processor 1/7 ( DMI,PEG,FDI )



Sheet 2 of 54  
Processor 1/7 -  
DMI, FDI, PEG

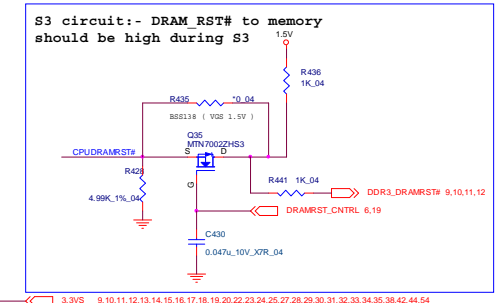
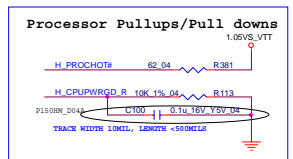
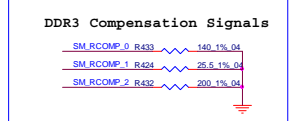
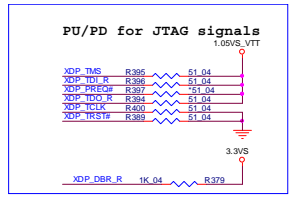
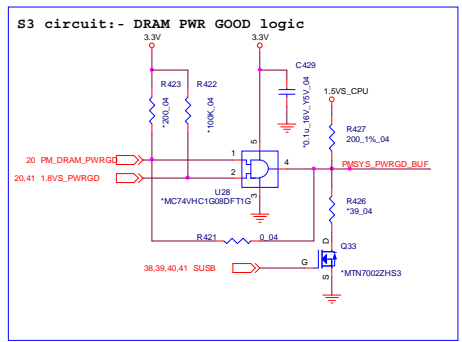
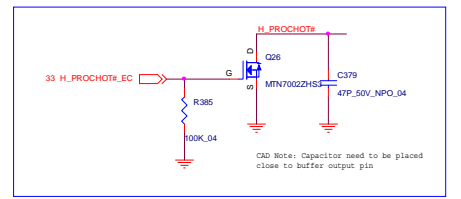
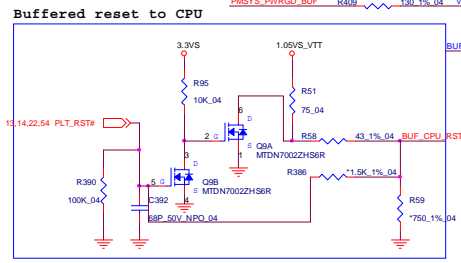
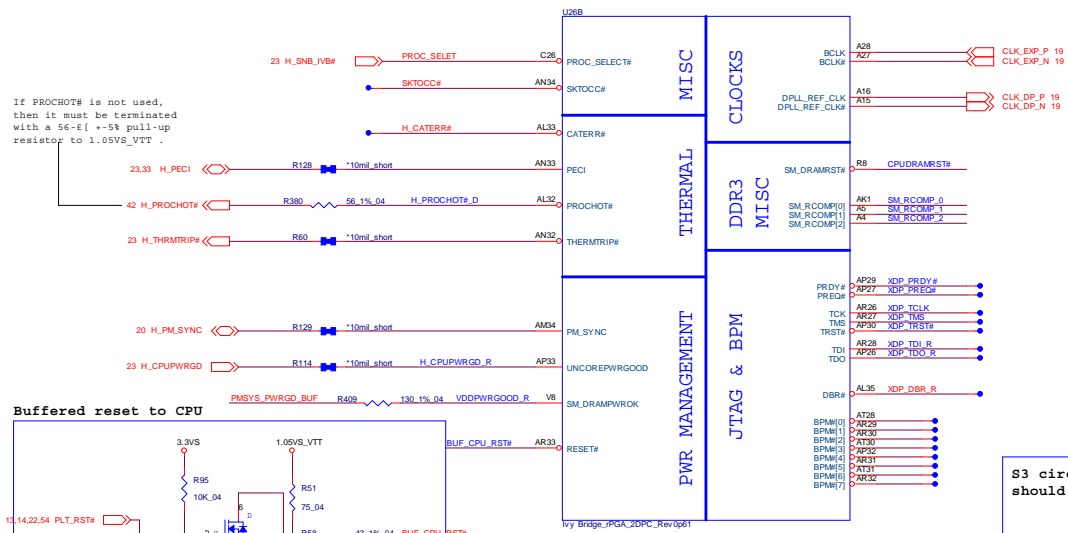
B.Schematic Diagrams



# Processor 2/7 - CLK, MISC

Sheet 3 of 54  
Processor 2/7 -  
CLK, MISC

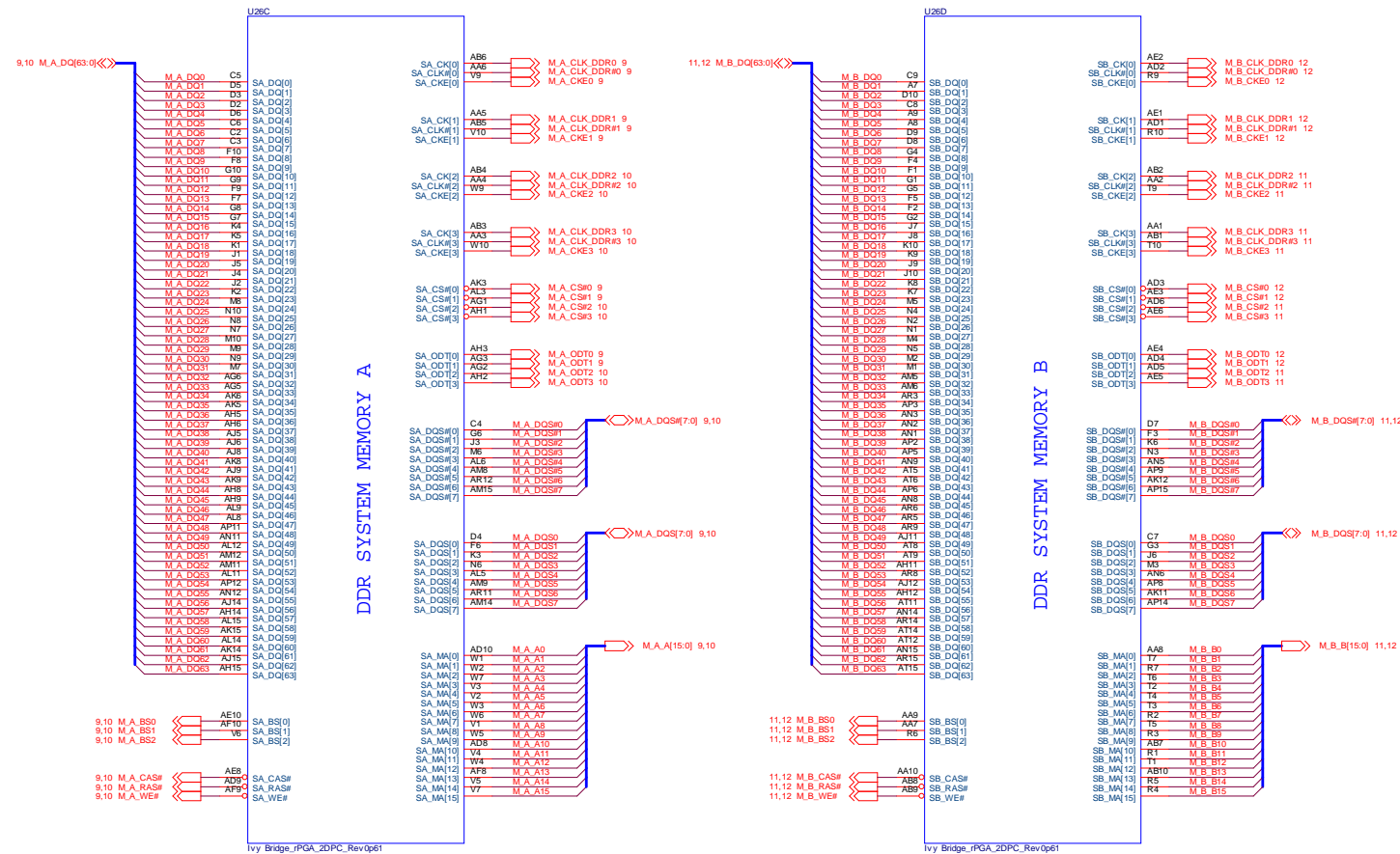
## Ivy Bridge Processor 2/7 ( CLK, MISC, JTAG )



- 3.3VS 0,10,11,12,13,14,15,16,17,18,19,20,22,23,24,25,27,28,29,30,31,32,33,34,35,38,42,44,54
- 3.3V 2,6,13,14,15,18,19,20,22,23,24,25,29,31,34,38,39,40,41
- 1.0V 6,9,10,11,12,25,38,40
- 1.5VS\_CPU 6,38
- 1.05VS\_VTT 2,5,23,24,25,41,42,44

# Processor 3/7 - DDR3

## Ivy Bridge Processor 3/7 ( DDR3 )



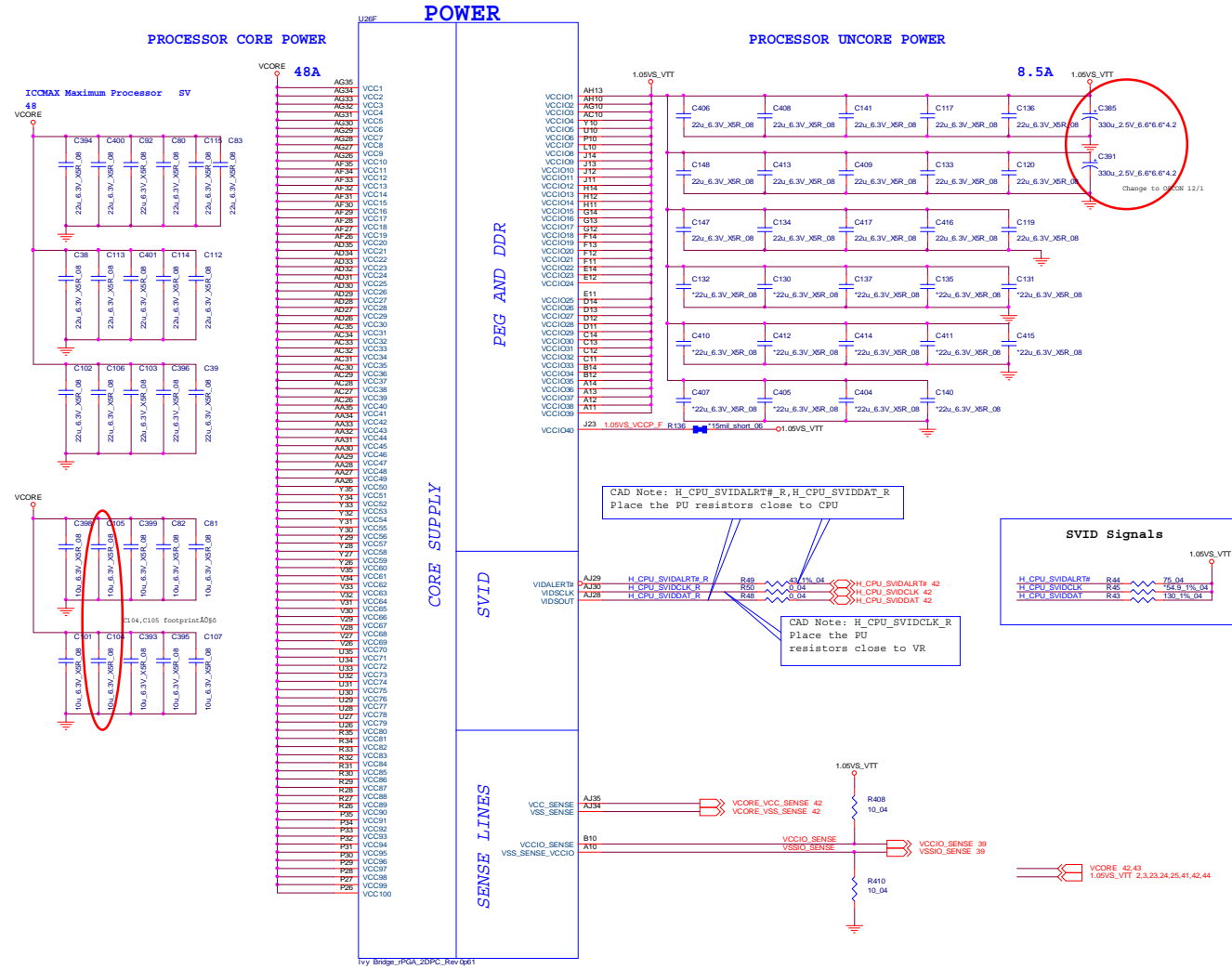
Sheet 4 of 54  
Processor 3/7 -  
DDR3

B.Schematic Diagrams

# Processor 4/7 - POWER

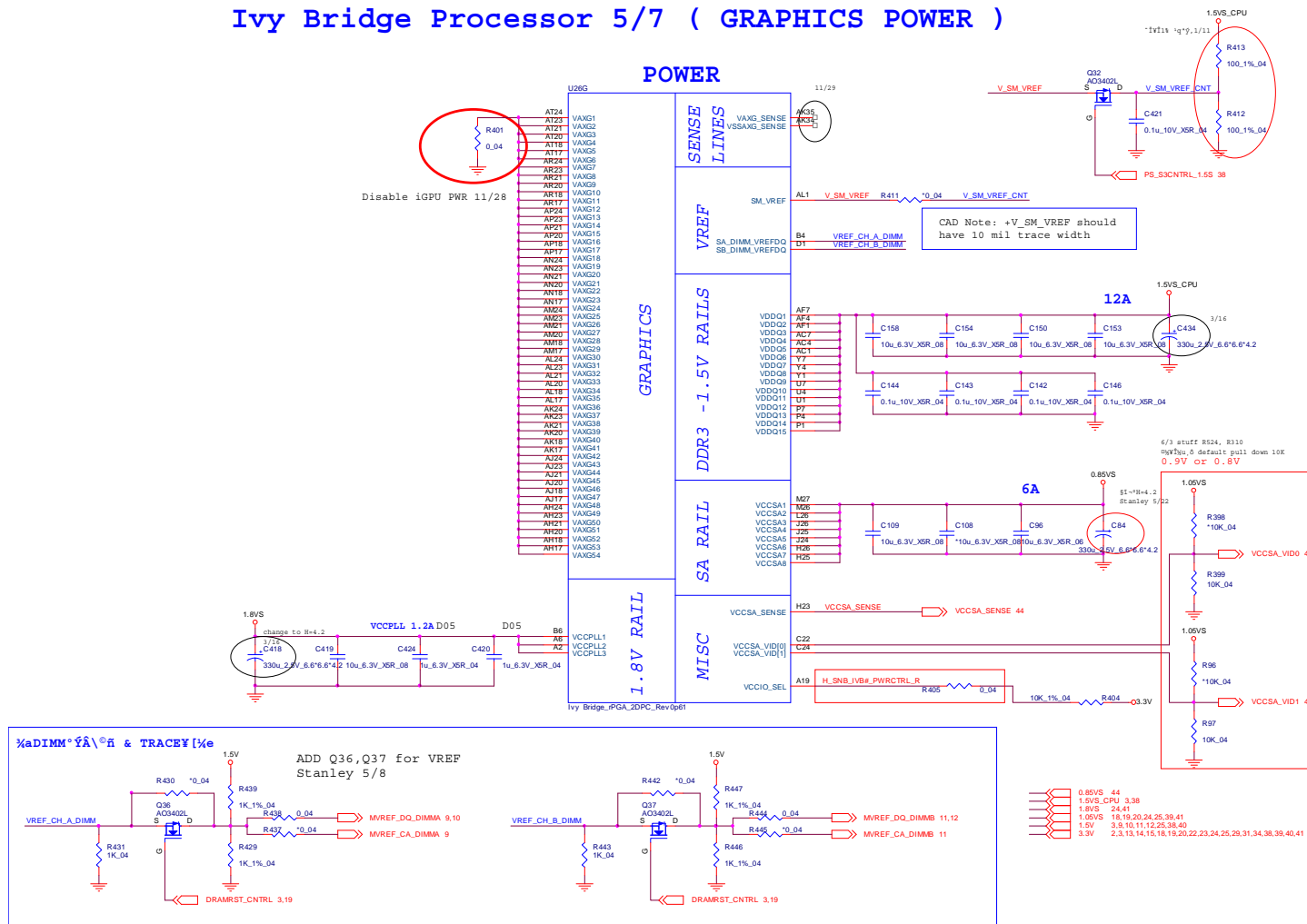
Sheet 5 of 54  
Processor 4/7 -  
POWER

## Ivy Bridge Processor 4/7 ( POWER )



# Processor 5/7 - GFX PWR

## Ivy Bridge Processor 5/7 ( GRAPHICS POWER )

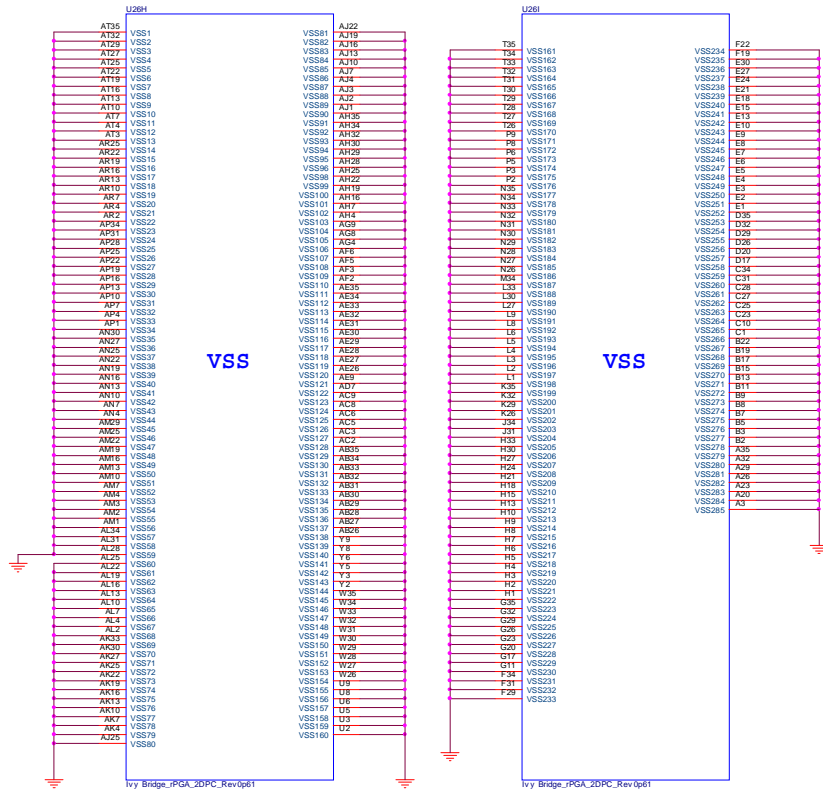


Sheet 6 of 54  
Processor 5/7 -  
GFX PWR

# Processor 6/7 - GND

## Ivy Bridge Processor 6/7 ( GND )

Sheet 7 of 54  
Processor 6/7 -  
GND



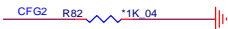
24,34,38 1.5V □  
3,9,10,11,12,13,14,15,16,17,18,19,20,22,23,24,25,27,28,29,30,31,32,33,34,35,38,42,44,54 3.3V □

# Processor 7/7 - RSVD

## Ivy Bridge Processor 7/7 ( RESERVED )

### CFG Straps for Processor

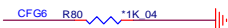
PEG Static Lane Reversal - CFG2 is for the 16x	
CFG2	1: (Default) Normal Operation; Lane # definition matches socket pin map definition 0: Lane Reversed



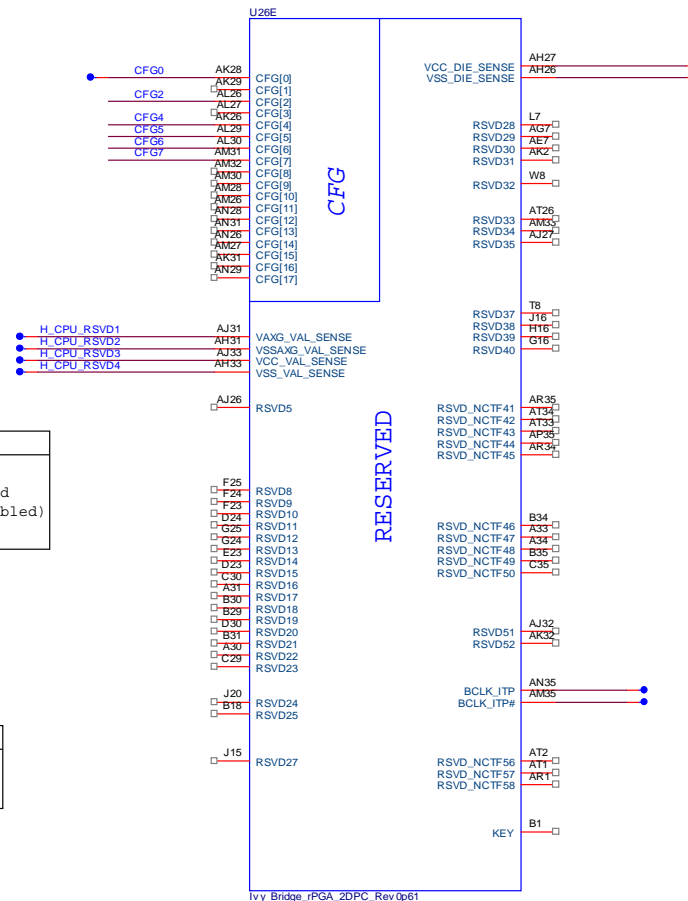
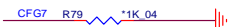
Display Port Presence Strap	
CFG4	1: (Default) Disabled; No Physical Display Port attached to Embedded Display Port 0: Enabled; An external Display Port device is connected to the Embedded Display Port



PCIe Port Bifurcation Straps	
CFG [6:5]	11: (Default) x16 - Device 1 functions 1 and 2 disabled 10: x8, x8 - Device 1 function 1 enabled ; function 2 disabled 01: Reserved - (Device 1 function 1 disabled ; function 2 enabled) 00: x8,x4,x4 - Device 1 functions 1 and 2 enabled



PEG DEFER TRAINING	
CFG7	1: (Default) PEG Train immediately following xxRESETB de assertion 0: PEG Wait for BIOS for training



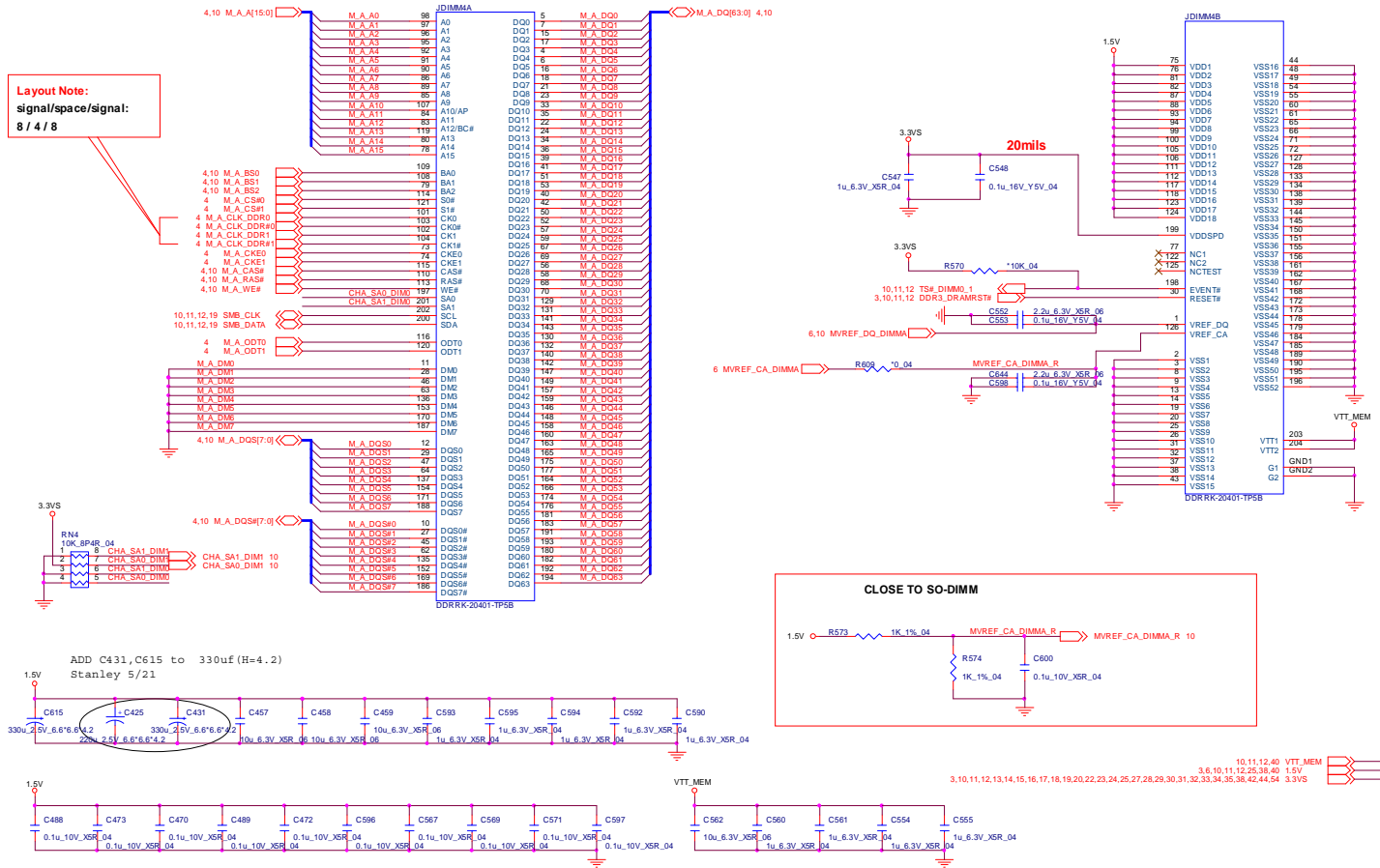
Sheet 8 of 54  
Processor 7/7 -  
RSVD

B.Schematic Diagrams

# DDR3 CHA SO-DIMM 0

## Channel A SO-DIMM 0

CHANGE TO STANDARD



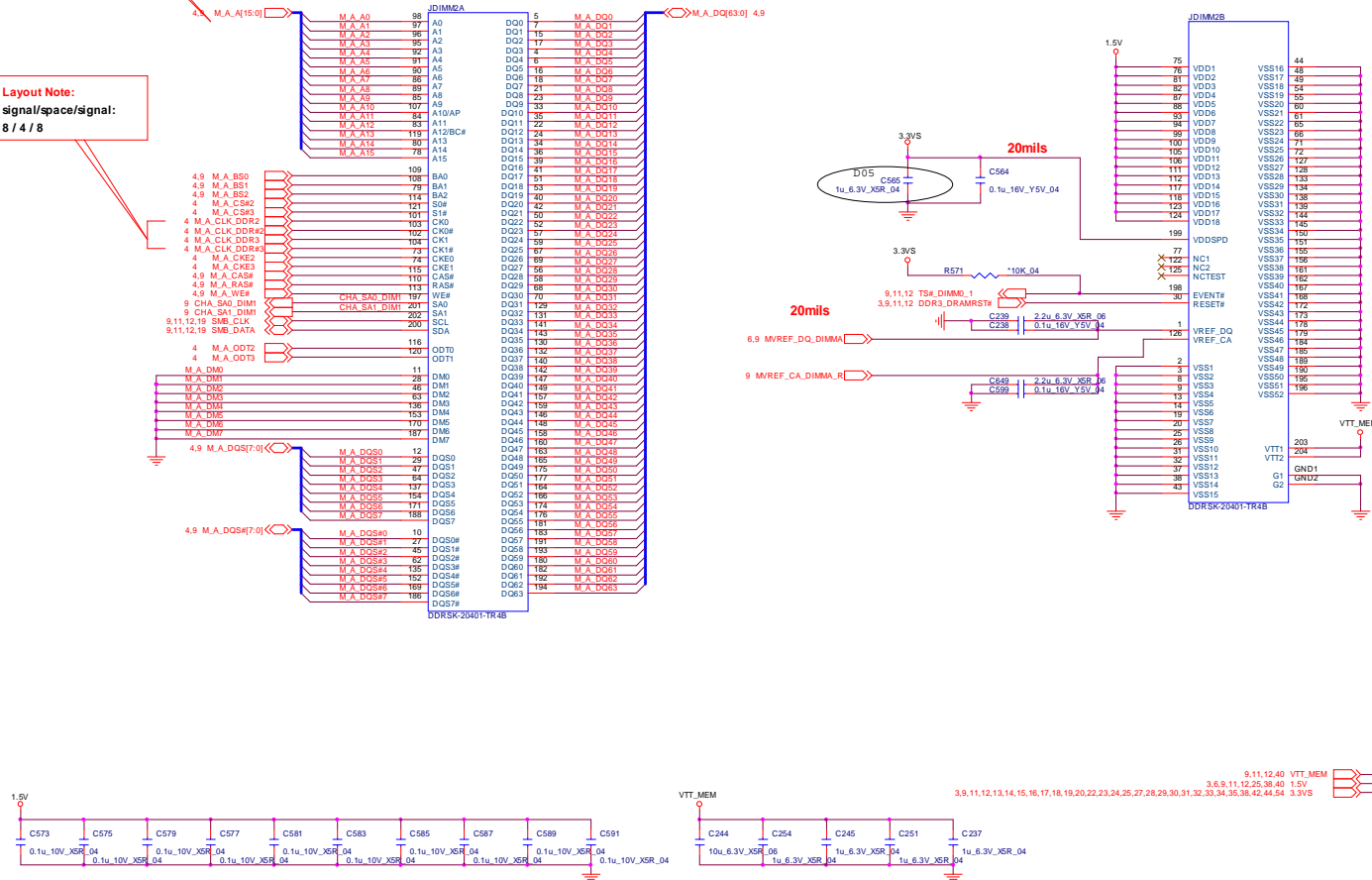
Sheet 9 of 54  
DDR3 CHA  
SO-DIMM 0

# DDR3 CHA SO-DIMM 1

## Channel A SO-DIMM 1

CHANGE TO STANDARD

Layout Note:  
signal/space/signal:  
8 / 4 / 8



Sheet 10 of 54  
DDR3 CHA  
SO-DIMM 1

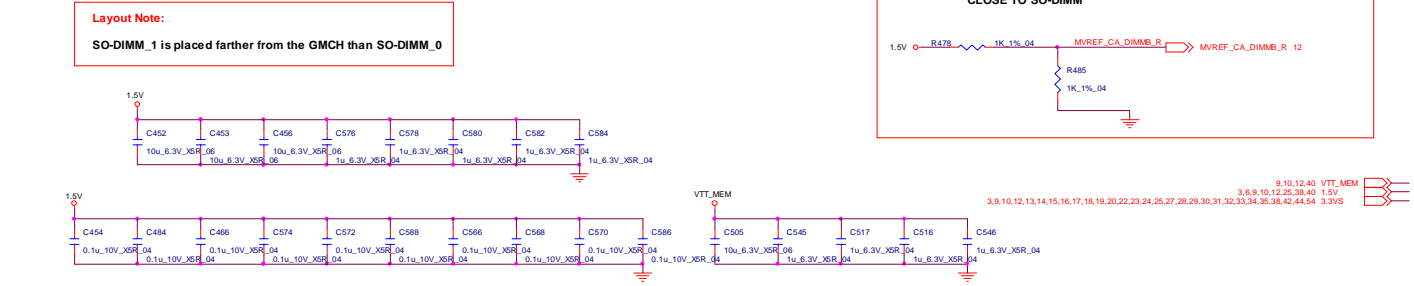
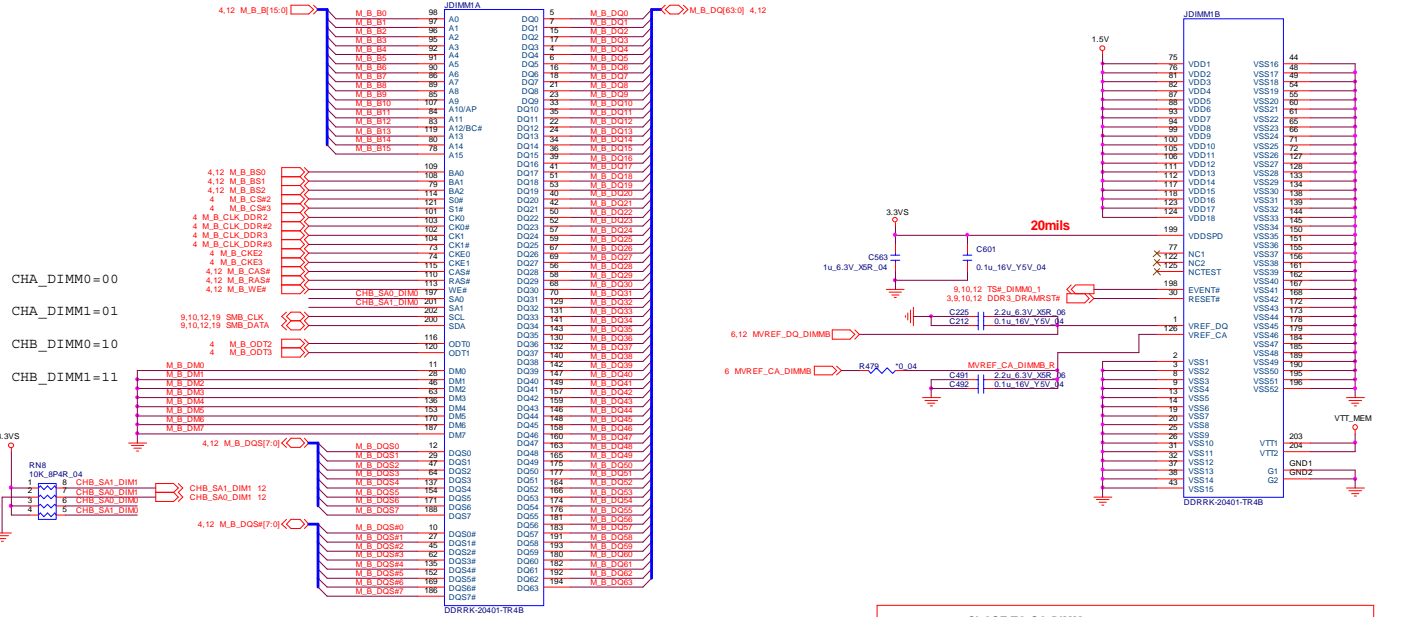
B.Schematic Diagrams



# DDR3 CHB SO-DIMM 0

## Channel B SO-DIMM 0

CHANGE TO STANDARD

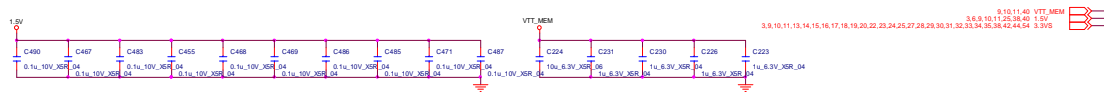
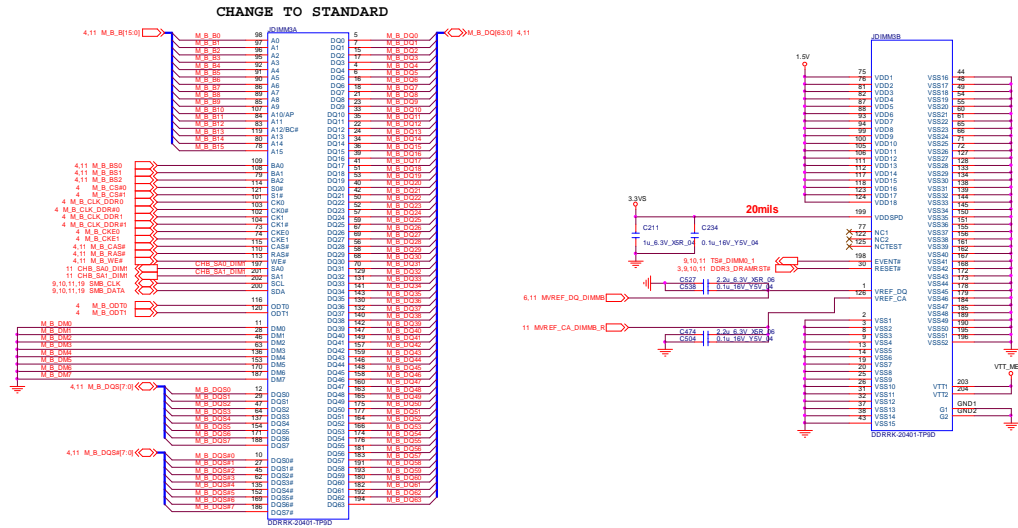


B.Schematic Diagrams

Sheet 11 of 54  
DDR3 CHB  
SO-DIMM 0

# DDR3 CHB SO-DIMM 1

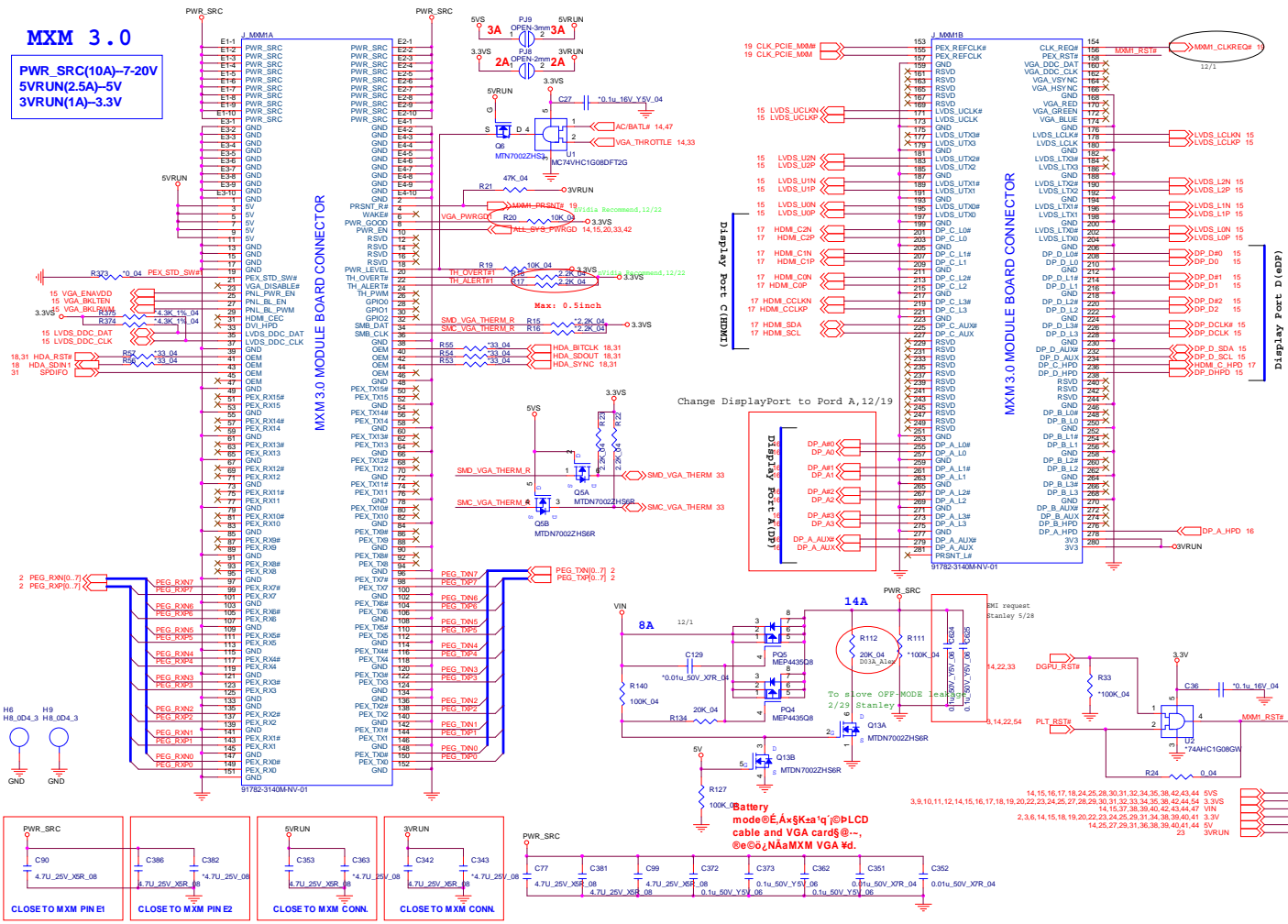
## Channel B SO-DIMM 1



Sheet 12 of 54  
PCH 1/8  
DDR3 CHB  
SO-DIMM 1

# MXM 3.0 MASTER

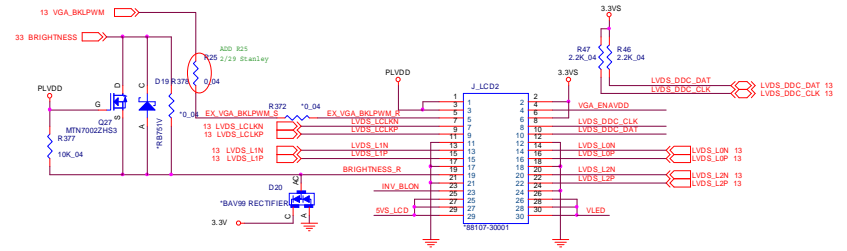
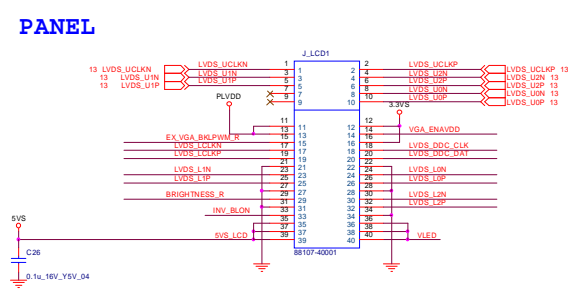
Sheet 13 of 54  
MXM 3.0 PCI-E  
MASTER





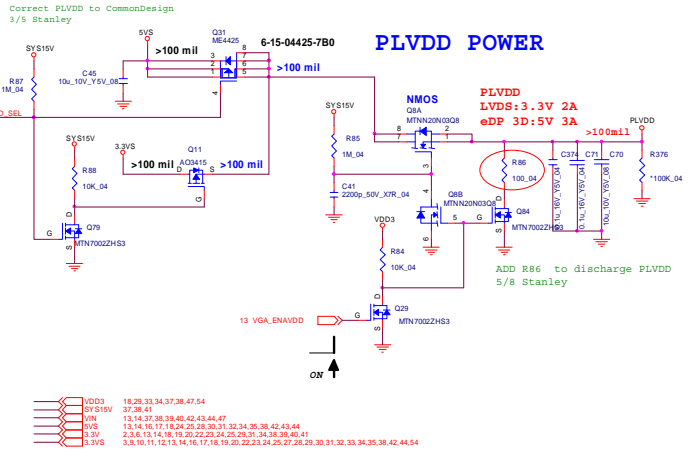
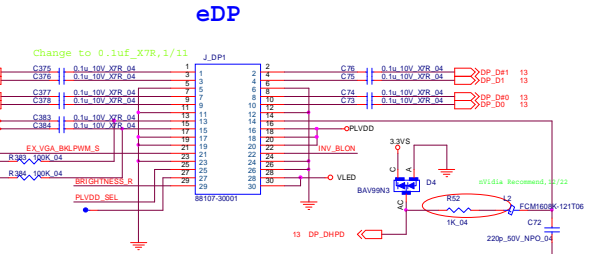
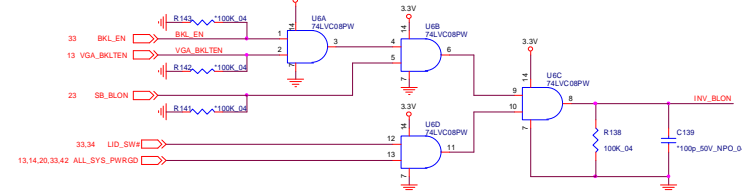
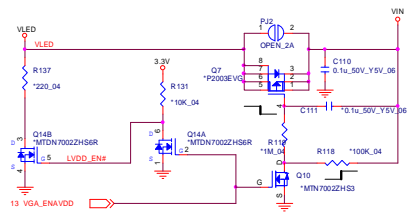
# Panel, Inverter, eDP

## PANEL



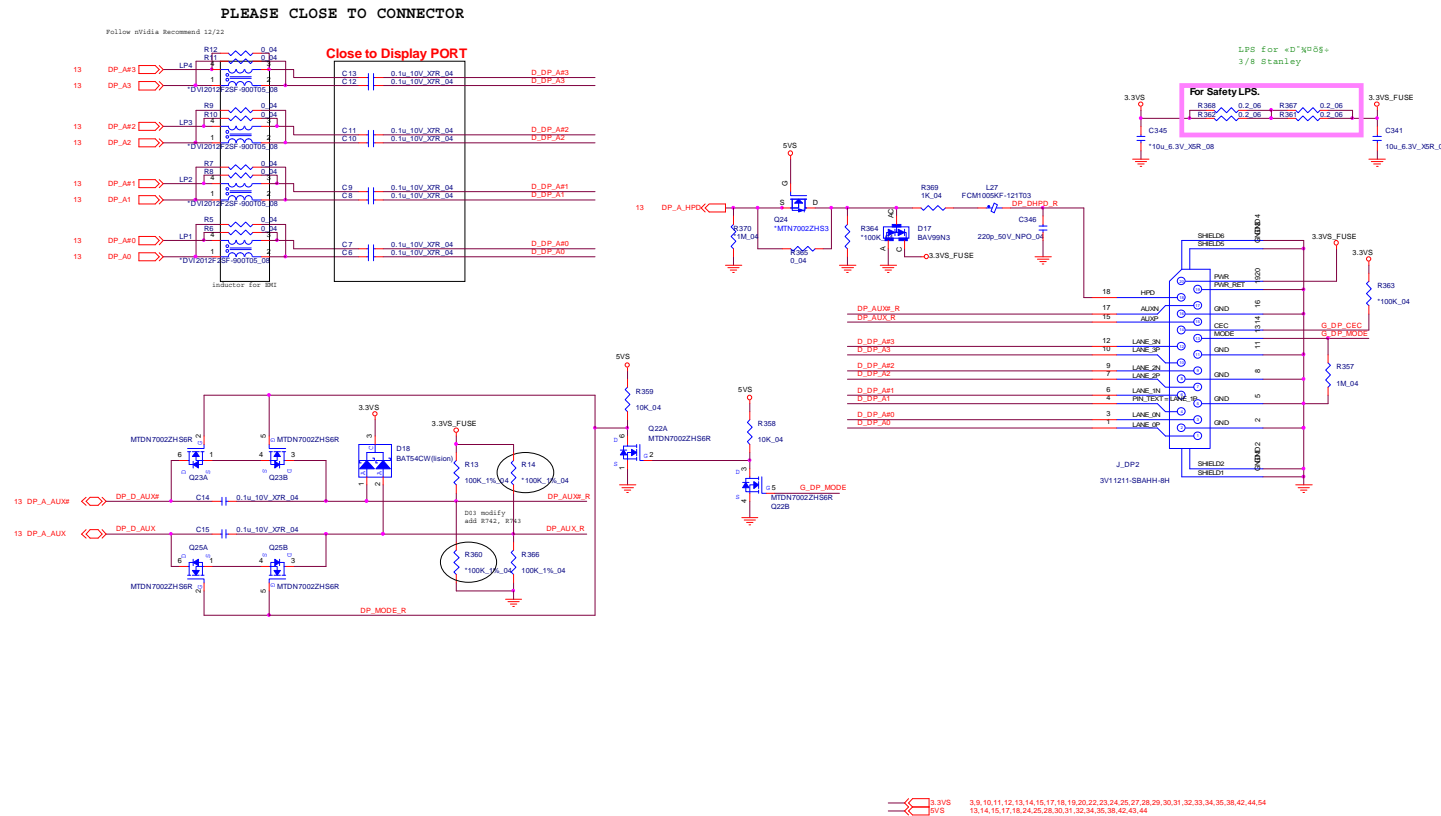
Sheet 15 of 54  
Panel, Inverter, eDP

B.Schematic Diagrams



# Display Port

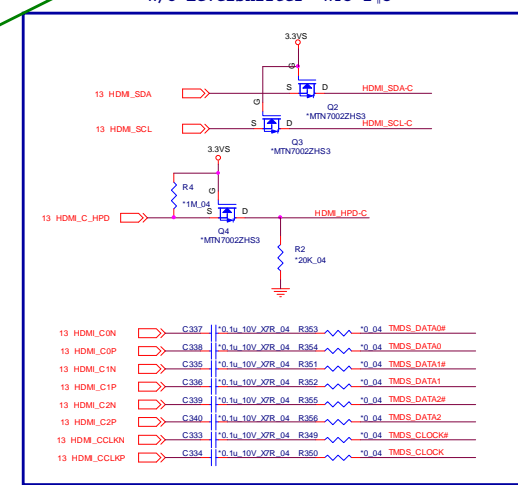
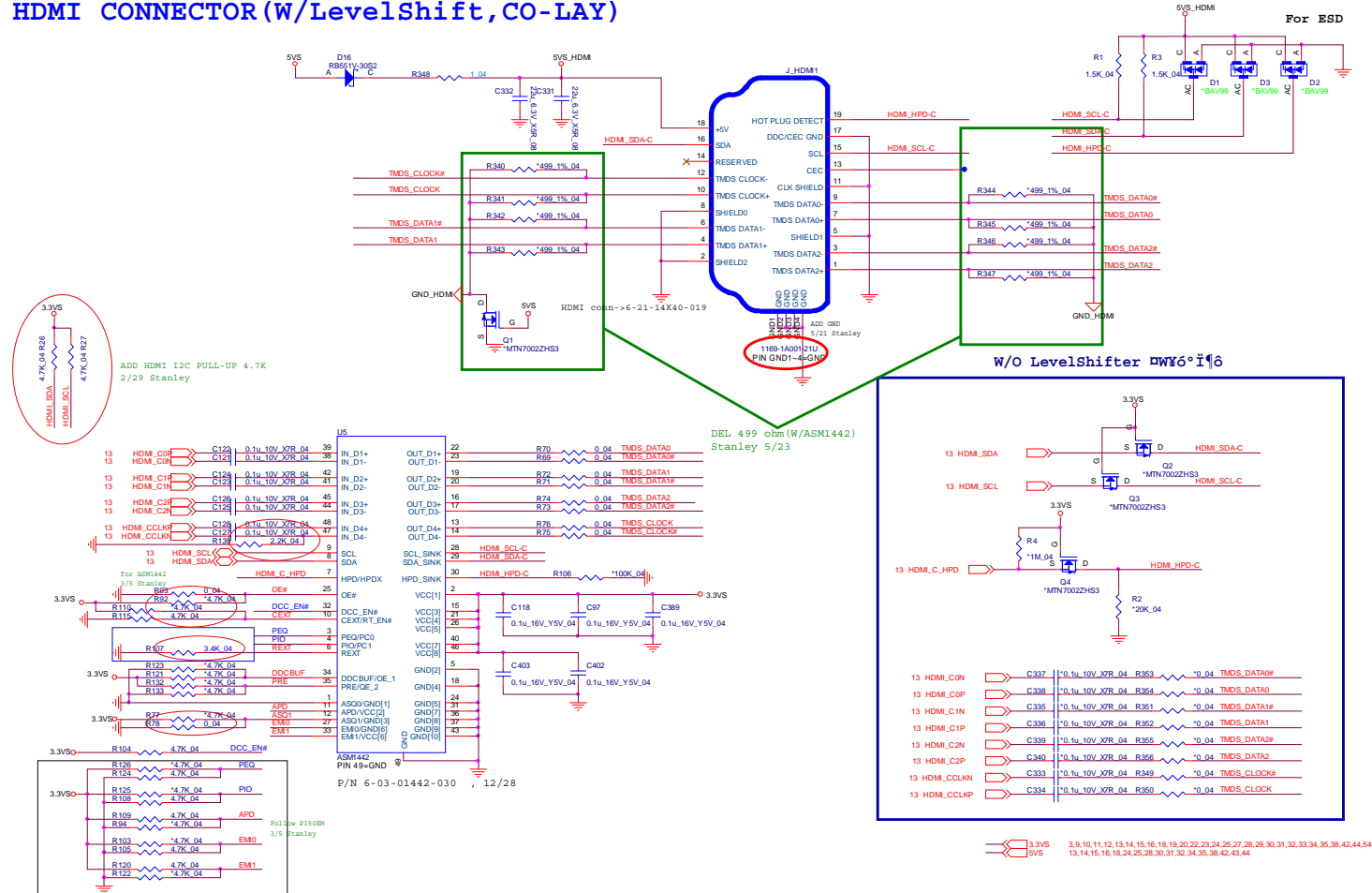
## DISPLAY PORT



Sheet 16 of 54  
Display Port

# HDMI

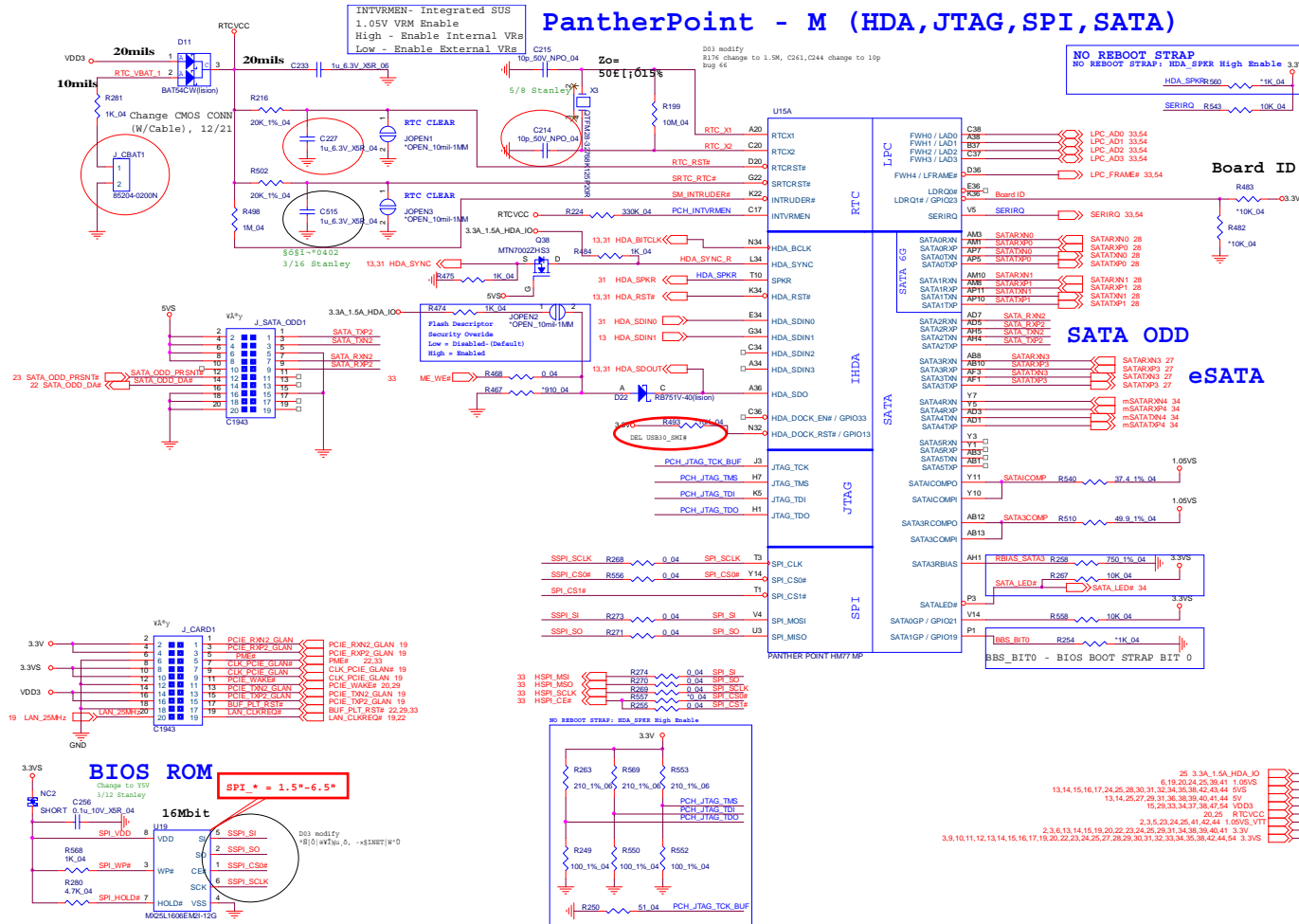
## HDMI CONNECTOR (W/LevelShift, CO-LAY)



3.3VS 3.9,10,11,12,13,14,15,16,18,19,20,22,23,24,25,27,28,29,30,31,32,33,34,35,38,42,44,54  
 5VS 13,14,15,16,18,24,25,26,30,31,32,34,35,38,42,43,44

Sheet 17 of 54  
 HDMI

# PCH 1/9 - RTC, HDA, SATA



Sheet 18 of 54  
PCH 1/9 - RTC,  
HDA, SATA

B.Schematic Diagrams

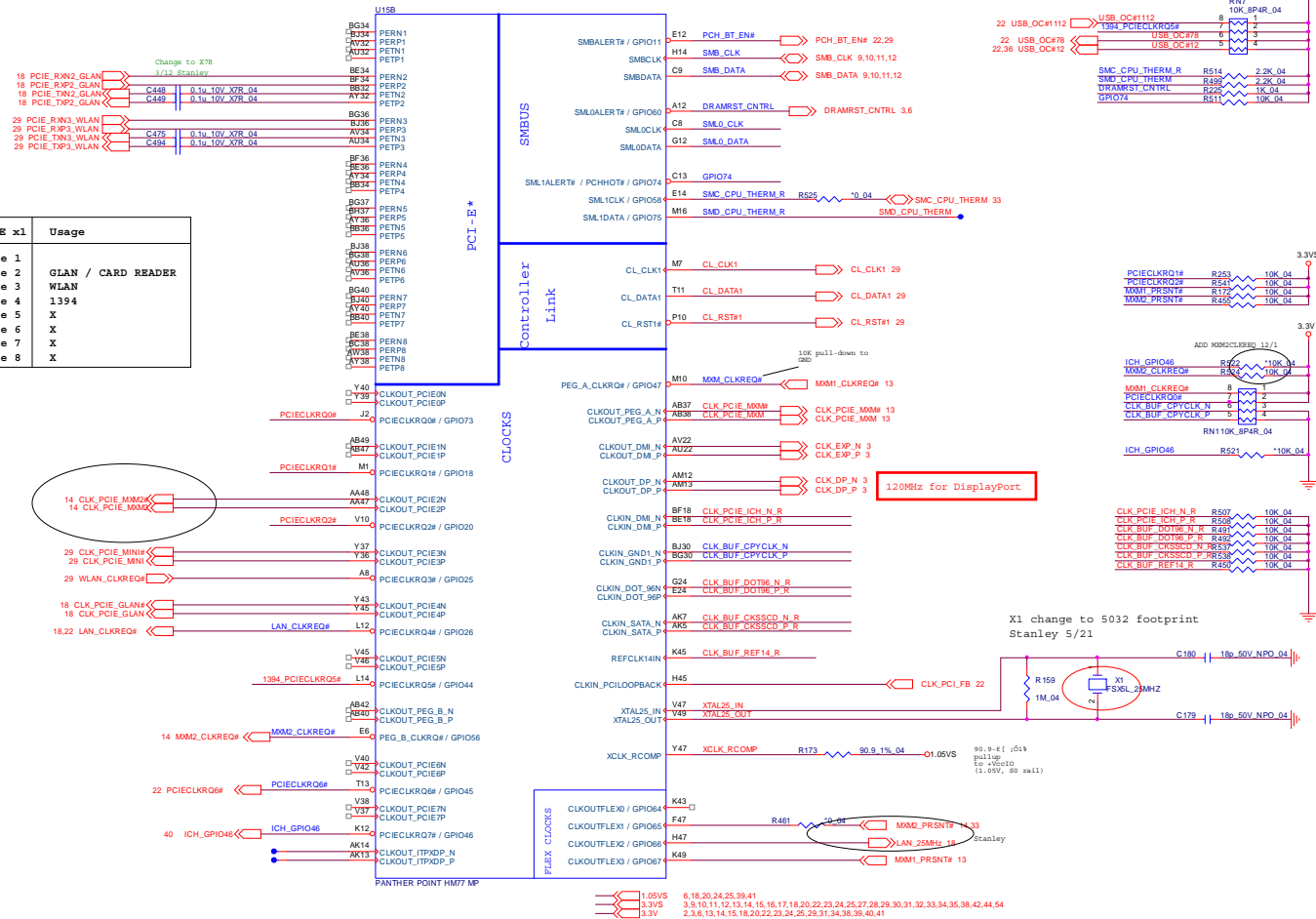


# PCH 2/9 - PCIE, SMBUS, CLK

Sheet 19 of 54  
PCH 2/9 - PCIE,  
SMBUS, CLK

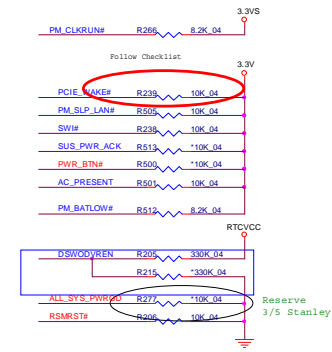
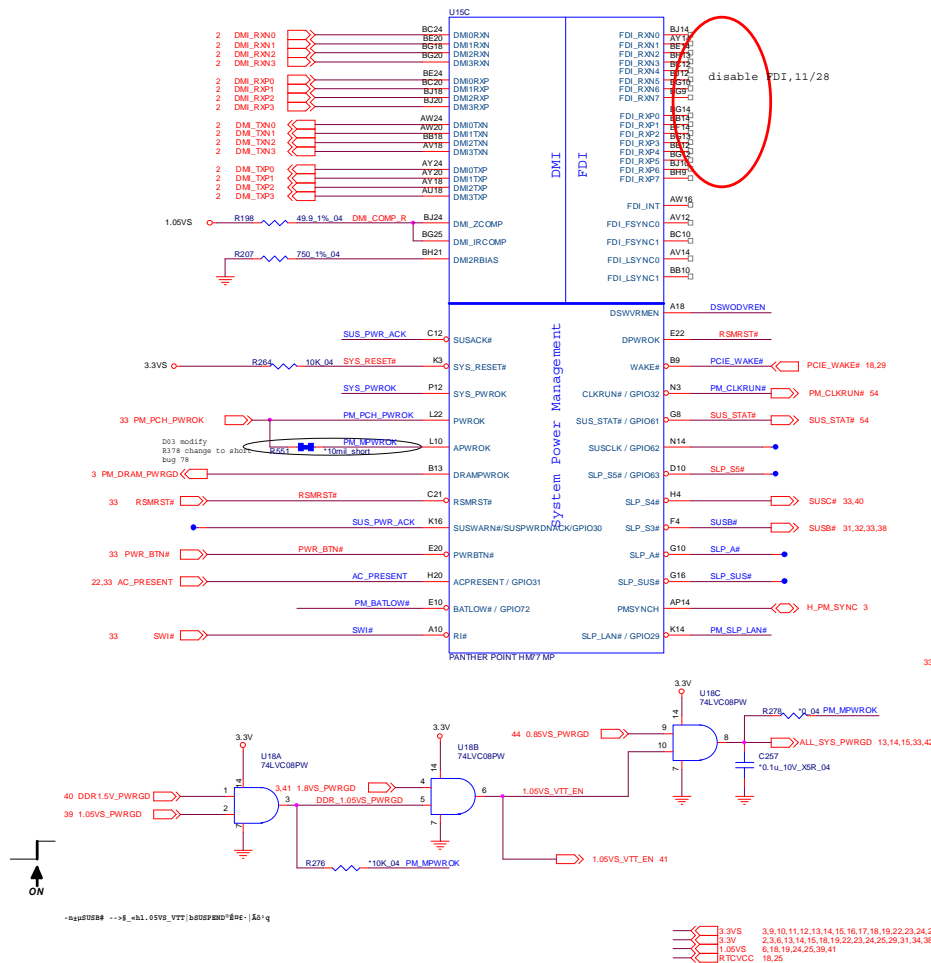
PCI-E x1	Usage
Lane 1	
Lane 2	GLAN / CARD READER
Lane 3	WLAN
Lane 4	1394
Lane 5	X
Lane 6	X
Lane 7	X
Lane 8	X

## PantherPoint - H (PCI-E, SMBUS, CLK)

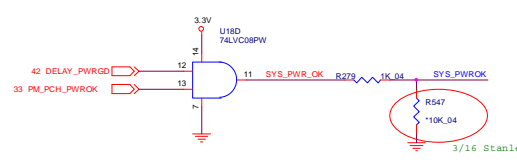


# PCH 3/9 - DMI, FDI, PWRGRD

## PantherPoint - H (DMI, FDI, GPIO)



DSWODVREN - On Die DSW VR Enable	
R7V25 STUFFED, R7V26 UNSTUFFED	Enabled (DEFAULT)
R7V26 STUFFED, R7V25 UNSTUFFED	Disabled



Sheet 20 of 54  
PCH 3/9 - DMI, FDI,  
PWRGRD

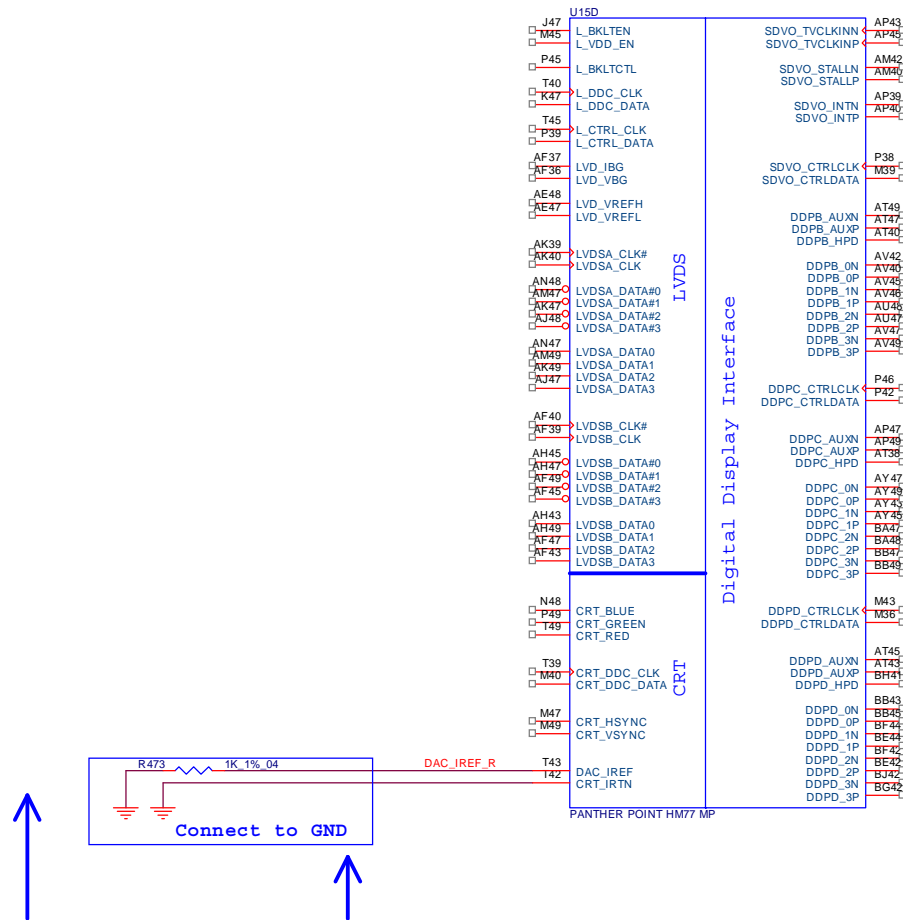
B.Schematic Diagrams

Schematic Diagrams

PCH 4/9 - LVDS, DDI, CRT

PantherPoint - H (LVDS, DDI)

Sheet 21 of 54  
PCH 4/9 - LVDS,  
DDI, CRT



External Graphics (PCH Integrated Graphics Disable)

# PCH 5/9 - PCI, USB, RSVD

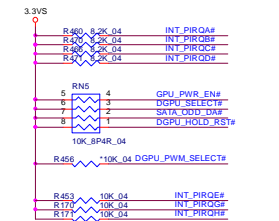
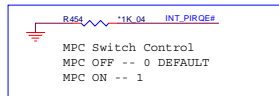
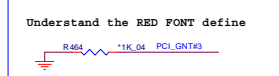
**Boot BIOS Strap**

BBS_BIT1	BBS_BIT0	Boot BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	PCI
1	1	SPI

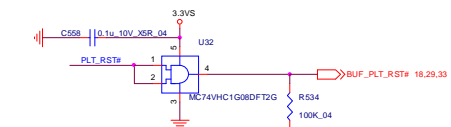


**Flash Descriptor security override strap**

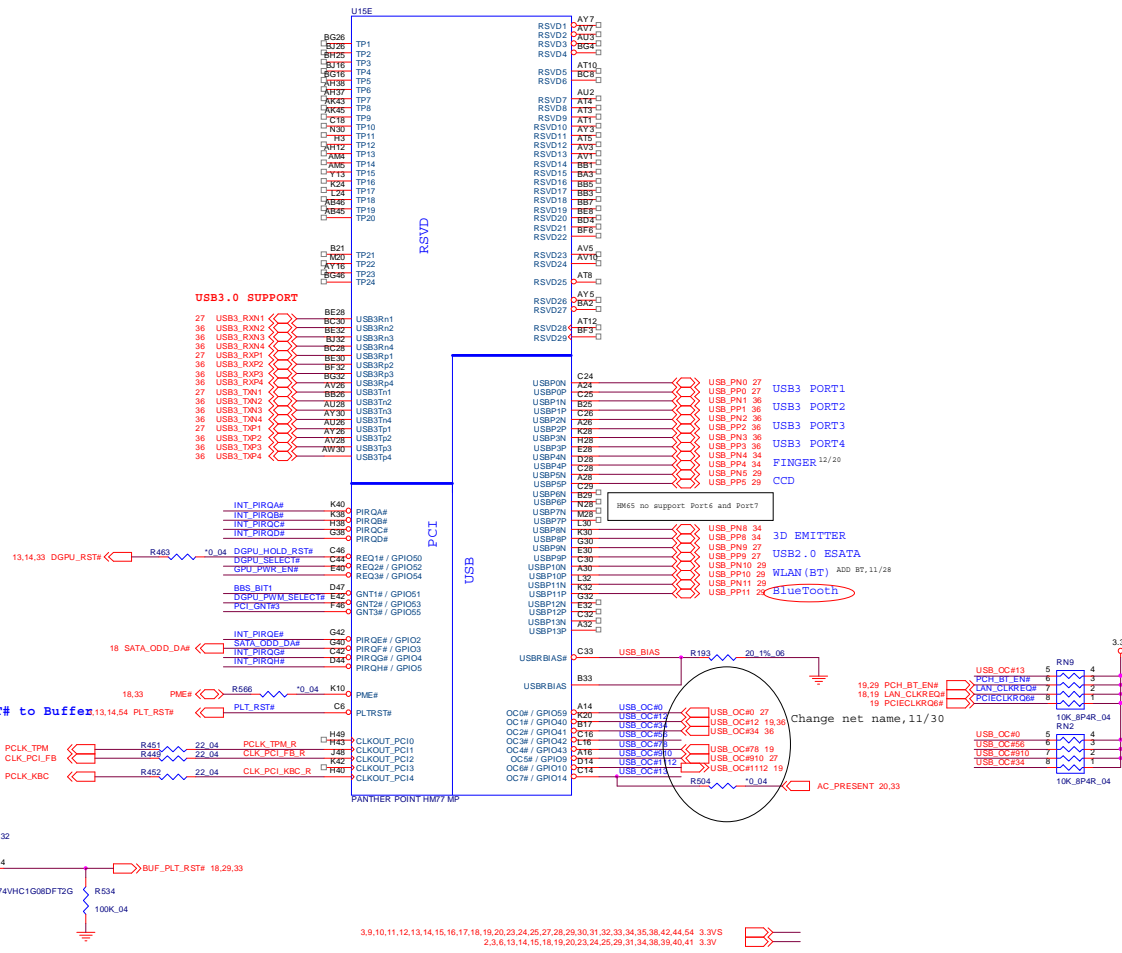
PCI_GNT#3	LOW = PCI_GNT#3 swap override	HIGH = Default
	LOW = PCI_GNT#3 swap override	HIGH = Default



PIN PLT\_RST# to Buffer 13,14,54 PLT\_RST#



## PantherPoint - H (PCI,USB,NVRAM)



- 3.9,10,11,12,13,14,15,16,17,18,19,20,23,24,25,27,28,29,30,31,32,33,34,35,38,42,44,54 3.3V
- 2,3,6,13,14,15,18,19,20,23,24,25,29,31,34,38,39,40,41 3.3V

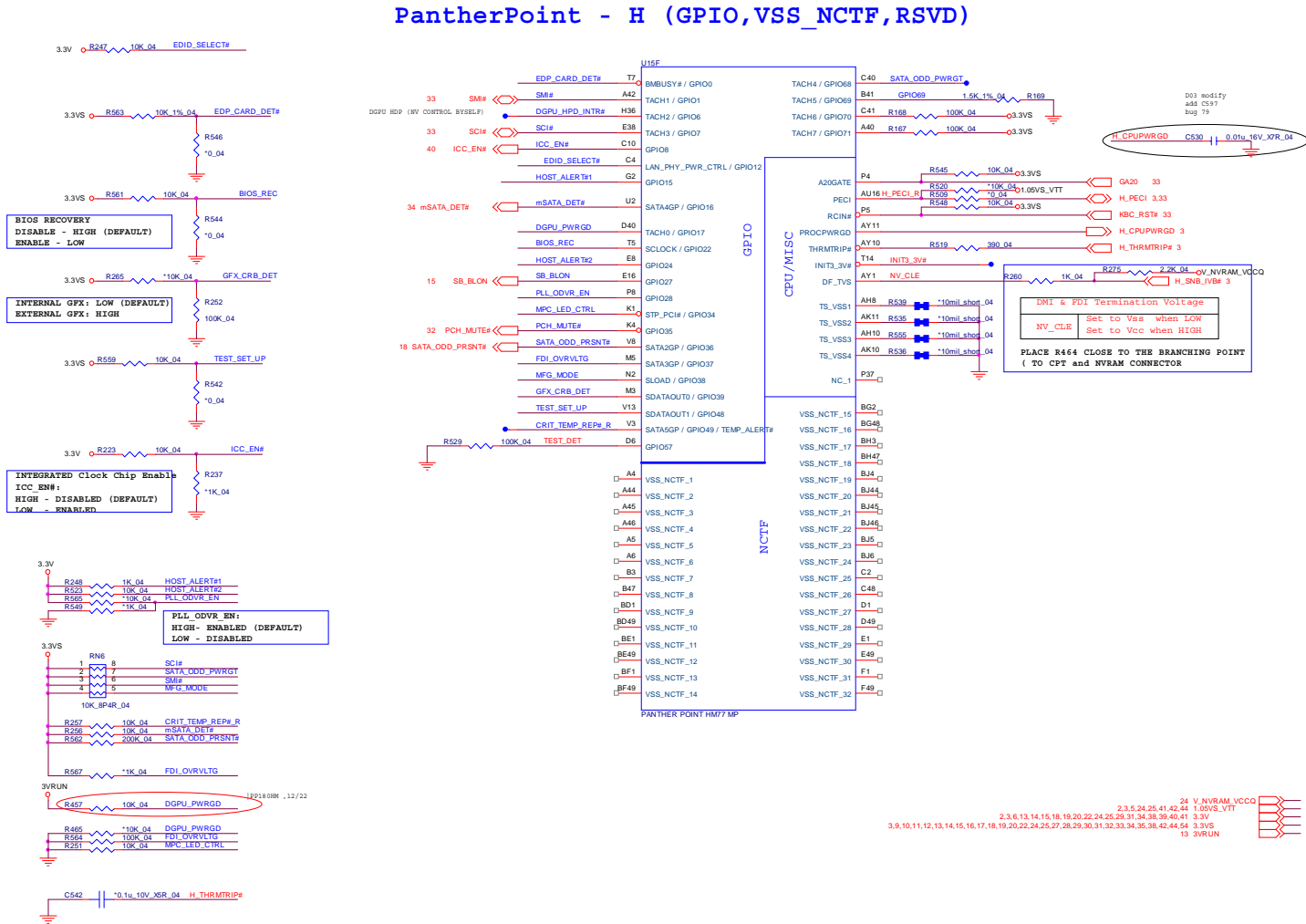
Sheet 22 of 54  
PCH 5/9 - PCI, USB,  
RSVD

B.Schematic Diagrams

# Schematic Diagrams

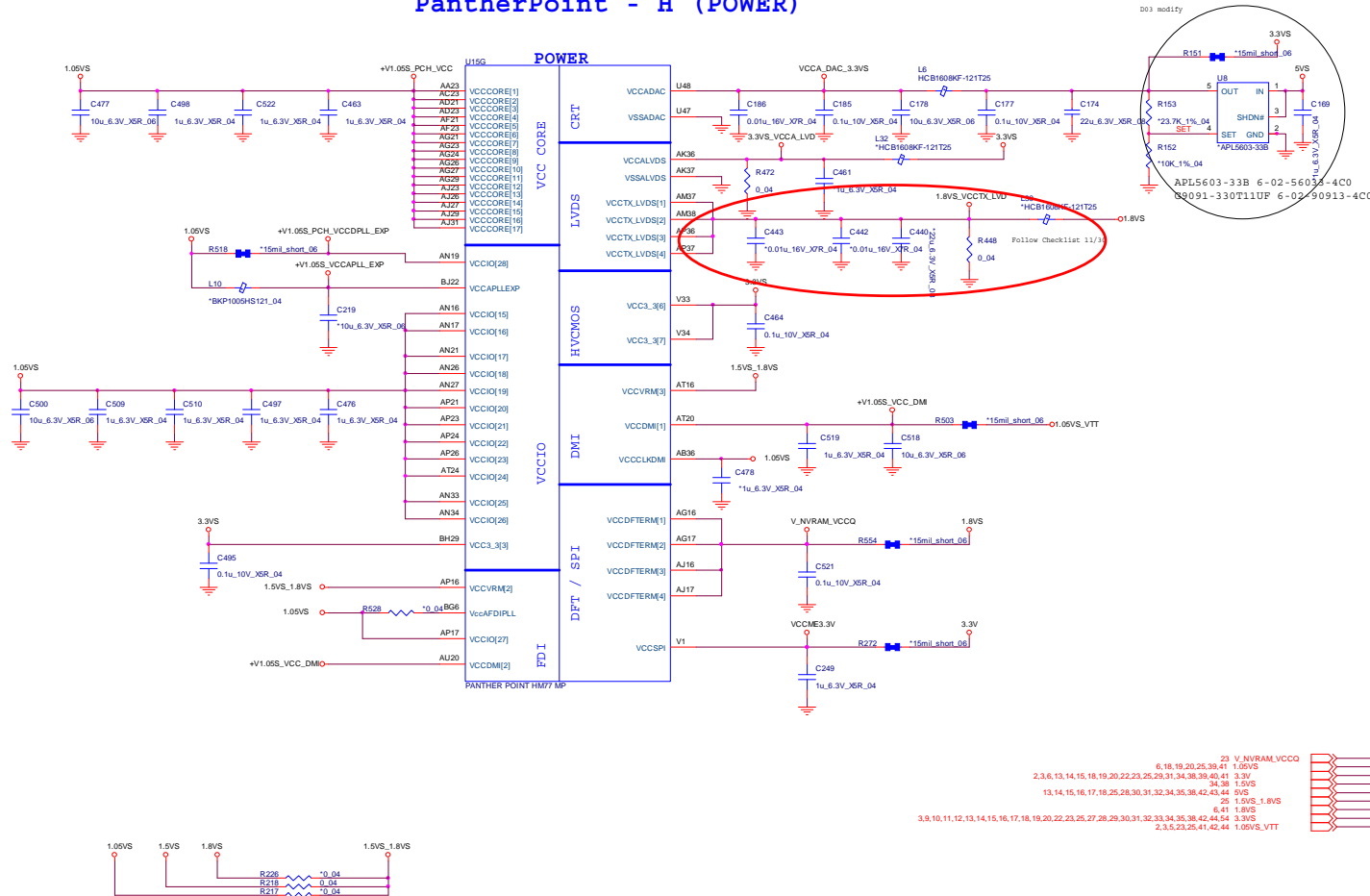
## PCH 6/9 - GPIO, CPU

Sheet 23 of 54  
PCH 6/9 - GPIO,  
CPU



# PCH 7/9 - Power

## PantherPoint - H (POWER)

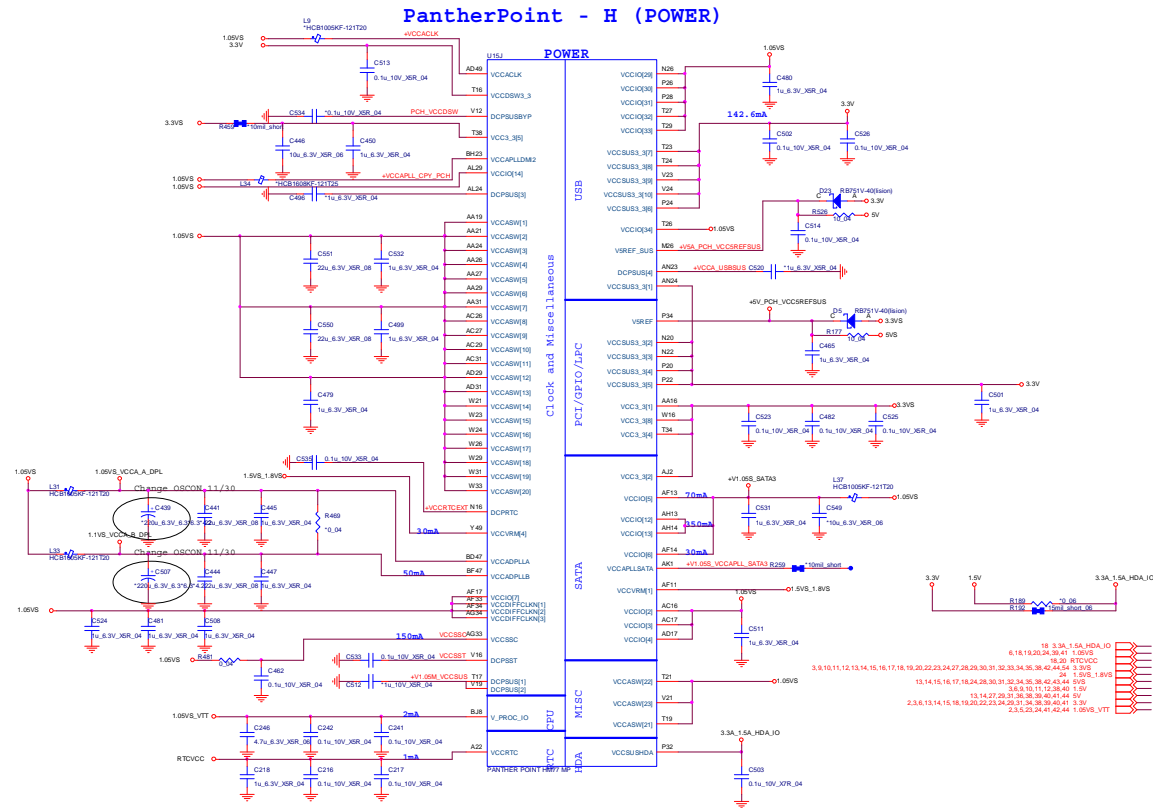


Sheet 24 of 54  
PCH 7/9 - Power

B.Schematic Diagrams

# PCH 8/9 - Power

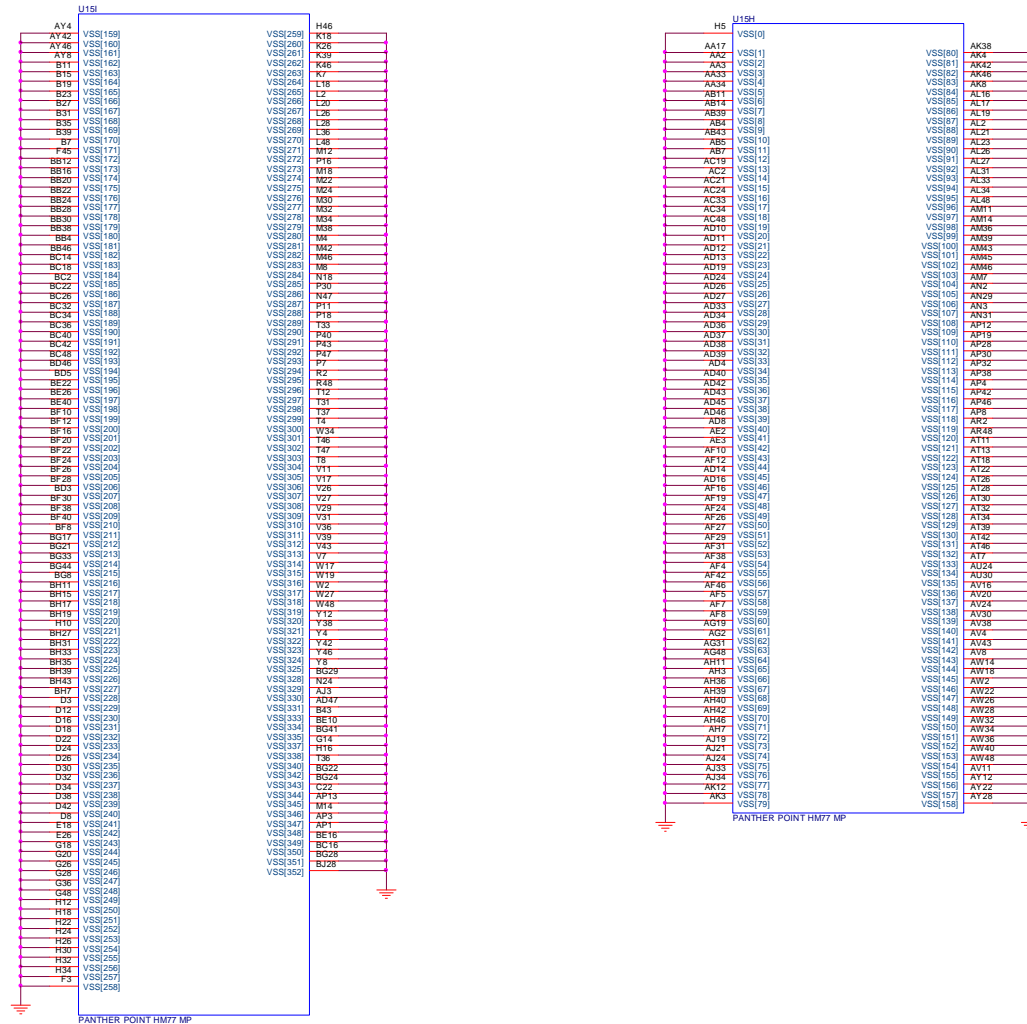
Sheet 25 of 54  
PCH 8/9 - Power





PCH 9/9 - GND

PantherPoint - H (GND)

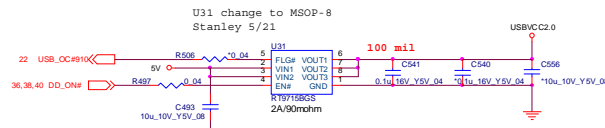


Sheet 26 of 54  
PCH 9/ -GND

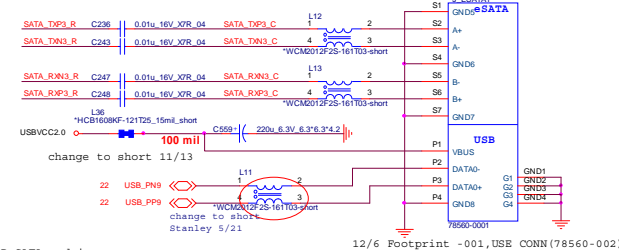
B.Schematic Diagrams

# USB+eSATA, USB Charging

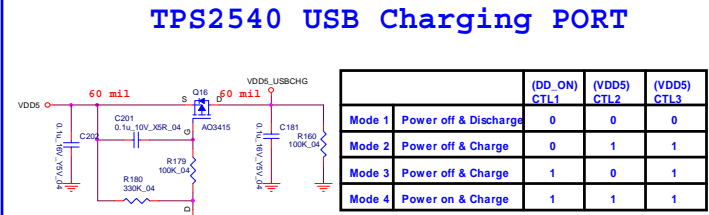
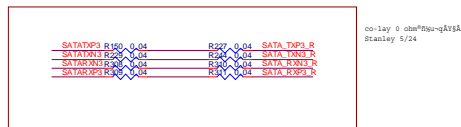
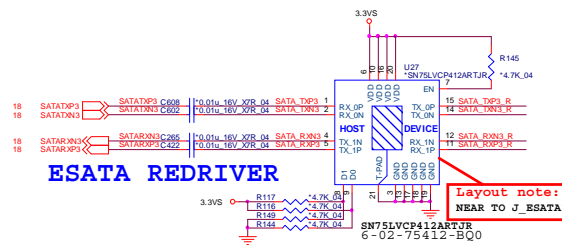
Sheet 27 of 54  
USB+eSATA, USB  
Charging



## USB2.0 PORT + eSATA

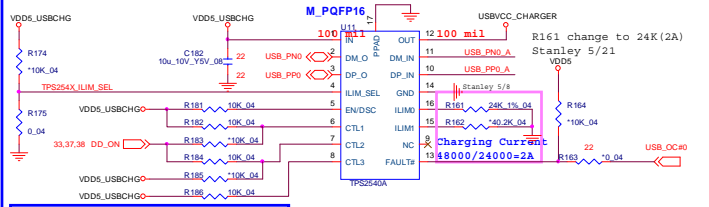


ADD SATA redriver  
5/21 Stanley



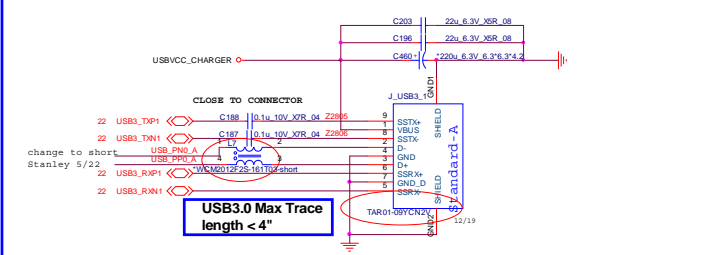
	(DD_ON) CTL1	(VDD5) CTL2	(VDD5) CTL3
Mode 1	Power off & Discharge	0	0
Mode 2	Power off & Charge	0	1
Mode 3	Power off & Charge	1	0
Mode 4	Power on & Charge	1	1

CTL1 CTL2 CTL3: 0 0 0----> Out discharge, power switch Off  
 CTL1 CTL2 CTL3: 0 x x ----> Dedicated charging port, auto-detect  
 CTL1 CTL2 CTL3: 1 0 1 ----> Dedicated charging port, Divider Mode only  
 CTL1 CTL2 CTL3: 1 1 1 ----> Charging downstream port, BC1.2.



ILIM SEL  
 ( FOR TPS2543/TPS2540 | 3 | B | P )  
 ILIM SEL=HI , FOR TPS2543  
 ILIM SEL=LOW, FOR TPS2540A

## USB3.0 PORT1

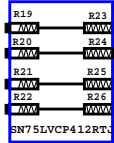


USB3.0 Max Trace  
 length < 4"

- VDD5 37,38
- VY 13,14,25,29,31,36,38,39,40,41,44
- VY 13,14,15,16,17,18,24,25,28,30,31,32,34,35,38,42,43,44
- VY 3,9,10,11,12,13,14,15,16,17,18,19,20,22,23,24,25,28,29,30,31,32,33,34,35,38,42,44,54

# GEN-III SATA HDD Re-driver

Layout



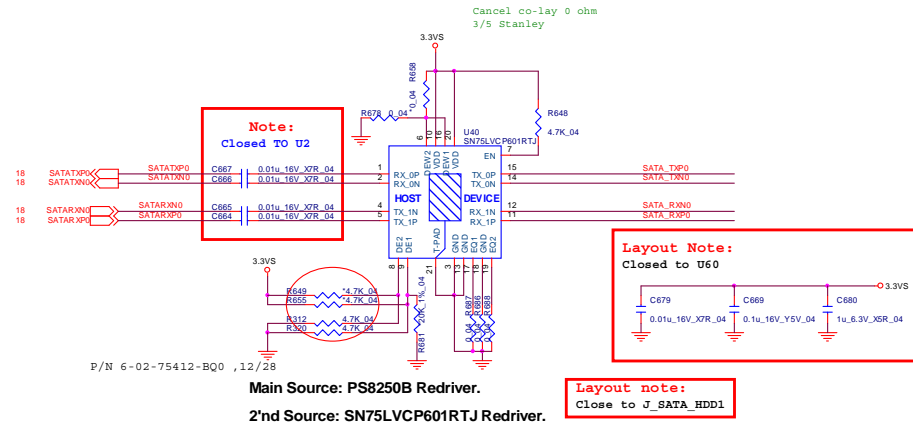
**SN75LVCP601RTJ Redriver.**

DE1	DE2	De-Emphasis dB (at 6Gbps)
NC	NC	-4 (default)
0	0	0
1	1	-2

DQ1	DQ2	Equalization dB (at 6Gbps)
NC	NC	0 (default)
0	0	7
1	1	14

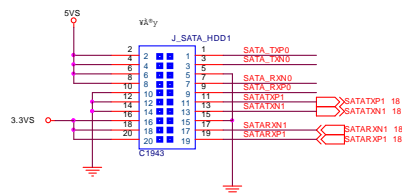
DEW1	DEW2	DE Width
0	0	Short (at SATA 1.5/3/6 Gbps)
1	1	Long (at SATA 1.5/3 Gbps)

EN	Device Function--Standby Mode
0	Device in standby mode
1	Device enabled



Sheet 28 of 54  
GEN-III SATA HDD  
Re-driver

B.Schematic Diagrams



PORT1 Re-driver IC  
move to HDD B'D  
3/16

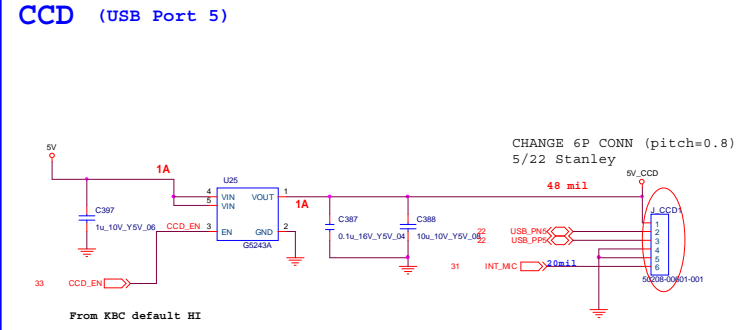
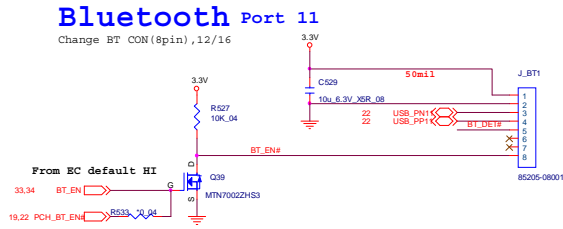
3,9,10,11,12,13,14,15,16,17,18,19,20,22,23,24,25,27,29,30,31,32,33,34,35,38,42,44,54 3,3VS  
13,14,15,16,17,18,24,25,30,31,32,34,35,38,42,43,44 5VS

Schematic Diagrams

# BT, CCD+MIC, MINI PCIE

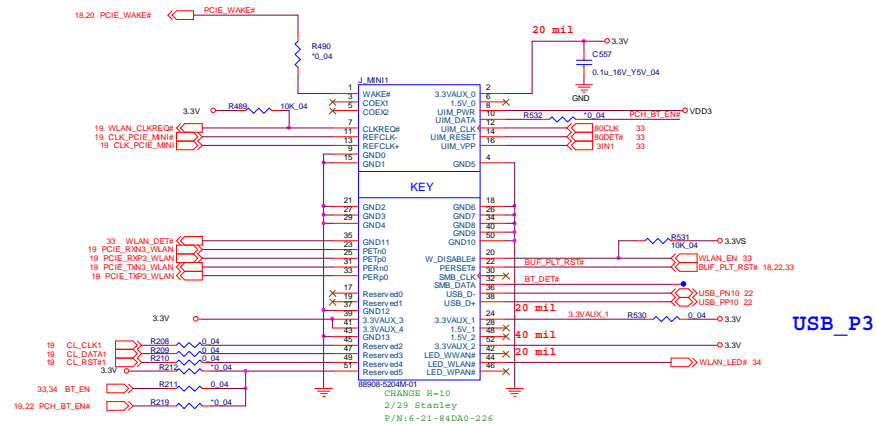
B.Schematic Diagrams

Sheet 29 of 54  
BT, CCD+MIC, MINI PCIE



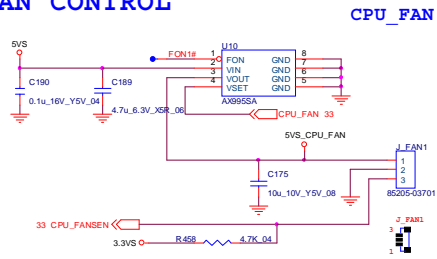
- VDD3 15, 18, 33, 34, 37, 38, 47, 54
- 3V 13, 14, 25, 27, 31, 36, 38, 39, 40, 41, 44
- DVS 13, 14, 15, 16, 17, 18, 24, 25, 29, 30, 31, 32, 34, 35, 38, 42, 43, 44
- 3.3V 2, 3, 6, 13, 14, 15, 18, 19, 20, 22, 23, 24, 25, 31, 34, 35, 39, 40, 41
- 3.3VS 3, 6, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24, 25, 27, 28, 30, 31, 32, 33, 34, 35, 38, 42, 44, 54

## MINI CARD

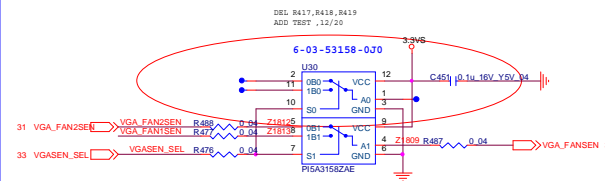


# Fan Control

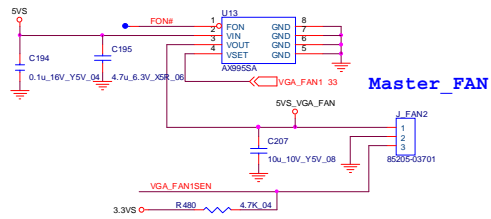
## CPU FAN CONTROL



## VGA FAN CONTROL-Selector



## VGA FAN CONTROL

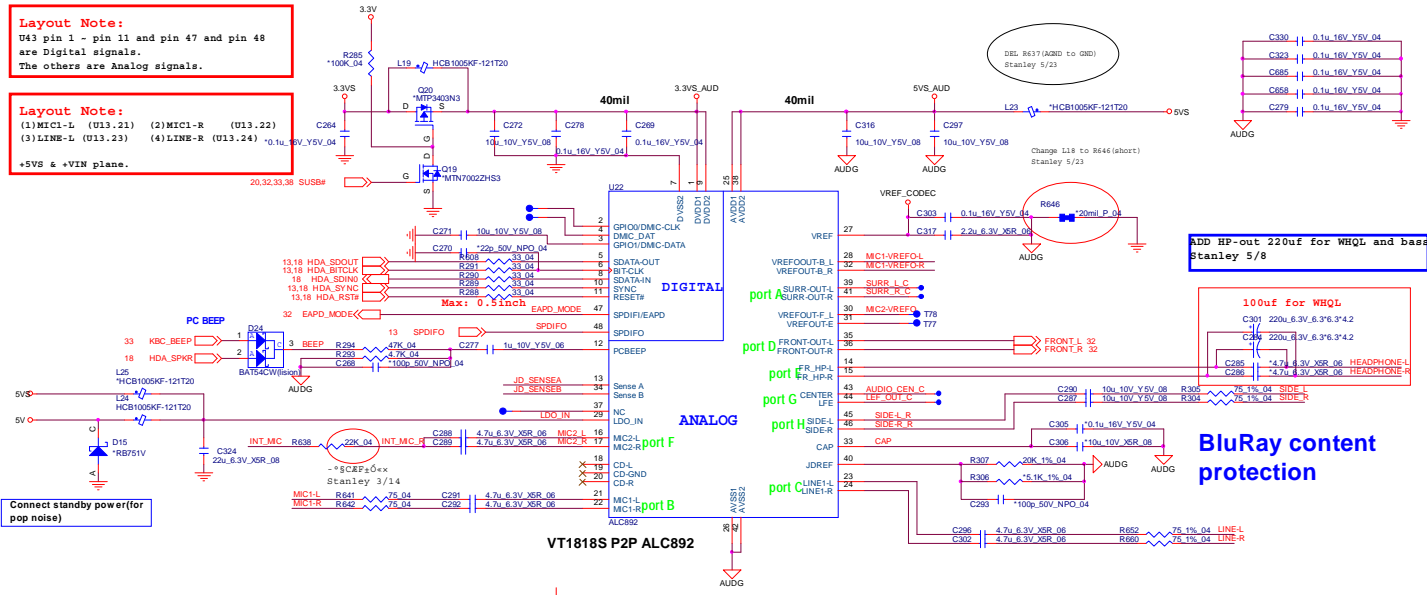


Sheet 30 of 54  
Fan Control

B.Schematic Diagrams

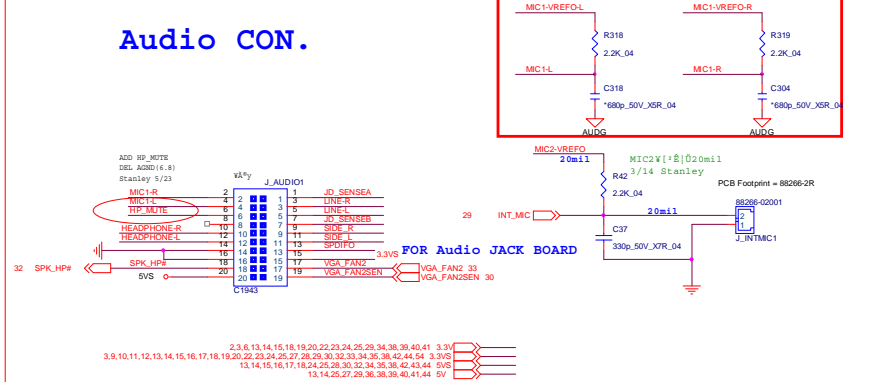
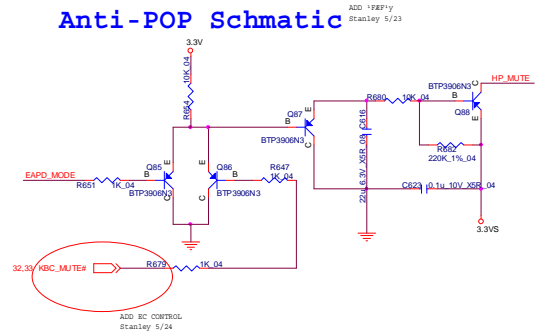
3.3VS	3,9,10,11,12,13,14,15,16,17,18,19,20,22,23,24,25,27,28,29,31,32,33,34,35,36,42,44,54
VDD3	15,16,23,33,34,37,38,47,54
3.3V	2,3,6,13,14,15,18,19,20,22,23,24,25,29,31,34,36,39,40,41
2VS	13,14,15,16,17,18,24,25,28,31,32,34,35,36,42,43,44
1.05VS	6,18,19,20,24,25,39,41
1.5V	5,6,9,10,11,12,25,38,40

# Codec Realtek ALC892



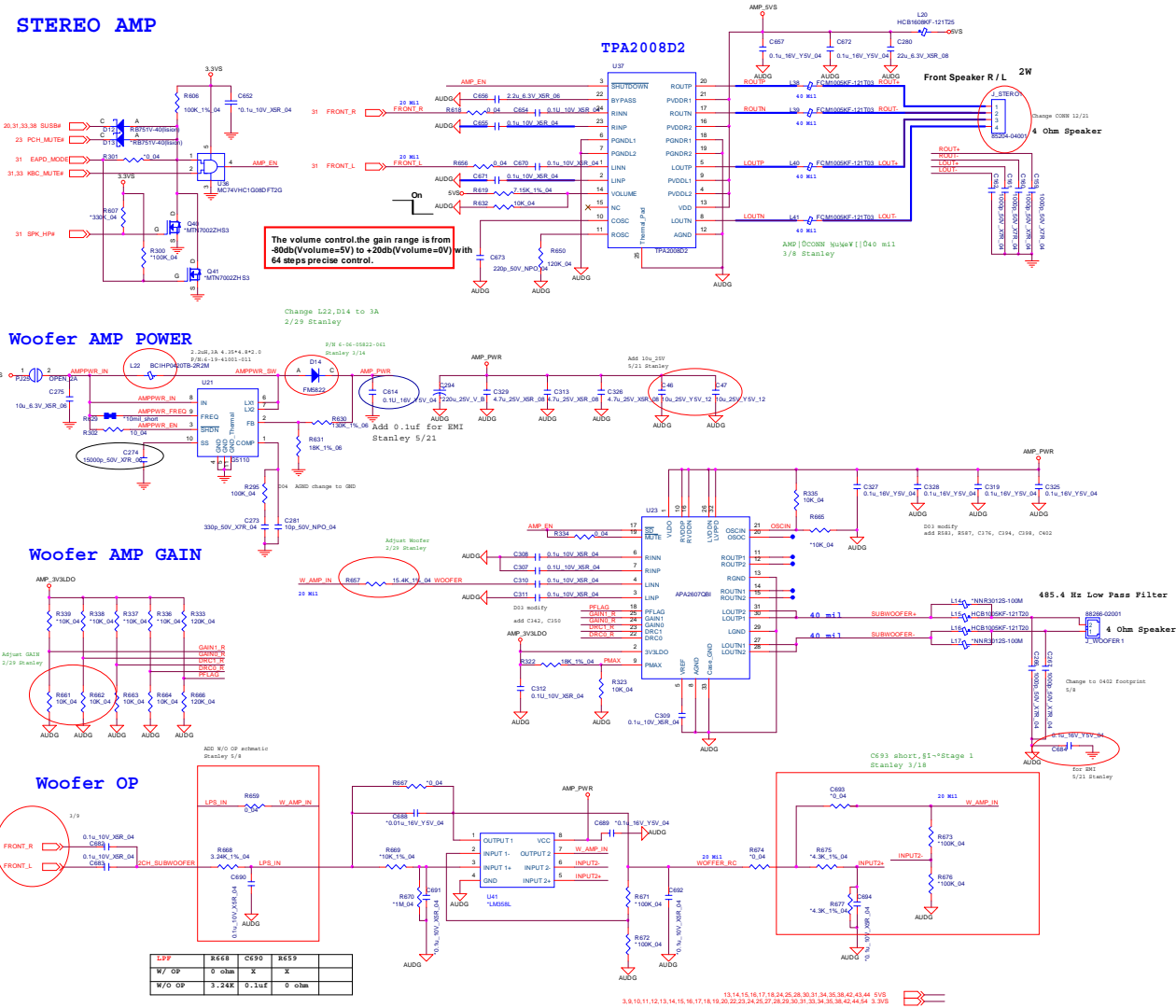
B. Schematic Diagrams

Sheet 31 of 54  
Codec Realtek  
ALC892





# APA2607 / TPA2008D2

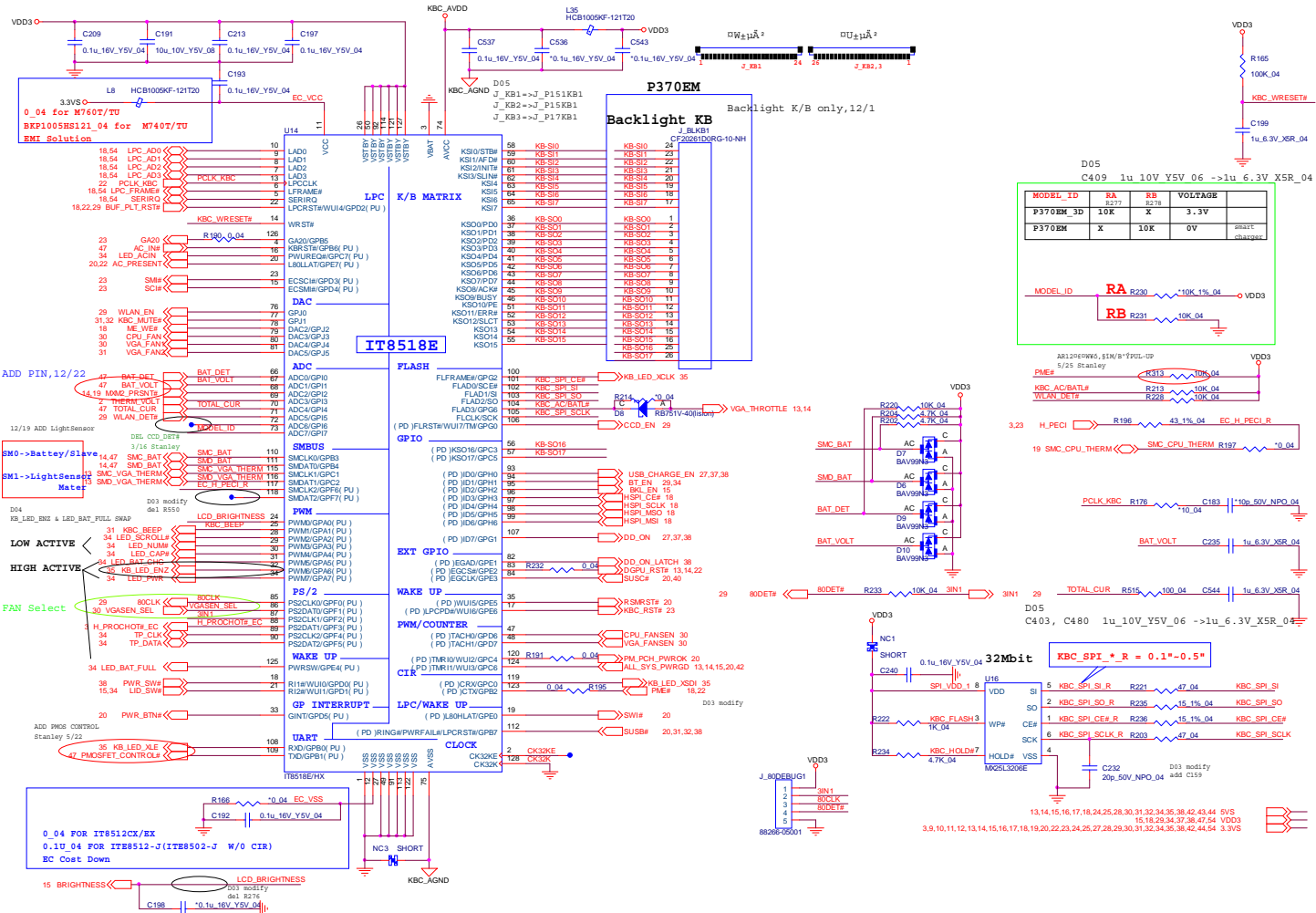


Sheet 32 of 54  
 APA2607 /  
 TPA2008D2

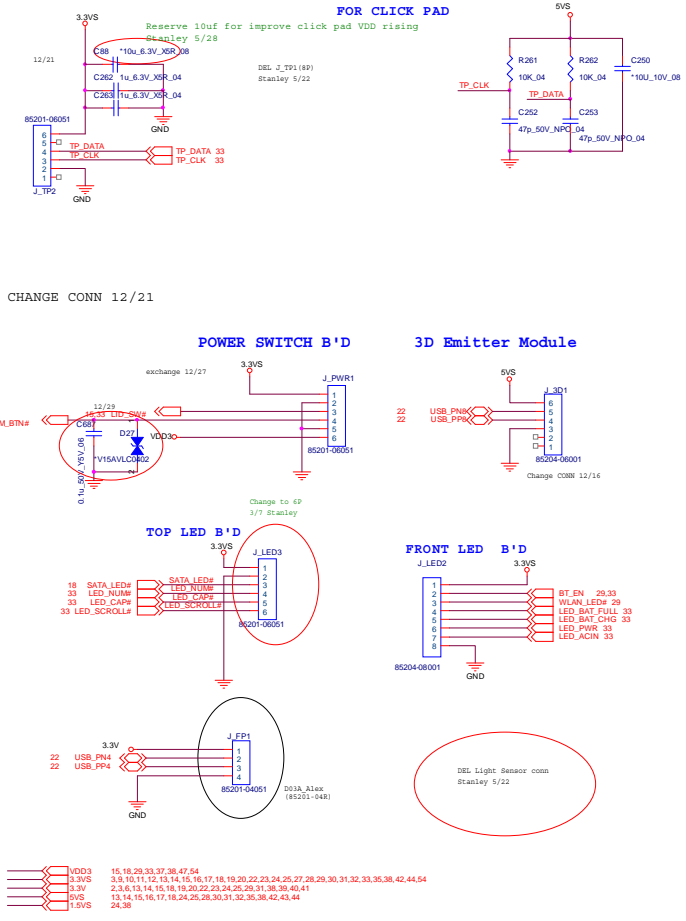
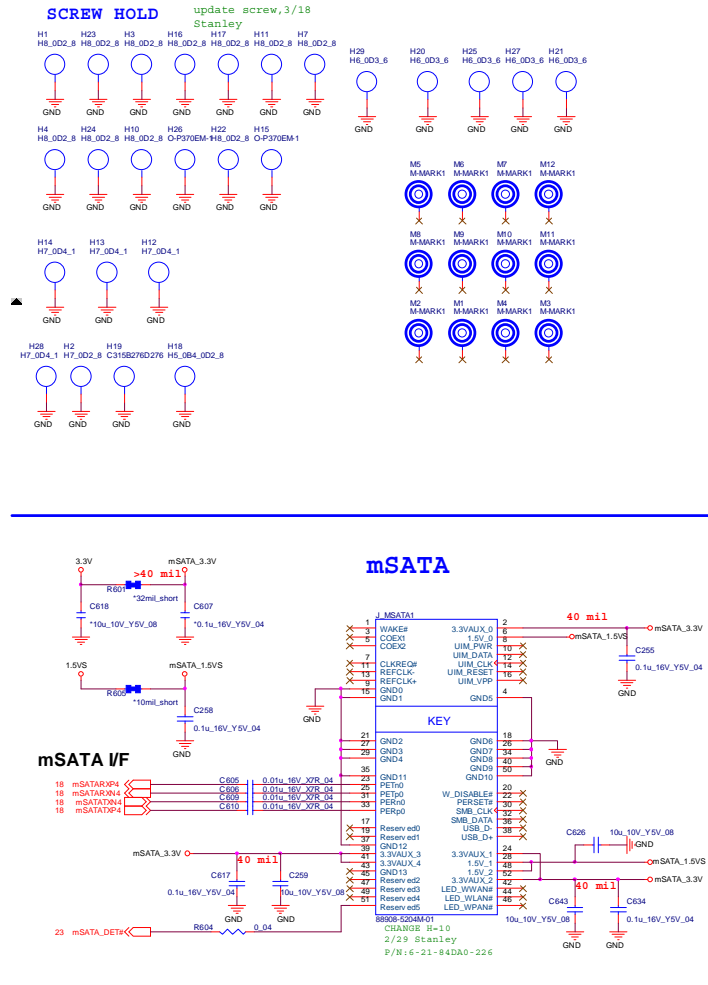
B.Schematic Diagrams

# KBC-ITEIT8518E

Sheet 33 of 54  
KBC-ITEIT8518E



# mSATA, Fan, TP, FP, MULTI CON

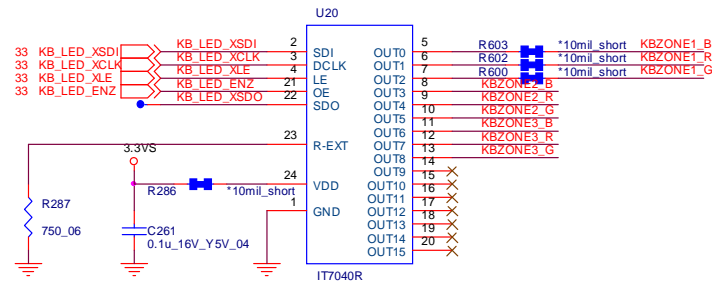
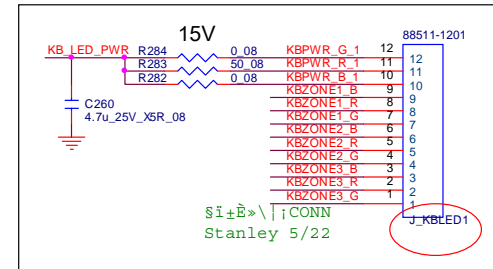
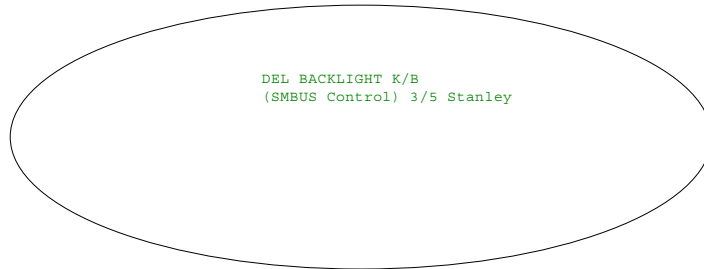
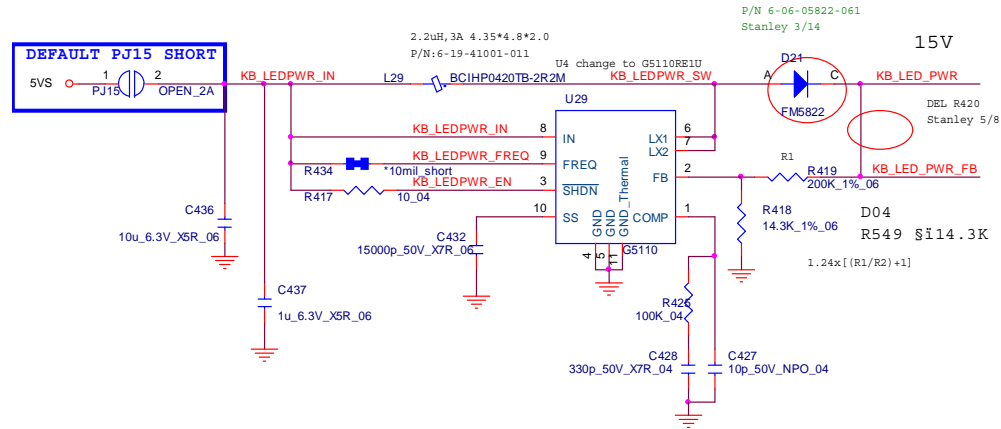


Sheet 34 of 54  
 mSATA, Fan, TP,  
 FP, MULTI CON

B.Schematic Diagrams

# Backlight Keyboard

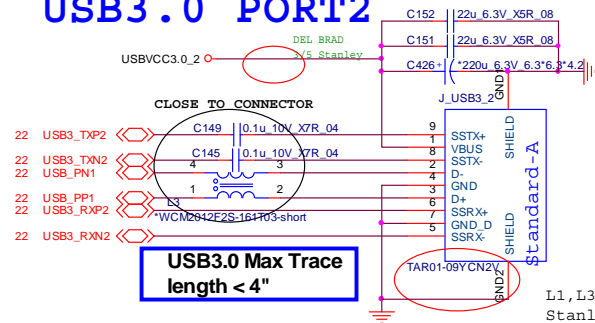
Sheet 35 of 54  
Backlight  
Keyboard



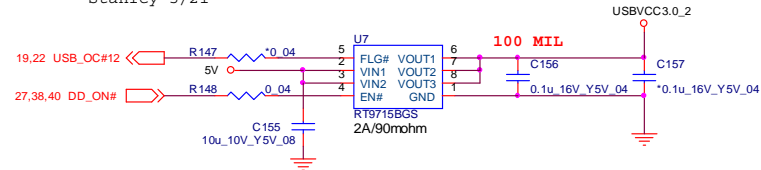
13, 14, 15, 16, 17, 18, 24, 25, 26, 30, 31, 32, 34, 38, 42, 43, 44 5VS  
3, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 38, 42, 44, 54 3.3VS

# USB3.0

## USB3.0 PORT2

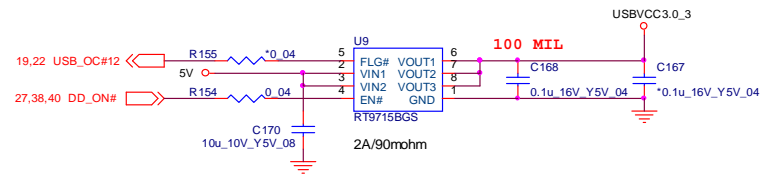
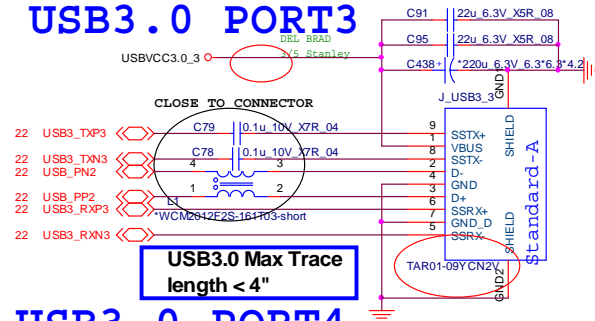


U7,U9,U24 change to MSOP-8  
Stanley 5/21

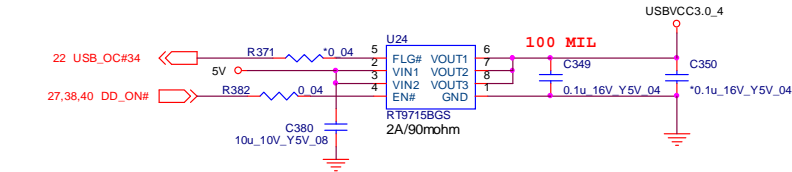
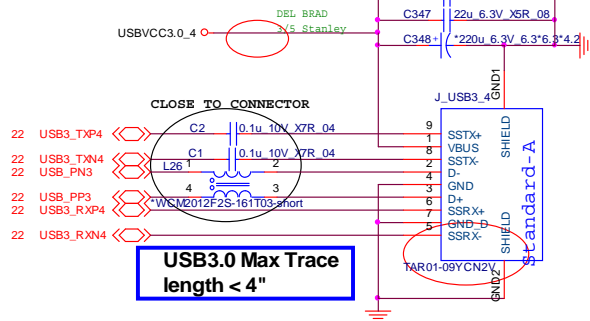


L1,L3,L26 change to short (swap ok)  
Stanley 5/22

## USB3.0 PORT3



## USB3.0 PORT4



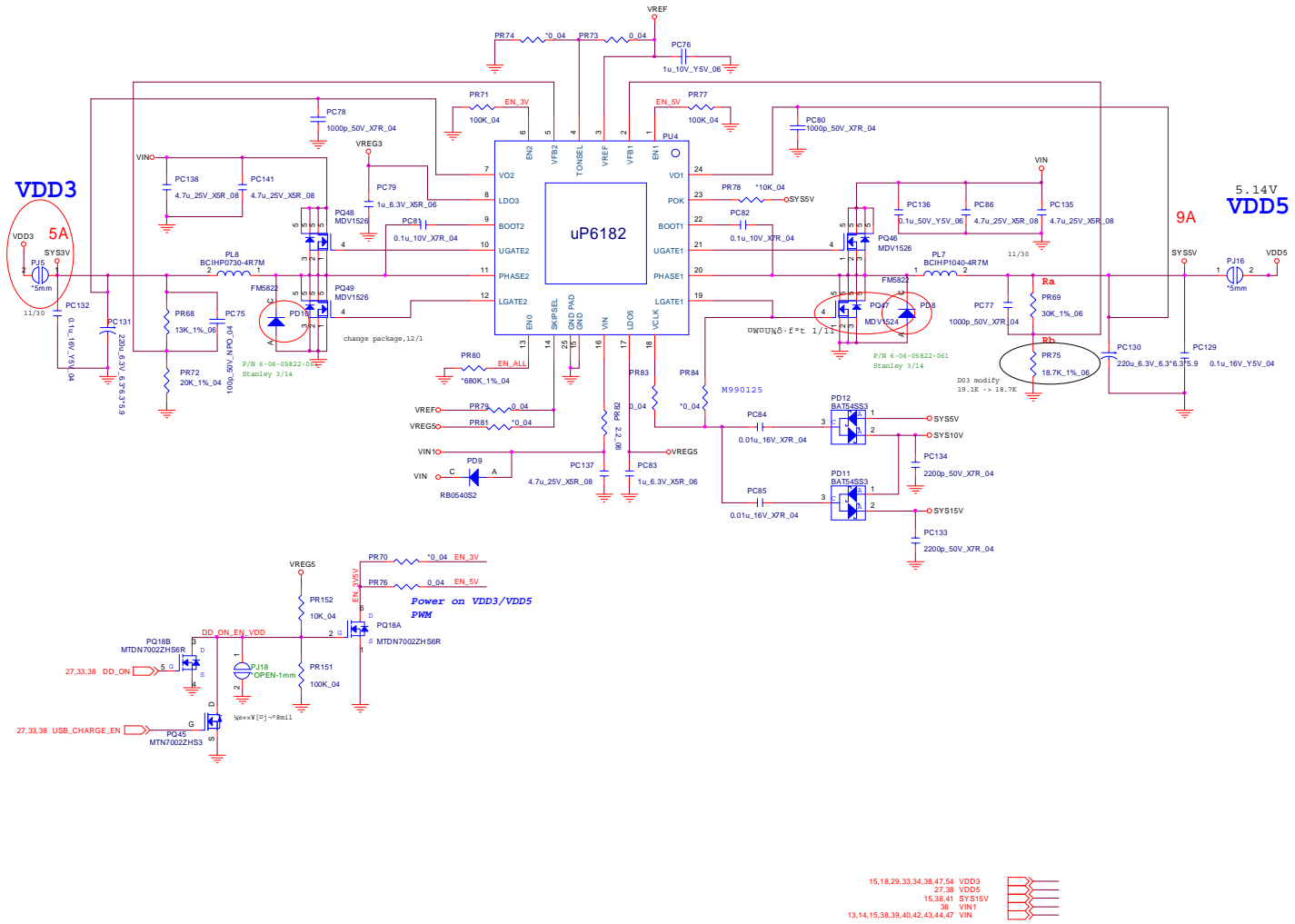
13,14,25,27,29,31,38,39,40,41,44 5V

Sheet 36 of 54  
USB3.0

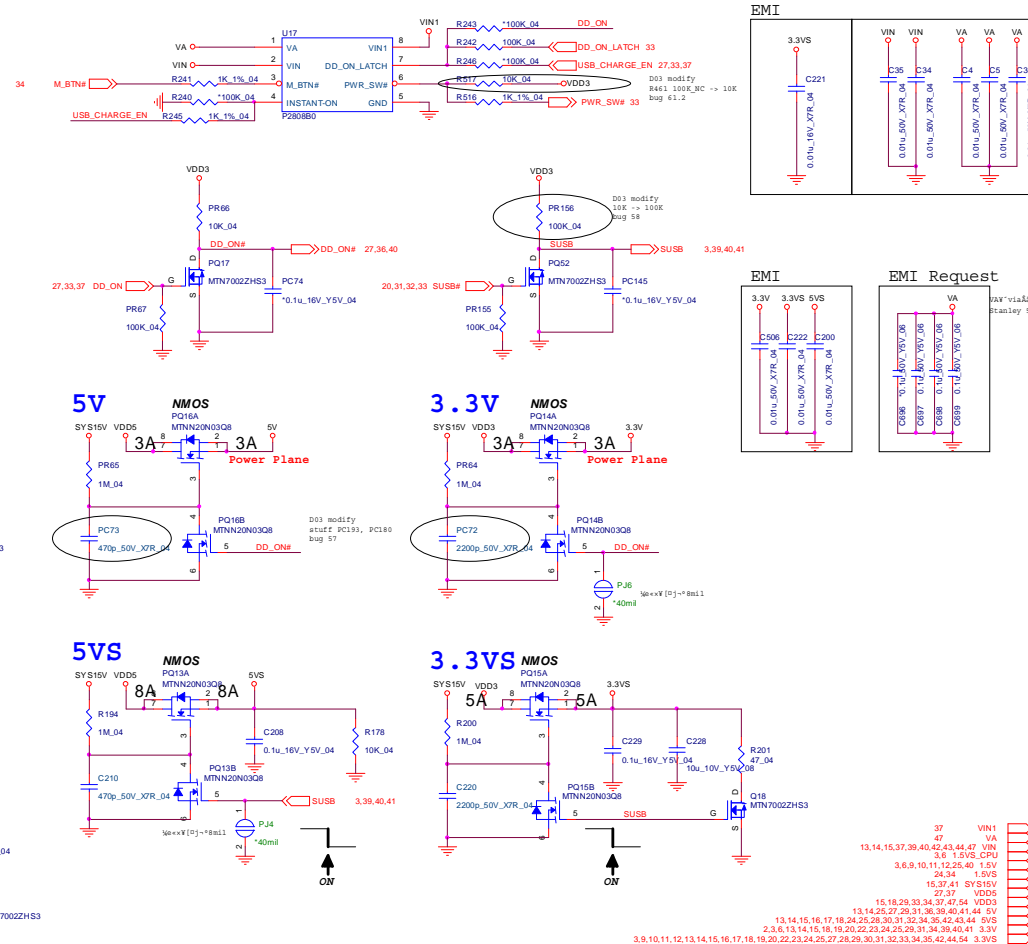
Schematic Diagrams

VDD3, VDD5

Sheet 37 of 54  
VDD3, VDD5



# 5VS, 3.3VS, 1.5VS



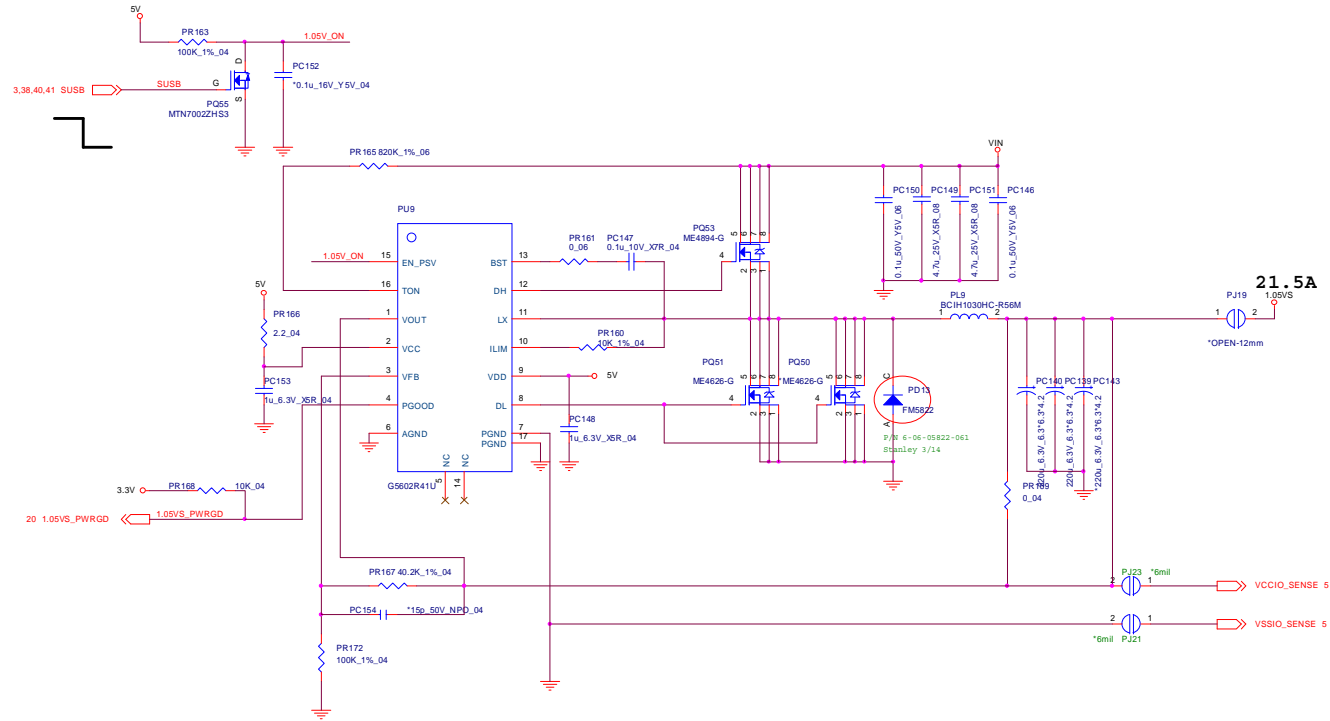
Sheet 38 of 54  
5VS, 3.3VS, 1.5VS



# Schematic Diagrams

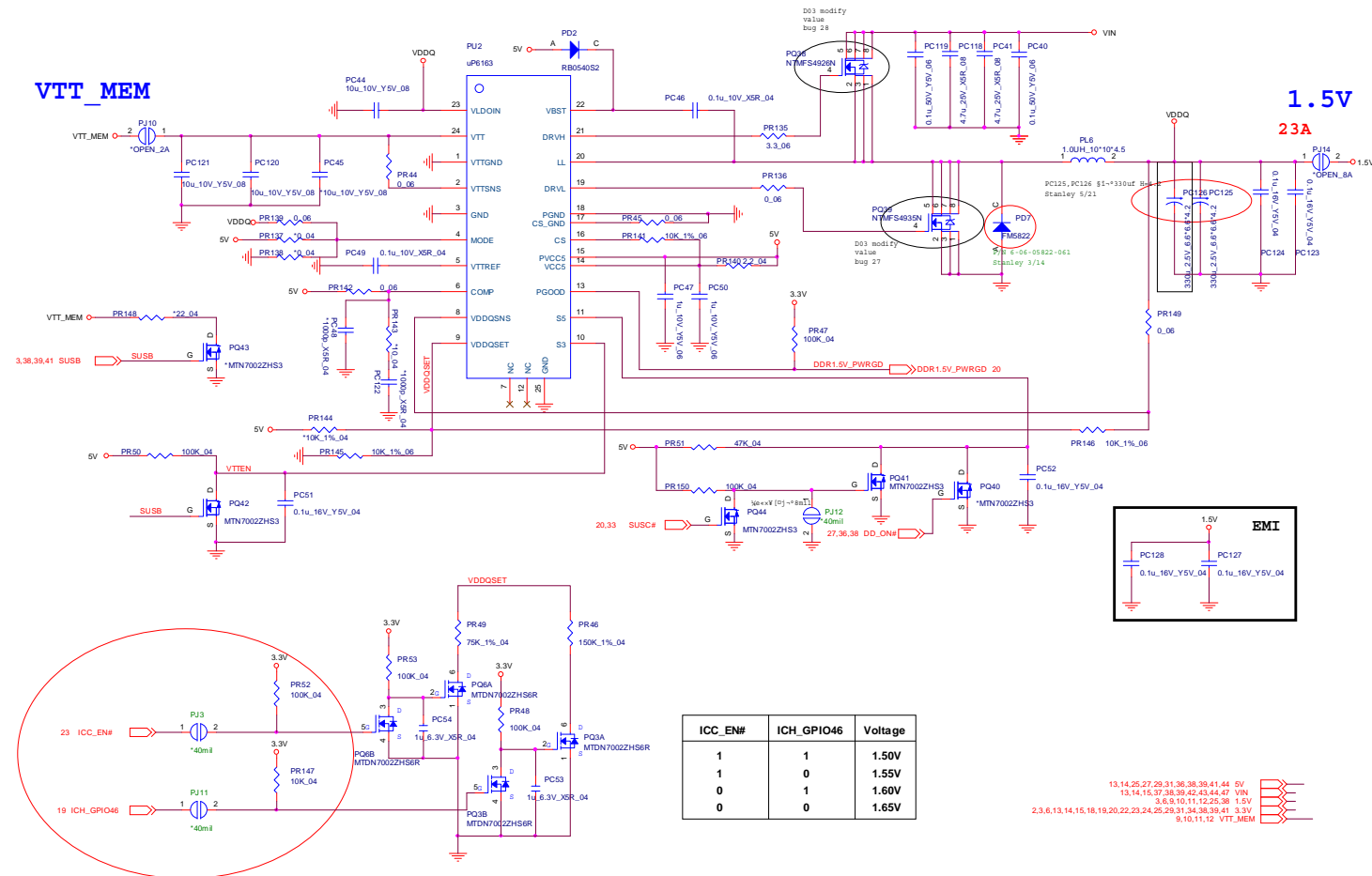
## Power 1.05VS

Sheet 39 of 54  
Power 1.05VS



2,3,6,13,14,15,18,19,20,22,23,24,25,29,31,34,38,40,41 3.3V  
13,14,15,37,38,40,42,43,44,47 VIN  
13,14,25,27,29,31,38,38,40,41,44 5V  
6,18,19,20,24,25,41 1.05VS

# Power 1.5V / VTT\_MEM

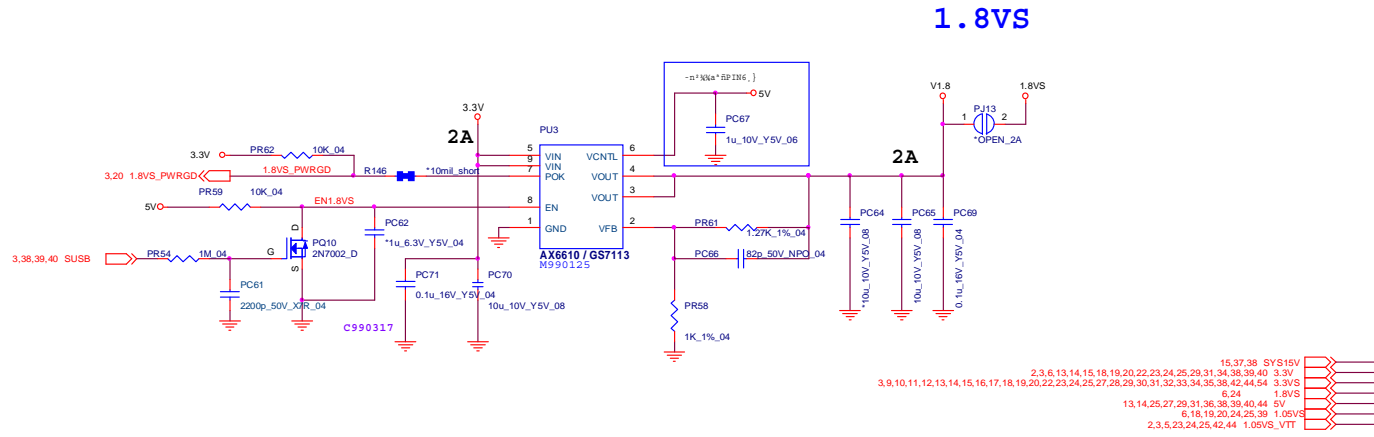


Sheet 40 of 54  
Power 1.5V /  
VTT\_MEM

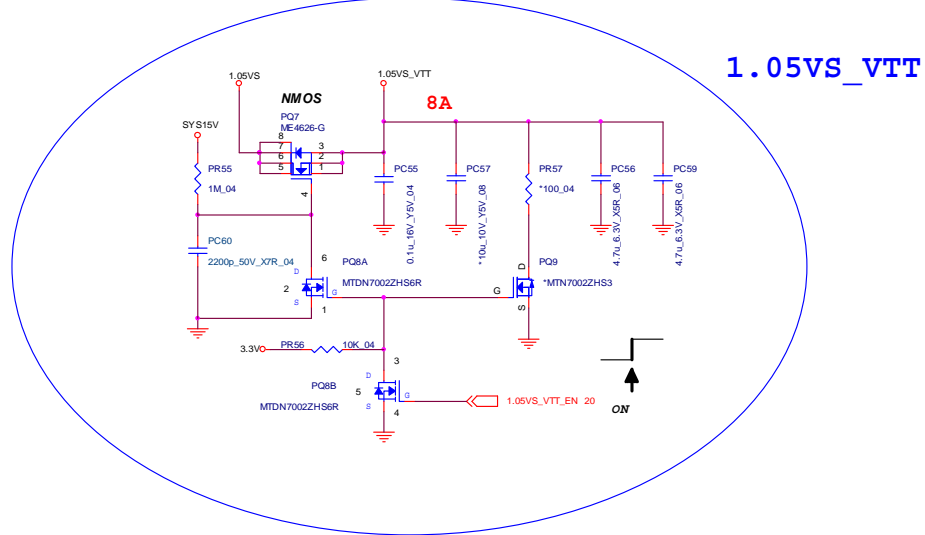
B.Schematic Diagrams

# Power 1V, 1.8VS

Sheet 41 of 54  
Power 1V, 1.8VS



D04  
1.05VS\_VTT re-design

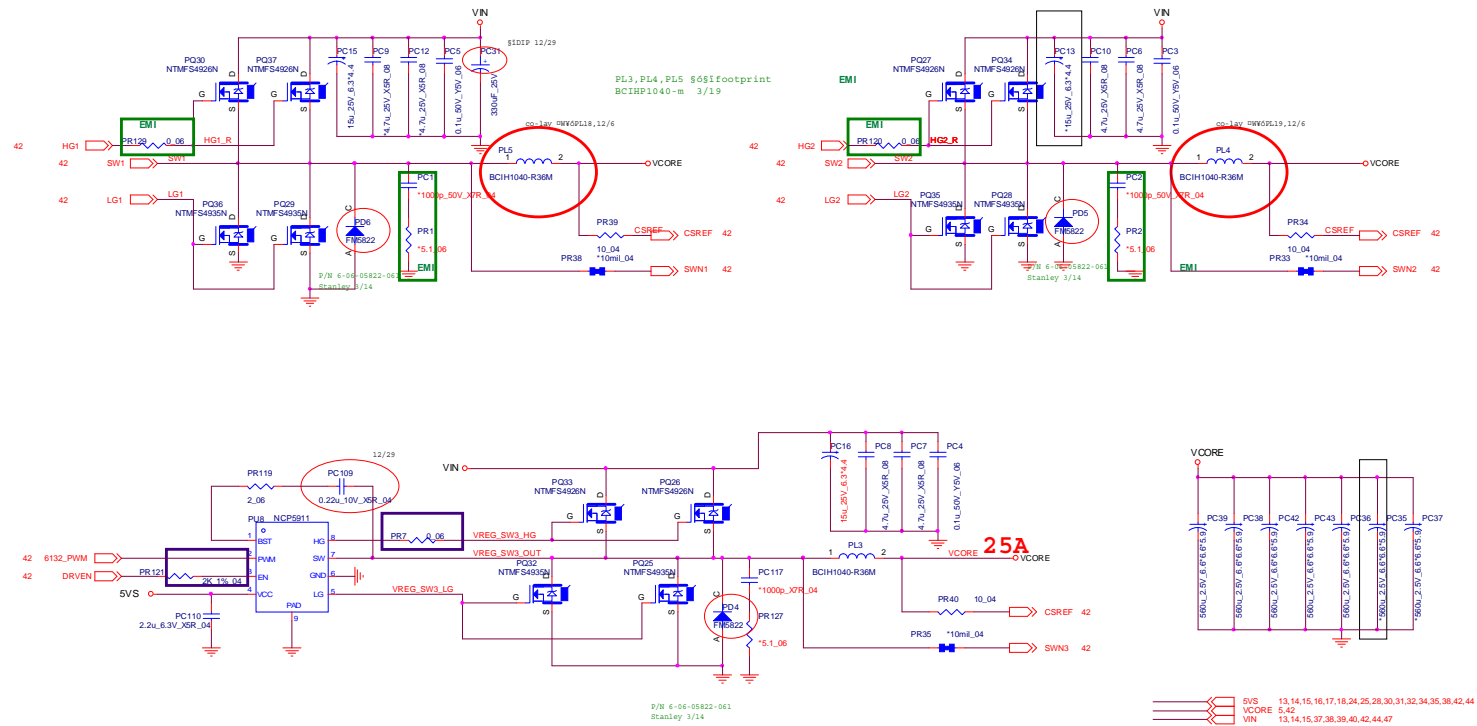




# Power V-Core2

VCORE\_2

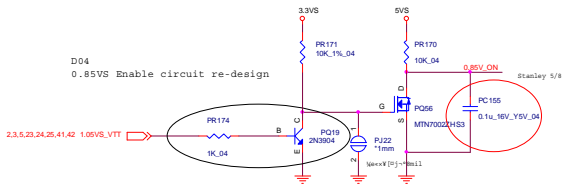
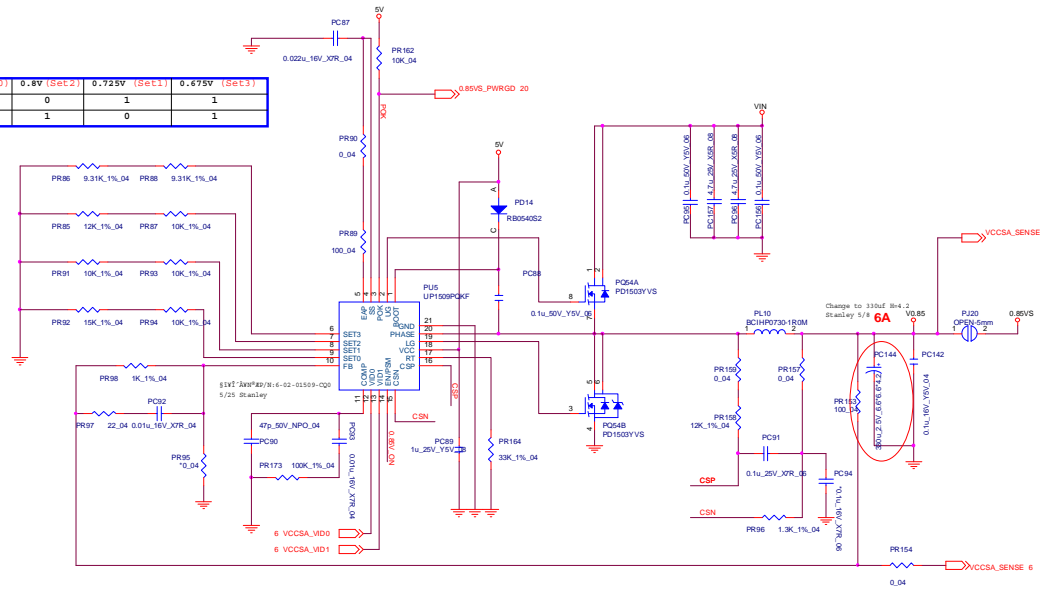
Sheet 43 of 54  
Power V-Core2



B.Schematic Diagrams

# Power 0.85VS

	0.3V (Set0)	0.8V (Set2)	0.725V (Set1)	0.675V (Set3)
VCCSA_VID0	0	0	1	1
VCCSA_VID1	0	1	0	1



- 5VS 13, 14, 15, 16, 17, 18, 24, 25, 26, 30, 31, 32, 34, 35, 38, 42, 43
- 3.3VS 3, 6, 10, 11, 12, 13, 14, 16, 18, 17, 18, 19, 20, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 38, 42, 44
- 0.85VS 13, 14, 25, 27, 29, 31, 35, 38, 39, 40, 41
- VIN 13, 14, 15, 37, 38, 39, 40, 42, 43, 47

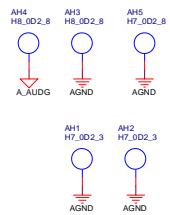
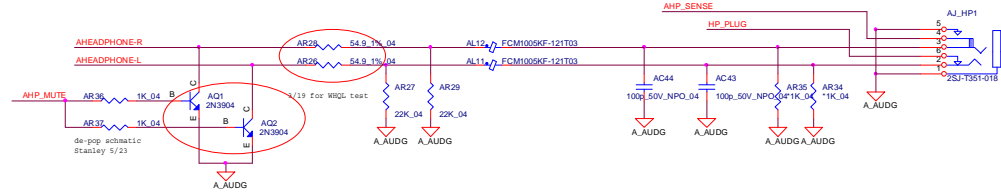
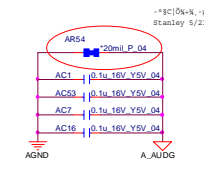
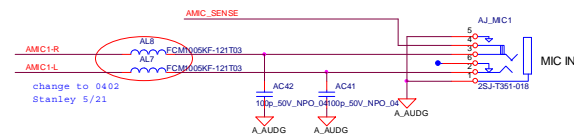
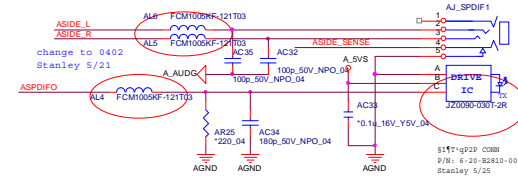
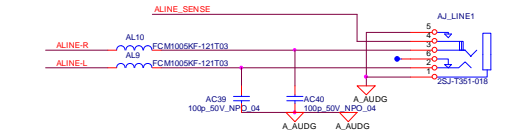
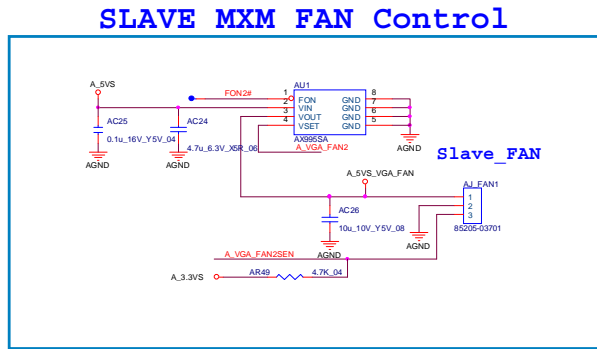
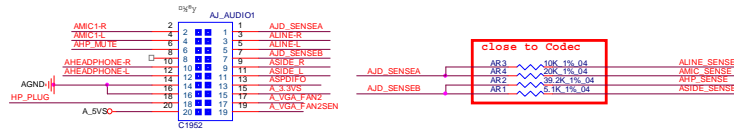
Sheet 44 of 54  
Power 0.85VS

# Schematic Diagrams

## Audio Board

B.Schematic Diagrams

Sheet 45 of 54  
Audio Board

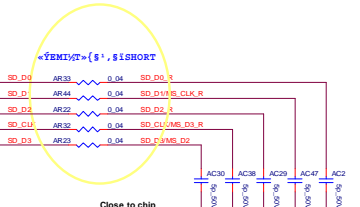
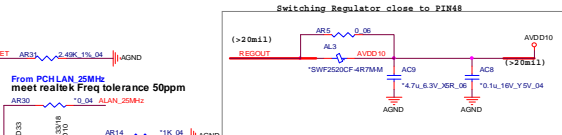
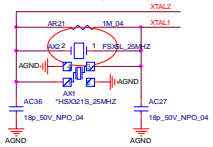




# LAN (RTL8411)

## LAN (RTL8411)

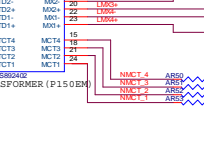
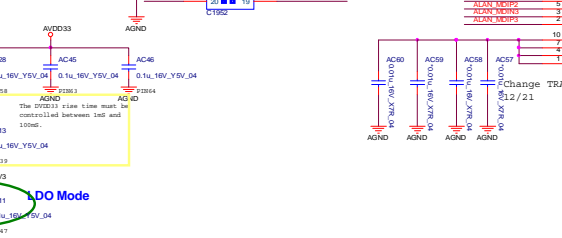
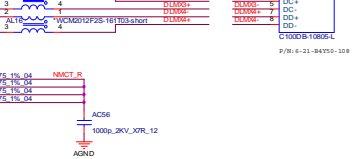
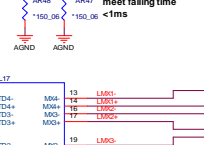
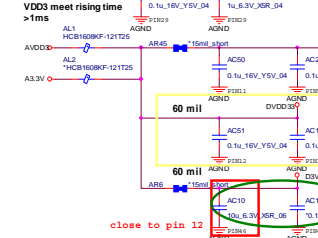
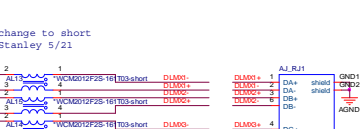
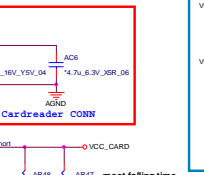
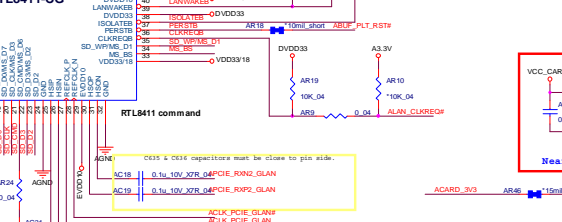
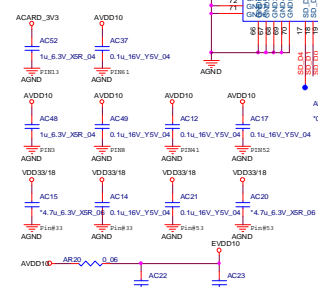
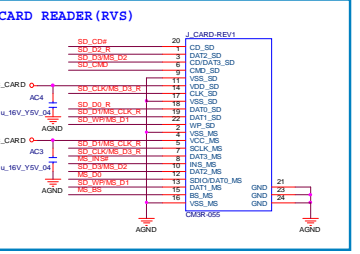
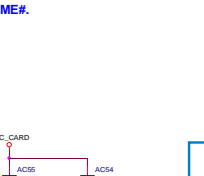
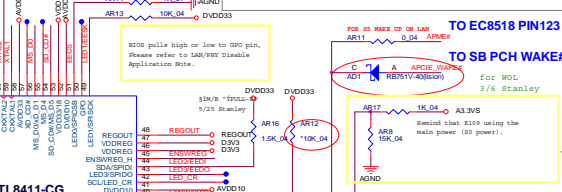
Crystal 5032 Co-lay meet realtek Freq tolerance 50ppm



Sheet 46 of 54 LAN (RTL8411)

AX2 change to 5032 footprint Stanley 5/21

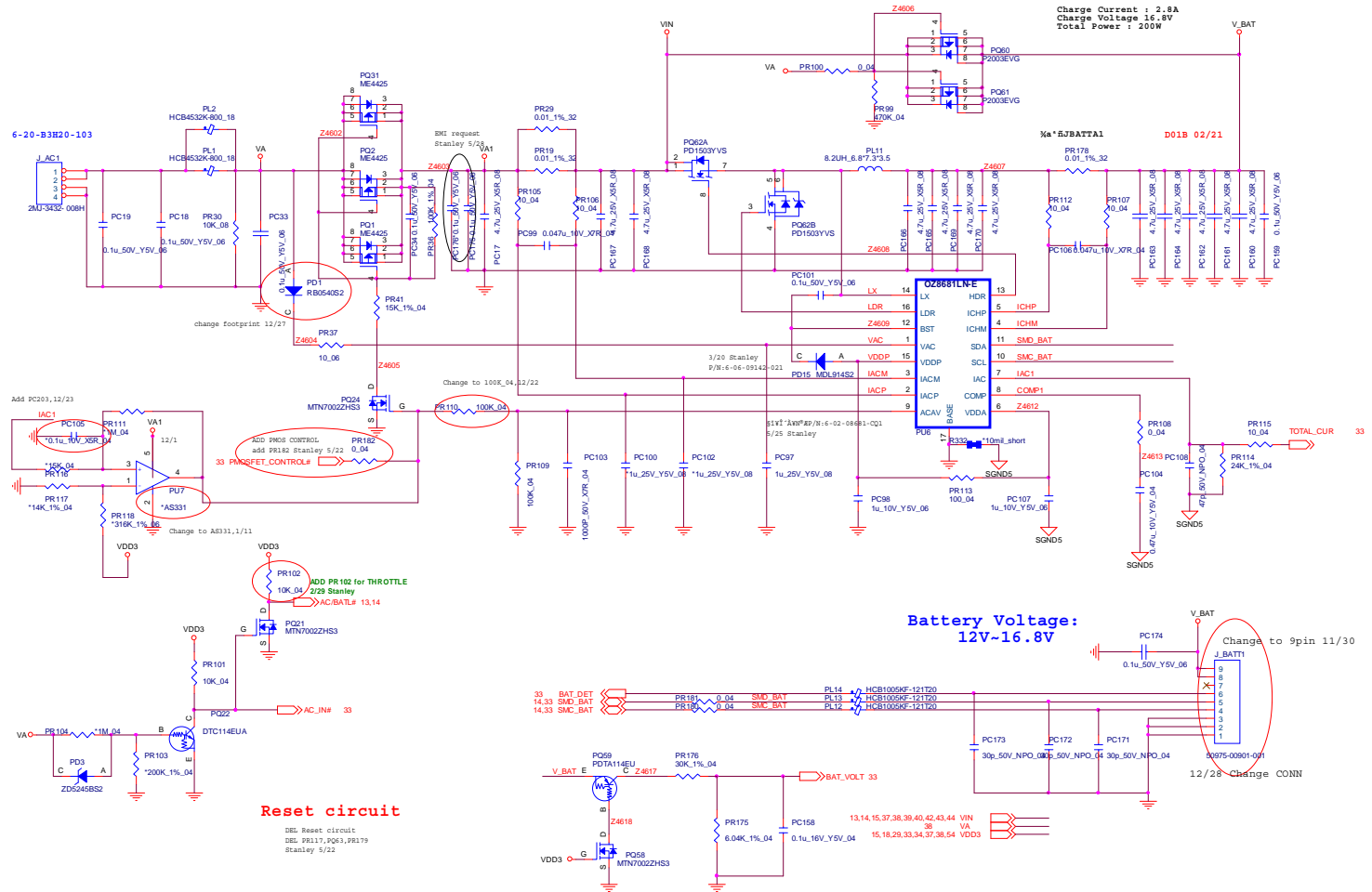
AU2 change footprint Stanley 5/23



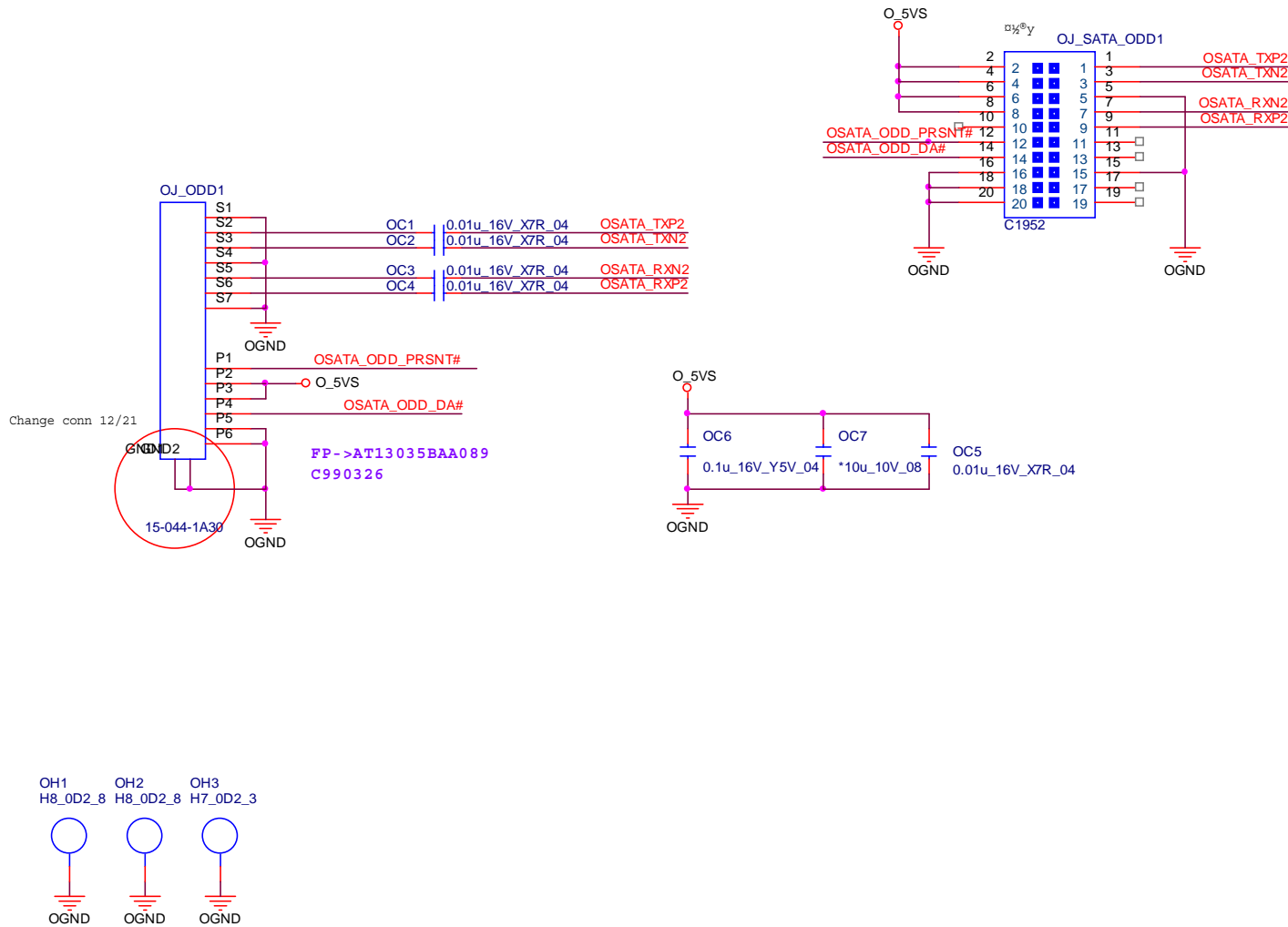
B.Schematic Diagrams

# Power Charger, DC IN

Sheet 47 of 54  
Power Charger,  
DC IN



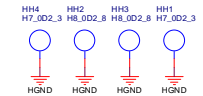
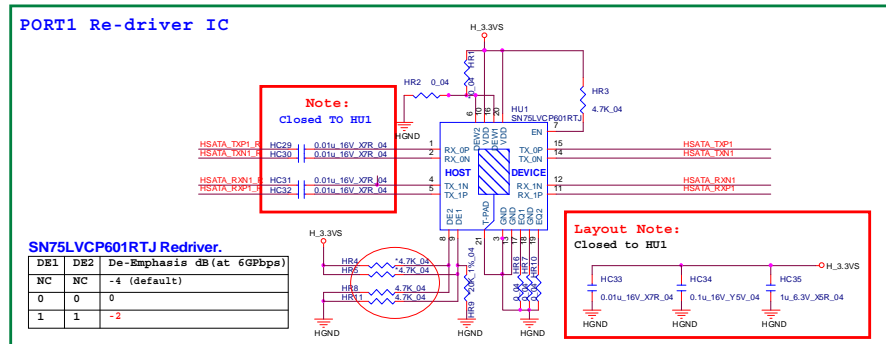
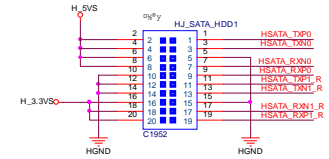
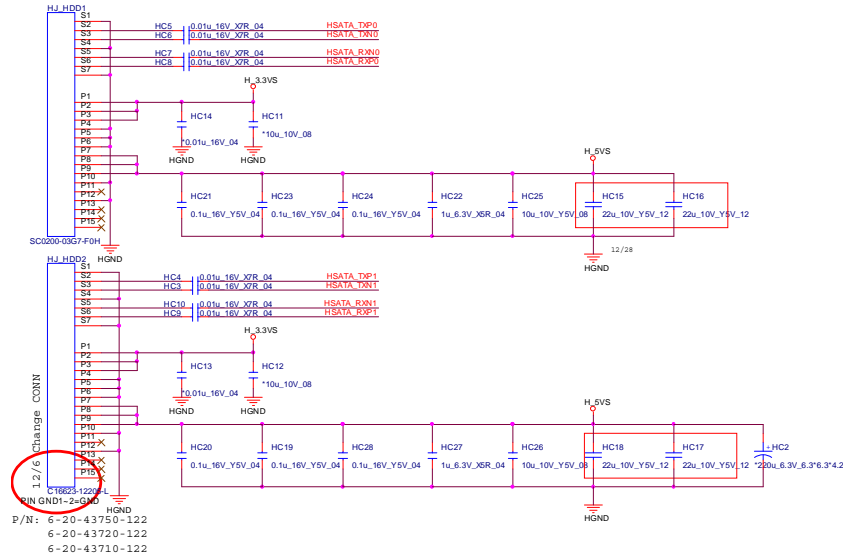
# ODD Board



Sheet 48 of 54  
ODD Board

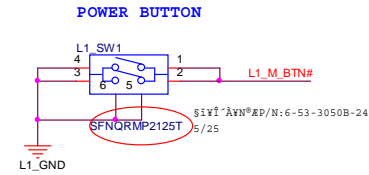
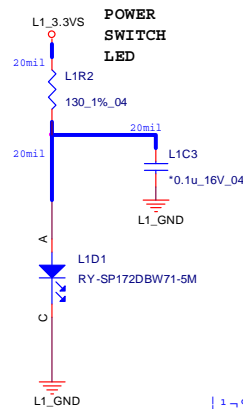
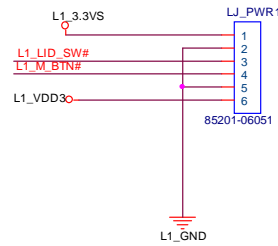
# HDD Board

Sheet 49 of 54  
HDD Board

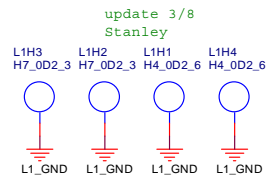
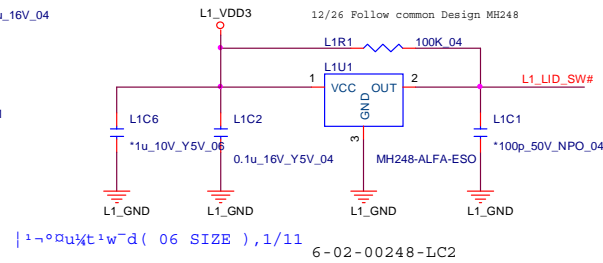


# Power Board

## POWER SWITCH B'D



## LID SWITCH IC

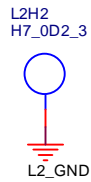
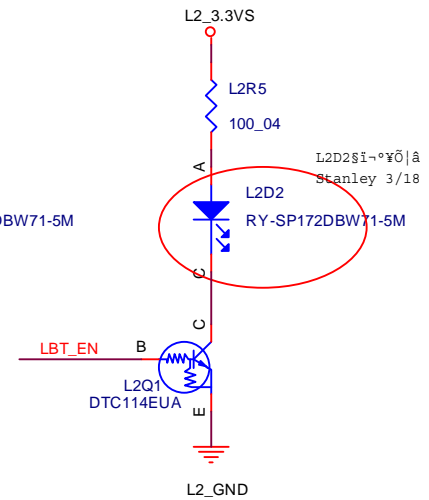
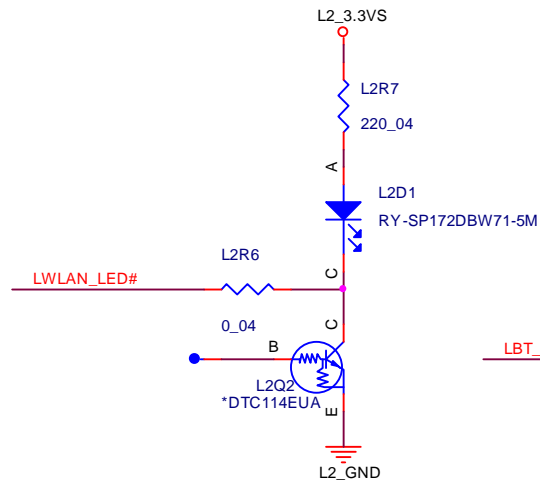
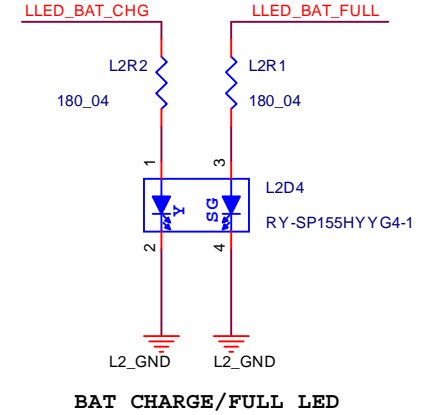
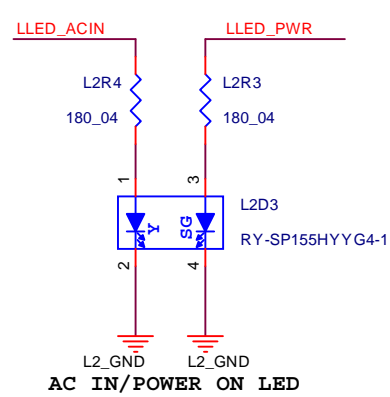
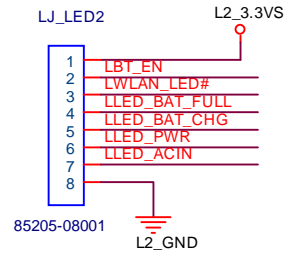


Sheet 50 of 54  
Power Board

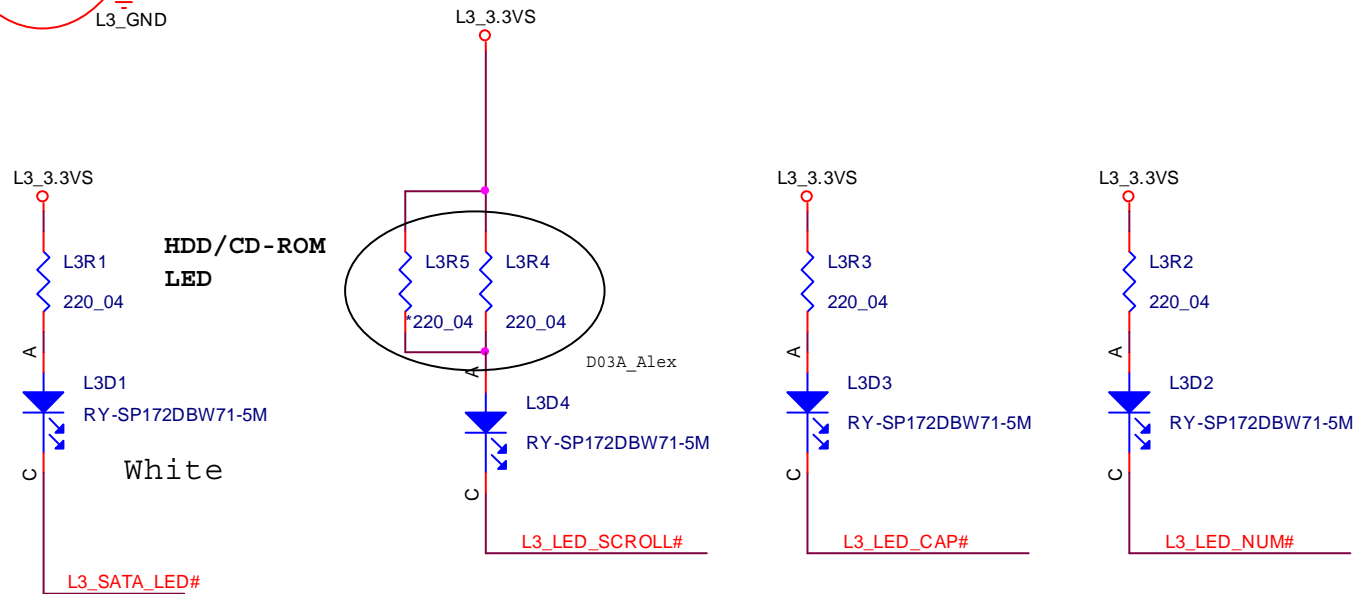
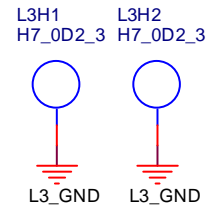
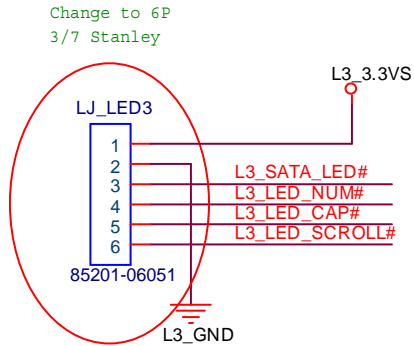
# Schematic Diagrams

## Front LED Board

Change conn(85205) 12/20



# Top LED Board



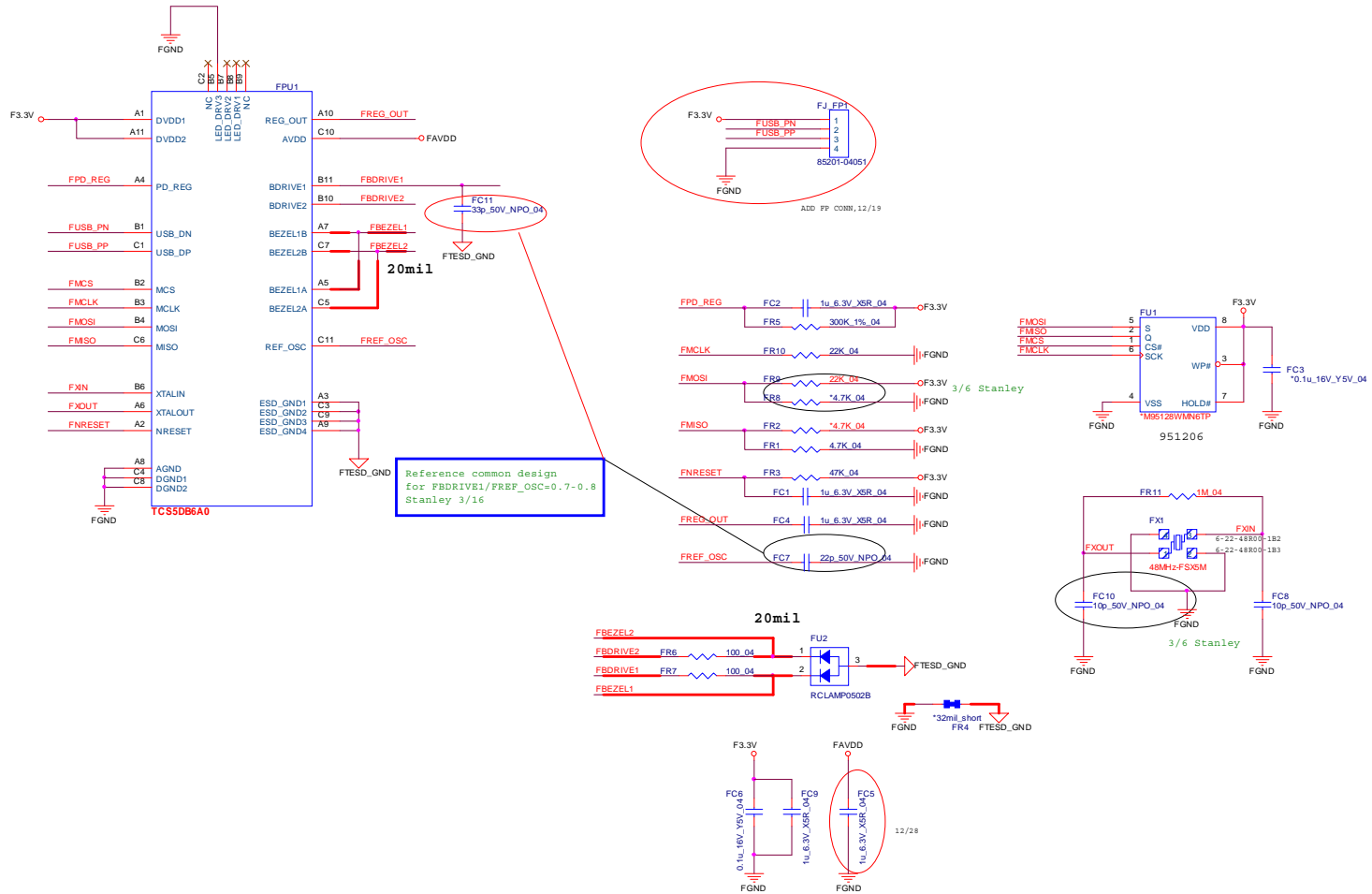
Sheet 52 of 54  
Top LED Board



# Schematic Diagrams

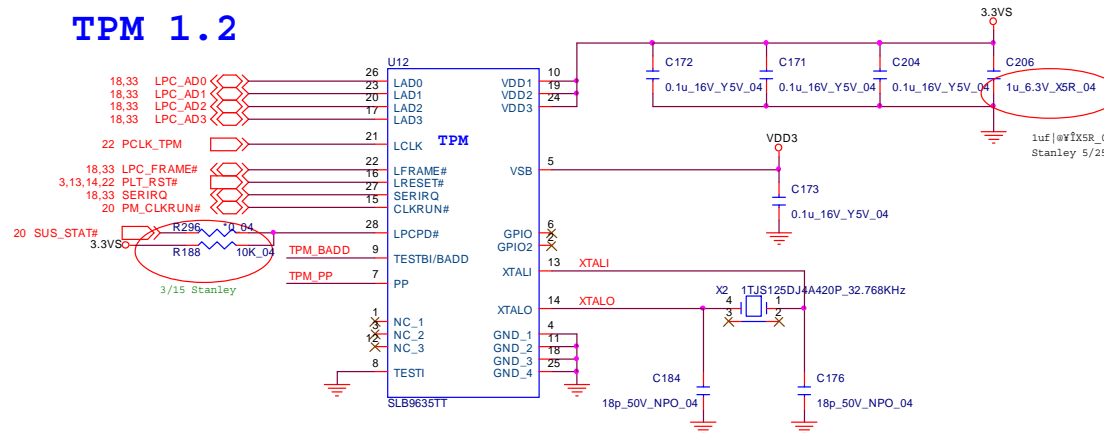
## Fingerprint Board

Sheet 53 of 54  
Fingerprint Board



# TPM

## TPM 1.2

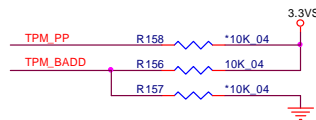
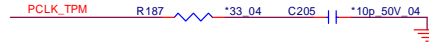


Asserted before entering S3

LPC reset timing:

LPCPD# inactive to LRST# inactive 32-96us

TPM_PP	HI: ACCESS LOW: NORMAL ( Internal PD )
TPM_BADD	HI: 4E/ 4F H LOW: 2E/ 2F H



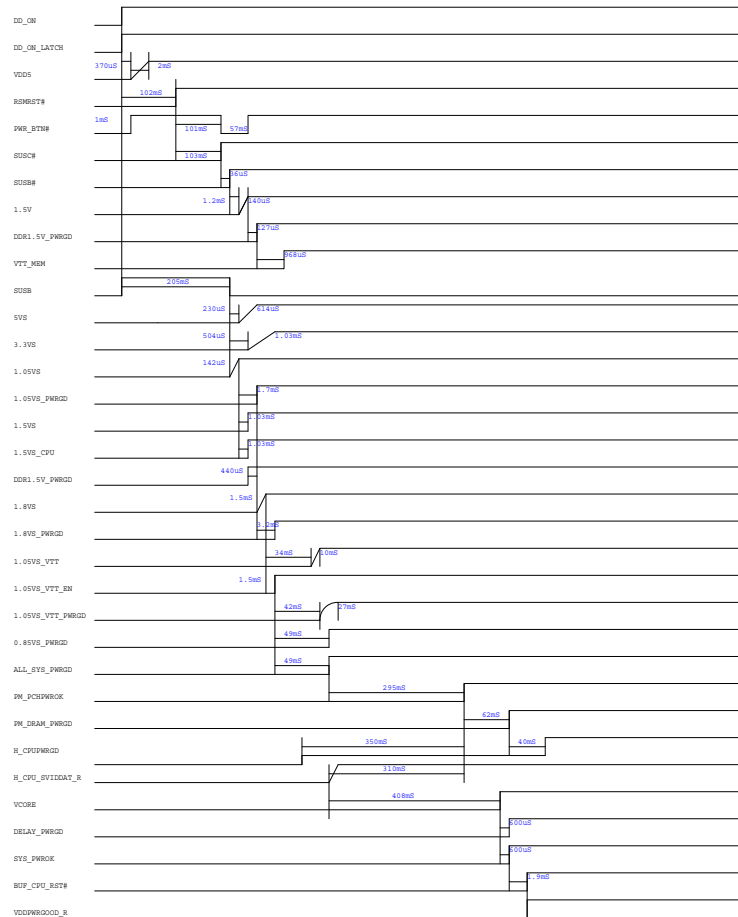
3,9,10,11,12,13,14,15,16,17,18,19,20,22,23,24,25,27,28,29,30,31,32,33,34,35,38,42,44 3.3VS

Sheet 54 of 54  
TPM

# Power On Sequence

Sheet 55 of 54  
Power On  
Sequence

P370EM\_D01 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](http://www.clevo.com.tw) and point to **E-Services** and click **E-Channel**.
2. Use your user ID and password to access the appropriate download area (BIOS), and download the latest BIOS files (the BIOS file will be contained in a batch file that may be run directly once unzipped) for your computer model (see sidebar for important information on BIOS versions).

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

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

## Set the computer to boot from the external drive

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



### BIOS Version

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

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

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

## BIOS Update

---

### Use the flash tools to update the BIOS

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

**C:\> Flash.bat**

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

### Restart the computer (booting from the HDD)

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

### Your computer is now running normally with the updated BIOS

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