

SERVICE MANUAL

P370SM

notebook



Notebook Computer

P370SM

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 *P370SM* 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:

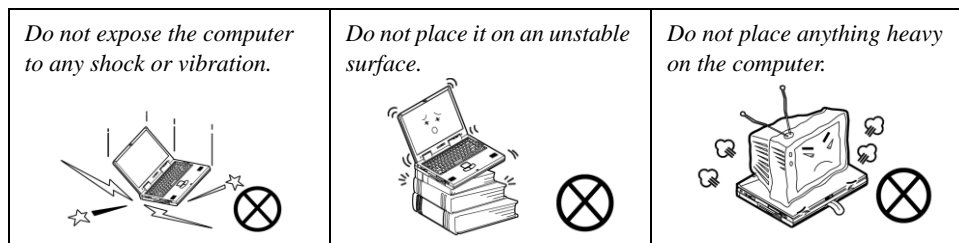
1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. 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

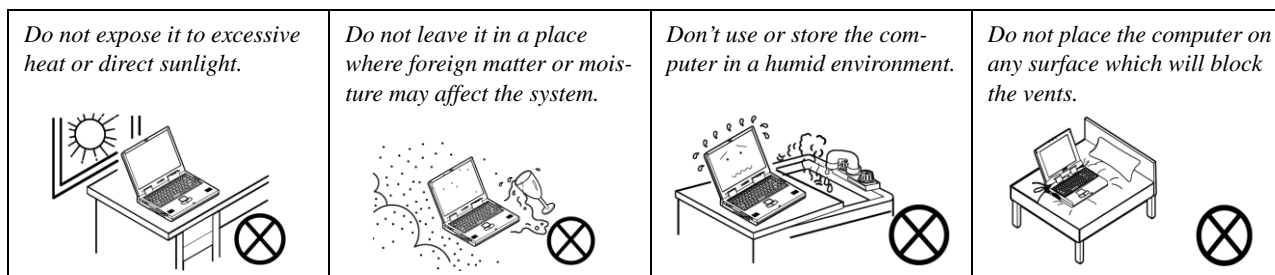
Instructions for Care and Operation

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

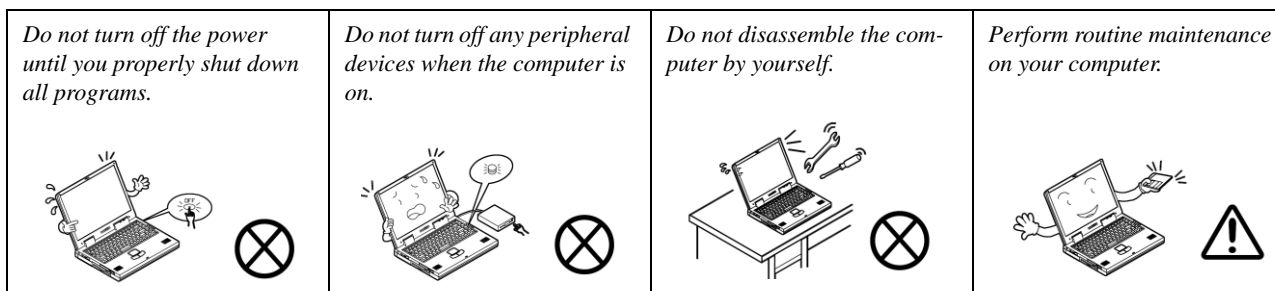
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



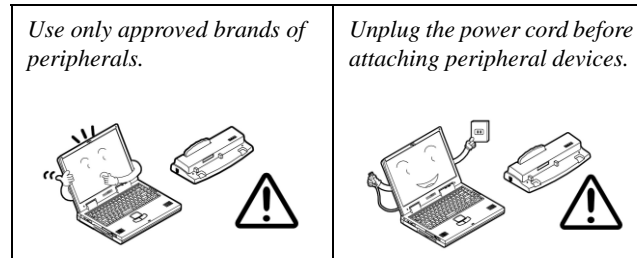
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.



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.



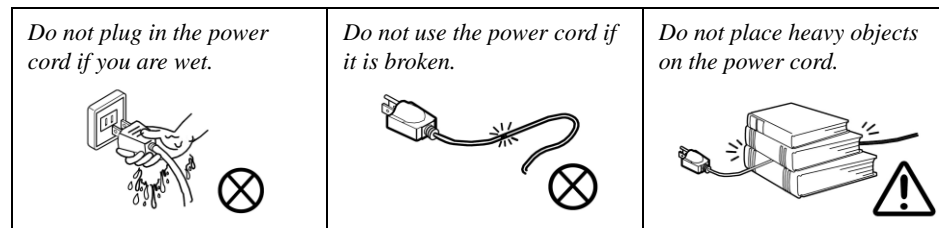
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



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.

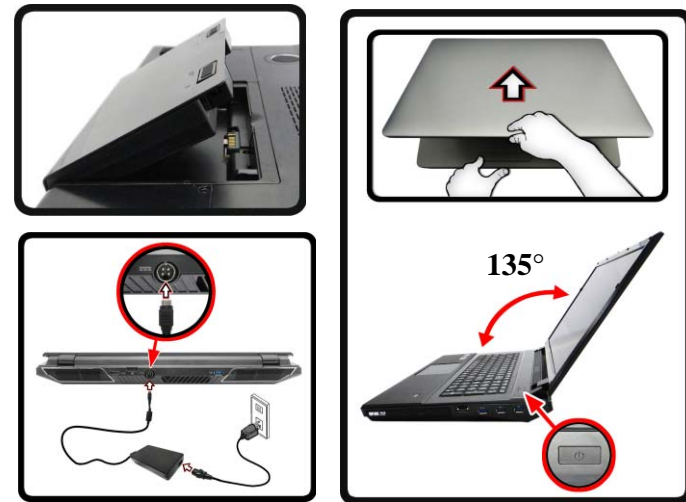


Figure 1
Computer with AC/DC Adapter Plugged-In /
Opening the Lid/LCD

Contents

Introduction1-1

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

Disassembly2-1

Overview	2-1
Maintenance Tools	2-2
Connections	2-2
Maintenance Precautions	2-3
Disassembly Steps	2-4
Removing the Battery	2-5
Removing the Optical (CD/DVD) Device	2-6
Removing the Hard Disk Drive	2-7
Removing the Keyboard	2-11
Removing the System Memory (RAM)	2-13
Removing and Installing the Processor	2-16
Removing the VGA-1 Card	2-19
Removing the VGA-2 Card	2-21
Installing the VGA-1 Card	2-23
Installing the VGA-2 Card	2-25
Removing the Wireless LAN Module	2-27

Part ListsA-1

Part List Illustration Location	A-2
Top	A-3
Bottom	A-4
LCD with CCD	A-5
Mainboard	A-6
HDD	A-7
2nd HDD	A-8
DVD	A-9
COMBO	A-10

Schematic Diagrams.....B-1

System Block Diagram	B-2
Processor 1/7 - DMI, FDI, PEG	B-3
Processor 2/7 - CLK, MISC	B-4
Processor 3/7 - DDR3	B-5
Processor 4/7 - POWER	B-6
Processor 5/7 - GFX PWR	B-7
Processor 6/7 - GND	B-8
Processor 7/7 - RSVD	B-9
DDR3 CHA SO-DIMM 0	B-10
DDR3 CHA SO-DIMM 1	B-11
DDR3 CHB SO-DIMM 0	B-12
DDR3 CHB SO-DIMM 1	B-13
MXM 3.0 MASTER	B-14
MXM 3.0 SLAVE	B-15
Panel, Inverter, eDP	B-16
Display Port	B-17
HDMI	B-18
PCH 1/9 - RTC, HDA, SATA	B-19
PCH 2/9 - PCIE, SMBUS, CLK	B-20
PCH 3/9 - DMI, FDI, PWRGRD	B-21

Preface

PCH 4/9 - LVDS, DDI, CRT	B-22
PCH 5/9 - PCI, USB, RSVD	B-23
PCH 6/9 - GPIO, CPU	B-24
PCH 7/9 - Power	B-25
PCH 8/9 - Power	B-26
PCH 9/9 - GND	B-27
USB+eSATA, USB Charging	B-28
GEN-III SATA HDD Re-driver	B-29
BT, CCD+MIC, MINI PCIE	B-30
Fan Control	B-31
Codec Realtek ALC892	B-32
APA2607 / TPA2008D2	B-33
KBC-ITEIT8518E	B-34
mSATA, Fan, TP, FP, MULTI CON	B-35
Backlight Keyboard	B-36
USB3.0	B-37
VDD3, VDD5	B-38
5VS, 3.3VS, 1.5VS	B-39
Power 1.05VS	B-40
Power 1.5V / VTT_MEM	B-41
Power 1V, 1.8VS	B-42
Power V-Core1	B-43
Power V-Core2	B-44
Power 0.85VS	B-45
Audio Board	B-46
LAN (RTL8411)	B-47
Power Charger, DC IN	B-48
ODD Board	B-49
HDD Board	B-50
Power Board	B-51
Front LED Board	B-52
Top LED Board	B-53

Fingerprint Board	B-54
TPM	B-55
Power On Sequence	B-56


Updating the FLASH ROM BIOS..... C-1

Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **P370SM** 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 **P370SM** 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 LCD

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 765M PCIe Video Card

2GB GDDR5 Video RAM on board

Microsoft DirectX® 11.1 Compatible

Supports nVIDIA® SLI Technology

NVIDIA® GeForce GTX 780M PCIe Video Card

4GB GDDR5 Video RAM on board

Microsoft DirectX® 11.1 Compatible

Supports nVIDIA® SLI Technology

Pointing Device

Models A & C:

Built-in Touchpad (scrolling key functionality integrated)

Model B:

Built-in **Illuminated** 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)

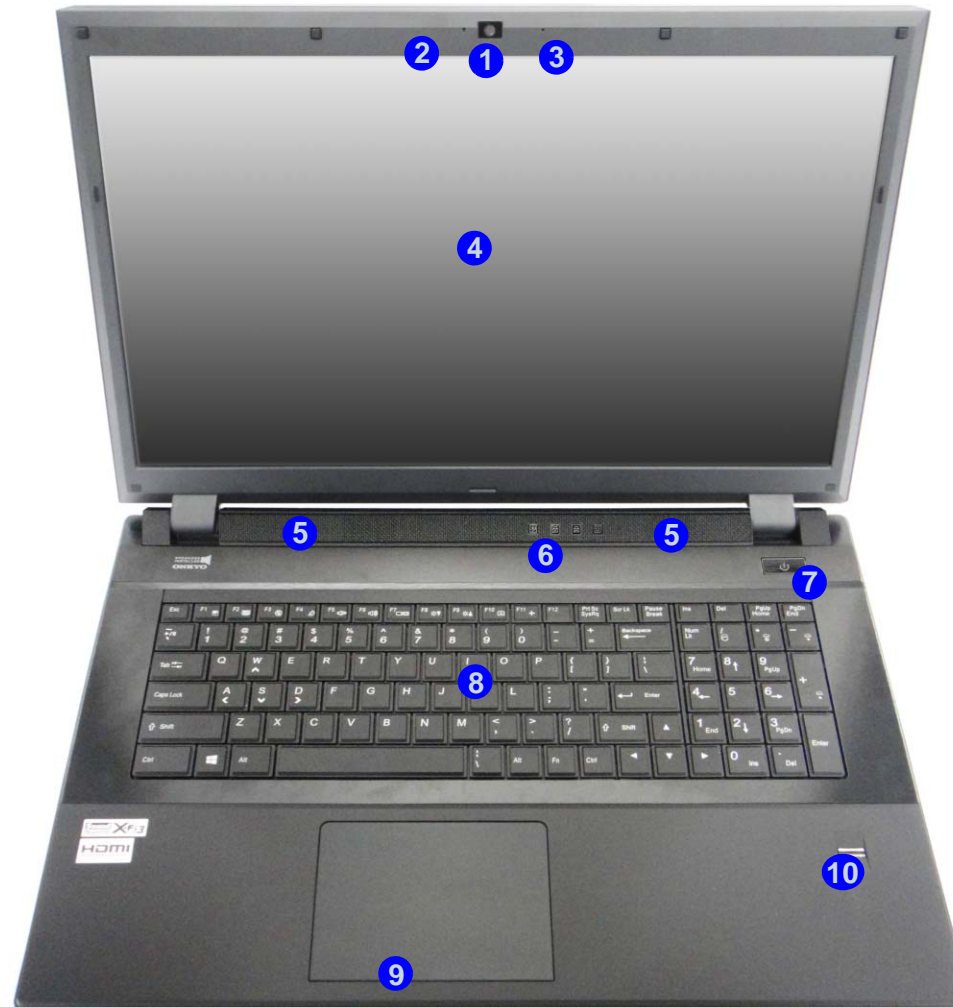
Around 3.9kg with 1 Video Card, Battery and
ODD

Introduction

Figure 1
Top View

1. Built-In PC Camera
2. PC Camera LED
3. Built-In Microphone
4. LCD
5. Speakers
6. LED Status Indicators
7. Power Button
8. Keyboard
9. ClickPad and Buttons
10. 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. 2 * USB 3.0 Port
4. DC-In Jack



External Locator - Bottom View

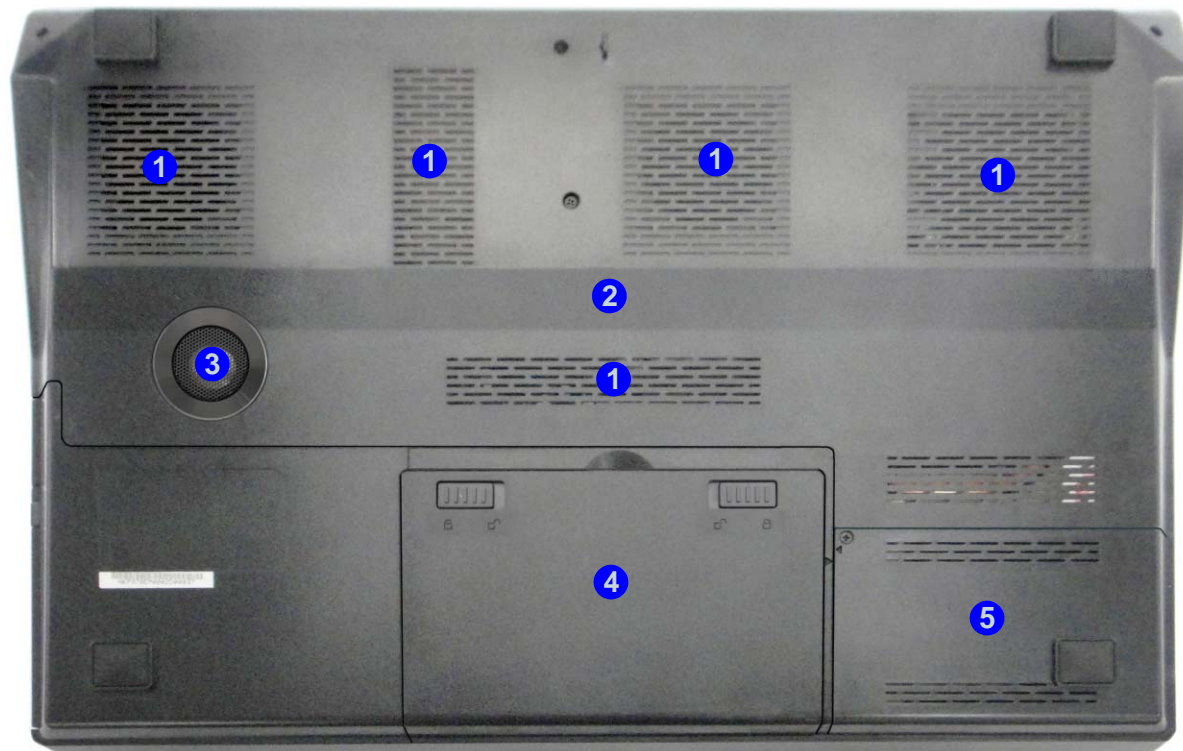


Figure 6
Bottom View

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



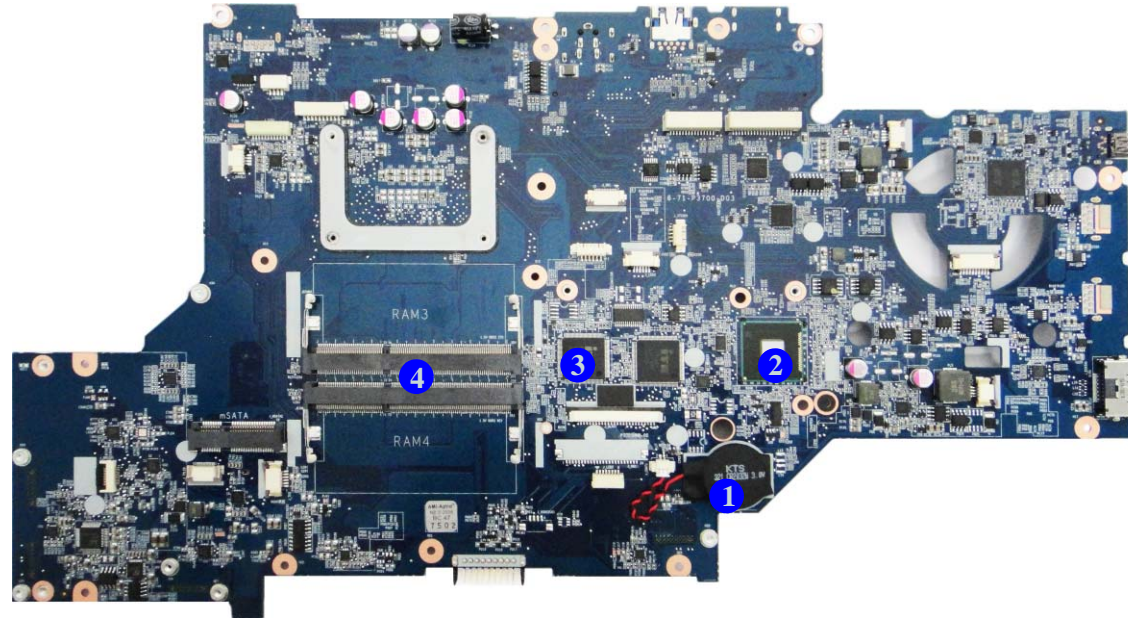
Overheating

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

Figure 7
**Mainboard Top
Key Parts**

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

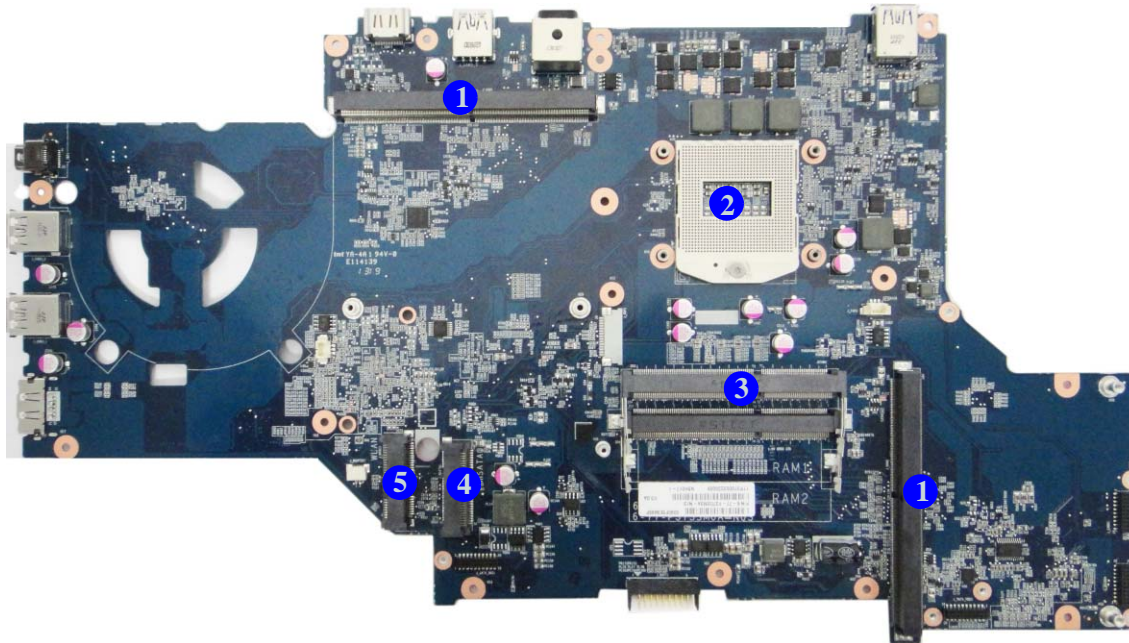
Mainboard Overview - Top (Key Parts)



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)

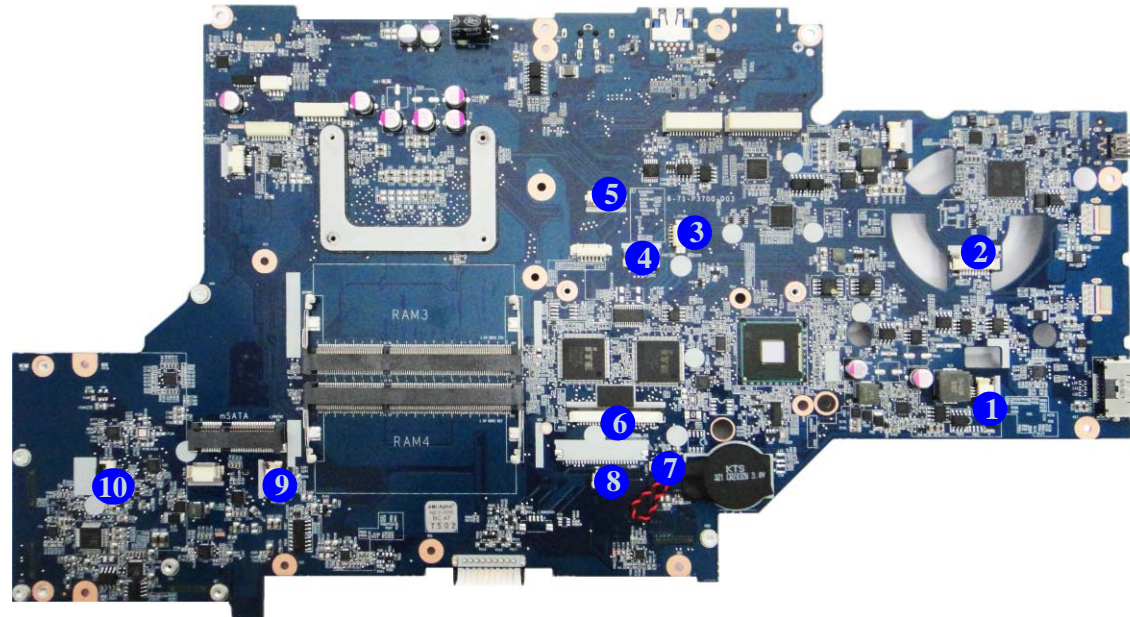


Introduction

Figure 9
**Mainboard Top
Connectors**

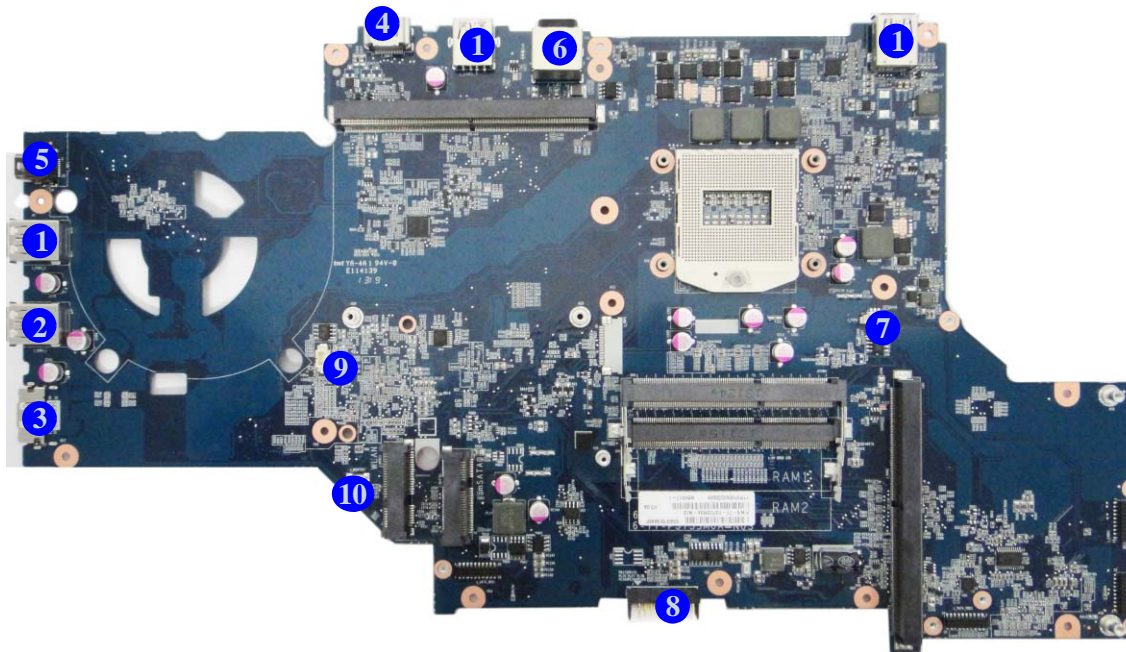
Mainboard Overview - Top (Connectors)

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 *P370SM* series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

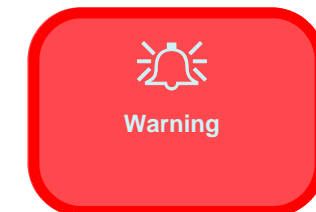
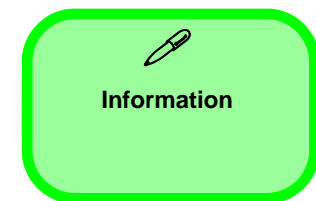
We suggest you completely review any procedure before you take the computer apart.

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](#)

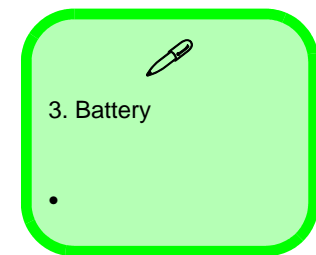
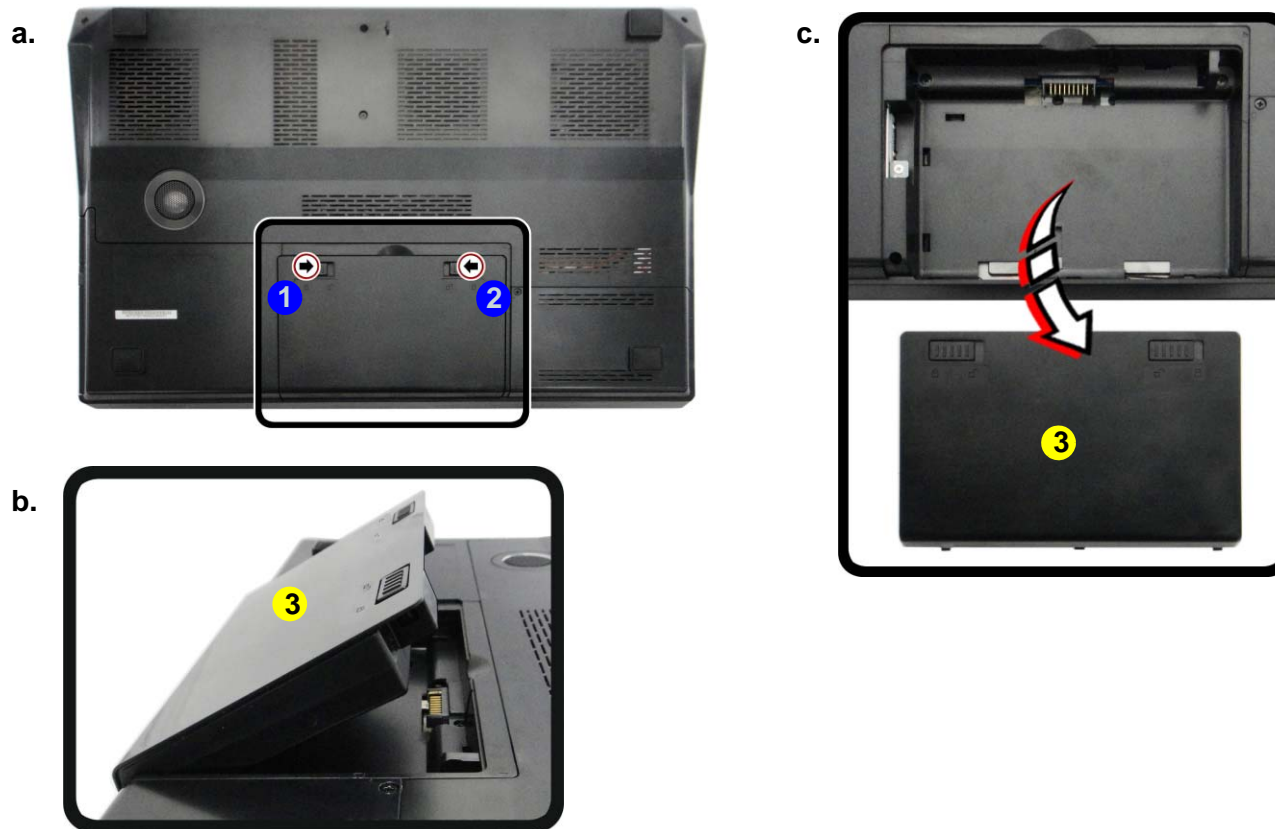
Removing the Battery

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



Blu-Ray Device Bezel Removal

Note that some Blu-Ray modules (e.g. Pioneer) have a small piece of mylar inserted in the left side (as viewed front on) of the bezel cover; in order to prevent the bezel cover of the module from being removed accidentally. If you need to replace the bezel cover, you will need to use a screwdriver to ease out and remove the mylar before attempting to remove the bezel cover. You will need to re-insert the mylar when replacing the bezel cover.

Removing the Hard Disk Drive

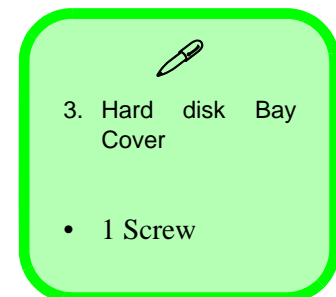
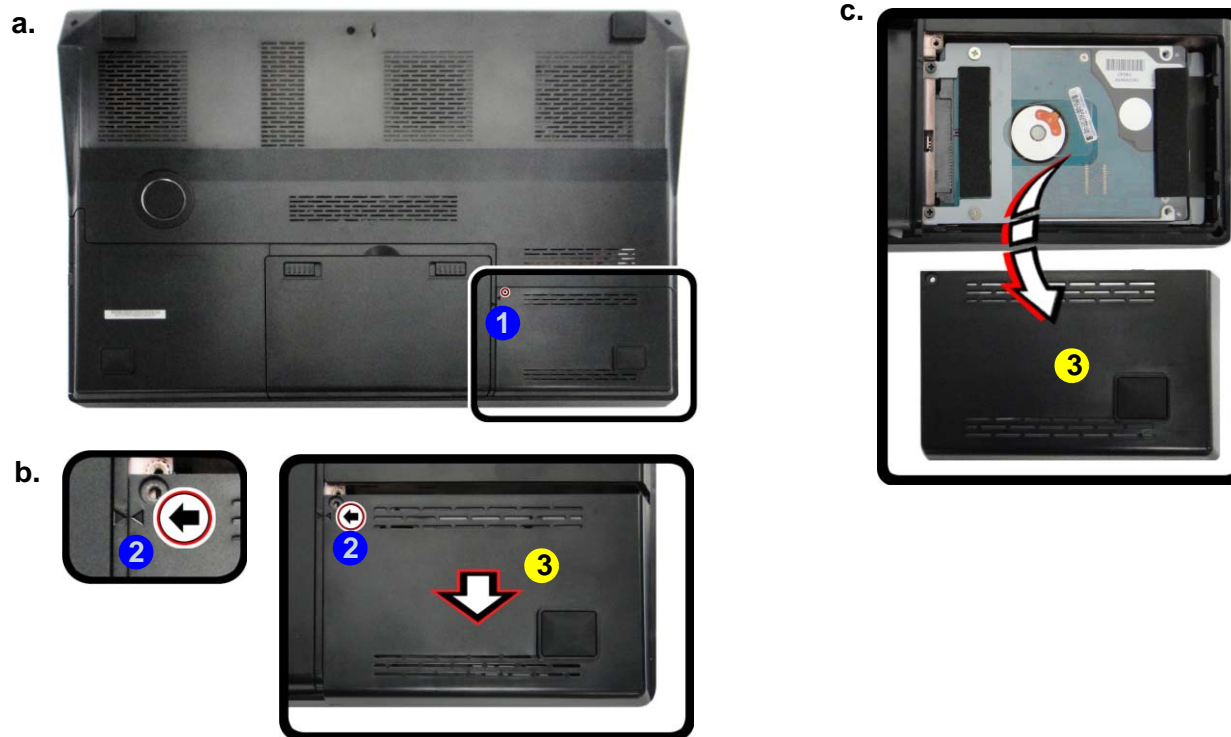
The hard disk drive is mounted in a removable case and can be taken out to accommodate other 2.5" SATA hard disk drives with a height of 9.5mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**)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

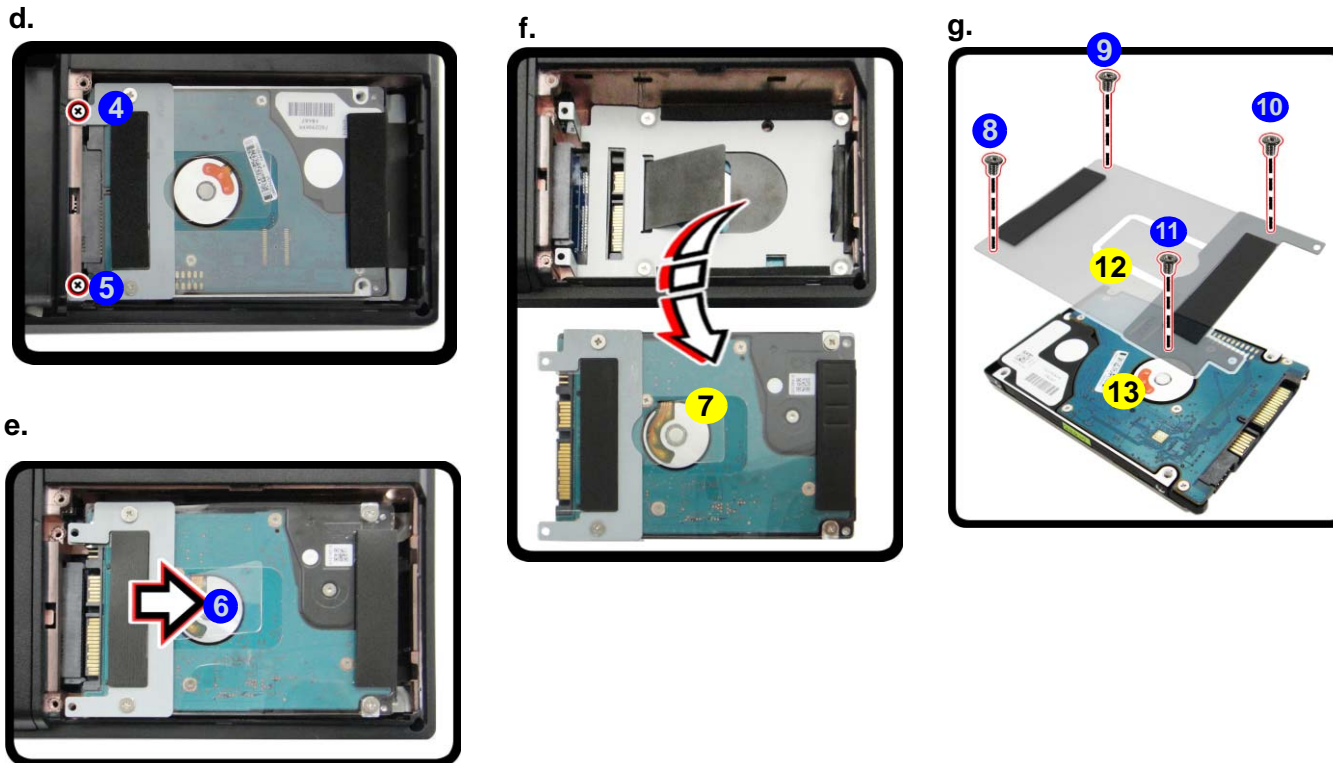


Disassembly

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).

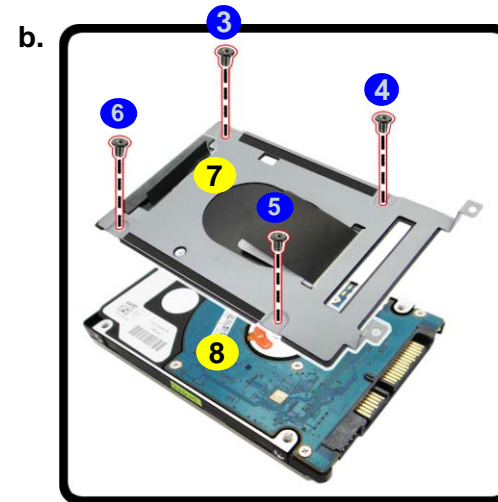
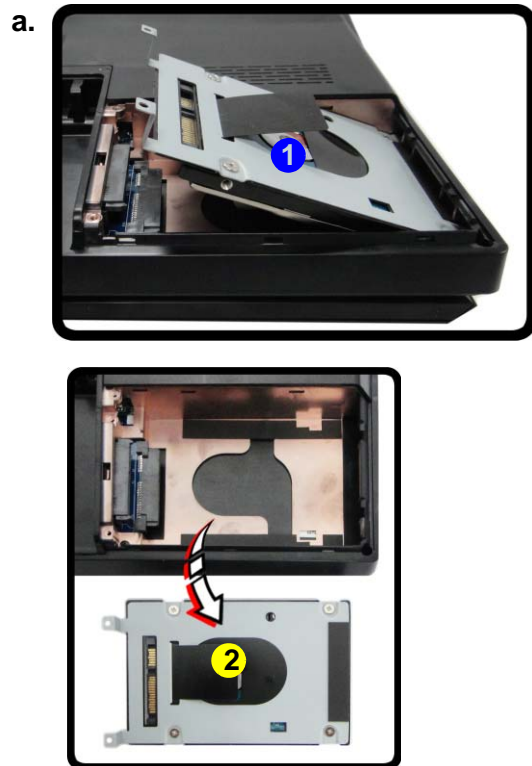


Figure 5
**Secondary HDD
 Assembly Removal**

- 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

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.

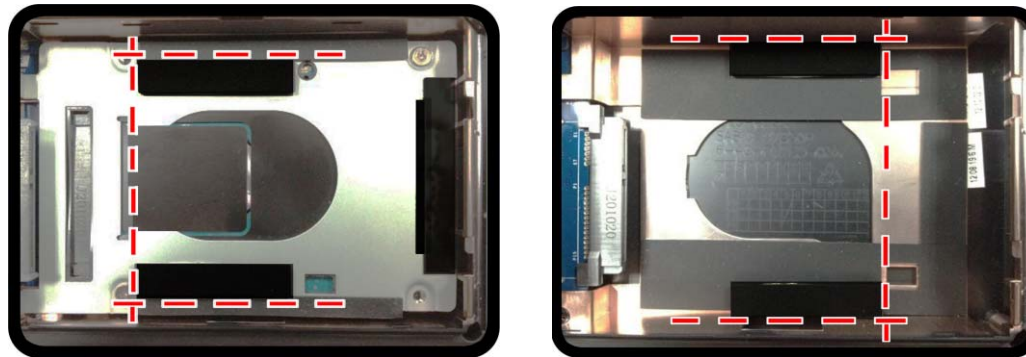


Figure 6
Foam Rubber
Insert for 7mm(H)
HDDs

- 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).

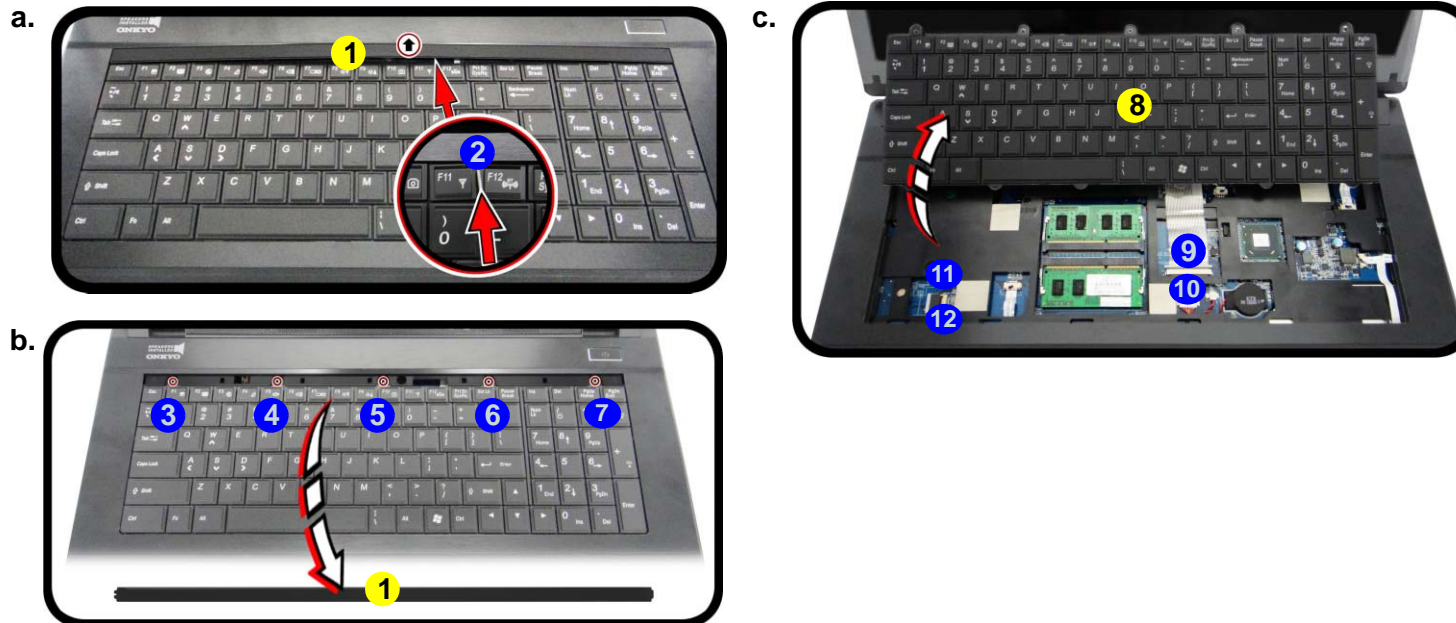
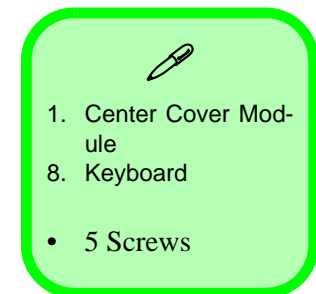


Figure 7
Keyboard
Removal

- 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.

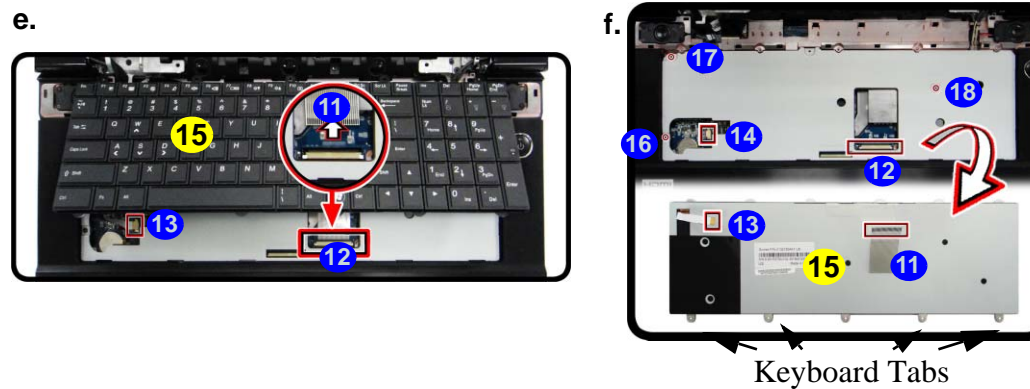


Disassembly

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)

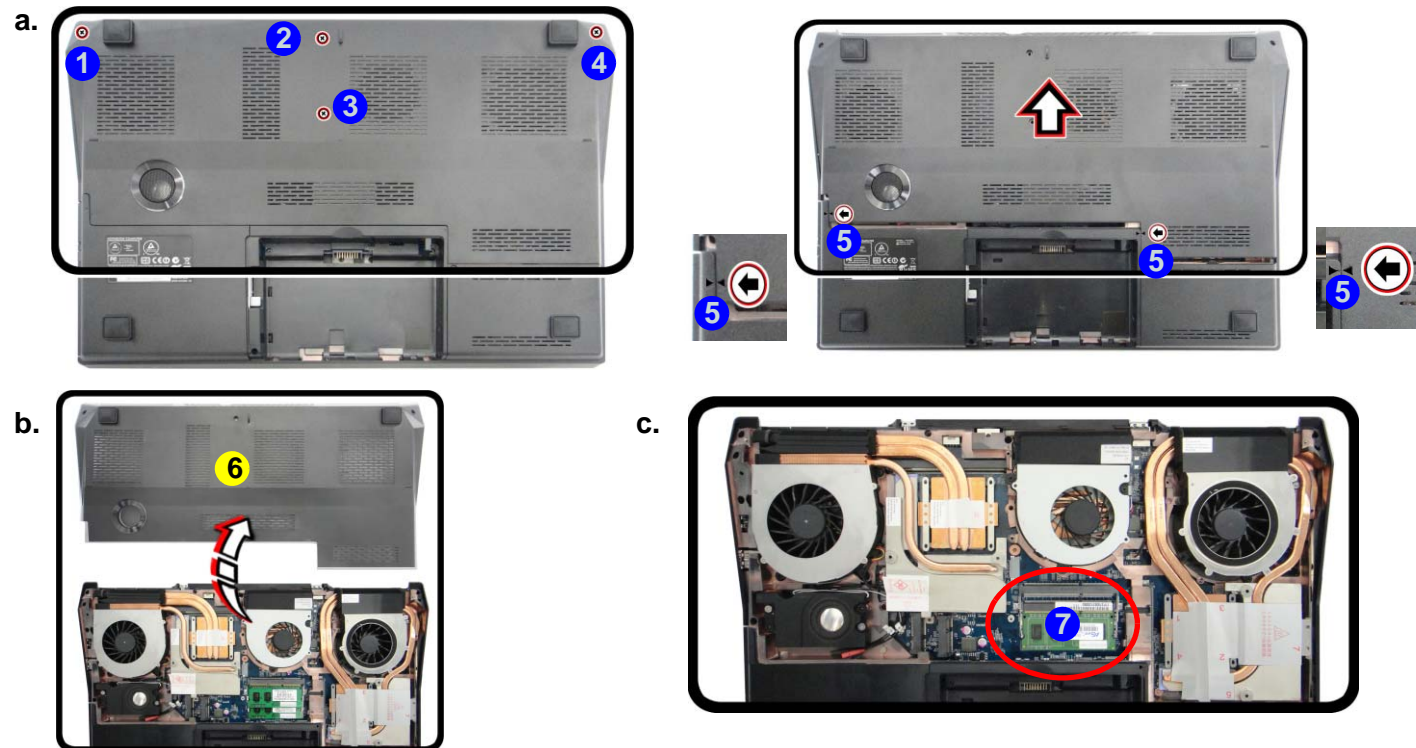
The computer has three memory sockets for 204 pin Small Outline Dual In-line Memory Modules (SO-DIMM) DDR III (DDR3) supporting 1600 MHz. The main memory can be expanded up to 32GB. The total memory size is automatically detected by the POST routine once you turn on your computer.

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

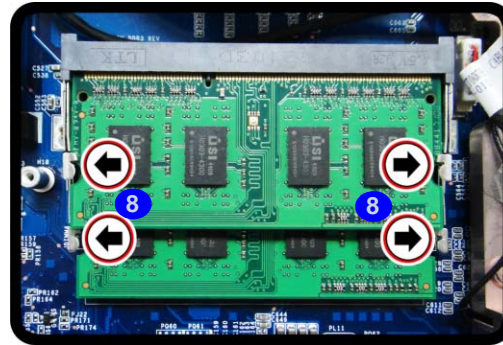
Disassembly

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

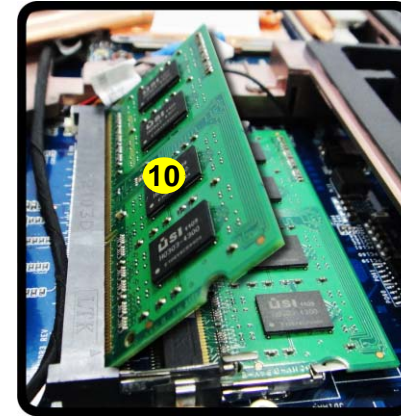
- d. Gently pull the release latch in the direction indicated.
- e. Remove the module.

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.



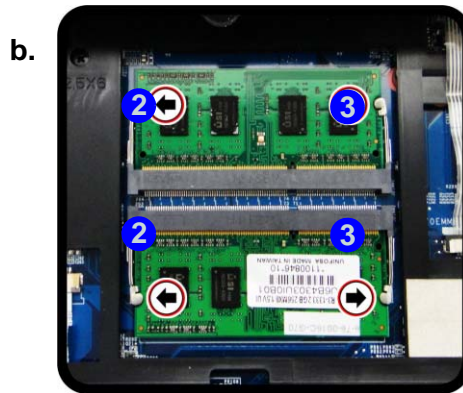
8. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
9. The module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the socket as it will go. **DO NOT FORCE** the module; it should fit without much pressure.
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

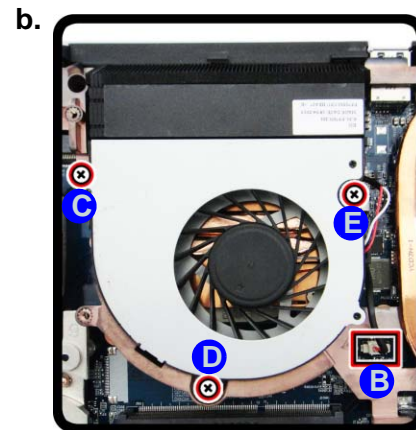
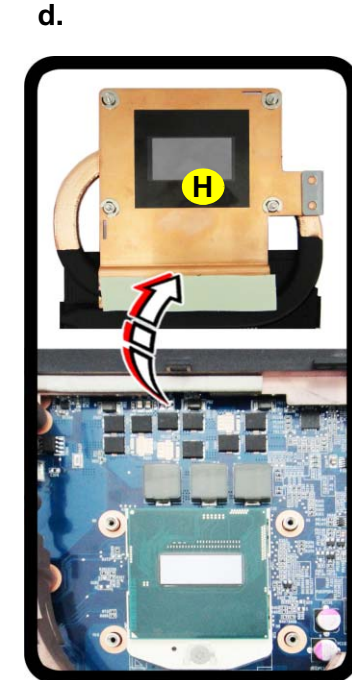
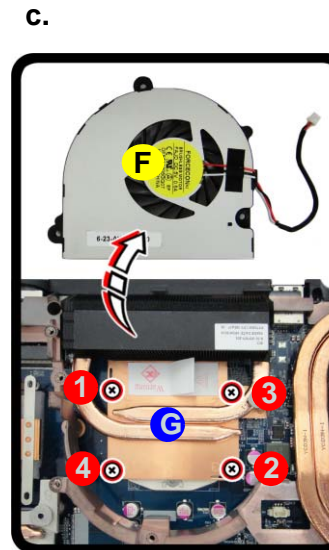
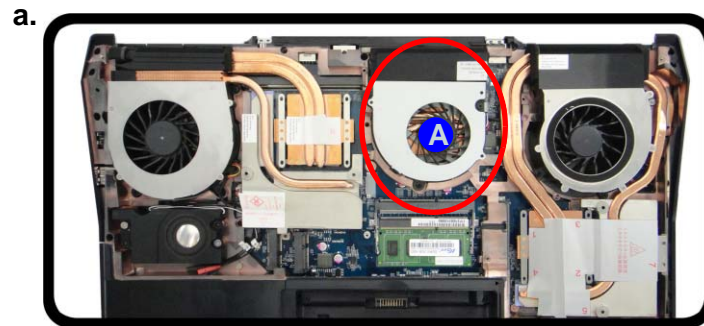
Figure 12
Processor Removal

- 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


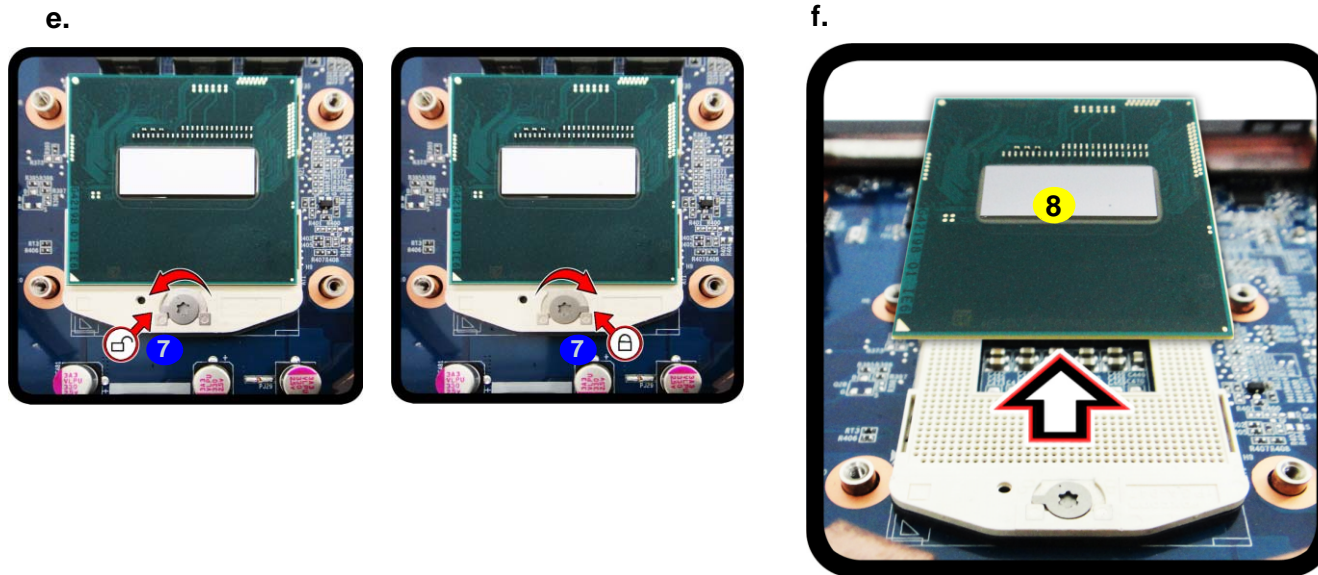
7. Turn the release latch **7** (towards the unlock symbol , to release the CPU (*Figure 13e*).
8. Carefully (it may be hot) lift the CPU **8** up out of the socket (*Figure 13e*).
9. See [page 2 - 18](#) for information on inserting a new CPU.
10. When re-inserting the CPU, pay careful attention to 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

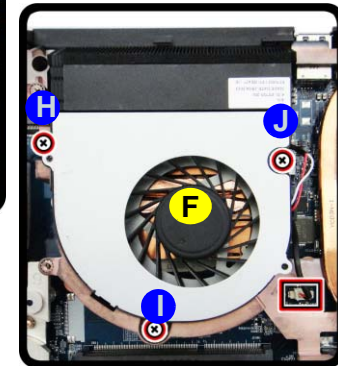
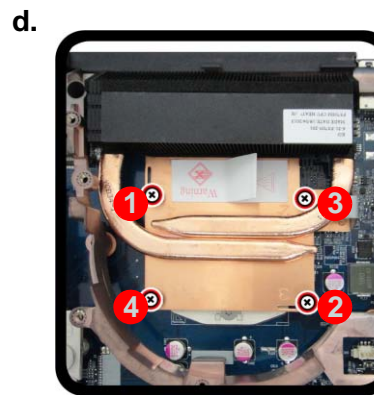
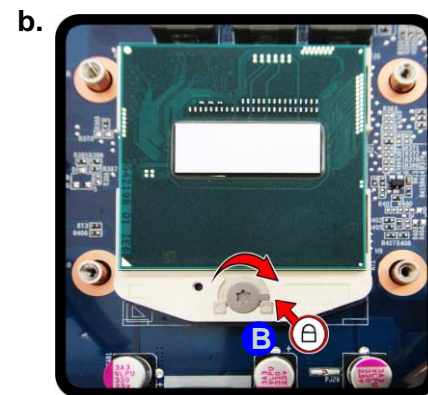
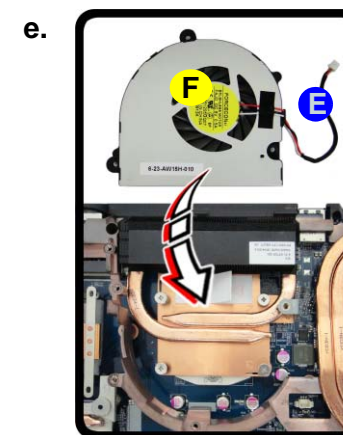
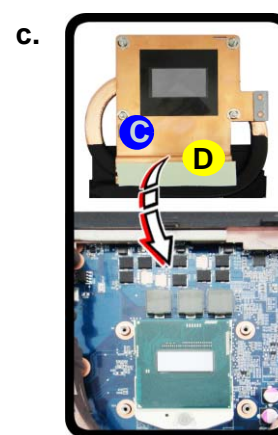
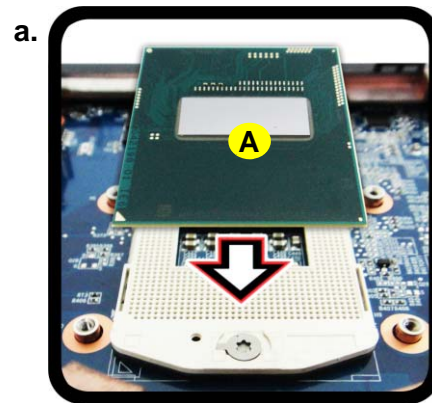
Disassembly

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

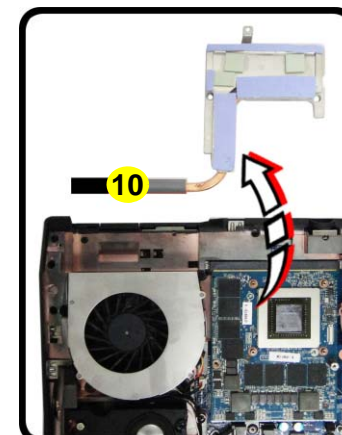
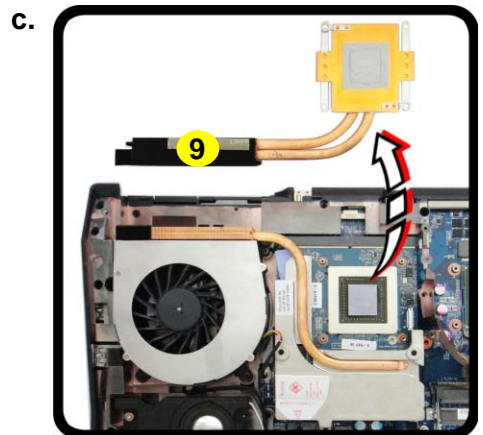
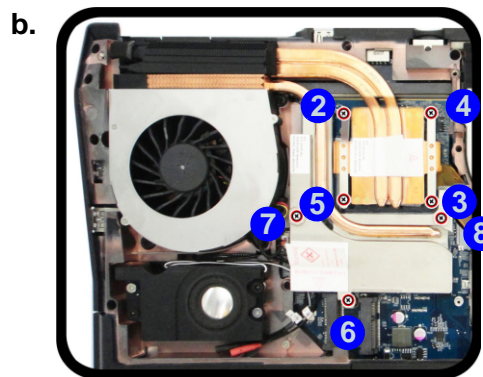
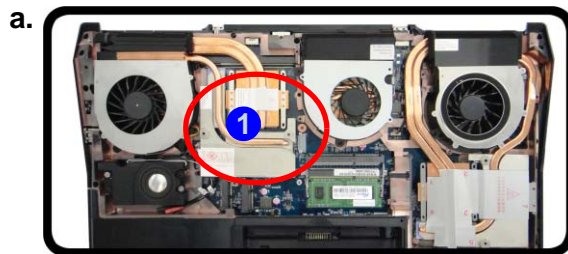
Note:
Tighten the screws in the order 1-2-3-4 as indicated on the label.


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

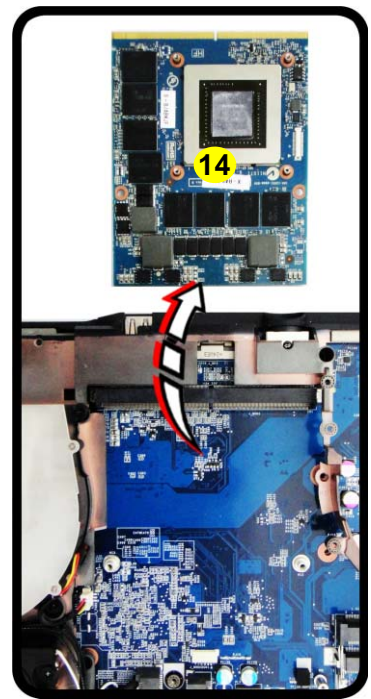
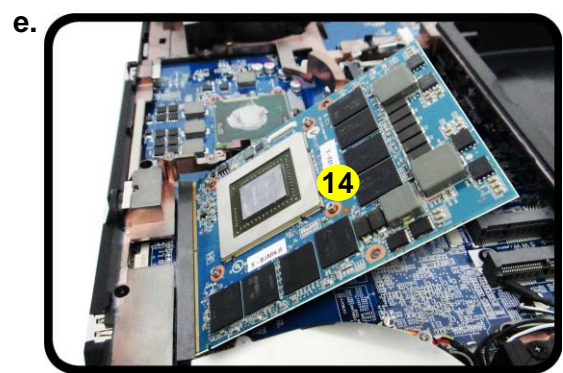
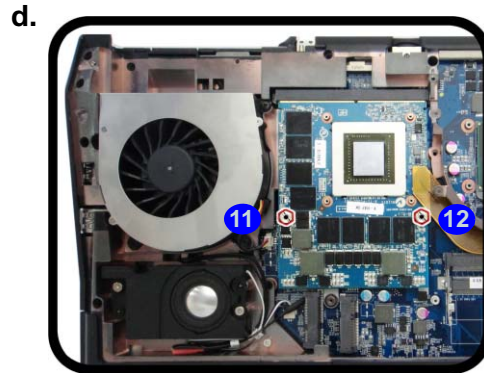
- 7 Screws

Disassembly

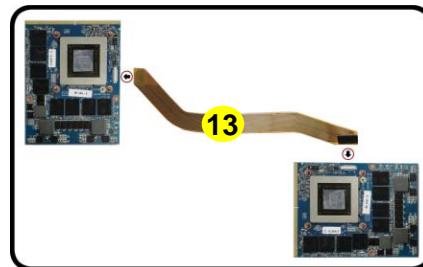
Figure 16
VGA-1 Card
Removal (cont'd)

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.

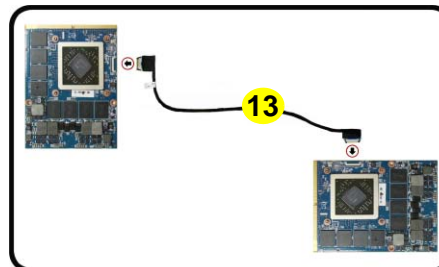
- d. Remove the screws and disconnect the VGA cable if applicable.
- e. Lift the VGA-1 card out.




NVidia VGA Cable



AMD VGA Cable





13. VGA Cable
 14. VGA-2 Card

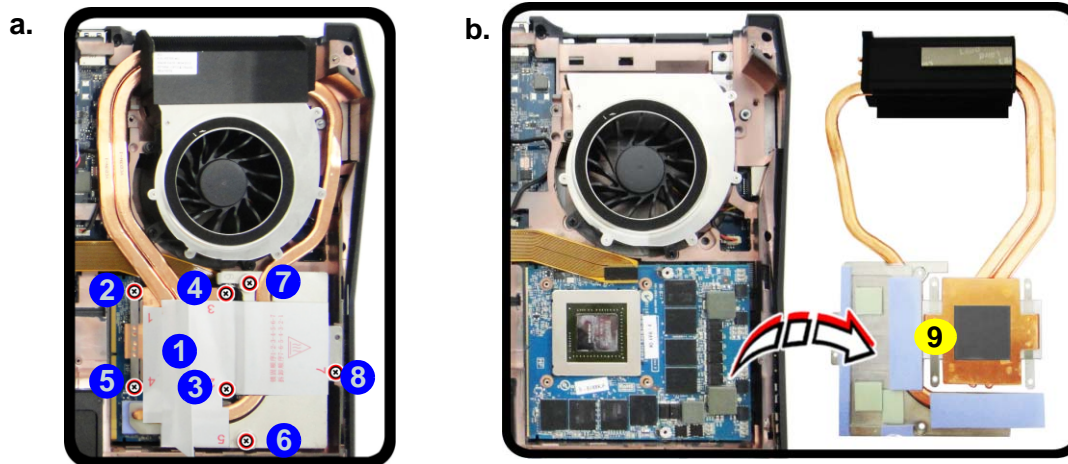
- 2 Screws


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

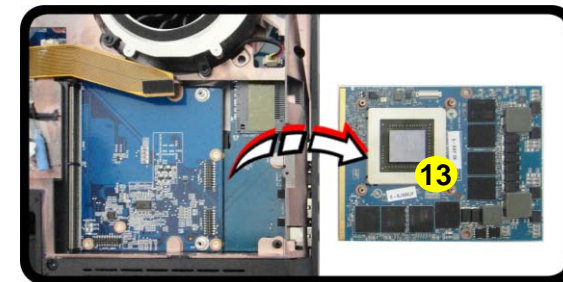
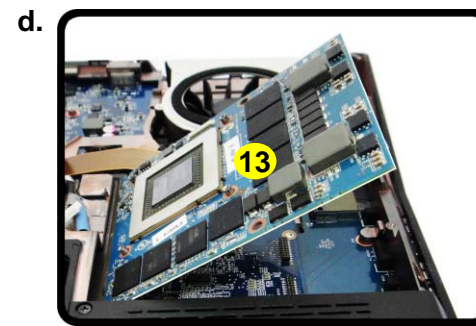
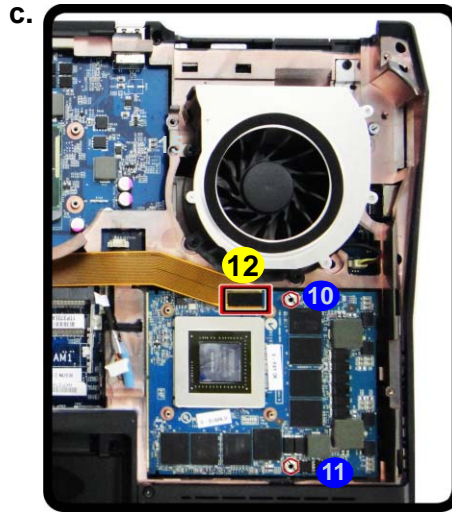
- 7 Screws

Disassembly

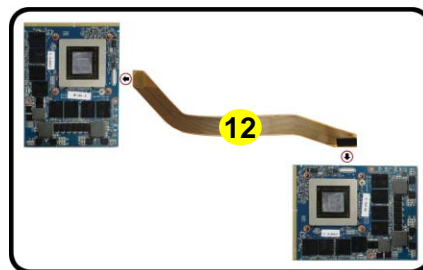
Figure 18 VGA-2 Card Removal (cont'd)

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

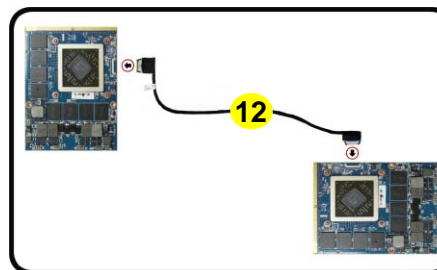
5. Remove screws 10 & 11 from the VGA-1 assembly.
6. Disconnect the VGA cable 12 between the master and slave cards (do not forget to reconnect the cable if you are replacing two cards).
7. Carefully lift the VGA-2 card 13 off the mainboard.



NVidia VGA Cable



AMD 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**.

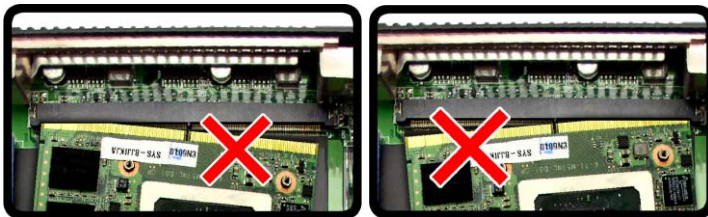
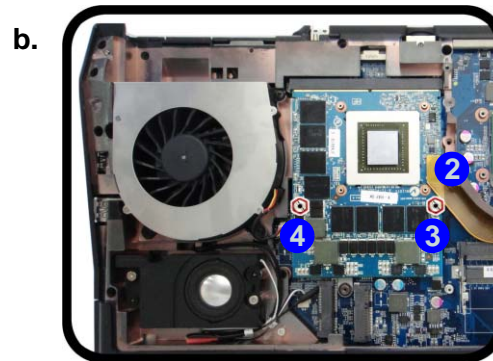
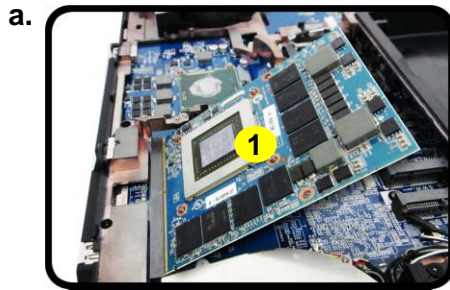


Figure 19
VGA-1 Card Installation

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



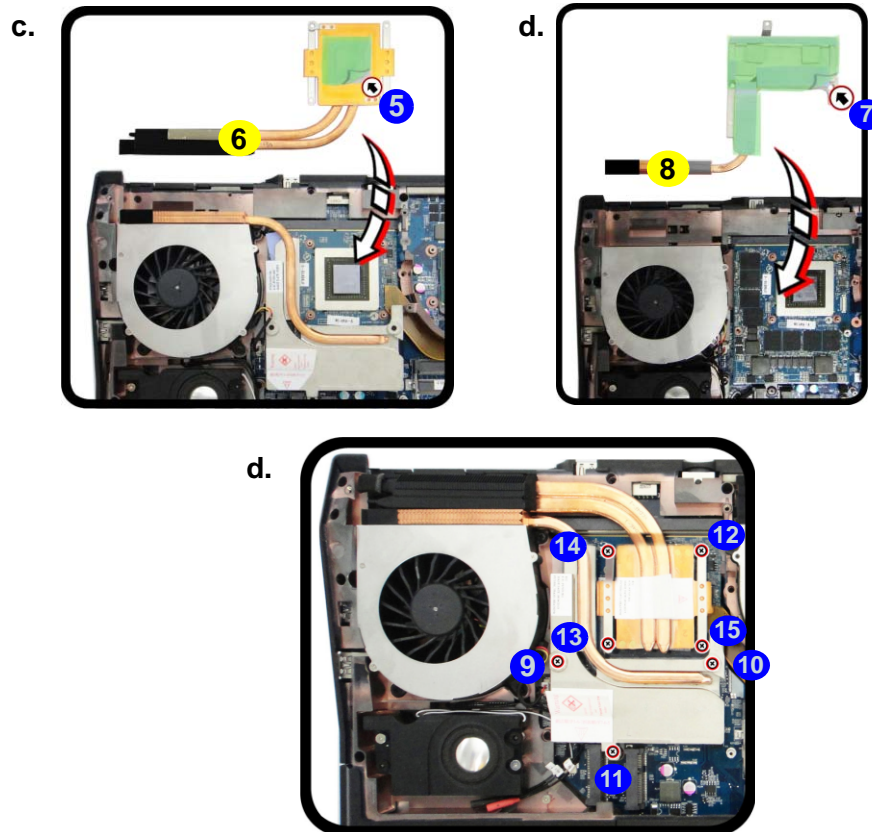
1. VGA-1 card Module

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.



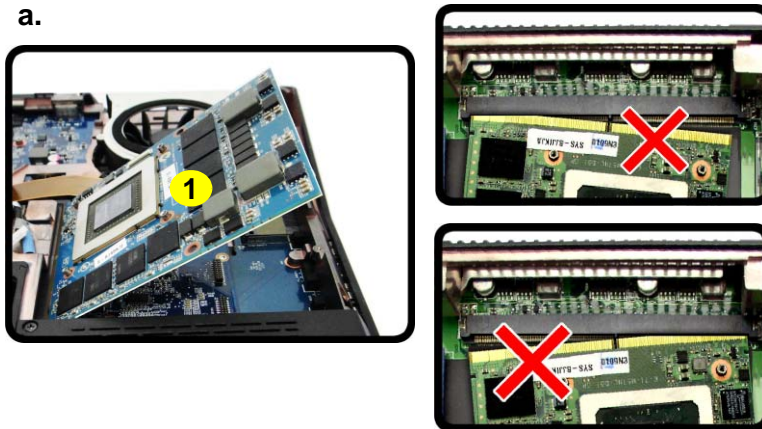
6. VGA Heat sink-2
11. VGA Heat sink-1

- 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

AMD VGA Cable

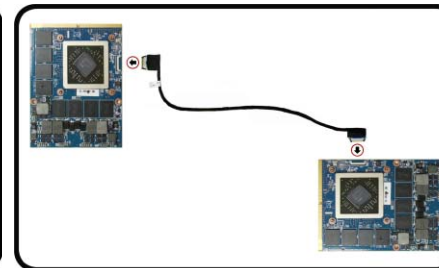
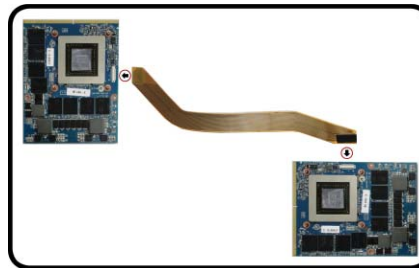


Figure 21
VGA-2 Card
Installation

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



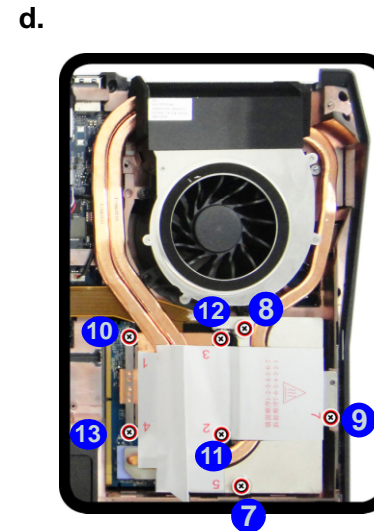
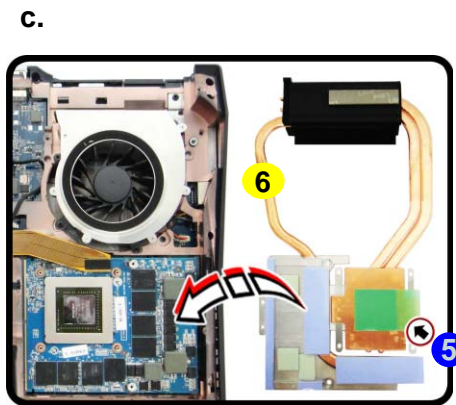
1. VGA-2 card Module
- 2 Screws

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**.



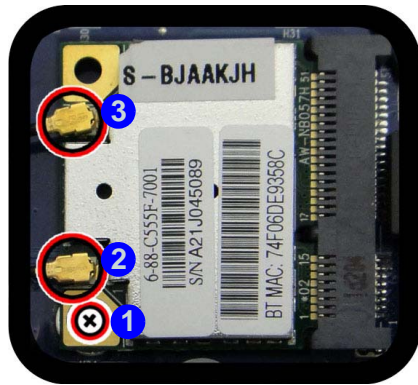
6. VGA Heat sink

- 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.

a.



b.



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 *P370SM* 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

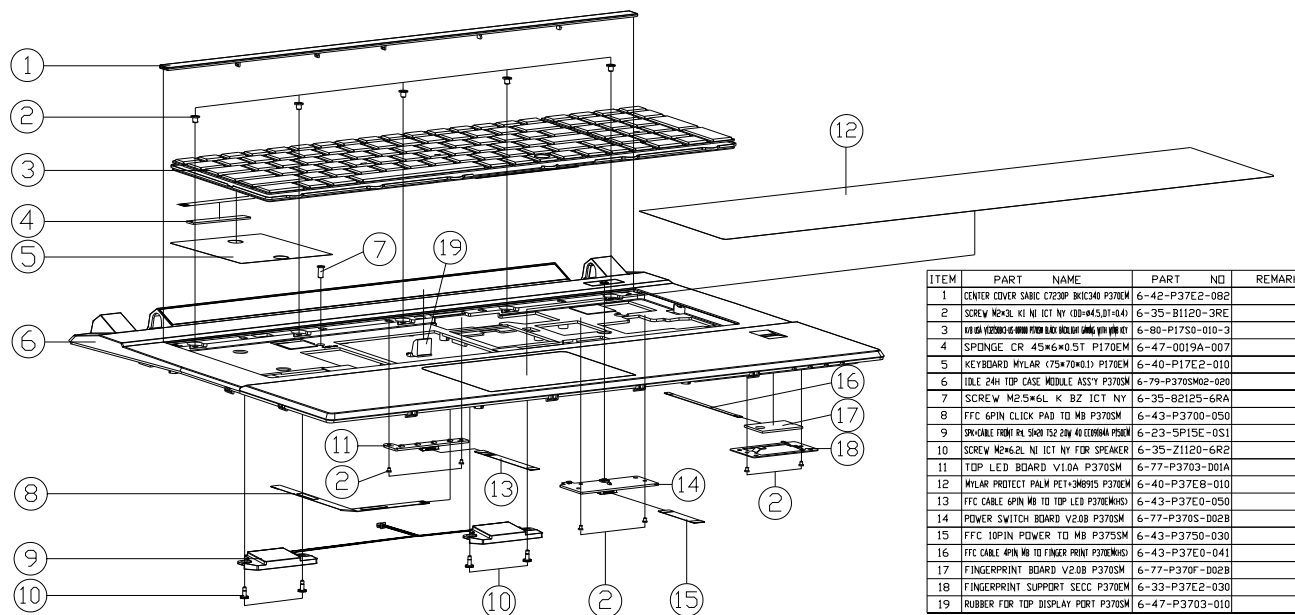


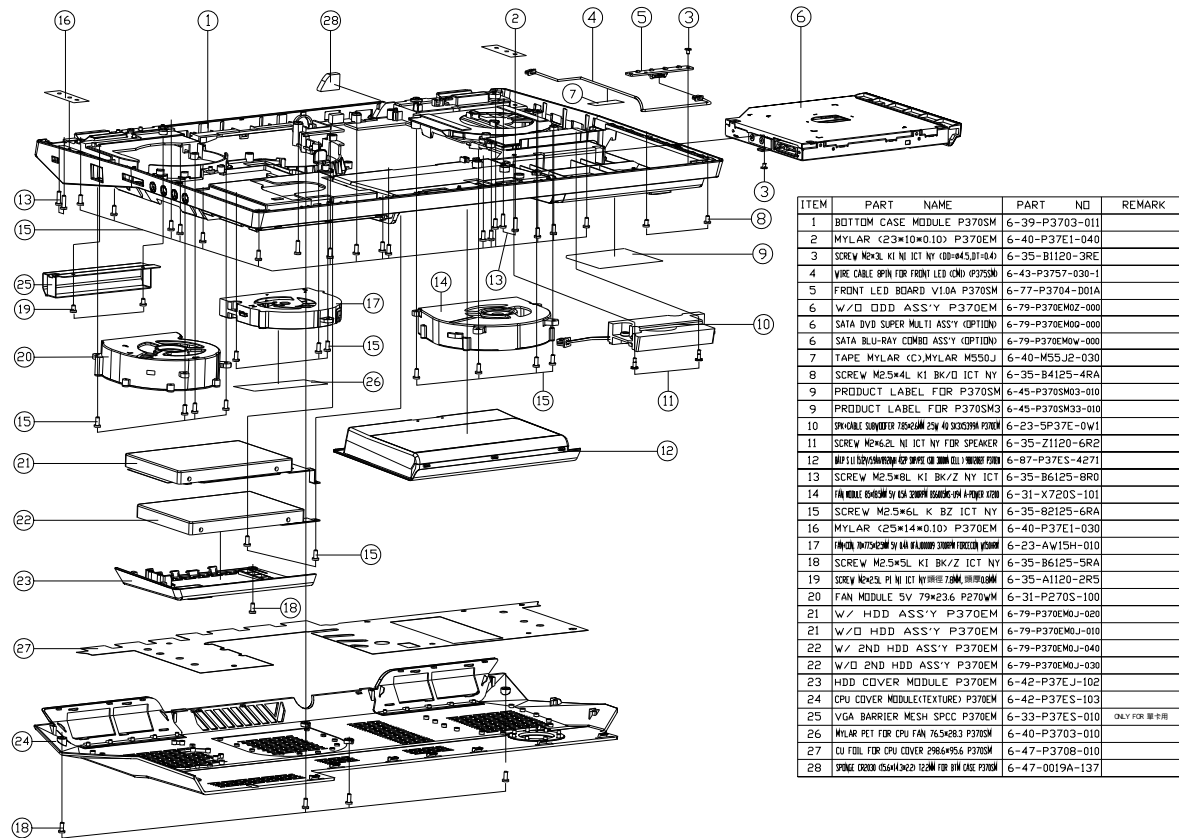
Figure A - 1
Top

ITEM	PART NAME	PART NO	REMARK
1	CENTER COVER SANC C722P 3K1C340 P370EM	6-42-P37E2-082	
2	SCREW M2xL X1 NI ICT NY (08)445,0T-04	6-35-B1120-3RE	
3	NY BR 102200 G BRN P370 BLC INCLUT 2MM 4PIN NY CT	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-B2125-6RA	
8	FFC 6PIN CLICK PAD TO MB P370SM	6-43-P3700-050	
9	SW/CABLE FRONT RL SH20 T52 22W 40 (08)84A P370M	6-23-5P15E-051	
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 4PIN MB TO TOP LED P370EMUS	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 P370EMUS	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	

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 <P3*10*0.10> P370EM	6-40-P37E1-040	
3	SCREW M2.5 KI NI ICT NY (D0=4.5,D1=6.4)	6-35-B1120-3RE	
4	WIRE CABLE SPIN FOR FRONT LED (CND) P370SD	6-43-P3757-030-1	
5	FRONT LED BOARD V1.0A P370SM	6-77-P3704-D01A	
6	W/D ODD ASS'Y P370EM	6-79-P370E02-000	
6	SATA DVD SUPER MULTI ASS'Y (OPT)O	6-79-P370E00-000	
6	SATA BLU-RAY COMBO ASS'Y (OPT)O	6-79-P370E00-000	
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 ODD ASS'Y P370EM	6-79-P370E02-000	
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 <P3*14*0.10> P370EM	6-40-P37E1-030	
17	FAN MODULE 5V 79*23.6 P270EM	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 (D0=3.0,D1=5.0)	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 76.5*28.3 P370SM	6-40-P3703-010	
27	CU FOIL FOR CPU COVER 296.6*95.6 P370SM	6-47-P370B-010	
28	SPRING BRUSH (5.6*1.2*2) 122MM FOR BUN CASE P370SM	6-47-0019A-137	

LCD with CCD

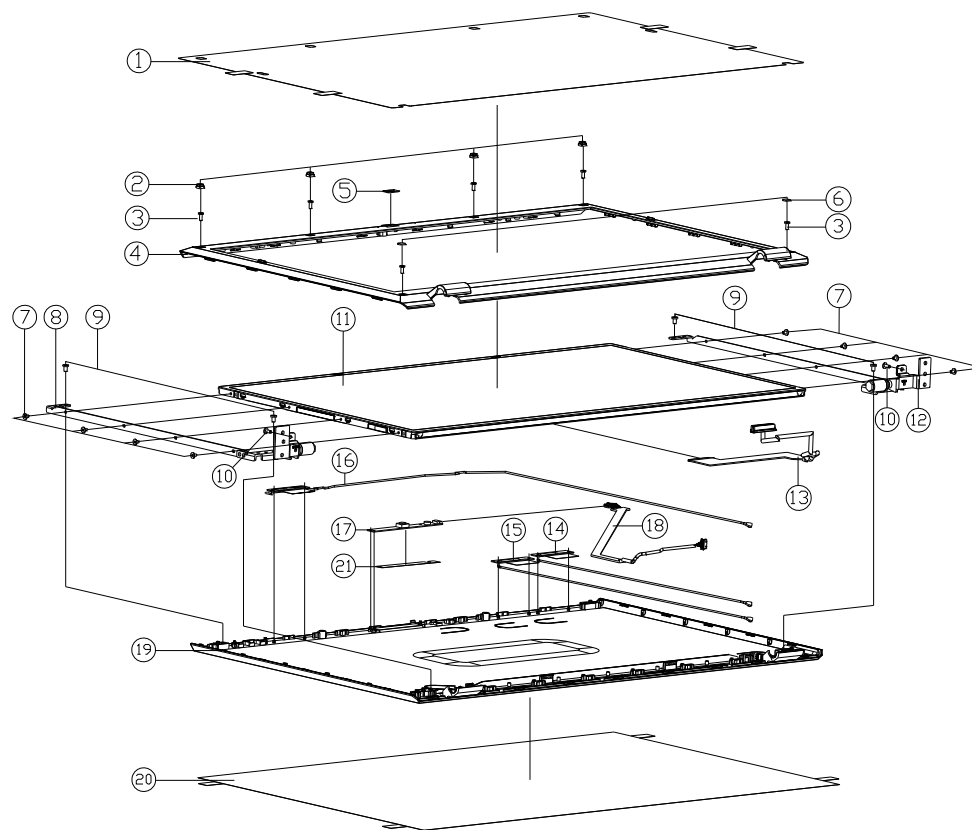


Figure A - 3
LCD with CCD

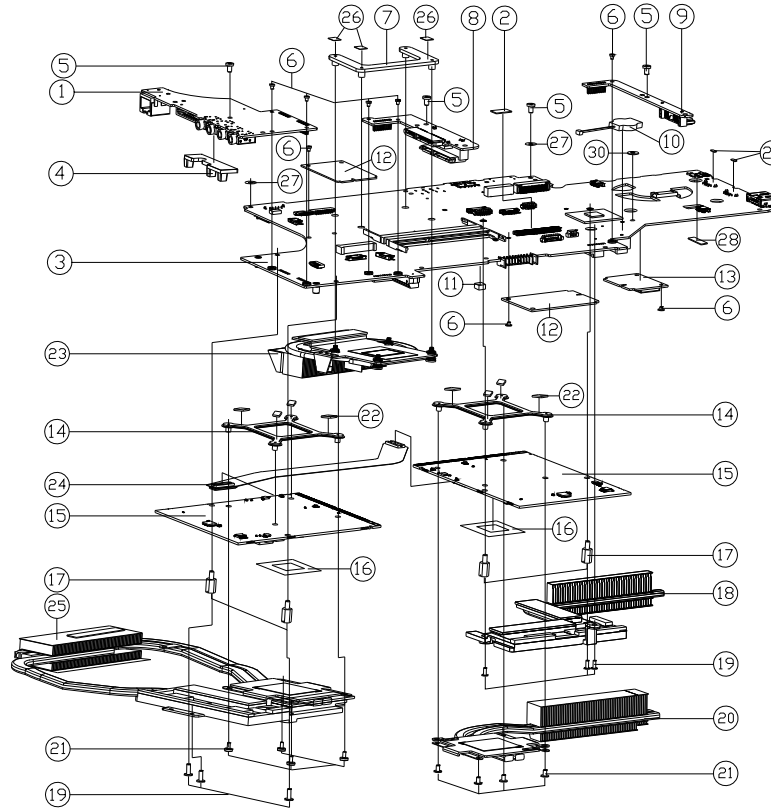
ITEM	PART NAME	PART NO	REMARK
1	FRONT COVER PRO PET P370EM	6-40-P37E1-020	
2	LCD FRONT UP RUBBER P370EM	6-47-P37E1-060	
3	SCREW Mx3x L111+08 B=40 BK/Z ICT NY	6-35-B6120-SR0	
4	LCD FRONT COVER MODULE P370EM	6-39-P37E1-012	
5	LCD CCD LENS P370EM	6-42-P37E1-070	OPTION
6	LCD FRONT DOWN RUBBER P370EM	6-47-P37E1-040	
7	SCREW Mx3x L111 ICT NY (DB=44.5,DT=64)	6-35-B1120-3RE	
8	LCD HINGE L SECC (MPI) P370EM	6-33-P37E1-0L2	
9	SCREW M2.5x4L K1 BK/D ICT NY	6-35-B4125-4RA	
10	SCREW M2.5x5L K1 BK/Z ICT NY	6-35-B6125-5RA	
11	LED 173° FHD AU B173PW1 VS 0V/0V QLED 68 MM	6-50-NB260-G02	OPTION
11	LED 173° FHD AU B173PW2 VHXLED 68 MM	6-50-NB260-G04	OPTION
11	LED 173° FHD CHM1 N173KE-L1 QLED 68 MM	6-50-NB260-D00	OPTION
11	LED 173° FHD LG L173WF-L1 B3 QLED 68MM 60MM	6-50-NB260-L05	OPTION
11	LED 173° FHD CHM1 N173KE-L11 QLED 68 MM	6-50-NB260-D01	OPTION
11	LED 173° FHD AU B173PW1 VS 0V/0V QLED 68 MM	6-50-NB260-G03	OPTION
12	LCD HINGE R SECC (MPI) P370EM	6-33-P37E1-0R2	
13	WIRE CABLE FOR LED TO MB (OPTION) (SMT) (P370EM)	6-43-P37E1-011-A	
14	ANTENNA WIRE Y1 W1 PCB = 68MM 24G/2500V/56 WIRE-50MM P370EM	6-23-7P170-011	
15	ANTENNA WIRE Y1 W2 PCB = 68MM 24G/2500V/56 L-50MM P370EM	6-23-7P170-031	
16	ANTENNA WIRE Y1 W2 PCB = 68MM 24G/2500V/56 WIRE-50MM P370EM	6-23-7P37E-021	
17	MC CDRM WIRE TO ANTEENNA ON THE DRAGON PAPER WIRE 1400 P370EM	6-88-P37EC-4903	OPTION
18	WIRE CABLE (PIN) W1 TO CC-MIC (COP) (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	
21	CCD FOIL ALUMINUM P177SM	6-47-P177T-010	ONLY FOR P376SM

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	
4	MAIN BOARD V3.0 (W/TPM) P370SM	6-77-P370SM00-003-1	
5	MAIN BOARD V3.0 (W/TPM) P370SM3	6-77-P370SM30-003	
6	VGA SUPPORT RUBBER(46x46x26x7) P370SM	6-47-P37ES-022	
7	SCREW M2.5x4L K1 BK/D ICT NY	6-35-B412S-4RA	
8	SCREW M2x3L K1 NI ICT NY (DD#44S,11#4)	6-35-B1120-3RE	
9	CPU SUPPORT BRACKET SECC 115 P370SM	6-33-X510S-011	
10	DUAL HDD BOARD V2.0A P370SM	6-77-P370J-002A	
11	DDD BRIDGE BOARD V1.0 P370SM	6-77-P370N-001	
12	BIOS ROM 2M 2804H V(CABLE 52MM) K0282295	6-23-2201S-TC0	
13	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-47-X510S-010	
14	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-85-D4040-000	
15	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-85-D4032-L02	
16	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-85-D4032-L01	
17	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-85-D4032-000	
18	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-W77C2-4220	(OPTION)
19	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-W345F-9400	(OPTION)
20	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-W255F-4200	(OPTION)
21	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-P17EF-4200	(OPTION)
22	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-W345F-8700	(OPTION)
23	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-W345F-7000	(OPTION)
24	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-P3702-9400	(OPTION)
25	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-88-P3702-7000	(OPTION)
26	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-33-X720S-040	FOR NI44E-NICE-GTX
27	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-77-P370L-102	FOR NI44E-GTX-MP
28	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-77-P370L-202	FOR NI44E-GTX-MP
29	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-77-PISSL-101A-1	FOR NI44E-GE-B
30	VGA SUPPORT RUBBER 8 SILICONE P370SM	6-77-PISSL-201A-1	FOR NI44E-GE-B
16	VGA CHIP MYLAR FOR NV NICE-GTX P370SM	6-40-P15ES-020	
17	NI44E-OS CHIP MYLAR (26.8x26.8x1) P370SM	6-40-P17SS-010	
18	SCREW M2.5x4L(B) B(S)NI ICT NY FOR VGA CARD	6-35-Z112S-4RB-1	
19	VORANGE-GTX HEATSINK MODULE-1 P370SM	6-31-P370N-501	
20	SCREW M2x4L K1CT-B8 D=4.0 BK/Z ICT NY	6-35-B6120-6R0	
21	GRUNAL-GTX HEATSINK MODULE-1 P370SM	6-31-P370N-301	
22	SCREW M1.6x3.5L K1T+1.2 D=4.5 BZ ICT NY	6-35-B2116-3R5	
23	POKON (106x31) FOR NICE-GTX SUPPORTER P370SM	6-47-X510S-030	
24	CPU HEATSINK MODULE P370SM	6-31-P370N-201	
25	PC CASE FOR VGA CARD (106x31) FOR NICE-GTX P370SM	6-43-P370E-012	ONLY FOR 106x31
26	GRUNAL-GTX AND VORANE HEATSINK MODULE P370SM	6-31-P370N-401	
27	MYLAR PET B8 103MM FOR MB BRACKET P370SM	6-40-P370S-020	
28	WASHER AL T(DIL)06x06x0.25 MM	6-37-02000-602	
29	WASHER AL T(DIL)06x06x0.25 MM	6-40-00150-807	
30	GASKET(106x34x1) FOR MB BOTTOM TROM	6-47-00190-09F	
	MYLAR PET B8 103MM FOR MB P370SM	6-40-P370S-010	

HDD

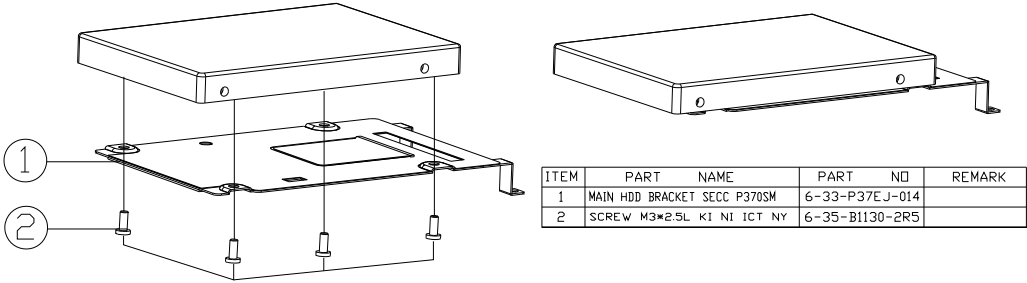
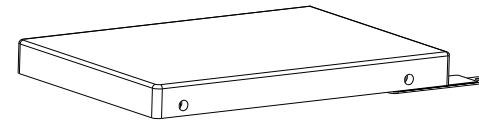
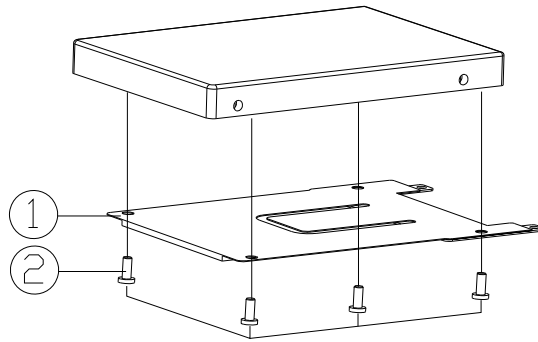


Figure A - 5
HDD

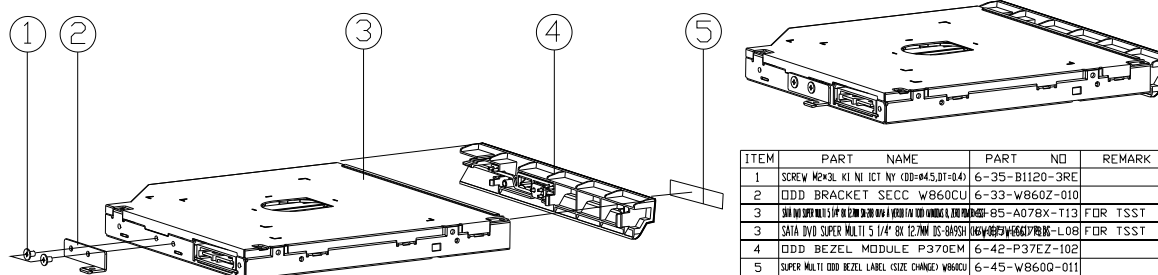
2nd HDD

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

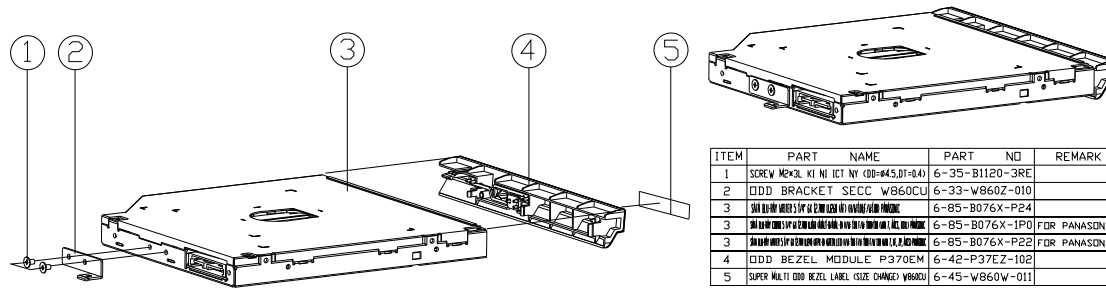


ITEM	PART NAME	PART NO	REMARK
1	SCREW M2X3L KI NI ICT NY (DD=045,DF=04)	6-35-B1120-3RE	
2	DDD BRACKET SECC W860CU	6-33-W860Z-010	
3	SATA DVD SUPER MULTI 5 1/4" BK 12.7MM DC 8450H (64W) W860CU/860Z-LO8	6-45-A078X-T13	FDR TSST
3	SATA DVD SUPER MULTI 5 1/4" BK 12.7MM DC 8450H (64W) W860CU/860Z-LO8	6-45-W860Z-010	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)=445,01=644	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) V860CU	6-45-W860W-011	

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *P370SM* 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**

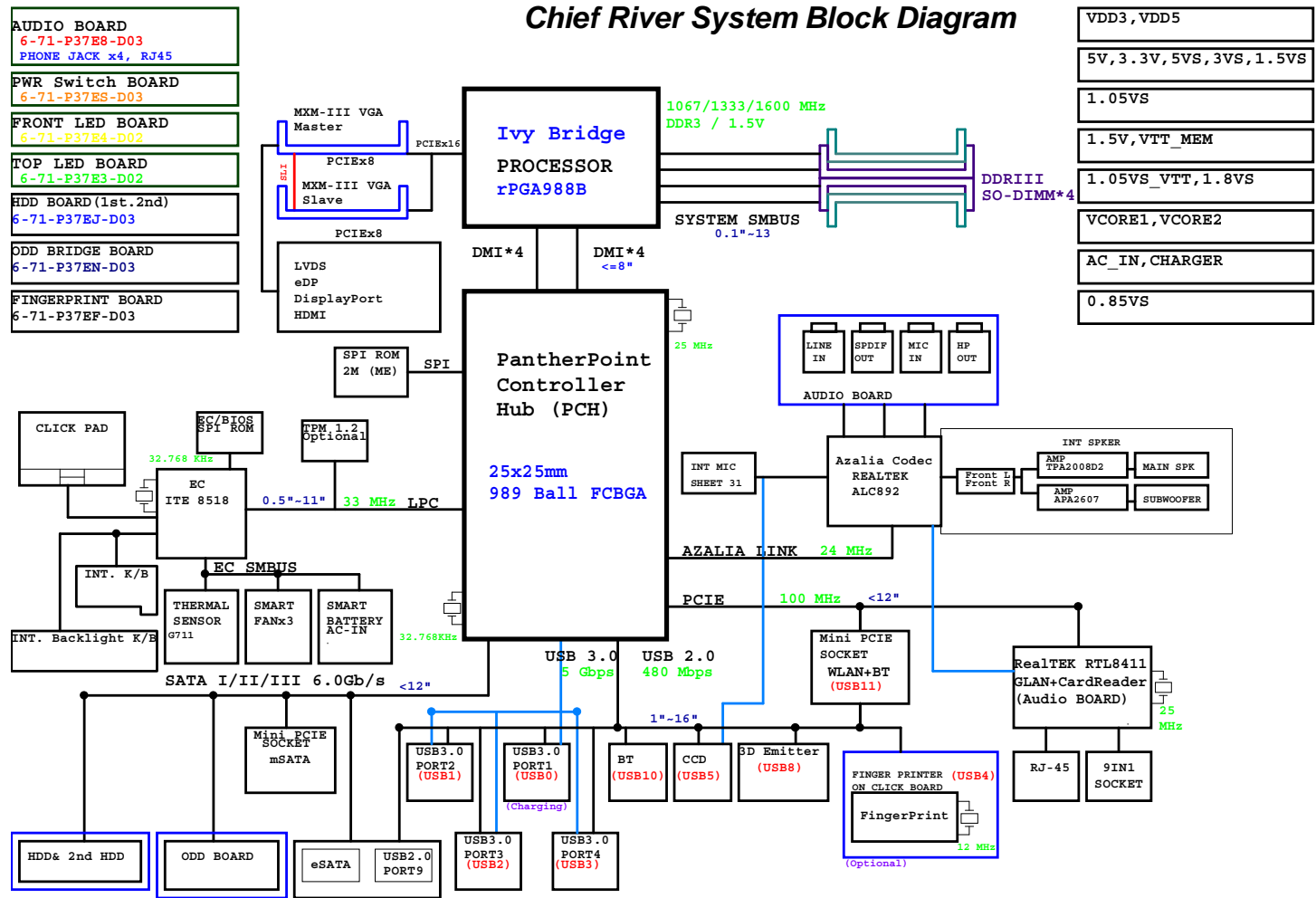


Version Note

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).

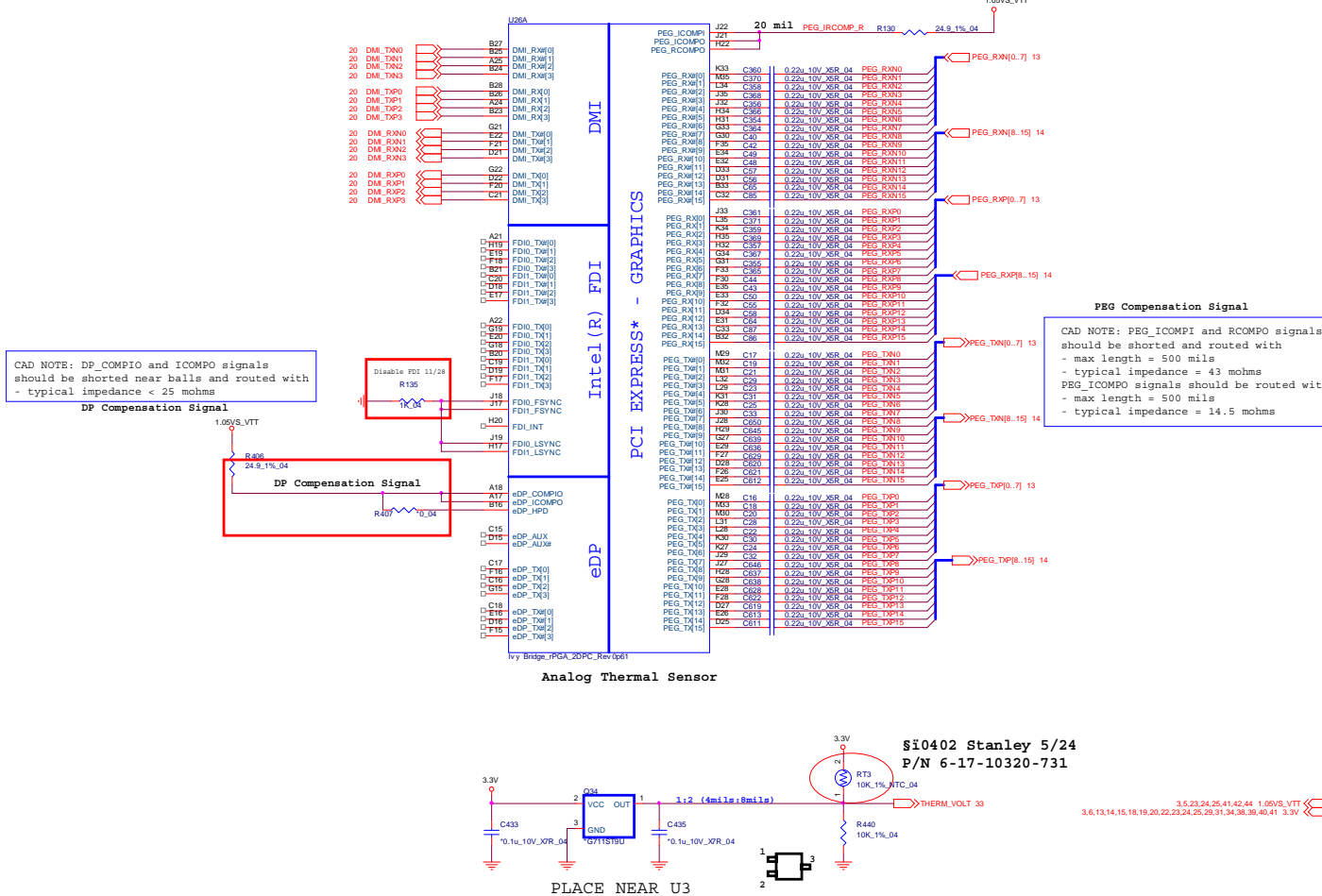
System Block Diagram

Sheet 1 of 54
System Block
Diagram



Processor 1/7 - DMI, FDI, PEG

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

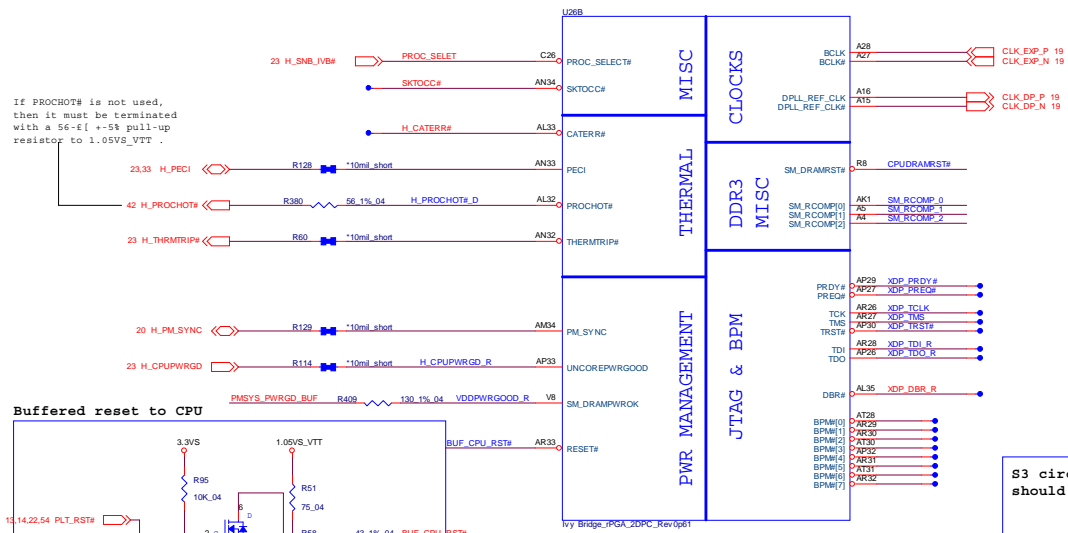


Sheet 2 of 54
Processor 1/7 -
DMI, FDI, PEG

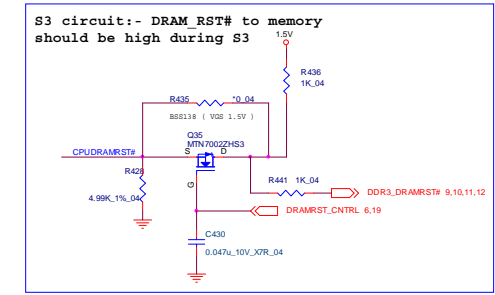
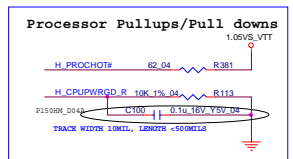
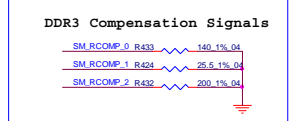
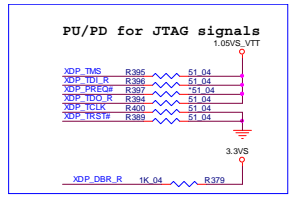
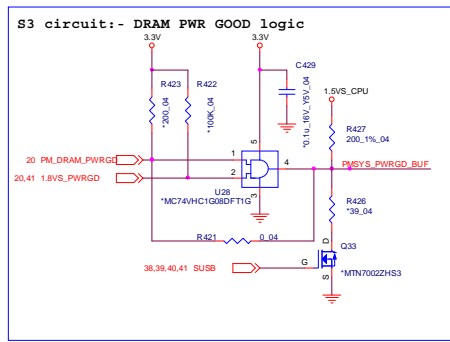
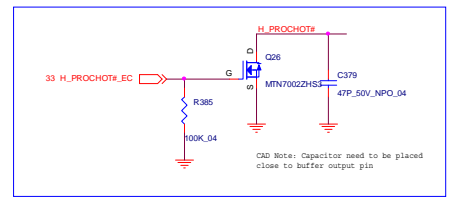
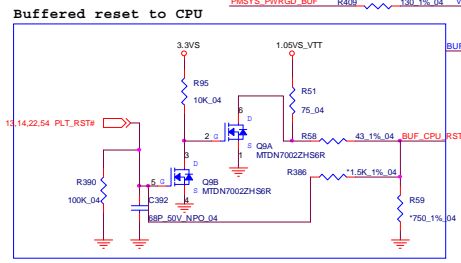
Processor 2/7 - CLK, MISC

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

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



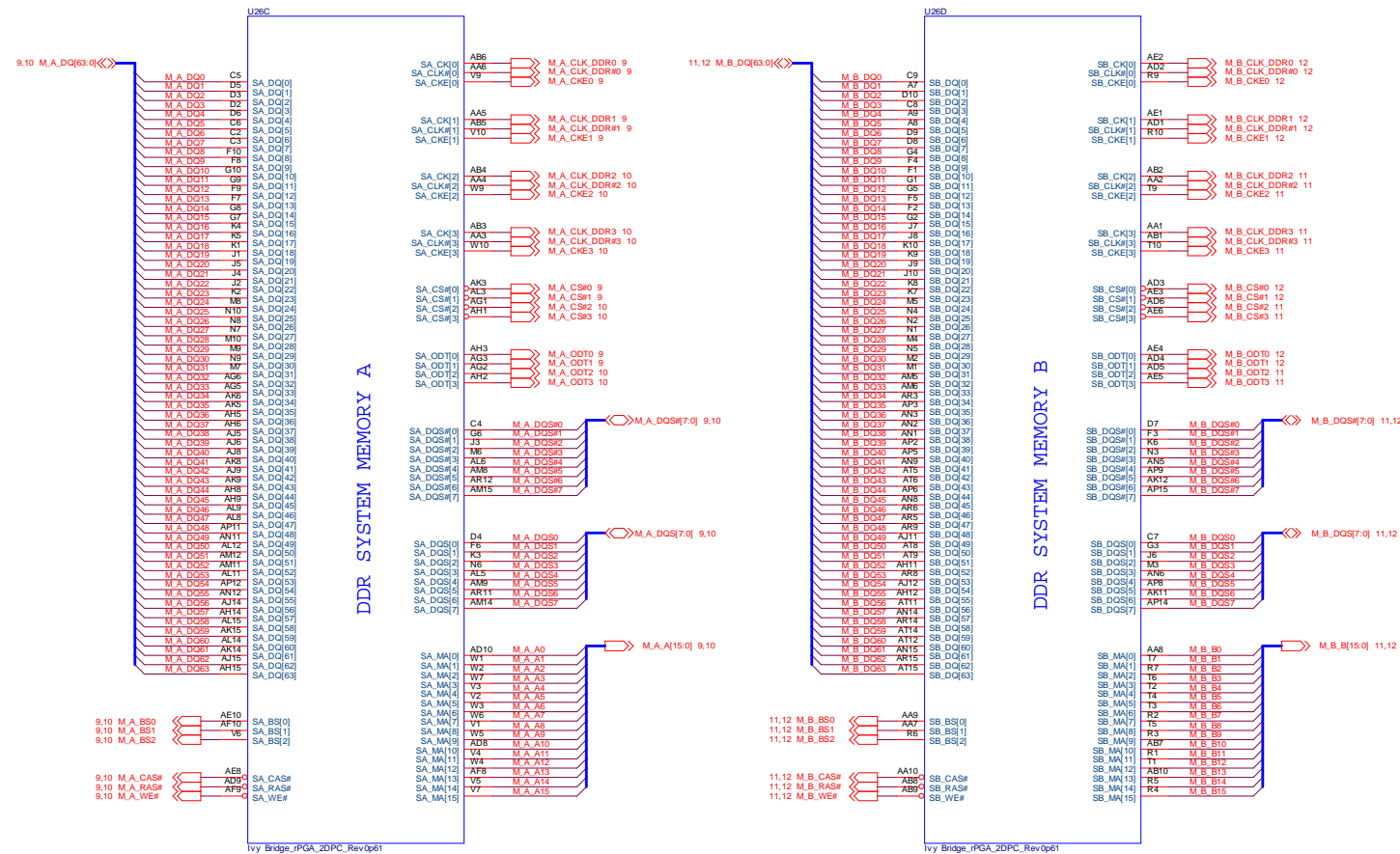
If PROCHOT# is not used, then it must be terminated with a 56-61 \pm 5% pull-up resistor to 1.05VS_VTT .



- 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)



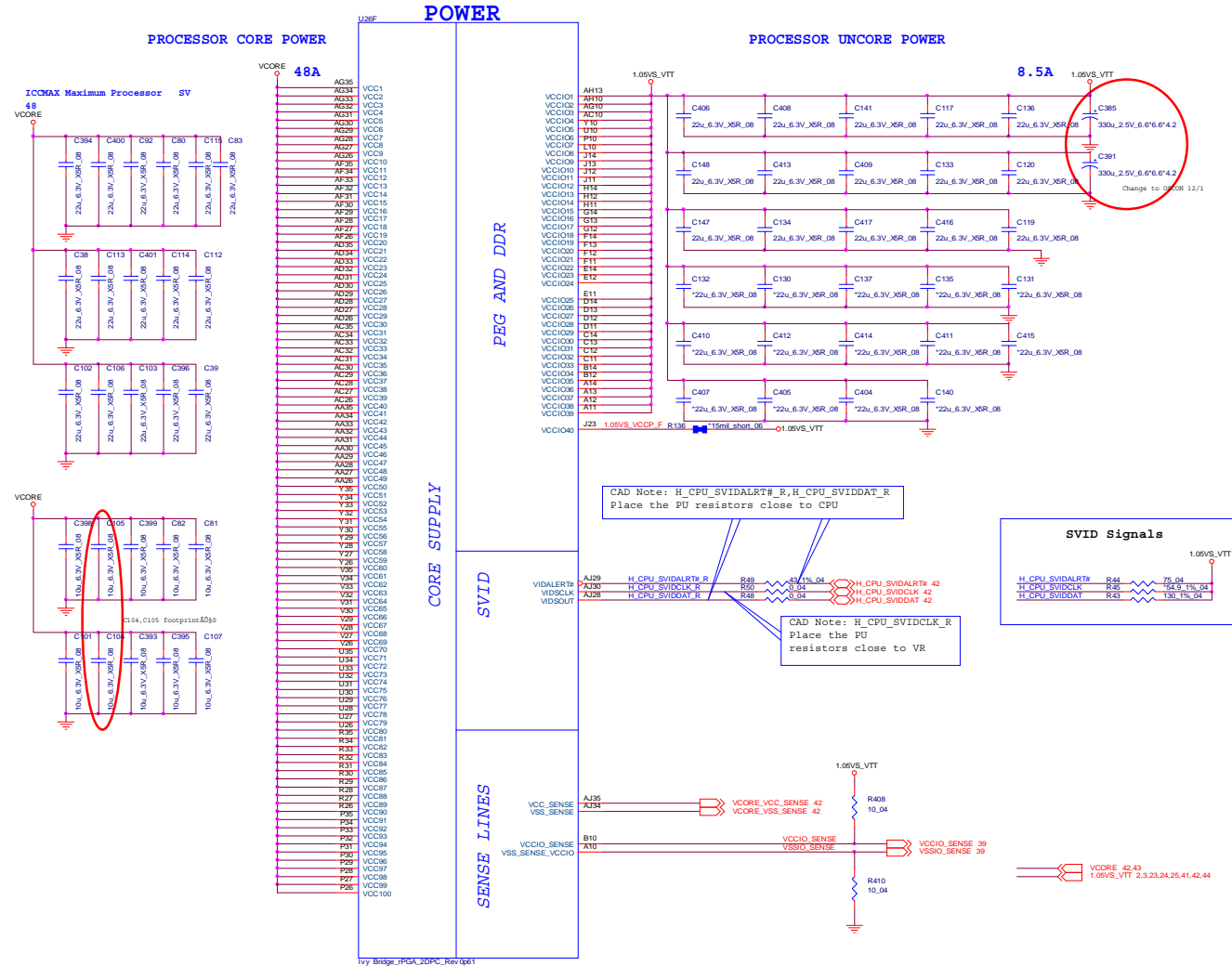
Sheet 4 of 54
Processor 3/7 -
DDR3

B.Schematic Diagrams

Processor 4/7 - POWER

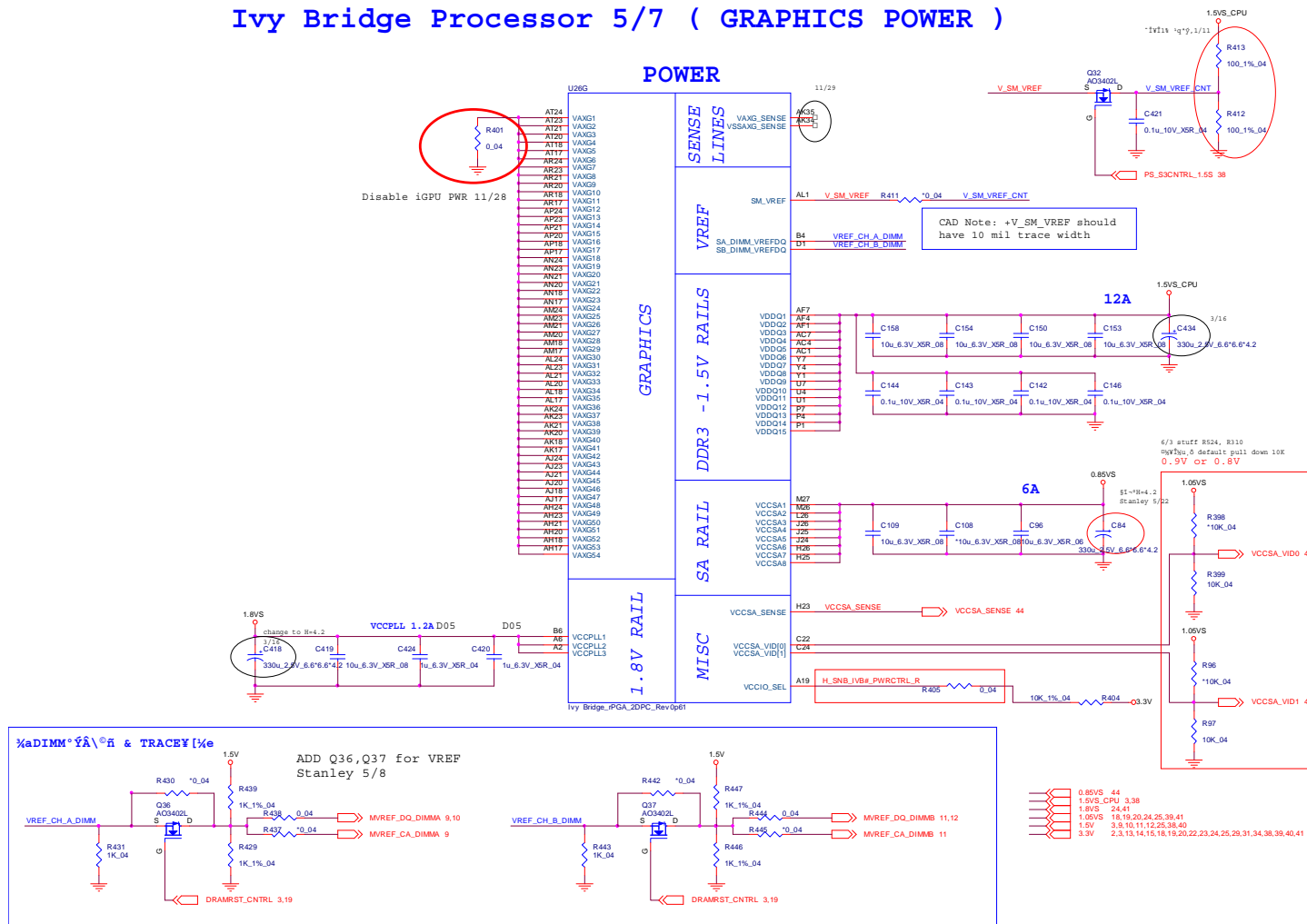
Ivy Bridge Processor 4/7 (POWER)

Sheet 5 of 54
Processor 4/7 -
POWER



Processor 5/7 - GFX PWR

Ivy Bridge Processor 5/7 (GRAPHICS POWER)

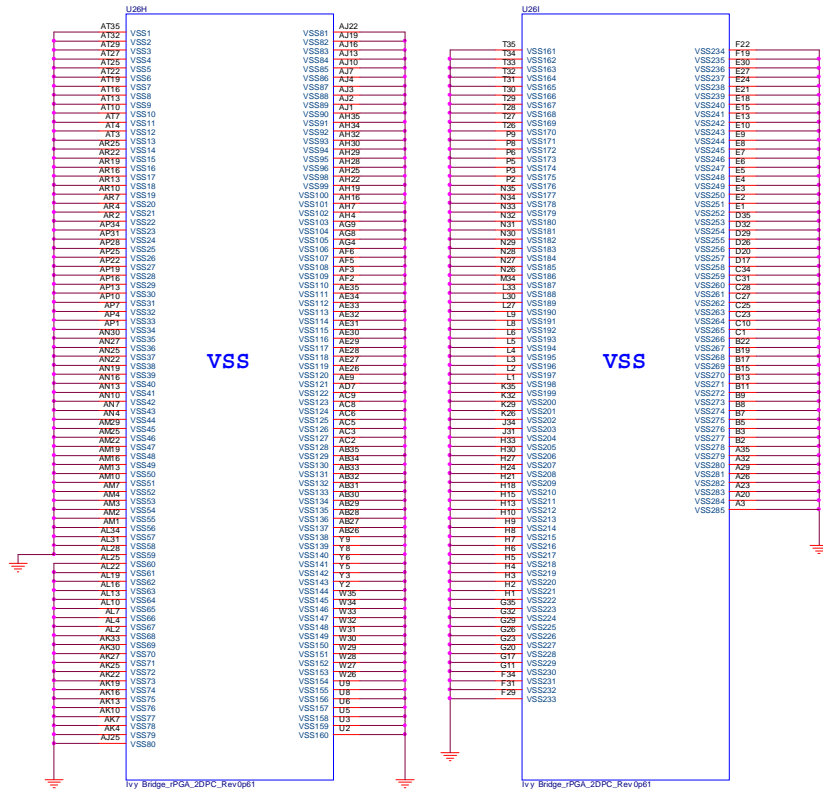


Sheet 6 of 54
Processor 5/7 -
GFX PWR

Processor 6/7 - GND

Ivy Bridge Processor 6/7 (GND)

Sheet 7 of 54
Processor 6/7 -
GND



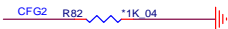
24,34,38 1.5V □
3,9,10,11,12,13,14,15,16,17,18,19,20,22,23,24,25,27,28,29,30,31,32,33,34,35,38,42,44,54 3.3V □

Processor 7/7 - RSVD

Ivy Bridge Processor 7/7 (RESERVED)

CFG Straps for Processor

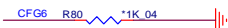
PEG Static Lane Reversal - CFG2 is for the 16x	
CFG2	1: (Default) Normal Operation; Lane # definition matches socket pin map definition 0: Lane Reversed



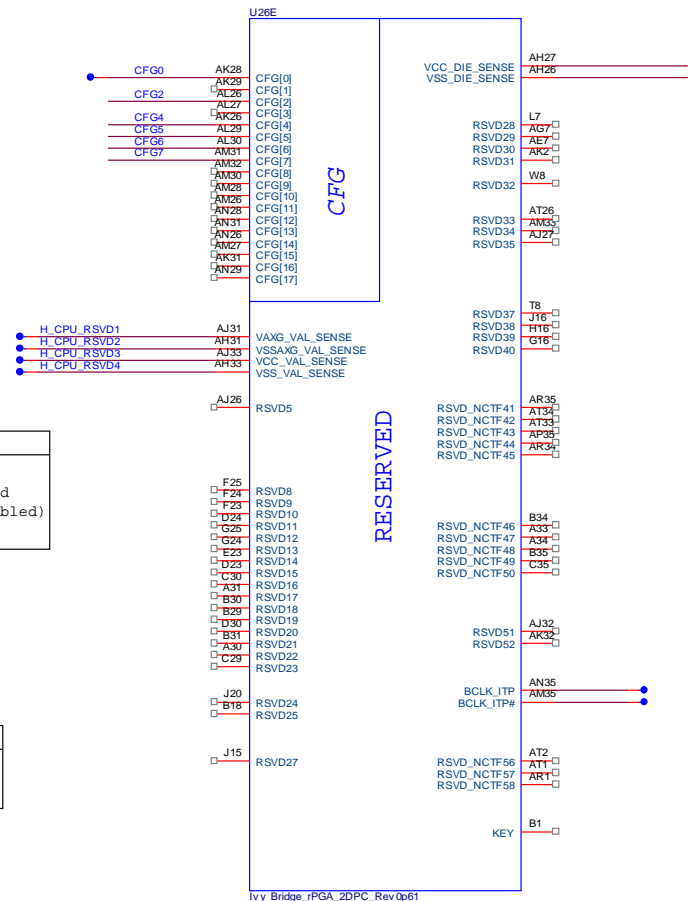
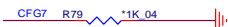
Display Port Presence Strap	
CFG4	1: (Default) Disabled; No Physical Display Port attached to Embedded Display Port 0: Enabled; An external Display Port device is connected to the Embedded Display Port



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



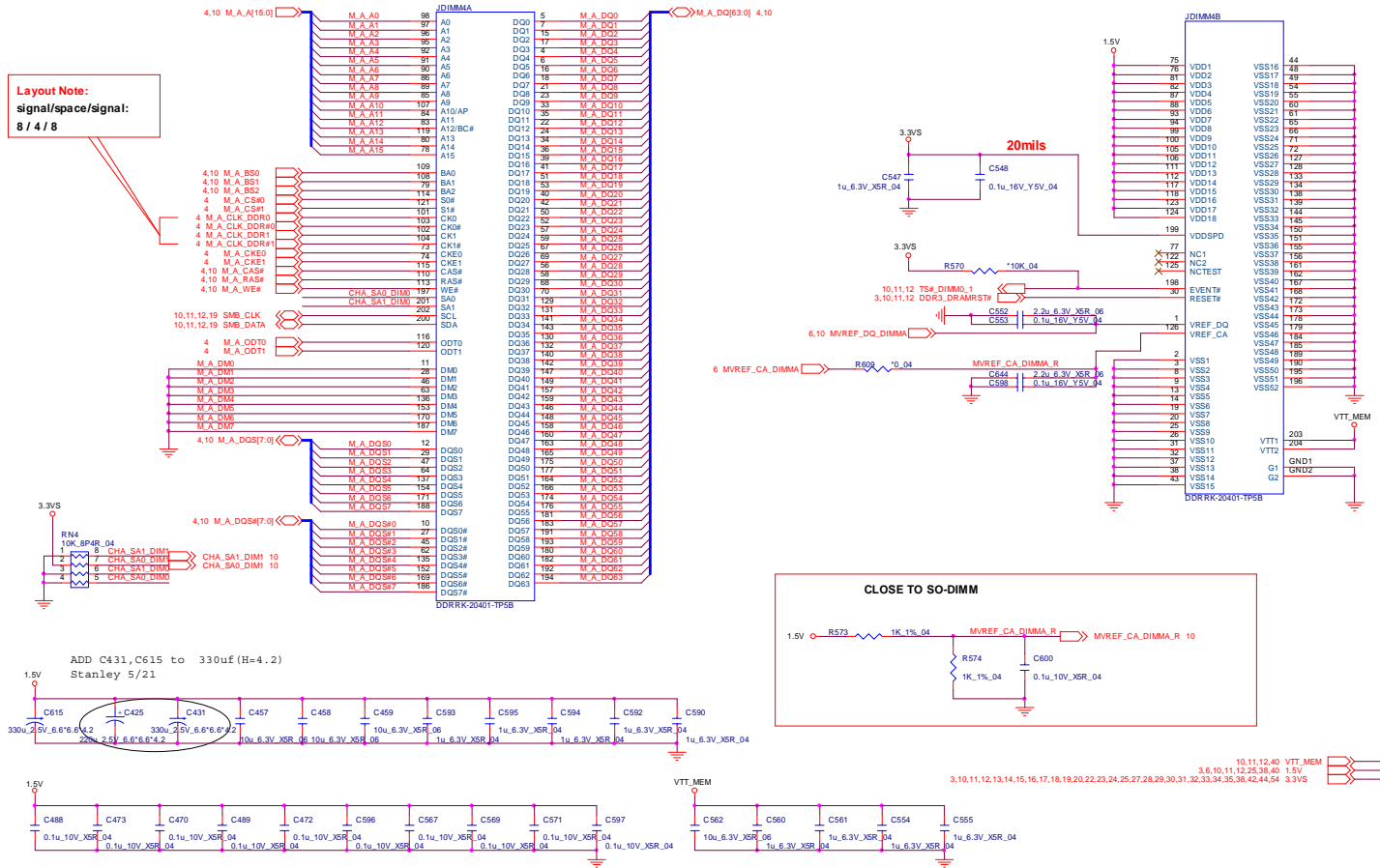
Sheet 8 of 54
Processor 7/7 -
RSVD

B.Schematic Diagrams

DDR3 CHA SO-DIMM 0

Channel A SO-DIMM 0

CHANGE TO STANDARD



B.Schematic Diagrams

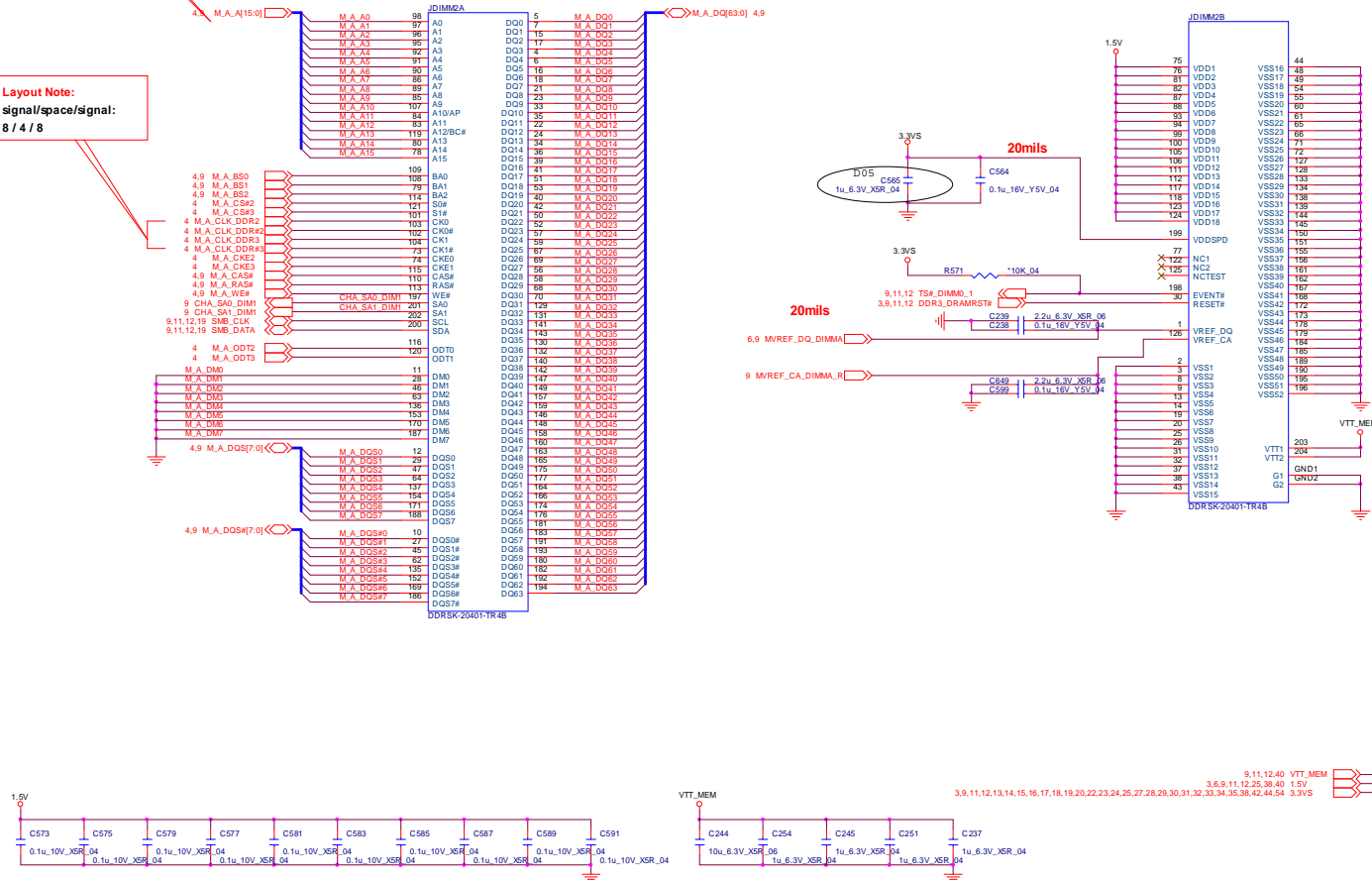
Sheet 9 of 54
DDR3 CHA
SO-DIMM 0

DDR3 CHA SO-DIMM 1

Channel A SO-DIMM 1

CHANGE TO STANDARD

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



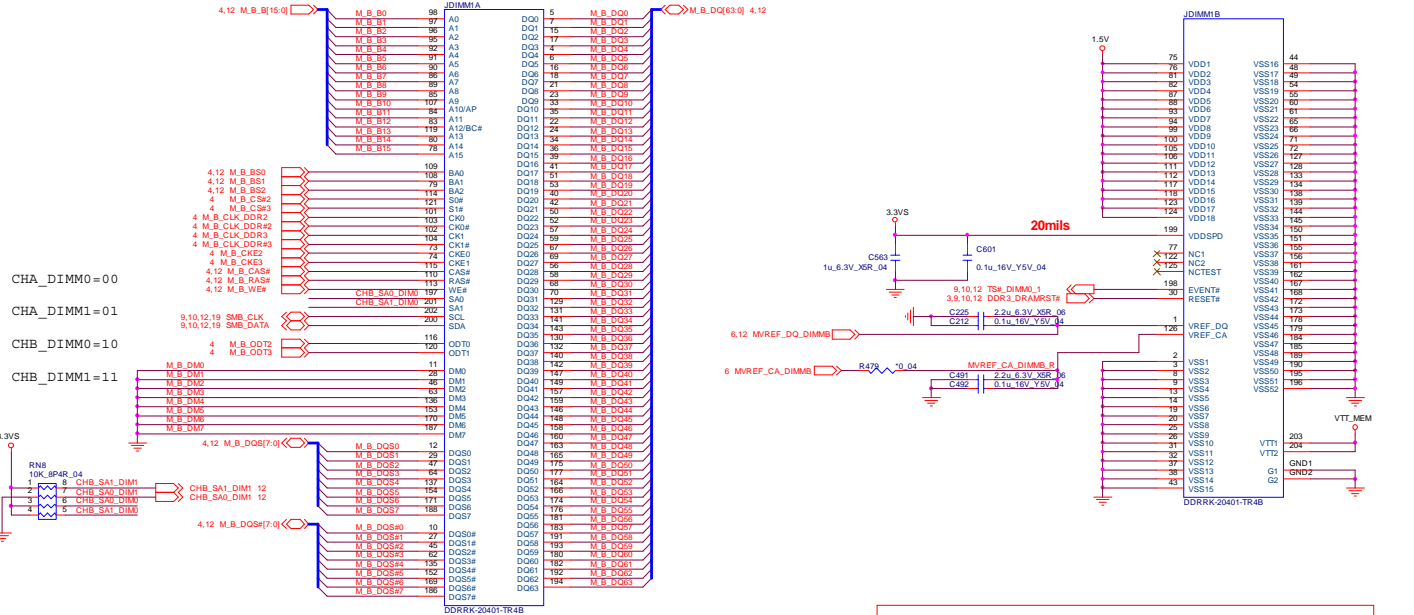
Sheet 10 of 54
DDR3 CHA
SO-DIMM 1

B.Schematic Diagrams

DDR3 CHB SO-DIMM 0

Channel B SO-DIMM 0

CHANGE TO STANDARD

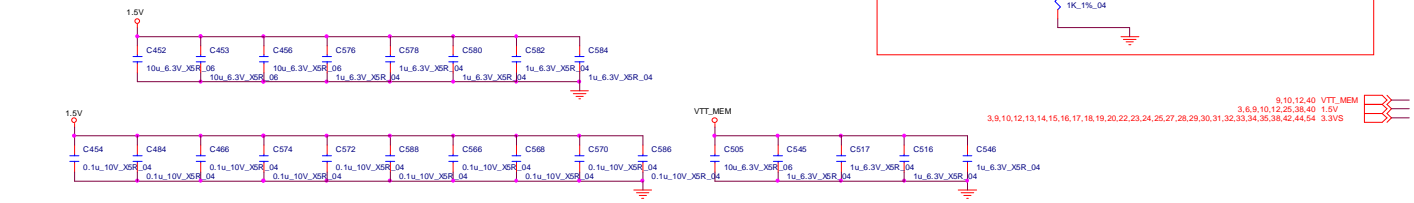


Sheet 11 of 54
DDR3 CHB
SO-DIMM 0

CHA_DIMM0=00
CHA_DIMM1=01
CHB_DIMM0=10
CHB_DIMM1=11

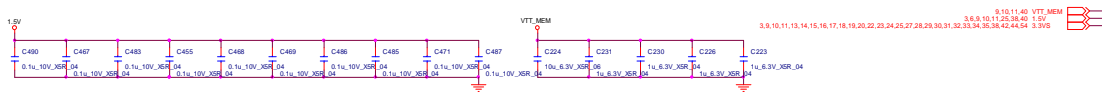
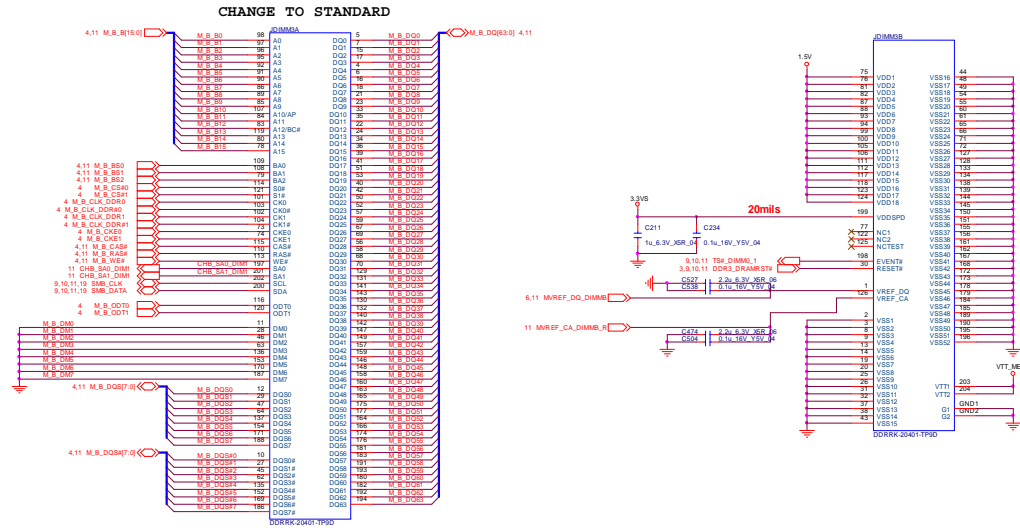
B.Schematic Diagrams

Layout Note:
SO-DIMM_1 is placed farther from the GMCH than SO-DIMM_0



DDR3 CHB SO-DIMM 1

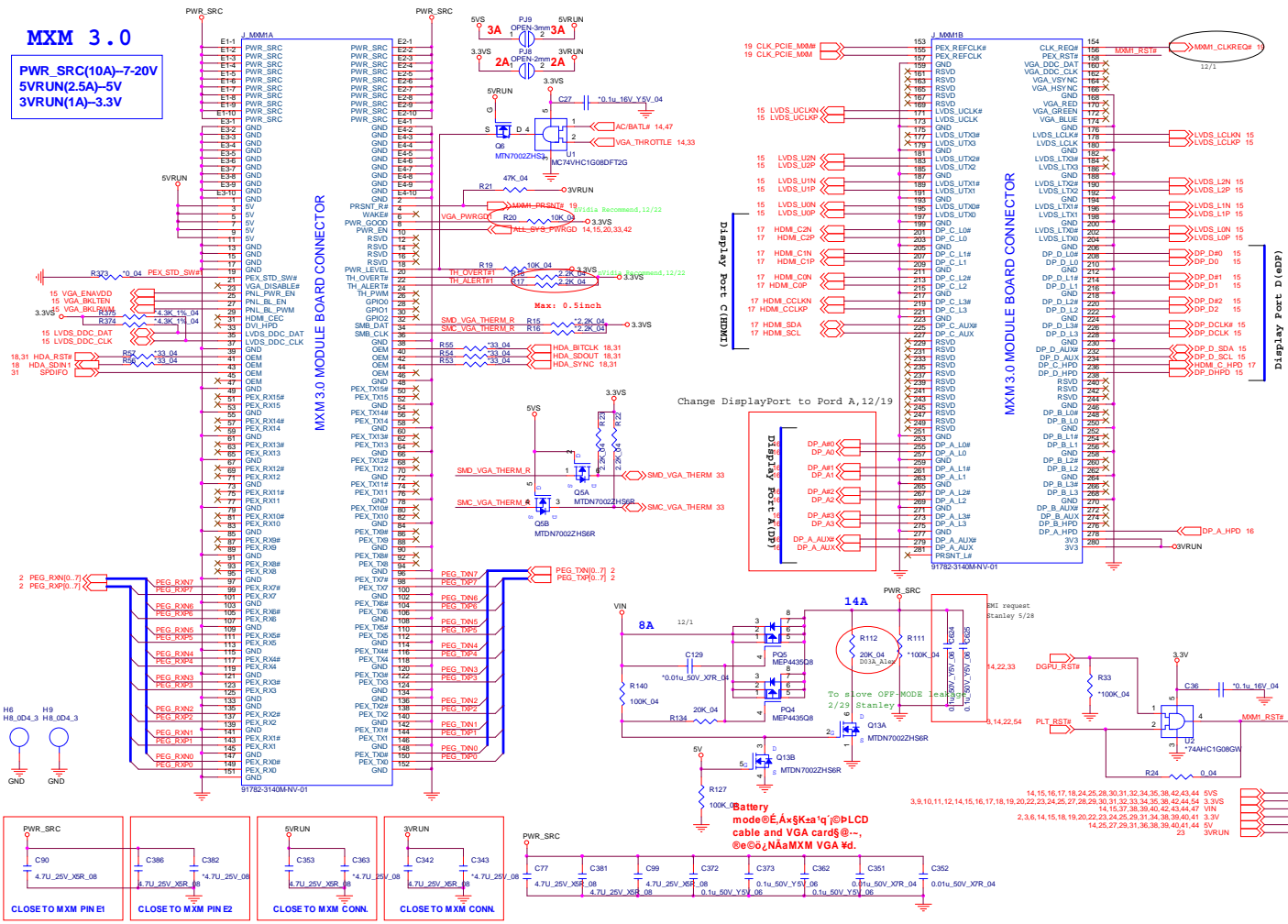
Channel B SO-DIMM 1



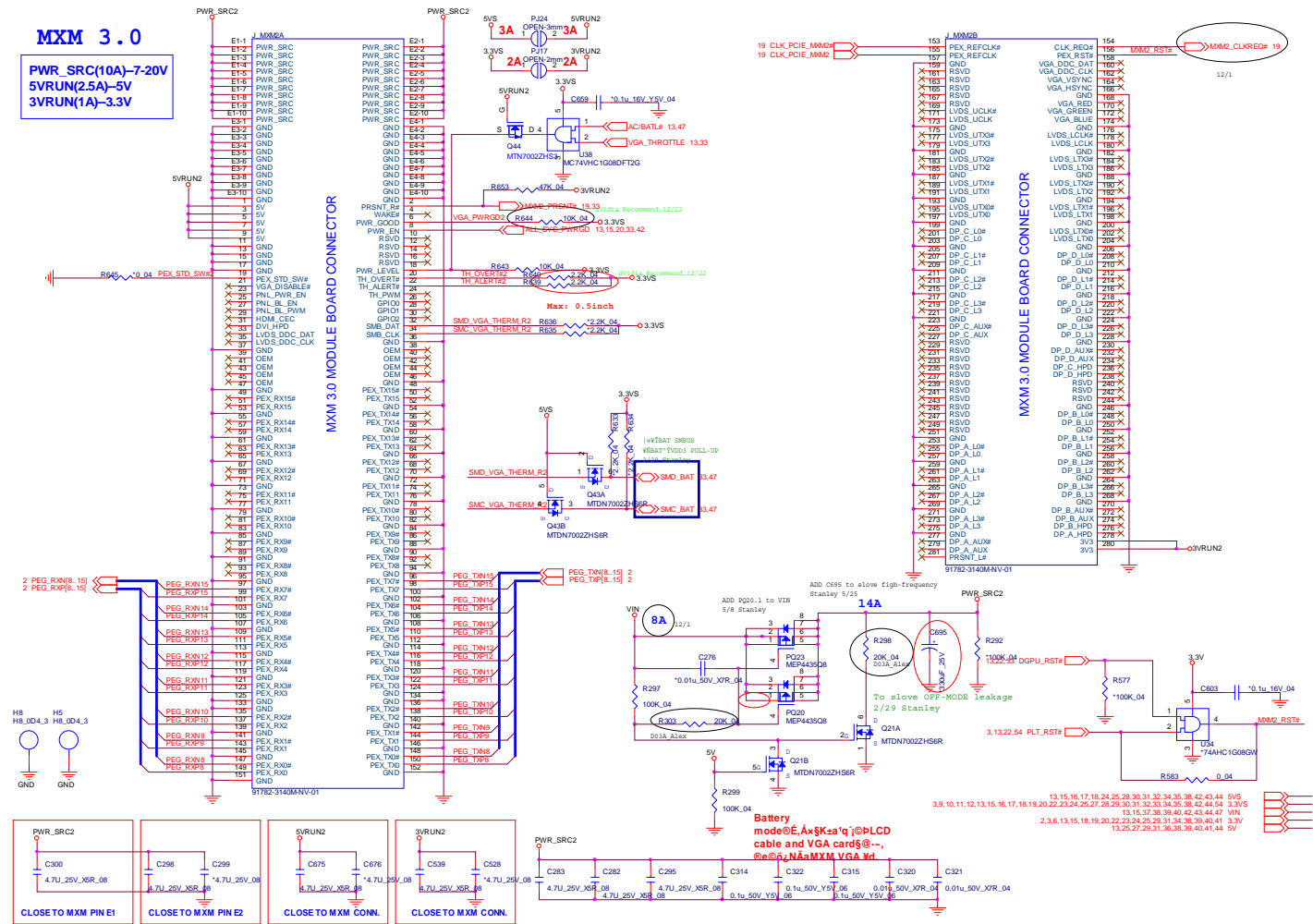
Sheet 12 of 54
PCH 1/8
DDR3 CHB
SO-DIMM 1

MXM 3.0 MASTER

Sheet 13 of 54
MXM 3.0 PCI-E
MASTER



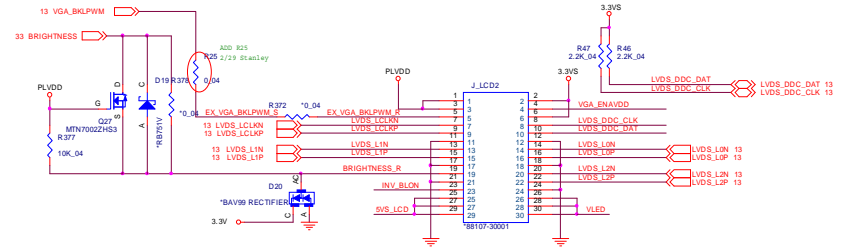
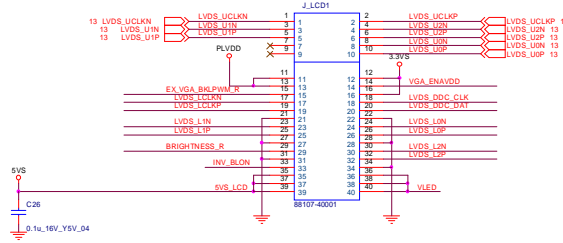
MXM 3.0 SLAVE



B.Schematic Diagrams

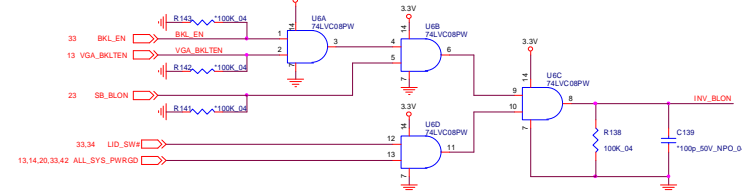
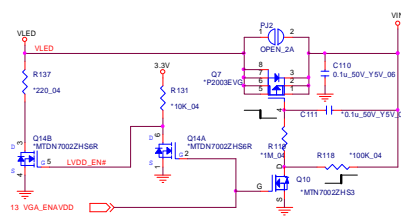
Panel, Inverter, eDP

PANEL

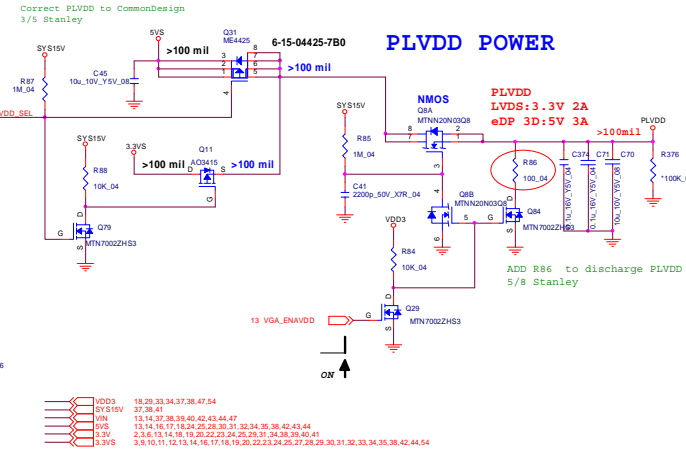
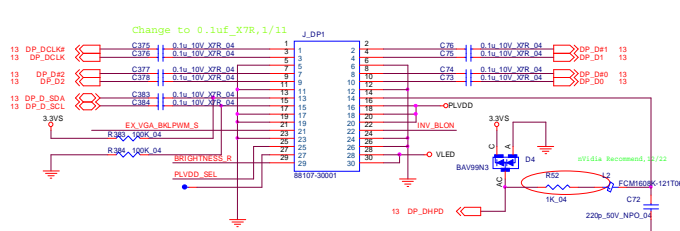


Sheet 15 of 54
Panel, Inverter, eDP

B.Schematic Diagrams

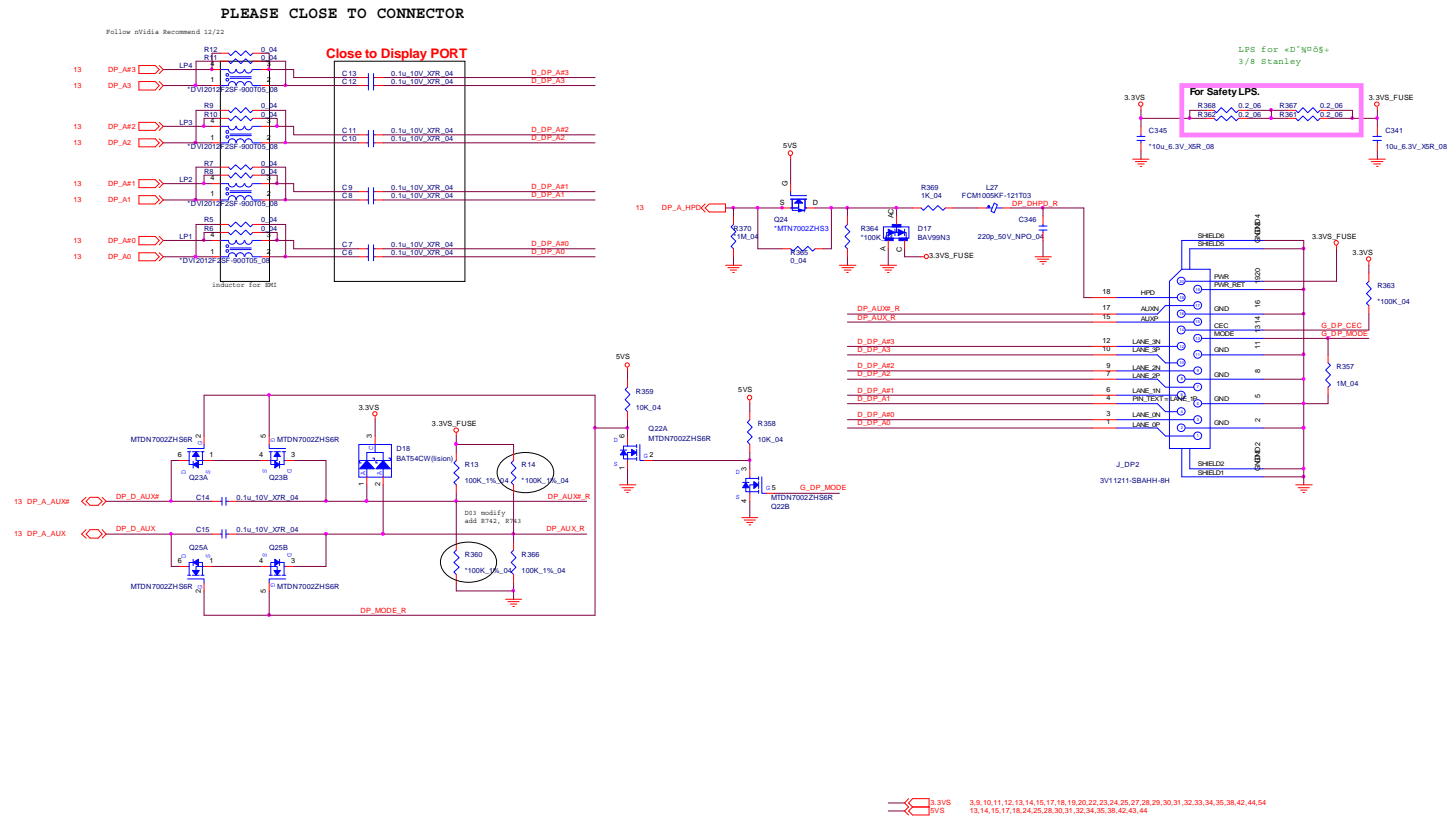


eDP



Display Port

DISPLAY PORT



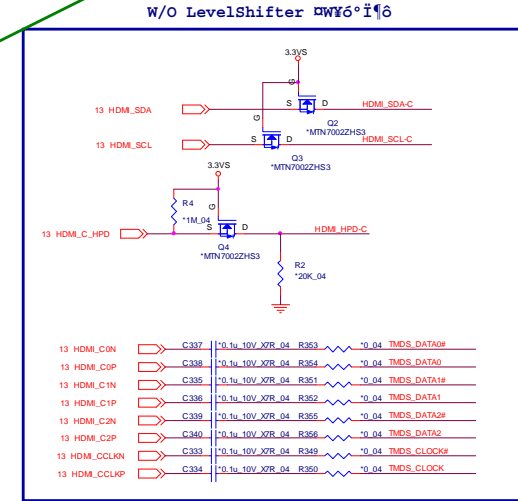
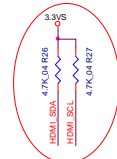
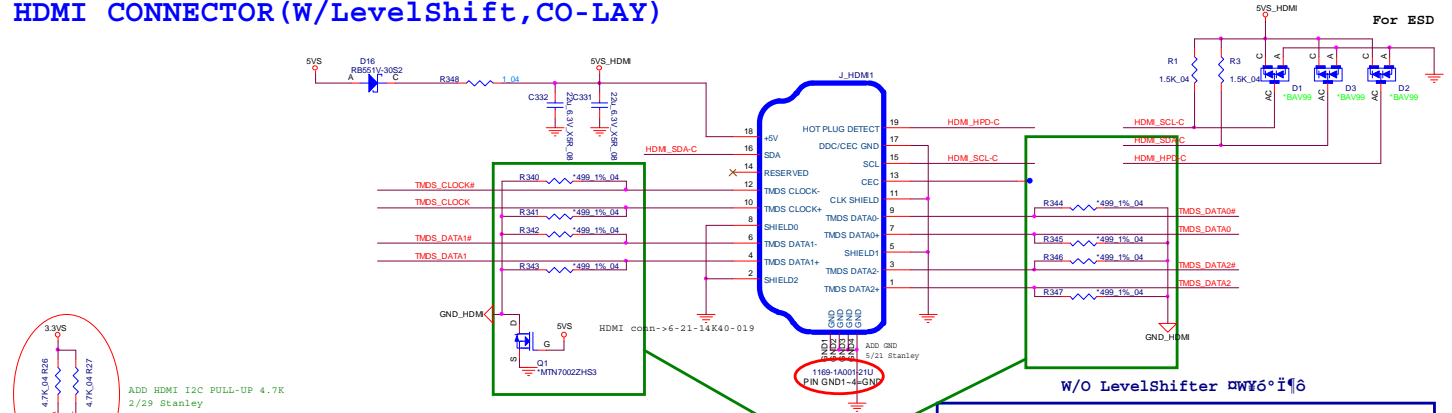
Sheet 16 of 54
Display Port

B.Schematic Diagrams

Schematic Diagrams

HDMI

HDMI CONNECTOR (W/LevelShift, CO-LAY)

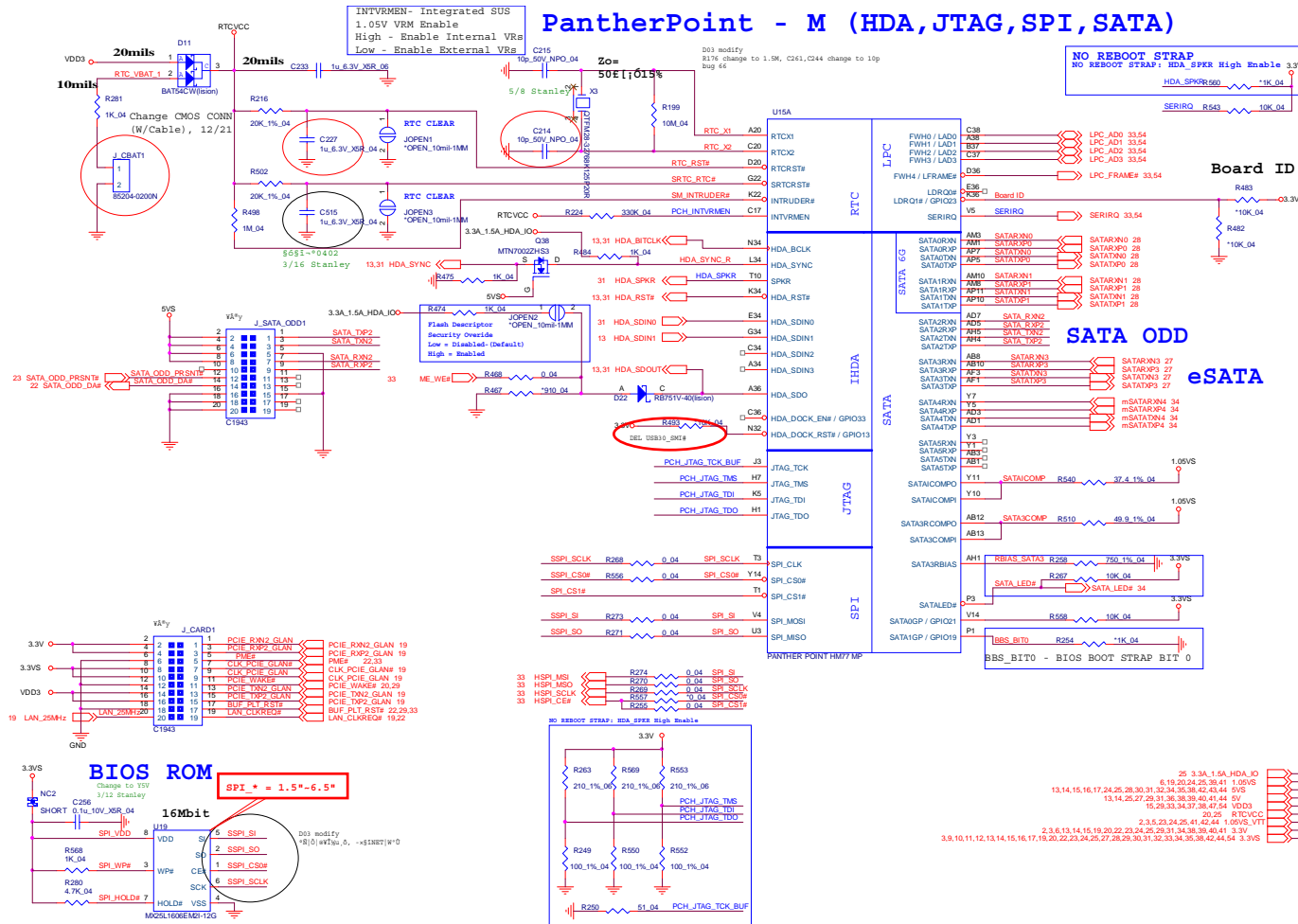


3.3V 3, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 38, 42, 44, 45
5V 13, 14, 15, 16, 18, 24, 25, 26, 30, 31, 32, 34, 35, 38, 42, 43, 44

B.Schematic Diagrams

Sheet 17 of 54
HDMI

PCH 1/9 - RTC, HDA, SATA



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

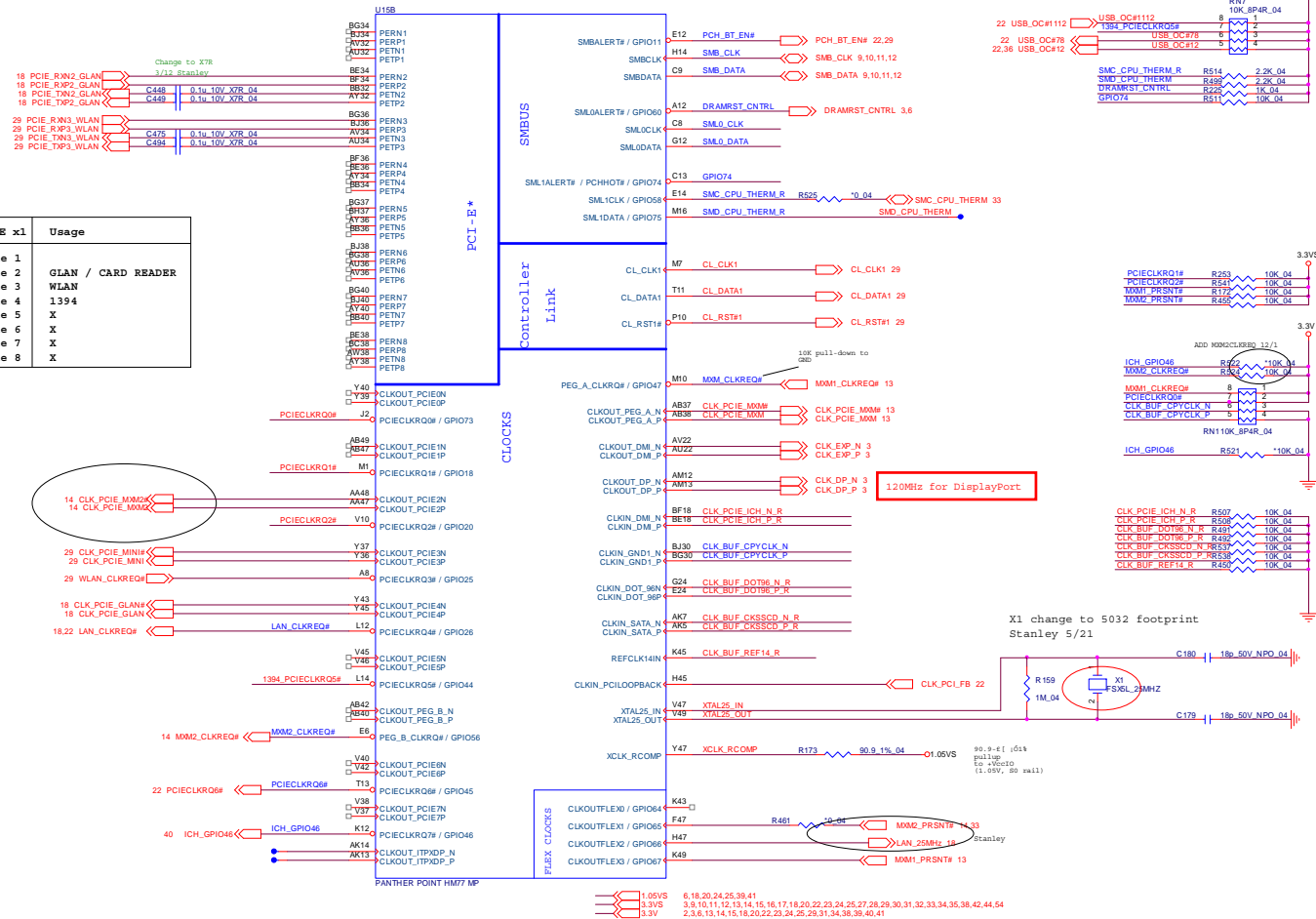
B.Schematic Diagrams

PCH 2/9 - PCIE, SMBUS, CLK

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

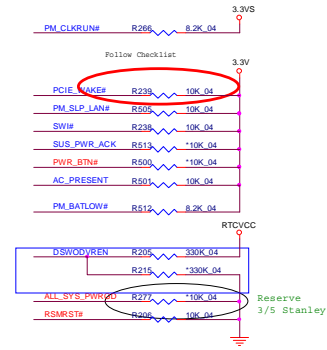
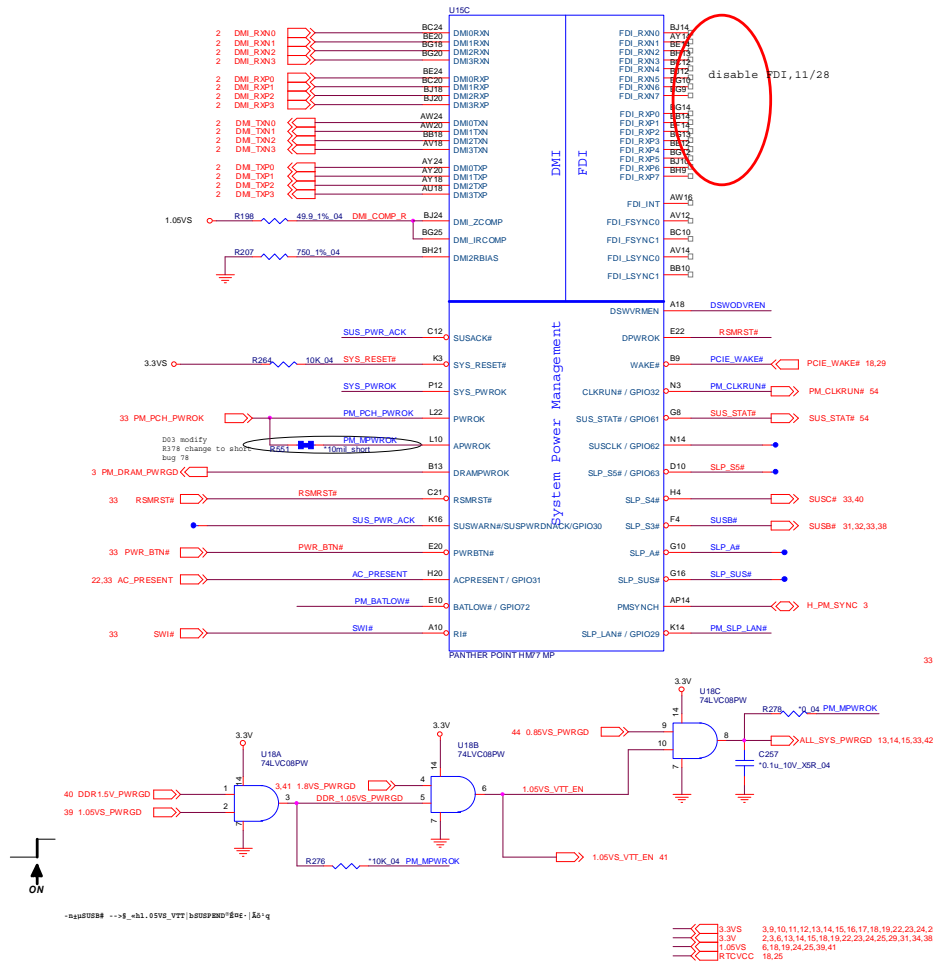
PCI-E x1	Usage
Lane 1	
Lane 2	GLAN / CARD READER
Lane 3	WLAN
Lane 4	1394
Lane 5	X
Lane 6	X
Lane 7	X
Lane 8	X

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

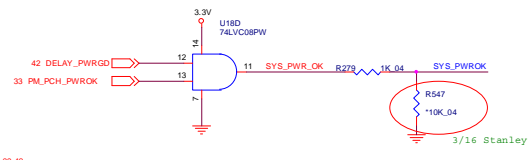


PCH 3/9 - DMI, FDI, PWRGRD

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

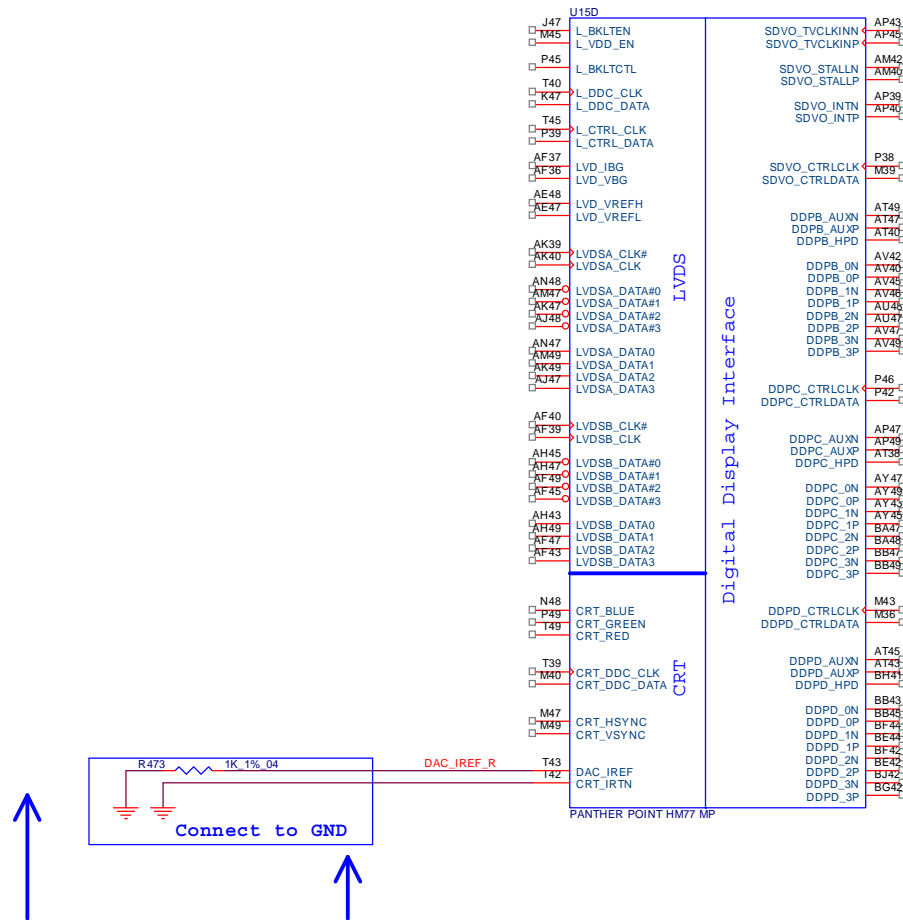
B.Schematic Diagrams

Schematic Diagrams

PCH 4/9 - LVDS, DDI, CRT

PantherPoint - H (LVDS, DDI)

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



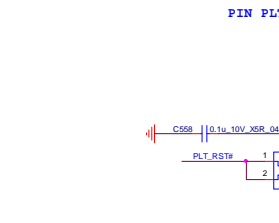
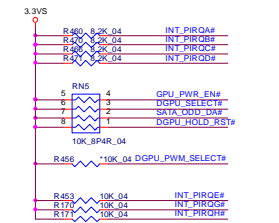
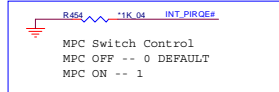
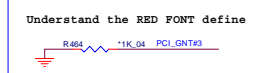
External Graphics (PCH Integrated Graphics Disable)

PCH 5/9 - PCI, USB, RSVD

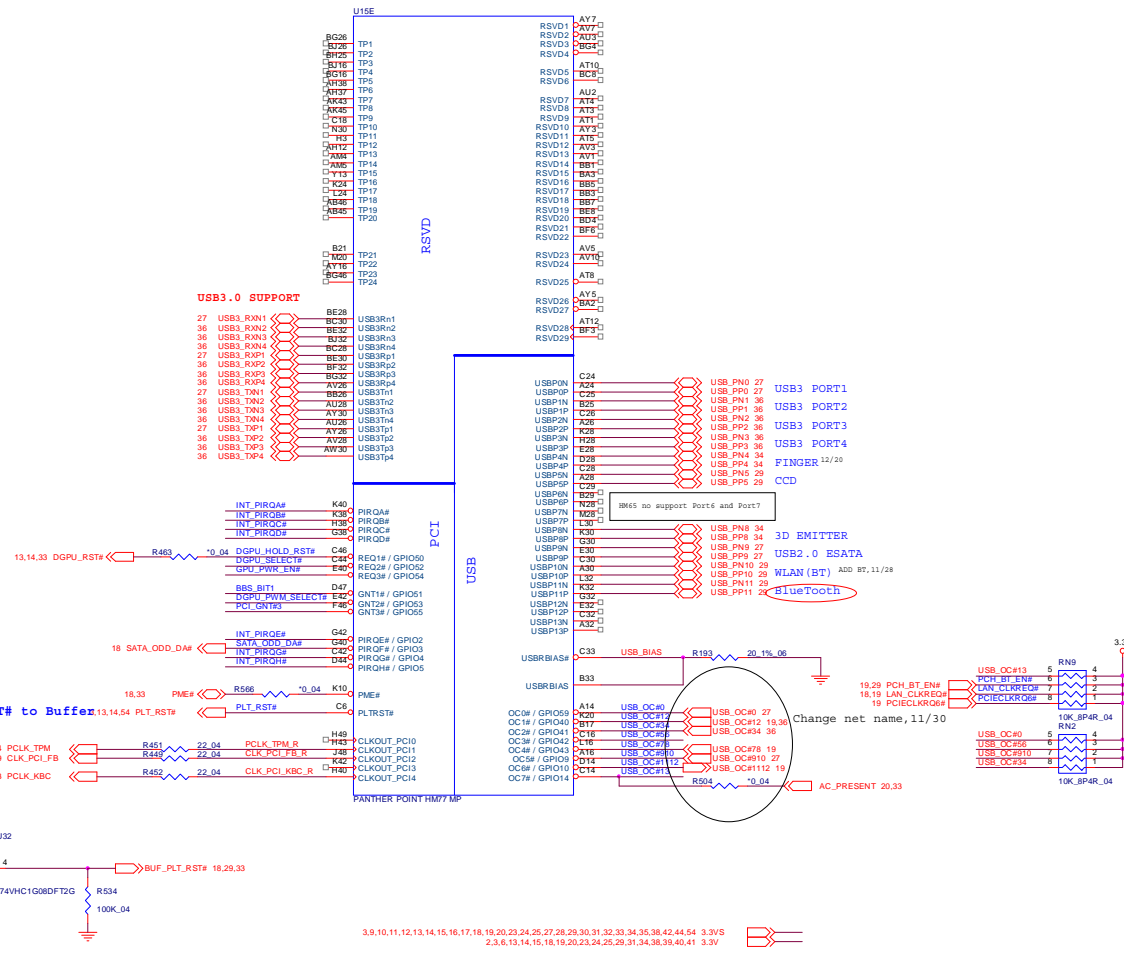
Boot BIOS Strap		
BBS_BIT1	BBS_BIT0	Boot BIOS Location
0	0	LPC
0	1	Reserved (NAND)
1	0	PCI
1	1	SPI



Flash Descriptor security override strap	
PCI_GNT#3	LOW = PCI_GNT#3 swap override HIGH = Default



PantherPoint - H (PCI,USB,NVRAM)

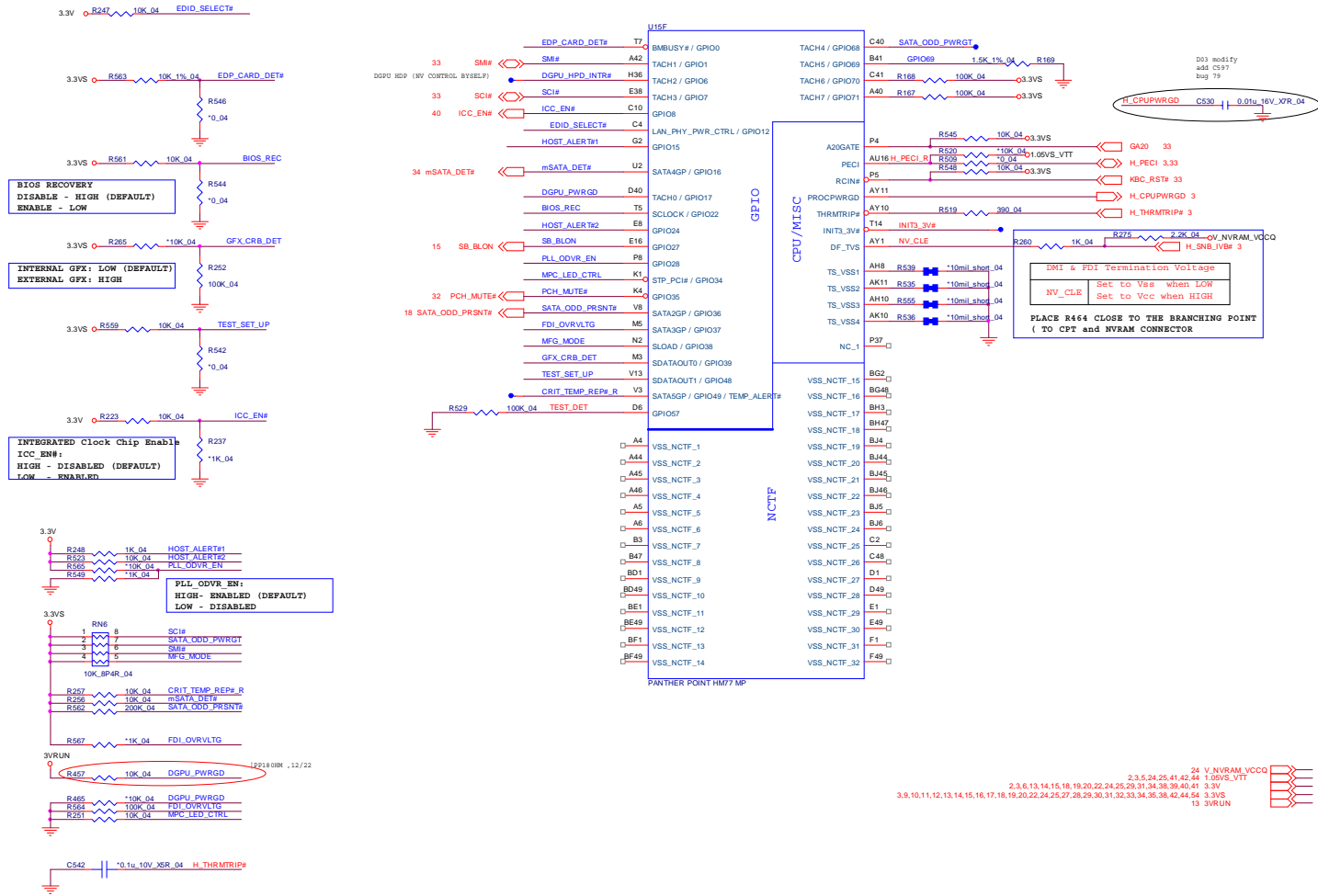


Sheet 22 of 54
PCH 5/9 - PCI, USB,
RSVD

PCH 6/9 - GPIO, CPU

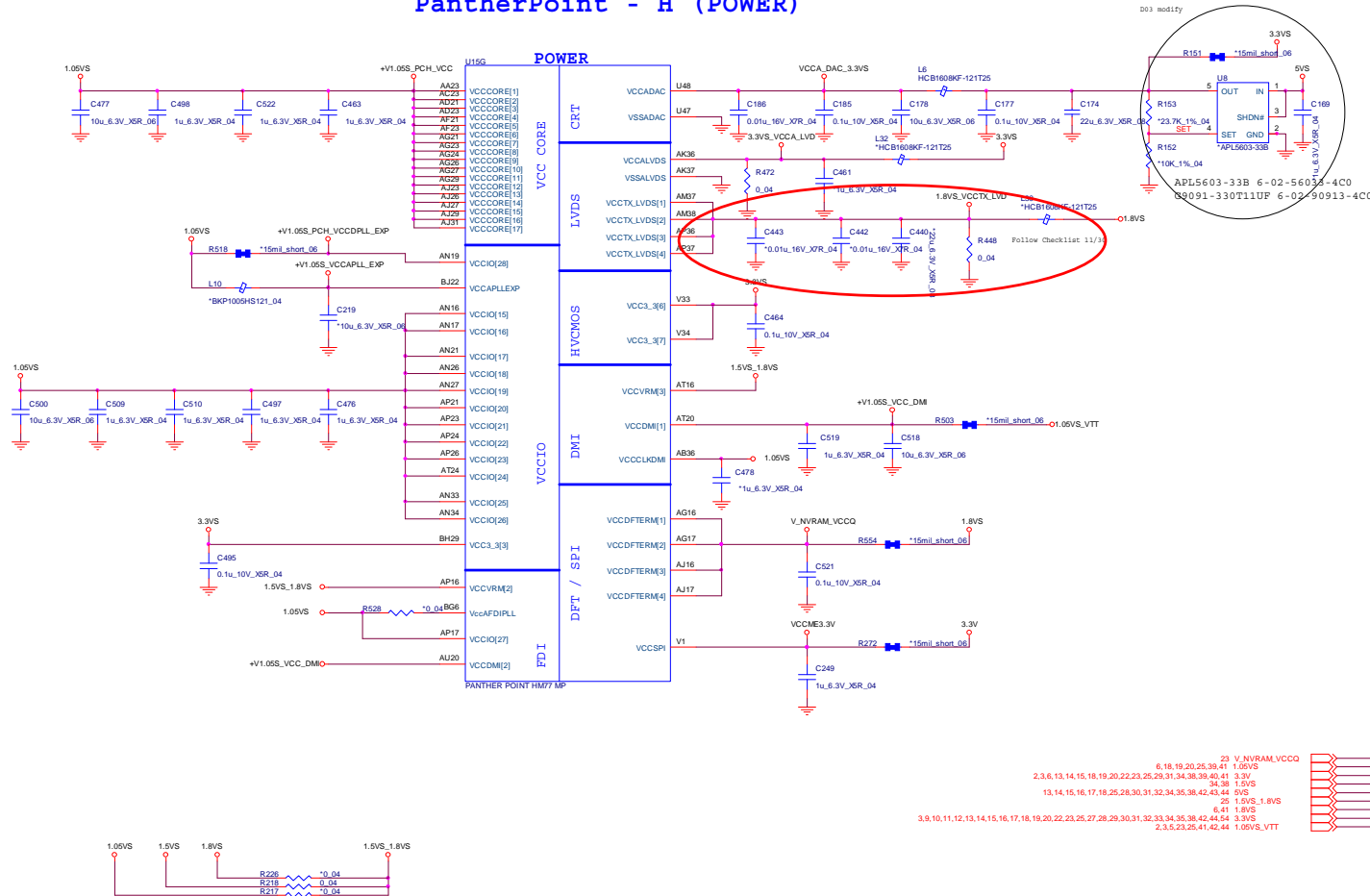
Sheet 23 of 54
PCH 6/9 - GPIO, CPU

PantherPoint - H (GPIO, VSS_NCTF, RSVD)



PCH 7/9 - Power

PantherPoint - H (POWER)

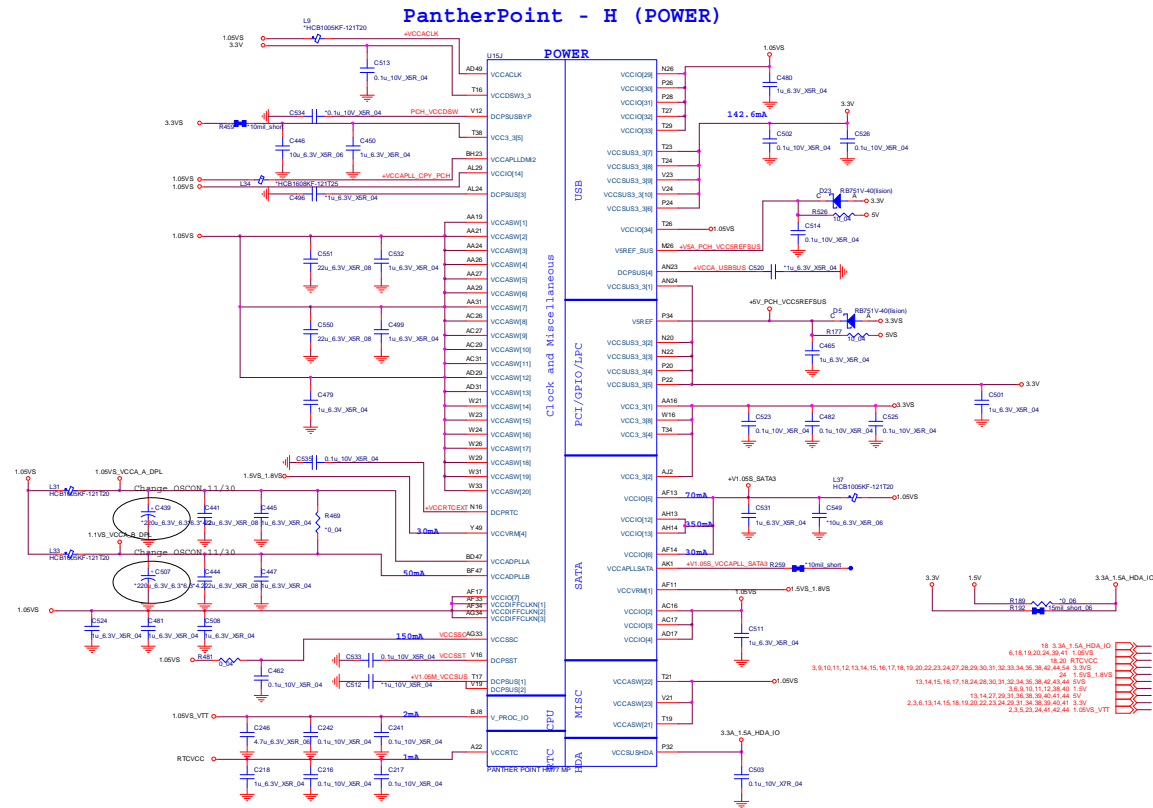


Sheet 24 of 54
PCH 7/9 - Power

B.Schematic Diagrams

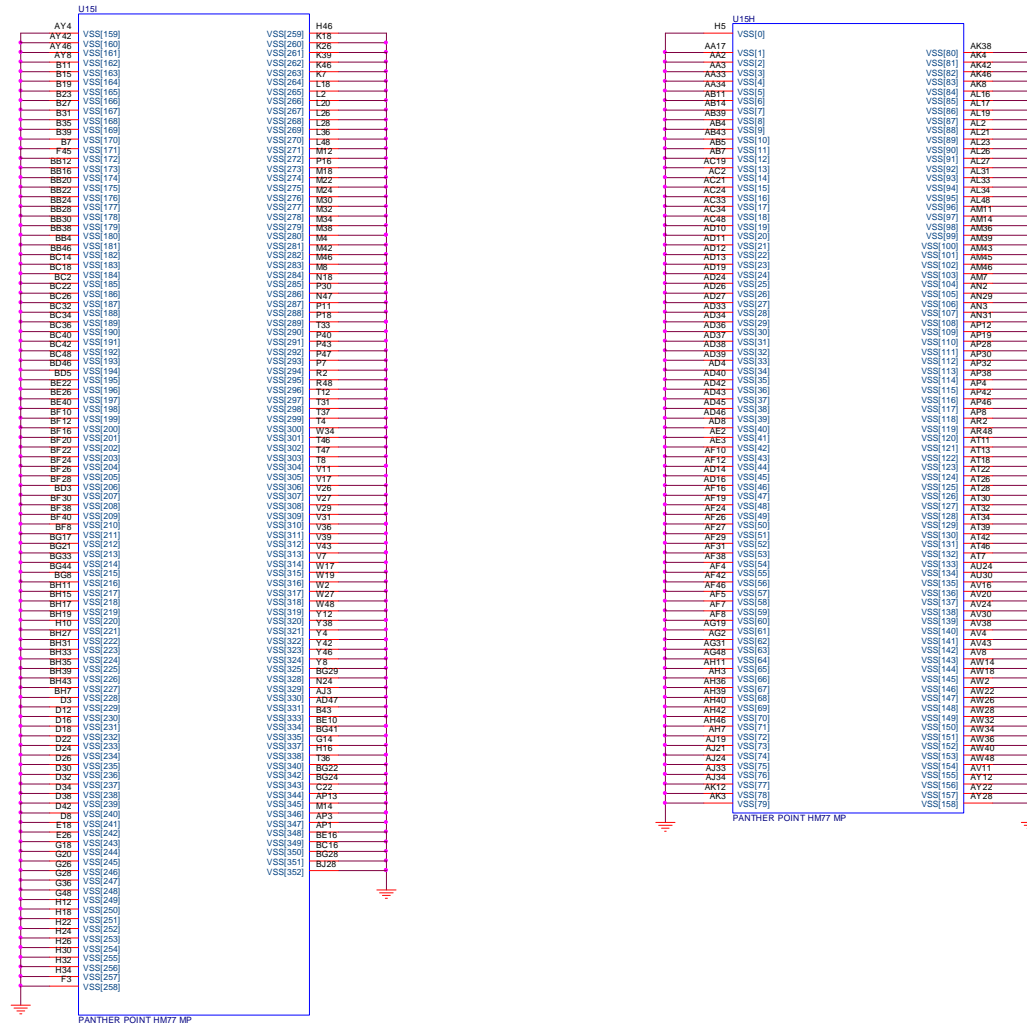
PCH 8/9 - Power

Sheet 25 of 54
PCH 8/9 - Power



PCH 9/9 - GND

PantherPoint - H (GND)

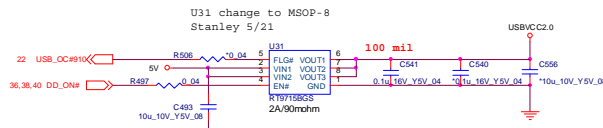


Sheet 26 of 54
PCH 9/ -GND

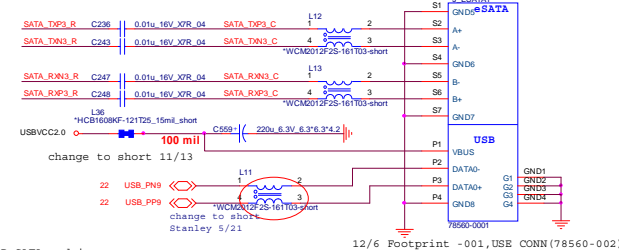
B.Schematic Diagrams

USB+eSATA, USB Charging

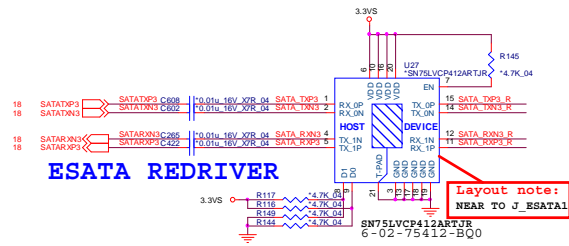
Sheet 27 of 54
USB+eSATA, USB
Charging



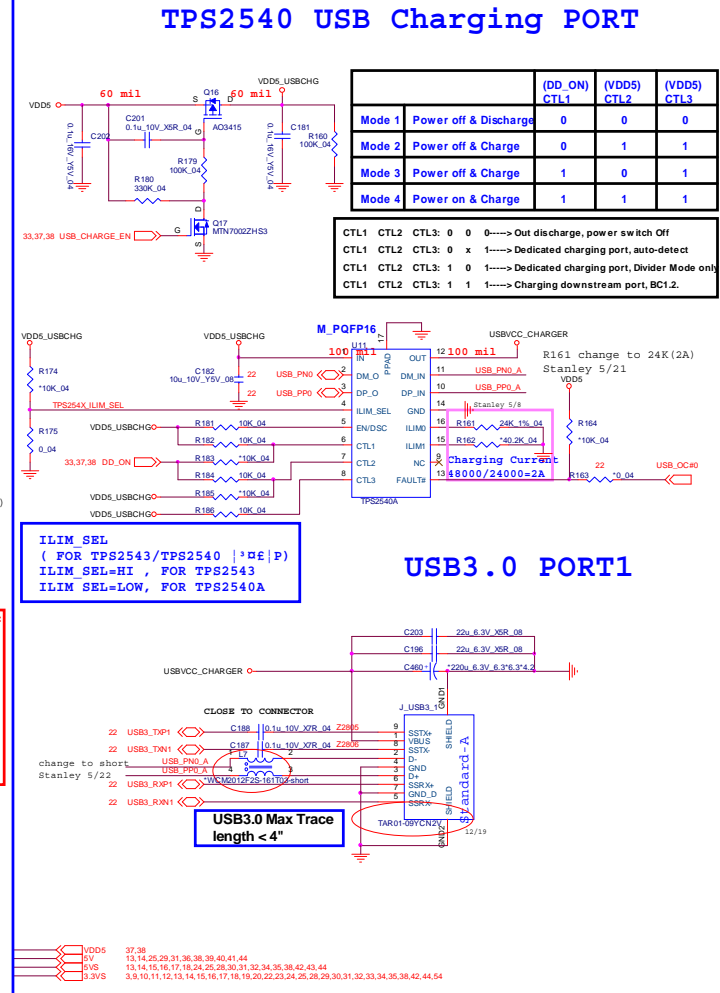
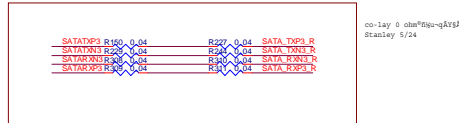
USB2.0 PORT + eSATA



ADD SATA redriver
5/21 Stanley

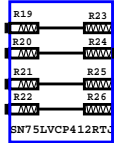


ESATA REDRIVER



GEN-III SATA HDD Re-driver

Layout



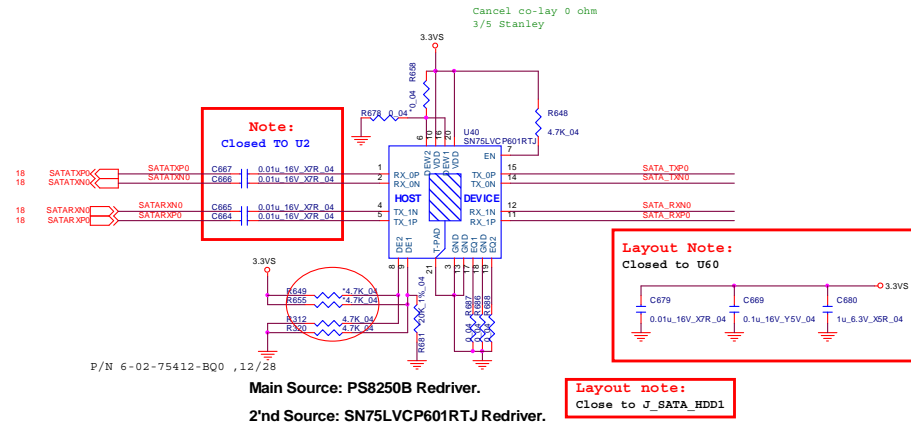
SN75LVCP601RTJ Redriver.

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

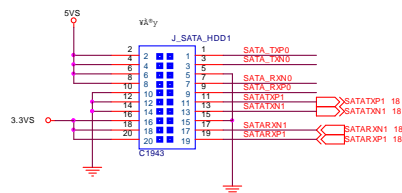
DEW1	DEW2	DE Width
0	0	Short (at SATA 1.5/3/6 Gbps)
1	1	Long (at SATA 1.5/3 Gbps)

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

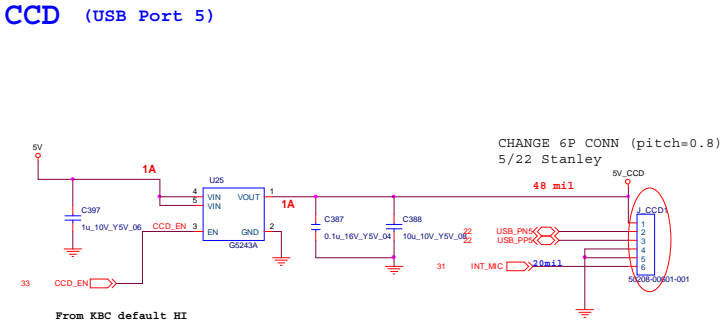
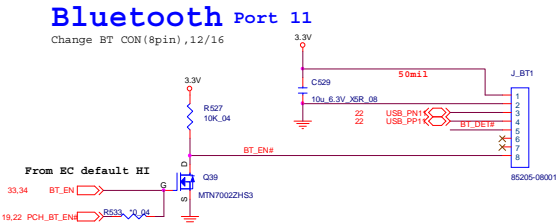


PORT1 Re-driver IC
move to HDD B'D
3/16

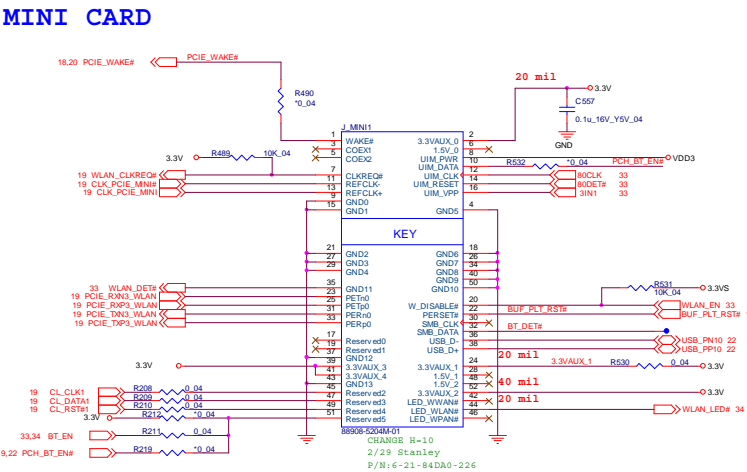
3,9,10,11,12,13,14,15,16,17,18,19,20,22,23,24,25,27,29,30,31,32,33,34,35,38,42,44,54 3.3V5
13,14,15,16,17,18,24,25,30,31,32,34,35,38,42,43,44 5V5

BT, CCD+MIC, MINI PCIE

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

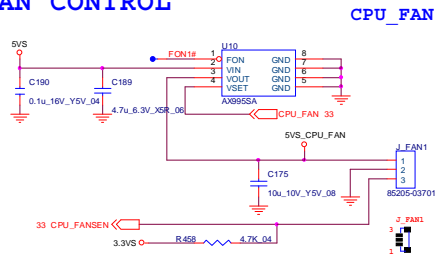


- VDD3 15,18,33,34,37,38,47,54
- 3V 13,14,25,27,31,38,39,39,40,41,44
- DVS 13,14,15,16,17,18,24,25,29,30,31,32,34,35,38,42,43,44
- 3.3V 2,3,6,13,14,15,18,19,20,22,23,24,25,31,34,38,39,40,41
- 3.3VS 3,6,10,11,12,13,14,15,16,17,18,19,20,29,31,32,33,34,35,38,42,44,54

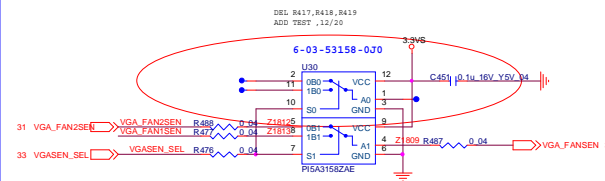


Fan Control

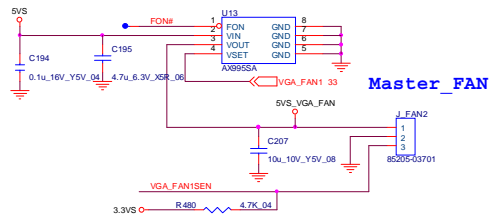
CPU FAN CONTROL



VGA FAN CONTROL-Selector



VGA FAN CONTROL



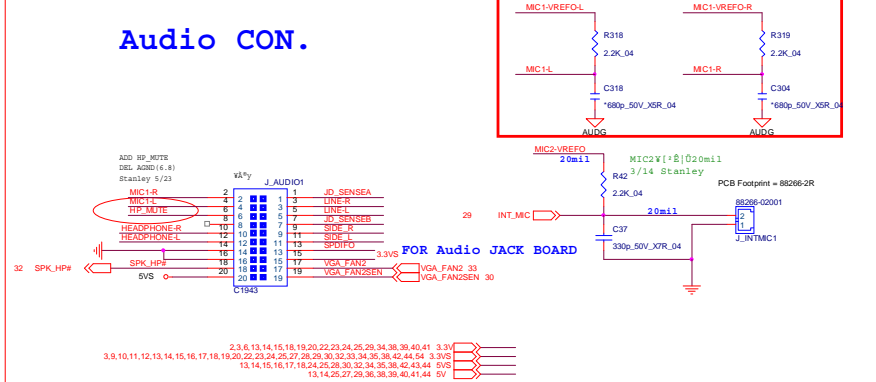
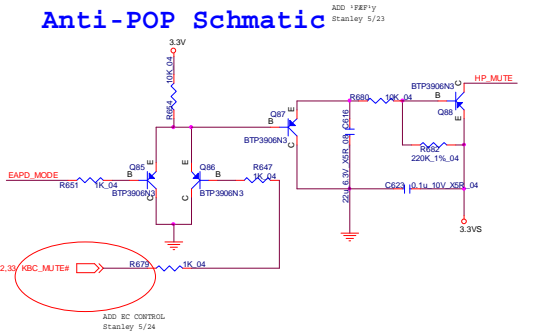
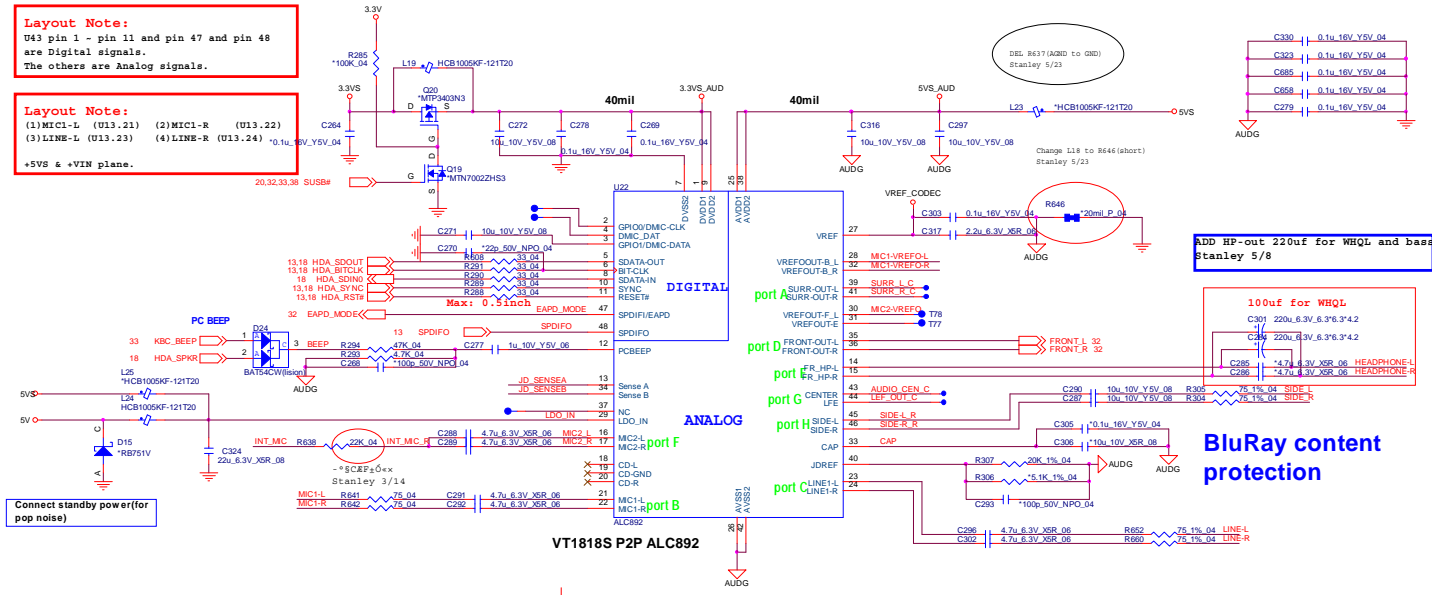
Sheet 30 of 54
Fan Control

B.Schematic Diagrams

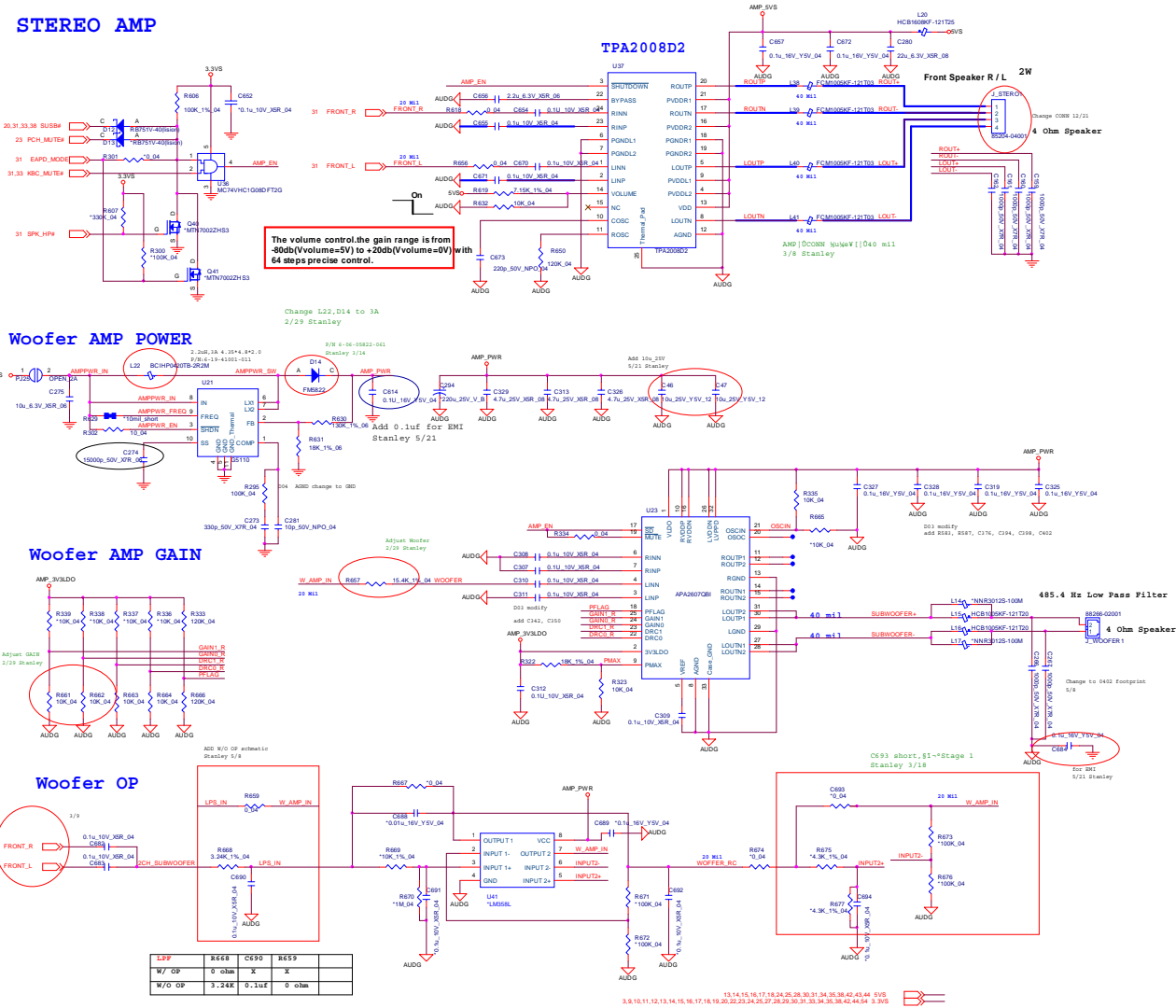
3.3VS	3,9,10,11,12,13,14,15,16,17,18,19,20,22,23,24,25,27,28,29,31,32,33,34,35,36,42,44,54
VDD3	15,16,23,33,34,37,38,47,54
3.3V	2,3,6,13,14,15,18,19,20,22,23,24,25,29,31,34,36,39,40,41
2VS	13,14,15,16,17,18,24,25,28,31,32,34,35,36,42,43,44
1.05VS	6,18,19,20,24,25,39,41
1.5V	5,6,9,10,11,12,25,38,40

Codec Realtek ALC892

Sheet 31 of 54
Codec Realtek
ALC892



APA2607 / TPA2008D2

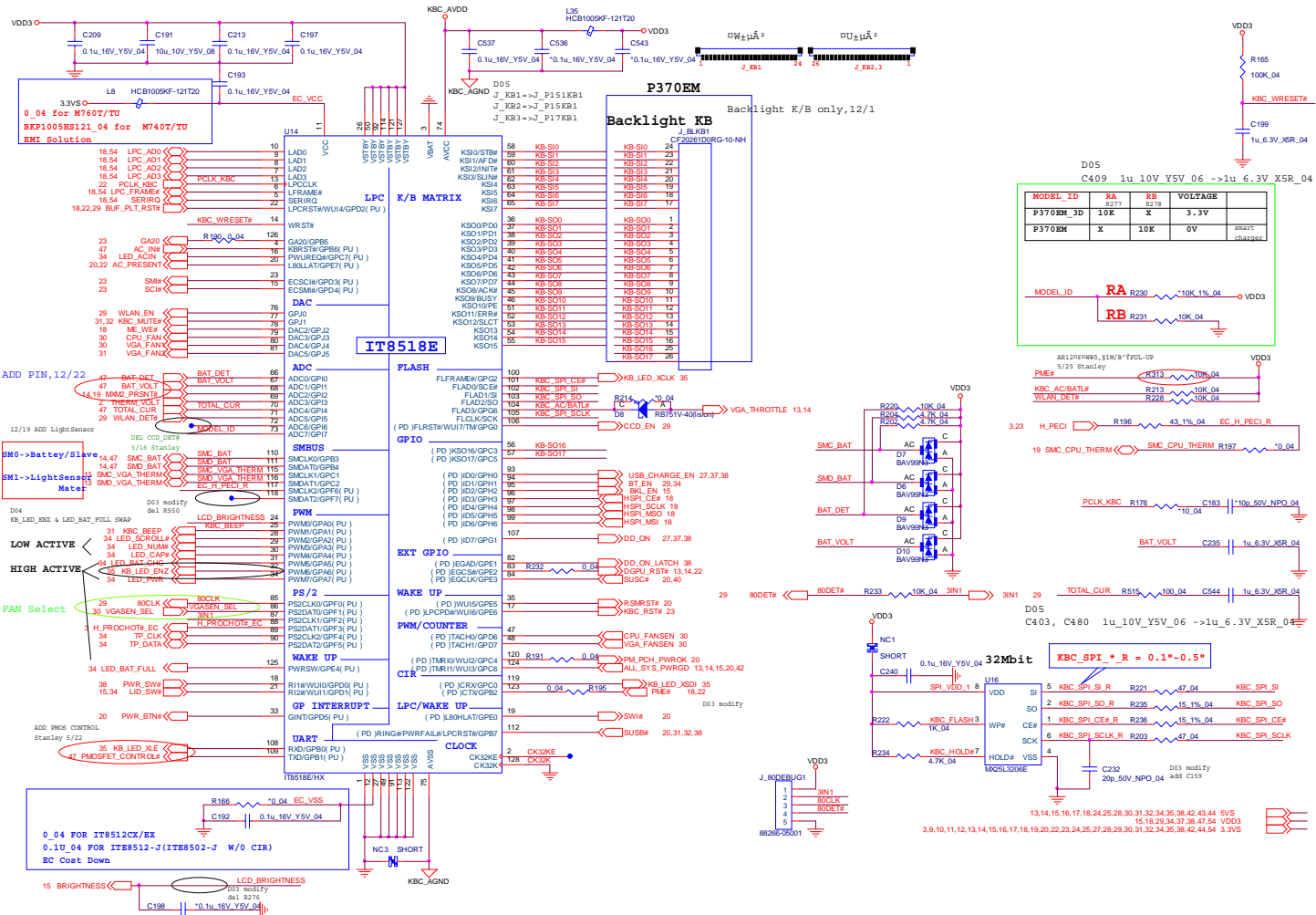


Sheet 32 of 54
 APA2607 /
 TPA2008D2

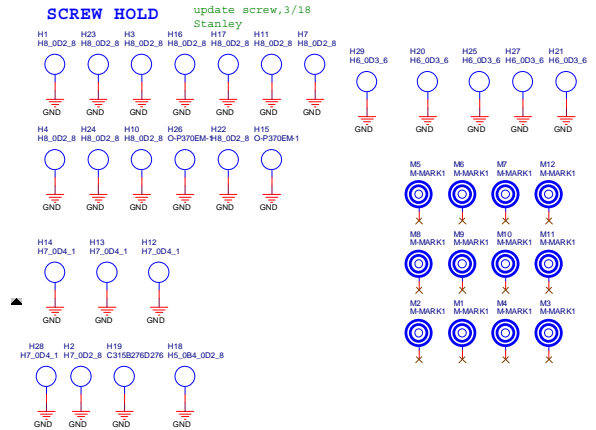
B.Schematic Diagrams

Schematic Diagrams

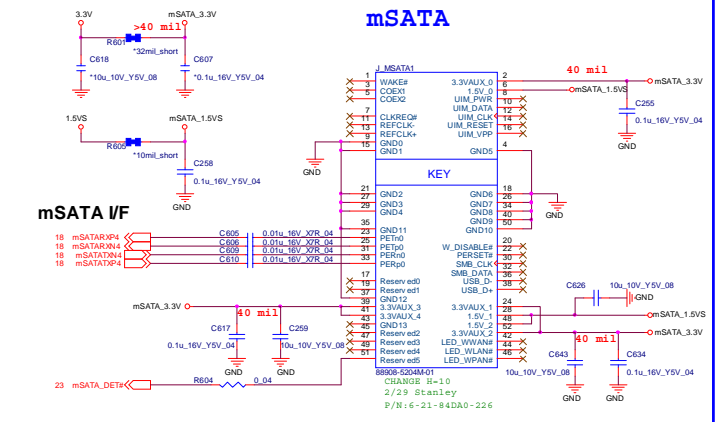
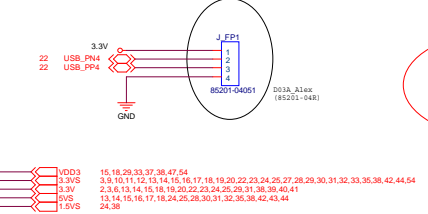
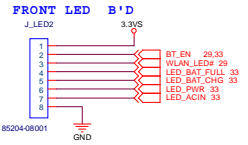
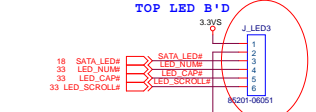
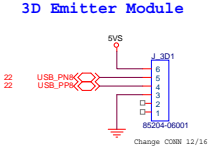
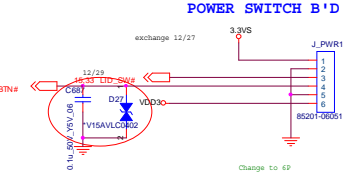
KBC-ITEIT8518E



mSATA, Fan, TP, FP, MULTI CON



CHANGE CONN 12/21

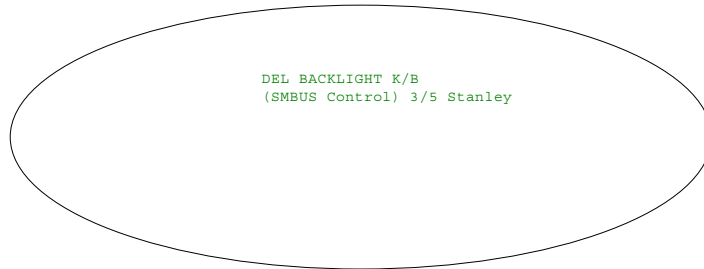
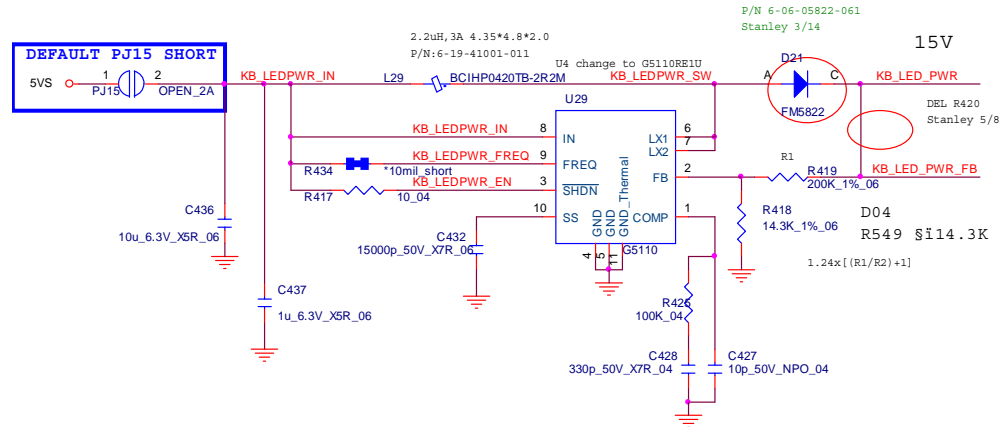


B.Schematic Diagrams

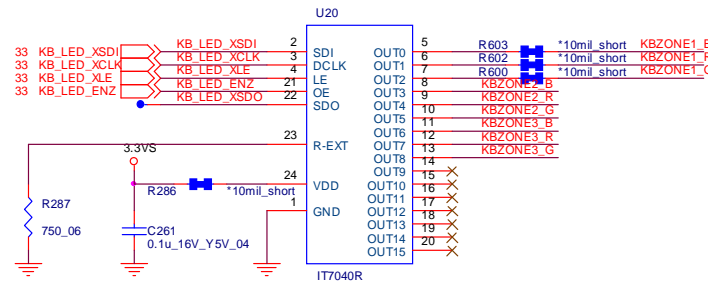
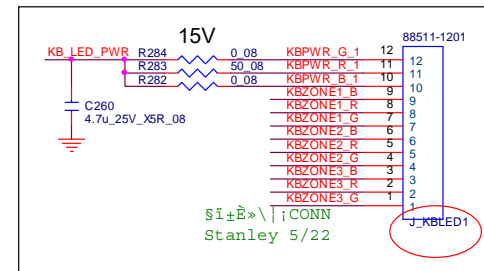
Sheet 34 of 54
mSATA, Fan, TP,
FP, MULTI CON

Backlight Keyboard

Sheet 35 of 54
Backlight
Keyboard



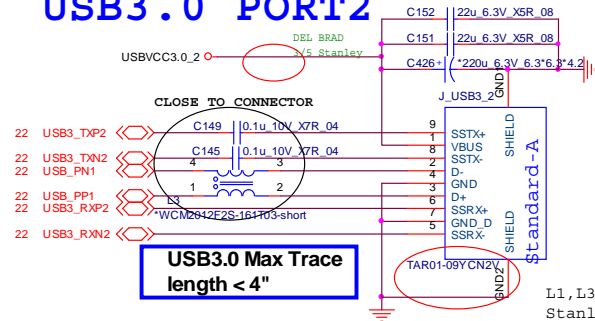
DEL BACKLIGHT K/B
(SMBUS Control) 3/5 Stanley



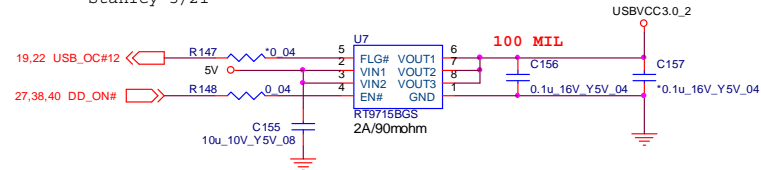
13, 14, 15, 16, 17, 18, 24, 25, 26, 30, 31, 32, 34, 38, 42, 43, 44, 5V5
3, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 38, 42, 44, 54, 3.3V5

USB3.0

USB3.0 PORT2

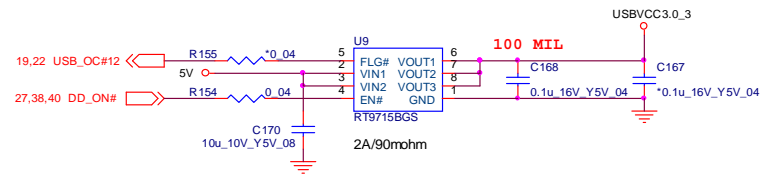
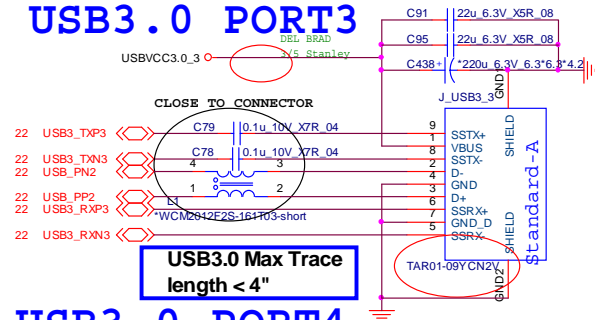


U7,U9,U24 change to MSOP-8
Stanley 5/21

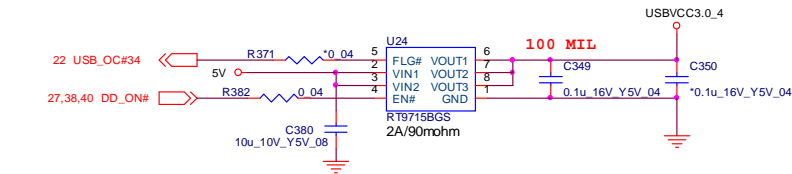
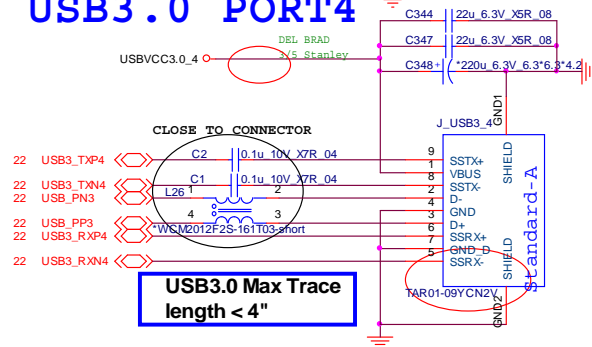


L1,L3,L26 change to short (swap ok)
Stanley 5/22

USB3.0 PORT3



USB3.0 PORT4



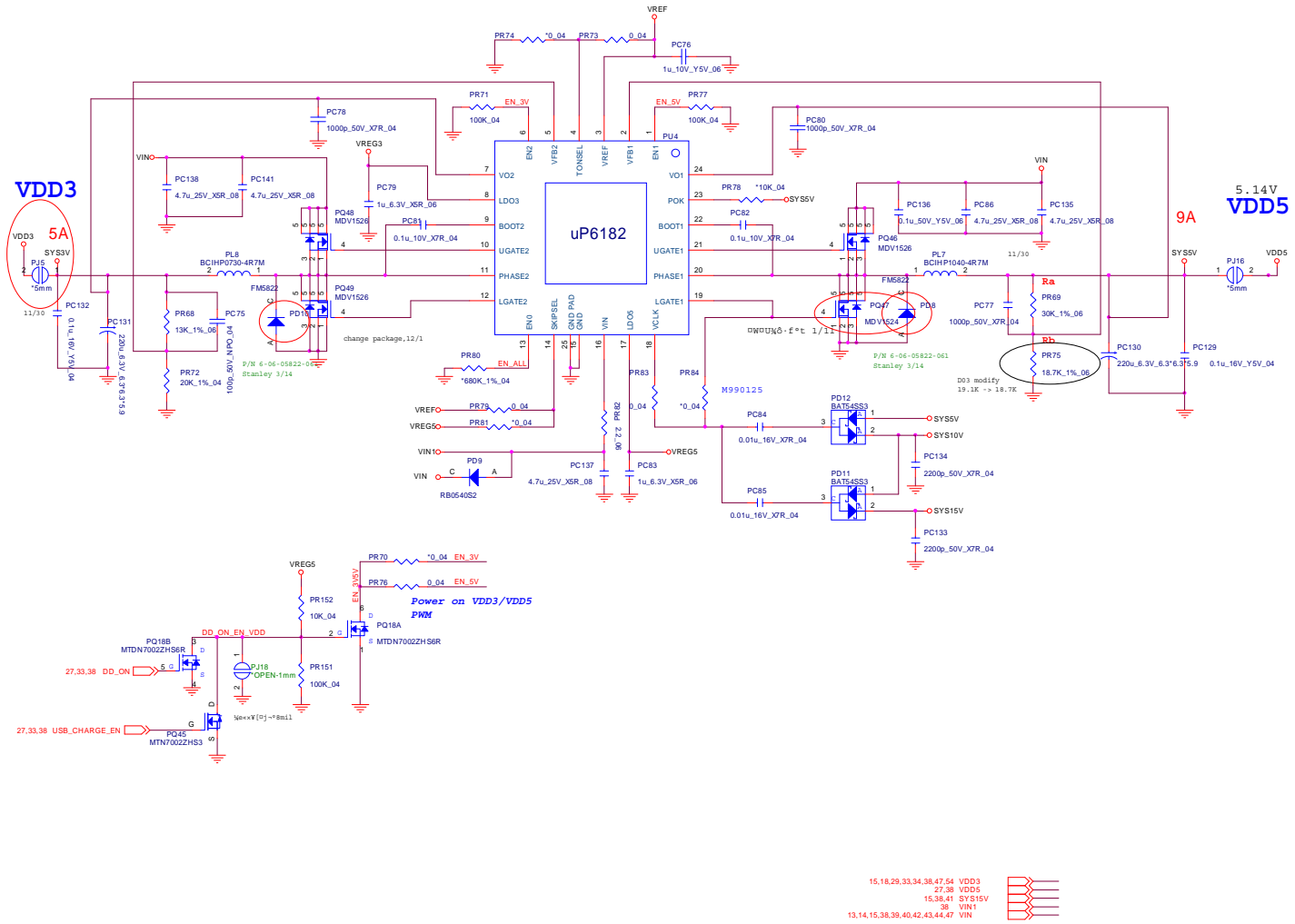
13,14,25,27,29,31,38,39,40,41,44 5V

Sheet 36 of 54
USB3.0

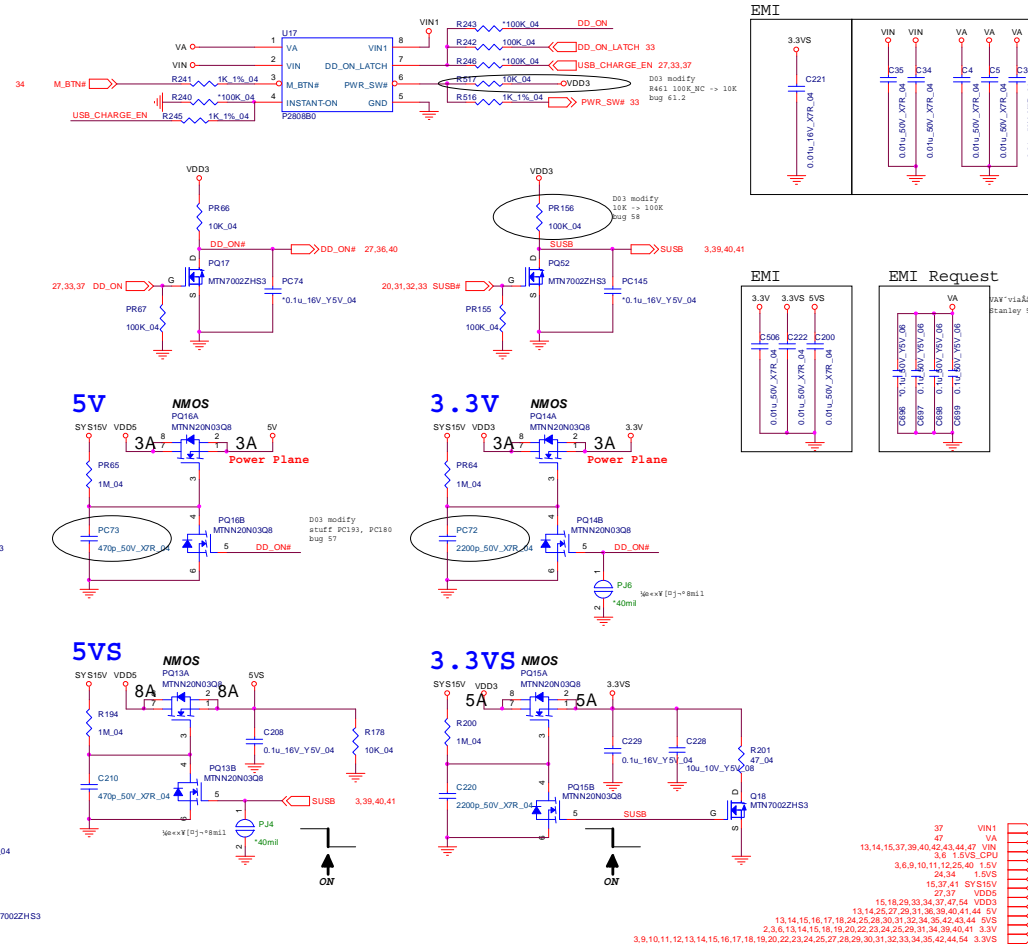
Schematic Diagrams

VDD3, VDD5

Sheet 37 of 54
VDD3, VDD5



5VS, 3.3VS, 1.5VS

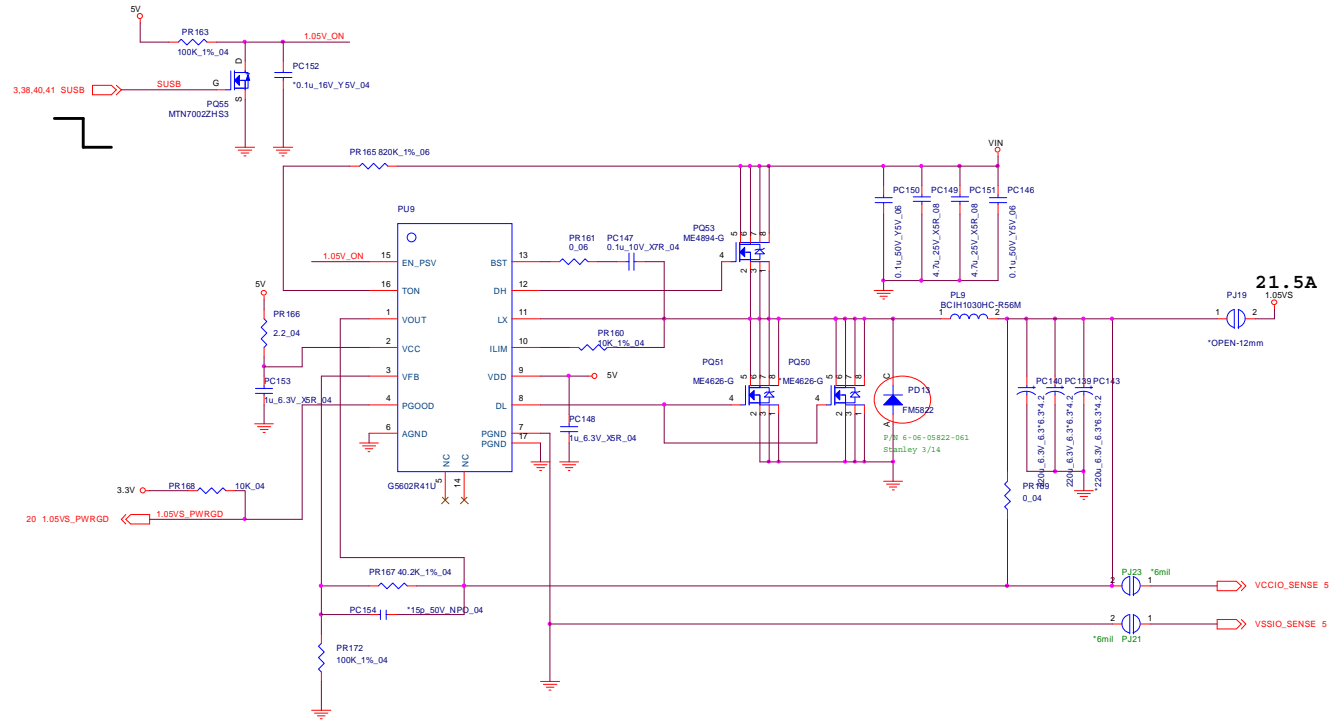


Sheet 38 of 54
5VS, 3.3VS, 1.5VS

Schematic Diagrams

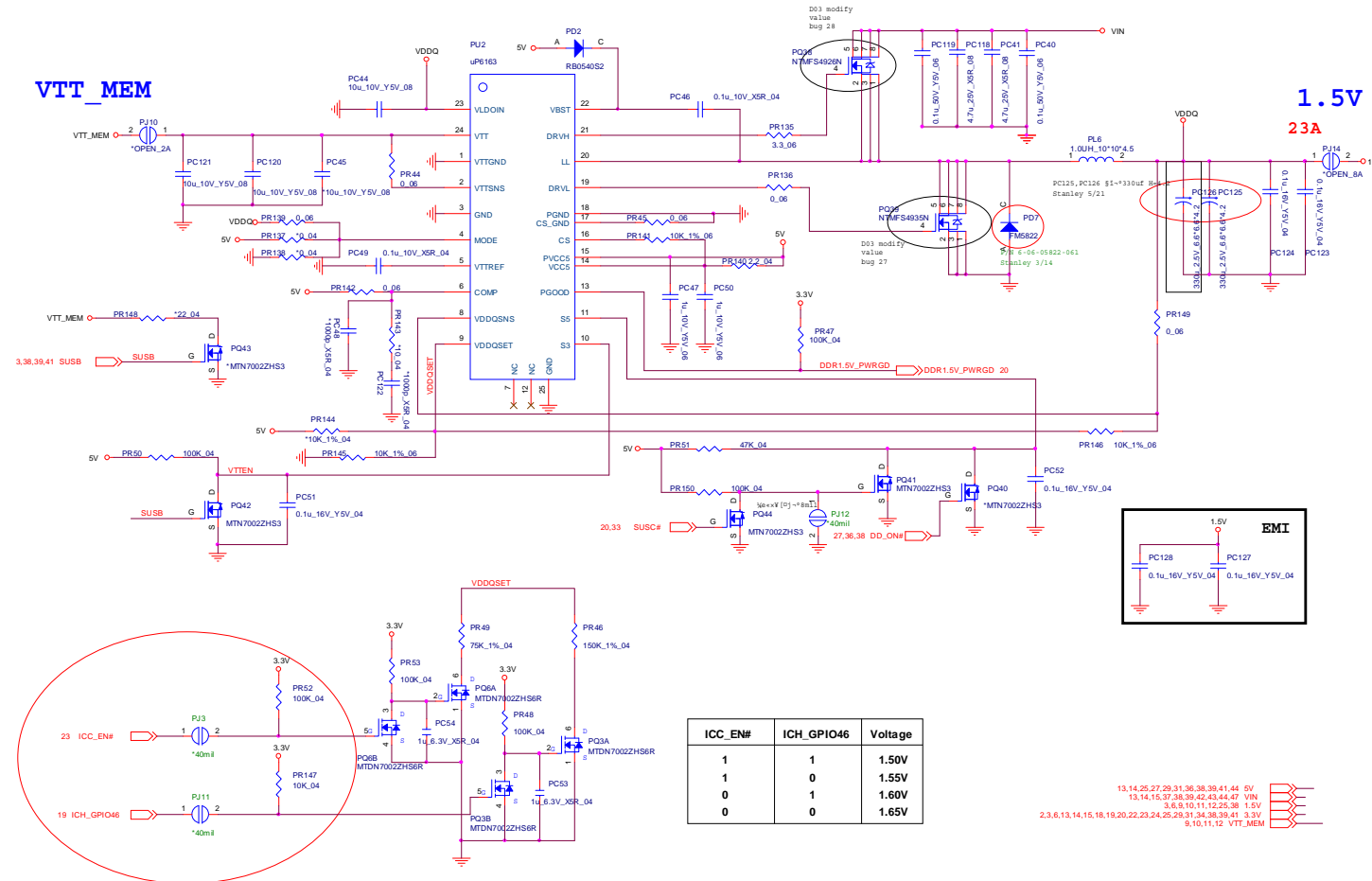
Power 1.05VS

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



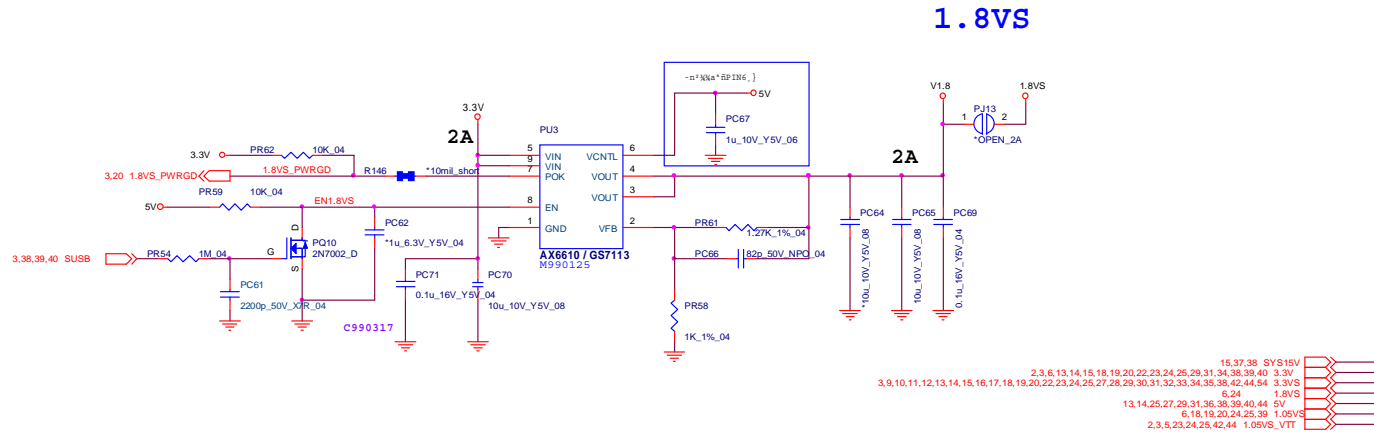
Sheet 40 of 54
Power 1.5V /
VTT_MEM

B.Schematic Diagrams

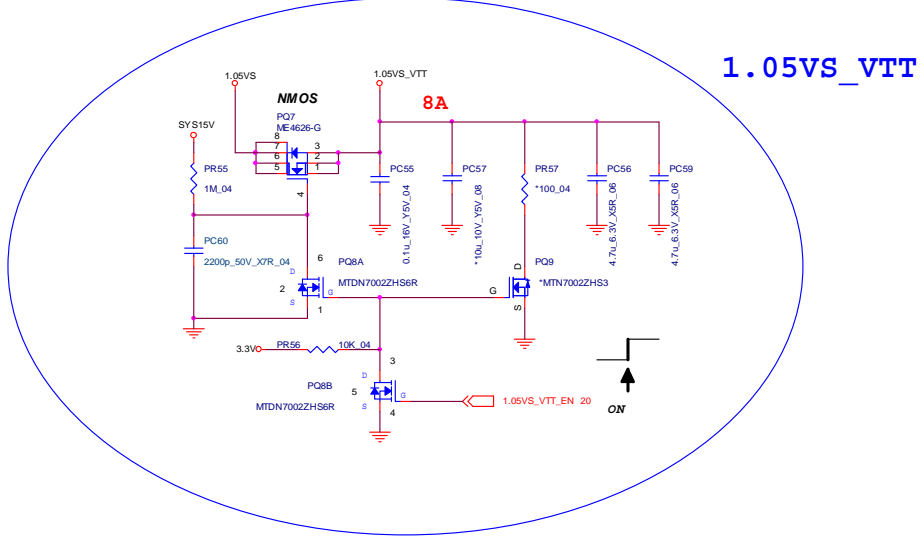
Schematic Diagrams

Power 1V, 1.8VS

Sheet 41 of 54
Power 1V, 1.8VS

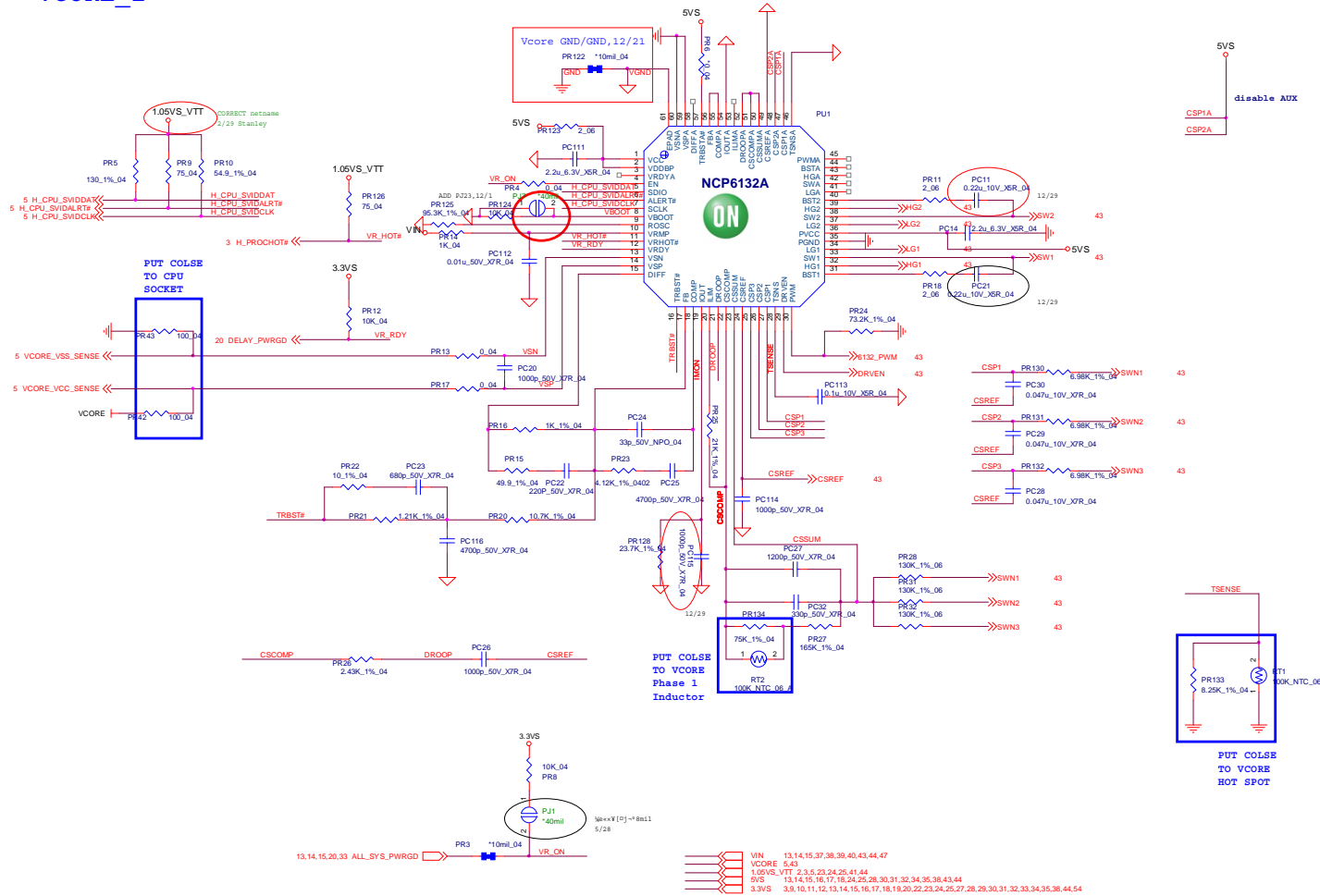


D04
1.05VS_VTT re-design



Power V-Core1

VCORE_1



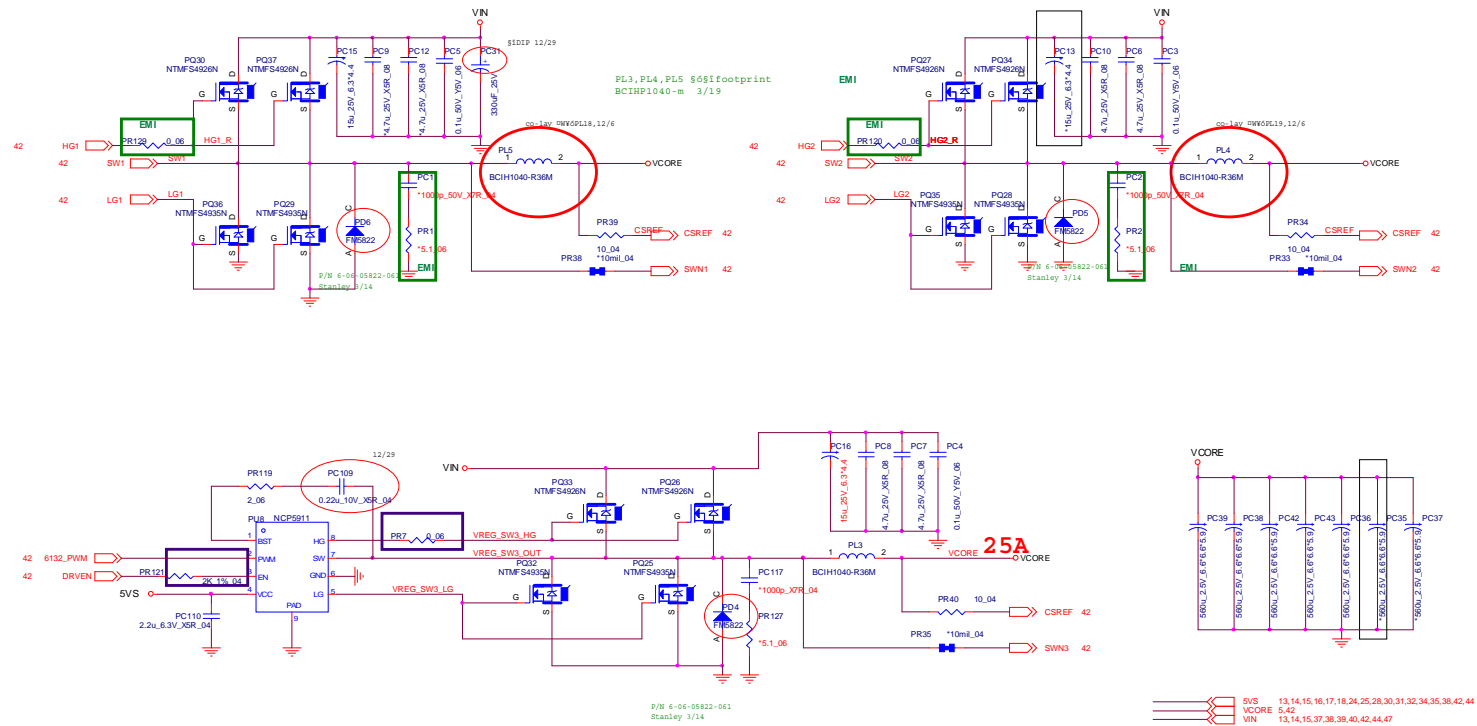
Sheet 42 of 54
Power V-Core1

B.Schematic Diagrams

Power V-Core2

VCORE_2

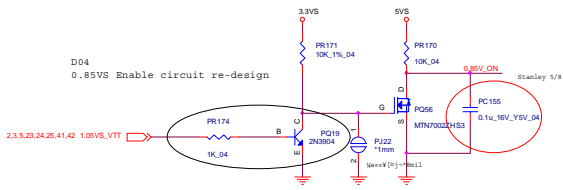
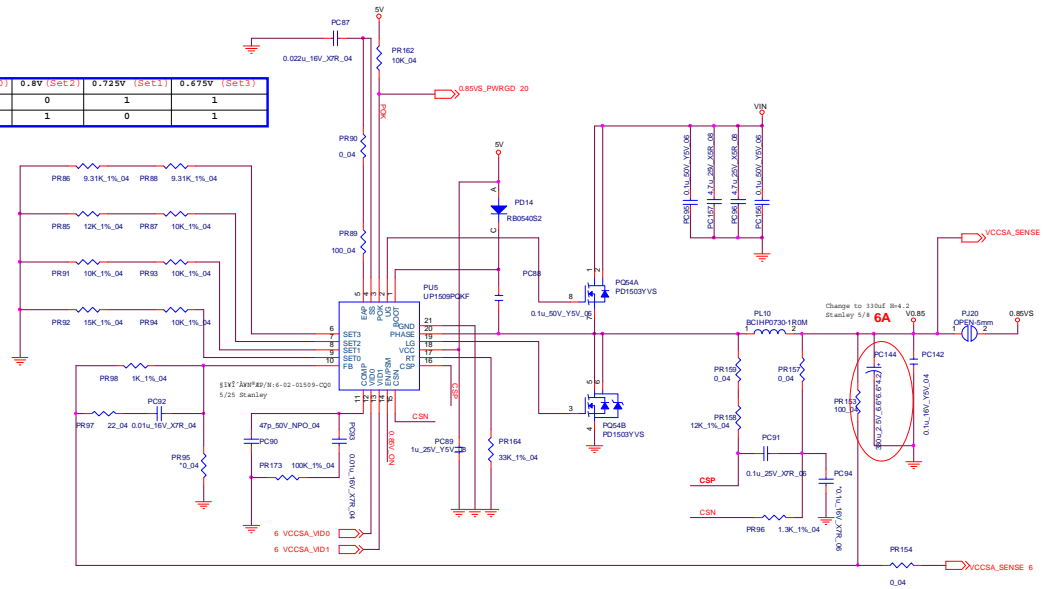
Sheet 43 of 54
Power V-Core2



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



- 5V 13, 14, 15, 16, 17, 18, 24, 25, 26, 30, 31, 32, 34, 35, 38, 42, 43
- 3.3V 3, 6, 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
- 0.8V 13, 14, 25, 27, 29, 31, 35, 38, 39, 40, 41
- 0.85VS 13, 14, 15, 17, 38, 39, 40, 42, 43, 47

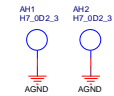
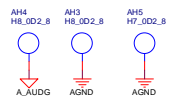
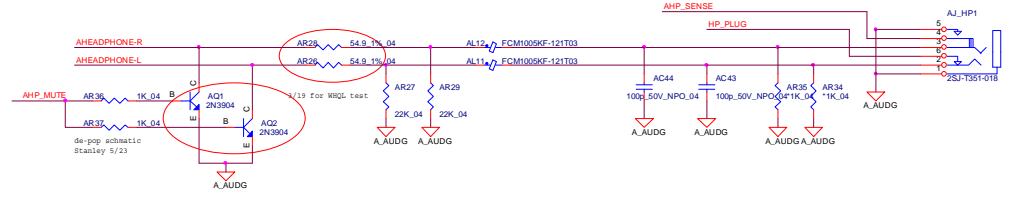
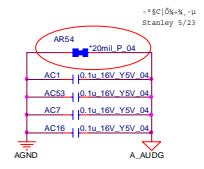
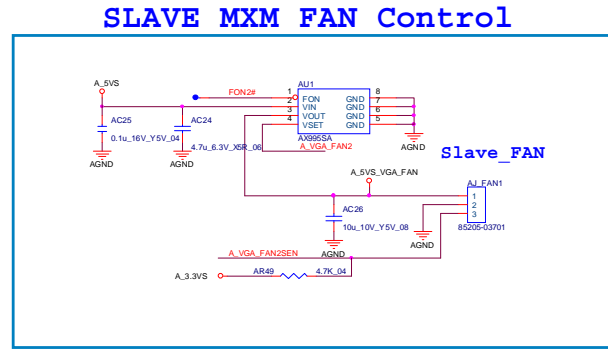
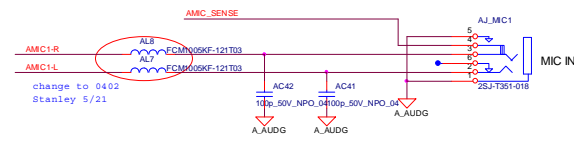
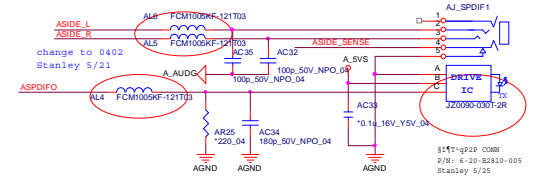
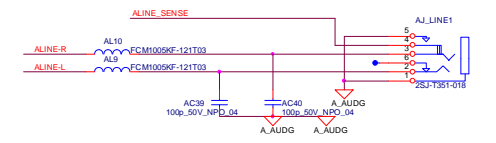
Sheet 44 of 54
Power 0.85VS

Schematic Diagrams

Audio Board

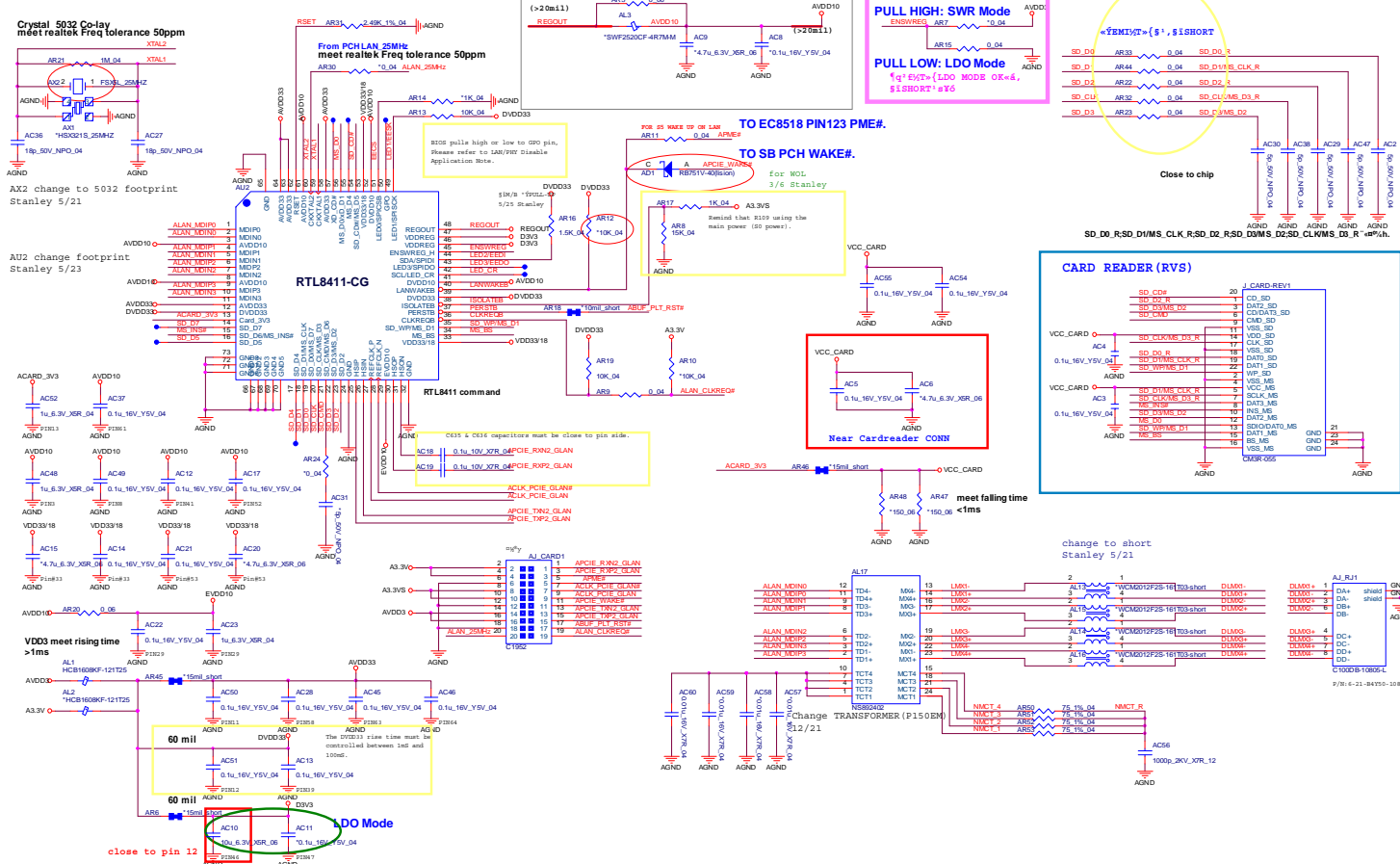
B.Schematic Diagrams

Sheet 45 of 54
Audio Board



LAN (RTL8411)

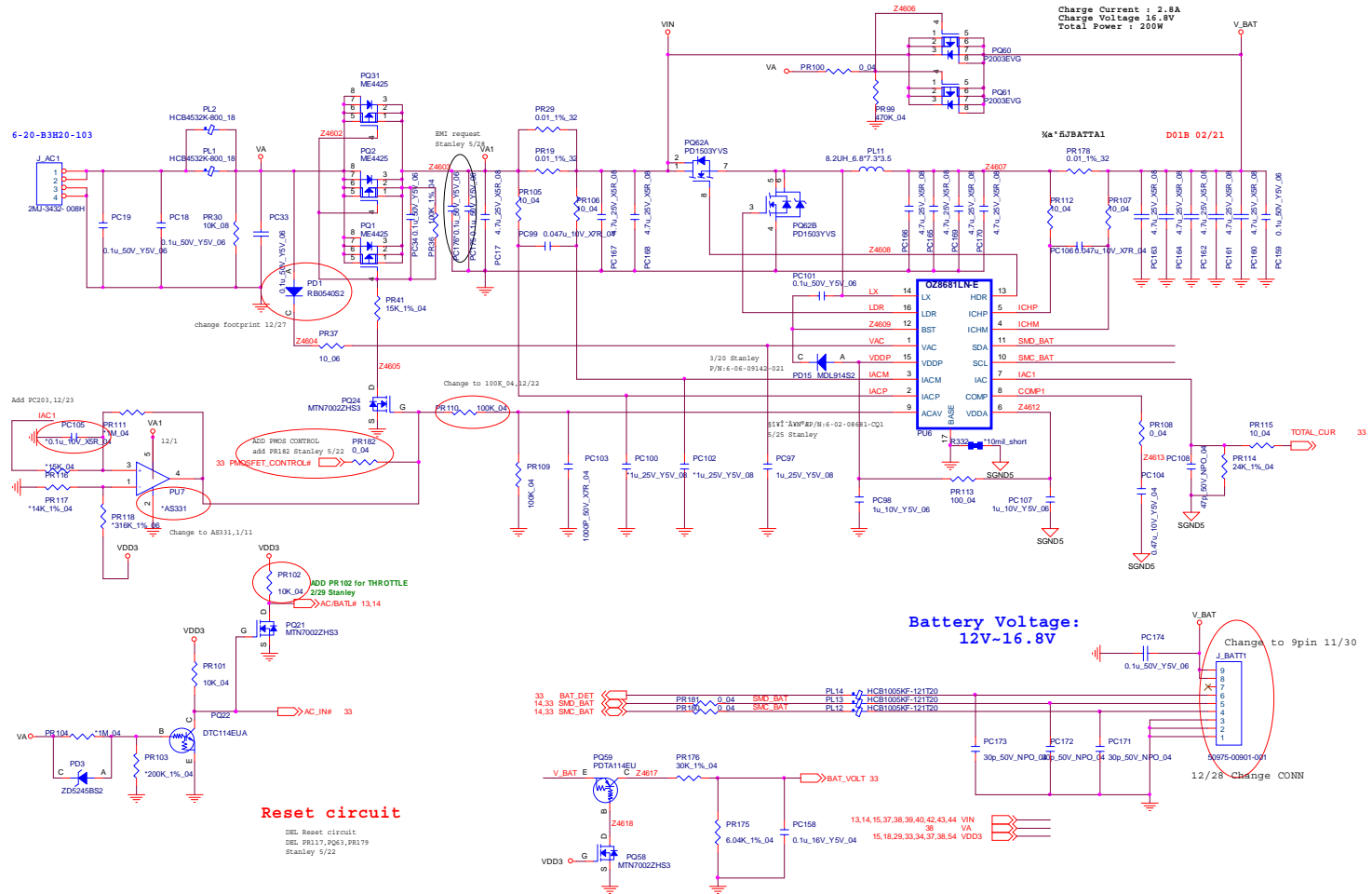
LAN (RTL8411)



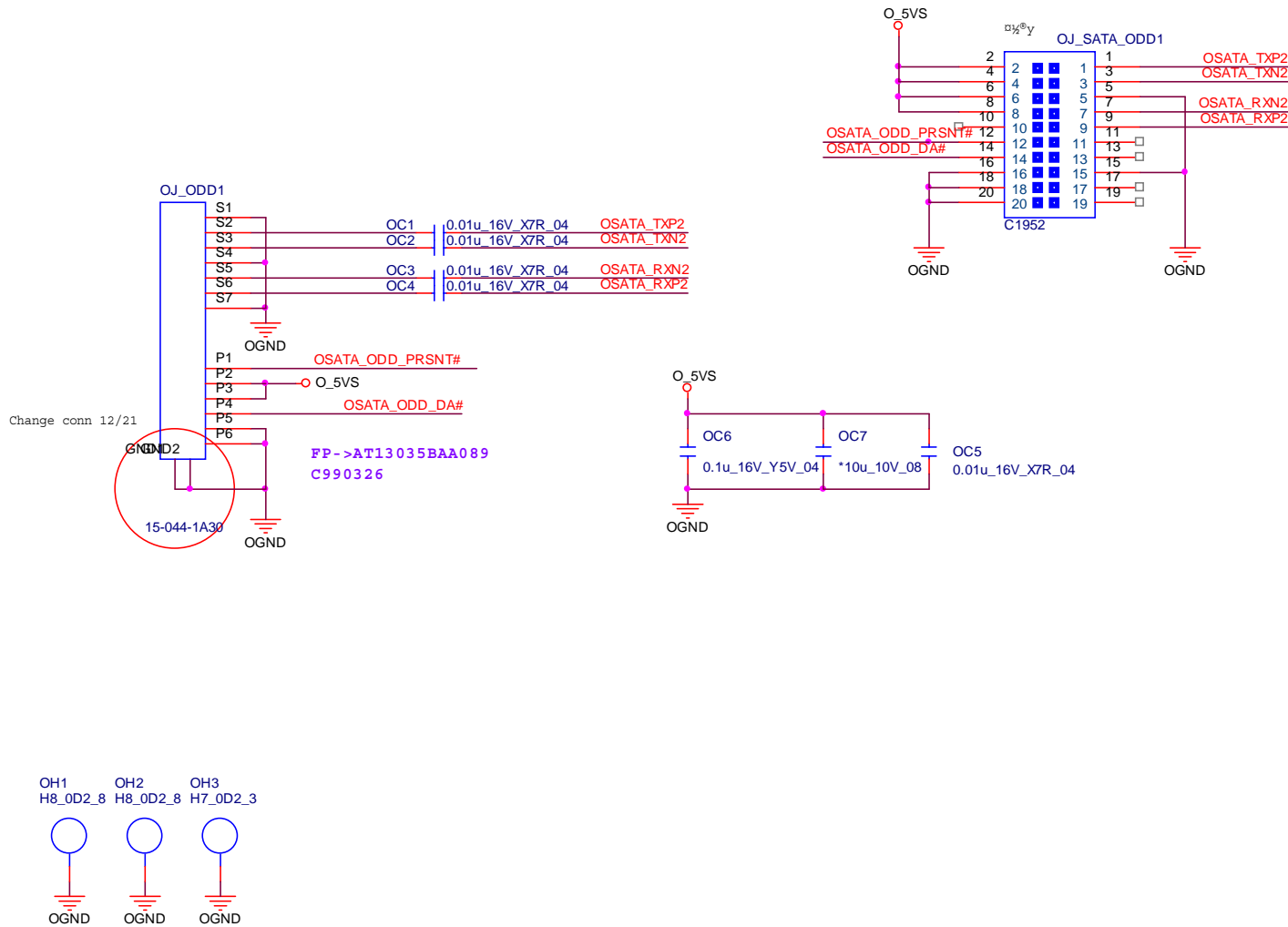
Sheet 46 of 54
LAN (RTL8411)

Power Charger, DC IN

Sheet 47 of 54
Power Charger,
DC IN



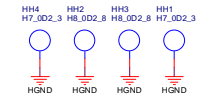
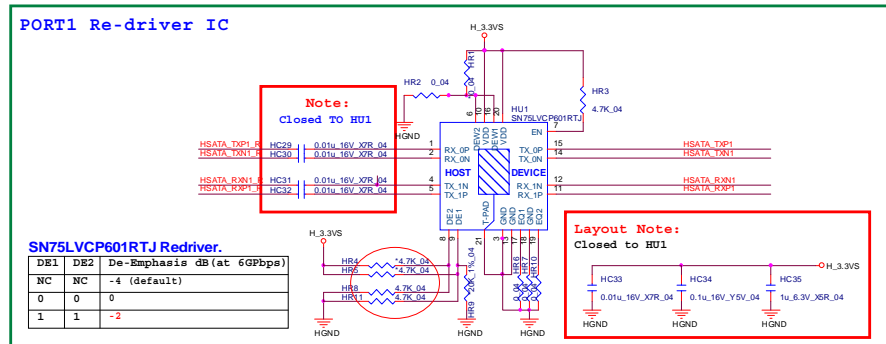
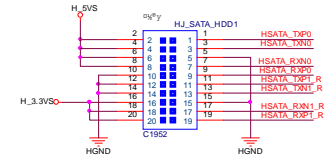
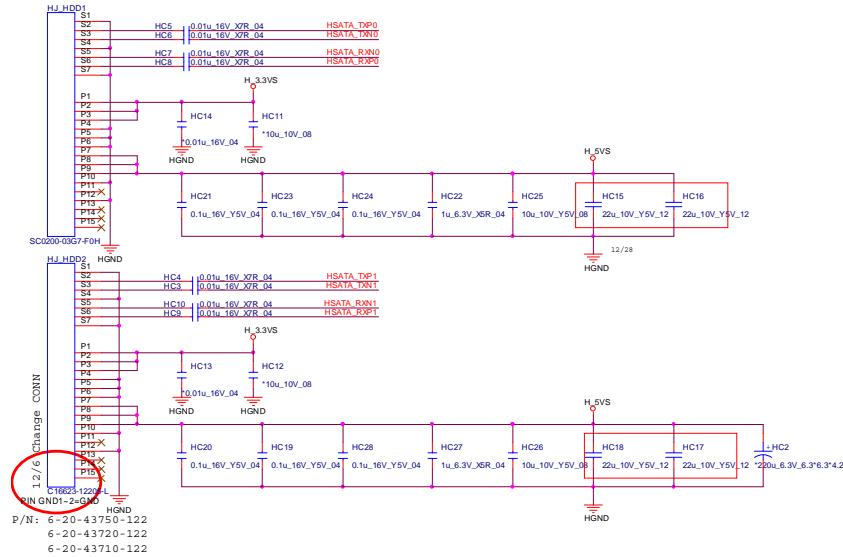
ODD Board



Sheet 48 of 54
ODD Board

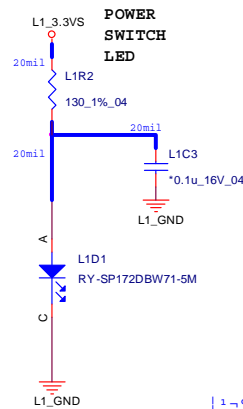
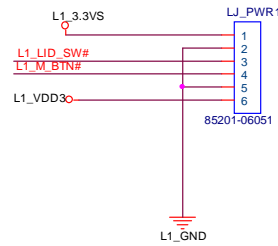
HDD Board

Sheet 49 of 54
HDD Board

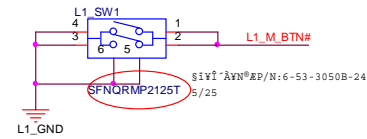


Power Board

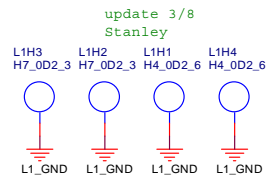
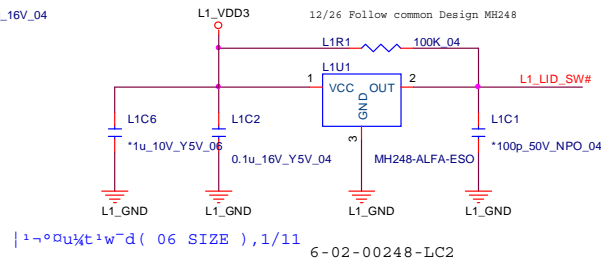
POWER SWITCH B'D



POWER BUTTON



LID SWITCH IC

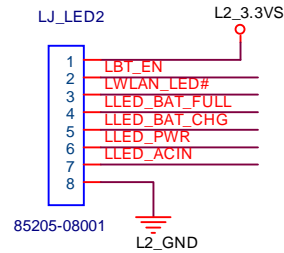


Sheet 50 of 54
Power Board

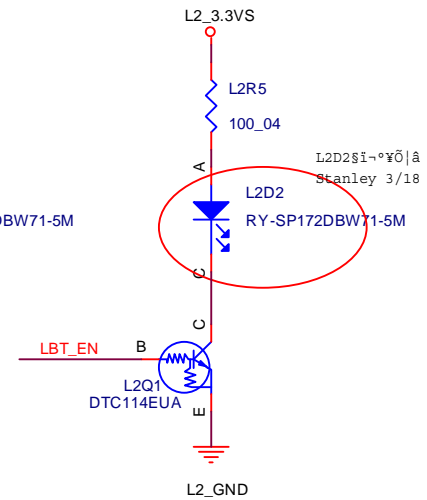
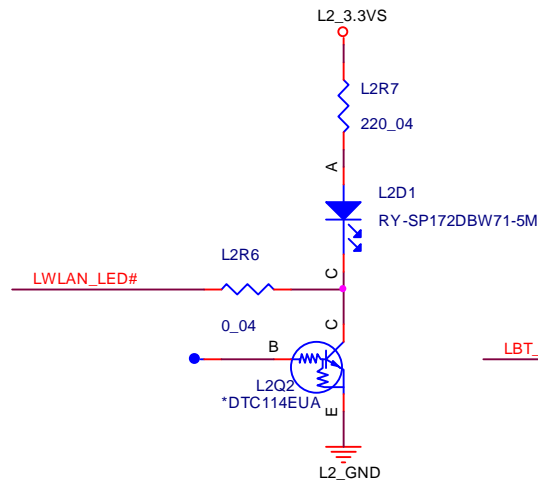
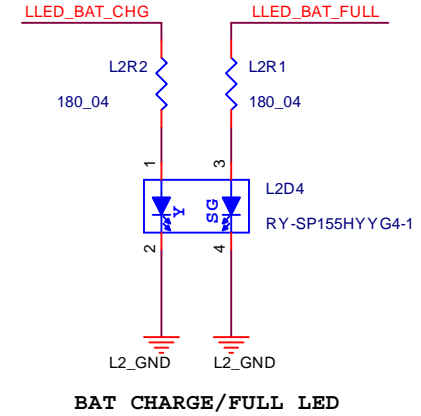
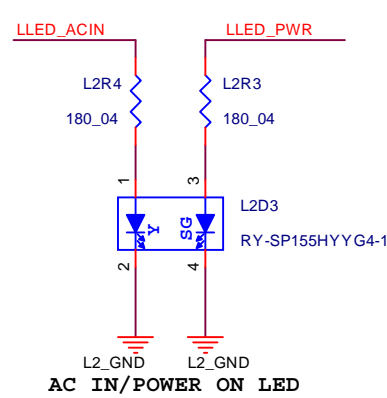
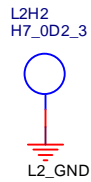
Schematic Diagrams

Front LED Board

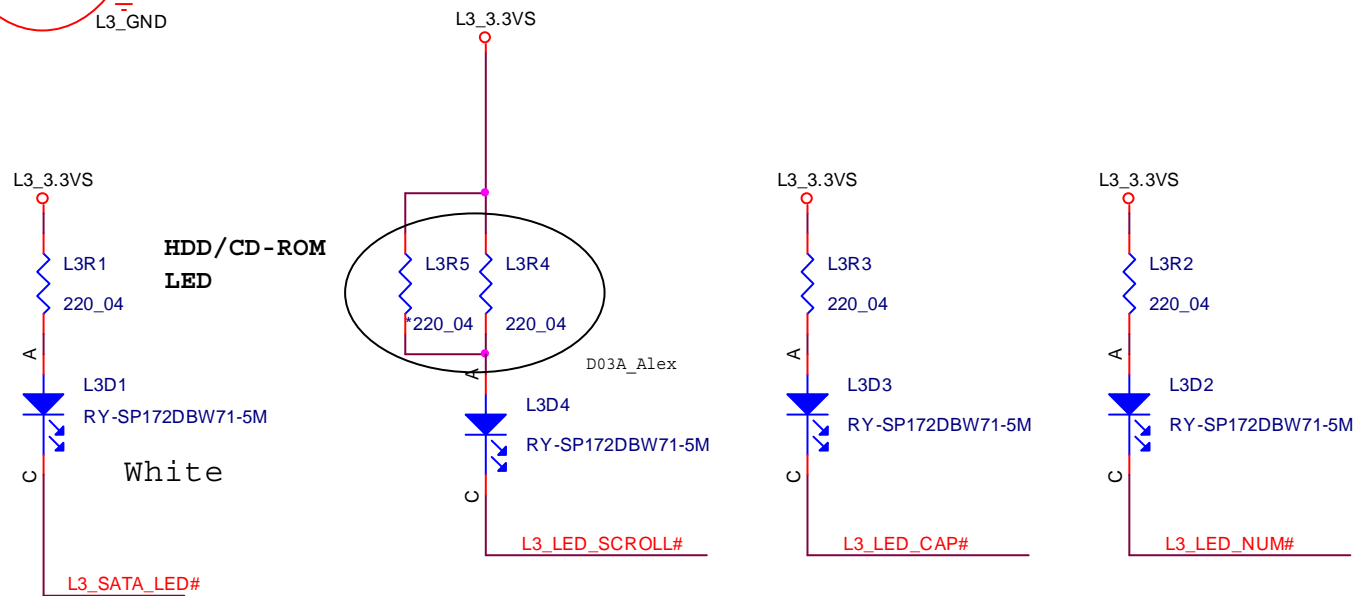
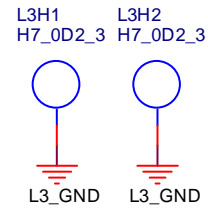
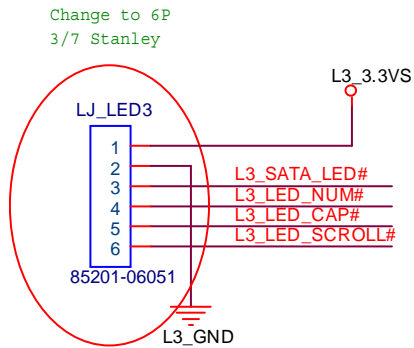
Change conn(85205) 12/20



Sheet 51 of 54
Front LED Board



Top LED Board

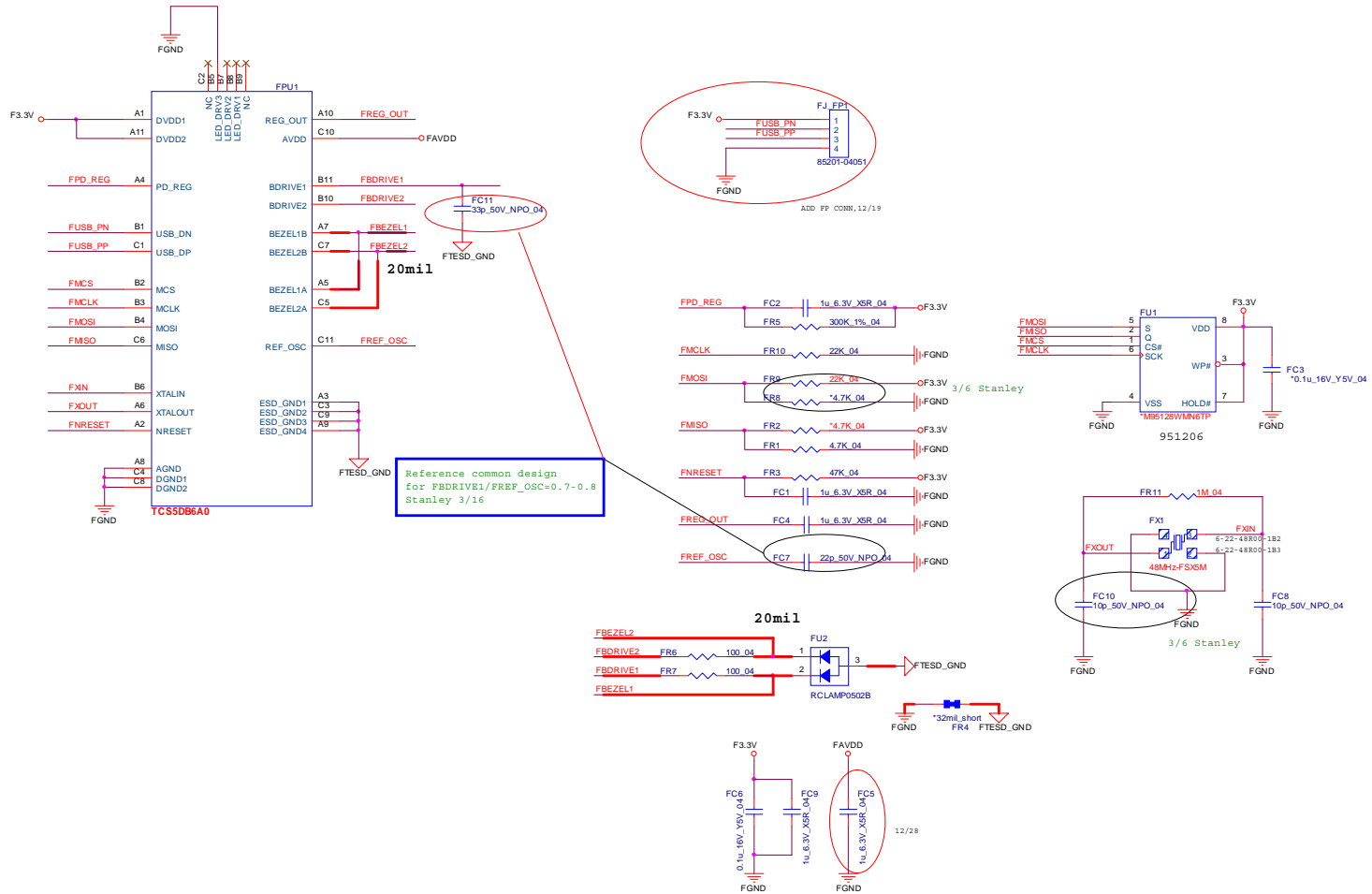


Sheet 52 of 54
Top LED Board

Schematic Diagrams

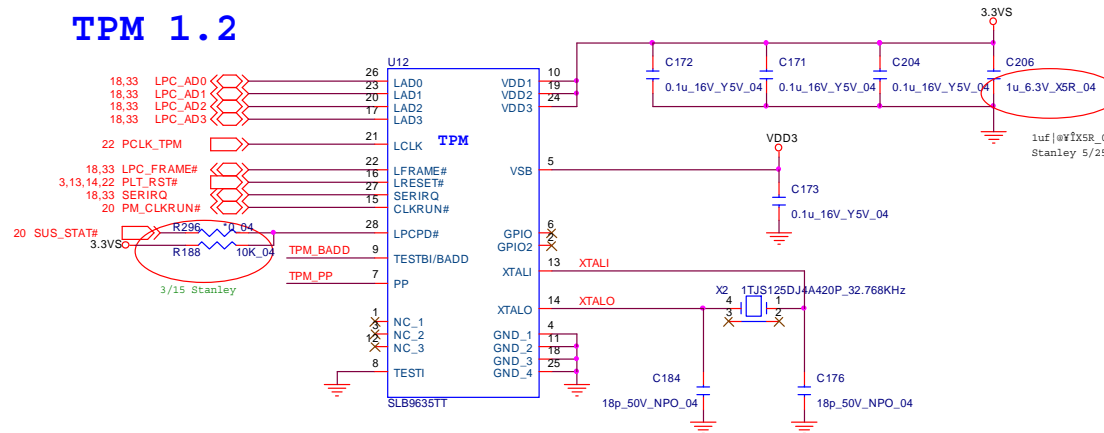
Fingerprint Board

Sheet 53 of 54
Fingerprint Board



TPM

TPM 1.2

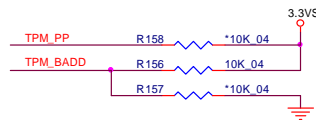
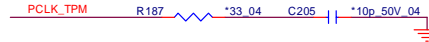


Asserted before entering S3

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



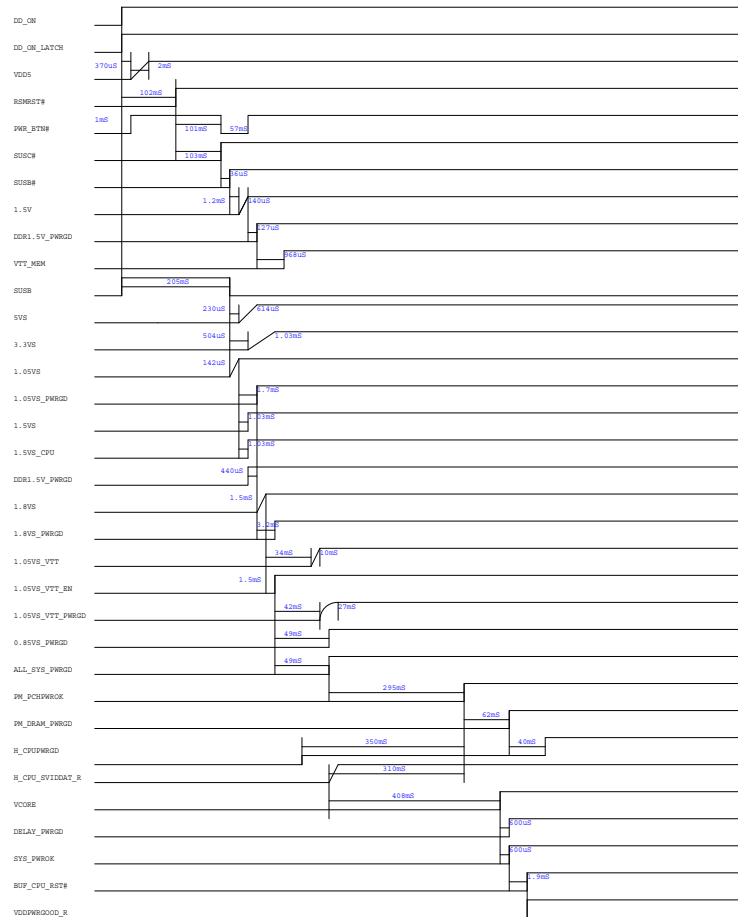
3,9,10,11,12,13,14,15,16,17,18,19,20,22,23,24,25,27,28,29,30,31,32,33,34,35,38,42,44 3.3VS

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 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.