

notebook



P170HM/P170HM3
SERVICE
MANUAL

Notebook Computer
P170HM/P170HM3
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 *P170HM/P170HM3* series notebook PC.

The following information is included:

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

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

Appendix A, Part Lists

Appendix B, Schematic Diagrams

Appendix C, Updating the FLASH ROM BIOS

IMPORTANT SAFETY INSTRUCTIONS

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

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit with an AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19V, 11.57A (**220** Watts) minimum AC/DC Adapter.

CAUTION

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

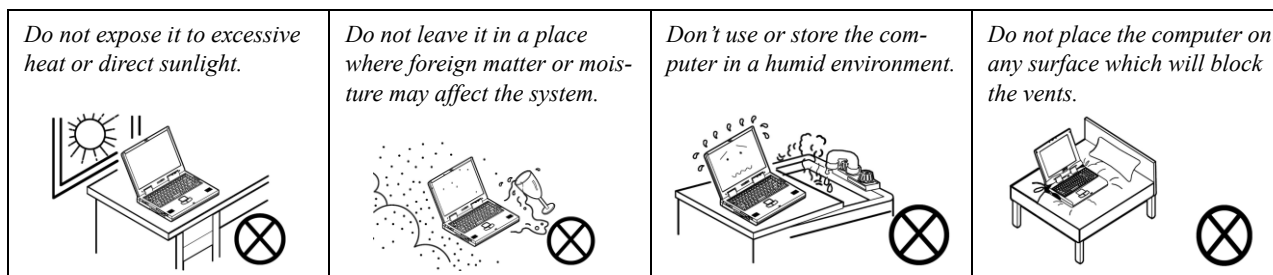
Instructions for Care and Operation

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

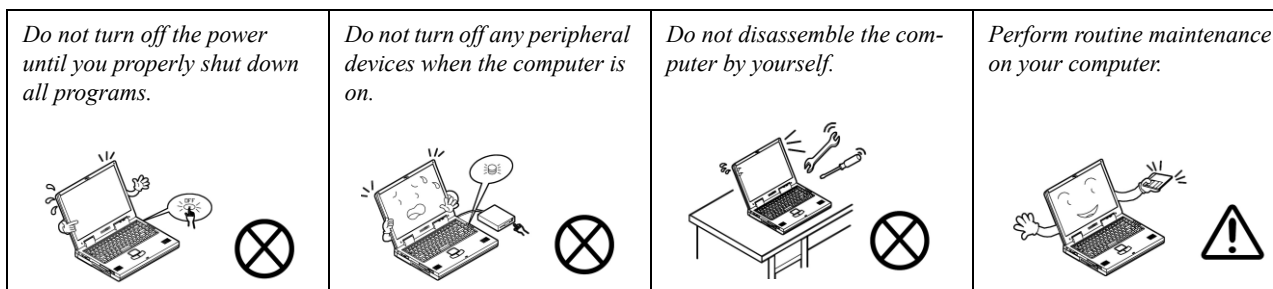
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



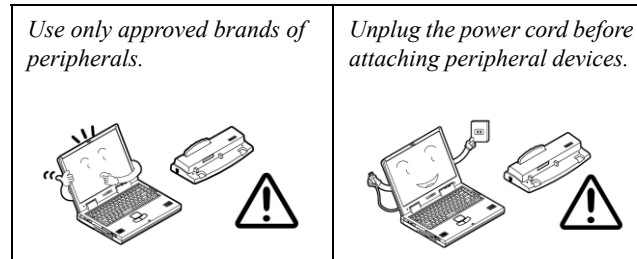
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.



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.



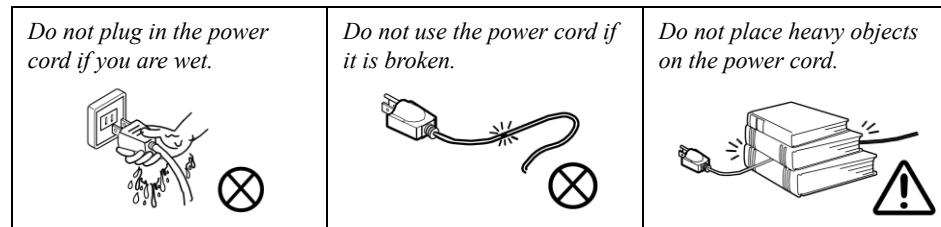
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



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). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

Battery Precautions

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

Battery Guidelines

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

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





Battery Disposal

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

Caution

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

Battery Level

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

Related Documents

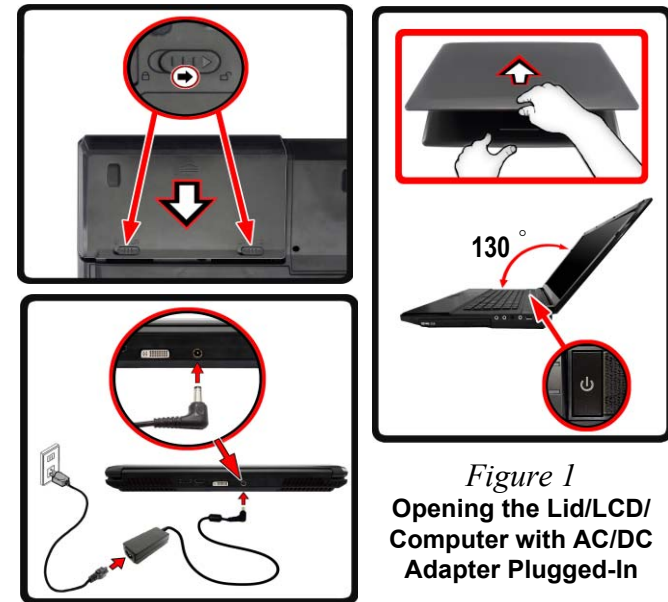
You may also need to consult the following manual for additional information:

User's Manual on Disc

This describes the notebook PC's features and the procedures for operating the computer and its ROM-based setup program. It also describes the installation and operation of the utility programs provided with the notebook PC.

System Startup

1. Remove all packing materials.
2. Place the computer on a stable surface.
3. Insert the battery and tighten the screws.
4. Securely attach any peripherals you want to use with the computer (e.g. keyboard and mouse) to their ports.
5. Attach the AC/DC adapter to the DC-In jack at the rear of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
6. Use one hand to raise the lid/LCD to a comfortable viewing angle (do not to exceed **130** degrees); use the other hand (as illustrated in <Hyperlink B n l>Figure 1) to support the base of the computer (**Note: Never** lift the computer by the lid/LCD).
7. Press the power button to turn the computer "on".



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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **P170HM/P170HM3** 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 Vista*, *Windows 7*, 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 **P170HM/P170HM3** series notebook is designed to be upgradeable. See [Disassembly on page 2 - 1](#) for a detailed description of the upgrade procedures for each specific component. Please note the warning and safety information indicated by the “” symbol.

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

Specifications



Latest Specification Information

The specifications listed here are correct at the time of sending them to the press. Certain items (particularly processor types/speeds) may be changed, delayed or updated due to the manufacturer's release schedule. Check with your service center for more details.



CPU

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

Processor Options

Intel® Core™ i7 Processor Extreme Edition

i7-2920XM (2.50GHz)

8MB L3 Cache, 32nm, DDR3-1600MHz, TDP 55W

Intel® Core™ i7 Processor

i7-2820QM (2.30GHz)

8MB L3 Cache, 32nm, DDR3-1600MHz, TDP 45W

i7-2720QM (2.20GHz) , i7-2630QM (2.0GHz)

6MB L3 Cache, 32nm, DDR3-1600MHz, TDP 45W

i7-2520M (2.50GHz)

3MB L3 Cache, 32nm, DDR3-1333MHz, TDP 35W

Memory

*Four 204 Pin SO-DIMM Sockets Supporting DDR3 1333/1600** MHz Memory Modules

Memory Expandable up to 16GB

Compatible with 2GB or 4GB Modules

*Note: Four SO-DIMMs are only supported by Quad-Core CPUs; Dual-Core CPUs support two SO-DIMMs maximum

**Note: 1600 MHz Memory Modules are only supported by Quad-Core CPUs to a maximum of two SO-DIMMs

BIOS

AMI BIOS (32Mb SPI Flash-ROM)

LCD

P170HM:

17.3" (43.94cm) FHD (1920 * 1080)

P170HM3:

17.3" (43.94cm) FHD (1920 * 1080), 120Hz

Support 3D solution with NV 3D VISION Kit (Shutter Glasses Only)

Built-in 3D IR Emitter

Core Logic

Intel® HM67 Chipset

Pointing Device

Built-in Touchpad (scrolling key functionality integrated)

Keyboard

Full-size "WinKey" keyboard with numeric keypad

Video Adapter

P170HM:

nVIDIA® GeForce GTX 485M PCIe Video Card

2GB GDDR5 Video RAM on board

Microsoft DirectX® 11 Compatible

nVIDIA® GeForce GTX 470M PCIe Video Card

1.5GB GDDR5 Video RAM on board

Microsoft DirectX® 11 Compatible

nVIDIA® GeForce GTX 460M PCIe Video Card

1.5GB GDDR5 Video RAM on board

Microsoft DirectX® 11 Compatible

nVIDIA® Quadro FX 2800M PCIe Video Card

1GB GDDR3 Video RAM on board

Microsoft DirectX® 10.1 Compatible

nVIDIA® Quadro 5010M PCIe Video Card

4GB GDDR5 Video RAM on board

Microsoft DirectX® 11 Compatible

nVIDIA® GeForce GTX 560M PCIe Video Card

1.5GB GDDR5 Video RAM on board

Microsoft DirectX® 11 Compatible

nVIDIA® GeForce GTX 580M PCIe Video Card

2GB GDDR5 Video RAM on board

Microsoft DirectX® 11 Compatible

AMD Radeon HD 6970M PCIe Video Card

2GB GDDR5 Video RAM On Board

Microsoft DirectX® 11 Compatible

AMD Radeon HD 6990M PCIe Video Card

2GB GDDR5 Video RAM On Board

Microsoft DirectX® 11 Compatible

P170HM3:

nVIDIA® GeForce GTX 485M PCIe Video Card

2GB GDDR5 Video RAM on board

Microsoft DirectX® 11 Compatible

nVIDIA® GeForce GTX 560M PCIe Video Card

1.5GB GDDR5 Video RAM on board

Microsoft DirectX® 11 Compatible

nVIDIA® GeForce GTX 580M PCIe Video Card

2GB GDDR5 Video RAM on board

Microsoft DirectX® 11 Compatible

Security

Security (Kensington® Type) Lock Slot
 BIOS Password
 (Factory Option) Fingerprint Reader Module

Storage

(Factory Option) One Changeable 12.7mm(h) Optical Device Type Drive (Super Multi Drive Module or Blu-Ray Combo Drive Module) or 2nd 9.5mm HDD Caddy
 Two Changeable 2.5" 9.5 mm (h) SATA (Serial) Hard Disk Drives supporting RAID level 0/1/Recovery

Communication

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

WLAN/ Bluetooth Half Mini-Card Modules:

(Factory Option) Intel® Centrino® Advanced-N 6230 Wireless LAN (802.11a/g/n) + Bluetooth 3.0
 (Factory Option) Intel® Centrino® Wireless-N 1030 Wireless LAN (802.11b/g/n) + Bluetooth 3.0
 (Factory Option) Intel® Centrino® Advanced-N 6205 Wireless LAN (802.11a/g/n)
 (Factory Option) Intel® Centrino® Ultimate-N 6300 Wireless LAN (802.11a/g/n)
 (Factory Option) Third-Party Wireless LAN (802.11b/g/n) + Bluetooth 3.0
 (Factory Option) Third-Party Wireless LAN (802.11b/g/n)

Interface

Two USB 3.0 Ports
 Two USB 2.0 Ports (Note one USB 2.0 port can supply power when the system is off but still powered by the AC/DC adapter.)
 One eSATA & USB 2.0 Combo Port
 One HDMI-Out Port
 One DVI-Out Port
 One IEEE1394a Port
 One S/PDIF-Out & Surround-Out Combo 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 Surround-Out Jacks

Audio

High Definition Audio Compliant Interface
 THX TruStudio Pro
 S/PDIF Digital Output
 One (3W) Sub Woofer
 Built-In Microphone
 5 Speakers

Card Reader

Embedded Multi-In-1 Card Reader
 MMC (MultiMedia Card) / RS MMC
 SD (Secure Digital) / Mini SD / SDHC/ SDXC
 MS (Memory Stick) / MS Pro / MS Duo

Mini Card Slots

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

Card Reader

Embedded Multi-In-1 Card Reader
 MMC (MultiMedia Card) / RS MMC
 SD (Secure Digital) / Mini SD / SDHC/ SDXC
 MS (Memory Stick) / MS Pro / MS Duo

Power

Removable 8-cell cylinder battery, 76.96Wh (5200mAh)
 Full Range AC/DC Adapter
 AC Input: 100 - 240V, 50 - 60Hz
 DC Output: 19V, 11.57A (**220W**)

Environmental Spec**Temperature**

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

Relative Humidity

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

Dimensions & Weight**P170HM:**

412mm (w) * 276mm (d) * 41.8 - 45.4mm (h)
 Around 3.9kg with Battery and ODD

P170HM3:

412mm (w) * 276mm (d) * 41.8 - 45.4mm (h)
 Around 4.1kg with Battery and ODD

Introduction

Figure 1
Top View

1. PC Camera
2. LCD
3. LED Status Indicators
4. Power Button
5. Speakers
6. Keyboard
7. Built-In Microphone
8. TouchPad and Buttons
9. Fingerprint Reader (Optional)
10. 3D Emitter (for P170HM3 only)

External Locator - Top View with LCD Panel Open



External Locator - Front & Right side Views



Figure 2
Front Views

1. LED Indicators



Figure 3
Right Side Views

1. Optical Device Drive Bay
2. Headphone Jack
3. Microphone Jack
4. S/PDIF-Out Jack
5. Line-In Jack
6. 1 * USB 2.0 Port

Introduction

External Locator - Left Side & Rear View

Figure 4
Left Side View

1. RJ-45 LAN Jack
2. 2 * USB 3.0 Ports
3. 1 * USB 2.0 Port
4. Mini-IEEE 1394a Port
5. Multi-in-1 Card Reader



Figure 5
Rear View

1. Vent/Fan Intake
2. eSATA/USB 2.0 Combo Port
3. HDMI-Out Port
4. DVI-Out Port
5. DC-In Jack
6. Security Lock Slot



External Locator - Bottom View

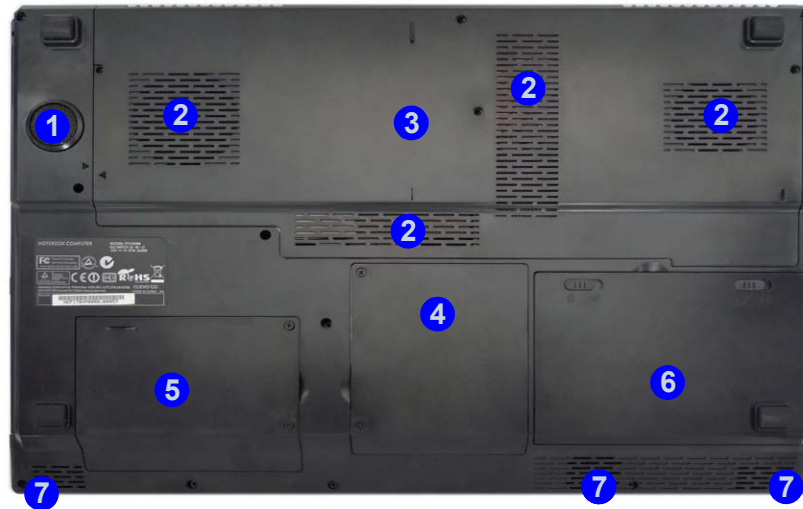


Figure 6
Bottom View

1. Sub Woofer
2. Fan Outlet/Intake
3. Component Bay Cover
4. Primary HDD Bay
5. Secondary HDD Bay
6. Battery
7. Speakers



Overheating

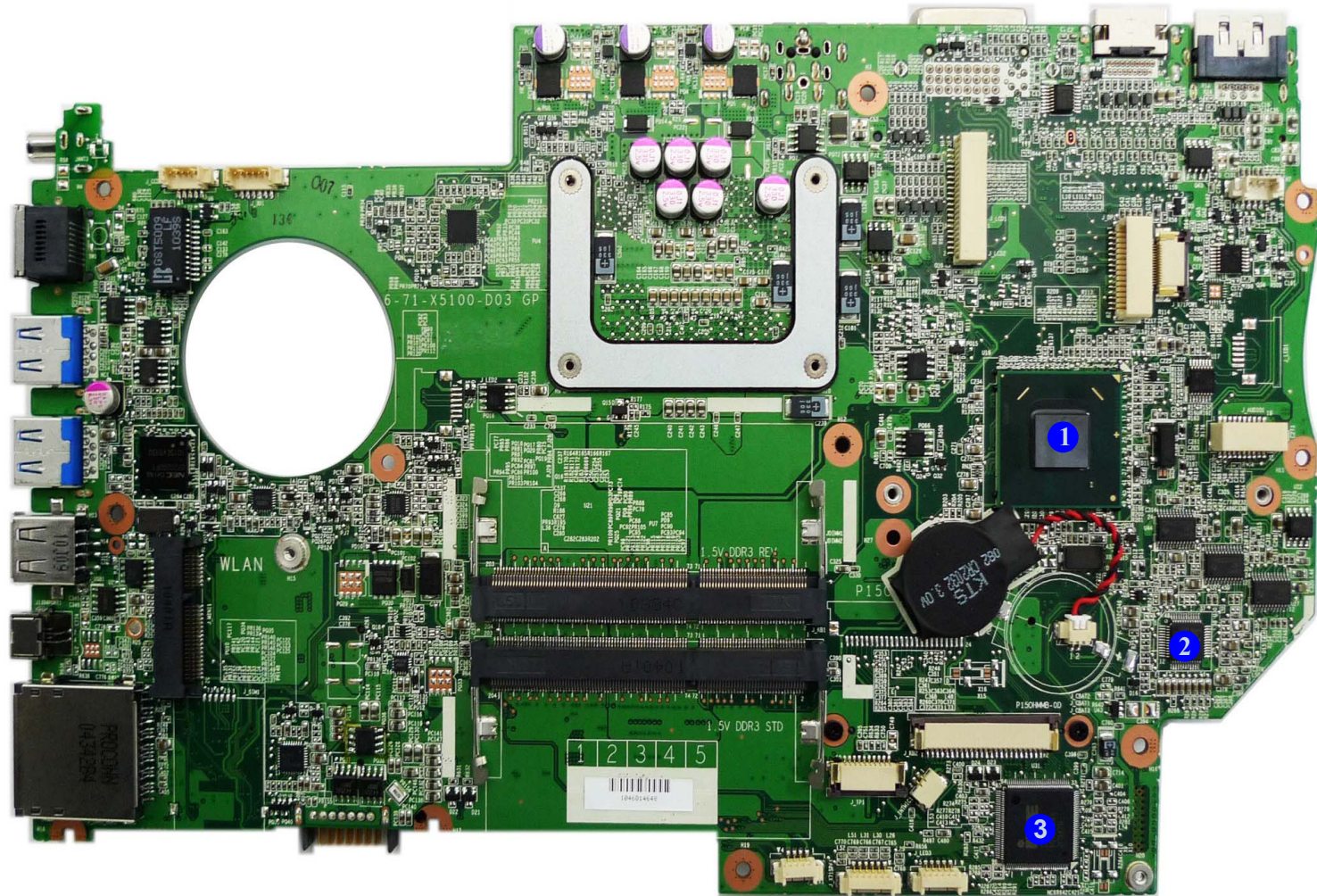
To prevent your computer from overheating make sure nothing blocks the vent/fan intakes while the computer is in use.

Introduction

Figure 7
**Mainboard Top
Key Parts**

1. Platform
Controller Hub
2. Audio Codec
3. KBC ITE IT8519E

Mainboard Overview - Top (Key Parts)



Mainboard Overview - Bottom (Key Parts)

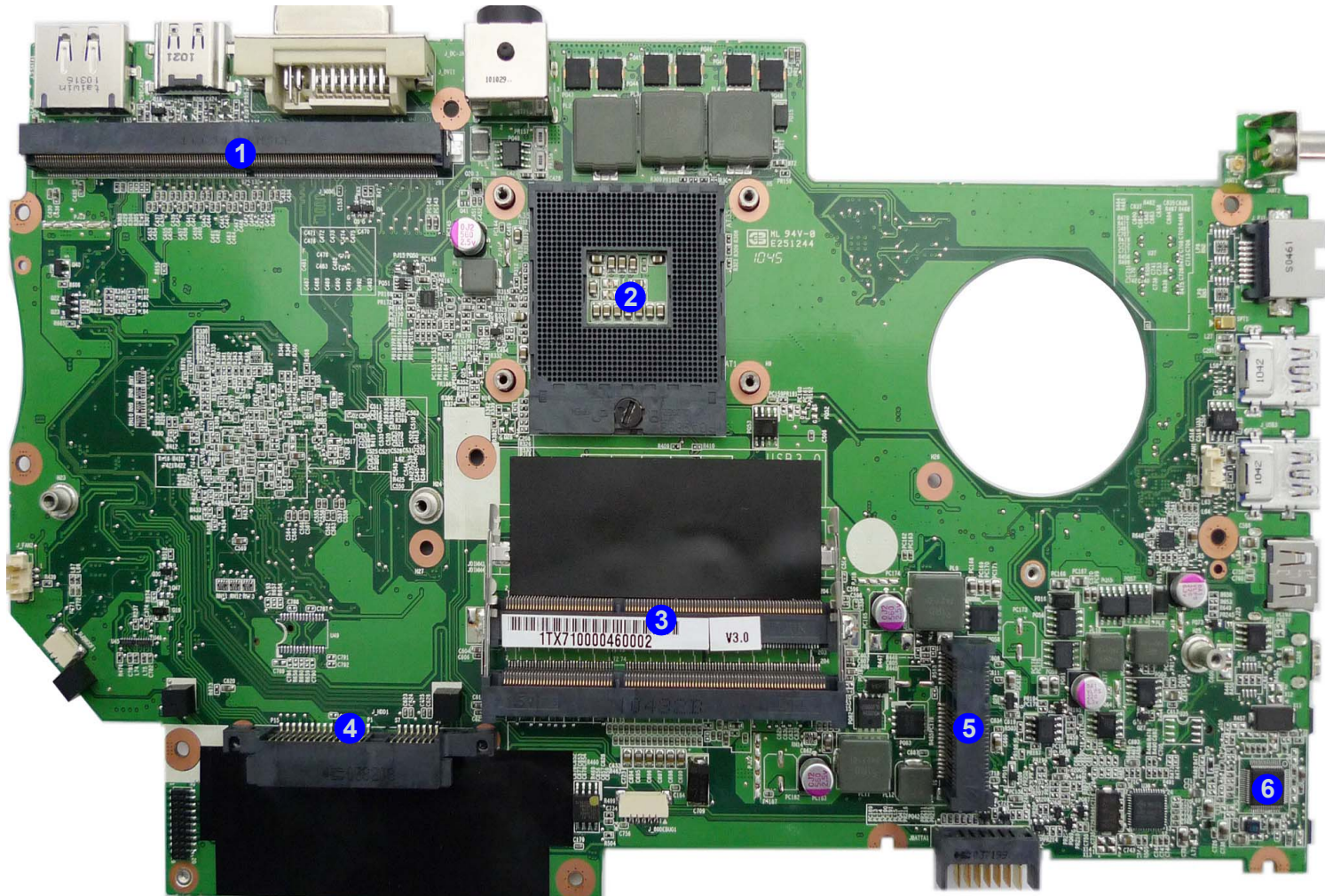


Figure 8
**Mainboard Bottom
Key Parts**

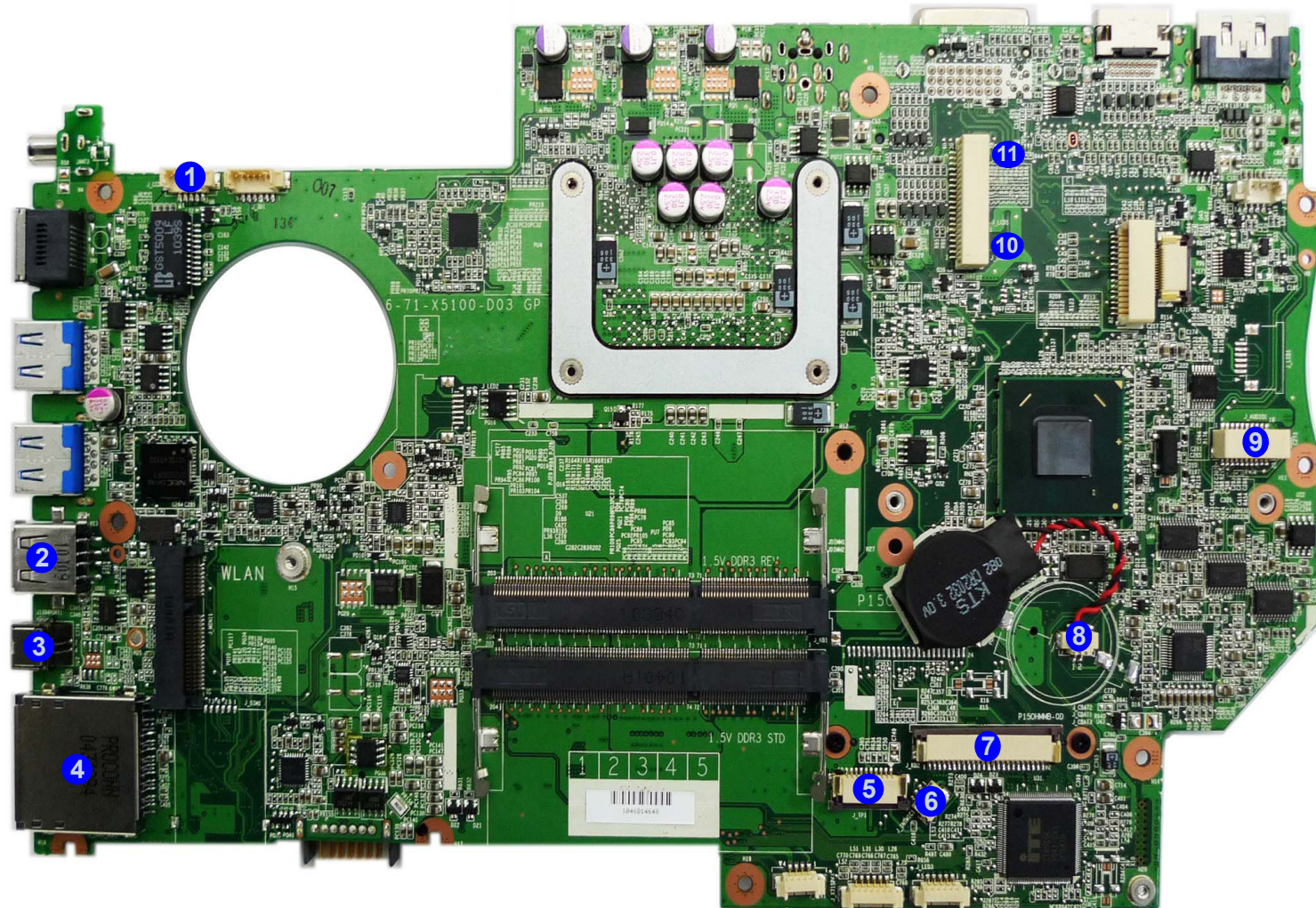
1. VGA-Card Connector
2. CPU Socket (no CPU installed)
3. Memory Slots
DDR3 SO-DIMM
4. Hard Disk Connector
5. Mini-Card Connector (3G Module)
6. JMC 251C

Introduction

Figure 9
Mainboard Top Connectors

1. CCD Connector
2. USB 2.0 Port
3. Mini-IEEE 1394a Port
4. Multi-in-1 Card Reader
5. TouchPad Cable Connector
6. Microphone Cable Connector
7. Keyboard Cable Connector
8. CMOS Battery Connector
9. Audio Cable Connector
10. LCD Cable Connector 2
11. LCD Cable Connector 1

Mainboard Overview - Top (Connectors)



Mainboard Overview - Bottom (Connectors)

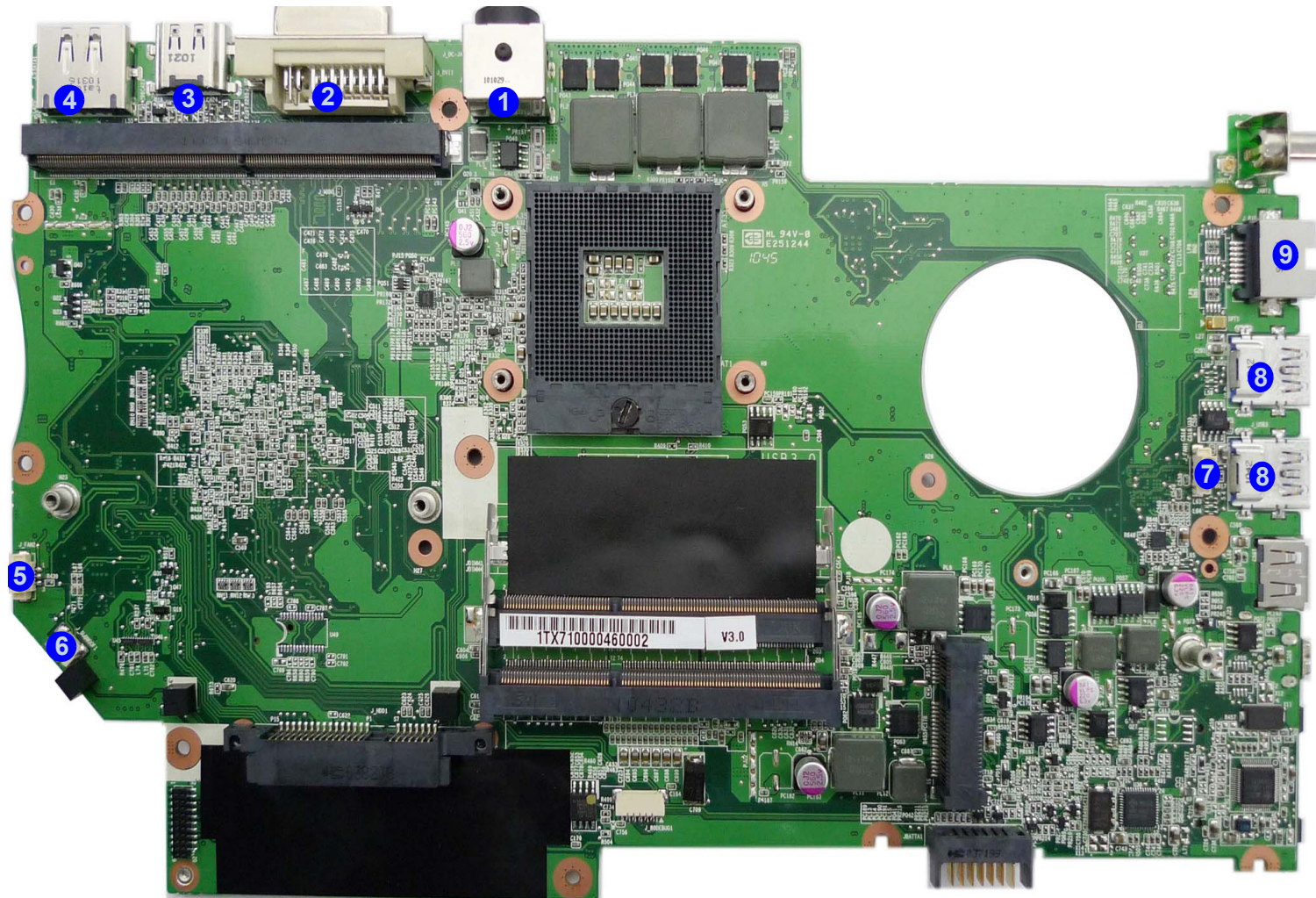


Figure 10
**Mainboard Bottom
Connectors**

1. DC-In Jack
2. DVI-Out Port
3. HDMI-Out Port
4. eSATA/USB 2.0 Combo Port
5. VGA Fan Cable Connector
6. Sub Woofer Cable Connector
7. CPU Fan Cable Connector
8. USB 3.0 Ports
9. RJ-45 LAN Jack


Chapter 2: Disassembly



Overview

This chapter provides step-by-step instructions for disassembling the *P170HM/P170HM3* series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

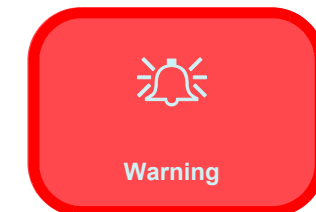
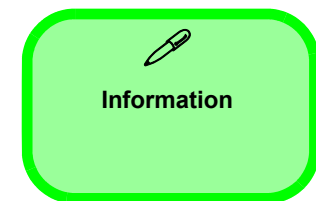
We suggest you completely review any procedure before you take the computer apart.

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 HDD from the Primary Bay:

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

To remove the Optical Device:

1. Remove the battery [page 2 - 5](#)
2. Remove the Optical device [page 2 - 9](#)

To remove the HDD from the Secondary Bay:

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

To remove the Primary System Memory:

1. Remove the battery [page 2 - 5](#)
2. Remove the system memory [page 2 - 12](#)

To remove the Secondary System Memory:

1. Remove the battery [page 2 - 5](#)
2. Remove the keyboard [page 2 - 14](#)
3. Remove the system memory [page 2 - 15](#)

To remove the WLAN Module:

1. Remove the battery [page 2 - 5](#)
2. Remove the keyboard [page 2 - 14](#)
3. Remove the wireless LAN [page 2 - 16](#)

To remove and install a Processor:

1. Remove the battery [page 2 - 5](#)
2. Remove the processor [page 2 - 17](#)
3. Install the processor [page 2 - 19](#)

To remove and install a Video Card:

1. Remove the battery [page 2 - 5](#)
2. Remove the video card [page 2 - 20](#)
3. Install the video card [page 2 - 21](#)

To remove the Microphone:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Remove the Optical device [page 2 - 9](#)
4. Remove the HDD [page 2 - 10](#)
5. Remove the system memory [page 2 - 12](#)
6. Remove the processor [page 2 - 17](#)
7. Remove the video card [page 2 - 20](#)
8. Remove the microphone [page 2 - 22](#)

Removing the Battery

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

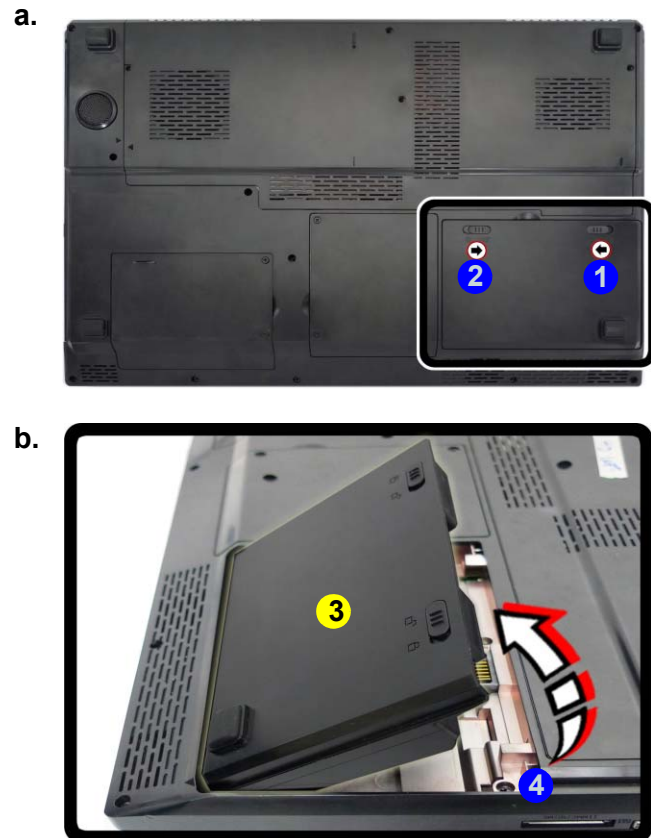
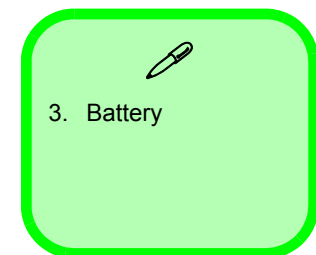


Figure 1
Battery Removal

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



Disassembly

Figure 2
**HDD Assembly
Removal**

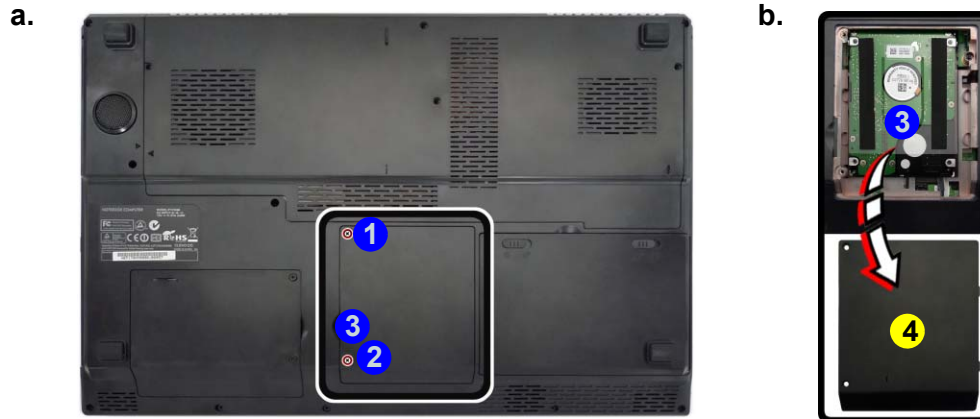
- a. Locate the HDD bay cover and remove the screws.
- b. Remove the hard disk bay cover by levering the cover at point ③.

Removing the Hard Disk Drive

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

Hard Disk Upgrade Process

1. Turn **off** the computer, and remove the battery ([page 2 - 5](#)).
2. Locate the hard disk bay cover and remove screws ① - ② ([Figure 2a](#)).
3. Remove the hard disk bay cover ④ by levering the cover at point ③ ([Figure 2b](#)).



4. Hard Disk Bay Cover

- 2 Screws



HDD System Warning

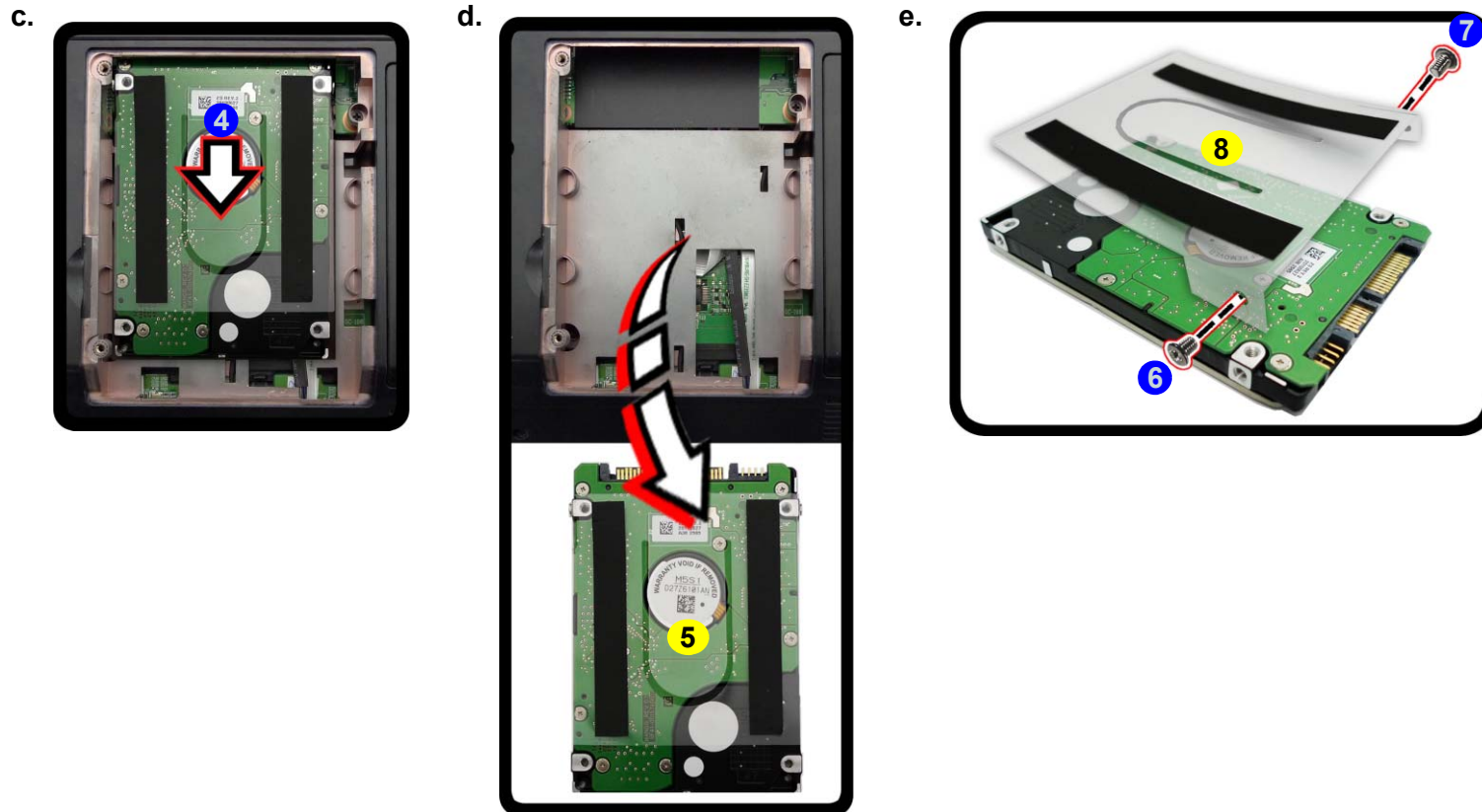
New HDD's are blank. Before you begin make sure:

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

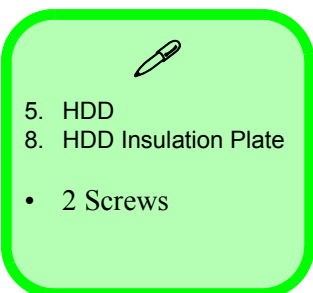
You have all the CD-ROMs and FDDs required to install your operating system and programs.

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

- Slide the HDD assembly in the direction of the arrow **4** (*Figure 3c*).
- Remove the hard disk assembly **5** (*Figure 3d*).
- Remove screws **6** & **7** and the insulation plate **8** (*Figure 3e*).
- Reverse the process to install a new hard disk (do not forget to replace all the screws and covers).



- Figure 3*
HDD Assembly Removal (cont'd.)
- Slide the HDD assembly in the direction of the arrow.
 - Remove the hard disk assembly.
 - Remove the screws and the insulation plate.



Disassembly

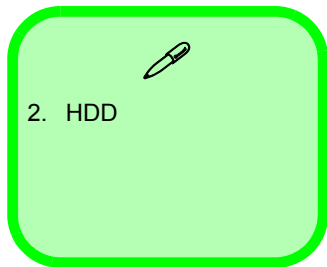
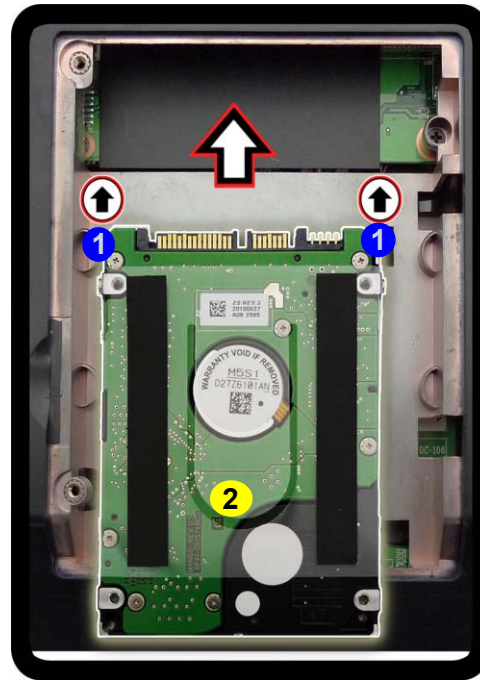
Figure 4
Inserting the Hard Disk Into the HDD Bay

- a. Make sure the HDD assembly is aligned with the black taped area. When aligned, carefully insert the HDD assembly into the case so that the connectors line up.

Inserting the Hard Disk Into the HDD Bay

1. Make sure the HDD assembly is aligned with the black taped area **1** (*Figure 4a*).
2. When aligned, carefully insert the HDD assembly **2** into the case so that the connectors line up (*Figure 4a*).
3. Replace the hard disk bay covers and screws.

a.



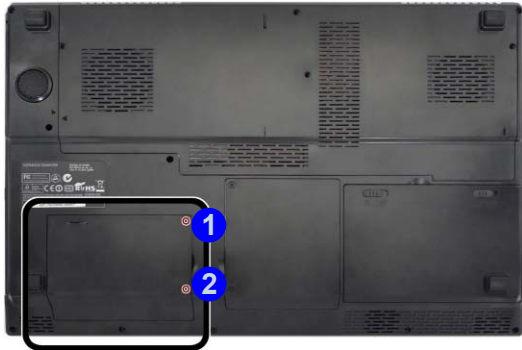
Removing the Optical (CD/DVD) Device

1. Turn **off** the computer, and remove the battery ([page 2 - 5](#)).
2. Locate the **secondary** hard disk bay cover and remove screws **1** & **2** ([Figure 5a](#)).
3. Remove the hard disk bay cover **3** ([Figure 5b](#)).
4. Remove the screw at point **4** ([Figure 5c](#)), and use a screwdriver to carefully push out the optical device **5** out of the bay at point **6** ([Figure 5d](#)).
5. Reverse the process to install any new optical (CD/DVD) device.

Figure 5
Optical Device Removal

- a. Locate the secondary hard disk bay cover and remove the screws.
- b. Remove the cover.
- c. Remove the screw.
- d. Push the optical device out off the computer at point 6.

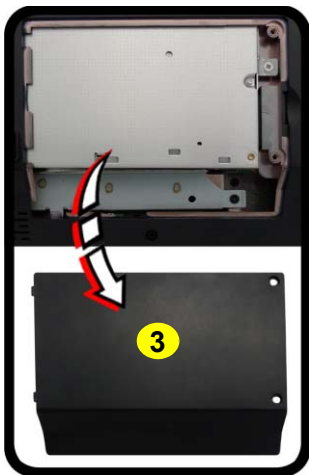
a.



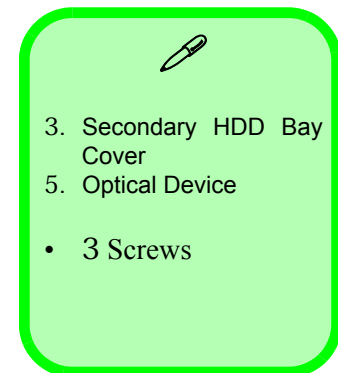
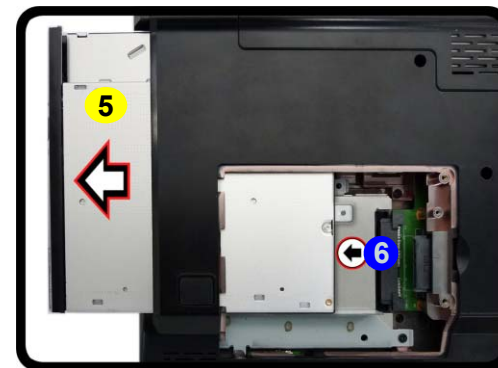
c.



b.



d.



Disassembly

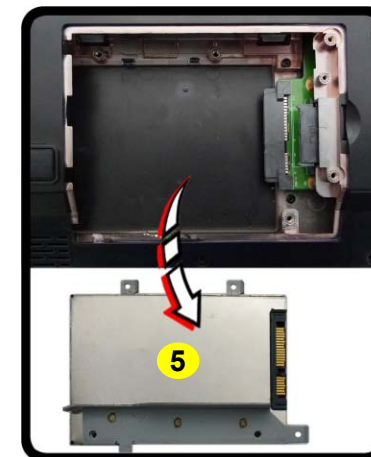
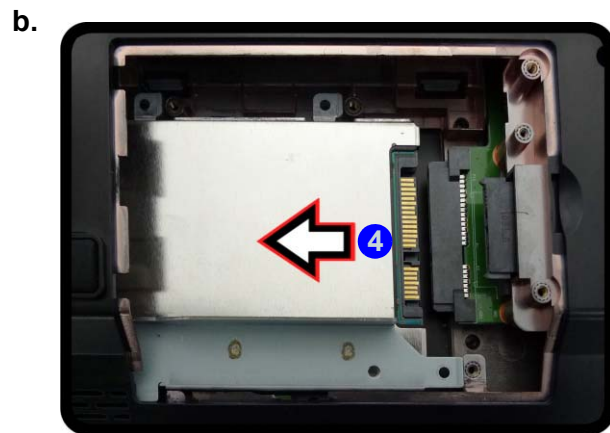
Figure 6 Secondary HDD Assembly Removal

- Remove the screws from the secondary HDD assembly.
- Slide the secondary HDD assembly in the direction of the arrow.
- Lift the secondary HDD assembly up and out of the bay.

Removing the Hard Disk from the Secondary HDD Bay

Note that the **secondary** hard disk (if installed) is located under the optical device bay (CD/DVD).

- Turn **off** the computer, and turn it over, remove the battery ([page 2 - 5](#)) and optical device ([page 2 - 9](#)).
- Remove screws ① - ③ from the secondary HDD assembly ([Figure 6a](#)).
- Slide the secondary HDD assembly in the direction of the arrow ④ (it will not move fully out of the bay [Figure 6a](#)).
- Lift the secondary HDD assembly ⑤ up and out of the bay (in the reverse direction of the arrow ④ [Figure 6c](#)).



5. Hard Disk Assembly

- 3 Screws

- Remove screws 6 - 9 and the insulation plate 10 (Figure 7d).

d.

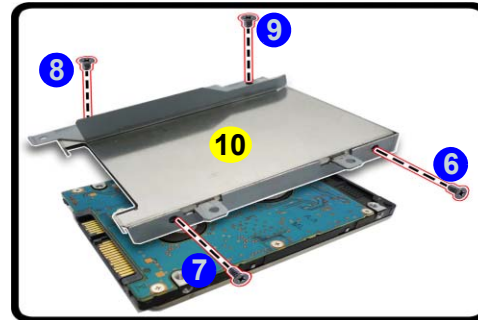
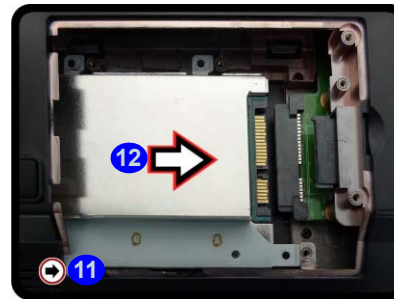


Figure 7
**Secondary HDD
Assembly Removal**

- Remove the screws and the insulation plate.

- Reverse the process to install a new disk (make sure you install the insulation plate).
- Slide the HDD assembly into the bay at an angle as illustrated.
- Make sure the insulation plate slides under the HDD bay guide at point 11.
- Slide the assembly in the direction of the arrow 12 and secure the assembly with the screws.



10. HDD Insulation Plate

- 4 Screws

Disassembly

Figure 8
RAM Module Removal

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

Removing the Primary System Memory (RAM)

The computer has **four** memory sockets for 204 pin Small Outline Dual In-line (SO-DIMM) **DDR III (DDR3)** type memory modules (see *“Memory” on page 1 - 2*). The total memory size is automatically detected by the POST routine once you turn on your computer.

Note that **four SO-DIMMs are only supported by Quad-Core CPUs; Dual-Core CPUs support two SO-DIMMs maximum** (see *“Memory” on page 1 - 2* for full details).

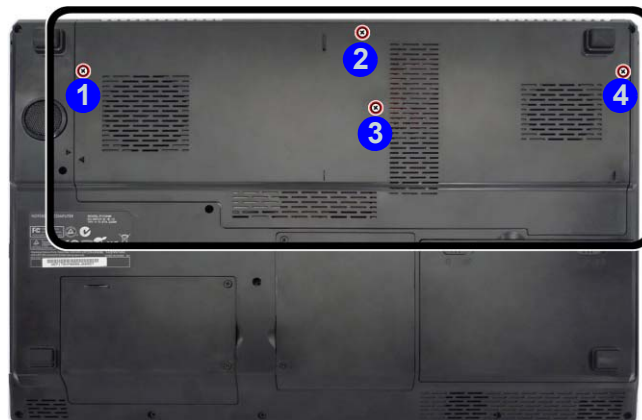
Two primary memory sockets are located under component bay cover (the bottom case cover), and two secondary memory sockets are located under the keyboard (not user upgradable). If you are installing only two RAM modules then they should be installed in the primary memory sockets under the component bay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

Note that the RAM located under the keyboard is not user upgradable. Contact your service center for more information if you wish to upgrade the memory in the secondary memory sockets.

Memory Upgrade Process

1. Turn **off** the computer, and turn it over, remove the battery (*page 2 - 5*).
2. Remove screws **1 - 4** (*Figure 8a*).
3. Slide the bottom cover until the cover and case indicators **5** are aligned (*Figure 8b*).

a.



b.



- 4 Screws

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

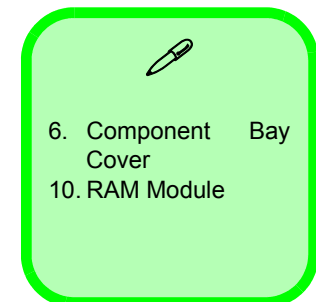
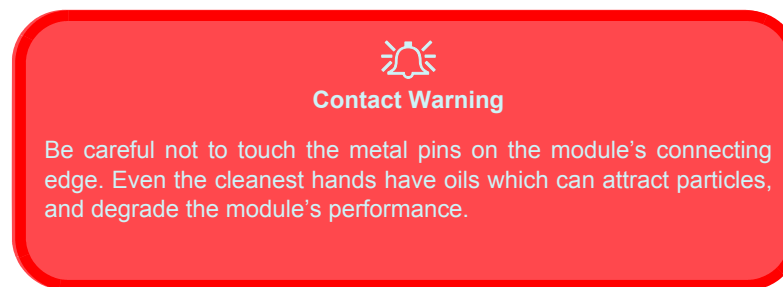
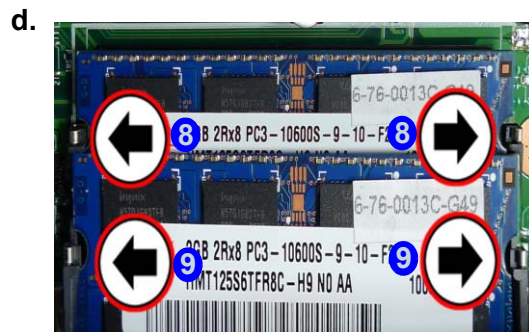
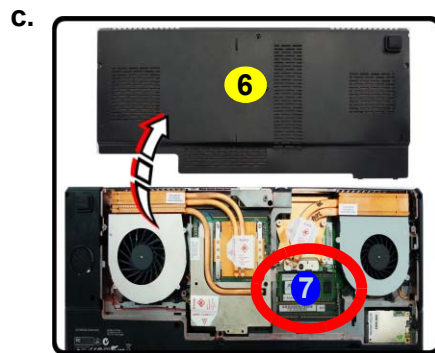


Figure 9
RAM Module Removal (cont'd.)

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

Disassembly

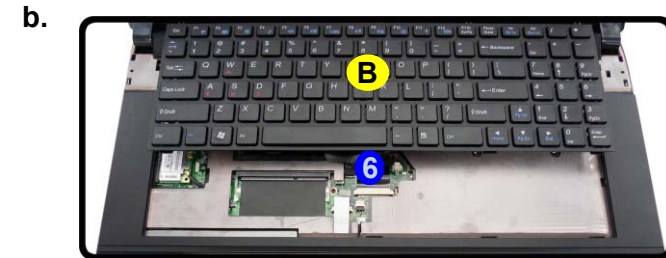
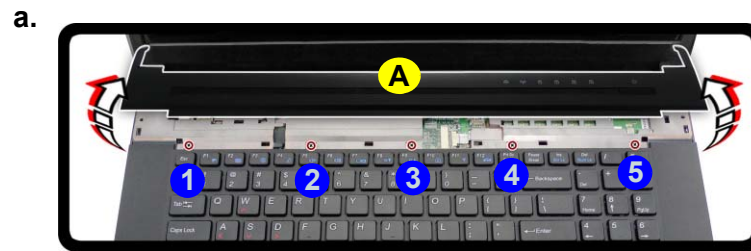
Figure 10
**RAM Module
 Removal**

- Remove the top cover module.
- Remove the screws.
- Carefully lift the keyboard up, being careful not to bend the keyboard ribbon cable.

Removing the Secondary System Memory (RAM)

Memory Upgrade Process

- Turn **off** the computer, and turn it over, remove the battery ([page 2 - 5](#)) and the component bay cover.
- Remove the top cover module **A** ([Figure 10a](#)).
- Remove screws **1 - 5** ([Figure 10a](#)).
- Carefully lift the keyboard **B** up, being careful not to bend the keyboard ribbon cable **6** ([Figure 10c](#)).

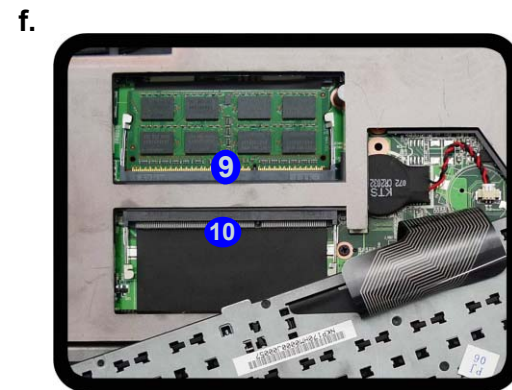
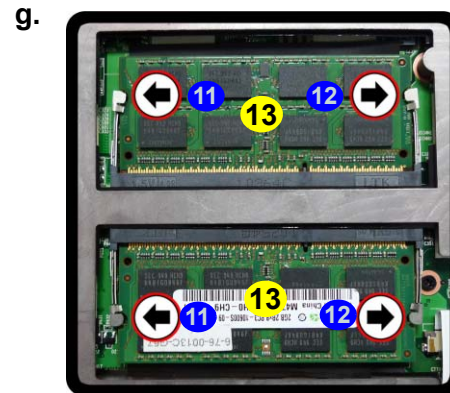
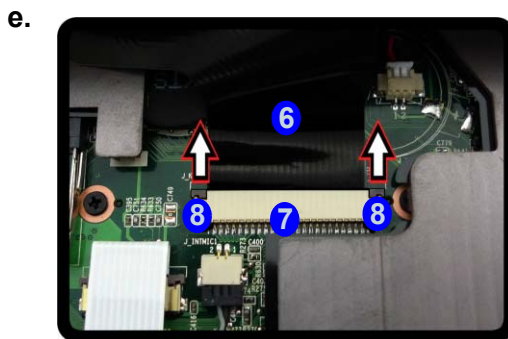



- A. Top Cover Module
- B. Keyboard
- 5 Screws

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


Figure 11
RAM Module Removal (cont'd.)

- e. Disconnect the keyboard ribbon cable from the locking collar socket by using a small flat-head screwdriver to pry the locking collar pins away from the base.
- f. Remove the keyboard and the memory sockets will be visible.
- g. Gently pull the two release latches on the sides of the memory socket(s) in the direction indicated below.




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.


 13. RAM Modules

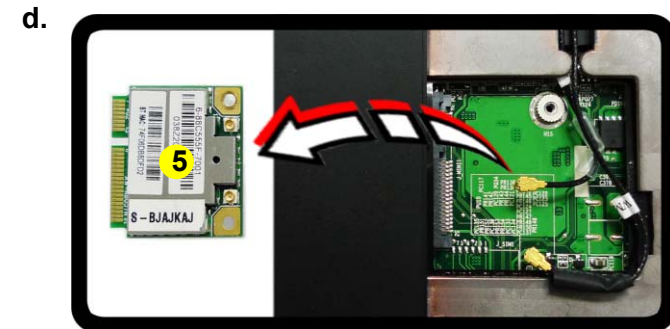
Disassembly

Figure 12
Wireless LAN
Module Removal

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

Removing the Wireless LAN Module

- Turn off the computer, remove the battery (page 2 - 5) and the keyboard (page 2 - 10).
- The Wireless LAN module will be visible at point ① under the keyboard (Figure 12a).
- Carefully disconnect cables ② - ③, then remove screw ④ from the module socket (Figure 12b).
- The Wireless LAN module ⑤ will pop-up (Figure 12c).
- Lift the Wireless LAN module (Figure 12d) up and off the computer.



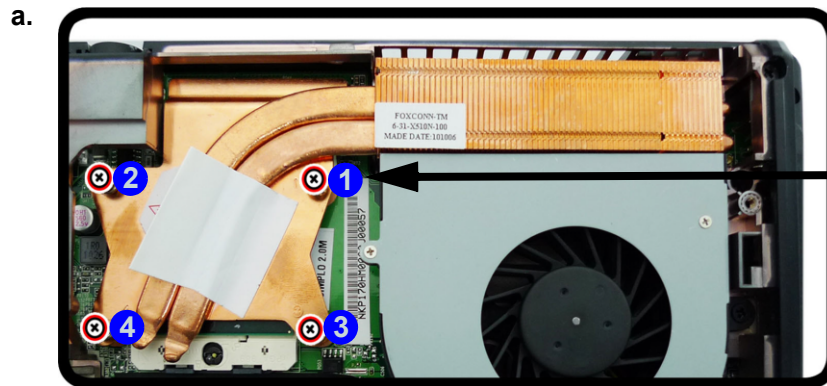
5. WLAN Module

- 1 Screw

Removing and Installing the Processor

Processor Removal Procedure

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)), and component bay cover ([page 2 - 10](#)).
2. Remove screws **1** - **4** from the heat sink unit in the order indicated on the label (i.e screw 4 first through to screw 1 last [Figure 13a](#)).
3. Carefully (it may be hot) remove the heat sink unit **5** ([Figure 13b](#)).



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

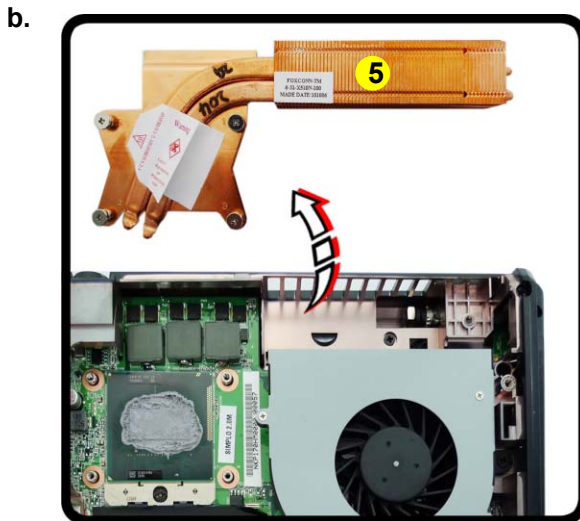


Figure 13
**Processor
Removal
Procedure**

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



CPU Warning

In order to prevent damaging the contact pins when removing the CPU, it is necessary to first remove the WLAN module from the computer.




5. Heat Sink Unit

- 4 Screws

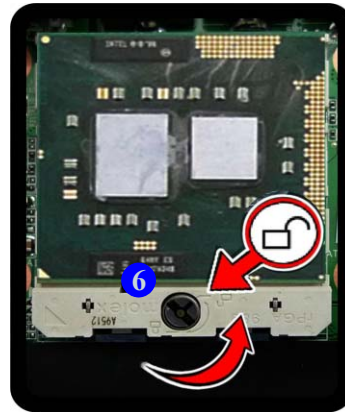
Disassembly

Figure 14 Processor Removal (cont'd)

- c. Turn the release latch to unlock the CPU.
d. Lift the CPU out of the socket.

4. Turn the release latch **6** towards the unlock symbol , to release the CPU (**Figure 14c**).
5. Carefully (it may be hot) lift the CPU **A** up out of the socket (**Figure 14d**).
6. See [page 2 - 19](#) for information on inserting a new CPU.
7. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).

c.

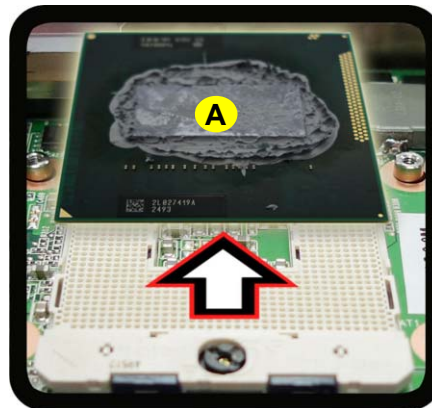


Unlock



Lock

d.



Caution

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



A. CPU

Processor Installation Procedure


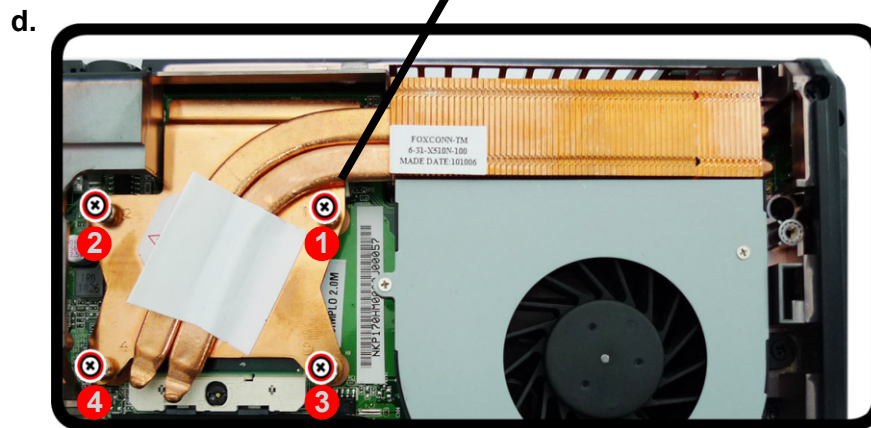
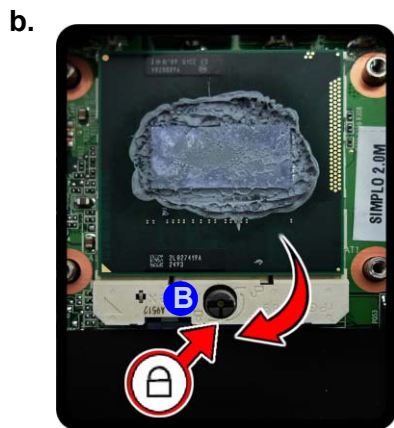
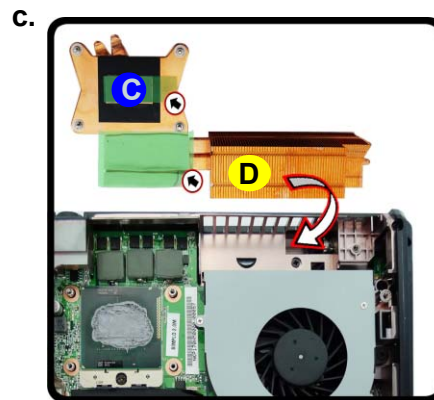
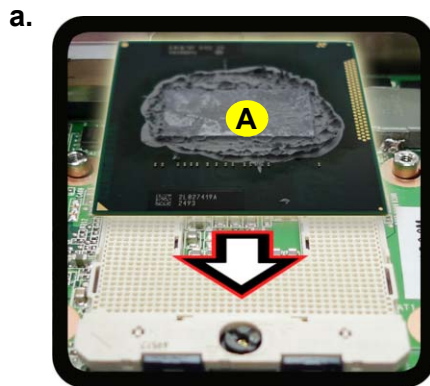
1. Insert the CPU **A**, pay careful attention to the pin alignment (*Figure 15a*), it will fit only one way (DO NOT FORCE IT!), and turn the release latch **B** towards the lock symbol  (*Figure 15b*).
2. **Remove the sticker** **C** (*Figure 15c*) from the heat sink unit.
3. Insert the heat sink unit **D** as indicated in *Figure 15c*.
4. Tighten the CPU heat sink screws in the order **1**, **2**, **3** & **4** (the order as indicated on the label and *Figure 15d*).
5. Replace the CPU fan, component bay cover and tighten the screws (*page 2 - 17*).

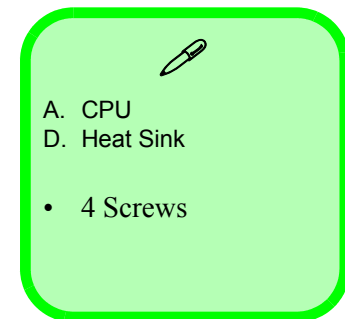
Figure 15
Processor Installation

- a. Insert the CPU.
- b. Turn the release latch towards the lock symbol.
- c. Remove the sticker from the heat sink unit and insert the heat sink.
- d. Tighten the screws.



Note:

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



Disassembly

Figure 16

Video Card

Removal Procedure

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



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.



8 & 9. Heat Sink Units
12. Video Card

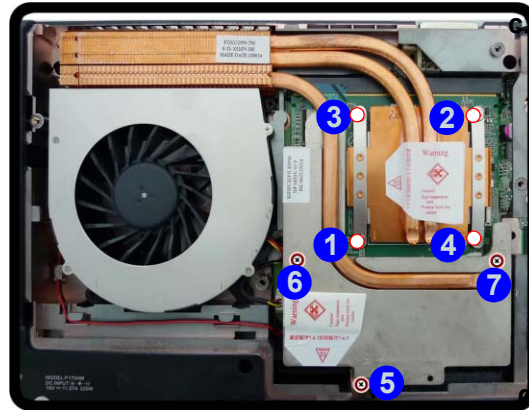
- 9 Screws

Removing and Installing the Video Card

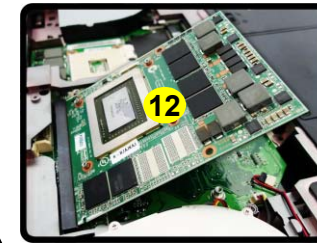
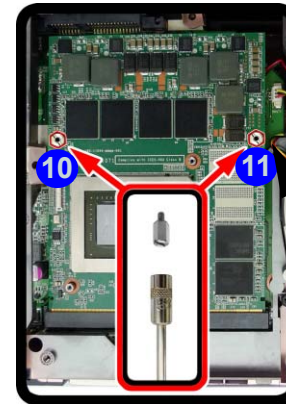
Video Card Removal Procedure

- Turn off the computer, turn it over and remove the battery (page 2 - 5) and component cover (page 2 - 10).
- Remove screws 1 - 7 from the heat sink unit in the order indicated on the label (i.e screw 7 first through to screw 1 last) (Figure 16a).
- Carefully (they may be hot) remove the heat sink units 8 & 9 (Figure 16b).
- Remove screws 10 & 11 from the video card and the video card 12 will pop up (Figure 16c).
- Remove the video card 12 (Figure 16d).

a.



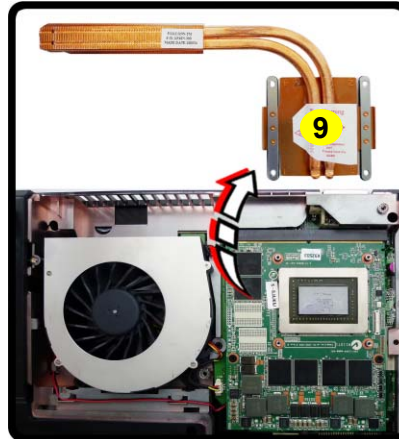
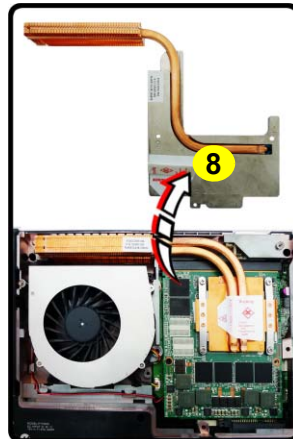
c.



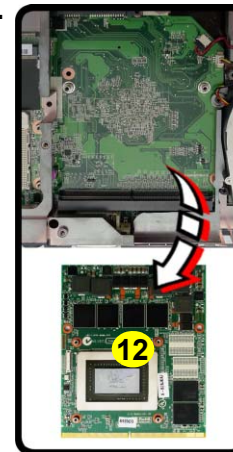
Note:

Please use a flat head screwdriver to remove screws 10 & 11.

b.



d.



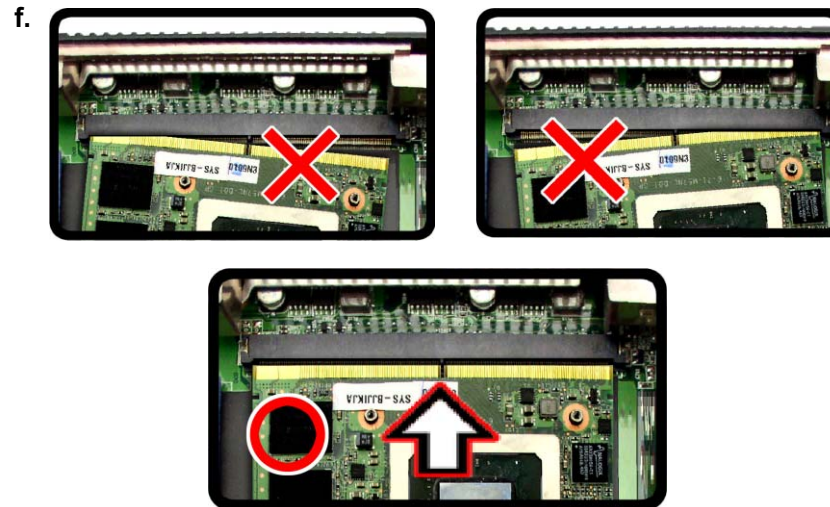
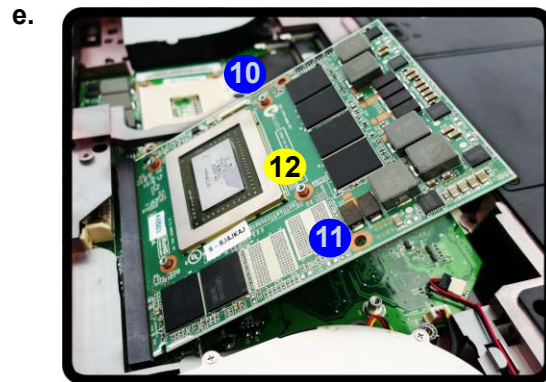
Heat Sink Screw Removal and Insertion

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.

Installing a New Video Card

1. Prepare to fit the video card **12** into the slot by holding it at about a 30° angle (*Figure 17e*).
2. The card needs to be fully into the slot, and the video card and socket have a guide-key and pin which align to allow the card to fit securely (*Figure 17f*).
3. Fit the connectors firmly into the socket, straight and evenly.



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 **10** & **11** (*Figure 17 on page 2 - 21*).
7. Place the heat sink back on the card, and secure the screws in the order indicated in *Figure 17 on page 2 - 21*.
8. Attach the video card fan and secure with the screws as indicated in *Figure 16 on page 2 - 20*.
9. Reinsert the component bay cover, and secure with the screws as indicated in *Figure 10 on page 2 - 14*.

Figure 17
Installing a New Video Card

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



Caution

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



12. Video Card

- 2 Screws

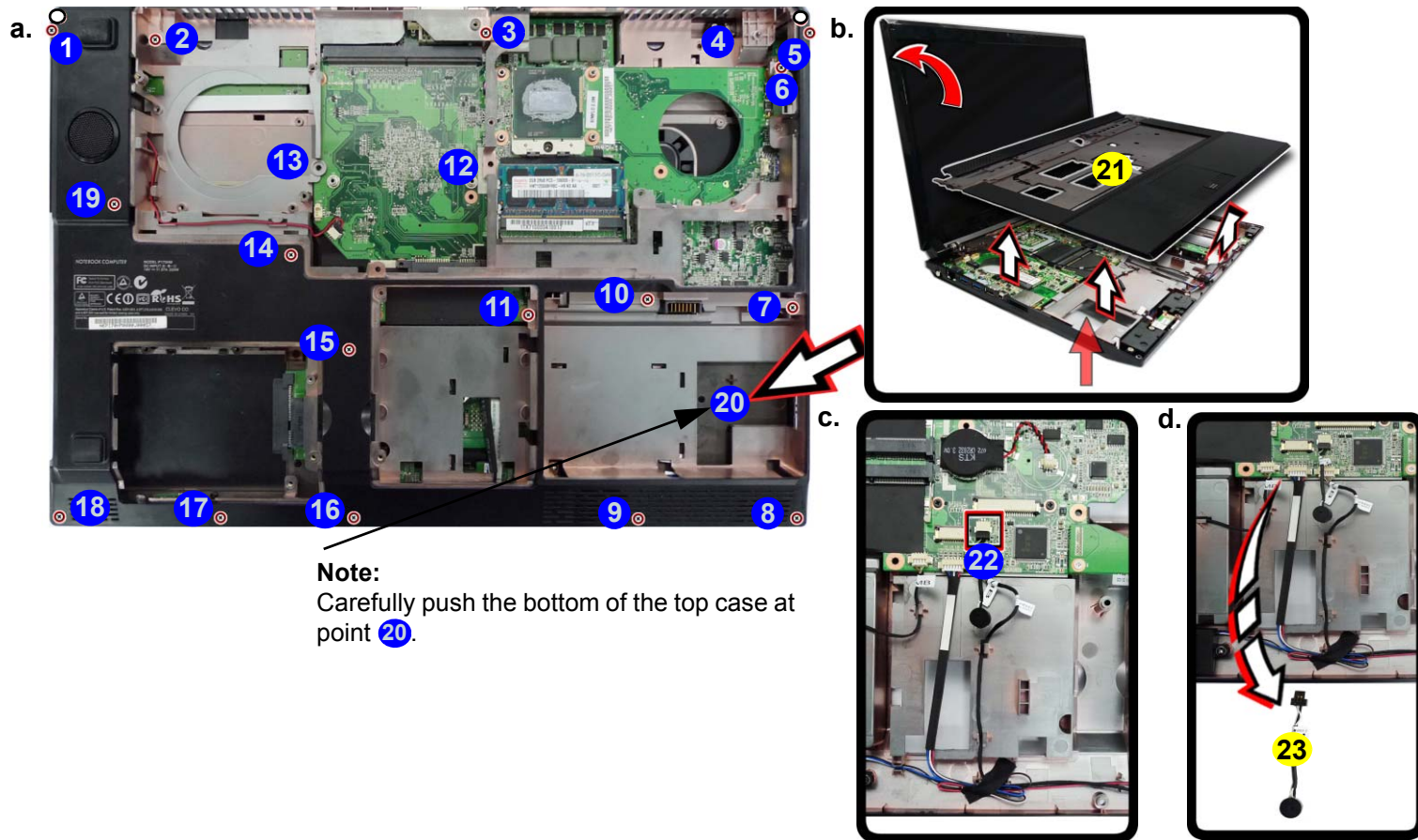
Disassembly

Figure 18
Microphone Removal

- Remove the screws.
- Lift the top case up, keeping it level (do not tilt it).
- Disconnect the microphone cable.
- Remove the microphone.

Removing the Microphone

- Turn **off** the computer, and remove the battery ([page 2 - 5](#)), component bay cover ([page 2 - 10](#)), processor ([page 2 - 17](#)), hard disk ([page 2 - 6](#)) ([page 2 - 10](#)), optical device ([page 2 - 9](#)), and video card ([page 2 - 20](#)).
- Remove screws ① - ⑱ and carefully push the bottom of the top case at point ⑳ ([Figure 18a](#)).
- Lift the top case ㉑ up, keeping it level (do not tilt it) [Figure 18b](#).
- Disconnect the microphone cable ㉒ ([Figure 18c](#)).
- Remove the microphone ㉓ ([Figure 18d](#)).



21. Top Case
23. Microphone

- 19 Screws

Appendix A: Part Lists

This appendix breaks down the *P170HM/P170HM3* 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	P170HM	P170HM3
Top with Fingerprint	<i>page A - 3</i>	<i>page A - 5</i>
Top without Fingerprint	<i>page A - 4</i>	<i>page A - 6</i>
Bottom	<i>page A - 7</i>	
LCD	<i>page A - 8</i>	
HDD	<i>page A - 9</i>	
COMBO	<i>page A - 10</i>	
DVD-Dual Drive	<i>page A - 11</i>	

Top with Fingerprint (P170HM)

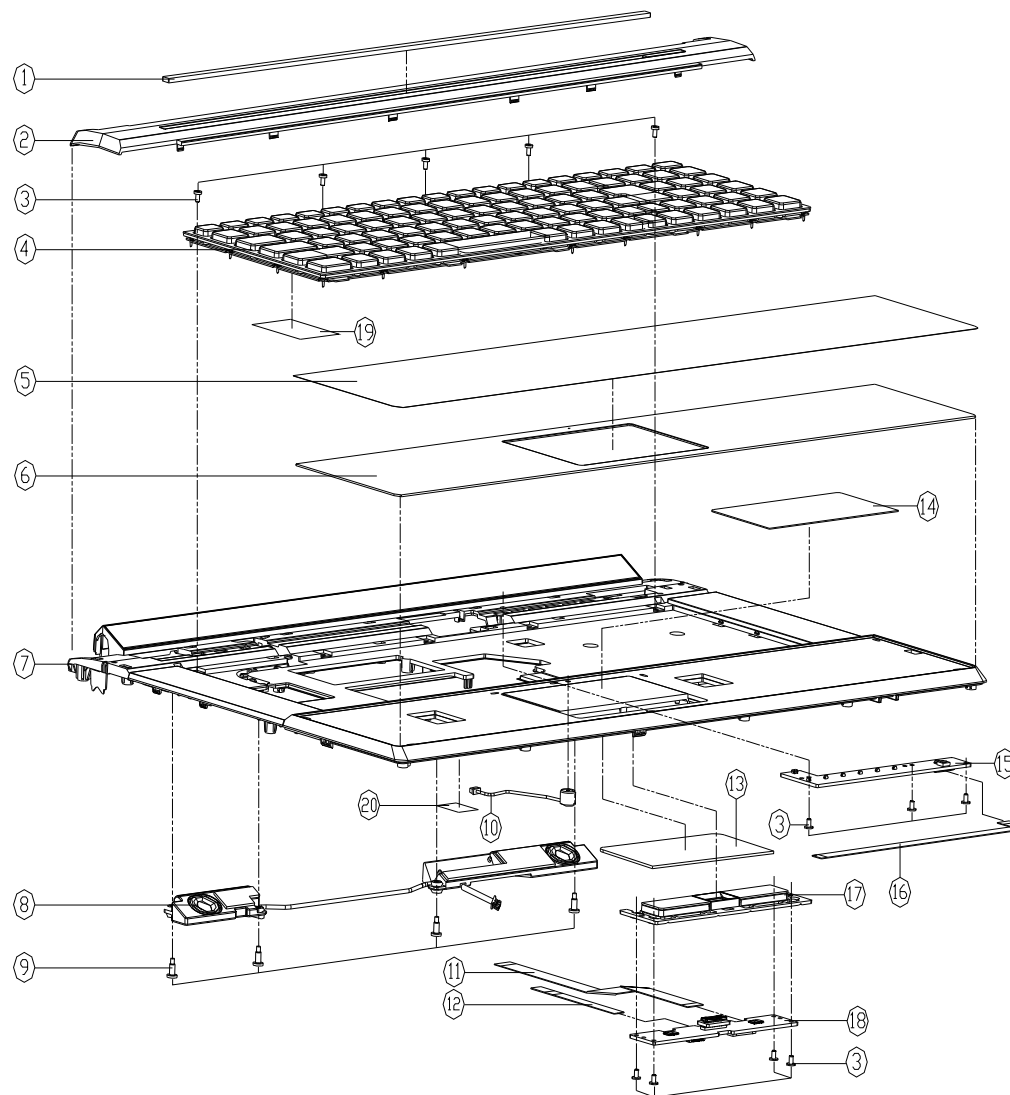


Figure A - 1
Top with
Fingerprint
(P170HM)

ITEM	PART NAME	PART NO	REMARK
1	TOP COSMETIC PLATE PMMA P170HM	6-42-P1702-022	
2	CENTER COVER MODULE P170HM	6-42-P1702-202	
3	SCREW M2*3L KI NI ICT NY (DD=045,DI=0.4)	6-35-B1120-3RE	
4	K/B USA (BLACK) FRAME (US) MODULE P170HM	6-79-P170HMOK-010	
5	TOP CASE PROTECT MYLAR(PET+3M915) P170HM	6-40-P1702-020	
6	AL PLATE FOR PALM REST(PV12) P170HM	6-33-P1702-021	
7	TOP CASE MODULE(W/D SPK MESH) P170HM3	6-39-P1702-010-D	
8	SPK CABLE(TOP L/R) 20W 20V 4P 130MM P204VWGA-3 P170HM	6-23-5P170-031	
9	SCREW M2*6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
10	MC 6MM350MM5-FIL-01 2V-10V 22K V-CABLE(9) L-15MM REAR	6-23-ER130-010	
11	FFC CABLE FOR CLICK RD TO W/B OPEN PITCH-10 L-153MM OHD P170HM	6-43-P1700-022	
12	FFC CABLE FOR TOUCH PAD 6PIN C4500	6-43-C4502-010	
13	TOUCH PAD SYNAPTICS TM-01146-003 MULTI-GENS	6-49-C4802-010	
14	TP MYLAR P170HM	6-40-P1702-030	
15	LED BOARD V2.0 P170HM	6-77-X7104-D02	
16	FFC CABLE FOR POWER RD TO W/B OPEN PITCH-95 L-147MM OHD P170HM	6-43-P1700-012	
17	CLICK BUTTON W-FP MODULE P170HM	6-42-P1702-012	
18	CLICK BOARD V3.0+ FINGERPRINT BOARD V2.0 ASSY P170HM	6-77-X710A-N03	
19	MYLAR(504*40.15T) FOR WIRELESS(PET) P170HM	6-40-P1702-050	
20	AL FOIL(40*15*0.25T) P170HM	6-47-P1702-010	

A.Part Lists

Top without Fingerprint (P170HM)

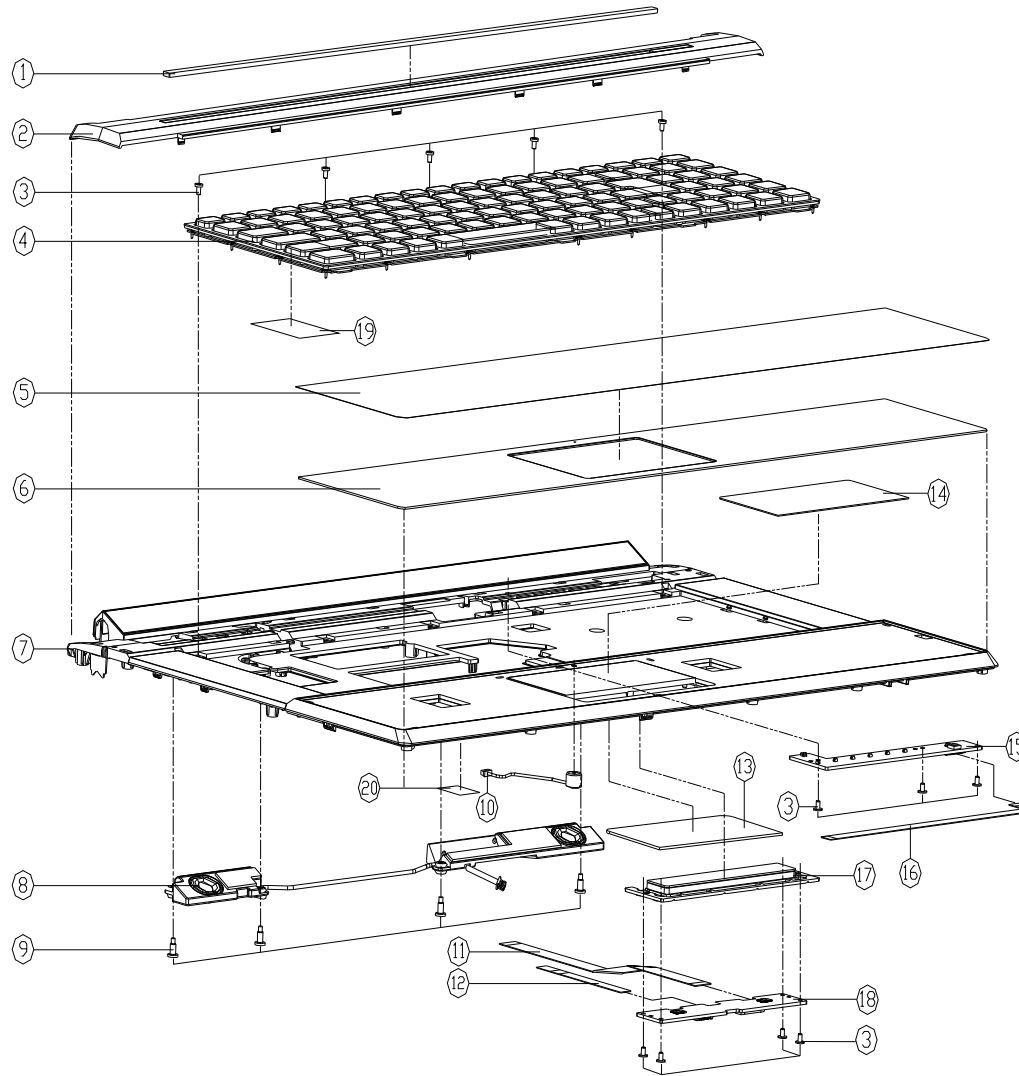


Figure A - 2
Top without Fingerprint
(P170HM)

ITEM	PART NAME	PART NO	REMARK
1	TOP COSMETIC PLATE PMMA P170HM	6-42-P1702-022	
2	CENTER COVER MODULE P170HM	6-42-P1702-202	
3	SCREW M2*3L KI NI ICT NY (OD=045,DT=04)	6-35-B1120-3RE	
4	K/B USA (BLACK) & FRAME (US) MODULE P170HM	6-79-P170HMOK-010	
5	TOP CASE PROTECT MYLAR/PET+3M915 P170HM	6-40-P1702-020	
6	AL PLATE FOR PALM REST(PV12) P170HM	6-33-P1702-021	
7	TOP CASE MODULE(W/D SPK MESH) P170HM3	6-39-P1702-010-D	
8	SPK CABLE(TOP L/R) 20W 20V 41 130M P20AVK04-3 P170HM	6-23-5P170-031	
9	SCREW M2*6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
10	MIC BAR/SCHEMIS FOR ID 2V-9V 22K W/CABLE CD L-15MM PCB1	6-23-ER130-010	
11	FFC CABLE FOR CLICK ID TO MID (PIN P10H-10 L-15MM) HD P170HM	6-43-P1700-022	
12	FFC CABLE FOR TOUCH PAD 6PIN C4500	6-43-C4502-010	
13	TOUCH PAD SYNAPTICS TM-01146-003 MULTI-GE5	6-49-C4802-010	
14	TP MYLAR P170HM	6-40-P1702-030	
15	LED BOARD V2.0 P170HM	6-77-X7104-D02	
16	FFC CABLE FOR POWER ID TO MID (PIN P10H-45 L-14MM) HD P170HM	6-43-P1700-012	
17	CLICK BUTTON W/O-FP MODULE P170HM	6-42-P1702-102	
18	CLICK BOARD V3.0 (W/D FP) P170HM	6-77-X7102-D03-1	
19	MYLAR(50*40*0.15T) FOR WIRELESS/PET P170HM	6-40-P1702-050	
20	AL FOIL(40*15*0.25T) P170HM	6-47-P1702-010	

Top with Fingerprint (P170HM3)

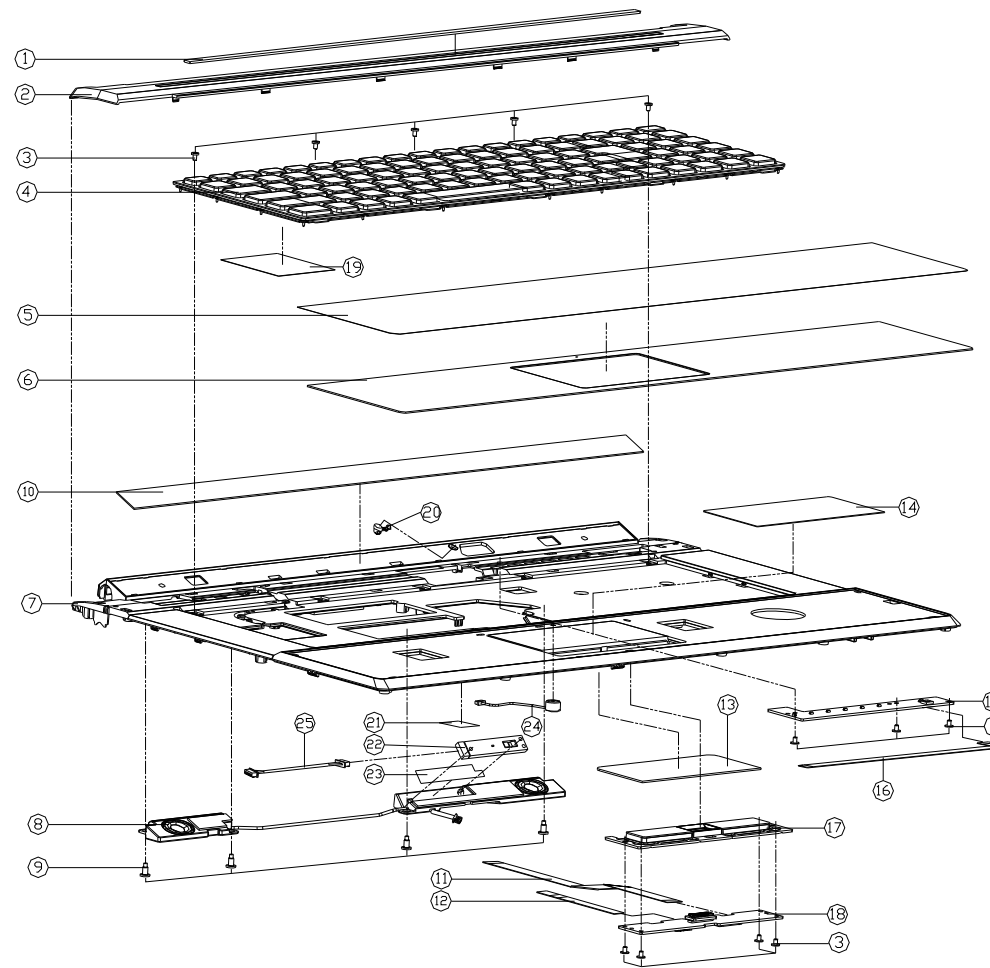


Figure A - 3
Top with
Fingerprint
(P170HM3)

ITEM	PART NAME	PART NO	REMARK
1	TOP COSMETIC PLATE PMMA P170HM	6-42-P1702-022	
2	CENTER COVER MODULE P170HM	6-42-P1702-202	
3	SCREW M2x3L KI NI ICT NY (DD=045,DT=04)	6-35-B1120-3RE	
4	K/B USA (BLACK) FRAME (US) MODULE P170HM	6-79-P170HMOK-010	
5	TOP CASE PROTECT MYLAR(PET+3MB915) P170HM	6-40-P1702-020	
6	AL. PLATE FOR PALM REST(PV12) P170HM	6-33-P1702-021	
7	TOP CASE MIDDLE Q/S SP. MESH Q/S AREA STRUCTURE MODIF P170HM	6-39-P1702-012-D	
8	SPEAKER (OP L) 2W 2Ω 4.5V 100MM X 3.5 DIE BODY (SPEAKER) P170HM	6-23-5P170-032	
9	SCREW M2x6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
10	COSMETIC PLATE FOR SPEAKER (MAXID ICON CHANGED) P170HM	6-42-P1702-021-D	
11	FFC CABLE FOR CLICK BD TO M3 10PIN PITCH 1.0 L=50MM (08) P170HM	6-43-P1700-022	
12	FFC CABLE FOR TOUCH PAD 6PIN C4500	6-43-C4502-010	
13	TOUCH PAD SYNAPTICS TM-0146-003 MULTI-GES	6-49-C4802-010	
14	TP MYLAR P170HM	6-40-P1702-030	
15	LED BOARD V2.0 P170HM	6-77-X7104-D02	
16	FFC CABLE FOR POWER BD TO M3 10PIN PITCH 1.0 L=50MM (08) P170HM	6-43-P1700-012	
17	CLICK BUTTON W-FP MODULE P170HM	6-42-P1702-012	
18	CLICK BOARD V3.0 FINGERPRINT BOARD V2.0 ASSY P170HM	6-77-X710A-N03	
19	MYLAR(S040x015T) FOR WIRELESS(PET) P170HM	6-40-P1702-050	
20	LED LENS FOR 3D EMITTER(LED MODIF) P170HM	6-42-P1702-031-D	
21	AL. FIDIL(40x15x0.25T) P170HM	6-47-P1702-010	
22	3V 10T (08)MM CENTER VIO GLASS(2) WITH 0.25x0.25x0.25 P170HM	6-88-P1733-7800	
23	ADHESIVE TESA 4972(45x8.5x0.05T) P170HM3	6-40-P1702-060-D	
24	MIC 08M(25X8.5X2.5) 2Y-10V 22K W/CABLE(0.7) L=50MM (08) P170HM	6-23-ER130-010	
25	WIRE CABLE FOR 3D EMITTER LEAD TO M3 6P P170HM (08)	6-43-P1706-010	

A.Part Lists

Top without Fingerprint (P170HM3)

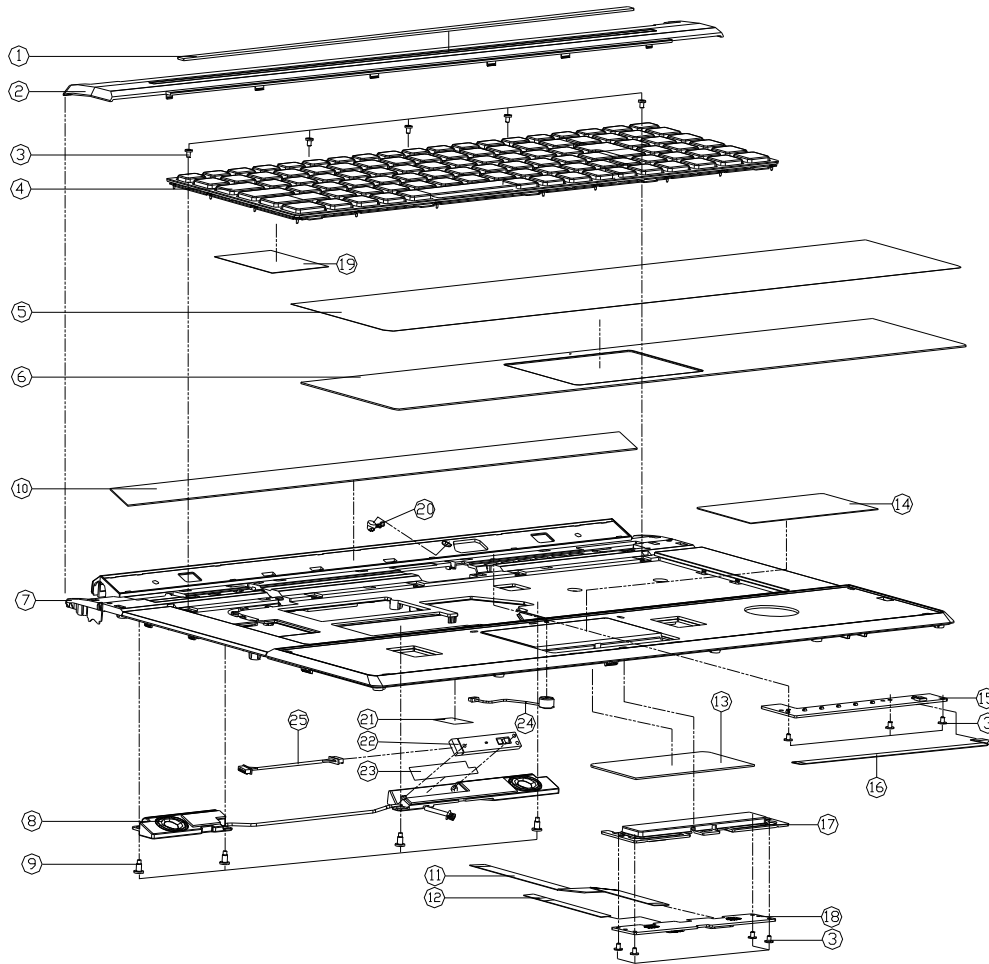
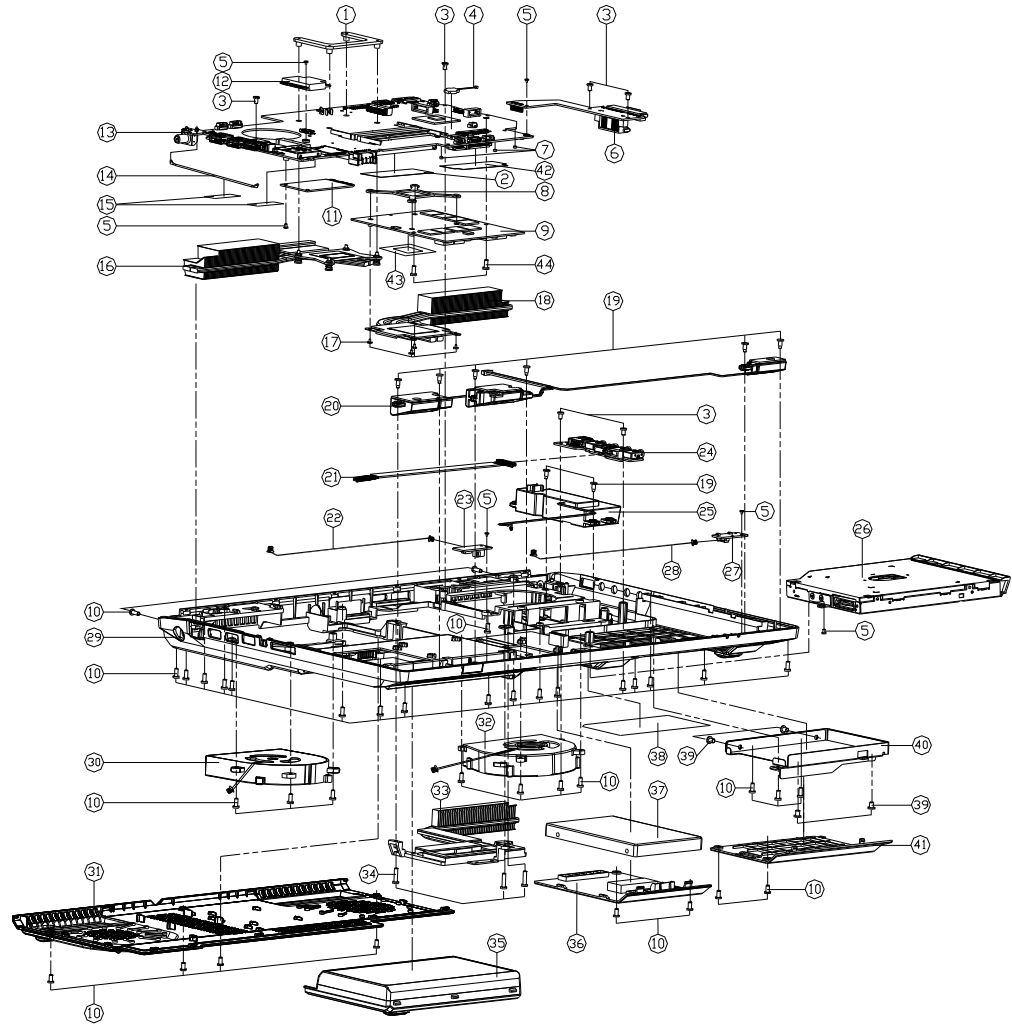


Figure A - 4
Top without
Fingerprint
(P170HM3)

ITEM	PART NAME	PART NO	REMARK
1	TOP COSMETIC PLATE PMMA P170HM	6-42-P1702-022	
2	CENTER COVER MODULE P170HM	6-42-P1702-202	
3	SCREW M2*3L KI NI ICT NY (DD=045,DT=0.4)	6-35-B1120-3RE	
4	K/B USA (BLACK) FRAME (US) MODULE P170HM	6-79-P170HMOK-010	
5	TOP CASE PROTECT MYLAR(PET)3M8915) P170HM	6-40-P1702-020	
6	AL PLATE FOR PALM REST(PV12) P170HM	6-33-P1702-021	
7	TOP CASE MIDDLE(D) SPR MESH(S)PK AREA STRUCTURE MODIFY P170HM	6-39-P1702-012-D	
8	SPR MESH(S)PK AREA STRUCTURE MODIFY P170HM	6-23-5P170-032	
9	SCREW M2*6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
10	COSMETIC PLATE FOR SPEAKER(MIXED ICON CHANGE) P170HM	6-42-P1702-021-D	
11	FFC CABLE FOR CLICK BD TO W/O OPEN PITCH=14 L=52MM (40) P170HM	6-43-P1700-022	
12	FFC CABLE FOR TOUCH PAD 6PIN C4500	6-43-C4502-010	
13	TOUCH PAD SYNAPTICS TM-01146-003 MULTI-GENS	6-49-C4802-010	
14	TP MYLAR P170HM	6-40-P1702-030	
15	LED BOARD V2.0 P170HM	6-77-X7104-D02	
16	FFC CABLE FOR POWER BD TO W/O OPEN PITCH=14 L=52MM (40) P170HM	6-43-P1700-012	
17	CLICK BUTTON W/O-FP MODULE P170HM	6-42-P1702-102	
18	CLICK BOARD V3.0 (W/O FP) P170HM	6-77-X7102-D03-1	
19	MYLAR(50*40*0.15T) FOR WIRELESS(PET) P170HM	6-40-P1702-050	
20	LED LENS FOR 3D EMITTER(D) ICON MODIFY P170HM	6-42-P1702-031-D	
21	AL FOIL(40*15*0.25T) P170HM	6-47-P1702-010	
22	3D KIT (CONTRAST) ENTER W/O GLASS) WITH (96) 1063-000 (40) P170HM	6-88-P1733-7800	
23	ADHESIVE TESA 4972(45*85*0.05T) P170HM3	6-40-P1702-060-D	
24	WIRE CABLE FOR 3D EMITTER(L=20) TO M6 6P P170HM (40)	6-23-ER130-010	
25	WIRE CABLE FOR 3D EMITTER(L=20) TO M6 6P P170HM (40)	6-43-P1706-010	

A.Part Lists

Bottom



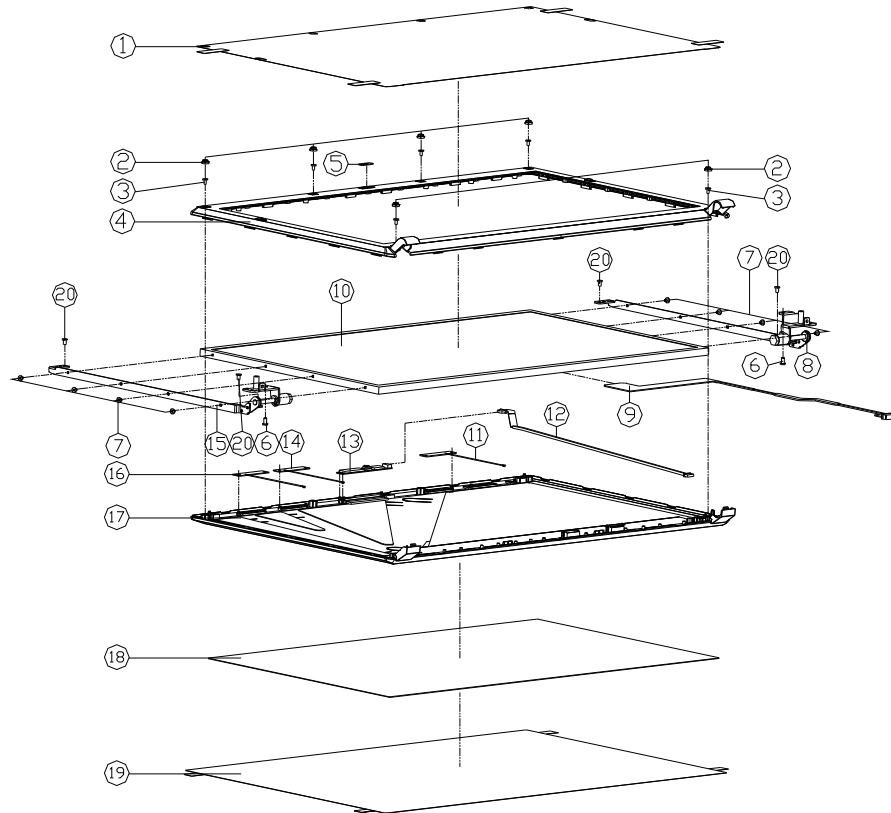
ITEM	PART NAME	PART NO	REMARK
1	CPU SUPPORT BRACKET SECC T415 P150MM	6-33-X510S-011	
2	M520G NYLAR FDR DDR (REB1718)	6-40-M520G-010-1	
3	SCREW M2.5x4L KI BK/D ICT NY	6-35-B4125-4RA	
4	BAT 20M 3V 200MA W/CABLE 50MM BR2220P5	6-23-22015-TC0	
5	SCREW M2xL KI NI ICT NY (DB-445.07-04)	6-35-B1120-3RE	
6	HDD&DVD BOARD V2.0 P170MM	6-77-X710J-D02	
7	VGA SUPPORT RUBBER & SILICONE P150MM	6-47-X510S-010	
8	VGA SUPPORTER SUS430 X7200	6-33-X720S-040	
9	W/ 2ND HDD ASS'Y P170MM (OPTION)	6-79-P170MM-040	
9	W/ 1ST HDD ASS'Y P170MM (OPTION)	6-77-V860L-12I-E	
9	W/ 1ST HDD ASS'Y P170MM (OPTION)	6-77-V860L-12I-G	
9	W/ 1ST HDD ASS'Y P170MM (OPTION)	6-77-V860L-112-E	
10	SCREW M2.5x6L K BZ ICT NY	6-35-B2125-6RA	
11	W/HD 19" MON (19" MON) (OPTION)	6-88-D9077-6500	
12	W/HD 19" MON (19" MON) (OPTION)	6-88-M77C-4220	(OPTION)
12	W/HD 19" MON (19" MON) (OPTION)	6-88-W76C-8702	(OPTION)
12	W/HD 19" MON (19" MON) (OPTION)	6-88-C555F-8701	(OPTION)
12	W/HD 19" MON (19" MON) (OPTION)	6-88-W76C-7601	(OPTION)
12	W/HD 19" MON (19" MON) (OPTION)	6-88-C555F-5300	(OPTION)
12	W/HD 19" MON (19" MON) (OPTION)	6-88-C555F-7001	(OPTION)
12	W/HD 19" MON (19" MON) (OPTION)	6-88-P170Z-4200	(OPTION)
12	W/HD 19" MON (19" MON) (OPTION)	6-88-P170F-4200	(OPTION)
12	W/HD 19" MON (19" MON) (OPTION)	6-88-P170P-4210	(OPTION)
13	MAIN BOARD V3.0 (OPTION)	6-77-X7100-003	
13	MAIN BOARD V3.0 (OPTION)	6-77-X7100-002-1	
14	TV TUNER CABLE 137 L-25MM P170MM	6-43-P170T-020	
15	TAPE NYLAR (C)MYLAR M550L	6-40-M55.12-030	
16	CPU HEATSINK MODULE P150MM	6-31-P170N-101	
17	SCREW M6x3xL K1H1.2 D=4.0 BZ ICT NY	6-35-B2116-3R5	
18	(VRAMGX) HEATSINK MODULE P150MM	6-31-X510N-302 (FOR CN12C-GTX)	
18	(VRAMGX) HEATSINK MODULE P150MM	6-31-X510N-202 (FOR CN1E-GS18)	
19	SCREW M2x6L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
20	SPK CABLE (RIGHT/LEFT) 2540/2540MM	6-23-5P170-021	
21	WIRE CABLE FOR AUDIO BOARD TO HD 2P P170M	6-43-P1700-03E	
22	WIRE CABLE FOR IR BOARD TO HD 4P P170M	6-43-P1700-051	
23	CIR BOARD V3.0 P170MM	6-77-X510H-D03-A	
24	AUDIO BOARD V3.0 P150MM	6-77-X510B-D03	
25	SPK CABLE (R/L) 2540/2540MM	6-23-5P170-011	
26	W/D DVD ASS'Y P150MM	6-79-P150MM-000	
26	SATA DVD SUPER MULTI ASSY (OPTION)	6-79-P170MM-010	
26	SATA BLU-RAY WRITER ASSY (OPTION)	6-79-P170MM-010	
27	LED BOARD V1.0A P150MM	6-77-X5104-D01A	
28	WIRE CABLE FOR LED BOARD TO HD 5P P170M	6-43-P1700-041	
29	BOTTOM CASE MODULE P170MM	6-39-P1703-013	
30	(VGA) (OPTION) FOR VGA BOARD (OPTION)	6-23-AX510-012	
31	CPU COVER MODULE P170MM (CHANGE)	6-42-P170B-105	
32	(VGA) (OPTION) FOR VGA BOARD (OPTION)	6-31-X720S-101	
33	(VRAMGX) HEATSINK MODULE P150MM	6-31-X510N-503 (FOR CN12C-GTX)	
33	(VRAMGX) HEATSINK MODULE P150MM	6-31-X510N-403 (FOR CN1E-GS18)	
34	SCREW M2xL K1H1.8 D=4.0 BZ/D ICT NY	6-35-B6120-5R0	
35	W/D DVD ASS'Y P150MM	6-87-X710S-4J72	(OPTION)
35	W/D DVD ASS'Y P150MM	6-87-X710S-4272	(OPTION)
36	MAIN HDD COVER SATE C723P-TD1C (HP) P170M	6-42-P170J-012	
37	W/ HDD ASS'Y P170MM	6-79-P170MM-020	
37	W/D HDD ASS'Y P170MM	6-79-P170MM-010	
37	W/D 2ND HDD ASS'Y P170MM	6-79-P170MM-020	
37	W/D 2ND HDD ASS'Y P170MM	6-79-P170MM-040	
38	PRODUCT LABEL P170MM	6-45-P170M3-010	
38	PRODUCT LABEL FOR P170MM	6-45-P170M3-010	
39	(OPTION) SCREW M3x4L KI NI ICT	6-35-B1130-4R8	
40	SECOND HDD UNDERSIDE (HP) (OPTION) FOR P170MM	6-33-P170J-012	
41	SECOND HDD COVER SATE C723P-TD1C P170M	6-42-P170J-021	
42	W/HD 19" MON (19" MON) (OPTION)	6-40-X510S-010	
43	VGA CHIP NYLAR FDR N1E-GS V860C1	6-40-W860S-060	(FOR N1E-GS18P ONLY)
44	SCREW M2.5x4L B5MM ICT NY FOR VGA CARD	6-35-Z1125-4R8-1	

Figure A - 5
Bottom

A.Part Lists

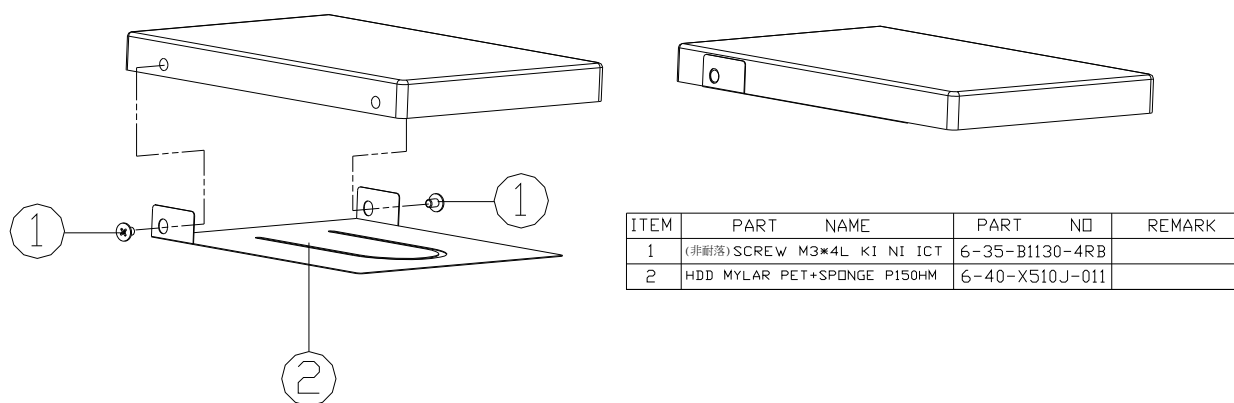
LCD

Figure A - 6
LCD



ITEM	PART NAME	PART NO	REMARK
1	FRONT PROTECTION MILAR (6835-38855) P170M	6-40-P1701-010	
2	LCD FRONT COVER UP RUBBER P170M	6-47-P1701-043	
3	SCREW HEXSL KI1-68 D=4.0 BKZ ICT NY	6-35-86120-5R0	
4	LCD FRONT COVER MODULE (CHANGE SIZE RUBBER)P170M	6-39-P1701-013	
5	CCD LENS PMMA P170HM	6-42-P1701-010	
6	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
7	SCREW HEXSL KI NI ICT NY (38-#45.0T-#4)	6-35-B1120-3RE	
8	LCD HINGE R SECC P170HM	6-33-P1701-022	
9	WIRE CABLE FOR LCD TO CAMERA (6835-38855) P170M	6-43-P1701-012-3H	
9	WIRE CABLE FOR LG TO PANEL TO CAMERA (6835-38855) P170M	6-43-P1701-010-JD	FOR P170HM3
10	LCD I/O 2 PIN WIRE CABLE (6835-38855) P170M	6-50-NB258-N00	FOR P170HM
10	LCD I/O 2 PIN LG WIRE CABLE (6835-38855) P170M	6-50-NB260-G02	FOR P170HM
10	LCD I/O 2 PIN LG WIRE CABLE (6835-38855) P170M	6-50-NB260-L00	FOR P170HM
10	LCD I/O 2 PIN LG WIRE CABLE (6835-38855) P170M	6-50-NB265-L04	FOR P170HM3
11	IGI WIRE PCB (6835-38855) P170M	6-23-7P170-021	
12	WIRE CABLE FOR CCD SP P170HM (6835-38855) P170M	6-43-P170T-011	
13	LCD CAMERA MOUNT (6835-38855) P170M	6-88-X510C-4900	
14	ALUMINUM WIRE PCB (6835-38855) P170M	6-23-7P170-031	
15	LCD HINGE L SECC P170HM	6-33-P1701-012	
16	ALUMINUM WIRE PCB (6835-38855) P170M	6-23-7P170-011	
17	LCD BACK COVER MODULE (CHANGE SIZE)P170M	6-39-P1701-023	
18	LCD ALUMINUM PLATE P170HM	6-33-P1701-031	
19	BACK PROTECTION MILAR (6835-38855) P170M	6-40-P1701-020	
20	SCREW M2.5*4L KI BK/D ICT NY	6-35-84125-4RA	

HDD

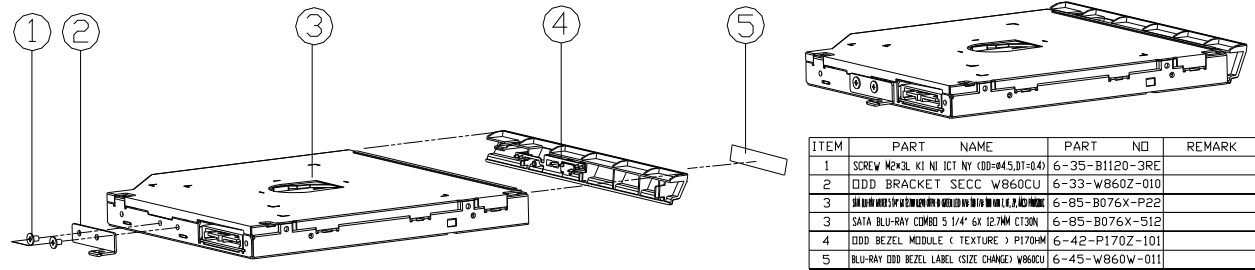


ITEM	PART NAME	PART NO	REMARK
1	(非耐落)SCREW M3*4L KI NI ICT	6-35-B1130-4RB	
2	HDD MYLAR PET+SPONGE P150HM	6-40-X510J-011	

Figure A - 7
HDD

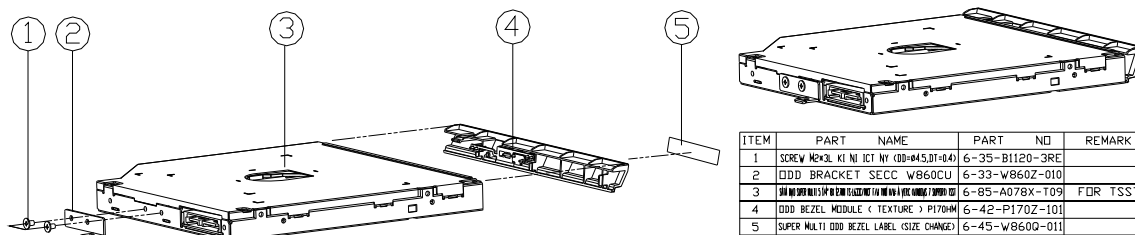
COMBO

Figure A - 8
COMBO



ITEM	PART NAME	PART NO	REMARK
1	SCREW M2x3L KI NI ICT NY (DD=945,DT=04)	6-35-B1120-3RE	
2	DDD BRACKET SECC W860CU	6-33-W860Z-010	
3	SATA BLU-RAY COMBO 5 1/4" 6X 12.7MM CT30N	6-85-B076X-P22	
4	DDD BEZEL MODULE (TEXTURE) P170HM	6-42-P170Z-101	
5	BLU-RAY DDD BEZEL LABEL (SIZE CHANGE) W860CU	6-45-W860W-011	

DVD-Dual Drive



ITEM	PART NAME	PART NO	REMARK
1	SCREW M2x3. KI NI ICT NY (DD-#45,DT-#4)	6-35-B1120-3RE	
2	DDD BRACKET SECC W860CU	6-33-W860Z-010	
3	DDD BEZEL MODULE < TEXTURE > P170HM	6-85-A078X-T09	FDR TSST
4	DDD BEZEL MODULE < TEXTURE > P170HM	6-42-P170Z-101	
5	SUPER MULTI DDD BEZEL LABEL (SIZE CHANGE)	6-45-W8600-011	


Figure A - 9
DVD-Dual Drive

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *P170HM/P170HM3* 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>CougarPoint - M 4/9 - Page B - 22</i>	<i>Power 1.8V_S - Page B - 42</i>
<i>Processor 1/7 - Page B - 3</i>	<i>CougarPoint - M 5/9 - Page B - 23</i>	<i>Power V-Core 1 - Page B - 43</i>
<i>Processor 2/7 - Page B - 4</i>	<i>CougarPoint - M 6/9 - Page B - 24</i>	<i>Power V-Core 2 - Page B - 44</i>
<i>Processor 3/7 - Page B - 5</i>	<i>CougarPoint - M 7/9 - Page B - 25</i>	<i>AC_In, Charger - Page B - 45</i>
<i>Processor 4/7 - Page B - 6</i>	<i>CougarPoint - M 8/9 - Page B - 26</i>	<i>Power 0.85V_S - Page B - 46</i>
<i>Processor 5/7 - Page B - 7</i>	<i>CougarPoint - M 9/9 - Page B - 27</i>	<i>Audio Board - Page B - 47</i>
<i>Processor 6/7 - Page B - 8</i>	<i>3G, CCD - Page B - 28</i>	<i>X5100 ODD Board - Page B - 48</i>
<i>Processor 7/7 - Page B - 9</i>	<i>Mini PCIE, LID - Page B - 29</i>	<i>X5100 Click Board - Page B - 49</i>
<i>DDRIII CHA SO-DIMM_0 - Page B - 10</i>	<i>LED, Hotkey, LID SW, Fan - Page B - 30</i>	<i>X5100 LED 1 Board - Page B - 50</i>
<i>DDRIII CHA SO-DIMM_1 - Page B - 11</i>	<i>RJ45 - Page B - 31</i>	<i>X5100 LED 2 Board - Page B - 51</i>
<i>DDRIII CHB SO-DIMM_0 - Page B - 12</i>	<i>Codec Realtek ALC892 - Page B - 32</i>	<i>X5100 LED 3 Board - Page B - 52</i>
<i>DDRIII CHB SO-DIMM_1 - Page B - 13</i>	<i>APA2010D1-TPA2008D2 - Page B - 33</i>	<i>X7100 HDD & ODD Board - Page B - 53</i>
<i>MXM PCI-E - Page B - 14</i>	<i>KBC-ITE IT8519 - Page B - 34</i>	<i>X7100 CIR - Page B - 54</i>
<i>Panel, Inverter, CRT - Page B - 15</i>	<i>USB, TP, FP, MULTI-CONN - Page B - 35</i>	<i>X7100 LED Board - Page B - 55</i>
<i>1394_JMB380C - Page B - 16</i>	<i>Card Reader (JMC 251C) - Page B - 36</i>	<i>X7100 Click Board - Page B - 56</i>
<i>DVI - Page B - 17</i>	<i>USB 3.0 - Page B - 37</i>	<i>X7100 Fingerprint Board - Page B - 57</i>
<i>HDMI - Page B - 18</i>	<i>VDD3, VDD5 - Page B - 38</i>	<i>TPM - Page B - 58</i>
<i>CougarPoint - M 1/9 - Page B - 19</i>	<i>5V, 3.3V, 5V_S, 3V_S, 1.5V_S, VIN1 - Page B - 39</i>	<i>X5100 HDD Board - Page B - 59</i>
<i>CougarPoint - M 2/9 - Page B - 20</i>	<i>Power 1.05V_S, 1.05V_S_VTT - Page B - 40</i>	
<i>CougarPoint - M 3/9 - Page B - 21</i>	<i>Power 1.5V/VTT_MEM - Page B - 41</i>	

Table B - 1
Schematic Diagrams

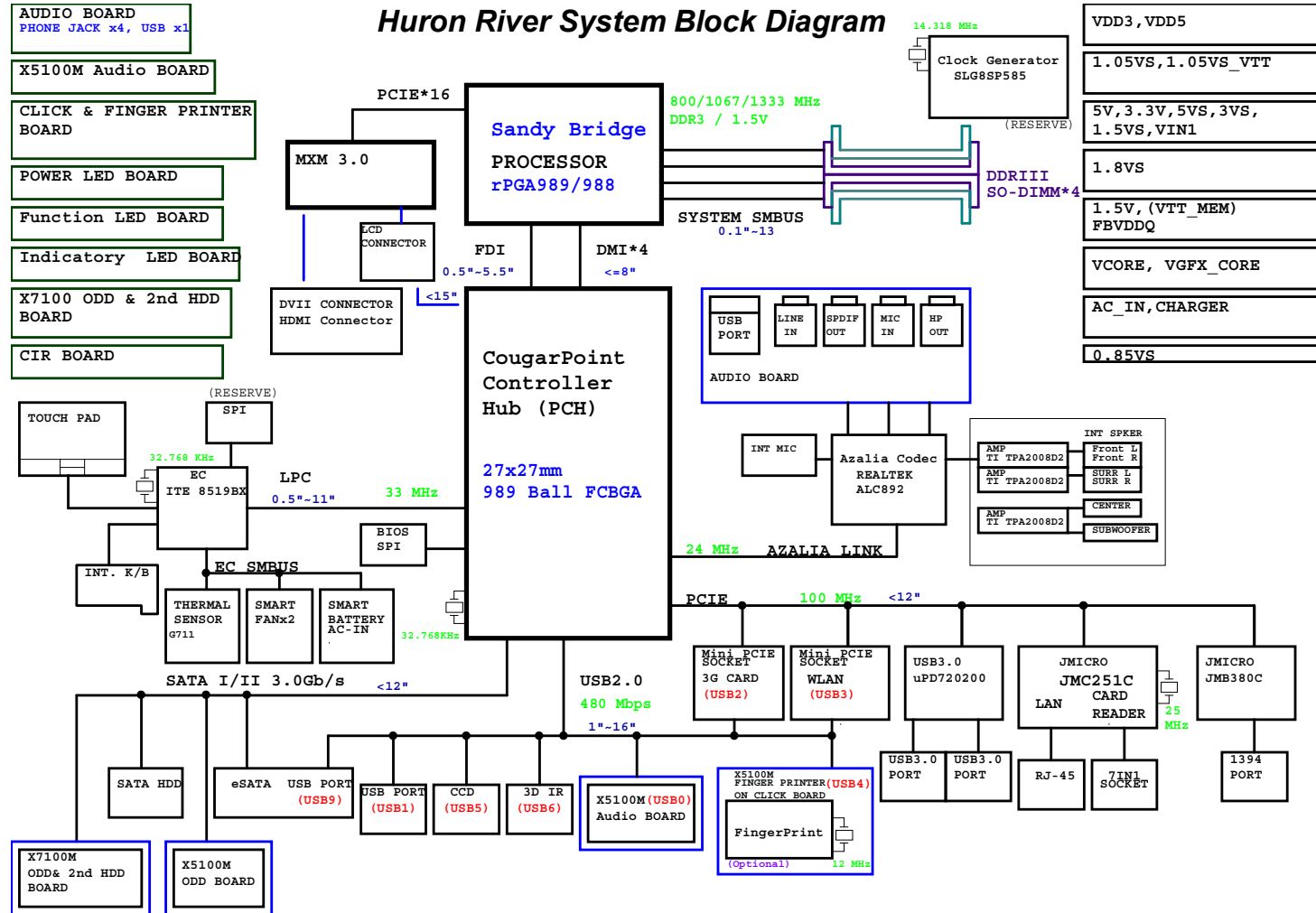


Version Note

The schematic diagrams in this chapter are based upon version 6-7P-X510D-004. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

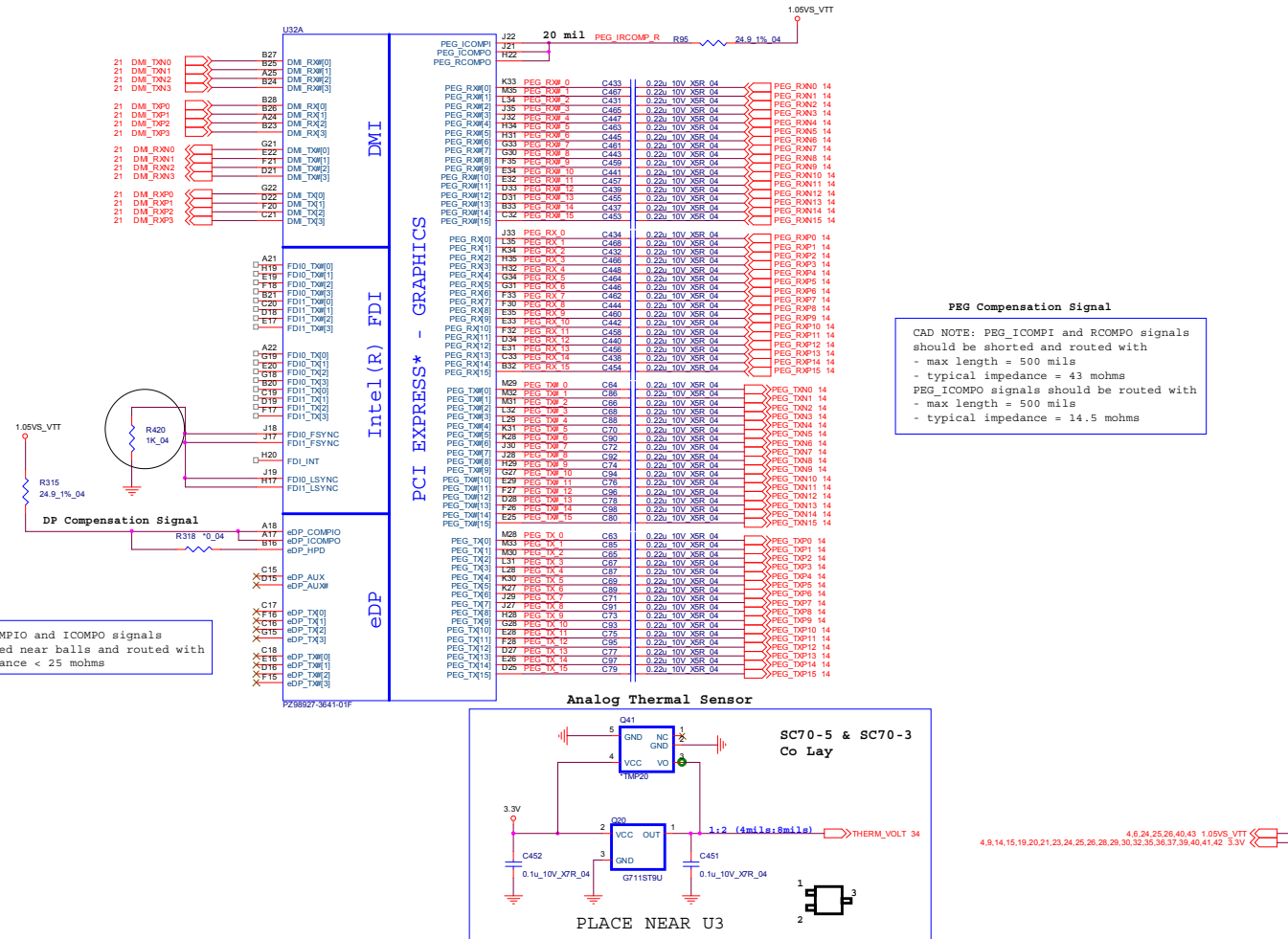
System Block Diagram

Sheet 1 of 57
System Block
Diagram



Processor 1/7

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



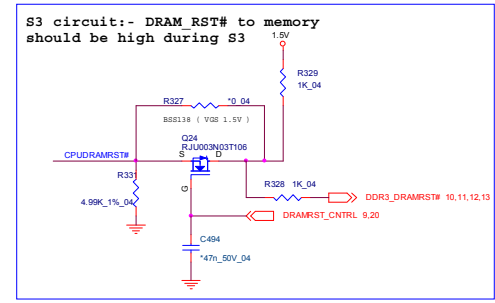
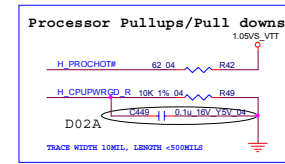
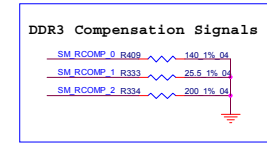
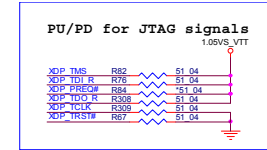
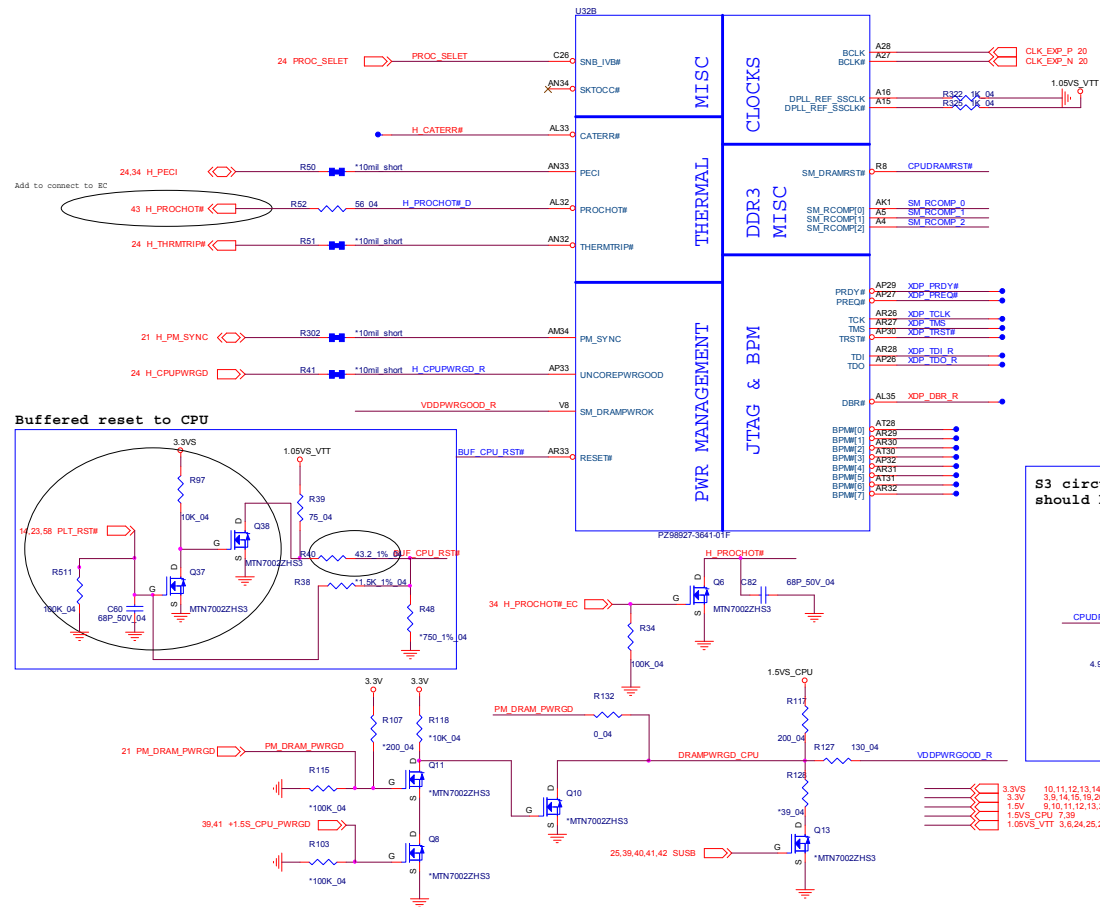
Sheet 2 of 58
Processor 1/7

B.Schematic Diagrams

Processor 2/7

Sheet 3 of 58
Processor 2/7

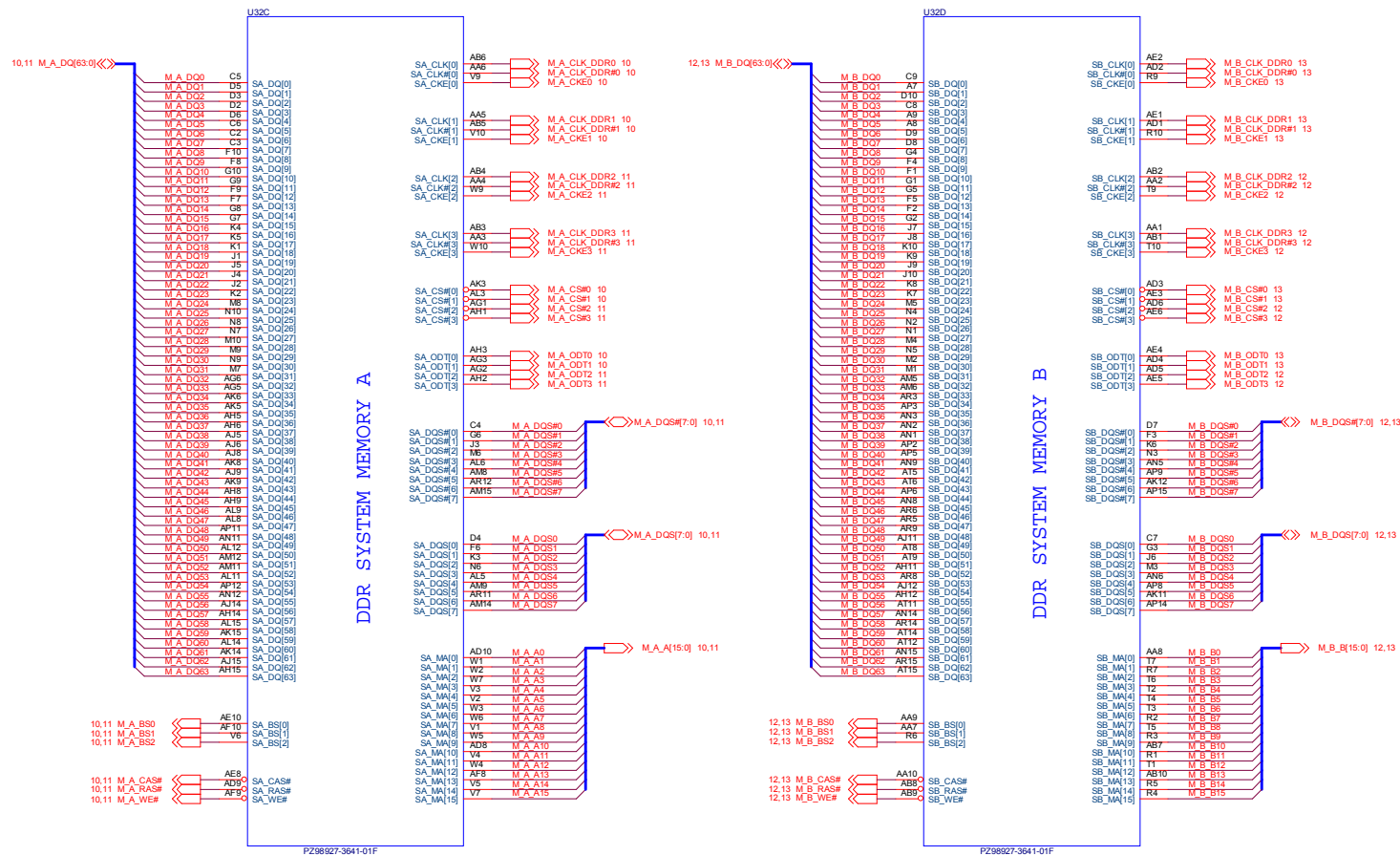
Sandy Bridge Processor 2/7 (CLK,MISC,JTAG)



3.3VS	10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 29, 30, 32, 33, 34, 35, 36, 39, 40, 43, 58
3.3V	3, 9, 14, 15, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 32, 33, 36, 37, 39, 41
1.5V	9, 10, 11, 12, 13, 26, 30, 37, 39, 41
1.5VS_CPU	7, 39
1.05VS_VTT	3, 6, 24, 25, 26, 40, 43

Processor 3/7

Sandy Bridge Processor 3/7 (DDR3)



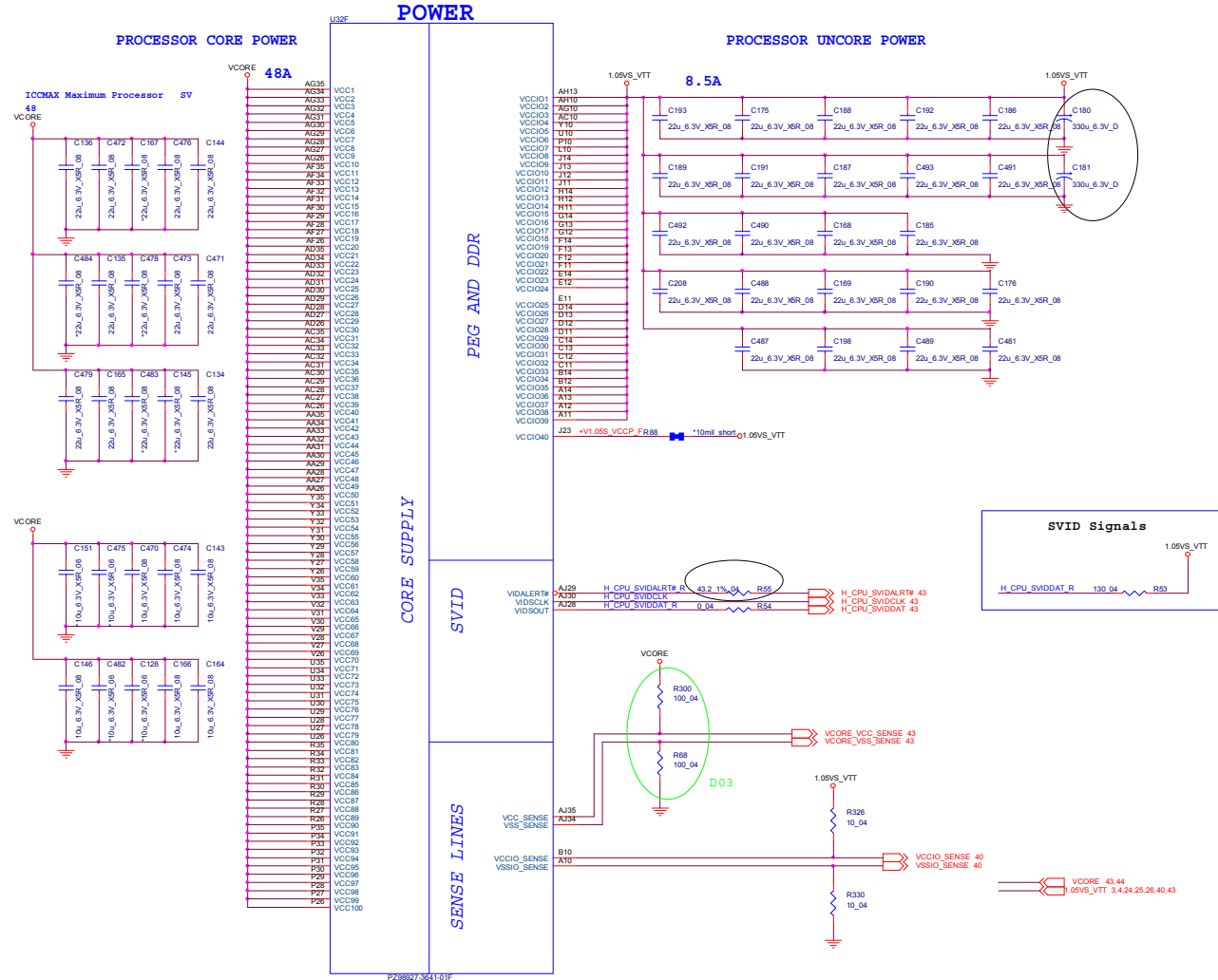
Sheet 4 of 58
Processor 3/7

B.Schematic Diagrams

Processor 4/7

Sheet 5 of 58
Processor 4/7

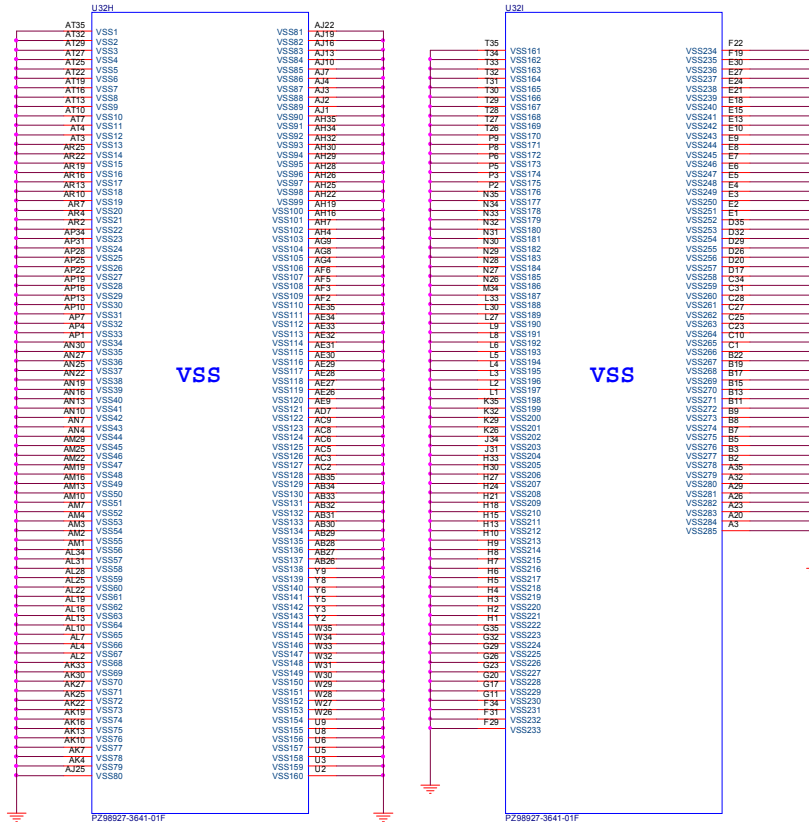
Sandy Bridge Processor 4/7 (POWER)



Processor 6/7

Sandy Bridge Processor 6/7 (GND)

Sheet 7 of 58
Processor 6/7



25,39 1.5V
4,10,11,12,13,14,15,16,17,18,19,20,21,23,24,25,26,29,30,32,33,34,35,36,39,40,43,58 3.3V

Processor 7/7

Sandy 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



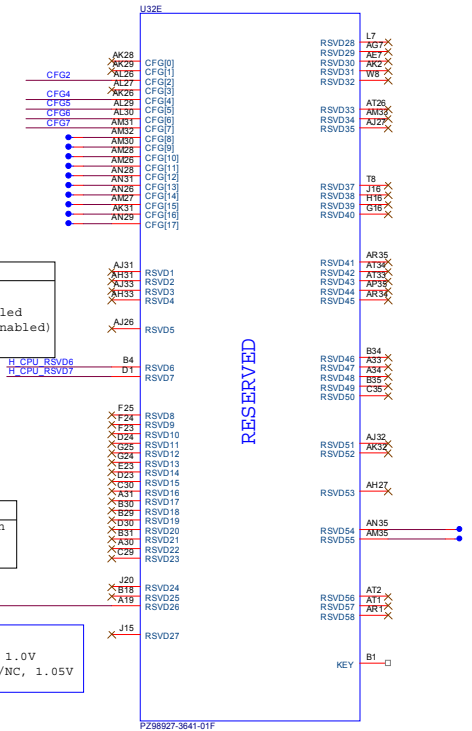
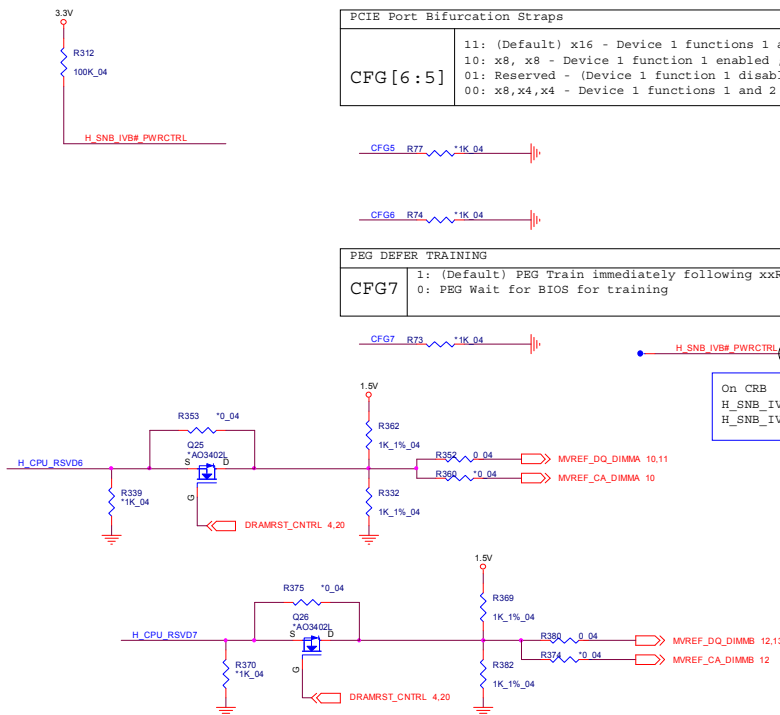
PCIe Port Bifurcation Straps	
CFG [6:5]	11: (Default) x16 - Device 1 functions 1 and 2 disabled 10: x8, x8 - Device 1 function 1 enabled; function 2 disabled 01: Reserved - (Device 1 function 1 disabled; function 2 enabled) 00: x8, x4, x4 - Device 1 functions 1 and 2 enabled



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



On CRB
H_SNB_IVB#_PWRCTRL = low, 1.0V
H_SNB_IVB#_PWRCTRL = high/NC, 1.05V



Sheet 8 of 58
Processor 7/7

B.Schematic Diagrams

Schematic Diagrams

DDRIII CHA SO-DIMM_0

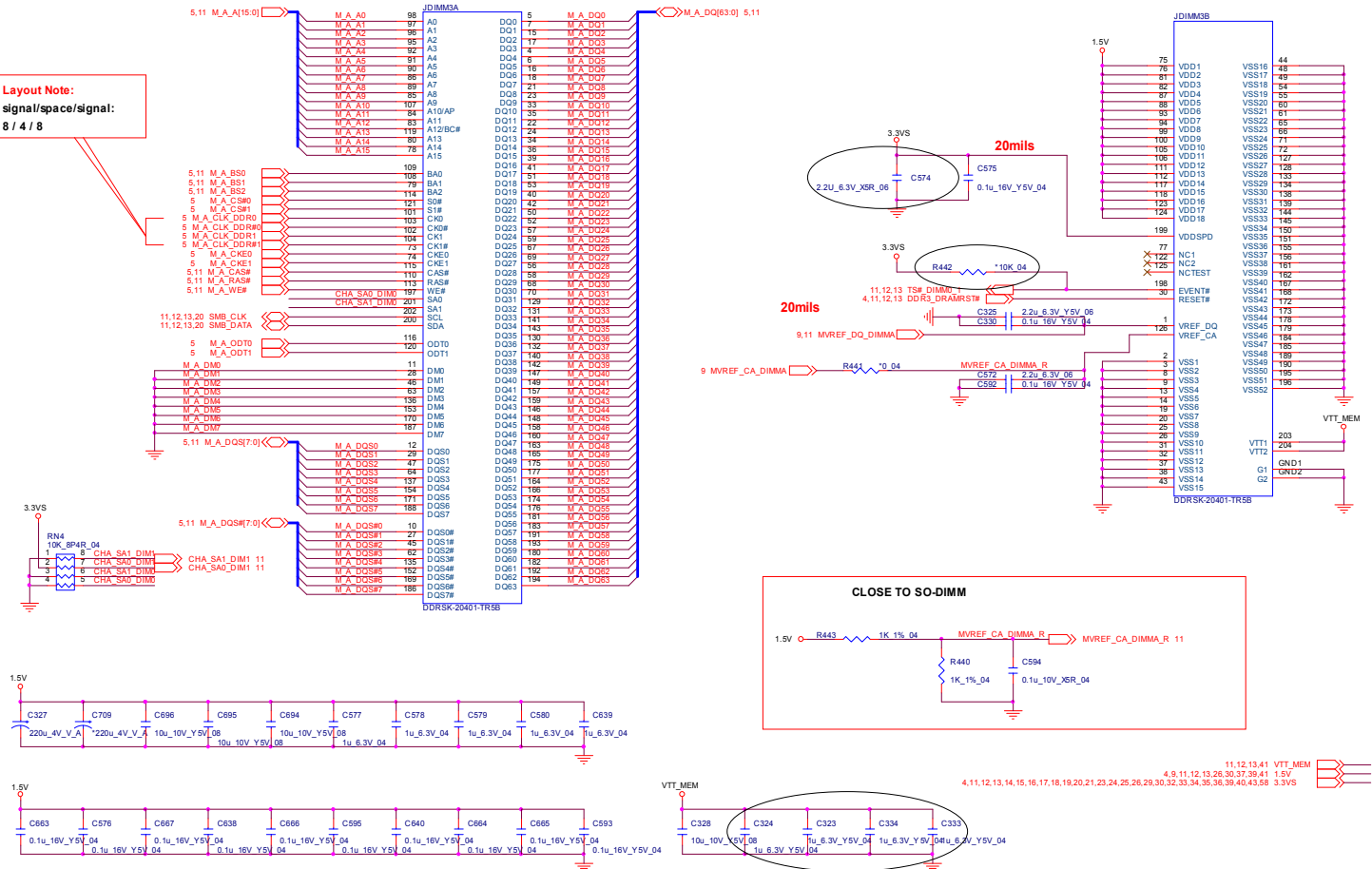
Channel A SO-DIMM 0

CHANGE TO STANDARD

B.Schematic Diagrams

Sheet 9 of 58
DDRIII CHA SO-DIMM_0

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

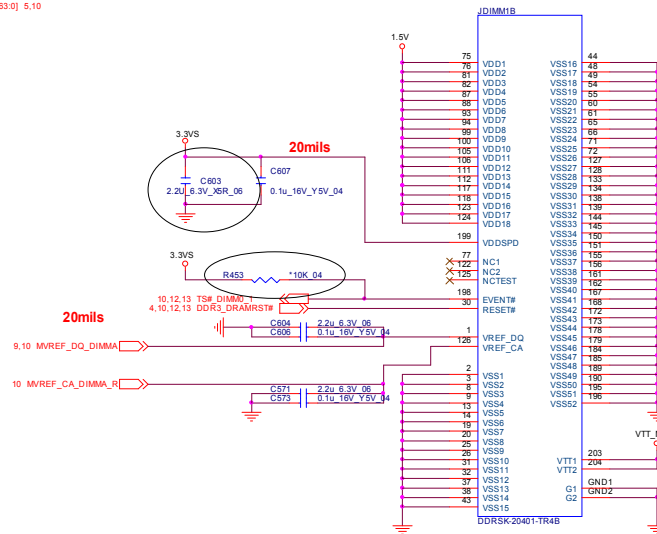
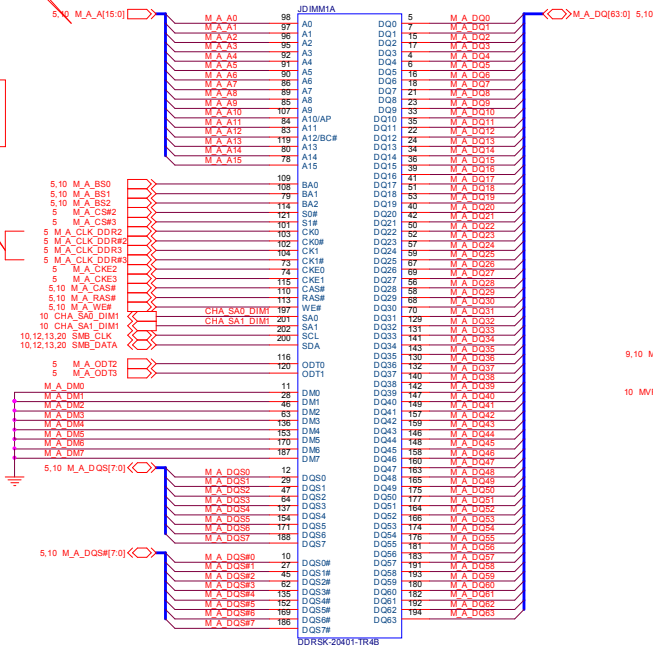


DDRIII CHA SO-DIMM_1

Channel A SO-DIMM 1

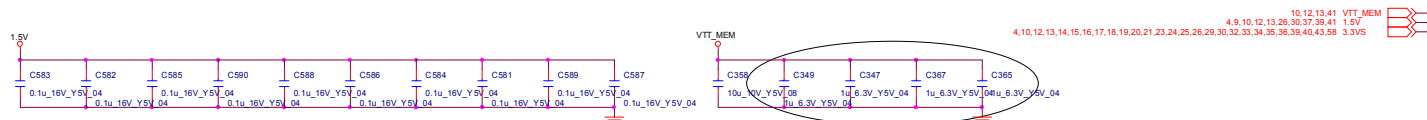
CHANGE TO STANDARD

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



Sheet 10 of 58
IBEXPEAK - M 1/9

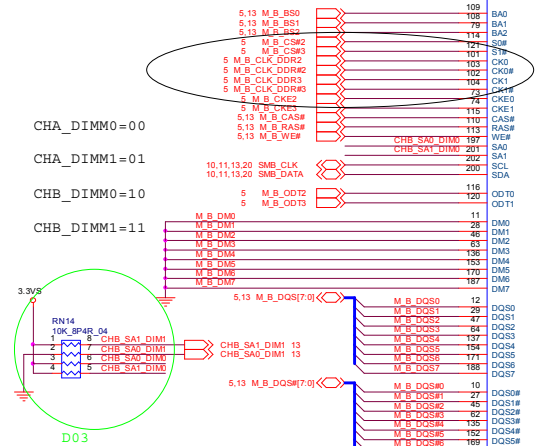
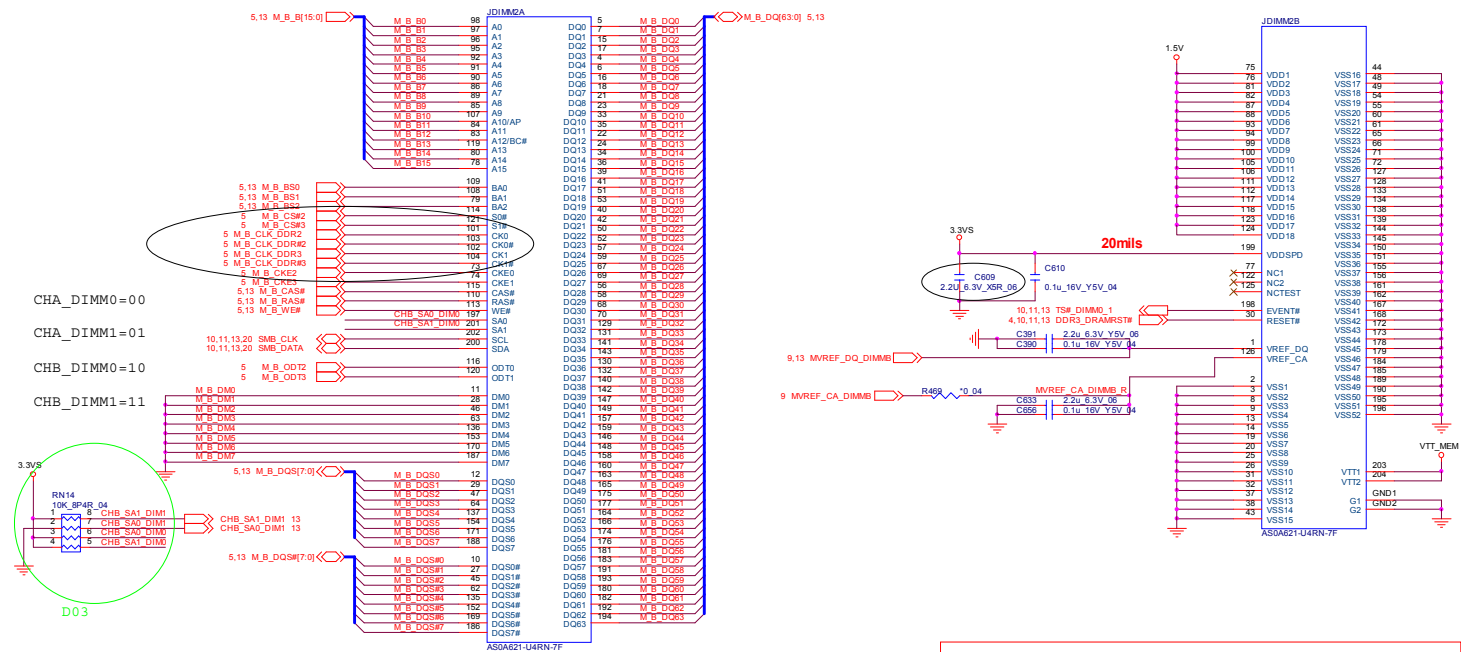
B.Schematic Diagrams



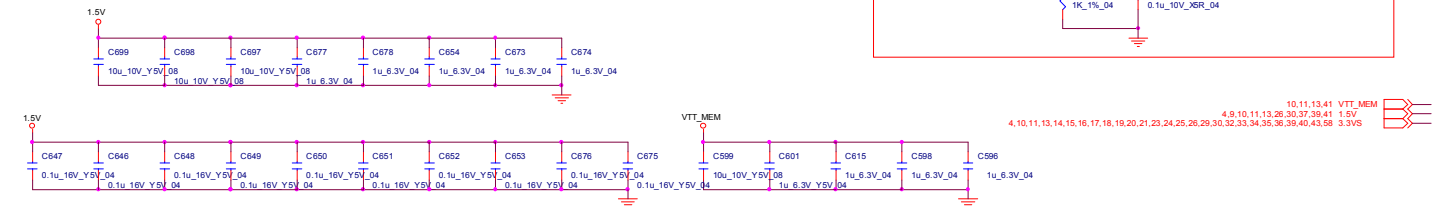
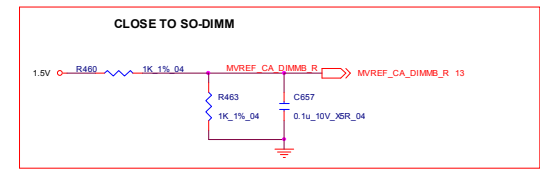
DDRIII CHB SO-DIMM_0

Channel B SO-DIMM 0

CHANGE TO STANDARD



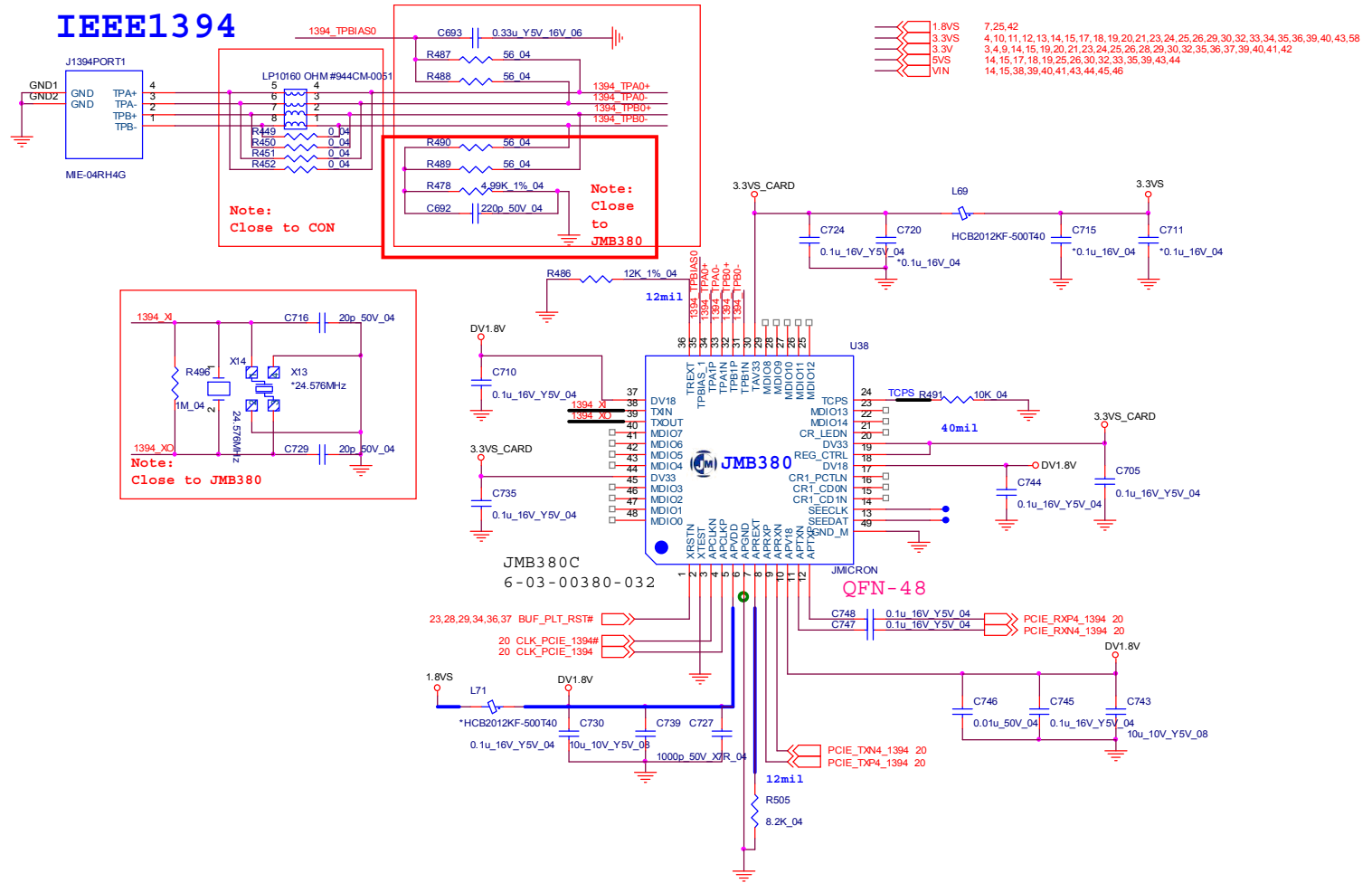
Layout Note:
SO-DIMM_1 is placed farther from the GMCH than SO-DIMM_0



Sheet 11 of 58
DDRIII CHB SO-DIMM_0

B.Schematic Diagrams

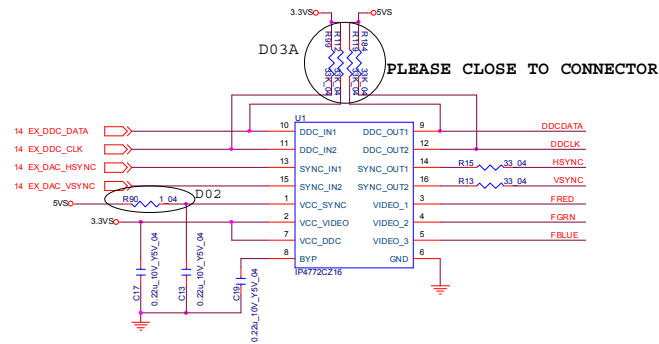
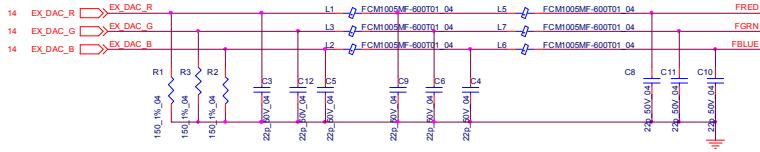
1394_JMB380C



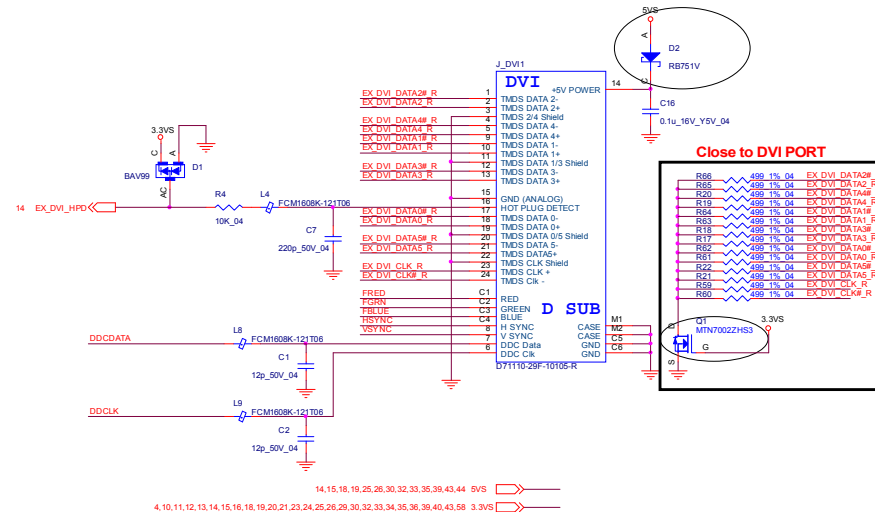
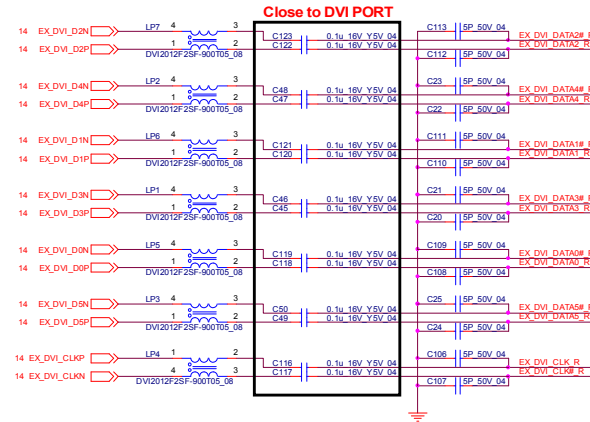
Sheet 15 of 58
1394_JMB380C

B.Schematic Diagrams

DVI



PLEASE CLOSE TO CONNECTOR



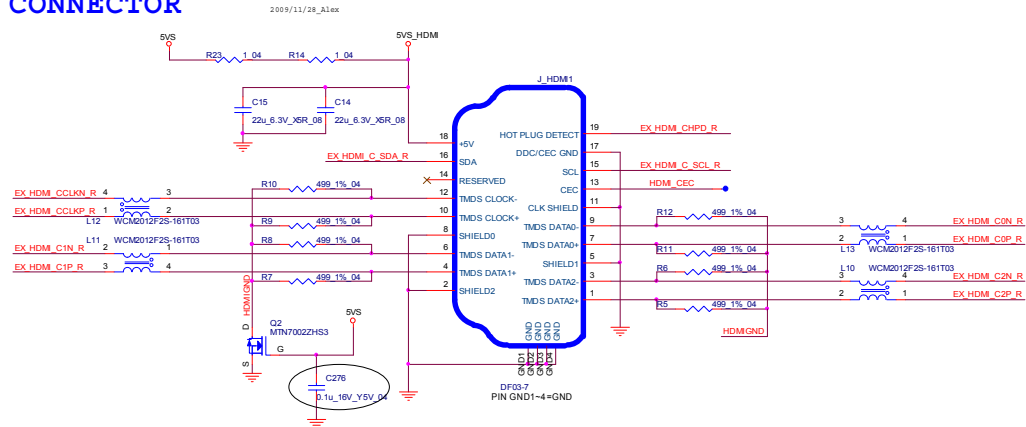
Sheet 16 of 58
DVI

B.Schematic Diagrams

HDMI

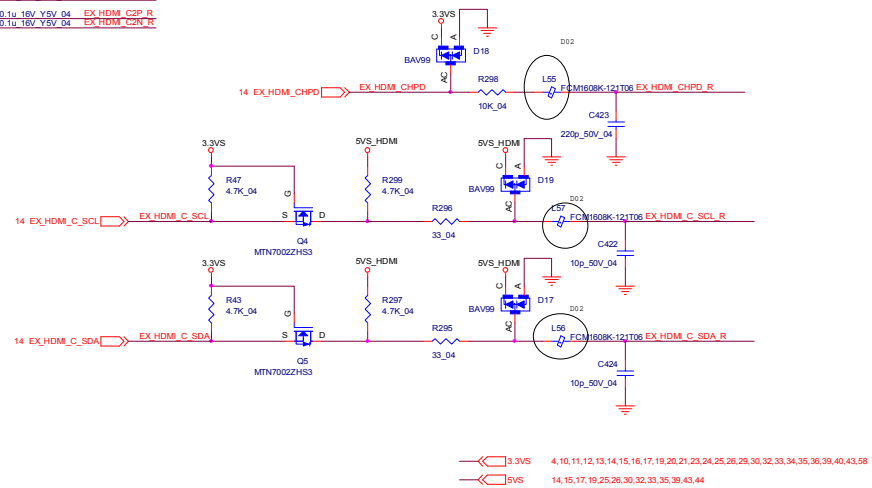
Sheet 17 of 58
HDMI

HDMI CONNECTOR



14 EX_HDMI_CCLKP	EX_HDMI_CCLKP	C30	0.1u 16V Y5V 04	EX_HDMI_CCLKP_R
14 EX_HDMI_CCLKN	EX_HDMI_CCLKN	C31	0.1u 16V Y5V 04	EX_HDMI_CCLKN_R
14 EX_HDMI_CCP	EX_HDMI_CCP	C32	0.1u 16V Y5V 04	EX_HDMI_CCP_R
14 EX_HDMI_CCN	EX_HDMI_CCN	C33	0.1u 16V Y5V 04	EX_HDMI_CCN_R
14 EX_HDMI_C1P	EX_HDMI_C1P	C28	0.1u 16V Y5V 04	EX_HDMI_C1P_R
14 EX_HDMI_C1N	EX_HDMI_C1N	C29	0.1u 16V Y5V 04	EX_HDMI_C1N_R
14 EX_HDMI_C2P	EX_HDMI_C2P	C27	0.1u 16V Y5V 04	EX_HDMI_C2P_R
14 EX_HDMI_C2N	EX_HDMI_C2N	C27	0.1u 16V Y5V 04	EX_HDMI_C2N_R

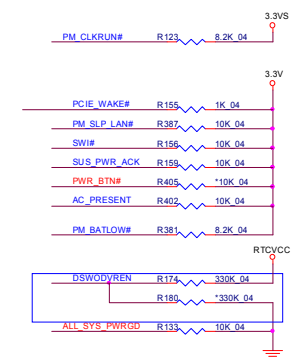
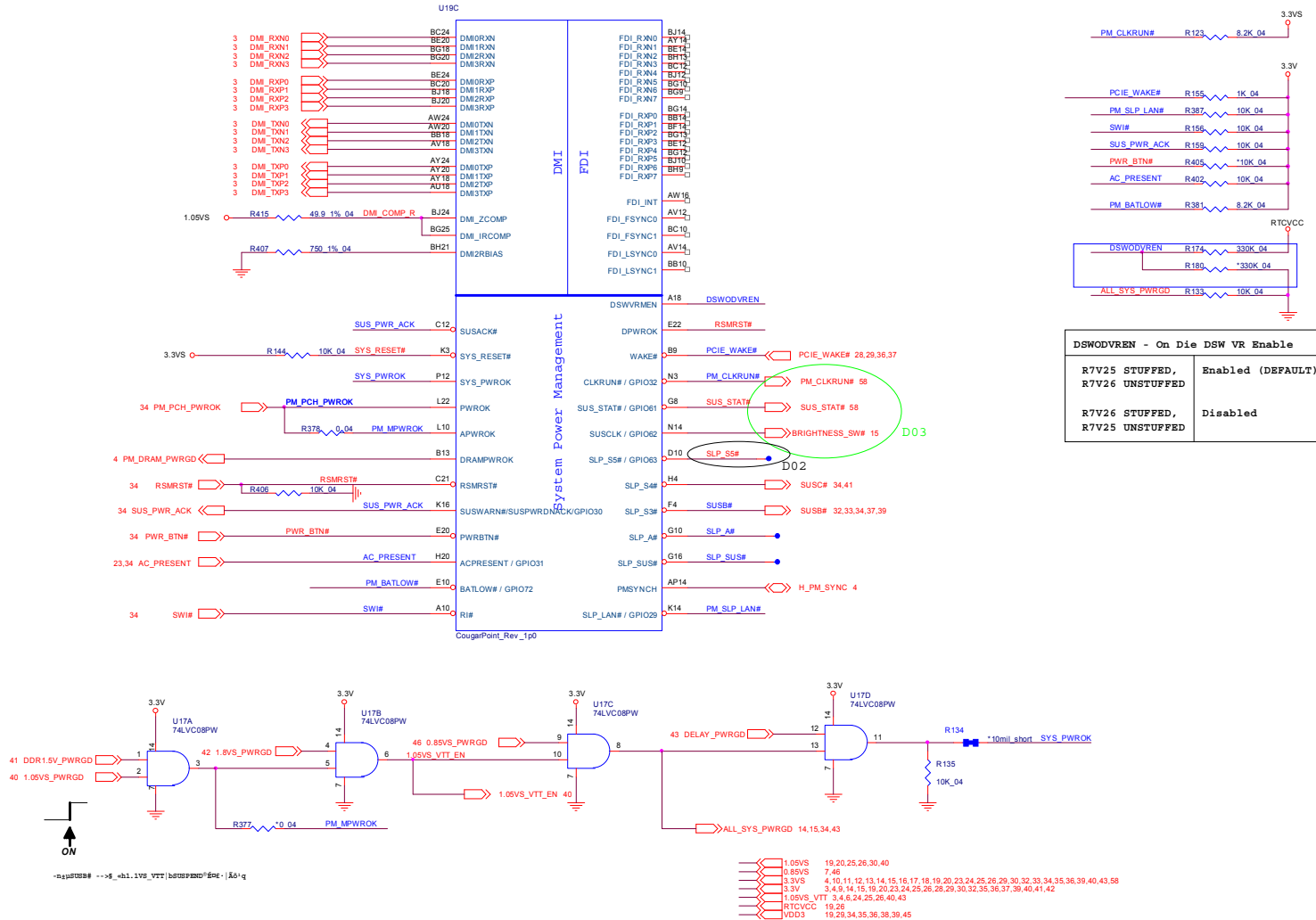
FOR HDMI SWITCH



3.3VS 4,10,11,12,13,14,15,16,17,19,20,21,23,24,25,26,29,30,32,33,34,35,36,39,40,43,58
5VS 14,15,17,19,25,26,30,32,33,35,39,43,44

CougarPoint - M 3/9

CougarPoint -M (DMI,FDI,GPIO)



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

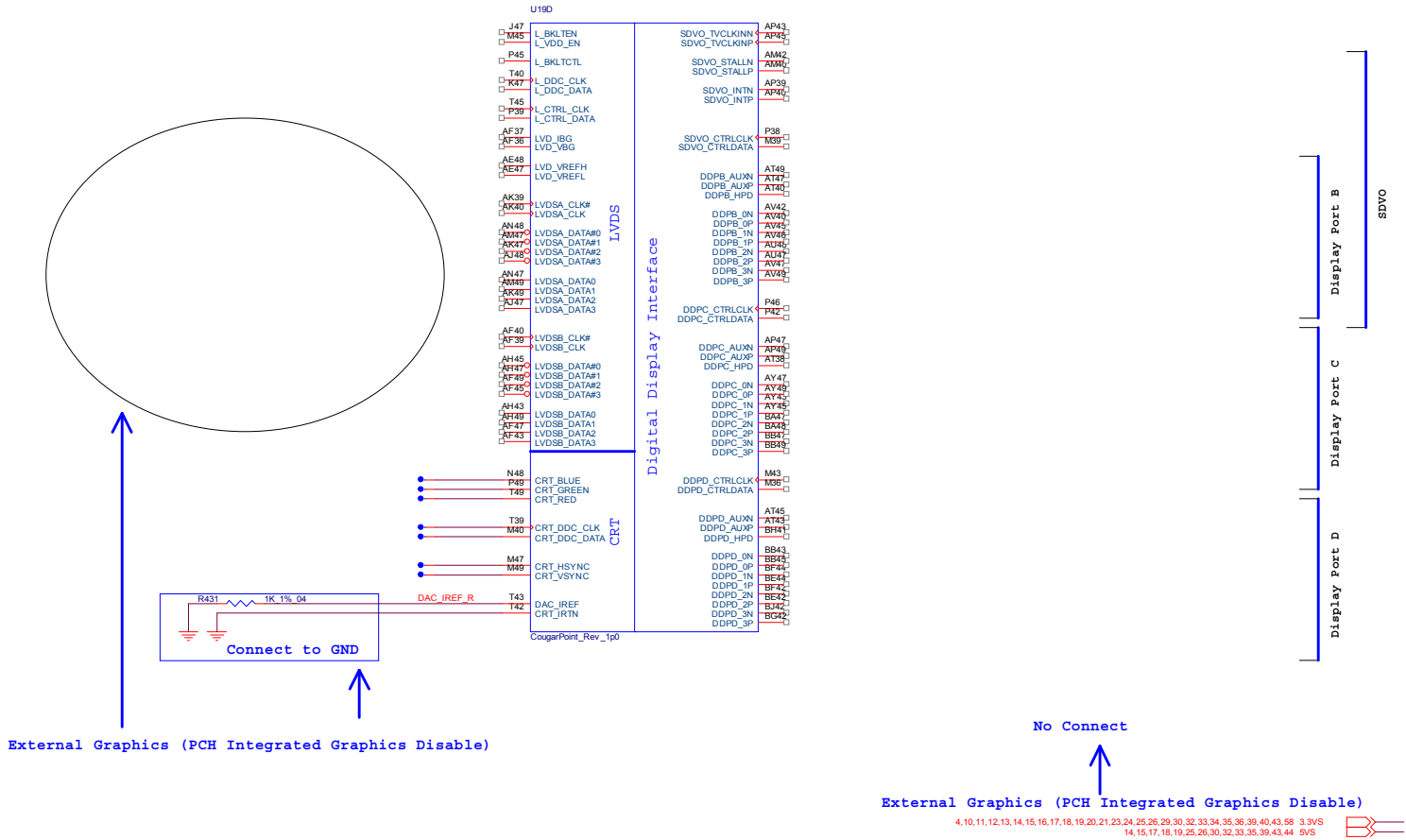
Sheet 20 of 58
CougarPoint - M 3/9

B.Schematic Diagrams

CougarPoint - M 4/9

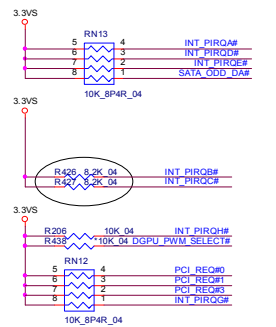
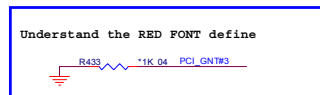
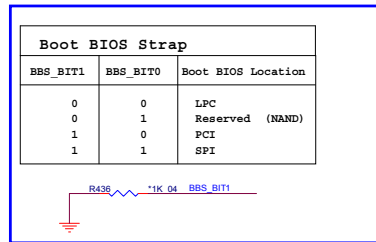
CougarPoint -M (LVDS,DDI)

Sheet 21 of 58
CougarPoint - M 4/9

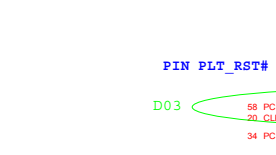


CougarPoint - M 5/9

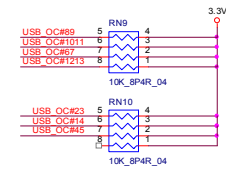
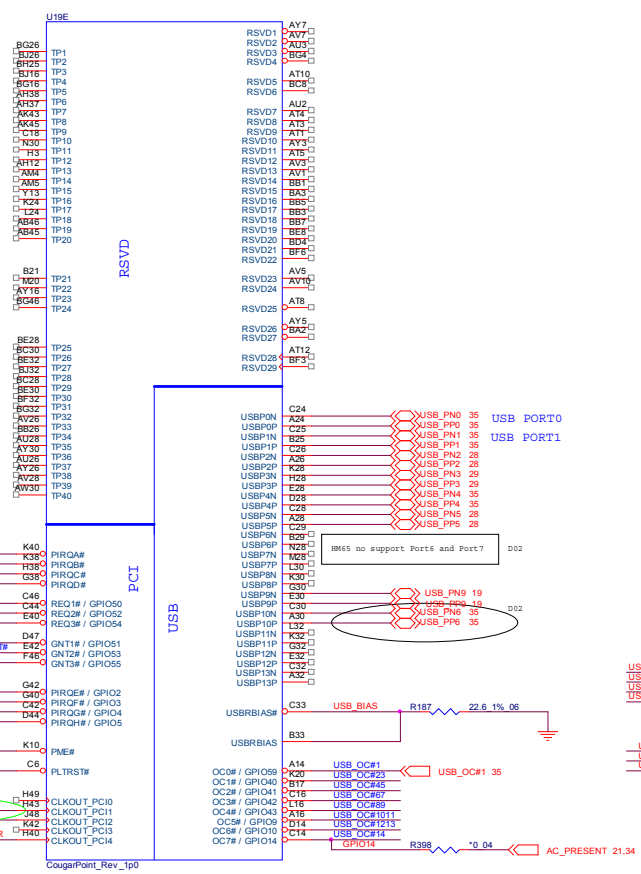
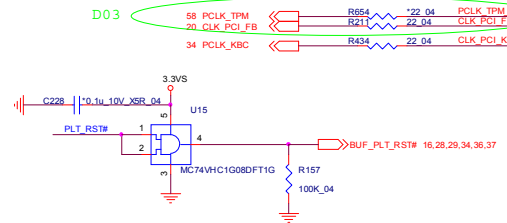
CougarPoint -M (PCI,USB,NVRAM)



MPC Switch Control
MPC OFF -- 0 DEFAULT
MPC ON -- 1



PIN PLT_RST# to Buffer 4,14,58 PLT_RST#



4,10,11,12,13,14,15,16,17,18,19,20,21,24,25,26,29,30,32,33,34,35,36,39,40,43,58 3.3V
3,4,9,14,15,19,20,21,24,25,26,28,29,30,32,35,36,37,39,40,41,42 3.3V

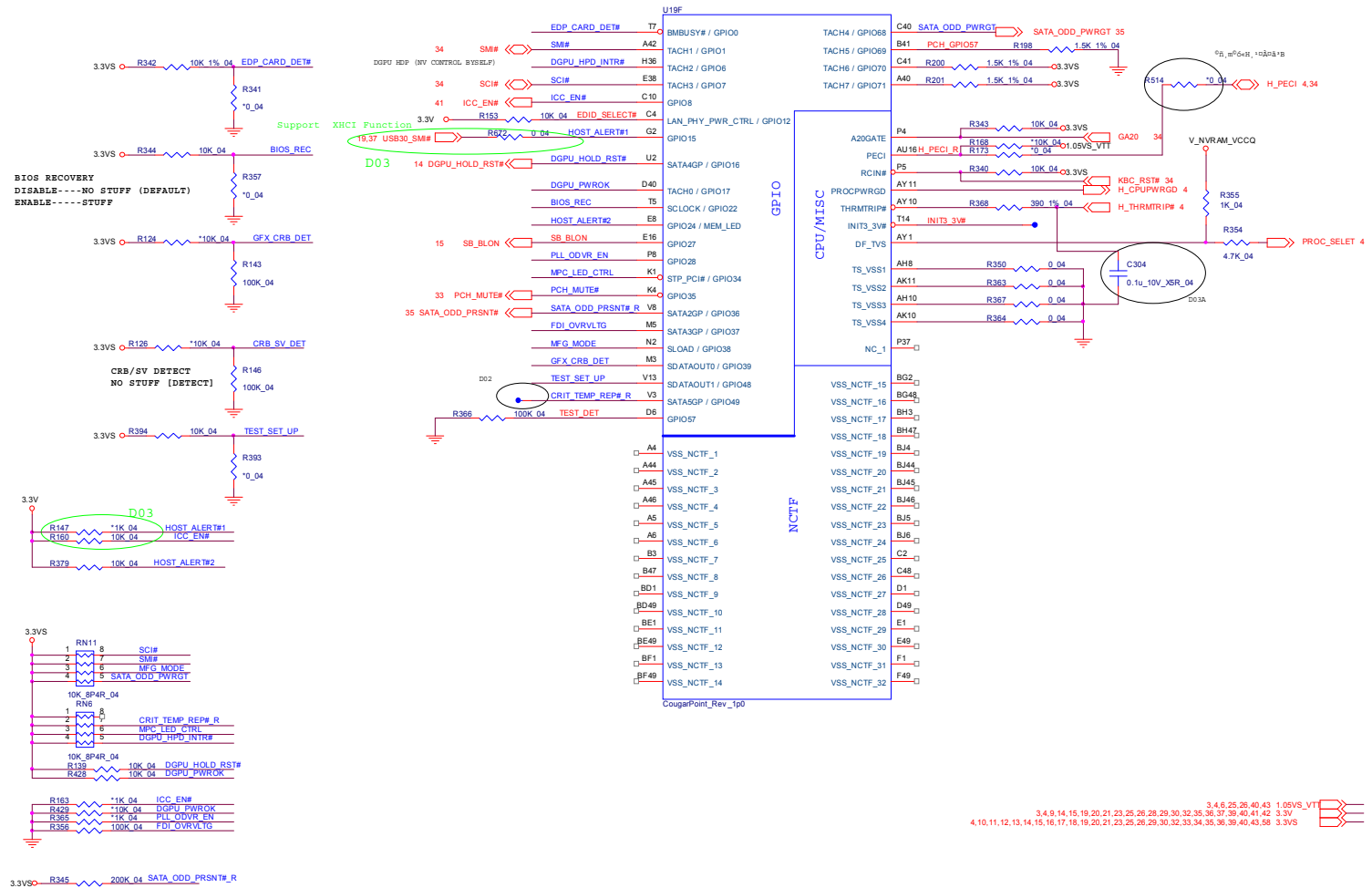
Sheet 22 of 58
CougarPoint - M 5/9

B.Schematic Diagrams

CougarPoint - M 6/9

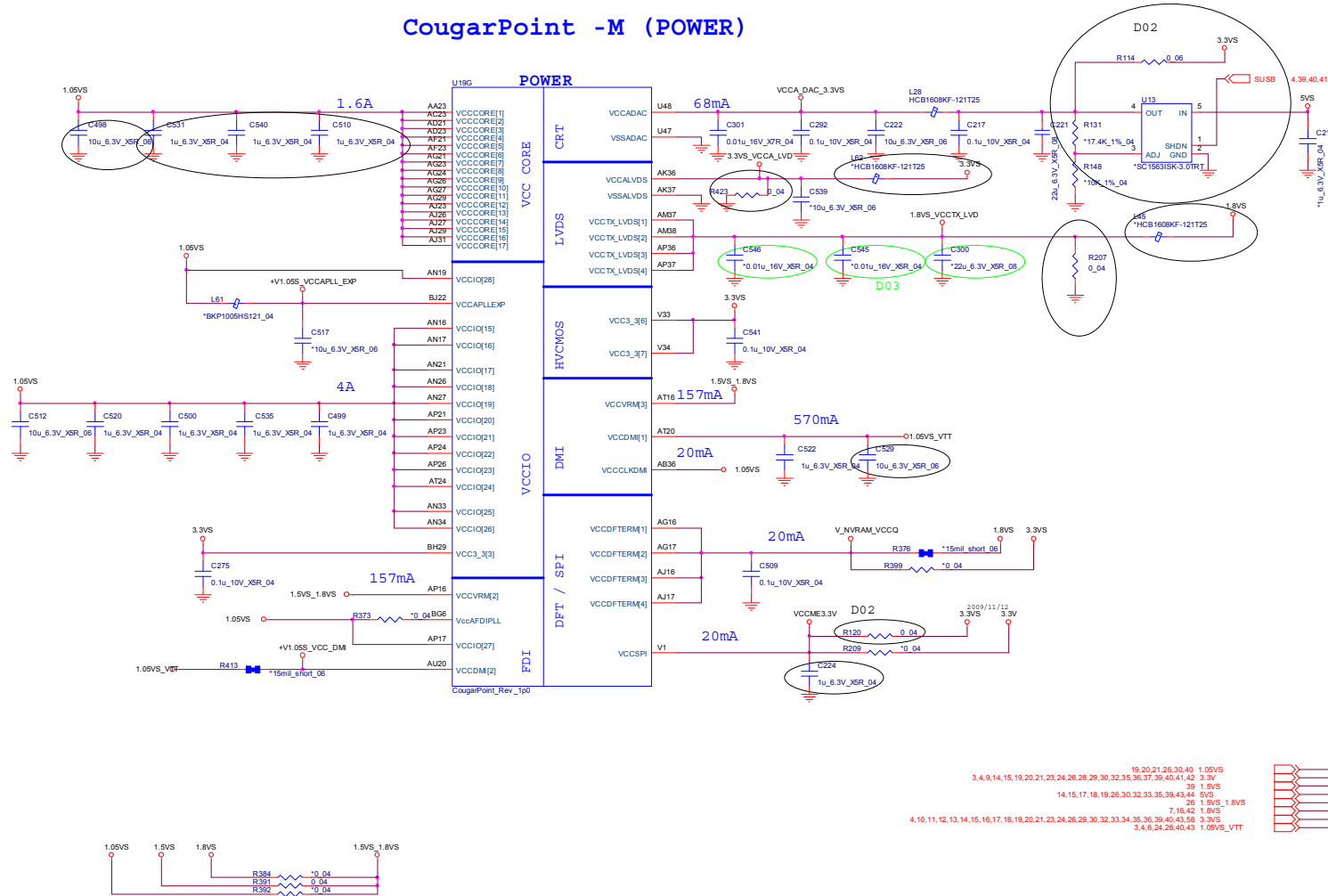
Sheet 23 of 58
CougarPoint - M 6/
9

CougarPoint - M (GPIO, VSS_NCTF, RSVD)



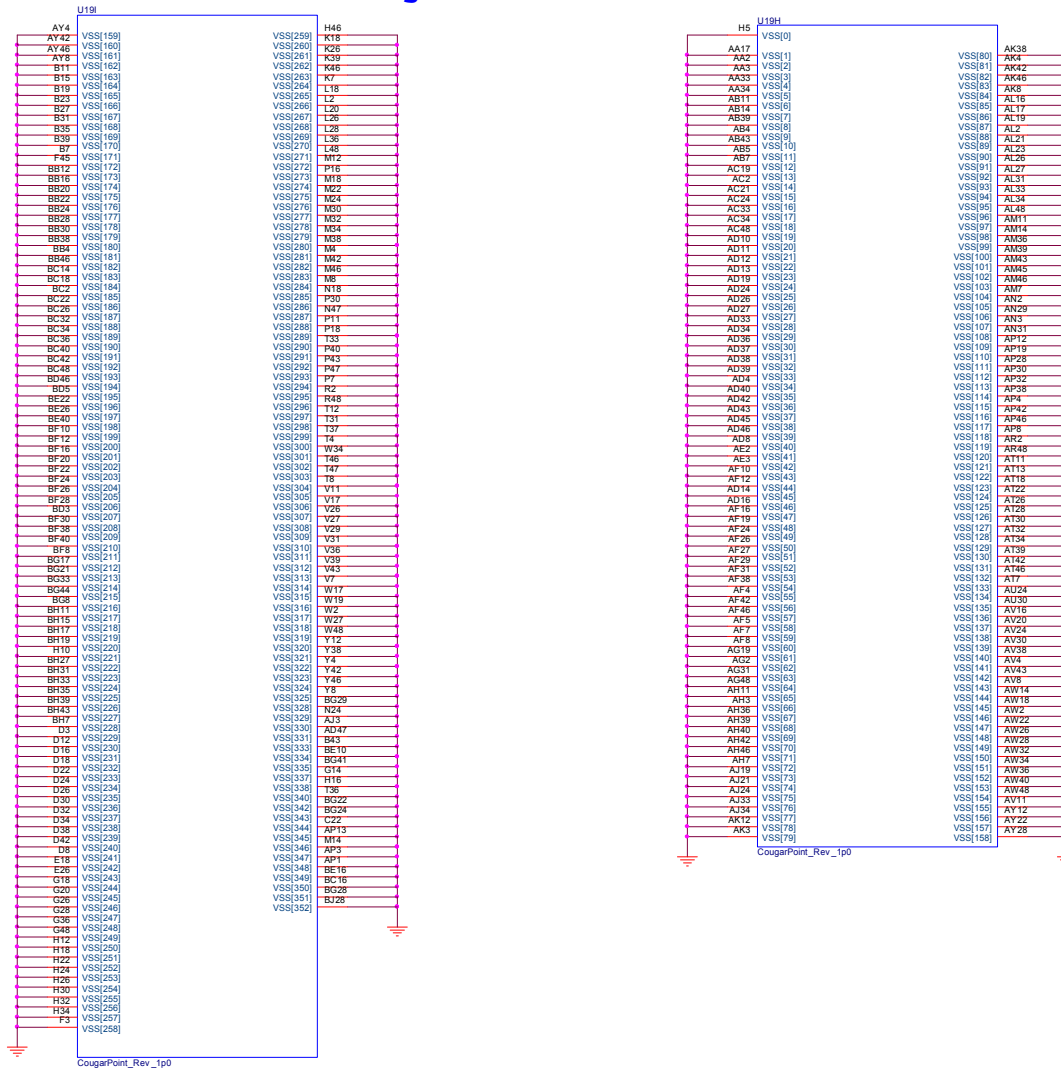
CougarPoint - M 7/9

CougarPoint -M (POWER)



CougarPoint - M 9/9

CougarPoint -M (GND)

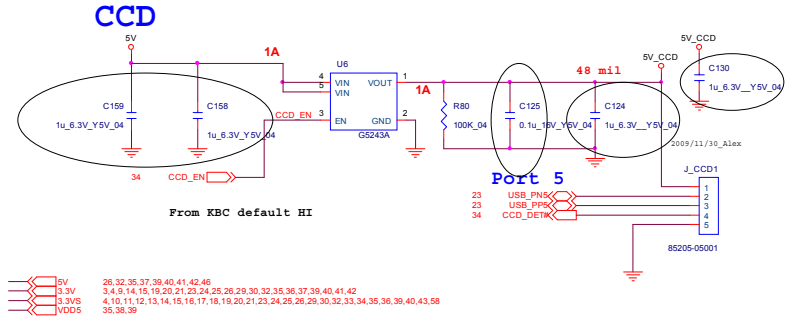
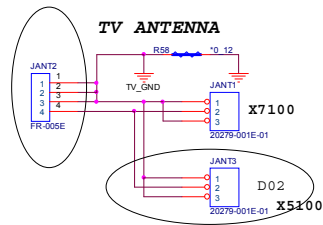
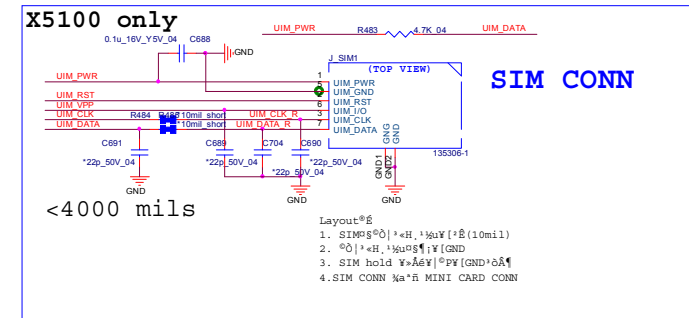
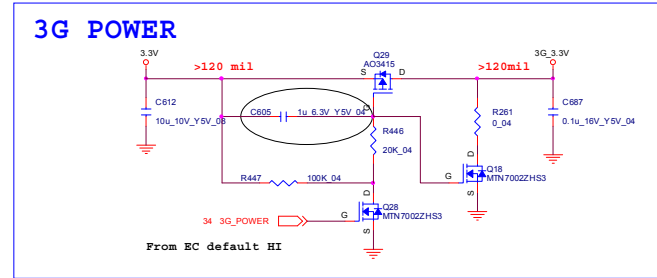
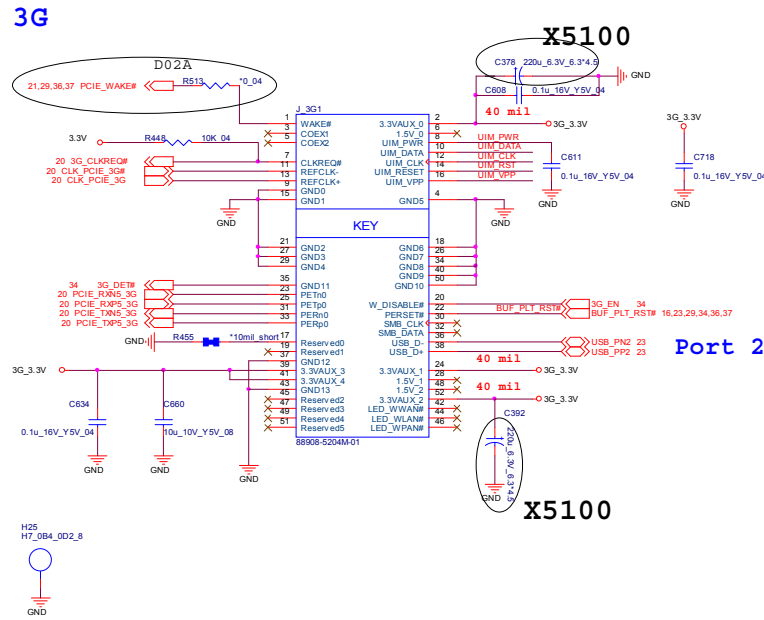


Sheet 26 of 58
CougarPoint - M 9/9

B.Schematic Diagrams

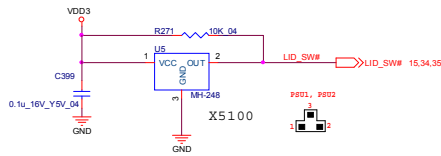
3G, CCD

Sheet 27 of 58
3G, CCD



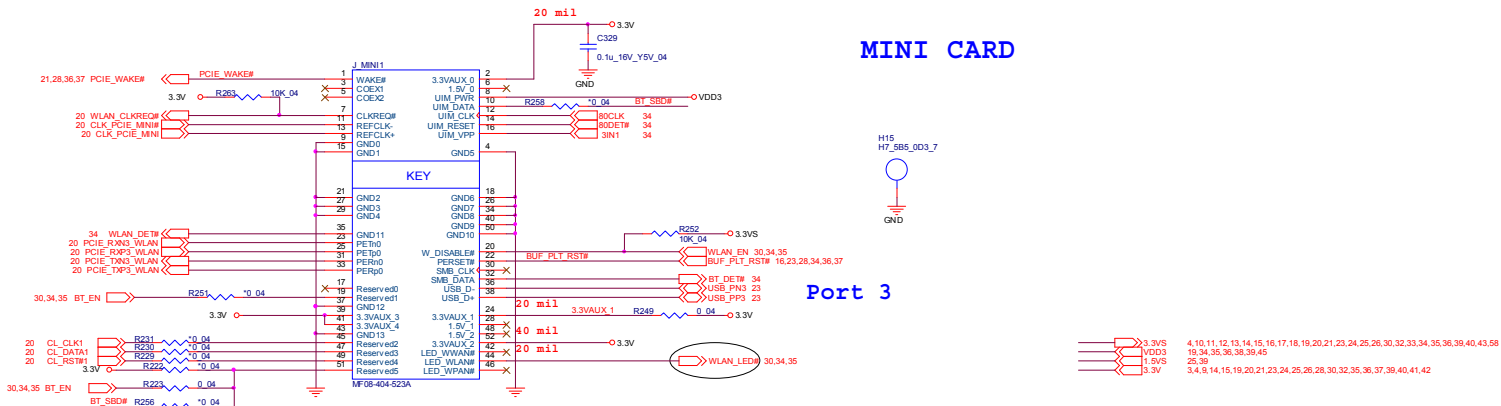
- 5V 26, 32, 35, 37, 39, 40, 41, 42, 46
- 3.3V 3, 4, 9, 14, 15, 19, 20, 21, 23, 24, 25, 26, 29, 30, 32, 35, 36, 37, 39, 40, 41, 42
- 3.3V/S 4, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 29, 30, 32, 33, 34, 35, 36, 39, 40, 43, 58
- VDD5 35, 38, 39

Mini PCIE, LID



LID SWITCH IC

Sheet 28 of 58
Mini PCIE, LID



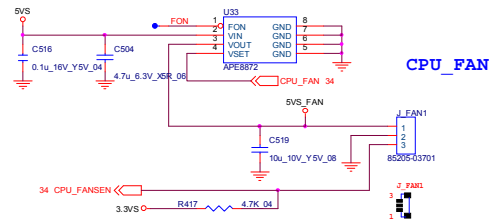
MINI CARD

Port 3

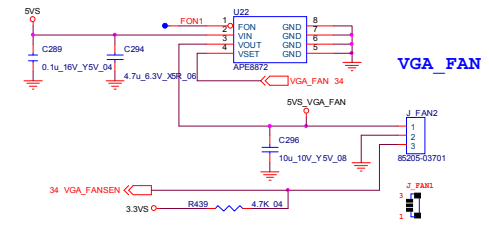
Schematic Diagrams

LED, Hotkey, LID SW, Fan

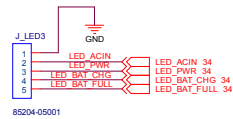
CPU FAN CONTROL



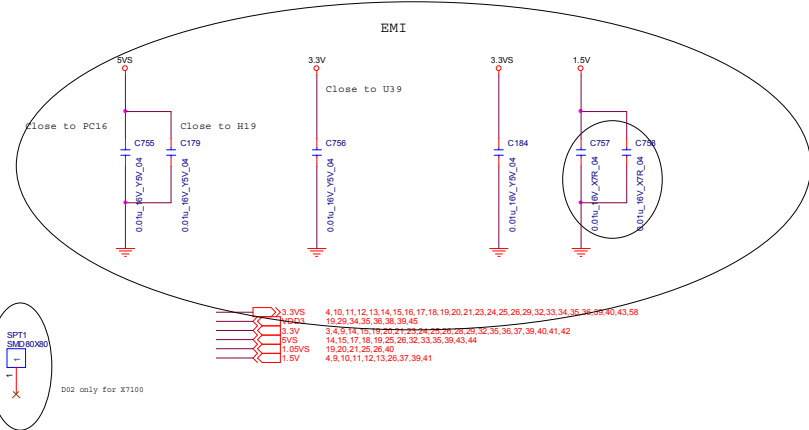
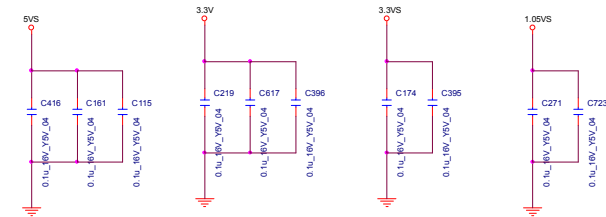
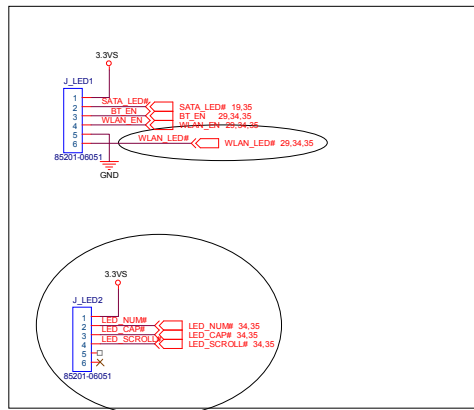
VGA FAN CONTROL



Sheet 29 of 58
LED, Hotkey, LID
SW, Fan



X5100 only

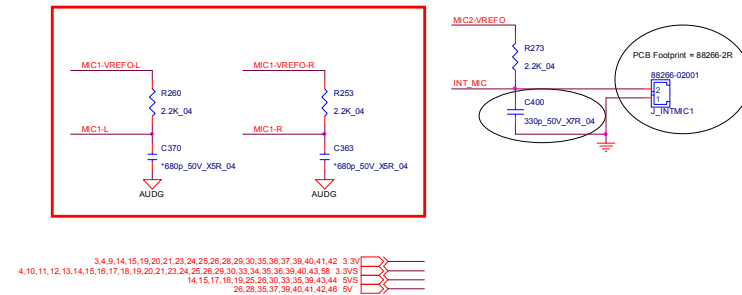
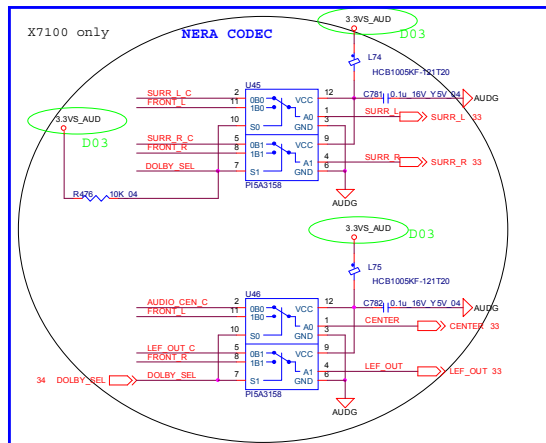
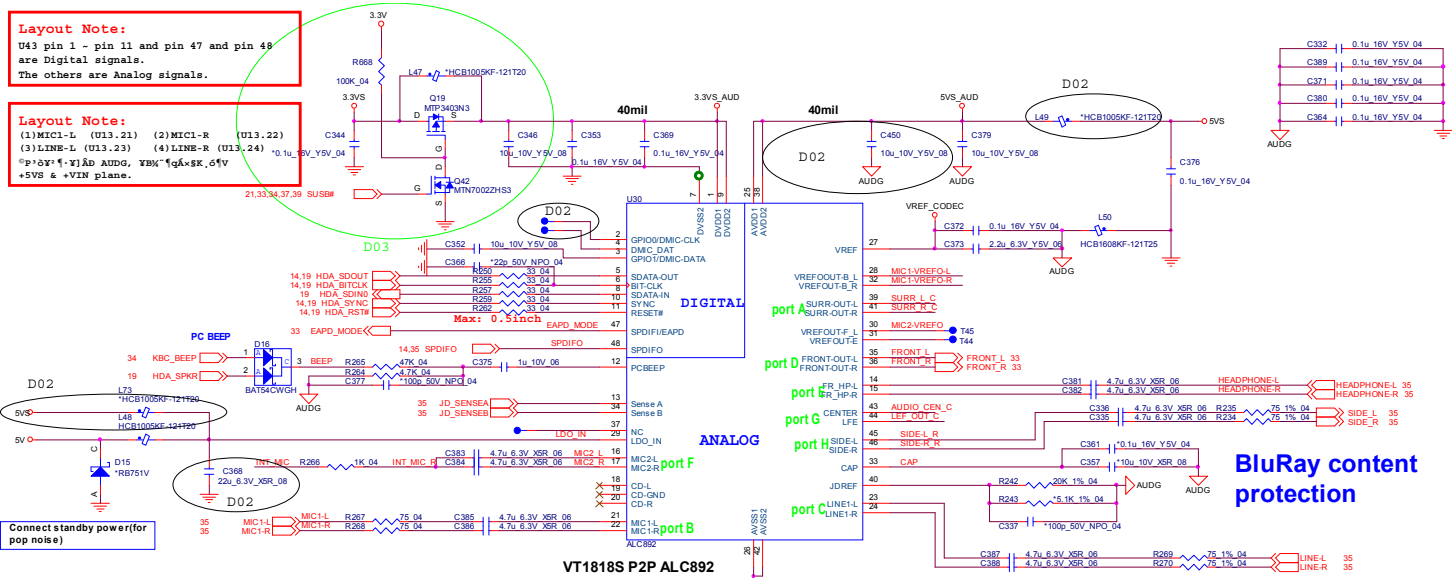


3.3VS	4, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 28, 29, 32, 33, 34, 35, 36, 38, 40, 43, 58
3.3V	19, 29, 34, 35, 36, 38, 39, 45
5VS	3, 4, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 28, 29, 30, 32, 33, 35, 36, 37, 39, 40, 41, 42
1.05VS	14, 15, 17, 18, 19, 25, 26, 32, 33, 35, 39, 43, 44
1.5V	19, 20, 21, 25, 36, 40
1.5V	4, 9, 10, 11, 12, 13, 26, 37, 39, 41

D02 only for X7100

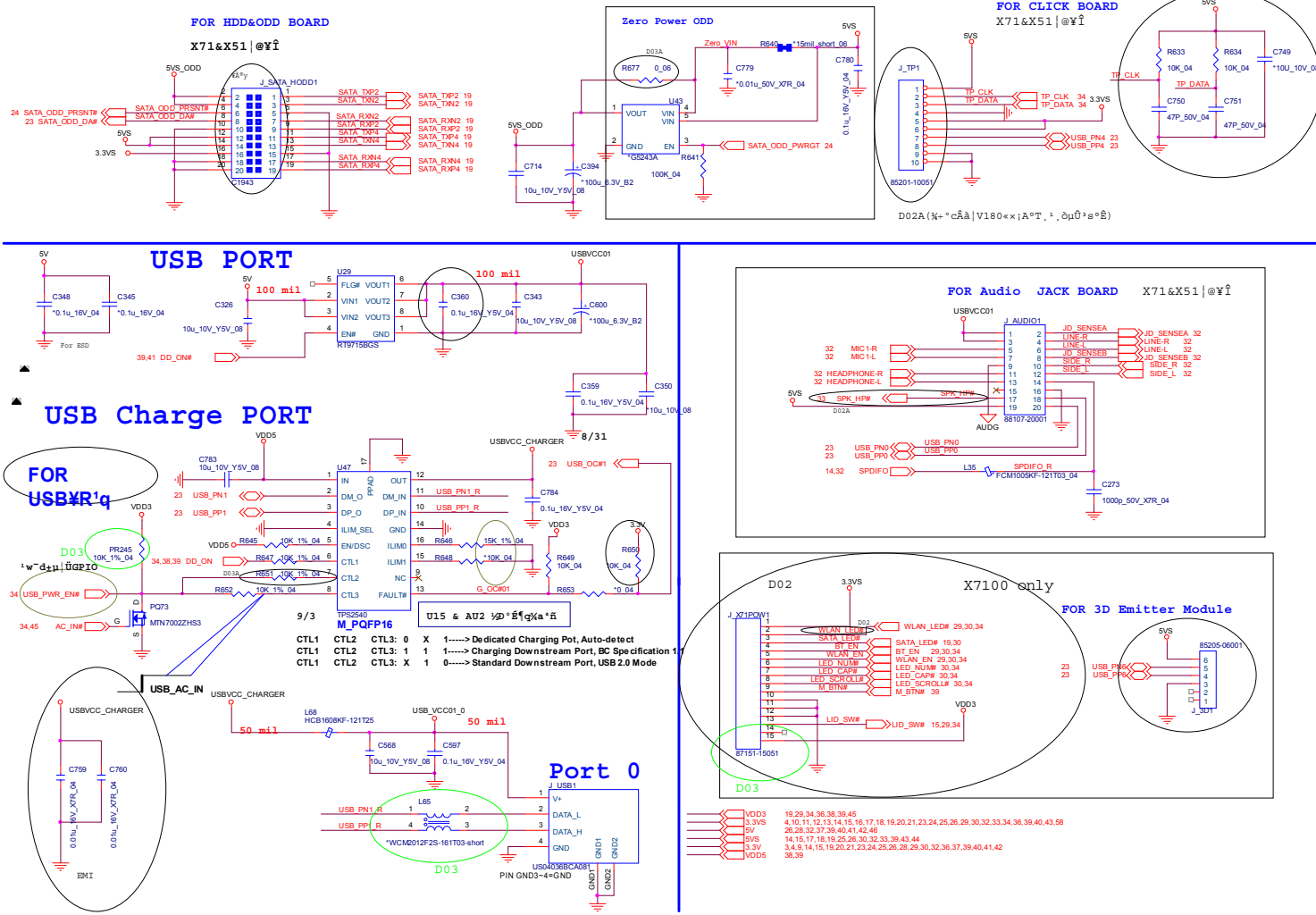
B.Schematic Diagrams

Codec Realtek ALC892



Sheet 31 of 58
Codec Realtek
ALC892

USB, TP, FP, MULTI-CONN

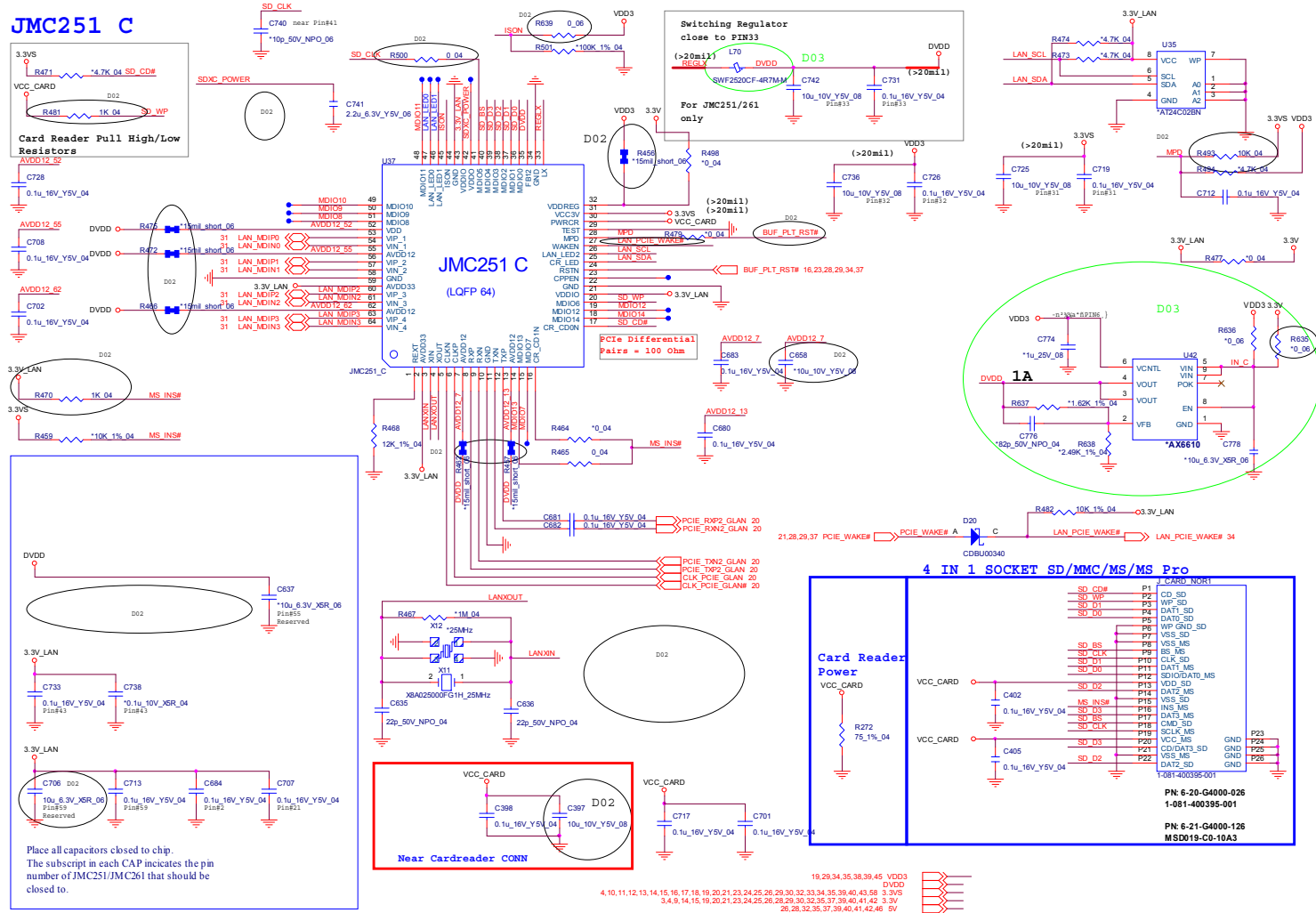


Sheet 34 of 58
 USB, TP, FP,
 MULTI-CONN

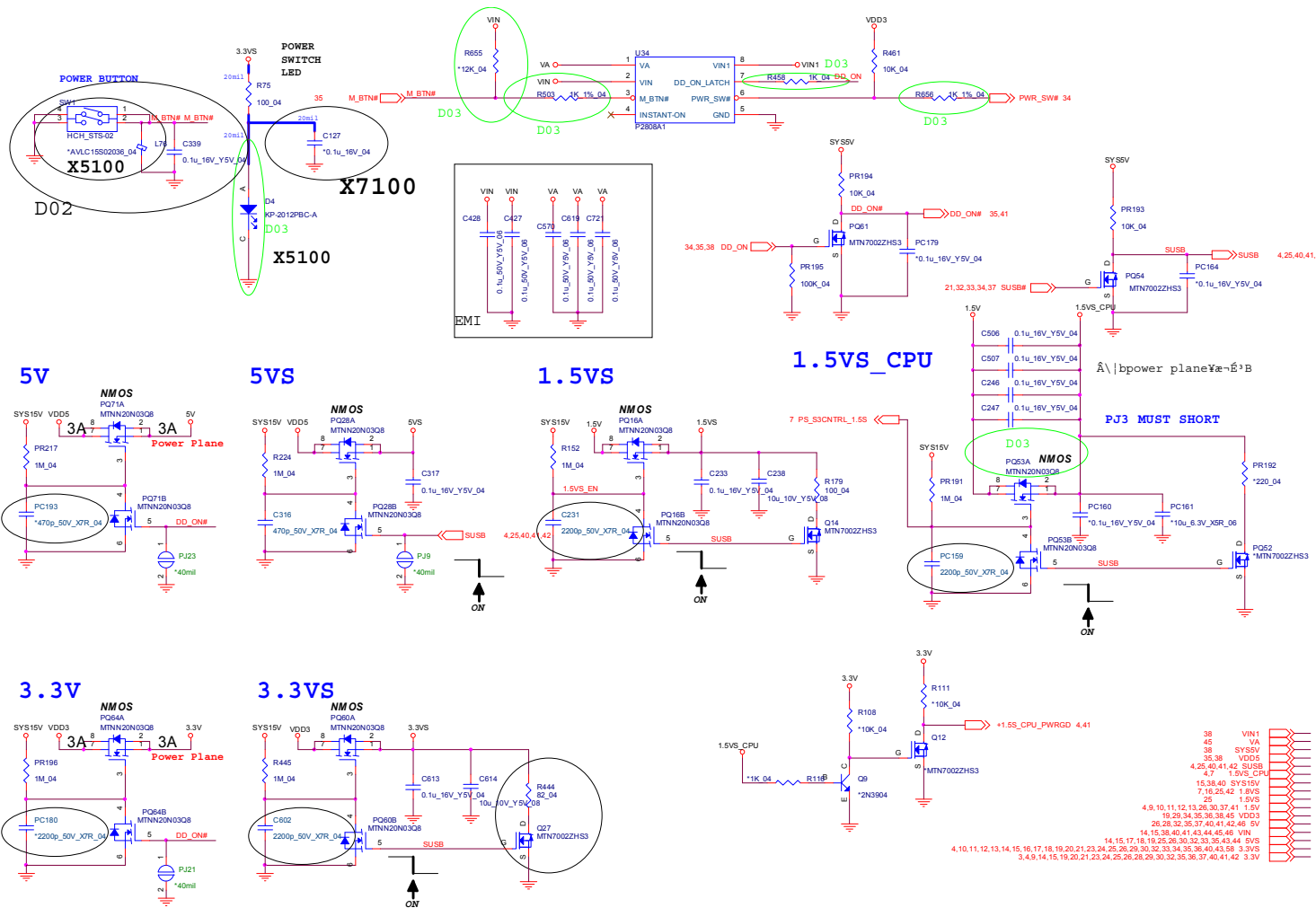
B.Schematic Diagrams

Card Reader (JMC 251C)

Sheet 35 of 58
Card Reader (JMC 251C)



5V, 3.3V, 5VS, 3VS, 1.5VS, VIN1



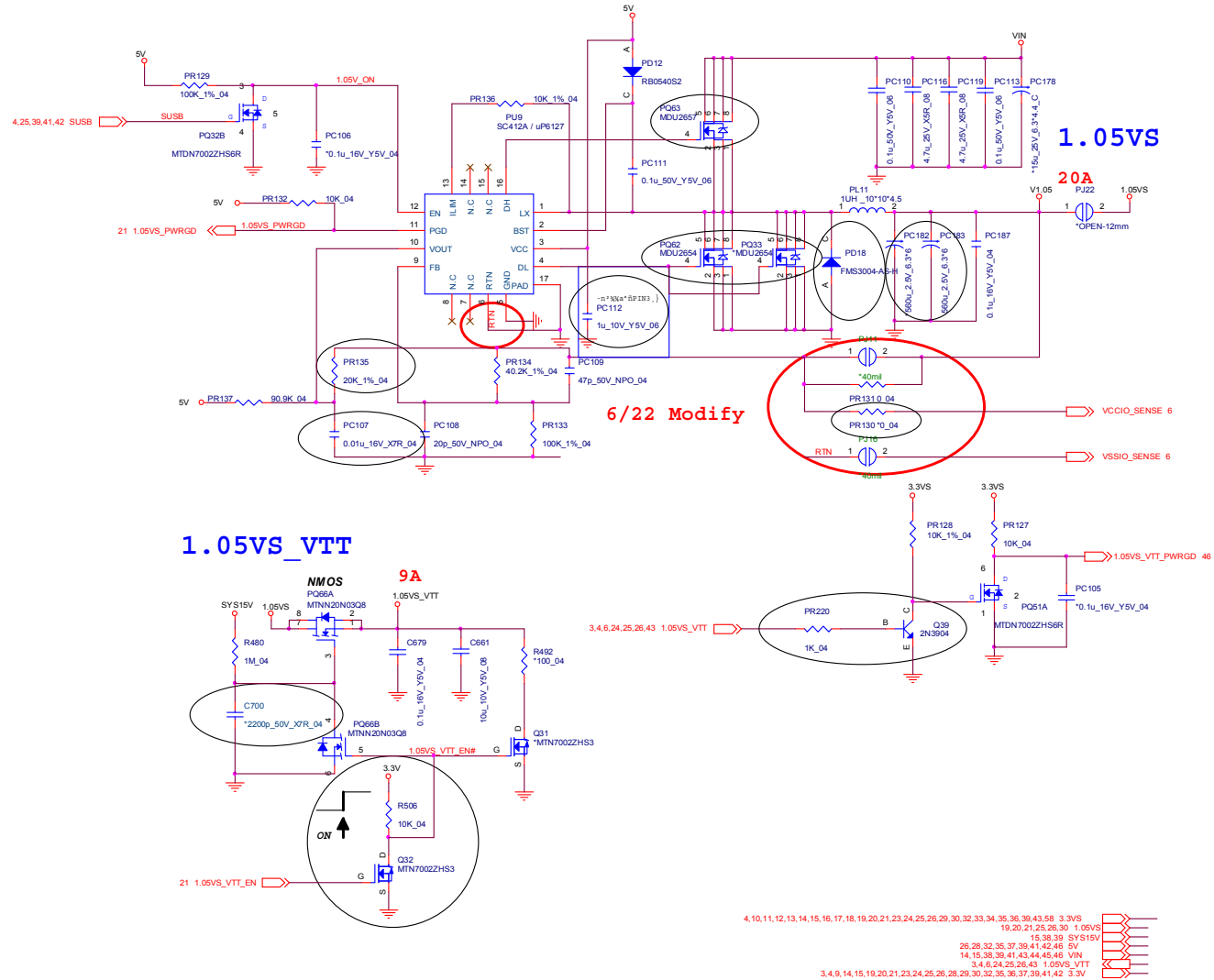
Sheet 38 of 58
5V, 3.3V, 5VS, 3VS,
1.5VS, VIN1

Schematic Diagrams

Power 1.05VS, 1.05VS_VTT

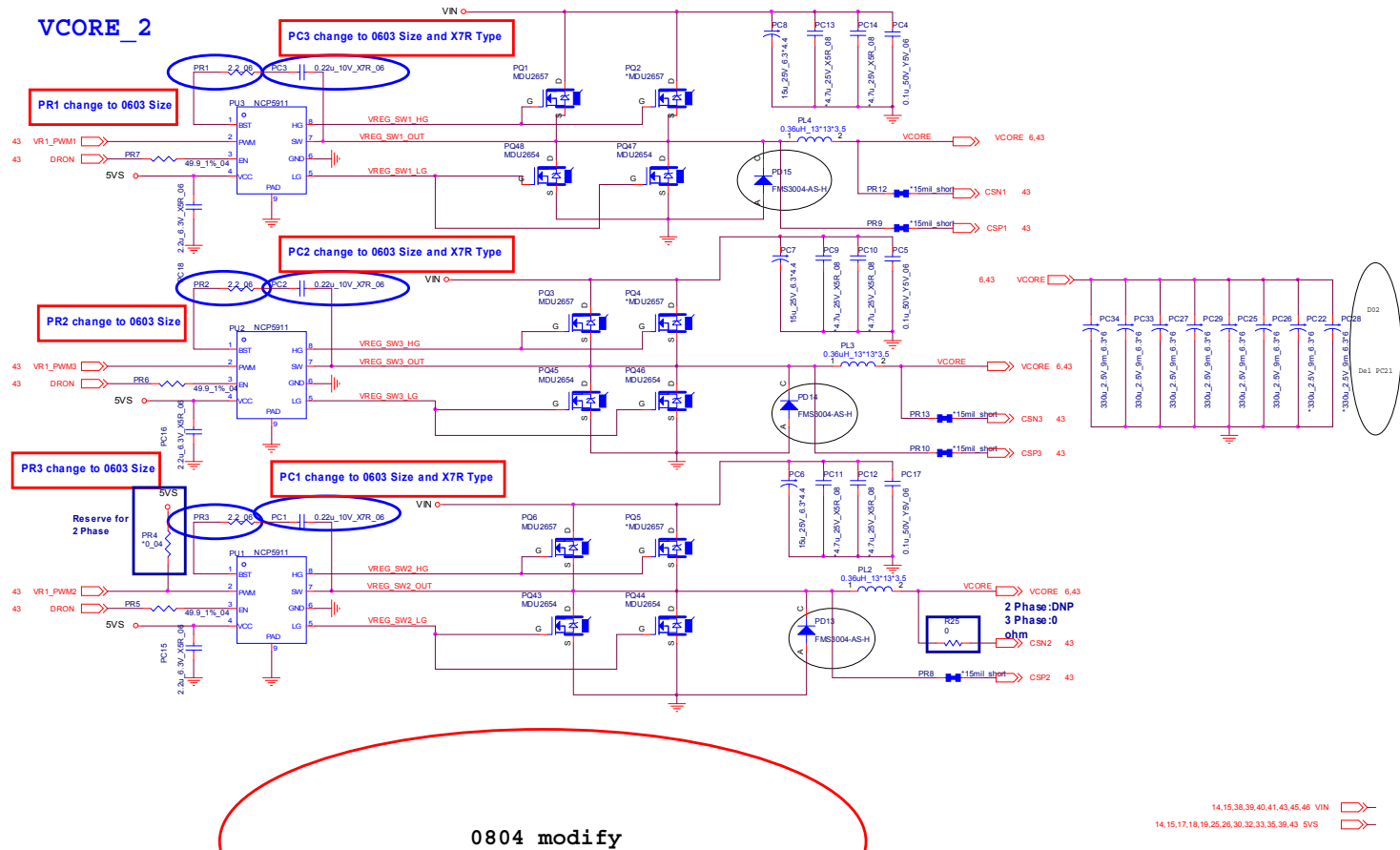
B.Schematic Diagrams

Sheet 39 of 58
Power 1.05VS,
1.05VS_VTT

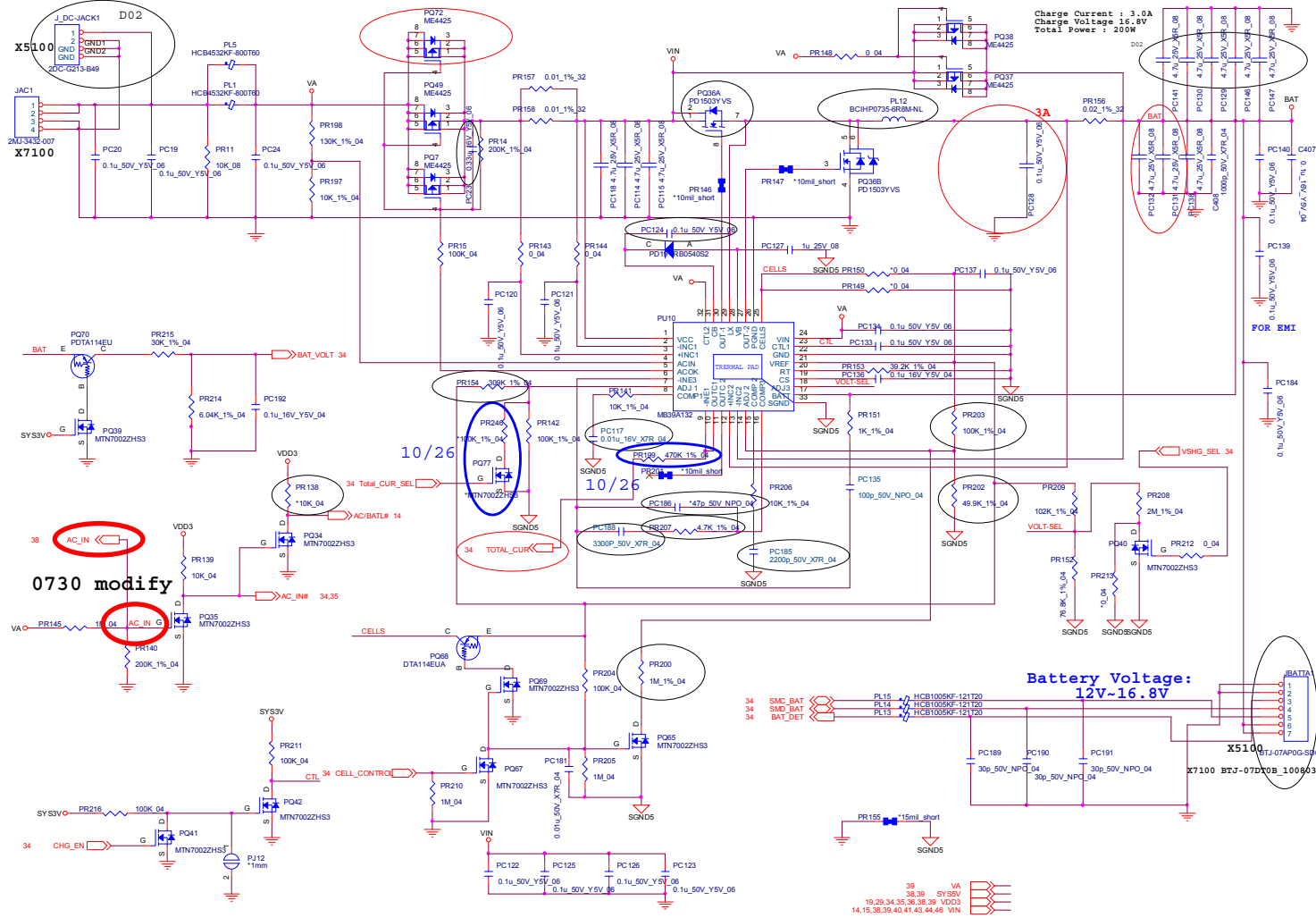


Power V-Core 2

Sheet 43 of 58
Power V-Core 2



AC_In, Charger

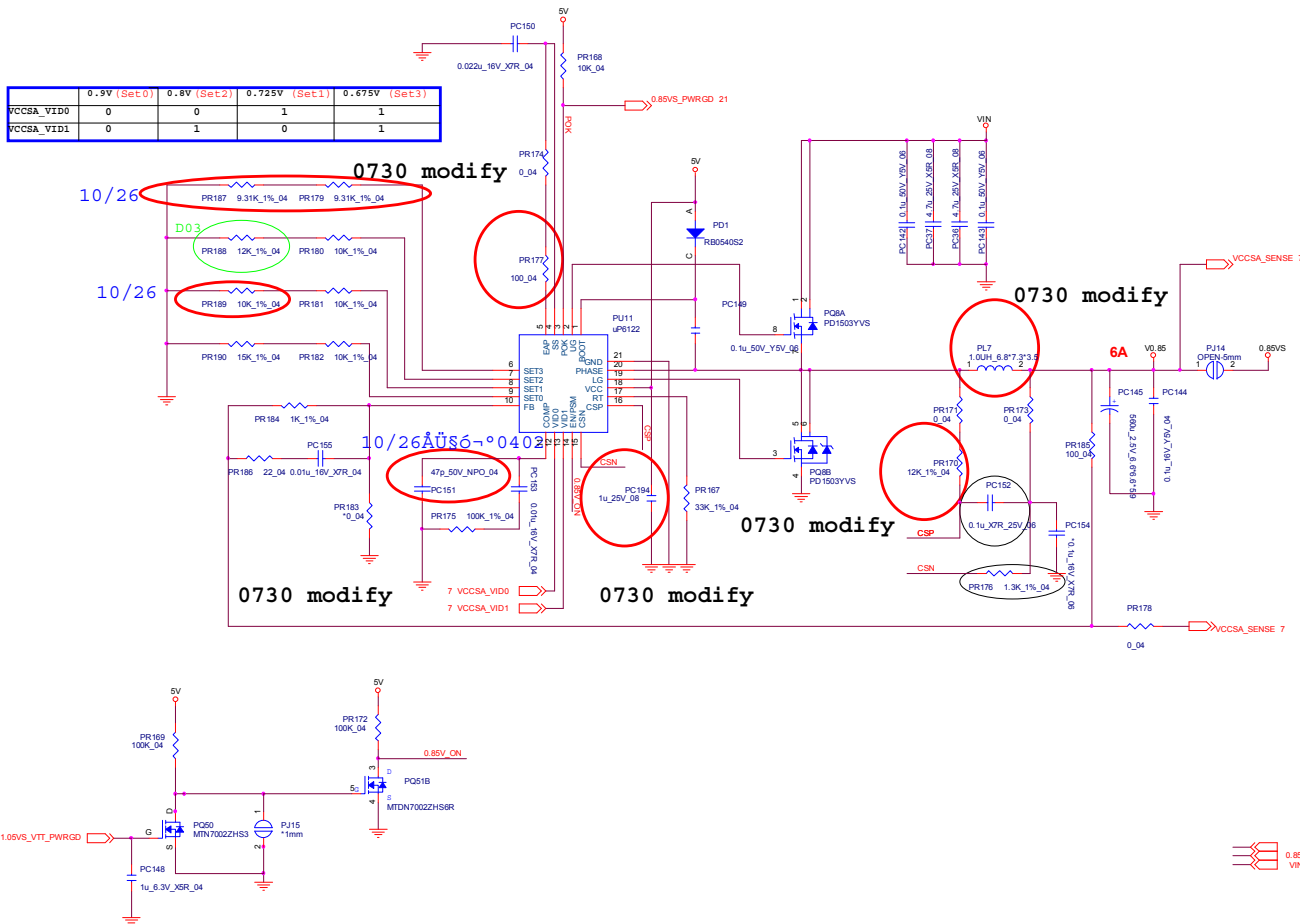


Sheet 44 of 58
AC_In, Charger

B.Schematic Diagrams

Schematic Diagrams

Power 0.85VS



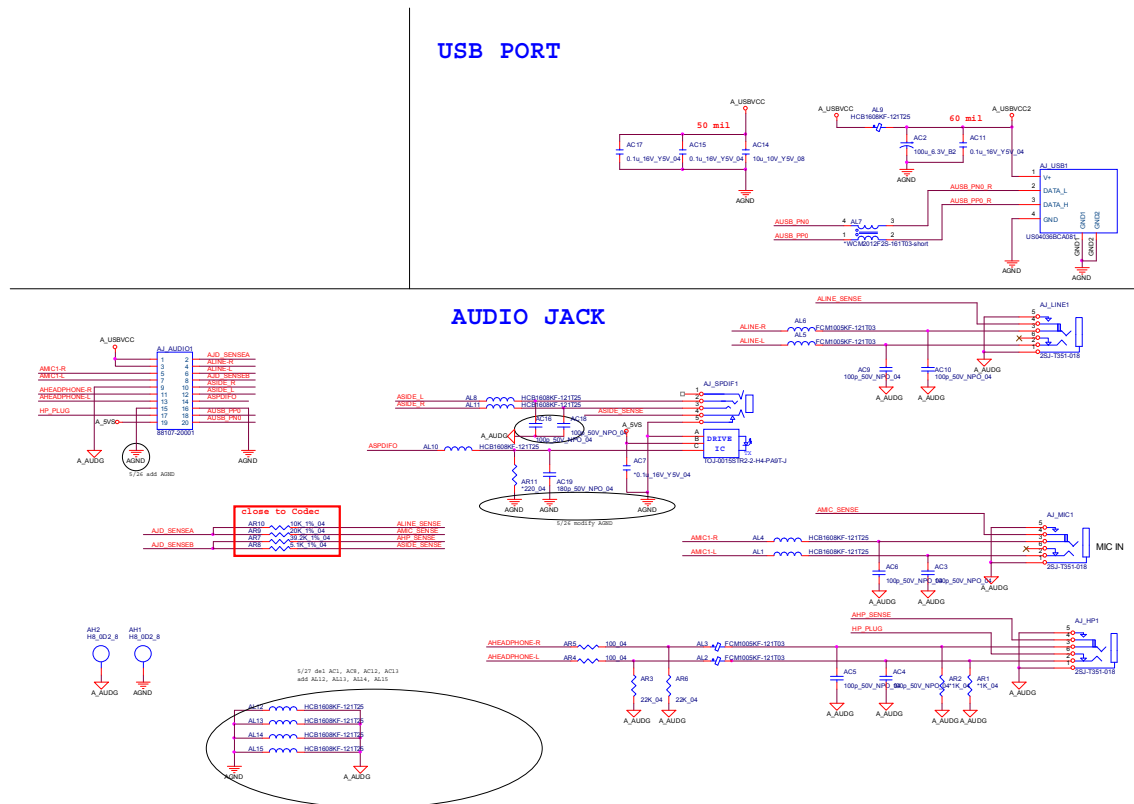
Sheet 45 of 58
Power 0.85VS

B.Schematic Diagrams

Audio Board

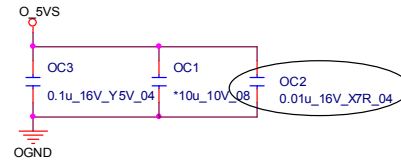
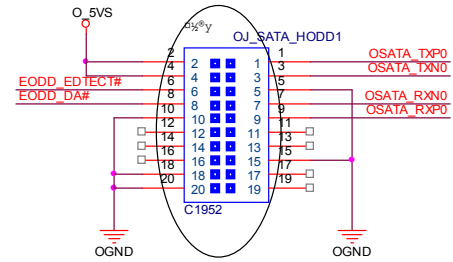
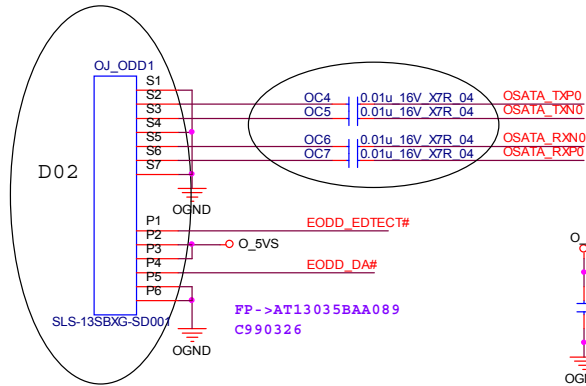
B.Schematic Diagrams

Sheet 46 of 58
Audio Board

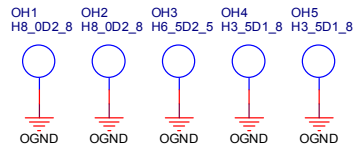


X5100 ODD Board

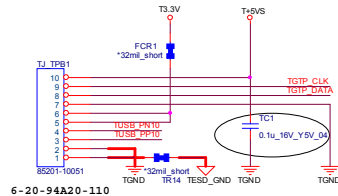
Sheet 47 of 58
X5100 ODD Board



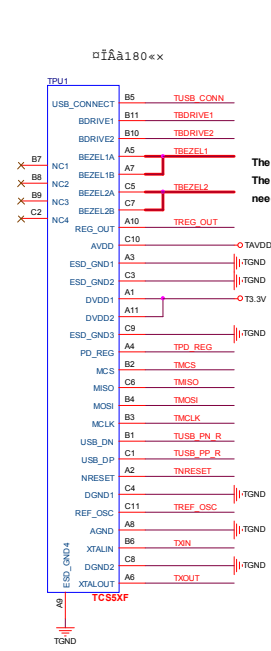
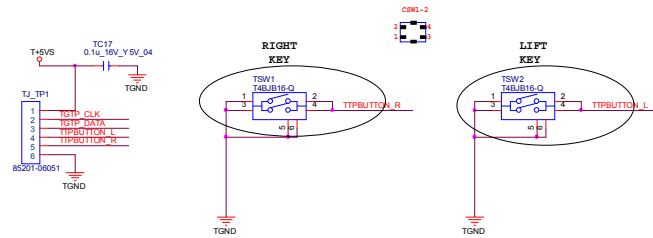
X5100M ONLY



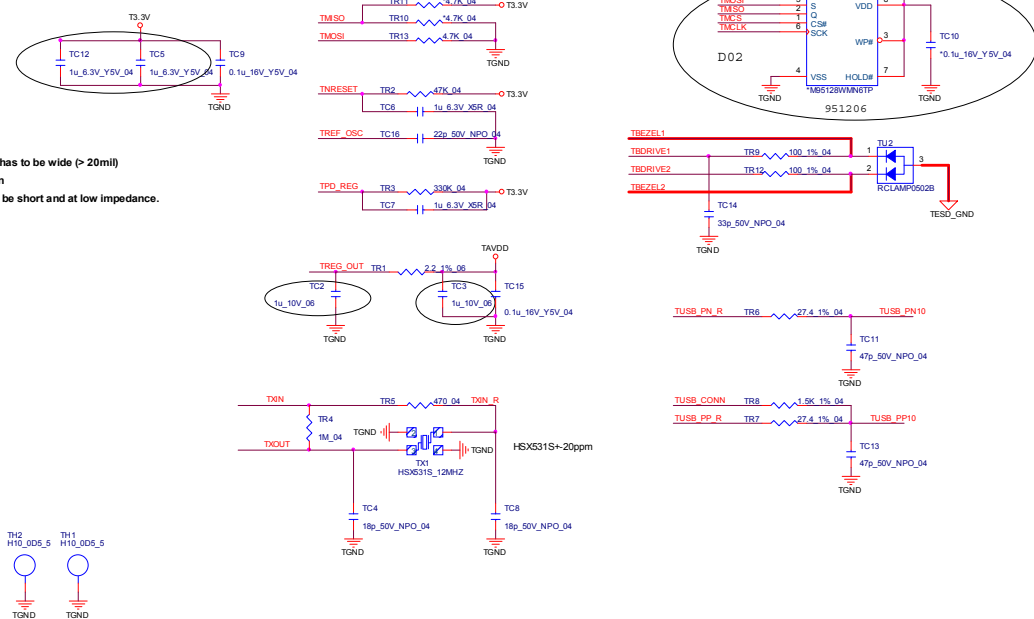
X5100 Click Board



6-20-94A20-110
It is strongly recommended that the TSD_GND has a dedicated connection to the system chassis or cable shield.



The TSD_GND trace has to be wide (> 20mil)
The path be marked in
needs to be design to be short and at low impedance.



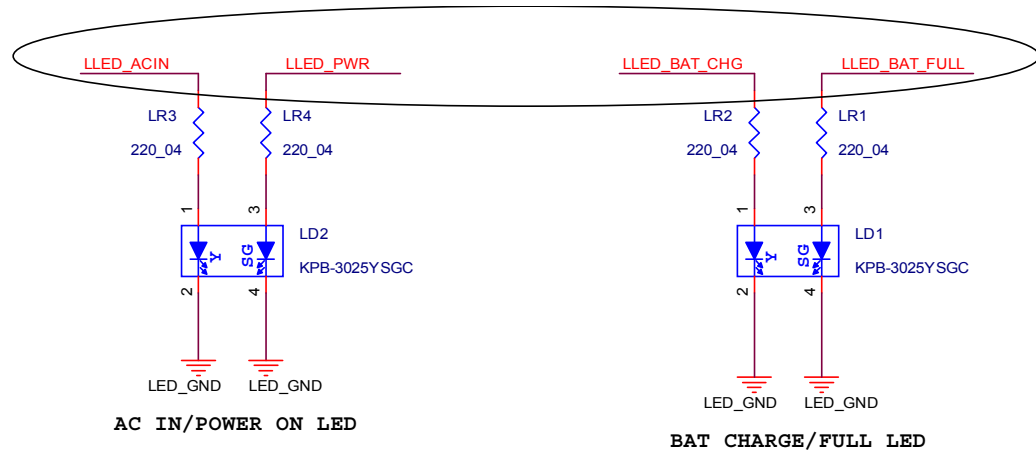
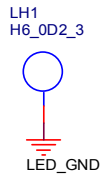
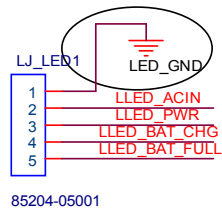
X5100M ONLY

Sheet 48 of 58
X5100 Click Board

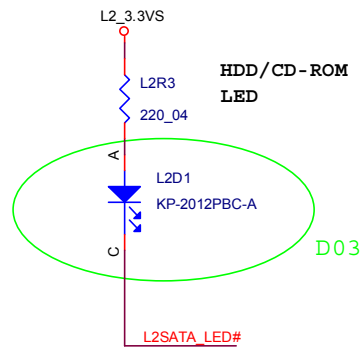
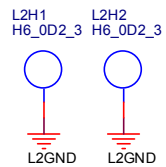
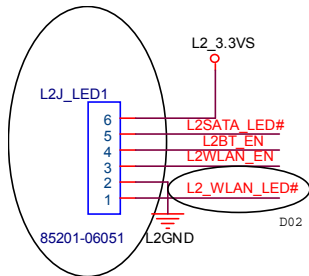
B.Schematic Diagrams

X5100 LED 1 Board

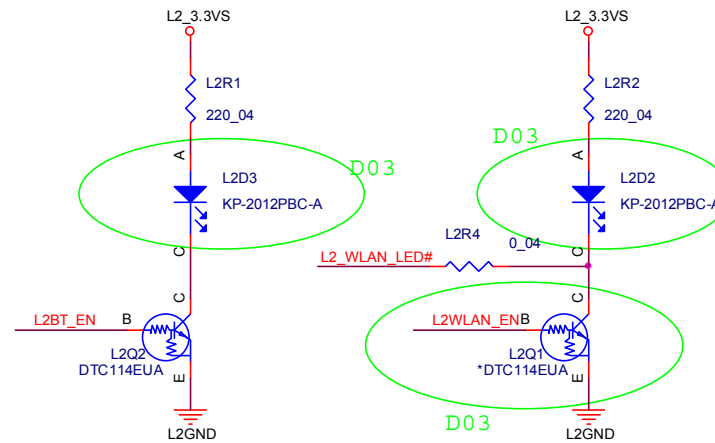
Sheet 49 of 58
X5100 LED 1 Board



X5100 LED 2 Board



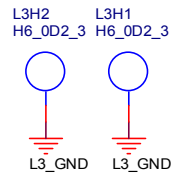
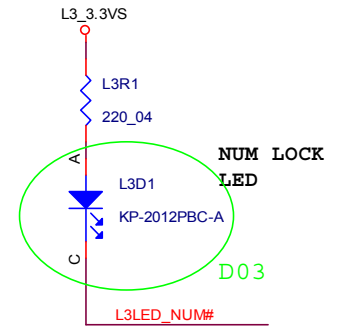
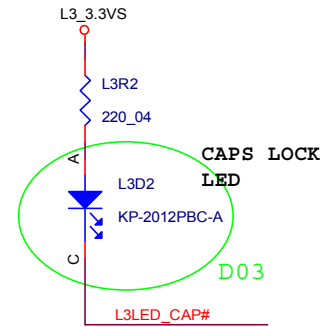
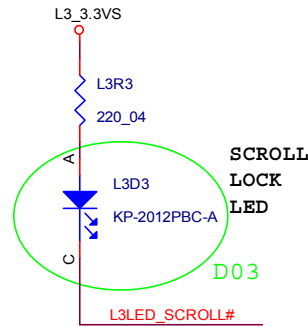
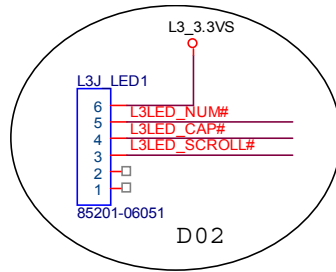
LED



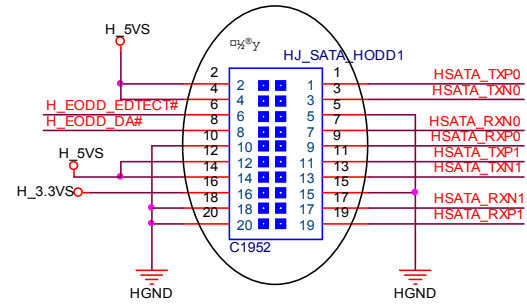
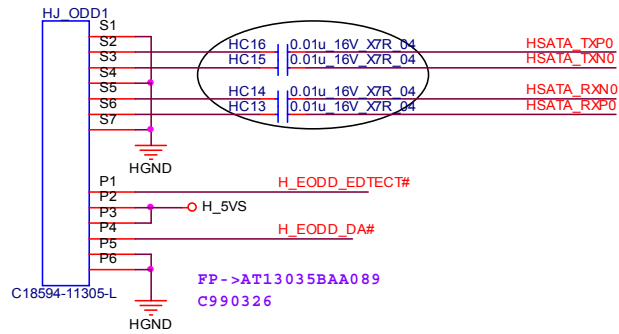
Sheet 50 of 58
X5100 LED 2 Board

X5100 LED 3 Board

Sheet 51 of 58
X5100 LED 3 Board

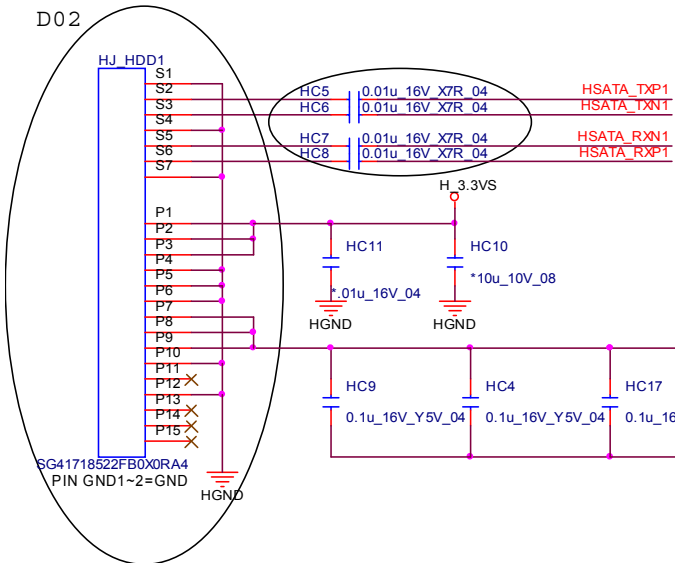


X7100 HDD & ODD Board

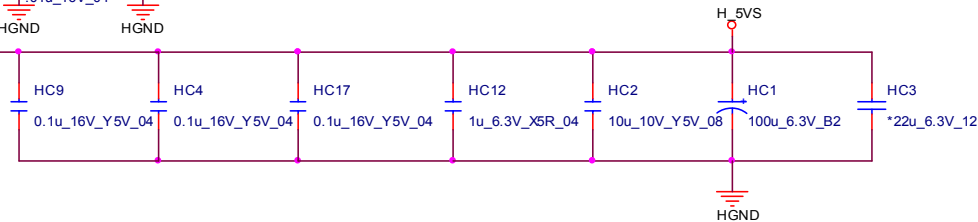
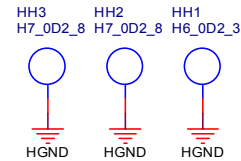


Sheet 52 of 58
X7100 HDD& ODD
Board

B.Schematic Diagrams

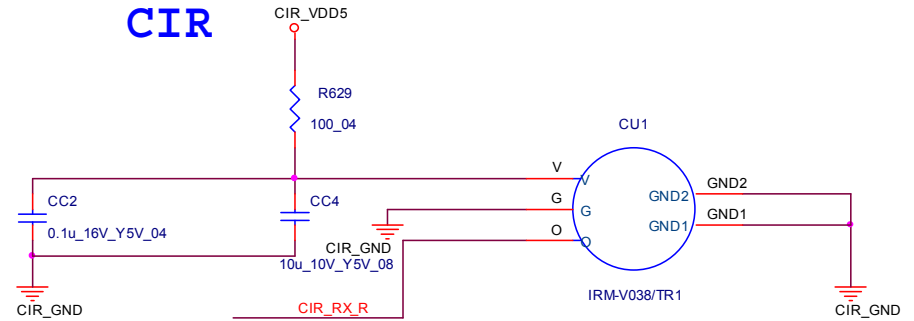
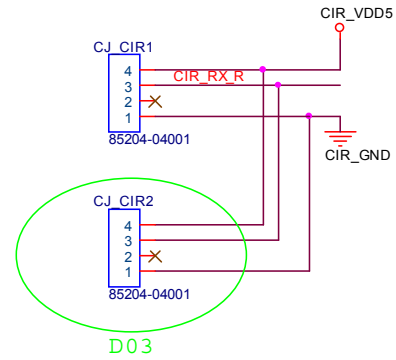
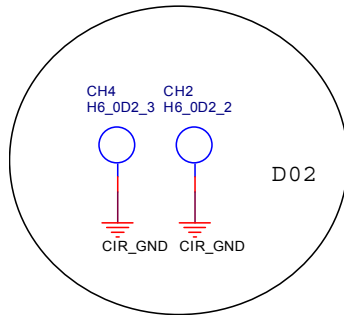


X7100M ONLY

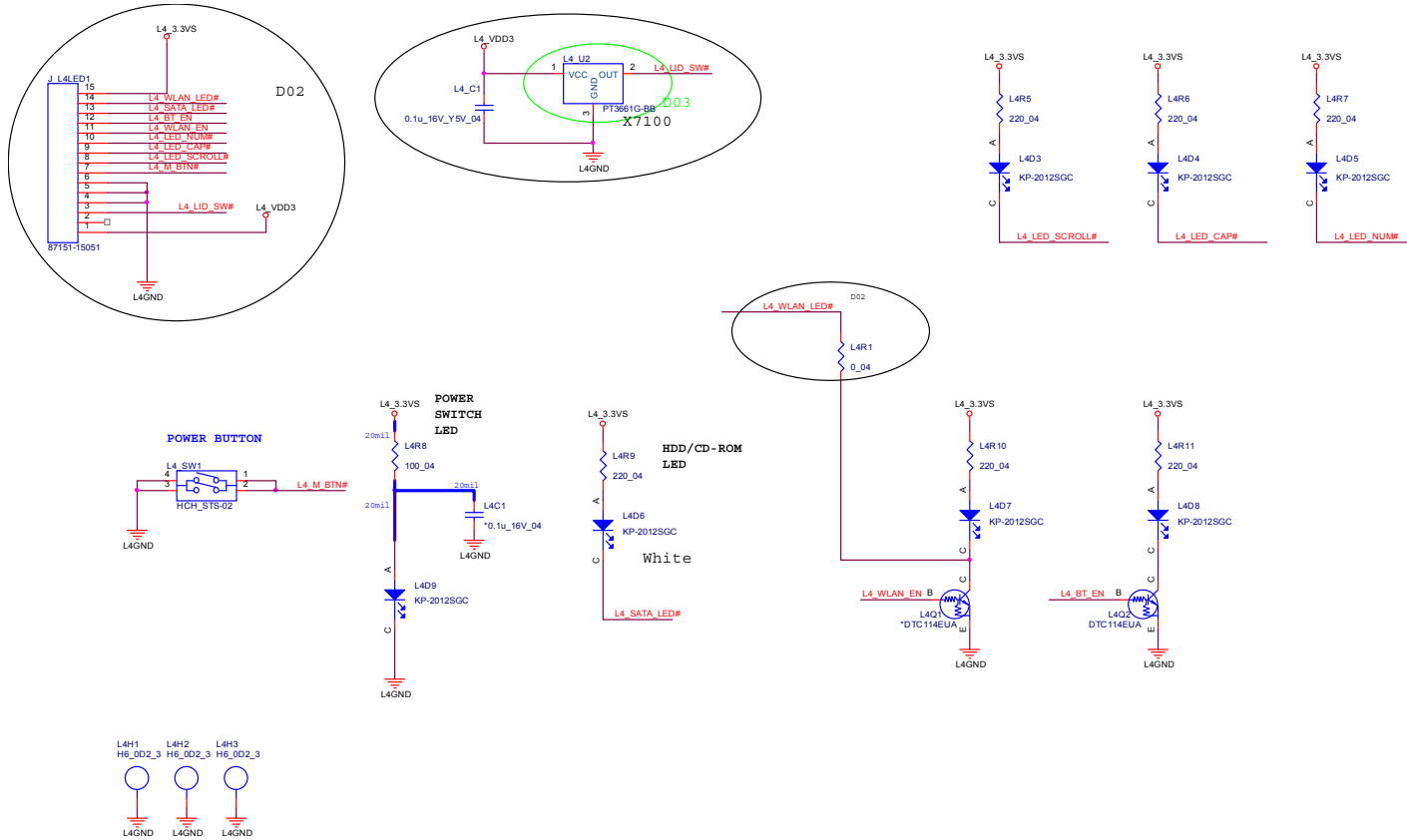


X7100 CIR

Sheet 53 of 58
X7100 CIR



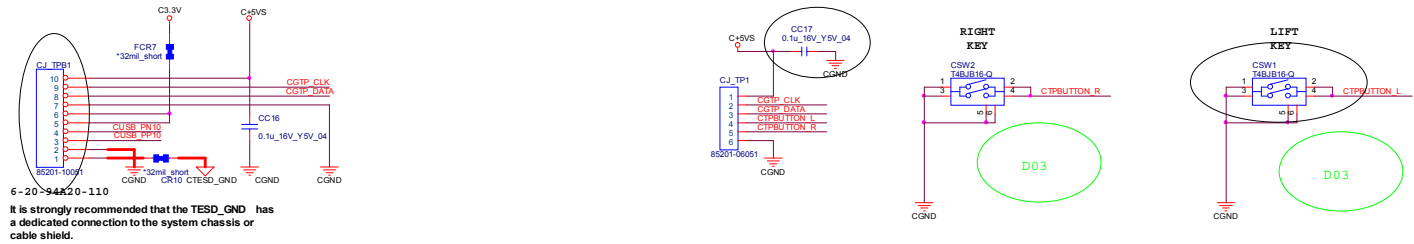
X7100 LED Board



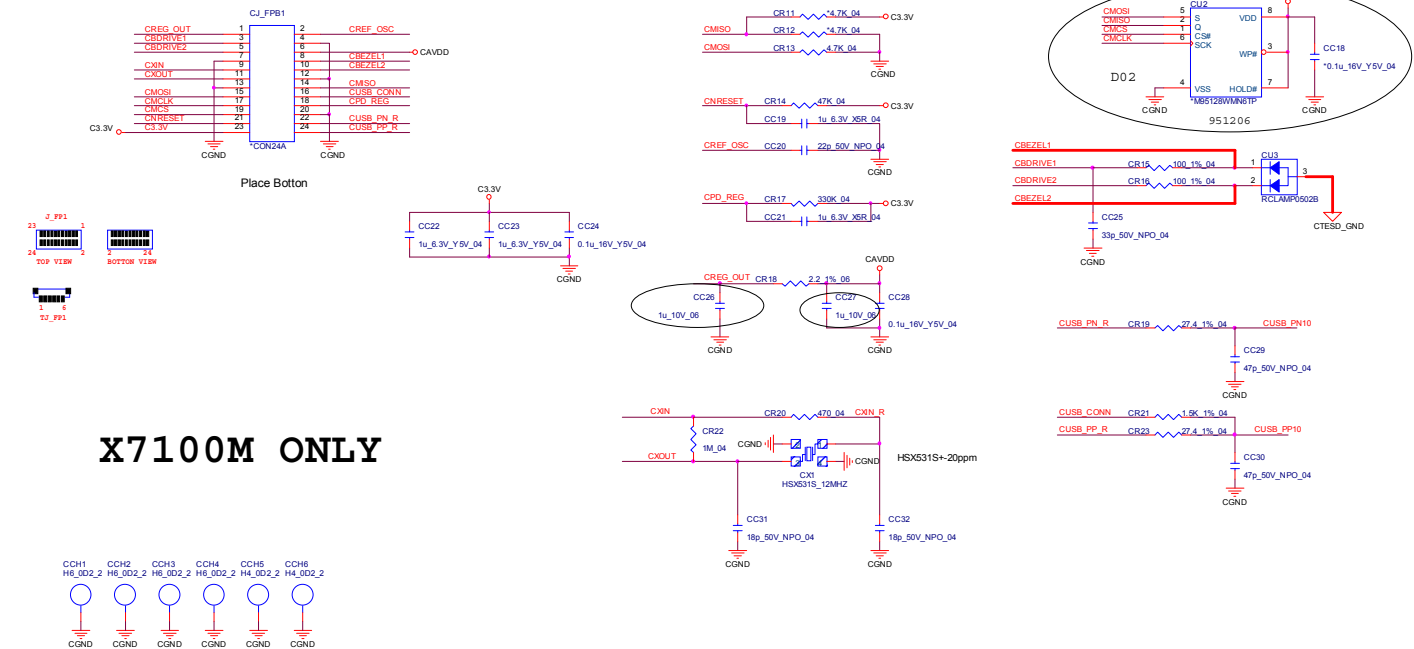
Sheet 54 of 58
X7100 LED Board

Schematic Diagrams

X7100 Click Board

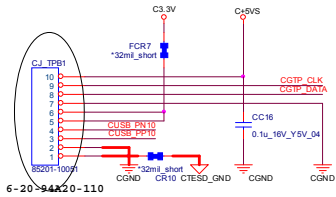


Sheet 55 of 58
X7100 Click Board

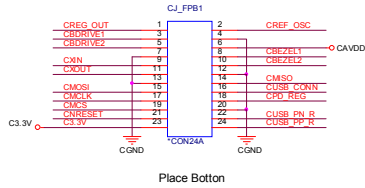
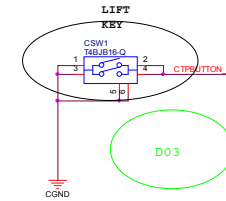
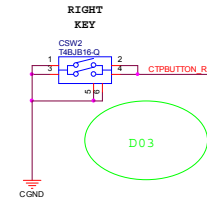
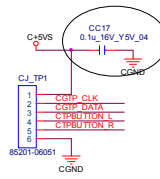


B.Schematic Diagrams

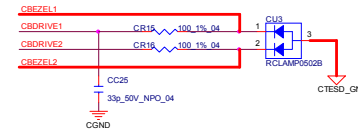
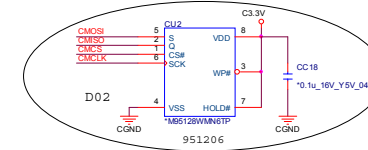
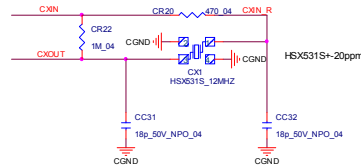
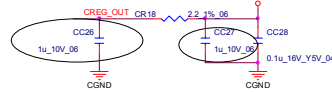
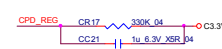
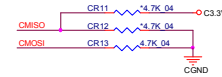
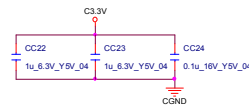
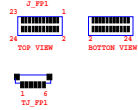
X7100 Fingerprint Board



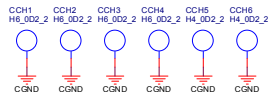
6-20-94A20-110
It is strongly recommended that the TESD_GND has a dedicated connection to the system chassis or cable shield.



Place Bottom



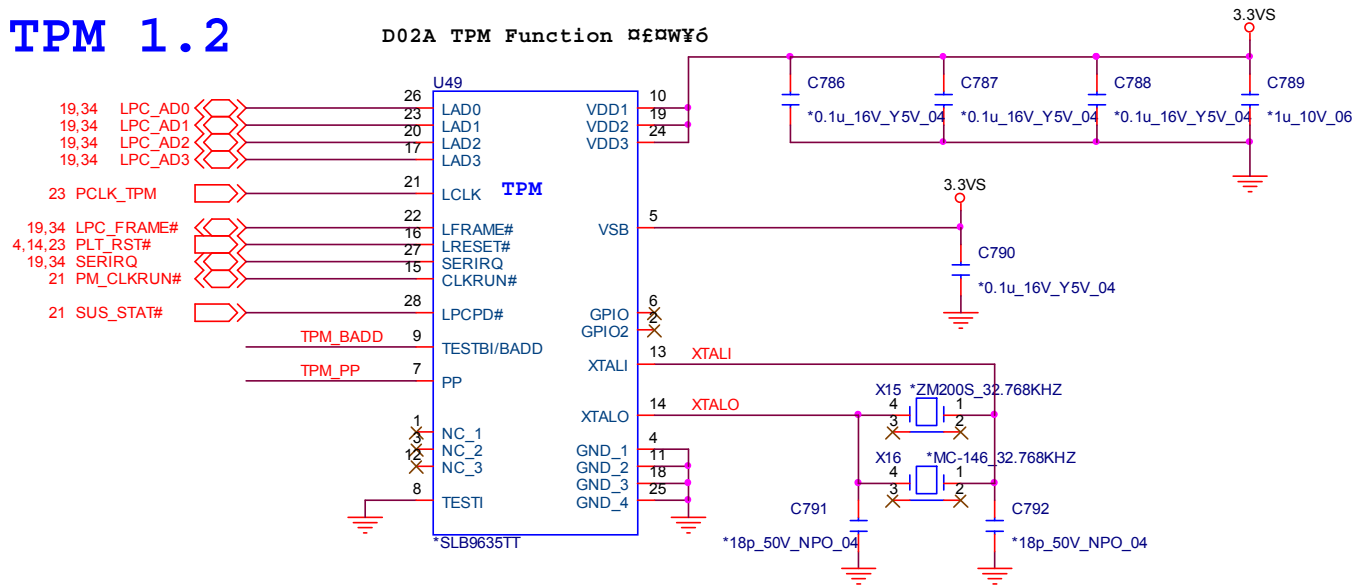
X7100M ONLY



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X7100 Fingerprint Board

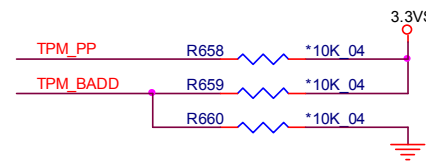
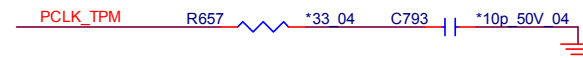
TPM

TPM 1.2



Asserted before entering S3
 LPC reset timing:
 LPCPD# inactive to LRST# inactive 32~96us

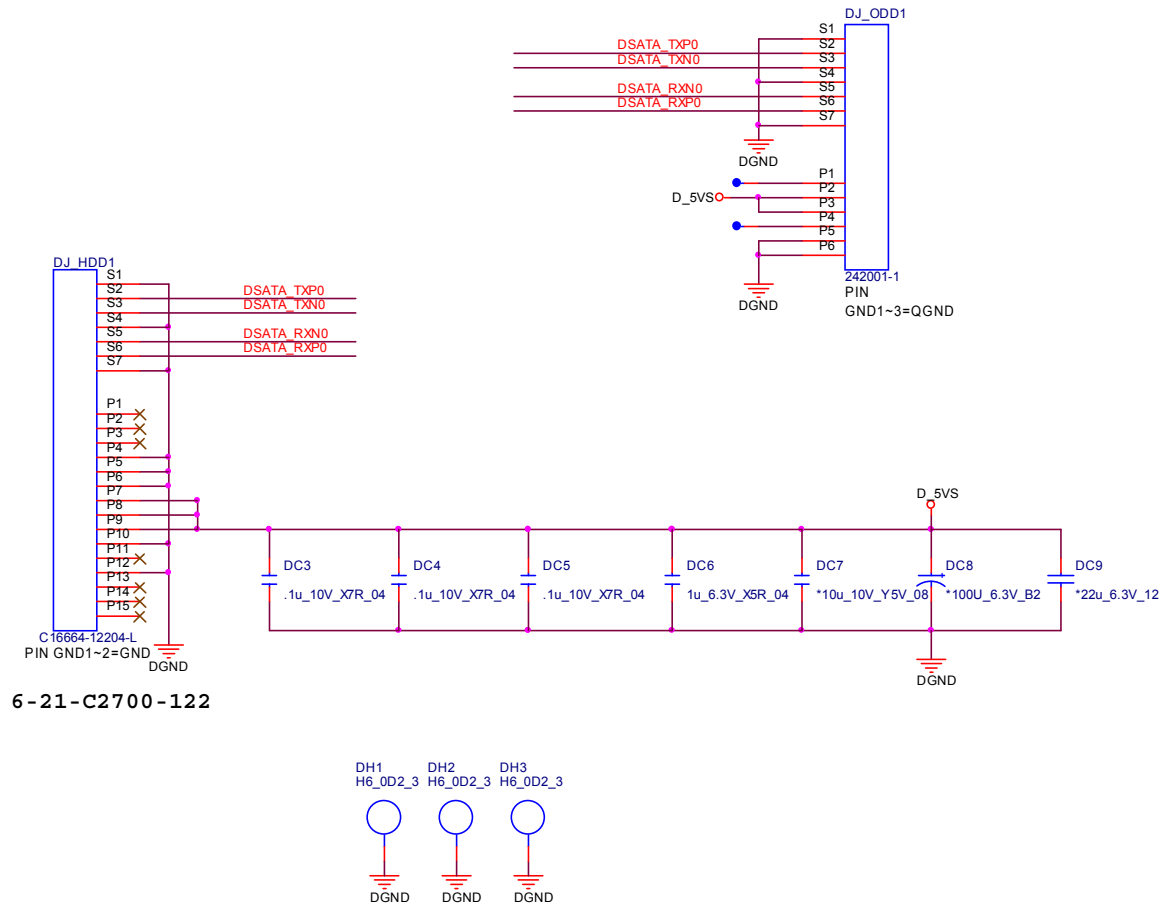
TPM_PP	HI: ACCESS LOW: NORMAL (Internal PD)
TPM_BADD	HI: 4E/ 4F H LOW: 2E/ 2F H



4, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 29, 30, 32, 33, 34, 35, 36, 39, 40, 43 3.3VS

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 TPM

X5100 HDD Board



Sheet 58 of 58
X5100 HDD Board

Schematic Diagrams

Appendix C: Updating the FLASH ROM BIOS

To update the FLASH ROM BIOS:

- 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.

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