

notebook



P150HM/
P151HM1
SERVICE
MANUAL

Notebook Computer
P150HM/P151HM1
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 **P150HM/P151HM1** 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

Preface

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, 9.47A (**180** Watts) minimum AC/DC Adapter.

CAUTION

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

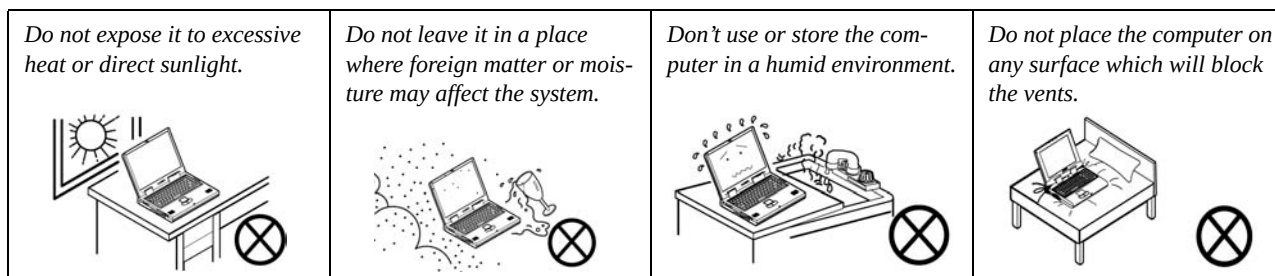
Instructions for Care and Operation

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

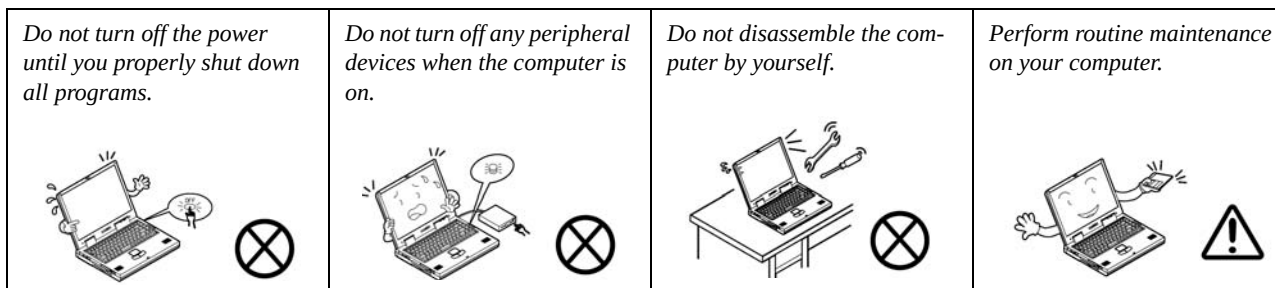
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



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.

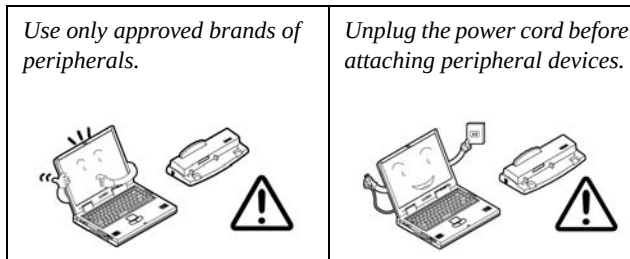


3. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.



Preface

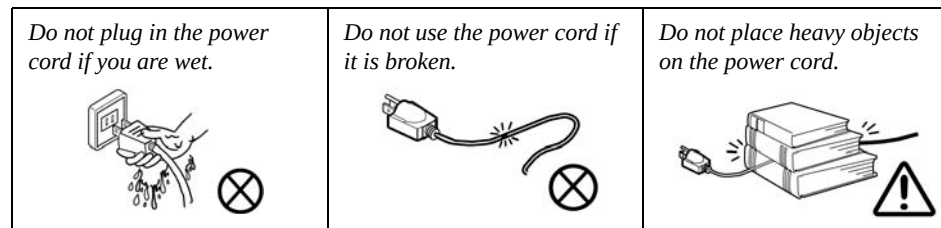
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



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.

Preface

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 **135** 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".

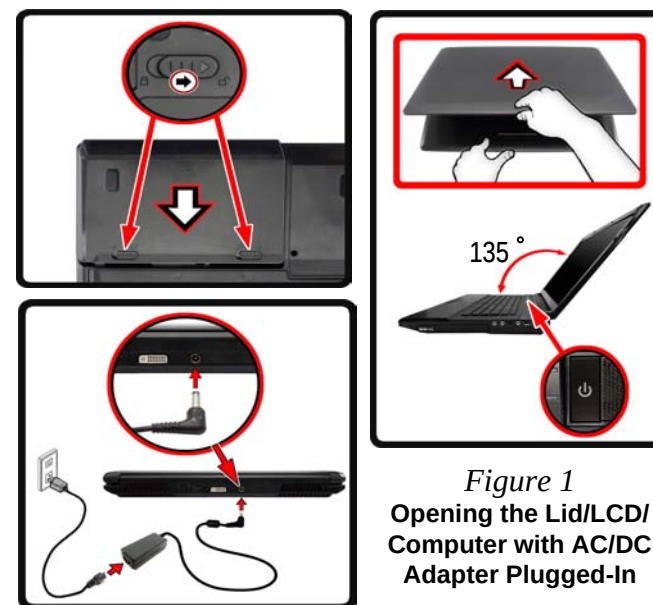


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Opening the Lid/LCD/
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To update the FLASH ROM BIOS you must: C-1

Download the BIOS

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

drive

Set the computer to boot from the external drive

Use the flash tools to update the BIOS

Restart the computer (booting from the HDD)

Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **P150HM/P151HM1** 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 **P150HM/P151HM1** 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.

Introduction

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

P150HM:

**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

P151HM1:

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

Intel® Core™ i5 Processor

i5-2410M (2.30GHz)

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

Intel® Core™ i3 Processor

i3-2310M (2.10GHz)

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

LCD

P150HM:

15.6" (39.62cm) FHD (1920 * 1080)

P151HM1:

15.6" (39.62cm) HD+ (1600 * 900)

BIOS

AMI BIOS (32Mb SPI Flash-ROM)

Storage

(**Factory Option**) One Changeable 12.7mm(h) Optical Device Type Drive (Super Multi Drive Module or Blu-Ray Combo Drive Module)

One Changeable 2.5" (6cm) 9.5mm (h) **SATA** (Serial) Hard Disk Drive

Core Logic

Intel® HM65 Chipset

Video Adapter

P150HM:

nVIDIA® GeForce GTX 485M PCIe Video Card

2GB 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

P151HM1:

nVIDIA® GeForce GTX 460M PCIe Video Card

1.5GB GDDR5 Video RAM on board

Microsoft DirectX® 11 Compatible

Security

Security (Kensington® Type) Lock Slot

BIOS Password

(**Factory Option**) Fingerprint Reader Module

Audio

High Definition Audio Compliant Interface

THX TruStudio Pro

S/PDIF Digital Output

One (3W) Sub Woofer

Built-In Microphone

2 Speakers

Pointing Device

Built-in TouchPad (scrolling key functionality integrated)

Keyboard

Full-size "WinKey" keyboard with numeric keypad

Communication

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

(Factory Option) 3.75G/HSPA Mini-Card Module **(Models A & B Only)**

(Factory Option) TV Tuner Mini-Card Module **(Model C Only)**

(Factory Option) Intel® WiFi Link 6230 (802.11a/g/n) Wireless LAN + Bluetooth 3.0 Half Mini-Card Combo Module

(Factory Option) Intel® WiFi Link 6300 (802.11a/g/n) Wireless LAN Half Mini-Card Module

(Factory Option) Third-Party Wireless LAN (802.11b/g/n) + Bluetooth 3.0 Half Mini-Card Combo Module

(Factory Option) Third-Party 802.11b/g/n Wireless LAN Half Mini-Card 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

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 - see [page 11.](#))
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

Mini Card Slots

Slot 1 for **WLAN** Module or **Combo WLAN and Bluetooth** Module
(Factory Option) Slot 2 for **3.75G/HSPA** Half Mini-Card Module

Environmental Spec

Temperature

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

Relative Humidity

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

Power

Removable 8-cell cylinder battery, 76.96Wh (5200mAh)

P150HM :

Full Range AC/DC Adapter
AC Input: 100 - 240V, 50 - 60Hz
DC Output: 19V, 9.47A **(180W)**

P151HM1 :

Full Range AC/DC Adapter
AC Input: 100 - 240V, 50 - 60Hz
DC Output: 19V, 6.3A **(120W)**

Dimensions & Weight

376mm (w) * 256mm (d) * 35 - 43mm (h)
Around 3.1kg 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)

External Locator - Top View with LCD Panel Open



External Locator - Front & Right side Views



Figure 2

Front Views

1. LED Power Indicators



Figure 3

Right Side Views

1. Optical Device Drive Bay
2. Emergency Eject Hole
3. Headphone Jack
4. Microphone Jack
5. S/PDIF-Out Jack
6. Line-In Jack
7. USB 2.0 Port
8. Security Lock Slot

Introduction

External Locator - Left Side & Rear View

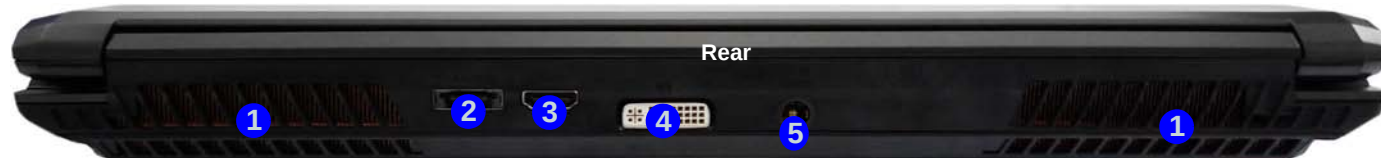
Figure 4
Left Side View

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



Figure 5
Rear View

1. Vent
2. eSATA/USB 2.0 Combo Port
3. HDMI-Out Port
4. DVI-Out Port
5. DC-In Jack



External Locator - Bottom View



Figure 6
Bottom View

1. Vent
2. Component Bay Cover
3. Sub Woofer
4. HDD Bay
5. Battery



Overheating

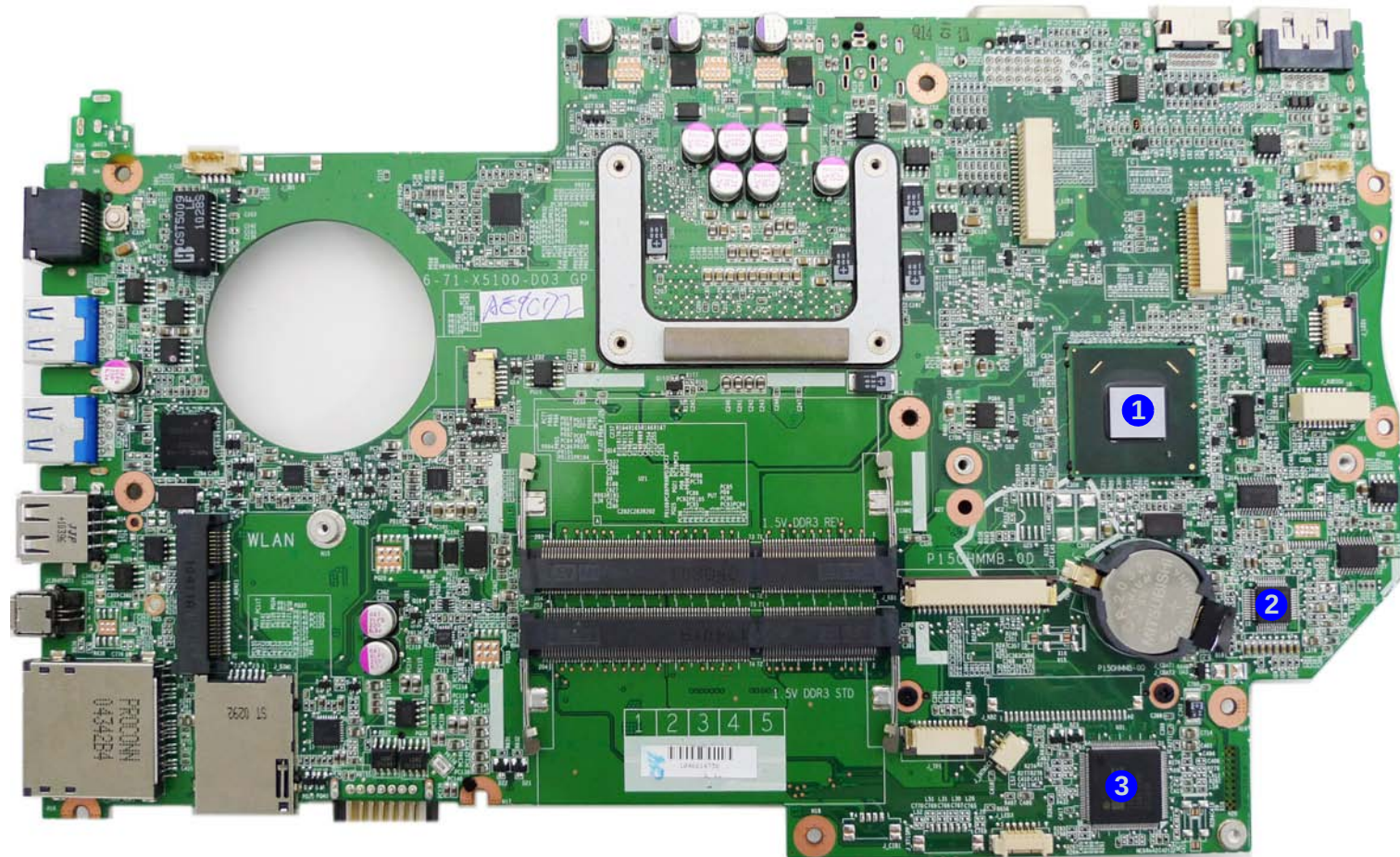
To prevent your computer from overheating make sure nothing blocks the vent/fan intakes while the computer is in use.

Introduction

Figure 7
**Mainboard Top
Key Parts**

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

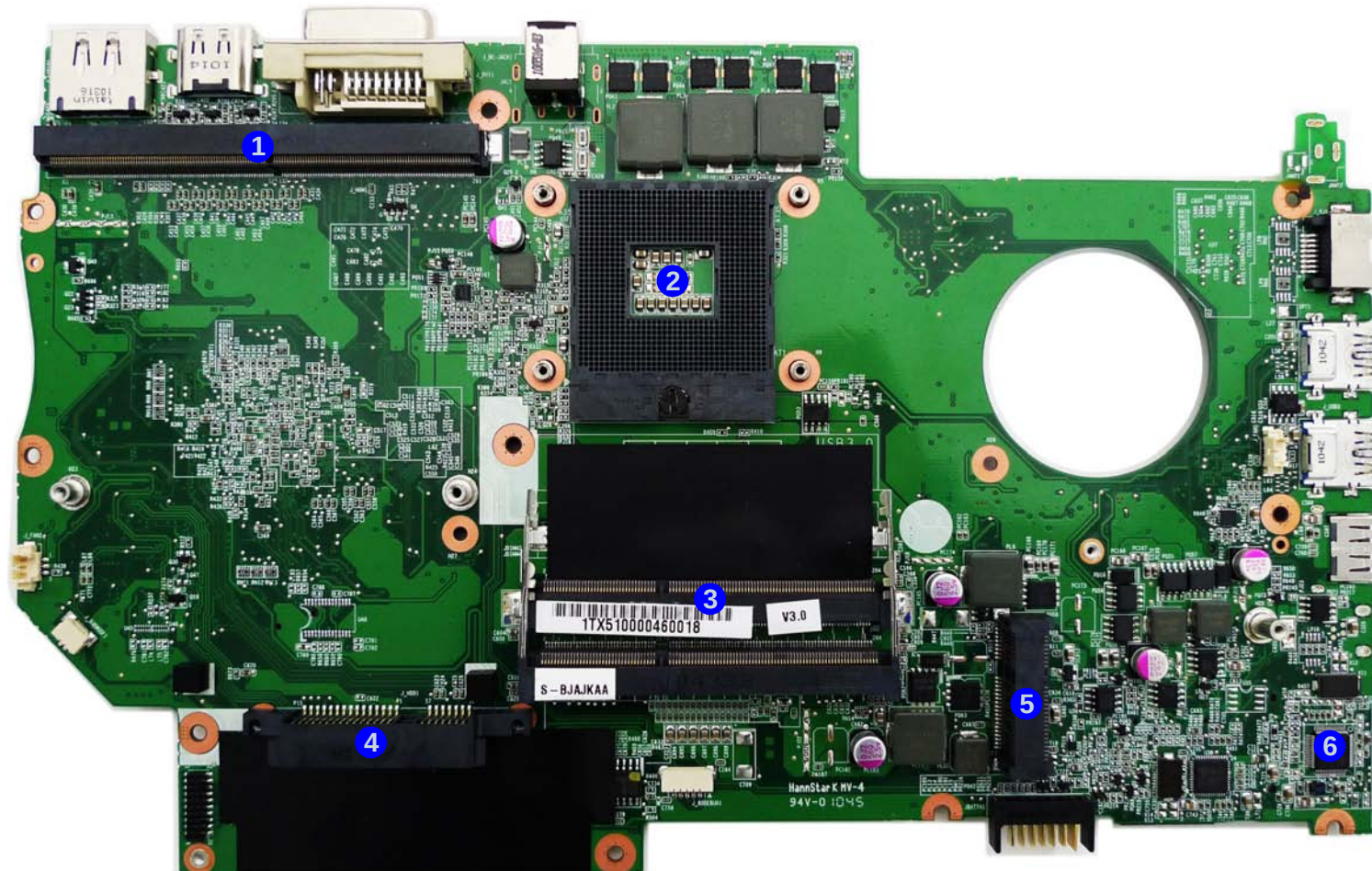
Mainboard Overview - Top (Key Parts)



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 (Primary)
4. Hard Disk Connector
5. Mini-Card Connector (3G Module)
6. JMC 251C

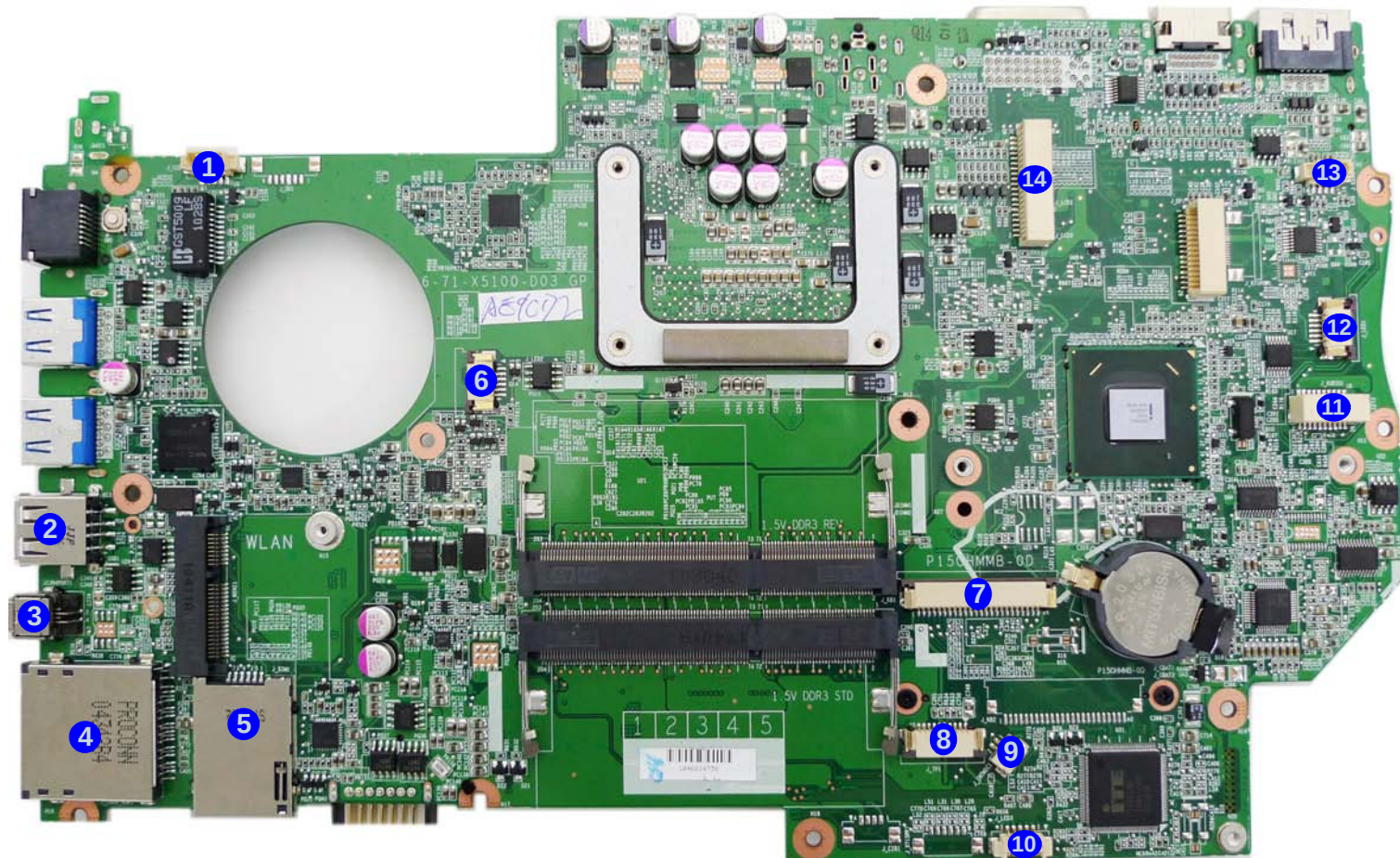


Introduction

Figure 9
**Mainboard Top
Connectors**

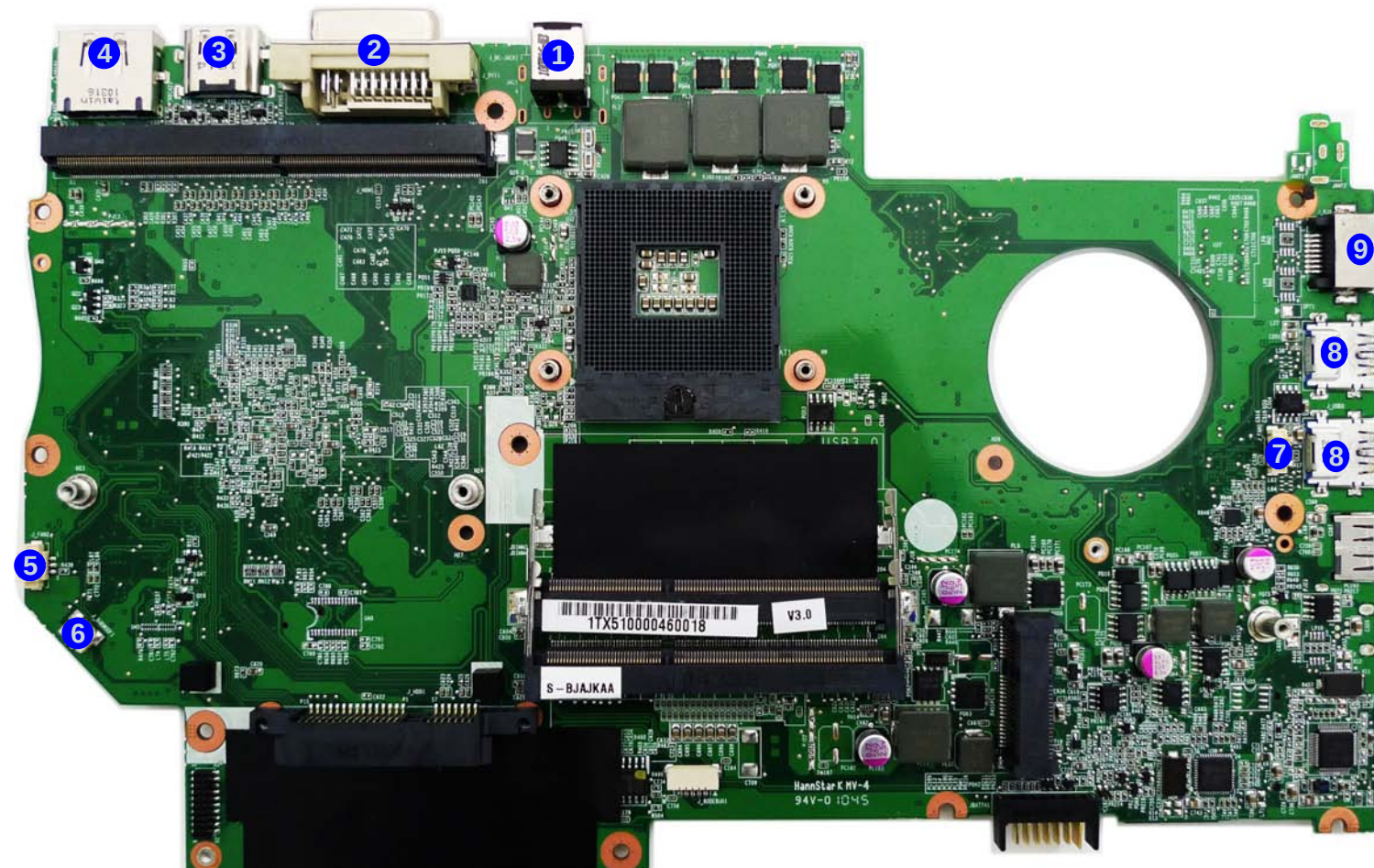
Mainboard Overview - Top (Connectors)

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



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 **P150HM/P151HM1** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

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

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

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

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

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


Information

Warning

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-born particulate matter is often attracted to charged surfaces, reducing performance.
10. **Keep track of the components.** When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.

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 and install the HDD:

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

To remove the Optical Device:

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

To remove the Primary System Memory:

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

To remove the System Memory under the Keyboard:

1. Remove the battery [page 2 - 5](#)
2. Remove the keyboard [page 2 - 10](#)
3. Remove the system memory [page 2 - 13](#)

To remove and install the Processor:

1. Remove the battery [page 2 - 5](#)
2. Remove the system memory [page 2 - 10](#)
3. Remove the processor [page 2 - 14](#)
4. Install the processor [page 2 - 16](#)

To remove the WLAN Module:

1. Remove the battery [page 2 - 5](#)
2. Remove the keyboard [page 2 - 10](#)
3. Remove the wireless LAN [page 2 - 17](#)

To remove the 3G:

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

To remove and install the Video Card:

1. Remove the battery [page 2 - 5](#)
2. Remove the video card [page 2 - 19](#)
3. Install the video card [page 2 - 20](#)

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*).

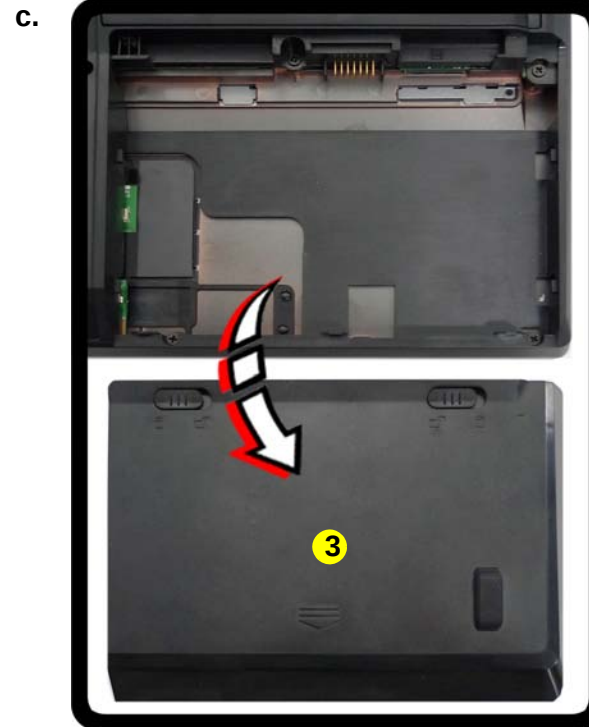
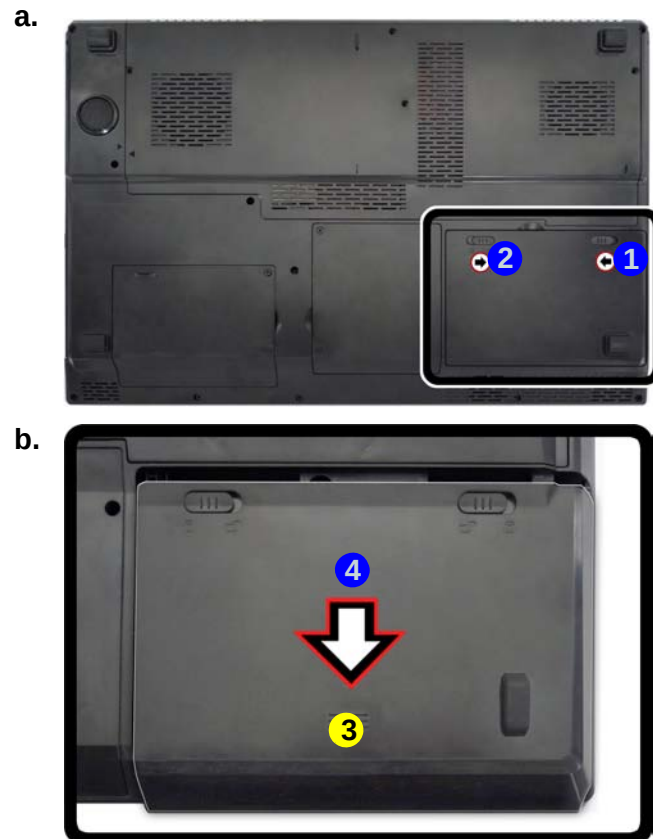
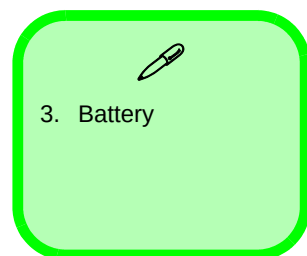


Figure 1
Battery Removal

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



Disassembly

Figure 2
**HDD Assembly
Removal**

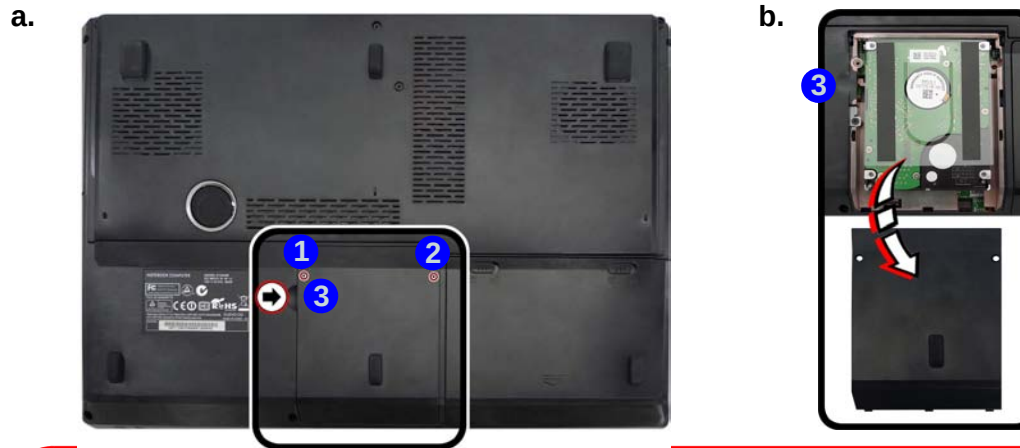
- Locate the HDD bay cover and remove the screws.
- Remove the hard disk bay cover by levering the cover at point ③.

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

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



- 2 Screws



HDD System Warning

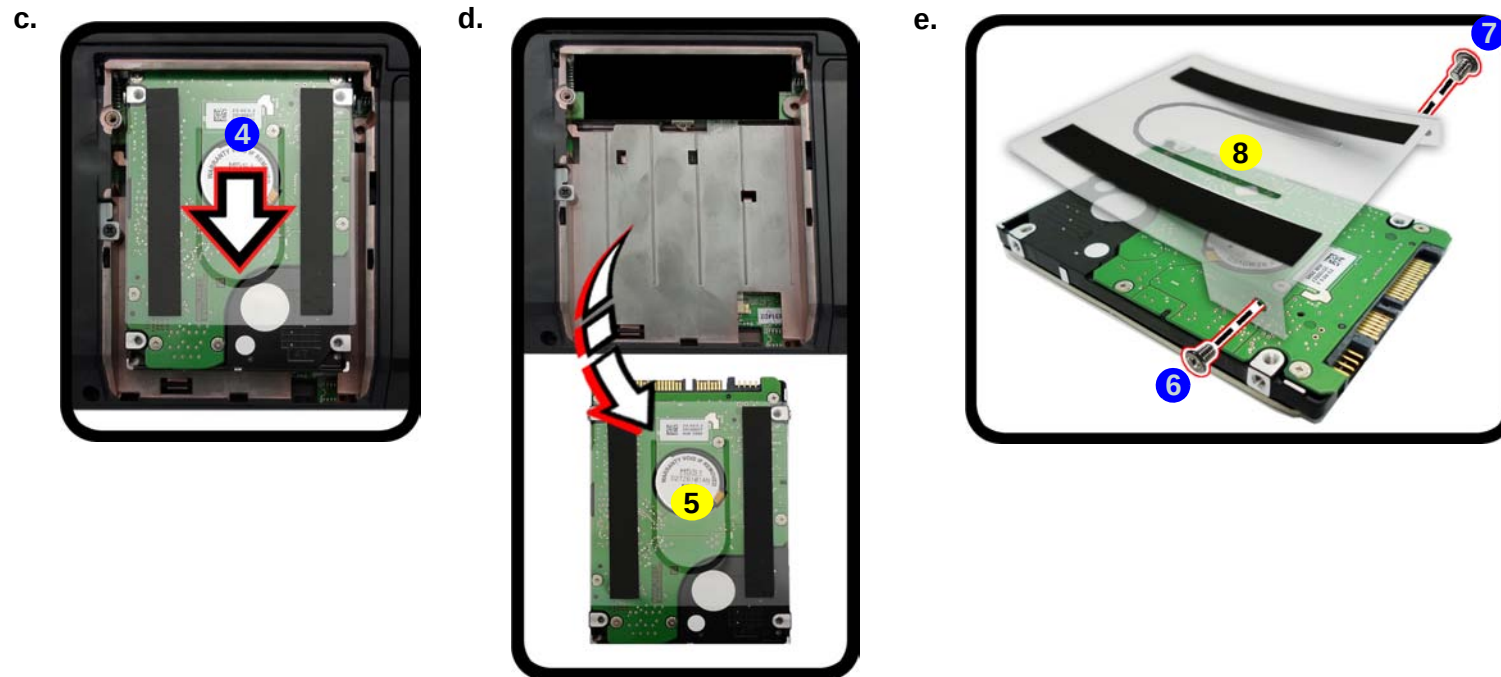
New HDD's are blank. Before you begin make sure:

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

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

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

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



- c. Slide the HDD assembly in the direction of the arrow.
- d. Remove the hard disk assembly.
- e. Remove the screws and the insulation plate.

- 5. HDD
- 8. HDD Insulation Plate
- 2 Screws

Disassembly

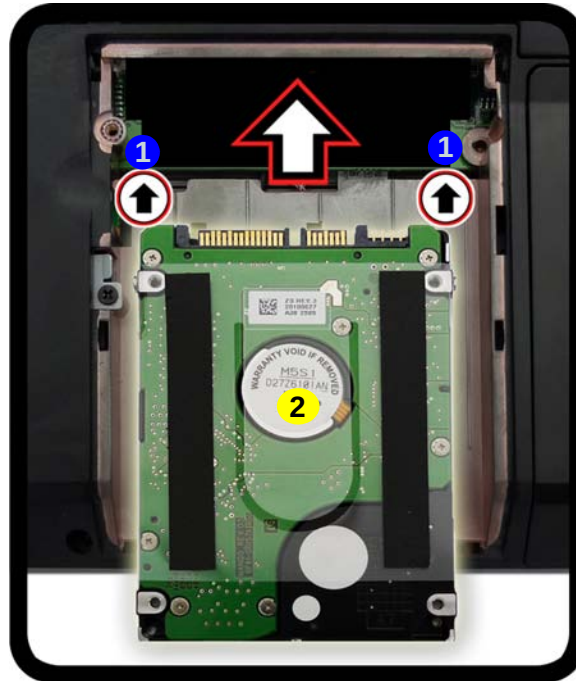
Figure 4
Inserting the Hard Disk Into the HDD Bay

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. 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.

a.



2. HDD

Removing the Optical (CD/DVD) Device

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 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** at point **6** ([Figure 5d](#)).
5. Reverse the process to install any new optical (CD/DVD) device.

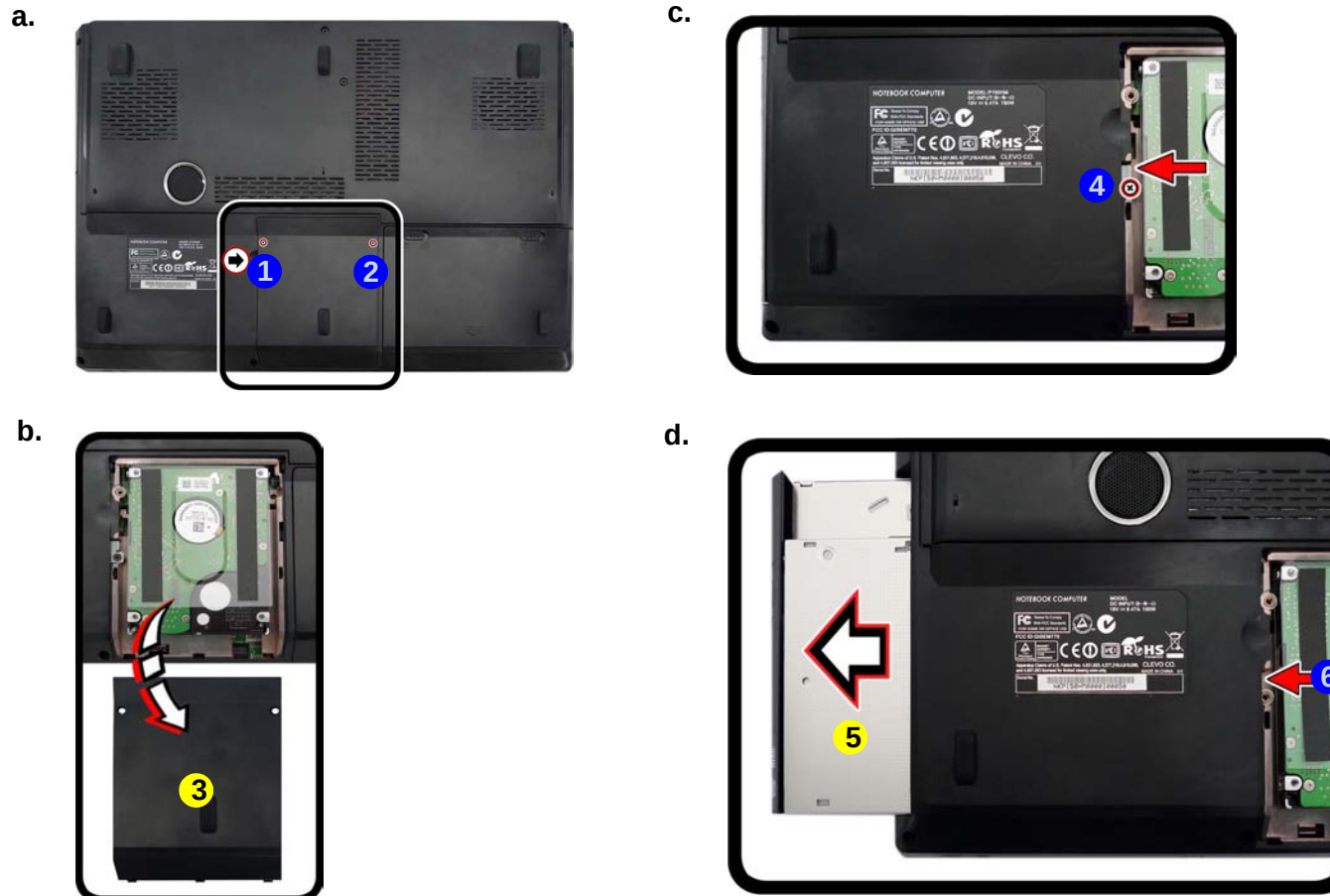
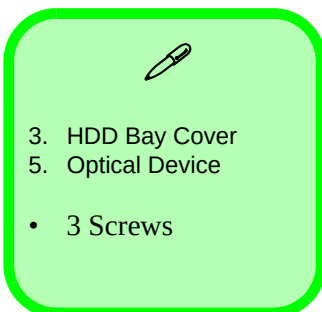


Figure 5
Optical Device Removal

- Locate the hard disk bay cover and remove the screws.
- Remove the hard disk bay cover.
- Remove the screw.
- Use a screwdriver to carefully push the optical device out.



Disassembly

Figure 6
RAM Module Removal

- Remove the screws.
- 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. The total memory size is automatically detected by the POST routine once you turn on your computer.

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

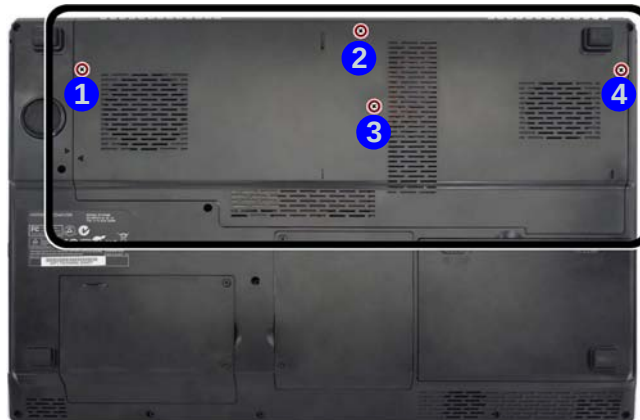
Two primary memory sockets are located under component bay cover (the bottom case cover), and two secondary memory sockets are located under the keyboard (not user upgradable). If you are installing only two RAM modules then they should be installed in the primary memory sockets under the component bay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

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

Memory Upgrade Process

- Turn **off** the computer, and turn it over, remove the battery ([page 2 - 5](#)).
- Remove screws **1** - **4** ([Figure 6a](#)).
- Slide the bottom cover until the cover and case indicators **5** are aligned ([Figure 6b](#)).

a.

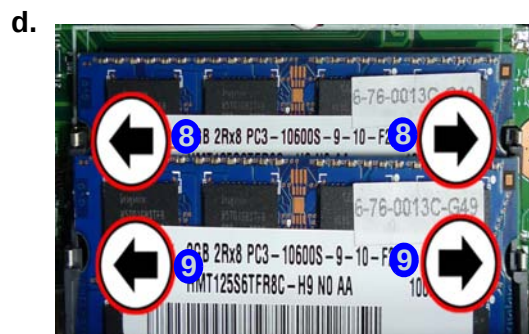
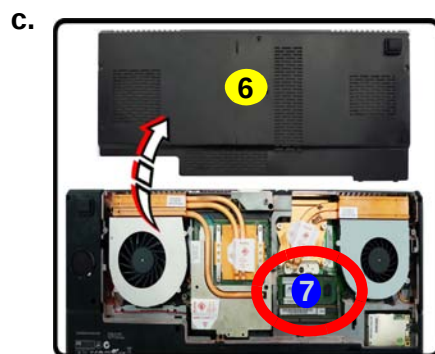


b.



- 4 Screws

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



Contact Warning

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



6. Component Bay Cover
10. RAM Module

Figure 7
RAM Module Removal (cont'd.)

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

Disassembly

Figure 8
RAM Module Removal

- Remove the component bay cover.
- Use the small tool provided to carefully push out the top cover module.
- Remove the top cover module.
- Remove the screws.
- Carefully lift the keyboard up, being careful not to bend the keyboard ribbon cable.

Removing the System Memory (RAM) from Under the Keyboard

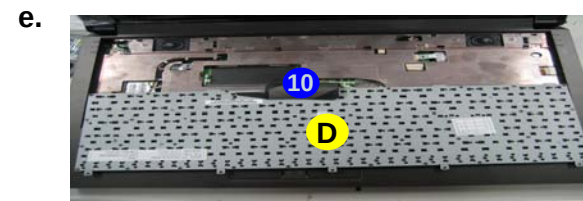
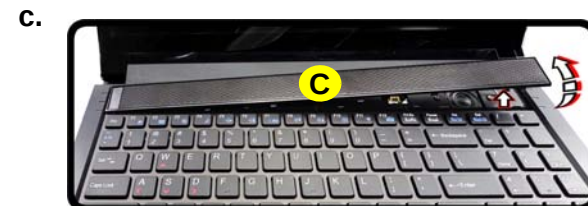
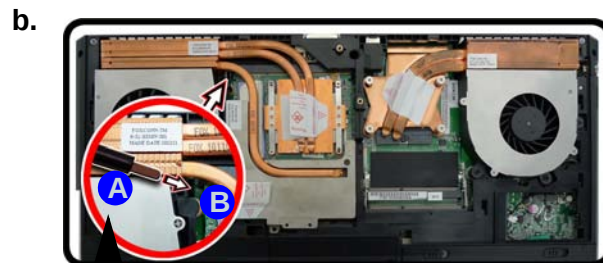
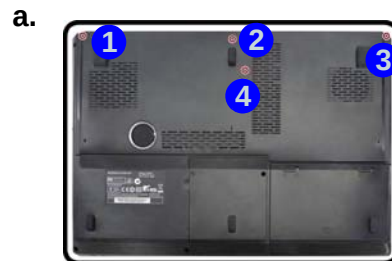
The computer has **four** memory sockets for 204 pin Small Outline Dual In-line (SO-DIMM) **DDR III (DDR3)** type memory modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

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

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

Memory Upgrade Process

- Remove screws **1** - **4**.
- Use the small tool **A** provided (see picture below) to carefully push out the top cover module at point **B**.
- Remove the top cover module **C** and remove screws **5** - **9**.
- Carefully lift the keyboard **D** up, being careful not to bend the keyboard ribbon cable **10**.



C. Top Cover Module
D. Keyboard

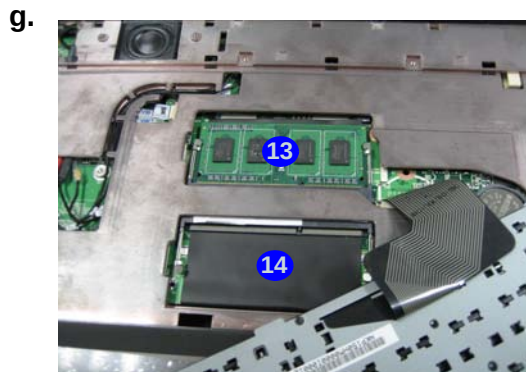
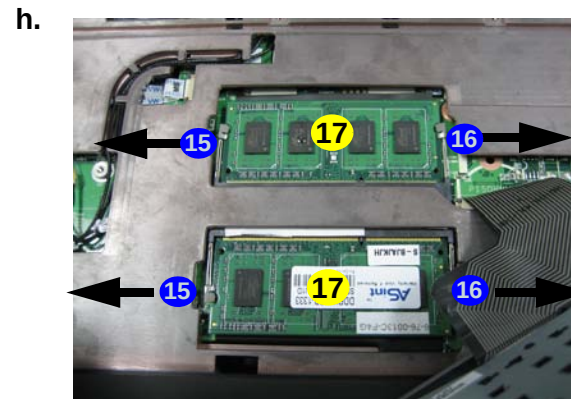
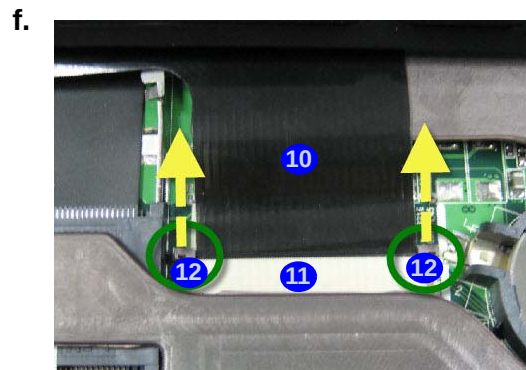
• 9 Screws

Top Cover Module Tool

Figure 9
RAM Module Removal (cont'd.)

- f. 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.
- g. Remove the keyboard and the memory sockets will be visible.
- h. Gently pull the two release latches on the sides of the memory socket(s) in the direction indicated below.

5. Disconnect the keyboard ribbon cable **10** from the locking collar socket **11** by using a small flat-head screwdriver to pry the locking collar pins **12** away from the base. (*Figure 9c*).
6. Remove the keyboard and the memory sockets **13** & **14** will be visible.
7. Gently pull the two release latches (**15** & **16**) on the sides of the memory socket(s) in the direction indicated below.
8. The RAM module **17** 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.



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.



17. RAM Modules

Disassembly

Figure 10
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

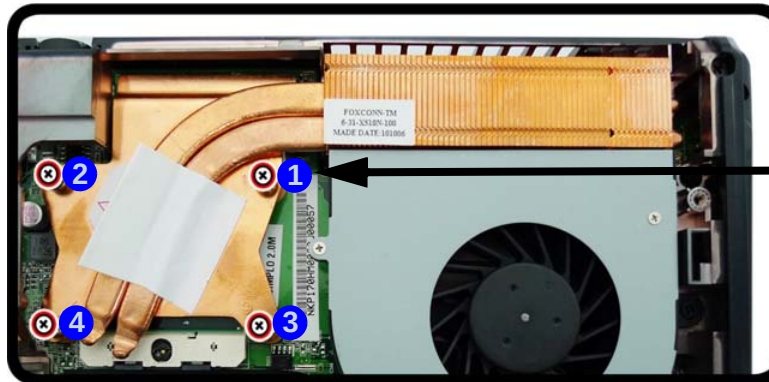
- 4 Screws

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 10a](#)).
3. Carefully (it may be hot) remove the heat sink unit **5** ([Figure 10b](#)).

a.



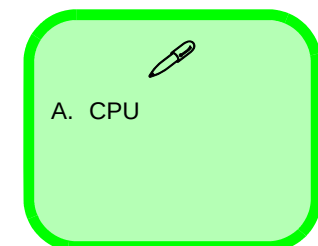
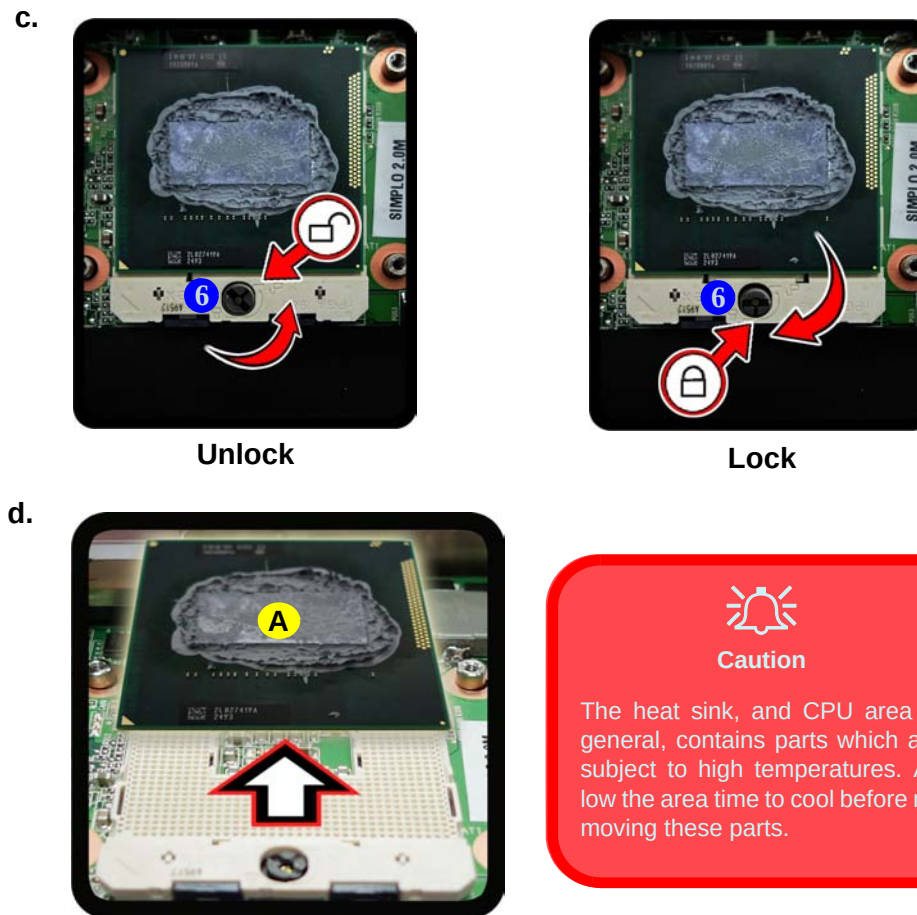
Note: Loosen the screws in the reverse order 4-3-2-1 as indicated on the label.

b.



Figure 11
Processor Removal
(cont'd)

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



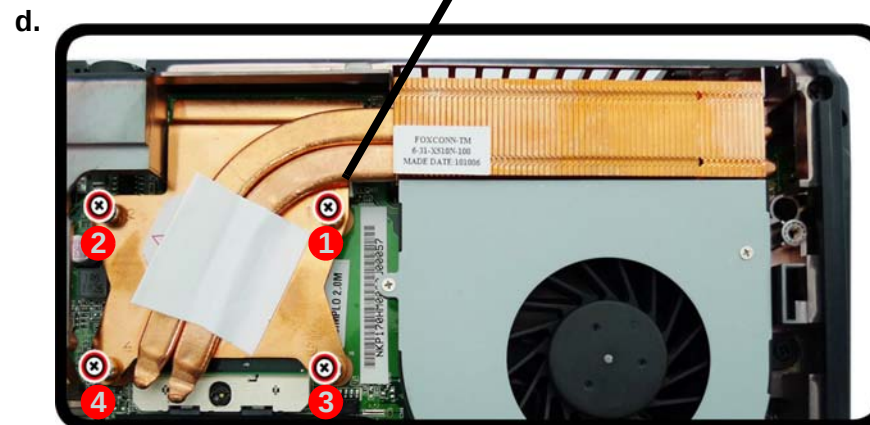
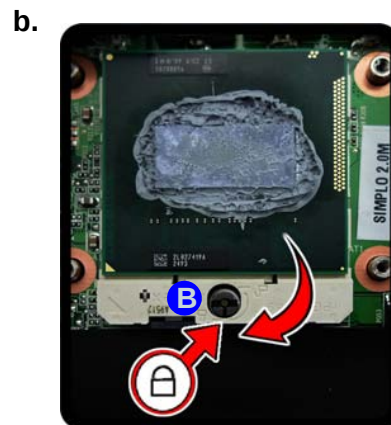
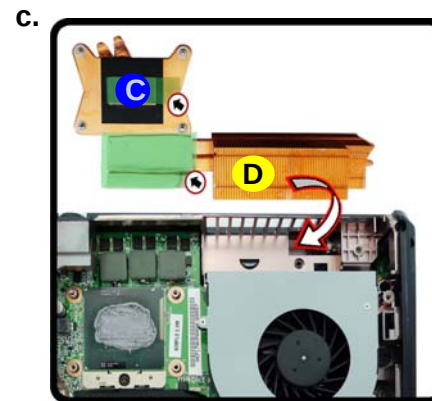
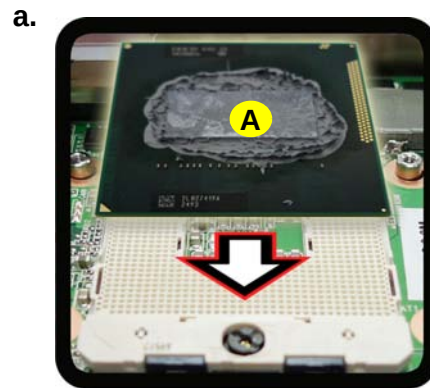
Disassembly

Figure 12
Processor Installation

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

Processor Installation Procedure

- Insert the CPU **A**, pay careful attention to the pin alignment (**Figure 12a**), it will fit only one way (DO NOT FORCE IT!), and turn the release latch **B** towards the lock symbol  (**Figure 12b**).
- Remove the sticker C** (**Figure 12c**) from the heat sink unit.
- Insert the heat sink unit **D** as indicated in **Figure 12c**.
- Tighten the CPU heat sink screws in the order **1**, **2**, **3** & **4** (the order as indicated on the label and **Figure 12d**).
- Replace the CPU fan, component bay cover and tighten the screws (**page 2 - 14**).



Note:

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

- 
- A. CPU
D. Heat Sink
- 4 Screws

Removing the Wireless LAN Module

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

a.



c.



b.



d.

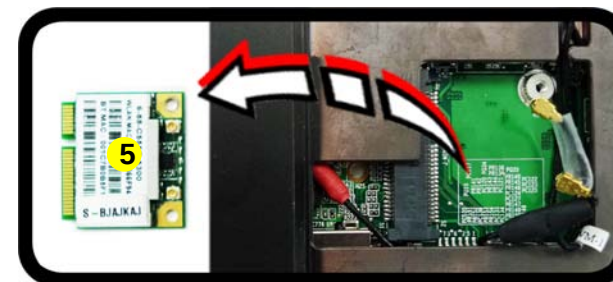


Figure 13
**Wireless LAN
Module Removal**

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



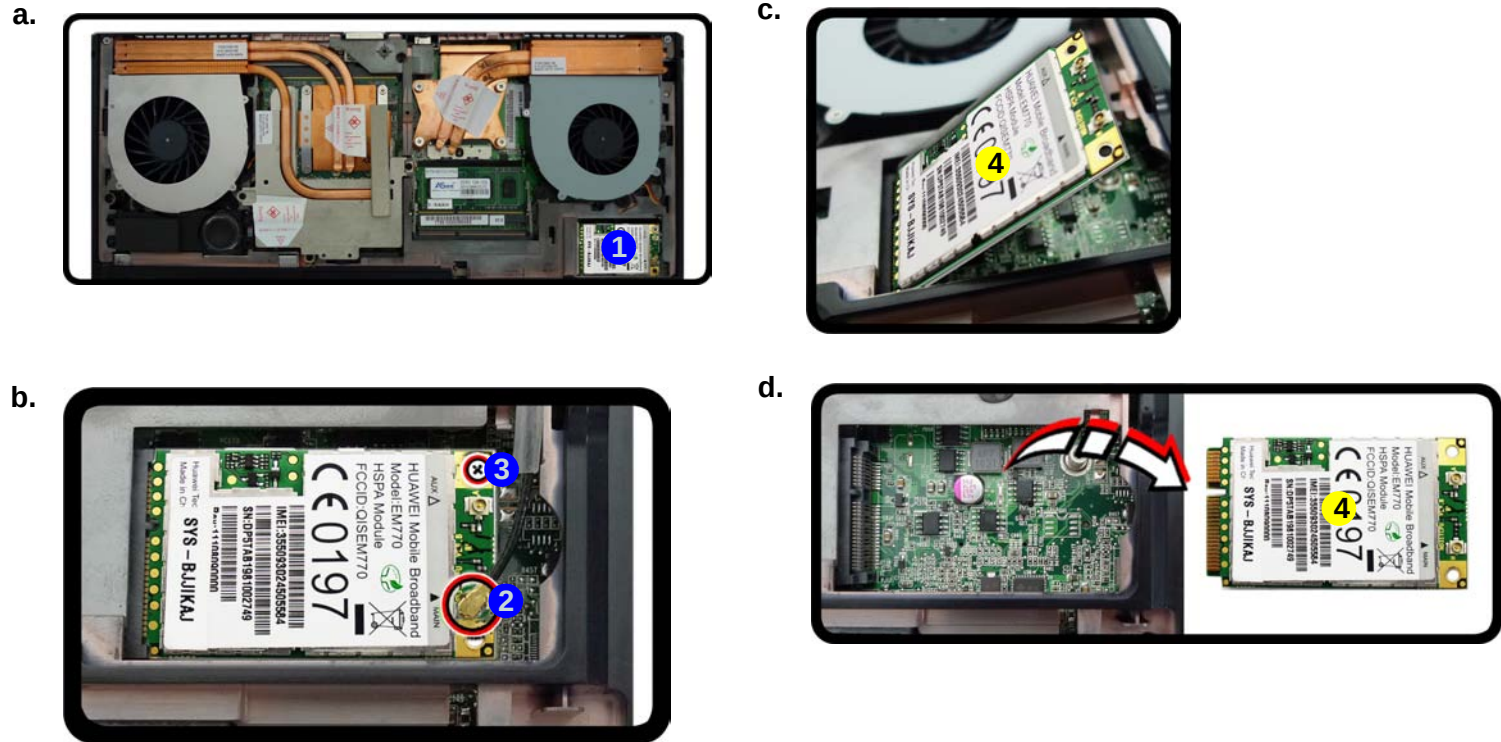
5. WLAN Module

- 1 Screw

Disassembly

Figure 14
3G Module Removal

- a. Remove the screw.
 - b. Disconnect the cable and remove the screw.
 - c. Lift the 3G module up off the socket.
1. Turn **off** the computer, remove the battery ([page 2 - 5](#)), and component bay cover ([page 2 - 10](#)).
 2. Locate the 3G, it is visible at point **1** ([Figure 14a](#)).
 3. Carefully disconnect the cable **2** and remove screw **3** from the 3G module ([Figure 14b](#)).
 4. Lift the 3G module **4** up and off the computer ([Figure 14b](#)).



4. 3G Module

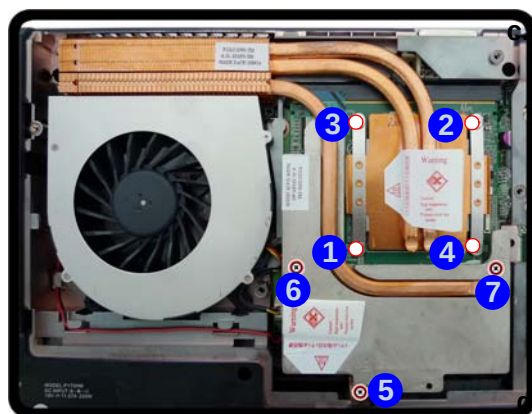
• 1 Screw

Removing and Installing the Video Card

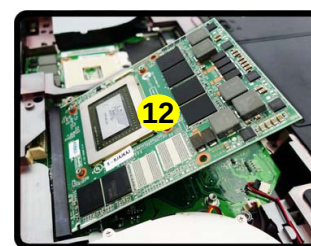
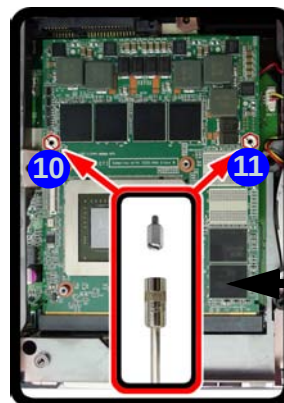
Video Card Removal Procedure

1. Turn **off** the computer, turn it over and remove the battery ([page 2 - 5](#)) and component cover ([page 2 - 10](#)).
2. Remove screws **1** - **7** from the heat sink unit in the order indicated on the label (i.e screw **7** first through to screw **1** last) ([Figure 15a](#)).
3. Carefully (**it may be hot**) remove the heat sink units **8** & **9** ([Figure 15b](#)).
4. Remove screws **10** & **11** from the video card. The video card **12** will pop up ([Figure 15c](#)).
5. Remove the video card **12** ([Figure 15d](#)).

a.

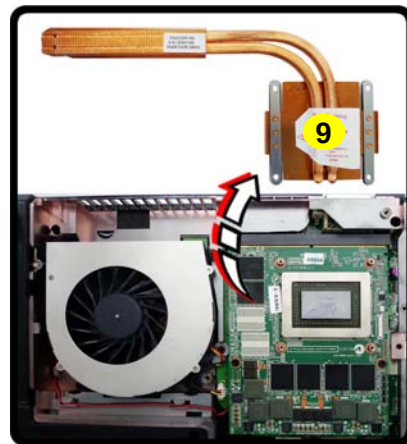
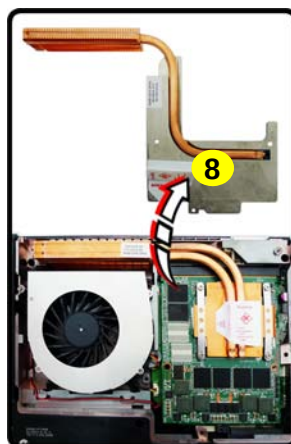


c.

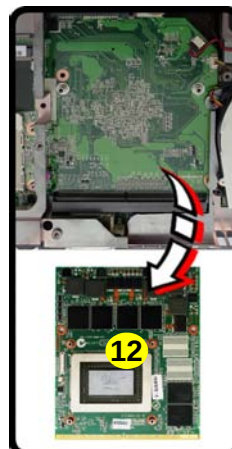

Note:

Please use a hexagonal 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**.

Figure 15
Video Card
Removal Procedure

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


Caution

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



8 & 9. Heat Sink Units
12. Video Card

- 9 Screws

Disassembly

Figure 16
Installing a New Video Card

- e. Insert the video card at a 30 degree angle.
- f. Fit the connectors straight and even, and secure the card with screws 10 & 11.



Caution

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

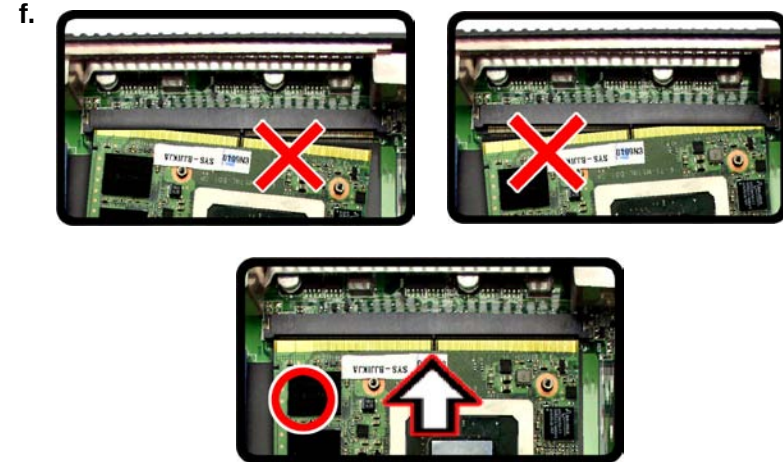
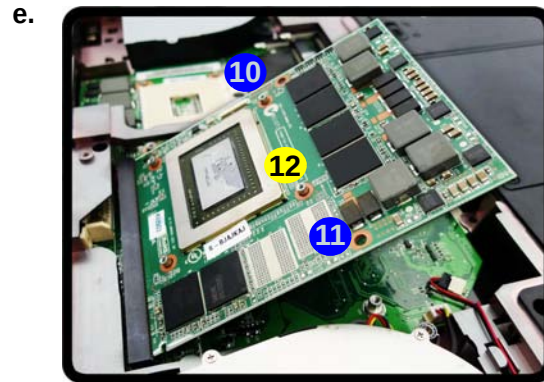


12. Video Card

- 2 Screws

Installing a New Video Card

1. Prepare to fit the video card 12 into the slot by holding it at about a 30° angle (Figure 16e).
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 16f).
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 15 on page 2 - 19).
7. Place the heat sink back on the card, and secure the screws in the order indicated in Figure 15 on page 2 - 19.
8. Attach the video card fan and secure with the screws as indicated in Figure 15 on page 2 - 19.
9. Reinsert the component bay cover, and secure with the screws as indicated in Figure 8 on page 2 - 12.

Appendix A: Part Lists

This appendix breaks down the *P150HM/P151HM1* 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 Lists

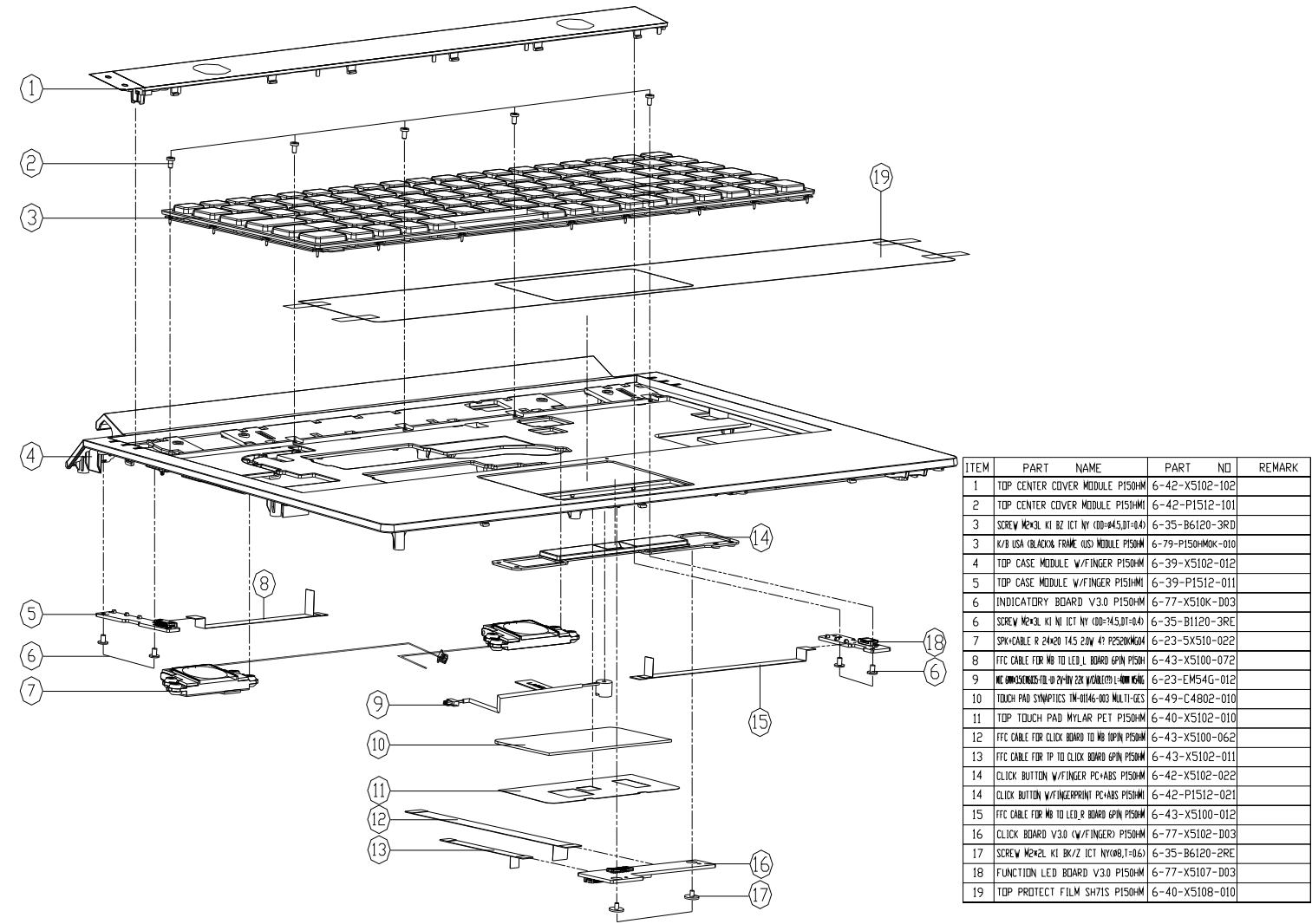
Part List Illustration Location

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

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

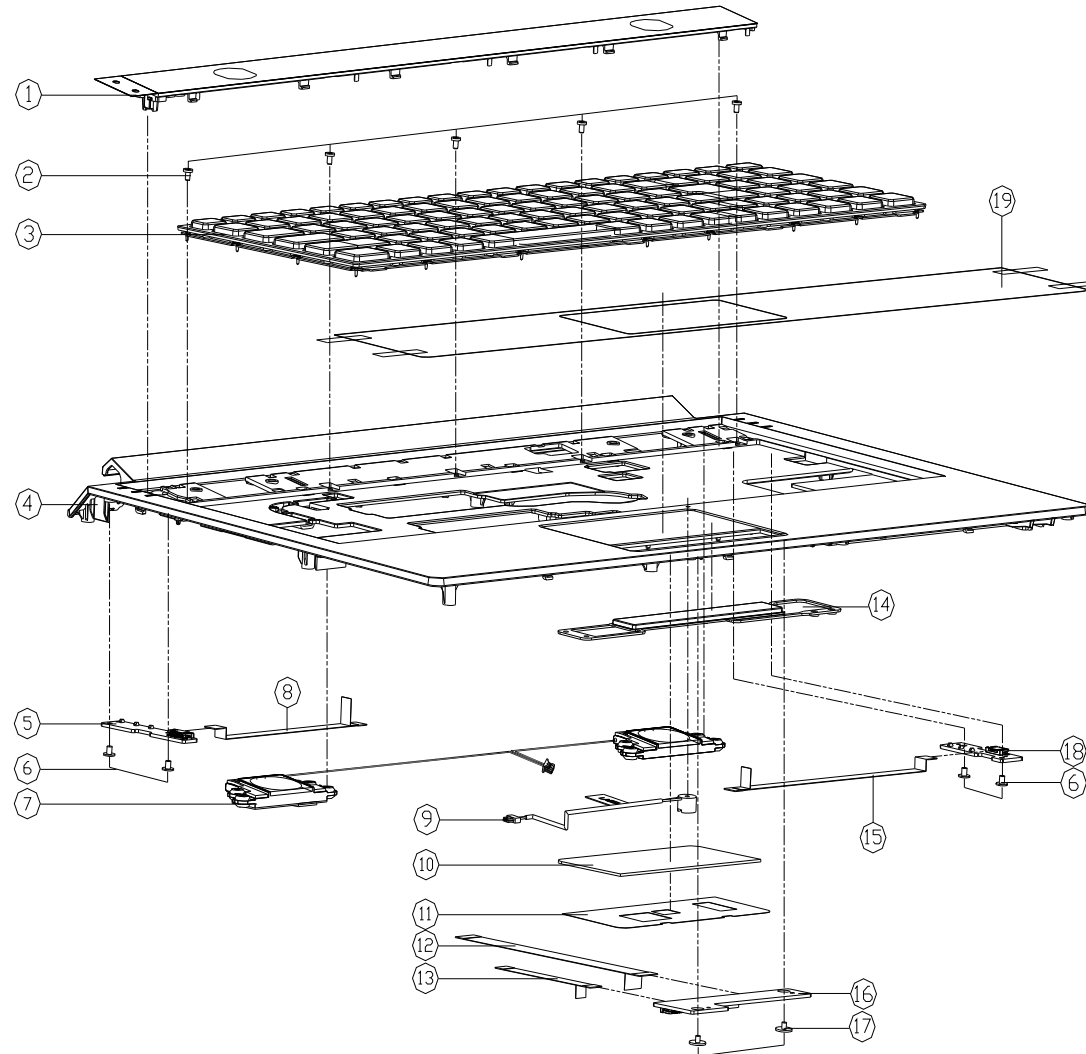
Parts	W870CU
Top with Fingerprint	<i>page A - 3</i>
Top without Fingerprint	<i>page A - 4</i>
Bottom	<i>page A - 5</i>
LCD	<i>page A - 6</i>
COMBO	<i>page A - 7</i>
DVD-Dual Drive	<i>page A - 8</i>
2nd HDD	<i>page A - 9</i>

Top with Fingerprint



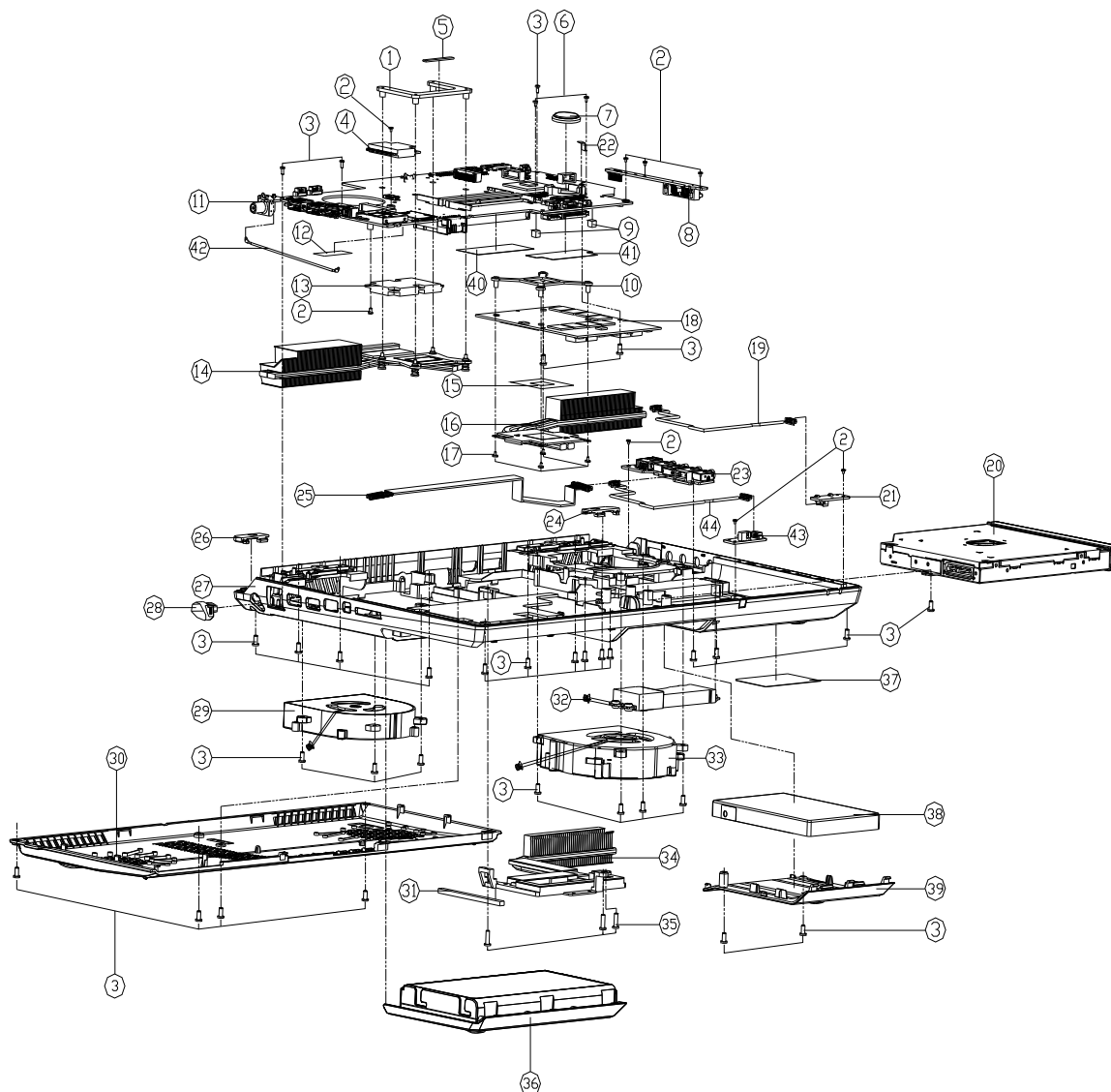
Part Lists

Top without Fingerprint

Figure A - 2
Top without
Fingerprint

ITEM	PART NAME	PART NO	REMARK
1	TOP CENTER COVER MODULE P150HM	6-42-X5102-102	
1	TOP CENTER COVER MODULE P150HM	6-42-P1512-101	
2	SCREW M2X3. KI BZ ICT NY (DD=44.5,DT=04)	6-35-B6120-3RD	
3	K/B USA (BLACK) FRAME (US) MODULE P150HM	6-79-P150HMOK-010	
4	TOP CASE MODULE W/O FINGER P150HM	6-39-X5102-012	
4	TOP CASE MODULE W/O FINGER P150HM	6-39-P1512-011	
5	INDICATORY BOARD V3.0 P150HM	6-77-X510K-D03	
6	SCREW M2X3. KI NI ICT NY (DD=44.5,DT=04)	6-35-B1120-3RE	
7	SPK CABLE R 24X20 145 20W 4? P250HMG04	6-23-X5100-022	
8	FTC CABLE FOR MB TO LED, L BOARD 6PIN P150H	6-43-X5100-072	
9	MC 00050005-TL-0 24-IN 2X 1000000 L-0000000	6-23-EM54G-012	
10	TOUCH PAD SYNAPTICS TM-80146-003 MULTI-GE5	6-49-C4802-010	
11	TOP TOUCH PAD MYLAR PET P150HM	6-40-X5102-010	
12	FTC CABLE FOR CLICK BOARD TO MB TOPIN P150HM	6-43-X5100-062	
13	FTC CABLE FOR TP TO CLICK BOARD 6PIN P150HM	6-43-X5102-011	
14	CLICK BUTTON W/O FINGER PC+ABS P150HM	6-42-X5102-012	
14	CLICK BUTTON W/O FINGERPRINT PC+ABS P150HM	6-42-P1512-031	
15	FTC CABLE FOR MB TO LED, R BOARD 6PIN P150HM	6-43-X5100-012	
16	CLICK BOARD V3.0 (W/O FINGER) P150HM	6-77-X5102-D03-1	
17	SCREW M2X2L KI BK/Z ICT NYX08,T=06	6-35-B6120-2RE	
18	FUNCTION LED BOARD V3.0 P150HM	6-77-X5107-D03	
19	TOP PROTECT FILM SH71S P150HM	6-40-X5108-010	

Bottom

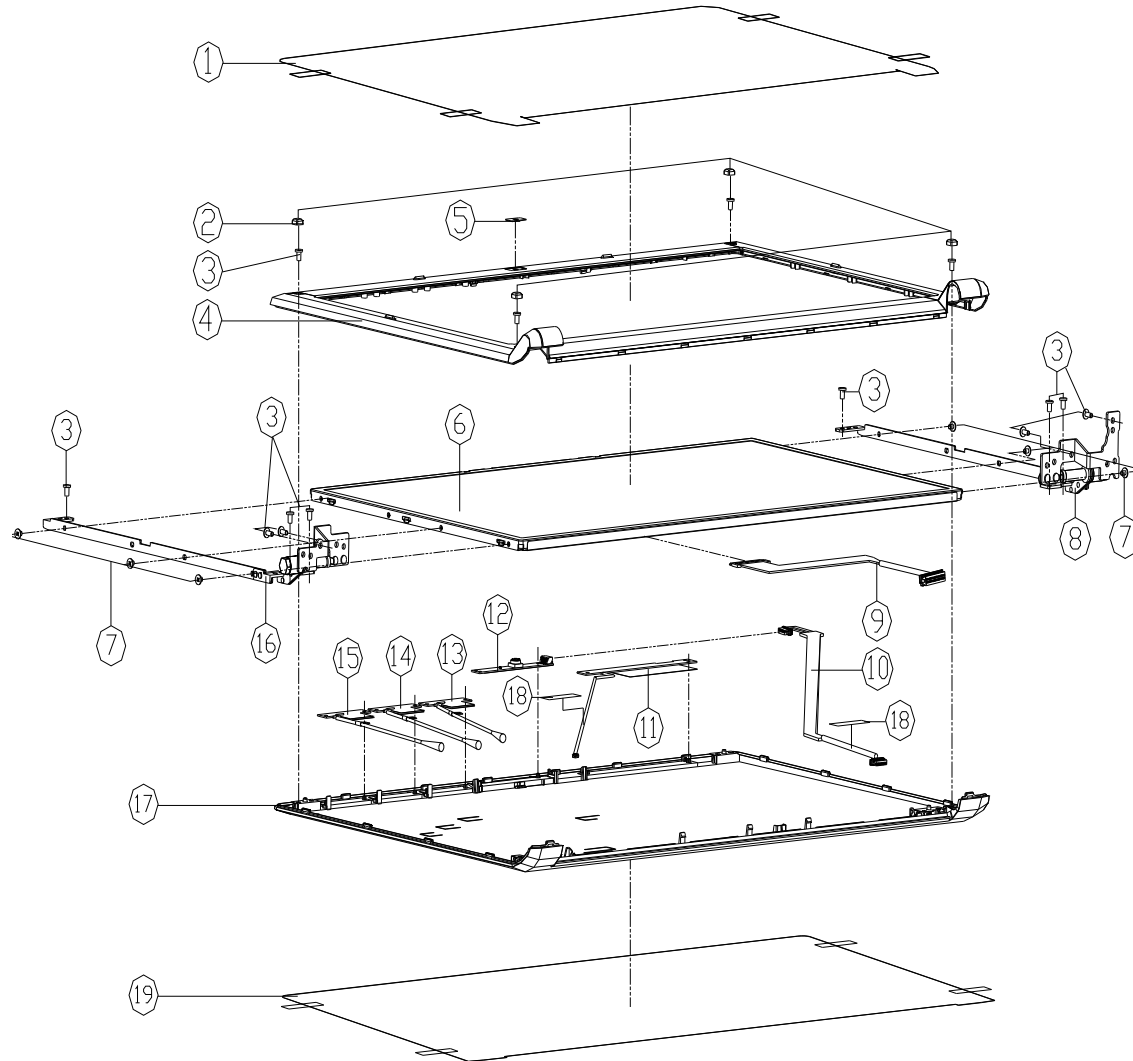


ITEM	PART	NAME	PART NO	REMARK
1	CPU SUPPORT BRACKET SIDE 145 P55W		6-33-XX505-011	
2	SOCKE NVRX 1.0 N. IT NET N. 40-445.014-04		6-35-81120-SRE	
3	SCREW M2.5x6 L 8 BZ KT NYT		6-35-82123-6RA	
4	4 PIN CPU FAN 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-88-M7742-4220	(OPTION)
5	4 PIN CPU FAN 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-88-P1707-4200	(OPTION)
6	4 PIN CPU FAN 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-88-C5557-8701	(OPTION)
7	4 PIN CPU FAN 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-88-W7627-7000	(OPTION)
8	4 PIN CPU FAN 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-88-C5557-5300	(OPTION)
9	4 PIN CPU FAN 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-88-C5557-7000	(OPTION)
10	GAS/ETH/NOISE/3.5 INCH FOR NVR MYLAR NVRX		6-47-00190-35D	
11	SOCKE NVRX KIT-08 B-40 BZ KT NYT		6-35-86120-SRO	
12	BATTERY 2V 200MA CR2032 OUBISHIMA		6-23-62015-607	
13	ODD BRIDGE BOARD V30 P150W		6-77-XX503-010	
14	VGA SUPPORT RUBBER B 3 SLIDING P150W		6-47-XX503-010	
15	VGA SUPPORTER SUS430 X7200		6-33-X7205-040	
16	MAIN BOARD V30 Q/VIO TURBO P150W		6-77-XX503-003	
17	MAIN BOARD V30 Q/VIO TURBO P150W		6-77-XX503-003-1	
18	MAIN BOARD V30 Q/VIO TURBO P150W		6-77-P1510-003	
19	MAIN BOARD V30 Q/VIO TURBO P150W		6-77-P1510-003-1	
20	TAPE MYLAR (C)MYLAR M550J		40-M55J2-030	
21	12 PIN IDEAL RISE 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-88-W1509-910W	
22	CPU HEATSINK MODULE P150W		6-31-XX50N-102	
23	VGA CHIP MYLAR FOR NVR-ME-V8600J		6-40-W8605-0601	ONLY FOR NVR-ME
24	PUGSTO HEATSINK MODULE P150W		6-31-XX50N-0202	ONLY FOR NVR-ME
25	PUGSTO HEATSINK MODULE P150W		6-31-XX50N-0202	ONLY FOR NVR-ME
26	PUGSTO HEATSINK MODULE P150W		6-31-XX50N-0202	ONLY FOR NVR-ME
27	SOCKE NVRX KIT-08 B-40 BZ KT NYT		6-35-82116-385	
28	12 PIN IDEAL RISE 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-77-W860L-112-4	
29	12 PIN IDEAL RISE 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-77-W860L-121-4	
30	VIO CABLE FOR IDEAL RISE 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-43-XX500-041	
31	SATA DVD SUPER MULTI ASSY OPTIO		6-79-P150MDV-001	
32	SATA BLU-RAY WRITER ASSY OPTIO		6-79-P150MDV-001	
33	W/O HDD ASSY P150W		6-79-P150MDV-001	
34	LED BOARD ASSY P150W		6-77-XX504-001A	
35	20 PIN IDEAL RISE 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-40-XX505-020	
36	AUDIO BOARD V30 P150W		6-42-XX502-072	
37	TOP HINGE COVER R P150W		6-42-XX502-072	
38	TOP HINGE COVER R P150W		6-42-P1510-011	
39	VIO CABLE FOR IDEAL RISE 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-43-XX500-031	
40	TOP HINGE COVER L P150W		6-42-XX502-082	
41	TOP HINGE COVER L P150W		6-42-P1510-012	
42	BOTTOM CASE MODULE P150W		6-39-XX503-012	
43	TOP JACK BOARD RUBBER SLIDING P150W		6-47-XX503-012	
44	12 PIN IDEAL RISE 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-23-XX500-012	
45	CPU COVER MODULE P150W		6-42-XX503-102	
46	12 PIN IDEAL RISE 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-47-00190-650	
47	PROXES SUPPORTER 2.5 INCH 3.5 INCH 5.25 INCH		6-23-XX503-012	
48	12 PIN IDEAL RISE 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-31-X7205-101	
49	VRAMSSK HEATSINK MODULE P150W		6-31-XX50N-042	
50	VRAMGTO HEATSINK MODULE P150W		6-31-XX50N-502	
51	SOCKE NVRX KIT-08 B-40 BZ KT NYT		6-35-86120-SRO	
52	12 PIN IDEAL RISE 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-87-XX505-4J72	
53	12 PIN IDEAL RISE 120MM 1.2V 0.15A 1.2W 1.2A 1.2V 1.2A 1.2V 1.2A		6-87-XX505-4J72	(OPTION)
54	PRODUCT LABEL P150W		6-43-P150MDV-010	
55	PRODUCT LABEL P150W		6-43-P150MDV-010	
56	W/HDD ASSY P150W		6-79-P150MDV-020	
57	W/O HDD ASSY P150W		6-79-P150MDV-010	
58	HDD COVER MODULE P150W		6-42-XX50J-102	

**Figure A - 3
Bottom**

Part Lists

LCD

Figure A - 4
LCD

ITEM	PART NAME	PART NO	REMARK
1	LED FRONT COVER PROTECTION MYLAR (PET) 300X510MM	6-40-B51M8-010	
2	LCD HINGE SCREW RUBBER SLICON P150HM	6-47-X5101-021	
3	SCREW M2.5X5L K1 BK/Z ICT NY	6-35-B6125-5RA	
4	LCD FRONT COVER MODULE P150HM	6-39-X5101-012	
5	CCD LENS PC P150HM	6-40-X5101-010	
5	W/O CCD LENS PC P150HM	6-40-X5101-020	
6	LED 156" HD+ AU BISEXPV01 V3 QLED 5.7MM	6-50-LA157-G02	
6	LED 156" HD+ LG LP156WH1-TL42 GLARE TYPE	6-50-LA157-L03	
6	LED 156" FHD AU BISEXPV01 V0 GLARE TYPE	6-50-LB257-G01	
6	LED 156" FHD AU BISEXPV01 V1 QLED 5.7MM	6-50-LB257-G03	
7	SCREW HEX3.0 K1 NI ICT NY (OD=M4.5,DF=H4)	6-35-B1120-3RE	
8	LCD HINGE R SECC P150HM	6-33-X5101-012	
9	WIRE CABLE FOR LED TO MAIN/TO CONNECTOR P150HM	6-43-X5101-011-A	
10	WIRE CABLE FOR CCD SP P150HM (4L)	6-43-X5101-011	
11	MYLAR 3L V01 3L PER 156MM 156X510MM/156X510MM 3L: 300M	6-23-7X510-011	
12	TAPE CONDUCTA BROWN FOR BISEXPV01 HD ON DISSISS W/100SS	6-88-W76SC-4900	
12	TAPE CONDUCTA BROWN FOR BISEXPV01 HD ON CONDUCTA P150HM	6-88-X510C-4900	
13	AUTOTAP MYLAR V01 156" PER 24X2550X510 V01: 400M P150HM	6-23-7X510-032	
14	AUTOTAP MYLAR V01 156" PER 24X2550X510 V01: 400M P150HM	6-23-7X510-042	
15	AUTOTAP MYLAR V01 156" PER 24X2550X510 V01: 400M P150HM	6-23-7X510-022	
16	LCD HINGE L SECC P150HM	6-33-X5101-022	
17	LCD BACK COVER MODULE P150HM	6-39-X5101-022	
17	LCD BACK COVER MODULE P151HM	6-39-P1511-021	
18	TAPE MYLAR (C)MYLAR M550J	6-40-M55J2-030	
19	BACK COVER PRO SH71S P150HM	6-40-X5101-070	

COMBO

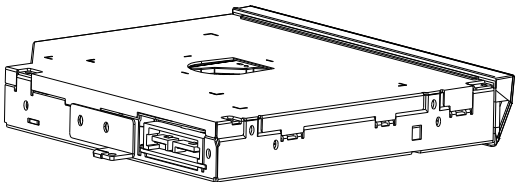
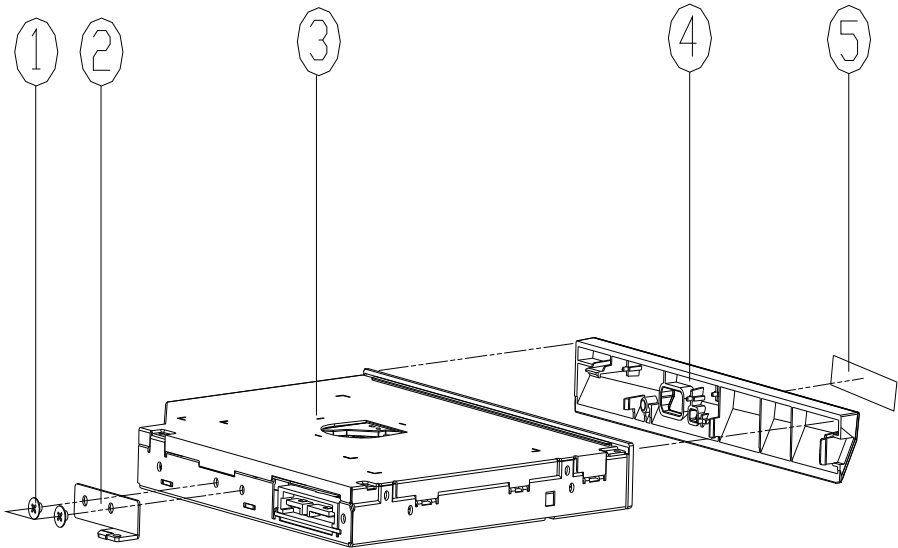


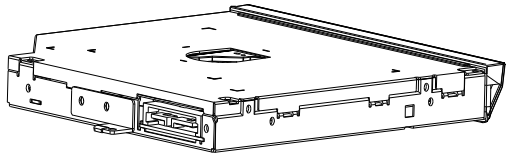
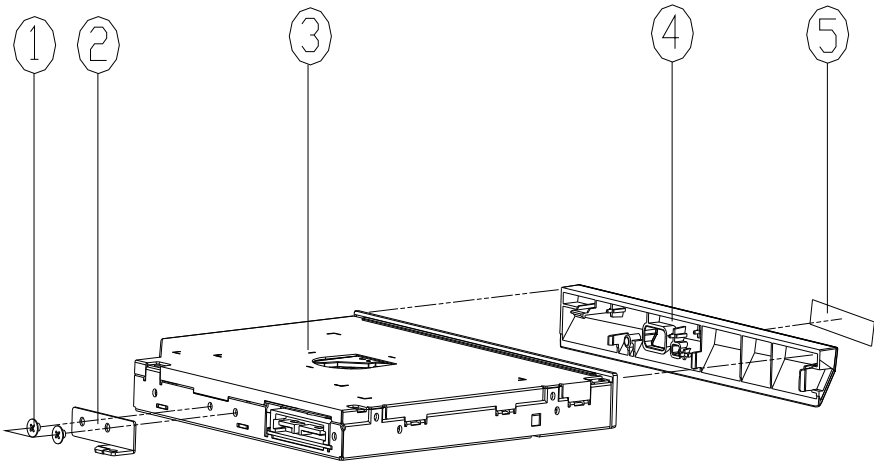
Figure A - 5
COMBO

ITEM	PART NAME	PART NO	REMARK
1	SCREW M2X3L K1 NI 1CT NY (DD=04.5,D1=0.4)	6-35-B1120-3RE	
2	ODD BRACKET SECC T=0.8 P150HM	6-33-X510Z-011	
3	DATA DVD-RW WRITER'S TOP PLATE IS USED FOR THE TOP PLATE VARIANTS / SUPPORT PANASONIC	6-85-B076X-P21	FOR PANASONIC
3	DATA DVD-RW COMBO'S TOP PLATE IS USED FOR THE TOP PLATE VARIANTS / ZHD POWER HLDS	6-85-B076X-512	FOR HLDS
4	ODD BEZEL MODULE P150HM	6-42-X510Z-102	
5	ODD BEZEL LABELSUPER MULTIXBLU-RAY W760S (7-#53)	6-45-W76SW-010-1	

Part Lists

DVD-Dual Drive

Figure A - 6
DVD-Dual Drive



ITEM	PART NAME	PART NO	REMARK
1	SCREW M2x3L K1 NI ICT NY (DD-#45,DT-0.4)	6-35-B1120-3RE	
2	ODD BRACKET SECC T=0.8 P150HM	6-33-X510Z-011	
3	ODD BEZEL MODULE P150HM	6-42-X510Z-102	
4	ODD BEZEL LABEL(SUPER MULTI) W760S (中国)	6-45-W76SZ-010-1	
5	ODD BEZEL LABEL(SUPER MULTI) W760S (中国)	6-45-W76SZ-010-1	

2nd HDD

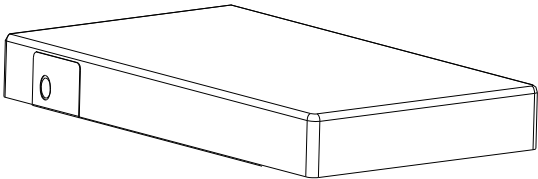
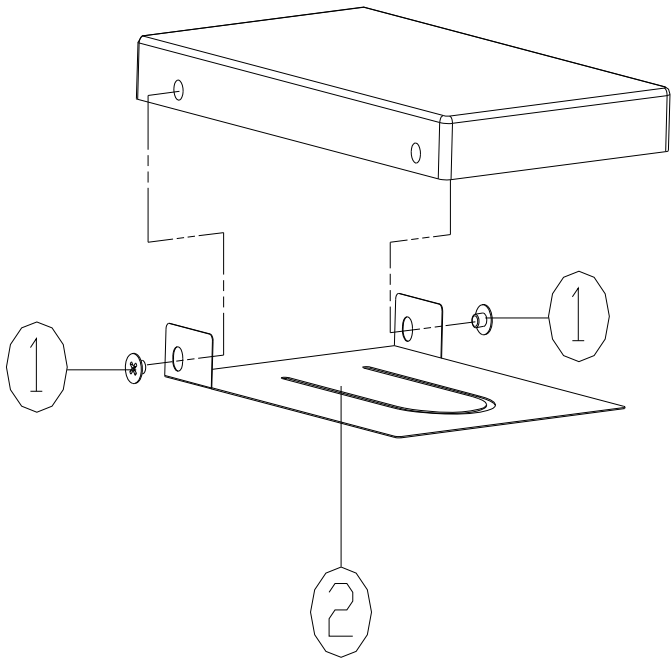


Figure A - 7
2nd HDD

ITEM	PART	NAME	PART	NO	REMARK
1	SCREW	M3*2.5L KI NI ICT NY	6-35-B1130-2R5		
2	HDD	MYLAR PET+SPONGE P150HM	6-40-X510J-011		

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the **P150HM/P151HM1** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Table B - 1
**Schematic
Diagrams**

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



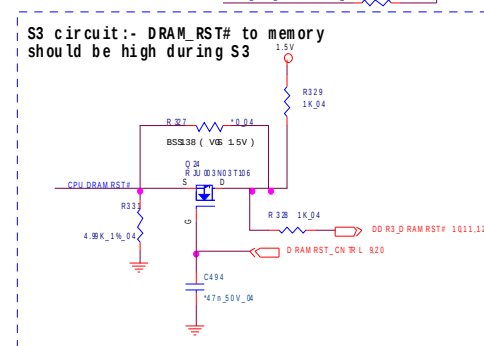
Version Note

The schematic diagrams in this chapter are based upon version 6-7P-X510D-001. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

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



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

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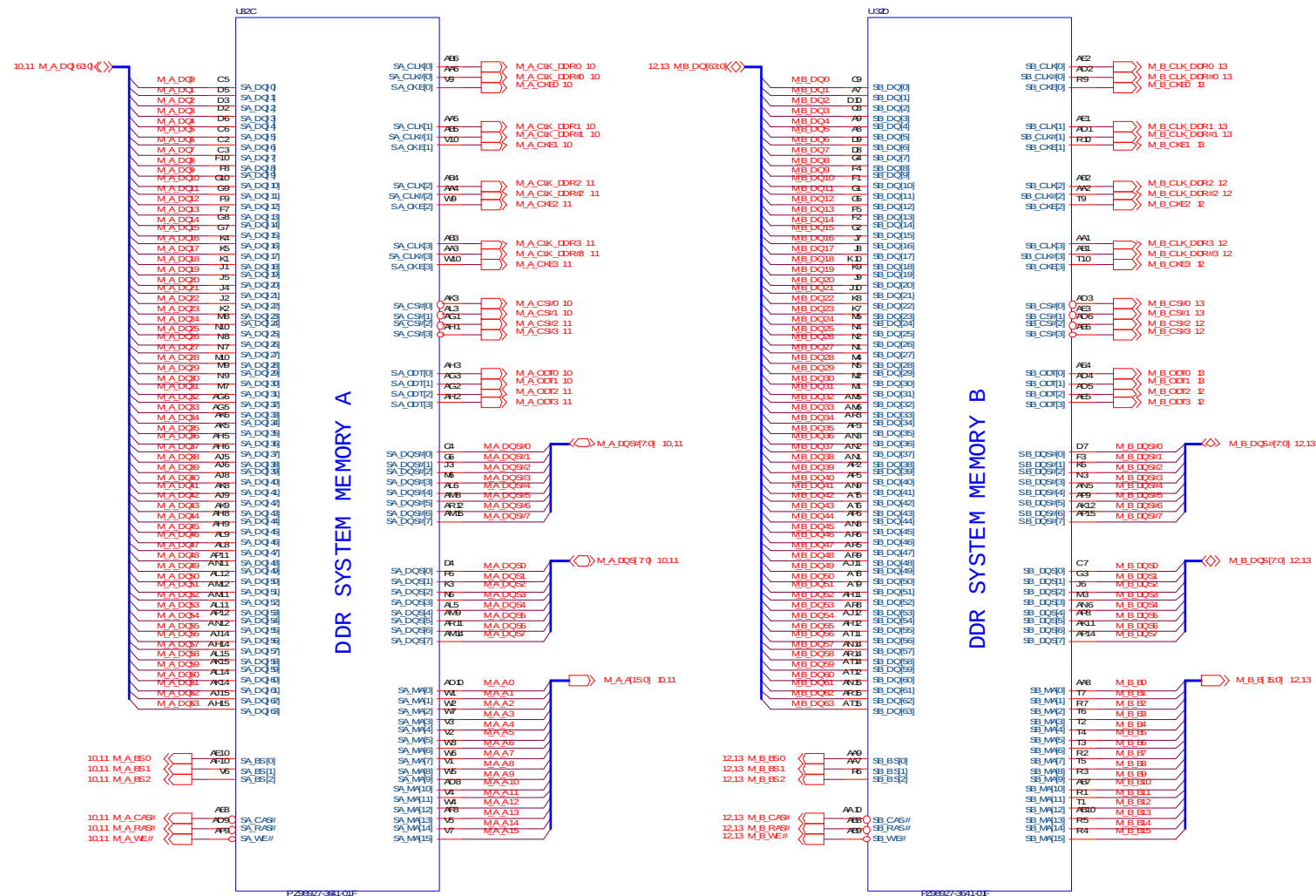
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33V    3,9,14,15,19,20,21,23,24,25,26,28,29,30,32,33,36,37,39,40,41,42
15V     9,10,11,12,13,26,30,37,38,41
15VS_CPU 7,39
105VS_VTT 3,6,24,25,26,40,43

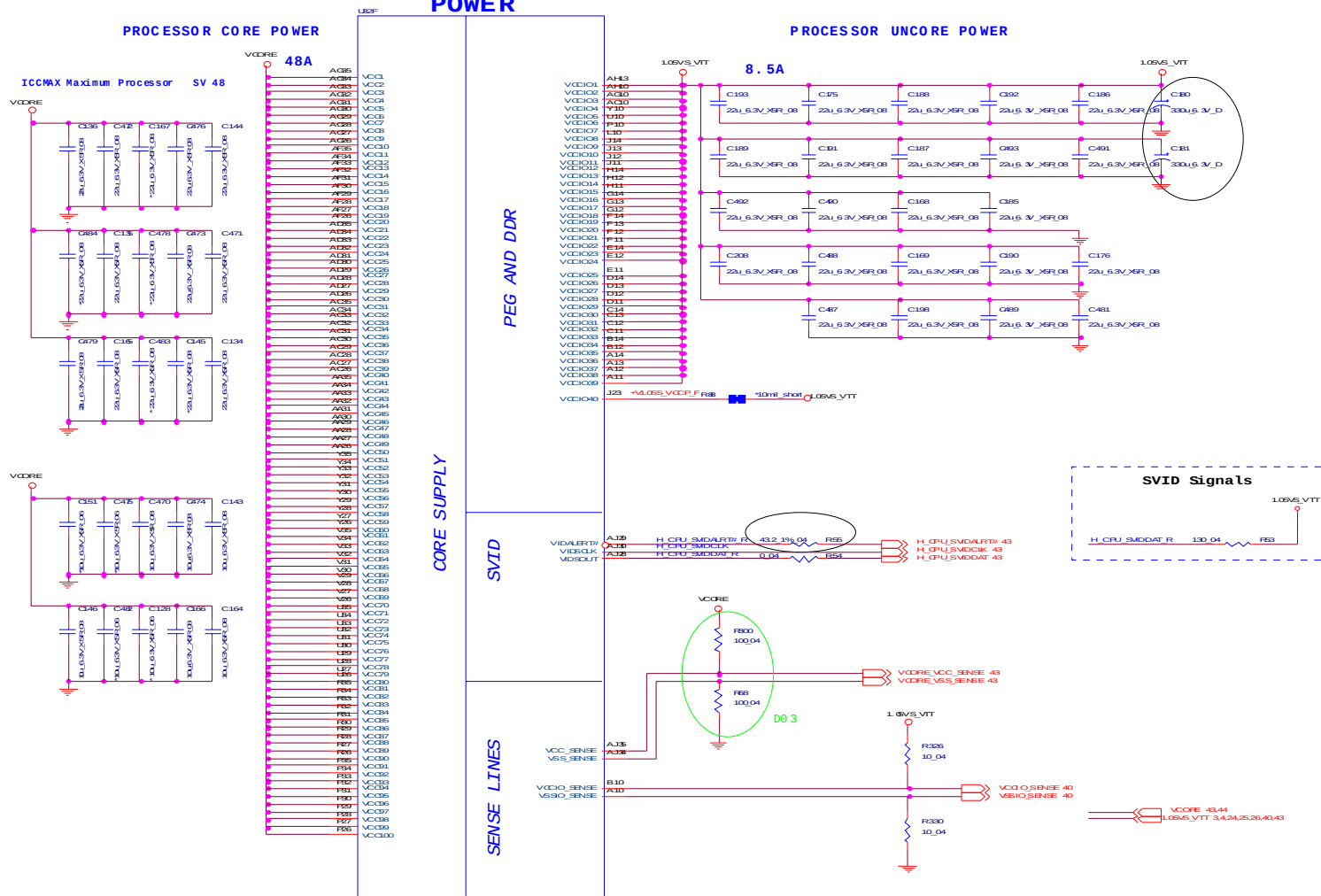
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Processor 3/7

Sandy Bridge Processor 3/7 (DDR3)

Sheet 4 of 58
Processor 3/7

Sandy Bridge Processor 4/7 (POWER)



Sandy Bridge Processor 5/7 (GRAPHICS POWER)

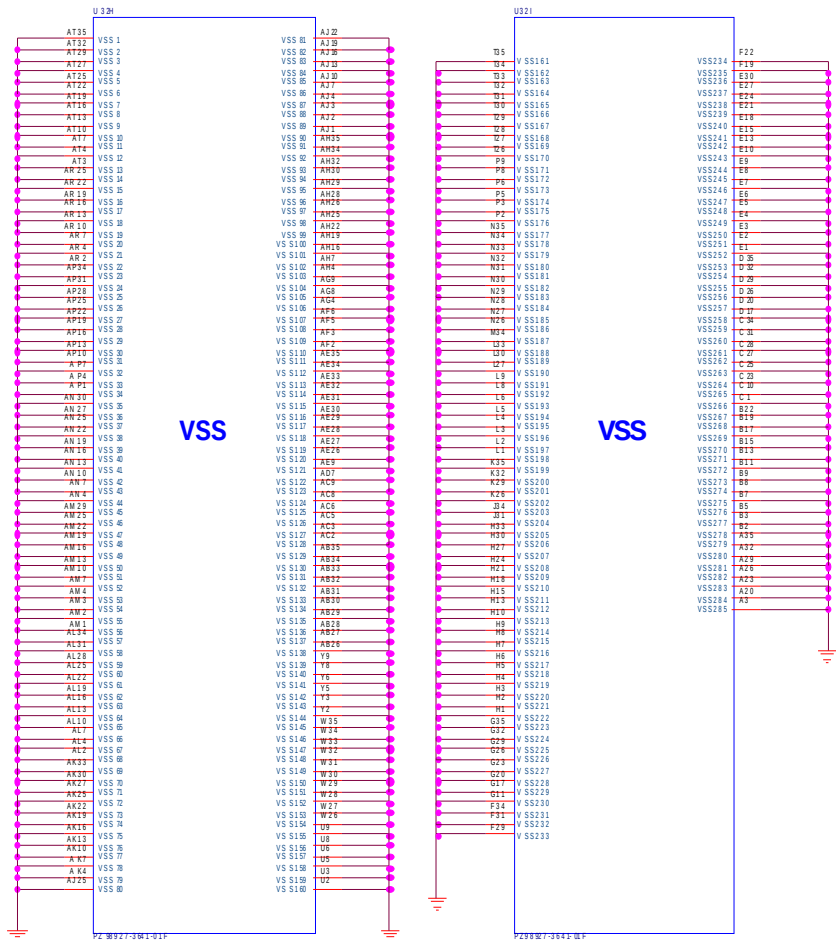


Processor 6/7

Sandy Bridge Processor 6/7 (GND)

B.Schematic Diagrams

Sheet 7 of 58
Processor 6/7



2539 1.5V8
4,10,11,12,13,14,15,16,17,18,19,20,21,22,24,25,26,29,30,32,33,34,36,39,40,45,58 3.3V8

Processor 7/7 B - 9

Sheet 8 of 58
Processor 7/7

RESERVED

74VHC00 14-PIN DIP

1.0V/NC, 1.05V

RESERVED

RESERVED

KEY

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3.3V	3, 4, 14, 15, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 32, 35, 36, 37, 39, 40, 41, 42
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1.5V	4, 10, 11, 12, 13, 26, 30, 37, 39, 41

3.3V	3, 4, 14, 15, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 32, 35, 36, 37, 39, 40, 41, 42
1.5V	4, 10, 11, 12, 13, 26, 30, 37, 39, 41

3.3V	3, 4, 14, 15, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 32, 35, 36, 37, 39, 40, 41, 42
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3.3V	3, 4, 14, 15, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 32, 35, 36, 37, 39, 40, 41, 42
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3.3V	3, 4, 14, 15, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 32, 35, 36, 37, 39, 40, 41, 42
1.5V	4, 10, 11, 12, 13, 26, 30, 37, 39, 41

3.3V	3, 4, 14, 15, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 32, 35, 36, 37, 39, 40, 41, 42
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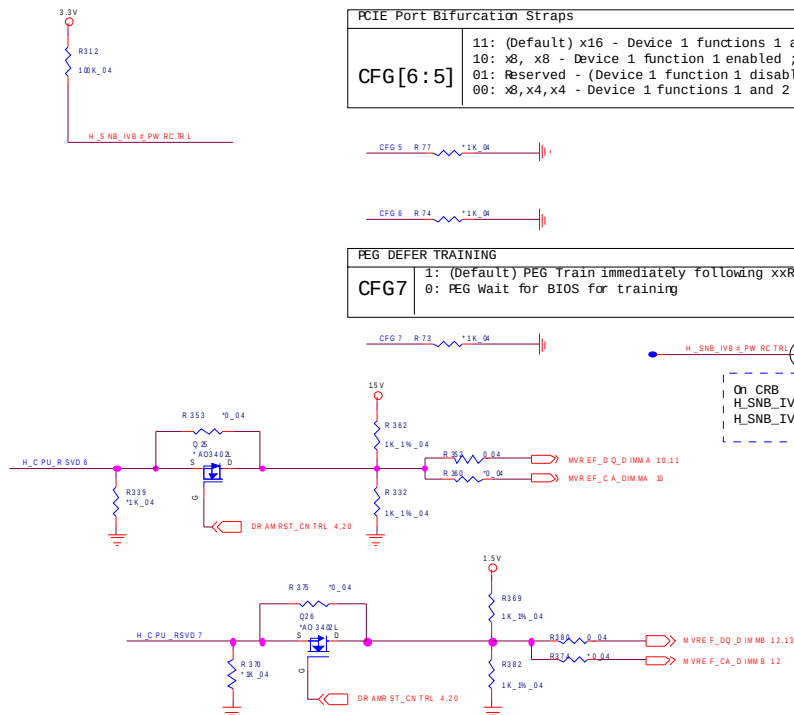
3.3V	3, 4, 14, 15, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 32, 35, 36, 37, 39, 40, 41, 42
1.5V	4, 10, 11, 12, 13, 26, 30, 37, 39, 41

3.3V	3, 4, 14, 15, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 32, 35, 36, 37, 39, 40, 41, 42
1.5V	4, 10, 11, 12, 13, 26, 30, 37, 39, 41

3.3V	3, 4, 14, 15, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 32, 35, 36, 37, 39, 40, 41, 42
1.5V	4, 10, 11, 12, 13, 26, 30, 37, 39, 41

3.3V	3, 4, 14, 15, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 32, 35, 36, 37, 39, 40, 41, 42
1.5V	4, 10, 11, 12, 13, 26, 30, 37, 39, 41

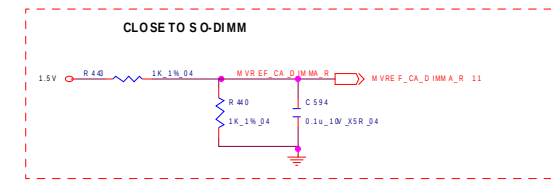
3.3V	3, 4, 14, 15, 19, 20, 21, 23, 24, 25, 26, 28, 29, 30, 32, 35, 36, 37, 39, 40, 41, 42
1.5V	4, 10, 11, 12, 13, 26, 30, 37, 39, 41



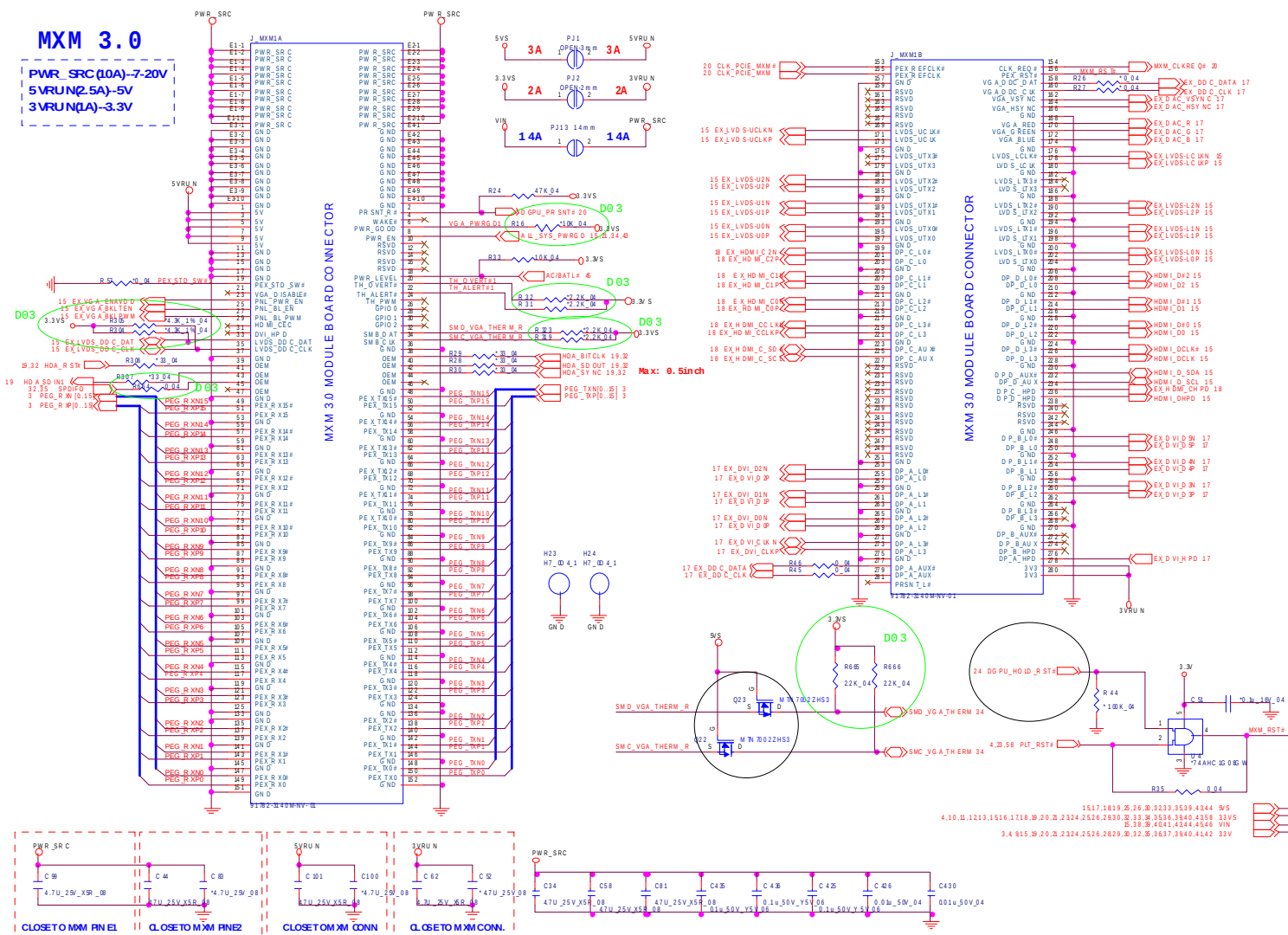
B.Schematic Diagrams

Channel A SO-DIMM 0

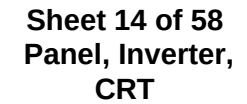
Layout Note:
signal/space/signal:
8 / 4 / 8



Sheet 13 of 58
MXM PCI-E



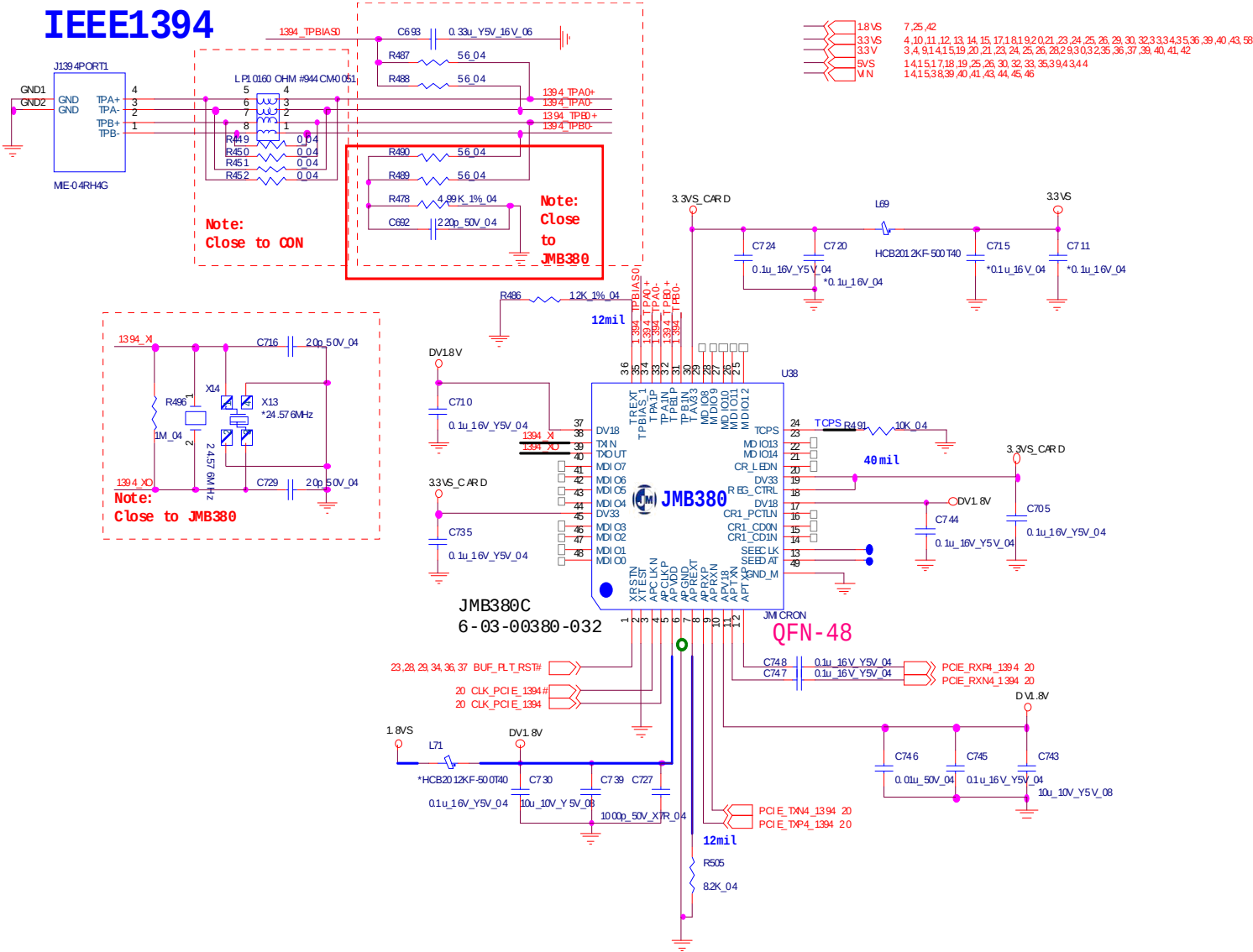
PANEL



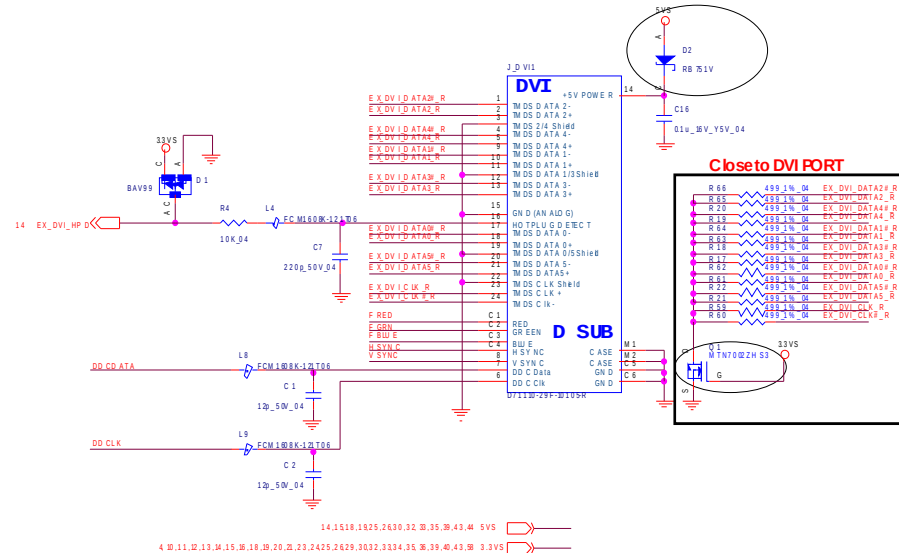
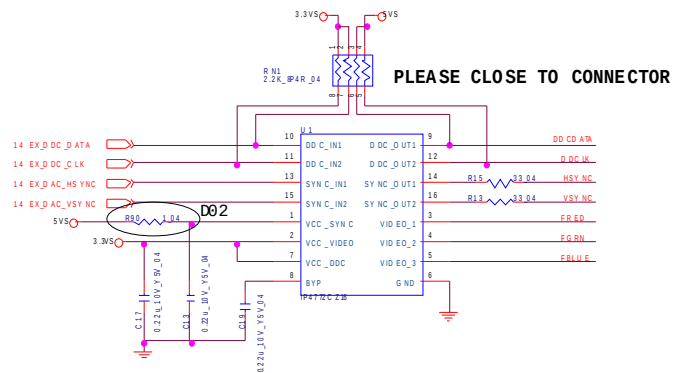
Schematic Diagrams

1394_JMB380C

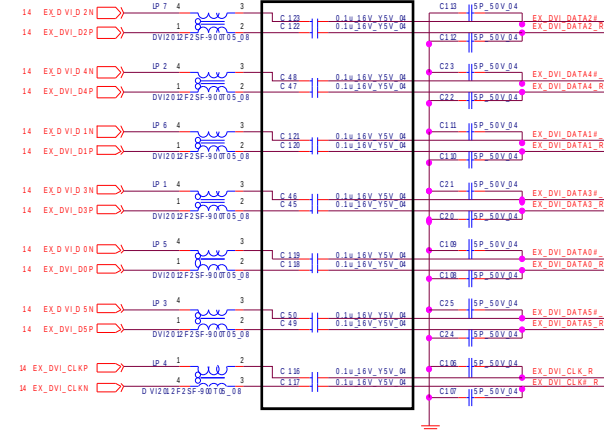
IEEE1394



B.Schematic Diagrams



Close to DVI PORT



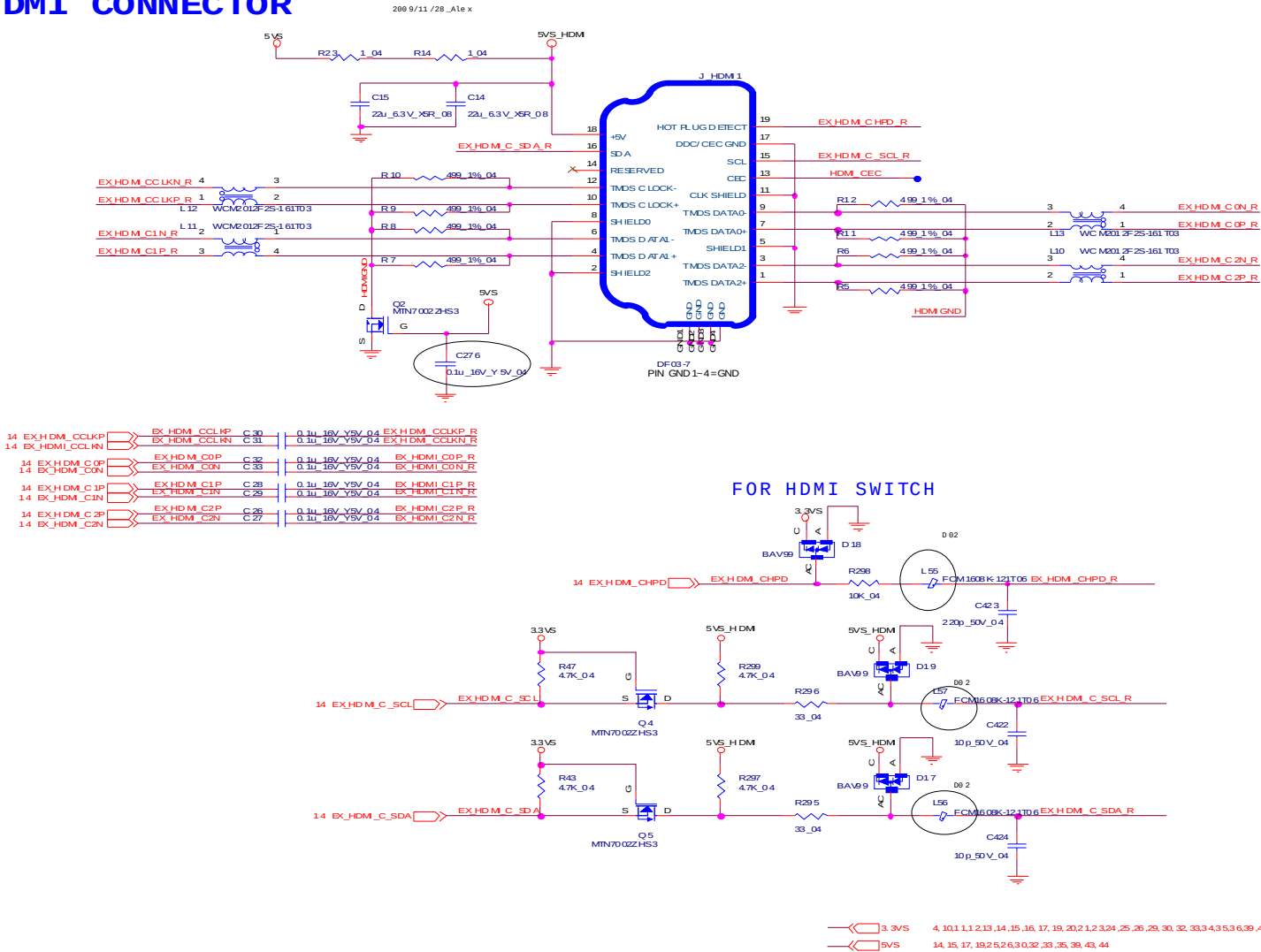
Sheet 16 of 58
DVI

Schematic Diagrams

HDMI

HDMI CONNECTOR

Sheet 17 of 58
HDMI



CougarPoint - M (HDA, JTAG, SATA)

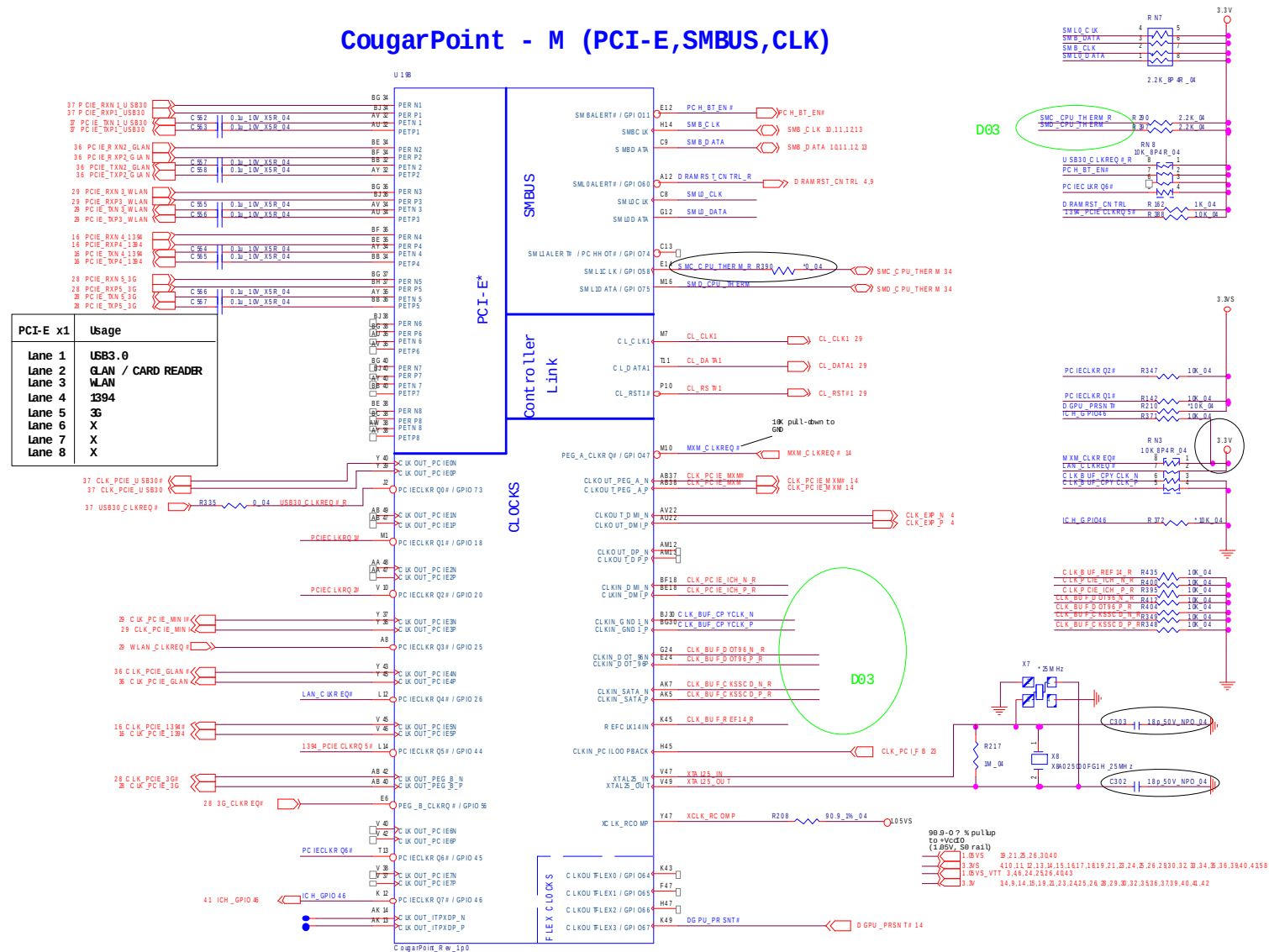


Schematic Diagrams

CougarPoint - M 2/9

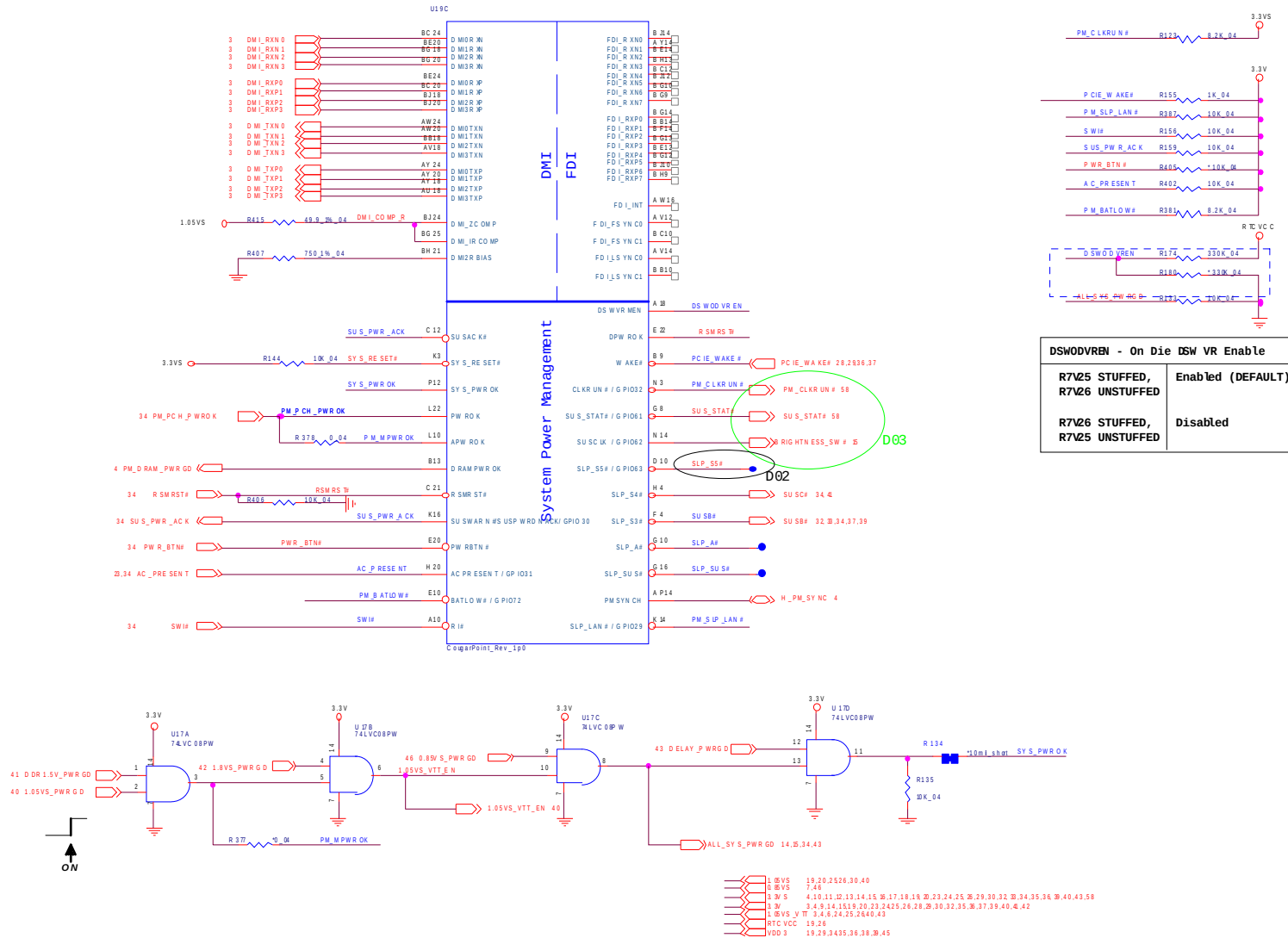
CougarPoint - M (PCI-E,SMBUS,CLK)

Sheet 19 of 58
CougarPoint - M 2/9



CougarPoint - M 3/9

CougarPoint -M (DMI, FDI, GPIO)



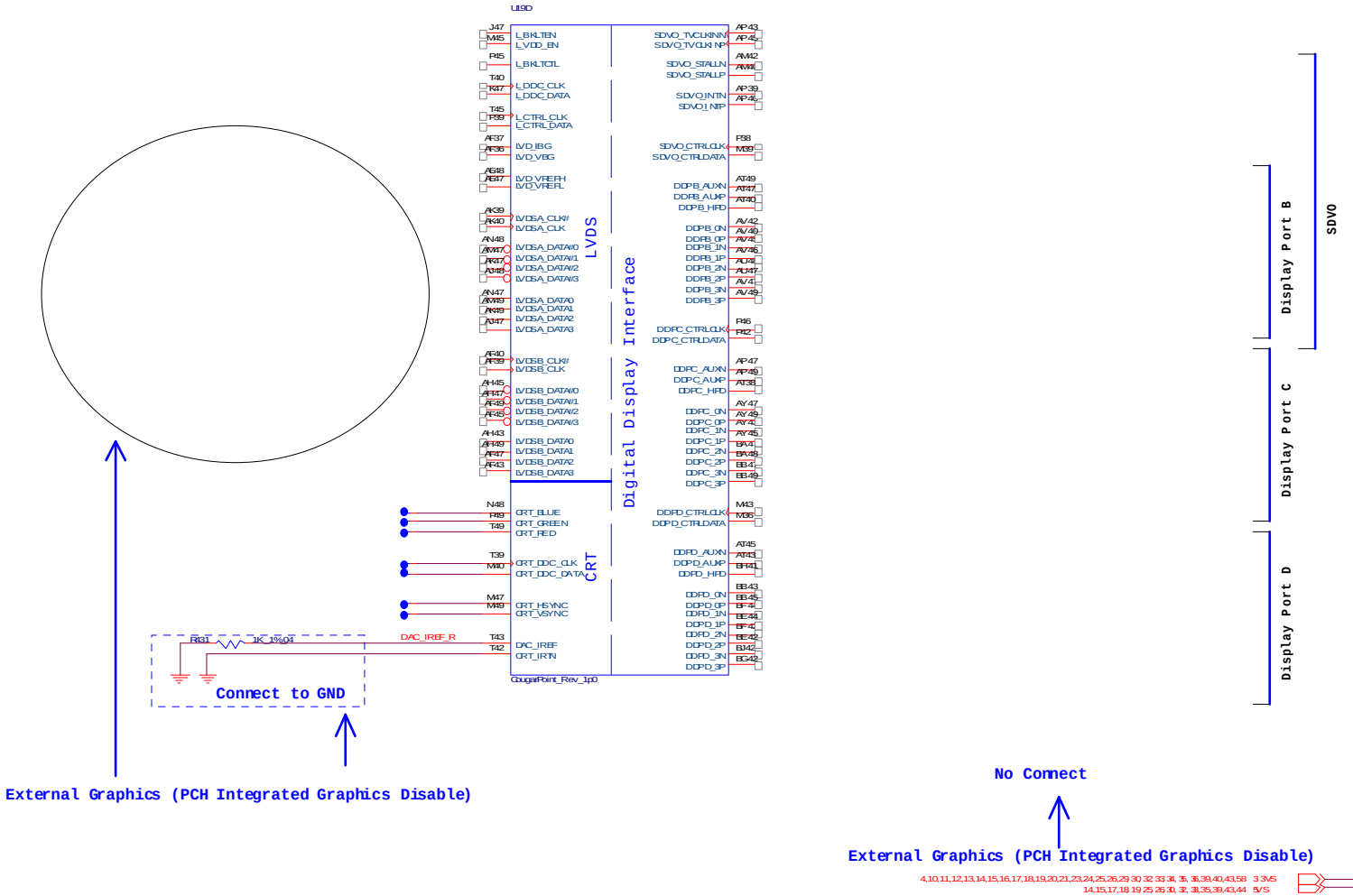
Sheet 20 of 58
CougarPoint - M 3/9

Schematic Diagrams

CougarPoint - M 4/9

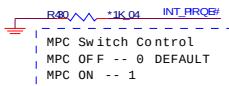
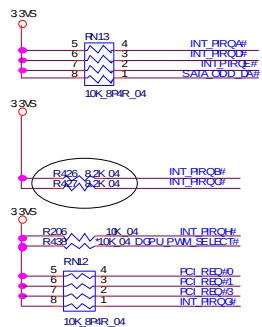
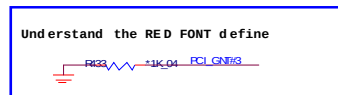
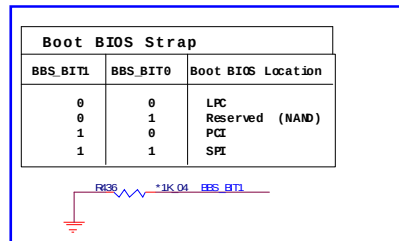
CougarPoint -M (LVDS, DDI)

Sheet 21 of 58
CougarPoint - M 4/9

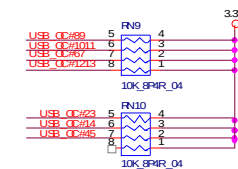
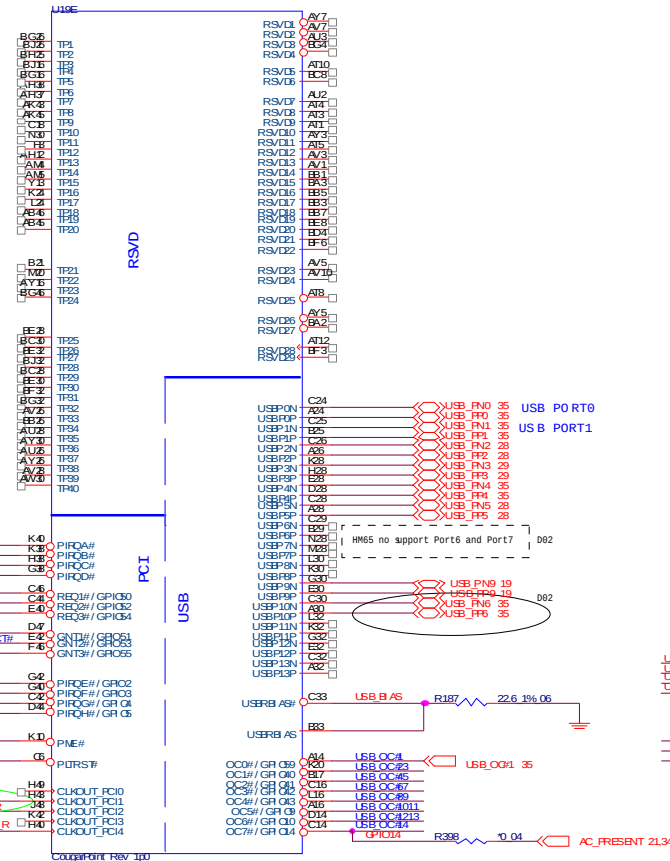
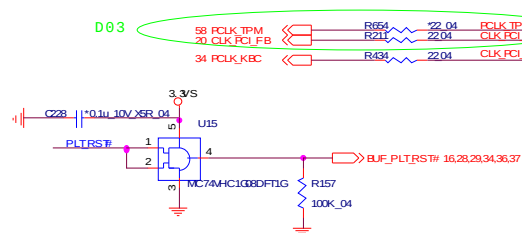


CougarPoint - M 5/9

CougarPoint -M (PCI,USB,NVRAM)

Sheet 22 of 58
CougarPoint - M 5/9

PIN PLT_RST# to Buffer



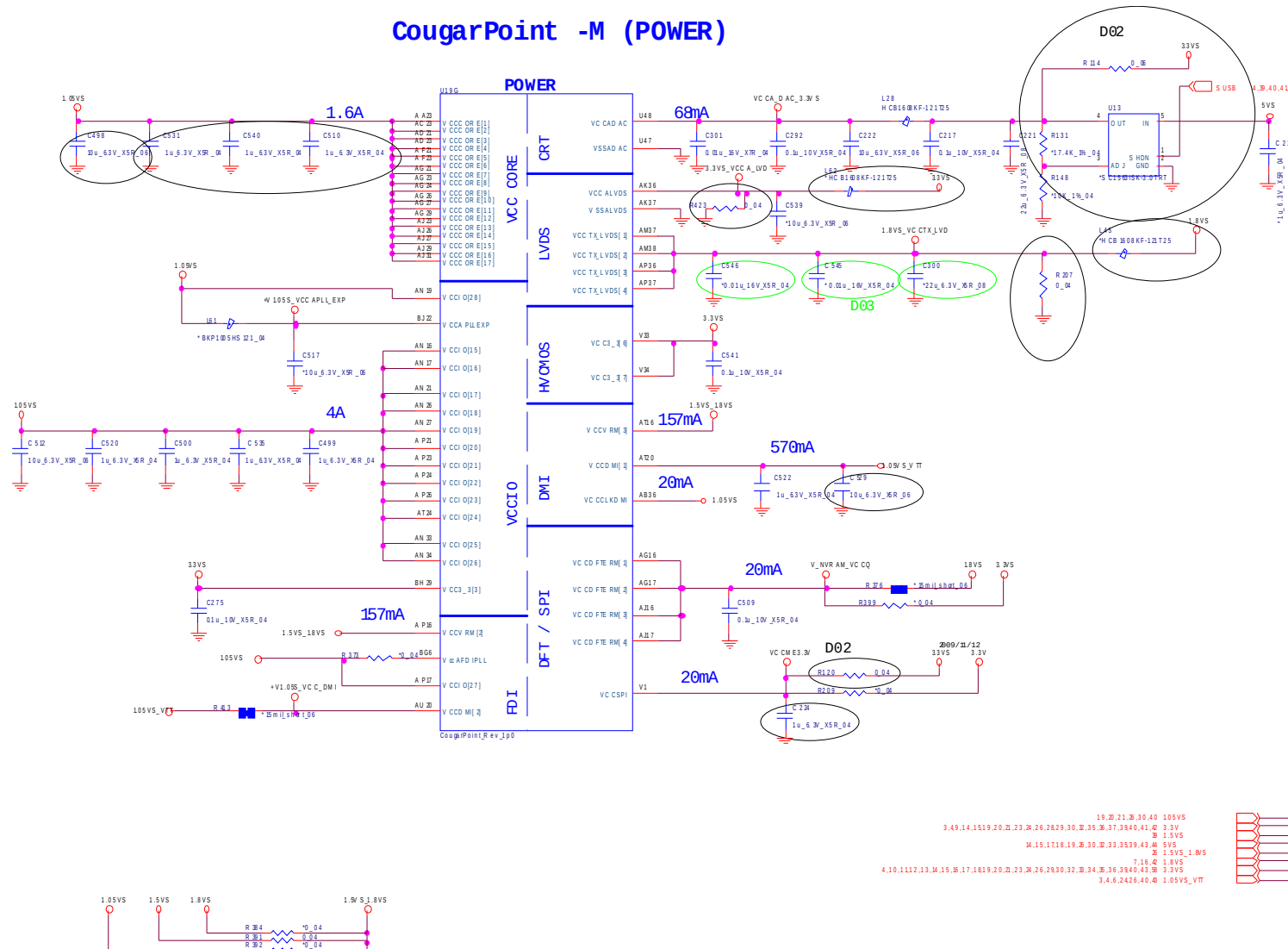
4,10,11,12,13,14,15,16,17,18,19,20,21,24,25,26,29,30,32,33,34,35,36,39,40,43,58 3.3V5
3,4,9,14,15,19,20,22,24,25,26,29,30,32,35,36,37,39,40,41,42 3.3V

CougarPoint - M 6/9

[illegible]

CougarPoint - M 7/9

CougarPoint -M (POWER)

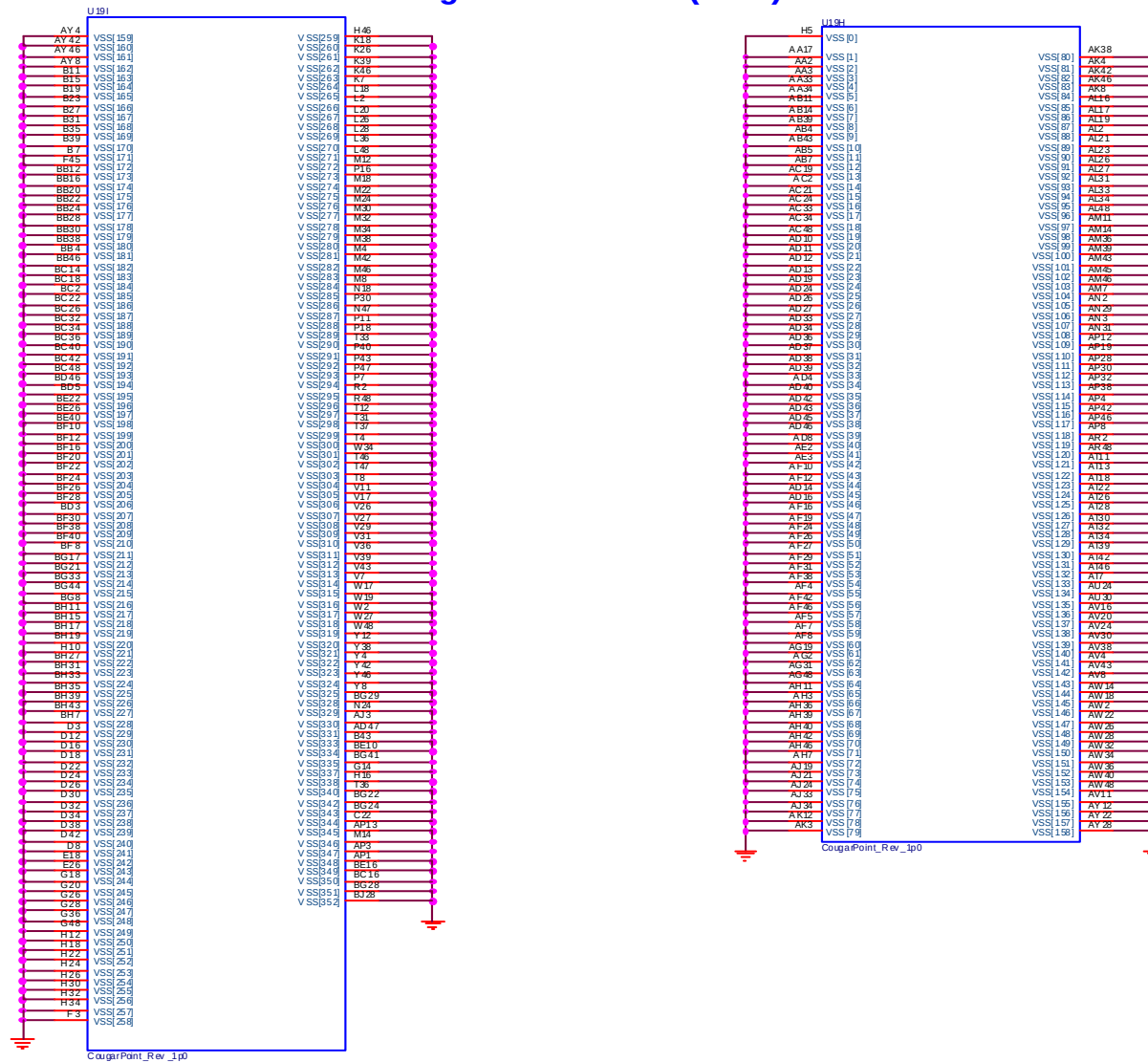


Sheet 24 of 58
CougarPoint - M 7/9

B.Schematic Diagrams

CougarPoint - M 9/9

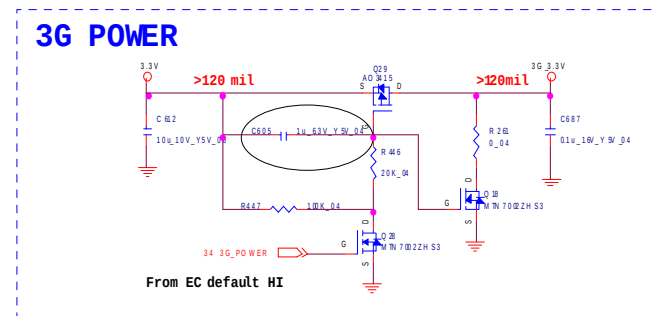
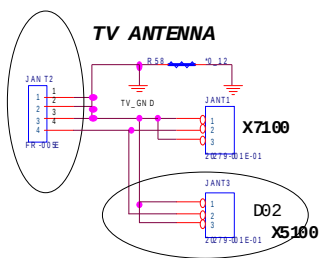
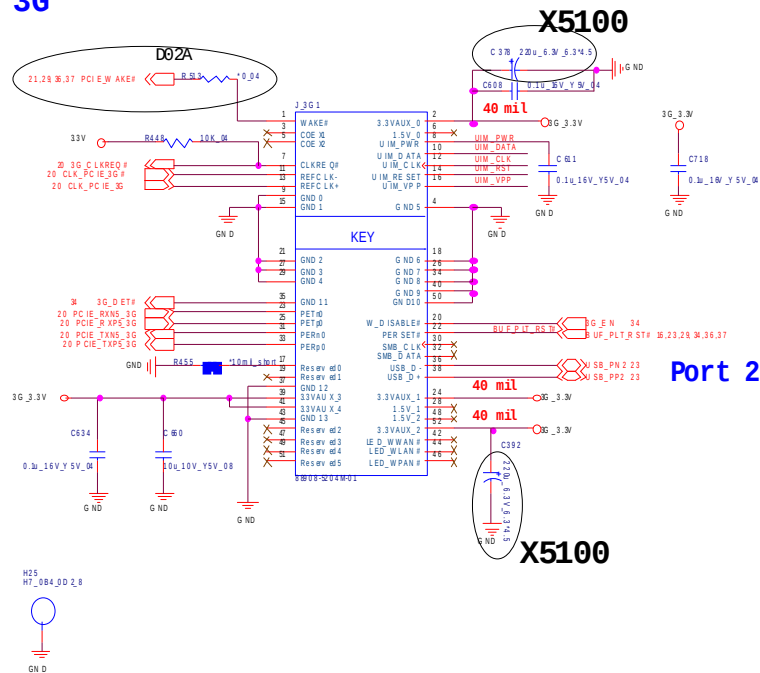
CougarPoint -M (GND)

Sheet 26 of 58
CougarPoint - M 9/9

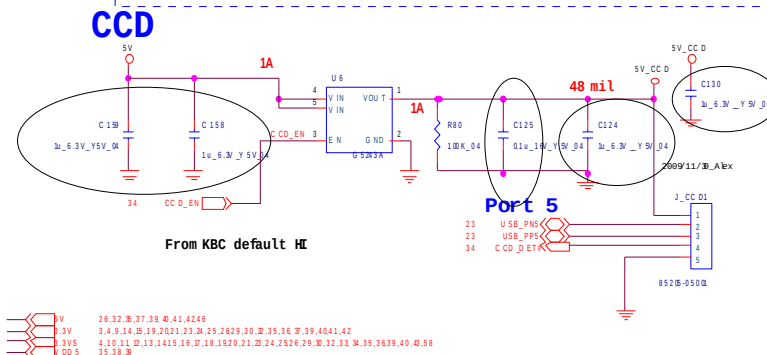
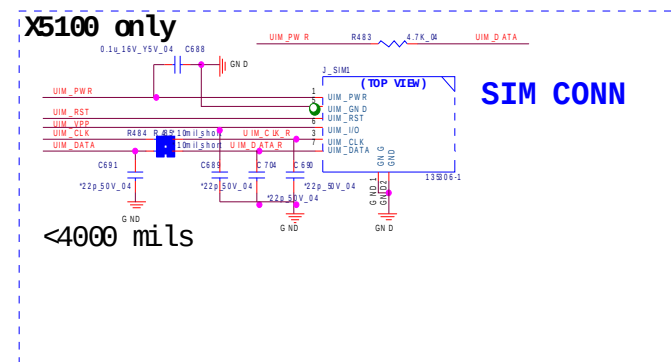
3G, CCD

3G

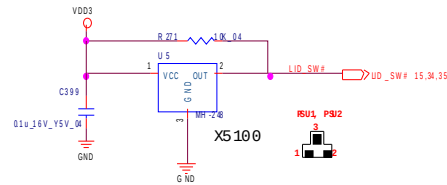
Sheet 27 of 58
3G, CCD



Port 2

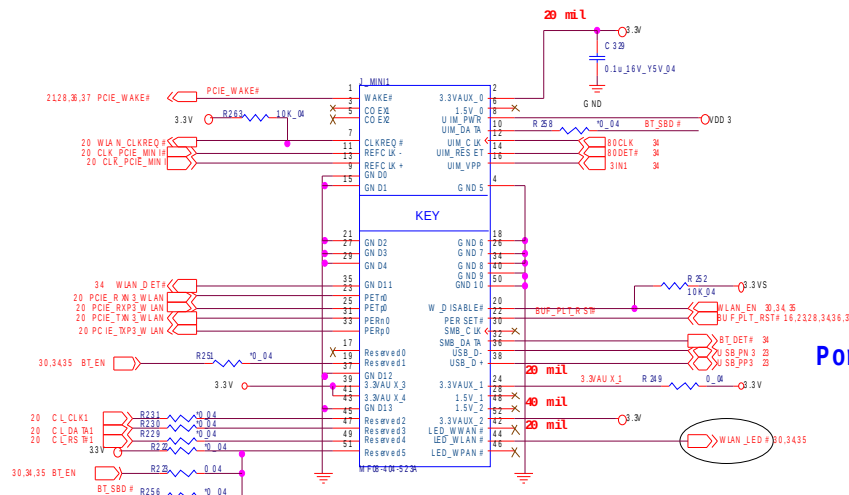


Mini PCIE, LID



LID SWITCH IC

Sheet 28 of 58
Mini PCIE, LED



MINI CARD

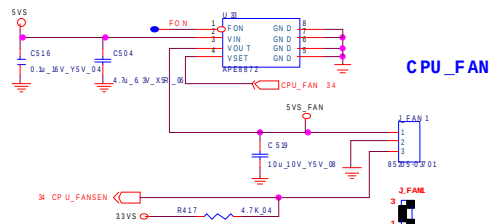
Port 3

3.3V	410,1112,1314,15,16,17,1819,2021,2324,25,26,30,3233,3435,3639,40,43,38
1.5V	30,34,35,36,38,3945
3.3V	34,9,1415,1920,21,23,24,2526,2630,3235,36,37,38,4041,42

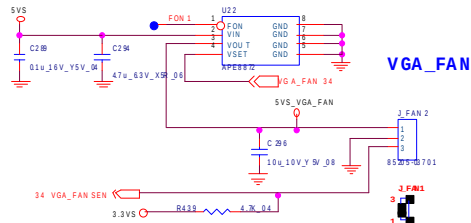
Schematic Diagrams

LED, Hotkey, LID SW, Fan

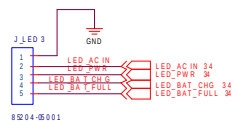
CPU FAN CONTROL



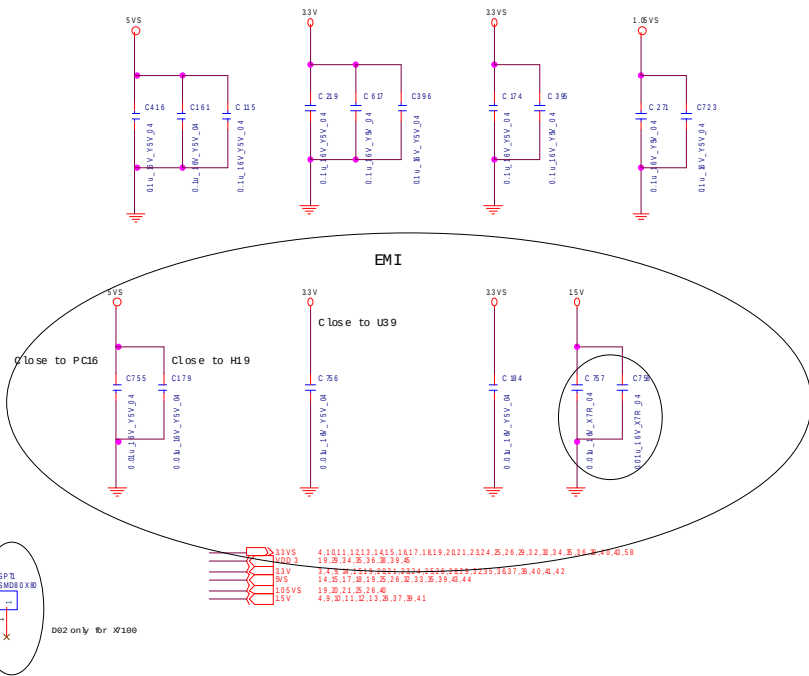
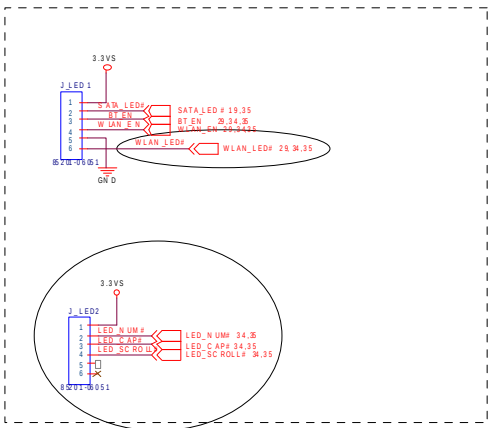
VGA FAN CONTROL



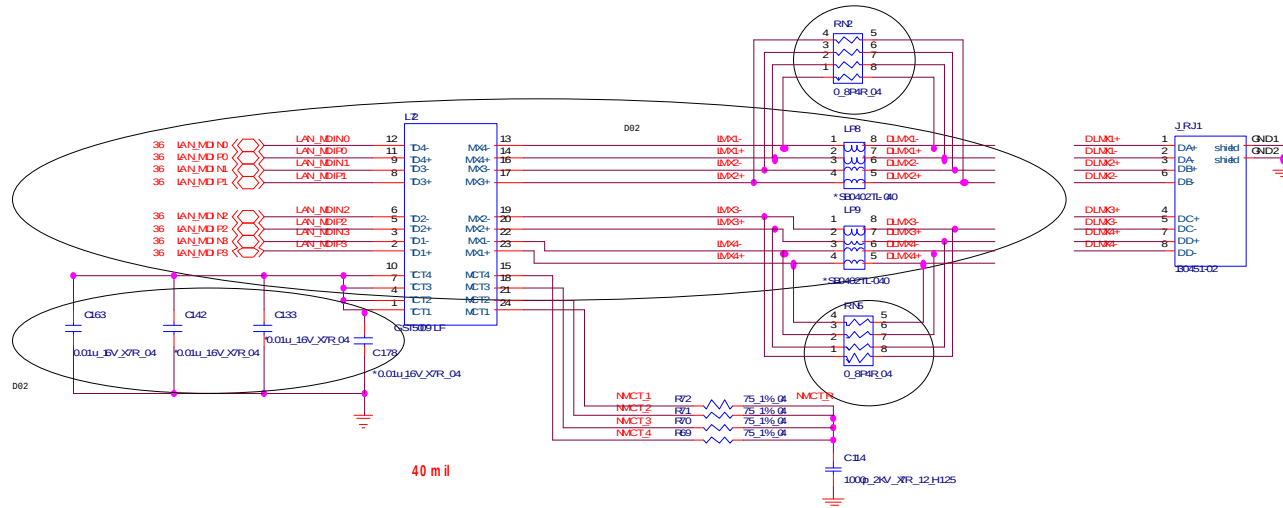
Sheet 29 of 58
LED, Hotkey, LID
SW, Fan



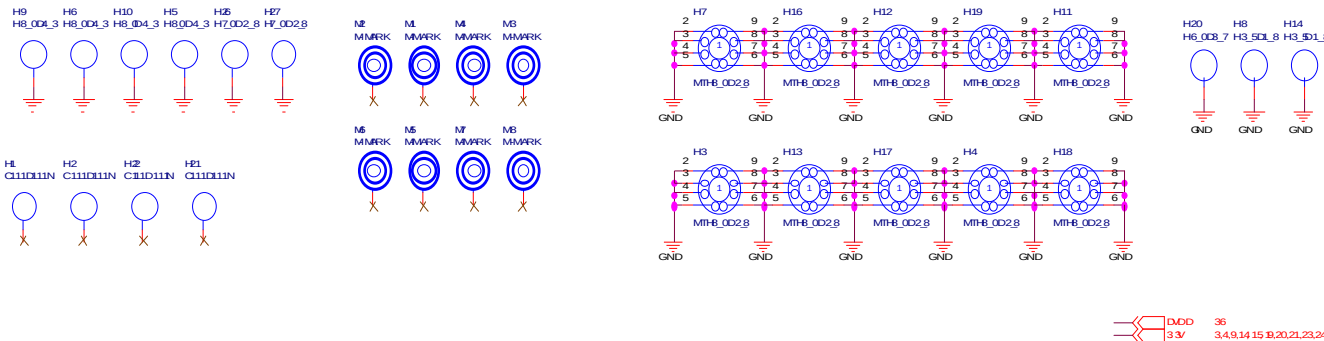
x5100 only



RJ 45

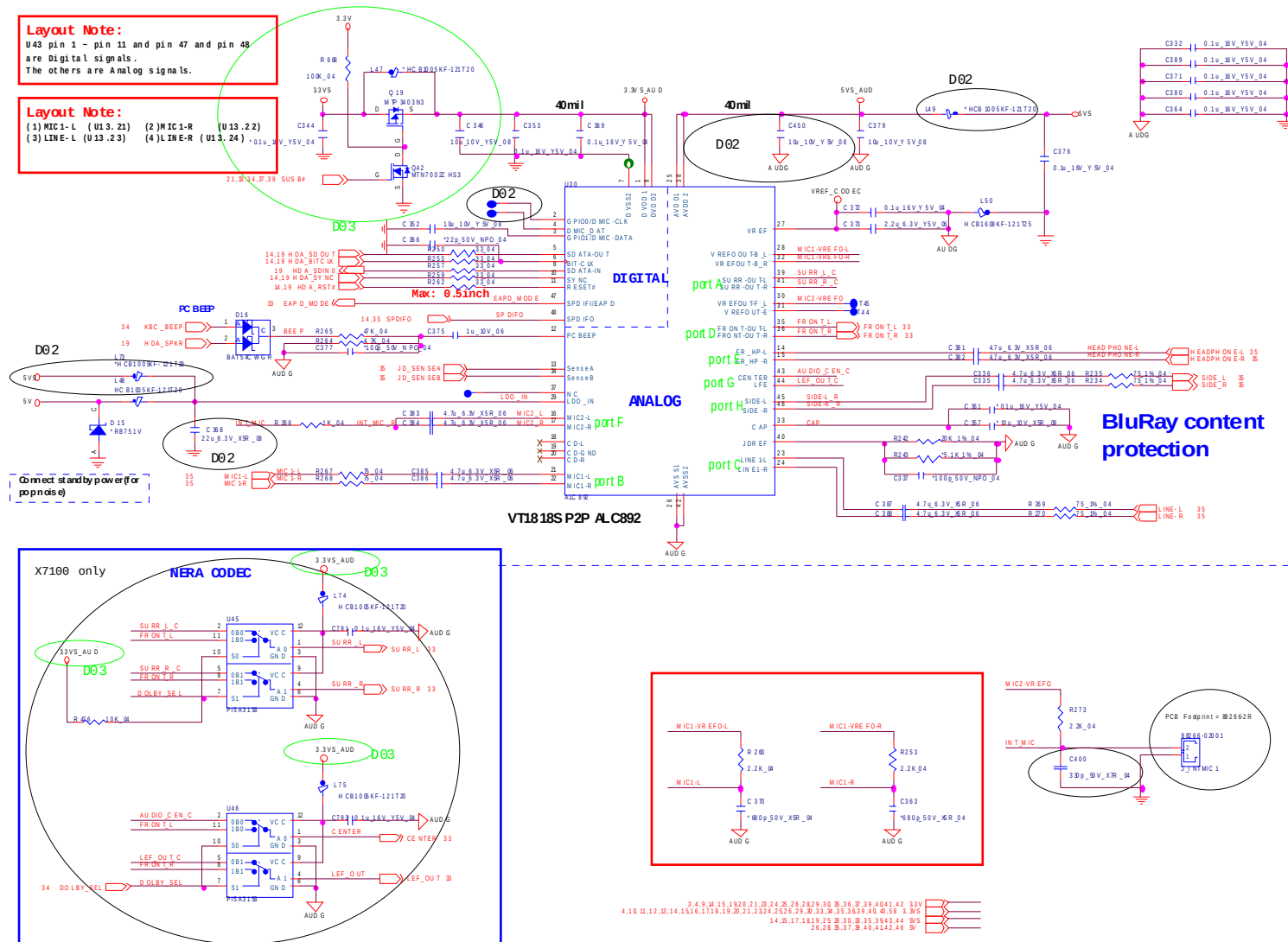


Sheet 30 of 58
RJ 45

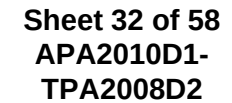


B.Schematic Diagrams

Sheet 31 of 58
Codec Realtek
ALC892



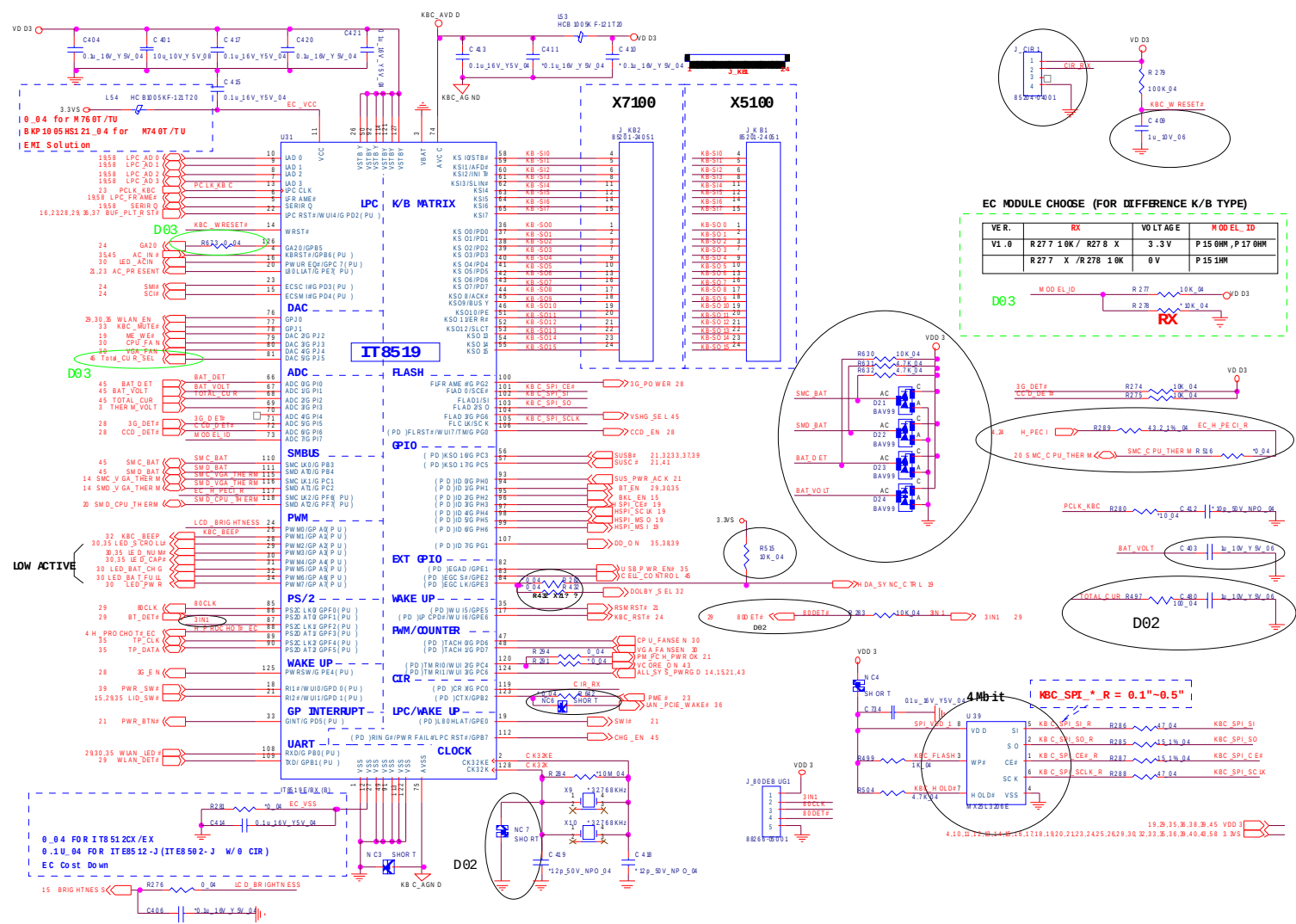
AUDIO AMP



Schematic Diagrams

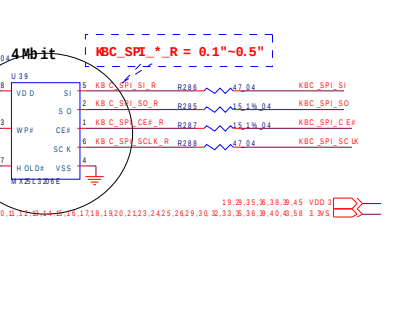
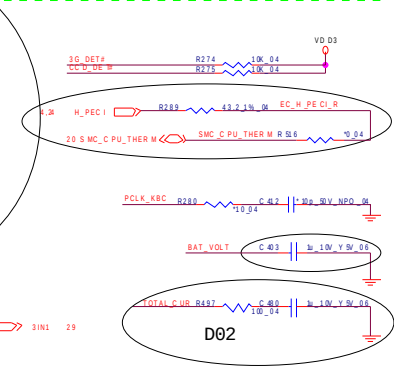
KBC-ITE IT8519

Sheet 33 of 58
KBC-ITE IT8519



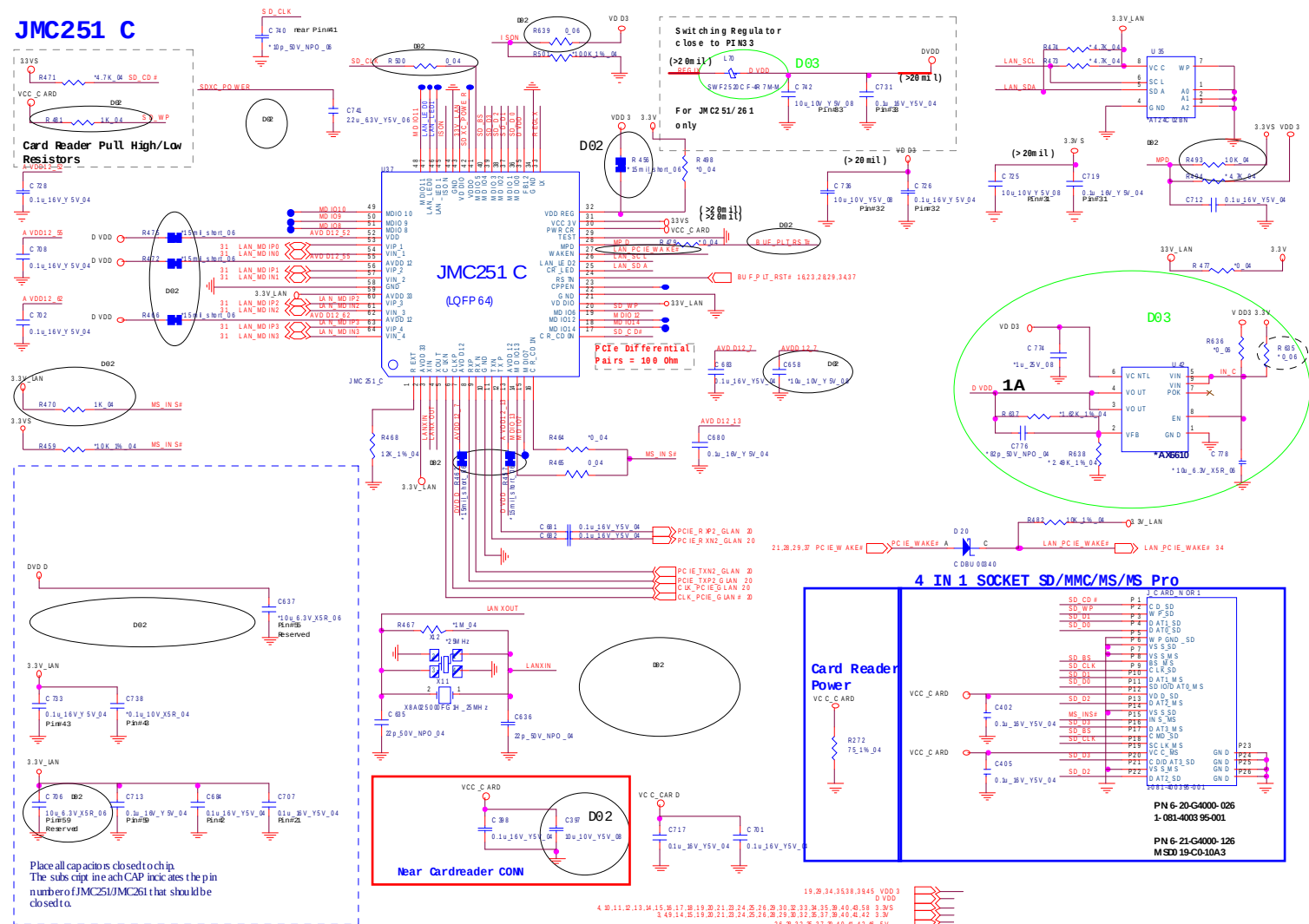
EC MODULE CHOOSE (FOR DIFFERENCE K/B TYPE)

VER.	RX	V0 LT AGE	M00 EL_ID
V1.0	R277 10K / R278 X	3.3V	P15 0HM, P17 0HM
	R277 X / R278 10K	0V	P15 1HM



Card Reader (JMC 251C)

Sheet 35 of 58
Card Reader (JMC 251C)

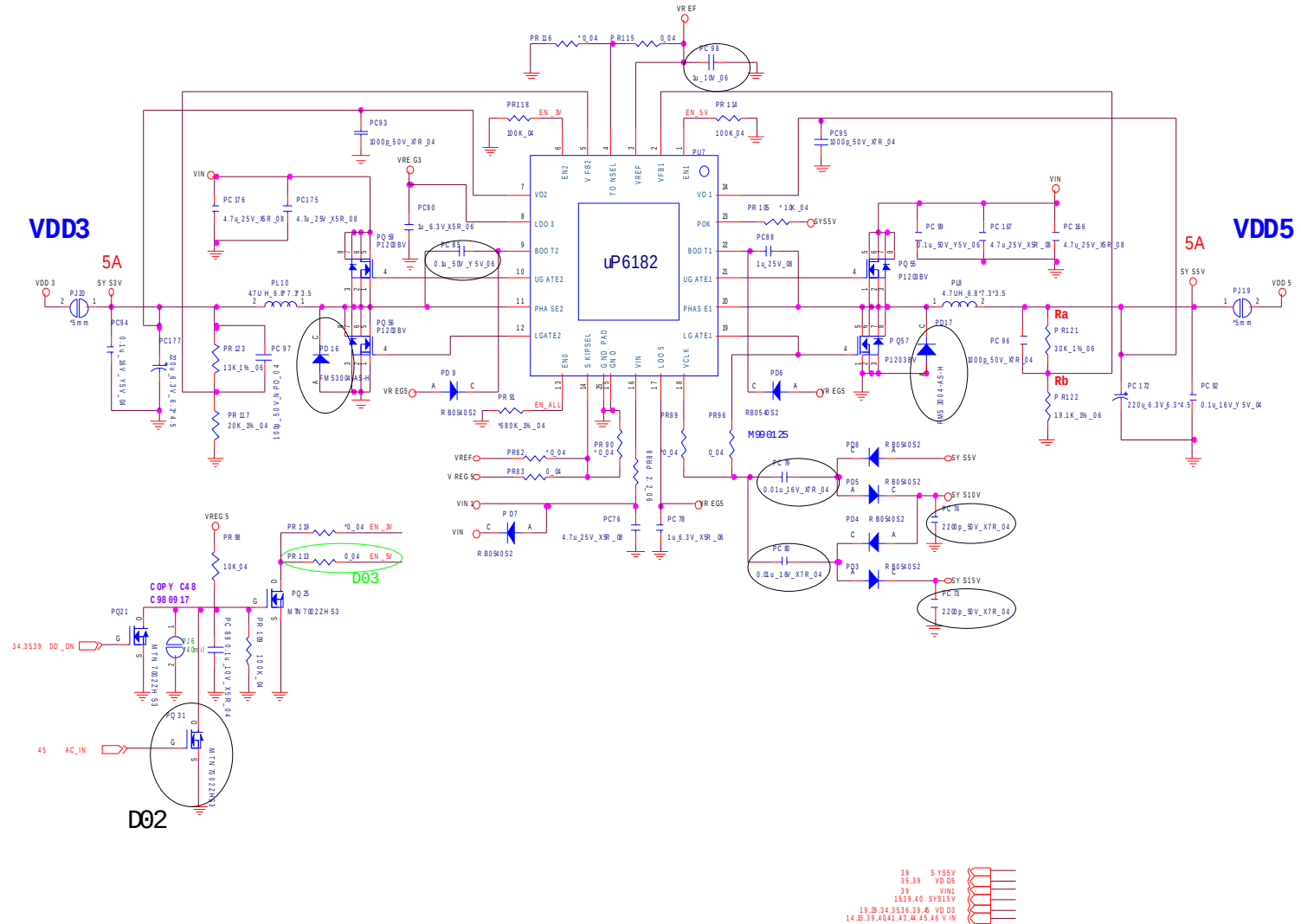




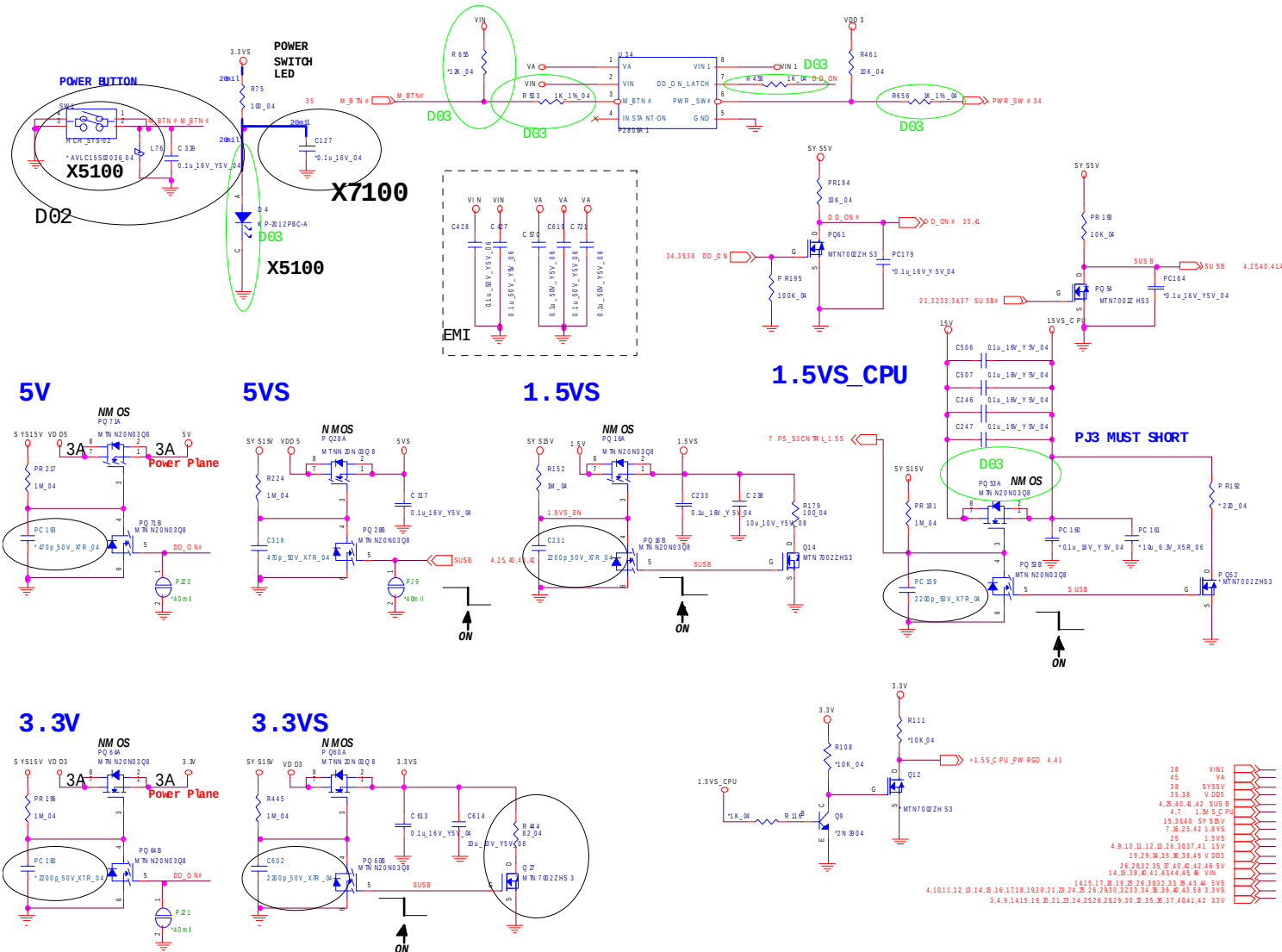
Schematic Diagrams

VDD3, VDD5

Sheet 37 of 58
VDD3, VDD5



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

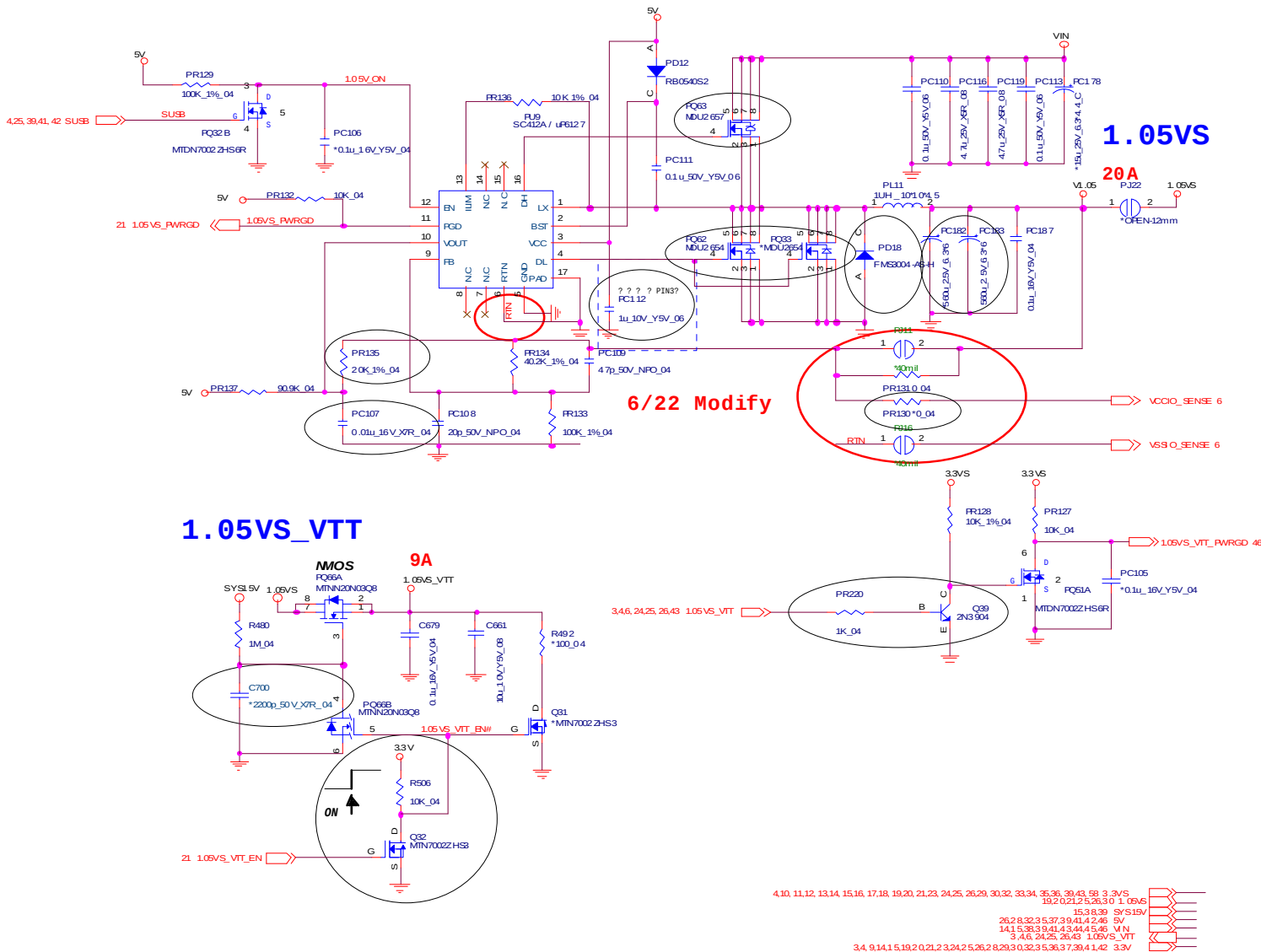


Sheet 38 of 58
5V, 3.3V, 5VS, 3VS,
1.5VS, VIN1

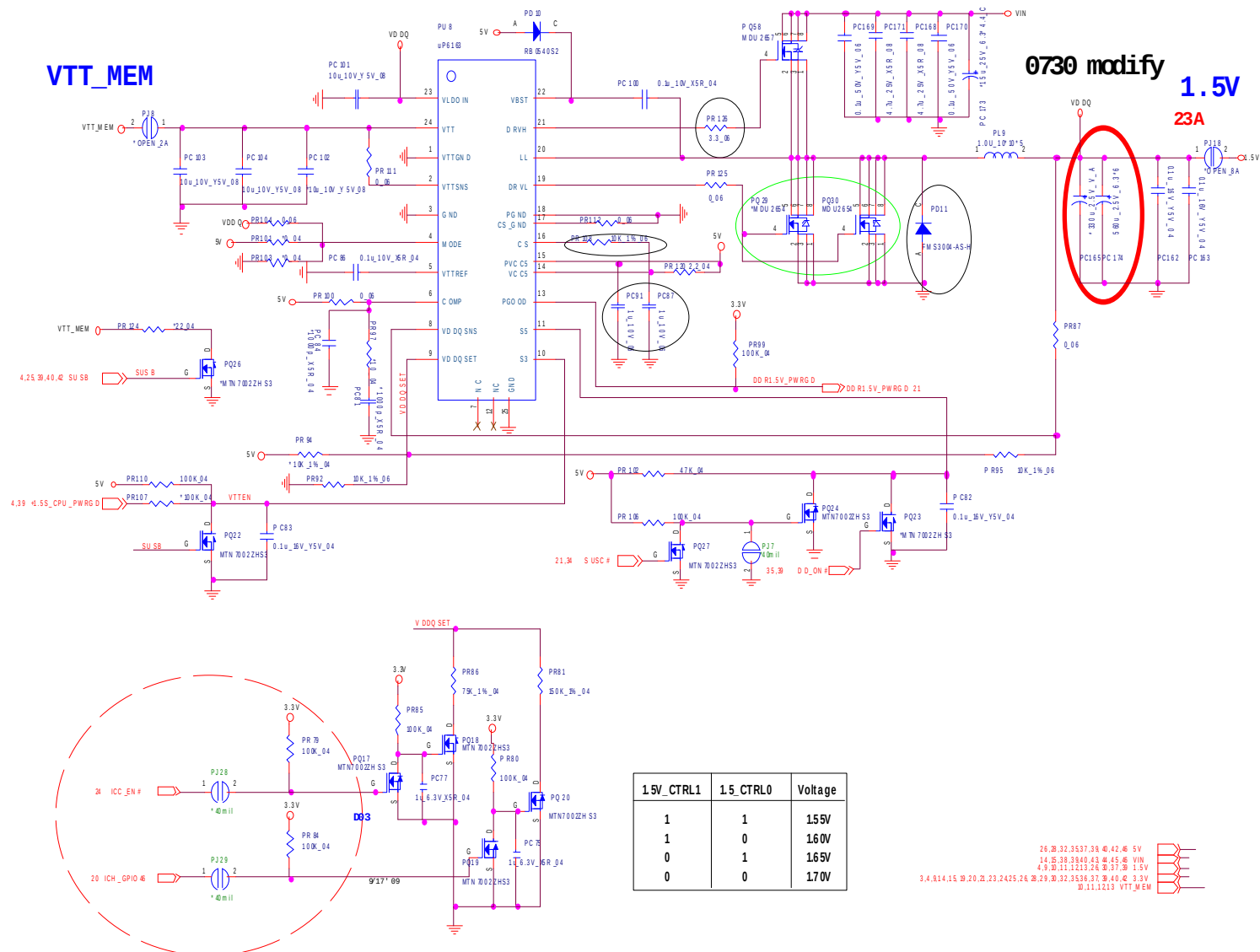
Schematic Diagrams

Power 1.05VS, 1.05VS_VTT

Sheet 39 of 58
Power 1.05VS,
1.05VS_VTT



Power 1.5V/VTT_MEM

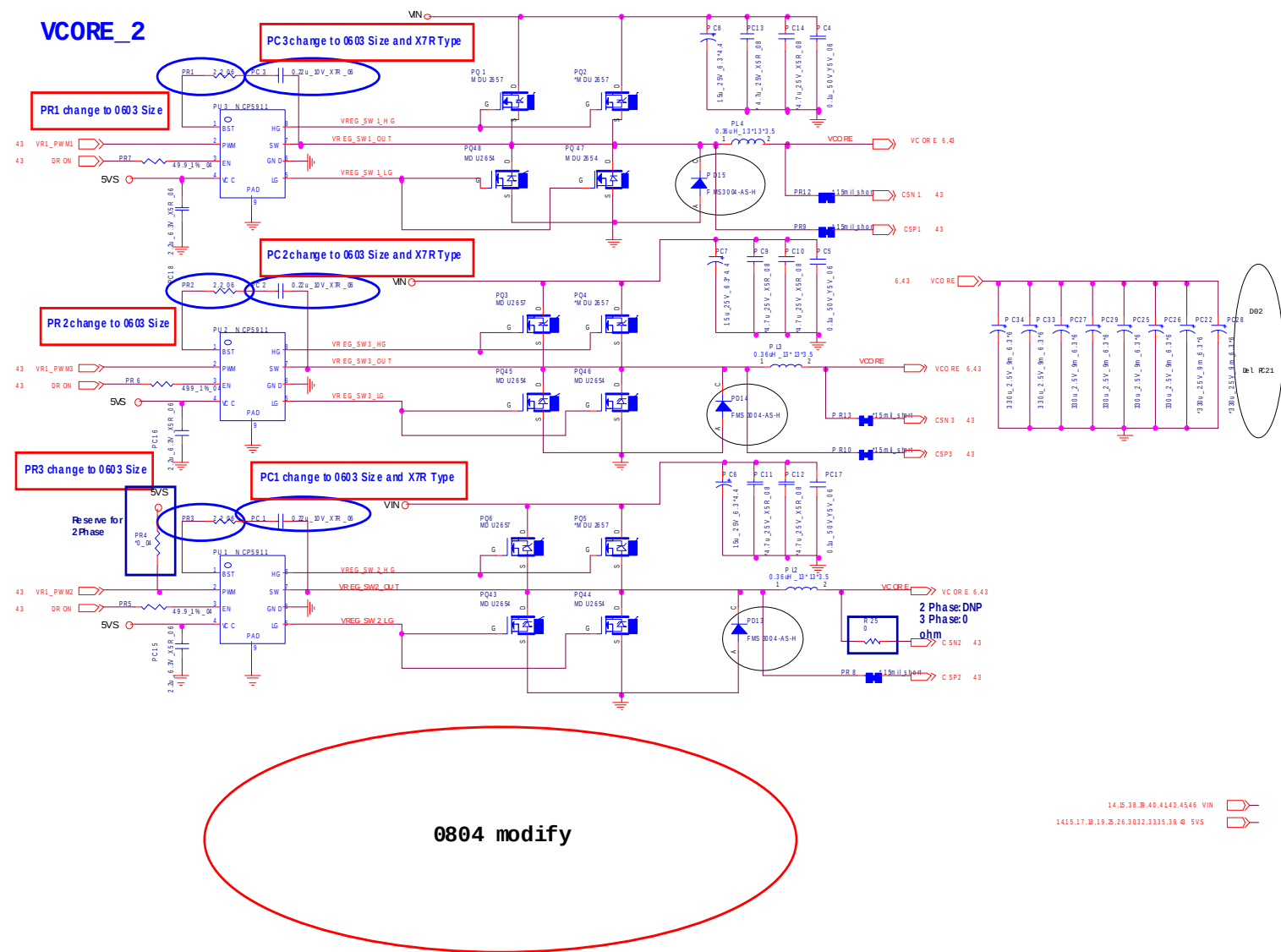


Sheet 40 of 58
Power 1.5V/
VTT_MEM

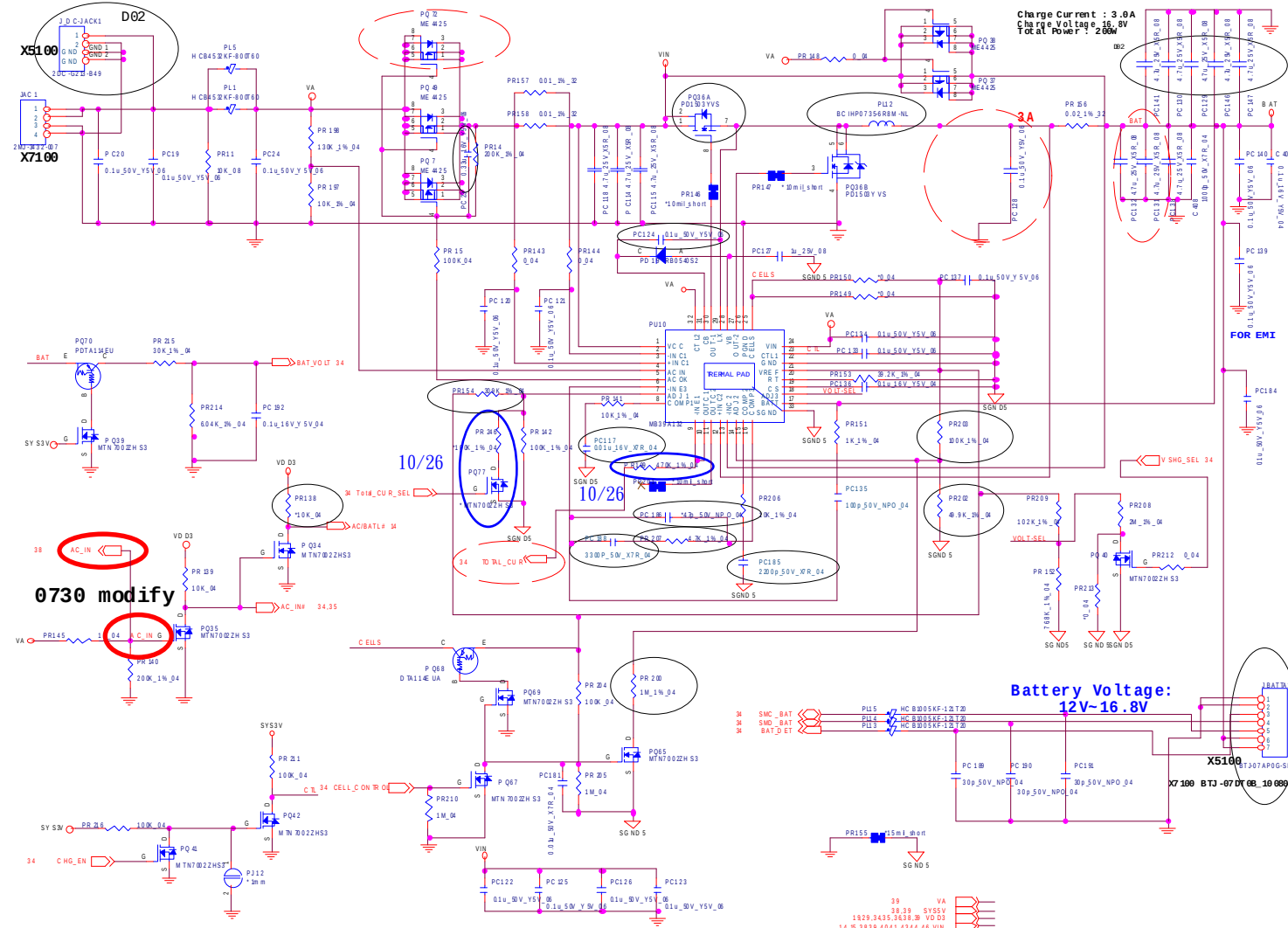
1.8VS

[illegible]

Power V-Core 2



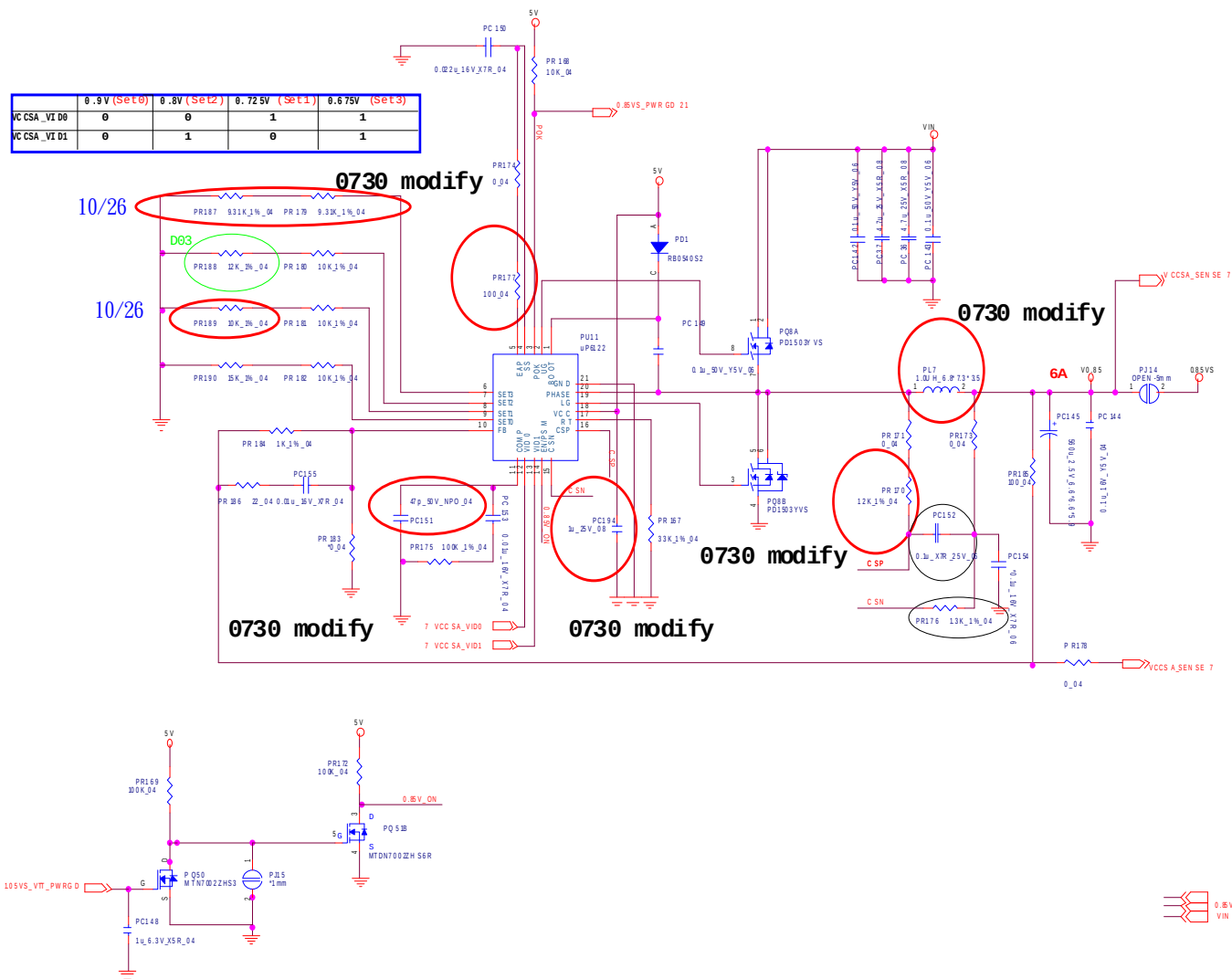
AC_In, Charger



Sheet 44 of 58
AC_In, Charger

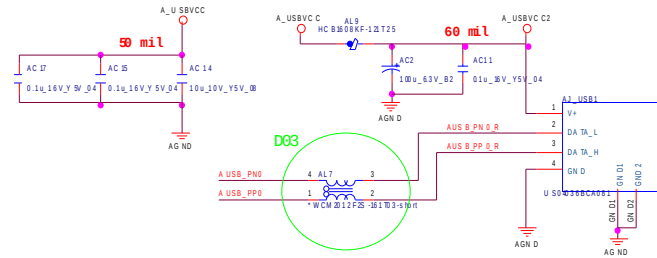
B.Schematic Diagrams

Sheet 45 of 58
Power 0.85VS

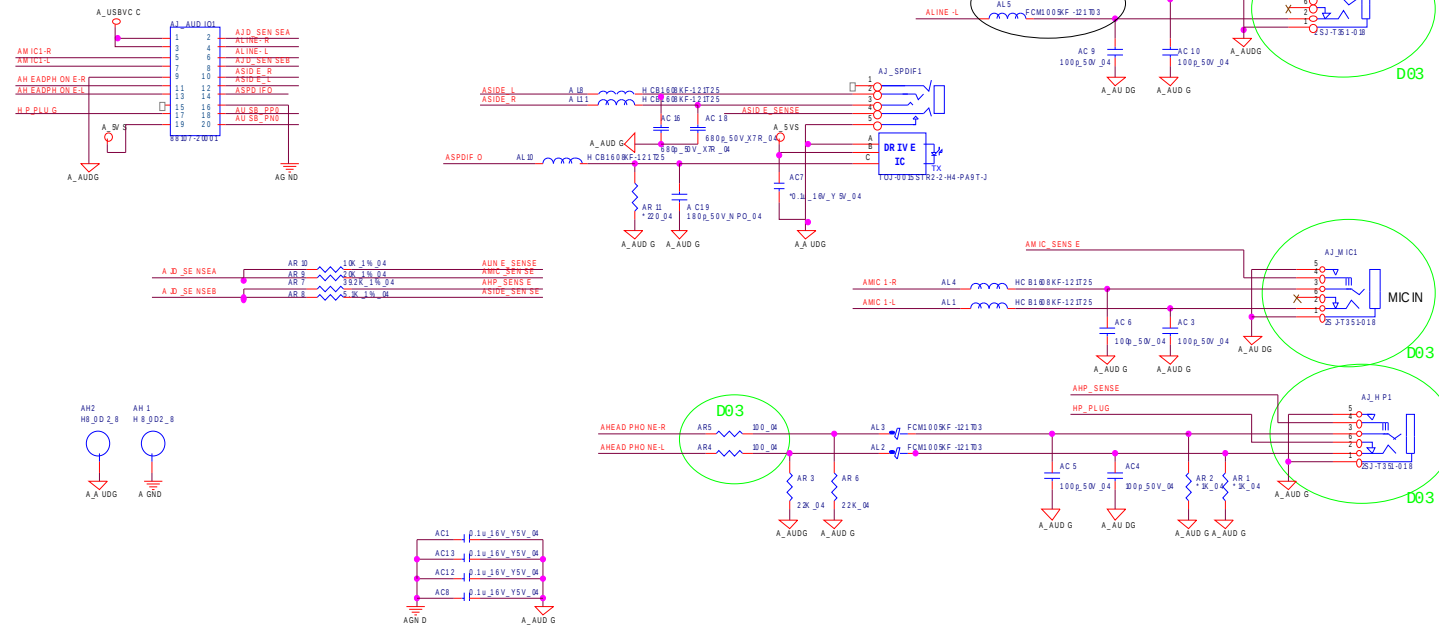


Audio Jack

USB PORT



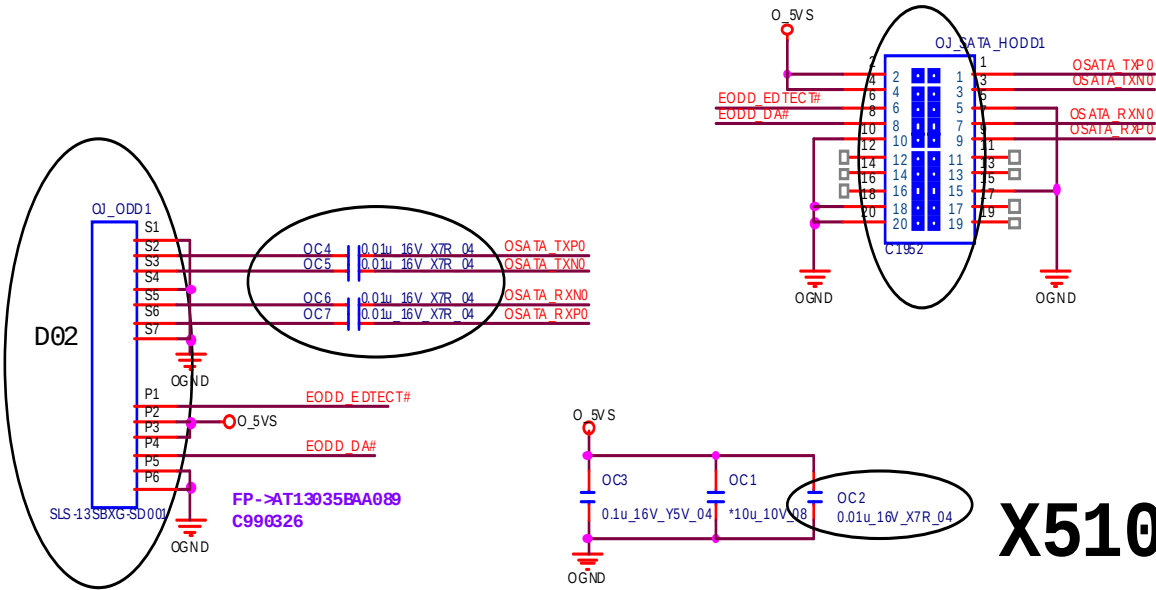
AUDIO JACK

Sheet 46 of 58
Audio Jack

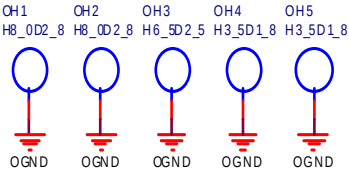
X5100 ODD Board

B.Schematic Diagrams

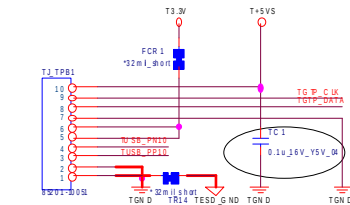
Sheet 47 of 58
X5100 ODD Board



X5100M ONLY

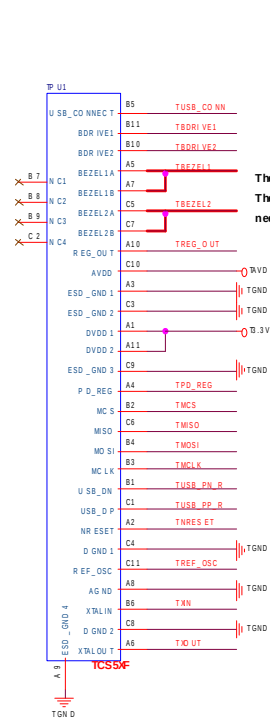
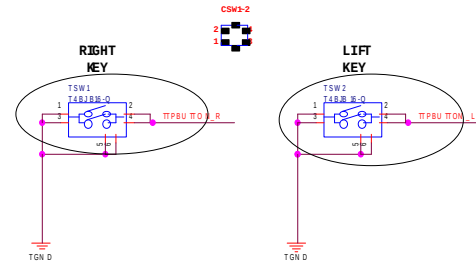
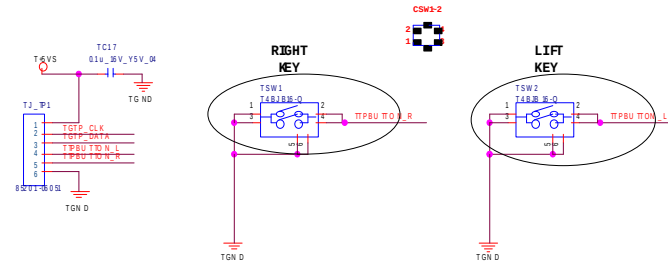


X5100 Click Board

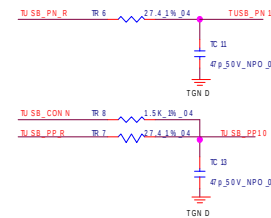
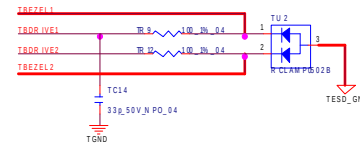
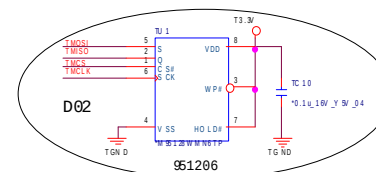
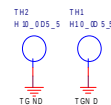
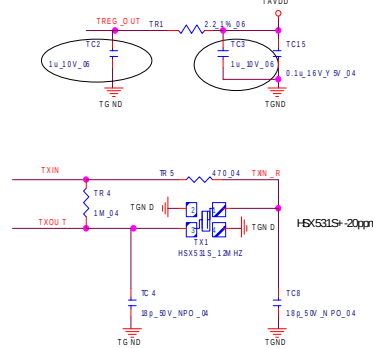
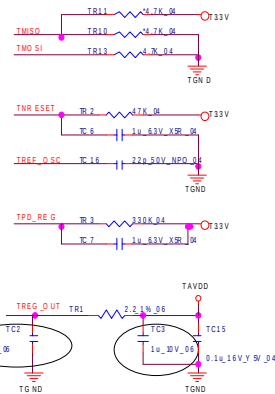
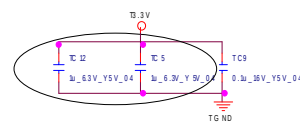


6-20-94A20-110

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



The TESD_GND trace has to be wide ($\geq 20\text{mil}$)
The path has to be marked in
needs to be designed to be short and at low impedance.



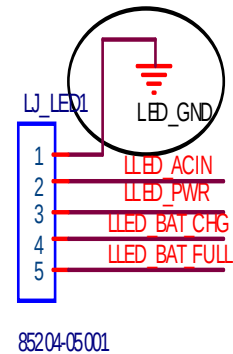
X5100M ONLY

Sheet 48 of 58
X5100 Click Board

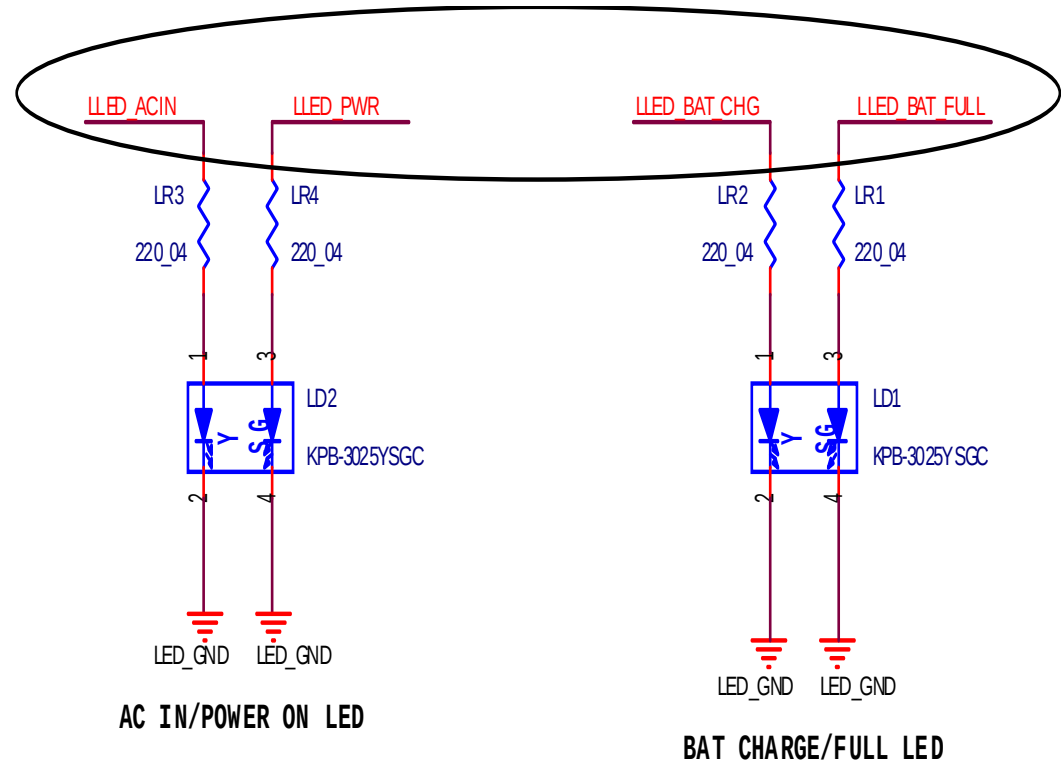
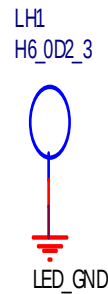
Schematic Diagrams

X5100 LED 1 Board

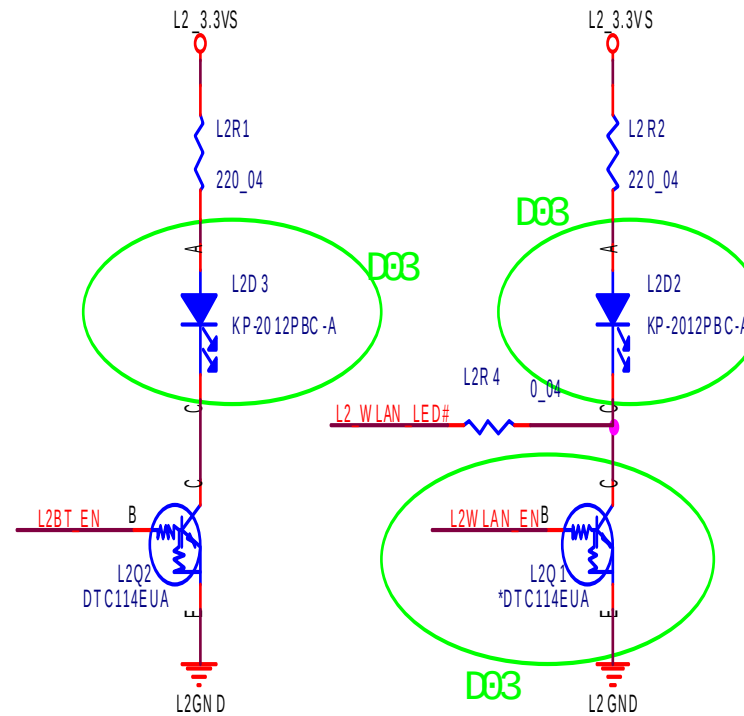
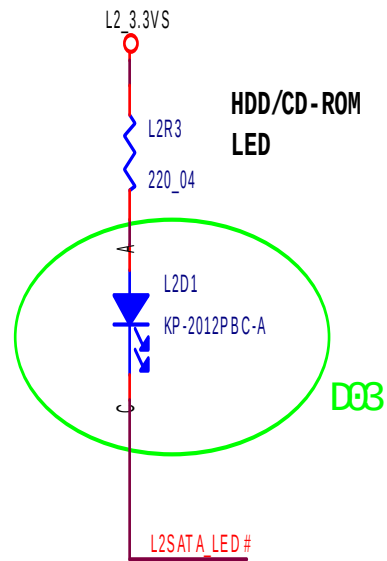
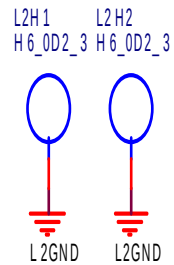
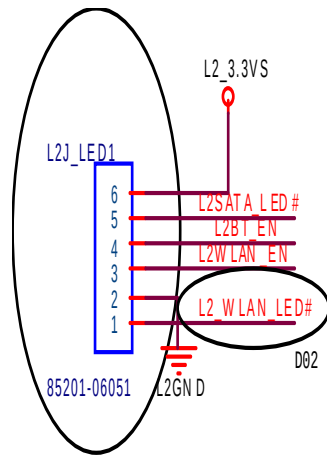
Sheet 49 of 58
X5100 LED 1 Board



85204-05.001



X5100 LED 2 Board

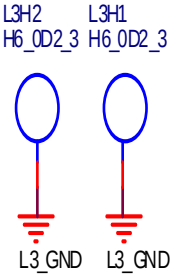
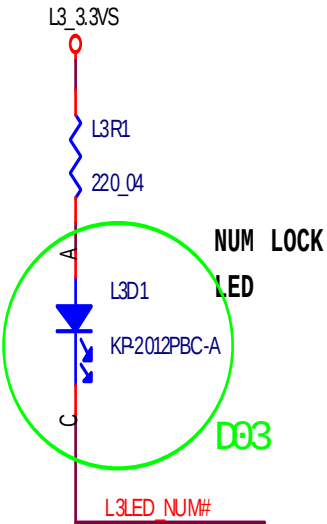
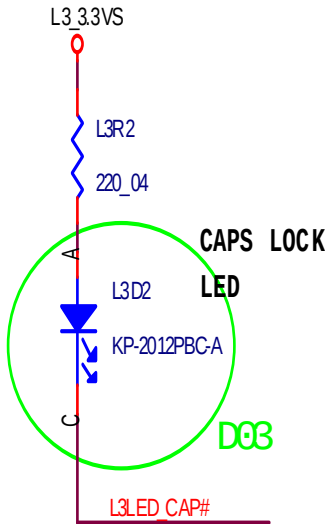
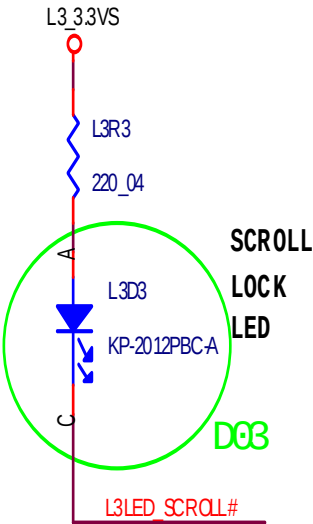
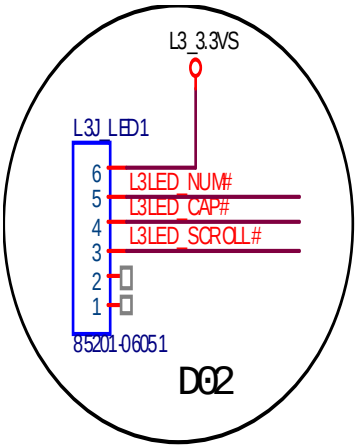


Sheet 50 of 58
X5100 LED 2 Board

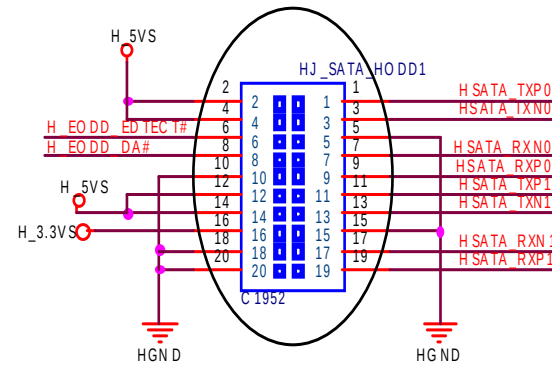
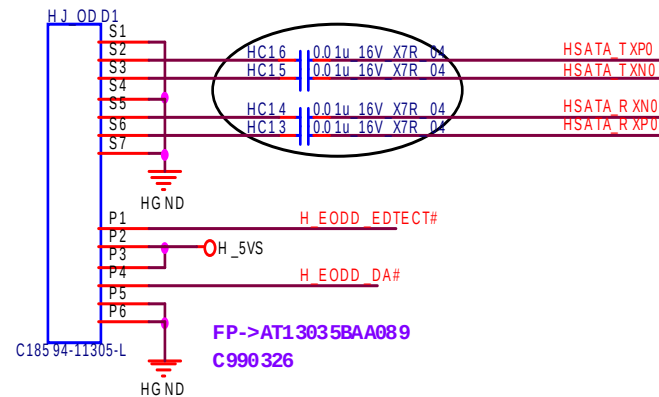
Schematic Diagrams

X5100 LED 3 Board

Sheet 51 of 58
X5100 LED 3 Board

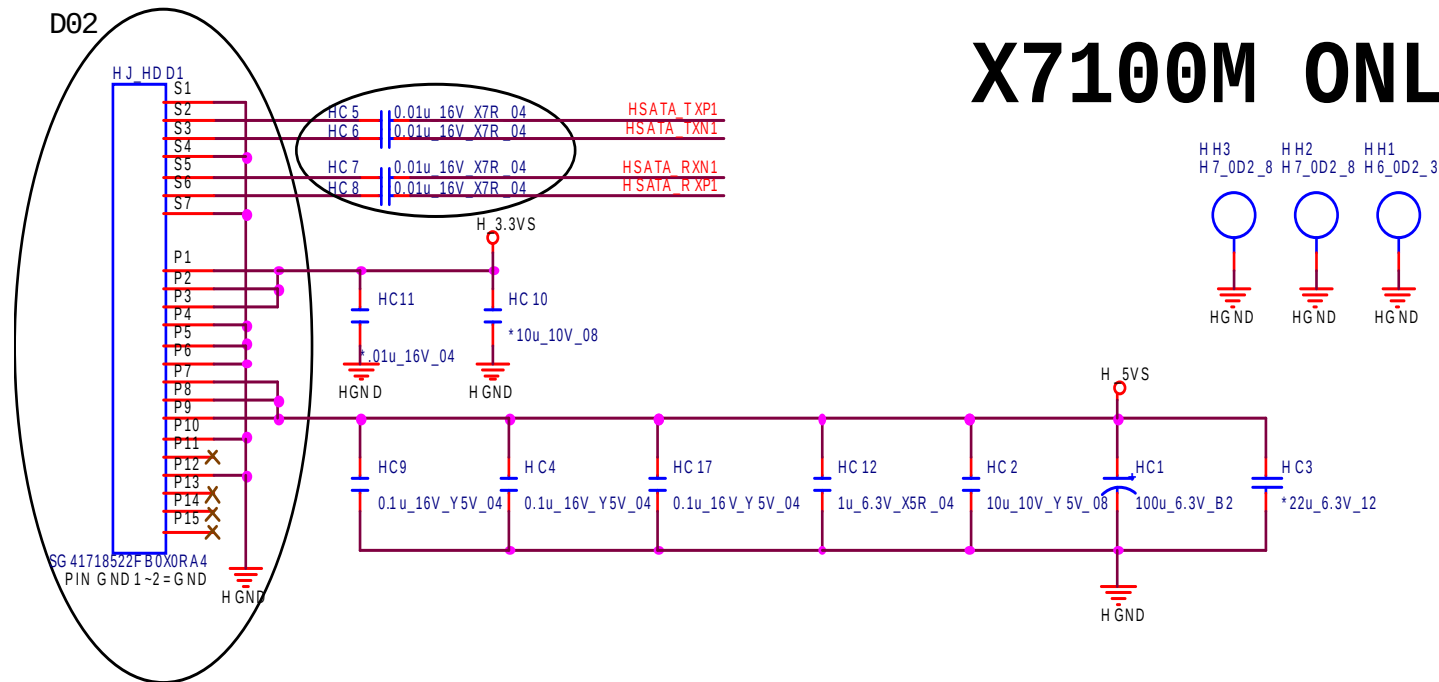


X7100 HDD & ODD Board



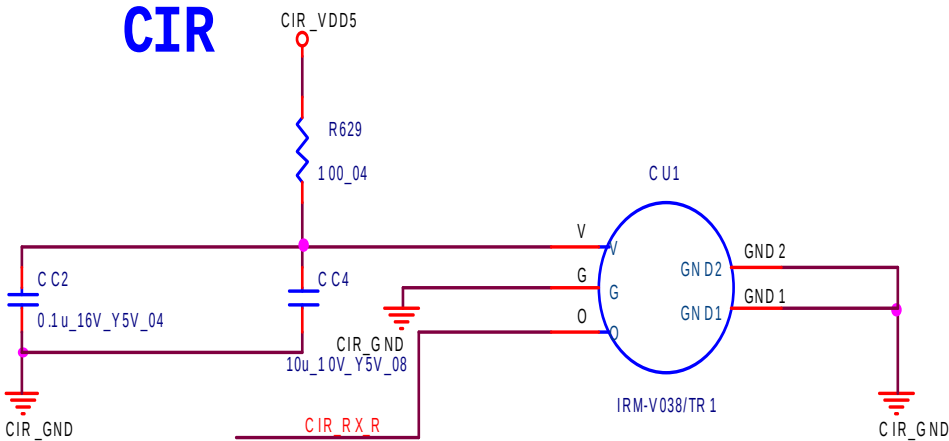
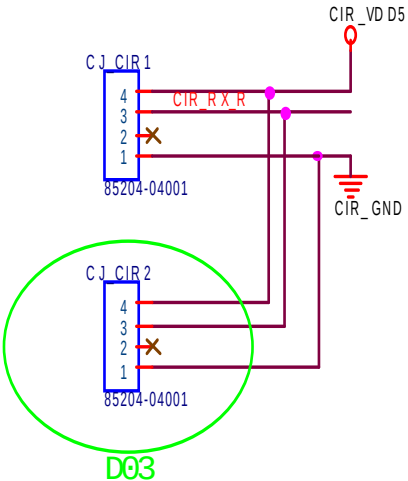
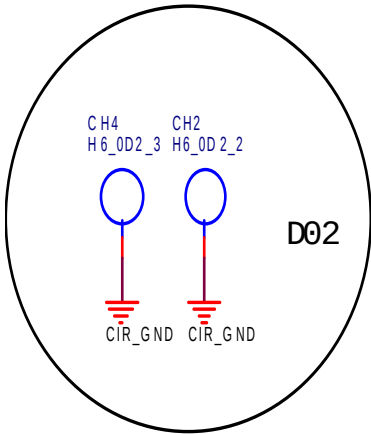
Sheet 52 of 58
X7100 HDD& ODD
Board

X7100M ONLY

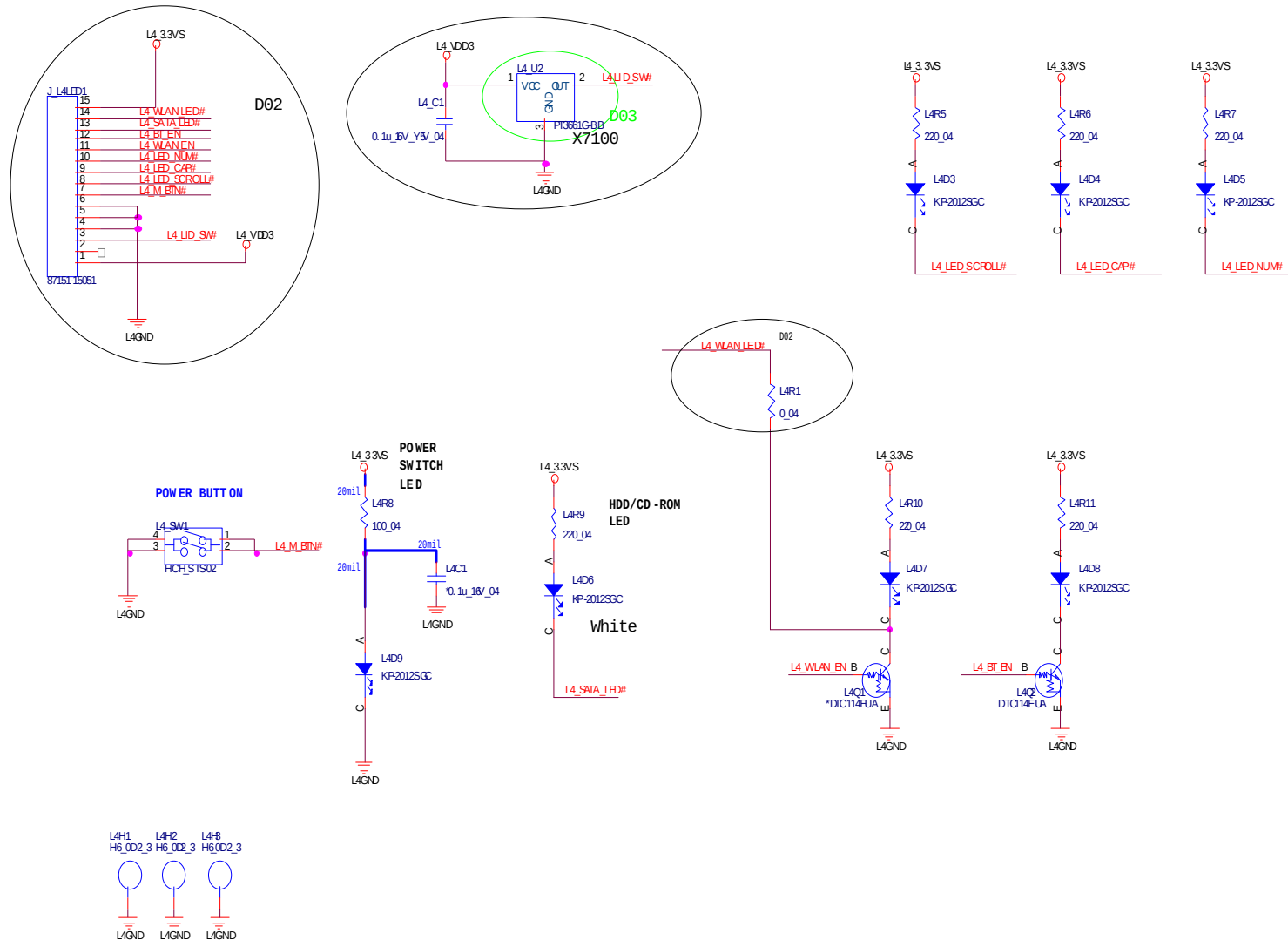


CIR

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CIR



X7100 LED Board

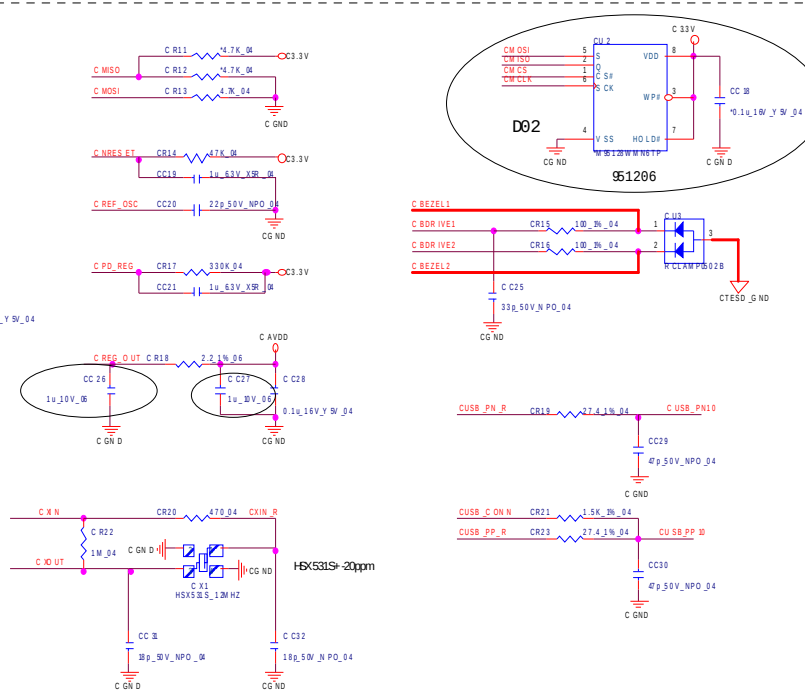
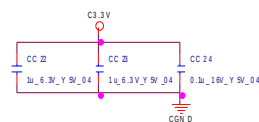


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X7100 LED Board

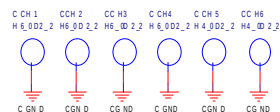
6-20-94A20-110

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

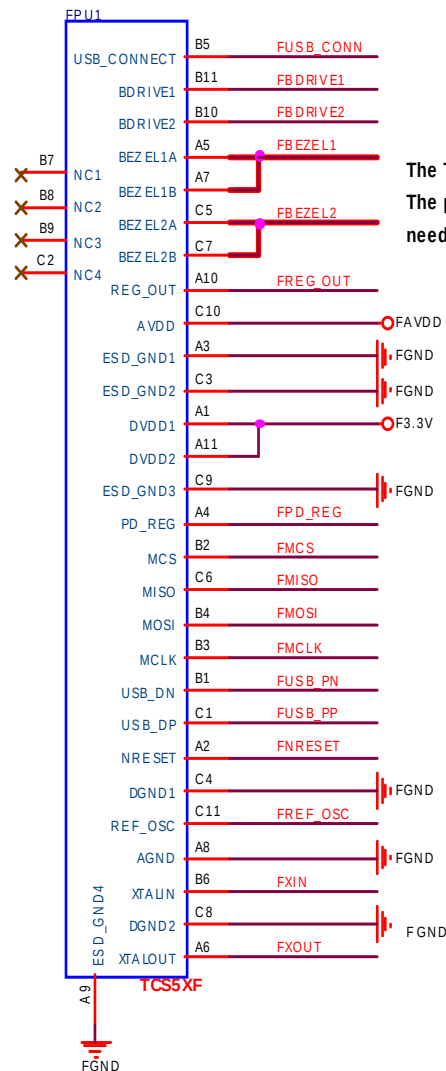
Pin configuration diagram for the C3 FPB1 package. The package is shown with pins 1 through 24. Pin 1 is CREG_OUT, Pin 2 is CB_DRIVE2, Pin 3 is CREG_OSC, Pin 4 is CB_DRIVE1, Pin 5 is CREG_ZL1, Pin 6 is CREG_ZL2, Pin 7 is CREG_ZL3, Pin 8 is CREG_ZL4, Pin 9 is CREG_ZL5, Pin 10 is CREG_ZL6, Pin 11 is CREG_ZL7, Pin 12 is CREG_ZL8, Pin 13 is CREG_ZL9, Pin 14 is CREG_ZL10, Pin 15 is CREG_ZL11, Pin 16 is CREG_ZL12, Pin 17 is CREG_ZL13, Pin 18 is CREG_ZL14, Pin 19 is CREG_ZL15, Pin 20 is CREG_ZL16, Pin 21 is CREG_ZL17, Pin 22 is CREG_ZL18, Pin 23 is CREG_ZL19, Pin 24 is CREG_ZL20. The package is labeled C3_FP B1. The pins are connected to various components: CREG_OUT to CREG_OUT, CB_DRIVE2 to CB_DRIVE2, CREG_OSC to CREG_OSC, CB_DRIVE1 to CB_DRIVE1, CREG_ZL1 to CREG_ZL1, CREG_ZL2 to CREG_ZL2, CREG_ZL3 to CREG_ZL3, CREG_ZL4 to CREG_ZL4, CREG_ZL5 to CREG_ZL5, CREG_ZL6 to CREG_ZL6, CREG_ZL7 to CREG_ZL7, CREG_ZL8 to CREG_ZL8, CREG_ZL9 to CREG_ZL9, CREG_ZL10 to CREG_ZL10, CREG_ZL11 to CREG_ZL11, CREG_ZL12 to CREG_ZL12, CREG_ZL13 to CREG_ZL13, CREG_ZL14 to CREG_ZL14, CREG_ZL15 to CREG_ZL15, CREG_ZL16 to CREG_ZL16, CREG_ZL17 to CREG_ZL17, CREG_ZL18 to CREG_ZL18, CREG_ZL19 to CREG_ZL19, CREG_ZL20 to CREG_ZL20. The package is also connected to C3_3V, C3_GND, C3_VDD, C3_VDD2, C3_VDD3, C3_VDD4, C3_VDD5, C3_VDD6, C3_VDD7, C3_VDD8, C3_VDD9, C3_VDD10, C3_VDD11, C3_VDD12, C3_VDD13, C3_VDD14, C3_VDD15, C3_VDD16, C3_VDD17, C3_VDD18, C3_VDD19, C3_VDD20.



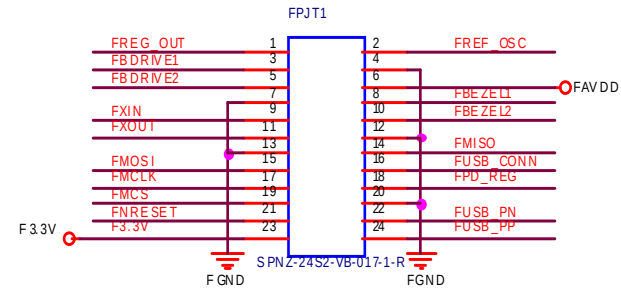
X7100M ONLY



X7100 Fingerprint Board



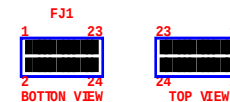
The TESD_GND trace has to be wide (>20mil)
The path be marked in **RED**
needs to be design to be short and at low impedance.



6-21-41710-212

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X7100 Fingerprint
Board

X7100M ONLY

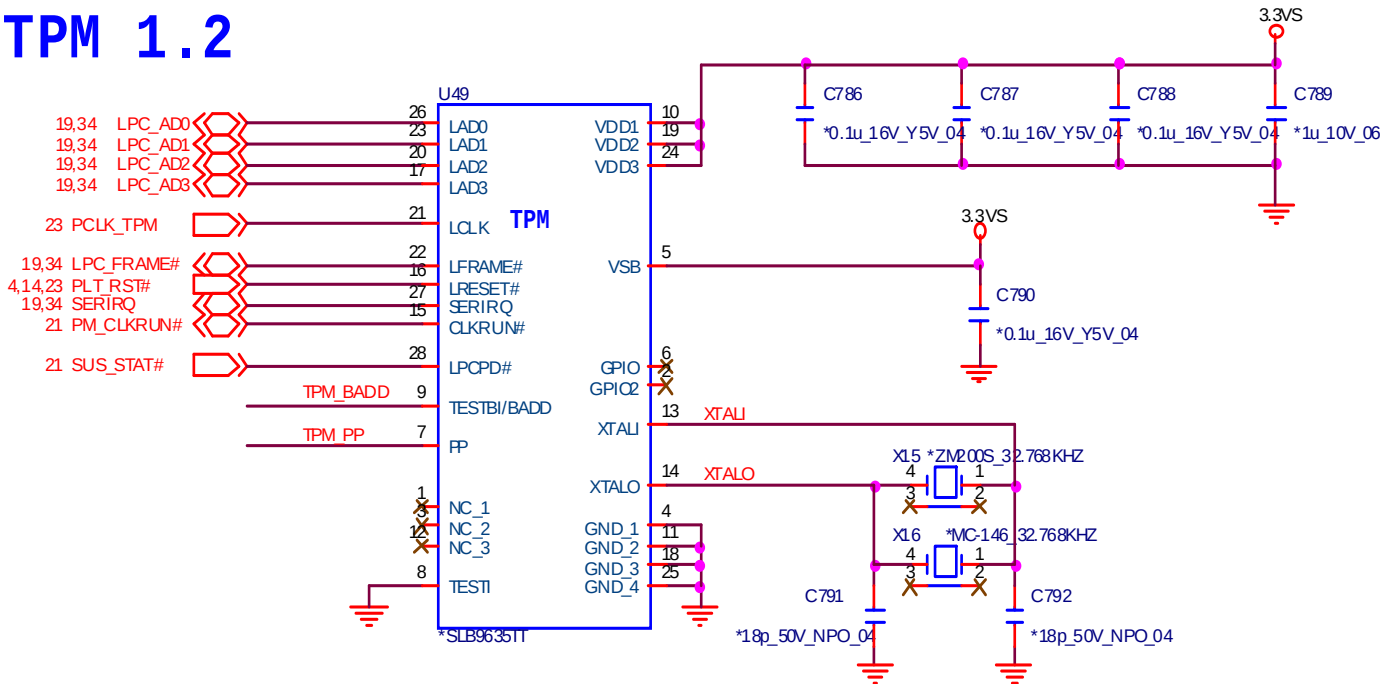


Schematic Diagrams

TPM

TPM 1.2

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TPM

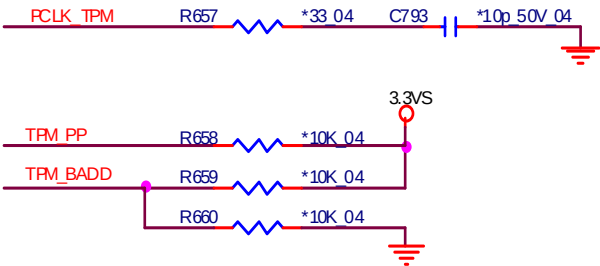


Asserted before entering S3

LPC reset timing:

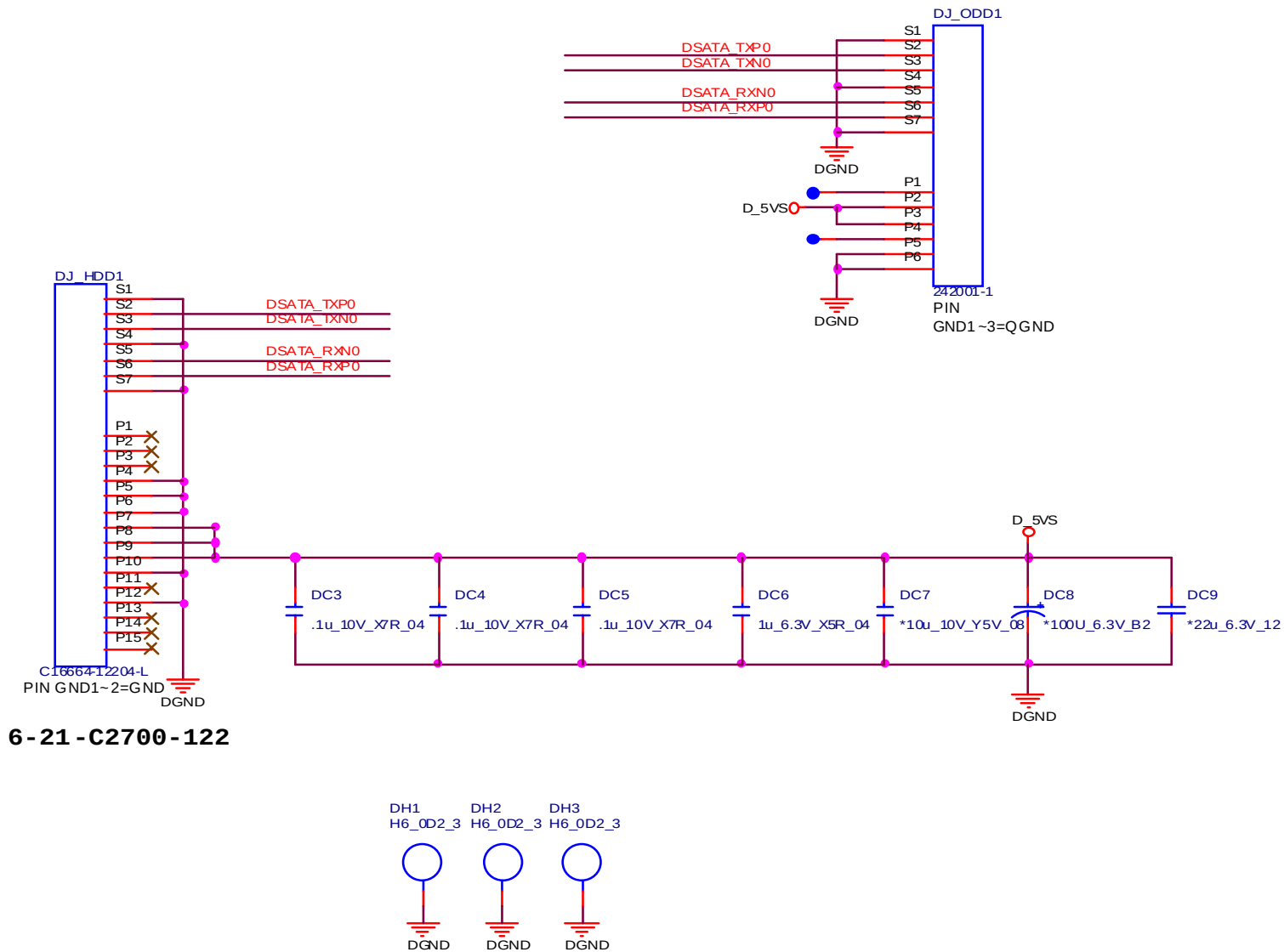
LPCPD# inactive to LRST# inactive 32~96us

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

X5100 HDD Board

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X5100 HDD Board

Appendix C: Updating the FLASH ROM BIOS

To update the FLASH ROM BIOS you must:

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

Download the BIOS

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

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

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

Set the computer to boot from the external drive

1. With the bootable CD/DVD/USB flash drive containing the BIOS files in your CD/DVD drive/USB port, restart the computer and press **F2** (in most cases) to enter the BIOS.
2. Use the arrow keys to highlight the **Boot** menu.
3. Use the “+” and “-” keys to move boot devices up and down the priority order.
4. Make sure that the CD/DVD drive/USB flash drive is set first in the boot priority of the BIOS.
5. Press **F10** 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 **F9**) and select “**Yes**” to confirm the selection.
5. Press **F10** 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.

www.s-manuals.com