



SERVICE MANUAL

M730TG

notebook

Notebook Computer

M730TG

Service Manual

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Version 1.0
February 2010

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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 *M730TG* 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 (DC Output 19V, 3.42A OR 18.5V, 3.5A (**65W**) minimum AC/DC Adapter).

CAUTION

Always disconnect all telephone lines from the wall outlet before servicing or disassembling this equipment.

**TO REDUCE THE RISK OF FIRE, USE ONLY NO. 26 AWG OR LARGER,
TELECOMMUNICATION LINE CORD**

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

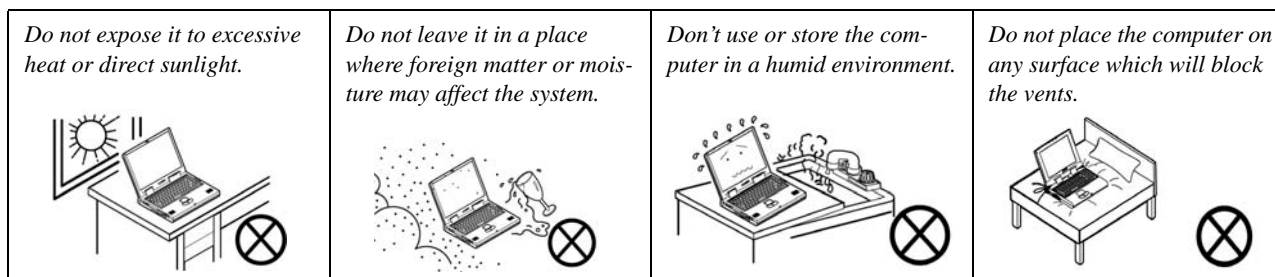
Instructions for Care and Operation

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

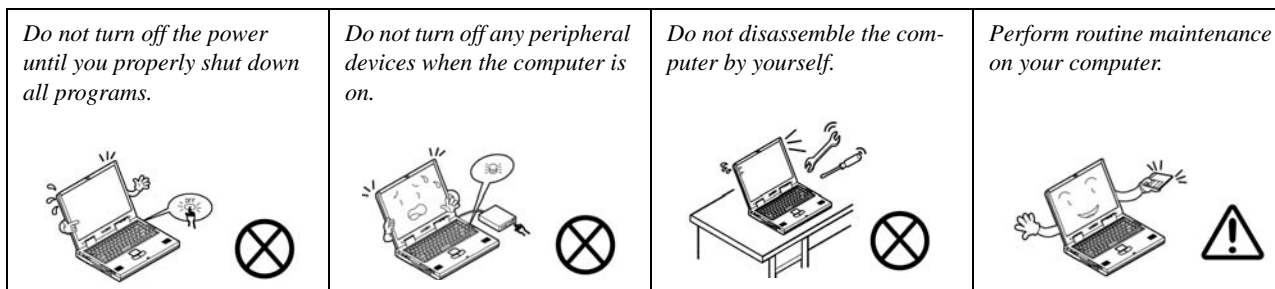
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



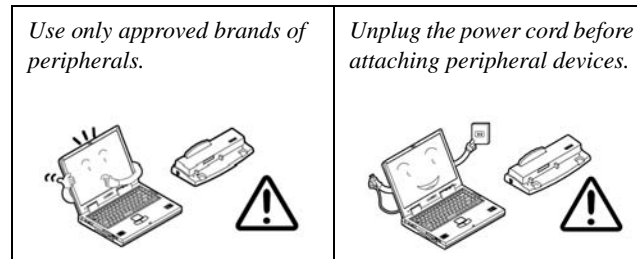
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.



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.



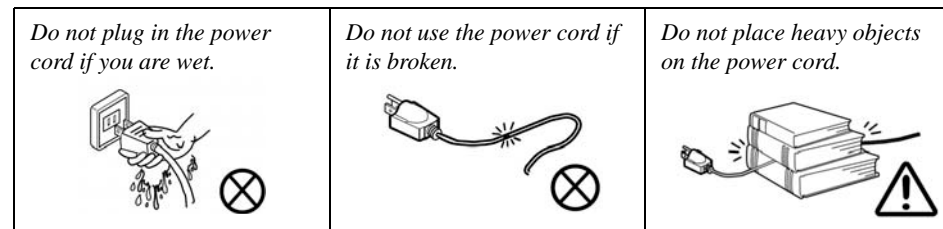
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



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 CD

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

Contents

Introduction1-1

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

Disassembly2-1

Overview	2-1
Maintenance Tools	2-2
Connections	2-2
Maintenance Precautions	2-3
Disassembly Steps	2-4
Removing the Battery	2-5
Removing the Hard Disk Drive	2-6
Removing the Optical (CD/DVD) Device	2-8
Removing the System Memory (RAM)	2-9
Removing the Inverter Board	2-11
Removing the Processor	2-12
Removing the Wireless LAN Module	2-14
Removing the Bluetooth Module	2-15
Removing the Keyboard	2-16
Removing the Modem	2-17

Part ListsA-1

Part List Illustration Location	A-2
---------------------------------------	-----

Top without Fingerprint	A-3
Bottom	A-4
LCD	A-5
DVD-Dual Drive	A-6

Schematic Diagrams.....B-1

System Block Diagram	B-2
Intel Penryn (Socket-P) 1/2	B-3
Intel Penryn (Socket-P) 2/2	B-4
Cantiga 1/6 - Host	B-5
Cantiga 2/6 - VGA, CRT	B-6
Cantiga 3/6 - DDR	B-7
Cantiga 4/6 - Power	B-8
Cantiga 5/6 - Power	B-9
Cantiga 6/6 - GND	B-10
DDRII CHANNEL A	B-11
DDRII CHANNEL B	B-12
Panel, Inverter, CRT	B-13
ICH9-M 1/5 - SATA	B-14
ICH9-M 2/5 - PCIE, PCI, USB	B-15
ICH9-M 3/5 - GPIO, PWR Management	B-16
ICH9-M 4/5 - Power	B-17
ICH9-M 5/5 - GND	B-18
Clock Generator	B-19
Multi I/O, ODD, CCD, BT, TPM	B-20
New Card, Mini PCIE	B-21
LED, FAN, TP, FP, USB	B-22
JMB385 Card Reader	B-23
PCI-E LAN RTL8111C	B-24
Audio Codec ALC662	B-25
Audio AMP2056	B-26

Preface


KBC-ITE IT8512E	B-27
System Power, LED BKLT	B-28
Power VDD3, VDD5	B-29
Power 1.5VS, 1.05VS, 3.3V, 5V	B-30
Power 1.8V, 0.9VSM	B-31
Power VCORE	B-32
Power AC-IN, Charger	B-33
Multi I/O Board 1/2	B-34
Multi I/O Board 2/2	B-35
Finger Printer Board	B-36
Click Board	B-37
M730T ODD Bridge Board	B-38
M730T Audio Board	B-39
Power Sequence Diagram	B-40
Power Sequence v3.0	B-41

Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **M730TG** 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. video & audio) is also found in *User's Manual*. That manual is shipped with the computer.

Operating systems (e.g. *Windows XP*, *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 **M730TG** series notebook is designed to be upgradeable. See [Disassembly on page 2 - 1](#) for a detailed description of the upgrade procedures for each specific component. Please note the warning and safety information indicated by the “” symbol.

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

System Specifications

<p>Processor</p>	<p>Memory</p>	<p>Interface</p>
<p>Intel® Mobile Celeron Dual Core Processor: T3100 (1.9GHz) 45nm (45 Nanometer) Process Technology, 1MB L2 Cache & 800MHz FSB (478-pin) Micro-FC-PGA Package - Socket-P</p> <p>T3000 (1.8GHz) 45nm (45 Nanometer) Process Technology, 1MB L2 Cache & 800MHz FSB (478-pin) Micro-FC-PGA Package - Socket-P</p> <p>T1700 (1.9GHz) 65nm (65 Nanometer) Process Technology, 1MB L2 Cache & 667MHz FSB (478-pin) Micro-FC-PGA Package - Socket-P</p> <p>T1600 (1.83GHz) 65nm (65 Nanometer) Process Technology, 1MB L2 Cache & 667MHz FSB (478-pin) Micro-FC-PGA Package - Socket-P</p> <p>Intel® Mobile Celeron Processor: 900 (2.2GHz) 45nm (45 Nanometer) Process Technology, 1MB L2 Cache & 800MHz FSB (478-pin) Micro-FC-PGA Package - Socket-P</p>	<p>Dual Channel DDRII (DDR2) Two 200 Pin SO-DIMM Sockets Supporting DDRII (DDR2) 800MHz Memory Expandable up to 4GB (Supporting 1GB/2GB Modules)</p>	<p>Three USB 2.0 Ports One External Monitor Port One Headphone-Out Jack One Microphone-In Jack One S/PDIF-Out Jack One RJ-11 LAN Jack for Fax/Modem One RJ-45 LAN Jack for LAN One DC-In Jack</p>
<p>Core Logic</p>	<p>Video</p>	<p>Card Reader</p>
<p>Intel® GL40 + ICH9M Chipset</p>	<p>Intel® GL40 Integrated Video High Preference 3D/2D Graphic Accelerator Shared Memory Architecture of up to 512M Supports Microsoft DirectX 10</p>	<p>Embedded 7-in-1 Card Reader (MS/ MS Pro/ SD/ Mini SD/ MMC/ RS MMC/ MS Duo) Note: MS Duo/ Mini SD/ RS MMC Cards require a PC adapter</p>
<p>Display</p>	<p>BIOS</p>	<p>Slots</p>
<p>13.3" WXGA (1280 * 800) TFT LCD</p>	<p>One 16M SPI Flash ROM Phoenix™ BIOS</p>	<p>One ExpressCard/34/54 Slot Two Mini-Card Slots with USB & PCIe interface: Slot 1 for Mini-Card WLAN Module with PCIe Interface Slot 2 for 3.75G Module with USB Interface (Factory Option)</p>
	<p>Storage</p> <p>One Changeable 12.7mm(h) Super Multi Optical Device Drive - SATA interface</p> <p>One Changeable 2.5" 9.5 mm (h) HDD OR with SATA (Serial) Interface</p>	
	<p>Audio</p>	
	<p>High Definition Audio Compliant with Microsoft UAA (Universal Audio Architecture) Direct Sound 3D™ Compatible Built-In Microphone 2 * Built-In Speakers</p>	
	<p>Keyboard & Pointing Device</p>	
	<p>Full Size WinKey Keyboard Built-in TouchPad</p>	

Communication	Security
56K Fax/Modem V90/92 Compliant 10/100/100Mb Base-TX Ethernet LAN Intel® WiFi Link 5300 Series (3*3 - 802.11a/g/n) Wireless LAN Mini-Card Module with PCIe interface (Option) 3rd Party 802.11b/g Wireless LAN Mini-Card Module with USB interface (Option) Bluetooth 2.1 + EDR (Enhanced Data Rate) Module (Factory Option) 1.3M Pixel PC Camera Module with USB interface (Factory Option) 3.75G Module: UMTS/HSPDA-based 3.75G Module with Mini-Card Interface (Factory Option) Quad-band GSM/GPRS (850 MHz, 900 MHz, 1800 MHz, 1900 MHz) UMTS WCDMA FDD (2100 MHz) Note that UMTS modes CAN NOT be used in North America	Security (Kensington® Type) Lock Slot BIOS Password
	Operating System
	Windows® Vista (with Service Pack 2) Windows® XP (with Service Pack 3)
	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
	310mm (w) * 233mm (d) * 30 - 36mm (h) 2.0 kg (with 4 Cell Battery and ODD)
	Optional
	Intel® WiFi Link 5300 Series (3*3 - 802.11a/g/n) Wireless LAN Mini-Card Module with PCIe interface 3rd Party 802.11b/g Wireless LAN Mini-Card Module with USB interface Bluetooth 2.1 + EDR (Enhanced Data Rate) Module (Factory Option) 1.3M Pixel PC Camera Module with USB interface (Factory Option) UMTS/HSPDA-based 3.75G Module with Mini-Card Interface (Factory Option) 8 Cell Smart Lithium-Ion Battery Pack, 4400mAH (Option)
Power Management	
Supports Wake on LAN Supports Wake on Modem Ring	
Power	
Full Range AC/DC Adapter AC input 100 - 240V, 50 - 60Hz, DC Output 19V, 3.42A or 18.5V, 3.5A (65 Watts) 4 Cell Smart Lithium-Ion Battery Pack, 2400mAH 8 Cell Smart Lithium-Ion Battery Pack, 4400mAH (Option)	

Introduction

Figure 1
Top View

1. Optional Built-In PC Camera
2. LCD
3. Built-In Microphone
4. Power Button
5. Hot Key Buttons
6. LED Status Indicators
7. Keyboard
8. Touchpad & Buttons
9. LED Power & Communication Indicators

External Locator - Top View with LCD Panel Open



External Locator - Front & Right side Views



Figure 2
Front Views

1. LED Power & Communication Indicators
2. 7-in-1 Card Reader
3. S/PDIF-Out Jack
4. Microphone-In Jack
5. Headphone-Out Jack



Figure 3
Right Side Views

1. Optical Device Drive Bay
2. USB 2.0 Port
3. RJ-11 Phone Jack
4. Security Lock Slot

Introduction

External Locator - Left Side & Rear View

Figure 4
Left Side View

1. DC-In Jack
2. RJ-45 LAN Jack
3. External Monitor Port
4. Vent/Fan Intake/Outlet
5. 2 * USB 2.0 Ports
6. ExpressCard Slot



Figure 5
Rear View

1. Battery



External Locator - Bottom View

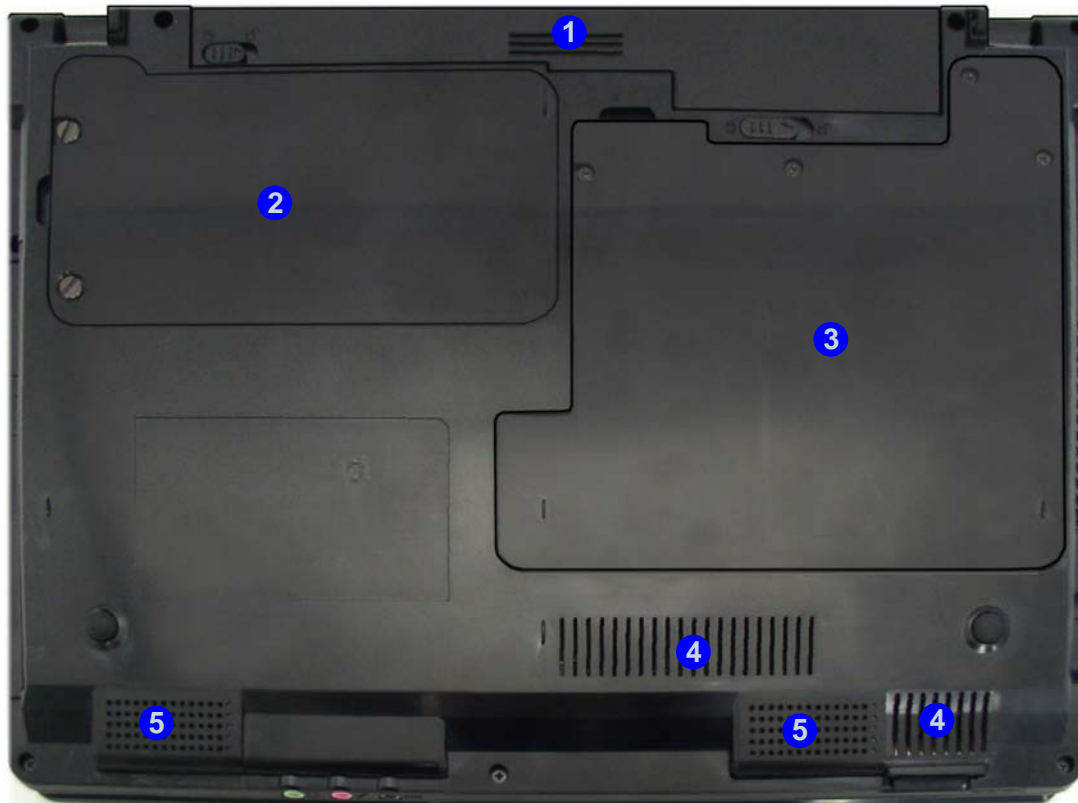


Figure 6
Bottom View

1. Battery (4 Cell Battery Pictured)
2. Hard Disk Bay Cover (3.5G Module Location)
3. RAM & CPU Bay Cover
4. Vent/Fan Intake/Outlet
5. Speakers



Overheating

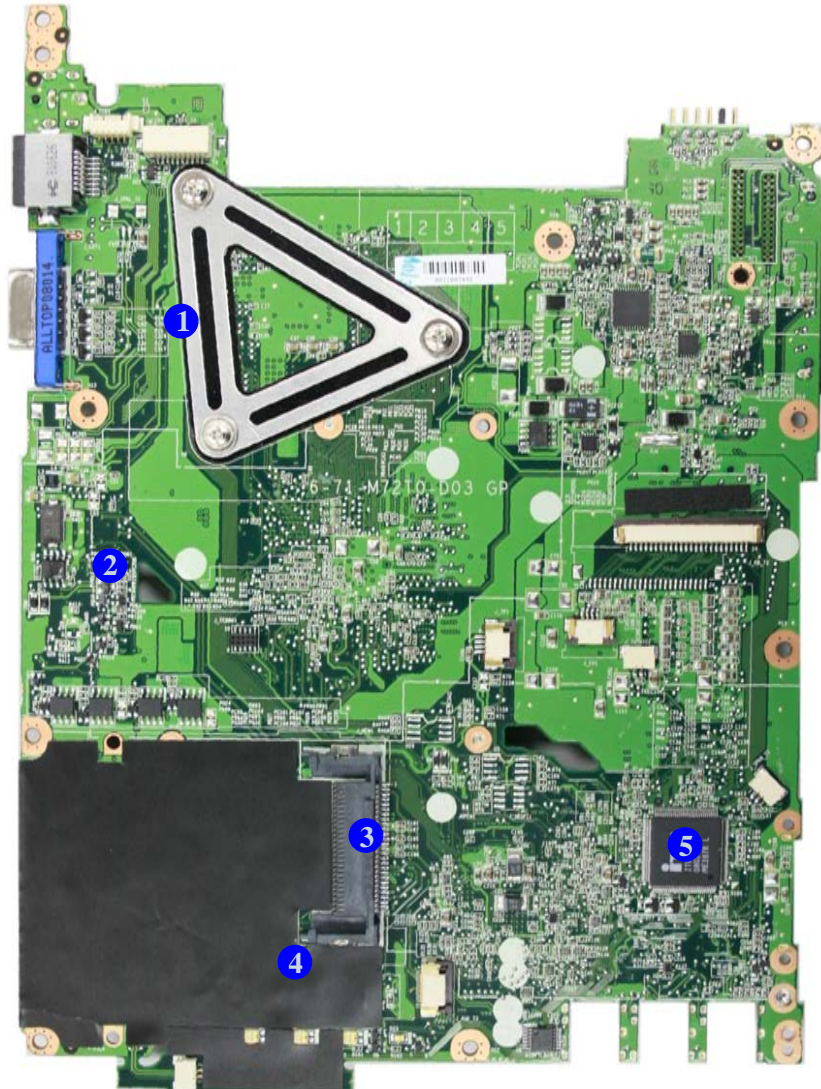
To prevent your computer from overheating make sure nothing blocks the vent/fan intakes while the computer is in use.

Introduction

Figure 7
**Mainboard Top
Key Parts**

1. Transformer
2. RTL6111C
3. ExpressCard Connector
4. JMB385
5. KBC ITE IT8502E

Mainboard Overview - Top (Key Parts)



Mainboard Overview - Bottom (Key Parts)

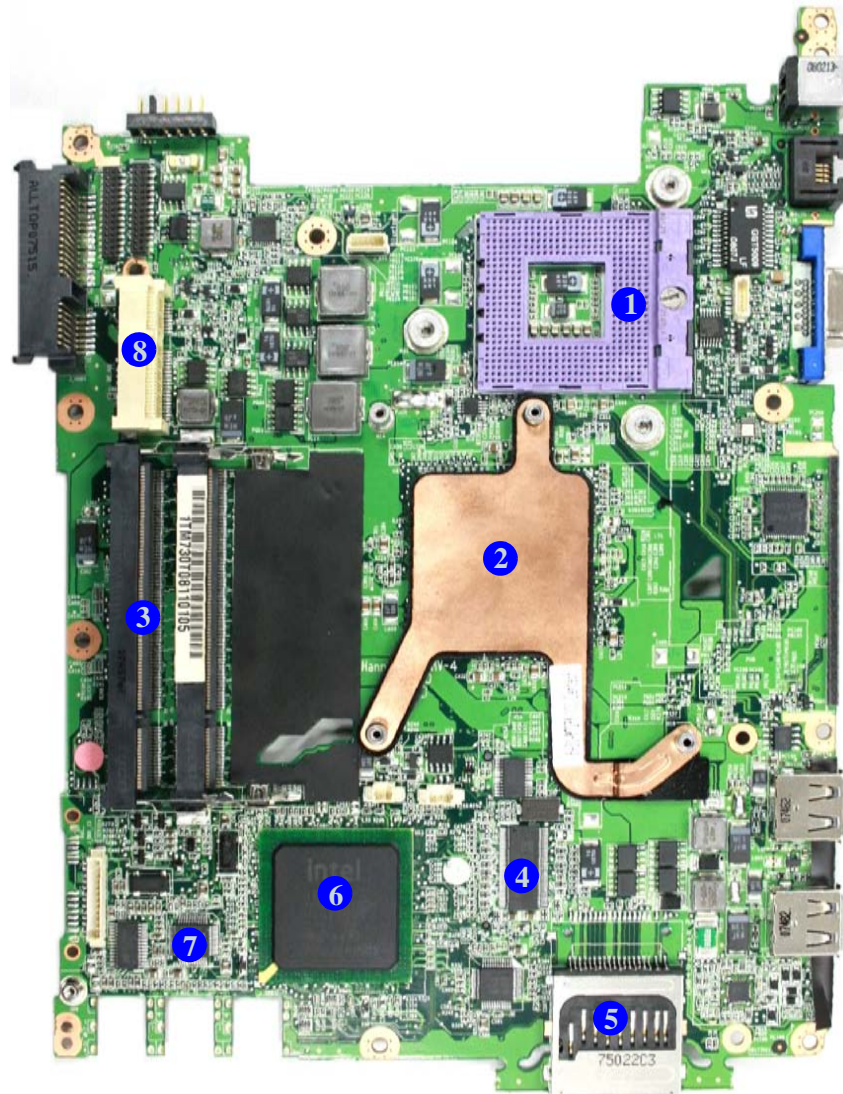


Figure 8
**Mainboard Bottom
Key Parts**

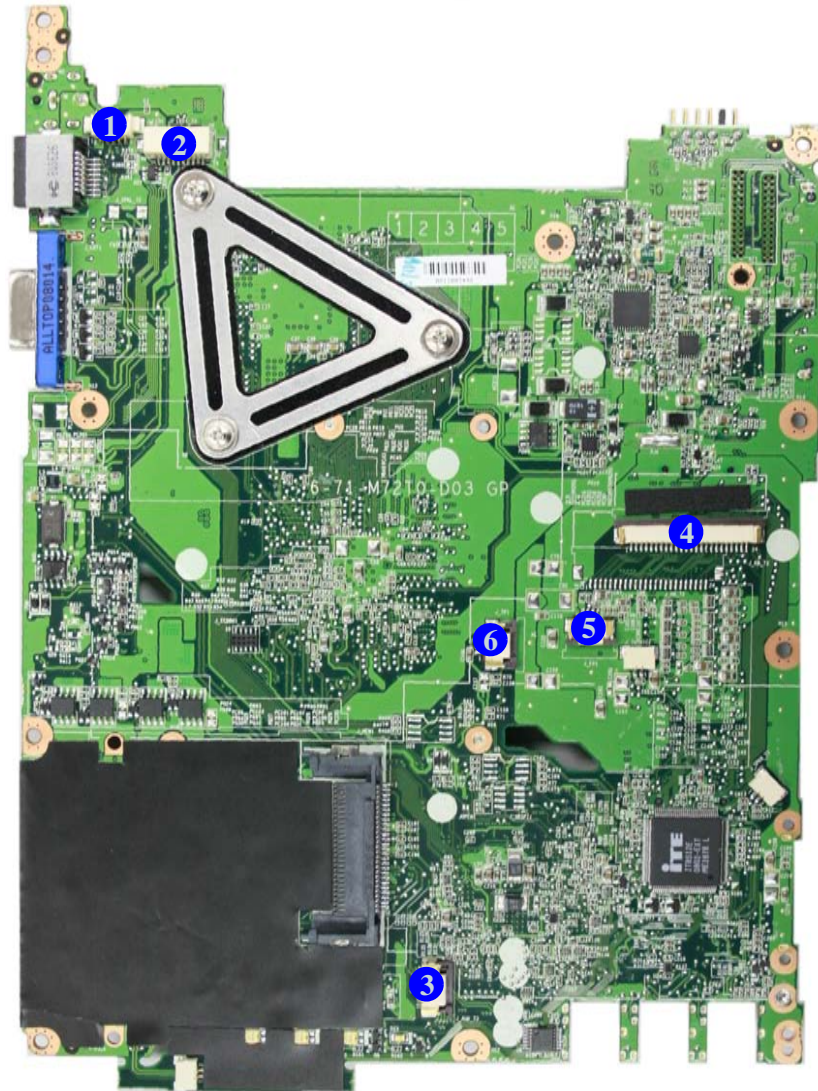
1. CPU Socket (no CPU installed)
2. Northbridge
3. Memory Slots
DDR2 SO-DIMM
4. ICS
5. Card Reader
Socket
6. Southbridge
7. Audio Codec
8. Mini-Card
Connector (WLAN
Module)

Introduction

Figure 9
**Mainboard Top
Connectors**

1. Hot-key Connector
2. LCD Cable Connector
3. Keyboard Cable Connector
4. Audio Board Connector
5. Microphone Cable Connector
6. TouchPad Cable Connector

Mainboard Overview - Top (Connectors)



Mainboard Overview - Bottom (Connectors)

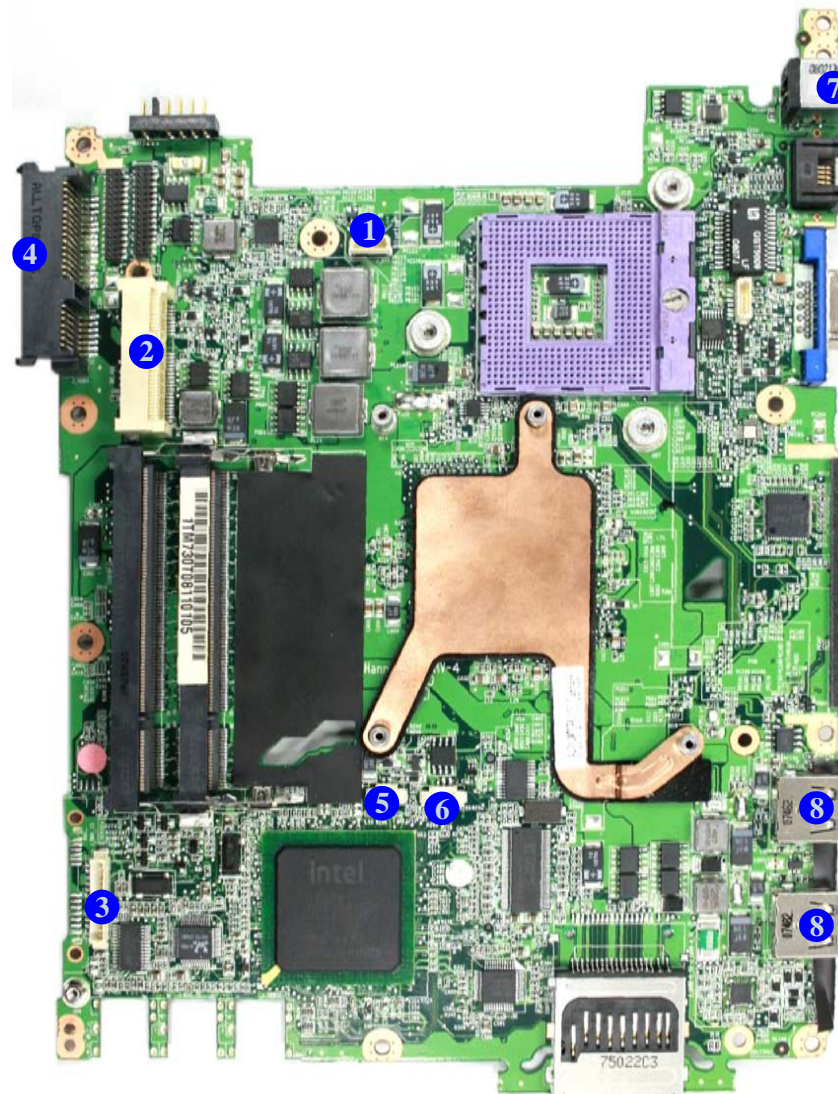


Figure 10
**Mainboard Bottom
Connectors**

1. BT Cable Connector
2. Multi Board Connector
3. CD-ROM Connector
4. HDD Connector
5. CMOS Bat. Connector
6. CPU Fan Cable Connector
7. DC-In Jack
8. USB Port


Chapter 2: Disassembly



Overview

This chapter provides step-by-step instructions for disassembling the *M730TG* series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

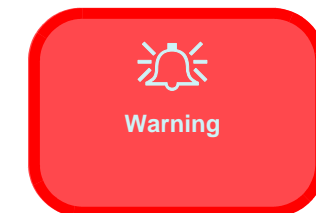
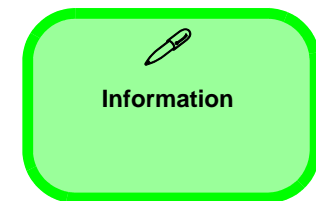
We suggest you completely review any procedure before you take the computer apart.

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:

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 - 8](#)

To remove the System Memory:

1. Remove the battery [page 2 - 5](#)
2. Remove the system memory [page 2 - 9](#)

To remove the Inverter Board:

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

To remove and install a Processor:

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

To remove the Wireless LAN Module:

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

To remove the Bluetooth Module:

1. Remove the battery [page 2 - 5](#)
2. Remove the Bluetooth [page 2 - 15](#)

To remove the Keyboard:

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

To remove the Modem:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Remove the system memory [page 2 - 9](#)
4. Remove the Optical device [page 2 - 8](#)
5. Remove the processor [page 2 - 12](#)
6. Remove the keyboard [page 2 - 16](#)
7. Remove the modem [page 2 - 17](#)

Removing the Battery

1. Turn the computer **off**, and turn it over.
2. Slide the latch **1** in the direction of the arrow.
3. Slide the latch **2** in the direction of the arrow, and hold it in place.
4. Slide the battery **3** in the direction of the arrow **4**.

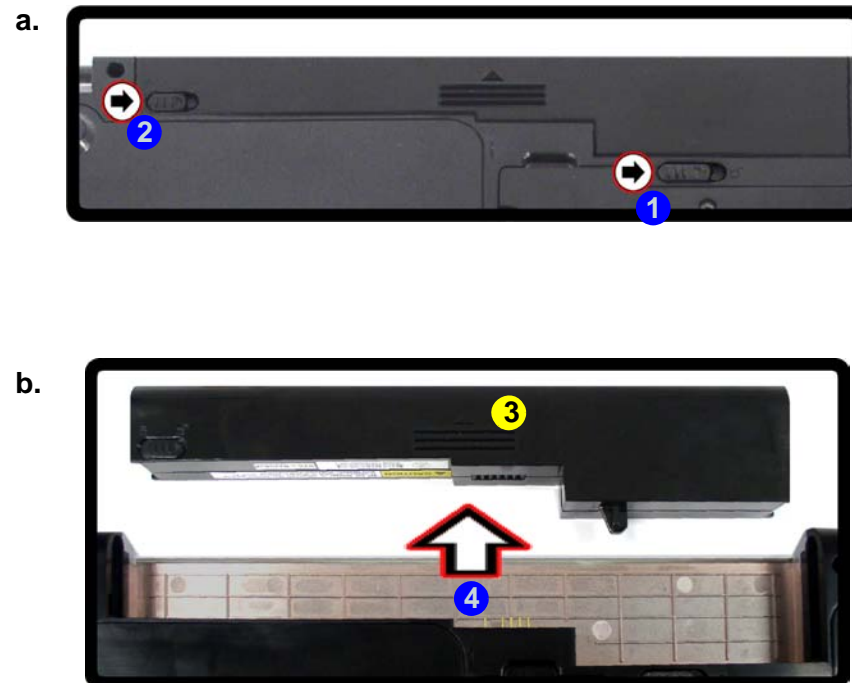
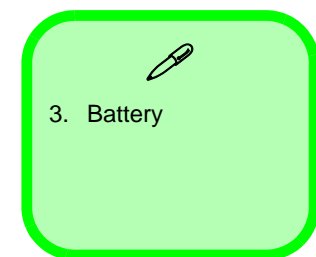


Figure 1
Battery Removal

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



Disassembly

Figure 2 HDD Assembly Removal

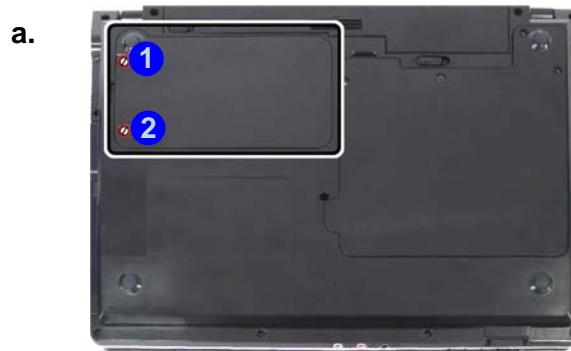
- Locate the HDD bay cover and loosen the screw(s).

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 loosen screws **1** & **2**.



Note:

Only one model is pictured here, however the component locations are the same for both models.



- 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.

3. Remove the hard disk bay cover **3**.
4. Grip the tab and slide the hard disk in the direction of arrow **4**.
5. Lift the hard disk out of the bay **5**.
6. Remove the screws **6** & **7** and the adhesive cover **8** from the hard disk **9**.
7. Reverse the process to install a new hard disk (do not forget to replace all the screws and covers).

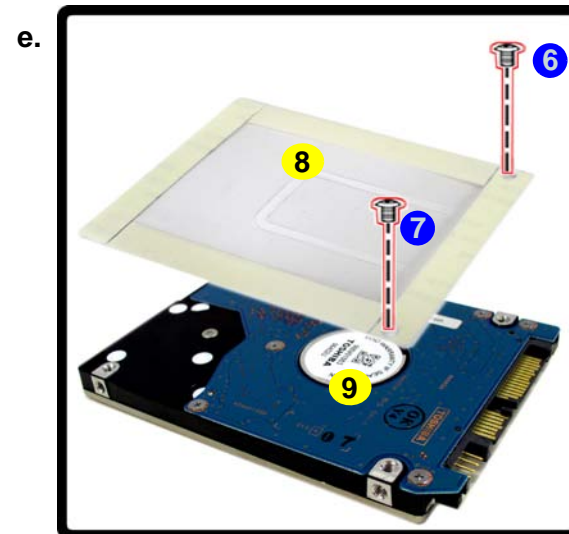
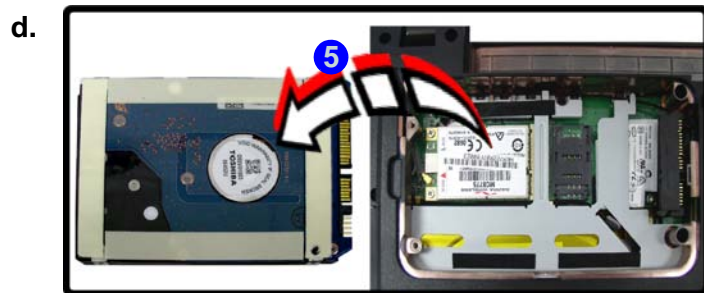


Figure 3
**HDD Assembly
Removal (cont'd.)**

- b. Remove the HDD bay cover.
- c. Grip the tab and slide the HDD in the direction of the arrow.
- d. Lift the HDD assembly out of the bay.
- e. Remove the screw and adhesive cover.



- 3. HDD Bay Cover
- 8. Adhesive Cover
- 9. HDD

- 2 Screws

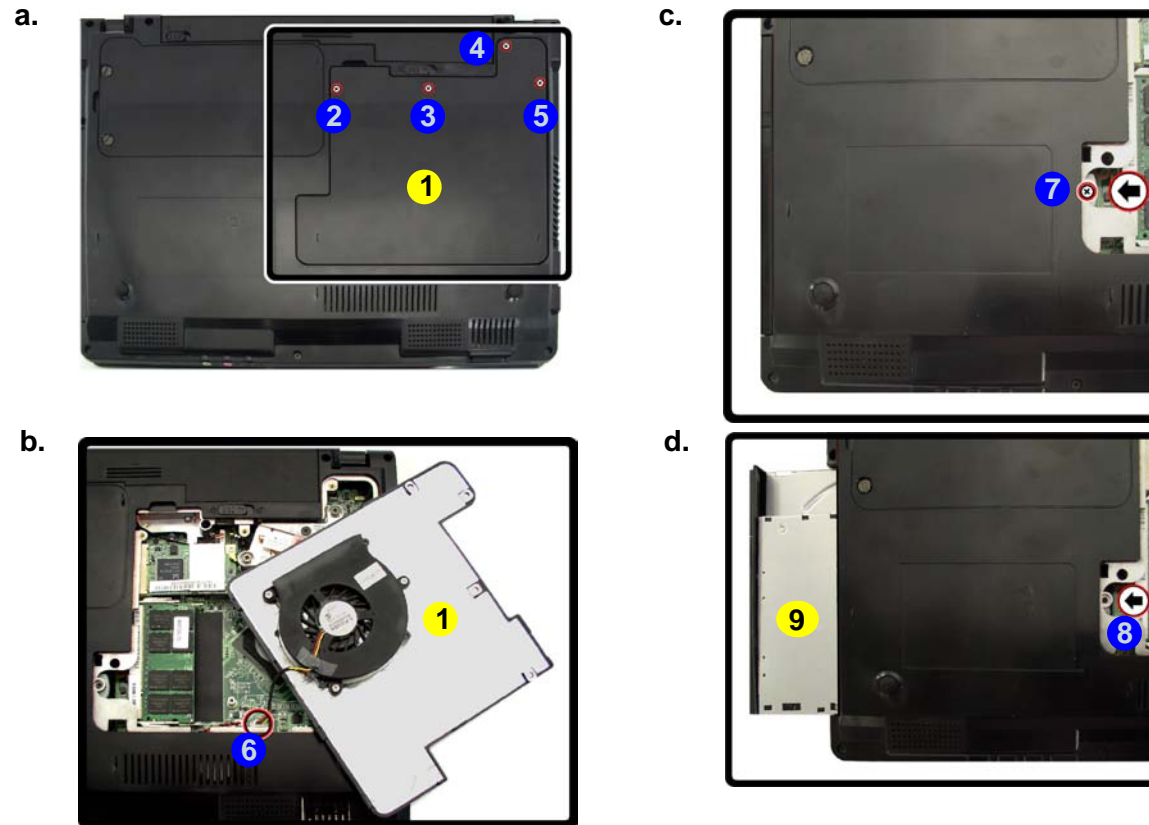
Disassembly

Figure 4
**Optical Device
 Removal**

- Remove the screws.
- Disconnect the fan cable and remove the cover.
- Remove the screw.
- Push the optical device out of the computer at point 8.

Removing the Optical (CD/DVD) Device

- Turn **off** the computer, and remove the battery ([page 2 - 5](#)).
- Locate the component bay cover **1** and remove screws **2** - **5**.
- Carefully (**a fan and cable are attached to the under side of the cover**) lift up the bay cover.
- Carefully disconnect the fan cable **6** and remove the bay cover **1**.
- Remove the screw at point **7**, and use a screwdriver to carefully push out the optical device **9** at point **8**.
- Insert the new device and carefully slide it into the computer (the device only fits one way. **DO NOT FORCE IT**; The screw holes should line up).
- Restart the computer to allow it to automatically detect the new device.



- Component Bay Cover
- Optical Device

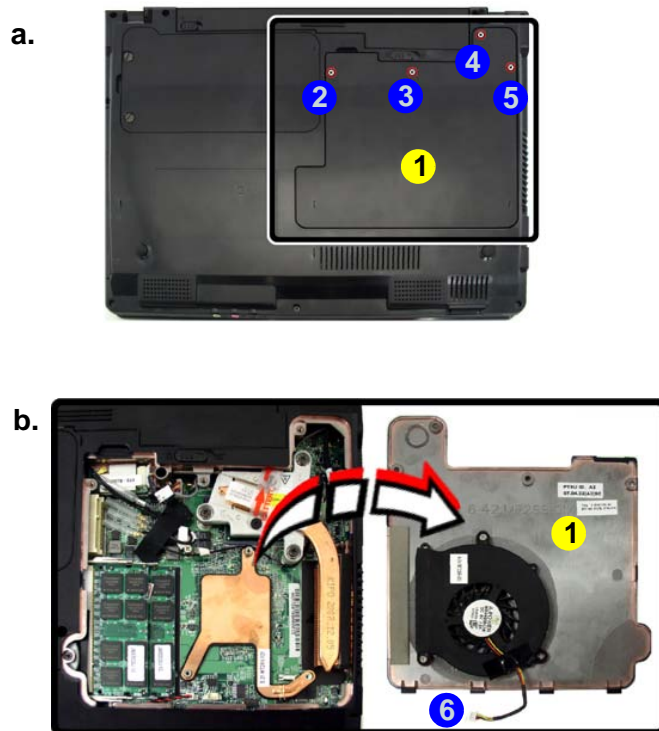
- 5 Screws

Removing the System Memory (RAM)

The computer has two memory sockets for 200 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting **DDR2** 800MHz. The main memory can be expanded up to 4GB. The SO-DIMM modules supported are 1024MB, and 2048MB and **DDRII** Modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

Memory Upgrade Process

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)).
2. Locate the component bay cover **1**, and remove screws **2** - **5**.
3. Carefully (**a fan and cable are attached to the under side of the cover**) lift up the bay cover.
4. Carefully disconnect the fan cable **6**, and remove the cover **1**.



Note:

Only one model is pictured here, however the component locations are the same for both models.

Figure 5
RAM Module Removal

- a. Remove the screws.
- b. Remove the cover.



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.



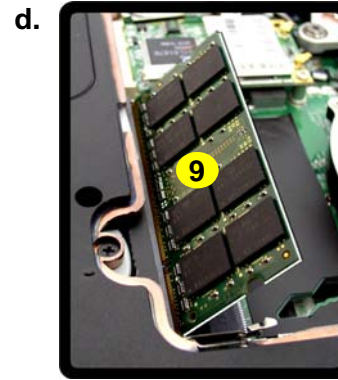
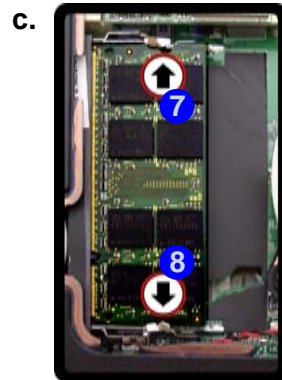
1. Component Bay Cover
- 4 Screws

Disassembly

Figure 6 RAM Module Removal (cont'd.)

- c. Pull the release latch(es).
d. Remove the module(s).
e. Replace the bay cover.

5. Gently pull the two release latches (7 & 8) on the sides of the memory socket in the direction indicated by the arrows (Figure 6c).



6. The RAM module(s) 9 will pop-up (Figure 6d), and you can then remove it.
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 (**make sure you reconnect the fan cable before screwing down the bay cover**).



Note:

Only one model is pictured here, however the component locations are the same for both models.

12. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

9. RAM Module(s)

Removing the Inverter Board

1. Turn **off** the computer, and remove the battery ([page 2 - 5](#)).
2. Remove any rubber covers, screws **1** - **6** ([Figure 7a](#)), then run your finger around the middle of the frame to carefully unsnap the LCD front panel module **7** from the back.
3. Discharge the remaining system power (see [Inverter Power Warning](#) below).
4. Remove screws **8** - **9** ([Figure 7b](#)) from the inverter, and carefully lift the inverter board up slightly.
5. Disconnect cables **10** & **11** ([Figure 7c](#)) from the inverter, then remove the inverter **12** ([Figure 7d](#)) from the top case assembly.

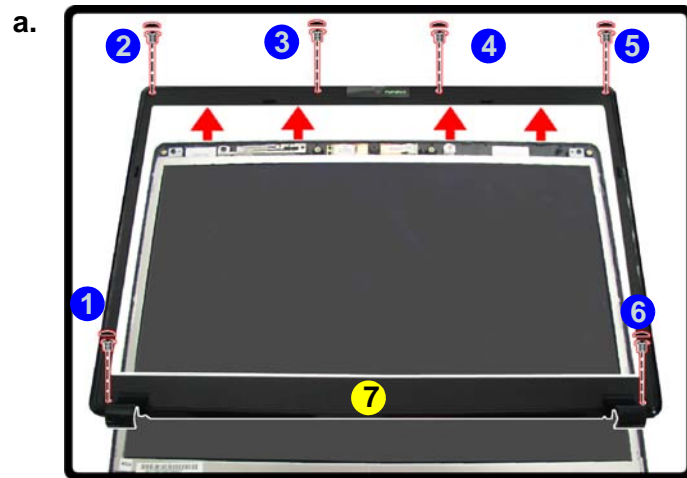




Figure 7
Inverter Board Removal

- a. Remove the 6 screws and unsnap the LCD front panel module from the back.
- b. Remove the screw and discharge the remaining power from the inverter board and lift the board up slightly.
- c. Disconnect the cables from the inverter.
- d. Remove the inverter.



Inverter Power Warning

In order to prevent a short circuit when removing the inverter it is necessary to discharge any remaining system power. To do so, press the computer's power button for a few seconds before disconnecting the inverter cable.



7. LCD Front Panel
12. Inverter Board

- 8 Screws

Disassembly

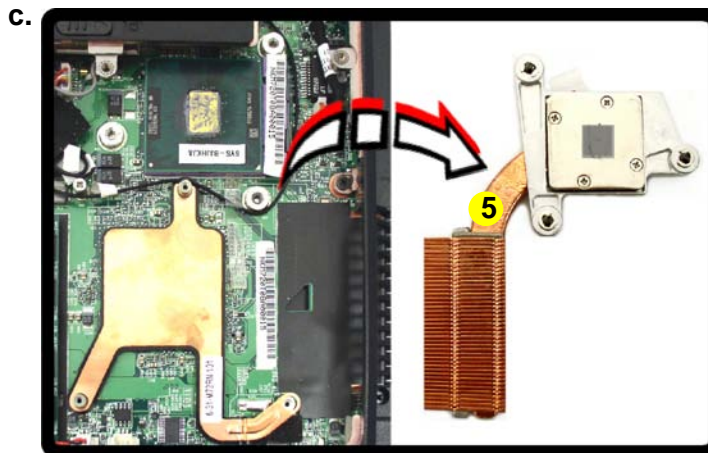
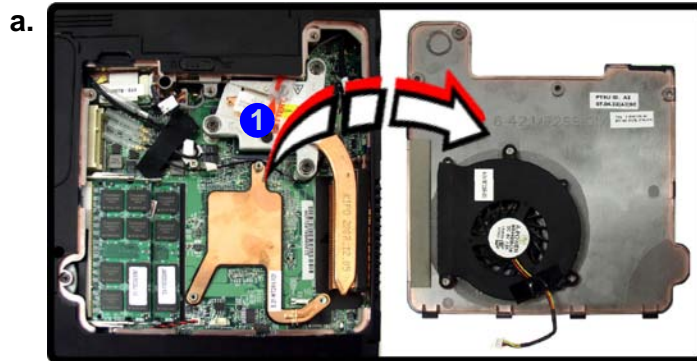
Figure 8

Processor Removal

- Remove the cover and locate the heat sink.
- Remove the 3 screws in the order indicated.
- Remove the heat sink.

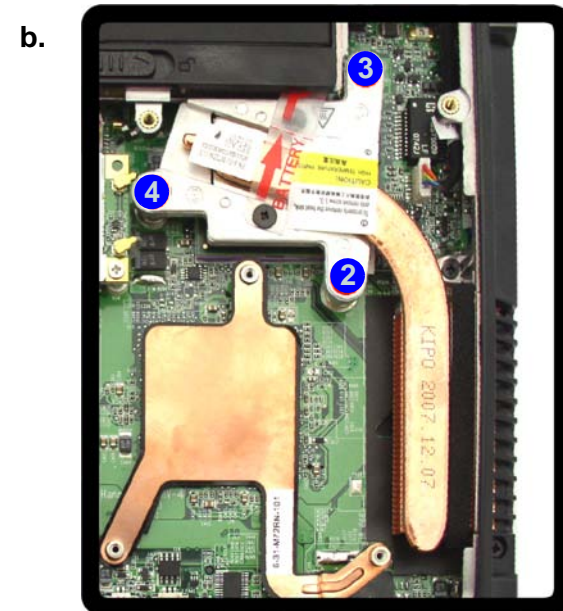
Removing the Processor

- Turn off the computer, and remove the battery ([page 2 - 5](#)) and the CPU/RAM bay cover ([page 2 - 9](#)).
- The CPU heat sink will be visible at point **1** on the mainboard.
- Loosen screws **2** - **4** from the heat sink in the order indicated.
- Carefully lift up the heat sink **5** ([Figure c](#)) off the computer.



Note:

Only one model is pictured here, however the component locations are the same for both models.




5. Heat Sink


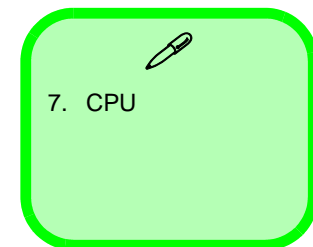
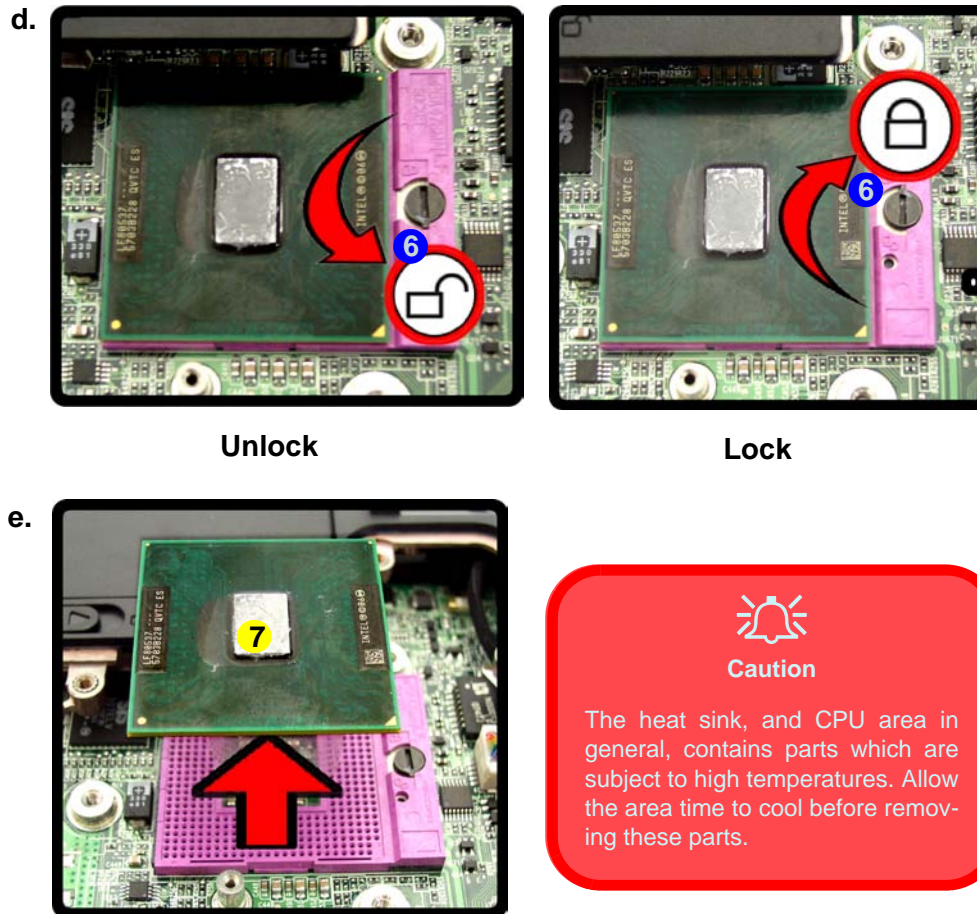
5. Turn the release latch **6** towards the unlock symbol , to release the CPU (*Figure d*).
6. Carefully (it may be hot) lift the CPU **7** up out of the socket (*Figure e*).
7. Reverse the process to install a new CPU.
8. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).

Figure 9
Processor Removal Sequence

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



Disassembly

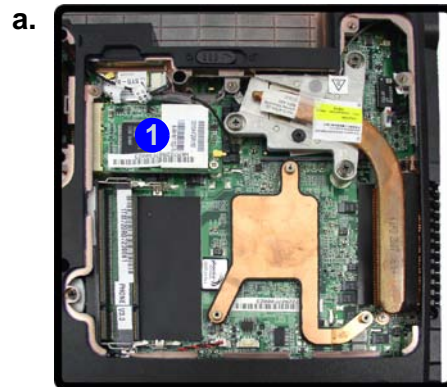
Figure 10
Wireless LAN
Module Removal

- Remove the cover.
- Disconnect the cables and remove the screw.
- The WLAN module will pop up.
- Lift the WLAN module out.

Note: Make sure you reconnect the antenna cable to “1” + “2” socket (Figure b).

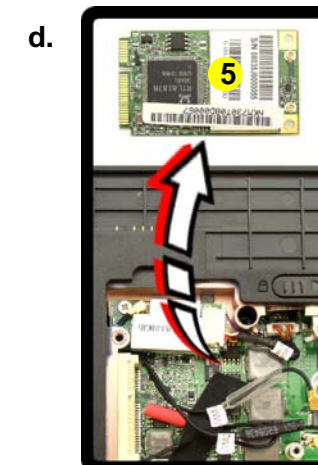
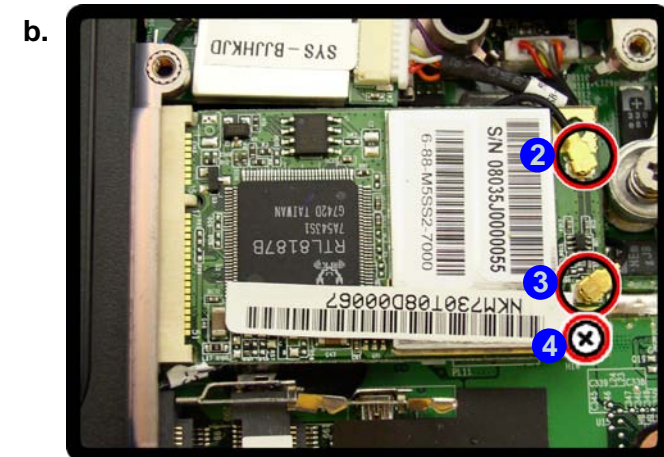
Removing the Wireless LAN Module

- Turn **off** the computer, remove the battery ([page 2 - 5](#)) and the component bay cover ([page 2 - 9](#)).
- The Wireless LAN module will be visible at point **1** on the mainboard.
- Carefully disconnect cables **2** - **3**, then remove screw **4** from the module socket.
- The Wireless LAN module **5** will pop-up.
- Lift the Wireless LAN module ([Figure 10d](#)) up and off the computer.



Note:

Only one model is pictured here, however the component locations are the same for both models.

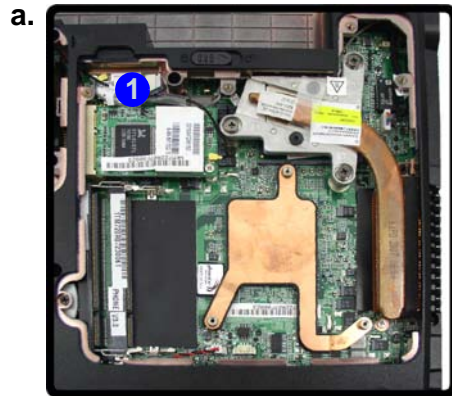


5. WLAN Module.

- 1 Screw

Removing the Bluetooth Module

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)).
2. The Bluetooth module will be visible at point **1** on the mainboard.
3. Remove screw **2** and carefully disconnect the cable **3** and separate the module from the connector **4**.
4. Lift the Bluetooth module **5** up and off the computer.



Note:

Only one model is pictured here, however the component locations are the same for both models.

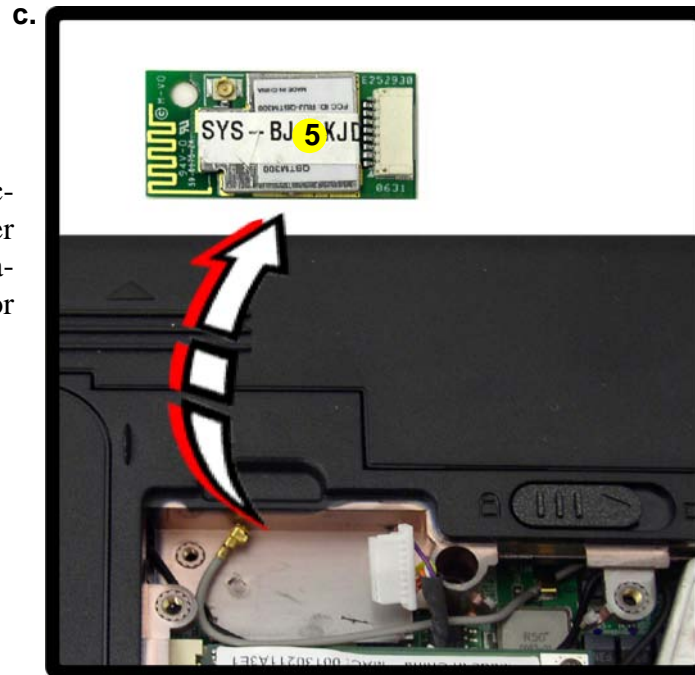
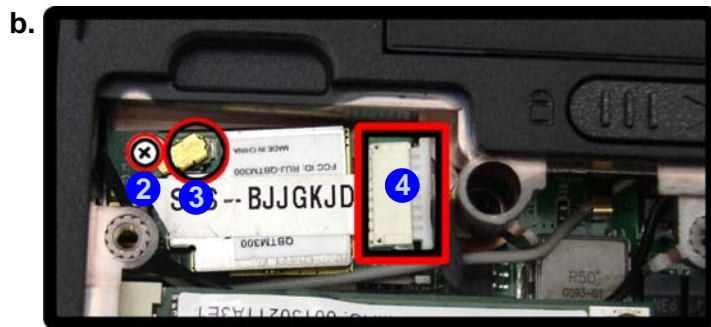
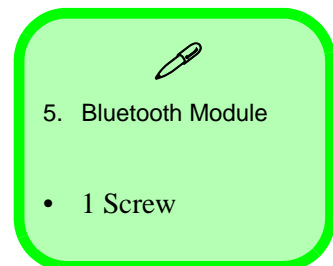


Figure 11
Bluetooth Removal

- a. Remove the cover and locate the Bluetooth module.
- b. Remove the screw and disconnect the cable and separate the connector.
- c. Lift the Bluetooth module out.



5. Bluetooth Module

- 1 Screw

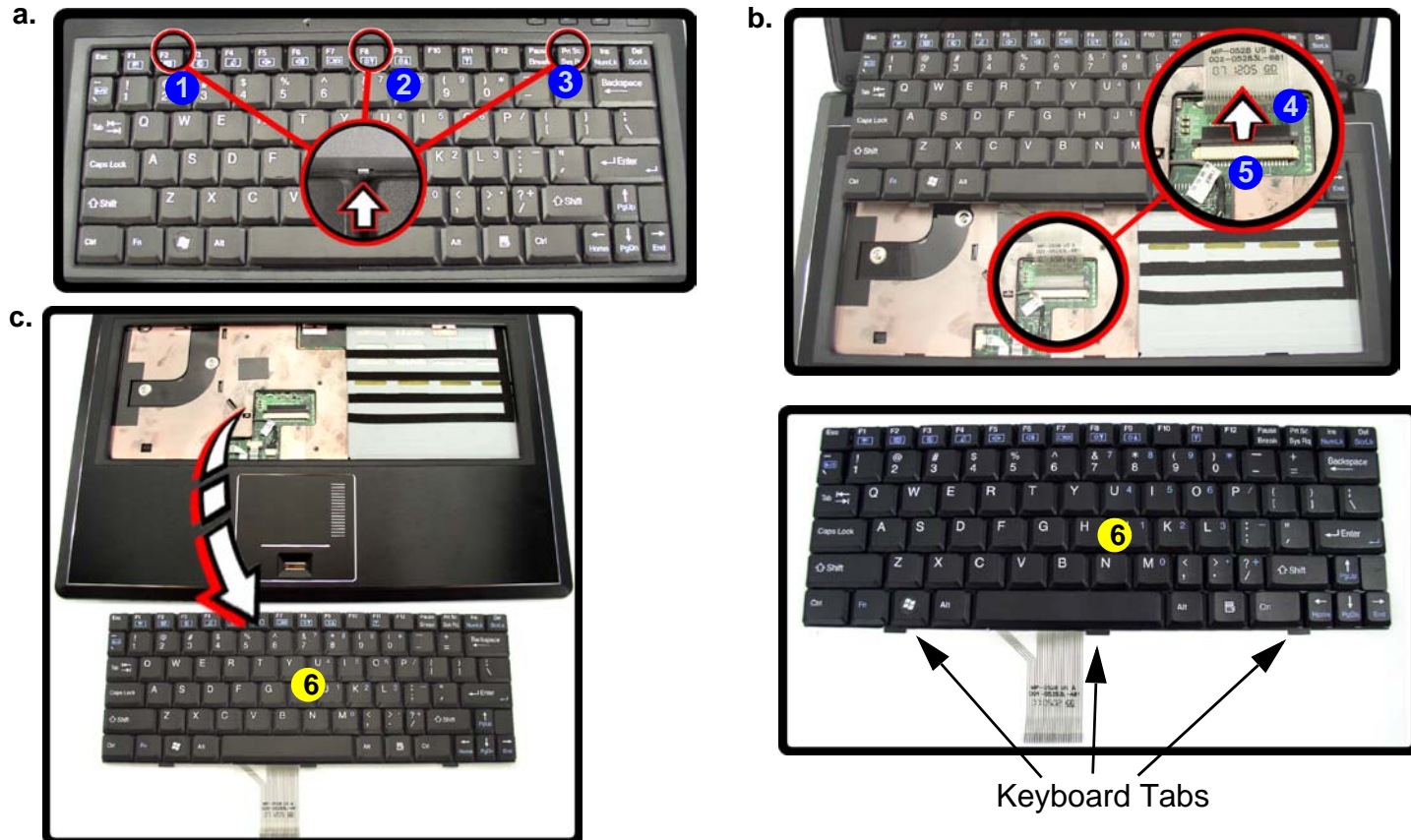
Disassembly

Figure 12
Keyboard Removal

- Press the three latches to release the keyboard.
- Lift the keyboard up and disconnect the cable from the locking collar.
- Remove the keyboard.

Removing the Keyboard

- Turn **off** the computer, and remove the battery ([page 2 - 5](#)).
- Press the **three** keyboard latches at the top of the keyboard to elevate the keyboard from its normal position (you may need to use a small screwdriver to do this).
- Carefully lift the keyboard up, being careful not to bend the keyboard ribbon cable ([Figure 12b](#)).
- Disconnect the keyboard ribbon cable **4** from the locking collar socket **5**.
- Carefully lift up the keyboard **6** ([Figure 12c](#)) off the computer.



Re-Inserting the Keyboard

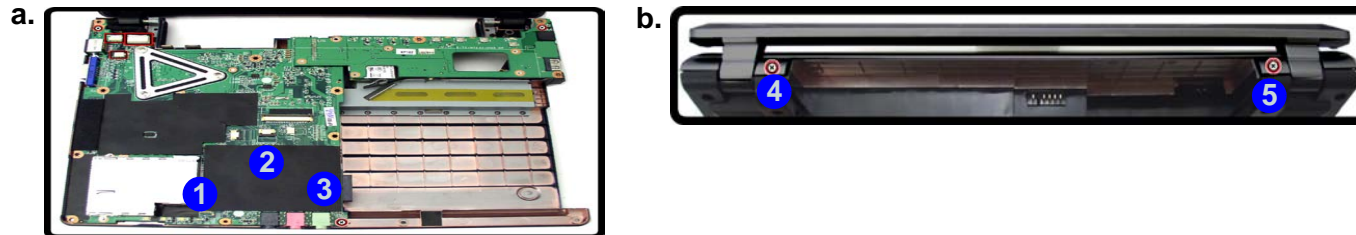
When re-inserting the keyboard firstly align the **three** keyboard tabs at the bottom of the keyboard with the slots in the case.



6. Keyboard Module.

Removing the Modem

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)), HDD ([page 2 - 6](#)), component bay cover ([page 2 - 9](#)), optical device ([page 2 - 8](#)), CPU ([page 2 - 12](#)), bluetooth ([page 2 - 15](#)) and keyboard ([page 2 - 16](#)).
2. Disconnect the connectors **1** - **3** from under the keyboard and turn it over.
3. Remove screws **4** - **5** from the rear of the computer.



4. Remove the screws **6** - **21** from the bottom case and disconnect the connectors **22** - **23** on the mainboard.
5. Carefully lift up the top case **24** off the computer.

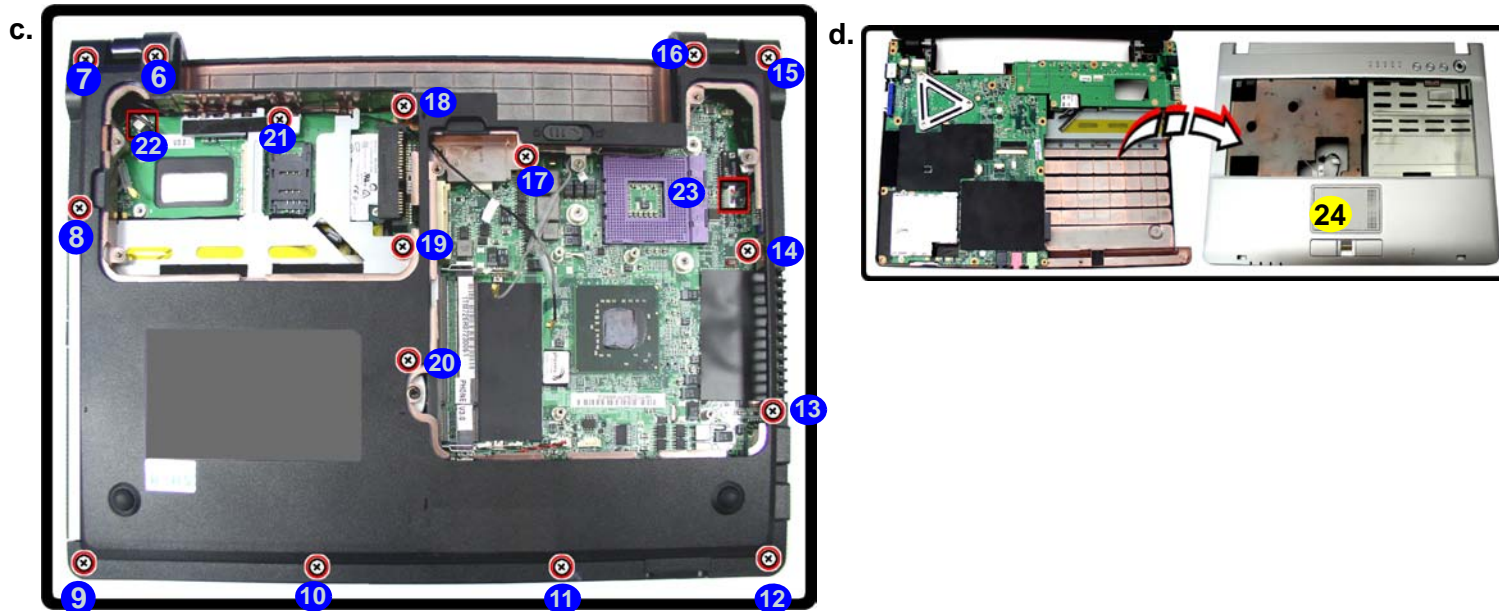



Figure 13
Modem Removal

- a. Disconnect the connectors from under the keyboard.
- b. Remove the screws.
- c. Remove the screws and disconnect the connectors from the mainboard.
- d. Remove the top case.


24. Top Case

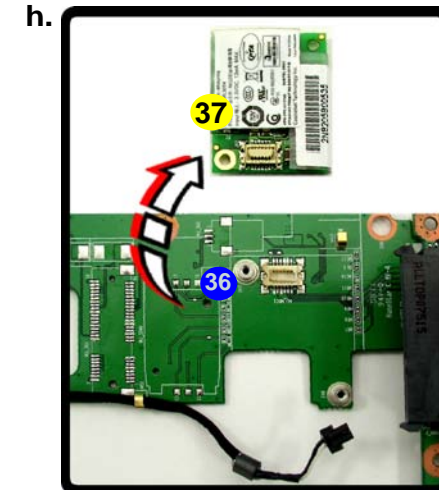
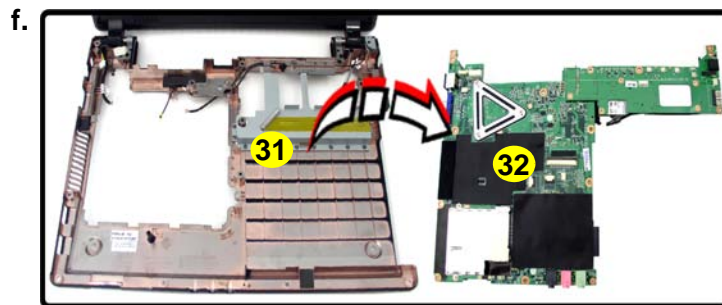
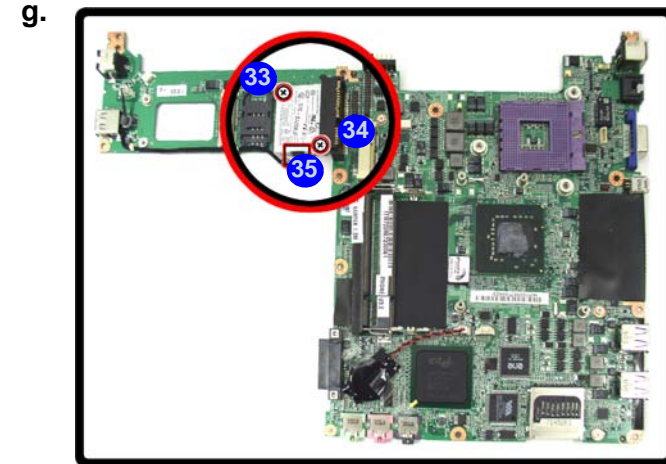
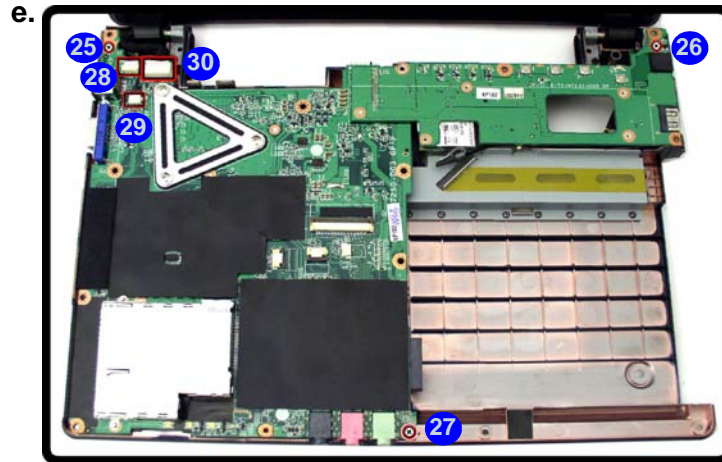
- 18 Screws

Disassembly

Figure 14 Modem Removal Sequence

- e. Remove the screws and disconnect the connectors.
- f. Separate the bottom case from the mainboard.
- g. Remove the screws and disconnect the connector.
- h. Lift the modem up off the socket.

6. Remove screws 25 - 27 and disconnect the connectors 28 - 30 from the mainboard.
7. Separate the bottom case 31 from the mainboard 32 and turn it over.
8. Remove the screws 33 - 34 and disconnect the connector 35 from the modem.
9. Lift the modem 37 up off the socket 36.



31. Bottom Case
32. Mainboard
37. Modem

- 5 Screws

Appendix A: Part Lists

This appendix breaks down the *M730TG* 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.

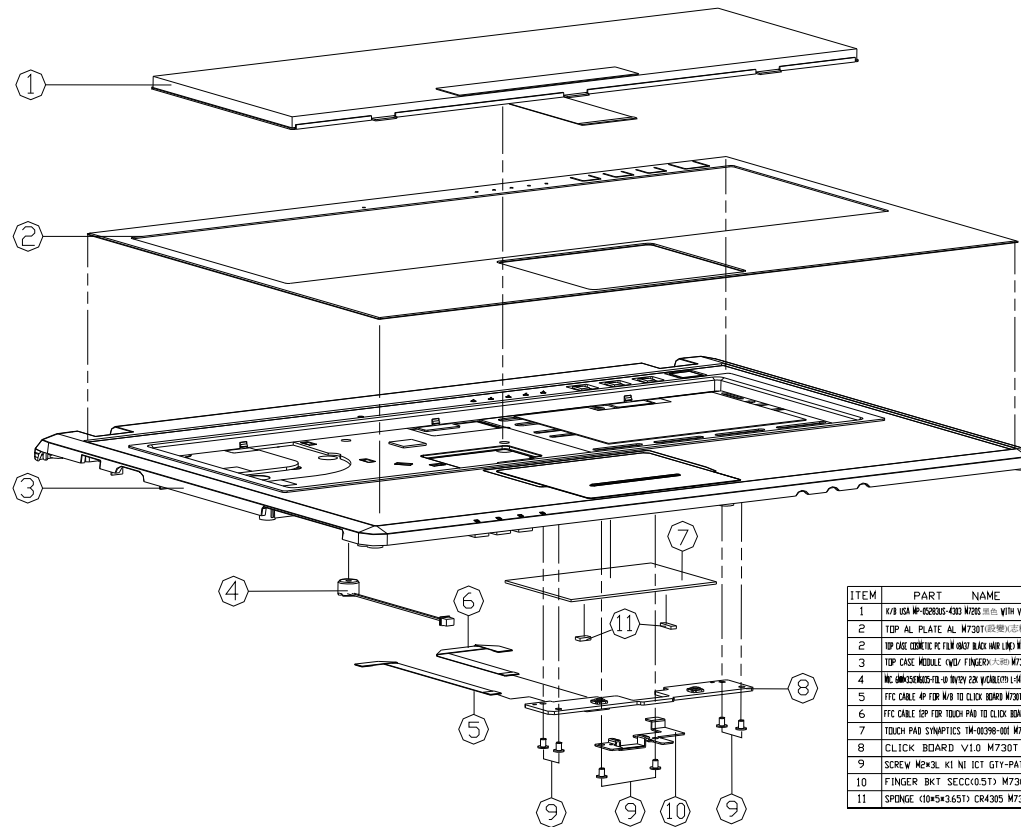
Part List Illustration Location

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

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

Parts	M730T
Top without Fingerprint	<i>page A - 3</i>
Bottom	<i>page A - 4</i>
LCD	<i>page A - 5</i>
DVD-Dual Drive	<i>page A - 6</i>

Top without Fingerprint

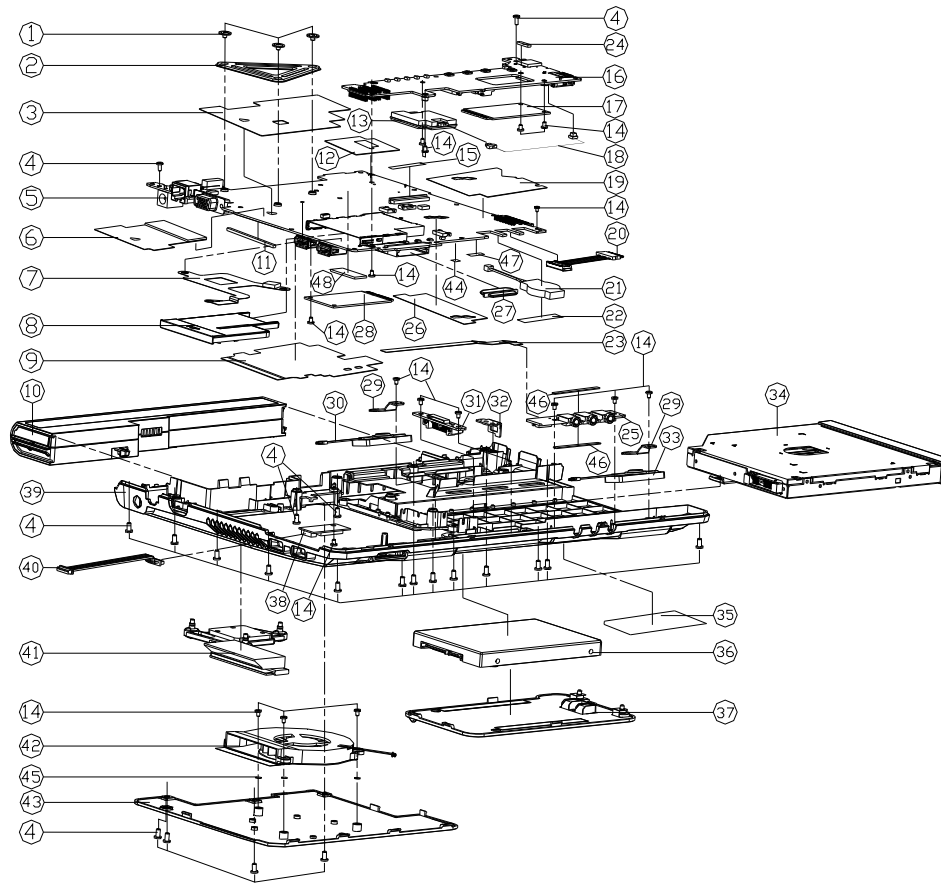


ITEM	PART NAME	PART NO	REMARK
1	M731SR M730T M730T (10*5*3.65) CR4305 M730T	6-80-M7250-011-1	
2	TOP AL PLATE AL M730T (10*5*3.65) CR4305 M730T	6-33-M7312-023-1	FDR M730T/SR
2	TOP CASE COBATIC PC FILM GRAY BLACK HWR LIND M730T	6-40-M73R2-013	FDR M731SR
3	TOP CASE MODULE QWERTY FINGERPAD M730T	6-39-M7312-013-1	
4	MC AM3558325-10 INVERTER 22K M730T	6-23-EM731T-011	
5	FFC CABLE 4P FOR M73 TO CLICK BOARD M730T	6-43-M7310-030	
6	FFC CABLE 12P FOR TOUCH PAD TO CLICK BOARD	6-43-M7310-021	
7	TOUCH PAD SYNAPTICS TM-00398-001 M740S	6-49-M74S2-010	
8	CLICK BOARD V1.0 M730T	6-77-M7312-D01	
9	SCREW M2x3L KI NI ICT GY-PATCH	6-35-B1120-3RE	
10	FINGER BKT SECC005T) M730T	6-33-M7312-012	
11	SPONGE (10*5*3.65) CR4305 M730T	6-47-0019A-102	

Figure A - 1
Top without
Fingerprint

Bottom

Figure A - 2
Bottom



ITEM	PART NAME	PART NO	REMARK
1	MS-405-25-152R1#3252JAN21#M30N MILL#61	6-35-41025-2RS	
2	DVD SUPER MIDDLE 15110000	6-33-M72SS-011	
3	MYLAR FOR M6 (FRESHENKADAPAF) M730T	6-40-M73TS-011	
4	SCREW M2.5*6L K BZ IGT	6-35-82125-6R0	
5	MAIN BOARD V30A M730TIG3	6-77-M73TG-D03A	
6	NORTH BRIDGE MYLAR (FRESHENKADAPAF) M730T	6-40-M73TS-022	
7	NORTH BRIDGE HEATSINK MIDDLE ODD M730T	6-31-M72RN-101	
8	DUMMY NEW CARD PC+ABS TNEOR	6-42-T12R3-011	
9	NY ODD-150 M400000 + REMANUFACTURE	6-40-M73TS-081	
10	MT3111 NAYCAN KIP QYPHONGAC 299-0123001	6-87-M72SS-5DP2	
11	MYLAR-1 FOR M6 (S024155) PC M730S	6-40-M72SS-051	
12	LET-FE ODD01 MILAR FOR M400 (FRESHENKADAPAF) M730T	6-40-M73TS-041	
13	ODD BRIDGE BRACKET FOR M730T	6-88-L39T1-5301	
13	ODD BRIDGE BRACKET FOR M730T	6-88-M76S1-6111	
14	SCREW M2*3L K1 NI IGT NY	6-35-B1120-3RA	
15	MS202 K/3 CONAN MYLAR	6-40-M52GS-061	
16	MULTI I/O BOARD V30A (V30M730T)	6-77-M73T1-D03A	
16	MULTI I/O BOARD V30 (V30 M730T)	6-77-M73T1-D03A-1	
17	NYM HORN M730S SERVOBELLS NY ODD 028 306	6-88-M72SV-720	(OPTION)
18	WIRE CABLE FOR RJ-45 TO NIC 2P M726S	6-43-M72SU-010	(OPTION)
19	MAIN BOARD AL FOIL M730T	6-40-M73TS-011	
20	CABLE FOR M8 TO SATA ODD 12PIN M730T	6-43-M73T2-011	
21	MTI 20M BY 220MM V-CABLE 60M REVERSE	6-23-22015-PDD	FOR M730T
21	MTI 20M BY 220MM V-CABLE 60M REVERSE	6-23-22015-P2C	FOR M730TG
22	TAPE MYLAR 4540420POLYESTER FILM M730T	6-40-M73TS-0A0	
23	FFC CABLE 1P FOR M8 TO AUDIO BOARD M730T	6-43-M73T0-011	
24	PERDIN 3*10.5*2T PERDIN M730T	6-47-M73T0-030	
25	AUDIO BOARD V2.0 M730T	6-77-M73T8-D02A	
26	DDR MYLAR FRB3 M730T	6-40-M73T8-061	
27	CARD READER RUBBERSLICKEN RUBBER M730T	6-47-M73T8-010	
28	NYM BRETTING AN-040702100 MINI-CARD USB RT	6-88-M55S2-7000	(OPTION)
29	SPEAKER BRACKET SECC M730T	6-33-M73T3-021	
30	SPEAKER ZHANG YI 60M L-SIDE TUBER (6-29A02)	6-23-5M73T-022	
31	ODD BRIDGE BOARD V2.0 M730T	6-77-M73T8-D02	
32	LOCK BRACKET SECC M730T	6-33-M73T3-010	
33	SPEAKER ZHANG YI 60M L-SIDE TUBER (6-29A02) M730T	6-23-5M73T-011	
34	SATA DVD SUPER MULTI ASS'Y	6-79-M730T000-010	
35	PRODUCT LABEL M730T	6-45-M73T3-010-1	
35	PRODUCT LABEL M730TG	6-45-M730T003-010	
36	W/O HDD ASS'Y M730T	6-79-M730T00J-010	
37	HDD COVER MIDDLE (REAR) M730T	6-42-M73TJ-105-1	
38	W/O HDD ASS'Y M730T	6-88-M73T3-3900	(OPTION)
39	BOTTOM CASE MODULE M730T	6-39-M73T3-013-1	
40	WIRE CABLE FOR BLUE LED TO M8 SP M726S	6-43-M72SB-010	
41	HEAT SINK MODULE M726S (GIBBY) M730T	6-31-M72SN-104	
42	FAN MODULE M720T	6-31-M72TS-101	
43	CPU COVER MODULE M730T	6-42-M73TS-107-1	
44	PROTECT M6 MYLAR FRB3 M726S	6-40-M72SS-041	
45	PERDIN-L32 (042411) FOR FAN M730T	6-47-M73TS-020	
46	PERDIN FOR M6 (37425H) PERDIN M730T	6-47-M73TS-010	
47	MYLAR FOR M6 (050428D) (FRESHENKADAPAF) M730T	6-40-M73TS-091	
48	SPONGE (23540423T) CR2035 FOR M6 M730T	6-47-0019A-235	

A.Part Lists

LCD

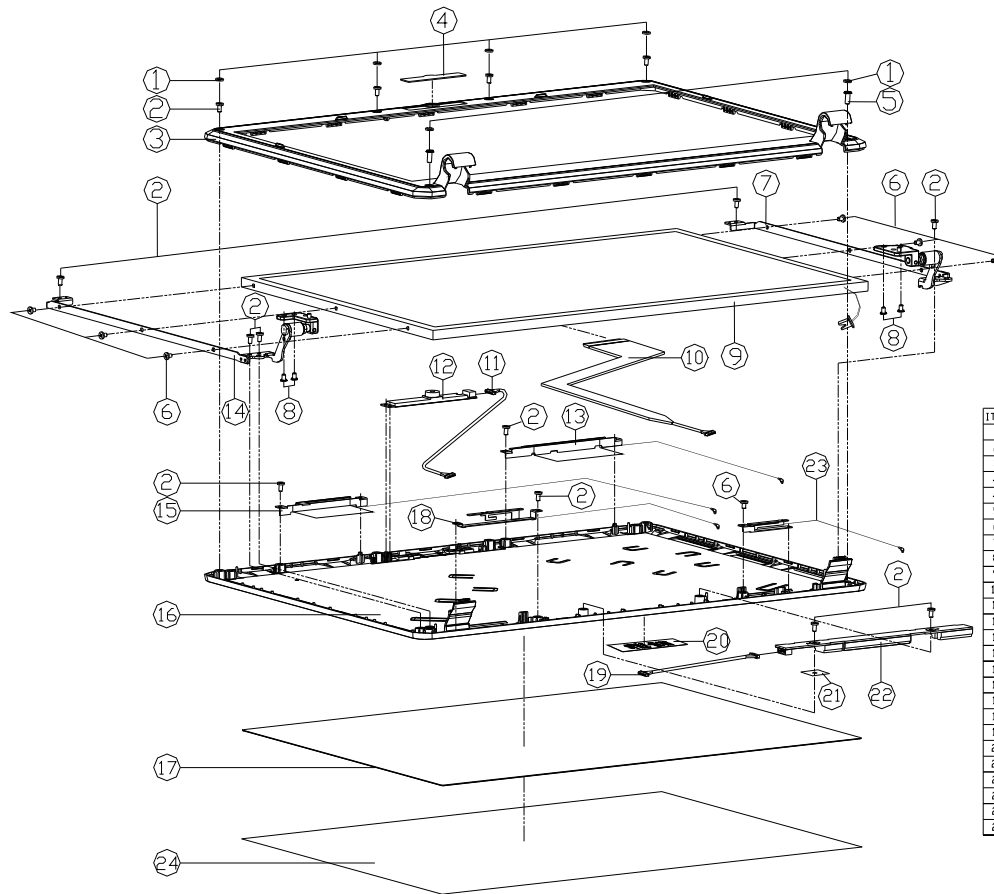


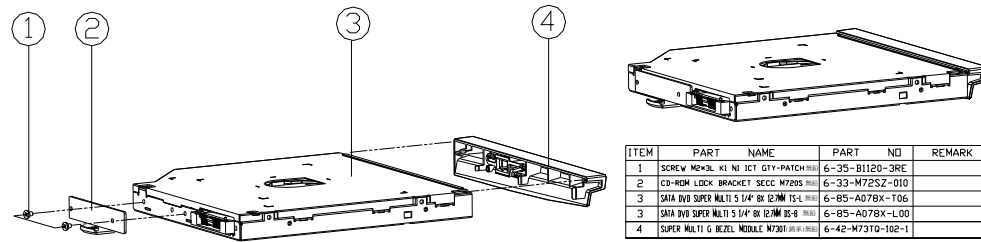
Figure A - 3
LCD

ITEM	PART NAME	PART NO	REMARK
1	LCD FRONT COVER SOXEY ADLE RUBBER M206	6-47-M72S1-021	
2	SOXEY M24L 1 BZ ICT GY-PALCH (1-08 B-4)	6-35-C6120-4RB	
3	LCD FRONT COVER MODULE M730T	6-39-M73T1-014	
4	CCD COSMETIC PLATE PMMA M730T	6-42-M73T1-010	W/CCD
4	CCD MYLAR FR700 M730T	6-40-M73T1-010	W/O CCD
5	SCREW M2.5*5L K1 BK/Z ICT NY	6-35-B6125-5RA	
6	SOXEY M24L 1 BZ ICT GY-PALCH (1-08 B-4)	6-35-C6120-4RB	
7	LCD HINGE R SECC-SKT*ZN M730T	6-33-M73T1-021-1	
8	SCREW M2.5*6L K BZ ICT	6-35-B6125-6RO	
9	LCD I2C VGA AU SOCKET V3 GLARE TYPD S3M	6-50-G8255-G00	
10	WIRE CABLE FOR LED IN IN SOCKET V3 GLARE TYPD M730T	6-43-M73T1-011	
11	WIRE CABLE M/B TD CCD M730T	6-43-M73T1-011	
12	UVX CAMERA BEZEL FIX BUSHES-000 1.3M M600L	6-88-M810C-4910	
13	WIRE M2.5*5L K1 BK/Z ICT NY	6-35-B6125-5RA	(OPTION)
14	LCD HINGE L SECC-SKT*ZN M730T	6-33-M73T1-022-1	
15	WIRE M2.5*5L K1 BK/Z ICT NY	6-35-B6125-5RA	(OPTION)
16	LCD BACK COVER MODULE M730T	6-39-M73T1-023	
17	BACK COVER COSMETIC PLATE AL M730T	6-33-M73T1-012-1	
18	WIRE M2.5*5L K1 BK/Z ICT NY	6-35-B6125-5RA	
19	CABLE FOR INVERTER M730T	6-43-M73TR-011	
20	SPRUE M2.5*5L K1 BK/Z ICT NY	6-45-M74S1-012-1	
21	MYLAR FOR INVERTER 04454404 M600L	6-40-M66NS-061	
22	INVERTER MODULE R SIMBA TYS-04-9308000000 C1 M600L	6-76-M66OR-011	
22	INVERTER MODULE RBA M1AC DA-1488-CV200L	6-76-M66OR-010	
23	WIRE M2.5*5L K1 BK/Z ICT NY	6-35-B6125-5RA	
24	BACK COVER PROTECT MYLAR 088250 M730T	6-40-M73T1-020	

A.Part Lists

DVD-Dual Drive

Figure A - 4
DVD-Dual Drive



ITEM	PART NAME	PART NO	REMARK
1	SCREW M2x5. KI NI TCT QTY-PATCH	6-35-D1120-3RE	
2	CD-ROM LOCK BRACKET SECC M2X5	6-33-M72SZ-010	
3	SATA DVD SUPER MULTI'S 1/4" BK 12MM TS-L	6-85-A078X-T06	
3	SATA DVD SUPER MULTI'S 1/4" BK 12MM BS-8	6-85-A078X-L00	
4	SUPER MULTI G BEZEL MODULE M2X1	6-42-M7310-102-1	

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *M730TG* 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>ICH9-M 3/5 - GPIO, PWR Management - Page B - 16</i>	<i>Power 1.5VS, 1.05VS, 3.3V, 5V - Page B - 30</i>
<i>Intel Penryn (Socket-P) 1/2 - Page B - 3</i>	<i>ICH9-M 4/5 - Power - Page B - 17</i>	<i>Power 1.8V, 0.9VSM - Page B - 31</i>
<i>Intel Penryn (Socket-P) 2/2 - Page B - 4</i>	<i>ICH9-M 5/5 - GND - Page B - 18</i>	<i>Power VCORE - Page B - 32</i>
<i>Cantiga 1/6 - Host - Page B - 5</i>	<i>Clock Generator - Page B - 19</i>	<i>Power AC-IN, Charger - Page B - 33</i>
<i>Cantiga 2/6 - VGA, CRT - Page B - 6</i>	<i>Multi I/O, ODD, CCD, BT, TPM - Page B - 20</i>	<i>Multi I/O Board 1/2 - Page B - 34</i>
<i>Cantiga 3/6 - DDR - Page B - 7</i>	<i>New Card, Mini PCIE - Page B - 21</i>	<i>Multi I/O Board 2/2 - Page B - 35</i>
<i>Cantiga 4/6 - Power - Page B - 8</i>	<i>LED, FAN, TP, FP, USB - Page B - 22</i>	<i>Finger Printer Board - Page B - 36</i>
<i>Cantiga 5/6 - Power - Page B - 9</i>	<i>JMB385 Card Reader - Page B - 23</i>	<i>Click Board - Page B - 37</i>
<i>Cantiga 6/6 - GND - Page B - 10</i>	<i>PCI-E LAN RTL8111C - Page B - 24</i>	<i>M730T ODD Bridge Board - Page B - 38</i>
<i>DDRII CHANNEL A - Page B - 11</i>	<i>Audio Codec ALC662 - Page B - 25</i>	<i>M730T Audio Board - Page B - 39</i>
<i>DDRII CHANNEL B - Page B - 12</i>	<i>Audio AMP2056 - Page B - 26</i>	<i>Power Sequence Diagram - Page B - 40</i>
<i>Panel, Inverter, CRT - Page B - 13</i>	<i>KBC-ITE IT8512E - Page B - 27</i>	<i>Power Sequence v3.0 - Page B - 41</i>
<i>ICH9-M 1/5 - SATA - Page B - 14</i>	<i>System Power, LED BKLT - Page B - 28</i>	
<i>ICH9-M 2/5 - PCIE, PCI, USB - Page B - 15</i>	<i>Power VDD3, VDD5 - Page B - 29</i>	

Table B - 1
**Schematic
Diagrams**

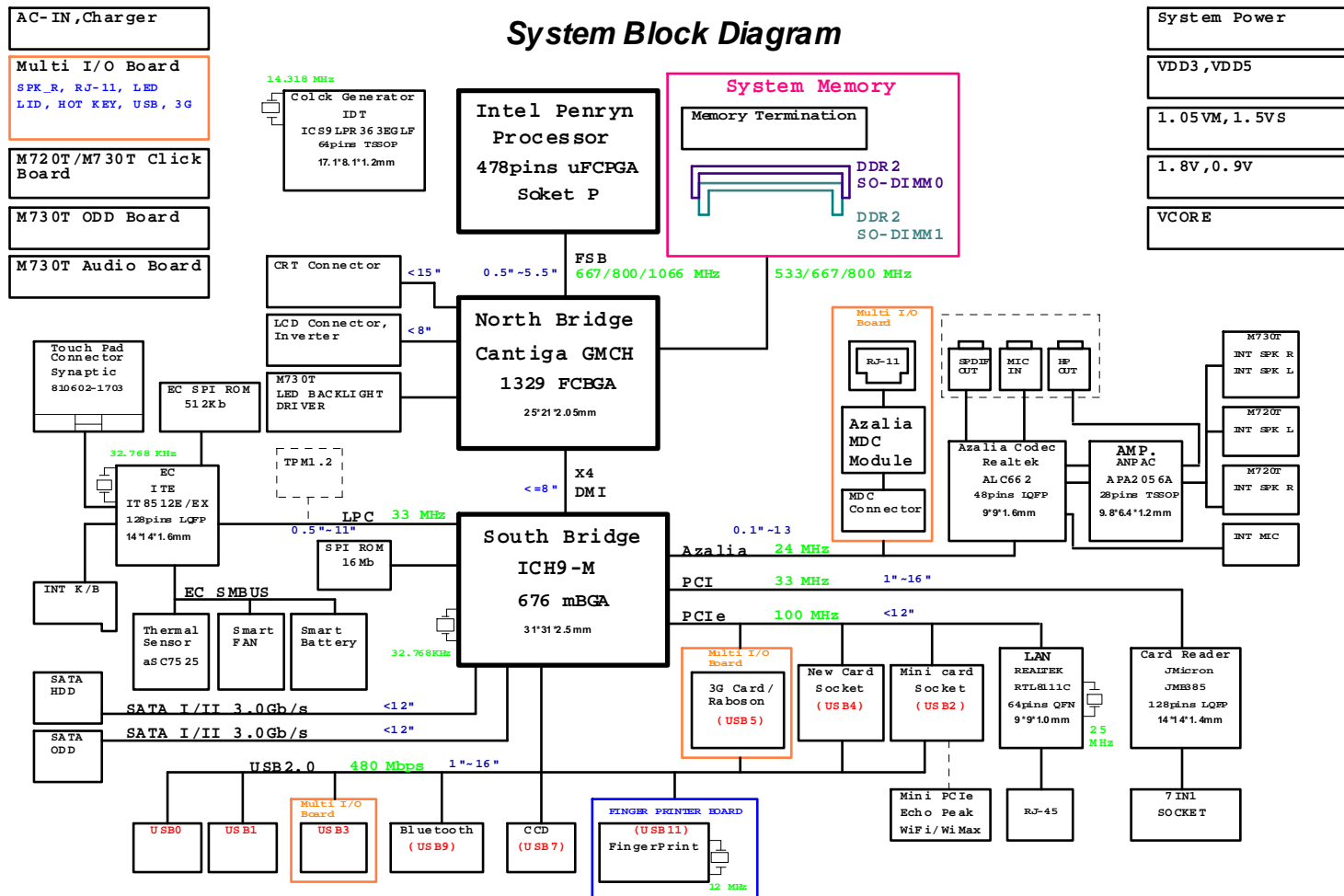


Version Note

The schematic diagrams in this chapter are based upon version 6-7P-M72T6-005. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

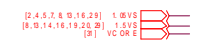
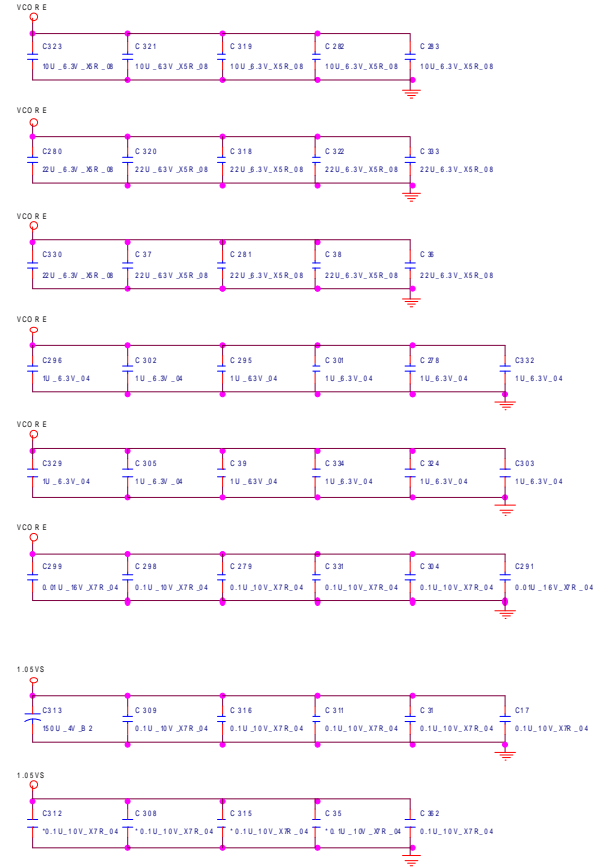
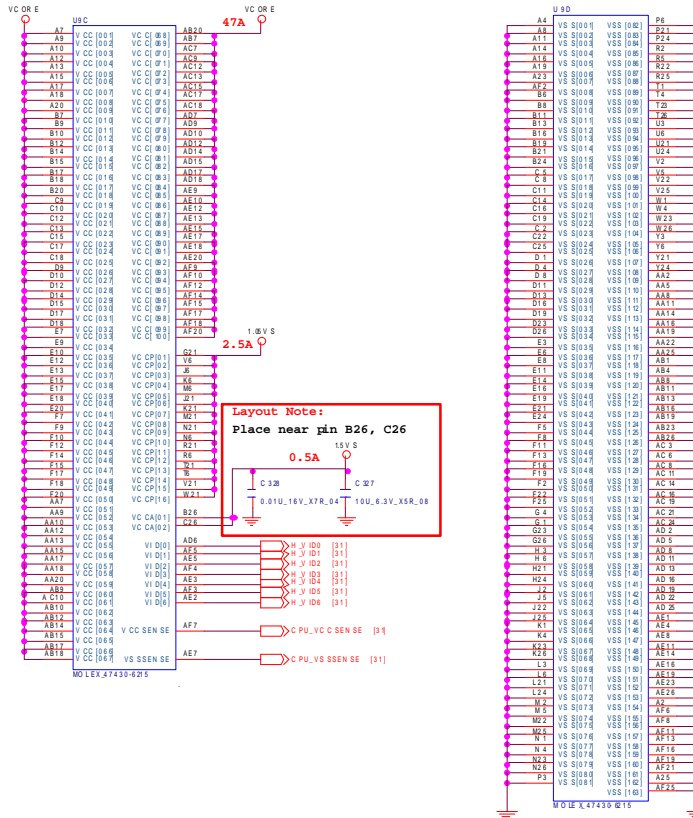
System Block Diagram

Sheet 1 of 40
System Block Diagram

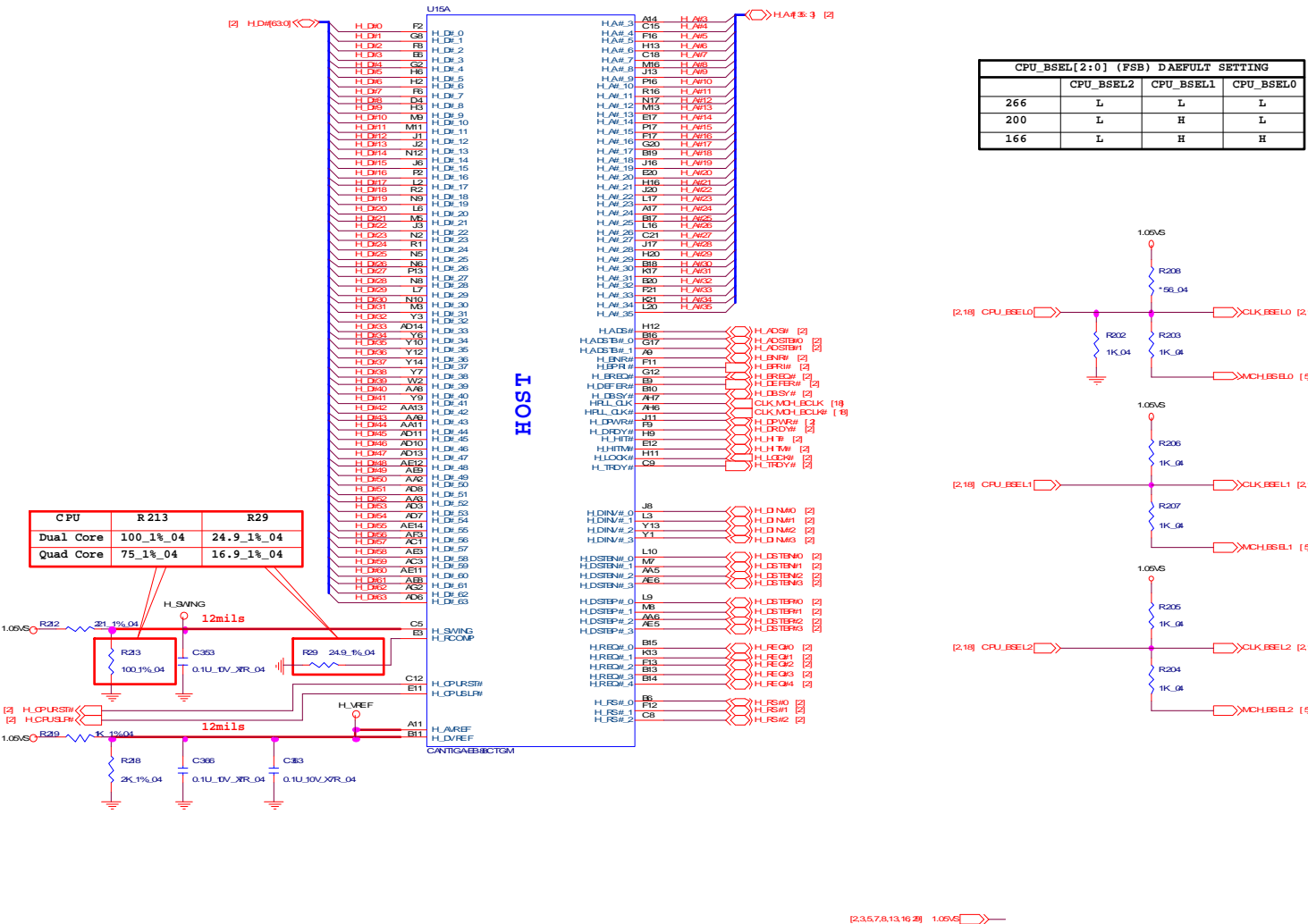


Intel Penryn (Socket-P) 2/2

Sheet 3 of 40
Intel Penryn
(Socket-P) 2/2



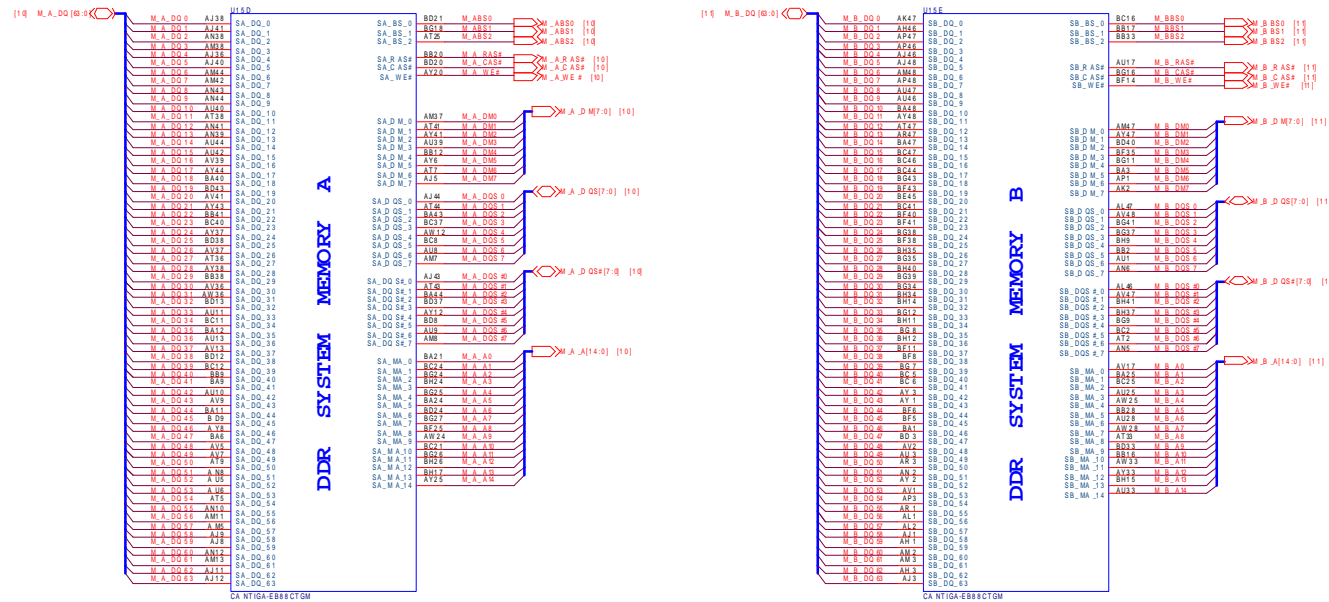
Cantiga 1/6 - Host



Sheet 4 of 40
Cantiga 1/6 - Host

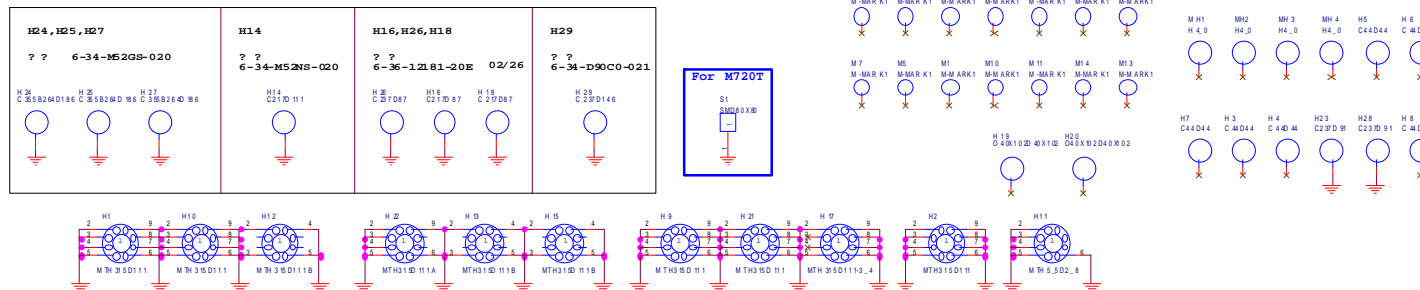
B. Schematic Diagrams

Cantiga 3/6 - DDR



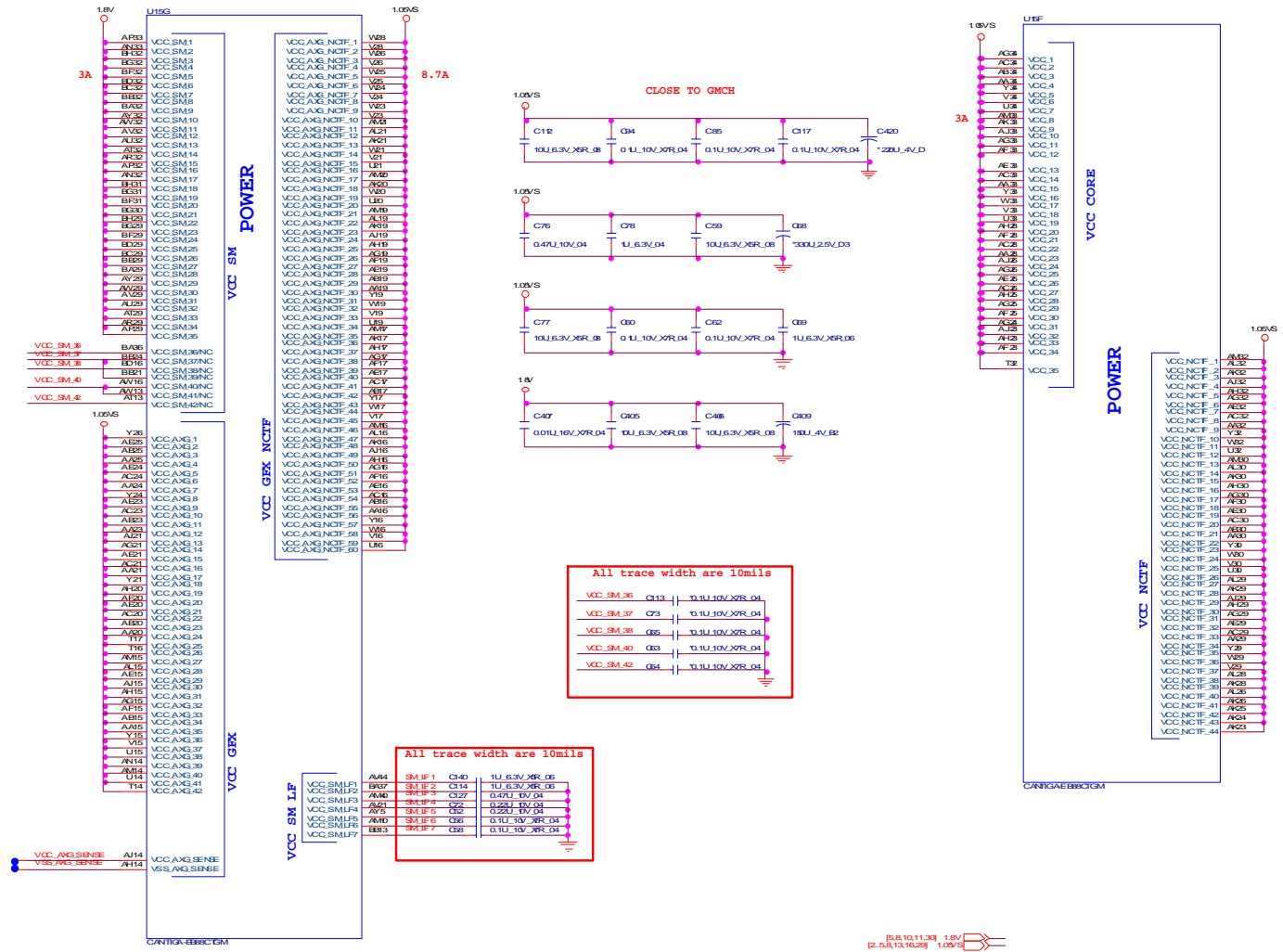
Sheet 6 of 40
Cantiga 3/6 -DDR

B.Schematic Diagrams



Cantiga 4/6 - Power

Sheet 7 of 40
Cantiga 4/6 - Power



All trace width are 10mils

VCC SM 36 C113 10.1U,10V,XPR_04

VCC SM 37 C73 10.1U,10V,XPR_04

VCC SM 38 C85 10.1U,10V,XPR_04

VCC SM 40 C83 10.1U,10V,XPR_04

All trace width are 10mils

A44 SM1E1 C140 1U,6.3V,XPR_06

B407 SM1E2 C114 1U,6.3V,XPR_06

A401 SM1E4 C327 0.22U,10V,D3

A79 SM1E5 C32 0.22U,10V,D3

A40 SM1E6 C36 0.1U,10V,XPR_04

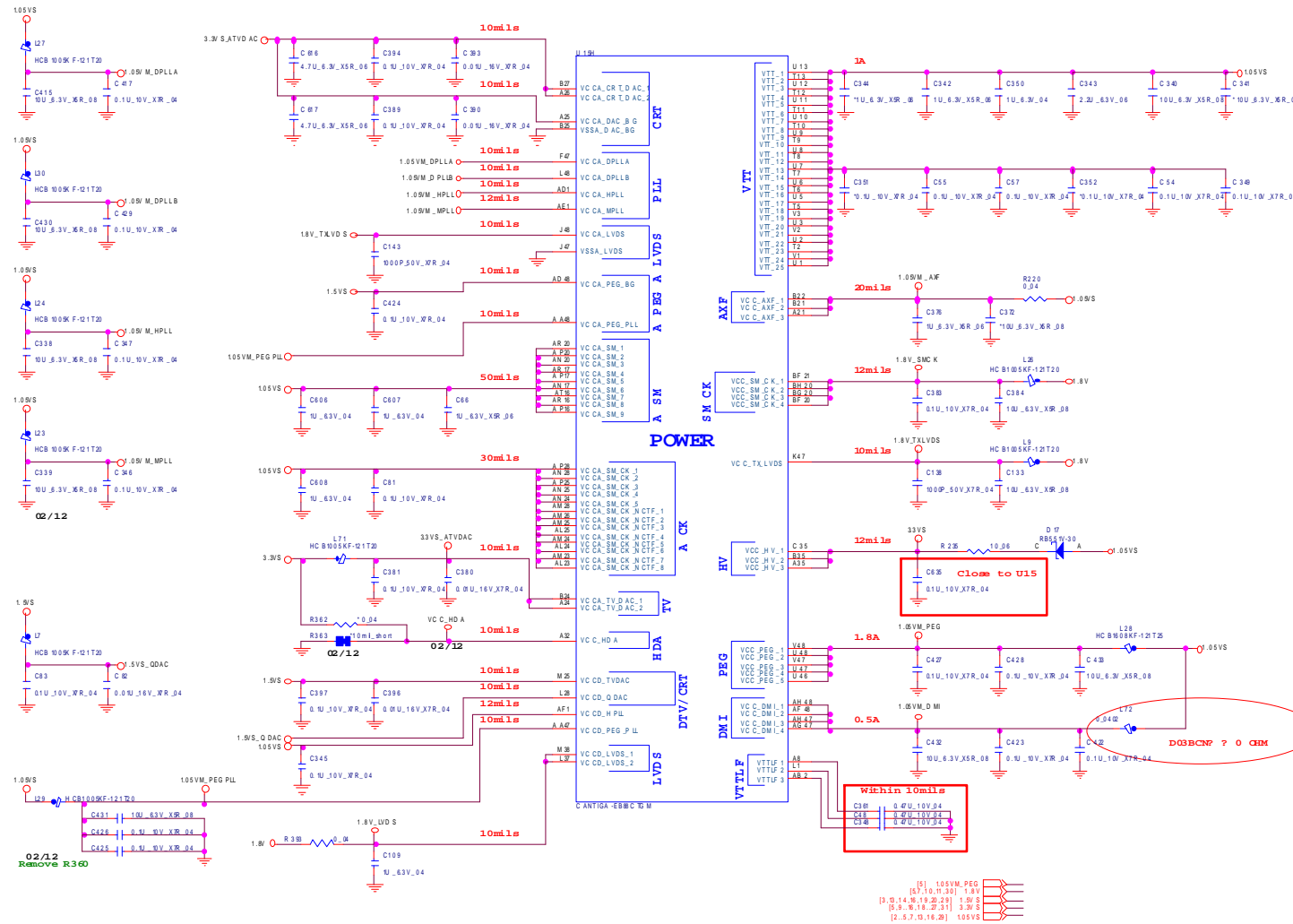
B483 SM1E7 C88 0.1U,10V,XPR_04

[5,8,10,11,20] 1.8V

[2,5,11,16,29] 1.05V

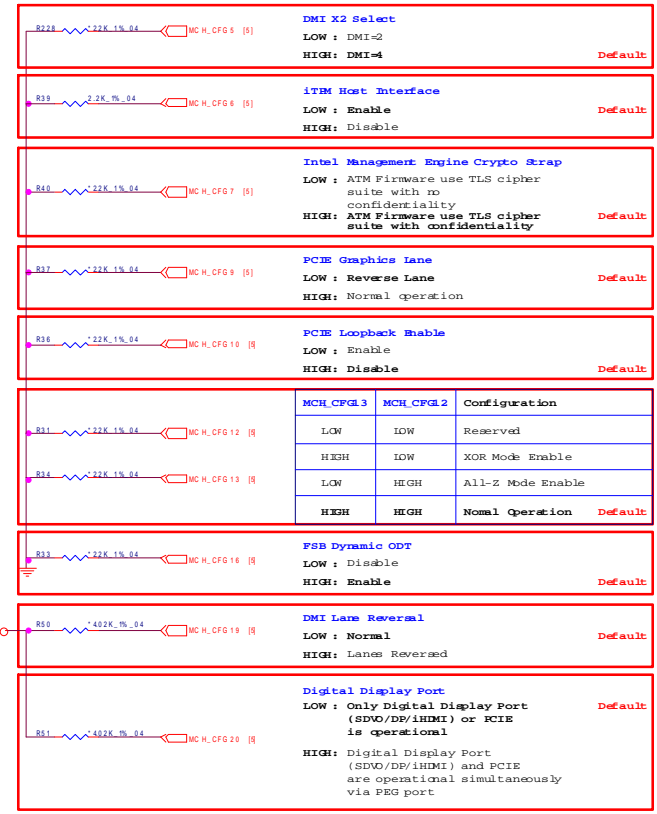
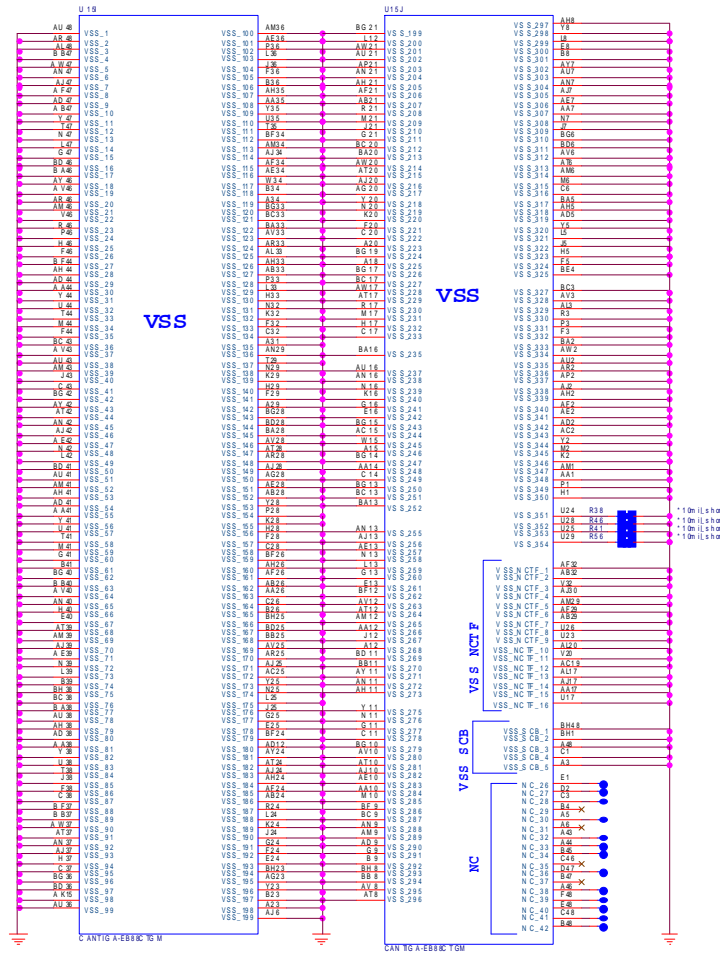
Cantiga 5/6 - Power

Sheet 8 of 40
Cantiga 5/6 - Power



Cantiga 6/6 - GND

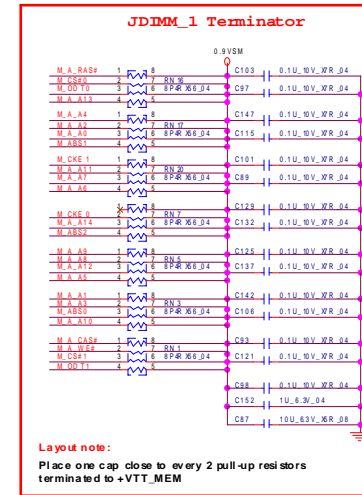
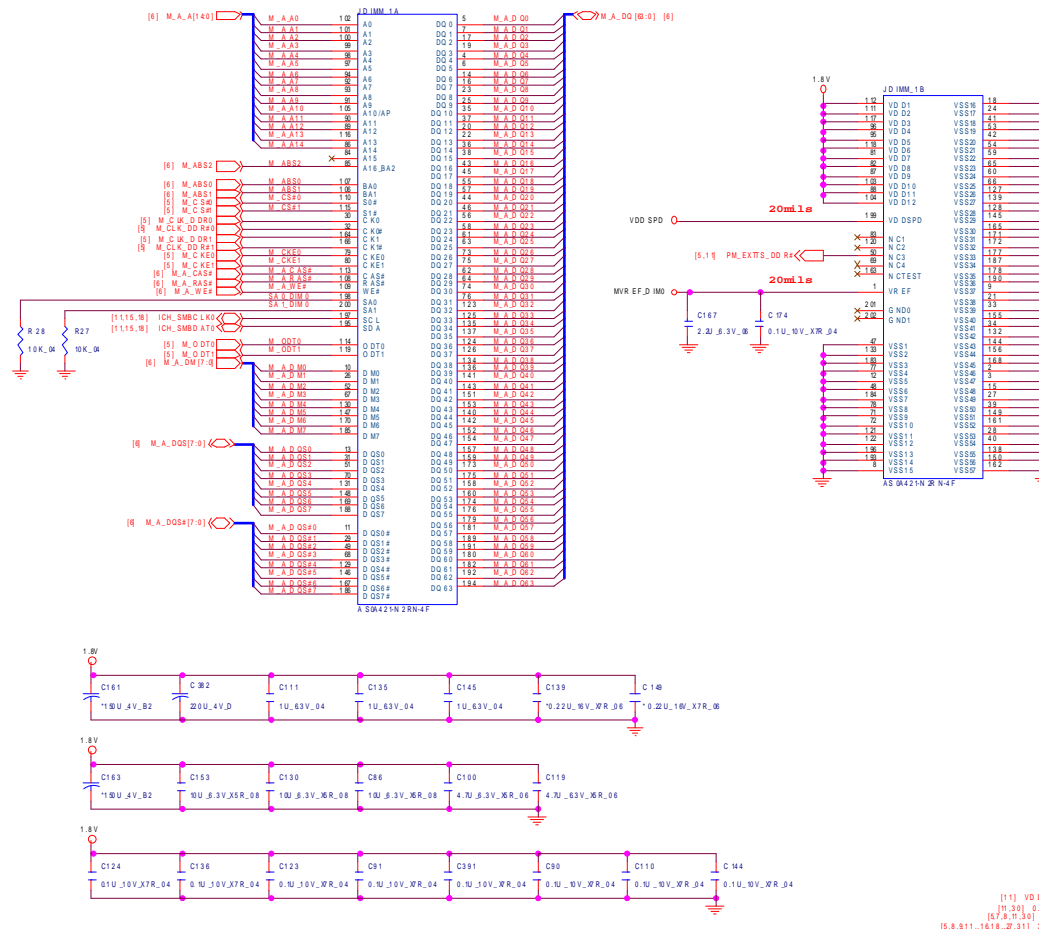
Sheet 9 of 40
Cantiga 6/6 - GND



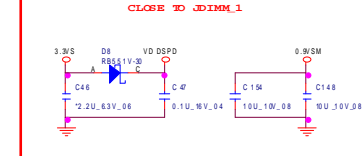
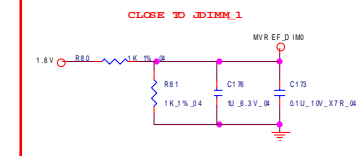
[58,10, W,18,27,3] 3.3V S

DDR2 CHANNEL A

SO-DIMM 1



Layout note:
Place one cap close to every 2 pull-up resistors terminated to +VTT_MEM



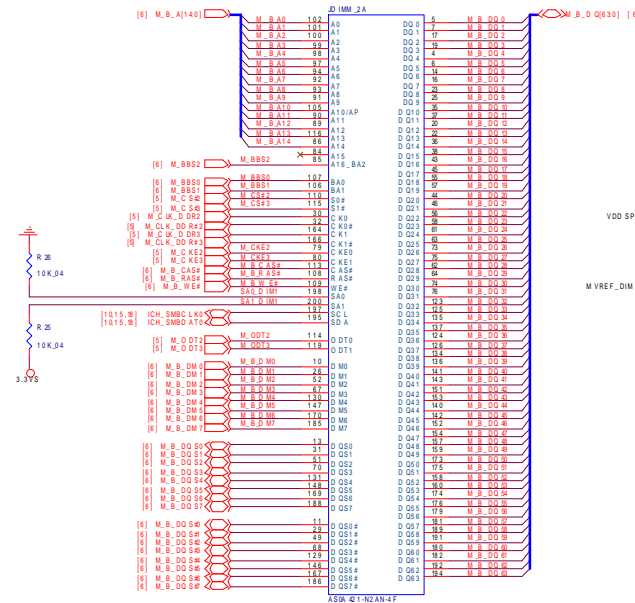
[11] VD DSPD
[11..30] 0.9VSM
[16..79,30] 1.8V
[5,8,811-1618,27,31] 3.3VS

B.Schematic Diagrams

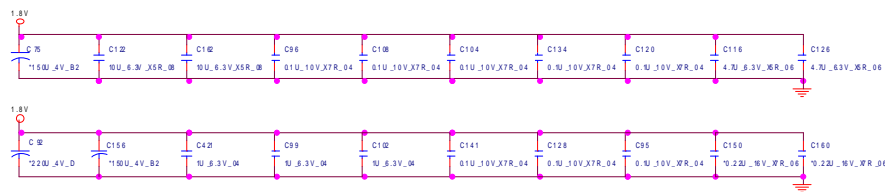
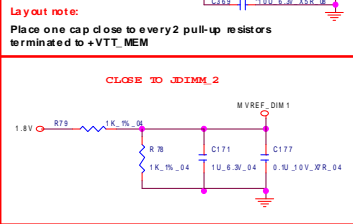
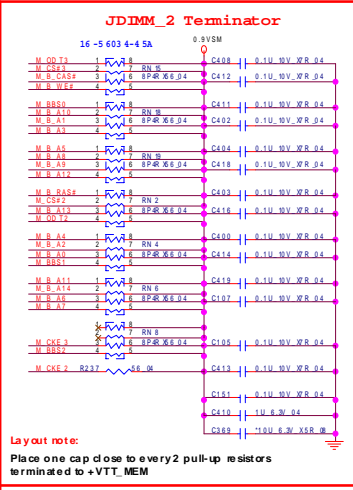
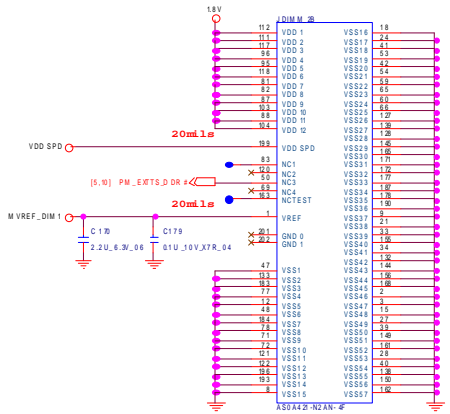
Sheet 10 of 40
DDR2 CHANNEL A

DDRII CHANNEL B

SO-DIMM 2



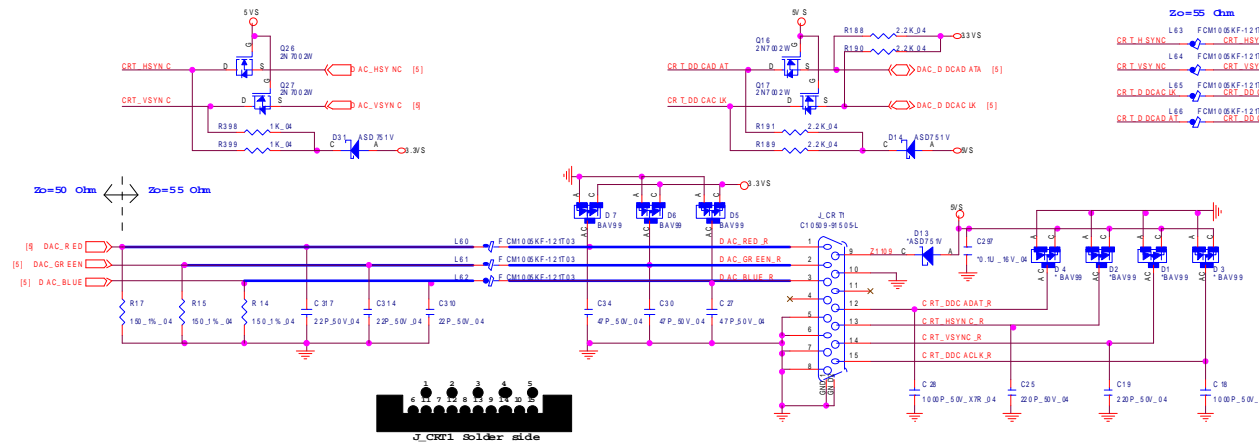
Layout note:
JDIMM_2 is placed farther
from the GMCH than JDIMM_1



- [0,30] 0.9VSM
- [10] VDDSPD
- [67,8,9,20] 1.8V
- [50,-1012,1616,27,31] 3.3MS

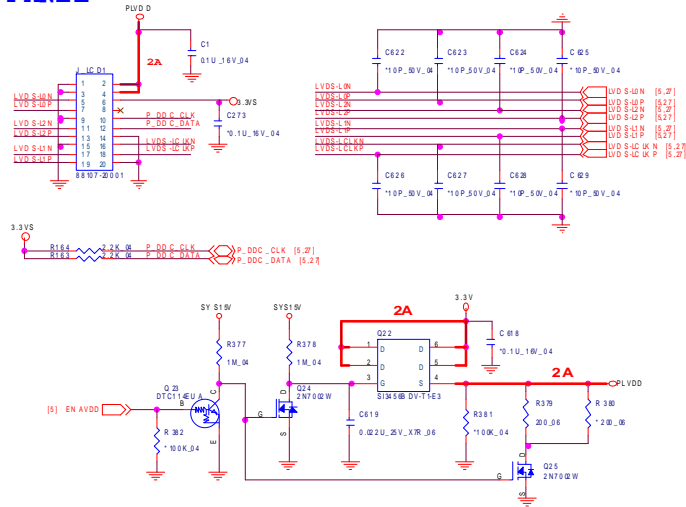
Panel, Inverter, CRT

CRT

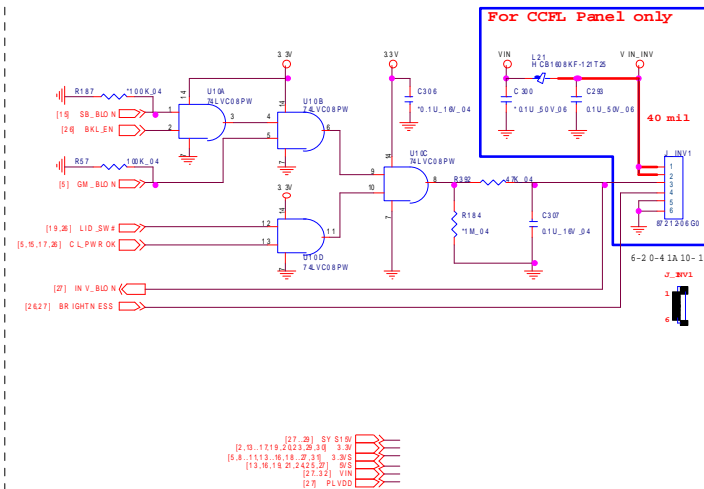


Sheet 12 of 40
Panel, Inverter,
CRT

PANEL



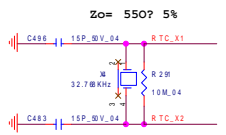
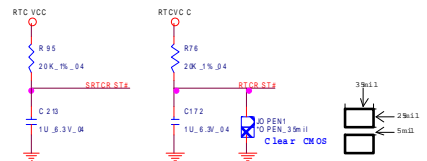
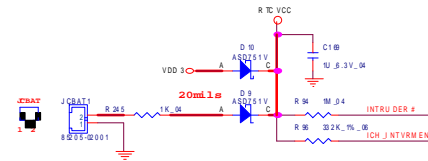
INVERTER CONNECTOR



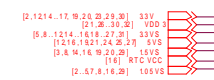
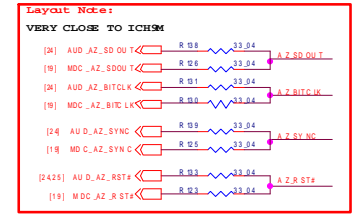
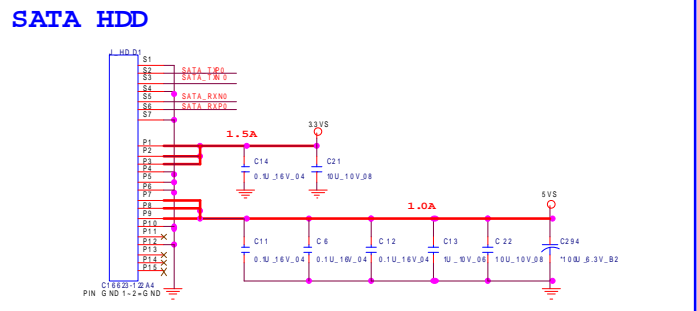
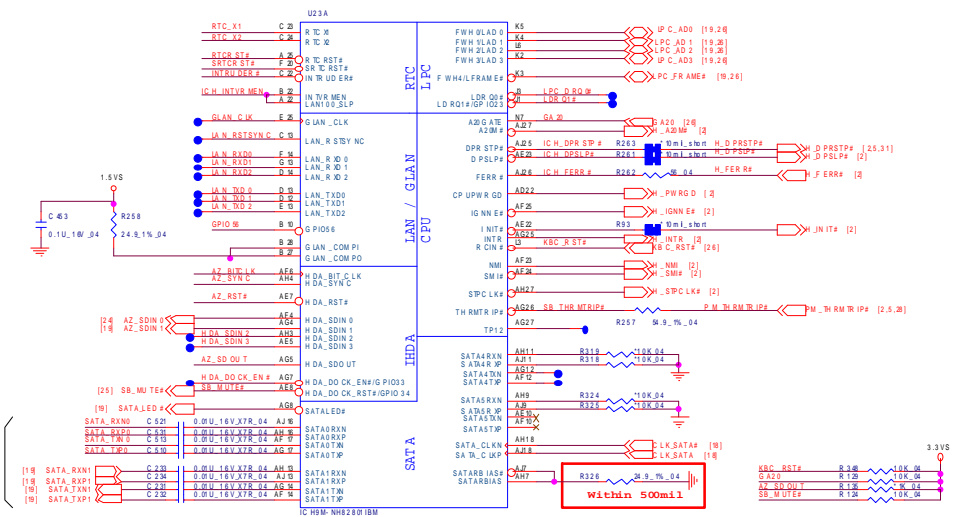
ICH9-M 1/5 - SATA

B.Schematic Diagrams

Sheet 13 of 40
ICH9-M 1/5 - SATA



Zo = 550? 5%
Zdiff = 1000? 0%



ICH9-M 2/5 - PCIE, PCI, USB

Boot BIOS Strap			
Strap	PCI_GNT#0	SPI_CS1#	
SPE	01	Stuff	No stuff
PCI	10	No stuff	Stuff
IPC(default)	11	No stuff	No stuff



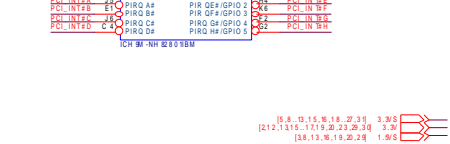
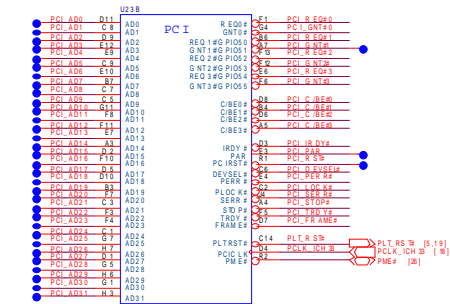
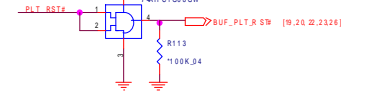
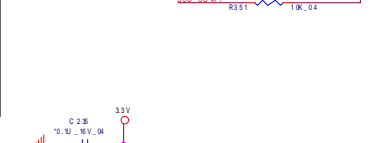
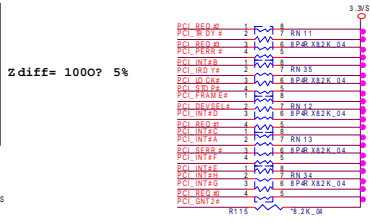
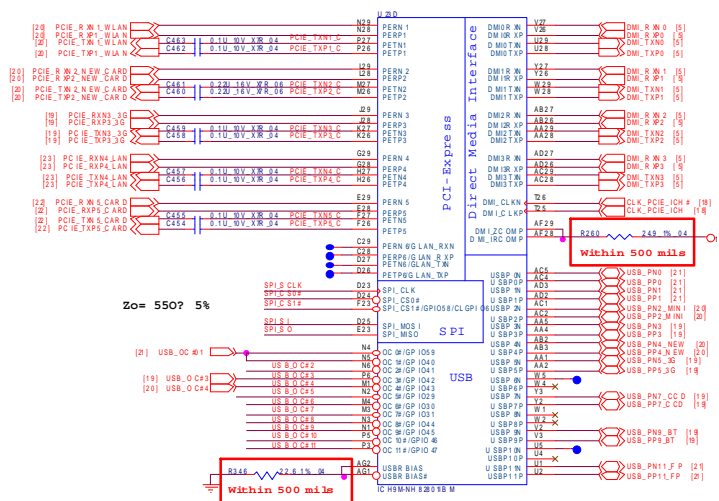
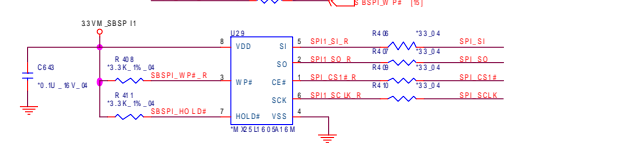
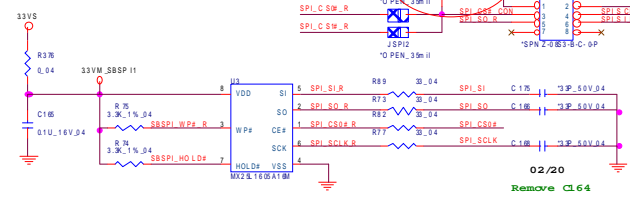
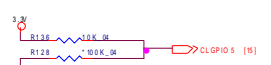
PCI_GNT#3		A16 swap override Strap
Stuff	Enable	
No stuff	Disable	Default



SPE_SI	iTM Enable
Stuff	Enable
No stuff	Disable



CLGPIO5	iTM Enable
HIGH	Enable
LOW	Disable

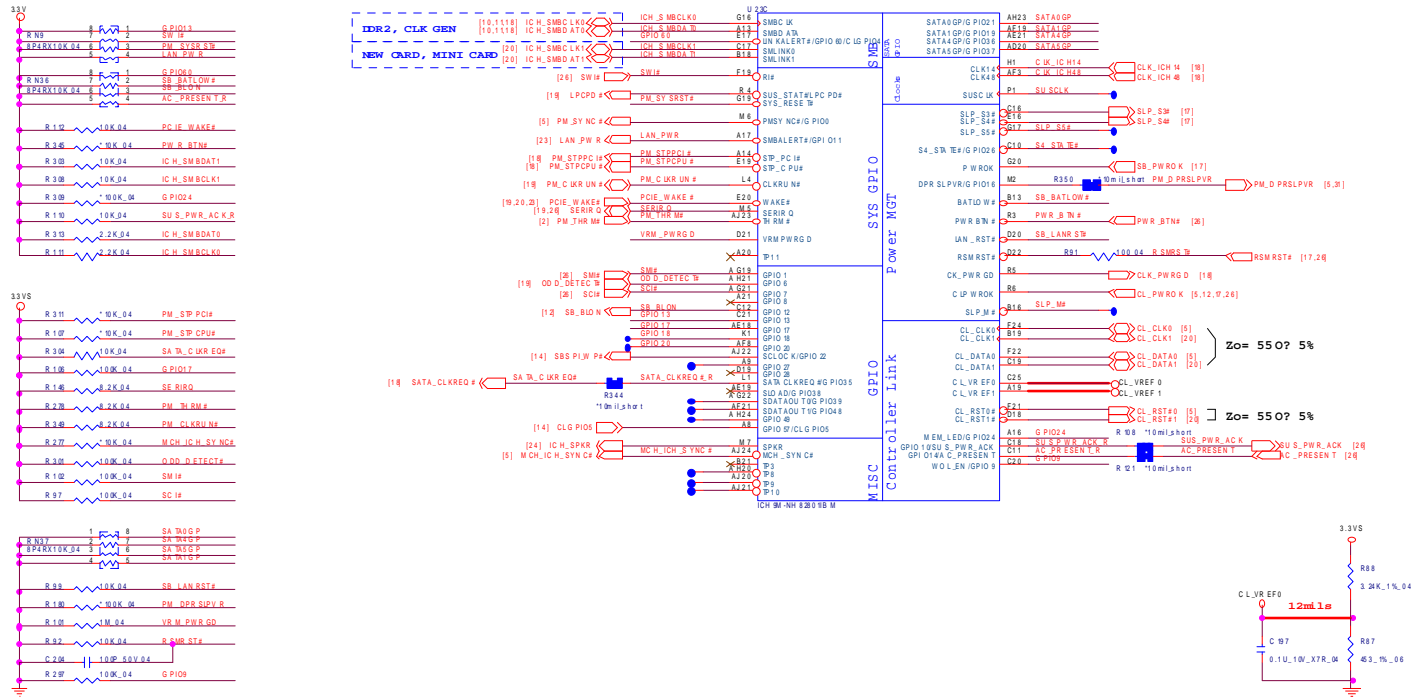


Sheet 14 of 40
ICH9-M 2/5 - PCIE,
PCI, USB

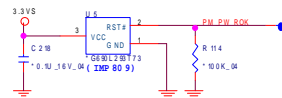
B.Schematic Diagrams

ICH9-M 3/5 - GPIO, PWR Management

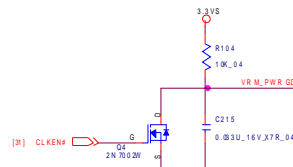
Sheet 15 of 40
ICH9-M 3/5 - GPIO,
PWR Mangement



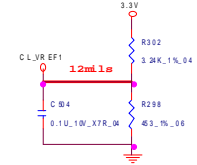
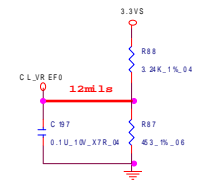
POWER OK



VCORE PWRGD

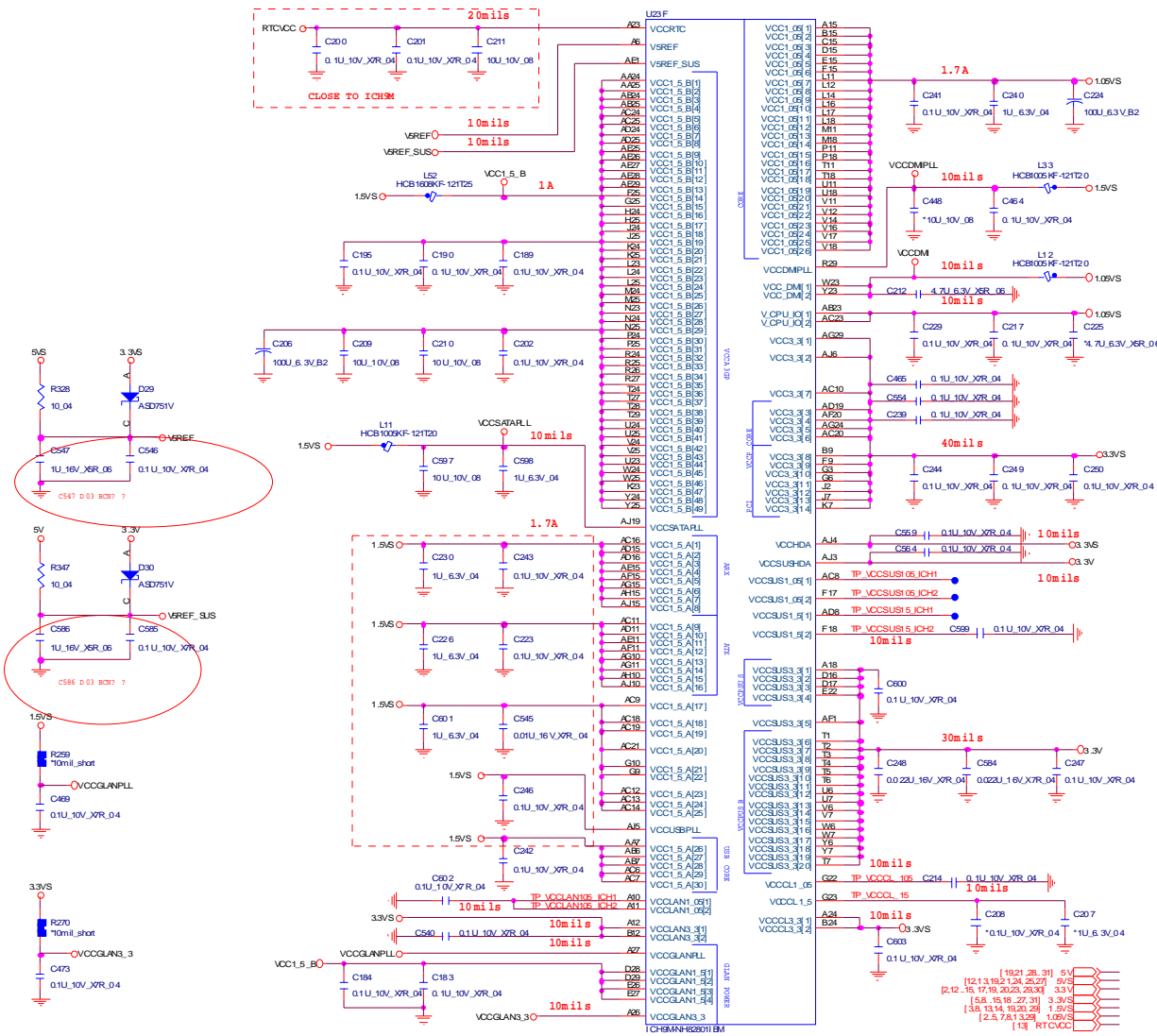


CL_VRETO/1=0.405V



[1,12,14,16,17,19,20,23,26,30] 3.3V
[5,8,14,16,19,27,31] 3.3V

ICH9-M 4/5 - Power



Sheet 16 of 40
ICH9-M 4/5 - Power

B.Schematic Diagrams

Schematic Diagrams

ICH9-M 5/5 - GND

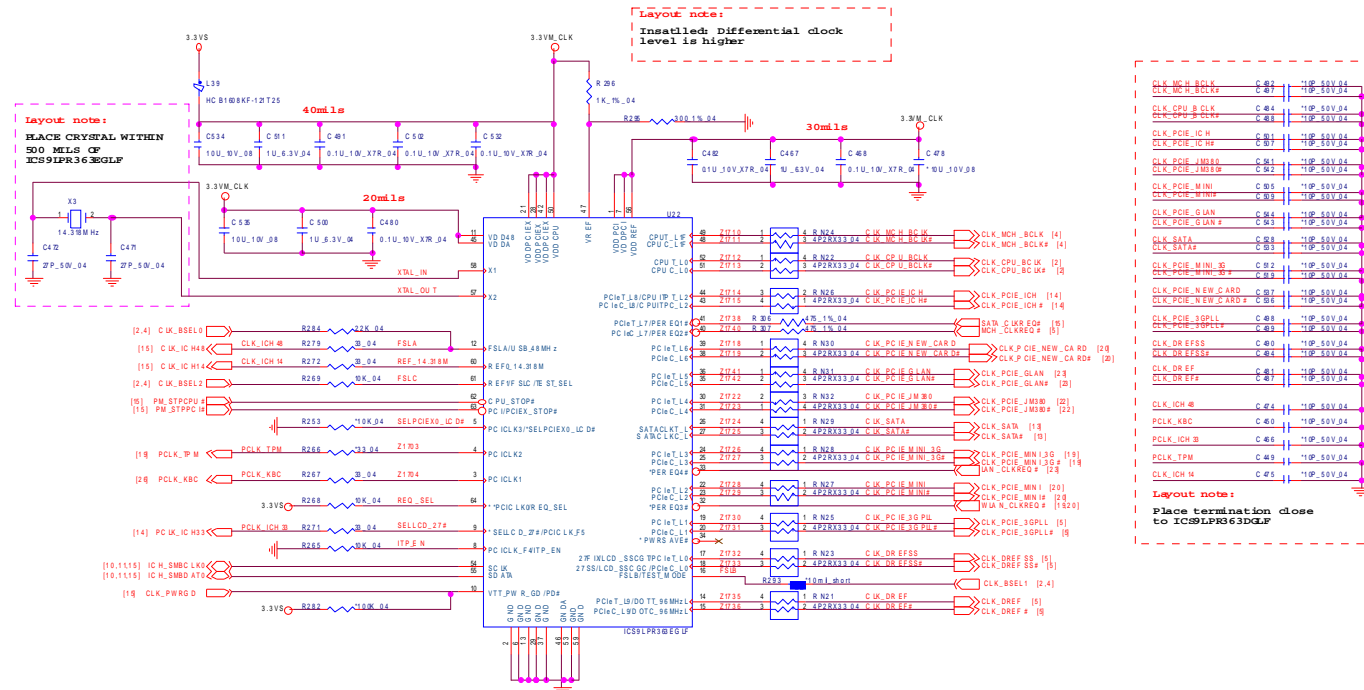
B.Schematic Diagrams

Sheet 17 of 40
ICH9-M 5/5 - GND

AR26	VSS107	H5
AR27	VSS108	H6
AR33	VSS109	H7
AR34	VSS110	H8
AR35	VSS111	H9
AR36	VSS112	H10
AR37	VSS113	H11
AR38	VSS114	H12
AR39	VSS115	H13
AR40	VSS116	H14
AR41	VSS117	H15
AR42	VSS118	H16
AR43	VSS119	H17
AR44	VSS120	H18
AR45	VSS121	H19
AR46	VSS122	H20
AR47	VSS123	H21
AR48	VSS124	H22
AR49	VSS125	H23
AR50	VSS126	H24
AR51	VSS127	H25
AR52	VSS128	H26
AR53	VSS129	H27
AR54	VSS130	H28
AR55	VSS131	H29
AR56	VSS132	H30
AR57	VSS133	H31
AR58	VSS134	H32
AR59	VSS135	H33
AR60	VSS136	H34
AR61	VSS137	H35
AR62	VSS138	H36
AR63	VSS139	H37
AR64	VSS140	H38
AR65	VSS141	H39
AR66	VSS142	H40
AR67	VSS143	H41
AR68	VSS144	H42
AR69	VSS145	H43
AR70	VSS146	H44
AR71	VSS147	H45
AR72	VSS148	H46
AR73	VSS149	H47
AR74	VSS150	H48
AR75	VSS151	H49
AR76	VSS152	H50
AR77	VSS153	H51
AR78	VSS154	H52
AR79	VSS155	H53
AR80	VSS156	H54
AR81	VSS157	H55
AR82	VSS158	H56
AR83	VSS159	H57
AR84	VSS160	H58
AR85	VSS161	H59
AR86	VSS162	H60
AR87	VSS163	H61
AR88	VSS164	H62
AR89	VSS165	H63
AR90	VSS166	H64
AR91	VSS167	H65
AR92	VSS168	H66
AR93	VSS169	H67
AR94	VSS170	H68
AR95	VSS171	H69
AR96	VSS172	H70
AR97	VSS173	H71
AR98	VSS174	H72
AR99	VSS175	H73
AR100	VSS176	H74
AR101	VSS177	H75
AR102	VSS178	H76
AR103	VSS179	H77
AR104	VSS180	H78
AR105	VSS181	H79
AR106	VSS182	H80
AR107	VSS183	H81
AR108	VSS184	H82
AR109	VSS185	H83
AR110	VSS186	H84
AR111	VSS187	H85
AR112	VSS188	H86
AR113	VSS189	H87
AR114	VSS190	H88
AR115	VSS191	H89
AR116	VSS192	H90
AR117	VSS193	H91
AR118	VSS194	H92
AR119	VSS195	H93
AR120	VSS196	H94
AR121	VSS197	H95
AR122	VSS198	H96
AR123	VSS199	H97
AR124	VSS200	H98
AR125	VSS201	H99
AR126	VSS202	H100
AR127	VSS203	H101
AR128	VSS204	H102
AR129	VSS205	H103
AR130	VSS206	H104
AR131	VSS207	H105
AR132	VSS208	H106
AR133	VSS209	H107
AR134	VSS210	H108
AR135	VSS211	H109
AR136	VSS212	H110
AR137	VSS213	H111
AR138	VSS214	H112
AR139	VSS215	H113
AR140	VSS216	H114
AR141	VSS217	H115
AR142	VSS218	H116
AR143	VSS219	H117
AR144	VSS220	H118
AR145	VSS221	H119
AR146	VSS222	H120
AR147	VSS223	H121
AR148	VSS224	H122
AR149	VSS225	H123
AR150	VSS226	H124
AR151	VSS227	H125
AR152	VSS228	H126
AR153	VSS229	H127
AR154	VSS230	H128
AR155	VSS231	H129
AR156	VSS232	H130
AR157	VSS233	H131
AR158	VSS234	H132
AR159	VSS235	H133
AR160	VSS236	H134
AR161	VSS237	H135
AR162	VSS238	H136
AR163	VSS239	H137
AR164	VSS240	H138
AR165	VSS241	H139
AR166	VSS242	H140
AR167	VSS243	H141
AR168	VSS244	H142
AR169	VSS245	H143
AR170	VSS246	H144
AR171	VSS247	H145
AR172	VSS248	H146
AR173	VSS249	H147
AR174	VSS250	H148
AR175	VSS251	H149
AR176	VSS252	H150
AR177	VSS253	H151
AR178	VSS254	H152
AR179	VSS255	H153
AR180	VSS256	H154
AR181	VSS257	H155
AR182	VSS258	H156
AR183	VSS259	H157
AR184	VSS260	H158
AR185	VSS261	H159
AR186	VSS262	H160
AR187	VSS263	H161
AR188	VSS264	H162
AR189	VSS265	H163
AR190	VSS266	H164
AR191	VSS267	H165
AR192	VSS268	H166
AR193	VSS269	H167
AR194	VSS270	H168
AR195	VSS271	H169
AR196	VSS272	H170
AR197	VSS273	H171
AR198	VSS274	H172
AR199	VSS275	H173
AR200	VSS276	H174
AR201	VSS277	H175
AR202	VSS278	H176
AR203	VSS279	H177
AR204	VSS280	H178
AR205	VSS281	H179
AR206	VSS282	H180
AR207	VSS283	H181
AR208	VSS284	H182
AR209	VSS285	H183
AR210	VSS286	H184
AR211	VSS287	H185
AR212	VSS288	H186
AR213	VSS289	H187
AR214	VSS290	H188
AR215	VSS291	H189
AR216	VSS292	H190
AR217	VSS293	H191
AR218	VSS294	H192
AR219	VSS295	H193
AR220	VSS296	H194
AR221	VSS297	H195
AR222	VSS298	H196
AR223	VSS299	H197
AR224	VSS300	H198
AR225	VSS301	H199
AR226	VSS302	H200
AR227	VSS303	H201
AR228	VSS304	H202
AR229	VSS305	H203
AR230	VSS306	H204
AR231	VSS307	H205
AR232	VSS308	H206
AR233	VSS309	H207
AR234	VSS310	H208
AR235	VSS311	H209
AR236	VSS312	H210
AR237	VSS313	H211
AR238	VSS314	H212
AR239	VSS315	H213
AR240	VSS316	H214
AR241	VSS317	H215
AR242	VSS318	H216
AR243	VSS319	H217
AR244	VSS320	H218
AR245	VSS321	H219
AR246	VSS322	H220
AR247	VSS323	H221
AR248	VSS324	H222
AR249	VSS325	H223
AR250	VSS326	H224
AR251	VSS327	H225
AR252	VSS328	H226
AR253	VSS329	H227
AR254	VSS330	H228
AR255	VSS331	H229
AR256	VSS332	H230
AR257	VSS333	H231
AR258	VSS334	H232
AR259	VSS335	H233
AR260	VSS336	H234
AR261	VSS337	H235
AR262	VSS338	H236
AR263	VSS339	H237
AR264	VSS340	H238
AR265	VSS341	H239
AR266	VSS342	H240
AR267	VSS343	H241
AR268	VSS344	H242
AR269	VSS345	H243
AR270	VSS346	H244
AR271	VSS347	H245
AR272	VSS348	H246
AR273	VSS349	H247
AR274	VSS350	H248
AR275	VSS351	H249
AR276	VSS352	H250
AR277	VSS353	H251
AR278	VSS354	H252
AR279	VSS355	H253
AR280	VSS356	H254
AR281	VSS357	H255
AR282	VSS358	H256
AR283	VSS359	H257
AR284	VSS360	H258
AR285	VSS361	H259
AR286	VSS362	H260
AR287	VSS363	H261
AR288	VSS364	H262
AR289	VSS365	H263
AR290	VSS366	H264
AR291	VSS367	H265
AR292	VSS368	H266
AR293	VSS369	H267
AR294	VSS370	H268
AR295	VSS371	H269
AR296	VSS372	H270
AR297	VSS373	H271
AR298	VSS374	H272
AR299	VSS375	H273
AR300	VSS376	H274
AR301	VSS377	H275
AR302	VSS378	H276
AR303	VSS379	H277
AR304	VSS380	H278
AR305	VSS381	H279
AR306	VSS382	H280
AR307	VSS383	H281
AR308	VSS384	H282
AR309	VSS385	H283
AR310	VSS386	H284
AR311	VSS387	H285
AR312	VSS388	H286
AR313	VSS389	H287
AR314	VSS390	H288
AR315	VSS391	H289
AR316	VSS392	H290
AR317	VSS393	H291
AR318	VSS394	H292
AR319	VSS395	H293
AR320	VSS396	H294
AR321	VSS397	H295
AR322	VSS398	H296
AR323	VSS399	H297
AR324	VSS400	H298
AR325	VSS401	H299
AR326	VSS402	H300
AR327	VSS403	H301
AR328	VSS404	H302
AR329	VSS405	H303
AR330	VSS406	H304
AR331	VSS407	H305
AR332	VSS408	H306
AR333	VSS409	H307
AR334	VSS410	H308
AR335	VSS411	H309
AR336	VSS412	H310
AR337	VSS413	H311
AR338	VSS414	H312
AR339	VSS415	H313
AR340	VSS416	H314
AR341	VSS417	H315
AR342	VSS418	H316
AR343	VSS419	H317
AR344	VSS420	H318
AR345	VSS421	H319
AR346	VSS422	H320
AR347	VSS423	H321
AR348	VSS424	H322
AR349	VSS425	H323
AR350	VSS426	H324
AR351	VSS427	H325
AR352	VSS428	H326
AR353	VSS429	H327
AR354	VSS430	H328
AR355	VSS431	H329
AR356	VSS432	H330
AR357	VSS433	H331
AR358	VSS434	H332
AR359	VSS435	H333
AR360	VSS436	H334
AR361	VSS437	H335
AR362	VSS438	H336
AR363	VSS439	H337
AR364	VSS440	H338
AR365	VSS441	H339
AR366	VSS442	H340
AR367	VSS443	H341
AR368	VSS444	H342
AR369	VSS445	H343
AR370	VSS446	H344
AR371	VSS447	H345
AR372	VSS448	H346
AR373	VSS449	

Clock Generator

CLOCK GENERATOR



FSLC	FS LB	FSLA	CS DS	Host Clo ck	Fr eq uen cy
BS BL2	BS BL1	B SE L0		26.6 MHz	106.6 MHz
0	0	0		20.0 MHz	800 MHz
0	1	1		16.6 MHz	667 MHz

Red words must be controlled by BIOS			
SATA_CLKREQ# (PEREQ1#)	PCI CLK 6 (NEW CARD) SATA CLK	MCH_CLKREQ# (PEREQ2#)	PCI CLK 1 (3GP LL) PCI CLK 8 (ICH)
WLAN_CLKREQ# (PEREQ3#)	PCI CLK 2 (MINI) PCI CLK 4 (JM85)	LAN_CLKREQ# (PEREQ4#)	PCI CLK 3 (MINI_3G) PCI CLK 5 (GLAN)

Pin5	Pin9	Pin4/15	Pin7/18
SELPCIE0_ICD#/ PCIE = 0 (Low)	SELICD_27# = 0	PCIE0#	27FLX/SS
SELPCIE0_ICD#/ PCIE = 1 (high)	SELICD_27# = 1	PCIE0#	PCIE0

Default

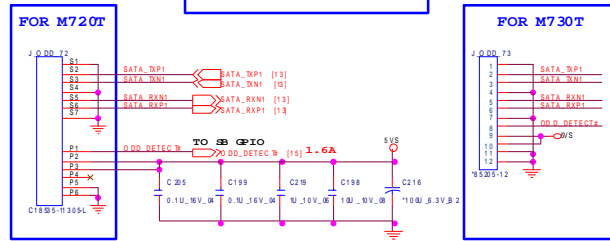
(5.4, 6.15, 7.3) 3.3V5

Sheet 18 of 40
Clock Generator

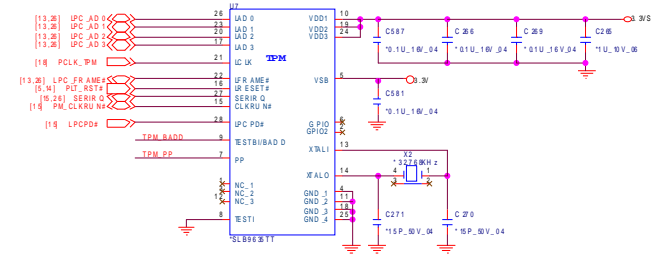
B.Schematic Diagrams

Multi I/O, ODD, CCD, BT, TPM

SATA ODD

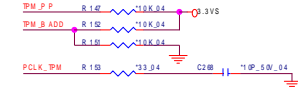


TPM 1.2

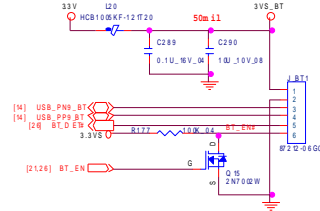


Asserted before entering S3
LFC reset timing:
LPCPD# inactive to IRST# inactive 32-96us

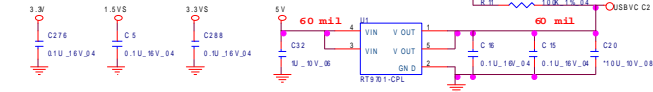
TPM_PP	H I : AOCBS
	L O W : N O R M A L (D e f a u l t)
TPM_BADD	H I : 4B / 4F h (D e f a u l t)
	L O W : 2E / 2F h



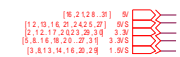
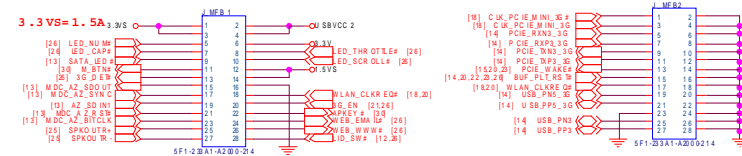
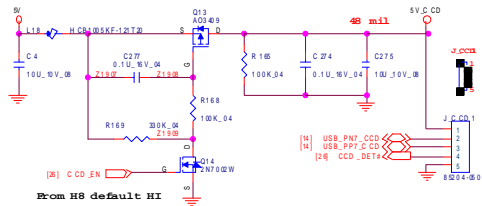
Bluetooth



MULTI I/O CONN



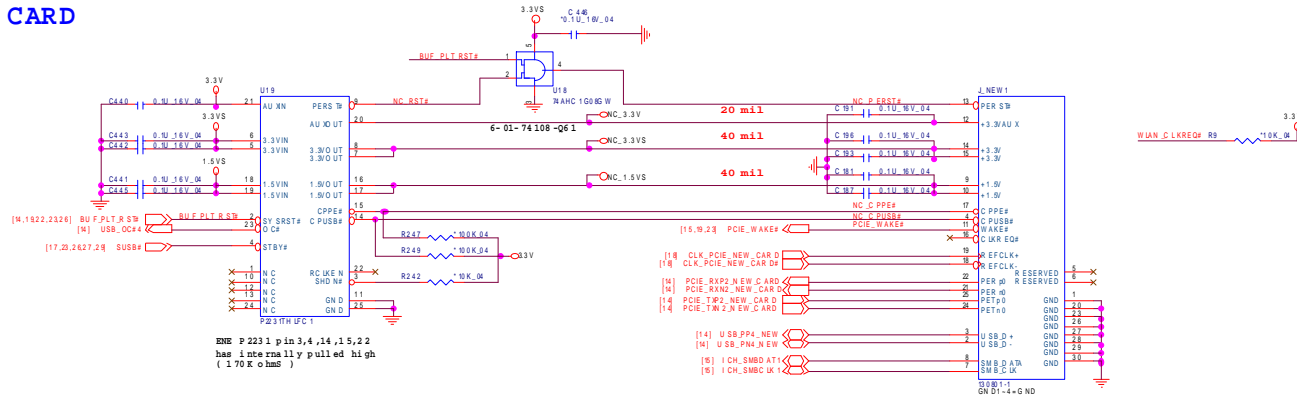
CCD



Sheet 19 of 40
Multi I/O, ODD,
CCD, BT, TPM

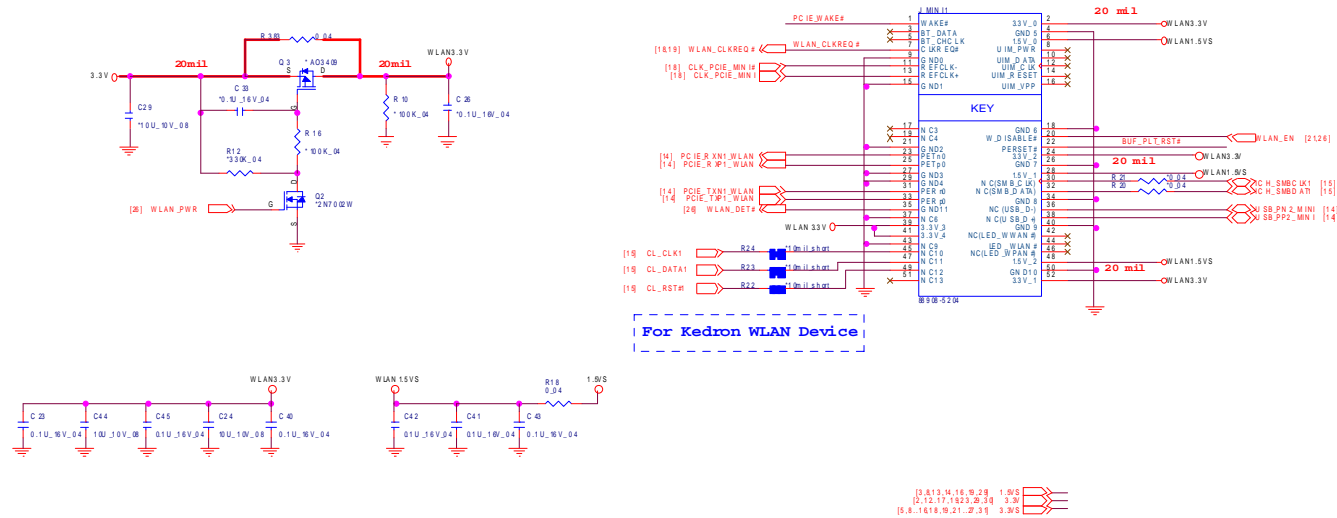
New Card, Mini PCIE

NEW CARD



Sheet 20 of 40
New Card,
Mini PCIE

MINI CARD

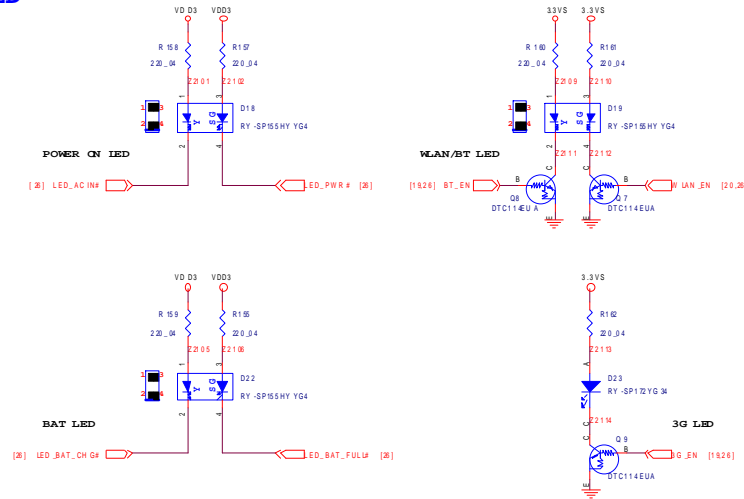


B. Schematic Diagrams

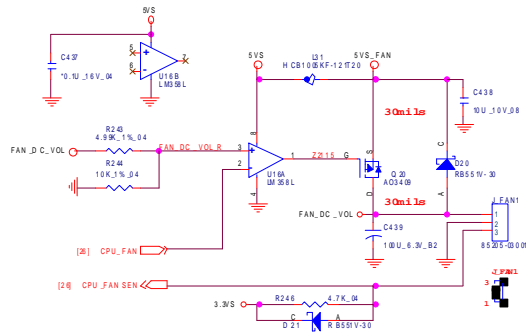
LED, FAN, TP, FP, USB

Sheet 21 of 40
LED, FAN, TP, FP,
USB

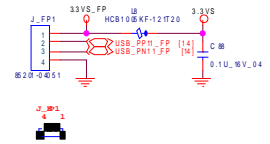
LED



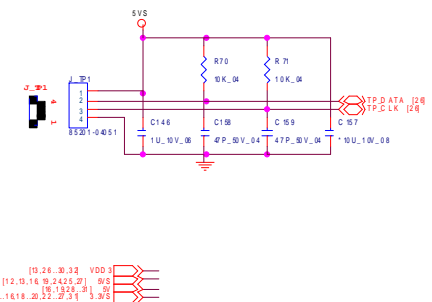
FAN CONTROL



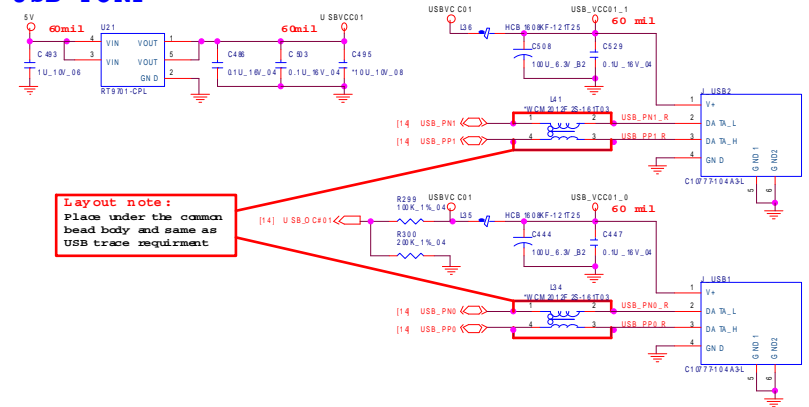
FP CONN



CLICK CONN

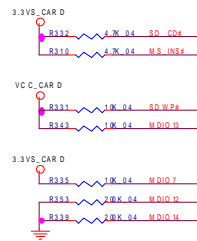


USB PORT

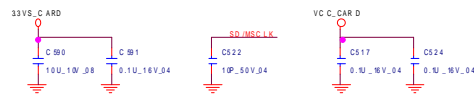
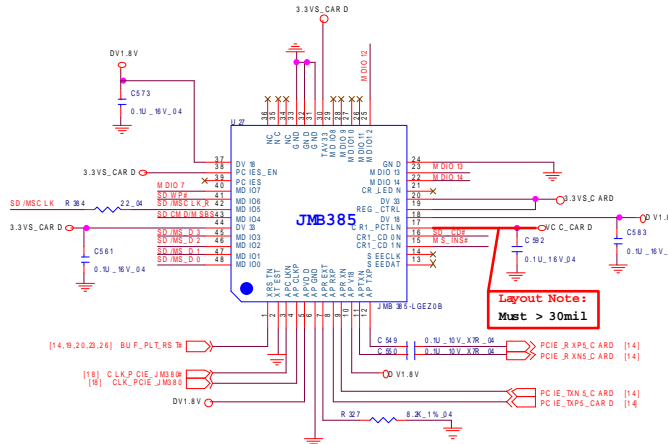


JMB385 Card Reader

JMB385 CARD READER

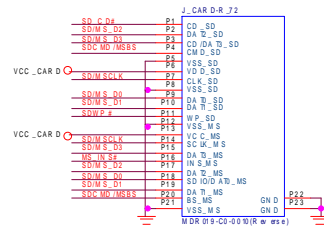


	HIGH	LOW
MDIO7	On Board	Adi-in Card
MDIO1 2	CR1_PCTLN High Active	CR1_PCTLN Low Active
MDIO1 4	CR1_LE1N High Active	CR1_LE1N Low Active

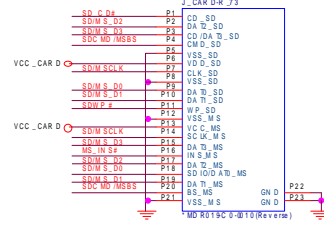


Near Cardreader CON

M720T Card Reader Connector

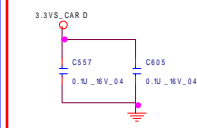


M730T Card Reader Connector



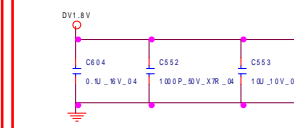
Layout note:

Very closed between pin 19 and pin 20



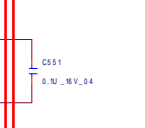
Layout note:

Very closed to pin 5 (Trace width / length: 20mil / <120mil)



Layout note:

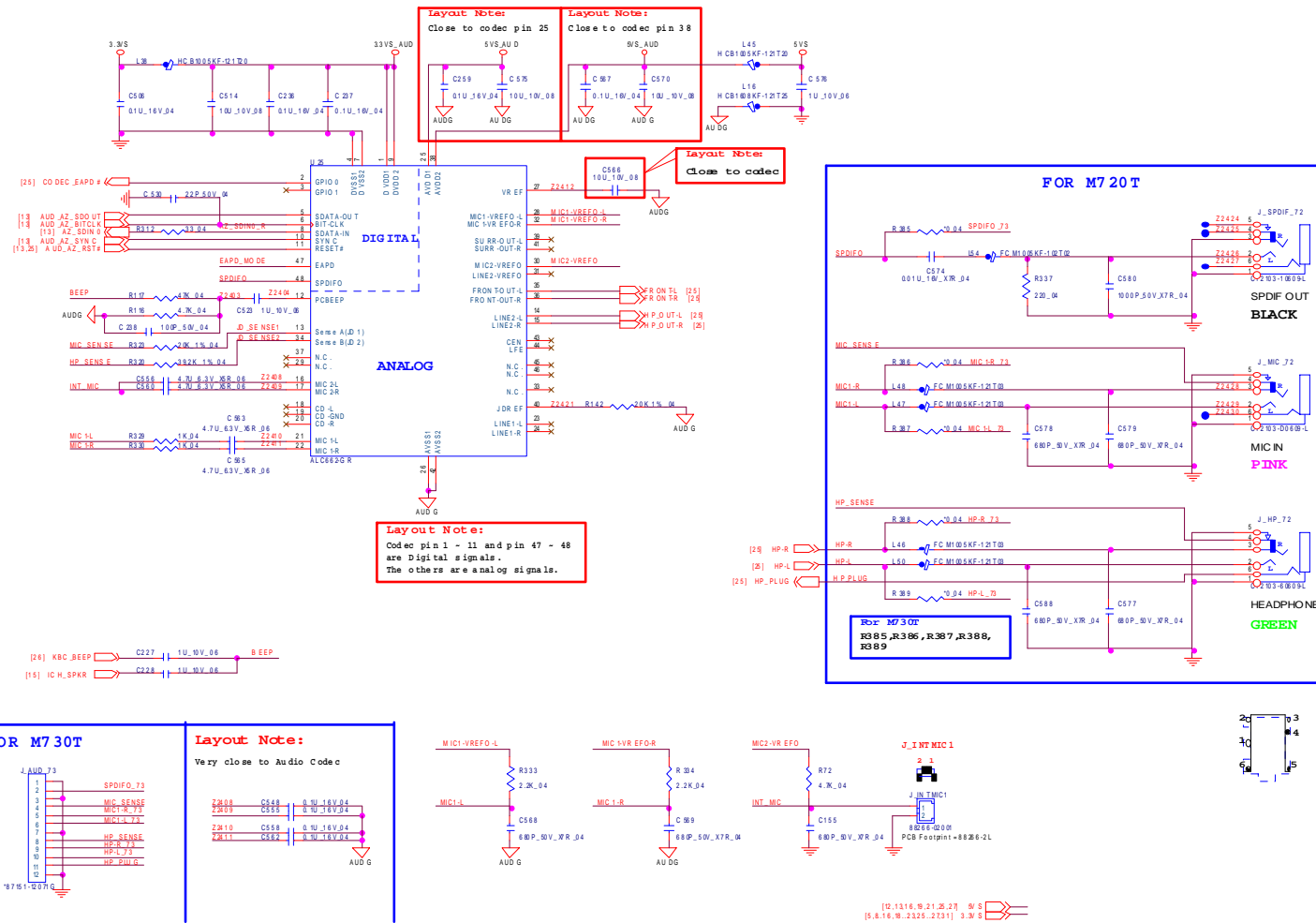
Very closed between pin 10



[5, 8, 9, 18, 20, 23, 27, 31] 3.3VS

Sheet 22 of 40
JMB385 Card Reader

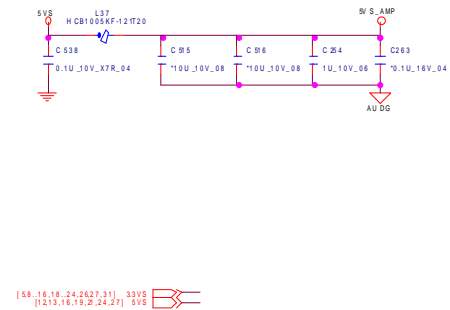
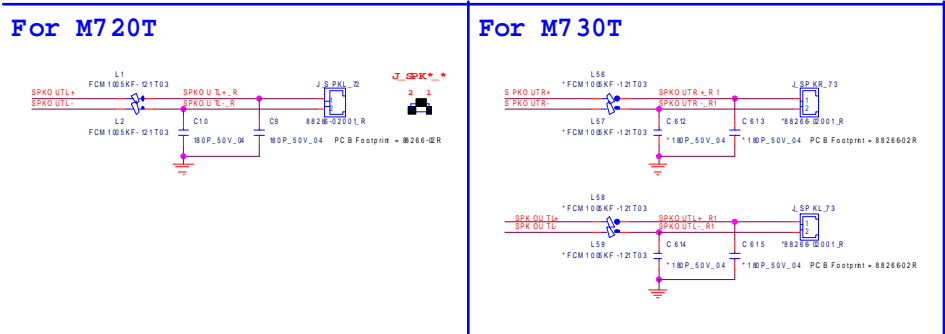
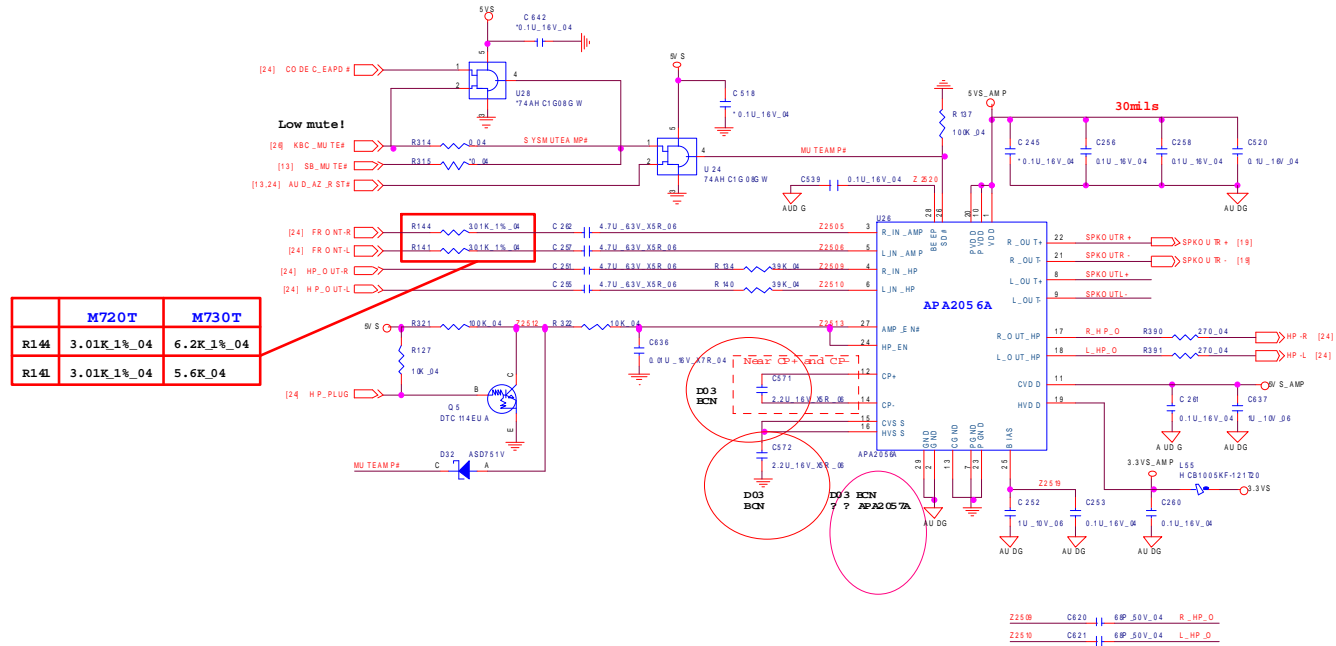
Audio Codec ALC662



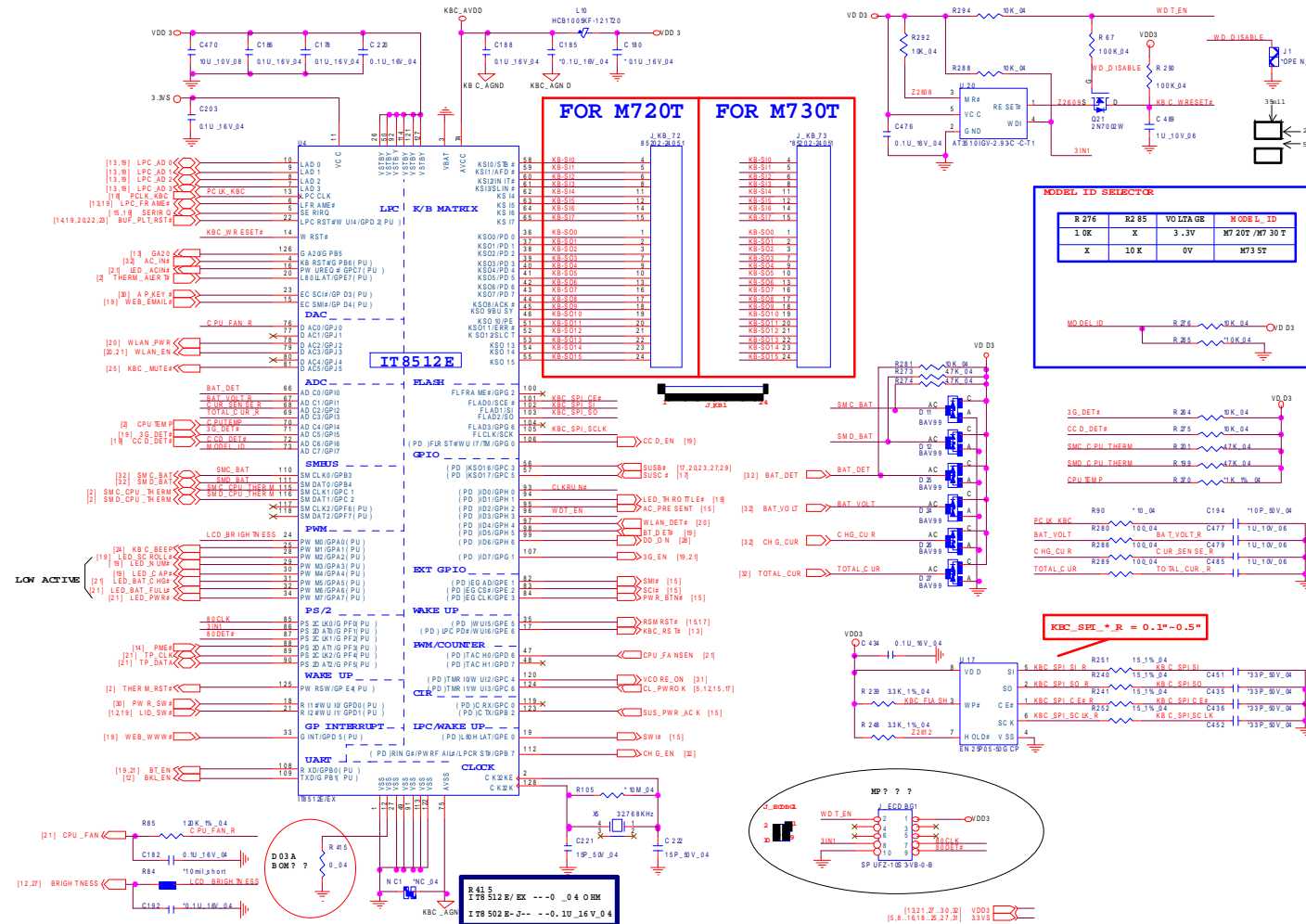
Sheet 24 of 40
Audio Codec
ALC662

Audio AMP2056

Sheet 25 of 40
Audio AMP2056



KBC-ITE IT8512E

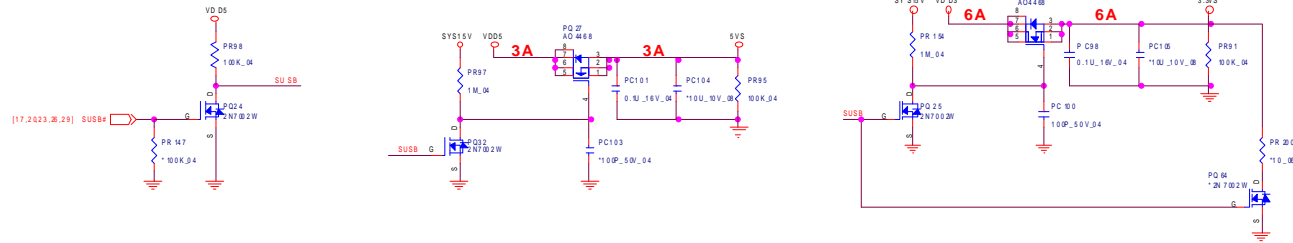


Sheet 26 of 40
KBC-ITE IT8512E

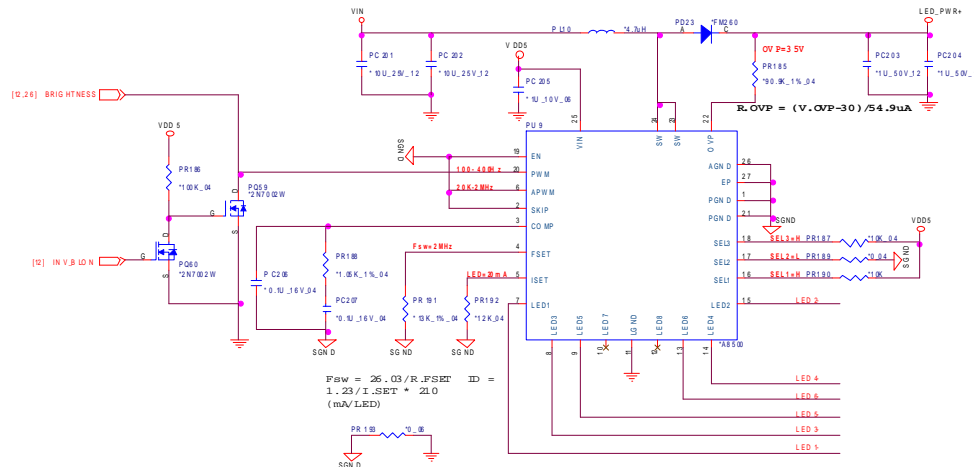
B.Schematic Diagrams

System Power, LED BKLT

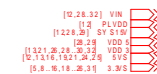
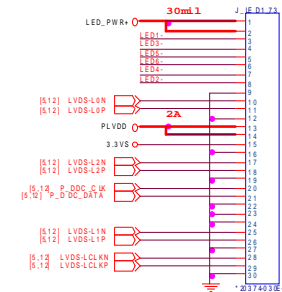
5VS, 3.3VS



M735T LED PANEL BACKLIGHT DRIVER



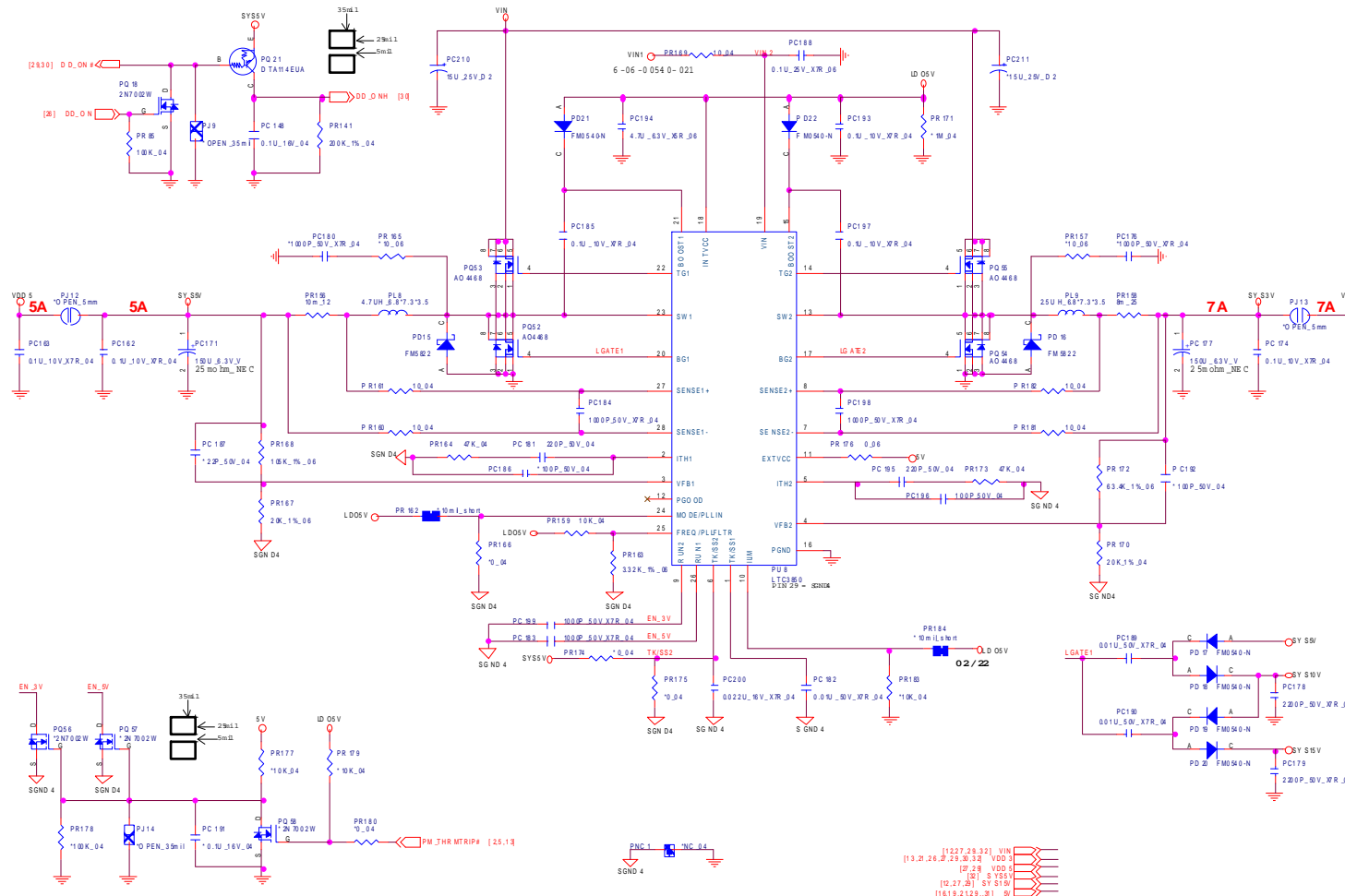
SEL1	SEL2	SEL3	LEDx Output
0	0	0	Only LED1 on
1	0	0	LED1 through LED2 on
0	1	0	LED1 through LED3 on
1	1	0	LED1 through LED4 on
0	0	1	LED1 through LED5 on
1	0	1	LED1 through LED6 on
0	1	1	LED1 through LED7 on
1	1	1	LED1 through LED8 on



Sheet 27 of 40
System Power,
LED BKLT

Power VDD3, VDD5

VDD3, VDD5



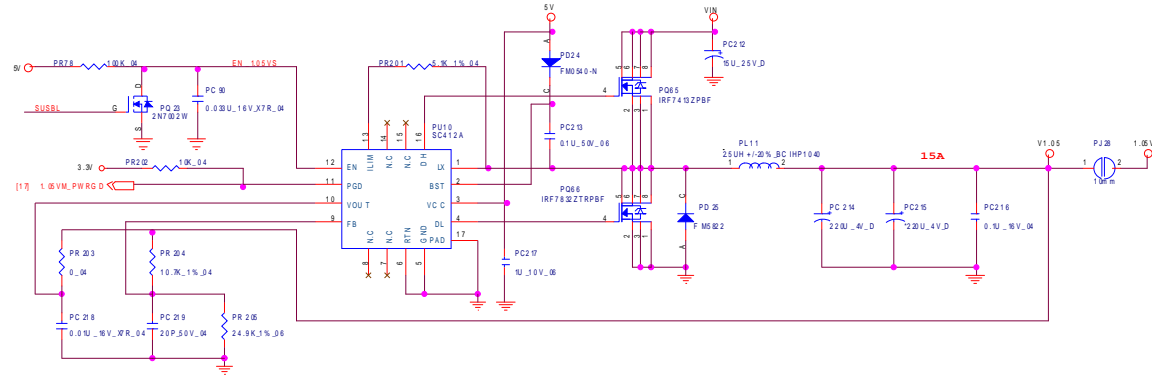
Sheet 28 of 40
Power VDD3, VDD5

B. Schematic Diagrams

Schematic Diagrams

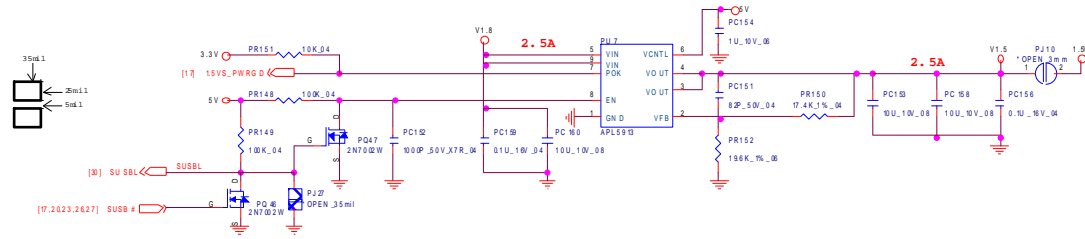
Power 1.5VS, 1.05VS, 3.3V, 5V

1.05VS

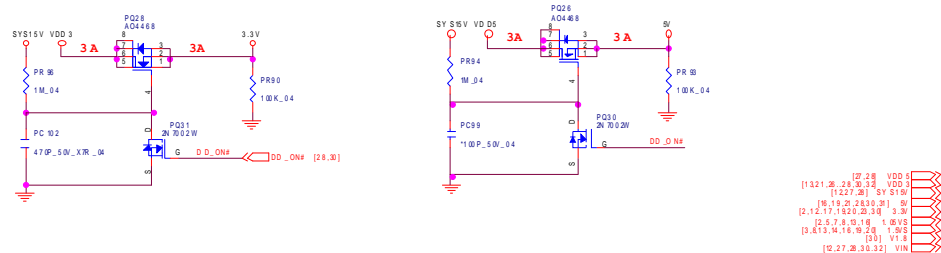


Sheet 29 of 40
Power 1.5VS,
1.05VS, 3.3V, 5V

1.5V



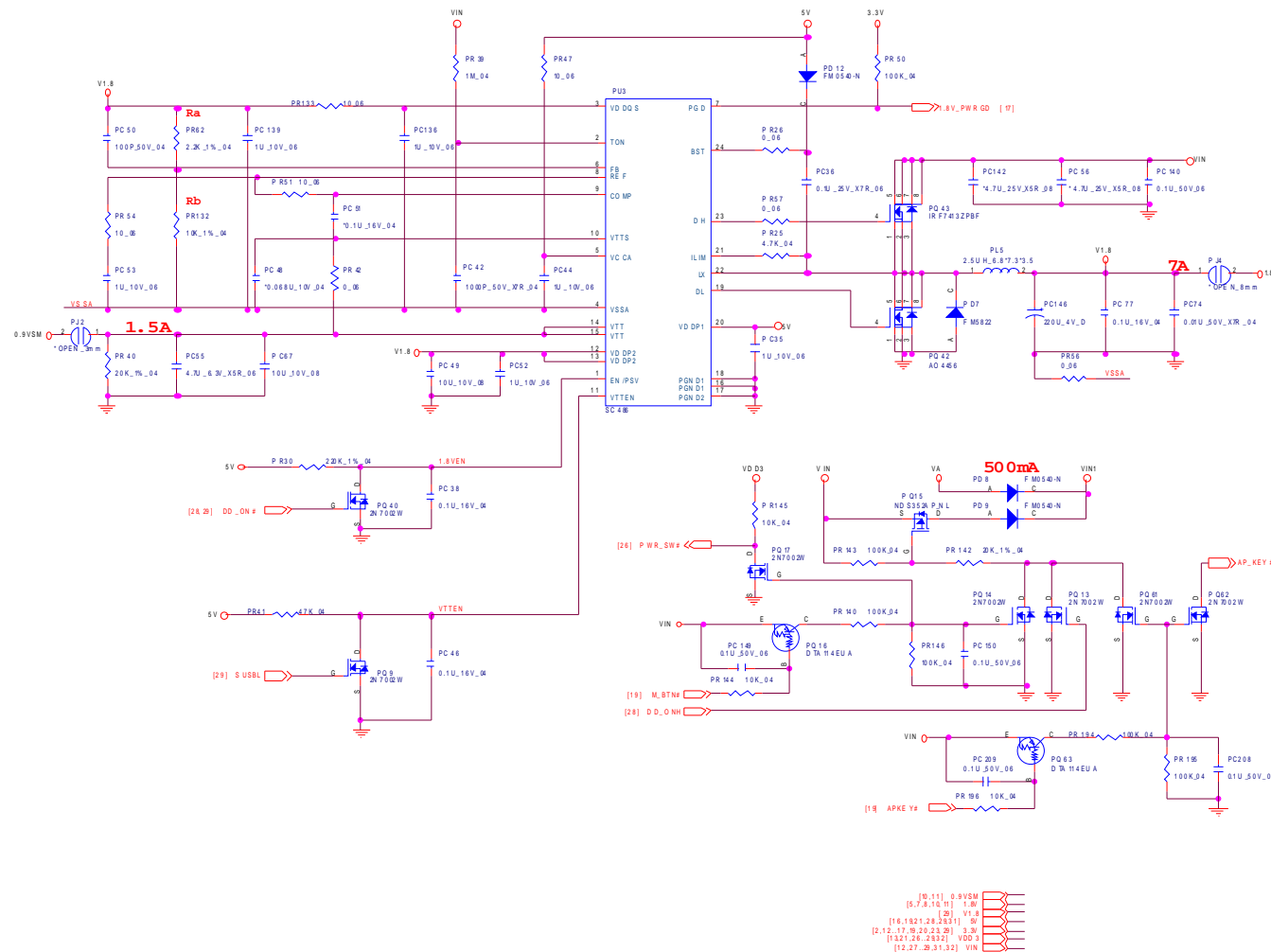
3.3V, 5V



B.Schematic Diagrams

Power 1.8V, 0.9VSM

1.8V, 0.9VSM

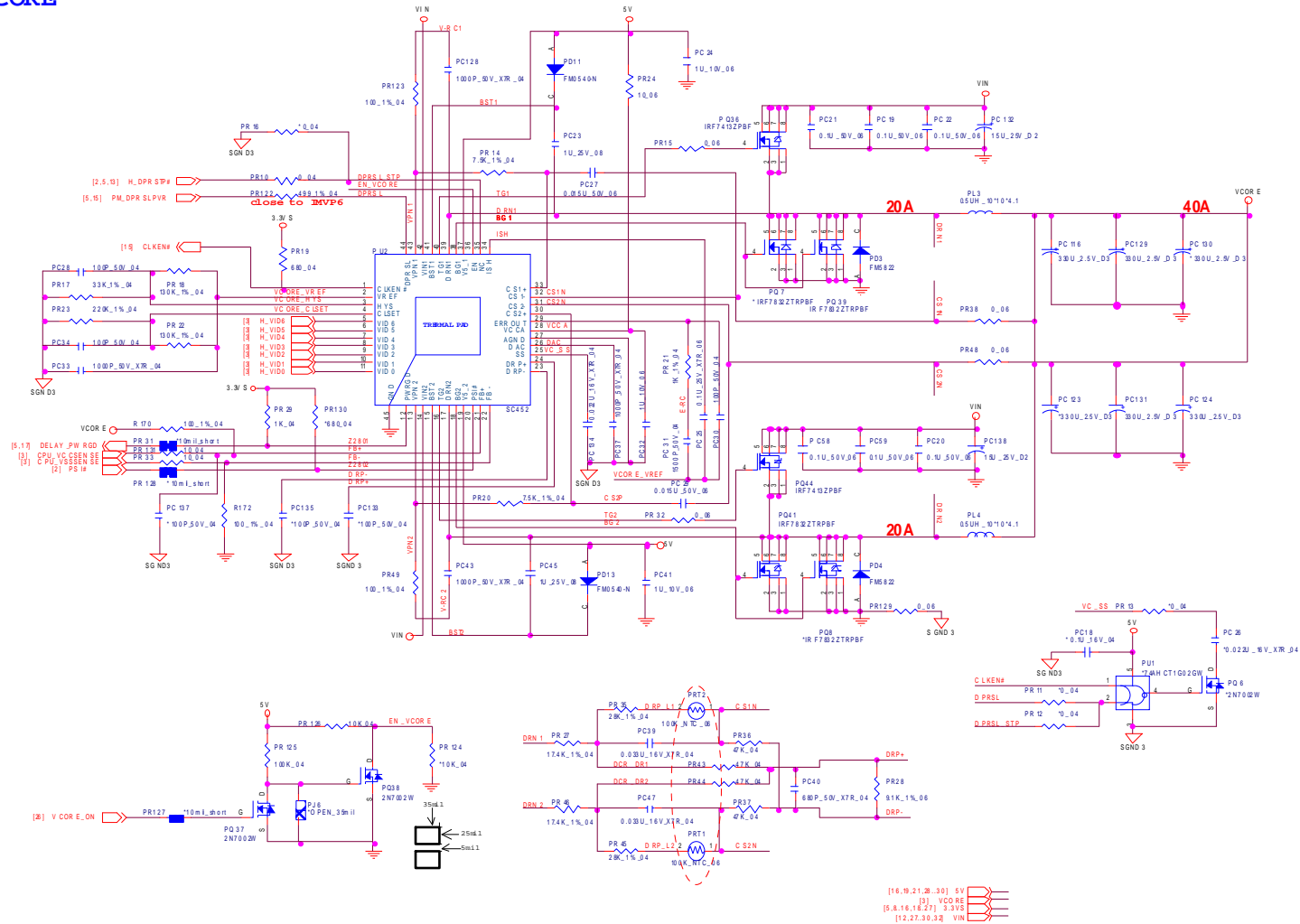


Sheet 30 of 40
 Power 1.8V,
 0.9VSM

B.Schematic Diagrams

Power VCORE

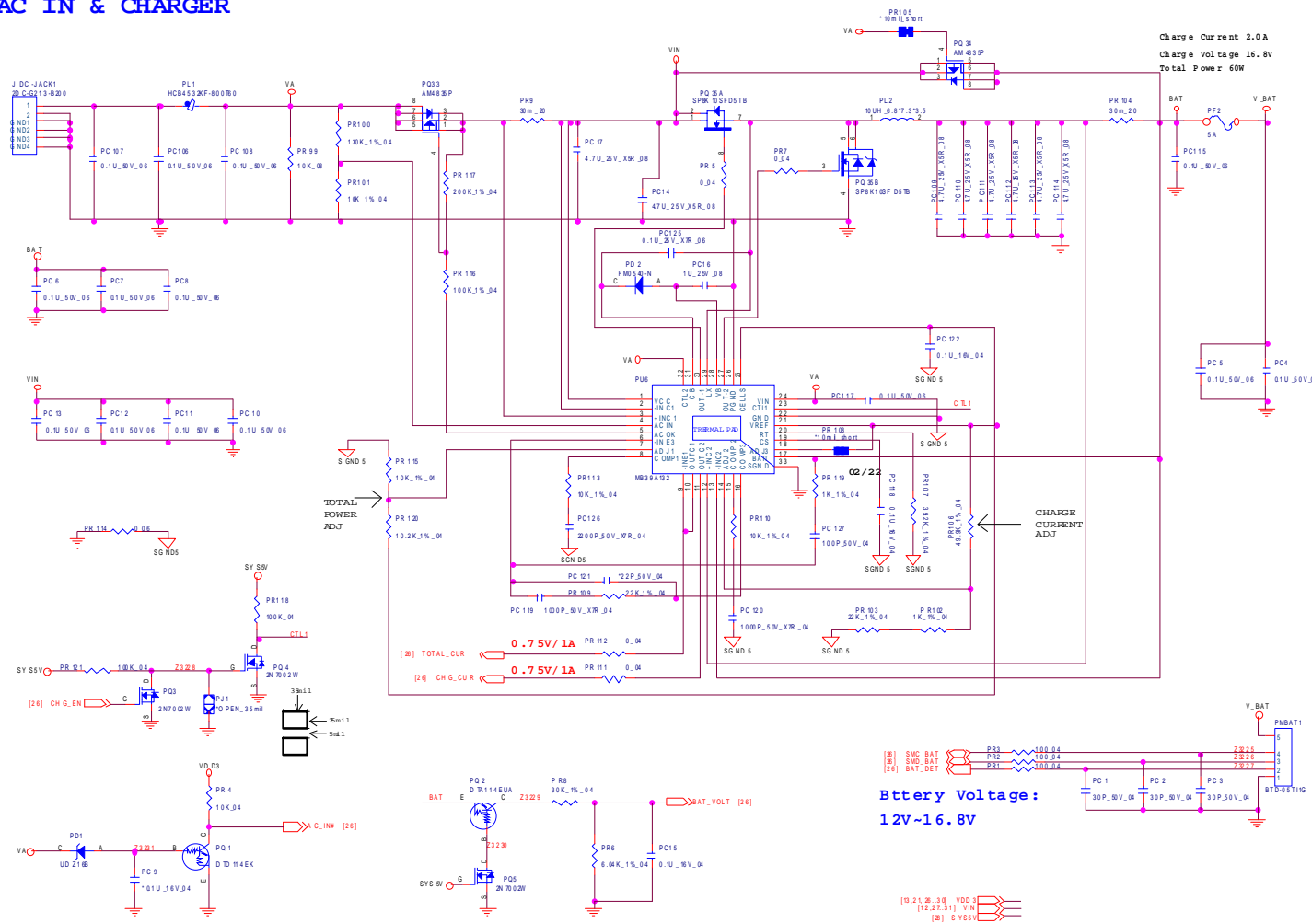
VCORE



Sheet 31 of 40
Power VCORE

Power AC-IN, Charger

AC IN & CHARGER



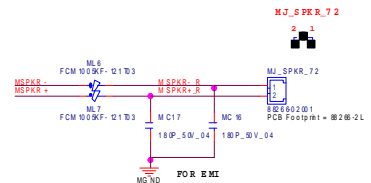
Sheet 32 of 40
 Power AC-IN,
 Charger

B.Schematic Diagrams

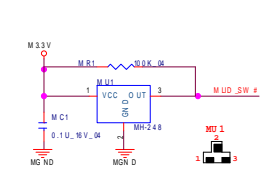
Multi I/O Board 1/2

Sheet 33 of 40
Multi I/O Board 1/2

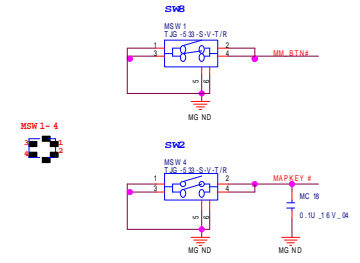
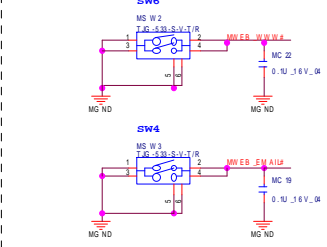
SPEAKER For M720T



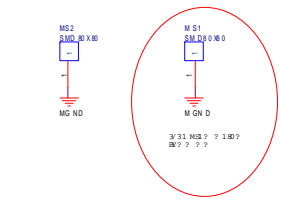
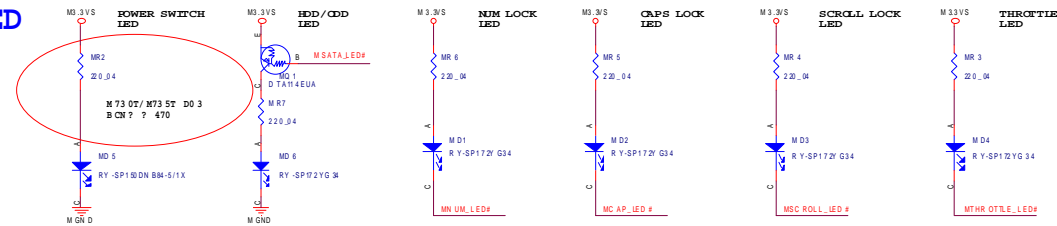
LID SWITCH



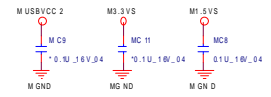
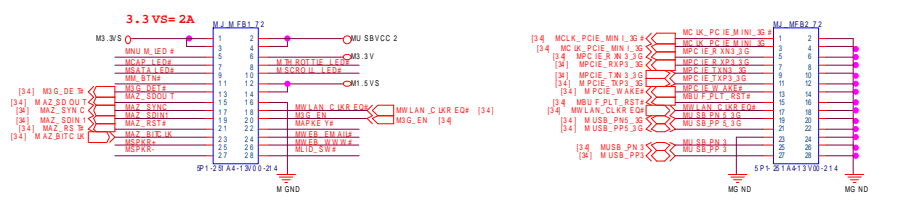
HOT KEY & POWER SWITCH



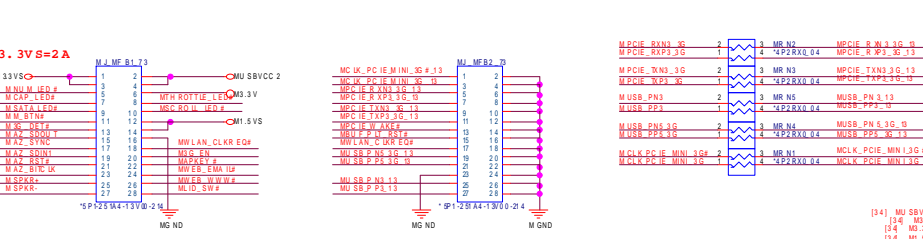
LED



FOR M720T

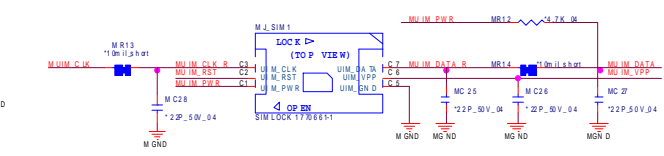
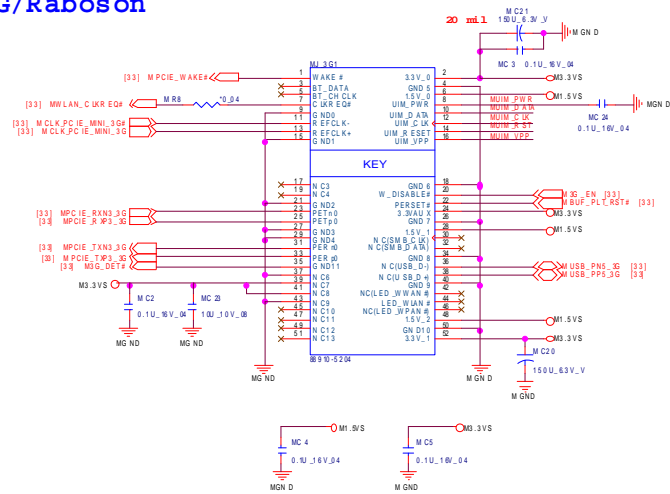


FOR M730T

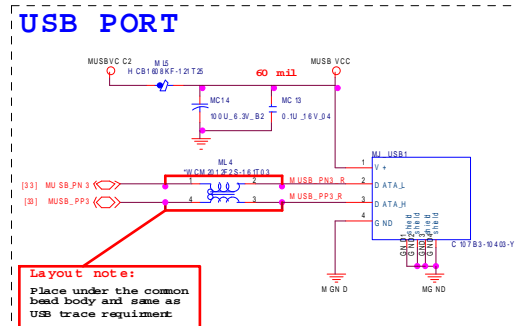


Multi I/O Board 2/2

3G/Raboson

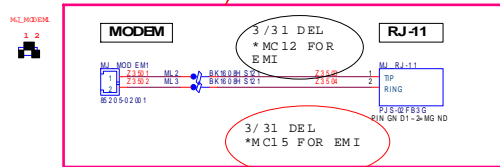


- La you t?
1. SIM? ? ? ? ? ? ? ? (10m11)
 2. ? ? ? ? ? ? ? ? GND
 3. SIM hold ? ? ? ? ? ? ? ? GND?
 4. SIM CD-IN ? ? ? ? ? ? ? ? GND

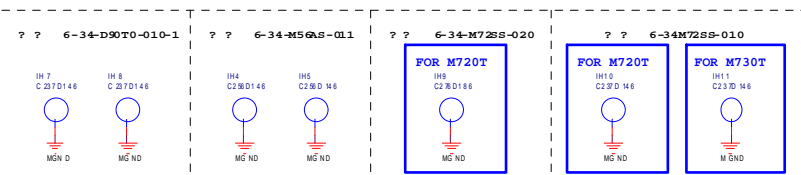
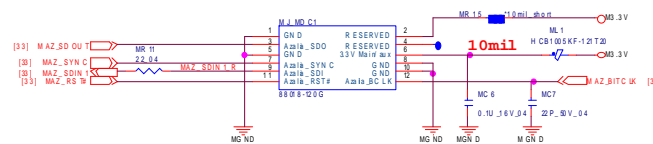


RJ-11

?????????
?? 2.5mm ??

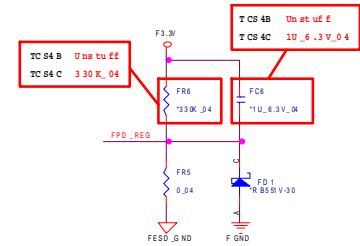
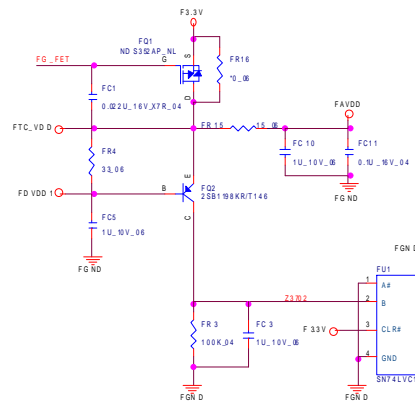
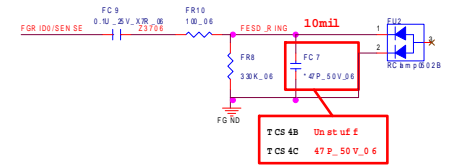
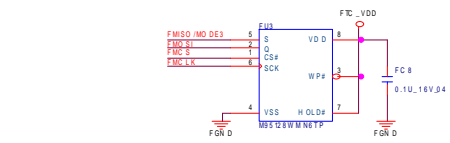
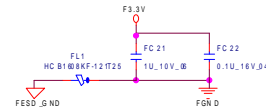
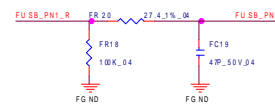
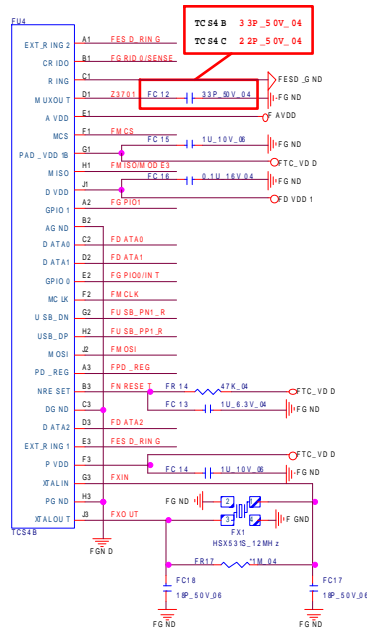
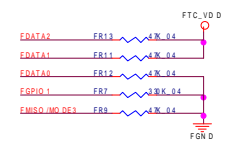
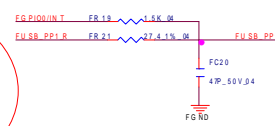
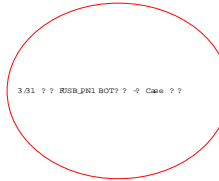
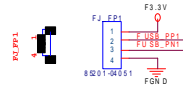


MDC MODULE



Finger Printer Board

Finger Printer

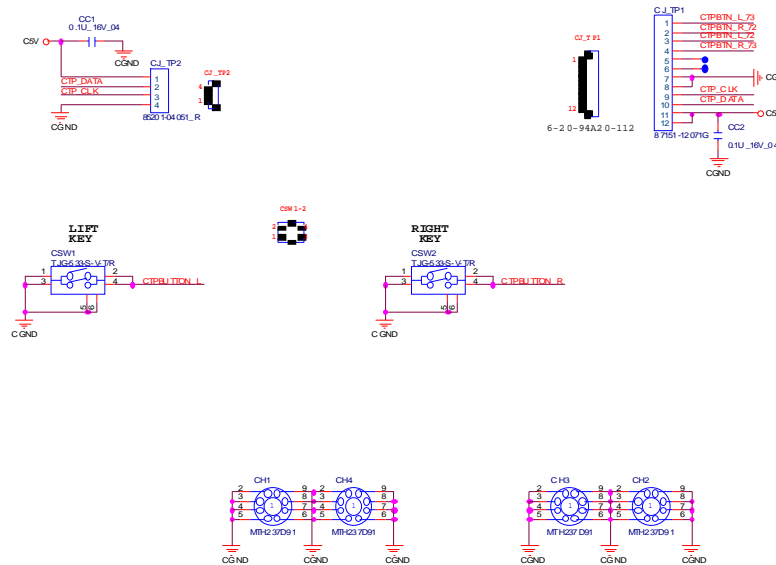


B.Schematic Diagrams

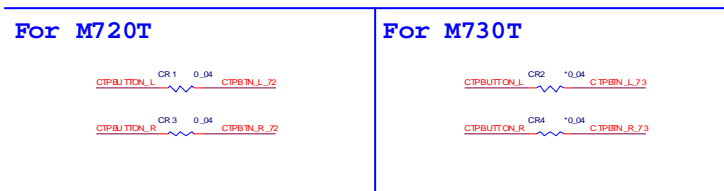
Sheet 35 of 40
Finger Printer
Board

Click Board

CLICK BOARD



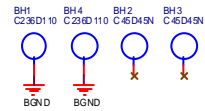
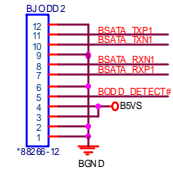
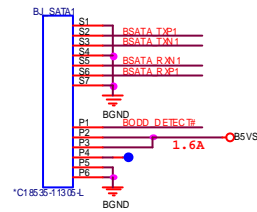
Sheet 36 of 40
Click Board



M730T ODD Bridge Board

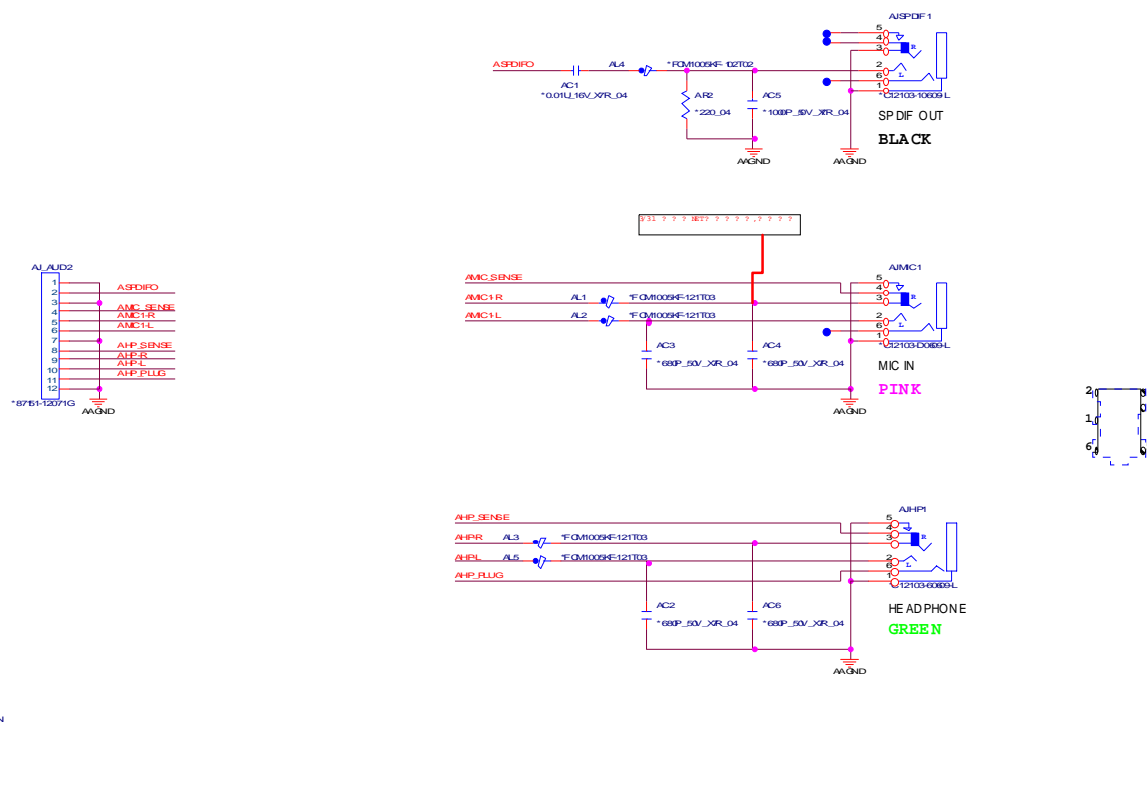
M730T ODD BRIDGE BOARD

Sheet 37 of 40
M730T ODD Bridge
Board



M730T Audio Board

M730T AUDIO BRIDGE BOARD



Sheet 38 of 40
M730T Audio Board

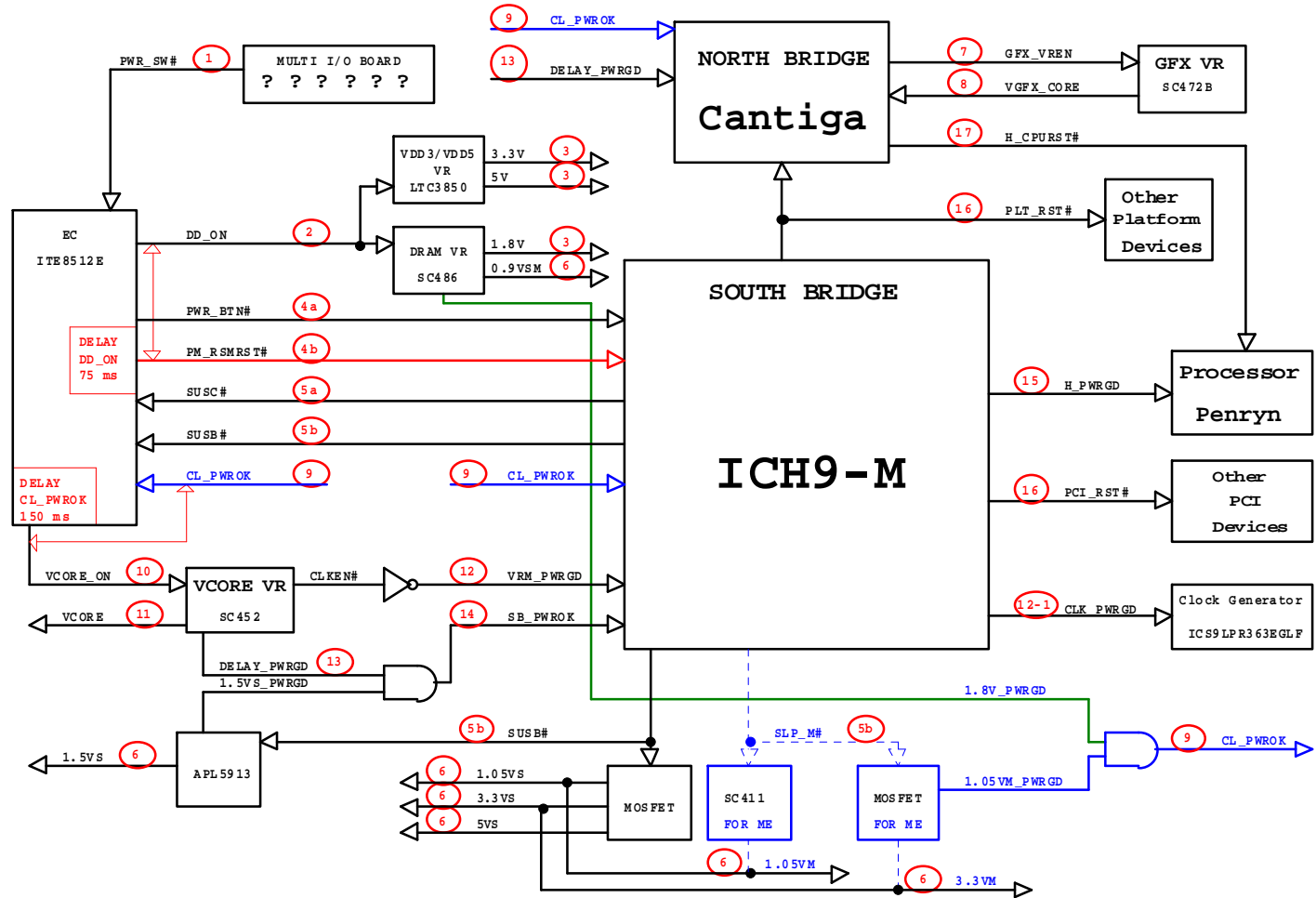
B. Schematic Diagrams

Power Sequence Diagram

M720T V0.0 BOOT BLOCK DIAGRAM

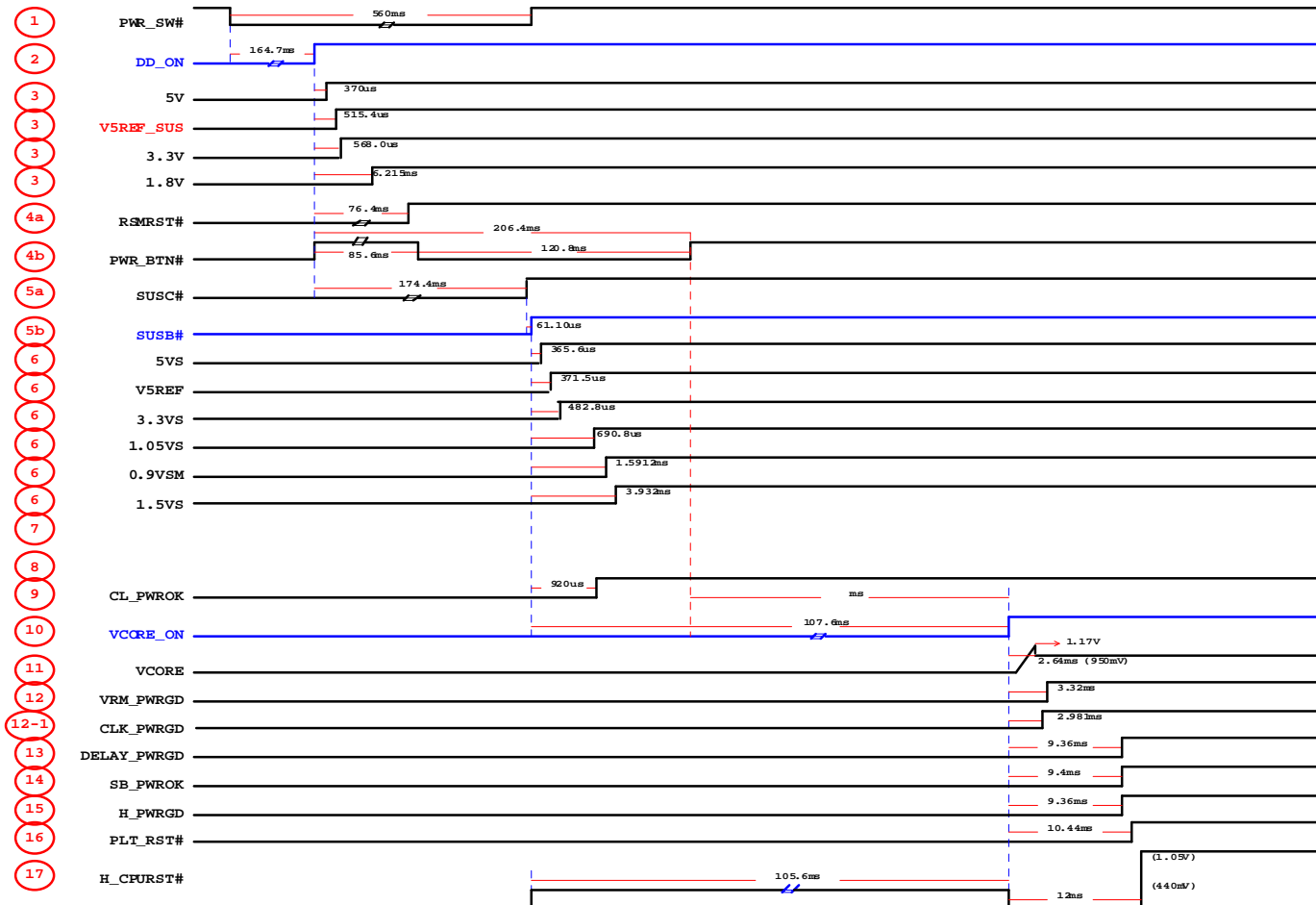
B.Schematic Diagrams

Sheet 39 of 40
Power Sequence
Diagram



Power Sequence v3.0

M720T V3.0 POWER ON SEQUENCE



Sheet 40 of 40
Power Sequence
v3.0

Schematic Diagrams

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