

SERVICE MANUAL

W350HU/ W350HV

notebook



Notebook Computer

W350HU/ W350HV

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 *W350HU/W350HV* series notebook PC.

The following information is included:

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

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

Appendix A, Part Lists

Appendix B, Schematic Diagrams

Appendix C, Updating the FLASH ROM BIOS

IMPORTANT SAFETY INSTRUCTIONS

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

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit with an AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19V, 3.42A /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

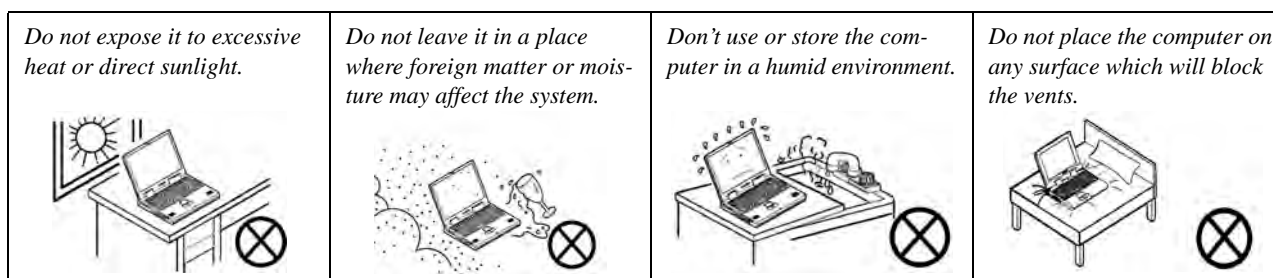
Instructions for Care and Operation

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

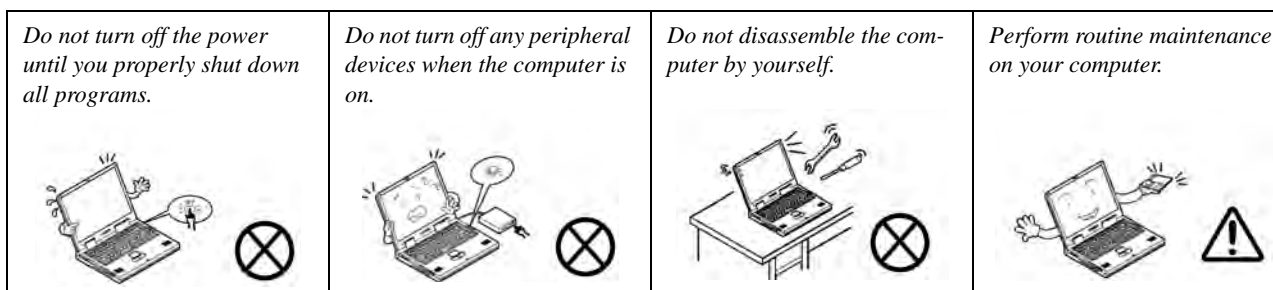
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



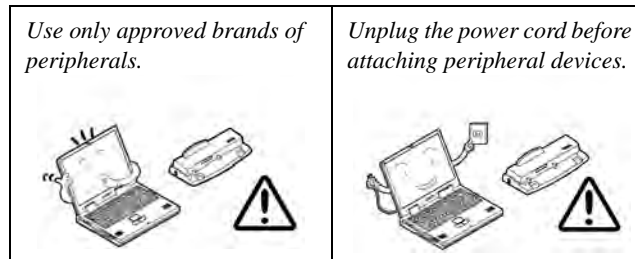
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.



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.



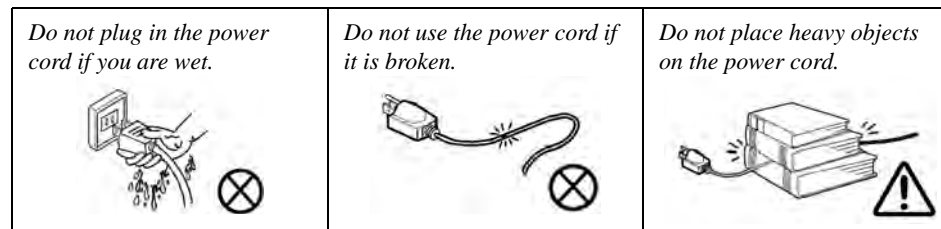
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



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/DVD

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. Securely attach any peripherals you want to use with the computer (e.g. keyboard and mouse) to their ports.
4. Attach the AC/DC adapter to the DC-In jack on the left of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
5. Use one hand to raise the lid/LCD to a comfortable viewing angle (do not exceed 120 degrees); use the other hand (as illustrated in Figure 1) to support the base of the computer (**Note: Never** lift the computer by the lid/LCD).
6. Press the power button to turn the computer "on".

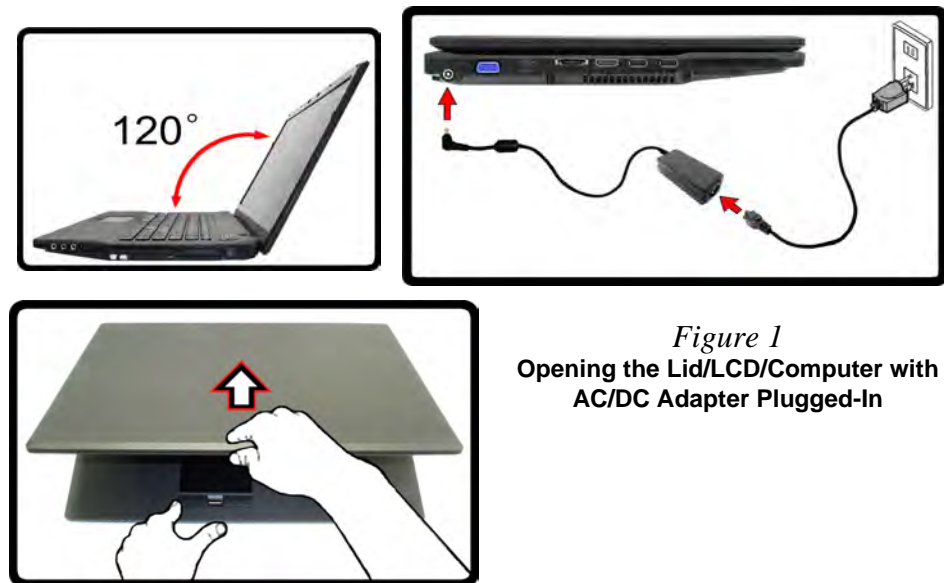


Figure 1
Opening the Lid/LCD/Computer with
AC/DC Adapter Plugged-In

Contents

System Startup	1-VIII	Top with Fingerprint	A-3
Introduction	1-1	Bottom	A-4
Overview	1-1	LCD	A-5
Specifications	1-2	SATA DVD Super-Multi	A-6
External Locator - Top View with LCD Panel Open	1-4	HDD	A-7
External Locator - Front & Right Side Views	1-5	Schematic Diagrams.....	B-1
External Locator - Left Side & Rear View	1-6	System Block Diagram	B-2
External Locator - Bottom View	1-7	PROCESSOR/ DMI, PEG, FDI	B-3
Mainboard Overview - Top (Key Parts)	1-8	PROCESSOR/ CLK, MISC, JTAG	B-4
Mainboard Overview - Bottom (Key Parts)	1-9	PROCESSOR/ DDR3	B-5
Mainboard Overview - Top (Connectors)	1-10	PROCESSOR/ POWER1	B-6
Mainboard Overview - Bottom (Connectors)	1-11	PROCESSOR/ POWER2	B-7
Disassembly	2-1	PROCESSOR/ GND	B-8
Overview	2-1	PROCESSOR/ RESERVED	B-9
Maintenance Tools	2-2	DDR3 SO-DIMM 0	B-10
Connections	2-2	DDR3 SO-DIMM_1	B-11
Maintenance Precautions	2-3	LVDS, INVERTER	B-12
Disassembly Steps	2-4	HDMI, CRT	B-13
Removing the Battery	2-5	PCH/ HDA, JTAG, SATA	B-14
Removing the Hard Disk Drive	2-6	PCH/ PCI-E, SMBUS, CLK	B-15
Removing the System Memory (RAM)	2-8	PCH/ DMI, FDI, GPIO	B-16
Removing the Optical (CD/DVD) Device	2-10	PCH/ LVDS, DDI,CRT	B-17
Removing and Installing the Processor	2-11	PCH/ PCI, USB, NVRAM	B-18
Removing the Wireless LAN Module	2-14	PCH/ GPIO, VSS NCTF, RSVD	B-19
Removing the Keyboard	2-15	PCH/ POWER 1	B-20
Removing the 3.75G Module	2-16	PCH/ POWER 2	B-21
Removing the Modem	2-17	PCH/ GND	B-22
Part Lists	A-1	DOCKING CONNECTOR	B-23
Part List Illustration Location	A-2	3G, TPM	B-24
		NEW CARD, MINI PCIE	B-25



Preface


CARD READER JMC261C, ESATA	B-26	Use the flash tools to update the BIOS	C-2
INTEL LAN82579	B-27	Restart the computer (booting from the HDD)	C-2
LAN(82579), SATA HDD, ODD	B-28		
USB 2.0 CHARGER, Audio Conn	B-29		
USB 3.0 TI TUSB7320	B-30		
KBC-ITE IT8518	B-31		
LED, MDC, POWER, FAN	B-32		
AUDIO CODEC ALC269, VIA1802	B-33		
LID, AP KEY, FP, MULTI CON	B-34		
5VS, 3VS, 105VS, 1.5VS CPU	B-35		
VDD3, VDD5	B-36		
POWER 1.5V/ 0.75V, 1.8VS	B-37		
POWER 1.05V LAN M	B-38		
POWER 0.85VS	B-39		
Power V-CORE1	B-40		
POWER/ V-CORE2, VGFX	B-41		
AC IN, CHARGER	B-42		
AUDIO BOARD FOR T51	B-43		
POWER SWITCH BOARD FOR M74	B-44		
EXTERNAL ODD BOARD FOR W76	B-45		
FINGERPRINT BOARD FOR W86	B-46		
CLICK FINGER BOARD FOR W35	B-47		
Multi I/O Board for T51	B-48		
Power Sequence	B-49		
Power Sequence 2	B-50		
Updating the FLASH ROM BIOS.....	C-1		
To update the FLASH ROM BIOS you must:	C-1		
Download the BIOS	C-1		
Unzip the downloaded files to a bootable CD/DVD/ or USB Flash drive	C-1		
Set the computer to boot from the external drive	C-1		

Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **W350HU/ W350HV** 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 the *User's Manual*. The manual is shipped with the computer.

Operating systems (e.g. *Window 7*, etc.) have their own manuals as do application softwares (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The **W350HU/ W350HV** 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 take note of 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

W350HU:

Intel® Core™ i7 Processor

i7-2620M (2.7GHz)

4MB L3 Cache, 32nm, DDR3-1333MHz, TDP 35W

Intel® Core™ i5 Processor

i5-2540M (2.6GHz), i5-2520M (2.5GHz), i5-2410M (2.3GHz)

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

Intel® Core™ i3 Processor

i3-2330M (2.2GHz), i3-2310M (2.1GHz)

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

Intel® Pentium® Processor

B950 (2.1GHz), B940 (2.0GHz)

2MB L3 Cache, 32nm, DDR3-1333MHz, TDP 35W

W350HV:

Intel® Core™ i7 Processor

i7-2620M (2.7GHz)

4MB L3 Cache, 32nm, DDR3-1333MHz, TDP 35W

Intel® Core™ i5 Processor

i5-2540M (2.6GHz), i5-2520M (2.5GHz)

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

Core Logic

W350HU:

Intel® HM65 Chipset

W350HV:

Intel® QM67 Chipset

BIOS

W350HU:

AMI™ BIOS (32Mb SPI Flash ROM x 1)

W350HV:

AMI™ BIOS (32Mb SPI Flash ROM x 2)

LCD

15.6" (39.62) HD/HD+ TFT LCD

Memory

Two 204 Pin SO-DIMM Sockets Supporting **DDR3 1333MHz** Memory

Memory Expandable up to **8GB**

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

Video Adapter

Intel HD Graphics 3000

Shared Memory Architecture (DVMT) up to **1.7GB**

Microsoft DirectX®10 Compatible

Storage

(**Factory Option**) One Changeable 12.7mm(h) Optical Device Type Drive (Super Multi)

One Changeable 2.5" 9.5 mm (h) **SATA** (Serial) HDD

Keyboard

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

Pointing Device

Built-in Touchpad

Security

BIOS Password

Security (Kensington® Type) Lock Slot

Fingerprint Reader

TPM v1.2

Intel vPro (**W350HV only**)

Audio

High Definition Audio Compliant Interface
 2 * Built-In Speakers
 Built-In Microphone

Interface

One Powered USB 2.0 Port
 Two USB 3.0 Ports
 One eSATA/USB 2.0 Combo Port
 One HDMI-Out Port
 One Headphone-Out Jack
 One Microphone-In Jack
 One S/PDIF Out Jack
 One RJ-45 LAN Jack
 One DC-in Jack
 One External Monitor Port
 One ExpressCard/34(54) Slot
 One Docking Port

Card Reader

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

Mini Card Slots

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

Communication

Built-In Gigabit Ethernet LAN
 (Factory Option) 1.3M/2.0M Pixel USB PC Camera Module
 (Factory Option) 3.75G/HSPA Mini-Card Module

W350HU:

(Factory Option) Intel® Centrino® Advanced-N 6230 Wireless LAN (802.11a/g/n) + Bluetooth 3.0

(Factory Option) Intel® Centrino® Wireless-N 1030 Wireless LAN (802.11a/g/n) + Bluetooth 3.0

(Factory Option) Third-Party Wireless LAN (802.11b/g/n) + Bluetooth 3.0

W350HV:

(Factory Option) Intel® Centrino® Advanced-N 6230 Wireless LAN (802.11a/g/n) + Bluetooth 3.0

Power

Full Range AC/DC Adapter
 AC Input: 100 - 240V, 50 - 60Hz
 DC Output: 19V, 3.42A /18V, 3.5A (65W)
 6 Cell Smart Lithium-Ion Battery Pack, 48.84WH

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

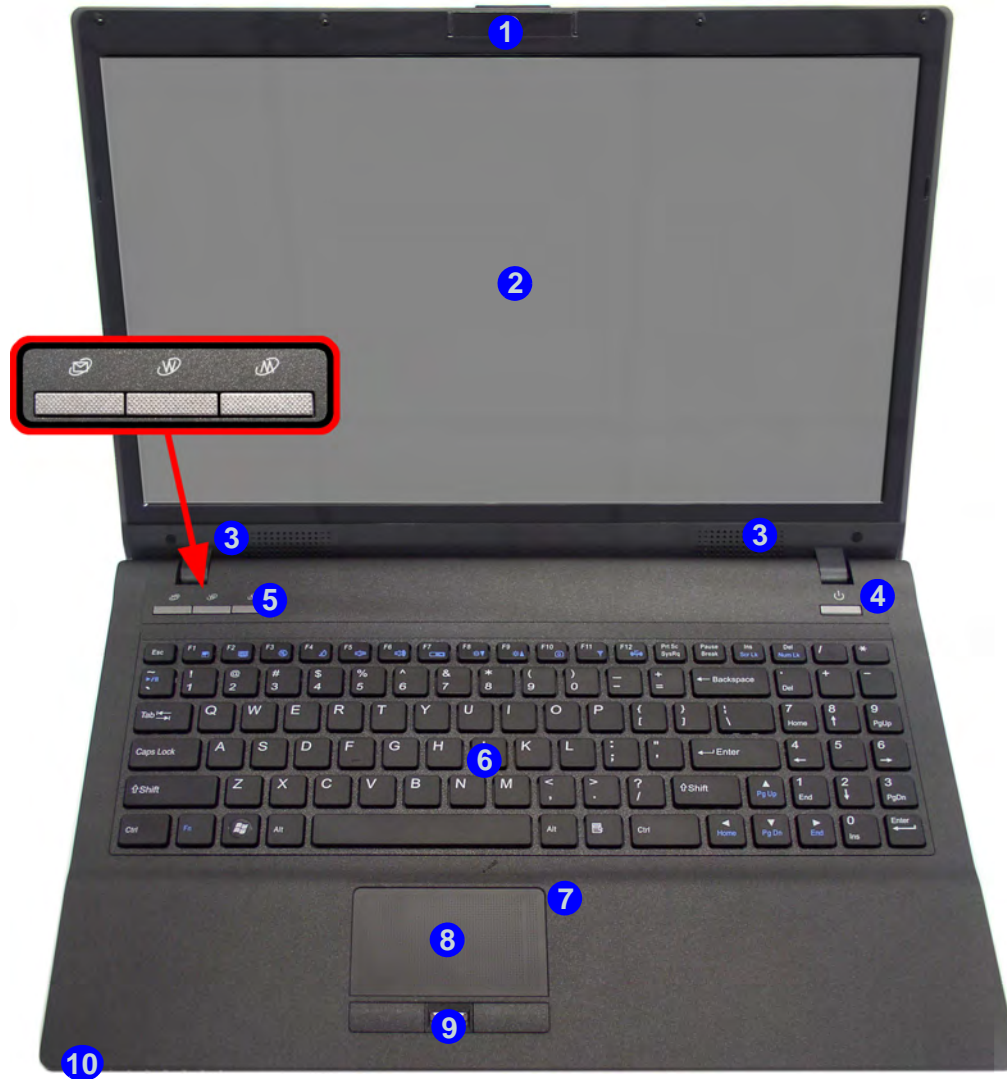
374mm (w) * 256mm (d) * 37.9mm (h)
 2.5kg (with 48.84WH Battery)

Introduction

External Locator - Top View with LCD Panel Open

Figure 1
Top View

1. Built-In PC Camera
2. LCD
3. Speakers
4. Power Button
5. Hot Key Buttons
6. Keyboard
7. Built-In Microphone
8. Touchpad & Buttons
9. Fingerprint Reader
10. LED Indicators



External Locator - Front & Right Side Views

FRONT VIEW



RIGHT SIDE VIEW



USB

When the powered USB 2.0 port **4** is on it will supply power when the system is off but still powered by the AC/DC adapter plugged into a working outlet, or powered by the battery with a capacity level above 20%. Toggle power to this port by using **Fn + power button**.

Figure 2
Front View

1. LED Indicators

Figure 3
Right Side View

1. S/PDIF-Out Jack
2. Microphone-In Jack
3. Headphone-Out Jack
4. Powered USB 2.0 Port (see note below)
5. Optical Device Drive Bay
6. Emergency Eject Hole
7. Security Lock Slot

Introduction

External Locator - Left Side & Rear View

Figure 4
Left Side View

1. DC-In Jack
2. External Monitor Port
3. RJ-45 LAN Jack
4. e-SATA Port/USB 2.0 Combo Port
5. HDMI-Out Port
6. Vent
7. 2 * USB 3.0 Ports
8. ExpressCard/ 54(34) Slot
9. Multi-in-1 Card Reader

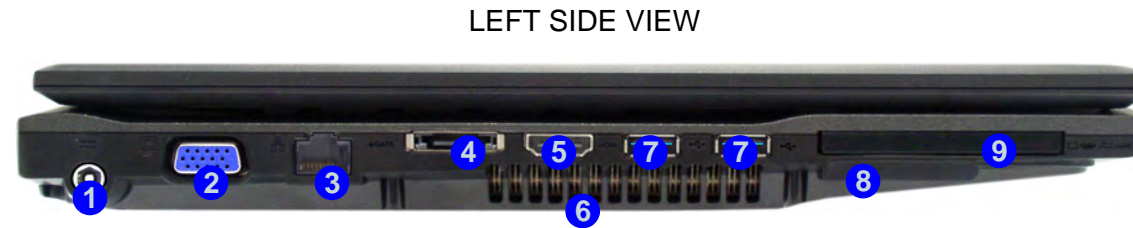


Figure 5
Rear View

1. Battery



External Locator - Bottom View

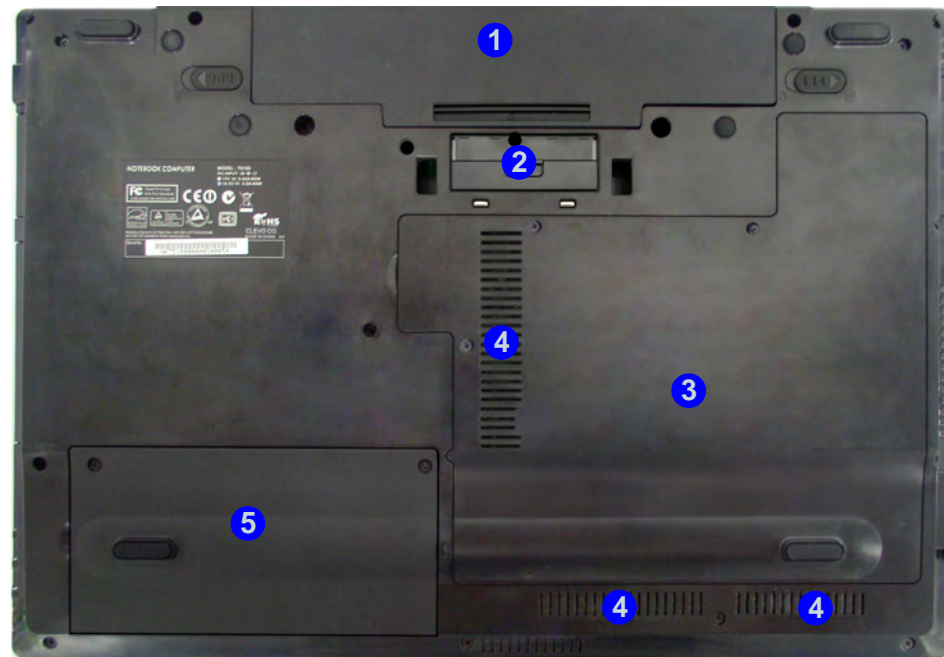


Figure 6
Bottom View

1. Battery
2. Docking Port
3. Component Bay Cover
4. Vent
5. Hard Disk Bay Cover


Overheating

To prevent your computer from overheating, make sure nothing blocks any vent while the computer is in use.

Introduction

Figure 7
**Mainboard Top
Key Parts**

1. ITE IT8709E
2. TI TUSB7320

Mainboard Overview - Top (Key Parts)



Mainboard Overview - Bottom (Key Parts)



Figure 8
**Mainboard Bottom
Key Parts**

1. CPU Socket (no CPU installed)
2. Memory Slots
DDR3 SO-DIMM
3. Azalia Codec
4. ITE IT8518E
5. Platform Controller
Hub
6. CMOS Battery
7. JMICRO JM261C
8. Multi-in-1 Card
Reader
9. Mini-Card
Connector (WLAN
Module)
10. Docking
Connector

Introduction

Figure 9
Mainboard Top Connectors

1. LCD Cable Connector
2. Speaker Cable Connector
3. Inverter Connector
4. e-SATA Port/USB 2.0 Combo Port
5. HDMI-Out Port
6. USB 3.0 Ports
7. Modem Connector
8. HDD Connector
9. Fingerprint Cable Connector
10. TouchPad Cable Connector
11. Microphone Cable Connector
12. Keyboard Cable Connector
13. Switch Board Cable Connector

Mainboard Overview - Top (Connectors)



Mainboard Overview - Bottom (Connectors)



Figure 10
**Mainboard Bottom
Connectors**

1. Battery Connector
2. Docking Station Connector
3. Mini-Card Connector (3G Module)
4. Multi-I/O Connector
5. ODD Connector
6. HDD Connector
7. Fan cable Connector
8. RJ-45 LAN Jack
9. External Monitor Port
10. DC-In Jack


Chapter 2: Disassembly



Overview

This chapter provides step-by-step instructions for disassembling the *W350HU/ W350HV* series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

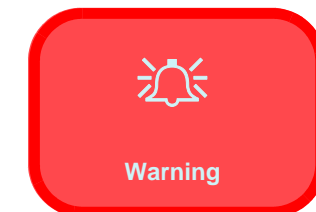
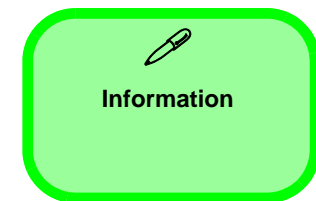
We suggest you completely review any procedure before you take the computer apart.

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 System Memory:

1. Remove the battery [page 2 - 5](#)
2. Remove the system memory [page 2 - 8](#)

To remove the Optical Device:

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

To remove and install a Processor:

1. Remove the battery [page 2 - 5](#)
2. Remove the processor [page 2 - 11](#)
3. Install the processor [page 2 - 13](#)

To remove the Wireless LAN Module:

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

To remove the Keyboard:

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

To remove the 3.75G Module:

1. Remove the battery [page 2 - 5](#)
2. Remove the 3.75G module [page 2 - 16](#)

To remove the Modem:

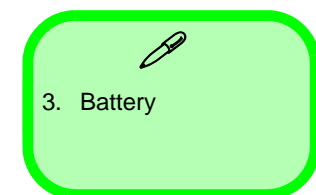
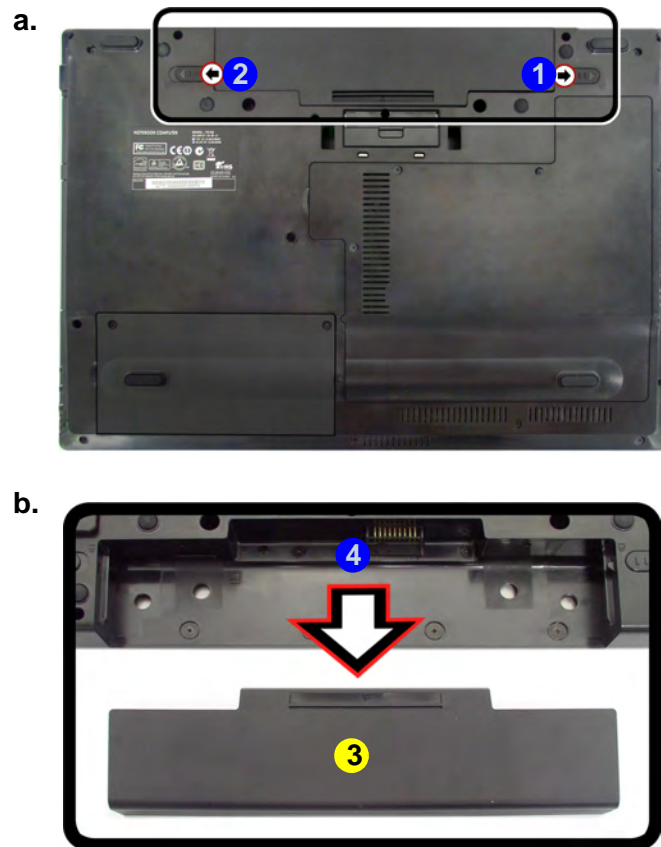
1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Remove the Optical device [page 2 - 10](#)
4. Remove the processor [page 2 - 11](#)
5. Remove the keyboard [page 2 - 15](#)
6. Remove the modem [page 2 - 17](#)

Removing the Battery

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

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

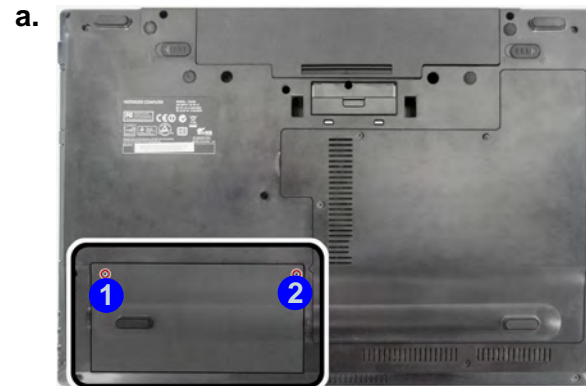
- Locate the HDD bay cover and remove the screws.

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](#)).



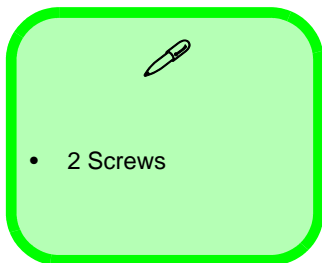
HDD System Warning

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.

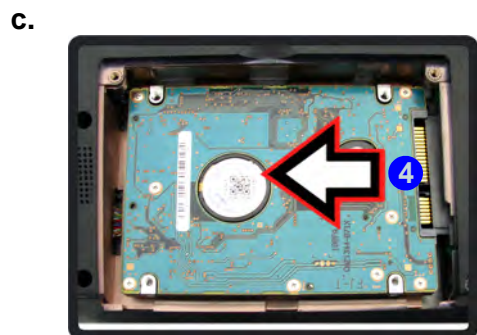
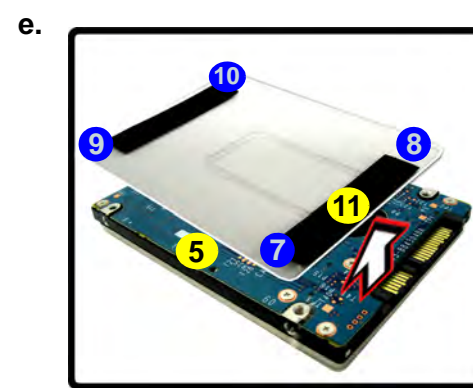
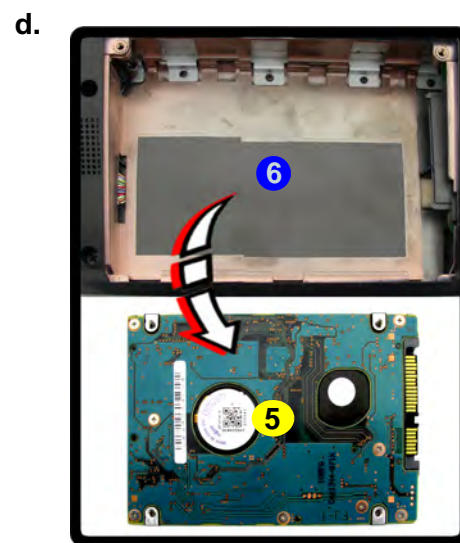
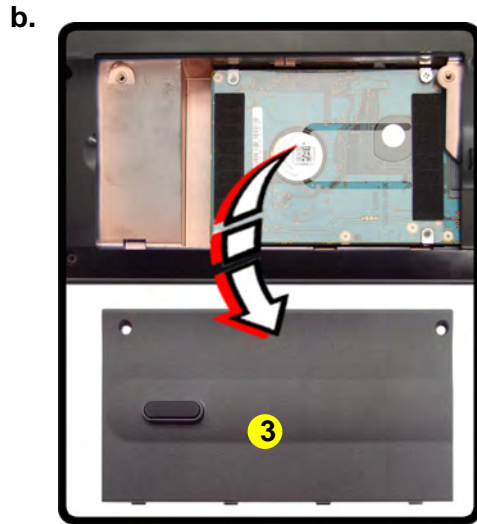
If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.



3. Remove the hard disk bay cover **3** (*Figure 3b*).
4. Grip the tab and slide the hard disk in the direction of arrow **4** (*Figure 3c*).
5. Lift the hard disk **5** out of the bay **6** (*Figure 3d*).
6. Remove the screws **7** - **10** and the adhesive cover **11** from the hard disk **5** (*Figure 3e*).
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 screws and adhesive cover.



- 3. HDD Bay Cover
- 5. HDD
- 11. Adhesive Cover
- 4 Screws

Disassembly

Figure 4
RAM Module Removal

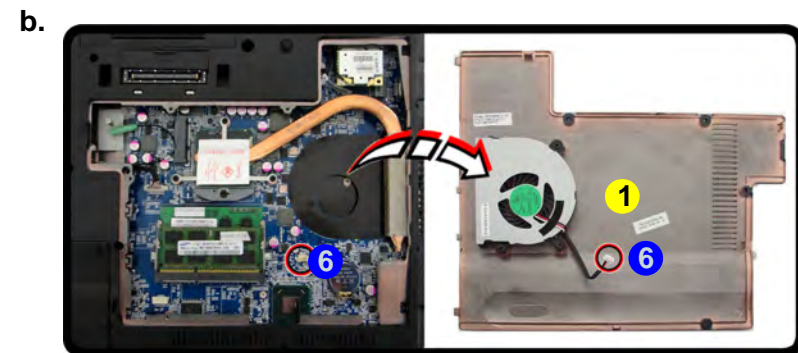
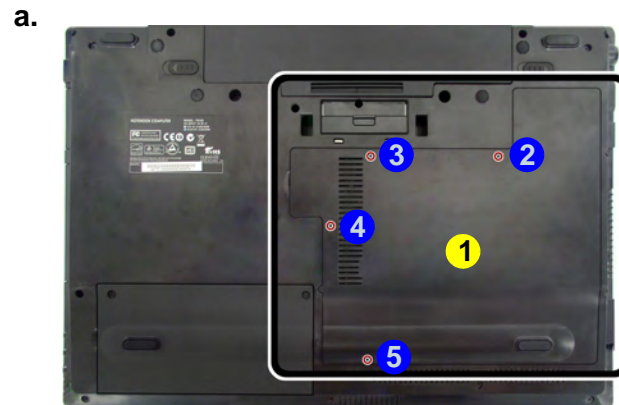
- Remove the screws.
- Disconnect the fan cable and remove the bay cover.

Removing the System Memory (RAM)

The computer has two memory sockets for 204 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR3 1066/1333MHz. The main memory can be expanded up to 8GB. The SO-DIMM modules supported are 1024MB, and 2048MB and **DDRIII** Modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

Memory Upgrade Process

- Turn **off** the computer, remove the battery ([page 2 - 5](#)).
- Locate the component bay cover **1**, and remove screws **2 - 5** ([Figure 4a](#)).
- 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 cover **1** ([Figure 4b](#)).



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

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

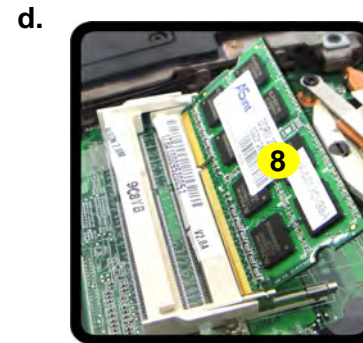


Figure 5
**RAM Module
Removal (cont'd.)**

- Pull the release latches.
- Remove the module(s).

- The RAM module 8 will pop-up (**Figure 5d**), and you can then remove it.
- Pull the latches to release the second module if necessary (**Figure 5c**).
- Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
- 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.
- Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
- Replace the bay cover and screws (**make sure you reconnect the fan cable before screwing down the bay cover**).
- Restart the computer to allow the BIOS to register the new memory configuration as it starts up.



8. RAM Module(s)

Disassembly

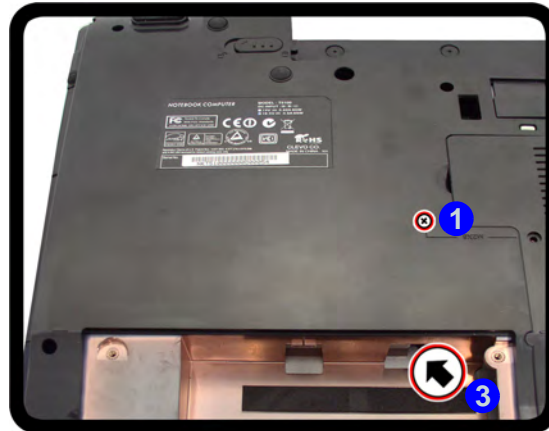
Figure 6
**Optical Device
Removal**

- Remove the screw.
- Push the optical device out off the computer at point 3.

Removing the Optical (CD/DVD) Device

- Turn **off** the computer, remove the battery ([page 2 - 5](#)) and the component bay cover ([page 2 - 8](#)).
- Remove the screw at point **1** ([Figure 6a](#)), and use a screwdriver to carefully push out the optical device **2** at point **3** ([Figure 6b](#)).
- 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.

a.



b.



2. Optical Device

- 1 Screw

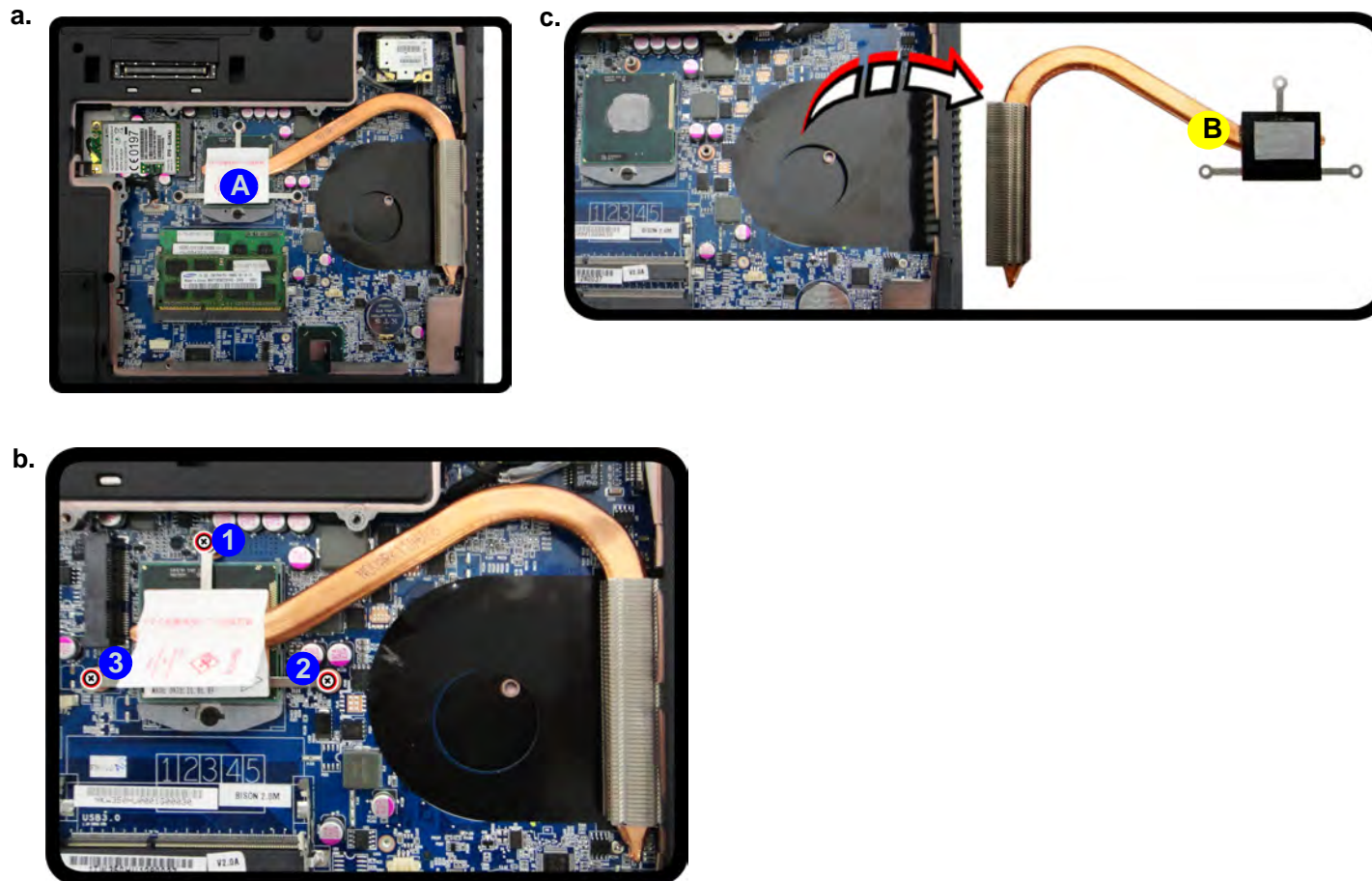
Removing and Installing the Processor


Processor Removal Procedure

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)) and the component bay cover ([page 2 - 8](#)).
2. The CPU heat sink will be visible at point **A** ([Figure 7a](#)) on the mainboard.
3. Remove screws **3**, **2**, **1** ([Figure 7b](#)), the reverse order indicated on the label.
4. Carefully lift up the heat sink **B** ([Figure 7c](#)) off the computer.

Figure 7
Processor Removal

- a. Remove the cover and locate the heat sink.
- b. Remove the screws in the order indicated.
- c. Remove the heat sink.






B. Heat Sink

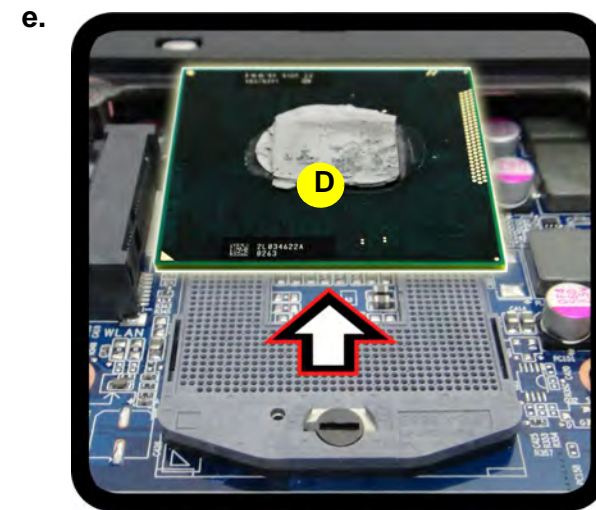
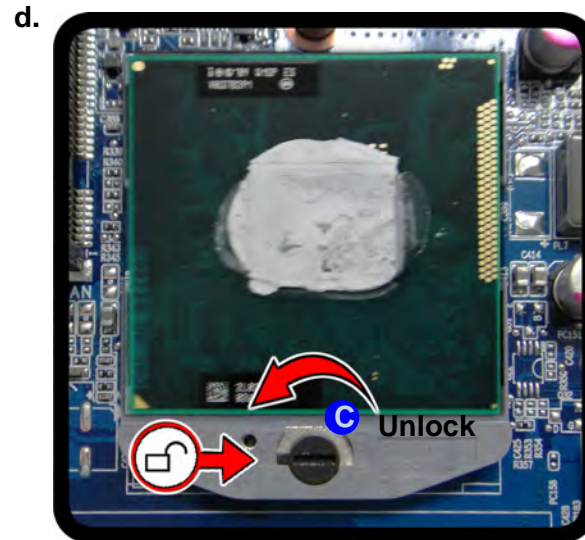
- 3 Screws

Disassembly

Figure 8 Processor Removal (cont'd)

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

5. Turn the release latch **C** towards the unlock symbol , to release the CPU (*Figure 8d*).
6. Carefully (it may be hot) lift the CPU **D** up out of the socket (*Figure 8e*).
7. See [page 2 - 13](#) for information on inserting 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!).



D. CPU



Caution

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

Processor Installation Procedure


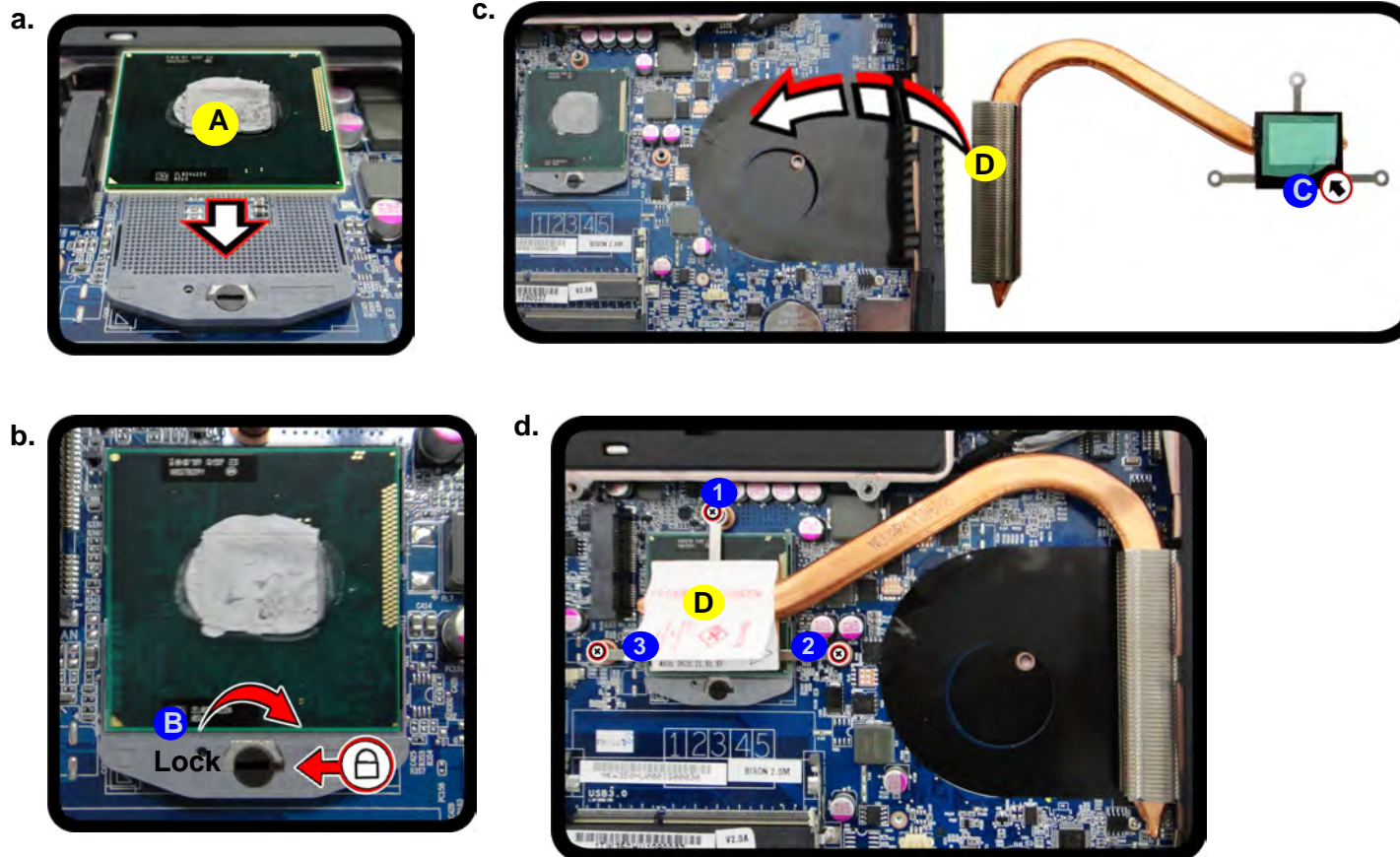

1. Insert the CPU **A** (*Figure 9a*), pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!), and turn the release latch **B** towards the lock symbol  (*Figure 9b*).
2. **Remove the stickers** **C** (*Figure 9c*) from the heat sink.
3. Insert the heat sink **D** as indicated in (*Figure 9c*).
4. Replace and tighten the screws **1** - **3** (*Figure 9d*) in the order indicated on the label.
5. Replace the component bay cover and screws (*page 2 - 8*).

Figure 9
Processor Installation

- a. Insert the CPU.
- b. Turn the release latch towards the lock symbol.
- c. Remove the stickers from the heat sink and insert the heat sink.
- d. Replace and tighten the screws in the order indicated on the label.
- e. Replace the cover and screws.





A. CPU
D. Heat Sink

- 3 Screws

Disassembly

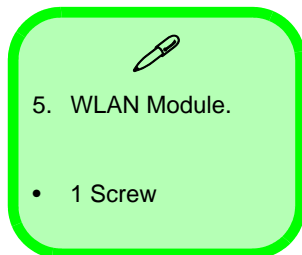
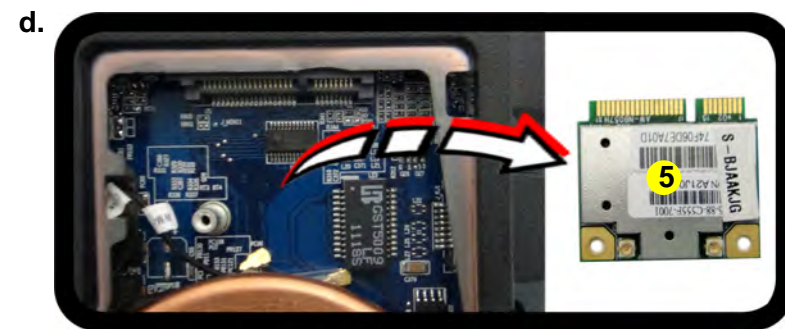
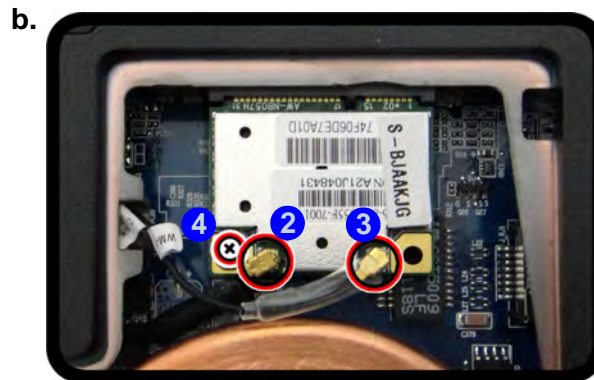
Figure 10
**Wireless LAN
Module Removal**

- 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

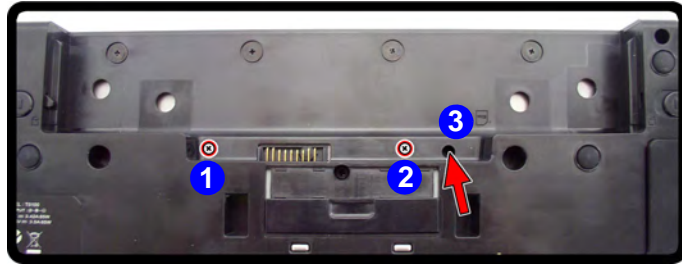
- Turn **off** the computer, remove the battery (*page 2 - 5*) and the component bay cover (*page 2 - 8*).
- The Wireless LAN module will be visible at point **1** (*Figure 10a*) on the mainboard.
- Carefully disconnect cables **2** - **3**, then remove screw **4** from the module socket (*Figure 10b*).
- The Wireless LAN module **5** (*Figure 10c*) will pop-up.
- Lift the Wireless LAN module (*Figure 10d*) up and off the computer.



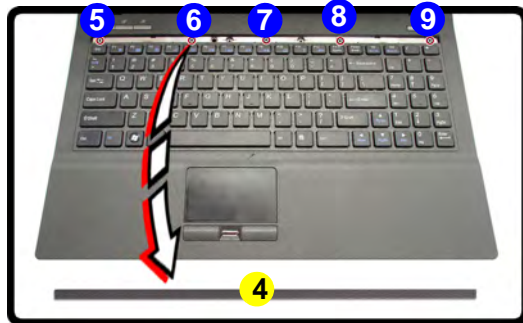
Removing the Keyboard

1. Turn **off** the computer and remove the battery ([page 2 - 5](#)).
2. Remove screws **1** & **2** and use a screwdriver to carefully push out the top cover module **4** at point **3** ([Figure 11a](#)).
3. Remove the top cover module **4** and the screws **5** - **9** ([Figure 11b](#)).
4. Lift the keyboard up and disconnect the keyboard ribbon cable **10** from the locking collar socket **11** ([Figure 11c](#)).
5. Carefully lift up the keyboard **12** ([Figure 11d](#)) off the computer.

a.



b.



c.



d.



Keyboard Tabs

Figure 11
Keyboard Removal

- a. Remove the screws and use a screwdriver to carefully push out the top cover module at point **3**.
- b. Remove the top cover module and the screws.
- c. Lift the keyboard up and disconnect the cable from the locking collar socket.
- d. Remove the keyboard.



Re-Inserting the Keyboard

When re-inserting the keyboard, align first the **four** keyboard tabs ([Figure 11d](#)) that are located at the bottom, to the slots in the case.



4. Top Cover Module
12. Keyboard

- 7 Screws

Disassembly

Figure 12
3G Module Removal

- Locate the 3.75G module.
- Disconnect the cable and remove the screw.
- The module will pop-up.
- Remove the 3.75G module.

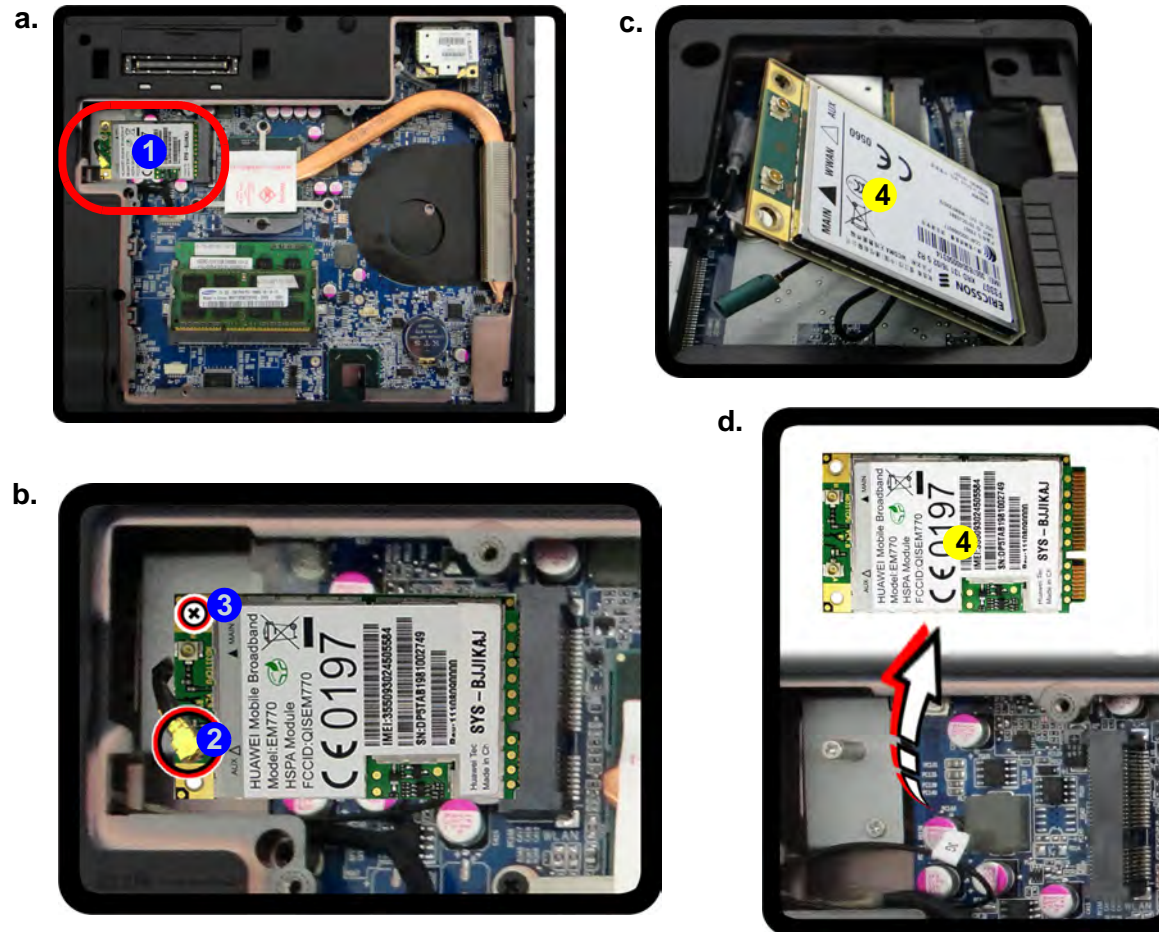
Note: Make sure you reconnect the antenna cable to socket.

4. 3.75G Module

- 1 Screw

Removing the 3.75G Module

- Turn off the computer, turn it over, and remove the battery ([page 2 - 5](#)) and the component bay cover ([page 2 - 14](#)).
- The 3.75G module will be visible at point ① on the mainboard ([Figure 12a](#)).
- Carefully disconnect the cable ②, and then remove the screw ③ ([Figure 12b](#)).
- The 3.75G module ④ ([Figure 12c](#)) will pop-up, and you can remove it from the computer ([Figure 12d](#)).



Removing the Modem

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)), HDD ([page 2 - 6](#)), component bay cover ([page 2 - 8](#)), optical device ([page 2 - 10](#)), CPU ([page 2 - 10](#)), bluetooth ([page 2 - 15](#)) and keyboard ([page 2 - 15](#)).
2. Remove screws **1** - **17** from the bottom case ([Figure 13a](#)).
3. Remove screws **18**- **19** from the rear of the computer ([Figure 13a](#)).
4. Remove screw **20** from the top case and disconnect cables **21** - **24** ([Figure 13b](#)).
5. Carefully lift the top case **25** off the computer. The modem will be visible at point **26** ([Figure 14c](#)).

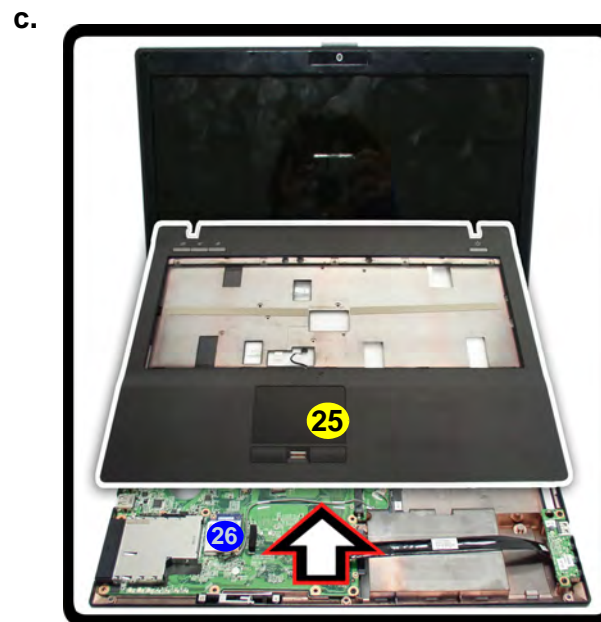
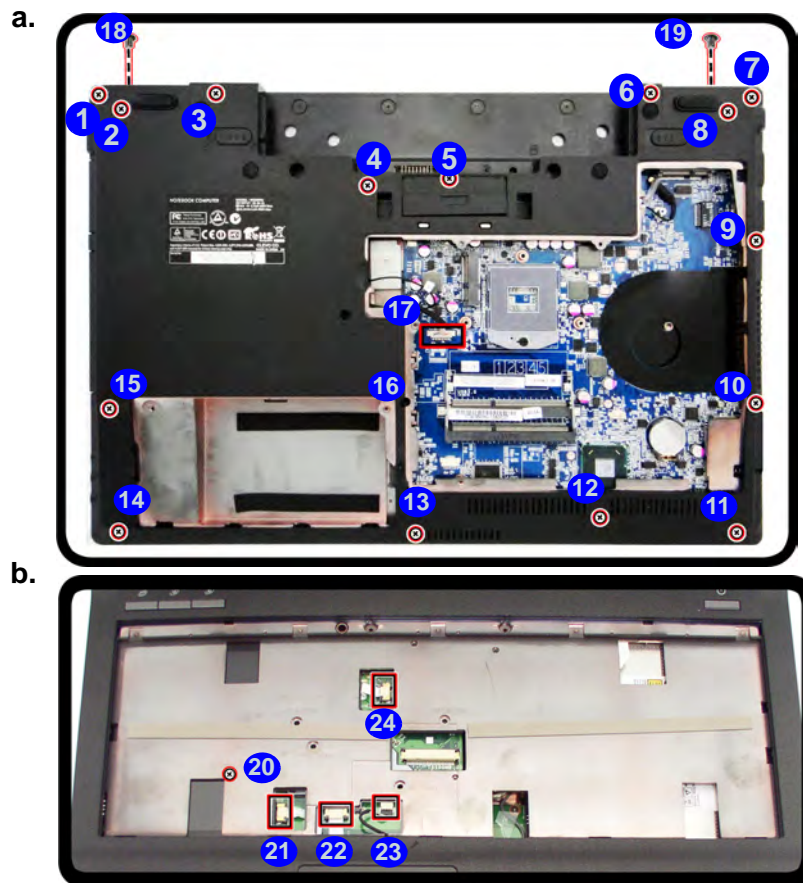



Figure 13
Modem Removal

- a. Remove the screws from the bottom case and rear of the computer.
- b. Remove the screw from the top case and disconnect cables.
- c. Lift the top case off the computer. The modem will be visible at point **26**.



25. Top Case

- 20 Screws

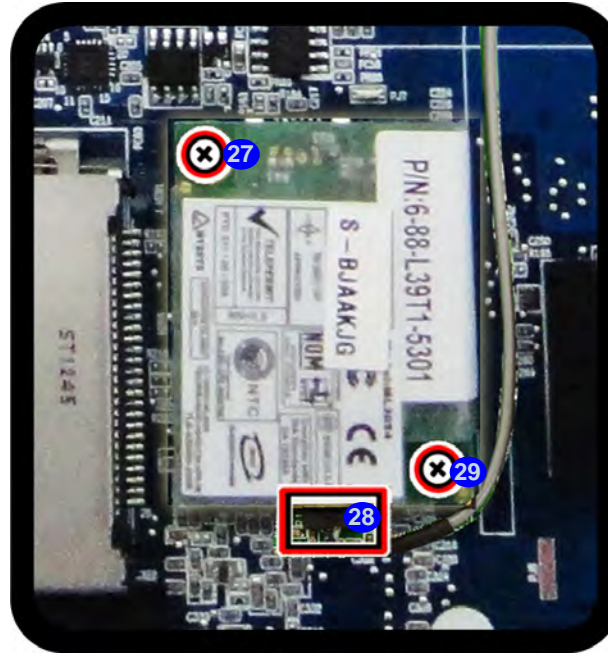
Disassembly

Figure 14
Modem Removal
(cont'd.)

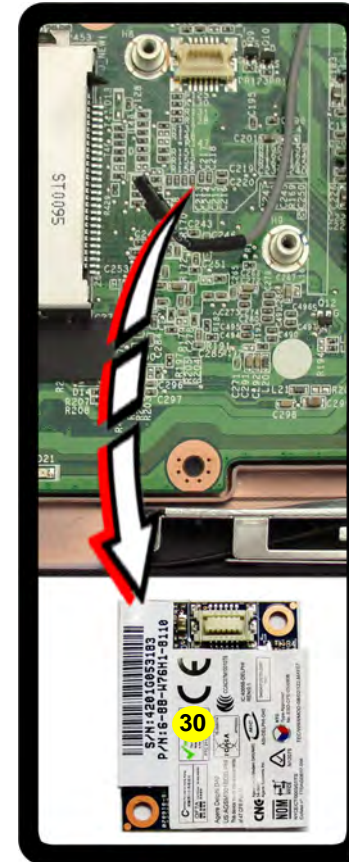
- d. Remove the screws and disconnect cable from the module.
- e. Lift the modem off the socket.

6. Remove screws 27 & 28 from the module and disconnect cable 29 (Figure 14d).
7. Carefully lift the modem 30 up and off the socket (Figure 14e).

d.



e.



30. Modem

- 2 Screws

Appendix A:Part Lists

This appendix breaks down the *W350HU/ W350HV* 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**

Part	W350HU/ W350HV
Top with Fingerprint	<i>page A - 3</i>
Bottom	<i>page A - 4</i>
LCD	<i>page A - 5</i>
SATA DVD Super-Multi	<i>page A - 6</i>
HDD	<i>page A - 7</i>

Top with Fingerprint

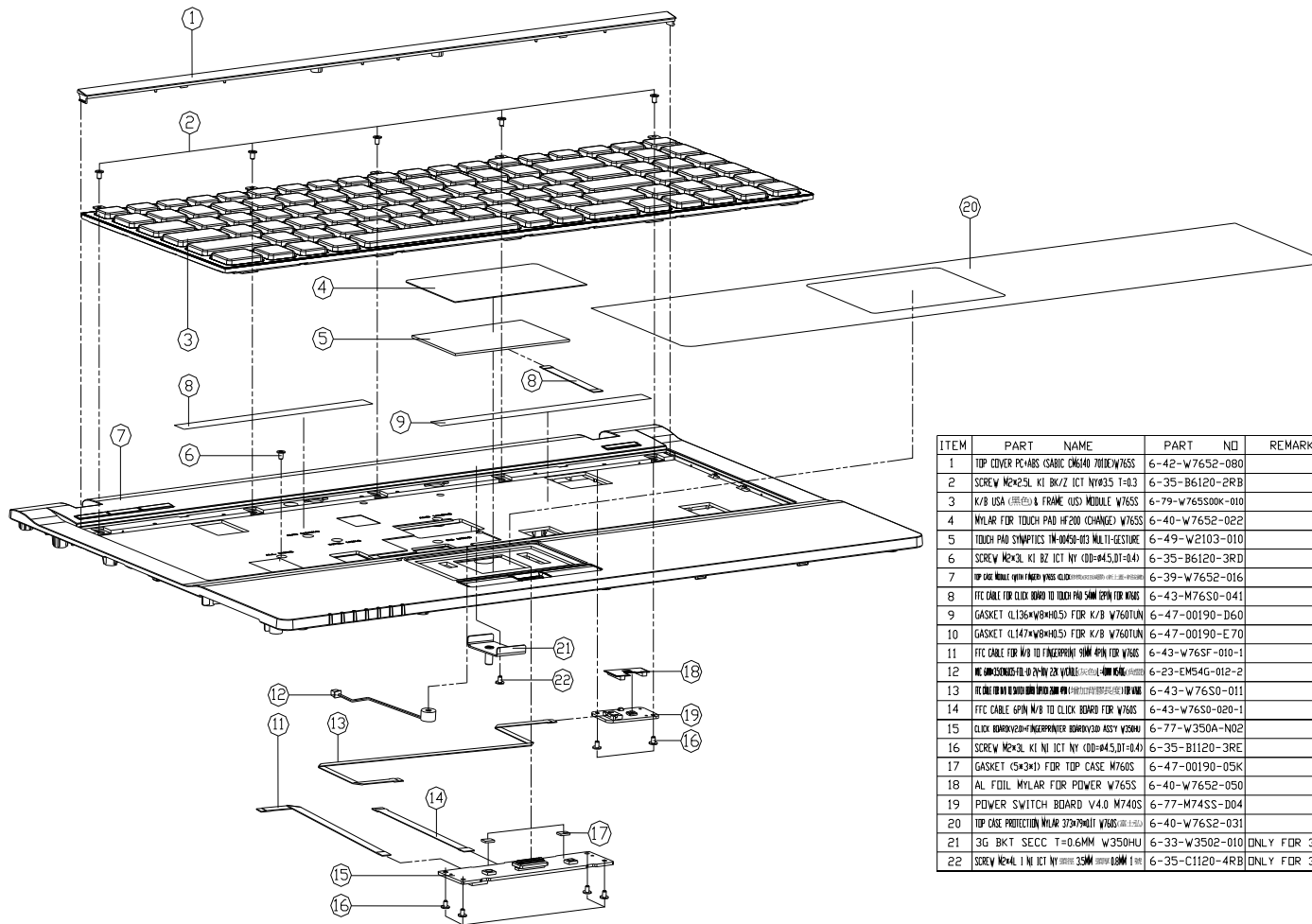


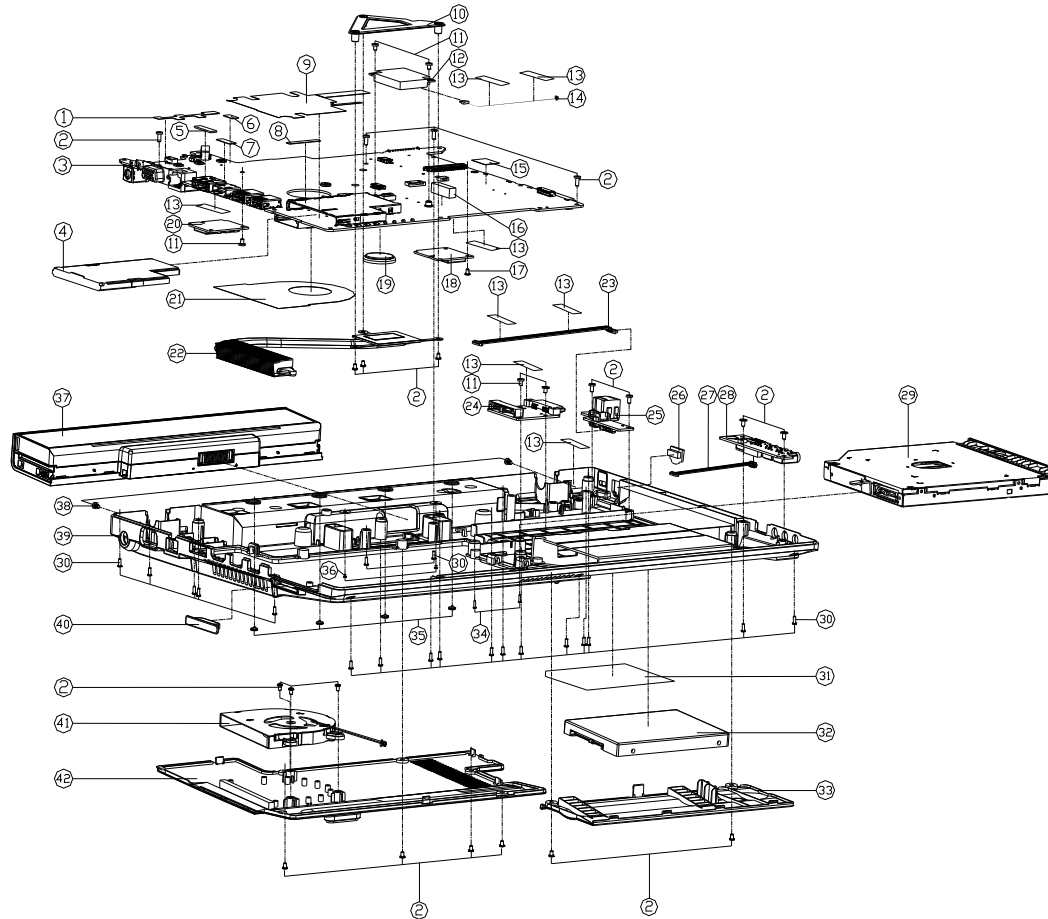
Figure A - 1
Top with Finger-
print

ITEM	PART NAME	PART NO	REMARK
1	TOP COVER PC+ABS (SABIC CM6140 7010C)W76SS	6-42-W7652-080	
2	SCREW M2x2.5L KI BK/2 ICT NY#35 T=0.3	6-35-B6120-2RB	
3	K/B USA (FR) (C) & FRAME (US) MIDDLE W76SS	6-79-W765500K-010	
4	MYLAR FOR TOUCH PAD HF200 (CHANGE) W76SS	6-40-W7652-022	
5	TOUCH PAD SYNAPTICS (IN-0050-013) MULTI-GESTURE	6-49-W2103-010	
6	SCREW M2x3L KI BZ ICT NY (OD=04.5,DT=04)	6-35-B6120-3RD	
7	TOP CASE MIDDLE OPEN FINGER PRINT GASKET (FRONT) (FR) (L&R) (FRONT)	6-39-W7652-016	
8	FFC CABLE FOR TOUCH BOARD TO TOUCH PAD 5MM (SPIN) FOR W76S	6-43-M7650-041	
9	GASKET (L136*W8*H0.5) FOR K/B W760TLN	6-47-00190-D60	
10	GASKET (L147*W8*H0.5) FOR K/B W760TLN	6-47-00190-E70	
11	FFC CABLE FOR W/B TO FINGERPRINT 5MM (SPIN) FOR W76S	6-43-W765F-010-1	
12	MC ADAPTER BOARD FOR 2-IN-1 (FRONT) (FRONT) (FRONT)	6-23-EM54G-012-2	
13	FFC CABLE FOR W/B TO TOUCH PAD 5MM (SPIN) FOR W76S	6-43-W7650-011	
14	FFC CABLE (SPIN) W/B TO CLICK BOARD FOR W76S	6-43-W7650-020-1	
15	CLICK BOARD (V2) (FRONT) (FRONT) (FRONT) (FRONT) (FRONT)	6-77-W350A-N02	
16	SCREW M2x3L KI NI ICT NY (OD=04.5,DT=04)	6-35-B1120-3RE	
17	GASKET (5*3*4) FOR TOP CASE W76SS	6-47-00190-05K	
18	AL FOIL MYLAR FOR POWER W76SS	6-40-W7652-050	
19	POWER SWITCH BOARD V4.0 M740S	6-77-M745S-D04	
20	TOP CASE PROTECTION MYLAR 372x75x0.11 W76SS (FRONT) (FRONT)	6-40-W7652-031	
21	3G BKT SECC T=0.6MM W350HU	6-33-W3502-010	DNLY FOR 3G
22	SCREW M2x4L 1 NI ICT NY (FRONT) (FRONT) (FRONT) (FRONT)	6-35-C1120-4RB	DNLY FOR 3G

A.Part Lists

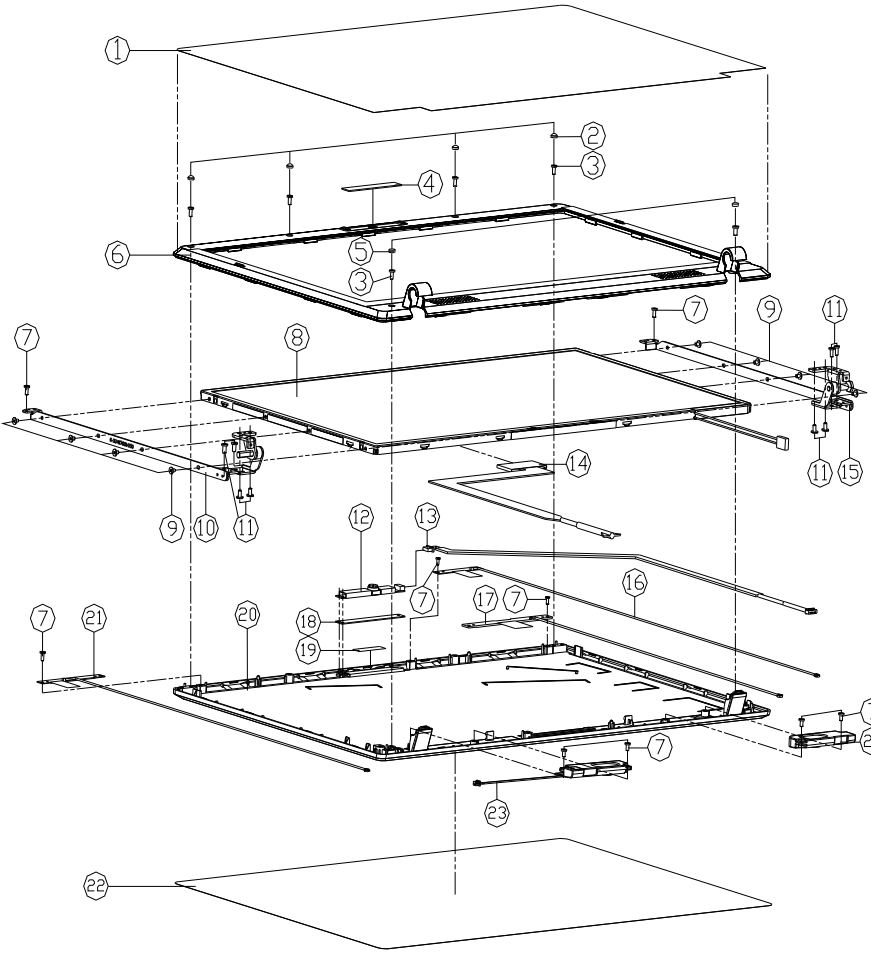
Bottom

Figure A - 2
Bottom



ITEM	PART NAME	PART NO	REMARK
1	INDEX MYLAR FOR HD 4089-10000A 7507 W/40T	6-40-M741S-021	
2	SCREW M2.5x8L KI BK/Z ICT NY-	6-35-B6125-08A	
3	MAIN BOARD V2.0A 1W/300 W350HU	6-77-W3500-002A	
3	MAIN BOARD V2.0A 1W/300 W350HU	6-77-W3500-002A-1	
3	MAIN BOARD V2.0A 1W/300 W350HU	6-77-W350V-002A	
3	MAIN BOARD V2.0A 1W/300 W350HU	6-77-W350V-002A-1	
4	DUMMY NEW CARD PC-ABS T300R	6-42-T12R3-011	
5	CARD FOR BACKUP (545) FOR TOP CASE M/MT	6-47-00190-15V	
6	MYLAR PET SHEET BLK/0.5 FOR PCB W/SS	6-40-00150-50B	
7	INDEX MYLAR (00W54025) FOR W/B W/40T	6-47-M741S-020	
8	INDEX MYLAR (4440) FOR NEW CARD BOX W/40T	6-47-M761S-010	
9	NEW CARD MYLAR (800) FOR 500M W/40T	6-40-M7413-011	
10	CPU SUPPORT MODULE (CHANGE) T500	6-33-T510S-102	
11	SCREW NEXL KI NI ICT NY (00-44.01-04)	6-35-B1120-3RD	
12	INDEX MYLAR (00W54025) FOR W/B W/40T	6-88-L3911-5301	(OPTION)
13	TAPE MYLAR (C) MYLAR M550J	6-40-M55J2-030	
14	WIRE CABLE 2PIN MULTI BOARD TO MIC MIDDLE	6-43-W76CU-010	
15	MIC MYLAR (RES+TERMOX) W/40 (00-00-00)	6-40-M745S-031	
16	TOUCH PAD SPRING (00540) OR W/40 (00-00-00)	6-47-0019A-20A	
17	INDEX MYLAR (00W54025) FOR W/B W/40T	6-35-C1120-4RB	
18	W/40M CROSSIN T300 160A FULL W/40 CARD USE	6-88-W64HW-2410	(OPTION)
19	BATTERY 3V 220MA BBRCR2032B (KTS)	6-23-6A282-030	
20	INDEX MYLAR (00W54025) FOR W/B W/40T	6-88-C555F-7001	(OPTION)
20	INDEX MYLAR (00W54025) FOR W/B W/40T	6-88-C555F-5300	(OPTION)
20	INDEX MYLAR (00W54025) FOR W/B W/40T	6-88-P170F-4200	(OPTION)
20	INDEX MYLAR (00W54025) FOR W/B W/40T	6-88-P170F-4210	(OPTION)
21	BLACK FAN MYLAR (06474025) FOR T500	6-40-T510S-030	
22	CPU HEATSINK MODULE W350HU	6-31-W350N-100	
23	WIRE CABLE 8PIN W/B TO MULTI I/O 250M T500	6-43-T5100-010	
24	ODD BRIDGE BOARD V2.0 W760S	6-77-W760N-002	
25	MULTI I/O BOARD V2.0 W350HU	6-77-W350I-002	
26	RUBBER FOR MODEM JACK (V) MODEM W/40M	6-47-M66NU-010	ONLY FOR NO MODEM
27	WIRE CABLE 8PIN W/B TO AUDIO BOARD 160M W/40M	6-43-W7650-052	
28	AUDIO BOARD V2.0 T5100	6-77-T510B-002	
29	SATA I/O SUPER MULTI ASSY (OPTION) W350HU	6-79-W350H-000-000	
29	I/O (00 4V) ODD LABEL ASSY W/40M	6-79-W765002-110	
30	SCREW M2.5x8L KI BK/Z NY ICT	6-35-B6125-08R	
31	PRODUCT LABEL FOR W350HU	6-45-W350H-003-010	
31	PRODUCT LABEL FOR W350HV	6-45-W350H-003-010	
32	W/40 HDD ASSY T5100	6-79-T5100H-010	
32	W/40 HDD ASSY W760S	6-79-W7600H-010	
33	HDD COVER MODULE (00) W760S	6-42-W76S-J-102	
34	SCREW M2x8L KI BK/Z ICT NY	6-35-B6120-08R	
35	SCREW NEXL KI BK/Z ICT NY (00-44.01-04)	6-35-B6120-3RD	
36	SCREW NEXL KI BK/Z ICT NY (00-44.01-04)	6-35-B6120-3RD	
37	INDEX MYLAR (00W54025) FOR W/B W/40T	6-87-W765S-4R41	(OPTION)
37	INDEX MYLAR (00W54025) FOR W/B W/40T	6-87-W765S-4R41	(OPTION)
38	SCREW M2x4L KI BK/Z ICT NY	6-35-B6120-4RA	
39	BOTTOM CASE MODULE W-DOCKING W350HU	6-39-W3503-011	
40	RUBBER CARD READER (00) (00) (00) W/40M	6-47-W765B-012	
41	INDEX MYLAR (00W54025) FOR W/B W/40T	6-23-AC450-020	
42	CPU COVER MODULE T5100 (CHANGE)	6-42-T5103-102	

LCD



ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT MYLAR(FE1-3000SD) W/60S (60*8*1MM)	6-40-W76S1-041	
2	LED FRONT COVER RUBBER GASKET (60*8*1MM)	6-47-W76S1-050	
3	SCREW HEXSL KIT-100 D-40 BK/Z ICT NY	6-35-B6120-5R0	
4	CCD LINES (PMMA) (W/D CCD) W760S	6-42-W76ST-011	W/D CCD
4	CCD LINES (PMMA) (W/D CCD) W760S	6-42-W76ST-020	W/D CCD
5	LED FRONT COVER RUBBER SILICON (60*8*1MM)	6-47-W76S1-030	
6	LCD FRONT COVER MODULE W760S	6-39-W76S1-013	
7	COVER FOR LED	6-35-C1120-4RB	
8	LED 15.6" HD LG LIPS/WH-FLUOR QUARE TYPE LED S3MM	6-50-L8155-D03	
8	LED 15.6" HD LG LIPS/WH-FLUOR QUARE TYPE LED S3MM	6-50-L8155-LOC	
8	LED 15.6" HD LG LIPS/WH-FLUOR QUARE TYPE LED S3MM	6-50-LA157-L03	
8	LED 15.6" HD LG LIPS/WH-FLUOR QUARE TYPE LED S3MM	6-50-LA157-G07	
8	LED 15.6" HD CHANEL (MS606-L0A) S3MM (LED)	6-50-L8155-D04	
8	LED 15.6" HD LG LIPS/WH-FLUOR QUARE TYPE LED S3MM	6-50-L8155-LOB	
9	SCREW HEXSL KIT NY ICT NY (CO-#4.5,DI-0.4)	6-35-B1120-3RE	
10	LCD HINGE-L SECC FOR LED PANEL W/60S (60*8)	6-33-W7601-030	
11	SCREW W/2.5*5L K1 BK/Z ICT NY	6-35-B6125-5RA	
12	UVX CAMERA BEZEL FOR W/60S (60*8) (60*8)	6-88-X510C-4900	
12	UVX CAMERA BEZEL FOR W/60S (60*8) (60*8)	6-88-E510C-4904	
13	UVX CABLE SPIN WIRE TO CCD MODULE FOR W/60S	6-43-W76ST-023	
14	UVX CABLE SPIN WIRE TO LED PANEL FOR W/60S (60*8)	6-43-W76C1-010-1	
15	LCD HINGE-R SECC FOR LED PANEL W/60S (60*8)	6-33-W7601-020	
16	BACK COVER PROTECT MYLAR (60*8*1MM) W/60S (60*8)	6-23-W7350-020	
17	BACK COVER PROTECT MYLAR (60*8*1MM) W/60S (60*8)	6-23-W76K-010	(OPTION)
18	MYLAR (60*8*1MM,PC) W740S	6-40-00150-608	
19	CCD AL F10(L) (20*10*0.1)	6-47-M815C-010	
20	LCD BACK COVER MODULE W/DOCKING T5000	6-39-T5101-020	
21	BACK COVER PROTECT MYLAR (60*8*1MM) W/60S (60*8)	6-23-W7350-010	
22	BACK COVER PROTECT MYLAR (60*8*1MM) W/60S (60*8)	6-40-W76S1-052	
23	SPRUE FOR LED FRONT COVER (60*8*1MM) W/60S (60*8)	6-23-5W350-011	
24	SPRUE CABLE FROM LED FRONT COVER (60*8*1MM) W/60S (60*8)	6-23-5M745-030	

Figure A - 3
LCD

A.Part Lists

HDD

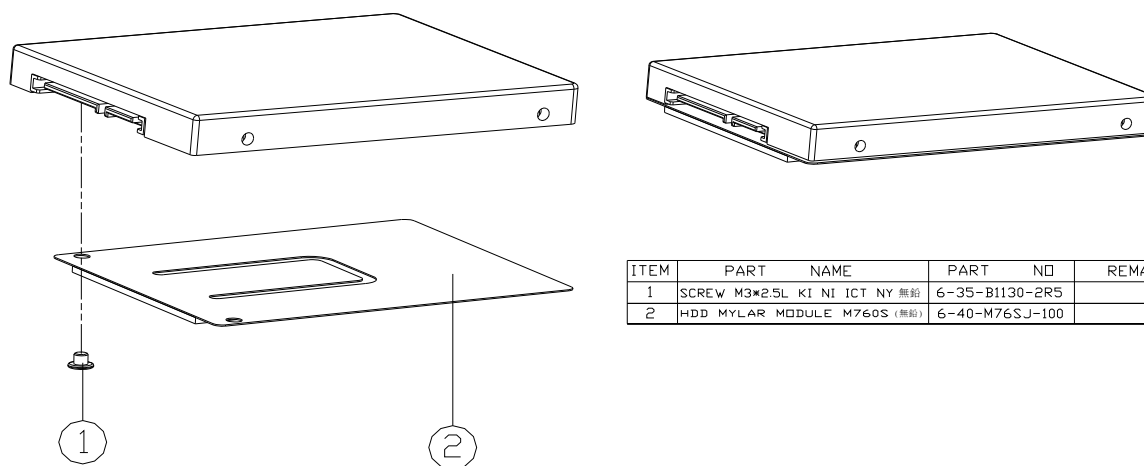


Figure A - 5
HDD

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *W350HU/ W350HV* notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
<i>System Block Diagram - Page B - 2</i>	<i>PCH/ GPIO, VSS NCTF, RSVD - Page B - 19</i>	<i>VDD3, VDD5 - Page B - 36</i>
<i>PROCESSOR/ DMI, PEG, FDI - Page B - 3</i>	<i>PCH/ POWER 1 - Page B - 20</i>	<i>POWER 1.5V/ 0.75V, 1.8VS - Page B - 37</i>
<i>PROCESSOR/ CLK, MISC, JTAG - Page B - 4</i>	<i>PCH/ POWER 2 - Page B - 21</i>	<i>POWER 1.05V LAN M - Page B - 38</i>
<i>PROCESSOR/ DDR3 - Page B - 5</i>	<i>PCH/ GND - Page B - 22</i>	<i>POWER 0.85VS - Page B - 39</i>
<i>PROCESSOR/ POWER1 - Page B - 6</i>	<i>DOCKING CONNECTOR - Page B - 23</i>	<i>Power V-CORE1 - Page B - 40</i>
<i>PROCESSOR/ POWER2 - Page B - 7</i>	<i>3G, TPM - Page B - 24</i>	<i>POWER/ V-CORE2, VGFX - Page B - 41</i>
<i>PROCESSOR/ GND - Page B - 8</i>	<i>NEW CARD, MINI PCIE - Page B - 25</i>	<i>AC IN, CHARGER - Page B - 42</i>
<i>PROCESSOR/ RESERVED - Page B - 9</i>	<i>CARD READER JMC261C, ESATA - Page B - 26</i>	<i>AUDIO BOARD FOR T51 - Page B - 43</i>
<i>DDR3 SO-DIMM 0 - Page B - 10</i>	<i>INTEL LAN82579 - Page B - 27</i>	<i>POWER SWITCH BOARD FOR M74 - Page B - 44</i>
<i>DDR3 SO-DIMM_1 - Page B - 11</i>	<i>LAN(82579), SATA HDD, ODD - Page B - 28</i>	<i>EXTERNAL ODD BOARD FOR W76 - Page B - 45</i>
<i>LVDS, INVERTER - Page B - 12</i>	<i>USB 2.0 CHARGER, Audio Conn - Page B - 29</i>	<i>FINGERPRINT BOARD FOR W86 - Page B - 46</i>
<i>HDMI, CRT - Page B - 13</i>	<i>USB 3.0 TI TUSB7320 - Page B - 30</i>	<i>CLICK FINGER BOARD FOR W35 - Page B - 47</i>
<i>PCH/ HDA, JTAG, SATA - Page B - 14</i>	<i>KBC-ITE IT8518 - Page B - 31</i>	<i>Multi I/O Board for T51 - Page B - 48</i>
<i>PCH/ PCI-E, SMBUS, CLK - Page B - 15</i>	<i>LED, MDC, POWER, FAN - Page B - 32</i>	<i>Power Sequence - Page B - 49</i>
<i>PCH/ DMI, FDI, GPIO - Page B - 16</i>	<i>AUDIO CODEC ALC269, VIA1802 - Page B - 33</i>	<i>Power Sequence 2 - Page B - 50</i>
<i>PCH/ LVDS, DDI, CRT - Page B - 17</i>	<i>LID, AP KEY, FP, MULTI CON - Page B - 34</i>	
<i>PCH/ PCI, USB, NVRAM - Page B - 18</i>	<i>5VS, 3VS, 105VS, 1.5VS CPU - Page B - 35</i>	

Table B - 1
**SCHEMATIC
DIAGRAMS**

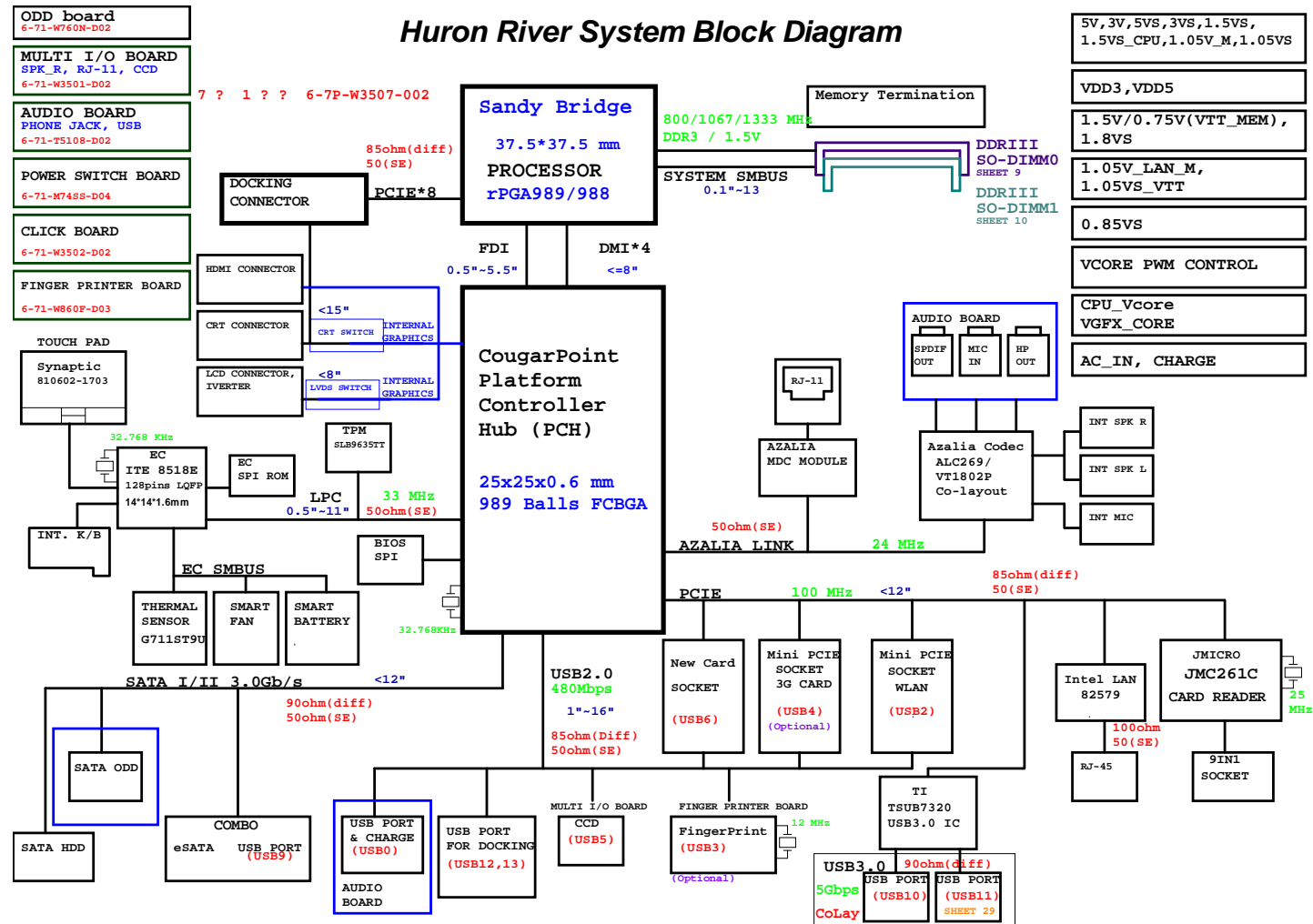


Version Note

The schematic diagrams in this chapter are based upon version 6-7P-W3507-003. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

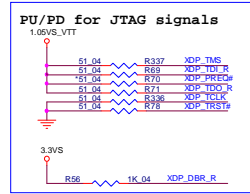
System Block Diagram

Sheet 1 of 49
System Block
Diagram

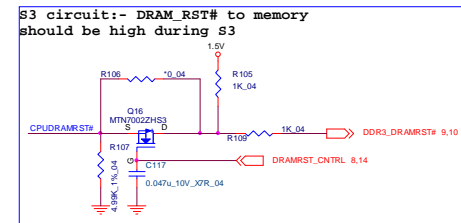
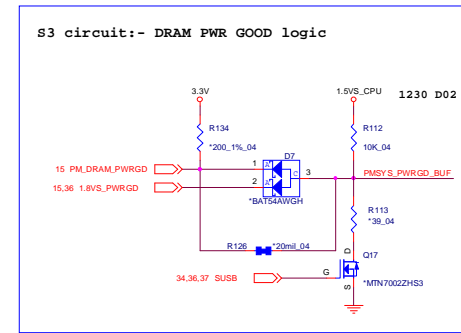
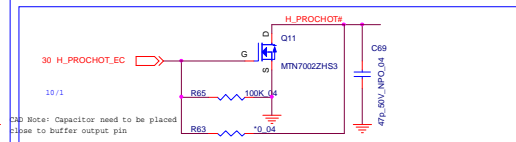
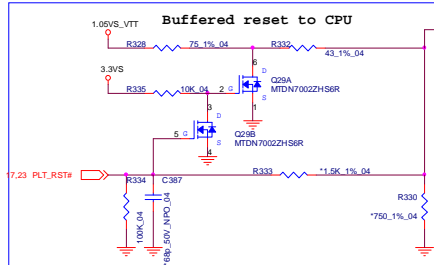
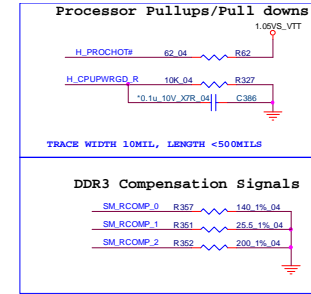
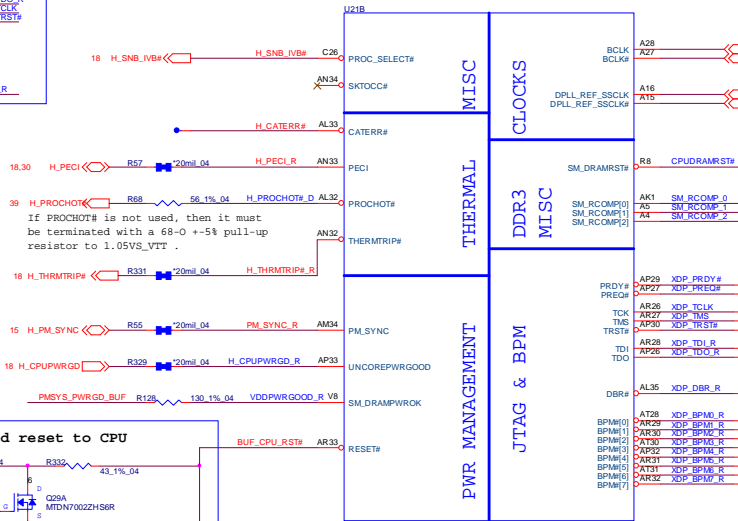


PROCESSOR/ CLK, MISC, JTAG

Sheet 3 of 49
PROCESSOR/CLK,
MISC, JTAG

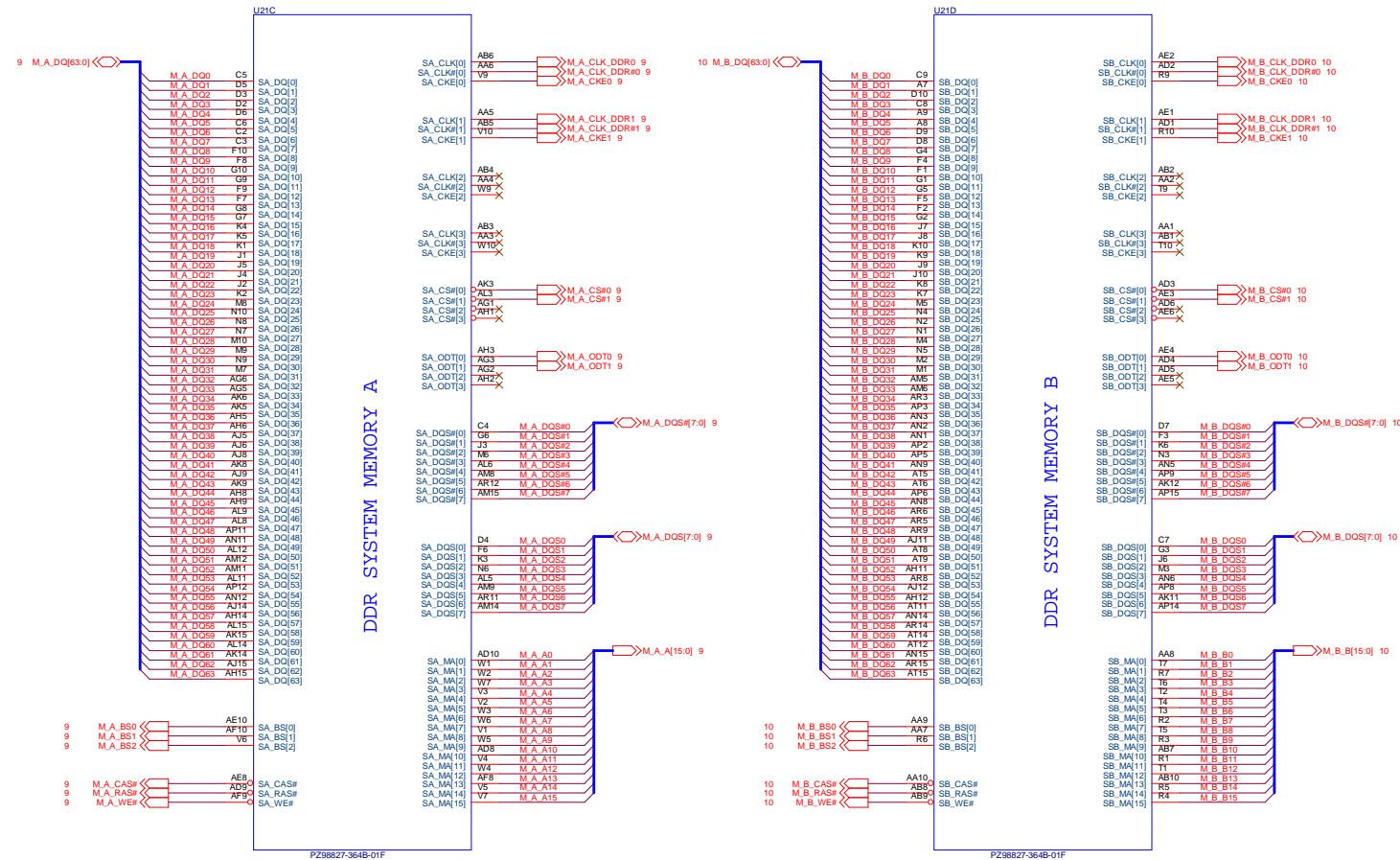


Sandy Bridge Processor 2/7 (CLK, MISC, JTAG)



PROCESSOR/ DDR3

Sandy Bridge Processor 3/7 (DDR3)



Sheet 4 of 49
PROCESSOR/
DDR3

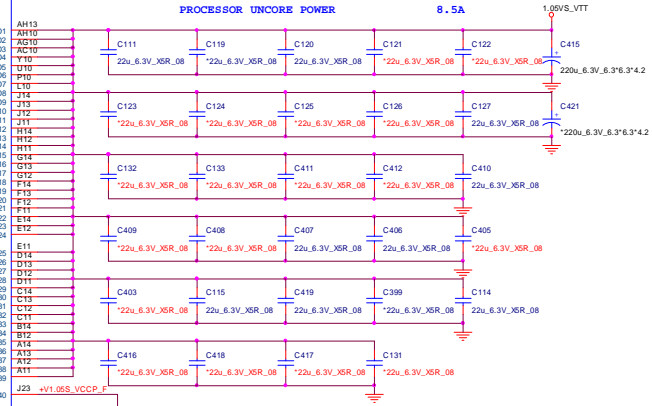
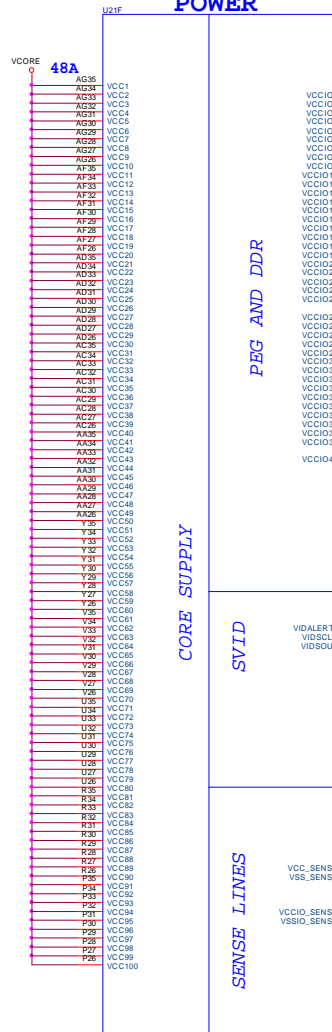
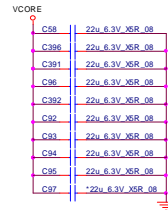
B.Schematic Diagrams

PROCESSOR/ POWER1

Sandy Bridge Processor 4/7

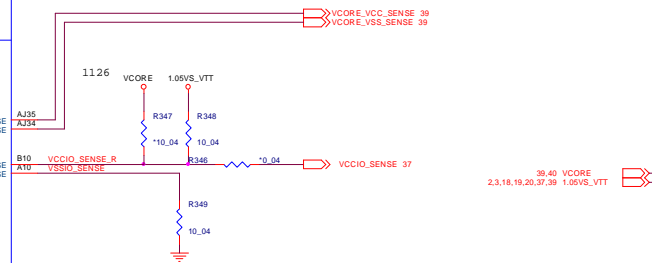
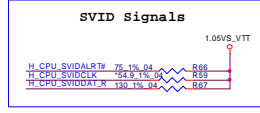
POWER

PROCESSOR CORE POWER ICCMAX Maximum Processor SV 48



CAD Note: H_CPU_SVIDALRT#_R, H_CPU_SVIDDAT_R
Place the PU resistors close to CPU

CAD Note: H_CPU_SVIDCLK_R
Place the PU resistors close to VR

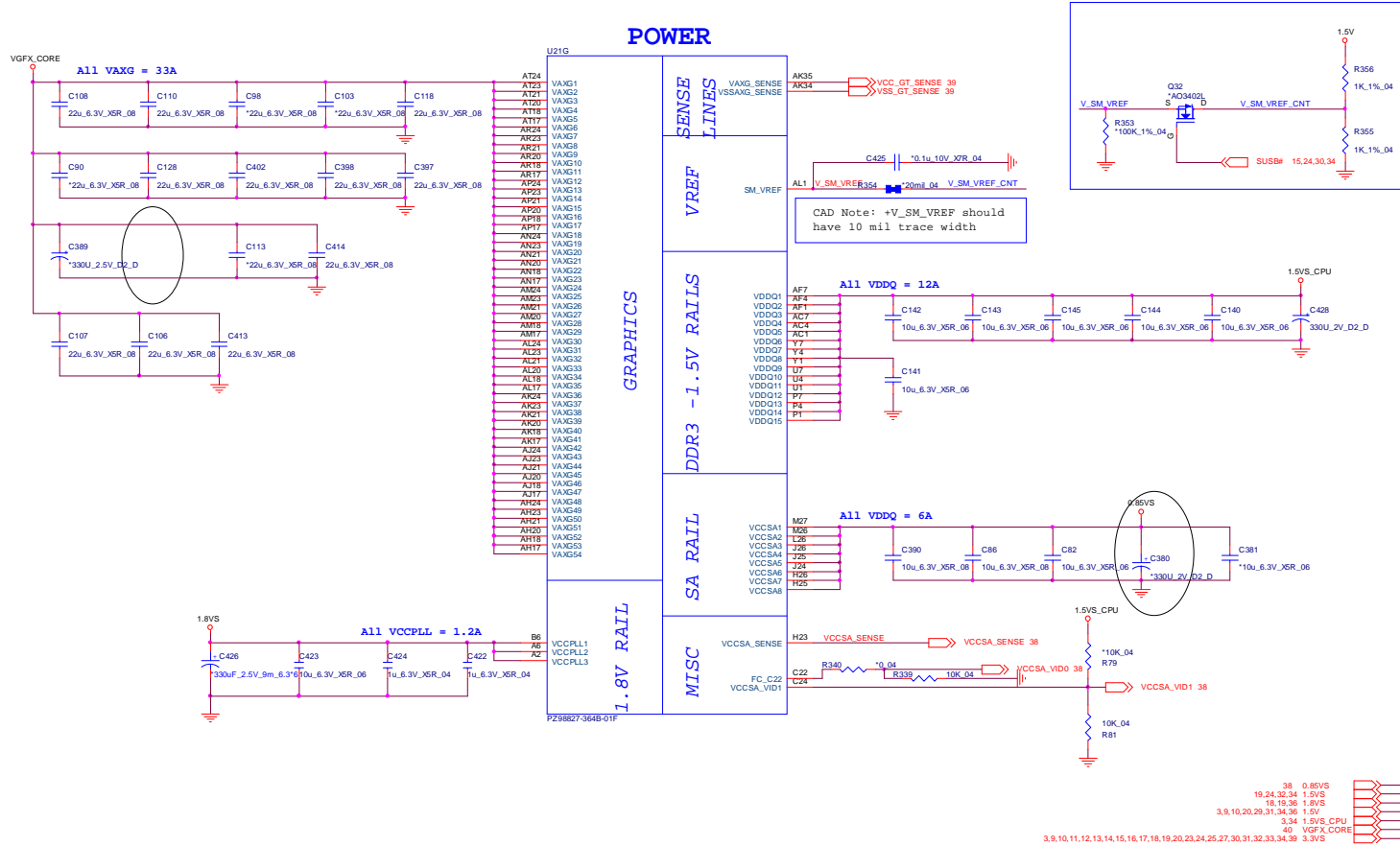


B.Schematic Diagrams

Sheet 5 of 49
PROCESSOR/
POWER1

PROCESSOR/ POWER2

Sandy Bridge Processor 5/7 (GRAPHICS POWER)



Sheet 6 of 49
PROCESSOR/
POWER2

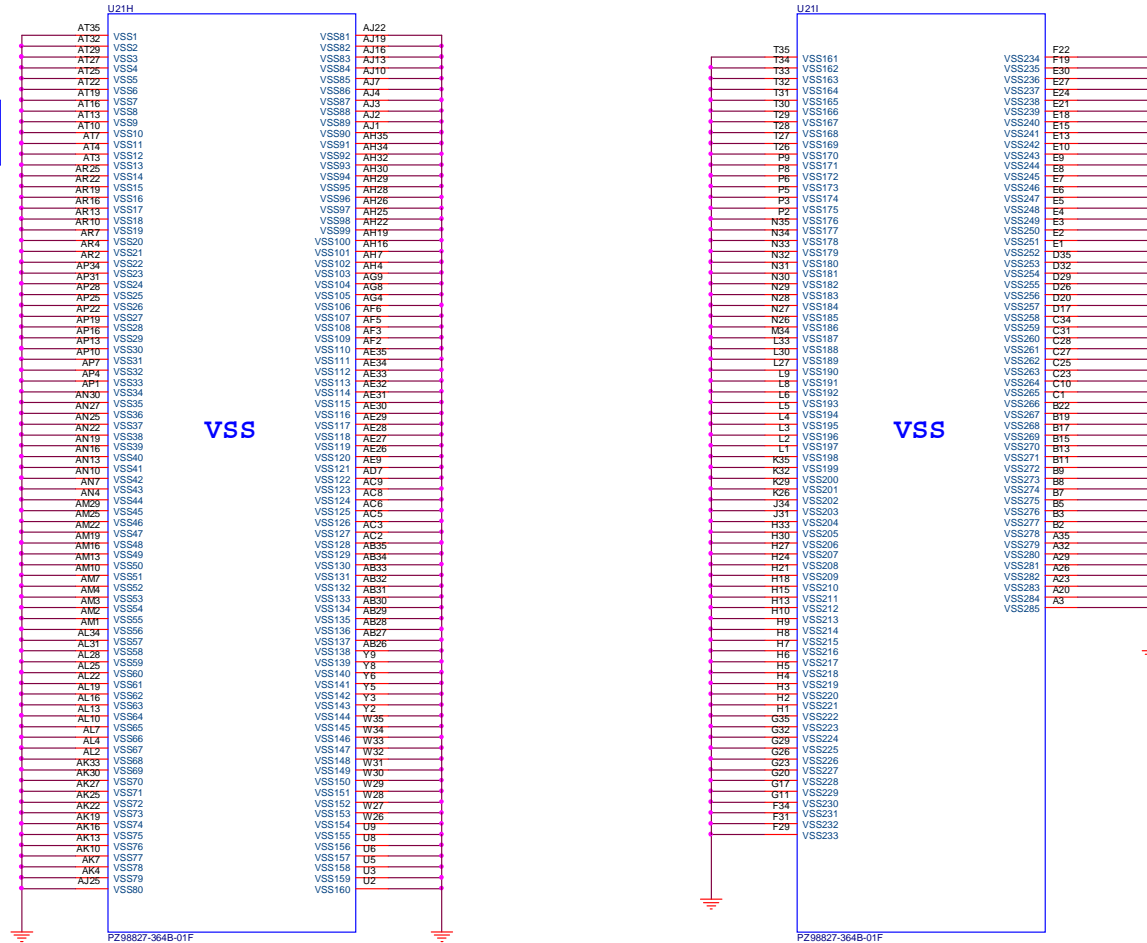
B.Schematic Diagrams

PROCESSOR/ GND

Sandy Bridge Processor 6/7 (GND)

Sheet 7 of 49
PROCESSOR/ GND

CAD Note: 0 ohm resistor should be placed close to CPU



PROCESSOR/ RESERVED

Sandy Bridge Processor 7/7 (RESERVED)

CFG Straps for Processor

PEG Static Lane Reversal - CFG2 is for the 16x

CFG2	1: (Default) Normal Operation; Lane # definition matches socket pin map definition 0: Lane Reversed
-------------	--

Display Port Presence Strap

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

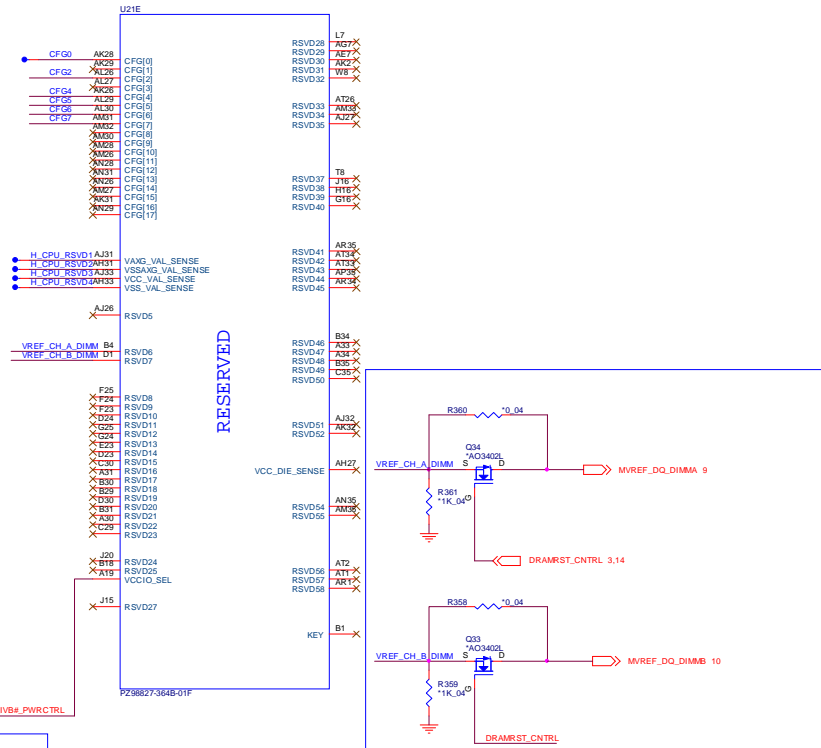
PCIe Port Bifurcation Straps

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

PEG DEFER TRAINING

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

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



3.6,9,10,20,29,31,34,36 1.5V
2.3,11,13,17,22,23,24,25,29,31,34,36,38 3.3V

Sheet 8 of 49
PROCESSOR/
RESERVED

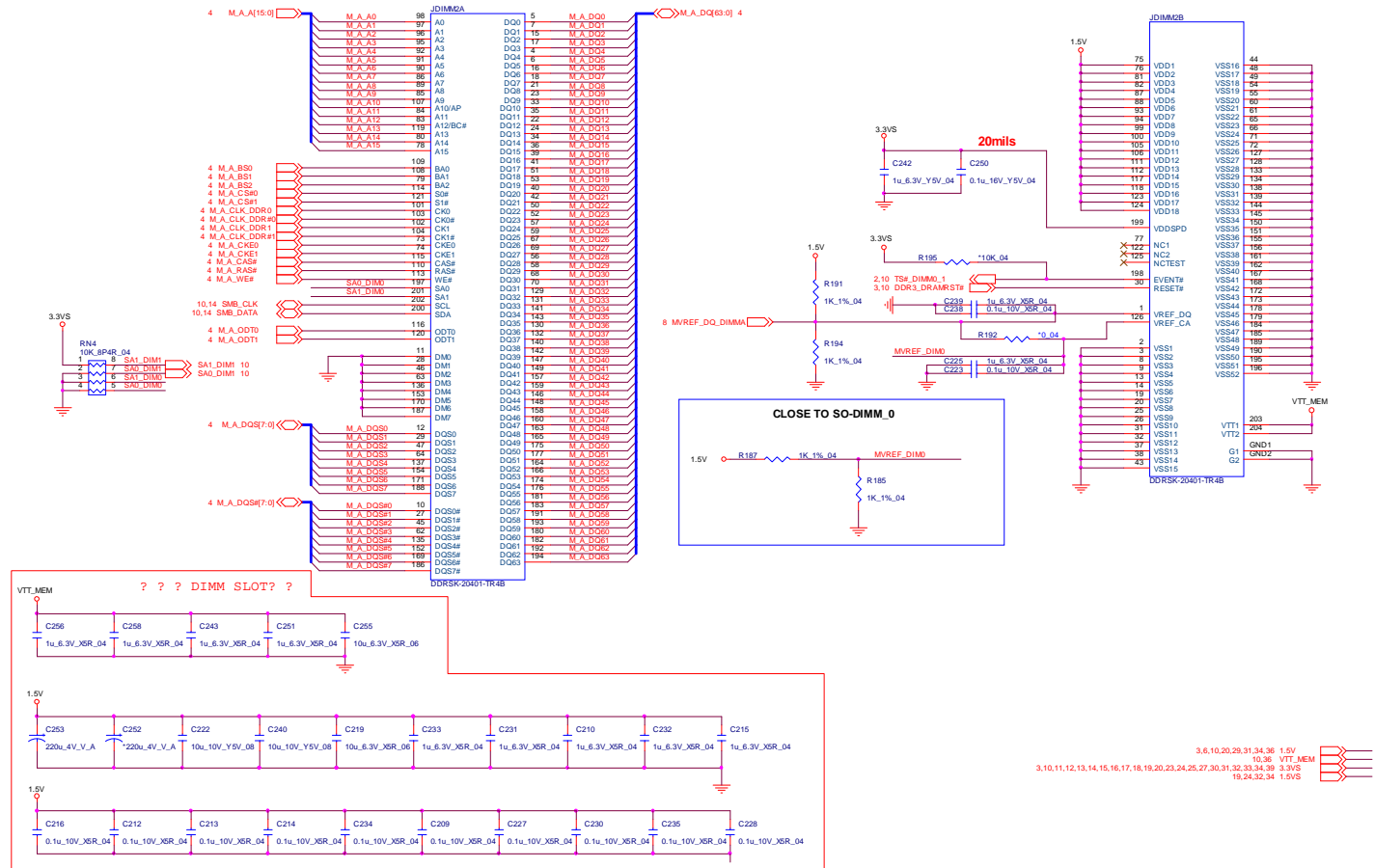
B. Schematic Diagrams

DDR3 SO-DIMM 0

Sheet 9 of 49
DDR3 SO-DIMM 0

SO-DIMM A

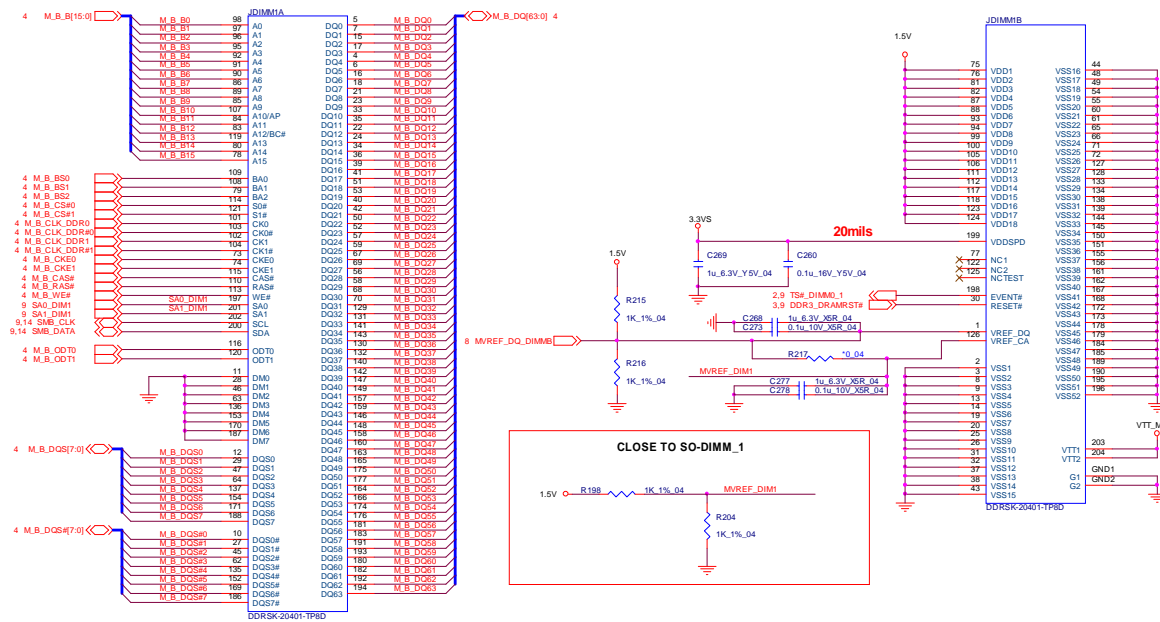
CHANGE TO STANDARD



DDR3 SO-DIMM_1

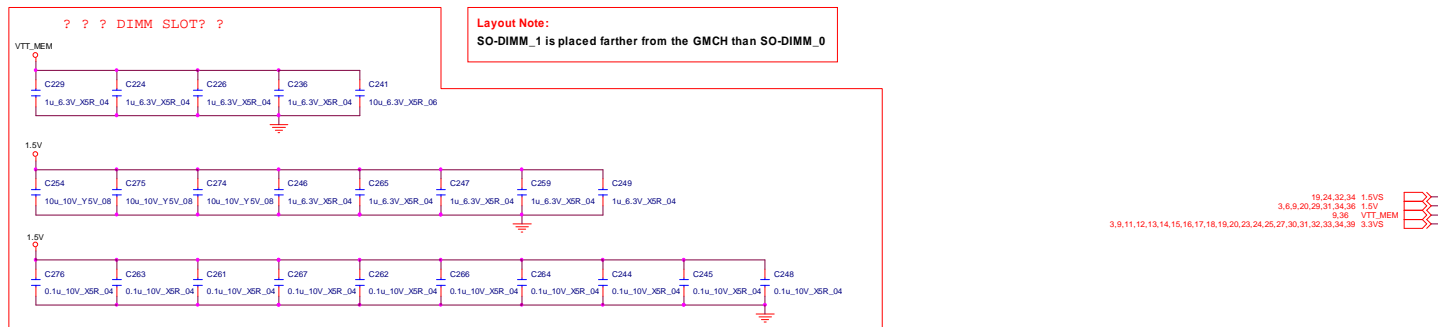
SO-DIMM B

CHANGE TO STANDARD



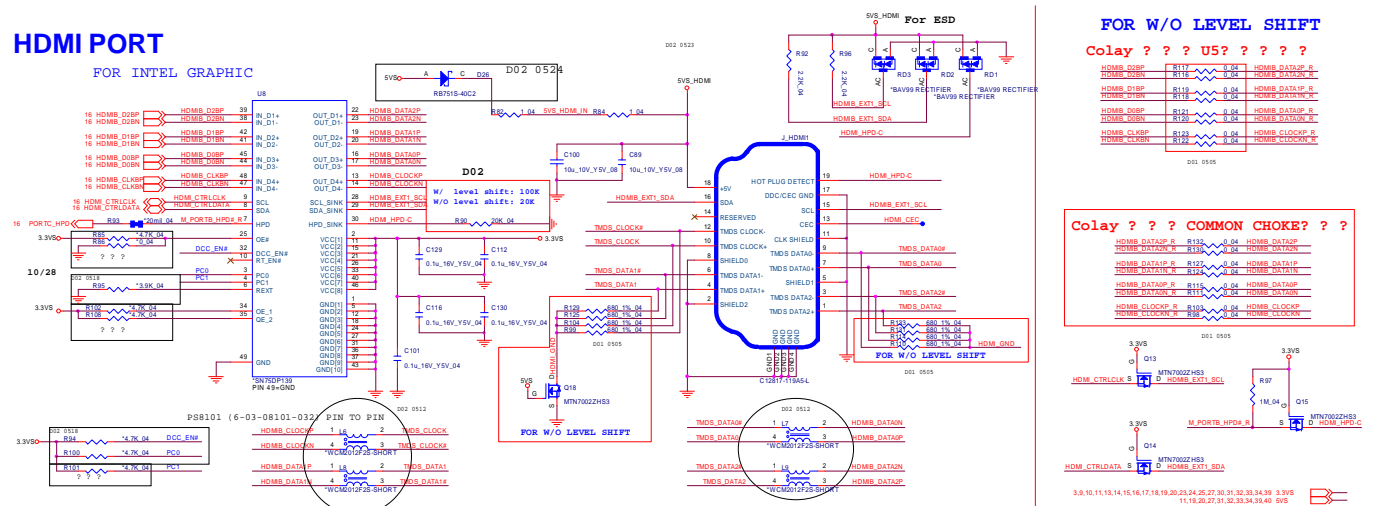
Sheet 10 of 49
DDR3 SO-DIMM_1

B.Schematic Diagrams

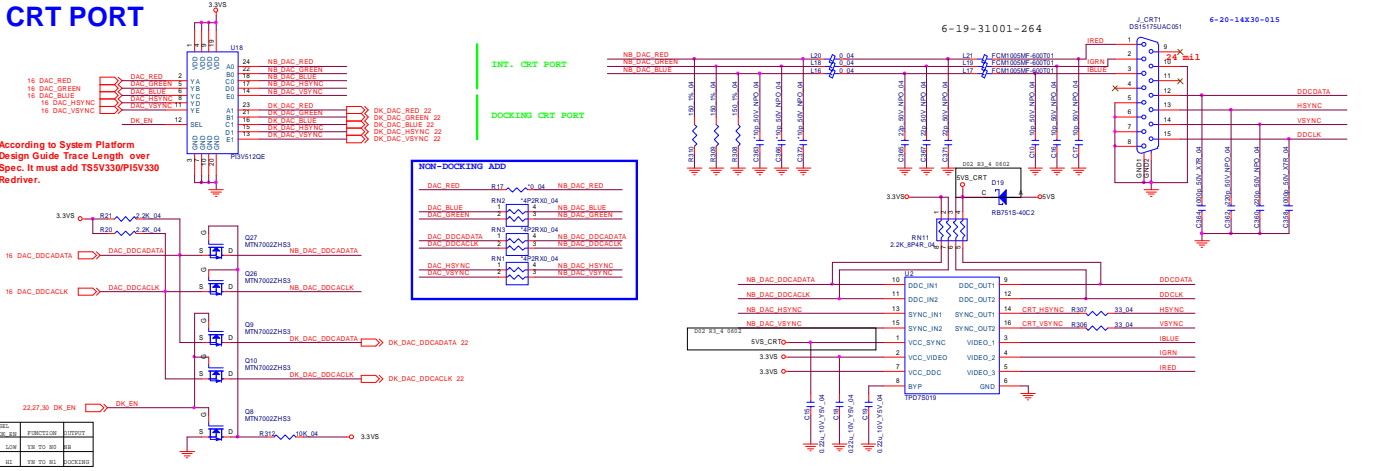


HDMI, CRT

HDMI PORT FOR INTEL GRAPHIC



CRT PORT

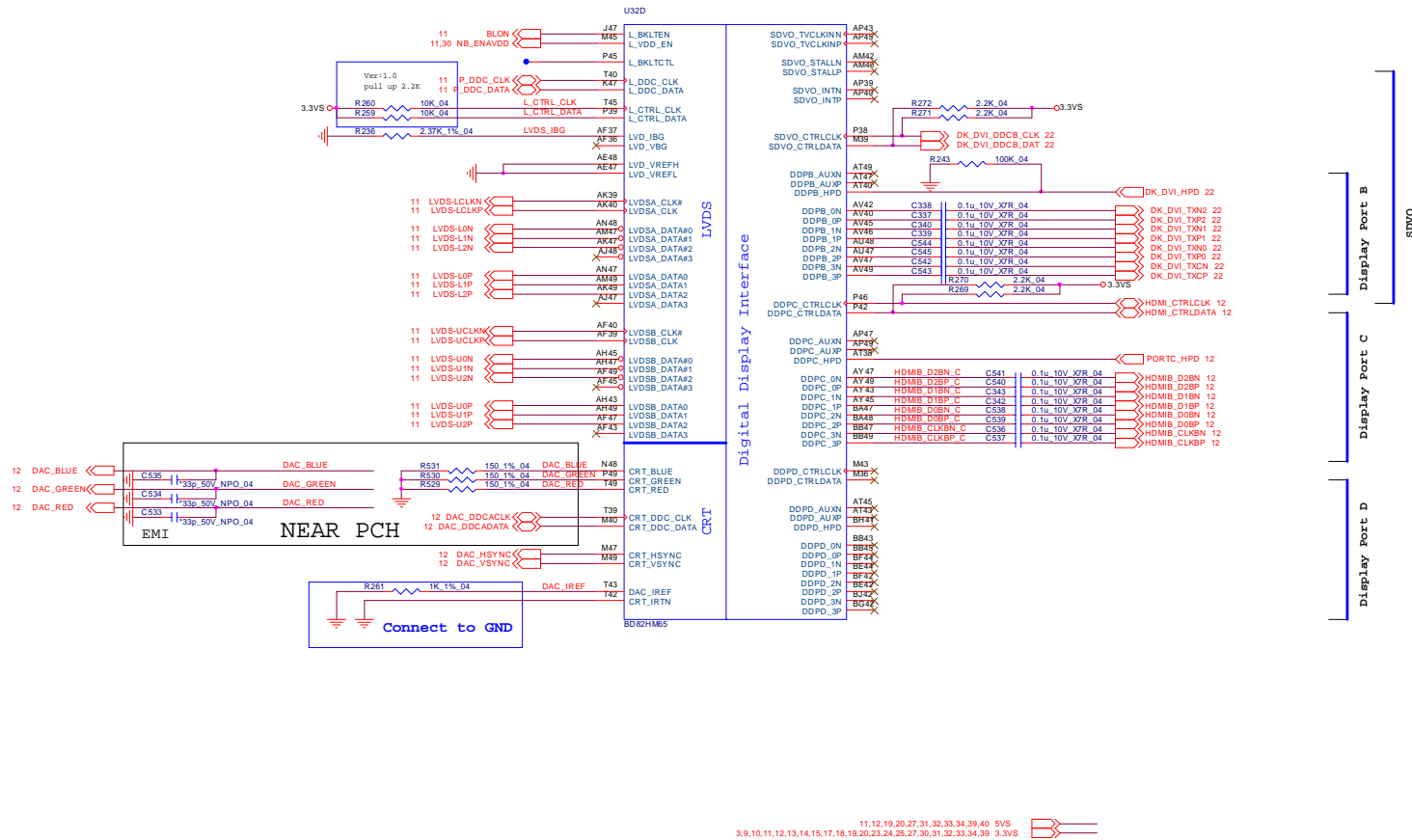


Sheet 12 of 49
HDMI, CRT

B.Schematic Diagrams

PCH/ LVDS, DDI,CRT

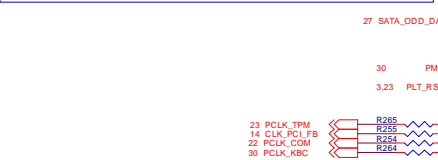
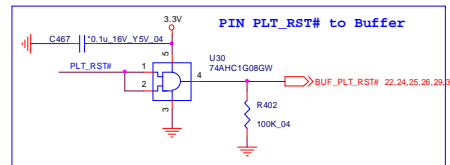
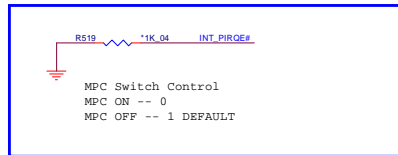
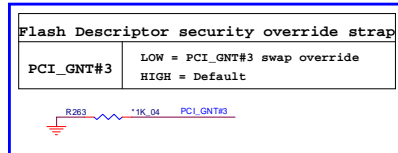
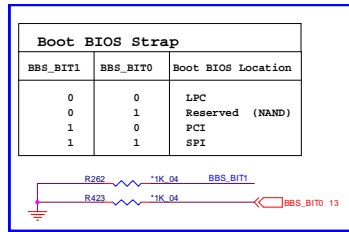
CougarPoint -M (LVDS,DDI,CRT)



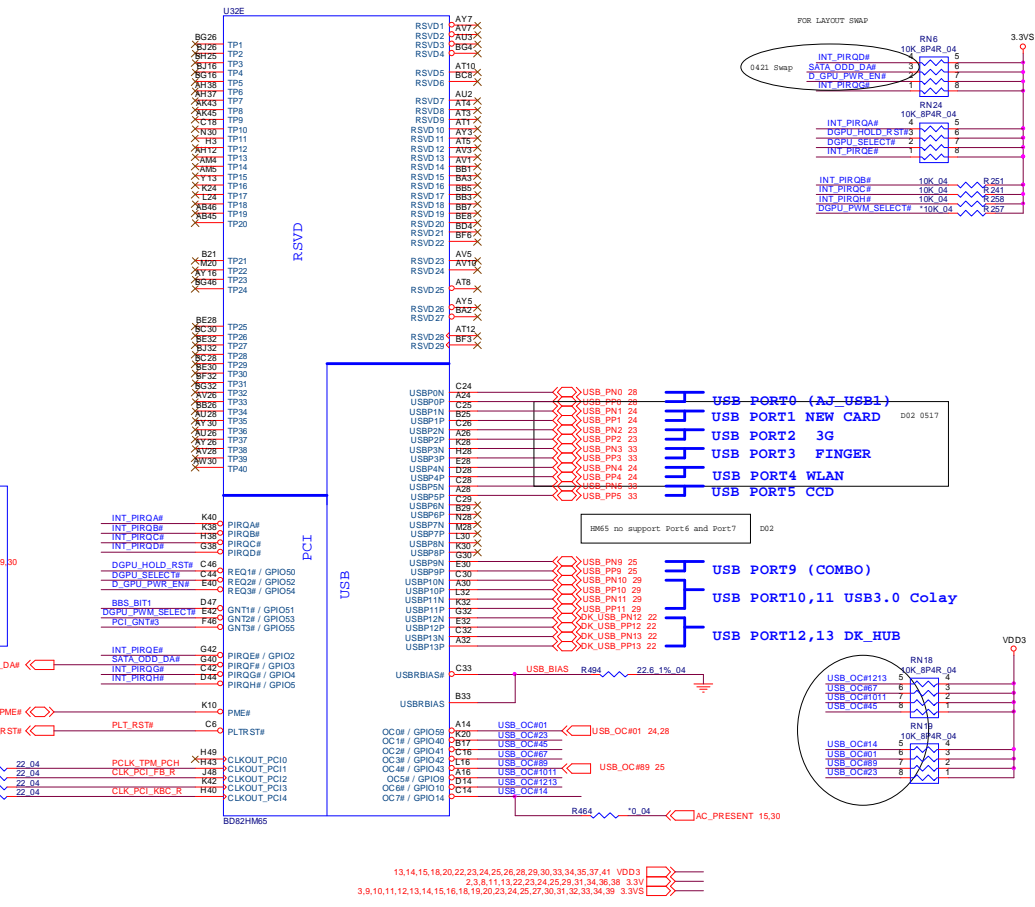
Sheet 16 of 49
PCH/ LVDS,
DDI,CRT

PCH/ PCI, USB, NVRAM

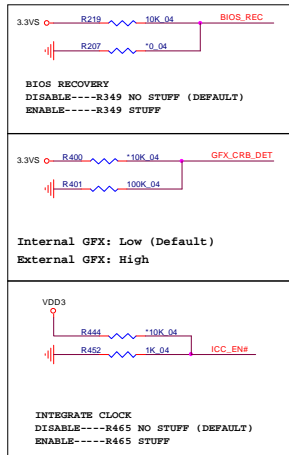
Sheet 17 of 49
PCH/ PCI, USB,
NVRAM



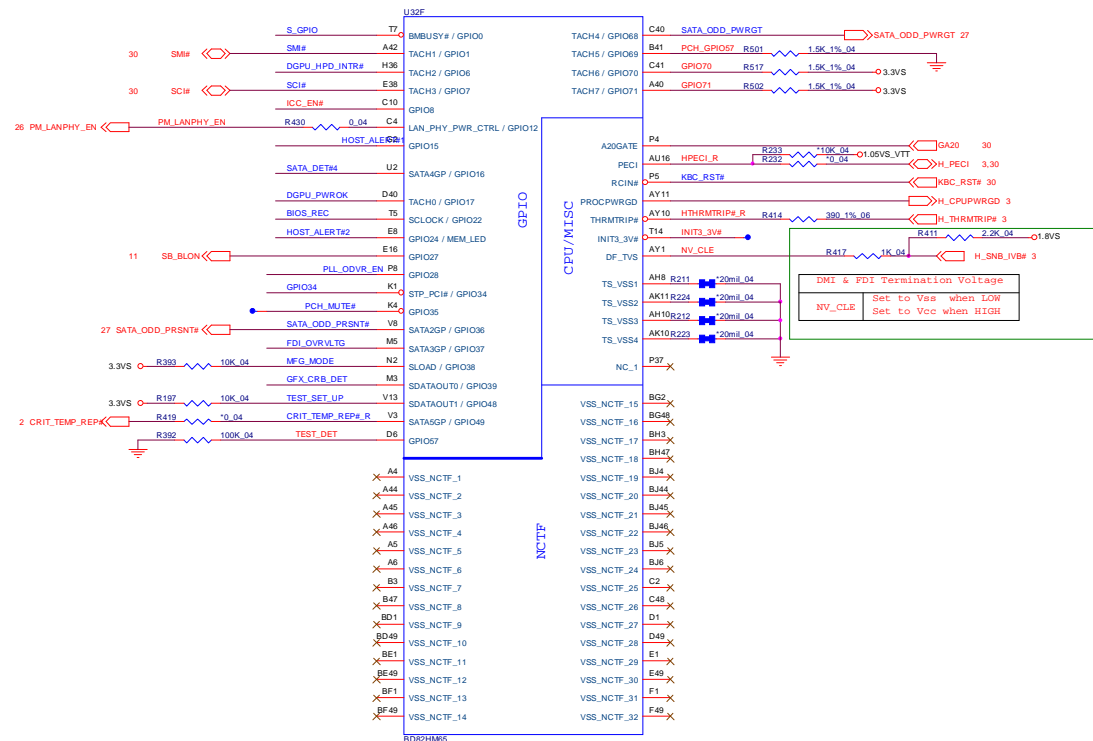
CougarPoint -M (PCI,USB,NVRAM)



PCH/ GPIO, VSS NCTF, RSVD

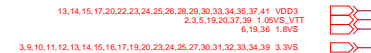


CougarPoint - M (GPIO,VSS_NCTF,RSVD)



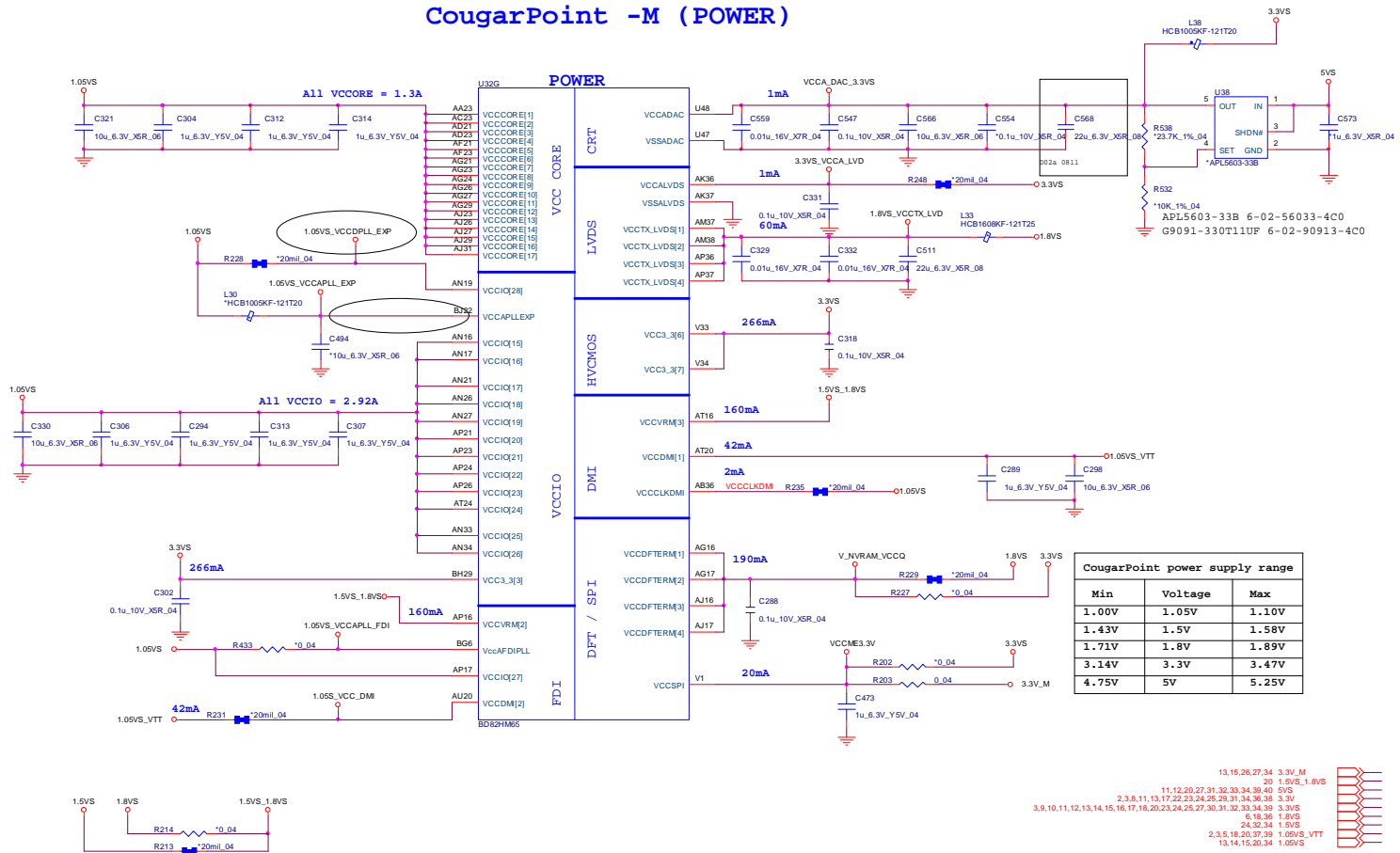
Sheet 18 of 49
 PCH/ GPIO, VSS
 NCTF, RSVD

B. Schematic Diagrams



PCH/ POWER 1

CougarPoint -M (POWER)



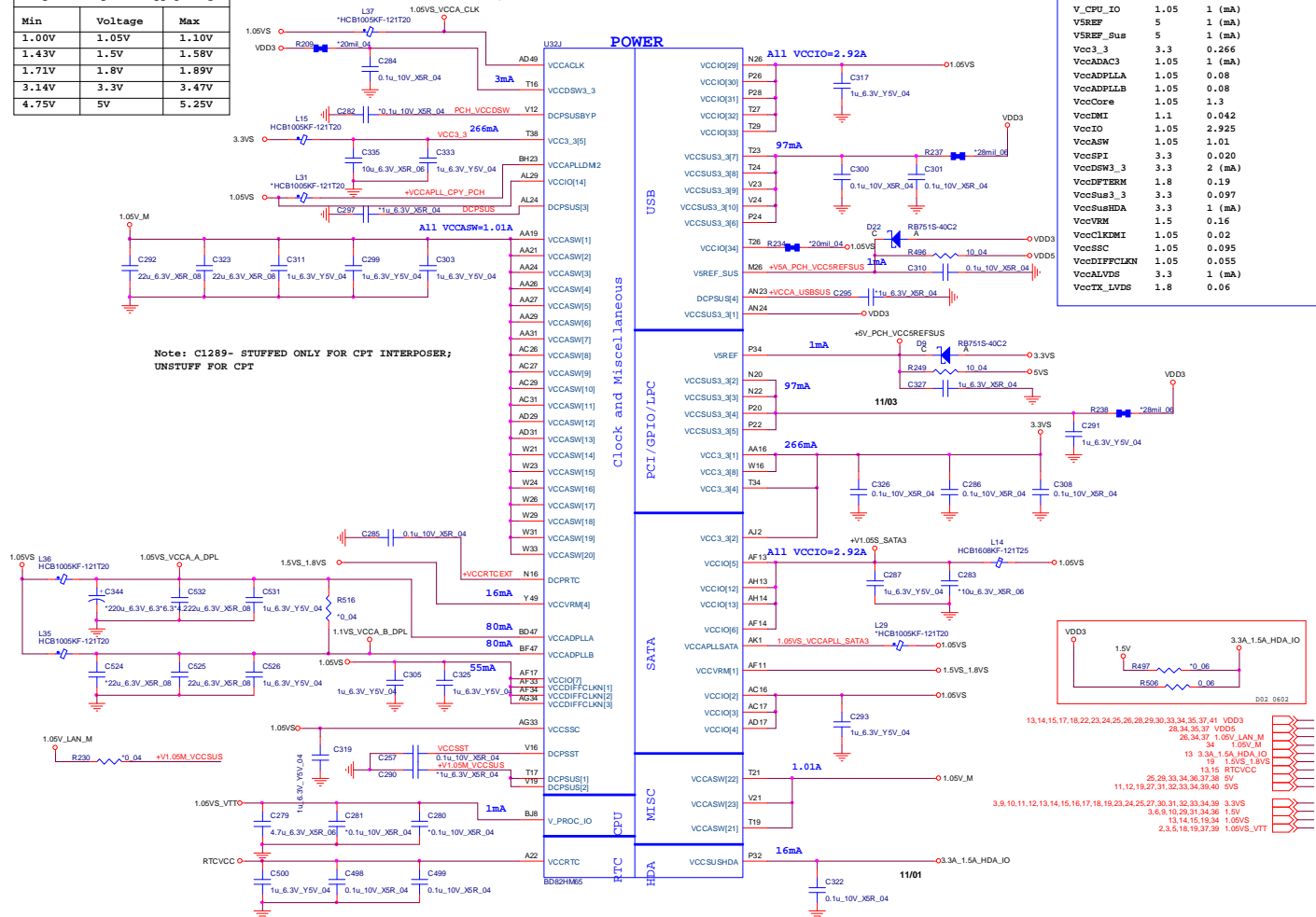
Sheet 19 of 49
PCH/ POWER 1

B.Schematic Diagrams

PCH/ POWER 2

Min	Voltage	Max
1.00V	1.05V	1.10V
1.43V	1.5V	1.58V
1.71V	1.8V	1.89V
3.14V	3.3V	3.47V
4.75V	5V	5.25V

CougarPoint - M (POWER)



Voltage Rail	Voltage	SO	Iccmax	Current (A)
V_CPU_IO	1.05	1	1	1 (mA)
VSRREF	5	1	1	1 (mA)
VSRREF_Sus	5	1	1	1 (mA)
Vcc3_3	3.3	0	0.266	
VccADAC3	1.05	1	1	1 (mA)
VccADPLLA	1.05	0.08		
VccADPLLB	1.05	0.08		
VccCore	1.05	1.3		
VccDMI	1.1	0.042		
VccIO	1.05	2.925		
VccASW	1.05	2.101		
VccSFI	3.3	0.020		
VccDSW3_3	3.3	2		2 (mA)
VccDPTERM	1.8	0.19		
VccSus3_3	3.3	0.097		
VccSusHDA	3.3	1		1 (mA)
VccVRM	1.5	0.16		
VccCLKMI	1.05	0.02		
VccSSC	1.05	0.095		
VccDIFFCLKN	1.05	0.055		
VccALVDS	3.3	1		1 (mA)
VccTX_LVDS	1.8	0.06		

Note: C1289- STUFFED ONLY FOR CPT INTERPOSER; UNSTUFF FOR CPT

Sheet 20 of 49
PCH/ POWER 2

B.Schematic Diagrams

PCH/ GND

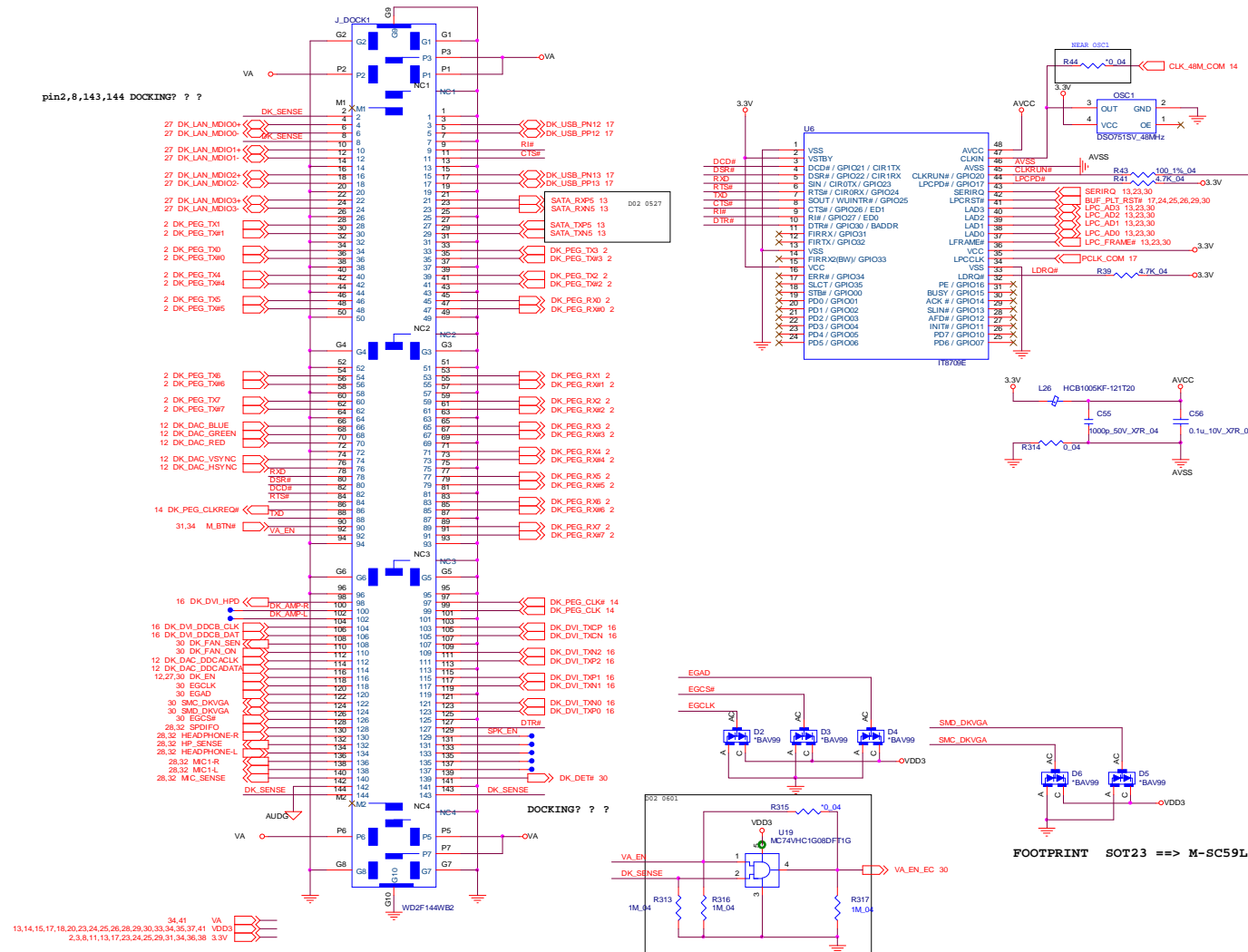
CougarPoint -M (GND)

Sheet 21 of 49
PCH/ GND

B.Schematic Diagrams



DOCKING CONNECTOR



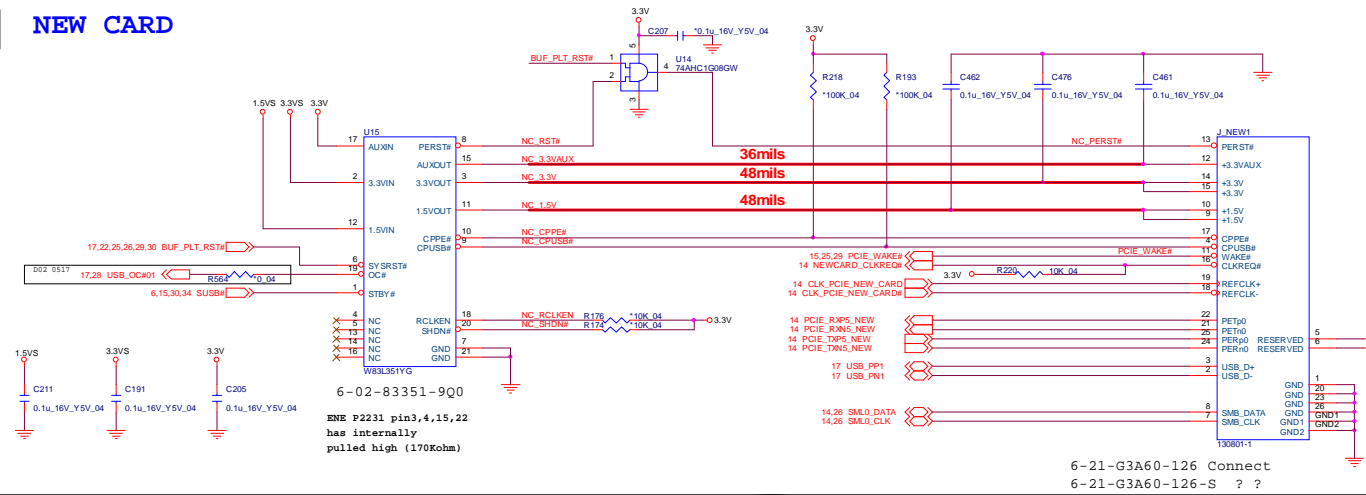
Sheet 22 of 49
DOCKING
CONNECTOR

B. Schematic Diagrams

NEW CARD, MINI PCIE

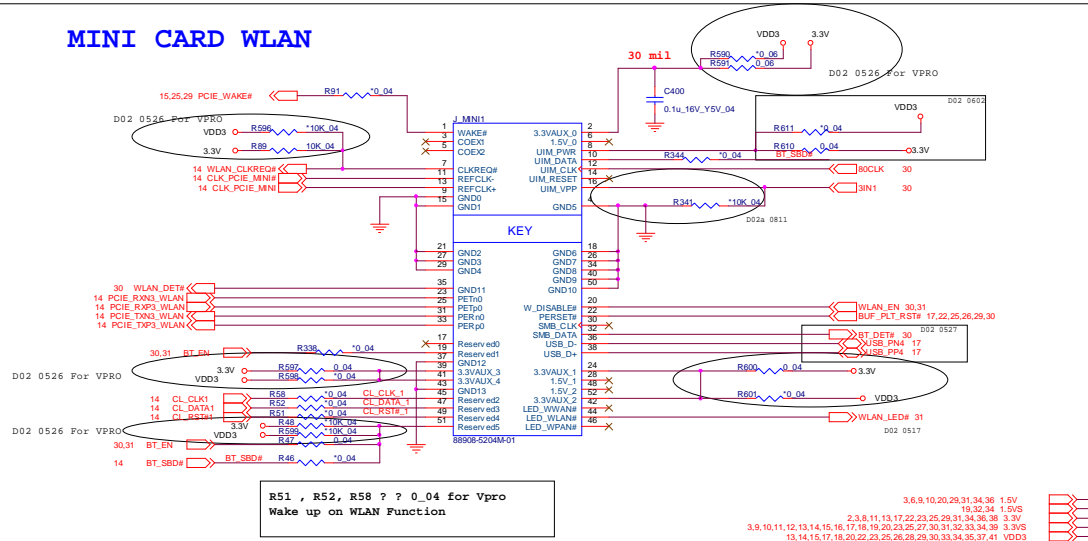


NEW CARD



Sheet 24 of 49
NEW CARD, MINI
PCIE

MINI CARD WLAN

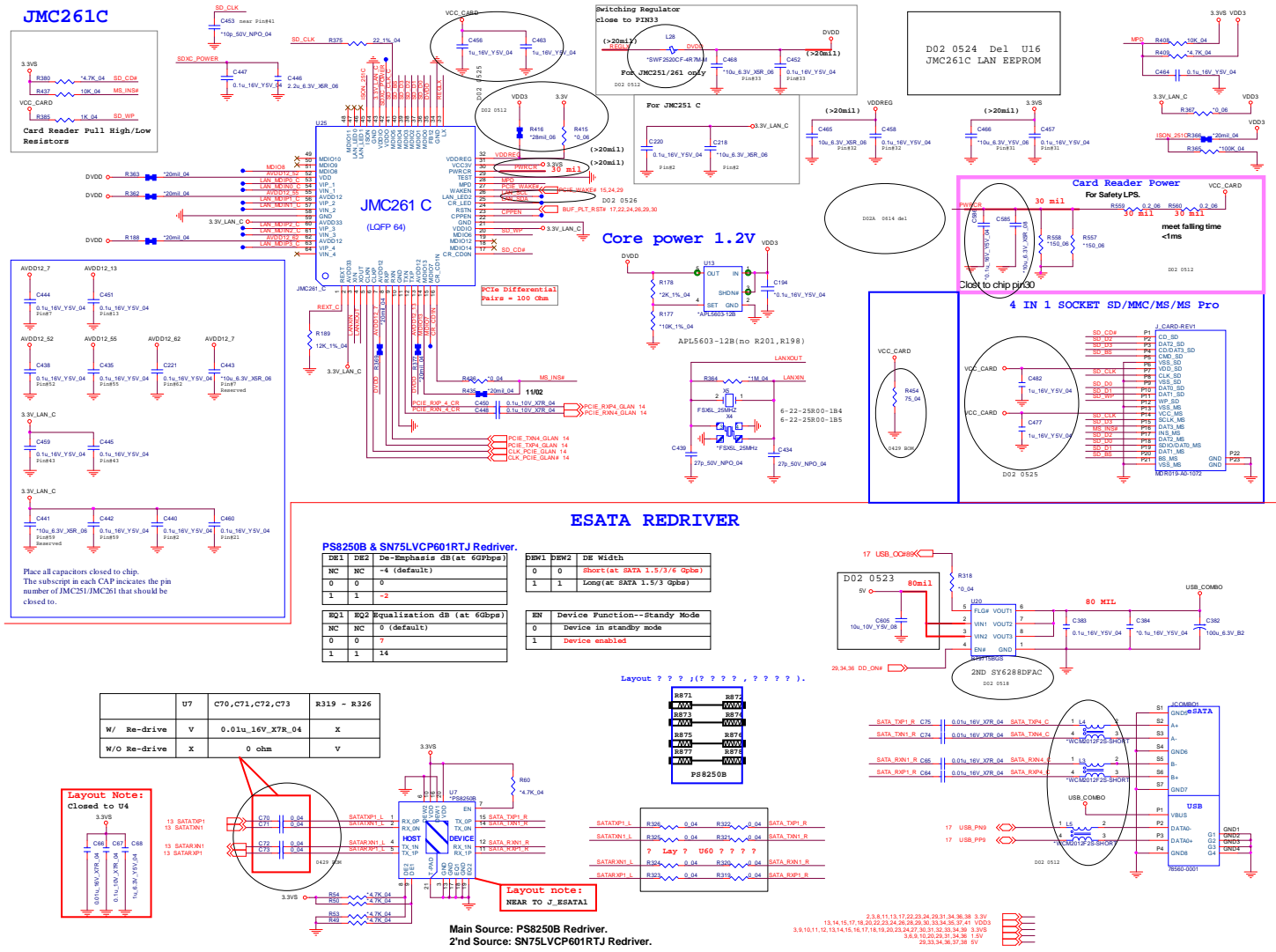


B.Schematic Diagrams

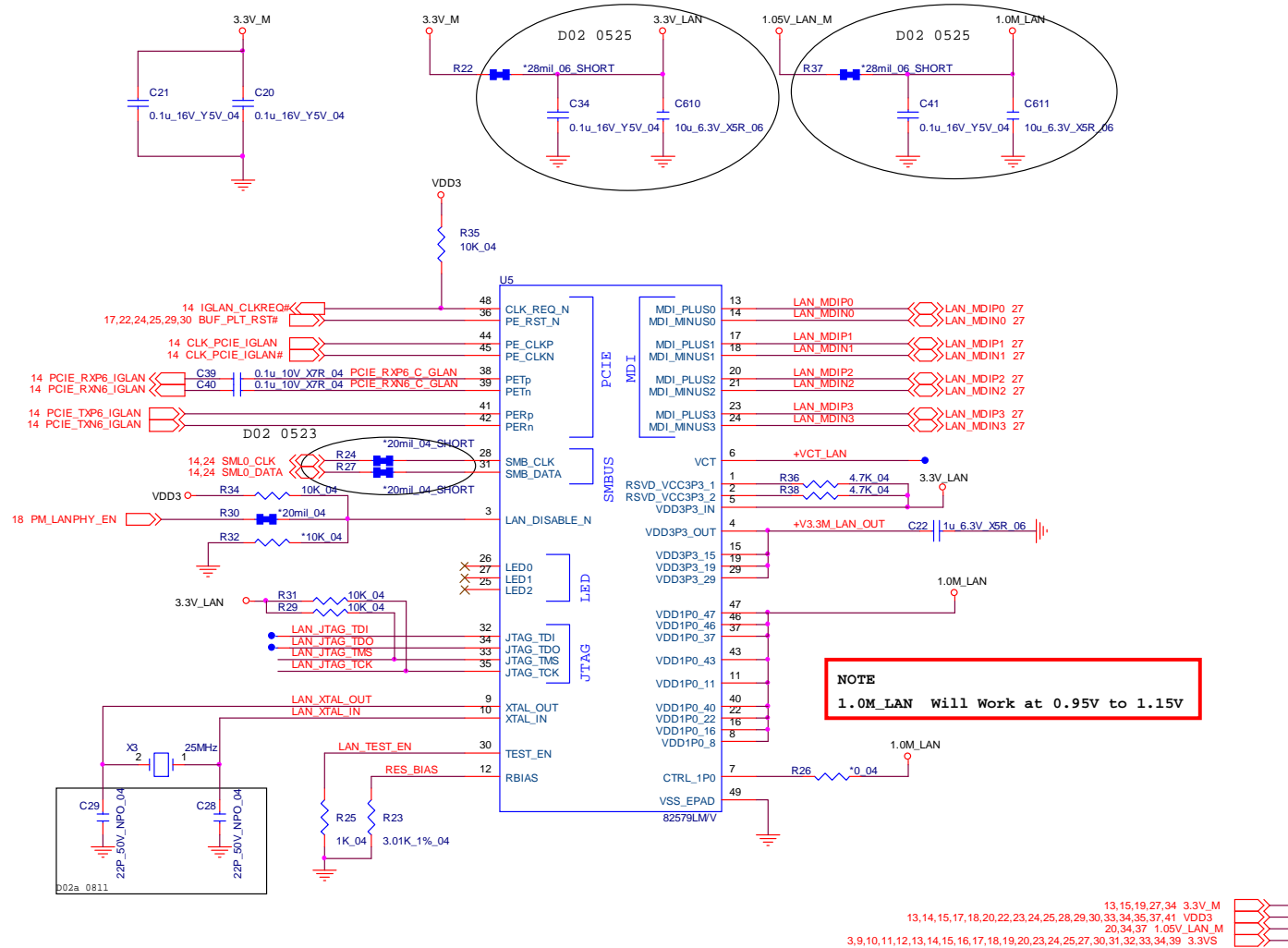
CARD READER JMC261C, ESATA

B.Schematic Diagrams

Sheet 25 of 49
CARD READER
JMC261C, ESATA



INTEL LAN82579

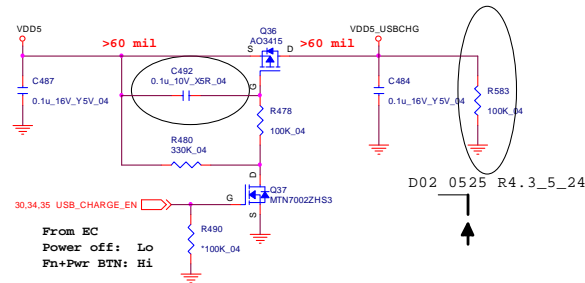
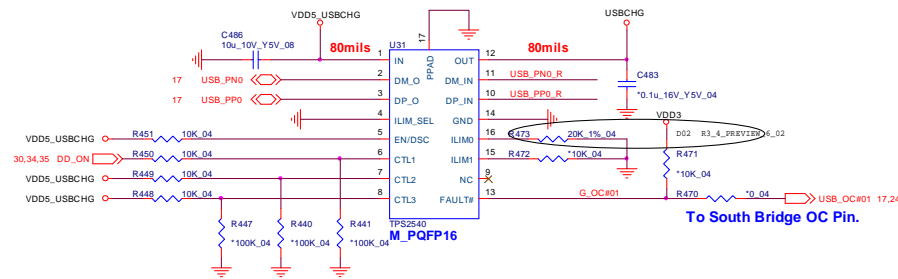


Sheet 26 of 49
INTEL LAN82579

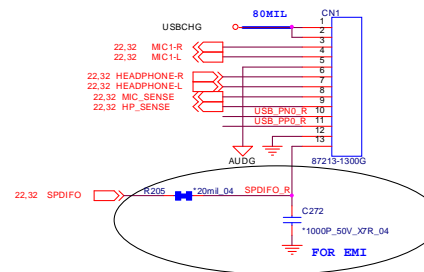
B.Schematic Diagrams

USB 2.0 CHARGER, Audio Conn

USB Charger components



Audio B'd CONN



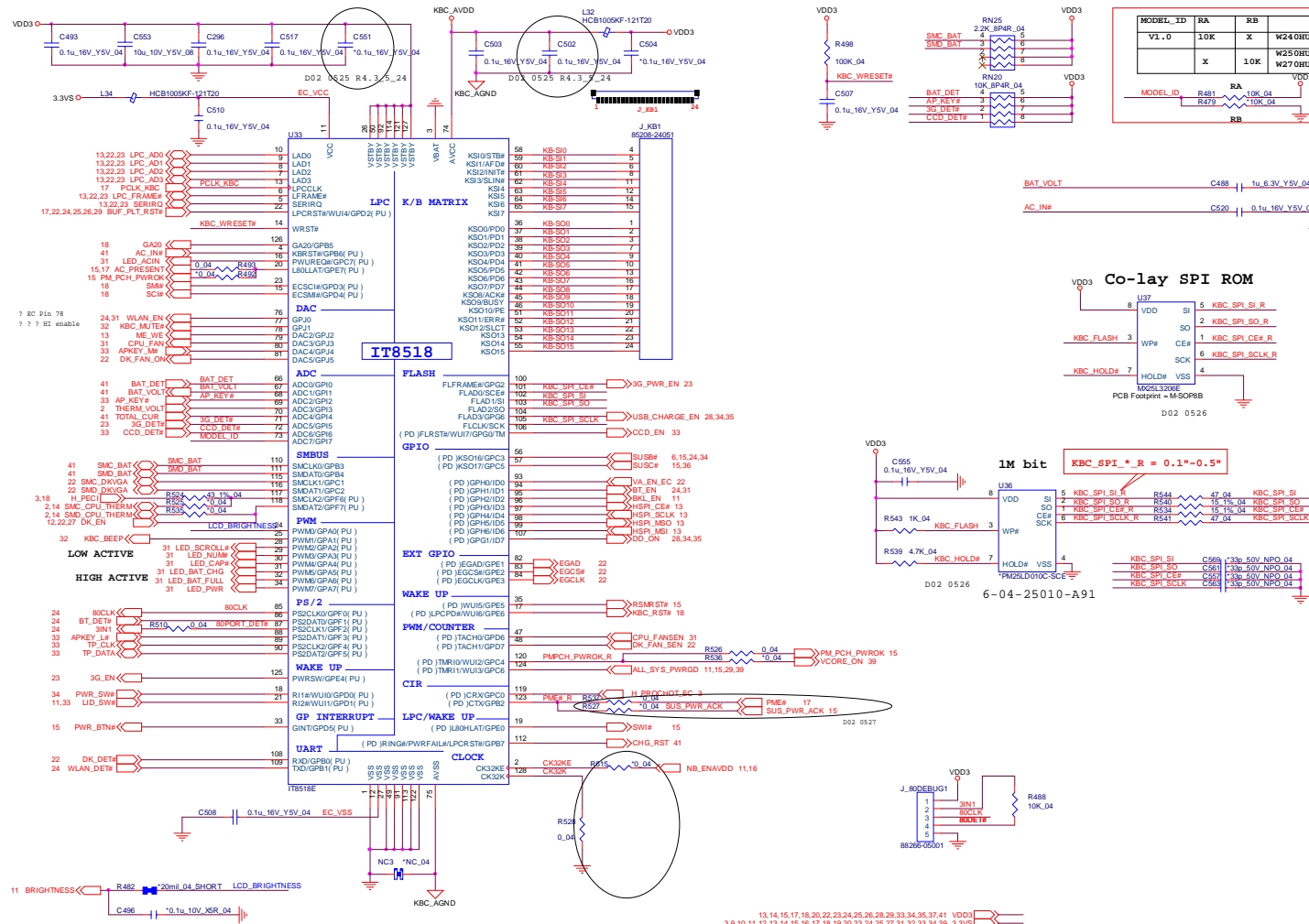
- Mode 1 CTL1 CTL2 CTL3: 0 0 0 ----> OUT discharge, power switch OFF
- Mode 2 CTL1 CTL2 CTL3: 0 X 1 ----> Dedicated charging pot, auto-detect
- Mode 3 CTL1 CTL2 CTL3: 1 1 1 ----> Charging downstream port, BC1.2(draft)

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

13,14,15,17,18,20,22,23,24,25,26,29,30,33,34,35,37,41 VDD3
20,34,35,37 VDD5

Sheet 28 of 49
USB 2.0 CHARGER,
Audio Conn

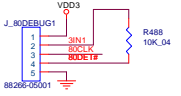
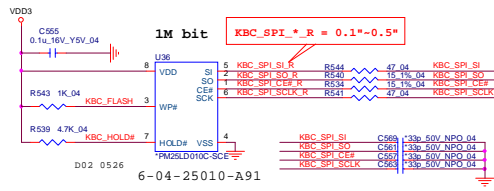
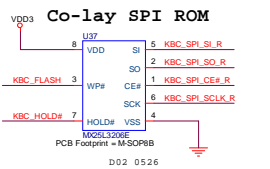
KBC-ITE IT8518



MODEL_ID	RA	RB	
V1.0	1.0K	X	W240HU
	X	1.0K	W250HUQ
			W270HUQ

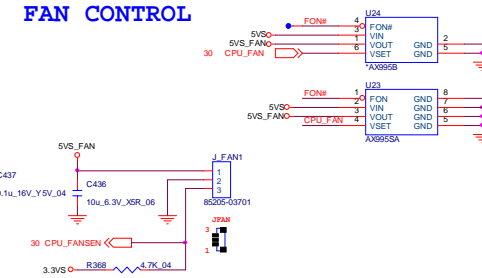
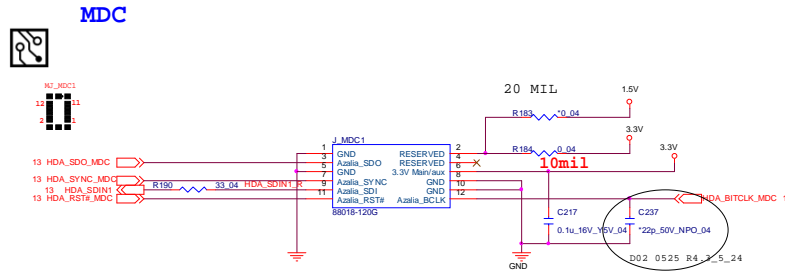
Sheet 30 of 49
KBC-ITE IT8518

B.Schematic Diagrams



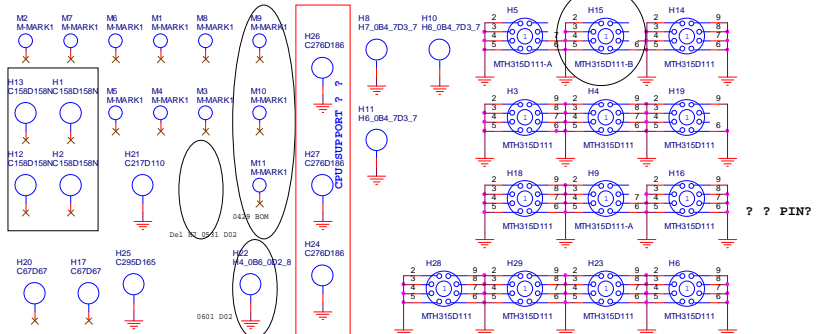
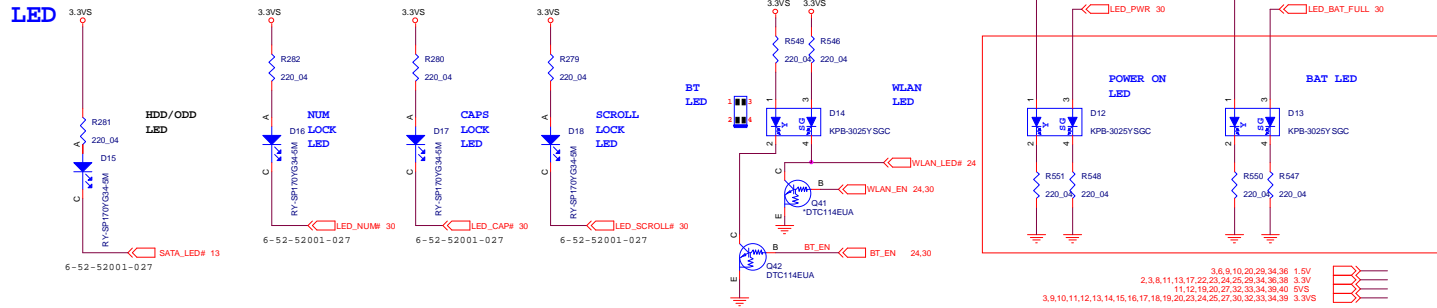
13,14,15,17,18,20,22,23,24,25,26,28,29,33,34,35,37,41 VDD3
3,9,10,11,12,13,14,15,16,17,18,19,20,23,24,25,27,31,32,33,34,39 3.3VS

LED, MDC, POWER, FAN

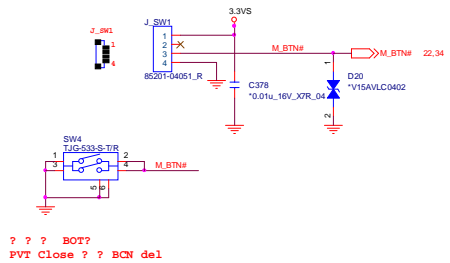


Sheet 31 of 49
LED, MDC,
POWER, FAN

B.Schematic Diagrams



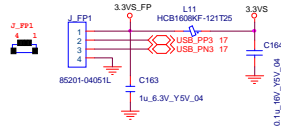
POWER SWITCH CONN



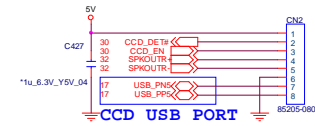
LID, AP KEY, FP, MULTI CON

Sheet 33 of 49
LID, AP KEY, FP,
MULTI CON

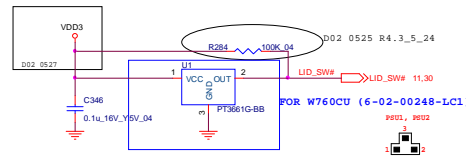
FP CONN



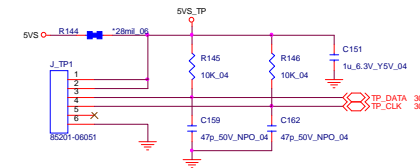
MULTI I/O CONN



LID SWITCH IC

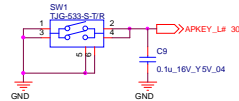


CLICK B'd CONN

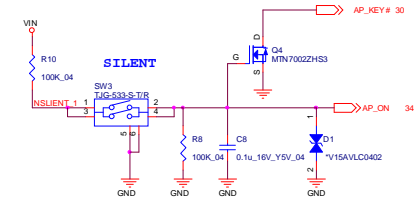
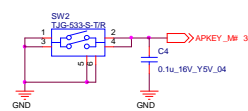


HOT KEY

WLAN ON OFF KEY



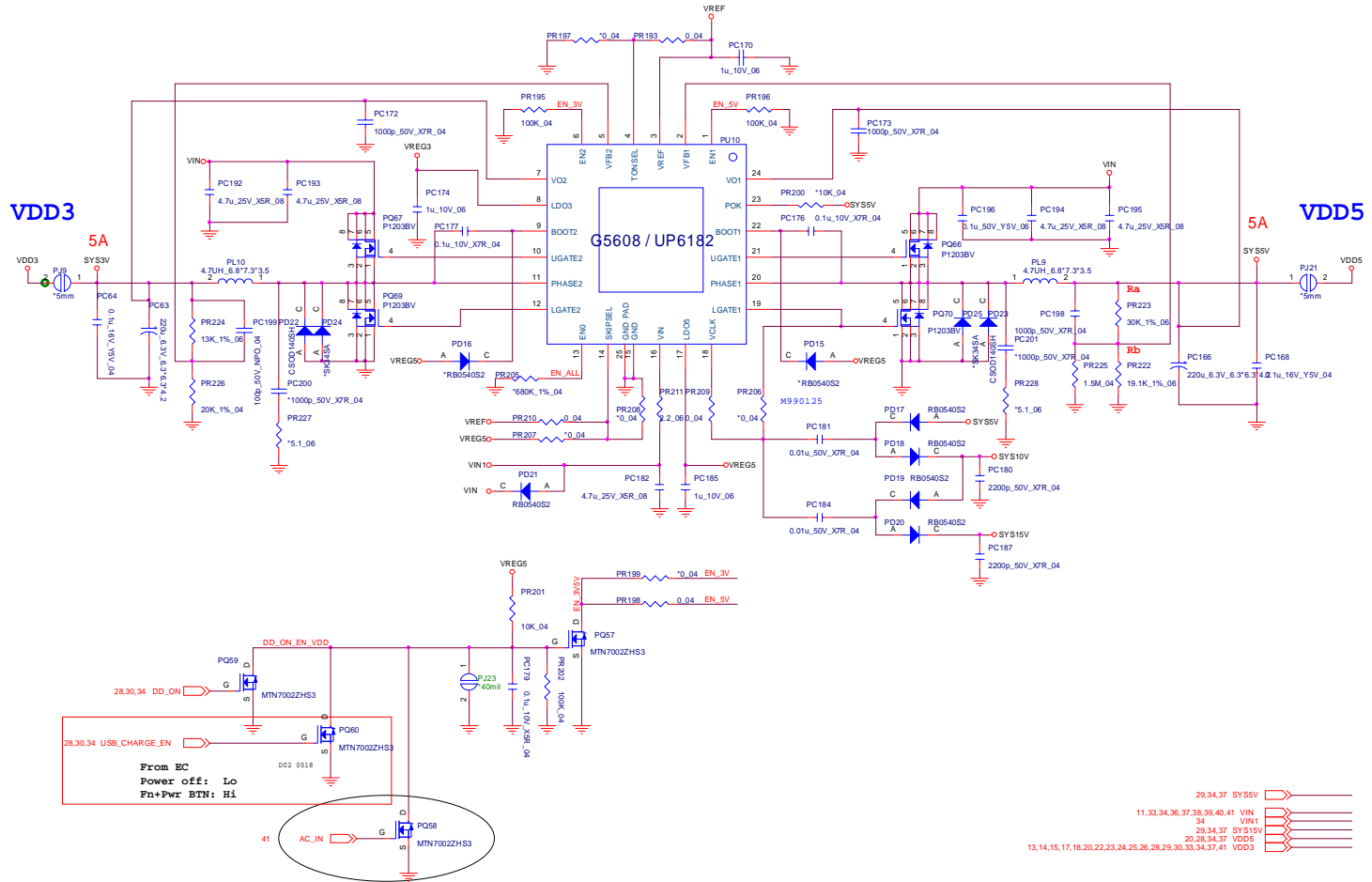
CCD ON OFF KEY



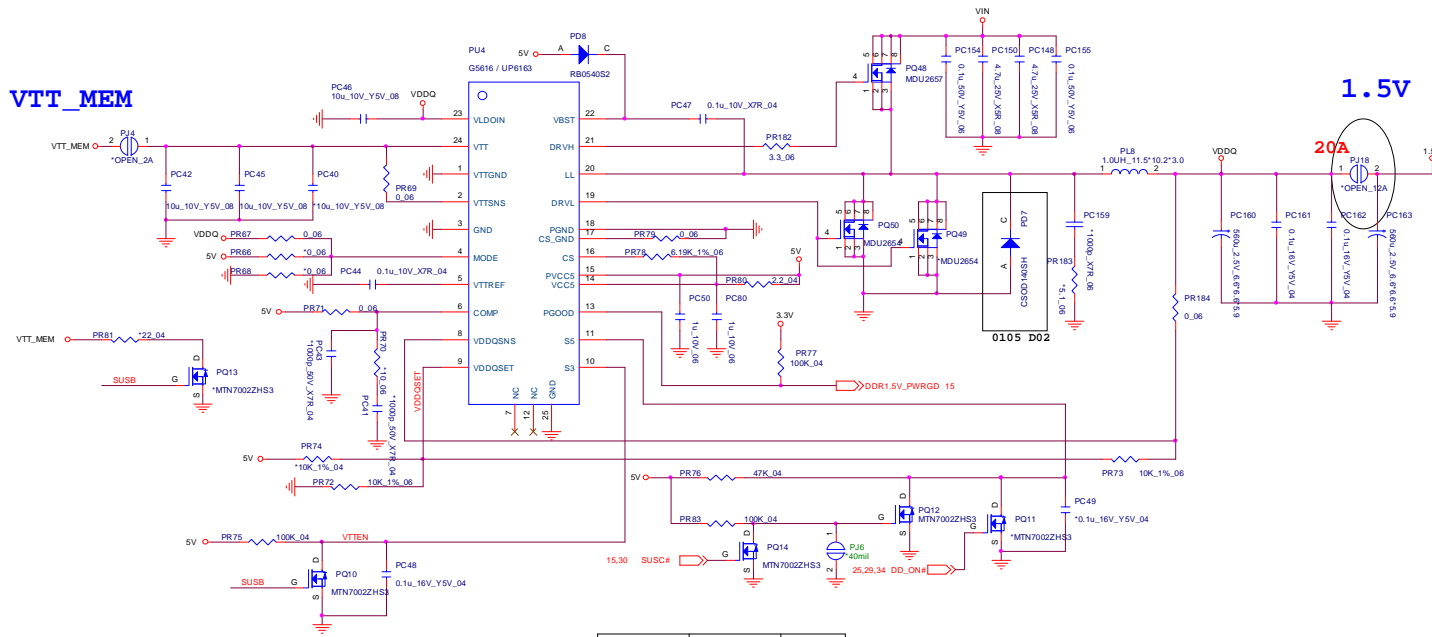
13,14,15,17,18,20,22,23,24,25,26,28,29,30,34,35,37,41 VDD3
11,12,19,20,27,31,32,34,39,40 5V5
25,29,34,36,37,38 5V
11,34,35,36,37,38,39,40,41 VIN
3,9,10,11,12,13,14,15,16,17,18,19,20,23,24,25,27,30,31,32,34,39 3.3VS

VDD3, VDD5

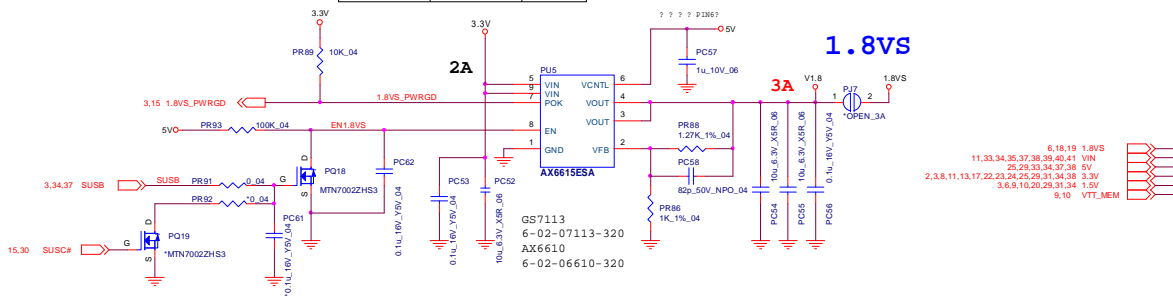
Sheet 35 of 49
VDD3, VDD5



POWER 1.5V/ 0.75V, 1.8VS



1.5V_CTRL1	1.5_CTRL0	Voltage
1	1	1.55V
1	0	1.60V
0	1	1.65V
0	0	1.70V

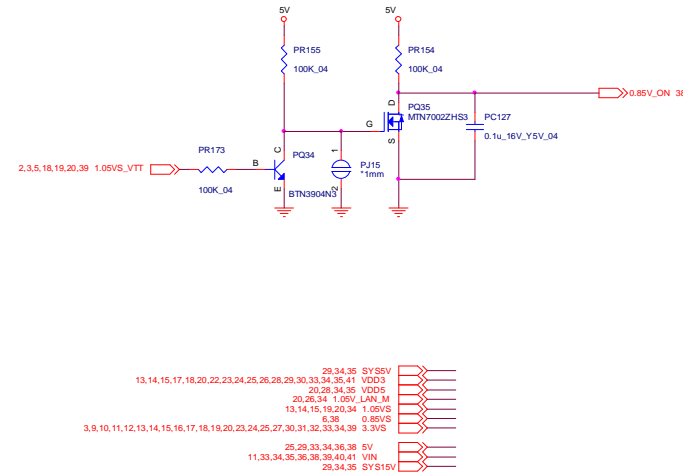
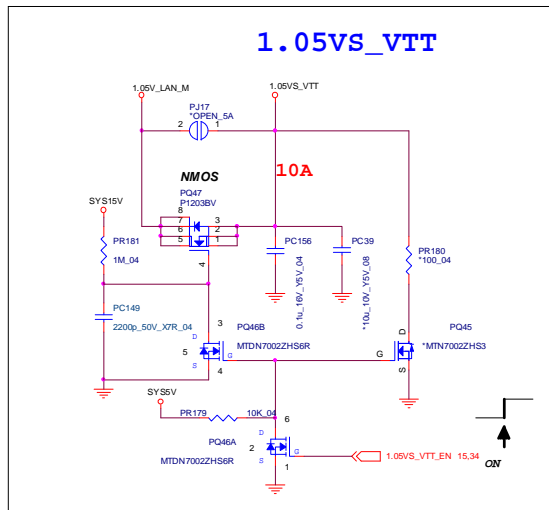
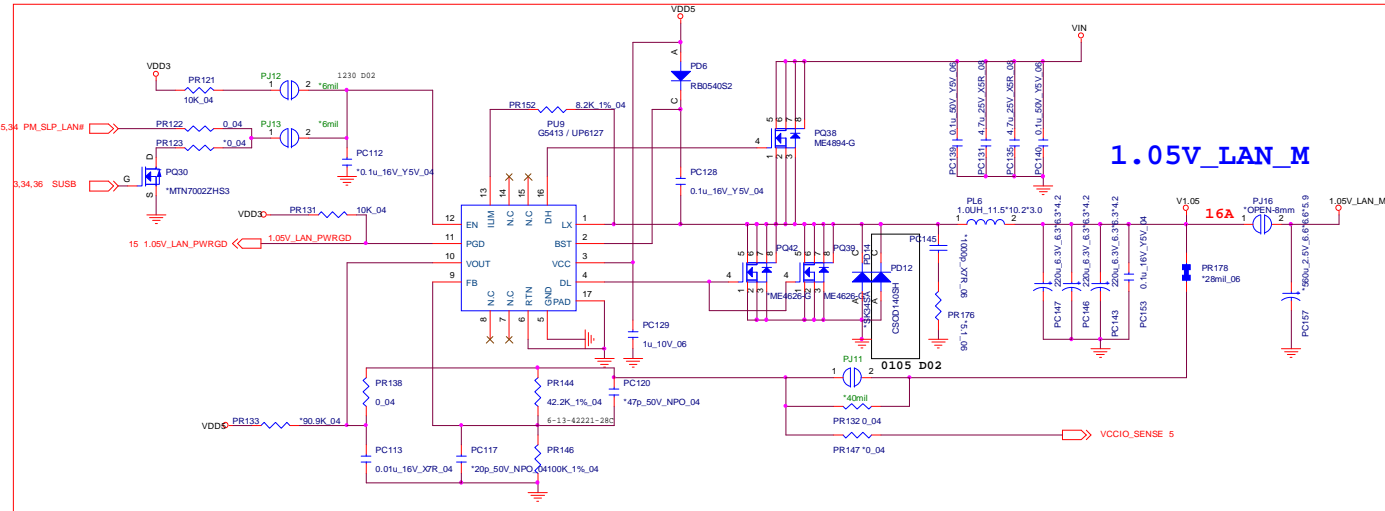


Sheet 36 of 49
POWER 1.5V/
0.75V, 1.8VS

B. Schematic Diagrams

POWER 1.05V LAN M

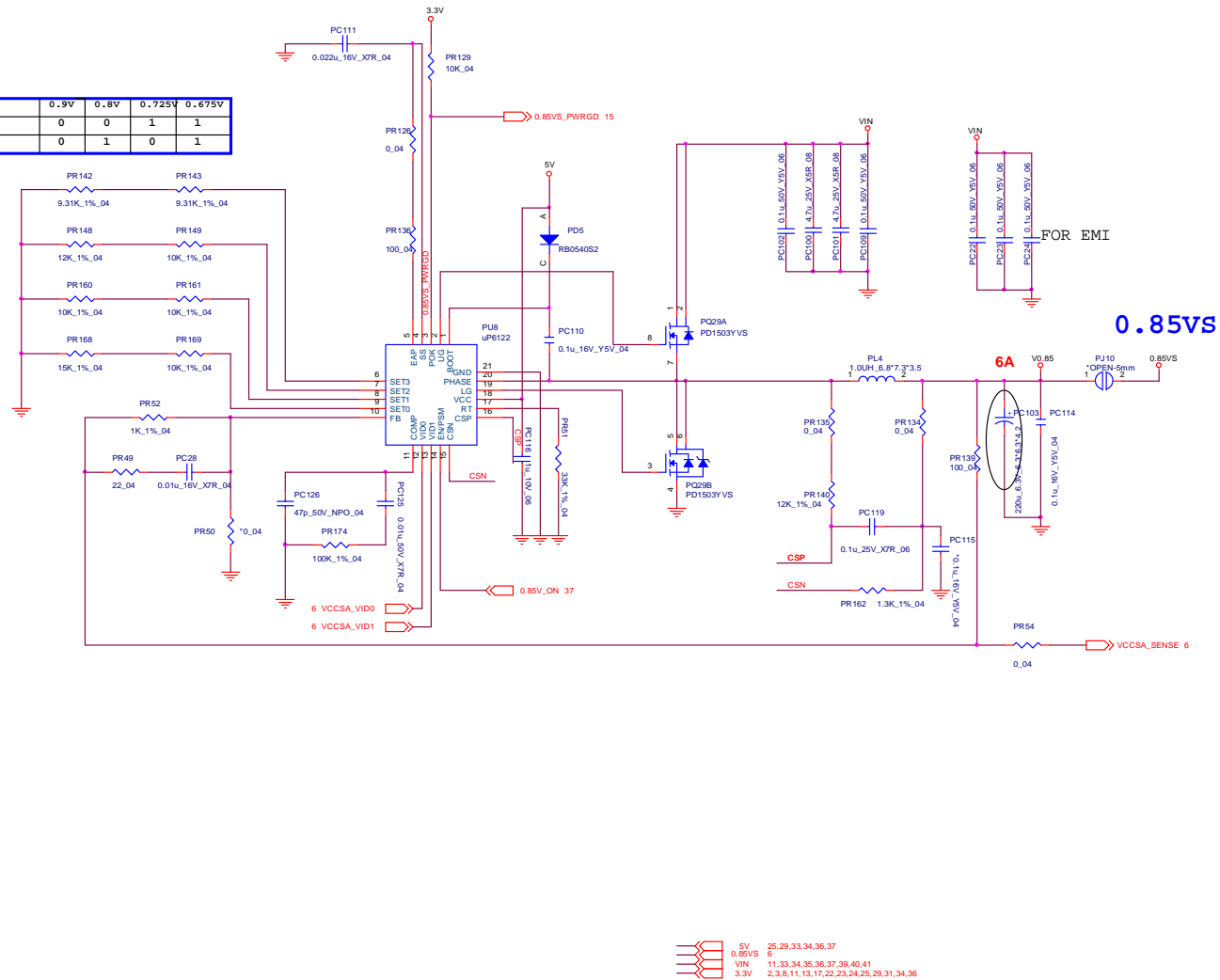
Sheet 37 of 49
POWER 1.05V LAN M



- 13, 14, 15, 17, 18, 20, 22, 23, 24, 25, 26, 28, 29, 30, 33, 34, 35, 41 VDD3
- 20, 26, 34 1.05V LAN_M
- 13, 14, 15, 19, 20, 34 1.05V_S
- 6, 38 0.85V_S
- 3, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24, 25, 27, 30, 31, 32, 33, 34, 39 3.3V_S
- 25, 29, 33, 34, 36, 38 5V
- 11, 33, 34, 35, 36, 38, 39, 40, 41 VIN
- 29, 34, 35 SYS5V
- 29, 34, 35 VDD3
- 20, 28, 34, 35 VDD5
- 20, 26, 34 1.05V LAN_M
- 13, 14, 15, 19, 20, 34 1.05V_S
- 6, 38 0.85V_S
- 25, 29, 33, 34, 36, 38 5V
- 11, 33, 34, 35, 36, 38, 39, 40, 41 VIN
- 29, 34, 35 SYS15V

POWER 0.85VS

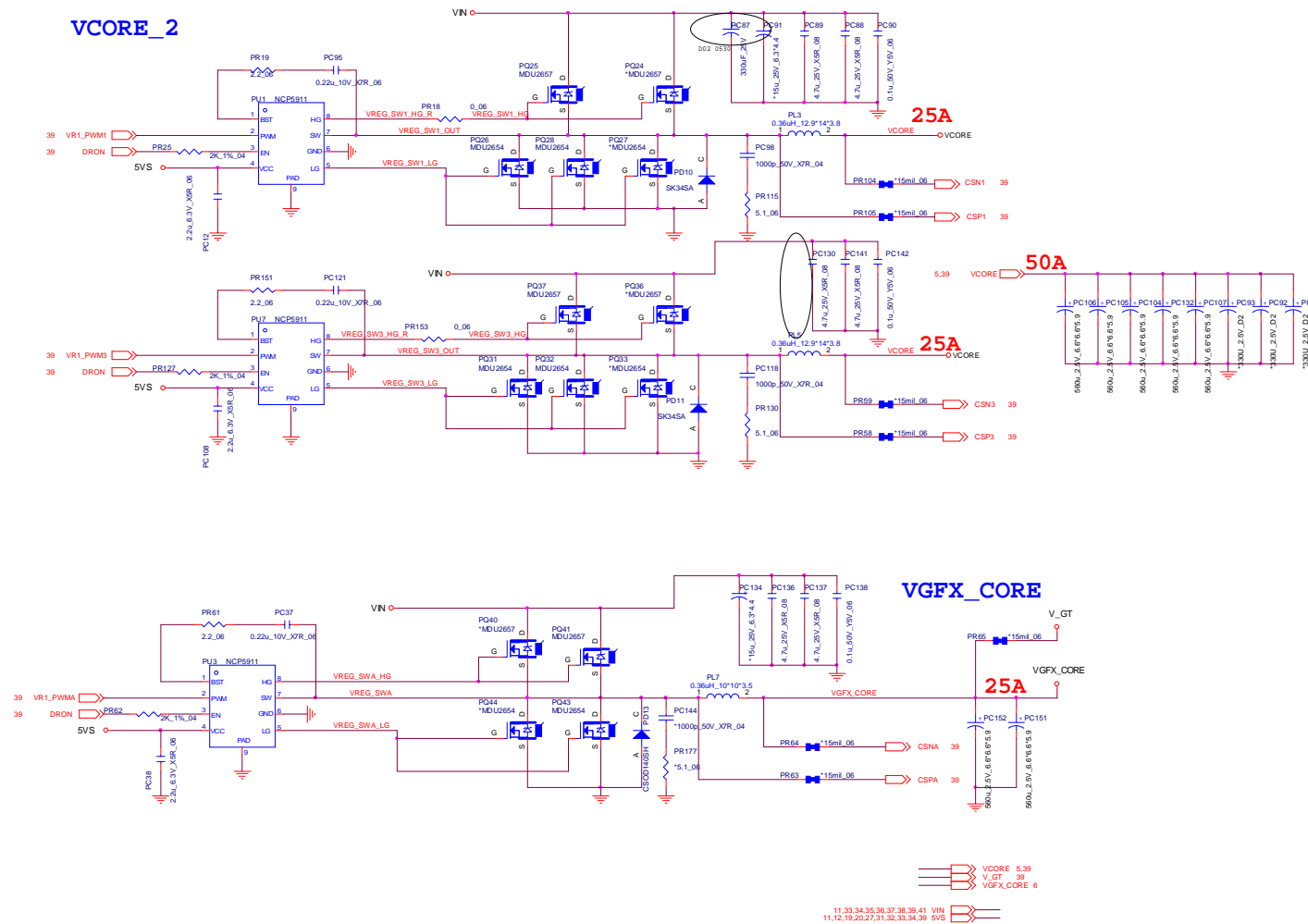
	0.9V	0.8V	0.725V	0.675V
VCCSA_VID0	0	0	1	1
VCCSA_VID1	0	1	0	1



Sheet 38 of 49
POWER 0.85VS

B. Schematic Diagrams

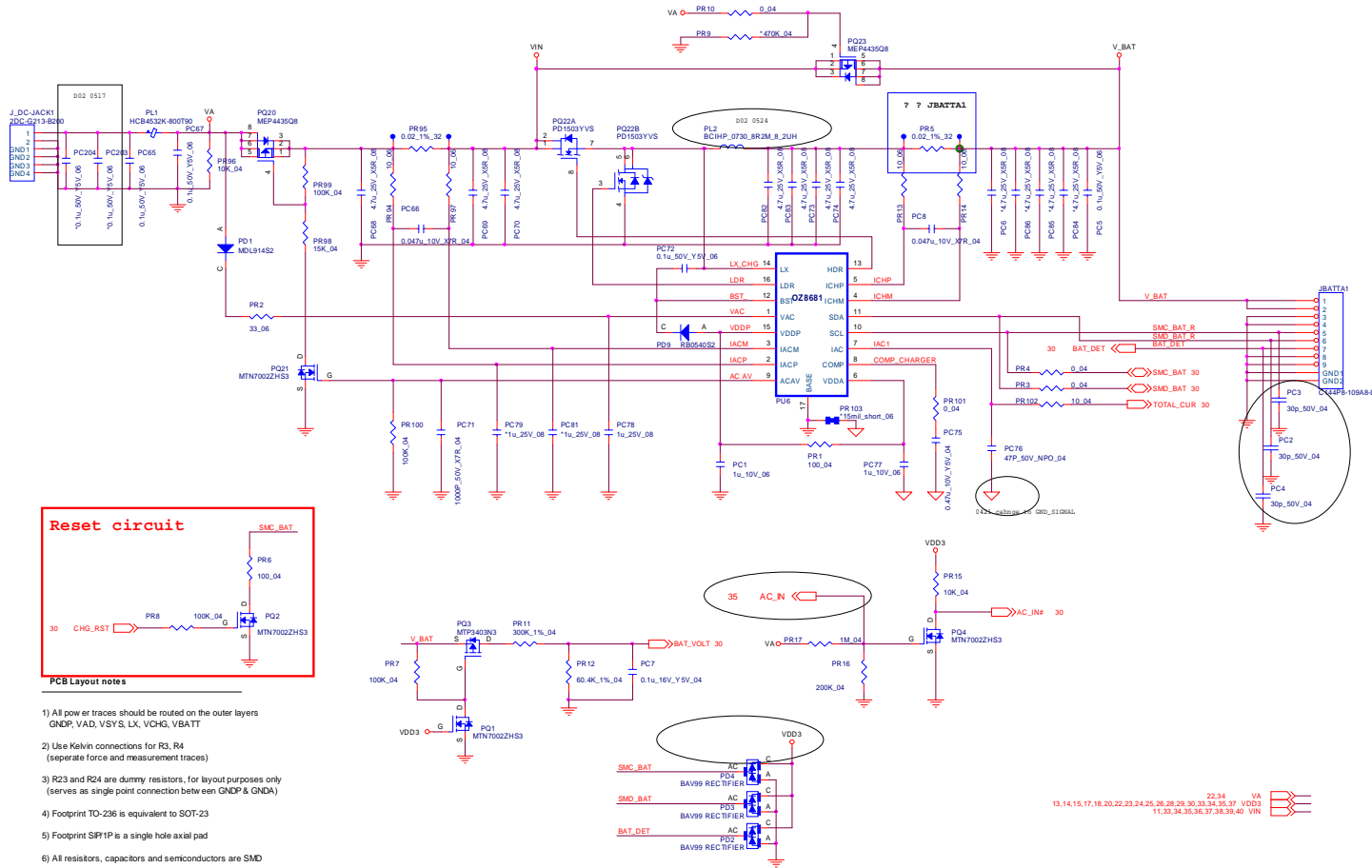
POWER/ V-CORE2, VGFX



Sheet 40 of 49
POWER/V-CORE2,
VGFX

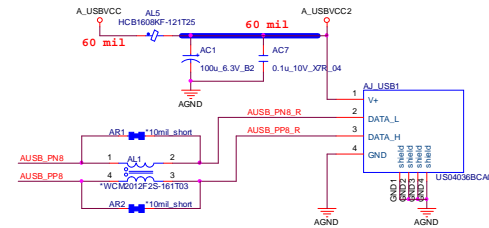
AC IN, CHARGER

Sheet 41 of 49
AC IN, CHARGER

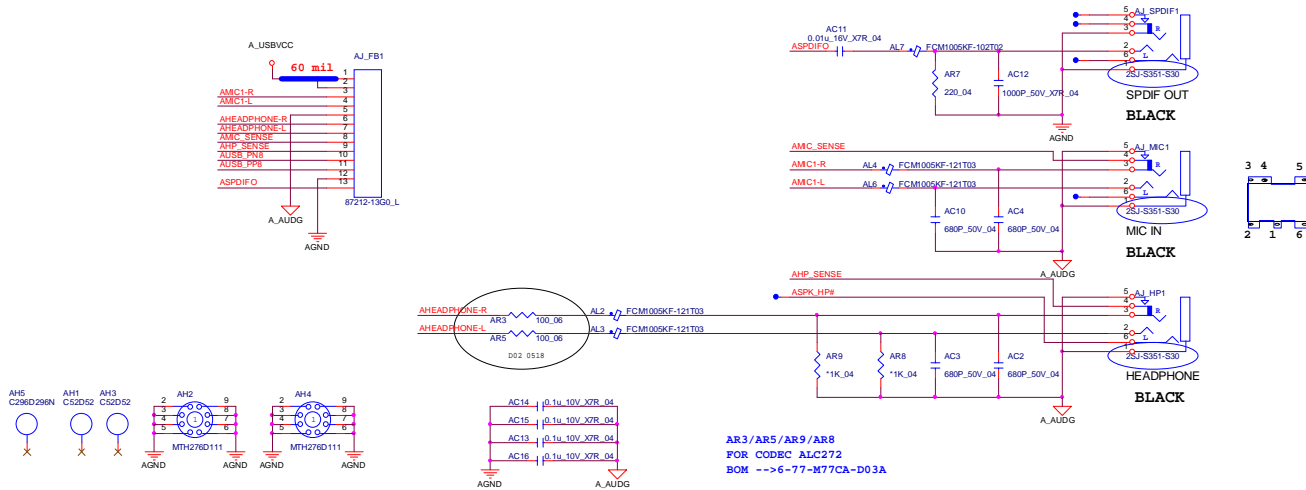


AUDIO BOARD FOR T51

USB PORT



AUDIO JACK

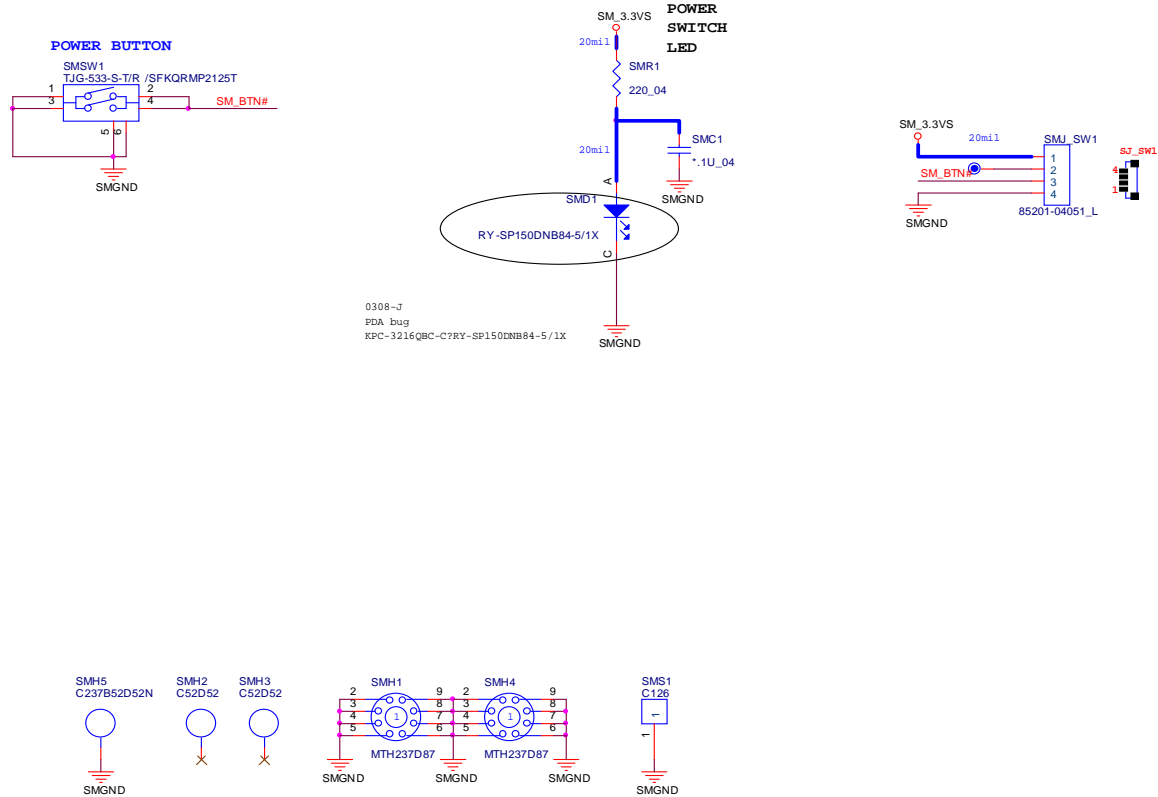


Sheet 42 of 49
AUDIO BOARD
FOR T51

POWER SWITCH BOARD FOR M74

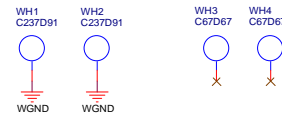
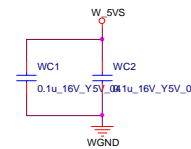
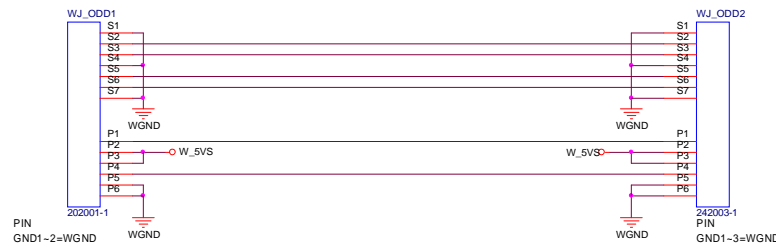
POWER SW & POWER LED FOR M74

Sheet 43 of 49
POWER SWITCH
BOARD FOR M74



EXTERNAL ODD BOARD FOR W76

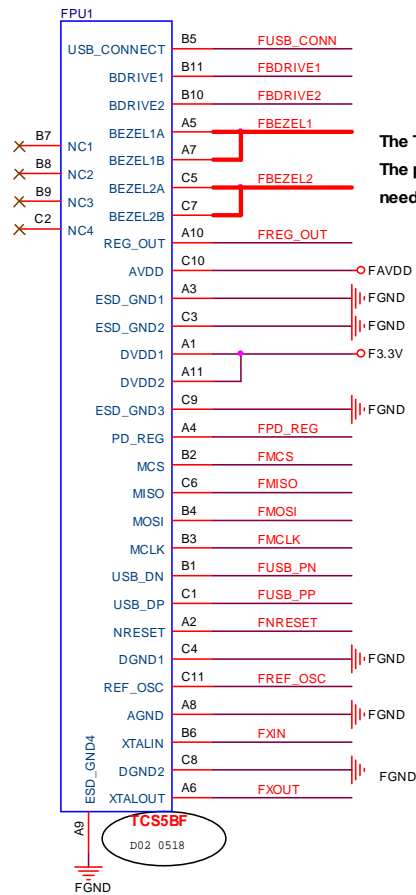
ODD BOARD FOR W76



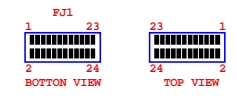
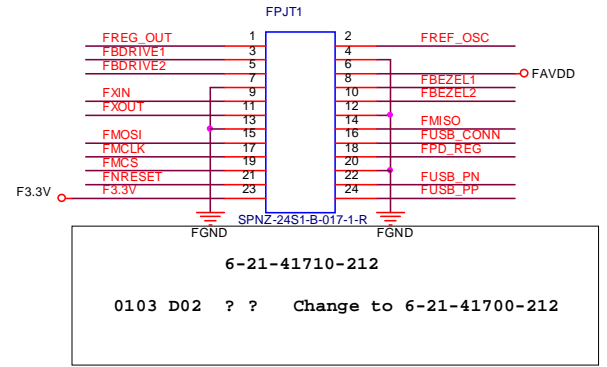
Sheet 44 of 49
EXTERNAL ODD
BOARD FOR W76

FINGERPRINT BOARD FOR W86

Sheet 45 of 49
FINGERPRINT
BOARD FOR W86

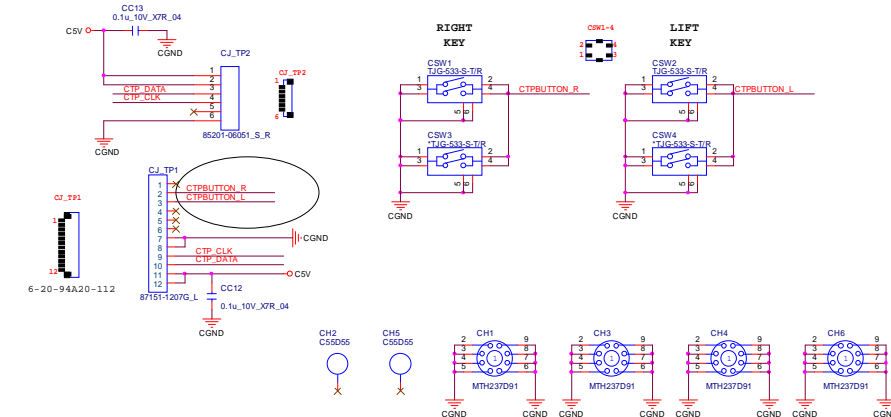


The TESD_GND trace has to be wide (> 20mil)
The path be marked in RED
needs to be design to be short and at low impedance.

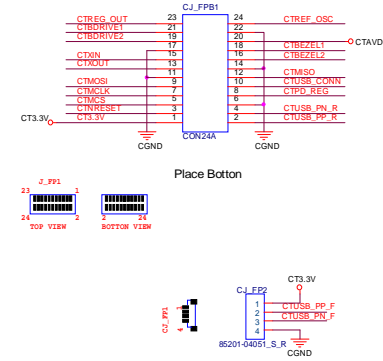


CLICK FINGER BOARD FOR W35

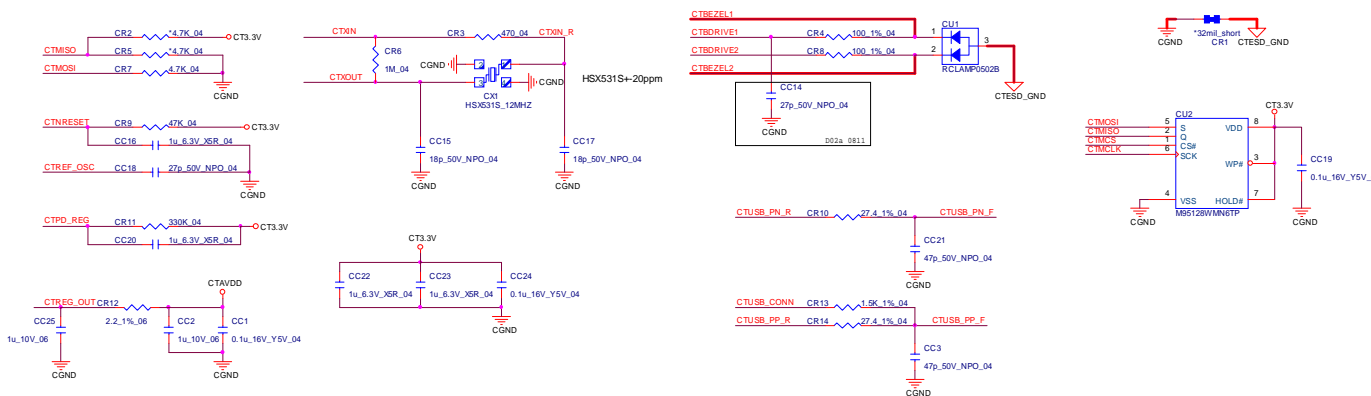
CLICK BOARD



FINGER BOARD



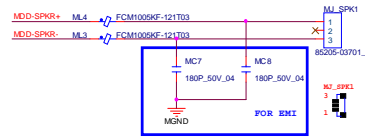
Sheet 46 of 49
CLICK FINGER
BOARD FOR W35



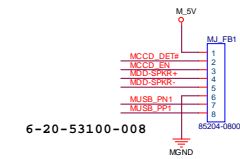
Schematic Diagrams

Multi I/O Board for T51

SPEAKER CONNECTOR

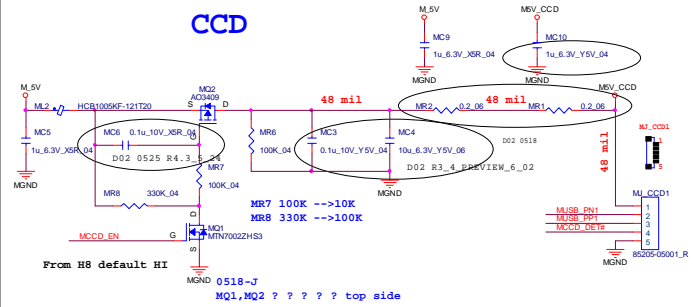


MULTI I/O CONN



6-20-53100-008
CHECK FOOTPRINT
? ? ? ? ? ? ? ? ? ?

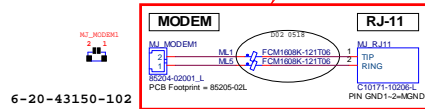
CCD



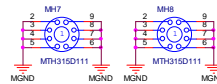
Sheet 47 of 49
Multi I/O Board for
T51

RJ-11

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



6-20-43150-102



? ? ? ? ? ? MJ_FB1 ? ? ? W76X? ? ? ? ? ,
CABLE? ? ?

B.Schematic Diagrams

Power Sequence

W350HU-D02 POWER ON SEQUENCE

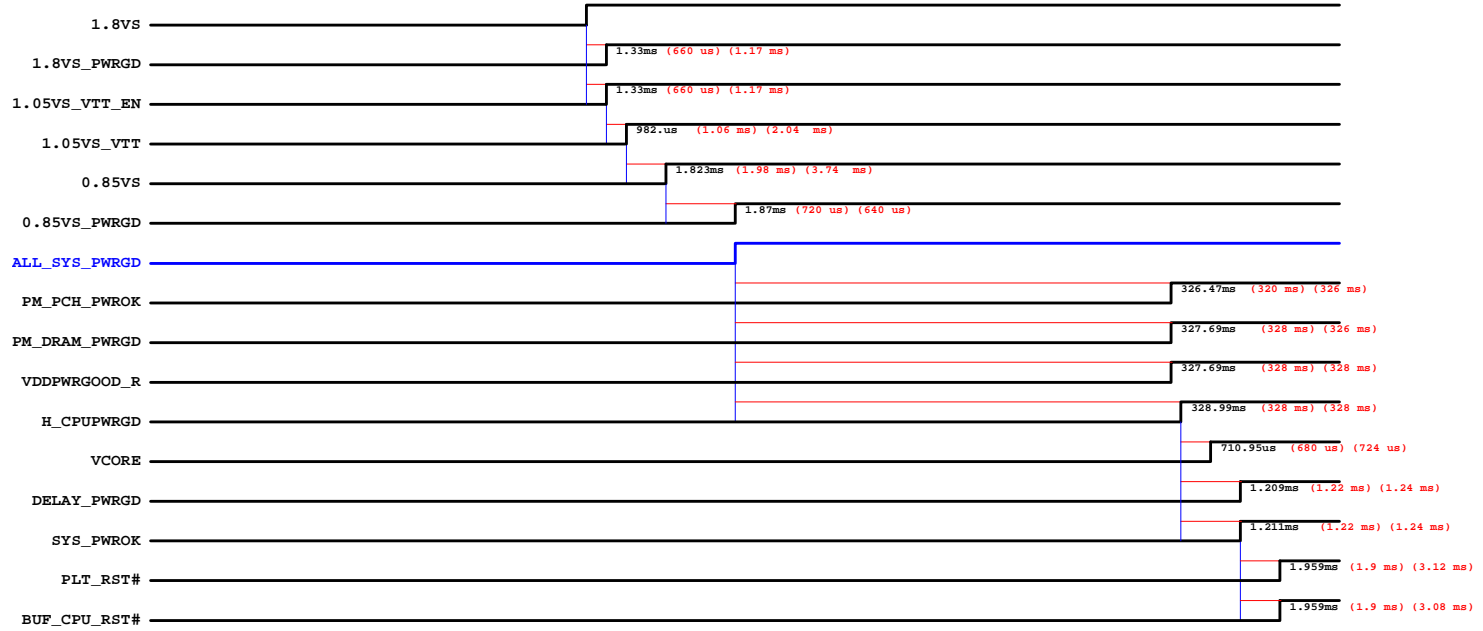


Sheet 48 of 49
Power Sequence

Power Sequence 2

W350HU-D02 POWER ON SEQUENCE

??? D01 , ??? D02 , ??? (? 2ND Source)



Sheet 49 of 49
Power Sequence 2

Appendix C: Updating the FLASH ROM BIOS

To update the FLASH ROM BIOS you must:

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

Download the BIOS

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

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

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

Set the computer to boot from the external drive

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



BIOS Version

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

You should only download BIOS versions that are V1.00.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 1.00.05, you **MAY NOT** then go back and flash the BIOS to ver 1.00.04).

BIOS Update

Use the flash tools to update the BIOS

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

C:\> Flash.bat

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

Restart the computer (booting from the HDD)

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

Your computer is now running normally with the updated BIOS

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