SERVICE MANUAL

W130HU/ W130HV

notebook

Notebook Computer

W130HU/ W130HV

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 ***W130HU/ W130HV*** 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 or 18.5V, 3.5A (65W) minimum AC/DC Adapter.

CAUTION

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

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
This device may not cause harmful interference.
This device must accept any interference received, including interference that may cause undesired operation.

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.

Do not expose the computer to any shock or vibration.	*Do not place it on an unstable surface.*	*Do not place anything heavy on the computer.*
		

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.

Do not expose it to excessive heat or direct sunlight.	*Do not leave it in a place where foreign matter or moisture may affect the system.*	*Don't use or store the computer in a humid environment.*	*Do not place the computer on any surface which will block the vents.*
			

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.

Do not turn off the power until you properly shut down all programs.	*Do not turn off any peripheral devices when the computer is on.*	*Do not disassemble the computer by yourself.*	*Perform routine maintenance on your computer.*
			

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**.

Use only approved brands of peripherals.	*Unplug the power cord before attaching 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.

Do not plug in the power cord if you are wet.	*Do not use the power cord if it is broken.*	*Do not place heavy objects on the power cord.*
		

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. Insert the battery and make sure it is locked in position.
4. Securely attach any peripherals you want to use with the computer (e.g. keyboard and mouse) to their ports.
5. Attach the AC/DC adapter to the DC-In jack at the left of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
6. Use one hand to raise the lid/LCD to a comfortable viewing angle (do not 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).
7. Press the power button to turn the computer "on".

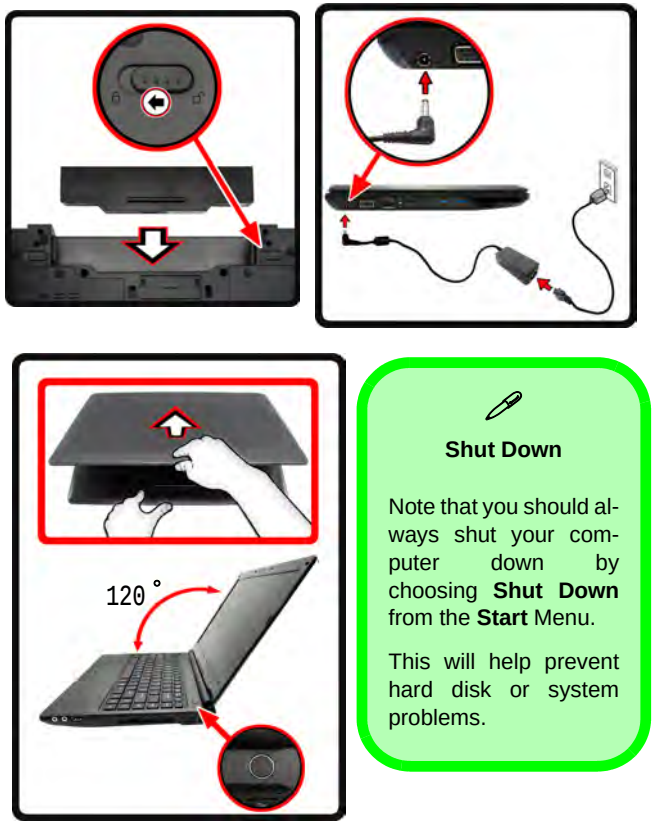

Figure 1
Opening the Lid/LCD/ Computer with AC/DC Adapter Plugged-In

Shut Down

Note that you should always shut your computer down by choosing **Shut Down** from the **Start** Menu.

This will help prevent hard disk or system problems.

What to do if you Spill Liquid on the Computer

The keyboard incorporates a drainage system that minimizes the chances of liquid spillages on the keyboard penetrating the inside components of the computer. Liquid spilled on the computer is drained towards the right side of the computer. There is no guarantee that all water can be prevented from entering the computer, and damage resulting from spillages is not covered in the warranty. However if you follow the steps outlined here you should be able to prevent water from entering the sensitive parts of the computer and causing damage.

1. If you spill liquid on the computer immediately save any data required and then shut the computer down and disconnect the AC/DC adapter.
2. Carefully **lift the computer up and tilt it to a 90 degree angle towards the right side** (i.e. that right side of the computer should be at the bottom to allow **the water to drain away from the right side** and not the left).
3. Move the computer to a dry place and wipe any liquid off the keyboard and bottom of the computer using a clean, soft, dry cloth.
4. Remove the battery.
5. Leave the computer resting on its right side (while placed on a clean, soft, dry cloth) to dry out for about three hours.
6. Contact your service center to have the computer examined for any problems, **but do not attempt to turn the computer back on again** until after it has been examined.

Figure 2 **- Drain any Liquid to the Right Side and Rest the Computer on the Right Side to Dry**

Warranty Warning

Note that the keyboard drainage system is designed to help prevent and minimize damage from liquid spillages on the computer keyboard. However damage resulting from spillages is not covered in the warranty.

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Set the computer to boot from the external drive C-1
Use the flash tools to update the BIOS C-2
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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the ***W130HU/ W130HV*** series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about dri-vers (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 ***W130HU/ W130HV*** 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.

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

W130HU:

Intel® Core™ i7 Processor

i7-2640M (2.80GHz), i7-2620M (2.70GHz)

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

Intel® Core™ i5 Processor

i5-2540M (2.60GHz), i5-2520M (2.50GHz), i5-2410M (2.30GHz)

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

Intel® Core™ i3 Processor

i3-2330M (2.20GHz), i3-2310M (2.10GHz),

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

Intel® Pentium™ Processor

B950 (2.10GHz), B940 (2.00GHz)

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

W130HV:

Intel® Core™ i7 Processor

i7-2640M (2.80GHz), i7-2620M (2.70GHz)

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

Intel® Core™ i5 Processor

i5-2540M (2.60GHz), i5-2520M (2.50GHz)

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

LCD

13.3" (33.78cm) HD LCD

BIOS

W130HU:

AMI BIOS (One 32Mb SPI Flash ROM)

W130HV:

AMI BIOS (One 64Mb SPI Flash ROM)

Core Logic

W130HU:

Intel® HM65 Chipset

W130HV:

Intel® QM67 Chipset

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 Integrated GPU (Intel® HD Graphics 3000):

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

Microsoft DirectX®10 Compatible

Storage

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

Anti-Shock System

Audio

High Definition Audio Compliant Interface

2 * Built-In Speakers

Built-In Microphone

Security

BIOS Password

Security (Kensington® Type) Lock Slot

Fingerprint Reader

TPM v1.2

Intel vPro (**W130HV only**)

Keyboard

Isolated A4 Size Keyboard with Anti-Spray Support

Interface

One Powered USB 2.0 Port (see *page 8*)
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 RJ-45 LAN Jack
One External Monitor Port
One ExpressCard/34(54) Slot
One DC-in Jack
(**Factory Option**) One Docking Port

Communication

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

WLAN/ Bluetooth Half Mini-Card Modules:

W130HU:

(**Factory Option**) Intel® Centrino® Advanced-N 6230 Wireless LAN (**802.11a/g/n**) + Bluetooth **3.0**
(**Factory Option**) Intel® Centrino® Wireless-N 1030 Wireless LAN (**802.11b/g/n**) + Bluetooth **3.0**
(**Factory Option**) Intel® Centrino® Wireless-N 1000 Wireless LAN (**802.11b/g/n**)
(**Factory Option**) Third-Party Wireless LAN (**802.11b/g/n**) + Bluetooth **3.0**
(**Factory Option**) Third-Party Wireless LAN (**802.11b/g/n**)

W130HV:

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

Pointing Device

Built-in Touchpad (scrolling key functionality integrated)

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

Environmental Spec

Temperature
Operating: 5°C - 35°C
Non-Operating: -20°C - 60°C
Relative Humidity
Operating: 20% - 80%
Non-Operating: 10% - 90%

Power

Full Range AC/DC Adapter
AC Input: 100 - 240V, 50 - 60Hz
DC Output: 19V, 3.42A or 18.5V, 3.5A (**65W**)

6 Cell Smart Lithium-Ion Battery Pack, 62.16WH

Dimensions & Weight

330mm (w) * 225mm (d) * 24.5 - 32mm (h)
1.78kg with ODD & 62.16WH Battery

External Locator - Top View with LCD Panel Open

Figure 1
Top View

1. PC Camera (**Optional**)
2. LCD
3. Power Button
4. Keyboard
5. Built-In Microphone
6. Touchpad & Buttons
7. Fingerprint Reader
8. LED Status Indicators

External Locator - Front & Right Side Views

FRONT VIEW

Figure 2
Front View

1. LED Power Indicator
2. WLAN Switch

RIGHT SIDE VIEW

Figure 3
Right Side View

1. Microphone-In Jack
2. Headphone-Out Jack
3. USB 2.0 Port
4. Vent
5. Security Lock Slot

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. 2 * USB 3.0 Ports
7. ExpressCard/ 54(34) Slot
8. Multi-in-1 Card Reader

LEFT SIDE VIEW

Figure 5
Rear View

1. Battery

REAR VIEW

External Locator - Bottom View

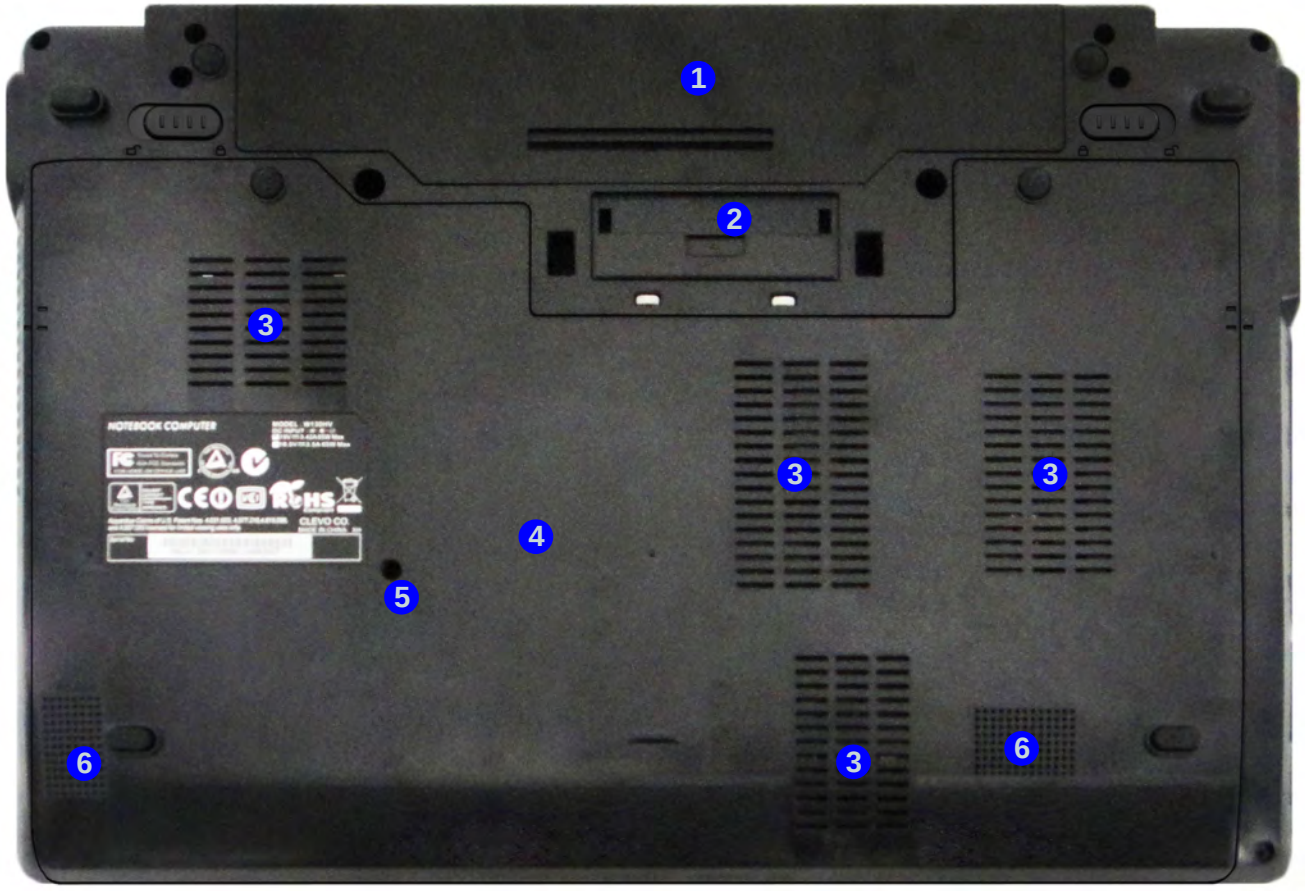


Figure 6
Bottom View

1. Battery
2. Docking Port
3. Vent
4. Component Bay Cover
5. Drainage Outlet
6. Speakers

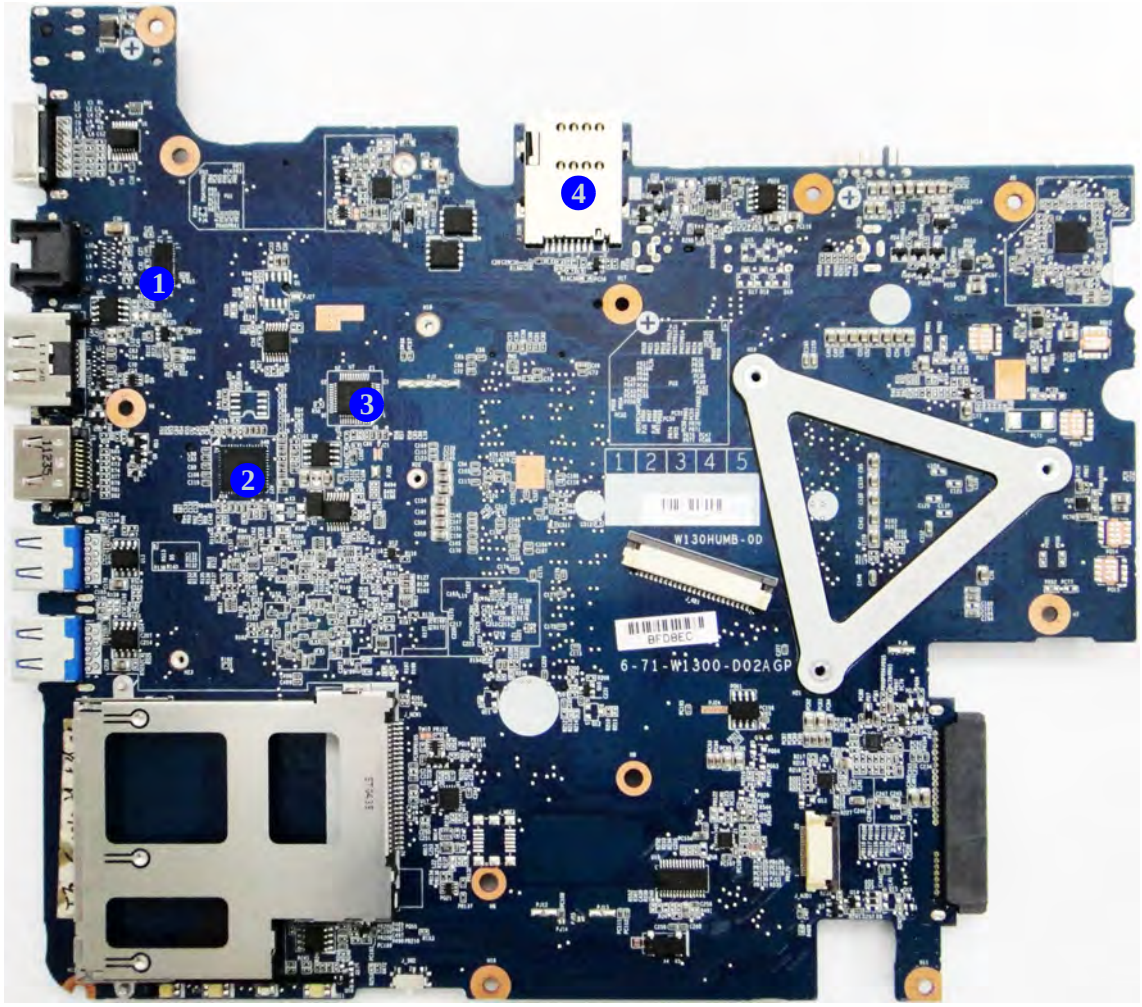
Overheating

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

Mainboard Overview - Top (Key Parts)

Figure 7
Mainboard Top Key Parts

1. PI3L720ZHE
2. TUSB7320
3. ITE IT870SE
4. SIMLOCK



Mainboard Overview - Bottom (Key Parts)

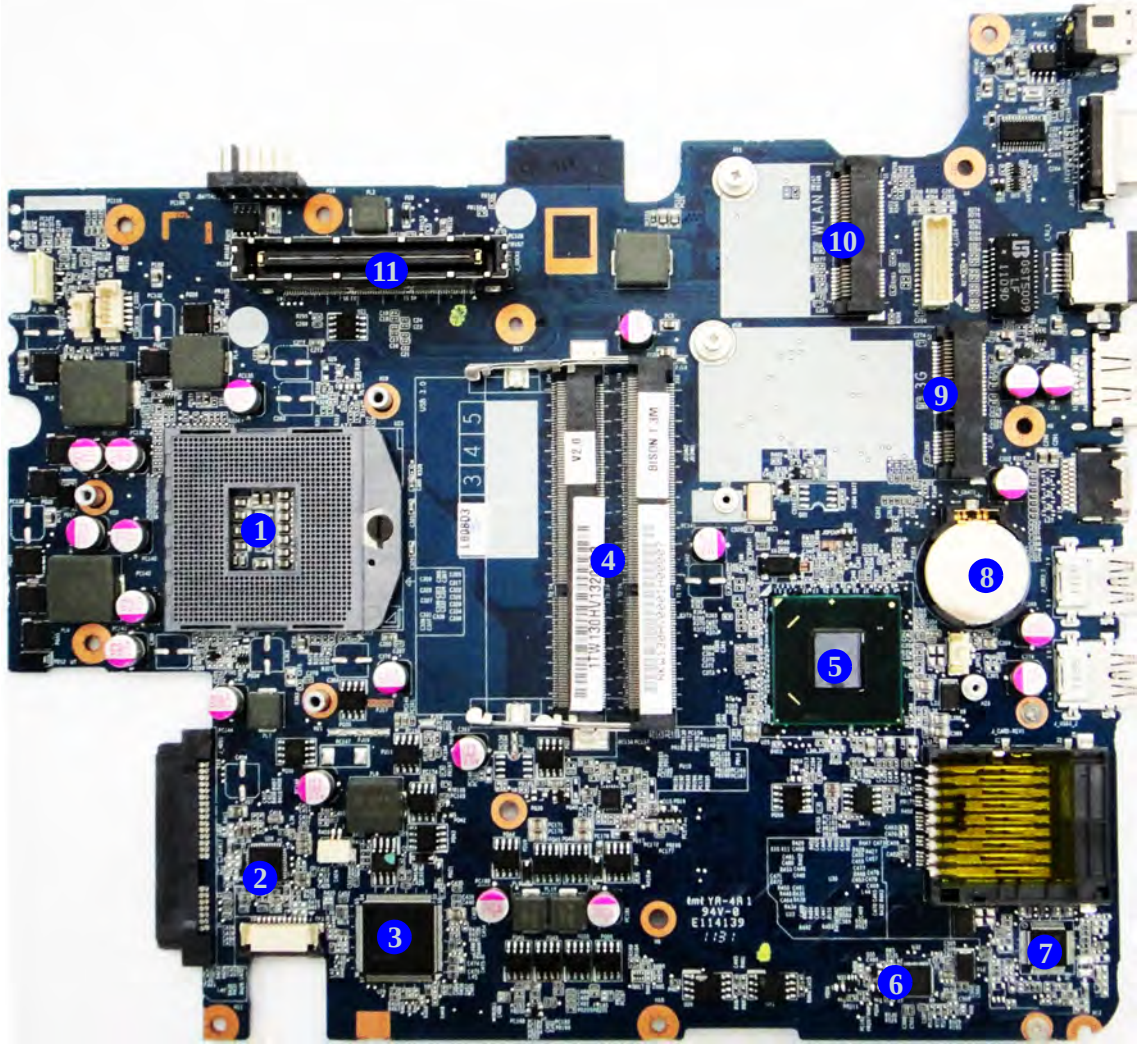


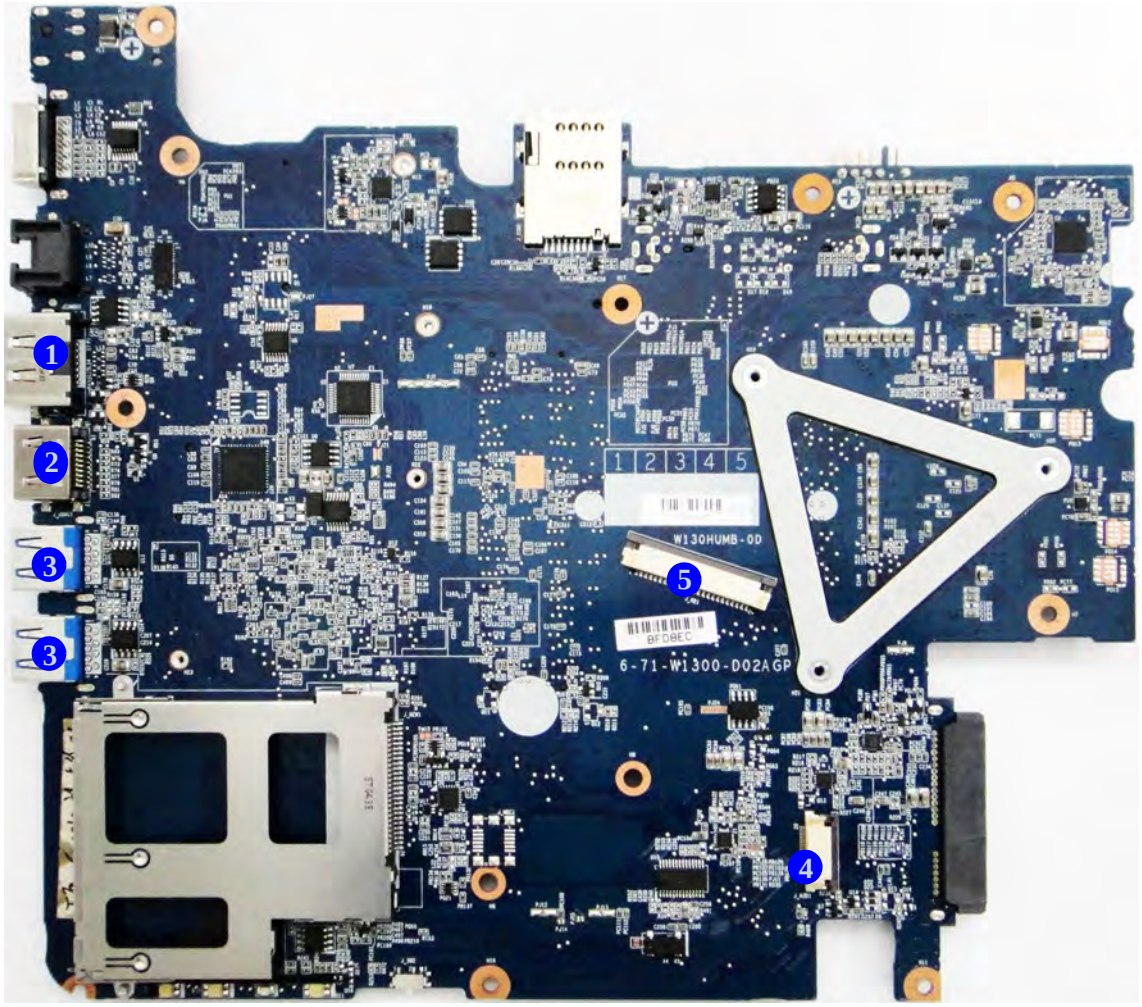
Figure 8
Mainboard Bottom Key Parts

1. CPU Socket (no CPU installed)
2. ALC269Q
3. ITE IT8518E
4. Memory Slots DDR3 SO-DIMM
5. Platform Controller Hub
6. INTEL LAN 82579
7. JMC261
8. CMOS Battery
9. Mini-Card Connector (3G Module)
10. Mini-Card Connector (WLAN Module)
11. Docking Station Connector

Mainboard Overview - Top (Connectors)

Figure 9
Mainboard Top Connectors

1. e-SATA Port/USB 2.0 Combo Port
2. HDMI-Out Port
3. USB Port 3.0
4. Audio Board Connector
5. Keyboard Cable Connector



Mainboard Overview - Bottom (Connectors)

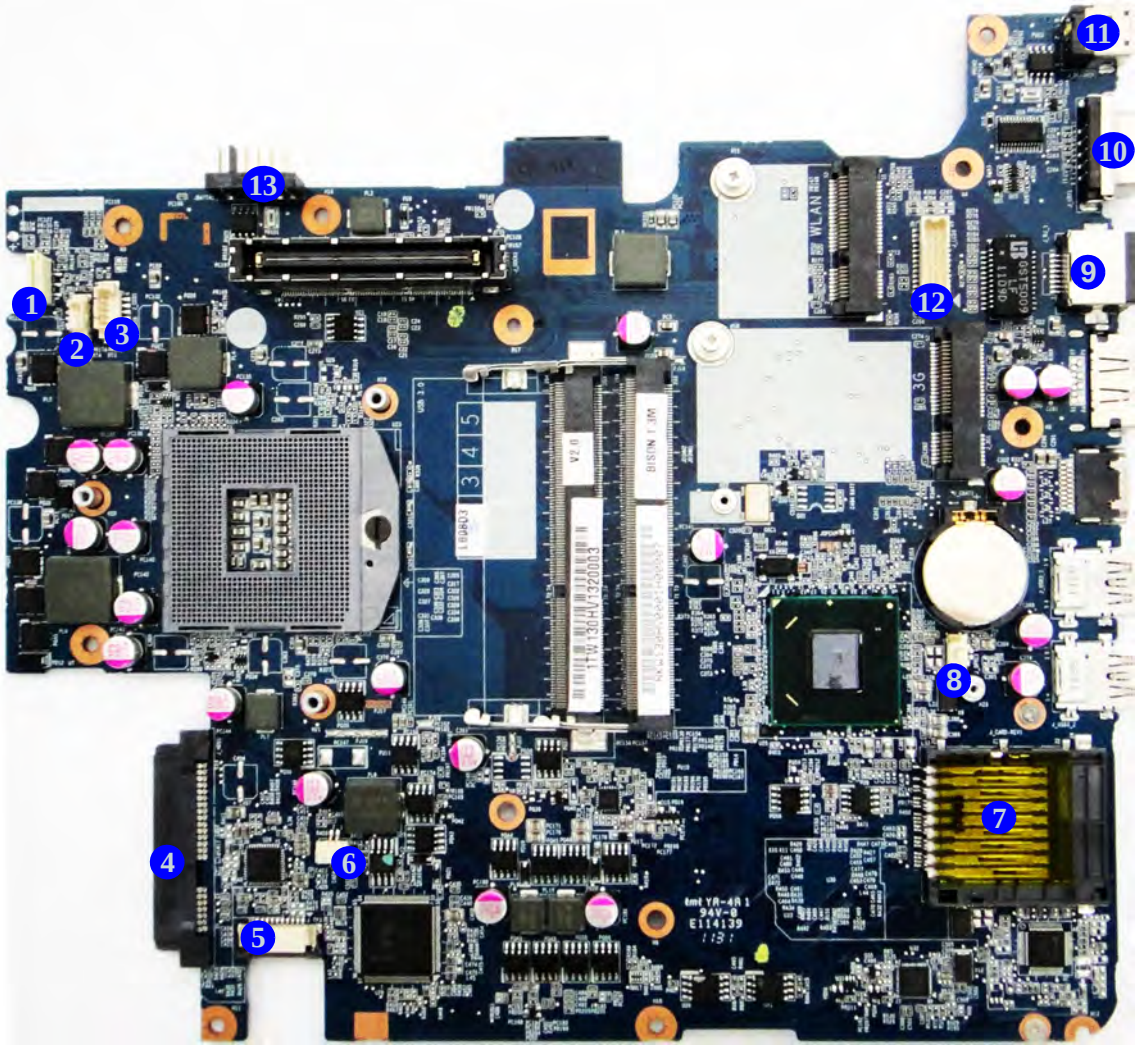


Figure 10
Mainboard Bottom Connectors

1. Swith Cable Connector
2. Fan Cable Connector
3. CCD Cable Connector
4. HDD Connector
5. TouchPad Cable Connector
6. Microphone Cable Connector
7. Multi-in-1 Card Reader
8. Speaker Cable Connector
9. RJ-45 LAN Jack
10. External Monitor Port
11. DC-In Jack
12. LVDS Cable Connector
13. Battery Connector

Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the ***W130HU/ W130HV*** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

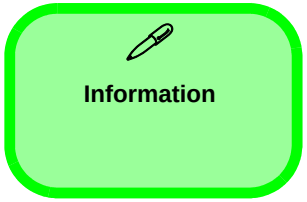
We suggest you completely review any procedure before you take the computer apart.

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.



NOTE: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

Maintenance Tools

The following tools are recommended when working on the notebook PC:

- M3 Philips-head screwdriver
- M2.5 Philips-head screwdriver (magnetized)
- M2 Philips-head screwdriver
- Small flat-head screwdriver
- Pair of needle-nose pliers
- Anti-static wrist-strap

Connections

Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors	To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Pressure sockets for multi-wire connectors	To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.
Pressure sockets for ribbon connectors	To release these connectors, use a small pair of needle-nose pliers to gently lift the connector away from its socket. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.
Board-to-board or multi-pin sockets	To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.

Maintenance Precautions

The following precautions are a reminder. To avoid personal injury or damage to the computer while performing a removal and/or replacement job, take the following precautions:

1. **Don't drop it**. Perform your repairs and/or upgrades on a stable surface. If the computer falls, the case and other components could be damaged.
2. **Don't overheat it**. Note the proximity of any heating elements. Keep the computer out of direct sunlight.
3. **Avoid interference**. Note the proximity of any high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage components and/or data. You should also monitor the position of magnetized tools (i.e. screwdrivers).
4. **Keep it dry**. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.
5. **Be careful with power**. Avoid accidental shocks, discharges or explosions.
   - Before removing or servicing any part from the computer, turn the computer off and detach any power supplies.
   - When you want to unplug the power cord or any cable/wire, be sure to disconnect it by the plug head. Do not pull on the wire.
6. **Peripherals** – Turn off and detach any peripherals.
7. **Beware of static discharge**. ICs, such as the CPU and main support chips, are vulnerable to static electricity. Before handling any part in the computer, discharge any static electricity inside the computer. When handling a printed circuit board, do not use gloves or other materials which allow static electricity buildup. We suggest that you use an anti-static wrist strap instead.
8. **Beware of corrosion**. As you perform your job, avoid touching any connector leads. Even the cleanest hands produce oils which can attract corrosive elements.
9. **Keep your work environment clean**. Tobacco smoke, dust or other air-born particulate matter is often attracted to charged surfaces, reducing performance.
10. **Keep track of the components**. When removing or replacing any part, be careful not to leave small parts, such as screws, loose inside the computer.

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.

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.

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 - 9*

To remove and install a Processor:

1. Remove the battery *page 2 - 5*
2. Remove the processor *page 2 - 10*
3. Install the processor *page 2 - 12*

To remove the 3.75G Module:

1. Remove the battery *page 2 - 5*
2. Remove the 3.75G module *page 2 - 13*

To remove the Wireless LAN Module:

1. Remove the battery *page 2 - 5*
2. Remove the WLAN module *page 2 - 14*

To remove the Keyboard:

1. Remove the battery *page 2 - 5*
2. Remove the keyboard *page 2 - 15*

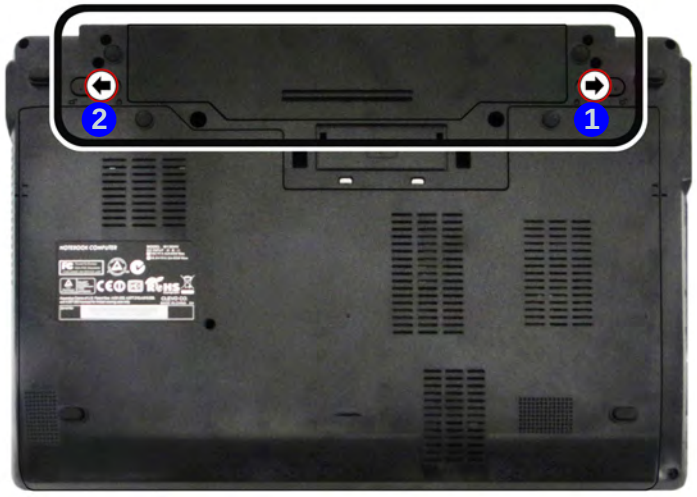
Removing the Battery

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***).

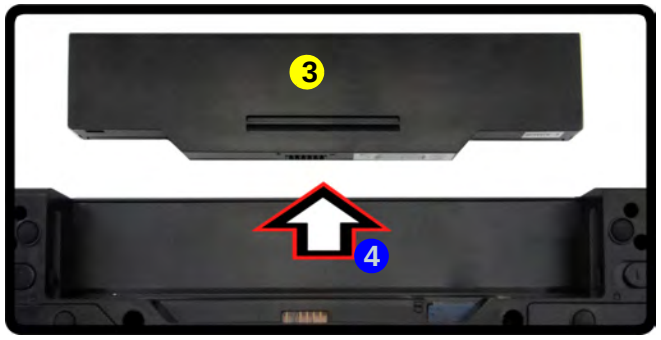
Figure 1
Battery Removal

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

a.



b.



3. Battery

Removing and Installing the Hard Disk Drive

Hdd Removal Procedure

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

Hard Disk Upgrade Process

1. Turn **off** the computer, and remove the battery (***page 2 - 5***).
2. Slide the latch 1 in the direction of the arrow and slide the latch 2 in the direction of the arrow, and hold it in place and carefully slide the cover in the direction of the arrow 3 to align with the markers on the case 4.
3. Lift the component bay cover 5 off the computer.
4. When reinserting the cover align the markers on the case 4 and cover first, and then slide the cover until it clicks into place.

Figure 2
HDD Assembly Removal

a. Slide the latches and atch 2 hold it in place.
b. Remove the component bay cover.

HDD System Warning

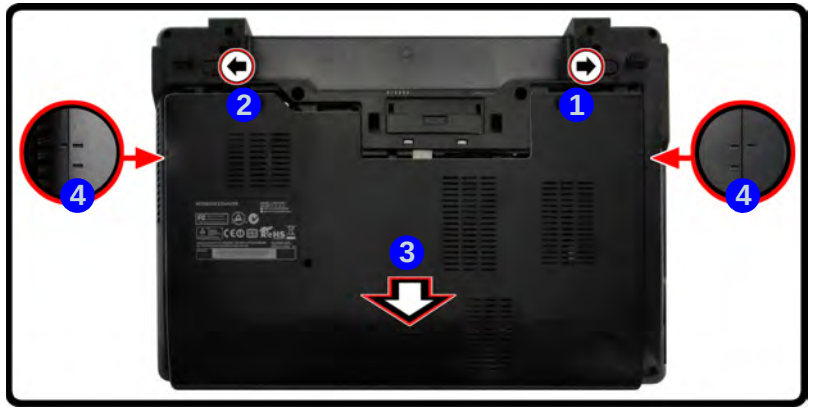
New HDD's are blank. Before you begin make sure:

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

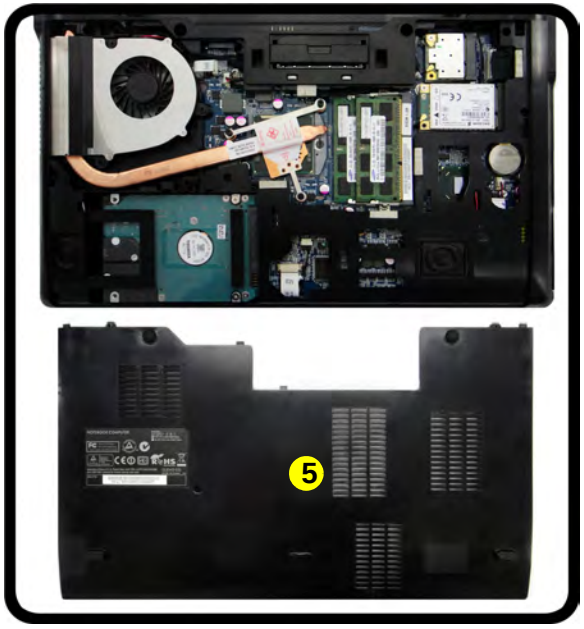
You have all the CD-ROMs and FDDs required to install your operating system and programs.

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.

a.



b.



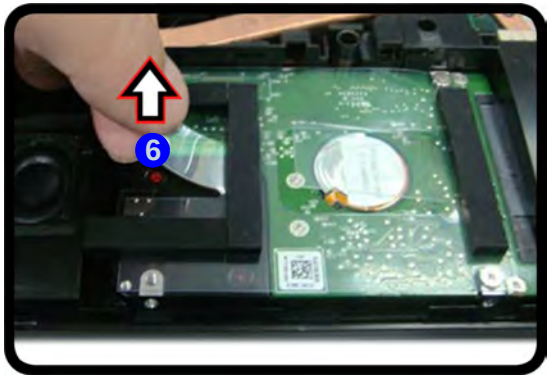
5. Component Bay Cover

5. Raise the plastic tab 6.
6. Slide the hard disk assembly in the direction of arrow 7 until you can see the (gold colored) HDD connector 8.
7. When the connector can be viewed, lift the assembly up in the direction of arrow 9 remove the HDD assembly from the bay.
8. Remove the screws 10 & 11 and the mylar cover 12 from the hard disk 13 (*Figure 3e*)..

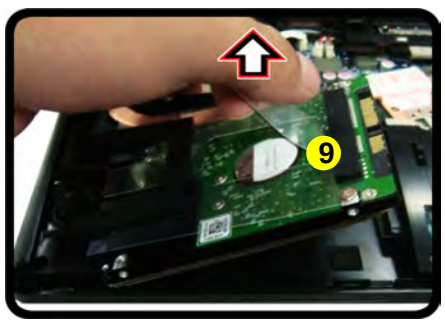
Figure 3
HDD Assembly Removal (cont'd.)

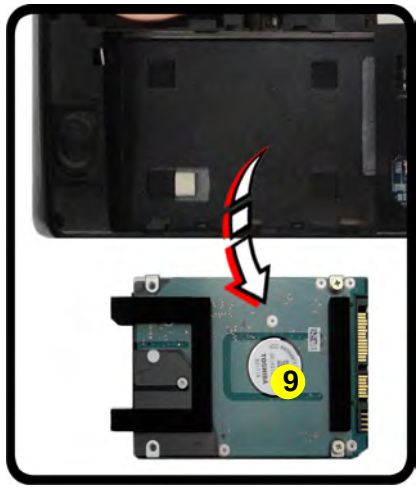
c. Raise the plastic tab.
d. Grip the tab and slide the HDD assembly in the direction of the arrow.
e. Lift the HDD assembly out of the bay.
f. Remove the screws and mylar cover.

c.

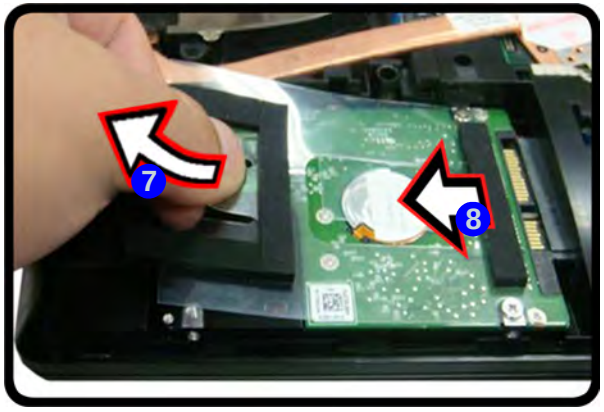


e.

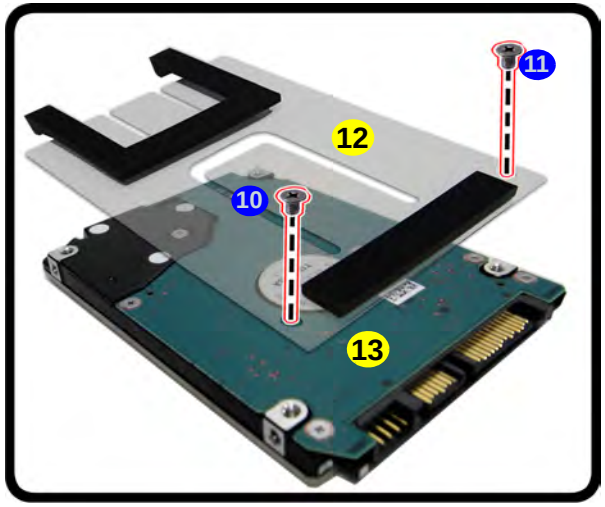




d.



f.



9. HDD Assembly
12. Mylar Cover
13. HDD

- 2 Screws

Figure 4
HDD Installation

a. Insert the HDD directly down into the bay vertically.
b. Press and slide the HDD assembly at the area illustrated 2
c. Press down on the rubber case

Hard Disk Handling

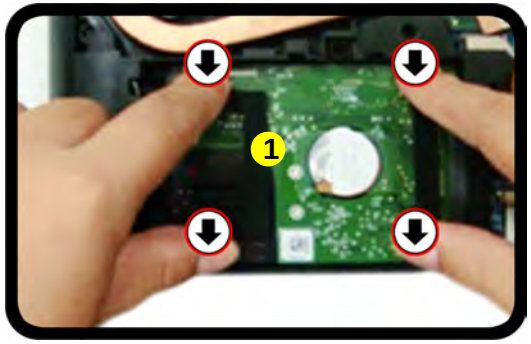
Do not press down on the center off the hard disk as this area houses the hard disk drive motor.

1. HDD Assembly

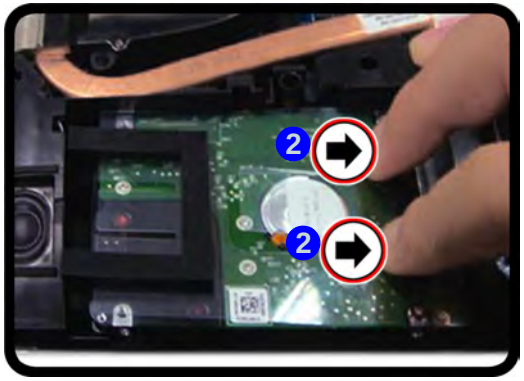
Reinserting the HDD

1. To reinsert the HDD assembly 1 hold it carefully at the four corners between your thumb and forefinger and Insert the HDD directly down into the bay vertically (***Figure 1a***).
2. Press and slide the HDD assembly at the area illustrated 2 (do not press on the center area - see sidebar) the direction of arrows to make sure the HDD fits securely into the connector.
3. Press down on the rubber case 3 to ensure the assembly is properly seated before replacing the cover and screws.
4. Replace the component bay cover (***page 2 - 6***).).

a.



b.



c.

Removing the System Memory (RAM)

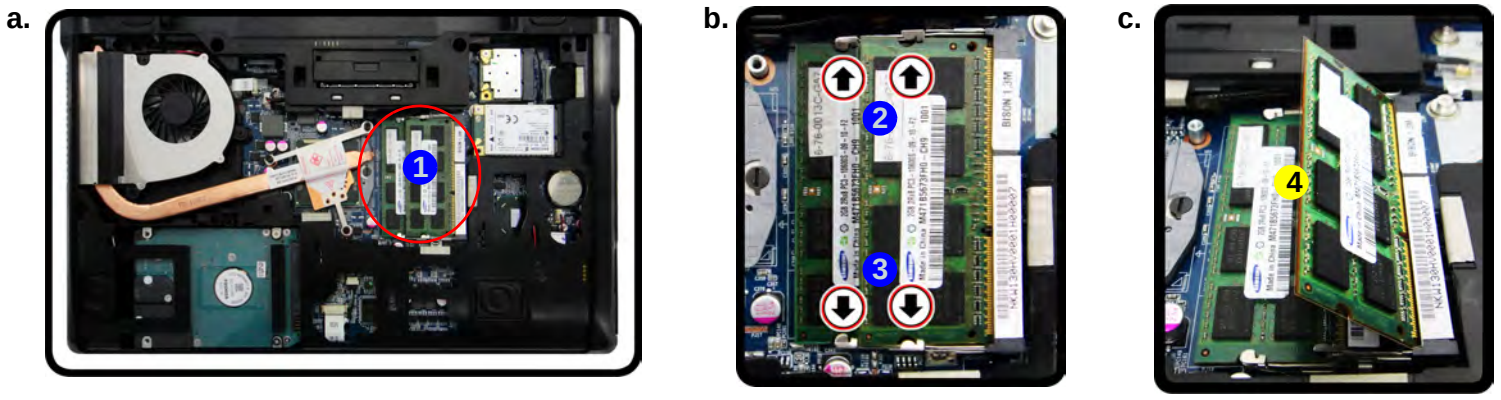
The computer has two memory sockets for 204 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDRIII (DDR3) Up to 1333 MHz. The main memory can be expanded up to 8GB. The SO-DIMM modules supported are 1024MB and 2048MB **DDRIII** Modules. The total memory size is automatically detected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

Memory Upgrade Process

1. Turn **off** the computer, turn it over and remove the battery (***page 2 - 5***) and remove the component bay cover (***page 2 - 6***).
2. The RAM modules will be visible at point 1 on the mainboard.
3. Gently pull the two release latches (2 & 3) on the sides of the memory socket in the direction indicated by the arrows (***Figure 5b***). The RAM module 4 will pop-up (***Figure 5c***), and you can then remove it.
4. Pull the latches to release the second module if necessary.
5. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
6. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE IT; it should fit without much pressure.
7. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
8. Replace the component bay cover (see ***page 2 - 6***).
9. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

Figure 5
RAM Module Removal

a. The RAM modules will be visible at point 1 on the mainboard.
b. Pull the release latches.
c. Remove the module.



Contact Warning

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

- 4 RAM Module

Figure 6
Processor Removal

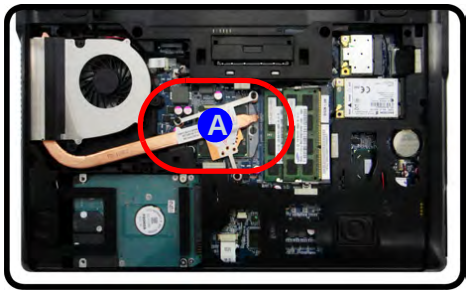
a. The CPU heat sink will be visible at point A.
b. Remove the screws from the CPU heatsink.
c. Grip the heat sink tab and carefully lift the heat sink up and off the computer.

Removing and Installing a Processor

Processor Removal Procedure

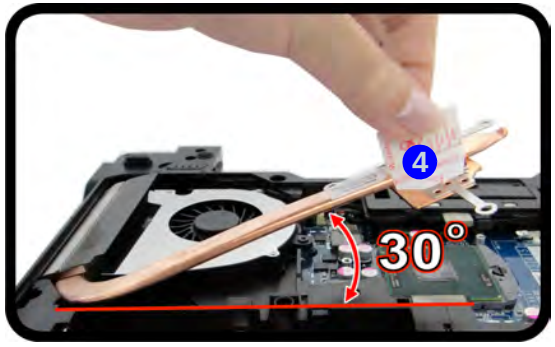
1. Turn **off** the computer, turn it over, and remove the battery (***page 2 - 5***) and the component bay cover (***page 2 - 9***).
2. The CPU heat sink will be visible at point A (***Figure 6a***).
3. Loosen the CPU heat sink screws in the order 3, 2 & 1 (the reverse order as indicated on the label ***Figure 6b***).
4. Grip the heat sink tab 4 and carefully raise the heat sink 5 up to an angle of around 30° and lift it up off the computer (***Figure 6c***).

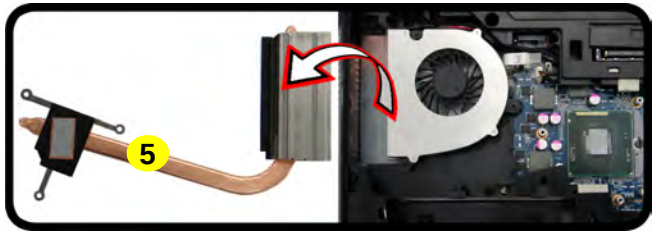
a.



b.

c.





5. Heat Sink

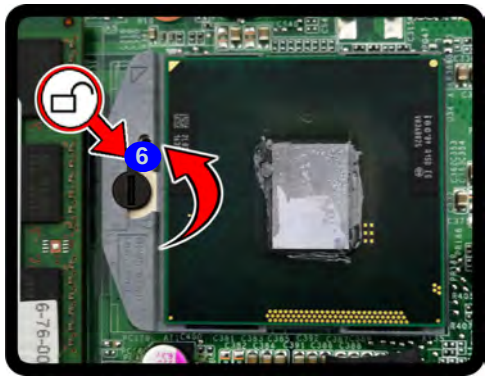
- 3 Screws

5. Turn the release latch 6 towards the unlock symbol to release the CPU (*Figure 7d*).
6. Carefully (it may be hot) lift the CPU 7 up and out of the socket (*Figure 7e*).
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 7
Processor Removal (cont'd)

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

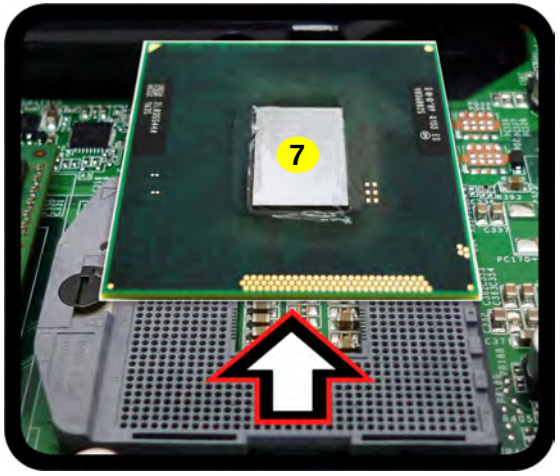
c.



Unlock

Lock

d.



Caution

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

7. CPU

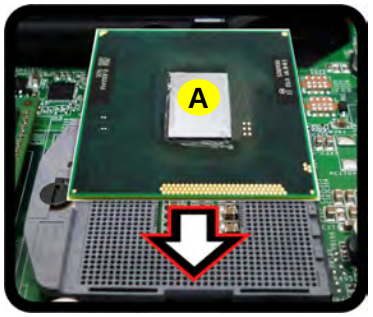
Figure 8
Processor Installation

a. Insert the CPU.
b. Turn the release latch towards the lock symbol.
c. Insert the heat sink.
d. Tighten the screws.

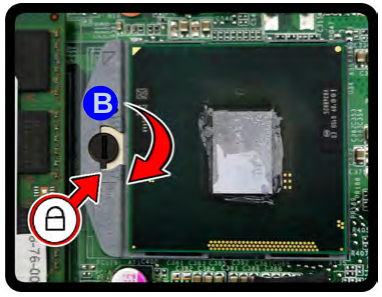
Processor Installation Procedure

1. Insert the CPU A (***Figure 8a***), 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 8b***).
2. Insert the heat sink D at an angle of around 30° as indicated in ***Figure 8c***.
3. Tighten the CPU heat sink screws in the order 1, 2 & 3 (the order as indicated on the label and ***Figure 8d***).
4. Replace the component bay cover.

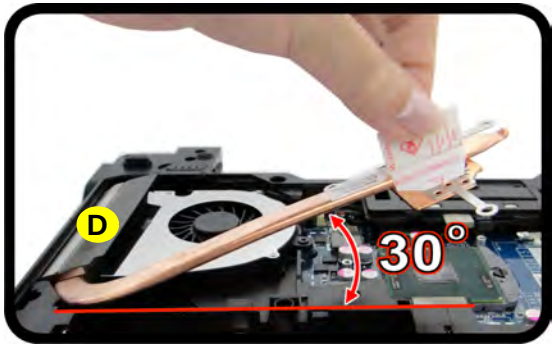
a.



b.



c.



d.

Note:
Tighten the screws in the order as indicated on the label.

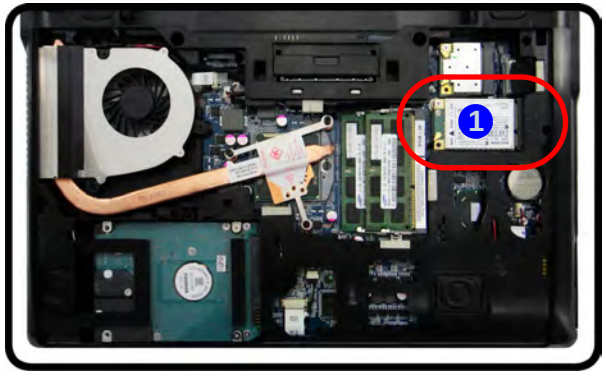
A. CPU
D. Heat Sink

- 3 Screws

Removing the 3.75G Module

1. Turn **off** the computer, turn it over, and remove the battery (***page 2 - 5***) and the component bay cover (***page 2 - 9***).
2. The 3.75G module will be visible at point 1 on the mainboard (***Figure 9a***).
3. Carefully disconnect the cable 2 , and then remove the screw 3 (***Figure 9b***).
4. The 3.75G module 4 will pop-up, and you can remove it from the computer (***Figure 9c***).

a.



b.

c.

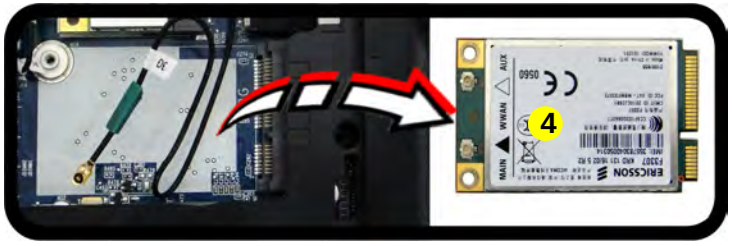


Figure 9
3G Module Removal

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

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

4. 3.75G Module

- 1 Screw

Figure 10
Wireless LAN Module Removal

a. Locate the WLAN Module.
b. Disconnect the cable and remove the screw.
c. The WLAN module will pop up.

Note: Make sure you reconnect the antenna cable to the "1 + 2" socket (***Figure 10b***).

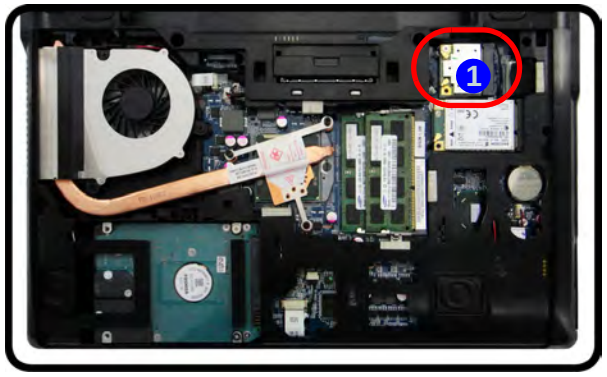
4.Wireless LAN Module

- 2 Screws

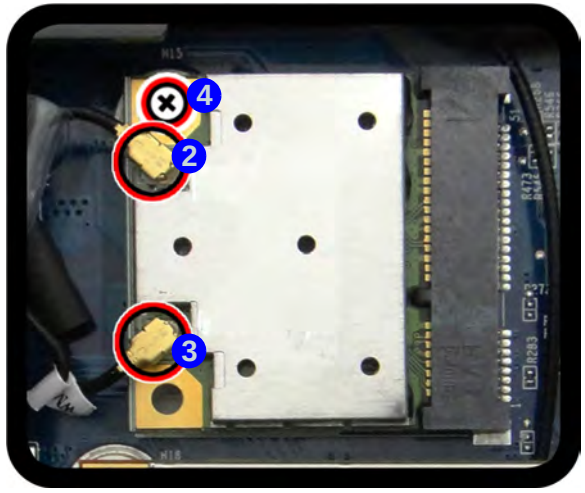
Removing the Wireless LAN Module

1. Turn **off** the computer, turn it over, and remove the battery (***page 2 - 5***) and the component bay cover (***page 2 - 9***).
2. The Wireless LAN module will be visible at point 1 on the mainboard (***Figure 10a***).
3. Carefully disconnect the cables 2 - 3, and then remove the screw 4 (***Figure 10b***).
4. The Wireless LAN module 4 (***Figure 10c***) will pop-up, and you can remove it from the computer.

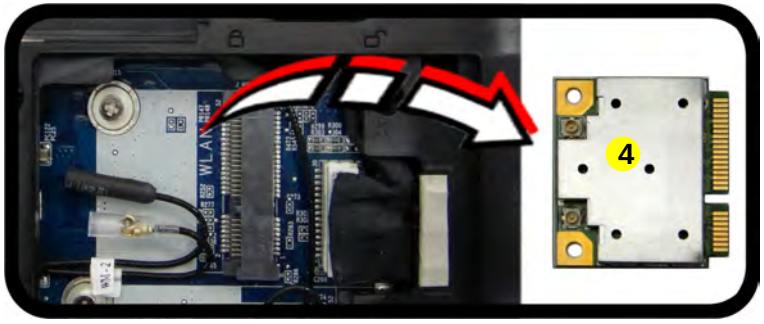
a.



b.



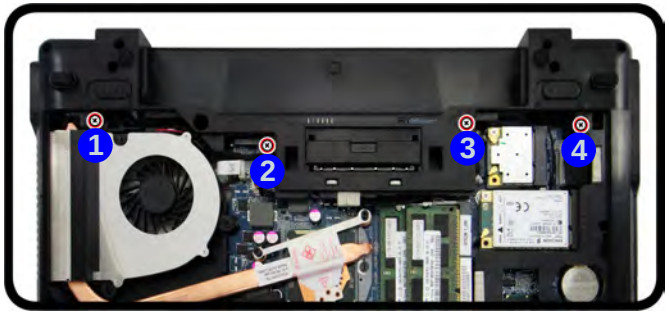
c.



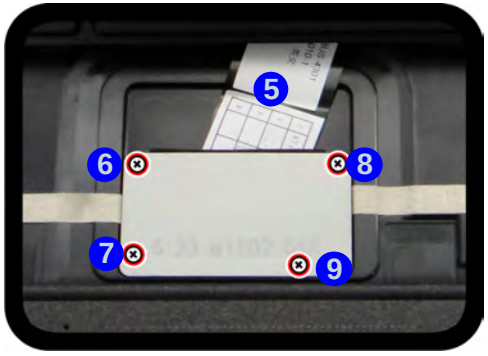
Removing the Keyboard

1. Turn **off** the computer remove the battery (*page 2 - 5*), and the component bay cover (*page 2 - 9*).
2. Remove screws 1 - 4 from the bottom of the computer.
3. Carefully raise the keyboard up, being careful not to bend the keyboard ribbon cable 5. and remove screws 6 - 9 from the plate.
4. Remove the plate 10 .
5. Disconnect the keyboard ribbon cable 11 from the locking collar socket 12 (*Figure 11c*)
6. Carefully lift up the keyboard 13 off the computer.

a.

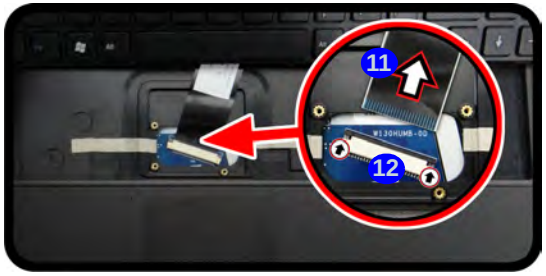


b.



c.

d.



e.

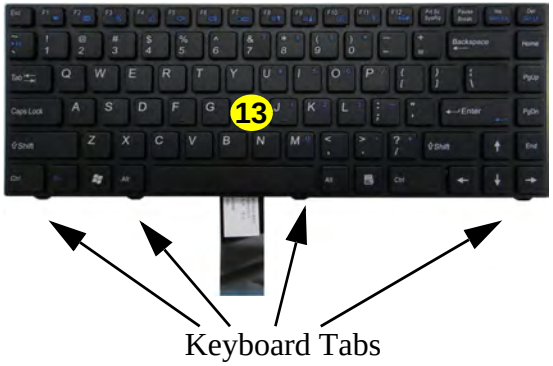


Figure 11
Keyboard Removal

a. Remove screws from the bottom of the computer.
b. Remove screws from the plate.
c. Remove the plate.
d. Carefully lift the keyboard up and disconnect the keyboard ribbon cable from the locking collar socket.
e. Remove the keyboard.

Re-Inserting the Keyboard

When re-inserting the keyboard firstly align the **four** keyboard tabs at the bottom (*Figure 11e*) at the bottom of the keyboard with the slots in the case.

10. Plate for keyboard
13. Keyboard

- 8 Screws

Appendix A:Part Lists

This appendix breaks down the ***W130HU/ W130HV*** 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.

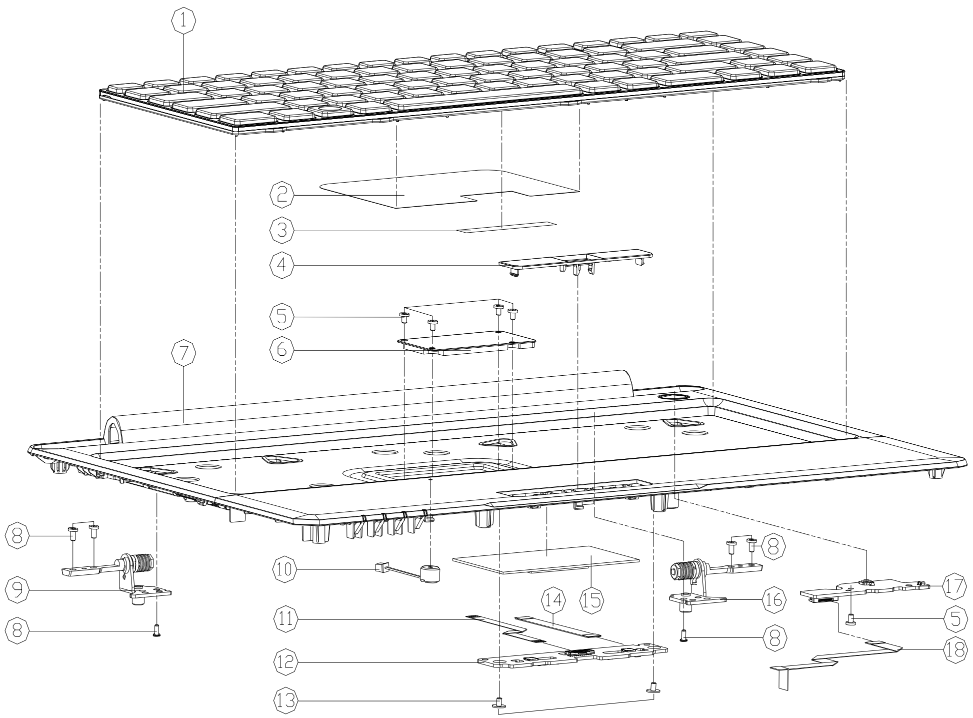
Part List Illustration Location

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

Table A - 1
Part List Illustration Location

Part	W130HH/ W130HV
Top	*page A - 3*
Bottom	*page A - 4*
HDD	*page A - 5*
LCD	*page A - 6*

Top

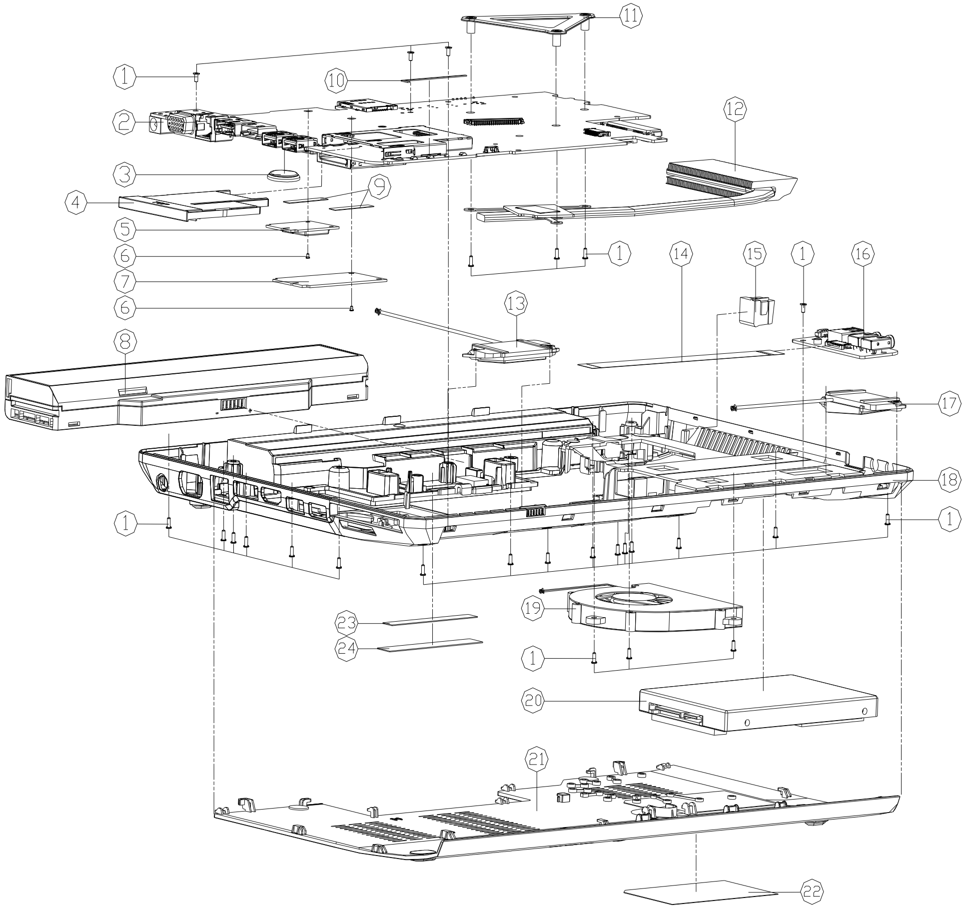


ITEM	PART NAME	PART NO	REMARK
1	K/B USA (BLACK)&FRAEM(US) MODULE W130HU/W130HV	6-79-W130HU0K-010	
2	K/B AL FOIL W130HU	6-47-W1302-010	
3	K/B MYLAR FOR WATERPROOF PET+3M467 W130HU	6-40-W1303-010	
4	CLICK BUTTON W/FINGER PC+ABS W130HU	6-42-W1302-031	
5	SCREW M2*3L KI NI ICT NY (DD=ø4.5,DT=0.4)	6-35-B1120-3RE	
6	PLATE FOR KEYBOARD SECC+CR4305 W130HU	6-33-W1302-010	
7	TOP CASE MODULE W130HU	6-39-W1302-012	
8	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
9	HINGE L K7 W130HU	6-33-W1302-030	
10	MIC. 6MM*3.5(EM6035-FOL-U) 10V?2V 2.2K W/CABLE(??) L=160MM M550G (JINHONG)	6-23-EM55G-011-2	
11	FFC CABLE FOR TOUCH PAD TO CLICK BOARD 12P W840T	6-43-W84T2-012-1	
12	CLICK BOARD V2.0A W130HU	6-77-W1302-D02A	
13	SCREW M2*2L KI BK/Z ICT NY(ø8,T=0.6)	6-35-B6120-2RE	
14	FFC CABLE FOR CLICK BOARD TO MB 10PIN (HB) W130HU	6-43-W1300-010	
15	TOUCH PAD SYNAPTICS TM-00450-013 MULTI-GESTURE	6-49-W2103-010	
16	HINGE R K7 W130HU	6-33-W1302-020	
17	POWER SWITCH BOARD V2.0 W130HU POWER SWITCH 100G	6-77-W130S-D02-1	
18	FFC CABLE FOR POWER BOARD TO MB 6PIN (HB) W130HU	6-43-W1300-021	

Figure A - 1
Top

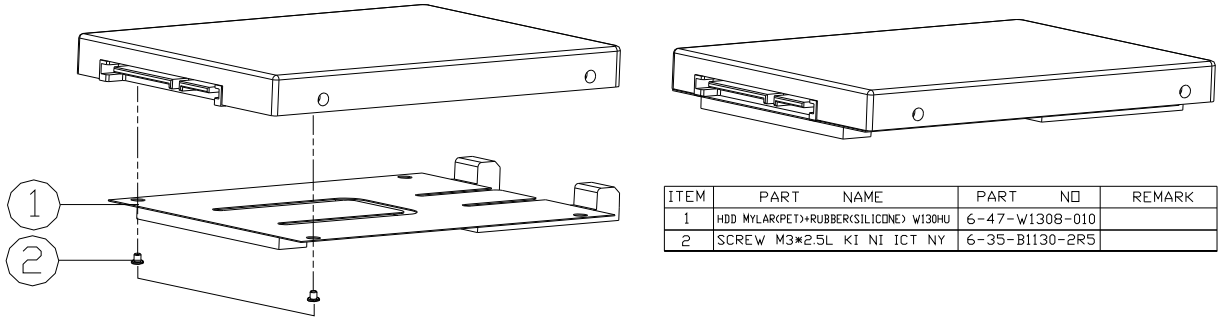
Bottom

Figure A - 2
Bottom



ITEM	PART NAME	PART NO	REMARK
1	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
2	MAIN BOARD V2.0A (W/3G W/DOCKING CONN) W130HU	6-77-W1300-D02A	
2	MAIN BOARD V2.0A (W/3G W/O DOCKING CONN) W130HU	6-77-W1300-D02A-1	
2	MAIN BOARD V2.0A (W/O 3G W/DOCKING CONN) W130HU	6-77-W1300-D02A-2	
2	MAIN BOARD V2.0A (W/O 3G W/O DOCKING CONN) W130HU	6-77-W1300-D02A-3	
2	MAIN BOARD V2.0A (W/3G W/DOCKING CONN) W130HV	6-77-W13V0-D02A	
2	MAIN BOARD V2.0A (W/3G W/O DOCKING CONN) W130HV	6-77-W13V0-D02A-1	
2	MAIN BOARD V2.0A (W/O 3G W/DOCKING CONN) W130HV	6-77-W13V0-D02A-2	
2	MAIN BOARD V2.0A (W/O 3G W/O DOCKING CONN) W130HV	6-77-W13V0-D02A-3	
3	BATTERY 3V 210MA CR2032 (MITSUBISHI)	6-23-62015-607	
4	DUMMY NEW CARD PC+ABS TN120R(長騰)	6-42-T12R3-011-2	
5	WLAN+BT COMBO AZUREWAVE AW-NB057H 802.11BGN 1X1+BT3.0 HS HALF MINI-CARD PIN19 AND PIN51(RTL8188CE-BT) C5505	6-88-C555F-7001	(OPTION)
5	WLAN 802.11 BGN WN6608LH-CC LITEON RTL8192CE 2X2 HALF MINI-CARD PCI-E W110ER	6-88-W1102-9400	(OPTION)
5	WLAN+BT COMBO INTEL RAINBOW PEAK WIRELESS-N 6230 2X2 802.11AGN (RBP2)+BT 3.0 HALF MINI-CARD	6-88-P170F-4200	(OPTION)
5	WLAN+BT COMBO INTEL RAINBOW PEAK WIRELESS-N 1030 1X2 802.11BGN (RBPD)+BT 3.0 HALF MINI-CARD P170HM	6-88-P170F-4210	(OPTION)
5	WLAN INTEL 112BN_HMW NOW 802.11BGN HALF MINI-CARD PCI-E 1X2 CONDOR PEAK (WIFI LINK 1000)	6-88-M77C2-4200	(OPTION)
6	SCREW M2*3L KI NI ICT NY (DD=ø4.5,DT=0.4)	6-35-B1120-3RE	
7	WCDMA ERICSSON F3307 HSPA FULL MINI-CARD USB	6-88-W24HW-2410	(OPTION)
8	BAT.P S LI 11.1V/5.6AH/62.16WH 3S2P SMP/SAMSUNG 980T2049F W130HU	6-87-W130S-4D71	(OPTION)
9	TAPE MYLAR (C),MYLAR M550J	6-40-M55J2-030	
10	LED LENS SPONGE W130HU	6-47-W130S-010	
11	CPU SUPPORTER FOR HURON RIVER SECC W150HNM	6-33-W150S-011	
12	CPU HEATSINK MODULE W130HU	6-31-W130N-101	
13	SPK+CABLE L 47.4*26.4 2.0W 4? L=100MM PB2520KMG04-7LK W130HU	6-23-5W130-0L0	
14	FFC CABLE FOR MB TO AUDIO BOARD 20PIN (HB)	6-43-W15HS-010-1	
15	RJ11 DUMMY RUBBER KE-5612GU W130HU	6-47-W1303-011	
16	AUDIO BOARD V2.0A W130HU	6-77-W1308-D02A	
17	SPK+CABLE R 45.5*24.3 2.0W 4? L=70MM PB2520KMG04-8LK W130HU	6-23-5W130-0R1	
18	BOTTOM CASE MODULE W130HU	6-39-W1303-012	
19	FAN MODULE W150HNM	6-23-AW150-100	
20	W/HDD ASSY W130HU/W130HV	6-79-W130HU0J-010	
20	W/O HDD ASSY W130HU/W130HV	6-79-W130HU0J-020	
21	CPU COVER MODULE W130HU	6-42-W1308-102	
22	PRODUCT LABEL FOR W130HU	6-45-W130HU03-010	
22	PRODUCT LABEL FOR W130HV	6-45-W130HV03-010	
23	W/O DOCKING DOWN MYLAR PET W130HU	6-40-W1303-030	ONLY FOR W/O DOCKING
24	W/O DOCKING TOP MYLAR PC-870 W130HU	6-40-W1303-020	ONLY FOR W/O DOCKING

HDD

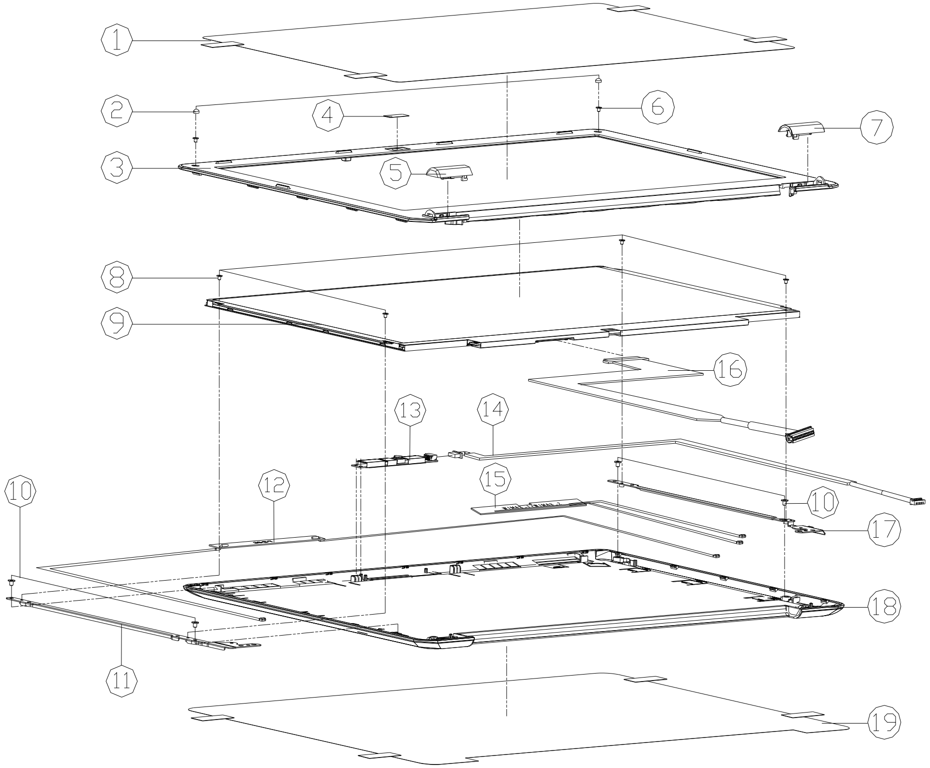


ITEM	PART NAME	PART NO	REMARK
1	HDD MYLAR(PET)+RUBBER(SILICONE) W130HU	6-47-W1308-010	
2	SCREW M3*2.5L KI NI ICT NY	6-35-B1130-2R5	

Figure A - 3
HDD

LCD

Figure A - 4
LCD



ITEM	PART NAME	PART NO	REMARK
1	LCD FRONT COVER PROTECT FILM PET W830T	6-40-W83T1-010	
2	RUBBER (CHANGE) FOR FRONT COVER SCREW W830TM	6-47-W83T1-061	
3	LCD FRONT COVER MODULE (CHANGE) W830TM (CTC)	6-39-W83T1-012-1M	
4	CCD MYLAR PC8010 W840T	6-40-W84TT-011	W/ CCD
4	W/O CCD MYLAR PC8010 W840T	6-40-W84TT-020	W/O CCD
5	LCD HINGE COVER L PC+ABS W130HU	6-42-W1301-020	
6	SCREW M2*3L I BK/Z ICT NY	6-35-C6120-3R0	
7	LCD HINGE COVER R PC+ABS W130HU	6-42-W1301-010	
8	SCREW M1.6*2L D=3.2 T=0.4 K1 BZ ICT NY	6-35-B2116-2R0	
9	LCD 13.3" HD LG LP133WH2-TLA2 GLARE TYPE	6-50-G8135-L00	
9	LCD 13.3" HD TOSHIBA LT133EE09100 (GLARE TYPE)	6-50-G8136-T00	
9	LCD 13.3" HD CHIMEI N133BGE-L31 (LED) 3.6MM	6-50-G8136-D00	
10	SCREW M2*3L KI NI ICT NY (DD=ø4.5,DT=0.4)	6-35-B1120-3RE	
11	LCD BKT L SECC 0.5T W830T	6-33-W83T1-022	
12	ANTENNA 3G1 WGT 3G PCB 0.8G/0.9G/1.8G/1.9G/2.1GHZ L=400MM W130HU	6-23-7W130-020	
13	UVC CAMERA CHICONY FIX CNFA1A9 1.3M HIMAX HM1355 W258HUQ-C	6-88-W25UC-5100	
13	UVC CAMERA BISON FIX BN28M6SG3-320 1.3M 6AA W246HUQ	6-88-E51QC-4904	
14	WIRE CABLE FOR CCD 5P 494MM W130HU (HL)	6-43-W130T-010	
15	ANTENNA WIMAX COMBO WGT WM1+WM2 PCB H=1MM 2.4G/3.5GHZ/5G WM1=500MM WM2=500MM W130HU	6-23-7W130-010	
16	WIRE CABLE FOR LVDS 258MM (HL/YL CON:HLW130HULC000) W130HU	6-43-W1301-011-K	
17	LCD BKT R SECC 0.5T W830T	6-33-W83T1-012	
18	LCD BACK COVER MODULE W130HU	6-39-W1301-020	
19	LCD BACK COVER PET T=0.05MM W831T	6-40-W83T1-040	

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the ***W130HU/ W130HV*** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
System Block Diagram - Page B - 2	*Cougar Point M 5/9 - Page B - 19*	*INTEL LAN82579LM - Page B - 36*
Processor 1/7 - Page B - 3	*Cougar Point M 6/9 - Page B - 20*	*5VS, 3VS, 1.5VS CPU - Page B - 37*
Processor 2/7 - Page B - 4	*Cougar Point M 7/9 - Page B - 21*	*Power 1.5V/0.75V,1.8VS - Page B - 38*
Processor 3/7 - Page B - 5	*Cougar Point M 8/9 - Page B - 22*	*VDD3, VDD5 - Page B - 39*
Processor 4/7 - Page B - 6	*Cougar Point M 9/9 - Page B - 23*	*POWER 1.05V LAN M - Page B - 40*
Processor 5/7 - Page B - 7	*NEW CARD, MINI PCIE - Page B - 24*	*POWER 0.85VS - Page B - 41*
Processor 6/7 - Page B - 8	*CCD, 3G - Page B - 25*	*Power V-CORE 1 - Page B - 42*
Processor 7/7 - Page B - 9	*TPM, SATA HDD - Page B - 26*	*Power V-CORE 2 - Page B - 43*
DDR3 SO-DIMM_0 - Page B - 10	*TI TUSB7320 USB3.0 - Page B - 27*	*CHARGE, DC IN - Page B - 44*
DDR3 SO-DIMM_1 - Page B - 11	*KBC-ITE IT8518 - Page B - 28*	*CLICK BOARD/ FG - Page B - 45*
LVDS, INVERTER - Page B - 12	*LED, MDC - Page B - 29*	*AUDIO BOARD/ USB, HP, MIC - Page B - 46*
HDMI - Page B - 13	*AUDIO CODEC ALC269Q - Page B - 30*	*POWER SWITCH - Page B - 47*
CRT - Page B - 14	*POWER CON, FAN, TP, CLICK CON - Page B - 31*	*DEBUG BOARD - Page B - 48*
Cougar Point M 1/9 - Page B - 15	*DOCKING CONNECTOR, USB Charger - Page B - 32*	*Power Sequence - Page B - 49*
Cougar Point M 2/9 - Page B - 16	*COM PORT, ESATA+USB - Page B - 33*	
Cougar Point M 3/9 - Page B - 17	*CARD READER JMC261C - Page B - 34*	
Cougar Point M 4/9 - Page B - 18	*LAN (INTEL LAN82579) - Page B - 35*	

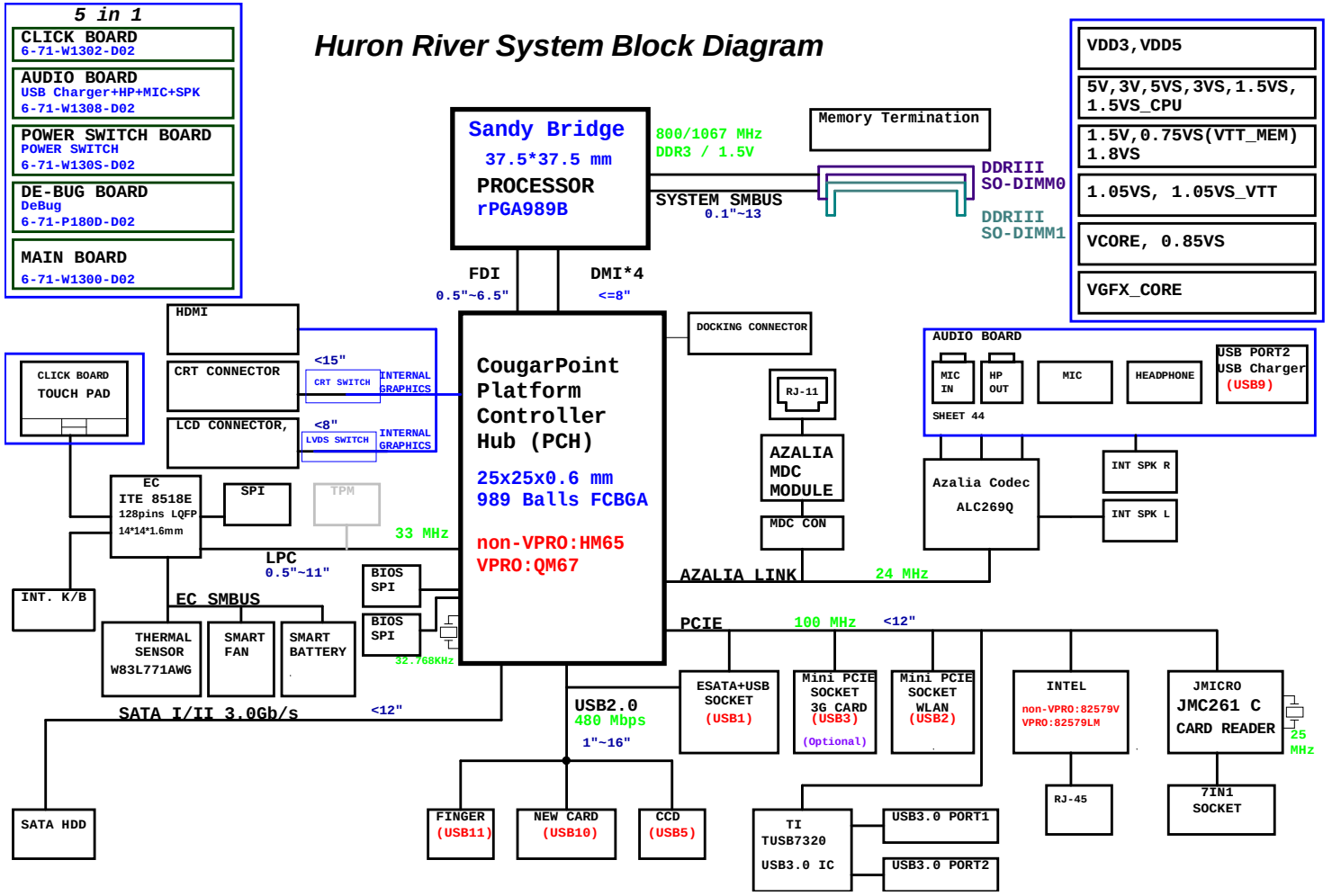
Table B - 1
SCHEMATIC DIAGRAMS

Version Note

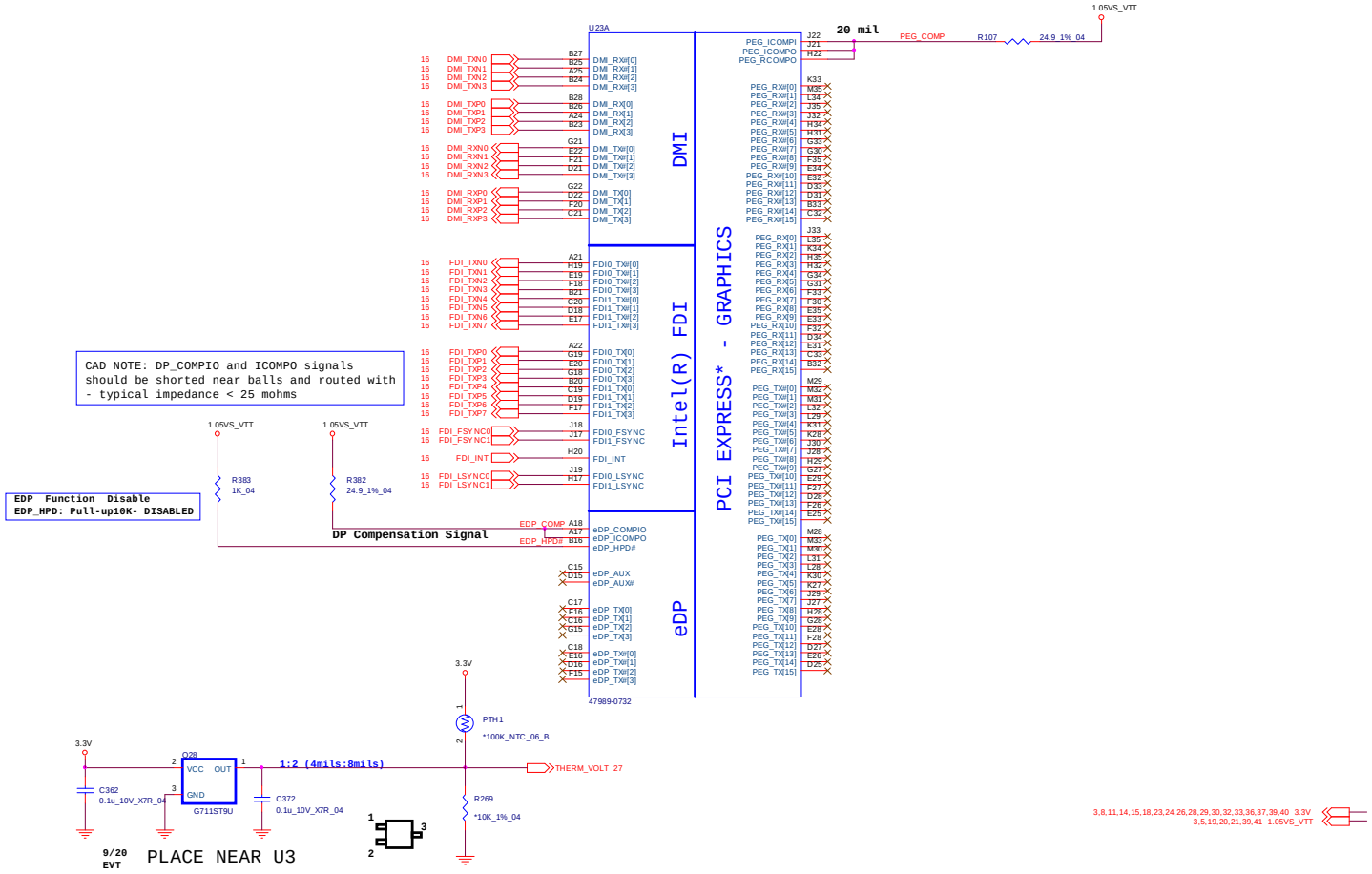
The schematic diagrams in this chapter are based upon version 6-7P-W1304-002If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

System Block Diagram

Sheet 1 of 48
System Block Diagram



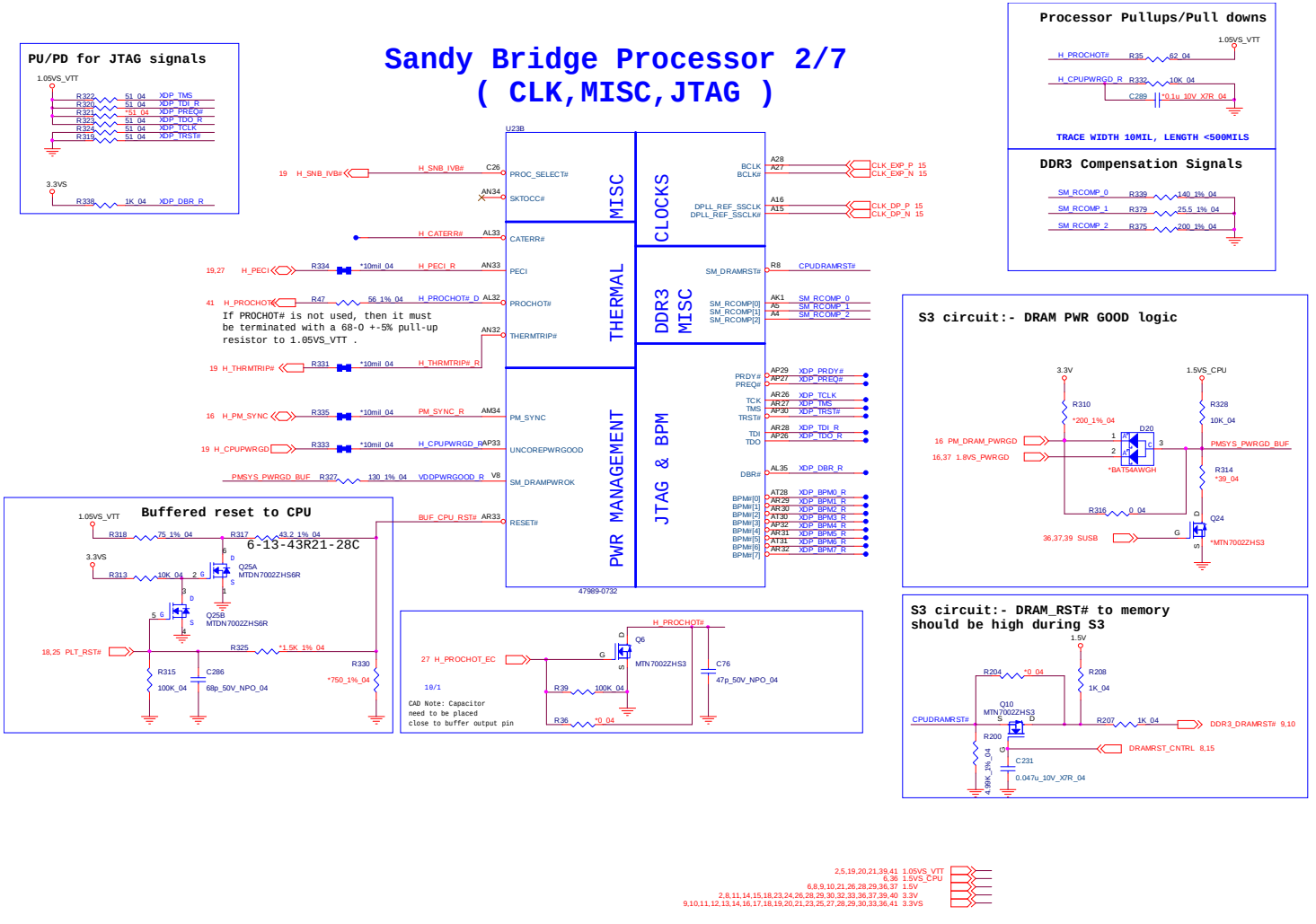
Processor 1/7



Sheet 2 of 48
Processor 1/7

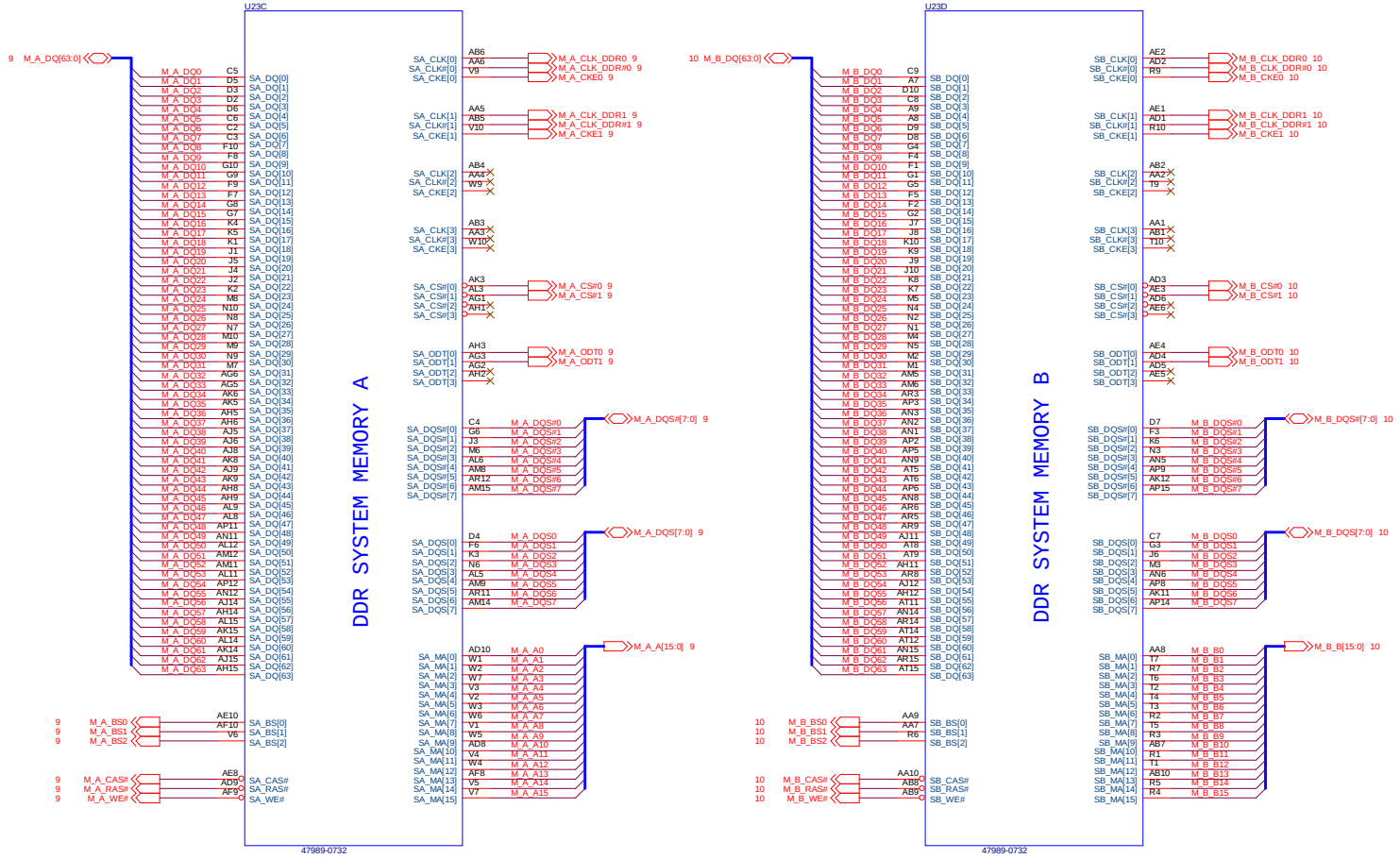
Processor 2/7

Sheet 3 of 48
Processor 2/7



Processor 3/7

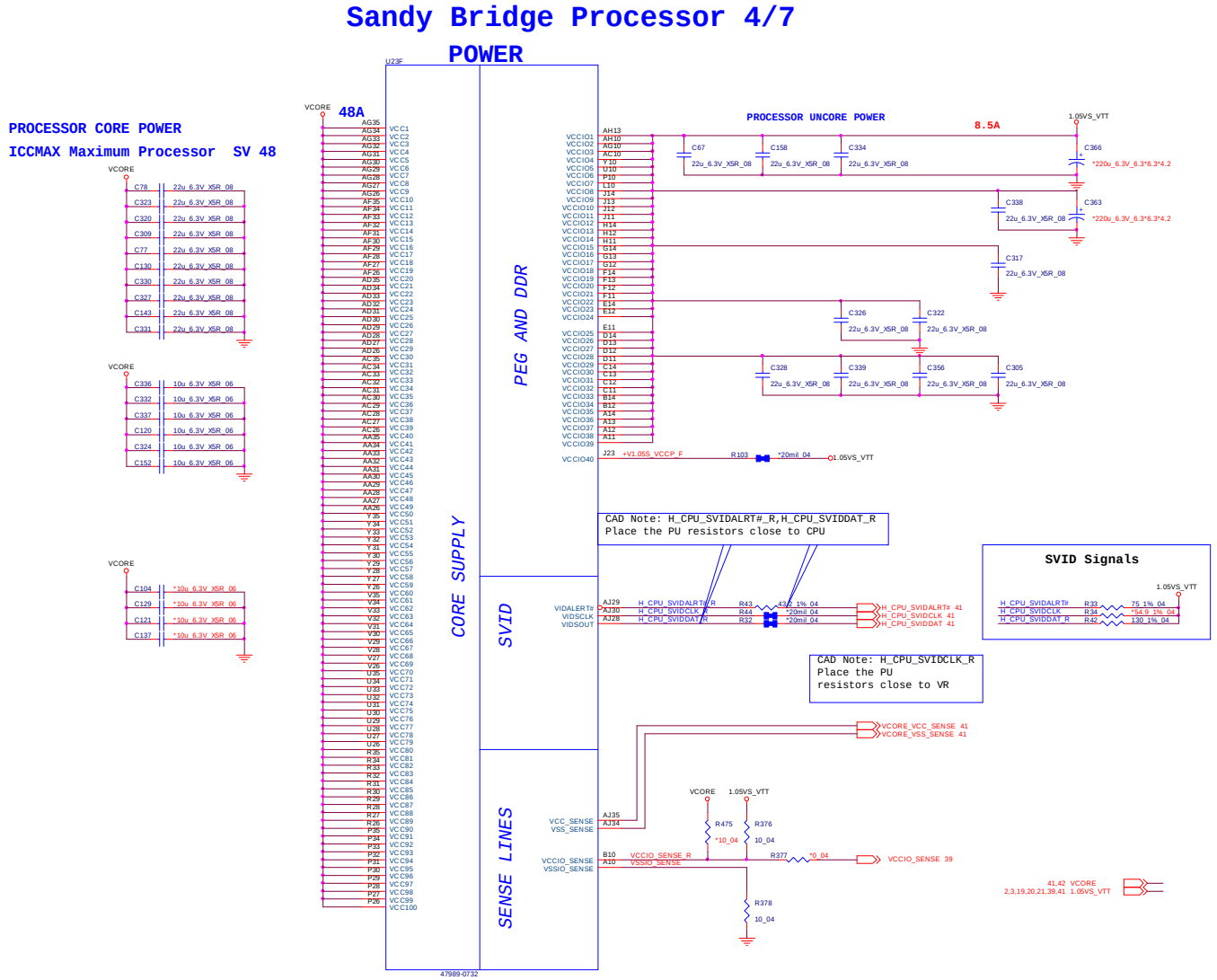
Sandy Bridge Processor 3/7 (DDR3)



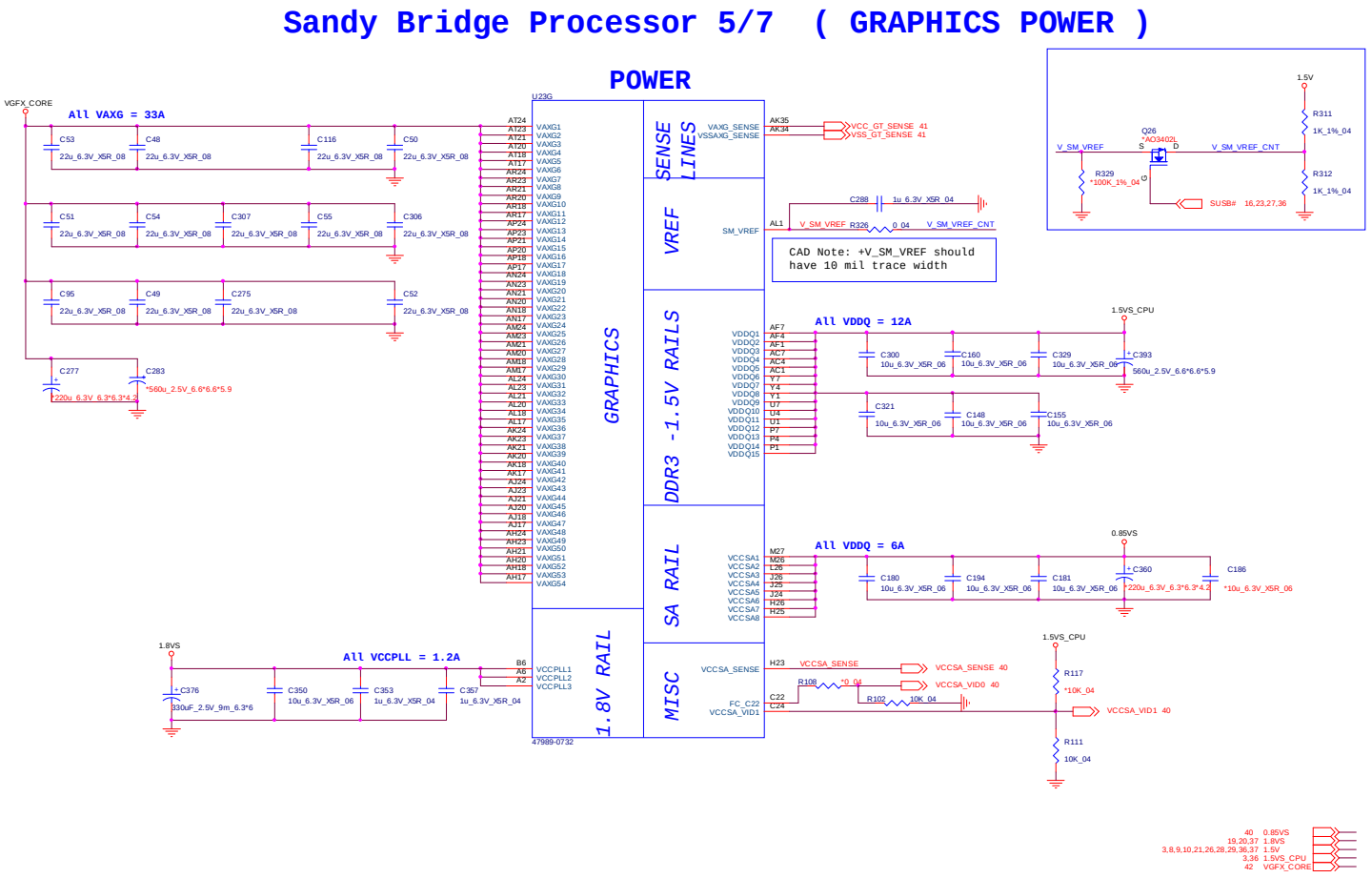
Sheet 4 of 48
Processor 3/7

Processor 4/7

Sheet 5 of 48
Processor 4/7



Processor 5/7



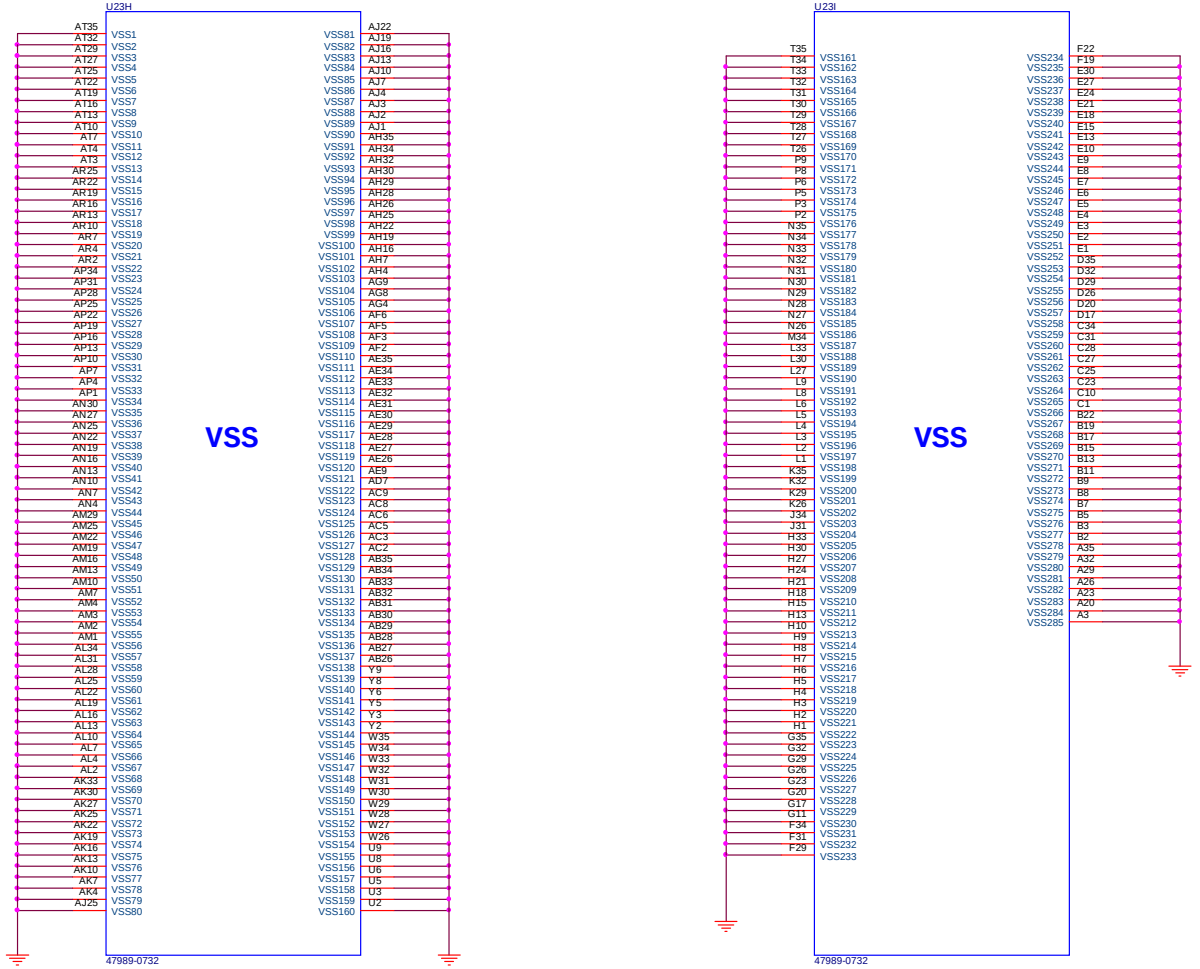
Sheet 6 of 48
Processor 5/7

Processor 6/7

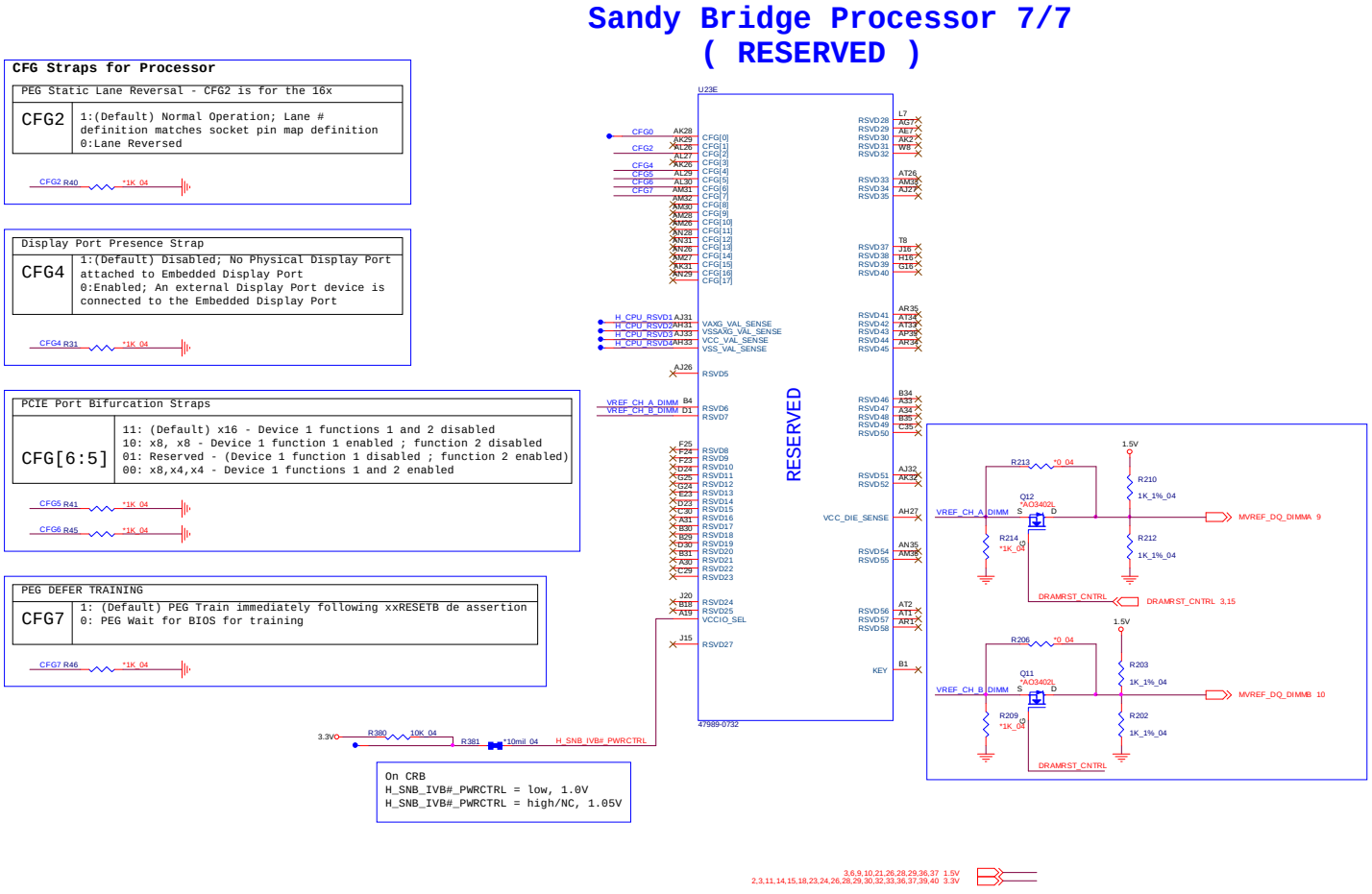
Sheet 7 of 48
Processor 6/7

Sandy Bridge Processor 6/7 (GND)

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



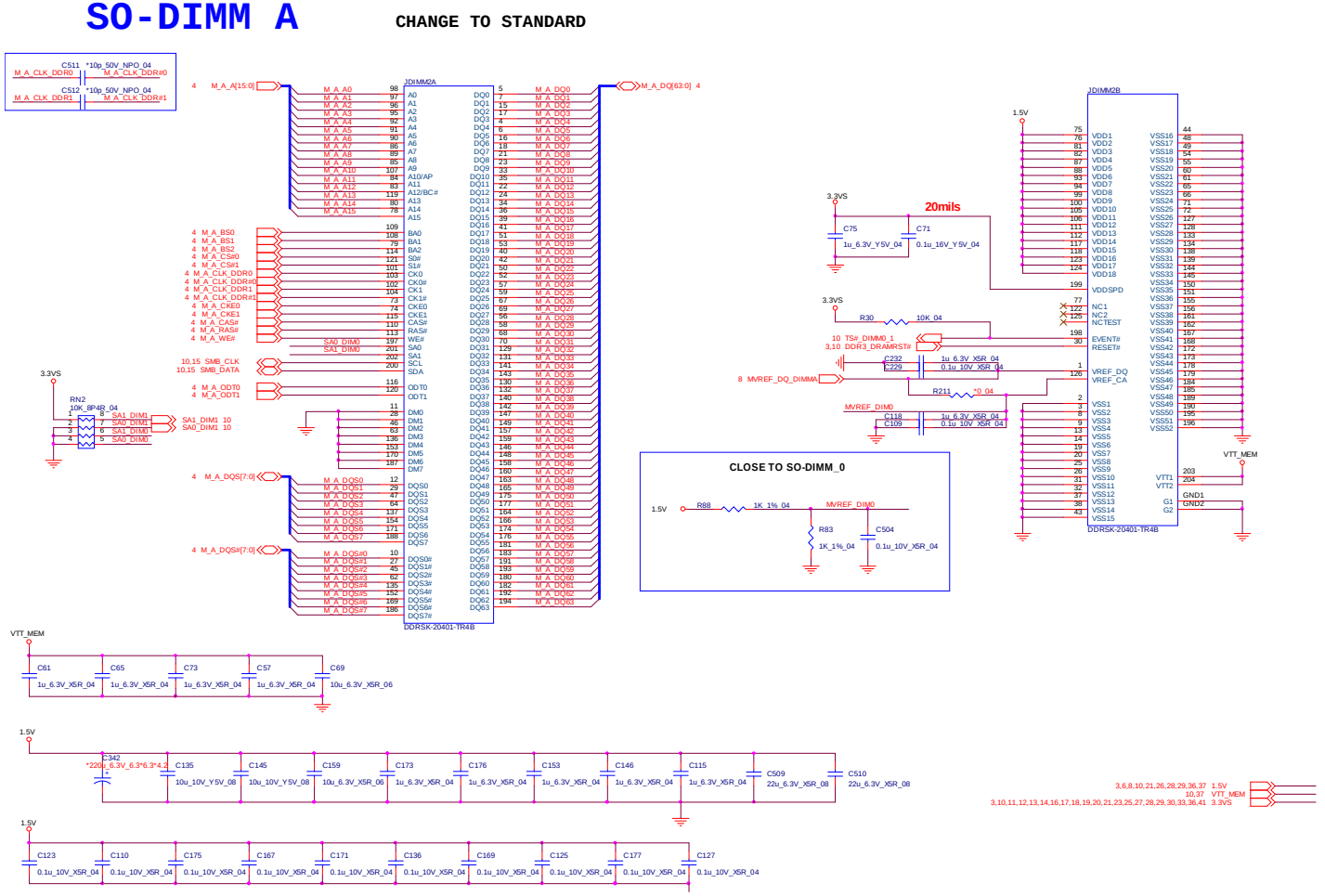
Processor 7/7



Sheet 8 of 48
Processor 7/7

DDR3 SO-DIMM_0

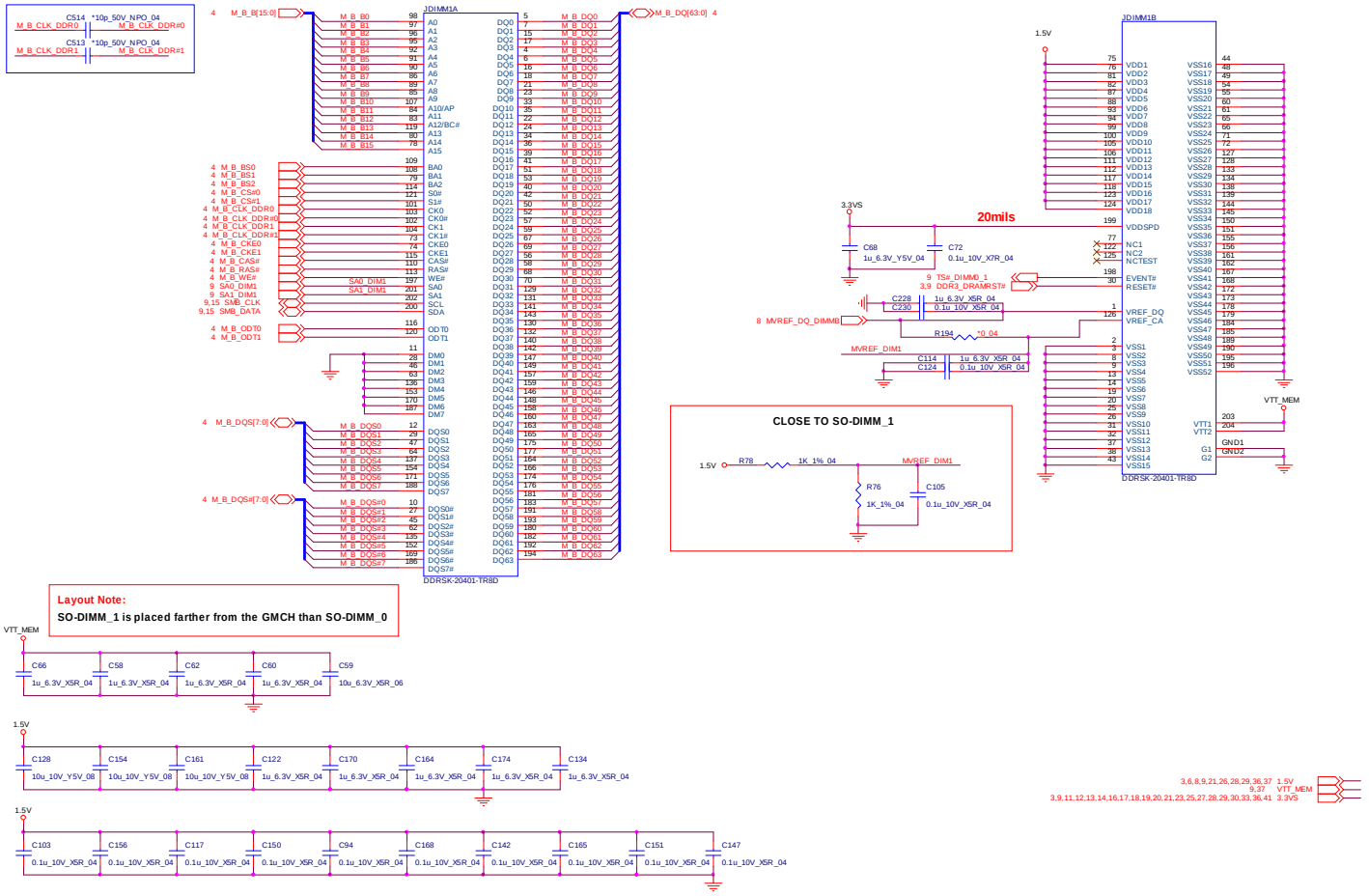
Sheet 9 of 48
DDR3 SO-DIMM_0



DDR3 SO-DIMM_1

SO-DIMM B

CHANGE TO STANDARD

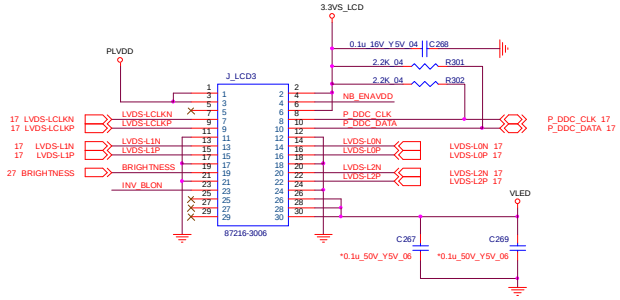


Sheet 10 of 48
DDR3 SO-DIMM_1

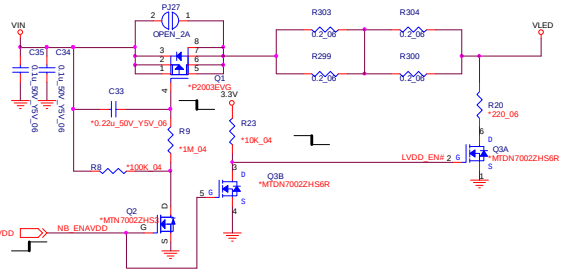
LVDS, INVERTER

Sheet 11 of 48
LVDS, INVERTER

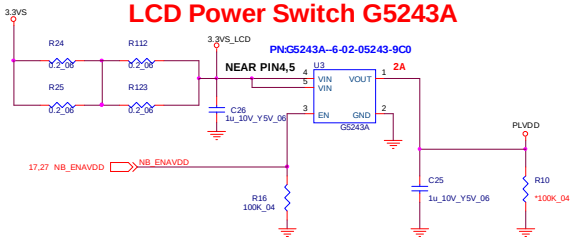
PANEL CONNECTOR



LED PANEL (LVDS Dual Channel).

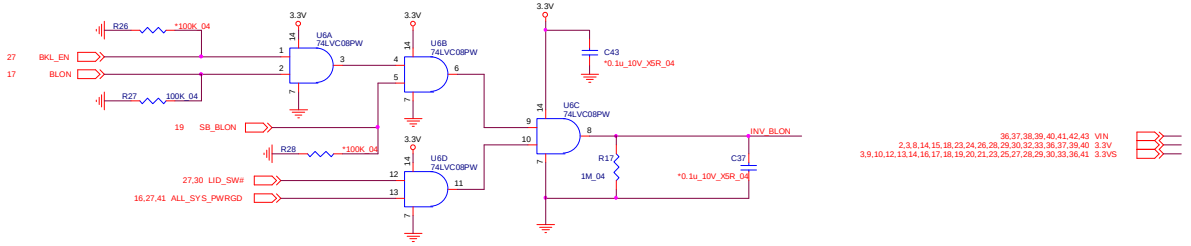


LCD Power Switch G5243A



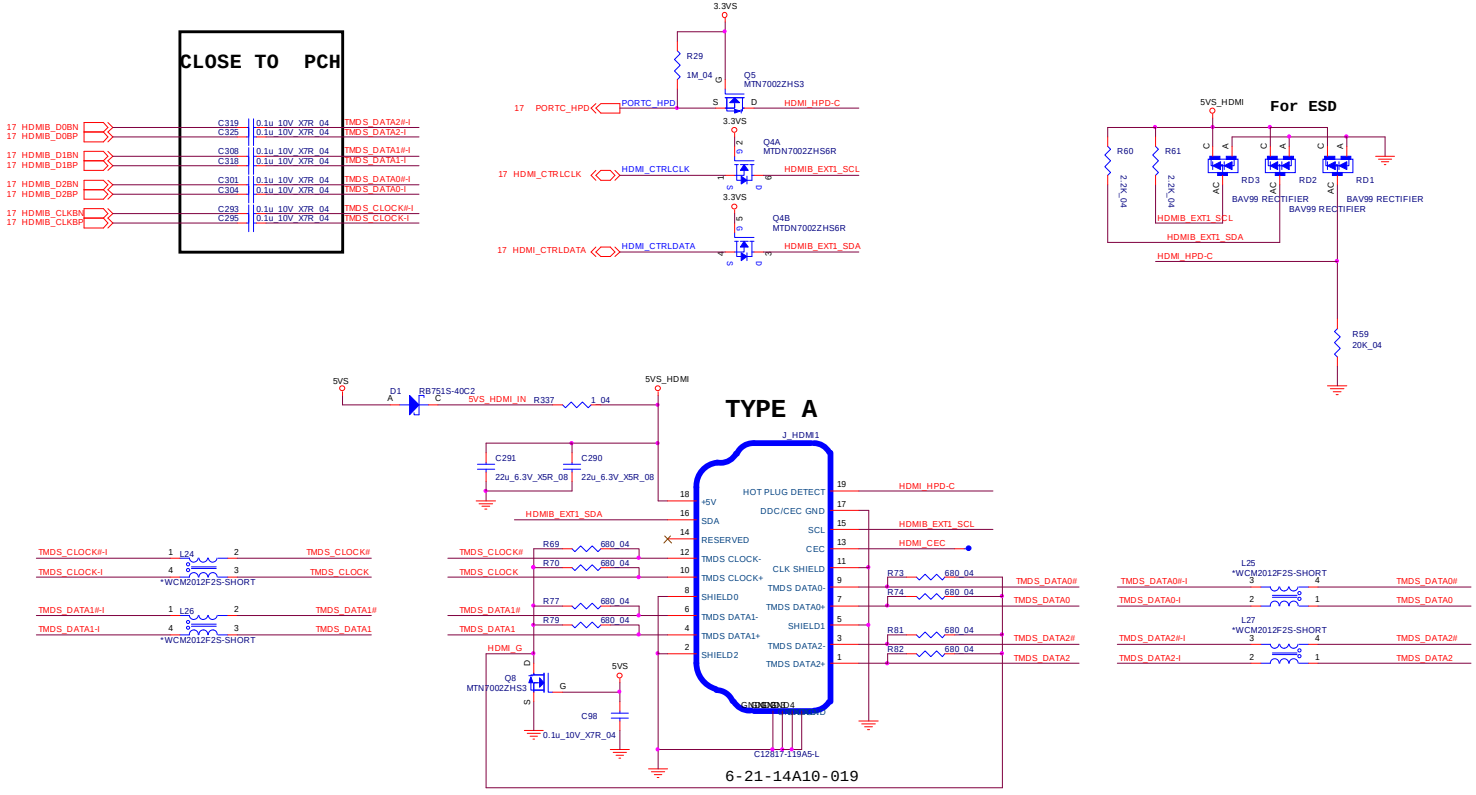
? 40pin connector? , ? ? 30pin connector? ? ? ? pin pad? ? ? ?

INVERTER CONNECTOR



HDMI

HDMI PORT

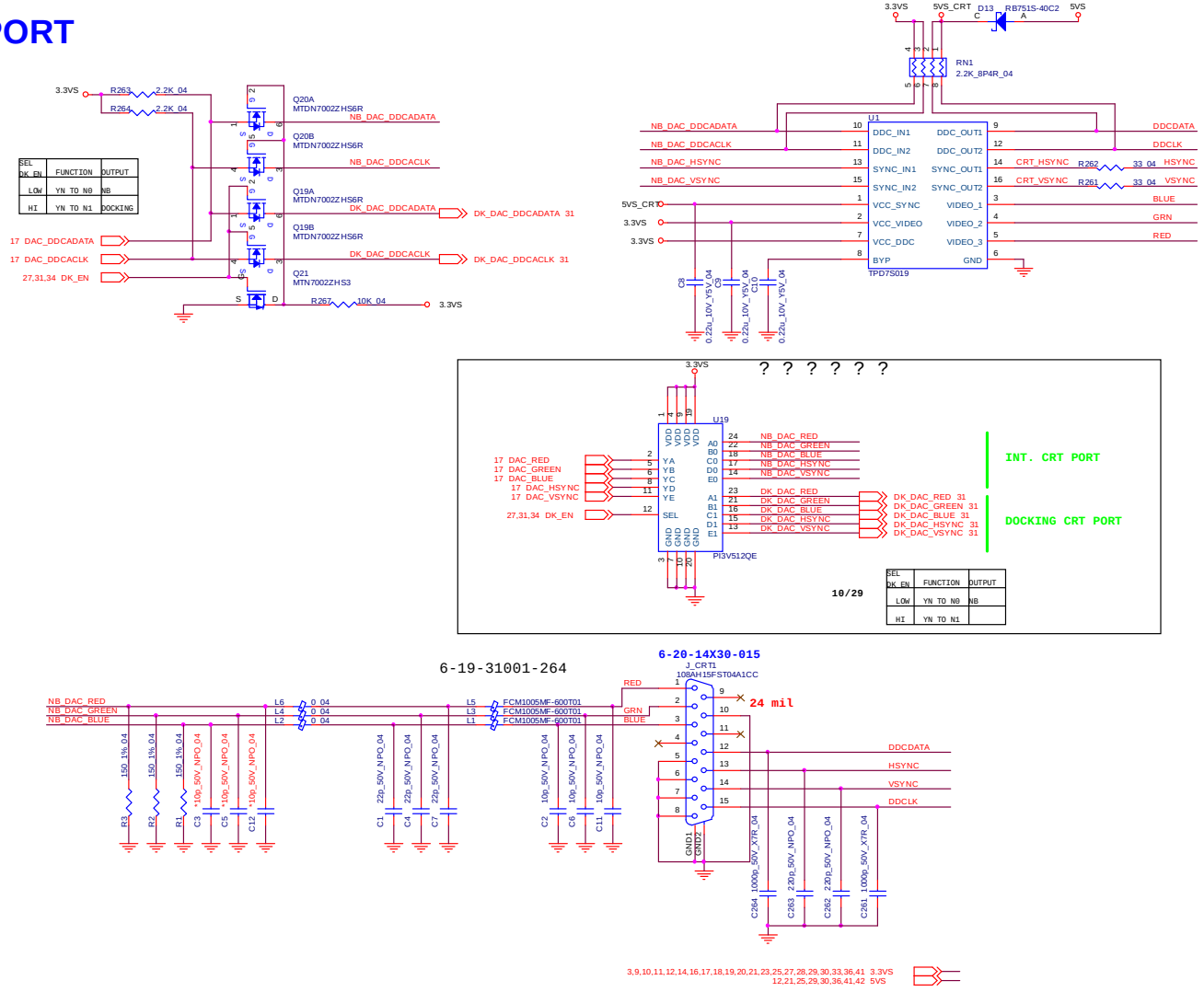


Sheet 12 of 48
HDMI

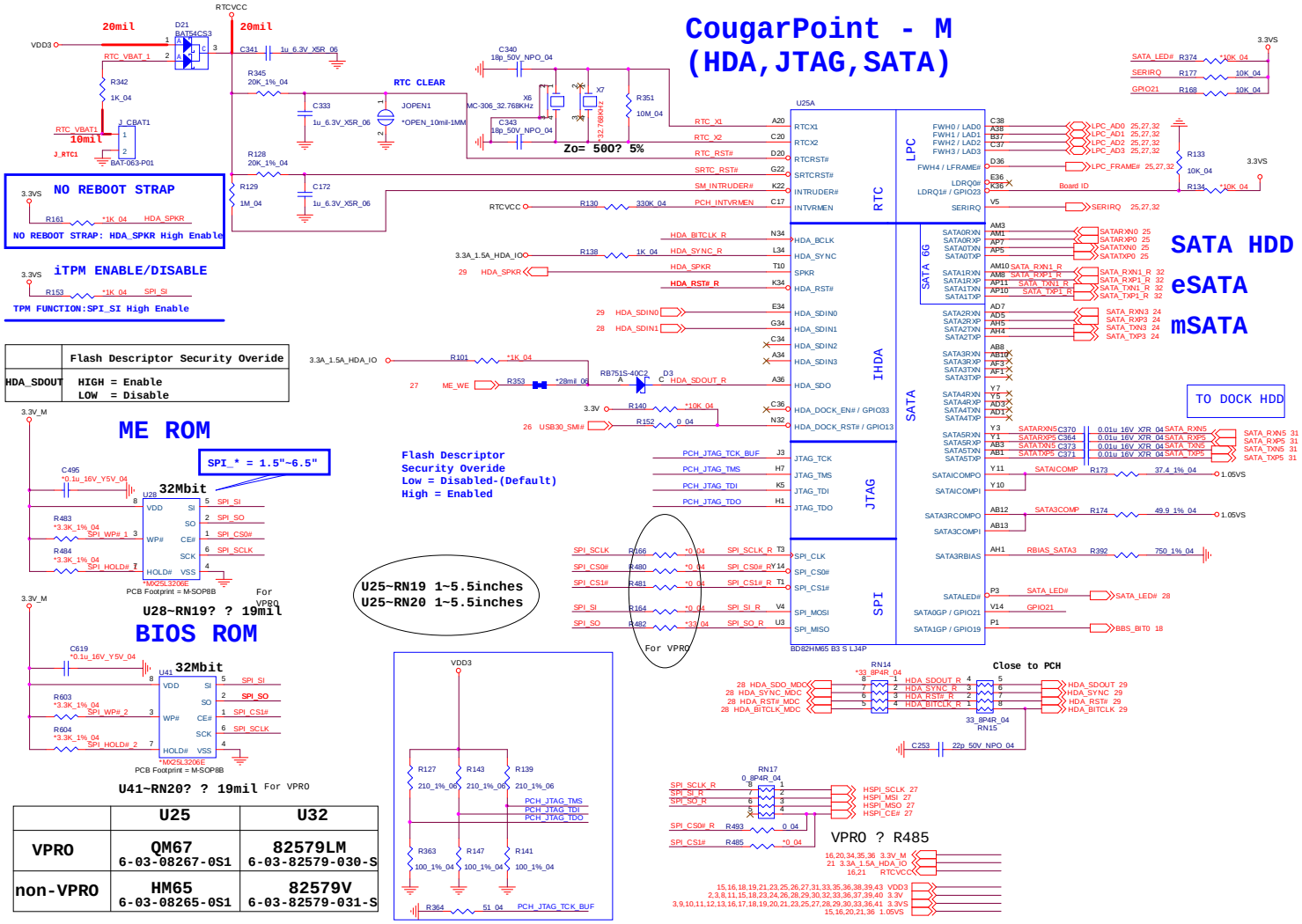
CRT

CRT PORT

Sheet 13 of 48
CRT



Cougar Point M 1/9



	U25	U32
VPRO	QM67 6-03-08267-0S1	82579LM 6-03-82579-030-S
non-VPRO	HM65 6-03-08265-0S1	82579V 6-03-82579-031-S

Sheet 14 of 48
Cougar Point M 1/9

Cougar Point M 2/9

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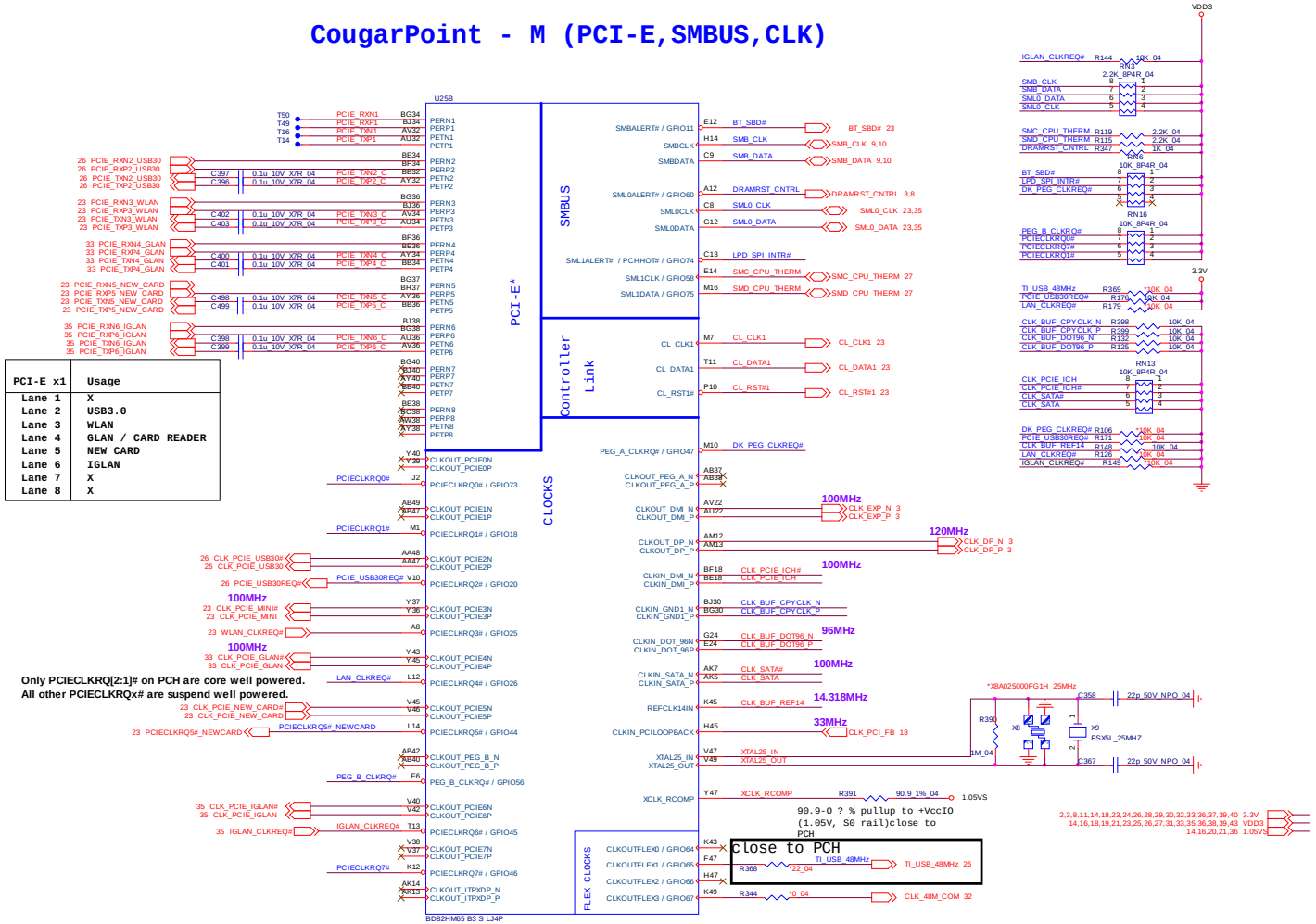
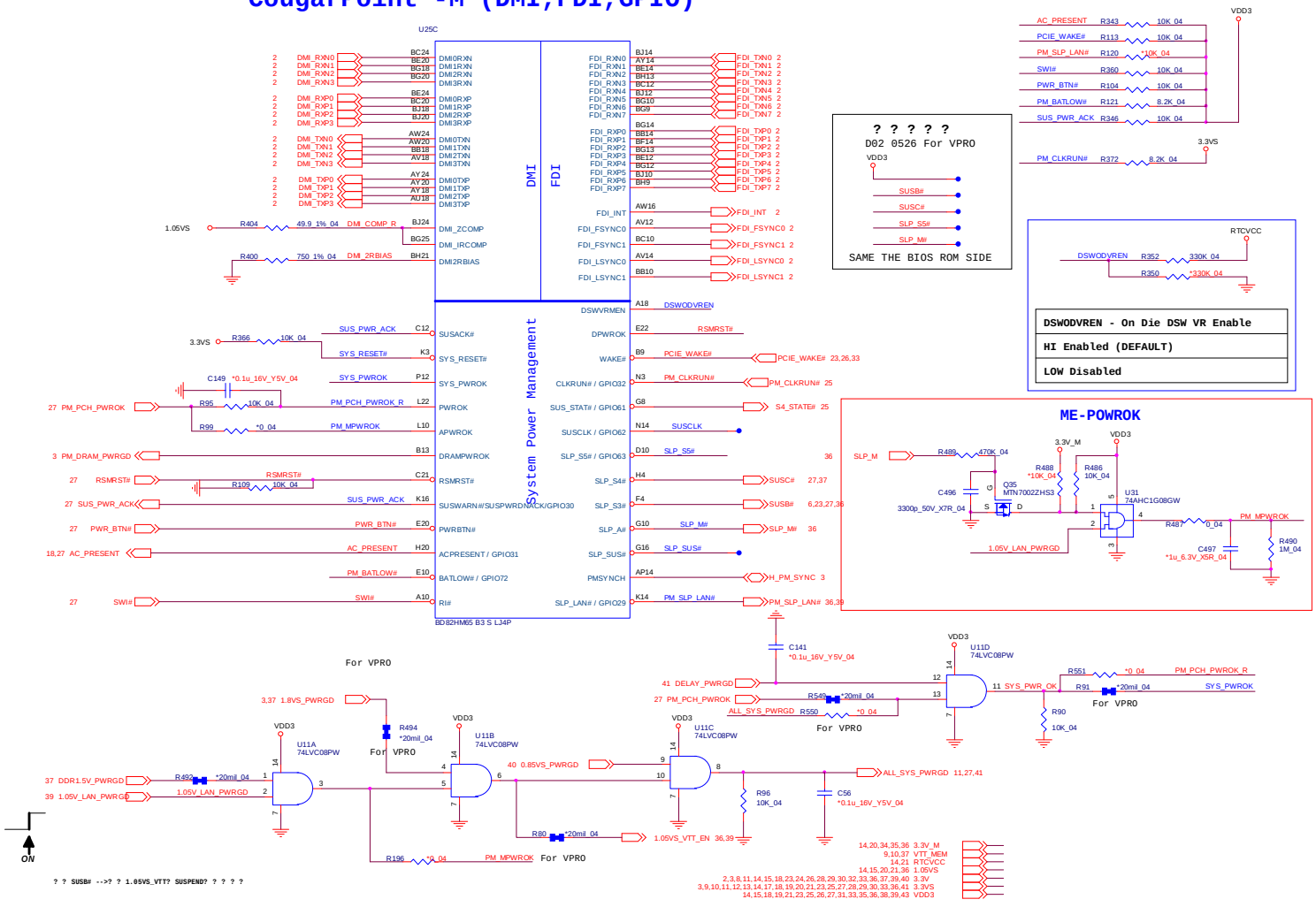
Cougar Point M 2/9



Cougar Point M 3/9



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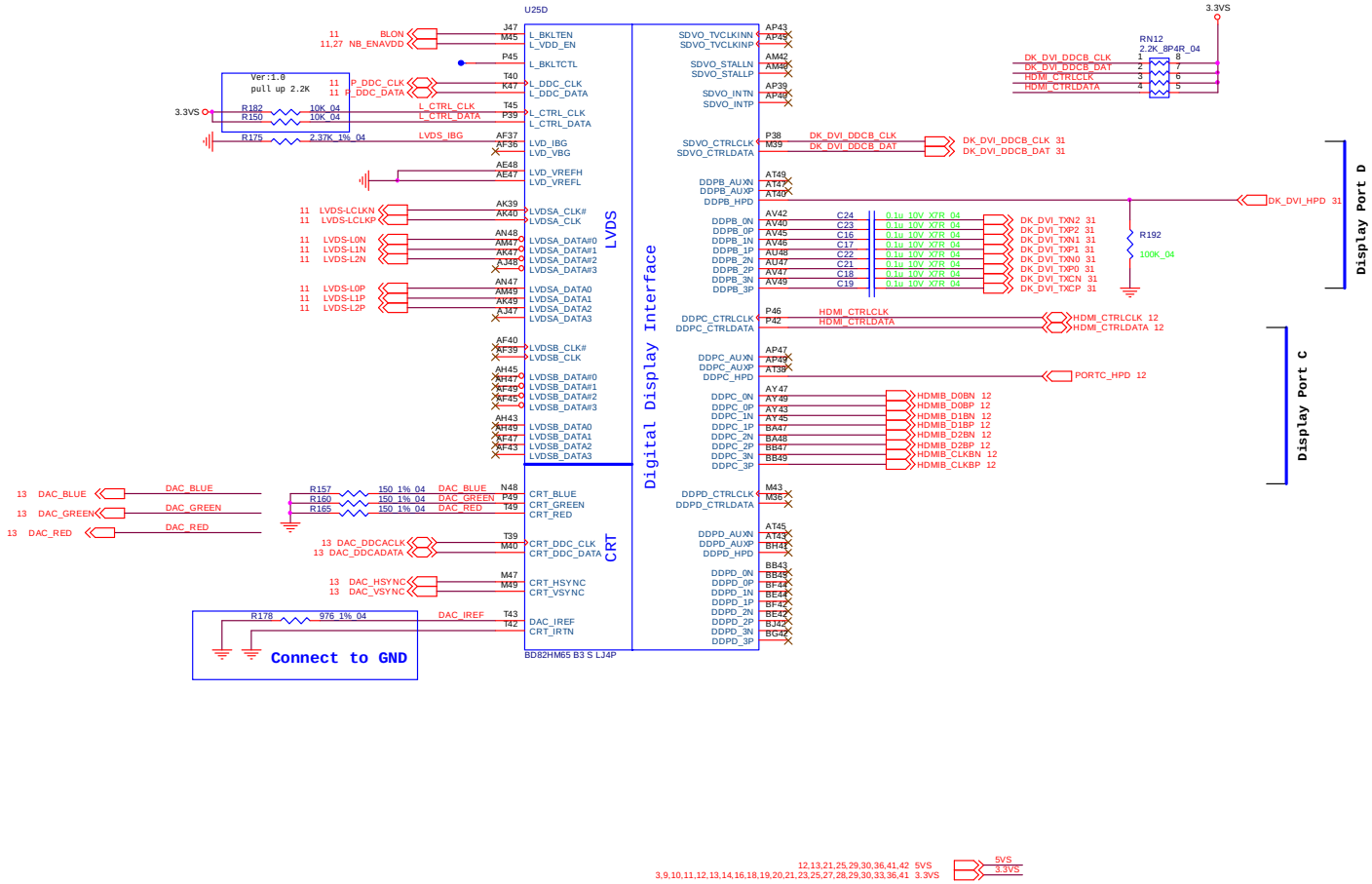
Cougar Point M 3/9

Cougar Point M 4/9

Sheet 17 of 48
Cougar Point M 4/9



Cougar Point M 5/9

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

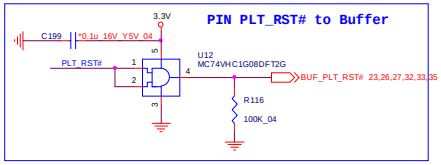
R136 *1K_04 BBS_BIT1
R373 *1K_04 BBS_BIT0 14

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

R137 *1K_04 PCI_GNT#3

R122 *1K_04 INT_PIRQE#

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

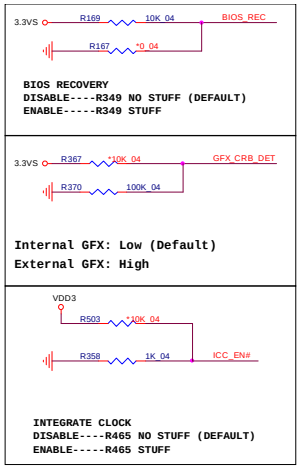


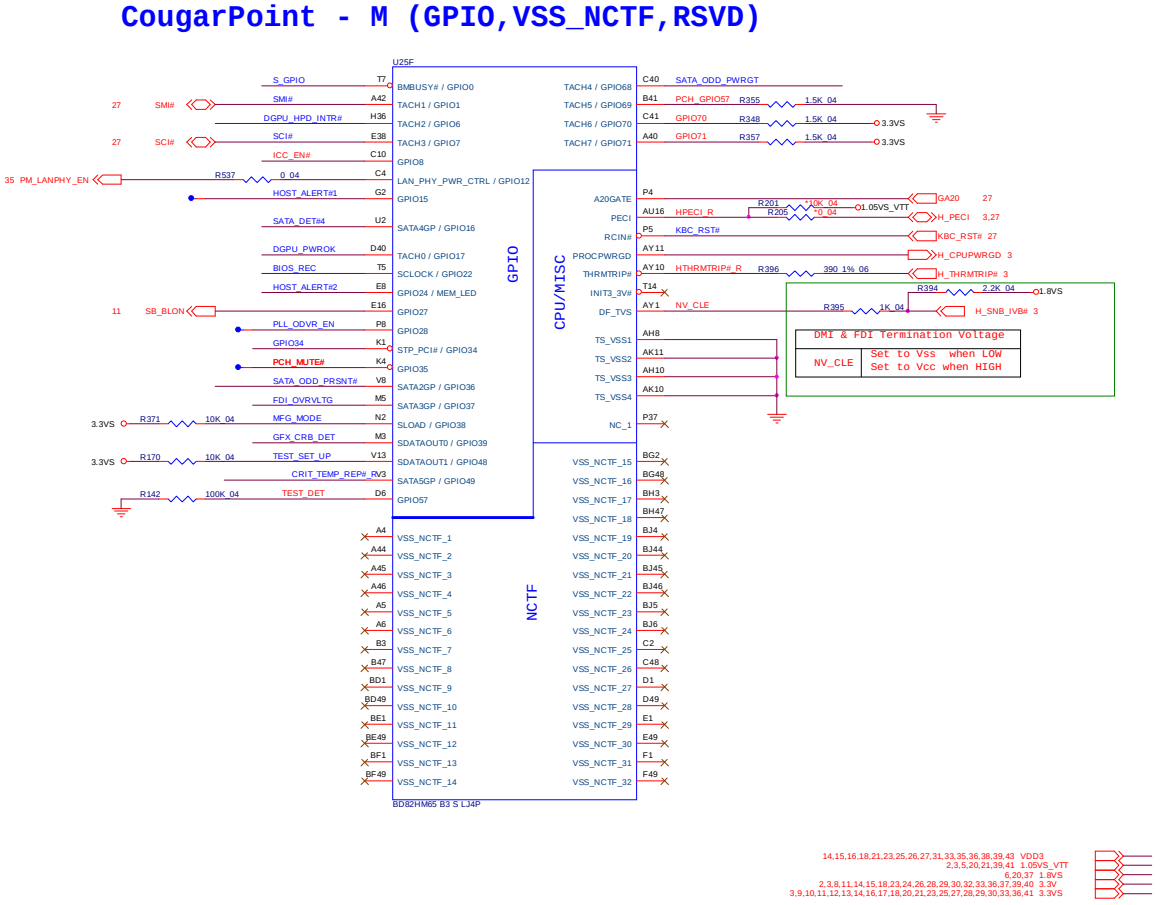
Sheet 18 of 48
Cougar Point M 5/9

B.Schematic Diagrams

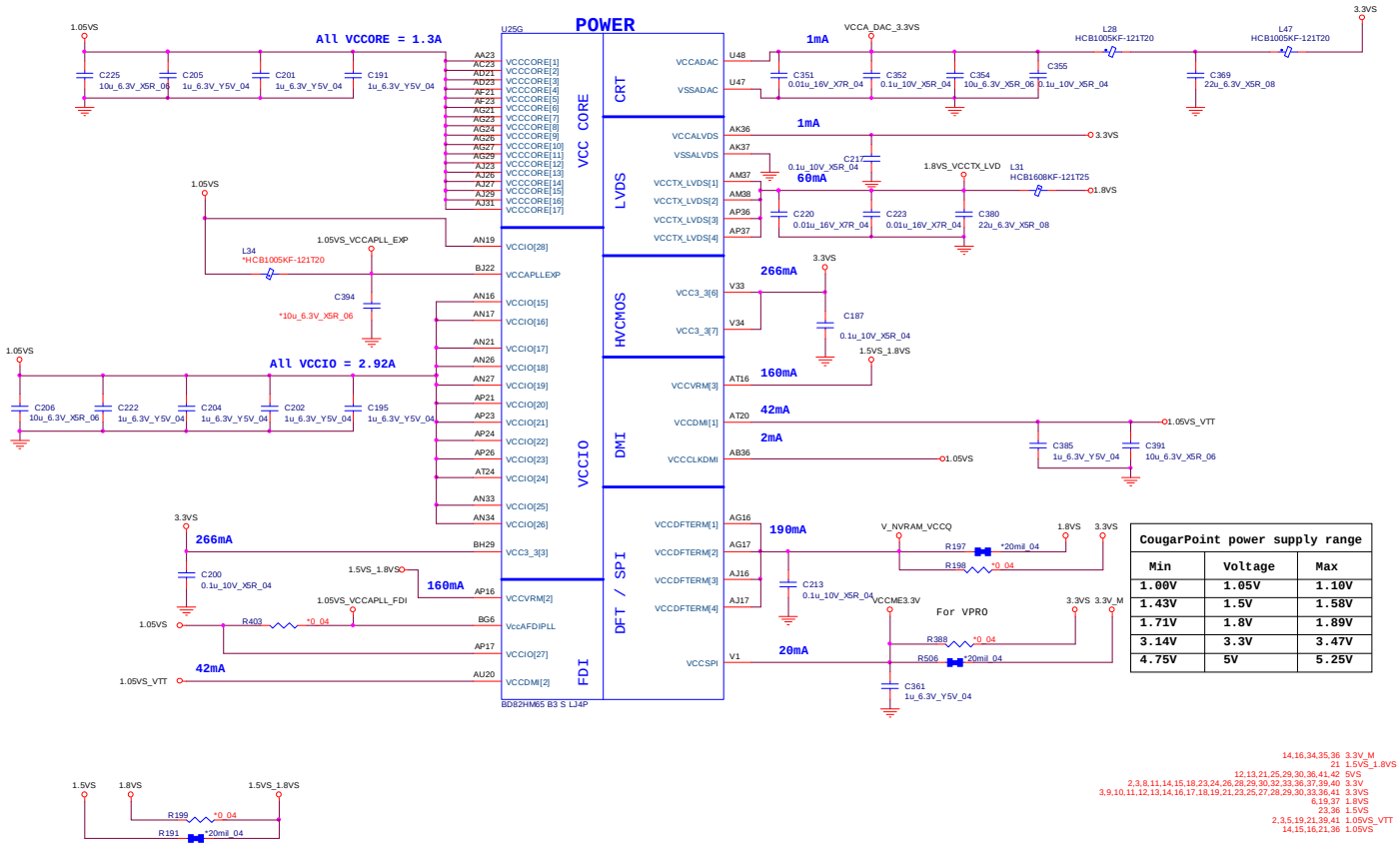
Cougar Point M 6/9

Sheet 19 of 48
Cougar Point M 6/9





Cougar Point M 7/9



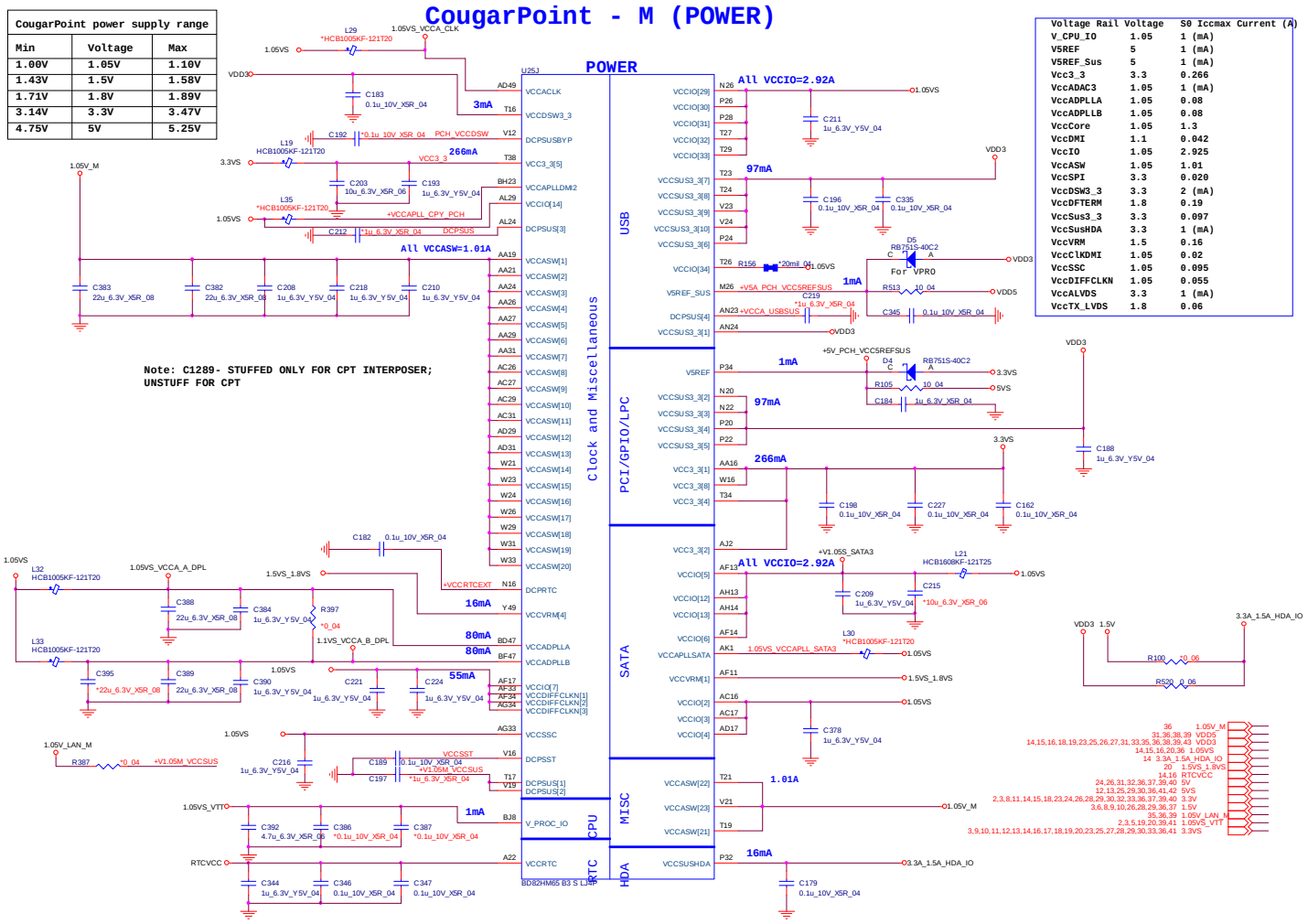
CougarPoint power supply range		
Min	Voltage	Max
1.00V	1.05V	1.10V
1.43V	1.5V	1.58V
1.71V	1.8V	1.89V
3.14V	3.3V	3.47V
4.75V	5V	5.25V

Sheet 20 of 48
Cougar Point M 7/9

Cougar Point M 8/9

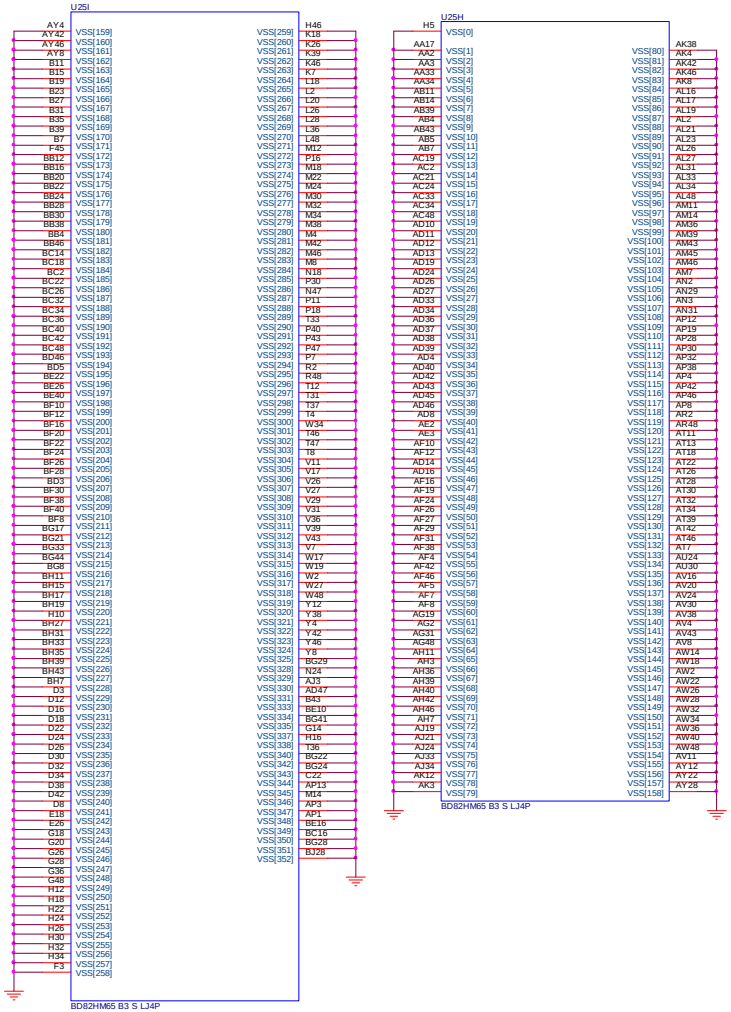
Sheet 21 of 48
Cougar Point M 8/9

CougarPoint power supply range		
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



Voltage Rail	Voltage	S0 Iccmax Current (A)
V_CPU_IO	1.05	1 (mA)
V5REF	5	1 (mA)
V5REF_Sus	5	1 (mA)
Vcc3_3	3.3	0.266
VccADAC3	1.05	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	1.01
VccSPI	3.3	0.020
VccDSW3_3	3.3	2 (mA)
VccDFTERM	1.8	0.19
VccSus3_3	3.3	0.097
VccSusHDA	3.3	1 (mA)
VccVRM	1.5	0.16
VccClkDMI	1.05	0.02
VccSSC	1.05	0.095
VccDIFFCLKN	1.05	0.055
VccALVDS	3.3	1 (mA)
VccTX_LVDS	1.8	0.06

Cougar Point M 9/9

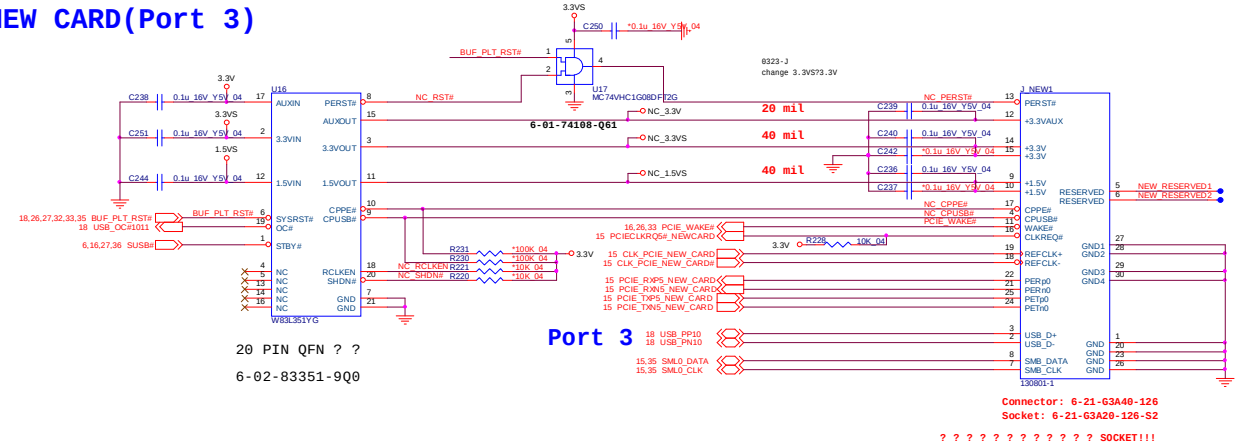


Sheet 22 of 48
Cougar Point M 9/9

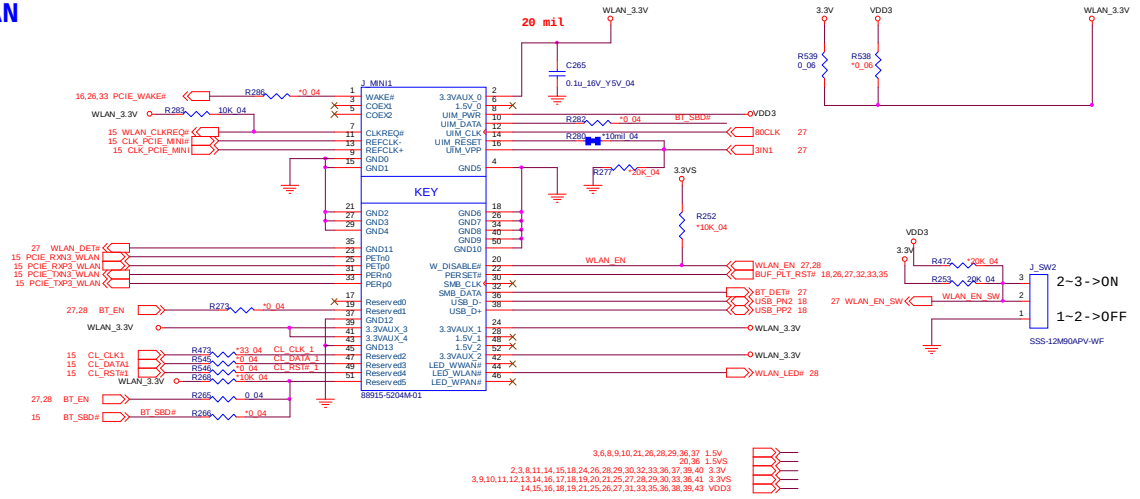
NEW CARD, MINI PCIE

Sheet 23 of 48
NEW CARD, MINI PCIE

NEW CARD(Port 3)

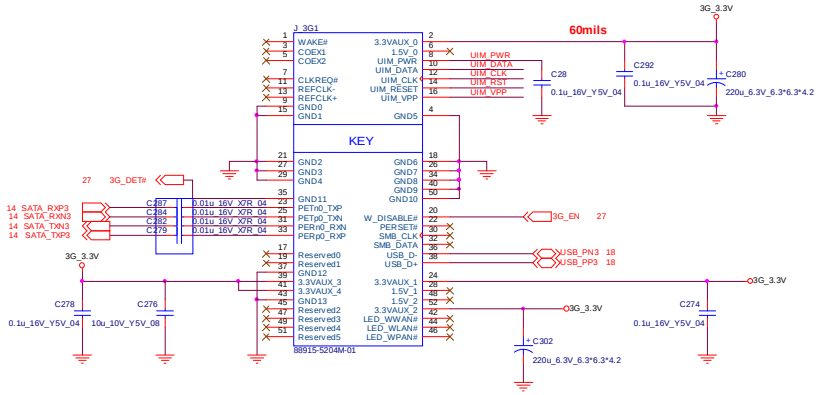


MINI CARD WLAN

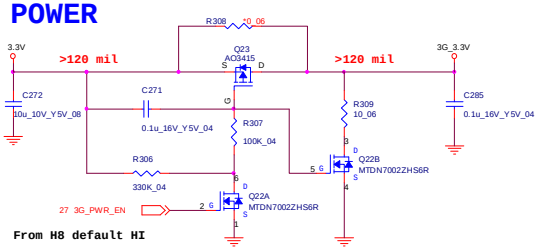


CCD, 3G

MINI CARD 3G(Port 6)

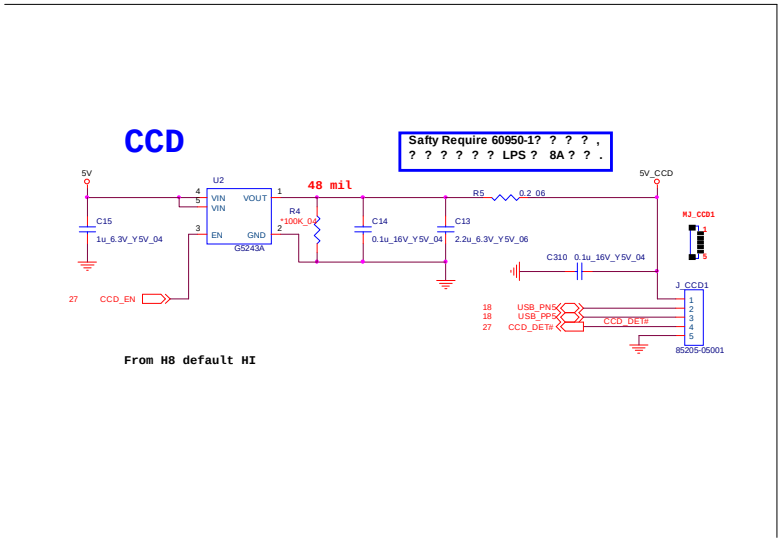


3G POWER

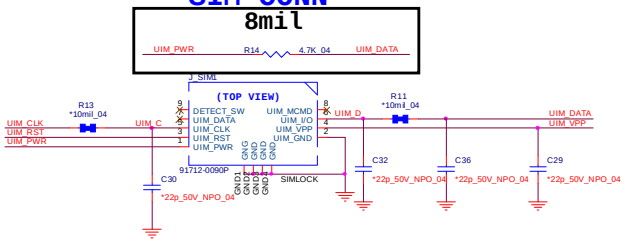


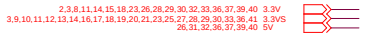
Sheet 24 of 48
CCD, 3G

CCD



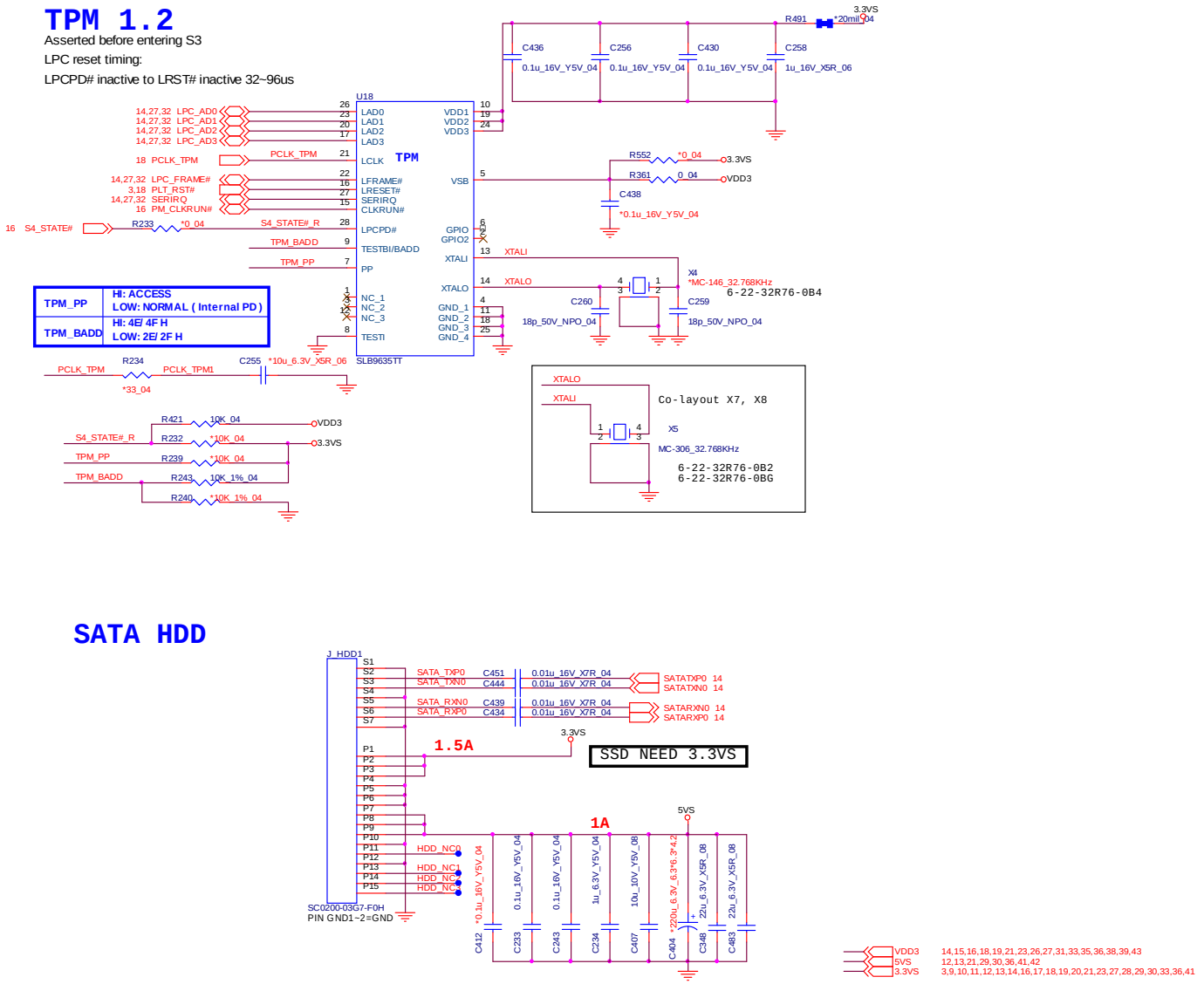
SIM CONN



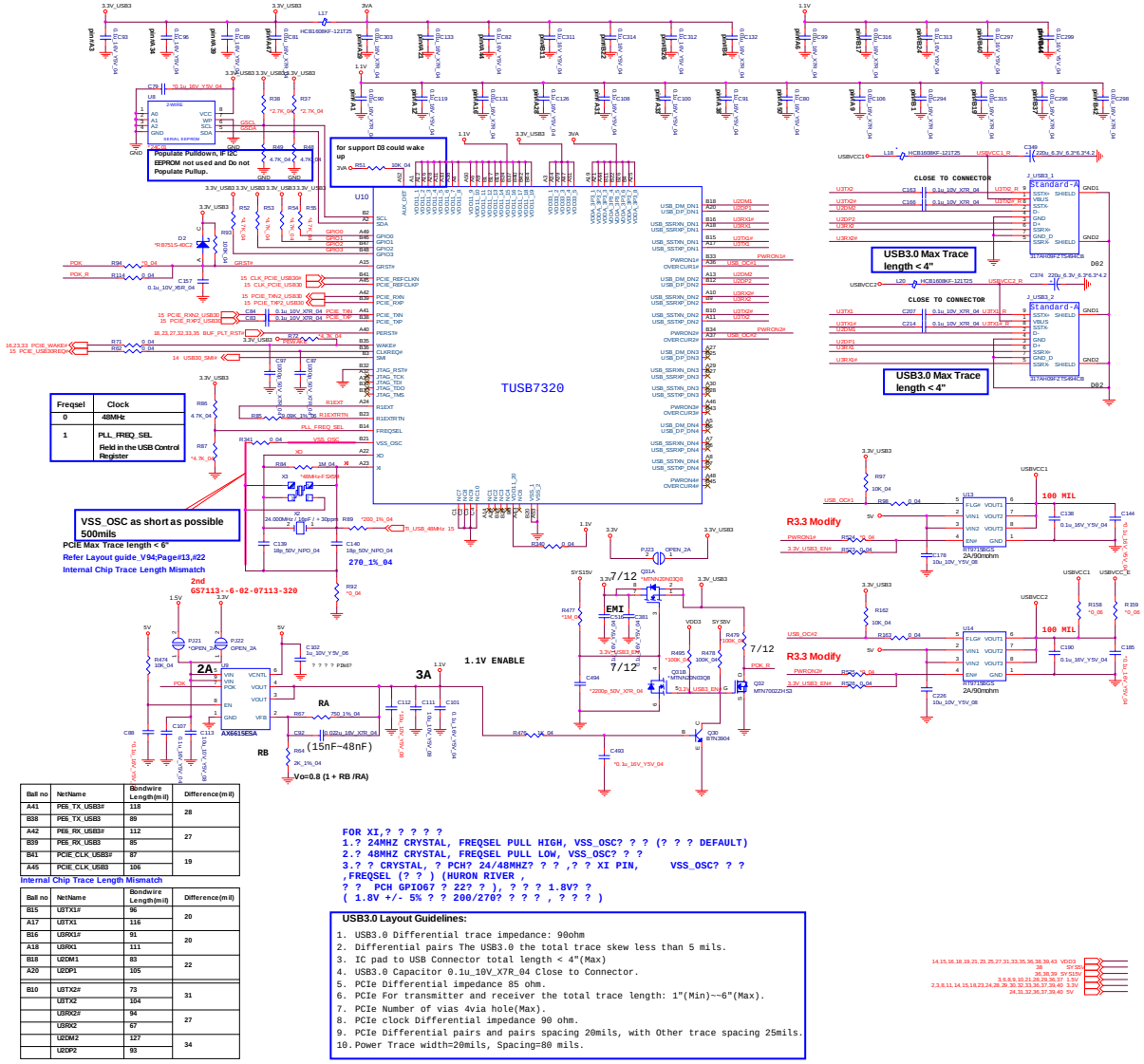


TPM, SATA HDD

Sheet 25 of 48
TPM, SATA HDD



TI TUSB7320 USB3.0



Ball no	NetName	Bondwire Length(m il)	Difference(m il)
A41	PEB_TX_USB3#	118	28
B38	PEB_TX_USB3	89	
A42	PEB_RX_USB3#	112	27
B39	PEB_RX_USB3	85	
B41	PCIE_CLK_USB3#	87	19
A45	PCIE_CLK_USB3	106	

Internal Chip Trace Length Mismatch

Ball no	NetName	Bondwire Length(m il)	Difference(m il)
B15	U3TX1#	96	20
A17	U3TX1	116	
B16	U3RX1#	81	20
A18	U3RX1	111	
B18	U2DM1	83	22
A20	U2DP1	105	
B10	U3TX2#	73	31
	U3TX2	104	
	U3RX2#	94	27
	U3RX2	67	
	U2DM2	127	34
	U2DP2	93	

FOR XI,? ? ? ? ?
1.? 24MHZ CRYSTAL, FREQSEL PULL HIGH, VSS_OSC? ? ? (? ? ? DEFAULT)
2.? 48MHZ CRYSTAL, FREQSEL PULL LOW, VSS_OSC? ? ?
3.? ? CRYSTAL, ? PCH? 24/48MHZ? ? ? ,? ? XI PIN, VSS_OSC? ? ?
,FREQSEL (? ?) (HURON RIVER ,
? ? PCH GPIO67 ? 22? ?) ,? ? ? 1.8V? ?
(1.8V +/- 5% ? ? 200/270? ? ? ? , ? ? ?)

USB3.0 Layout Guidelines:

1. USB3.0 Differential trace impedance: 90ohm
2. Differential pairs The USB3.0 the total trace skew less than 5 mils.
3. IC pad to USB Connector total length < 4"(Max)
4. USB3.0 Capacitor 0.1u_10V_X7R_04 Close to Connector.
5. PCIe Differential impedance 85 ohm.
6. PCIe For transmitter and receiver the total trace length: 1"(Min)~~6"(Max).
7. PCIe Number of vias 4via hole(Max).
8. PCIe clock Differential impedance 90 ohm.
9. PCIe Differential pairs and pairs spacing 20mils, with Other trace spacing 25mils.
10. Power Trace width=20mils, Spacing=80 mils.

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TI TUSB7320
USB3.0

B.Schematic Diagrams

KBC-ITE IT8518

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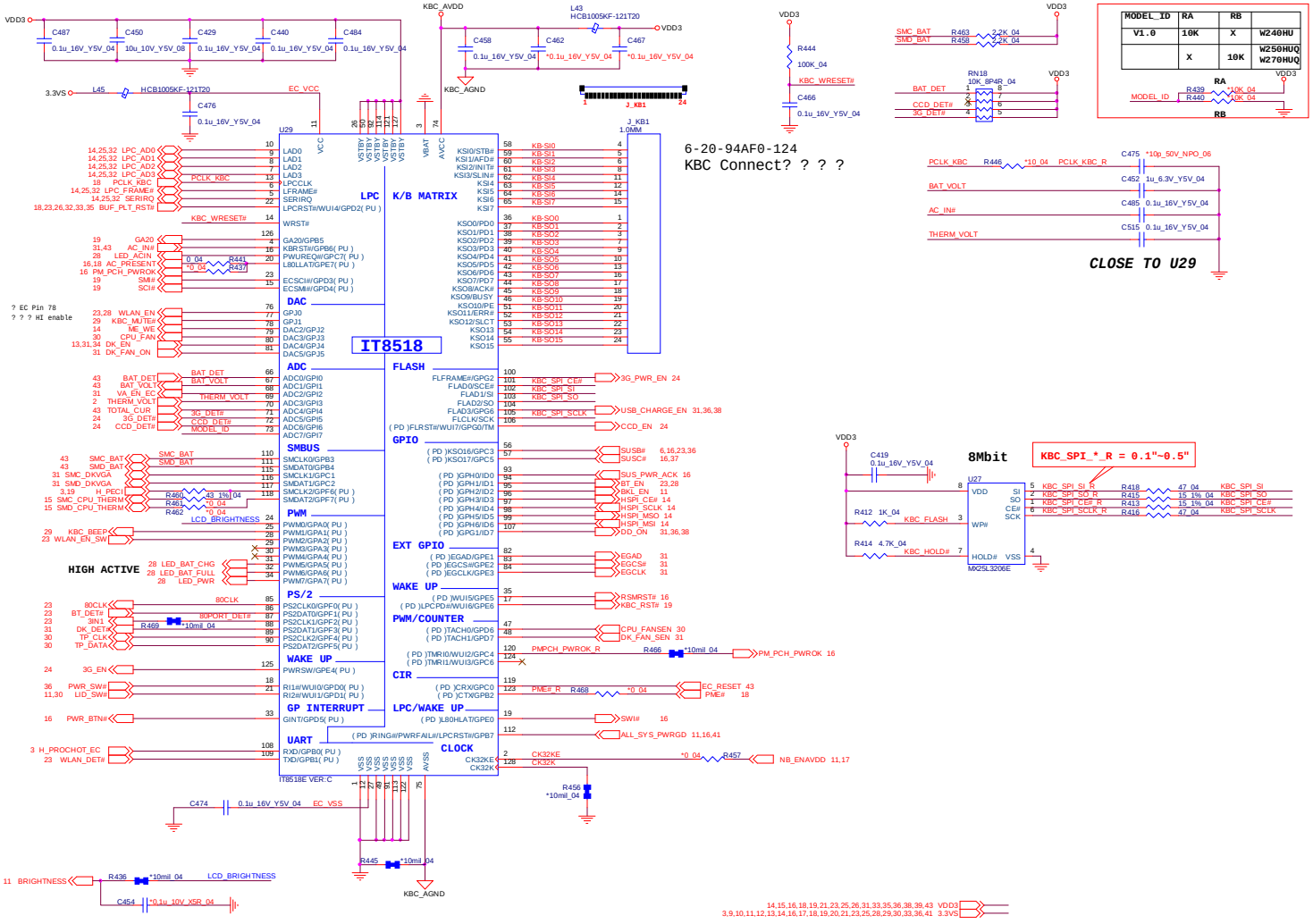
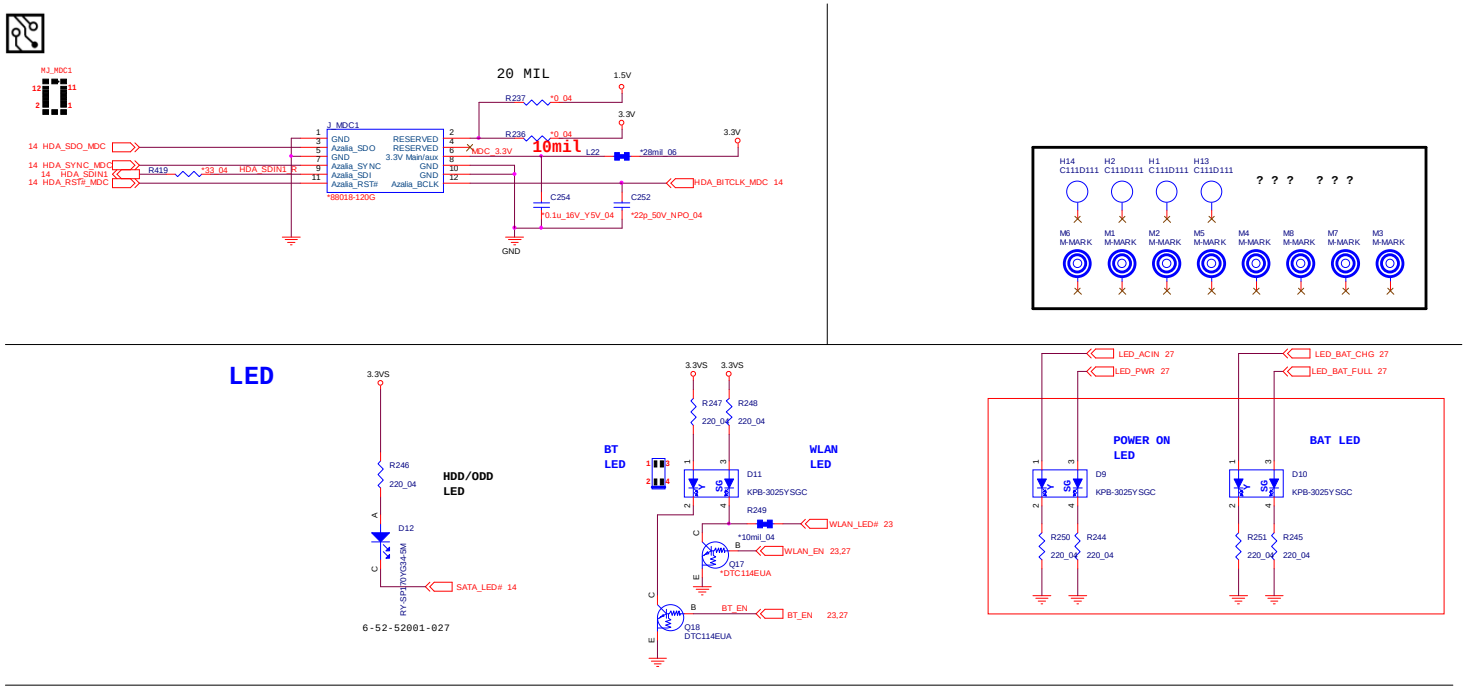
KBC-ITE IT8518



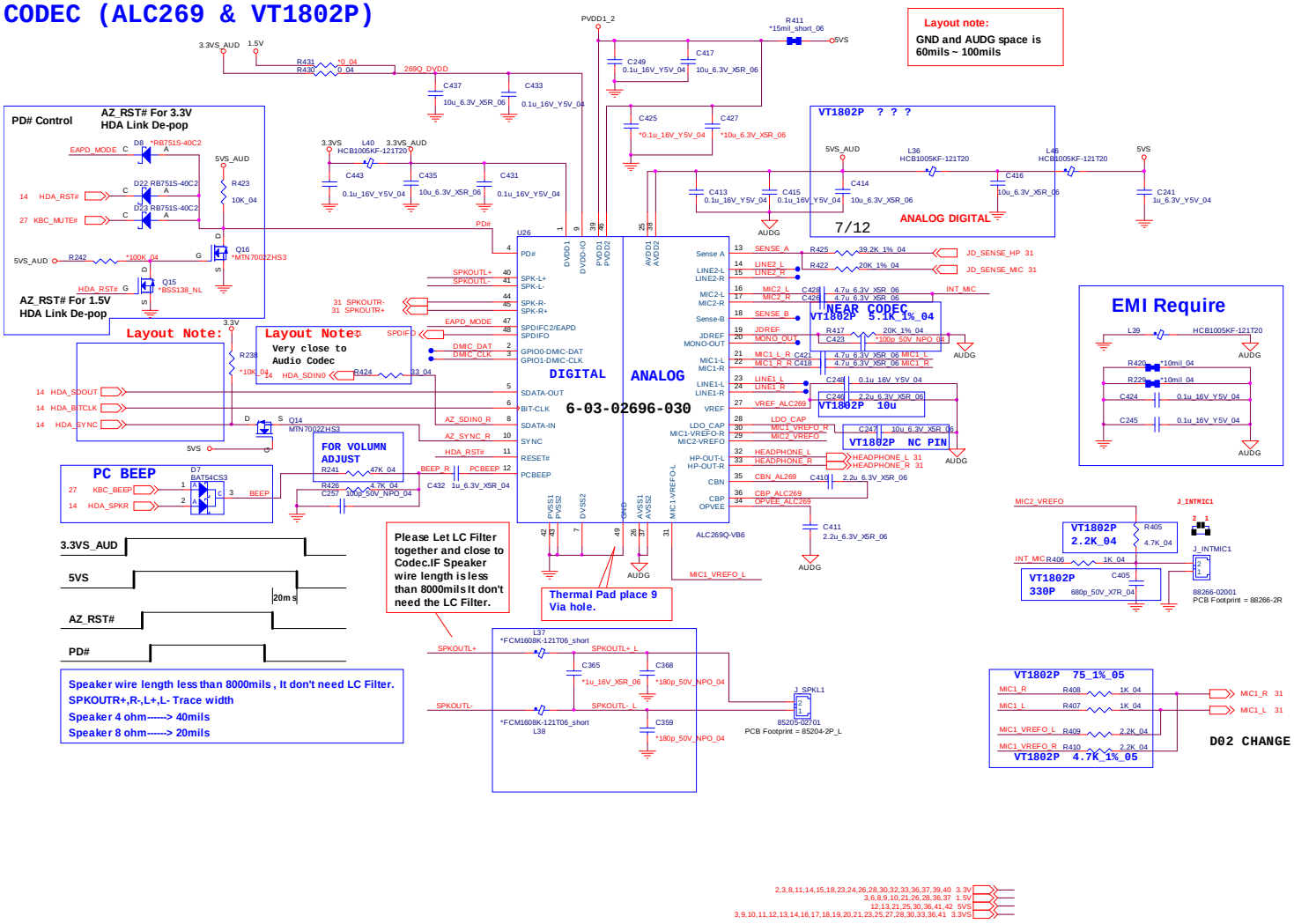
LED, MDC



Sheet 28 of 48
LED, MDC

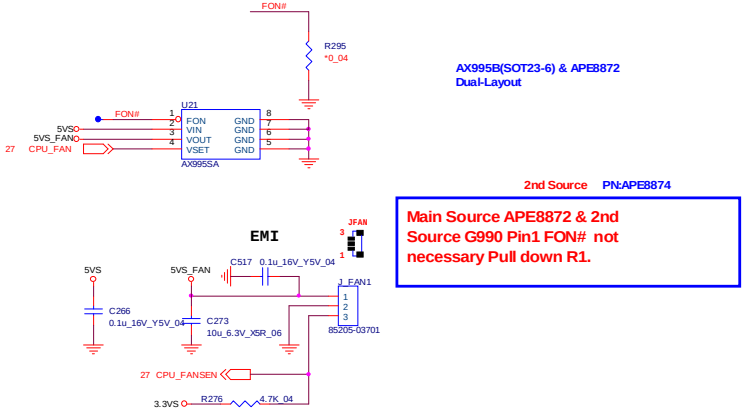
AUDIO CODEC ALC269Q

Sheet 29 of 48
AUDIO CODEC
ALC269Q



POWER CON, FAN, TP, CLICK CON

FAN CONTROL

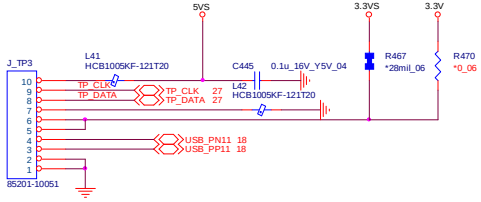


AX995B(SOT23-6) & APE8872
Dual-Layout

2nd Source PN:APE8874

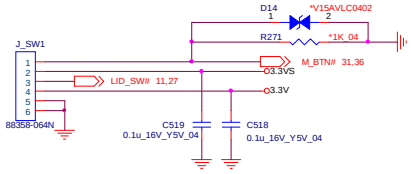
Main Source APE8872 & 2nd Source G990 Pin1 FON# not necessary Pull down R1.

CLICK B'd CONN



Sheet 30 of 48
POWER CON, FAN, TP, CLICK CON

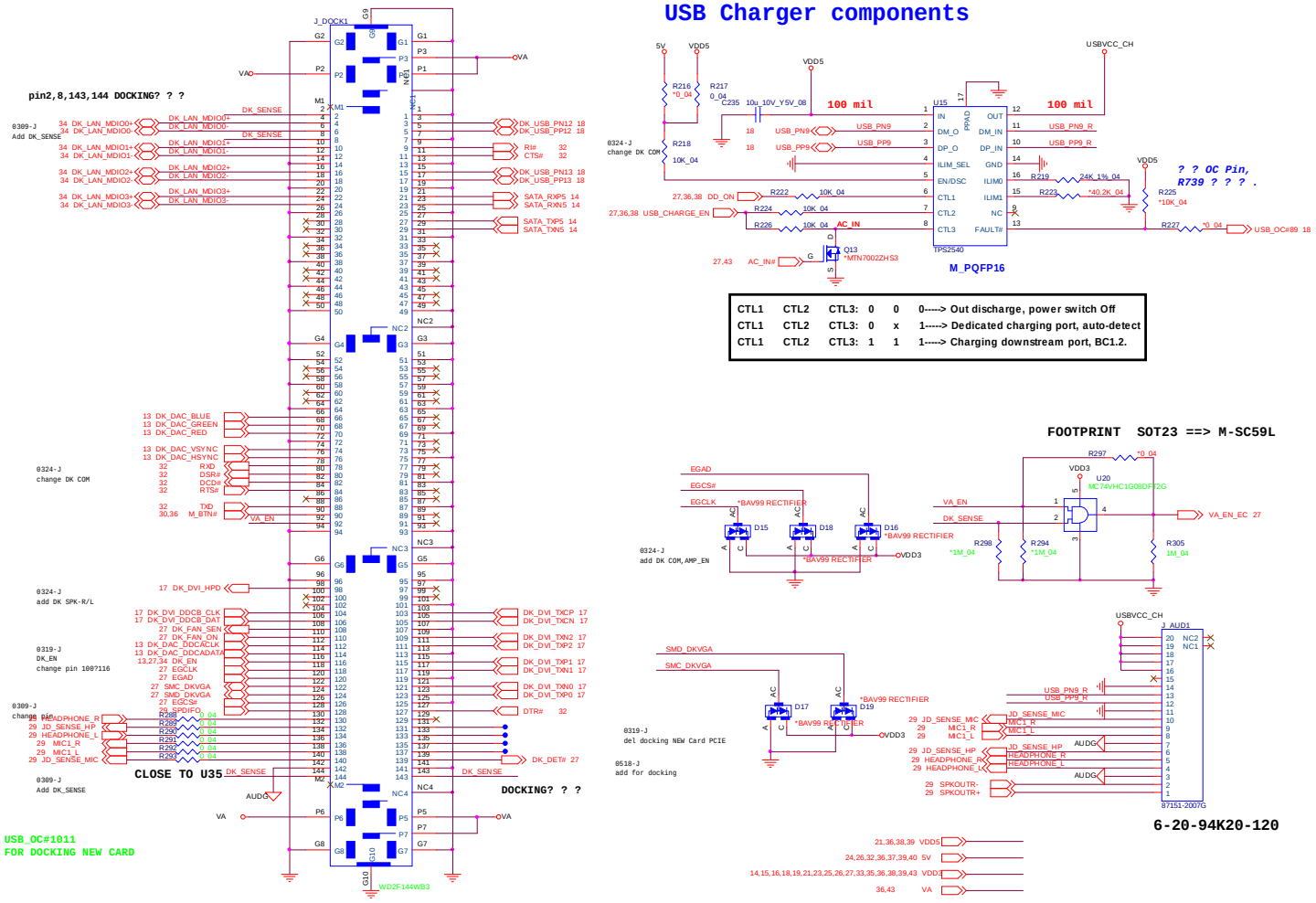
FOR POWER SWITCH BOARD



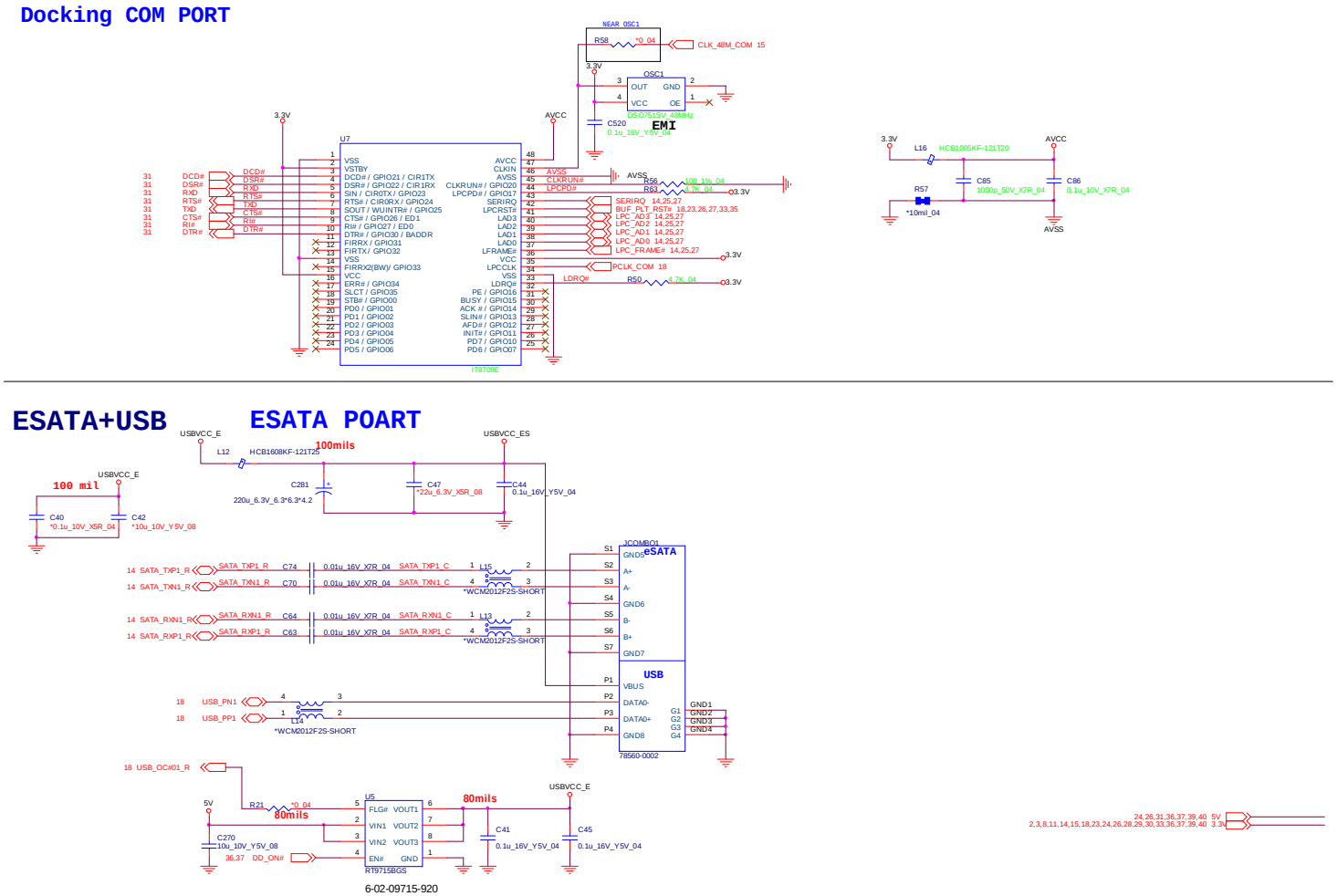
2,3,8,11,14,15,18,23,24,26,28,29,32,33,36,37,39,40 3.3V
12,13,21,25,29,36,41,42 5VS
3,9,10,11,12,13,14,16,17,18,19,20,21,23,25,27,28,29,33,36,41 3.3VS

DOCKING CONNECTOR, USB Charger

Sheet 31 of 48
DOCKING CONNECTOR, USB Charger



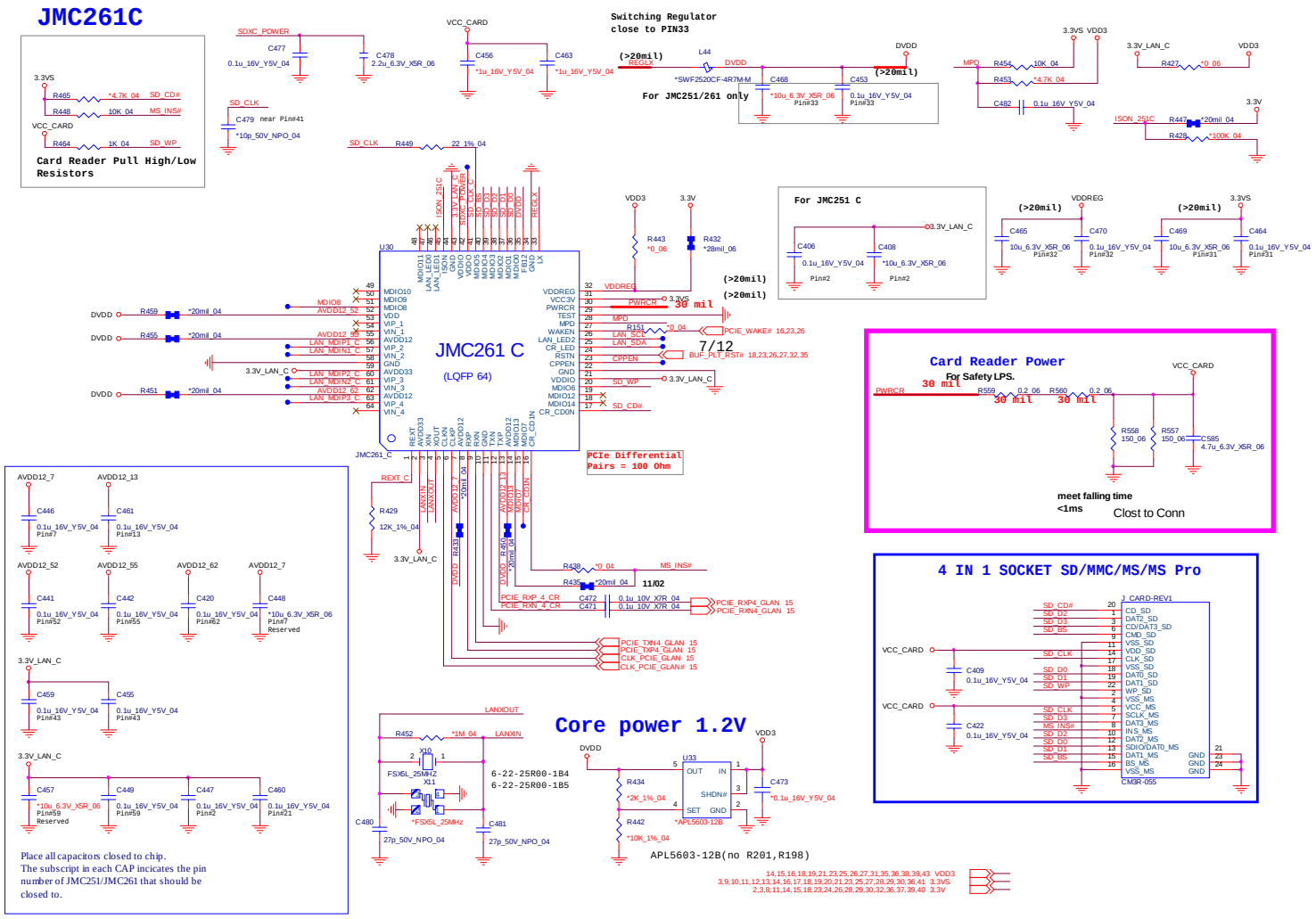
COM PORT, ESATA+USB



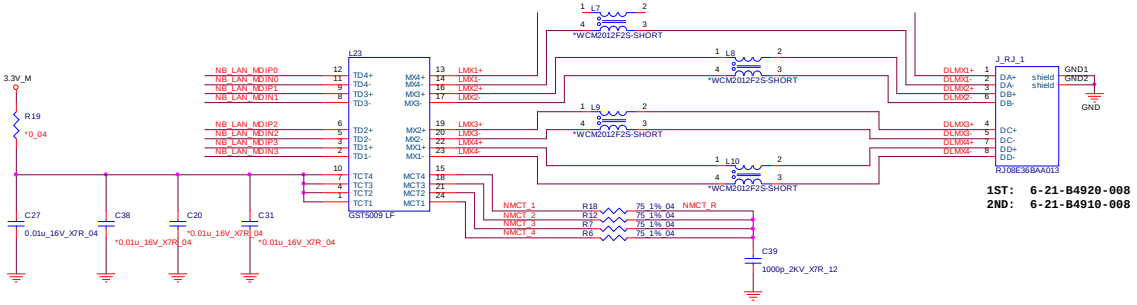
Sheet 32 of 48
COM PORT,
ESATA+USB

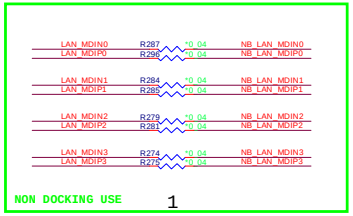
CARD READER JMC261C

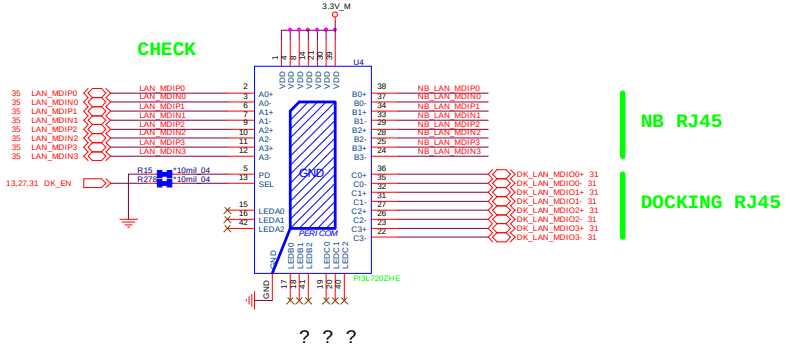
Sheet 33 of 48
CARD READER
JMC261C



LAN (INTEL LAN82579)







? ? ?

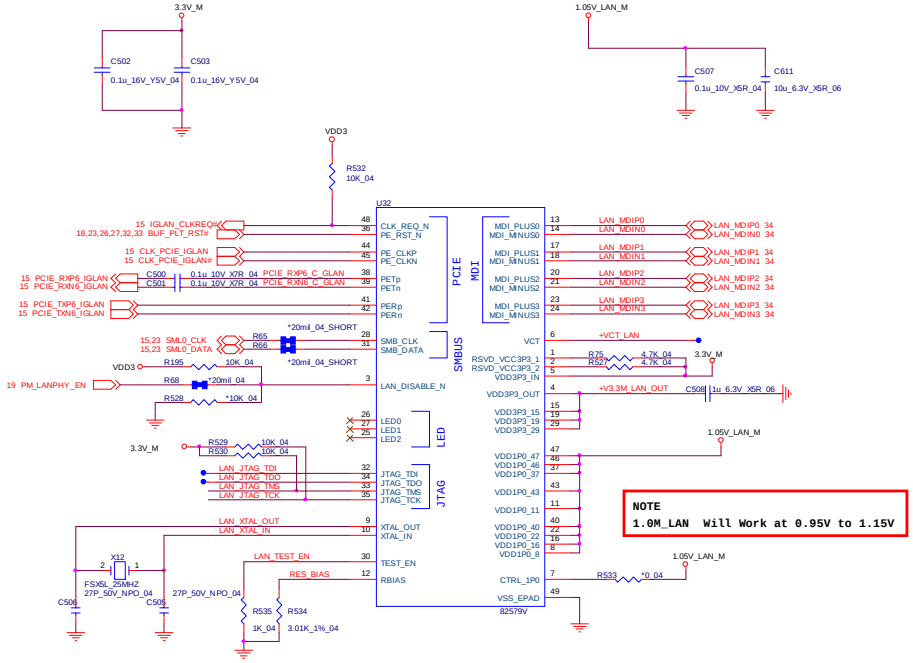
PD	SEL	FUNCTION
L	L	Ax to Bx , LEDAx to LEDBx
L	H	Ax to Cx , LEDAx to LEDCx
H	X	Hi-Z

14,16,20,35,36 3.3V_M

Sheet 34 of 48
LAN (INTEL LAN82579)

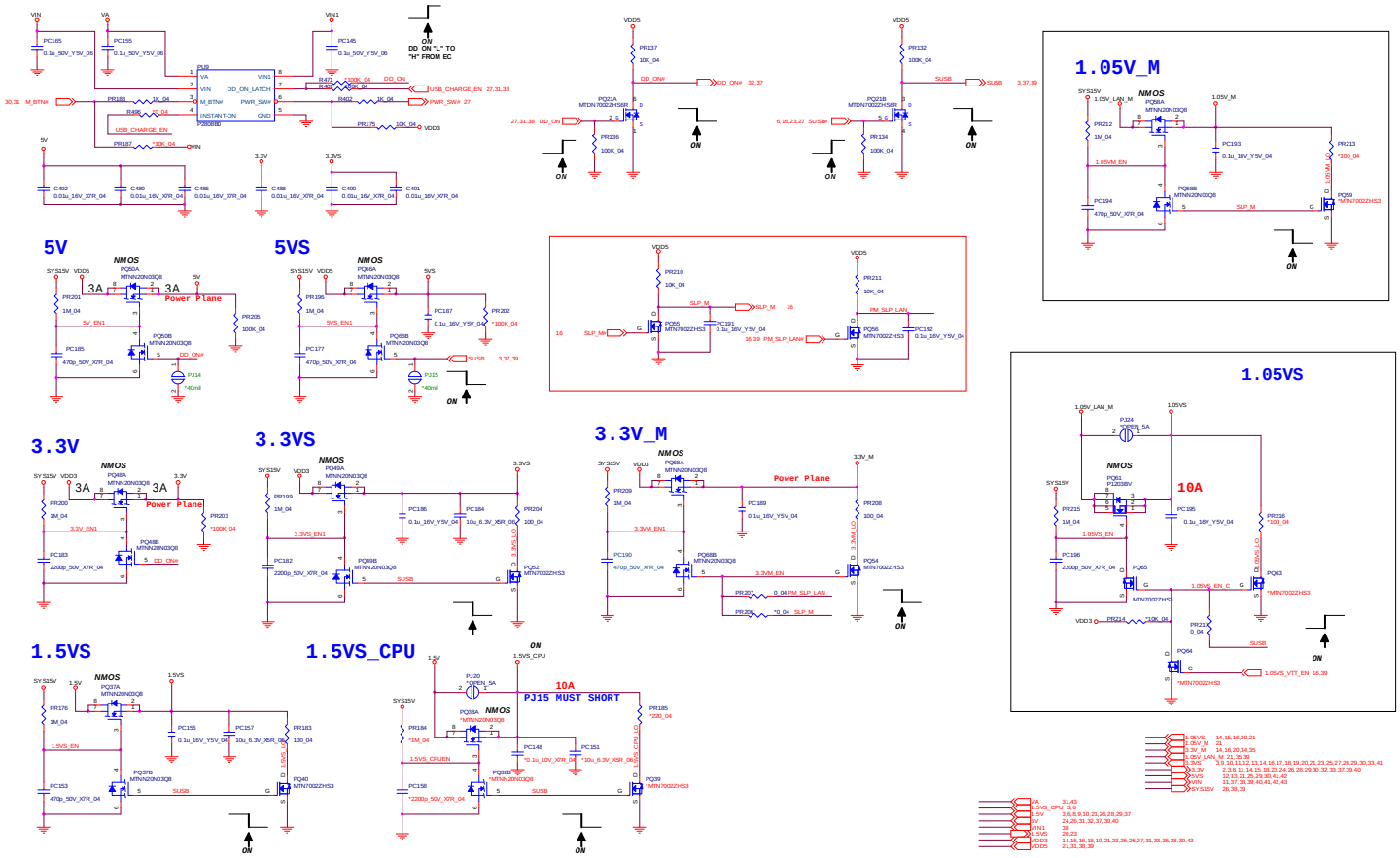
INTEL LAN82579LM

Sheet 35 of 48
INTEL
LAN82579LM



	U25	U32	U28	U41	U27
VPRO	QM67 6-03-08267-0S1	82579LM 6-03-82579-030-S	MX25L3206E 6-04-25320-490	MX25L3206E 6-04-25320-490	PM25LD010C-SCE 6-04-25010-A91
non-VPRO	HM65 6-03-08265-0S1	82579V 6-03-82579-031-S	NI	NI	MX25L3206E 6-04-25320-490

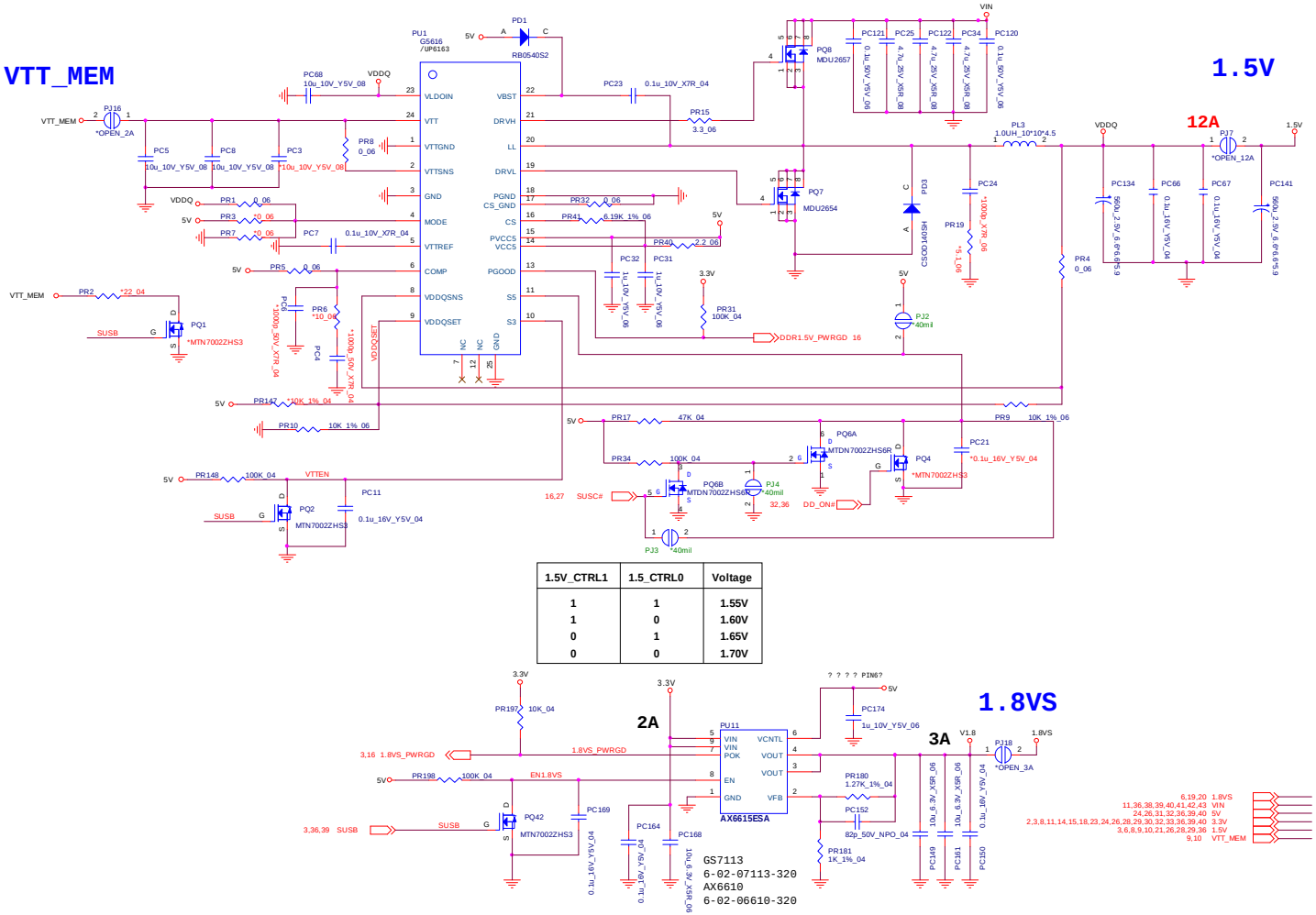
5VS, 3VS, 1.5VS CPU



Sheet 36 of 48
5VS, 3VS, 1.5VS CPU

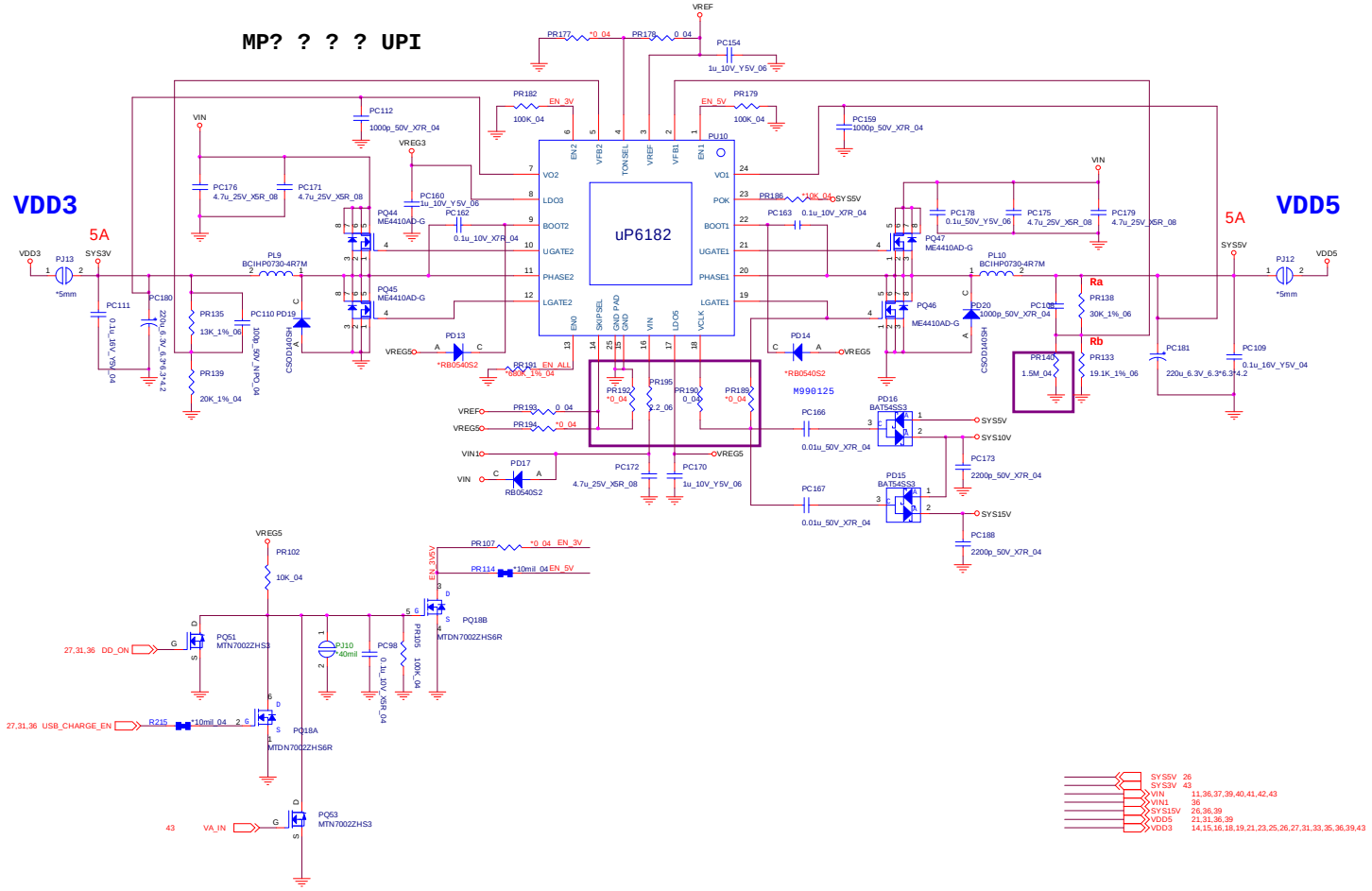
Power 1.5V/0.75V,1.8VS

Sheet 37 of 48
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

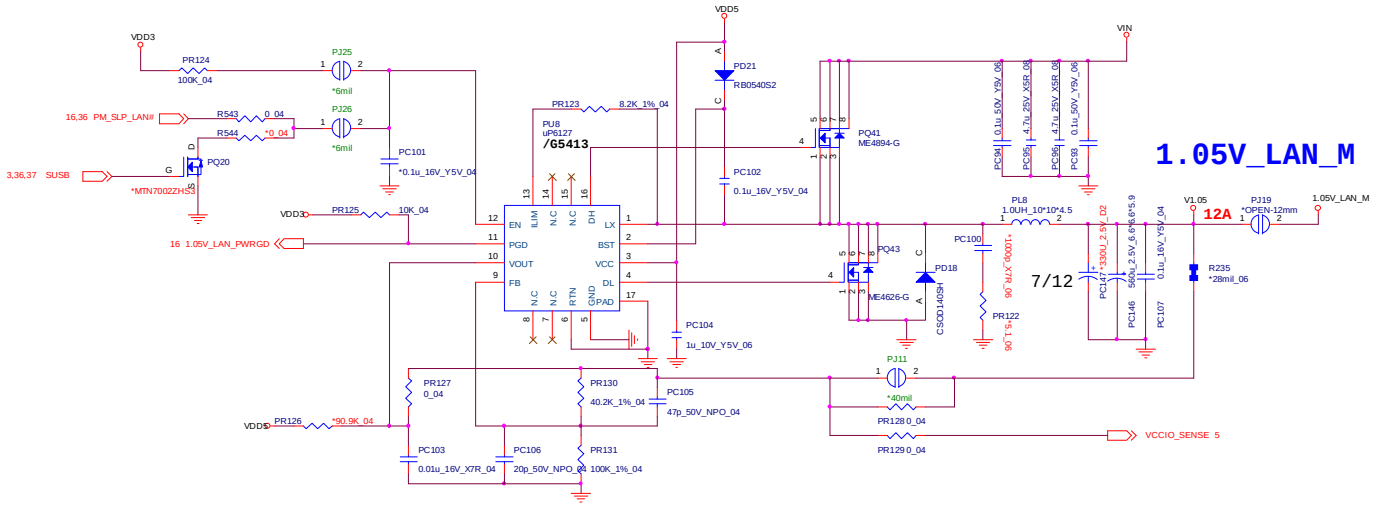
VDD3, VDD5



Sheet 38 of 48
VDD3, VDD5

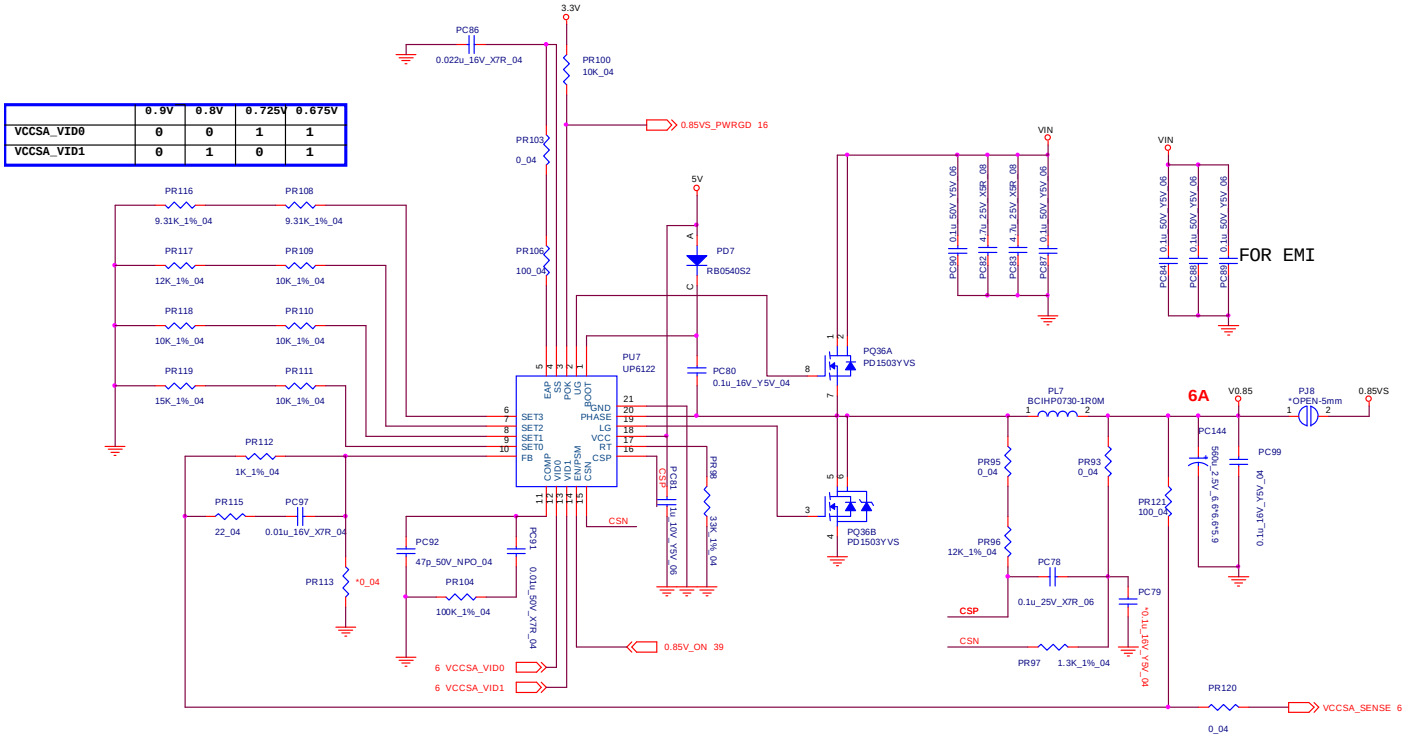
POWER 1.05V LAN M

Sheet 39 of 48
POWER 1.05V LAN M



POWER 0.85VS

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



5V 24,26,31,32,36,37,39
0.85VS 6
VIN 11,36,37,38,39,41,42,43
3.3V 2,3,8,11,14,15,18,23,24,26,28,29,30,32,33,36,37,39

Sheet 40 of 48
POWER 0.85VS

Power V-CORE 1

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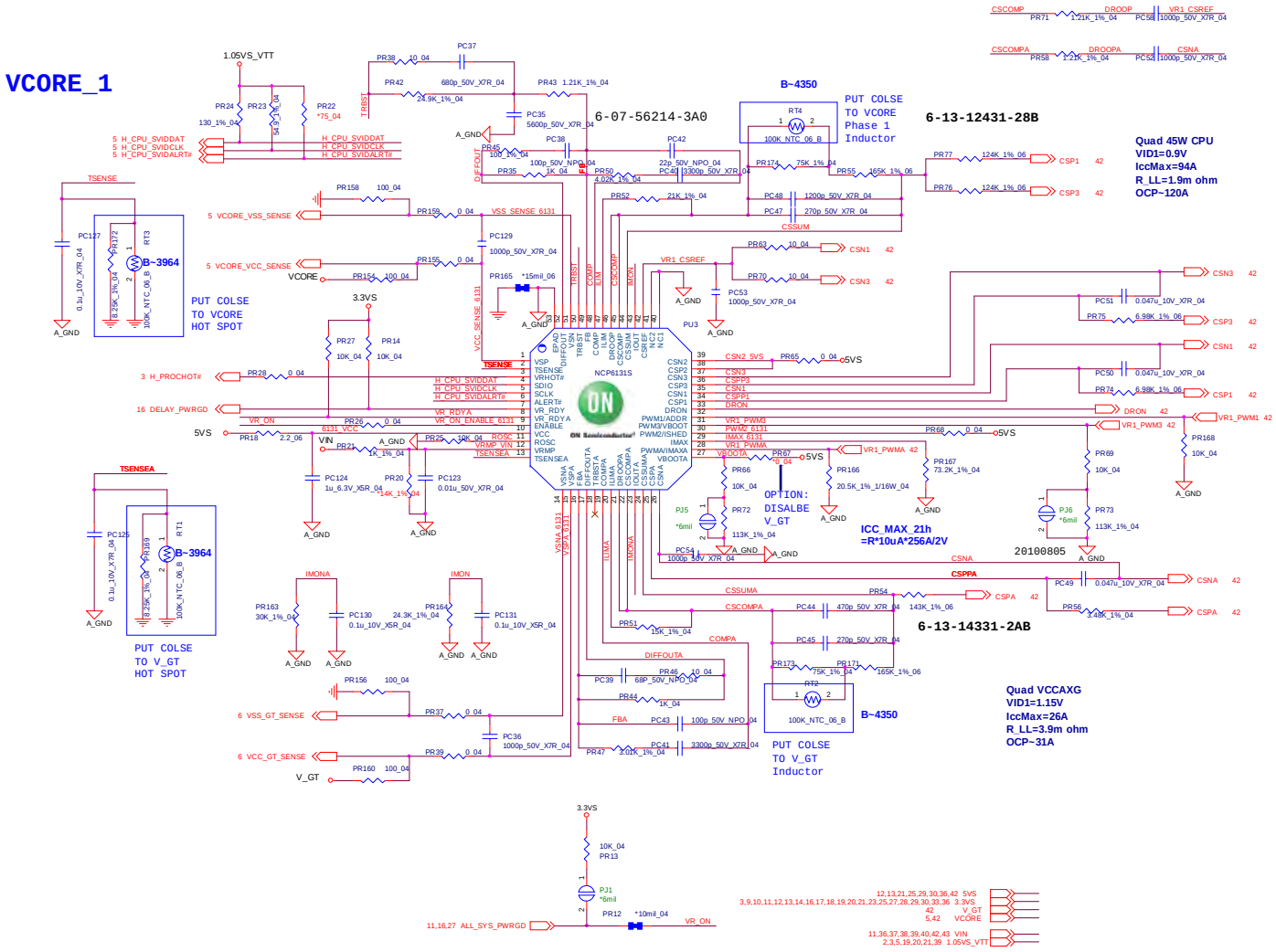
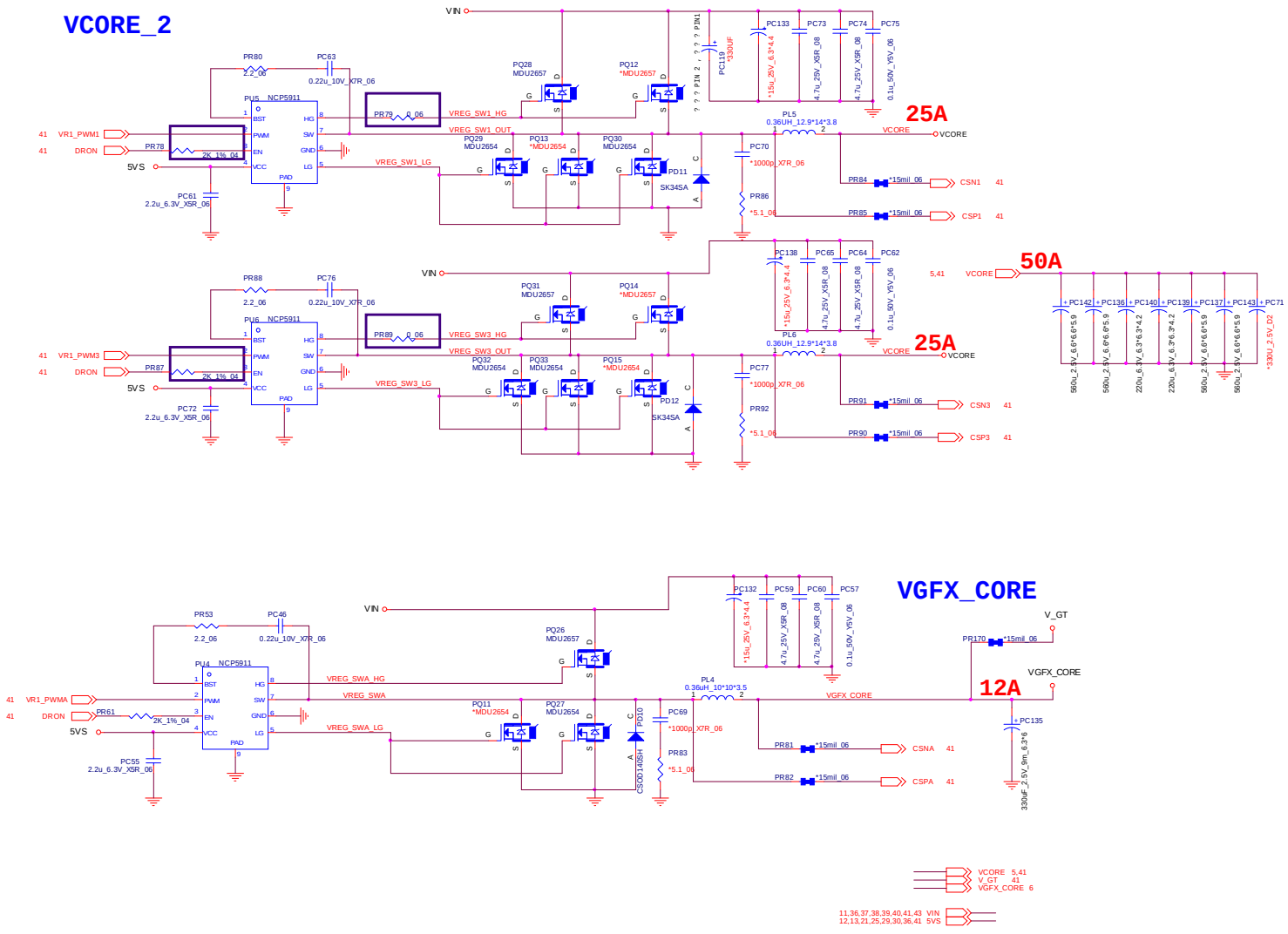
Power V-CORE 1



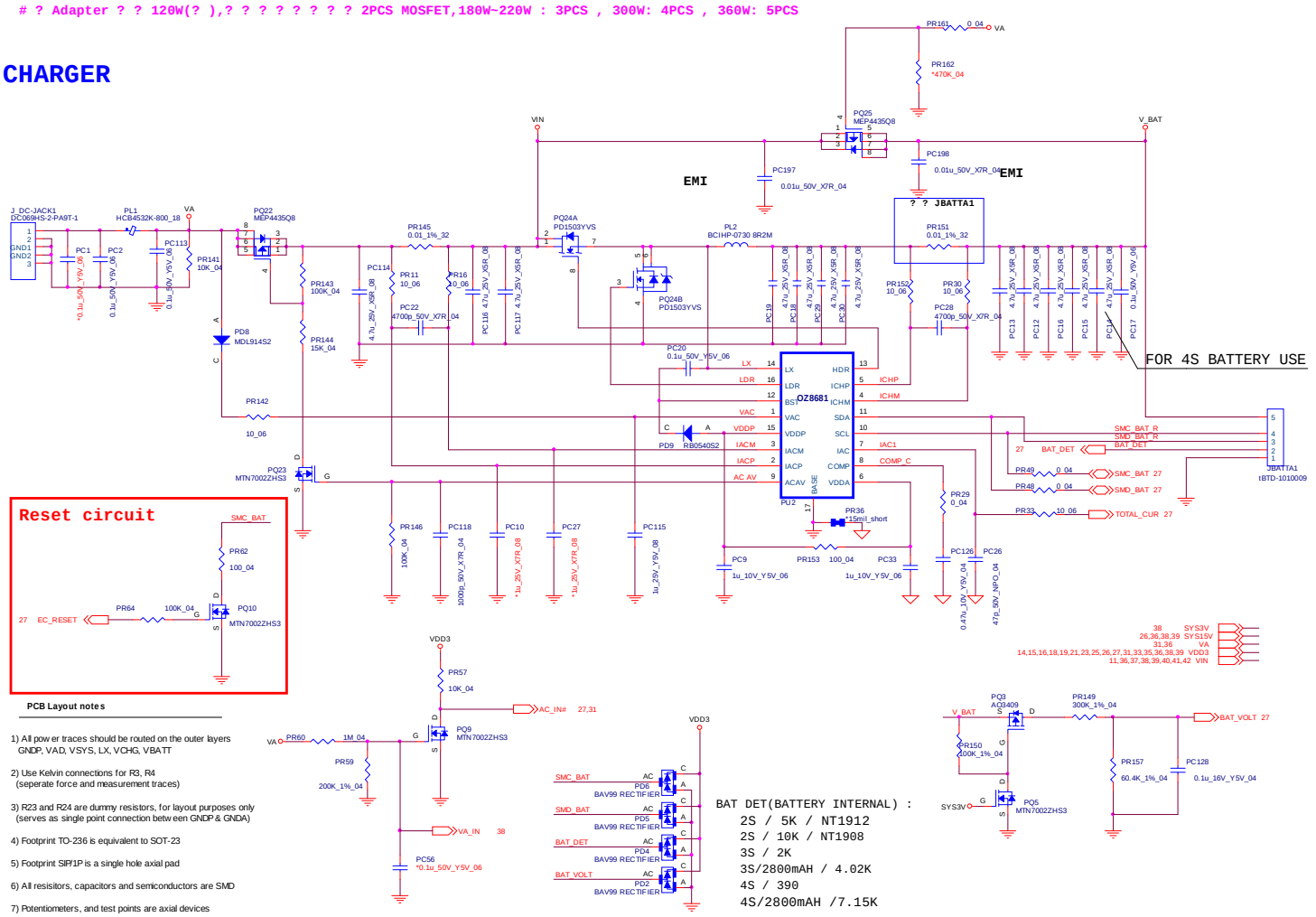
Power V-CORE 2



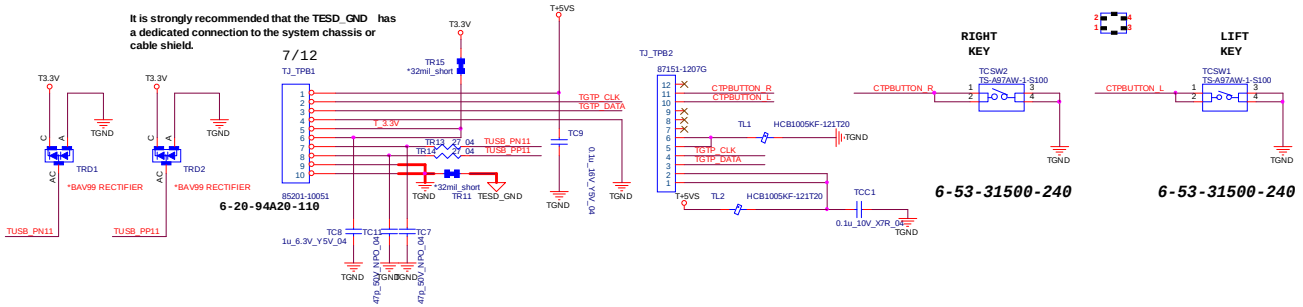
Sheet 42 of 48
Power V-CORE 2

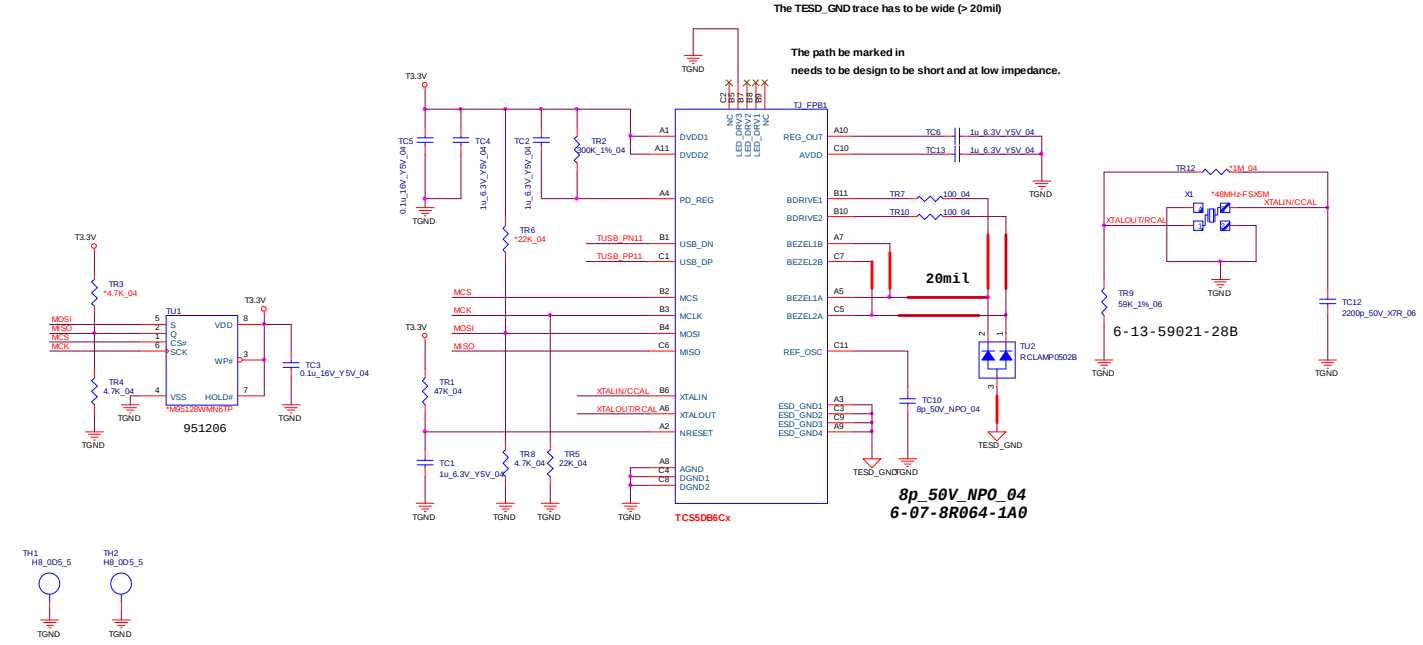
CHARGE, DC IN

Sheet 43 of 48
CHARGE, DC IN



CLICK BOARD/ FG



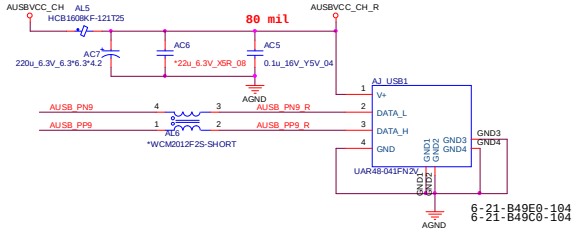


Sheet 44 of 48
CLICK BOARD/ FG

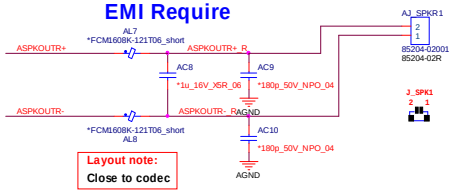
AUDIO BOARD/ USB, HP, MIC

Sheet 45 of 48
AUDIO BOARD/
USB, HP, MIC

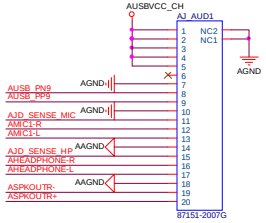
USB PORT



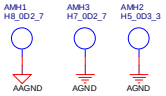
EMI Require

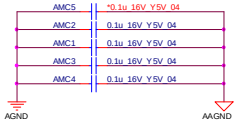


TO M/B

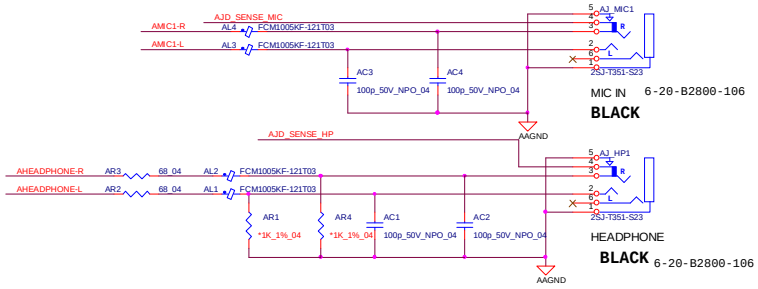


6-20-94K20-120





AUDIO JACK

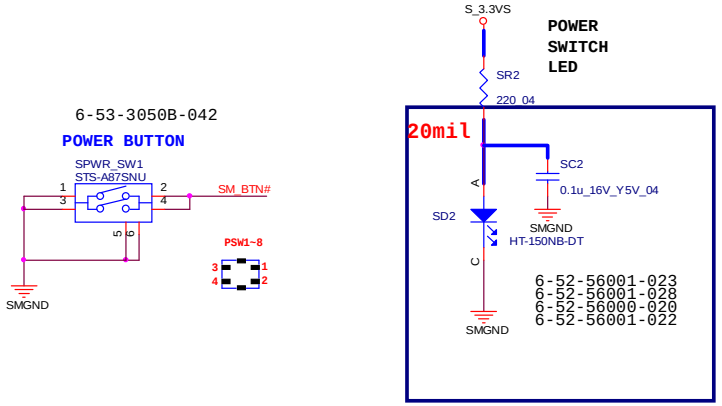


MIC IN 6-20-B2800-106
BLACK

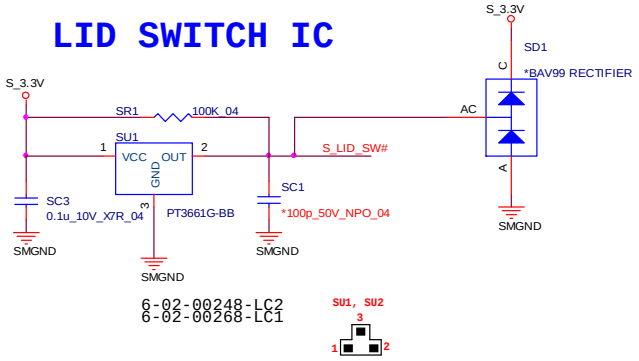
HEADPHONE
BLACK 6-20-B2800-106

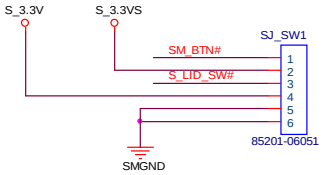
POWER SWITCH

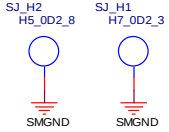
POWER SW & LED & HOT KEY



? ? ? ? ? ?



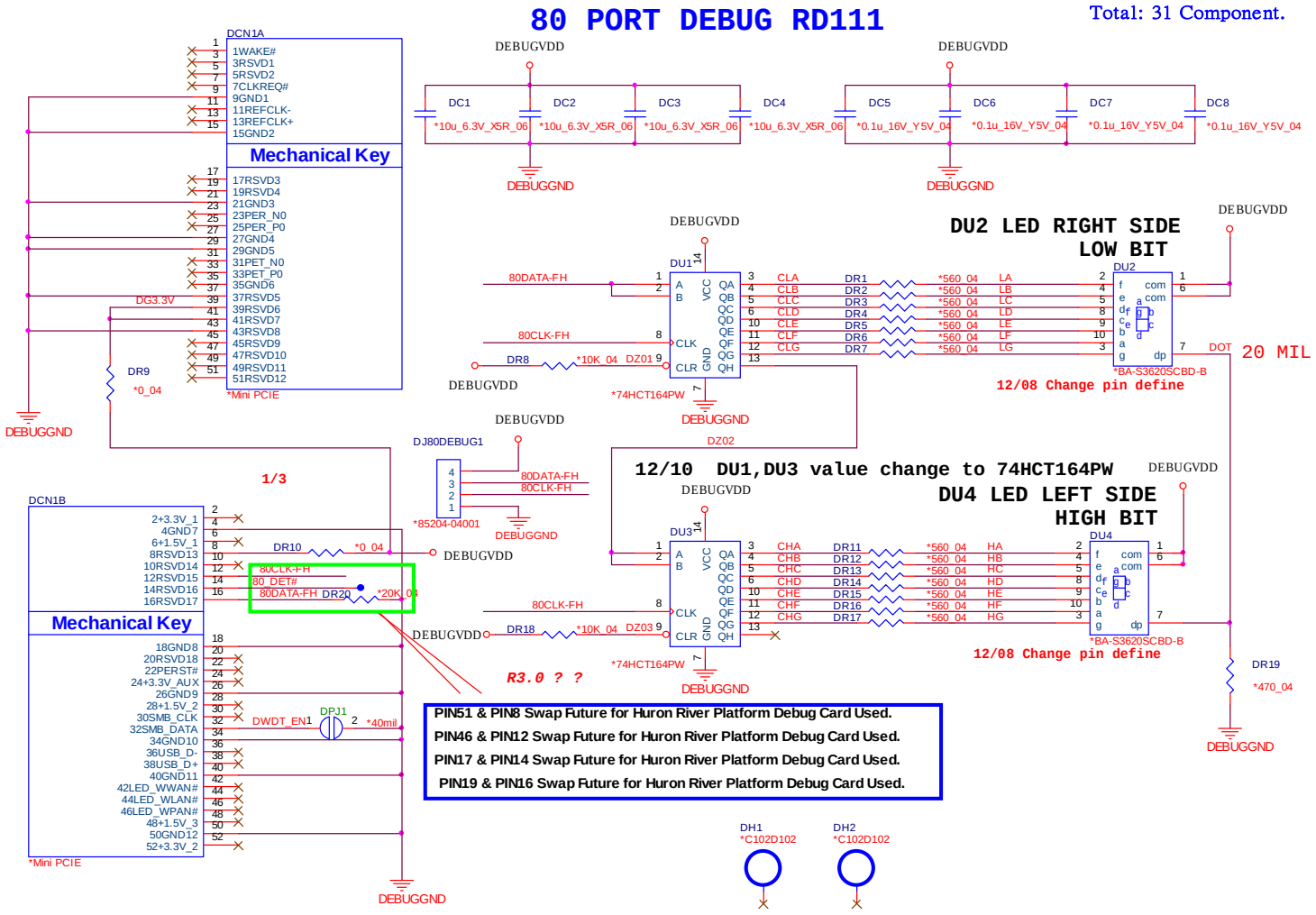




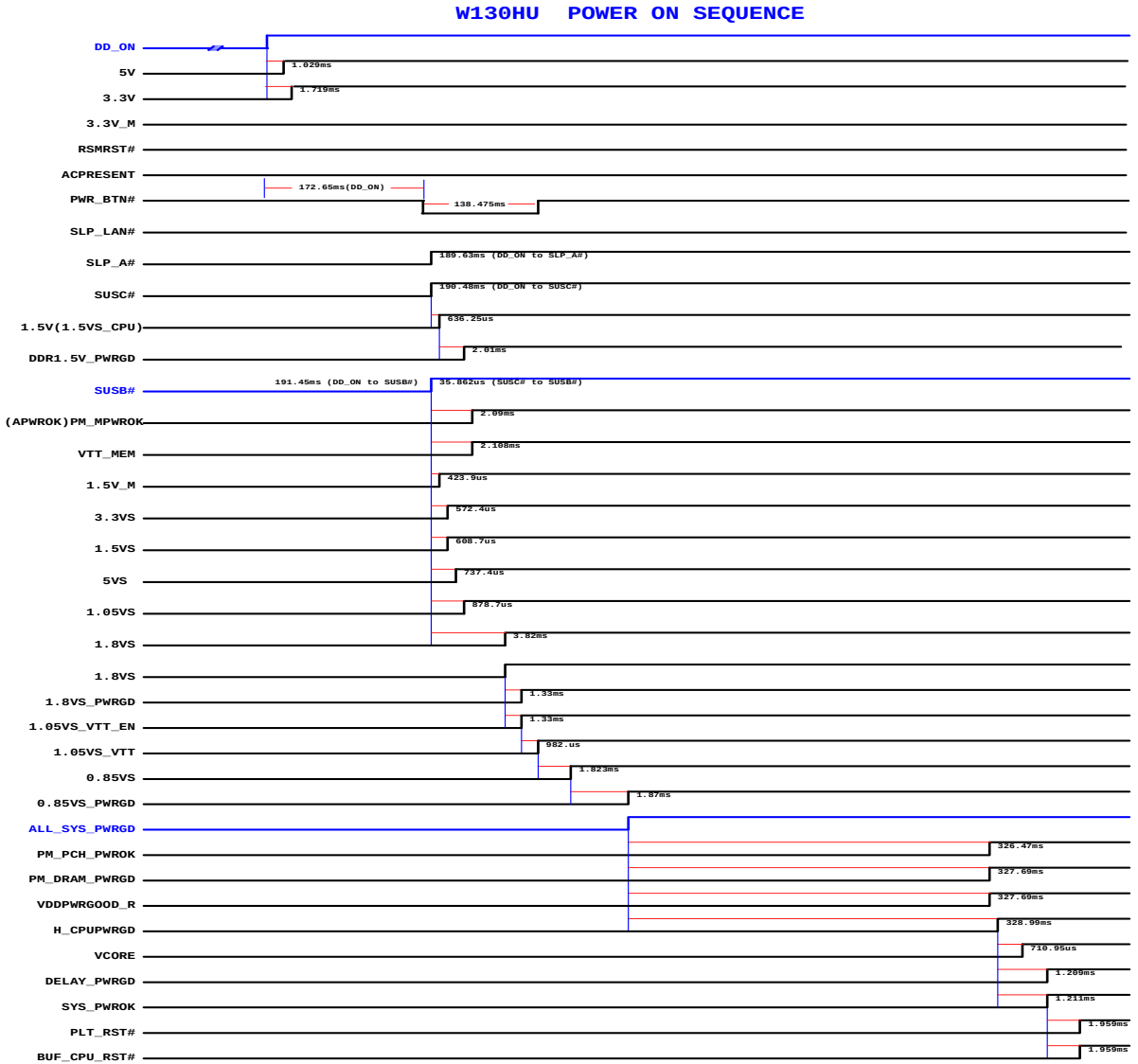
Sheet 46 of 48
POWER SWITCH

DEBUG BOARD

Sheet 47 of 48
DEBUG BOARD



Power Sequence



Sheet 48 of 48
Power Sequence

Appendix C:Updating the FLASH ROM BIOS

To update the FLASH ROM BIOS you must:

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

Download the BIOS

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

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

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

Set the computer to boot from the external drive

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

BIOS Version

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

You should only download BIOS versions that are V1.01.XX or higher as appropriate for your computer model.

Note that BIOS versions are not backward compatible and therefore **you may not downgrade your BIOS to an older version** after upgrading to a later version (e.g if you upgrade a BIOS to ver 1.01.05, you **MAY NOT** then go back and flash the BIOS to ver 1.01.04).

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.