SERVICE MANUAL

W270BUQ Series

notebook

Notebook Computer

W270BUQ

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 ***W270BUQ*** 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 (**65**W) 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 130 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".

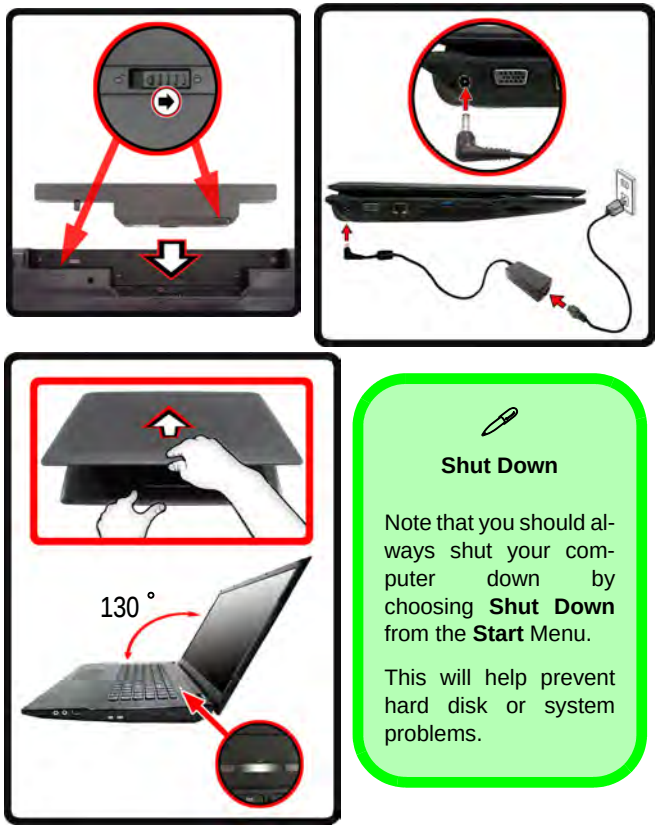


Figure 1
Opening the Lid/LCD/ Computer with AC/DC Adapter Plugged-In

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.

Contents

Updating the FLASH ROM BIOS..... C-1

Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the ***W270BUQ*** 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 ***W270BUQ*** 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

AMD-C Series (Dual-Core) Accelerated Processing Unit - C-50 2C (1.0GHz)

1MB L2 Cache, 40nm, DDR3-1066MHz, TDP 9W

AMD-E Series (Dual-Core) Accelerated Processing Unit - E-350 (1.6GHz)

1MB L2 Cache, 40nm, DDR3-1066MHz, TDP 18W

Core Logic

AMD A50M FCH

LCD

17.3" (43.94cm) HD+ / FHD TFT LCD

Memory

Two 204 Pin SO-DIMM Sockets Supporting **DDR3 1066/ 1333MHz** Memory

Memory Expandable up to **8GB**

Storage

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

One Changeable 2.5" 9.5 mm (h) SATA HDD

Video Adapter

AMD Radeon™ HD 6250 (E-350 APU Integrated)

Shared Memory Architecture of up to **1469MB** (under Windows 7 32 Bit with 4GB Memory)

Microsoft® DirectX 11 Compatible

AMD Radeon™ HD 6310 (C-50 APU Integrated)

Shared Memory Architecture of up to **1469MB** (under Windows 7 32 Bit with 4GB Memory)

Microsoft® DirectX 11 Compatible

BIOS

One 16Mb SPI Flash ROM

AMI BIOS

Audio

High Definition Audio Compliant Interface

2 * Built-In Speakers

Built-In Microphone

Security

Security (Kensington® Type) Lock Slot

BIOS Password

Keyboard

Full-size “WinKey” keyboard (with numeric keypad)

Pointing Device

Built-in Touchpad

Communication

Built-In 10Mb/100Mb Ethernet LAN

(**Factory Option**) 300K/1.3M Pixel USB PC Camera Module

WLAN/ Bluetooth Half Mini-Card Modules:

(**Factory Option**) Wireless LAN (**802.11b/g/n**)

(**Factory Option**) Wireless LAN (**802.11b/g/n**) + Bluetooth 3.0

Interface

Three USB 2.0 Ports
One HDMI-Out Port
One Headphone-Out Jack
One Microphone-In Jack
One RJ-45 LAN Jack
One DC-in Jack
One External Monitor 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

Environmental Spec

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

Power

6 Cell Smart Lithium-Ion Battery Pack, 48.84WH
(**Factory Option**) 6 Cell Smart Lithium-Ion Battery Pack, 62.16WH

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

Dimensions & Weight

413mm (w) * 270mm (d) * 14 - 40.5mm (h)
2.9 kg (with 48.84WH Battery and ODD)

External Locator - Top View with LCD Panel Open

Figure 1
Top View

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

External Locator - Front & Right Side Views

FRONT VIEW

Figure 2
Front View

1. LED Power Indicators

RIGHT SIDE VIEW

Figure 3
Right Side View

1. Microphone-In Jack
2. Headphone-Out Jack
3. USB 2.0 Port
4. Optical Device Drive Bay
5. Emergency Eject Hole
6. 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. HDMI-Out Port
5. USB 2.0 Port
6. Vent
7. Multi-in-1 Card Reader

LEFT SIDE VIEW

Figure 5
Rear View

1. Battery

REAR VIEW

External Locator - Bottom View

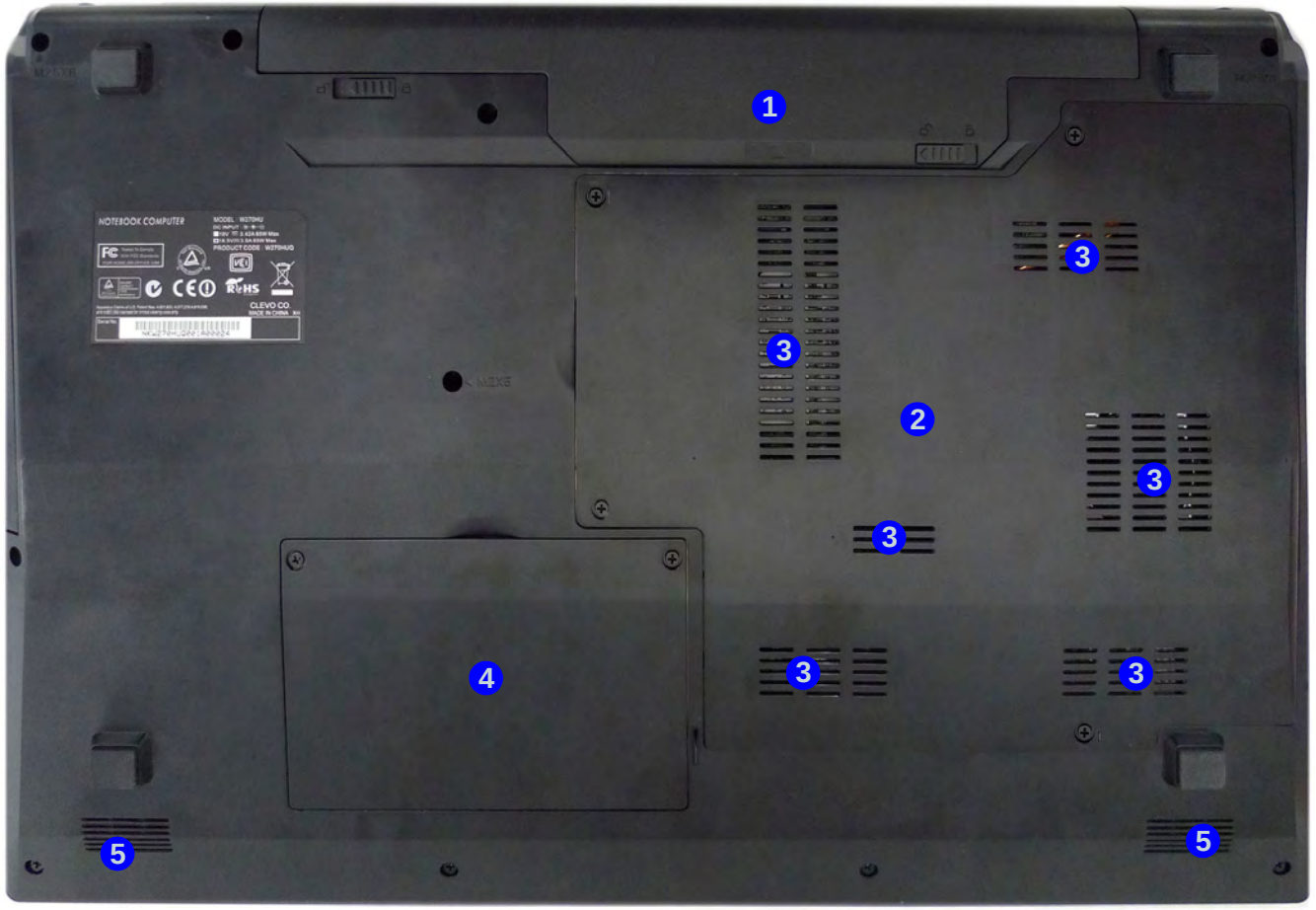


Figure 6
Bottom View

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

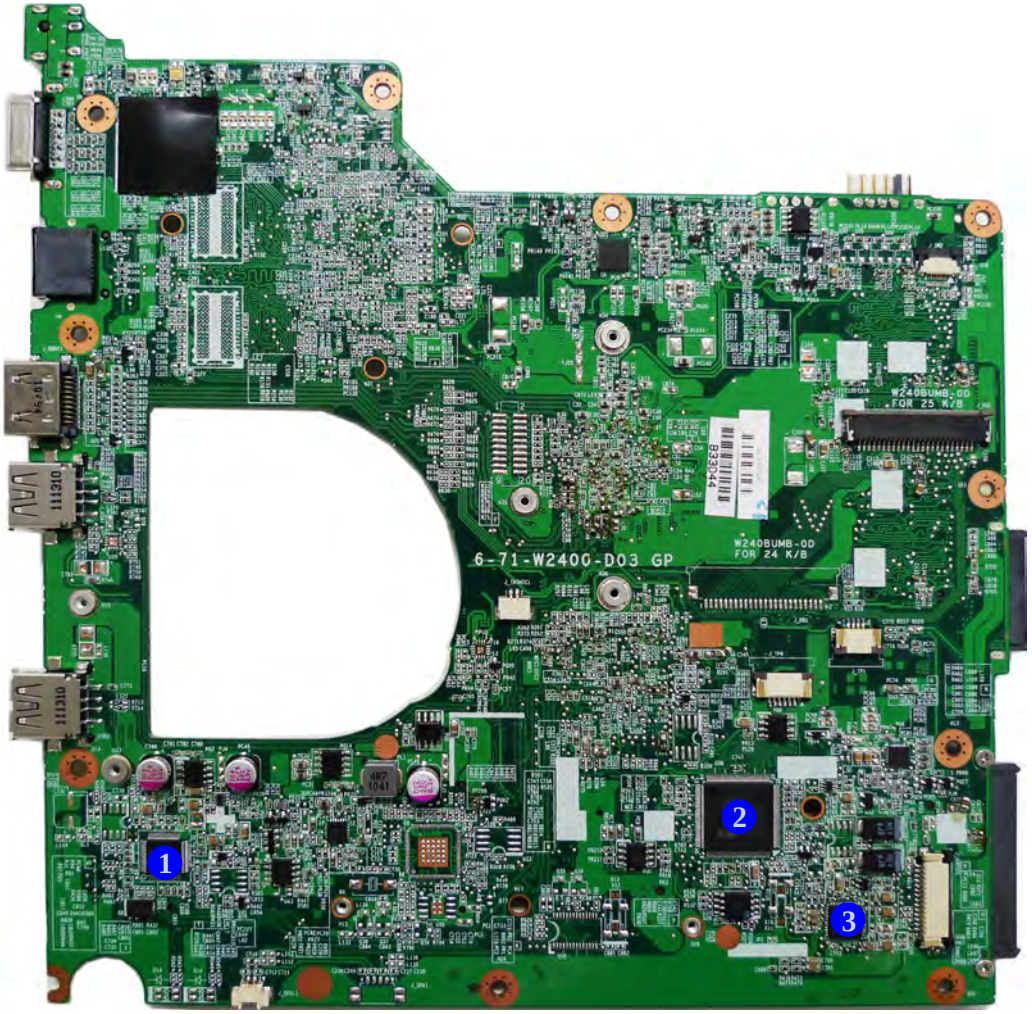
Overheating

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. JMC261C
2. ITE T858
3. AZALIA Codec REALTEK ALC269



Mainboard Overview - Bottom (Key Parts)

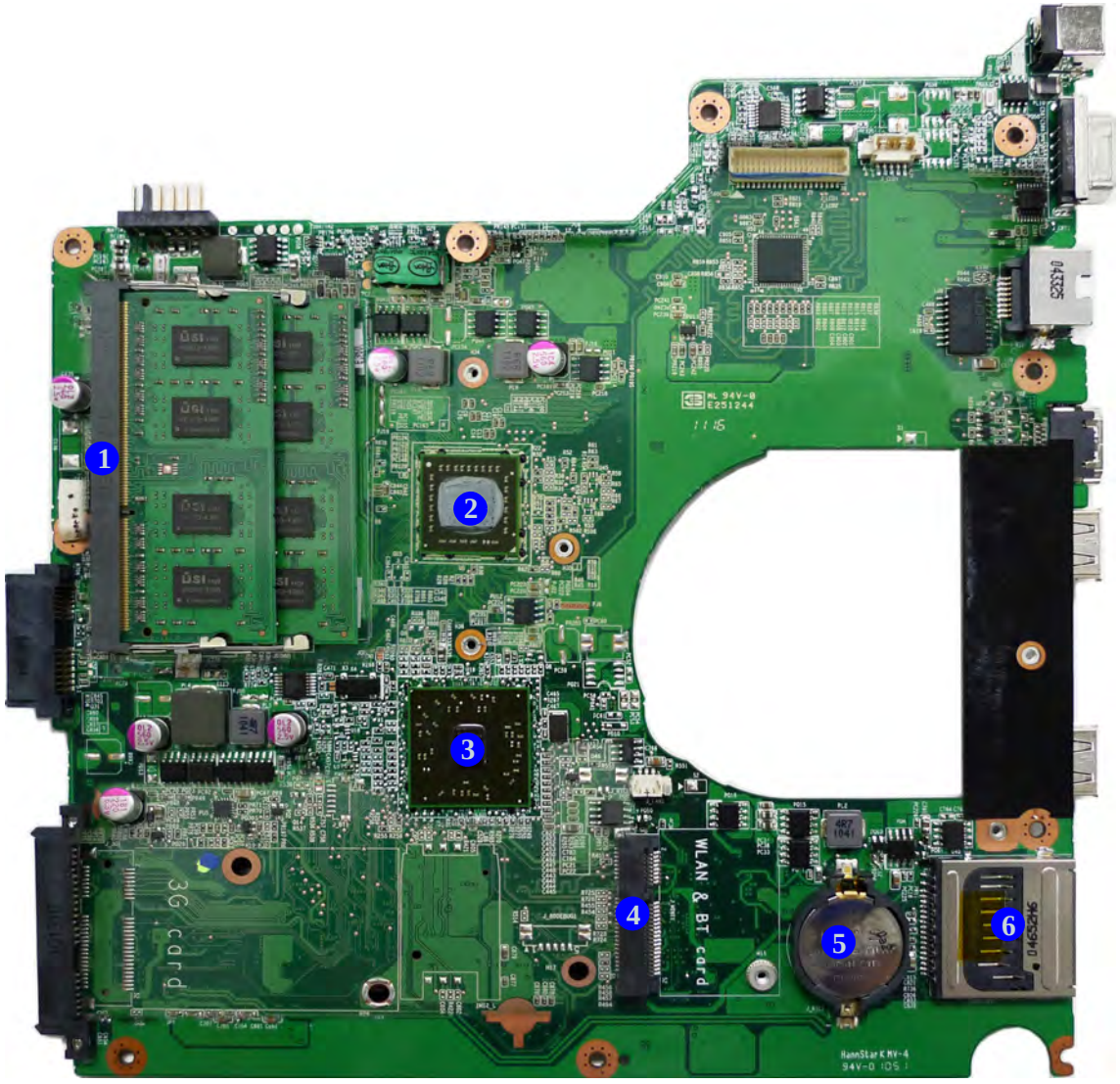
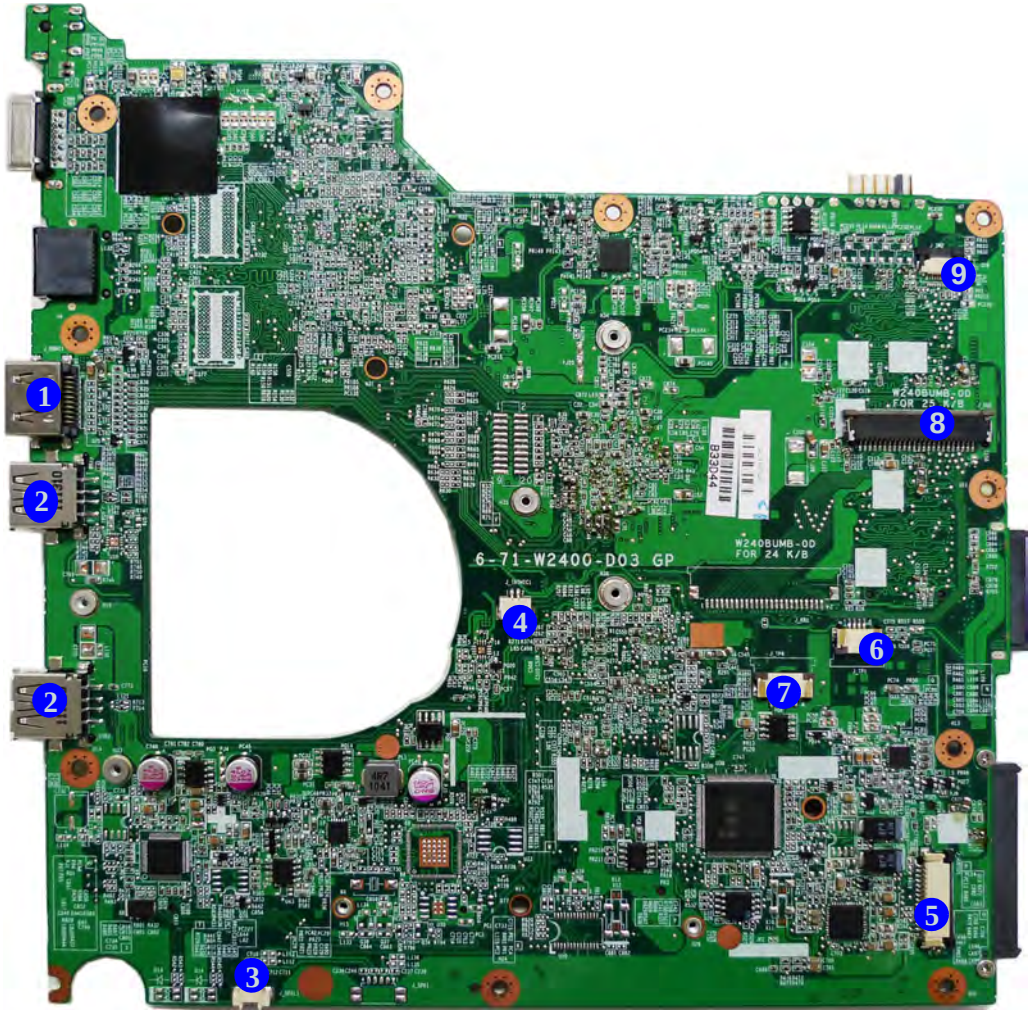


Figure 8
Mainboard Bottom Key Parts

1. Memory Slots DDR3 SO-DIMM
2. Accelerated Processing Unit
3. AMD Hudson M1 FCH
4. Mini-Card Connector (WLAN Module)
5. CMOS Battery
6. Card Reader Socket

Mainboard Overview - Top (Connectors)

Figure 9
Mainboard Top Connectors



1. HDMI-Out Port
2. USB Port 2.0
3. Speaker Cable Connector
4. Microphone Cable Connector
5. Audio Board Connector
6. TouchPad Cable Connector 2
7. TouchPad Cable Connector 1
8. Keyboard Cable Connector
9. Switch Board Cable Connector

Mainboard Overview - Bottom (Connectors)

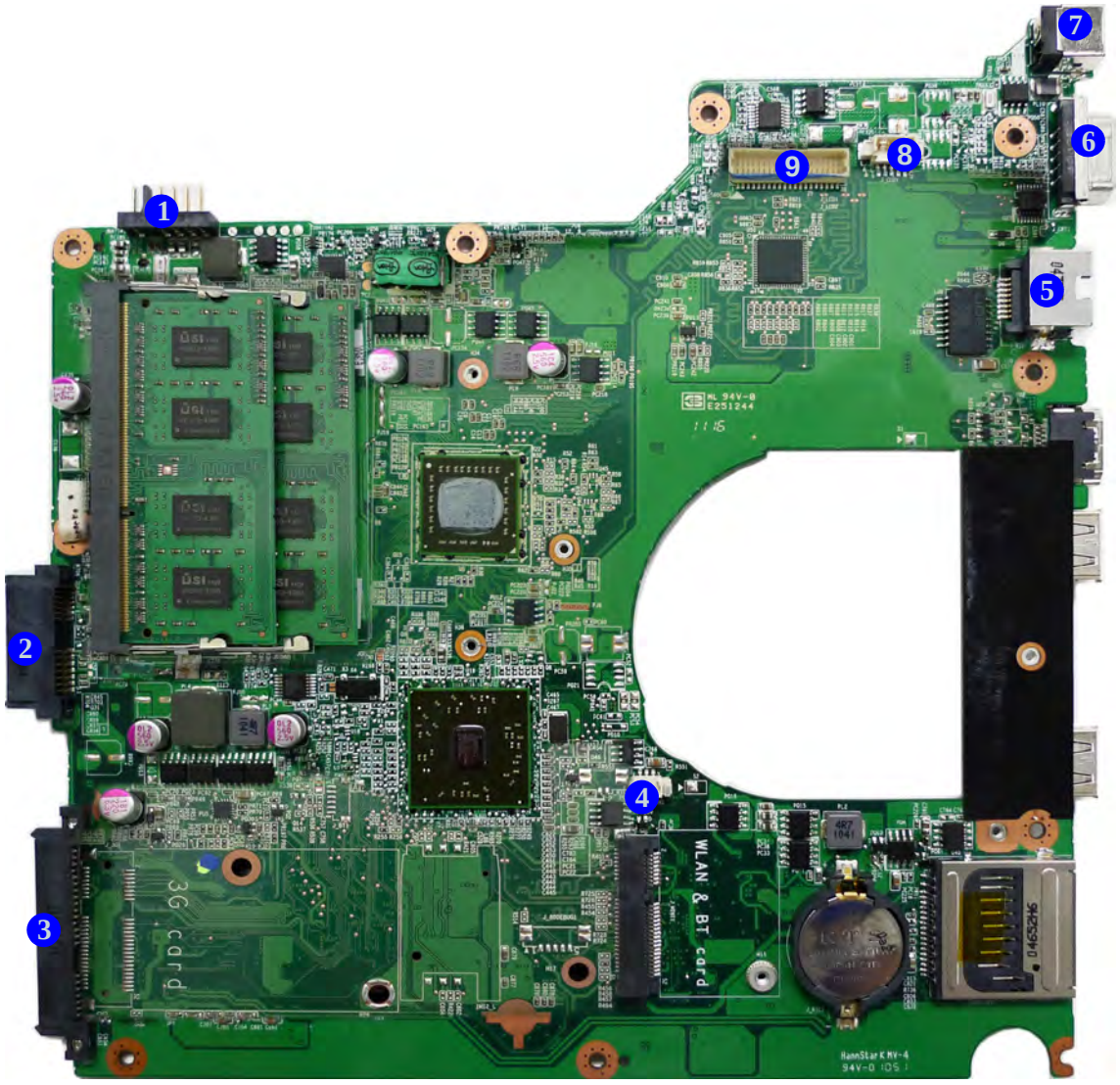


Figure 10
Mainboard Bottom Connectors

1. Battery Connector
2. ODD Connector
3. HDD Connector
4. CPU Fan Cable Connector
5. RJ-45 LAN Jack
6. External Monitor Port
7. DC-In Jack
8. CCD Cable Connector
9. LCD Cable Connector

Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the ***W270BUQ*** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

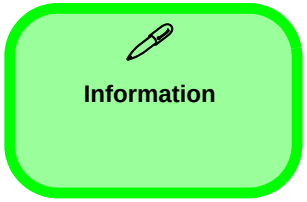
We suggest you completely review any procedure before you take the computer apart.

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 Optical Device:

1. Remove the battery *page 2 - 5*
2. Remove the Optical device *page 2 - 8*

To remove the System Memory:

1. Remove the battery *page 2 - 5*
2. Remove the system memory *page 2 - 9*

To remove the Wireless LAN Module:

1. Remove the battery *page 2 - 5*
2. Remove the WLAN module *page 2 - 11*

To remove the Keyboard:

1. Remove the battery *page 2 - 5*
2. Remove the keyboard *page 2 - 12*

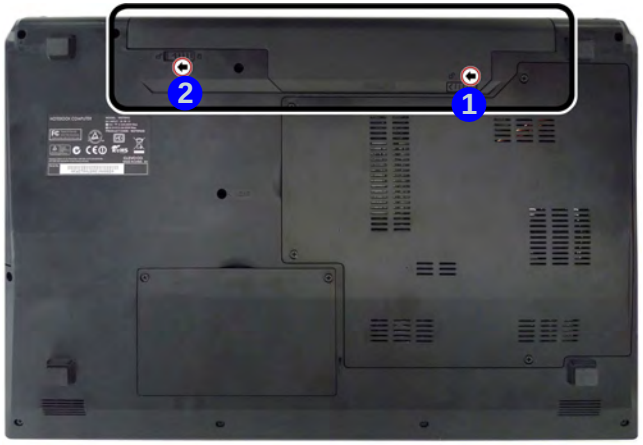
Removing the Battery

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***).

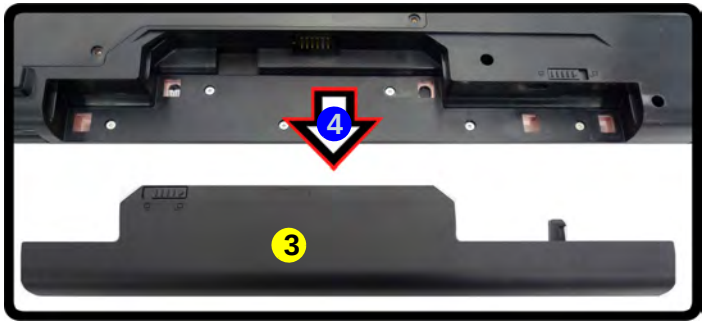
Figure 1
Battery Removal

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

a.



b.



3. Battery

Removing 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.

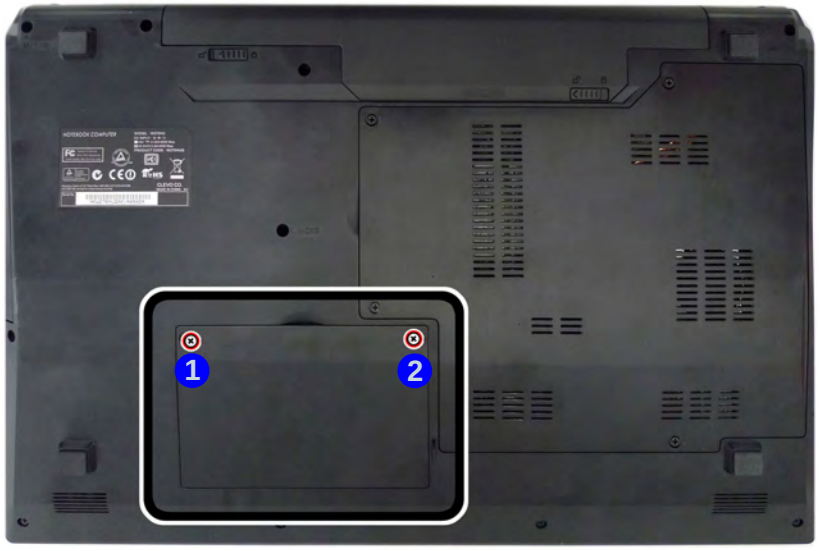
Figure 2
HDD Assembly Removal

a. Locate the HDD bay cover and remove the screws.

Hard Disk Upgrade Process

1. Turn **off** the computer, and remove the battery (***page 2 - 5***).
2. Locate the hard disk bay cover and remove screws 1 & 2 (***Figure 2a***).

a.



- 2 Screws

HDD System Warning

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

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

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

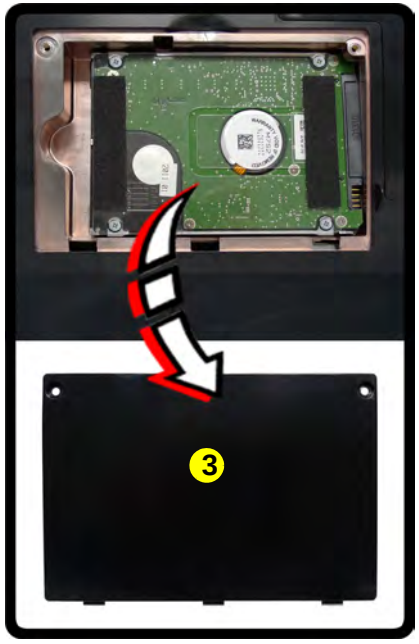
If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

3. Remove the hard disk bay cover 3 (*Figure 3b*).
4. Grip the tab and slide the hard disk in the direction of arrow 4 (*Figure 3c*).
5. Lift the hard disk assembly 5 out of the bay 6 (*Figure 3d*).
6. Remove the screw 7 - 10 and the mylar cover 11 from the hard disk 12 (*Figure 3e*).
7. Reverse the process to install a new hard disk (do not forget to replace all the screws and covers).

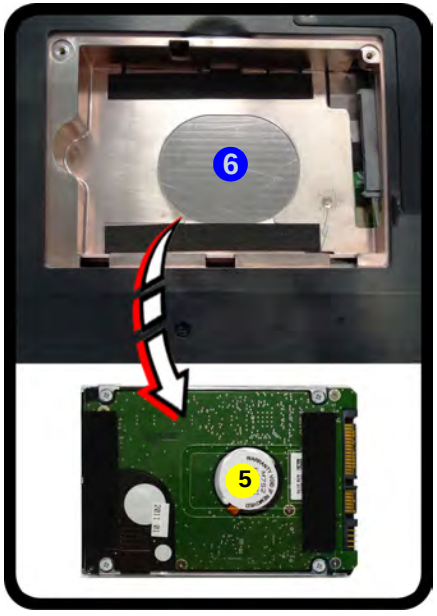
Figure 3
HDD Assembly Removal (cont'd.)

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

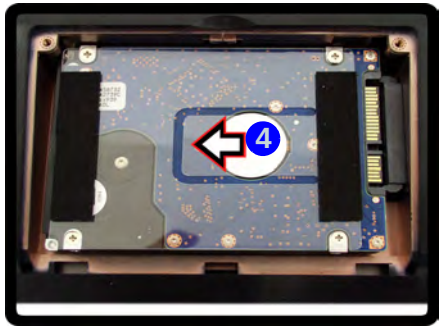
b.



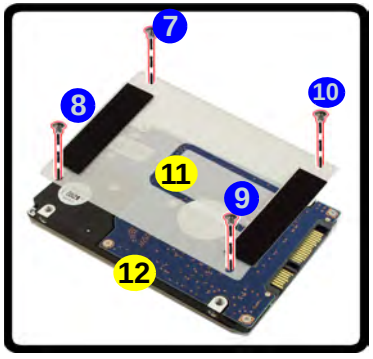
d.



c.



e.



3. HDD Bay Cover
5. HDD Assembly
11. Mylar Cover
12. HDD

- 4 Screws

Figure 4
Optical Device Removal

a. Remove the screw at point 1.
b. Use a screwdriver to carefully push out the optical device at point 2.

Removing the Optical (CD/DVD) Device

1. Turn **off** the computer, remove the battery (***page 2 - 5***) and hard disk (***page 2 - 6***).
2. Remove the screw at point 1 (***Figure 4a***).
3. Use a screwdriver to carefully push out the optical device 3 at point 2 (***Figure 4b***).
4. 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).
5. Restart the computer to allow it to automatically detect the new device.

a.

b.

3. Optical Device

- 1 Screw

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 1066/1333 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.

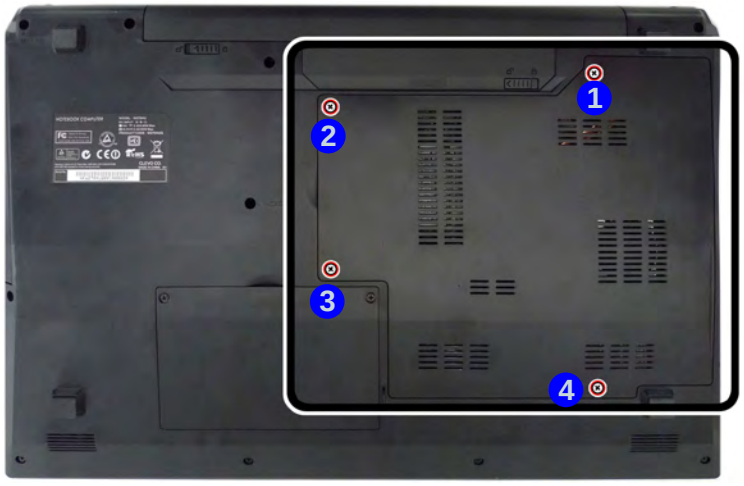
Memory Upgrade Process

1. Turn **off** the computer, turn it over and remove the battery (*page 2 - 5*).
2. Remove screws 1 - 4 from the component bay cover (*Figure 5a*).
3. Carefully (**a fan and cable are attached to the under side of the cover**) lift up the bay cover.
4. Carefully disconnect the fan cable 5, and remove the cover 6 (note that you need to raise the bottom cover up to an angle of around 30° angle).
5. The RAM modules will be visible at point 7 on the mainboard (*Figure 5b*).

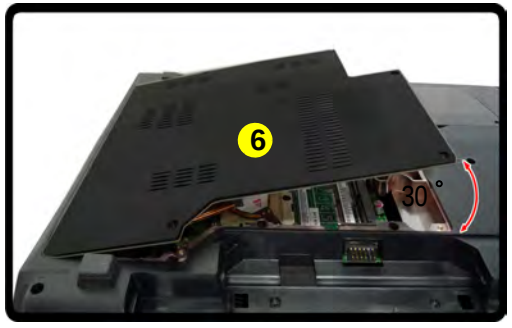
Figure 5
RAM Module Removal

a. Remove the screws.
b. The RAM modules will be visible at point 7 on the mainboard.

a.



b.



6. Component Bay Cover

- 4 Screws

Figure 6
RAM Module Removal (cont'd)

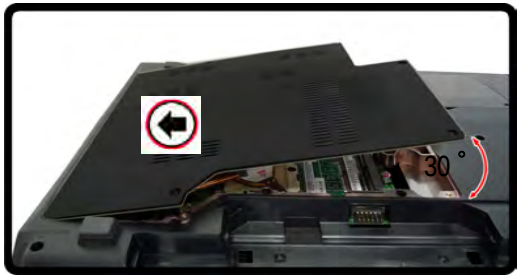
c. Pull the release latches.
d. Remove the module.

6. Gently pull the two release latches (8 & 9) on the sides of the memory socket in the direction indicated by the arrows (***Figure 5c***). The RAM module 10 will pop-up (***Figure 5d***), and you can then remove it.

c.

d.

e.



Note:
The component bay cover has four cover pins, and these need to be aligned with the slots in the case to insure a proper cover fit. Make sure also that the cover is raised at a 30 degree angle during removal and installation.

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.

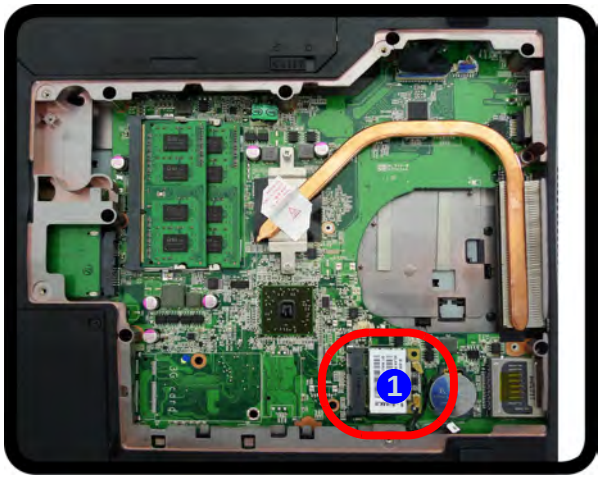
7. Pull the latches to release the second module if necessary.
8. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
9. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE IT; it should fit without much pressure.
10. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
11. Replace the component bay cover and the screws (***Figure 6e***).
12. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

10. RAM Module

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 11a***).
3. Carefully disconnect the cable 2, and then remove the screw 3 (***Figure 11b***).
4. The Wireless LAN module 4 (***Figure 11c***) will pop-up, and you can remove it from the computer (***Figure 11d***).

a.



b.

c.

d.

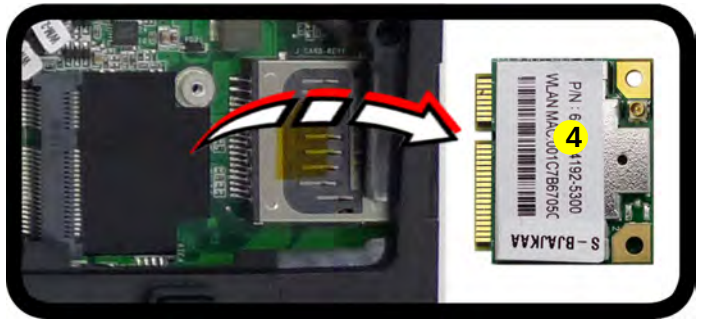


Figure 7
Wireless LAN Module Removal

a. Locate the WLAN.
b. Disconnect the cable and remove the screw.
c. The WLAN module will pop up.
d. Remove the Wireless LAN module.

Note: Make sure you reconnect the antenna cable to the "1 + 2" socket (***Figure 11b***).

4.Wireless LAN Module

- 1 Screw

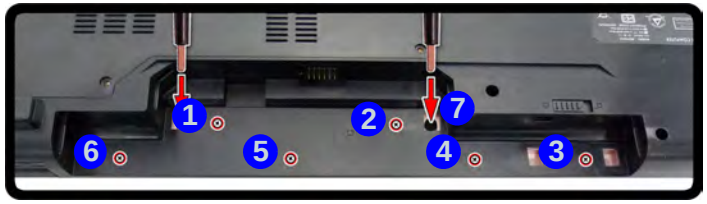
Removing the Keyboard

1. Turn **off** the computer, and remove the battery (*page 2 - 5*) and the component bay cover (*page 2 - 9*).
2. Remove screws 1 - 6 from the bottom of the computer (inside the battery compartment), and then press at point 7 to unsnap the LED cover module (use the eject pin tool provided to do this *Figure 8a*).
3. Turn the computer over, unsnap up the LED cover module 8 from the center of the computer (*Figure 8b*).
4. Remove screws 9 - 13 from the keyboard (*Figure 8c*).
5. Carefully lift the keyboard 14 up, being careful not to bend the keyboard ribbon cable 15. Disconnect the keyboard ribbon cable 15 from the locking collar socket 16 by using a flat-head screwdriver to pry the locking collar pins 17 away from the base (*Figure 8d*).
6. Carefully lift up the keyboard 14 (*Figure 8e*) off the computer.

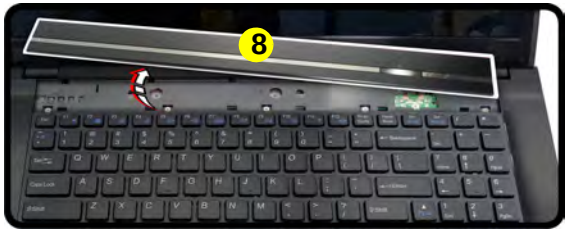
Figure 8
Keyboard Removal

a. Remove screws from the bottom of the computer.
b. Turn the computer over, unsnap up the LED cover module from the center of the computer.
c. Remove screws from the keyboard.
d. Carefully lift the keyboard up and disconnect the keyboard ribbon cable from the locking collar socket by using a flat-head screwdriver to pry the locking collar pins away from the base.
e. Remove the keyboard.

a.

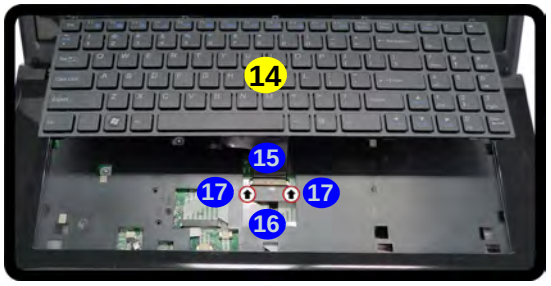


b.



c.

d.



e.

Keyboard Tabs

8. LED Cover Module
14. Keyboard

11 Screws

Re-Inserting the Keyboard

When re-inserting the keyboard firstly align the **four** keyboard tabs at the bottom (*Figure 8e*) at the bottom of the keyboard with the slots in the case.

Appendix A:Part Lists

This appendix breaks down the ***W270BUQ*** 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.

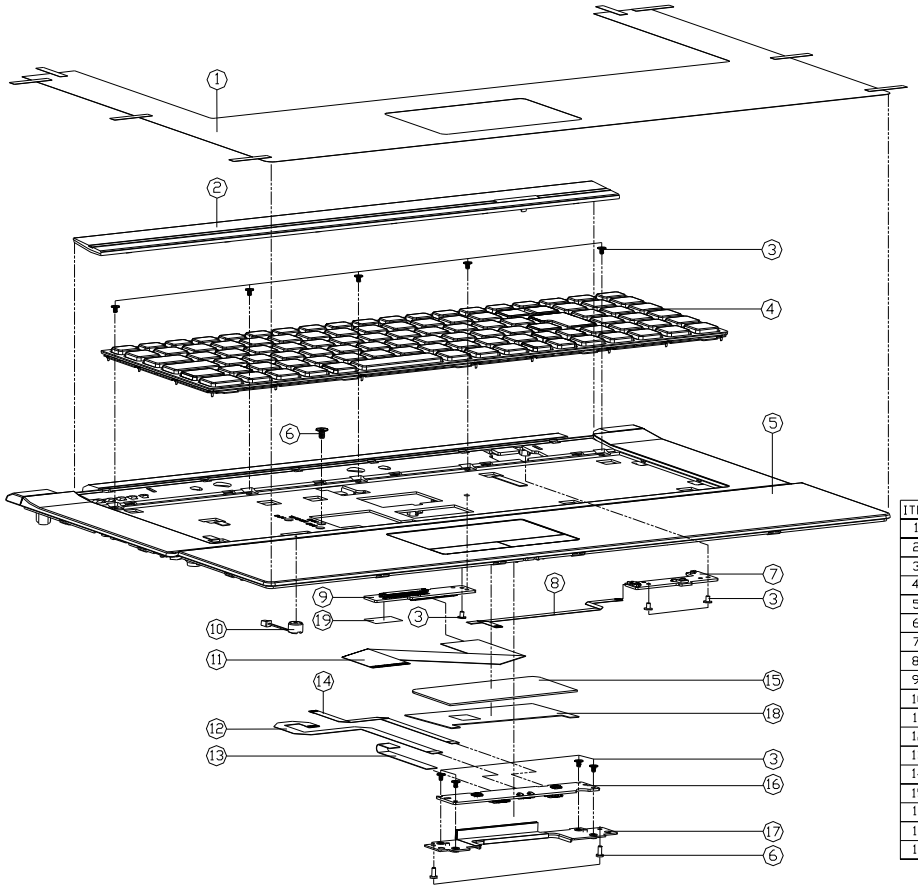
Part List Illustration Location

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

Table A - 1
Part List Illustration Location

Part	W270BUQ
Top	*page A - 3*
Bottom (9W)	*page A - 5*
Bottom (18W)	*page A - 5*
SATA BLU-RAY COMBO	*page A - 6*
SATA DVD DUAL	*page A - 7*
LCD	*page A - 7*

Top

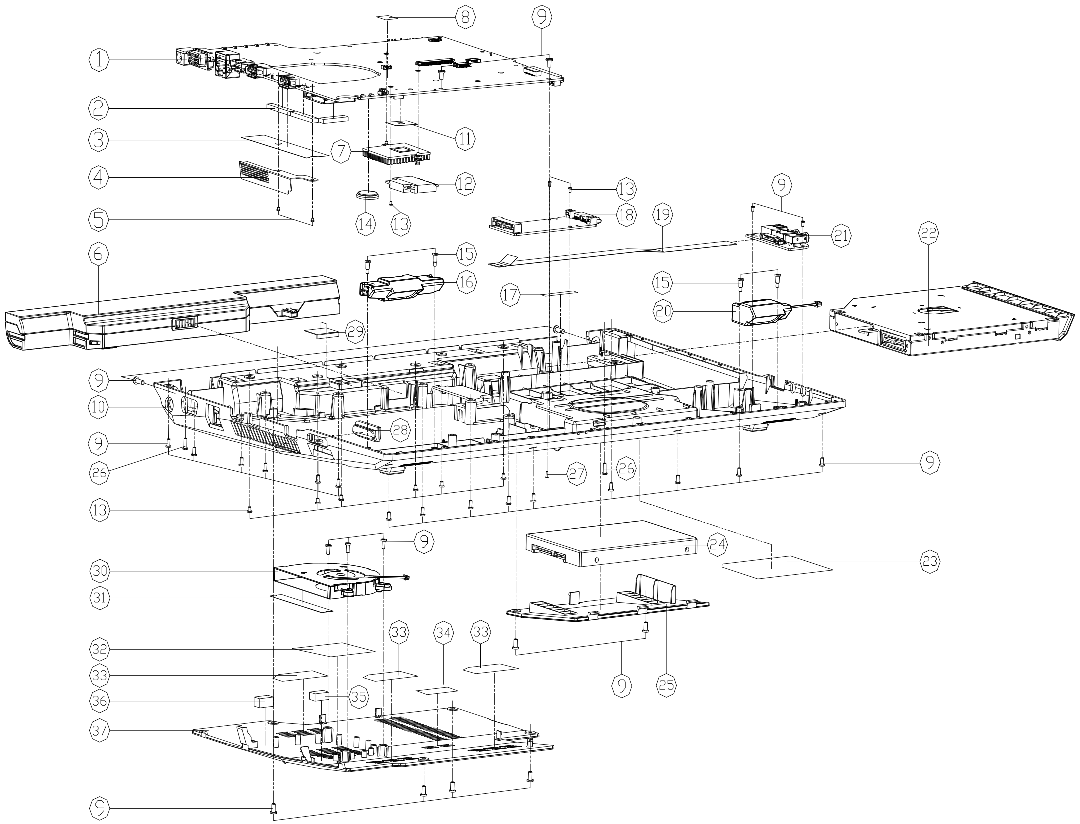


ITEM	PART NAME	PART NO	REMARK
1	PALM REST PROTECT MYLAR (8835) W270HUQ	6-40-W27H8-011	
2	KB COVER MODULE W270HUQ	6-42-W27H8-102	
3	SCREW M2*3L KI NI ICT NY (DD=Ø4.5,DT=0.4)	6-35-B1120-3RE	
4	K/B USA(BLACK% FRAME(US) MODULE W270HUQ	6-79-W270HUQK-010	
5	TOP CASE MODULE(CHANGE) W270HUQ	6-39-W27H2-013	
6	SCREW M2*5L KICT=0.8 D=4.0 BK/Z ICT NY	6-35-B6120-5R0	
7	SWITCH BOARD V1.0 W270HUQ	6-77-W27HS-D01	
8	FFC CABLE 8PIN FOR M/B TO POWER BOARD OHD W270HUQ	6-43-W27H0-041	
9	K/B-BRIDGE-BOARD V1.0 W270HUQ	6-77-W27H7-D01	
10	[illegible]	6-23-EM54G-012-2	
11	FFC CABLE 24PIN FOR M/B TO KB BRIDGE BOARD OHD W270HUQ	6-43-W27H0-011	
12	FFC CABLE 6PIN FOR M/B TO CLICK BOARD OHD W270HUQ	6-43-W27H0-021	
13	FFC CABLE FOR TOUCH PAD 6PIN C4500	6-43-C4502-010	
14	FFC CABLE 4PIN FOR M/B TO CLICK BOARDOHD W270HUQ	6-43-W27H0-031	
15	TOUCH PAD SYNAPTICS TM-01146-003 MULTI-GESTURE C4800	6-49-C4802-010	
16	CLICK BOARD V2.0A W270BUQ	6-77-W2402-D02A-A	
17	TP BRACKET MODULE (SECC 0.8T) W270HUQ	6-33-W27H2-101	
18	TAPE MYLAR (C) (86*38.80MM) C4105	6-40-00150-861	

Figure A - 1
Top

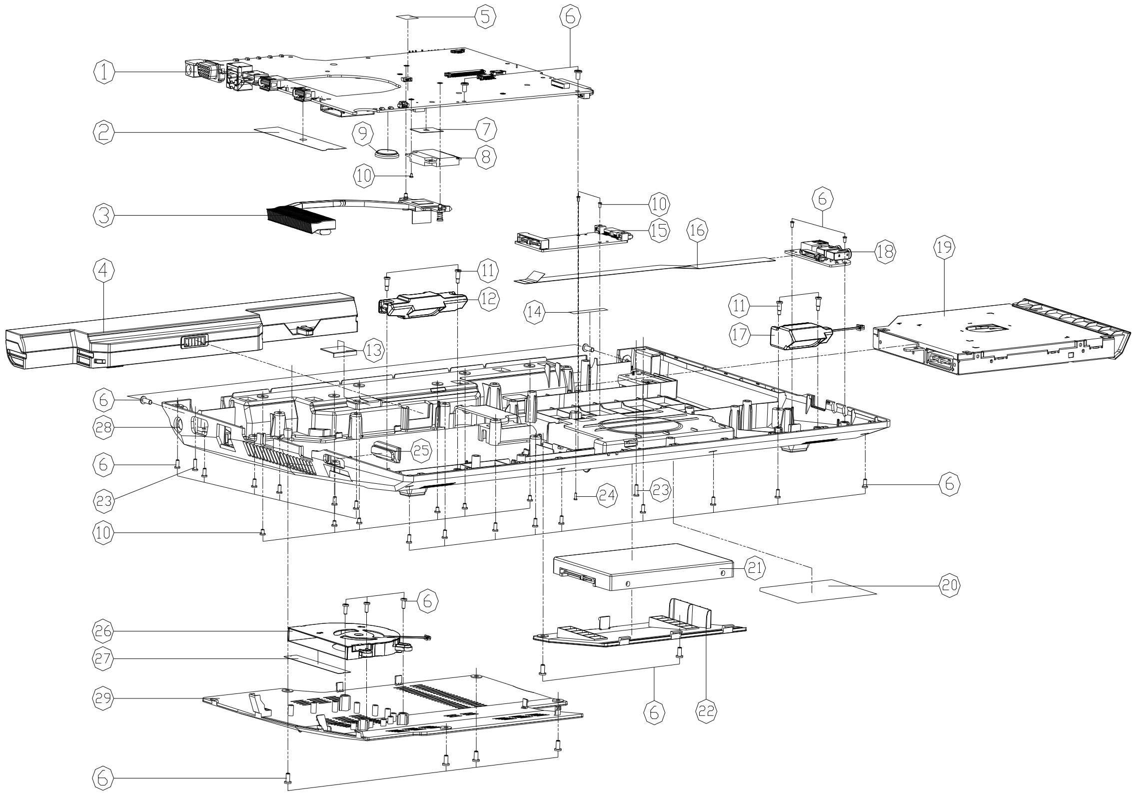
Bottom (9W)

Figure A - 2
Bottom



ITEM	PART NAME	PART NO	REMARK
1	MAIN BOARD V1.0A (W/O TPM) W270BUQ	6-77-W27B0-D01A	
1	MAIN BOARD V1.0A (W/TPM) W270BUQ	6-77-W27B0-D01A-1	
2	FAN SPONGE FOR TOP (35*5.5*7.15T) (SM55+SONY G4000) E5120Q	6-47-0019A-353	
3	MYLAR FOR M/B FIN (FR83+G4000) W270BUQ	6-40-W27BS-020	
4	HEATSINK MESH(PERFORATED STEEL NET) W270BU	6-33-W27B3-010	
5	SCREW M2*3L KI NI ICT NY (DD=ø4.0,DT=0.8)	6-35-B1120-3RD	
6	BAT.P S LI 11.1V/5.6AH/62.16WH 3S2P SMP/SDI 980T2013F E4120	6-87-E412S-4D7	(OPTION)
6	BAT.P S LI 11.1V/4.4AH/48.84WH 3S2P CPT/BAK 910500001 E4120	6-87-E412S-4Y4	(OPTION)
7	CPU (9W) HEATSINK MODULE W240BU	6-31-W240N-102	
8	AUDIO BOARD MYLAR 20*20*0.15T (黑色PET+3M 467) C4500	6-40-C450S-030	
9	SCREW M2.5*5L KI BK/Z ICT NY	6-35-B6125-5RA	
10	BOTTOM CASE MODULE W270HUQ	6-39-W27H3-012	
11	MYLAR FOR CPU 44*44 HOLE 10*10 PET+3M467 W270BUQ	6-40-W27BS-030	
12	WLAN+BT COMBO CASTLENET RTL8188CEBT-G1951	6-88-C555F-5300	(OPTION)
12	WLAN AZUREWAVE AW-NE104H 802.11BGN HALF MINI-CARD PCI-E RTL8191SE R30 DELETE W760C	6-88-W76C2-7001	(OPTION)
12	WLAN+BT COMBO AZUREWAVE [illegible] 802.11BGN [illegible] HALF MINI-CARD [illegible] C5505	6-88-C555F-7001	(OPTION)
12	WLAN XAVI XW714E 802.11BGN HALF MINI-CARD PCI-E RTL8191SE 電容變更 R30 DELETE	6-88-W76C2-8702	
13	SCREW M2*3L KI NI ICT NY (DD=ø4.5,DT=0.4)	6-35-B1120-3RE	
14	BATTERY 3V 220MA BBBCR2032B (KTS)	6-23-6A2B2-030	
15	SCREW M2*6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
16	SPK+CABLE (L) 14*62 1W 8? 15MM PB2512KN08-4-7LK (VECO) E5120Q	6-23-5E51Q-011	
17	TAPE MYLAR (B),MYLAR M550J	6-40-M55J2-020	
18	BRIDGE ODD BOARD V1.0 W270HUQ	6-77-W27HN-D01	
19	FFC CABLE 14P M/B TO AUDIO BOARD W270BUQ(JH)	6-43-W27B0-010	
20	SPK+CABLE (R) 34*66 1W 8? 25MM PB2512KN08-4-8LK (VECO) E5120Q	6-23-5E51Q-021	
21	AUDIO BOARD V3.0 W240BU	6-77-W2408-D03	
22	SATA DVD SUPER MULTI ASS'Y (OPTION)	6-79-W270BUQQ-010	
22	SATA DVD SUPER MULTI ASS'Y (OPTION)	6-79-W270HUQQ-000	
22	W/O ODD ASS'Y W270HUQ (OPTION)	6-79-W270HUQZ-000	
23	PRODUCT LABEL FOR W270BUQ	6-45-W270BUQ3-010	
24	W/HDD ASS'Y E5120Q	6-79-E5120Q0J-020	
24	W/O HDD ASS'Y C4800	6-79-C480000J-010	
25	HDD COVER PC+ABS W270HUQ	6-42-W27HJ-011	
26	SCREW M2.5*8L KI BK/Z NY ICT	6-35-B6125-8R0	
27	SCREW M2*5L KI(T=0.8 D=4.0) BK/Z ICT NY	6-35-B6120-5R0	
28	ESATA USB RUBBER SILICON W270HUQ	6-47-W27H3-030	
29	SIM CARD MYLAR (19.54*19.4*0.35) L19.54* W19.4 *T0.35 W270HUQ	6-40-W27H3-020	
30	FAN+COOL 65*60*8U 5V 0.35A AB6505HX-J03 4800RPM ADDA C4500 (LABEL ADD UL/TUV ICON)	6-23-AC450-013	
31	AIRDUCT MYLAR DFR117 W240HU	6-40-W24H8-011	
32	MYLAR FOR CPU COVER 50*50 PET0.1+3M9448 W270BUQ	6-40-W27BS-010	
33	MYLAR FOR CPU COVER(49X28X0.1) (PET+G4000) C4800	6-40-C4808-010	
34	MYLAR FOR CPU COVER (PET+G4000) C4500	6-40-C4508-010	
35	SPONGE(20LX6WX11H)CR-4305 FOR CPU COVER W240BU	6-47-W2403-010	
36	SPONGE(20*14*6) (20LX6WX14H)CR4305 FOR CPU COVER W270BUQ	6-47-0019A-20F	
37	CPU COVER MODULE W270HUQ	6-42-W27H8-301	

Bottom (18W)



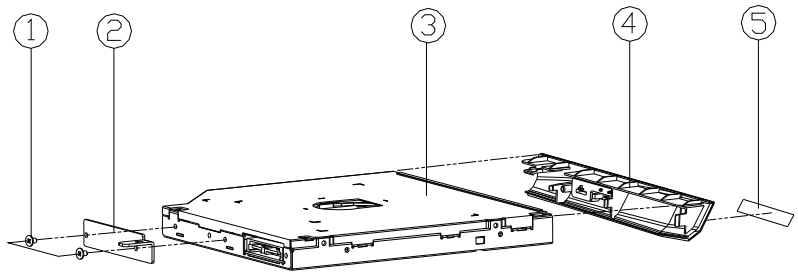
ITEM	PART NAME	PART NO	REMARK
1	MAIN BOARD V1.0A (W/O TPM) W270BUQ	6-77-W27B0-D01A	
1	MAIN BOARD V1.0A (W/TPM) W270BUQ	6-77-W27B0-D01A-1	
2	MYLAR FOR M/B FIN (FR83+G4000) W270BUQ	6-40-W27BS-020	
3	CPU HEATSINK MODULE(18W) W270BUQ	6-31-W27BN-100	
4	BAT.P S LI 11.1V/5.6AH/62.16WH 3S2P SMP/SDI 980T2013F E4120	6-87-E412S-4D7	(OPTION)
4	BAT.P S LI 11.1V/4.4AH/48.84WH 3S2P CPT/BAK 910500001 E4120	6-87-E412S-4Y4	(OPTION)
5	AUDIO BOARD MYLAR 20*20*0.15T (黑色 PET+3M 467) C4500	6-40-C450S-030	
6	SCREW M2.5*5L KI BK/Z ICT NY	6-35-B6125-5RA	
7	MYLAR FOR CPU 44*44 HOLE 10*10 PET+3M467 W270BUQ	6-40-W27BS-030	
8	WLAN+BT COMBO CASTLENET RTL8188CEBT-G1951	6-88-C555F-5300	(OPTION)
8	WLAN AZUREWAVE AV-NE104H 802.11BGN HALF MINI-CARD PCI-E RTL8191SE R30 DELETE W760C	6-88-W76C2-7001	(OPTION)
8	WLAN+BT COMBO AZUREWAVE AV-NB057H 802.11BGN 1X1+BT3.0 HS HALF MINI-CARD PIN19 AND PIN51(RTL8188CEBT) C5505	6-88-C555F-7001	(OPTION)
8	WLAN XAVI XV714E 802.11BGN HALF MINI-CARD PCI-E RTL8191SE 電容變更 R30 DELETE	6-88-W76C2-8702	(OPTION)
9	BATTERY 3V 220MA BBBCR2032B (KTS)	6-23-6A2B2-030	
10	SCREW M2*3L KI NI ICT NY (DD=ø4.5,DT=0.4)	6-35-B1120-3RE	
11	SCREW M2*6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
12	SPK+CABLE (L) 14*62 1W 8? 15MM PB2512KN08-4-7LK (VECO) E5120Q	6-23-5E51Q-011	
13	SIM CARD MYLAR (19.54*19.4*0.35) L19.54* W19.4 *T0.35 W270HUQ	6-40-W27H3-020	
14	TAPE MYLAR (B),MYLAR M550J	6-40-M55J2-020	
15	BRIDGE ODD BOARD V1.0 W270HUQ	6-77-W27HN-D01	
16	FFC CABLE 14P M/B TO AUDIO BOARD W270BUQ(JH)	6-43-W27B0-010	
17	SPK+CABLE (R) 34*66 1W 8? 25MM PB2512KN08-4-8LK (VECO) E5120Q	6-23-5E51Q-021	
18	AUDIO BOARD V3.0 W240BU	6-77-W2408-D03	
19	SATA DVD SUPER MULTI ASS'Y (OPTION)	6-79-W270BUQQ-010	
19	SATA DVD SUPER MULTI ASS'Y (OPTION)	6-79-W270HUQQ-000	
19	W/O ODD ASS'Y W270HUQ (OPTION)	6-79-W270HUQZ-000	
20	PRODUCT LABEL FOR W270BUQ	6-45-W270BUQ3-010	
21	W/HDD ASS'Y E5120Q	6-79-E5120Q0J-020	
21	W/O HDD ASS'Y C4800	6-79-C480000J-010	
22	HDD COVER PC+ABS W270HUQ	6-42-W27HJ-011	
23	SCREW M2.5*8L KI BK/Z NY ICT	6-35-B6125-8R0	
24	SCREW M2*5L KI(T=0.8 D=4.0) BK/Z ICT NY	6-35-B6120-5R0	
25	ESATA USB RUBBER SILICON W270HUQ	6-47-W27H3-030	
26	FAN+CON 65*60*8.1 5V 0.35A AB6505HX-J03 4800RPM ADDA C4500 (LABEL ADD UL/TUV ICON)	6-23-AC450-013	
27	AIRDUCT MYLAR DFR117 W240HU	6-40-W24H8-011	
28	BOTTOM CASE MODULE W270HUQ	6-39-W27H3-012	
29	CPU COVER MODULE W270HUQ	6-42-W27H8-301	

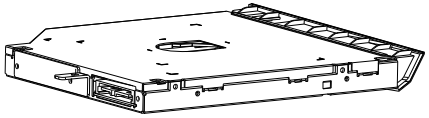
Figure A - 3
Bottom

A.Part Lists

SATA-DVD-DUAL

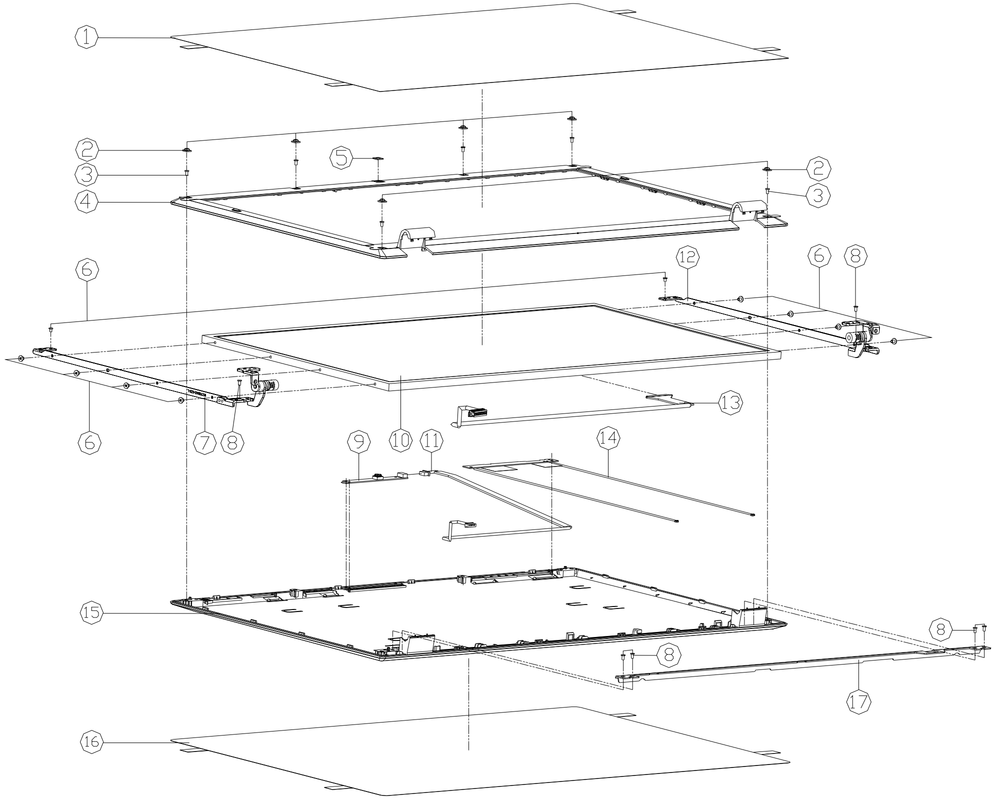
Figure 4
SATA-DVD-DUAL





ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*3L KI NI ICT NY (OD=Φ4.5,DT=0.4)	6-35-B1120-3RE	
2	CD ROM BRACKET SECC (EMI) M740S	6-33-M74SZ-012-1	
3	[illegible]	6-85-A078X-L05	FOR PLDS
3	[illegible]	6-85-A078X-T09	FOR TSST
3	[illegible]	6-85-A078X-T10	FOR TSST
4	ODD BEZLE MODULE W270HUQ	6-42-W27HZ-101	
5	SUPER MULTI ODD BEZEL LABEL (SIZE CHANGE) W860CU	6-45-W860Q-011	

LCD



ITEM	PART NAME	PART NO	REMARK
1	LCD FRONT CASE PROTECT MYLAR PET B7110	6-40-B7118-012	
2	LCD COVER SCREW RUBBER SLICON W270HUQ	6-47-W27H8-020	
3	SCREW M2.5*5L KI BK/Z ICT NY	6-35-B6125-5RA	
4	LCD FRONT COVER MODULE W270HUQ	6-39-W27H1-011	
5	CCD LENS PMMA W270HUQ	6-40-W27H1-060	
5	W/O CCD LENS PMMA W270HUQ	6-40-W27H1-070	
6	SCREW M2*3L KI NI ICT NY (DD=ø4.5,DT=0.4)	6-35-B1120-3RE	
7	LCD HINGE L K7 W270HUQ	6-33-W27H1-021	
8	SCREW M2*5L KI(T=0.8 D=4.0) BK/Z ICT NY	6-35-B6120-5R0	
9	UVC CAMERA BISON FIX BN28VTYG3-000 300K HYNIX704 M1115	6-88-M115C-4900	OPTION
9	UVC CAMERA BISON FIX BN28M6SG3-300 1.3M 6AA W258HUQ-C	6-88-E51QC-4902	OPTION
9	UVC CAMERA BISON FIX BN28V9VG2-000_V1.0 OV7675 300K M1100	6-88-M110C-4901	OPTION
10	LCD 17.3" HD+ CHIMEI N173O6-L02 (GLARE TYPE) (LED) 5.8MM	6-50-NA158-D00	OPTION
10	LCD 17.3" HD+ SAMSUNG LTN173KT01-101 (LED) 5.8MM	6-50-NA158-M01	OPTION
10	LCD 17.3" HD+ LG LP173WD1-TLA1 (GLARE TYPE) (LED) 6.0 MM	6-50-NA160-L00	OPTION
10	LCD 17.3" HD+ LG LP173WD1-TLD3 (LED) 6.0 MM	6-50-NA160-L02	OPTION
10	LCD 17.3" HD+ AU B173RW01 V0 (GLARE TYPE) (LED) 6.0 MM	6-50-NA160-G00	OPTION
10	LCD 17.3" FHD HANNSTAR HSD173PUW1-A GLARE TYPE (LED) 5.8 MM	6-50-NB258-N00	OPTION
11	WIRE CABLE FOR CCD 5P 436MM (HL) FOR W270HUQ	6-43-W27HT-010	
12	LCD HINGE R K7 W270HUQ	6-33-W27H1-011	
13	CABLE FOR LVDS 335MM (HL/YD CON:C1SY00112YCB) W270HPQ	6-43-W27P1-010-1A	
14	ANTENNA WIMAX COMBO FVC WM1+WM2 PCB 2.4G/3.5GHZ/5G WM1=800MM WM2=800MM W270HUQ	6-23-7W27H-020	
15	LCD BACK IMR COVER MODULE W270HUQ	6-39-W27H1-021	
16	BACK COVER PROTECT MYLAR (PET+3M8915) W270HUQ	6-40-W27H1-041	
17	LCD SUPPORT SECC W270HUQ	6-33-W27H1-031	

Figure A - 5
LCD

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the ***W270BUQ*** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

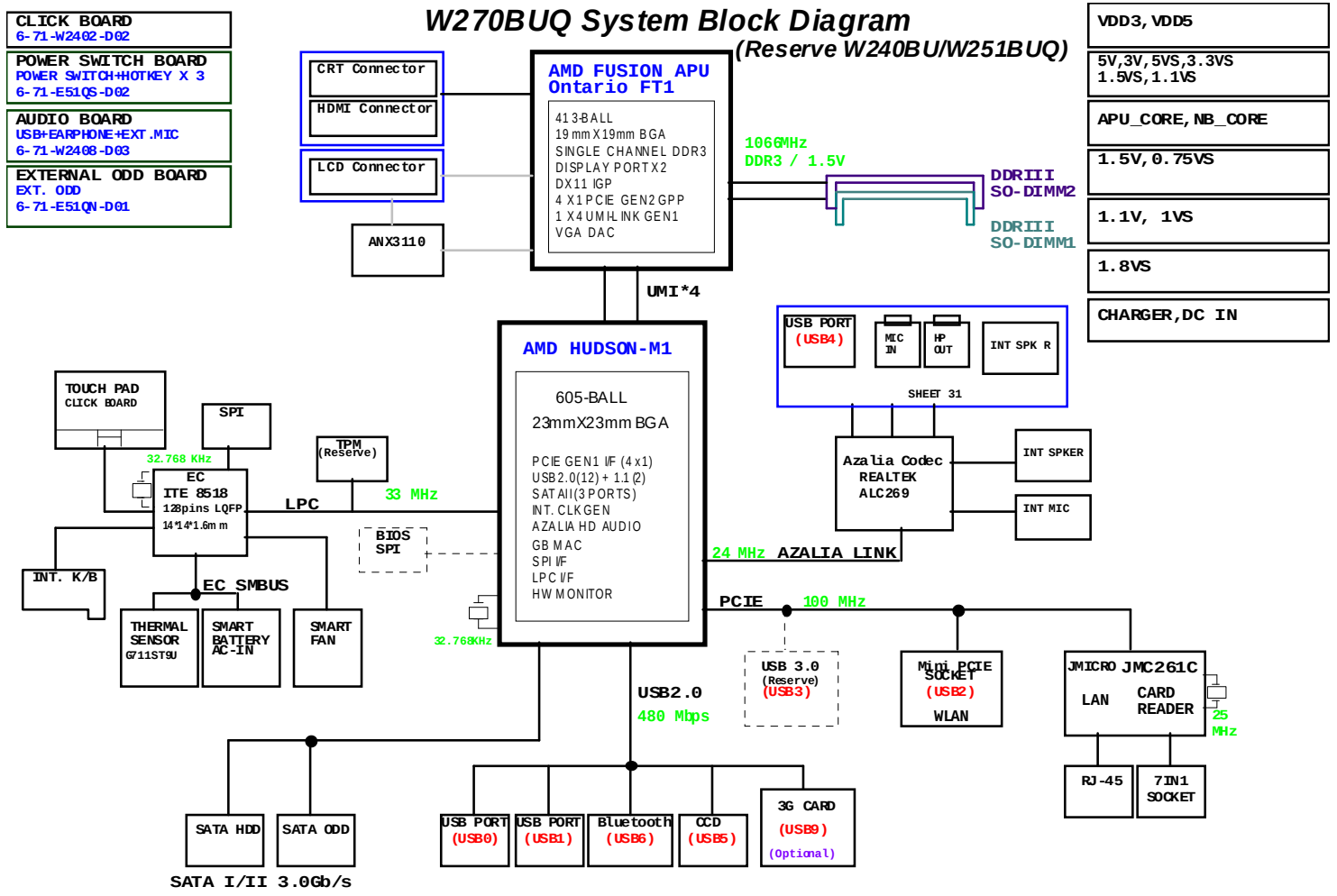
Table B - 1
SCHEMATIC DIAGRAMS

Version Note

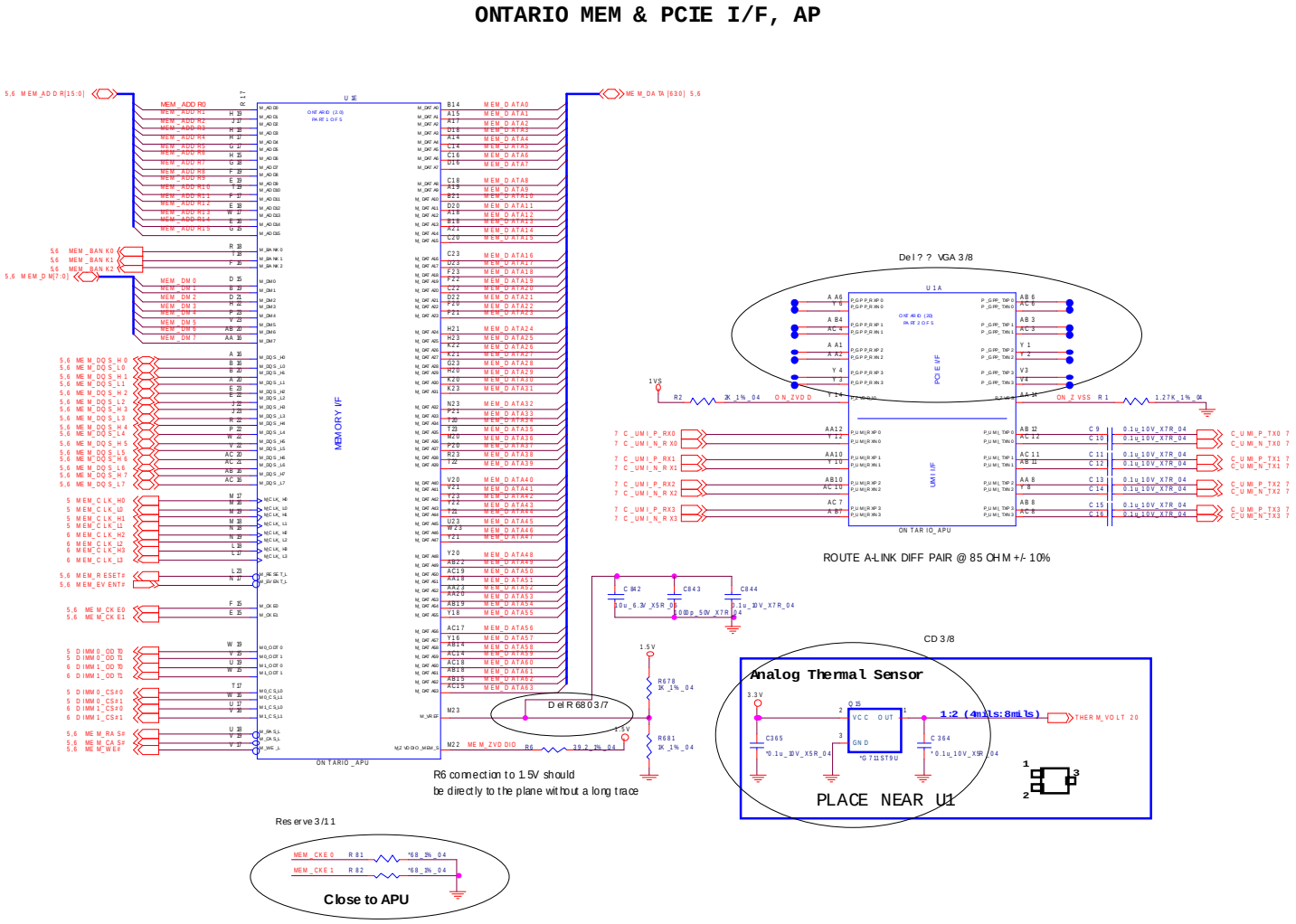
The schematic diagrams in this chapter are based upon version 6-7P-W24H5-002. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

System Block Diagram

Sheet 1 of 43
System Block Diagram



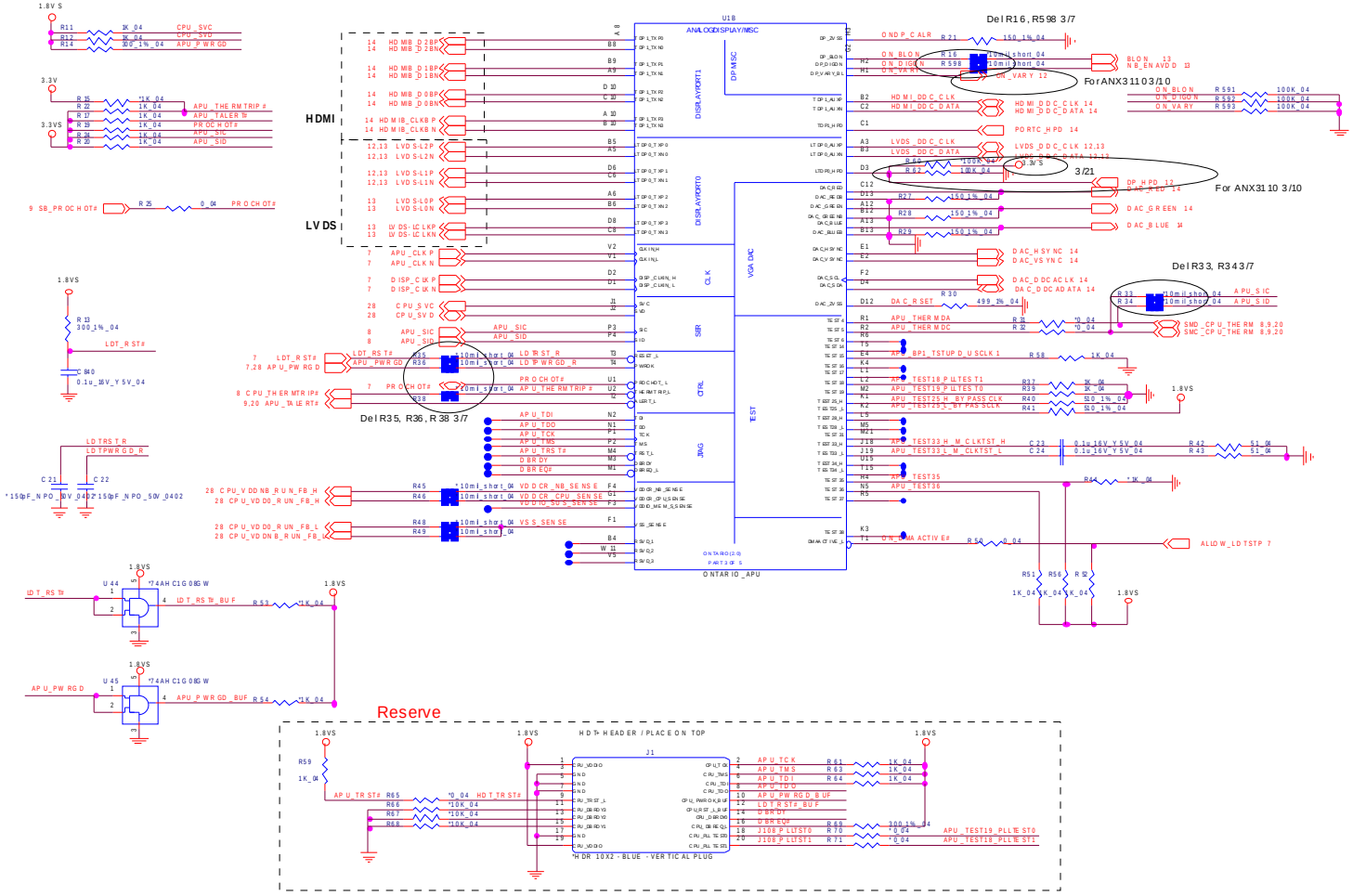
ONTARIO MEM & PCIE I/F, AP



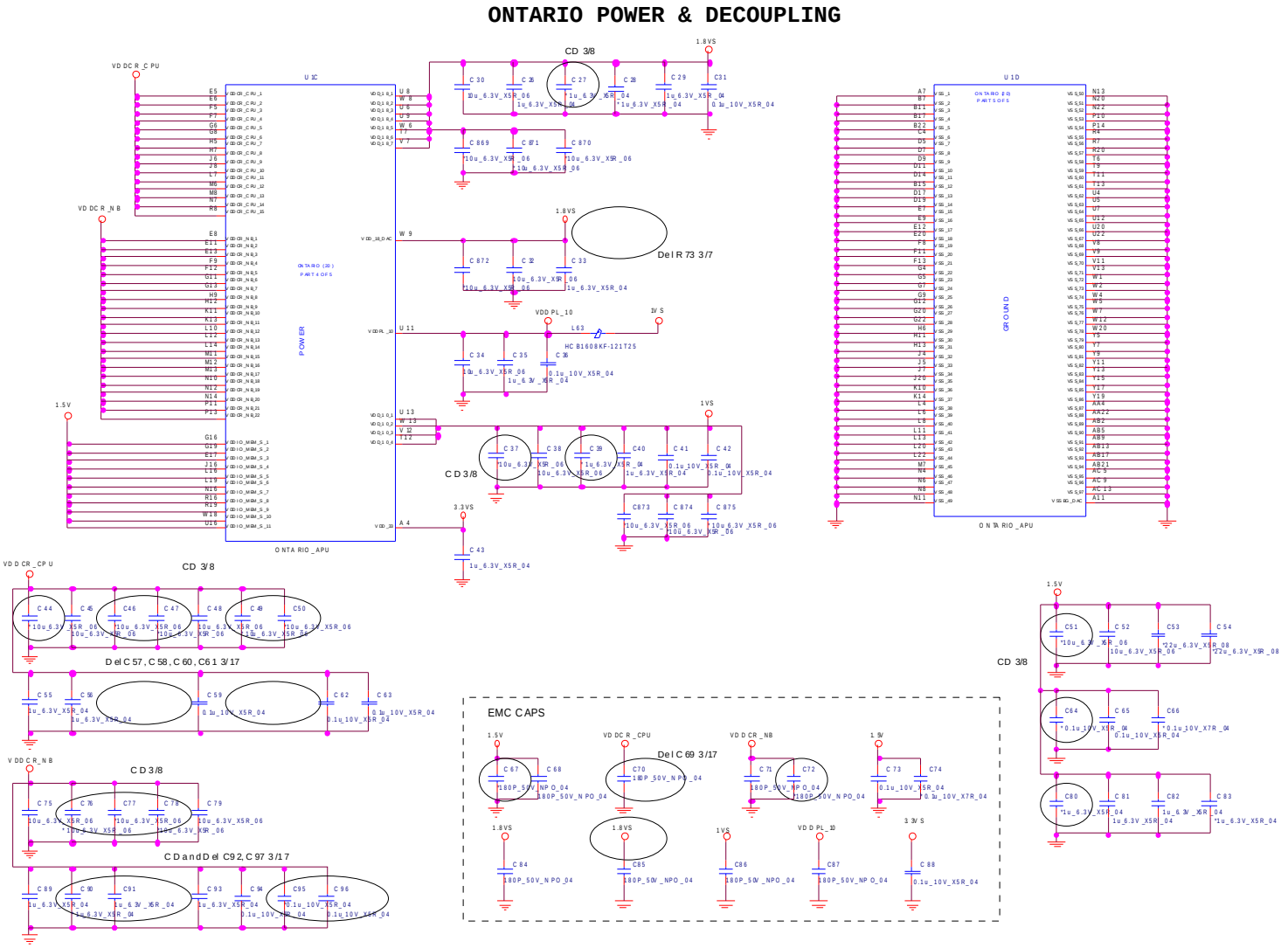
Sheet 2 of 43
ONTARIO MEM &
PCIE I/F, AP

ONTARIO DISPLAY/ CLK/ MISC

Sheet 3 of 43
ONTARIO
DISPLAY/ CLK/
MISC



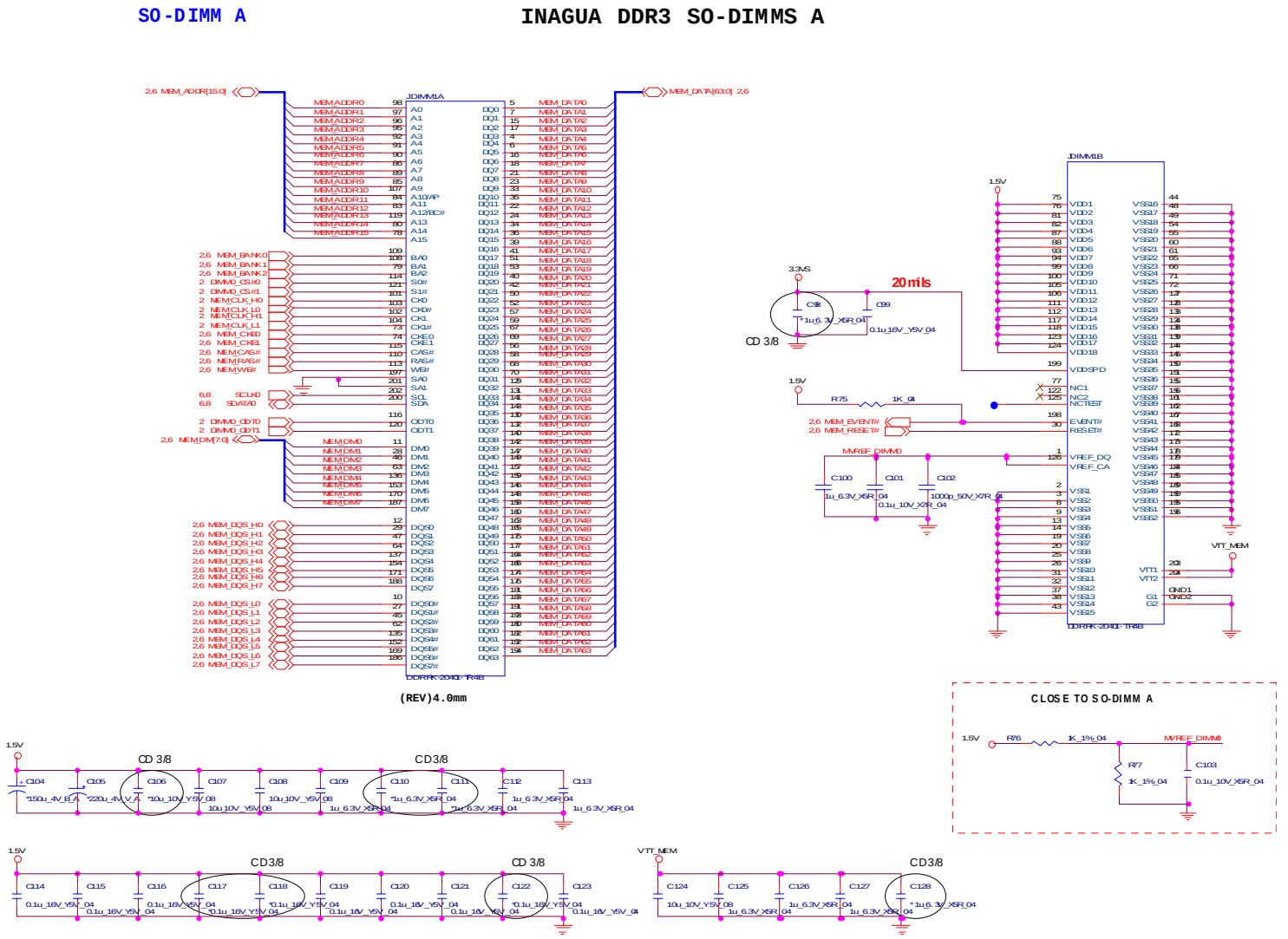
ONTARIO POWER & DECOUPLING



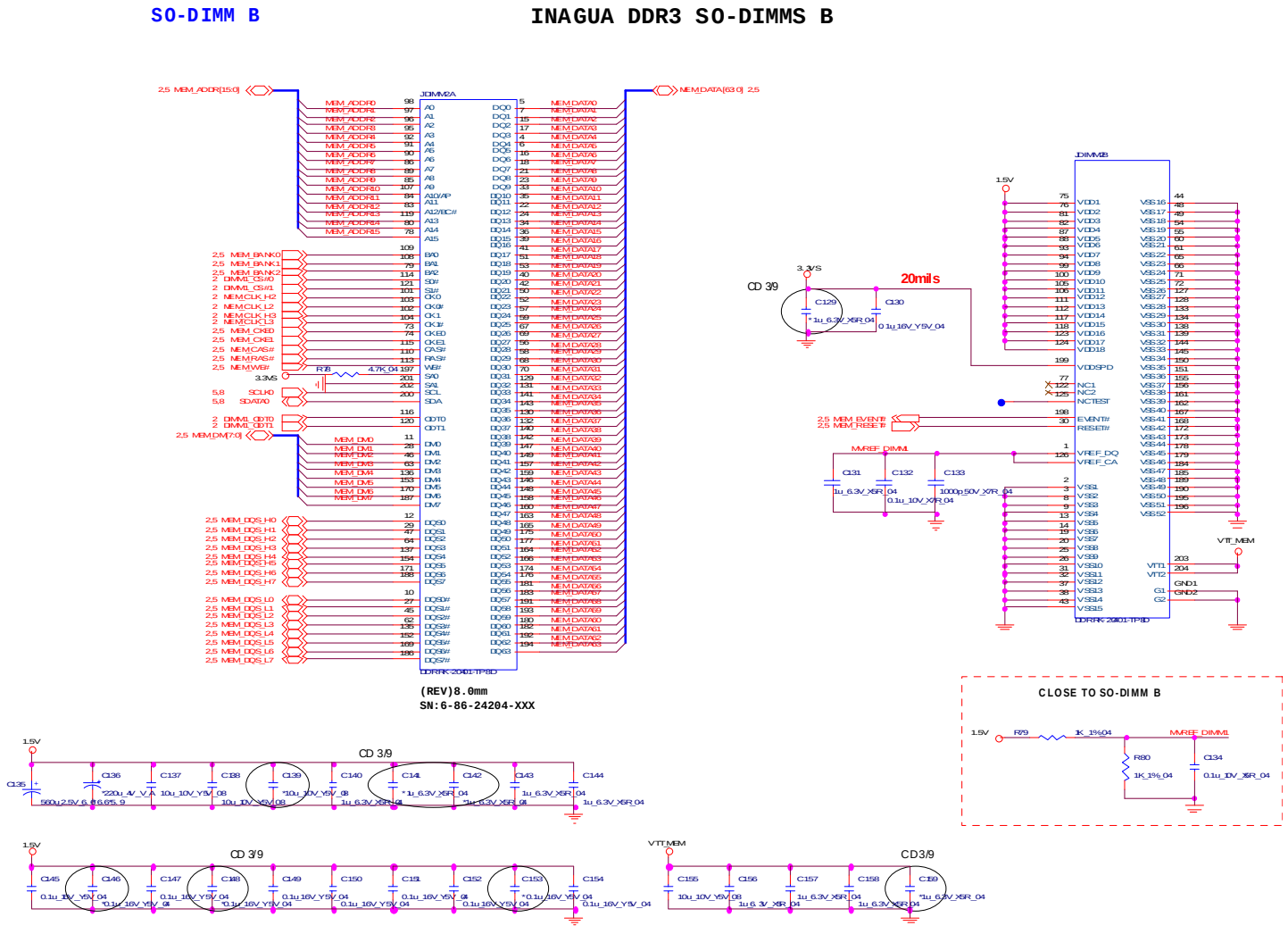
Sheet 4 of 43
ONTARIO POWER
& DECOUPLING

INAGUA DDR3 SO-DIMMS A

Sheet 5 of 43
INAGUA DDR3 SO-DIMMS A



INAGUA DDR3 SO-DIMMS B



Sheet 6 of 43
INAGUA DDR3 SO-DIMMS B

HUDSON PCIE/ PCI/ CLOCK/ FCH

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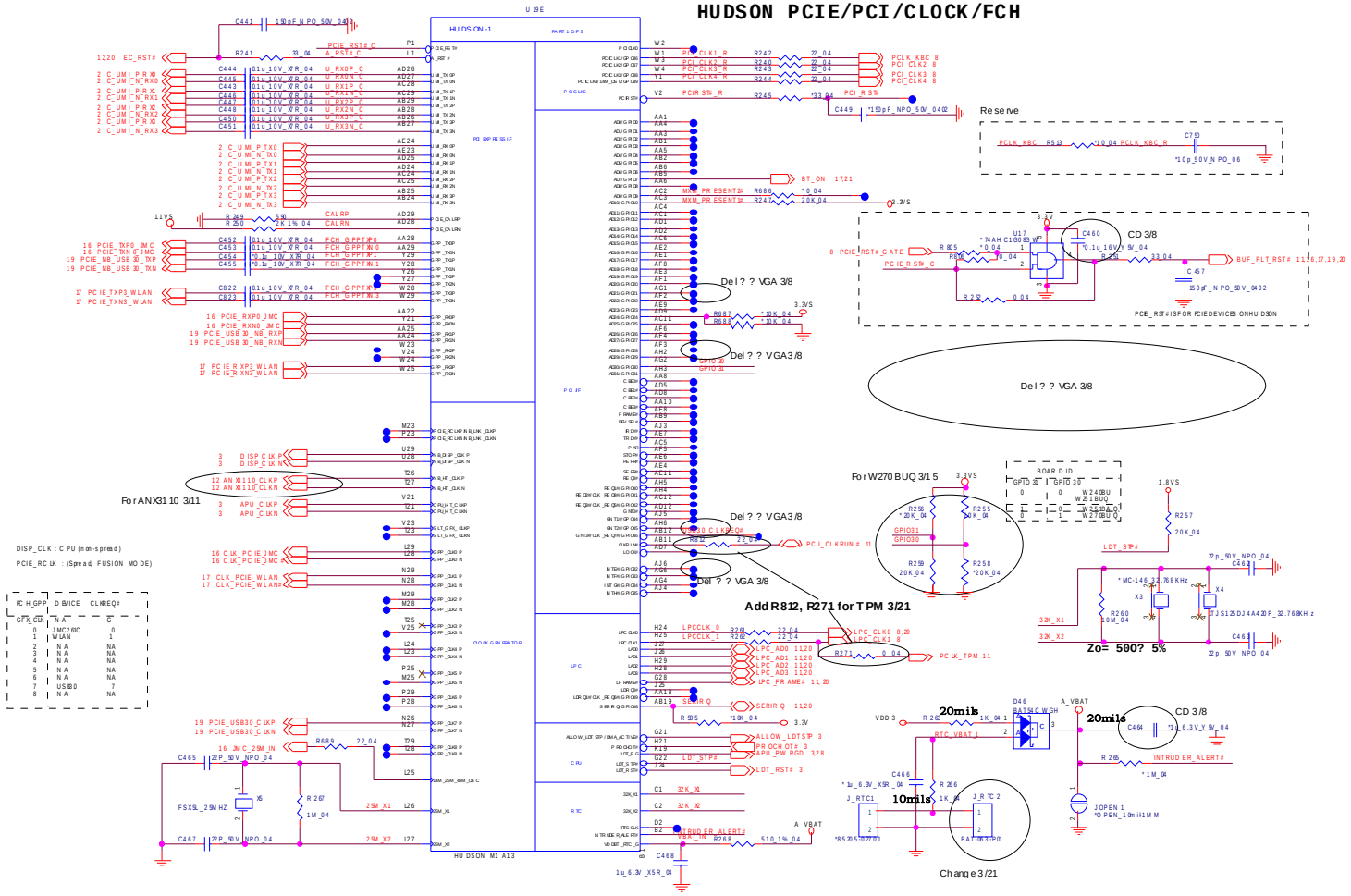
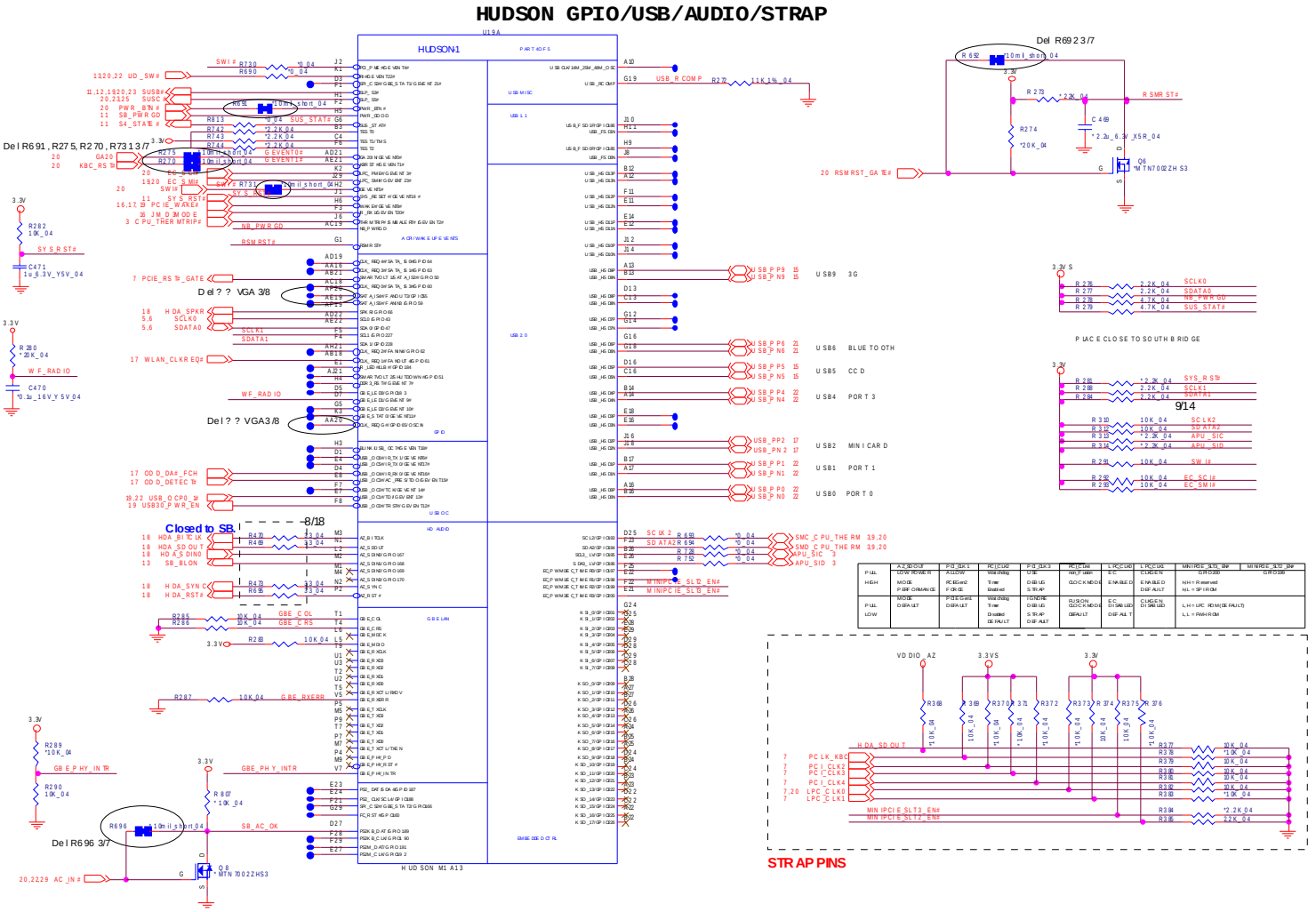
HUDSON PCIE/
PCI/ CLOCK/ FCH



HUDSON GPIO/ USB/ STRAP



Sheet 8 of 43
HUDSON GPIO/
USB/ STRAP

HUDSON SATA/ DEBUG IO/ SPI

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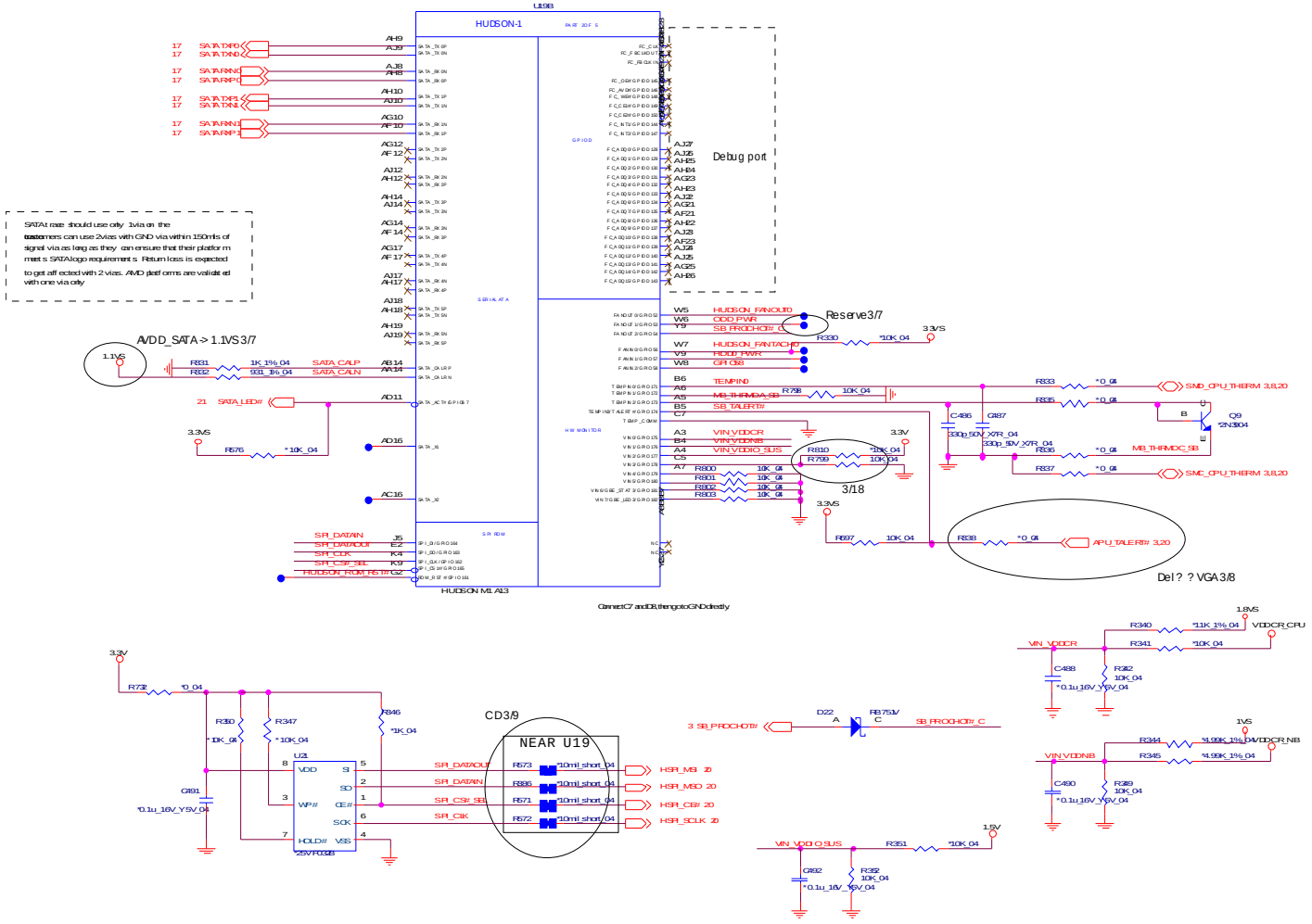
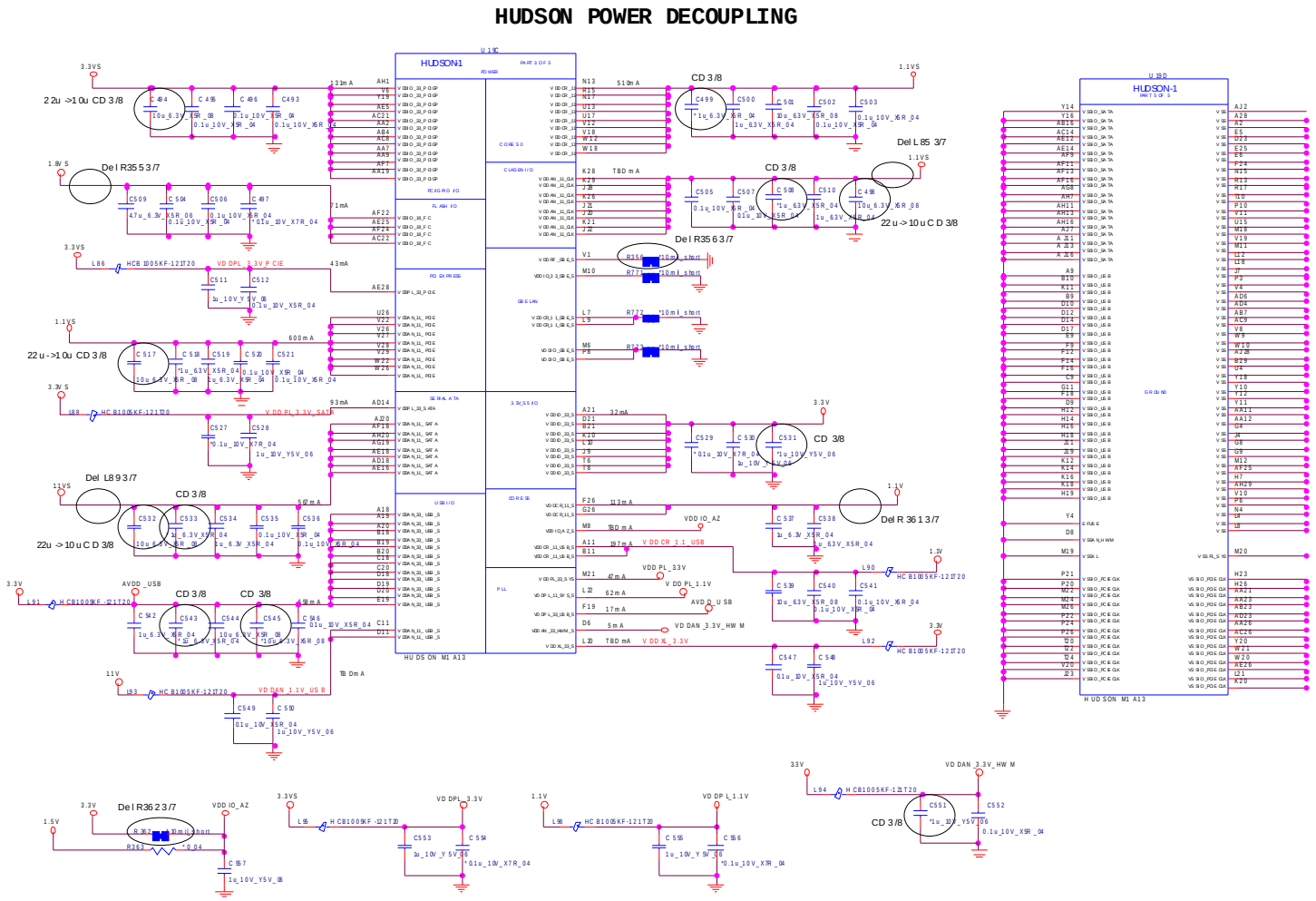
HUDSON SATA/
DEBUG IO/ SPI



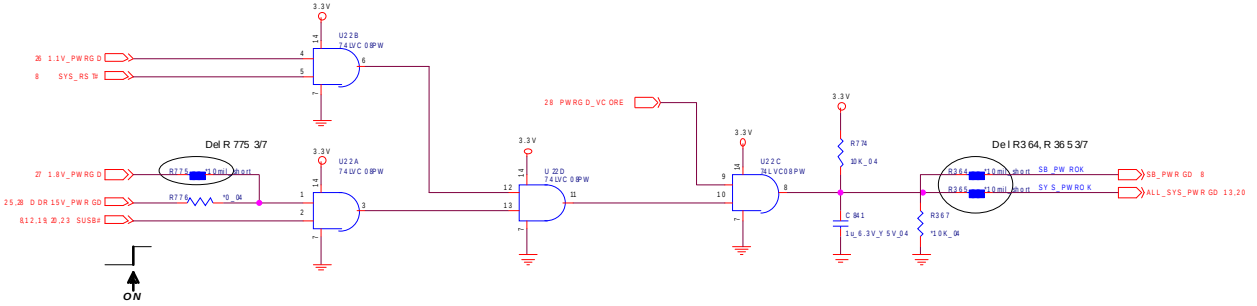
HUDSON POWER DECOUPLING



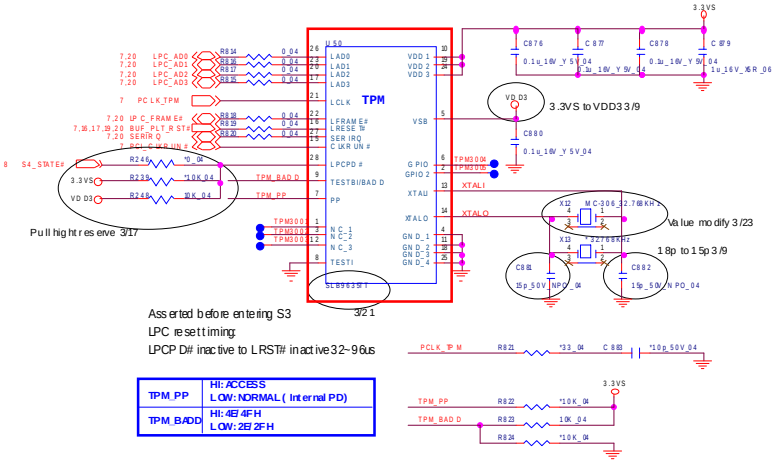
Sheet 10 of 43
HUDSON POWER DECOUPLING

POWERGOOD/ TPM

Sheet 11 of 43
POWERGOOD/
TPM

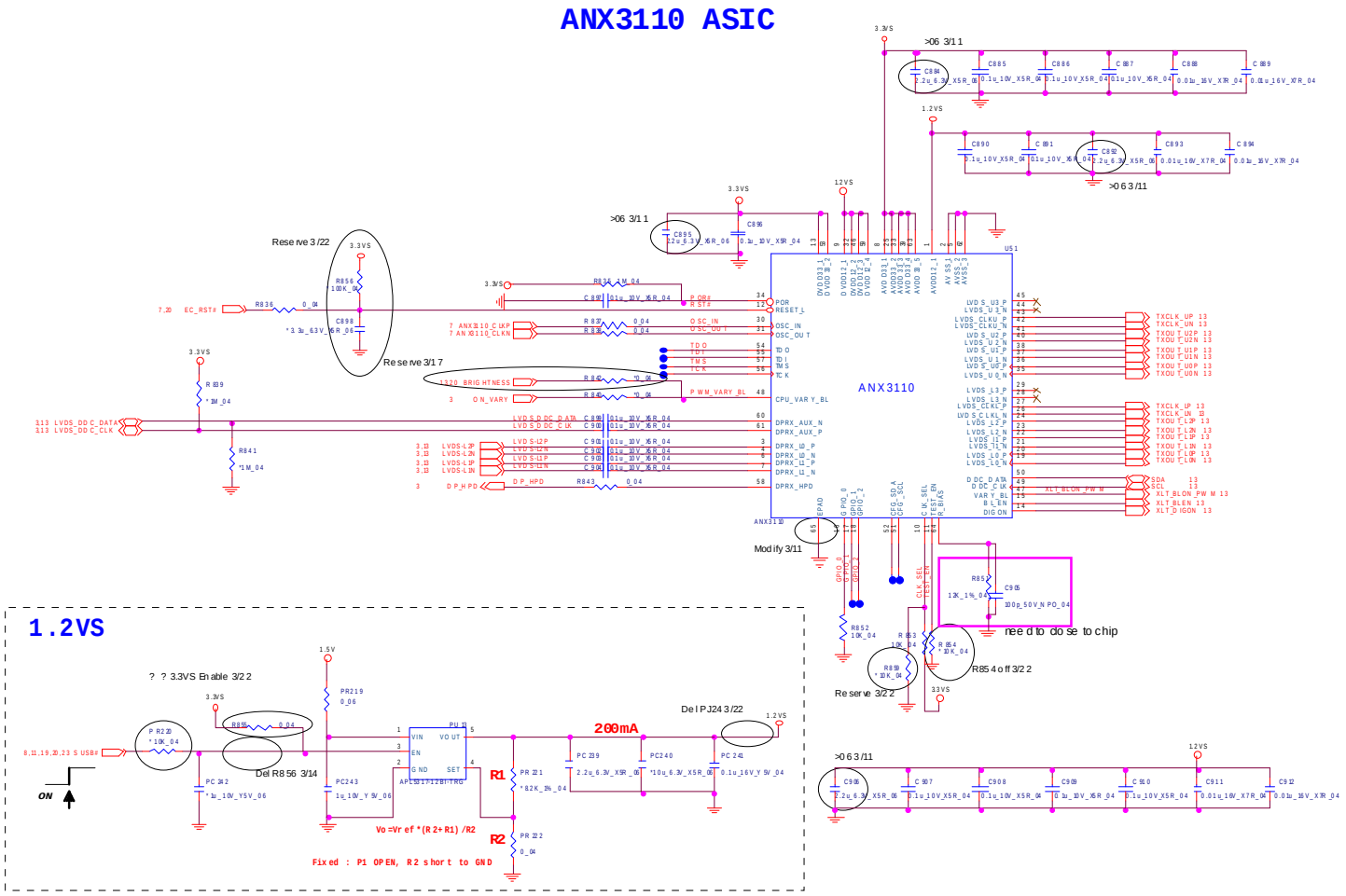


TPM 1.2



TPM_PP	HI: ACCESS LOW: NORMAL (Internal PD)
TPM_BADD	HI: 4Eh 4Fh LOW: 2Eh 2Fh

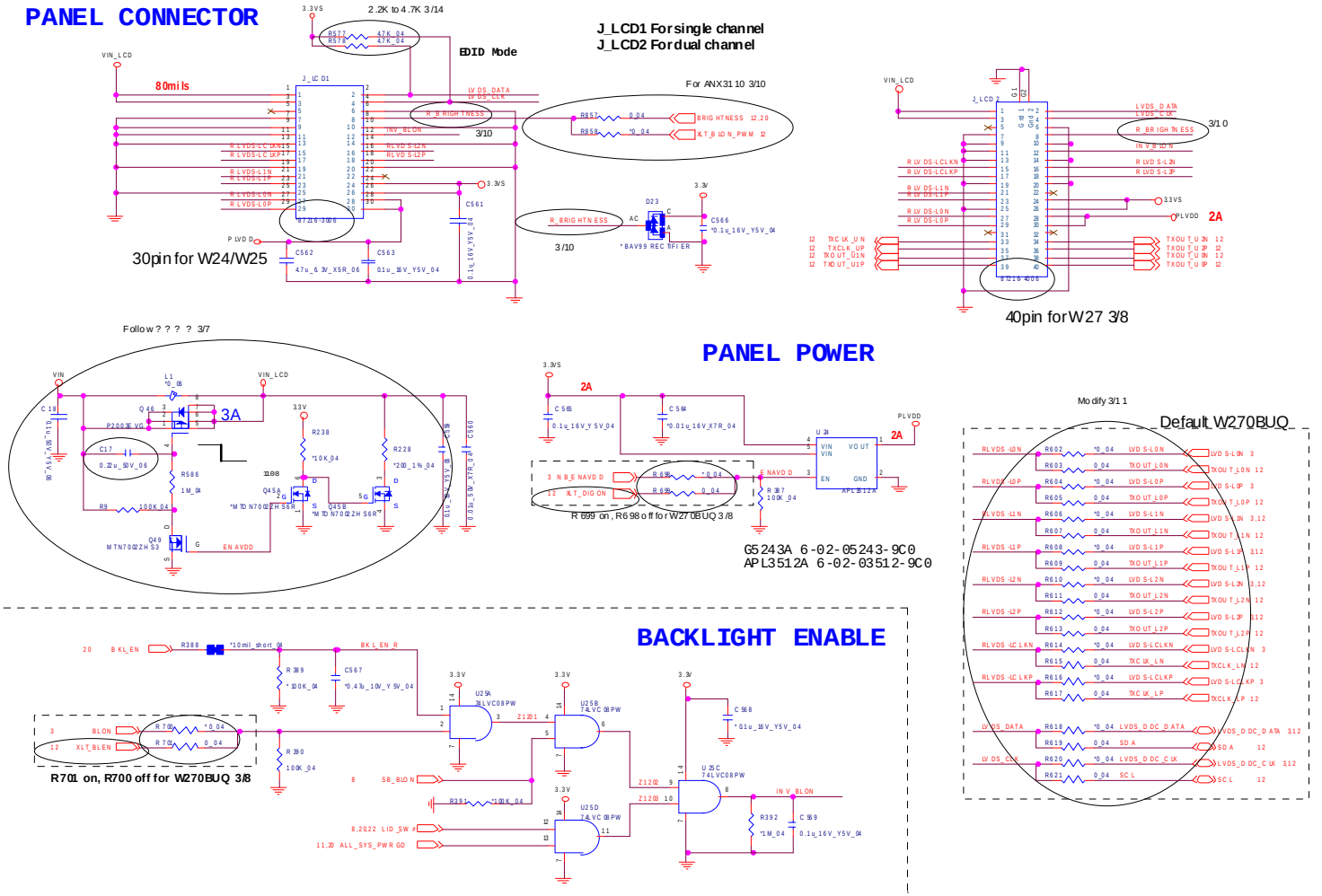
ANX3110 ASIC



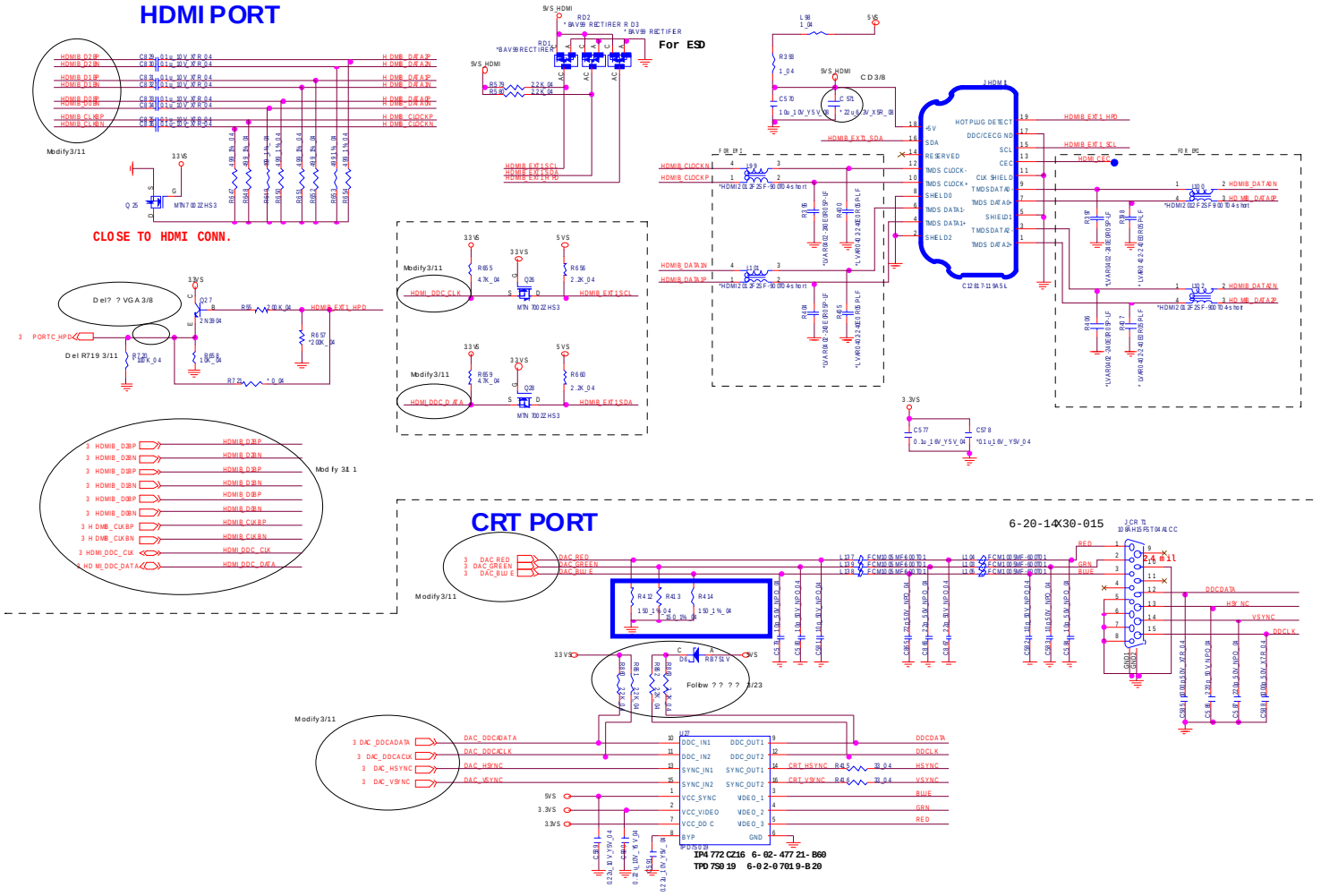
Sheet 12 of 43
ANX3110 ASIC

LVDS/ INVERTER

Sheet 13 of 43
LVDS/ INVERTER



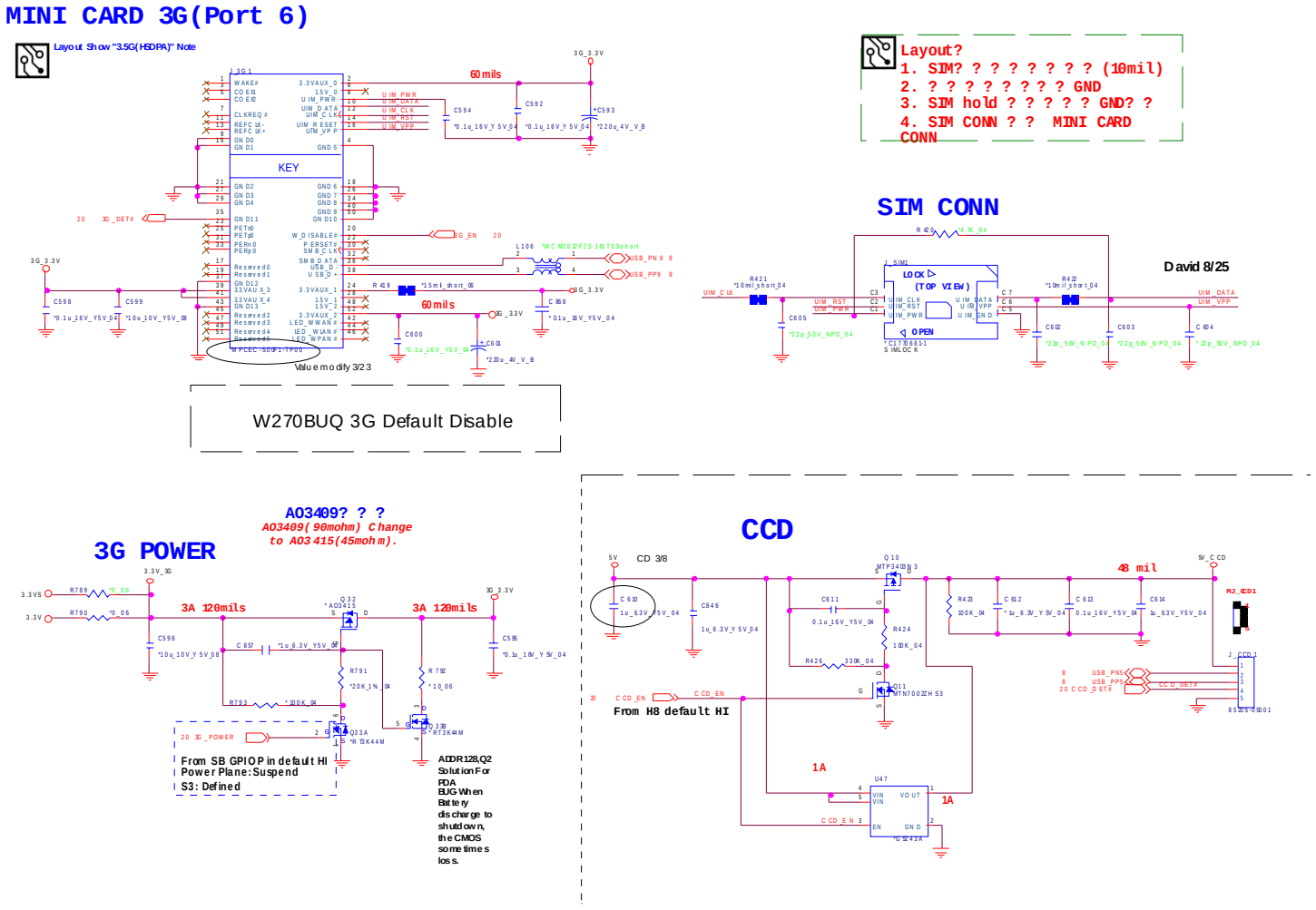
HDMI/ CRT



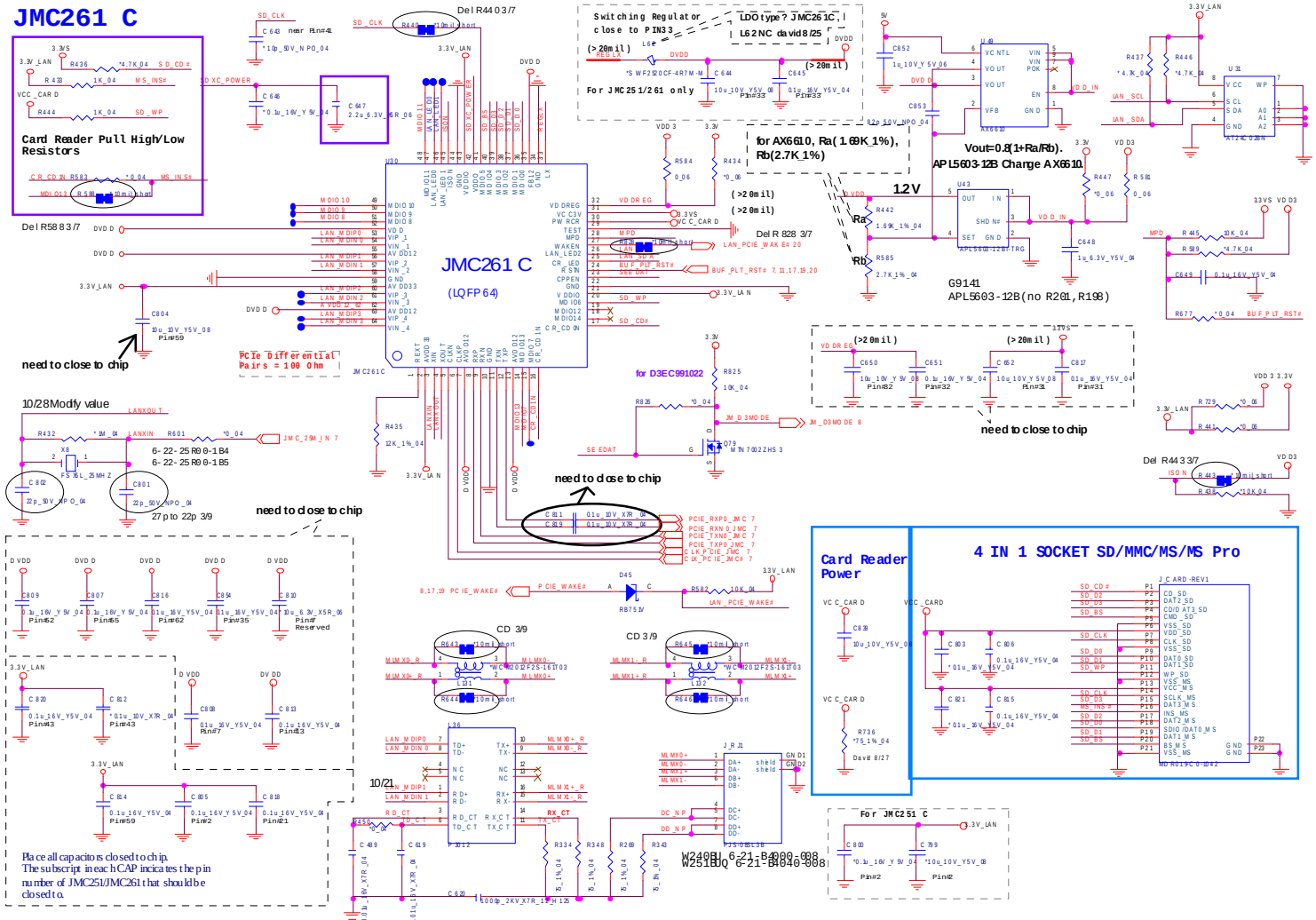
Sheet 14 of 43
HDMI/ CRT

CCD/ 3G

Sheet 15 of 43
CCD/ 3G



CARD READER/ LAN JMC261C



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CARD READER/
LAN JMC261C

MINI PCIE/ SATA HDD/ ODD

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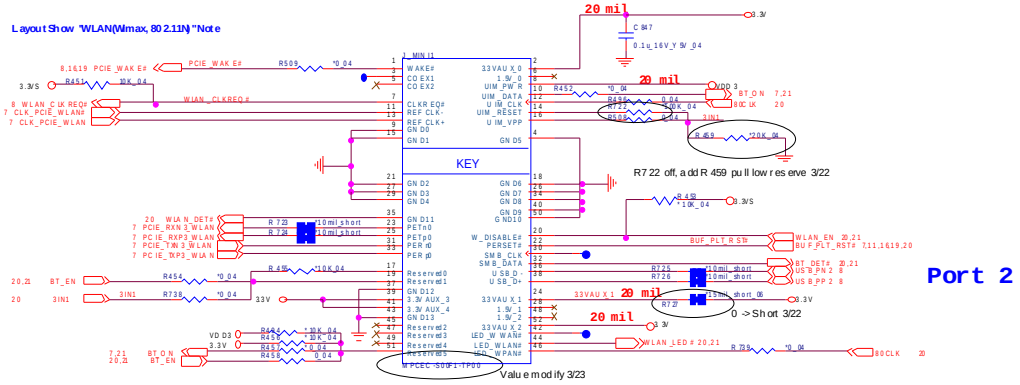
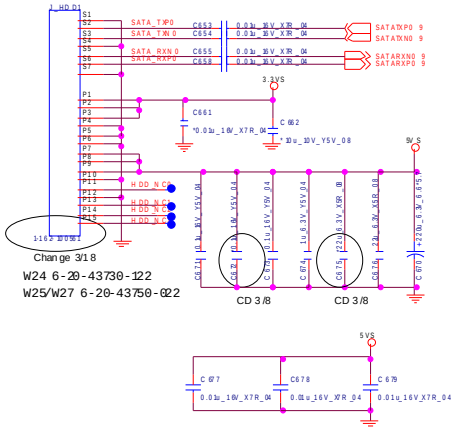
MINI PCIE/ SATA
HDD/ ODD

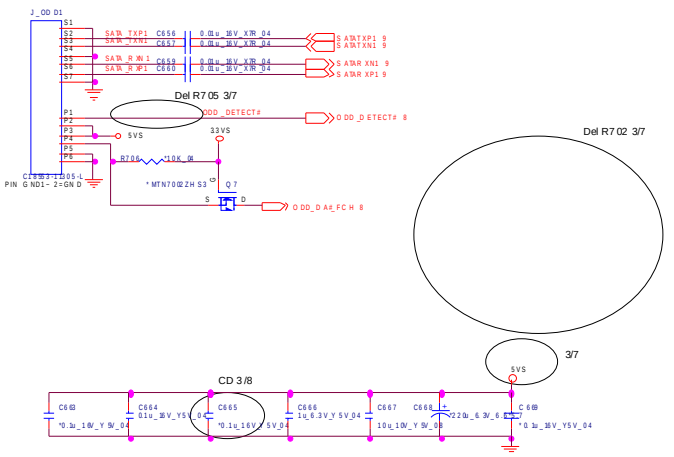
MINI CARD (WLAN,Port 5)



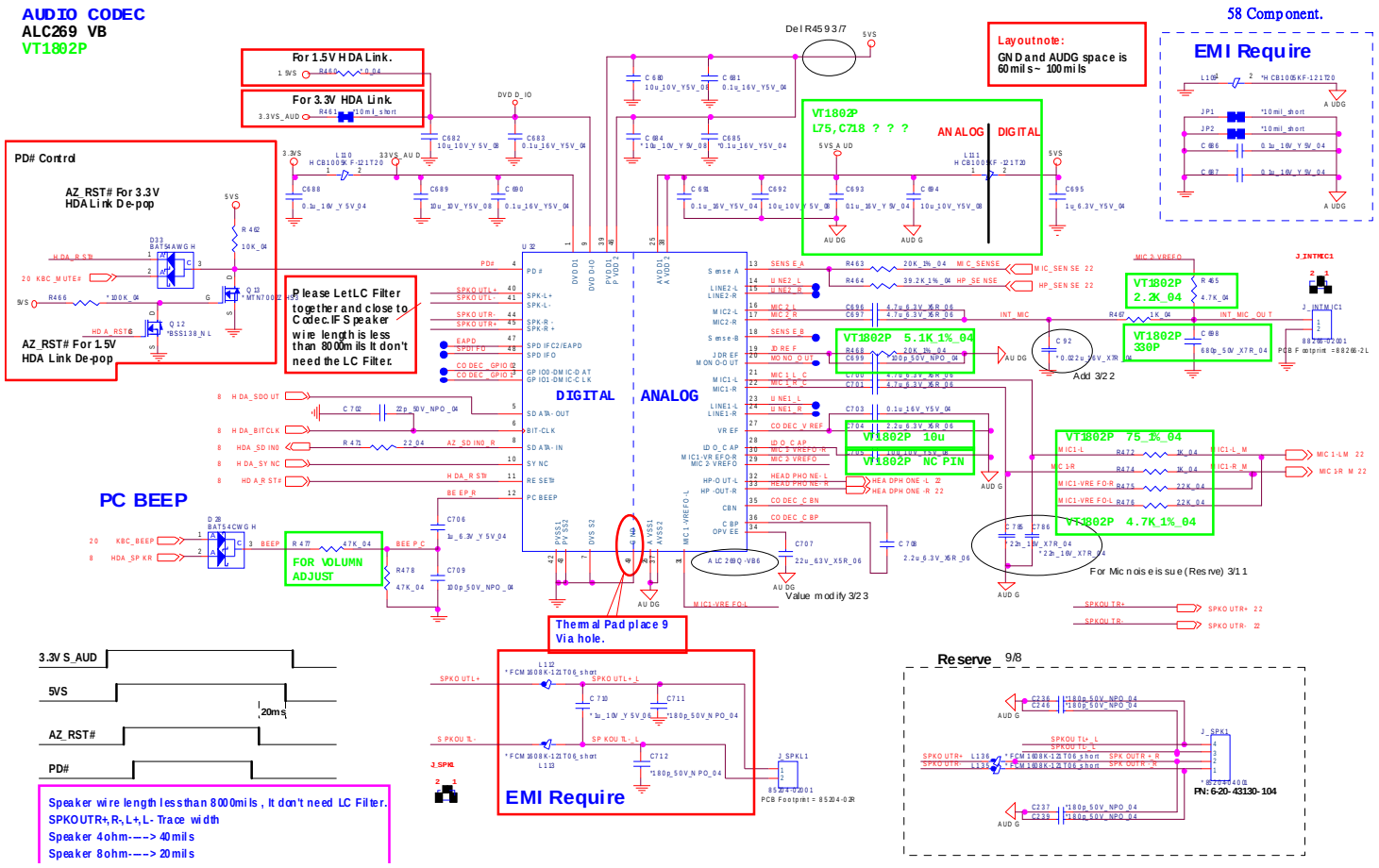
SATA HDD



SATA ODD



AUDIO CODEC ALC269



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AUDIO CODEC
ALC269

USB 3.0 VL800

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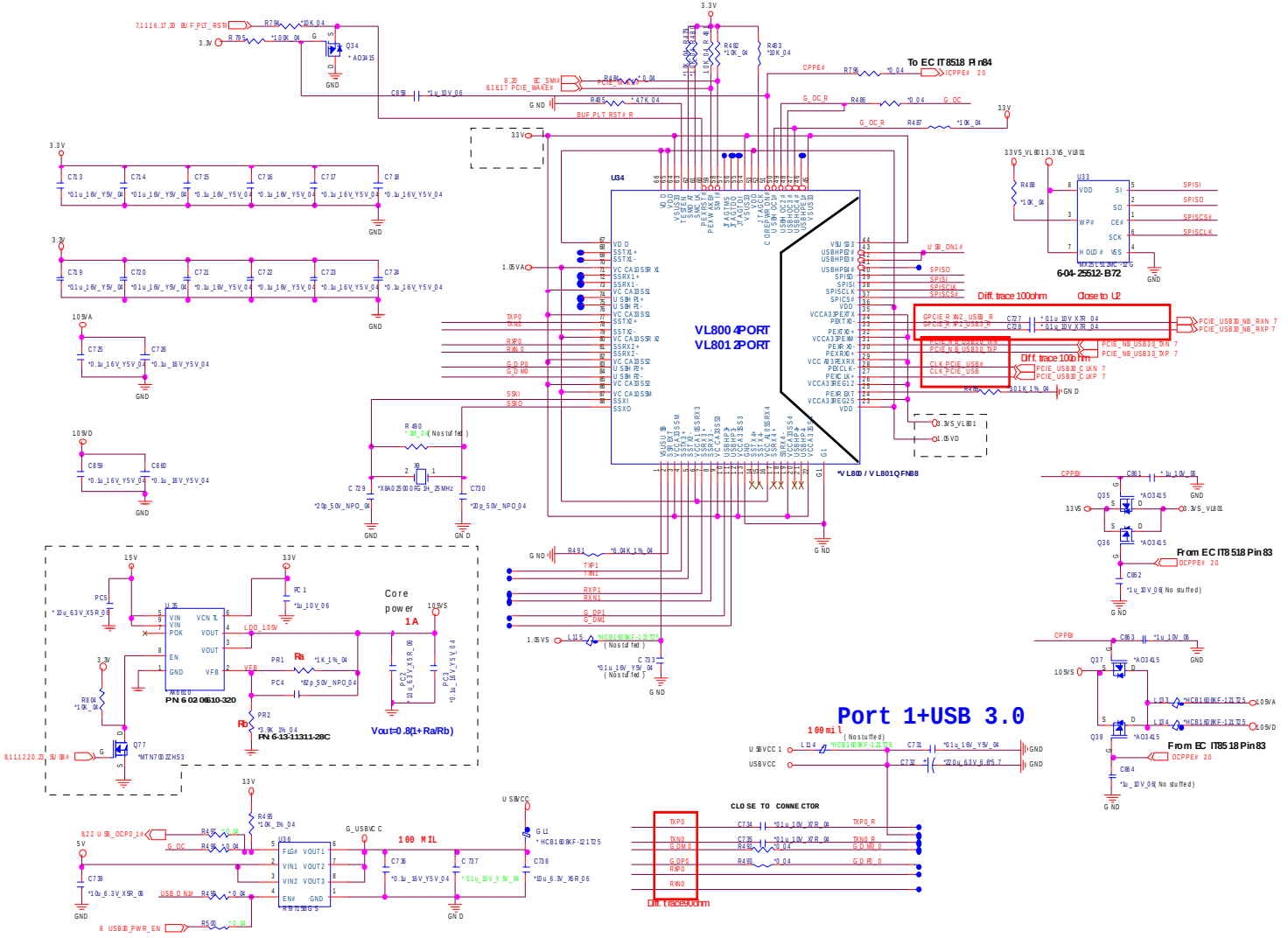
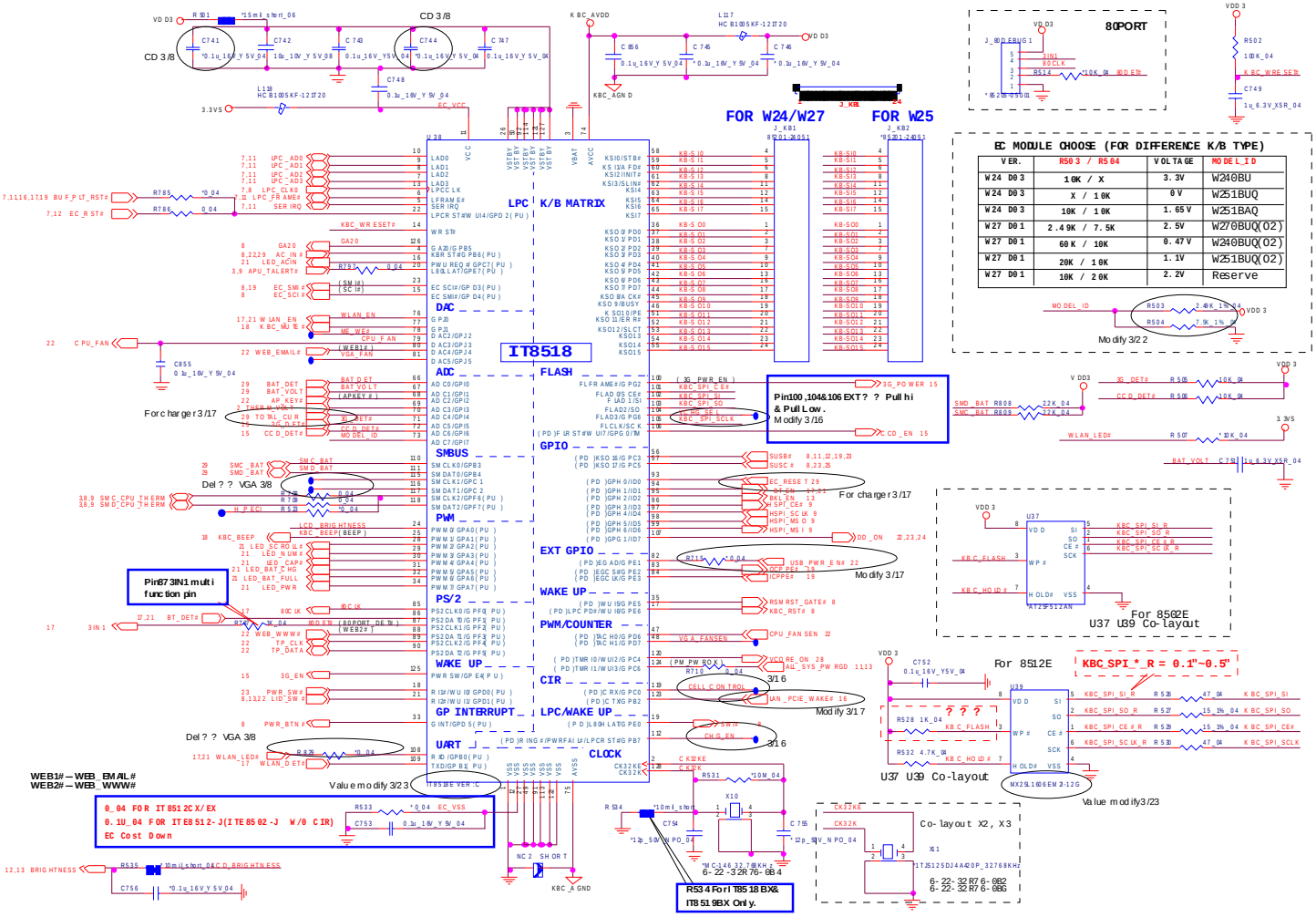
USB 3.0 VL800



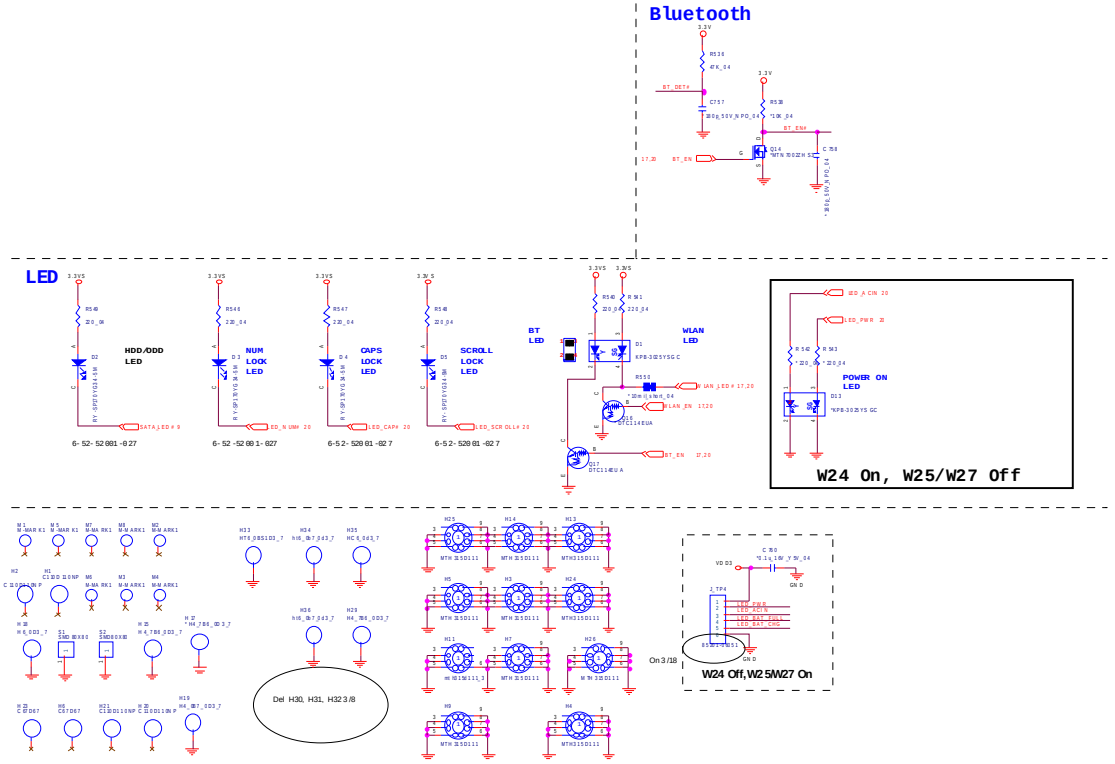
KBC-ITE IT8518



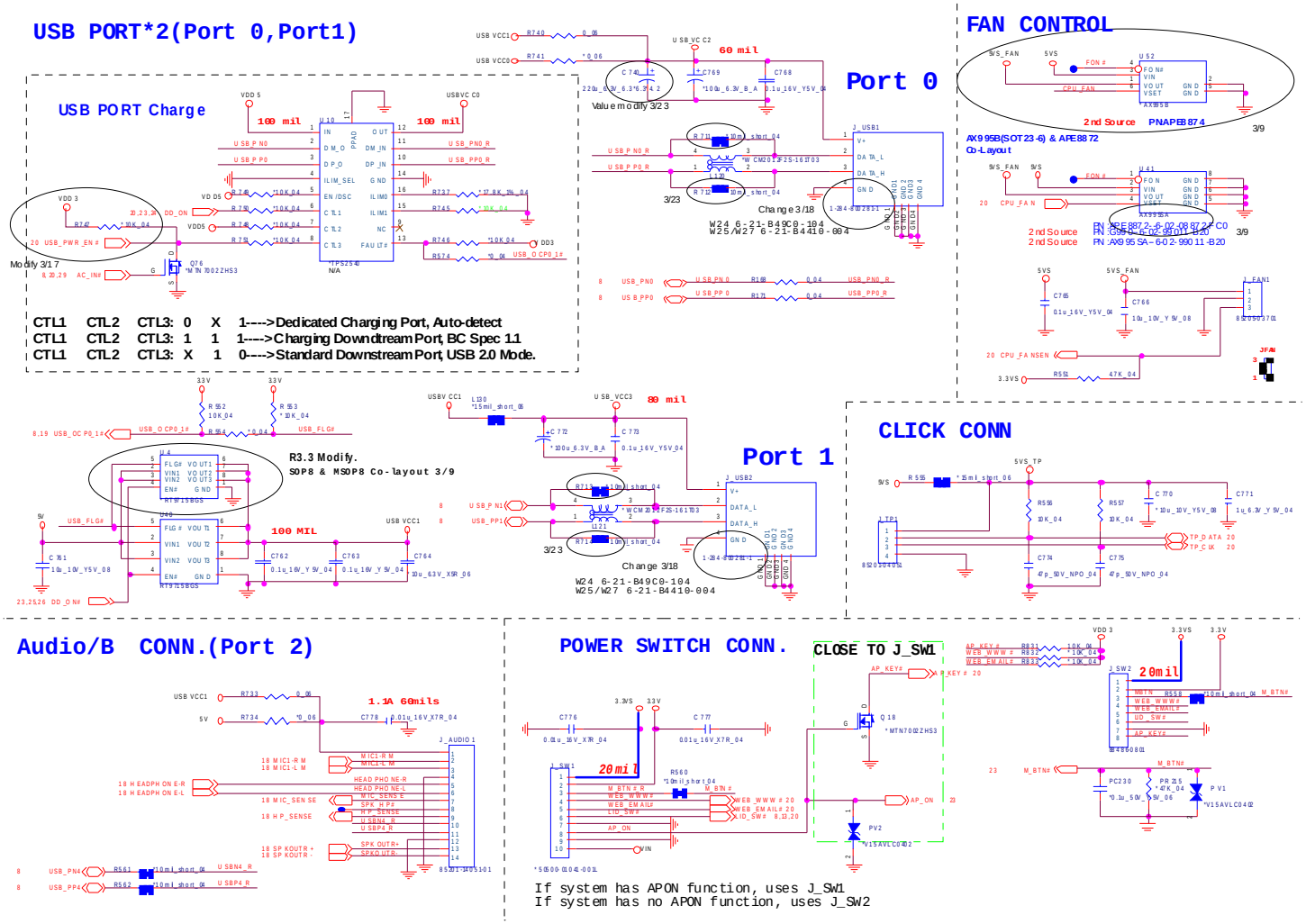
Sheet 20 of 43
KBC-ITE IT8518

LED/ MDC/ BT

Sheet 21 of 43
LED/ MDC/ BT



USB/ FAN/ TP/ MULTI CON



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USB/ FAN/ TP/
MULTI CON

5VS/ 3.3VS/ 1.8VS/ 1.5VS/ 1.1VS

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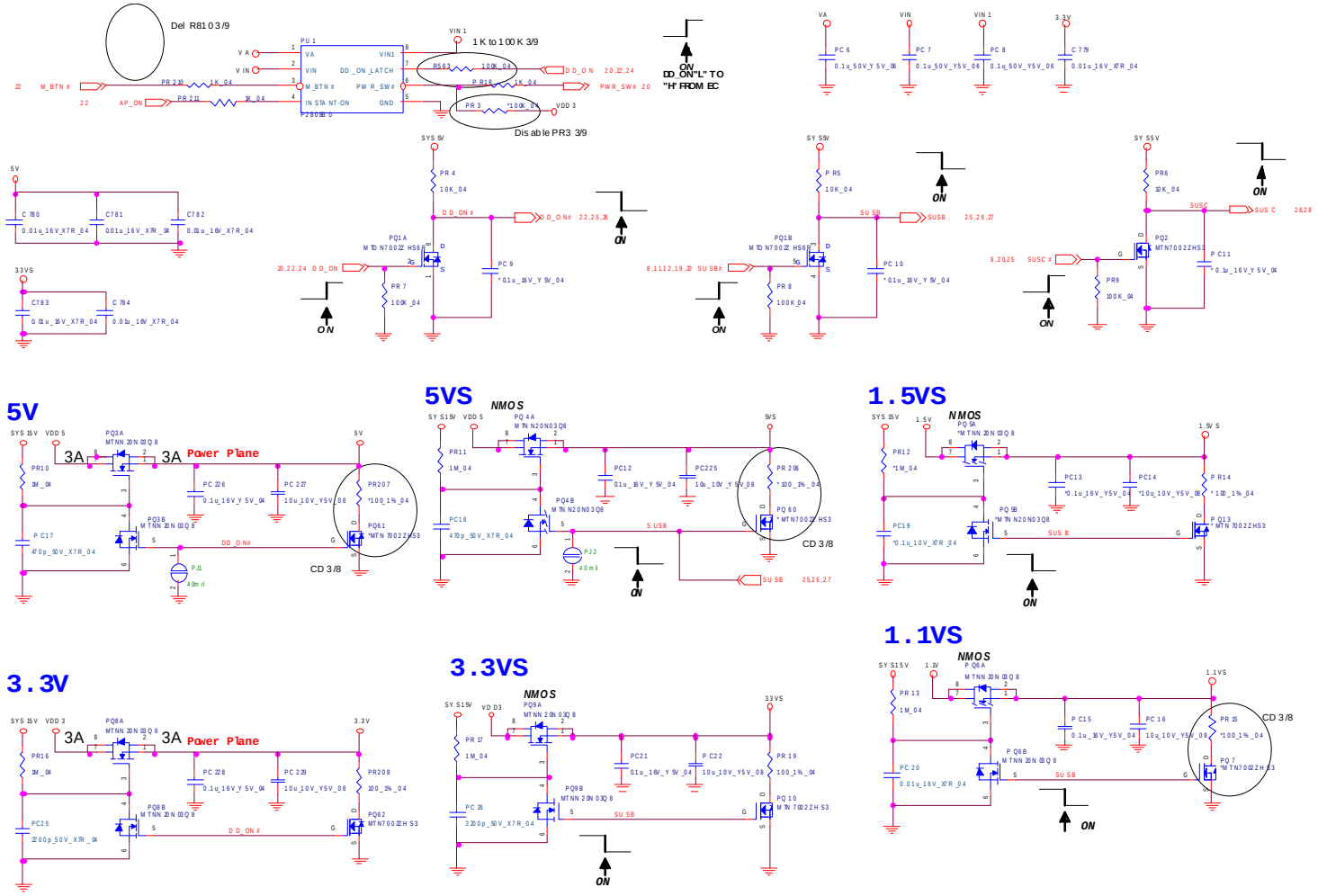
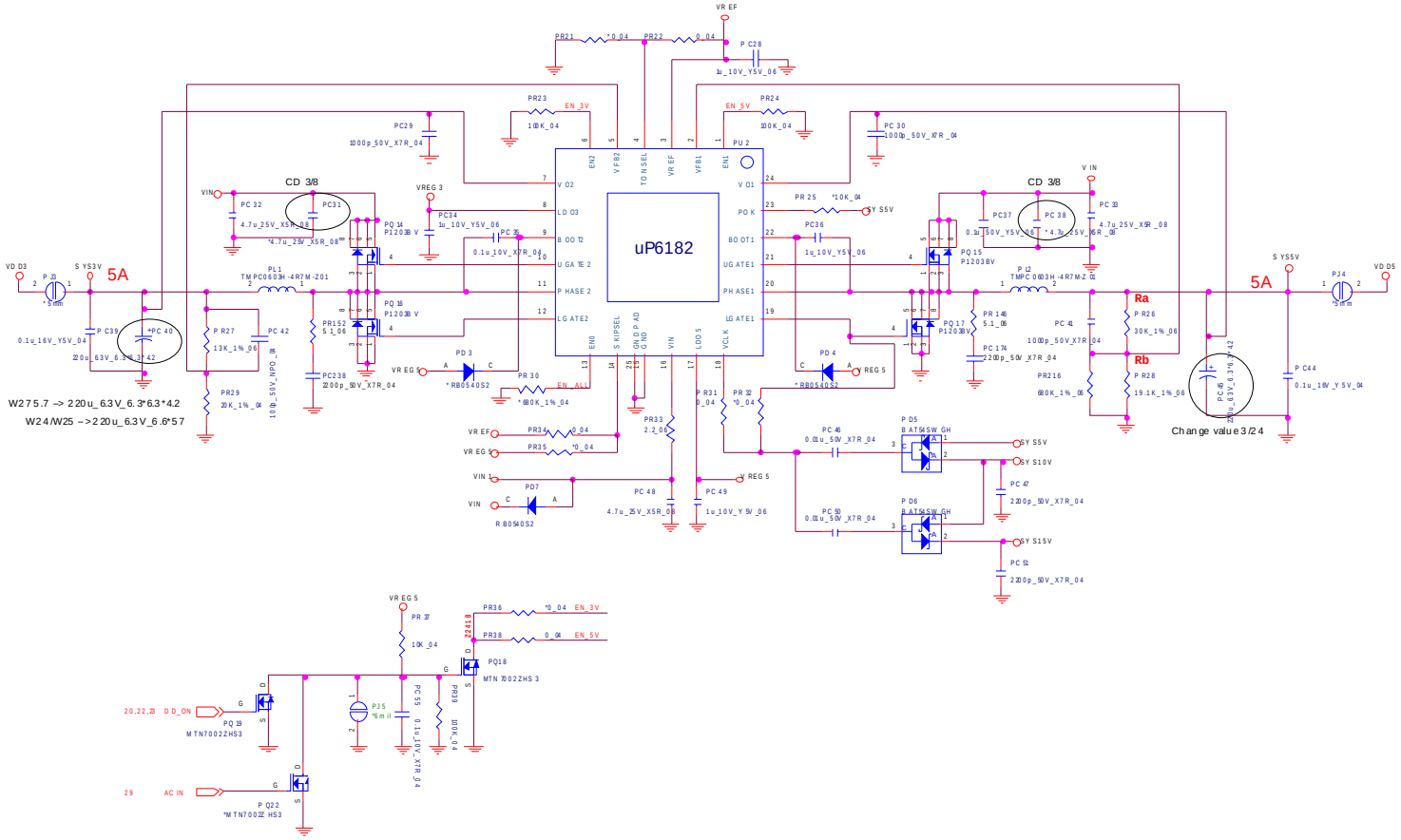
5VS/ 3.3VS/ 1.8VS/ 1.5VS/ 1.1VS

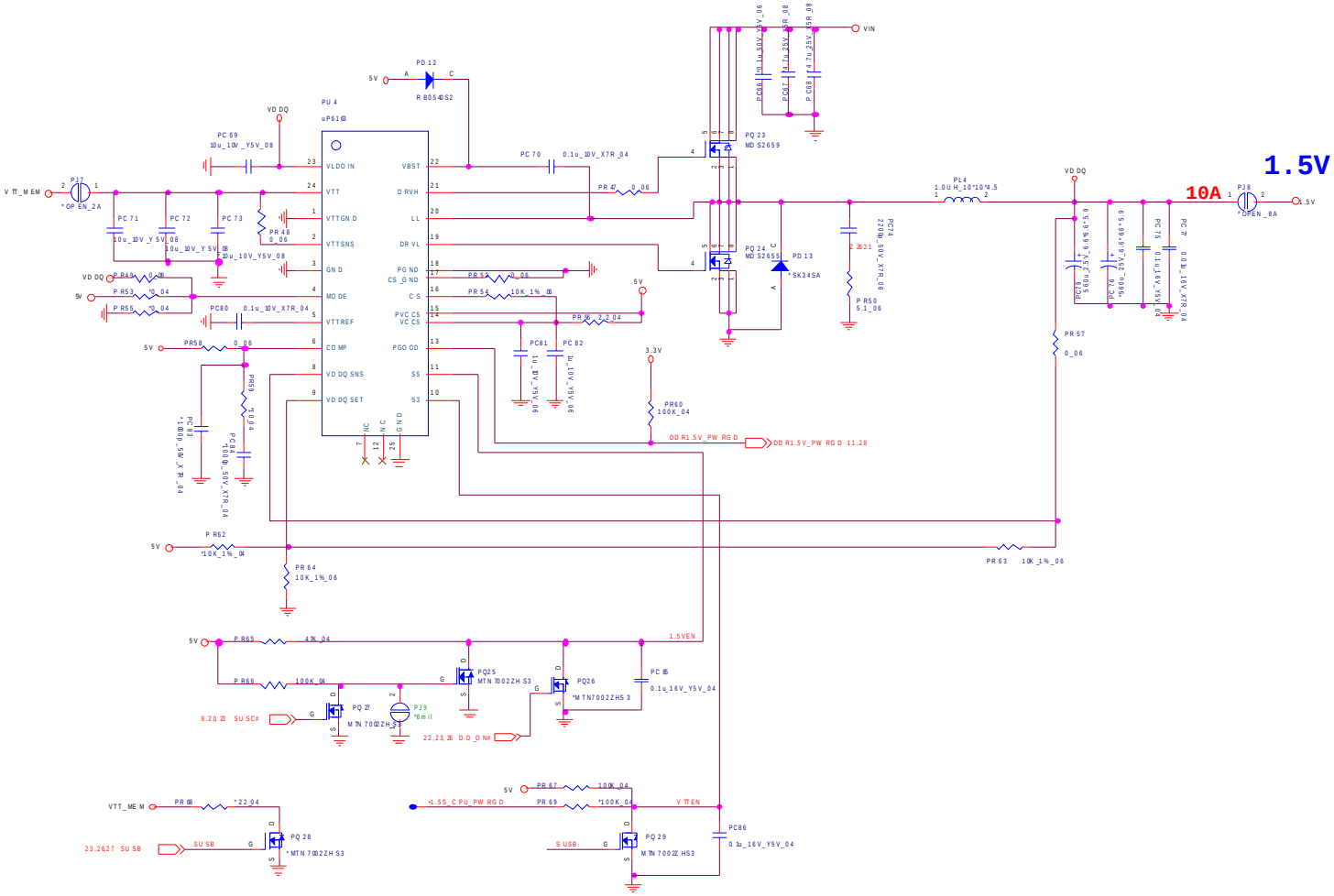


POWER VDD3/ VDD5



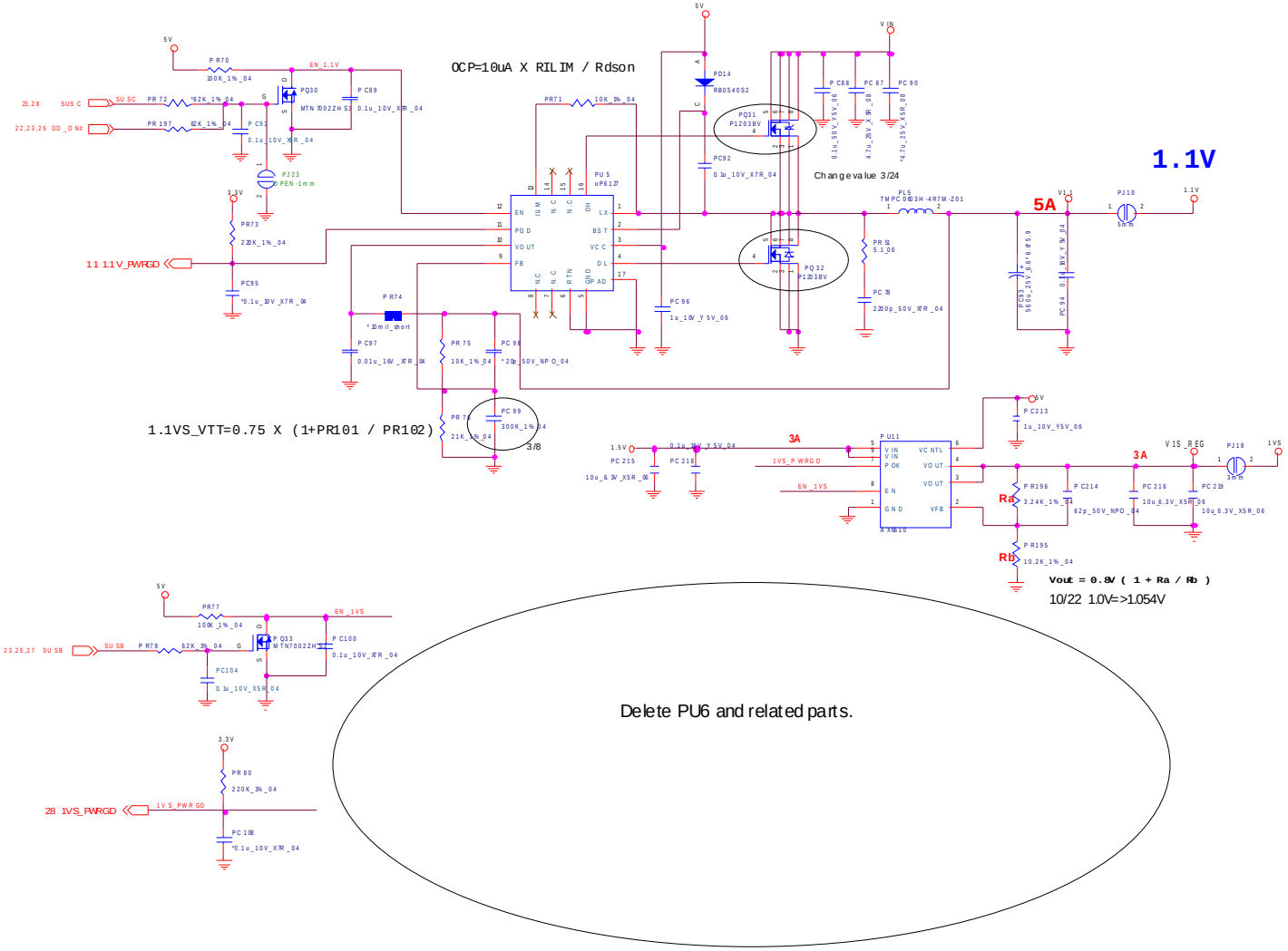
Sheet 24 of 43
POWER VDD3/
VDD5

POWER 1.5V/ 0.75V



Sheet 25 of 43
POWER 1.5V/ 0.75V

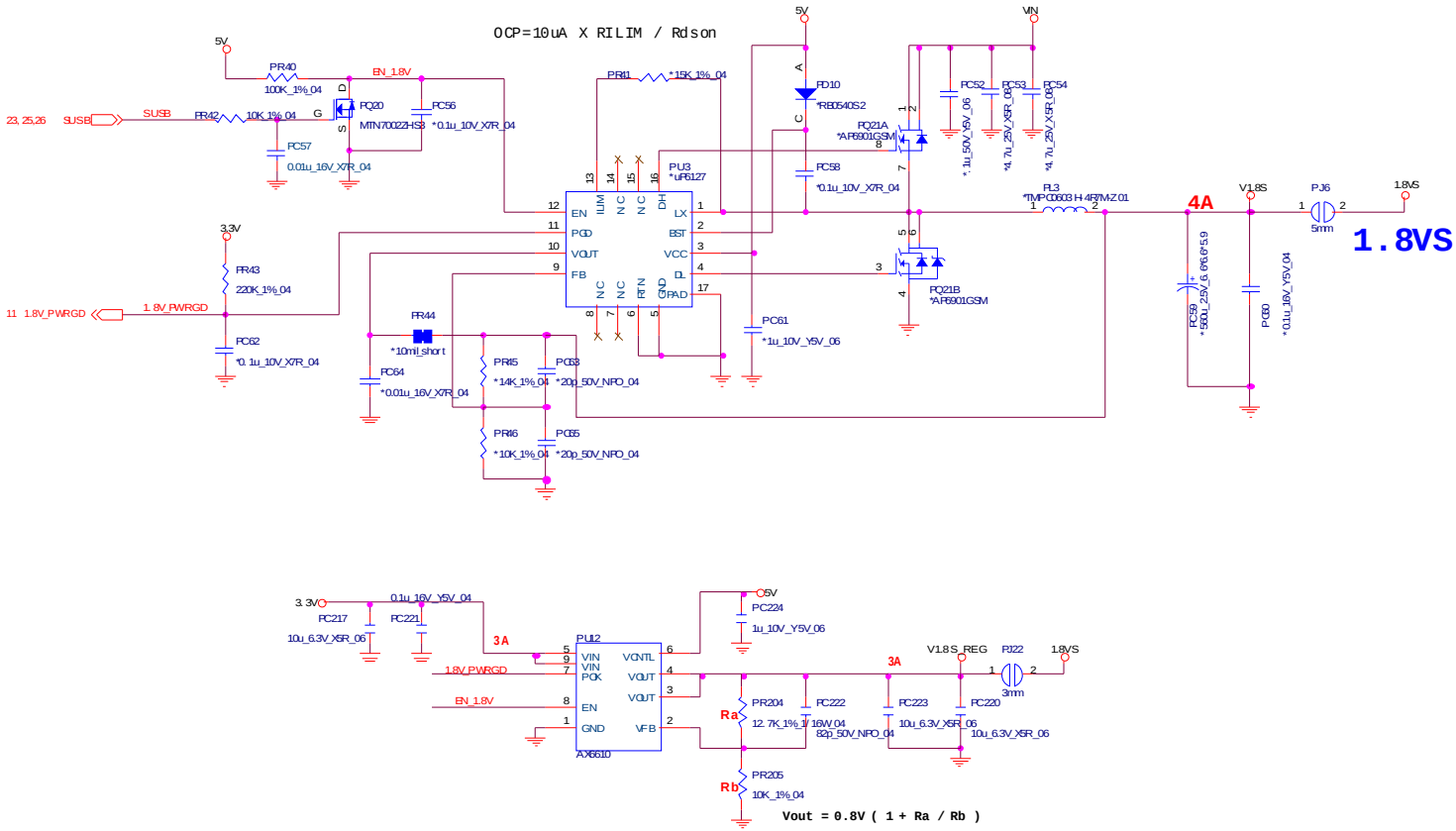
POWER 1.1V/ 1VS



Sheet 26 of 43
POWER 1.1V/ 1VS

POWER 1.8VS

Sheet 27 of 43
POWER 1.8VS



APU CORE/ NB CORE

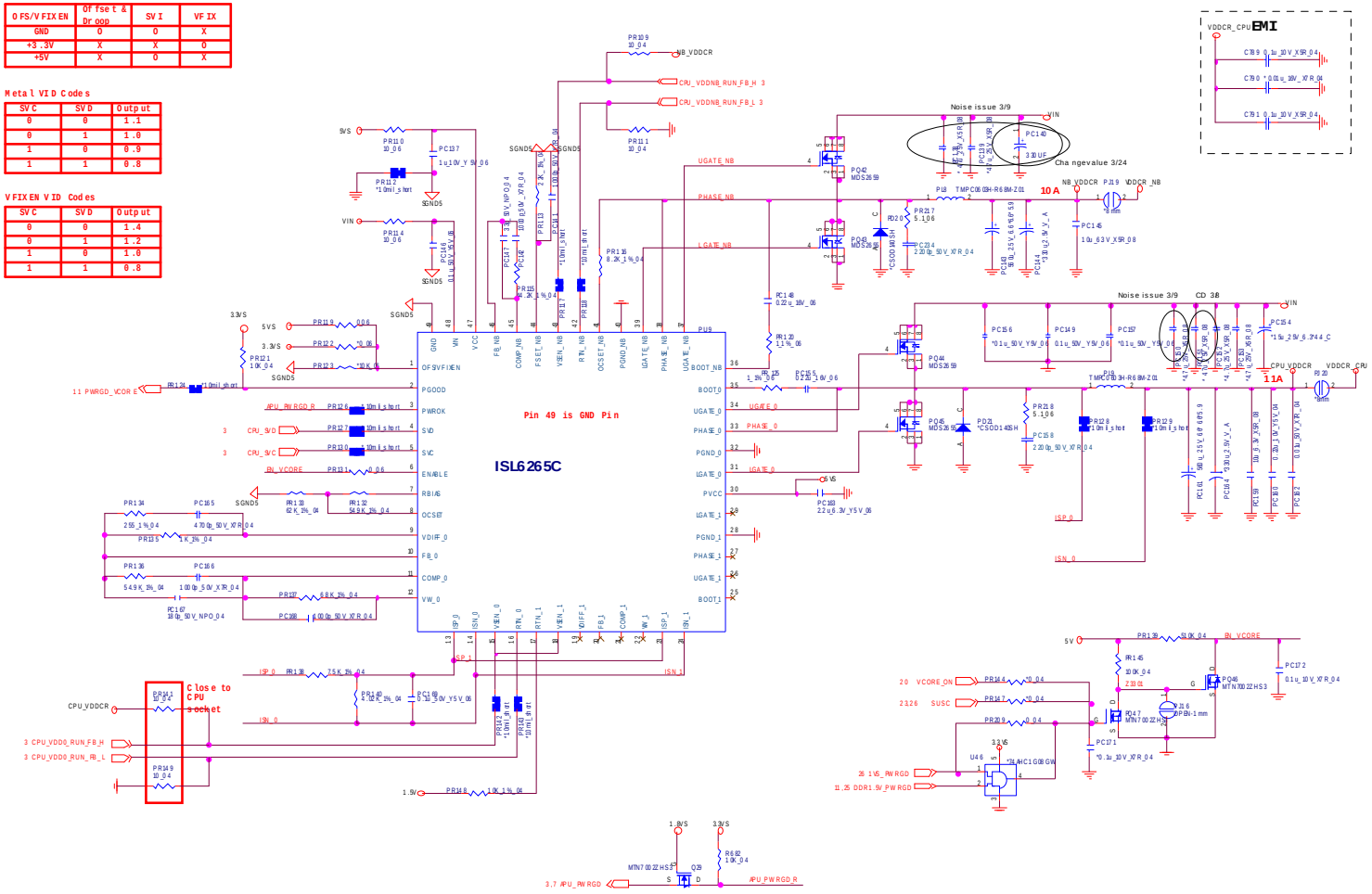
OFS/VFIXEN	Offset & Droop	SVI	VFIX
GND	0	0	X
+3.3V	X	X	0
+5V	X	0	X

Metal VID Codes

SVC	SVD	Output
0	0	1.1
0	1	1.0
1	0	0.9
1	1	0.8

VFIXEN VID Codes

SVC	SVD	Output
0	0	1.4
0	1	1.2
1	0	1.0
1	1	0.8



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APU CORE/ NB CORE

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).

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.