

# SERVICE MANUAL

N150SC / N150SD

*notebook*





**Notebook Computer**

**N150SC / N150SD**

**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 *N150SC* / *N150SD* 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 as follows:
  - AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19.5V, 6.15A (**120** Watts) minimum AC/DC Adapter.

### 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.

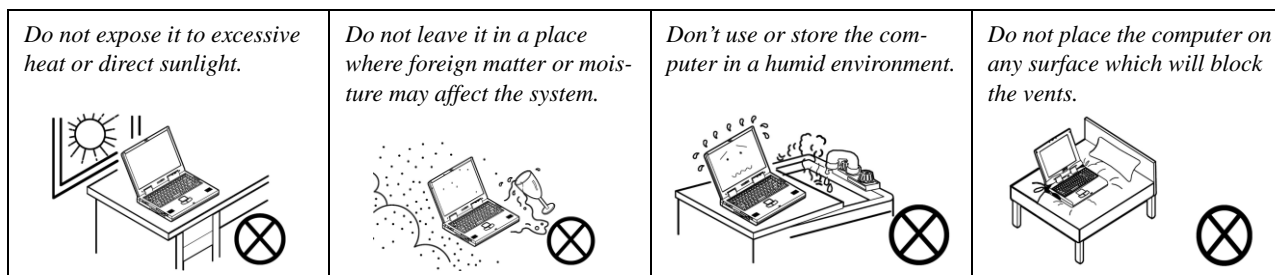
## Instructions for Care and Operation

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

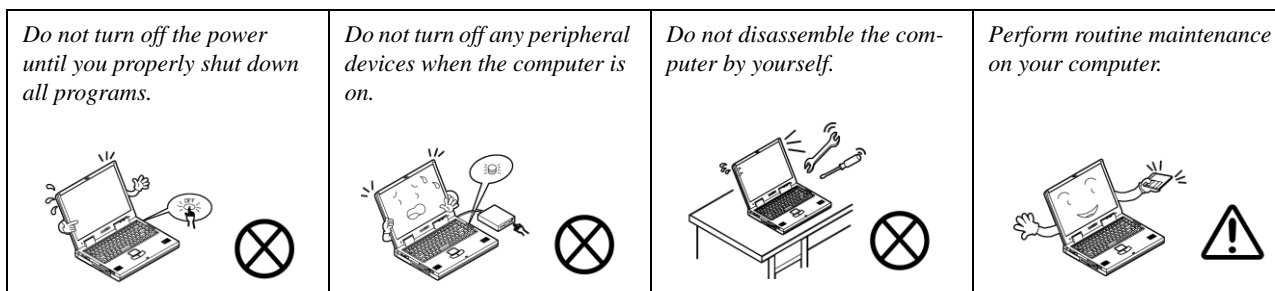
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



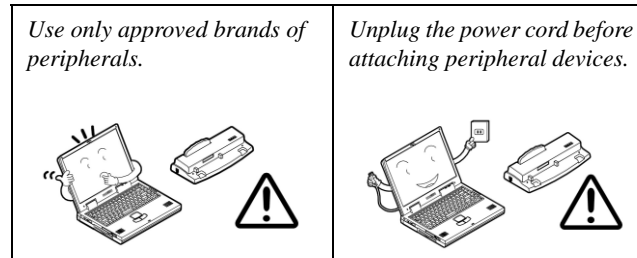
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.



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



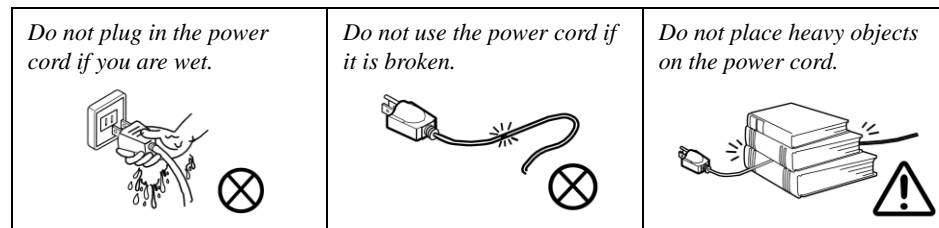
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



## Power Safety

The computer has specific power requirements:

- Only use a power adapter approved for use with this computer.
- Your AC adapter may be designed for international travel but it still requires a steady, uninterrupted power supply. If you are unsure of your local power specifications, consult your service representative or local power company.
- The power adapter may have either a 2-prong or a 3-prong grounded plug. The third prong is an important safety feature; do not defeat its purpose. If you do not have access to a compatible outlet, have a qualified electrician install one.
- When you want to unplug the power cord, be sure to disconnect it by the plug head, not by its wire.
- Make sure the socket and any extension cord(s) you use can support the total current load of all the connected devices.
- Before cleaning the computer, make sure it is disconnected from any external power supplies.



### Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.



## Battery Precautions

- Only use batteries designed for this computer. The wrong battery type may explode, leak or damage the computer.
- Do not continue to use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer continues to work with a damaged battery in place, it may cause circuit damage, which may possibly result in fire.
- Recharge the batteries using the notebook's system. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack. Refer any battery pack repair or replacement to your service representative or qualified service personnel.
- Keep children away from, and promptly dispose of a damaged battery. Always dispose of batteries carefully. Batteries may explode or leak if exposed to fire, or improperly handled or discarded.
- Keep the battery away from metal appliances.
- Affix tape to the battery contacts before disposing of the battery.
- Do not touch the battery contacts with your hands or metal objects.

## Battery Guidelines

The following can also apply to any backup batteries you may have.

- If you do not use the battery for an extended period, then remove the battery from the computer for storage.
- Before removing the battery for storage charge it to 60% - 70%.
- Check stored batteries at least every 3 months and charge them to 60% - 70%.




### Battery Disposal

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

### Caution

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used battery according to the manufacturer's instructions.

### Battery Level

Click the battery icon  in the taskbar to see the current battery level and charge status. A battery that drops below a level of 10% will not allow the computer to boot up. Make sure that any battery that drops below 10% is recharged within one week.

### Related Documents

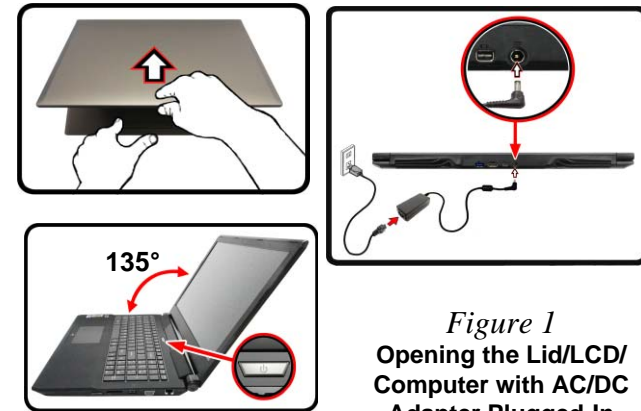
You may also need to consult the following manual for additional information:

#### User's Manual on CD/DVD

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

### System Startup


1. Remove all packing materials.
2. Place the computer on a stable surface.
3. 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 rear of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
6. Use one hand to raise the lid/LCD to a comfortable viewing angle (do not exceed 135 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 the **Shut down** command in **Windows** (see below). This will help prevent hard disk or system problems.

Click the icon  in the **Start Screen** and choose **Shut down** from the menu.



**Or**

Right-click the **Start button**  at the bottom of the **Start Screen** or the **Desktop** and choose **Shut down or sign out** > **Shut down** from the context menu.

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# Chapter 1: Introduction

## Overview

This manual covers the information you need to service or upgrade the *NI50SC / NI50SD* series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in the *User's Manual*. The manual is shipped with the computer.

Operating systems (e.g. *Windows 8.1*, 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 *NI50SC / NI50SD* 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

#### Design I:

**Intel® Core™ i7 Processor**

**i7-4720HQ (2.60GHz)**

6MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 47W

**Intel® Core™ i5 Processor**

**i5-4210H (2.90GHz)**

3MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 47W

#### Design II :

**Intel® Core™ i7 Processor**

**i7-4870HQ (2.50GHz), i7-4720HQ (2.60GHz)**

6MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 47W

**Intel® Core™ i5 Processor**

**i5-4210H (2.90GHz)**

3MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 47W

### Core Logic

Intel® HM87 Chipset

### BIOS

48Mb SPI Flash ROM

AMI BIOS

### Memory

Two 204 Pin SO-DIMM Sockets Supporting **DDR3L 1600MHz** Memory

Memory Expandable up to 16GB

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

### Storage

**(Factory Option)** One 9.5mm(h) Optical Device Type Drive (Super Multi Drive)

**(Factory Option)** 2.5" 9.5mm 2nd HDD/SSD caddy  
One Changeable 2.5" 9.5mm/7.0mm (h) SATA HDD/SSD

### LCD Options

15.6" (39.62cm) FHD

### Video Adapter

**Intel® Integrated GPU and NVIDIA® Discrete GPU**

**Supports Microsoft Hybrid Graphics**

#### Design I:

**Intel Integrated GPU**

**Intel® HD Graphics 4600**

Dynamic Frequency (Intel Dynamic Video Memory Technology for up to **1.7GB**)

Microsoft DirectX®11.1 Compatible

**NVIDIA® Discrete GPU**

**NVIDIA® GeForce GTX 950M**

**2GB** GDDR5 Video RAM on board

Microsoft DirectX® 12 Compatible

#### Design II:

**Intel Integrated GPU**

**Intel® HD Graphics 5200 (Core i7-4870HQ/**

Dynamic Frequency (Intel Dynamic Video Memory Technology for up to **1.7GB**)

Microsoft DirectX®11.1 Compatible

**Intel® HD Graphics 4600 (Core i7-4720HQ/ i5-4210H**

Dynamic Frequency (Intel Dynamic Video Memory Technology for up to **1.7GB**)

Microsoft DirectX®11.1 Compatible

**NVIDIA® Discrete GPU****NVIDIA® GeForce GTX 960M**

2GB GDDR5 Video RAM on board

Microsoft DirectX® 12 Compatible

**Audio**

High Definition Audio Compliant Interface

2 \* Built-In Speakers

Built-In Microphone

Sound Blaster™ Cinema 2

**Security**

Security (Kensington® Type) Lock Slot

BIOS Password

**(Factory Option)** Fingerprint Reader**(Factory Option)** TPM v 2.0**Keyboard****Illuminated** Full-size “WinKey” keyboard (with numeric keypad)**Pointing Device**

Built-in Touchpad

**Interface**

Four USB 3.0 Ports

One Mini DisplayPort

One HDMI-Out Port

One External Monitor Port

One Headphone-Out Jack

One Microphone-In Jack

One S/PDIF Out Jack

One RJ-45 LAN Jack

One DC-in Jack

**M.2 Slots**

Slot 1 for M.2 2230 WLAN Combo Module Card with PCIe &amp; USB Interfaces

Slot 2 for M.2 2280 SSD Card with SATA/ PCIe x2/ x4 Interface

Or

**(Factory Option)** Slot 2 for LTE/HSPA+ M.2 3042 3G or 4G Module Card with USB Interface**Communication**

Built-In Gigabit Ethernet LAN

**(Factory Option)** 2.0M FHD PC Camera Module**(Factory Option - Models A & B Only)** M.2 3G/4G Module**WLAN/ Bluetooth M.2 Modules:****(Factory Option)** Intel® Wireless-AC 7265 Wireless LAN **(802.11ac)** + Bluetooth **4.0****(Factory Option)** Intel® Wireless-N 7265 Wireless LAN **(802.11b/g/n)** + Bluetooth **4.0****(Factory Option)** Intel® Wireless-AC 3160 Wireless LAN **(802.11ac)** + Bluetooth **4.0****(Factory Option)** Third-Party Wireless LAN **802.11b/g/n** + Bluetooth **4.0****Card Reader**

Embedded Multi-In-1 Card Reader

MMC (MultiMedia Card) / RS MMC

SD (Secure Digital) / Mini SD / SDHC/ SDXC

**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: 19.5V, 6.15A (**120W**)**Built-in** 6 Cell Smart Lithium-Ion Battery Pack, 62WH**Dimensions & Weight**

385mm (w) \* 268mm (d) \* 28.5mm (h)

**2.5kg** (Barebone with 62WH Battery)

## Introduction

*Figure 1*  
**Top View**

1. PC Camera
2. \*PC Camera LED  
*\*When the PC camera is in use, the LED will be illuminated.*
3. Microphone
4. LCD
5. Speakers
6. Power Button
7. Keyboard
8. Touchpad & Buttons
9. Fingerprint Reader (Optional)

## External Locator - Top View with LCD Panel Open





## External Locator - Front & Right Side Views

FRONT VIEW



*Figure 2*  
**Front View**  
1. LED Indicators

RIGHT SIDE VIEW



*Figure 3*  
**Right Side View**  
1. USIM Card Reader (for 3G/4G USIM Cards)  
2. Multi-in-1 Card Reader  
3. USB 3.0 Port  
4. External Monitor Port  
5. RJ-45 LAN Jack

## Introduction

### External Locator - Left Side & Rear View

*Figure 4*  
**Left Side View**

1. Security Lock Slot
2. USB 3.0 Ports
3. S/PDIF-Out Jack
4. Microphone-In Jack
5. Headphone-Out Jack
6. Optical Device Drive Bay
7. Emergency Eject Hole

LEFT SIDE VIEW



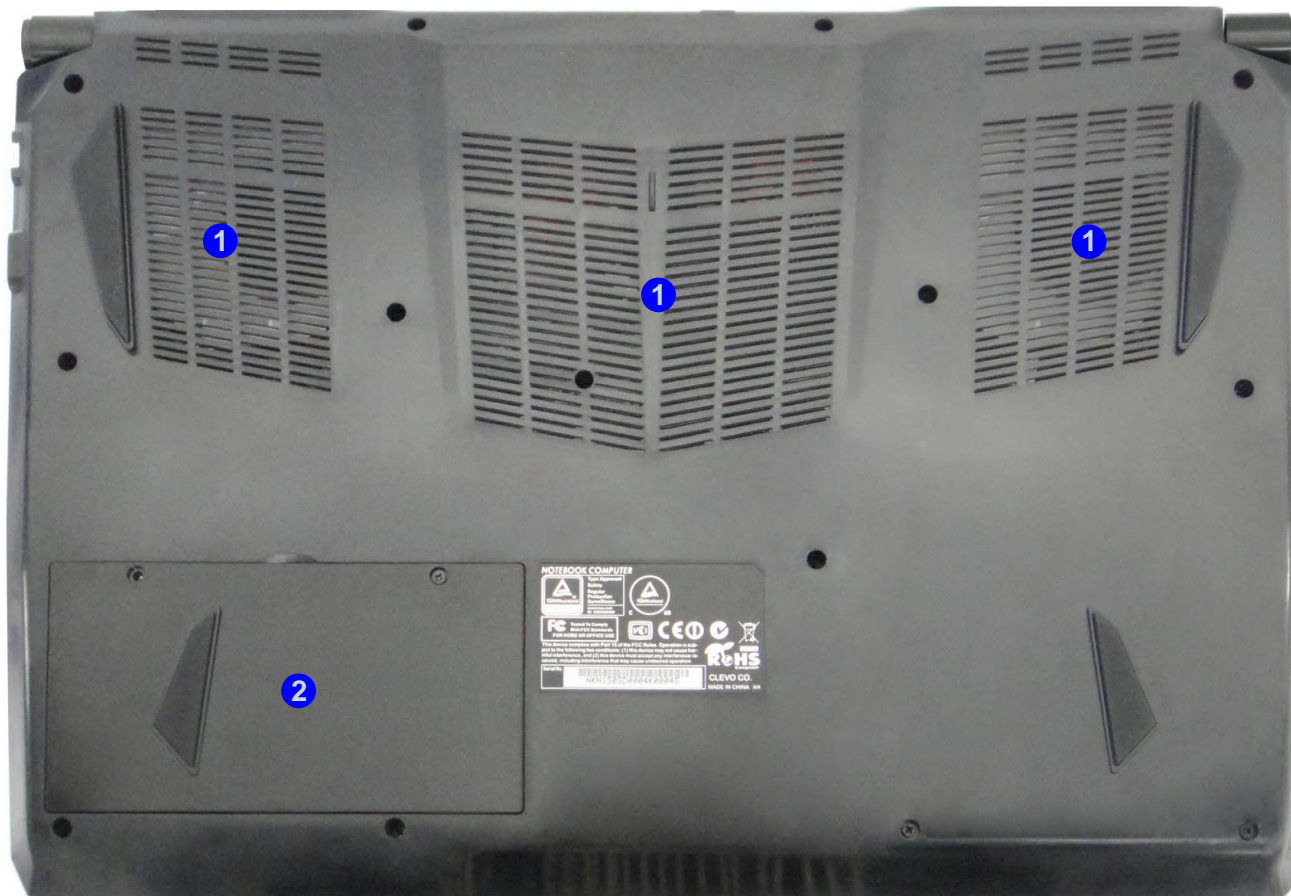
*Figure 5*  
**Rear View**

1. Vent
2. USB 3.0 Port
3. HDMI-Out Port
4. Mini Display Port
5. DC-In Jack

REAR VIEW



## External Locator - Bottom View



*Figure 6*  
**Bottom View**

1. Vent
2. Battery

  
**Overheating**

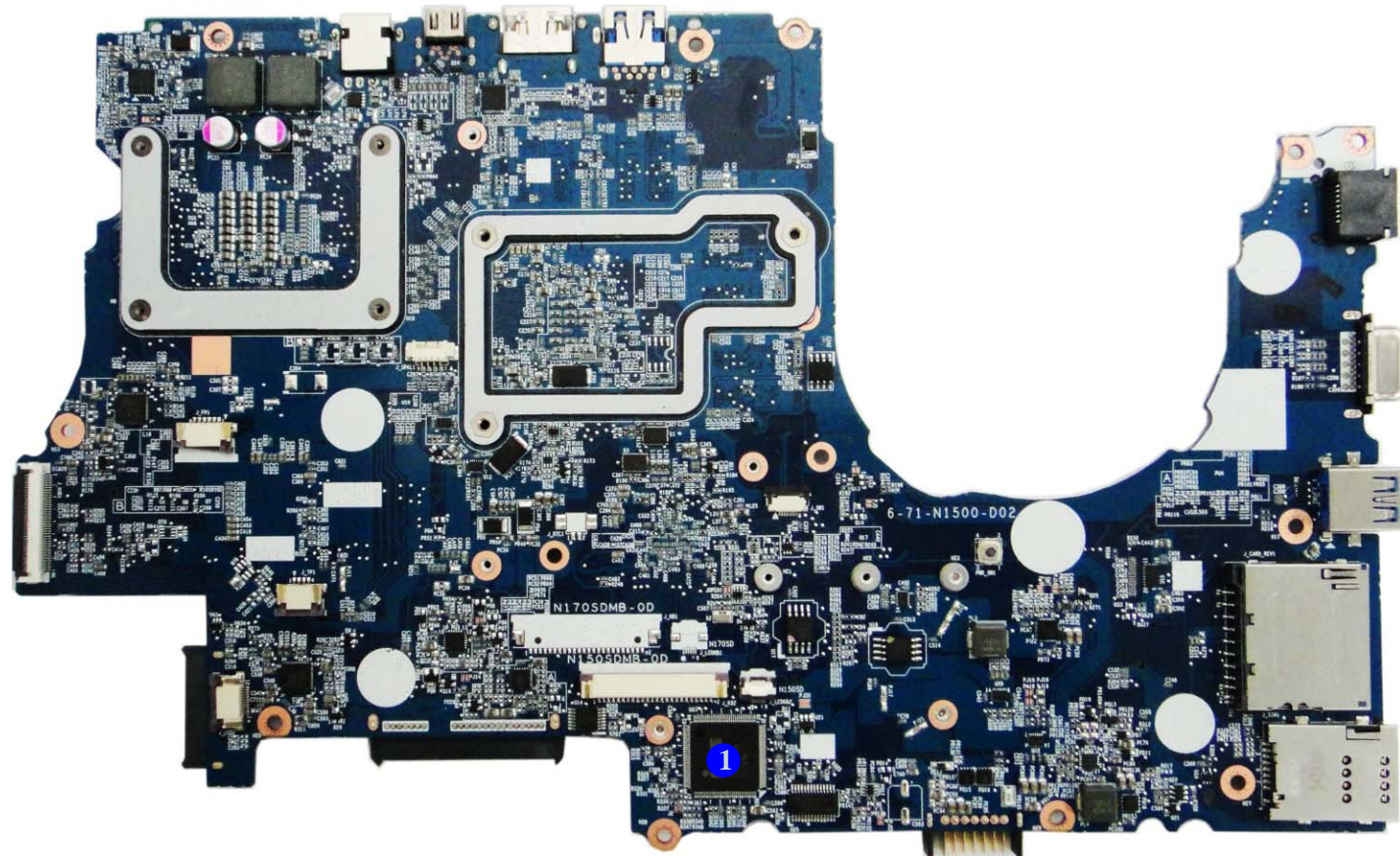
To prevent your computer from overheating, make sure nothing blocks any vent while the computer is in use.

## Introduction

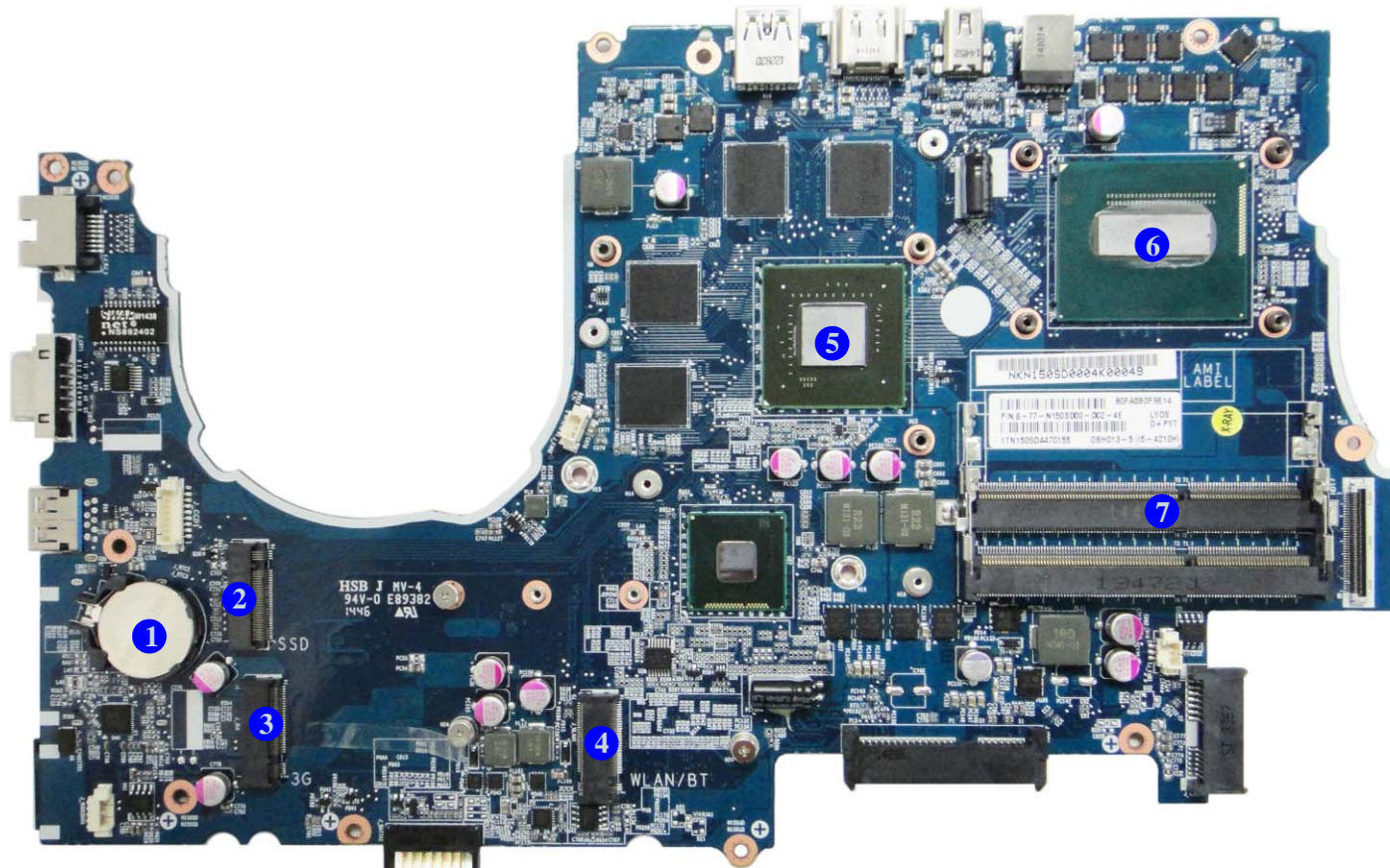
*Figure 7*  
Mainboard Top  
Key Parts

## Mainboard Overview - Top (Key Parts)

1. KBC-ITE IT8587



## Mainboard Overview - Bottom (Key Parts)



*Figure 8*  
**Mainboard Bottom  
Key Parts**

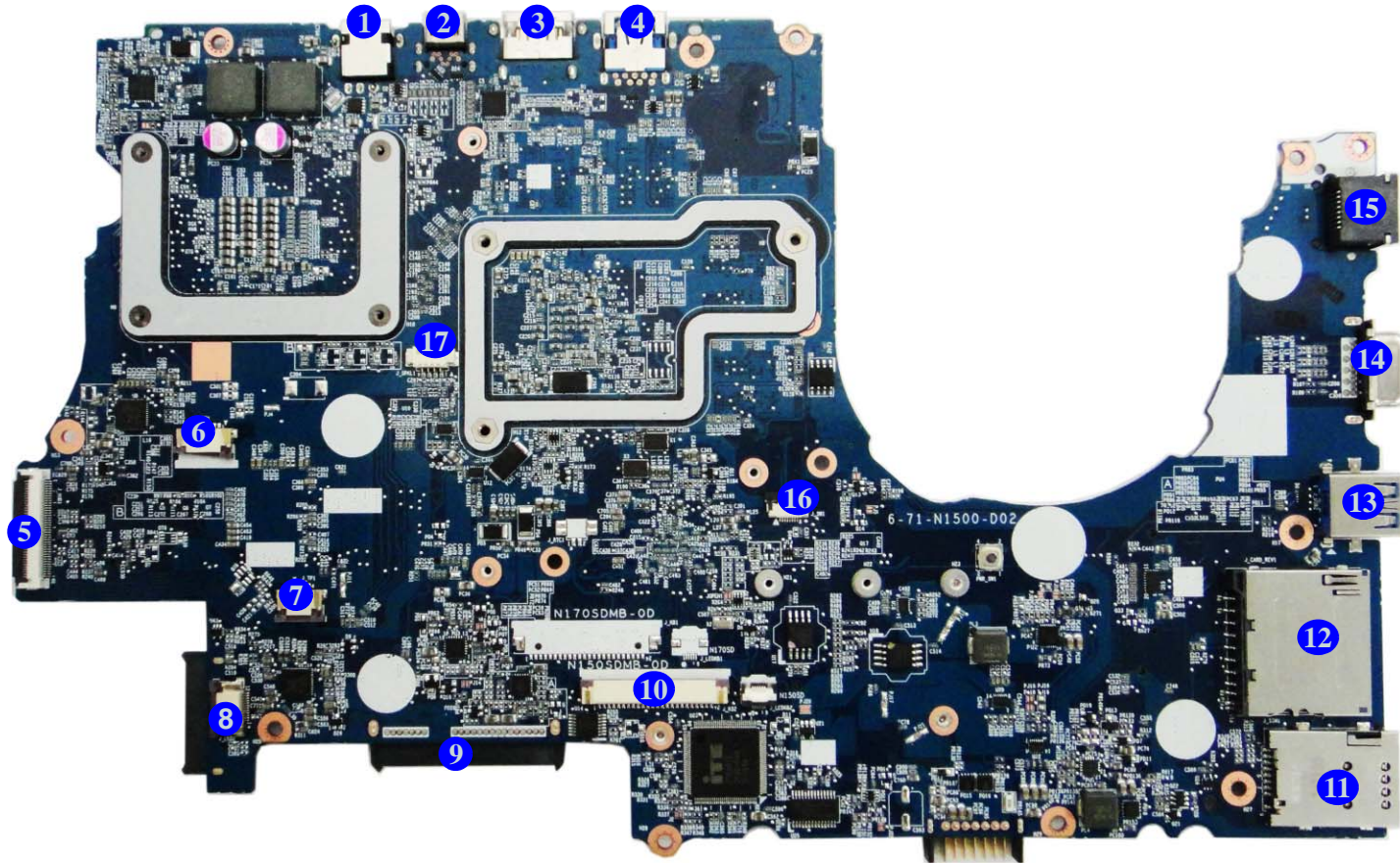
1. CMOS Battery
2. Mini-Card Connector (M.2 PCIE/SATA SSD Module)
3. Mini-Card Connector (M.2 3G/SATA Module)
4. Mini-Card Connector (WLAN Module)
5. GPU-GTX960M
6. CPU
7. Memory Slots (DDR3L SO-DIMM)

## Introduction

*Figure 9*  
**Mainboard Top  
Connectors**

## Mainboard Overview - Top (Connectors)

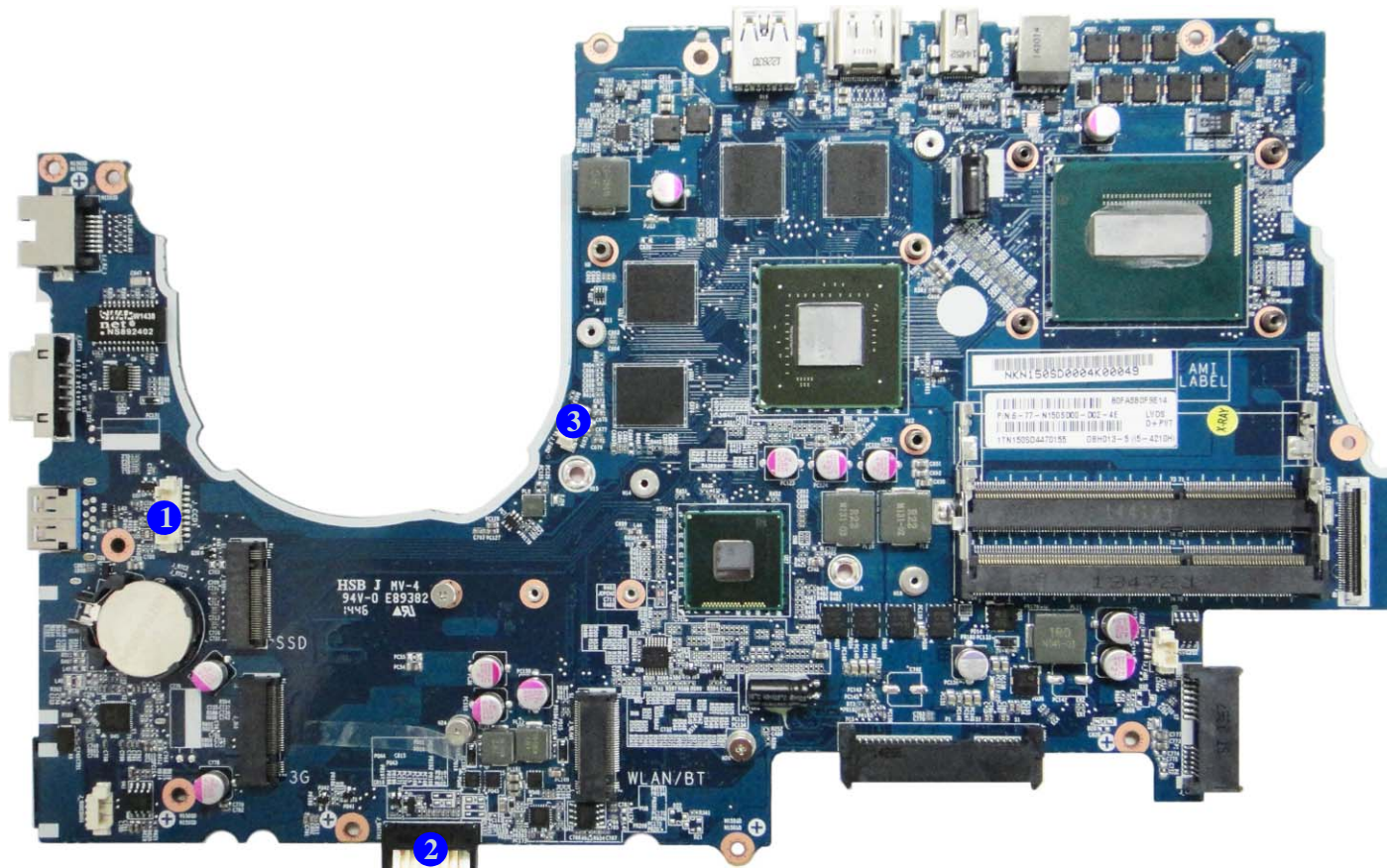
1. DC-In Jack
2. Mini Display Port
3. HDMI-Out Port
4. USB Port 3.0 Connector
5. Audio Board Connector
6. Finger Print Connector
7. TP Connector
8. LED Board Connector
9. HDD Connector
10. Keyboard Cable Connector
11. USIM Card Reader
12. Multi-in-1 Card Reader
13. USB Port 3.0 Connector
14. External Monitor Port
15. RJ-45 LAN Jack
16. Power Switch Board Connector
17. Speaker Connector



## Mainboard Overview - Bottom (Connectors)

*Figure 10*  
**Mainboard Bottom  
Connectors**

1. CCD Connector
2. Battery Connector
3. Fan Connector








# Chapter 2: Disassembly

## Overview

This chapter provides step-by-step instructions for disassembling the *NI50SC/NI50SD* series notebook's parts and sub-systems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

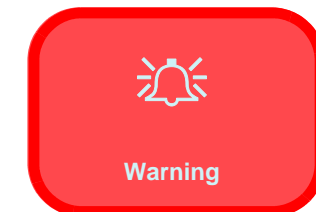
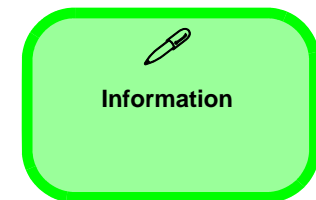
We suggest you completely review any procedure before you take the computer apart.

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

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

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

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



## Disassembly

---

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

### Maintenance Tools

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

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

### Connections

Connections within the computer are one of four types:

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

## Maintenance Precautions

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

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

## Cleaning

Do not apply cleaner directly to the computer, use a soft clean cloth.

Do not use volatile (petroleum distillates) or abrasive cleaners on any part of the computer.



### Power Safety Warning

Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord). It is advisable to also remove your battery in order to prevent accidentally turning the machine on.

### Disassembly Steps

The following table lists the disassembly steps, and on which page to find the related information. **PLEASE PERFORM THE DISASSEMBLY STEPS IN THE ORDER INDICATED.**

#### To remove the Battery:

1. Remove the battery *page 2 - 5*

#### To remove the HDD:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 6*

#### To remove the Optical Device:

1. Remove the battery *page 2 - 5*
2. Remove the Optical device *page 2 - 10*

#### To remove the Keyboard:

1. Remove the battery *page 2 - 5*
2. Remove the keyboard *page 2 - 11*

#### To remove the System Memory:

1. Remove the battery *page 2 - 5*
2. Remove the system memory *page 2 - 12*

#### To remove the M.2 SSD:

1. Remove the battery *page 2 - 5*
2. Remove the SSD *page 2 - 13*

#### To remove the Wireless LAN Module:

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

#### To remove the 3G Module:

1. Remove the battery *page 2 - 5*
2. Remove the 3G *page 2 - 16*

## Removing the Battery

1. Turn the computer **off**, and turn it over.
2. Locate the battery and remove screws **1** - **2** (*Figure 1a*).
3. Carefully lift the battery **3** up in the direction of the arrow **4** (*Figure 1b*).
4. Remove the battery off the computer (*Figure 1c*).

*Figure 1*  
**Battery Removal**

- a. Remove the screws.
- b. Lift the battery.
- c. Remove the battery.

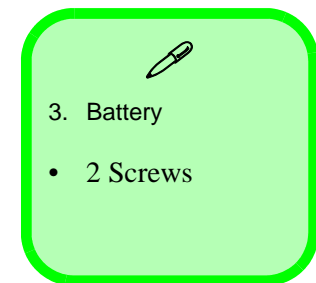
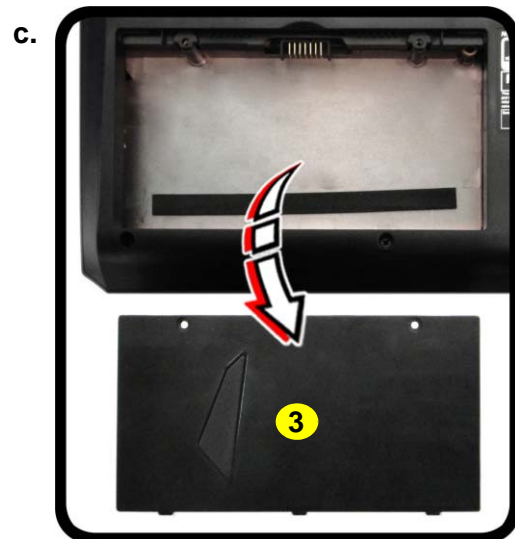
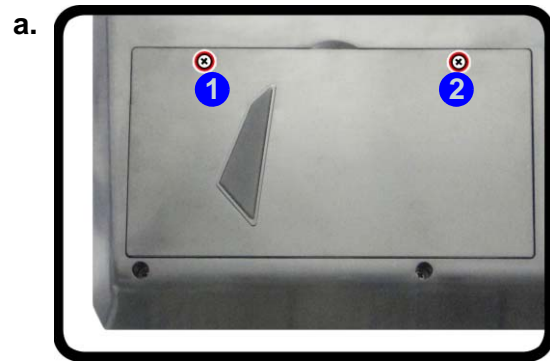


Figure 2  
HDD Assembly  
Removal

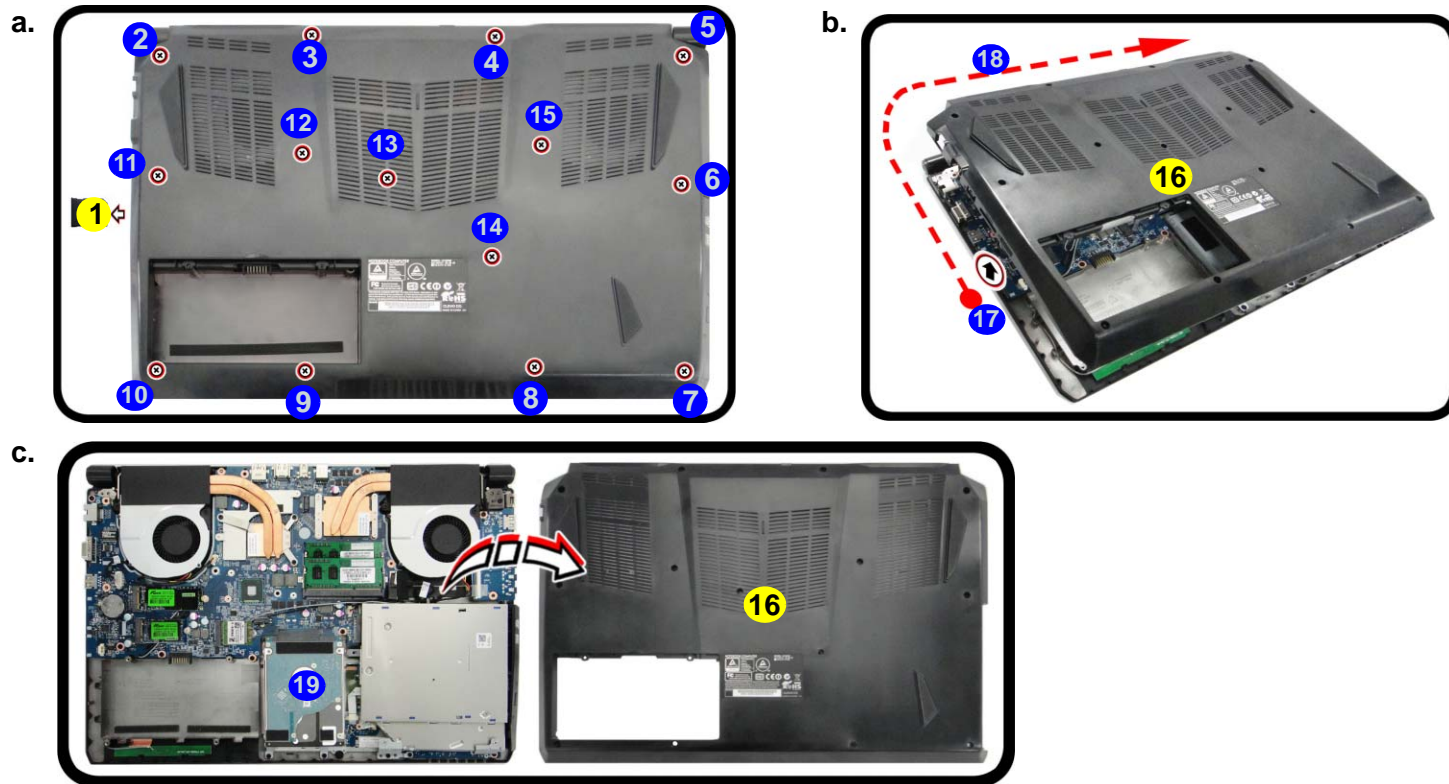
- a. Remove the SD cover and screws.
- b. Remove the bottom case.
- c. Locate the HDD.


## 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 or 7mm (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 Disassembly Process

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)) and keyboard ([page 2 - 11](#)).
2. Remove the SD card cover **1** and screws **2 - 15** ([Figure 2a](#)).
3. Carefully lift the bottom case **16** up at point **17** and slide in the direction of the arrow **18** to remove it ([Figure 1b](#)).
4. The HDD will be visible at point **19** on the mainboard ([Figure 2a](#)).





- 1. SD Card Cover
- 16. Bottom Case
- 14 Screws

- Remove screws 20 - 21 from the HDD assembly (Figure 3c).
- Lift the hard disk at a 45 degrees angle and slide it out in the direction of arrow 22 (Figure 4d).
- Remove the hard disk assembly 23 out of the bay 24 (Figure 4e).

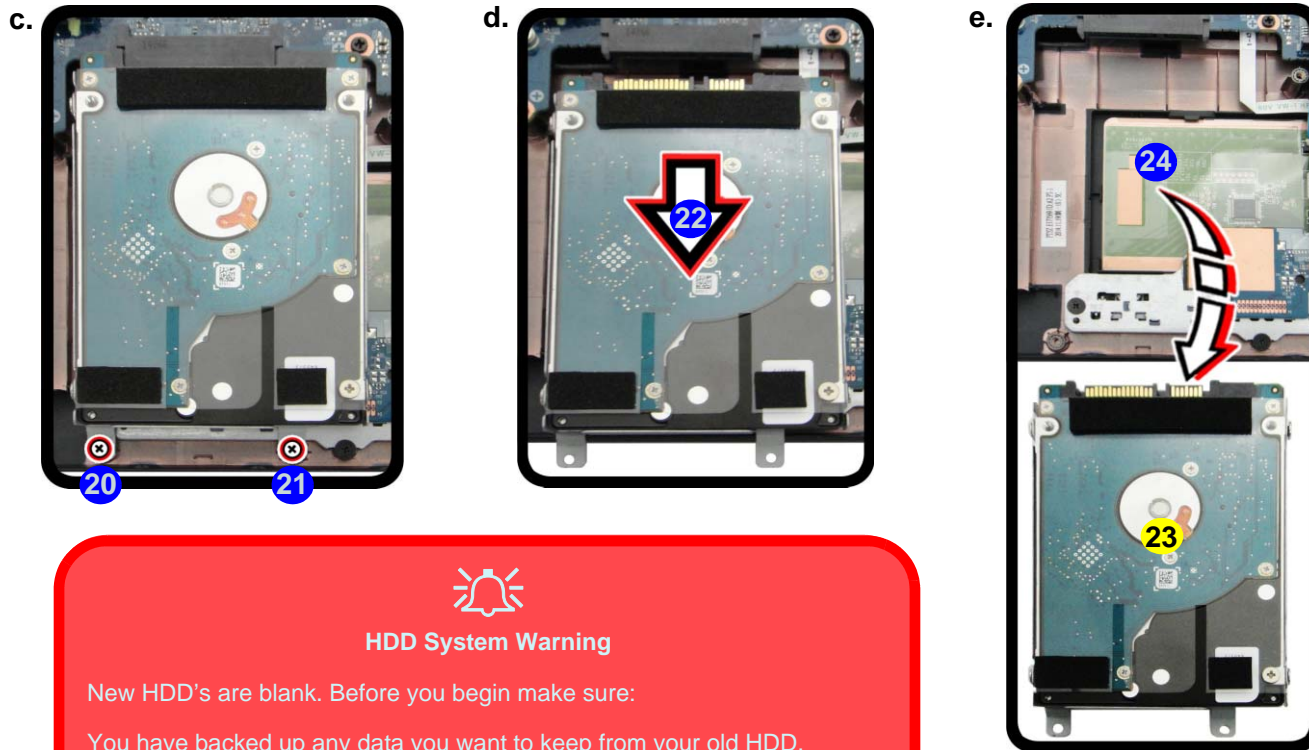




Figure 3  
HDD Assembly  
Removal (cont'd.)

c. Remove the screws.  
d. Slide the HDD in the direction of the arrow.  
e. Lift the HDD assembly out of the bay.

  
**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.

  
22. HDD Assembly

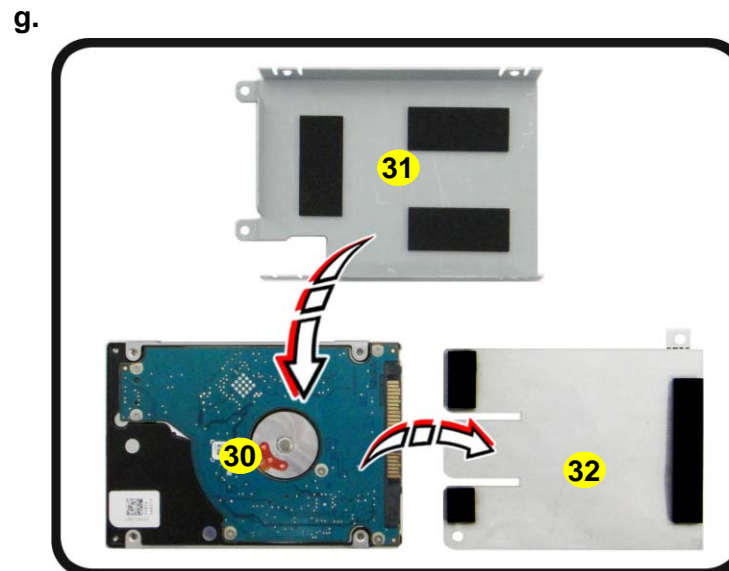
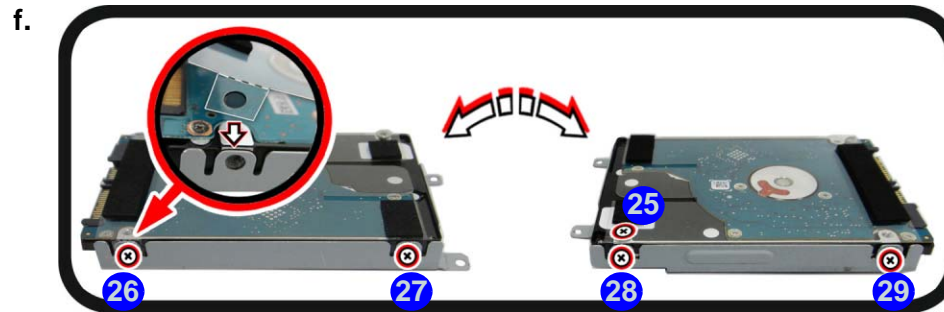
- 2 Screws

## Disassembly

*Figure 4*  
**HDD Assembly  
 Removal (cont'd.)**

- f. Remove the screws from the HDD assembly.  
 g. Separate the HDD, mylar cover and bracket.

8. Remove screws 25 - 29 from the hard disk assembly (*Figure 4f*).  
 9. Separate the hard disk 30 from the bracket 31 and mylar cover 32 (*Figure 4g*).  
 10. Reverse the process to install a new hard disk (do not forget to insert the mylar cover between the bracket and hard disk as shown before replacing the screws).



30. HDD  
 31. Bracket  
 32. Mylar Cover
- 5 Screws

### Installing 9.5mm or 7mm HDD

Note that the hard disks pictured on the following pages are all 9.5mm(h) hard disk drive.

In some cases, a 7.0mm(h) hard disk drive will be installed. Do pay attention on the alignment of the hard disk and bracket when tightening the screws.

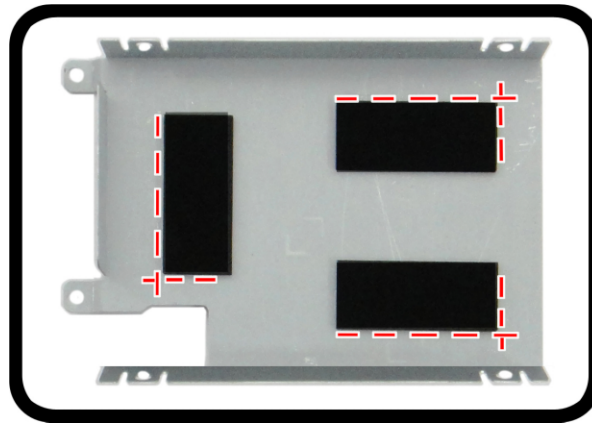
For more information, contact your distributor/supplier, and bear in mind your warranty terms.



### Hard Disk Size Note (Foam Rubber Insert)

Note that the hard disks pictured on the following pages are all 9.5mm(H) hard disk drives. In some cases 7mm(H) hard disk drives will be installed. Also pay attention on the alignment of the hard disk and bracket when tightening the screws.

For more information contact your distributor/supplier, and bear in mind your warranty terms.



*Figure 5*  
**Foam Rubber  
Insert for 7mm(H)  
HDDs**

- If you are replacing a 9.5mm(H) HDD with a 7mm(H) HDD then insert the foam rubber insert (as shown above).
- If you are replacing a 7mm(H) HDD with a 9.5mm(H) HDD then remove the foam rubber insert.

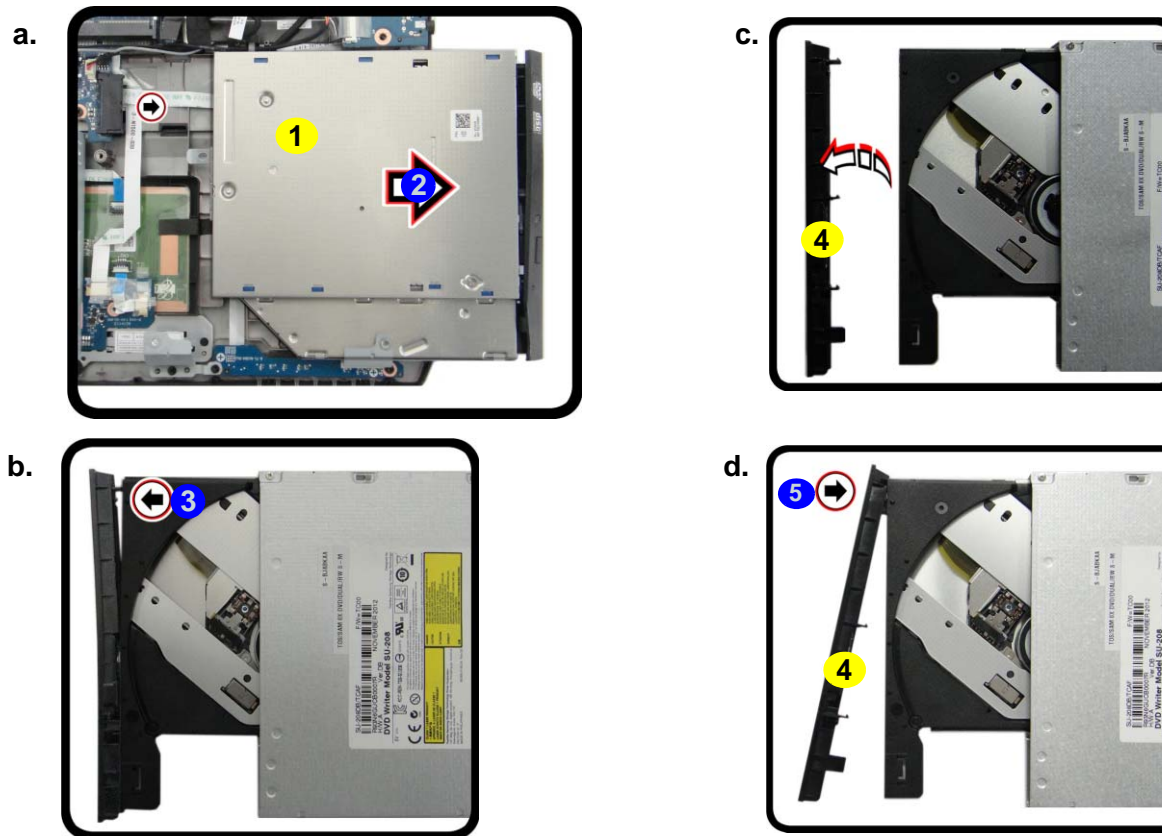
## Disassembly

*Figure 6*  
Optical Device  
Removal

- Push the optical device out of the computer.
- Pry the bezel off the optical device.
- Separate the bezel and optical device.
- Install the front bezel.

## Removing the Optical (CD/DVD) Device

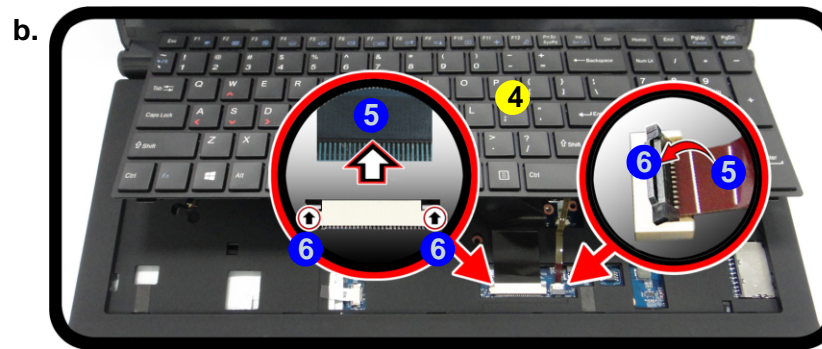
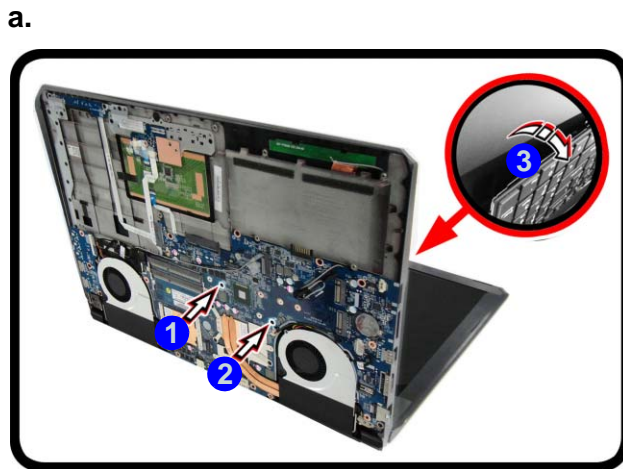
- Turn **off** the computer, remove the battery ([page 2 - 5](#)), and bottom case ([page 2 - 6](#)).
- Carefully push out the optical device **1** out of the bay in the direction of the arrow **2** ([Figure 6a](#)).
- Carefully pry the bezel **4** off the optical device at point **3** ([Figure 6b](#)).
- Separate the bezel **4** and the optical device ([Figure 6d](#)).
- Reverse the process to attach the front bezel **4** with the new optical device at point **5** ([Figure 6d](#)).
- 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). Replace the bottom cover and tighten the screws.
- Restart the computer to allow it to automatically detect the new device.



- Optical Device
- Bezel Cover

## Removing the Keyboard

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)), and bottom case ([page 2 - 6](#)).
2. Open it up with the LCD on a flat surface before pressing at point **1** & **2** to release the keyboard module (use the special eject stick to do this) while releasing the keyboard in the direction of the arrow **3** as shown ([Figure 7a](#)).
3. Carefully lift the keyboard **4** up, being careful not to bend the keyboard ribbon cable **5**. Disconnect the keyboard ribbon cable **5** from the locking collar socket by using a flat-head screwdriver to pry the locking collar pins **6** away from the base ([Figure 7b](#)).
4. Carefully lift the keyboard **4** off the computer ([Figure 7c](#)).



*Figure 7*  
**Keyboard Removal**

- a. Eject the keyboard using a special eject stick to push the keyboard out while releasing the keyboard as shown.
- b. Lift the keyboard up and disconnect the keyboard ribbon cable from the locking collar socket.
- c. Remove the keyboard.



### Re-inserting the Keyboard

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



4. Keyboard

*Figure 8*  
**RAM Module Removal**

- The RAM modules will be visible at point **1** on the mainboard.
- Pull the release latches.
- 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.



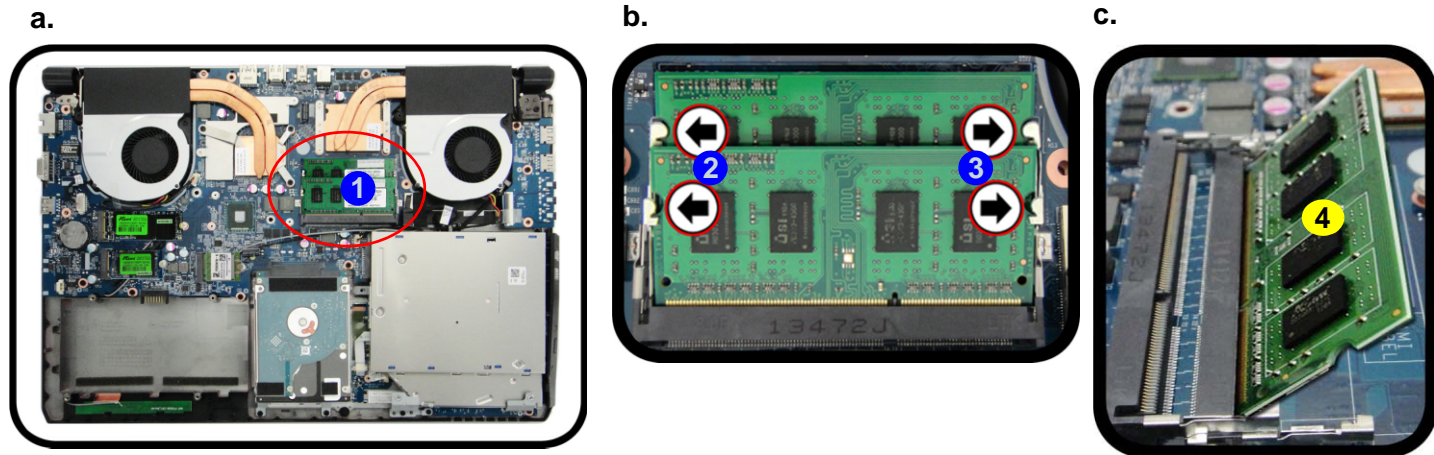
4. RAM Module

## Removing the System Memory (RAM)

The computer has two memory sockets for 204 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR3L up to 1600 MHz. The main memory can be expanded up to 32GB. The total memory size is automatically detected by the POST routine once you turn on your computer.

### Memory Upgrade Process

- Turn **off** the computer, remove the battery ([page 2 - 5](#)), and bottom case ([page 2 - 6](#)).
- The RAM modules will be visible at point **1** on the mainboard ([Figure 8a](#)).
- Gently pull the two release latches (**2** & **3**) on the sides of the memory socket in the direction indicated by the arrows ([Figure 8b](#)). The RAM module **4** will pop-up ([Figure 8c](#)), and you can then remove it.
- Pull the latches to release the second module if necessary.
- Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
- 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.
- Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
- Replace the bottom cover and the screws (see [page 2 - 5](#)).
- Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

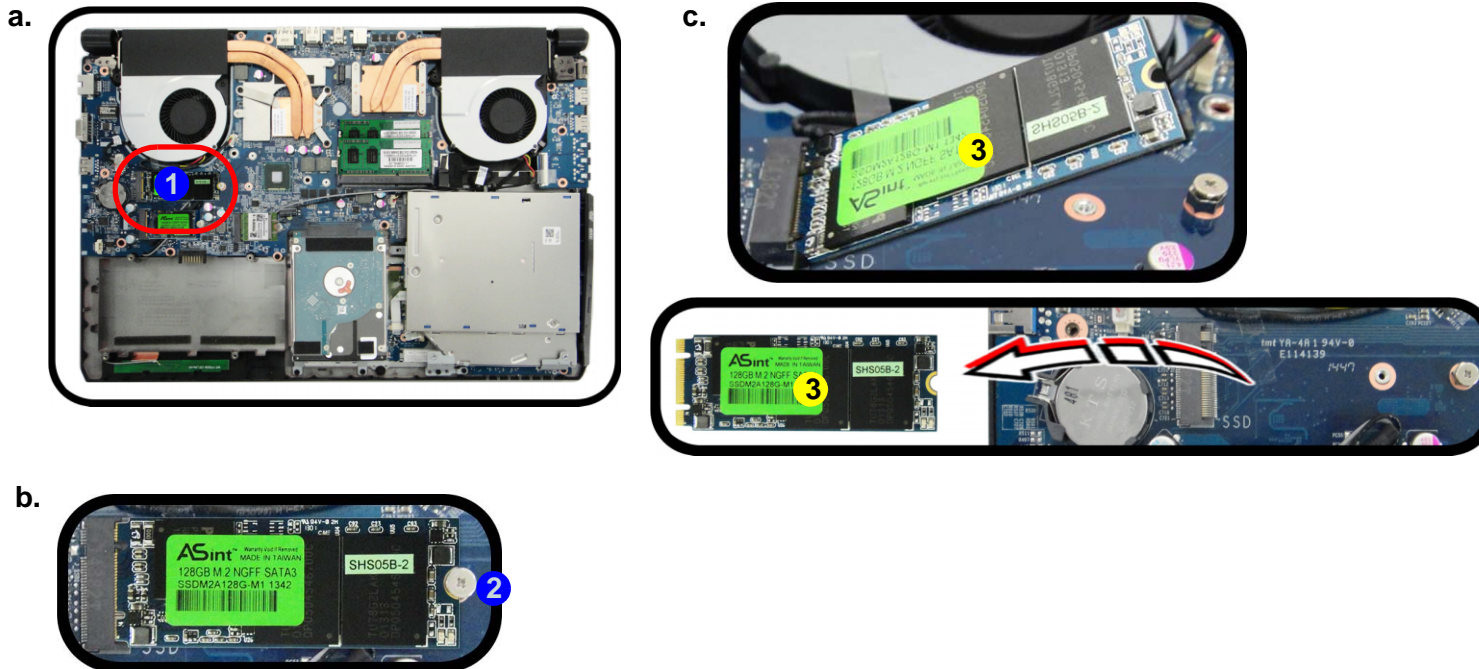



## Removing the M.2 SSD Module

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)), and bottom case ([page 2 - 6](#)).
2. The M.2 SSD module will be visible at point **1** on the mainboard ([Figure 9a](#)).
3. Remove the screw **2** ([Figure 9b](#)).
4. The M.2 SSD module **3** ([Figure 9c](#)) will pop-up, and you can remove it from the computer.
5. Reverse the process to install a new SSD (make sure that the hexagonal screw is in the correct location). Note that a flat-head screw driver can be used to tighten or remove the hexagonal screw as shown ([Figure 9d](#)).

*Figure 9*  
**M.2 SSD Module Removal**

- a. Locate the M.2 SSD.
- b. Remove the screw.
- c. The M.2 SSD module will pop up.





3.M2 SSD Module

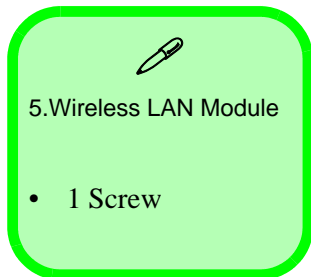
- 1 Screw

## Disassembly

*Figure 10*  
**Wireless LAN  
 Module Removal**

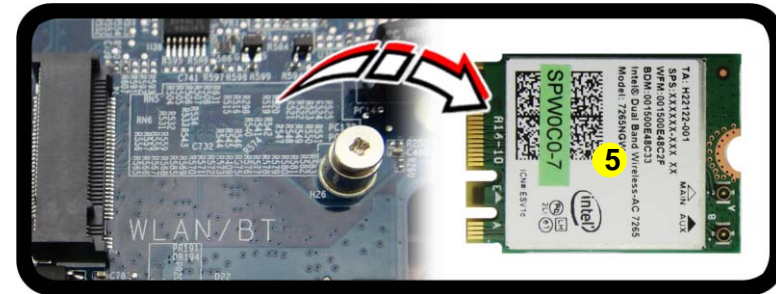
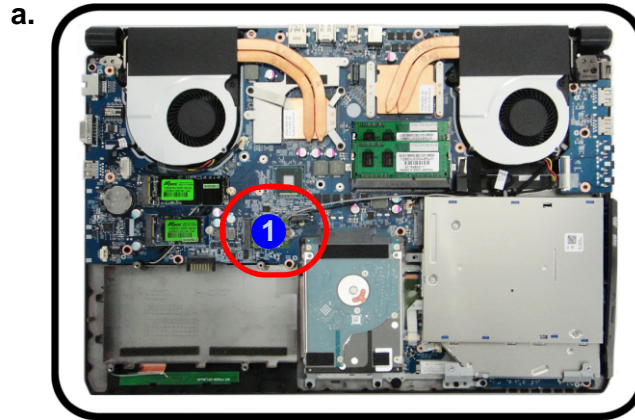
- Locate the WLAN.
- Disconnect the cables and remove the screw.
- The WLAN module will pop up.

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



## Removing the Wireless LAN Module

- Turn off the computer, remove the battery (page 2 - 5), keyboard (page 2 - 11) and bottom case (page 2 - 6).
- The Wireless LAN module will be visible at point 1 on the mainboard (Figure 10a).
- Carefully disconnect the cables 2 & 3, and then remove the screw 4 (Figure 10b)
- The Wireless LAN module 5 (Figure 10c) will pop-up, and you can remove it from the computer.



## Wireless LAN, Combo, 3G & LTE Module Cables

Note that the cables for connecting to the antennae on WLAN, WLAN & Bluetooth Combo, 3G and LTE modules are not labelled. The cables/covers (each cable will have either a black or transparent cable cover) are color coded for identification as outlined in the table below.

Module Type	Antenna Type	Cable Color	Cable Cover Type
WLAN/WLAN & Bluetooth Combo	WM 1	Black	Transparent
	WM 2	Gray	White
LTE Broadband	LTE 1	Black	Black
	LTE 2	Gray	
3G Broadband	3G 1	Black	Black
	3G 2	Gray	

Cable 1 is usually connected to antenna 1 (Main) on the module, and cable 2 to antenna 2 (Aux).

## Disassembly

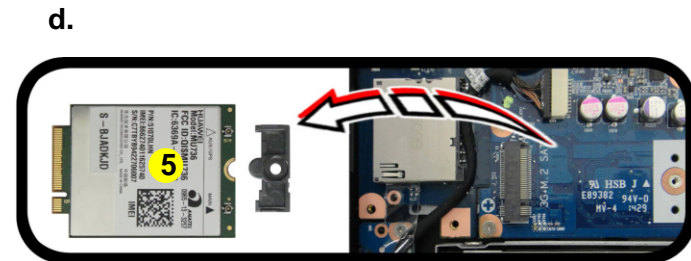
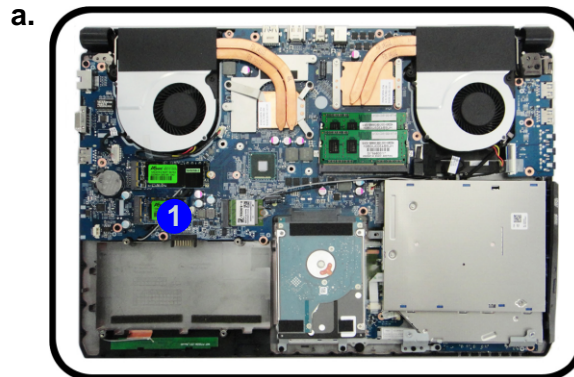
Figure 11

### 3G Module Removal

## Removing the 3G Module

### 3G Module Removal Procedure

- Locate the module.
  - Disconnect the cables and remove the screw.
  - The module will pop-up.
  - Lift the module up off the socket.
- Turn off the computer, remove the battery ([page 2 - 5](#)), and bottom case ([page 2 - 6](#)).
  - Locate the module, it is visible at point **1** ([Figure 11a](#)).
  - Carefully disconnect the cables **2** & **3**, and then remove the screw **4** from the module ([Figure 11b](#)).
  - The module **3** will pop-up ([Figure 11c](#)).
  - Lift the module **5** up and off the computer ([Figure 11d](#)).



5. 3G Module

• 1 Screw



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# Appendix A:Part Lists

This appendix breaks down the *N150SC / N150SD* 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.

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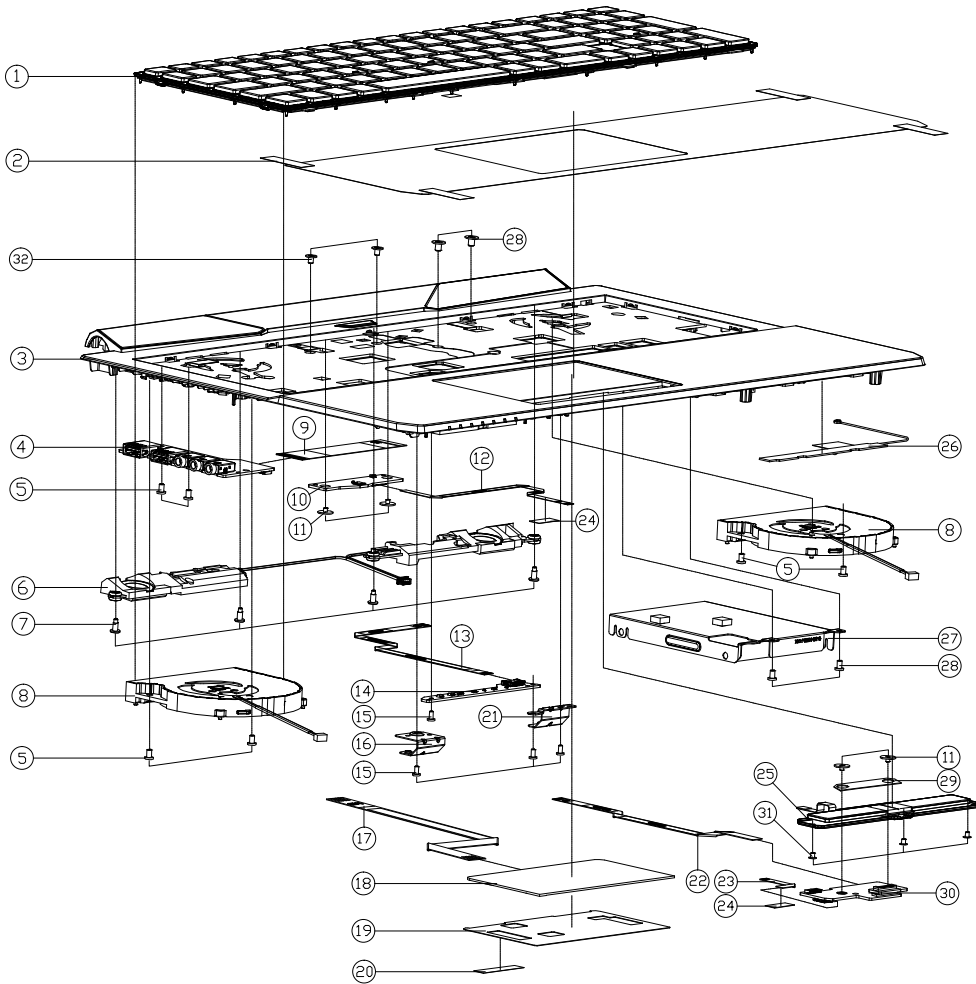
## Part List Illustration Location

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

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

Part	
Top	<i>page A - 3</i>
Bottom	<i>page A - 4</i>
Main Board	<i>page A - 5</i>
HDD	<i>page A - 6</i>
2nd HDD	<i>page A - 7</i>
LCD	<i>page A - 8</i>
DVD	<i>page A - 9</i>
Combo	<i>page A - 10</i>
Dummy ODD	<i>page A - 11</i>

# Top

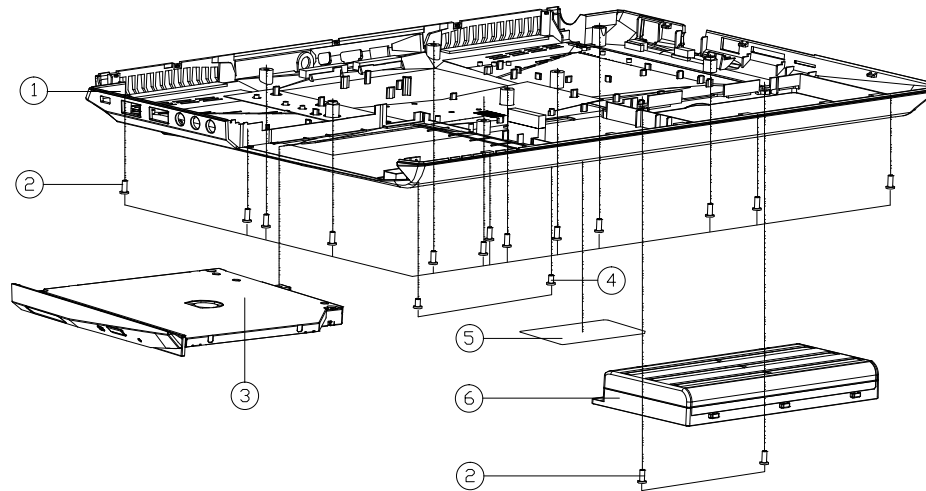


ITEM	PART NAME	PART NO	REMARK
1	W/TE R. D. D. W/ P. CIRCUIT BOARD FRAME BLACK COILATION WITH WIND KEY + V.D. FRAME	6-80-P6500-013-1	
2	TOP CASE PROTECT MYLAR PET N150SD	6-40-N1502-040	
3	TOP CASE MODULE DNKYOKKAPDK) N150SD	6-39-N1502-012-N	
4	AUDIO BOARD V2.0 N150SD	6-77-N1508-D02	
5	SCREW M2.5*4L K1 BK/D ICT NY	6-35-B4125-4RA	
6	SPEAKER FRONT R/L 2OHM T52 20W 41 EDGE/ROUNDSHELL MOUNT P1770A	6-23-5P177-012-A	
7	SCREW M2*6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
8	FAN MODULE (A-POWER) N150SD	6-31-N1502-301	
9	FFC CABLE FOR AUDIO BOARD TO MB 73MM 60V 4P (CNLS) N150SD	6-43-N1500-061	
10	LTD PWR SW BOARD V2.0 N150SD	6-77-N150S-D02	
11	SCREW M2*2L K1 BK/Z ICT NY(Ø8,T=0.6)	6-35-B6120-2RE	
12	FFC CABLE FOR POWER BB TO MB 148.5MM 60V 8P (CNLS) N150SD	6-43-N1500-050	
13	FFC CABLE FOR LED TO MB 184.5MM 60V 12P (CNLS) N150SD	6-43-N1500-041	
14	FRONT LED BOARD V2.0 N150SD	6-77-N1504-D02	
15	SCREW M2*4L K1 BZ ICT NY	6-35-B6120-4RA	
16	TOP CASE BOSS BKT 01 (S.ECC) N150SD	6-33-N1502-021	
17	FFC CABLE TP TO MB 100.5MM 60V 4P (CNLS) N150SD	6-43-N1500-010	
18	TOUCH PAD ELAN SA055D-6200 W650EH	6-49-W65E3-010	
19	TOUCH PAD MYLAR (PET + TESA 4972) N170SD	6-40-N1702-051	
20	GASKET BLACK (30*7*0.13T) W370ET	6-47-00190-016	
21	TOP CASE BOSS BKT 02 (S.ECC) N150SD	6-33-N1502-032	
22	FFC CABLE FOR FP TO MB 160MM 60V 6P (CNLS) N150SD	6-43-N1500-031	ONLY FOR W/FINGER
23	FFC CABLE FOR FINGER CLICK TO TP 32MM 60V 4P (CNLS) N150SD	6-43-N1500-021	
24	TAPE MYLAR TRANSPARENT (20*10*0.05) P180HM	6-40-P1803-020	
25	FUNCTION KEY FOR CLICK BUTTON MODULE W/FP P750M	6-23-KP750-011	
25	FUNCTION KEY FOR CLICK BUTTON MODULE W/O FP P750M	6-23-KP750-021	
26	METAL PEEL BACK VET LE+PCB L408.8*85.6*1.6MM/0.252MM L=20MM N150SD	6-23-7N150-020	
27	W/O MAIN HDD ASS'Y N150SD	6-79-N150SD0J-010	
27	W/MAIN HDD ASS'Y N150SD	6-79-N150SD0J-020	
28	SCREW M2.5*3L K1 BZ ICT NY	6-35-B6125-3R0	
29	CLICK W/O FP MYLAR PET (Ø8*14*0.5T) P650SE	6-40-P6502-080	ONLY FOR W/O FINGER
30	CLICK FINGER BOARD V20+FINGER PRINT BOARD V10 N150SD	6-77-N150A-N02	
30	CLICK FINGER BOARD V2.0 (W/O FP) N150SD	6-77-N1502-D02-1	
31	SCREW M2*2.5L K1 NI ICT NY (Ø4 T=0.5 TH)	6-35-B1120-2R6	
31	SCREW M2*3L K1 NI ICT NY (DD=Ø4.5,DT=0.4)	6-35-B1120-3RE	

Figure A - 1  
Top

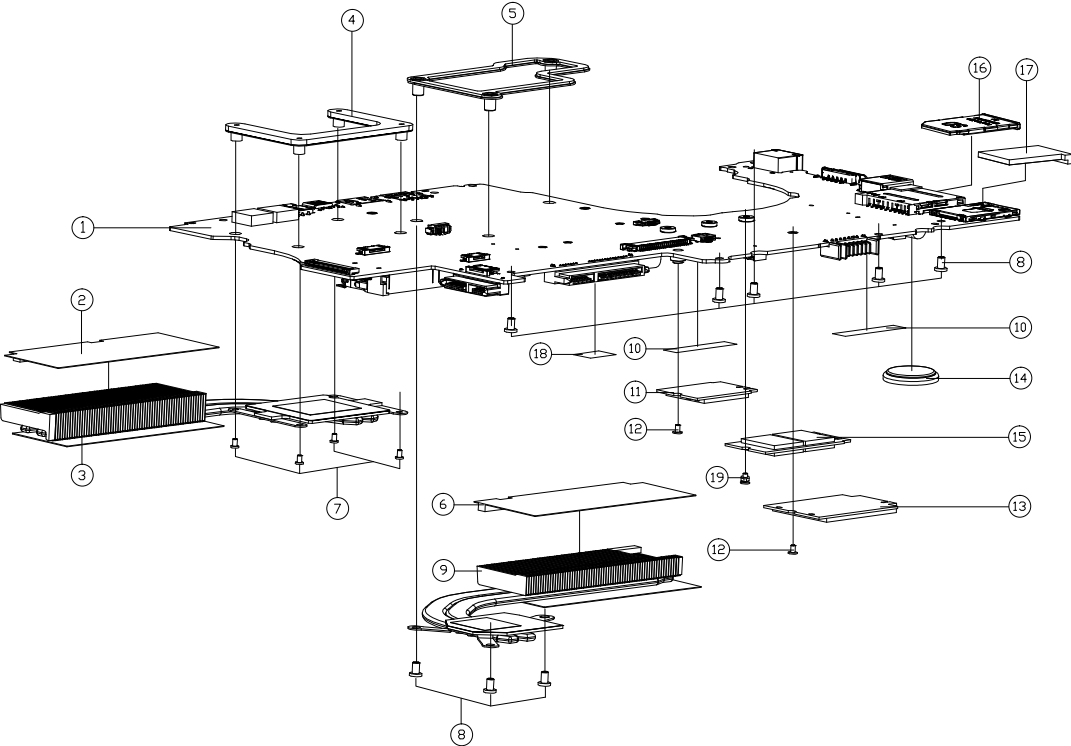
# Bottom

Figure A - 2  
Bottom



ITEM	PART NAME	PART NO	REMARK
1	BOTTOM CASE MODULE N150SD	6-39-N1503-012	
2	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
3	SCREW M2.5*4L K1 BK/D ICT NY	6-35-B4125-4RA	
4	PRODUCT LABEL FOR N150SD	6-45-N150SD03-010	
4	PRODUCT LABEL FOR N150SC	6-45-N150SC03-010	
5	IMP S LI DUVZBWAH2AH 32P 3M/35L ODRZSD 300/250P (TEXTURE) N150S	6-87-N150S-4292	
5	IMP S LI DUVZBWAH2AH 32P 4E/43/50M ODRZSD 300/250P (TEXTURE) N150S	6-87-N150S-4U92	
6	W/O ODD ASS'Y N150SD	6-79-N150SD0Z-000	
6	DUMMY ODD ASS'Y N150SD	6-79-N150SD0Z-001	
6	SATA DVD SUPER MULTI 8X ASS'Y N150SD	6-79-N150SD0G-001	
6	SATA BLU-RAY COMBO 6X ASS'Y N150SD	6-79-N150SD0W-001	

# Main Board



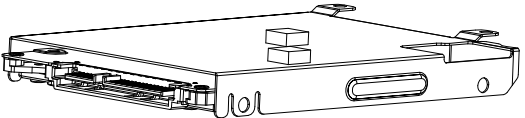
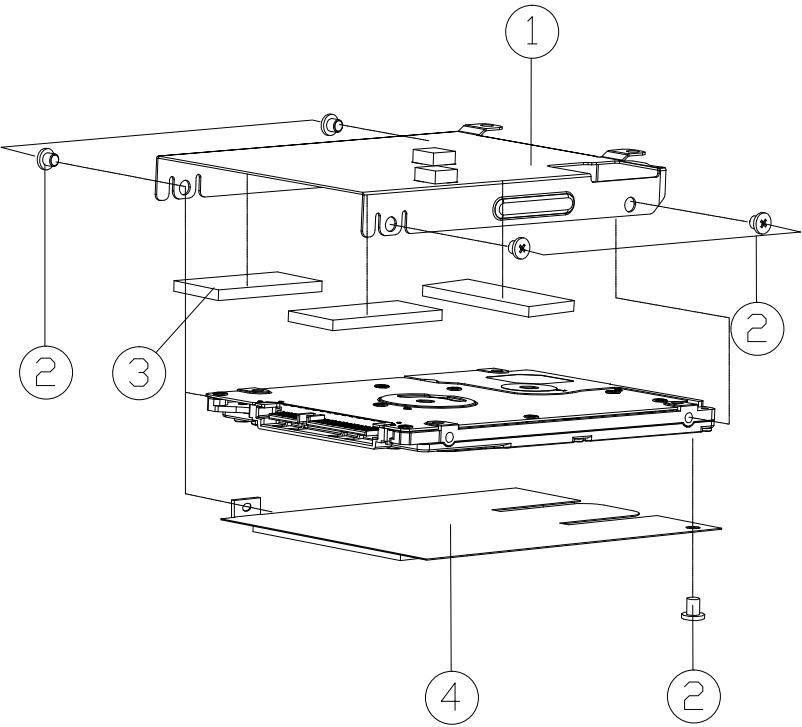
ITEM	PART NAME	PART NO	REMARK
1	MAIN BOARD (CPU)-4000/2500 YEAR (EPWA/TP/LED) M350	6-77-NH505000-006A-A	
1	MAIN BOARD (CPU)-4000/2500 YEAR (EPWA/TP/LED) M350	6-77-NH505000-006A-B	
1	MAIN BOARD (CPU)-4000/2500 YEAR (EPWA/TP/LED) M350	6-77-NH505000-006A-F	
1	MAIN BOARD (CPU)-4000/2500 YEAR (EPWA/TP/LED) M350	6-77-NH505000-006A-3C	
1	MAIN BOARD (CPU)-4000/2500 YEAR (EPWA/TP/LED) M350	6-77-NH505000-006A-4C	
1	MAIN BOARD (CPU)-4000/2500 YEAR (EPWA/TP/LED) M350	6-77-NH505000-006A-7E	
1	MAIN BOARD (CPU)-4000/2500 YEAR (EPWA/TP/LED) M350	6-77-NH505000-006A-A	
1	MAIN BOARD (CPU)-4000/2500 YEAR (EPWA/TP/LED) M350	6-77-NH505000-006A-E	
1	MAIN BOARD (CPU)-4000/2500 YEAR (EPWA/TP/LED) M350	6-77-NH505000-006A-F	
1	MAIN BOARD (CPU)-4000/2500 YEAR (EPWA/TP/LED) M350	6-77-NH505000-006A-3E	
1	MAIN BOARD (CPU)-4000/2500 YEAR (EPWA/TP/LED) M350	6-77-NH505000-006A-4E	
1	MAIN BOARD (CPU)-4000/2500 YEAR (EPWA/TP/LED) M350	6-77-NH505000-006A-7E	
2	MYLAR TOP CPU R (MYLAR)SPONGE-SEMT (GRND) M350	6-40-N1502-0R1	
3	CPU HEATSINK MODULE M350SD	6-31-N1502-101	
4	CPU SUPPORT BRACKET SECC T-HIS P350M	6-33-X510S-011	
5	VGA SUPPORTER SECC W150ERQ	6-33-W150S-012	
6	MYLAR TOP VGA L (MYLAR)SPONGE-SEMT (GRND) M350	6-40-N1502-0L1	
7	SCREW M2.5x4L KI NI ICT NY (OD=4.5,DT=3.4)	6-35-B1120-3RE	
8	SCREW M2.5x4L KI BK/D ICT NY	6-35-B412S-4RA	
9	GPU HEATSINK MODULE M350SD	6-31-N1502-201	
10	TAPE MYLAR (C)MYLAR M350J	6-40-M55J2-030	
11	TAPE MYLAR (C)MYLAR M350J	6-88-P650F-8100	OPTION
11	TAPE MYLAR (C)MYLAR M350J	6-88-S210F-9400	OPTION
11	TAPE MYLAR (C)MYLAR M350J	6-88-P6502-4210	OPTION
11	TAPE MYLAR (C)MYLAR M350J	6-88-P6502-4220	OPTION
12	SCREW M2.5x4L KI NI ICT NY (OD=4.5, T=4.5)	6-35-B1120-2R0	
13	SCREW M2.5x4L KI NI ICT NY (OD=4.5, T=4.5)	6-88-S210W-8810	
13	SCREW M2.5x4L KI NI ICT NY (OD=4.5, T=4.5)	6-88-W3306-8841	
13	SCREW M2.5x4L KI NI ICT NY (OD=4.5, T=4.5)	6-88-W3306-8830	
14	BATTERY 3V 220MA BBKCR2032B (KTS)	6-23-6A2B2-030	
15	SSD M2 2280 256GB (C)MAGNEX M350SD (GRND) M350	6-85-D51R6-100	OPTION
15	SSD M2 2280 256GB (C)MAGNEX M350SD (GRND) M350	6-85-D515B-100	OPTION
15	SSD M2 2280 256GB (C)MAGNEX M350SD (GRND) M350	6-85-D4000-202	OPTION
15	SSD M2 2280 256GB (C)MAGNEX M350SD (GRND) M350	6-85-D4004-J-101	OPTION
15	SSD M2 2280 256GB (C)MAGNEX M350SD (GRND) M350	6-85-D4000-101	OPTION
15	SSD M2 2280 256GB (C)MAGNEX M350SD (GRND) M350	6-85-D51R6-L00	OPTION
15	SSD M2 2280 256GB (C)MAGNEX M350SD (GRND) M350	6-85-D515B-L00	OPTION
15	SSD M2 2280 256GB (C)MAGNEX M350SD (GRND) M350	6-85-D4058-S00	OPTION
16	BUMPER PIN WITH TREE PCABS (KTS) M350SD (GRND) M350	6-42-W9708-010	
17	W/O 36 RUBBER (C)MAGNEX M350SD (GRND) M350	6-47-P6502-020	W/O 36 RUBBER (C)MAGNEX M350SD (GRND) M350
18	TAPE MYLAR TRANSPARENT (C)MAGNEX M350SD (GRND) M350	6-40-P1803-020	
19	SCREW M2.5x4L KI NI ICT NY FOR REFF (C)MAGNEX M350SD (GRND) M350	6-35-Z1120-2R5	

Figure A - 3  
Main Board

A.Part Lists

# HDD

Figure A - 4  
HDD



ITEM	PART NAME	PART NO	REMARK
1	HDD BRACKET (SECC+CR2030) N150SD	6-33-N150J-011	
2	SCREW M3*2.5L KI NI ICT NY	6-35-B1130-2R5	
3	7MM HDD BKT SPNGE (35*15*25) CR2030 N150SD	6-47-0019A-355	
4	HDD MYLAR (PET0.25T+CR2030) W940TU	6-40-W940J-010	

# 2nd HDD

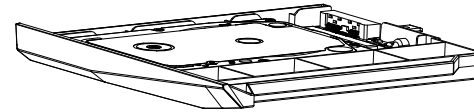
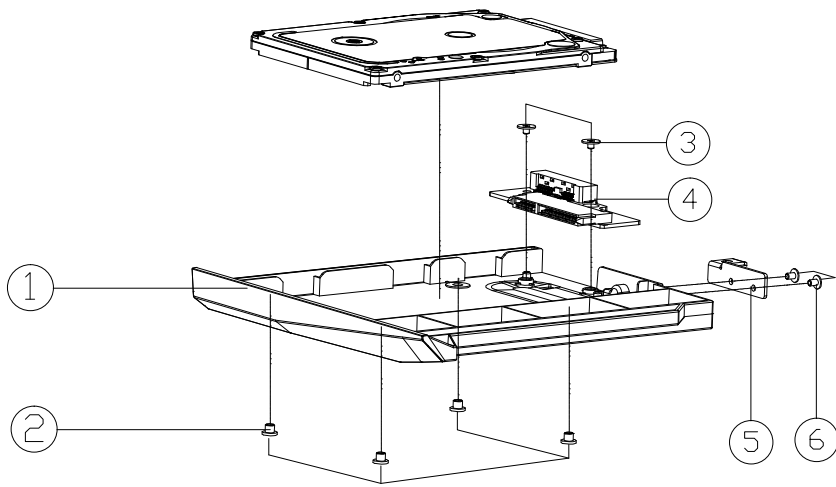


Figure A - 5  
2nd HDD

ITEM	PART NAME	PART NO	REMARK
1	DUMMY HDD MODULE N150SD	6-42-N150Z-201	
2	SCREW M3*2.5L KI NI ICT NY	6-35-B1130-2R5	
3	SCREW M2*2L KI BK/Z ICT NY (Ø6,T=0.5)	6-35-B6120-2RC	
4	HDD BOARD V3.0 N150SD	6-77-V95KN-D13-B	
5	HDD LOCK BRKT (SECC 0.5T) N150SD	6-33-N150Z-011	
6	SCREW M2*3L KI NI ICT NY (DD=Ø4.5,DT=0.4)	6-35-B1120-3RE	

# LCD

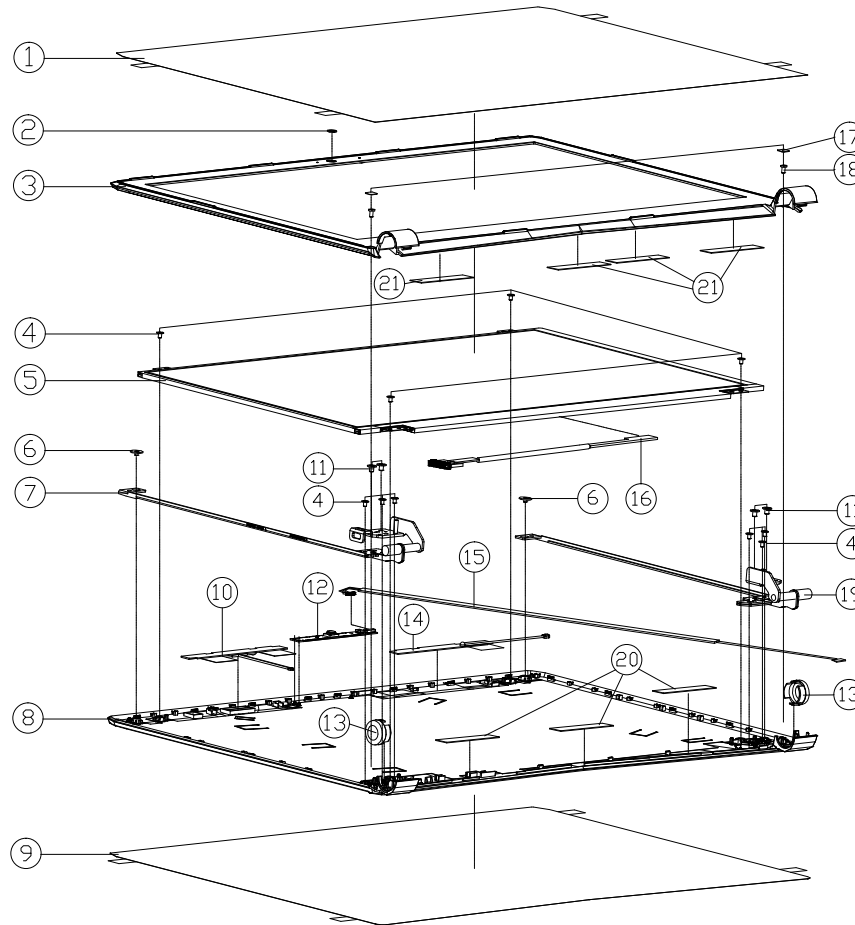
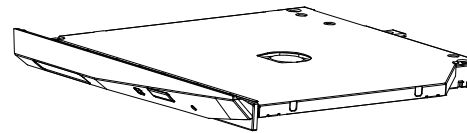
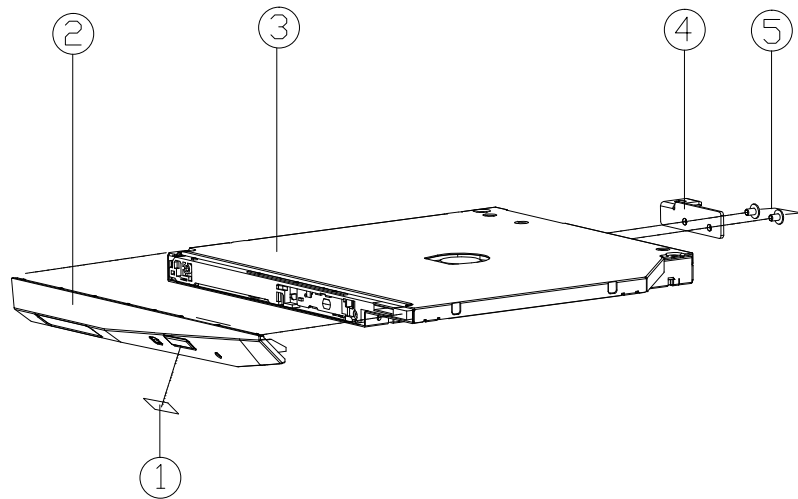


Figure A - 6  
LCD

ITEM	PART NAME	PART NO	REMARK
1	FRONT COVER PROTECTION PET MYLAR NISOSD	6-40-N1508-020	
2	CCD LENS (VIEWING AREA 4MMX6MM)W940TU	6-42-W9401-020	
3	LCD FRONT COVER MODULE N150SD	6-39-N1501-012	
4	SCREW M2*3L KI NI ICT NY (DD=0.45,DT=0.4)	6-35-B1120-3RE	
5	LCD 15.6" FHD EDP BDC HB156FHI-401 (LED) 32 MM	6-50-LB232-Z00	
5	LCD 15.6" FHD EDP GLARE TYPE BDC HB156FHI-300 (LED) 32 MM	6-50-LB232-Z01	
5	LCD 15.6" FHD CHIMEI NIS6HGE-LB1 (GLARE TYPE) (LED) 32 MM	6-50-LB232-D00	
5	LCD 15.6" FHD/IPS/EDP AU B156H4N01.2K4HVA (LED)3.2MM	6-50-LB232-G01	
5	LCD 15.6" FHD/IPS/EDP AU B156H4N01.2K4HVA (N7) (LED)3.2MM	6-50-LB232-G11	
6	SCREW M2*2L KI BK/Z ICT NY(Ø8,T=0.6)	6-35-B6120-2RE	
7	HINGE L (SUS430+S50C) SZS N150SD	6-33-N1501-0L2	
8	LCD BACK COVER MODULE(PAINT) N150SD(KAPDK)	6-39-N1501-022-W	
9	BACK COVER PROTECTION PET MYLAR NISOSD	6-40-N1508-010	
10	ANTENNA PCB-4 MAIN COMBO VET W1442 PCB FOR 246592 W1-300M W2-300M NISOSD	6-23-7N150-011	
11	SCREW M2.5*4L KI BK/D ICT NY	6-35-B4125-4RA	
12	UV CURE BEZEL FIX. 200X85X11MM ON FHD D12724 ADDS 17W455 V3-PC VALCD	6-88-A11SC-4900	
13	HINGE RING (TEI.JIN TN-3715BX) N150SD	6-42-N1501-011	
14	ANTENNA PCB-4 BALE VET W1442 PCB FOR 246592 W1-300M W2-300M NISOSD	6-23-7P750-030	OPTION
15	WIRE CABLE FOR CCD D-MIC 5681MM 3.3V 8P (HL) WASOSHQ	6-43-WA50T-011	
16	WIRE CABLE FOR EDP 350MM 19V 40PIN (D) (HL) (C) CON.L03005-HF) NISOSD	6-43-N1501-012-L	
16	WIRE CABLE FOR LVDS 350MM 19V 40PIN (D) (HL) (C) CON.L03005-HF) NISOSD	6-43-N1501-022-L	
17	FRONT COVER SCREW MYLAR(PC+S4668)S45*0.35T) N150SD	6-40-N1501-010	
18	SCREW M2*4L KI BZ ICT NY	6-35-B6120-4RA	
19	HINGE R (SUS430+S50C) SZS N150SD	6-33-N1501-0R2	
20	SPONGE( 43*10*1) FOR WA50SHQ	6-47-0019A-431	ONLY FOR 6-50-LB232-D00
21	SPONGE( 42*8.2*0.8) FOR WA50SHQ	6-47-0019A-425	ONLY FOR 6-50-LB232-D00



# DVD

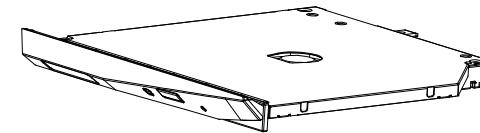
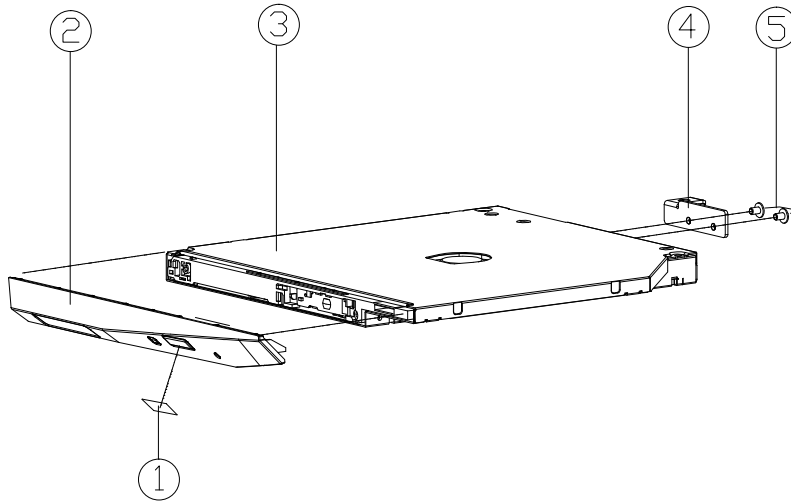


ITEM	PART NAME	PART NO	REMARK
1	SUPER MULTI ODD BEZEL LABEL (SIZE CHANGE)	6-45-W860Q-012	
2	ODD BEZEL MODULE N150SD	6-42-N150Z-102	
3	SATA DVD SUPER MULTI 5 1/4" 8X 52MM LUREZ F/W-LAN/1000 RPM FOR VDR OF PANASONIC	6-85-A088X-P05	FOR PANASONIC
3	SATA DVD SUPER MULTI 5 1/4" 8X 52MM 20-200 RPM-A VERB F/W-1000 RPM 01 TSST	6-85-A088X-T07	FOR TSST
4	ODD LOCK BRKT (SECC 0.5T) N150SD	6-33-N150Z-011	
5	SCREW M2*3L KI NI ICT NY (DD=#4.5,DT=0.4)	6-35-B1120-3RE	

Figure A - 7  
DVD

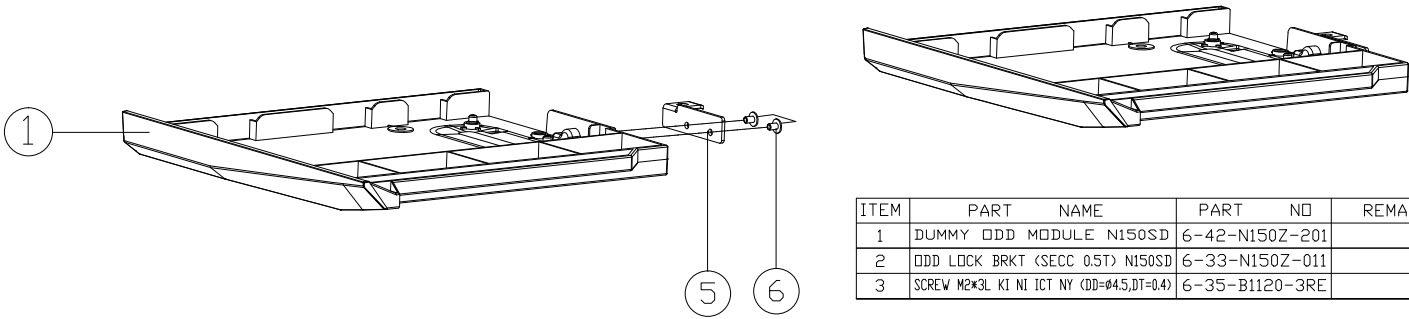
# Combo

Figure A - 8  
Combo



ITEM	PART NAME	PART NO	REMARK
1	BLU-RAY ODD BEZEL LABEL (SIZE CHANGE) W860	6-45-W860W-012	
2	ODD BEZEL MODULE N150SD	6-42-N150Z-102	
3	SATA BLU-RAY COMBO 5.25" 6X 9.5MM ULEZP 0.1W-L01 FPA-L01 OVR 8, HDD PANASONIC	6-85-B086X-P11	FOR PANASONIC
3	SATA BLU-RAY COMBO 5.25" 6X 9.5MM ULEZP 0.1W-L01 FPA-L01 OVR 8, HDD PANASONIC	6-85-B086X-P20	FOR PANASONIC
4	ODD LOCK BRKT <SECC 0.5T> N150SD	6-33-N150Z-011	
5	SCREW M2*3L KI NI ICT NY <DD=0.45,DT=0.4>	6-35-B1120-3RE	

# Dummy ODD



ITEM	PART NAME	PART NO	REMARK
1	DUMMY ODD MODULE N150SD	6-42-N150Z-201	
2	ODD LOCK BRKT (SECC 0.5T) N150SD	6-33-N150Z-011	
3	SCREW M2x3L KI NI ICT NY (DD=#4.5,DT=0.4)	6-35-B1120-3RE	

Figure A - 9  
Dummy ODD



# Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *NI50SC / NI50SD* notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
<i>System Block Diagram - Page B - 2</i>	<i>Lynx 3/9 - Page B - 25</i>	<i>Click / Finger Con Board - Page B - 51</i>
<i>Processor 1/7 - Page B - 3</i>	<i>Lynx 4/9 - Page B - 26</i>	<i>LED, PWR SW Board - Page B - 52</i>
<i>Processor 2/7 - Page B - 4</i>	<i>Lynx 5/9 - Page B - 27</i>	<i>Finger Print Board - Page B - 53</i>
<i>Processor 3/7 - Page B - 5</i>	<i>Lynx 6/9 - Page B - 28</i>	<i>LED / PWR SW Board - Page B - 54</i>
<i>Processor 4/7 - Page B - 6</i>	<i>Lynx 7/9 - Page B - 29</i>	<i>ODD Ext. Board - Page B - 55</i>
<i>Processor 5/7 - Page B - 7</i>	<i>Lynx 8/9 - Page B - 30</i>	<i>Power Sequence - Page B - 56</i>
<i>Processor 6/7 - Page B - 8</i>	<i>Lynx 9/9 - Page B - 31</i>	
<i>Processor 7/7 - Page B - 9</i>	<i>WLAN, 3G, Fan, Audio Con - Page B - 32</i>	
<i>DDR3 SO-DIMM A_0 - Page B - 10</i>	<i>CCD, M-Key, Click Conn - Page B - 33</i>	
<i>DDR3 SO-DIMM B_0 - Page B - 11</i>	<i>Audio Codec ALC269 - Page B - 37</i>	
<i>RTD2136 - Page B - 12</i>	<i>HDD, TPM, KB LED, PWR Con, T/P - Page B - 38</i>	
<i>Panel, Inverter, CRT - Page B - 13</i>	<i>KBC-ITE IT8587 - Page B - 39</i>	
<i>CRT, Mini DP Port - Page B - 14</i>	<i>System Power - Page B - 40</i>	
<i>VGA Frame Buffer Interface - Page B - 15</i>	<i>1.05VS, 1.05VM, 1.05V_LAN_M - Page B - 41</i>	
<i>VGA Frame Buffer A - Page B - 16</i>	<i>DRAM Power, 1.5VS - Page B - 42</i>	
<i>VGA Frame Buffer A - Page B - 17</i>	<i>V-Core - Page B - 43</i>	
<i>VGA PCI-E Interface - Page B - 18</i>	<i>VDD3, VDD5 - Page B - 44</i>	
<i>VGA Frame Buffer B - Page B - 19</i>	<i>NI6P-GX, NVVDD_PEX_VDD - Page B - 45</i>	
<i>VGA Frame Buffer B - Page B - 20</i>	<i>FBVDDQ - Page B - 46</i>	
<i>VGA I/O - Page B - 21</i>	<i>AC-In, Charger - Page B - 47</i>	
<i>VGA NVVDD Decoupling - Page B - 22</i>	<i>LED / PWR SW Board - Page B - 48</i>	
<i>Lynx 1/9 - Page B - 23</i>	<i>Audio Board - Page B - 49</i>	
<i>Lynx 2/9 - Page B - 24</i>	<i>Front LED Board - Page B - 50</i>	

*Table B - 1*  
**SCHEMATIC  
DIAGRAMS**

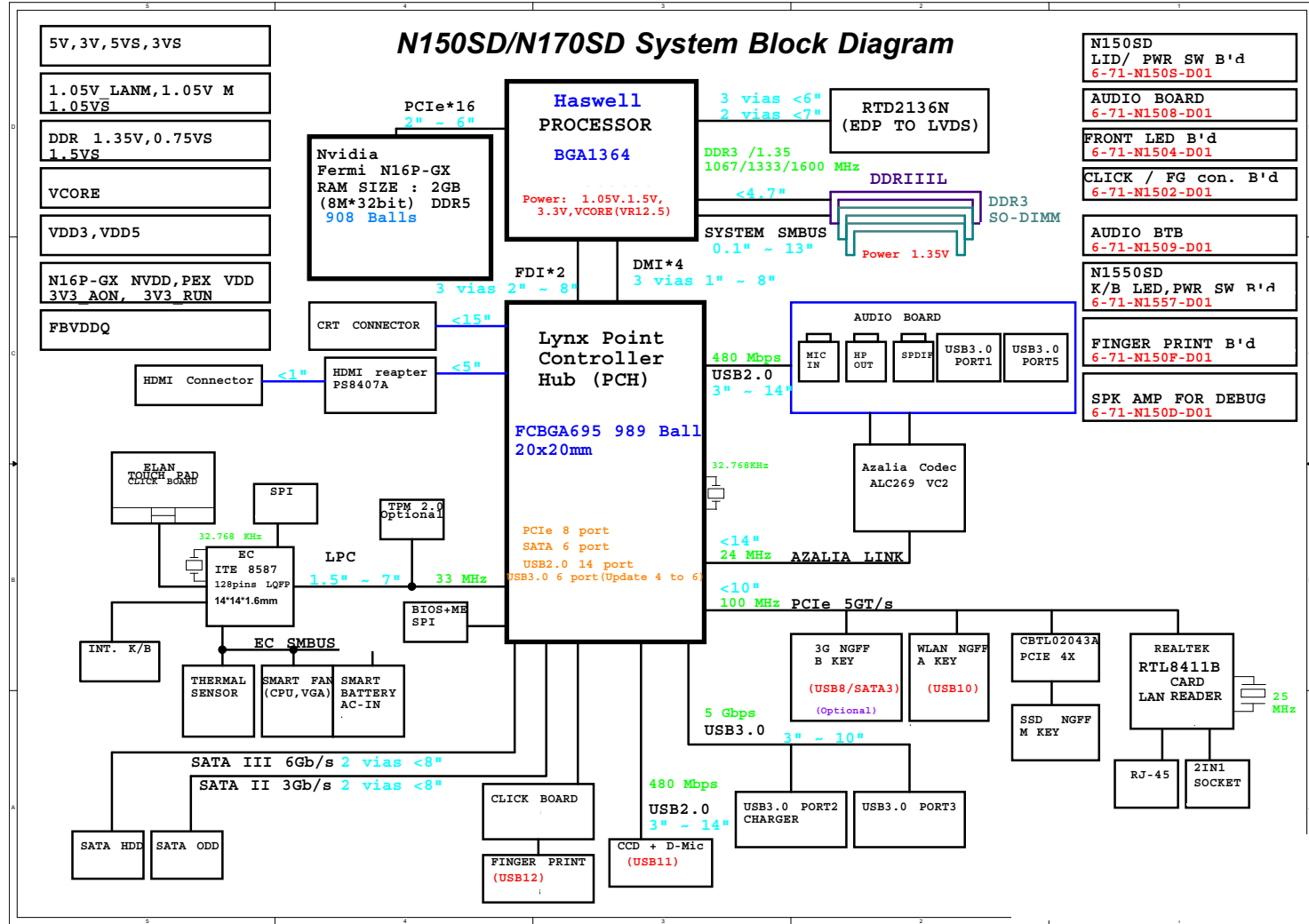


### Version Note

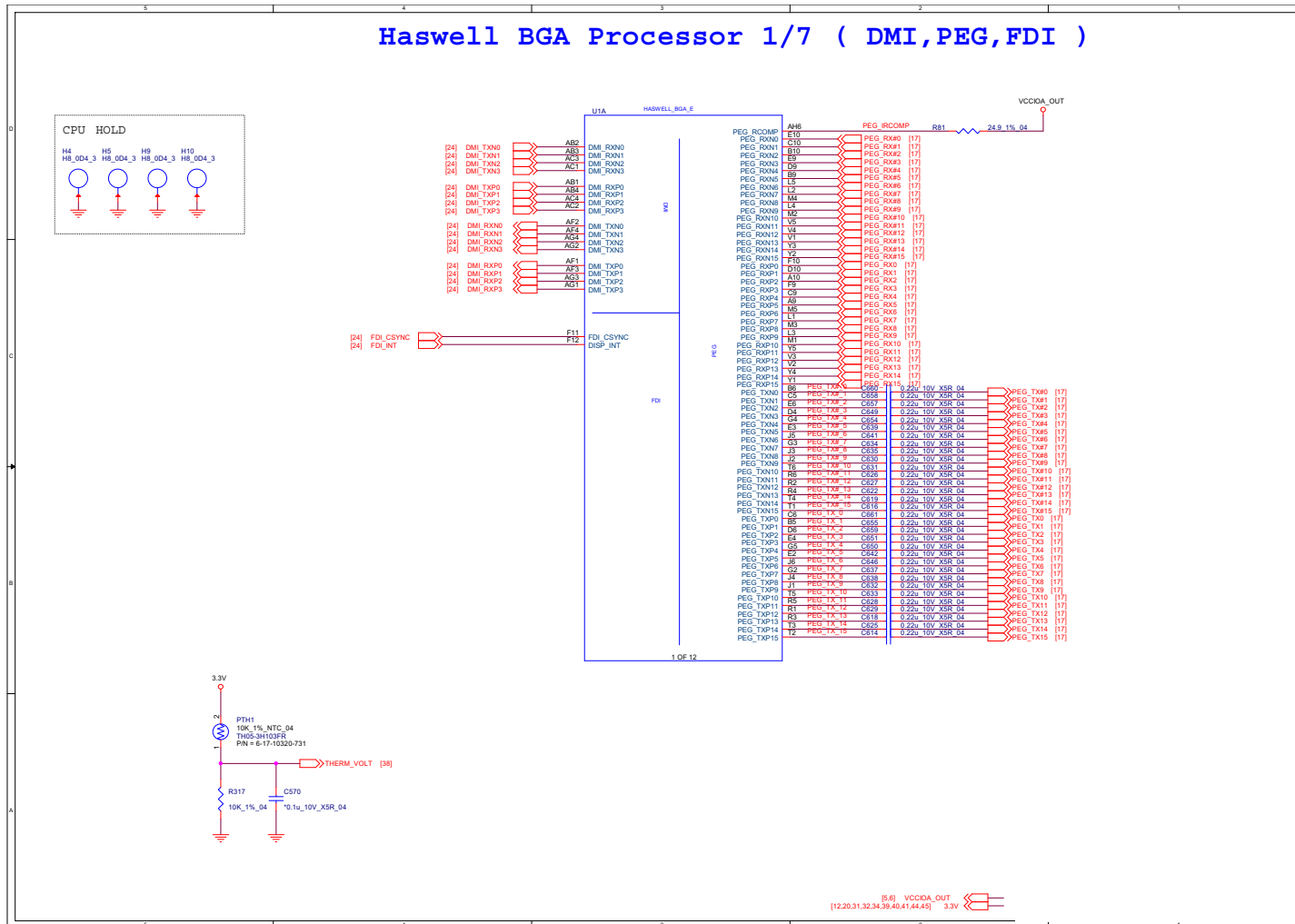
The schematic diagrams in this chapter are based upon version 6-7P-N1509-001. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

# System Block Diagram

Sheet 1 of 55  
System Block  
Diagram



# Processor 1/7

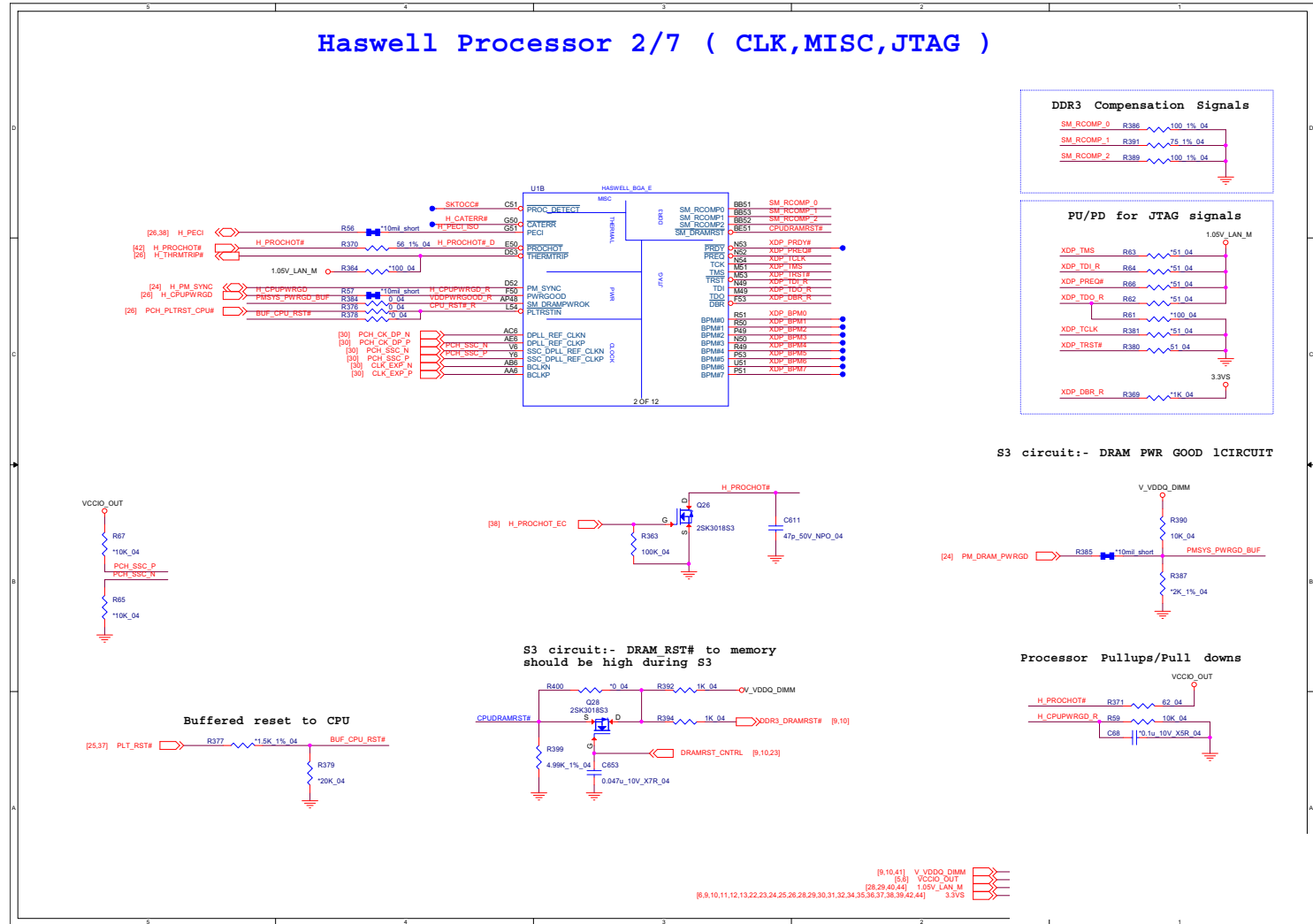


Sheet 2 of 55  
Processor 1/7

B.Schematic Diagrams

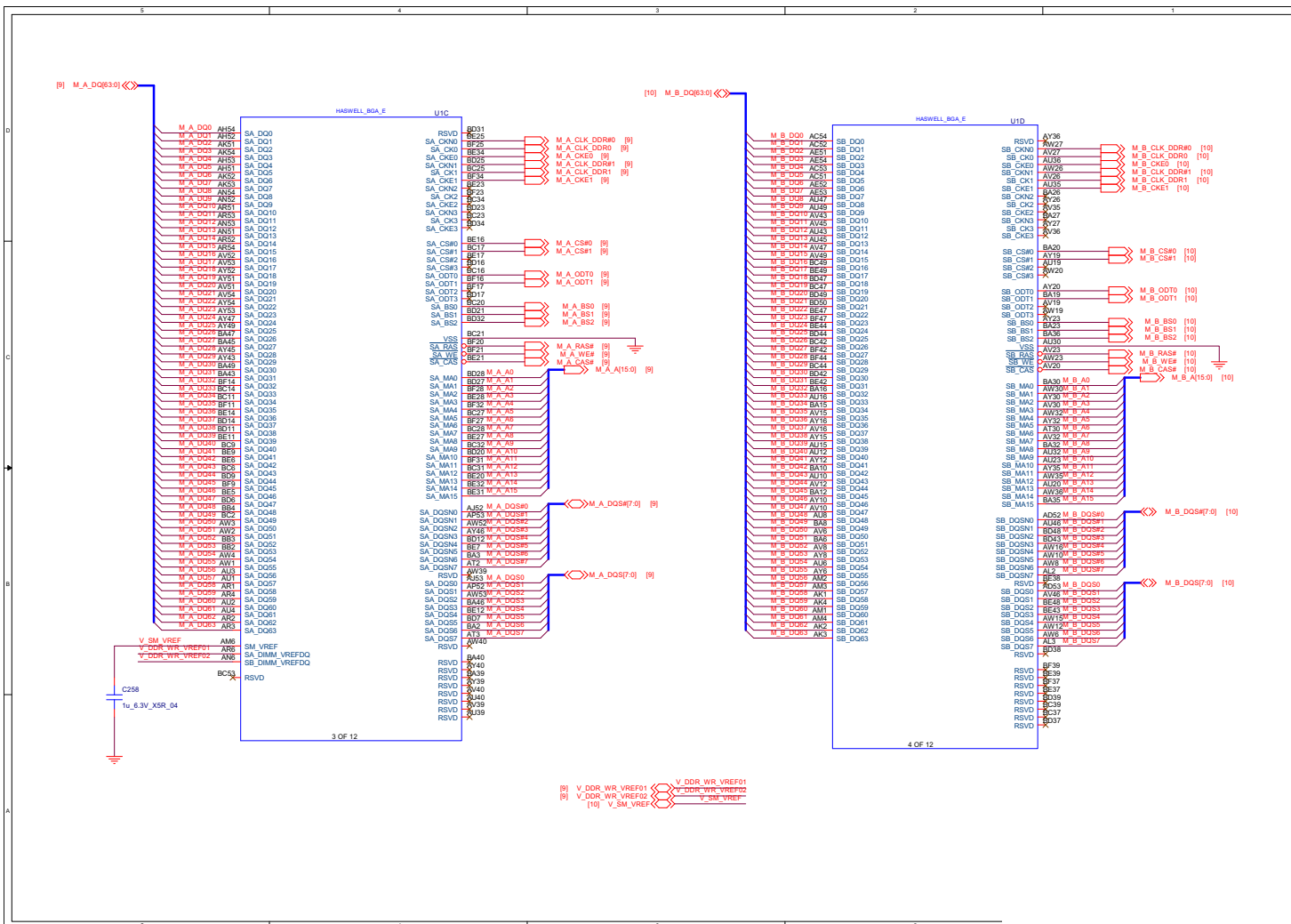
# Processor 2/7

Sheet 3 of 55  
Processor 2/7





# Processor 3/7

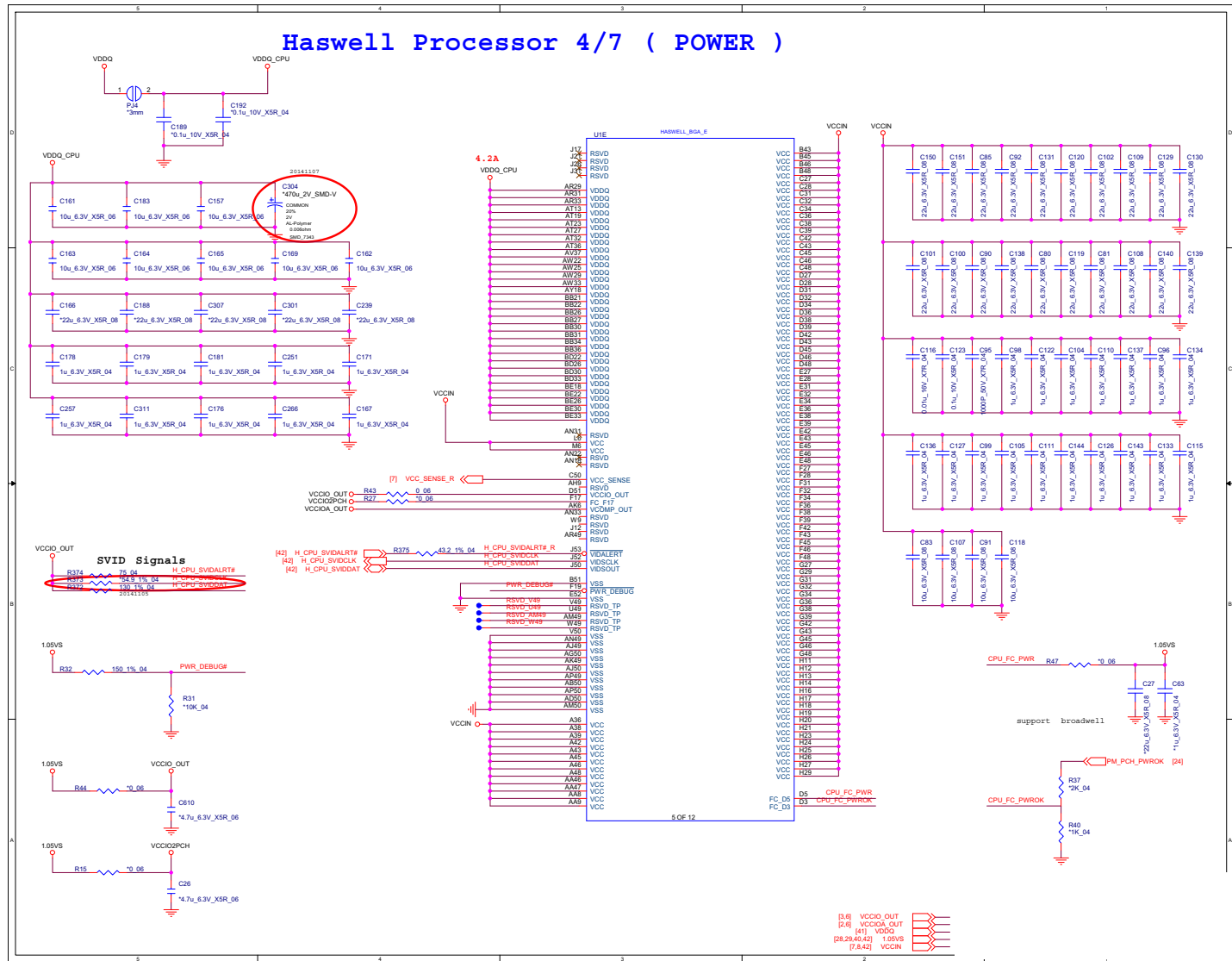


B.Schematic Diagrams

Sheet 4 of 55  
Processor 3/7

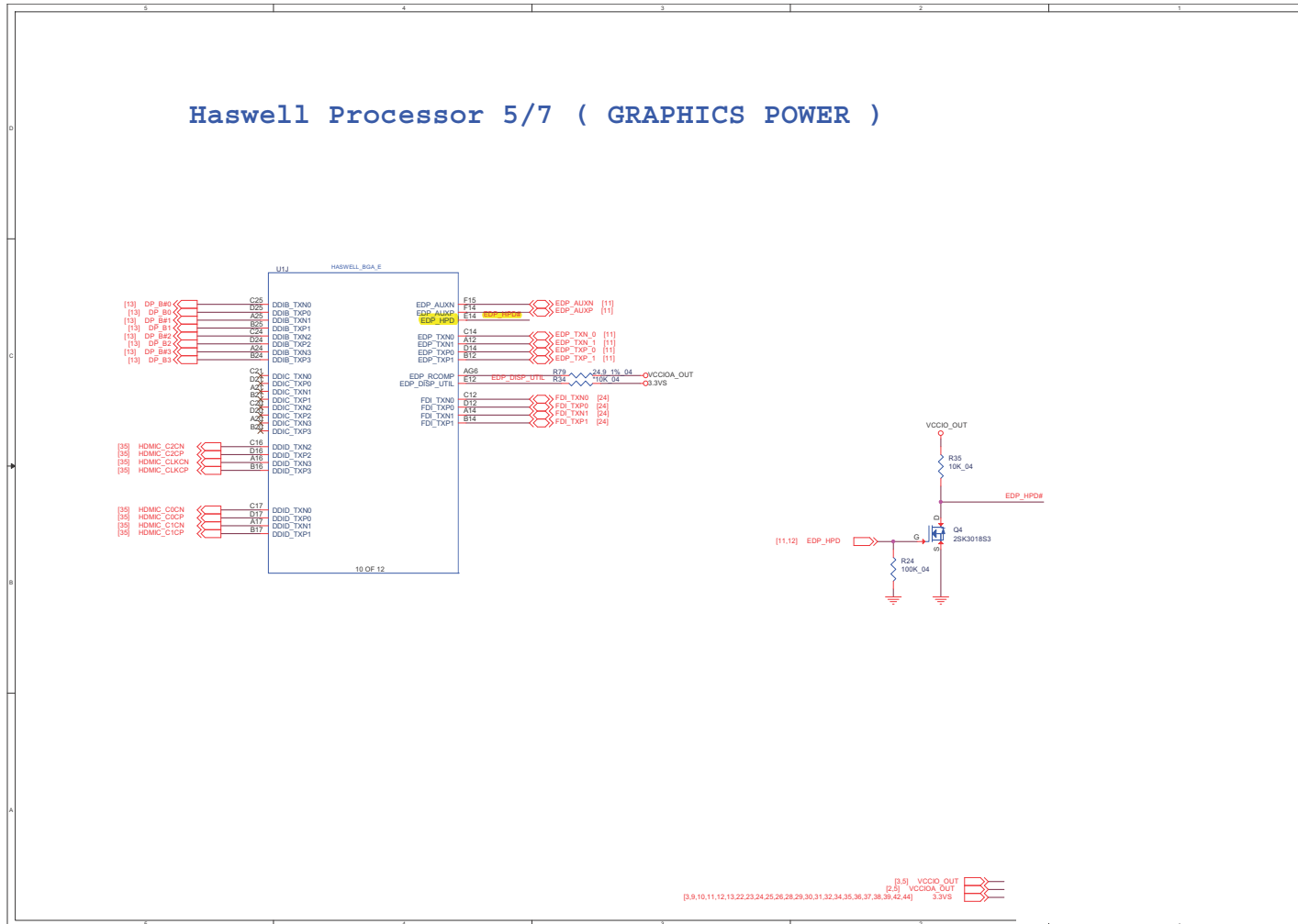
# Processor 4/7

Sheet 5 of 55  
Processor 4/7



# Processor 5/7

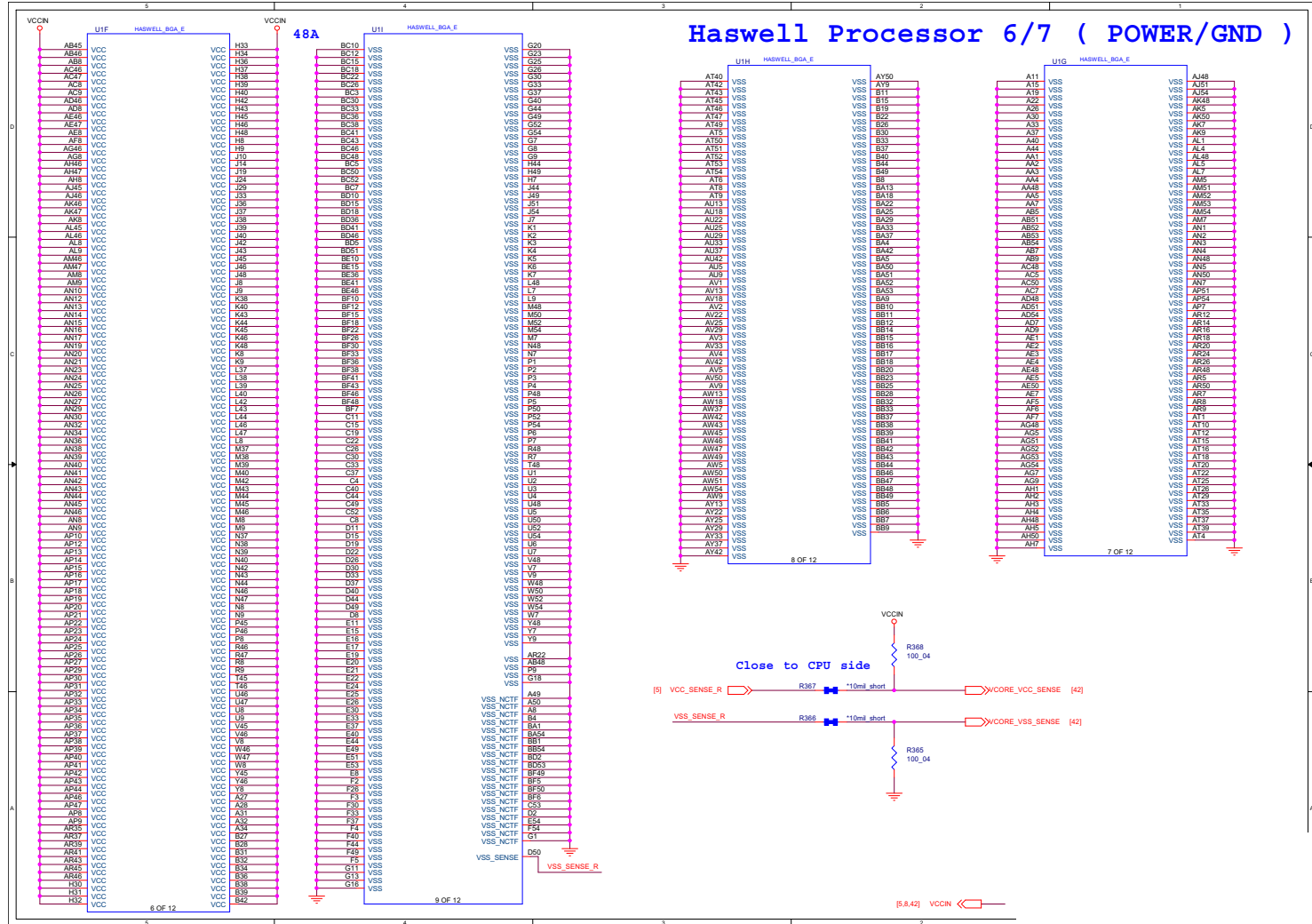
## Haswell Processor 5/7 ( GRAPHICS POWER )



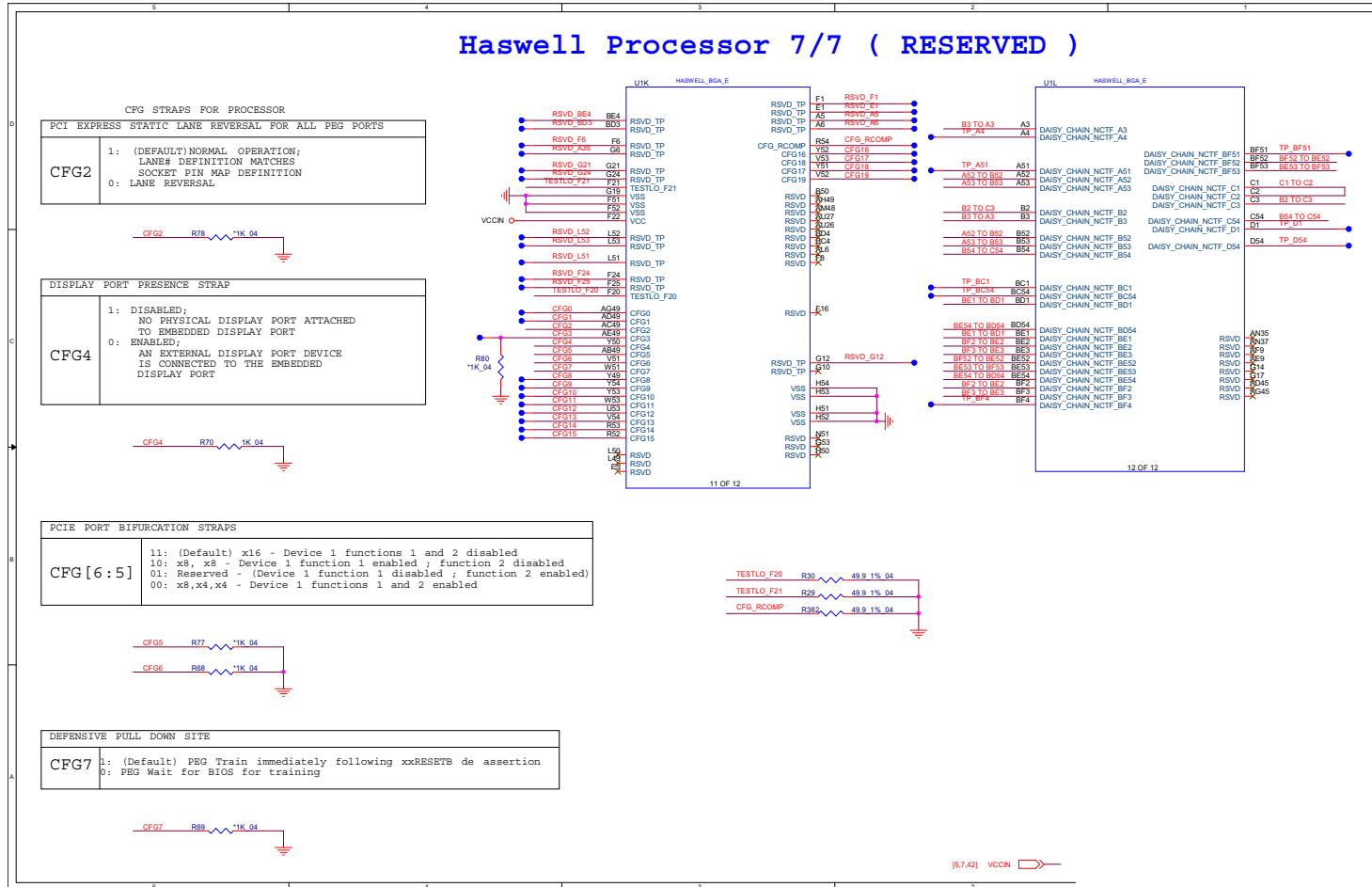
Sheet 6 of 55  
Processor 5/7

# Processor 6/7

Sheet 7 of 55  
Processor 6/7



# Processor 7/7

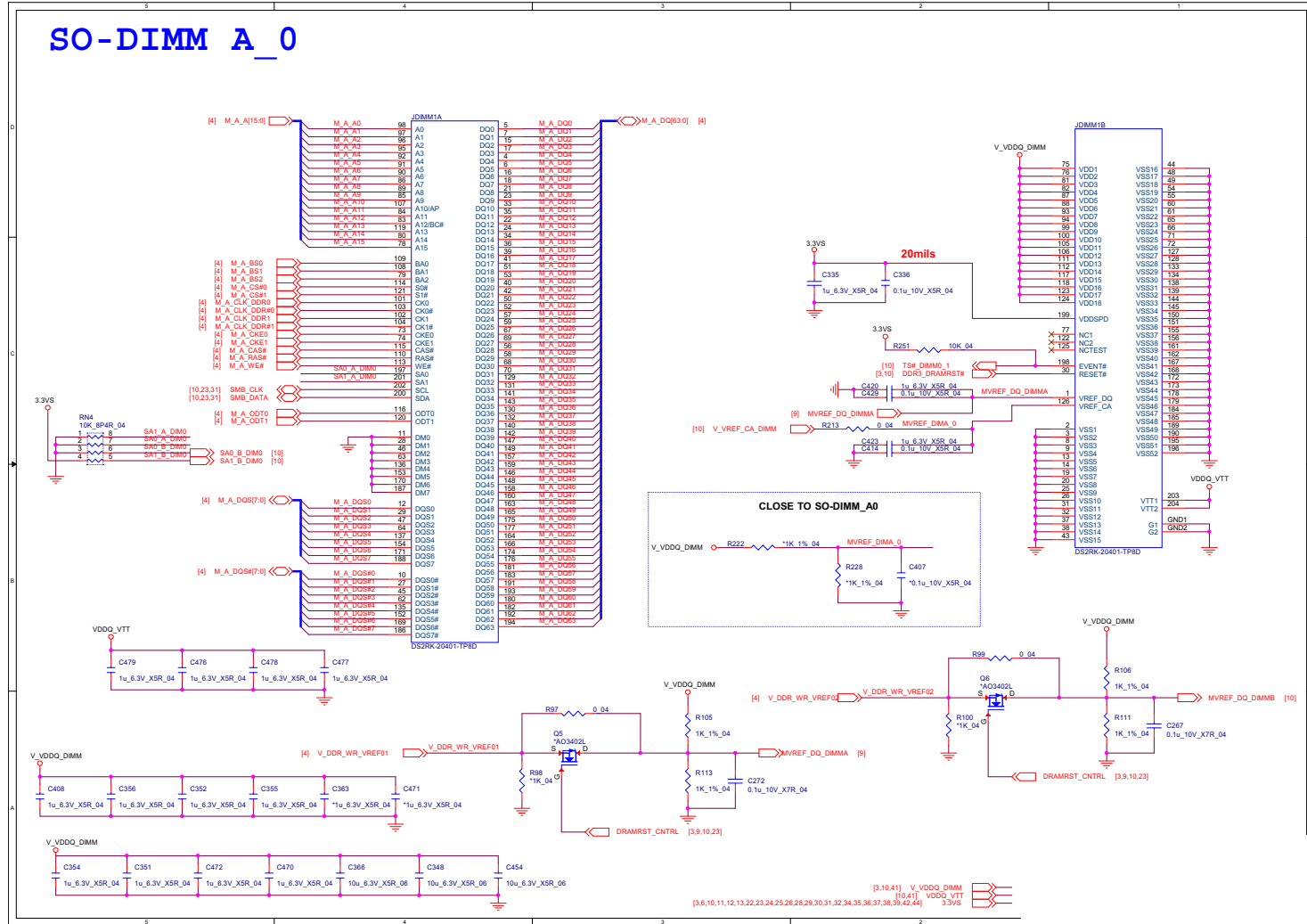


Sheet 8 of 55  
Processor 7/7

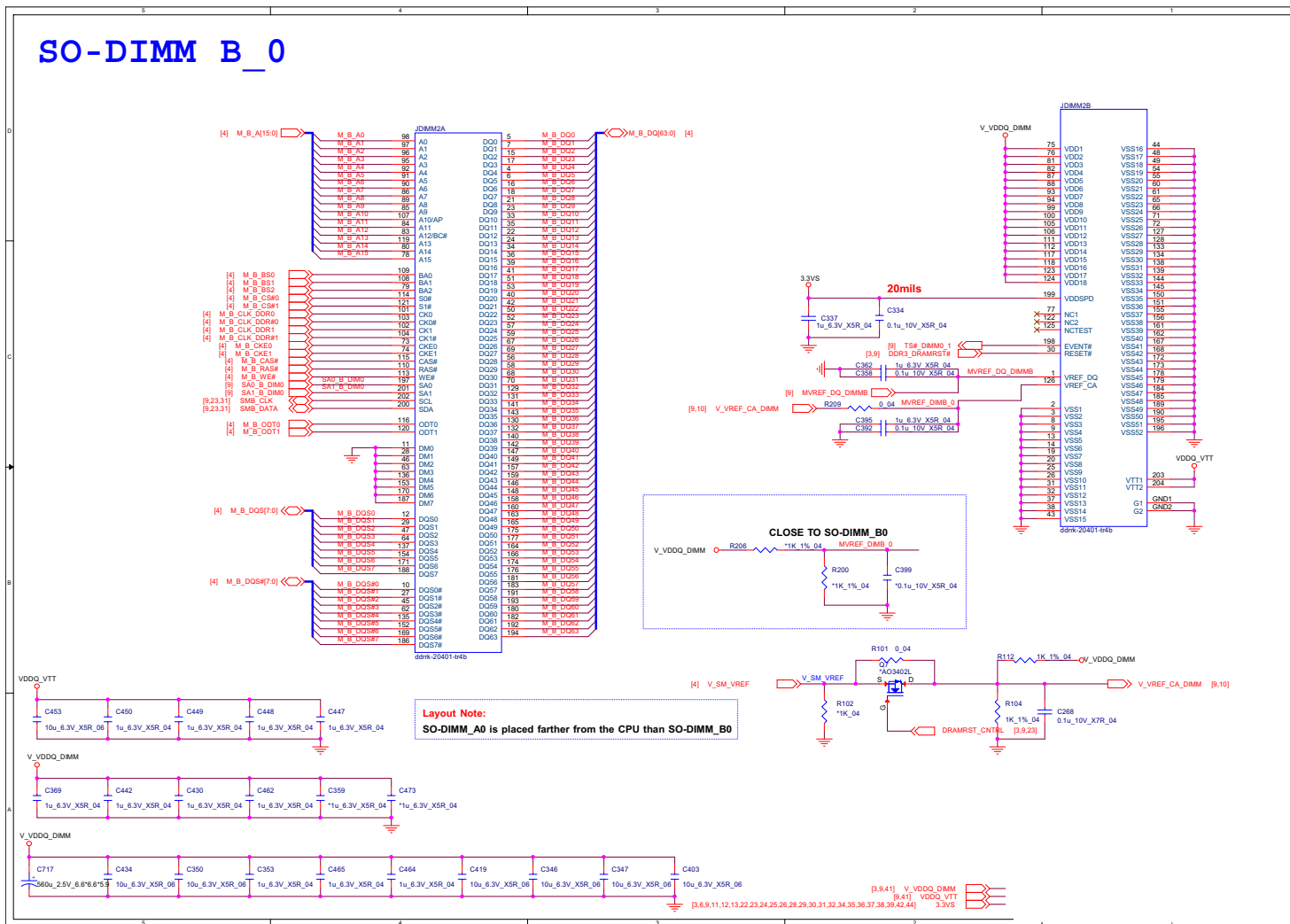
B.Schematic Diagrams

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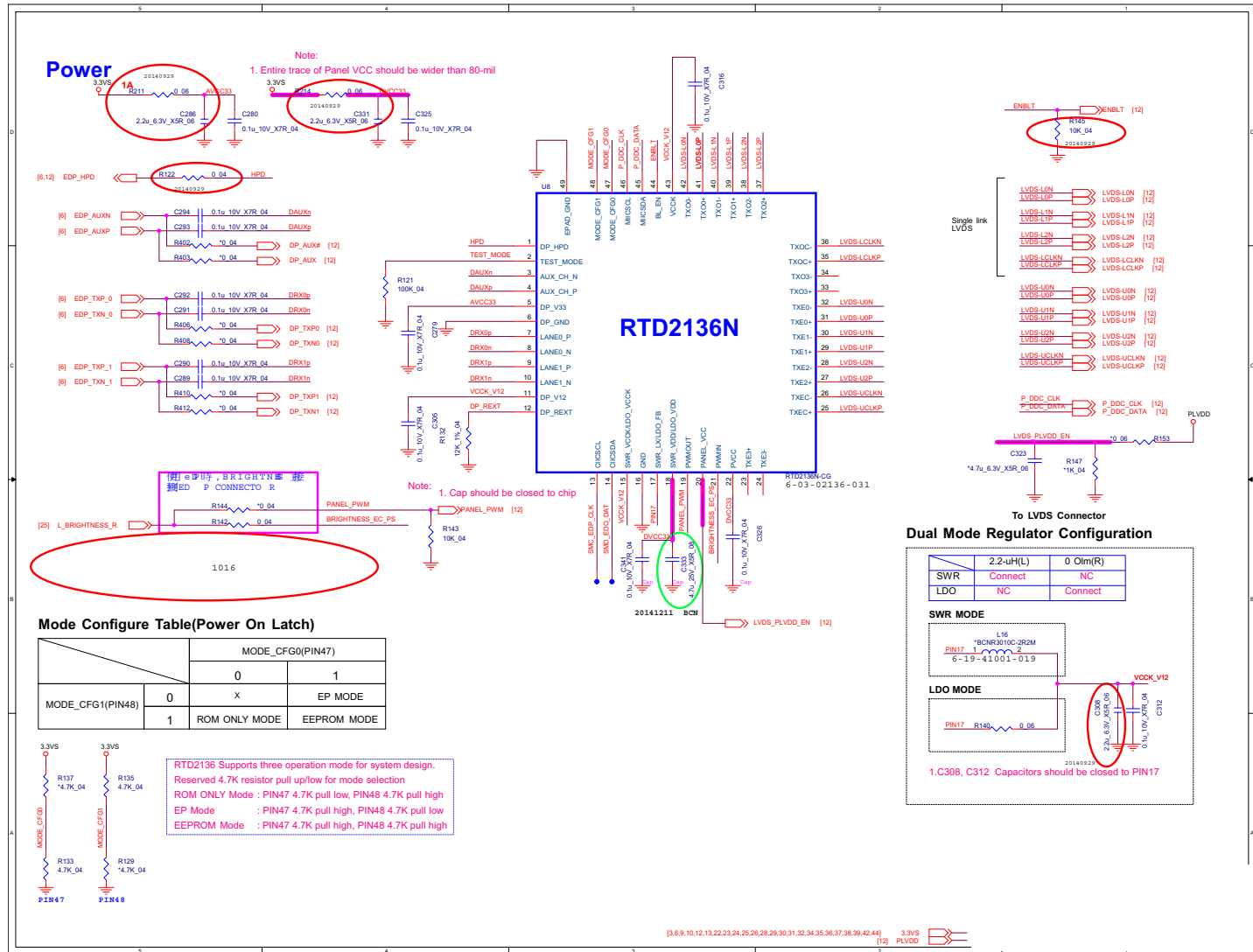
Sheet 9 of 55  
DDR3 SO-DIMM  
A\_0



# DDR3 SO-DIMM B\_0

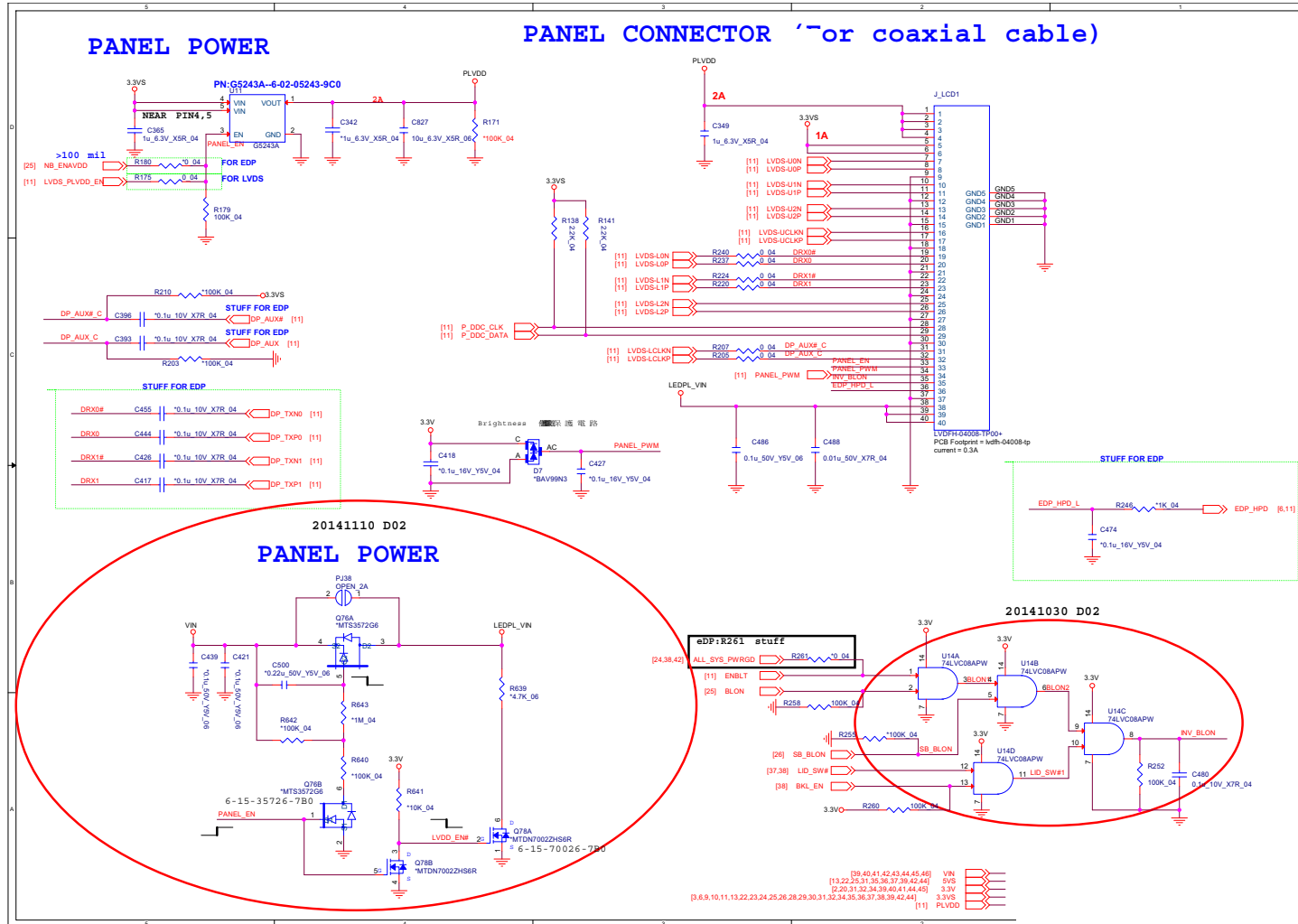


# RTD2136





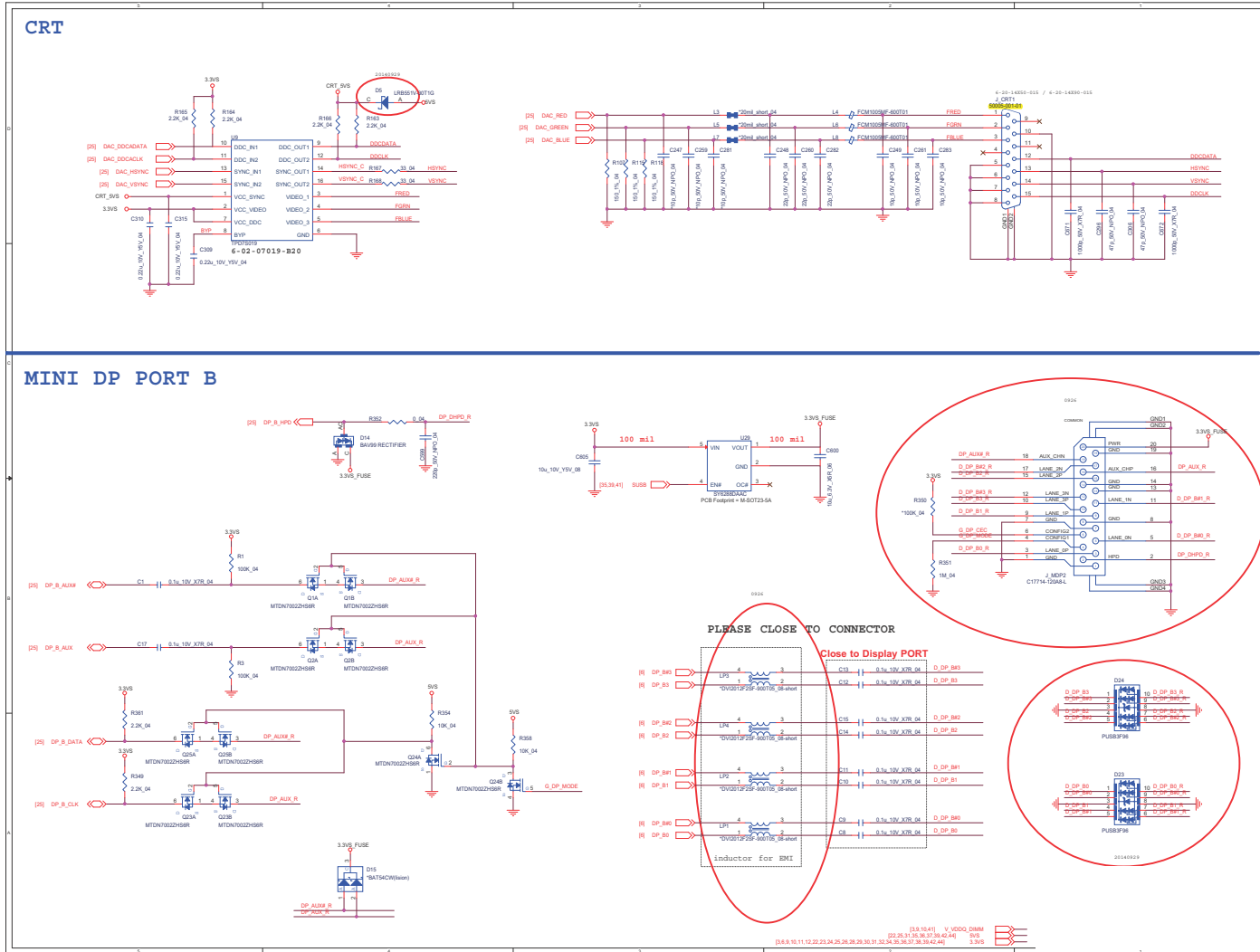
# Panel, Inverter, CRT



Sheet 12 of 55  
Panel, Inverter,  
CRT

B.Schematic Diagrams

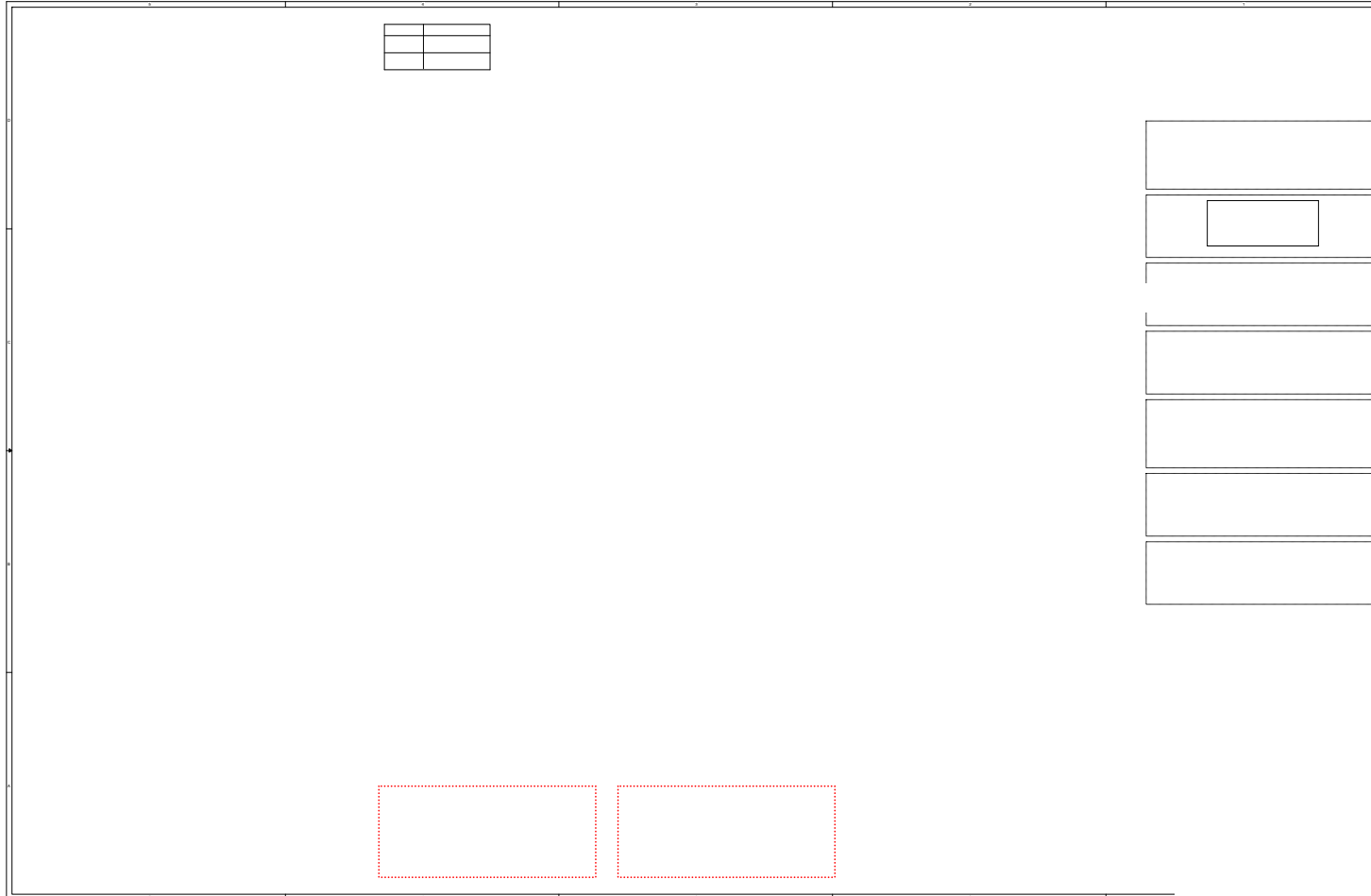
# CRT, Mini DP Port



Sheet 13 of 55  
CRT, Mini DP Port

B.Schematic Diagrams

# VGA Frame Buffer Interface

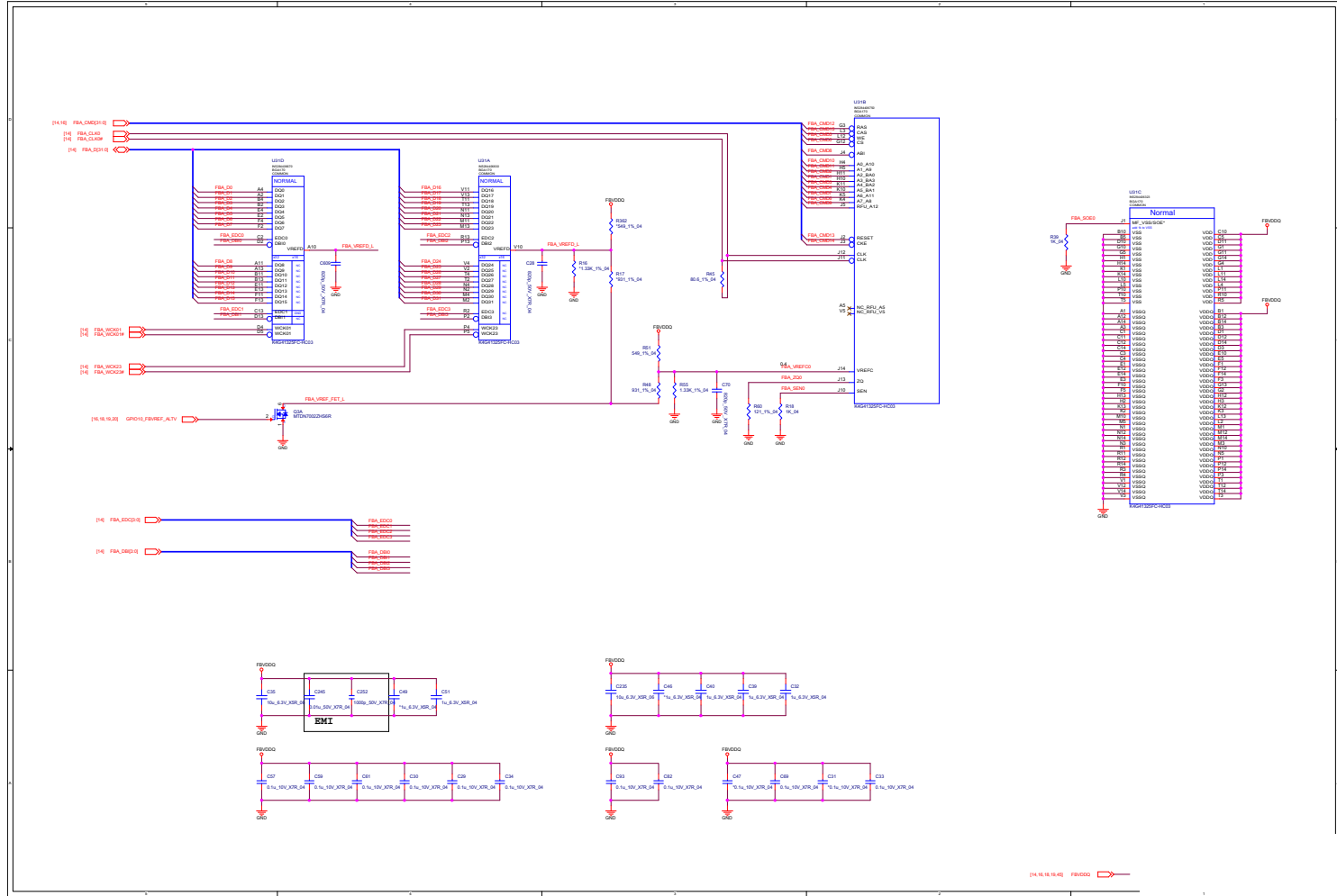


Sheet 14 of 55  
VGA Frame Buffer  
Interface

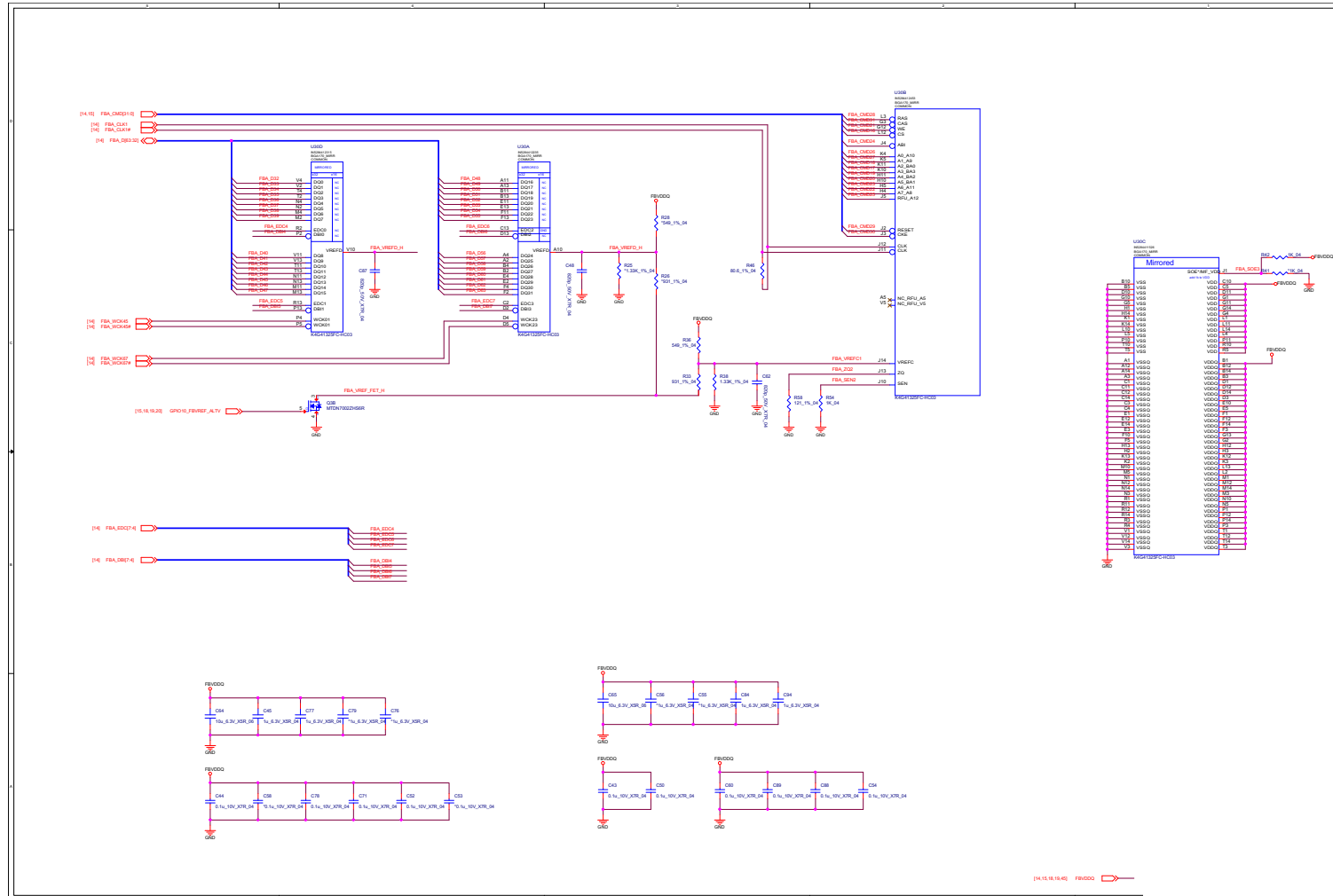
B.Schematic Diagrams

# VGA Frame Buffer A

Sheet 15 of 55  
VGA Frame Buffer  
A



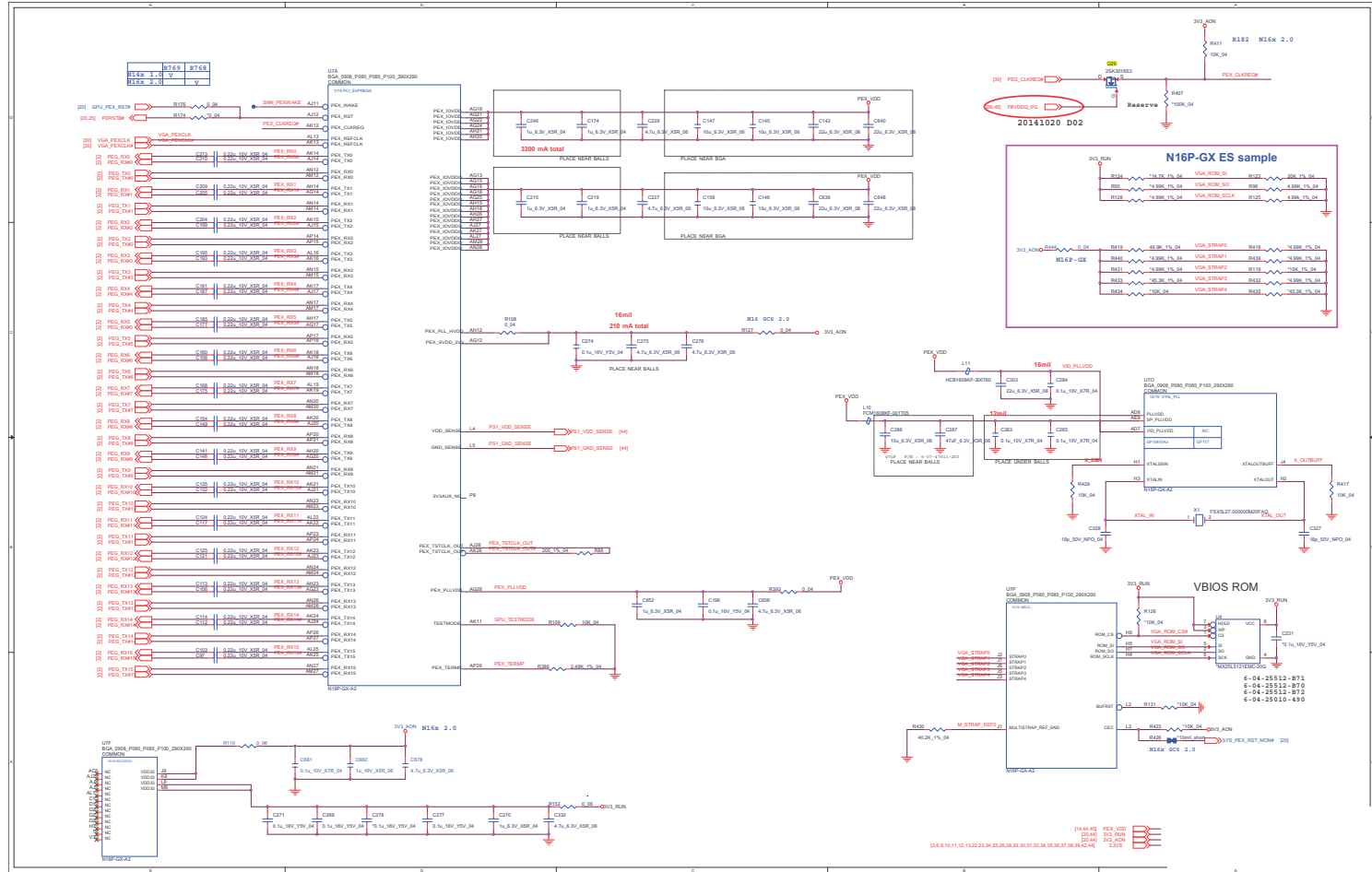
# VGA Frame Buffer A



Sheet 16 of 55  
VGA Frame Buffer A

# VGA PCI-E Interface

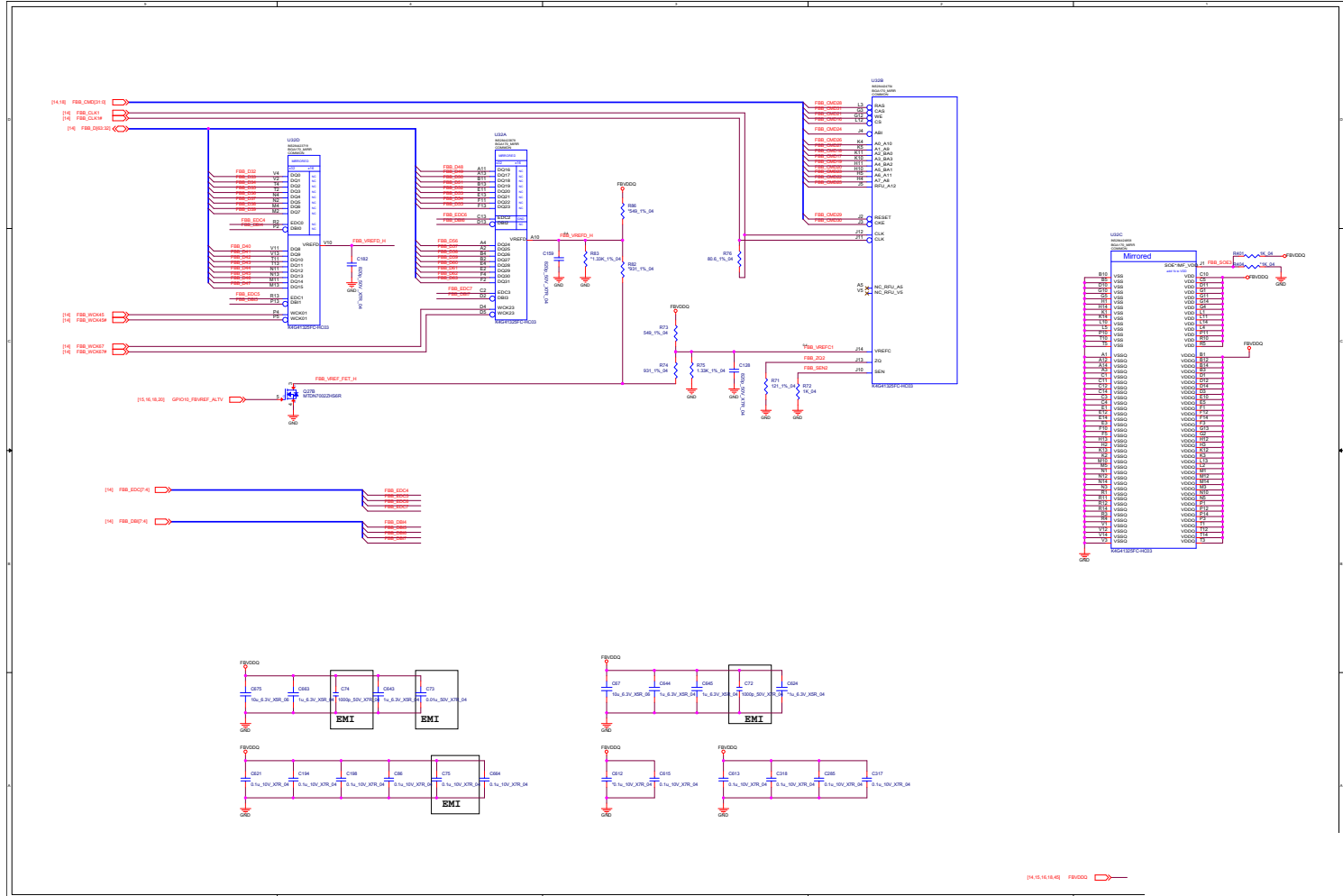
Sheet 17 of 55  
VGA PCI-E  
Interface





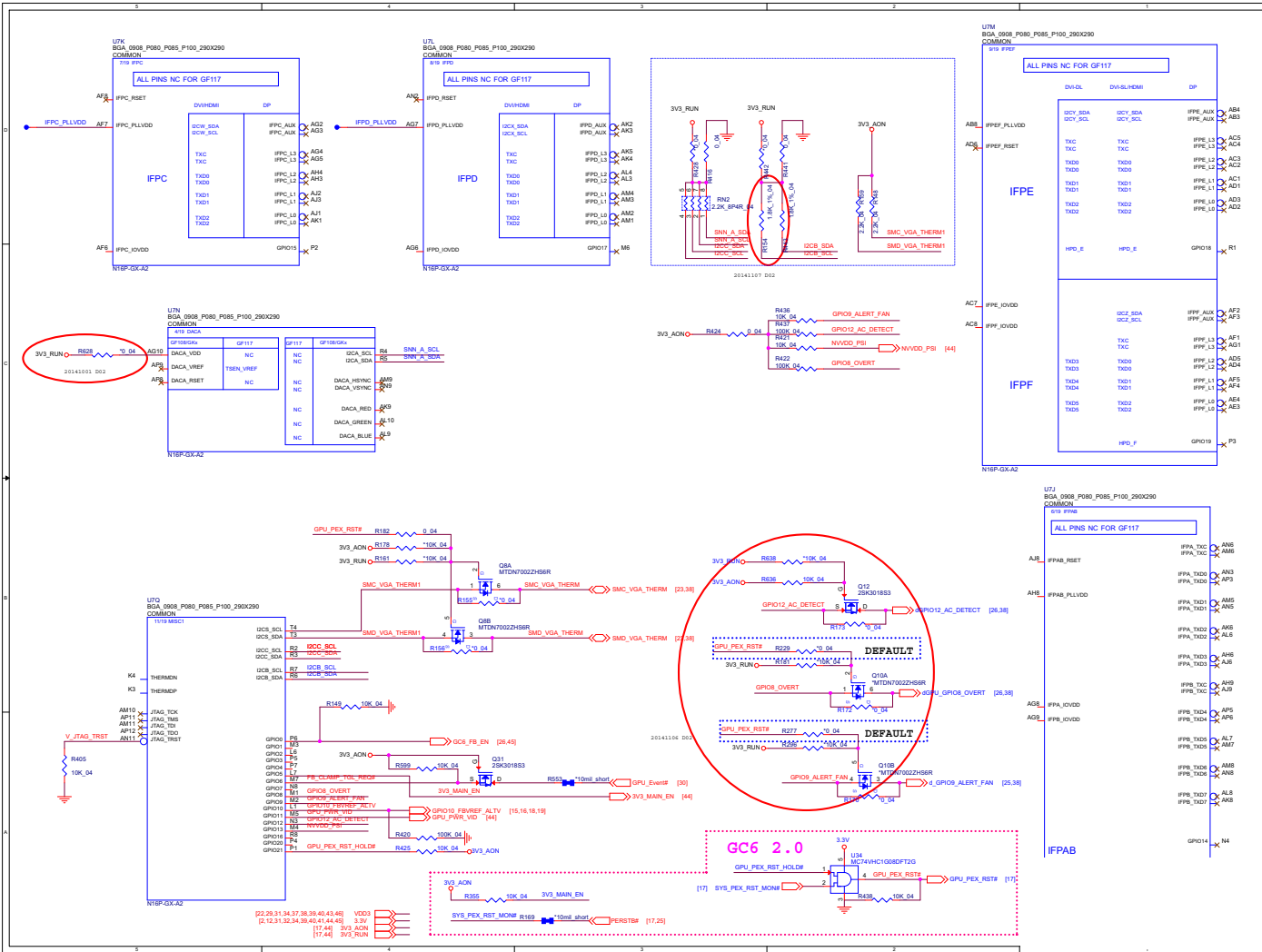
# VGA Frame Buffer B

Sheet 19 of 55  
VGA Frame Buffer  
B





# VGA I/O

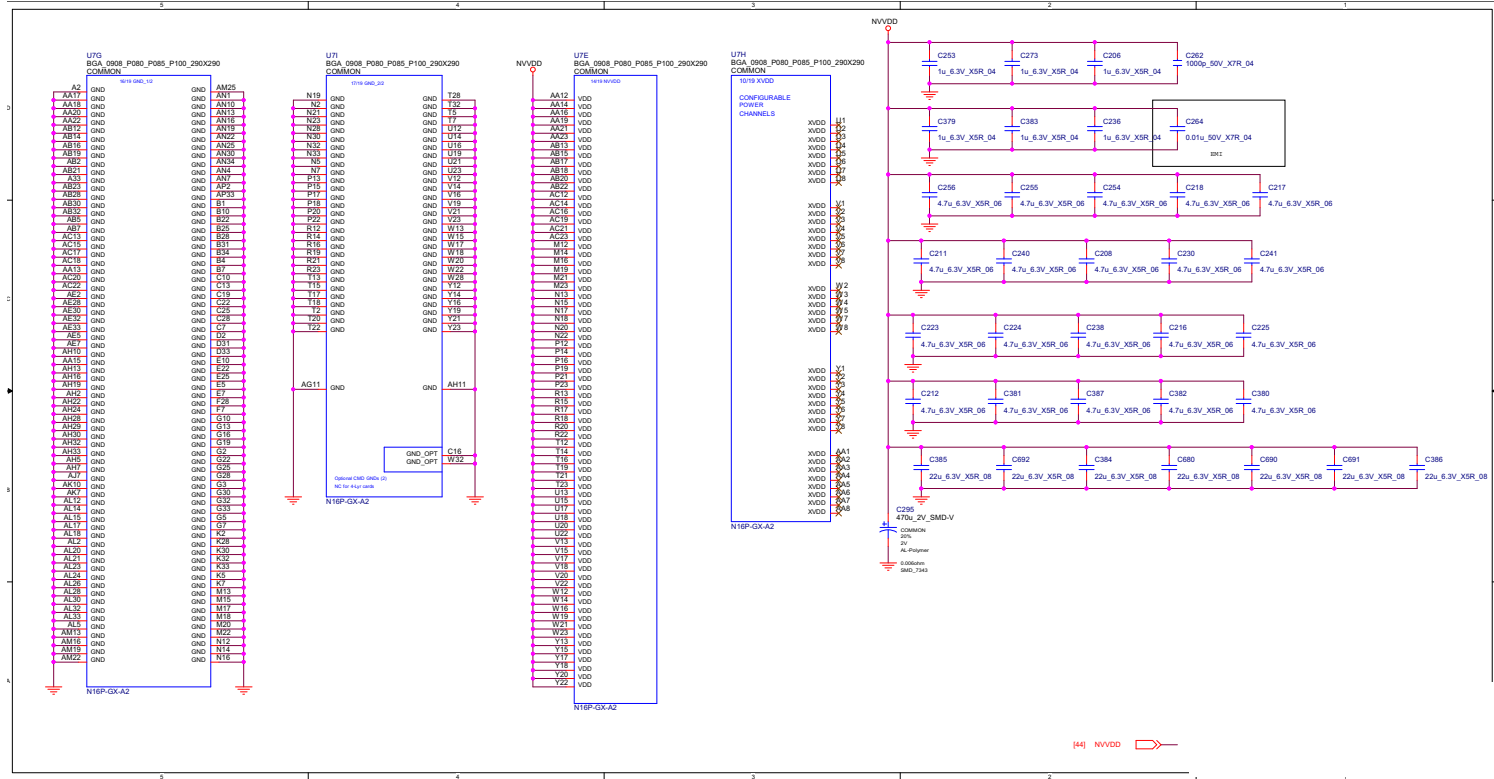


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VGA I/O

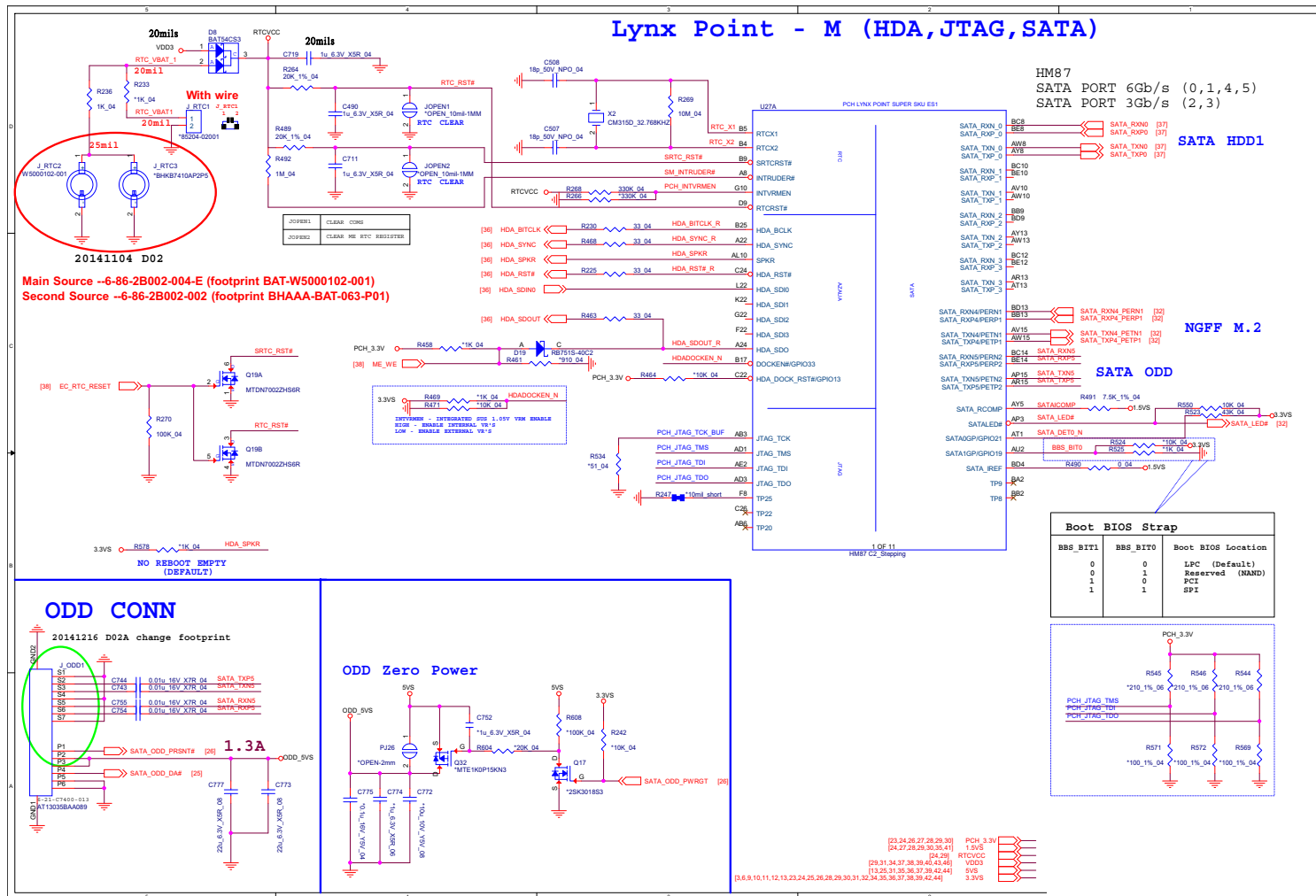
B.Schematic Diagrams

# VGA NVVDD Decoupling

Sheet 21 of 55  
VGA NVVDD  
Decoupling



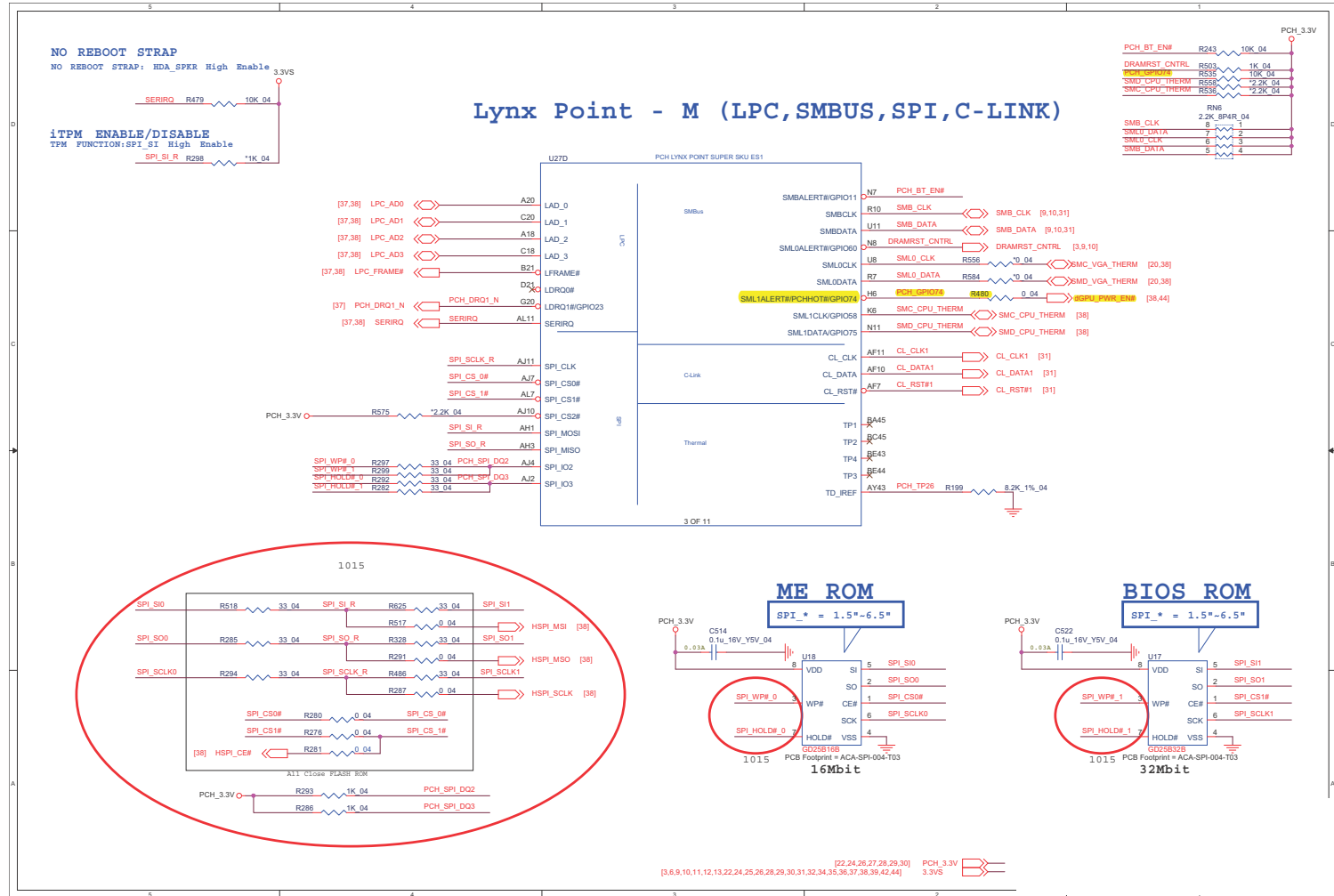
# Lynx 1/9



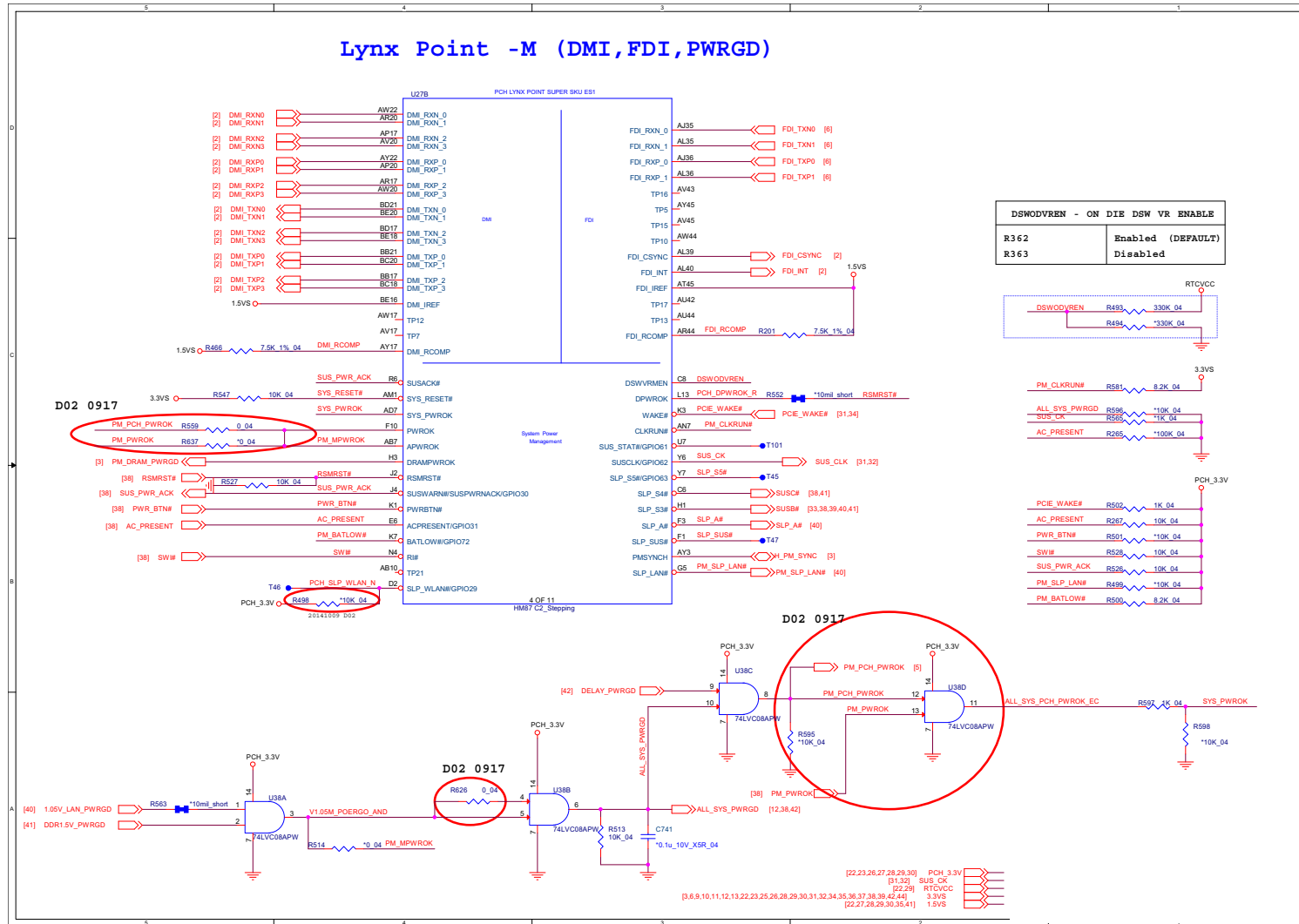
Sheet 22 of 55  
 Lynx 1/9

# Lynx 2/9

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Lynx 2/9



# Lynx 3/9

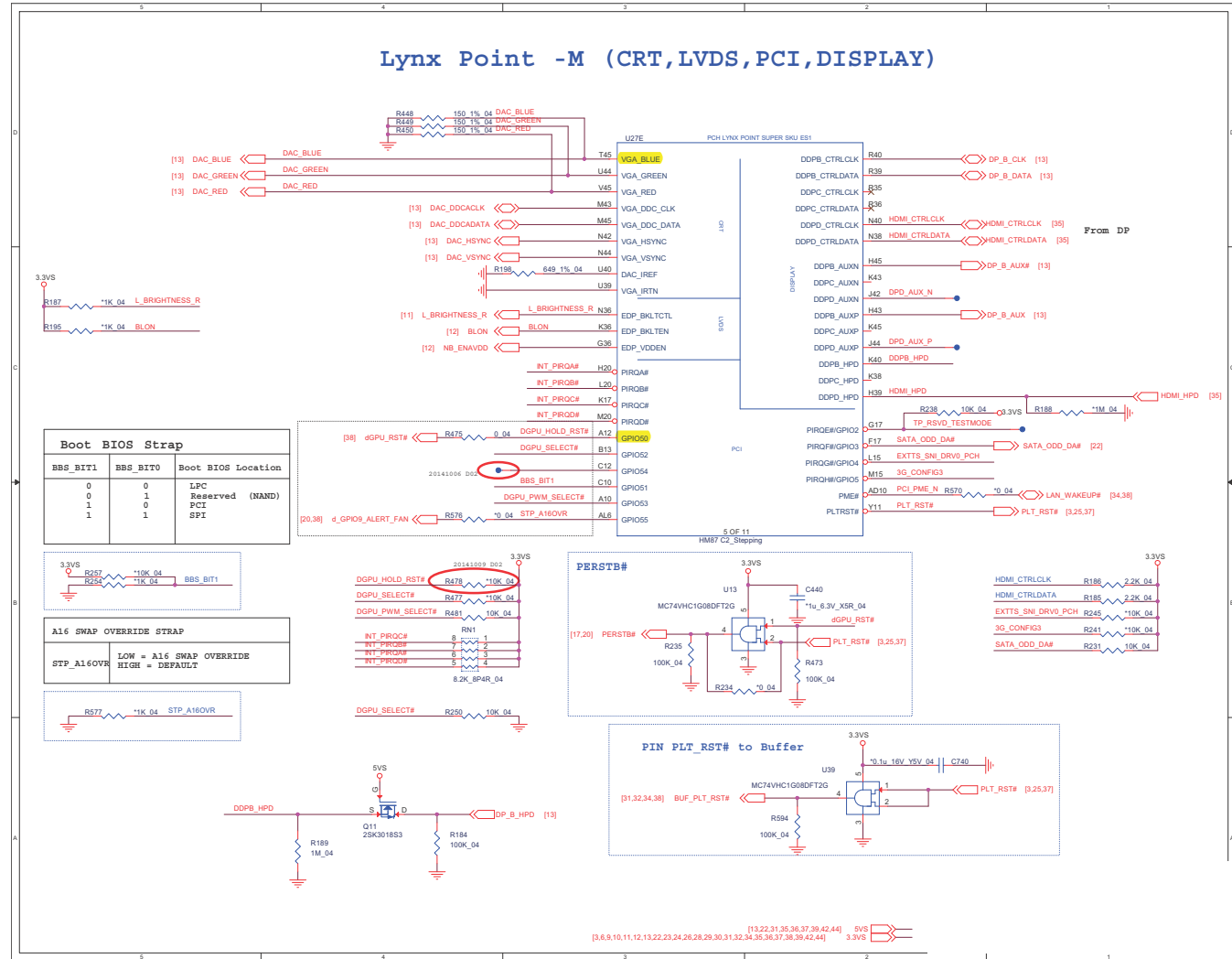


Sheet 24 of 55  
Lynx 3/9

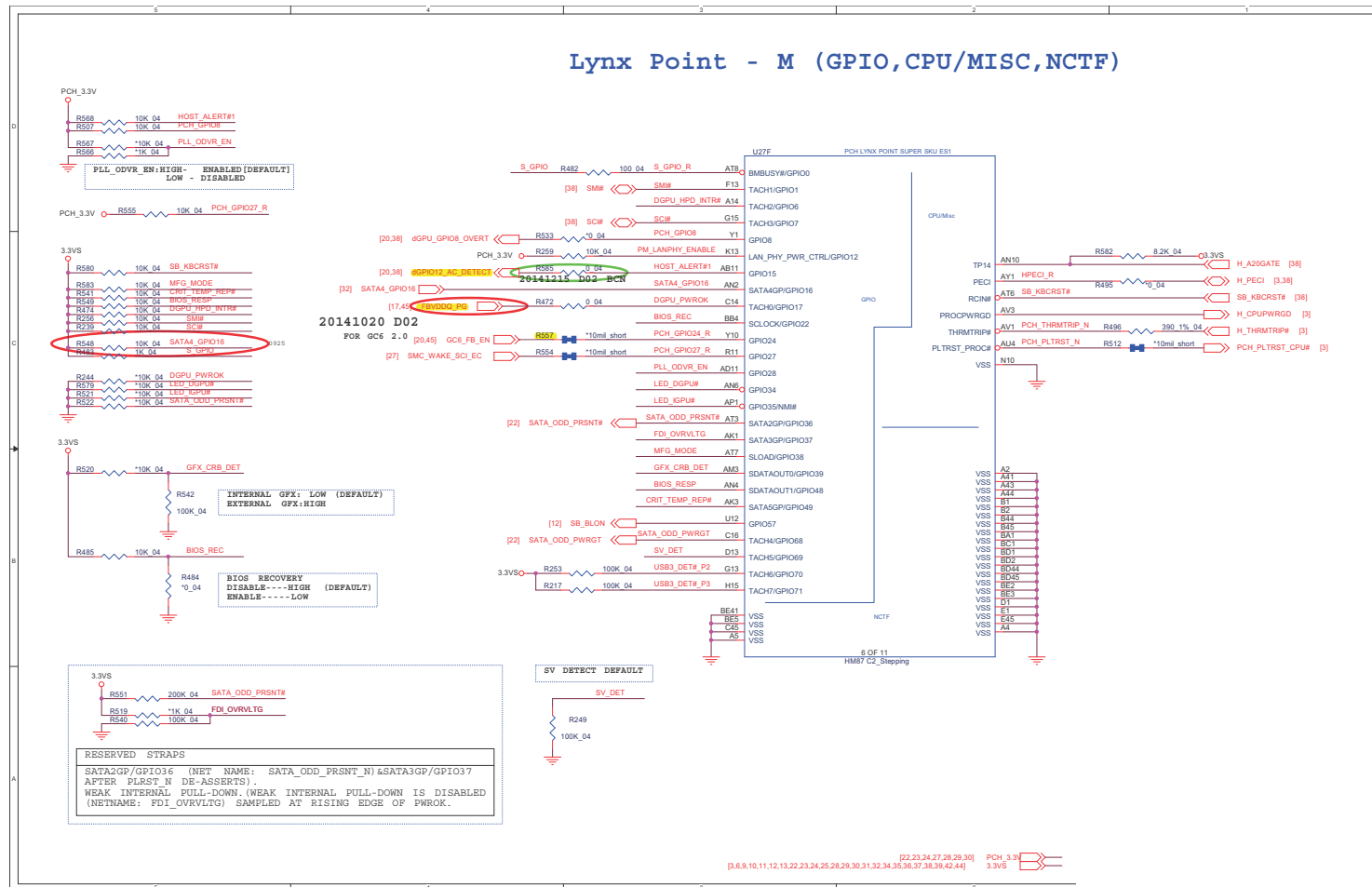
B. Schematic Diagrams

# Lynx 4/9

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Lynx 4/9



# Lynx 5/9

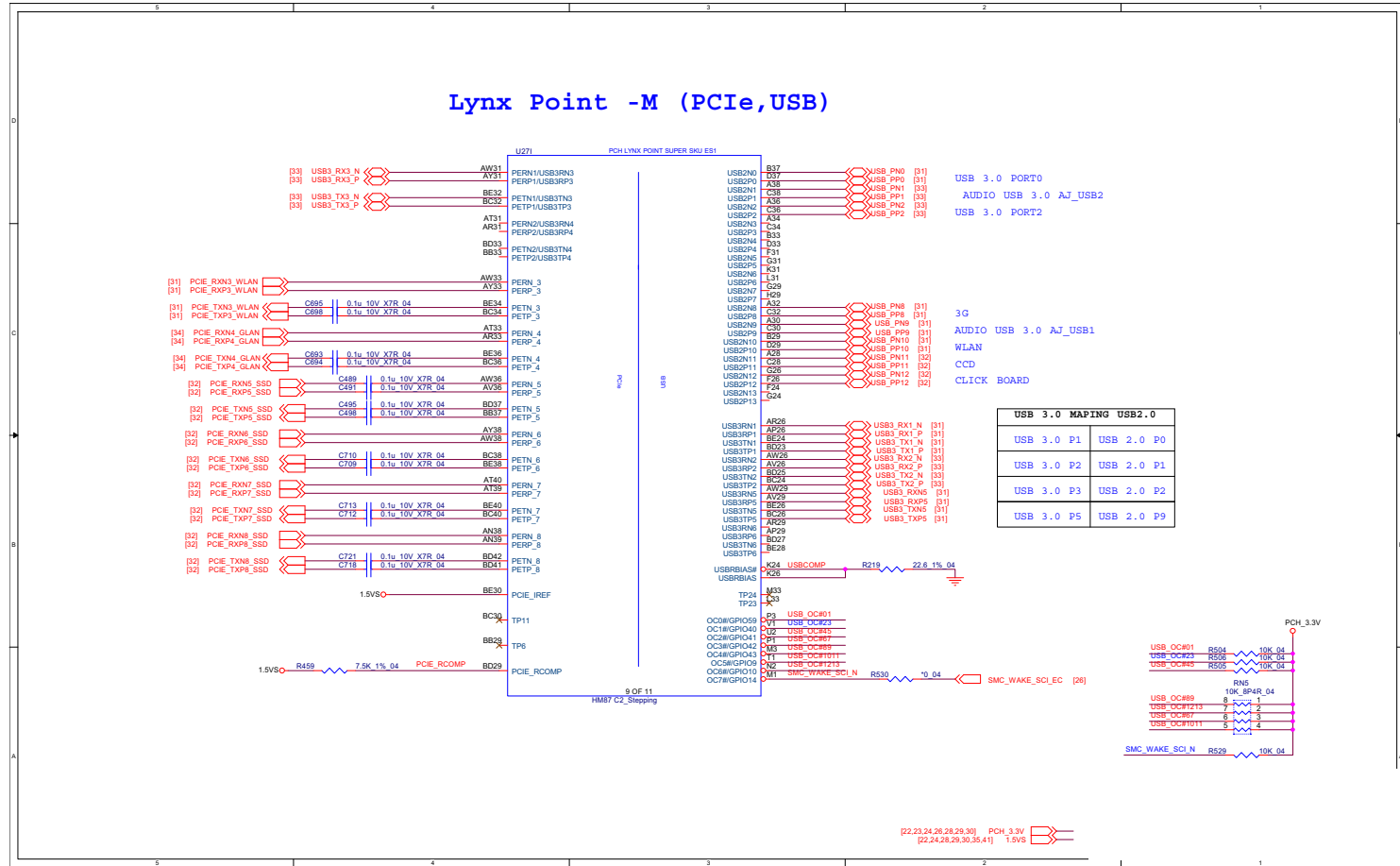


Sheet 26 of 55  
Lynx 5/9

B. Schematic Diagrams

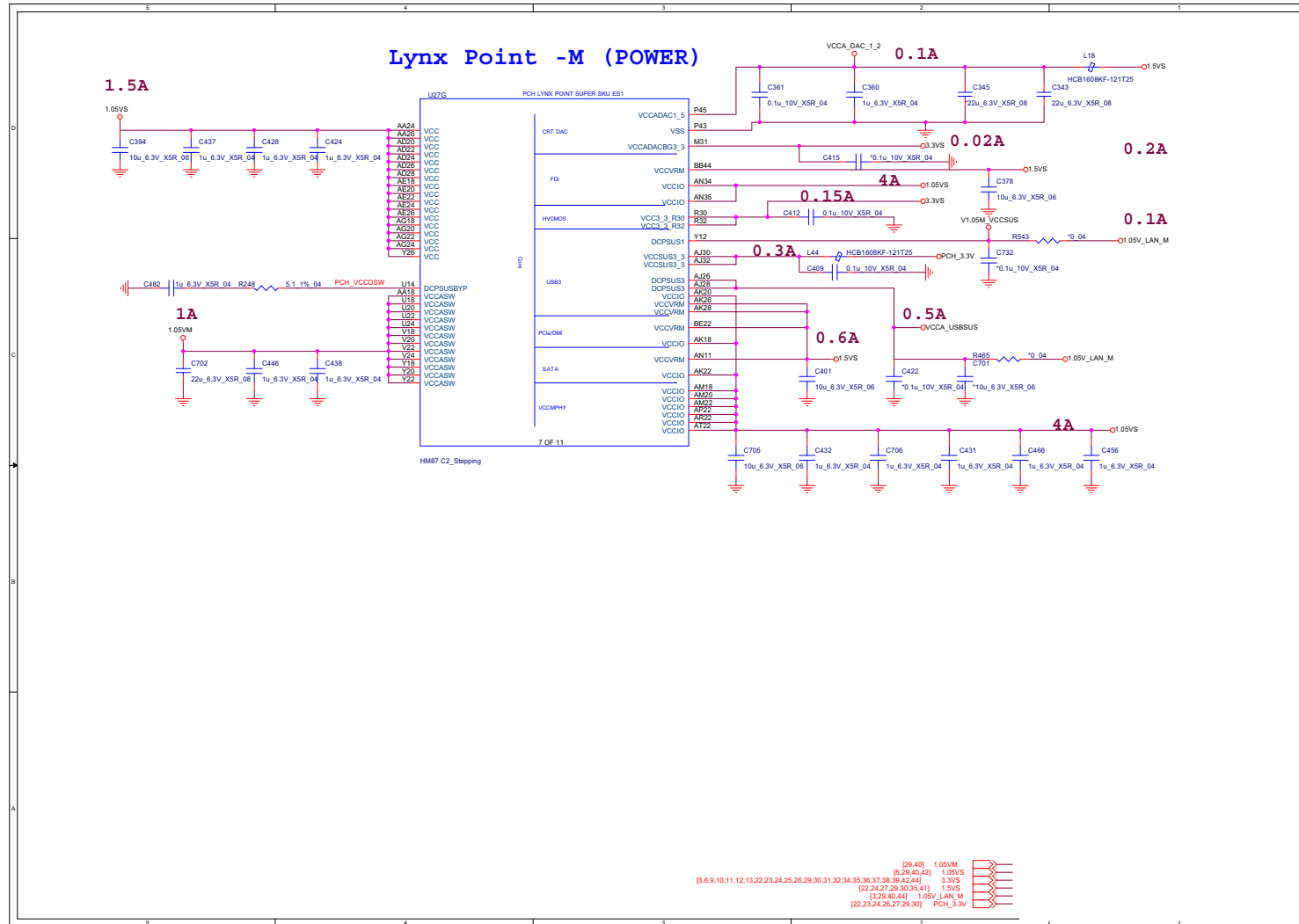
# Lynx 6/9

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Lynx 6/9





# Lynx 7/9



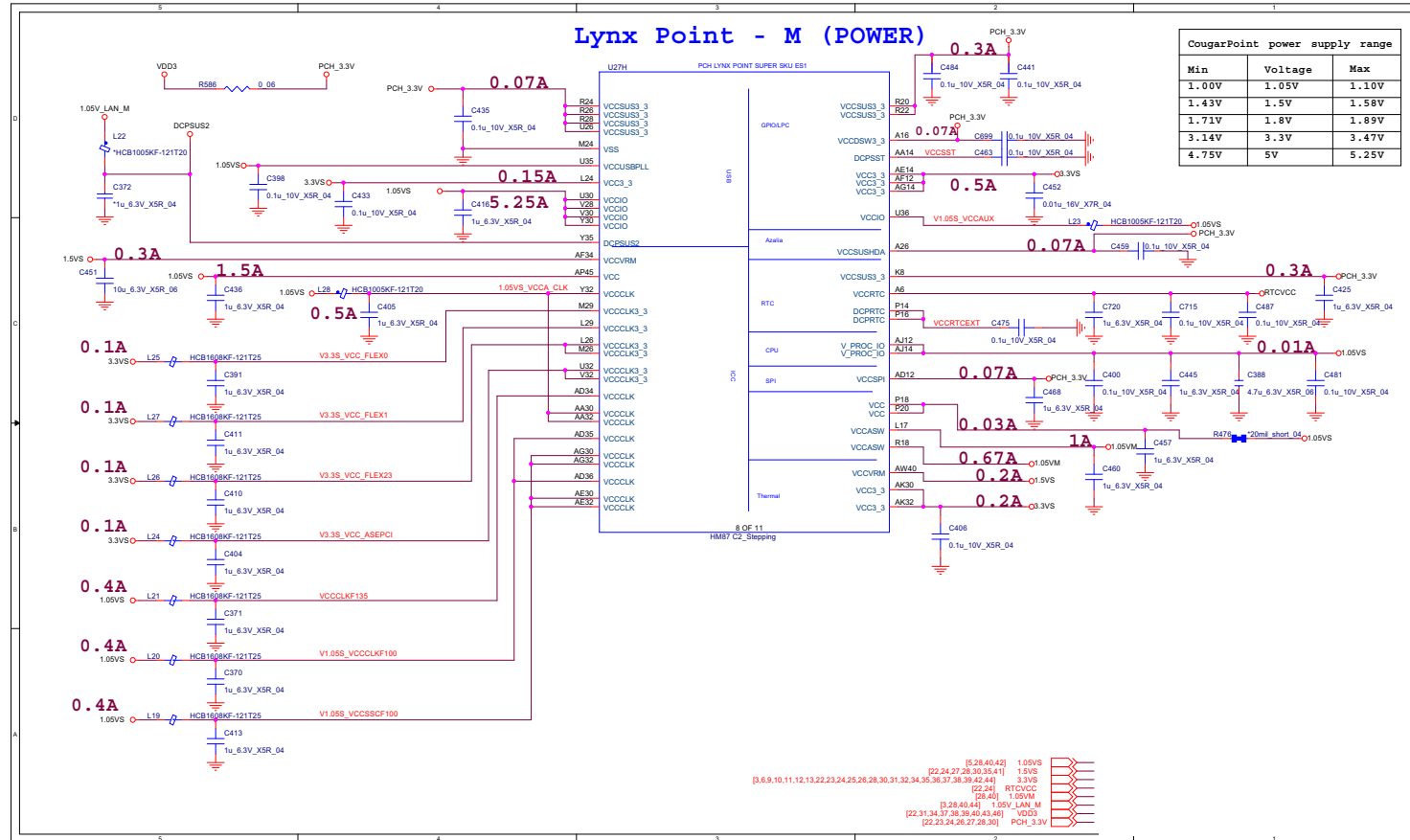
Sheet 28 of 55  
Lynx 7/9

# Schematic Diagrams

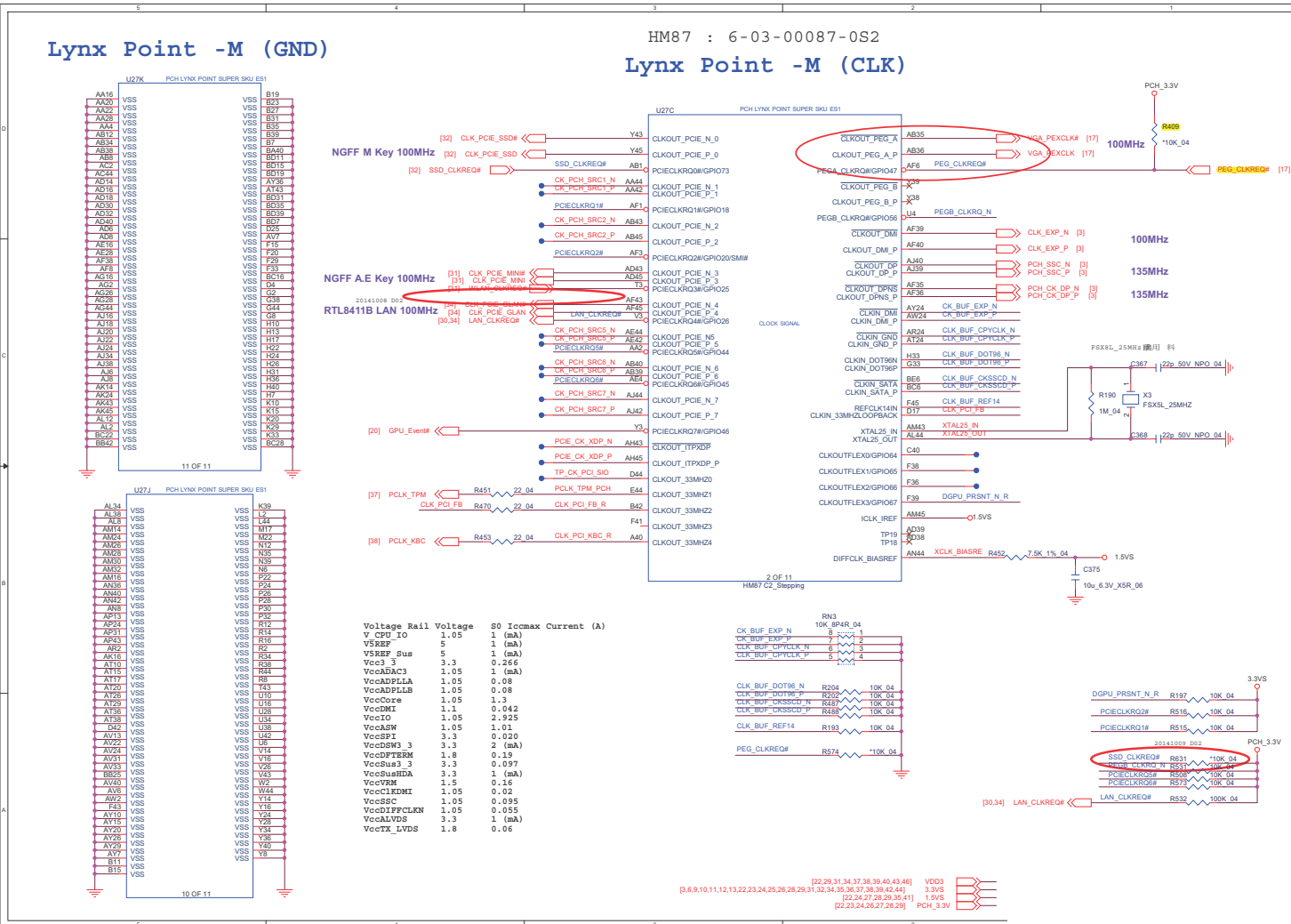
## Lynx 8/9

B.Schematic Diagrams

Sheet 29 of 55  
Lynx 8/9

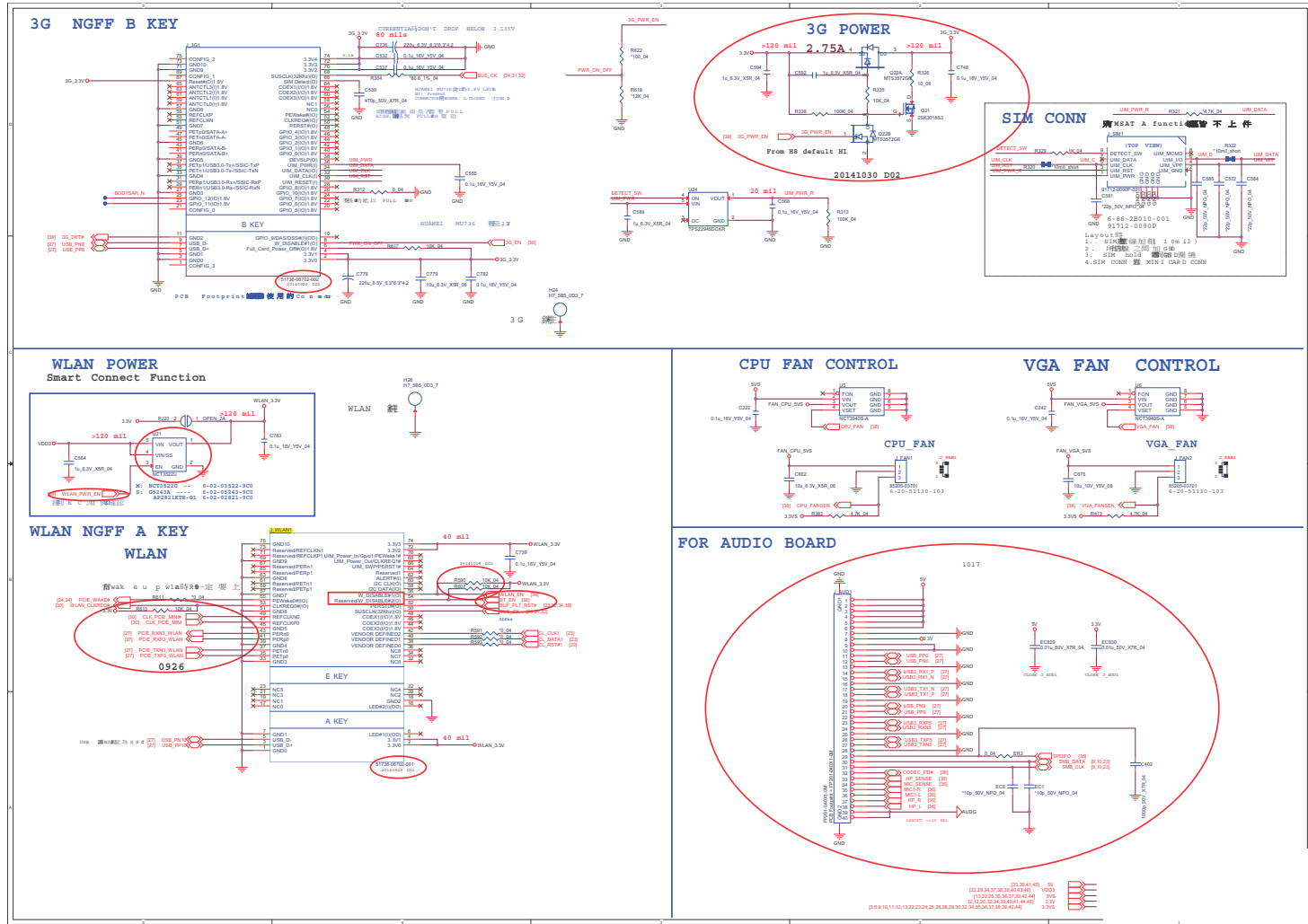


# Lynx 9/9



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Lynx 9/9

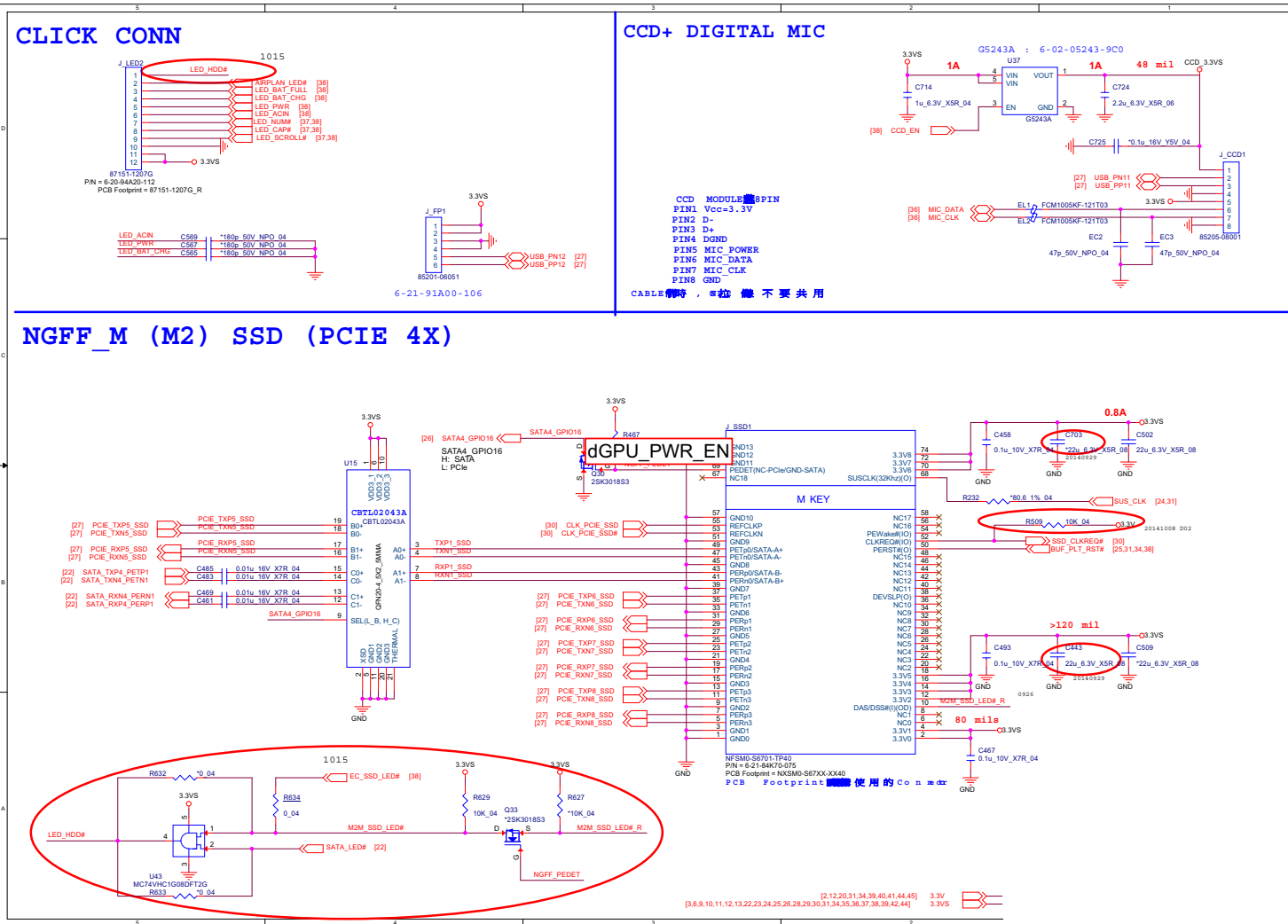
# WLAN, 3G, Fan, Audio Con



B.Schematic Diagrams

Sheet 31 of 55  
WLAN, 3G, Fan,  
Audio Con

# CCD, M-Key, Click Conn

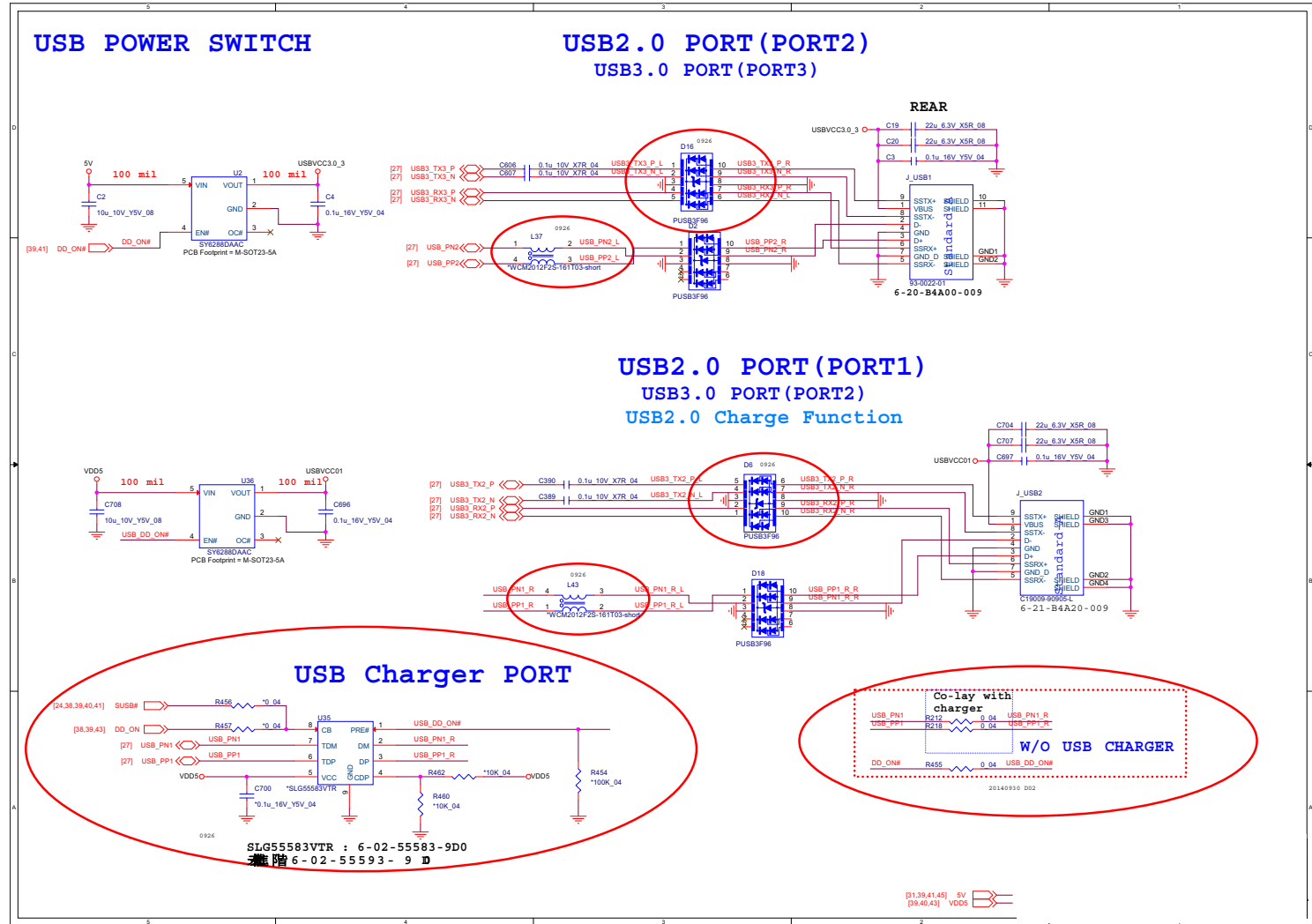


Sheet 32 of 55  
CCD, M-Key,  
Click Conn

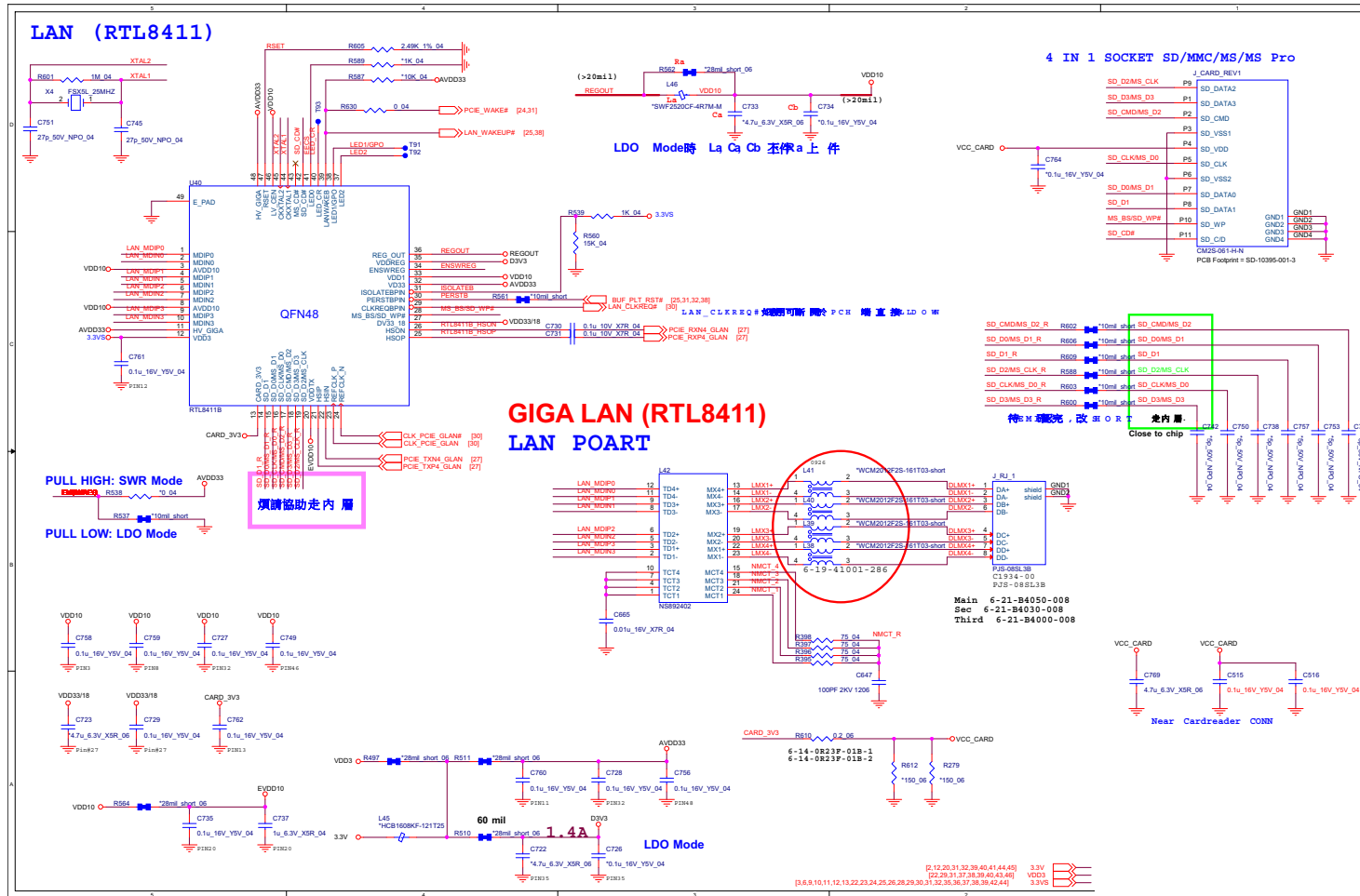
B.Schematic Diagrams

# USB 3.0, USB Charge

Sheet 33 of 55  
USB 3.0,  
USB Charge



# LAN RTL8411B, Card Reader

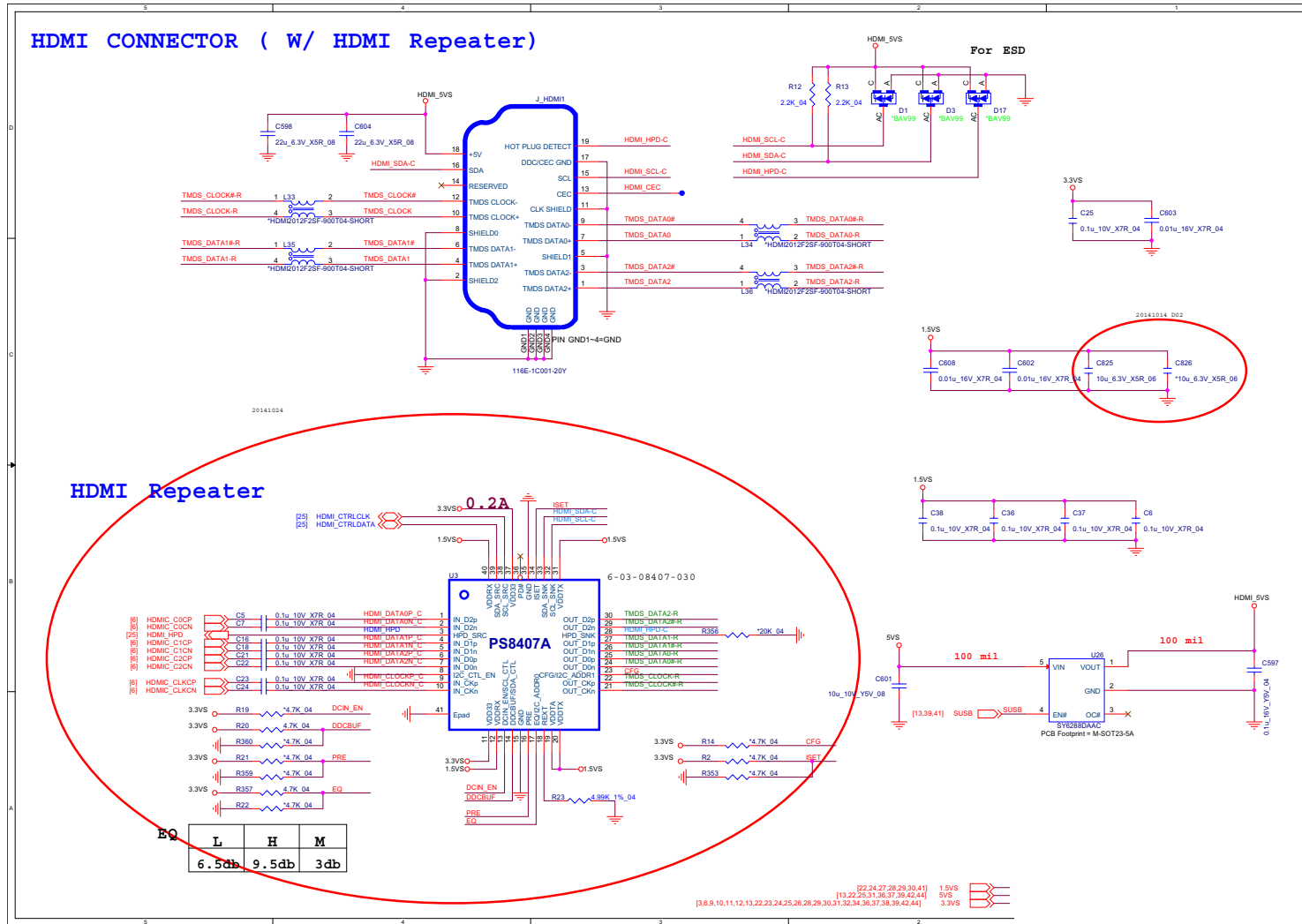


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 LAN RTL8411B,  
 Card Reader

B.Schematic Diagrams

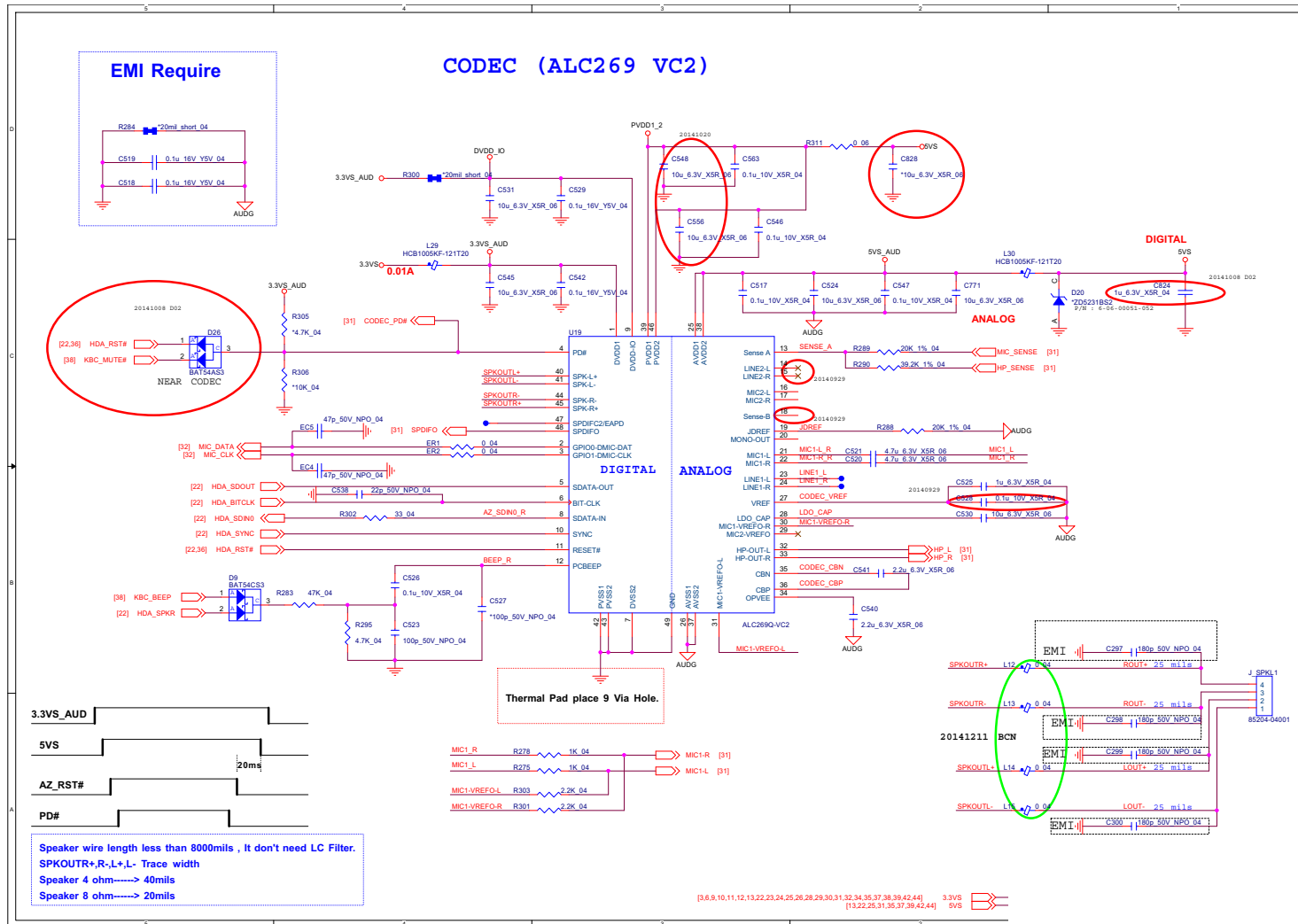
# HDMI, RJ45

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HDMI, RJ45





# Audio Codec ALC269

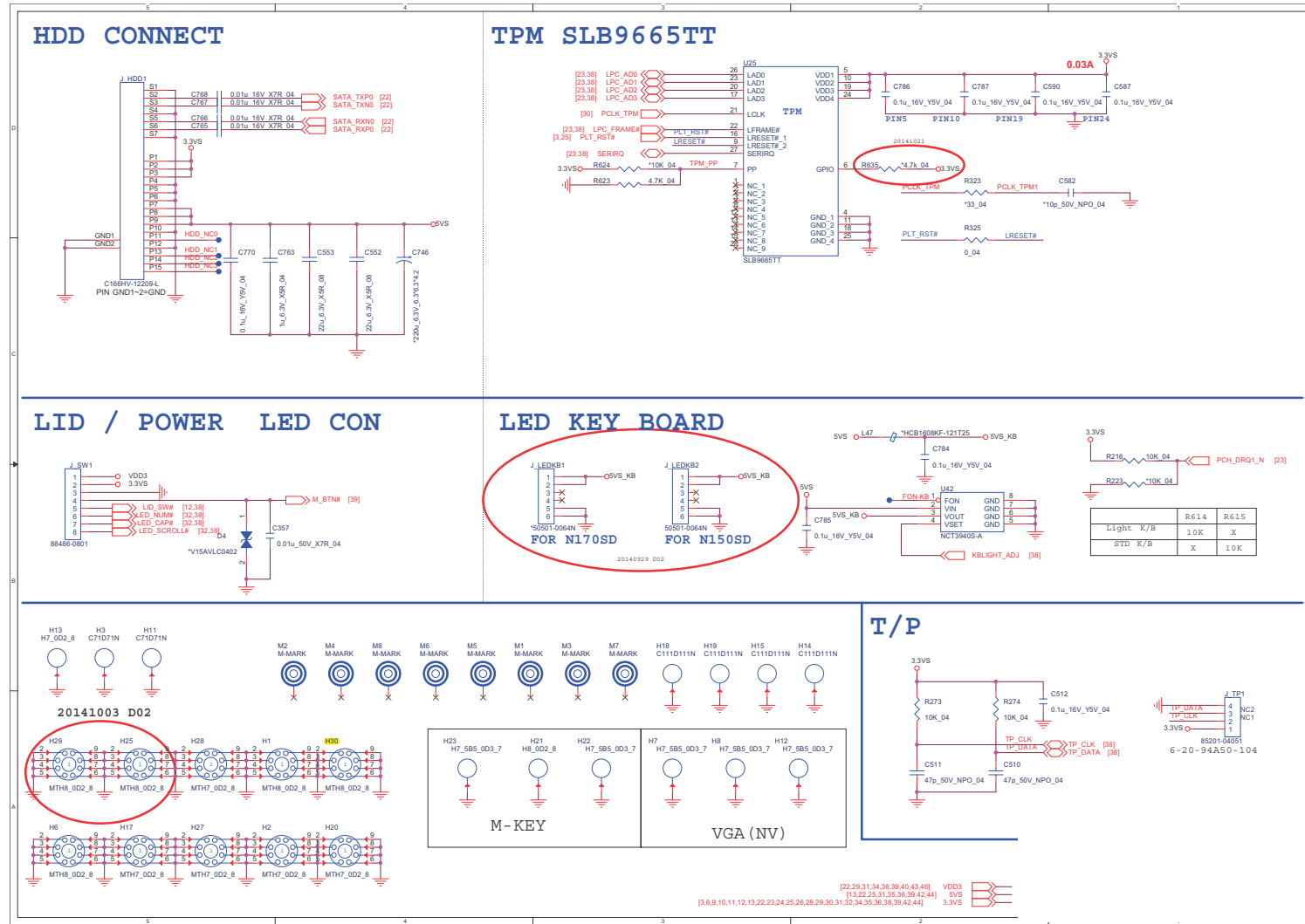


Sheet 36 of 55  
Audio Codec  
ALC269

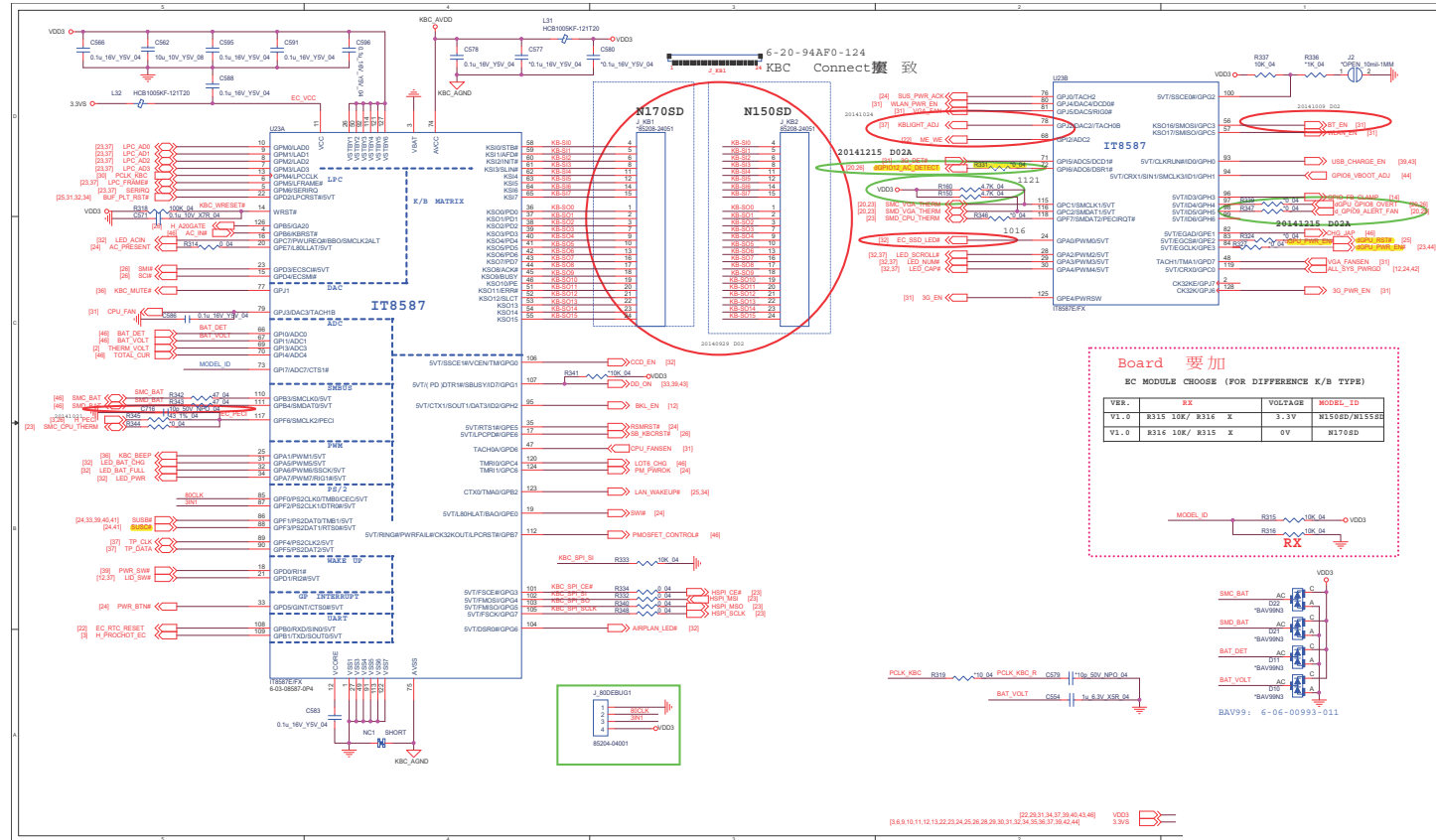
B.Schematic Diagrams

# HDD, TPM, KB LED, PWR Con, T/P

Sheet 37 of 55  
HDD, TPM, KB LED,  
PWR Con, T/P



# KBC-ITE IT8587

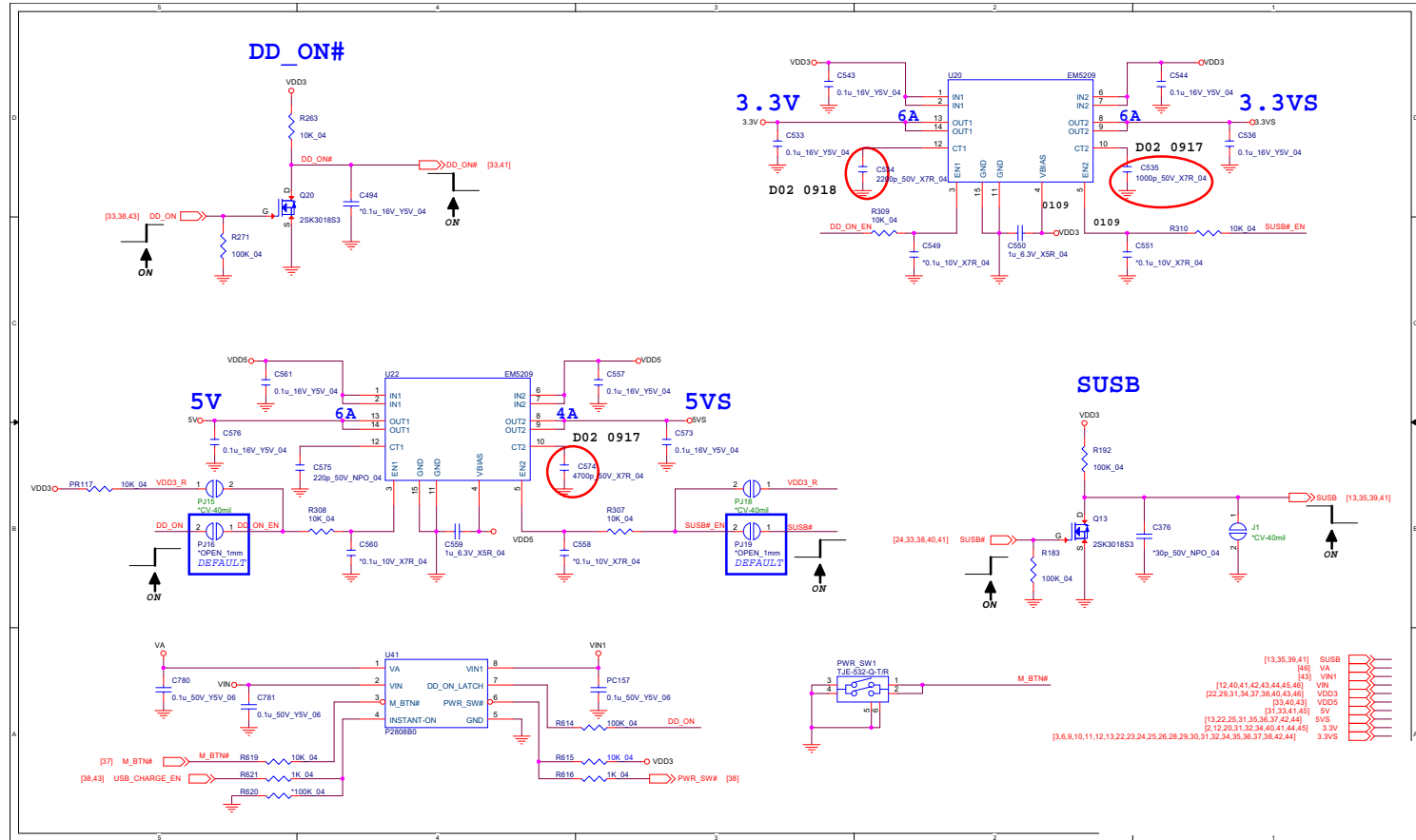


Sheet 38 of 55  
 KBC-ITE IT8587

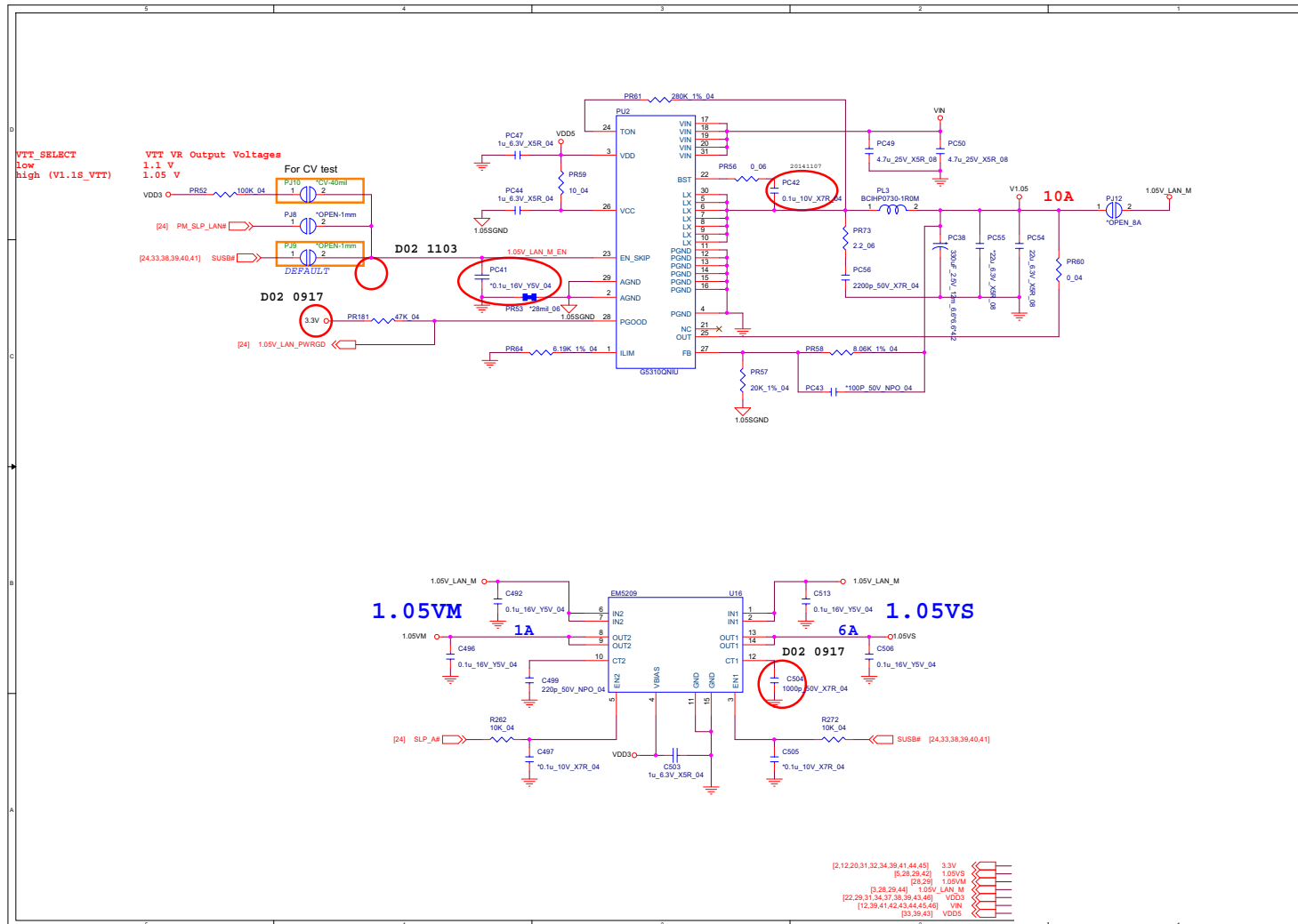
B.Schematic Diagrams

# System Power

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System Power



# 1.05VS, 1.05VM, 1.05V\_LAN\_M

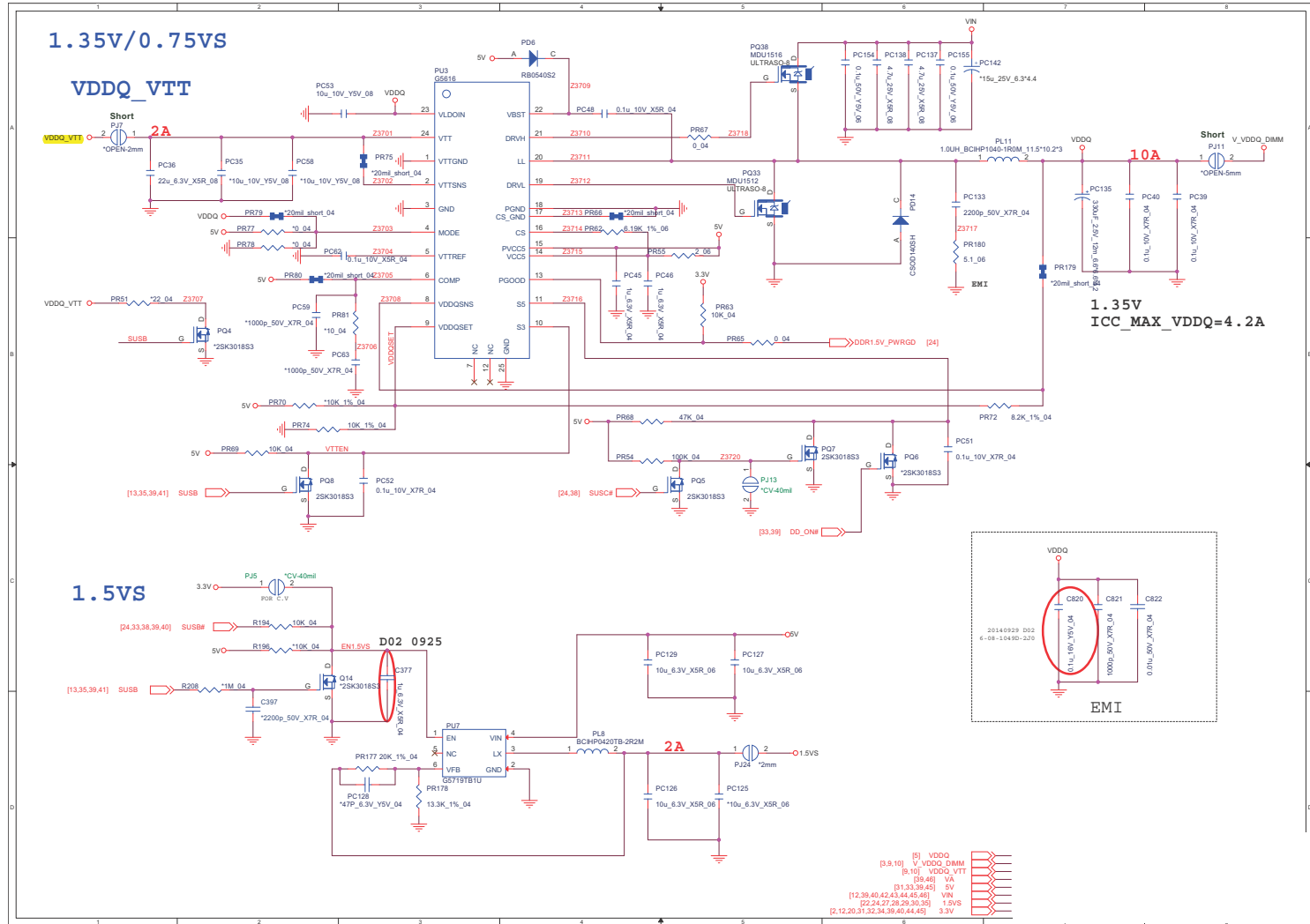


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1.05VS, 1.05VM,  
1.05V\_LAN\_M

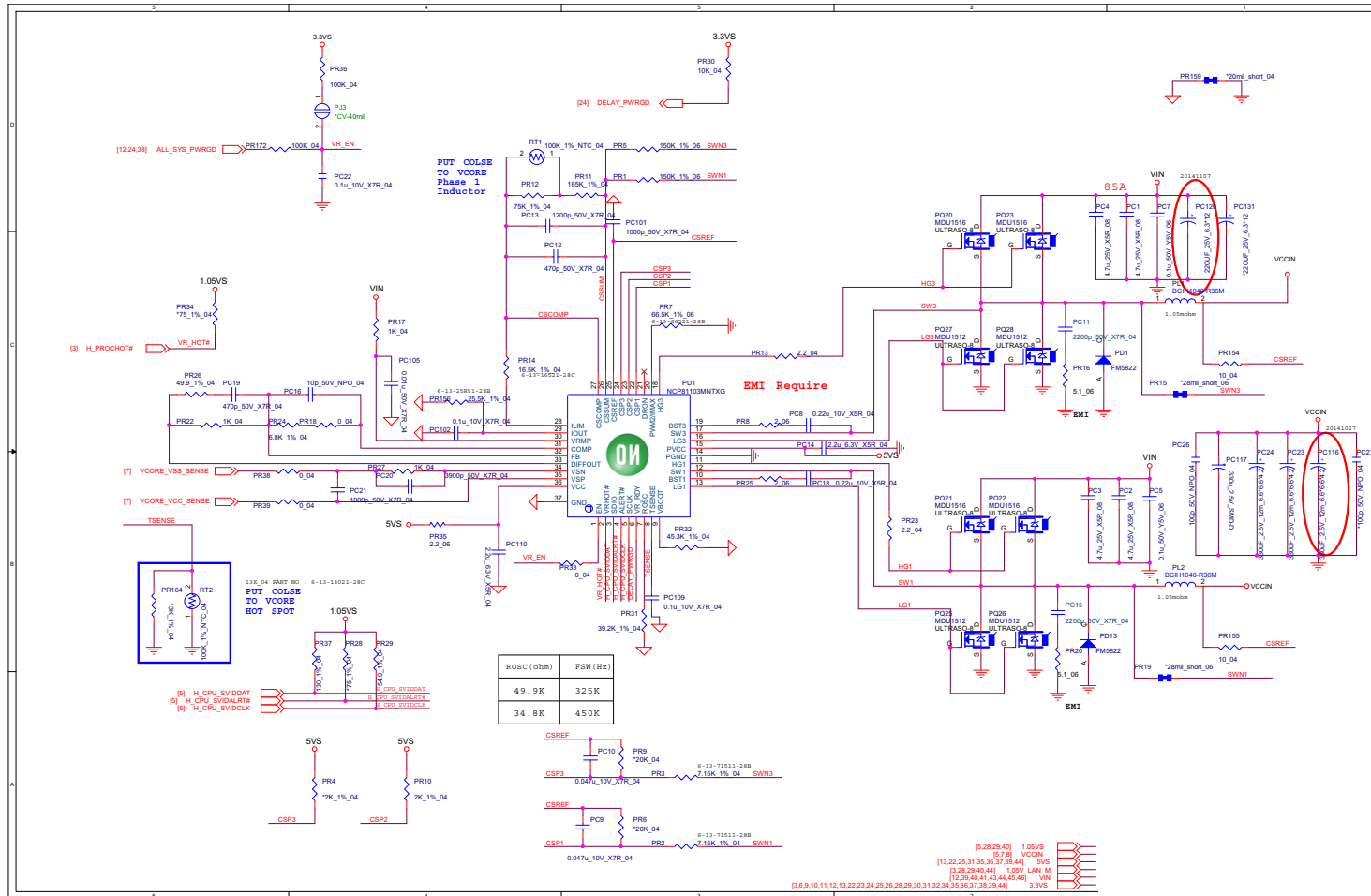
Schematic Diagrams

# DRAM Power, 1.5VS

Sheet 41 of 55  
DRAM Power,  
1.5VS



# V-Core



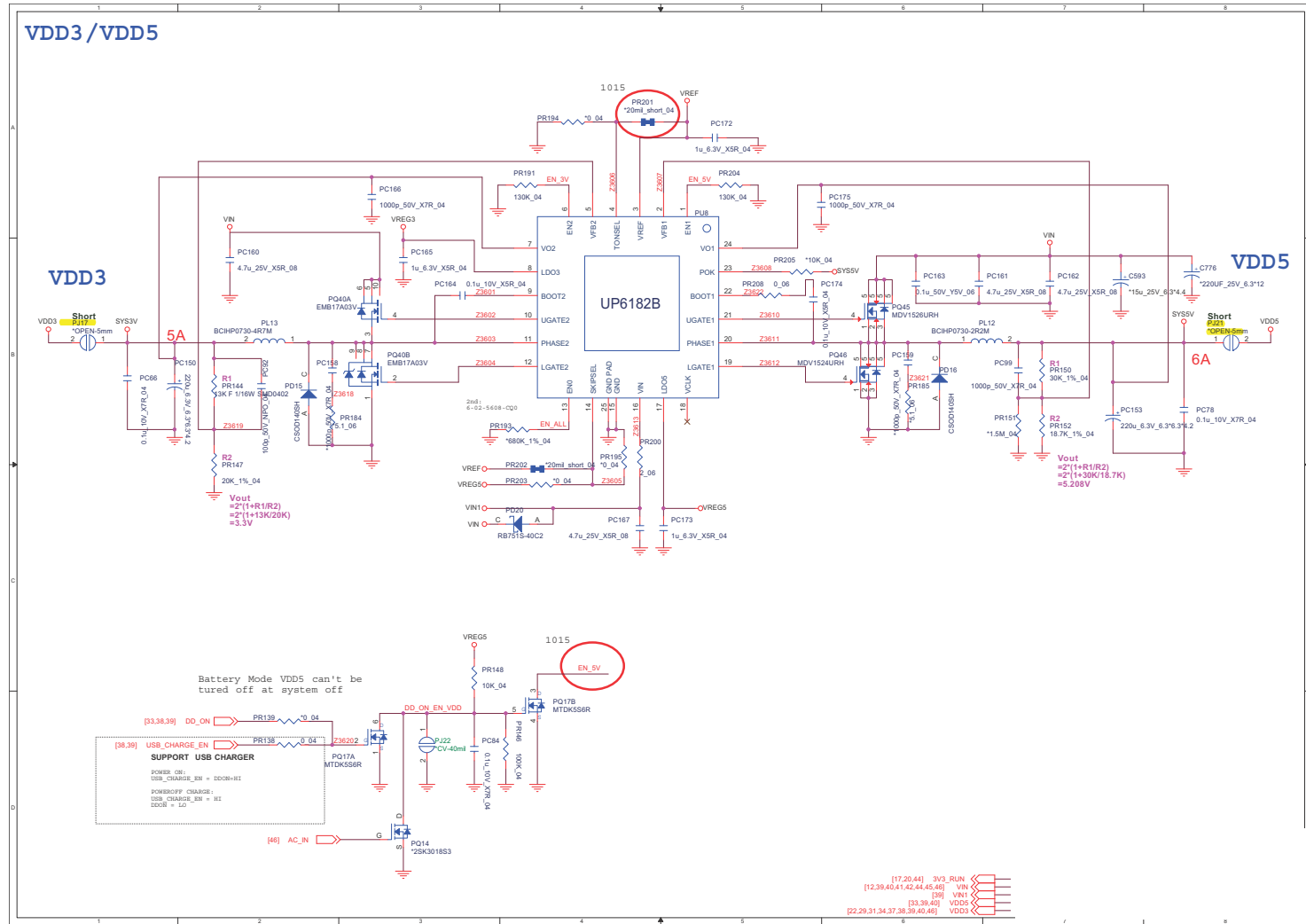
Sheet 42 of 55  
V-Core

B.Schematic Diagrams

Schematic Diagrams

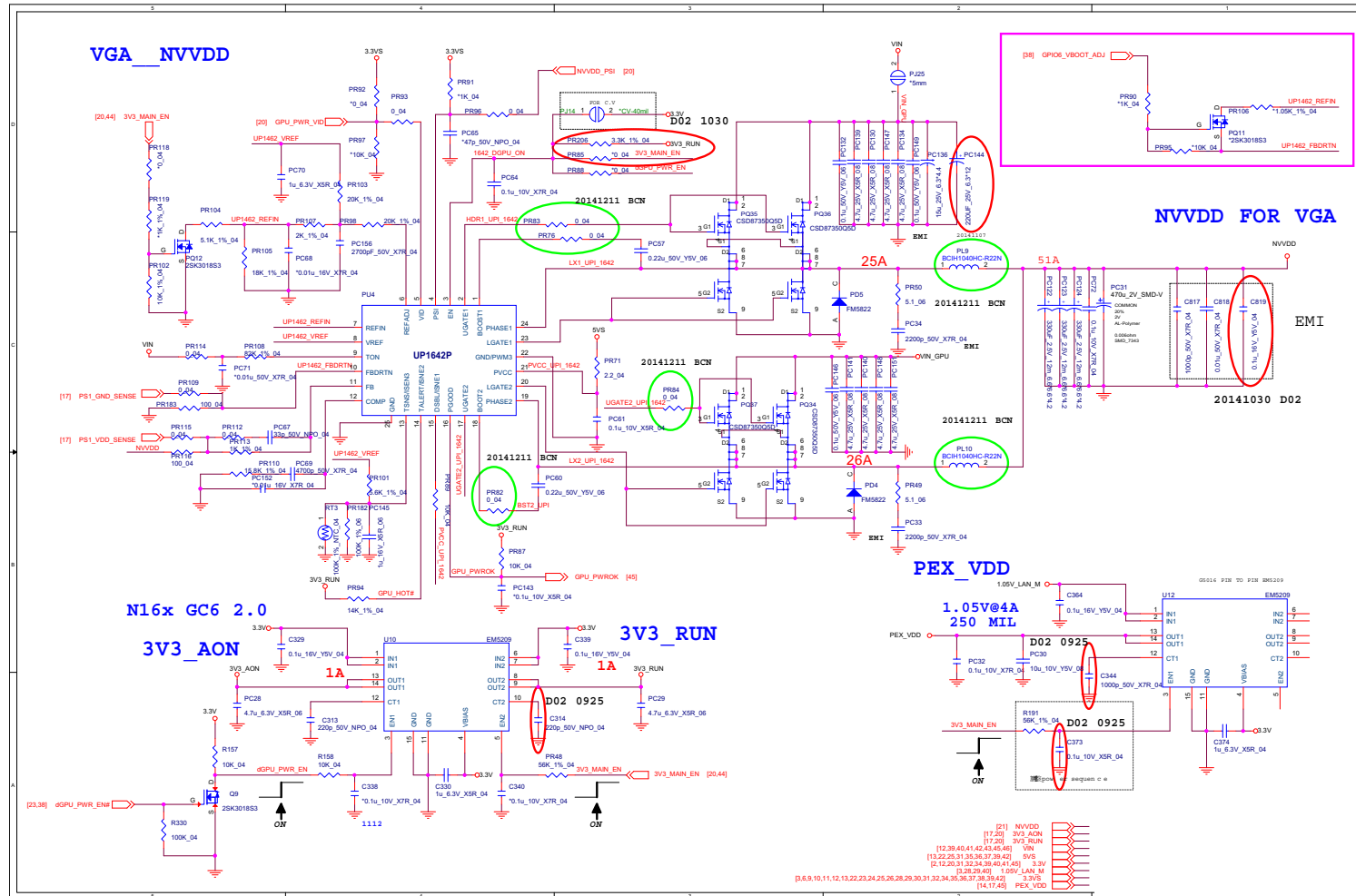
VDD3, VDD5

Sheet 43 of 55  
VDD3, VDD5





# N16P-GX, NVVDD\_PEX\_VDD

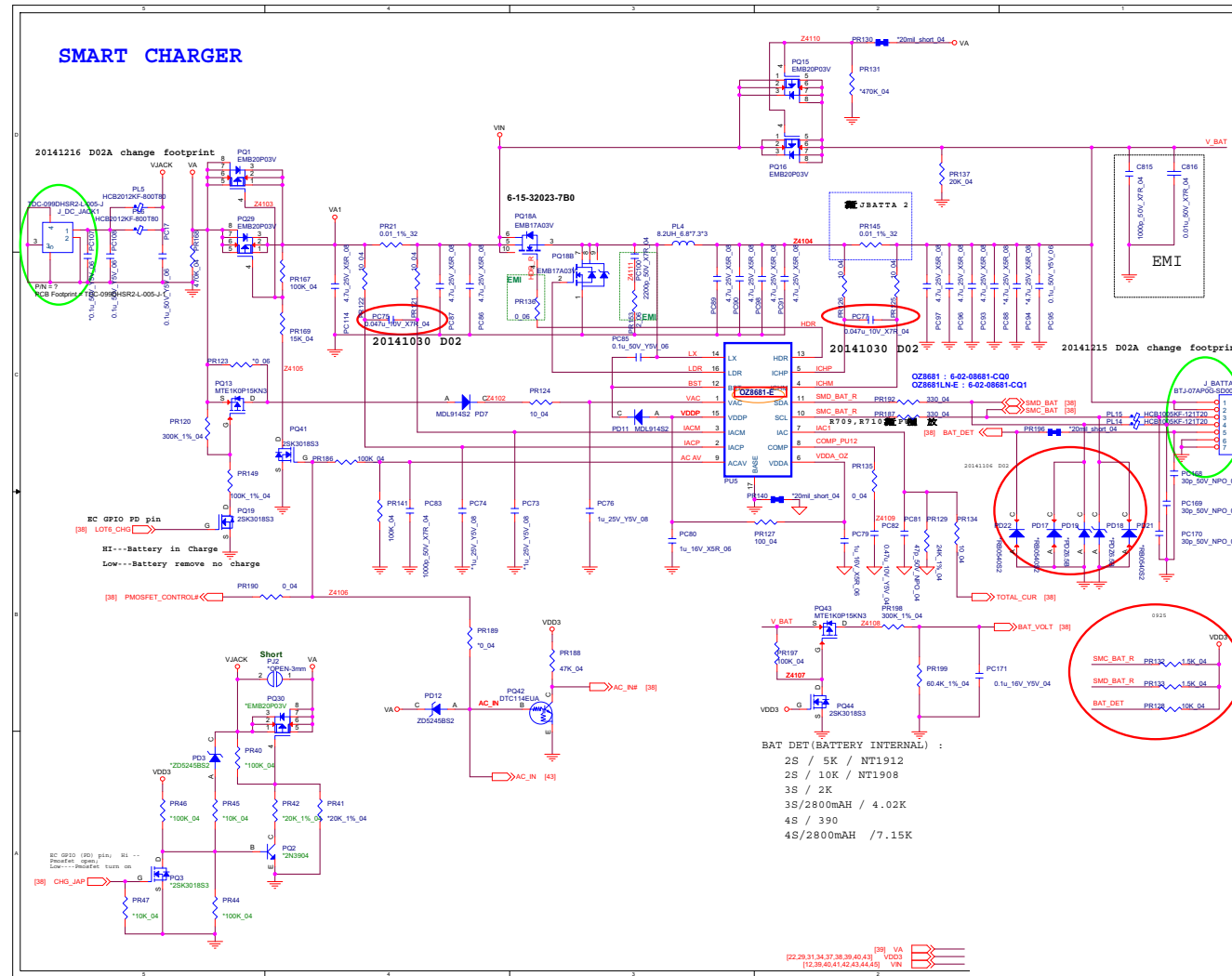


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N16P-GX,  
NVVDD\_PEX\_VDD

B.Schematic Diagrams



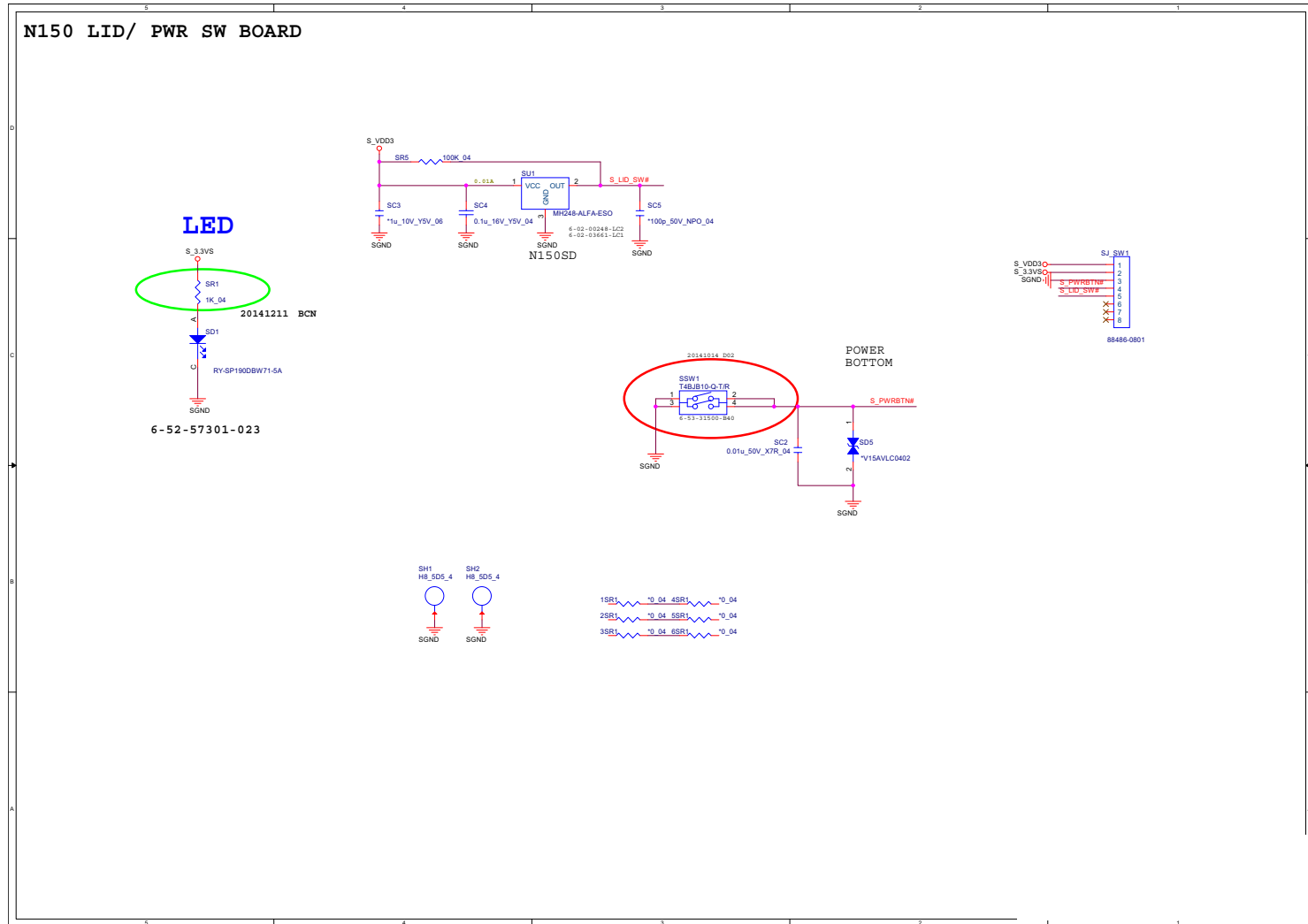
# AC-In, Charger



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AC-In, Charger

B.Schematic Diagrams

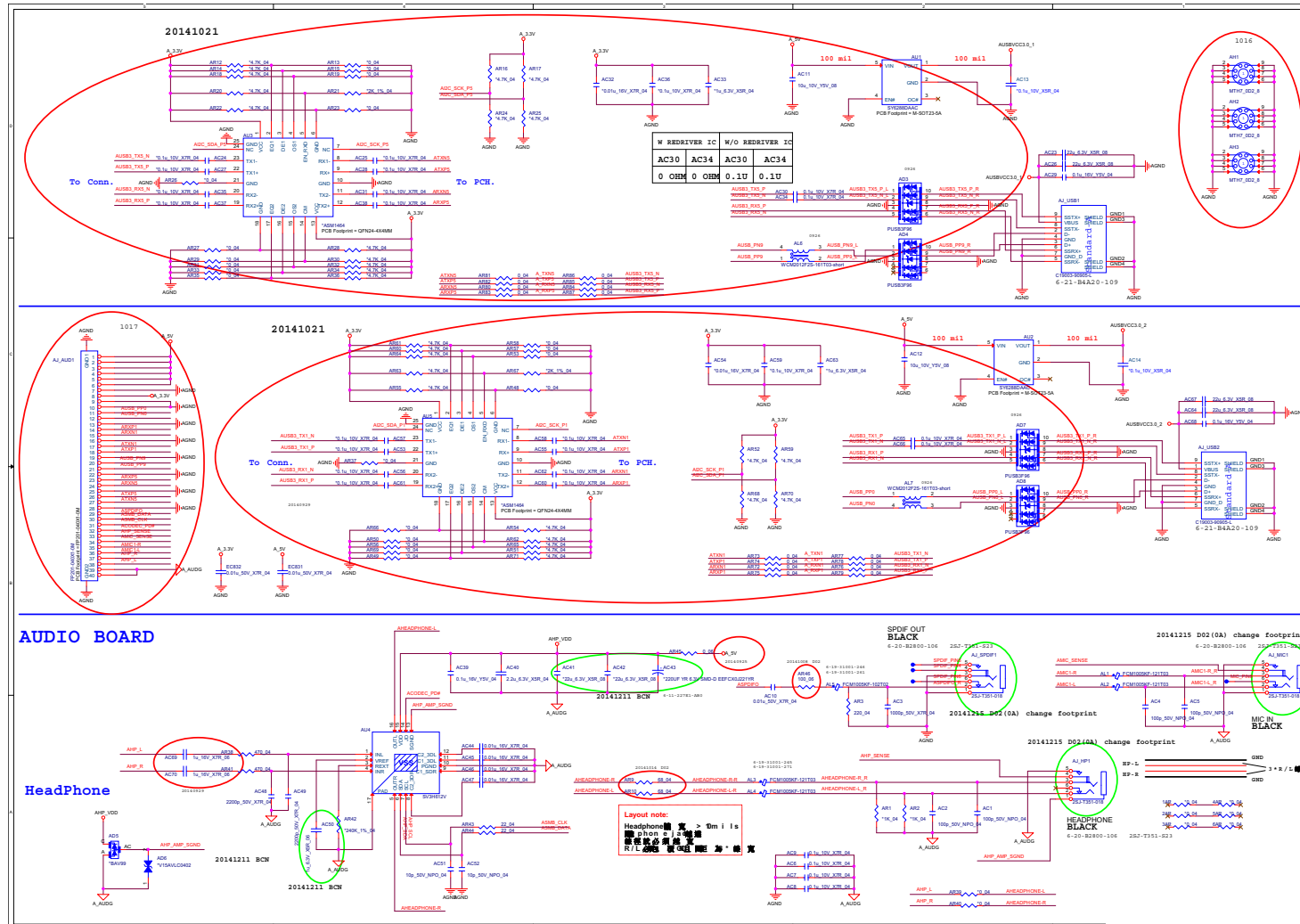
# LED / PWR SW Board



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N150 LED / PWR  
SW Board

B.Schematic Diagrams

# Audio Board

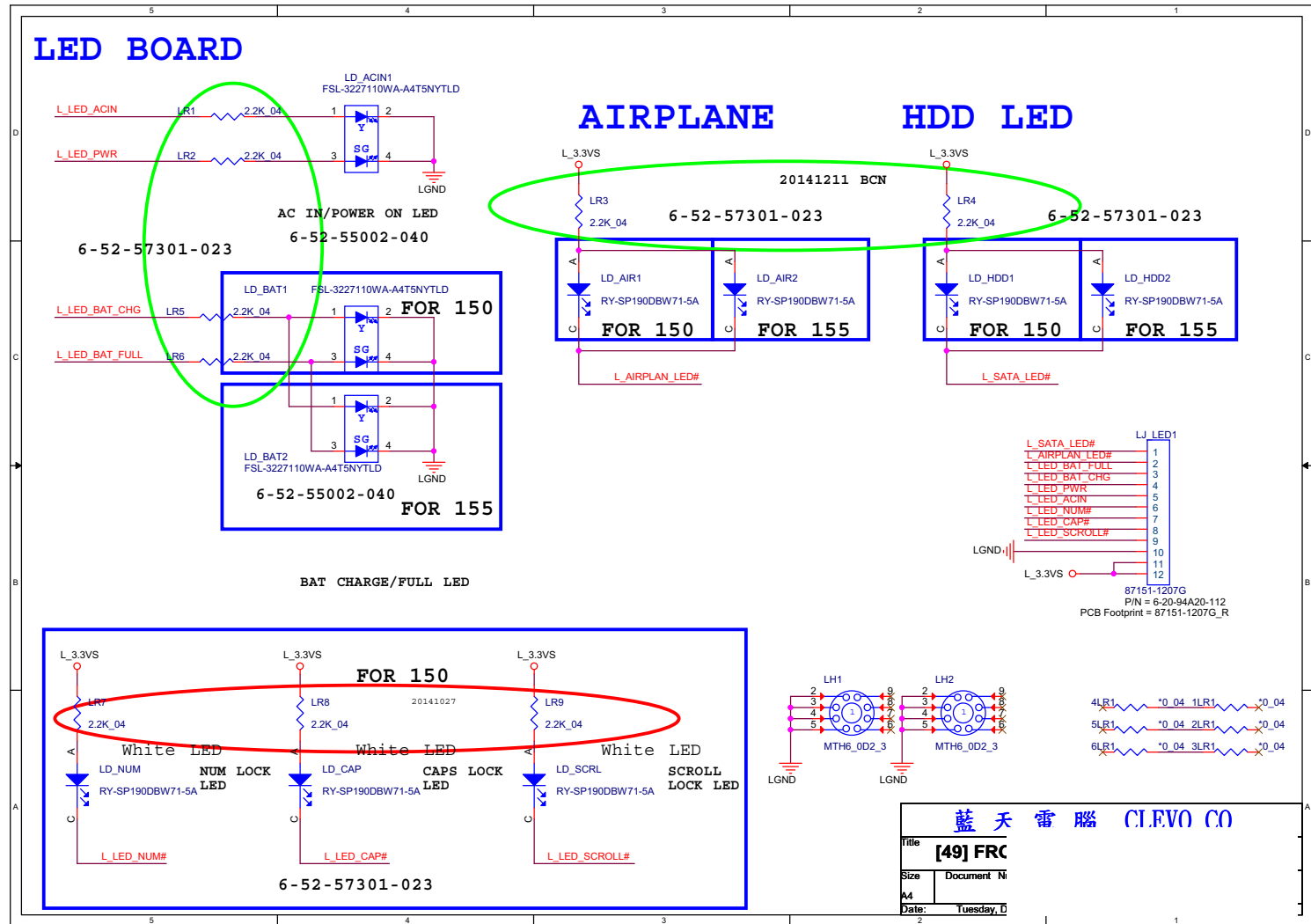


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Audio Board

B.Schematic Diagrams

# Front LED Board

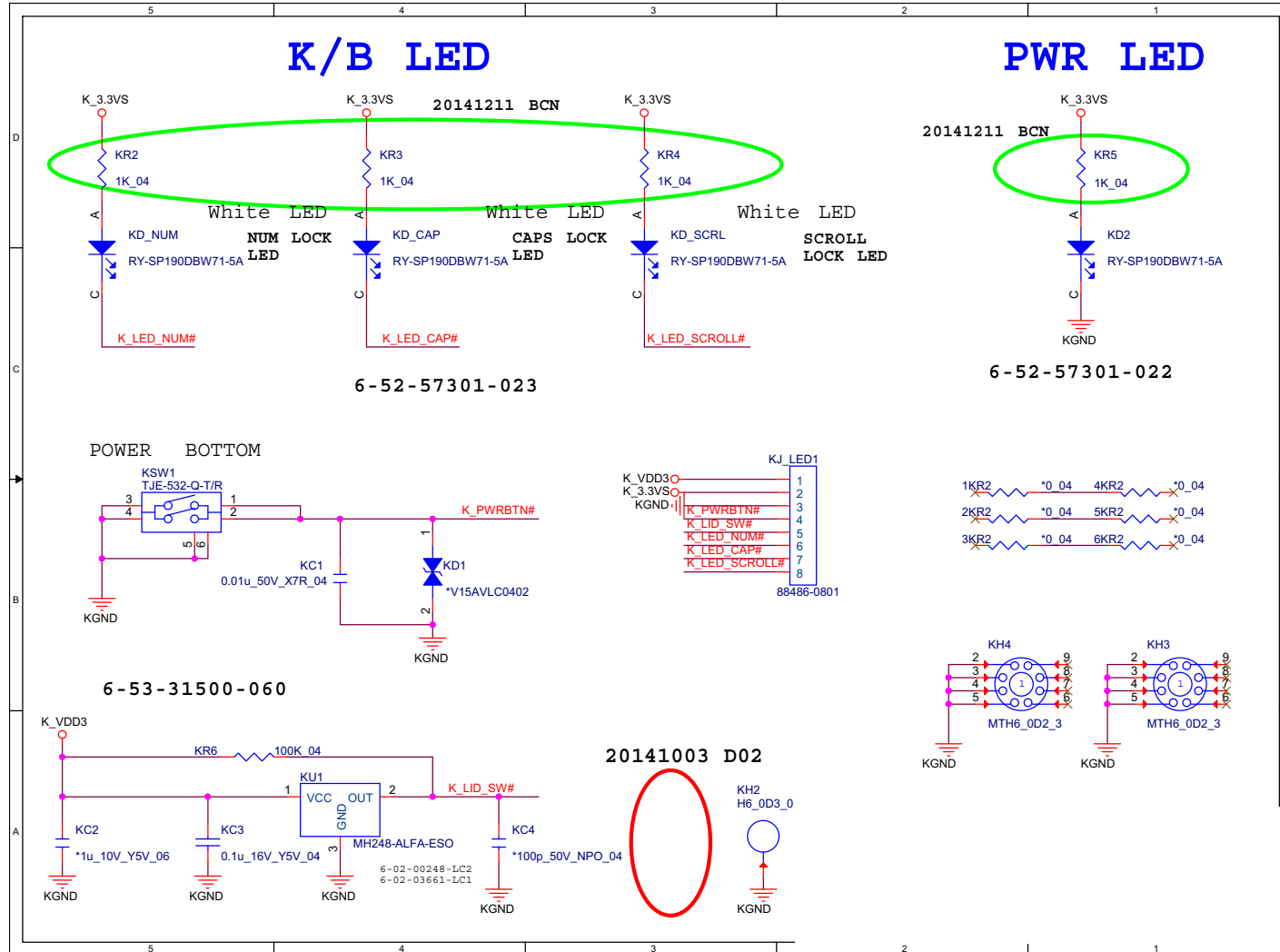
Sheet 49 of 55  
Front LED Board





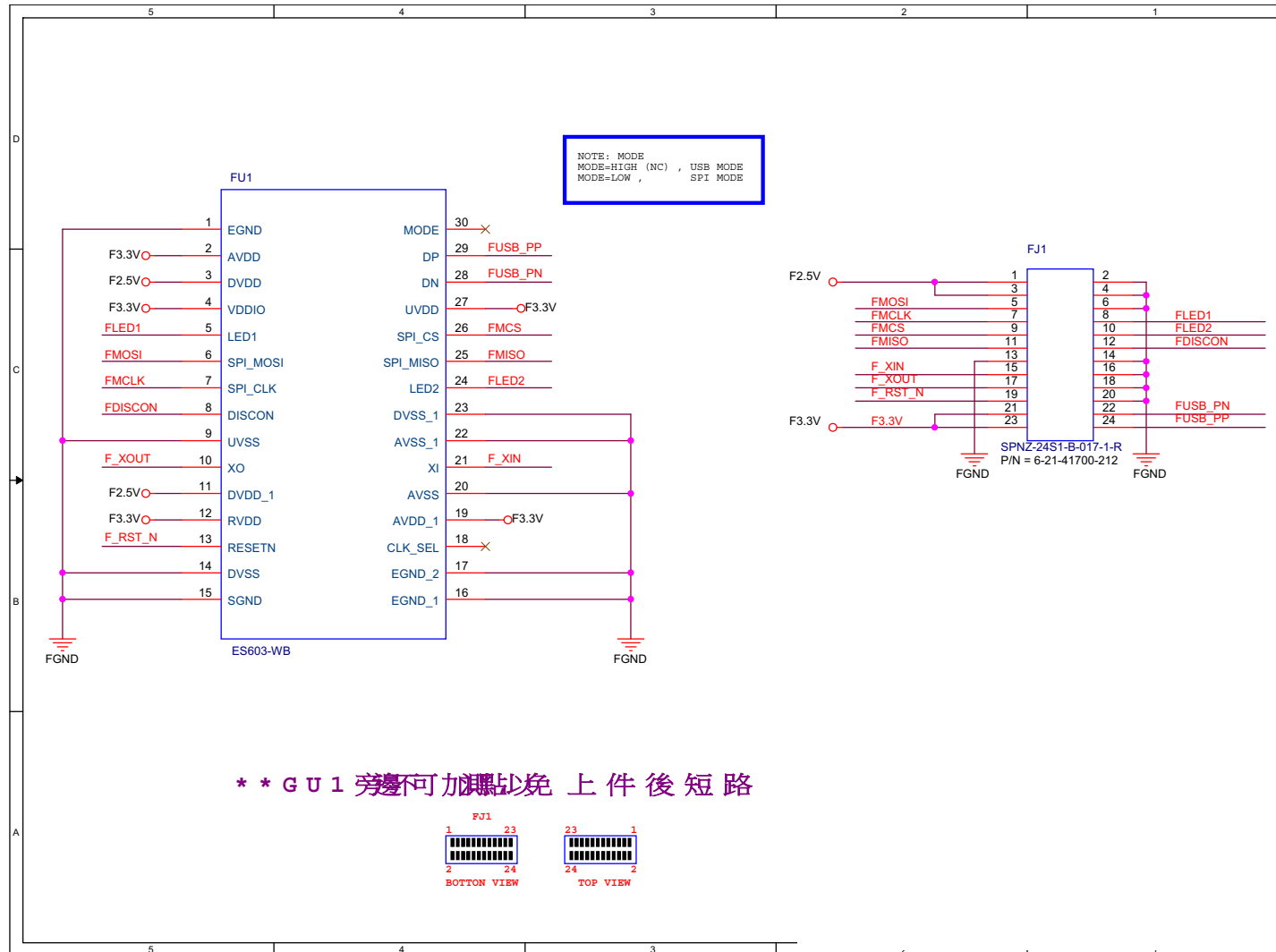
# LED, PWR SW Board

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N155 LED, PWR SW Board



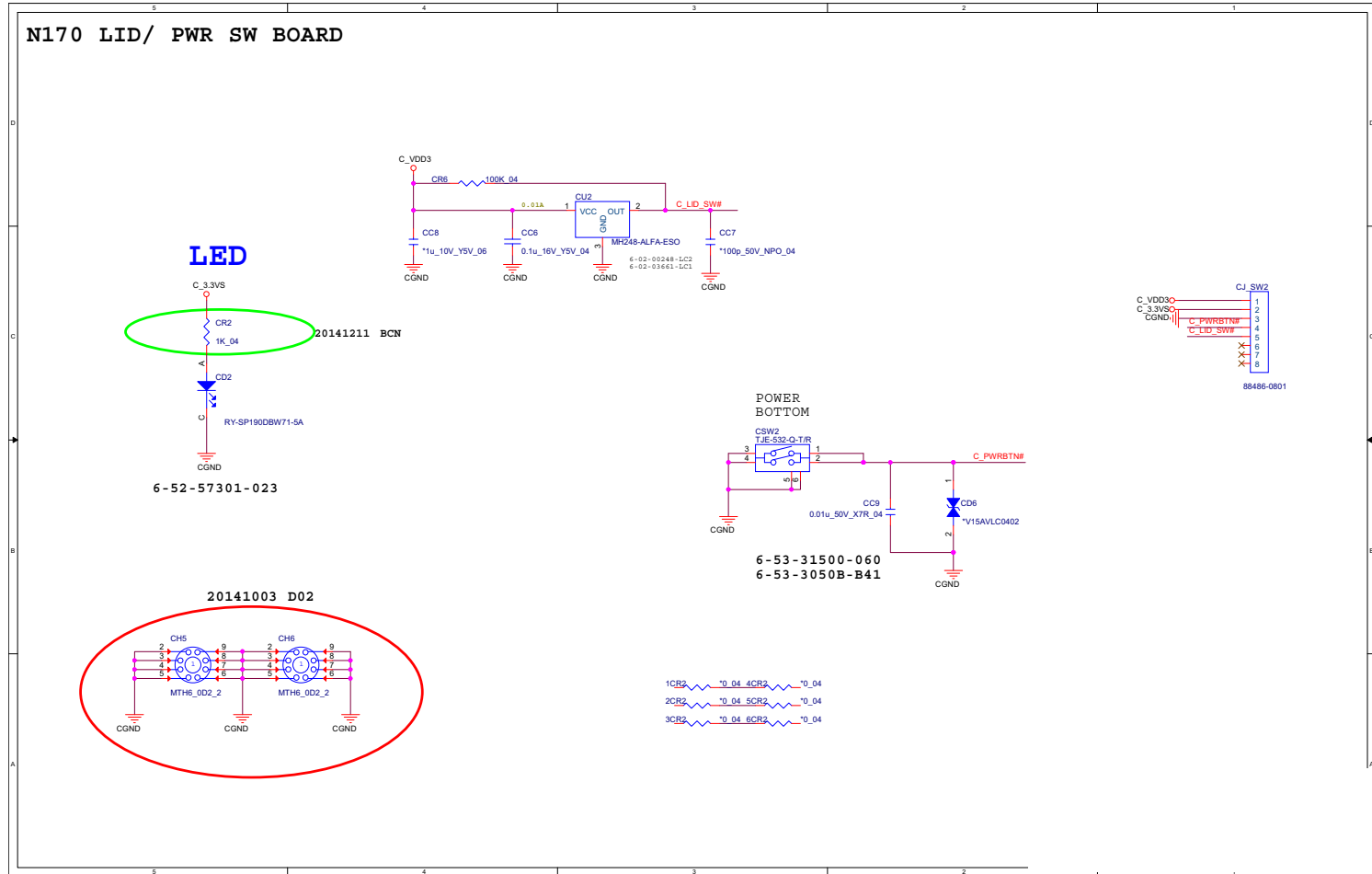


# Finger Print Board



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Finger Print Board

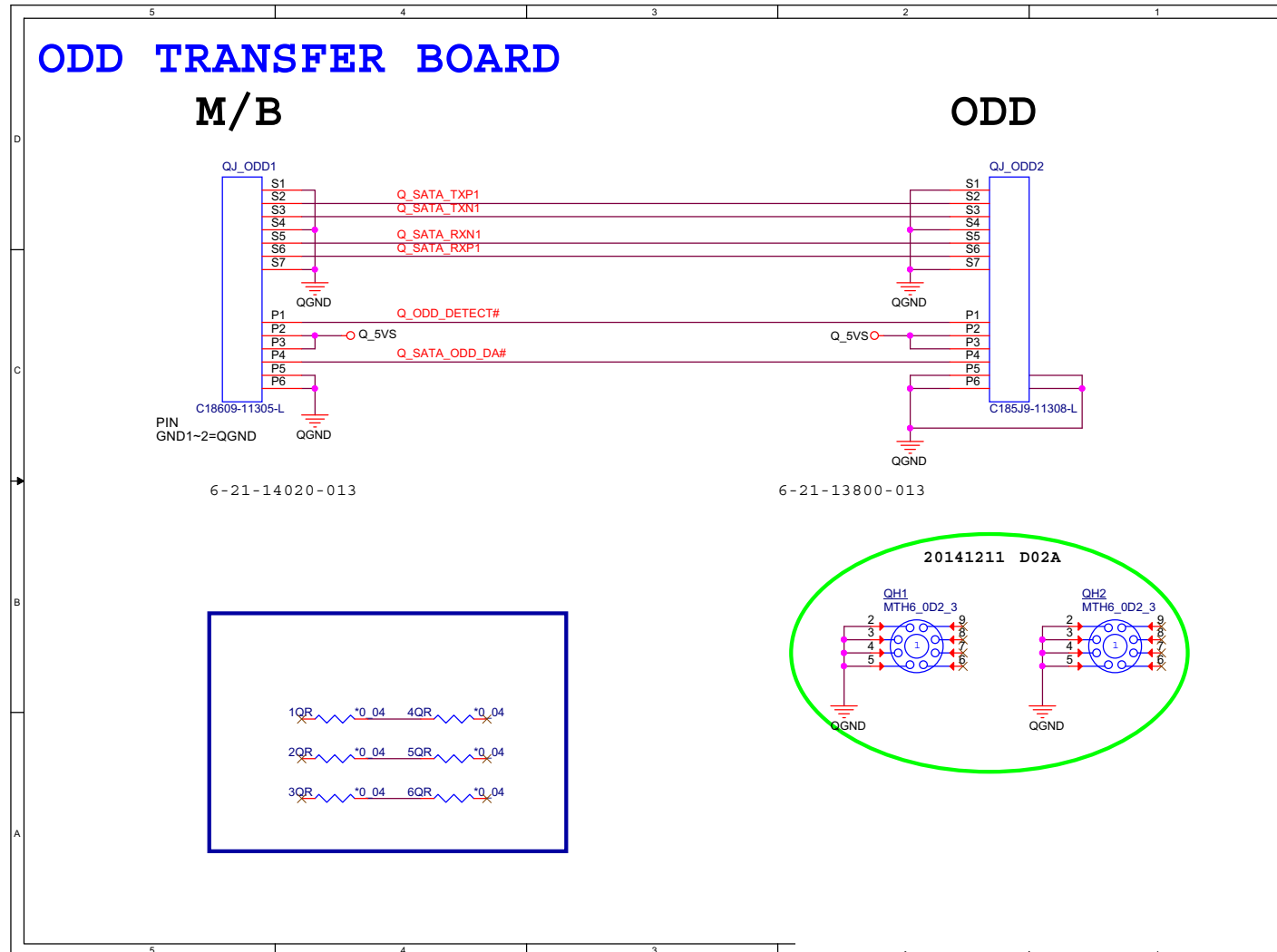
# LED / PWR SW Board



Sheet 53 of 55  
N170 LED / PWR  
SW Board

B.Schematic Diagrams

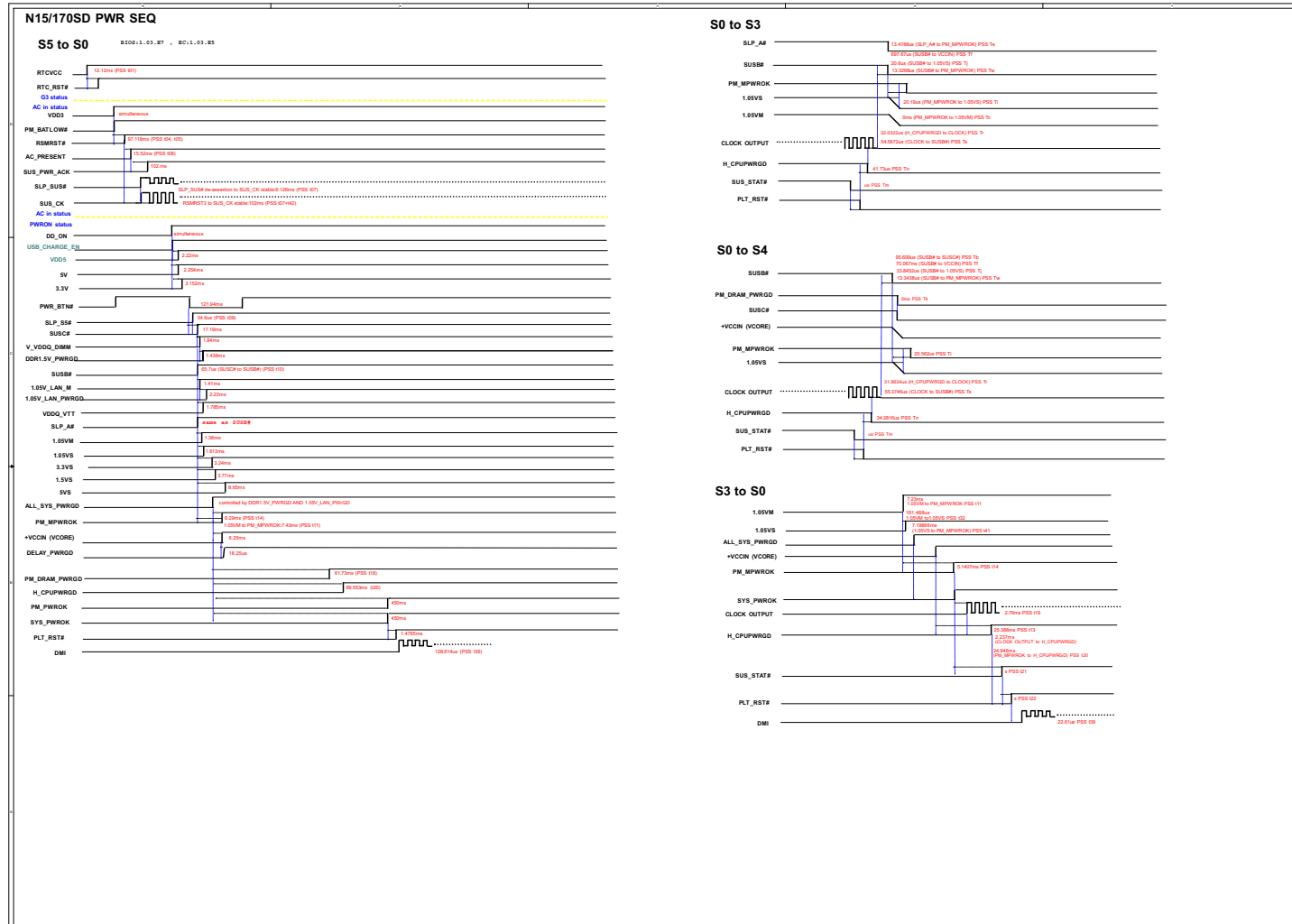
# ODD Ext. Board



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N170 ODD Ext.  
Board

# Power Sequence

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

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

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

## Set the computer to boot from the external drive

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



### BIOS Version

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

You should only download BIOS versions that are **V1.00.XX or higher** as appropriate for your computer model.

Note that BIOS versions are not backward compatible and therefore **you may not downgrade your BIOS to an older version** after upgrading to a later version (e.g if you upgrade a BIOS to ver 1.00.05, you **MAY NOT** then go back and flash the BIOS to ver 1.00.04).

## BIOS Update

---

### Use the flash tools to update the BIOS

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

**fsX:\> Flash.nsh**

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.