

# SERVICE MANUAL

NH50RC / NH57RC

*notebook*





**Notebook Computer**

**NH50RC / NH57RC**

**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 *NH50RC* / *NH57RC* 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

## Preface

---

### 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, 9.23A (**180** 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.

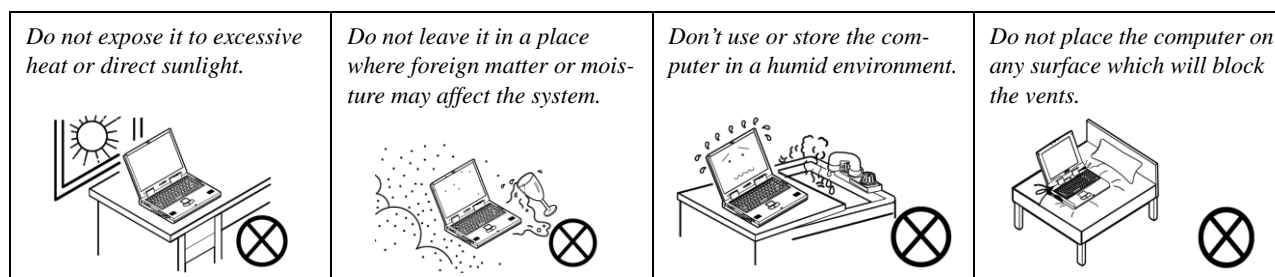
## Instructions for Care and Operation

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

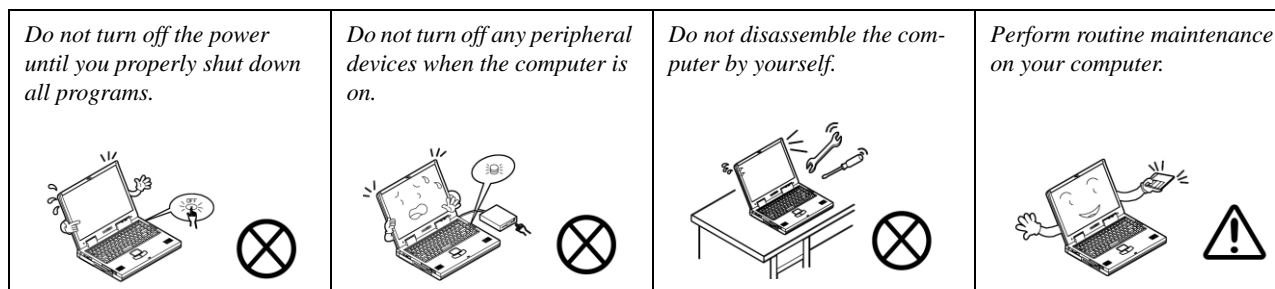
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



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.

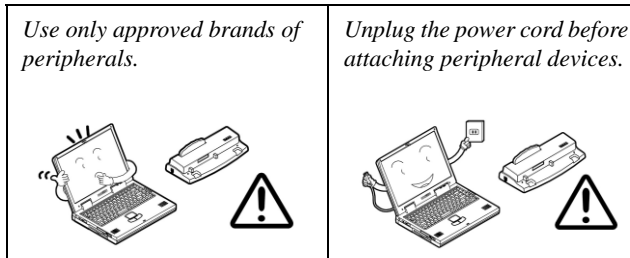


3. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.



## Preface

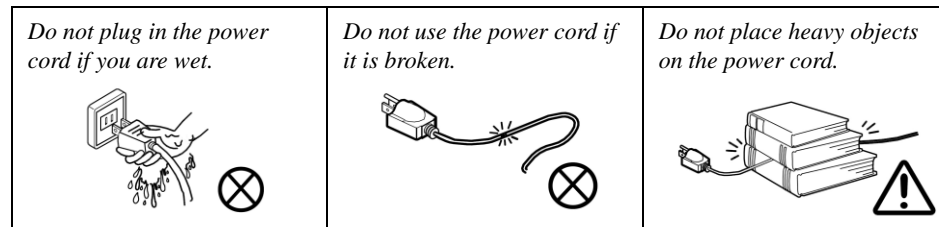
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



## 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

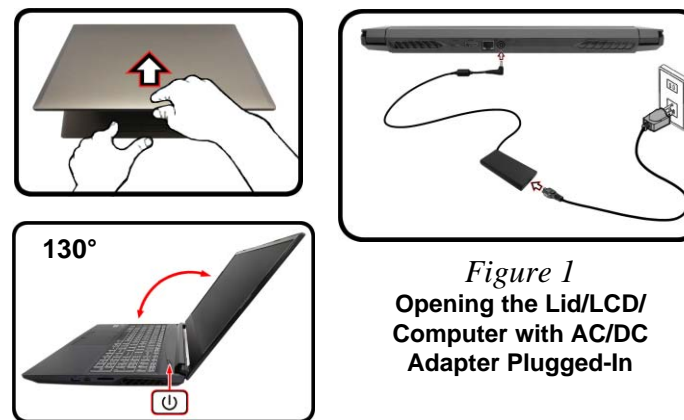
You may also need to consult the following manual for additional information:

### 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. **When first setting up the computer use the following procedure** (as to safeguard the computer during shipping, the battery will be locked to not power the system until first connected to the AC/DC adapter and initially set up as below):
  - Attach the AC/DC adapter cord to the DC-In jack on 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 and **leave it there for 6 seconds or longer**.
  - Remove the adapter cord from the computer's DC-In jack, and then plug it back in again; the battery will now be unlocked.
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 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 **NH50RC / NH57RC** 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 10*, 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 **NH50RC / NH57RC** series notebook is designed to be upgradeable. See [Disassembly on page 2 - 1](#) for a detailed description of the upgrade procedures for each specific component. Please take note of the warning and safety information indicated by the “” symbol.

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

## Introduction

# Specifications



### Latest Specification Information

The specifications listed here are correct at the time of sending them to the press. Certain items (particularly processor types/speeds) may be changed, delayed or updated due to the manufacturer's release schedule. Check with your service center for more details.



### CPU

The CPU is not a user serviceable part. Accessing the CPU in any way may violate your warranty.

## Processor Options

### Intel® Core™ i7 Processor

#### i7-9750H (2.60GHz)

12MB Smart Cache, 14nm, DDR4-2666MHz, TDP 45W

### Intel® Core™ i5 Processor

#### i5-9300H (2.40GHz)

8MB Smart Cache, 14nm, DDR4-2666MHz, TDP 45W

## Core Logic

Intel® HM370 Express Chipset

## BIOS

128Mb SPI Flash ROM

INSYDE BIOS

## Memory

Dual Channel DDR4

Two 260 Pin SO-DIMM Sockets

Supporting **DDR4 2666MHz** Memory Modules

Memory Expandable from **8GB (minimum)** up to **64GB (maximum)**

Compatible with 4GB, 8GB, 16GB or 32GB Modules

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

## Storage

**One** changeable 2.5" **7.0mm (h)** **SATA** (Serial) Hard Disk Drive/Solid State Drive (SSD)

(**Factory Option**) **One** M.2 2280 **SATA** Solid State Drive (SSD)

Or

(**Factory Option**) **Two PCIe Gen3 x4** M.2 2280 SSDs supporting RAID level 0/1

## Audio

High Definition Audio Compliant Interface

Sound Blaster™ Cinema 5

Built-In Array Microphone

Two Speakers

## LCD Options

15.6" (39.62cm), 16:9, FHD (1920x1080)

## Video Adapter

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

**Supports Microsoft Hybrid Graphics**

**Intel Integrated GPU**

**Intel® UHD Graphics 630**

Dynamic Frequency

Intel Dynamic Video Memory Technology

Microsoft DirectX®12 Compatible

**NVIDIA® Discrete GPU**

**NVIDIA® GeForce GTX 1660Ti**

**6GB** GDDR6 Video RAM on board

Microsoft DirectX® 12 Compatible

## Security

Security (Kensington® Type) Lock Slot

BIOS Password

Intel® PTT for Systems Without TPM Hardware

(**Factory Option**) TPM 2.0

## Keyboard

Full-size **Multi-Color** LED Keyboard (with Numeric Keypad)

Or

(**Factory Option**) Full Size **Full Color** "Per Key" LED Keyboard (with Numeric Keypad)

**Pointing Device**

Built-in Touchpad (with Microsoft PTP Multi Gesture & Scrolling Functionality)

**Card Reader**

Embedded Multi-In-1 Card Reader  
MMC (MultiMedia Card) / RS MMC  
SD (Secure Digital) / Mini SD / SDHC/ SDXC

**M.2 Slots**

Slot 1 for **Combo WLAN and Bluetooth** Module  
Slot 2 for **SATA or PCIe Gen3 x4 SSD**  
Slot 3 for **PCIe Gen3 x4 SSD**

**Interface**

One DisplayPort 1.3 over USB 3.1 Gen 2 Type-C Port  
One USB 3.1 Gen 2 Type-A Port  
One USB 3.0 (USB 3.1 Gen 1) Type-A Port  
One USB 2.0 Port  
One Mini DisplayPort 1.2  
One HDMI-Out Port  
One Microphone-In Jack  
One 2- In-1 Audio Jack (Headphone and Microphone)  
One RJ-45 LAN Jack  
One DC-In Jack

**USB 3.1 Gen 2**

Note that when a single USB device is plugged in to a USB 3.1 Gen 2 port the data transfer speed will be 10Gbps, however when two devices are plugged in to both USB 3.1 Gen 2 ports, this bandwidth will be shared between the ports.

**Communication**

Built-In 10/100/1000Mb Base-TX Ethernet LAN  
1.0M HD PC Camera Module

**WLAN/ Bluetooth M.2 Modules:**

(**Factory Option**) Intel® Dual Band Wireless-AC 9260 Wireless LAN (**802.11ac**) + Bluetooth  
(**Factory Option**) Intel® Dual Band Wireless-AC 9560 Wireless LAN (**802.11ac**) + Bluetooth  
(**Factory Option**) Intel® Dual Band Wireless-AC 9462 Wireless LAN (**802.11ac**) + Bluetooth  
(**Factory Option**) Qualcomm® Atheros Killer™ Wireless-AC 1550i Wireless LAN (**802.11ac**) + Bluetooth

**Environmental Spec****Temperature**

Operating: 5°C - 35°C  
Non-Operating: -20°C - 60°C

**Relative Humidity**

Operating: 20% - 80%  
Non-Operating: 10% - 90%

**Power**

Removable 4 Cell Smart Lithium-Ion Battery Pack, 48.96WH

Full Range AC/DC Adapter  
AC Input: 100 - 240V, 50 - 60Hz  
DC Output: 19.5V, 9.23A (**180W**)

**Dimensions & Weight**

361mm (w) \* 258mm (d) \* 27.9mm (h)  
**2.2kg** (Barebone with 48.96WH 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. Built-In Array Microphone
4. LCD
5. Power Button
6. Keyboard
7. Touchpad & Buttons

## External Locator - Top View with LCD Panel Open



## External Locator - Front & Right Side Views

*Figure 2*  
**Front View**

1. LED Indicator

FRONT VIEW



RIGHT SIDE VIEW



*Figure 3*  
**Right Side View**

1. USB 3.1 Gen 2 Type-A Port
2. Mini Display Port 1.2
3. Multi-in-1 Card Reader
4. Vent

## Introduction

### External Locator - Left Side & Rear View

*Figure 4*

#### Left Side View

1. Security Lock Slot
2. Vent
3. USB 3.0 (USB 3.1 Gen 1) Type-A Port
4. USB 2.0 Port
5. Microphone-In Jack
6. 2-In-1 Audio Jack (Headphone and Microphone)

LEFT SIDE VIEW



REAR VIEW

*Figure 5*

#### Rear View

1. Vent
2. DisplayPort 1.3 over USB 3.1 Gen 2 Type-C Port
3. HDMI-Out Port
4. RJ-45 LAN Jack
5. DC-In Jack



*Figure 6*  
**Bottom View**

- 
- The image shows the bottom of a Clevo N15000 laptop. At the top, there is a label with technical specifications and regulatory information. Below the label, there are two small rectangular vents. The main body of the laptop is covered with a large, complex ventilation system consisting of multiple grilles and a central fan area. Blue circles with numbers 1, 2, and 3 are overlaid on the image to identify specific components: 1 points to the power button area, 2 points to the side ventilation grilles, and 3 points to the corner ventilation grilles.



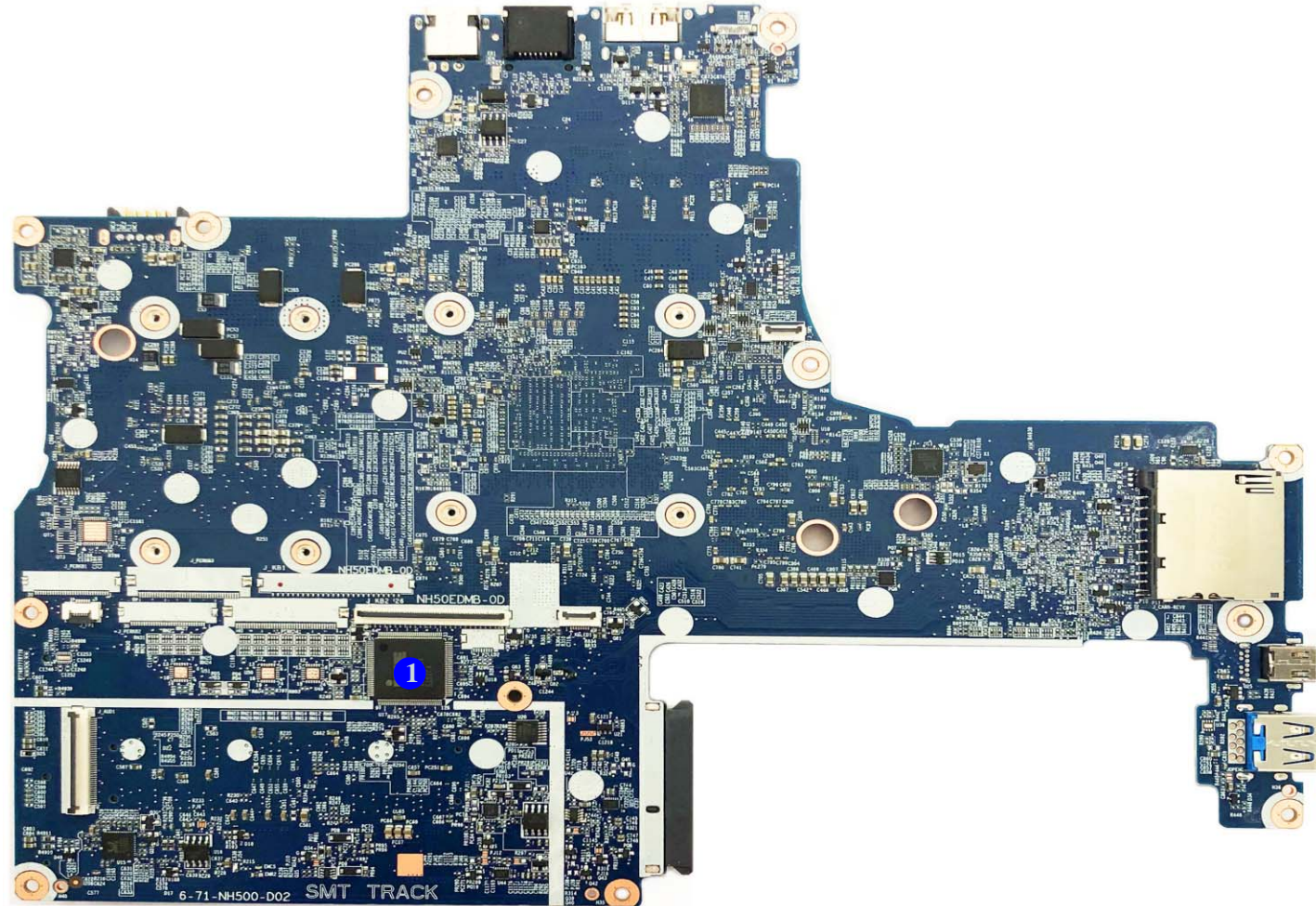
## Overheating

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

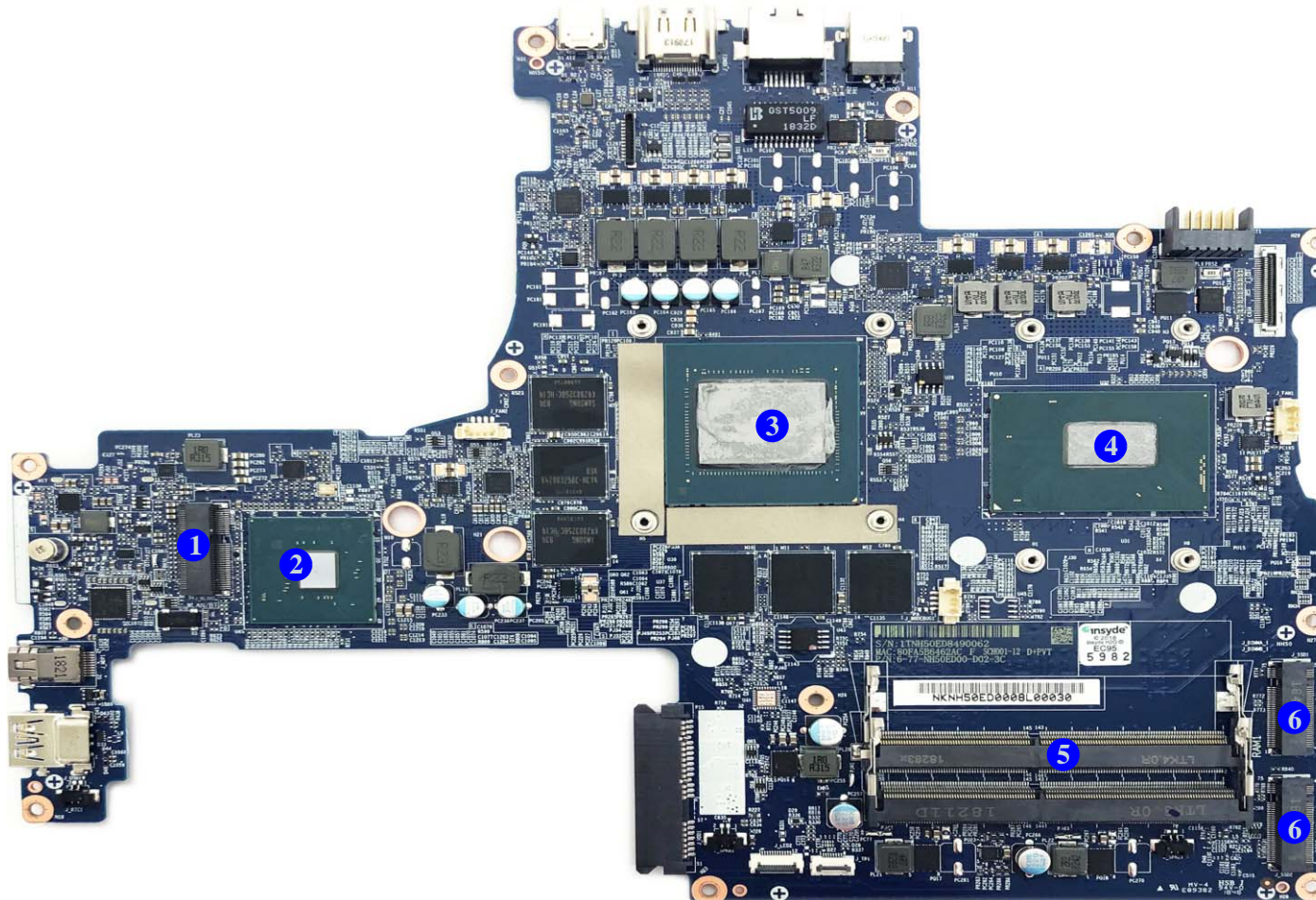
*Figure 7*  
**Mainboard Top  
Key Parts**

1. KBC-ITE IT8587

## Mainboard Overview - Top (Key Parts)



## Mainboard Overview - Bottom (Key Parts)



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

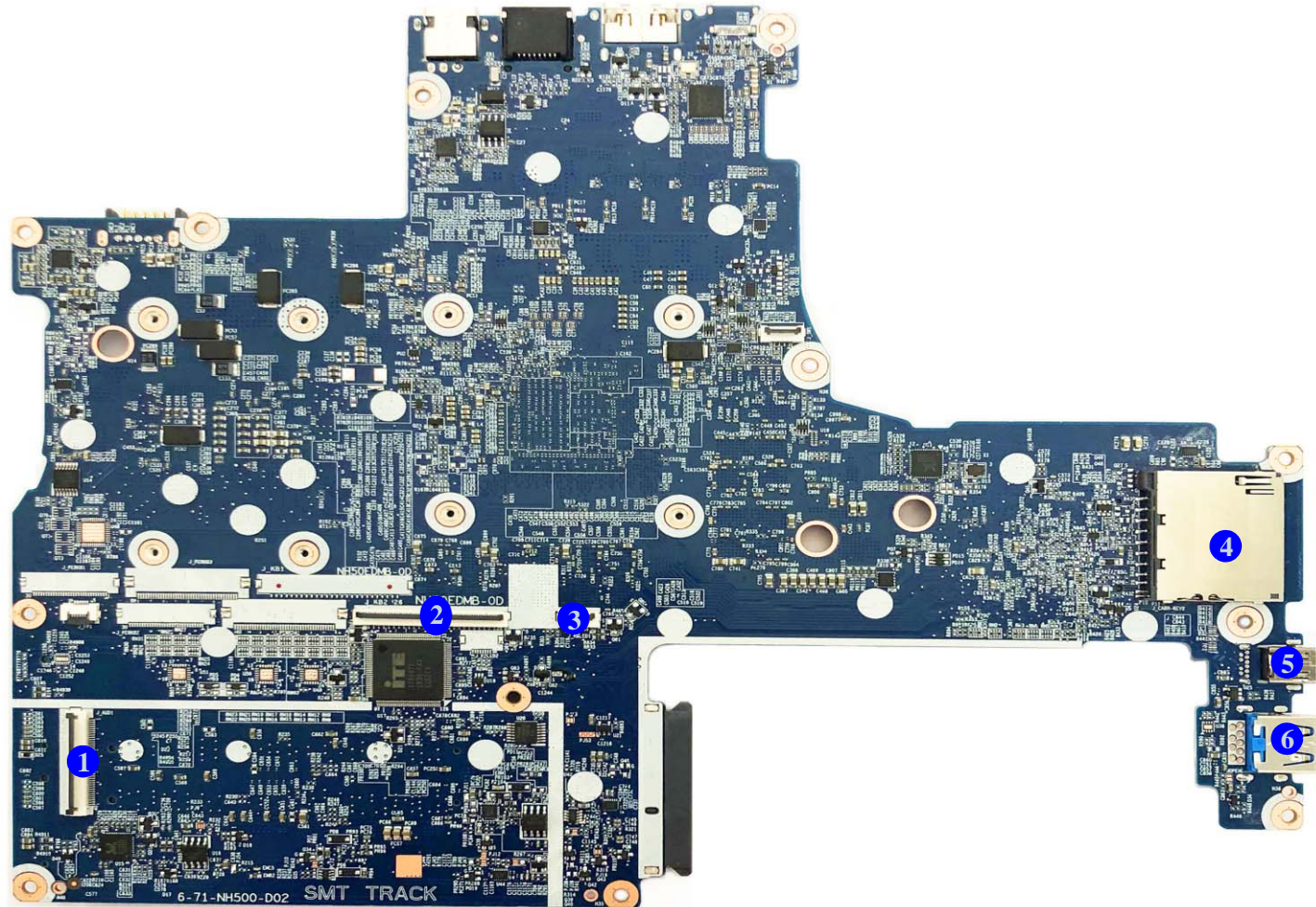
1. Mini-Card Connector (WLAN Module)
2. PCH
3. GPU
4. CPU
5. Memory Slots (DDR4 SO-DIMM)
6. M.2-Card Connector (SSD Module)

## Introduction

*Figure 9*  
**Mainboard Top  
Connectors**

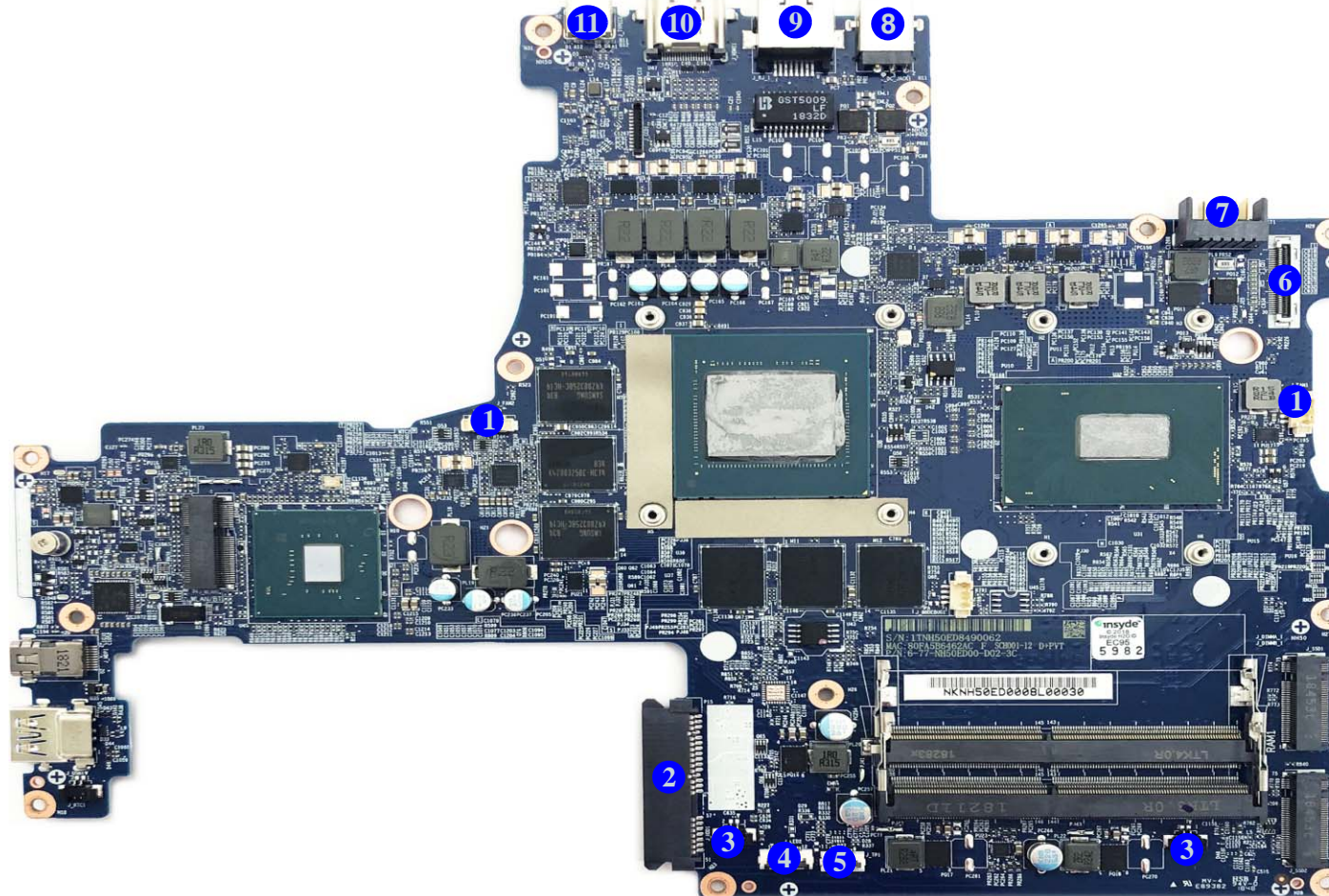
1. USB Connector
2. Keyboard Cable Connector
3. KB LED Connector
4. Multi-in-1 Card Reader
5. Mini Display Port
6. USB 3.1 Gen 2 Type-A Port

## Mainboard Overview - Top (Connectors)



*Figure 10*  
**Mainboard Bottom  
Connectors**

1. Fan Connector
2. HDD Connector
3. Speaker Connector
4. LED Connector
5. Touchpad Connector
6. LCD Connector
7. Battery Connector
8. DC-In Jack
9. RJ-45 LAN Jack
10. HDMI-Out Port
11. DisplayPort 1.3 over USB 3.1 Gen 2 Type-C Port






# Chapter 2: Disassembly



## Overview

This chapter provides step-by-step instructions for disassembling the *NH50RC* / *NH57RC* 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.

  
Information

Warning

## 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-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.

## 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.

**(For Computer Models Supplied with Light Blue Cleaning Cloth)** Some computer models in this series come supplied with a light blue cleaning cloth. To clean the computer case with this cloth follow the instructions below.

- Power off the computer and peripherals.
- Disconnect the AC/DC adapter from the computer.
- Use a little water to dampen the cloth slightly.
- Clean the computer case with the cloth.
- Dry the computer with a dry cloth, or allow it time to dry before turning on.
- Reconnect the AC/DC adapter and turn the computer on.



### 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 Keyboard:

1. Remove the keyboard *page 2 - 6*

### To remove the HDD:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 7*

### To remove the System Memory:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 7*
3. Remove the system memory *page 2 - 9*

### To remove the M.2 SSD:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 7*
3. Remove the SSD *page 2 - 10*

### To remove the Wireless LAN Module:

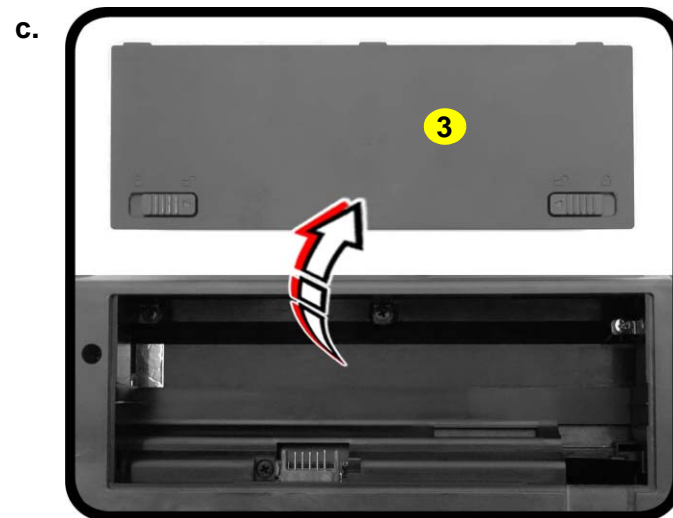
1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 7*
3. Remove the WLAN *page 2 - 11*

### To remove the CCD Module:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 7*
3. Remove the CCD module *page 2 - 13*

## 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.
4. While holding the latch **2**, lift the battery **3** (*Figure 1b*) out of the compartment (*Figure 1c*).



*Figure 1*  
**Battery Removal**

- a. Slide the latch **1** in the direction of the arrow, and slide the latch **2** in the direction of the arrow.
- b. Lift the battery.
- c. Remove the battery.



3. Battery

## Disassembly

Figure 2

### Keyboard Removal

- Remove the screws from the bottom of the computer and then eject the keyboard using a special eject stick to push the keyboard out while releasing the keyboard as shown.
- Lift the keyboard up and disconnect the keyboard ribbon cable from the locking collar socket.
- 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.

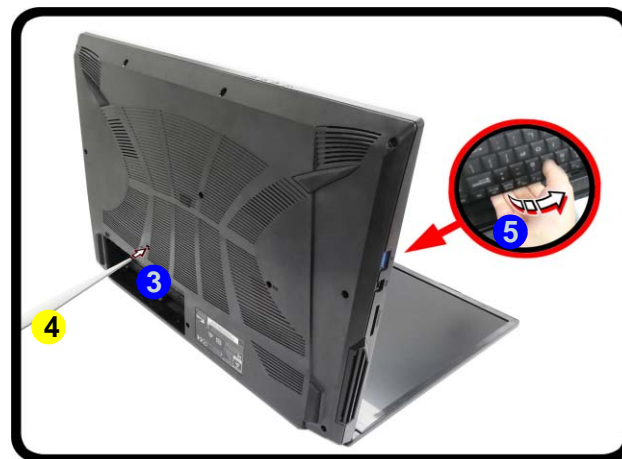
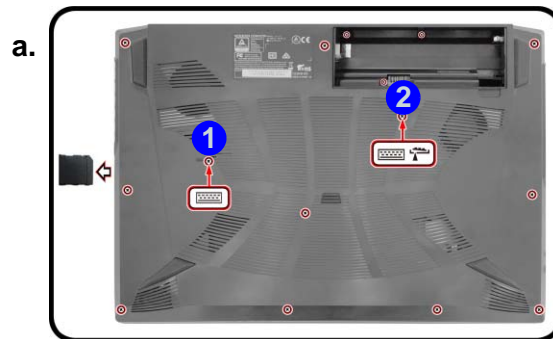


- Eject Stick
- Keyboard

- 2 Screws

## Removing the Keyboard

- Turn **off** the computer, turn it over.
- Remove screws **1** - **2** from the bottom of the computer.
- Open it up with the LCD on a flat surface before pressing at point **3** to release the keyboard module (use the special eject stick **4** to do this) while releasing the keyboard in the direction of the arrow **5** as shown (**Figure 2a**).
- Carefully lift the keyboard **6** up, being careful not to bend the keyboard ribbon cable **7**. Disconnect the keyboard ribbon cable **7** from the locking collar socket by using a flat-head screwdriver to pry the locking collar pins **8** away from the base (**Figure 2b**).
- Carefully lift the keyboard **6** off the computer (**Figure 2c**).



## Removing the Hard Disk Drive

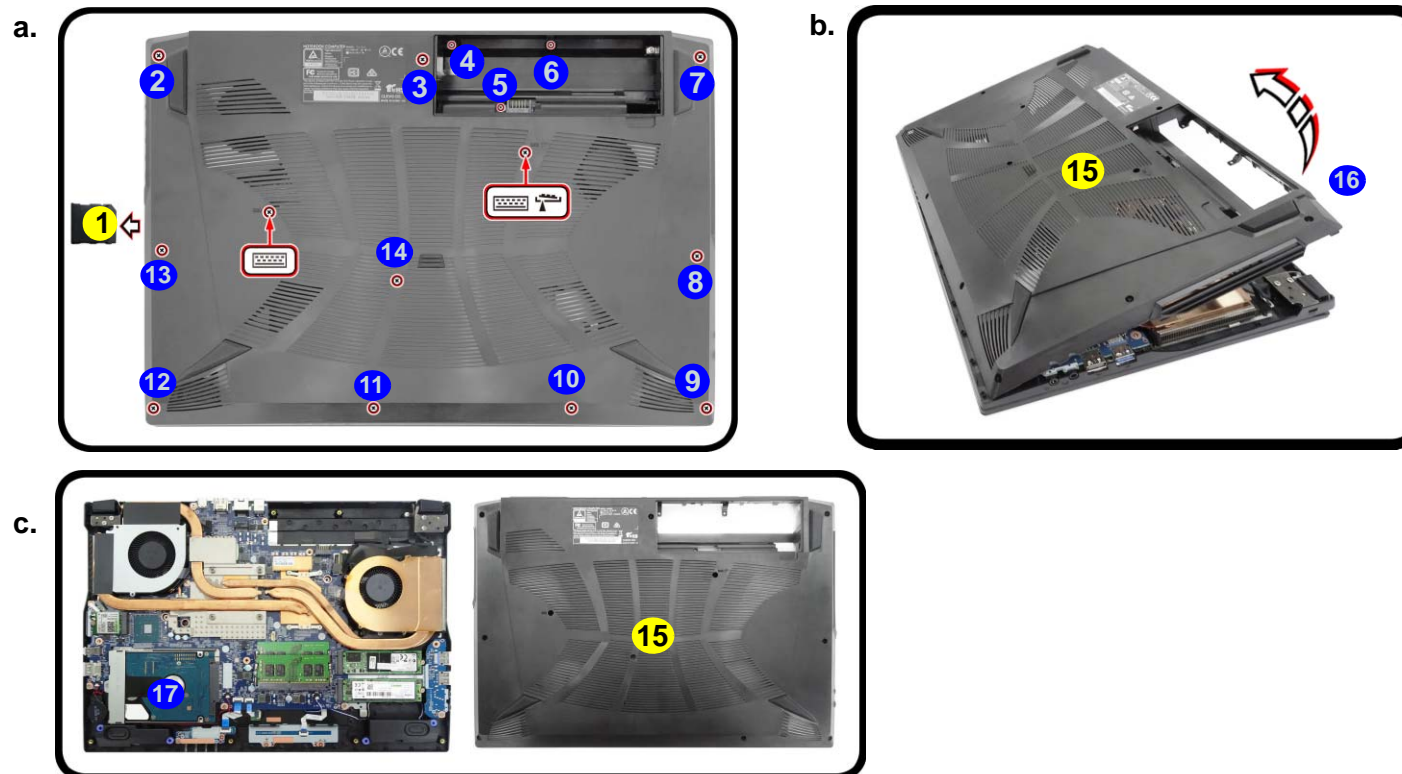
The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 7mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.


### Hard Disk Disassembly Process

1. Turn **off** the computer, and remove the battery ([page 2 - 5](#)).
2. Remove the SD card cover **1** and screws **2** - **14** ([Figure 3a](#)).
3. Carefully lift the bottom case **15** up from point **16** and remove it ([Figure 3b](#)).
4. The HDD will be visible at point **17** on the mainboard ([Figure 3c](#)).

*Figure 3*  
**HDD Assembly Removal**

- Remove the SD card cover and screws.
- Remove the bottom case.
- Locate the HDD.



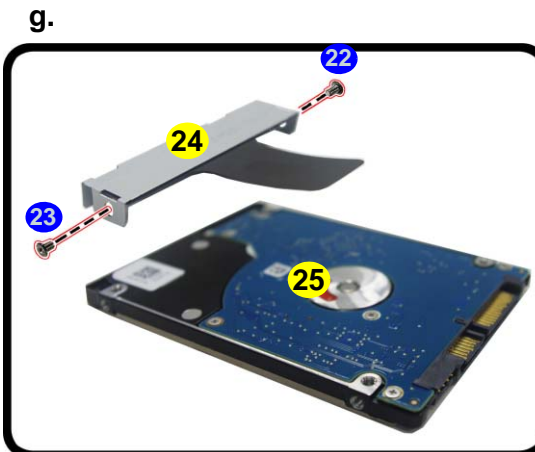
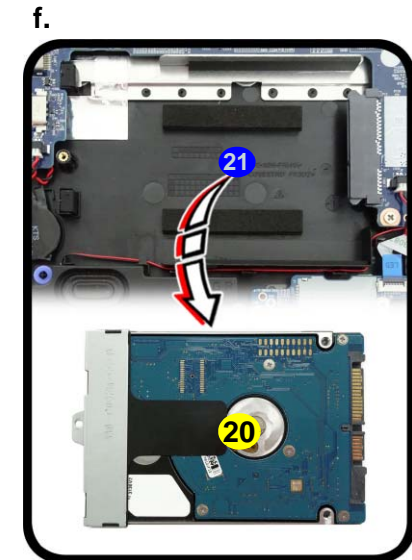
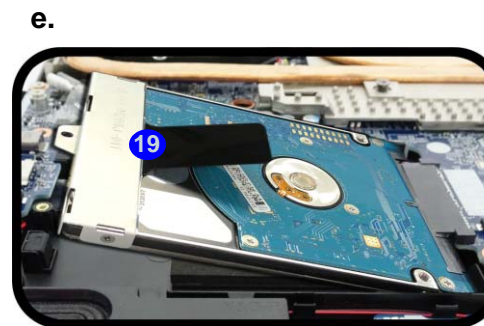
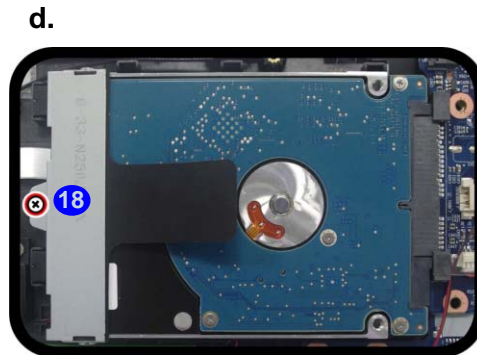
- 
15. Bottom Case
- 13 Screws

## Disassembly

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

- d. Remove the screws.
- e. Slightly lift and pull the HDD in the direction of the arrow.
- f. Lift the HDD assembly out of the bay.
- g. Remove the screws and bracket from the HDD.

5. Remove screws **18** from the HDD assembly (*Figure 4b*).
6. Slightly lift and pull the hard disk assembly in the direction of arrow **19** (*Figure 4c*).
7. Lift the hard disk assembly **20** out of the bay **21** (*Figure 4d*).
8. Remove screws **22** - **23** and bracket **24** from the hard disk **25** (*Figure 4e*).
9. Reverse the process to install a new hard disk (do not forget to replace the screws).



20. HDD Assembly  
24. Bracket  
25. HDD

- 3 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.

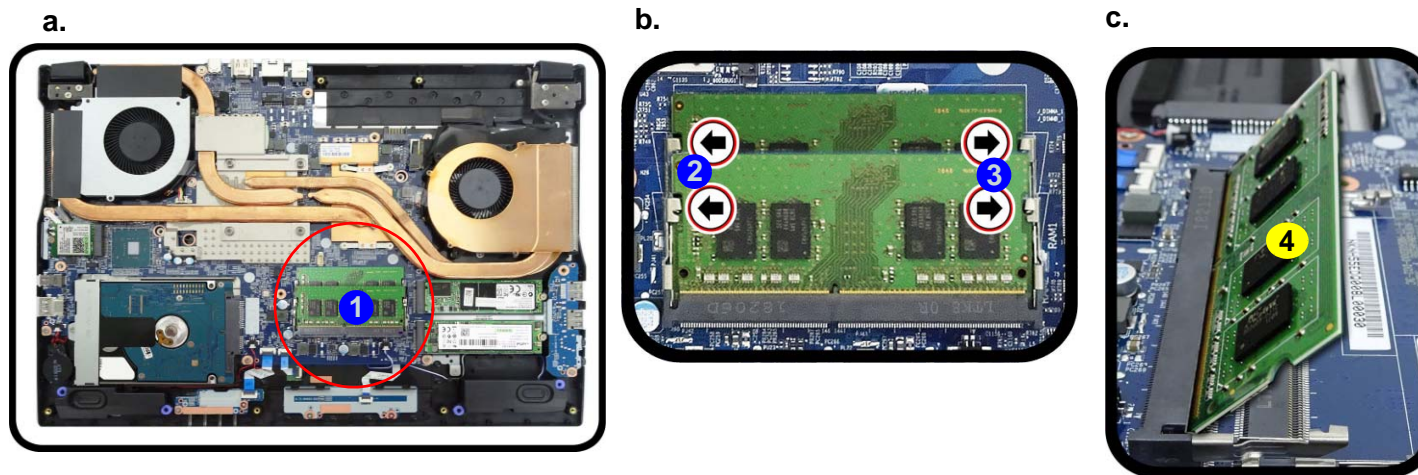
If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

## Removing the System Memory (RAM)

The computer has two memory sockets for 260 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR4 up to 2400 MHz. The main memory can be expanded up to 16GB. 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, remove the battery ([page 2 - 5](#)).
2. The RAM modules will be visible at point **1** on the mainboard ([Figure 5a](#)).
3. Gently pull the two release latches (**2** & **3**) on the sides of the memory socket in the direction indicated by the arrows ([Figure 5b](#)). The RAM module **4** will pop-up ([Figure 5c](#)), and you can then remove it.
4. Pull the latches to release the second module if necessary.
5. Insert a new module (**for only one module** - insert module in the top slot "J\_DIMMB1" as shown in [Figure 5c](#)) by holding it at about a 30° angle and fit the connectors firmly into the memory slot.
6. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. **DO NOT FORCE IT**; it should fit without much pressure.
7. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
8. Replace the bottom cover and the screws (see [page 2 - 7](#)).
9. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.



*Figure 5*  
**RAM Module Removal**

- a. The RAM module(s) will be visible at point **1** on the mainboard.
- b. Pull the release latches.
- c. Remove the module.



#### Contact Warning

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



4. RAM Module

## Disassembly

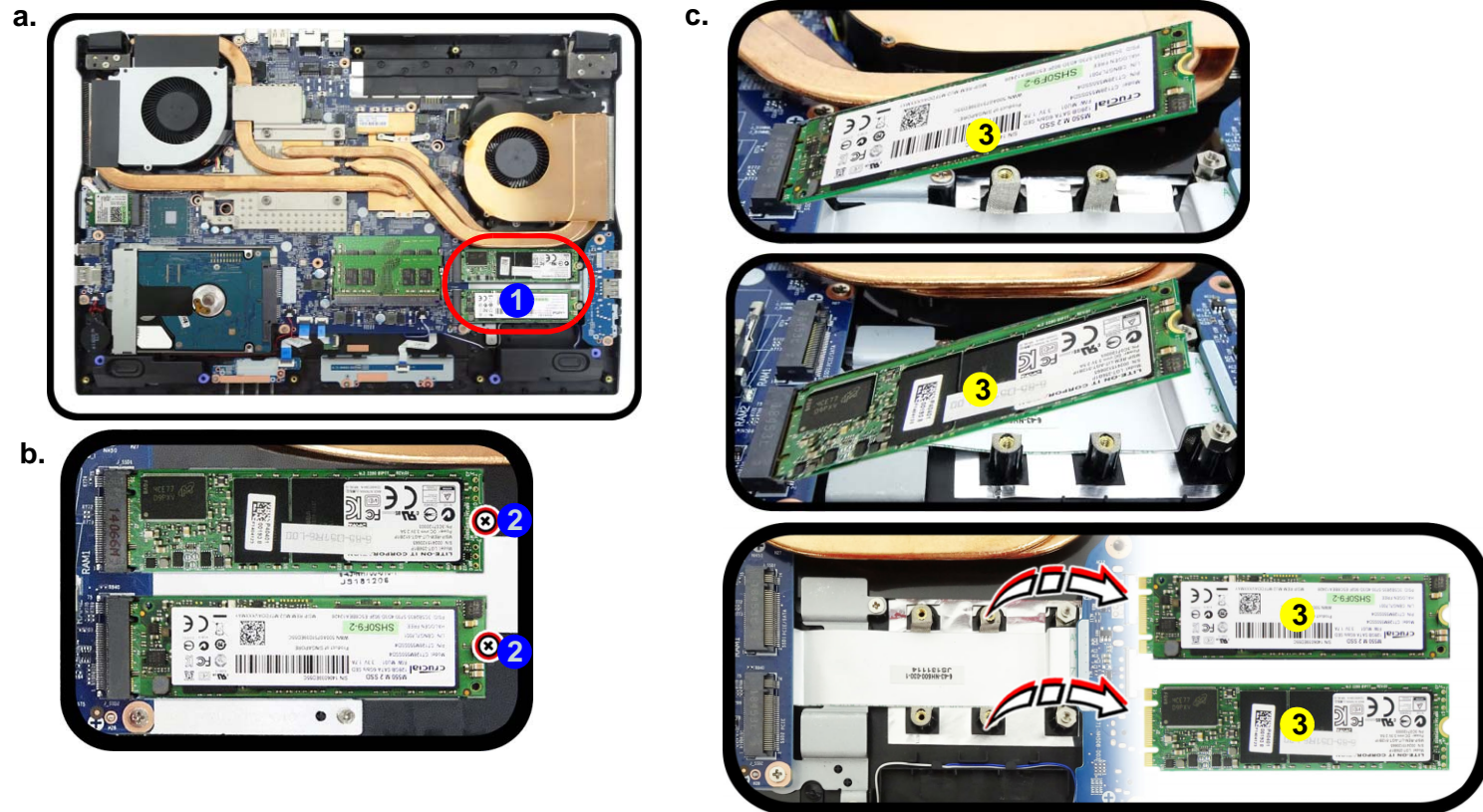
*Figure 6*  
**M.2 SSD Module Removal**

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

## Removing the M.2 SSD Module

### M.2 SSD Module Removal Procedure

1. Turn **off** the computer, turn it over, remove the battery ([page 2 - 5](#)).
2. The M.2 SSD module will be visible at point **1** on the mainboard ([Figure 6a](#)).
3. Remove the screw **2** ([Figure 6b](#)).
4. The M.2 SSD module **3** ([Figure 6c](#)) will pop-up, and you can remove it from the computer.



3.M2 SSD Module

- 1 Screw

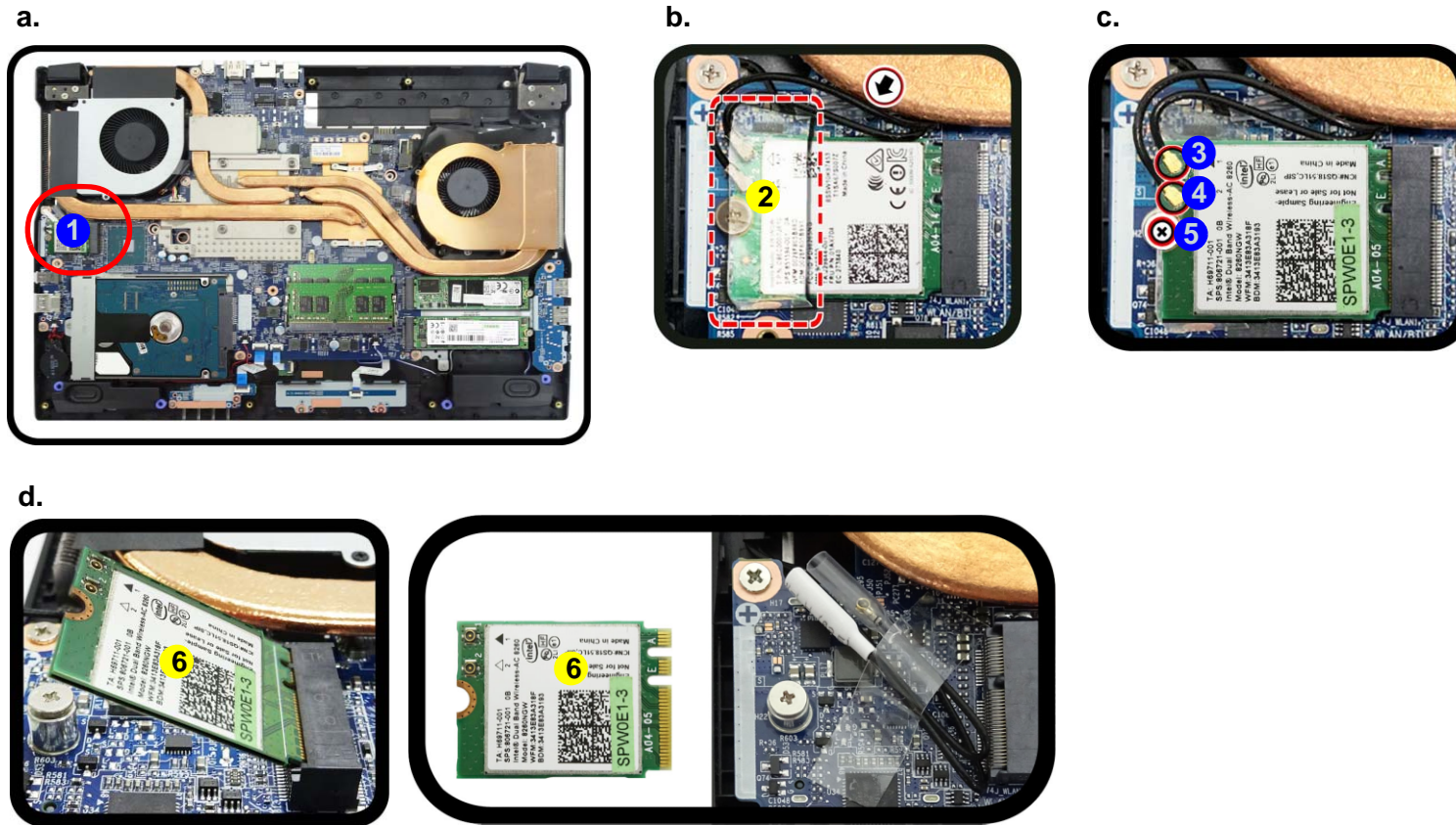
## Removing the Wireless LAN Module

1. Turn **off** the computer, turn it over, remove the battery ([page 2 - 5](#)).
2. The Wireless LAN module will be visible at point **1** on the mainboard ([Figure 7a](#)).
3. Remove the mylar cover **2** ([Figure 7b](#)).
4. Carefully disconnect the cables **3** & **4**, and then remove the screw **5** ([Figure 7c](#)).
5. The Wireless LAN module **6** ([Figure 7d](#)) will pop-up, and you can remove it from the computer.
6. Reverse the process to install a new module (do not forget to replace the mylar and screws while making sure that the cables are properly inserted as shown in [Figure 7c](#)).

*Figure 7*  
**Wireless LAN  
Module Removal**

- Locate the WLAN.
- Remove the mylar cover.
- 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 7b](#)).



2. Mylar Cover  
6. Wireless LAN Module

- 1 Screw

## Disassembly

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### Wireless LAN, Combo Module Cables

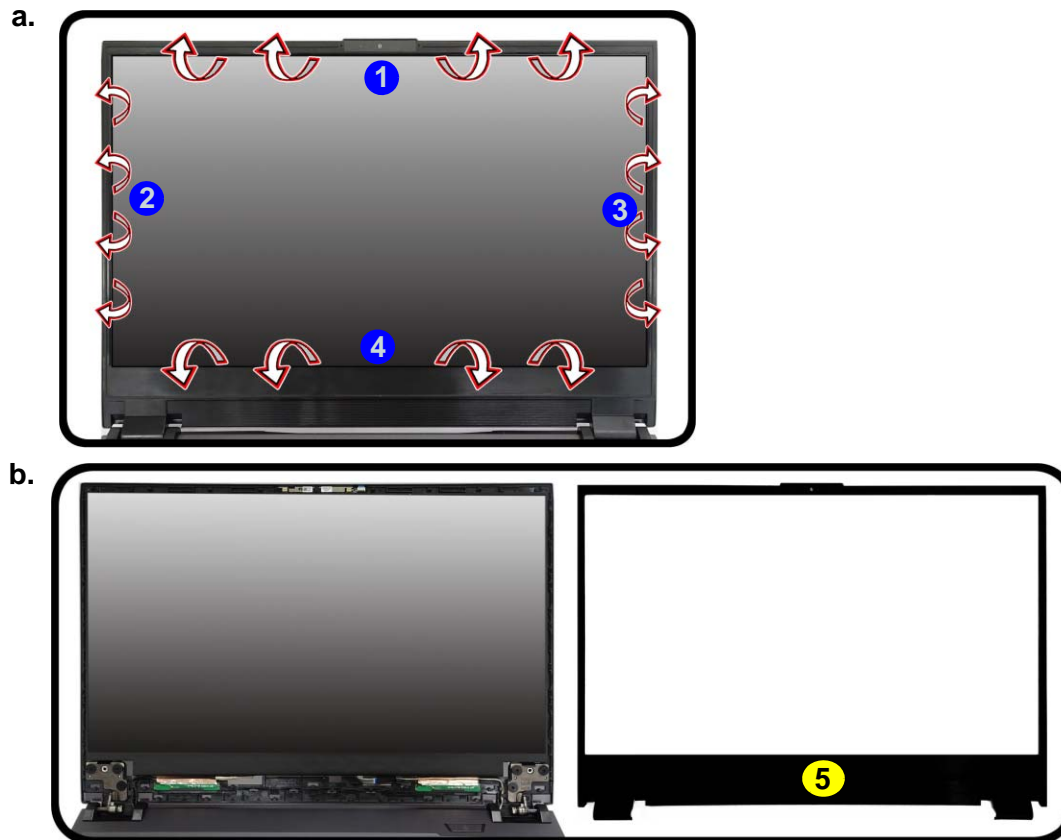
Note that the cables for connecting to the antennae on WLAN, WLAN & Bluetooth Combo modules are not labelled. The cables/covers (each cable will have either a black or transparent cable cover) are color coded for identification as outlined in the table below.

Module Type	Antenna Type	Cable Color	Cable Cover Type
WLAN/WLAN & Bluetooth Combo	WL 1	Black	Transparent
	WL 2	Black	White

Cable 1 is usually connected to antenna 1 on the module, and cable 2 to antenna 2.

## Removing the CCD

1. Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)).
2. Lay the computer down on a flat surface with the top case up forming a 90 degree angle.
3. Carefully run your fingers around the inner frame of the LCD panel to lift at points **1** - **4** as indicated by the arrows ([Figure 8a](#)).
4. Remove the LCD front cover **5** ([Figure 8b](#)).



*Figure 8*  
**CCD Removal**

- a. Carefully release the inner frame of the LCD panel at the points indicated by the arrows.
- b. Remove the LCD front cover.



5. LCD Front Cover

## Disassembly

*Figure 9*  
**CCD Removal**  
**(cont'd)**

- c. Disconnect the cable from the locking collar socket.
- d. Remove the CCD module.

- 5. Disconnect the cable ⑥ from the locking collar socket by using a flat-head screwdriver to pry the locking collar pins ⑦ away from the base (*Figure 9c*).
- 6. Remove the CCD module ⑧ (*Figure 9d*).
- 7. Reverse the process to install a new CCD module.

c.



d.



8. CCD Module

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# Appendix A:Part Lists

This appendix breaks down the *NH50RC* / *NH57RC* 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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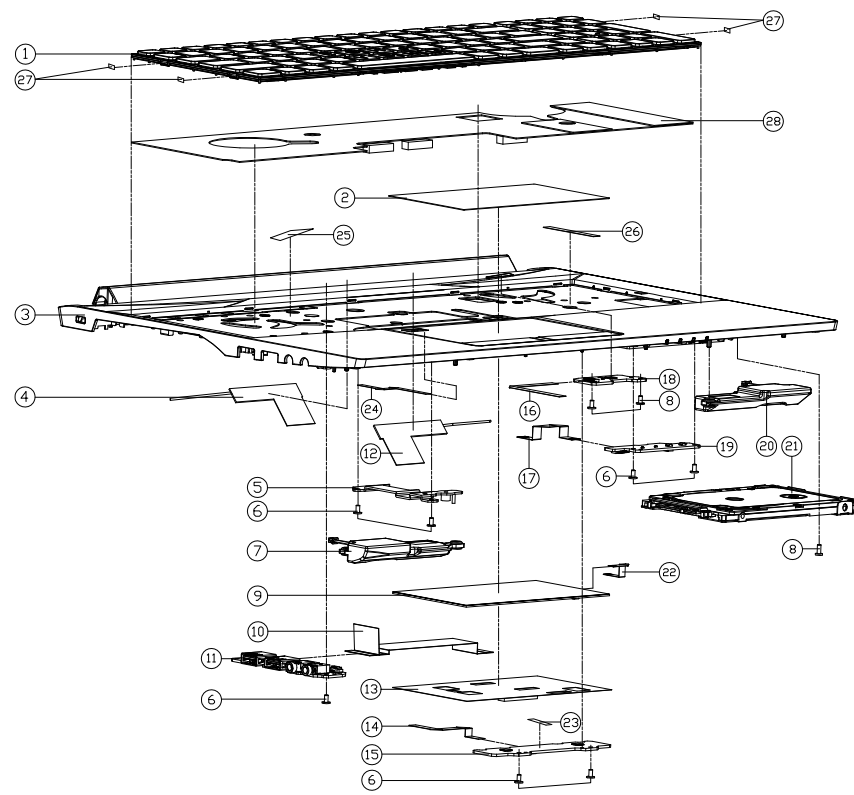
## Part List Illustration Location

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

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

Part	NH50RC	NH57RC
Top	<i>page A - 3</i>	<i>page A - 5</i>
Top (without FP)	<i>page A - 4</i>	<i>page A - 6</i>
Bottom	<i>page A - 7</i>	
Main Board	<i>page A - 8</i>	
HDD	<i>page A - 9</i>	
LCD	<i>page A - 10</i>	<i>page A - 11</i>

Top (NH50RC)

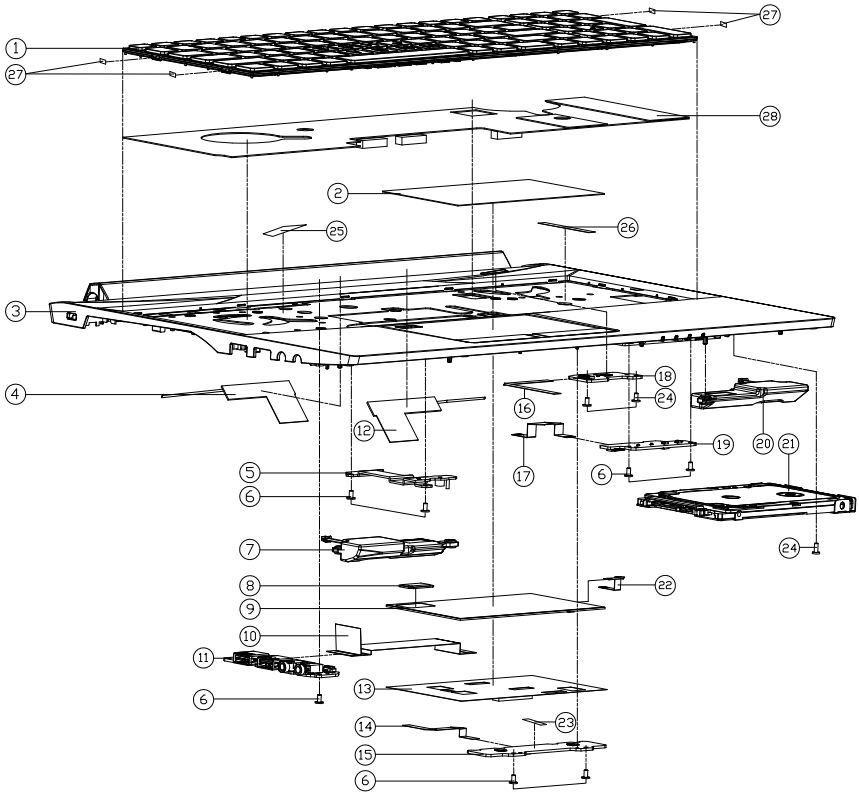


ITEM	PART NAME	PART NO	REMARK
1	KB FOR LED PER KEY KB US SERIES NH50ED	6-NH50ED-KB-LPK-US	
1	KB FOR MULTI 15C BL KB US SERIES NH50ED	6-NH50ED-KB-MCL-US	
2	W/FP TP MYLAR AG32 APPERANCE NH50ED	6-40-NH502-040	
3	TOP CASE MODULE NH50ED	6-39-NH502-012	
4	ANTENNA PEEM W/AN JEM W/2 PCB DL 400MM 24G/5G W/2 20MM NH50ED	6-23-7NH50-040	
5	MB SUPPORT BRKT NH50ED	6-33-NH502-021	
6	SCREW M2*4L KI NI TCT NY (DD=04.5,DT=0.8)	6-35-B1120-4RC	
7	SPK R-CABLE L167423 2W 47 L190 MM DS-2314-RL-R2-HF NB701JI	6-23-5N95T-0L1	
8	SCREW M2*4L KI NI TCT NY (DD=04.5,DT=0.4)	6-35-B1120-4RE	
9	SECURE PAD SYNAPTICS TM-P3428 IXC (10045MM) (WHL) NH50ED	6-49-N15Z3-021	
10	FFC CABLE AUDIO TO MB L=102MM 3V 4PIN (GX) NH50ED	6-43-NH500-031	
11	AUDIO BOARD V3.0 NH50ED	6-77-NH508-D03	
12	ANTENNA PEEM W/AN JEM W/1 PCB DL 400MM 24G/5G W/1 25MM NH50ED	6-23-7NH50-030	
13	TP MYLAR PET NH50ED	6-40-NH502-021	
14	FFC CABLE CLICK TO TP L=61MM 3V 4PIN (GX) NH50ED	6-43-NH500-051	
15	CLICK BOARD V3.0 NH50ED	6-77-NH502-D03	
16	FFC CABLE POWER TO MB L=81MM 3V 4PIN (GX) NH50ED	6-43-NH500-021	
17	FFC CABLE LED TO MB L=58MM 3V 12PIN (GX) NH50ED	6-43-NH500-011	
18	POWER SW BOARD V3.0 NH50ED	6-77-NH50S-D03	
19	LED BOARD V3.0 NH50ED	6-77-NH504-D03	
20	SPK R-CABLE L2544 2W 47 L 200MM DS-2314-RL-R2-HF NB701JI	6-23-5NB70-0R1	
21	W/O HDD ASS'Y NH50ED	6-79-NH50ED0J-010	
21	W/HDD ASS'Y NH50ED	6-79-NH50ED0J-020	
22	FFC CABLE TP TO MB L=36MM 3V 8PIN (GX) NH50ED	6-43-NH500-041	
23	CLICK BOARD MYLAR (18*5*0.15T) NH50ED	6-40-NH502-090	
24	FFC CABLE FINGER TP TO MB L=55MM 3V 6PIN (GX) NH50ED	6-43-NH500-060	
25	MYLAR-3 FOR KB NH50ED	6-40-NH502-0A0	
26	MYLAR-4 FOR KB NH50ED	6-40-NH502-0B0	
27	MYLAR(7*6*0.15MM,BLACK) FOR P640RF	6-40-00150-760	
28	MYLAR (325.35*100.55*0.4T)FOR KB NH50ED	6-40-NH502-060	ONLY FOR NON BL KB SERIES

Figure A - 1  
Top (NH50RC)

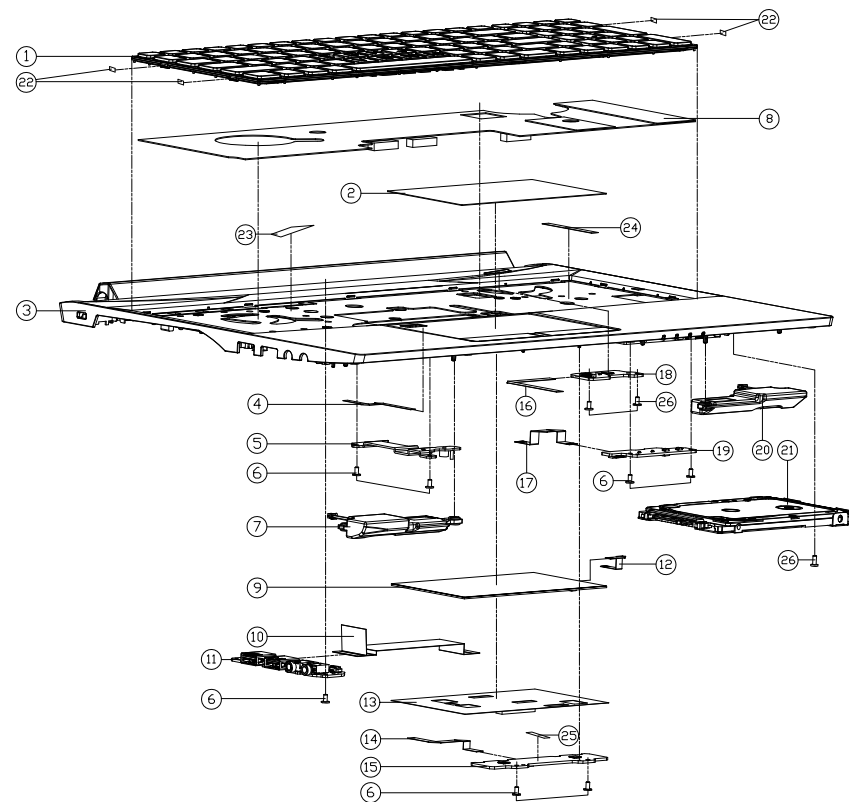
Top without FP (NH50RC)

Figure 2  
Top without FP  
(NH50RC)



ITEM	PART NAME	PART NO	REMARK
1	KB FOR LED PER KEY KB US SERIES NH50ED	6-NH50ED-KB-LPK-US	
1	KB FOR MULTI ISC BL KB US SERIES NH50ED	6-NH50ED-KB-MCL-US	
2	W/O FP TP MYLAR AG32 APPEARANCE NH50ED	6-40-NH502-031	
3	TOP CASE MODULE NH50ED	6-39-NH502-012	
4	ANTENNA PEKX W/LN JEN W/2 PCB DL 400MM 24G/5G W/2-300MM NH50ED	6-23-7NH50-040	
5	MB SUPPORT BRKT NH50ED	6-33-NH502-021	
6	SCREW M2x4L KI NI ICT NY (DD=04.5,DT=0.8)	6-35-B1120-4RC	
7	SPK CABLE L 1.67x23 2W 4T 1190 MM DS-23H4-M-12-HF NH50TF	6-23-5NB70-0L1	
8	TP W/O FP RUBBER (17.9x11.2x1.2T) SILICONE	6-47-N15Z2-090	
9	TOUCH PAD SYNAPTICS PTP TM-P3429 (108x65MM) (WHL) NH50D	6-49-N15Z3-011	ONLY FOR W/O FPC TOUCH PAD
10	FFC CABLE AUDIO TO MB L=102MM 3V 4PIN (QX) NH50ED	6-43-NH500-031	
11	AUDIO BOARD V3.0 NH50ED	6-77-NH508-D03	
12	ANTENNA PEKX W/LN JEN W/1 PCB DL 400MM 24G/5G W/1-250MM NH50ED	6-23-7NH50-030	
13	TP MYLAR PET NH50ED	6-40-NH502-021	
14	FFC CABLE CLICK TO TP L=61MM 3V 4PIN (QX) NH50ED	6-43-NH500-051	
15	CLICK BOARD V3.0 NH50ED	6-77-NH502-D03	
16	FFC CABLE POWER TO MB L=81MM 3V 4PIN (QX) NH50ED	6-43-NH500-021	
17	FFC CABLE LED TO MB L=58MM 3V 12PIN (QX) NH50ED	6-43-NH500-011	
18	POWER SW BOARD V3.0 NH50ED	6-77-NH50S-D03	
19	LED BOARD V3.0 NH50ED	6-77-NH504-D03	
20	SPK R/CABLE L25H4 2W 4T L 200MM DS-23H4-M-12-HF NH70TL	6-23-5NB70-0R1	
21	W/O HDD ASS'Y NH50ED	6-79-NH50ED0J-010	
21	W/HDD ASS'Y NH50ED	6-79-NH50ED0J-020	
22	FFC CABLE TP TO MB L=36MM 3V 8PIN (QX) NH50ED	6-43-NH500-041	
23	CLICK BOARD MYLAR (18x5x0.15T) NH50ED	6-40-NH502-090	
24	SCREW M2x4L KI NI ICT NY (DD=04.5,DT=0.4)	6-35-B1120-4RE	
25	MYLAR-3 FOR KB NH50ED	6-40-NH502-0A0	
26	MYLAR-4 FOR KB NH50ED	6-40-NH502-0B0	
27	MYLAR(7x6x0.15MM,BLACK) FOR P640RF	6-40-00150-760	
28	MYLAR (325.35x100.55x0.4T)FOR KB NH50ED	6-40-NH502-060	ONLY FOR NON BL KB SERIES

# Top (NH57RC)

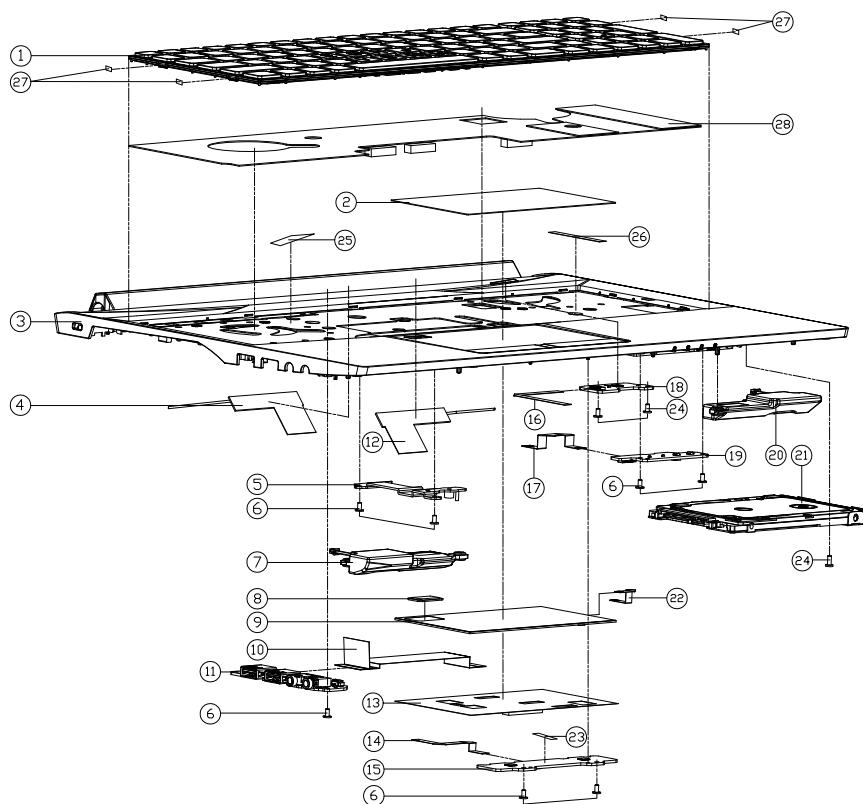


ITEM	PART NAME	PART NO	REMARK
1	KB FOR LED PER KEY KB US SERIES NH50ED	6-NH50ED-KB-LPK-US	
1	KB FOR MULTI ISC BL KB US SERIES NH50ED	6-NH50ED-KB-MCL-US	
1	KB FOR NON BL KB US SERIES NH50ED	6-NH50ED-KB-NBL-US	
2	W/FP TP MYLAR AG32 APPEARANCE NH50ED	6-40-NH502-040	
3	TOP CASE MODULE NH50ED	6-39-NH502-012	
4	FFC CABLE FINGER TP TO MB L=50MM 3V 6PIN (GX) NH50ED	6-43-NH500-060	
5	MB SUPPORT BRKT NH50ED	6-33-NH502-021	
6	SCREW M2*4L KT NI ICT NY (DD=04.5,DT=0.8)	6-35-B1120-4RC	
7	SPK R/CABLE L16*23 2W 4Ω L190 MM DS-2514-ML-32-HF N950TF	6-23-5N95T-0L1	
8	MYLAR (325.35*100.55*0.41) FOR KB NH50ED	6-40-NH502-060	ONLY FOR NON BL KB SERIES
9	SECURE PAD SYNAPTICS TM-P3428 12C (008*6MM) (VARI) N150ZU	6-49-N15Z3-021	
10	FFC CABLE AUDIO TO MB L=102MM 3V 40PIN (GX) NH50ED	6-43-NH500-031	
11	AUDIO BOARD V3.0 NH50ED	6-77-NH508-D03	
12	FFC CABLE TP TO MB L=36MM 3V 8PIN (GX) NH50ED	6-43-NH500-041	
13	TP MYLAR PET NH50ED	6-40-NH502-021	
14	FFC CABLE CLICK TO TP L=61MM 3V 4PIN (GX) NH50ED	6-43-NH500-051	
15	CLICK BOARD V3.0 NH50ED	6-77-NH502-D03	
16	FFC CABLE POWER TO MB L=80MM 3V 4PIN (GX) NH50ED	6-43-NH500-021	
17	FFC CABLE LED TO MB L=58MM 3V 12PIN (GX) NH50ED	6-43-NH500-011	
18	POWER SW BOARD V3.0 NH50ED	6-77-NH50S-D03	
19	LED BOARD V3.0 NH50ED	6-77-NH504-D03	
20	SPK R/CABLE L25*44 2W 4Ω L 200MM DS-2514-ML-32-HF N870TJL	6-23-5NB70-0R1	
21	W/O HDD ASS'Y NH50ED	6-79-NH50ED0J-010	
21	W/HDD ASS'Y NH50ED	6-79-NH50ED0J-020	
22	MYLAR(7*6*0.15MM,BLACK) FOR P640RF	6-40-00150-760	
23	MYLAR-3 FOR KB NH50ED	6-40-NH502-0A0	
24	MYLAR-4 FOR KB NH50ED	6-40-NH502-0B0	
25	CLICK BOARD MYLAR (18*5*0.15T) NH50ED	6-40-NH502-090	
26	SCREW M2*4L KT NI ICT NY (DD=04.5,DT=0.4)	6-35-B1120-4RE	

Figure 3  
Top (NH57RC)

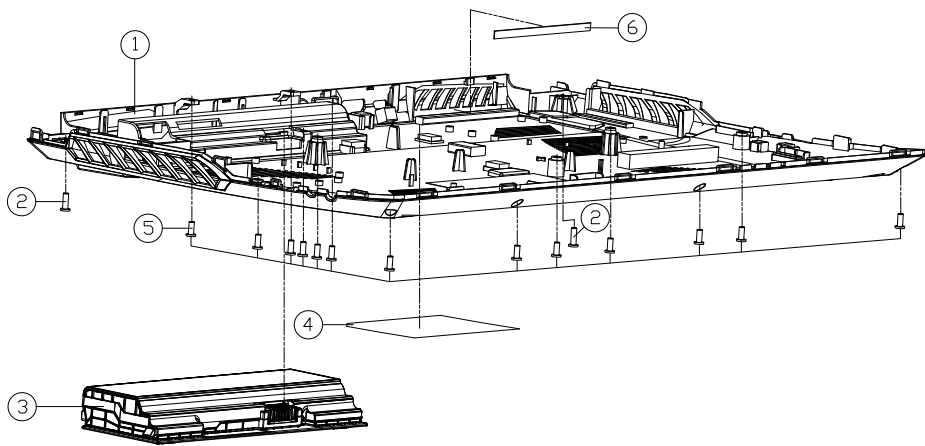
## Top without FP (NH57RC)

Figure 4  
Top without FP  
(NH57RC)



ITEM	PART NAME	PART NO	REMARK
1	KB FOR LED PER KEY KB US SERIES NH50ED	6-NH50ED-KB-LPK-US	
1	KB FOR MULTI 15C BL KB US SERIES NH50ED	6-NH50ED-KB-MCL-US	
2	W/O FP TP MYLAR AG32 APPEARANCE NH50ED	6-40-NH502-031	
3	TOP CASE MODULE NH50ED	6-39-NH502-012	
4	ANTENNA PEPA W/LN JEN W/L PCB DL 400MM 24G/5G W/L 250MM NH50ED	6-23-7NH50-040	
5	MB SUPPORT BRKT NH50ED	6-33-NH502-021	
6	SCREW M2*4L KT NI ICT NY (DD=04.5,DT=0.8)	6-35-B1120-4RC	
7	SPK+CABLE L167423 2W 4T L190 MM DS-2514-ML-32-HF N550TF	6-23-5N95T-0L1	
8	TP W/O FP RUBBER (17.9*11.2*1.2T) SILICONE	6-47-N15Z2-090	
9	TOUCH PAD SYNAPTICS PTP TM-P3429 (0066GMM (WH)) N550U	6-49-N15Z3-011	ONLY FOR V/O FP/TOUCH PAD
10	FFC CABLE AUDIO TO MB L=102MM 3V 4PIN (GX) NH50ED	6-43-NH500-031	
11	AUDIO BOARD V3.0 NH50ED	6-77-NH508-D03	
12	ANTENNA PEPA W/LN JEN W/L PCB DL 400MM 24G/5G W/L 250MM NH50ED	6-23-7NH50-030	
13	TP MYLAR PET NH50ED	6-40-NH502-021	
14	FFC CABLE CLICK TO TP L=61MM 3V 4PIN (GX) NH50ED	6-43-NH500-051	
15	CLICK BOARD V3.0 NH50ED	6-77-NH502-D03	
16	FFC CABLE POWER TO MB L=81MM 3V 4PIN (GX) NH50ED	6-43-NH500-021	
17	FFC CABLE LED TO MB L=58MM 3V 12PIN (GX) NH50ED	6-43-NH500-011	
18	POWER SW BOARD V3.0 NH50ED	6-77-NH50S-D03	
19	LED BOARD V3.0 NH50ED	6-77-NH504-D03	
20	SPK R+CABLE L2514 2W 4T L 200MM DS-2514-ML-32-HF N870TJL	6-23-5NB70-0R1	
21	W/O HDD ASS'Y NH50ED	6-79-NH50ED0J-010	
21	W/HDD ASS'Y NH50ED	6-79-NH50ED0J-020	
22	FFC CABLE TP TO MB L=36MM 3V 8PIN (GX) NH50ED	6-43-NH500-041	
23	CLICK BOARD MYLAR (18*5*0.15T) NH50ED	6-40-NH502-090	
24	SCREW M2*4L KT NI ICT NY (DD=04.5,DT=0.4)	6-35-B1120-4RE	
25	MYLAR-3 FOR KB NH50ED	6-40-NH502-0A0	
26	MYLAR-4 FOR KB NH50ED	6-40-NH502-0B0	
27	MYLAR(7*6*0.15MM,BLACK) FOR P640RF	6-40-00150-760	
28	MYLAR (325,35*100,55*0.4T)FOR KB NH50ED	6-40-NH502-060	ONLY FOR NON BL KB SERIES

Bottom

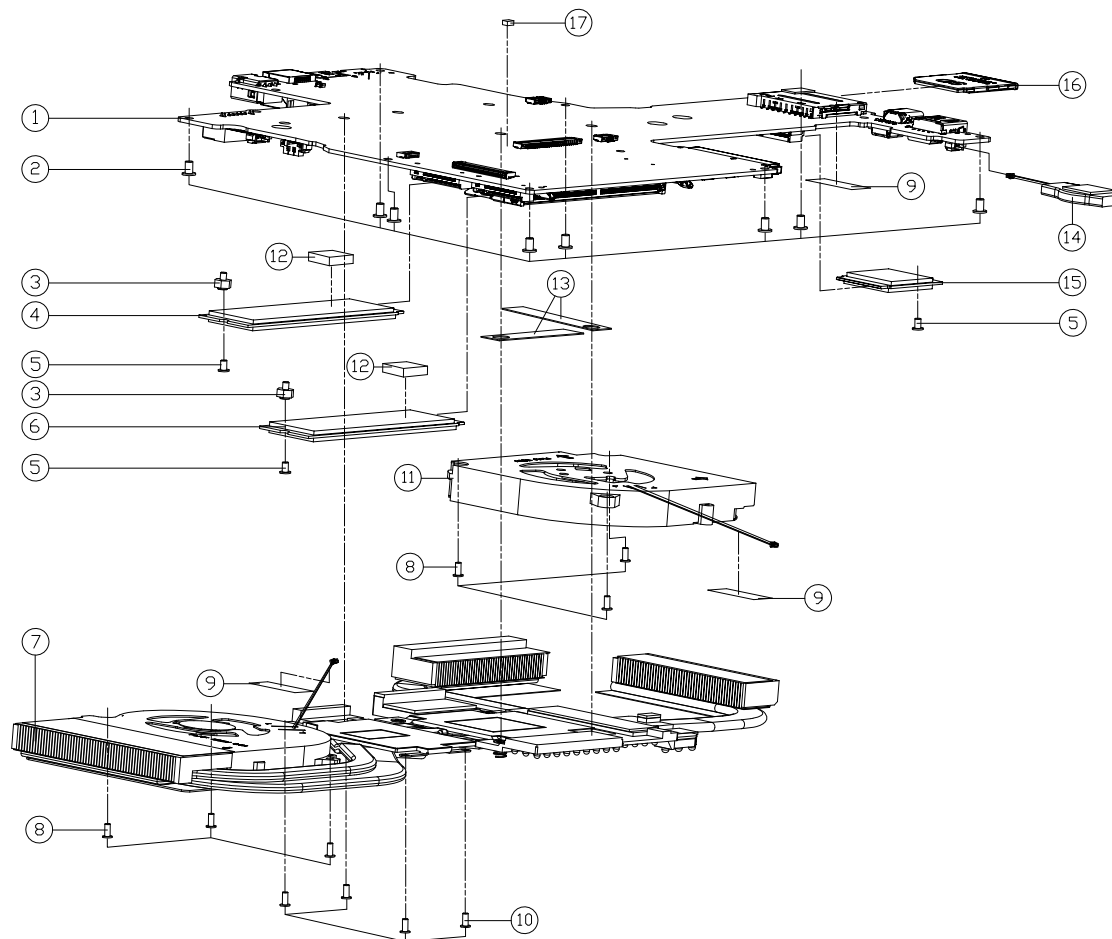


ITEM	PART NAME	PART NO	REMARK
1	BOTTOM CASE MODULE NH50ED	6-39-NH503-012	
2	.SCREW M2.5*8L K1 BK/Z NY ICT	6-35-B6125-8R0	
3	IMP 5 LI 184V/344V/68V/136V KCP DIFFUSE (Q44520 300022421) /18 W/RED	6-87-NH50S-41C01	
3	IMP 5 LI 184V/344V/68V/136V KCP SET/CLAS (Q44520 345202200) /18 W/RED	6-87-NH50S-42D01	
4	PRODUCT LABEL FOR NH50ED(CHANGE RATING)	6-45-NH50ED03-011	
4	PRODUCT LABEL FOR NH50RD	6-45-NH50RD03-010	
4	PRODUCT LABEL FOR NH57ED	6-45-NH57ED03-010	
4	PRODUCT LABEL FOR NH50RC	6-45-NH50RC03-010	
4	PRODUCT LABEL FOR NH57RC	6-45-NH57RC03-010	
4	PRODUCT LABEL FOR NH57RD	6-45-NH57RD03-010	
5	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
6	GASKET(65*6*1.0TX)BLACK FOR REAR PIPE NH50ED	6-47-00190-65D	

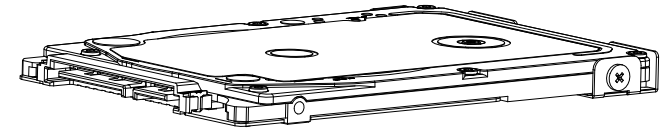
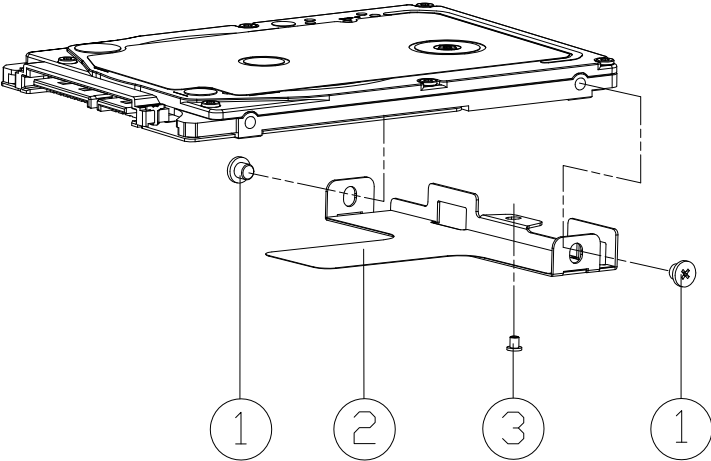
Figure A - 5  
Bottom

## Main Board

*Figure A - 6*  
**Main Board**

[illegible]

HDD

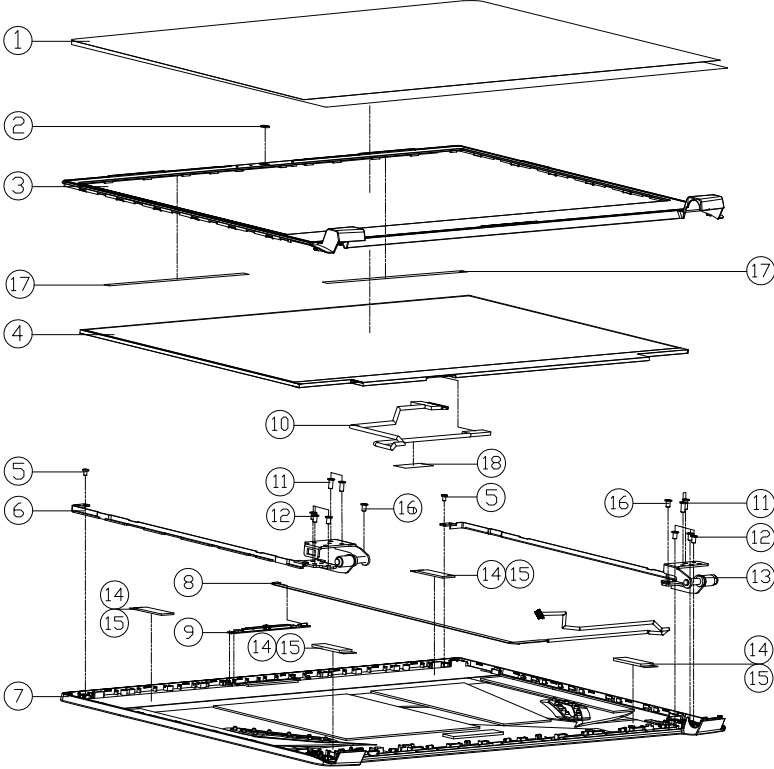


ITEM	PART NAME	PART NO	REMARK
1	SCREW M3*2.5L KI NI ICT NY	6-35-B1130-2R5	
2	HDD BKT 7MM SECC T=0.5 N250LU	6-33-N250J-011	
3	SCREW M2*4L KI NI ICT NY (DD=Ø4.5,DT=0.4)	6-35-B1120-4RE	

Figure A - 7  
HDD

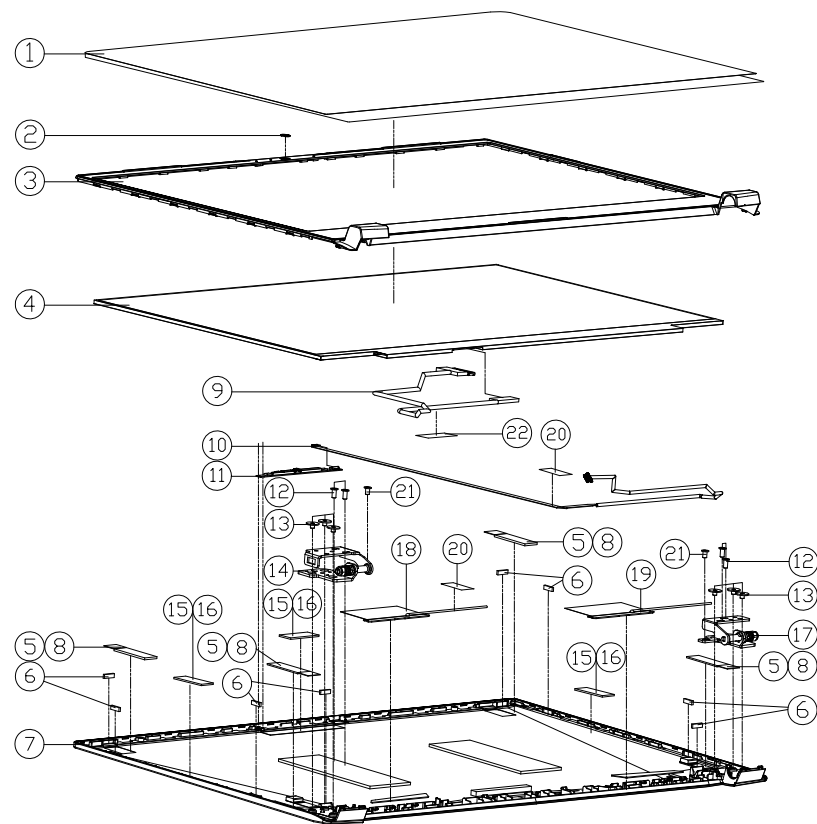
LCD (NH50RC)

Figure A - 8  
LCD (NH50RC)



ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT MYLAR BOPP N150ZU	6-40-N15Z8-010	
2	CCD LENS PMMA ( DIAMETER 3.6MM ) ( MPI ) P970EN	6-42-P97N1-011	
3	LCD FRONT COVER MODULE NH50ED	6-39-NH501-012	
4	LCD NIS6" FHD/VVA/NT/NDN GT/ETP L6 INNOLOX NIS6HCE-ENI (LED 2.8MM	6-50-LBB26-V020	
4	LCD NIS6" FHD/PS/HA/NT/NDN GT/ETP L6 LPS6WFC-SPR2 (LED 2.8MM	6-50-LBB26-L121	
4	LCD NIS6" FHD/NDN GT/ETP L6 INNOLOX NIS6HCE-EA3 (REV1) (LED 3.2MM	6-50-LBB32-V002	
4	LCD NIS6" FHD/PS/HA/NDN GT/ETP L6 LPS6WFC-SPIN (LABLE) LED 3.2MM	6-50-LBB32-L016	
5	SCREW M2*3L KI BZ ICT NY (DD=0.45,DT=0.4)	6-35-B6120-3RD	
6	HINGE L (SK7+SGCC) NH50ED	6-33-NH501-0L2	
7	LCD BACK COVER MODULE NH50ED	6-39-NH501-022	
8	CCD CABLE L=550MM 30V 8PIN (HL) ADD MARK LABLE NH50ED	6-43-NH50T-011	
9	WIRE CABLE FOR EIP 300MM 30V 1.30 PIN (HT/L/W CONALYD-ACOLPHOS) PRESDET	6-88-N15ZC-5100	OPTION
9	WIRE CABLE FOR EIP 300MM 30V 1.30 PIN (HT/L/W CONALYD-ACOLPHOS) PRESDET	6-88-N15ZC-4900	OPTION
10	WIRE CABLE FOR EIP 300MM 30V 1.30 PIN (HT/L/W CONALYD-ACOLPHOS) PRESDET	6-43-PB501-031-2N	
10	WIRE CABLE FOR EIP 300MM 30V 1.30 PIN (HT/L/W CONALYD-ACOLPHOS) PRESDET	6-43-N85H1-010-2S	
11	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
12	SCREW M2.5*4L KI NI ICT NY	6-35-21125-4R0	
13	HINGE R (SK7+SGCC) NH50ED	6-33-NH501-0R2	
14	PANEL LA LA ADHESIVE(35*10*1) NH50ED	6-47-NH501-080	FOR 6-50-LBB32-V002 6-50-LBB32-L016
15	LA LA ADHESIVE (35*10*1.6T) NH50ED	6-47-NH501-0A0	FOR 6-50-LBB26-V020 6-50-LBB26-L121
16	SCREW M2.5*4L (D=4.6,T=0.8) KI NI ICT NY	6-35-B1125-4RA	
17	MYLAR FOR FRONT CASE NH50ED	6-40-NH501-010	FOR 6-50-LBB26-V020
18	ACETATE TAPE (32*10*0.2T) N141WU	6-40-N1411-020	FOR 6-50-LBB26-V020 6-50-LBB32-L016

LCD (NH57RC)



ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT MYLAR BOPP N150ZU	6-40-N15Z8-010	
2	CCD LENS PMMA ( DIAMETER 3.6MM ) ( MPI ) P970EN	6-42-P97N1-011	
3	LCD FRONT COVER MODULE NH50ED	6-39-NH501-012	
4	LCD NS64 FHD/IPS/VA/NT/ND/ON GT/ETP INNOVUX NS64CE-ENI LED 2.6MM	6-50-LBB26-V020	
4	LCD NS64 FHD/IPS/VA/NT/ND/ON GT/ETP LG IPS64FC-SPR LED 2.6MM	6-50-LBB26-L121	
4	LCD NS64 FHD/IPS/VA/NT/ND/ON GT/ETP INNOVUX NS64GA-EAG (REV.01) LED 3.2MM	6-50-LBB32-V002	
4	LCD NS64 FHD/IPS/VA/NT/ND/ON GT/ETP LG IPS64FC-SPIN CLABLED LED 3.2MM	6-50-LBB32-L016	
5	LALATAPE FOR D26 PANEL (40*10*1.2T) N232WU	6-47-N23U1-010	FOR 6-50-LBB32-V002 6-50-LBB32-L016
6	LCD RUBBER (8*25*1.45T) SILICON BLACK NH58EDQ	6-47-NH581-041	
7	BACK COVER MODULE NH57ED	6-39-NH571-022	
8	LALATAPE FOR D26 PANEL (40*10*1.8T) N140WU	6-47-N1401-010	FOR 6-50-LBB26-V020 6-50-LBB26-L121
9	WIRE CABLE FOR EDP 300MM 30V 1.30 PIN GT/LV CON/LV0-K0L/PS0D PRS0ET	6-43-PB501-031-2N	
9	WIRE CABLE FOR EDP 300MM 30V 1.30 PIN GT/LV CON/LV0-K0L/PS0D PRS0ET	6-43-NB5H1-010-2S	
10	CCD CABLE L=550MM 30V 8PIN (HL) ADD MARK LABLE NH50ED	6-43-NH50T-011	
11	ANTENNA (SLOT) IPEX4 WLAN WGT W/L PCB TL 24G/5G 450MM NASTED	6-88-N15ZC-5100	OPTION
11	ANTENNA (SLOT) IPEX4 WLAN WGT W/L PCB TL 24G/5G 250MM NASTED	6-88-N15ZC-4900	OPTION
12	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
13	SCREW M2.5*2.5L KI BK/Z ICT NY(T=0.6)	6-35-B6125-2R5	
14	HINGE L MODULE NH57ED	6-33-NH571-L00	
15	LCD SPONGE (SM55 25*10*1T) NH55EDQ	6-47-0019A-25R	FOR 6-50-LBB32-L016 6-50-LBB32-V002
16	LCD SPONGE (SM55 25*10*1-5T) NH55EDQ	6-47-0019A-25Q	FOR 6-50-LBB26-V020 6-50-LBB26-L121
17	HINGE R MODULE NH57ED	6-33-NH571-R00	
18	ANTENNA (SLOT) IPEX4 WLAN WGT W/L PCB TL 24G/5G 450MM NASTED	6-23-7NH57-020	
19	ANTENNA (SLOT) IPEX4 WLAN WGT W/L PCB TL 24G/5G 250MM NASTED	6-23-7NH57-010	
20	TAPE MYLAR TRANSPARENT (20*10*0.05) P180HM	6-40-P1803-020	
21	SCREW M2.5*4L (D=4.6,T=0.8) KI NI ICT NY	6-35-B1125-4RA	
22	ACETATE TAPE (32*10*0.2T) N141WU	6-40-N1411-020	FOR 6-50-LBB32-V002 6-50-LBB32-L016

Figure A - 9  
LCD (NH57RC)



# Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *NH50RC / NH57RC* notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
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Processor 1/6 - Page B - 3	GPU GND - Page B - 27	VDD1.05V, VCCIO - Page B - 51
Processor 2/6 - Page B - 4	mDP - Page B - 28	VDD3, VDD5 - Page B - 52
Processor 3/6 - Page B - 5	mDP - Page B - 29	DDR 1.2V / 0.6VS, 2.5V - Page B - 53
Processor 4/6 - Page B - 6	Panel, Inverter - Page B - 30	VCore Output Stage - Page B - 54
Processor 5/6 - Page B - 7	HDMI - Page B - 31	VCC_Core & VCCGT - Page B - 55
Processor 6/6 - Page B - 8	PCH 1/9 - Page B - 32	1.05DX_VCCSTG/VCCSFR_OC - Page B - 56
DDR4 CHA SO-DIMM - Page B - 9	PCH 2/9 - Page B - 33	VCCGT & VCCSA Output Stage - Page B - 57
DDR4 CHB SO-DIMM - Page B - 10	PCH 3/9 - Page B - 34	AC_In, Charger - Page B - 58
VGA PCI Express - Page B - 11	PCH 4/9 - Page B - 35	NVVDD1 - Page B - 59
GPU Frame Buffer Partition - Page B - 12	PCH 5/9 - Page B - 36	NVVDD2 - Page B - 60
Frame Buffer A - Page B - 13	PCH 6/9 - Page B - 37	PEX_VDD - Page B - 61
Frame Buffer A - Page B - 14	PCH 7/9 - Page B - 38	FBVDDQ - Page B - 62
Frame Buffer B - Page B - 15	PCH 8/9 - Page B - 39	IV8_RUN/AON - Page B - 63
Frame Buffer B - Page B - 16	PCH 9/9 - Page B - 40	Audio Board - Page B - 64
Frame Buffer C/D - Page B - 17	M.2 Card - Page B - 41	NH50 PW Board - Page B - 65
Frame Buffer C - Page B - 18	M.2 WLAN+BT - Page B - 42	Hall Sensor Board - Page B - 66
Frame Buffer C - Page B - 19	USB Charger - Page B - 43	Click Board - Page B - 67
GPU Decoupling 1 - Page B - 20	Card Reader / LAN RTL8411B - Page B - 44	LED Board - Page B - 68
GPU Decoupling 2 - Page B - 21	HDD, Click TP, Audio, Hall Con. - Page B - 45	NH70 PW Board - Page B - 69
Straps and XTAL - Page B - 22	LED, CCD, TPM, Power SW Con. - Page B - 46	Power Sequence - Page B - 70
IFP I/O Interface - Page B - 23	Audio Codec - Page B - 47	USB Type-C - Page B - 71
Misc - GPIO, I2C and ROM - Page B - 24	KBC-ITE IT8587 - Page B - 48	PD Controller ANX7411 - Page B - 72
NVIDIA Power Sequence - Page B - 25	RGB KB Only - Page B - 49	PER KEY Board - Page B - 73

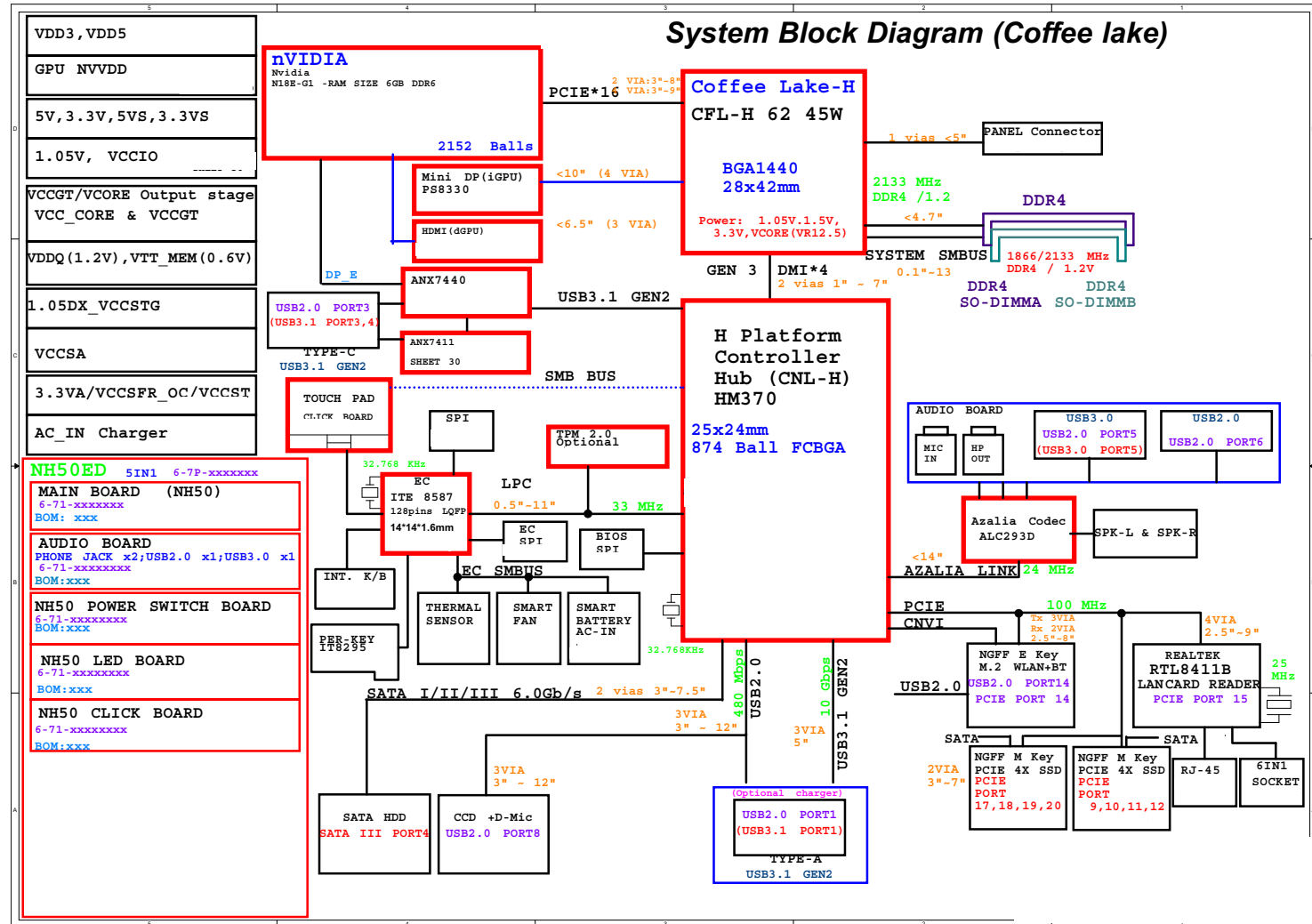
Table B - 1  
**SCHEMATIC  
DIAGRAMS**



## Version Note

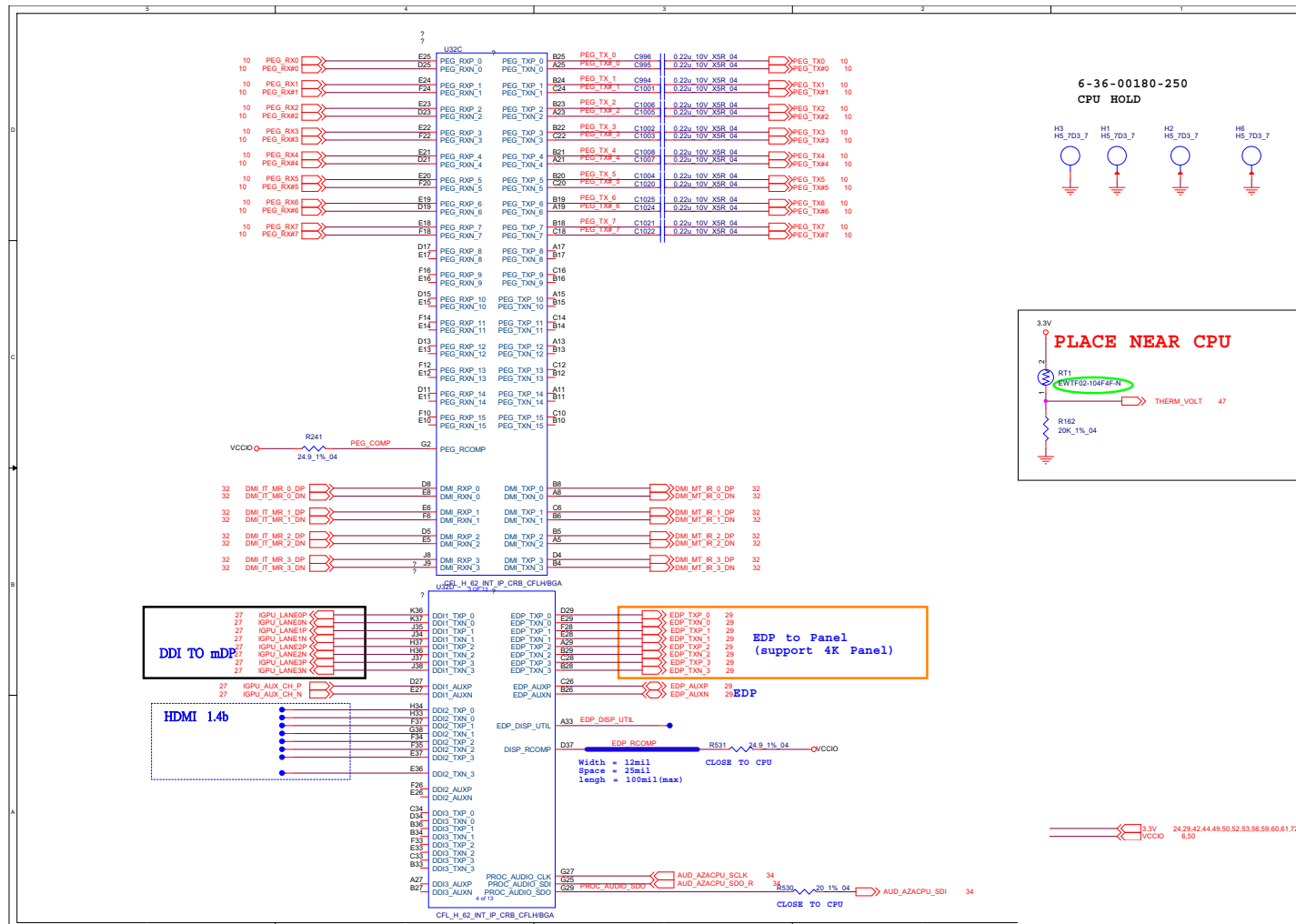
The schematic diagrams in this chapter are based upon version 6-7P-NH506-003. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

# System Block Diagram



Sheet 1 of 73  
System Block  
Diagram

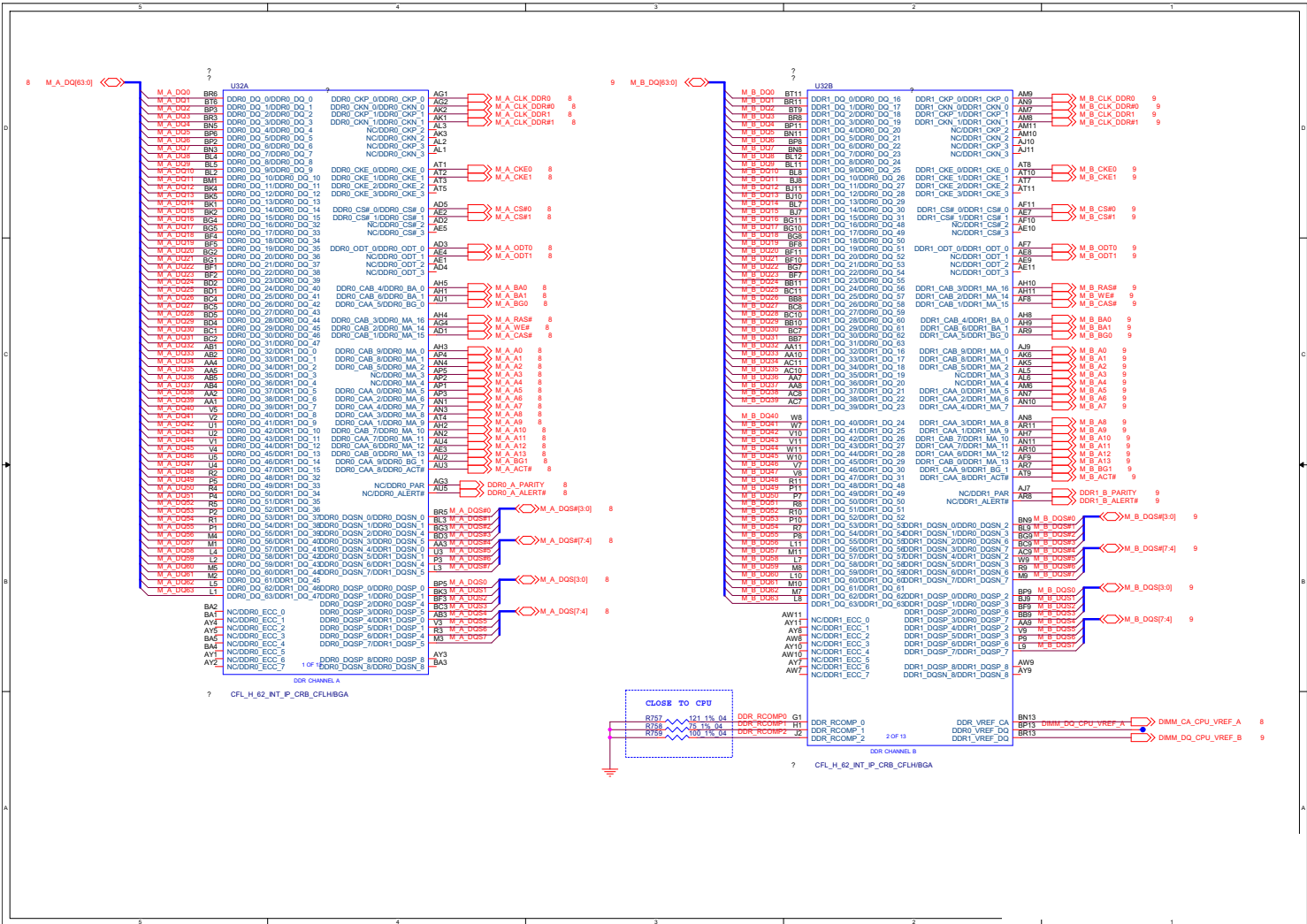
## B.Schematic Diagrams



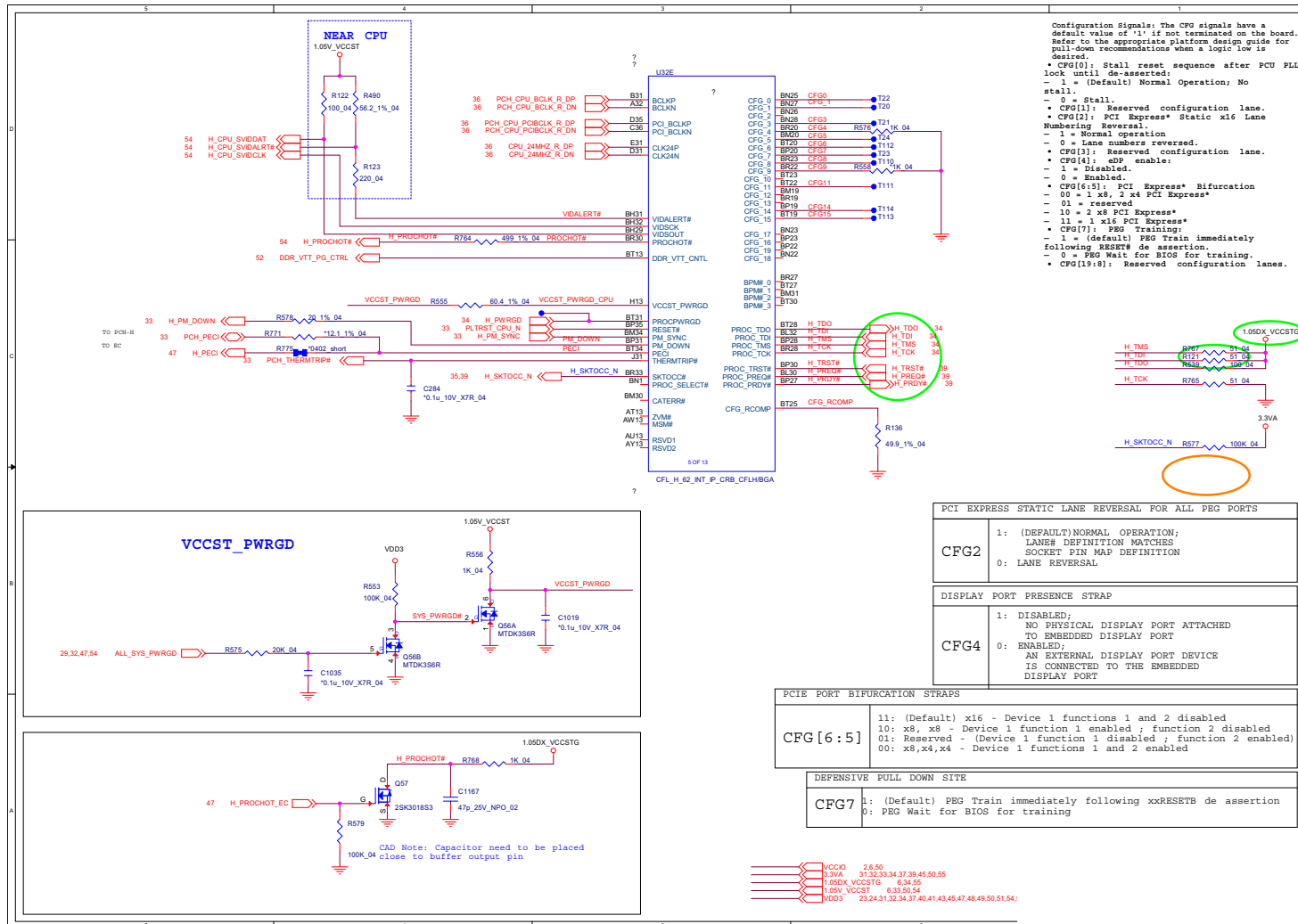
Sheet 2 of 73  
Processor 1/6

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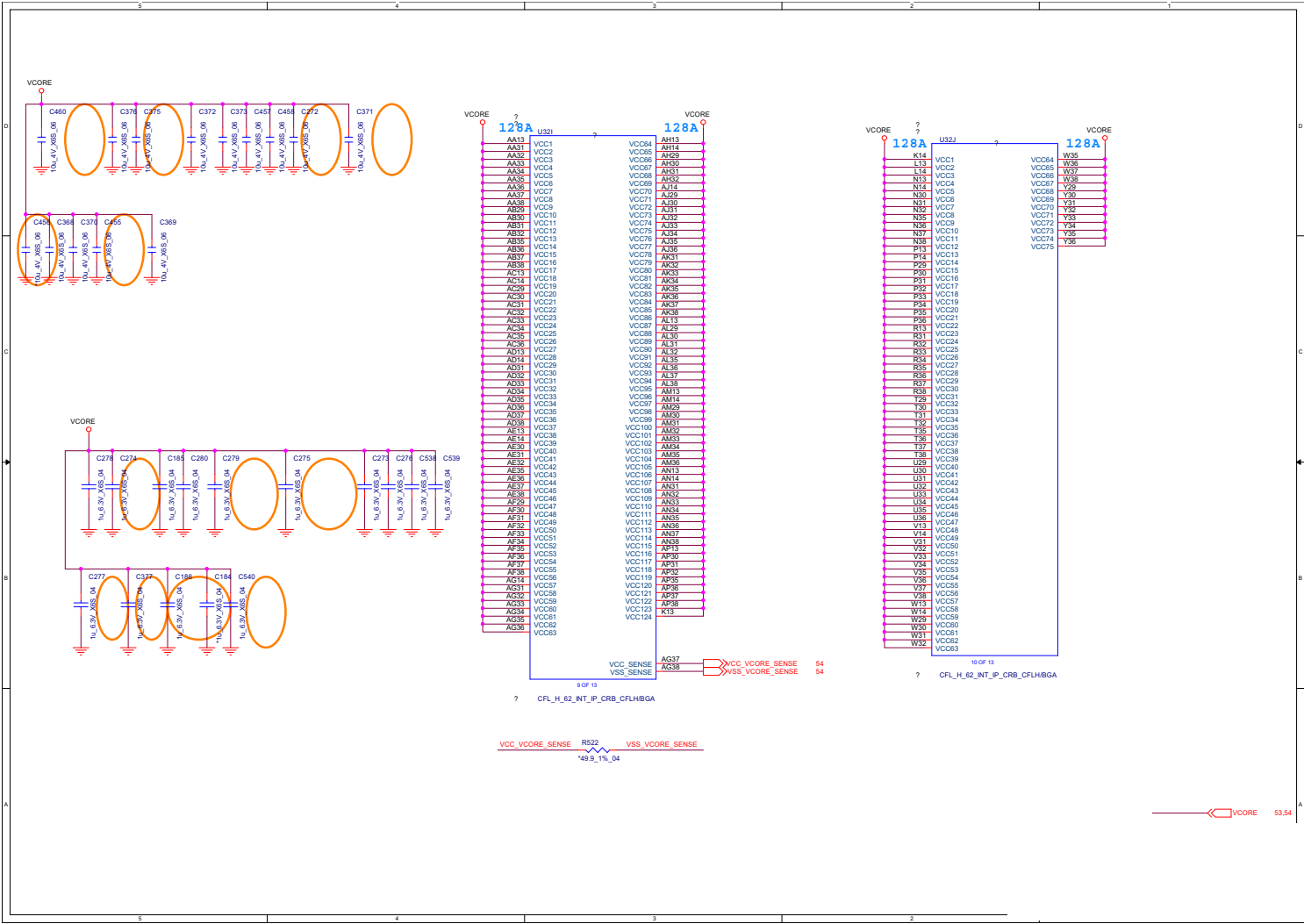
## Processor 2/6



## Processor 3/6

Sheet 4 of 73  
Processor 3/6

Processor 4/6

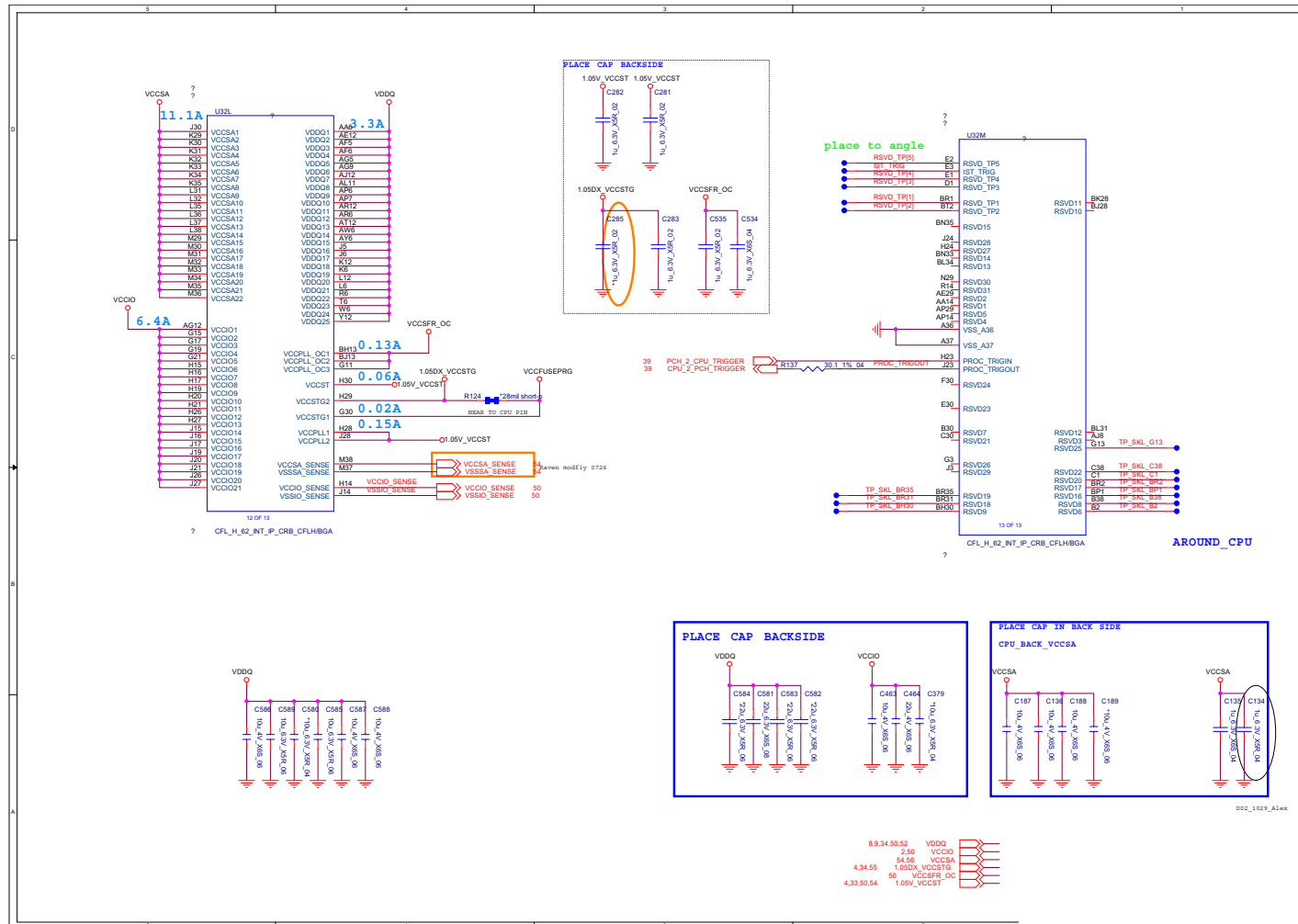


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Processor 4/6

B.Schematic Diagrams

# Processor 5/6

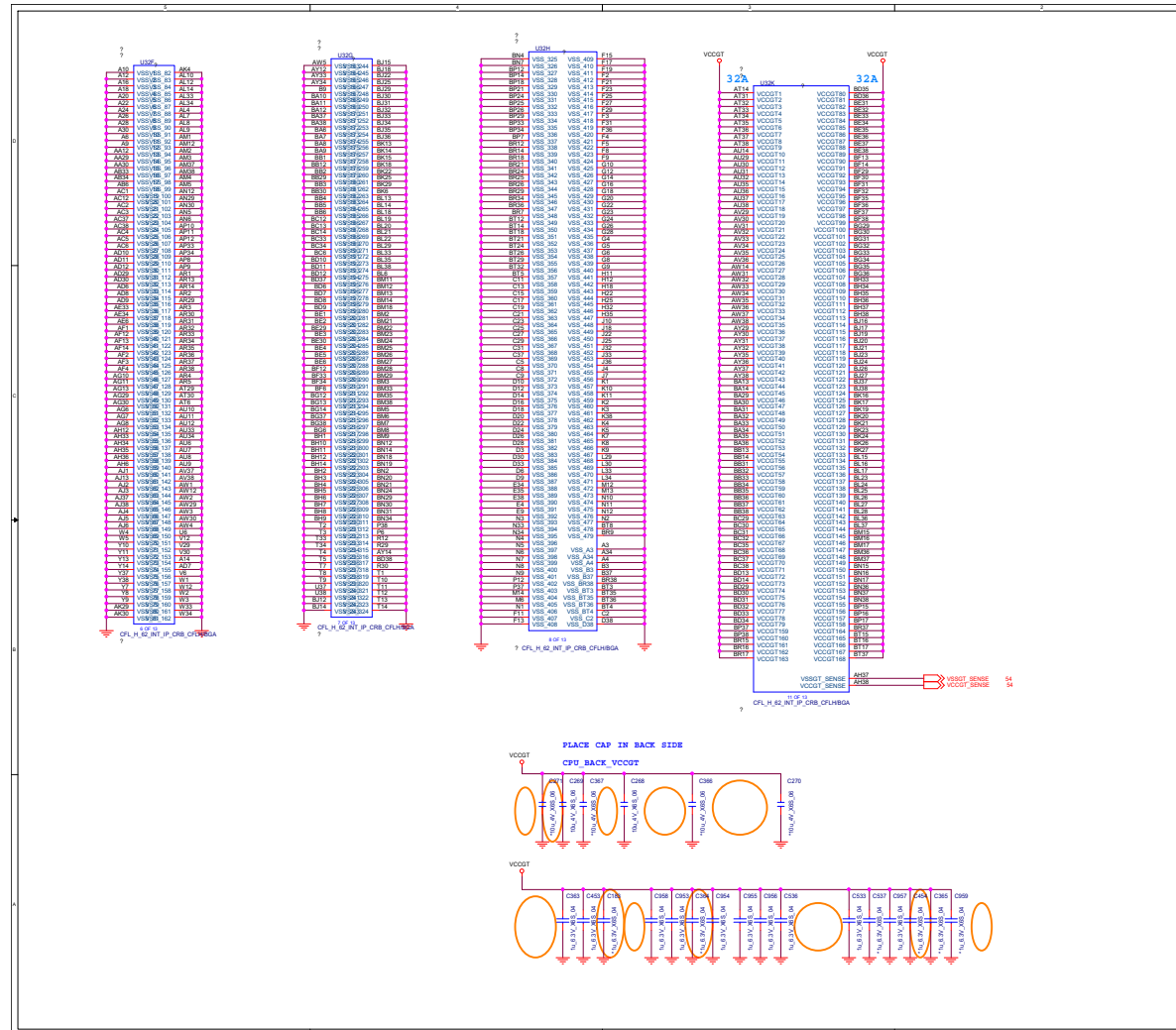
Sheet 6 of 73  
Processor 5/6



## Schematic Diagrams

## Processor 6/6

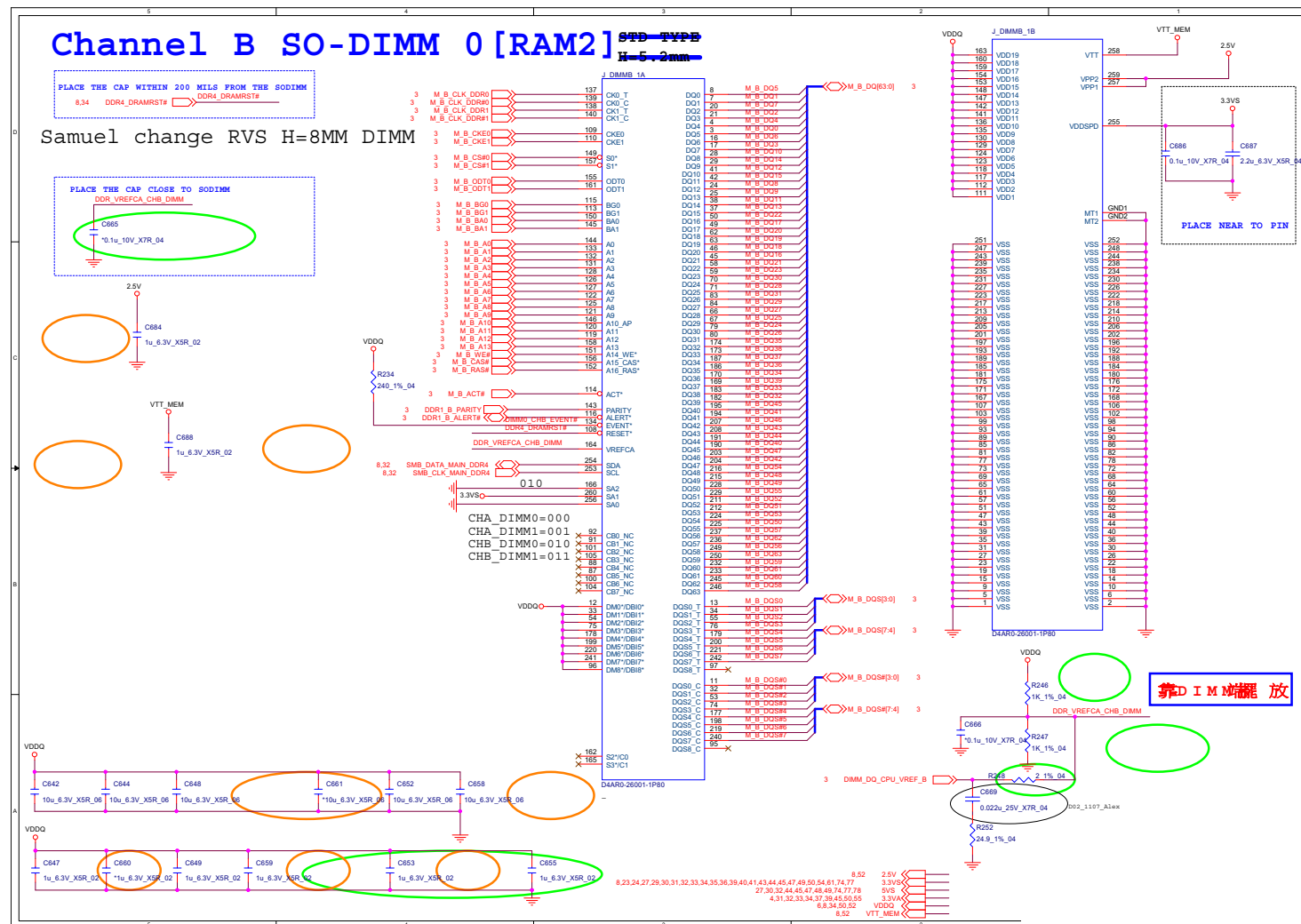
Sheet 7 of 73  
Processor 6/6



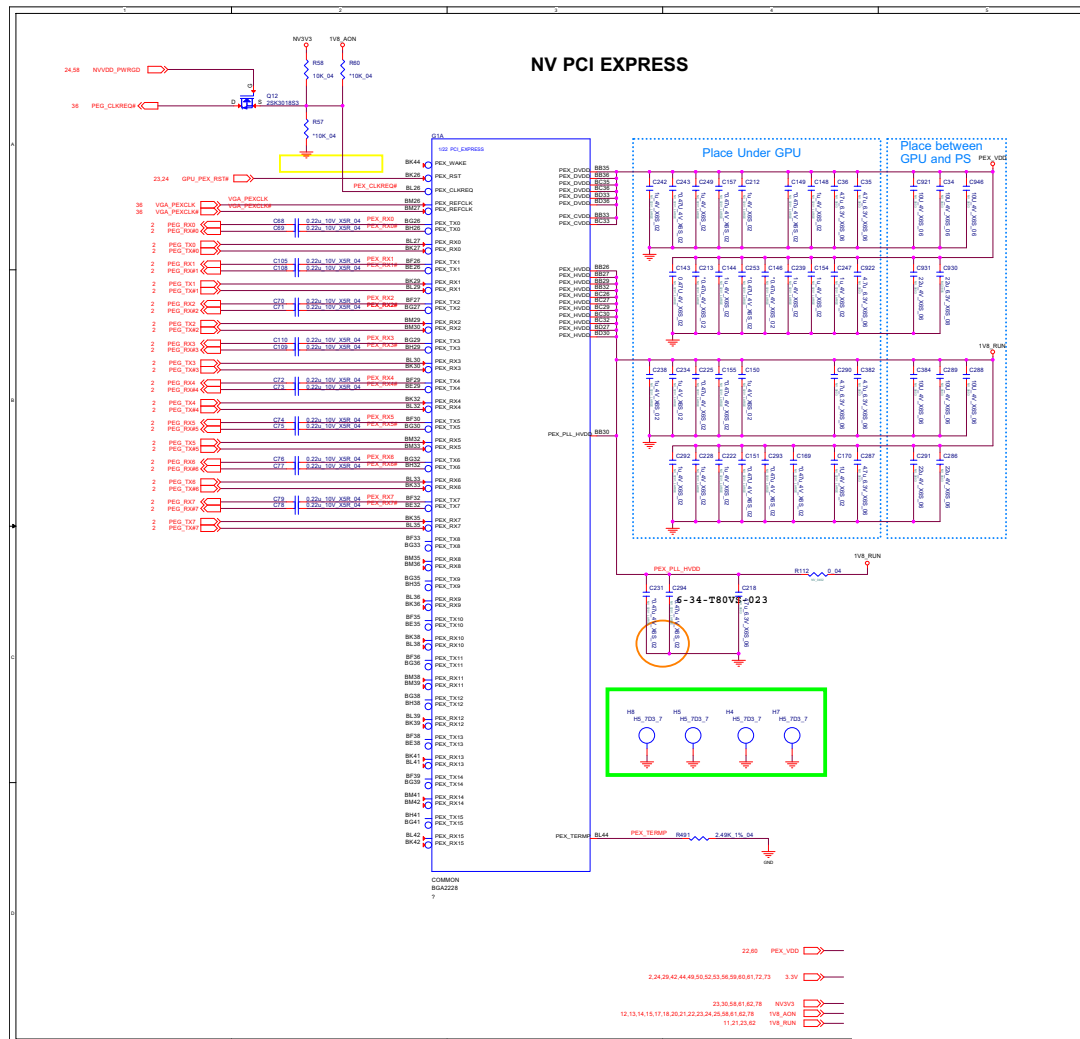


## DDR4 CHB SO-DIMM

**Sheet 9 of 73**  
**DDR4 CHB SO-**  
**DIMM**

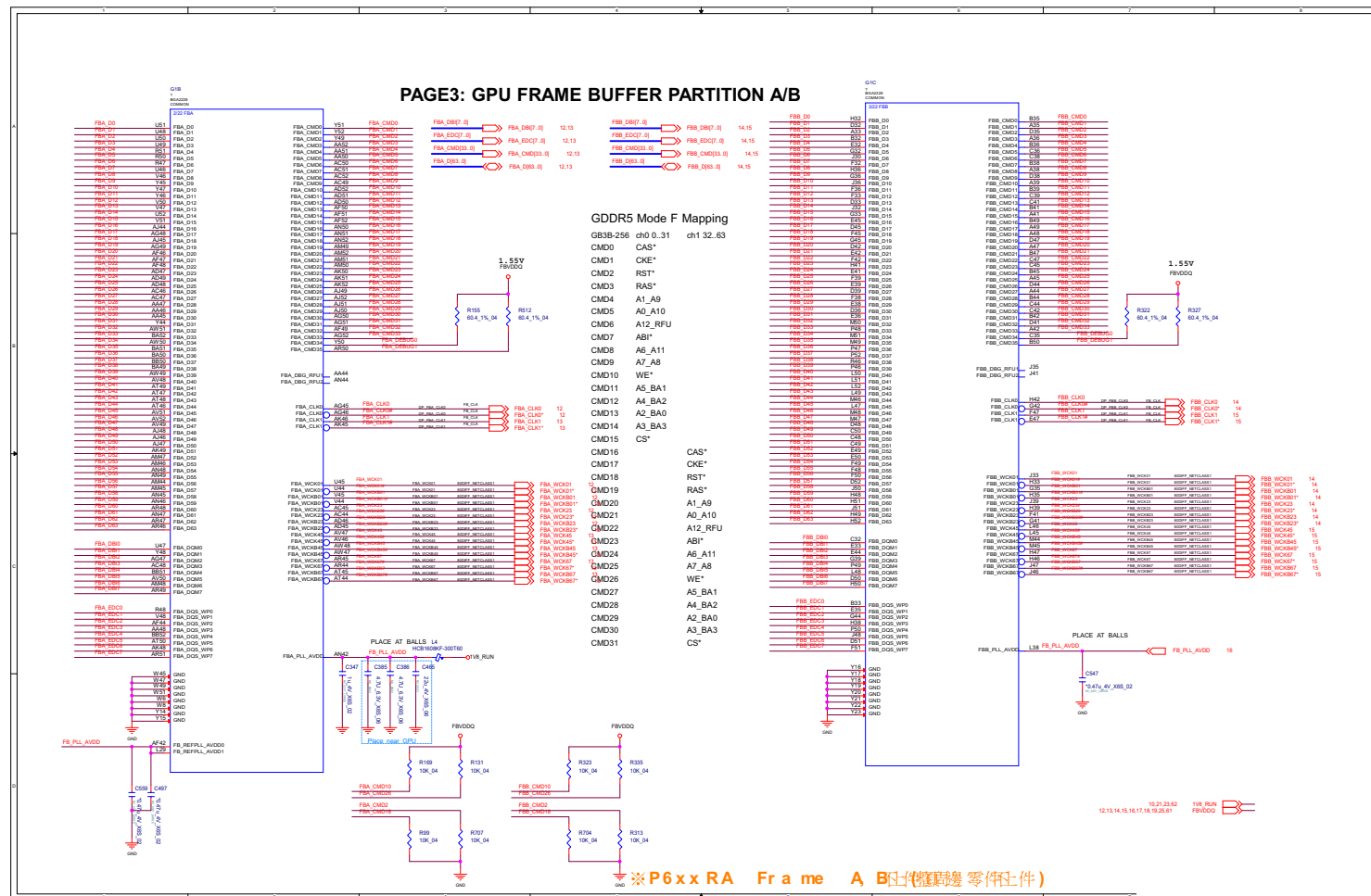


## VGA PCI Express B - 11

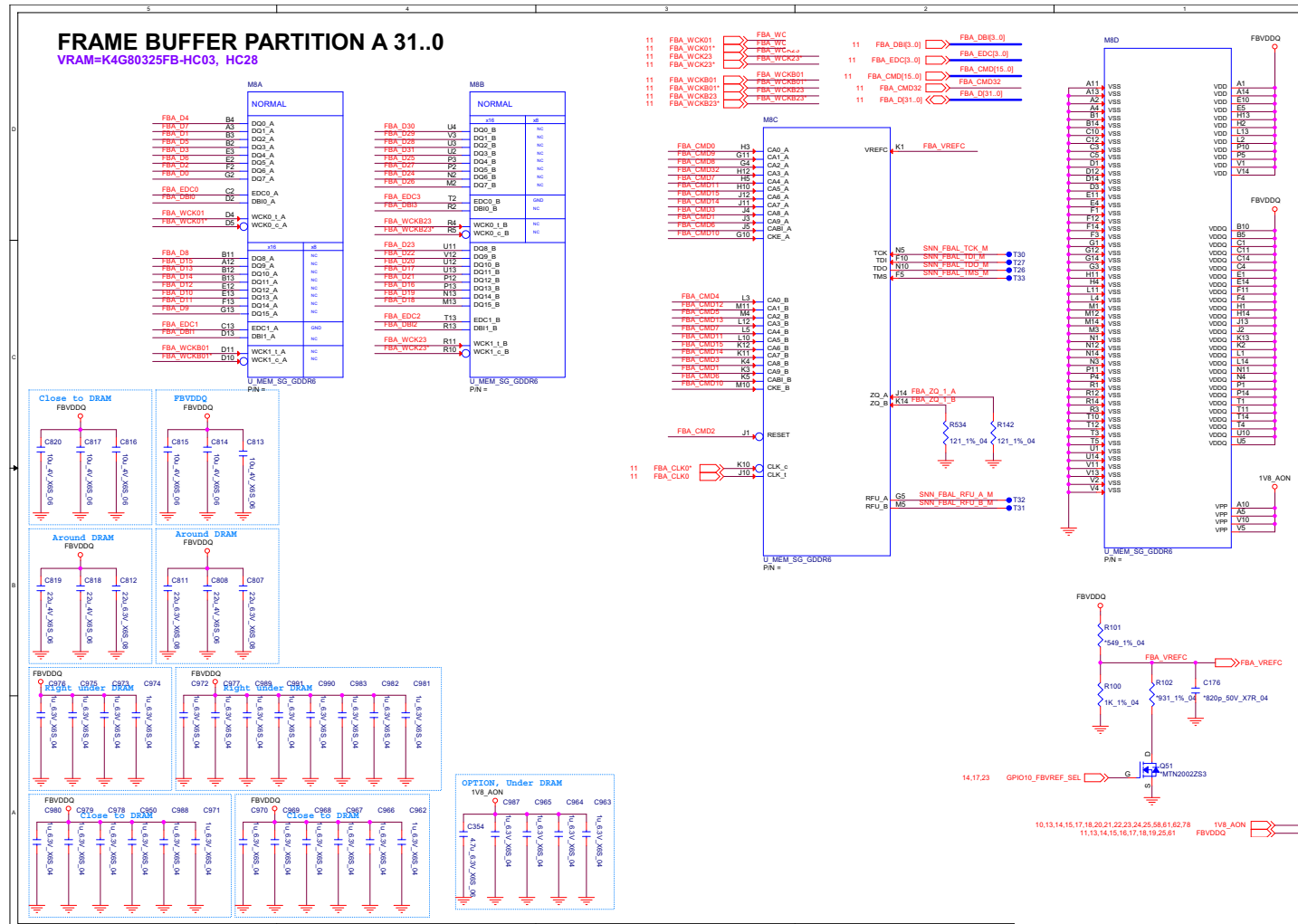


## GPU Frame Buffer Partition

Sheet 11 of 73  
GPU Frame Buffer  
Partition



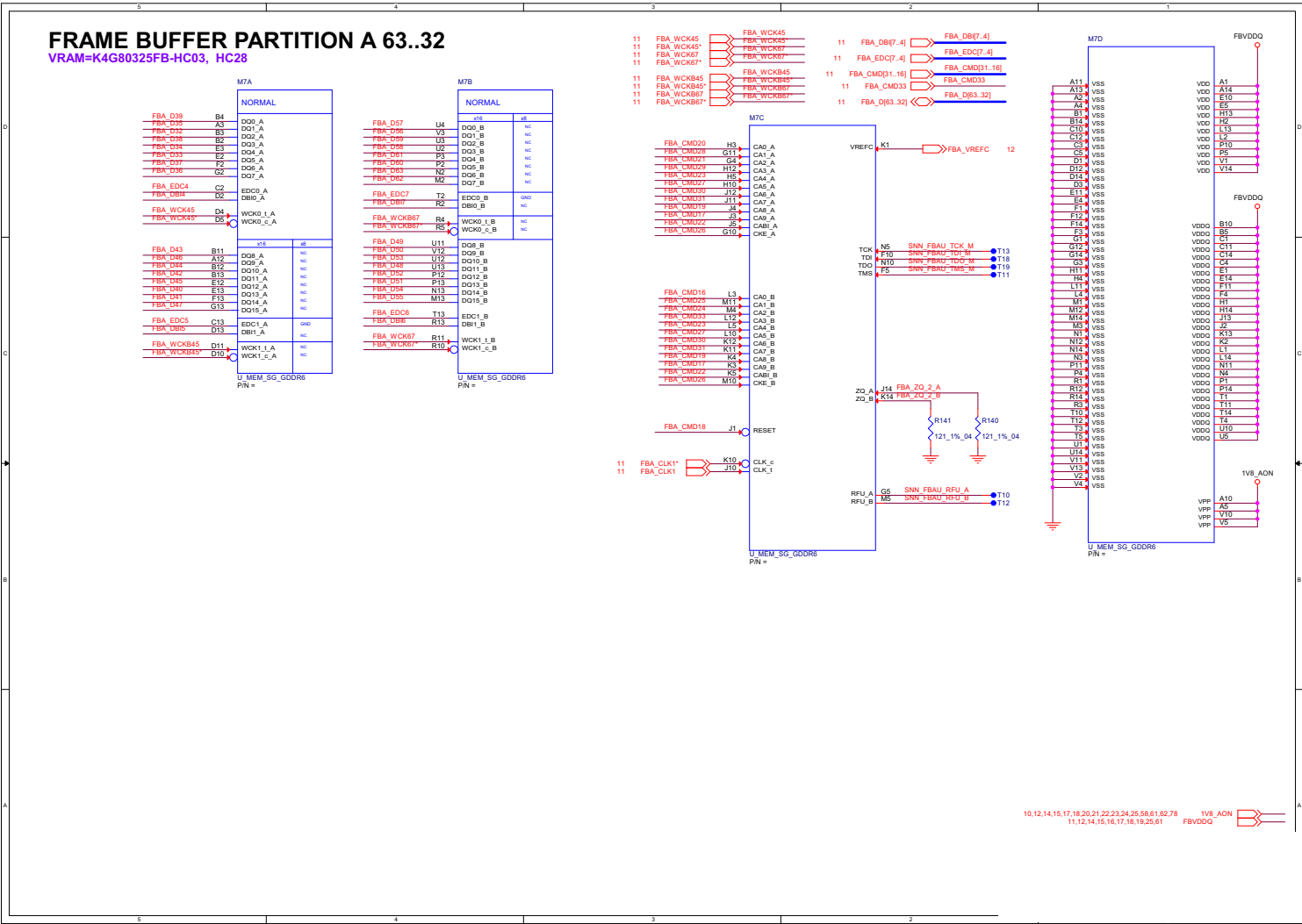
**Frame Buffer A B - 13**



Schematic Diagrams

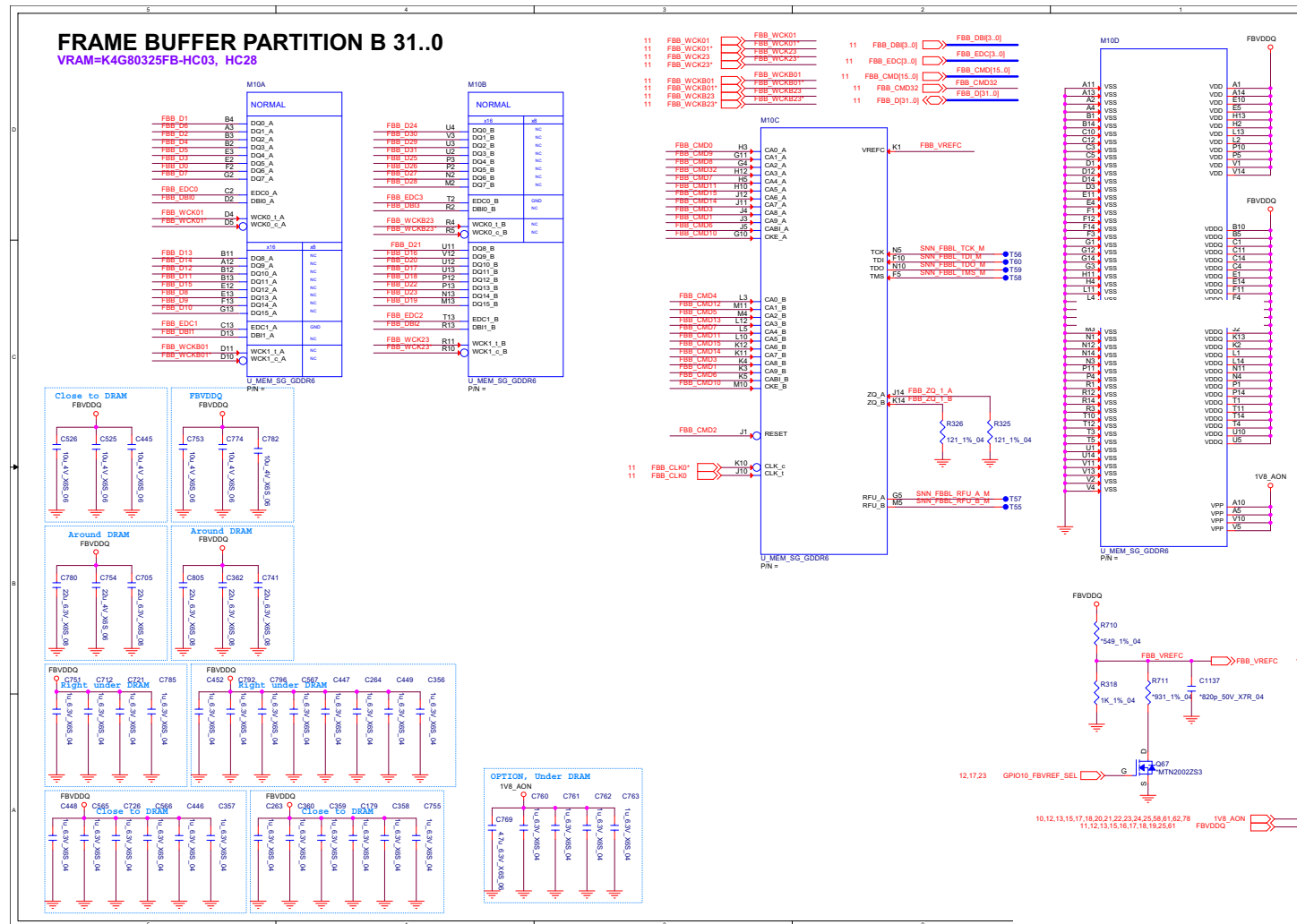
Frame Buffer A

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Frame Buffer A



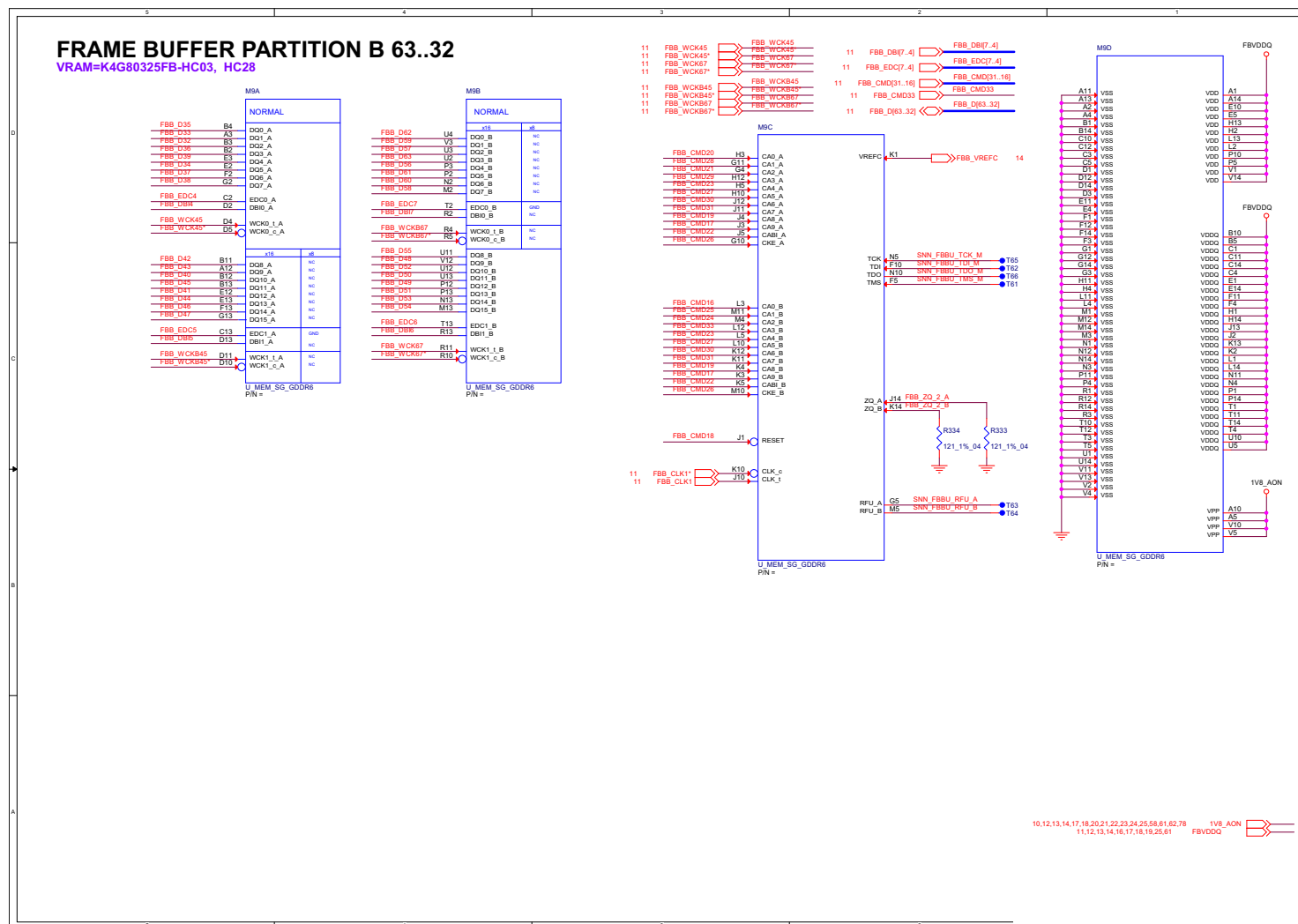
# Frame Buffer B

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Frame Buffer B

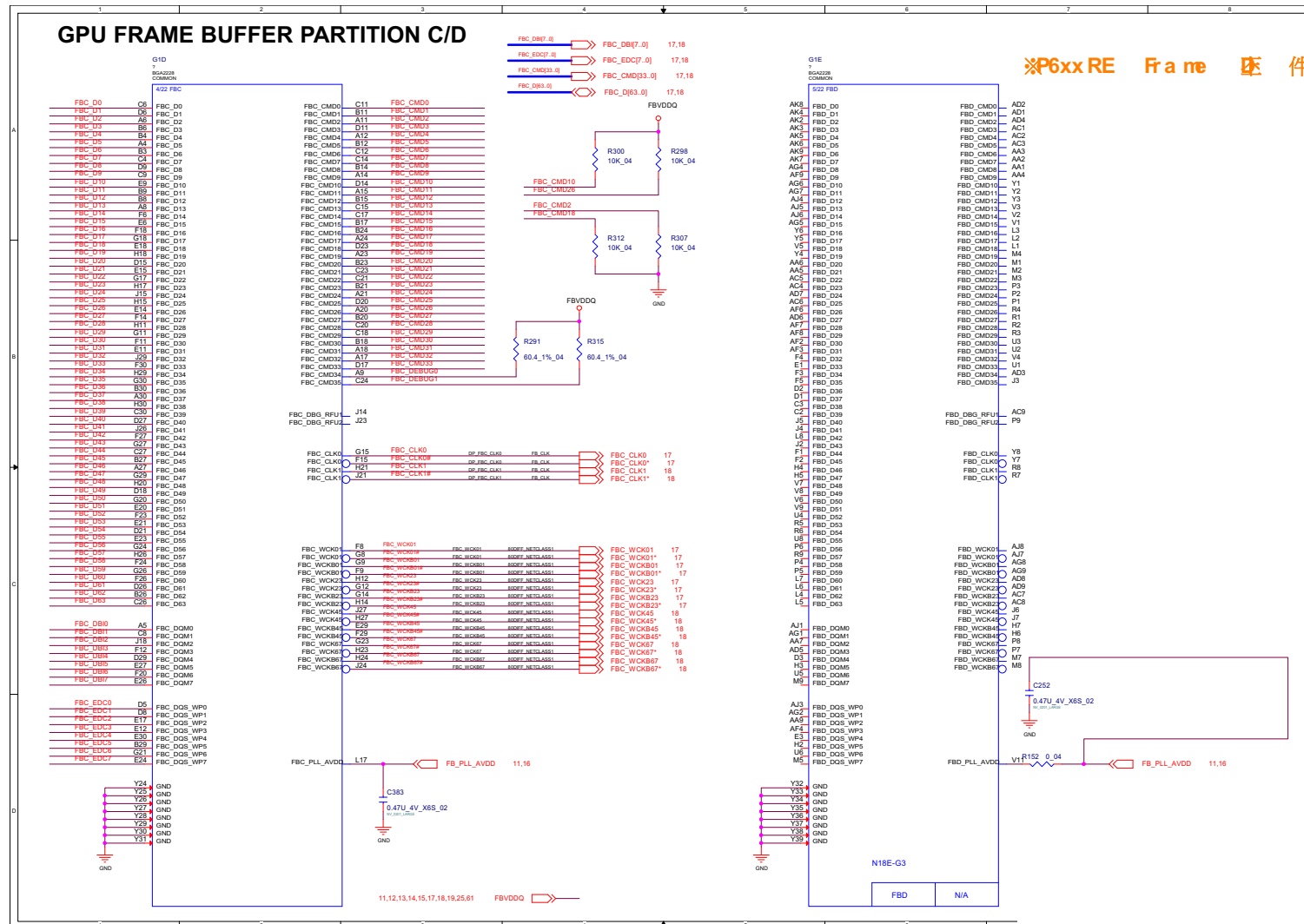


## B.Schematic Diagrams

Sheet 15 of 73  
Frame Buffer B

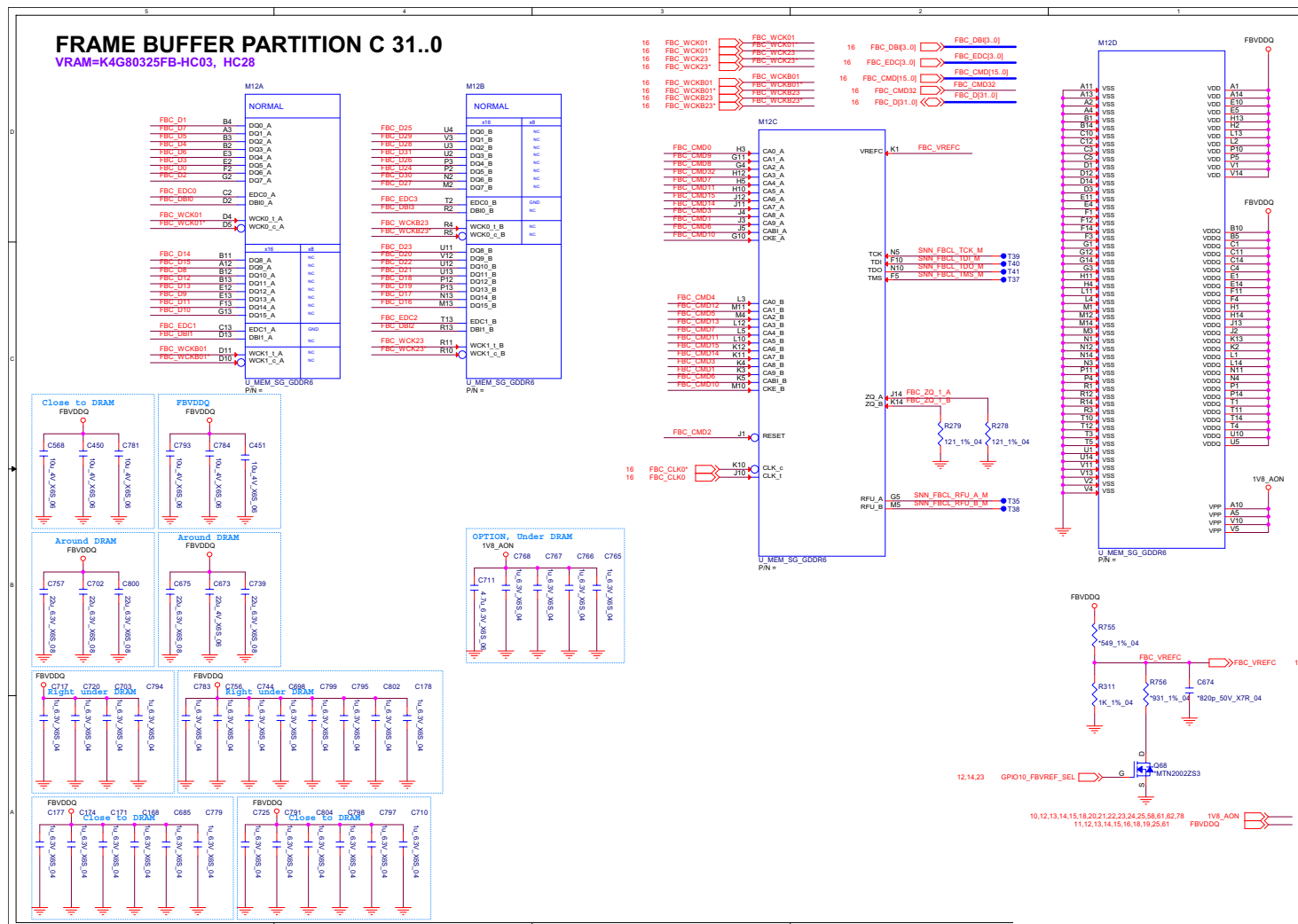


**Frame Buffer C/D B - 17**



## Frame Buffer C

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Frame Buffer C



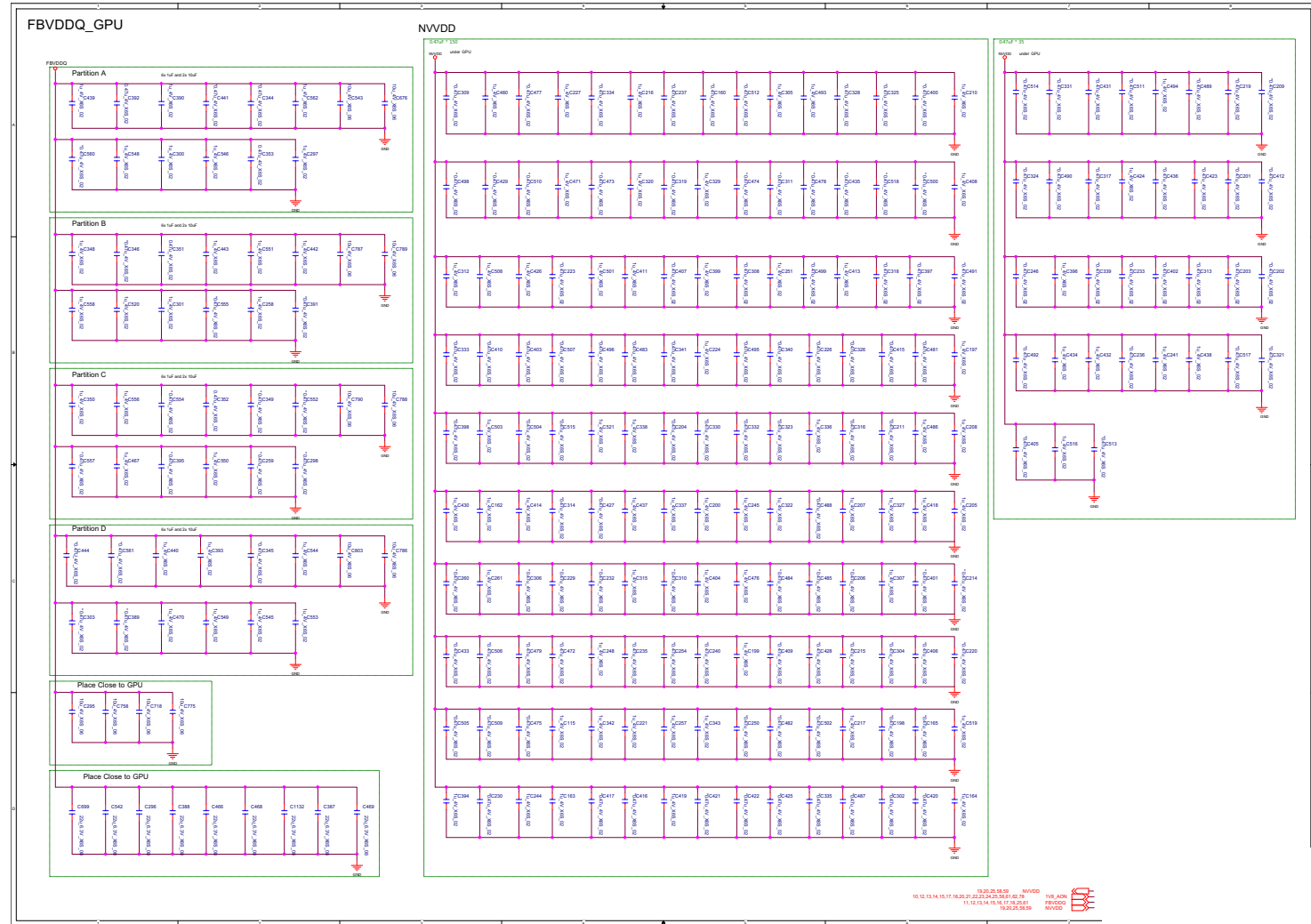
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## GPU Decoupling 1

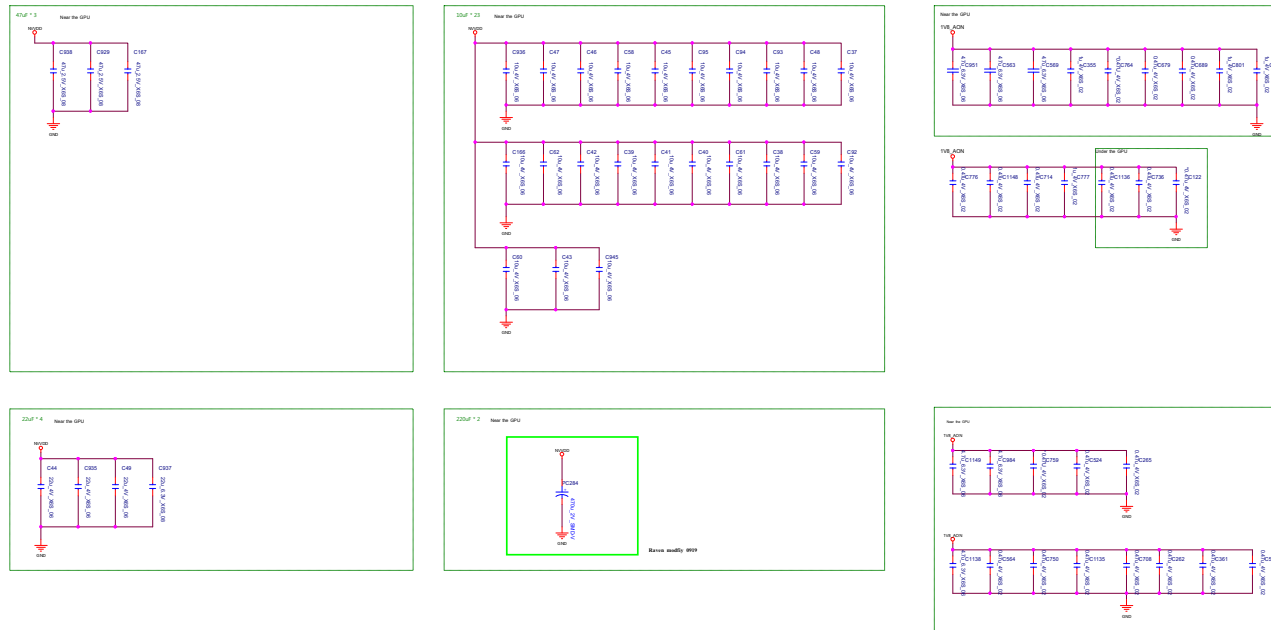
## B.Schematic Diagrams

Sheet 19 of 73  
GPU Decoupling 1



# GPU Decoupling 2

## GPU DECOUPLING



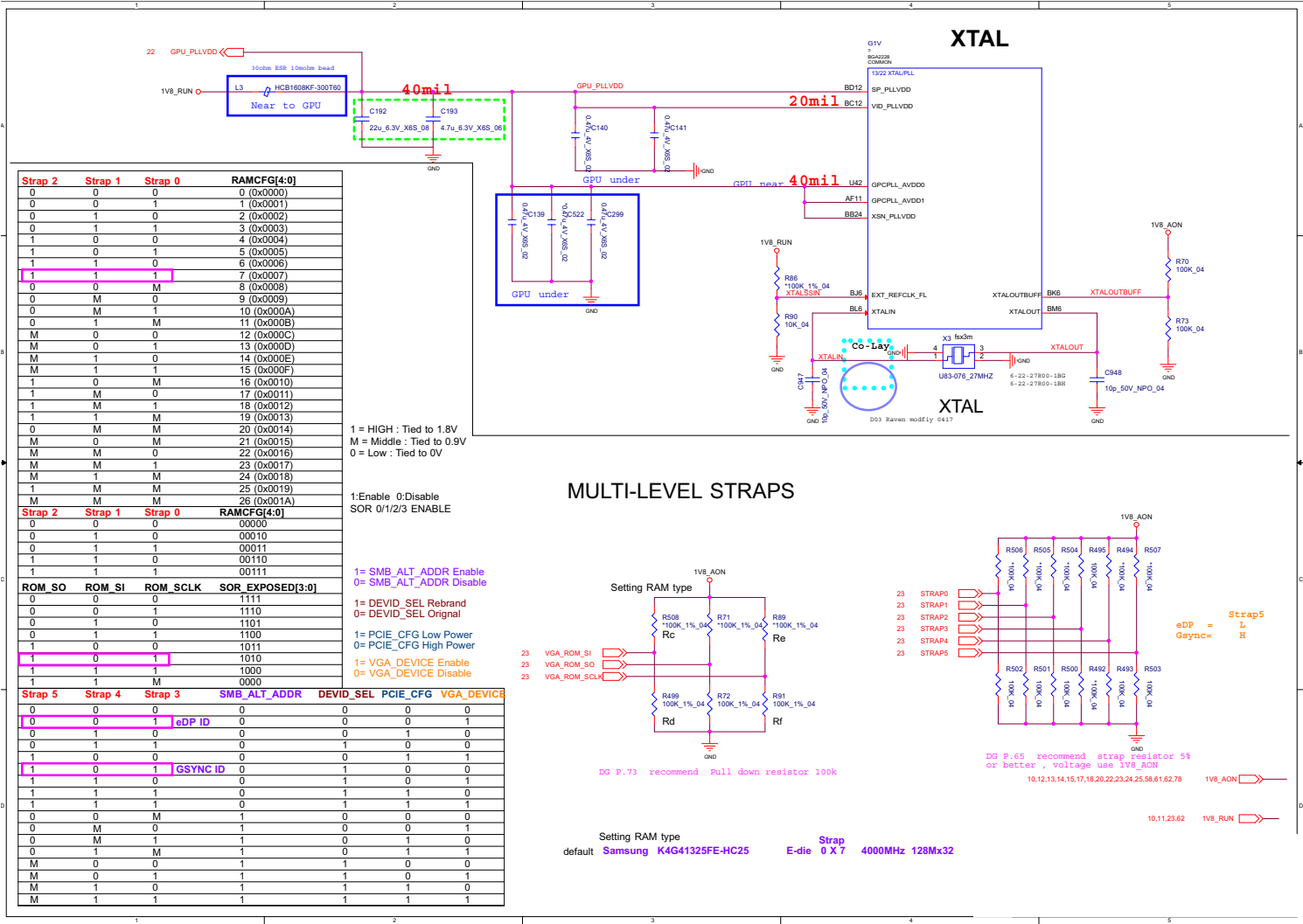
Sheet 20 of 73  
GPU Decoupling 2

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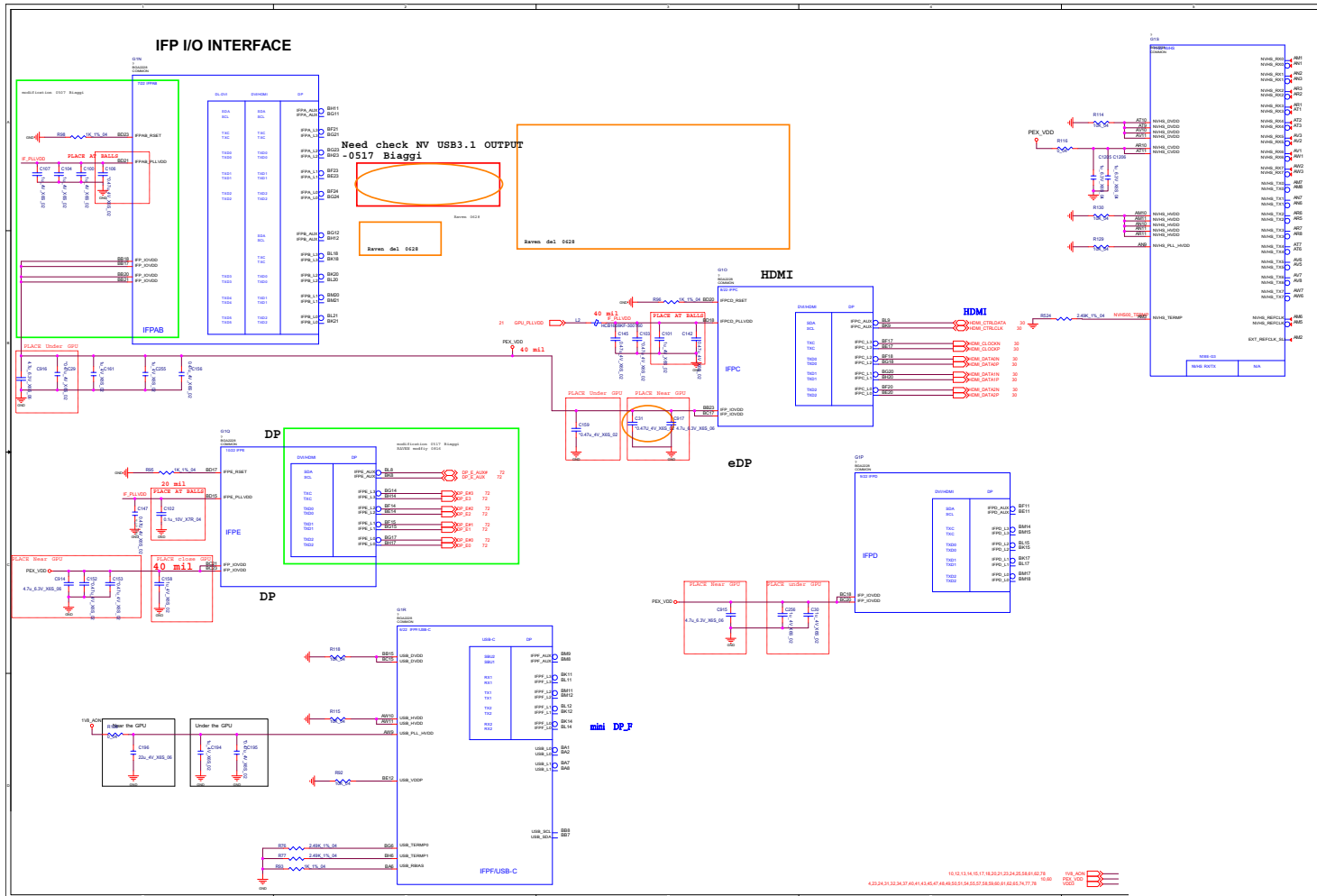
## Straps and XTAL

## B. Schematic Diagrams

**Sheet 21 of 73**  
**Straps and XTAL**



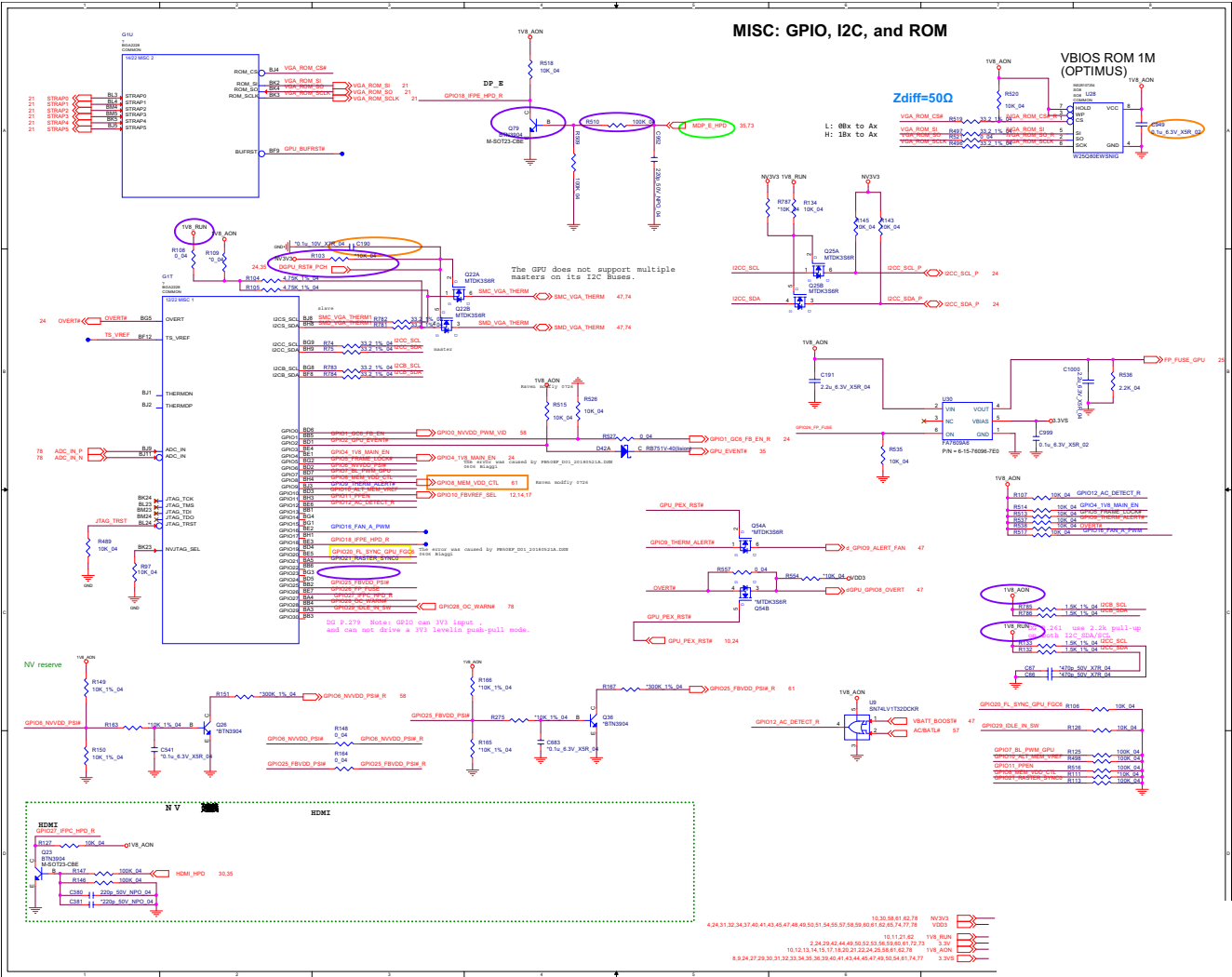
## IFP I/O Interface



**Sheet 22 of 73**  
**IFP I/O Interface**

Misc - GPIO, I2C and ROM

Sheet 23 of 73  
Misc - GPIO, I2C  
and ROM

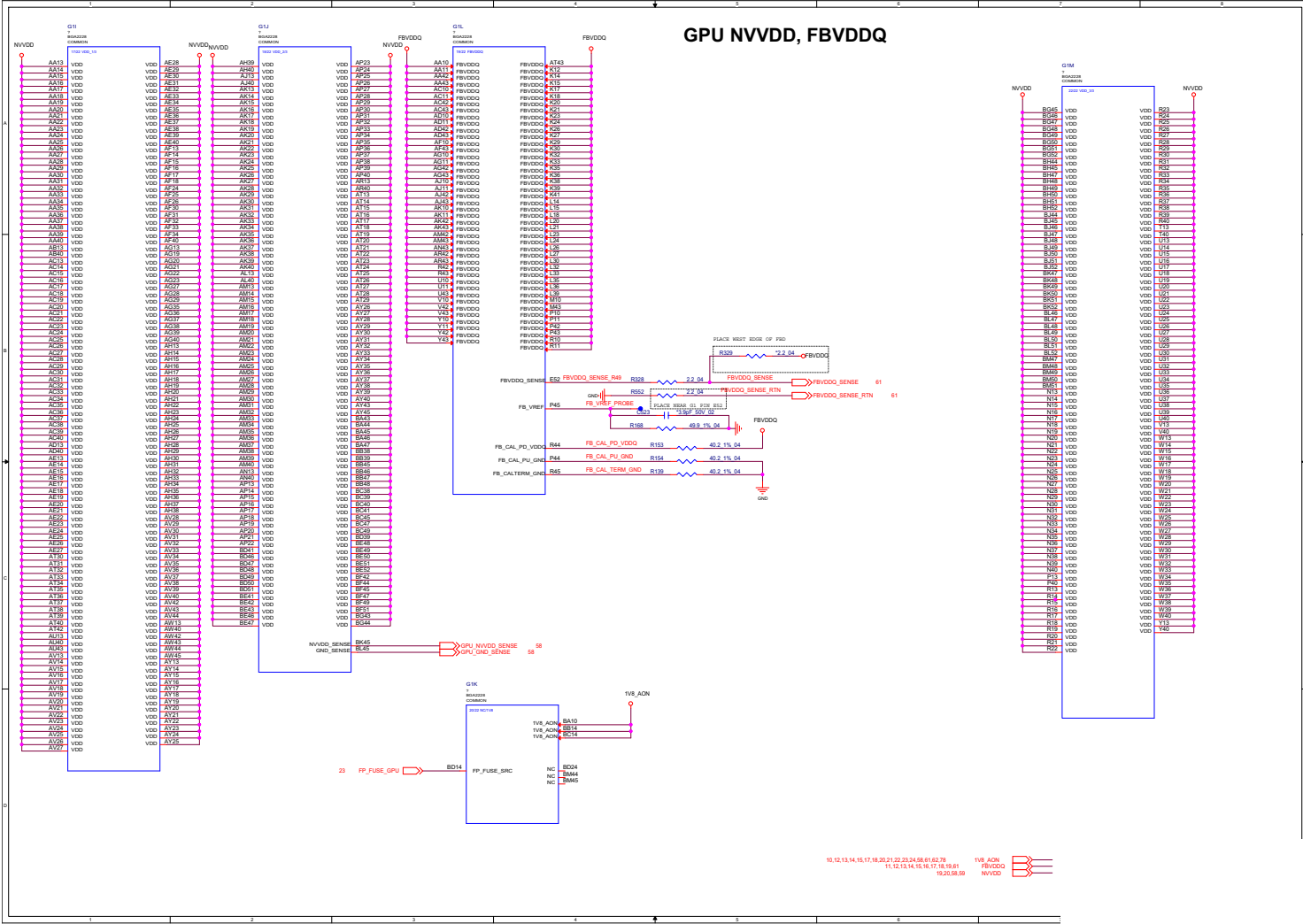


Sheet 24 of 73  
NVIDIA Power  
Sequence



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# GPU NVVDD, FBVDDQ



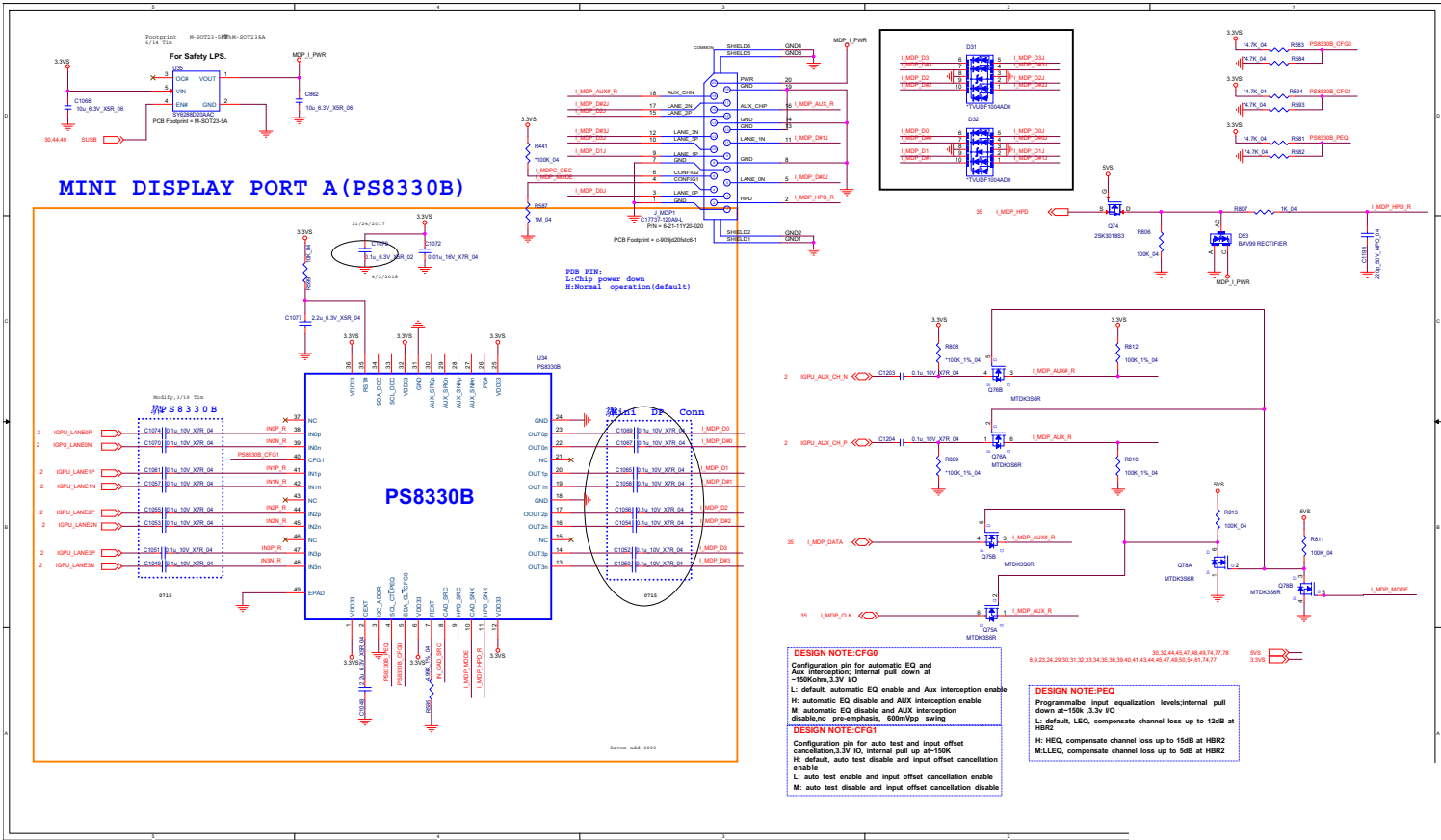


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# mDP

## B.Schematic Diagrams

**Sheet 27 of 73**  
**mDP**



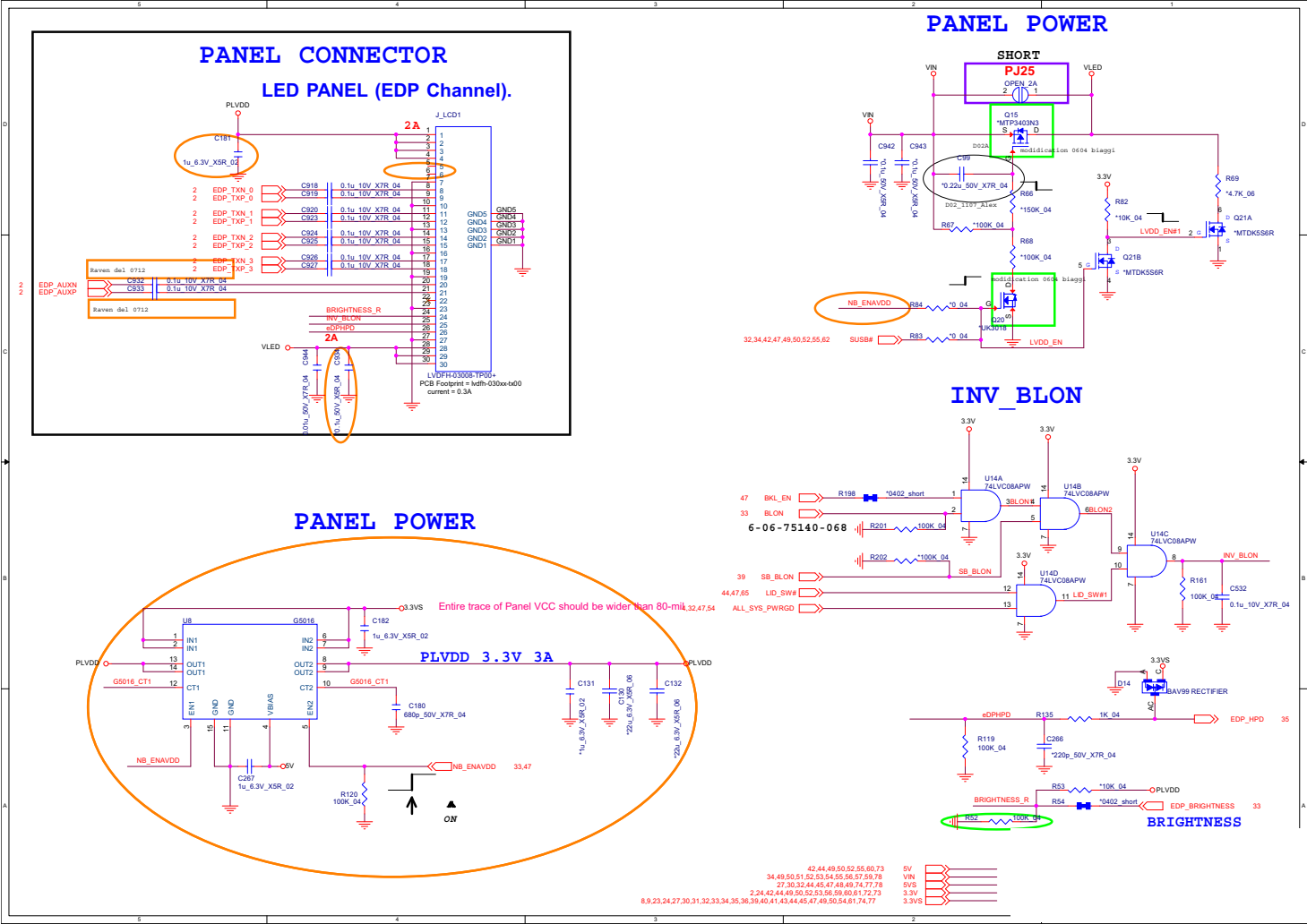
mDP

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mDP

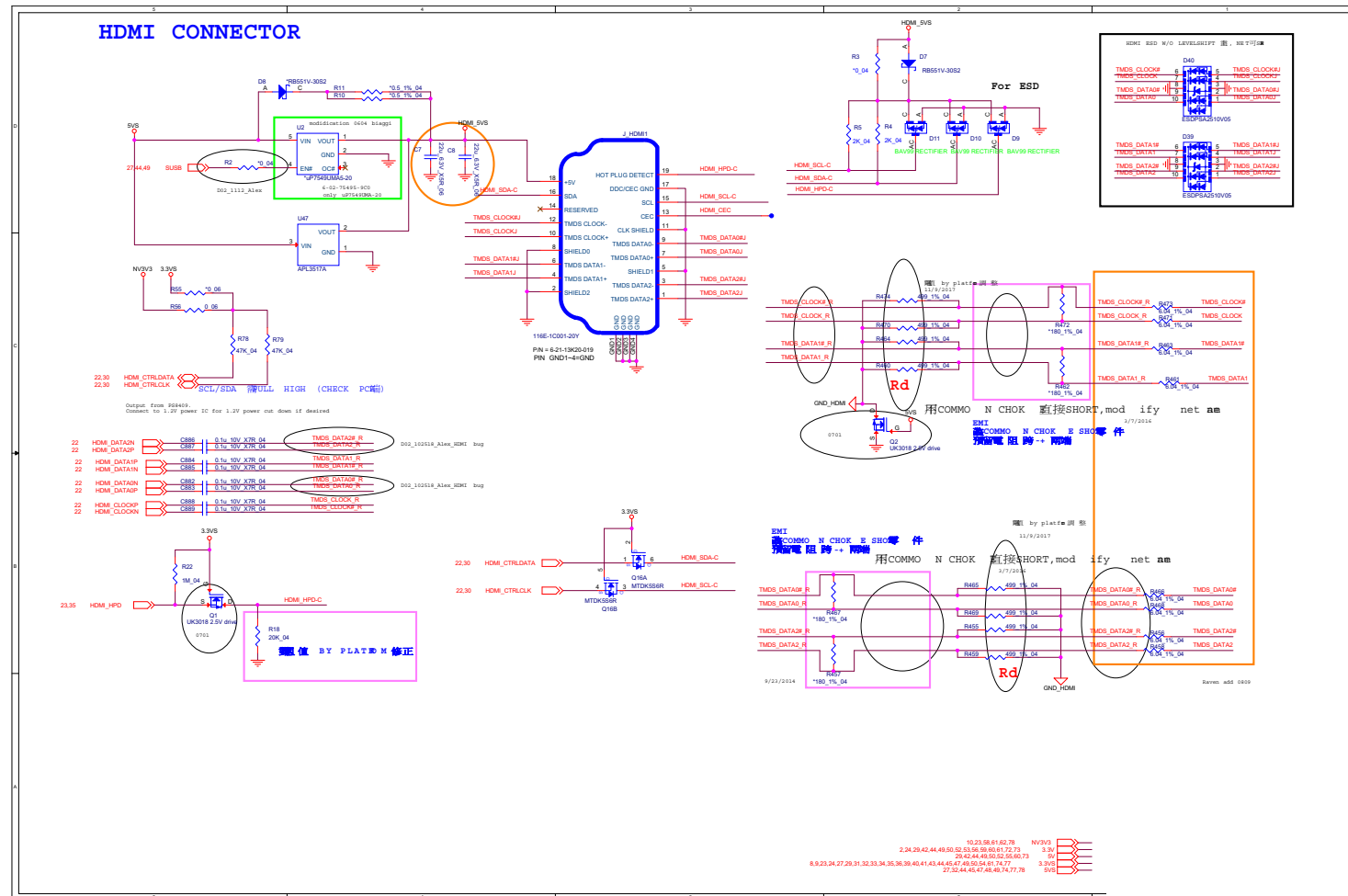
Schematic Diagrams

Panel, Inverter

Sheet 29 of 73  
Panel, Inverter



# HDMI

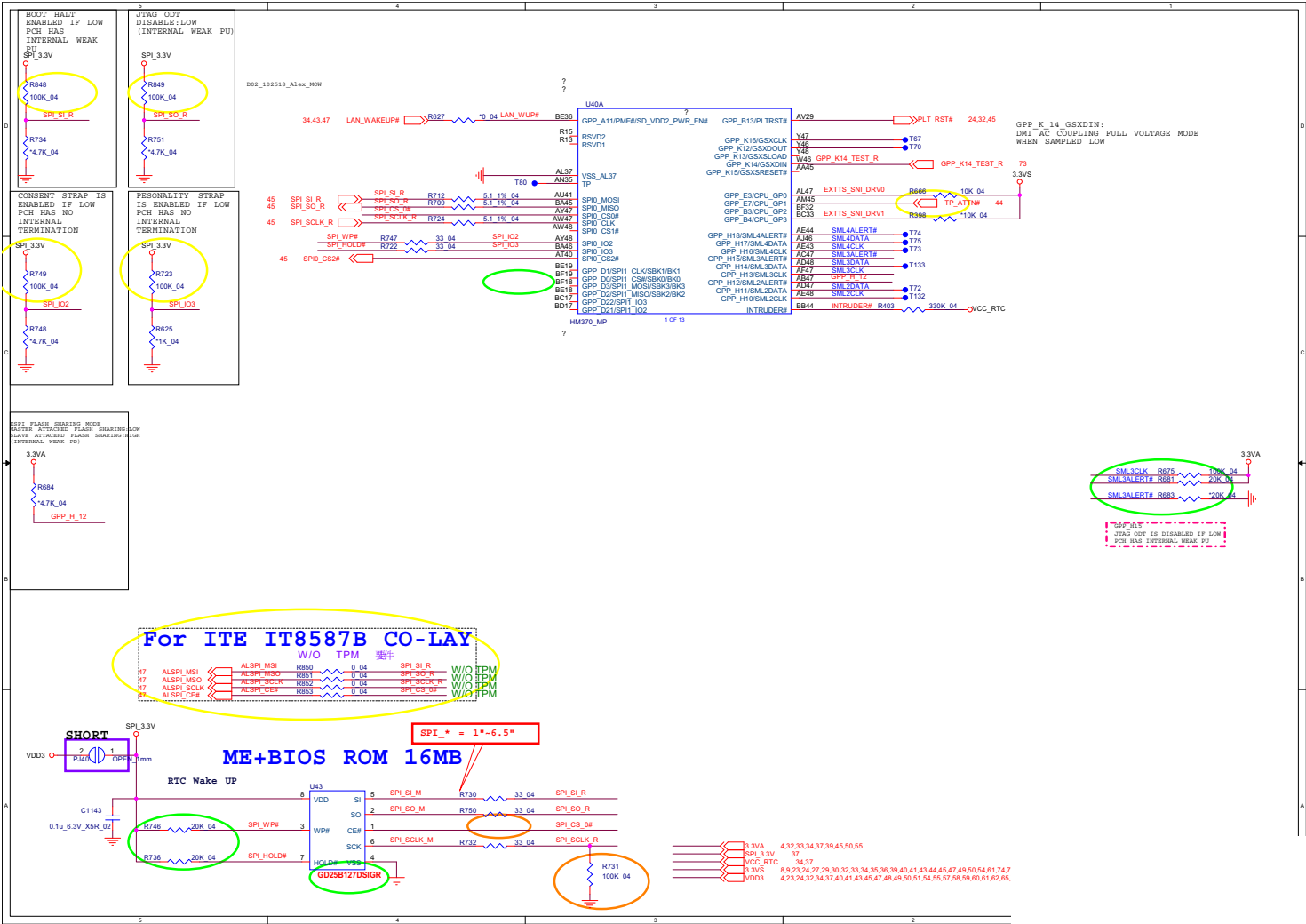


Sheet 30 of 73  
HDMI

Schematic Diagrams

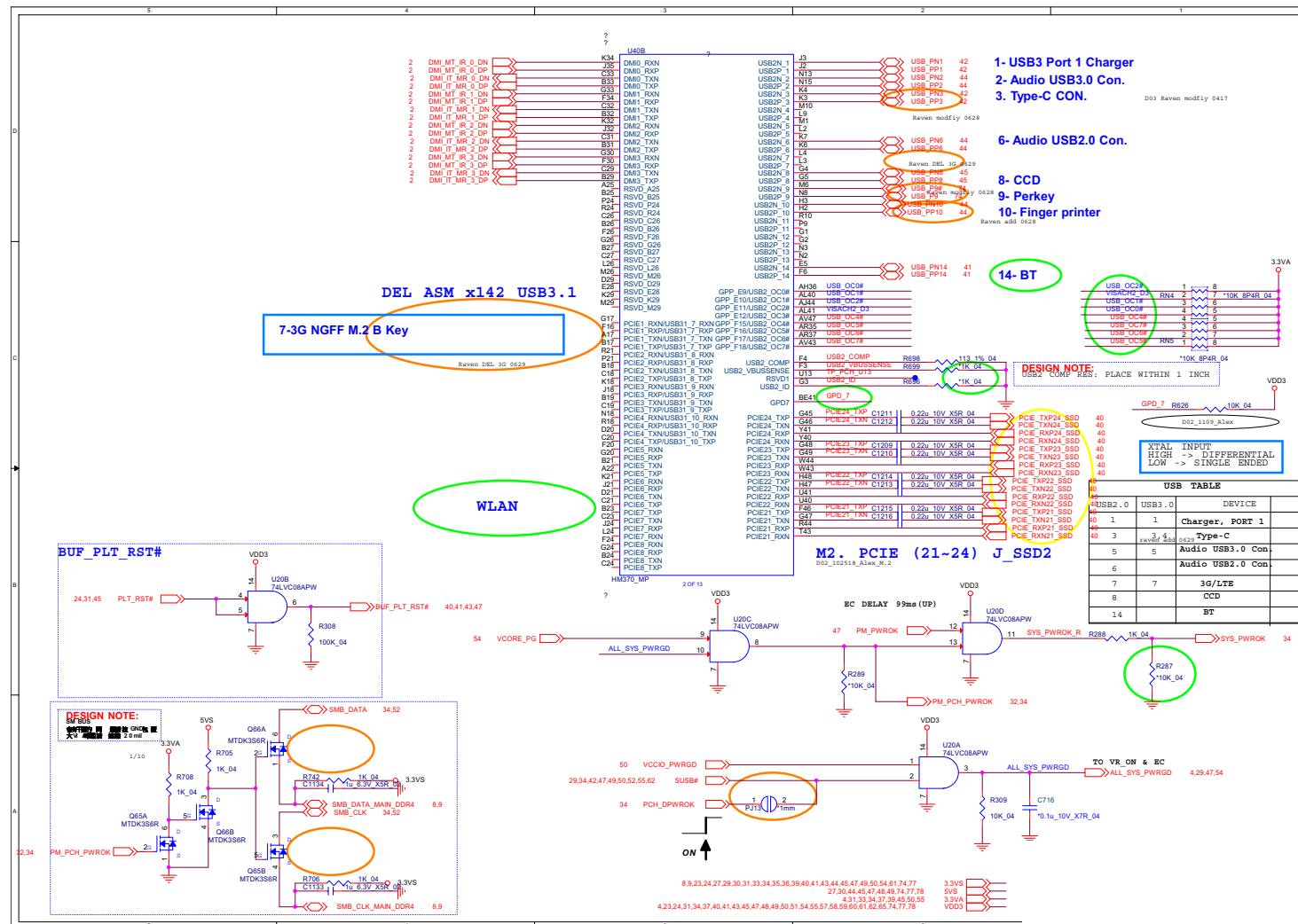
PCH 1/9

Sheet 31 of 73  
PCH 1/9



## Schematic Diagrams

**PCH 2/9**

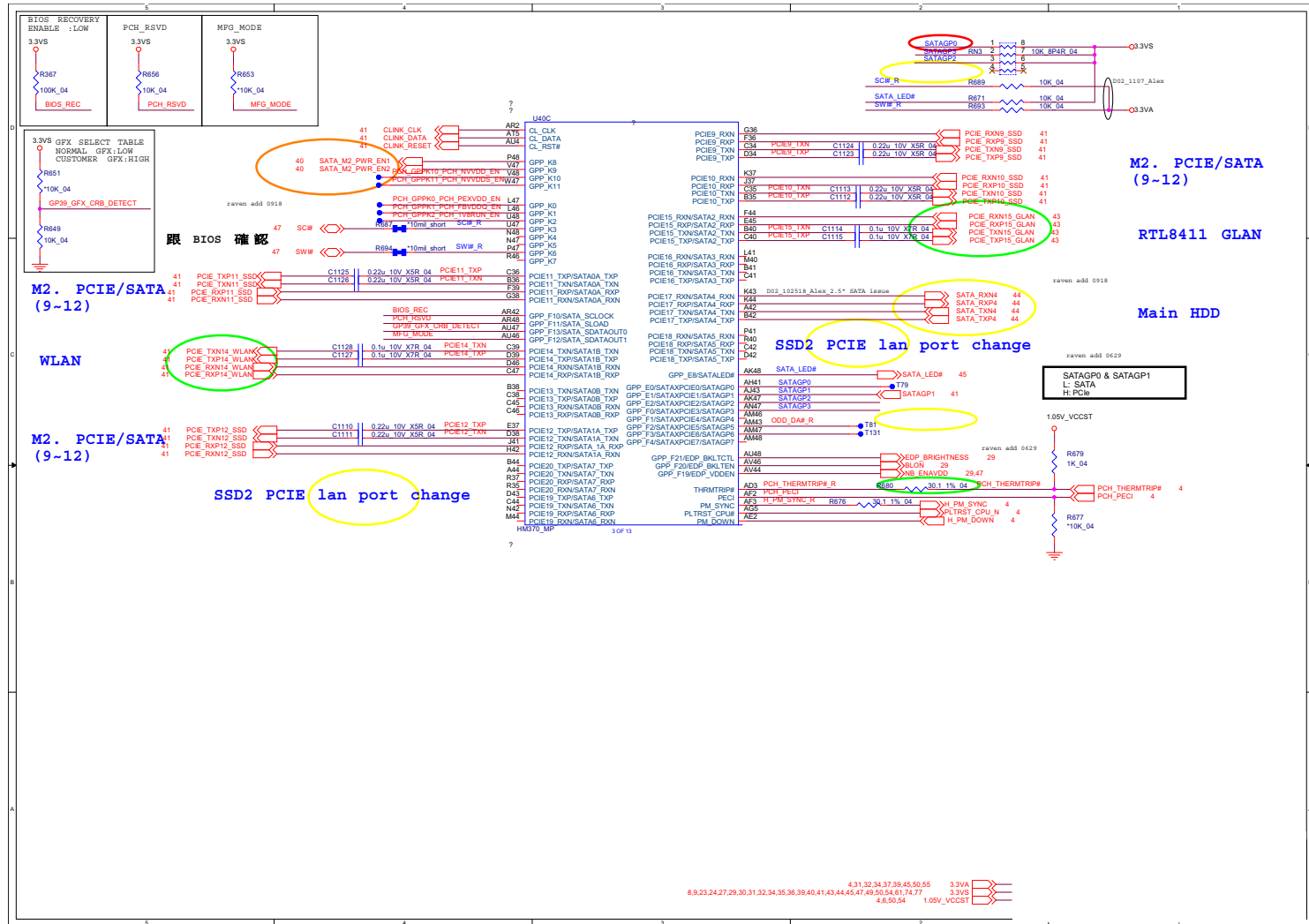


**Sheet 32 of 73**  
**PCH 2/9**

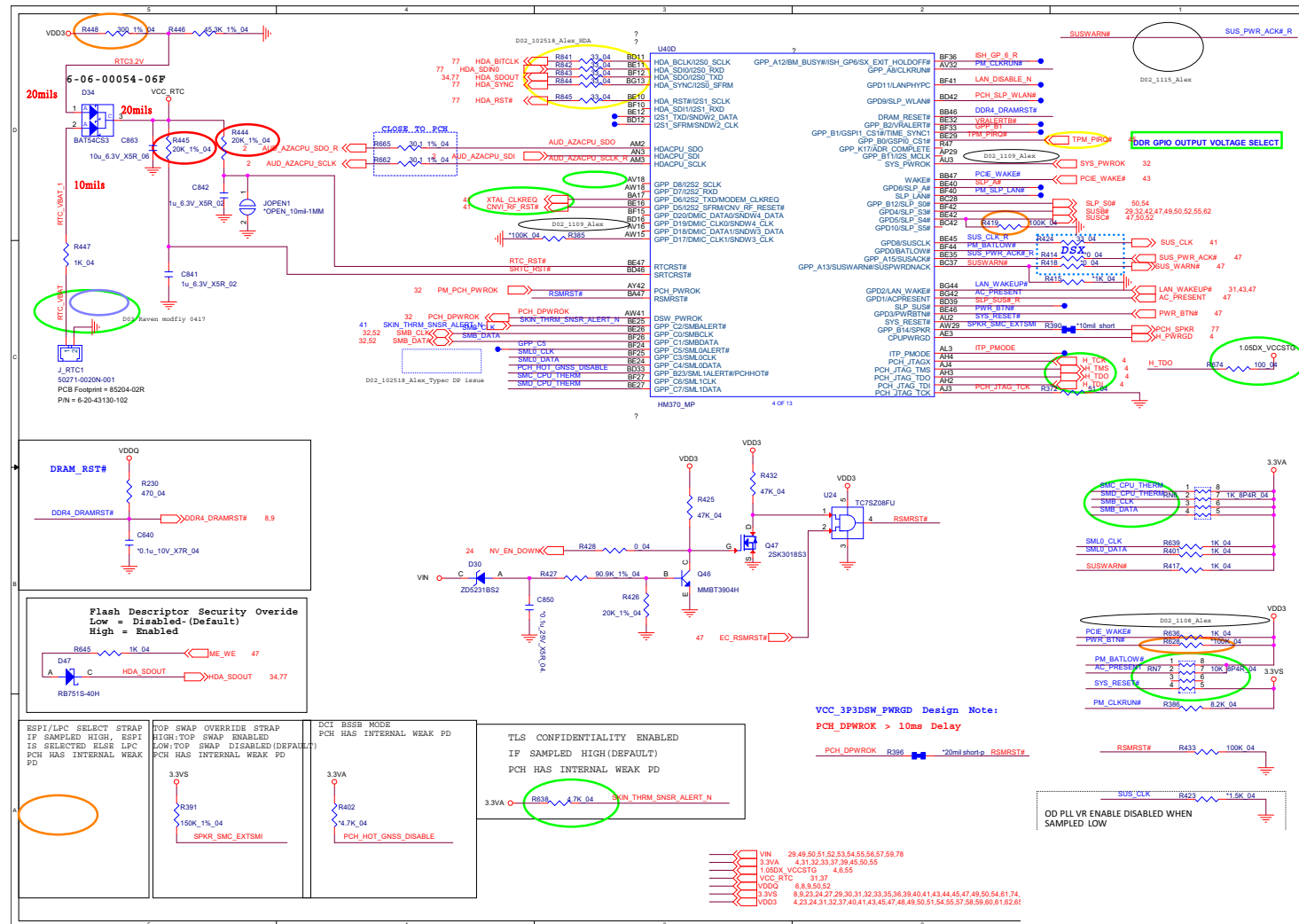
## B.Schematic Diagrams

# PCH 3/9

Sheet 33 of 73  
PCH 3/9



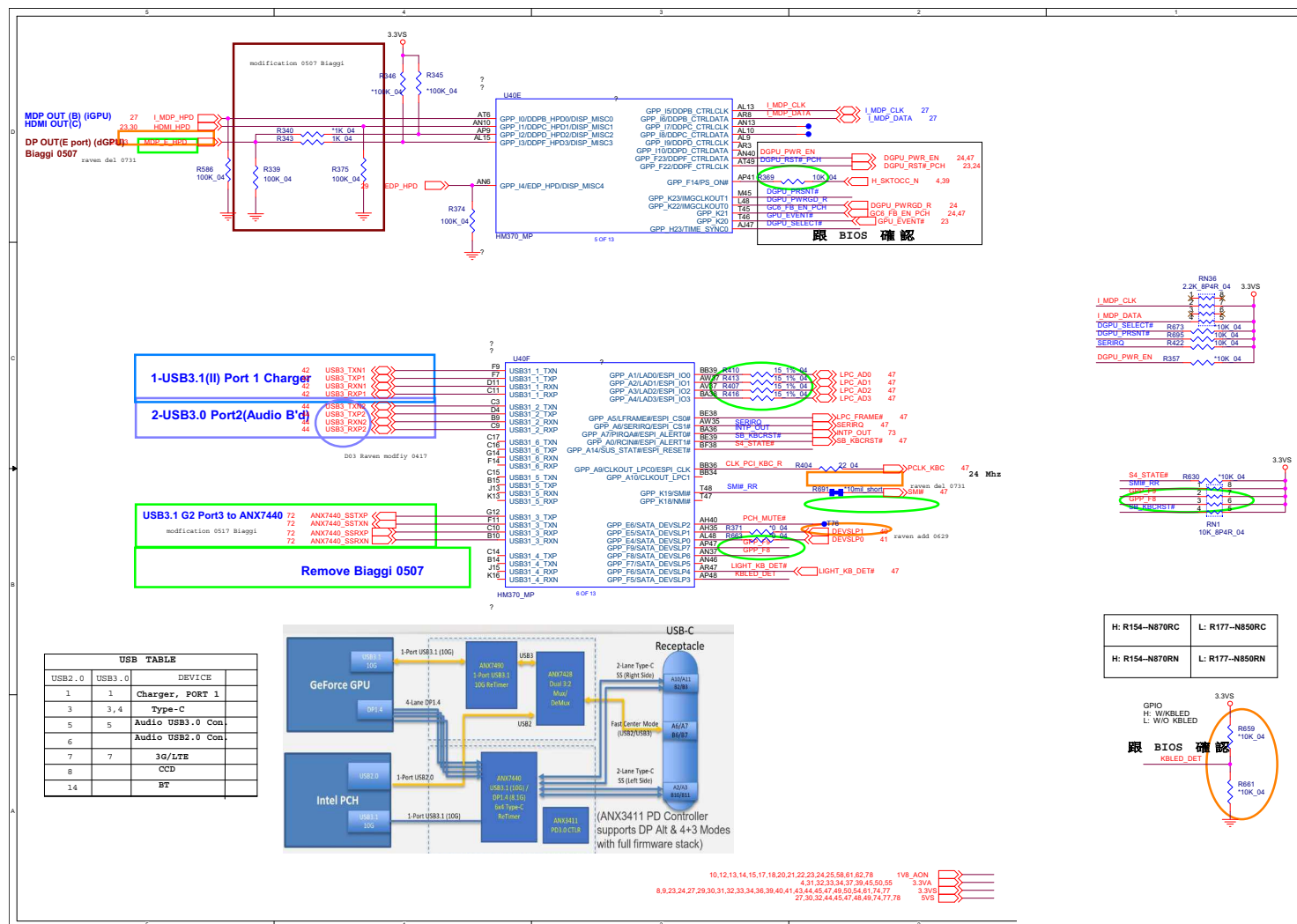
## PCH 4/9



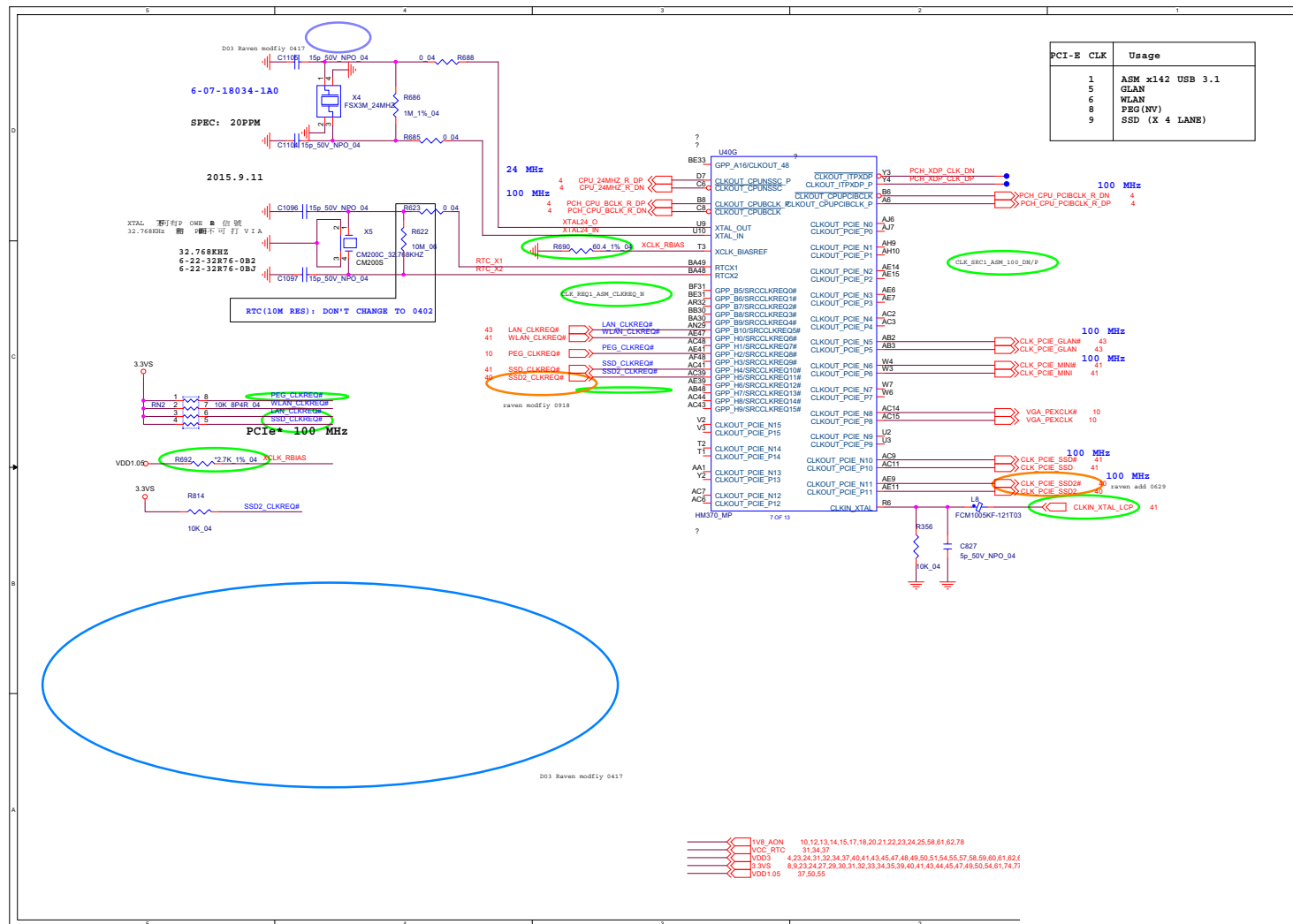
**PCH 5/9**

**Sheet 35 of 73**  
**PCH 5/9**

## B.Schematic Diagrams



**PCH 6/9 B - 37**



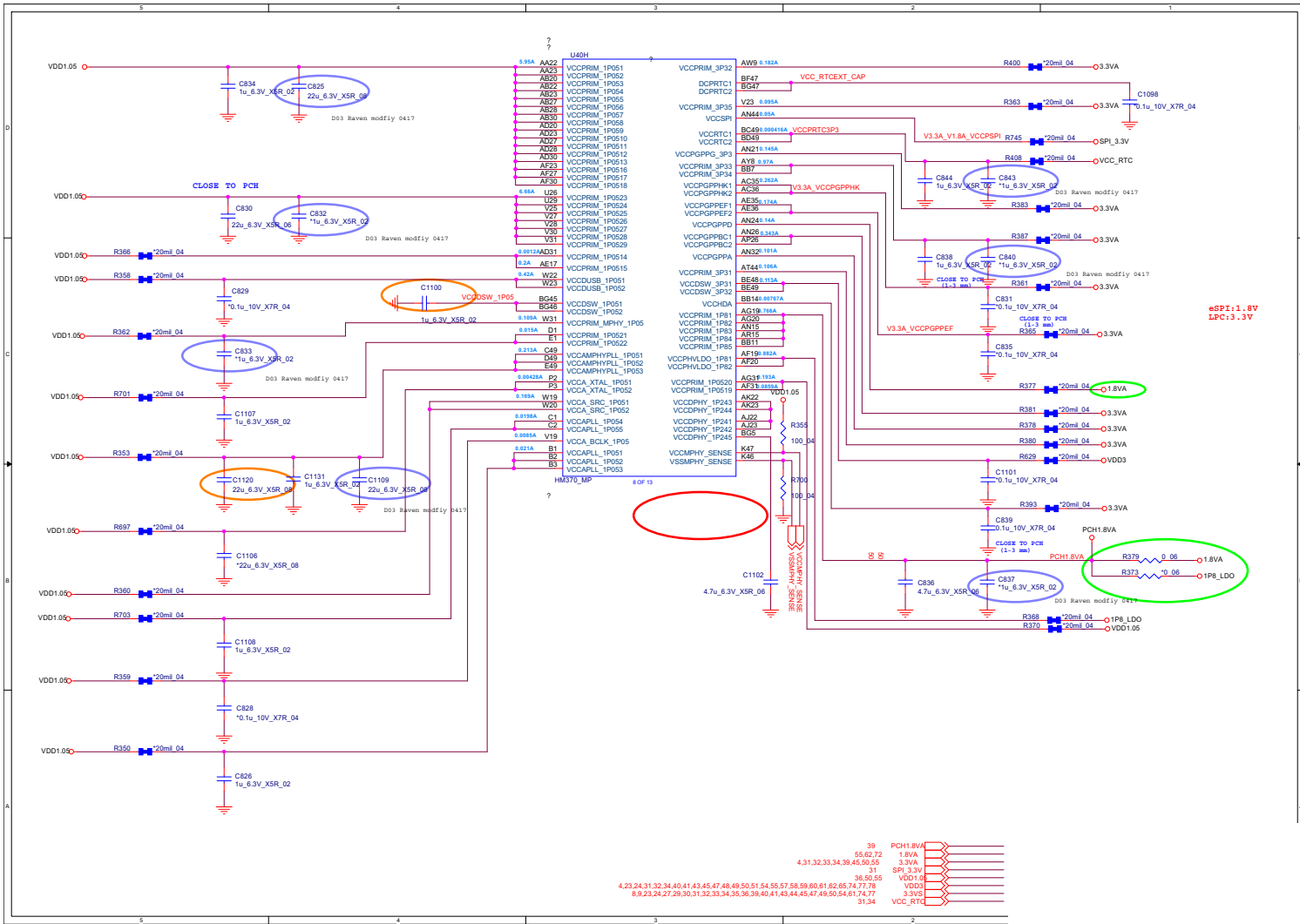
**Sheet 36 of 73**  
**PCH 6/9**

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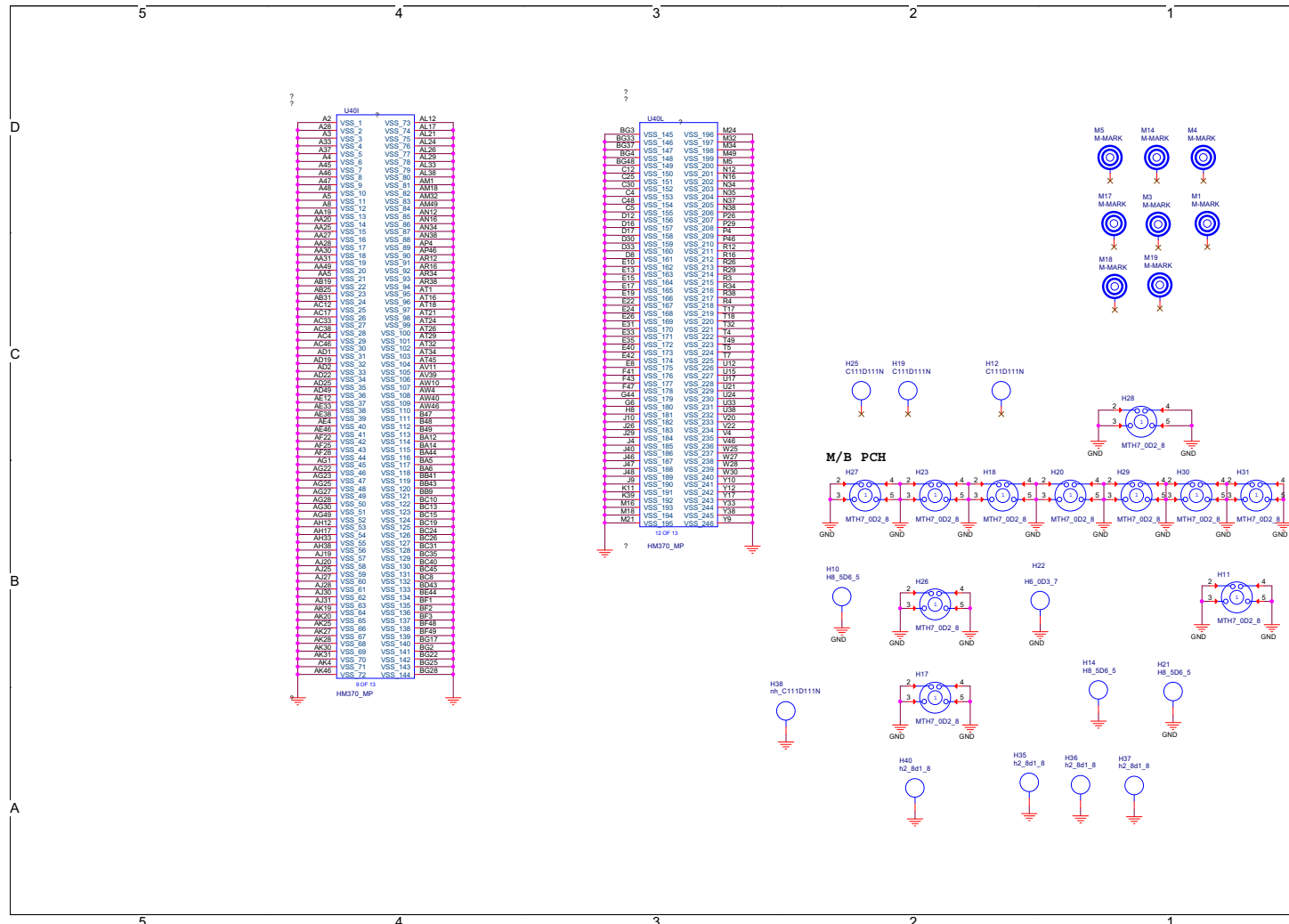
# PCH 7/9

## B. Schematic Diagrams

**Sheet 37 of 73**  
**PCH 7/9**



## PCH 8/9

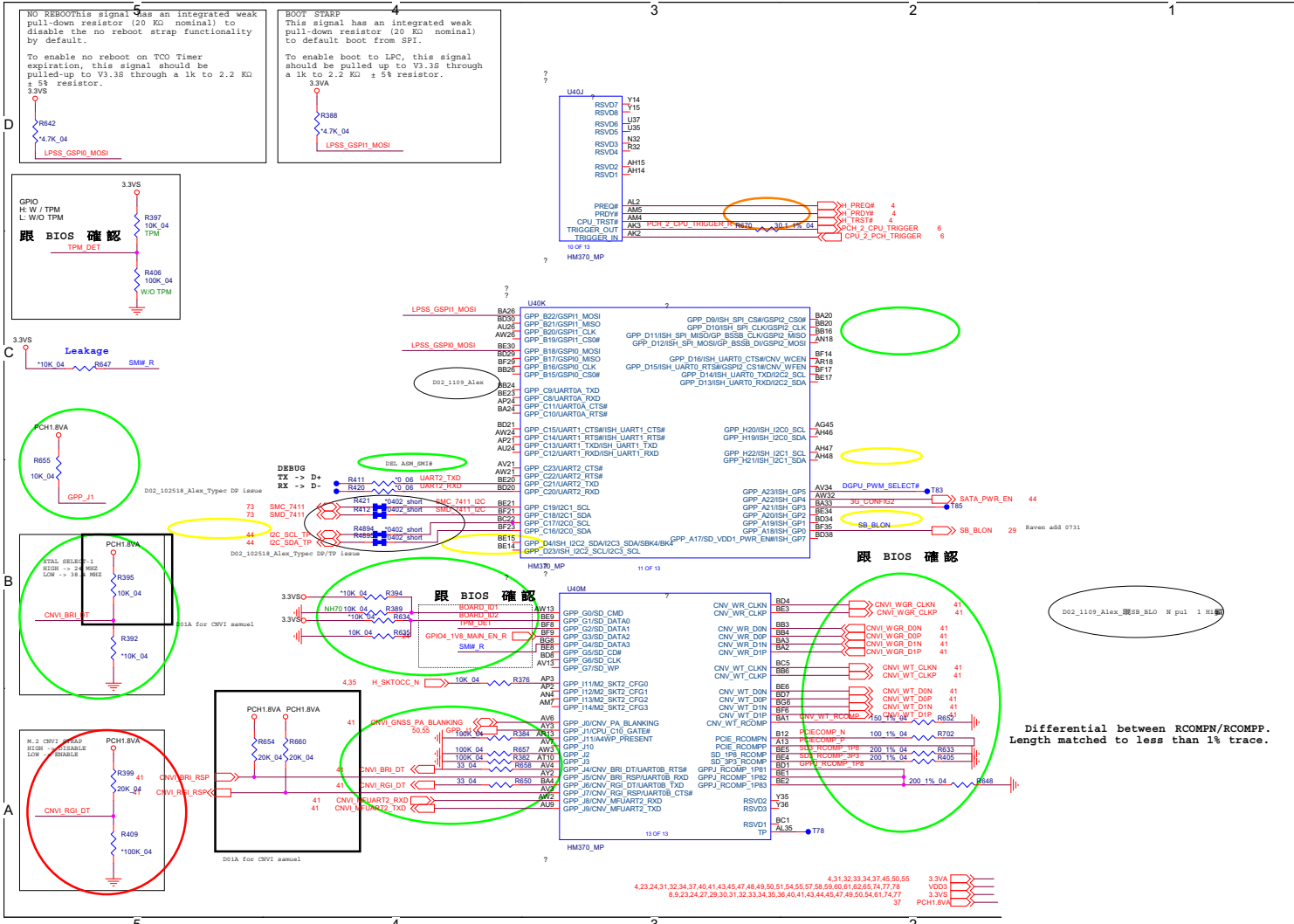
Sheet 38 of 73  
PCH 8/9

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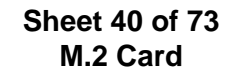
# PCH 9/9

## B. Schematic Diagrams

**Sheet 39 of 73**  
**PCH 9/9**



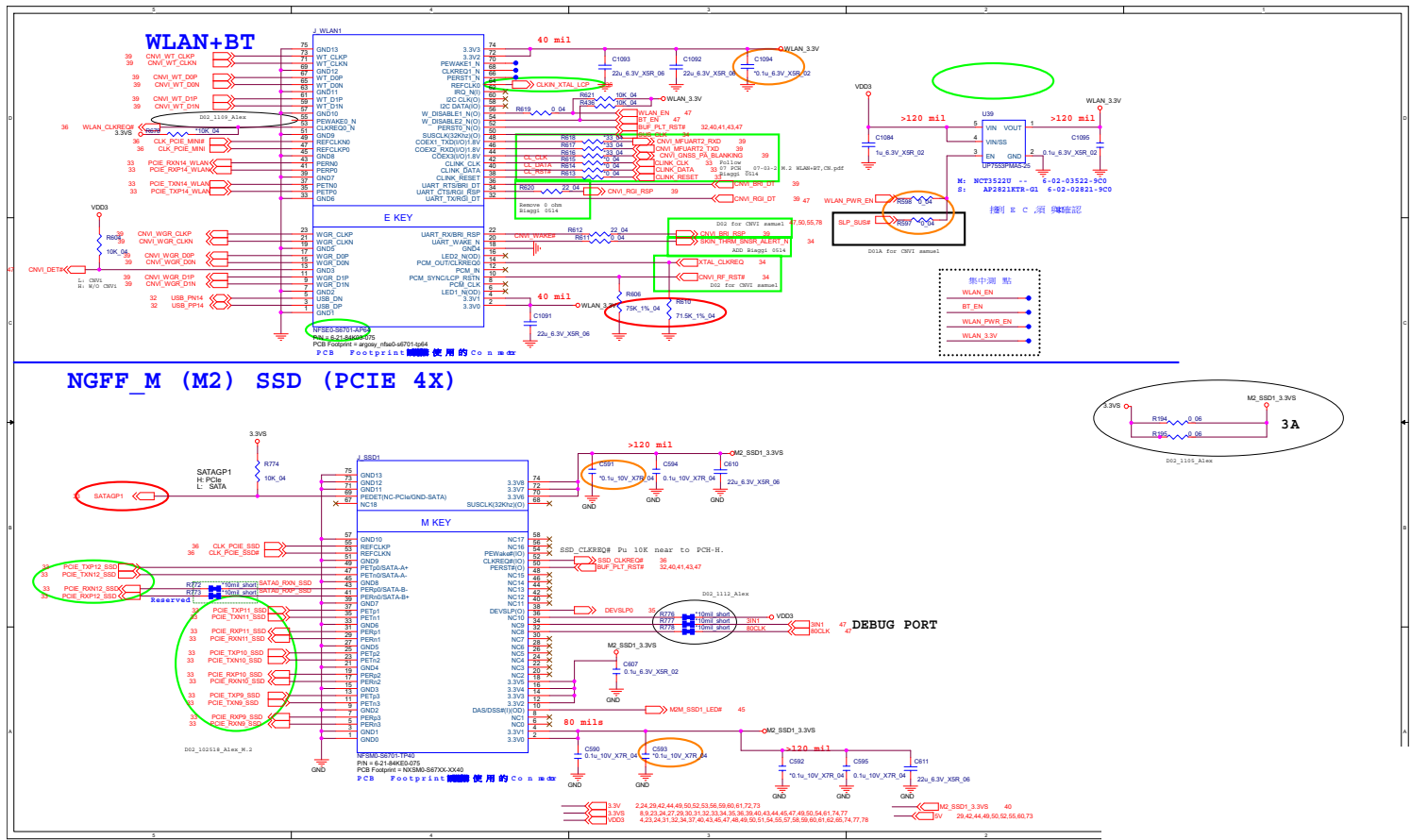
**M.2 Card B - 41**



Schematic Diagrams

M.2 WLAN+BT

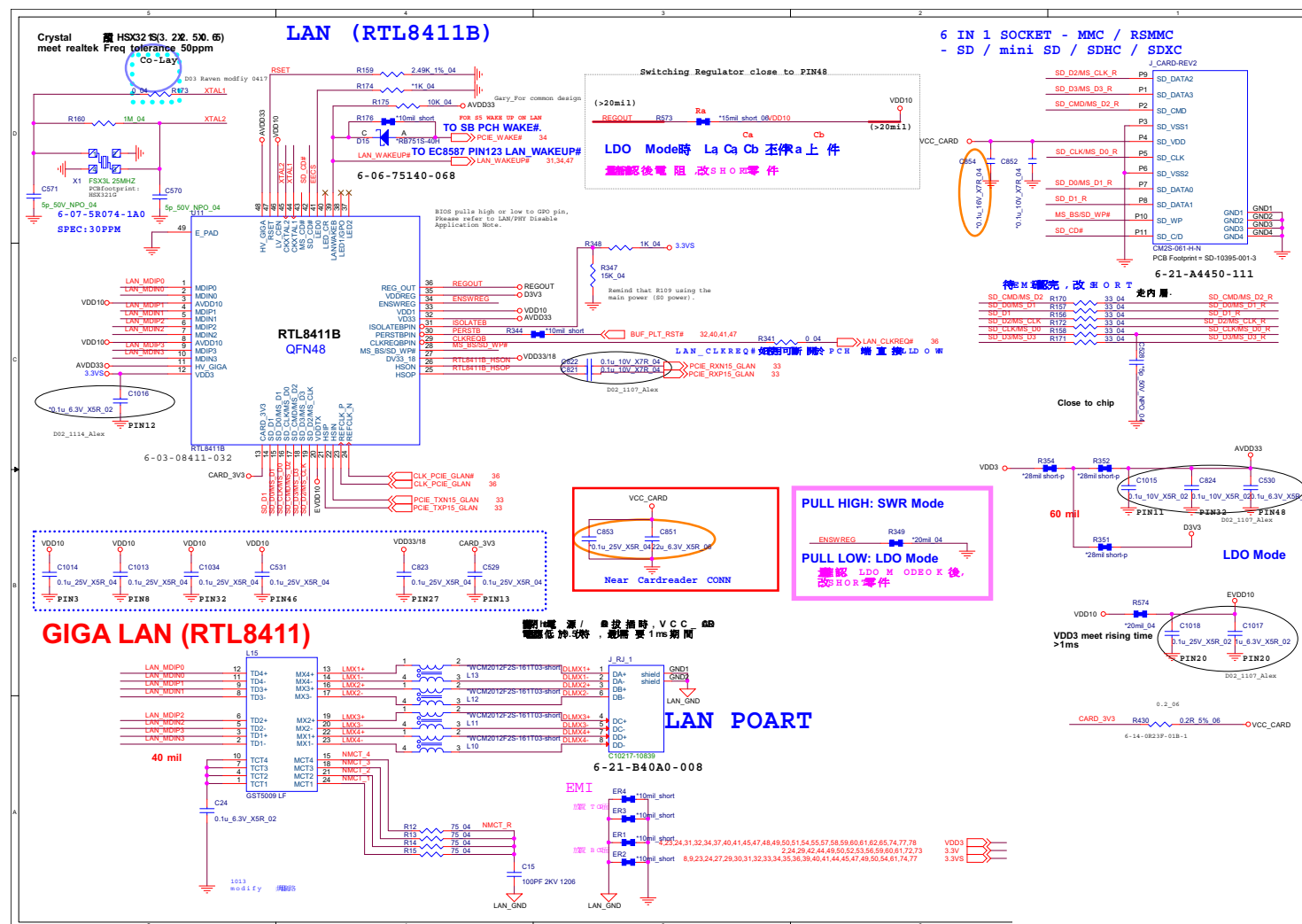
Sheet 41 of 73  
M.2 WLAN+BT



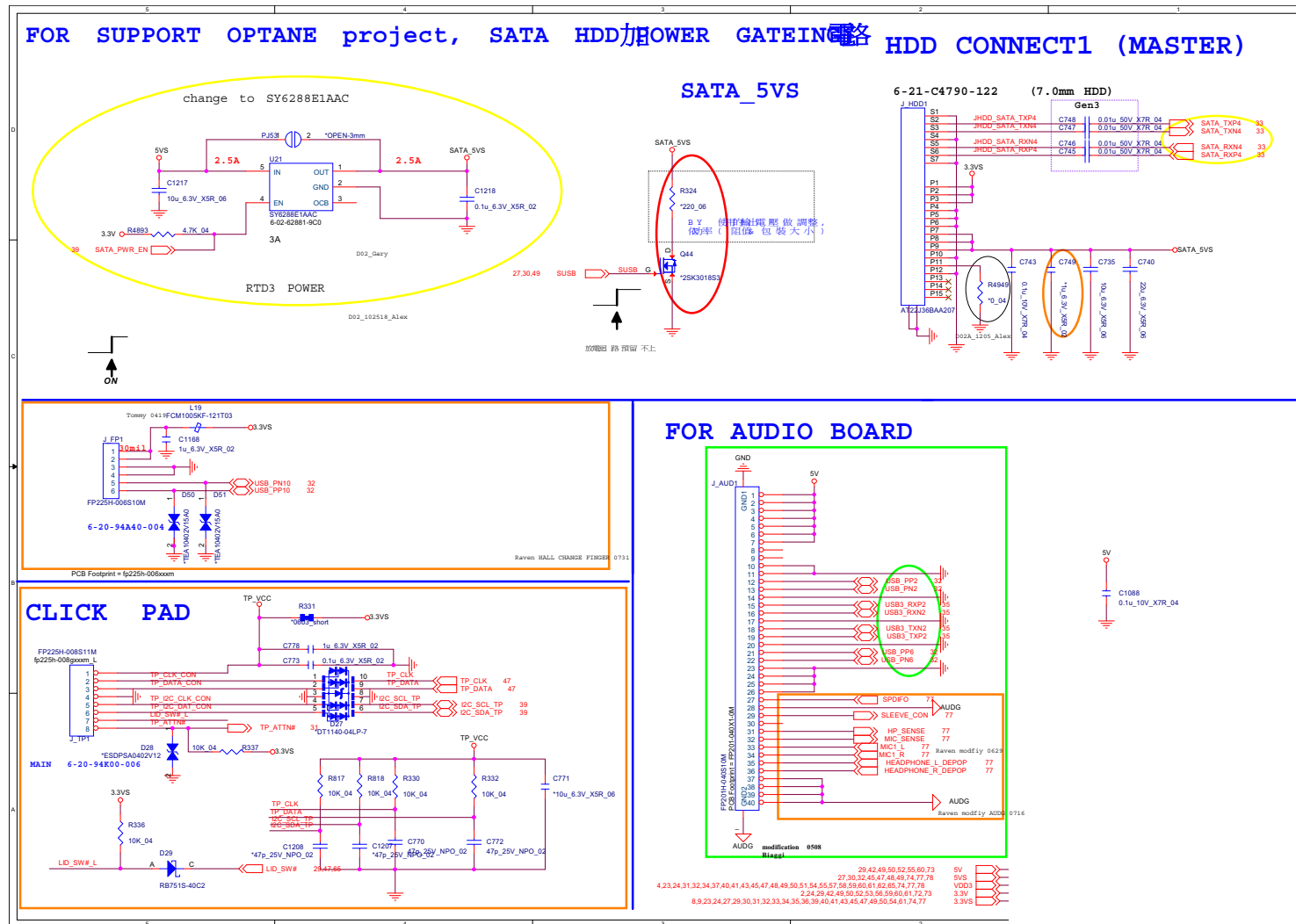
## USB Charger B - 43



**B - 44 Card Reader / LAN RTL8411B**

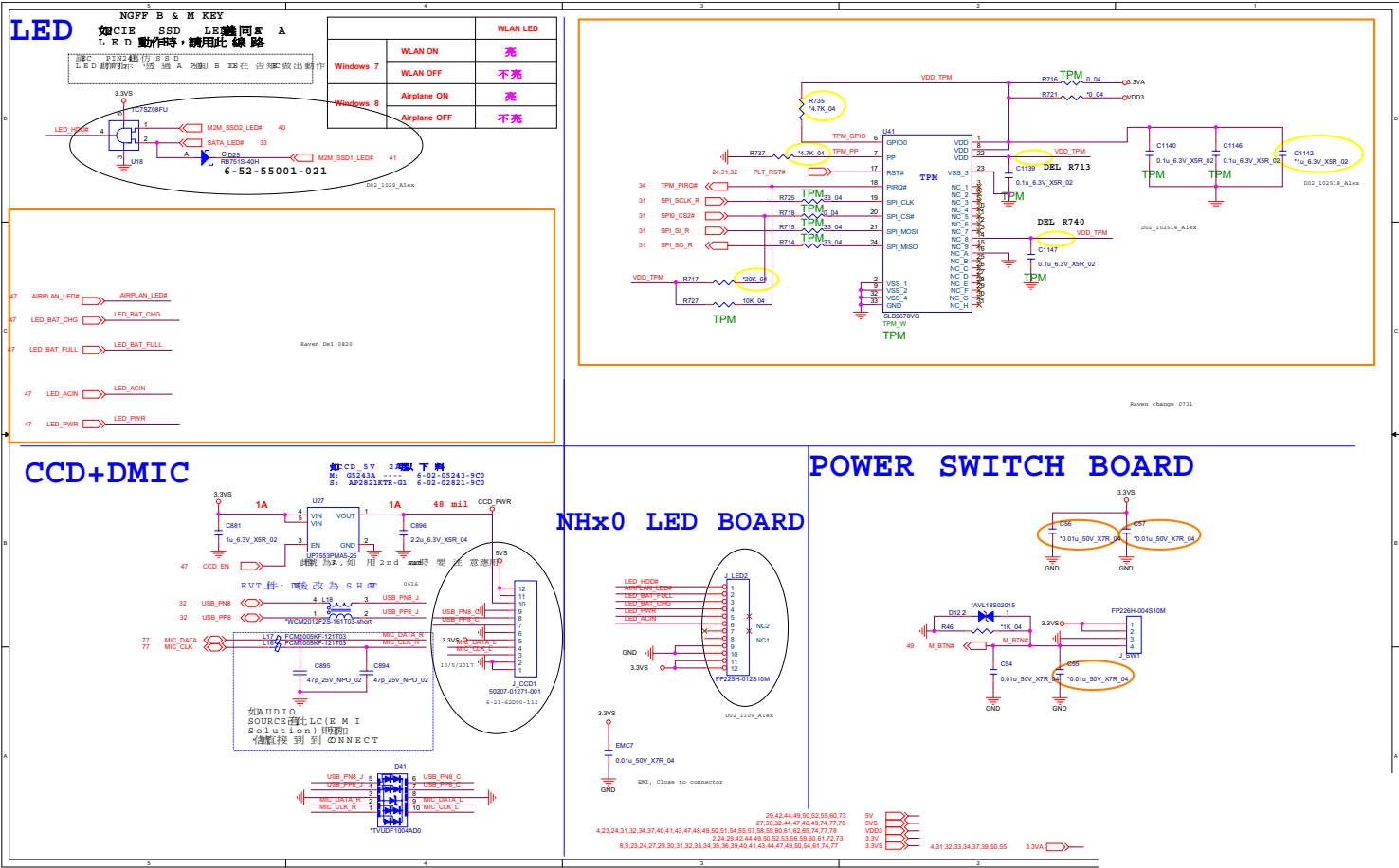


# HDD, Click TP, Audio, Hall Con.

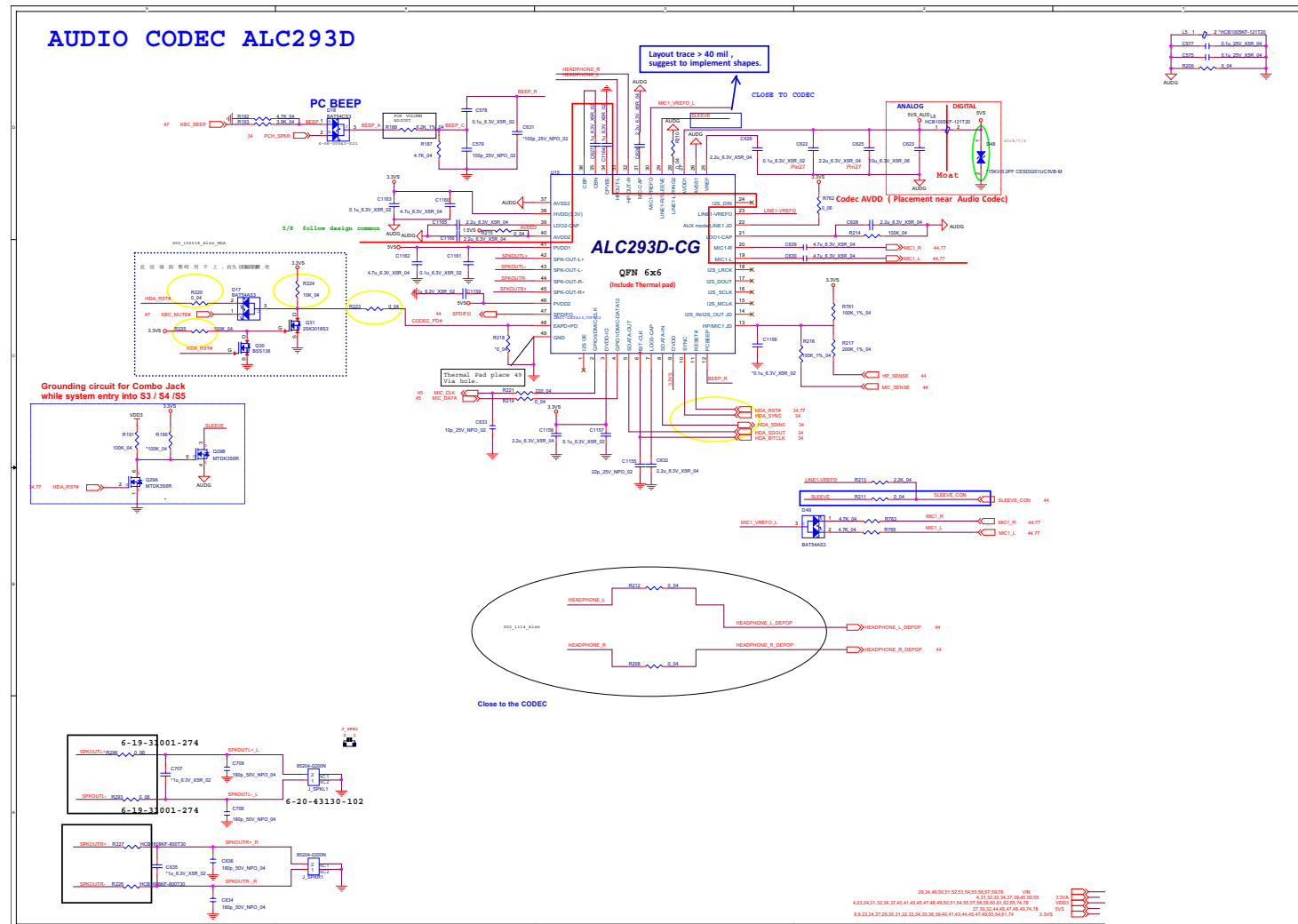


Schematic Diagrams

LED, CCD, TPM, Power SW Con.

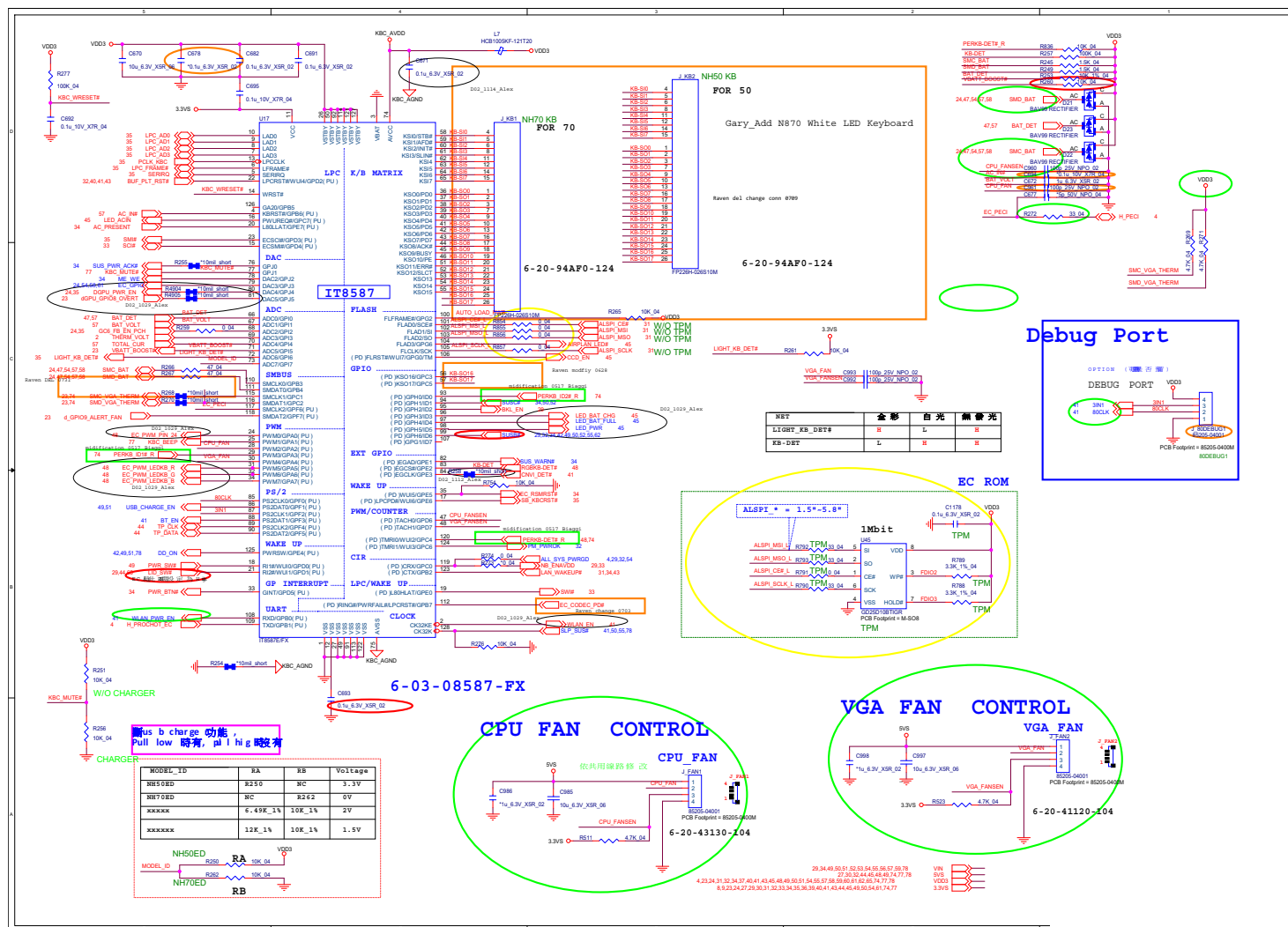


## Audio Codec

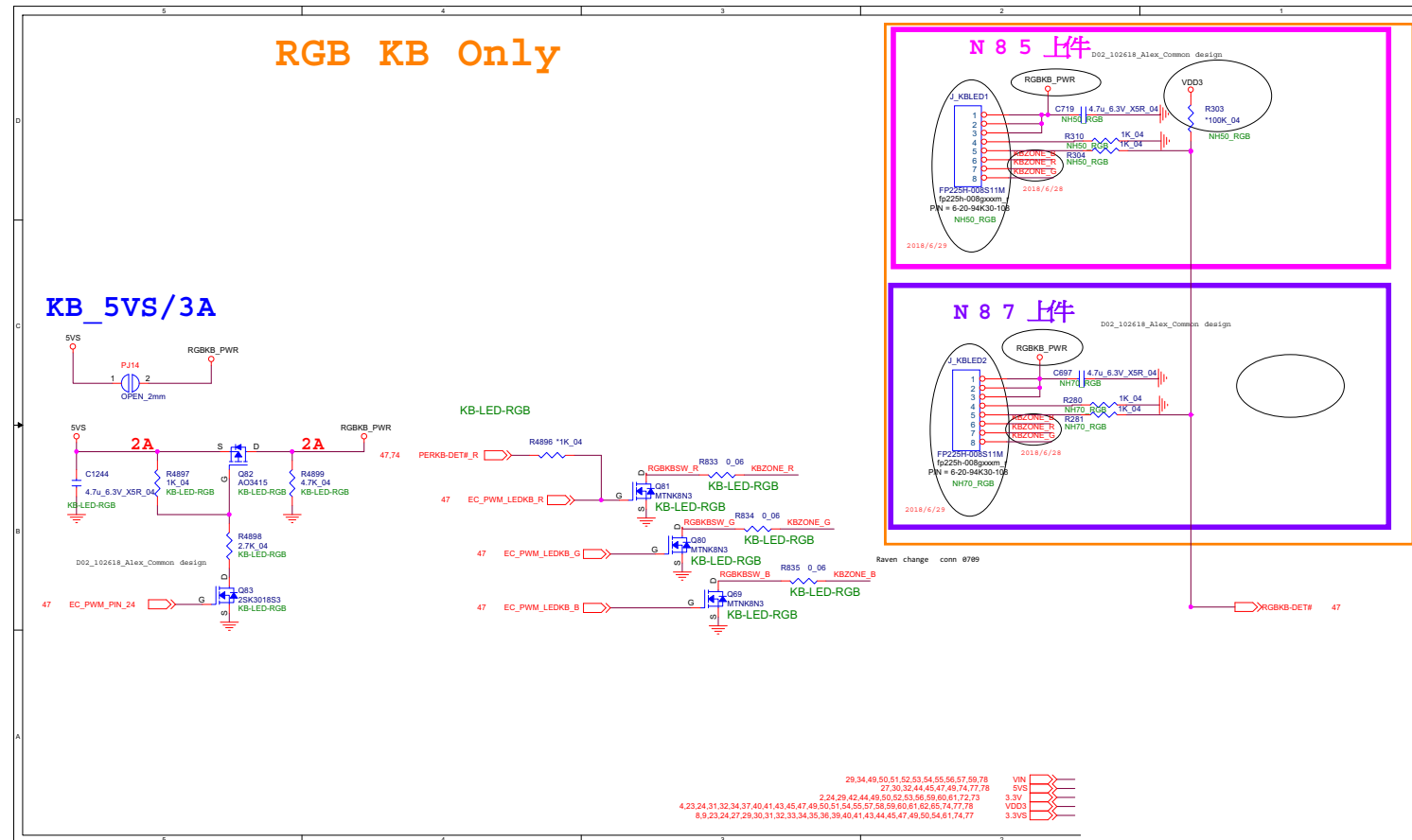
Sheet 46 of 73  
Audio Codec

**KBC-ITE IT8587**

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KBC-ITE IT8587



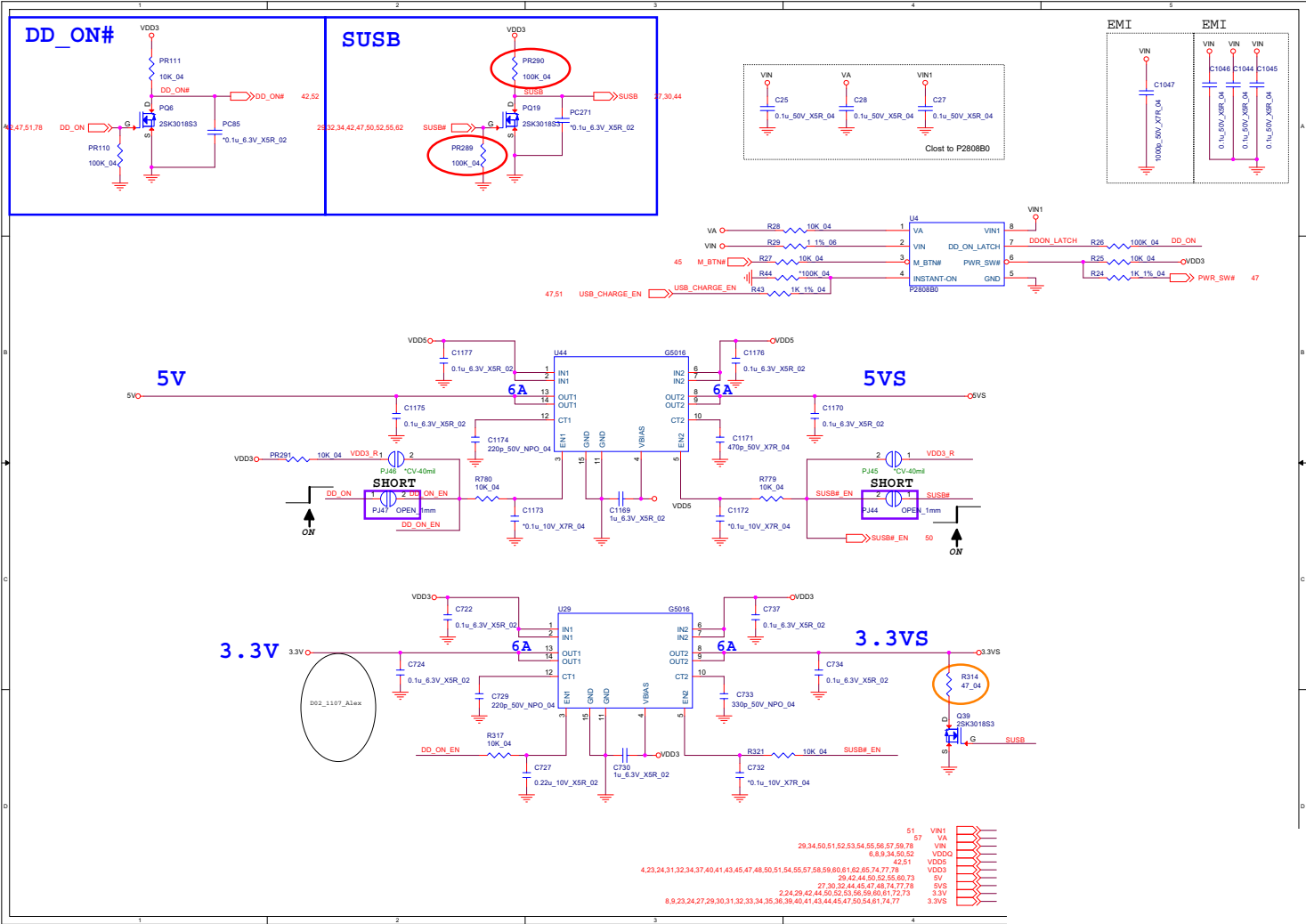
**RGB KB Only B - 49**



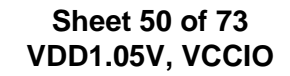
Schematic Diagrams

5V, 5VS, 3.3V, 3.3VS

Sheet 49 of 73  
5V, 5VS, 3.3V,  
3.3VS



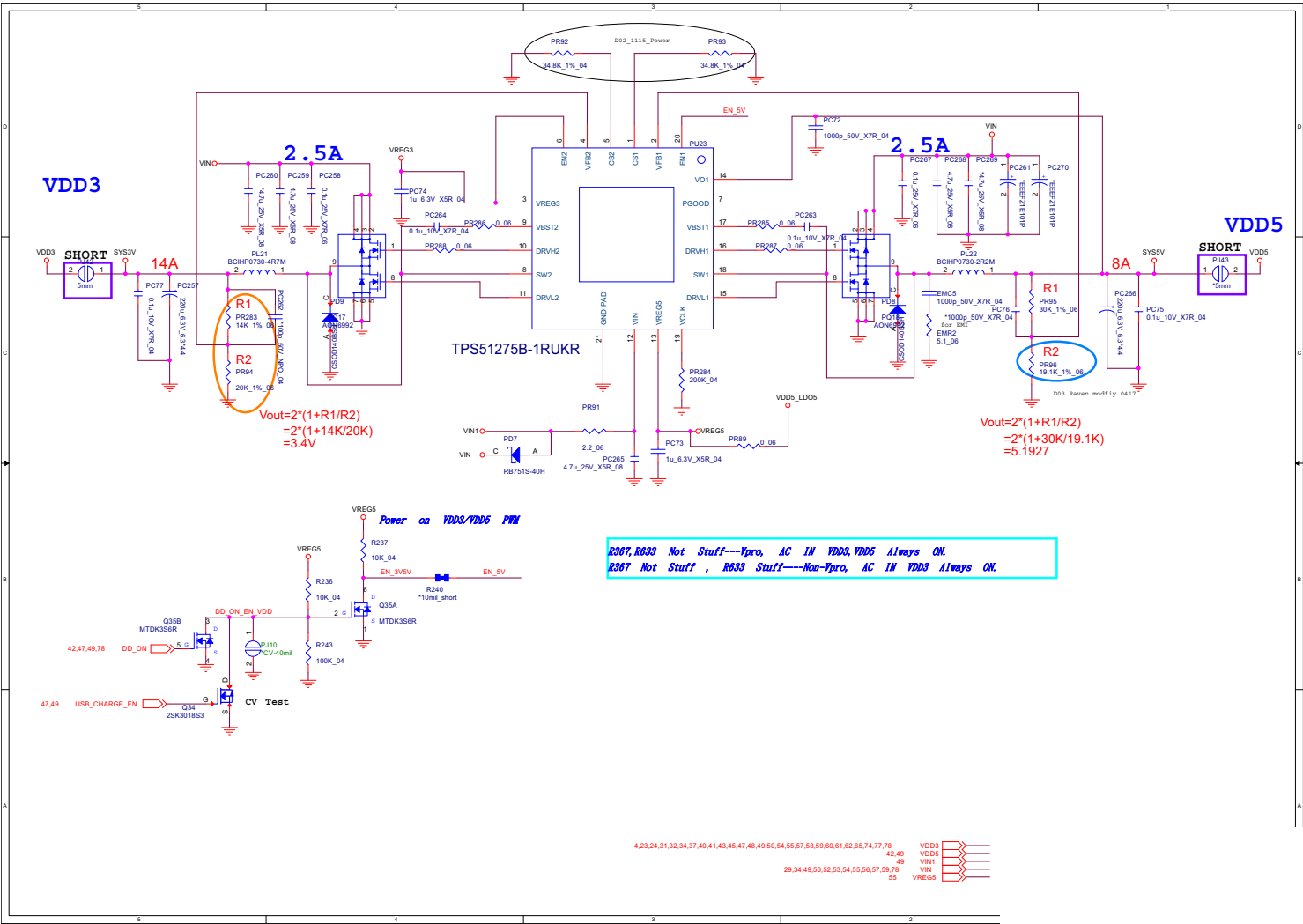
## VDD1.05V, VCCIO B - 51



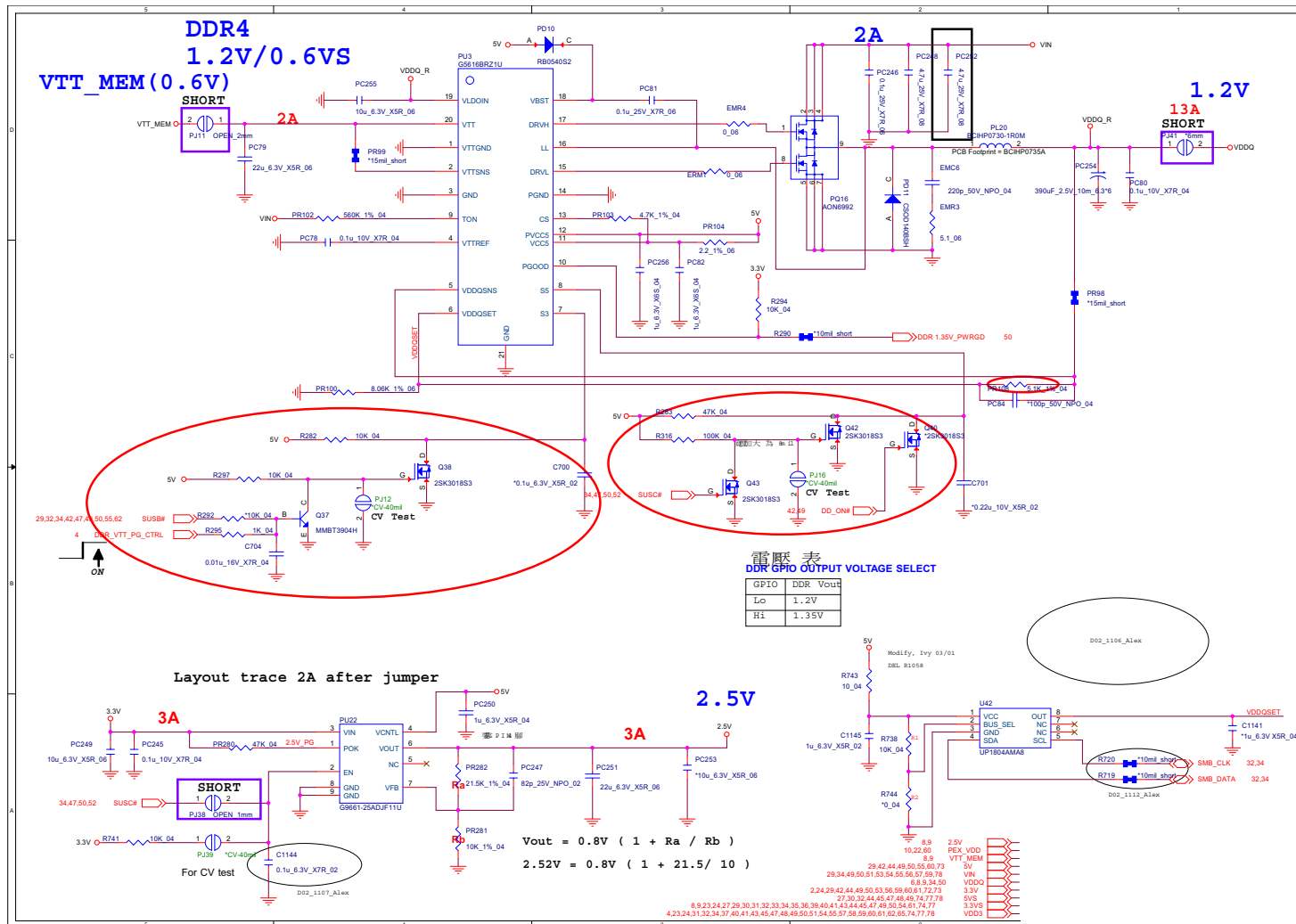
Schematic Diagrams

VDD3, VDD5

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VDD3, VDD5



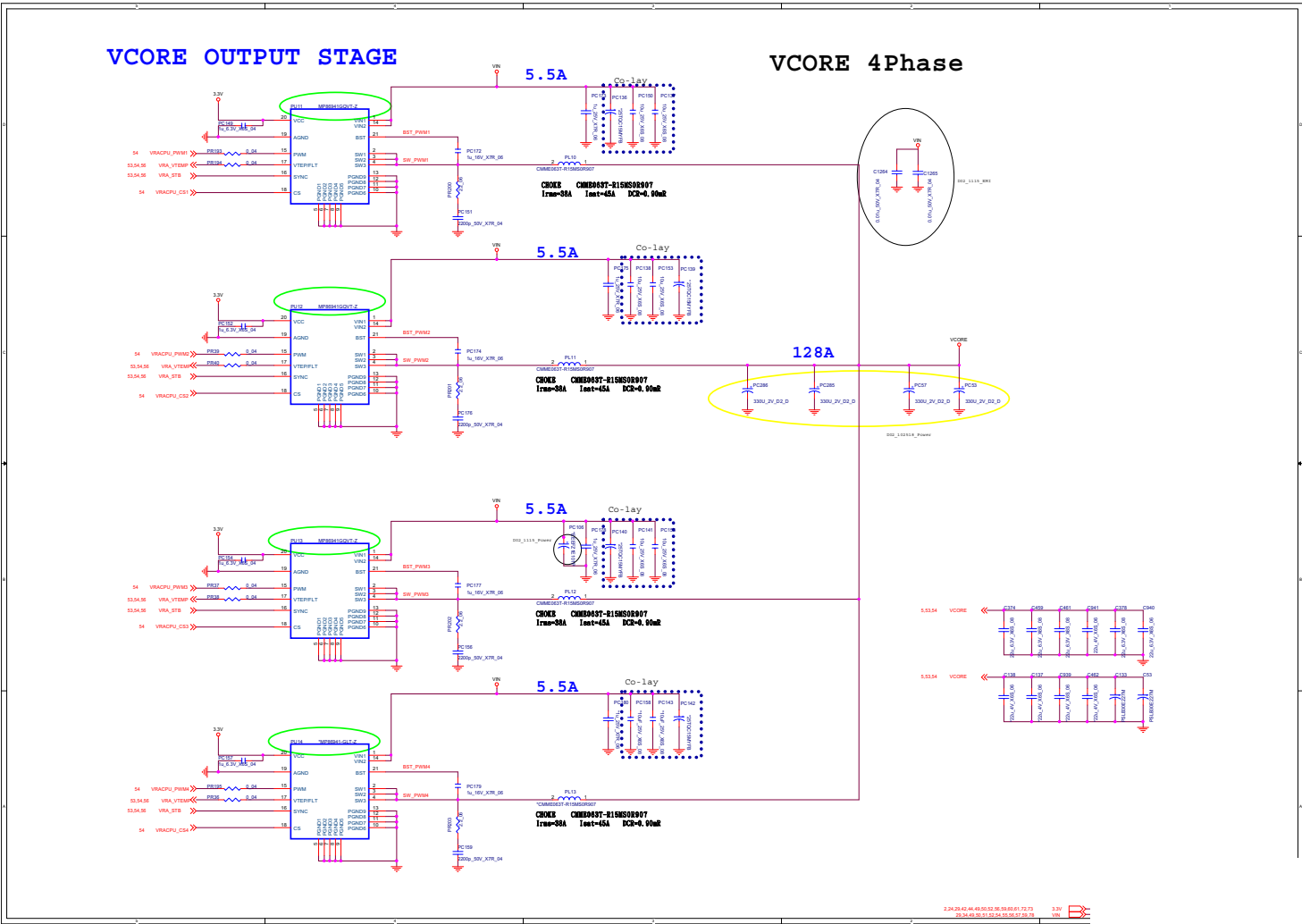
Sheet 52 of 73  
DDR 1.2V / 0.6VS,  
2.5V



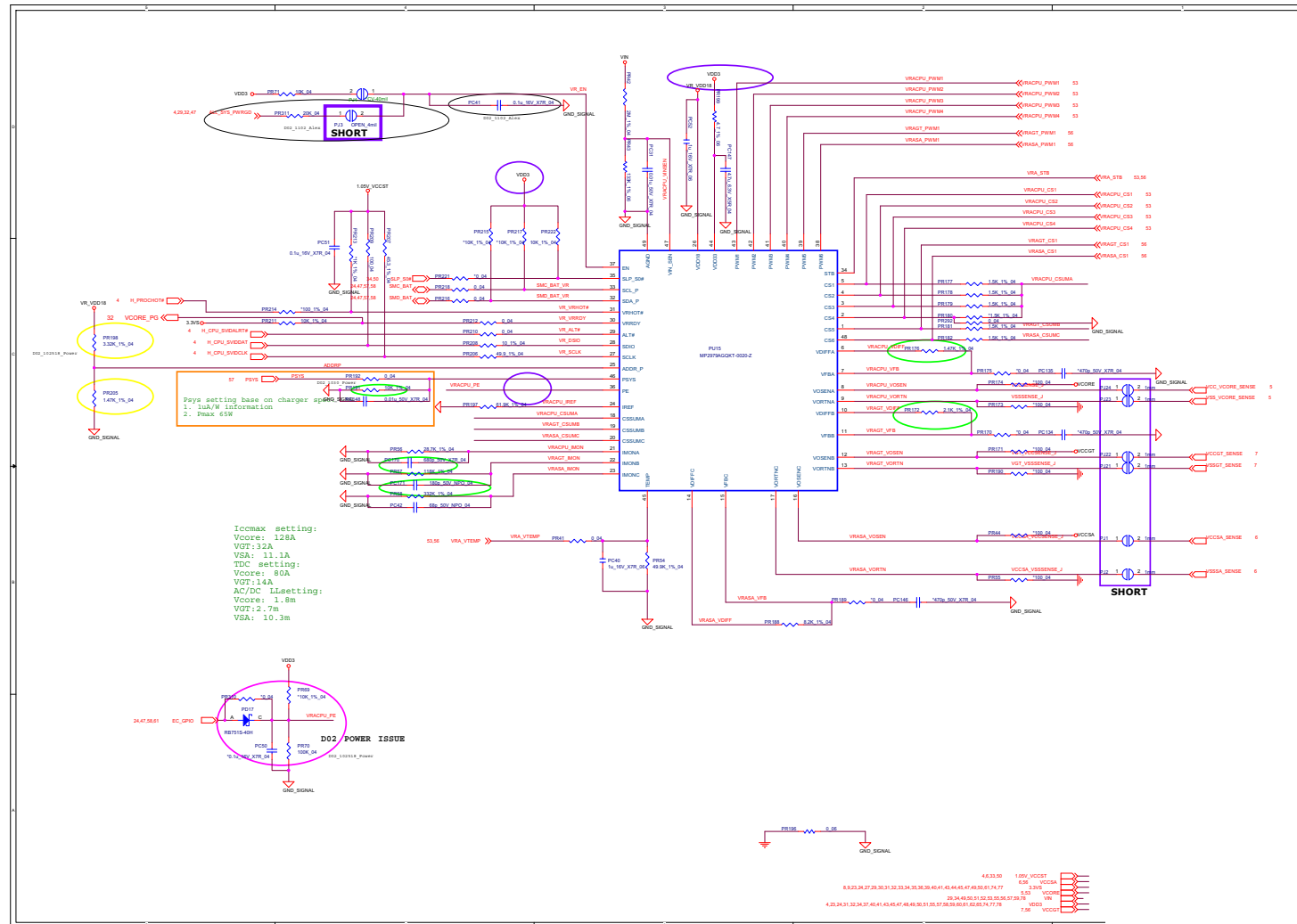
Schematic Diagrams

VCore Output Stage

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VCore Output Stage



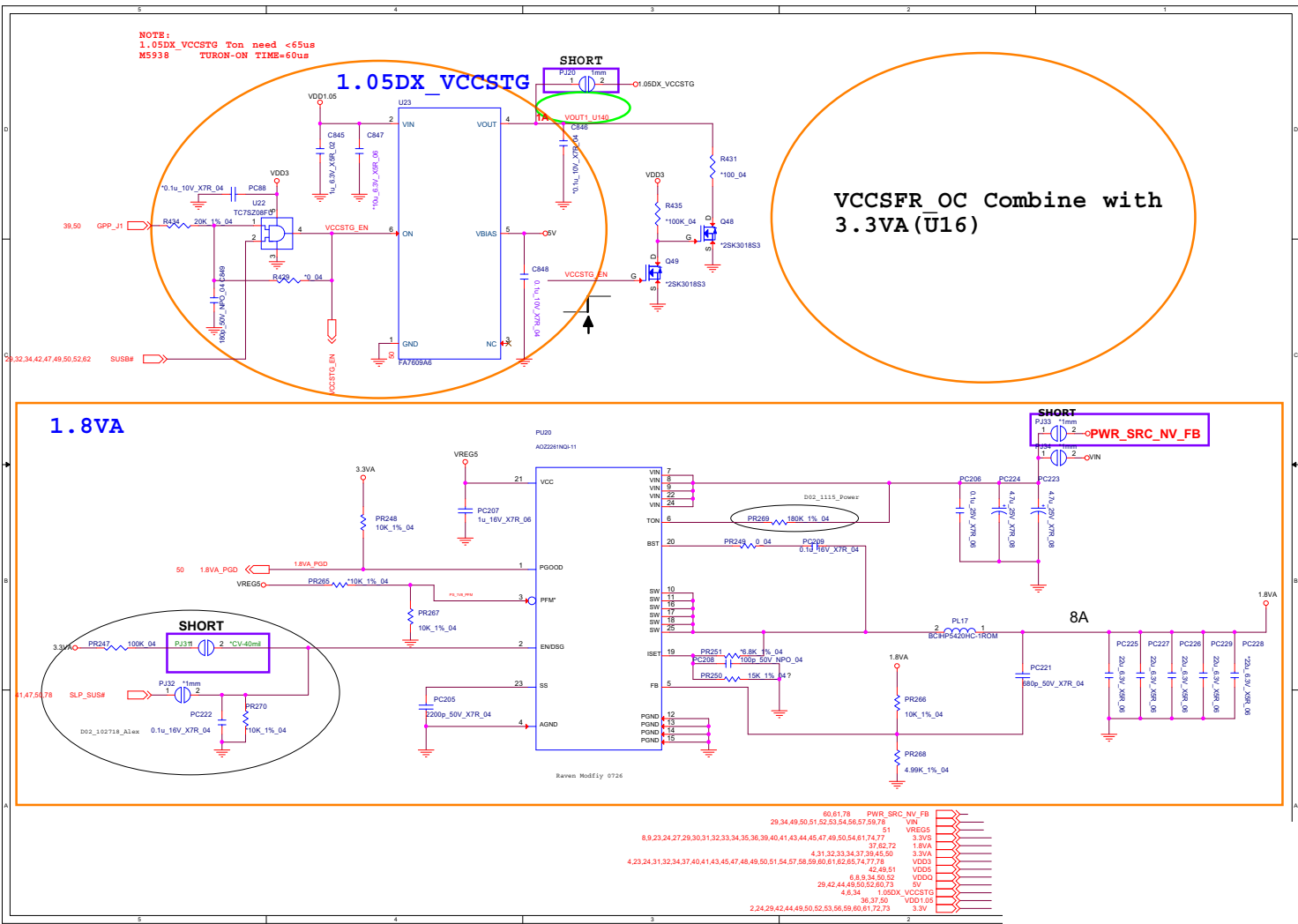
## VCC\_Core &amp; VCCGT



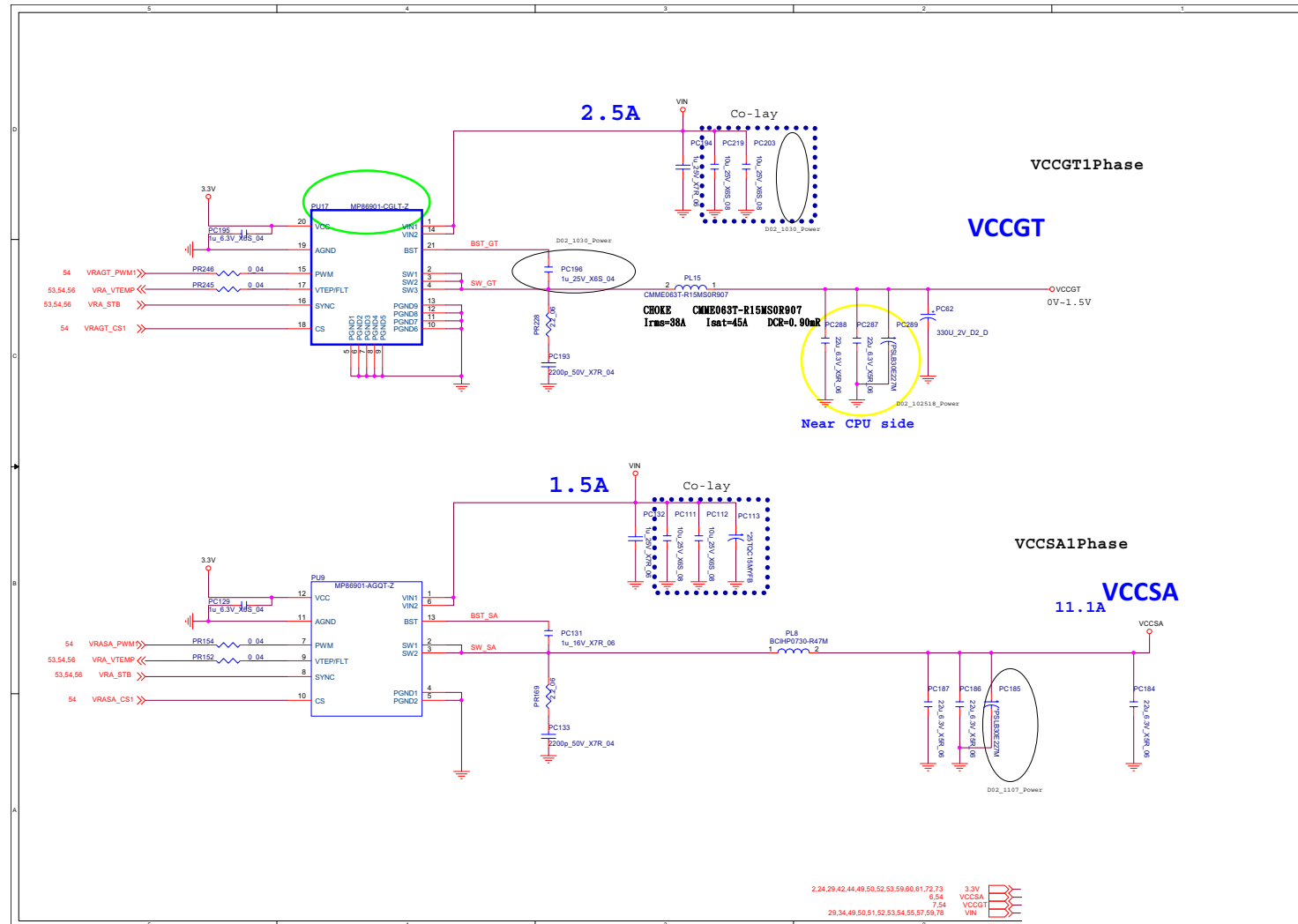
Schematic Diagrams

1.05DX\_VCCSTG/VCCSFR\_OC

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1.05DX\_VCCSTG/  
VCCSFR\_OC

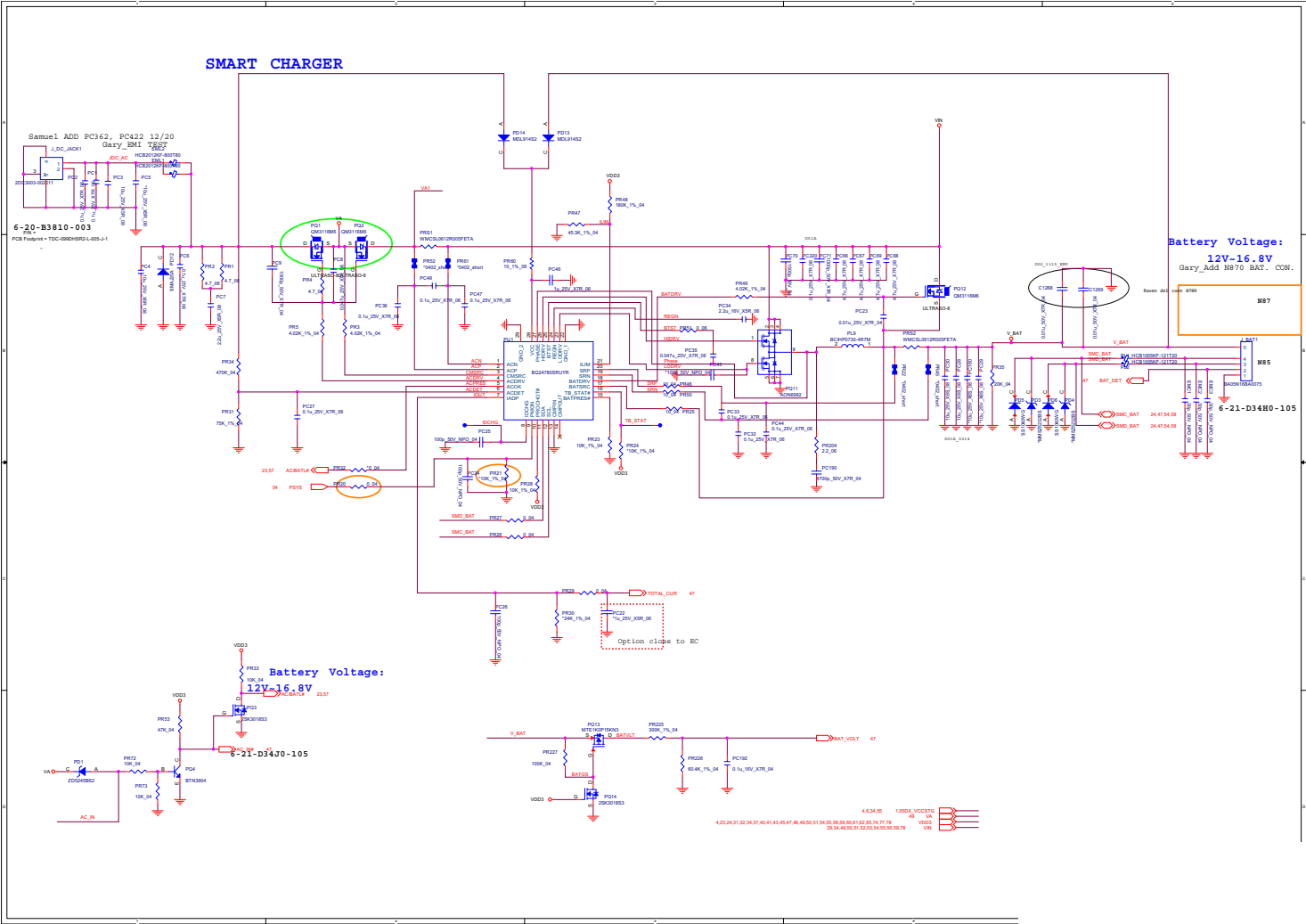


# VCCGT & VCCSA Output Stage

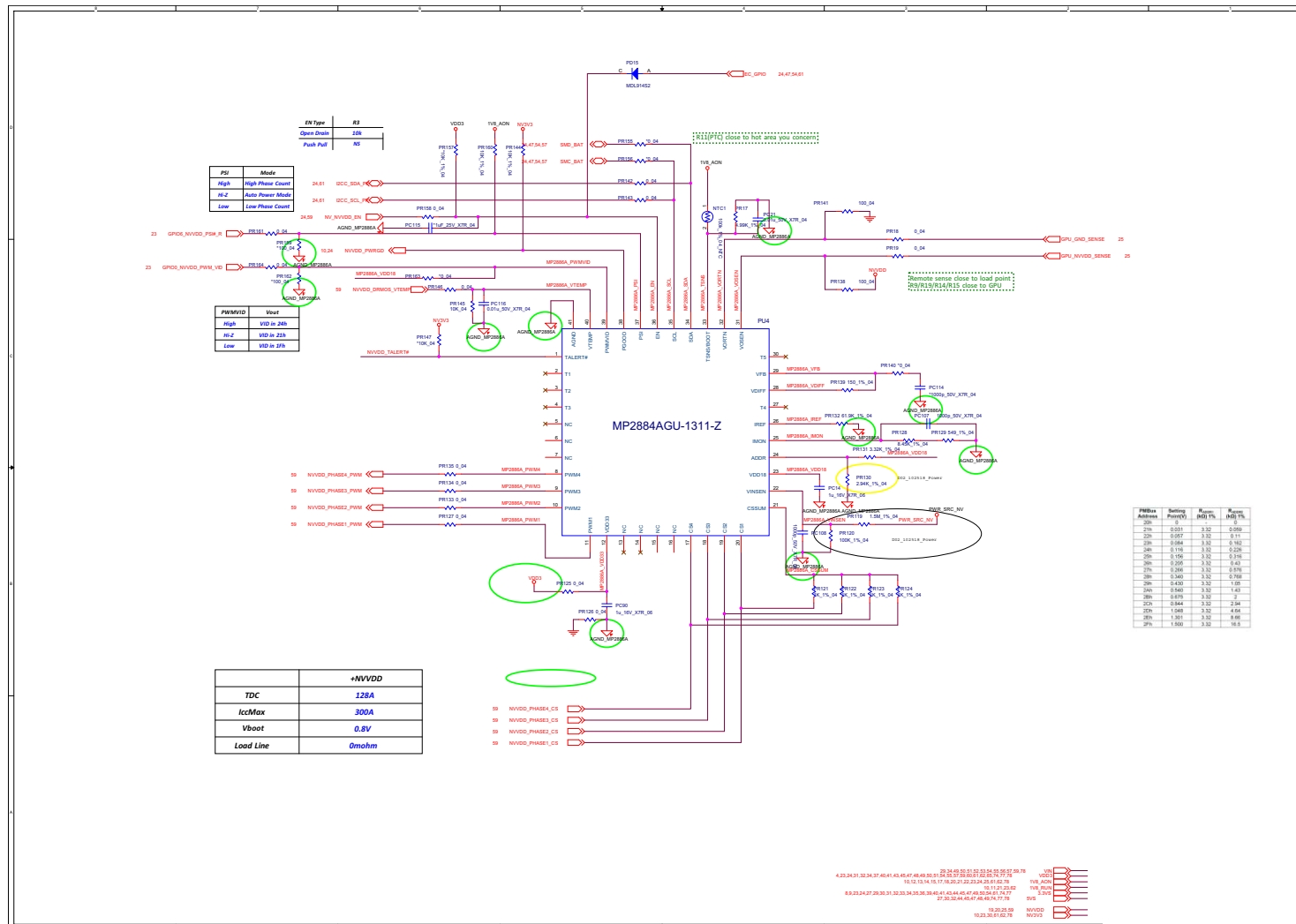


Sheet 56 of 73  
VCCGT & VCCSA  
Output Stage

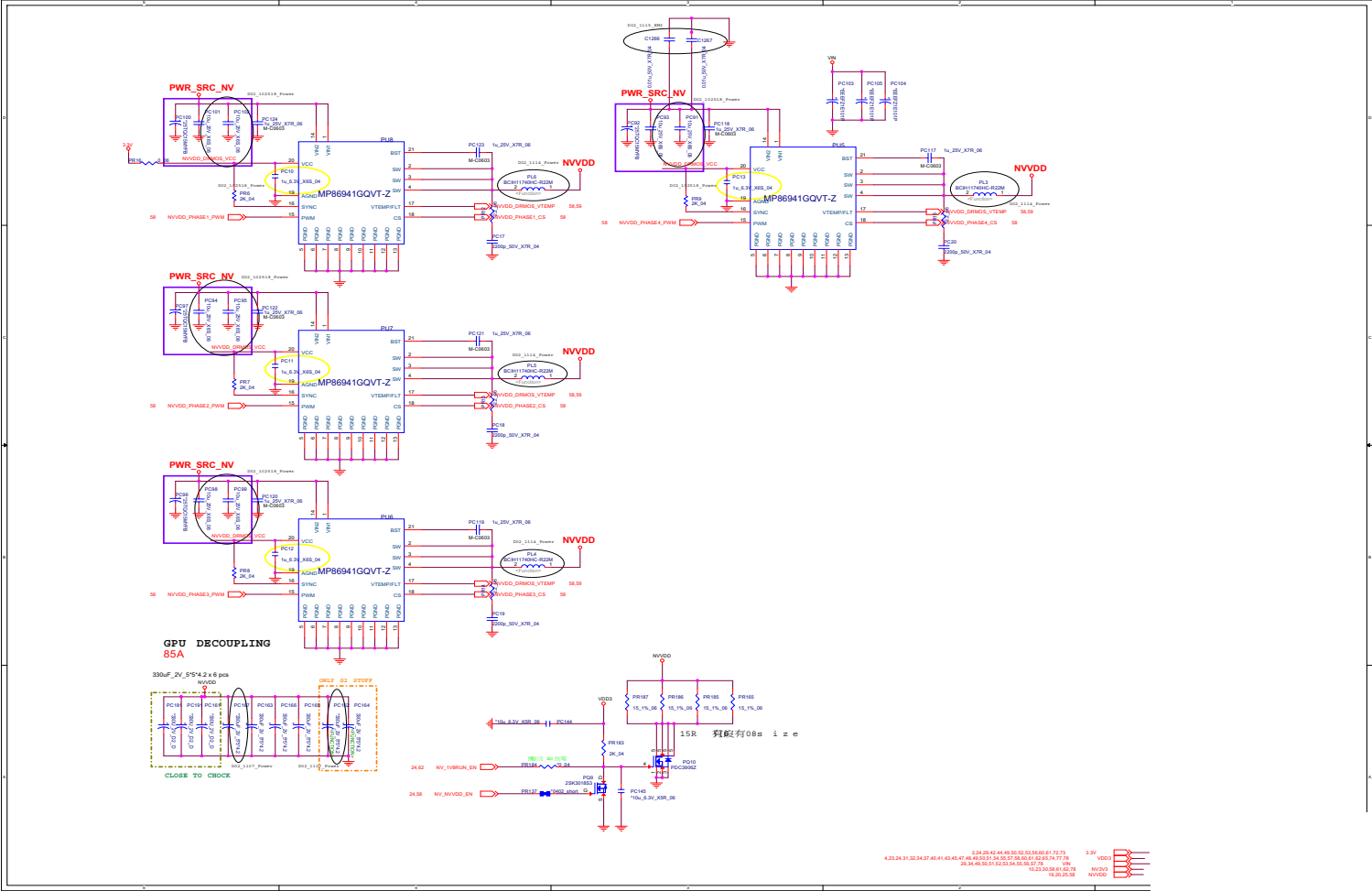
AC\_In, Charger



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NVVDD1

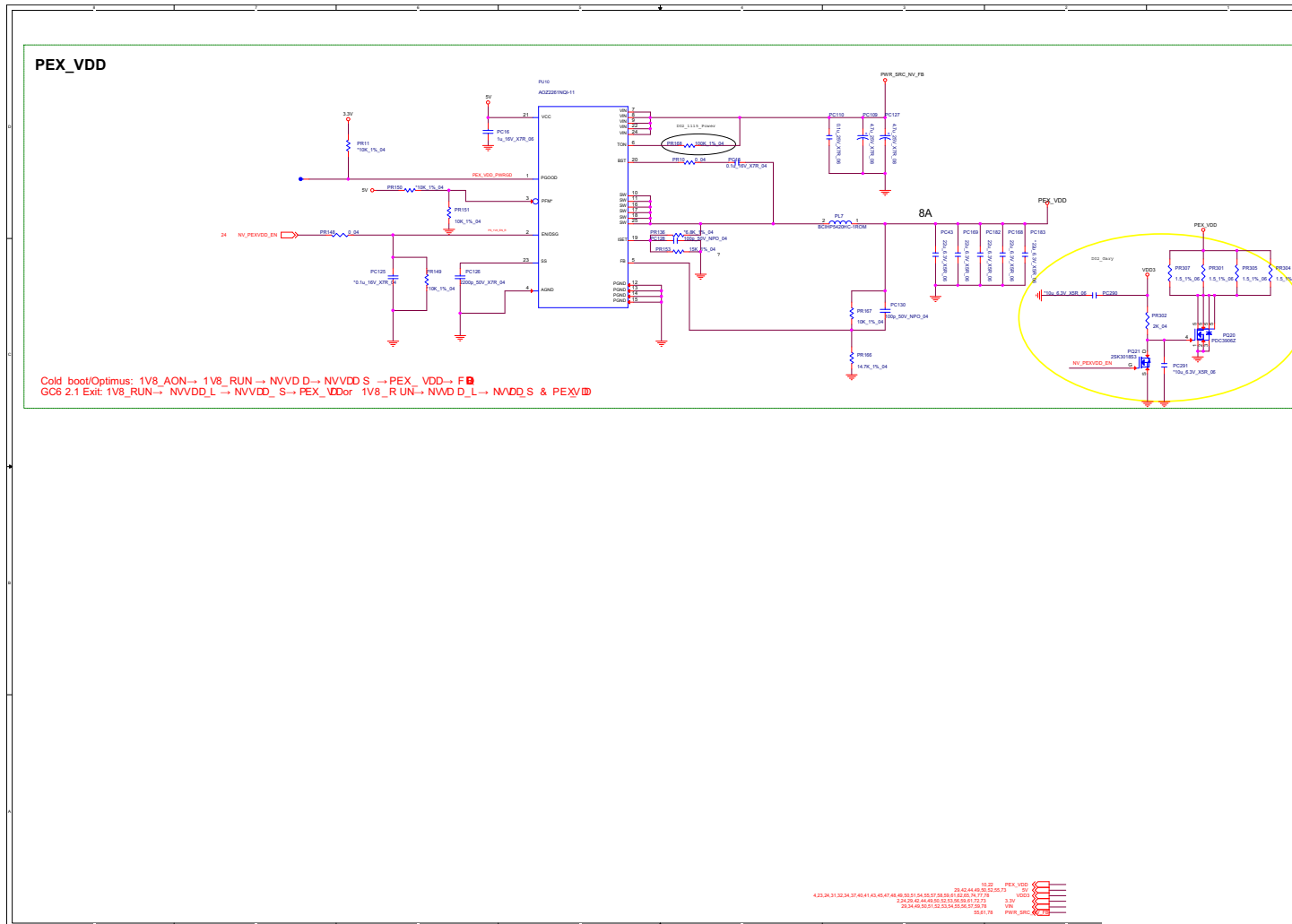


NVVDD2



## Schematic Diagrams

## PEX\_VDD



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PEX\_VDD

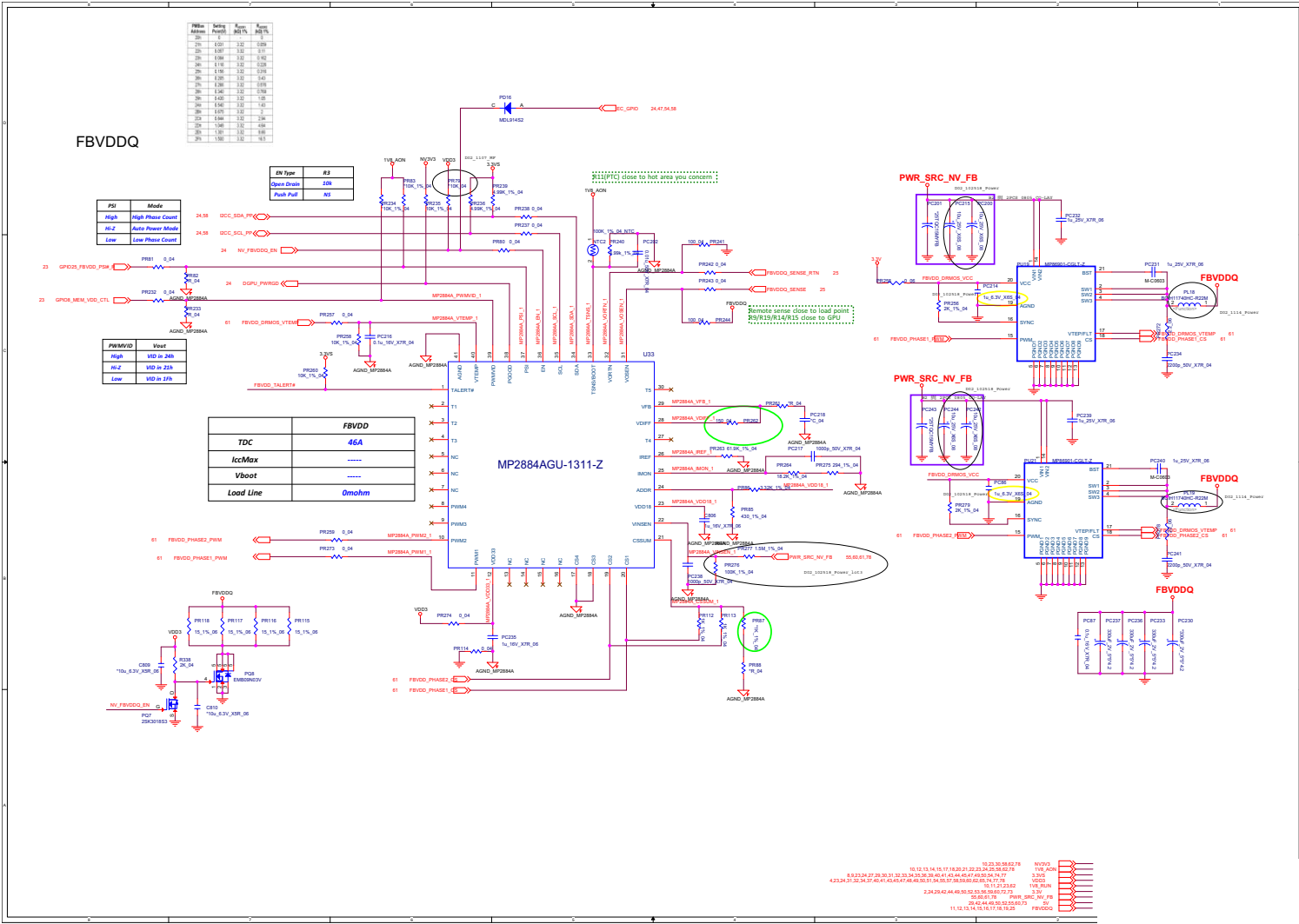
## B.Schematic Diagrams

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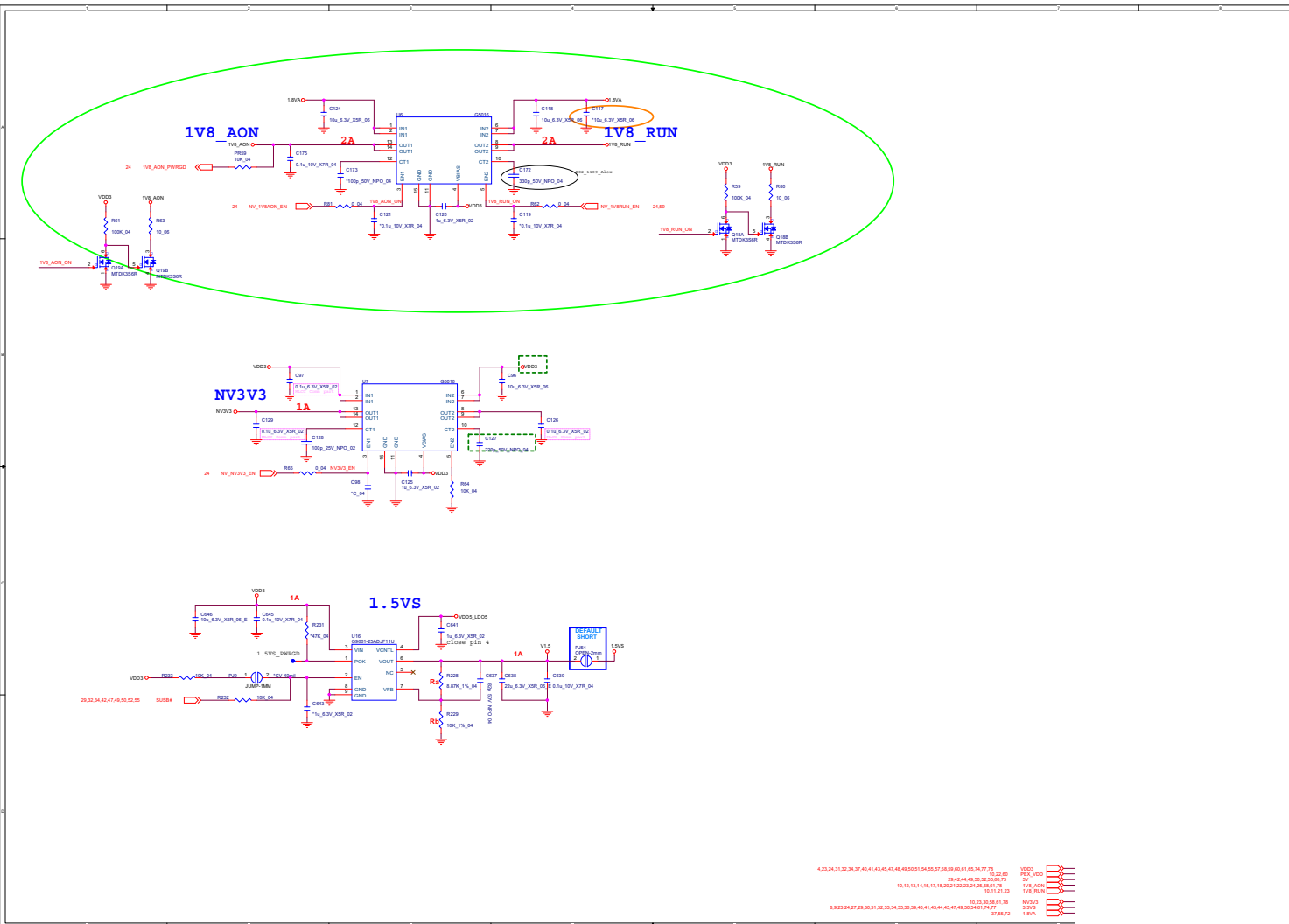
# FBVDDQ

## B.Schematic Diagrams

**Sheet 61 of 73**  
**FBVDDQ**



# 1V8\_RUN/AON

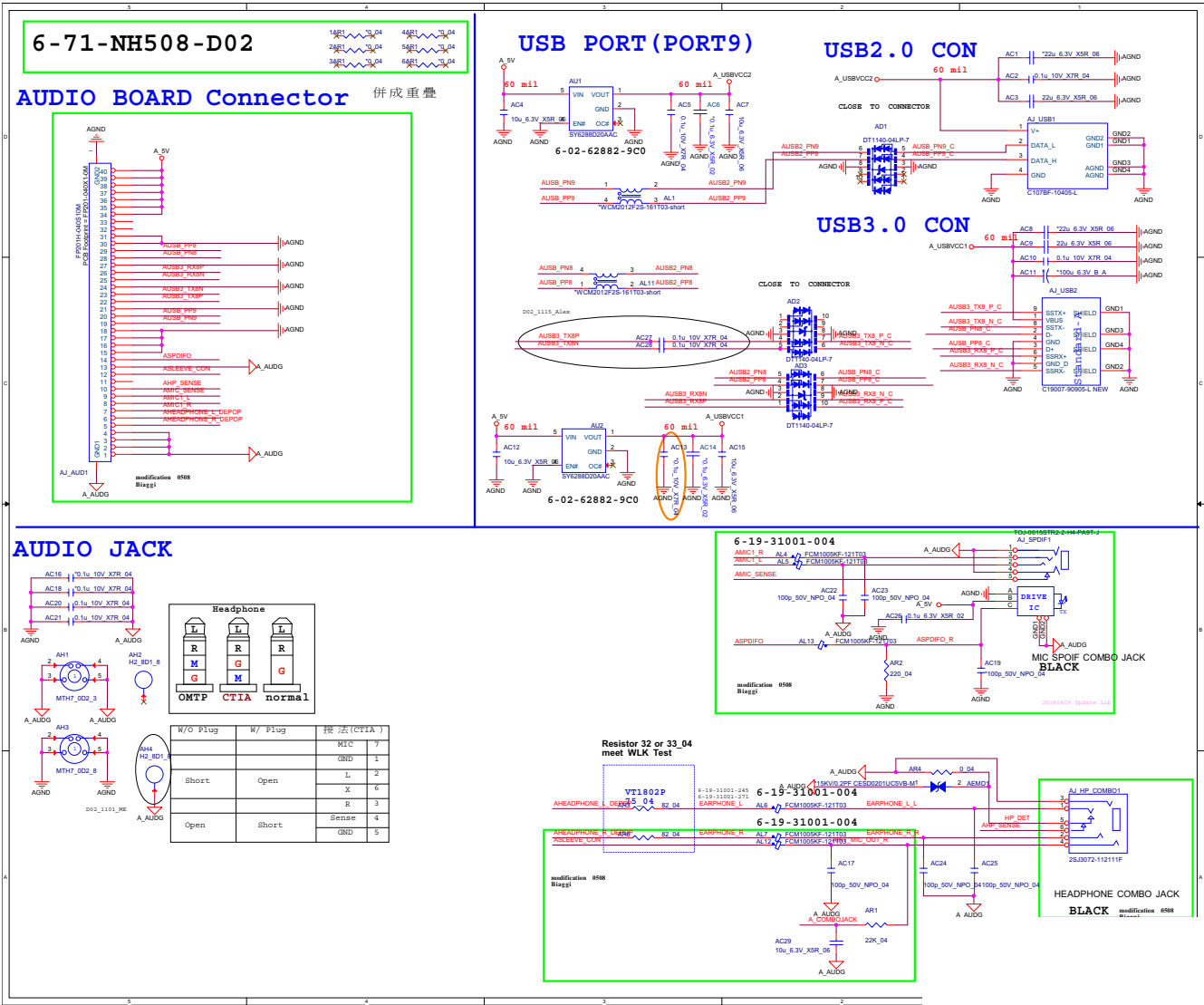


Sheet 62 of 73  
1V8\_RUN/AON

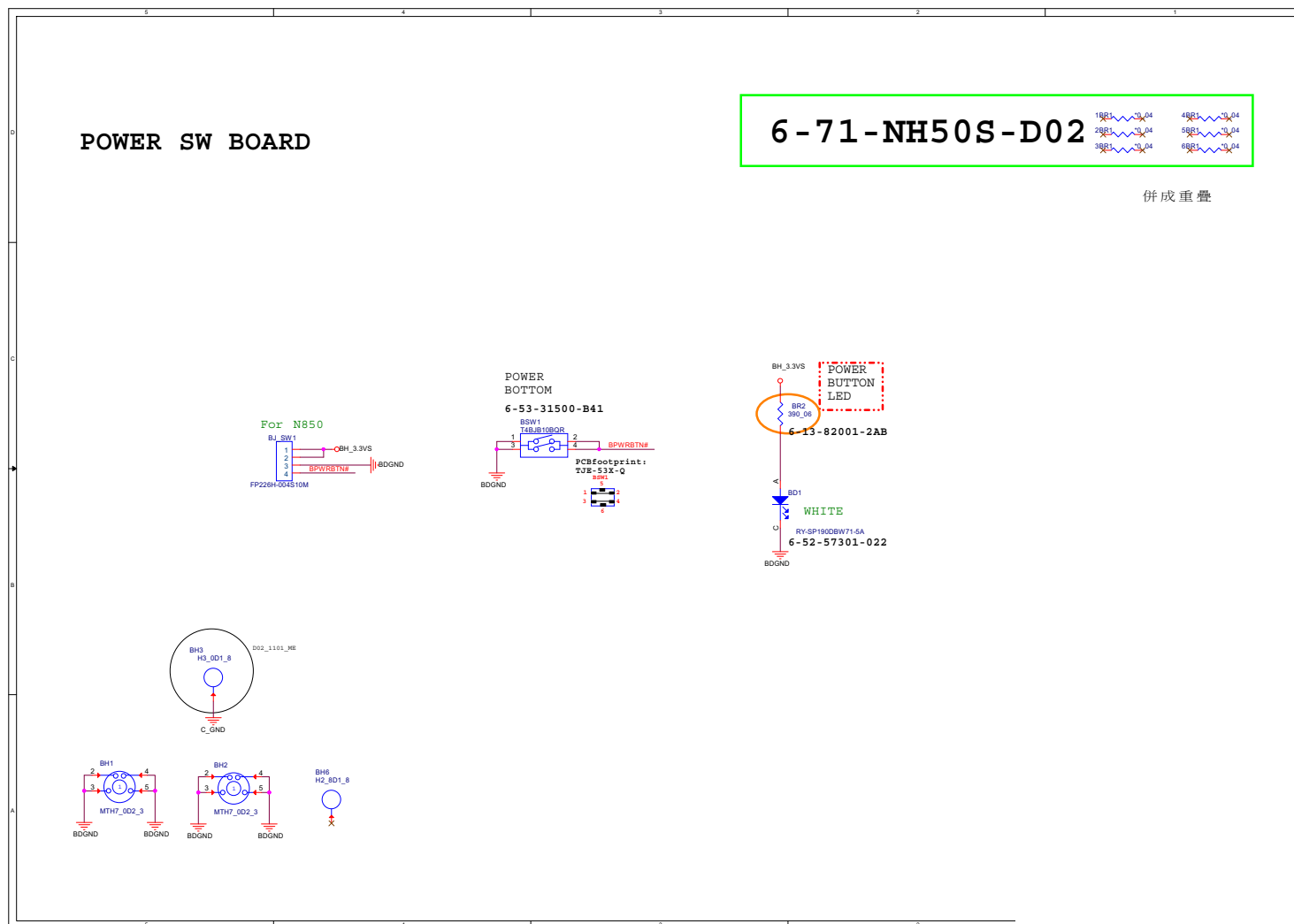
Schematic Diagrams

Audio Board

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Audio Board

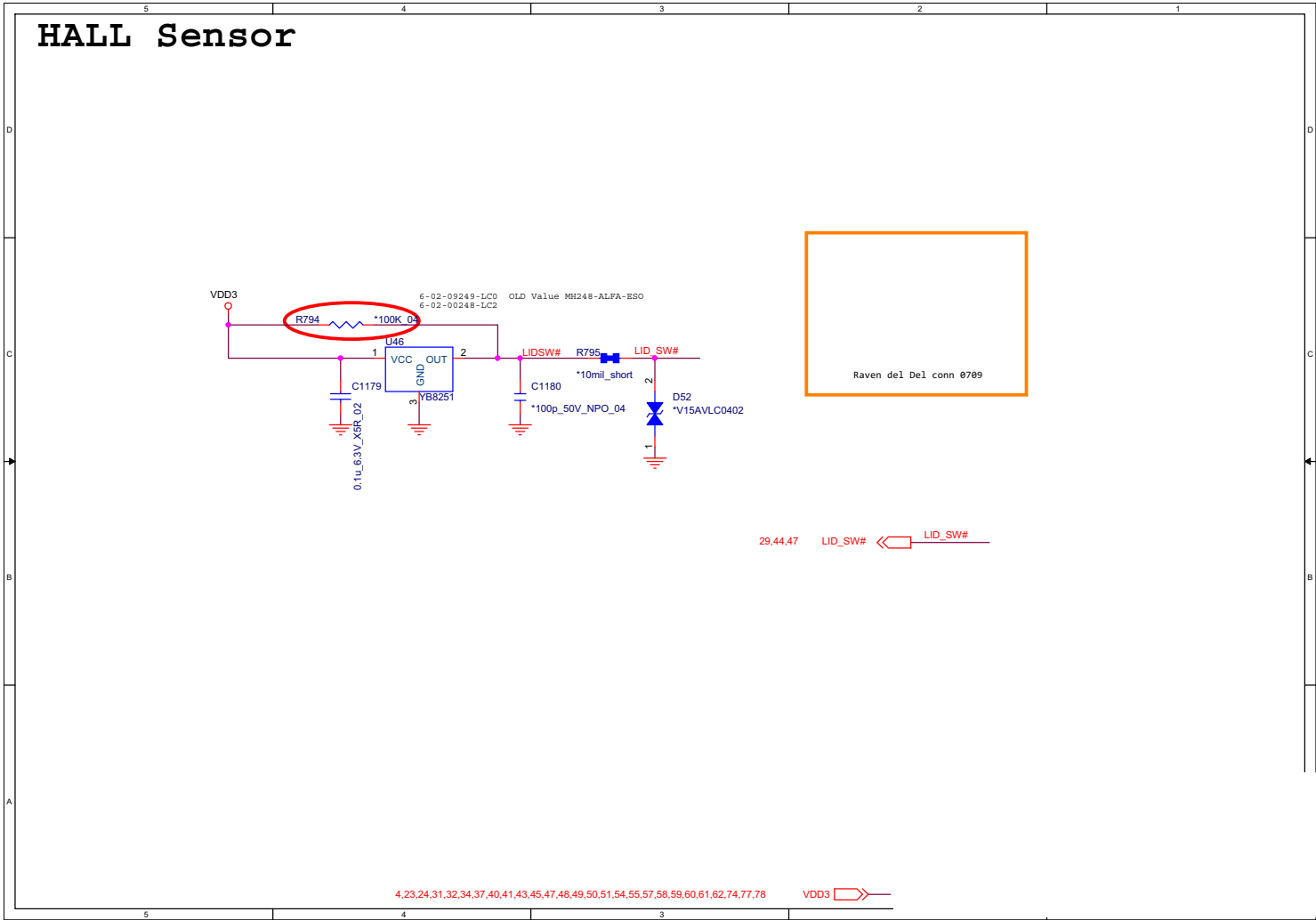


# NH50 PW Board



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NH50 PW Board

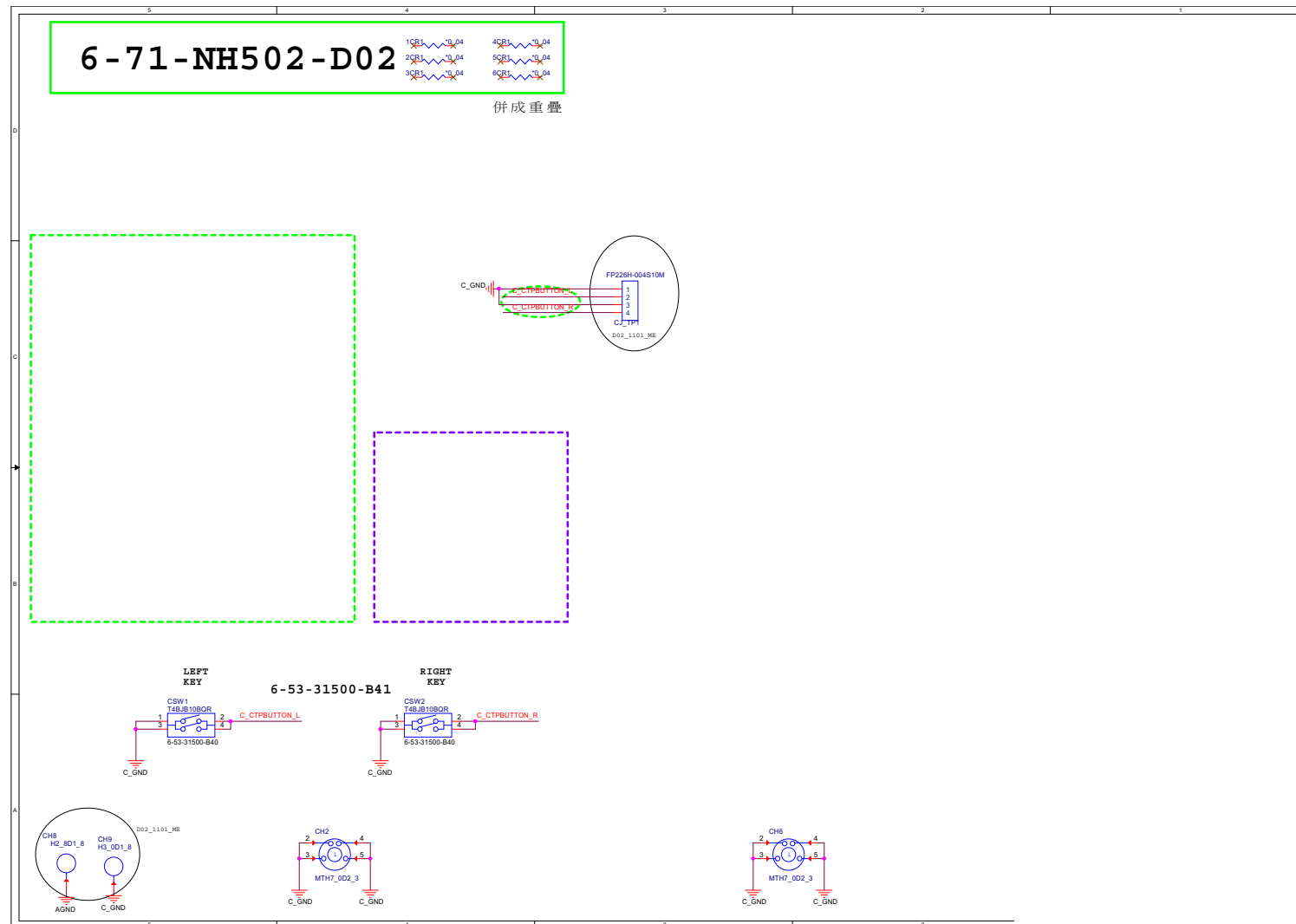
Hall Sensor Board



B.Schematic Diagrams

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Hall Sensor Board

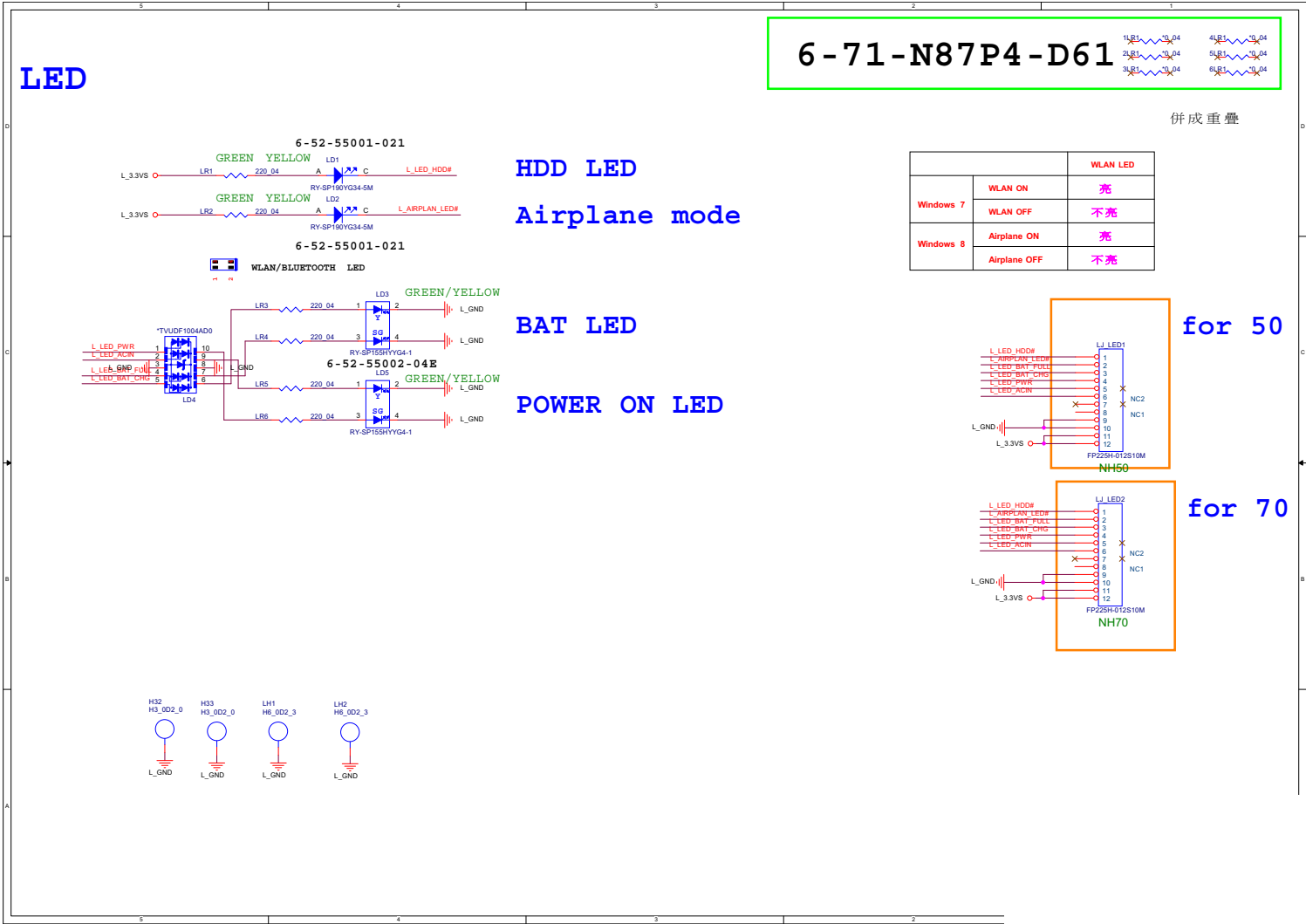
# Click Board



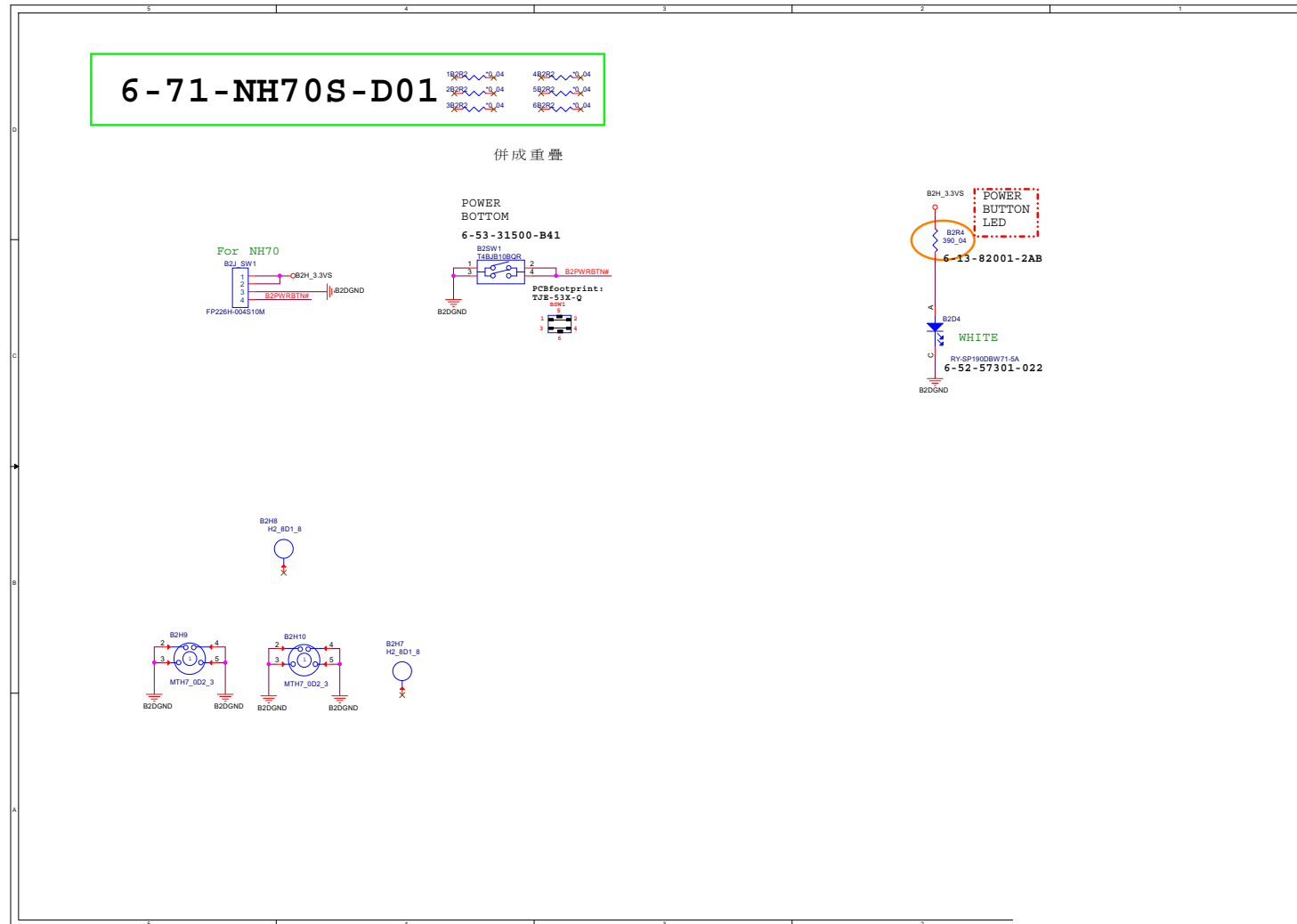
Sheet 66 of 73  
Click Board

LED Board

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LED Board

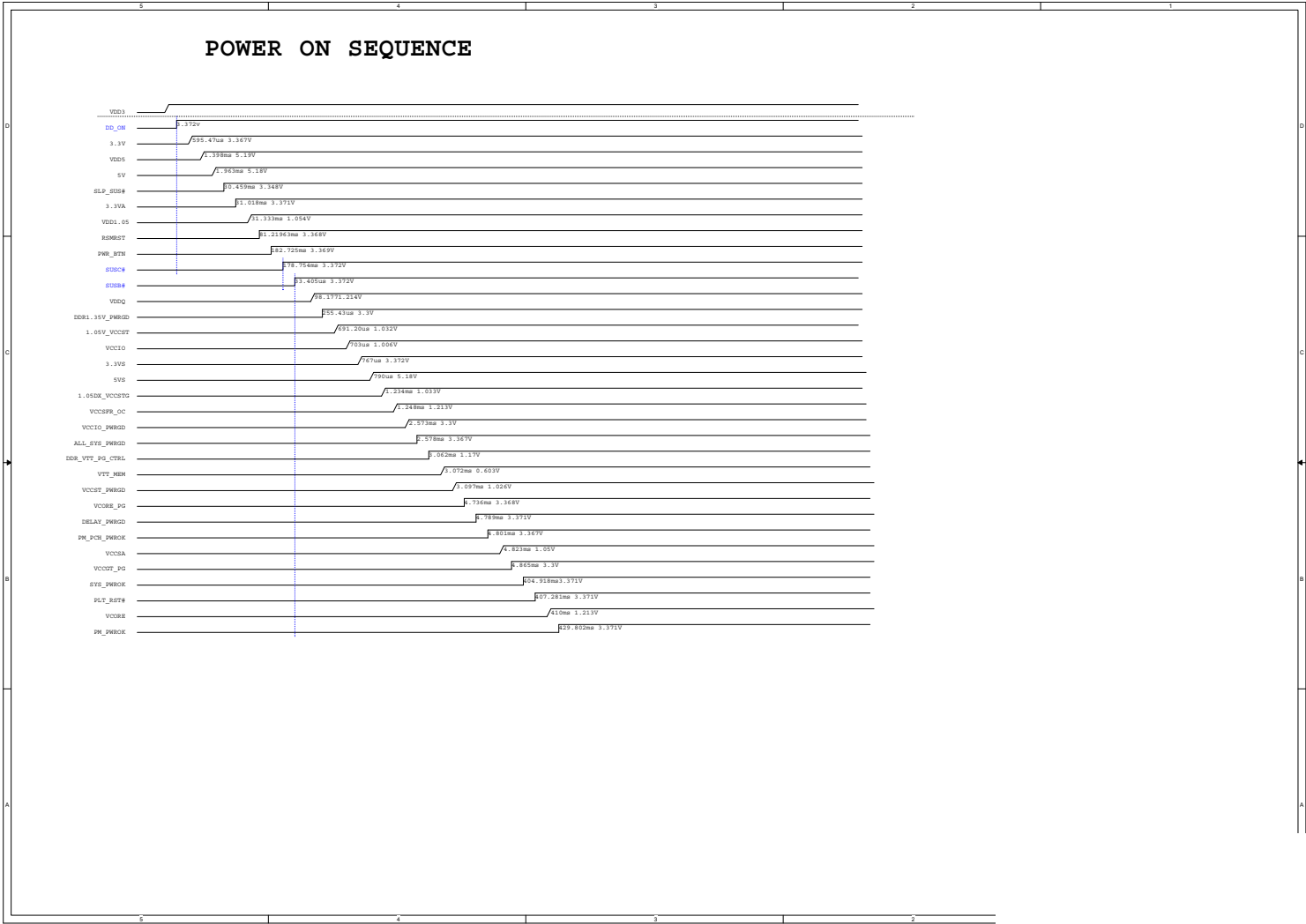


# NH70 PW Board



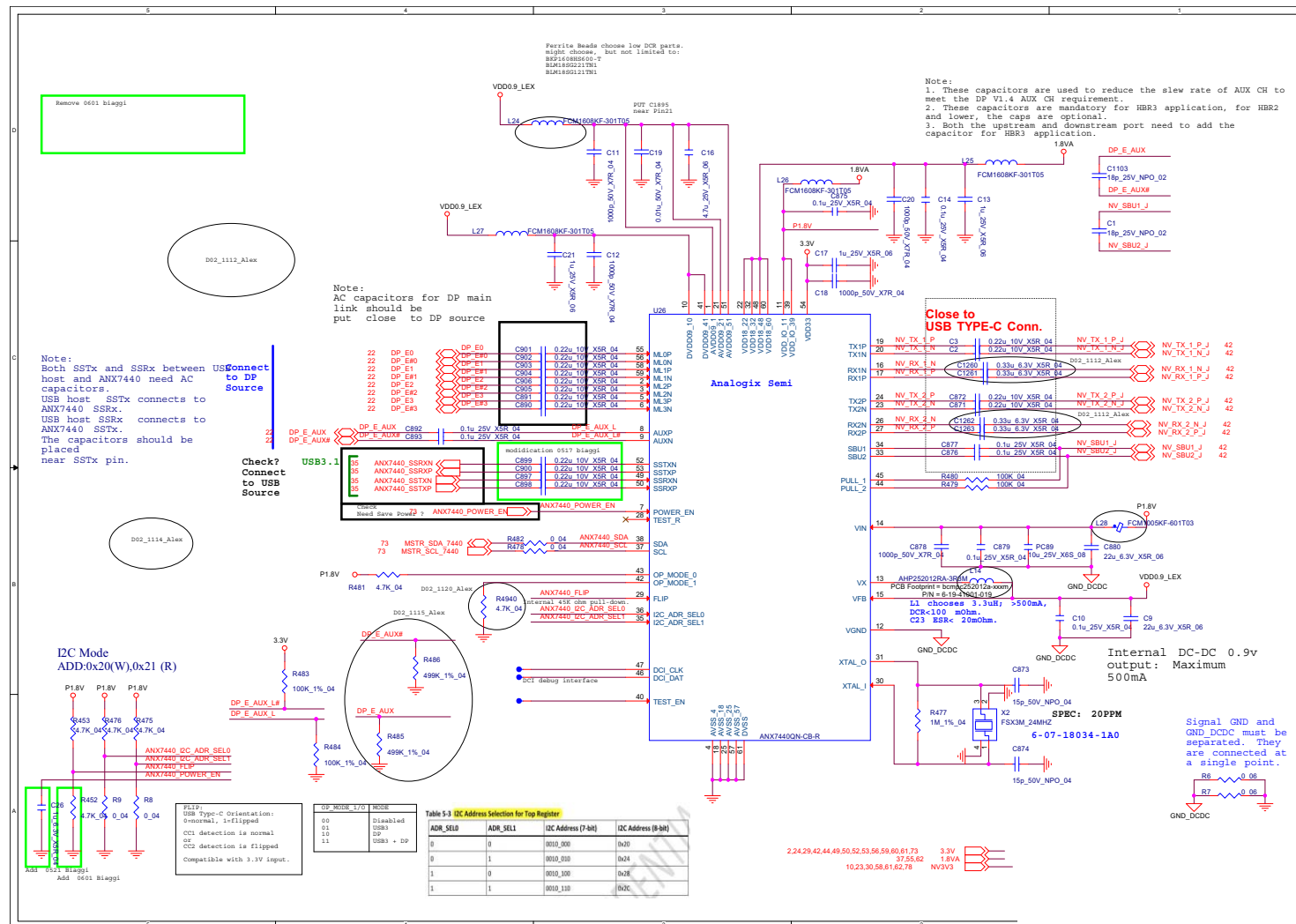
Sheet 68 of 73  
NH70 PW Board

Power Sequence



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Power Sequence

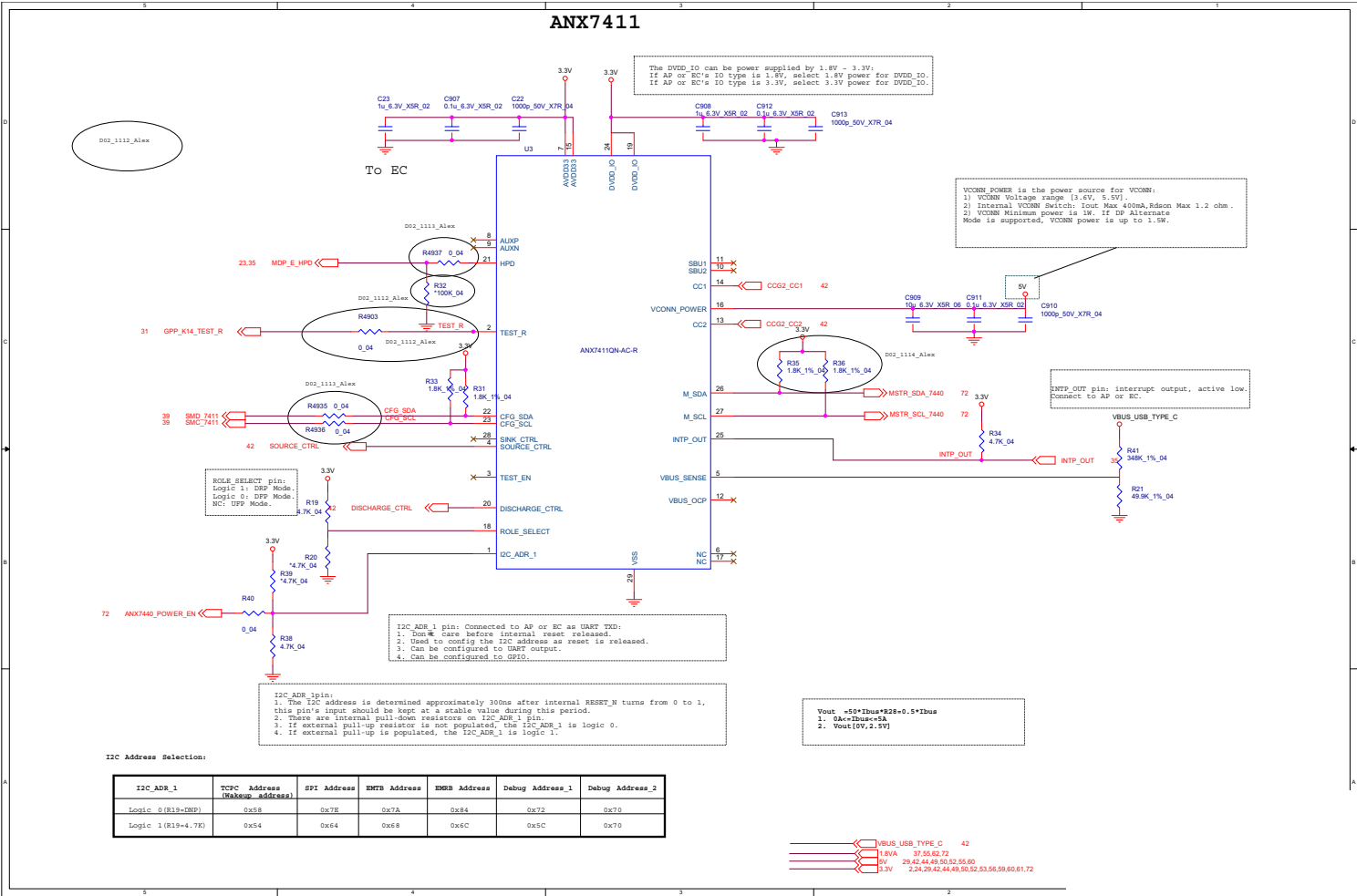
## USB Type-C B - 71



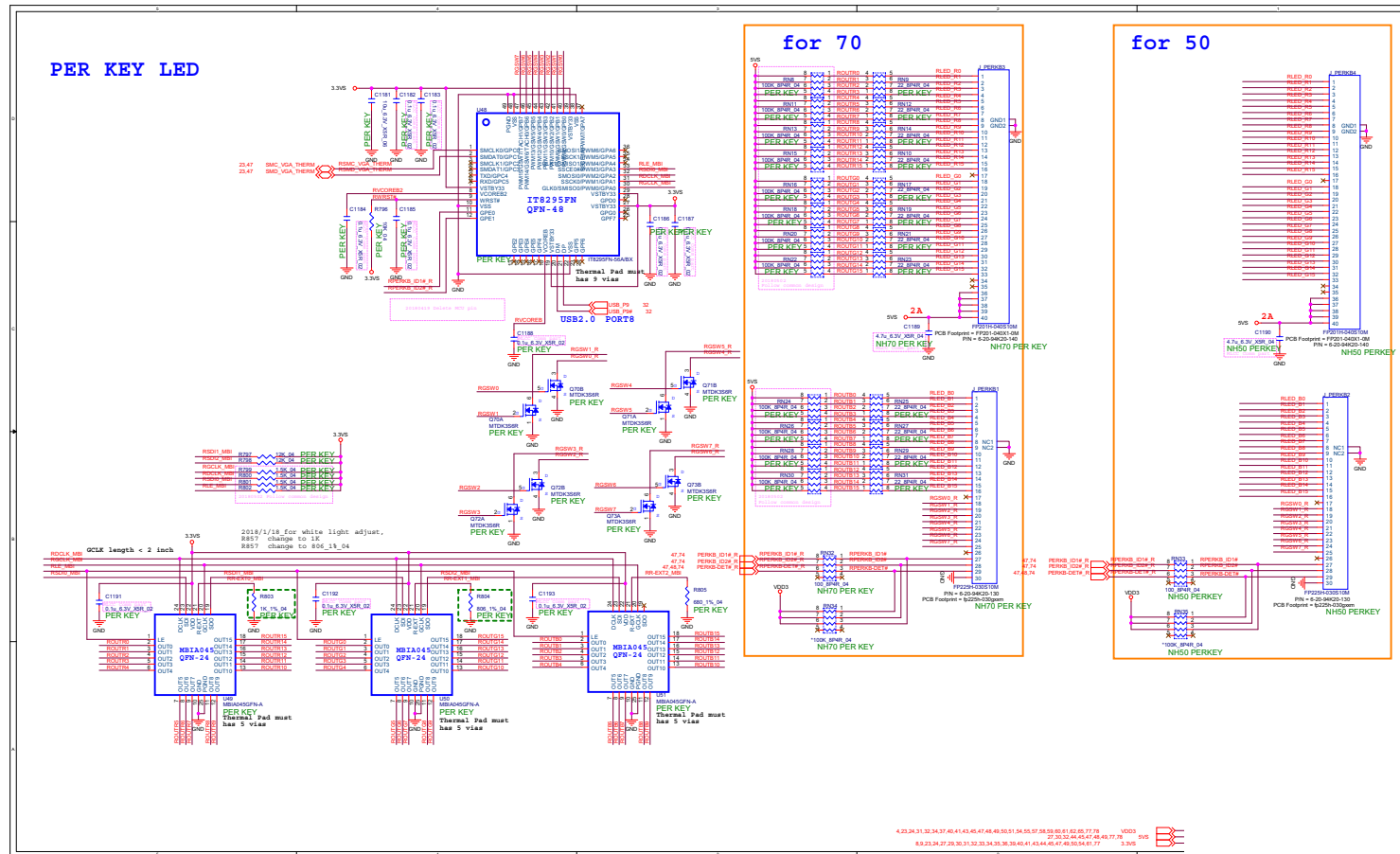
Schematic Diagrams

PD Controller ANX7411

Sheet 71 of 73  
PD Controller  
ANX7411



## PER KEY Board



## DGPU Power Measurement

## B. Schematic Diagrams

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DGPU Power  
Measurement

