SERVICE MANUAL

NH55RCQ / NH58RCQ

notebook

Notebook Computer

NH55RCQ / NH58RCQ

Service Manual

Notice

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HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

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 ***NH55RCQ / NH58RCQ*** 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

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.

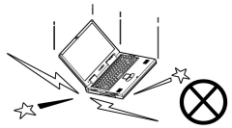
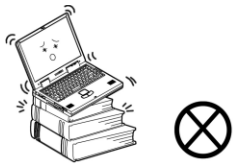
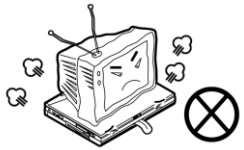
FCC Statement

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.

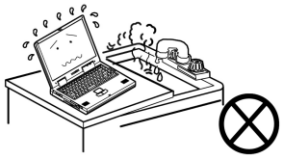
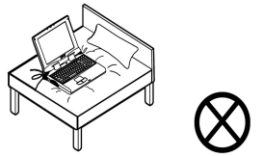
Instructions for Care and Operation

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

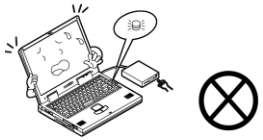
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.

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

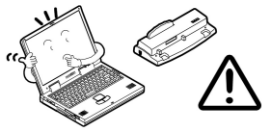
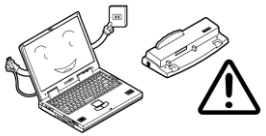
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

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

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

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

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

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

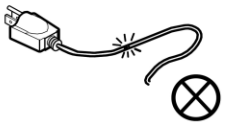
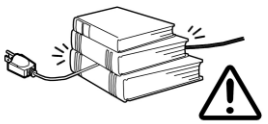
Power Safety

The computer has specific power requirements:

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

Power Safety Warning

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

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

Battery Precautions

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

Battery Guidelines

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

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

Battery Disposal

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

Caution

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

Battery Level

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

Related Documents

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

User's Manual on CD/DVD

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

System Startup

1. Remove all packing materials.
2. Place the computer on a stable surface.
3. Insert the battery and make sure it is locked in position.
4. Securely attach any peripherals you want to use with the computer (e.g. keyboard and mouse) to their ports.
5. **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".

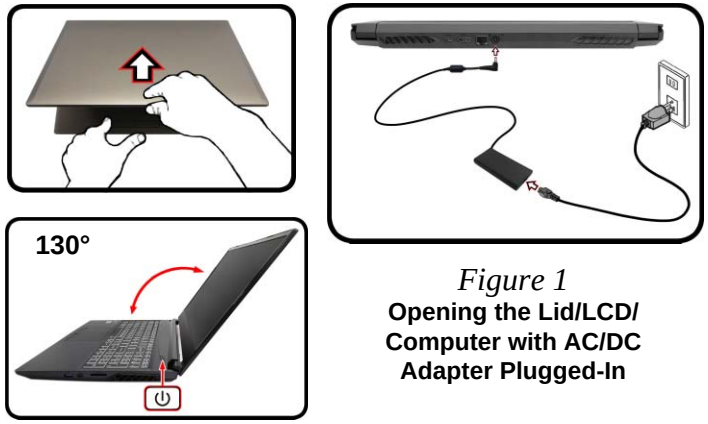
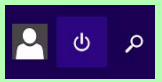


Figure 1
Opening the Lid/LCD/ Computer with AC/DC Adapter Plugged-In

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.

Contents

Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the ***NH55RCQ / NH58RCQ*** series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about dri-vers (e.g. VGA & audio) is also found in the *User's Manual*. The manual is shipped with the computer.

Operating systems (e.g. *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 ***NH55RCQ / NH58RCQ*** 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

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

Mobile 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**)

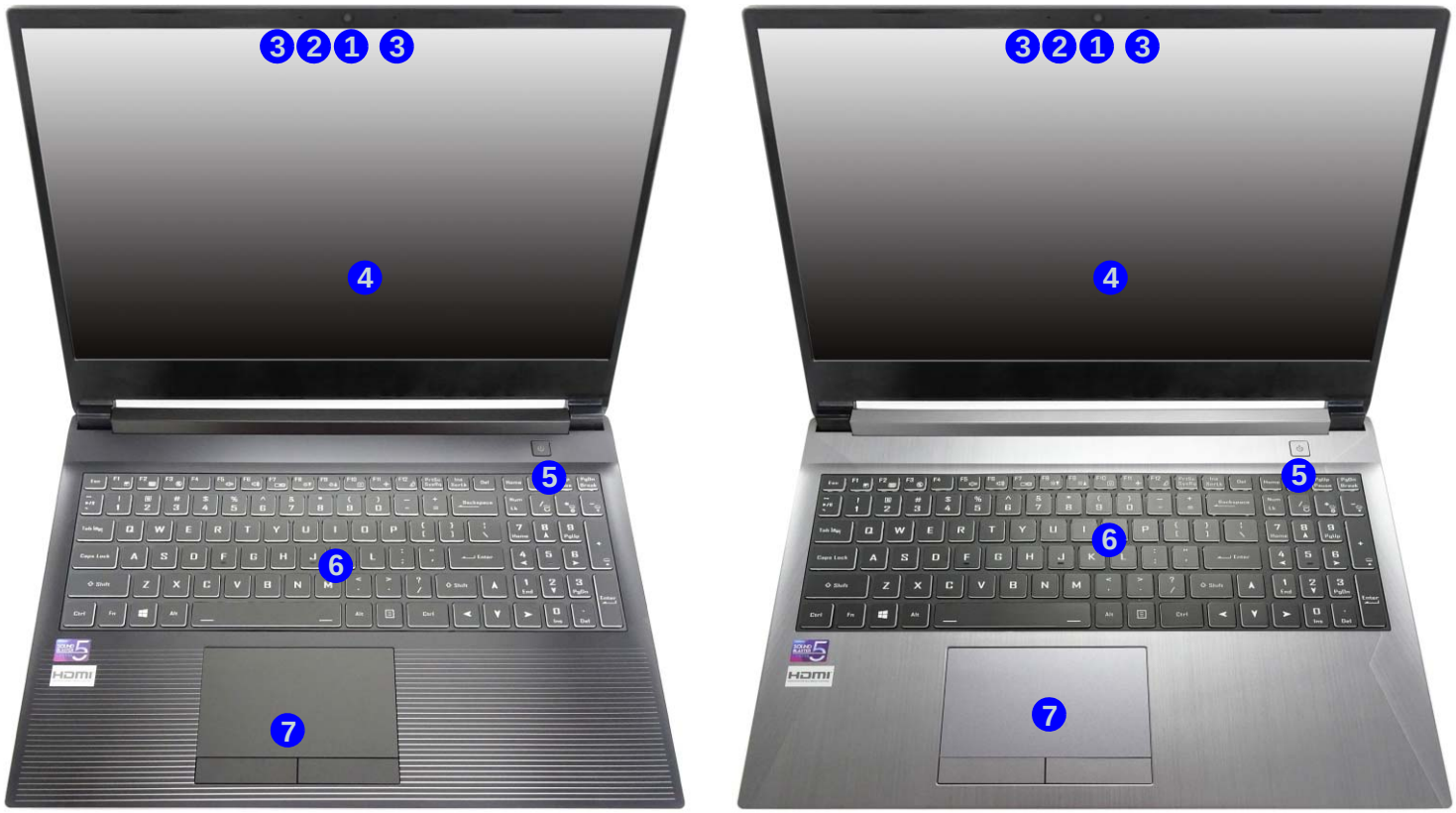
Dimensions & Weight

361mm (w) * 258mm (d) * 27.9mm (h)

2.2kg (Barebone with 48.96WH Battery)

External Locator - Top View with LCD Panel Open

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 - Front & Right Side Views

FRONT VIEW

Figure 2
Front View

1. LED Indicator

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

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

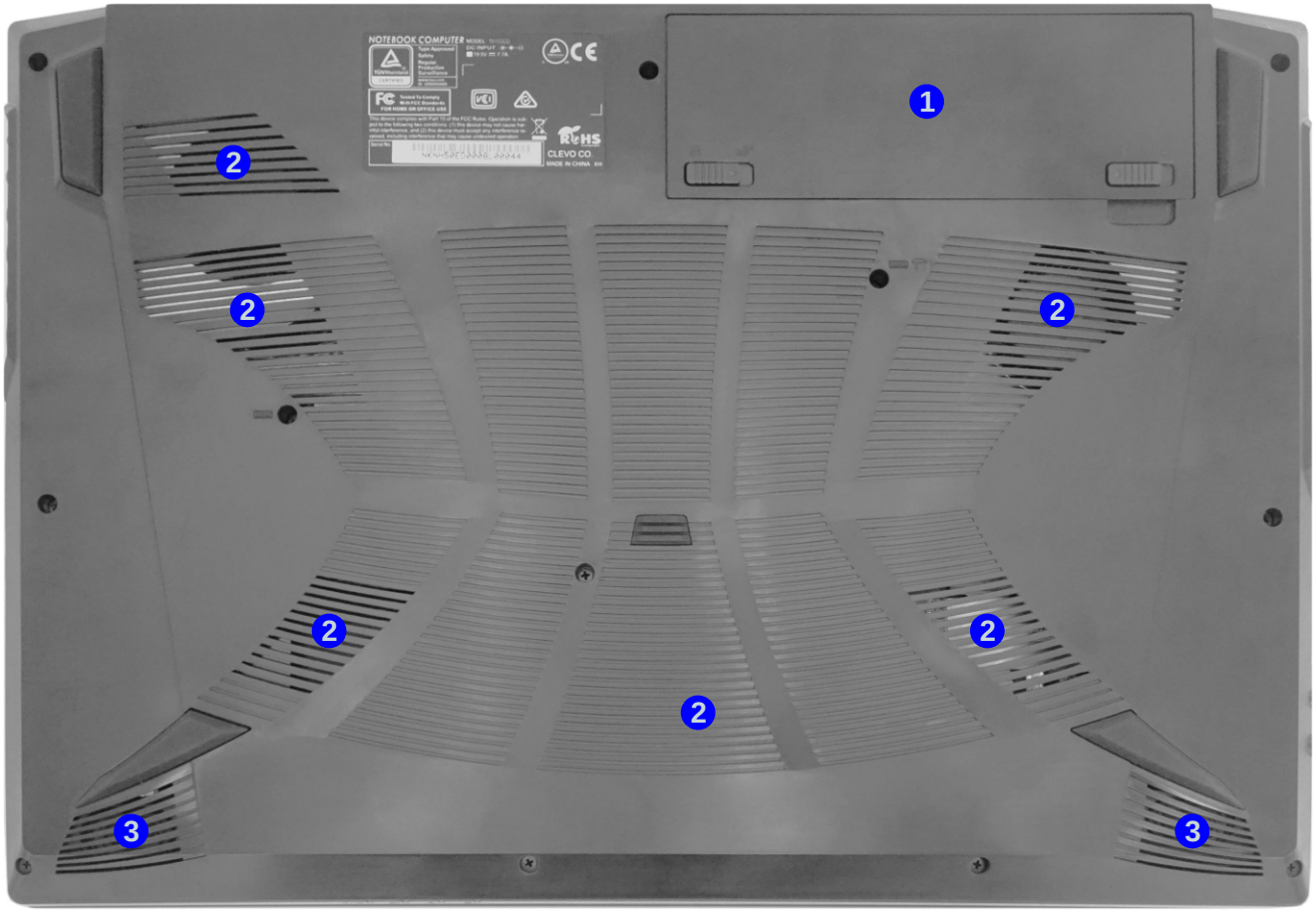
REAR VIEW

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

External Locator - Bottom View

Figure 6
Bottom View



1. Battery
2. Vent
3. Speakers

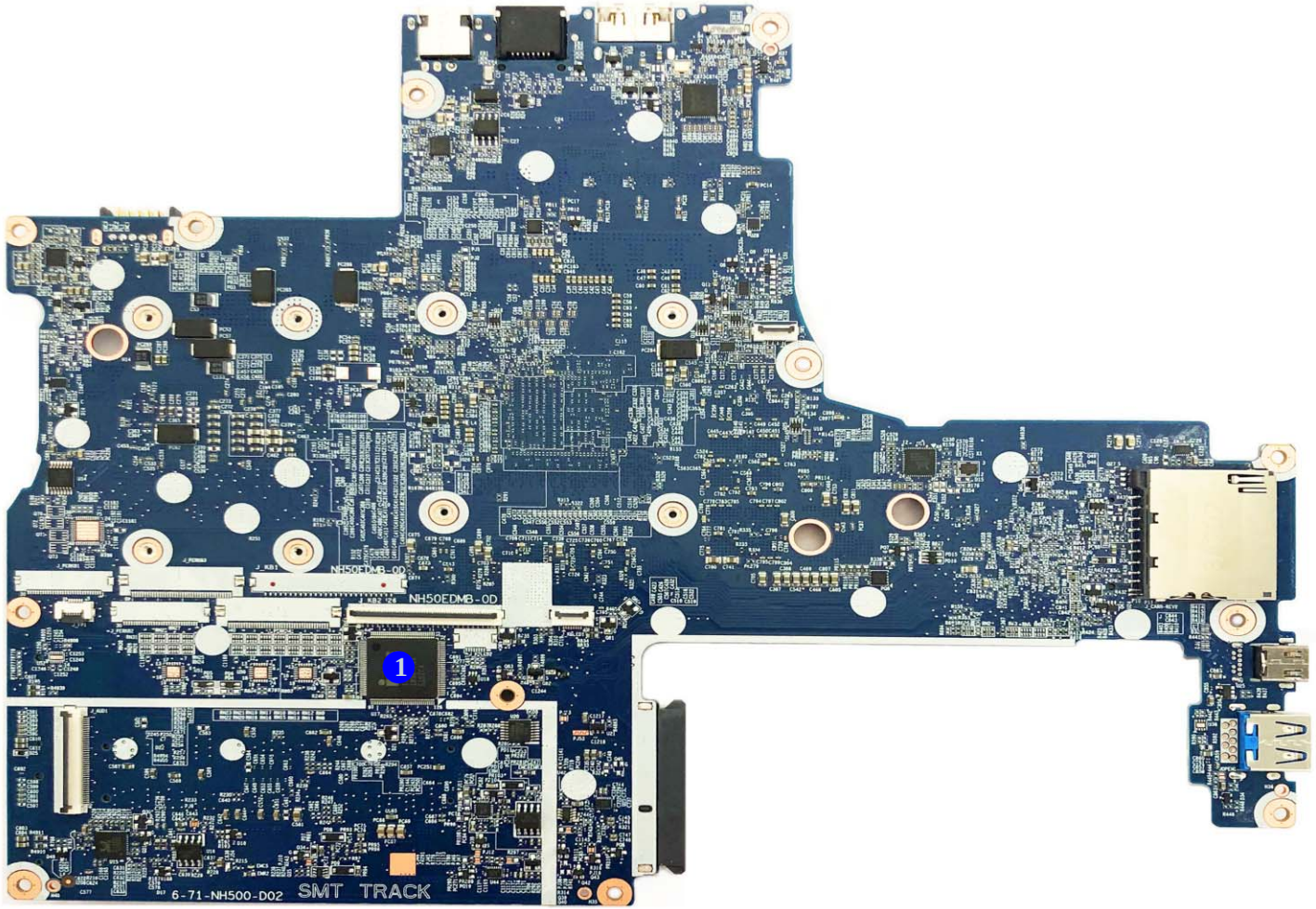
Overheating

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

Mainboard Overview - Top (Key Parts)

Figure 7
Mainboard Top Key Parts

1. KBC-ITE IT8587



Mainboard Overview - Bottom (Key Parts)

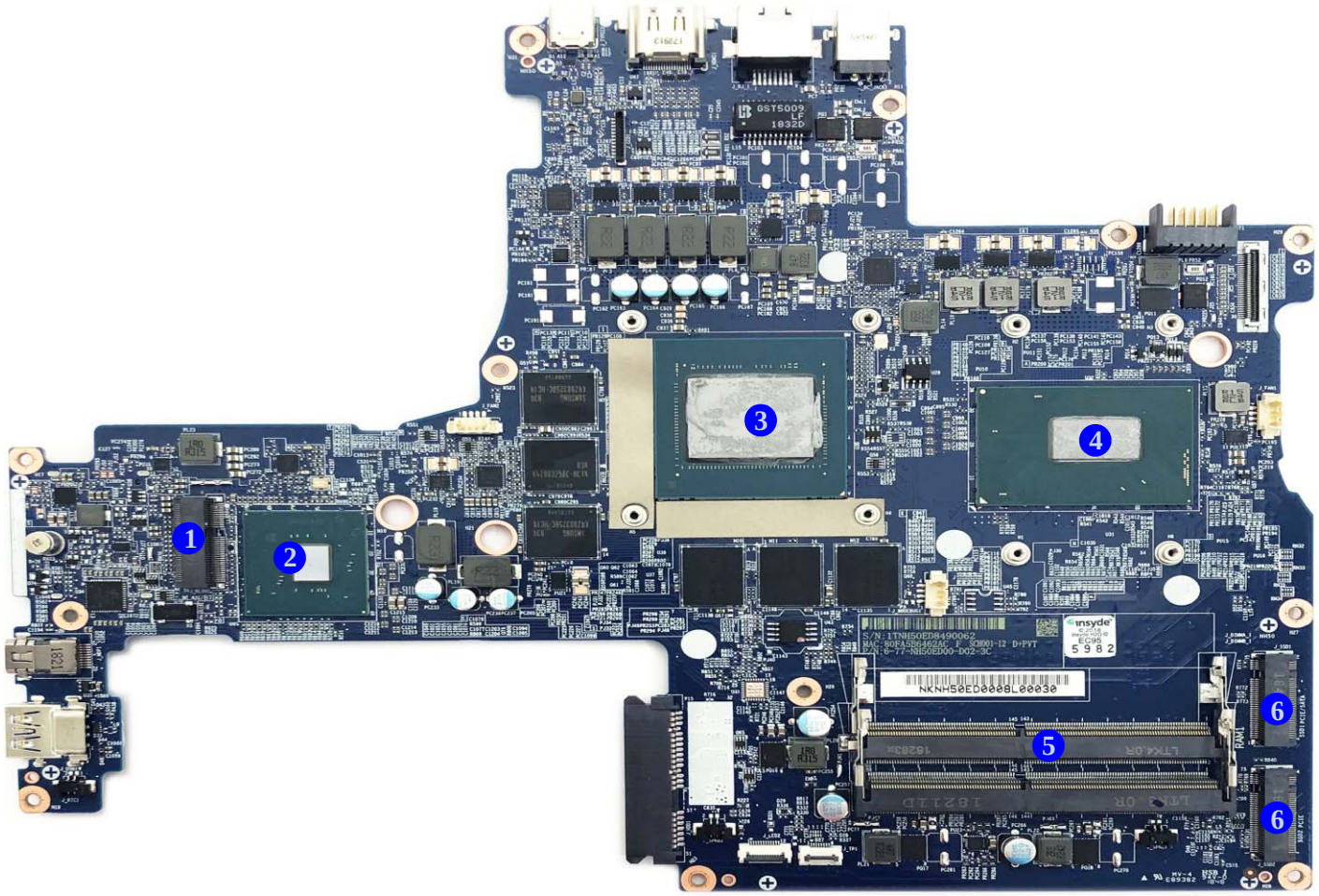


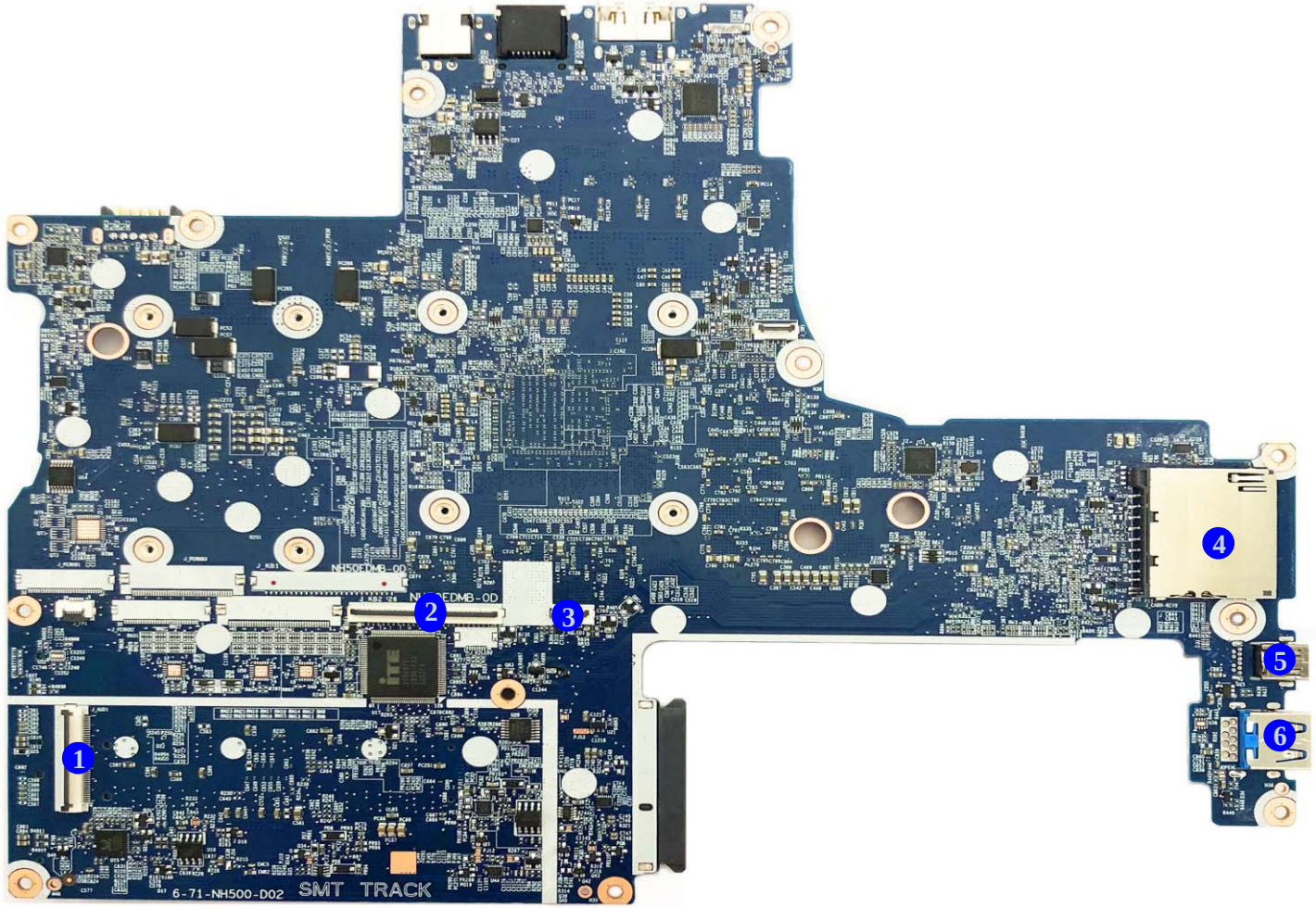
Figure 8
Mainboard Bottom Key Parts

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)

Mainboard Overview - Top (Connectors)

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 - Bottom (Connectors)

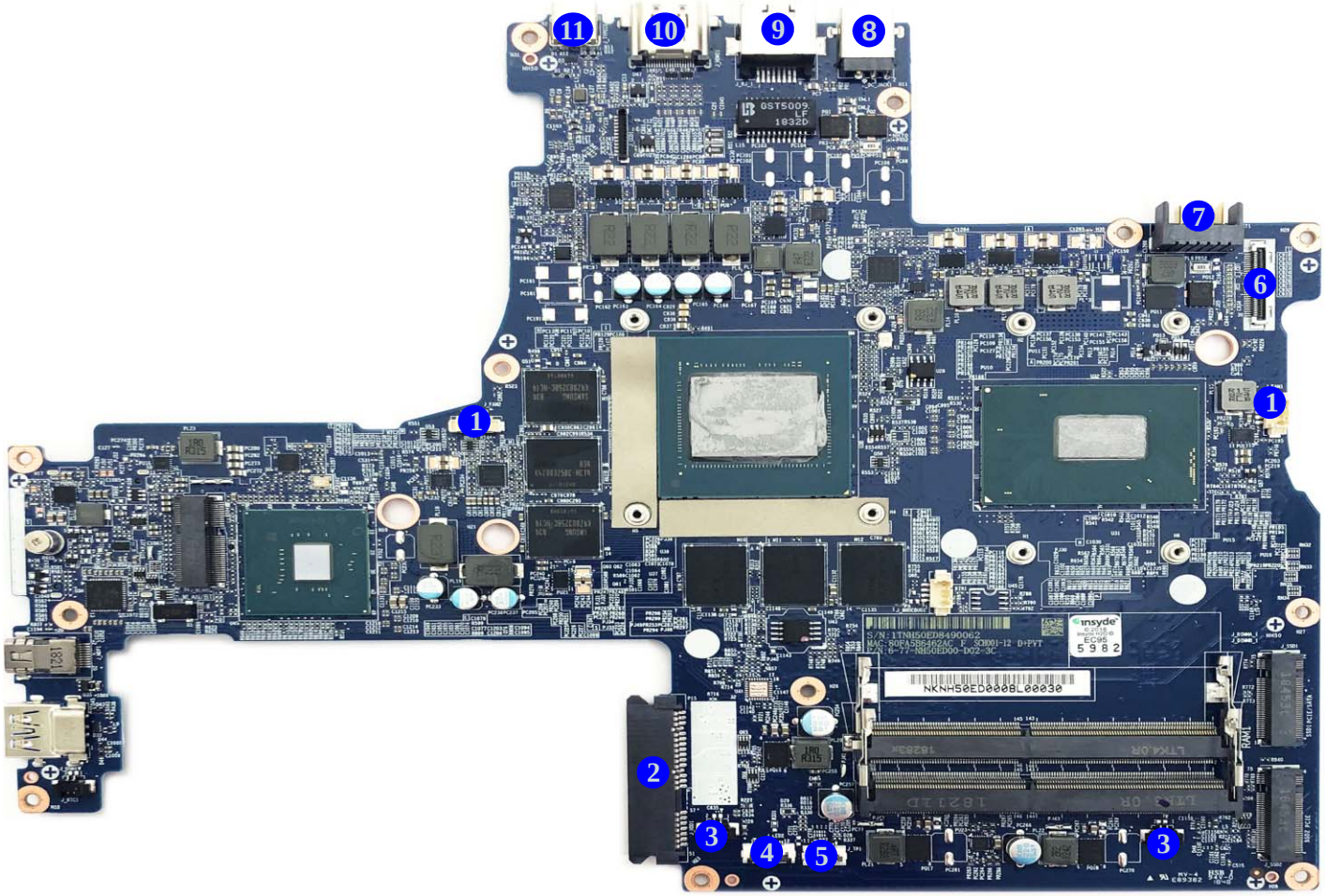


Figure 10
Mainboard Bottom Connectors

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 ***NH55RCQ / NH58RCQ*** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

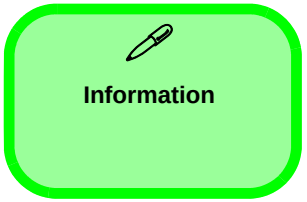
We suggest you completely review any procedure before you take the computer apart.

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

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

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

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



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

Maintenance Tools

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

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

Connections

Connections within the computer are one of four types:

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

Maintenance Precautions

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

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

Power Safety Warning

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

Cleaning

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

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

(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.

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*

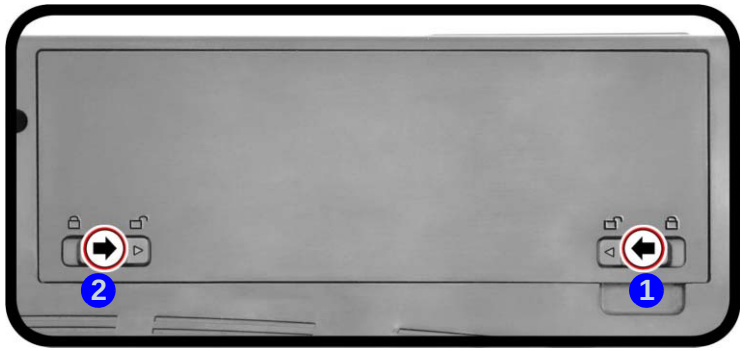
To remove the CCD Module:

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***).

a.



b.

c.

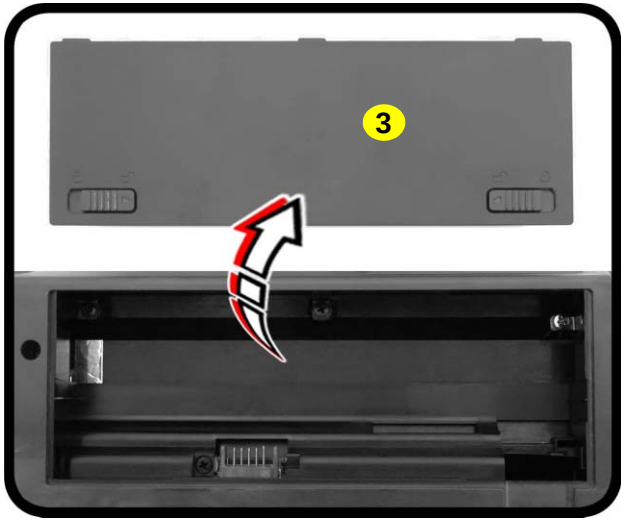


Figure 1
Battery Removal

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

Figure 2
Keyboard Removal

a. 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.
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.

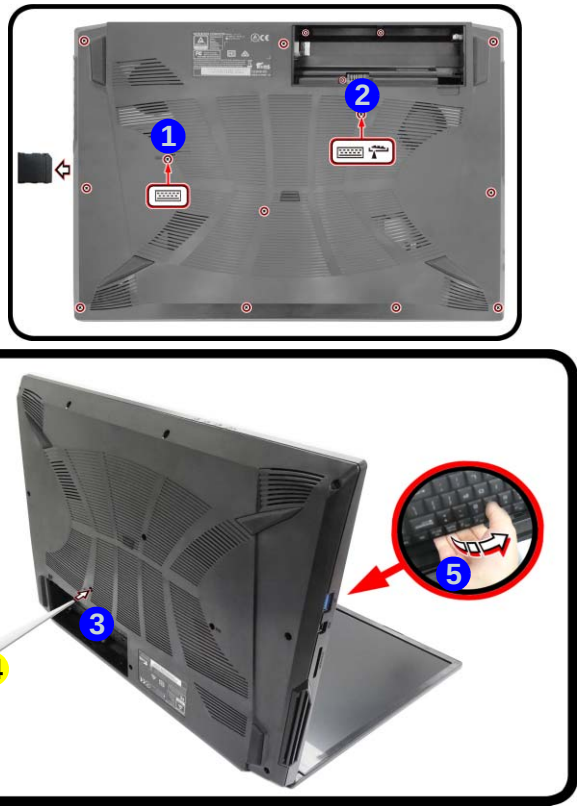
4. Eject Stick
6. Keyboard

- 2 Screws

Removing the Keyboard

1. Turn **off** the computer, turn it over.
2. Remove screws 1 - 2 from the bottom of the computer.
3. 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***).
4. 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***).
5. Carefully lift the keyboard 6 off the computer (***Figure 2c***).

a.



b.

c.

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.

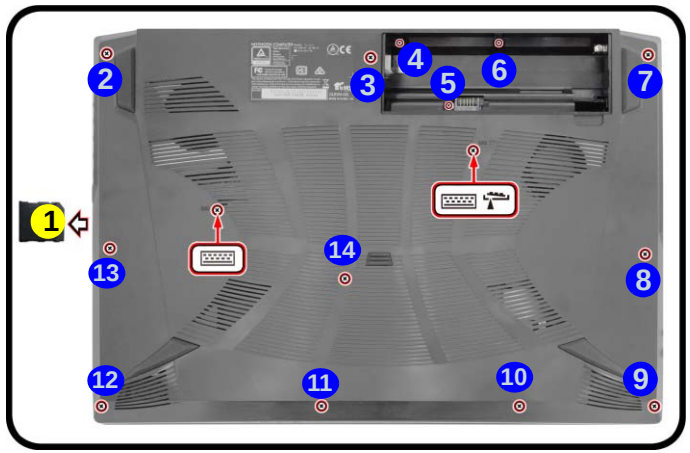
Hard Disk Disassembly Process

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*).

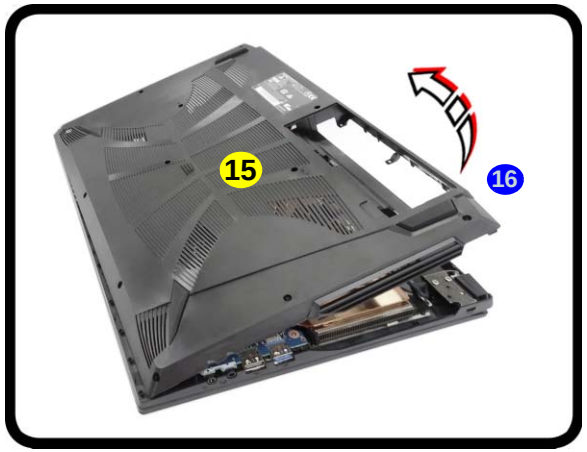
Figure 3
HDD Assembly Removal

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

a.



b.



c.

15. Bottom Case

- 13 Screws

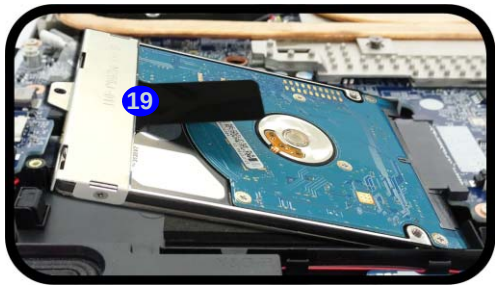
Figure 4
HDD Assembly Removal (cont'd.)

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.

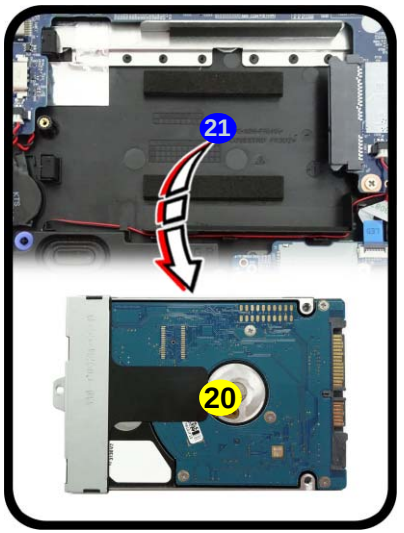
5. Remove screws 18 from the HDD assembly (***Figure 4b***).
6. Slightly lift and pull the hard disk assembly in the direction of arrow 19 (***Figure 4c***).
7. Lift the hard disk assembly 20 out of the bay 21 (***Figure 4d***).
8. Remove screws 22 - 23 and bracket 24 from the hard disk 25 (***Figure 4e***).
9. Reverse the process to install a new hard disk (replace the bottom case by inserting at point 1 first as shown in ***Figure 3b,*** do not forget to replace the screws).

d.

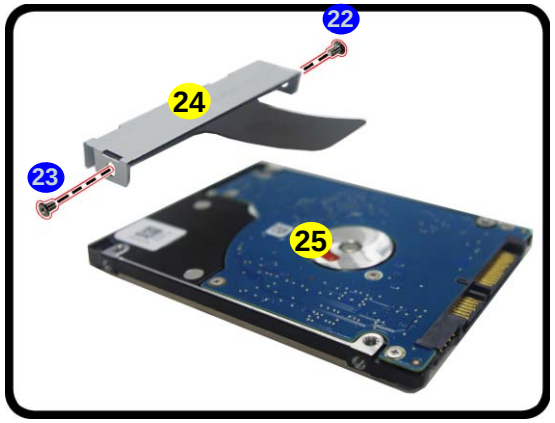
e.



f.



g.



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.

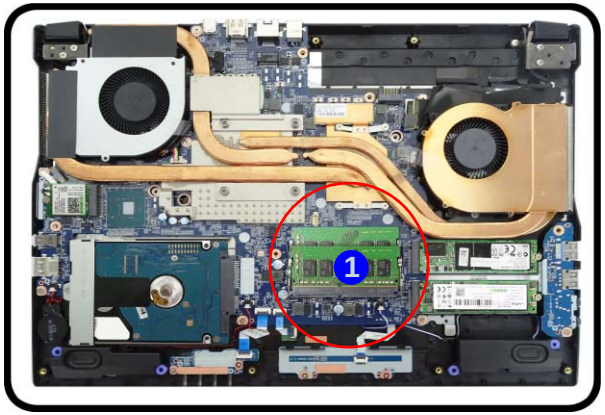
Removing the System Memory (RAM)

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.

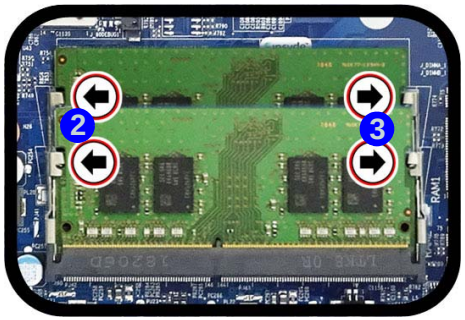
Memory Upgrade Process

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 single module only** - make sure to install it in the top slot "J_DIMMB_1" 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.

a.



b.



c.

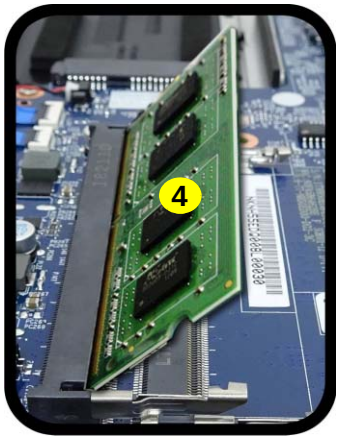


Figure 5
RAM Module Removal

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

Contact Warning

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

4. RAM Module

Figure 6
M.2 SSD Module Removal

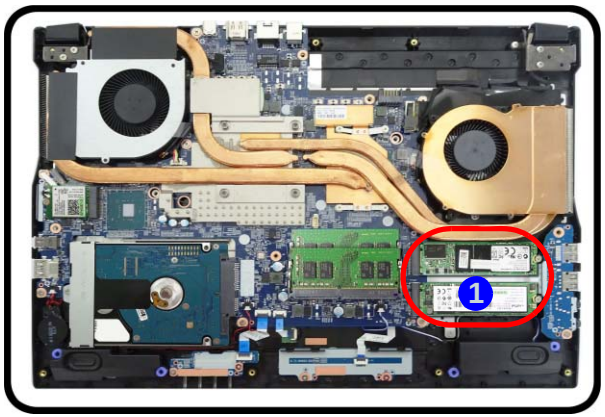
a. Locate the M.2 SSD.
b. Remove the screw.
c. The M.2 SSD module will pop up.

Removing the M.2 SSD Module

M.2 SSD Module Removal Procedure

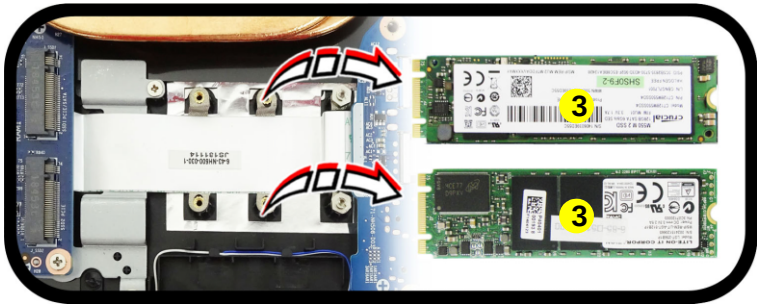
1. Turn **off** the computer, turn it over, remove the battery (***page 2 - 5***).
2. The M.2 SSD module will be visible at point 1 on the mainboard (***Figure 6a***).
3. Remove the screw 2 (***Figure 6b***)
4. The M.2 SSD module 3 (***Figure 6c***) will pop-up, and you can remove it from the computer.

a.



b.

c.



3.M2 SSD Module

- 1 Screw

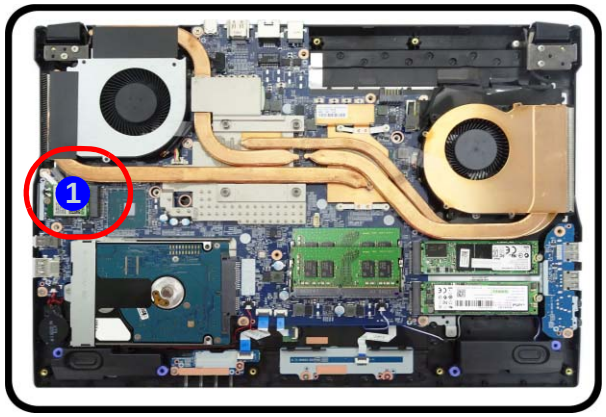
Removing the Wireless LAN Module

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 the wire are properly placed).

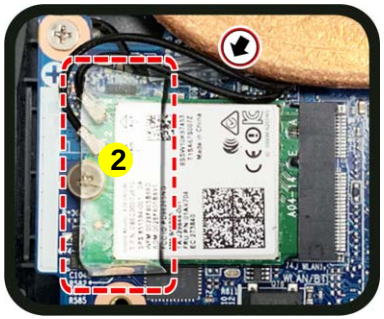
Figure 7
Wireless LAN Module Removal

a. Locate the WLAN.
b. Remove the mylar cover.
c. Disconnect the cables and remove the screw.
d. The WLAN module will pop up.

a.



b.



c.

d.

Note: Make sure you reconnect the antenna cable to the "1 + 2" socket (*Figure 7b*).

2.Mylar Cover
6.Wireless LAN Module

- 1 Screw

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	WM 1	Black	Transparent
	WM 2	Black	White

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

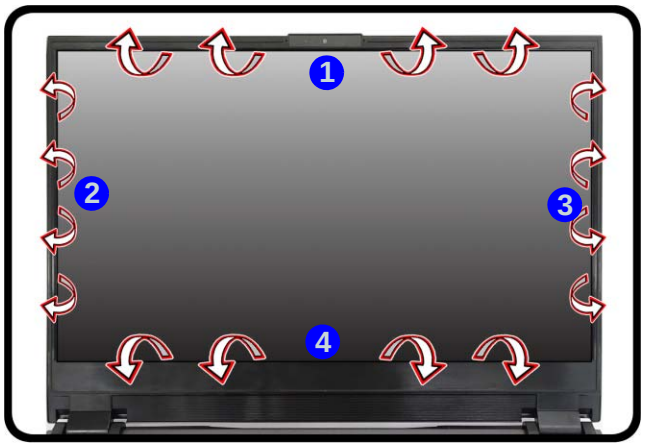
Removing the CCD

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*).

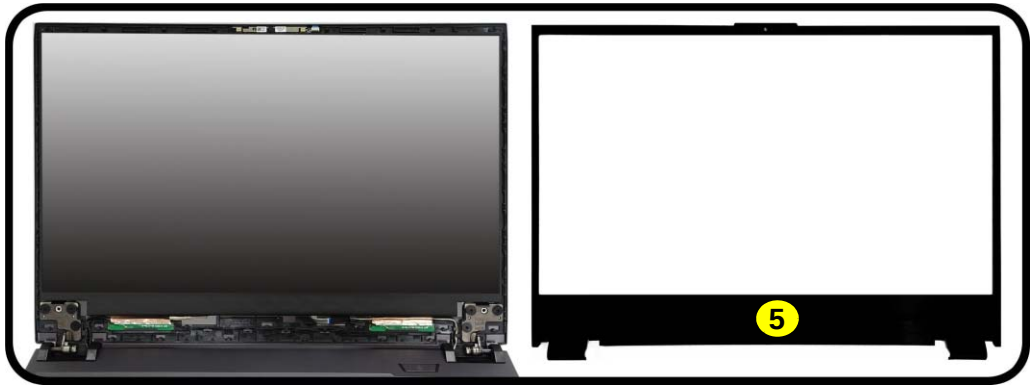
Figure 8
CCD Removal

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

a.



b.



5. LCD Front Cover

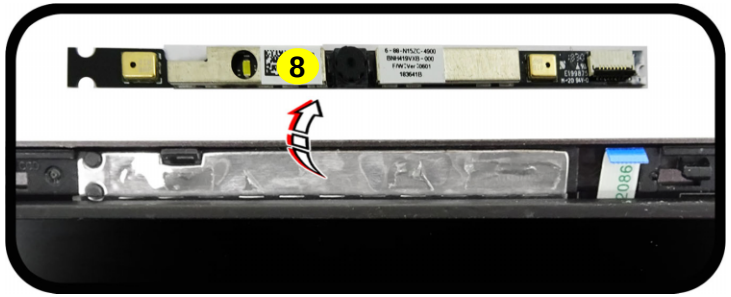
Figure 9
CCD Removal (cont'd)

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

Appendix A:Part Lists

This appendix breaks down the ***NH55RCQ / NH58RCQ*** series notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

Note: This section indicates the *manufacturer's* part numbers. Your organization may use a different system, so be sure to cross-check any relevant documentation.

Note: Some assemblies may have parts in common (especially screws). However, the part lists DO NOT indicate the total number of duplicated parts used.

Note: Be sure to check any update notices. The parts shown in these illustrations are appropriate for the system at the time of publication. Over the product life, some parts may be improved or re-configured, resulting in *new* part numbers.

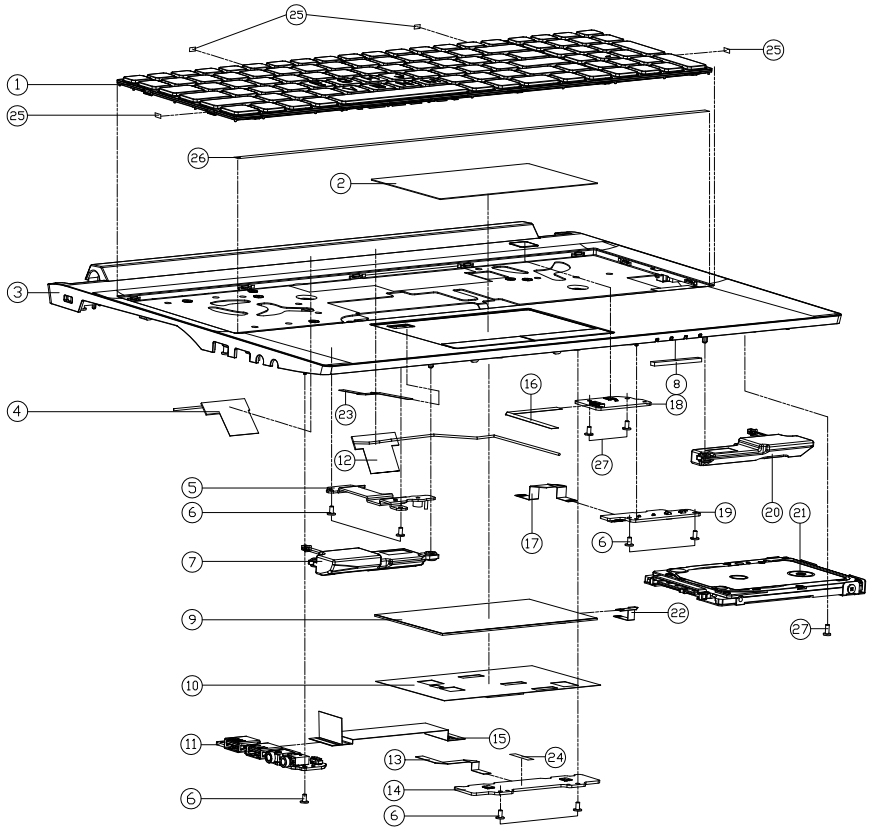
Part List Illustration Location

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

Table A - 1
Part List Illustration Location

Part	NH55RCQ	NH58RCQ
Top	*page A - 3*	
Top without FP	*page A - 4*	
Bottom	*page A - 5*	
Main Board	*page A - 6*	
HDD	*page A - 7*	
LCD	*page A - 8*	*page A - 9*

Top



ITEM	PART NAME	PART NO	REMARK
1	KB FOR LED PER KEY KB US SERIES NH55EDQ	6-NH55EDQ-KB-LPK-US	
1	KB FOR MULTI 15C BL KB US SERIES NH55EDQ	6-NH55EDQ-KB-MCL-US	
2	W/FP TP MYLAR AG32 NH55EDQ	6-40-NH552-041	
2	W/FP TP MYLAR NH58EDQ	6-40-NH582-010	
3	TOP CASE MODULE NH55EDQ	6-39-NH552-012	
3	TOP CASE MODULE NH58EDQ	6-39-NH582-012	
3	TOP CASE MODULE (THUNDEROBOT) NH58EDQ-HL	6-39-NH582-012-HLT	
4	ANTENNA IPEX4 WLAN JEM WL2 PCB DL 40?5MM 2.4G/5G WL2= 300MM NH5XED	6-23-7NH50-040	
5	MB SUPPORT BRKT NH50ED	6-33-NH502-021	
6	SCREW M2*4L KI NI ICT NY (DD=Φ4.5,DT=0.8)	6-35-B1120-4RC	
7	SPK+CABLE L L67*23 2V 4? L190 MM DG-2514-ML-12-HF NX50TF	6-23-5N95T-0L1	
8	LED LENS SPONGE(40*5.5*5) SM55 NH55EDQ	6-47-0019A-40X	
9	SECURE PAD SYNAPTICS TM-P3428 I2C (108*61MM) (VHGL) NT50ZU	6-49-N15Z3-021	
10	TP MYLAR PET NH50ED	6-40-NH502-021	
11	AUDIO BOARD V3.0 NH50ED	6-77-NH508-D03	
12	ANTENNA IPEX4 WLAN JEM WL1 PCB DL 40?5MM 2.4G/5G WL1= 250MM NH5XED	6-23-7NH50-030	
13	FFC CABLE CLICK TO TP L=61MM 3V 4PIN (QX) NH50ED	6-43-NH500-051	
14	CLICK BOARD V3.0 NH50ED	6-77-NH502-D03	
15	FFC CABLE AUDIO TO MB L=102MM 3V 40PIN (QX) NH50ED	6-43-NH500-031	
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 V1.0 NH70EDQ	6-77-NH70S-D01	
19	LED BOARD V3.0 NH50ED	6-77-NH504-D03	
20	SPK R+CABLE L25*14 2V 4? L 200MM DG-2514-ML-12-HF NB70TJ	6-23-5NB70-0R1	
21	W/O HDD ASS'Y NH50ED	6-79-NH50EDOJ-010	
21	W/HDD ASS'Y NH50ED	6-79-NH50EDOJ-020	
22	FFC CABLE TP TO MB L=36MM 3V 8PIN (QX) NH50ED	6-43-NH500-041	
23	FFC CABLE FINGER TP TO MB L=55MM 3V 6PIN (QX) NH50ED	6-43-NH500-061	
24	CLICK BOARD MYLAR (18*5*0.15T) NH50ED	6-40-NH502-090	
25	MYLAR(7*6*0.15MM,BLACK) FOR P640RF	6-40-00150-760	
26	KB MYLAR PET 331*3*0.8 NH55EDQ	6-40-NH552-070	
27	.SCREW M2*4L KI NI ICT NY (DD=Φ4.5,DT=0.4)	6-35-B1120-4RE	

Figure A - 1
Top

Top without FP

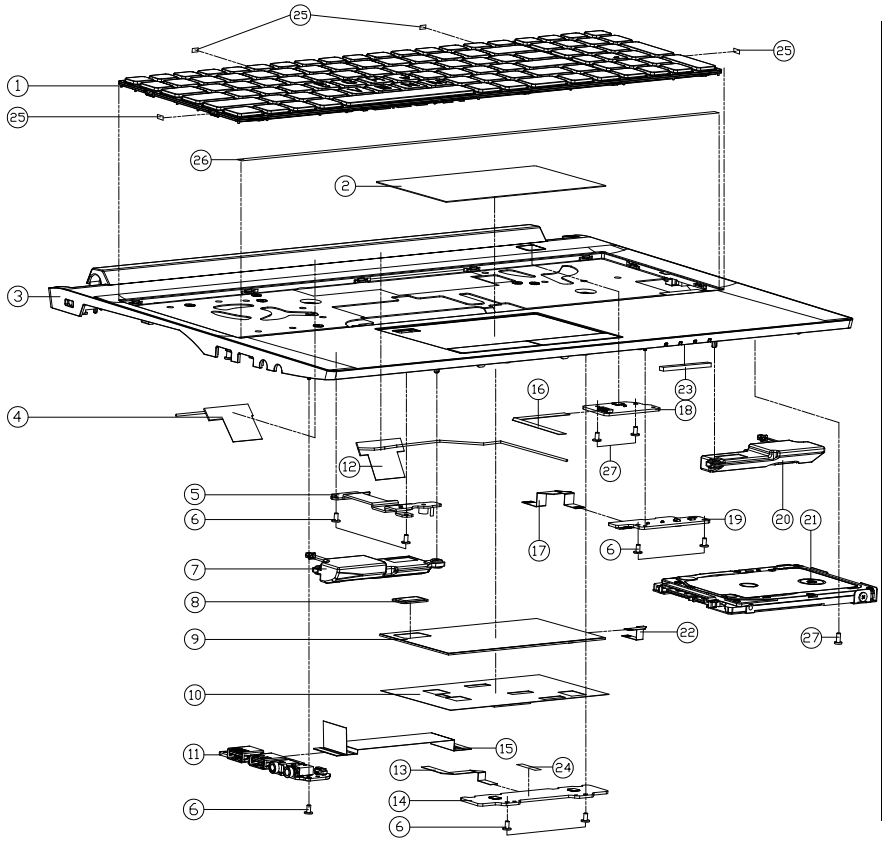
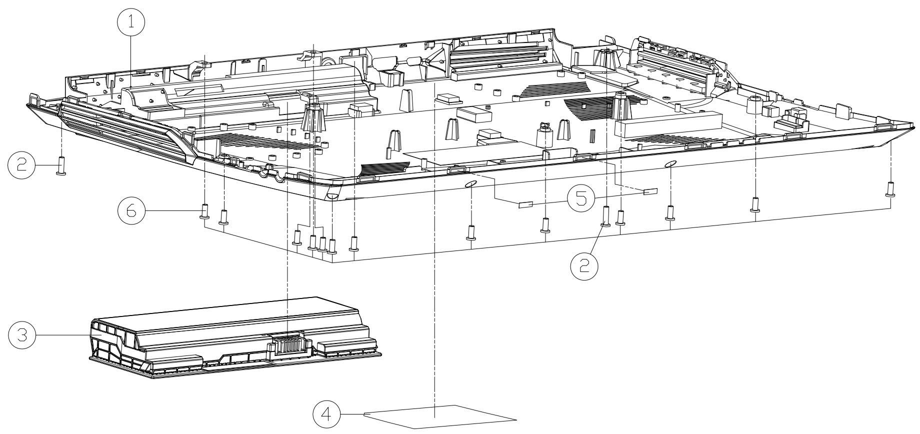


Figure 2
Top without FP

ITEM	PART NAME	PART NO	REMARK
1	KB FOR LED PER KEY KB US SERIES NH55EDQ	6-NH55EDQ-KB-LPK-US	
1	KB FOR MULTI 15C BL KB US SERIES NH55EDQ	6-NH55EDQ-KB-MCL-US	
2	W/O FP TP MYLAR AG32 NH55EDQ	6-40-NH552-052	
2	W/O FP TP MYLAR NH58EDQ	6-40-NH582-022	
3	TOP CASE MODULE NH55EDQ	6-39-NH552-012	
3	TOP CASE MODULE NH58EDQ	6-39-NH582-012	
3	TOP CASE MODULE (THUNDEROBOT) NH58EDQ-HL	6-39-NH582-012-HLT	
4	ANTENNA IPEX4 WLAN JEM WL2 PCB DL 400MM 2.4G/5G WL2= 300MM N45ED	6-23-7NH50-040	
5	MB SUPPORT BRKT NH50ED	6-33-NH502-021	
6	SCREW M2*4L KI NI ICT NY (DD=Ø4.5,DT=0.8)	6-35-B1120-4RC	
7	SPK+CABLE L L67*23 2W 4? L190 MM DS-2514-ML-B2-HF N950TF	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 (108*61MM) (WHQL) N15Q7U	6-49-N15Z3-011	
10	TP MYLAR PET NH50ED	6-40-NH502-021	
11	AUDIO BOARD V3.0 NH50ED	6-77-NH508-D03	
12	ANTENNA IPEX4 WLAN JEM WL1 PCB DL 400MM 2.4G/5G WL1= 250MM N45ED	6-23-7NH50-030	
13	FFC CABLE CLICK TO TP L=61MM 3V 4PIN (0X0) NH50ED	6-43-NH500-051	
14	CLICK BOARD V3.0 NH50ED	6-77-NH502-D03	
15	FFC CABLE AUDIO TO MB L=102MM 3V 40PIN (0X0) NH50ED	6-43-NH500-031	
16	FFC CABLE POWER TO MB L=81MM 3V 4PIN (0X0) NH50ED	6-43-NH500-021	
17	FFC CABLE LED TO MB L=58MM 3V 12PIN (0X0) NH50ED	6-43-NH500-011	
18	POWER SW BOARD V1.0 NH70EDQ	6-77-NH70S-D01	
19	LED BOARD V3.0 NH50ED	6-77-NH504-D03	
20	SPK R+CABLE L25*14 2W 4? L 200MM DS-2514-ML-B2-HF N870TJ1	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 (0X0) NH50ED	6-43-NH500-041	
23	LED LENS SPONGE(40*5.5*5) SM55 NH55EDQ	6-47-0019A-40X	
24	CLICK BOARD MYLAR (18*5*0.15T) NH50ED	6-40-NH502-090	
25	MYLAR(7*6*0.15MM,BLACK) FOR P640RF	6-40-00150-760	
26	KB MYLAR PET 331*3*0.8 NH55EDQ	6-40-NH552-070	
27	SCREW M2*4L KI NI ICT NY (DD=Ø4.5,DT=0.4)	6-35-B1120-4RE	

Bottom

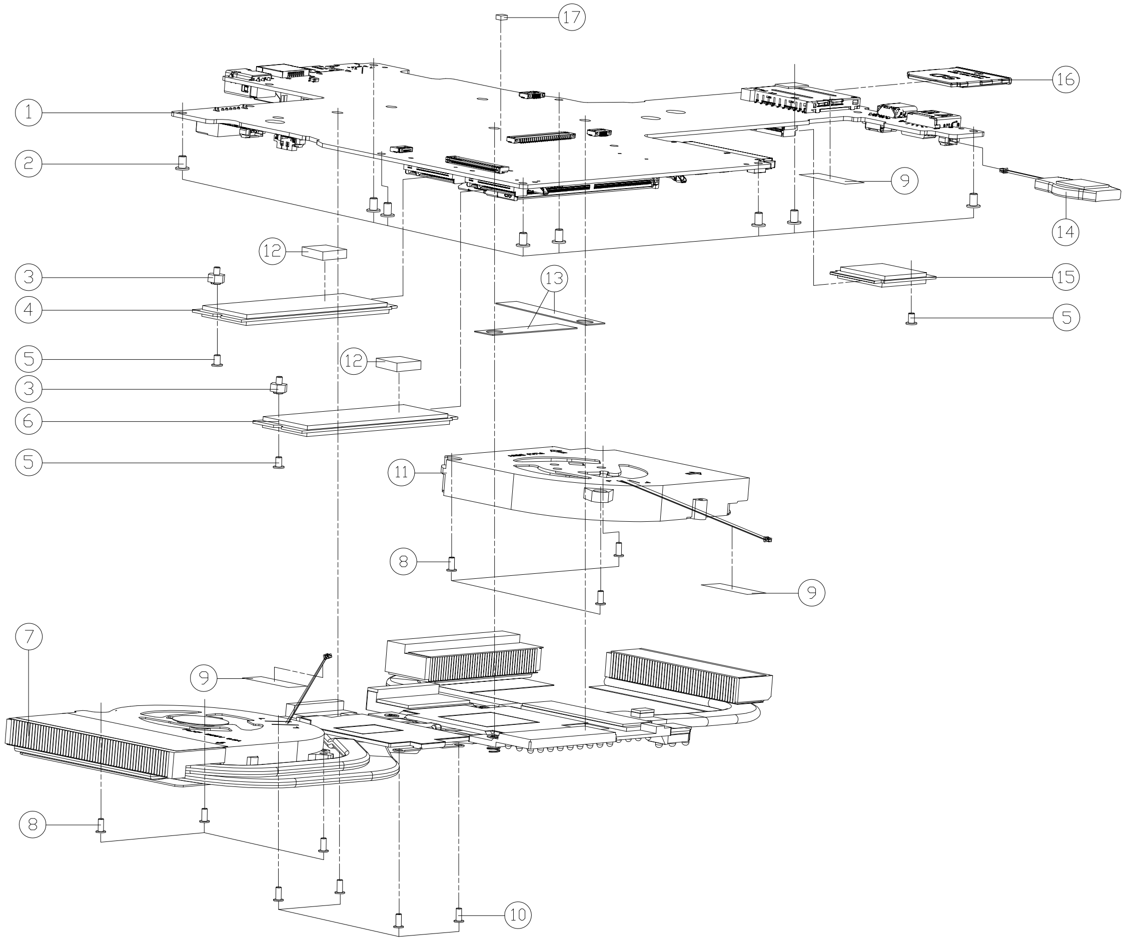


ITEM	PART NAME	PART NO	REMARK
1	BOTTOM CASE MODULE NH55EDQ	6-39-NH553-012	
2	.SCREW M2.5*8L KI BK/Z NY ICT	6-35-B6125-8R0	
3	BAT.P S LI 14.4V/3.4AH/48.96WH 4S1P SMP/SDI (BQ40Z50) 980Q2242H /HB NH50ED	6-87-NH50S-41C01	
3	BAT.P S LI 14.4V/3.4AH/48.96WH 4S1P GETAC/LG (BQ40Z50) 541390120001 NH50ED	6-87-NH50S-42D01	
4	PRODUCT LABEL FOR NH55EDQ(CHANGE RATING)	6-45-NH55EDQ3-011	
4	PRODUCT LABEL FOR NH58EDQ(CHANGE RATING)	6-45-NH58EDQ3-011	
4	PRODUCT LABEL(HAIER 911MT) FOR NH58EDQ-HL	6-45-NH58EDQHL-010	
4	PRODUCT LABEL FOR NH58EDQ(CHANGE RATING)	6-45-NH58EDQ3-011	
4	PRODUCT LABEL(HAIER 911MT) FOR NH58EDQ-HL	6-45-NH58EDQHL-010	
4	PRODUCT LABEL FOR NH55RDQ	6-45-NH55RDQ3-010	
4	PRODUCT LABEL FOR NH58RDQ	6-45-NH58RDQ3-010	
4	PRODUCT LABEL FOR NH55RCQ(CHANGE RATING)	6-45-NH55RCQ3-011	
4	PRODUCT LABEL FOR NH58RCQ(CHANGE RATING)	6-45-NH58RCQ3-011	
5	ACETATE CLOTH 5*8*0.35 NB55TK1	6-47-NB552-010	
6	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	

Figure A - 3
Bottom

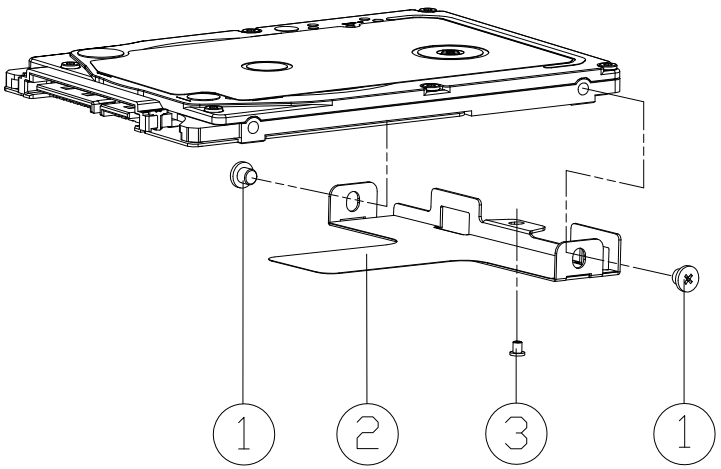
Main Board

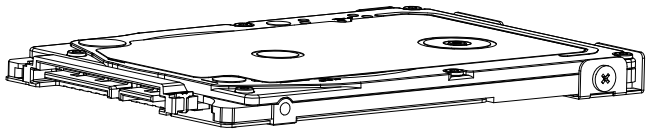
Figure A - 4
Main Board



ITEM	PART NAME	PART NO	REMARK
1	MAIN BOARD(CPU/I7-8750H/2.2G) V2.0A (EDP)LED PER KEY KB(W/TPM) NH50ED	6-77-NH50ED00-D02A-C	
1	MAIN BOARD(CPU/I7-8750H/2.2G) V2.0A (EDP)MULTI 15C BL KB(W/O TPM) NH50ED	6-77-NH50ED00-D02A-3C	
1	MAIN BOARD(CPU/I7-8750H/2.2G) V2.0A (EDP)MULTI 15C BL KB(W/TPM) NH50ED	6-77-NH50ED00-D02A-1C	
1	MAIN BOARD(CPU/I5-8300H/2.3G) V2.0A (EDP)MULTI 15C BL KB(W/O TPM) NH50ED	6-77-NH50ED00-D02A-3D	
1	MAIN BOARD(CPU/I7-9750H/2.6G) V2.0A (EDP)LED PER KEY KB(W/TPM) NH50RC	6-77-NH50RC00-D02A-E	
1	MAIN BOARD(CPU/I7-9750H/2.6G) V2.0A (EDP)MULTI 15C BL KB(W/TPM) NH50RC	6-77-NH50RC00-D02A-1E	
1	MAIN BOARD(CPU/I5-9300H/2.4G) V2.0A (EDP)LED PER KEY KB(W/TPM) NH50RC	6-77-NH50RC00-D02A-F	
1	MAIN BOARD(CPU/I5-9300H/2.4G) V2.0A (EDP)MULTI 15C BL KB(W/TPM) NH50RC	6-77-NH50RC00-D02A-1F	
1	MAIN BOARD(CPU/I7-8750H/2.2G) V2.0 (EDP)LED PER KEY KB(W/O TPM) NH58EDQ W/HARE CONSIGN (CPU/PCH/VRAM)	6-77-NH58EDQ0-D02-2C	
1	MAIN BOARD(CPU/I7-8750H/2.2G) V2.0 (EDP)MULTI 15C BL KB(W/O TPM) NH58EDQ W/HARE CONSIGN (CPU/PCH/VRAM)	6-77-NH58EDQ0-D02-3C	
1	MAIN BOARD(CPU/I7-8750H/2.2G) V2.0A (EDP)LED PER KEY KB(W/O TPM) NH58EDQH-HL W/HARE CONSIGN (CPU/PCH/VRAM)	6-77-NH58EDQH-DL2A-2C	
1	MAIN BOARD(CPU/I7-8750H/2.2G) V2.0A (EDP)MULTI 15C BL KB(W/O TPM) NH58EDQH-HL W/HARE CONSIGN (CPU/PCH/VRAM)	6-77-NH58EDQH-DL2A-3C	
1	MAIN BOARD(CPU/I7-8750H/2.2G) V2.0A (EDP)LED PER KEY KB(W/TPM) NH50ED	6-77-NH50RD00-D02A-E	
1	MAIN BOARD(CPU/I5-9300H/2.4G) V2.0A (EDP)LED PER KEY KB(W/TPM) NH50RD	6-77-NH50RD00-D02A-F	
1	MAIN BOARD(CPU/I7-9750H/2.6G) V2.0A (EDP)MULTI 15C BL KB(W/TPM) NH50RD	6-77-NH50RD00-D02A-1E	
1	MAIN BOARD(CPU/I5-9300H/2.4G) V2.0A (EDP)MULTI 15C BL KB(W/TPM) NH50RD	6-77-NH50RD00-D02A-1F	
1	MAIN BOARD(CPU/I7-9750H/2.6G) V2.0A (EDP)LED PER KEY KB(W/O TPM) NH50RD	6-77-NH50RD00-D02A-2E	
1	MAIN BOARD(CPU/I5-9300H/2.4G) V2.0A (EDP)LED PER KEY KB(W/O TPM) NH50RD	6-77-NH50RD00-D02A-2F	
1	MAIN BOARD(CPU/I7-9750H/2.6G) V2.0A (EDP)MULTI 15C BL KB(W/O TPM) NH50RD	6-77-NH50RD00-D02A-3E	
1	MAIN BOARD(CPU/I5-9300H/2.4G) V2.0A (EDP)MULTI 15C BL KB(W/O TPM) NH50RD	6-77-NH50RD00-D02A-3F	
2	SCREW M2.5*4L (D=4.6,T=0.8) KI NI ICT NY	6-35-B1125-4RA	
3	SCREW M2*2.5L (H=2.5 D=5) STEEL ICT NY FOR NGFF CARD(CHANGE)	6-35-ZA120-2R5-1	
4	SSD M.2 2280 256GB MICRON MTFDDAV256TBN (1100) SATA3 (MICRON 3D TLC 64 LAYERS)	6-85-D51R6-101	OPTION
4	SSD M.2 2280 256GB SAMSUNG MZNLN256HAJQ-00000 (PM871B) SATA3 3D TLC 64 LAYERS	6-85-D51R6-S08	OPTION
4	SSD M.2 2280 256GB PHISON SSMP256GTB3C2-S11 (S11) SATA3 (TOSHIBA 3D TLC 64 LAYERS) FW:S8FM6.1	6-85-D51R6-H04	OPTION
4	SSD M.2 2280 256GB KINGSTON RBU-SNS8154P3/256GJ (RBU-SNS8154P3) PCIE G3X2 3D TLC 64 LAYERS	6-85-D51R6-K00	OPTION
4	SSD M.2 2280 256GB MICRON MTFDDAV256TBN (1100) SATA3 (MICRON 3D TLC 64 LAYERS)	6-85-D51R6-101	OPTION
4	* SSD M.2 2280 512GB INTEL SSDPEKKW512G7 (600P) PCIE G3X4 3D TLC FW:PSF100C	6-85-D515B-Z00	OPTION
4	SSD M.2 2280 512GB SAMSUNG MZVLB512HAJQ-00000 (PM981) PCIE G3X4 3D TLC 64 LAYERS	6-85-D515B-S08	OPTION
4	* SSD M.2 2280 1TB(1024GB) SAMSUNG MZVKW1T0HMLH-0000 (SM961) PCIE G3X4 3D MLC FW:CXY7300Q	6-85-D511T-S00	OPTION
4	* SSD M.2 2280 1TB(1000GB) INTEL SSDSCKKW010X6 (540S) SATA3	6-85-D511T-Z00	OPTION
4	OPTANE MEMORY M.2 2280 64GB INTEL MEMPEK1J064GAES (STONY BEACH 2) PCIE G3X2 3D XPOINT	6-85-D5164-Z00	OPTION
4	SSD M.2 2280 256GB LITE-ON CX2-8B256 PCIE GEN3 X2 F/W:CNB2101 FOR 青島雷神	6-985-N85EJ-002-HL	OPTION
4	SSD M.2 2280 128GB LITE-ON CX2-8B128 PCIE GEN3 X2 F/W:CN12101 FOR 青島雷神	6-985-N85EJ-001-HL	OPTION
4	SSD M.2 2280 512GB SAMSUNG MZNLN512HAJQ-00000 (PM871B) SATA3 3D TLC 64 LAYERS	6-85-D515B-S09	OPTION
4	SSD M.2 2280 256GB SANDISK SD8SNAT-256G (Z400S) SATA3 (SANDISK 15NM MLC) FW:Z2333000	6-85-D51R6-200	OPTION
4	SSD M.2 2280 128GB KINGSTON RBU-SNS8154P3/128GJ (RBU-SNS8154P3) PCIE G3X2 3D TLC 64 LAYERS	6-85-D51C8-K00	OPTION
4	SSD M.2 2280 256GB PHISON ESMP256GTB3C2-E8 (E8) PCIE G3X2 3D TLC 64 LAYERS	6-85-D51R6-H05	OPTION
4	SSD M.2 2280 256GB SAMSUNG MZVLB256HAHQ-00000 (PM981) PCIE G3X4 3D TLC 64 LAYERS	6-85-D51R6-S09	OPTION
5	SCREW M2*2L KI NI ICT NY (DD=ø5 ,T=0.5)	6-35-B1120-2R0	
6	SSD M.2 2280 256GB KINGSTON RBU-SNS8154P3/256GJ (RBU-SNS8154P3) PCIE G3X2 3D TLC 64 LAYERS	6-85-D51R6-K00	OPTION
6	* SSD M.2 2280 512GB INTEL SSDPEKKW512G7 (600P) PCIE G3X4 3D TLC FW:PSF100C	6-85-D515B-Z00	OPTION
6	SSD M.2 2280 512GB SAMSUNG MZVLB512HAJQ-00000 (PM981) PCIE G3X4 3D TLC 64 LAYERS	6-85-D515B-S08	OPTION
6	* SSD M.2 2280 1TB(1024GB) SAMSUNG MZVKW1T0HMLH-0000 (SM961) PCIE G3X4 3D MLC FW:CXY7300Q	6-85-D511T-S00	OPTION
6	OPTANE MEMORY M.2 2280 64GB INTEL MEMPEK1J064GAES (STONY BEACH 2) PCIE G3X2 3D XPOINT	6-85-D5164-Z00	OPTION
6	SSD M.2 2280 256GB LITE-ON CX2-8B256 PCIE GEN3 X2 F/W:CNB2101 FOR 青島雷神	6-985-N85EJ-002-HL	OPTION
6	SSD M.2 2280 128GB LITE-ON CX2-8B128 PCIE GEN3 X2 F/W:CN12101 FOR 青島雷神	6-985-N85EJ-001-HL	OPTION
6	SSD M.2 2280 128GB KINGSTON RBU-SNS8154P3/128GJ (RBU-SNS8154P3) PCIE G3X2 3D TLC 64 LAYERS	6-85-D51C8-K00	OPTION
6	SSD M.2 2280 256GB PHISON ESMP256GTB3C2-E8 (E8) PCIE G3X2 3D TLC 64 LAYERS	6-85-D51R6-H05	OPTION
6	SSD M.2 2280 256GB SAMSUNG MZVLB256HAHQ-00000 (PM981) PCIE G3X4 3D TLC 64 LAYERS	6-85-D51R6-S09	OPTION
7	HEATSINK MODULE NH50ED	6-31-NH503-101	
8	SCREW M2*5L KI(T=0.8 D=4.0) BK/Z ICT NY	6-35-B6120-5R0	
9	TAPE MYLAR (C),MYLAR M550J	6-40-M55J2-030	
10	SCREW M2*4L KI NI ICT NY (DD=ø4.5,DT=0.8)	6-35-B1120-4RC	
11	FAN MODULE (FCN)PWM NH50ED	6-31-NH503-201	
12	THERMAL PAD MA500T (12*12*5.25T) NH50ED	6-48-NH50S-010	
13	EMI ABSORBER (45*9*0.3) FOR N850HP6	6-47-N85P2-021	
14	BAT. 20MM 3V 220MAH W/CABLE 55MM BCR2032H5.5VM1UB (SHIHND)	6-23-22015-TE0	
15	WLAN+BT COMBO DUAL BAND INTEL THUNDER PEAK 2 9260NGW NON-VPRO 2X2 AC+BT BT5.0 M.2 2230 P750TM	6-88-P75FF-4210	OPTION
15	WLAN+BT COMBO DUAL BAND INTEL JEFFERSON PEAK 1 9462NGW NON-VPRO 1X1 DIVERSITY ANTENNA AC+BT BT5.0 CNVI M.2 2230	6-88-N24GF-4200	OPTION
15	WLAN+BT COMBO DUAL BAND INTEL JEFFERSON PEAK 2 9560NGW NON-VPRO 2X2 AC+BT BT5.0 CNVI M.2 2230	6-88-N24GF-4220	OPTION
15	WLAN+BT COMBO DUAL BAND RIVET KILLER 1550(INTEL 9260NGWVV) 2X2 AC+BT BT5.0 M.2 2230	6-88-P75FF-4230	OPTION
15	WLAN+BT COMBO DUAL BAND RIVET KILLER 1550(INTEL 9560NGWVV) 2X2 AC+BT BT5.0 CNVI M.2 2230	6-88-P95EF-4200	OPTION
16	DUMMY 3IN1 NON PUSH TYPE PC+ABS (C7230P-701)(EXCHANGE) W970SUW	6-42-W9708-011	
17	RUBBER (4*4*3.3T) FOR MB NH50ED	6-47-NH502-050	

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 - 5
HDD

LCD (NH55RCQ)

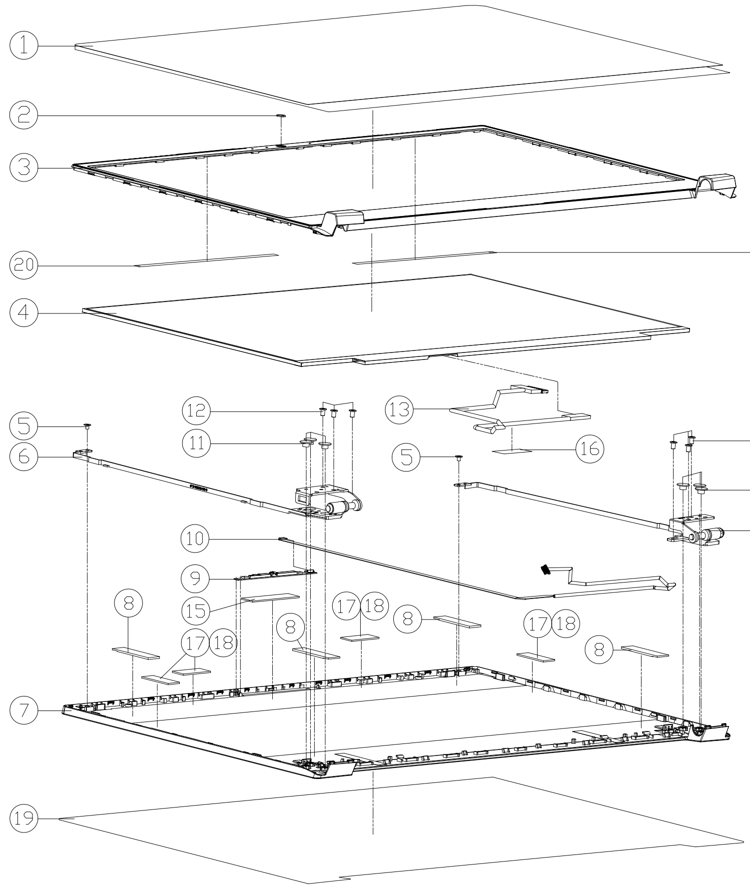
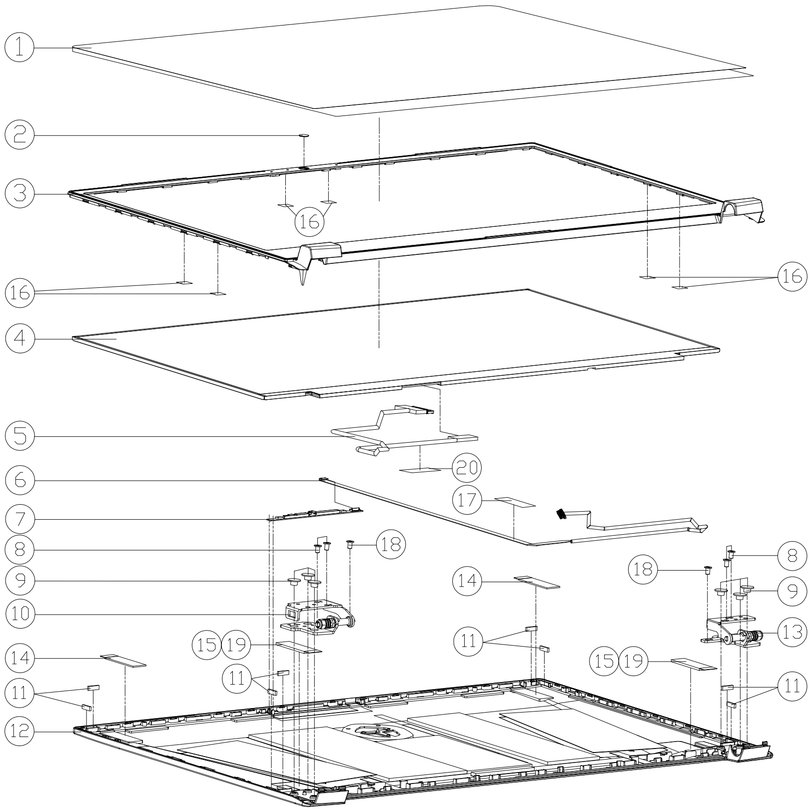


Figure A - 6
LCD (NH55RCQ)

ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT MYLAR BOPP N150ZU	6-40-N15Z8-010	
2	CCD LENS PMMA (DIAMETER 3.6MM) (MP1) P970EN	6-42-P97N1-011	
3	LCD FRONT COVER MODULE NH50ED	6-39-NH501-012	
4	LCD N15.6" FHD/WVA/N7/NON GT/EDP INNOLUX N156HCE-EN1 (LED) 2.6MM	6-50-LBB26-V020	
4	LCD N15.6" FHD/IPS/144HZ/SW G-SYNC/N7/NON GT/EDP LG LP156WFG-SPB2 (LED) 2.6MM	6-50-LBB26-L121	
4	.LCD N15.6" FHD/NON GT/EDP INNOLUX N156HGA-EA3 (REV:C1) LED 3.2MM	6-50-LBB32-V002	
4	LCD N15.6" FHD/IPS/N4/NON GT/EDP LG LP156WFC-SPD1 (LABLE) LED 3.2MM	6-50-LBB32-L016	
5	SCREW M2*3L KI BZ ICT NY (DD=ø4.5,DT=0.4)	6-35-B6120-3RD	
6	HINGE L (SK7) NH55EDQ	6-33-NH551-0L1	
7	LCD BACK COVER MODULE NH55EDQ	6-39-NH551-022	
8	LCD BACK SPONGE DOWN (30*10*0.6) (DS-10+CR4382+FM92822K) NH55EDQ	6-47-0019A-C01	FOR 6-50-LBB32-V002 6-50-LBB32-L016
8	LCD BACK SPONGE DOWN (30*10*1.2) (DS-10+CR4382+FM92822K) NH55EDQ	6-47-0019A-C02	FOR 6-50-LBB26-V020 6-50-LBB26-L121
9	UVC CAMERA CHICONY FIX(RGB) CNFH3821003920LH 1M HD OV9734 N150ZU FW5404 W/WHITE-LED W/2D-MICONARROW BORDER WITH FFC)	6-88-N15ZC-5100	OPTION
9	UVC CAMERA BISON FIX(RGB) BNH419VXB-000 1M HD OV9734 N150ZU FWXXXX W/WHITE-LED W/2D-MICONARROW BORDER WITH FFC)	6-88-N15ZC-4900	OPTION
10	CCD CABLE L=550MM 30V 8PIN (HL) ADD MARK LABLE NH50ED	6-43-NH50T-011	
11	SCREW M2.5*2.5L KI BK/Z ICT NY(ø8,T=0.6)	6-35-B6125-2R5	
12	SCREW M2.5*4L (D=4.6,T=0.8) KI NI ICT NY	6-35-B1125-4RA	
13	WIRE CABLE FOR EDP 300MM 30V I 30 PIN (HT/LW CON:LVD-A30LPMSG) PB50EF	6-43-PB501-031-2N	FOR 6-50-LBB32-V002 6-50-LBB32-L016 6-50-LBB26-V020
13	WIRE CABLE FOR EDP 4K 300MM (I) 19V 30PIN (CMI/HLS CON:HLX09002-HF) N850HJ	6-43-N85H1-010-2S	ONLY FOR 6-50-LBB26-L121
14	HINGE R (SK7) NH55EDQ	6-33-NH551-0R1	
15	GASKET (40*6*0.25) FOR CPU COVER R P150SM	6-47-00190-40H	
16	ACETATE TAPE (32*10*0.2T) N141WU	6-40-N1411-020	FOR 6-50-LBB26-V020 6-50-LBB32-V002 6-50-LBB32-L016
17	LCD SPONGE (SM55 25*10*1T) NH55EDQ	6-47-0019A-25R	FOR 6-50-LBB32-L016 6-50-LBB32-V002
18	LCD SPONGE (SM55 25*10*1-5T) NH55EDQ	6-47-0019A-25Q	FOR 6-50-LBB26-V020 6-50-LBB26-L121
19	LCD PROTECT MYLAR 8B35 NH55EDQ	6-40-NH551-020	
20	MYLAR FOR FRONT CASE NH50ED	6-40-NH501-010	FOR 6-50-LBB26-V020

LCD (NH58RCQ)



ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT MYLAR BOPP N150ZU	6-40-N15Z8-010	
2	CCD LENS PMMA (DIAMETER 3.6MM) (MP1) P970EN	6-42-P97N1-011	
3	LCD FRONT COVER MODULE NH50ED	6-39-NH501-012	
3	LCD FRONT COVER MODULE(THUNDEROBOT)(KAPOK) NH58EDQ-HL	6-39-NH501-012-HLT	
4	LCD N15.6" FHD/WVA/N7/NON GT/EDP BOE NV156FHM-N61(LED) 2.6MM FOR 青島雷神	6-950-LBB26-Z020-HL	
4	LCD N15.6" FHD/WVA/144HZ/SW G-SYNC/N7/NON GT/EDP BOE NV156FHM-N4K(LED) 2.6MM FOR 青島雷神	6-950-LBB26-Z120-HL	
4	LCD N15.6" FHD/IPS/144HZ/SW G-SYNC/N7/NON GT/EDP LG LP156WFG-SPB2 (LED) 2.6MM	6-50-LBB26-L121	
4	LCD N15.6" FHD/WVA/N7/NON GT/EDP INNOLUX N156HCE-EN1 (LED) 2.6MM	6-50-LBB26-V020	
4	.LCD N15.6" FHD/NON GT/EDP INNOLUX N156HGA-EA3 (REV:C1) LED 3.2MM	6-50-LBB32-V002	
4	LCD N15.6" FHD/IPS/N4/NON GT/EDP LG LP156WFC-SPD1 (LABLE) LED 3.2MM	6-50-LBB32-L016	
5	WIRE CABLE FOR EDP 300MM 30V I 30 PIN (HT/LW CON:LVD-A30LPMSG) PB50EF	6-43-PB501-031-2N	FOR 6-50-LBB26-V020 6-50-LBB32-L016 6-50-LBB32-V002 FOR 6-950-LBB26-Z020-HL
5	WIRE CABLE FOR EDP 4K 300MM (I) 19V 30PIN (CMI/HLS CON:HLX09002-HF) N850HJ	6-43-N85H1-010-2S	FOR 6-50-LBB26-L121 6-950-LBB26-Z120-HL
6	CCD CABLE L=550MM 30V 8PIN (HL) ADD MARK LABLE NH50ED	6-43-NH50T-011	
7	UVC CAMERA CHICONY FIX(RGB) CNFH3821003920LH 1M HD OV9734 N150ZU FW5404 W/WHITE-LED W/2D-MIC(NARROW BORDER WITH FFC)	6-88-N15ZC-5100	OPTION
7	UVC CAMERA BISON FIX(RGB) BN4I19VXB-000 1M HD OV9734 N150ZU FWXXXX W/WHITE-LED W/2D-MIC(NARROW BORDER WITH FFC)	6-88-N15ZC-4900	OPTION
8	.SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
9	SCREW M2.5*2.5L KI BK/Z ICT NY(Ø8,T=0.6)	6-35-B6125-2R5	
10	HINGE L MODULE NH58EDQ	6-33-NH581-L01	
11	LCD RUBBER (8*2.5*1.45T) SLICON BLACK NH58EDQ	6-47-NH581-041	
12	LCD BACK COVER MODULE NH58EDQ	6-39-NH581-022	
12	BACK COVER MODULE NH58EDQ-HL	6-39-NH581-021-HL	
13	HINGE R MODULE NH58EDQ	6-33-NH581-R01	
14	LCD LALA SPONG (35*10*1.35T) FM92822K+CR4832 NH58EDQ	6-47-0019A-35P	FOR 6-50-LBB26-L121 6-50-LBB26-V020/6-50-LBB32-V002 6-50-LBB32-L016/6-950-LBB26-Z020-HL 6-950-LBB26-Z120-HL
15	LCD LALA SPONG (35*10*2.0T) FM92822K+CR4832 NH58EDQ	6-47-0019A-35Q	FOR 6-50-LBB26-L121 6-50-LBB26-V020 6-50-LBB26-V020 6-950-LBB26-Z120-HL/6-950-LBB26-Z020-HL
16	MYLAR(7*6*0.15MM,BLACK) FOR P640RF	6-40-00150-760	
17	TOP CASE MYLAR FR83 25*7*0.05 P180HM	6-40-P1802-030	
18	SCREW M2.5*4L (D=4.6,T=0.8) KI NI ICT NY	6-35-B1125-4RA	
19	LCD LALA SPONG (35*10*0.75T) FM92822K+CR4832 NH58EDQ	6-47-0019A-35R	FOR 6-50-LBB32-V002 6-50-LBB32-L016
20	ACETATE TAPE (32*10*0.2T) N141WU	6-40-N1411-020	FOR 6-50-LBB26-V020 6-50-LBB32-V002 6-50-LBB32-L016

Figure A - 7
LCD (NH58RCQ)

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the ***NH55RCQ / NH58RCQ*** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

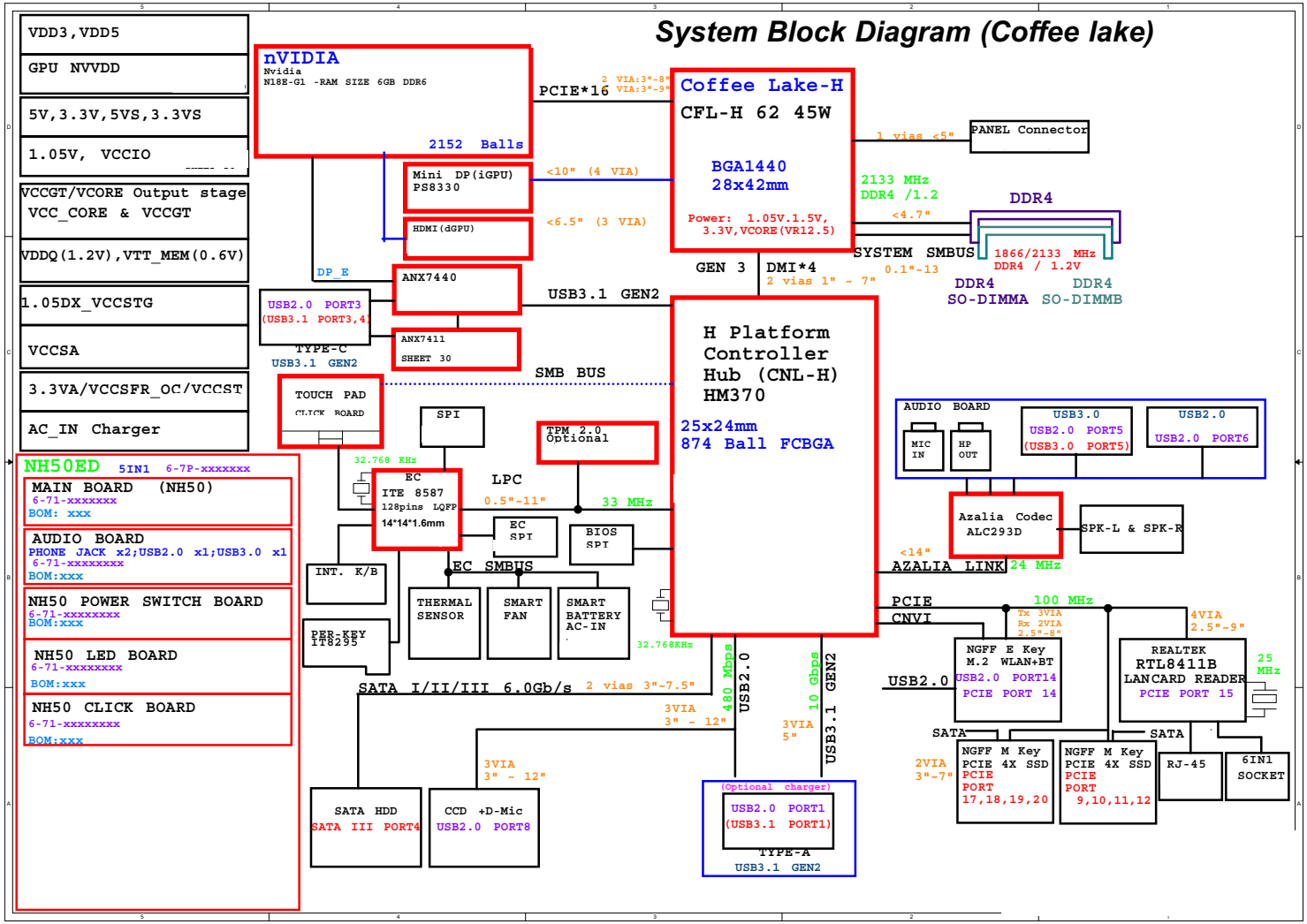
Table B - 1
SCHEMATIC DIAGRAMS

Version Note

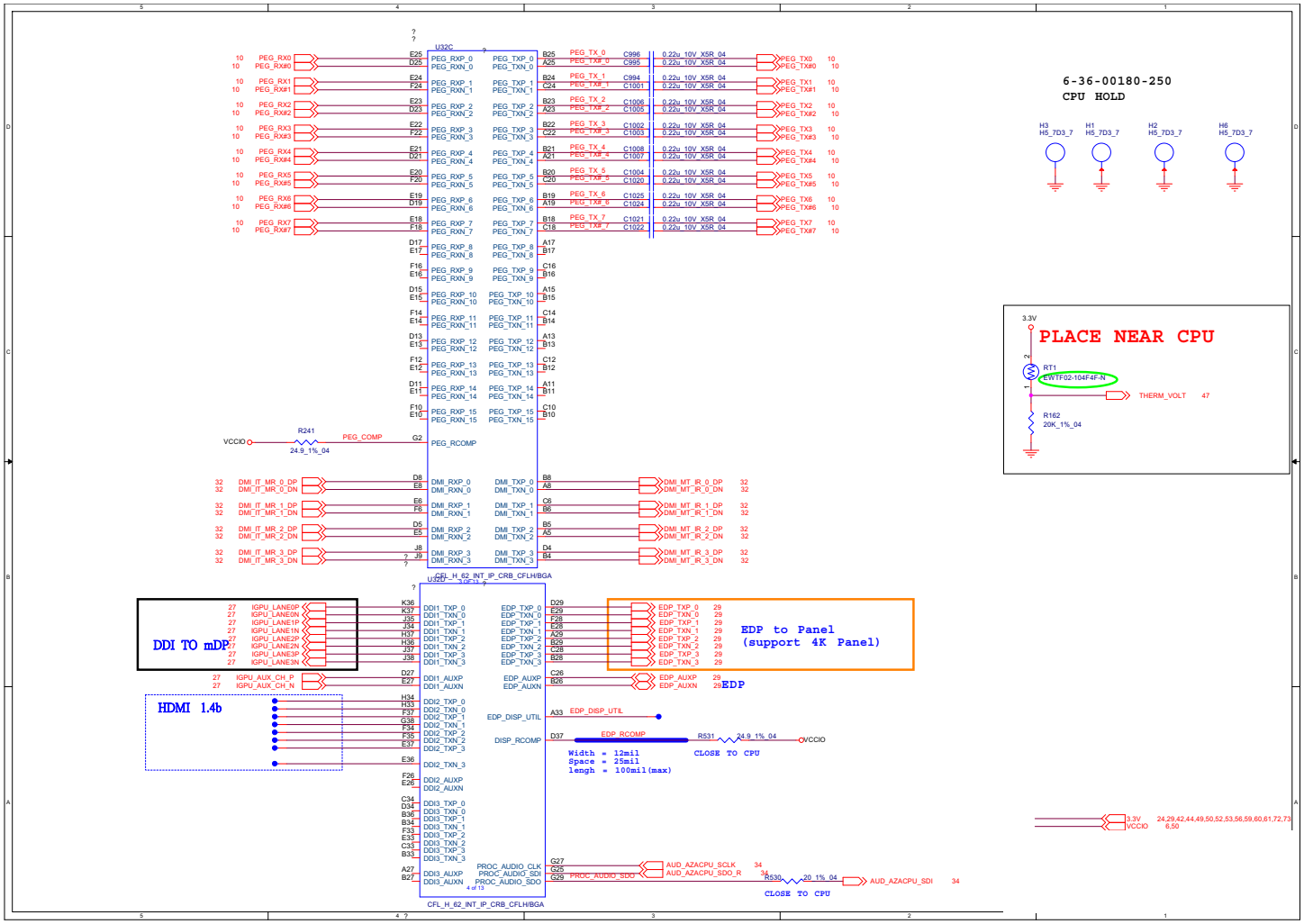
The schematic diagrams in this chapter are based upon version 6-7P-NH506-003. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

System Block Diagram

Sheet 1 of 73
System Block Diagram



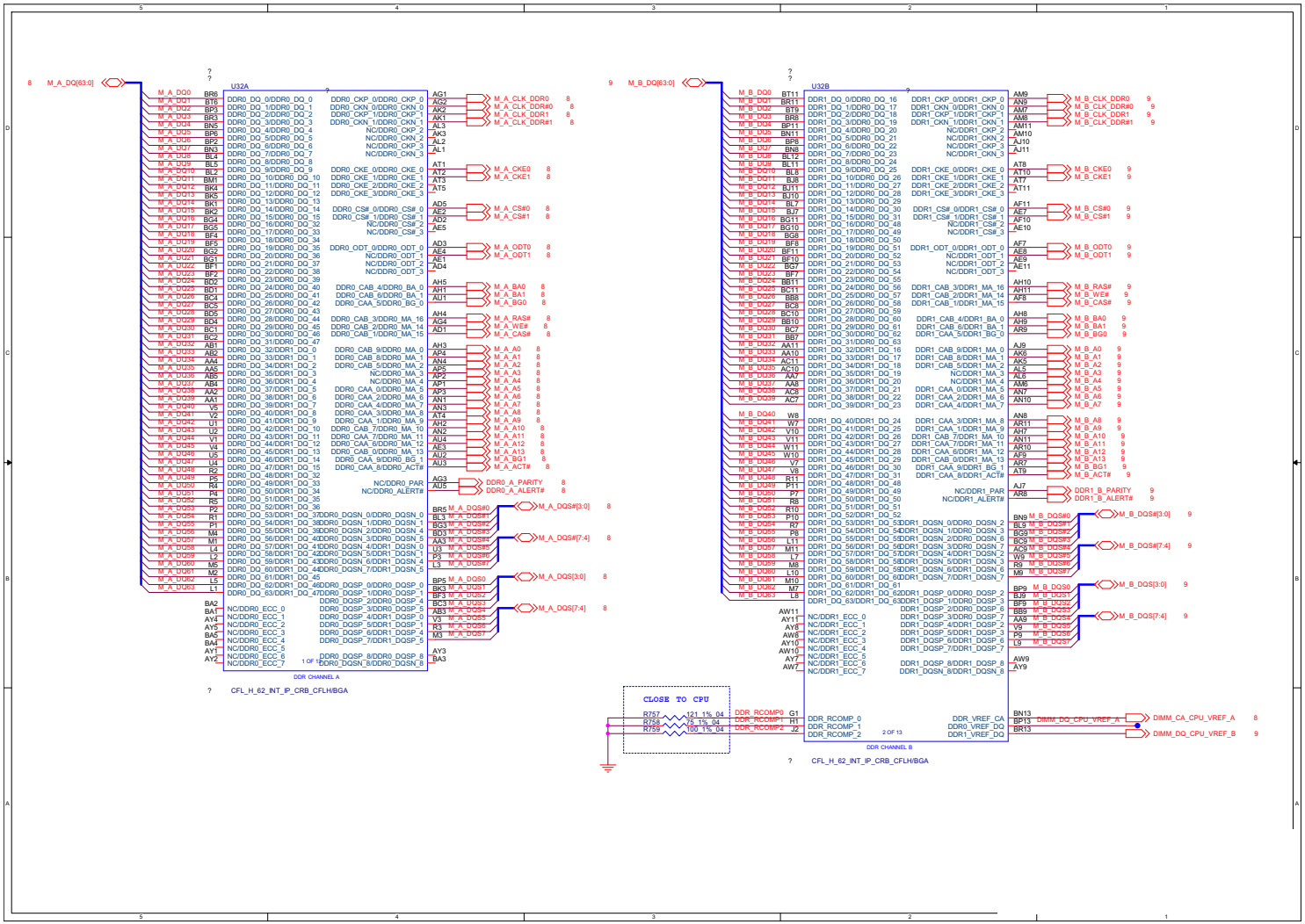
Processor 1/6



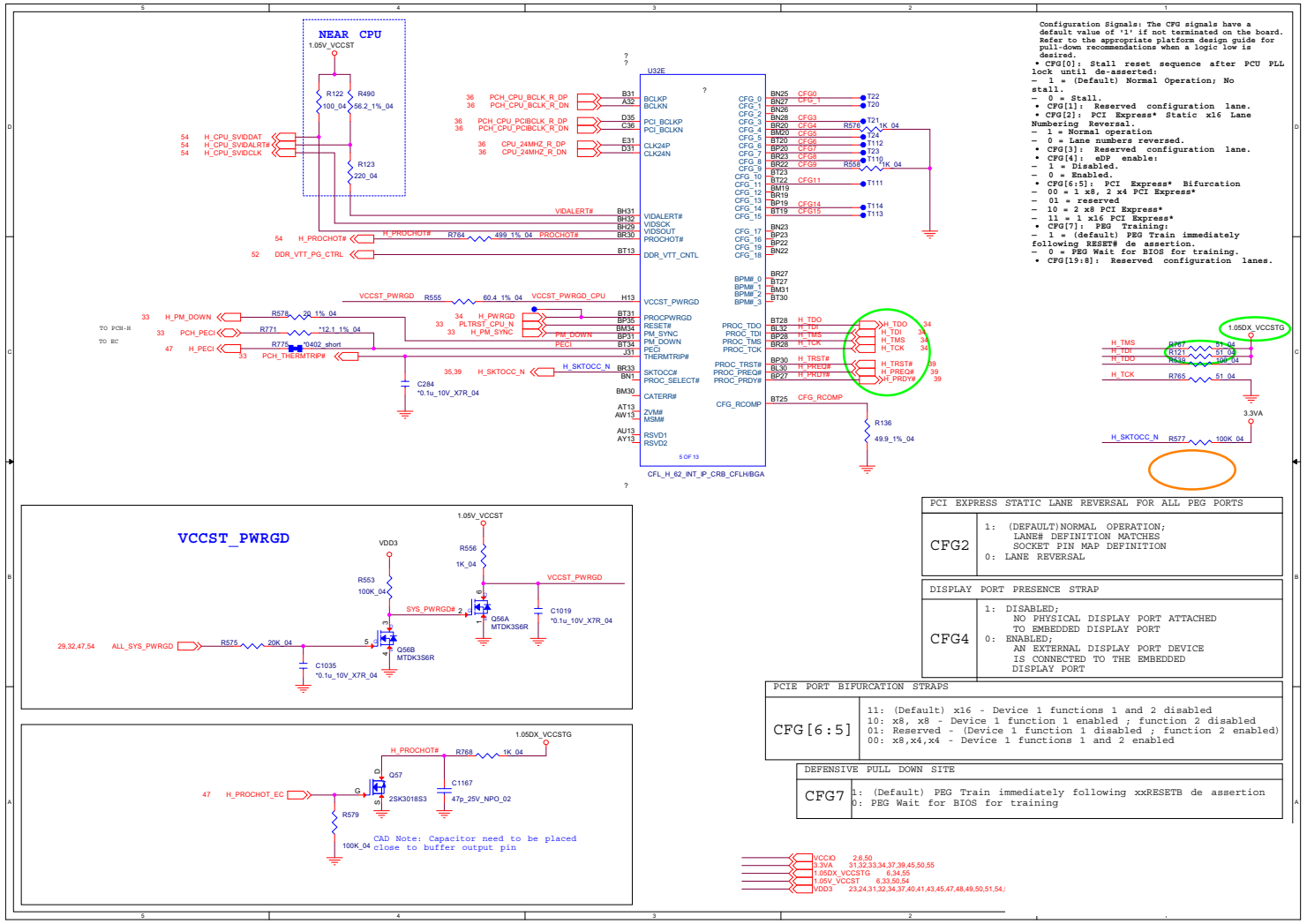
Sheet 2 of 73
Processor 1/6

Processor 2/6

Sheet 3 of 73
Processor 2/6



Processor 3/6



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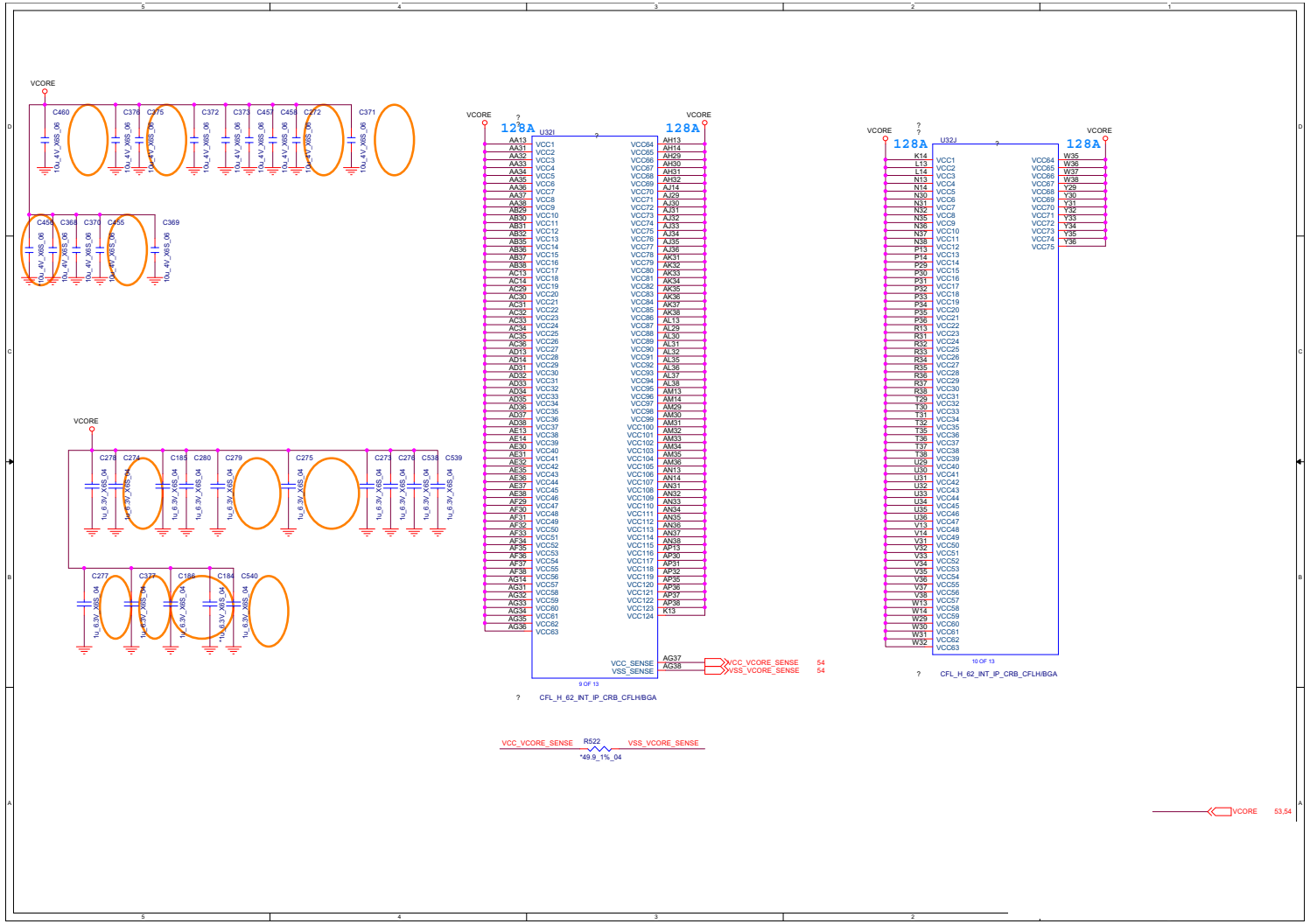
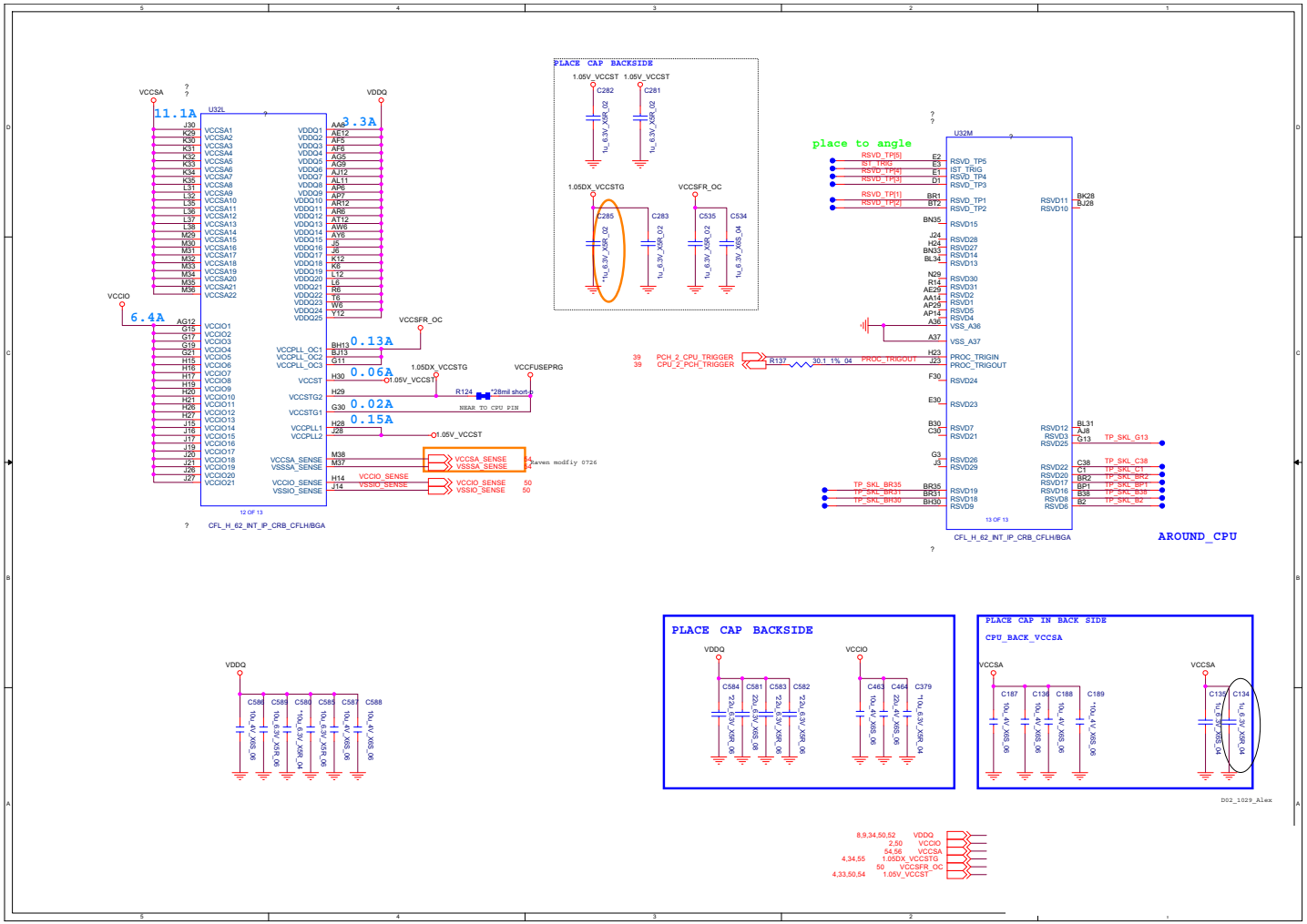
Processor 3/6

Processor 4/6

Sheet 5 of 73
Processor 4/6



Processor 5/6



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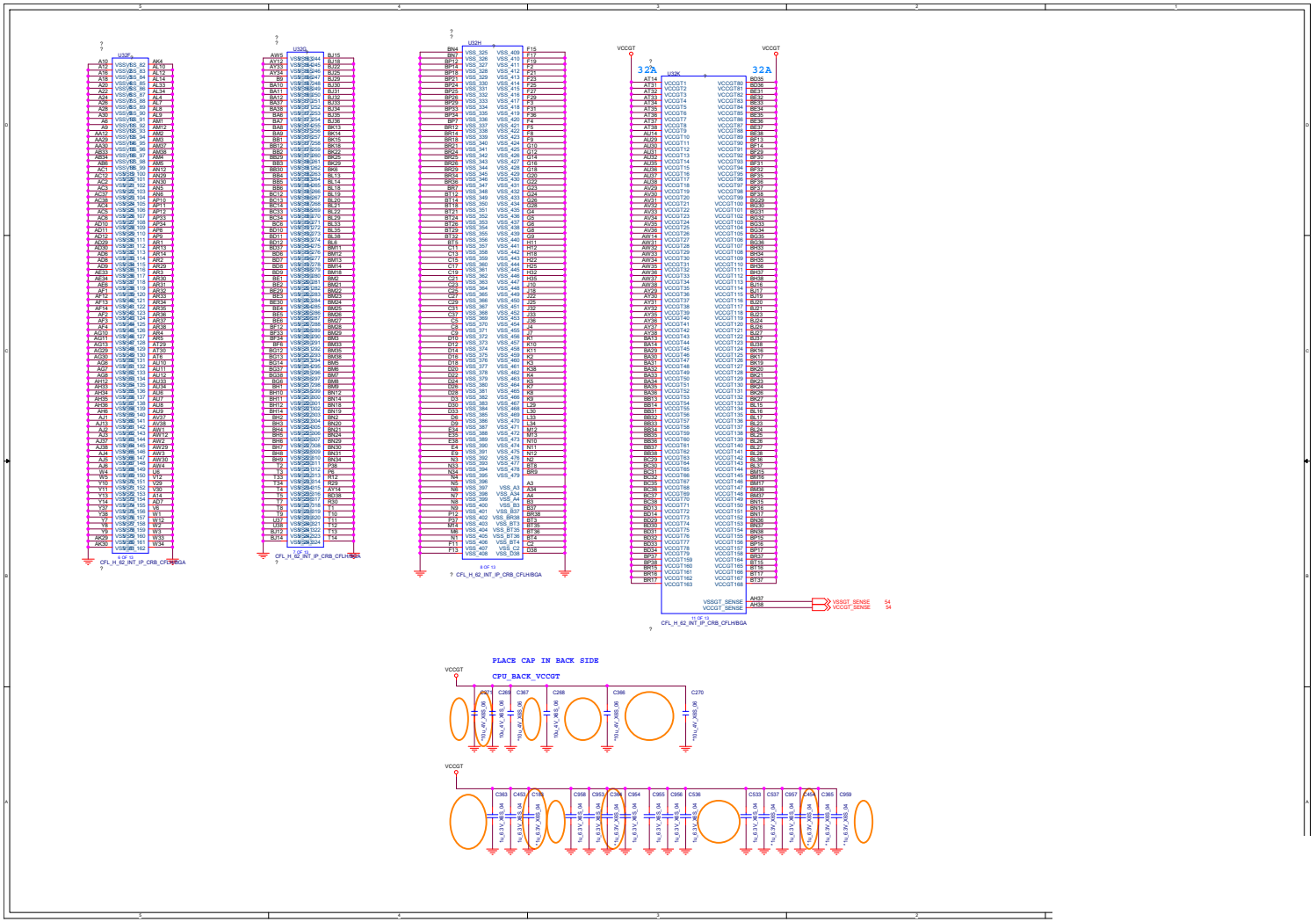
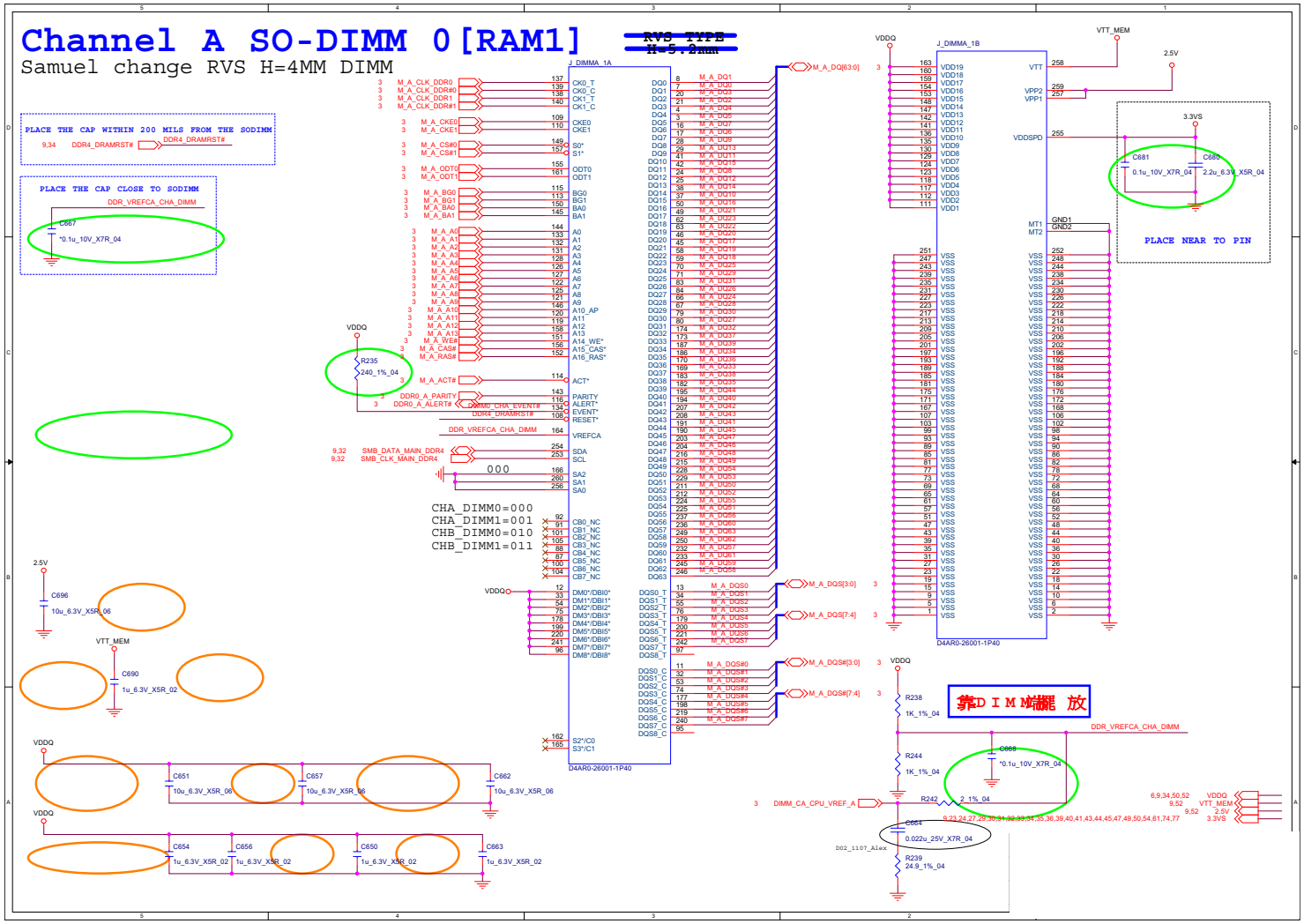
Processor 5/6

Processor 6/6

Sheet 7 of 73
Processor 6/6



DDR4 CHA SO-DIMM



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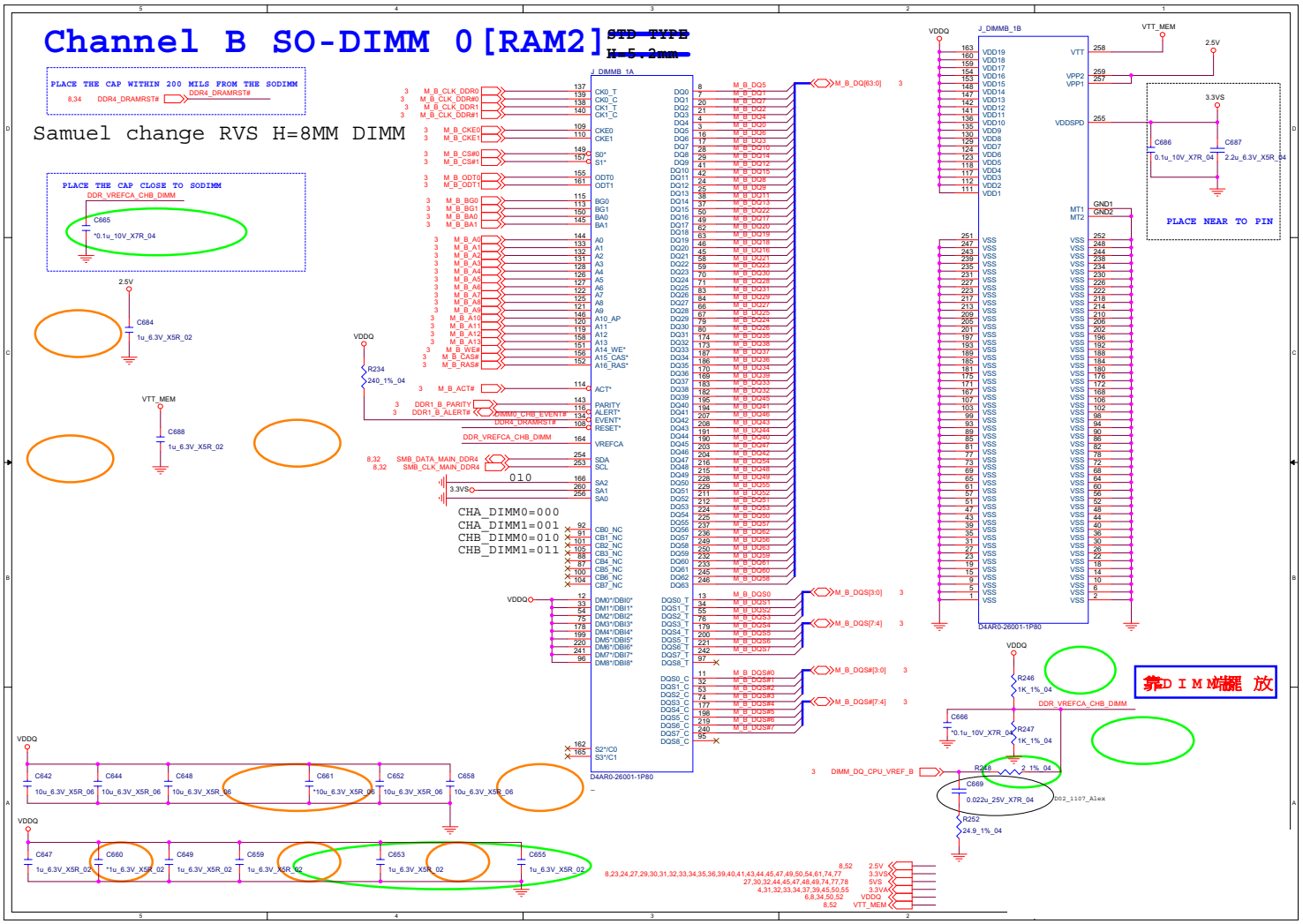
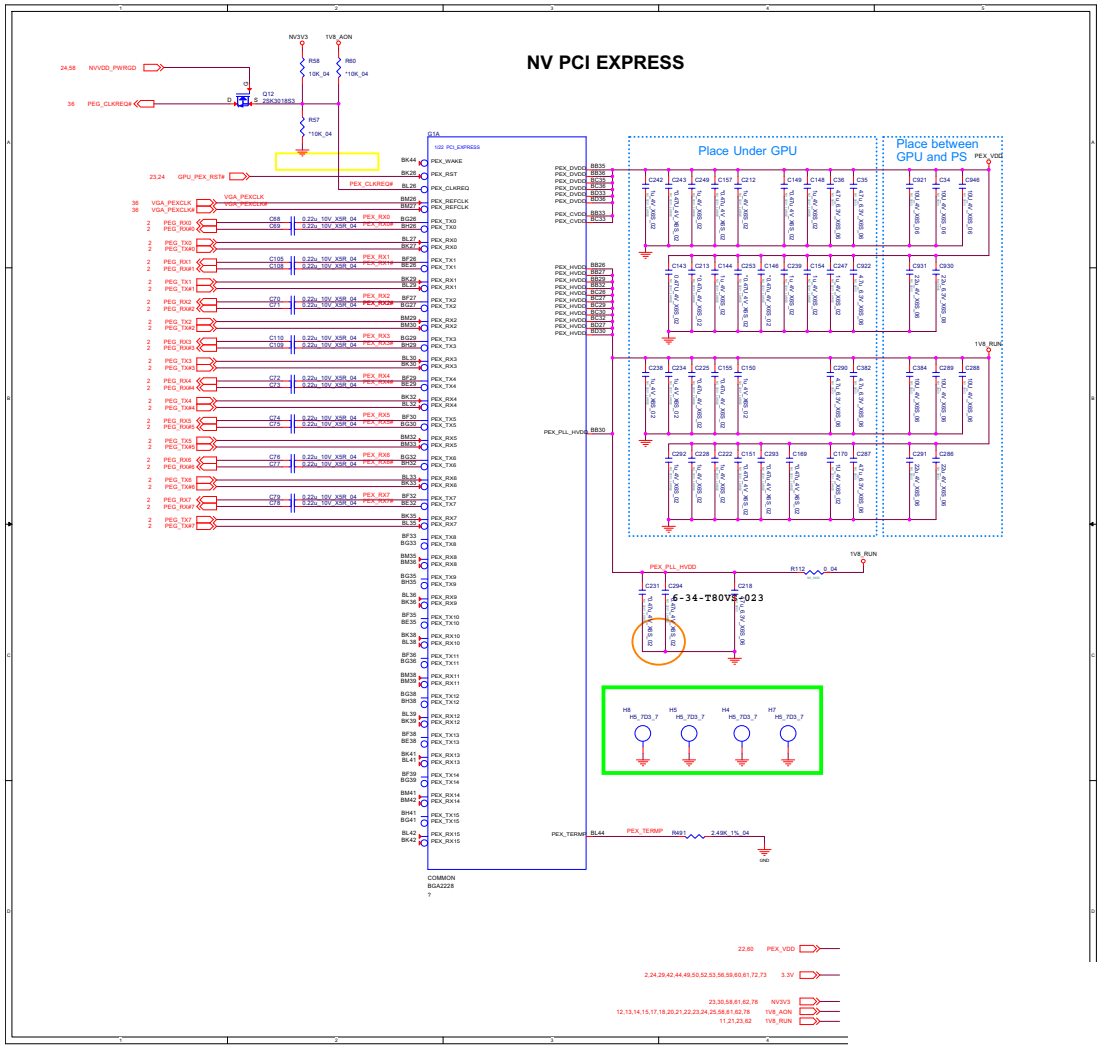
DDR4 CHA SO-DIMM

DDR4 CHB SO-DIMM

Sheet 9 of 73
DDR4 CHB SO-DIMM



VGA PCI Express



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VGA PCI Express

GPU Frame Buffer Partition

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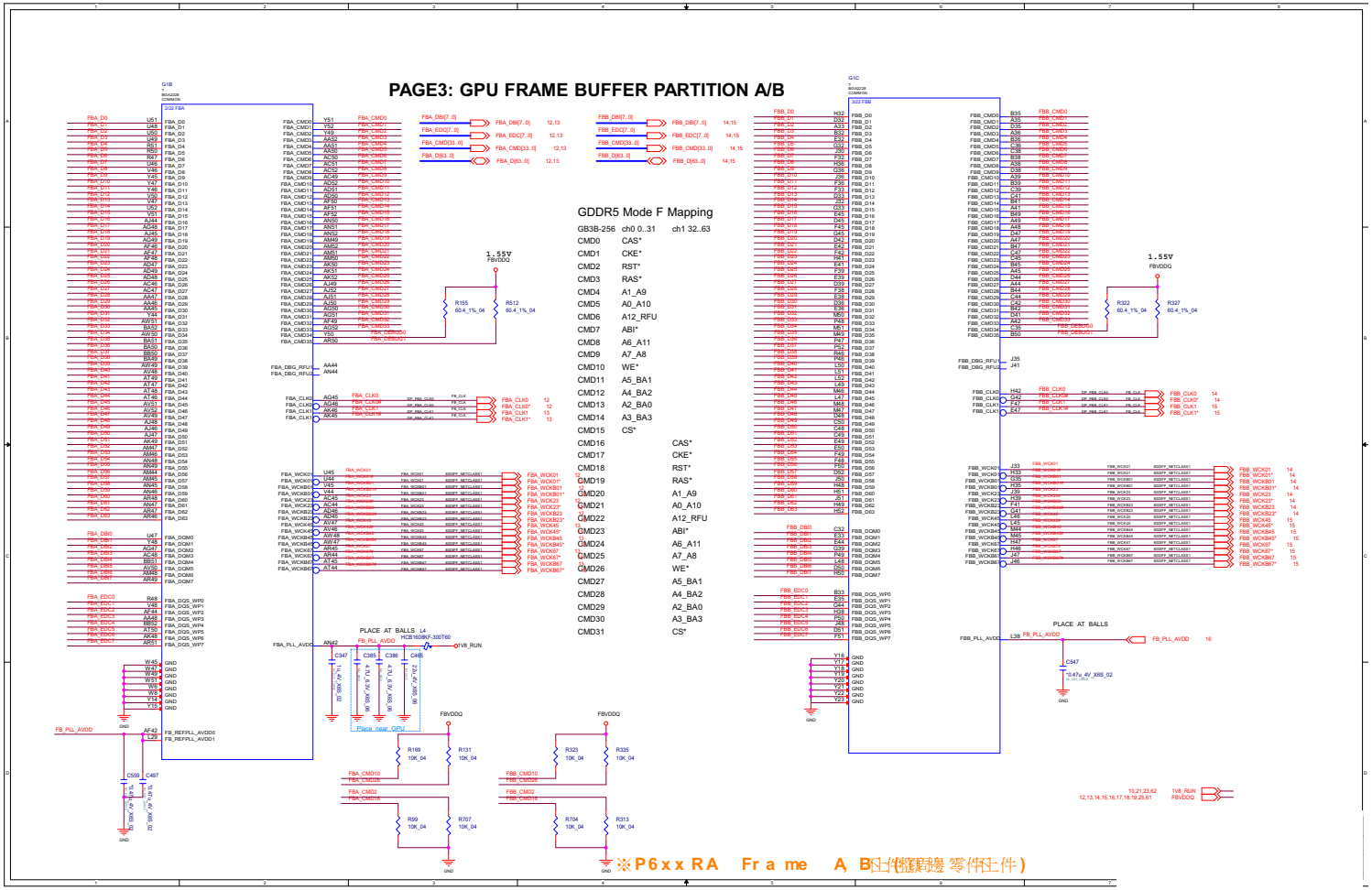
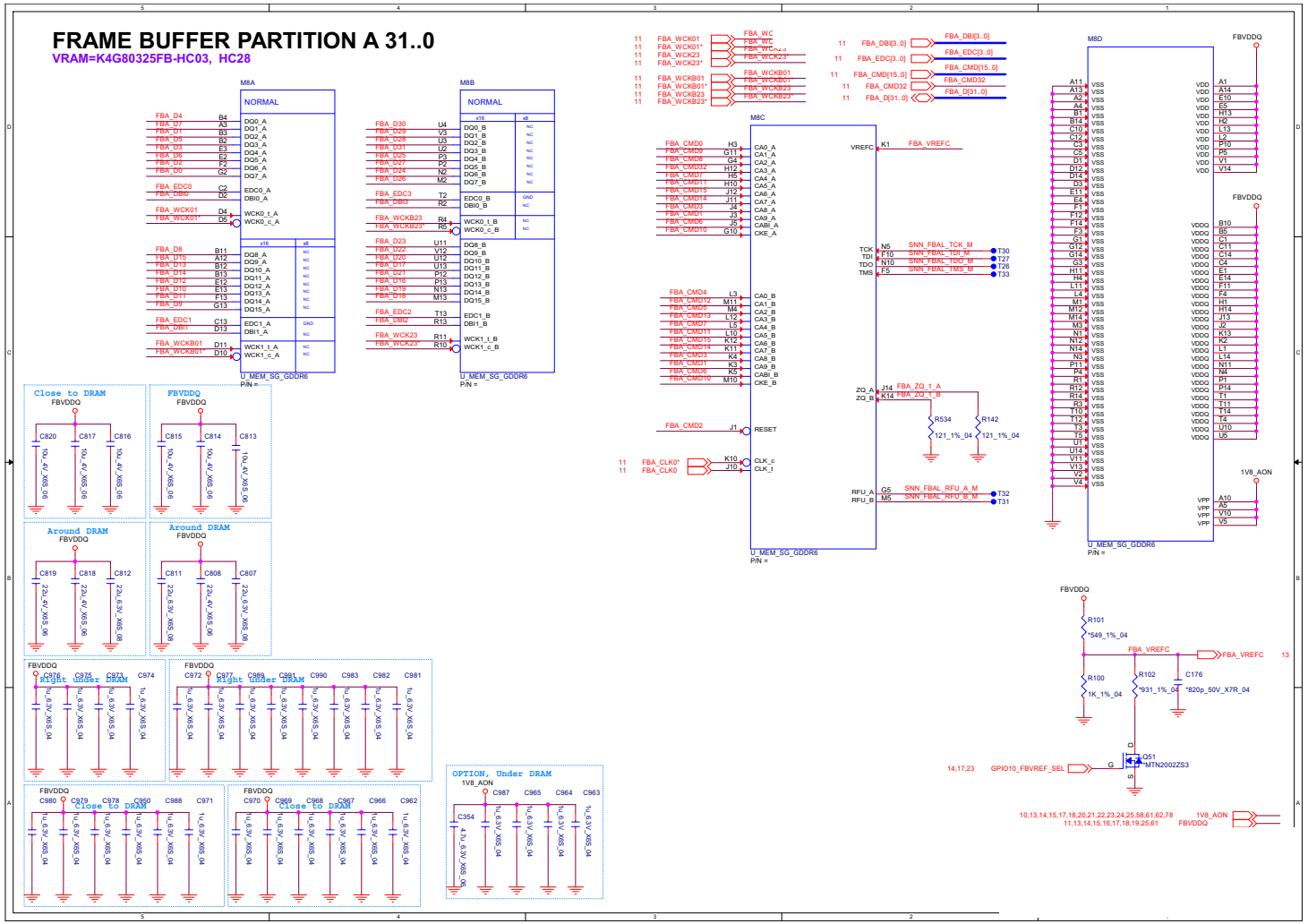
GPU Frame Buffer Partition



Frame Buffer A



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Frame Buffer A

Frame Buffer A

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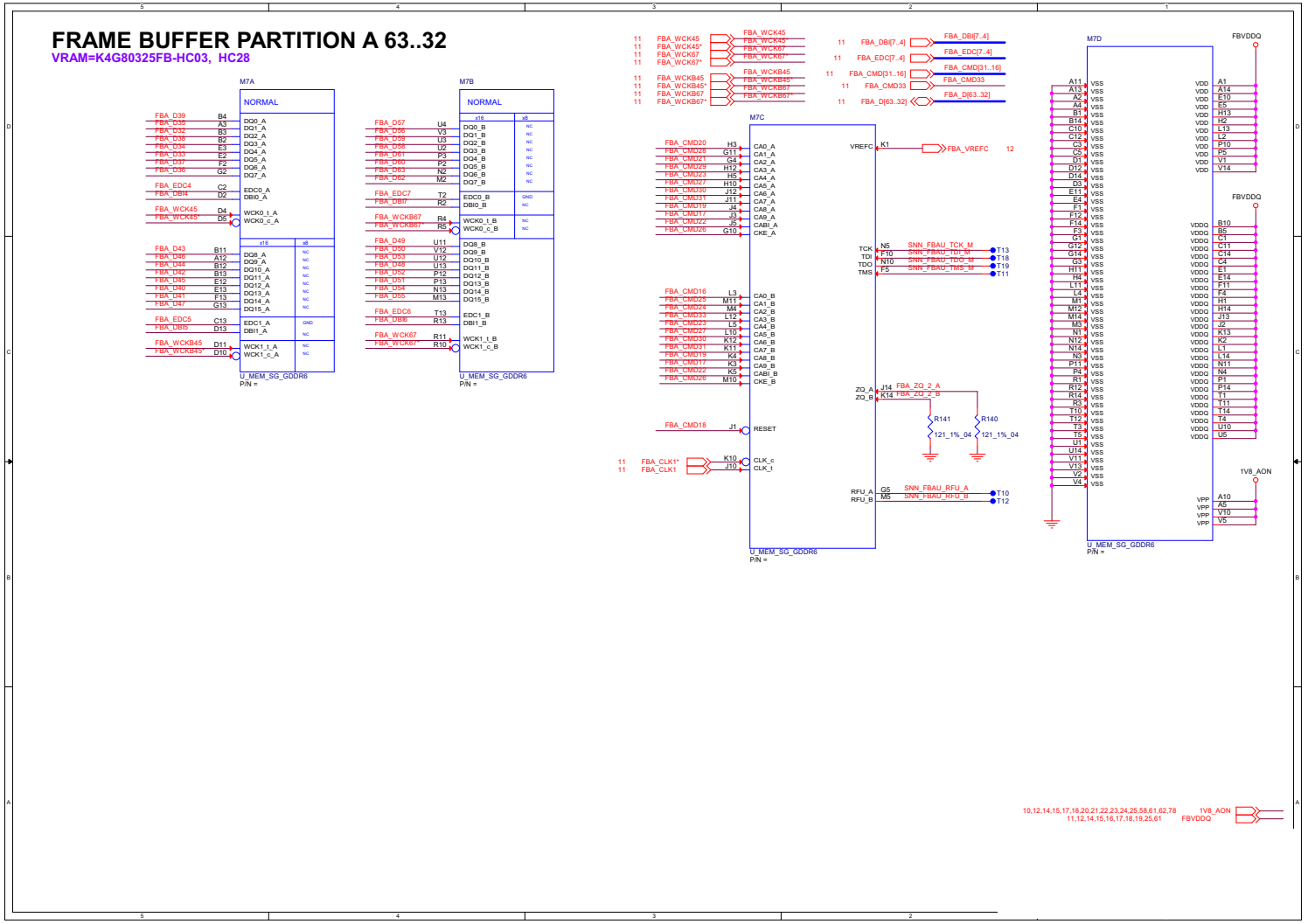
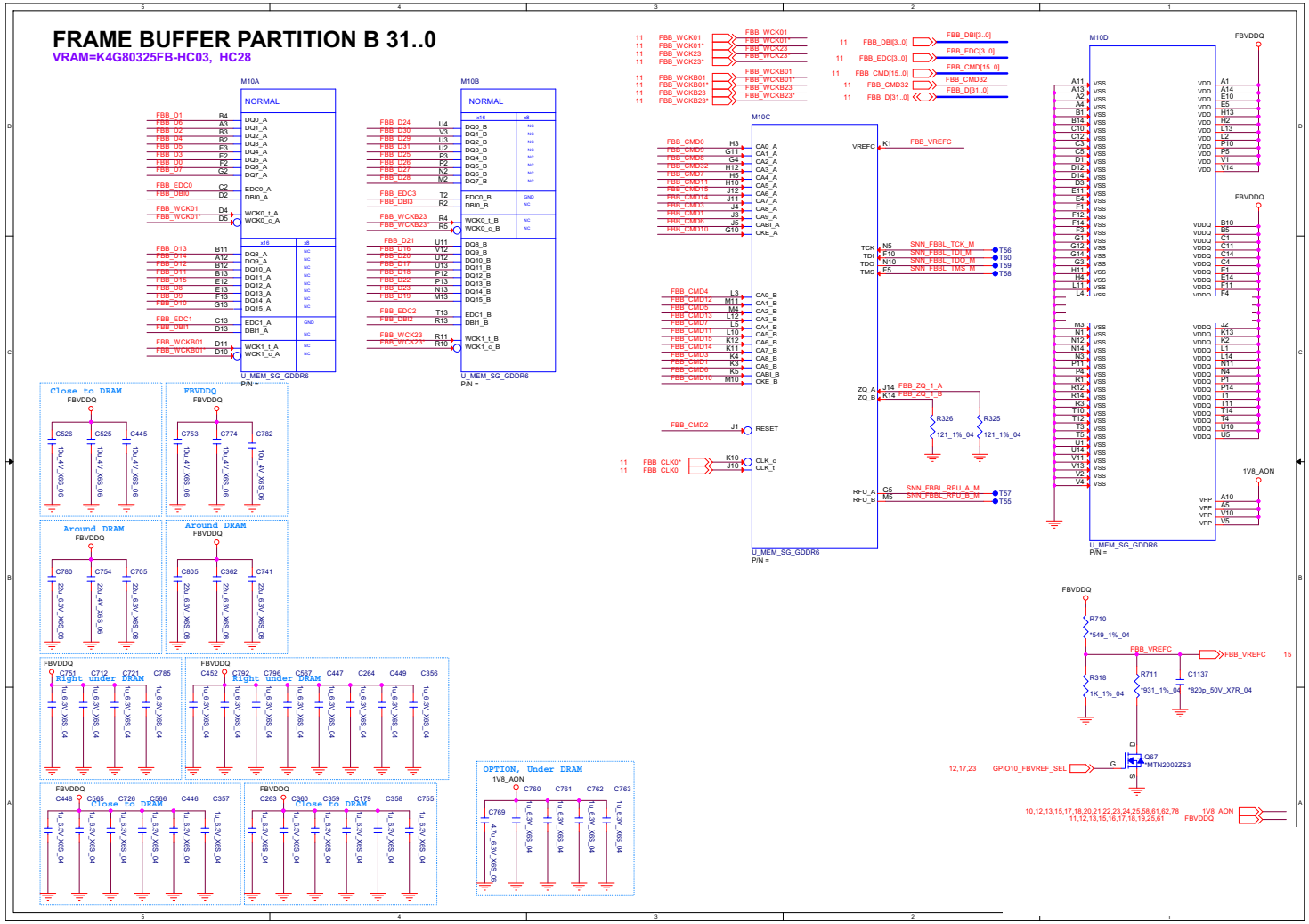
Frame Buffer A



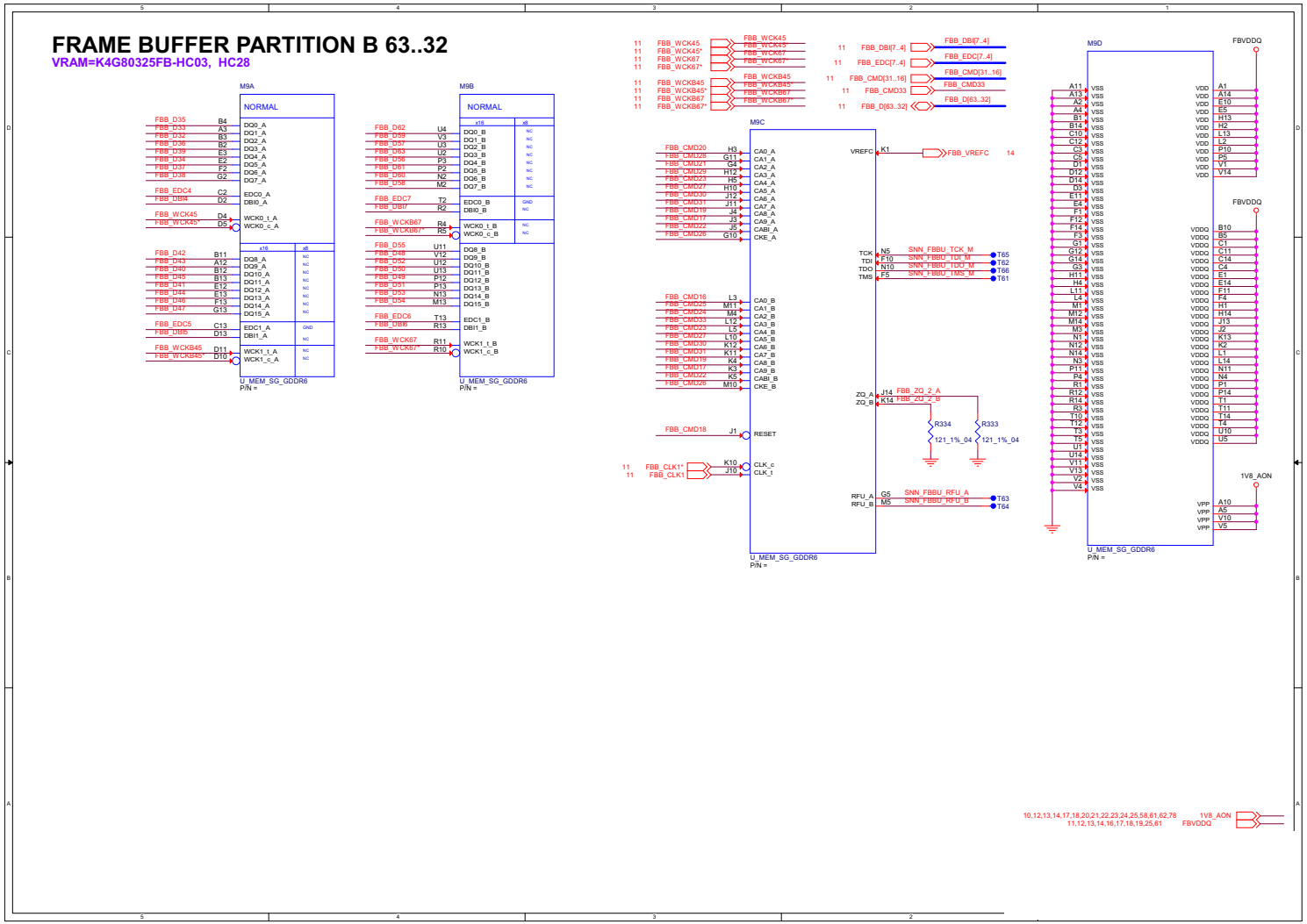
Frame Buffer B



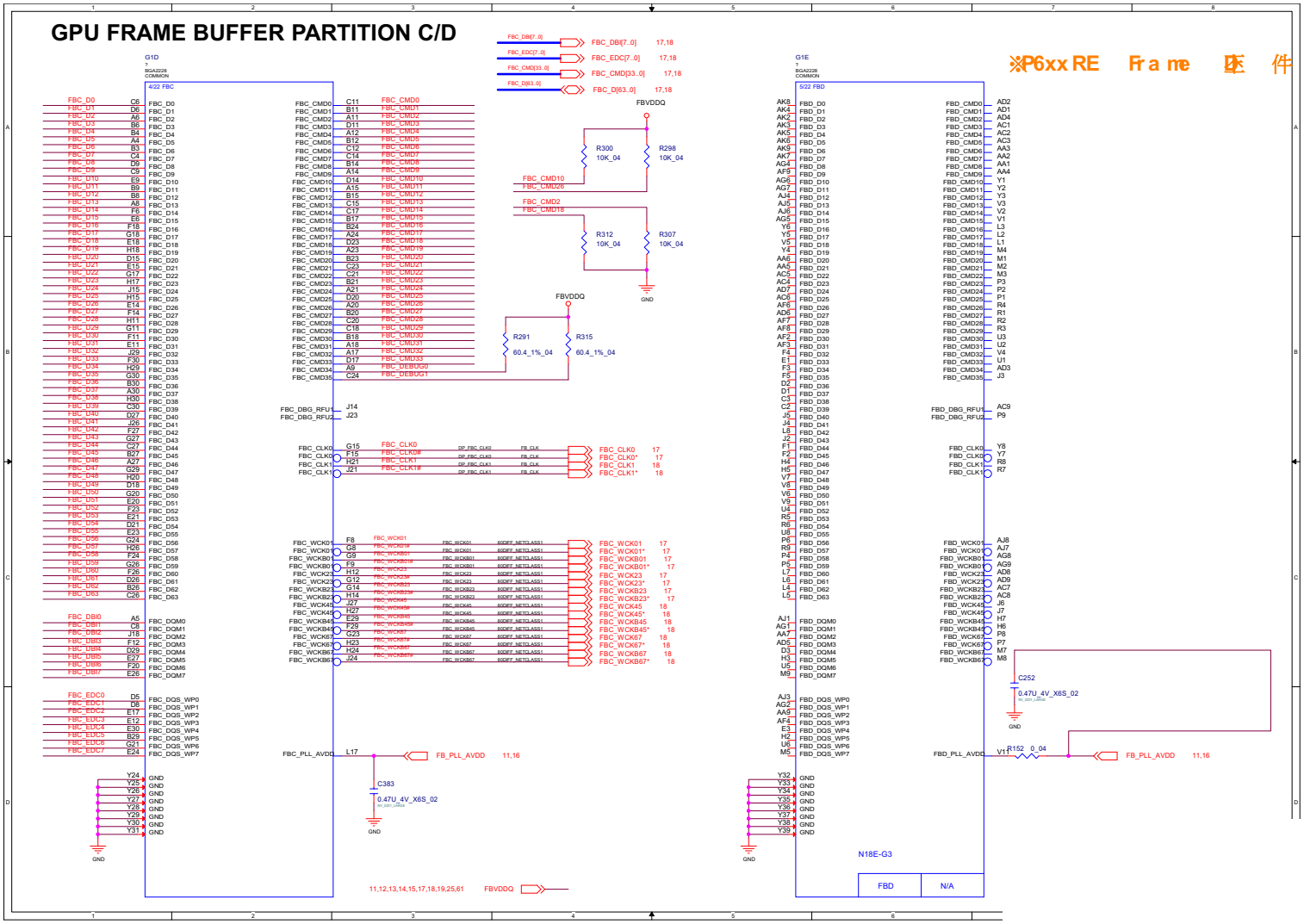
Sheet 14 of 73
Frame Buffer B

Frame Buffer B

Sheet 15 of 73
Frame Buffer B



Frame Buffer C/D



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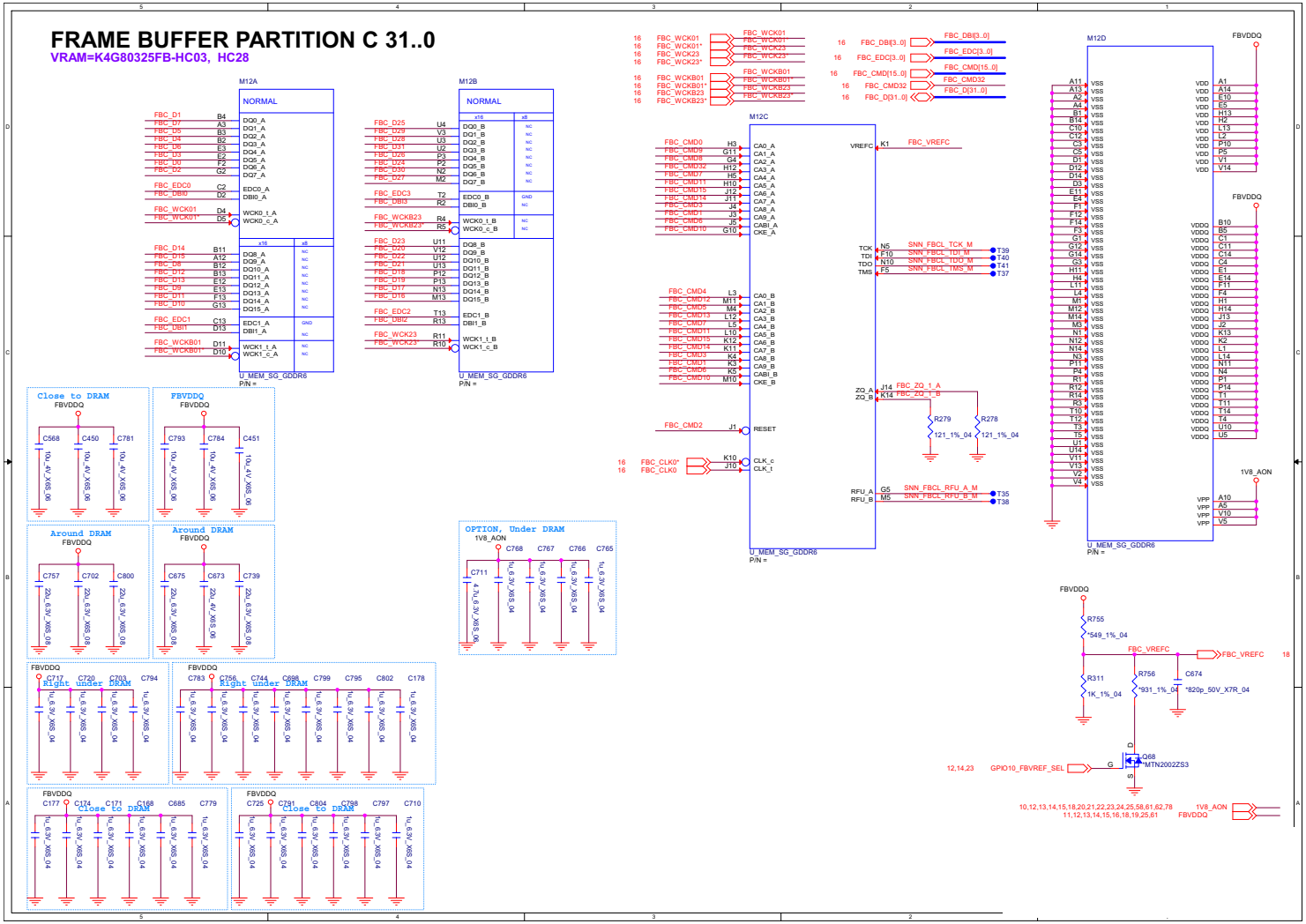
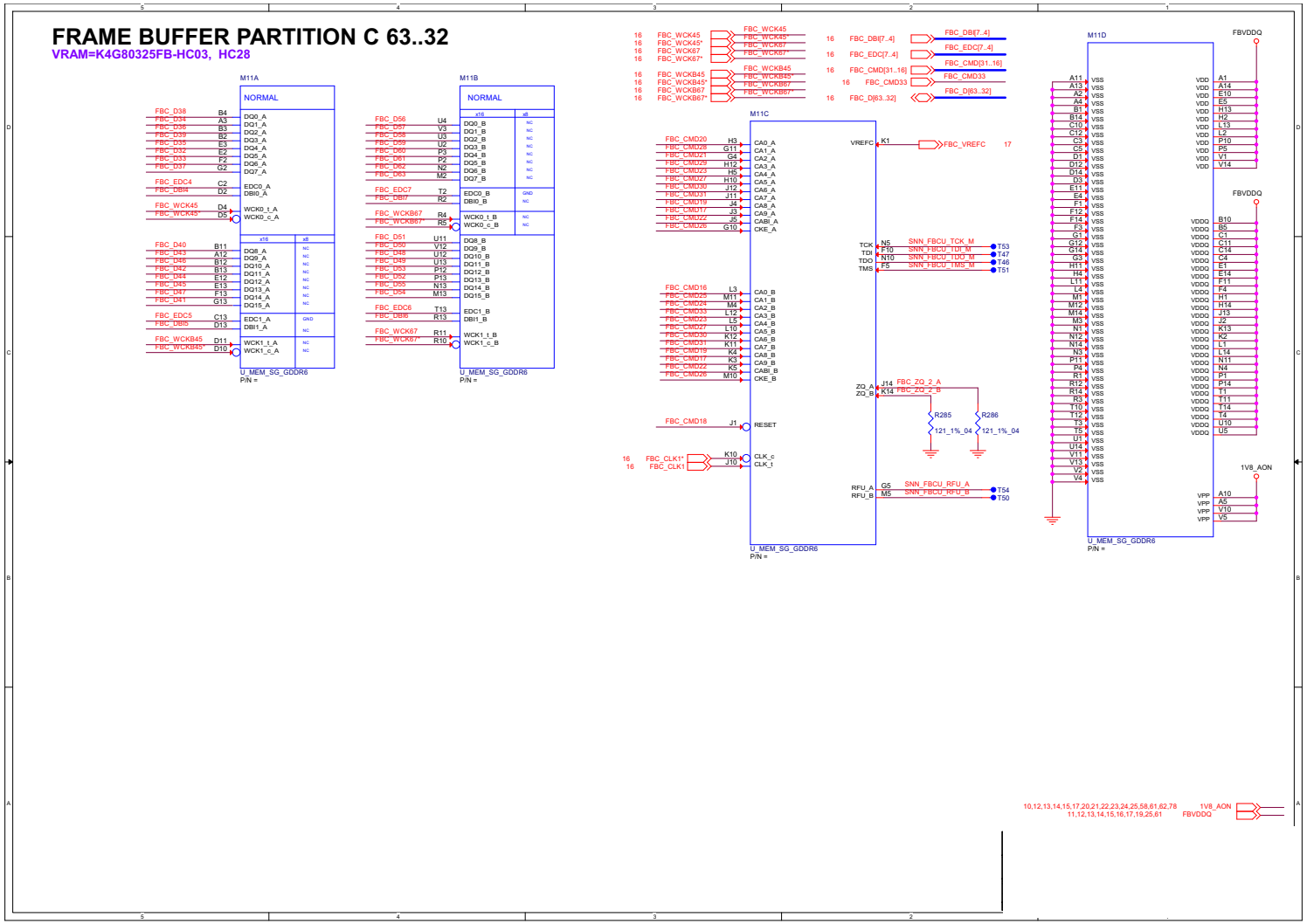
Frame Buffer C/D

Frame Buffer C

Sheet 17 of 73
Frame Buffer C



Frame Buffer C



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Frame Buffer C

GPU Decoupling 1

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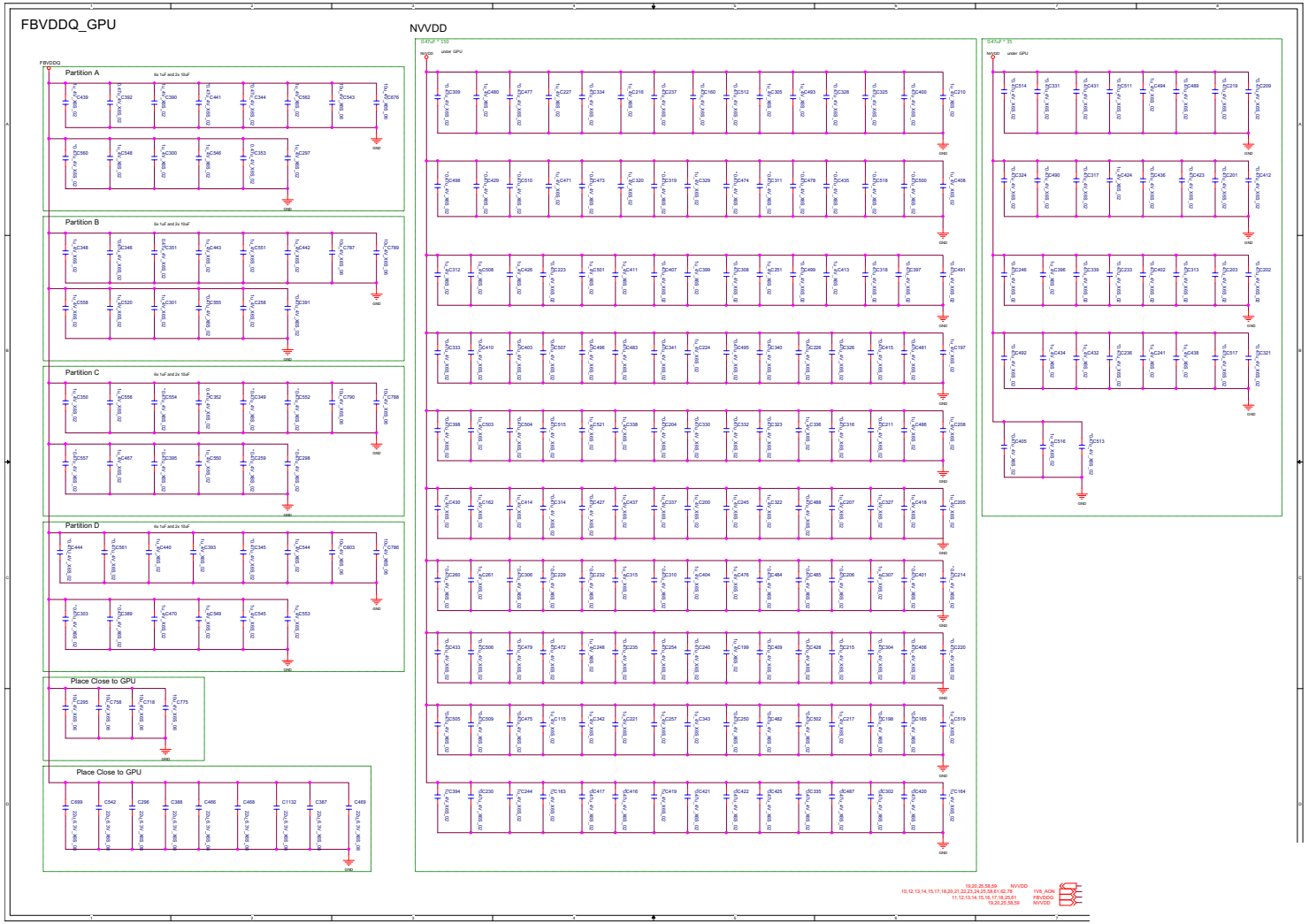
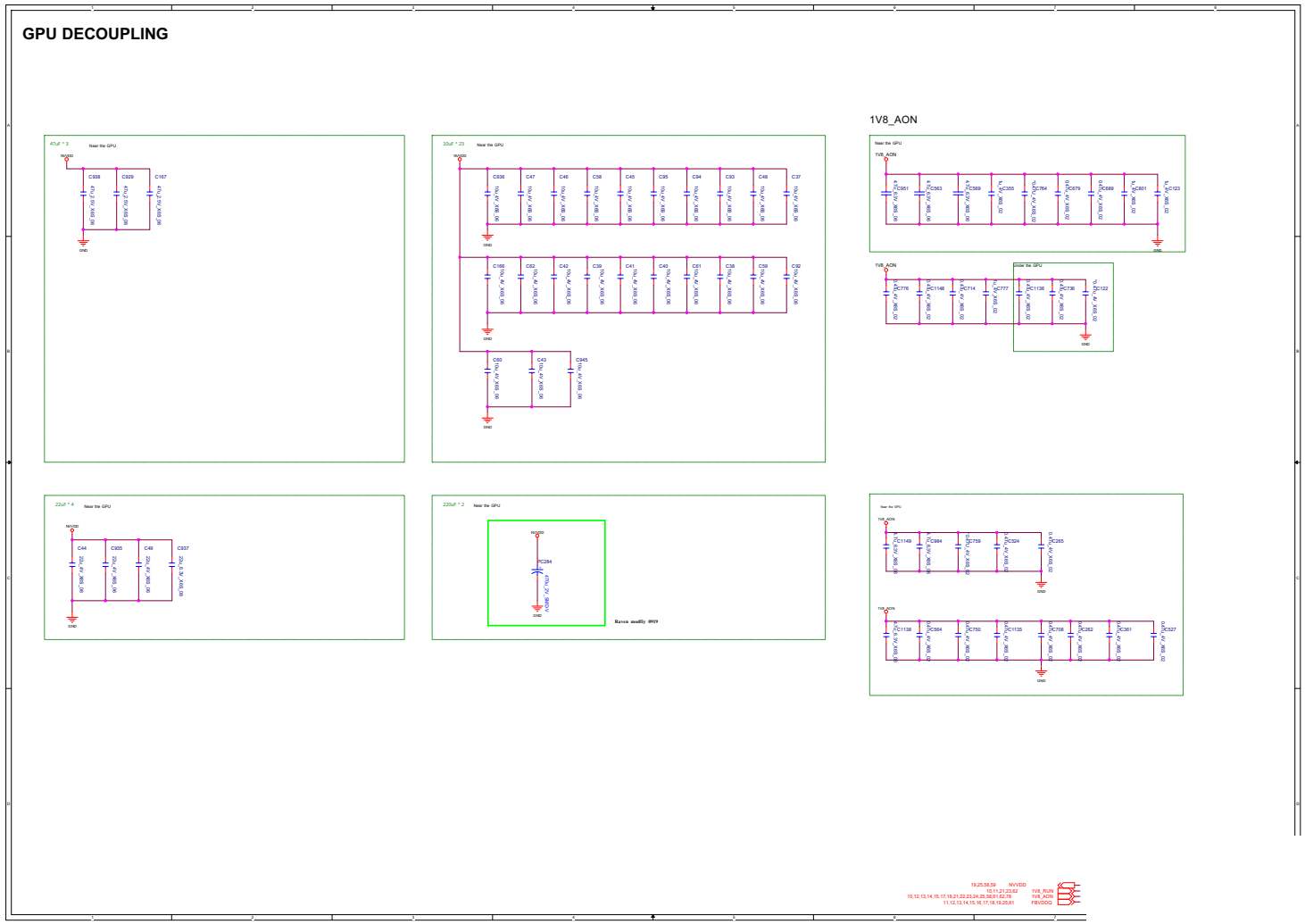
GPU Decoupling 1



GPU Decoupling 2



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GPU Decoupling 2

Straps and XTAL

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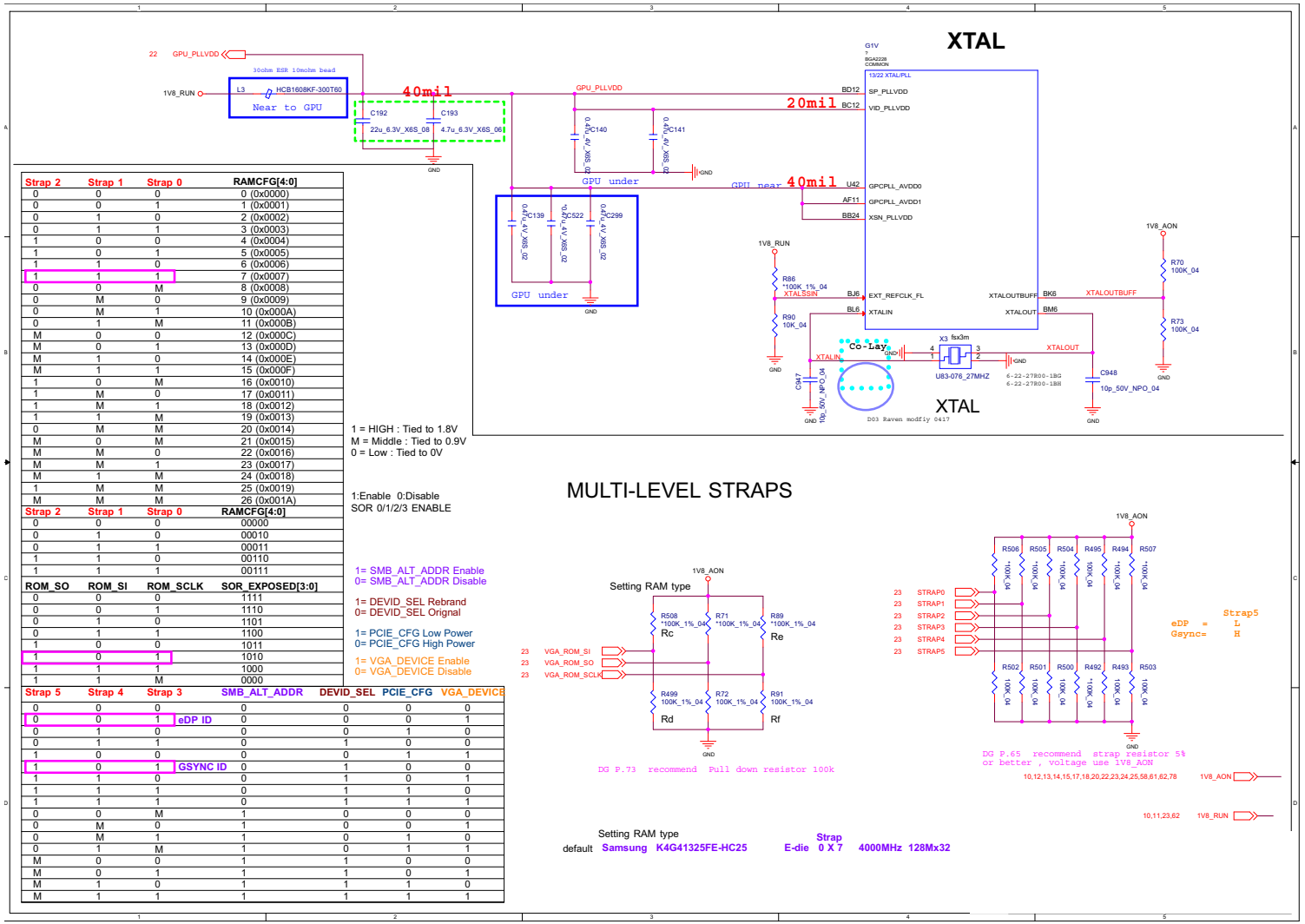
Straps and XTAL



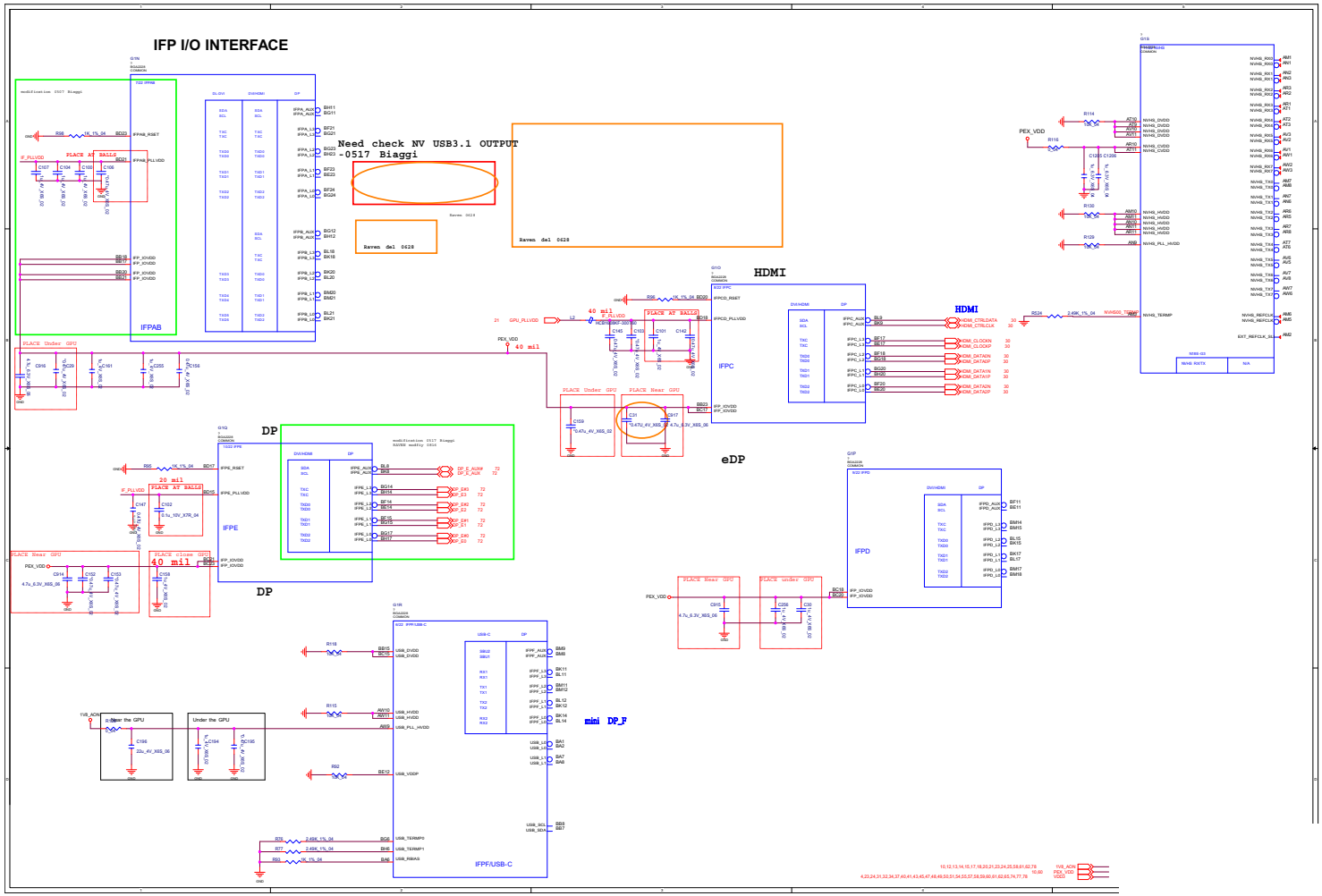
Strap 2	Strap 1	Strap 0	RAMCFG[4:0]
0	0	0	0 (0x0000)
0	0	1	1 (0x0001)
0	1	0	2 (0x0002)
0	1	1	3 (0x0003)
1	0	0	4 (0x0004)
1	0	1	5 (0x0005)
1	1	0	6 (0x0006)
1	1	1	7 (0x0007)
0	0	M	8 (0x0008)
0	M	0	9 (0x0009)
0	M	1	10 (0x000A)
0	1	M	11 (0x000B)
M	0	0	12 (0x000C)
M	0	1	13 (0x000D)
M	1	0	14 (0x000E)
M	1	1	15 (0x000F)
1	0	M	16 (0x0010)
1	M	0	17 (0x0011)
1	M	1	18 (0x0012)
1	1	M	19 (0x0013)
0	M	M	20 (0x0014)
M	0	M	21 (0x0015)
M	M	0	22 (0x0016)
M	M	1	23 (0x0017)
M	1	M	24 (0x0018)
1	M	M	25 (0x0019)
M	M	M	26 (0x001A)

Strap 2	Strap 1	Strap 0	RAMCFG[4:0]
0	0	0	00000
0	1	0	00010
0	1	1	00011
1	1	0	00110
1	1	1	00111

ROM_SO	ROM_SI	ROM_SCLK	SOR_EXPOSED[3:0]
0	0	0	1111
0	0	1	1110
0	1	0	1101
0	1	1	1100
1	0	0	1011
1	0	1	1010
1	1	1	1000
1	1	M	0000

Strap 5	Strap 4	Strap 3	SMB_ALT_ADDR	DEVID_SEL	PCIE_CFG	VGA_DEVICE
0	0	0	0	0	0	0
0	0	1	eDP ID	0	0	1
0	1	0	0	0	1	0
0	1	1	0	1	0	0
1	0	0	0	0	1	1
1	0	1	GSYNC ID	0	1	0
1	1	0	0	1	0	1
1	1	1	0	1	1	0
1	1	1	0	1	1	1
0	0	M	1	0	0	0
0	M	0	1	0	0	1
0	M	1	1	0	1	0
0	1	M	1	0	1	1
M	0	0	1	1	0	0
M	0	1	1	1	0	1
M	1	0	1	1	1	0
M	1	1	1	1	1	1

IFP I/O Interface



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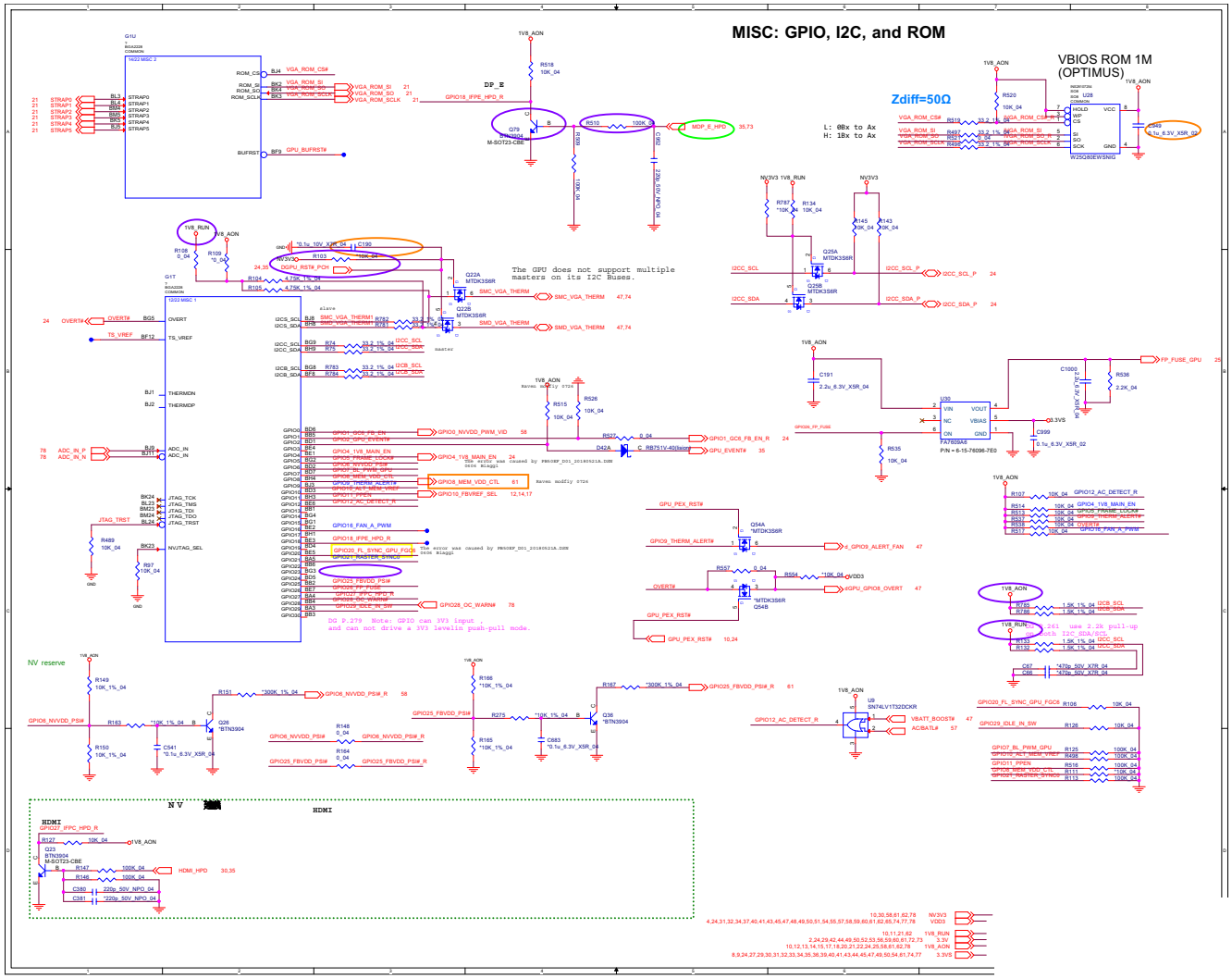
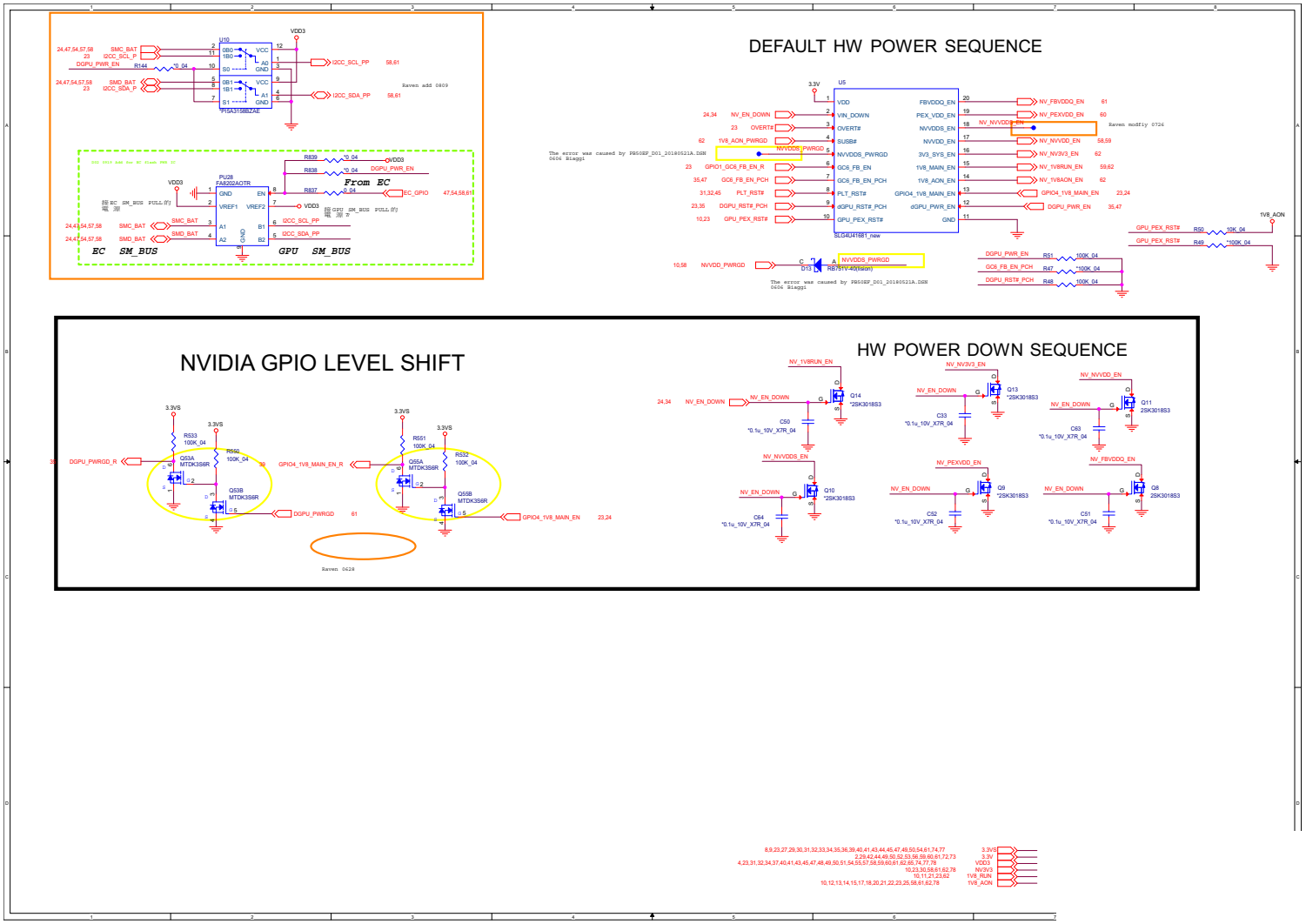
IFP I/O Interface

Misc - GPIO, I2C and ROM

Sheet 23 of 73
Misc - GPIO, I2C and ROM



NVIDIA Power Sequence



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NVIDIA Power Sequence

GPU NVVDD, FBVDDQ

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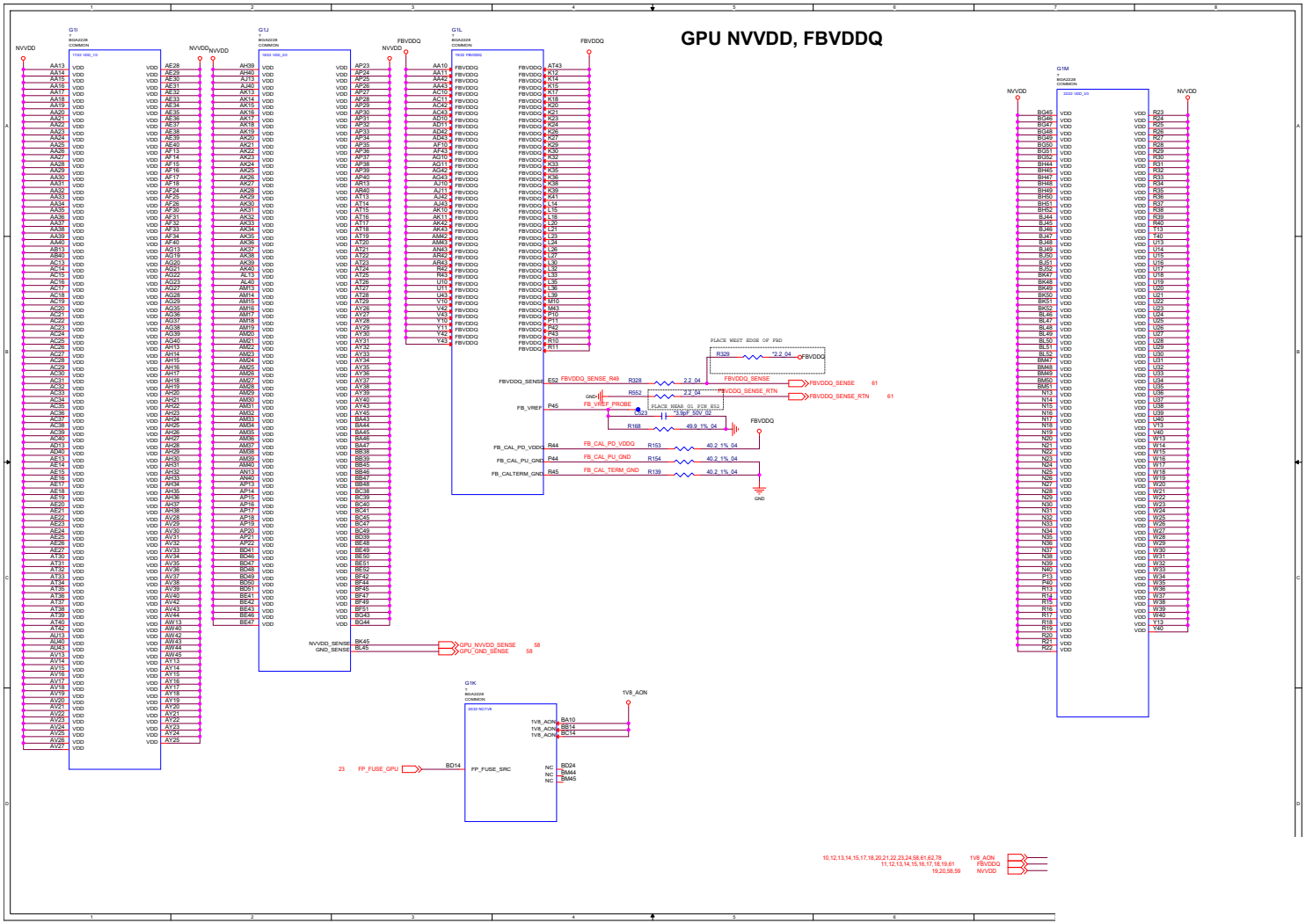
GPU NVVDD, FBVDDQ



GPU GND

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GPU GND

mDP

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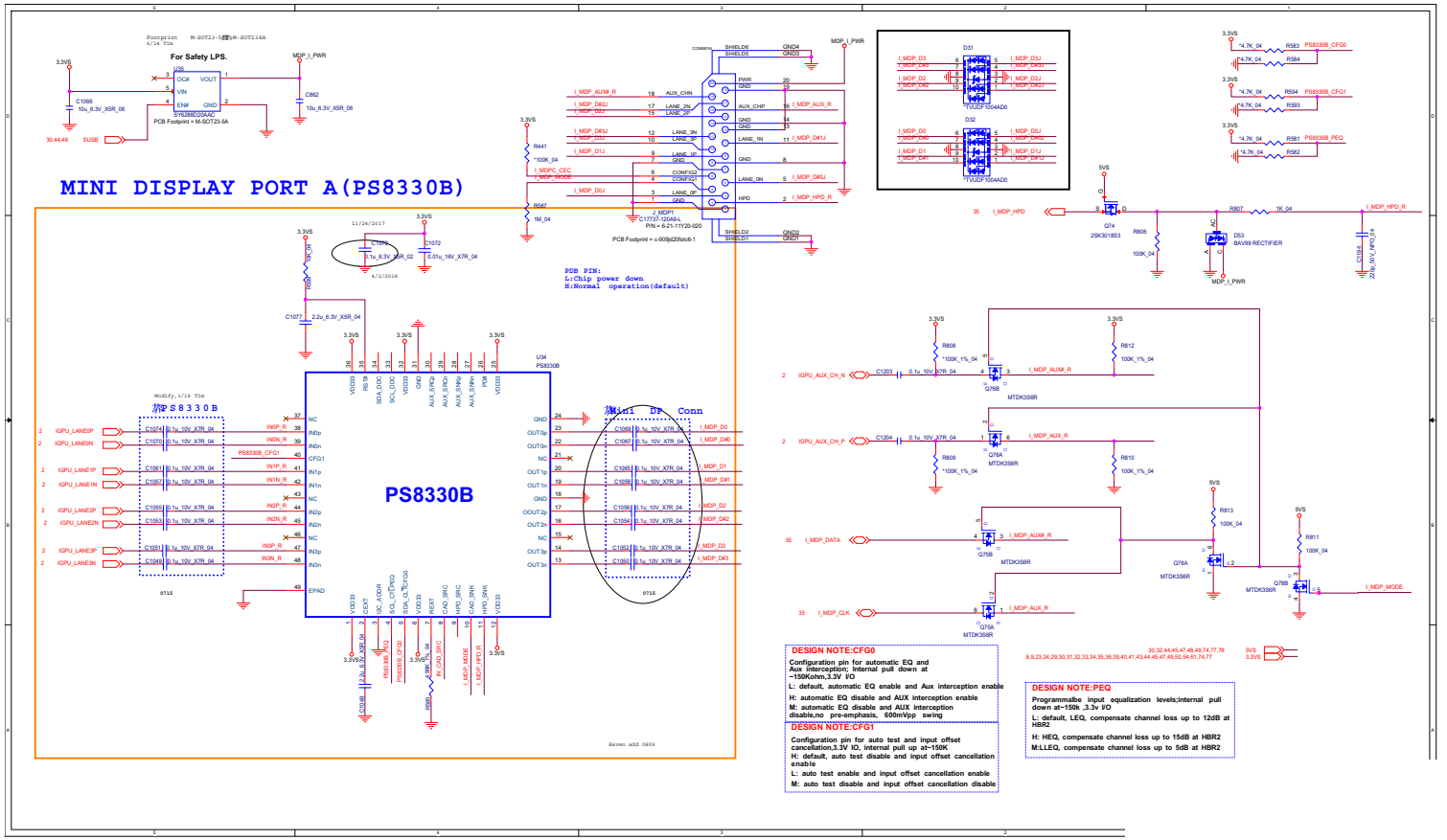
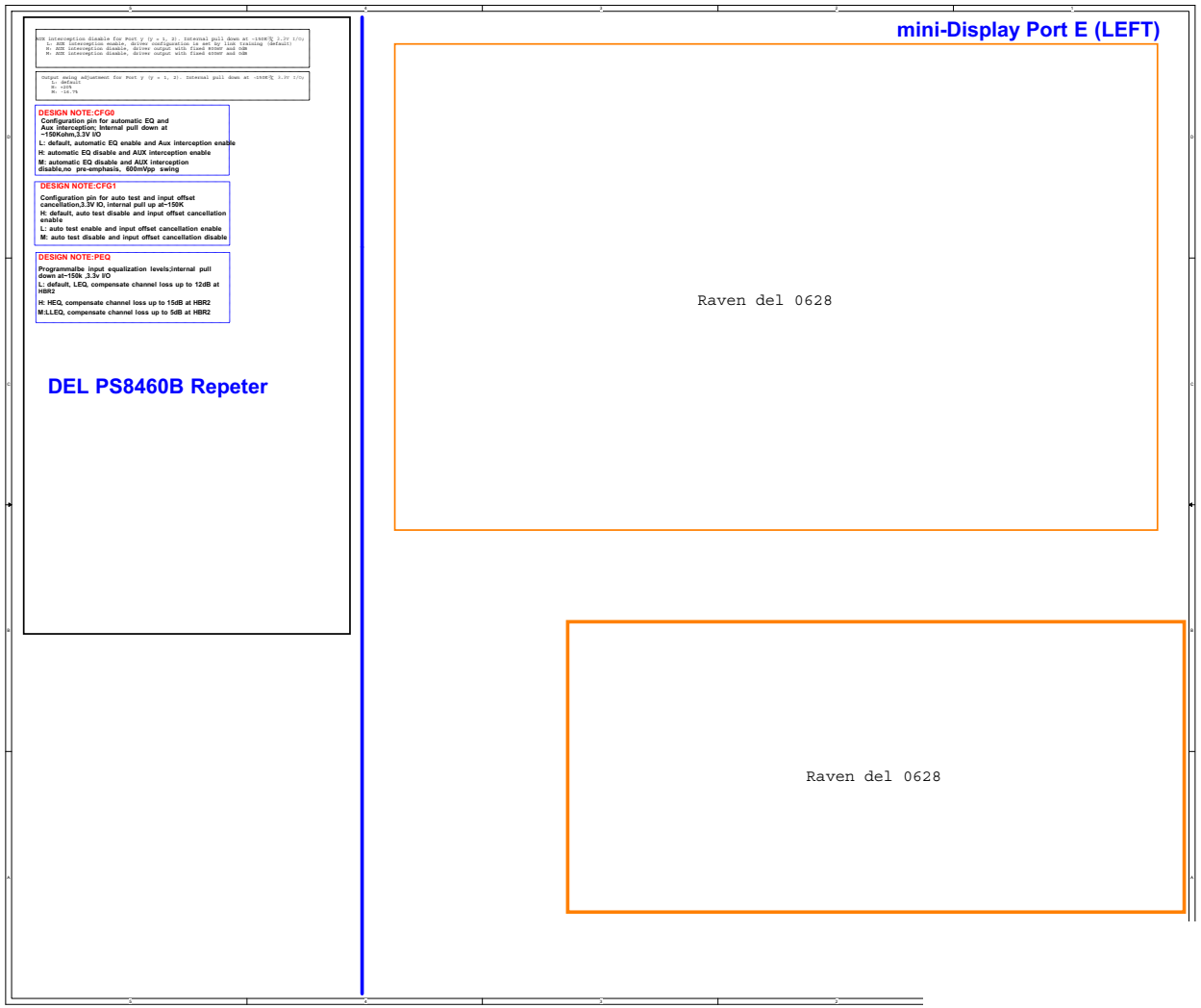
mDP



mDP



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mDP

Panel, Inverter

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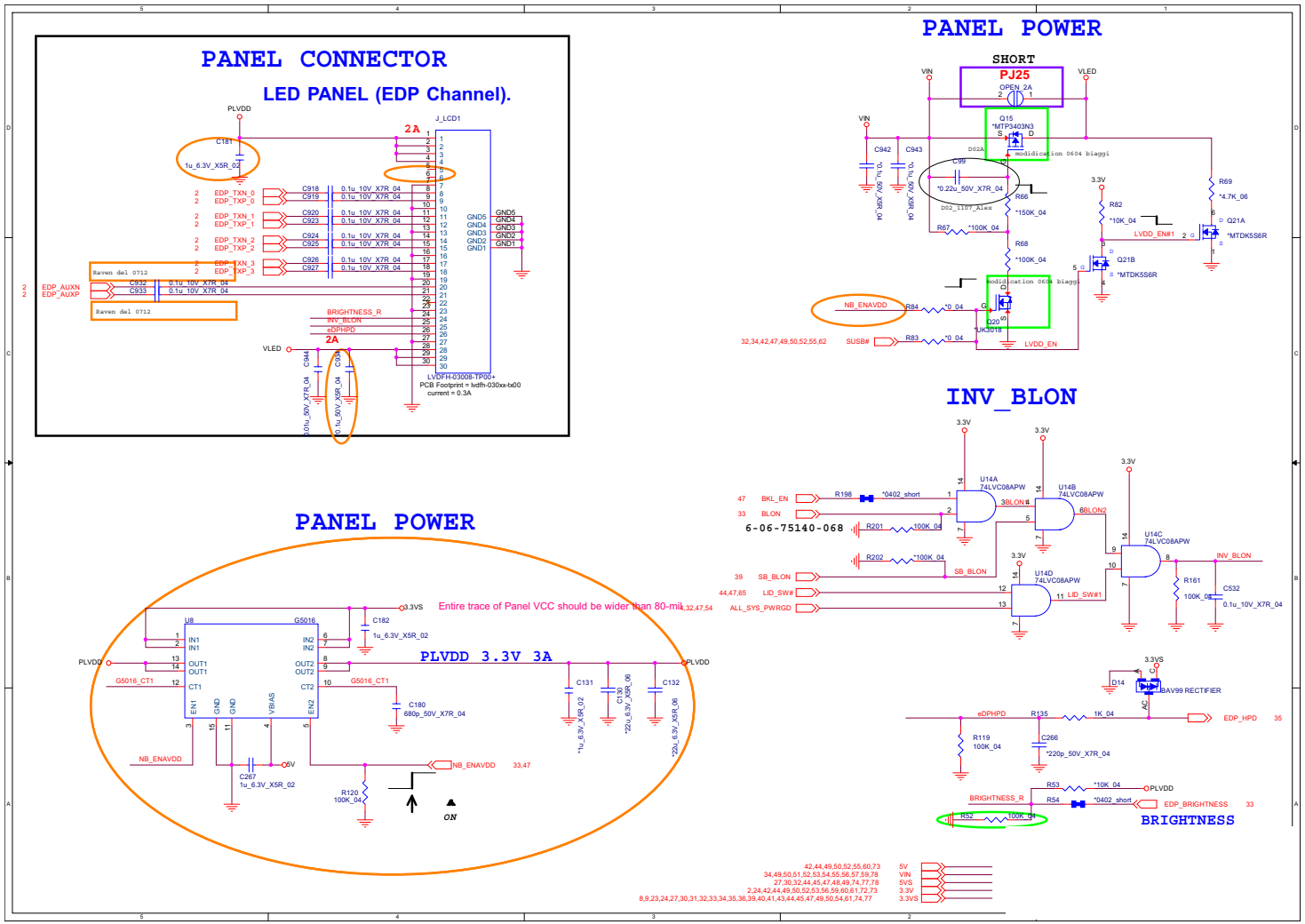
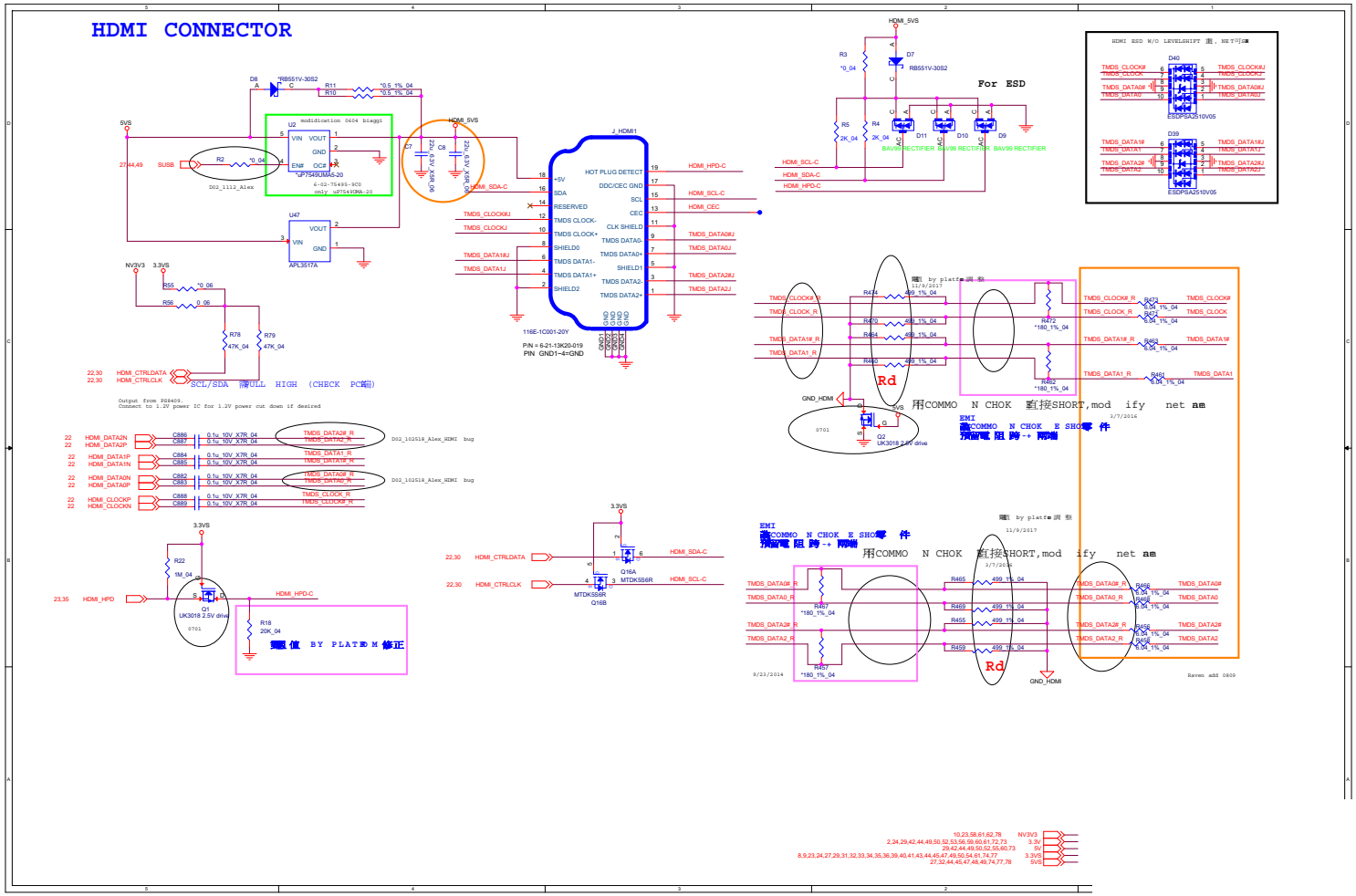
Panel, Inverter



HDMI



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HDMI

PCH 1/9

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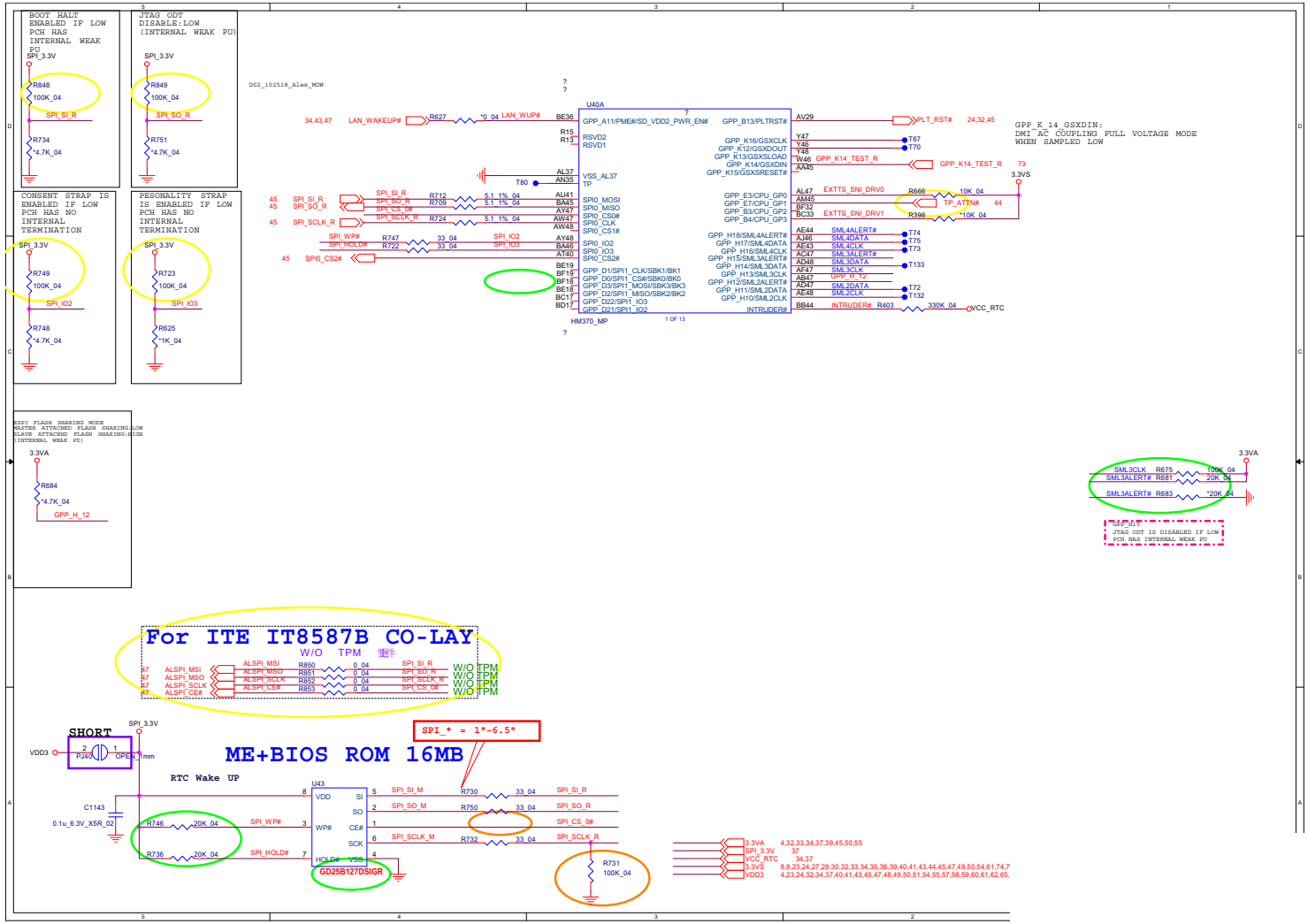
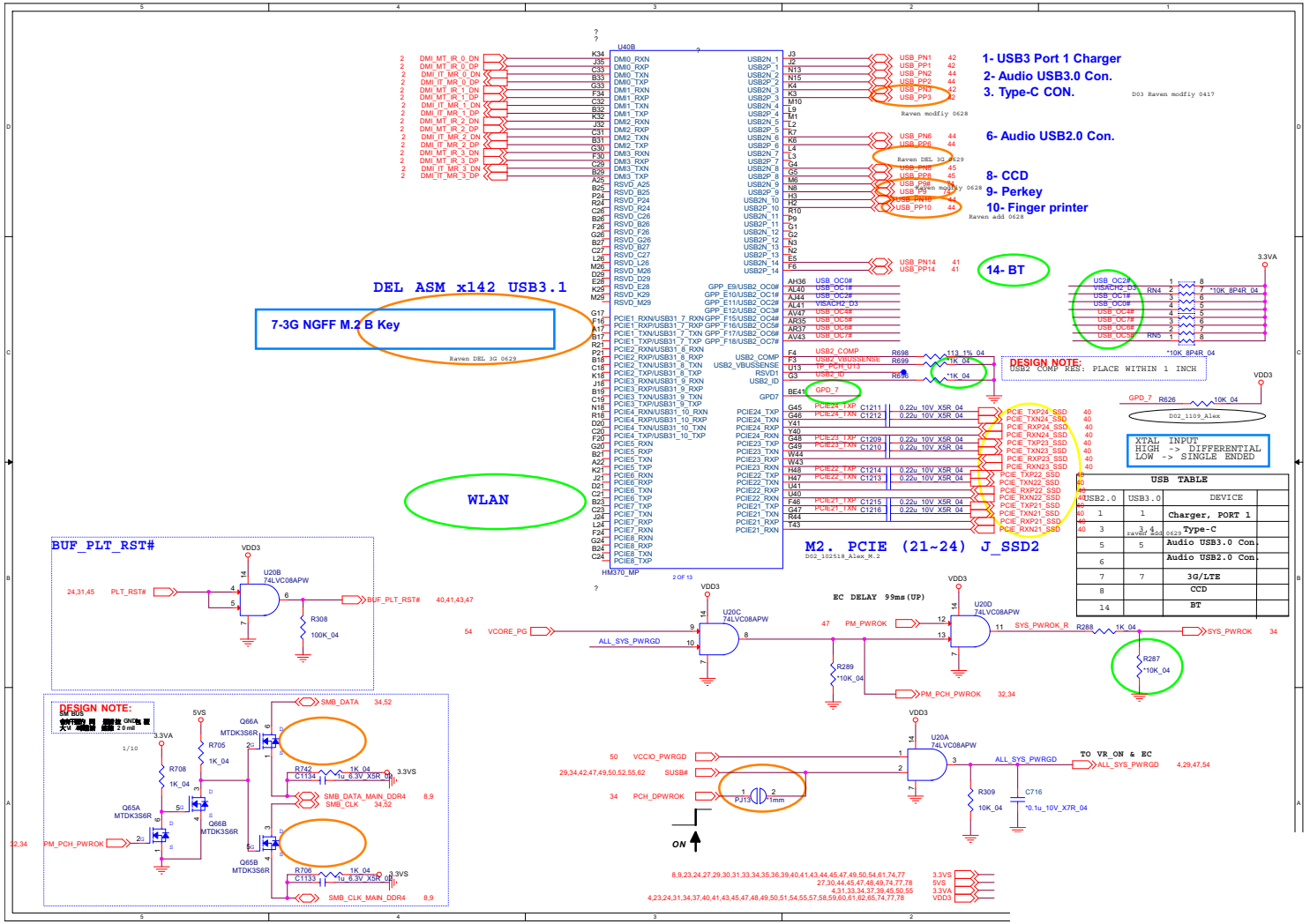
PCH 1/9



PCH 2/9



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PCH 2/9

PCH 3/9

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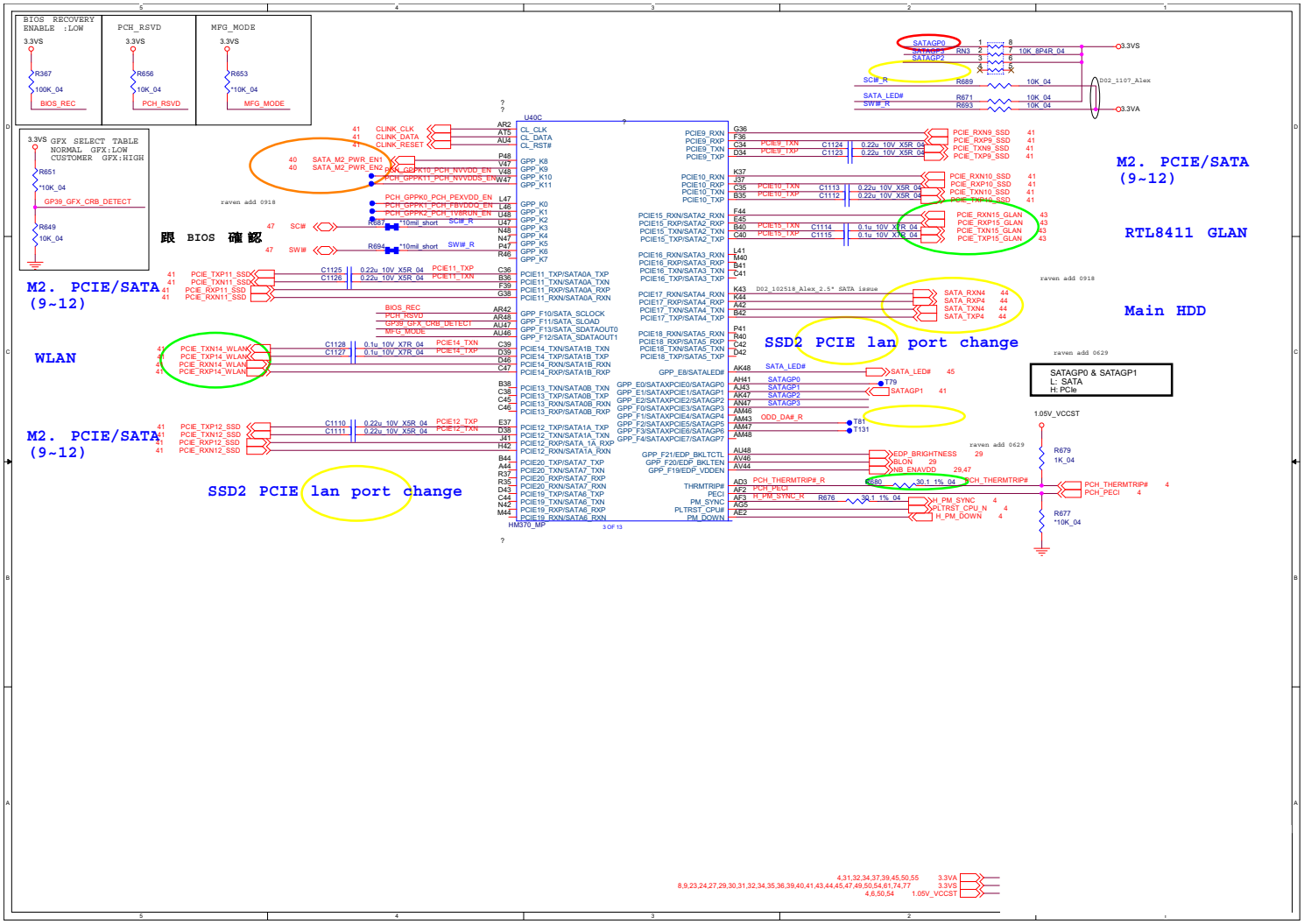
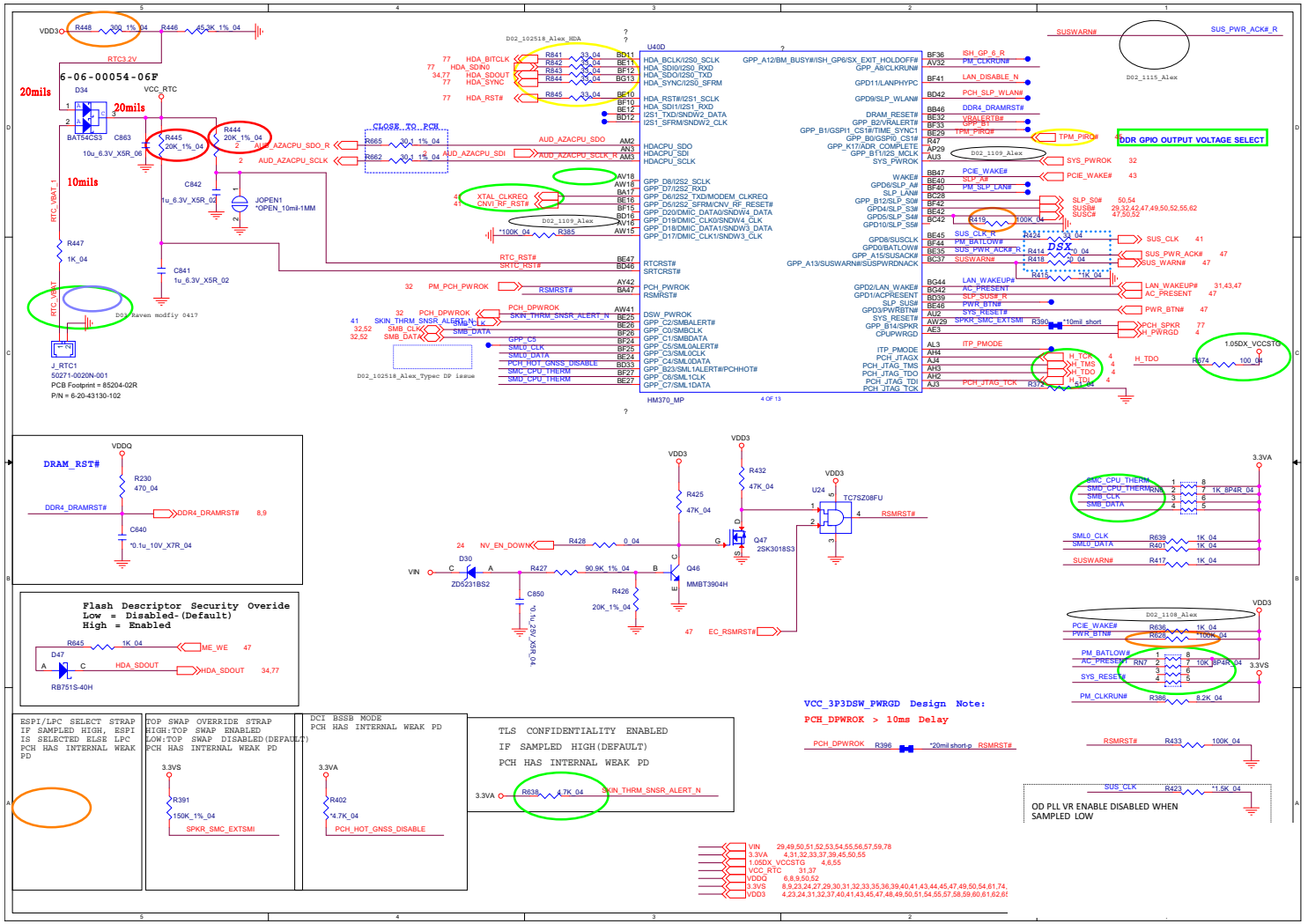
PCH 3/9



PCH 4/9



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PCH 4/9

PCH 5/9

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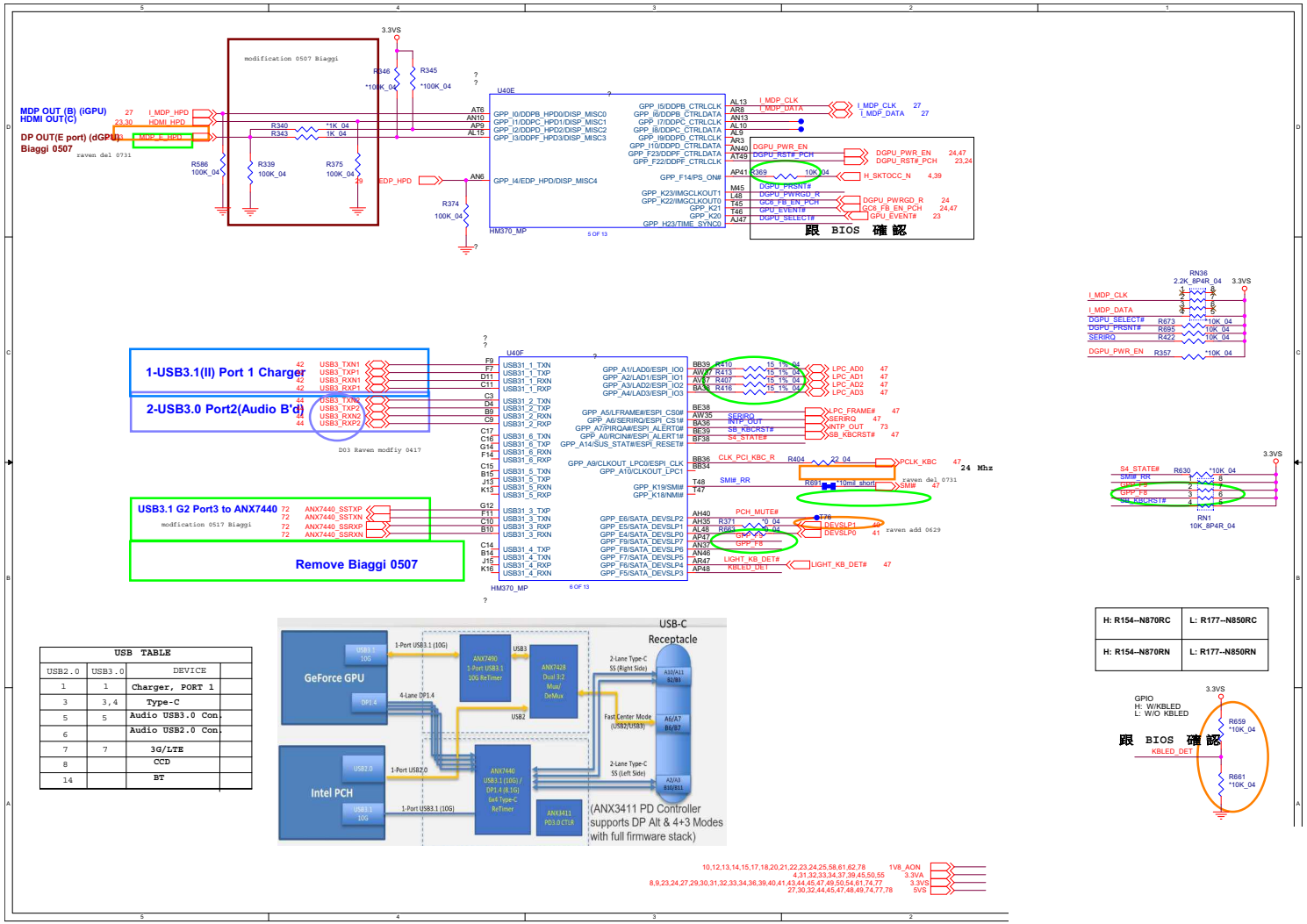
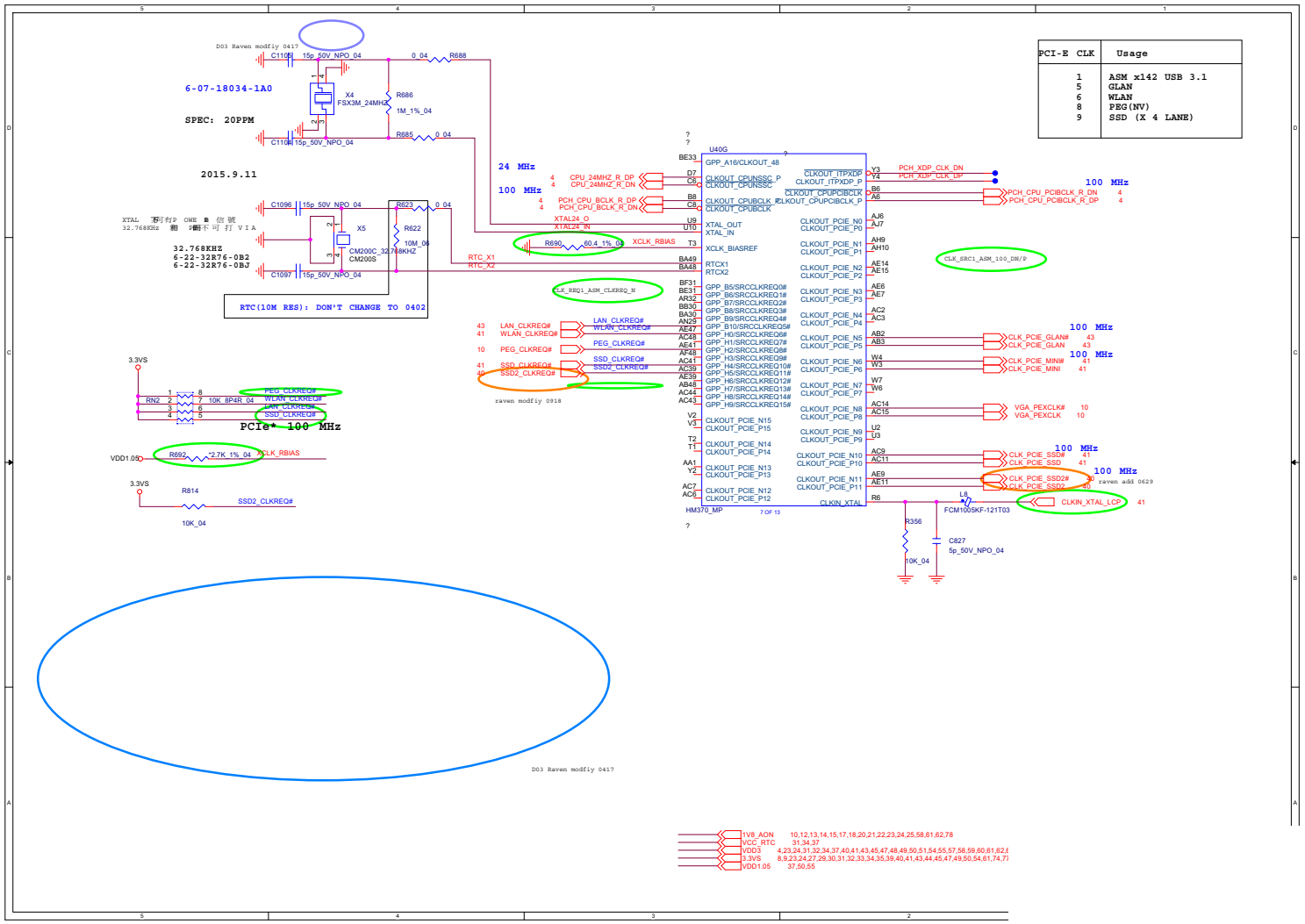
PCH 5/9



PCH 6/9



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PCH 6/9

PCH 7/9

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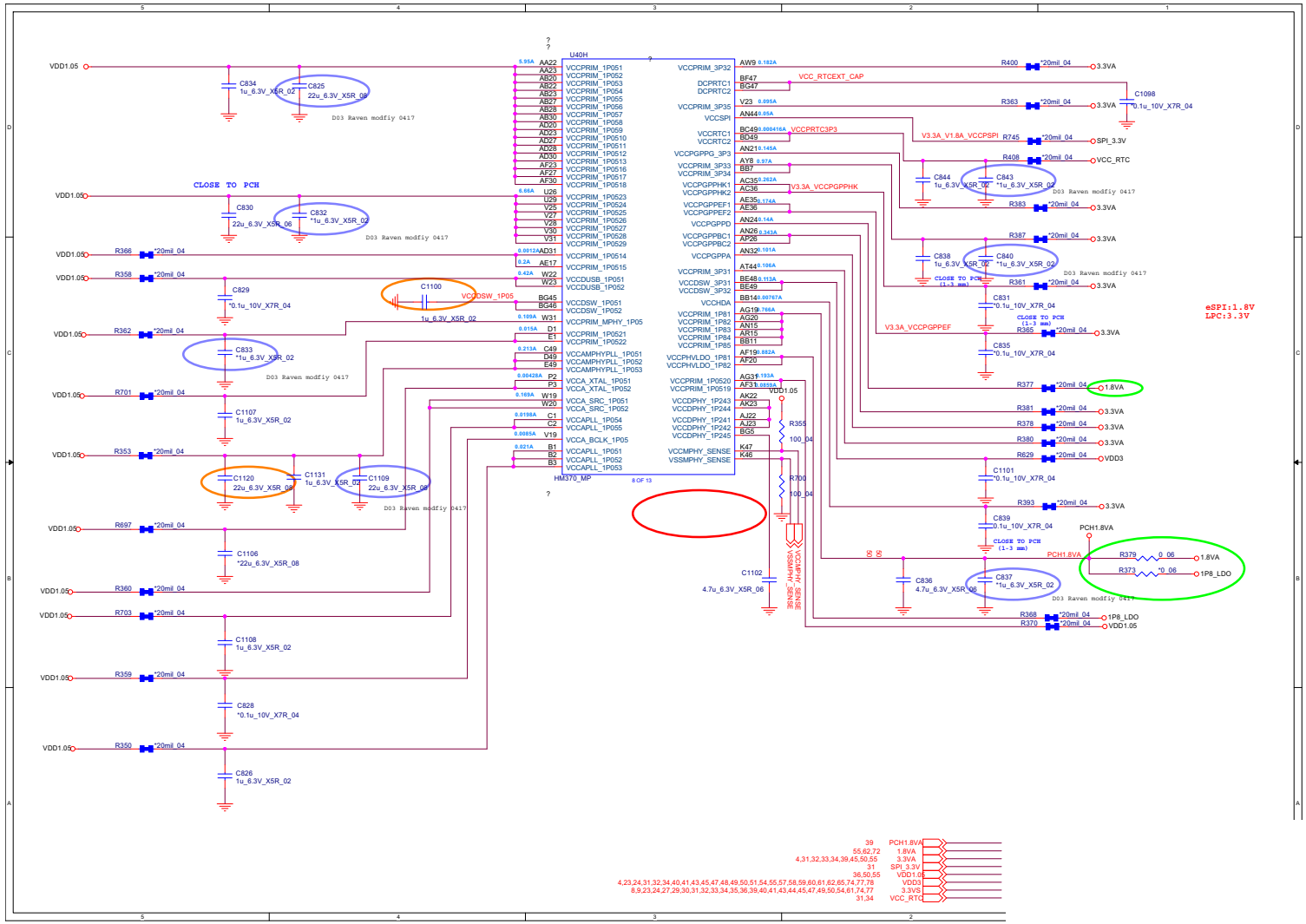
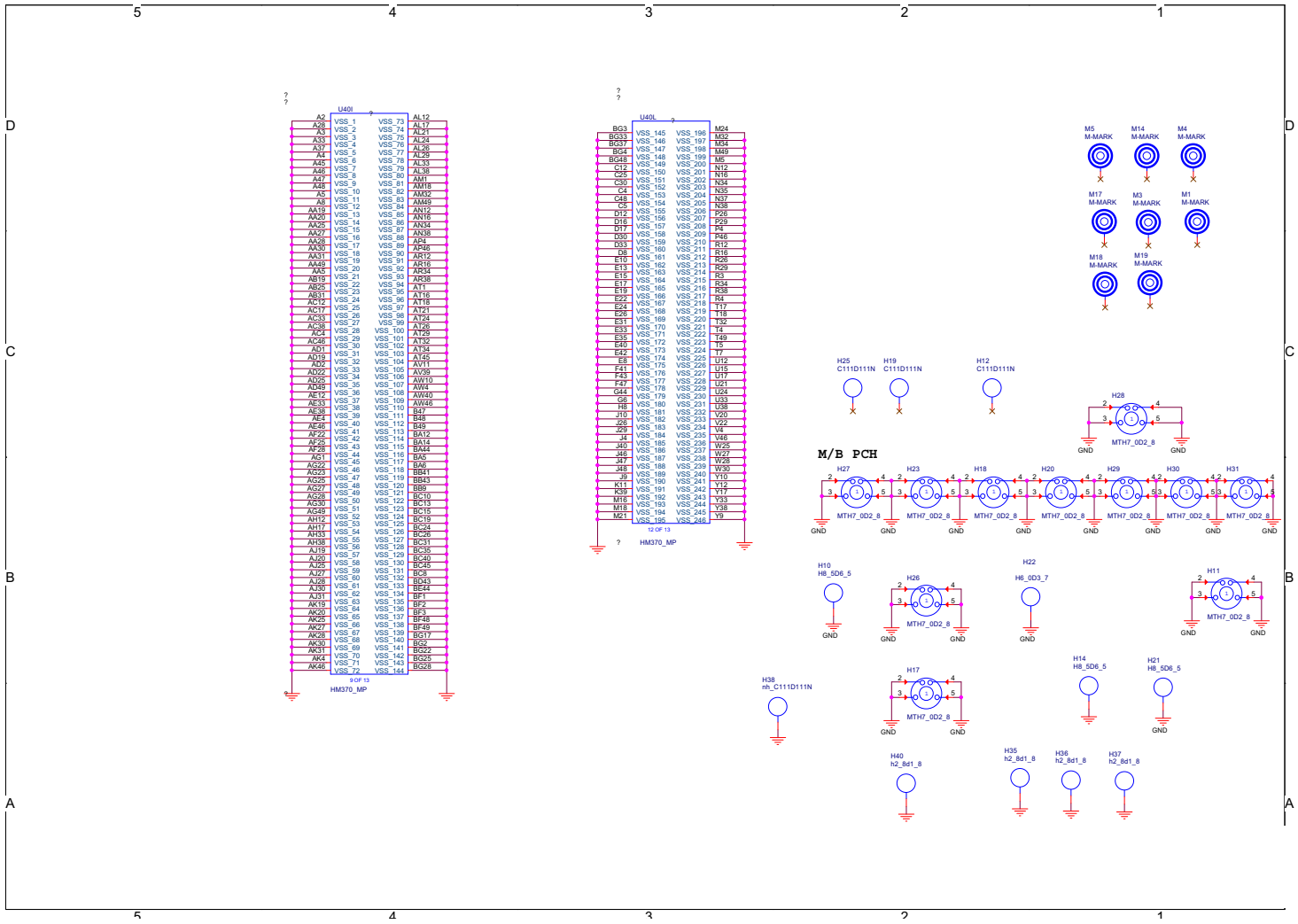
PCH 7/9



PCH 8/9



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PCH 8/9

PCH 9/9

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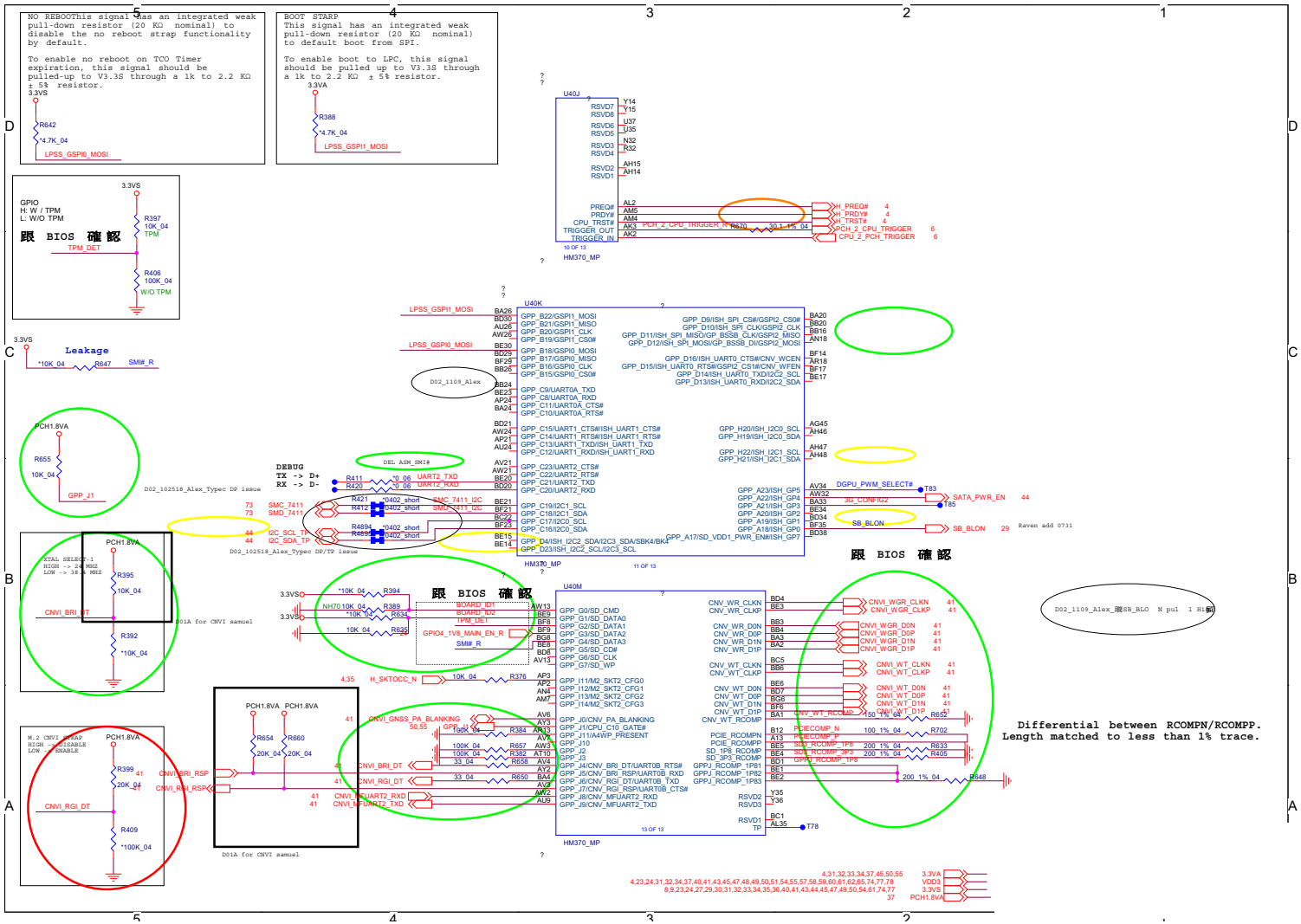
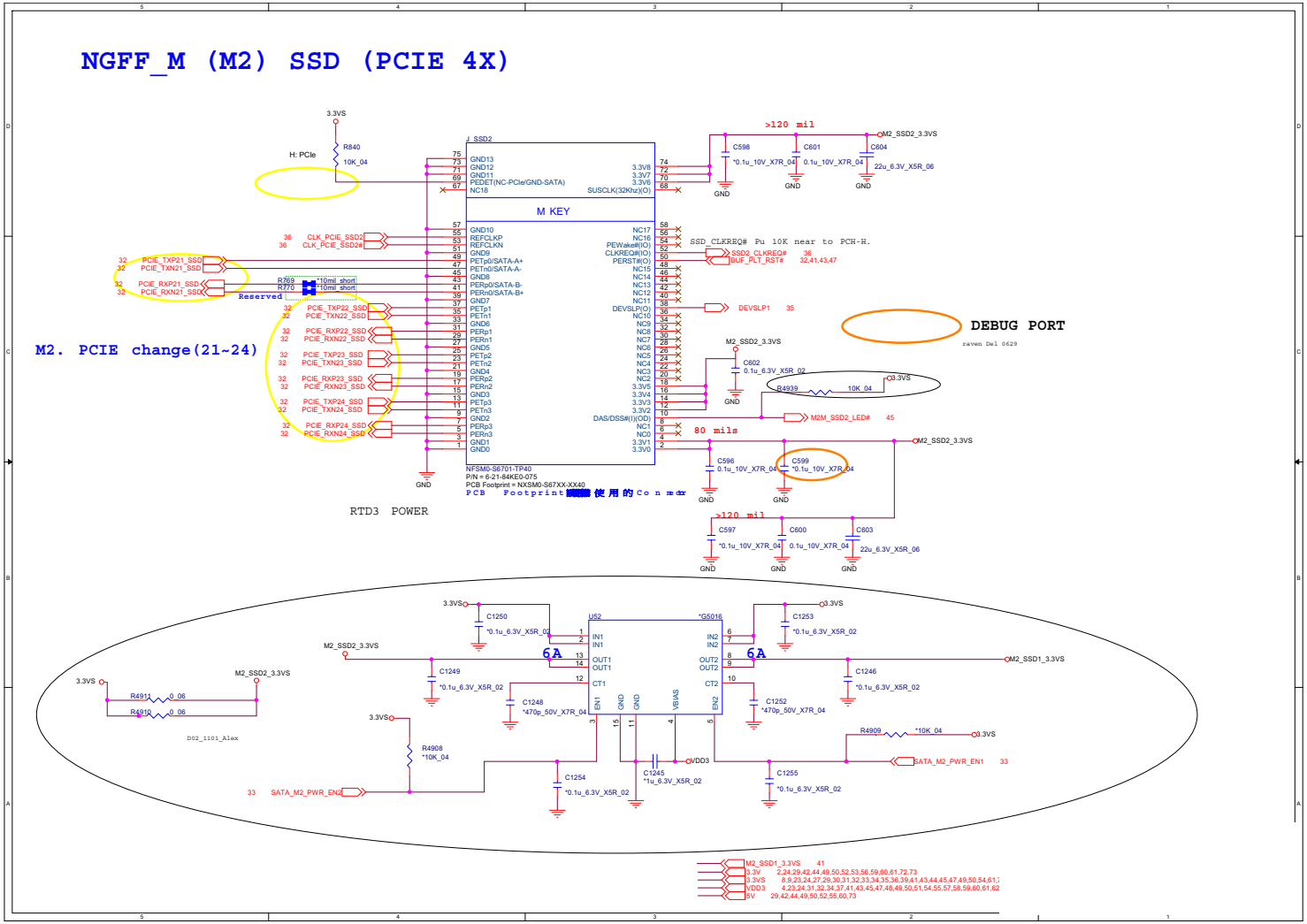
PCH 9/9



M.2 Card



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M.2 Card

M.2 WLAN+BT

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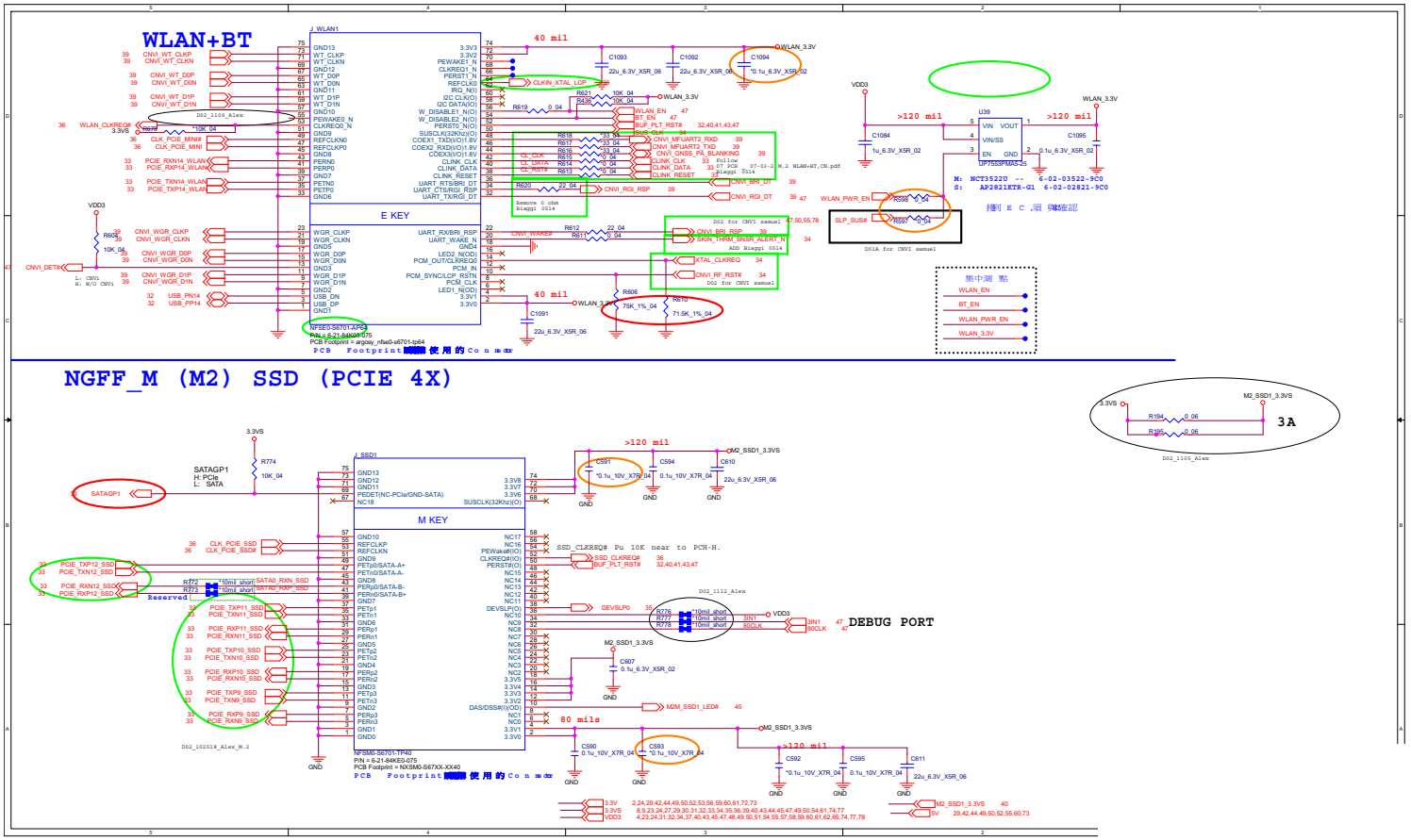
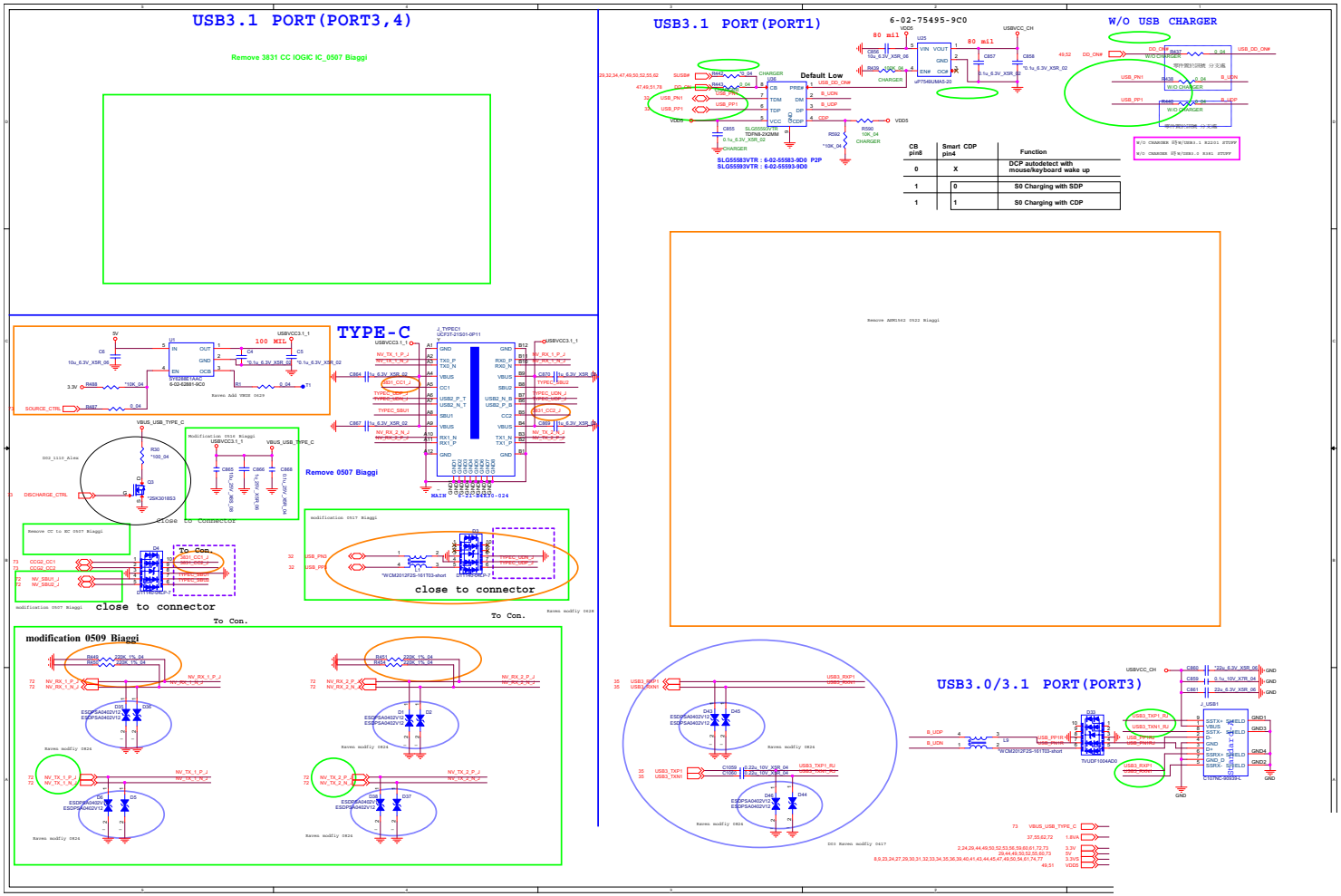
M.2 WLAN+BT



USB Charger



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USB Charger

Card Reader / LAN RTL8411B

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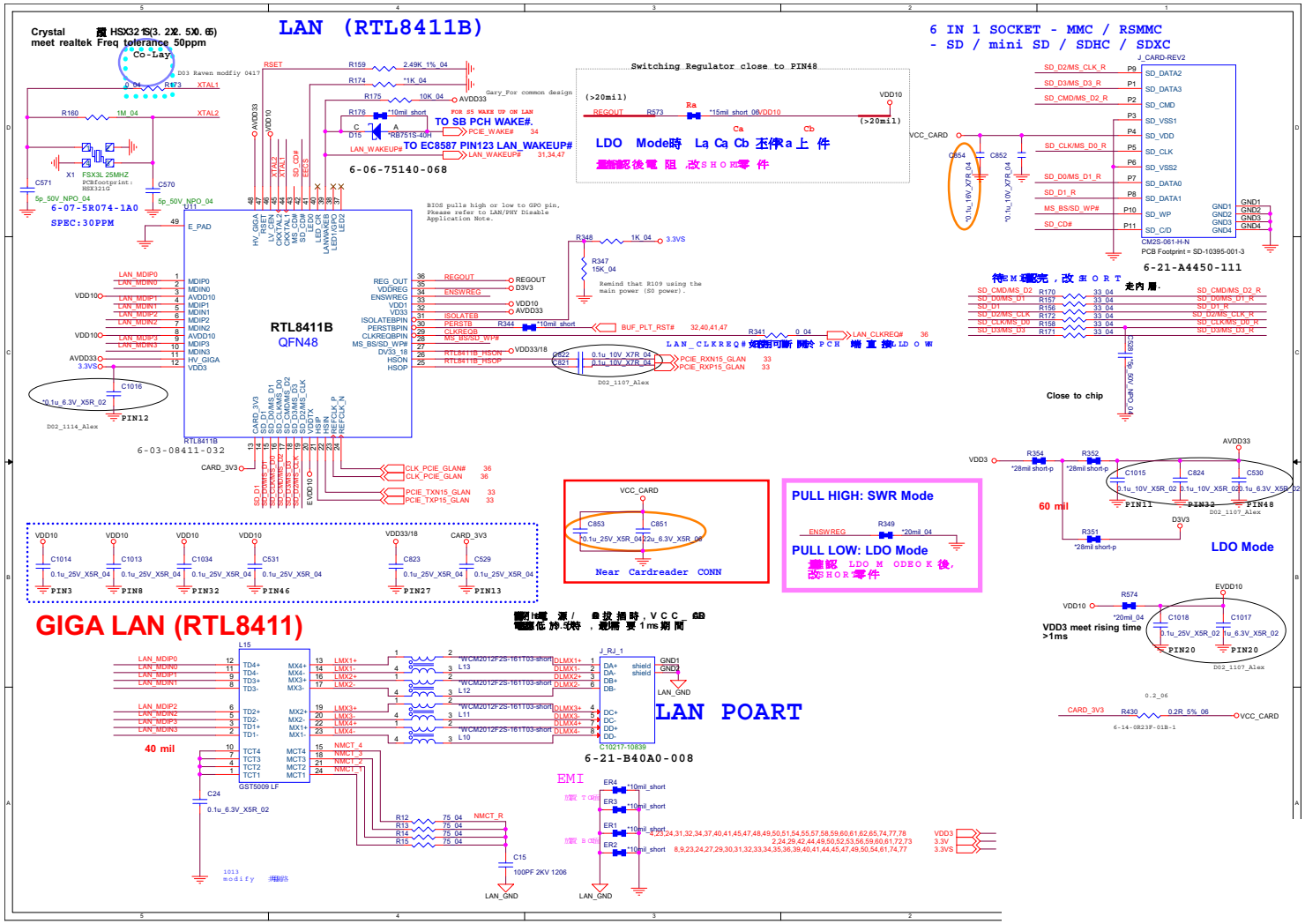
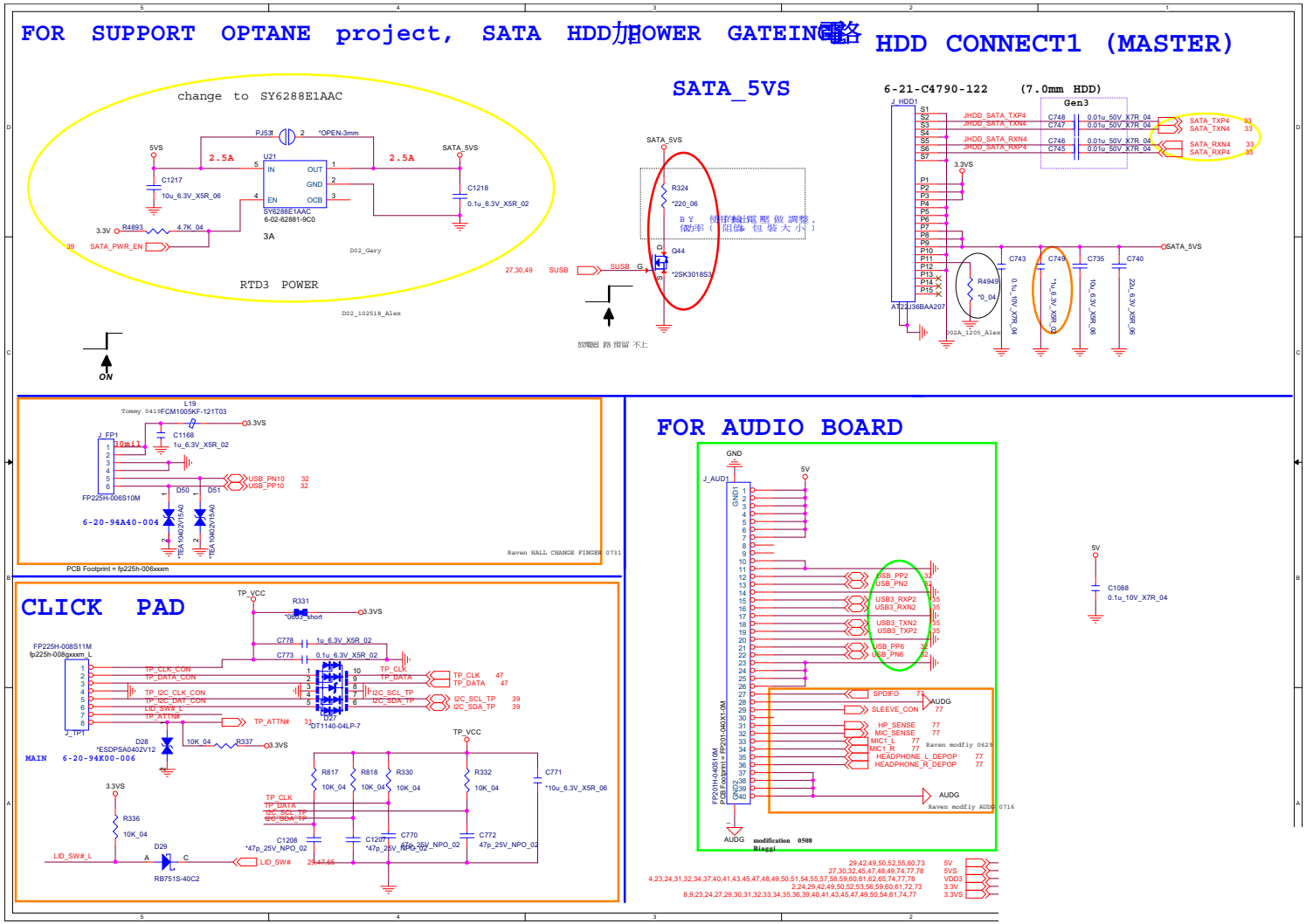
Card Reader /
LAN RTL8411B



HDD, Click TP, Audio, Hall Con.



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HDD, Click TP, Audio, Hall Con.

LED, CCD, TPM, Power SW Con.

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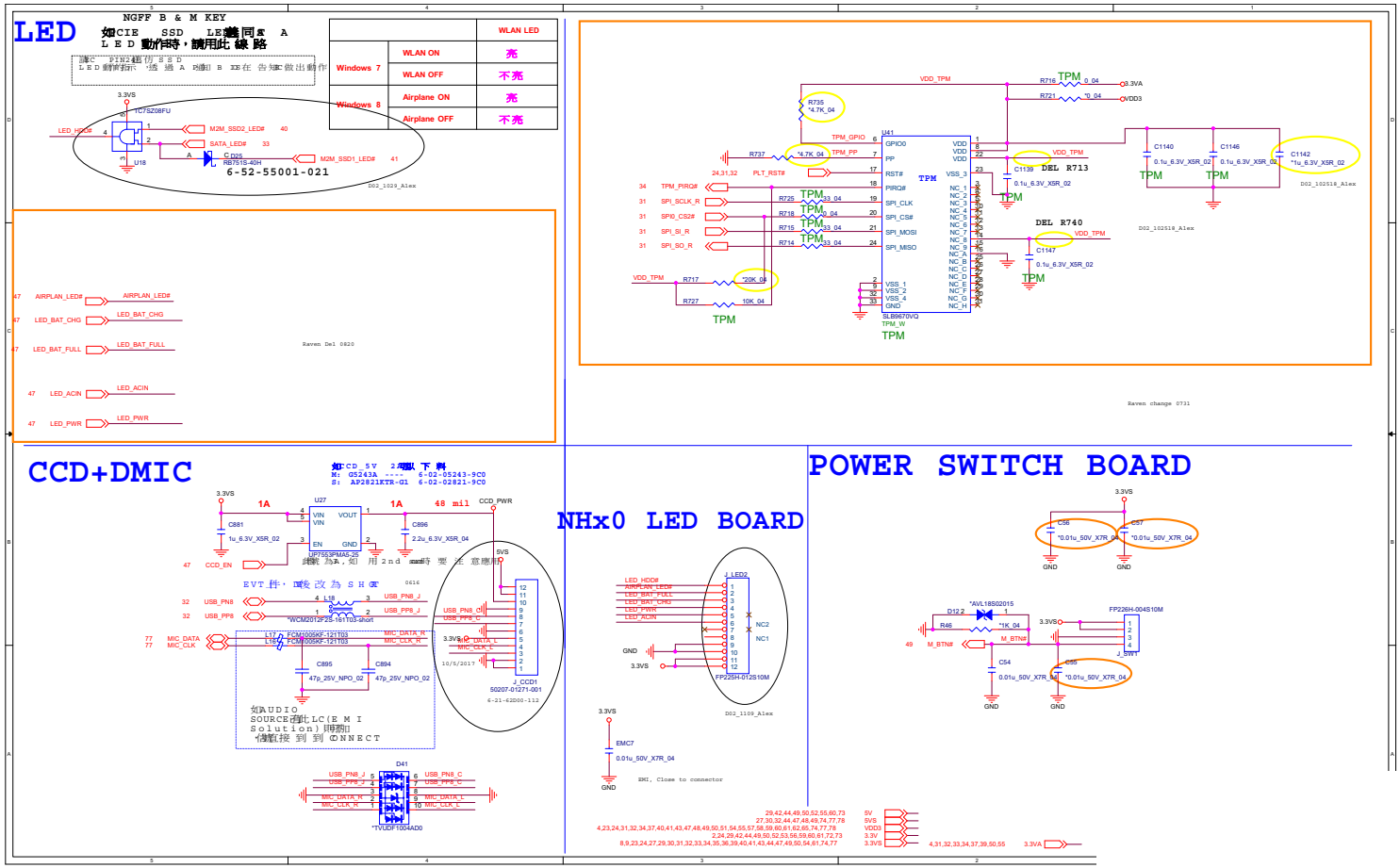
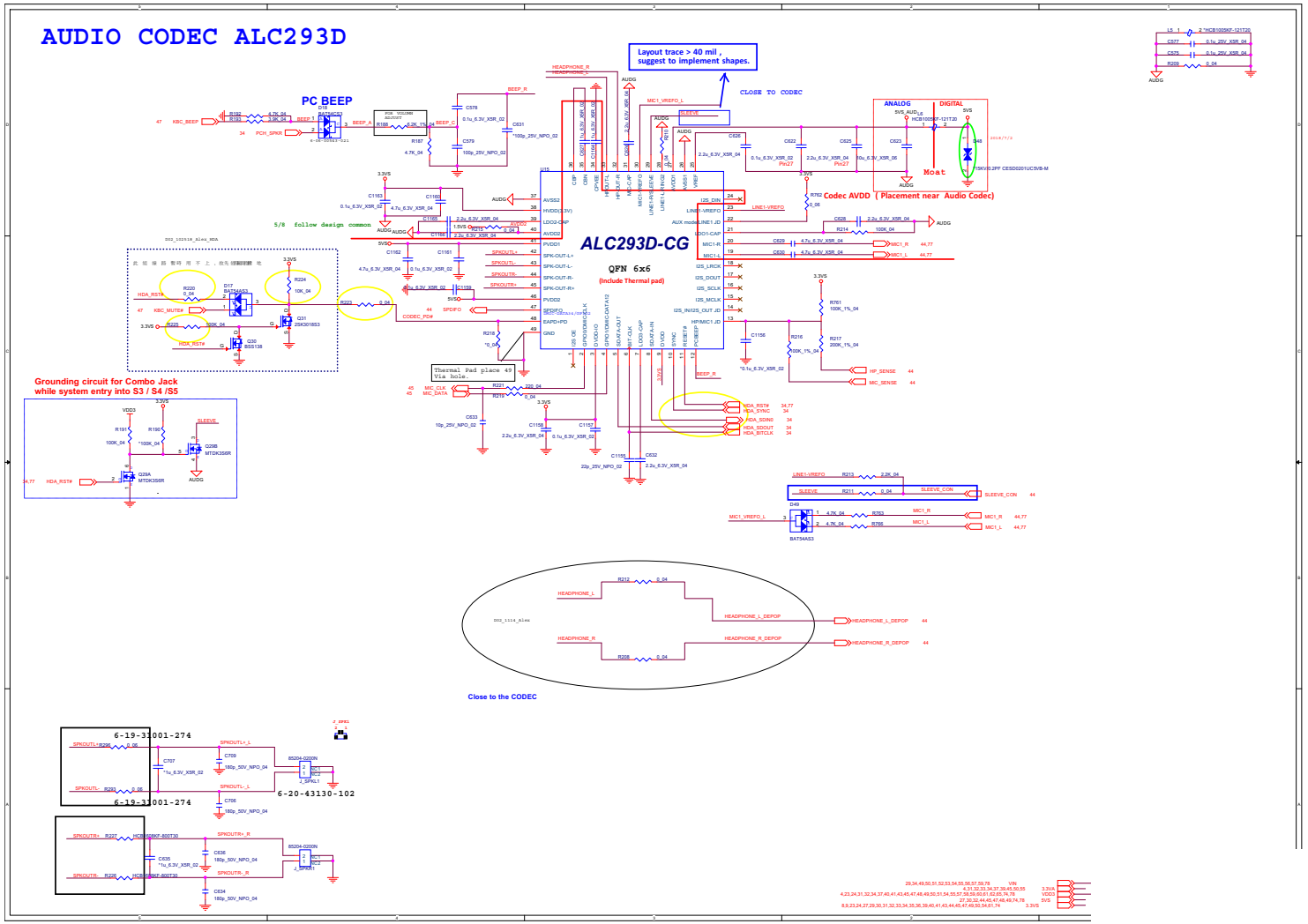
LED, CCD, TPM,
Power SW Con.



Audio Codec



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Audio Codec

KBC-ITE IT8587

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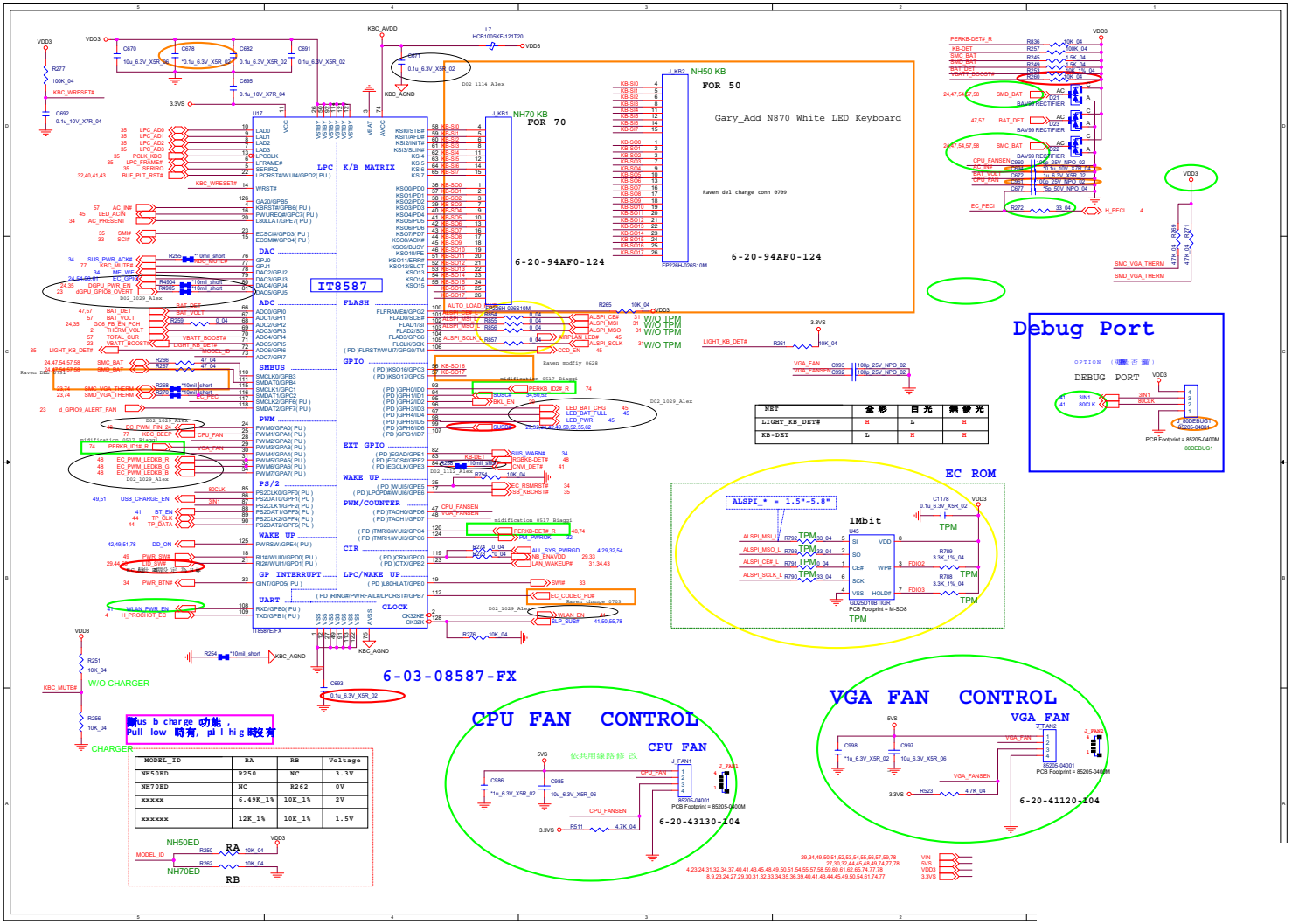
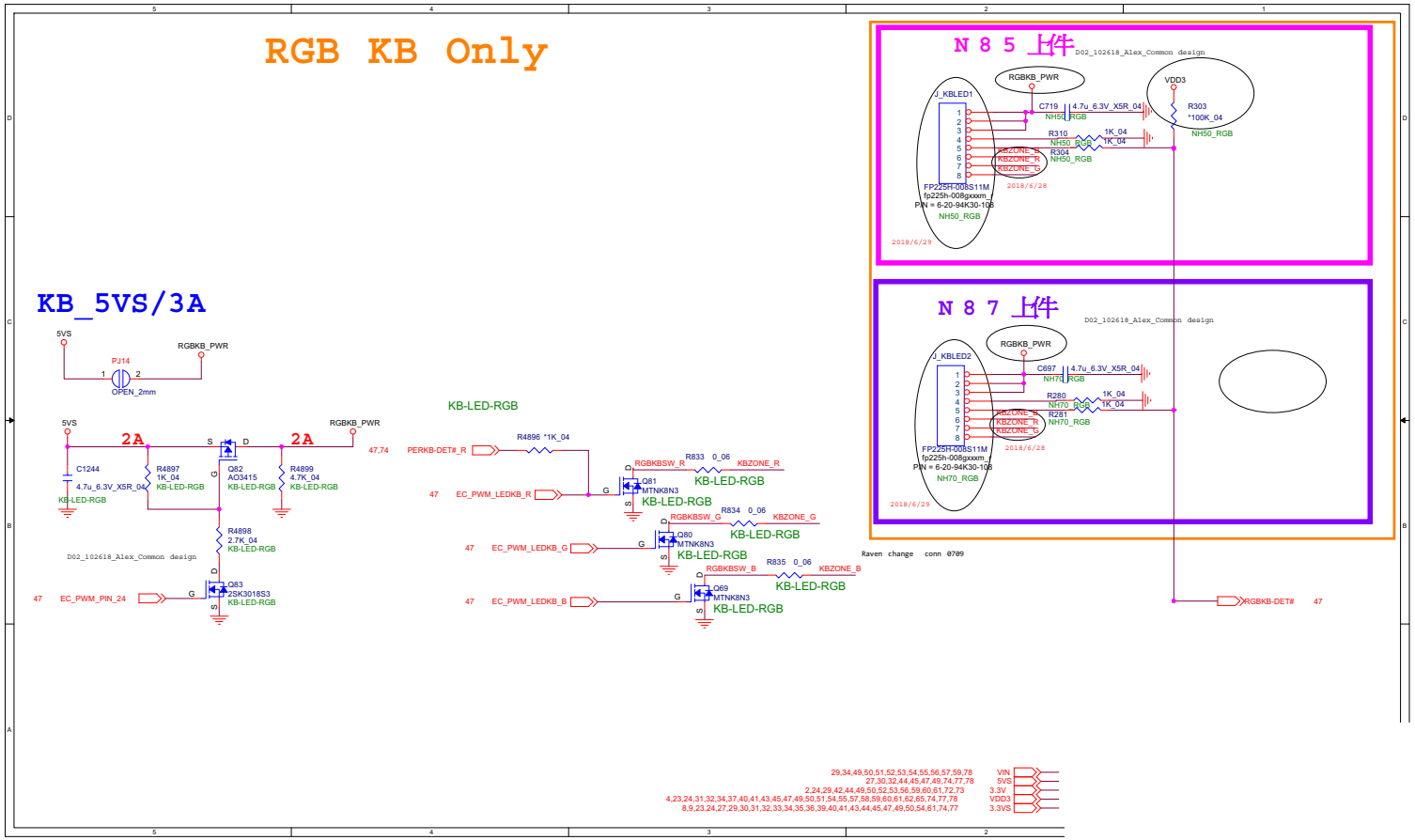
KBC-ITE IT8587



RGB KB Only



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RGB KB Only

5V, 5VS, 3.3V, 3.3VS

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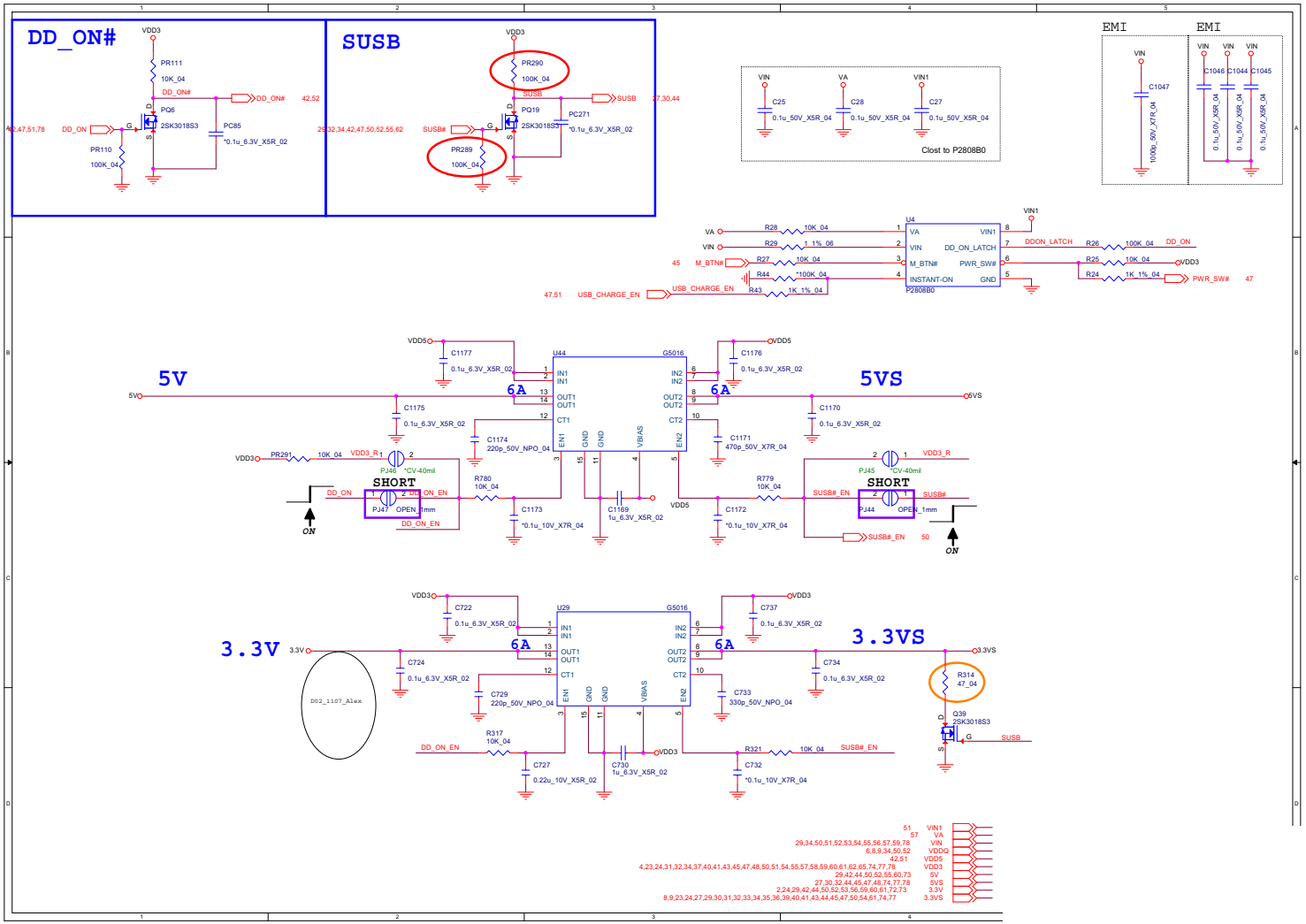
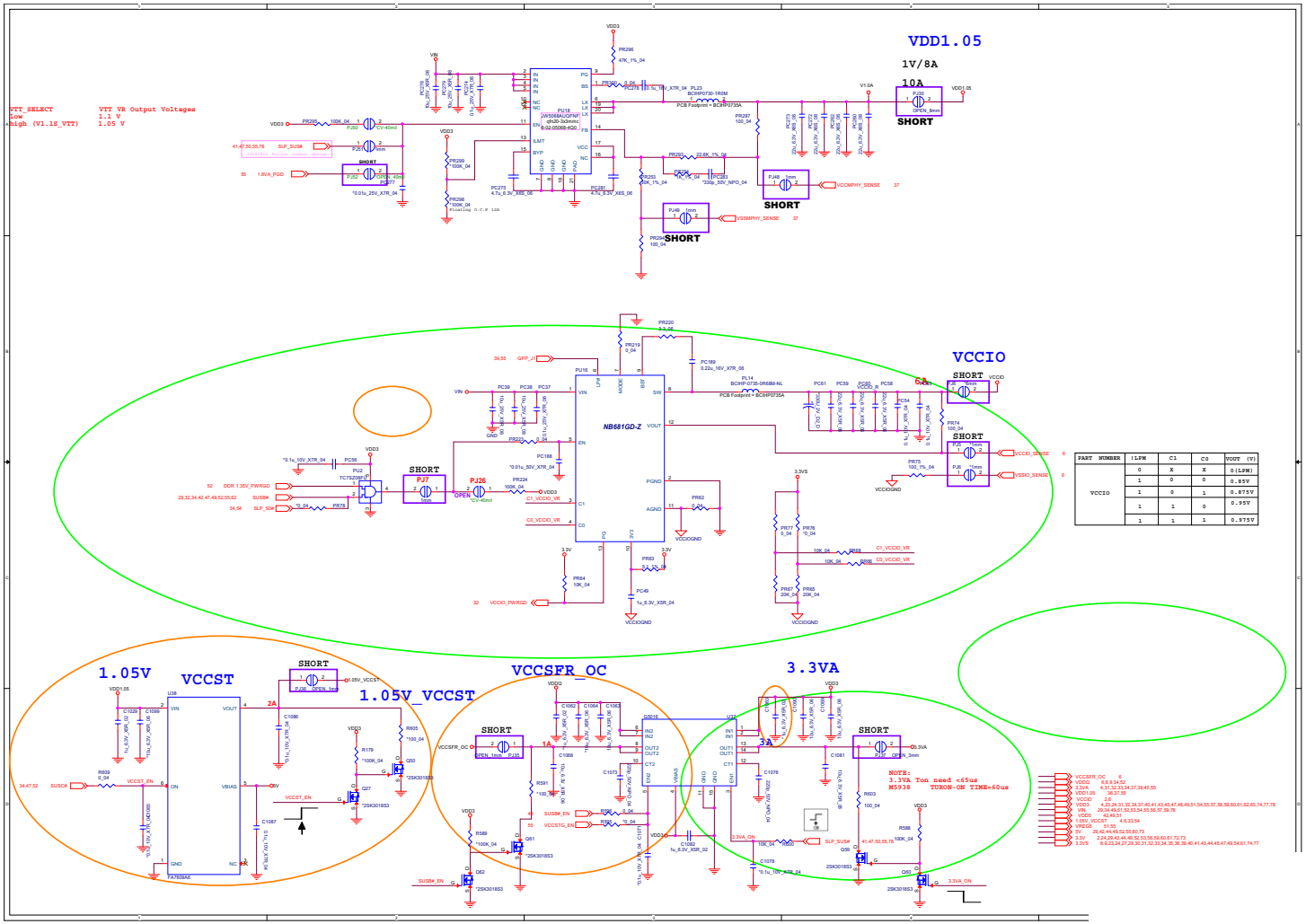
5V, 5VS, 3.3V, 3.3VS



VDD1.05V, VCCIO



PART NUMBER	LPM	C1	C0	VOUT (V)
VCCIO	0	X	X	0 (LPM)
	1	0	0	0.85V
	1	0	1	0.875V
	1	1	0	0.95V
	1	1	1	0.975V

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VDD1.05V, VCCIO

VDD3, VDD5

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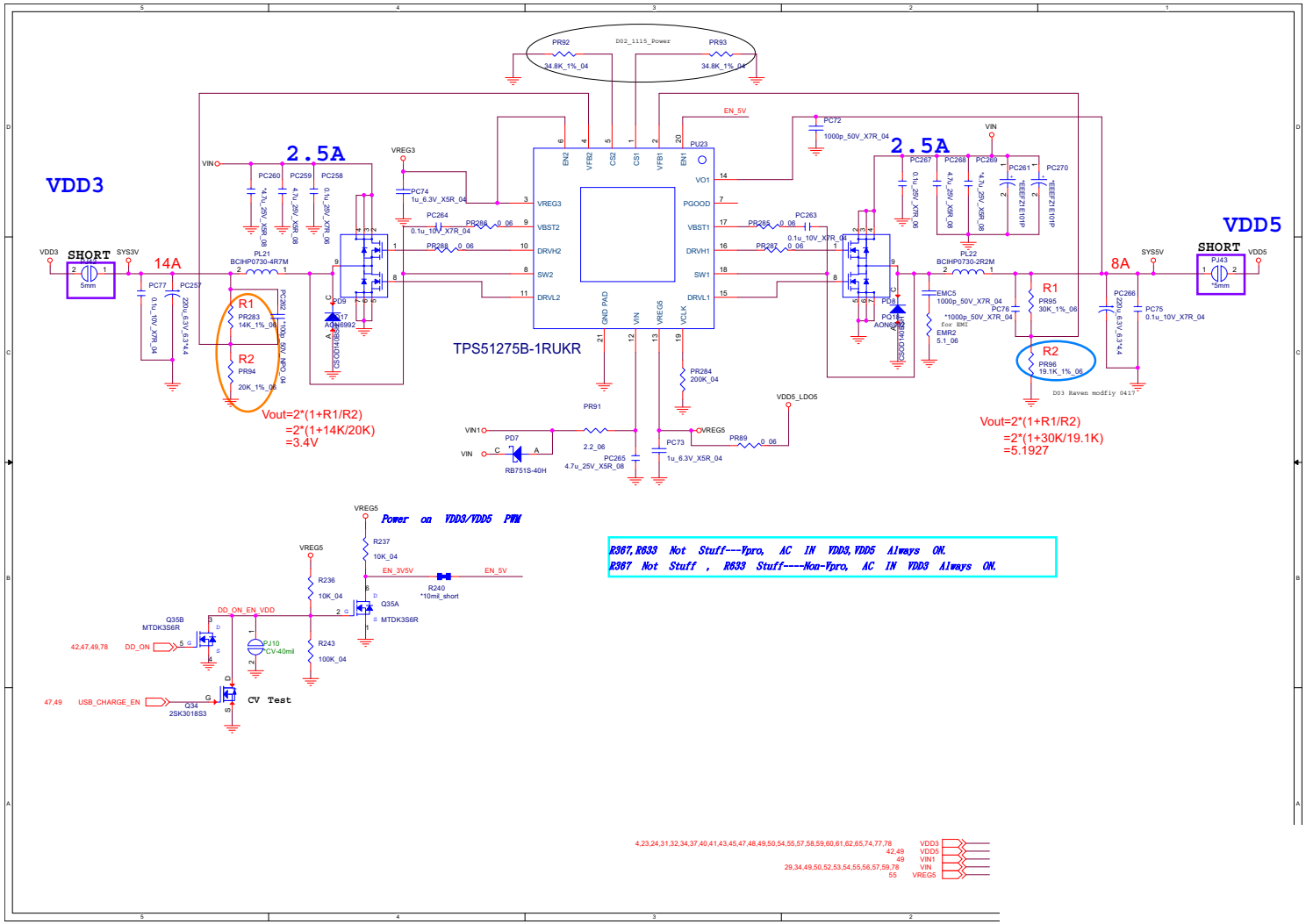
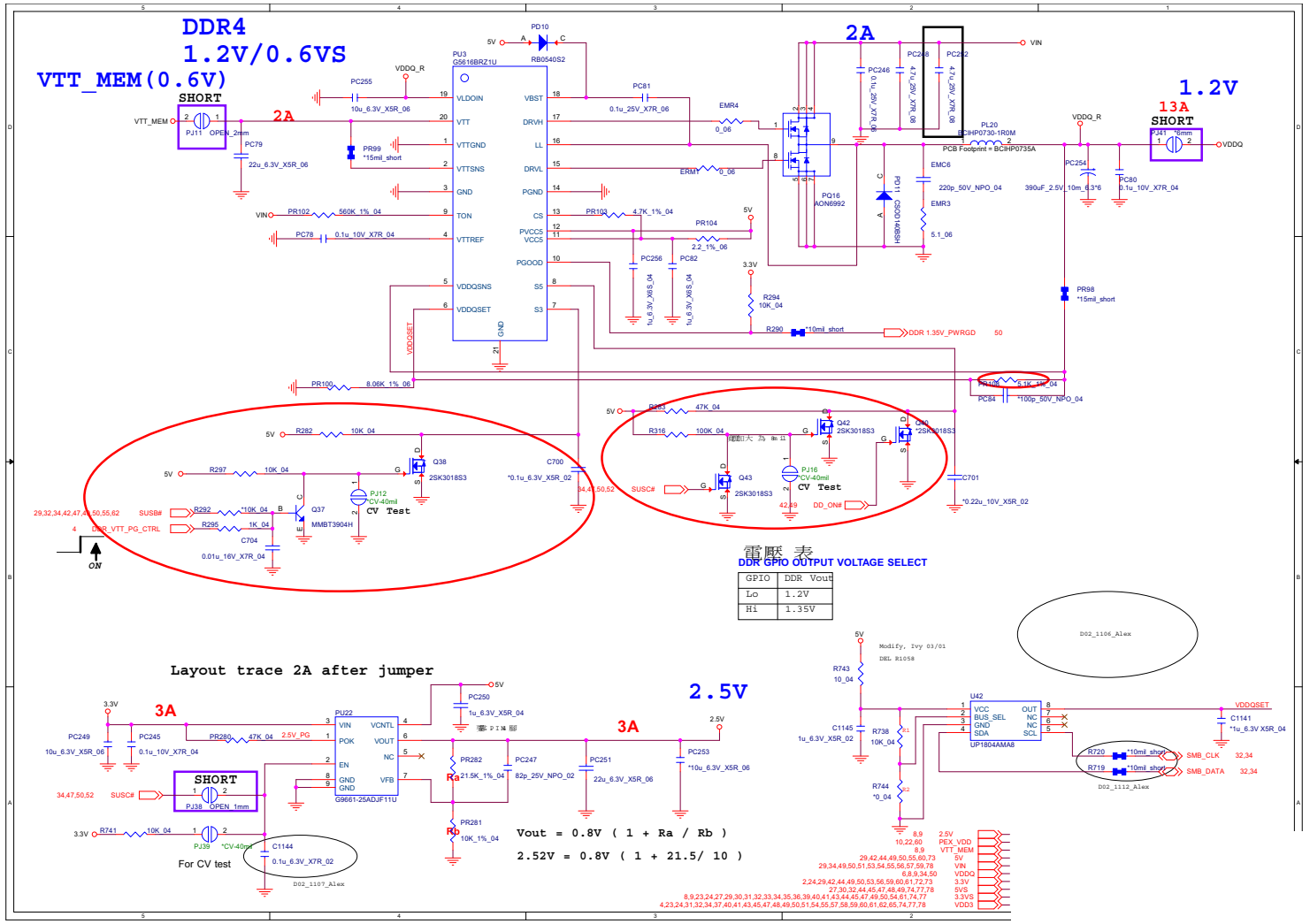
VDD3, VDD5



DDR 1.2V / 0.6VS, 2.5V



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DDR 1.2V / 0.6VS, 2.5V

VCore Output Stage

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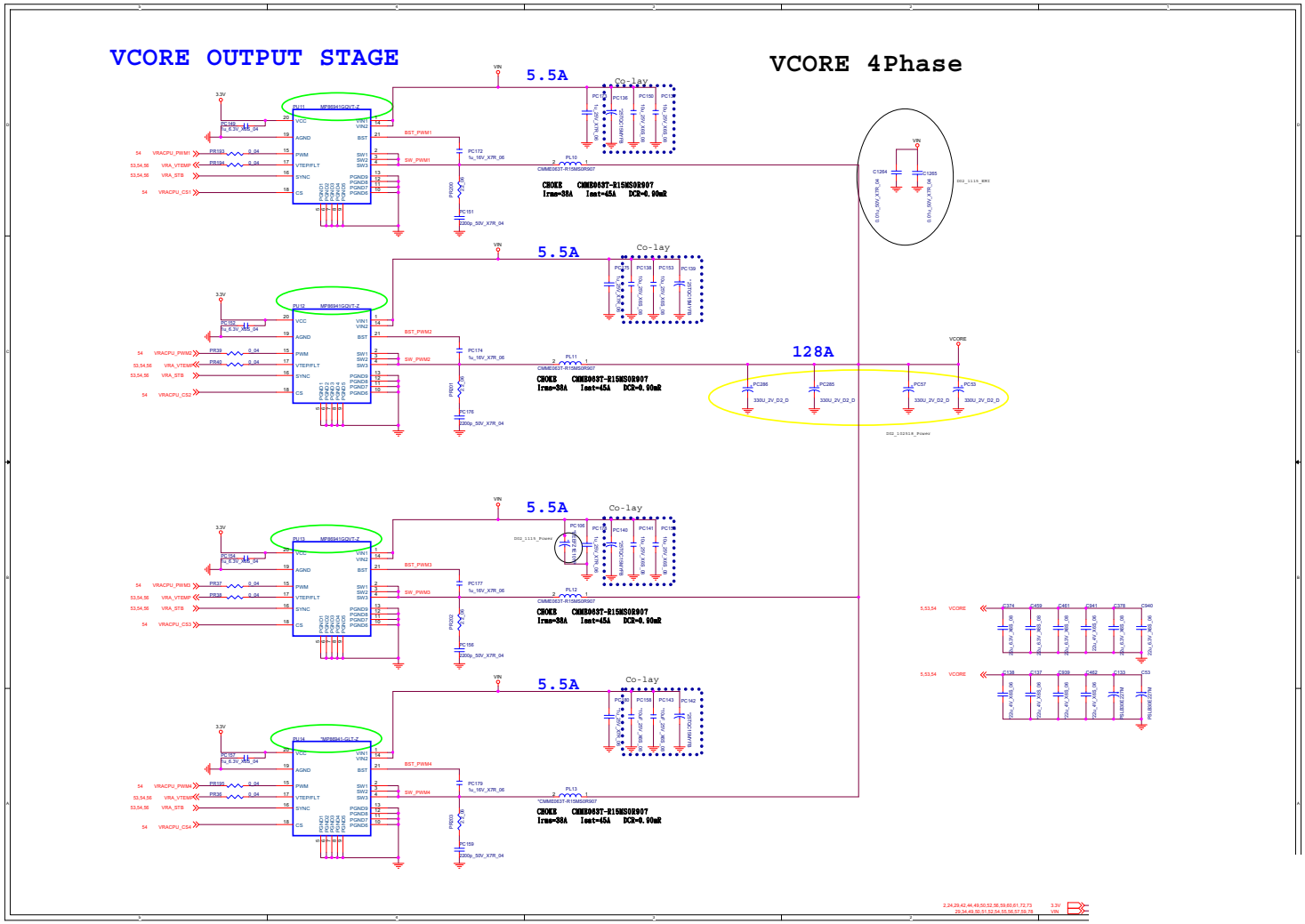
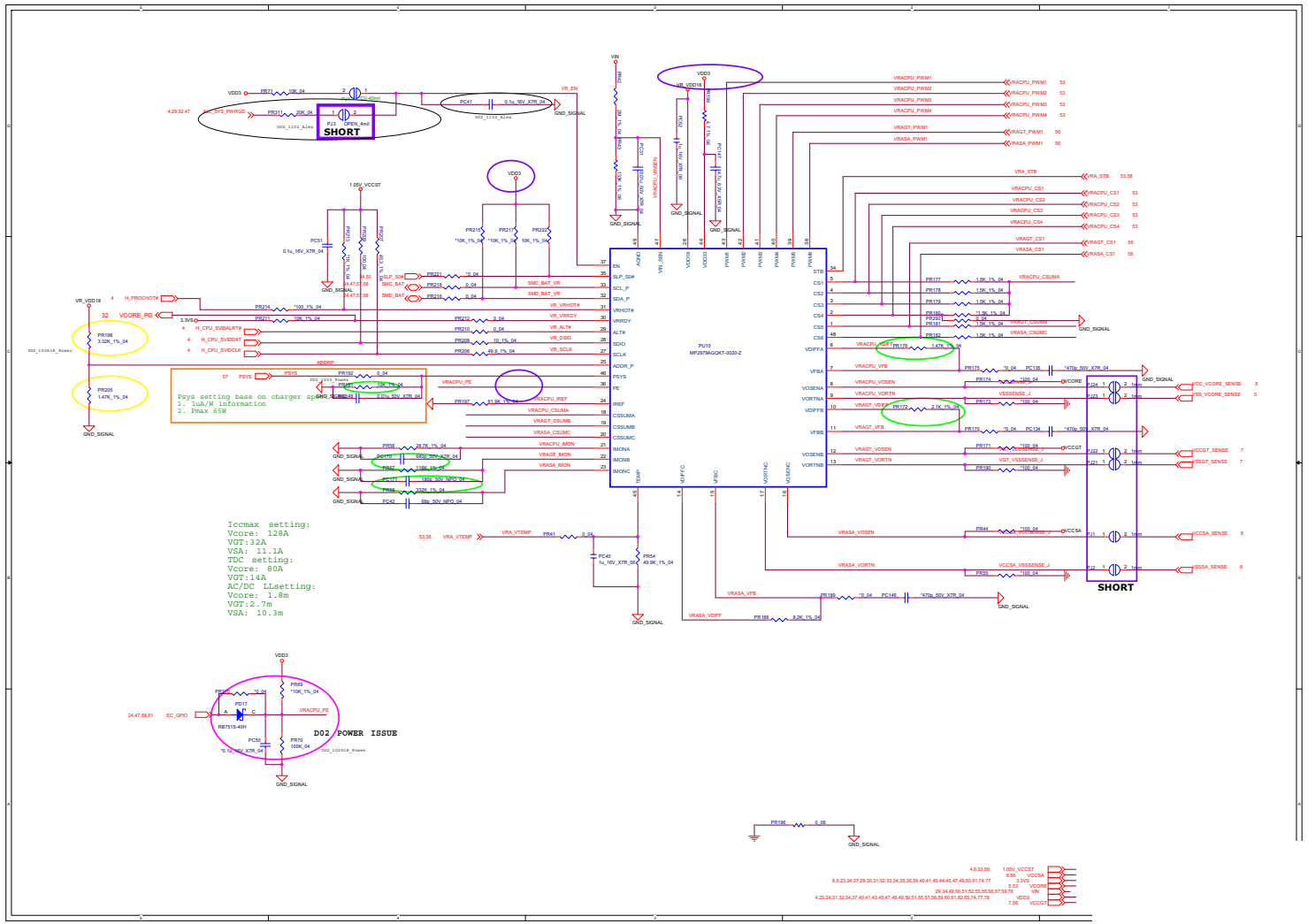
VCore Output Stage



VCC_Core & VCCGT



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VCC_Core & VCCGT

1.05DX_VCCSTG/VCCSFR_OC

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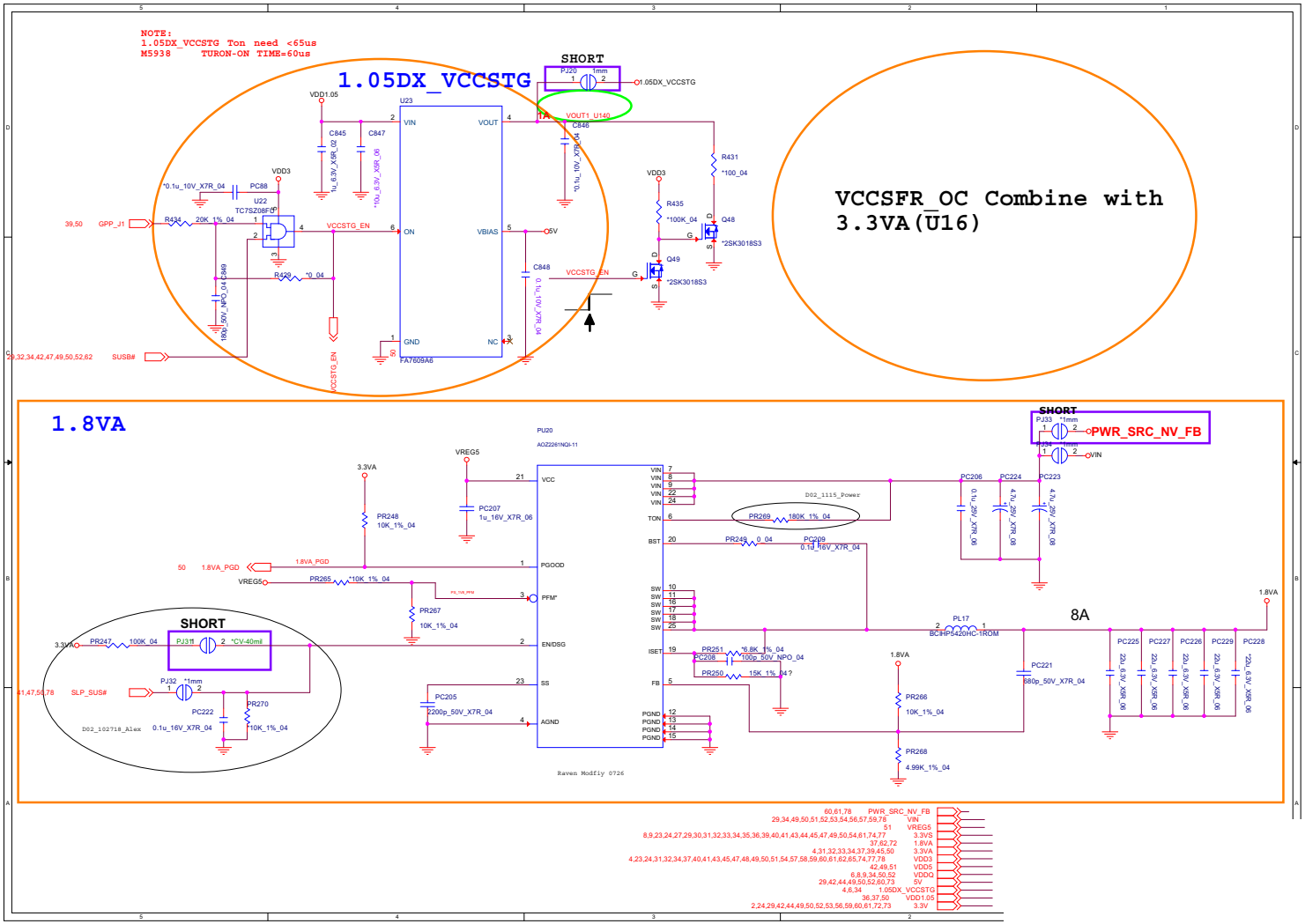
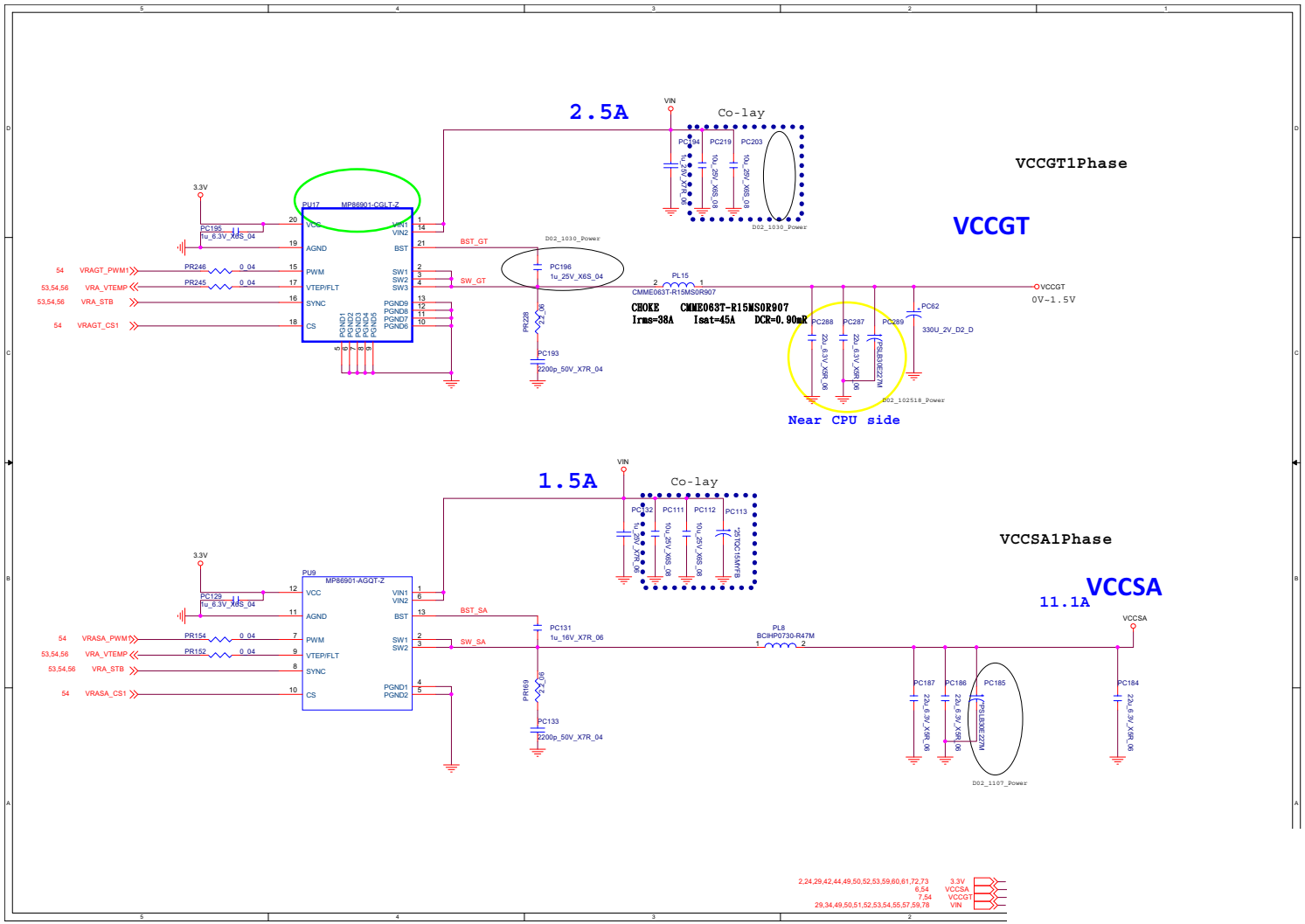
1.05DX_VCCSTG/
VCCSFR_OC



VCCGT & VCCSA Output Stage



Sheet 56 of 73
VCCGT & VCCSA
Output Stage

AC_In, Charger

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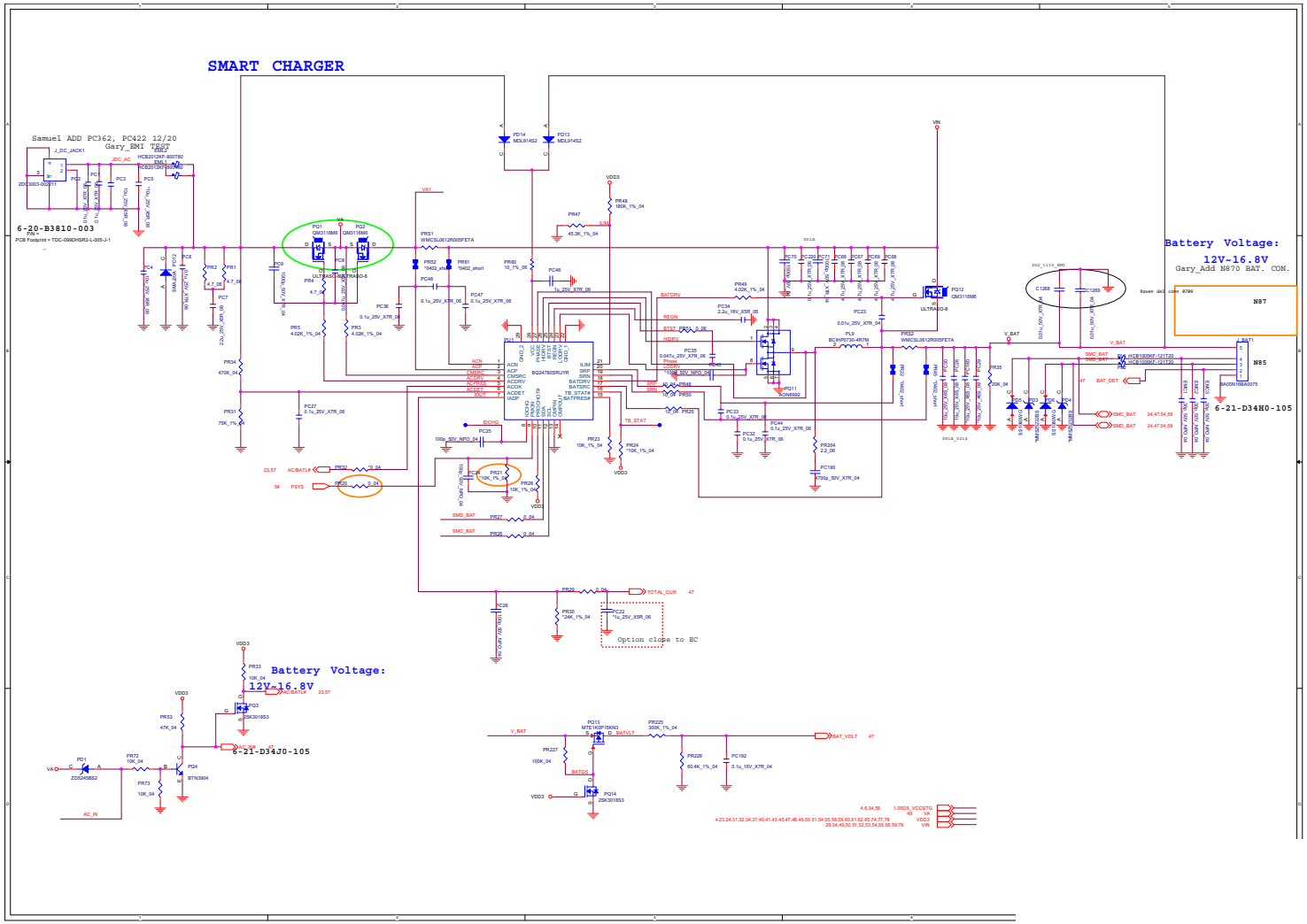
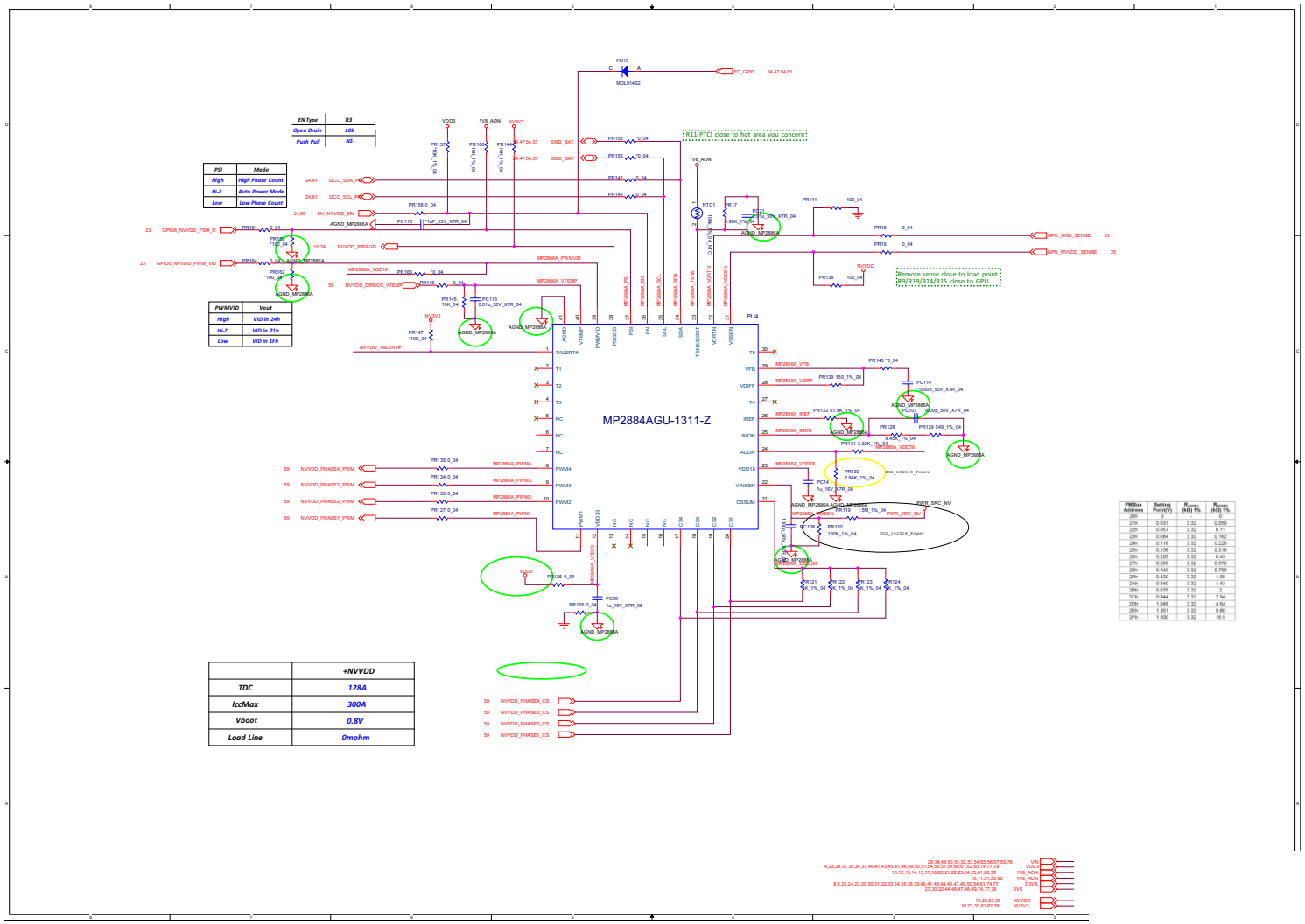
AC_In, Charger



NVVDD1



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NVVDD1

NVVDD2

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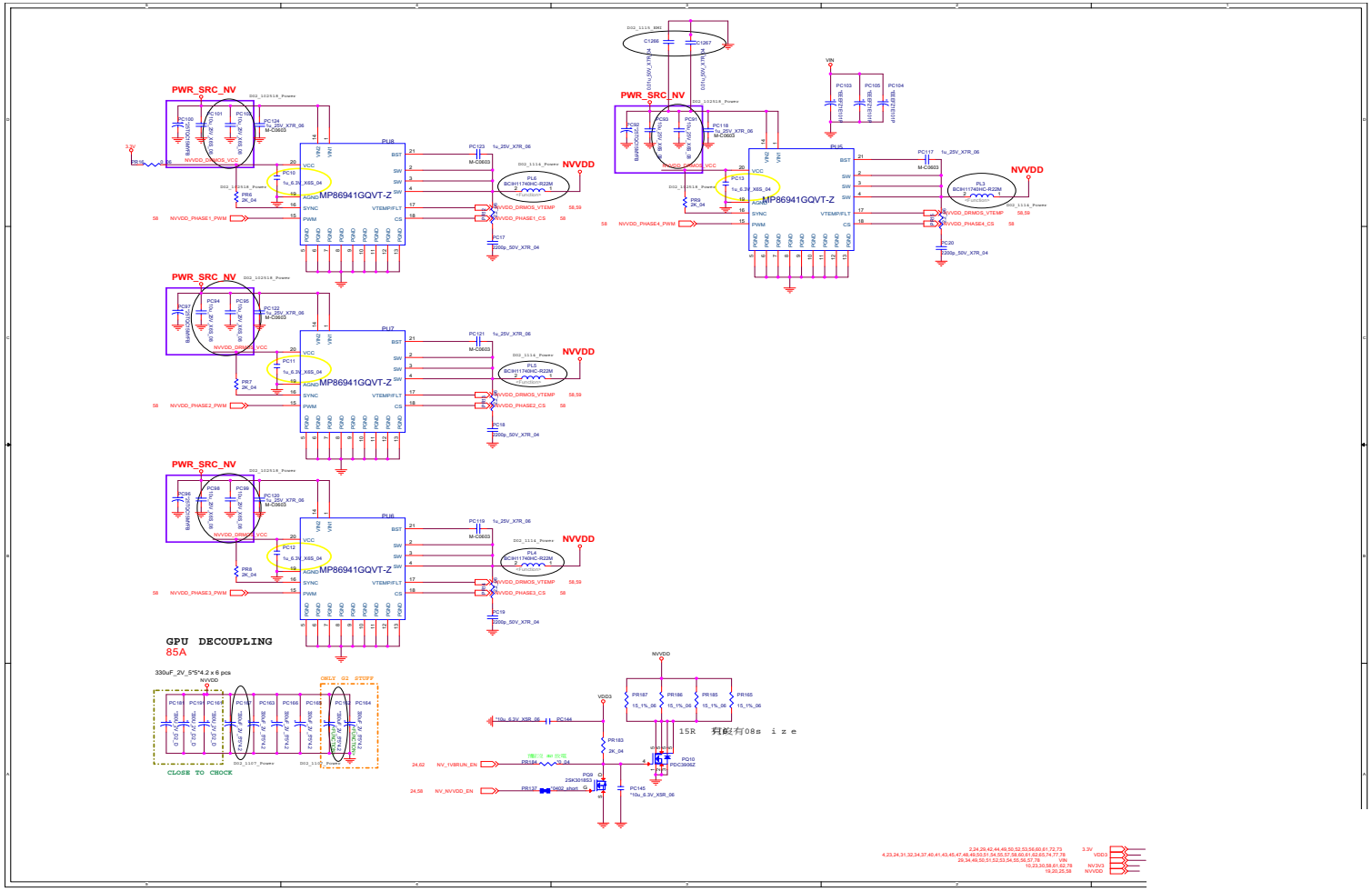
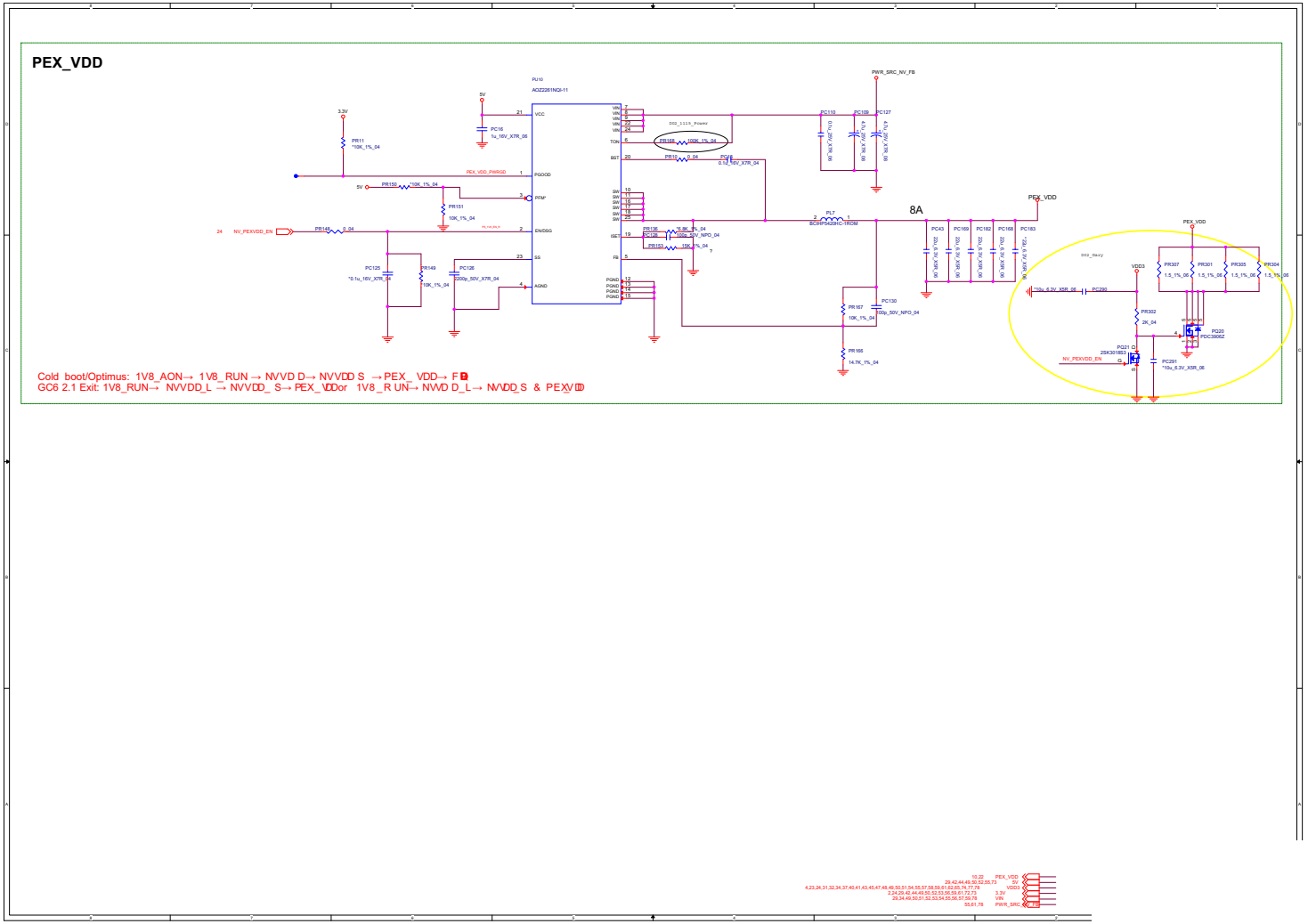
NVVDD2



PEX_VDD



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PEX_VDD

FBVDDQ

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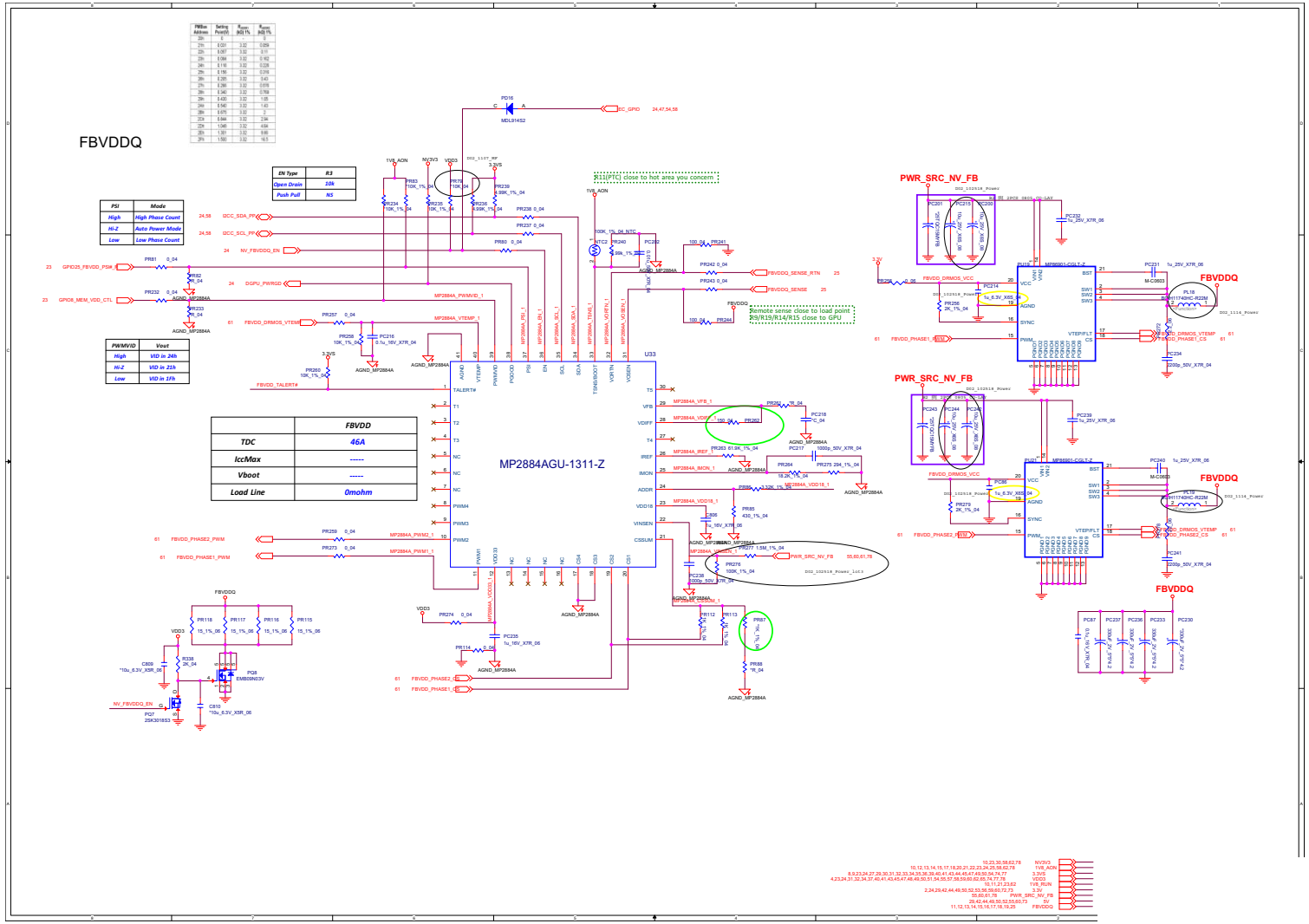
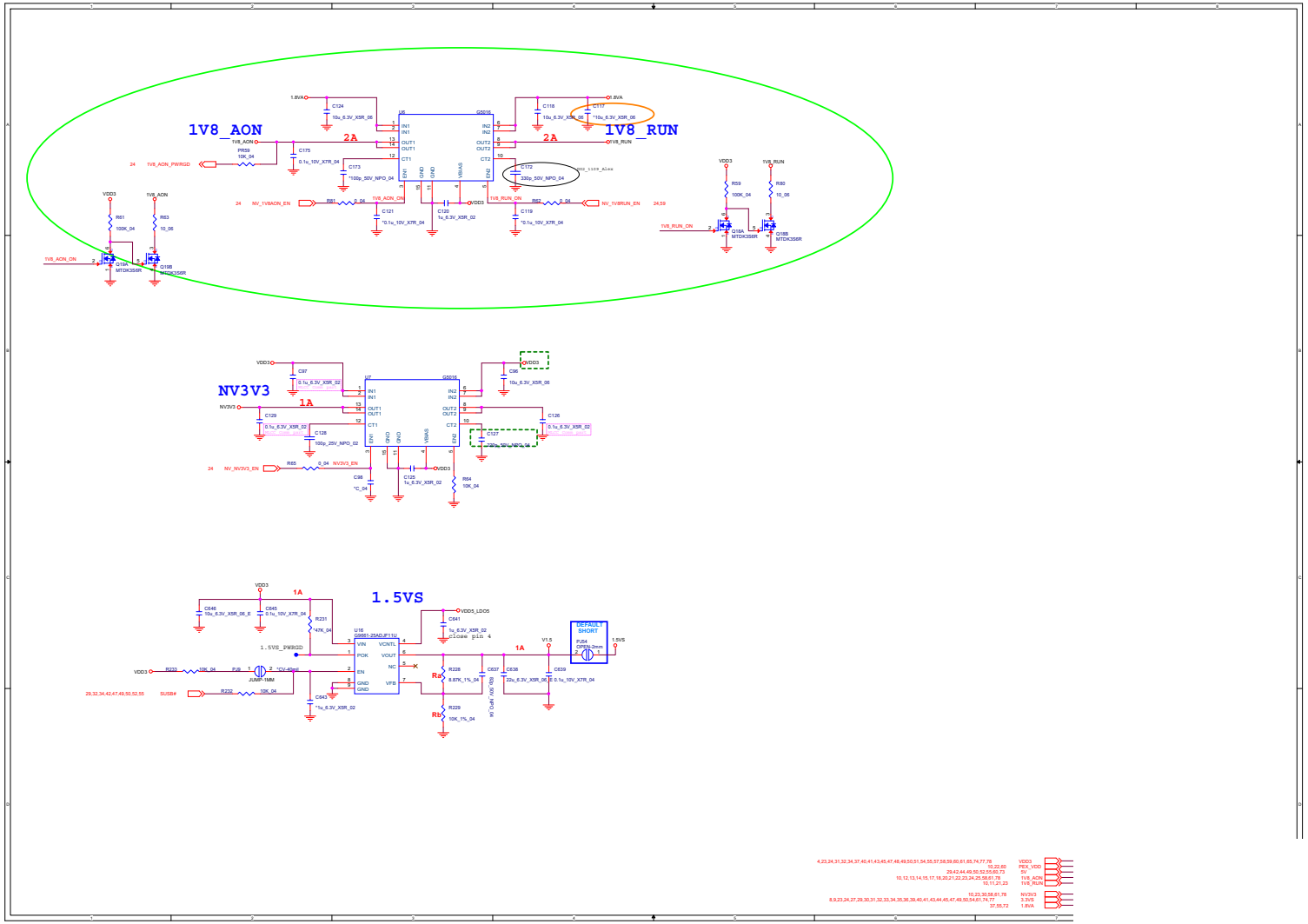
FBVDDQ



1V8_RUN/AON



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1V8_RUN/AON

Audio Board

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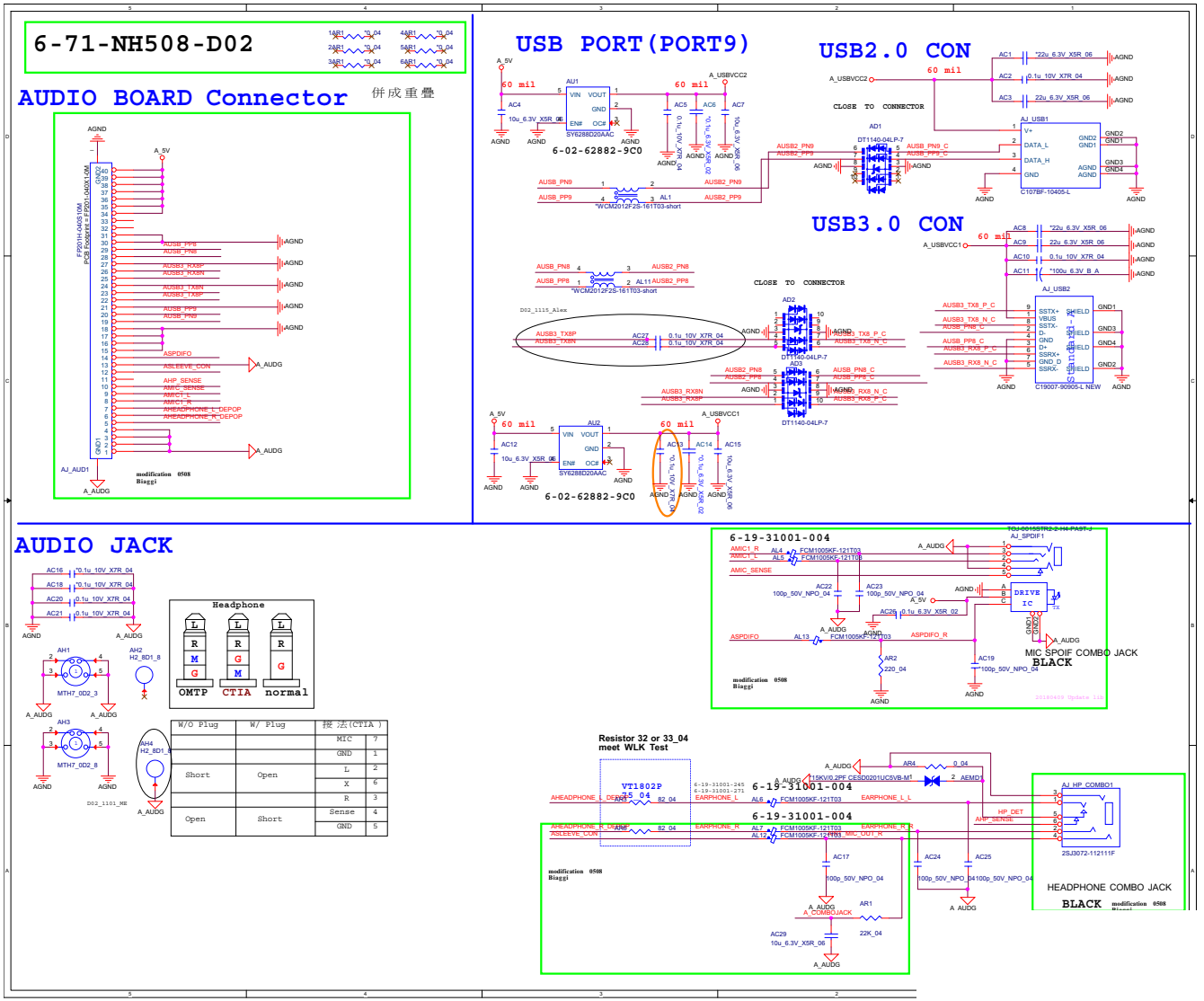
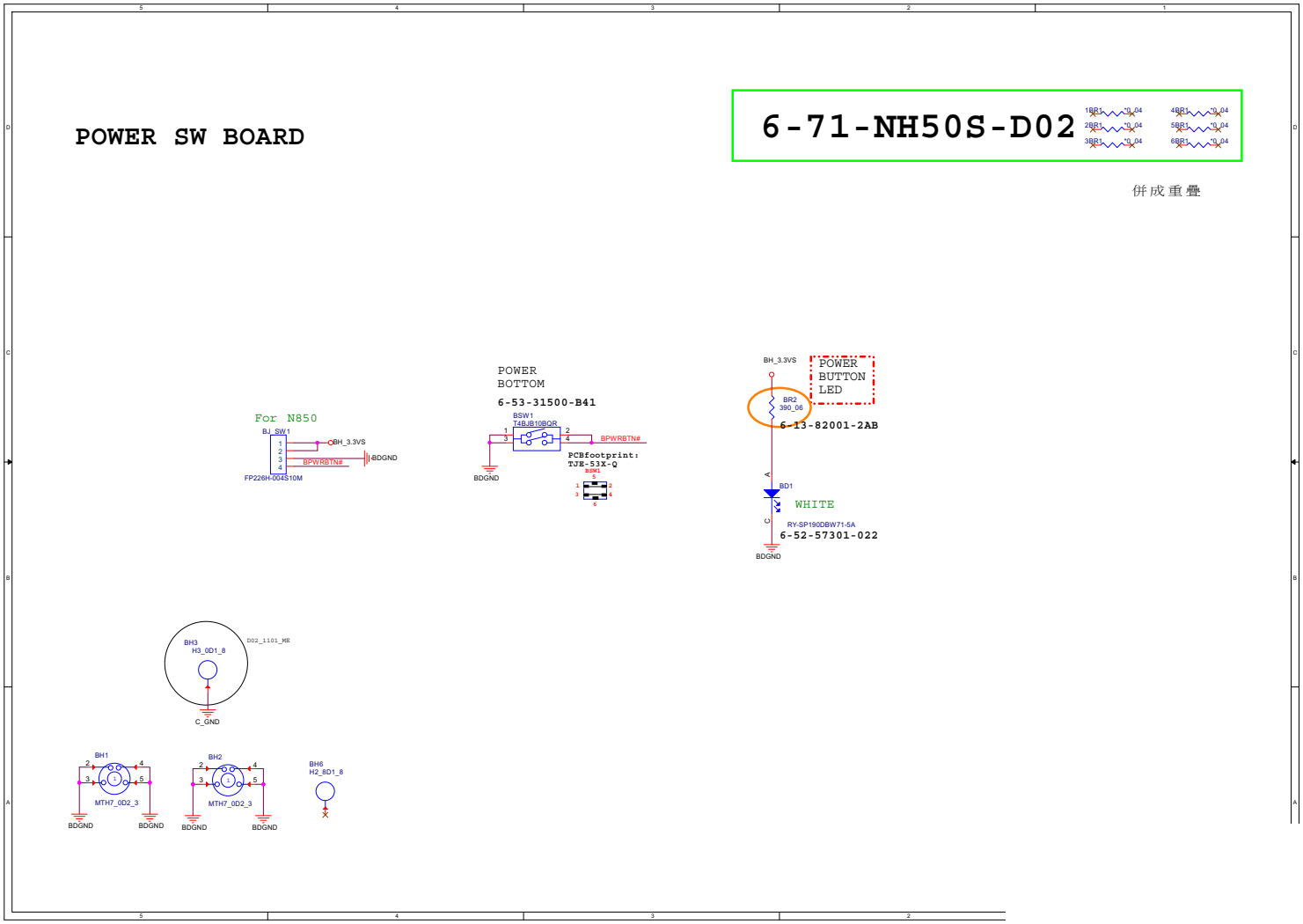
Audio Board



NH50 PW Board



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NH50 PW Board

Hall Sensor Board

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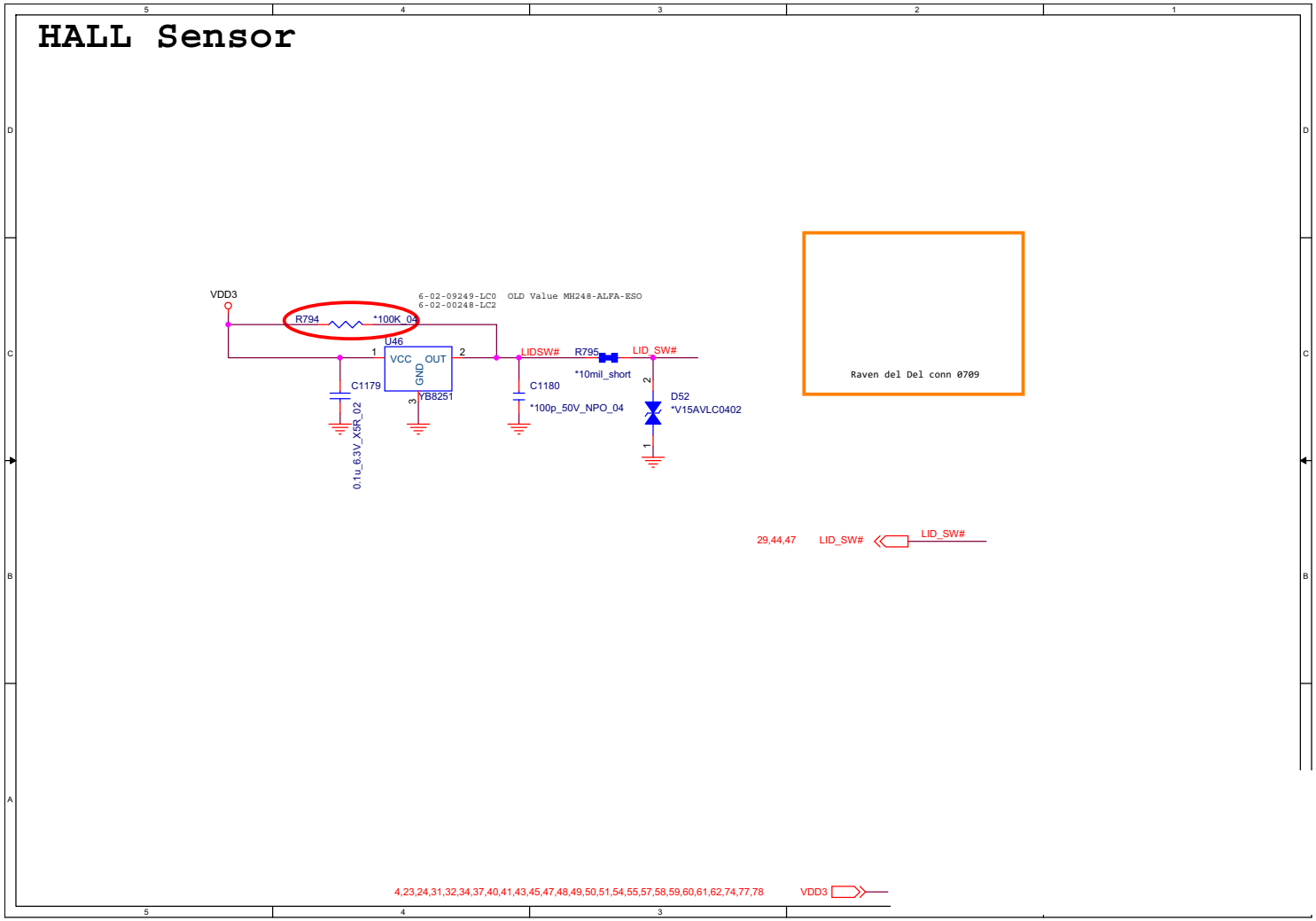
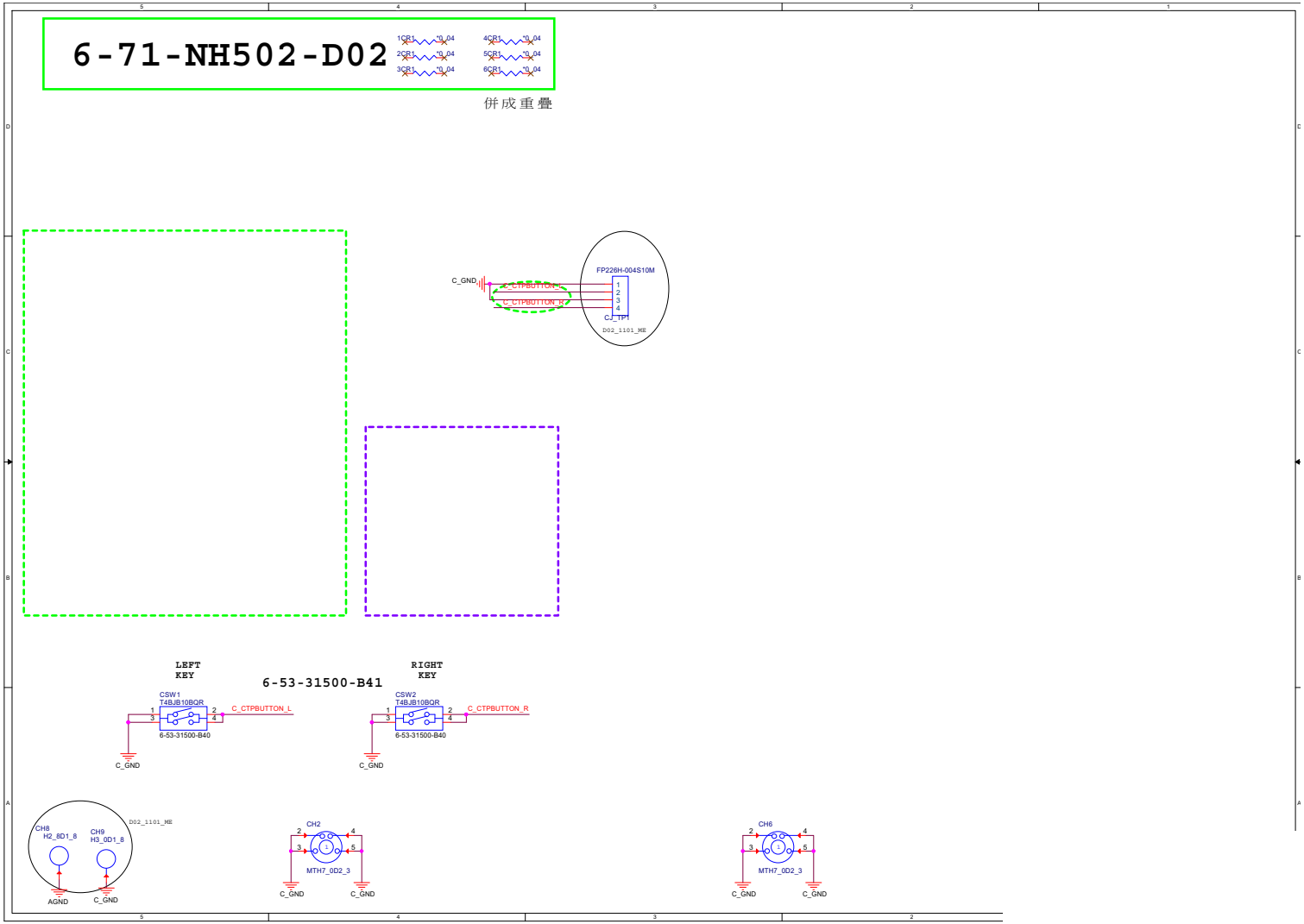
Hall Sensor Board



Click Board



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Click Board

LED Board

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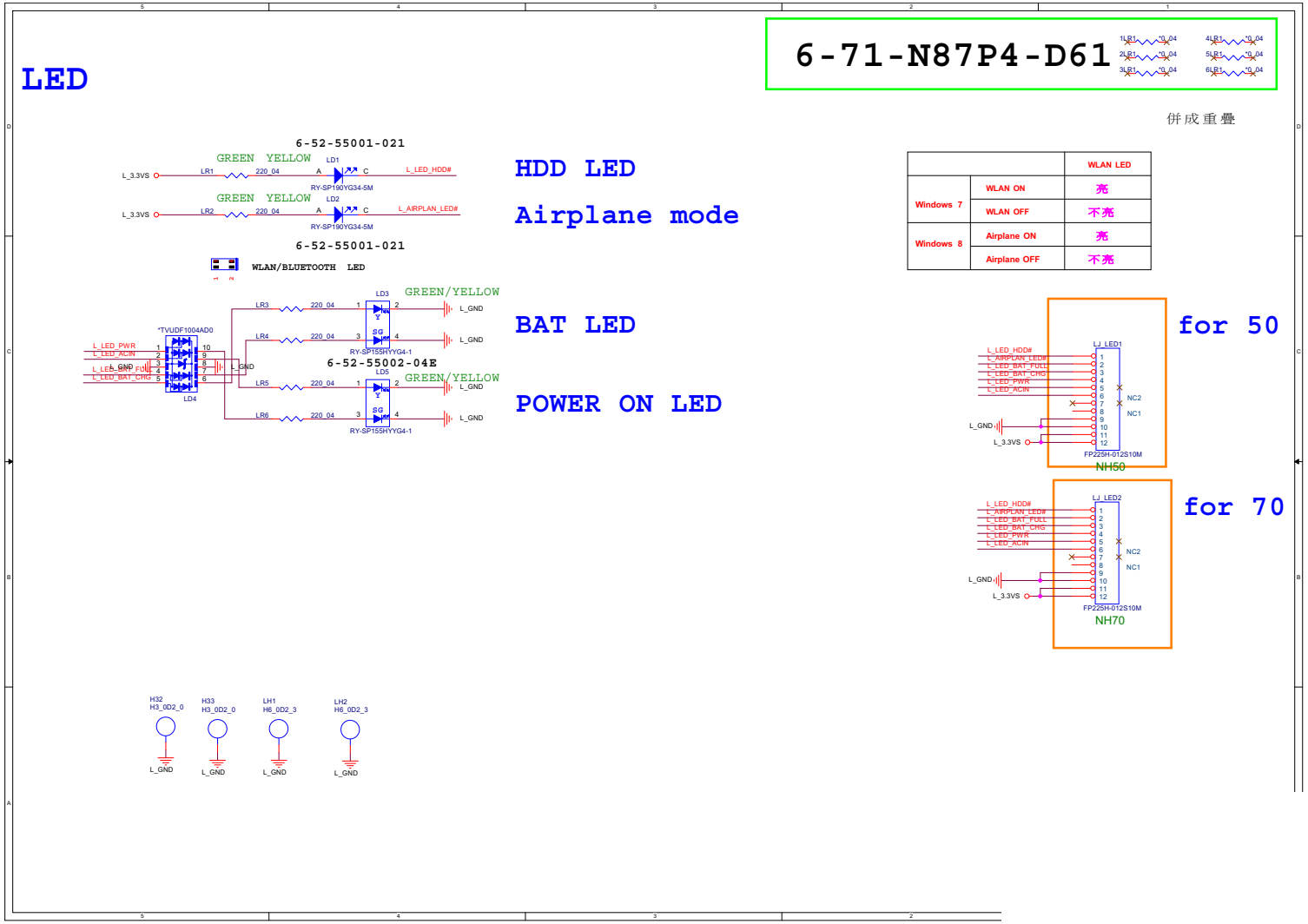
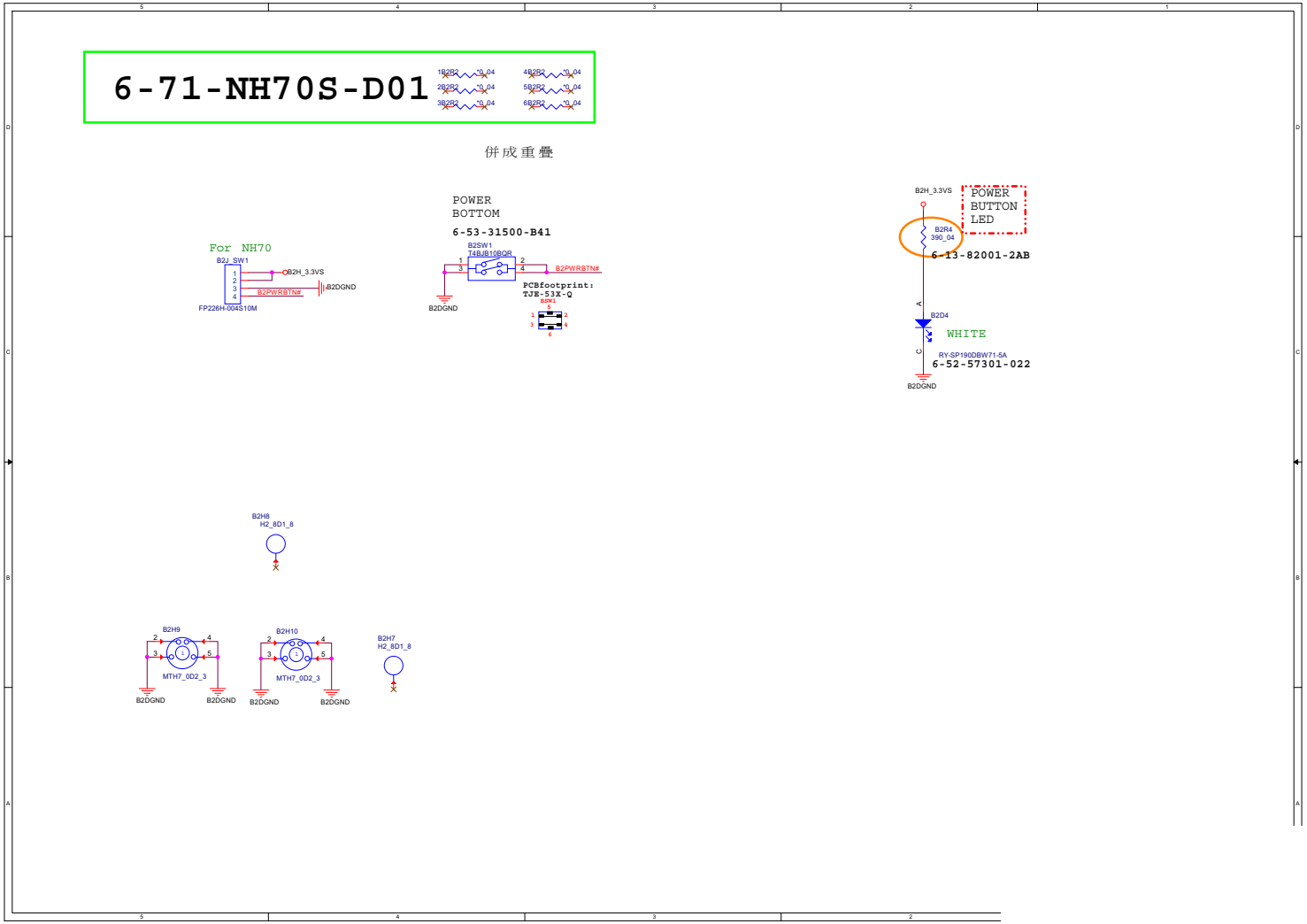
LED Board



NH70 PW Board



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NH70 PW Board

Power Sequence

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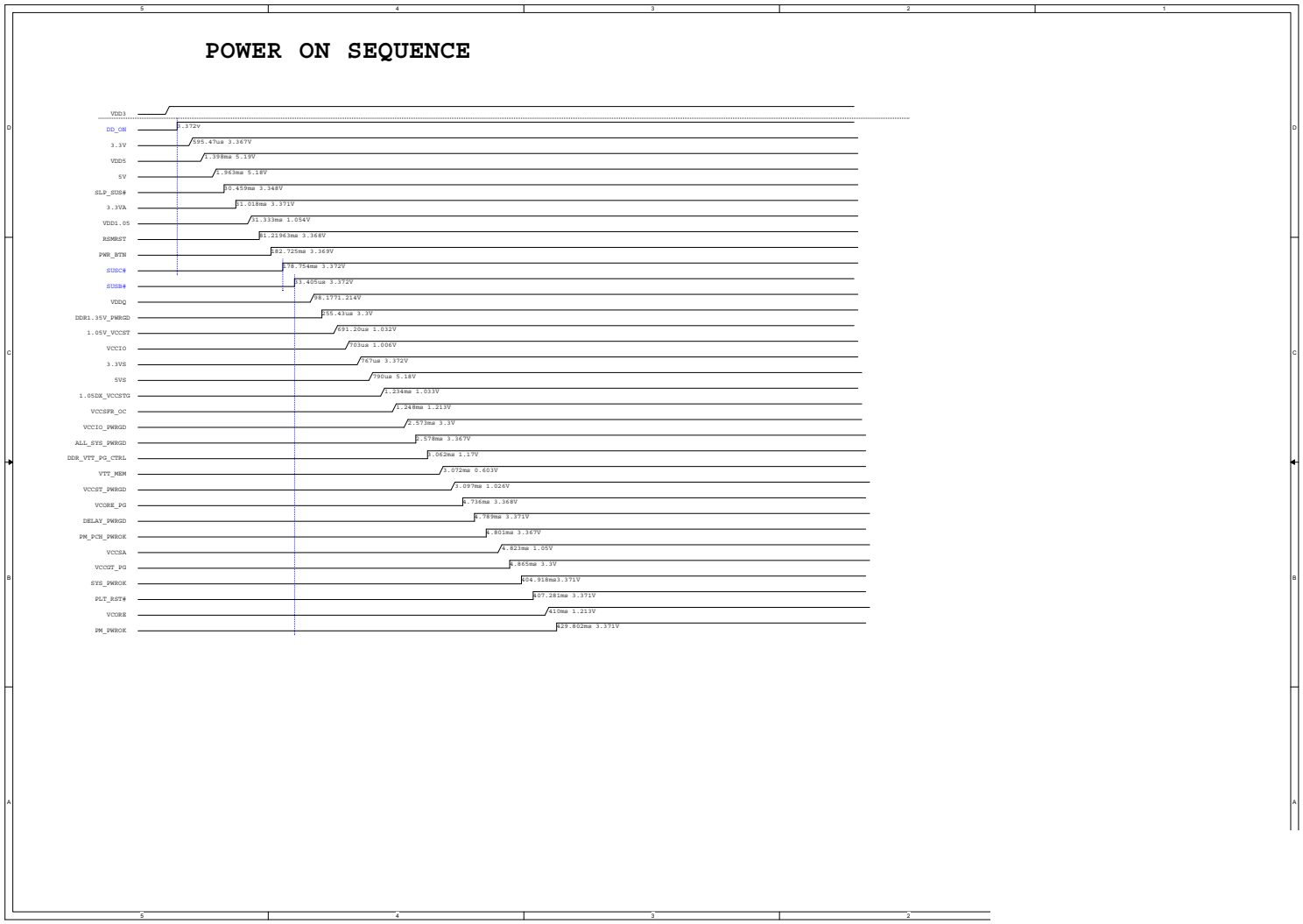
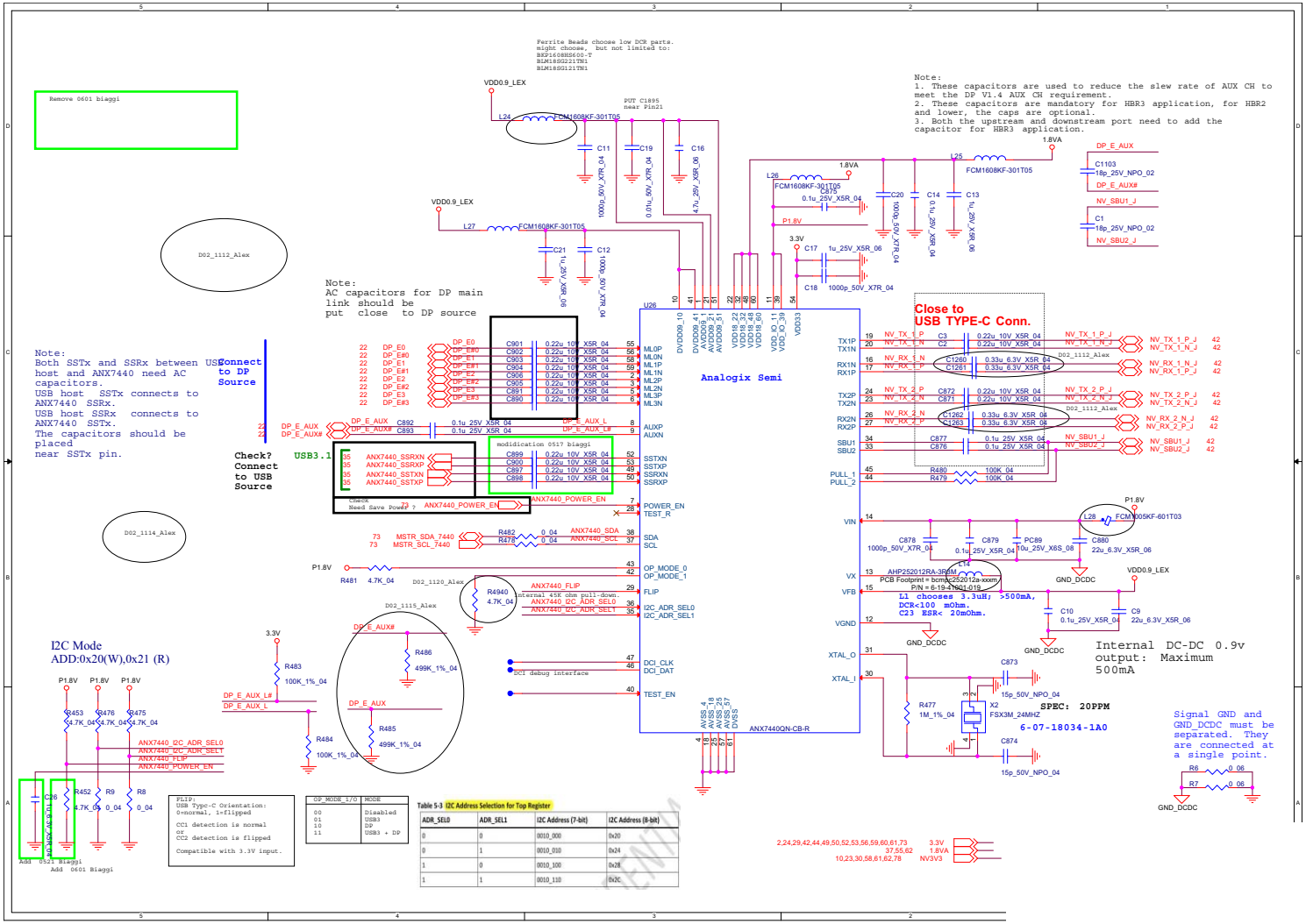
Power Sequence



USB Type-C



ADR_SEL0	ADR_SEL1	I2C Address (7-bit)	I2C Address (8-bit)
0	0	0010_000	0x20
0	1	0010_010	0x24
1	0	0010_100	0x28
1	1	0010_110	0x2C

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USB Type-C

PD Controller ANX7411

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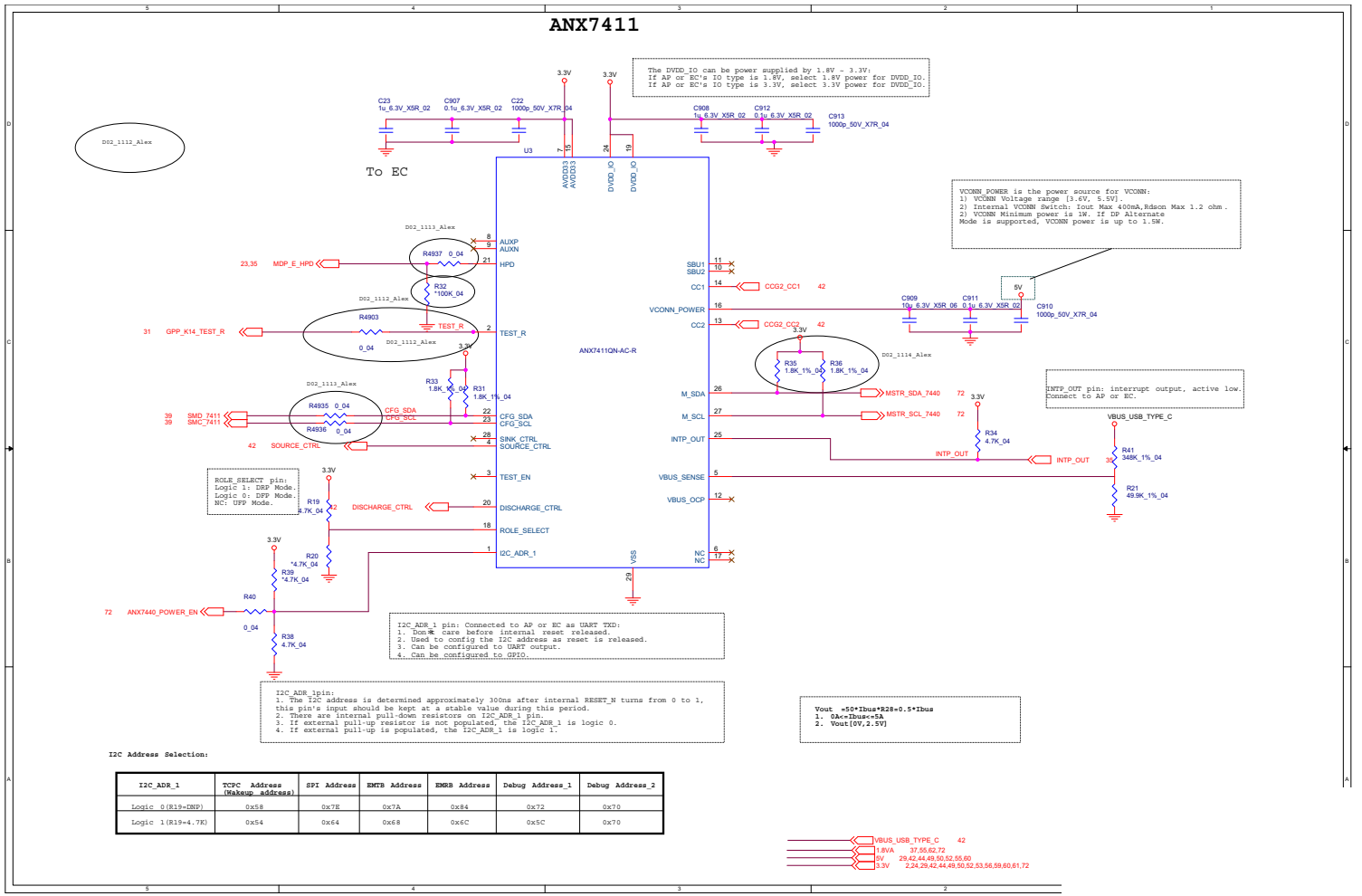
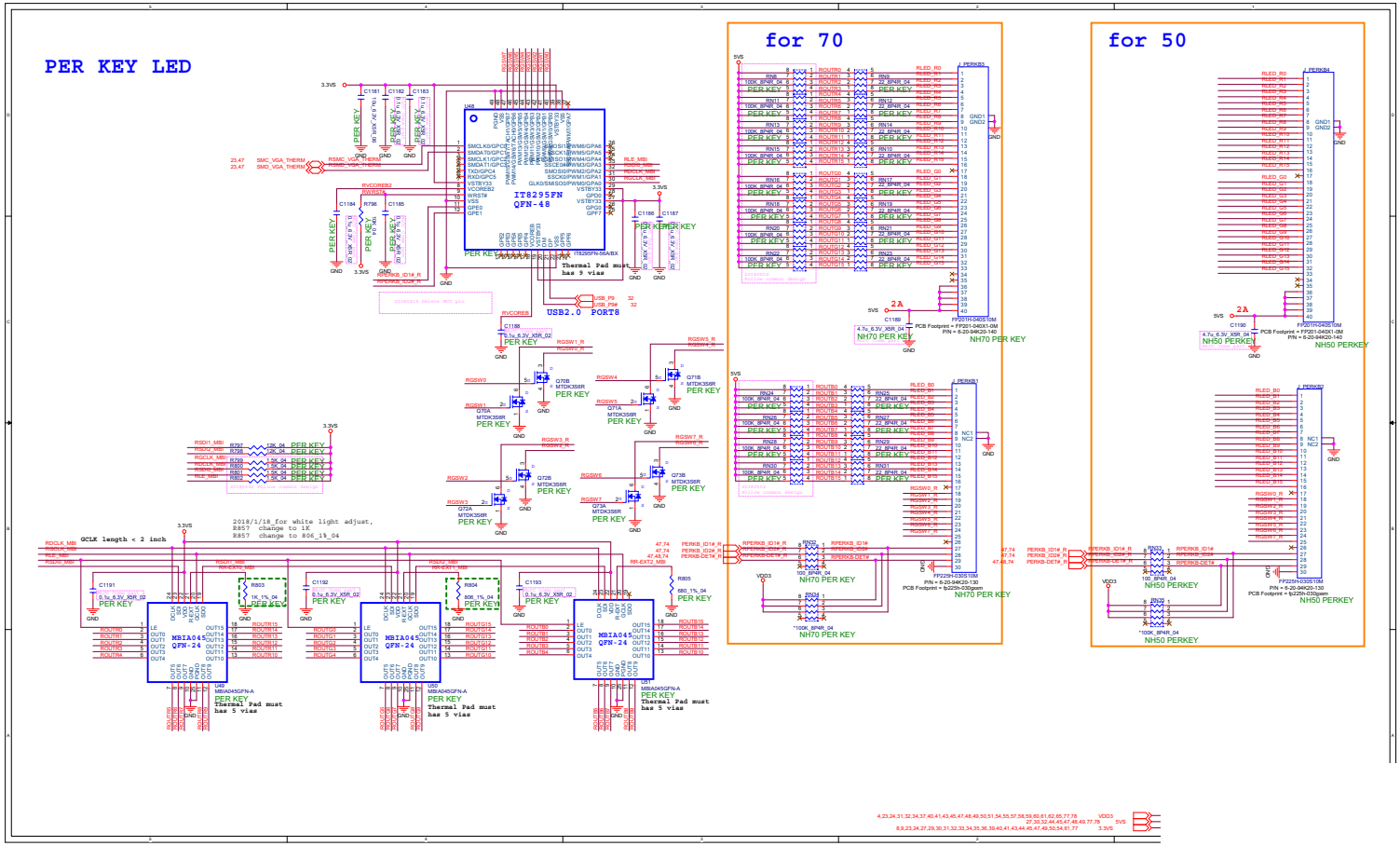
PD Controller
ANX7411



I2C_ADR_1	TCPC Address (Wakeup address)	SPI Address	EMTB Address	EMRB Address	Debug Address_1	Debug Address_2
Logic 0(R19=DNP)	0x58	0x7E	0x7A	0x84	0x72	0x70
Logic 1(R19=4.7K)	0x54	0x64	0x68	0x6C	0x5C	0x70

PER KEY Board



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PER KEY Board

DGPU Power Measurement

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DGPU Power Measurement