SERVICE MANUAL

NH77DCQ / NH79DCQ / NH77DDW

notebook

Notebook Computer

NH77DCQ / NH79DCQ / NH77DDW

Service Manual

Notice

The company reserves the right to revise this publication or to change its contents without notice. Information contained herein is for reference only and does not constitute a commitment on the part of the manufacturer or any subsequent vendor. They assume no responsibility or liability for any errors or inaccuracies that may appear in this publication nor are they in anyway responsible for any loss or damage resulting from the use (or misuse) of this publication.

Brand and product names mentioned in this publication may or may not be copyrights and/or registered trademarks of their respective companies. They are mentioned for identification purposes only and are not intended as an endorsement of that product or its manufacturer.

Version 1.0
March 2020

Trademarks

Intel and Intel Core are trademarks of Intel Corporation.
Windows® is a registered trademark of Microsoft Corporation.
Other brand and product names are trademarks and /or registered trademarks of their respective companies.

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 ***NH77DCQ / NH79DCQ / NH77DDW*** 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.

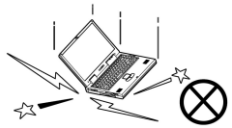
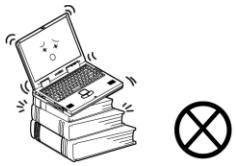
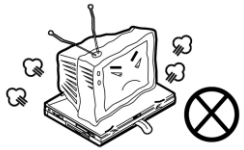
FCC Statement

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.

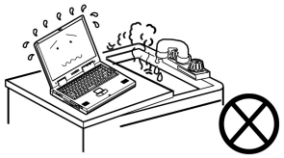
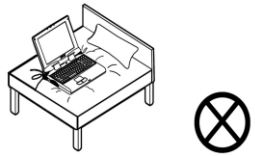
Instructions for Care and Operation

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

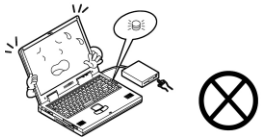
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.

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.*
		

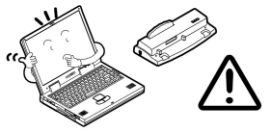
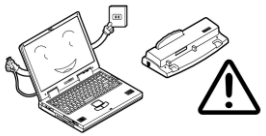
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

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.*
	

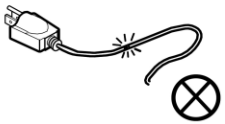
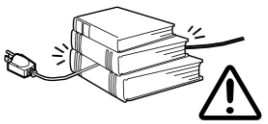
Power Safety

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. 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".

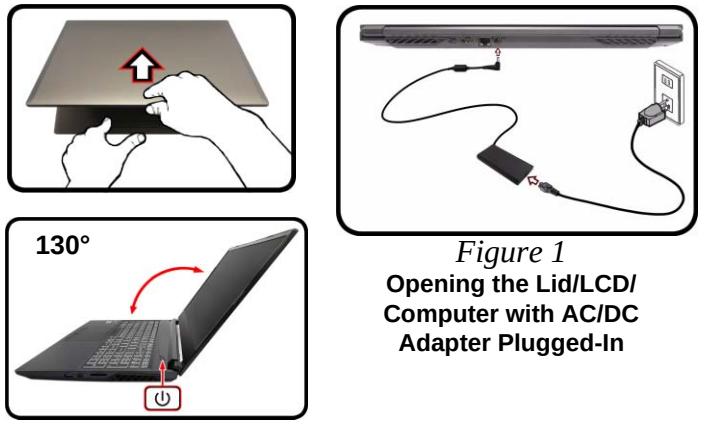


Figure 1
Opening the Lid/LCD/ Computer with AC/DC Adapter Plugged-In

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 ***NH77DCQ / NH79DCQ / NH77DDW*** 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 ***NH77DCQ / NH79DCQ / NH77DDW*** 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
i7-10875H (2.30GHz)
16MB Smart Cache, **14nm**, DDR4-2933MHz, TDP 45W
i7-10750H (2.60GHz)
12MB Smart Cache, **14nm**, DDR4-2933MHz, TDP 45W
Intel® Core™ i5 Processor
i5-10300H (2.50GHz)
8MB Smart Cache, **14nm**, DDR4-2933MHz, TDP 45W

Core Logic

Mobile Intel® HM470 Express Chipset

BIOS

128Mb SPI Flash ROM
INSYDE BIOS

Memory

Dual Channel DDR4
Two 260 Pin SO-DIMM Sockets
Supporting up to **3200MHz DDR4** Memory
Memory Expandable up to **32GB**
Compatible with 4GB, 8GB or 16GB 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 6
Built-In Array Microphone
Two Speakers

LCD Options

17.3" (43.94cm), 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 only**

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

399.9mm (w) * 282.2mm (d) * 29.2mm (h)

2.5kg (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 3.2 Gen 2 Type-A Port
2. Mini Display Port 1.4
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 3.2 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. Display Port 1.4 over USB 3.2 Gen 2 Type-C Port
3. HDMI-Out Port
4. RJ-45 LAN Jack
5. DC-In Jack

External Locator - Bottom View

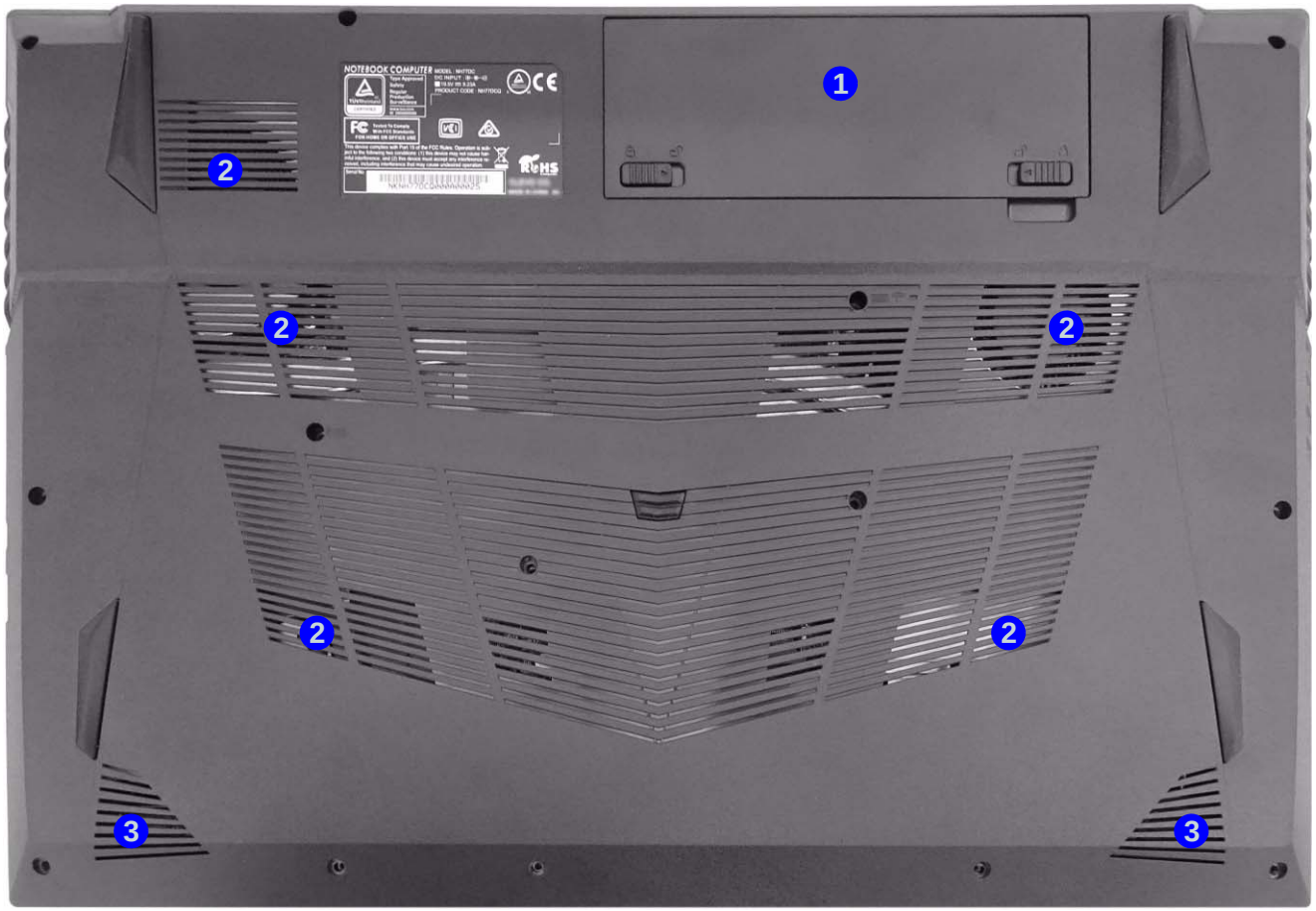


Figure 6
Bottom View

1. Battery
2. Vent
3. Speakers

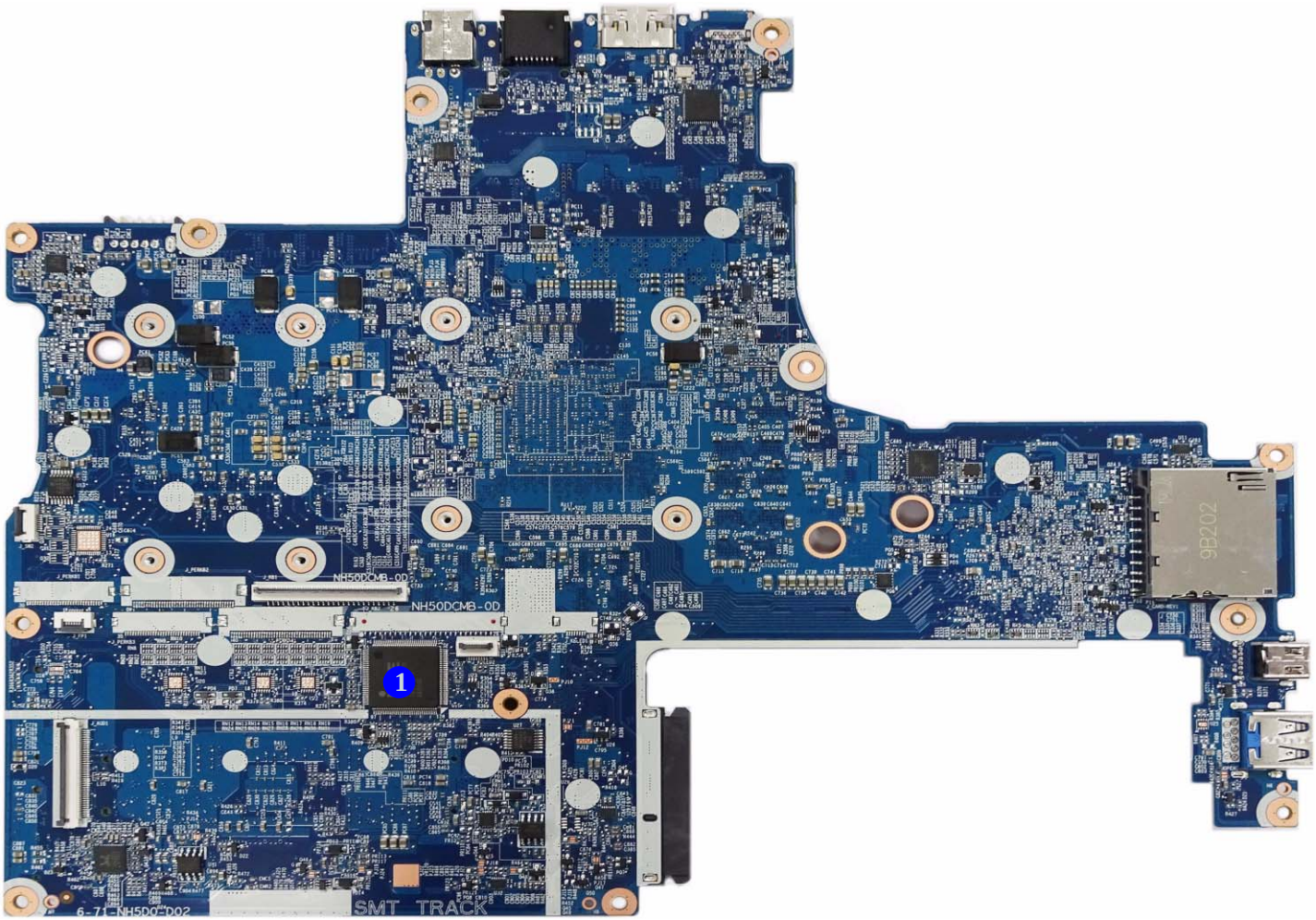
Overheating

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 IT5570



Mainboard Overview - Bottom (Key Parts)

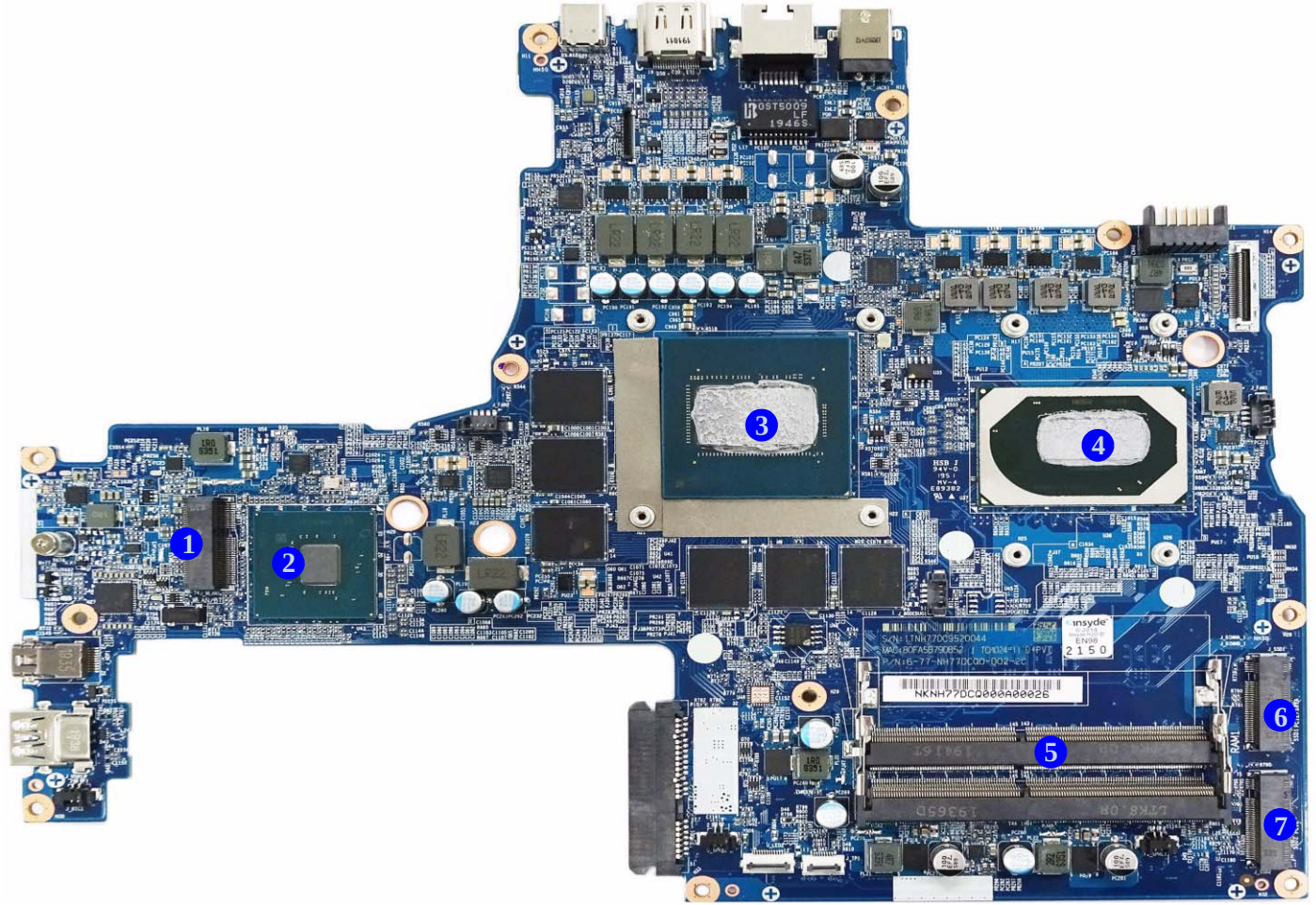


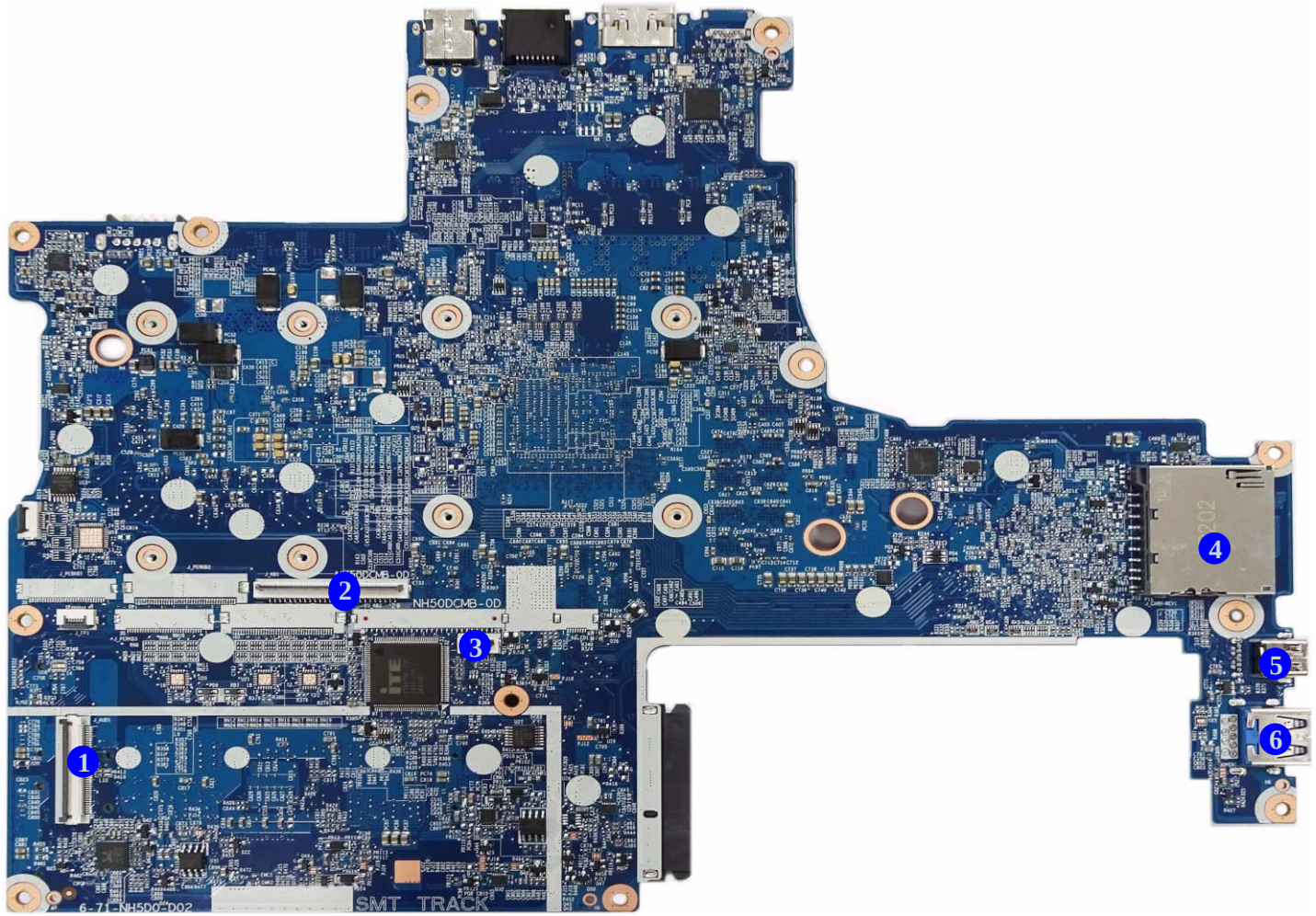
Figure 8
Mainboard Bottom Key Parts

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

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 3.2 Gen 2 Type-A Port



Mainboard Overview - Bottom (Connectors)

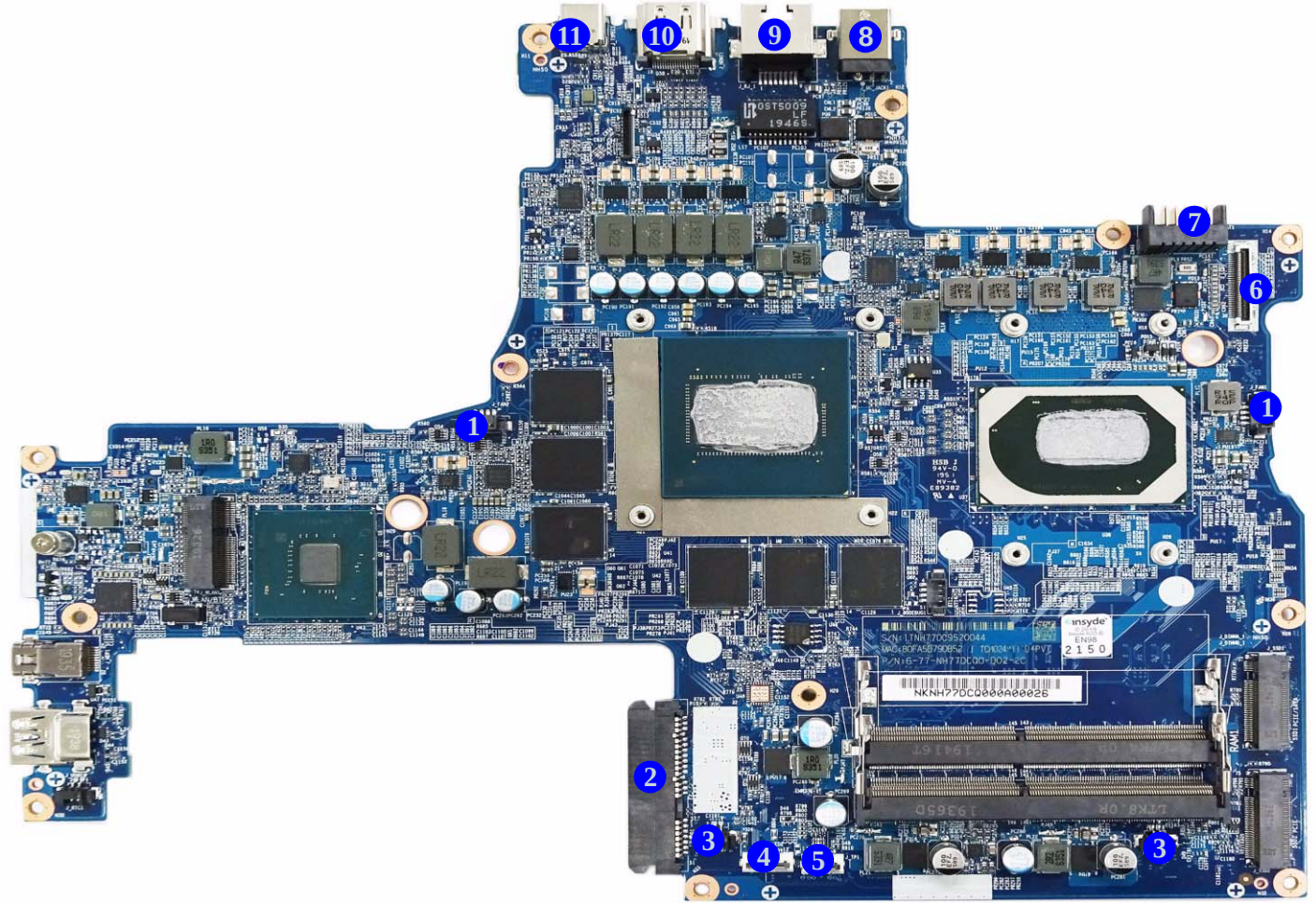


Figure 10
Mainboard Bottom Connectors

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. Display Port 1.4 over USB 3.2 Gen 2 Type-C Port

Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the ***NH77DCQ / NH79DCQ / NH77DDW*** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

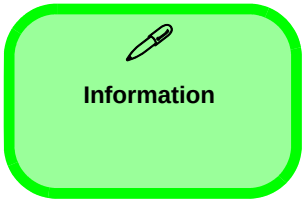
We suggest you completely review any procedure before you take the computer apart.

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*

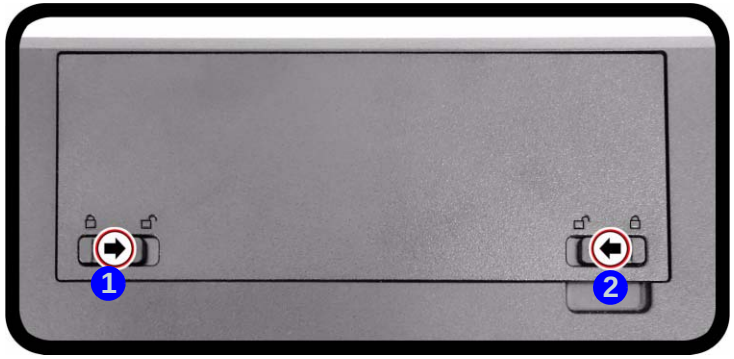
Removing the Battery

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***).

Figure 1
Battery Removal

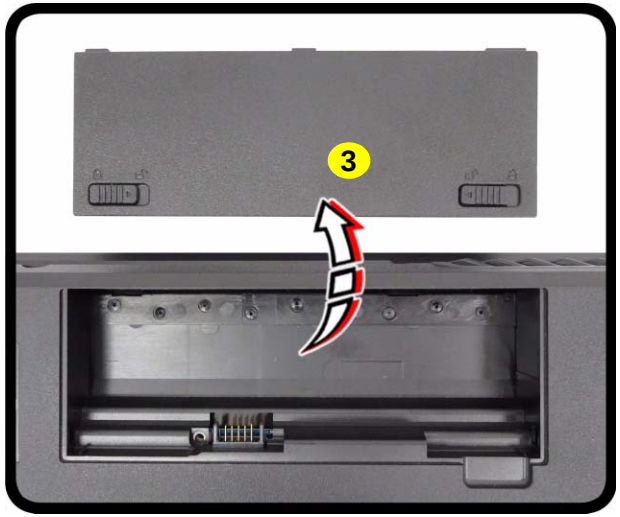
a. Slide the latch 1 in the direction of the arrow. and slide the latch 2 in the direction of the arrow.
b. Lift the battery.
c. Remove the battery.

a.



b.

c.



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.

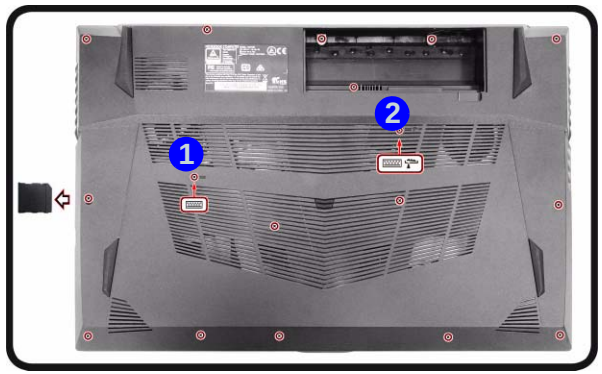
4. Eject Stick
6. Keyboard

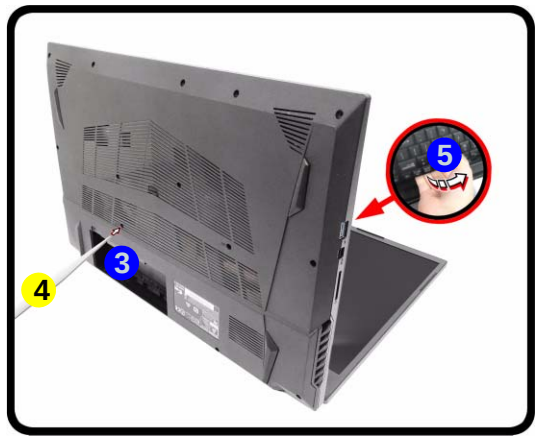
- 2 Screws

Removing the Keyboard

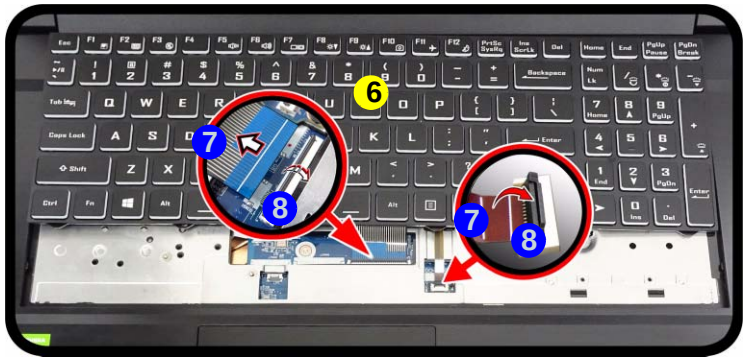
1. Turn **off** the computer, turn it over.
2. Remove screws 1 - 2 from the bottom of the computer.
3. Open it up with the LCD on a flat surface before pressing at point 3 to release the keyboard module (use the special eject stick 4 to do this) while releasing the keyboard in the direction of the arrow 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.

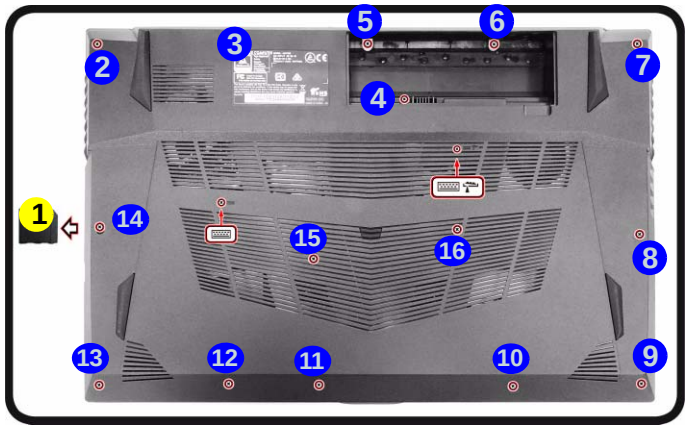
Hard Disk Disassembly Process

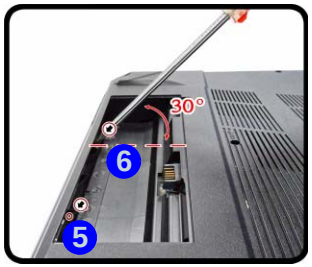
1. Turn **off** the computer, and remove the battery (*page 2 - 5*).
2. Remove the SD card cover 1 and screws 2 - 16. Note that screws 5 & 6 should be remove at a 30 degree angle as shown (*Figure 3a*).
3. Open it up with the LCD on a flat surface, release the bottom case 17 at point 18 - 19 and remove it (*Figure 3b*).
4. The HDD will be visible at point 20 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.

17. Bottom Case

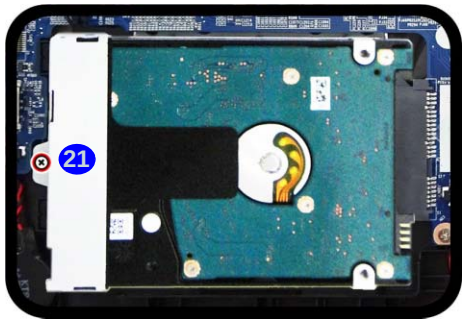
- 15 Screws

Figure 4
HDD Assembly Removal (cont'd.)

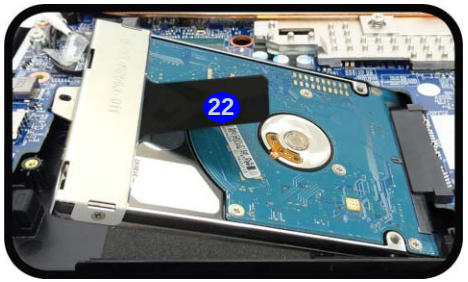
d. Remove the screw.
e. Slightly lift and pull the HDD in the direction of the arrow.
f. Lift the HDD assembly out of the bay.
g. Remove the screws and bracket from the HDD.

5. Remove the screw 21 from the HDD assembly (***Figure 4d***).
6. Slightly lift and pull up the tab 22 out to release the hard disk assembly (***Figure 4e***).
7. Lift the hard disk assembly 23 out of the bay 24 (***Figure 4f***).
8. Remove screws 25 - 26 and bracket 27 from the hard disk 28 (***Figure 4g***).
9. Reverse the process to install a new hard disk (***make sure to properly press to seal all sides of the bottom case especially near the vent area*** and do not forget to replace the screws).

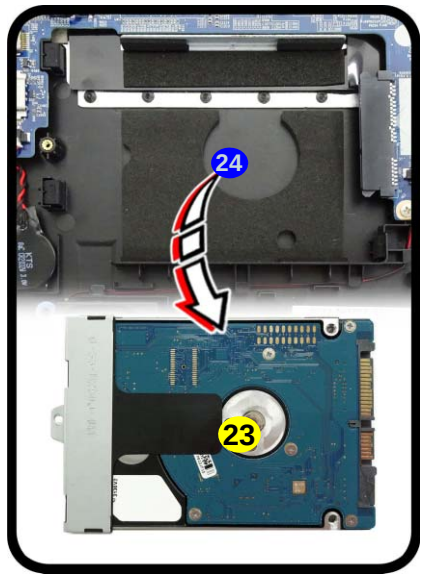
d.



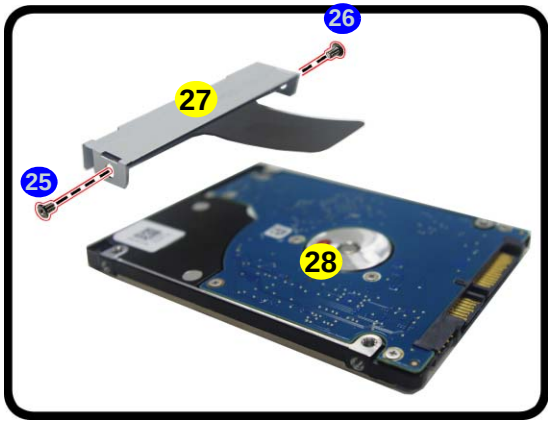
e.



f.



g.



23. HDD Assembly
27. Bracket
28. 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)

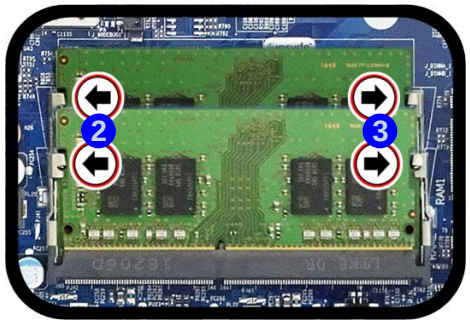
The computer has two memory sockets for 260 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR4 up to 3200 MHz. The main memory can be expanded up to 32GB. The total memory size is automatically detected by the POST routine once you turn on your computer.

Memory Upgrade Process

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.

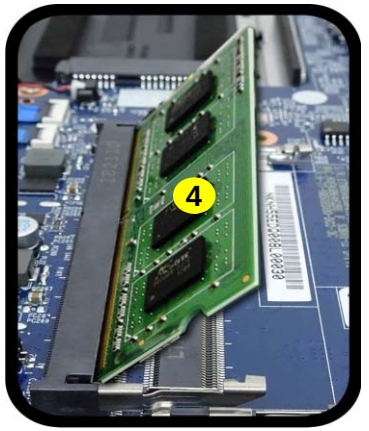


Figure 5
RAM Module Removal

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

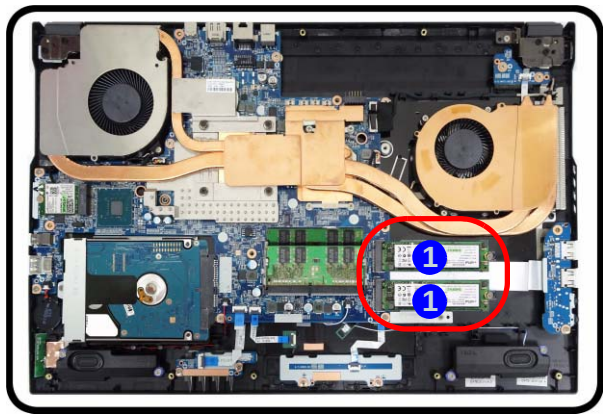
a. Locate the M.2 SSD.
b. Remove the screw.
c. The M.2 SSD module will pop up.

Removing the M.2 SSD Module

M.2 SSD Module Removal Procedure

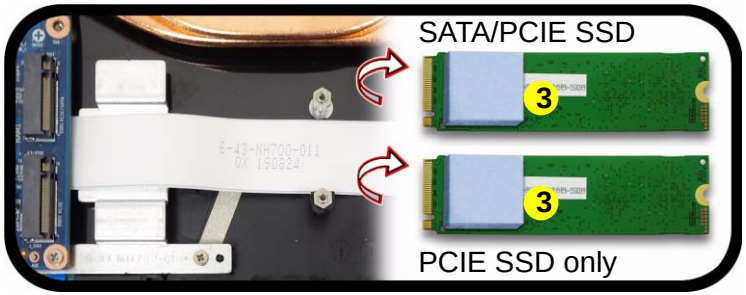
1. Turn **off** the computer, turn it over, remove the battery (***page 2 - 5***).
2. The M.2 SSD module will be visible at point 1 on the mainboard (***Figure 6a***).
3. Remove the screw 2 (***Figure 6b***)
4. The M.2 SSD module 3 (***Figure 6c***) will pop-up, and you can remove it from the computer.

a.



b.

c.



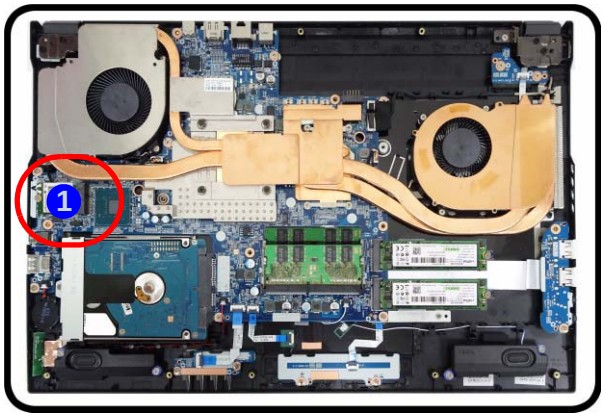
3.M2 SSD Module

- 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. Carefully disconnect the cables 2 & 3, and then remove the screw 4 (*Figure 7b*)
4. The Wireless LAN module 5 (*Figure 7c*) will pop-up, and you can remove it from the computer.

a.



b.

c.

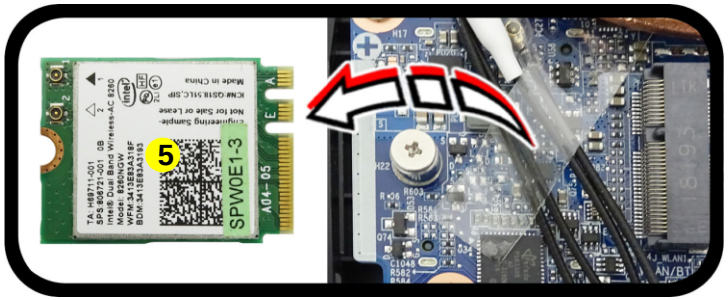


Figure 7
Wireless LAN Module Removal

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

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

5.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	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.

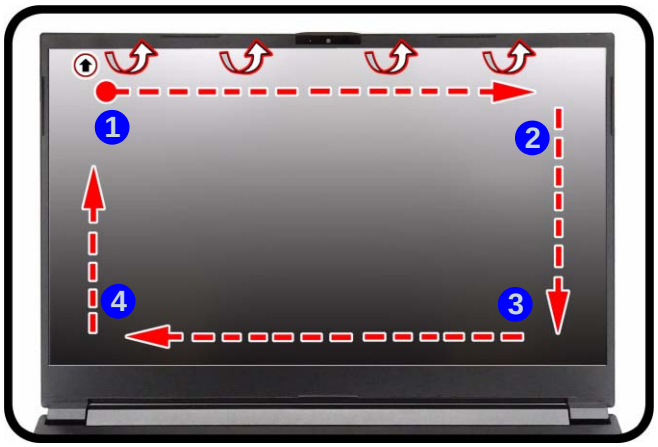
Removing the CCD

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 mylar 5 (*Figure 8b*).

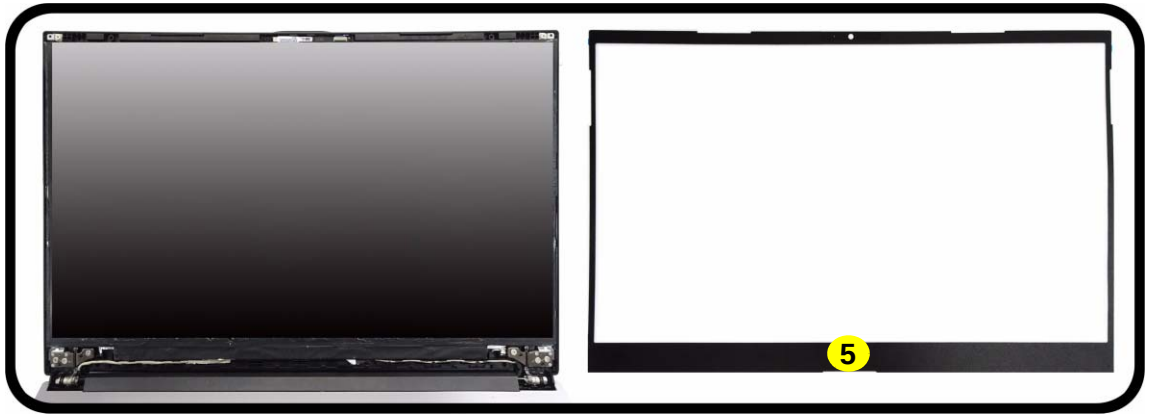
Figure 8
CCD Removal

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

a.



b.



5. LCD Front Cover Mylar

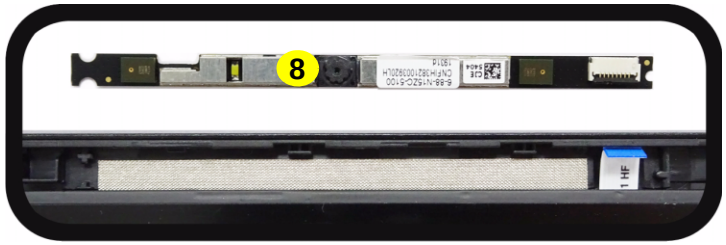
Figure 9
CCD Removal (cont'd)

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 ***NH77DCQ / NH79DCQ / NH77DDW*** 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.

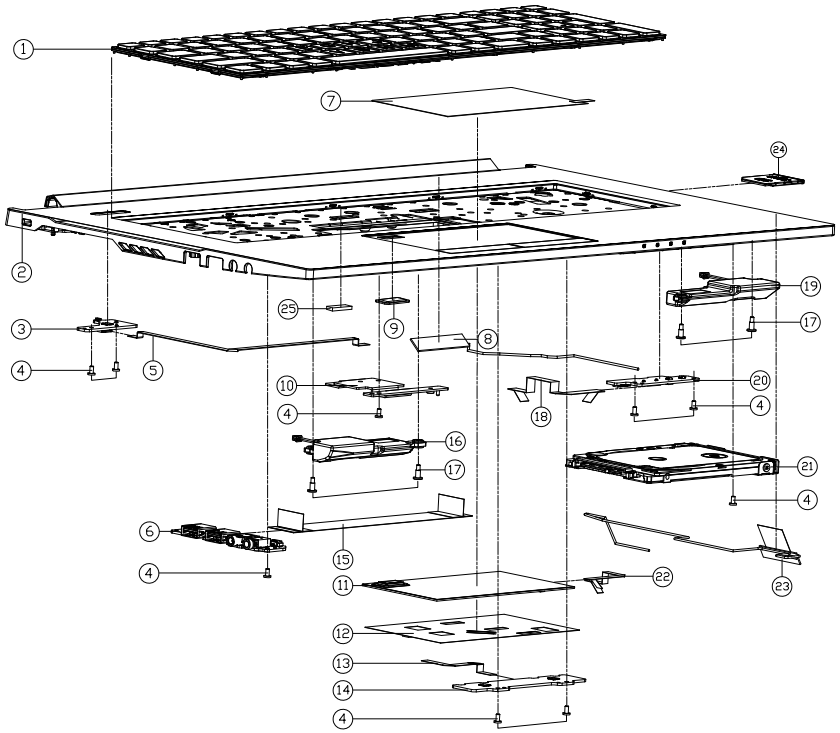
Part List Illustration Location

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

Table A - 1
Part List Illustration Location

Part	
Top	*page A - 3*
Bottom	*page A - 4*
Main Board	*page A - 5*
HDD	*page A - 6*
LCD	*page A - 7*

Top

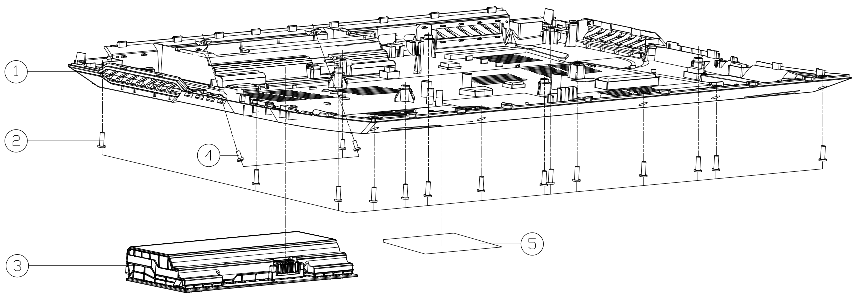


ITEM	PART NAME	PART NO	REMARK
1	KB FOR LED PER KEY KB SERIES NH70EDQ	6-NH70EDQ-KB-LPK	FOR LED PER KEY KB SERIES
1	KB FOR MULTI 15C BL KB SERIES NH70EDQ	6-NH70EDQ-KB-MCL	FOR MULTI 15C BL KB SERIES
1	[illegible]	6-80-N15Z0-21D-1M	FOR MCJ
2	TOP CASE MODULE NH77DCQ	6-39-NH772-012	
3	HALL SENSOR & POWER SW BOARD V2.0 NH77DCQ	6-77-NH771-D02	
4	SCREW M2*4L NI NI ICT NY (DD=Ø4.5,DT=0.8)	6-35-B1120-4RC	
5	FFC POWER TO MB L=195MM 3.3V 8P (CNJS) NH77DCQ	6-43-NH770-021	
6	AUDIO BOARD V1.0 NH50DC	6-77-NH5D8-D01	
6	AUDIO BOARD (REDRIVER) V1.0 NH50DC	6-77-NH5D8-D11	
7	W/O FP TP MYLAR AG32 NH55EDQ	6-40-NH552-052	FOR W/O FP(TOUCH PAD)
8	ANTENNA IPEX4 WLAN WGT WL1 PCB DL 40(5MM 2.4G/5G WL1: 150MM NH77DCQ	6-23-7NH77-011	
9	TP W/O FP RUBBER (17.9*11.2*1.2T) SILICONE N150ZU	6-47-N15Z2-090	
10	MB SUPPORT BKT AL1050 NH70EDQ	6-33-NH702-011	
11	TOUCH PAD SYNAPTICS PTP TM-P3429 (108*61MM) (WHQL) N150ZU	6-49-N15Z3-011	
12	TP MYLAR PET (BLACK PET(109*63.7)+RUBBER(6X17) +DS-5) NH77DCQ	6-40-NH772-030	
13	FFC TP TO MB L=73MM 3.3V 8P (QX)NH70EDQ	6-43-NH700-040	
14	CLICK BOARD V1.0 NH50DC	6-77-NH5D2-D01	
15	FFC AUDIO TO MB L=140.5MM 5V 40P (QX)NH70EDQ	6-43-NH700-011	
16	SPK+CABLE L L67*23 2W 4? L190 MM DS-2514-ML-B2-HF N950TF	6-23-5N95T-0L1	
17	.SCREW M2*6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
18	FFC LED TO MB L=87MM 3.3V 12P (CNJS) NH77DCQ	6-43-NH770-010	
19	SPK R+CABLE L25x14 2W 4? L 200MM DS-2514-ML-B2-HF N870TJ1	6-23-5NB70-0R1	
20	LED BOARD V1.0 NH77DCQ	6-77-NH5D4-D01-A	
21	W/O HDD ASS'Y NH70EDQ	6-79-NH70EDQJ-010	
21	W/HDD ASS'Y NH70EDQ	6-79-NH70EDQJ-020	
22	FFC CABLE CLICK TO TP L=61MM 3V 4PIN (QX) NH50ED	6-43-NH500-051	
23	ANTENNA IPEX4 WLAN WGT WL2 PCB AR 2.4G/5G WL2=200MM NH77DCQ	6-23-7NH77-020	
24	DUMMY 3INI NON PUSH TYPE PC+ABS (C7230P-70)(EXCHANGE) W9705UW	6-42-W9708-011	
25	MLCC THERMAL PAD NH50DD2	6-48-NH5D2-010	

Figure A - 1
Top

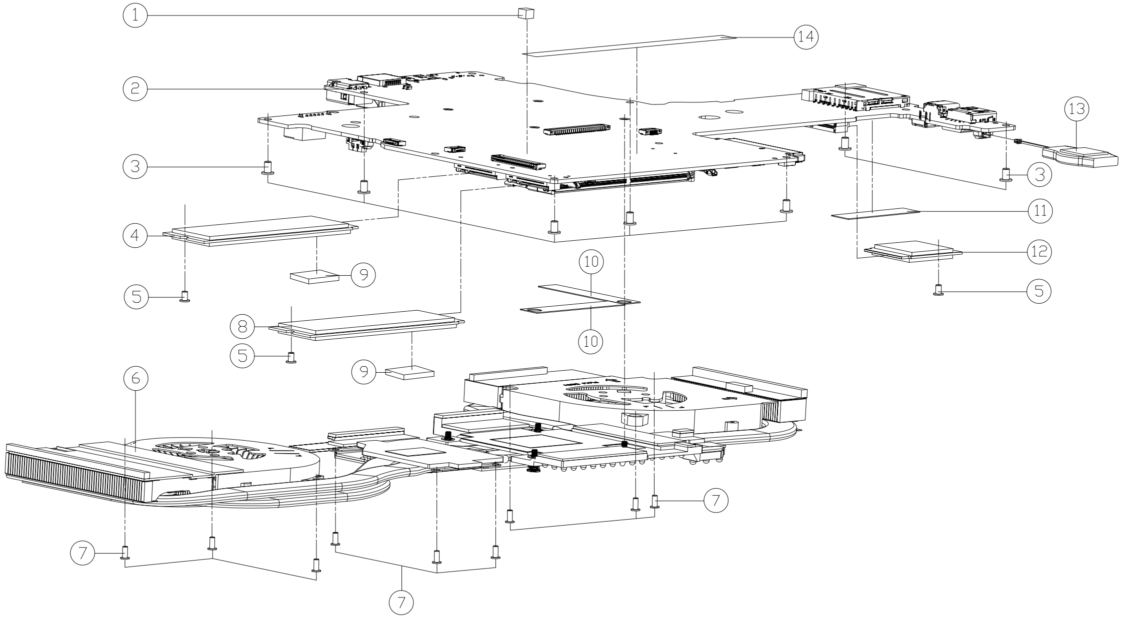
Bottom

Figure A - 2
Bottom



ITEM	PART NAME	PART NO	REMARK
1	BOTTOM CASE MODULE NH77DCQ	6-39-NH773-012	
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 (3275mAH) NH50ED	6-87-NH50S-41C01	
3	BAT.P S LI 14.4V/3.4AH/48.96WH 4S1P GETAC/LG (BQ40Z50) 541390120001 (3275mAH) NH50ED	6-87-NH50S-42D01	
4	.SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
5	PRODUCT LABEL FOR NH77DCQ	6-45-NH77DCQ3-010	
5	PRODUCT LABEL FOR NH77DCQ-M	6-45-NH77DCQM-010	
5	PRODUCT LABEL FOR NH77DDW	6-45-NH77DDW3-010	
5	PRODUCT LABEL FOR NH77DDW-M	6-45-NH77DDWM-010	
5	PRODUCT LABEL FOR NH79DCQ-H	6-45-NH79DCQH-010	

Main Board

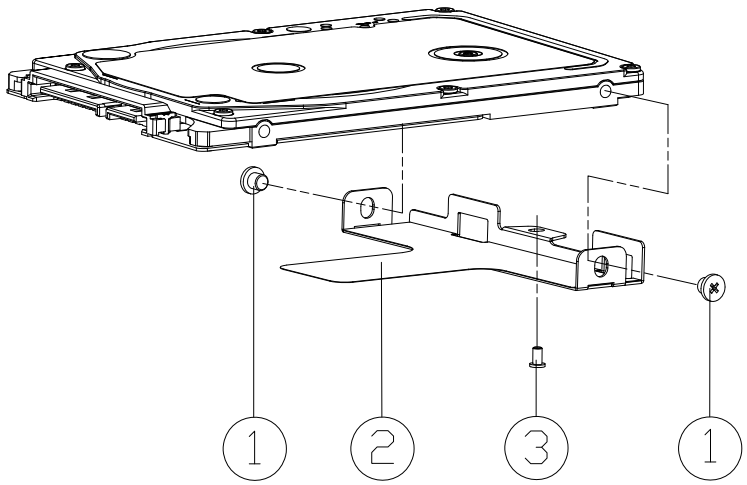


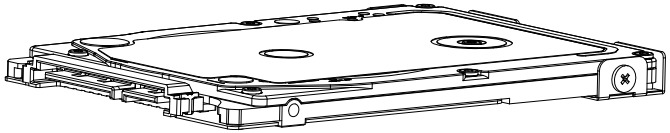
ITEM	PART NAME	PART NO	REMARK
1	RUBBER (4*4*3.3T) FOR MB NH50ED	6-47-NH502-050	
2	[illegible]	6-77-NH77DCQ0-D02-2D	
2	MAIN BOARD(CPU/I7-10750H/2.6G) V2.0 (SAMSUNG VRAM)(EDP)(MULTI 15C BL KB)(V/TPM) NH77DCQ	6-77-NH77DCQ0-D02-2B	
2	MAIN BOARD(CPU/I5-10300H/2.5G) V2.0 (SAMSUNG VRAM)(EDP)(MULTI 15C BL KB)(V/O TPM) NH77DCQ	6-77-NH77DCQ0-D02-2C	
2	[illegible]	6-77-NH79DCQH-D02-2B	
2	MAIN BOARD(CPU/I7-10875H/2.3G) V2.0 (SAMSUNG VRAM)(EDP)(MULTI 15C BL KB)(V/O TPM) NH77DDW	6-77-NH77DDW0-D02-2D	
2	MAIN BOARD(CPU/I5-10300H/2.5G) V2.0 (SAMSUNG VRAM)(EDP)(MULTI 15C BL KB)(V/O TPM) NH77DDW	6-77-NH77DDW0-D02-2C	
2	MAIN BOARD(CPU/I7-10750H/2.6G) V2.0 (SAMSUNG VRAM)(EDP)(MULTI 15C BL KB)(V/O TPM) NH77DDW	6-77-NH77DDW0-D02-2B	
3	SCREW M2.5*4L (D=4.6,T=0.8) KI NI ICT NY	6-35-B1125-4RA	
4	SSD M2 2280 256GB KINGSTON RBU-SNS8180S3/256GJ (RBU-SNS8180S3) SATA3 3D TLC 64 LAYERS	6-85-D51R6-K01	OPTION
4	SSD M2 2280 1TB SAMSUNG MZVLB1T0HBLR-00000 (PM981A) PCIE G3x4 3D TLC 96 LAYERS	6-85-D511T-S04	OPTION
4	SSD M2 2280 1TB SAMSUNG MZVLB1T0HBLR-00000 (PM981A) PCIE G3x4 3D TLC 96 LAYERS	6-85-D515B-H02	OPTION
4	SSD M2 2280 256GB SAMSUNG MZVLQ256HAJD-00000 (PM991) PCIE G3x4 3D TLC 96 LAYERS	6-85-D51R6-S0B	OPTION
4	SSD M2 2280 256GB MICRON MTFDDAV256TDL(1300) SATA3 3D TLC 96 LAYERS	6-85-D51R6-102	OPTION
4	SSD M2 2280 512GB KINGSTON RBU-SNS8180S3/512GJ (RBU-SNS8180S3) SATA3 3D TLC 64 LAYERS	6-85-D515B-K00	OPTION
4	SSD M2 2280 512GB SAMSUNG MZVLQ512HALU-00000 (PM991) PCIE G3x4 3D TLC 96 LAYERS	6-85-D515B-S0B	OPTION
4	SSD M2 2280 1TB SAMSUNG MZVLQ1T0HALB-00000 (PM991) PCIE G3x4 3D TLC 96 LAYERS	6-85-D511T-S05	OPTION
4	SSD M2 2280 512GB MICRON MTFDDAV512TDL(1300) SATA3 3D TLC 96 LAYERS	6-85-D515B-102	OPTION
4	OPTANE MEMORY M2 2280 32GB INTEL MEMPEK1F032GA (CARSON BEACH) PCIE G3x4 3D XPOINT	6-85-D5132-Z03	OPTION
4	SSD M2 2280 1TB PHISON PS5012-E12 PCIE GEN3 X 4 FOR MEDION AG	6-85-D5164-Z02	OPTION
4	SSD M2 2280 16GB/256GB INTEL HBRPEKNX0101A (TETON GLACIER) PCIE G3x4 3DXPOINT QLC 64 LAYERS	6-85-D51R6-Z04	OPTION
4	SSD M2 2280 512GB BIWIN CNF82GS2402-512 (M2202) SATA3 3D TLC 64 LAYERS	6-85-D515B-B00	OPTION
4	SSD M2 2280 512GB TEAMGROUP TE512GS510SMB0 (S510) SATA3 3D TLC 96 LAYERS	6-85-D515B-T00	OPTION
4	SSD M2 2280 128GB BIWIN CNF82GS2402-128 (M2202) SATA3 3D TLC 64 LAYERS	6-85-D51C8-B01	OPTION
4	SSD M2 2280 128GB KINGSTON RBU-SNS8180S3/128GJ (RBU-SNS8180S3) SATA3 3D TLC 64 LAYERS	6-85-D51C8-K01	OPTION
4	SSD M2 2280 128GB TEAMGROUP TE128GS510SMB0 (S510) SATA3 3D TLC 96 LAYERS	6-85-D51C8-T01	OPTION
4	SSD M2 2280 256GB BIWIN CNF82GS2402-256 (M2202) SATA3 3D TLC 64 LAYERS	6-85-D51R6-B01	OPTION
4	SSD M2 2280 256GB TEAMGROUP TE256GS510SMB0 (S510) SATA3 3D TLC 96 LAYERS	6-85-D51R6-T01	OPTION
4	SSD M2 2280 128GB SAMSUNG MZVLQ128HBHQ-00000 (PM991) PCIE G3x4 3D TLC 96 LAYERS	6-85-D51C8-S07	OPTION
4	SSD M2 2280 512GB LITE-ON CL1-8D512 PCIE GEN3x4 TLC FOR 青島雷神	6-985-NH7ED-001-HL	OPTION
4	SSD M2 2280 512GB KINTIGO MG930K PCIE GEN3x4 TLC FW:S0303B0G FOR 青島雷神	6-985-HN7RA-001-HL	OPTION
5	SCREW M2*2L KI NI ICT NY (DD=Ø5 ,T=0.8)	6-35-B1120-2RA	
6	HEATSINK MODULE NH77DCQ	6-31-NH77N-101	
7	SCREW M2*4L KI NI ICT NY (DD=Ø4.5,DT=0.8)	6-35-B1120-4RC	
8	SSD M2 2280 1TB SAMSUNG MZVLB1T0HBLR-00000 (PM981A) PCIE G3x4 3D TLC 96 LAYERS	6-85-D511T-S04	OPTION
8	SSD M2 2280 1TB SAMSUNG MZVLB1T0HBLR-00000 (PM981A) PCIE G3x4 3D TLC 96 LAYERS	6-85-D515B-H02	OPTION
8	SSD M2 2280 256GB SAMSUNG MZVLQ256HAJD-00000 (PM991) PCIE G3x4 3D TLC 96 LAYERS	6-85-D51R6-S0B	OPTION
8	SSD M2 2280 512GB SAMSUNG MZVLQ512HALU-00000 (PM991) PCIE G3x4 3D TLC 96 LAYERS	6-85-D515B-S0B	OPTION
8	SSD M2 2280 1TB SAMSUNG MZVLQ1T0HALB-00000 (PM991) PCIE G3x4 3D TLC 96 LAYERS	6-85-D511T-S05	OPTION
8	OPTANE MEMORY M2 2280 32GB INTEL MEMPEK1F032GA (CARSON BEACH) PCIE G3x4 3D XPOINT	6-85-D5132-Z03	OPTION
8	SSD M2 2280 1TB PHISON PS5012-E12 PCIE GEN3 X 4 FOR MEDION AG	6-85-D5164-Z02	OPTION
8	SSD M2 2280 16GB/256GB INTEL HBRPEKNX0101A (TETON GLACIER) PCIE G3x4 3DXPOINT QLC 64 LAYERS	6-85-D51R6-Z04	OPTION
8	SSD M2 2280 128GB SAMSUNG MZVLQ128HBHQ-00000 (PM991) PCIE G3x4 3D TLC 96 LAYERS	6-85-D51C8-S07	OPTION
8	SSD M2 2280 512GB LITE-ON CL1-8D512 PCIE GEN3x4 TLC FOR 青島雷神	6-985-NH7ED-001-HL	OPTION
8	SSD M2 2280 512GB KINTIGO MG930K PCIE GEN3x4 TLC FW:S0303B0G FOR 青島雷神	6-985-HN7RA-001-HL	OPTION
9	THERMAL PAD RS300 20*12*3.0MM NH70EDQ	6-48-NH702-011	
10	EMI ABSORBER (45*9*0.3) FOR N850HP6	6-47-N85P2-021	
11	TAPE MYLAR (C),MYLAR M550J	6-40-M55J2-030	
12	WLAN+BT COMBO DUAL BAND INTEL HARRISON PEAK 2 AX201NGW NON-VPRO 2X2 AX+BT BT5.0 CNVI M2 2230	6-88-L140F-4210	OPTION
12	WLAN+BT COMBO DUAL BAND INTEL HARRISON PEAK 2 NEW OTP AX201NGW NON-VPRO 2X2 AX+BT BT5.0 CNVI M2 2230	6-88-NV40F-4210	OPTION
12	WLAN+BT COMBO DUAL BAND INTEL CYCLONE PEAK 2 AX200NGW NON-VPRO 2X2 AX+BT BT5.0 M2 2230	6-88-N15CF-4210	OPTION
12	WLAN+BT COMBO DUAL BAND RIVET KILLER 1650X(INTEL AX200NGW) 2X2 AX+BT BT5.0 M2 2230	6-88-N15CF-0C00	OPTION
12	WLAN+BT COMBO DUAL BAND RIVET KILLER 1650I(INTEL AX201NGW) 2X2 AC+BT BT5.0 CNVI M2 2230	6-88-X17SF-4200	OPTION
12	WLAN+BT COMBO DUAL BAND INTEL JEFFERSON PEAK 1 9462NGW NON-VPRO 1X1 DIVERSITY ANTENNA AC+BT BT5.0 CNVI M2 2230	6-88-N24GF-4200	OPTION
13	BAT. 20MM 3V 220MAH W/CABLE 55MM BCR2032H5.5VM1UB (SHIHND)	6-23-22015-TE0	
13	MYLAY FOR MB (2.0*95.0*0.15T) NH77DCQ	6-40-NH772-080	

Figure A - 3
Main Board

HDD

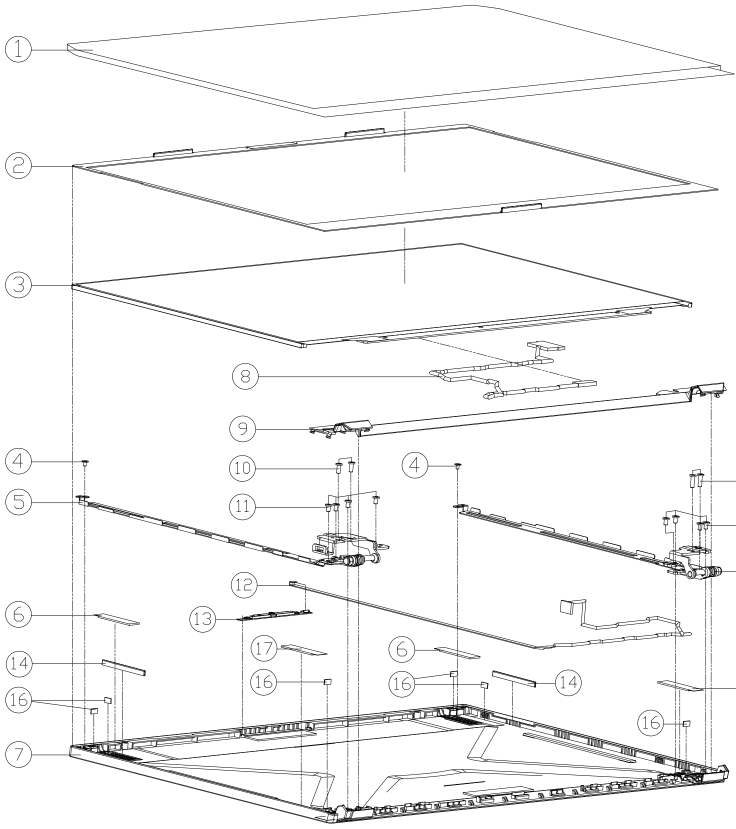
Figure A - 4
HDD





ITEM	PART NAME	PART NO	REMARK
1	SCREW M3*3.0L KI NI ICT NY	6-35-B1130-3R5	
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=0.8)	6-35-B1120-4RC	

LCD



ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT NON WOVEN NH77DCQ	6-44-NH774-010	
2	MYLAR FOR FRONT COVER NH77DCQ	6-40-NH771-011	
3	LCD N17.3" FHD/WVA/N4/NON GT/EDP BOE NV173FHM-N49 LED 3.5MM	6-50-NBB35-Z010	
3	LCD N17.3" FHD/WVA/144HZ/SW G-SYNC/N7/NON GT/EDP LG LP173WFG-SPB1 3.5MM	6-50-NBB35-L122	
3	LCD N17.3" FHD/WVA/120HZ/N4/NON GT/EDP AU B173HAN04.7 3.5MM	6-50-NBB35-G150	
3	LCD N17.3" FHD/WVA/N7/NON GT/EDP AU B173HAN04.2 (H/W:0A) LED 3.5MM	6-50-NBB35-G020	
4	.SCREW M2*3L KI NI ICT NY (DD=ø4.0,DT=0.8)	6-35-B1120-3RD	
5	HINGE L NH77DCQ	6-33-NH771-0L2	
6	DOUBLE SIDE ELASTIC TAPE (35X10X0.5T) NH70EDQ	6-40-NH701-010-1	
7	BACK COVER MODULE NH77DCQ	6-39-NH771-022	
8	WIRE CABLE FOR EDP FHD 144HZ 350MM (I) 19V 40PIN (HL/LW CON:LV03140-212-HF) NH70EDQ	6-43-NH701-021-N	
8	WIRE CABLE FOR EDP FHD 350MM (I) 19V 30PIN (HL/LW CON:LV03130-212-HF) NH70EDQ	6-43-NH701-011-N	
9	LCD FRONT COVER MODULE NH77DCQ	6-39-NH771-011	
10	.SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
11	SCREW M2.5*4L (D=4.6,T=0.8) KI NI ICT NY	6-35-B1125-4RA	
12	CCD CABLE L=550MM 8PIN 30V (HL) NH70EDQ	6-43-NH70T-012	
13	UVC CAMERA CHICONY FIX(RGB) CNFIH3821003920LH 1M HD OV9734 N150ZU FW5404 W/WHITE-LED W/2D-MIC(NARROW BORDER WITH FFC)	6-88-N15ZC-5100	OPTION
13	UVC CAMERA BISON FIX(RGB) BNH419VXB-000 1M HD OV9734 N150ZU FWXXXX W/WHITE-LED W/2D-MIC(NARROW BORDER WITH FFC)	6-88-N15ZC-4900	OPTION
14	LCD RUBBER A NH77DCQ	6-47-NH771-031	
15	HINGE R NH77DCQ	6-33-NH771-0R2	
16	LCD RUBBER (6*3.5*0.8T) NH55EDQ	6-47-NH551-020	
17	PANEL LA LA ADHESIVE(35*10*1) NH50ED	6-47-NH501-080-1	

Figure A - 5
LCD

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the ***NH77DCQ / NH79DCQ / NH77DDW*** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

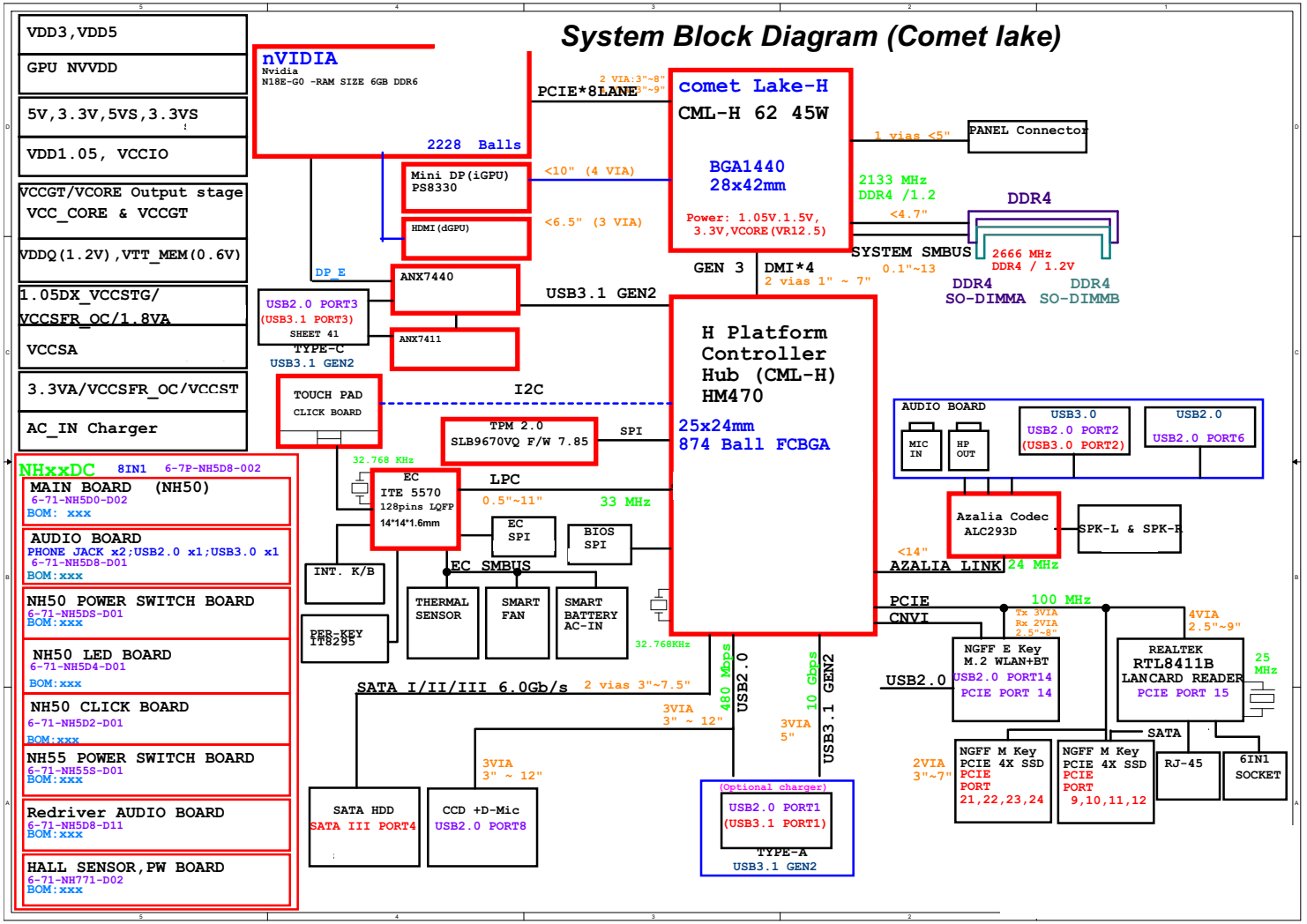
Table B - 1
SCHEMATIC DIAGRAMS

Version Note

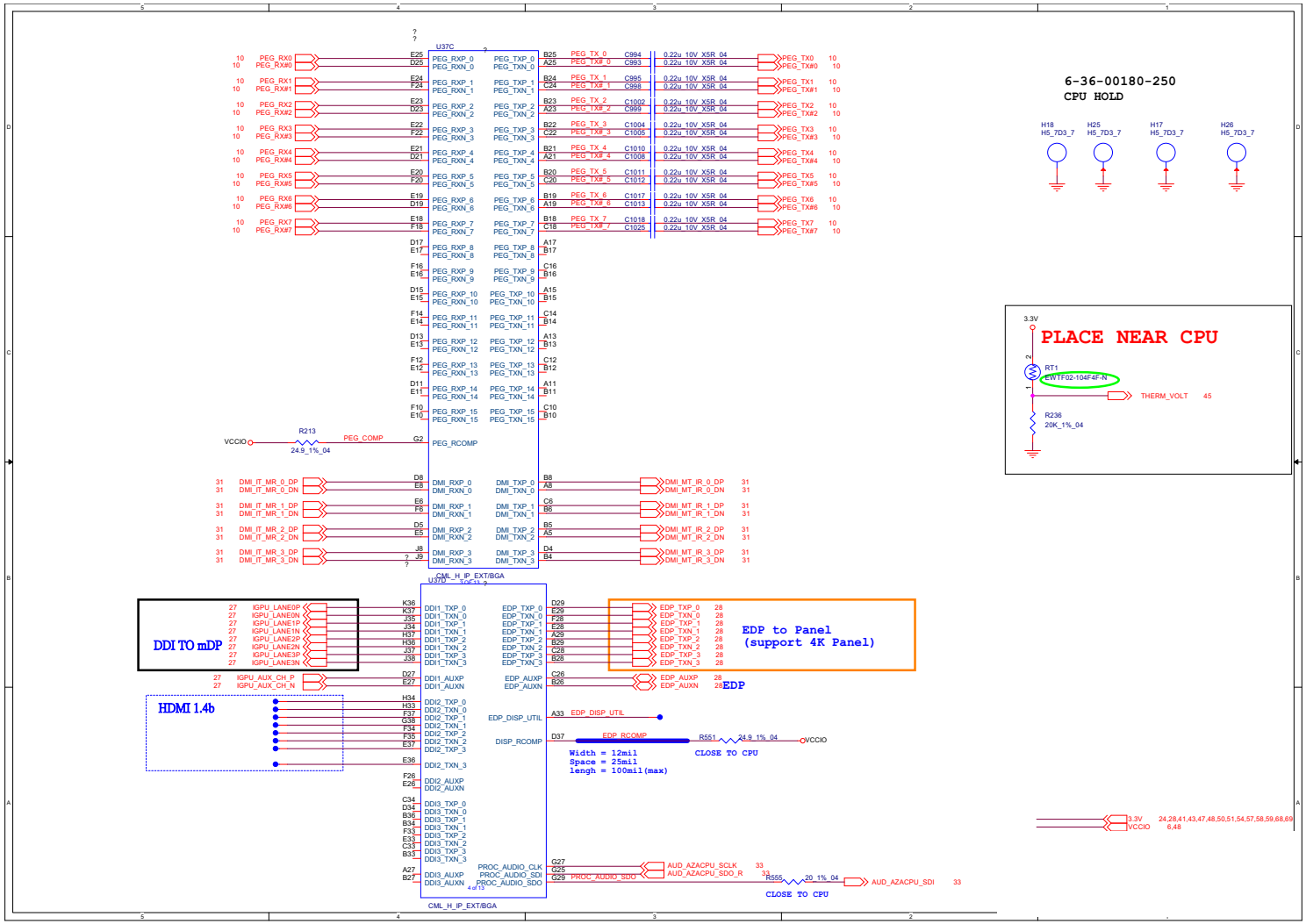
The schematic diagrams in this chapter are based upon version 6-7P-NH5D8-002. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

System Block Diagram

Sheet 1 of 67
System Block Diagram



Processor 1/6

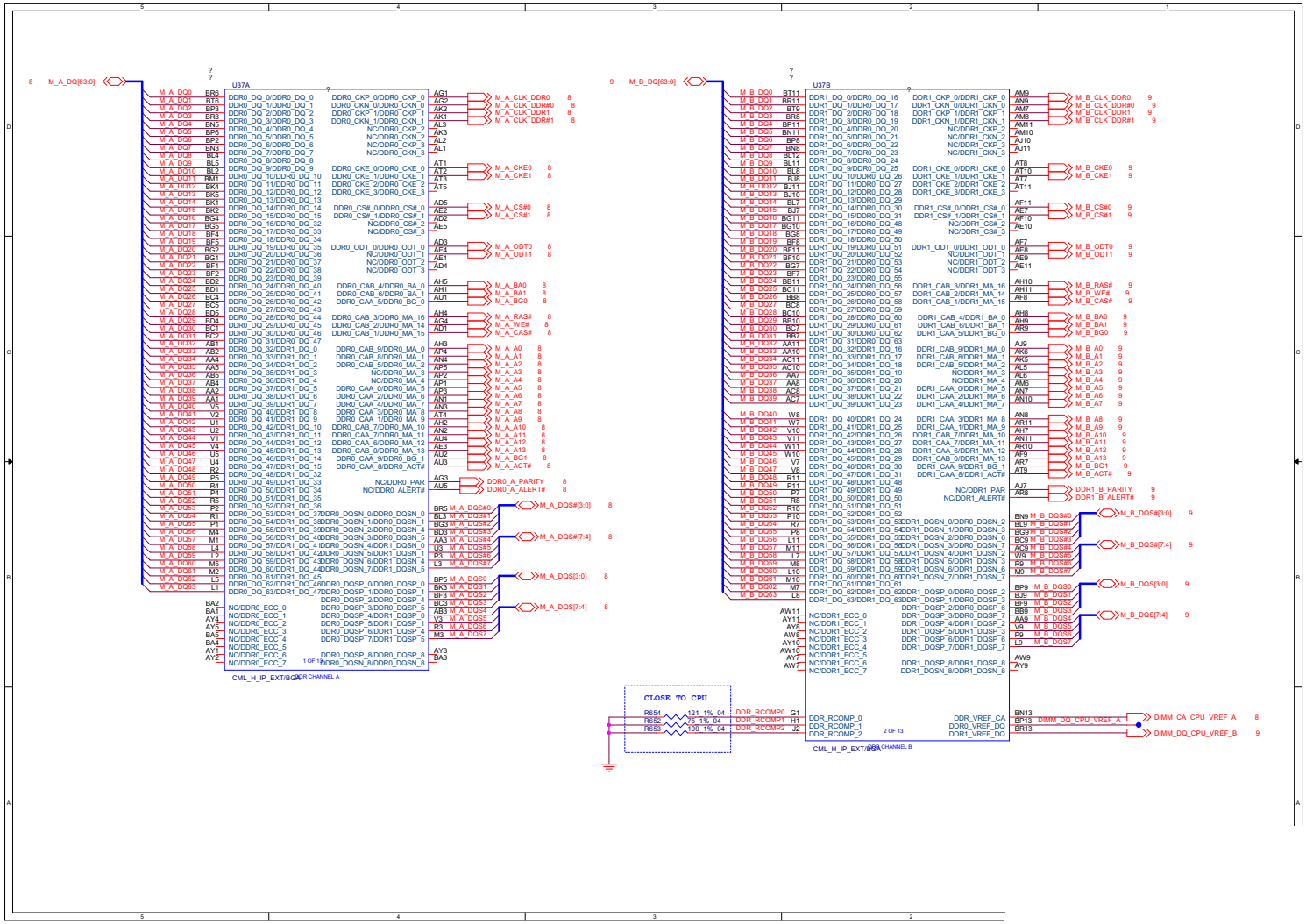


Sheet 2 of 67
Processor 1/6

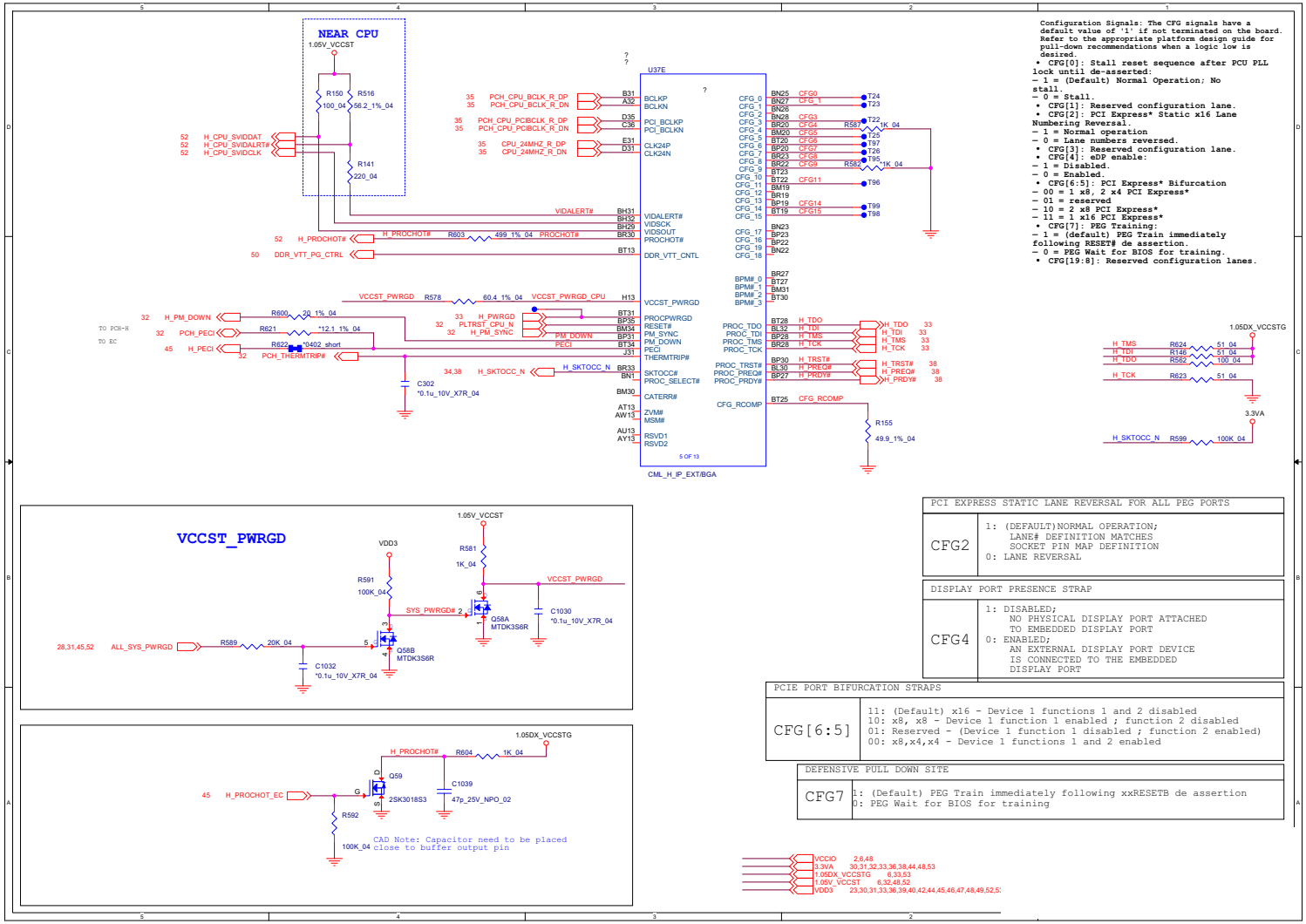
B.Schematic Diagrams

Processor 2/6

Sheet 3 of 67
Processor 2/6



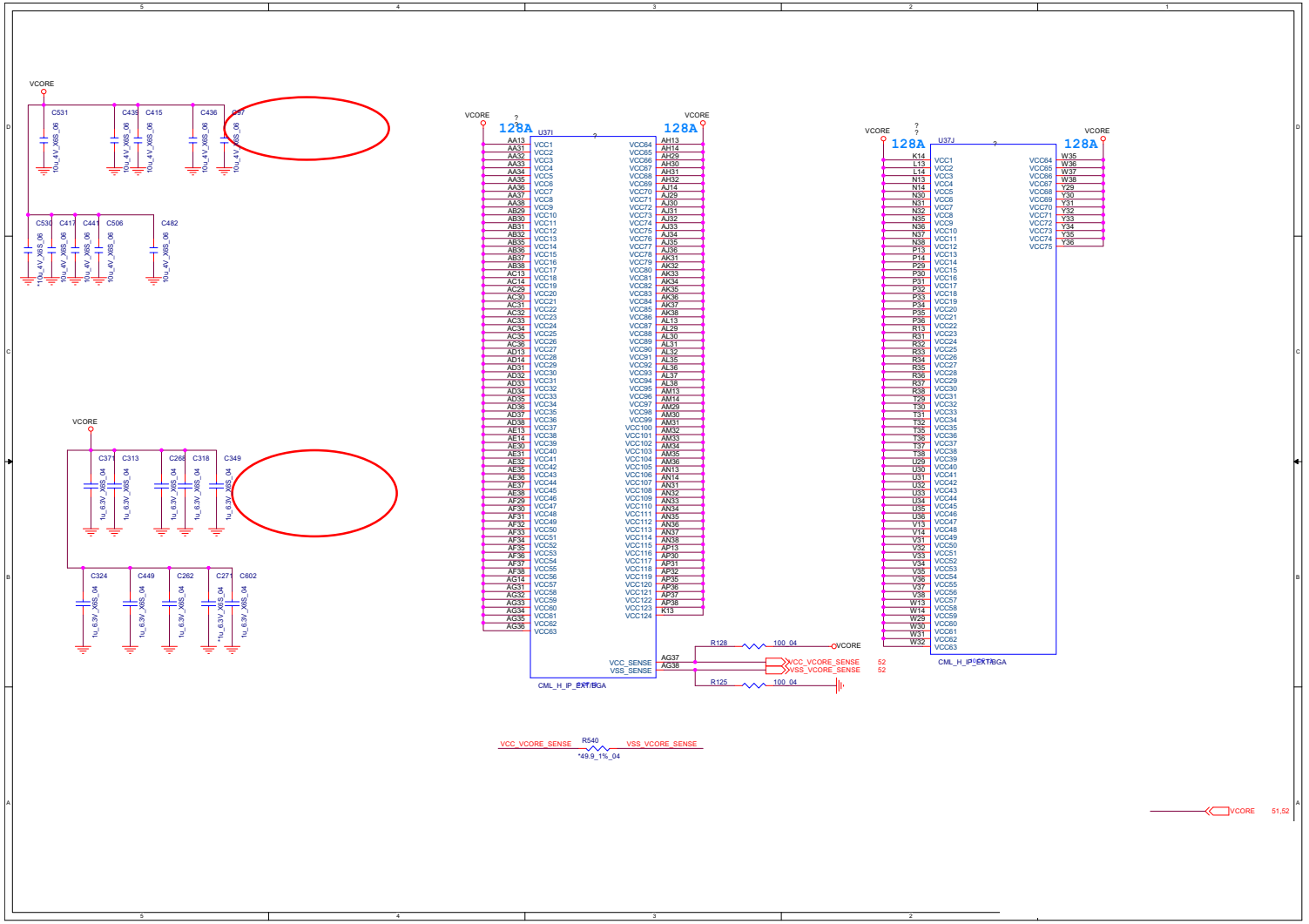
Processor 3/6



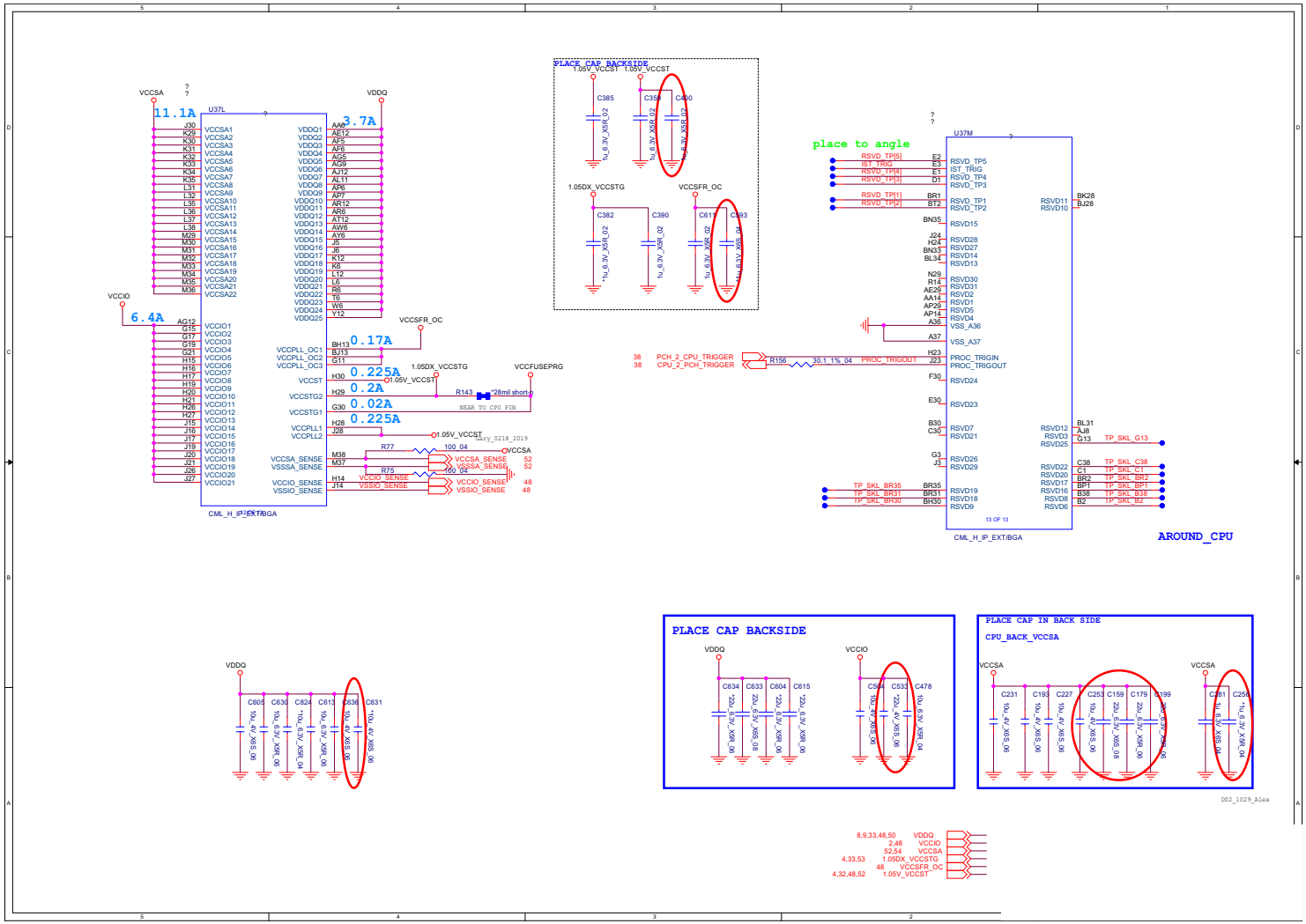
Sheet 4 of 67
Processor 3/6

Processor 4/6

Sheet 5 of 67
Processor 4/6



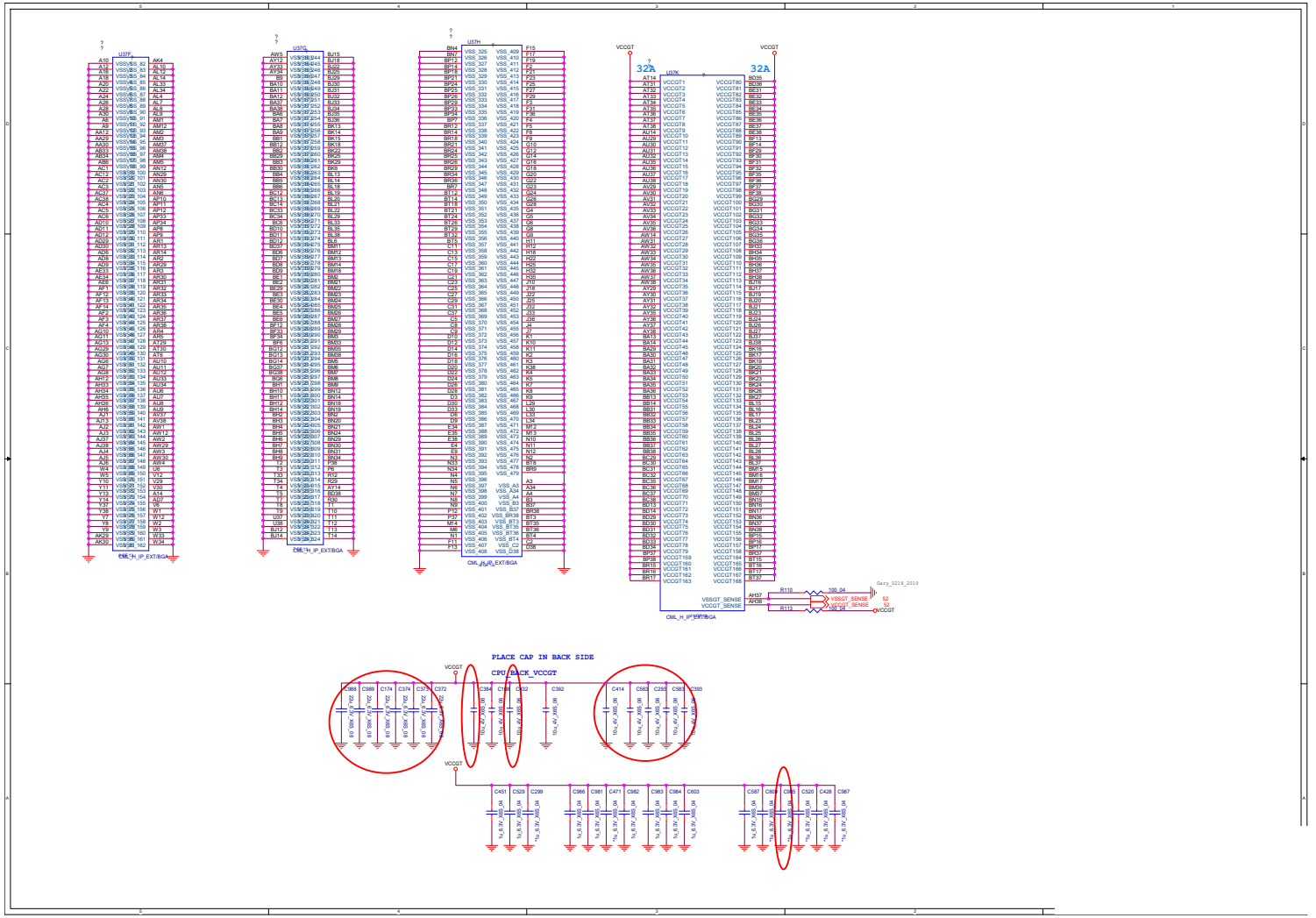
Processor 5/6



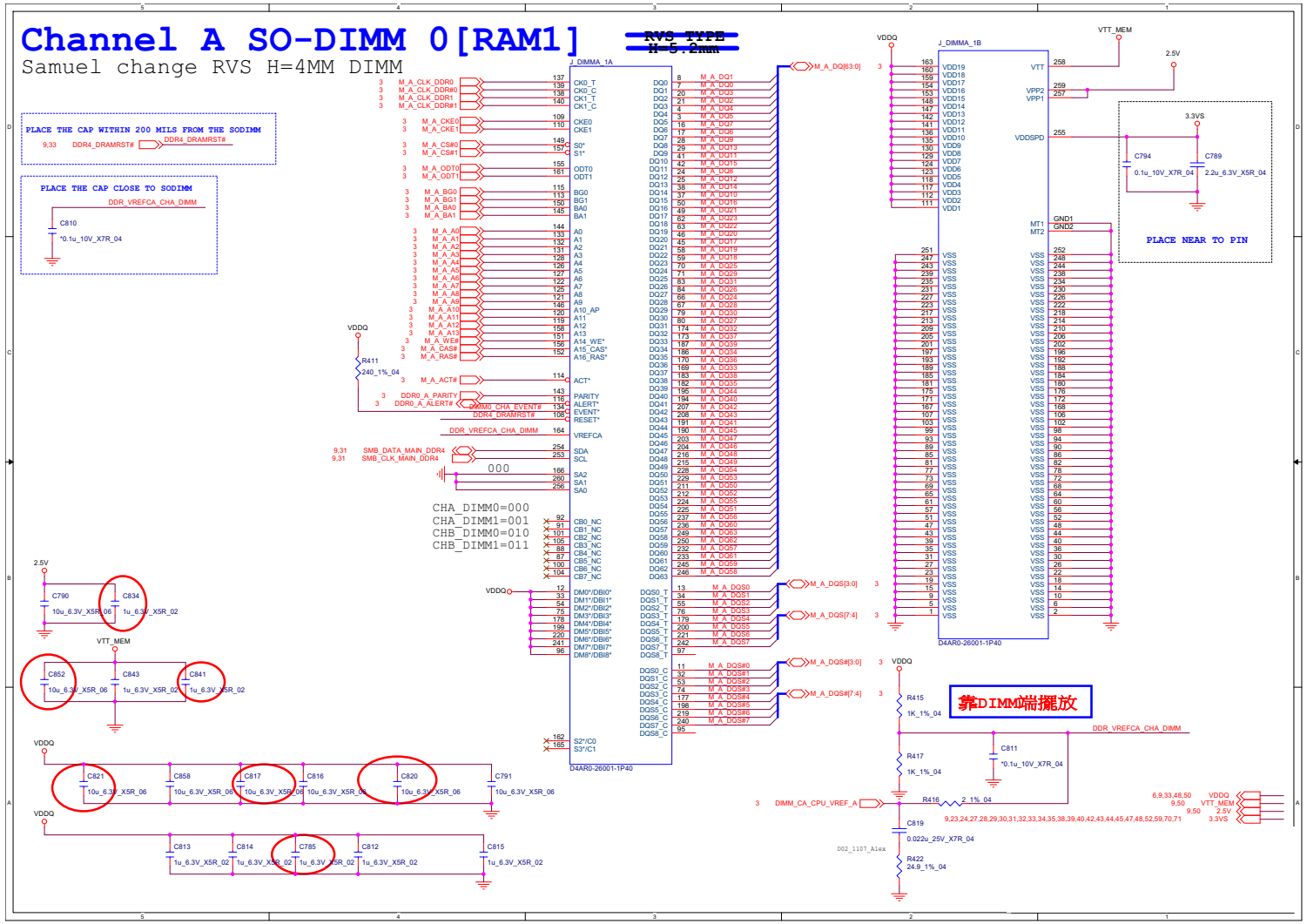
Sheet 6 of 67
Processor 5/6

Processor 6/6

Sheet 7 of 67
Processor 6/6



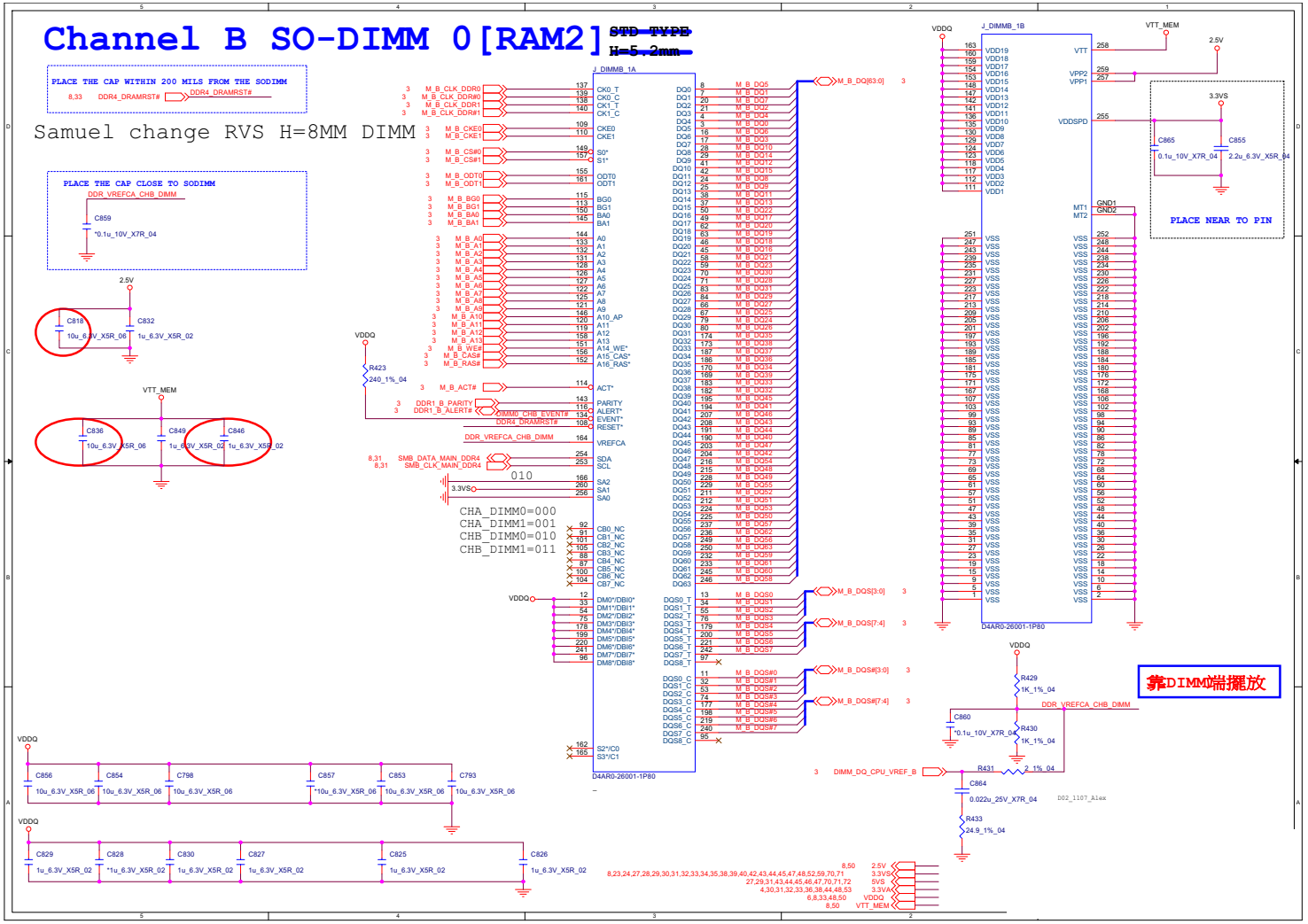
DDR4 CHA SO-DIMM



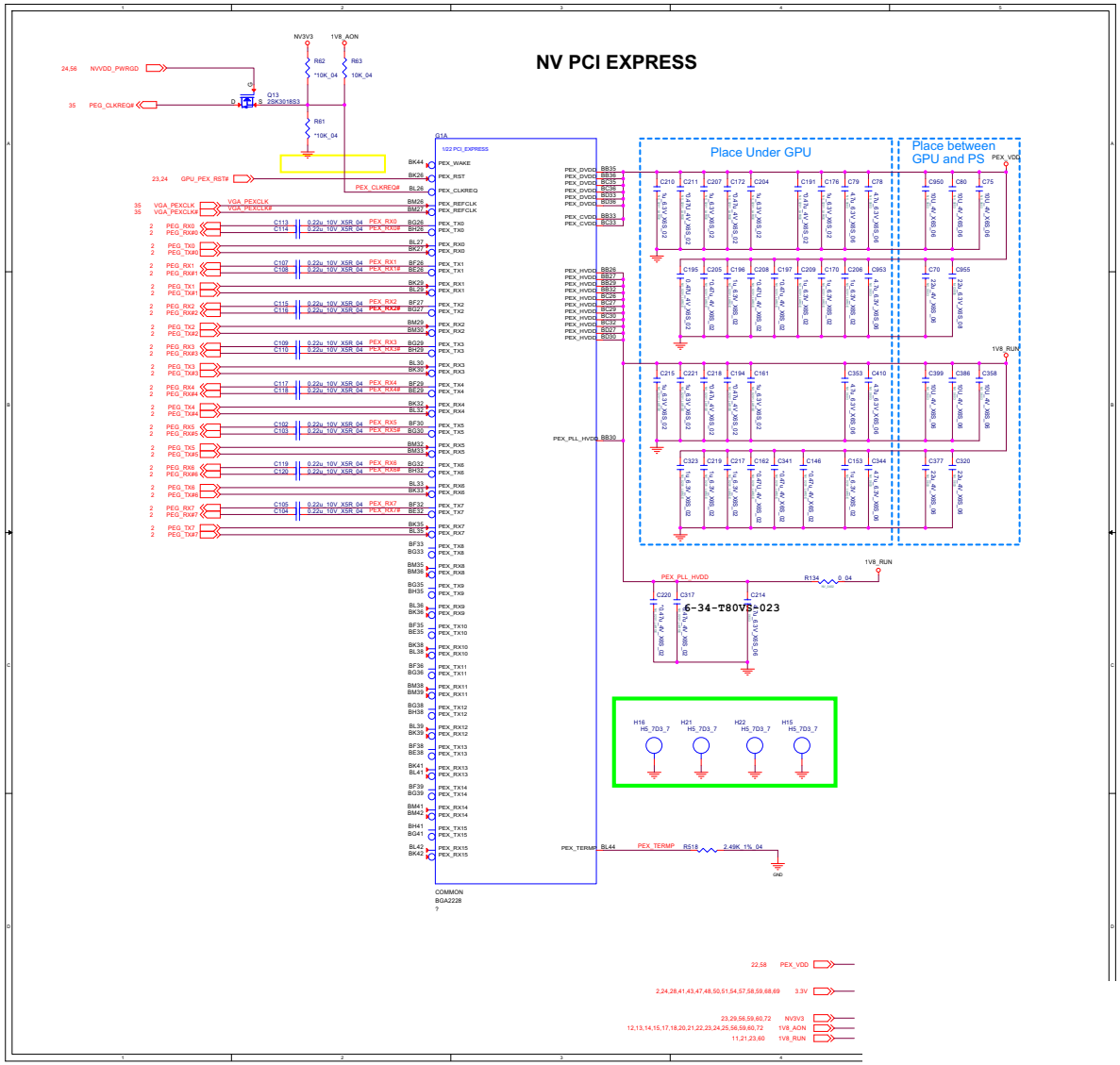
Sheet 8 of 67
DDR4 CHA SO-DIMM

DDR4 CHB SO-DIMM

Sheet 9 of 67
DDR4 CHB SO-DIMM



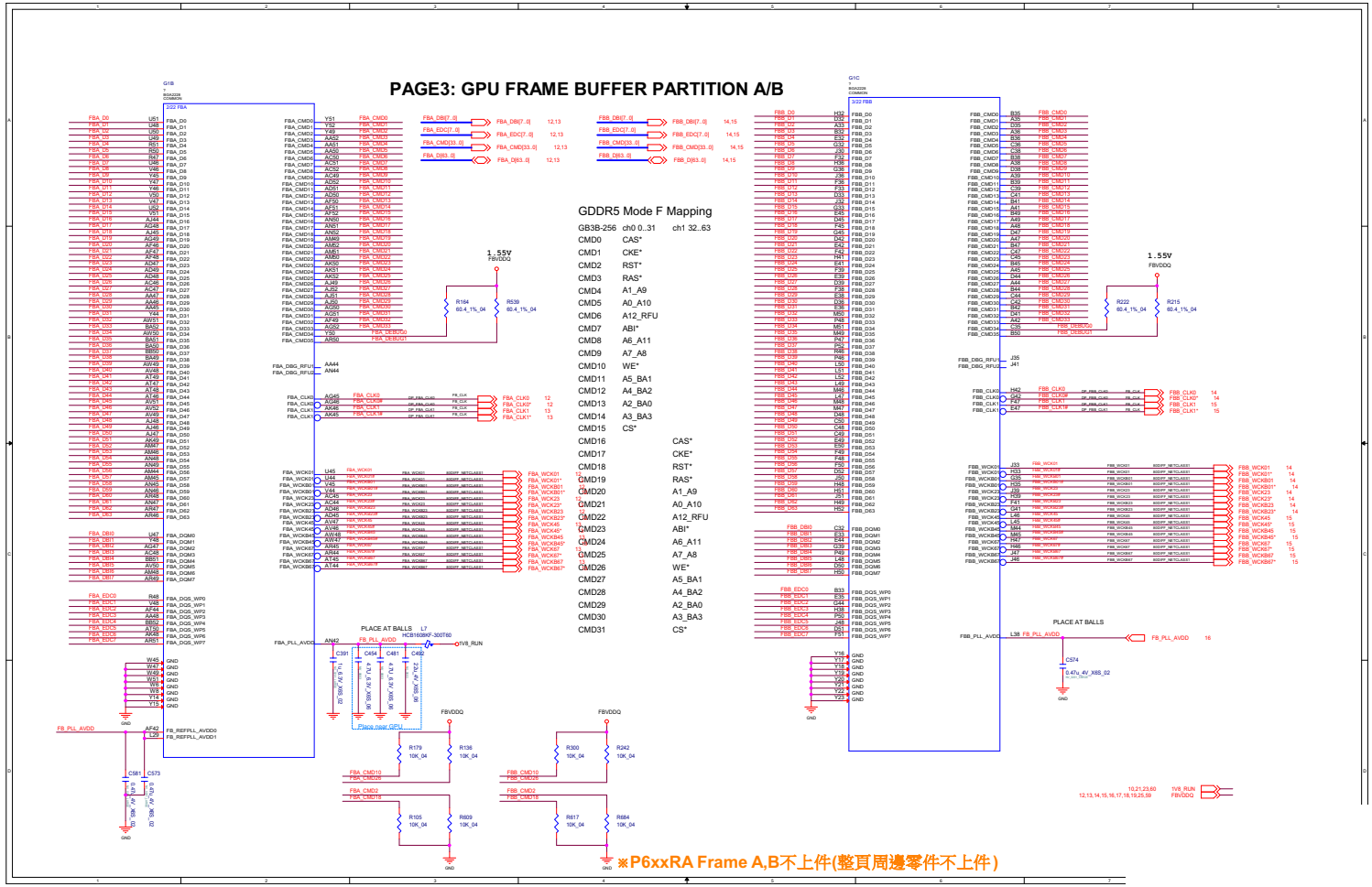
VGA PCI Express



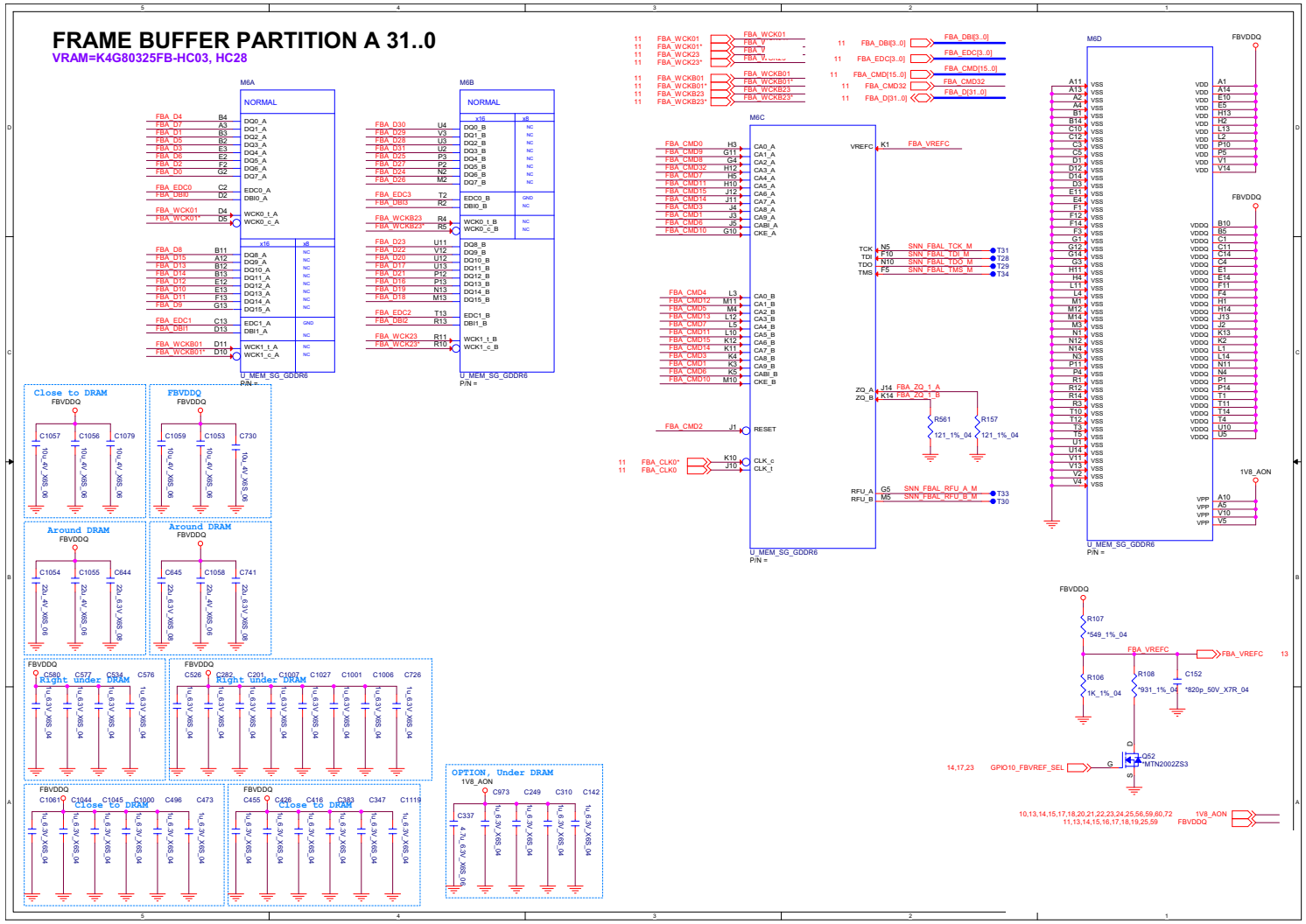
Sheet 10 of 67
VGA PCI Express

GPU Frame Buffer A/B

Sheet 11 of 67
GPU Frame Buffer A/B



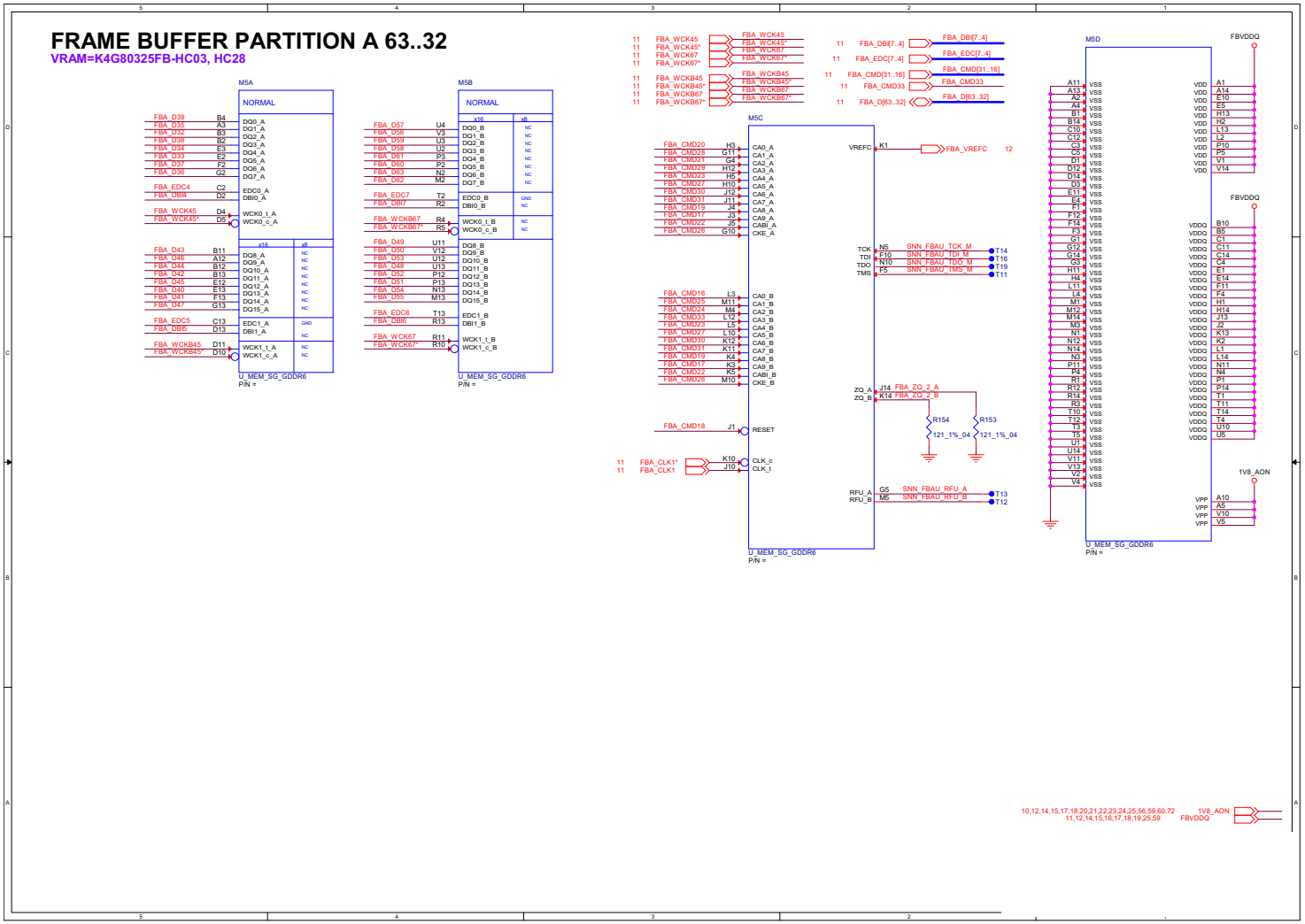
Frame Buffer A



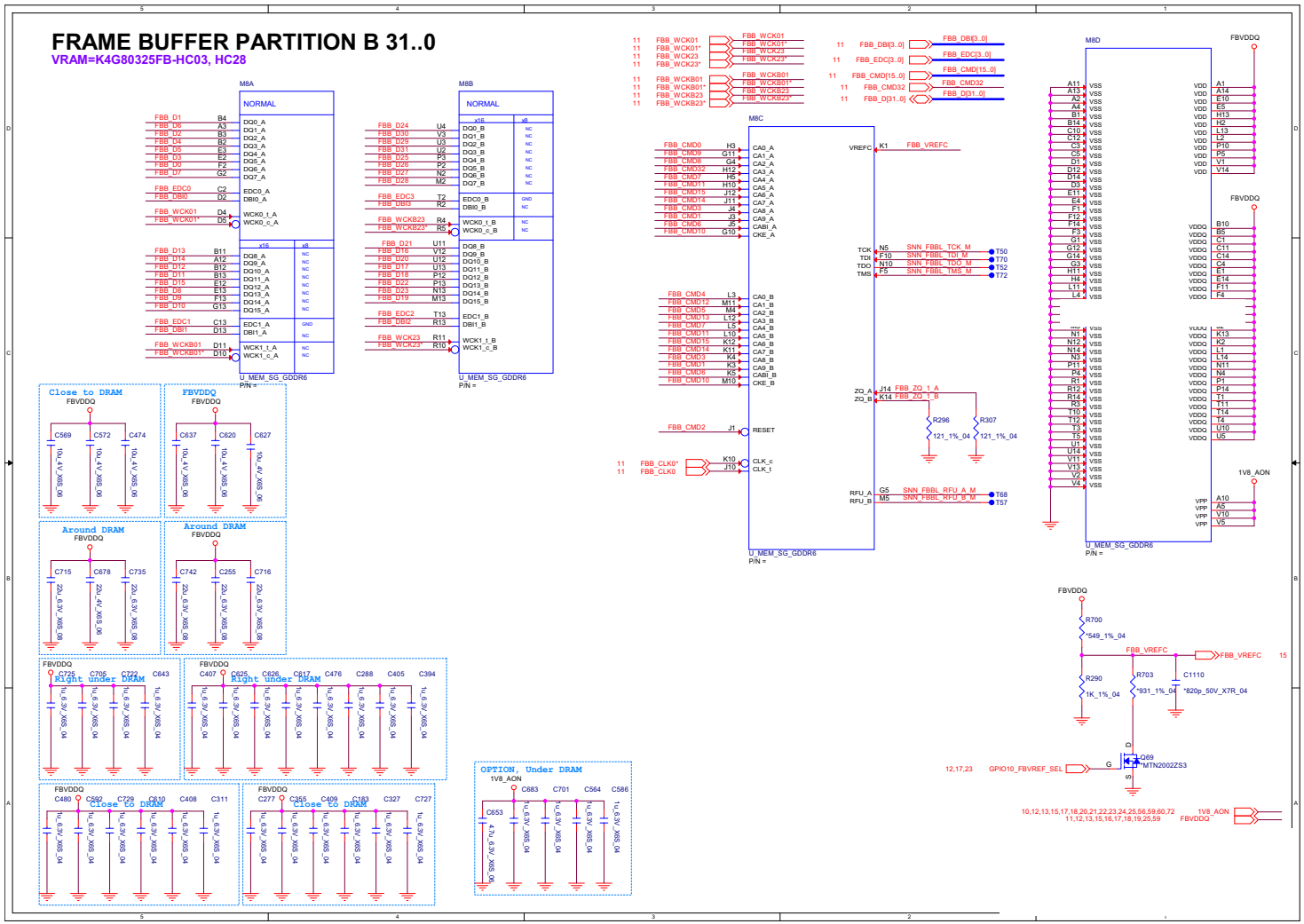
Sheet 12 of 67
Frame Buffer A

Frame Buffer A

Sheet 13 of 67
Frame Buffer A



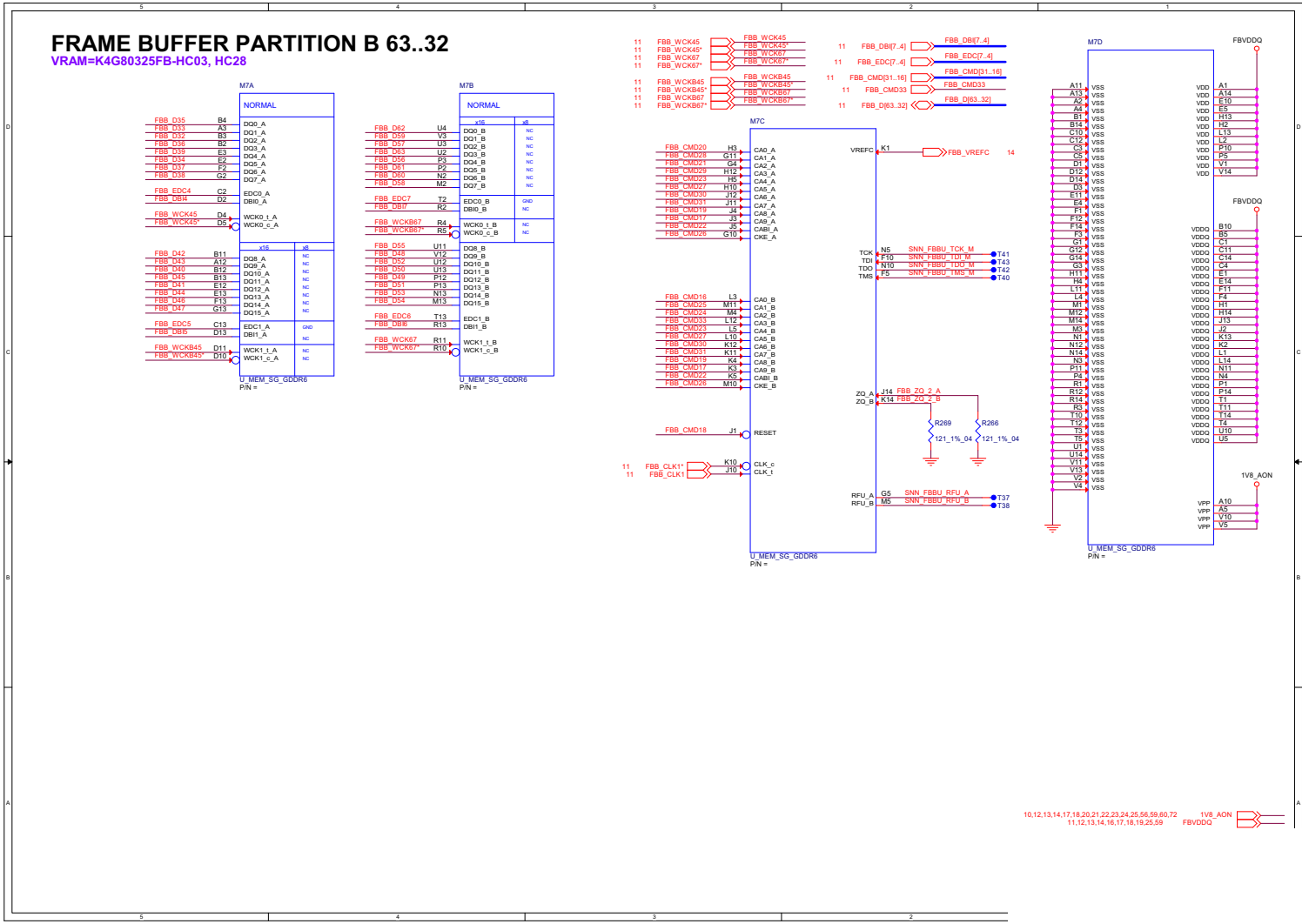
Frame Buffer B



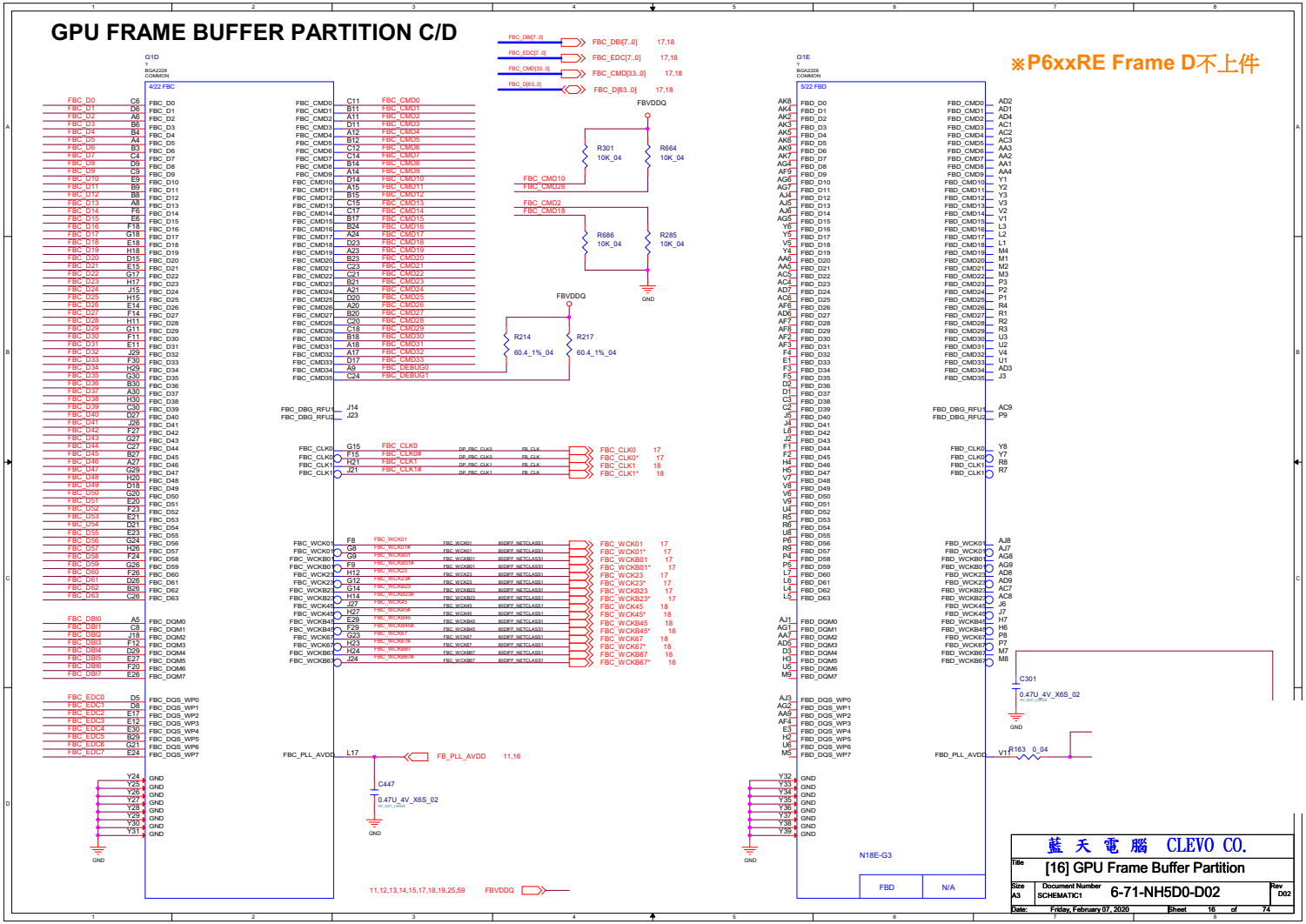
Sheet 14 of 67
Frame Buffer B

Frame Buffer B

Sheet 15 of 67
Frame Buffer B



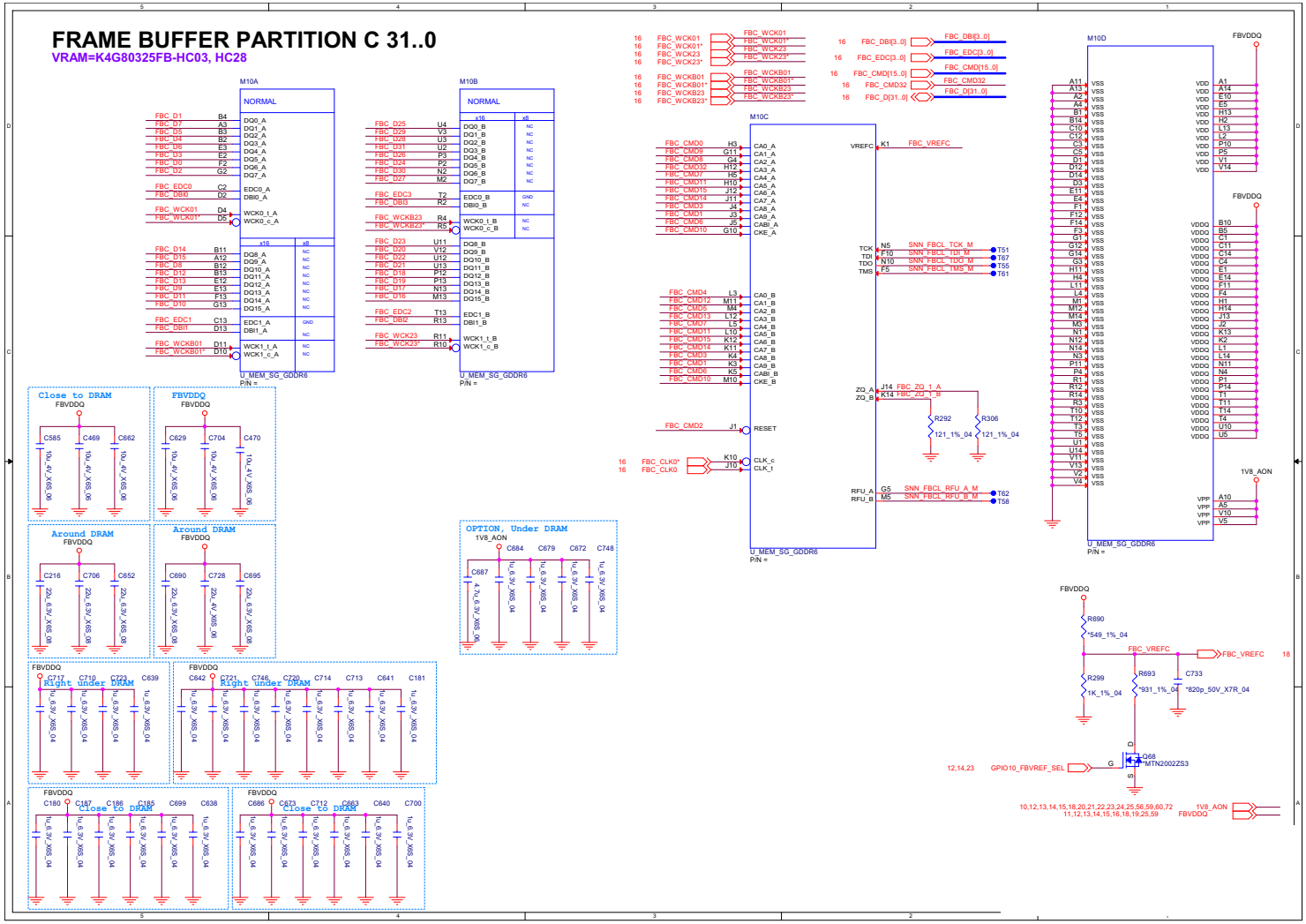
GPU Frame Buffer C/D



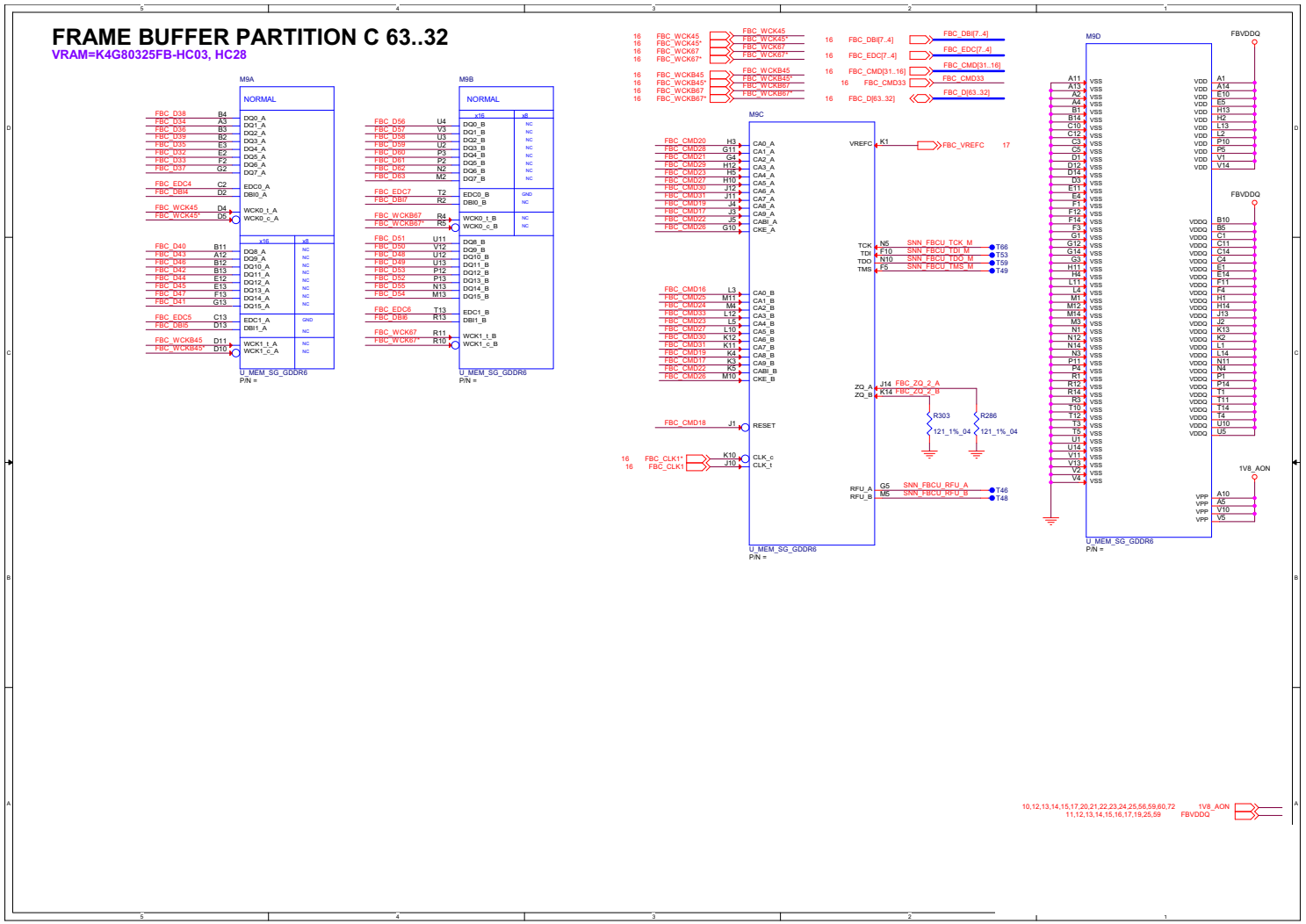
Sheet 16 of 67
GPU Frame Buffer
C/D

Frame Buffer C

Sheet 17 of 67
Frame Buffer C



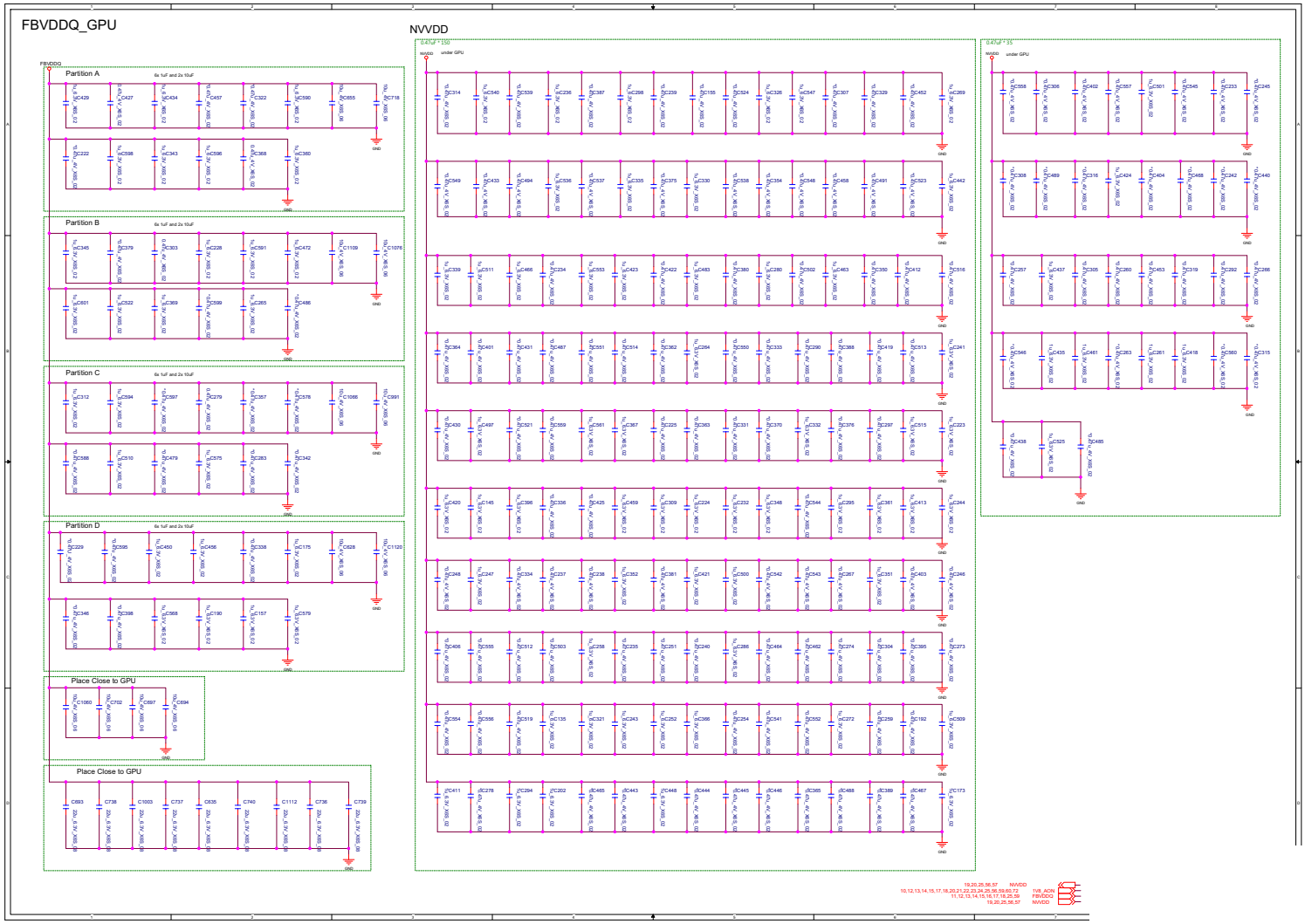
Frame Buffer C



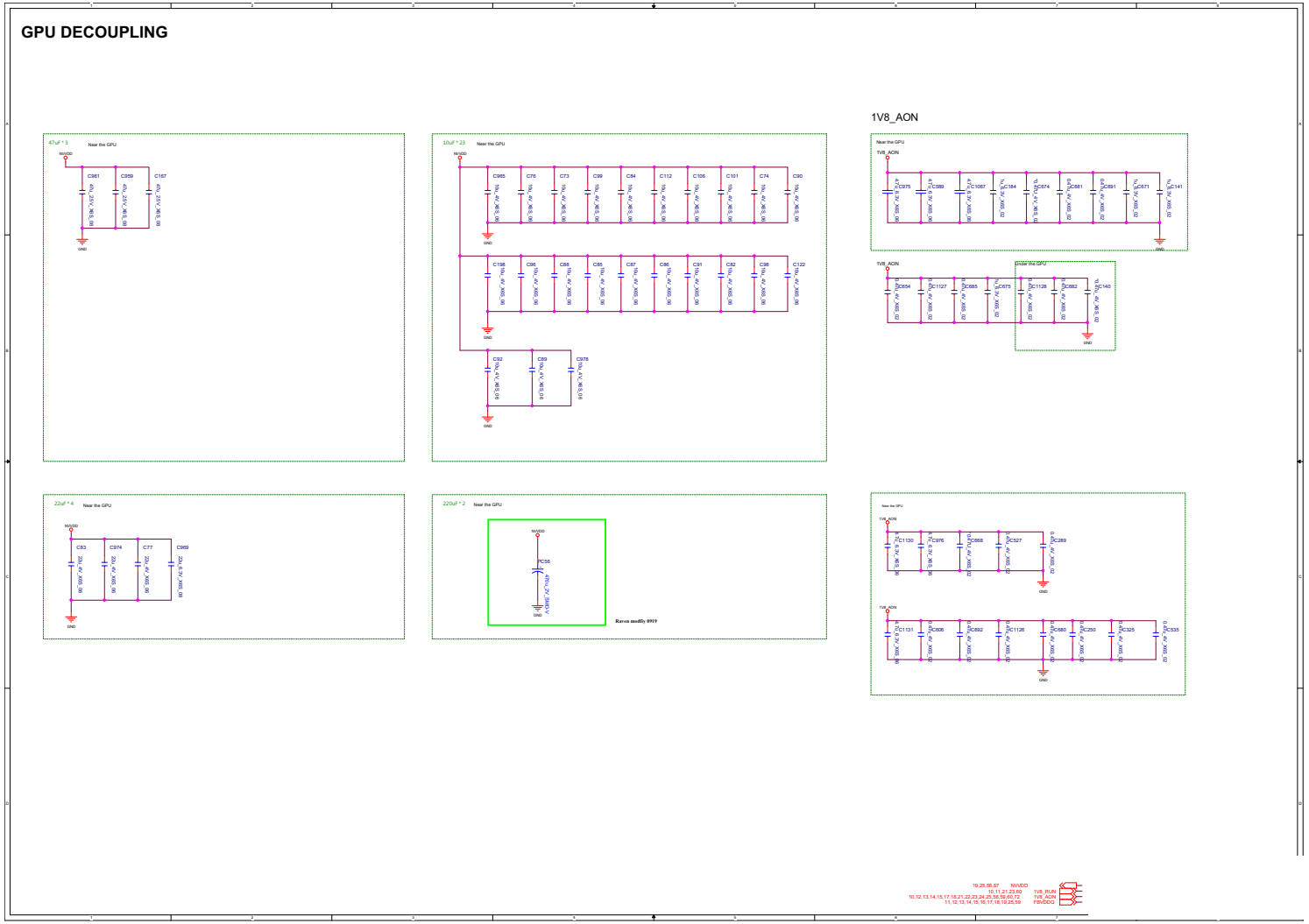
Sheet 18 of 67
Frame Buffer C

GPU Decoupling 1

Sheet 19 of 67
GPU Decoupling 1



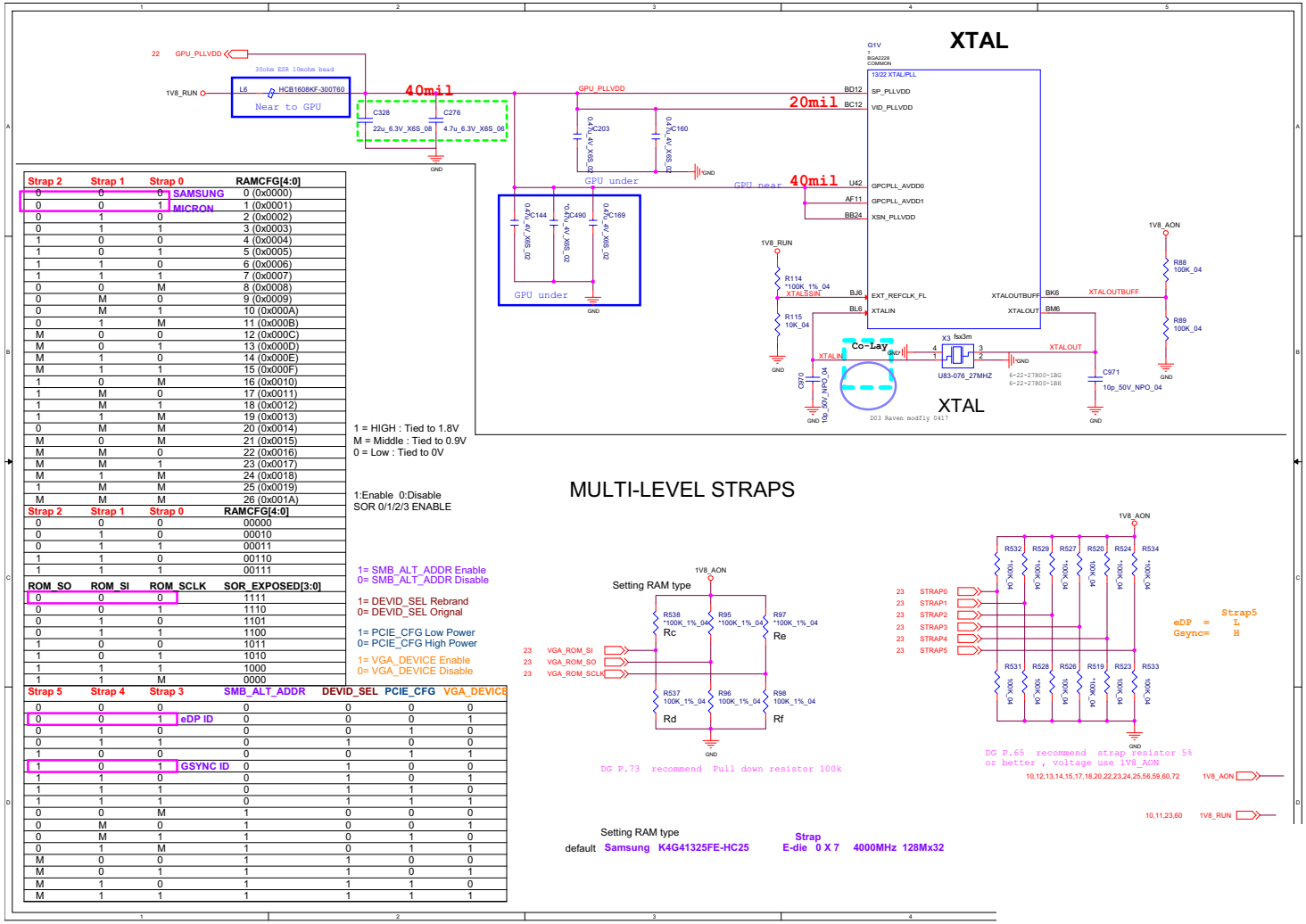
GPU Decoupling 2



Sheet 20 of 67
GPU Decoupling 2

Straps and XTAL

Sheet 21 of 67
Straps and XTAL



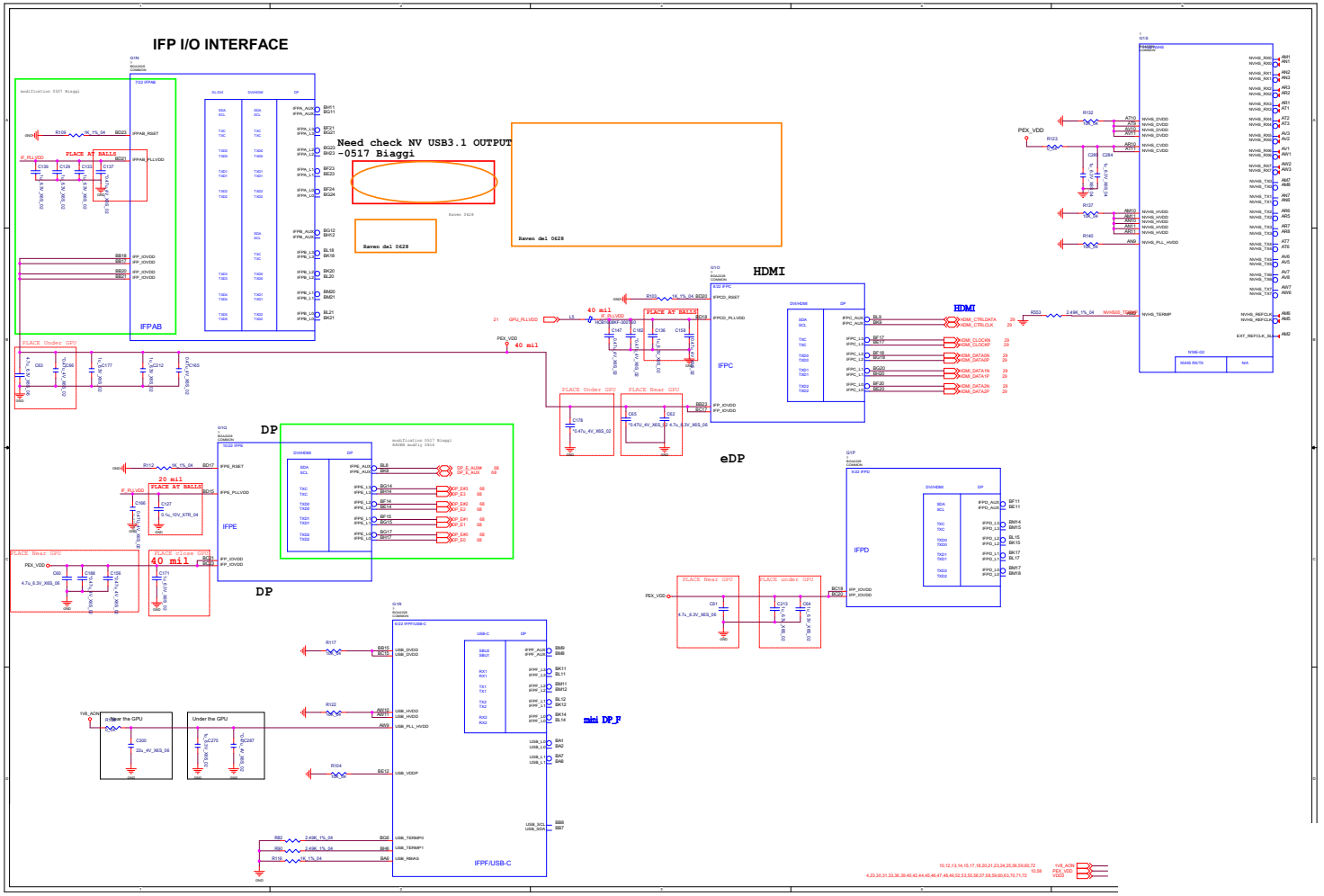
Strap 2	Strap 1	Strap 0	RAMCFG[4:0]
0	0	0	SAMSUNG 0 (0x0000)
0	0	1	MICRON 1 (0x0001)
0	1	0	2 (0x0002)
0	1	1	3 (0x0003)
1	0	0	4 (0x0004)
1	0	1	5 (0x0005)
1	1	0	6 (0x0006)
1	1	1	7 (0x0007)
0	0	M	8 (0x0008)
0	M	0	9 (0x0009)
0	M	1	10 (0x000A)
0	1	M	11 (0x000B)
M	0	0	12 (0x000C)
M	0	1	13 (0x000D)
M	1	0	14 (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	0	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	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	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

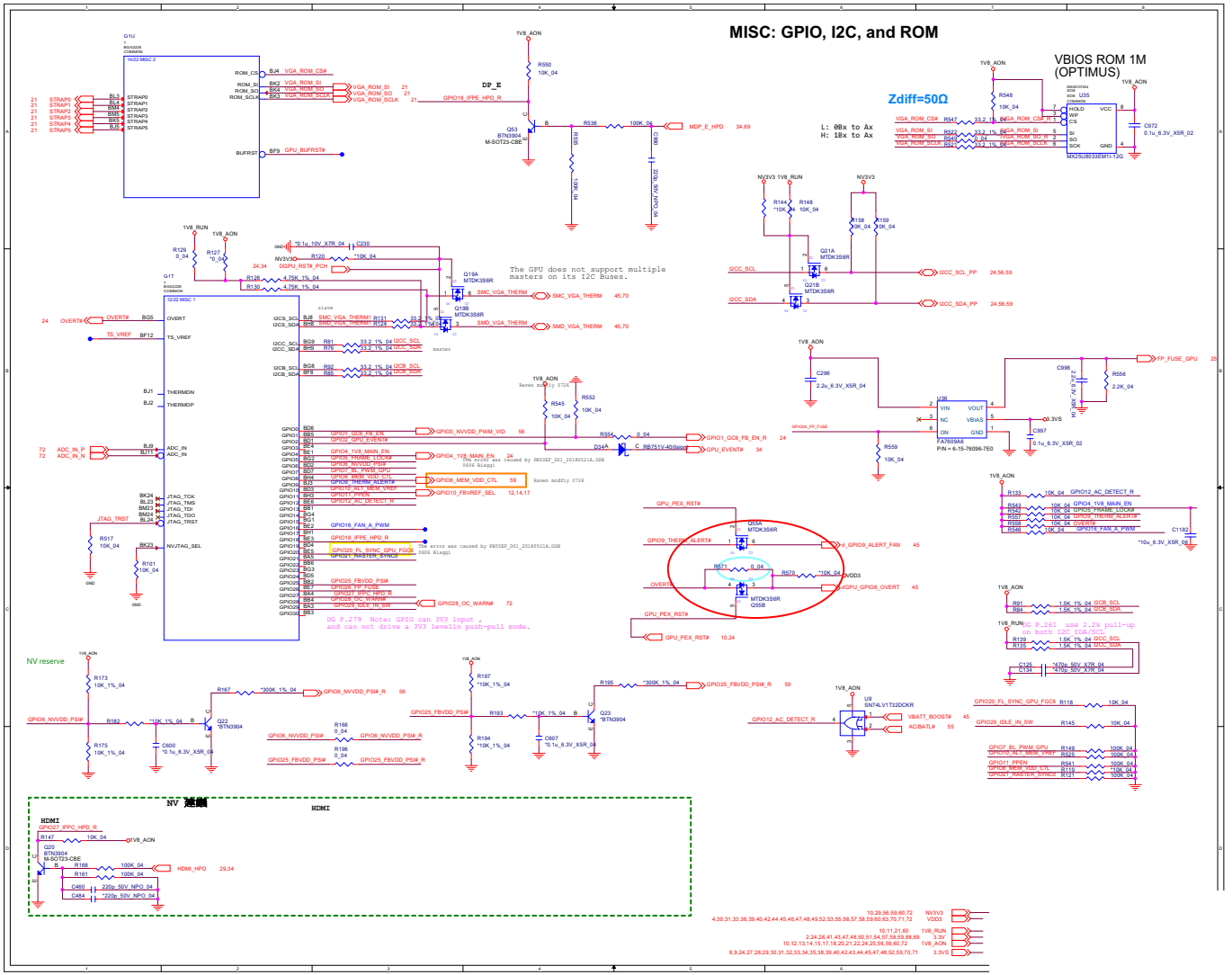
IFP I/O Interface



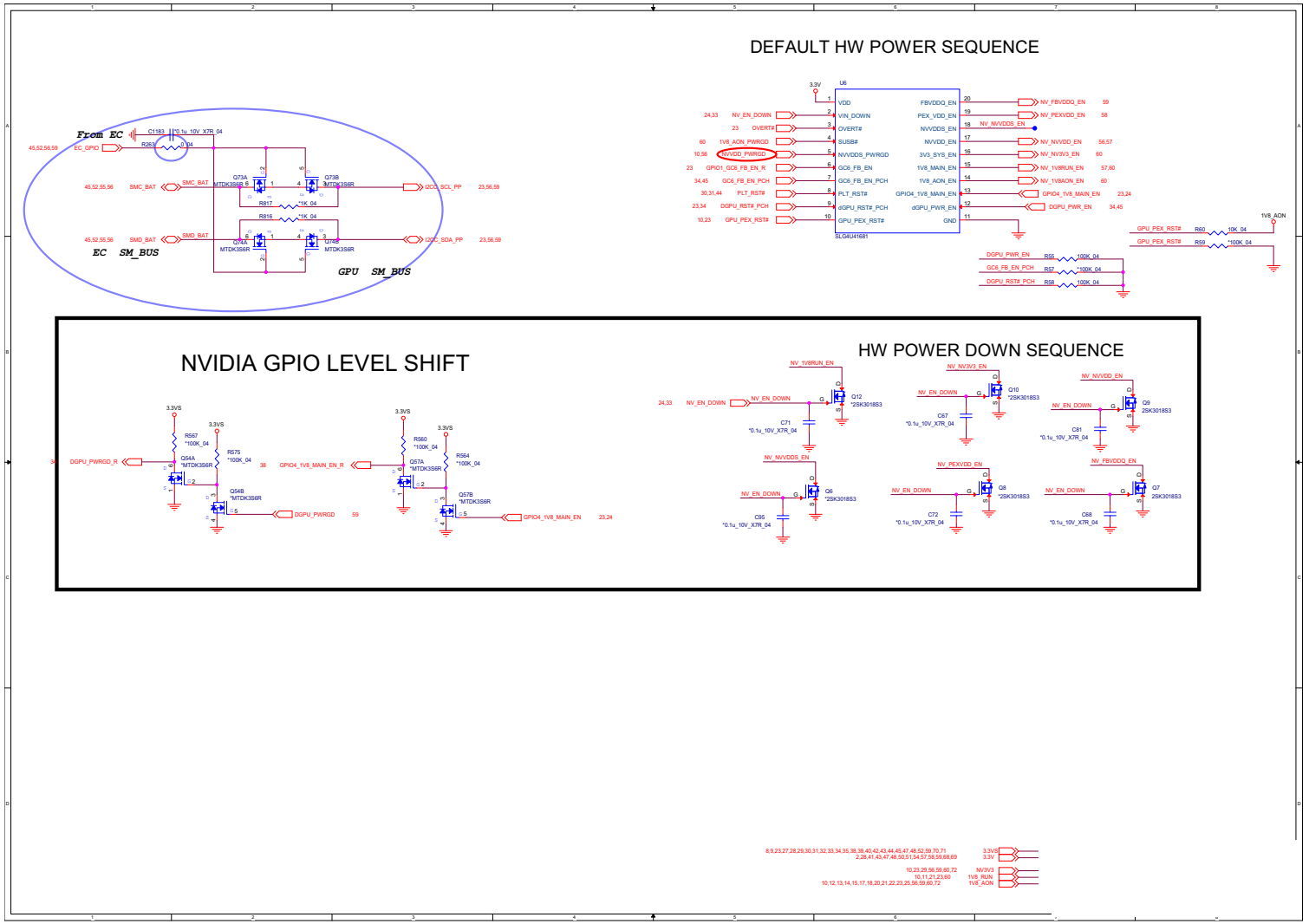
Sheet 22 of 67
IFP I/O Interface

Misc - GPIO, I2C and ROM

Sheet 23 of 67
Misc - GPIO, I2C, and ROM



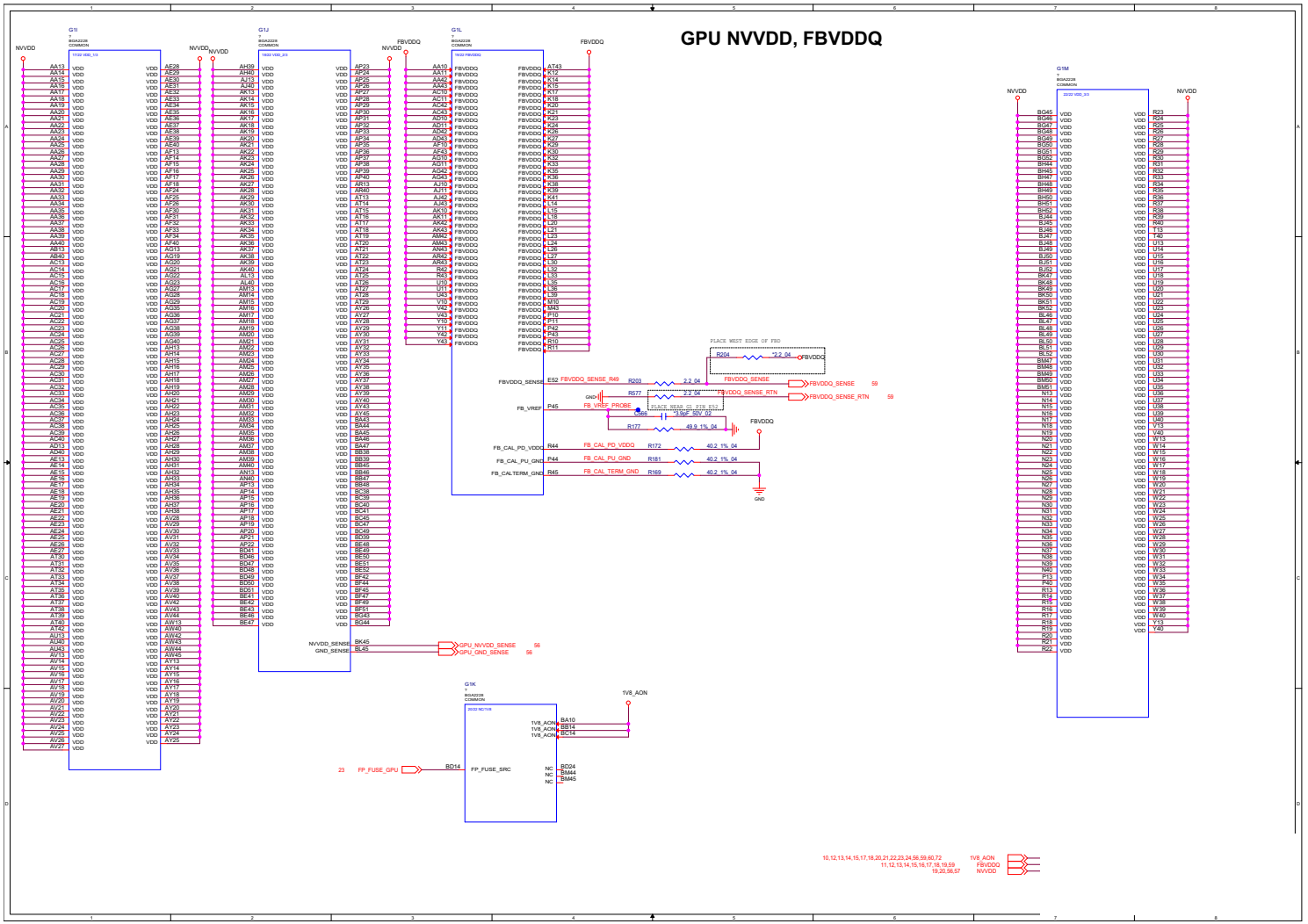
NVIDIA Power Sequence



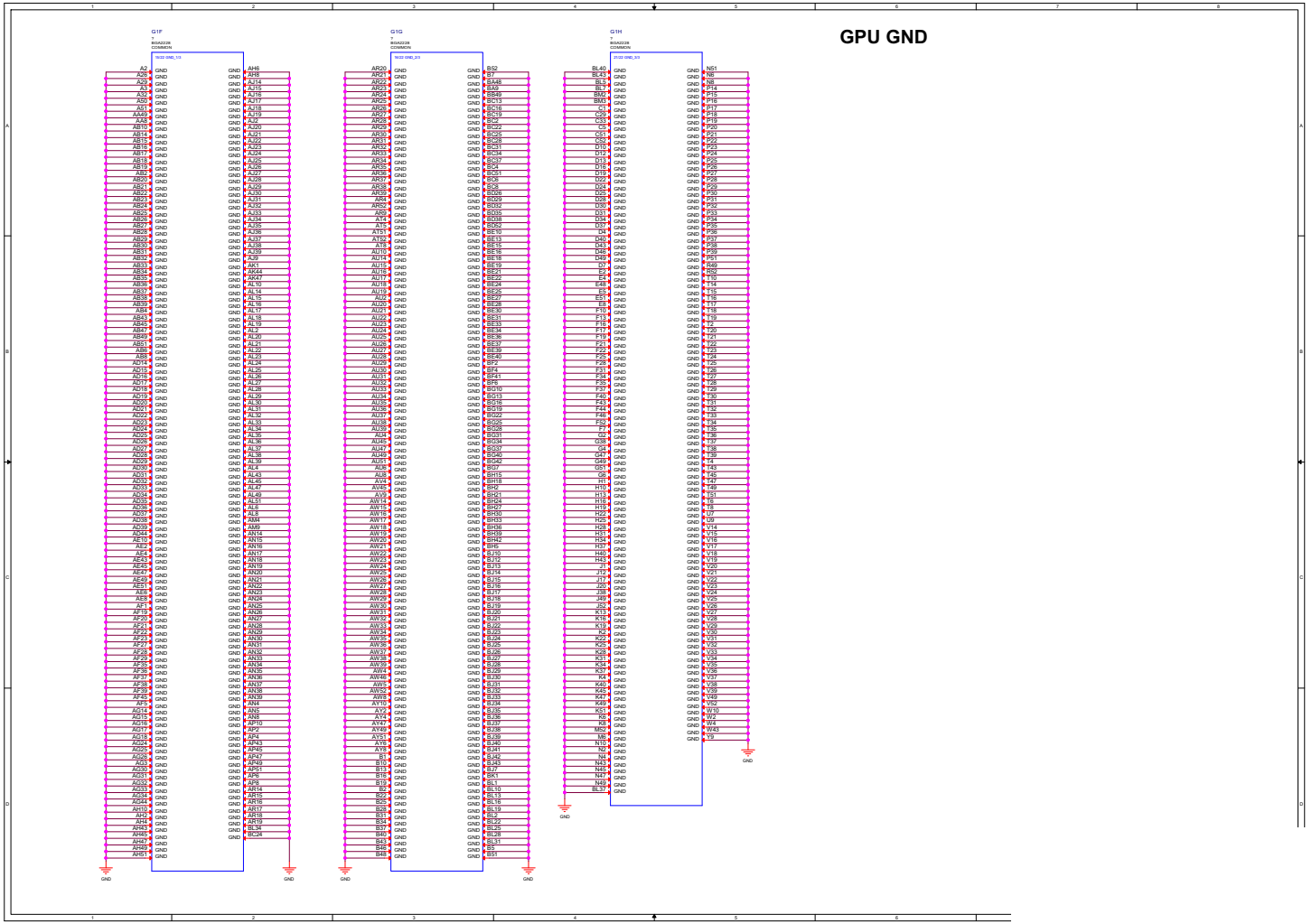
Sheet 24 of 67
NVIDIA Power Sequence

GPU NVVDD, FBVDDQ

Sheet 25 of 67
GPU NVVDD, FBVDDQ



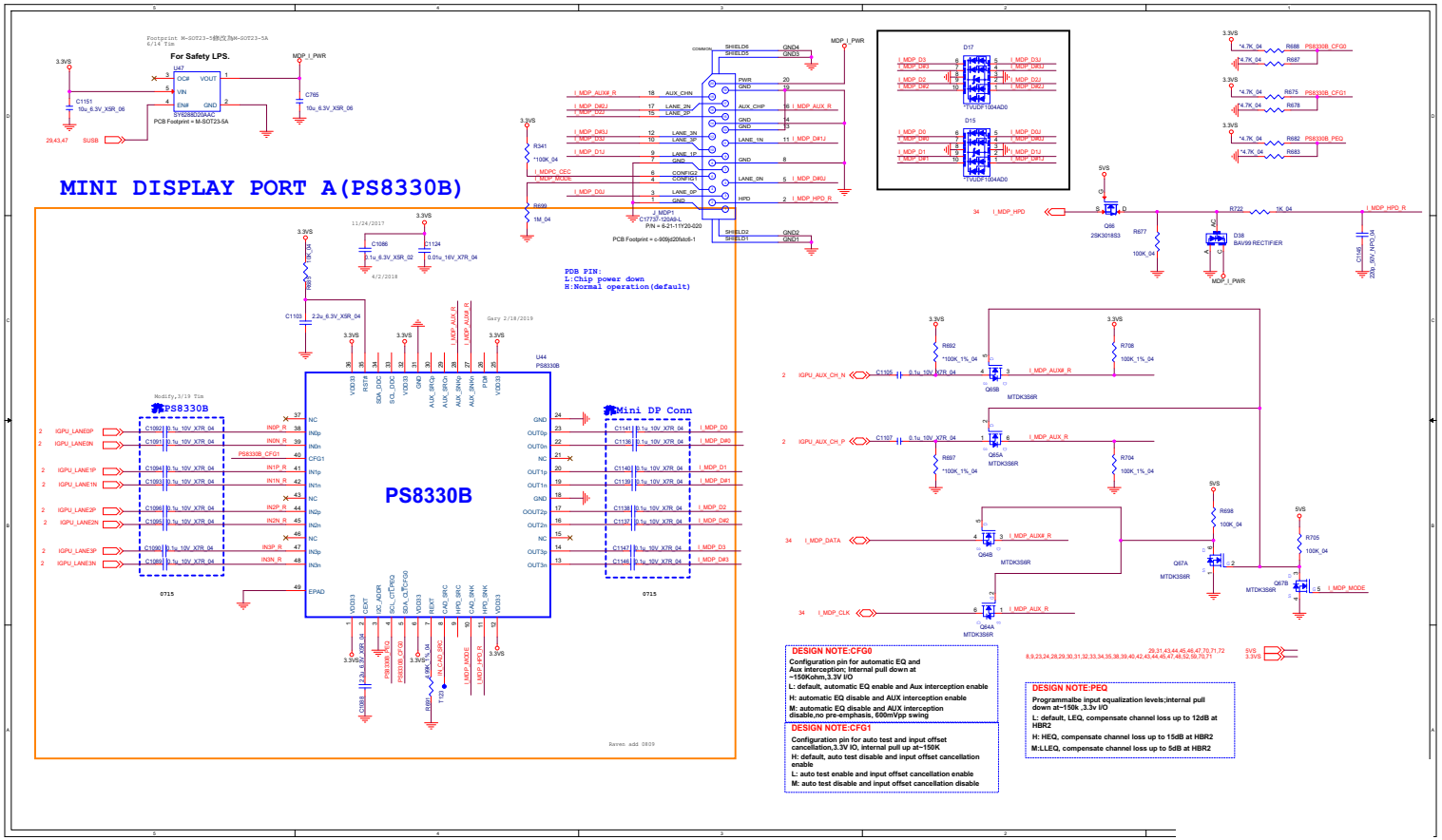
GPU GND



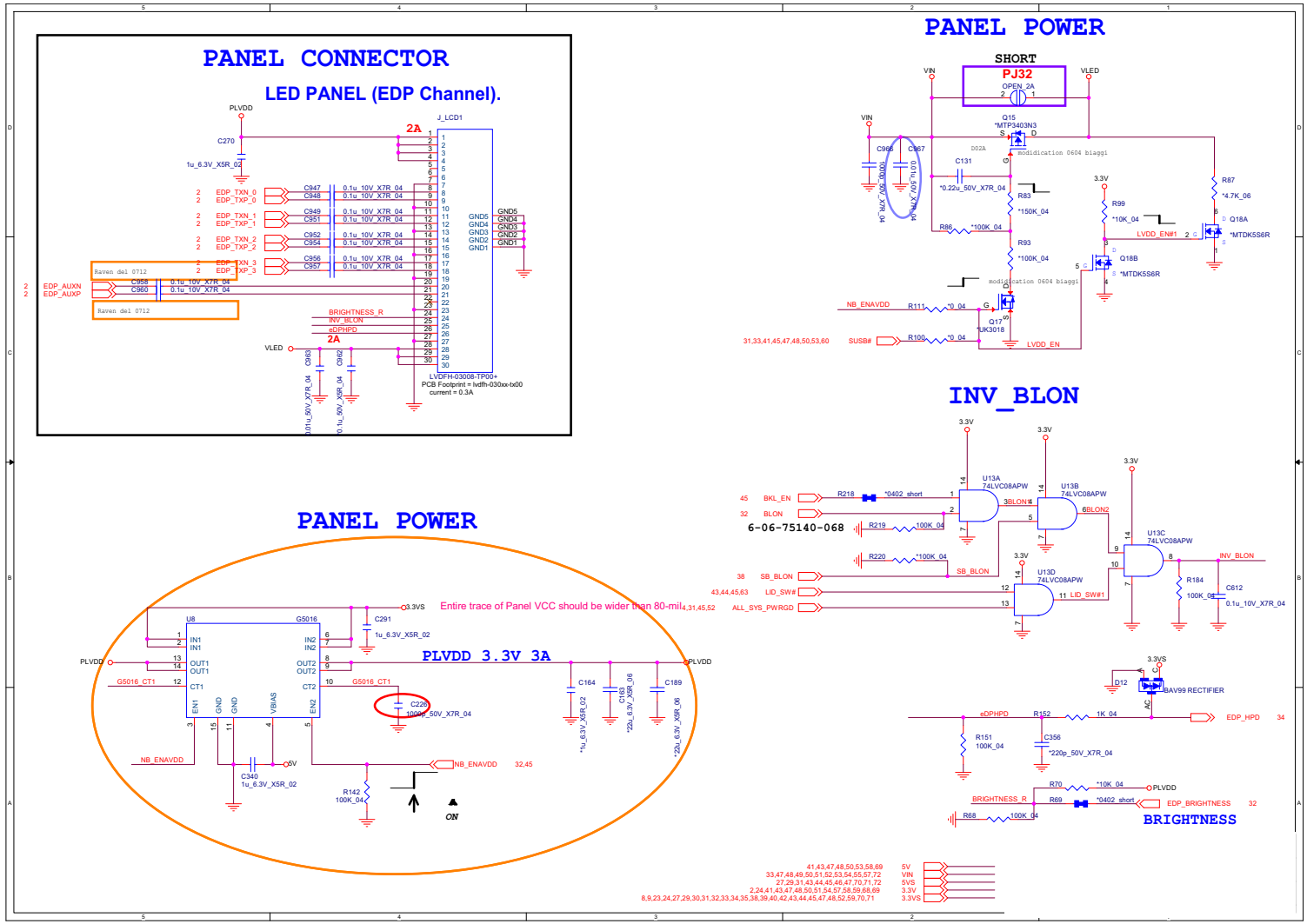
Sheet 26 of 67
GPU GND

mDP

Sheet 27 of 67
mDP



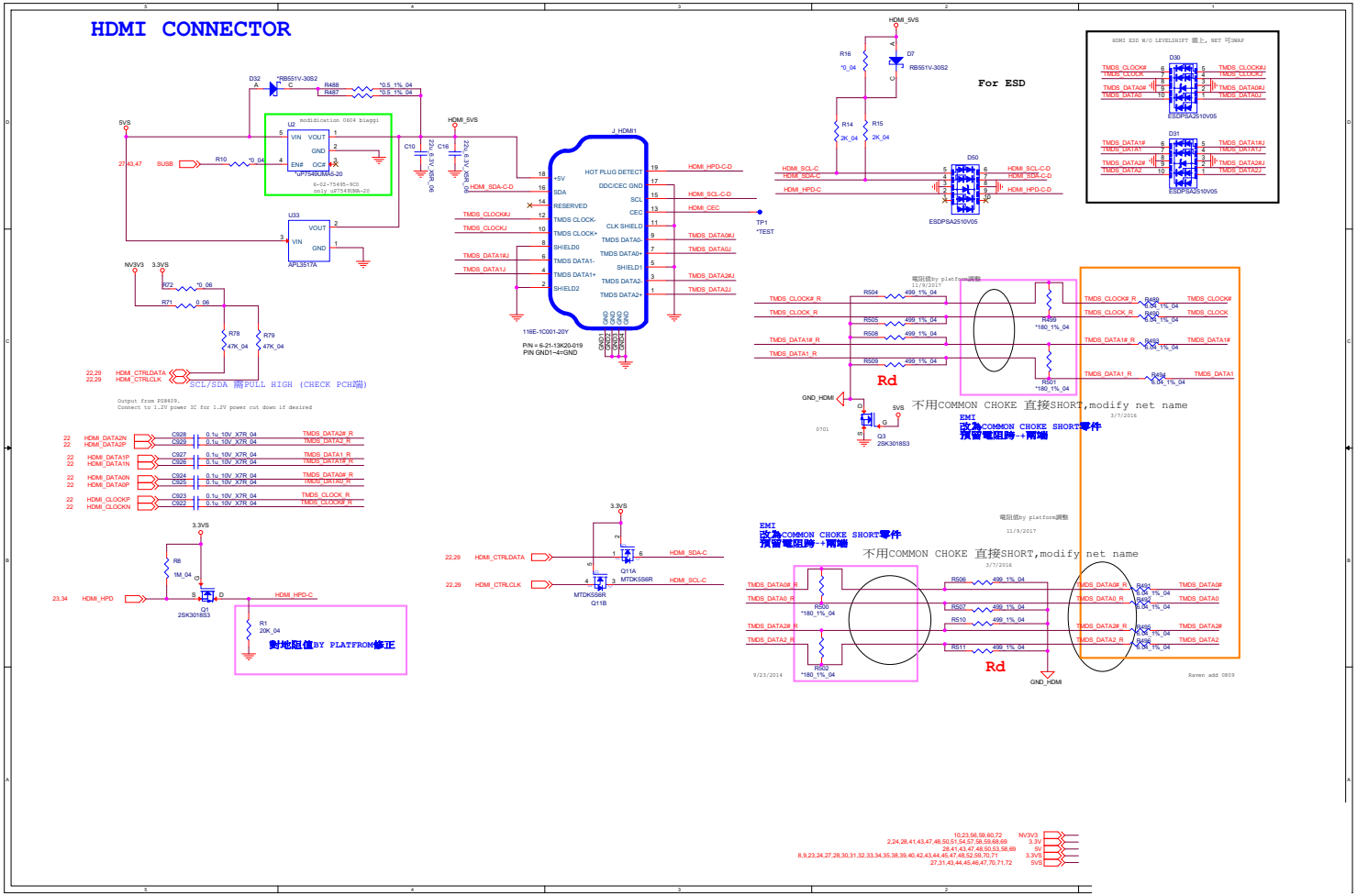
Panel, Inverter



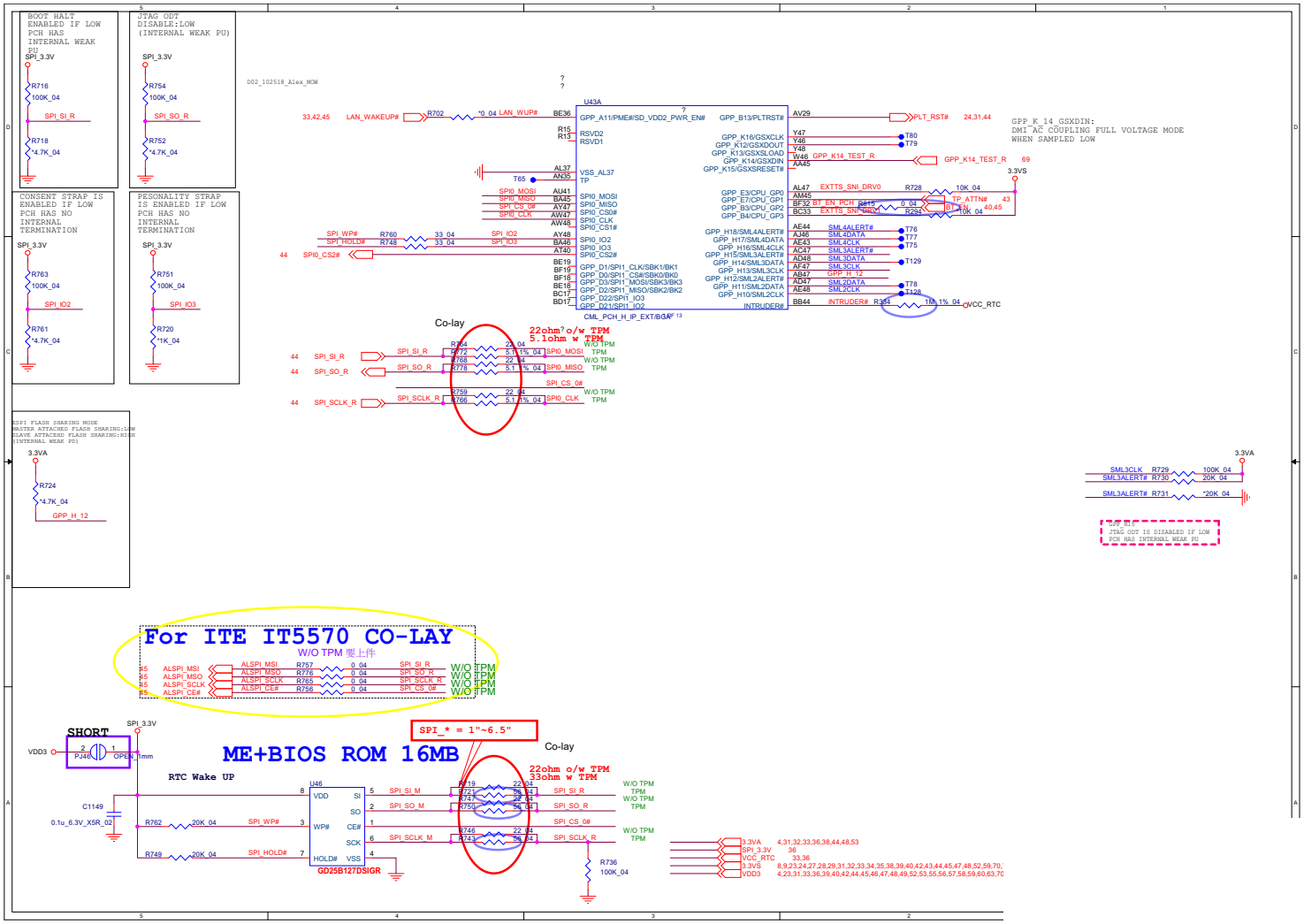
Sheet 28 of 67
Panel, Inverter

HDMI

Sheet 29 of 67
HDMI



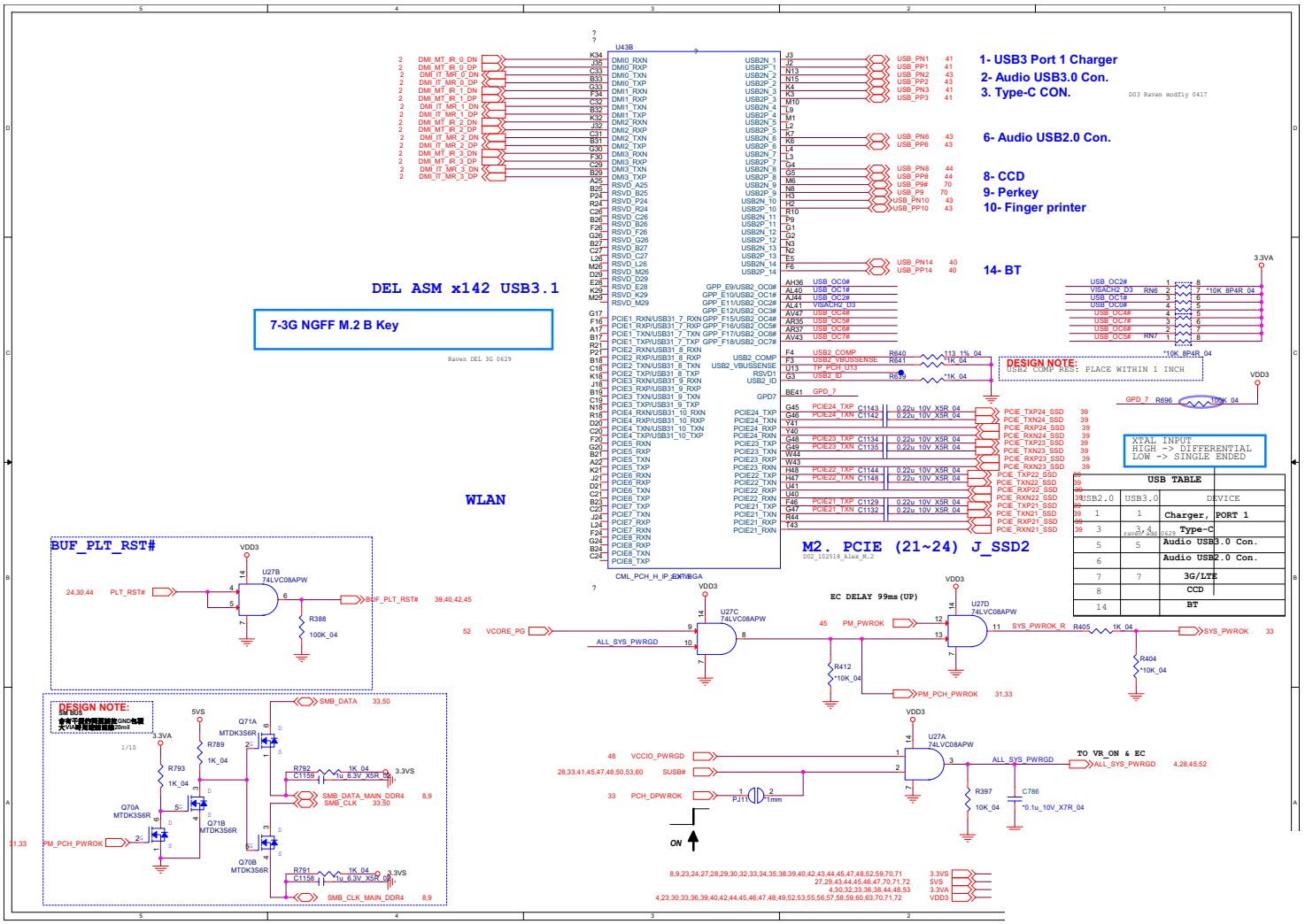
PCH 1/9



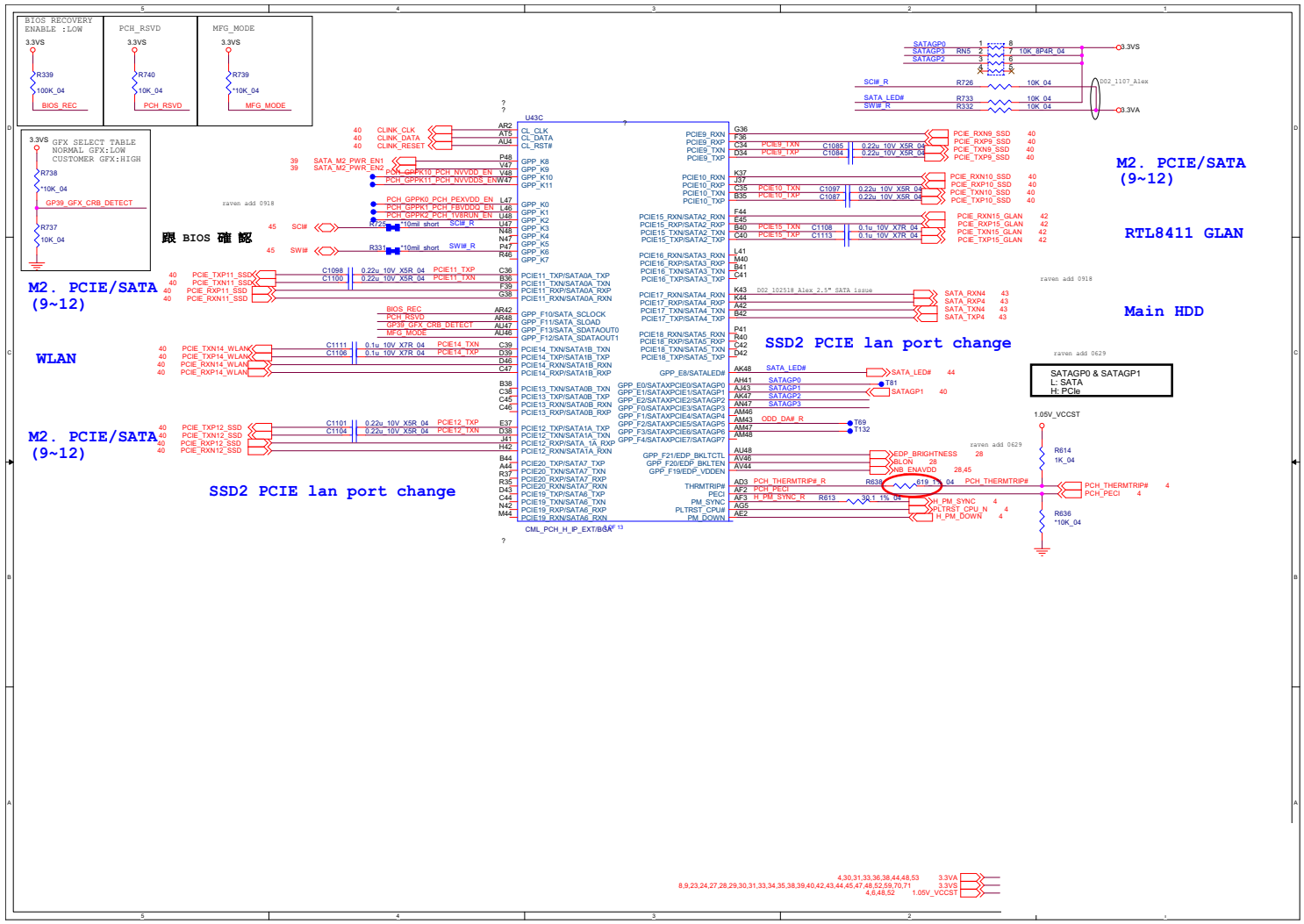
Sheet 30 of 67
PCH 1/9

PCH 2/9

Sheet 31 of 67
PCH 2/9



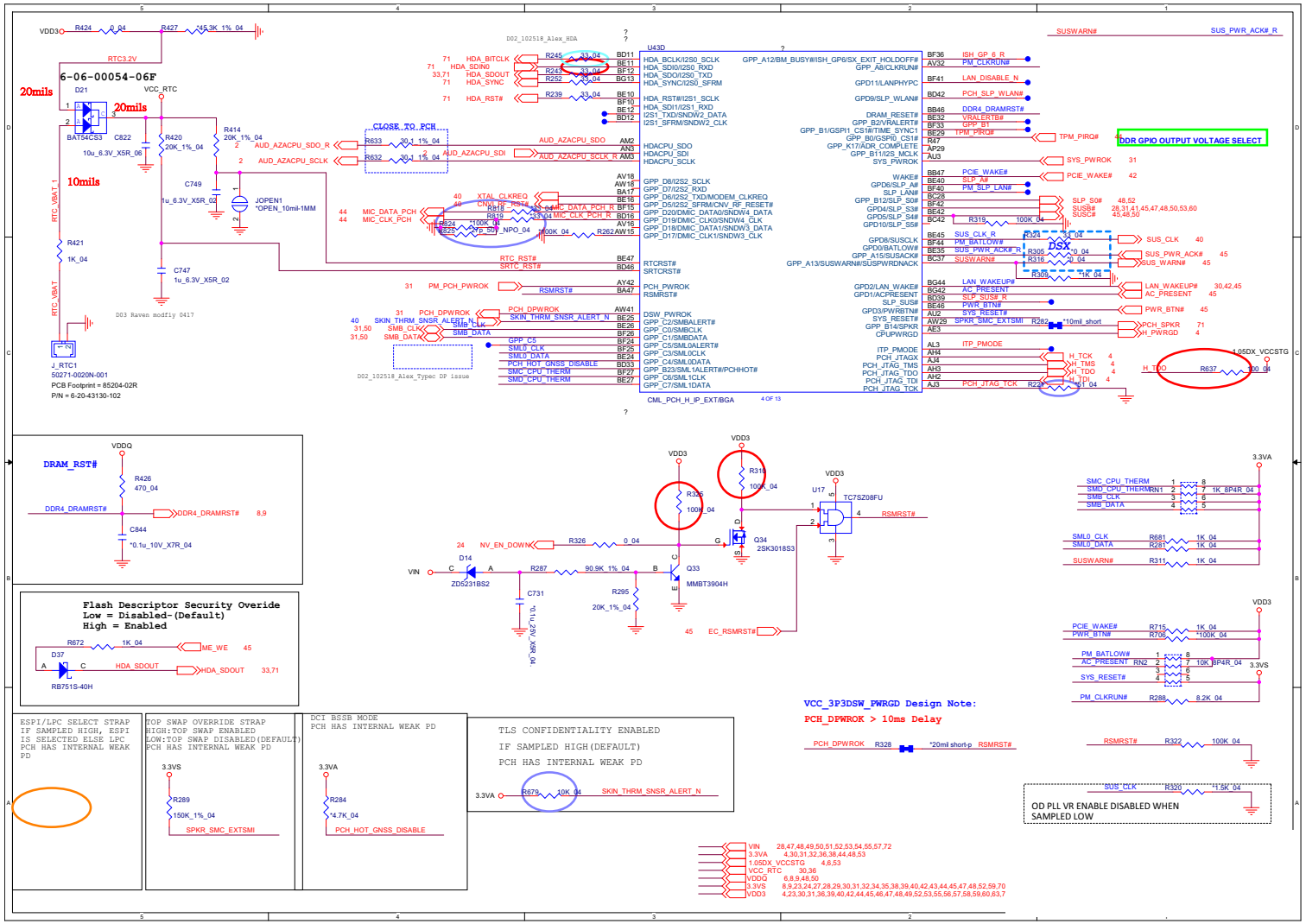
PCH 3/9



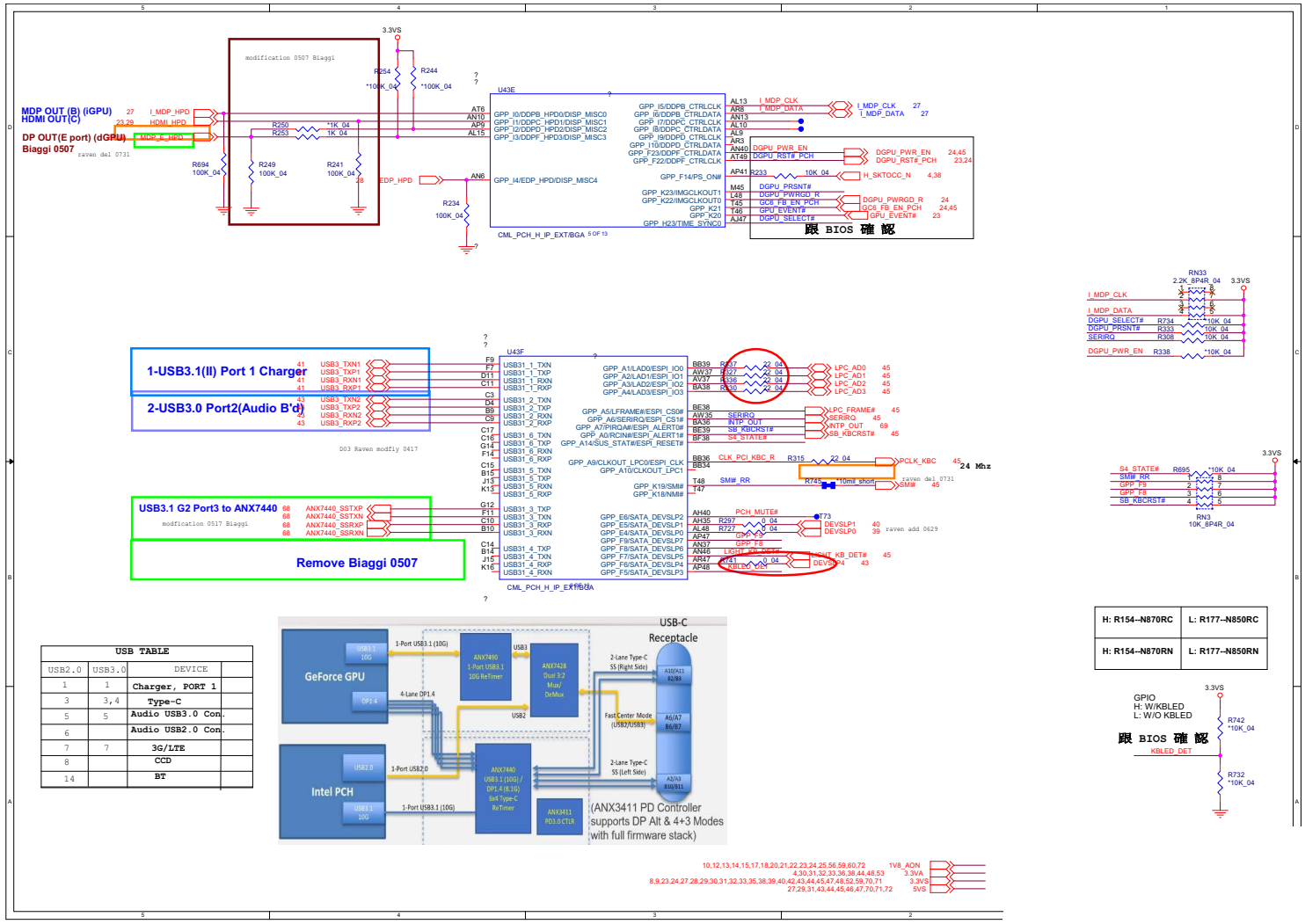
Sheet 32 of 67
PCH 3/9

PCH 4/9

Sheet 33 of 67
PCH 4/9



PCH 5/9



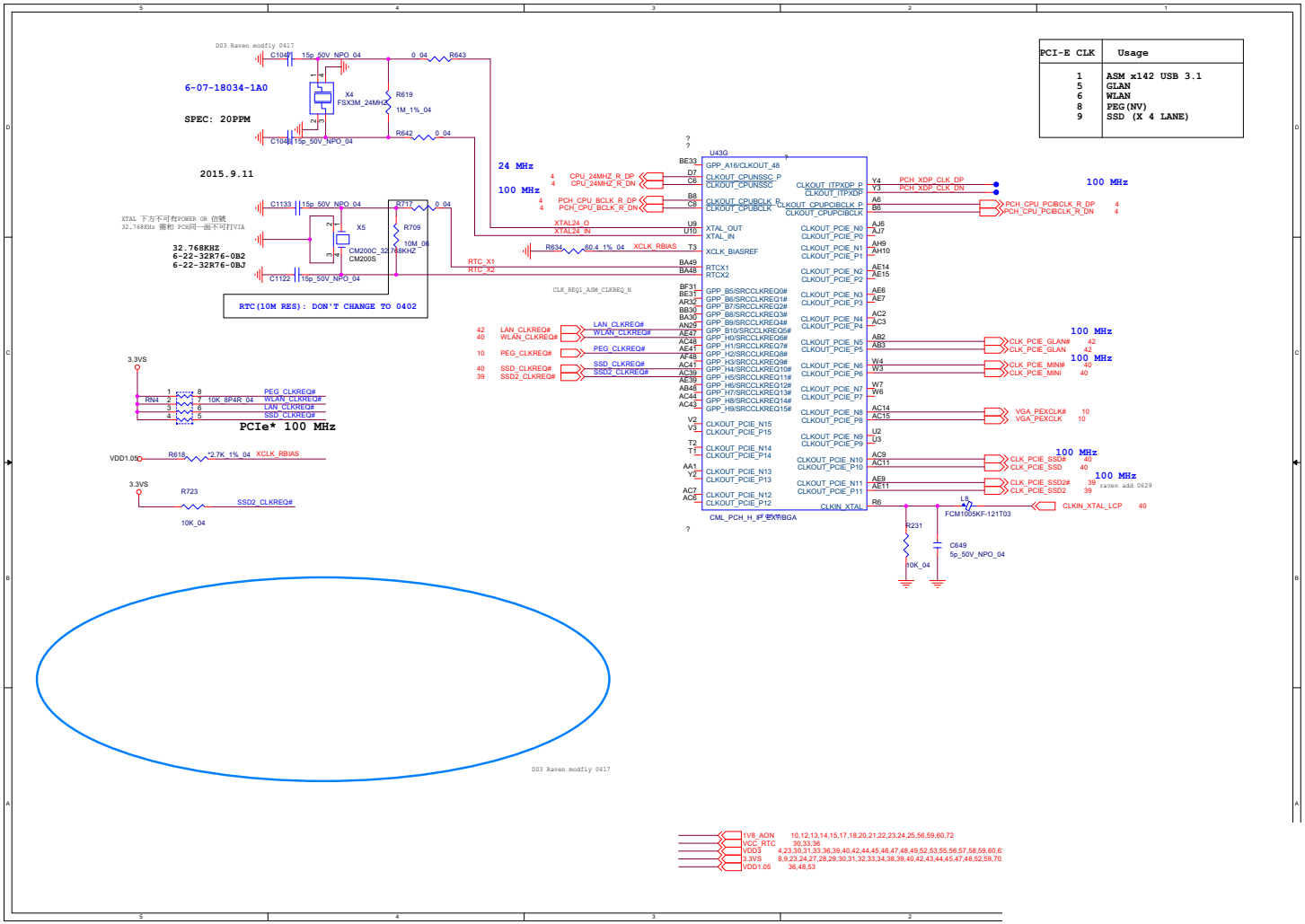
USB TABLE			
USB2.0	USB3.0	DEVICE	
1	1	Charger, PORT 1	
3	3,4	Type-C	
5	5	Audio USB3.0 Con.	
6		Audio USB2.0 Con.	
7	7	3G/LTE	
8		CCD	
14		BT	

H: R154--N870RC	L: R177--N850RC
H: R154--N870RN	L: R177--N850RN

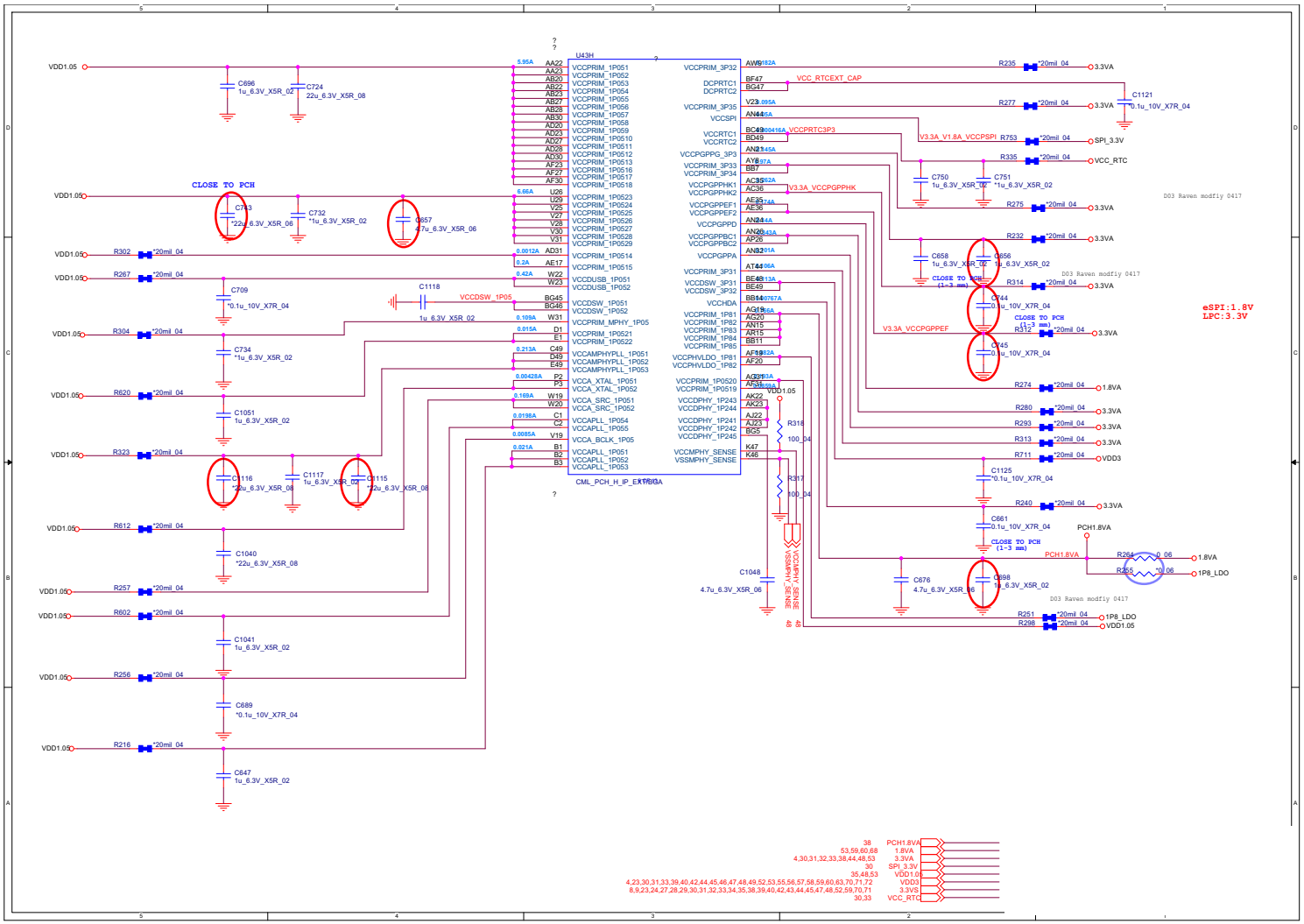
Sheet 34 of 67
PCH 5/9

PCH 6/9

Sheet 35 of 67
PCH 6/9



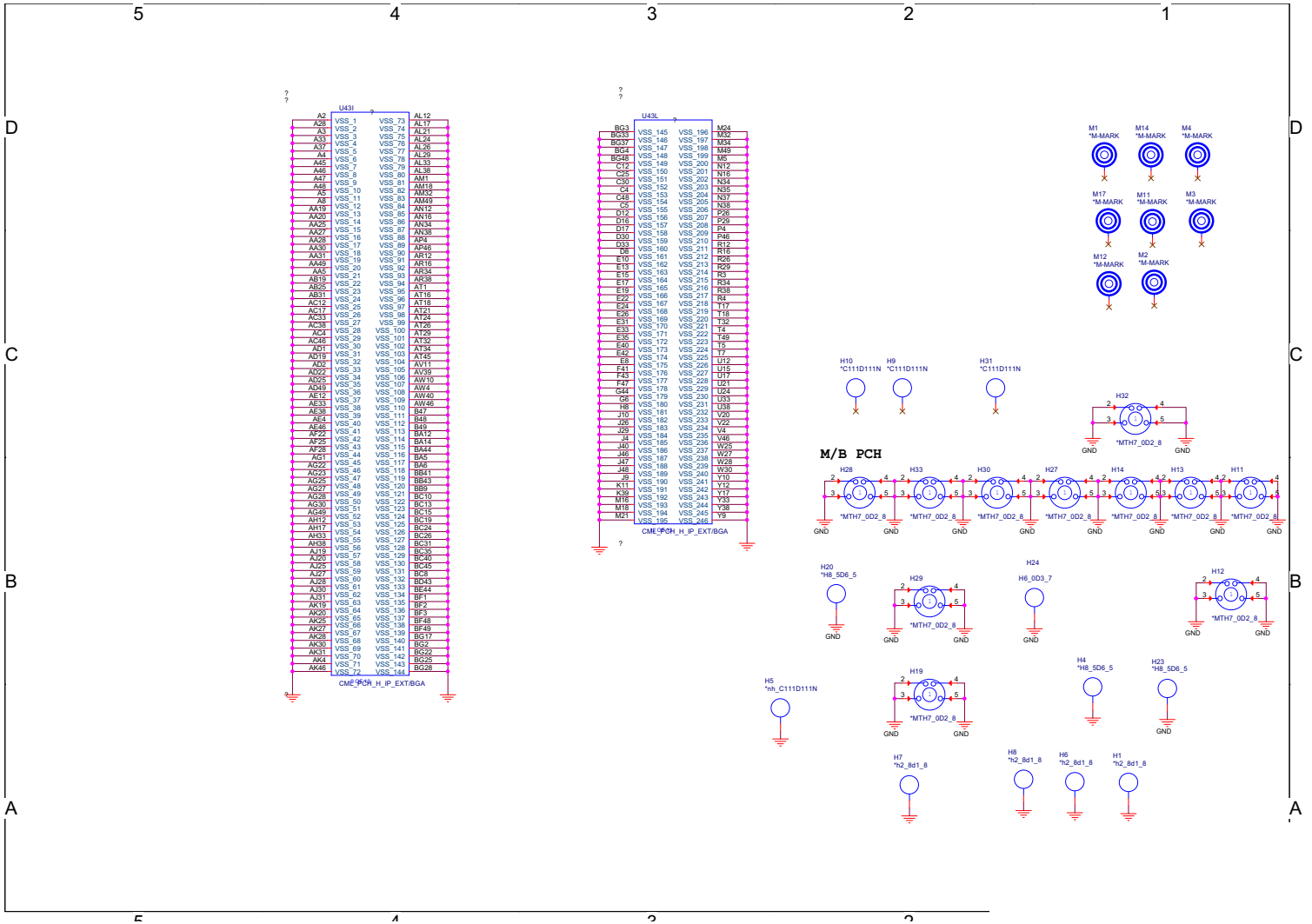
PCH 7/9



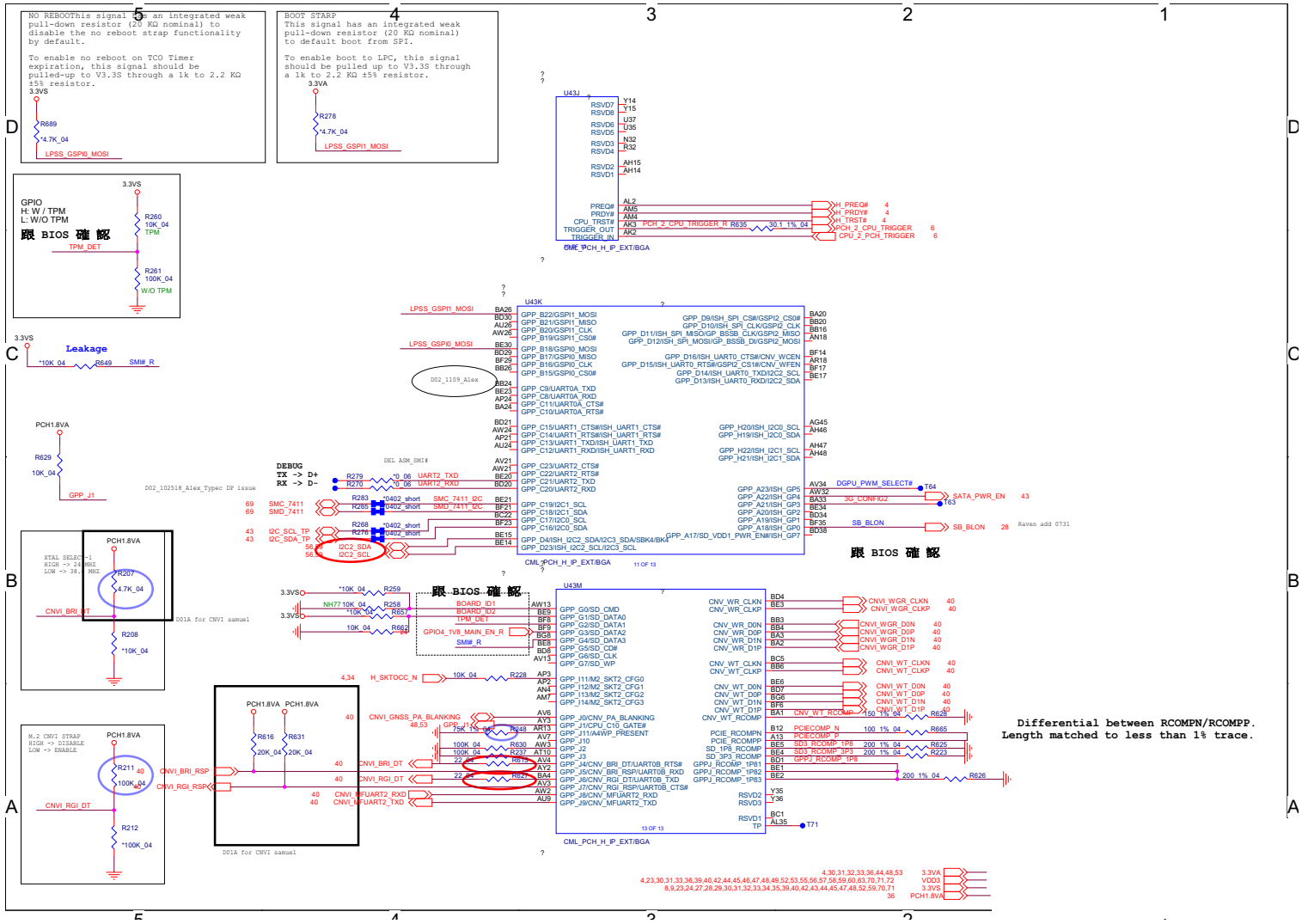
Sheet 36 of 67
PCH 7/9

PCH 8/9

Sheet 37 of 67
PCH 8/9



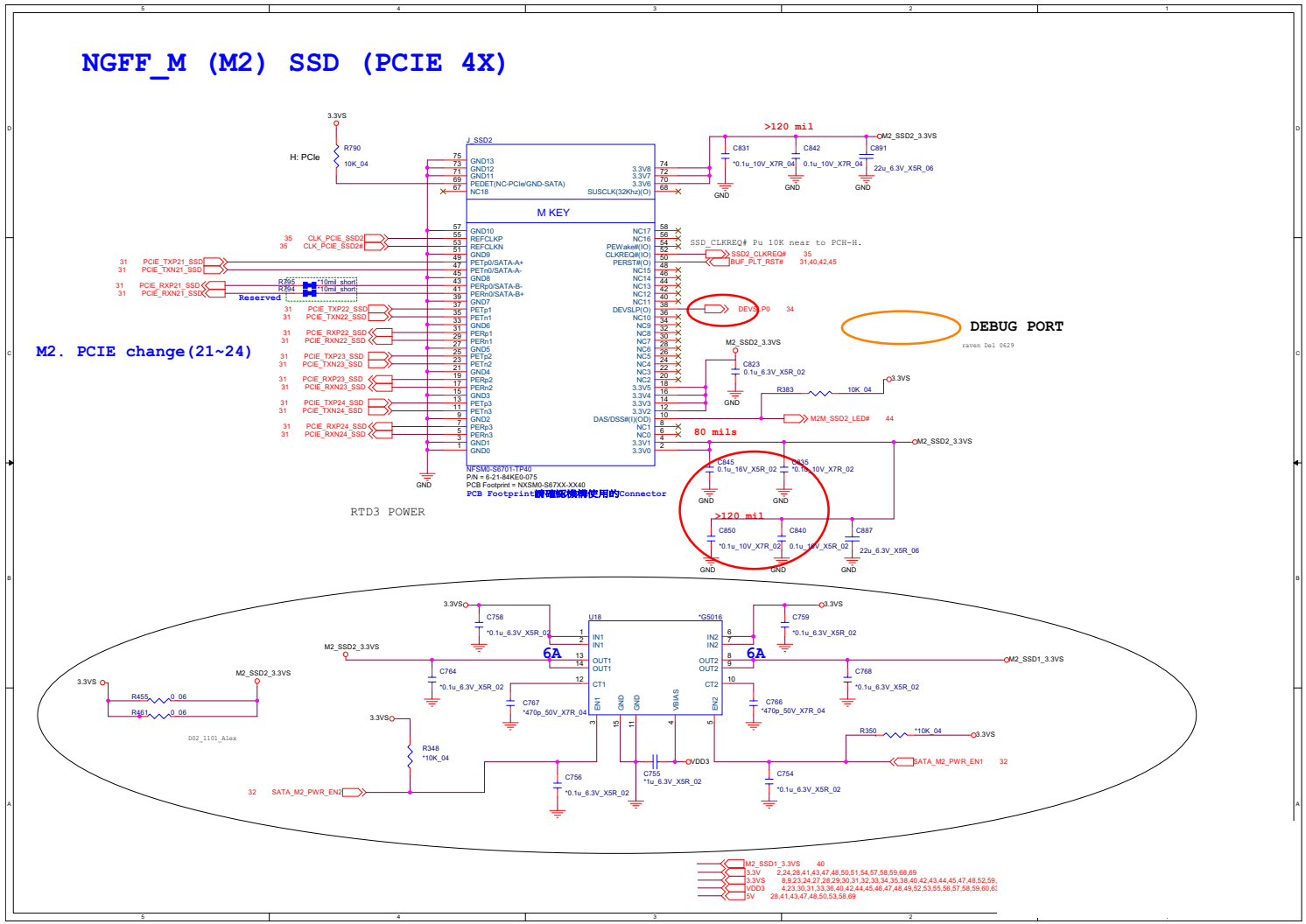
PCH 9/9



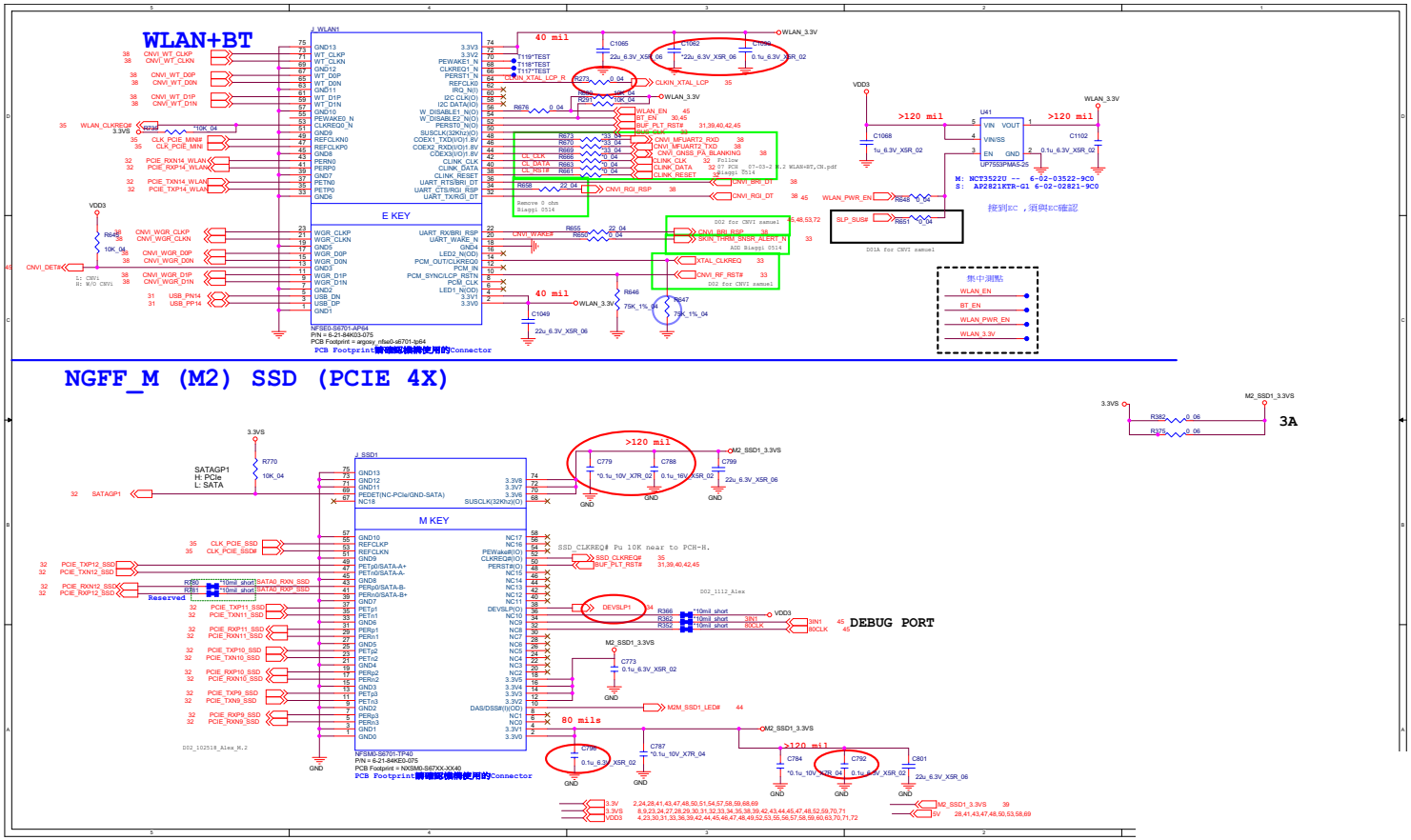
Sheet 38 of 67
PCH 9/9

M.2 Card

Sheet 39 of 67
M.2 Card



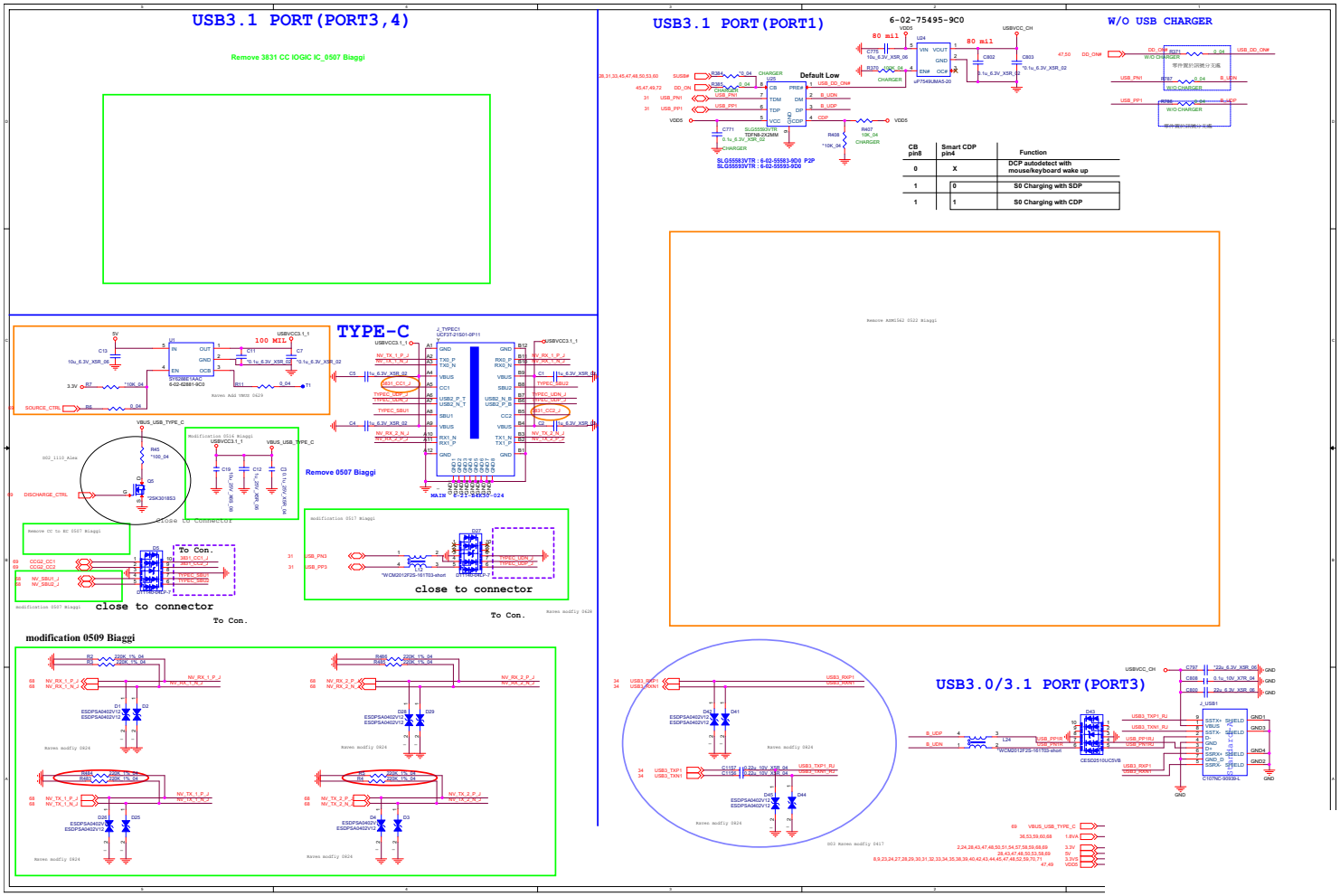
M.2 WLAN+BT, PCIE 4X SSD



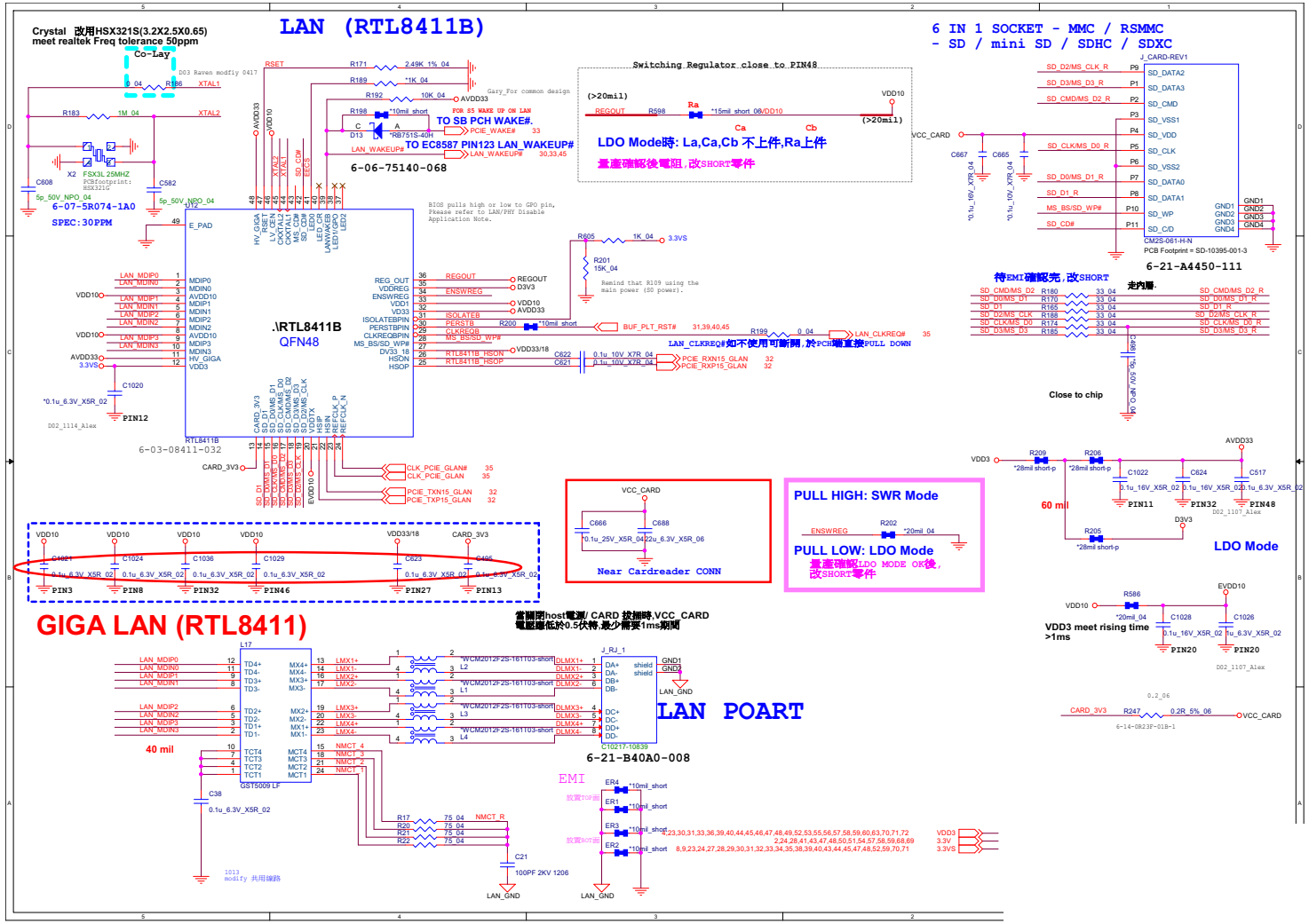
Sheet 40 of 67
M.2 WLAN+BT,
PCIE 4X SSD

USB Charger

Sheet 41 of 67
USB Charger



Card Reader / LAN RTL8411B

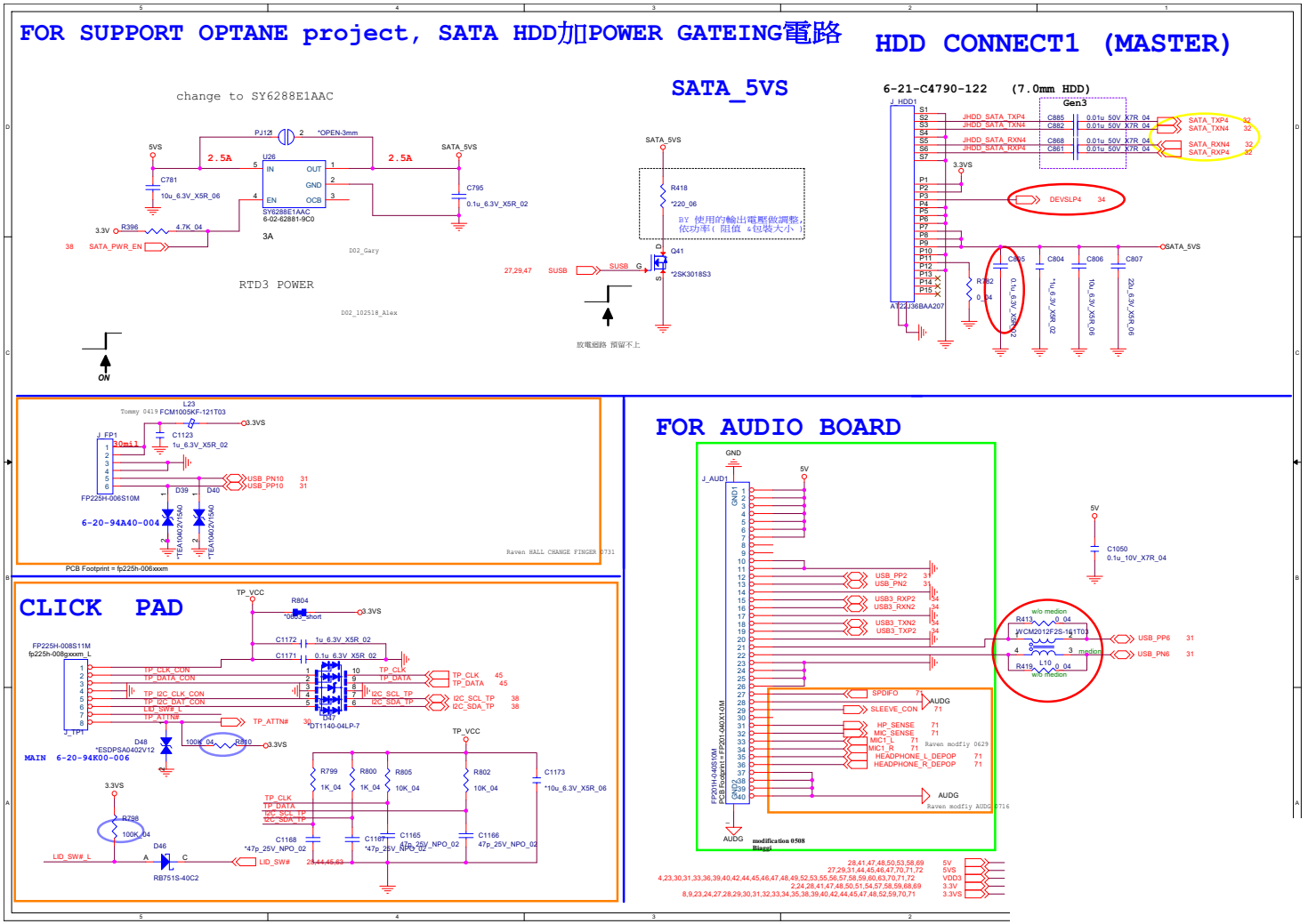


Sheet 42 of 67
Card Reader /
LAN RTL8411B

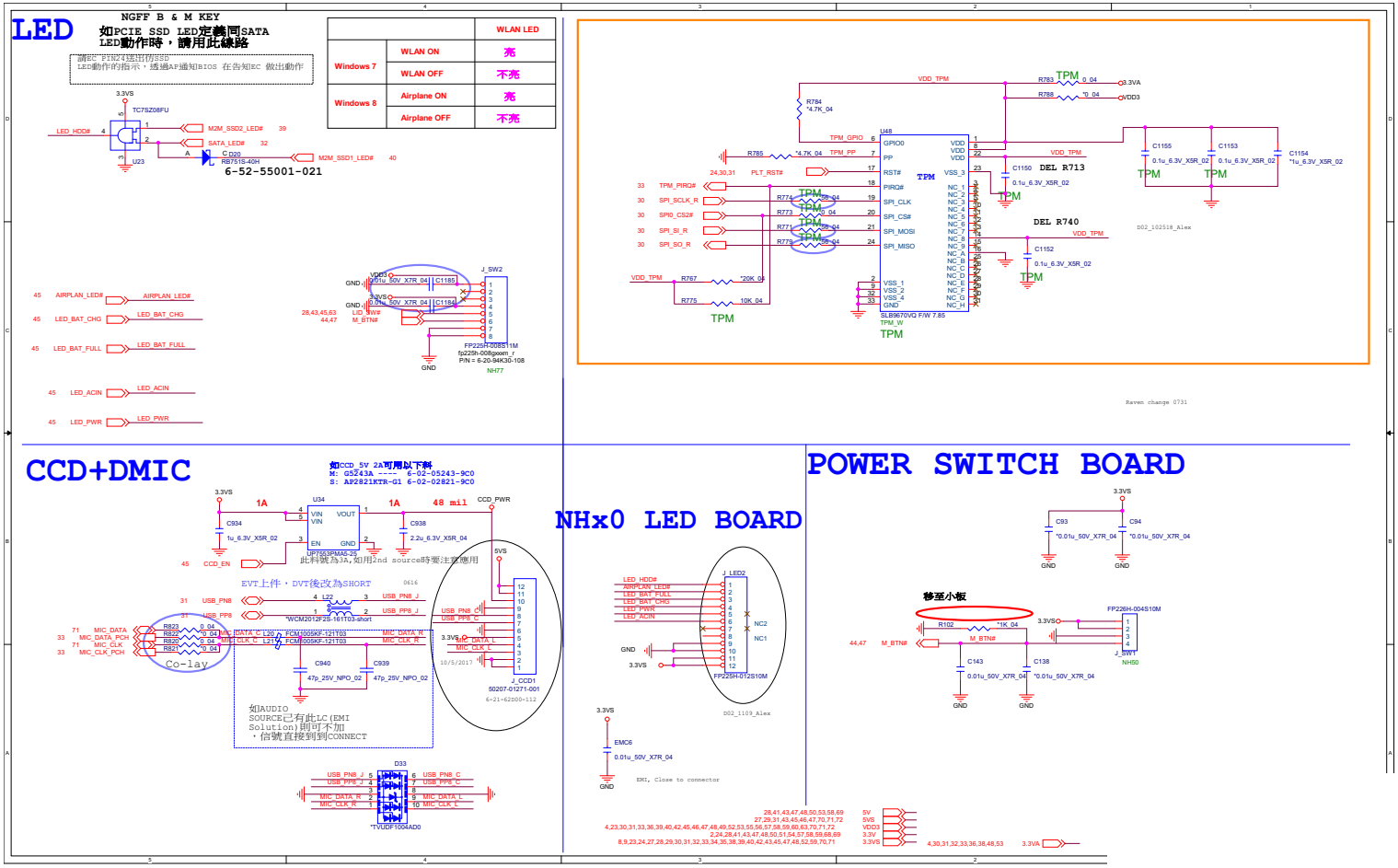
B.Schematic Diagrams

HDD, Click TP, Audio, Hall Con.

Sheet 43 of 67
HDD, Click TP,
Audio, Hall Con.



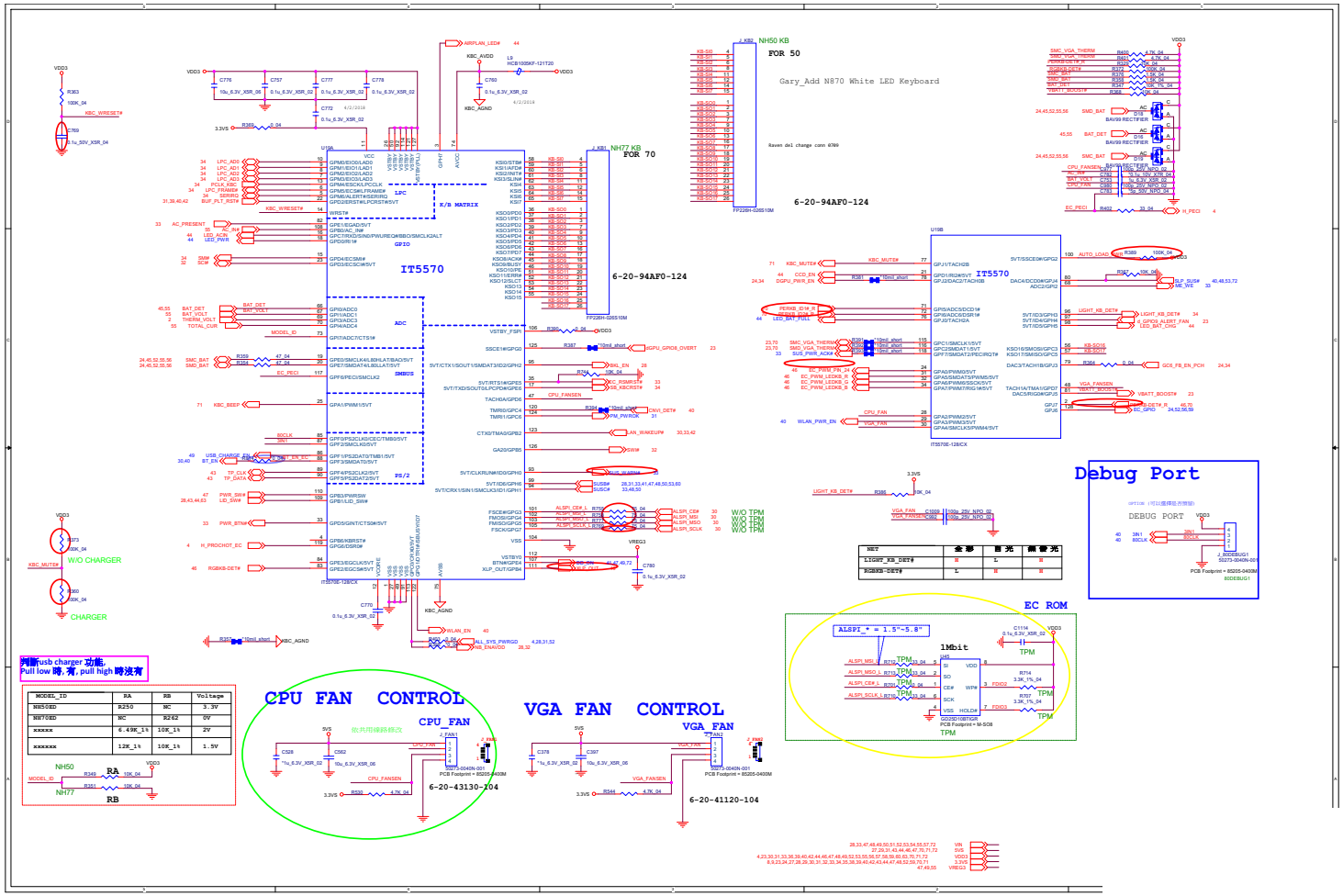
LED, CCD, TPM, Power SW Con.



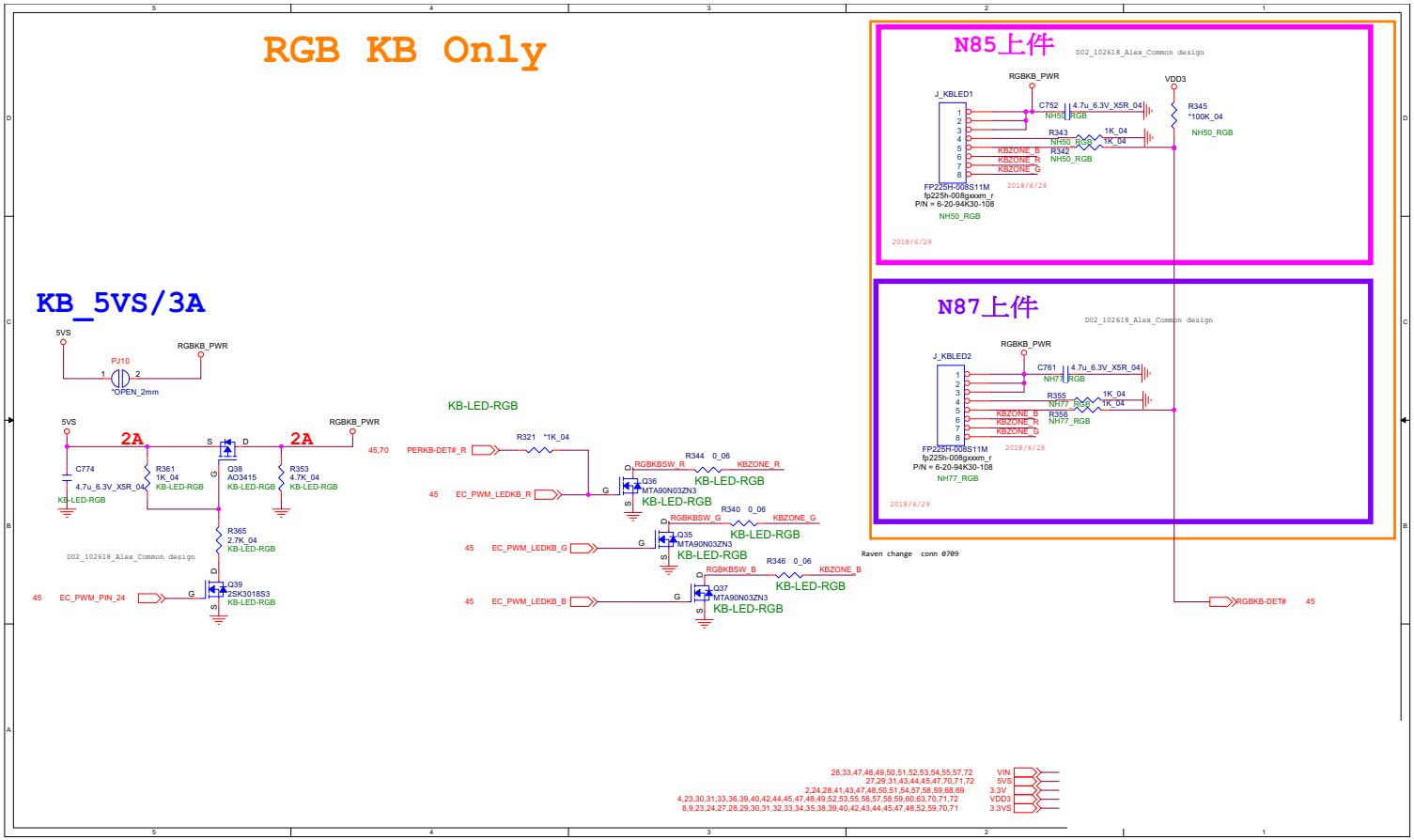
Sheet 44 of 67
LED, CCD, TPM, Power SW Con.

KBC-ITE IT5570

Sheet 45 of 67
KBC-ITE IT5570



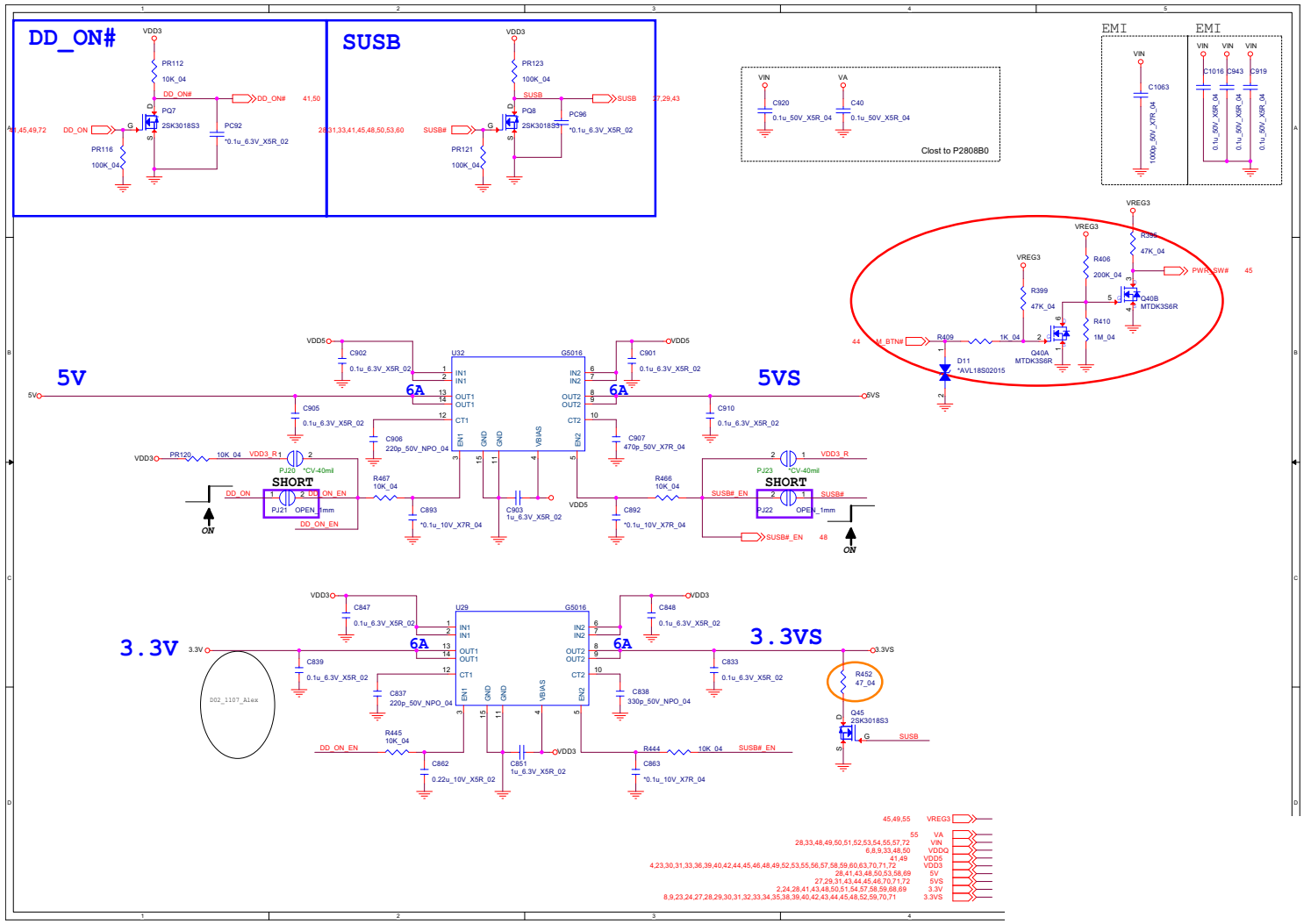
RGB KB



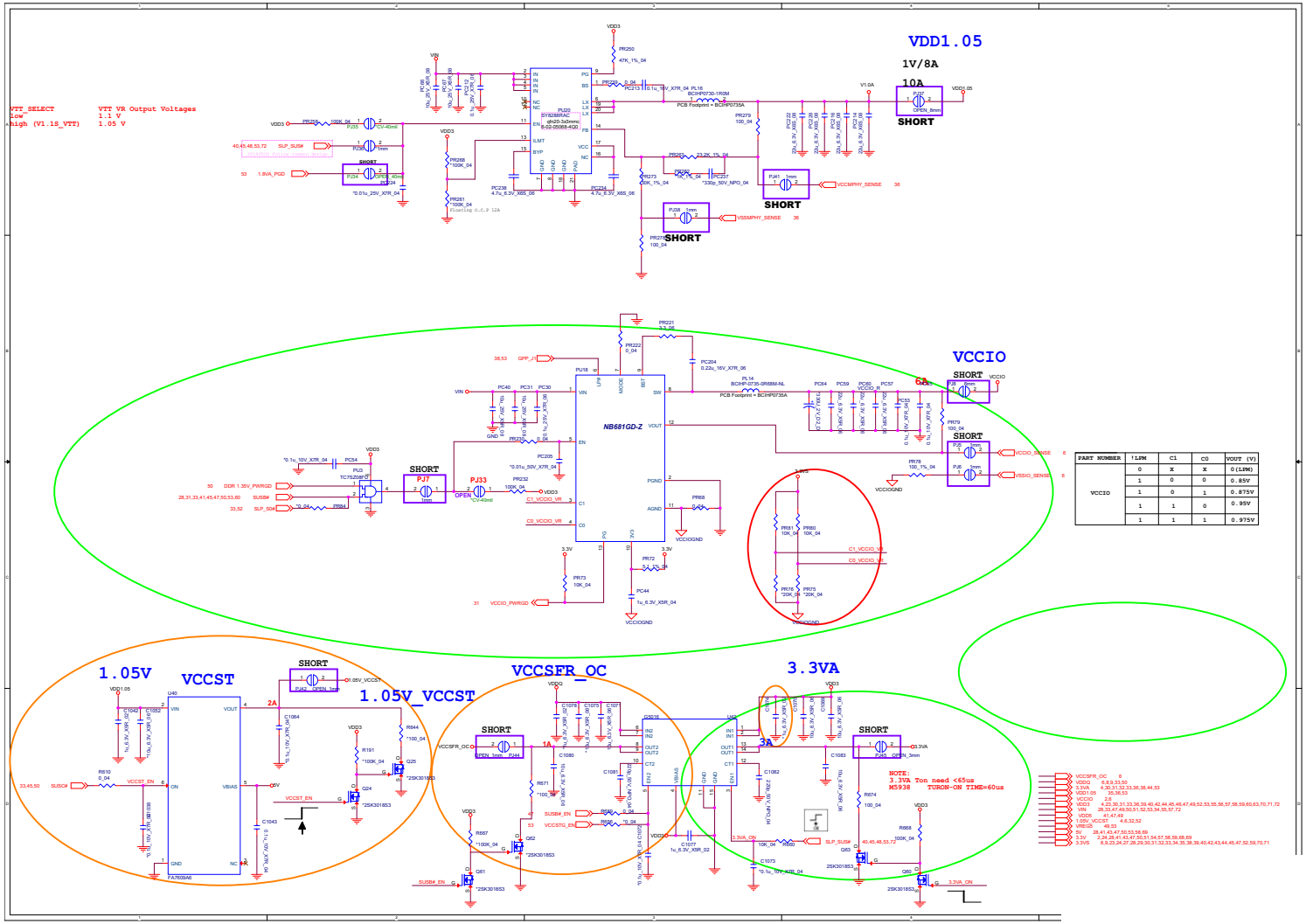
Sheet 46 of 67
RGB KB

5V, 5VS, 3.3V, 3.3VS

Sheet 47 of 67
5V, 5VS, 3.3V, 3.3VS



VDD1.05V, VCCIO

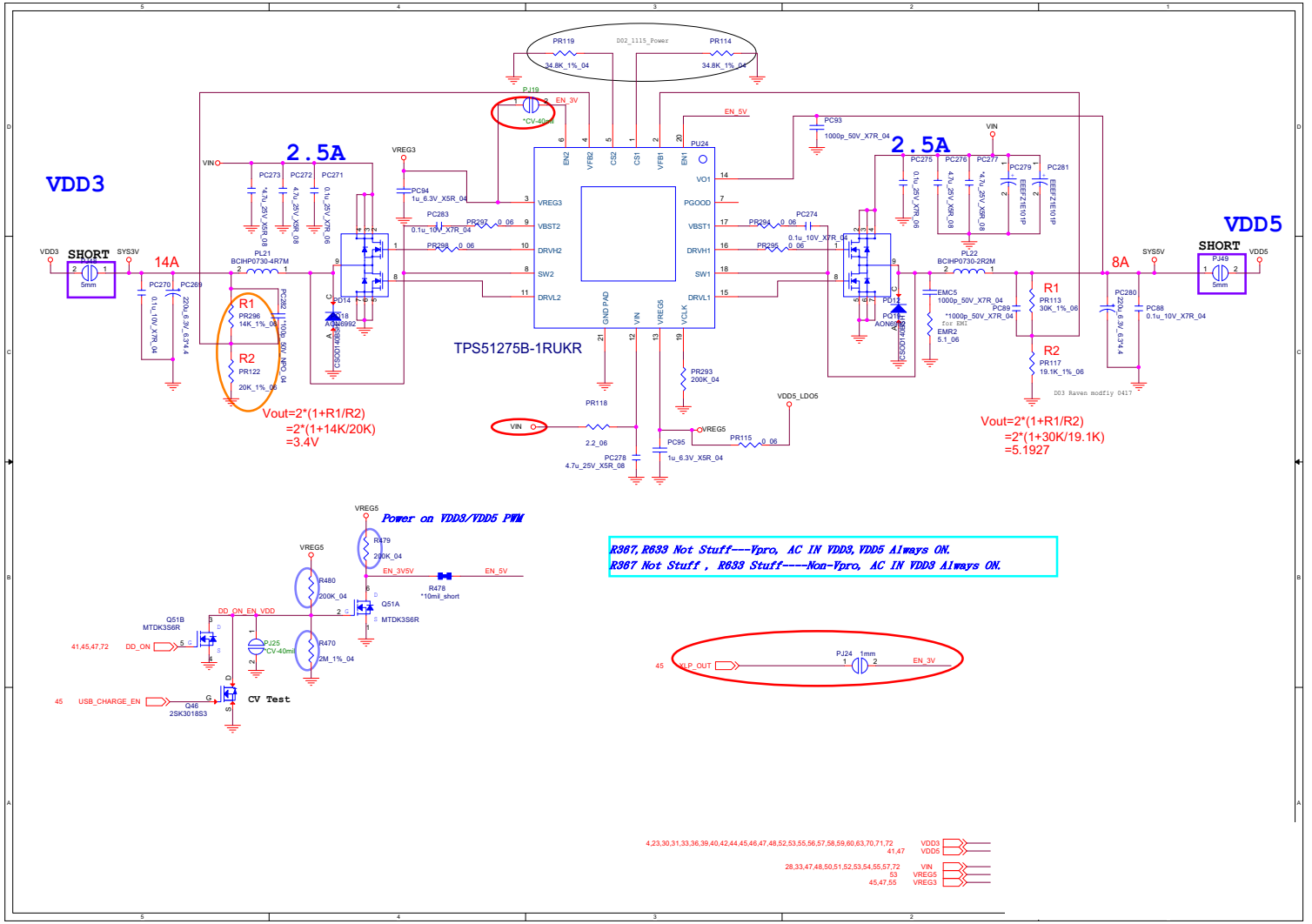


PART NUMBER	! LPM	C1	C0	VOUT (V)
VCCIO	0	X	X	0 (LPM)
	1	0	0	0.85V
	1	0	1	0.875V
	1	1	0	0.95V
	1	1	1	0.975V

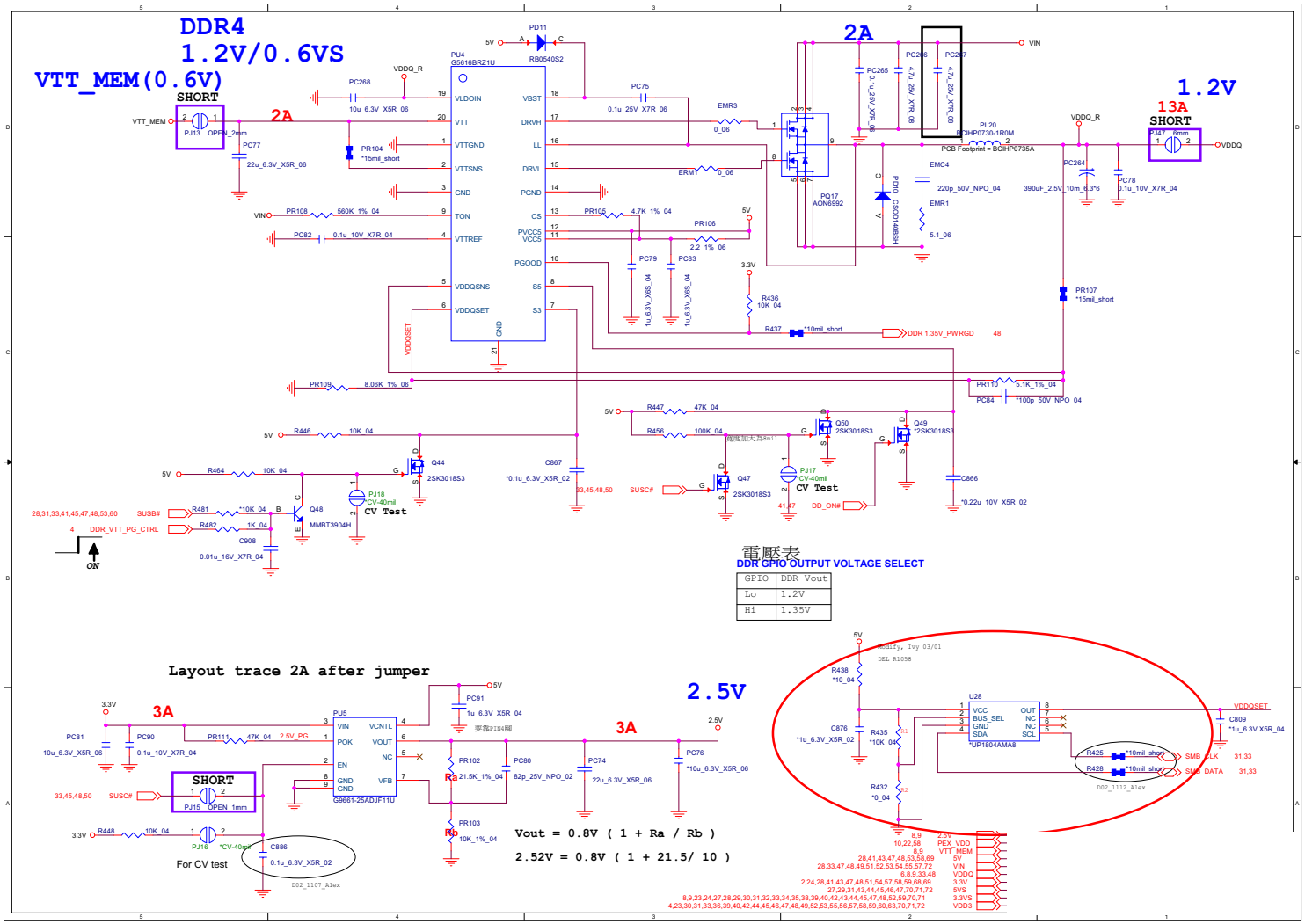
Sheet 48 of 67
VDD1.05V, VCCIO

VDD3, VDD5

Sheet 49 of 67
VDD3, VDD5



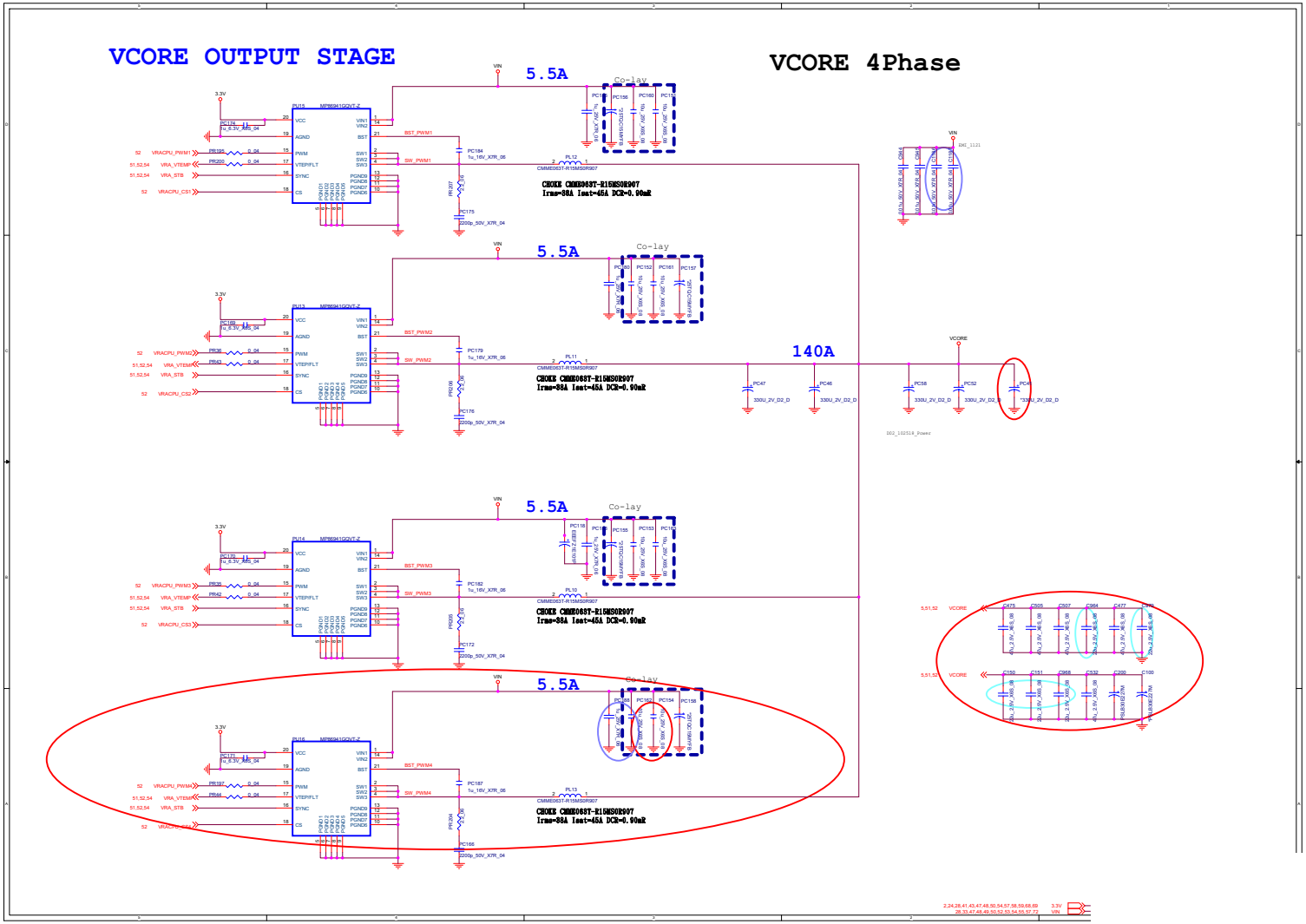
DDR 1.2V / 0.6VS, 2.5V



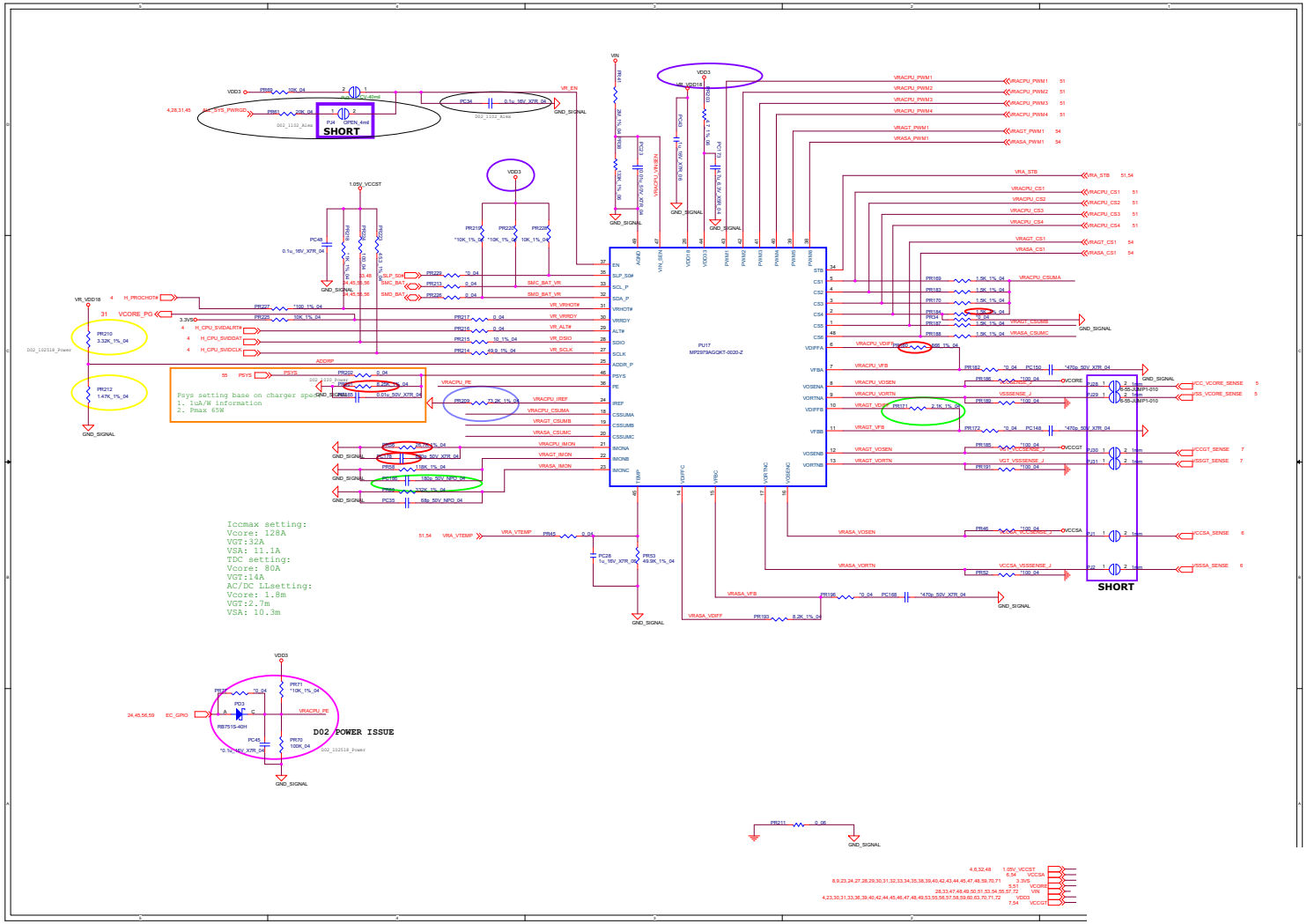
Sheet 50 of 67
DDR 1.2V / 0.6VS, 2.5V

VCore Output Stage

Sheet 51 of 67
VCore Output Stage



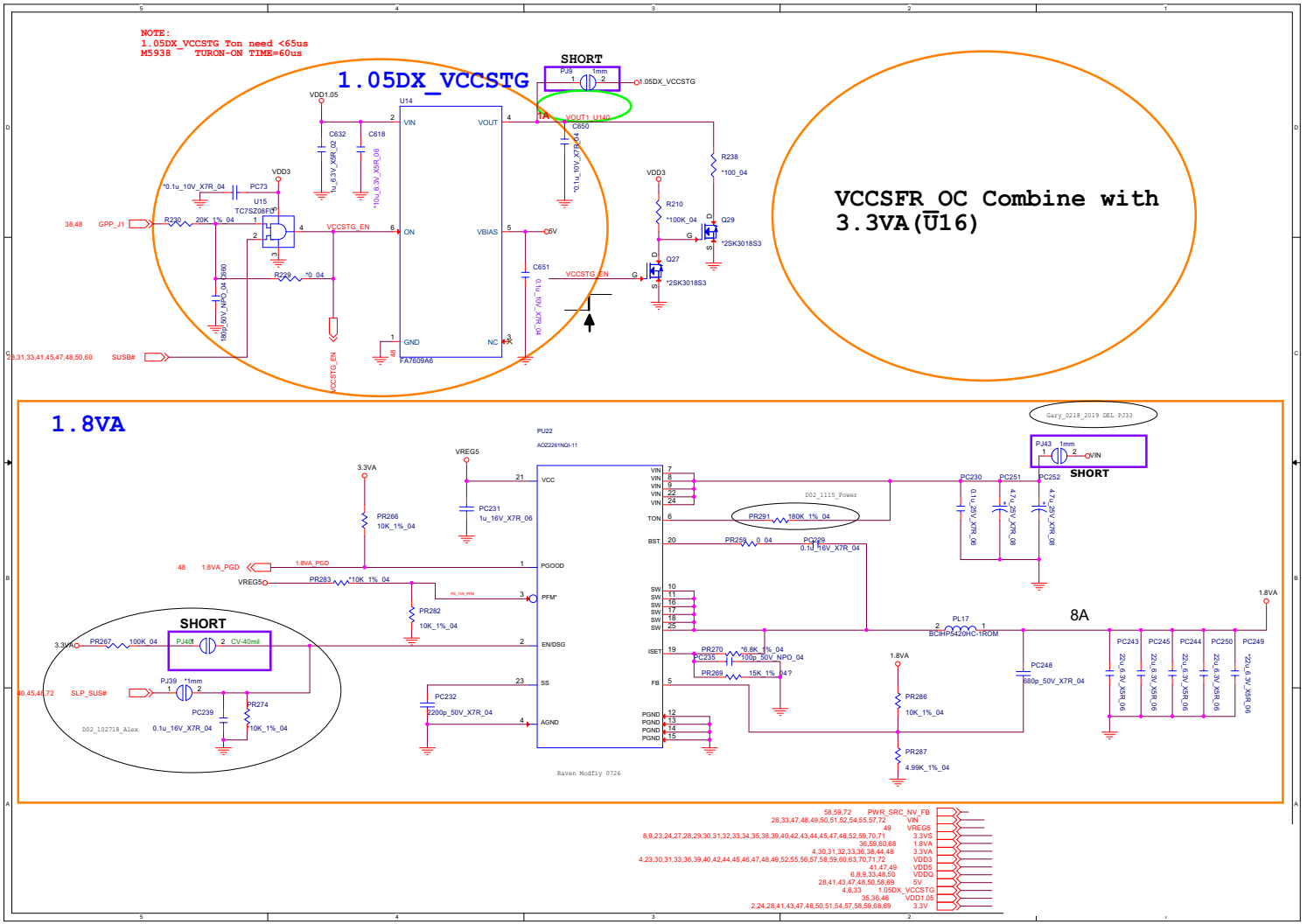
VCC_Core & VCCGT



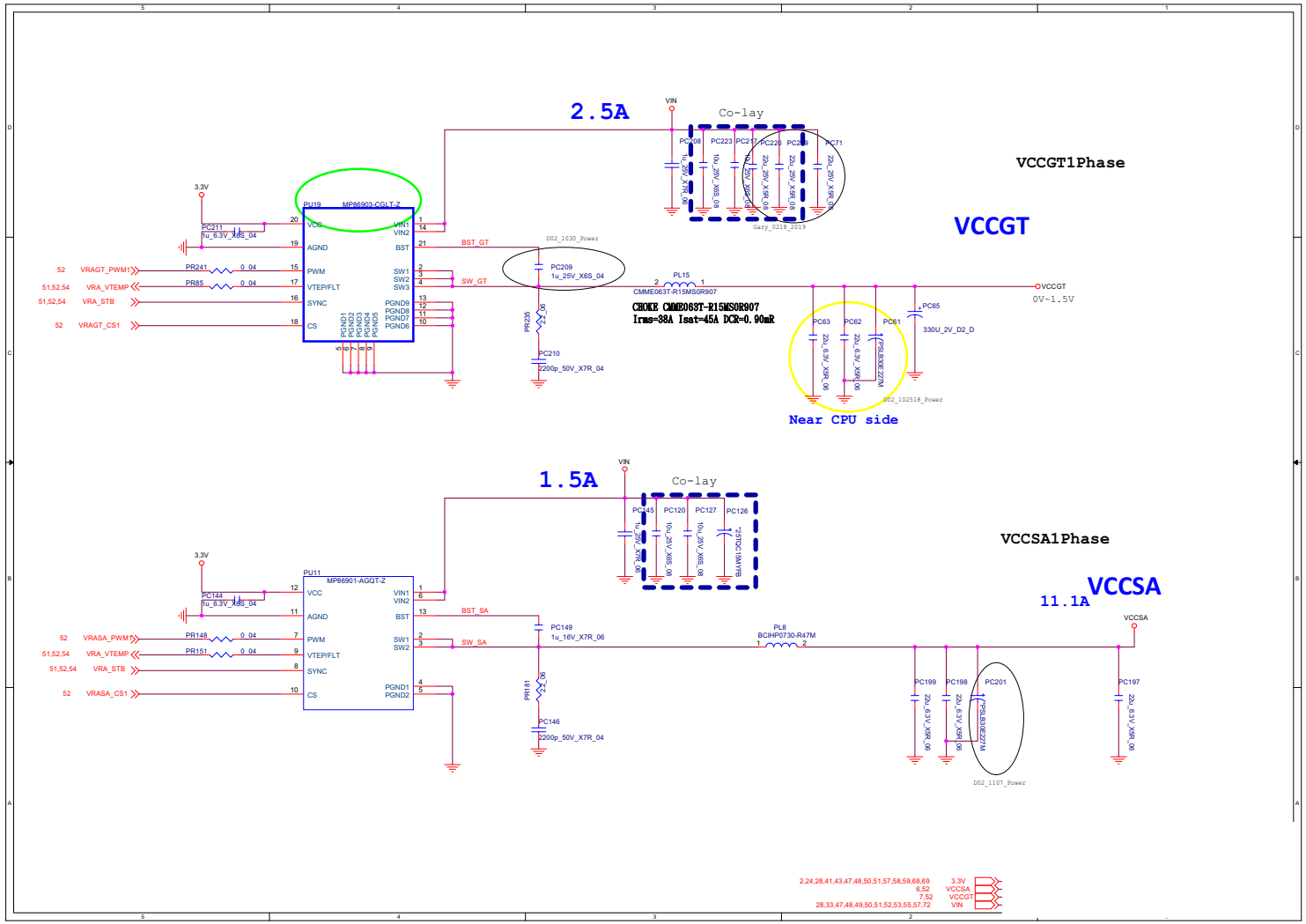
Sheet 52 of 67
VCC_Core & VCCGT

1.05DX_VCCSTG/VCCSFR_OC

Sheet 53 of 67
1.05DX_VCCSTG/
VCCSFR_OC



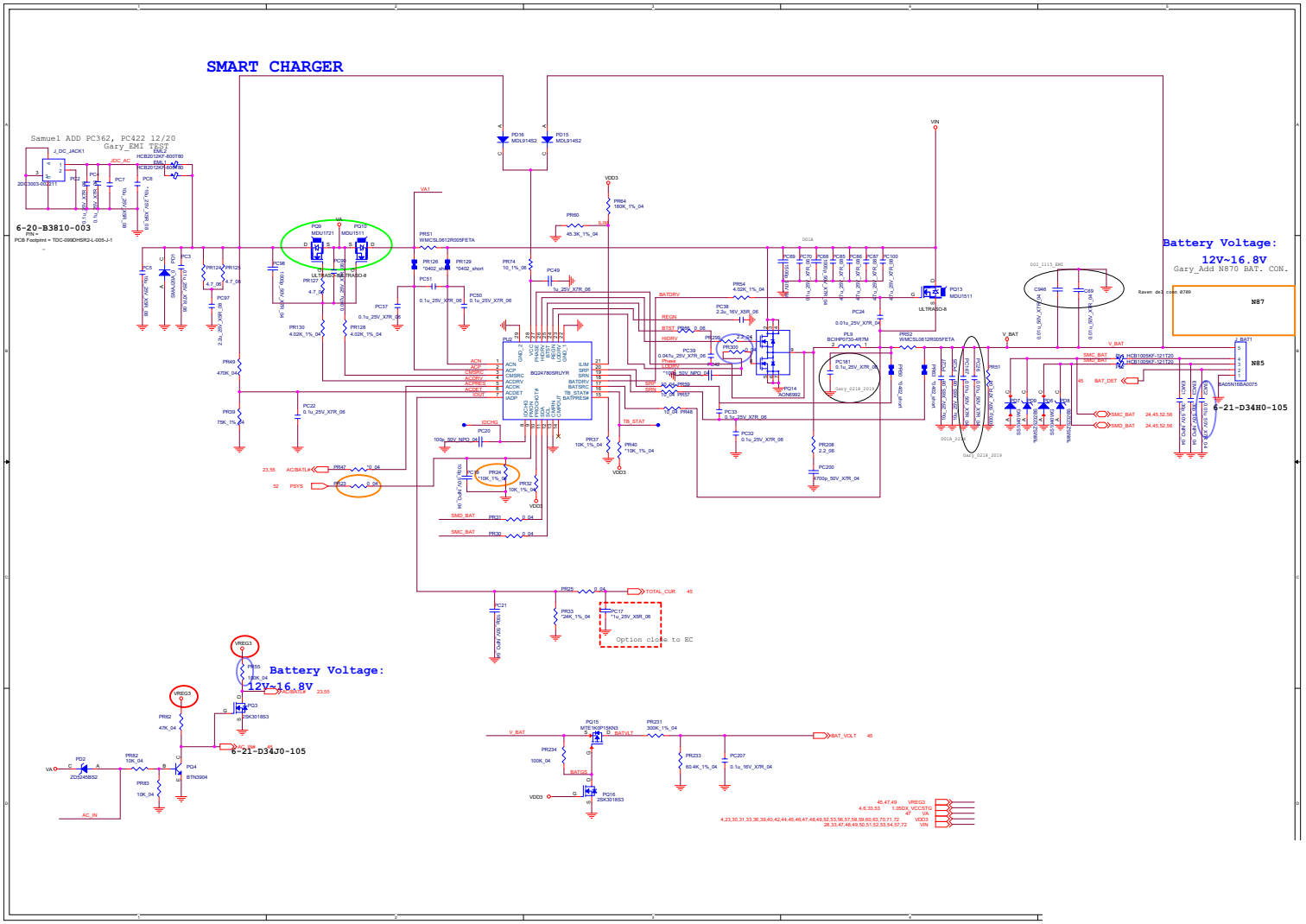
VCCGT & VCCSA Output Stage



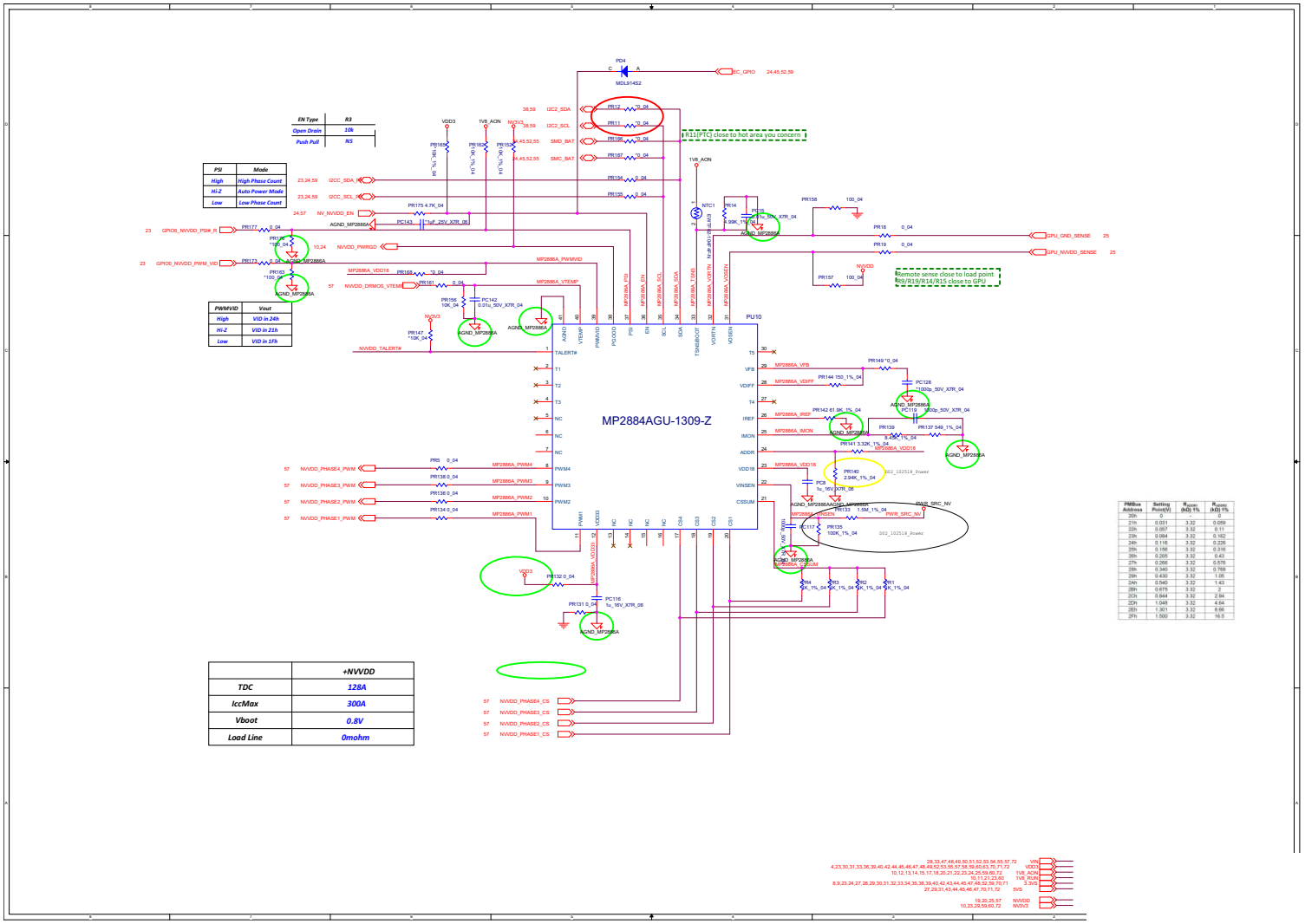
Sheet 54 of 67
VCCGT & VCCSA
Output Stage

AC_In, Charger

Sheet 55 of 67
AC_In, Charger



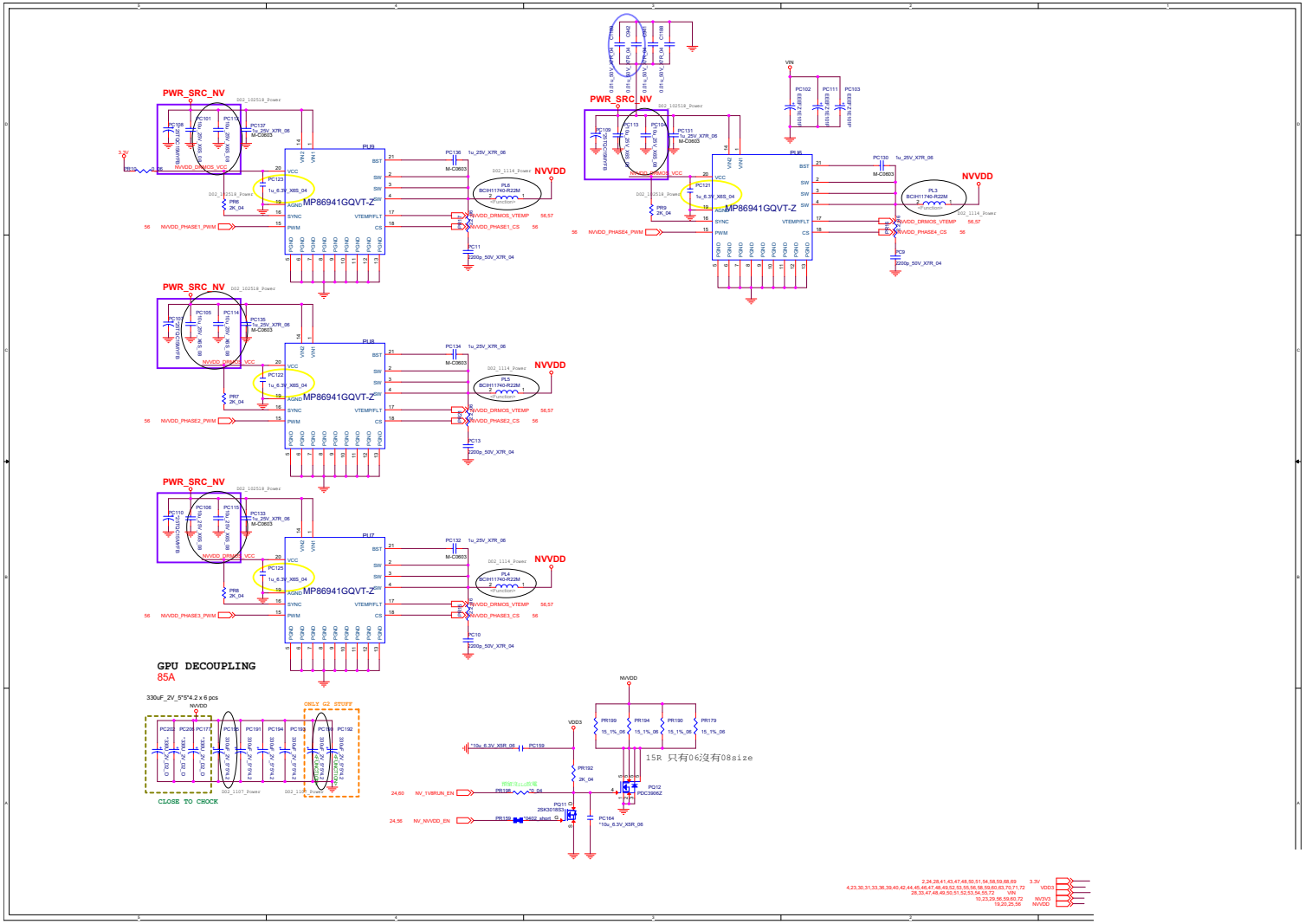
NVVDD1



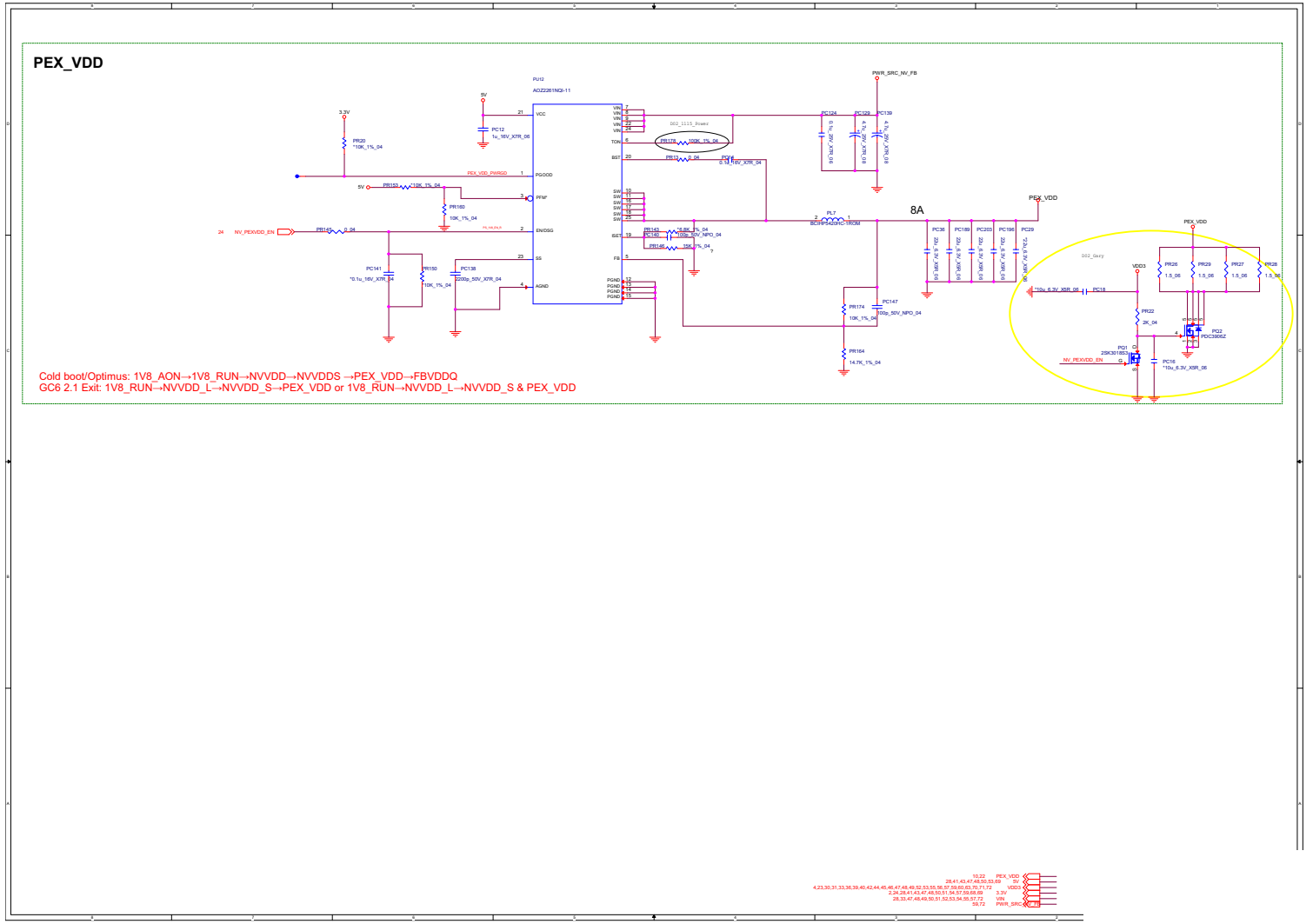
Sheet 56 of 67
NVVDD1

NVVDD2

Sheet 57 of 67
NVVDD2



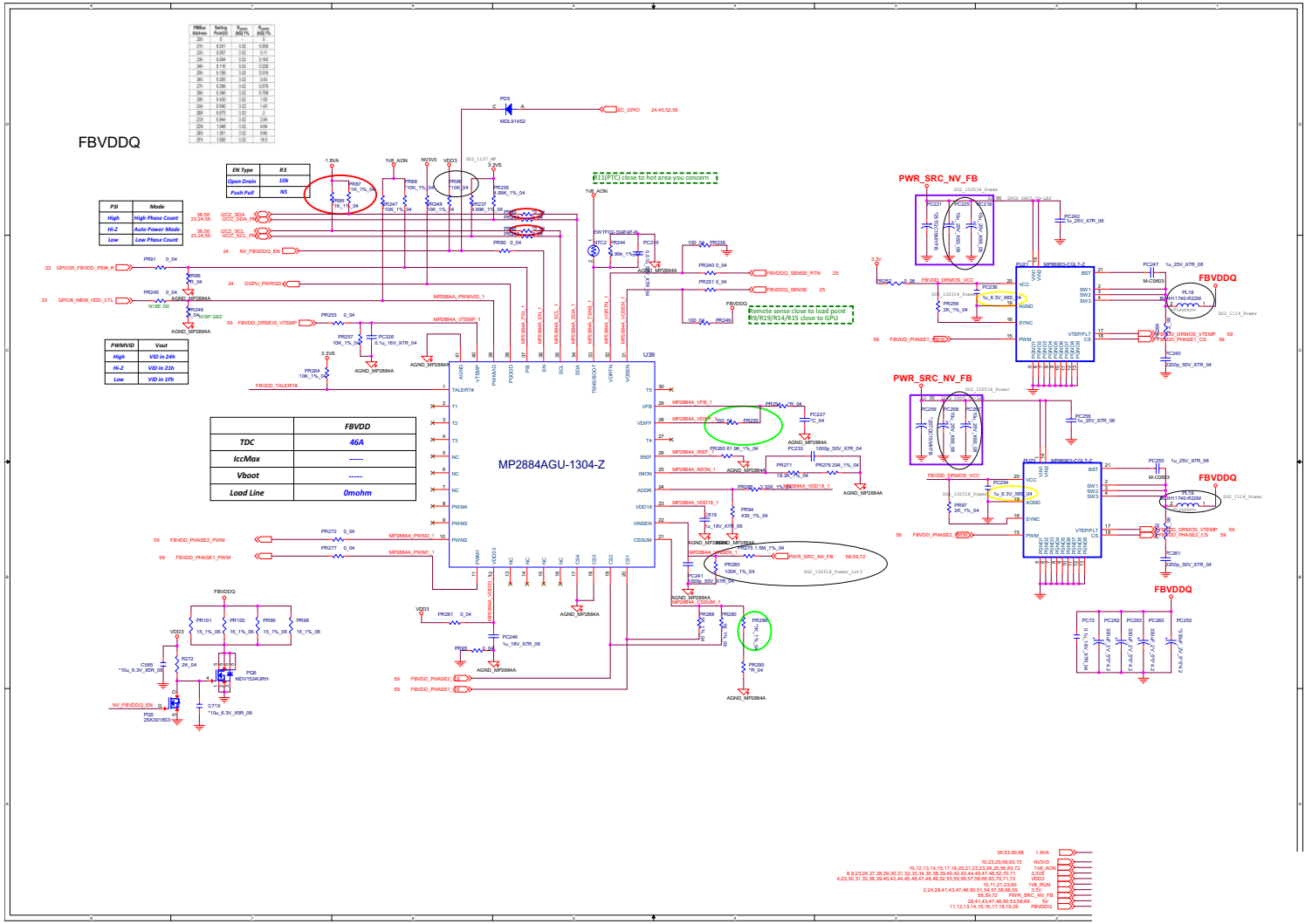
PEX_VDD



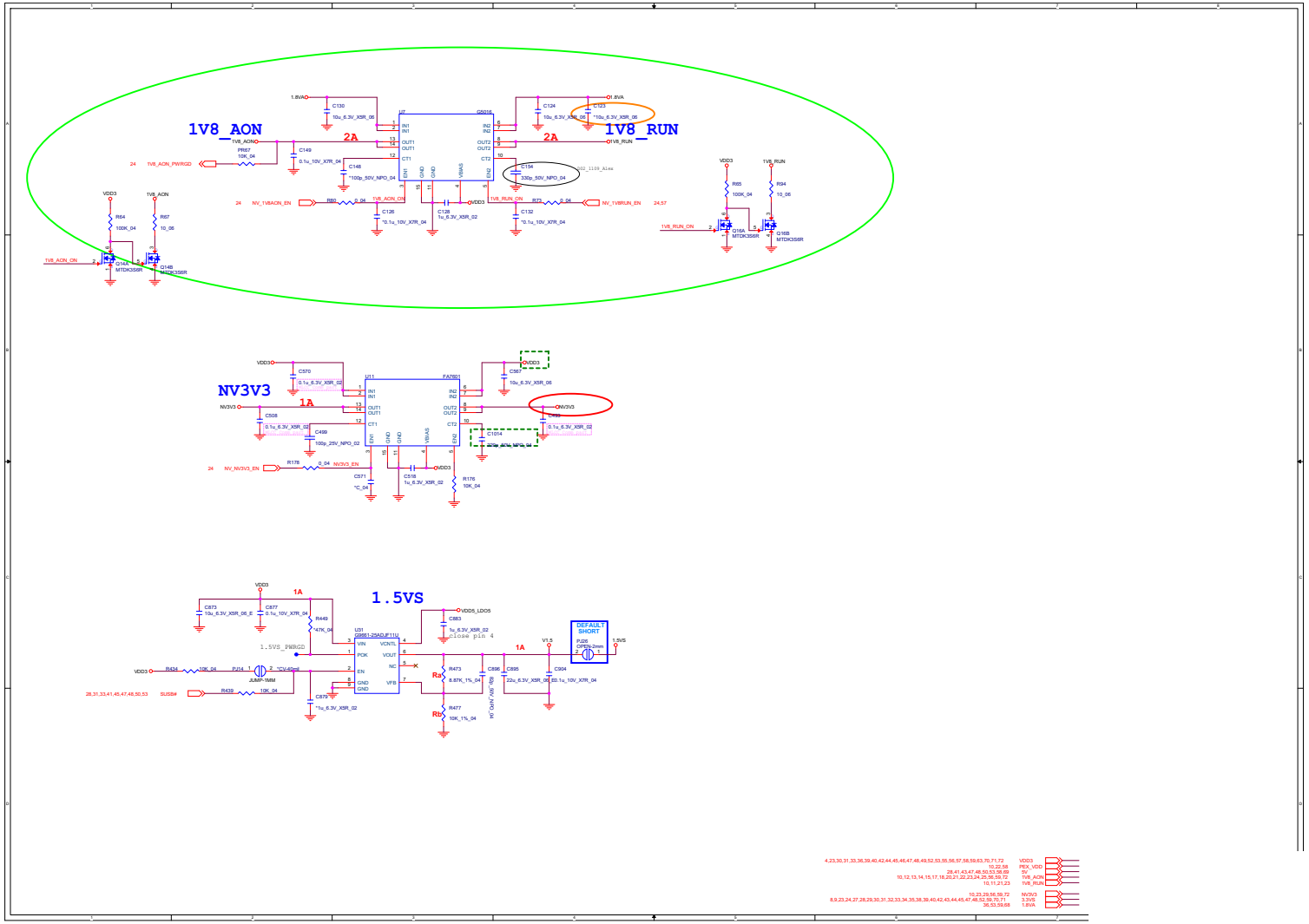
Sheet 58 of 67
PEX_VDD

FBVDDQ

Sheet 59 of 67
FBVDDQ



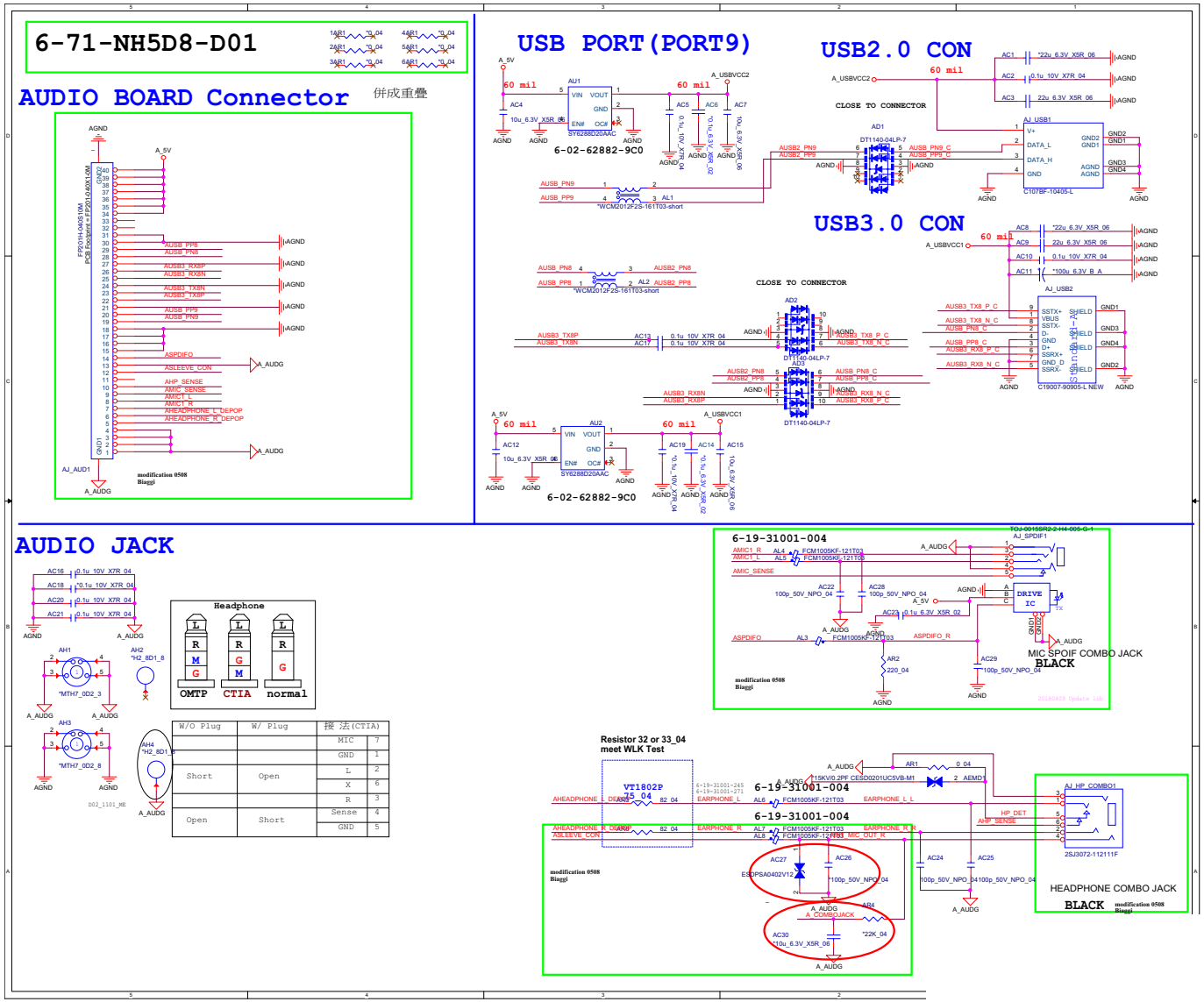
1V8_RUN/AON



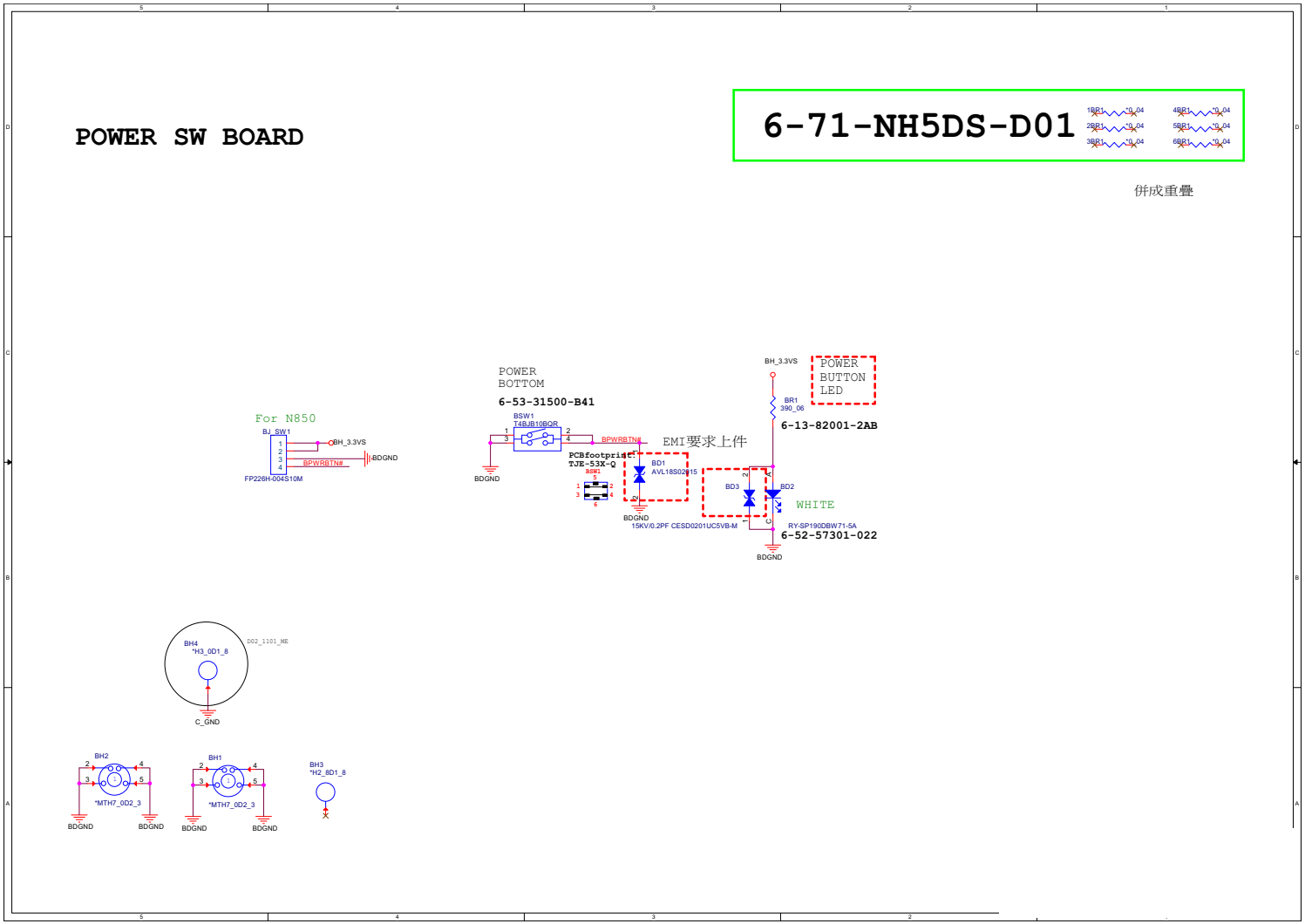
Sheet 60 of 67
1V8_RUN/AON

Audio Board

Sheet 61 of 67
Audio Board



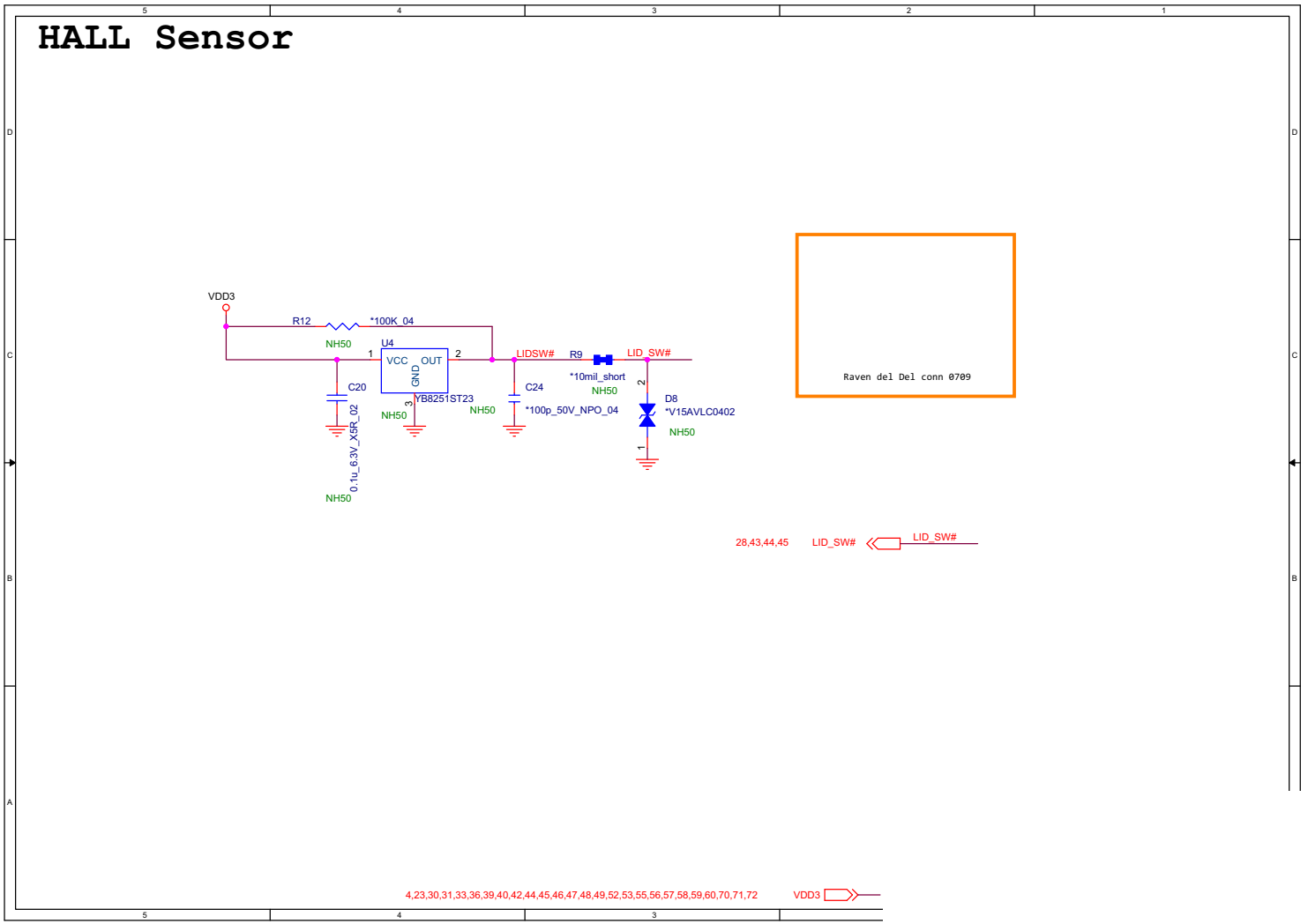
NH50 PW Board



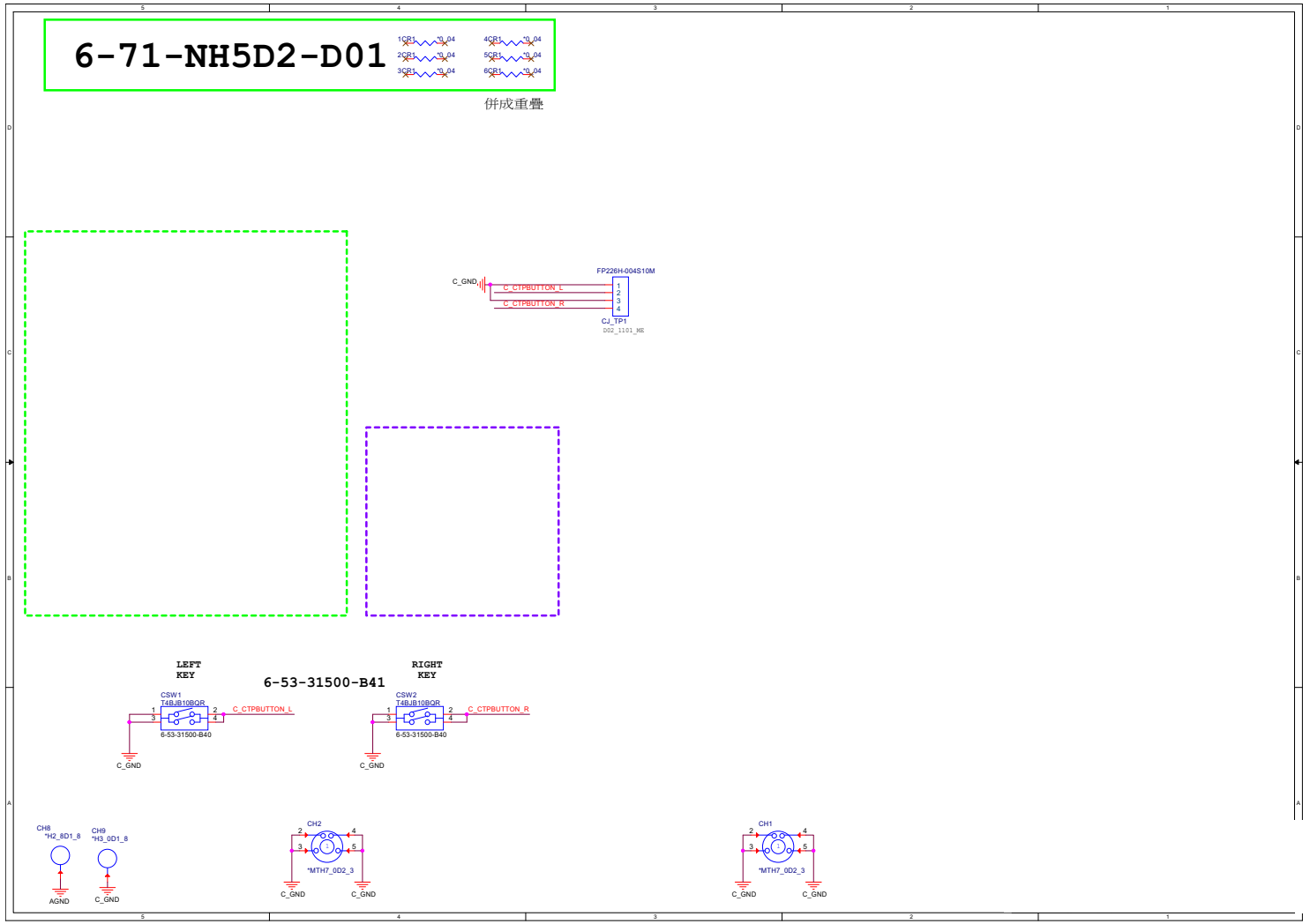
Sheet 62 of 67
NH50 PW Board

Hall Sensor Board

Sheet 63 of 67
Hall Sensor Board

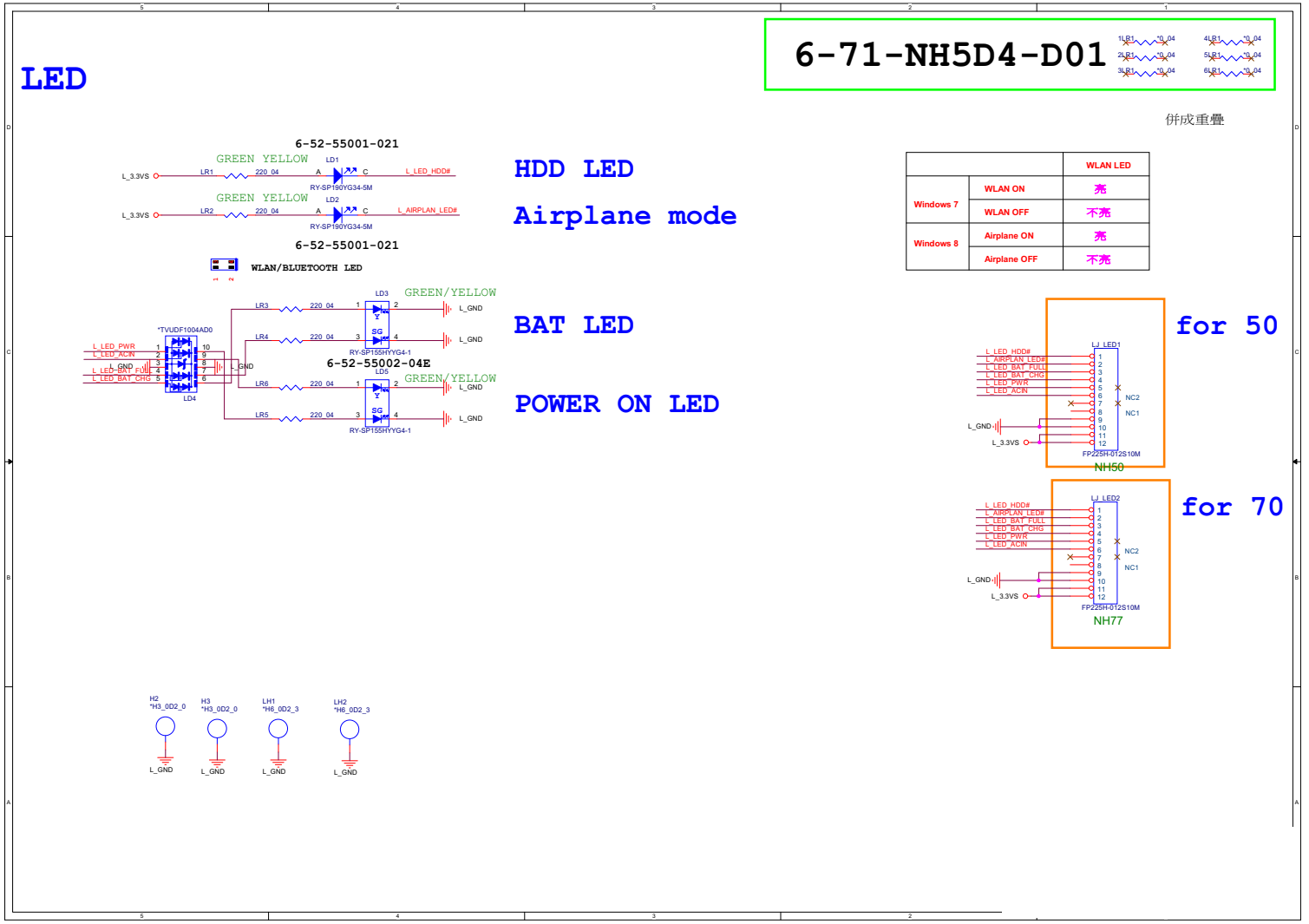


Click Board



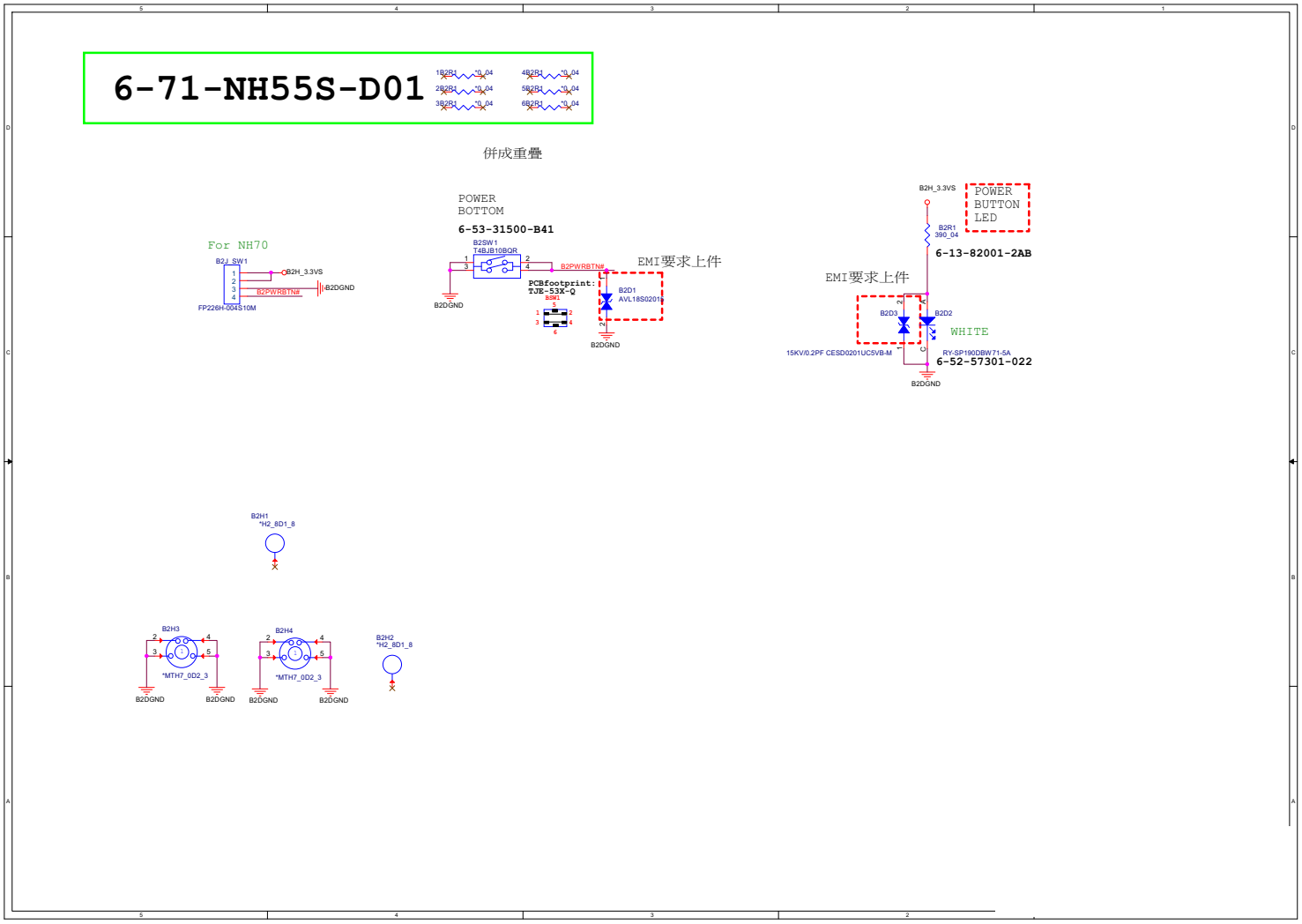
Sheet 64 of 67
Click Board

LED Board



Sheet 65 of 67
LED Board

NH70 PW Board



Sheet 66 of 67
NH70 PW Board

Power Sequence

Sheet 67 of 67
Power Sequence