



# User Manual



**Notebook Computer**

**NH50AF1 / NH55AFW / NH57AF1 / NH58AF1**

**Service Manual**

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## About this Manual

This manual is intended for service personnel who have completed sufficient training to undertake the maintenance and inspection of personal computers.

It is organized to allow you to look up basic information for servicing and/or upgrading components of the *NH50AF1* / *NH55AFW* / *NH57AF1* / *NH58AF1* 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, 11.8A (**230** Watts) minimum AC/DC Adapter.

### FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

This device may not cause harmful interference.

This device must accept any interference received, including interference that may cause undesired operation.

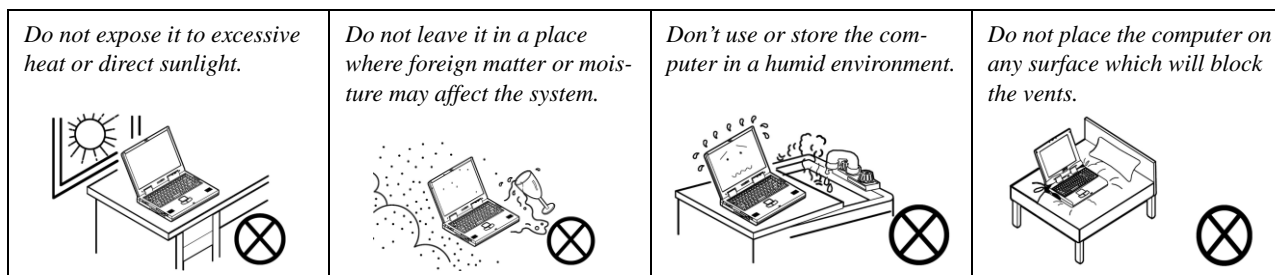
## Instructions for Care and Operation

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

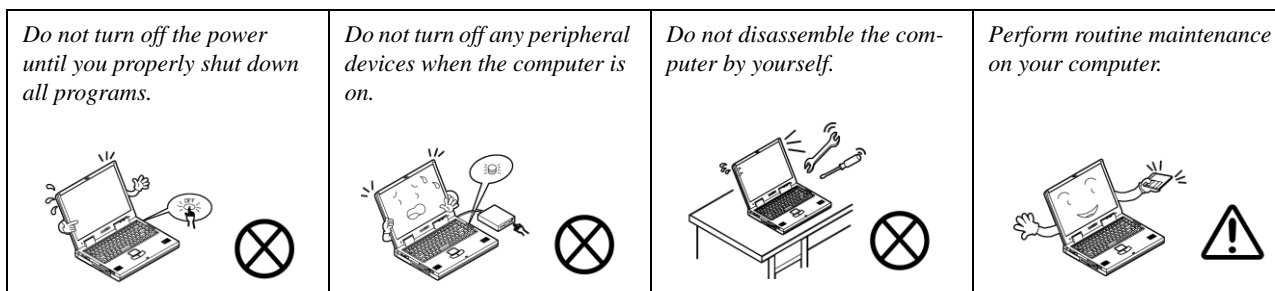
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



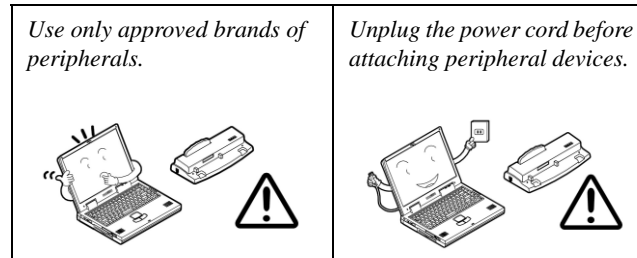
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.



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



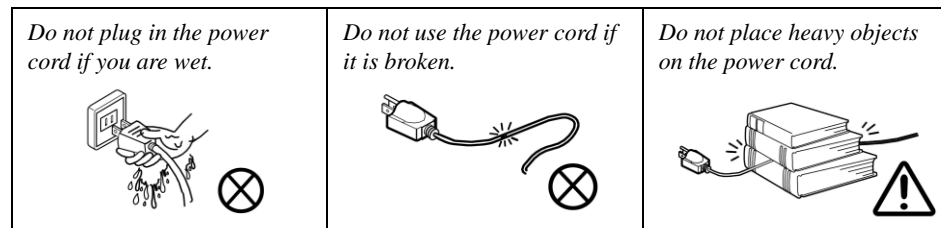
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



## Power Safety

The computer has specific power requirements:

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



### Power Safety Warning

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



## Battery Precautions

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

## Battery Guidelines

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

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




### Battery Disposal

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

### Caution

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

### Battery Level

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

### Related Documents

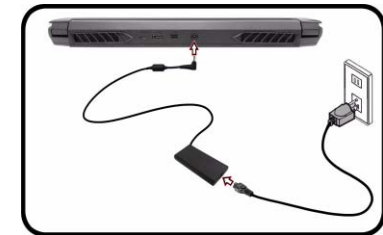
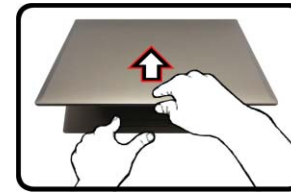
You may also need to consult the following manual for additional information:

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

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

### System Startup


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

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# Chapter 1: Introduction

## Overview

This manual covers the information you need to service or upgrade the *NH50AF1 / NH55AFW / NH57AF1 / NH58AF1* series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in the *User's Manual*. The manual is shipped with the computer.

Operating systems (e.g. *Windows 10*, etc.) have their own manuals as do application softwares (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The *NH50AF1 / NH55AFW / NH57AF1 / NH58AF1* series notebook is designed to be upgradeable. See [Disassembly on page 2 - 1](#) for a detailed description of the upgrade procedures for each specific component. Please take note of the warning and safety information indicated by the “” symbol.

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

## Introduction

# Specifications



### Latest Specification Information

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



### CPU

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

### AMD & Intel CPU Differences

Note that there are differences between the AMD and Intel CPUs in the RTC CMOS data storage location:

- Intel RTC CMOS data is stored in the PCH.
- AMD RTC CMOS data is stored in the CPU.

Note therefore that every time the CPU is replaced, the CMOS must be reset, and the first boot time after replacing the CPU will be longer (press power on, and the screen will light up after 1 minute).

### Processor Options

#### AMD Ryzen™ 9 Desktop Processor

**3900 (3.10GHz)**

64MB Smart Cache, 7nm, DDR4-3200MHz, TDP 65W

#### AMD Ryzen™ 7 Desktop Processor

**3700 (3.60GHz)**

32MB Smart Cache, 7nm, DDR4-3200MHz, TDP 65W

#### AMD Ryzen™ 5 Desktop Processor

**3600 (3.60GHz)**

32MB Smart Cache, 7nm, DDR4-3200MHz, TDP 65W

### Core Logic

AMD B450 Chipset

### BIOS

128Mb SPI Flash ROM

INSYDE BIOS

### LCD Options

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

### Memory

Dual Channel DDR4

Two 260 Pin SO-DIMM Sockets

Supporting **DDR4 2666MHz/3200MHz** Memory Modules

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

Compatible with 8GB, 16GB or 32GB Modules

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

### Storage

**One** changeable 2.5" (6cm) **7.0mm (h) SATA** (Serial) Hard Disk Drive/Solid State Drive (SSD)

**(Factory Option)** One M.2 **SATA/PCIe Gen3 x4** Solid State Drive (SSD)

**(Factory Option)** One M.2 **PCIe Gen2 x4**

### Audio

High Definition Audio Compliant Interface

Sound Blaster™ Cinema 6

Built-In Array Microphone

Two Speakers

### Video Adapter

**NVIDIA® Discrete GPU**

**NVIDIA® GeForce RTX 2070**

**8GB** GDDR6 Video RAM on board

Microsoft DirectX® 12 Compatible

### Security

Security (Kensington® Type) Lock Slot

BIOS Password

**(Factory Option)** TPM 2.0

**(Factory Option)** Fingerprint Sensor

### Keyboard

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

### Pointing Device

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

Or

**(Factory Option)** Built-in Secure Pad (with Microsoft PTP Multi Gesture & Scrolling Functionality)

**Card Reader**

MicroSD Card Reader

**M.2 Slots**

Slot 1 for **Combo WLAN and Bluetooth** Module

Slot 2 for **SATA or PCIe Gen3 x4 SSD**

Slot 3 for **PCIe Gen2 x4 SSD**

**Interface**

One USB 2.0 Port

Two USB 3.2 Gen 2 Type-A Ports

One DisplayPort 1.4 over USB 3.2 Gen 2 Type-C Port

One Mini DisplayPort 1.4

One HDMI-Out Port

One 2- In-1 Audio Jack (Headphone and Microphone)

One Microphone-In Jack

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 Wi-Fi 6 AX200 Wireless LAN (**802.11ax**) + Bluetooth

(**Factory Option**) Qualcomm® Rivet Killer™ Wireless-AC 1650x Dual Band 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 6 Cell Smart Lithium-Ion Battery Pack, 62WH

Full Range AC/DC Adapter

AC Input: 100 - 240V, 50 - 60Hz

DC Output: 19.5V, 11.8A (**230W**)

**Dimensions & Weight**

361mm (w) \* 258mm (d) \* 32.5mm (h)

**2.7kg** (Barebone with 62WH Battery)

## Introduction

Figure 1  
Top View

1. PC Camera
2. \*PC Camera LED  
*\*When the PC camera is in use, the LED will be illuminated.*
3. Built-In Array Microphone
4. LCD
5. Power Button
6. Keyboard
7. Touchpad & Buttons

## External Locator - Top View with LCD Panel Open





## External Locator - Front & Right Side Views

FRONT VIEW



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

RIGHT SIDE VIEW



*Figure 3*  
**Right Side View**  
1. 2-In-1 Audio Jack  
(Headphone and  
Microphone)  
2. Microphone-In  
Jack  
3. USB 2.0 Port  
4. Vent

## Introduction

### External Locator - Left Side & Rear View

*Figure 4*

#### Left Side View

1. Security Lock Slot
2. RJ-45 LAN Jack
3. USB 3.2 Gen 2 Type-A Ports
4. MicroSD Card Reader

LEFT SIDE VIEW



*Figure 5*

#### Rear View

1. Vent
2. DisplayPort 1.4 over USB 3.2 Gen 2 Type-C Port
3. HDMI-Out Port
4. Mini Display Port 1.4
5. DC-In Jack

REAR VIEW



## External Locator - Bottom View

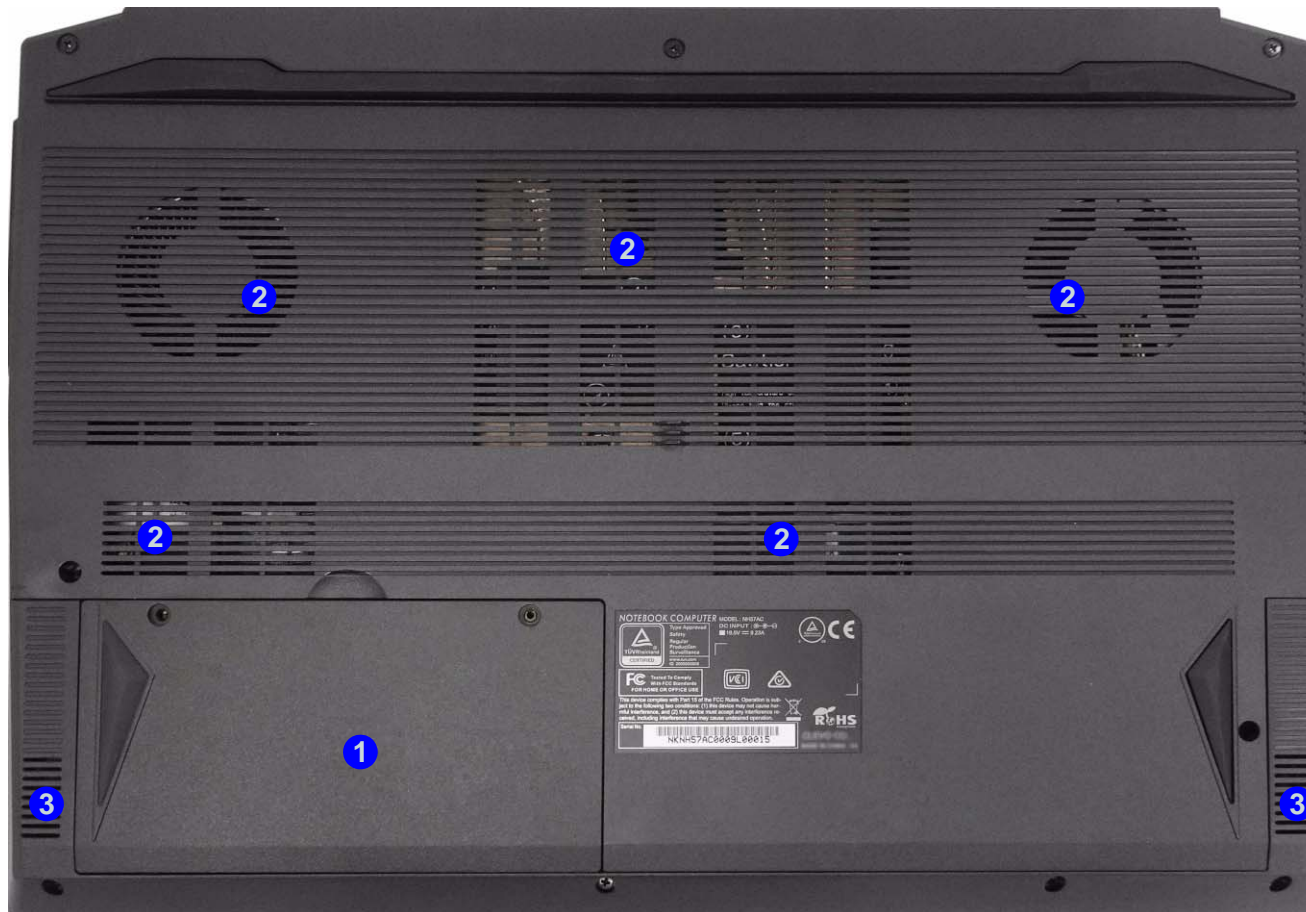


Figure 6  
Bottom View

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.

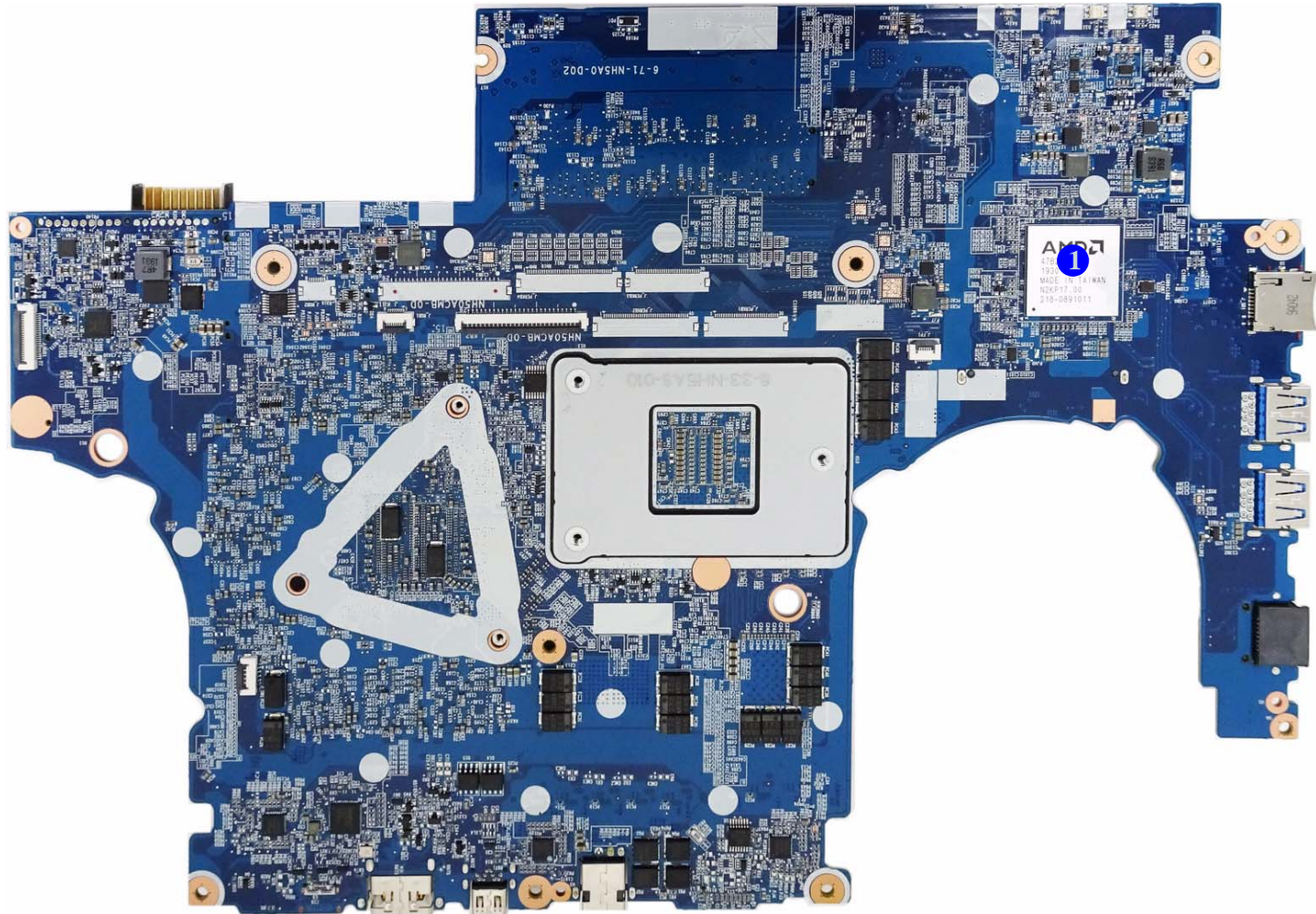
## Introduction

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*Figure 7*  
Mainboard Top  
Key Parts

# Mainboard Overview - Top (Key Parts)

1. AMD Southbridge



## Mainboard Overview - Bottom (Key Parts)

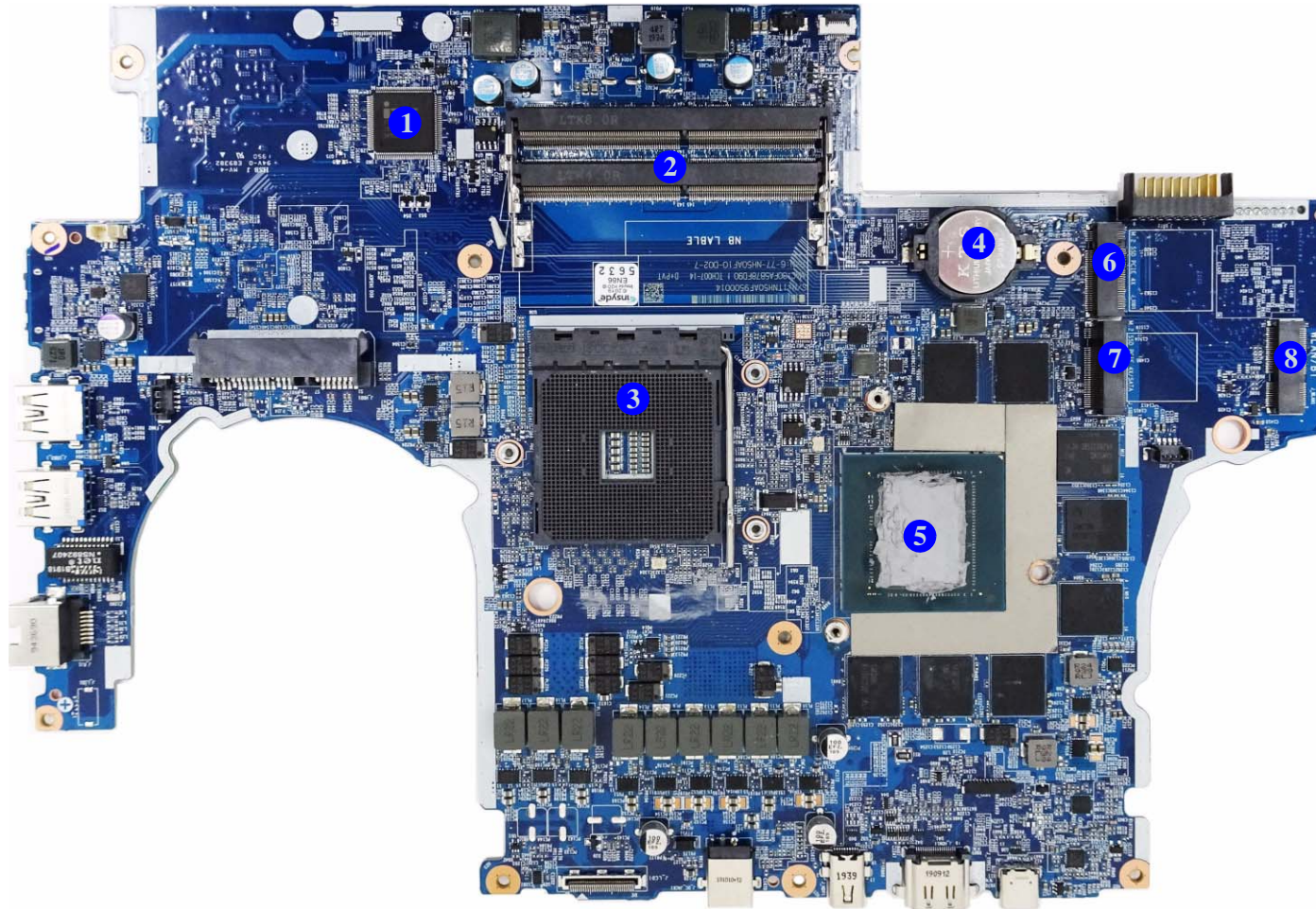


Figure 8  
Mainboard Bottom  
Key Parts

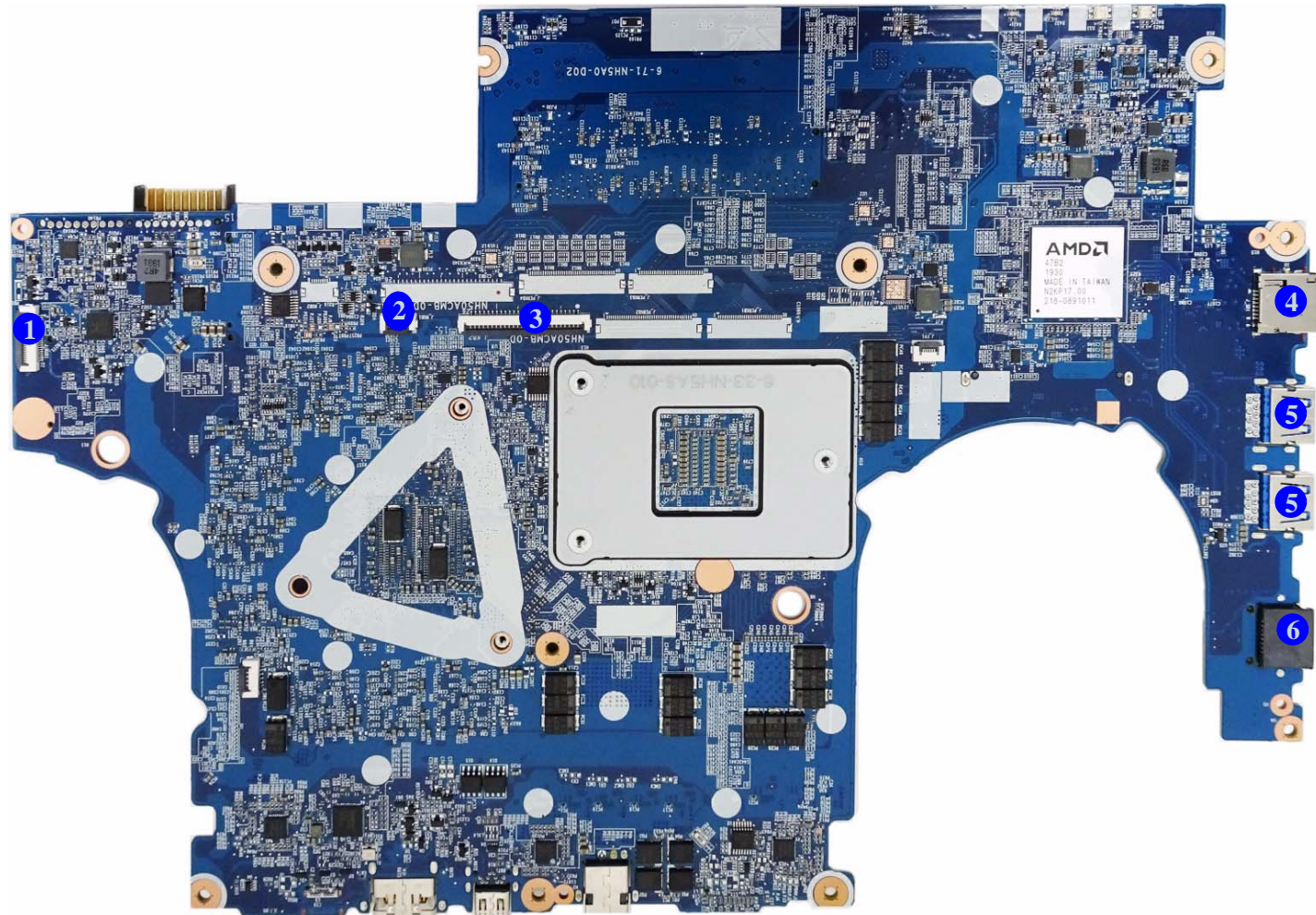
1. KBC-ITE IT5570 [EC]
2. Memory Slots DDR4 SO-DIMM
3. CPU Socket
4. CMOS Battery
5. GPU
6. M.2-Card Connector (SSD PCIE Module)
7. M.2-Card Connector (SSD PCIE/SATA Module)
8. Mini-Card Connector (WLAN/BT Module)

## Introduction

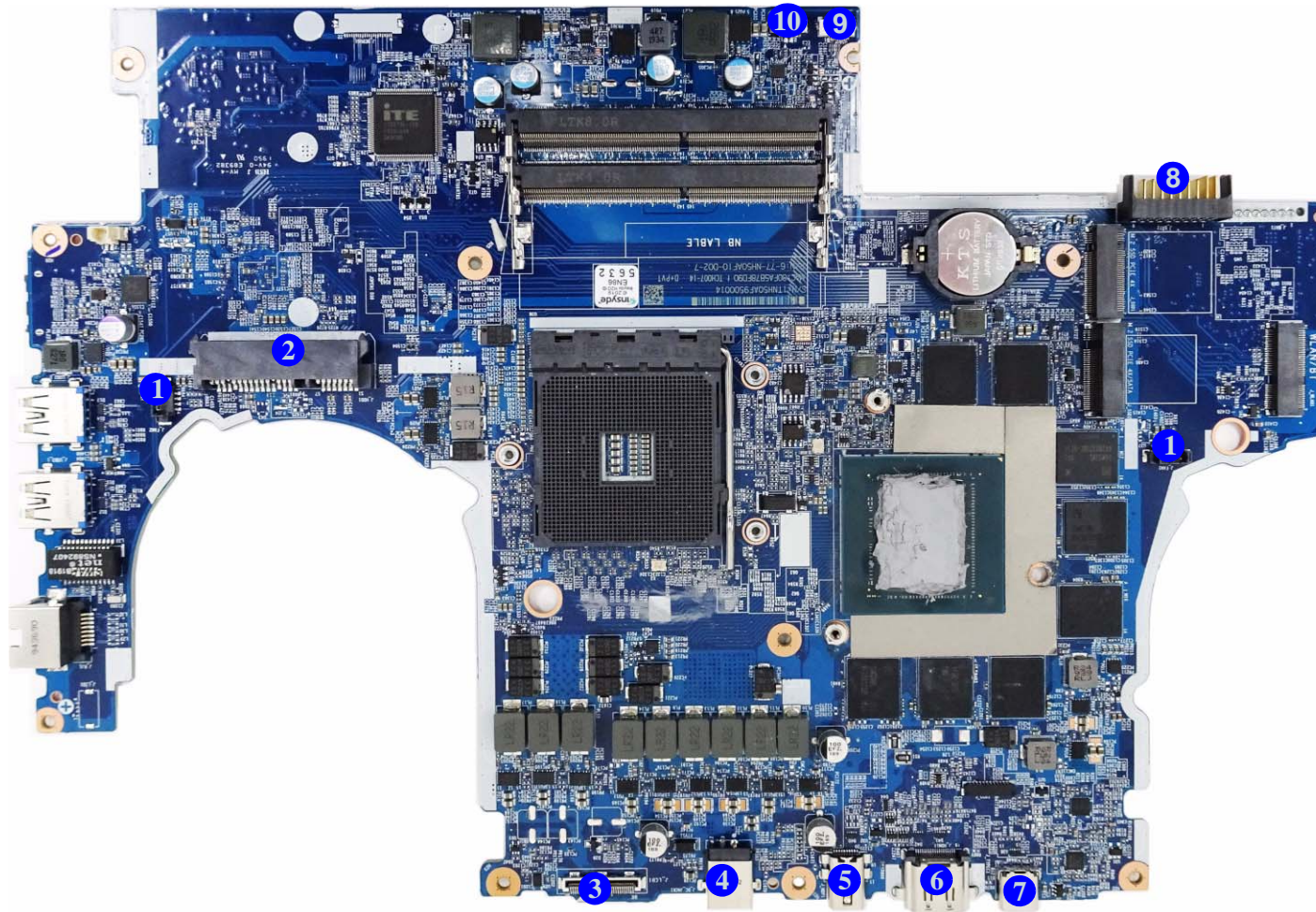
*Figure 9*  
**Mainboard Top  
Connectors**

1. USB Connector
2. Keyboard Cable Connector
3. KB LED Connector
4. MicroSD Card Reader
5. USB 3.2 Gen 2 Type-A Ports
6. RJ-45 LAN Jack

## Mainboard Overview - Top (Connectors)



## Mainboard Overview - Bottom (Connectors)



*Figure 10*  
**Mainboard Bottom Connectors**

1. Fan Connector
2. HDD Connector
3. LCD Connector
4. DC-In Jack
5. Mini Display Port 1.4
6. HDMI-Out Port
7. DisplayPort 1.4 over USB 3.1 Gen 2 Type-C Port
8. Battery Connector
9. Touchpad Connector
10. Speaker Connector






# Chapter 2: Disassembly



## Overview

This chapter provides step-by-step instructions for disassembling the *NH50AF1 / NH55AFW / NH57AF1 / NH58AF1* series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

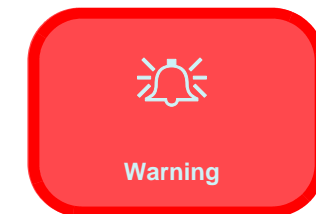
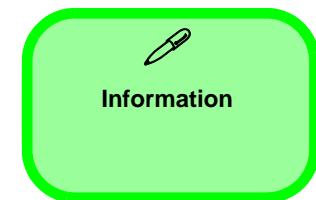
We suggest you completely review any procedure before you take the computer apart.

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.



## Disassembly

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

### Maintenance Tools

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

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



### Connections

Connections within the computer are one of four types:

Locking collar sockets for ribbon connectors

To release these connectors, use a small flat-head screwdriver to gently pry the locking collar away from its base. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.

Pressure sockets for multi-wire connectors

To release this connector type, grasp it at its head and gently rock it from side to side as you pull it out. Do not pull on the wires themselves. When replacing the connection, do not try to force it. The socket only fits one way.

Pressure sockets for ribbon connectors

To release these connectors, use a small pair of needle-nose pliers to gently lift the connector away from its socket. When replacing the connection, make sure the connector is oriented in the same way. The pin1 side is usually not indicated.

Board-to-board or multi-pin sockets

To separate the boards, gently rock them from side to side as you pull them apart. If the connection is very tight, use a small flat-head screwdriver - use just enough force to start.

## Maintenance Precautions

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

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

## Cleaning

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

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

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

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



### Power Safety Warning

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

### Disassembly Steps

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

#### To remove the Battery:

1. Remove the battery [page 2 - 5](#)

#### To remove the HDD:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)

#### To remove the Keyboard:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Remove the keyboard [page 2 - 8](#)

#### To remove and install the Processor:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Remove the processor [page 2 - 9](#)
4. Install the processor [page 2 - 11](#)

#### To remove the System Memory:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Remove the system memory [page 2 - 12](#)

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

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Remove the SSD [page 2 - 13](#)

#### To remove the Wireless LAN Module:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Remove the WLAN [page 2 - 15](#)

#### To remove the CCD Module:

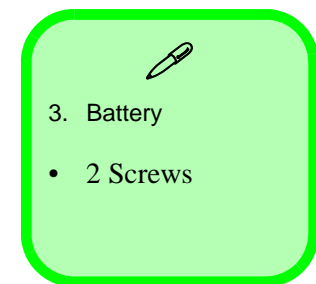
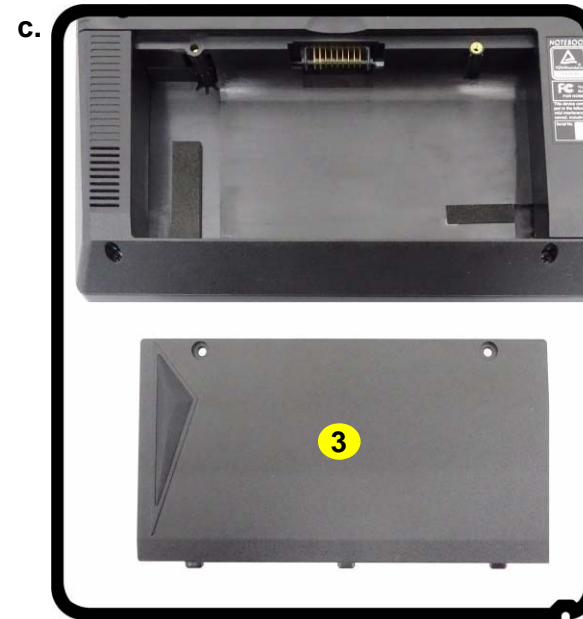
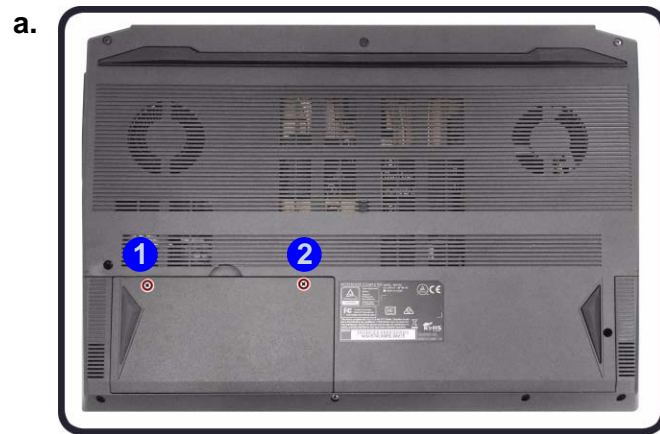
1. Remove the battery [page 2 - 5](#)
2. Remove the CCD module [page 2 - 17](#)

## Removing the Battery

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

*Figure 1*  
**Battery Removal**

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



## Disassembly

*Figure 2*  
**HDD Assembly  
Removal**

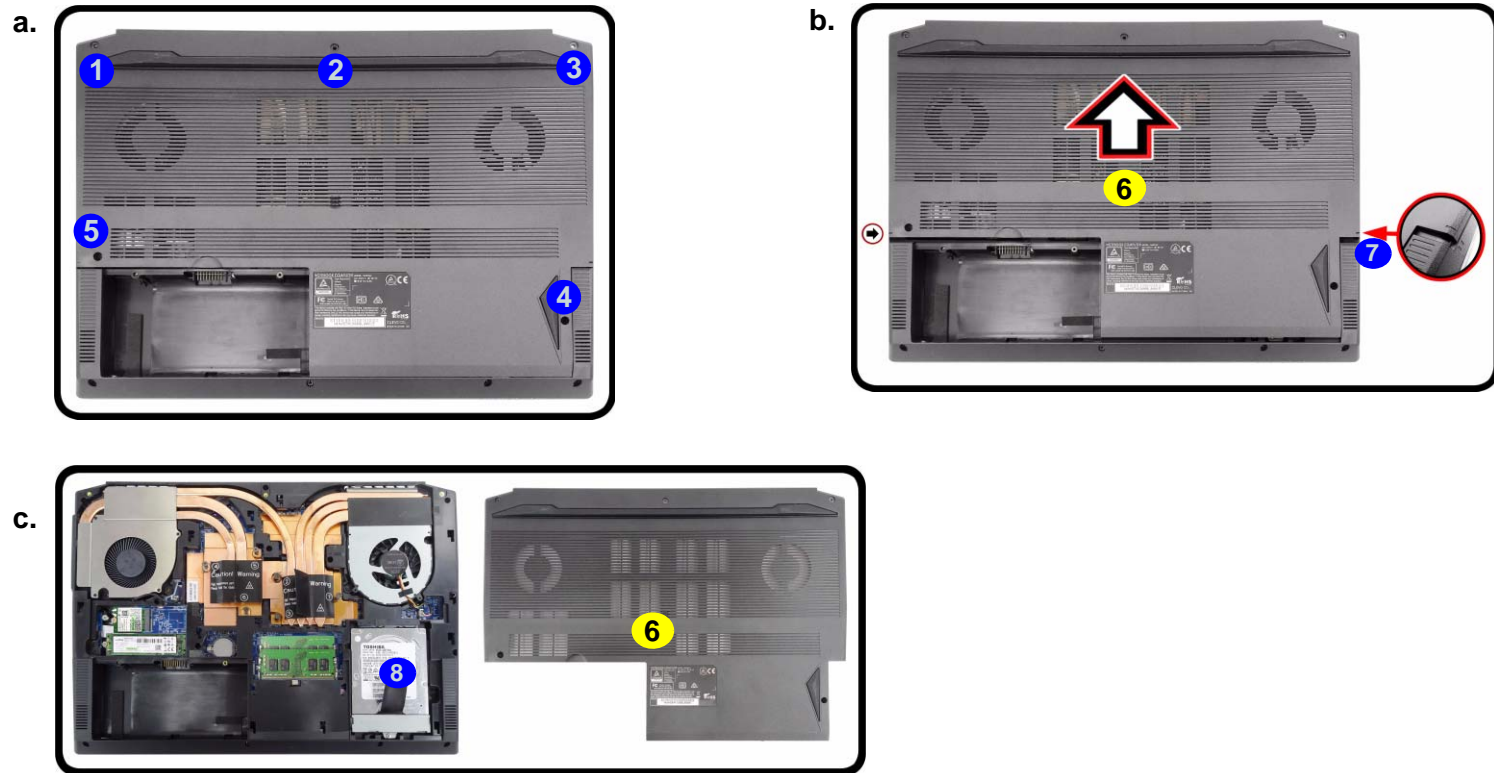
- Remove the screws.
- Slide the bottom case out and remove it.
- Locate the HDD.

## Removing the Hard Disk Drive

The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 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

- Turn **off** the computer, and remove the battery ([page 2 - 5](#)).
- Remove the screws **1 - 5** ([Figure 2a](#)).
- Carefully slide the bottom case **6** as shown **7** and lift it off ([Figure 2b](#)).
- The HDD will be visible at point **8** on the mainboard ([Figure 2c](#)).



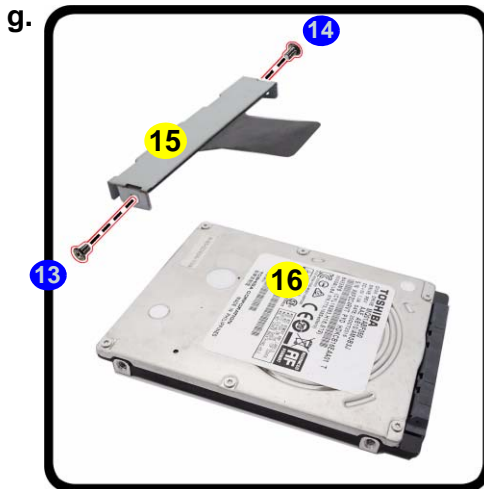
6. Bottom Case


- 5 Screws

5. Remove screws **9** from the HDD assembly (*Figure 3b*).
6. Slightly lift and pull the hard disk assembly in the direction of arrow **10** (*Figure 3c*).
7. Lift the hard disk assembly **11** out of the bay **12** (*Figure 3d*).
8. Remove screws **13** - **14** and bracket **15** from the hard disk **16** (*Figure 3e*).
9. Reverse the process to install a new hard disk (do not forget to replace the screws).

*Figure 3*  
**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.






**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.



11. HDD Assembly  
 15. Bracket  
 16. HDD

- 3 Screws

## Disassembly

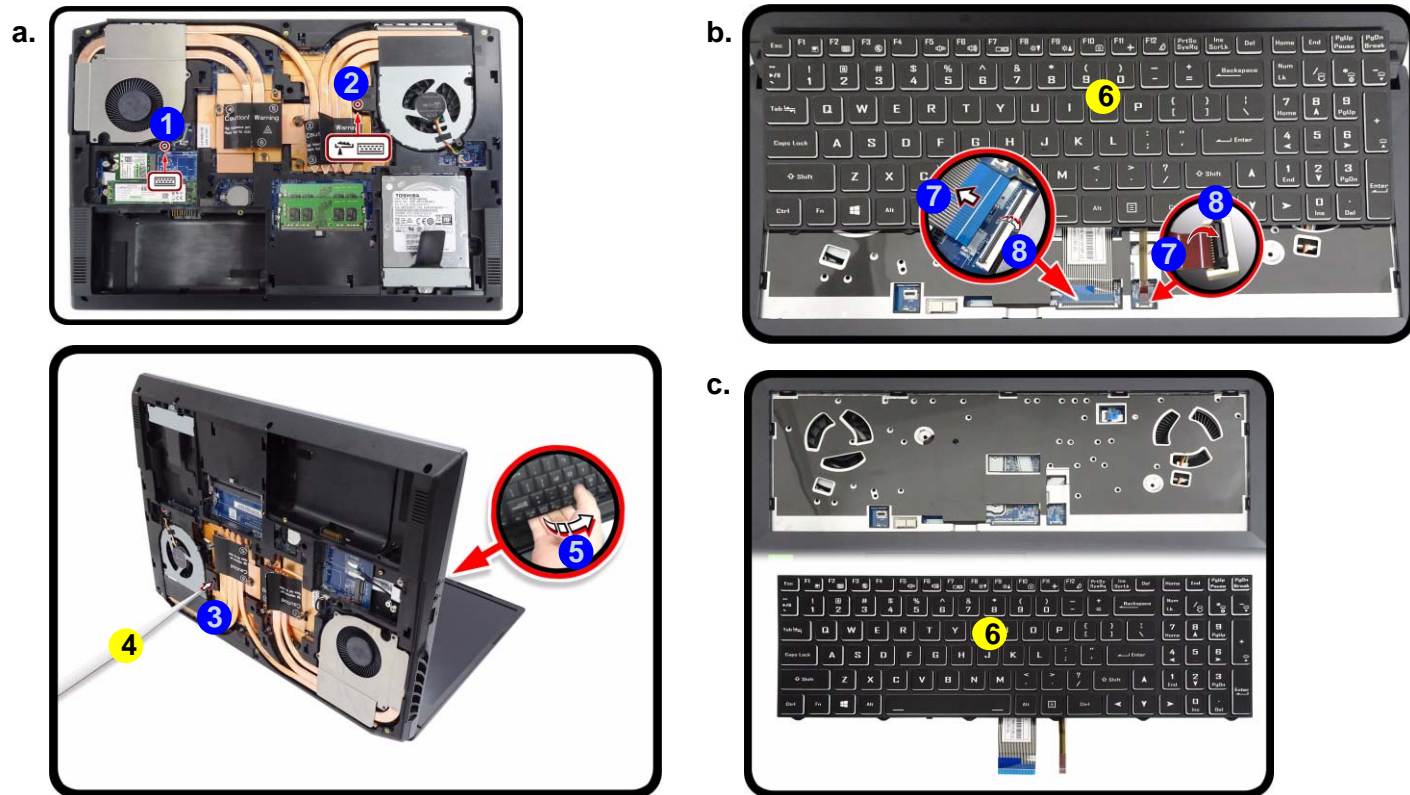
Figure 4

### Keyboard Removal

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

## Removing the Keyboard

- Turn **off** the computer, remove the battery ([page 2 - 5](#)) and bottom cover ([page 2 - 6](#)).
- Remove screws **1** - **2** from the bottom of the computer.
- Open it up with the LCD on a flat surface before pressing at point **3** to release the keyboard module (use the special eject stick **4** to do this) while releasing the keyboard in the direction of the arrow **5** as shown ([Figure 4a](#)).
- 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 4b](#)).
- Carefully lift the keyboard **6** off the computer ([Figure 4c](#)).



#### Re-inserting the Keyboard

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



- Eject Stick
- Keyboard

- 2 Screws



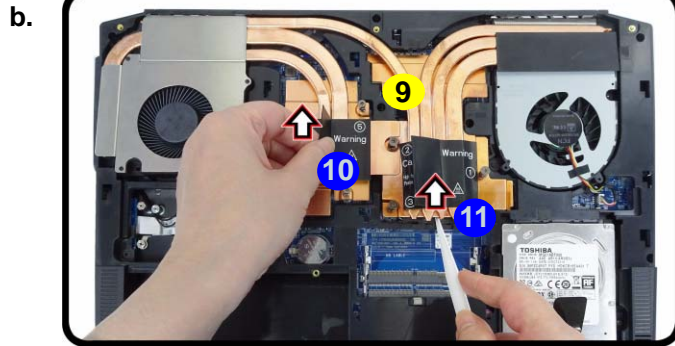
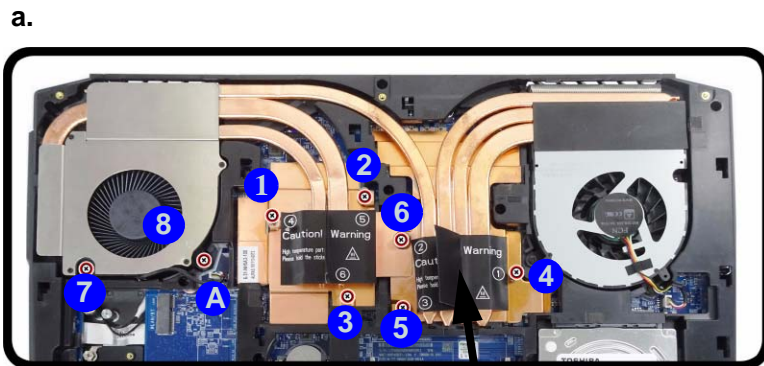
# Removing and Installing the Processor

## Processor Removal Procedure


1. Turn **off** the computer, remove the battery ([page 2 - 5](#)) and bottom cover ([page 2 - 6](#)).
2. Disconnect cable **A** and remove screws **1** - **8** from the heat sink unit in the order indicated on the label (i.e screw **8** first through to screw **1** last [Figure 5a](#)).
3. Carefully (it may be hot) remove the heat sink unit **9** at point **10** while using a tool to lever the heatsink up at point **11**. Then lift the heat sink up at an angle as shown ([Figure 5b](#)).

*Figure 5*  
**Processor Removal Procedure**

- a. Disconnect the cable and remove the screws in the correct order.
- b. Carefully remove the heat sink unit.



**Note:**  
Loosen the screws in the reverse order 8-7-6-5-4-3-2-1 as indicated.



9. Heat Sink Unit

- 8 Screws

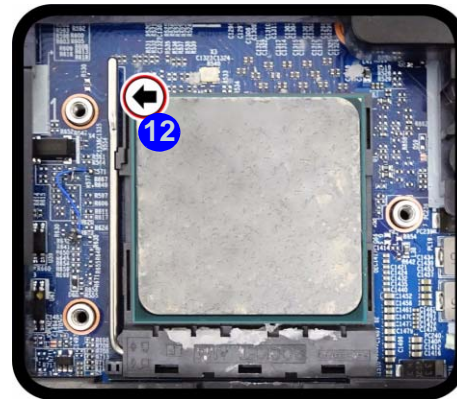
## Disassembly

*Figure 6*  
**Processor Removal**  
**(cont'd)**

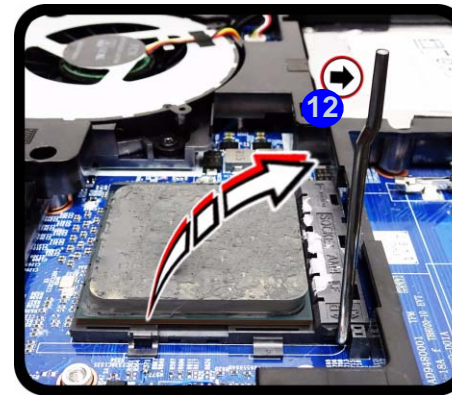
- c. Move the latch fully in the direction indicated to unlock the CPU.
- d. Lift the CPU out of the socket.

4. Press down and hold the latch 12 (with the latch held down you will be able to release it).
5. Move the latch 12 fully in the direction indicated to unlock the CPU (*Figure 6c*).
6. Carefully (it may be hot) lift the CPU A up out of the socket (*Figure 6d*).
7. See [page 2 - 11](#) for information on inserting a new CPU.
8. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).

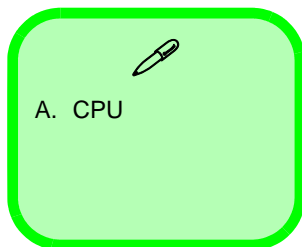
c.



Unlock



d.



### Caution

The heat sink, and CPU area in general, contains parts which are subject to high temperatures. Allow the area time to cool before removing these parts.

### AMD & Intel CPU Differences

Note that there are differences between the AMD and Intel CPUs in the RTC CMOS data storage location:

- Intel RTC CMOS data is stored in the PCH.
- AMD RTC CMOS data is stored in the CPU.

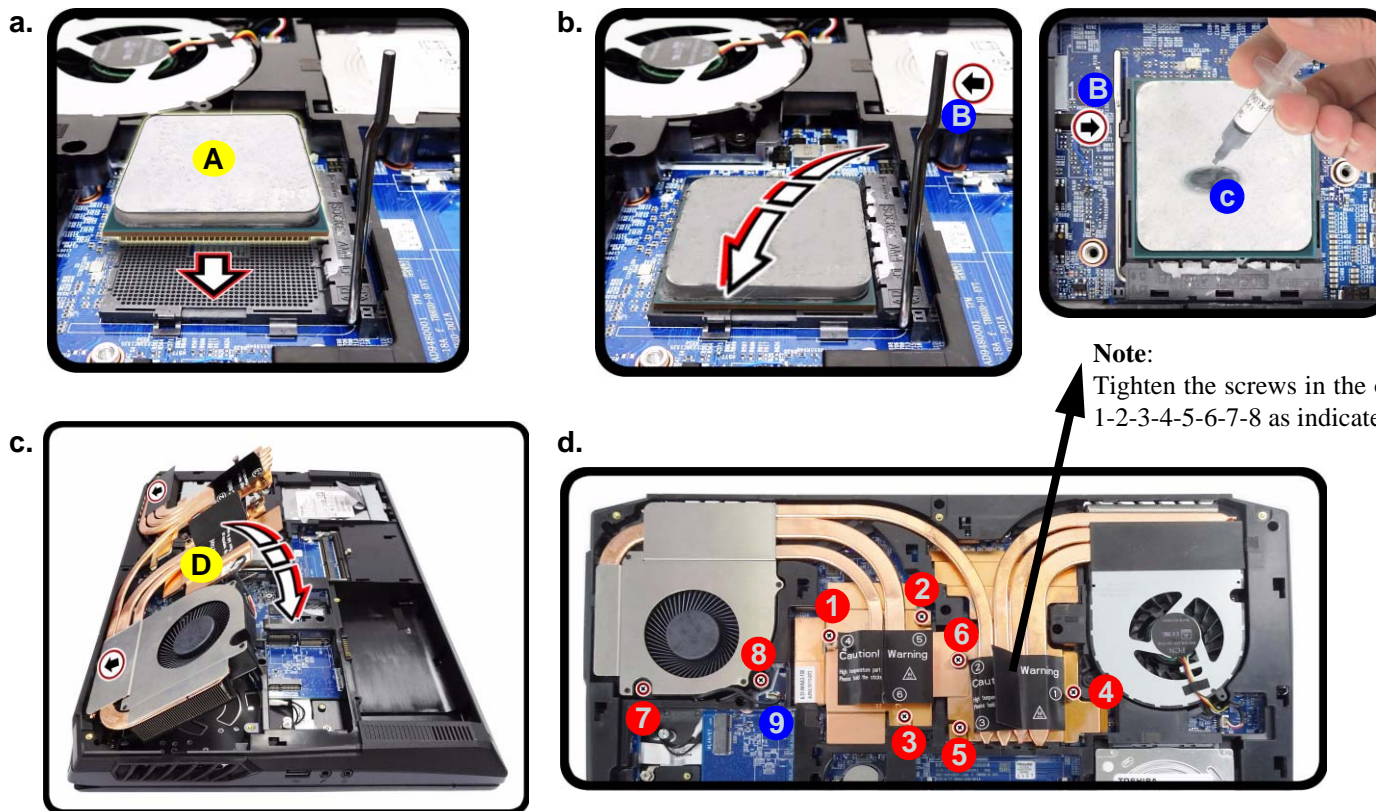
Note therefore that every time the CPU is replaced, the CMOS must be reset, and the first boot time after replacing the CPU will be longer (press power on, and the screen will light up after 1 minute).

Figure 7  
Processor  
Installation


- a. Insert the CPU.
- b. Move the latch fully in the direction indicated to lock the CPU. Apply thermal grease.
- c. Insert the heat sink.
- d. Tighten the screws.

### Processor Installation Procedure

1. Insert the CPU **A**; pay careful attention to the pin alignment (*Figure 7a*), it will fit only one way (DO NOT FORCE IT!).
2. Move the latch **B** fully in the direction indicated to lock the CPU.
3. Apply the whole tube of the thermal grease **C** to the center of the CPU as shown (*Figure 7b*).
4. Insert the heat sink unit **D** in an angle as indicated in *Figure 7c*.
5. Tighten the CPU heat sink screws in the order **1** - **8** (the order as indicated on the label) and reconnect the cable **9** (*Figure 7d*).
6. Replace the video card heat sink, component bay cover and tighten the screws (*page 2 - 9*).



Note:  
Tighten the screws in the order  
1-2-3-4-5-6-7-8 as indicated.



A. CPU  
D. Heat Sink

- 8 Screws

*Figure 8*  
**RAM Module Removal**

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



### Contact Warning

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



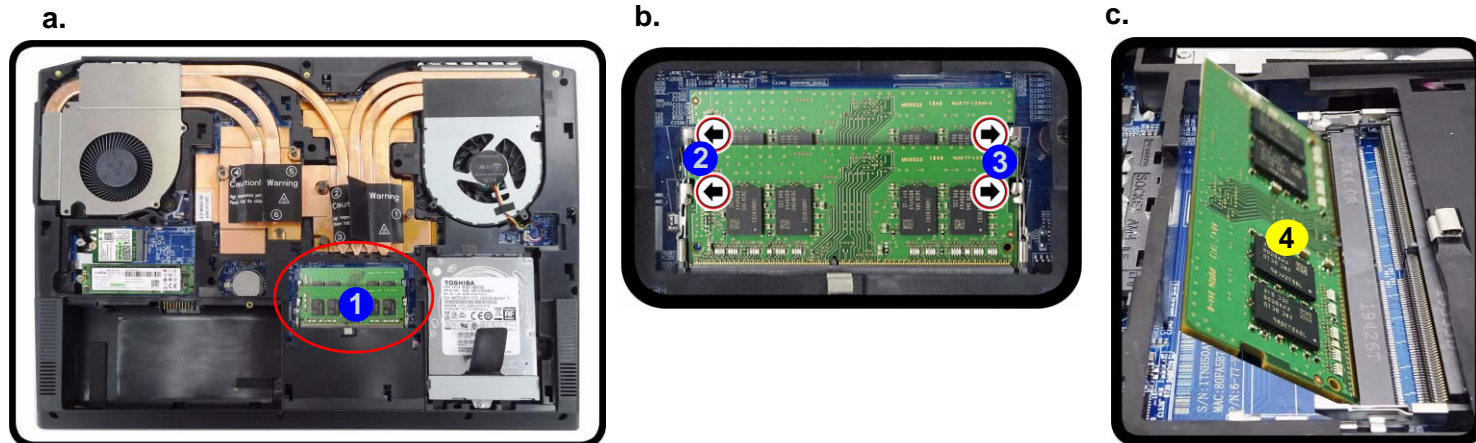
### 4. RAM Module

## Removing the System Memory (RAM)

The computer has two memory sockets for 260 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR4 up to 2666/3200 MHz. The main memory can be expanded up to 64GB. The total memory size is automatically detected by the POST routine once you turn on your computer.

### Memory Upgrade Process

- Turn **off** the computer, turn it over, remove the battery ([page 2 - 5](#)) and bottom cover ([page 2 - 6](#)).
- The RAM modules will be visible at point **1** on the mainboard ([Figure 8a](#)).
- Gently pull the two release latches (**2** & **3**) on the sides of the memory socket in the direction indicated by the arrows ([Figure 8b](#)). The RAM module **4** will pop-up ([Figure 8c](#)), and you can then remove it.
- Pull the latches to release the second module if necessary.
- Insert a new module (**for only one module** - insert module in the top slot) by holding it at about a 30° angle and fit the connectors firmly into the memory slot.
- The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. **DO NOT FORCE IT**; it should fit without much pressure.
- Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
- Replace the bottom cover and the screws (see [page 2 - 6](#)).
- Restart the computer to allow the BIOS to register the new memory configuration as it starts up.



# Removing the M.2 SSD Module

## M.2 SSD-1 Module Removal Procedure

1. Turn off the computer, turn it over, remove the battery (page 2 - 5) and bottom cover (page 2 - 6).
2. The M.2 SSD module will be visible at point 1 on the mainboard (Figure 9a).
3. Remove the screw 2 (Figure 9b)
4. The M.2 SSD module 3 (Figure 9c) will pop-up, and you can remove it from the computer.

Figure 9  
M.2 SSD-1 Module Removal

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



✎

**3.M2 SSD PCIE Module**

- 1 Screw

## Disassembly

*Figure 10*  
**M.2 SSD-2 Module Removal**

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

### M.2 SSD-2 Module Removal Procedure

- Turn off the computer, turn it over, remove the battery ([page 2 - 5](#)) and bottom cover ([page 2 - 6](#)).
- The M.2 SSD module will be visible at point **1** on the mainboard ([Figure 9a](#)).
- Remove the screw **2** ([Figure 9b](#)).
- The M.2 SSD module **3** ([Figure 9c](#)) will pop-up, and you can remove it from the computer.



3.M2 SSD SATA/PCIE Module

- 1 Screw

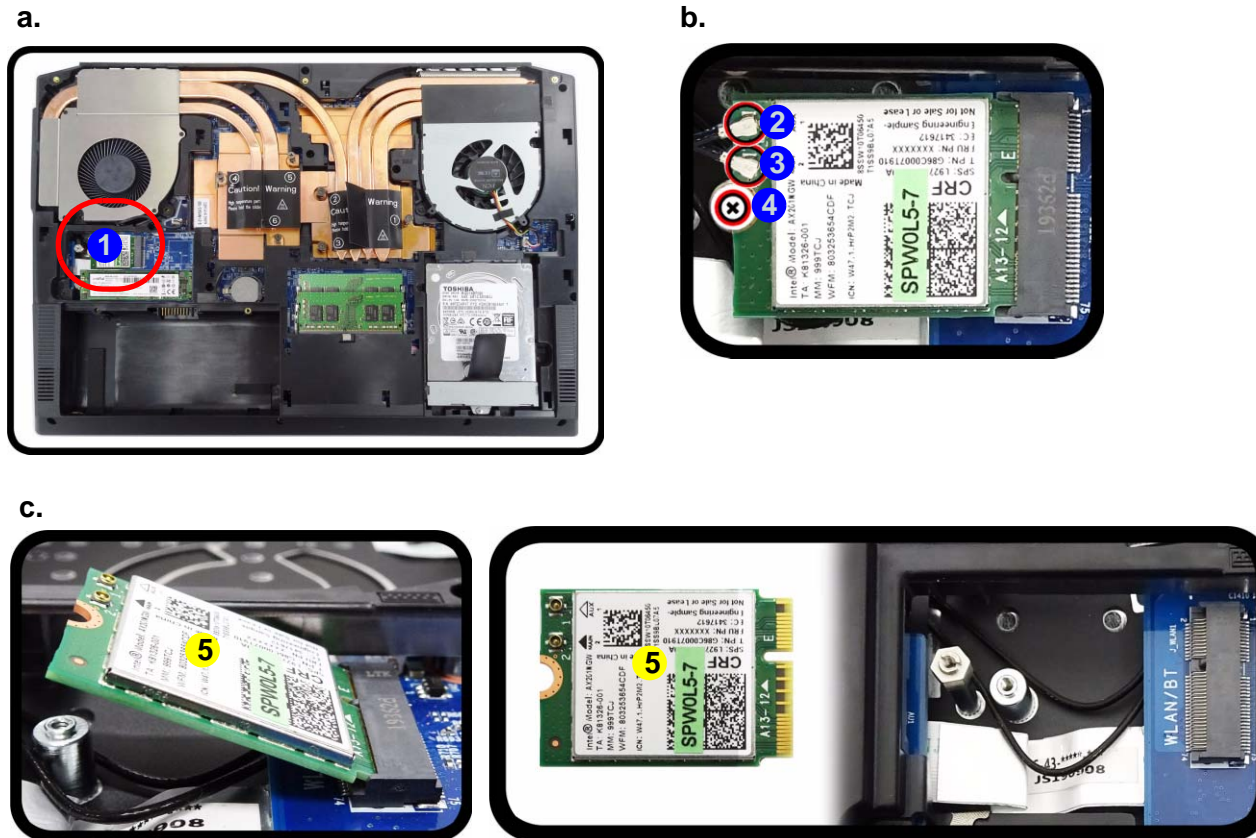
## Removing the Wireless LAN Module


1. Turn off the computer, turn it over, remove the battery ([page 2 - 5](#)), bottom cover ([page 2 - 6](#)) and SSD-2 ([page 2 - 14](#)).
2. The Wireless LAN module will be visible at point ① on the mainboard ([Figure 11a](#)).
3. Carefully disconnect the cables ② & ③, and then remove the screw ④ ([Figure 11b](#)).
4. The Wireless LAN module ⑤ ([Figure 11c](#)) will pop-up, and you can remove it from the computer.
5. Reverse the process to install a new module (do not forget to replace the mylar and screws while making sure that the cables are properly inserted as shown in [Figure 11c](#)).

*Figure 11*  
**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 11b](#)).





**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.

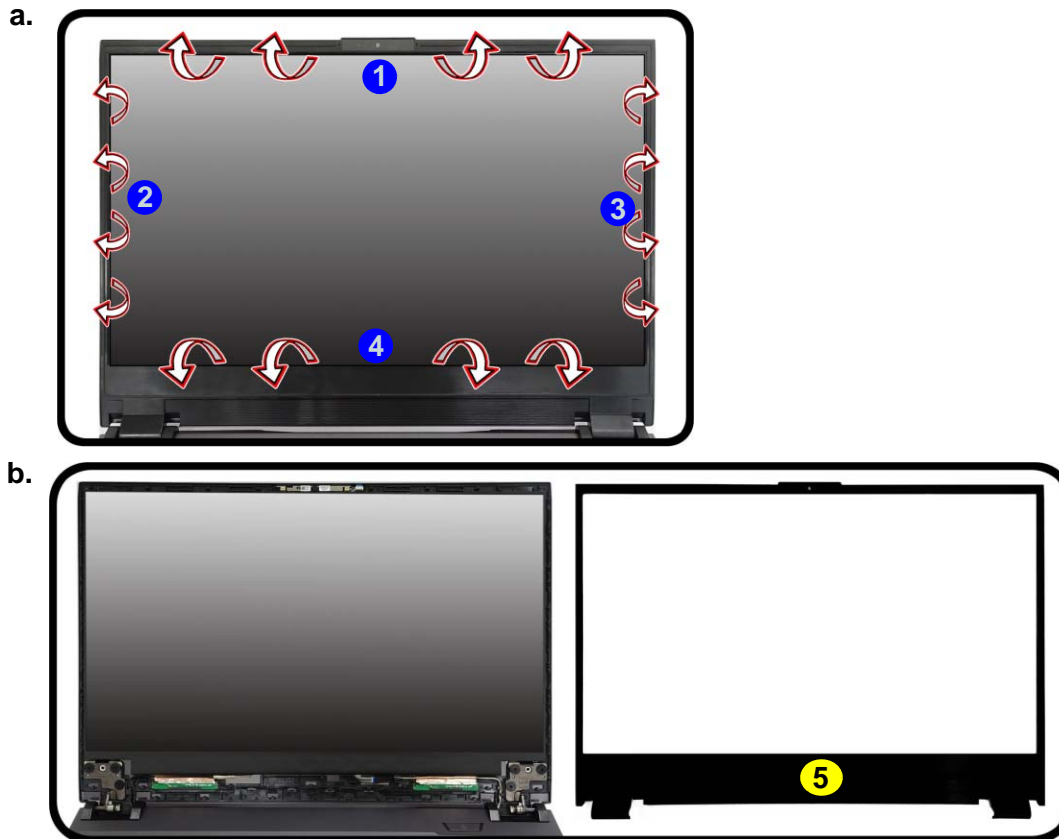


## Removing the CCD

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 12a](#)).
4. Remove the LCD front cover **5** ([Figure 12b](#)).

*Figure 12*  
**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.

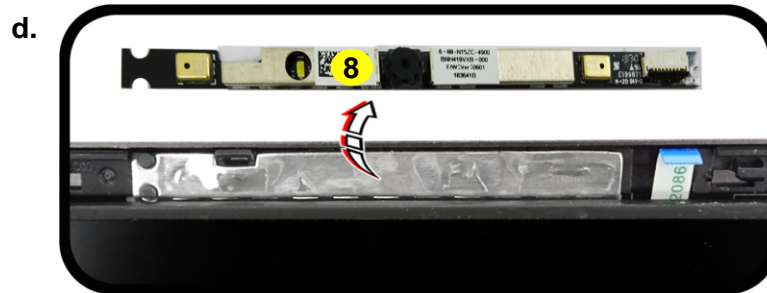


## Disassembly

*Figure 13*  
**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 13c*).
6. Remove the CCD module **8** (*Figure 13d*).
7. Reverse the process to install a new CCD module.



8. CCD Module

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# Appendix A:Part Lists

This appendix breaks down the *NH50AF1 / NH55AFW / NH57AF1 / NH58AF1* series notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

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

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

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

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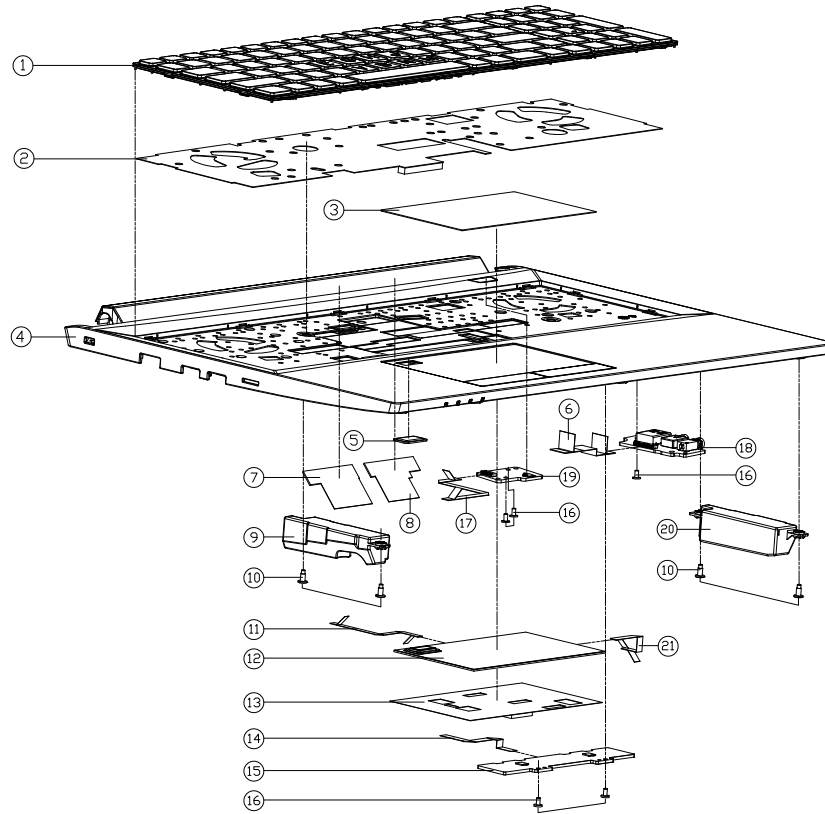
## Part List Illustration Location

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

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

Part	NH50AF1	NH58AF1	NH55AFW	NH57AF1
Top	<i>page A - 3</i>		<i>page A - 4</i>	<i>page A - 5</i>
Bottom	<i>page A - 6</i>			
Main Board	<i>page A - 7</i>			
HDD	<i>page A - 8</i>			
LCD	<i>page A - 9</i>	<i>page A - 10</i>	<i>page A - 11</i>	<i>page A - 12</i>

# Top (NH50AF1 / NH58AF1)

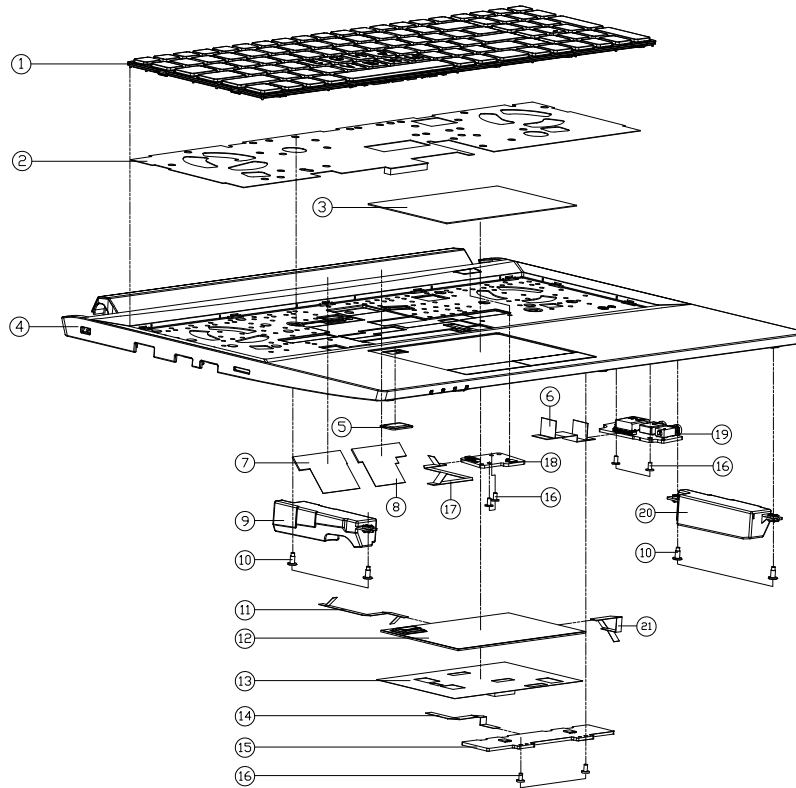


ITEM	PART NAME	PART NO	REMARK
1	R. TO 10 COMPROMISED KEYS BLACK WITH SILVER LONG PRINTING SOLUTION WITH VIBRO KEY COATING	6-80-N15Z0-19D-1	KB FOR MULTI ISC BL KB SERIES
1	R. TO 10 IMPACT COMPROMISED KEYS BLACK WITH SILVER LONG PRINTING SOLUTION WITH VIBRO KEY COATING	6-80-N15Z0-21D-1	KB FOR MULTI ISC BL KB SERIES
1	R. TO 100 COMPROMISED KEYS BLACK WITH SILVER LONG PRINTING SOLUTION WITH VIBRO KEY COATING	6-80-N15Z0-33E-1	KB FOR MULTI ISC BL KB SERIES
1	R. TO 100 COMPROMISED KEYS BLACK WITH SILVER LONG PRINTING SOLUTION WITH VIBRO KEY COATING	6-80-N15Z0-01D-1	KB FOR MULTI ISC BL KB SERIES
1	LED KEY MAT R. TO COMPROMISED KEYS BLACK WITH SILVER LONG PRINTING SOLUTION WITH VIBRO KEY COATING	6-80-NH5A0-010-1	KB FOR LED FOR KEY MATS KB SERIES
1	R. TO IMPACT COMPROMISED KEYS BLACK WITH SILVER LONG PRINTING SOLUTION WITH VIBRO KEY COATING	6-80-N15Z0-21D-1M	FOR MULTI ISC BL KB JP SERIES KB FOR MCJ
2	W/D BACKLIT KB MYLAR PET NH50AC	6-40-NH5A2-010	FOR MULTI ISC BL KB JP SERIES KB FOR MCJ
2	MULTI ISC BL KB MYLAR PET NH50AC	6-40-NH5A2-011	KB FOR MULTI ISC BL KB SERIES
3	W/D FP TP MYLAR AG32 NH50AC	6-40-NH5A2-040	ONLY FOR W/D FP
3	W/FP TP MYLAR AG32 NH50AC	6-40-NH5A2-050	ONLY FOR W/FP
4	TOP CASE MODULE NH50AC	6-39-NH5A2-012	
5	TP W/D FP RUBBER (17.9*11.2*1.2T) SILICONE	6-47-N15Z2-090	
6	FFC CABLE AUDIO TO MB L=54MM 5V 22PIN (CNUS) NH50AC	6-43-NH5A0-010	
7	ANTENNA TP2X4 MLAN JEM V1.2 PCB CL 400MM 24G/5G V1.2 30MM INCHED	6-23-7NH50-040	
8	ANTENNA TP2X4 MLAN JEM V1.1 PCB CL 400MM 24G/5G V1.1 30MM INCHED	6-23-7NH50-030	
9	SPEAKER CABLE 25*4*44.7MM 2V 4P 30MM 2P CL-1950-R (UNGATED) NH50AC	6-23-5NH5A-0L0	
10	.SCREW M2*6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
11	FFC CABLE FP TO MB L=69MM 5V 6PIN (CNUS) NH50AC	6-43-NH5A0-071	
12	TOUCH PAD SYNAPTICS PTP TM-P3429 (080*60MM (WHAL) NH50ZU	6-49-N15Z3-011	ONLY FOR W/D FP
12	TOUCH PAD SYNAPTICS PTP TM-P3429 (080*60MM (WHAL) NH50ZU	6-49-N15Z3-021	ONLY FOR W/FP
13	TP MYLAR PET NH50AC	6-40-NH5A2-020	
14	FFC CABLE CLICK TO TP L=61MM 3V 4PIN (C0X) NH50ED	6-43-NH500-051	
15	CLICK BOARD V2.0 NH50AC	6-77-NH5A2-D02	
16	SCREW M2*4L KI NI ICT NY (OD=04.5,DT=0.8)	6-35-B1120-4RC	
17	FFC CABLE POWER TO MB L=85MM 3V 4PIN (CNUS) NH50AC	6-43-NH5A0-030	
18	AUDIO BOARD FOR USB V2.0 NH50AC	6-77-NH5A6-D02	
19	POWER SW BOARD V2.0 NH50AC	6-77-NH5AS-D02	
20	SPEAKER CABLE 25*4*44.7MM 2V 4P 30MM 2P CL-1950-R (UNGATED) NH50AC	6-23-5NH5A-0R0	
21	FFC CABLE TP TO MB L=45MM 3V 8PIN (CNUS) NH50AC	6-43-NH5A0-020	

Figure A - 1  
Top (NH50AF1 / NH58AF1)

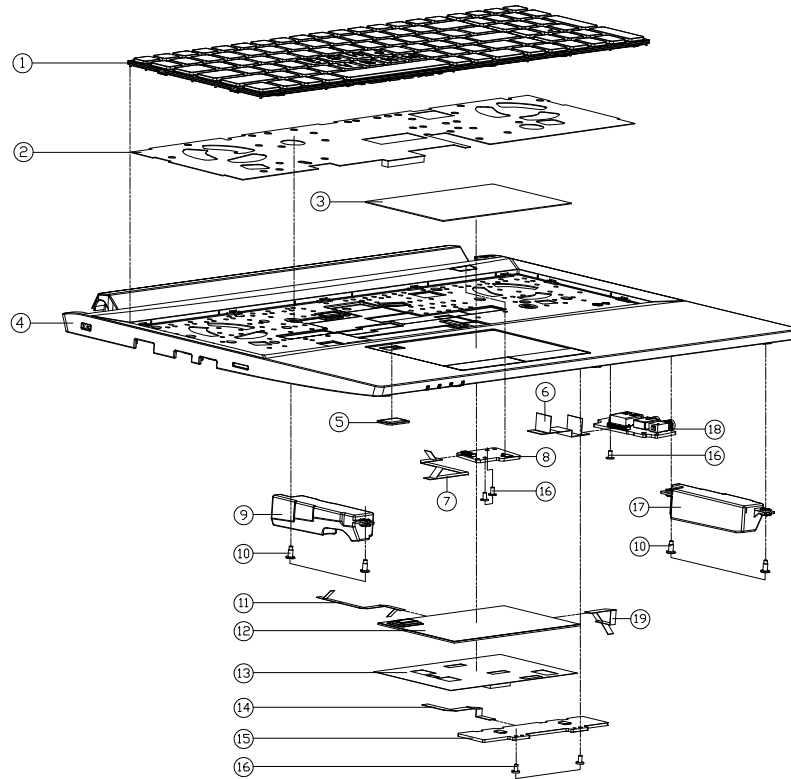
# Top (NH55AFW)

Figure 2  
Top (NH55AFW)



ITEM	PART NAME	PART NO	REMARK
1	R. TO KE COMPRESSOR HEAD BLACK WHITE SILVER LAMINATING ISOLATION WITH VIBRO KEY COOPER	6-80-N15Z0-19D-1	KB FOR MULTI 15C BL KB SERIES
1	R. TO JAPANESE CYBERPAPER HEAD BLACK WHITE SILVER LAMINATING ISOLATION WITH VIBRO KEY COOPER	6-80-N15Z0-21D-1	KB FOR MULTI 15C BL KB SERIES
1	R. TO BRITISH CYBERPAPER HEAD BLACK WHITE SILVER LAMINATING ISOLATION WITH VIBRO KEY COOPER	6-80-N15Z0-33E-1	KB FOR MULTI 15C BL KB SERIES
1	R. TO KE COMPRESSOR HEAD BLACK WHITE SILVER LAMINATING ISOLATION WITH VIBRO KEY COOPER	6-80-N15Z0-01D-1	KB FOR MULTI 15C BL KB SERIES
1	R. TO JAPANESE CYBERPAPER HEAD BLACK WHITE SILVER LAMINATING ISOLATION WITH VIBRO KEY COOPER FOR BL	6-80-N15Z0-21D-1M	FOR MULTI 15C BL KB JP SERIES KB FOR MCJ
2	W/D BACKLIT KB MYLAR PET NH50AC	6-40-NH5A2-010	FOR MULTI 15C BL KB JP
2	MULTI 15C BL KB MYLAR PET NH50AC	6-40-NH5A2-011	FOR MULTI 15C BL KB JP
3	W/D FP TP MYLAR AG32 NH55EDQ	6-40-NH552-052	ONLY FOR W/D FP
3	W/FP TP MYLAR AG32 NH55EDQ	6-40-NH552-042	ONLY FOR W/FP
4	TOP CASE MODULE NH55ACQ	6-39-NH552-C13	
5	TP W/D FP RUBBER (17.9*11.2*1.2T) SILICONE	6-47-N15Z2-090	
6	FFC CABLE AUDIO TO MB L-54MM 5V 22PIN (CNJUS) NH50AC	6-43-NH5A0-010	
7	ANTENNA IPEX4 WLAN JEM WL2 PCB CL 4009MM 240.65 WL2-300MM NIKED	6-23-7NH50-040	
8	ANTENNA IPEX4 WLAN JEM WL1 PCB CL 4009MM 240.65 WL1-250MM NIKED	6-23-7NH50-030	
9	SPEAKER CABLE 25M*4.7MM 2W 40Z 50MM 2P CL-1950-R (UNLIMITED) NIKED	6-23-5NH5A-0L0	
10	SCREW M2*6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
11	FFC CABLE FP TO MB L-69MM 5V 6PIN (CNJUS) NH50AC	6-43-NH5A0-071	
12	TOUCH PAD SYNAPTICS PTP TM-P3429 (008461MM) (VARI.) NIS0ZU	6-49-N15Z3-011	ONLY FOR W/D FP
12	TOUCH PAD SYNAPTICS PTP TM-P3429 (008461MM) (VARI.) NIS0ZU	6-49-N15Z3-021	ONLY FOR W/FP
13	TP MYLAR PET NH50AC	6-40-NH5A2-020	
14	FFC CABLE CLICK TO TP L-61MM 3V 4PIN (BX) NH50AC	6-43-NH500-051	
15	CLICK BOARD V2.0 NH50AC	6-77-NH5A2-D02	
16	SCREW M2*4L K1 NI ICT NY (DD-04.5,DT-0.8)	6-35-B1120-4RC	
17	FFC CABLE POWER TO MB L-85MM 3V 4PIN (CNJUS) NH50AC	6-43-NH5A0-030	
18	POWER SW BOARD V2.0 NH50AC	6-77-NH5A5-D02	
19	AUDIO BOARD FOR USB V2.0 NH50AC	6-77-NH5A6-D02	
20	SPEAKER CABLE 25M*4.7MM 2W 40Z 200MM 2P CL-1950-R (UNLIMITED) NIKED	6-23-5NH5A-0R0	
21	FFC CABLE TP TO MB L-45MM 3V 8PIN (CNJUS) NH50AC	6-43-NH5A0-020	

# Top (NH57AF1)



ITEM	PART NAME	PART NO	REMARK
1	R. KD OR C/MPROSPER HEAD BLACK WHITE SILVER LING PRINTING ISOLATION WITH VMM KEY COZESM	6-80-N15Z0-19D-1	KB FOR MULTI ISC BL KB SERIES
1	R. LD JAPNECE C/MPROSPER HEAD BLACK WHITE SILVER LING PRINTING ISOLATION WITH VMM KEY COZESM	6-80-N15Z0-21D-1	KB FOR MULTI ISC BL KB SERIES
1	R. LD BRALIN C/MPROSPER HEAD BLACK WHITE SILVER LING PRINTING ISOLATION WITH VMM KEY COZESM	6-80-N15Z0-33E-1	KB FOR MULTI ISC BL KB SERIES
1	R. KD OR C/MPROSPER HEAD BLACK WHITE SILVER LING PRINTING ISOLATION WITH VMM KEY COZESM	6-80-N15Z0-01D-1	KB FOR MULTI ISC BL KB SERIES
1	LEDER KE VMM OR C/MPROSPER HEAD BLACK WHITE SILVER LING PRINTING ISOLATION WITH VMM KEY COZESM LING VMM	6-80-NH5A0-010-1	KB FOR LED FOR KEY INMO KB SERIES
1	R. LD JAPNECE C/MPROSPER HEAD BLACK WHITE SILVER LING PRINTING ISOLATION WITH VMM KEY COZESM FOR MCJ	6-80-N15Z0-21D-1M	FOR MULTI ISC BL KB JP SERIES KB FOR MCJ
2	W/O BACKLIT KB MYLAR PET NH50AC	6-40-NH5A2-010	FOR MULTI ISC BL KB JP SERIES KB FOR MCJ
2	MULTI ISC BL KB MYLAR PET NH50AC	6-40-NH5A2-011	KB FOR MULTI ISC BL KB SERIES
3	W/O FP TP MYLAR AG32 NH50AC	6-40-NH5A2-040	ONLY FOR W/O FP
3	W/FP TP MYLAR AG32 NH50AC	6-40-NH5A2-050	ONLY FOR W/FP
4	TOP CASE MODULE NH50AC	6-39-NH5A2-012	
5	TP W/O FP RUBBER (17.9*11.2*1.2T) SILICONE	6-47-N15Z2-090	
6	FFC CABLE AUDIO TO MB L=54MM 5V 22PIN (CNJUS) NH50AC	6-43-NH5A0-010	
7	FFC CABLE POWER TO MB L=85MM 3V 4PIN (CNJUS) NH50AC	6-43-NH5A0-030	
8	POWER SW BOARD V2.0 NH50AC	6-77-NH5AS-D02	
9	SPEAKER CABLE 25*4*4.7MM 2W 40T 20MM 2P CL-1900-L (CONNECTED) NH50AC	6-23-5NH5A-0L0	
10	SCREW M2*6.2L NI ICT NY FOR SPEAKER	6-35-Z1120-6R2	
11	FFC CABLE FP TO MB L=69MM 5V 6PIN (CNJUS) NH50AC	6-43-NH5A0-071	
12	TOUCH PAD SYNAPTICS PTP TM-P3429 (100*65MM) (WHOLE) NH50ZU	6-49-N15Z3-011	ONLY FOR W/O FP
12	TOUCH PAD SYNAPTICS PTP TM-P3429 (100*65MM) (WHOLE) NH50ZU	6-49-N15Z3-021	ONLY FOR W/FP
13	TP MYLAR PET NH50AC	6-40-NH5A2-020	
14	FFC CABLE CLICK TO TP L=61MM 3V 4PIN (OX) NH50ED	6-43-NH500-051	
15	CLICK BOARD V2.0 NH50AC	6-77-NH5A2-D02	
16	SCREW M2*4L KI NI ICT NY (DD=04.5,DT=0.8)	6-35-B1120-4RC	
17	SPEAKER CABLE 25*4*4.7MM 2W 40T 20MM 2P CL-1900-R (CONNECTED) NH50AC	6-23-5NH5A-0R0	
18	AUDIO BOARD FOR USB V2.0 NH50AC	6-77-NH5A6-D02	
19	FFC CABLE TP TO MB L=45MM 3V 8PIN (CNJUS) NH50AC	6-43-NH5A0-020	

Figure 3  
Top (NH57AF1)

# Bottom

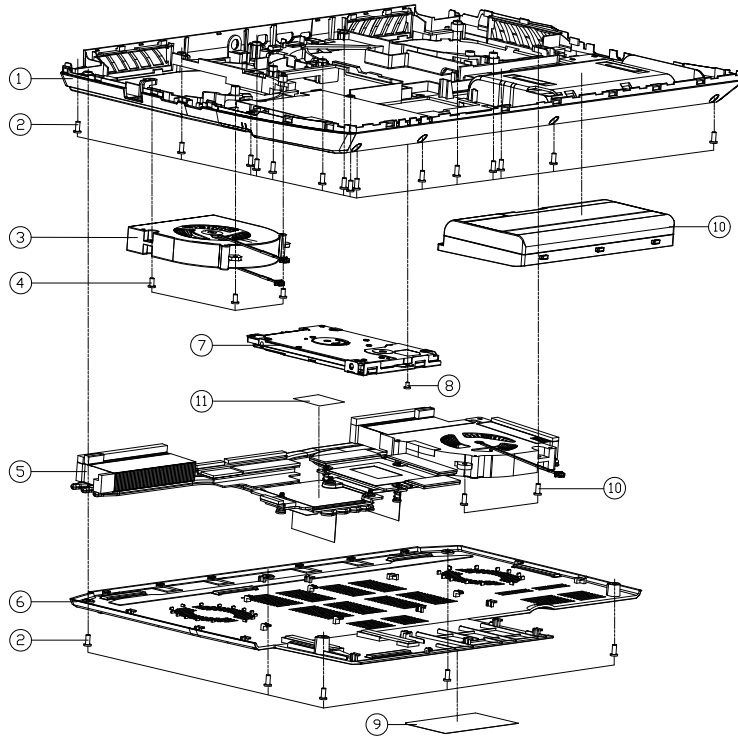
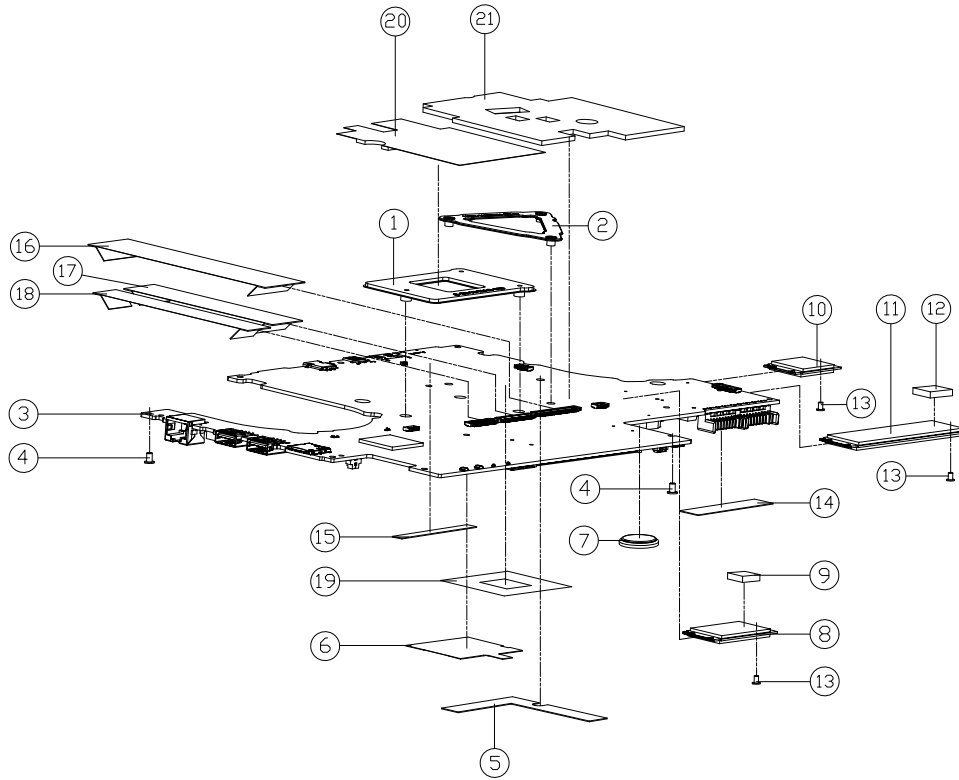


Figure A - 4  
Bottom

ITEM	PART NAME	PART NO	REMARK
1	BOTTOM CASE MODULE NH50AC	6-39-NH5A3-013	
2	.SCREW M2.5*8L KI BK/Z NY ICT	6-35-B6125-8R0	
3	12V FAN MODULE PWM (FCN) NH50AC	6-31-NH5A3-201	
4	.SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
5	HEATSINK MODULE NH50AF1	6-31-NH5A3-DA1	
6	CPU COVER MODULE NH50AC	6-42-NH5A3-103	
7	W/O HDD ASS'Y NH50ED	6-79-NH50ED0J-010	
7	W/HDD ASS'Y NH50ED	6-79-NH50ED0J-020	
8	SCREW M2*4L KI NI ICT NY (DD=04.5,DT=0.8)	6-35-B1120-4RC	
9	PRODUCT LABEL FOR NH50AF1	6-45-NH50AF13-010	
9	PRODUCT LABEL FOR NH55AFW	6-45-NH55AFW3-010	
9	PRODUCT LABEL FOR NH57AF1	6-45-NH57AF13-010	
9	PRODUCT LABEL FOR NH58AF1	6-45-NH58AF13-010	
9	PRODUCT LABEL FOR NH50AC	6-45-NH50AC03-010	
9	PRODUCT LABEL FOR NH55ACQ	6-45-NH55ACQ3-010	
9	PRODUCT LABEL FOR NH57AC	6-45-NH57AC03-010	
9	PRODUCT LABEL FOR NH58AC	6-45-NH58AC03-010	
10	IMP S LI B05V/50AH/20H SCP IMP.LIC. COE. 004120 9002229HED 5000MH (TEXTURE) P00EF	6-87-PB50S-61D12	
11	GREASE GA-690(0.6G) P157SM	6-47-P1578-020	



# Main Board



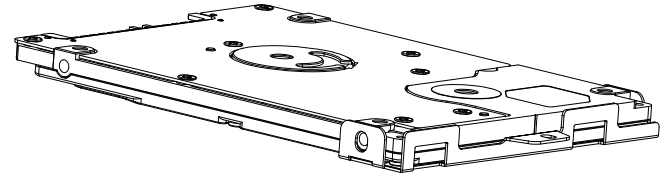
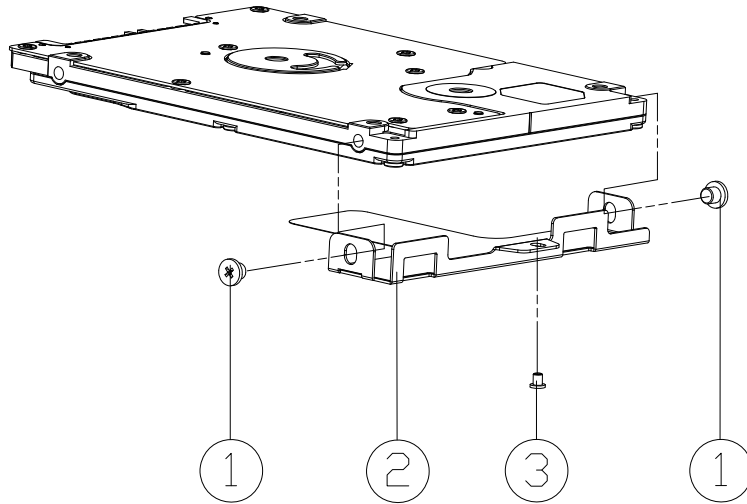
ITEM	PART NAME	PART NO	REMARK
1	CPU SUPPORT AMD AM4 SECC T=15 NH50AC	6-33-NH5AS-011	
2	VGA SUPPORT AMD SECC T=0.5T NH50AC	6-33-NH5AS-021	
3	MAIN BOARD V2A CAPACITOR K3K4V/TPMUSB CHARGED NH50AC	6-77-NH50AC00-D02	
3	MAIN BOARD V2A CAPACITOR ESE BL K3K4V/TPMUSB US3 CHARGED NH50AC	6-77-NH50AC00-D02-3	
3	MAIN BOARD V2A CAPACITOR ESE BL K3K4V/TPMUSB CHARGED NH50AC	6-77-NH50AC00-D02-7	
3	MAIN BOARD V2A CAPACITOR PER KEY M300 K3K4V/TPMUSB CHARGED NH50AF1	6-77-NH50AF10-D02	
3	MAIN BOARD V2A CAPACITOR ESE BL K3K4V/TPMUSB US3 CHARGED NH50AF1	6-77-NH50AF10-D02-3	
3	MAIN BOARD V2A CAPACITOR ESE BL K3K4V/TPMUSB CHARGED NH50AF1	6-77-NH50AF10-D02-7	
4	SCREW M2.5x4L (D=4.6,T=0.8) KI NI ICT NY	6-35-B1125-4RA	
5	VGA ABSORBER-1 (60x48x0.35) NH50AC	6-47-NH5AS-021	
6	AMD CPU SOCKET MYLAR (51x43x0.2T) NH50AC	6-40-NH5AS-010	
7	BATTERY 3V 220MA BBBCR2032B (KTS)	6-23-6A2B2-030	
8	SSD M2 2280 256G PERFORM COMPACT-20 CPU DRUG REDUCED TO TLC 64 LAYERS (V90V10)	6-85-D51R6-H04	OPTION
8	SSD M2 2280 512G INTEL OPTIMUS 3500 3D NAND V-NAND PCE 100 TO TLC 64 LAYERS	6-85-D51R6-K00	OPTION
8	SSD M2 2280 512G INTEL OPTIMUS 3500 3D NAND V-NAND PCE 100 TO TLC 64 LAYERS	6-85-D51R6-101	OPTION
8	SSD M2 2280 512G INTEL OPTIMUS 3500 3D NAND V-NAND PCE 100 TO TLC 64 LAYERS	6-85-D515B-B00	OPTION
8	SSD M2 2280 512G INTEL OPTIMUS 3500 3D NAND V-NAND PCE 100 TO TLC 64 LAYERS	6-85-D515B-K00	OPTION
8	SSD M2 2280 512G SAMSUNG REVOLUTION-B00 P990 PCE 100 TO TLC 64 LAYERS	6-85-D515B-S0B	OPTION
8	SSD M2 2280 512G SAMSUNG REVOLUTION-B00 P990 PCE 100 TO TLC 64 LAYERS	6-85-D511T-S05	OPTION
8	SSD M2 2280 512G SAMSUNG REVOLUTION-B00 P990 PCE 100 TO TLC 64 LAYERS	6-85-D515B-102	OPTION
9	THERMAL PAD 14.7x14.7x7.0MM (NH500) W6500C	6-48-W65D3-030	FOR W/ 2ND M2 SSD
10	RAM M2 2280 8GB DDR5 4800MHz PCE 100 TO TLC 64 LAYERS	6-88-P75FF-4210	
10	RAM M2 2280 16GB DDR5 4800MHz PCE 100 TO TLC 64 LAYERS	6-88-N15CF-4210	
10	RAM M2 2280 32GB DDR5 4800MHz PCE 100 TO TLC 64 LAYERS	6-88-N15CF-0C00	
11	SSD M2 2280 256G INTEL OPTIMUS 3500 3D NAND V-NAND PCE 100 TO TLC 64 LAYERS	6-85-D51R6-K00	OPTION
11	SSD M2 2280 512G SAMSUNG REVOLUTION-B00 P990 PCE 100 TO TLC 64 LAYERS	6-85-D515B-S0B	OPTION
11	SSD M2 2280 512G SAMSUNG REVOLUTION-B00 P990 PCE 100 TO TLC 64 LAYERS	6-85-D511T-S05	OPTION
12	THERMAL PAD NH500 (17.3x17.3x2.75)MM N7500U	6-48-N7503-010	FOR W/ 1ST M2 SSD
13	SCREW M2x2L KI NI ICT NY (D=0.95 ,T=0.8)	6-35-B1120-2RA	
14	TAPE MYLAR (C),MYLAR M550J	6-40-M55J2-030	
15	TAPE MYLAR (B),MYLAR M550J	6-40-M55J2-020	
16	FFC CABLE KB TO MB L=102MM 5V 28PIN (CNLS) NH50AC	6-43-NH5A0-050	FOR MB OPTD FOR LED PER KEY BOARD KB SCREEN
17	FFC CABLE KB BK 4HP TO MB L=102MM 5V 48PIN (CNLS) NH50AC	6-43-NH5A0-060	FOR MB OPTD FOR LED PER KEY BOARD KB SCREEN
18	FFC CABLE KB BK 30P TO MB L=102MM 5V 30PIN (CNLS) NH50AC	6-43-NH5A0-040	FOR MB OPTD FOR LED PER KEY BOARD KB SCREEN
19	NBE G0 CHIP MYLAR PET (37.5x37.5x0.2) P950ED	6-40-P95NS-D20	FOR NH5XAC
19	NBE G1 G2 CHIP MYLAR PET (37.5x37.5x0.2) P775TM	6-40-P77F3-010	FOR NH5XAF1
20	MB MYLAR FOR NOISE NH50AC	6-40-NH5AS-020	
21	MB CR SPONGE (100x5x8x215T) FOR NOISE NH50AC	6-47-0019A-A15	

Figure A - 5  
Main Board

A.Part Lists

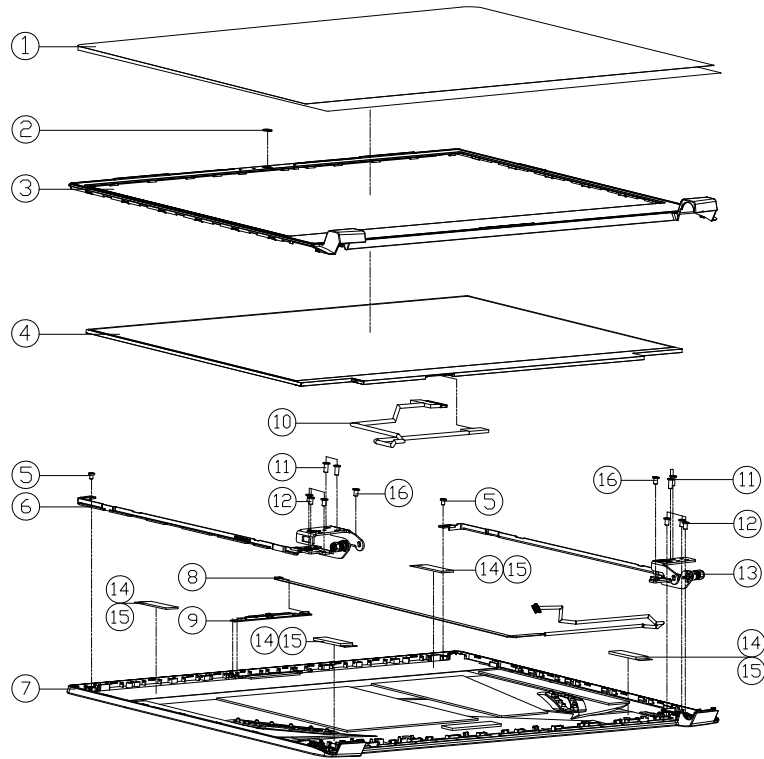
# HDD

Figure A - 6  
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 (NH50AF1)

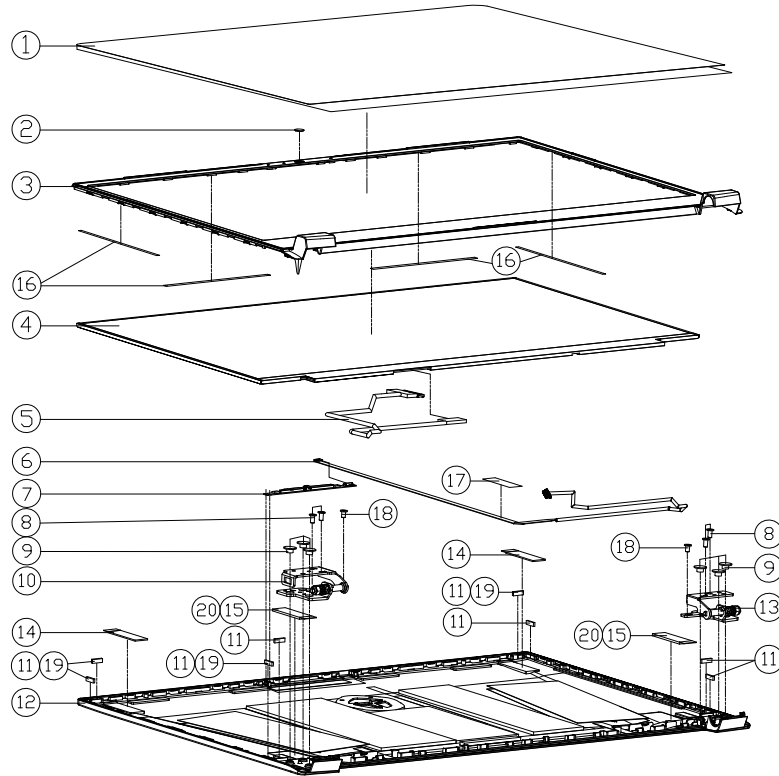


ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT MYLAR BOPP N150ZU	6-40-N15Z8-010	
2	CCD LENS PMMA ( DIAMETER 3.6MM ) ( MP1 ) P970EN	6-42-P97N1-011-1	
3	LCD FRONT COVER MODULE NH50ED	6-39-NH501-013	
4	LCD NIS6' FHD/VVA/N7/NDN GT/ETP INNOVIX NIS6ACE-EN1 QLED 2.6MM	6-50-LBB26-V020	
4	LCD NIS6' FHD/IPS/PA/MS/SV G-SINC/N7/NDN GT/ETP LG LIPS6AF6-SPR2 QLED 2.6MM	6-50-LBB26-L121	
4	LCD NIS6' FHD/VVA/120HZ/MA/NDN GT/ETP PANDA LMS6AFGL LED 3.2MM	6-50-LBB32-Y150	
4	LCD NIS6' FHD/IPS/NA/NDN GT/ETP LG LIPS6AF6-SPD3 LED 3.2MM	6-50-LBB32-L015	
5	SCREW M2*3L KI BZ ICT NY (DD=#4.5,DT=0.4)	6-35-B6120-3RD	
6	HINGE L (SK7+SGCC) NH50AC	6-33-NH5A1-0L0	
7	LCD BACK COVER MODULE NH50ED	6-39-NH501-022	
8	CCD CABLE L=550MM 30V 8PIN (HT) NH50ED NH50ED	6-43-NH50T-011-1	
9	AVC CABLE FOR LCD OPTICAL CONNECTION IN DISPLAY BOARD FROM VANTE LED VCR BOARD BY VITEK VITEK	6-88-N15ZC-5100	OPTION
9	AVC CABLE FOR LCD OPTICAL CONNECTION IN DISPLAY BOARD FROM VANTE LED VCR BOARD BY VITEK VITEK	6-88-N15ZC-4900	OPTION
10	WIRE CABLE FOR EDP 300MM 30V 1 30 PIN (HT/LV CON/LV) AS30LPROSD PPSKCF	6-43-PB501-032-2N	
10	WIRE CABLE FOR EDP 300MM (D 19V 30PIN (CON/LV) CON/LV) AS30LPROSD-FF) NS50AJ	6-43-N85H1-010-2S	
11	.SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
12	.SCREW M2.5*4L KI NI ICT NY	6-35-21125-4R0	
13	HINGE R (SK7+SGCC) NH50AC	6-33-NH5A1-0R0	
14	PANEL LA LA ADHESIVE(35*10*1) NH50ED	6-47-NH501-080-1	FOR 6-50-LBB32-Y150
15	LA LA ADHESIVE (35*10*1.6T) NH50ED	6-47-NH501-0A0-1	6-50-LBB32-L015
16	SCREW M2.5*4L (D=4.6,T=0.8) KI NI ICT NY	6-35-B1125-4RA	

Figure A - 7  
LCD (NH50AF1)

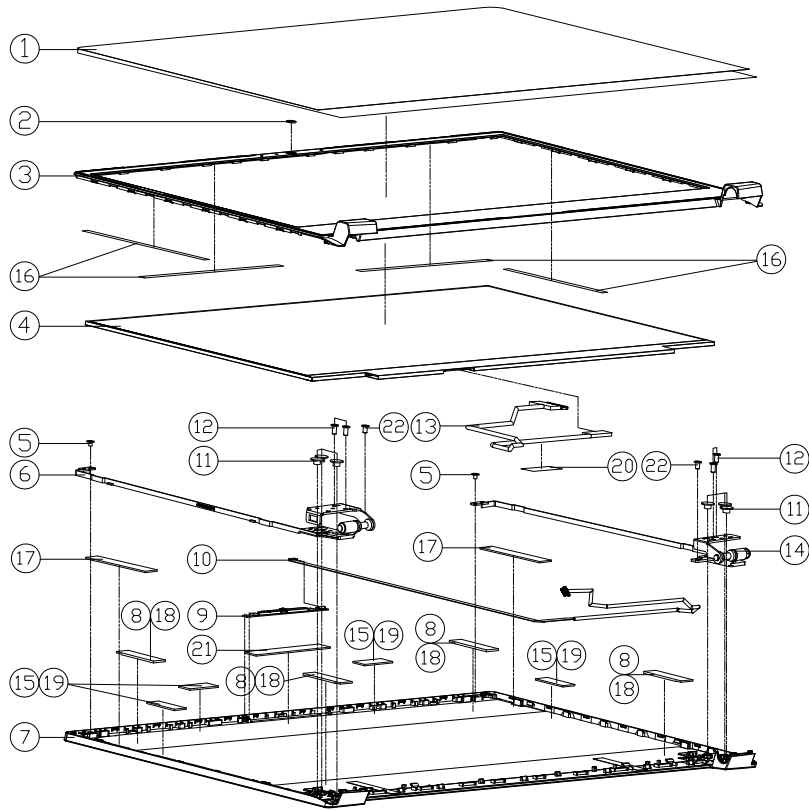
# LCD (NH58AF1)

Figure A - 8  
LCD (NH58AF1)



ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT MYLAR BOPP N150ZU	6-40-N15Z8-010	
2	CCD LENS PMMA ( DIAMETER 3.6MM ) ( MPI ) P970EN	6-42-P97N1-011-1	
3	LCD FRONT COVER MODULE NH50E.D	6-39-NH501-013	
4	LCD NIS6' FHD/WVA/720HZ/W/NDN G7/ETP LG LP156WFG-SPR2 LED 2.6MM	6-50-LBB26-L121	
4	LCD NIS6' FHD/WVA/720HZ/W/NDN G7/ETP INNELUX NIS6HCE-EN1 QLED 2.6MM	6-50-LBB26-V020	
4	LCD NIS6' FHD/WVA/120HZ/W/NDN G7/ETP PANDA LMS6LFLQ LED 3.2MM	6-50-LBB32-Y150	
4	LCD NIS6' FHD/WVA/NDN G7/ETP LG LP156WFG-SPB3 LED 3.2MM	6-50-LBB32-L015	
5	WIRE CABLE FOR EDP 300MM 30V 1 30 PIN 0H7AV CON.VD-KOUPROSD PRODET	6-43-PB501-032-2N	FDR 6-50-LBB26-V020 6-50-LBB32-L015
5	WIRE CABLE FOR EDP 4K 300MM (D 19V 30PIN COM)ALS CON.VD-KO9002-4F N63BU	6-43-N85H1-010-2S	FDR 6-50-LBB26-L121 6-50-LBB32-Y150
6	CCD CABLE L=5500MM 30V 8PIN (GHT) NH50E.D NH50E.D	6-43-NH50T-011-1	
7	ARC CAMERA FRONT COVER OF 3000X3000MM IN IN DIVER HEAD 15MM WHITE LED V43-REHARDY ROBE V10.FTD	6-88-N15ZC-5100	OPTION
7	ARC CAMERA FRONT COVER OF 3000X3000MM IN IN DIVER HEAD 15MM WHITE LED V43-REHARDY ROBE V10.FTD	6-88-N15ZC-4900	OPTION
8	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
9	SCREW M2.5*2.5L K1 BK/Z ICT NY(Ø8,T=0.6)	6-35-B6125-2R5	
10	HINGE L MODULE NH58E.DQ	6-33-NH581-L01	
11	LCD RUBBER (8*2.5*1.45T) SLICDN BLACK NH58E.DQ	6-47-NH581-041	FDR 6-50-LBB26-V020 6-50-LBB32-L015
12	LCD BACK COVER MODULE NH58E.DQ	6-39-NH581-023	
13	HINGE R MODULE NH58E.DQ	6-33-NH581-R01	
14	LCD LALA SPONG (35*10*1.35T) FM92822K+CR4832 NH58E.DQ	6-47-0019A-35P	
15	LCD LALA SPONG (35*10*2.0T) FM92822K+CR4832 NH58E.DQ	6-47-0019A-35Q	FDR 6-50-LBB26-V020 6-50-LBB32-L121
16	FRONT COVER GLUE U&D (UTTD 5000 135*3*0.15) FOR W655SZ	6-40-W6551-040	
17	TDP CASE MYLAR FR83 25*7*0.05 P180HM	6-40-P1802-030	
18	SCREW M2.5*4L (D=4.6,T=0.8) K1 NI ICT NY	6-35-B1125-4RA	
19	LCD RUBBER (8*2.5*1.45T) SLICDN BLACK NH58E.DQ	6-47-NH581-041	FDR 6-50-LBB26-V020 6-50-LBB32-L121
20	LCD LALA SPONG (35*10*0.75T) FM92822K+CR4832 NH58E.DQ	6-47-0019A-35R-1	FDR 6-50-LBB32-Y150 6-50-LBB32-L015

# LCD (NH55AFW)

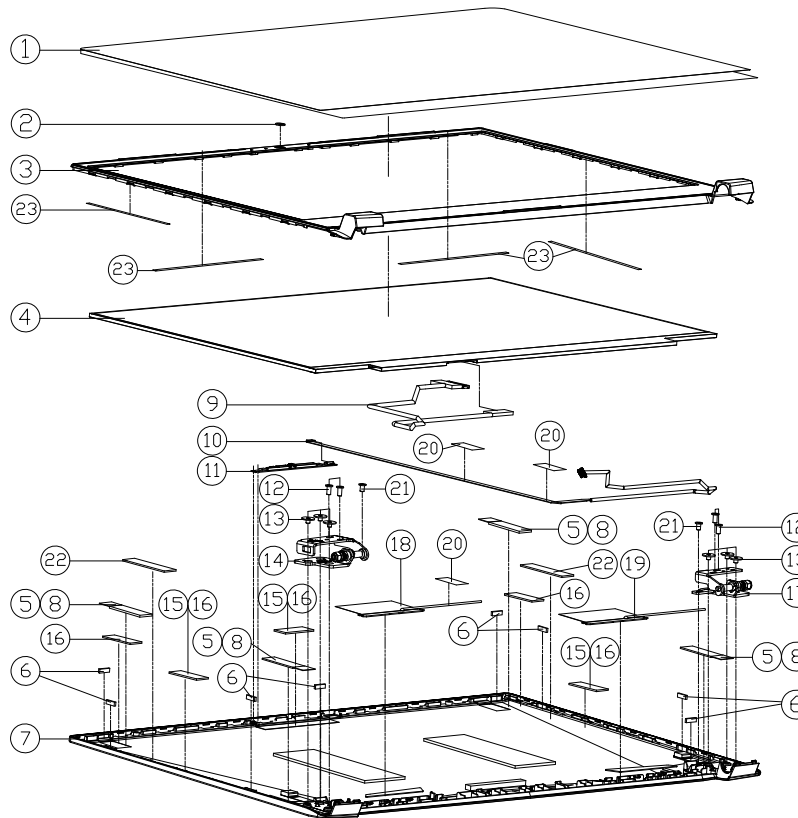


ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT CLOTH NH55EDQ	6-44-NH558-010	
2	CCD LENS PMMA ( DIAMETER 3.6MM ) ( MPL ) P970EN	6-42-P97N1-011-1	
3	LCD FRONT COVER MODULE NH50ED	6-39-NH501-014	
4	LCD NS56' FHD/VVA/VA/7/NDN GT/CEP INNELUX NS56ACE-ENI LED 26MM	6-50-LBB26-V020	
4	LCD NS56' FHD/IPS/VA/HD/25V G-SYNC/VA/NDN GT/CEP LG LPS6WFC-SPR2 LED 26MM	6-50-LBB26-L121	
4	LCD NS56' FHD/VA/VA/20HZ/VA/NDN GT/CEP PANDA LMS6LFLQ LED 32MM	6-50-LBB32-Y150	
4	LCD NS56' FHD/IPS/VA/NDN GT/CEP LG LPS6WFC-SPD3 LED 32MM	6-50-LBB32-L015	
5	SCREW M2*3L K1 BZ ICT NY (DD=#4.5,DT=0.4)	6-35-B6120-3RD	
6	HINGE L (SK7) NH55EDQ	6-33-NH551-0L1	
7	LCD BACK COVER MODULE NH55EDQ	6-39-NH551-023	
8	LCD BACK SPONGE DOW (30*10*16) (S-10)CRK322-HPR28220 NH55EDQ	6-47-0019A-C01-1	FDR 6-50-LBB32-Y150 6-50-LBB32-L015
9	PC COVER FRONT FRAME OF SCREEN/SHIELD IN IN OPEN REAR FRAME W/VALE-LED W/3-REAR/NO LED W/VALE	6-88-N15ZC-5100	OPTION
9	PC COVER REAR FRAME OF SCREEN/SHIELD IN IN OPEN REAR FRAME W/VALE-LED W/3-REAR/NO LED W/VALE	6-88-N15ZC-4900	OPTION
10	CCD CABLE L=550MM 30V 8PIN (HT) NH50ED NH50ED	6-43-NH50T-011-1	
11	SCREW M2.5*2.5L K1 BK/Z ICT NY(Ø8,T=0.6)	6-35-B6125-2R5	
12	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
13	WIRE CABLE FOR EXP. 300MM 30V 1 30 PIN HT/LV CON.VD=K3LPR30 PRESER	6-43-PB501-032-2N	
13	WIRE CABLE FOR EXP. 4K 300MM 0.19V 30PIN CON.VLS CONH.L0590C-HF NESHU	6-43-N85H1-010-2S	
14	HINGE R (SK7) NH55EDQ	6-33-NH551-0R1	
15	LCD SPONGE (SM55 25*10*1T) NH55EDQ	6-47-0019A-25R	FDR 6-50-LBB32-Y150 6-50-LBB32-L015
16	FRONT COVER GLUE UBD ONTTO 5000 135*3*0.15 FOR W655S2	6-40-W6551-040	
17	LCD SPONGE (60*10*1.5T) SMS5 P970EN	6-47-0019A-60U	FDR 6-50-LBB26-V020 6-50-LBB26-L121
18	LALATAPE FOR 026 PANEL (40*10*1.2T) N232WU	6-47-N23U1-010	FDR 6-50-LBB26-V020 6-50-LBB26-L121
19	LCD SPONGE (SM55 25*10*1-5T) NH55EDQ	6-47-0019A-25Q	FDR 6-50-LBB26-V020 6-50-LBB26-L121
20	TOP CASE MYLAR FR83 25*7*0.05 P180HM	6-40-P1802-030	
21	LCD SPONGE (60*10*1.5T) SMS5 P970EN	6-47-0019A-60U	
22	SCREW M2.5*4L (D=4.6,T=0.8) K1 NI ICT NY	6-35-B1125-4RA	

Figure A - 9  
LCD (NH55AFW)

# LCD (NH57AF1)

Figure A - 10  
LCD (NH57AF1)



ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT MYLAR BOPP N150ZU	6-40-N15Z8-010	
2	CCD LENS PMMA ( DIAMETER 3.6MM ) ( MPI ) P970EN	6-42-P97N1-011-1	
3	LCD FRONT COVER MODULE NH50ED	6-39-NH501-013	
4	LCD NIS6' FHD/VVA/N7/NON GT/EP INCELL NIS6AE-ENT LED 28MM	6-50-LBB26-V020	
4	LCD NIS6' FHD/VPS/M40/5V G-SYNC/N7/NON GT/EP LG LP156WFC-SPR2 LED 28MM	6-50-LBB26-L121	
4	LCD NIS6' FHD/VVA/28H/4M/NON GT/EP PANDA LMS6LFL LED 32MM	6-50-LBB32-Y150	
4	LCD NIS6' FHD/VPS/M40/5V GT/EP LG LP156WFC-SPD3 LED 32MM	6-50-LBB32-L015	
5	TAPE FOR FIX 1.35MM PANEL FM2822K+CR4832 P950EN	6-40-P95N1-011	FOR 6-50-LBB32-Y150 6-50-LBB32-L015
6	LCD RUBBER (3#2.5*1.45T) SILICON BLACK NH58EDQ	6-47-NH581-041	FOR 6-50-LBB26-V020 6-50-LBB26-L121
7	BACK COVER MODULE NH57ED	6-39-NH571-023	
8	LALATAPE FOR 026 PANEL (40*10*1.8T) N140WU	6-47-N1401-010	FOR 6-50-LBB26-V020 6-50-LBB26-L121
9	WIRE CABLE FOR EIP 300MM 30V 1.3A PIN 6H/A/V CON/VH-430LPROD P180ET	6-43-PB501-032-2N	
9	WIRE CABLE FOR EIP 4K 300MM ID 19V 30PIN CON/ALS CON/L0902-4F N630U	6-43-N85H1-010-2S	
10	CCD CABLE L=550MM 30V 8PIN (4T) NH50ED	6-43-NH50T-011-1	
11	MC CAMERA FRONT (OPTION) 01202000010 IN 10 PINS 4000 PIXEL VIEW-LED VHS-RECORDING 0001 VHS HD	6-88-N15ZC-5100	OPTION
11	MC CAMERA FRONT (OPTION) 01202000010 IN 10 PINS 4000 PIXEL VIEW-LED VHS-RECORDING 0001 VHS HD	6-88-N15ZC-4900	OPTION
12	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
13	SCREW M2.5*2.5L KI BK/Z ICT NY(Ø8,T=0.6)	6-35-B6125-2R5	
14	HINGE L SK7 NH57AC	6-33-NH5A1-7L0	
15	LCD SPONGE (SM55 25*10*1T) NH55EDQ	6-47-0019A-25R	FOR 6-50-LBB32-L015 6-50-LBB32-Y150
16	LCD SPONGE (SM55 25*10*1.5T) NH55EDQ	6-47-0019A-25Q	FOR 6-50-LBB26-V020 6-50-LBB26-L121
17	HINGE R SK7 NH57AC	6-33-NH5A1-7R0	
18	ANTENNA (SLOT) IP6X WLAN VGT WL2 PCB DL 24G/5G 450MM NH57ED	6-23-7NH57-020	
19	ANTENNA (SLOT) IP6X WLAN VGT WL1 PCB DL 24G/5G 250MM NH57ED	6-23-7NH57-010	
20	TAPE MYLAR TRANSPARENT (20*10*0.05) P180HM	6-40-P1803-020	
21	SCREW M2.5*4L (D=4.6,T=0.8) KI NI ICT NY	6-35-B1125-4RA	
22	LCD SPONGE (60*10*1.5T) SM55 P970EN	6-47-0019A-60U	FOR 6-50-LBB32-L015 6-50-LBB32-Y150
23	FRONT COVER GLUE UBD (NTTD 5000 135*3*0.15) FOR W655SZ	6-40-W6551-040	

# Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *NH50AF1 / NH55AFW / NH57AF1 / NH58AF1* notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

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Processor 2/8 - Page B - 5	IFP I/O Interface - Page B - 29	RGB KB, Fan - Page B - 53
Processor 3/8 - Page B - 6	Misc - GPIO, I2C and ROM - Page B - 30	PER KEY LED KB - Page B - 54
Processor 4/8 - Page B - 7	NVIDIA Power Sequence - Page B - 31	5V, 5VS, 3.3V, 3.3VS - Page B - 55
Processor 5/8 - Page B - 8	GPU NVVDD, FBVDDQ - Page B - 32	VDD3, VDD5 - Page B - 56
Processor 6/8 - Page B - 9	GPU GND - Page B - 33	1.05VA, 1.05VS, 1.5VA - Page B - 57
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DDR4 CHA SO-DIMM - Page B - 12	HDMI - Page B - 36	VDD_RUN, VDDCR_SOC - Page B - 60
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Output Power - Page B - 14	PCH 2/5 - Page B - 38	1.8VA, NV3V3, 3.3VA - Page B - 62
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GPU Frame Buffer Partition - Page B - 16	PCH 4/5 - Page B - 40	NVVDD1 - Page B - 64
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Frame Buffer A - Page B - 18	M.2 WLAN+BT - Page B - 42	FBVDD - Page B - 66
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Frame Buffer B - Page B - 20	USB Charger - Page B - 44	AC_In, Charger - Page B - 68
Frame Buffer C/D - Page B - 21	PD Controller ANX7411 - Page B - 45	2.5VS, VDDP_RUN - Page B - 69
Frame Buffer C - Page B - 22	USB Type-C, ANX7440 Retimer - Page B - 46	VDDP_ALW - Page B - 70
Frame Buffer C - Page B - 23	DP + USB Type-C - Page B - 47	Audio Board - Page B - 71
Frame Buffer D - Page B - 24	Card Reader / LAN RTL8411B - Page B - 48	PW Board - Page B - 72
Frame Buffer D - Page B - 25	HDD, Click TP, Audio, Hall Con. - Page B - 49	Click Board - Page B - 73
GPU Decoupling 1 - Page B - 26	LED, CCD, TPM, Power SW Con. - Page B - 50	PW Board - Page B - 74

Table B - 1  
SCHEMATIC  
DIAGRAMS

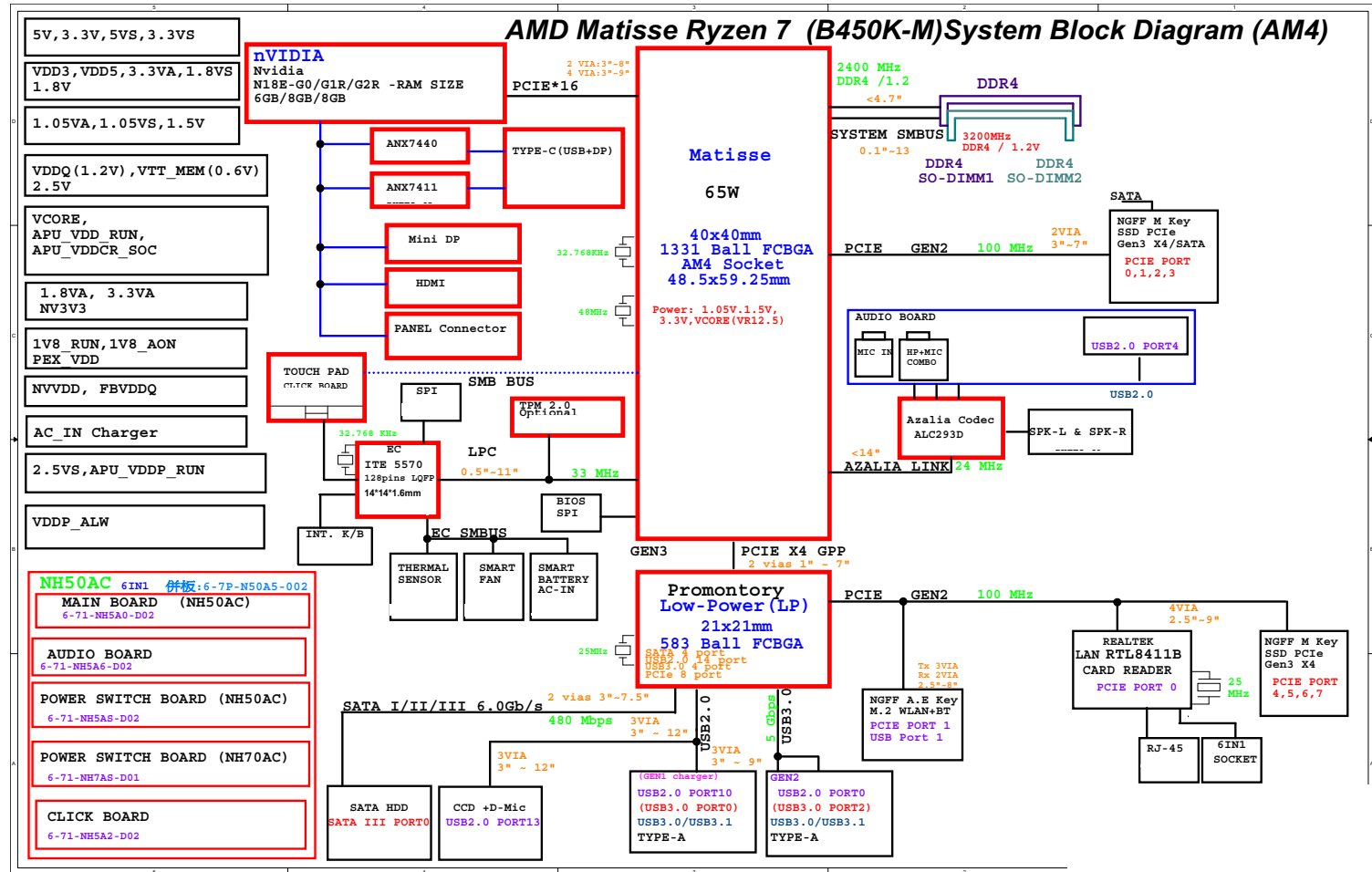


### Version Note

The schematic diagrams in this chapter are based upon version 6-7P-NH5A5-002. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

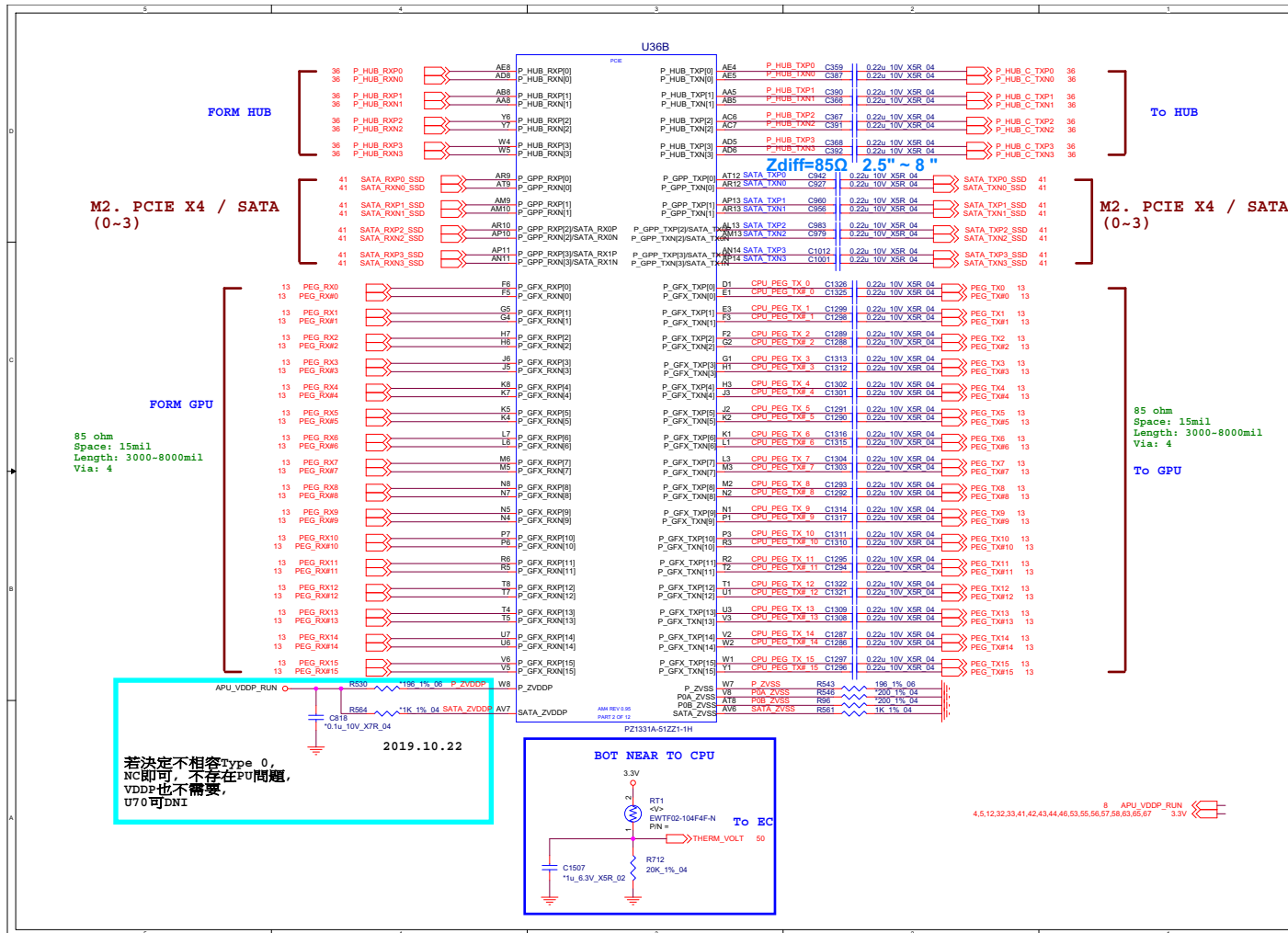
# System Block Diagram

Sheet 1 of 73  
System Block  
Diagram





# Processor 1/8

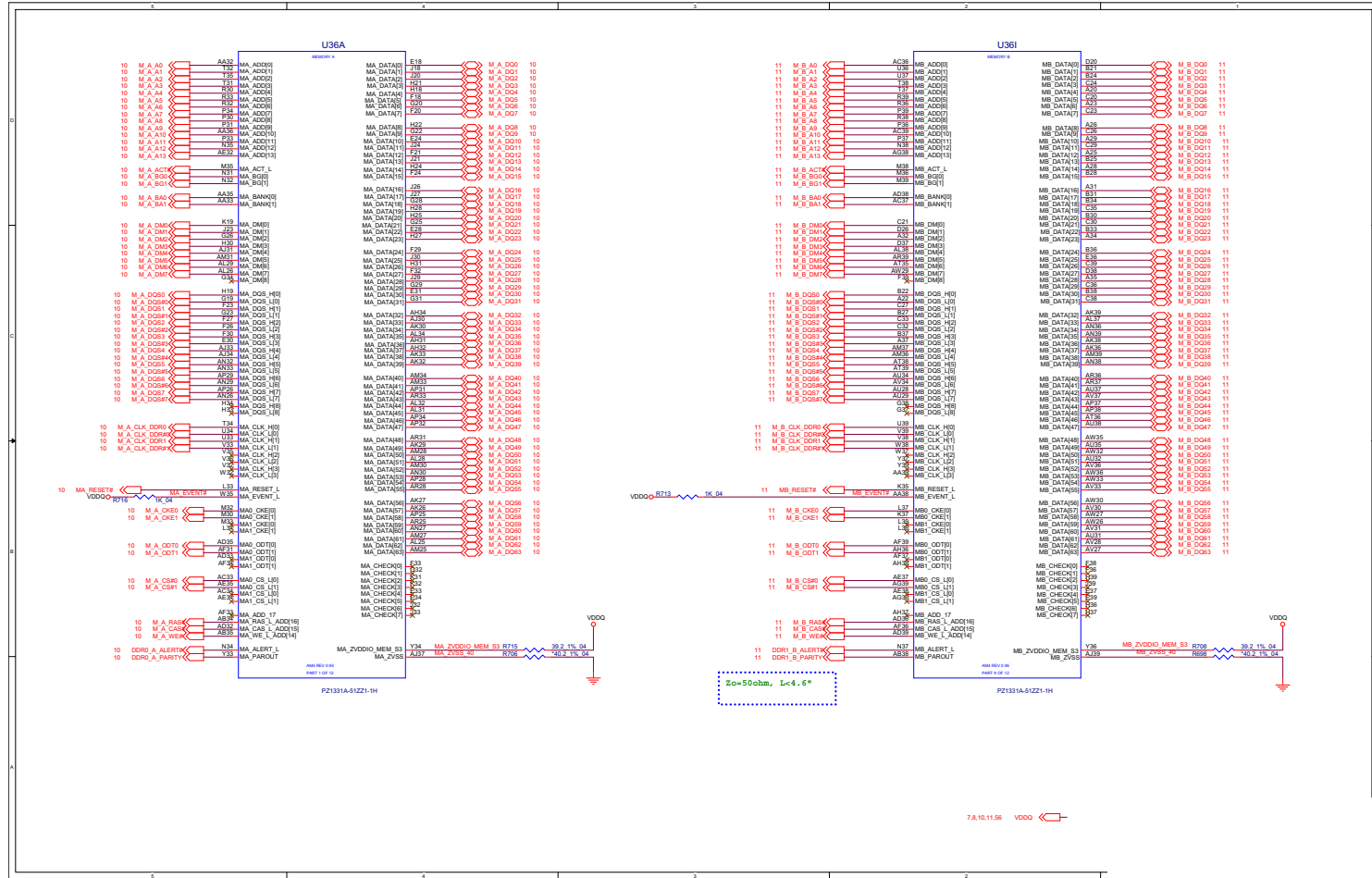


B. Schematic Diagrams

Sheet 2 of 73  
Processor 1/8

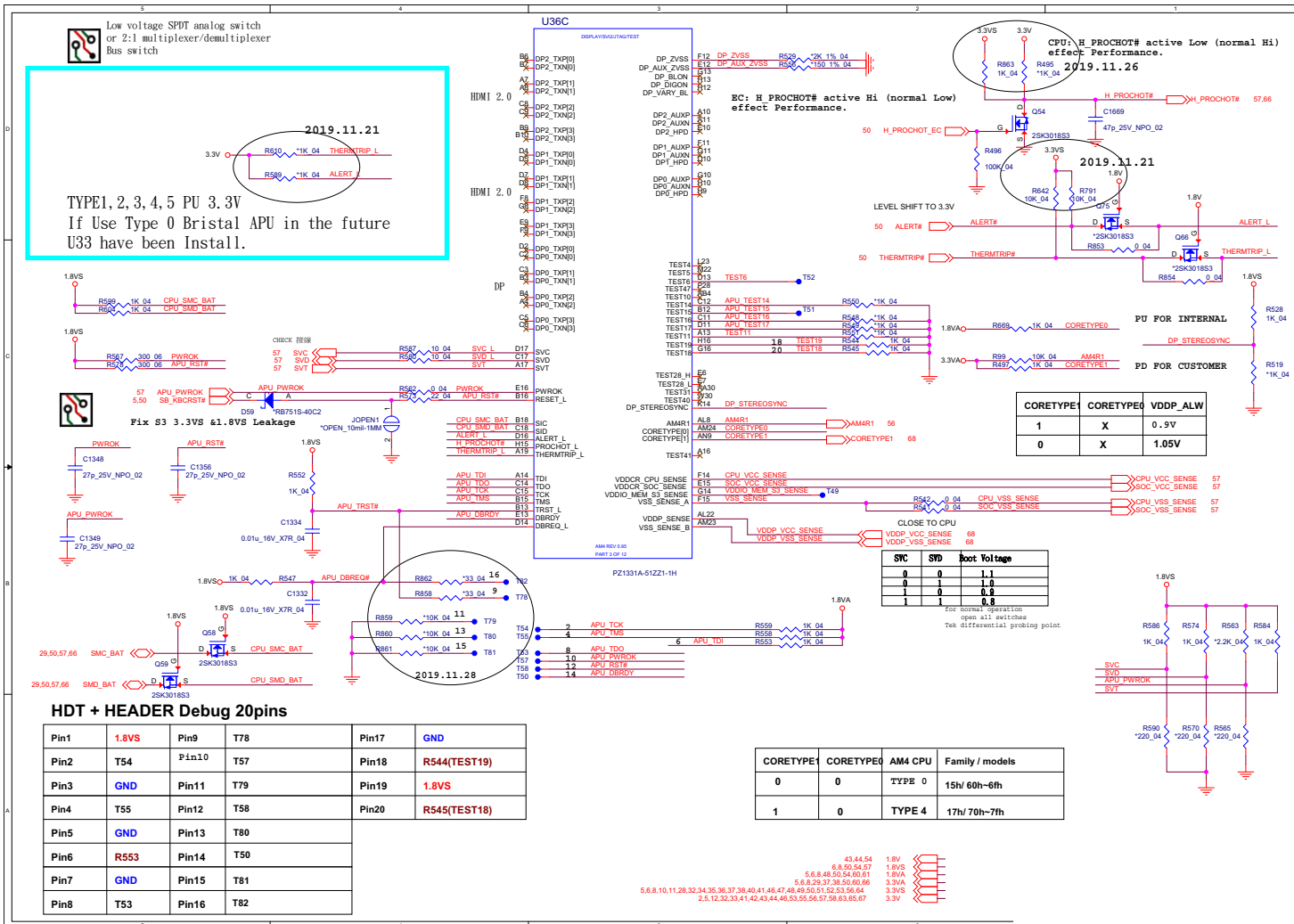
# Processor 2/8

Sheet 3 of 73  
Processor 2/8



7.8.10.11.56 VDDO

# Processor 3/8

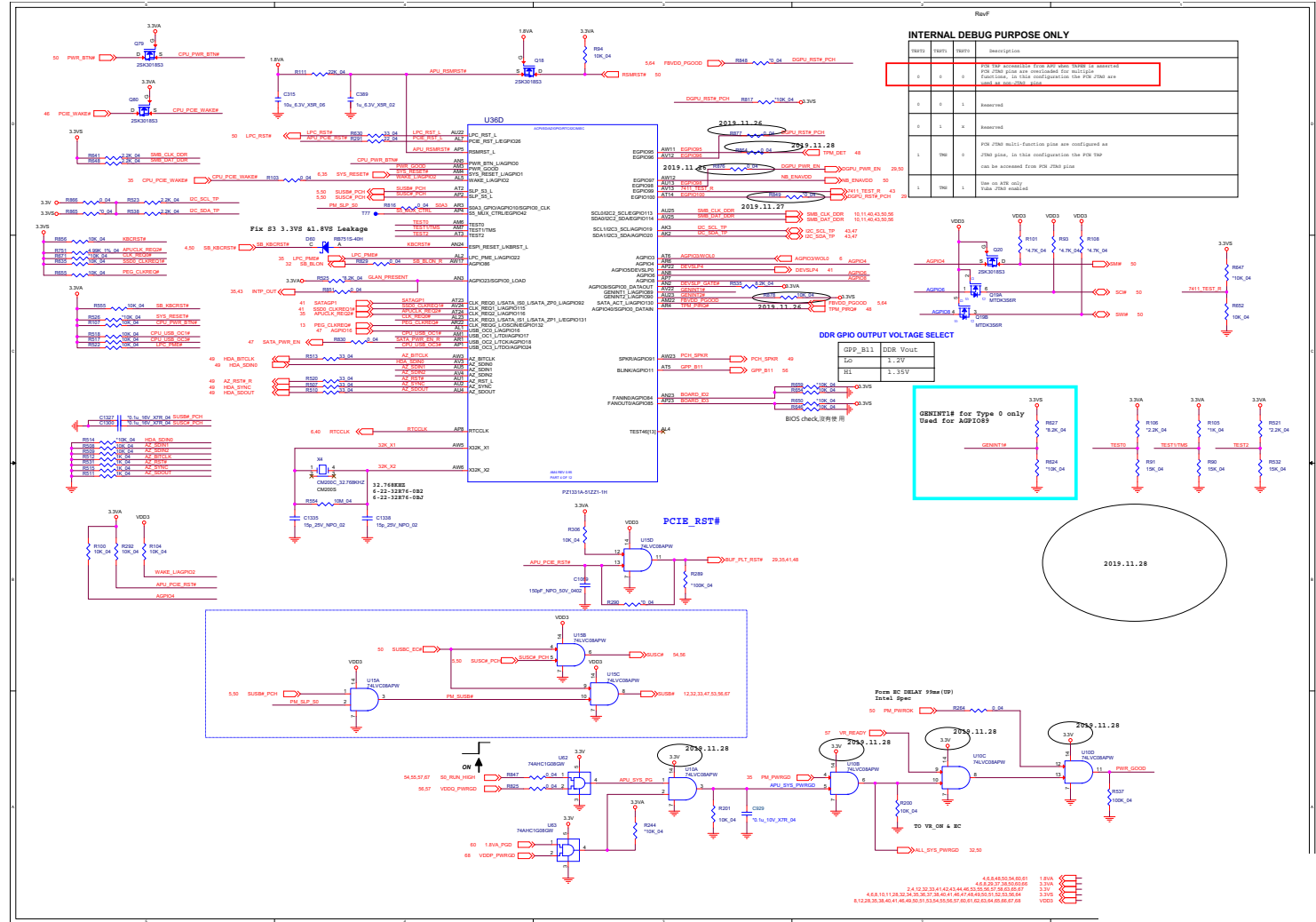


B.Schematic Diagrams

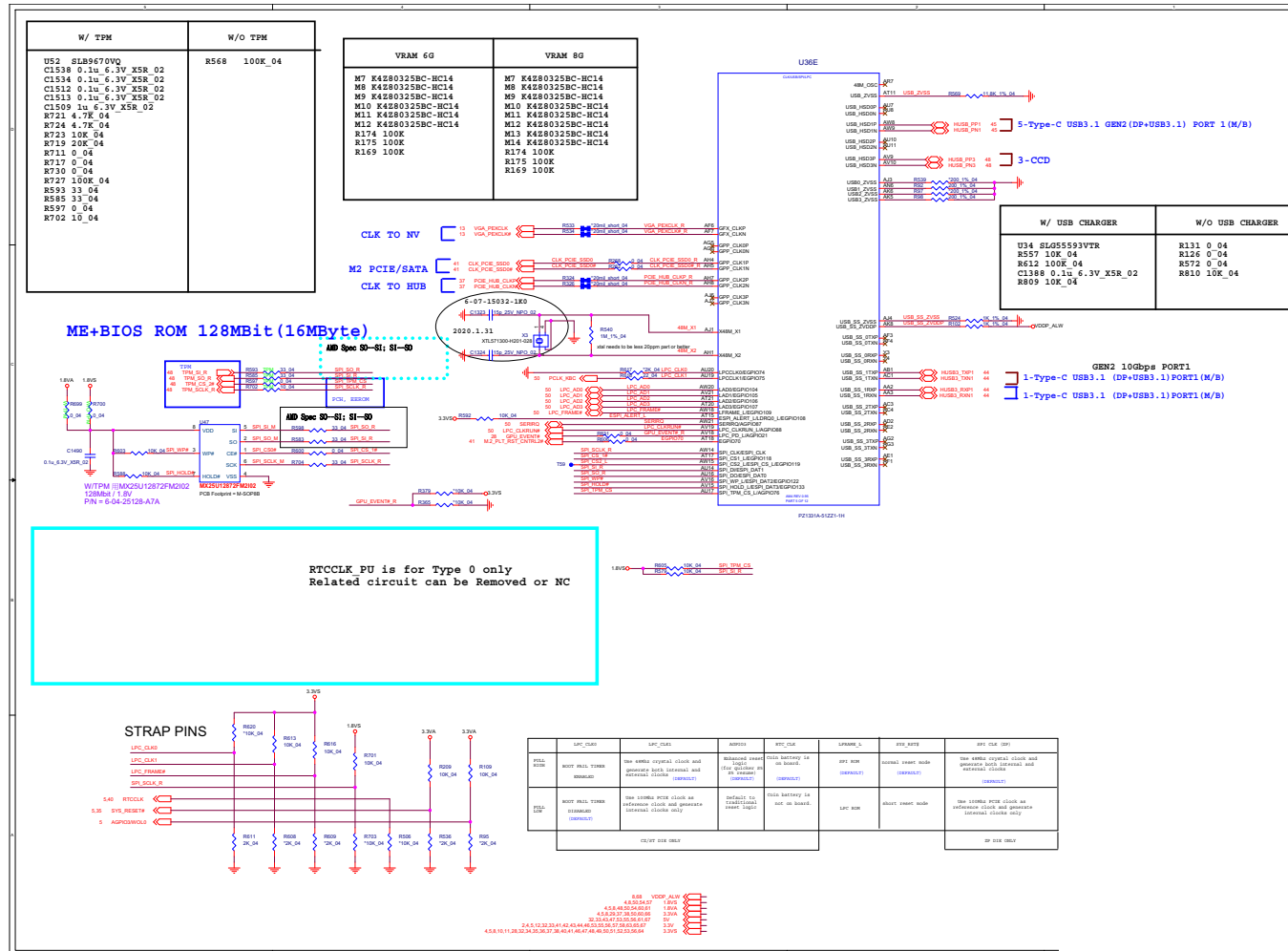
Sheet 4 of 73  
Processor 3/8

Schematic Diagrams

Processor 4/8



# Processor 5/8

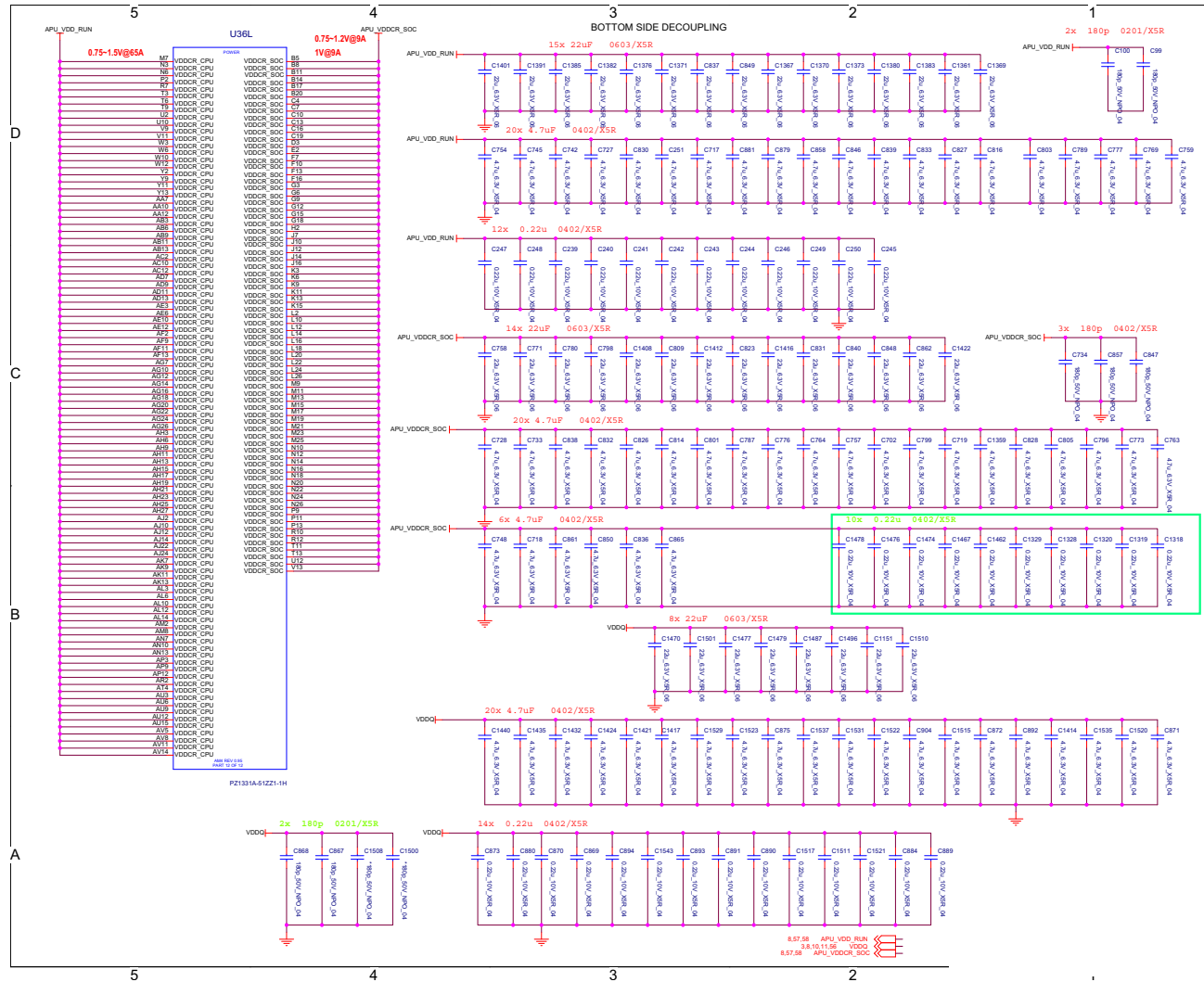


B.Schematic Diagrams

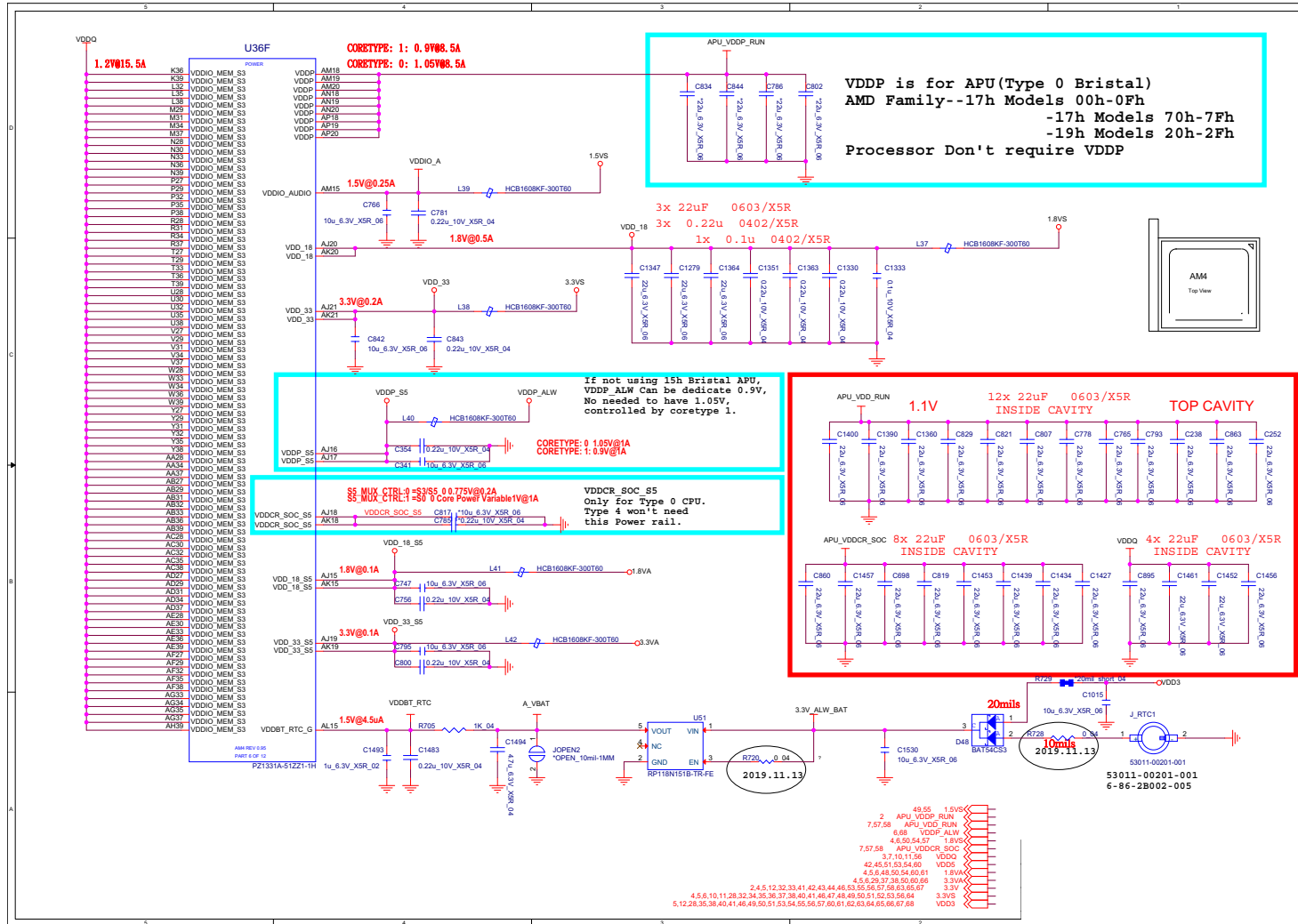
Sheet 6 of 73  
Processor 5/8

# Processor 6/8

Sheet 7 of 73  
Processor 6/8



# Processor 7/8



B.Schematic Diagrams

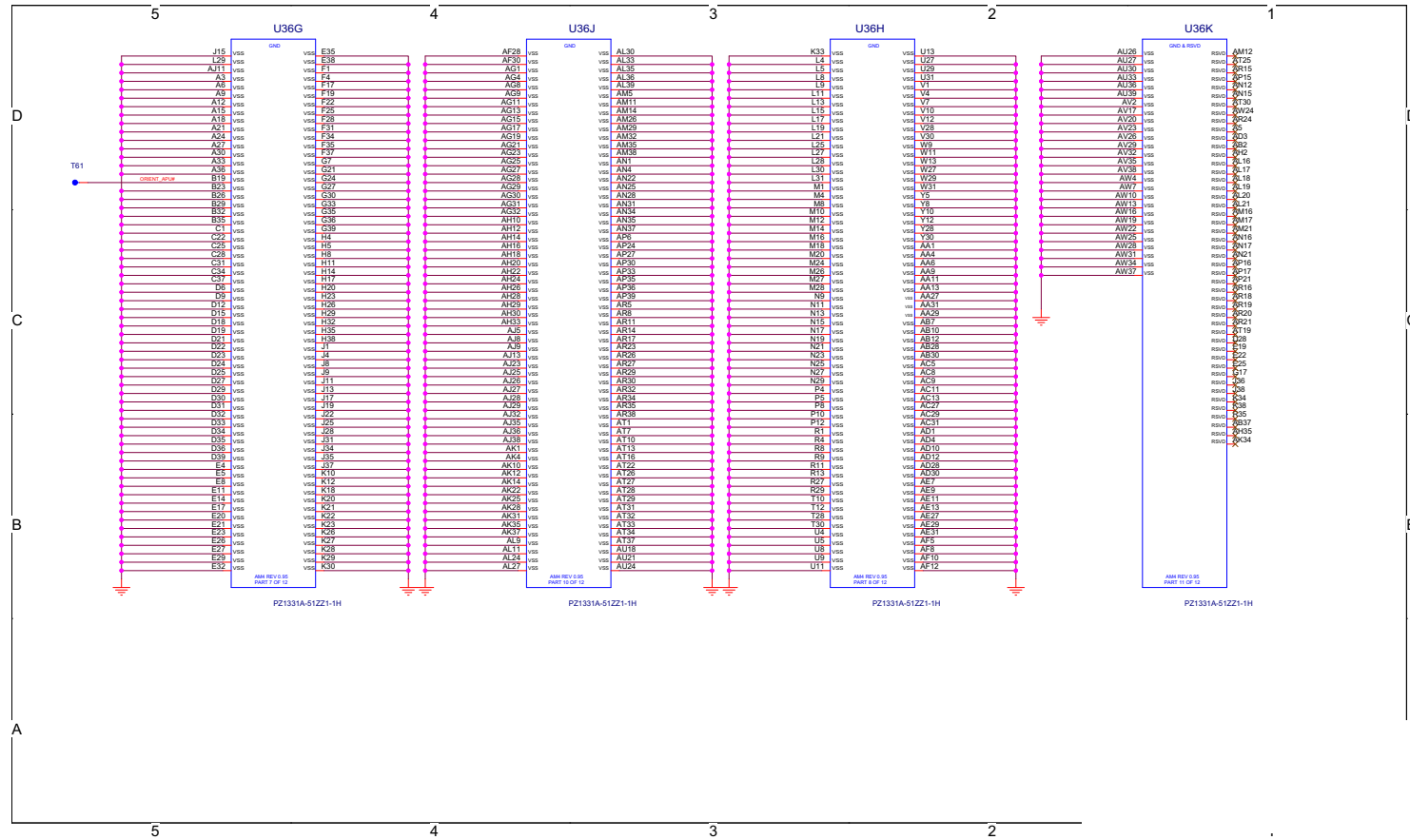
Sheet 8 of 73  
 Processor 7/8

# Schematic Diagrams

## Processor 8/8

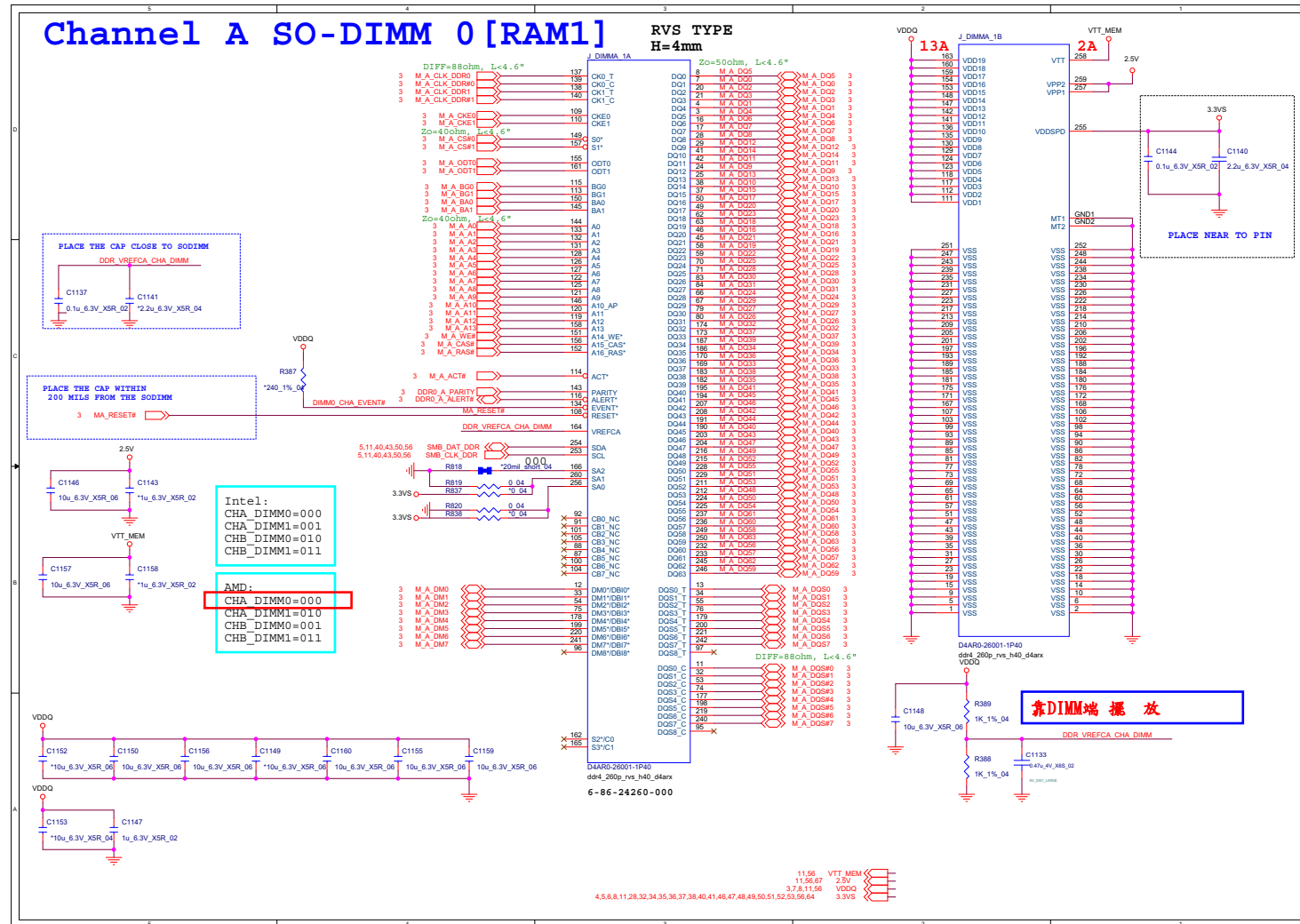
B. Schematic Diagrams

Sheet 9 of 73  
Processor 8/8





# DDR4 CHA SO-DIMM

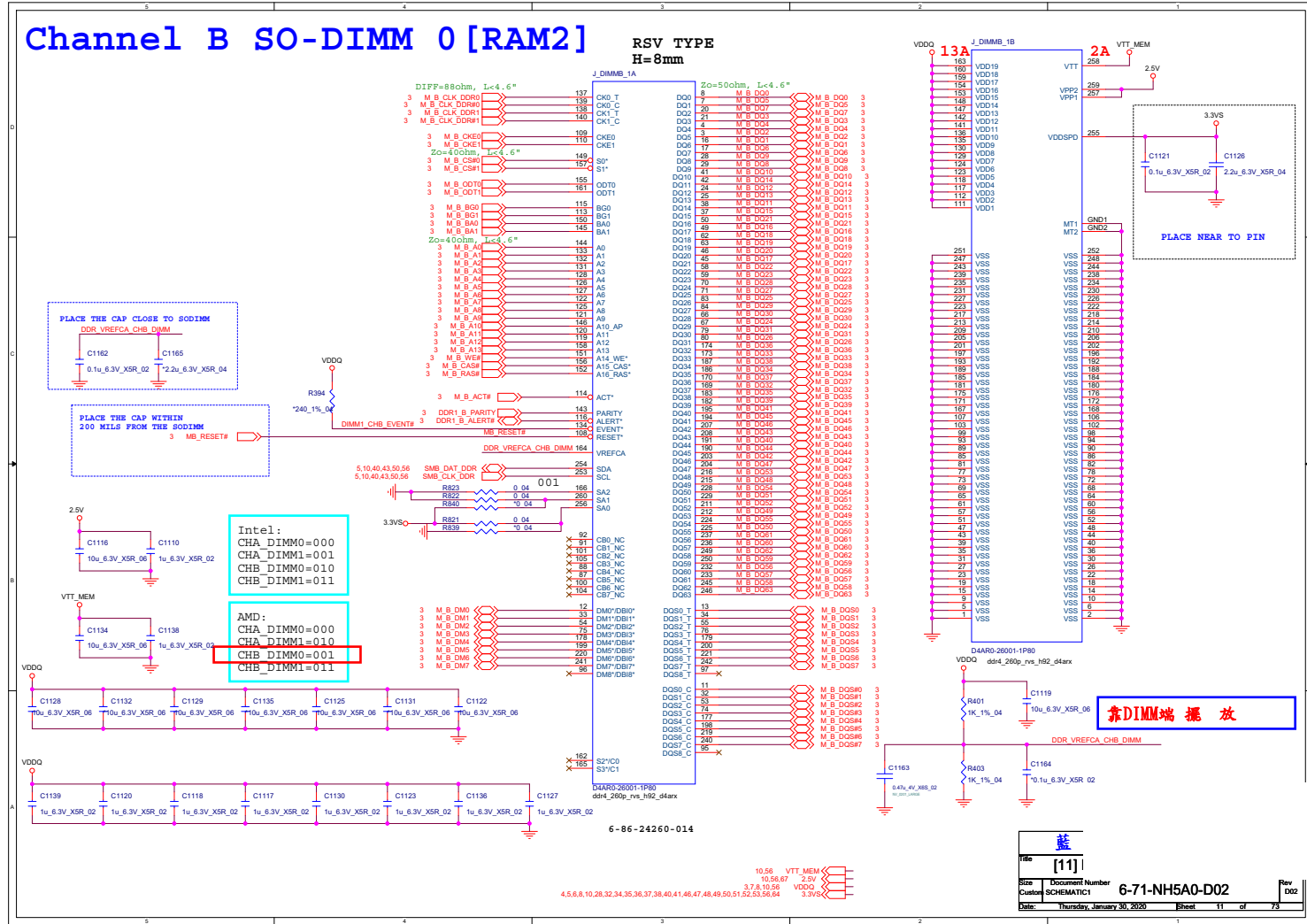


B.Schematic Diagrams

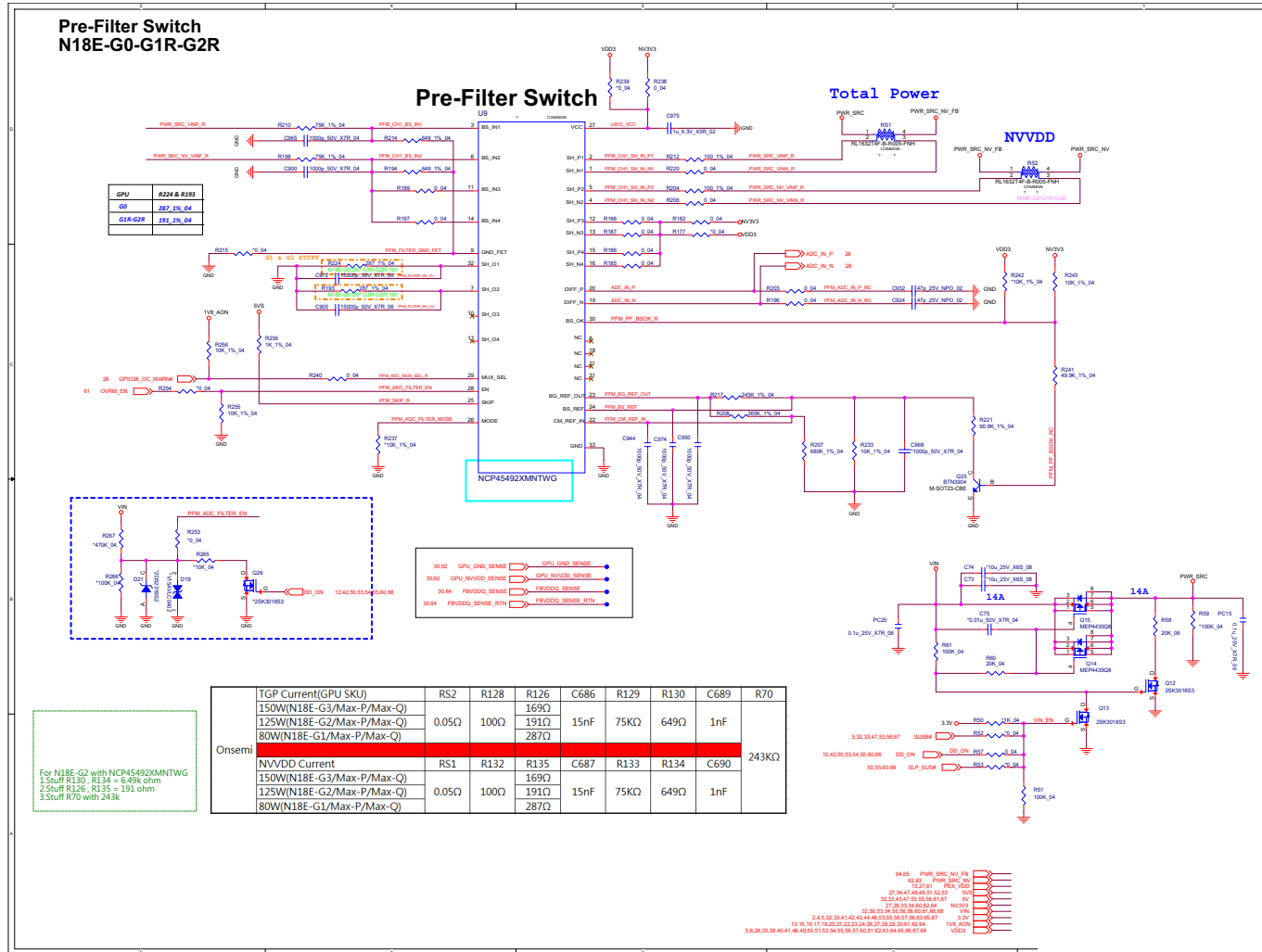
Sheet 10 of 73  
DDR4 CHA SO-DIMM

# DDR4 CHB SO-DIMM

Sheet 11 of 73  
DDR4 CHB SO-  
DIMM



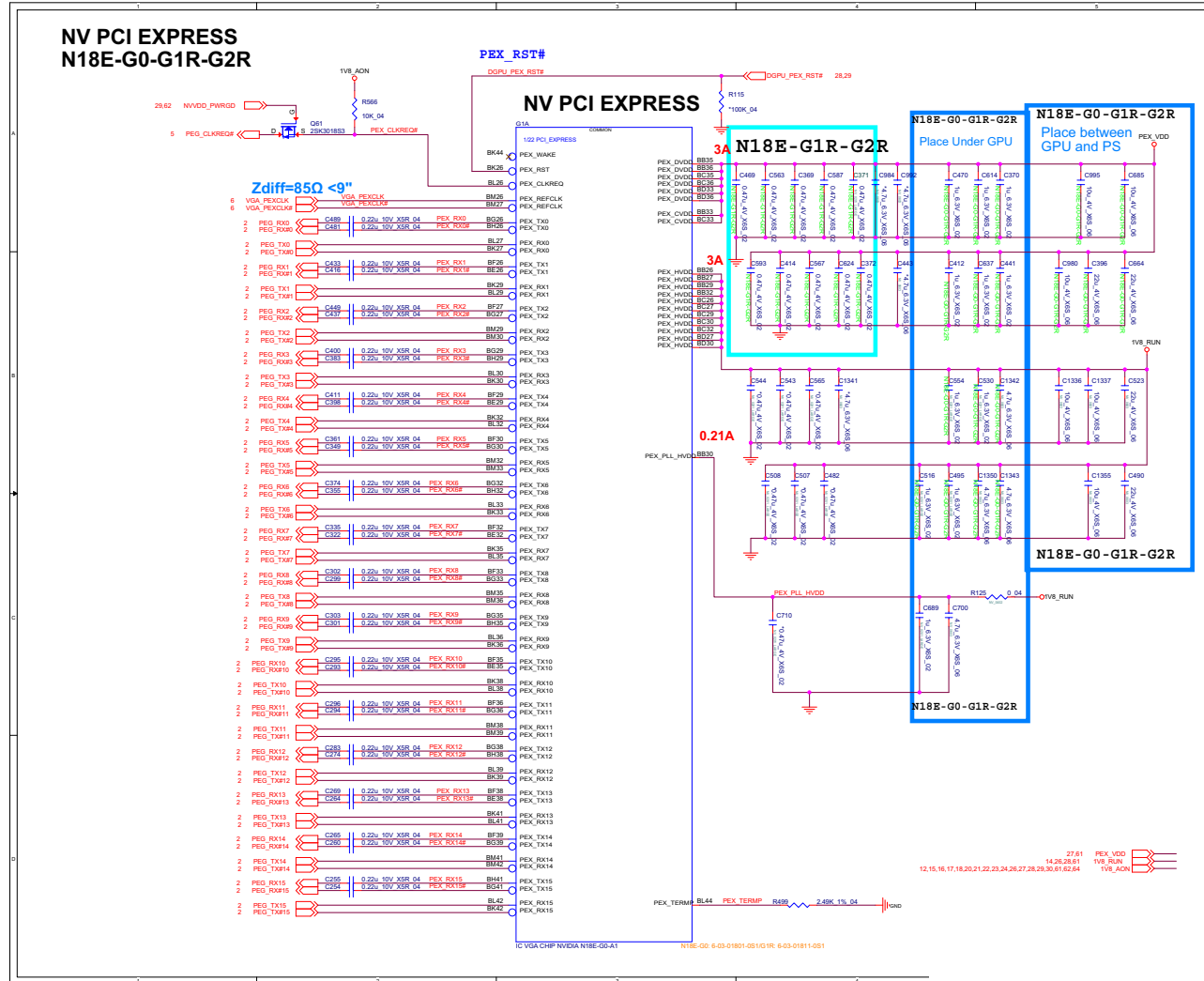
# Output Power



Sheet 12 of 73  
Output Power

# VGA PCI Express

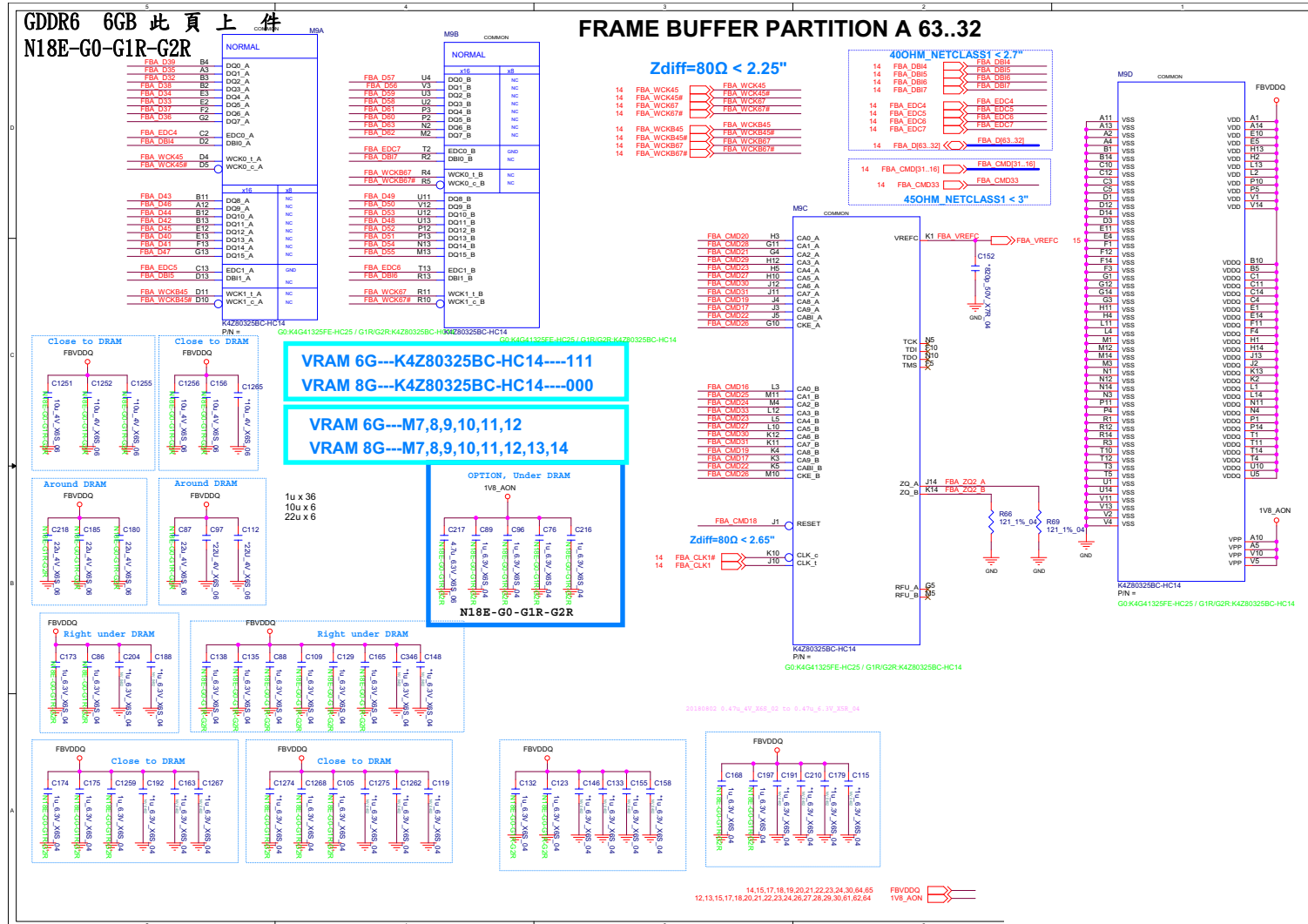
Sheet 13 of 73  
VGA PCI Express







# Frame Buffer A

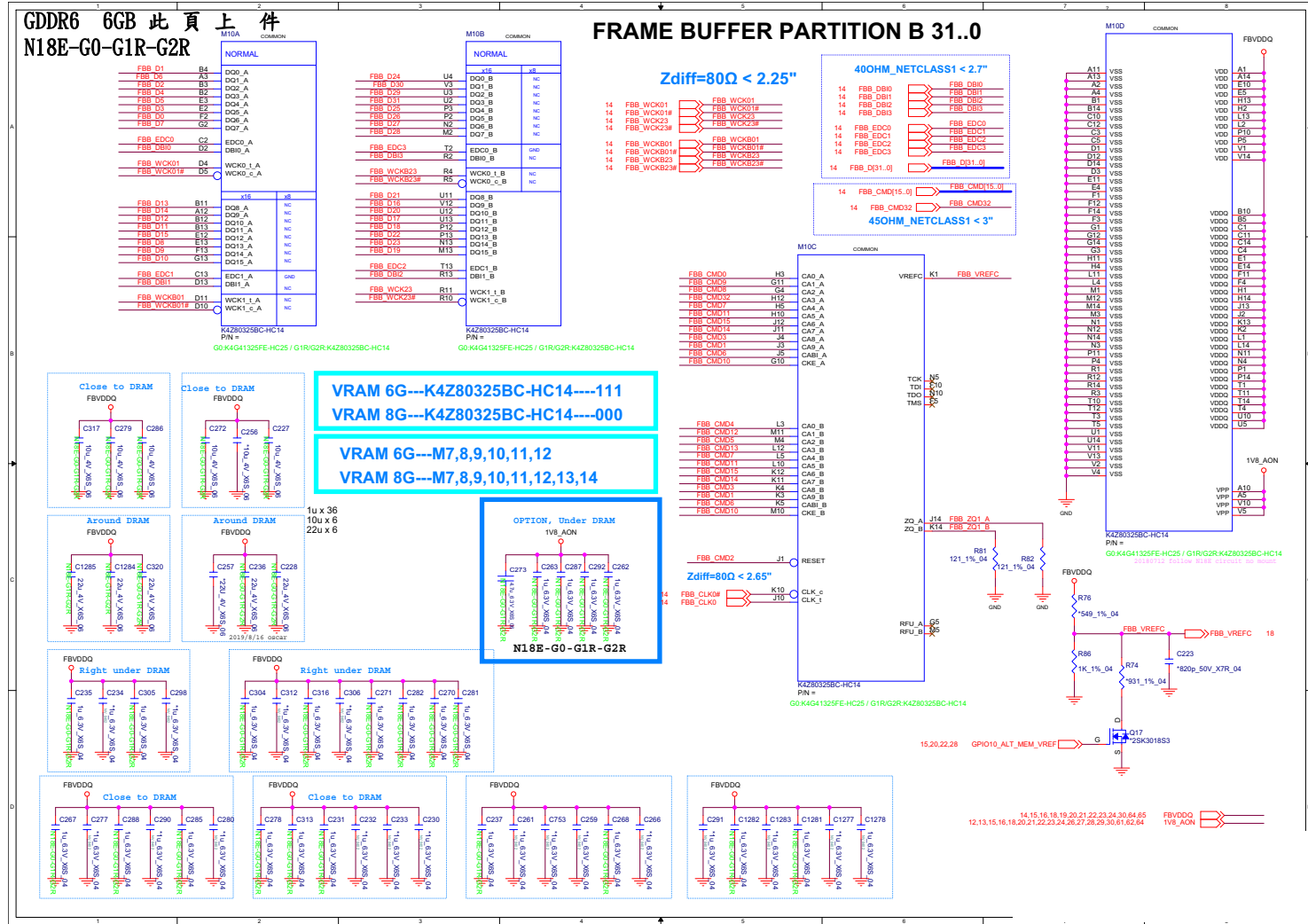


Sheet 16 of 73  
Frame Buffer A

B.Schematic Diagrams

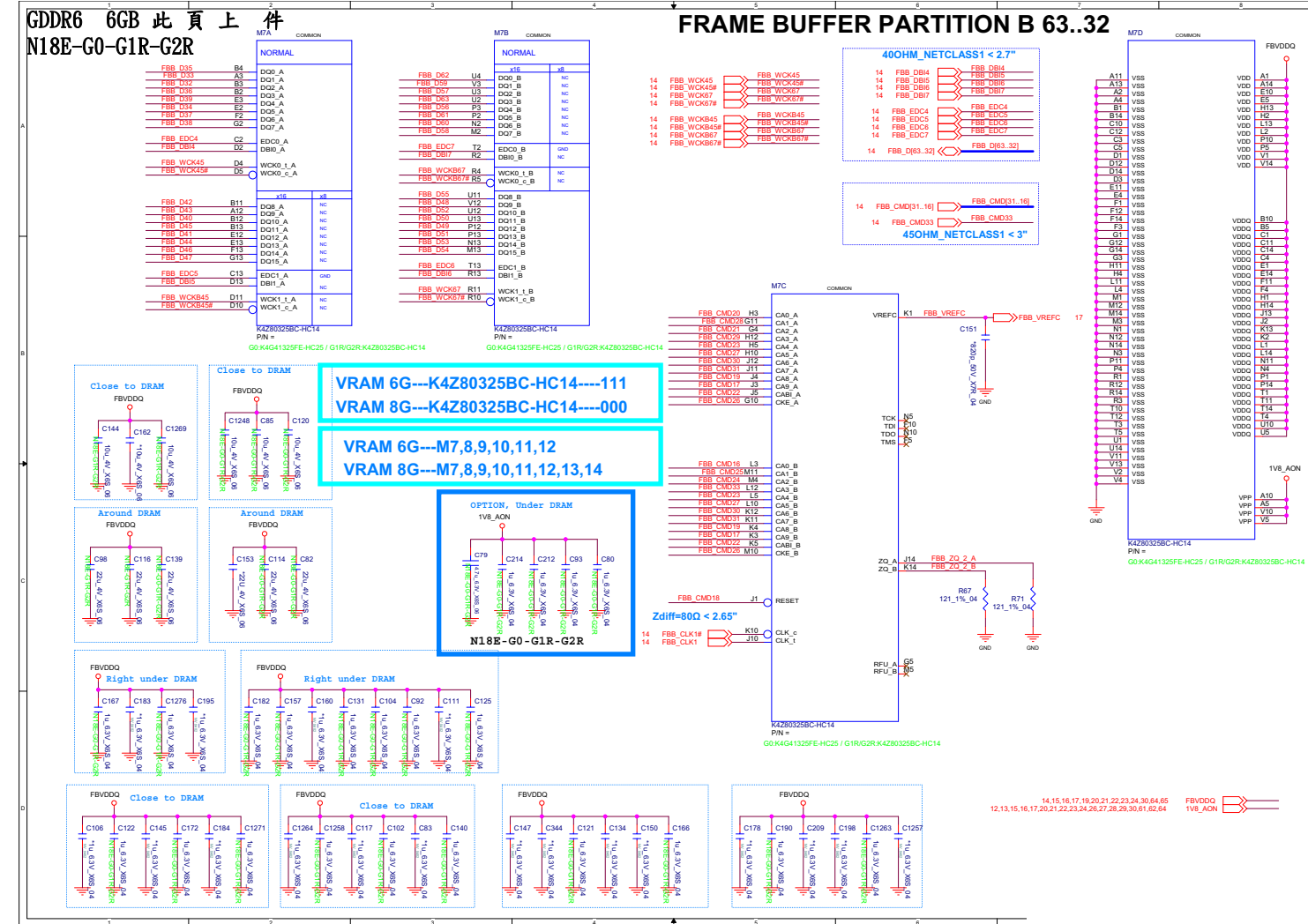
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Sheet 17 of 73  
Frame Buffer B



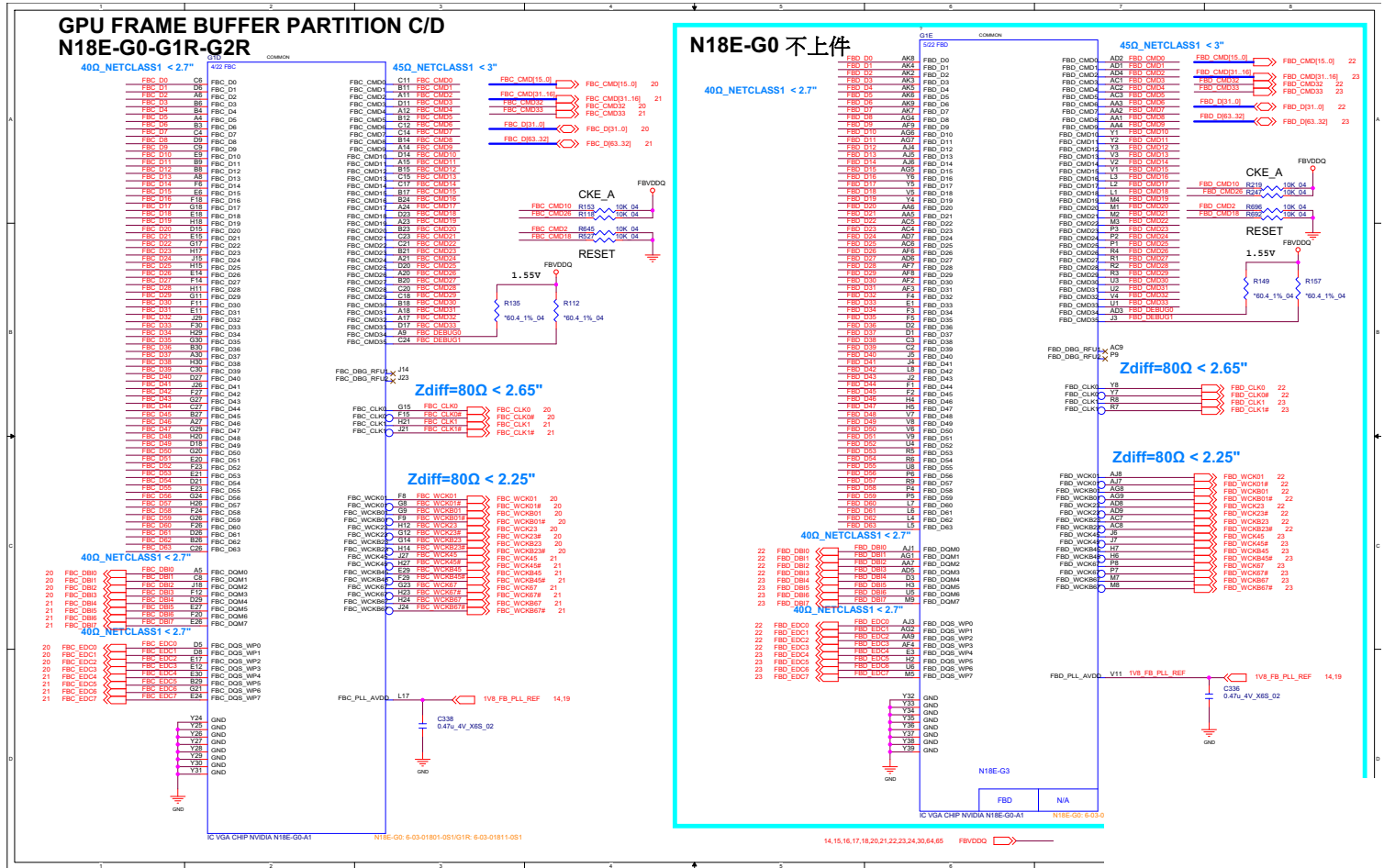


Frame Buffer B

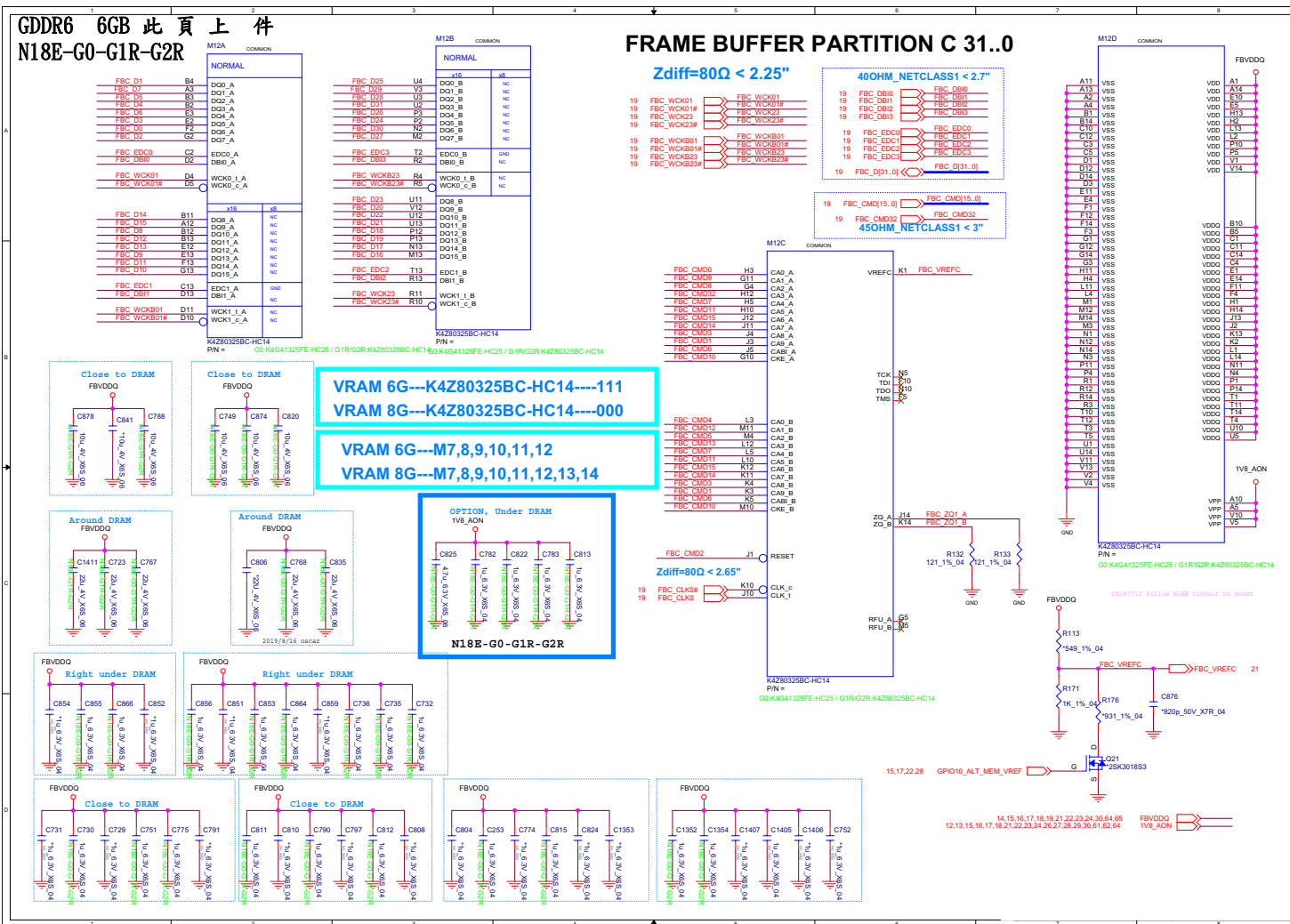


B.Schematic Diagrams

# Frame Buffer C/D



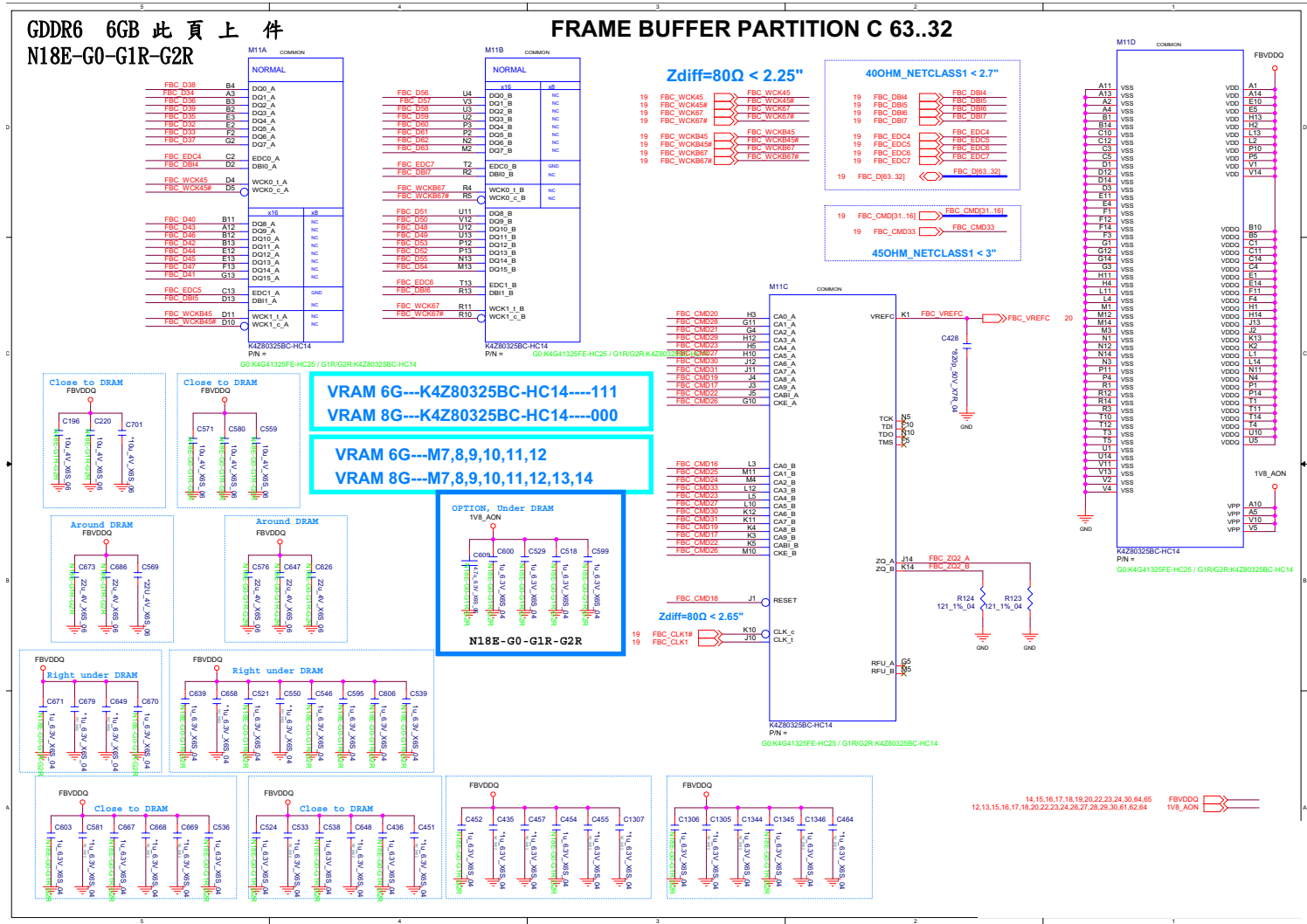
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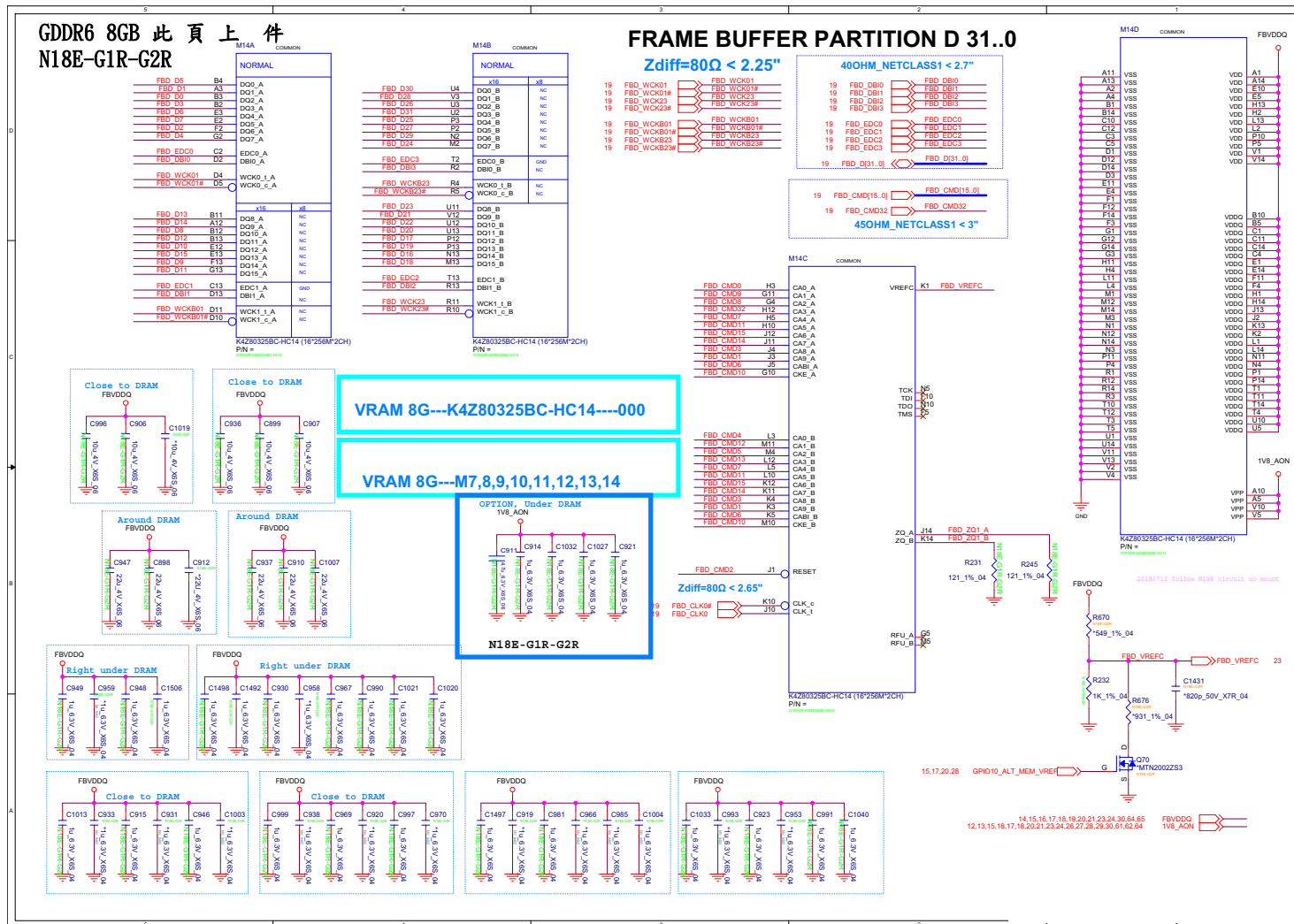
Sheet 20 of 73  
 Frame Buffer C

B.Schematic Diagrams

# Frame Buffer C



# Frame Buffer D

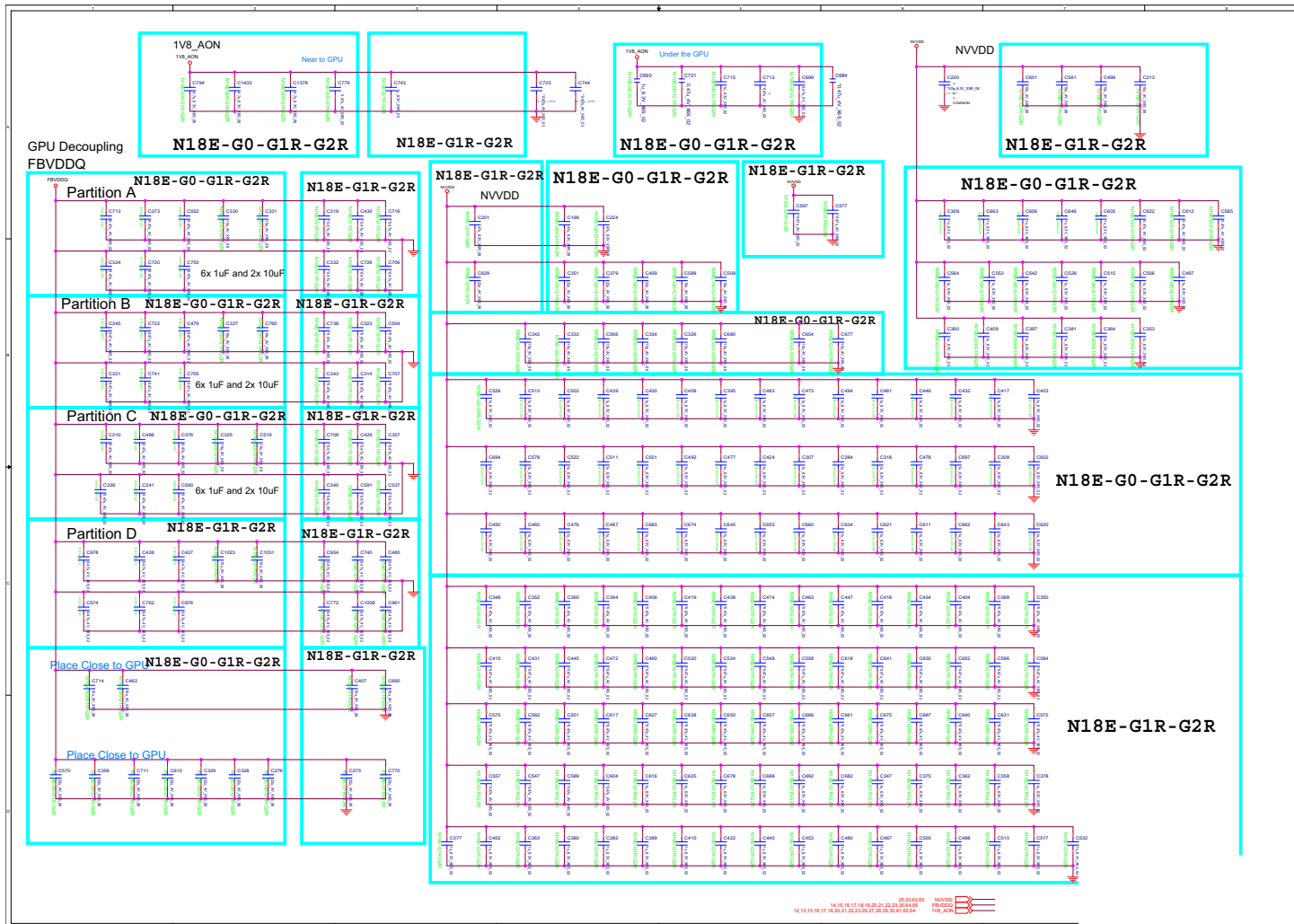


Sheet 22 of 73  
Frame Buffer D

B.Schematic Diagrams



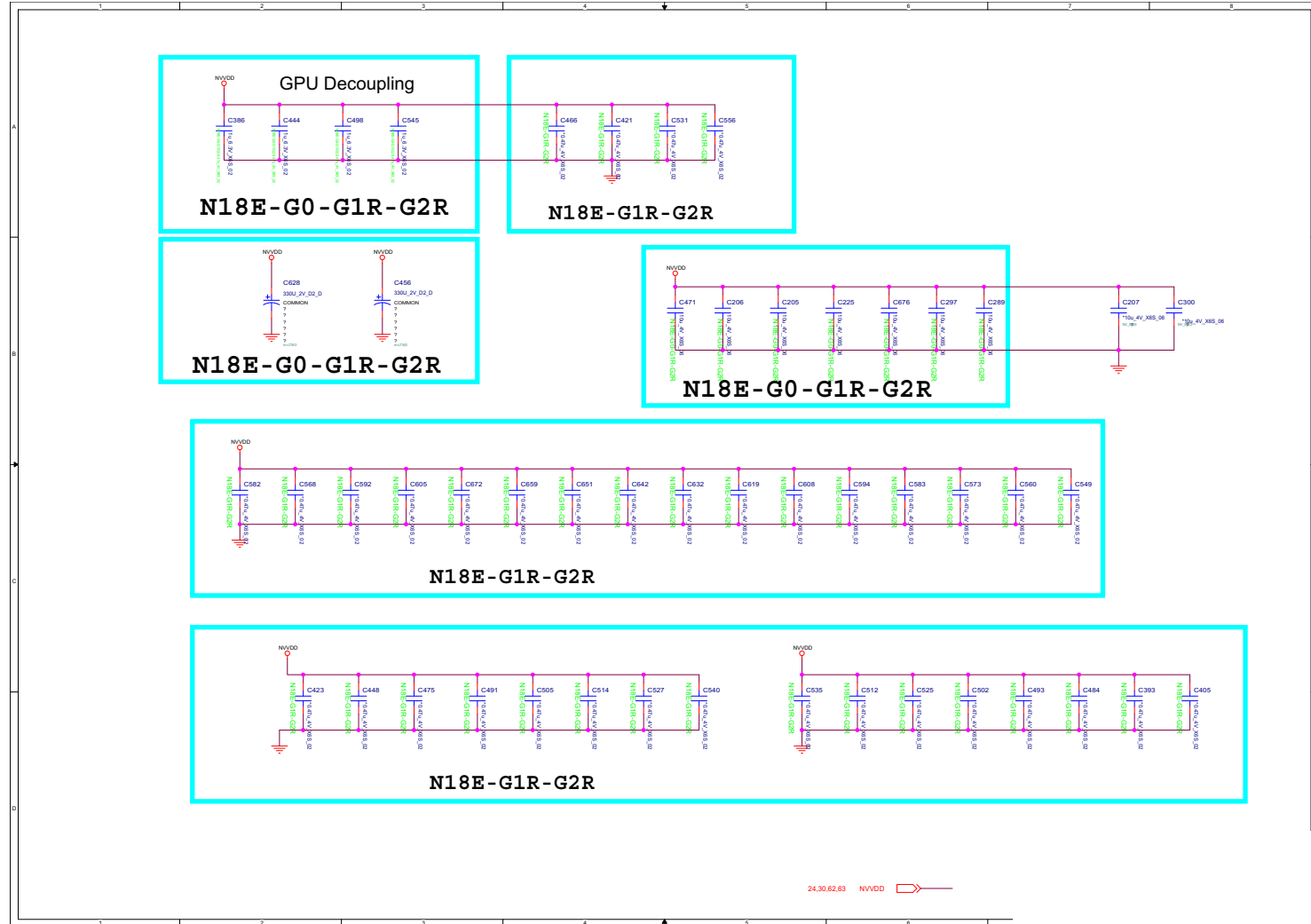
# GPU Decoupling 1



Sheet 24 of 73  
GPU Decoupling 1

# GPU Decoupling 2

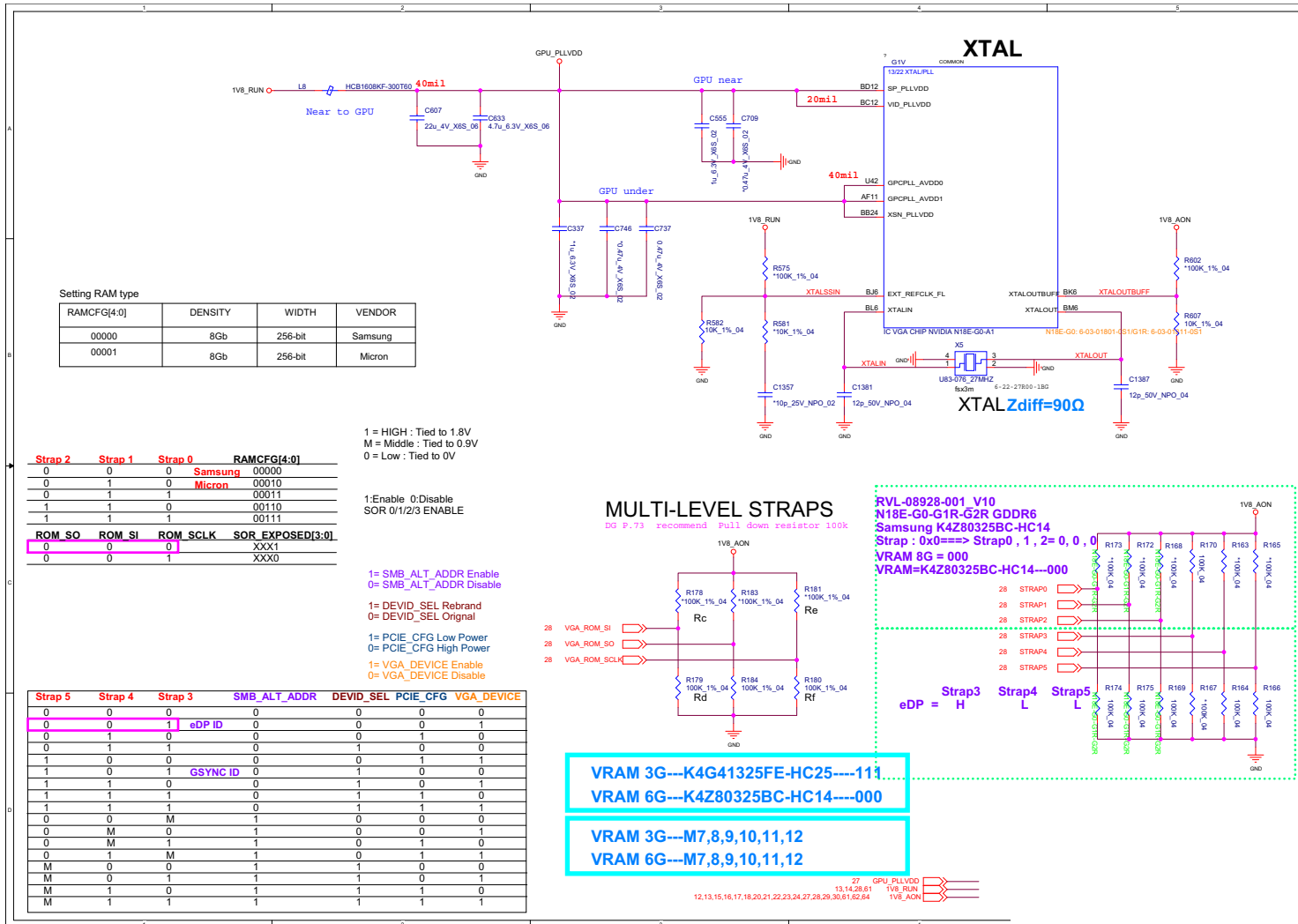
Sheet 25 of 73  
GPU Decoupling 2



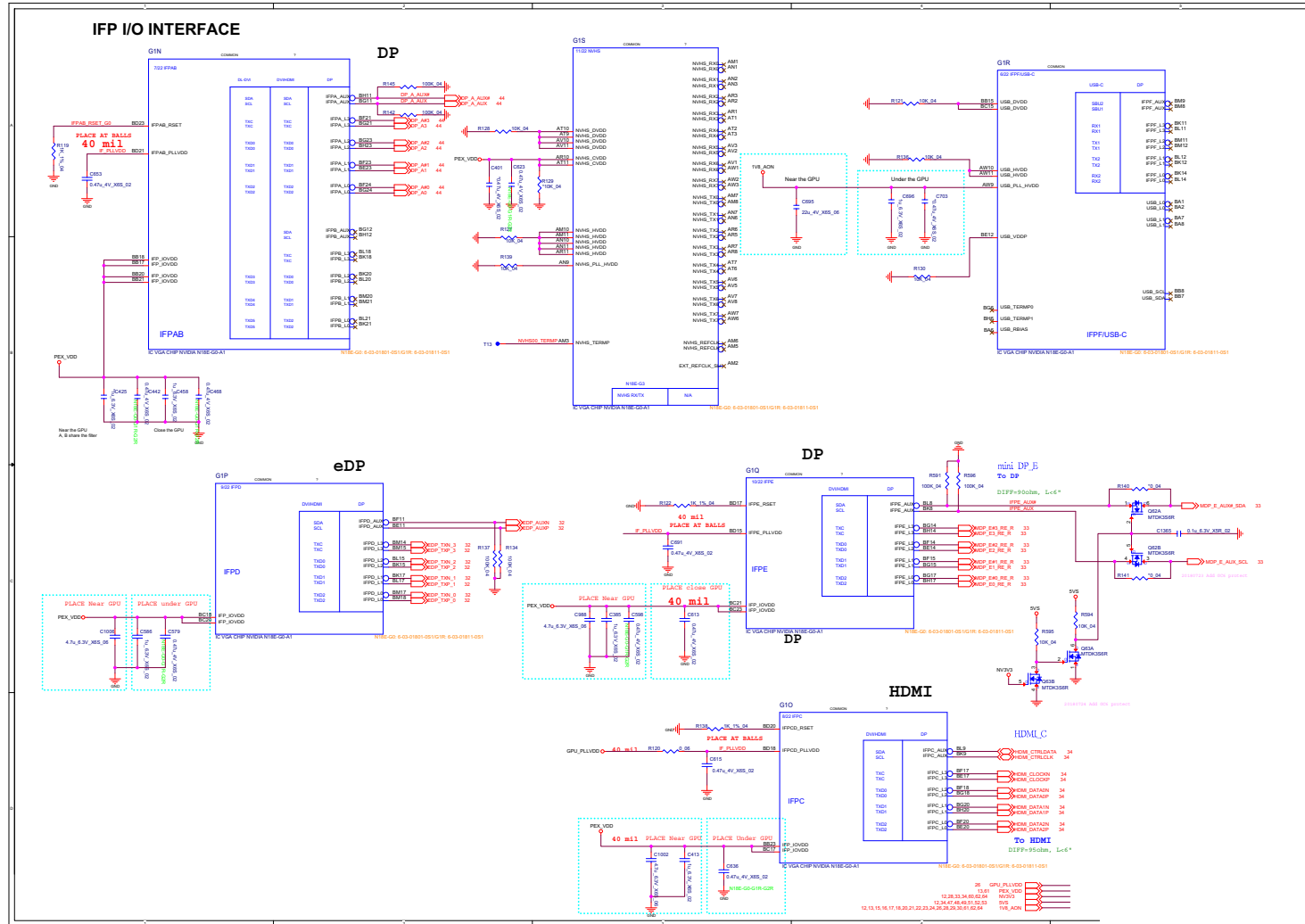


# Straps and XTAL

Sheet 26 of 73  
Straps and XTAL

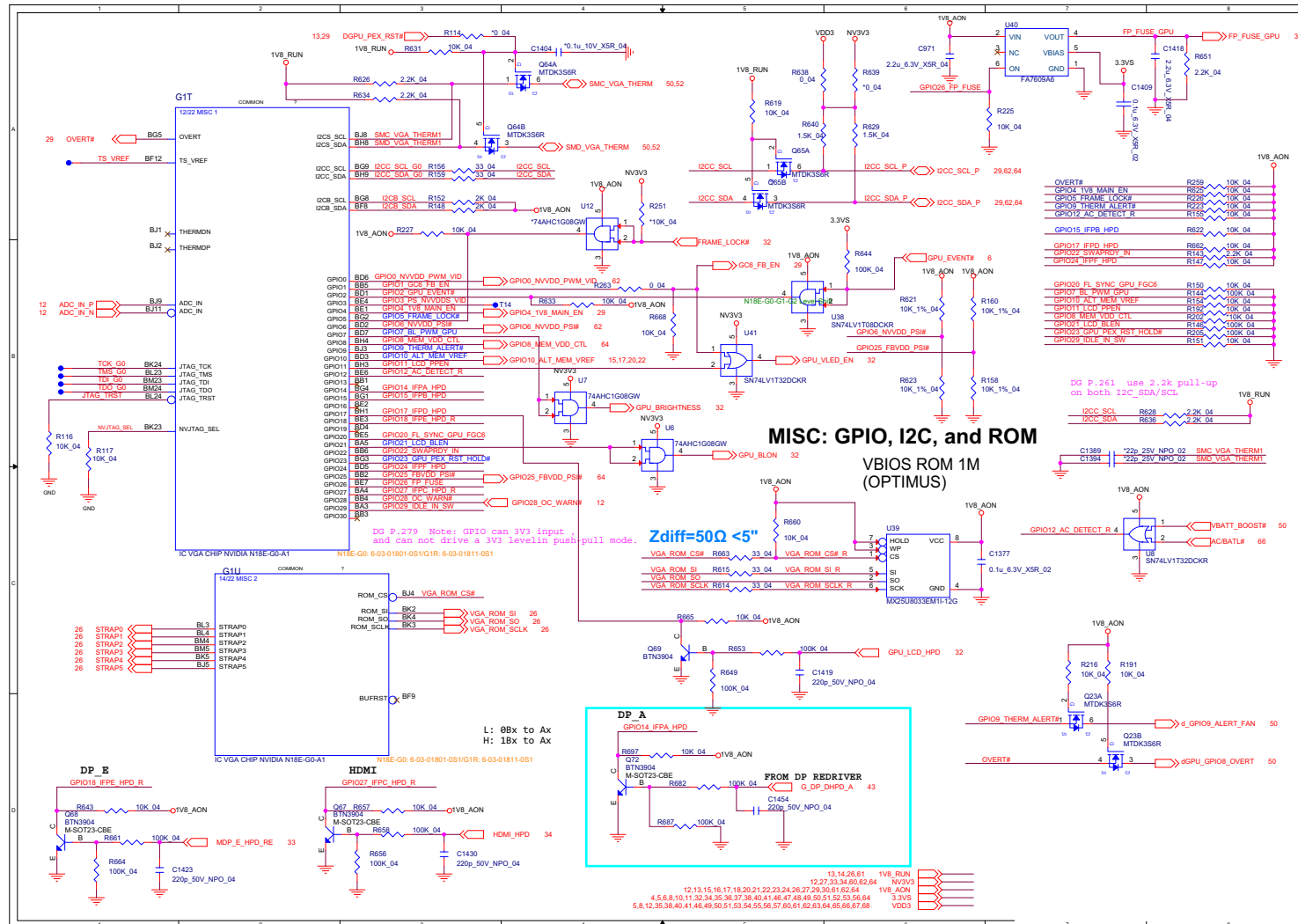


# IFP I/O Interface



Sheet 27 of 73  
IFP I/O Interface

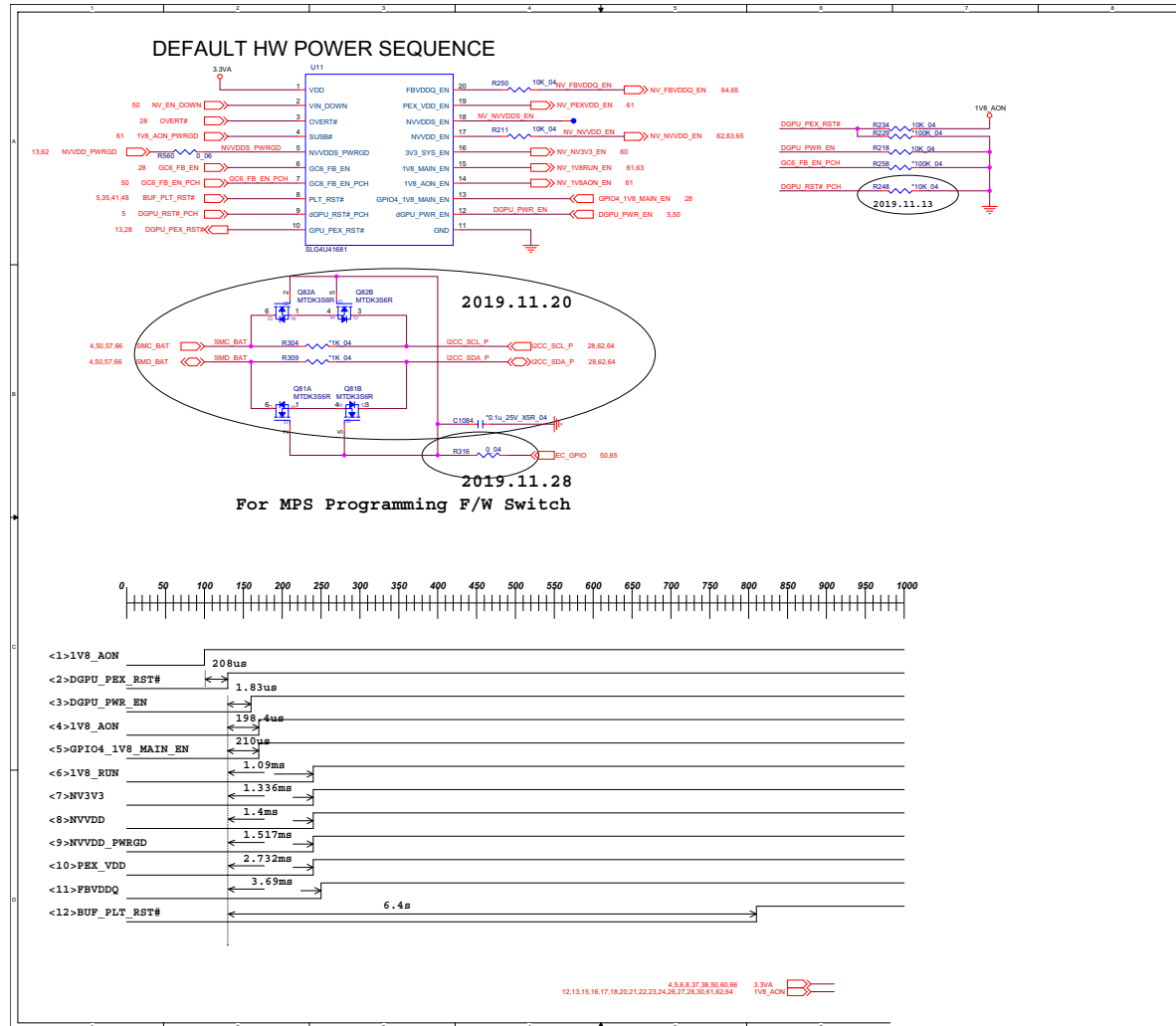
# Misc - GPIO, I2C and ROM



Sheet 28 of 73  
Misc - GPIO, I2C  
and ROM

B.Schematic Diagrams

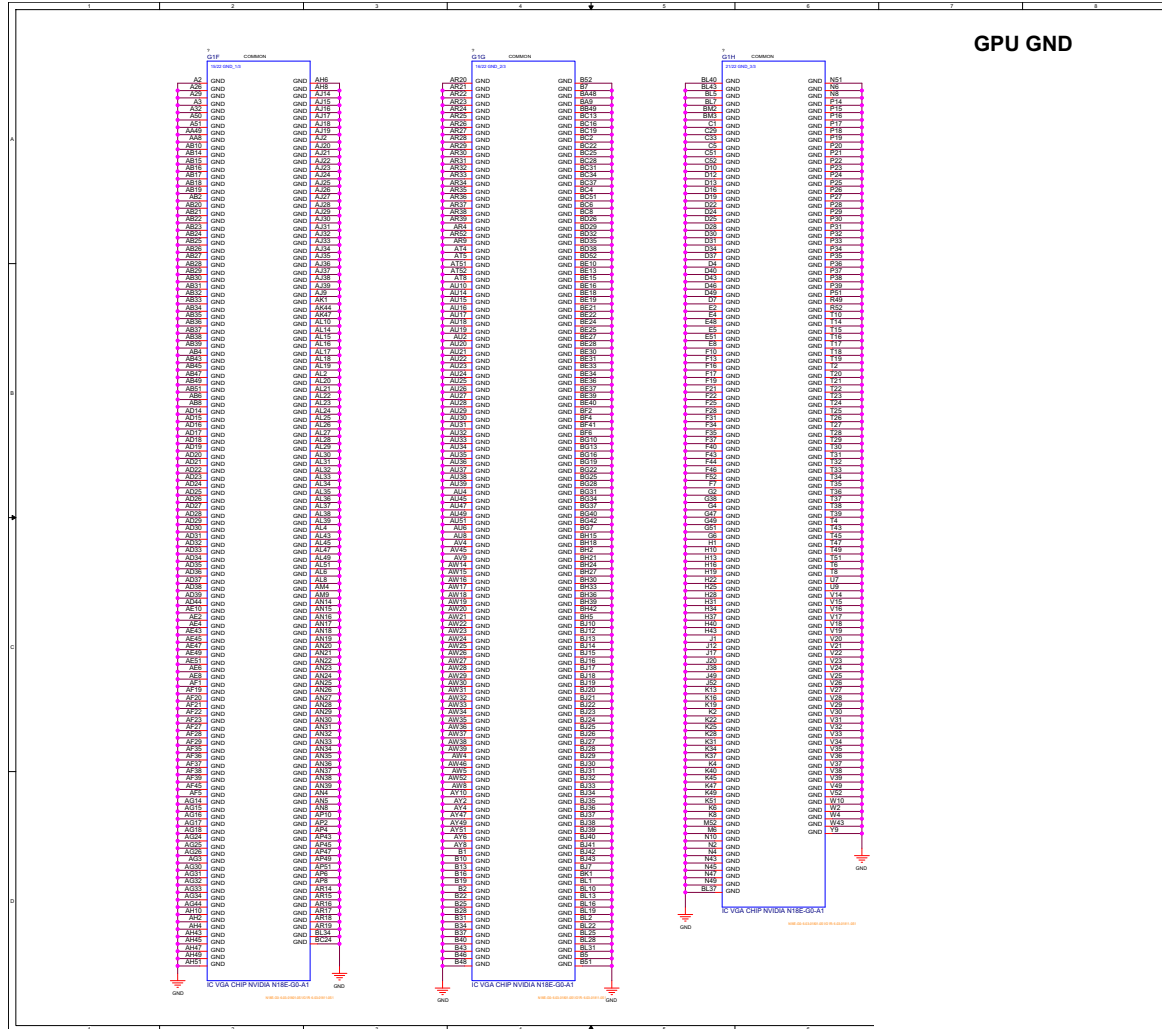
# NVIDIA Power Sequence



Sheet 29 of 73  
NVIDIA Power  
Sequence



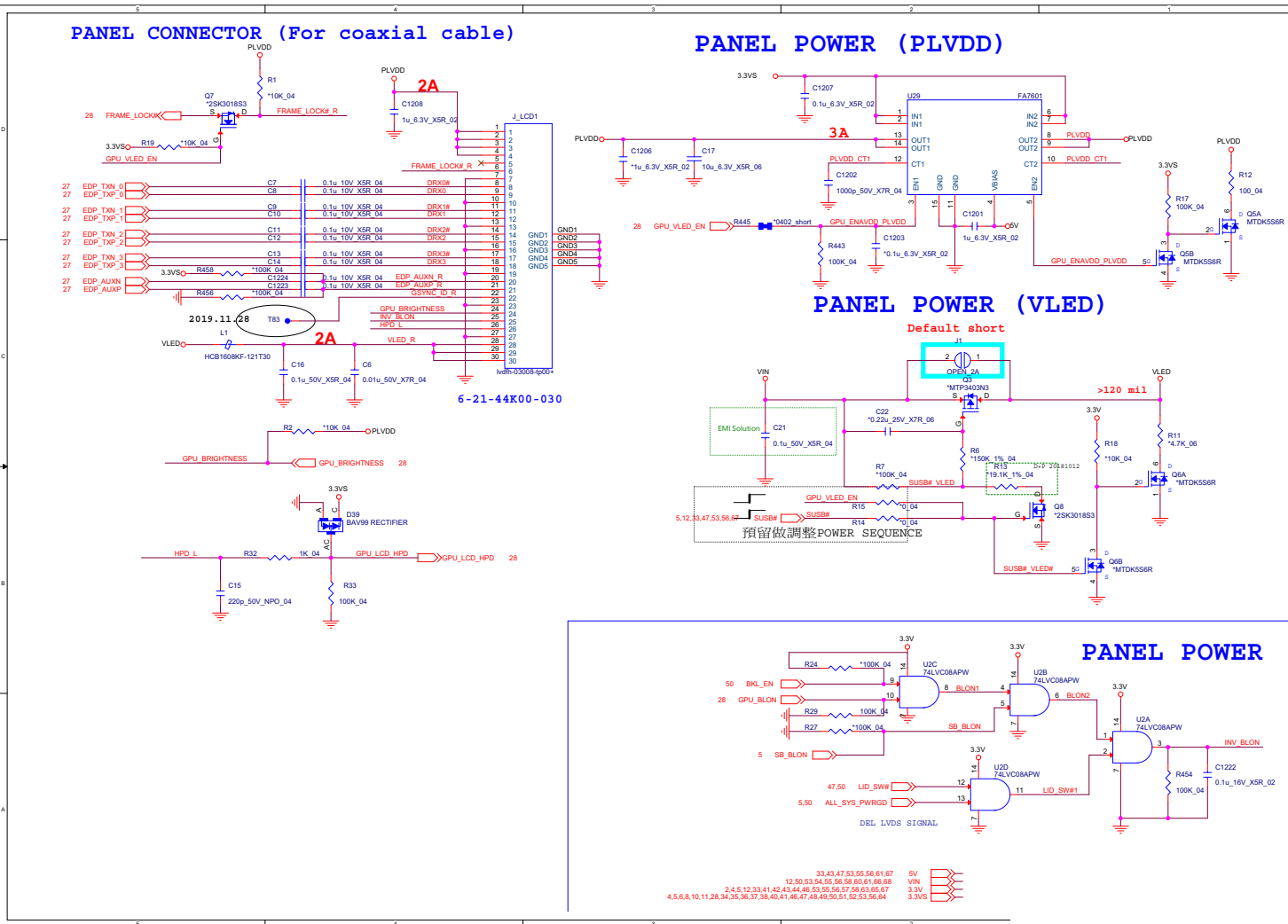
# GPU GND



Sheet 31 of 73  
GPU GND

B.Schematic Diagrams

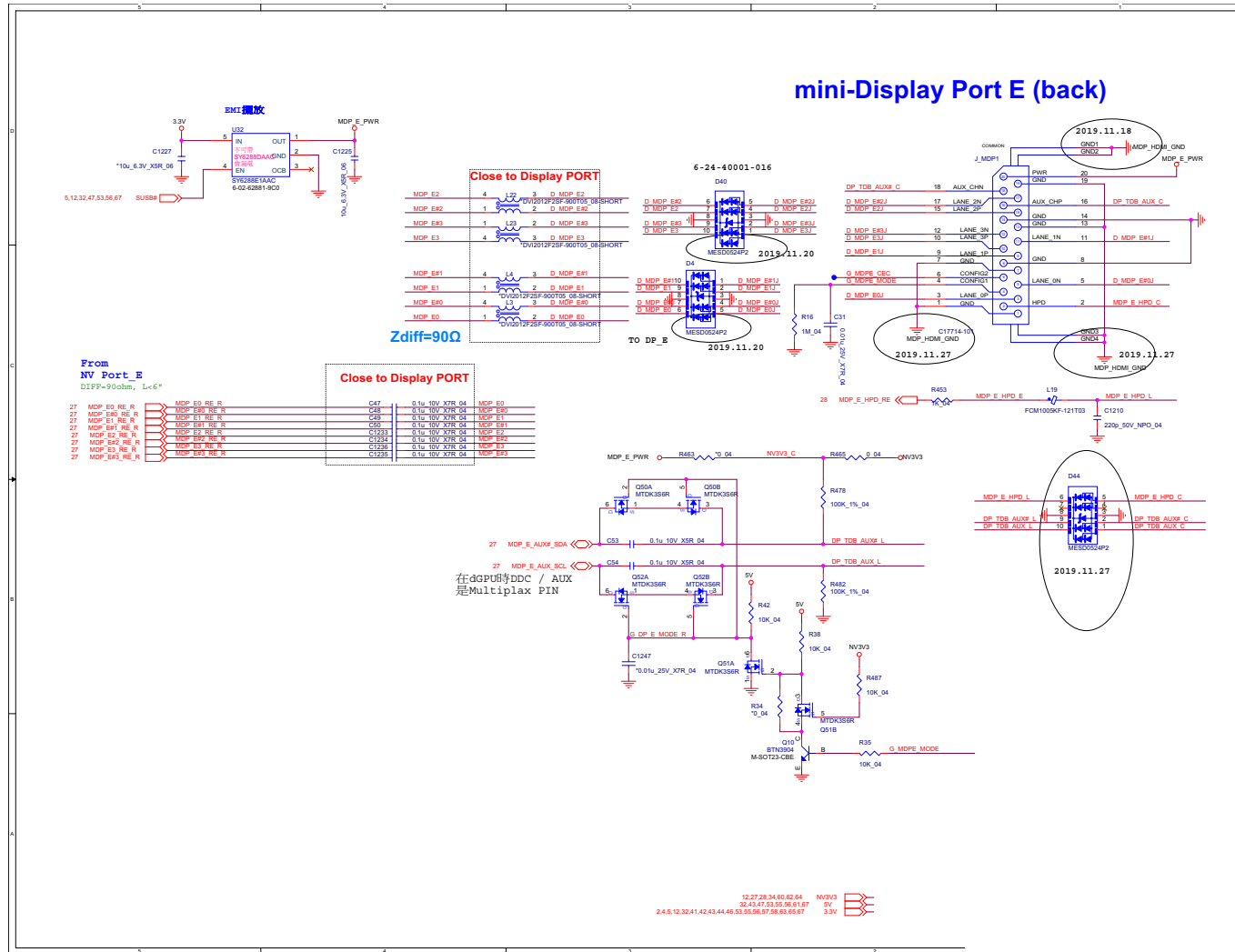
# Panel, Inverter



Sheet 32 of 73  
Panel, Inverter

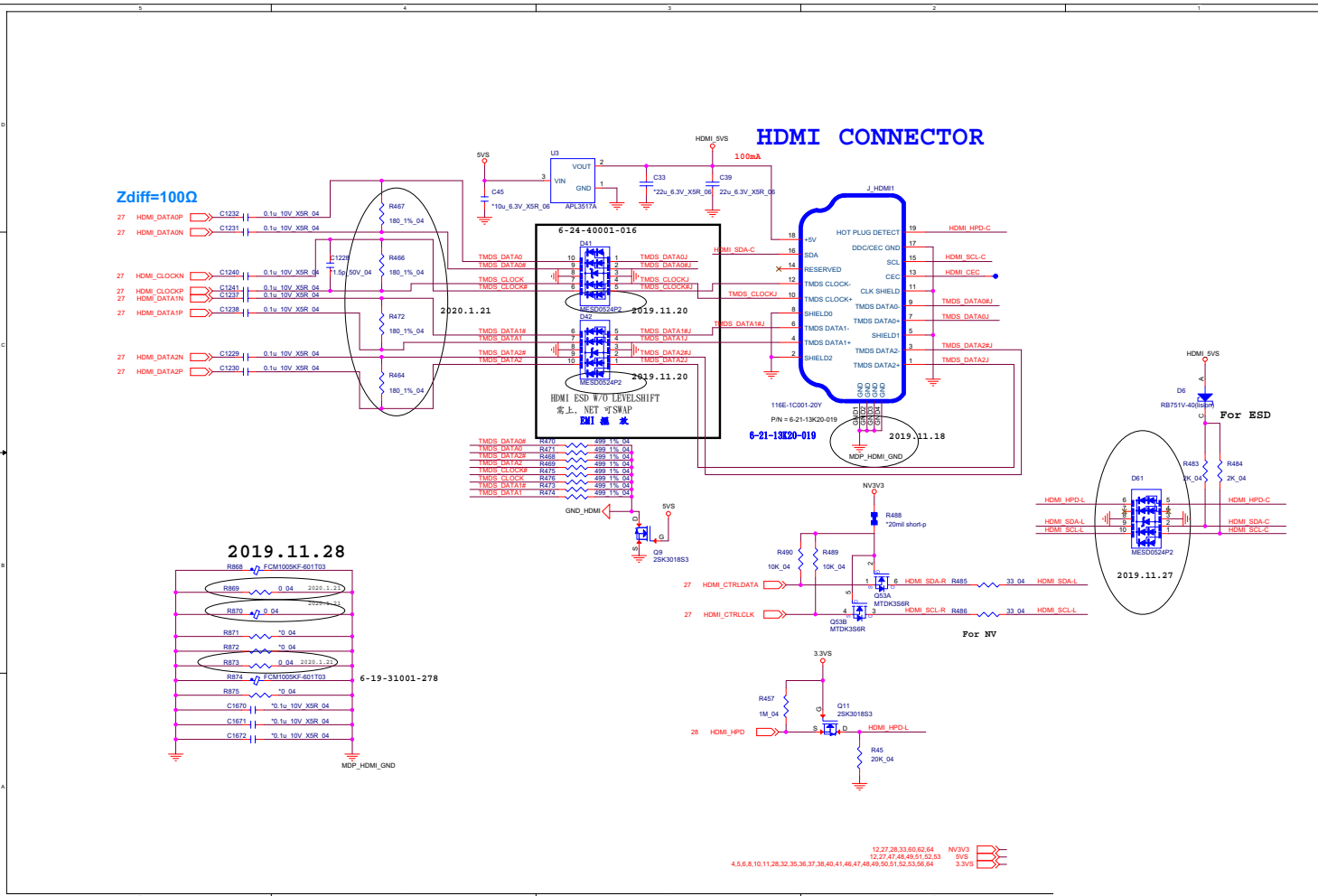
B.Schematic Diagrams

# Mini DP





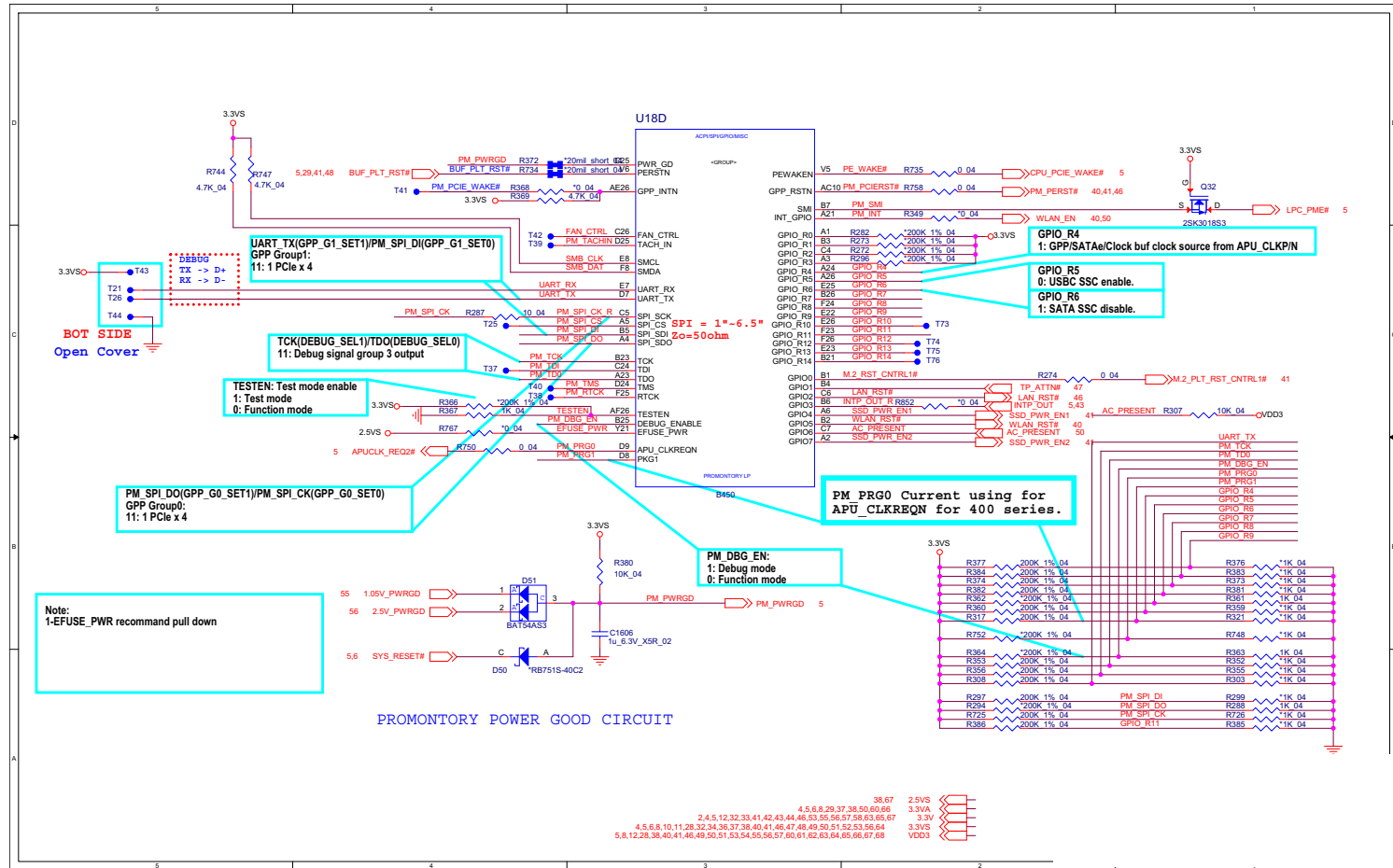
# HDMI



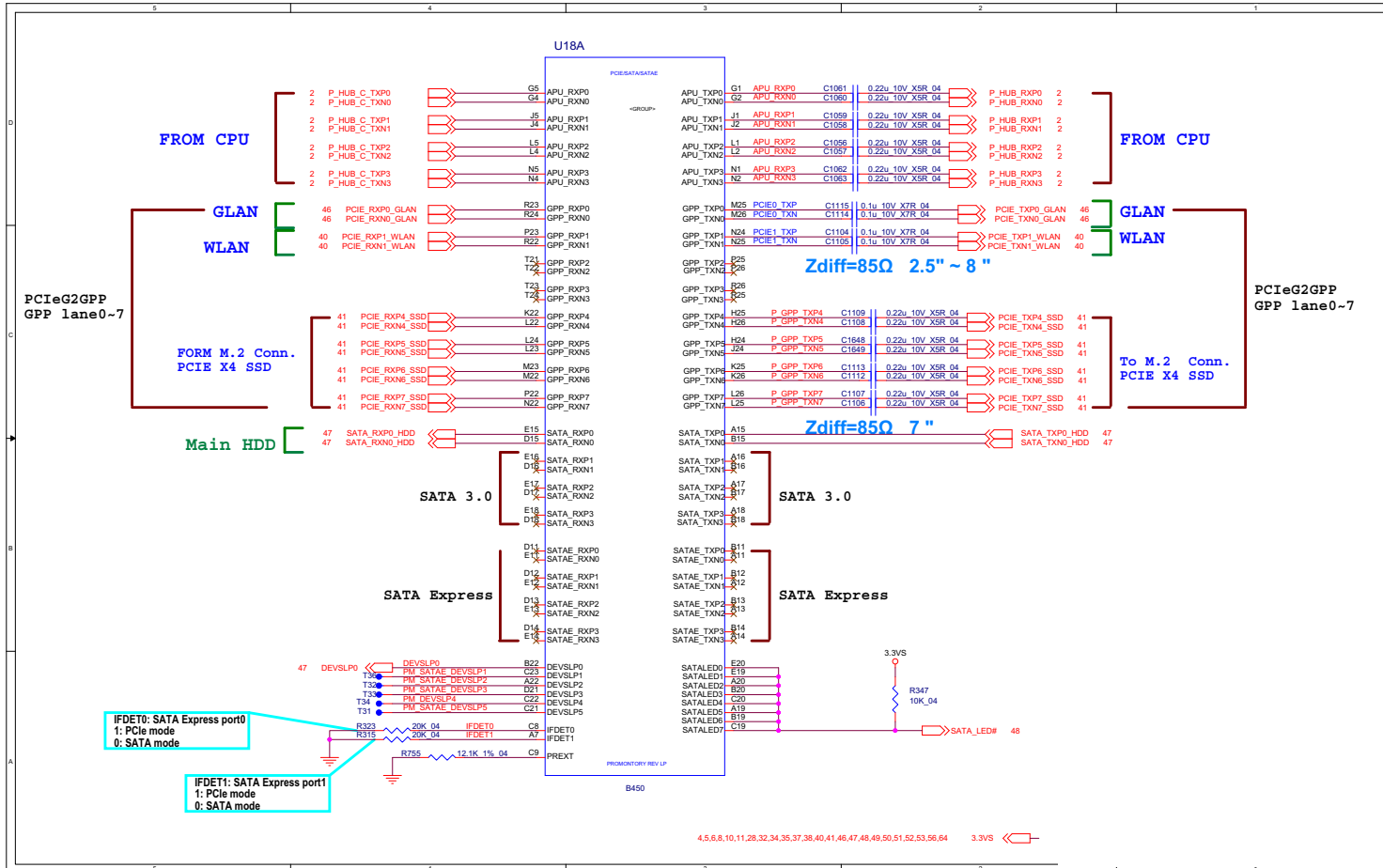
Sheet 34 of 73  
HDMI

# PCH 1/5

Sheet 35 of 73  
PCH 1/5



# PCH 2/5

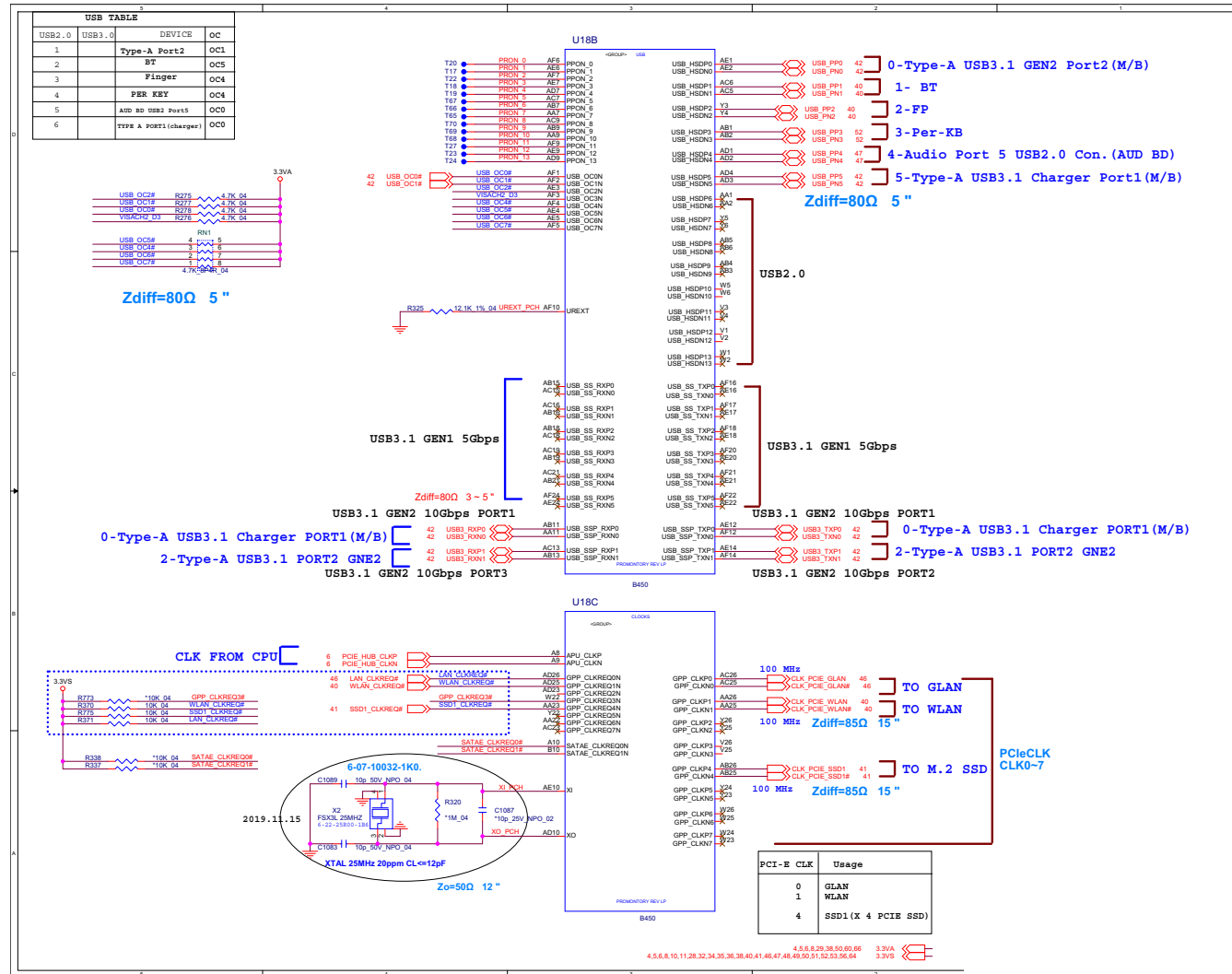


Sheet 36 of 73  
PCH 2/5

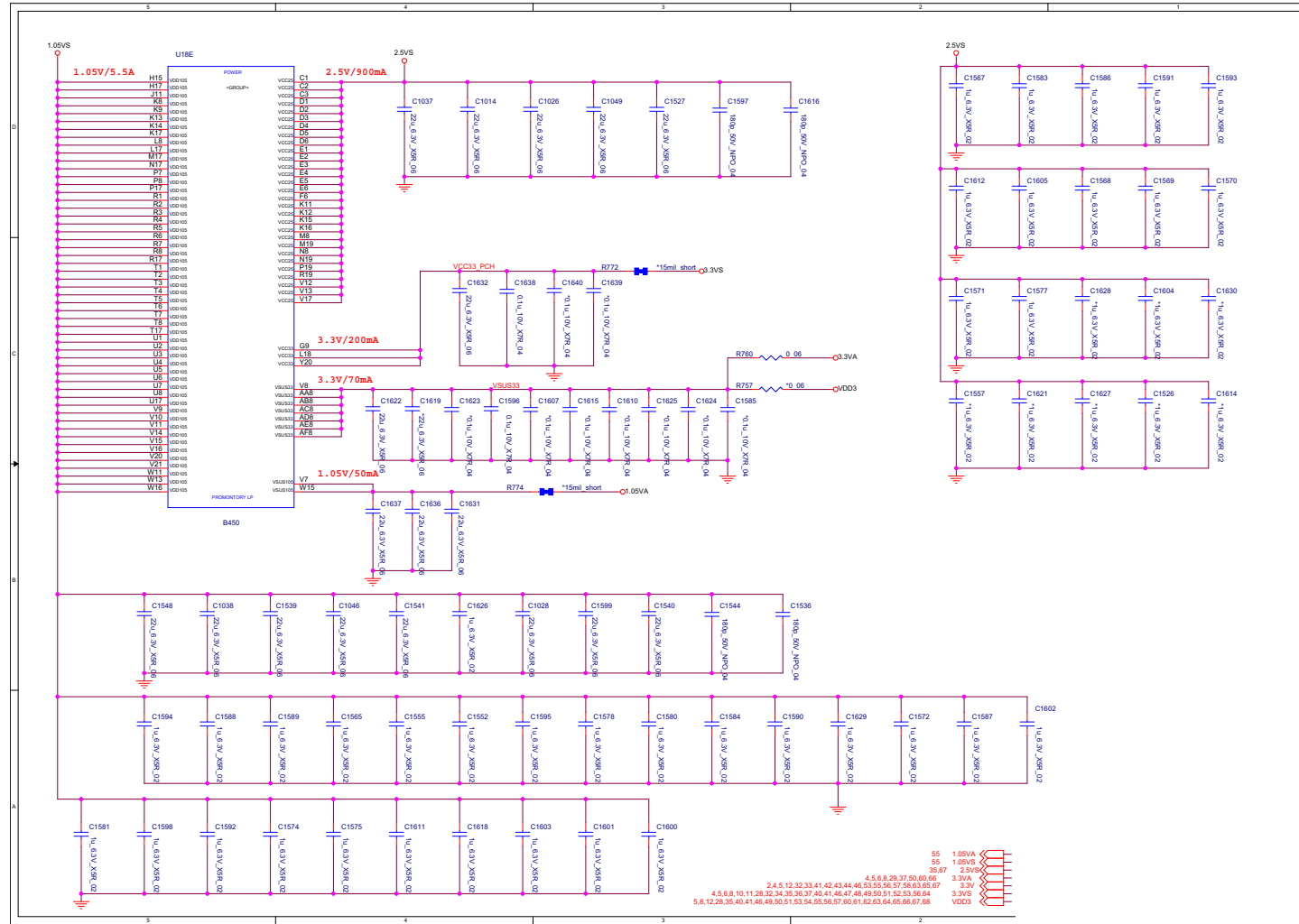
B. Schematic Diagrams

# PCH 3/5

Sheet 37 of 73  
PCH 3/5



PCH 4/5

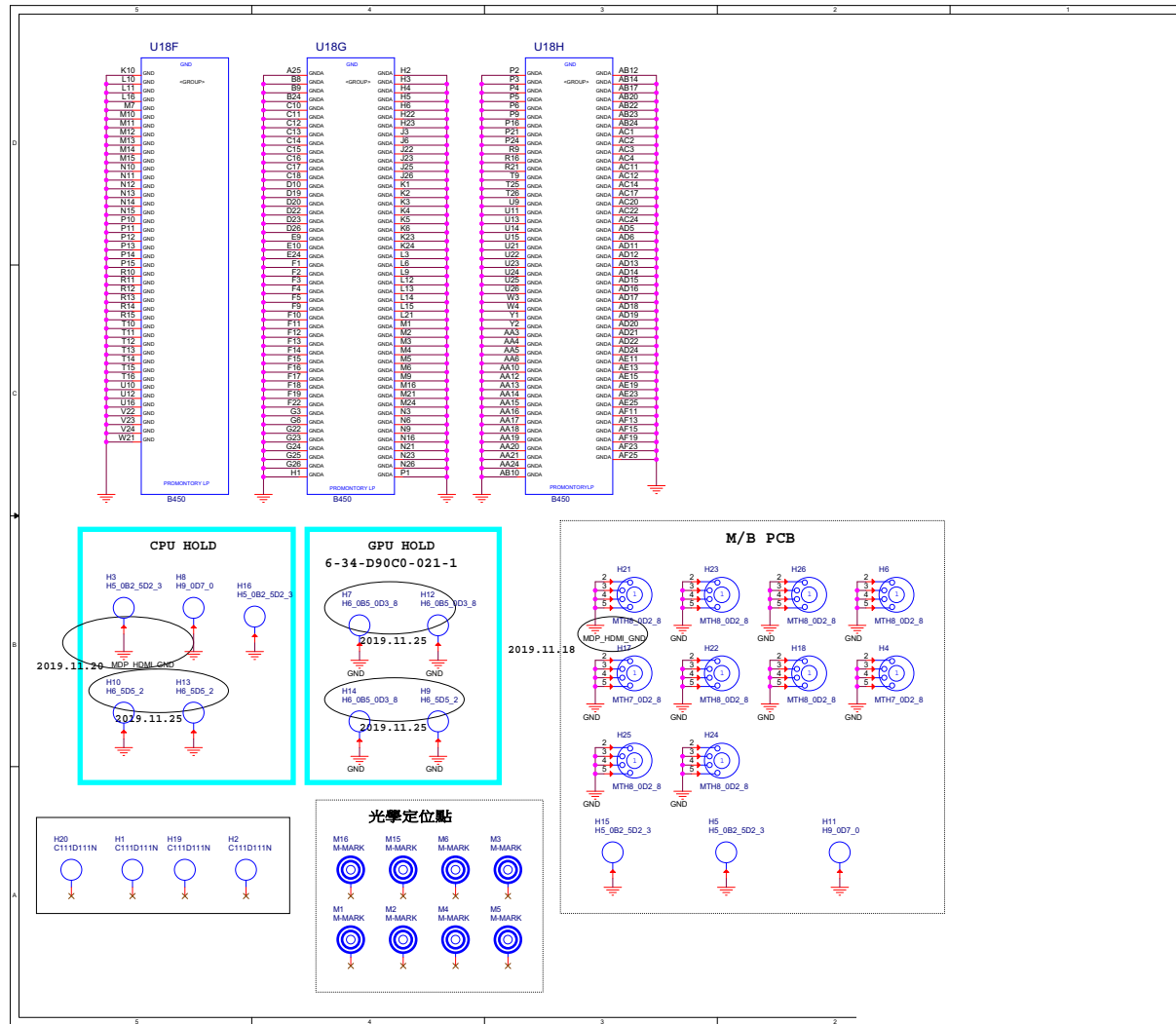


Sheet 38 of 73  
PCH 4/5

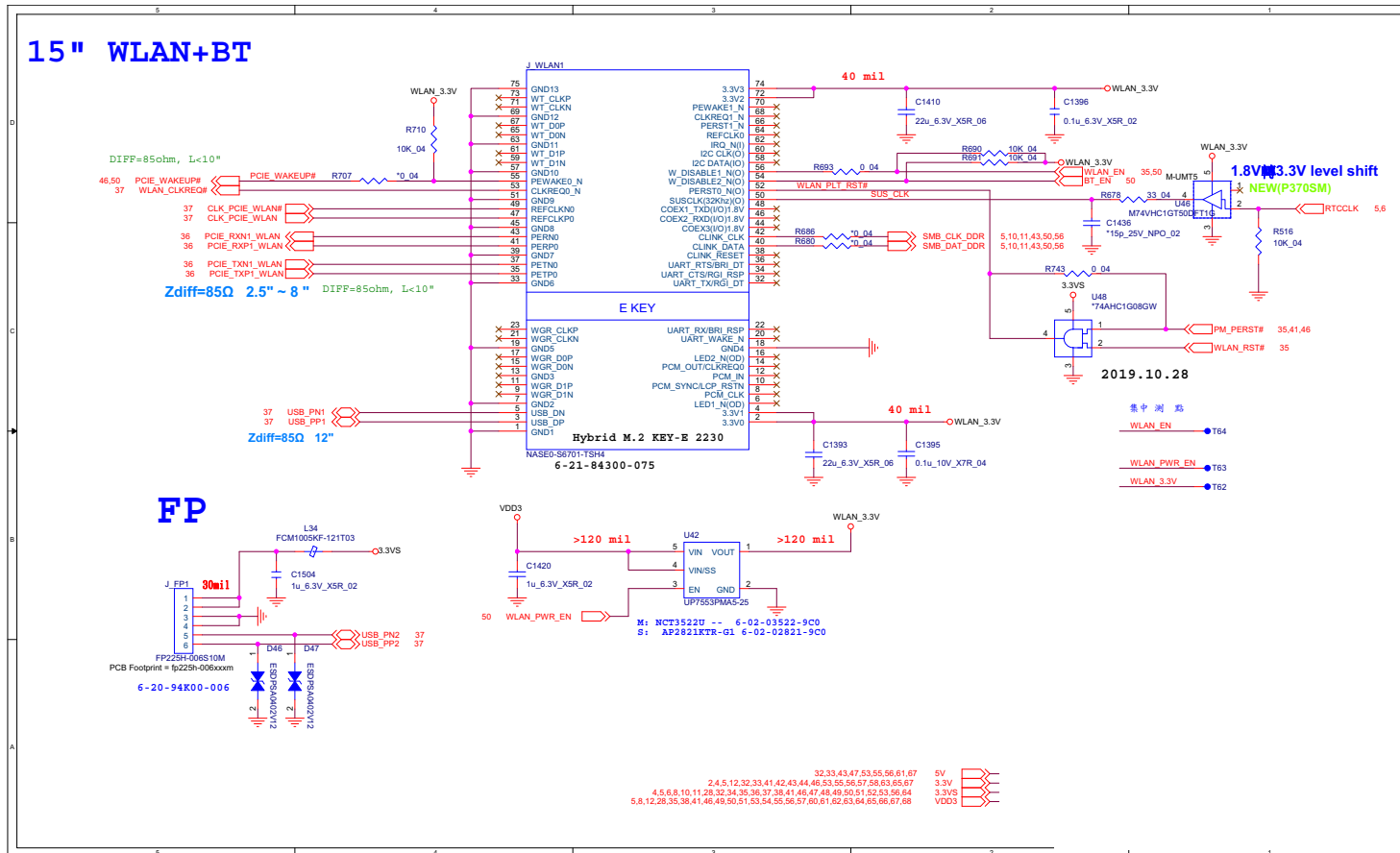
B.Schematic Diagrams

PCH 5/5

Sheet 39 of 73  
PCH 5/5



# M.2 WLAN+BT



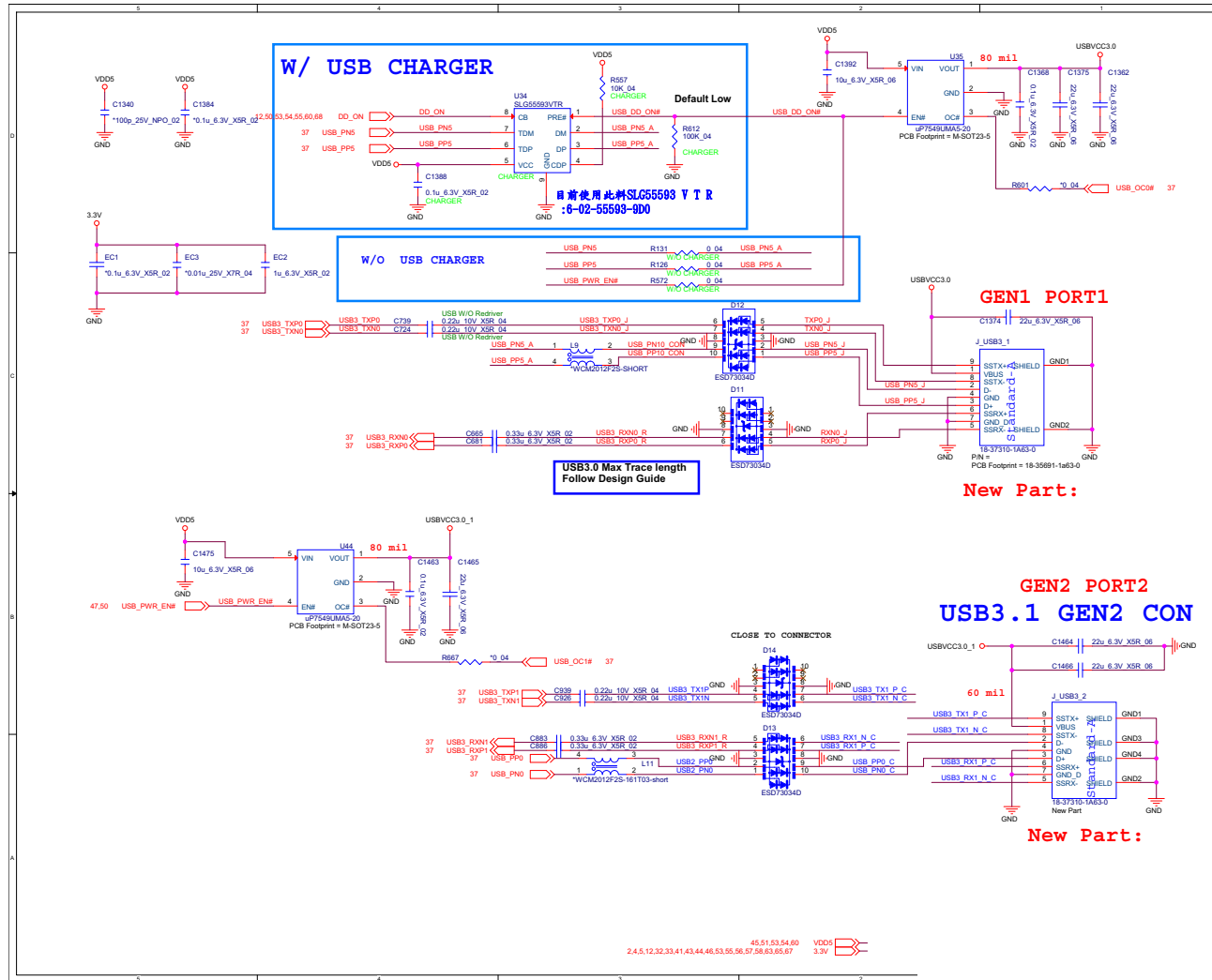
Sheet 40 of 73  
 M.2 WLAN+BT

B.Schematic Diagrams





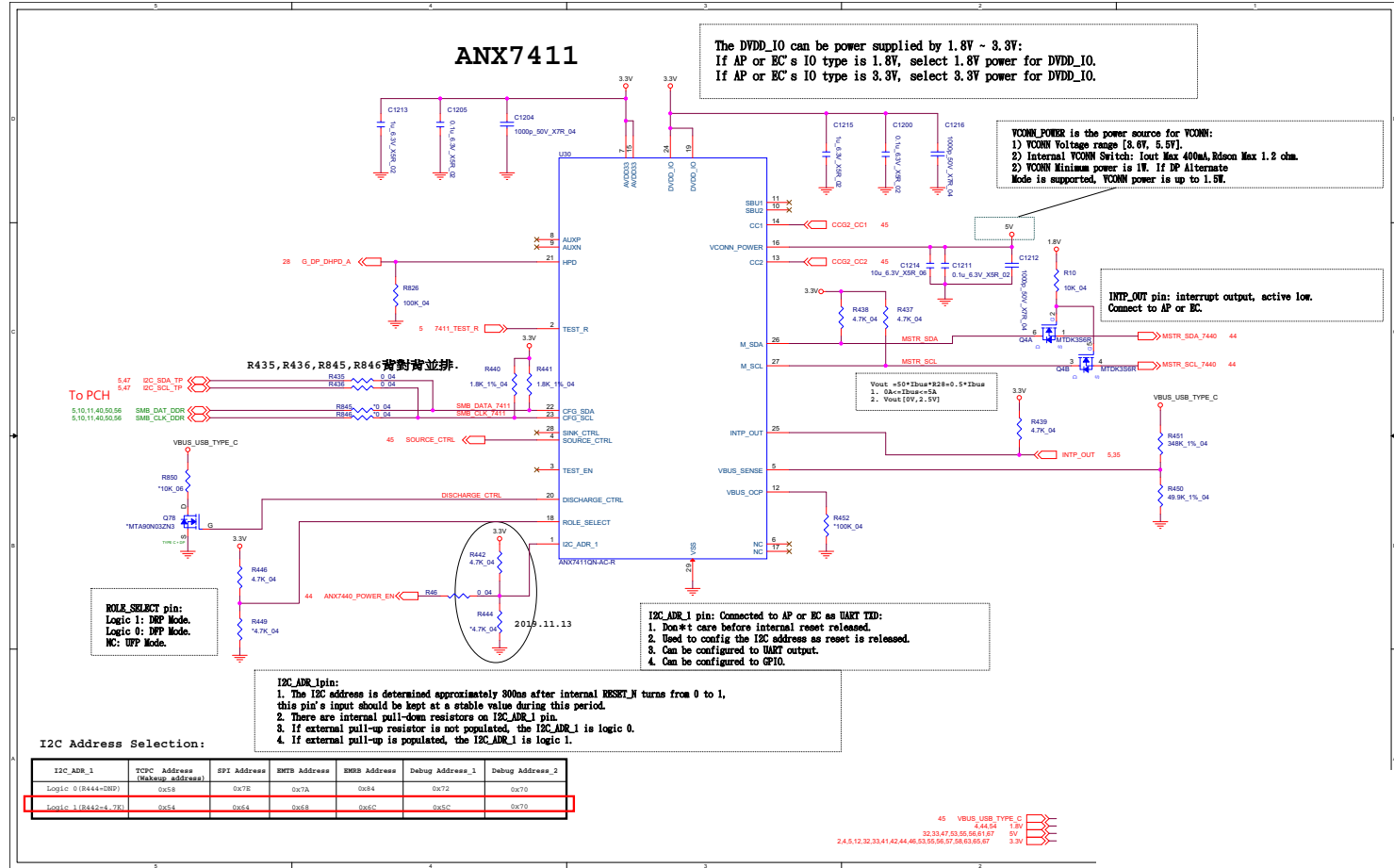
# USB Charger



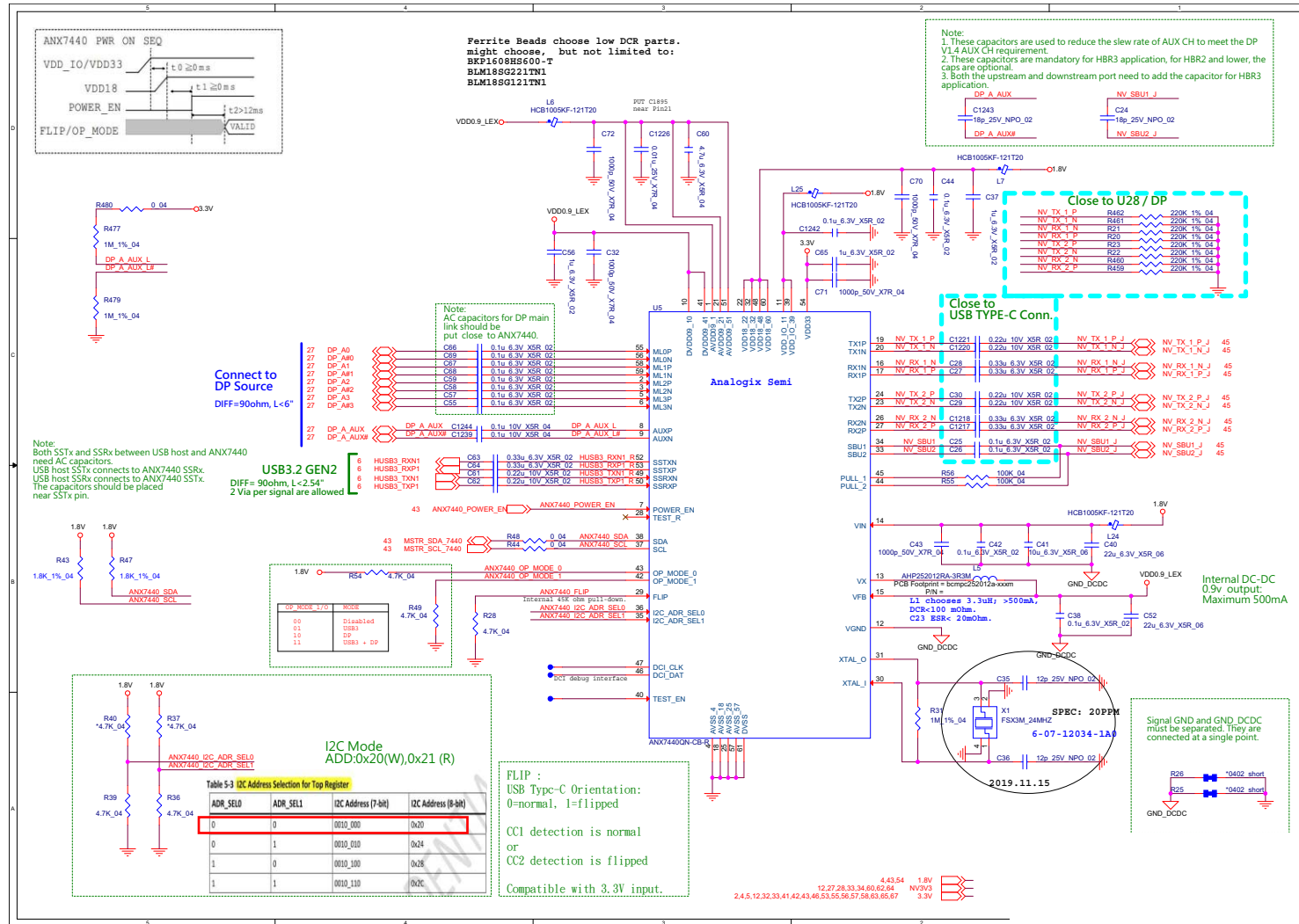
Sheet 42 of 73  
USB Charger

# PD Controller ANX7411

Sheet 43 of 73  
PD Controller  
ANX7411



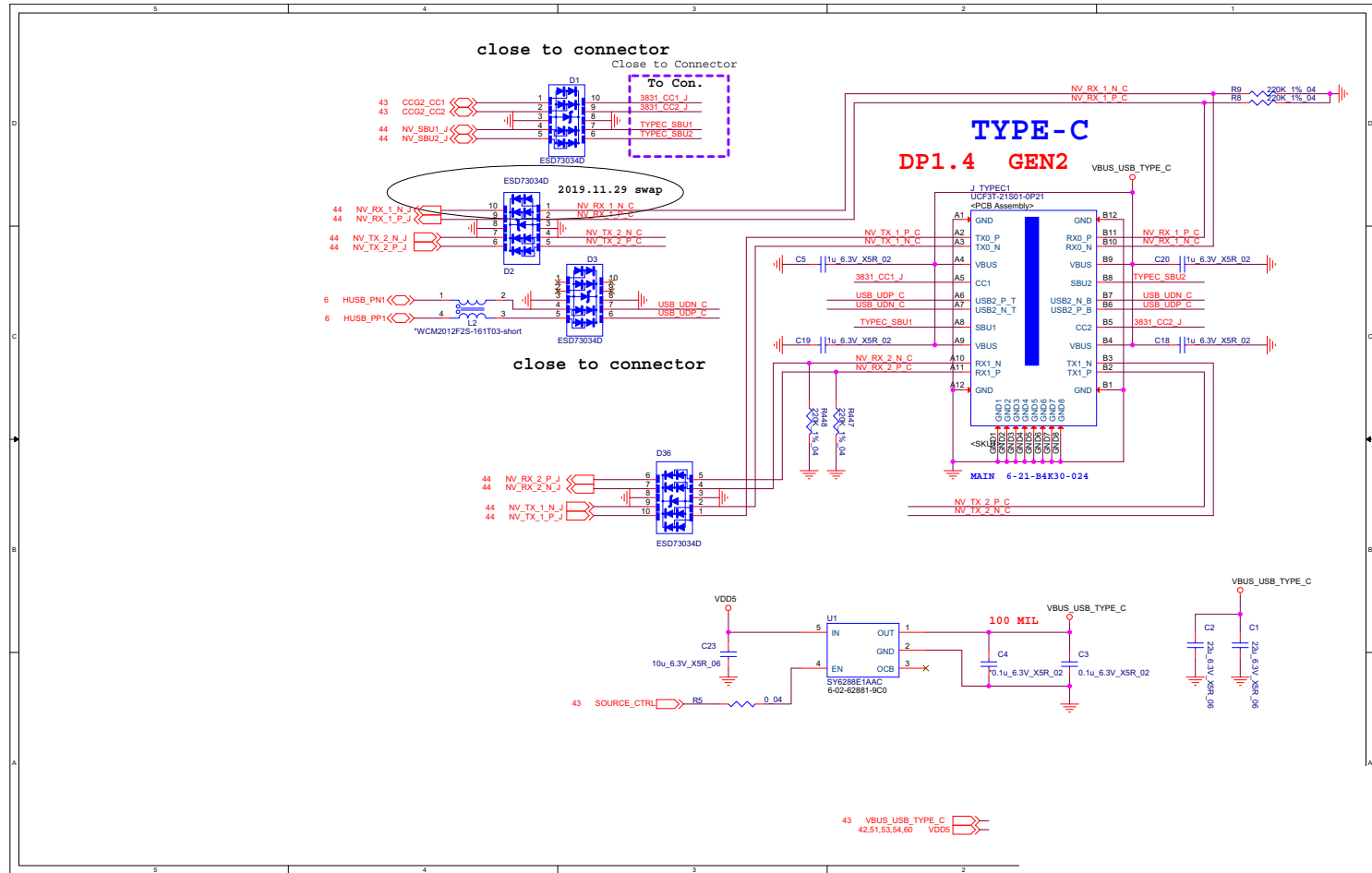
# USB Type-C, ANX7440 Retimer



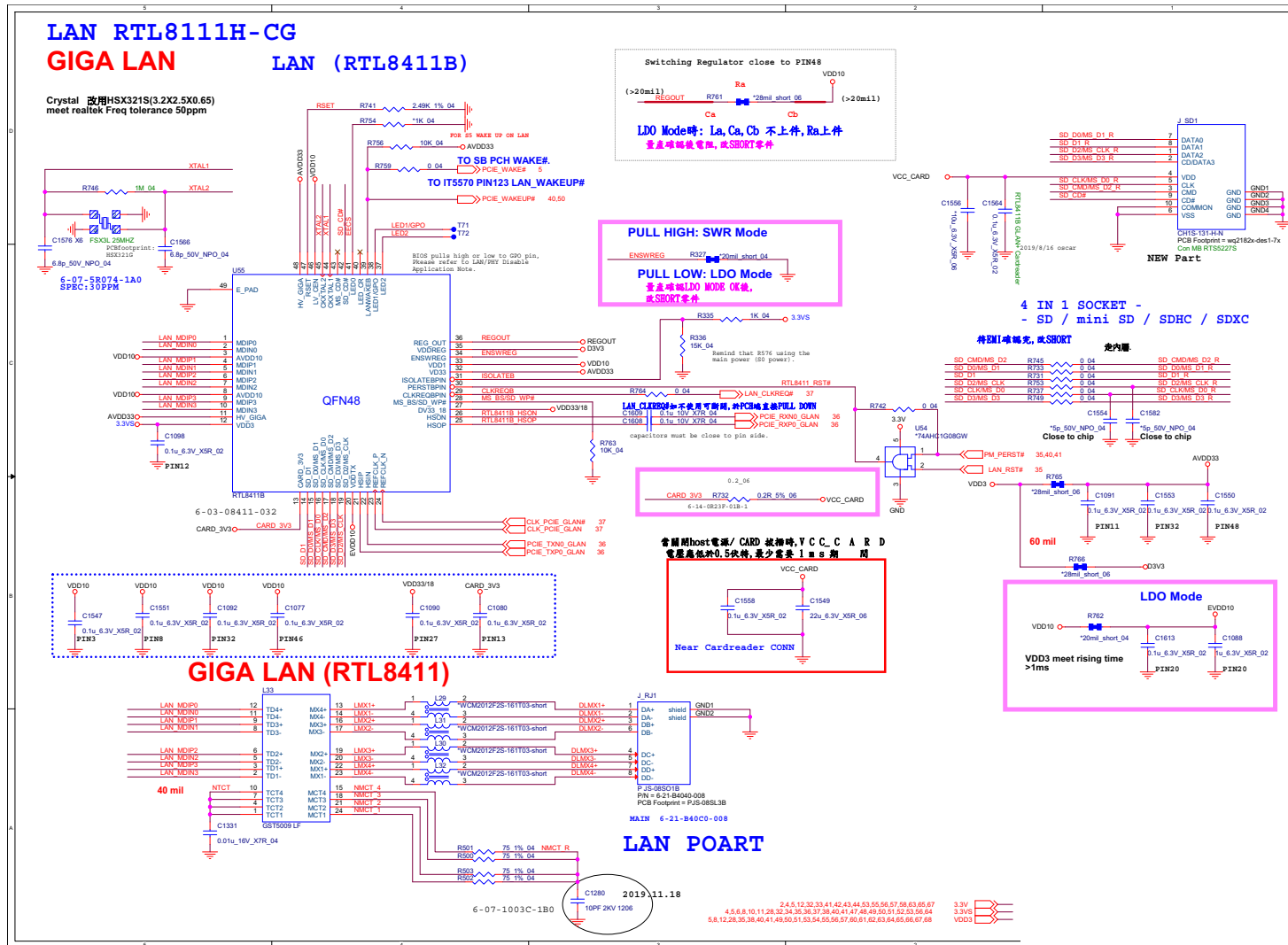
Sheet 44 of 73  
 USB Type-C,  
 ANX7440 Retimer

# DP + USB Type-C

Sheet 45 of 73  
DP + USB Type-C



# Card Reader / LAN RTL8411B

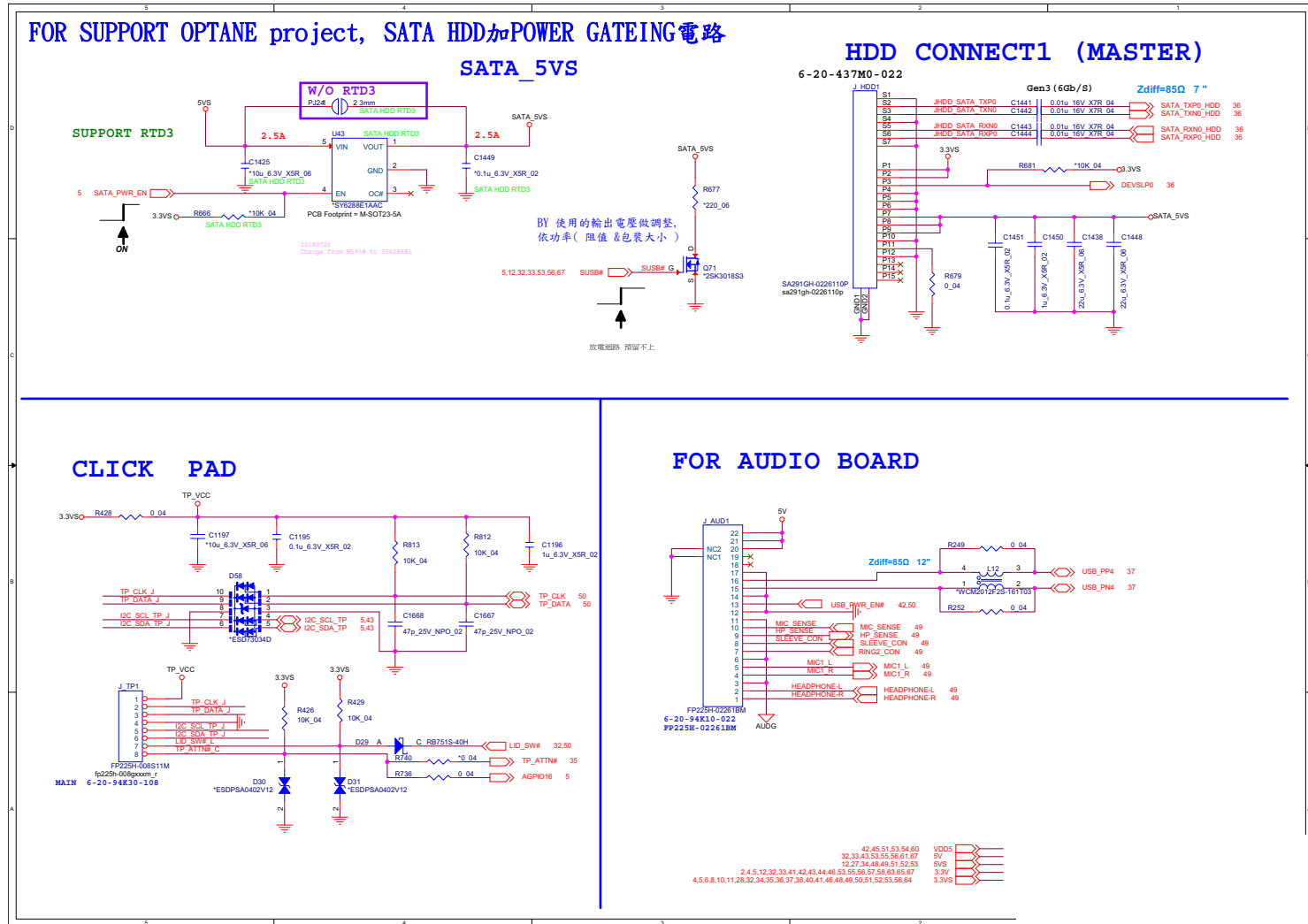


B.Schematic Diagrams

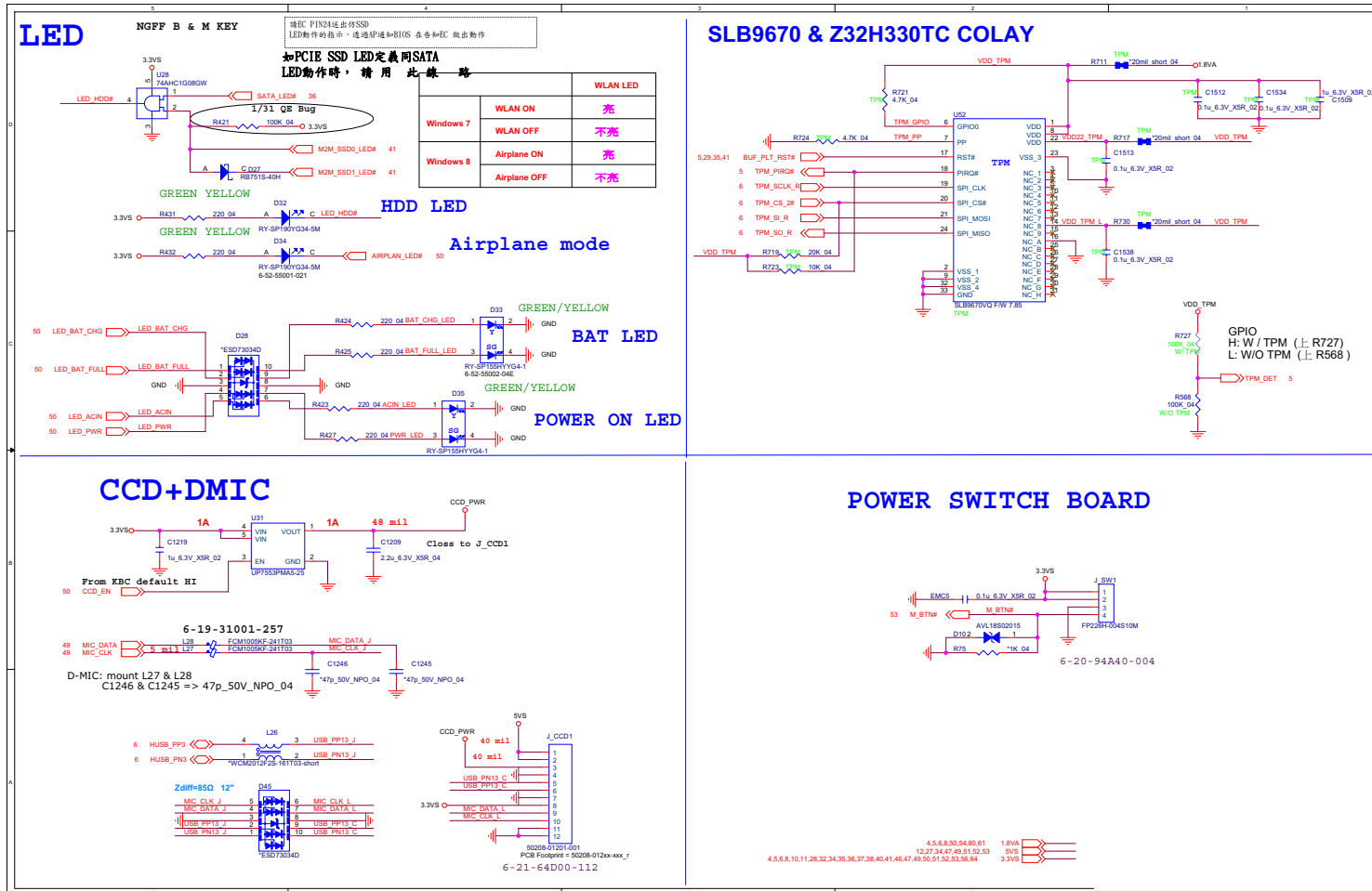
Sheet 46 of 73  
Card Reader /  
LAN RTL8411B

# HDD, Click TP, Audio, Hall Con.

Sheet 47 of 73  
HDD, Click TP,  
Audio, Hall Con.

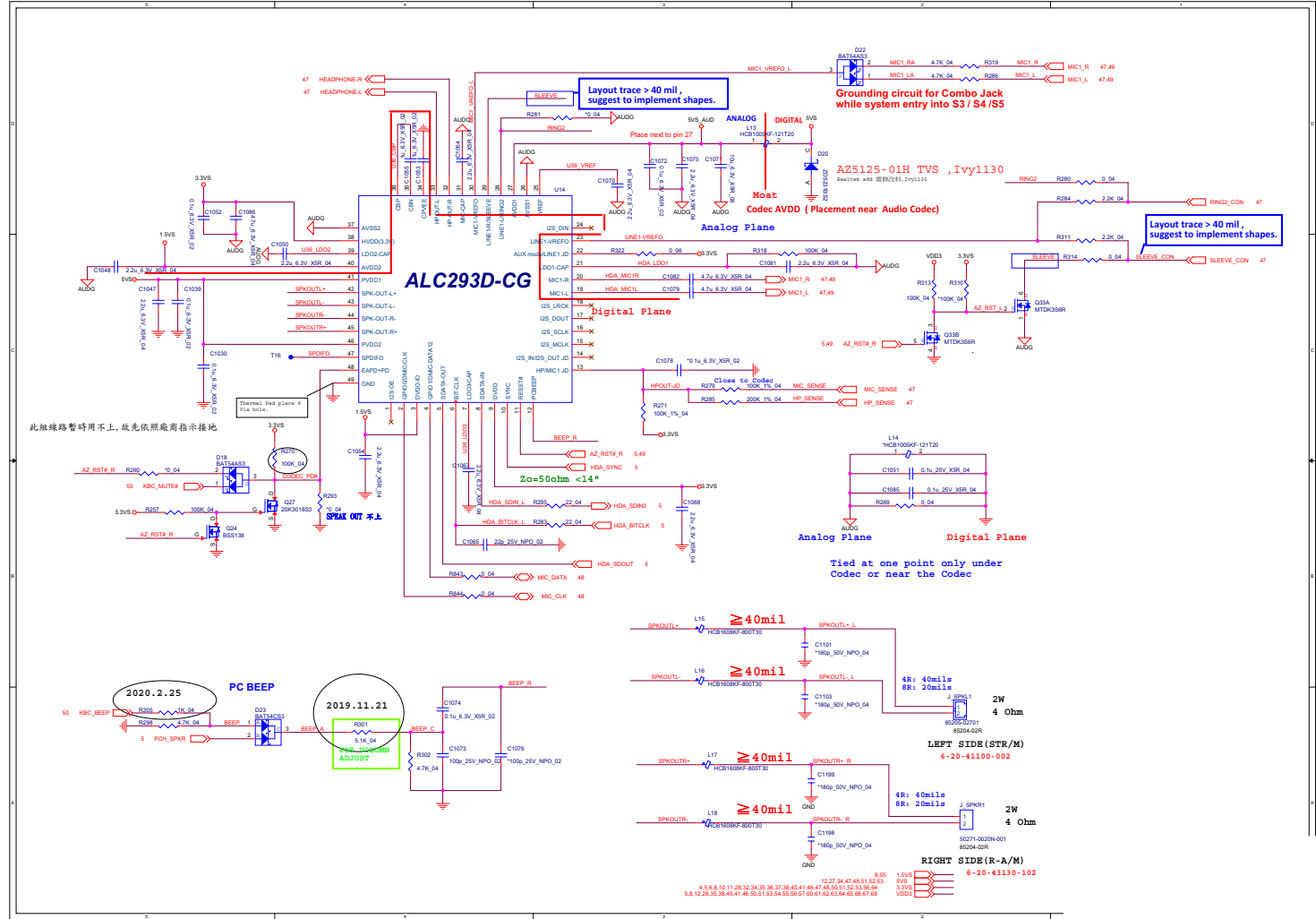


# LED, CCD, TPM, Power SW Con.



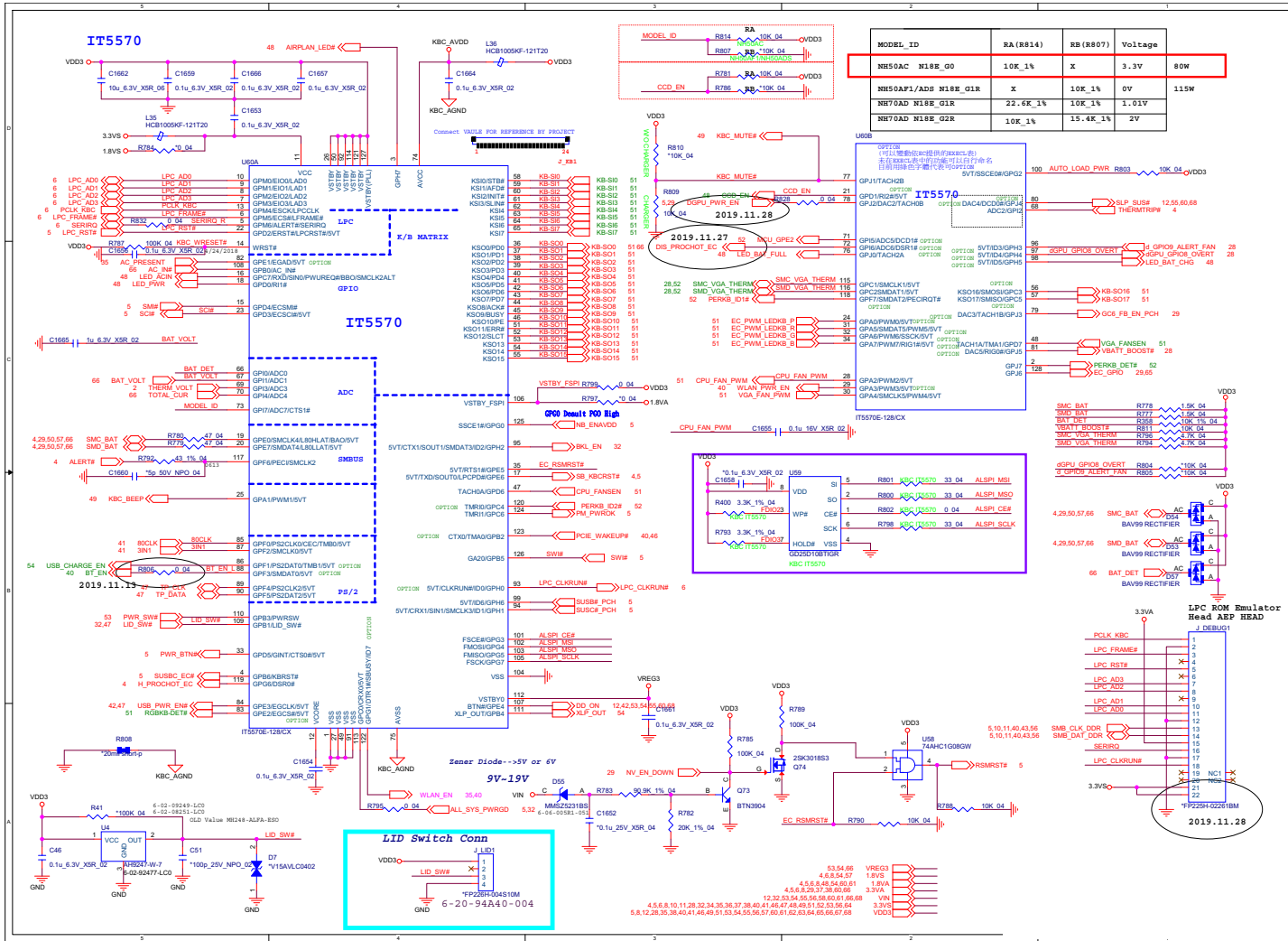
Sheet 48 of 73  
LED, CCD, TPM,  
Power SW Con.

# Audio Codec





# KBC-ITE IT5570

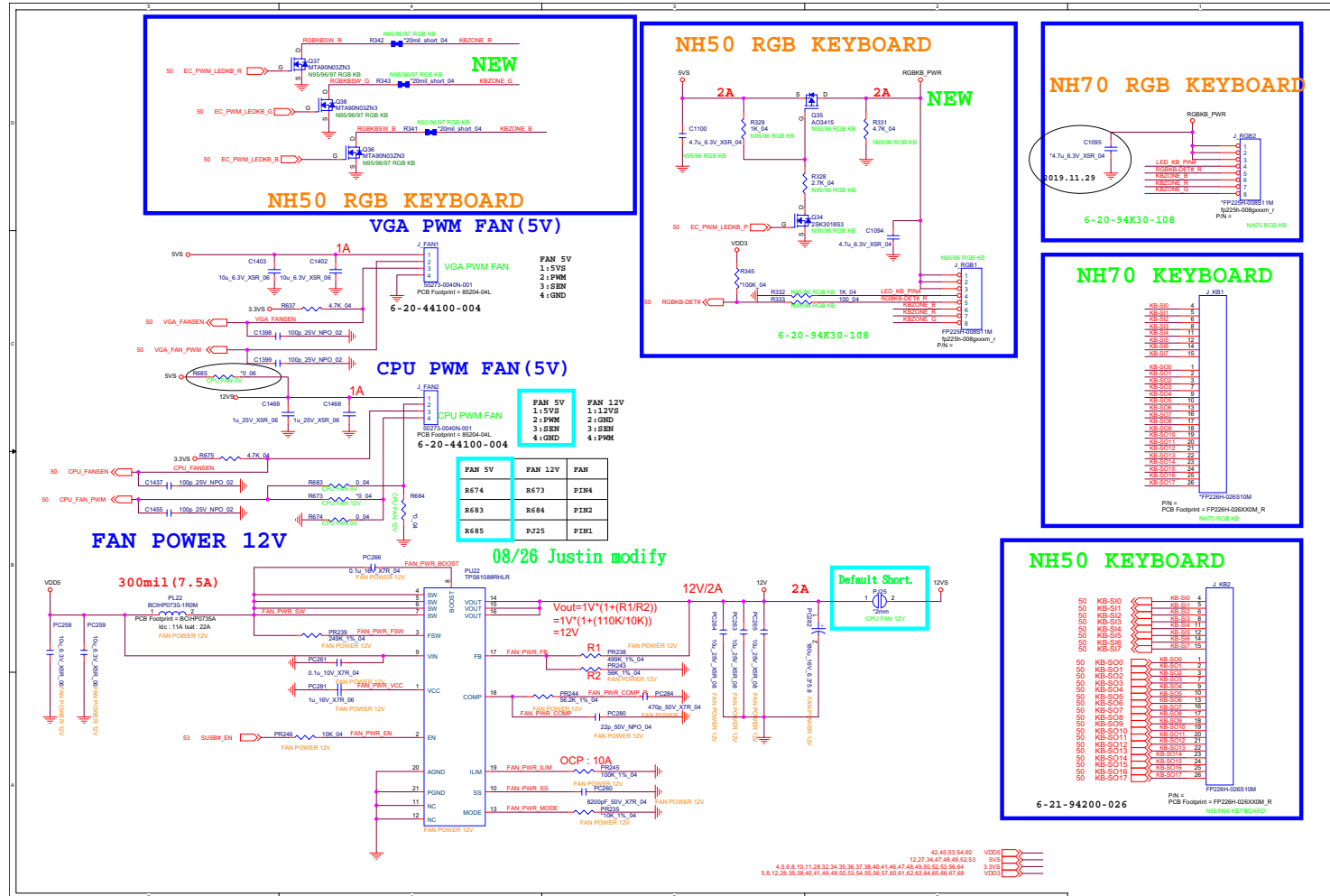


Sheet 50 of 73  
KBC-ITE IT5570

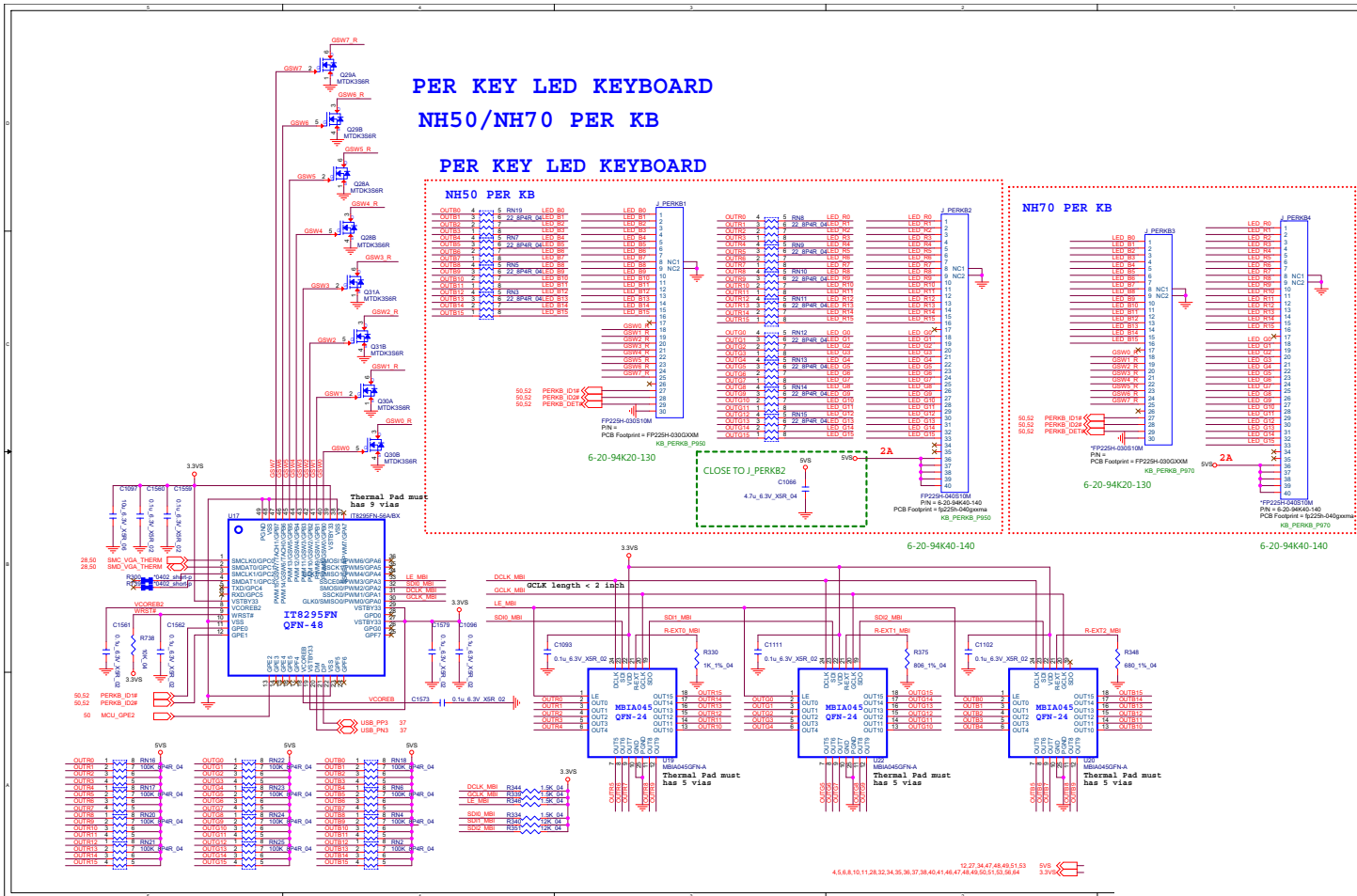
B.Schematic Diagrams

# RGB KB, Fan

Sheet 51 of 73  
RGB KB, Fan



# PER KEY LED KB



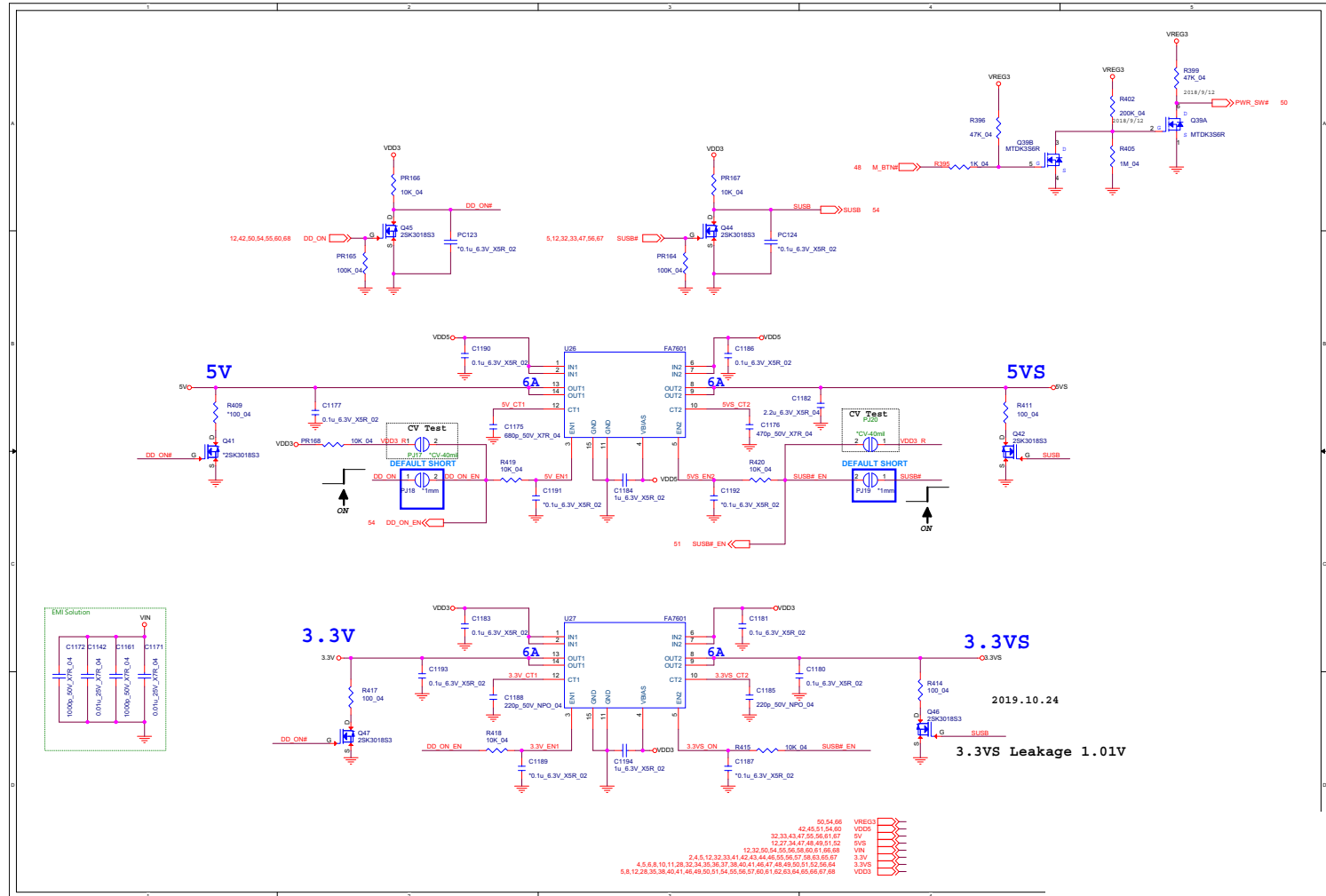
Sheet 52 of 73  
PER KEY LED KB

B.Schematic Diagrams

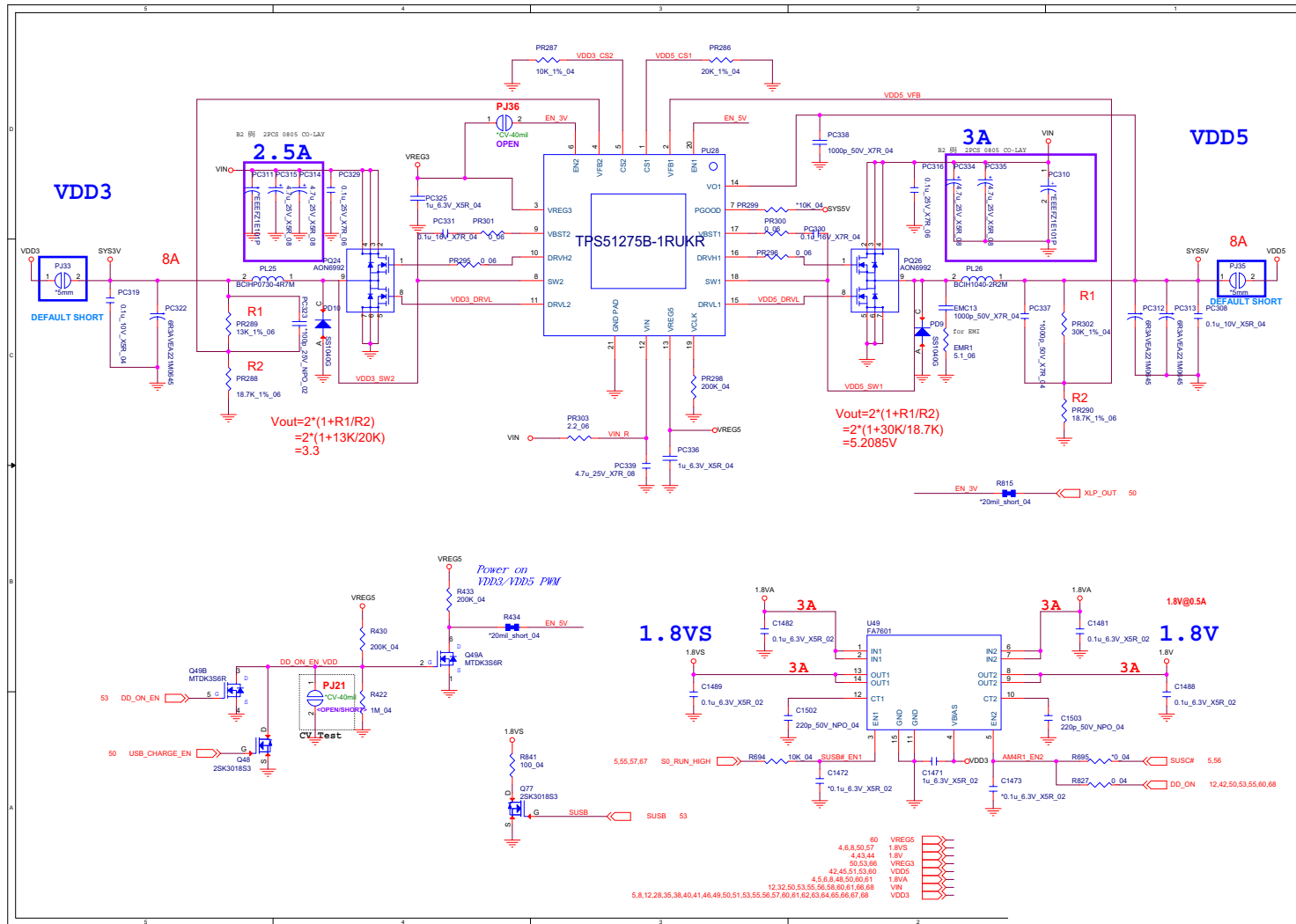
# Schematic Diagrams

## 5V, 5VS, 3.3V, 3.3VS

Sheet 53 of 73  
5V, 5VS, 3.3V,  
3.3VS



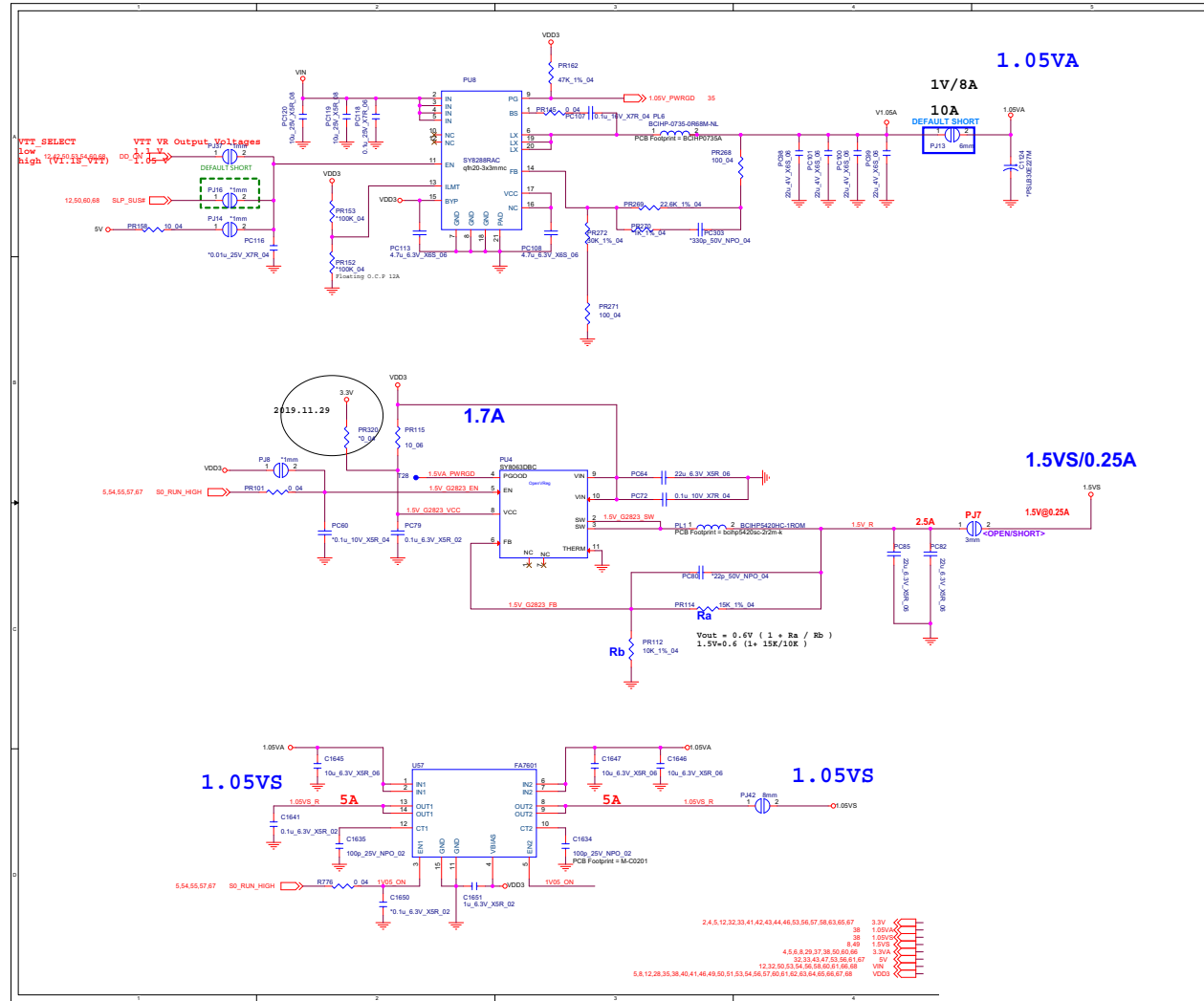
# VDD3, VDD5



Sheet 54 of 73  
VDD3, VDD5

# Schematic Diagrams

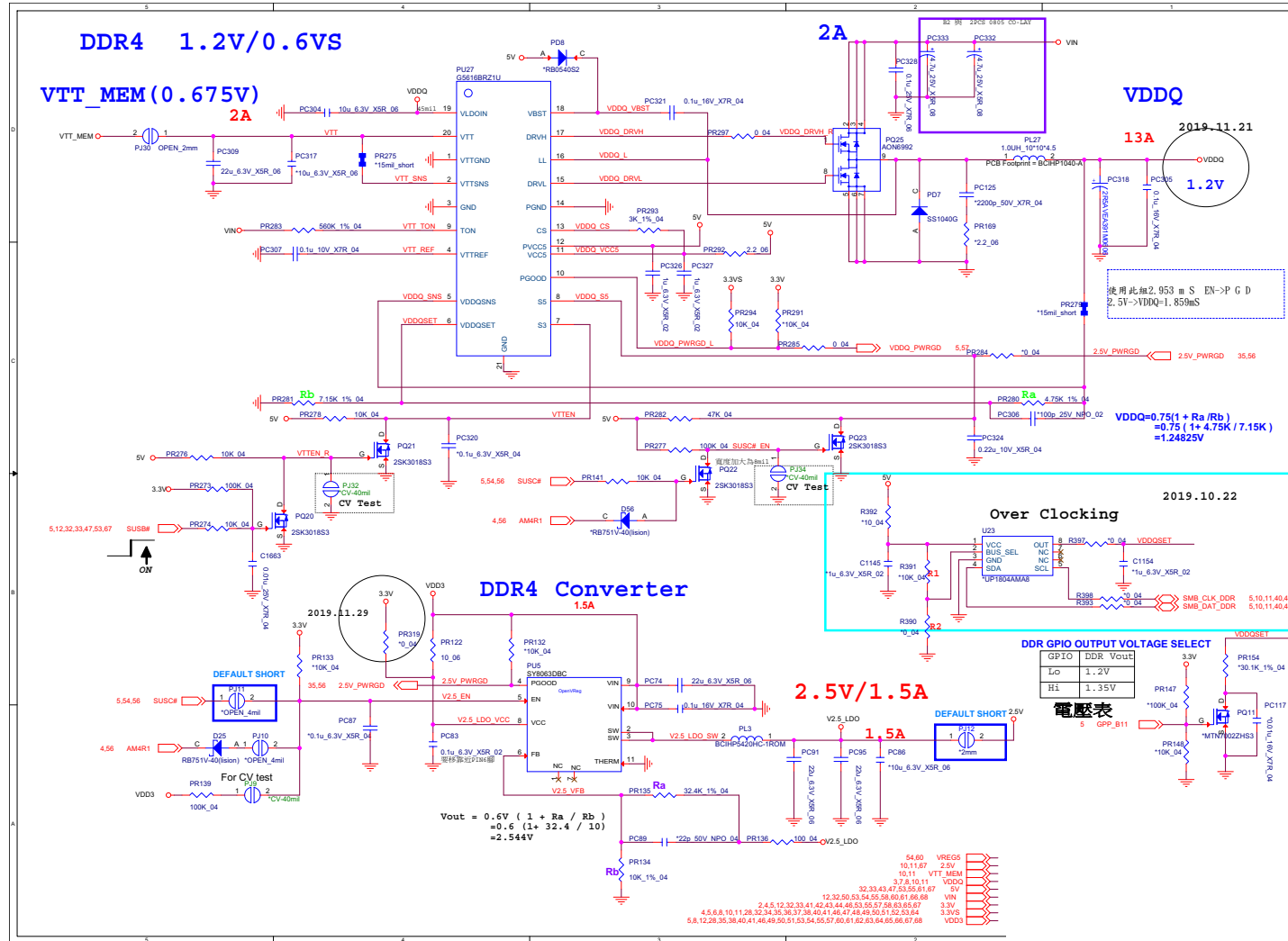
## 1.05VA, 1.05VS, 1.5VA



B.Schematic Diagrams

Sheet 55 of 73  
1.05VA, 1.05VS,  
1.5VA

# VDDQ, VTT\_MEM, 2.5V



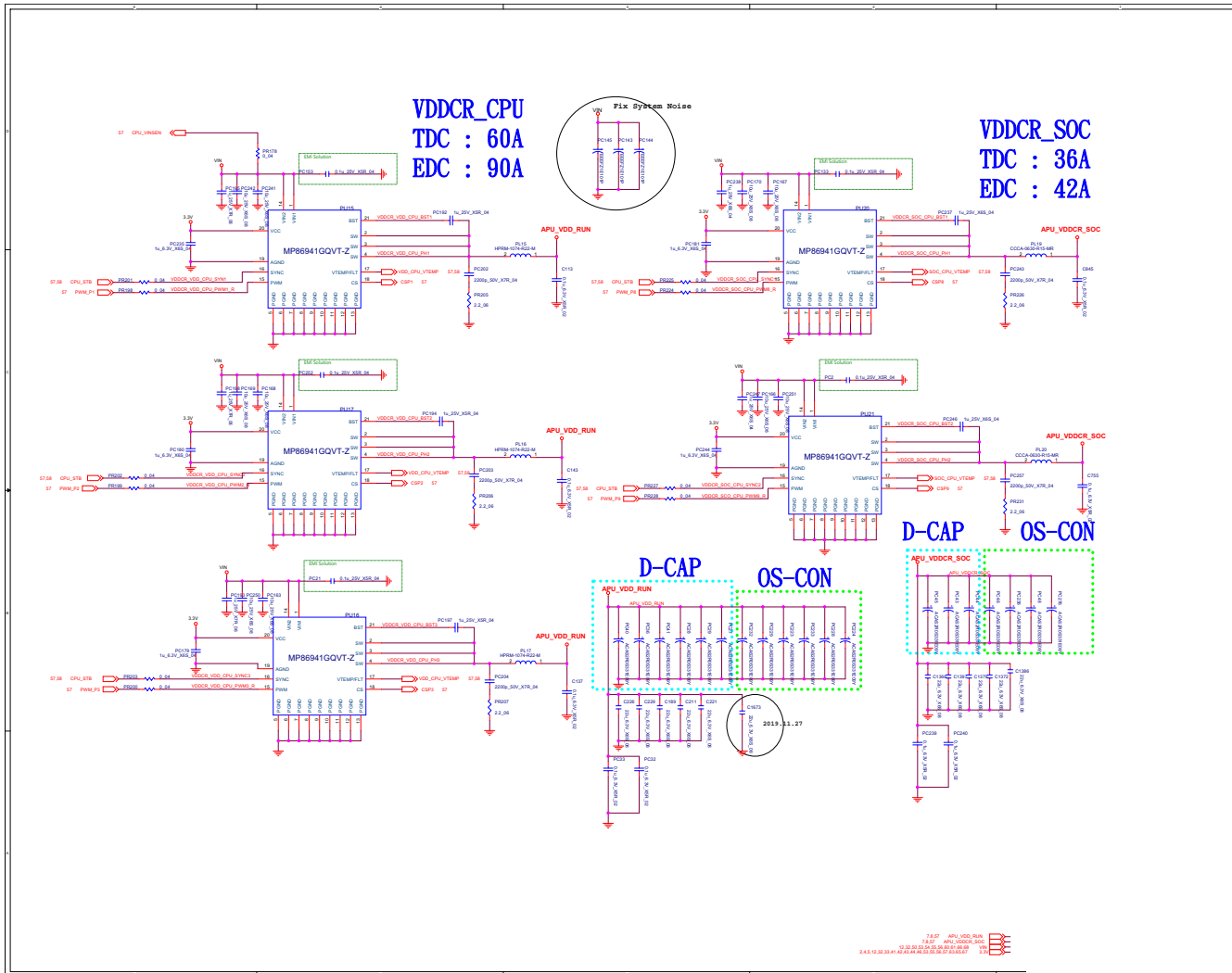
B.Schematic Diagrams

Sheet 56 of 73  
 VDDQ, VTT\_MEM,  
 2.5V





# VDD\_RUN, VDDCR\_SOC

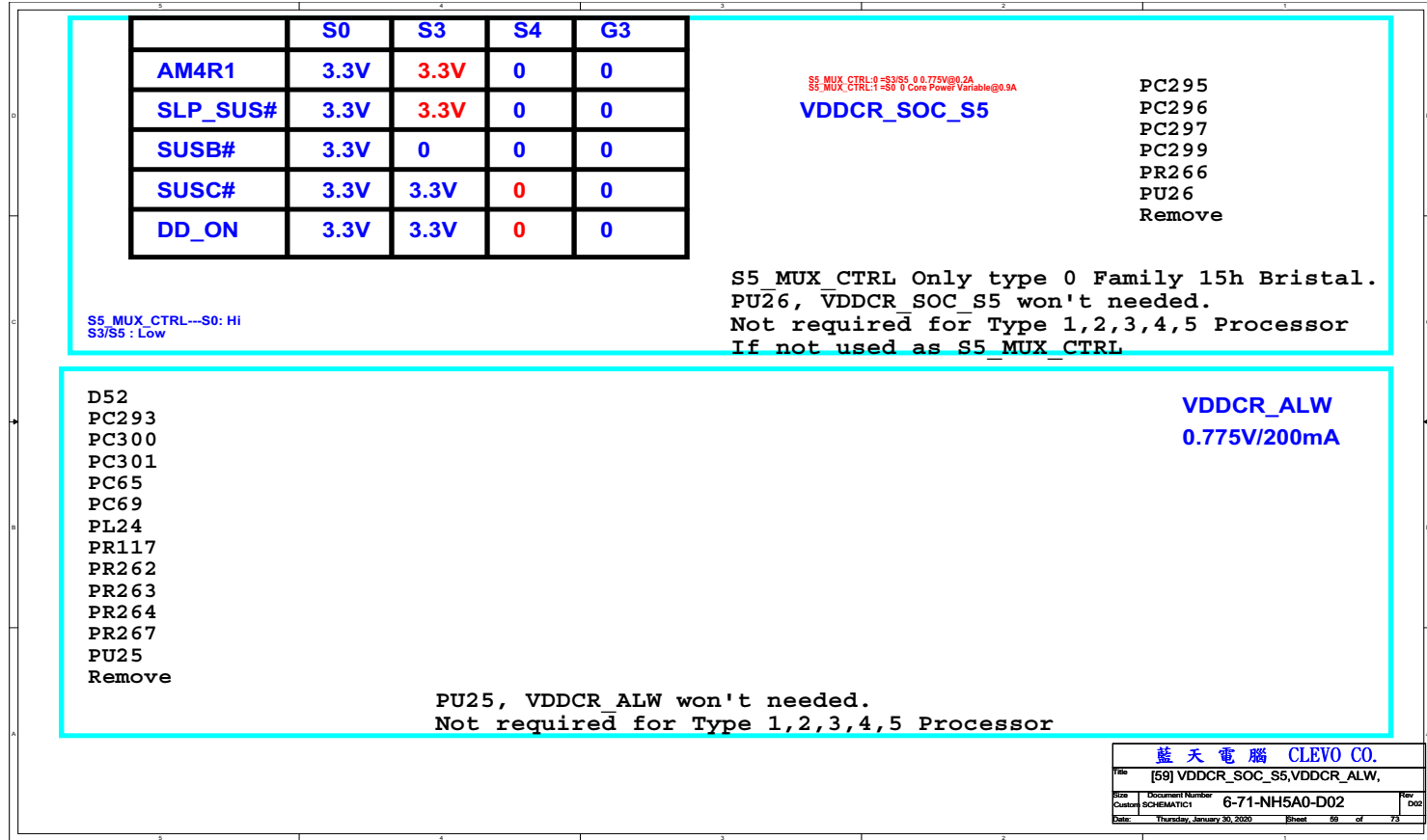


Sheet 58 of 73  
VDD\_RUN,  
VDDCR\_SOC

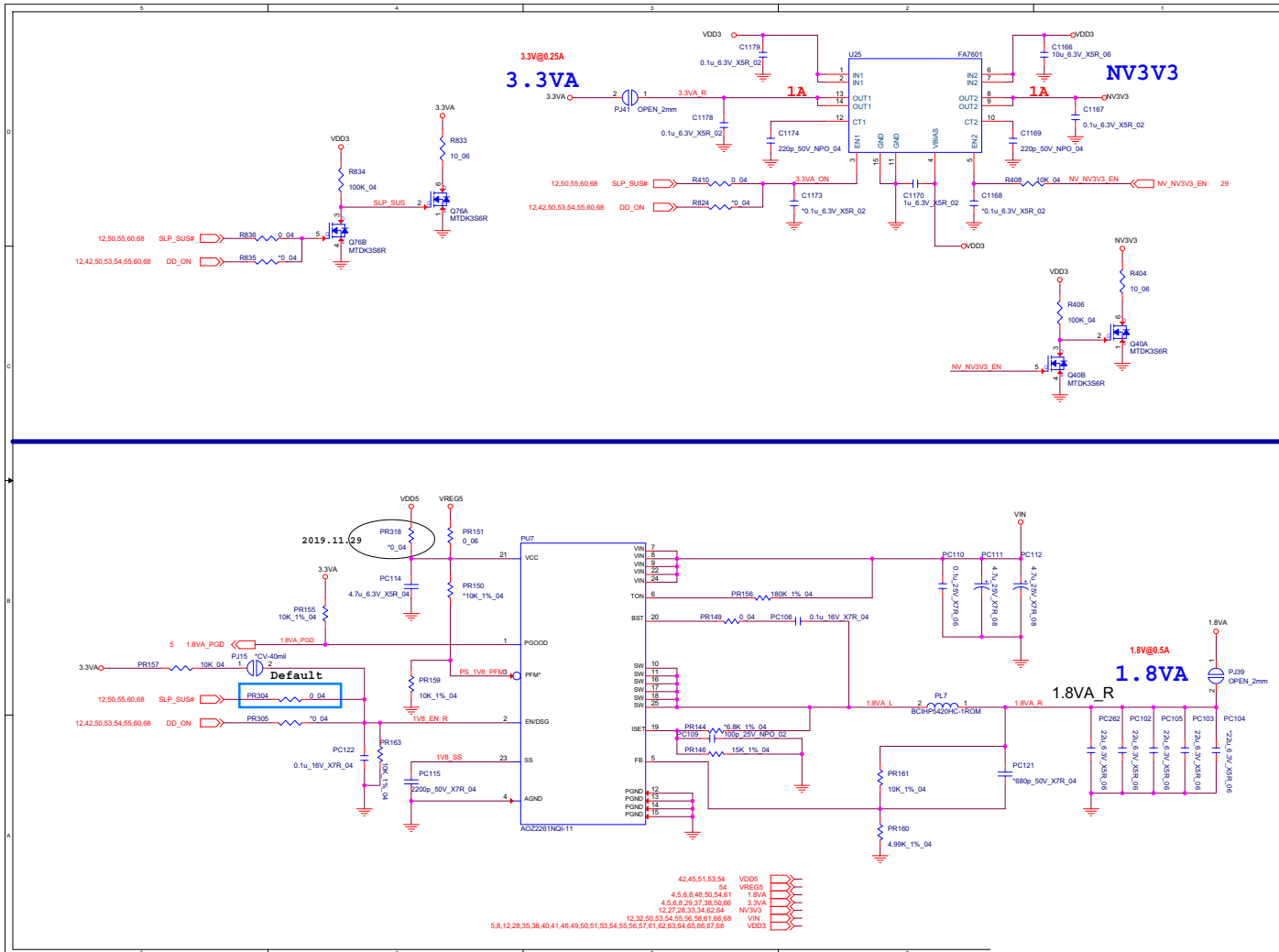
B.Schematic Diagrams

# VDDCR\_SOC\_S5, VDDCR\_ALW

Sheet 59 of 73  
VDDCR\_SOC\_S5,  
VDDCR\_ALW



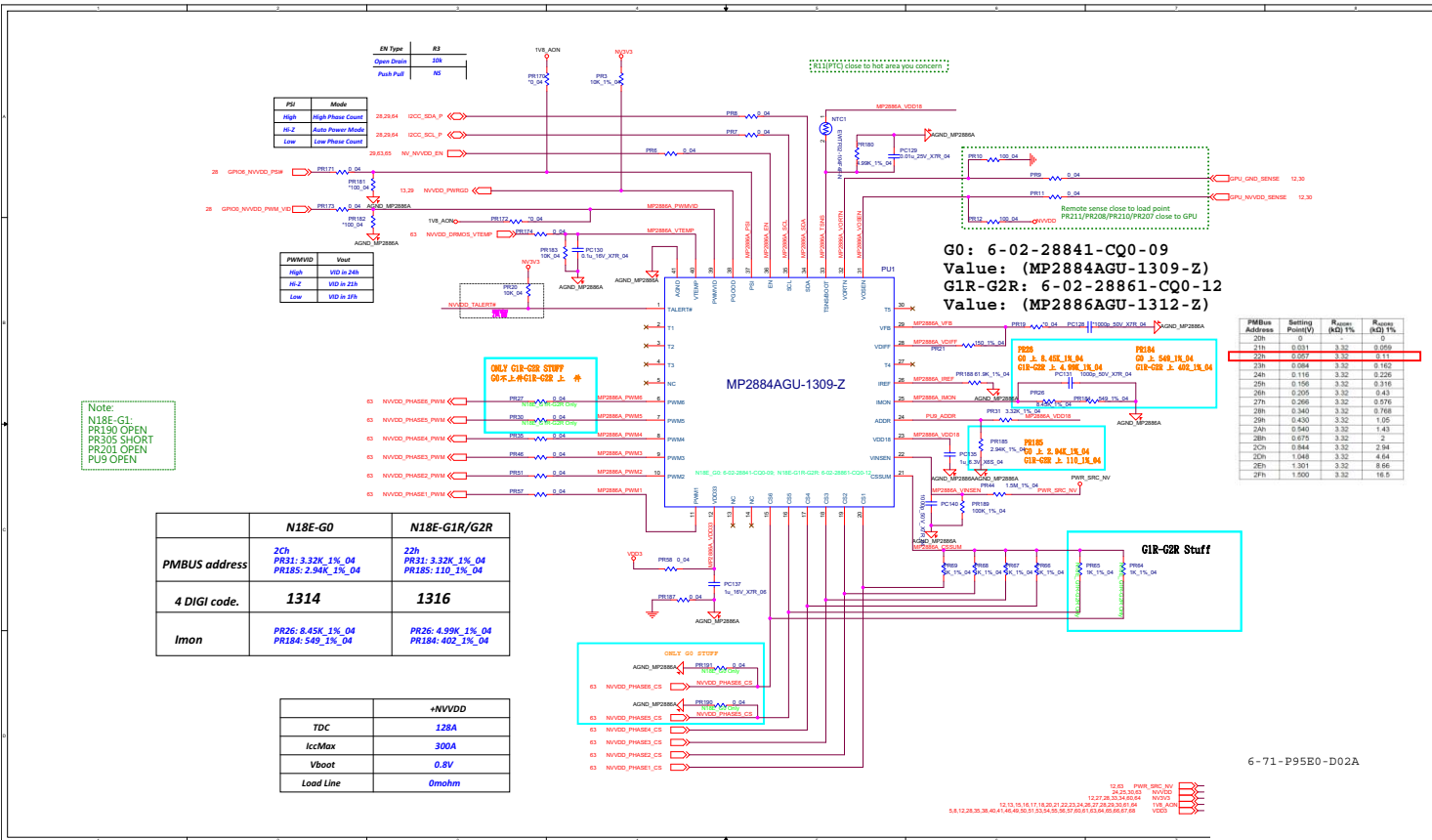
# 1.8VA, NV3V3, 3.3VA



Sheet 60 of 73  
1.8VA, NV3V3,  
3.3VA



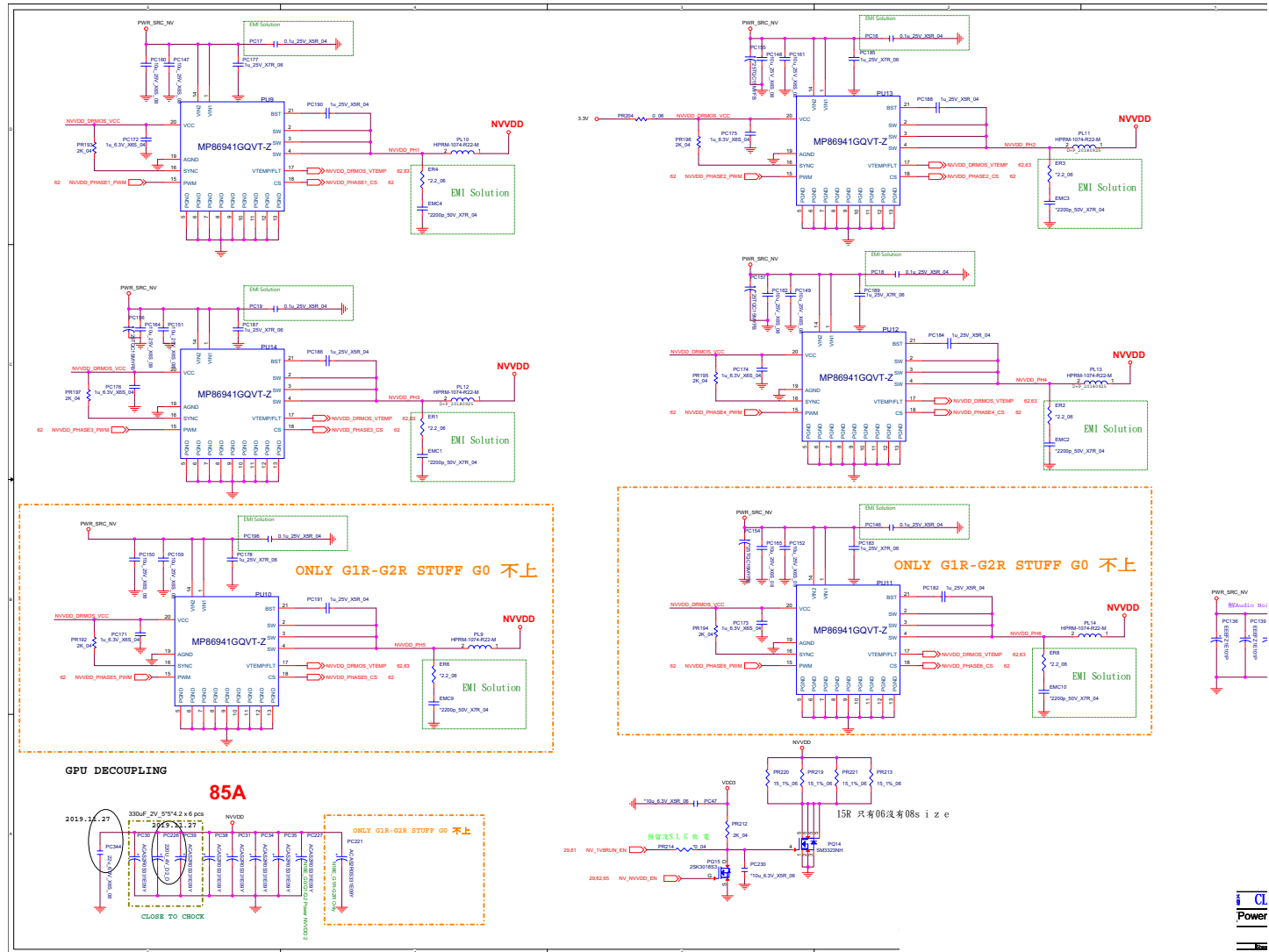
# NVVDD1



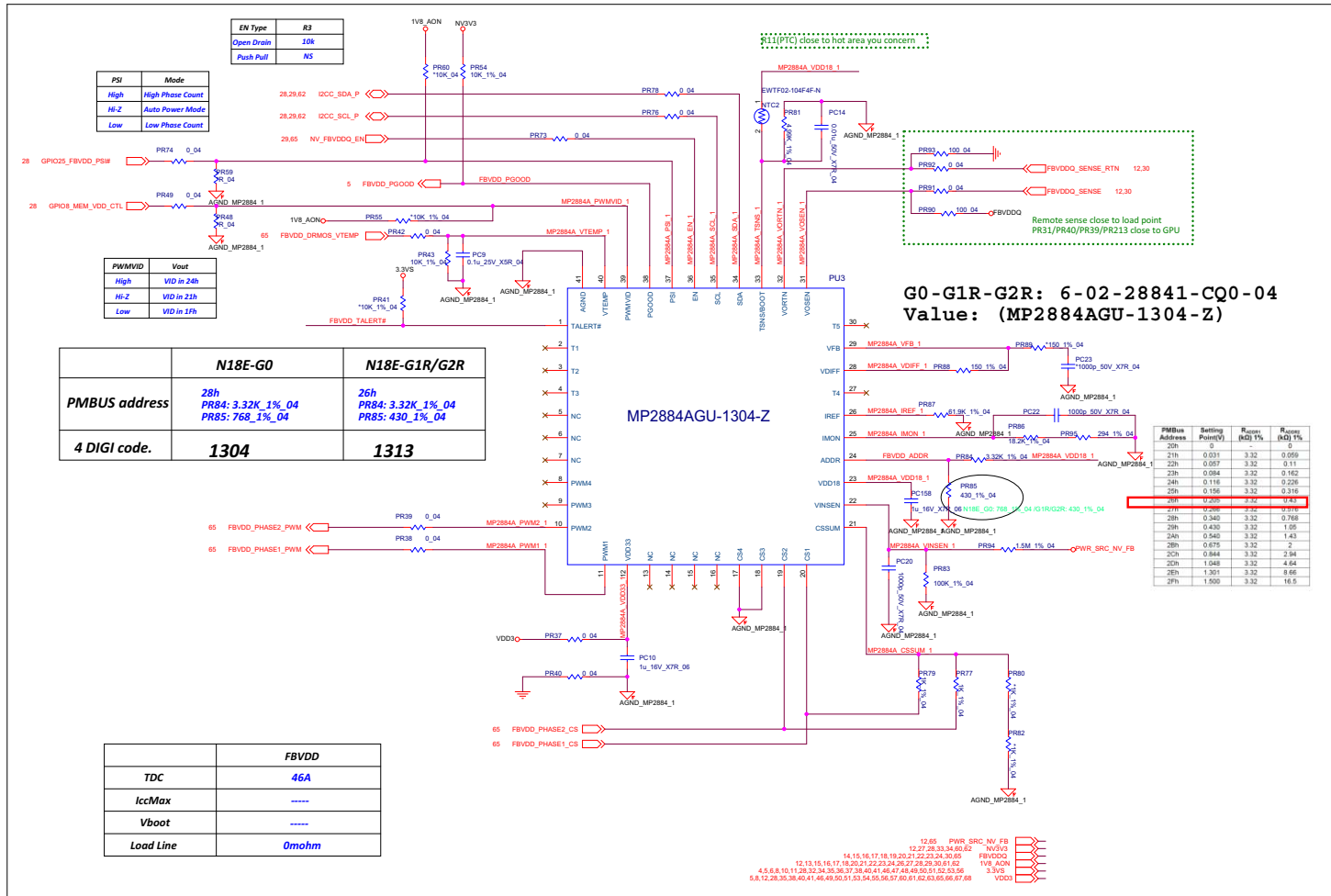
Sheet 62 of 73  
NVVDD1

# NVDD2

Sheet 63 of 73  
NVDD2



# FBVDD



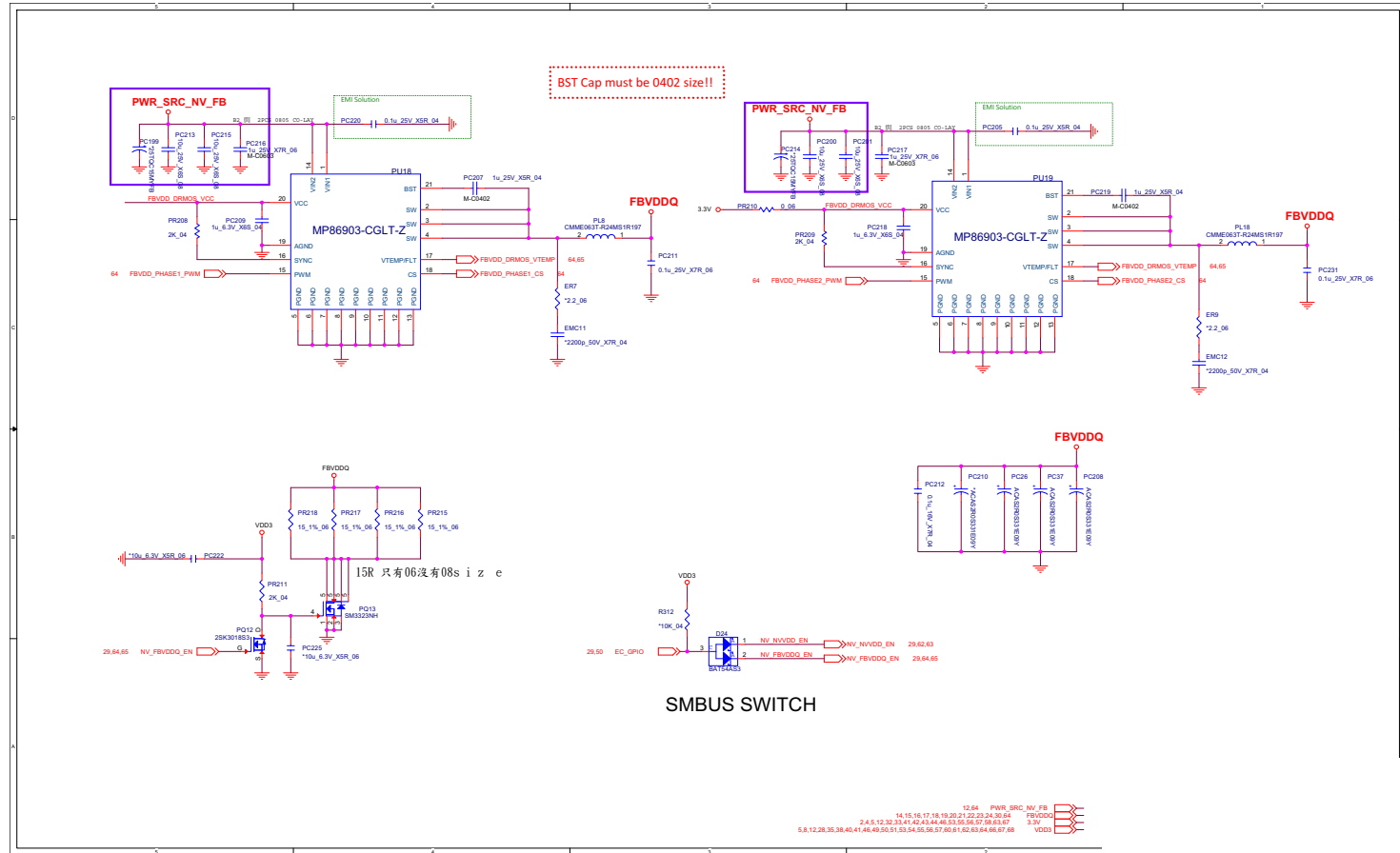
Sheet 64 of 73  
FBVDD

B.Schematic Diagrams

# Schematic Diagrams

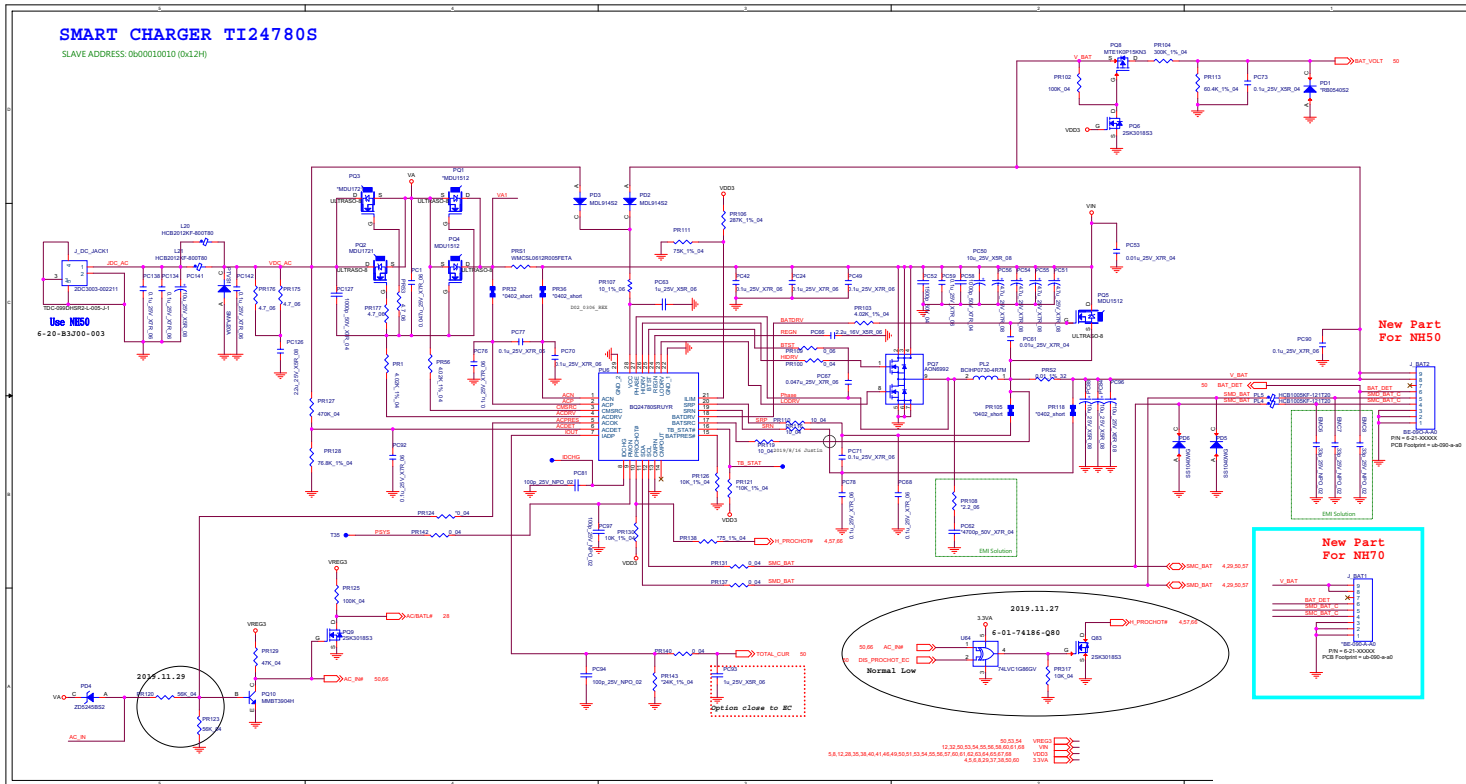
## FBVDD

Sheet 65 of 73  
FBVDD





# AC\_In, Charger



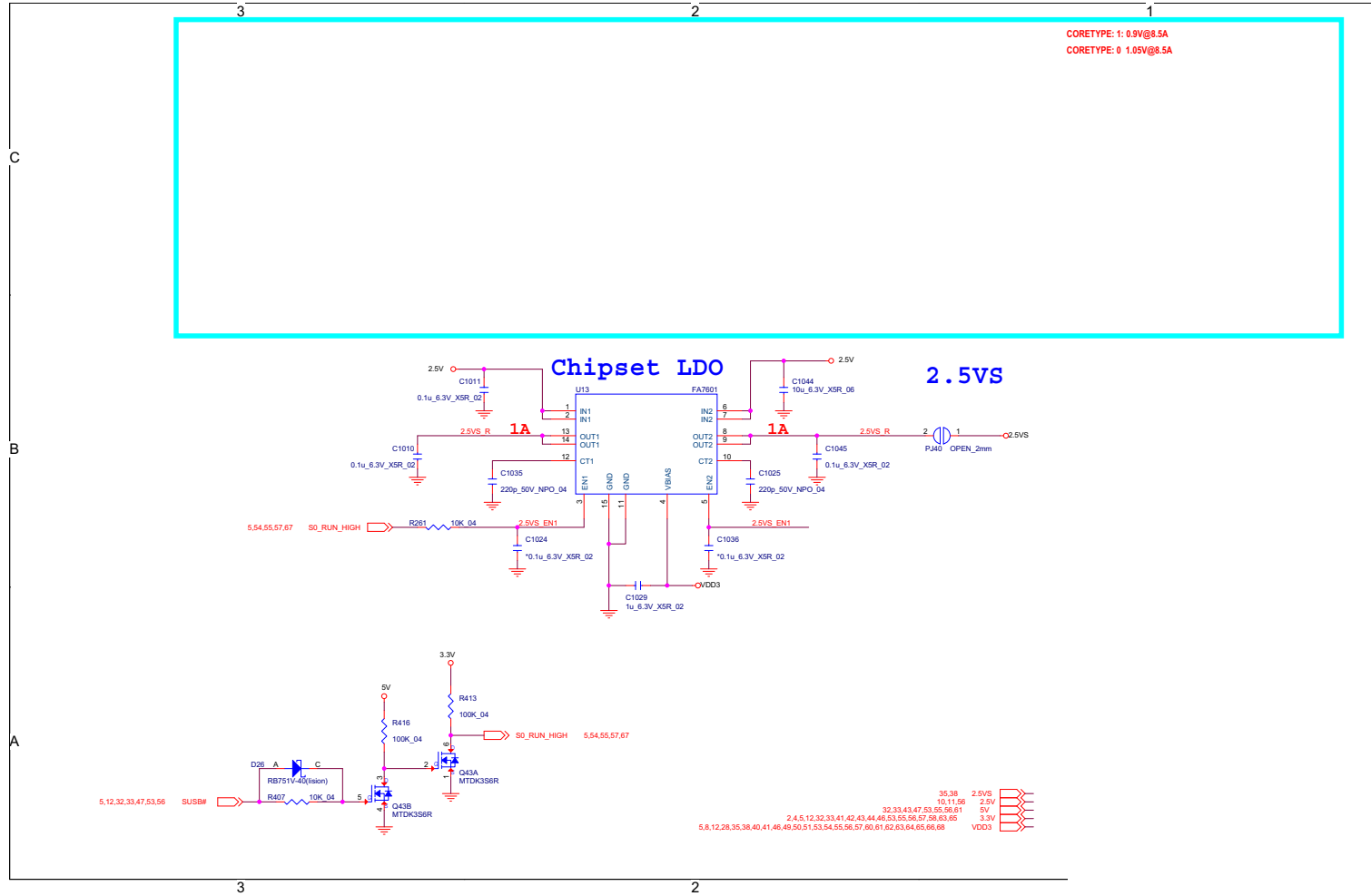
Sheet 66 of 73  
AC\_In, Charger

Schematic Diagrams

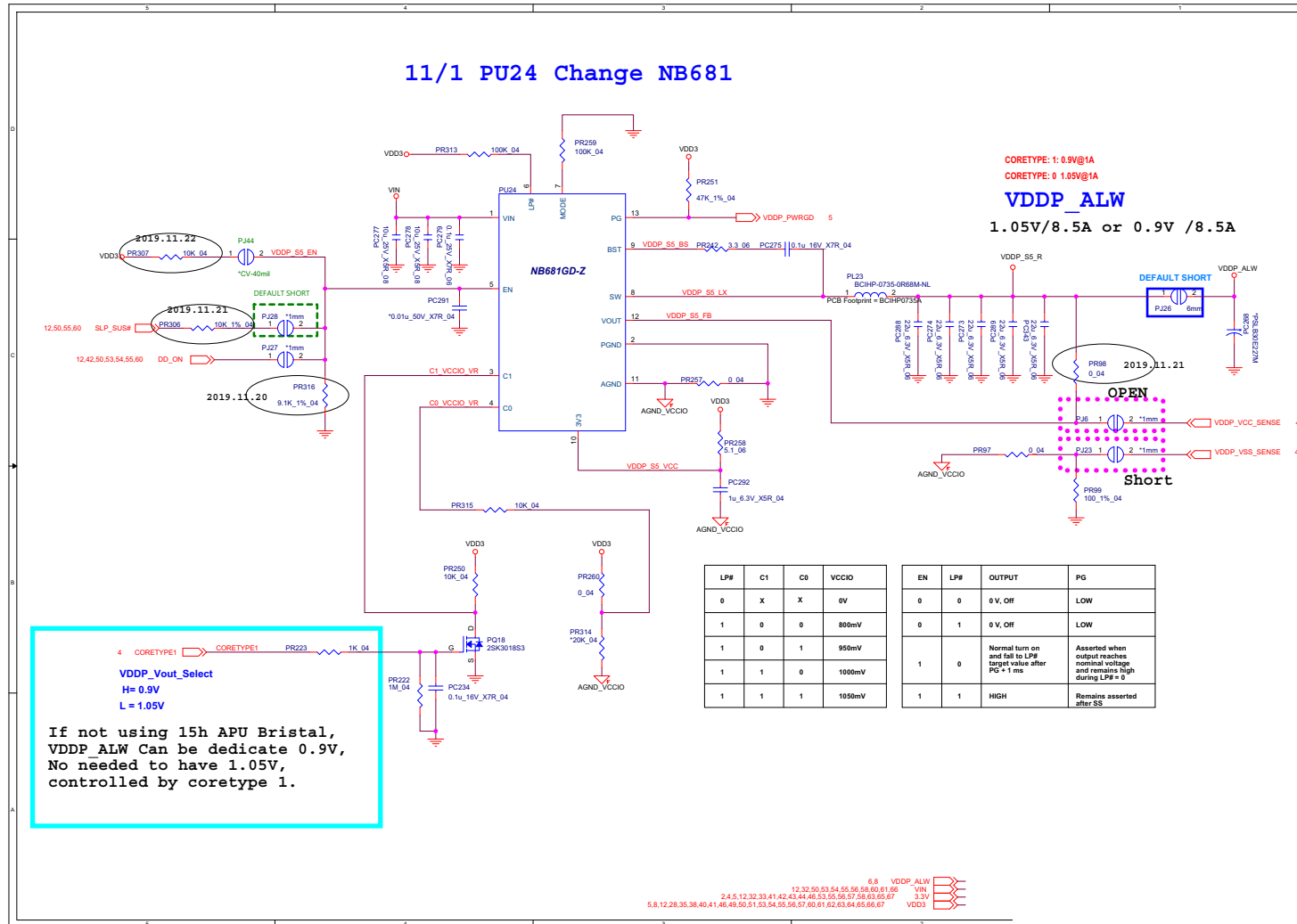
2.5VS, VDDP\_RUN

B.Schematic Diagrams

Sheet 67 of 73  
2.5VS, VDDP\_RUN

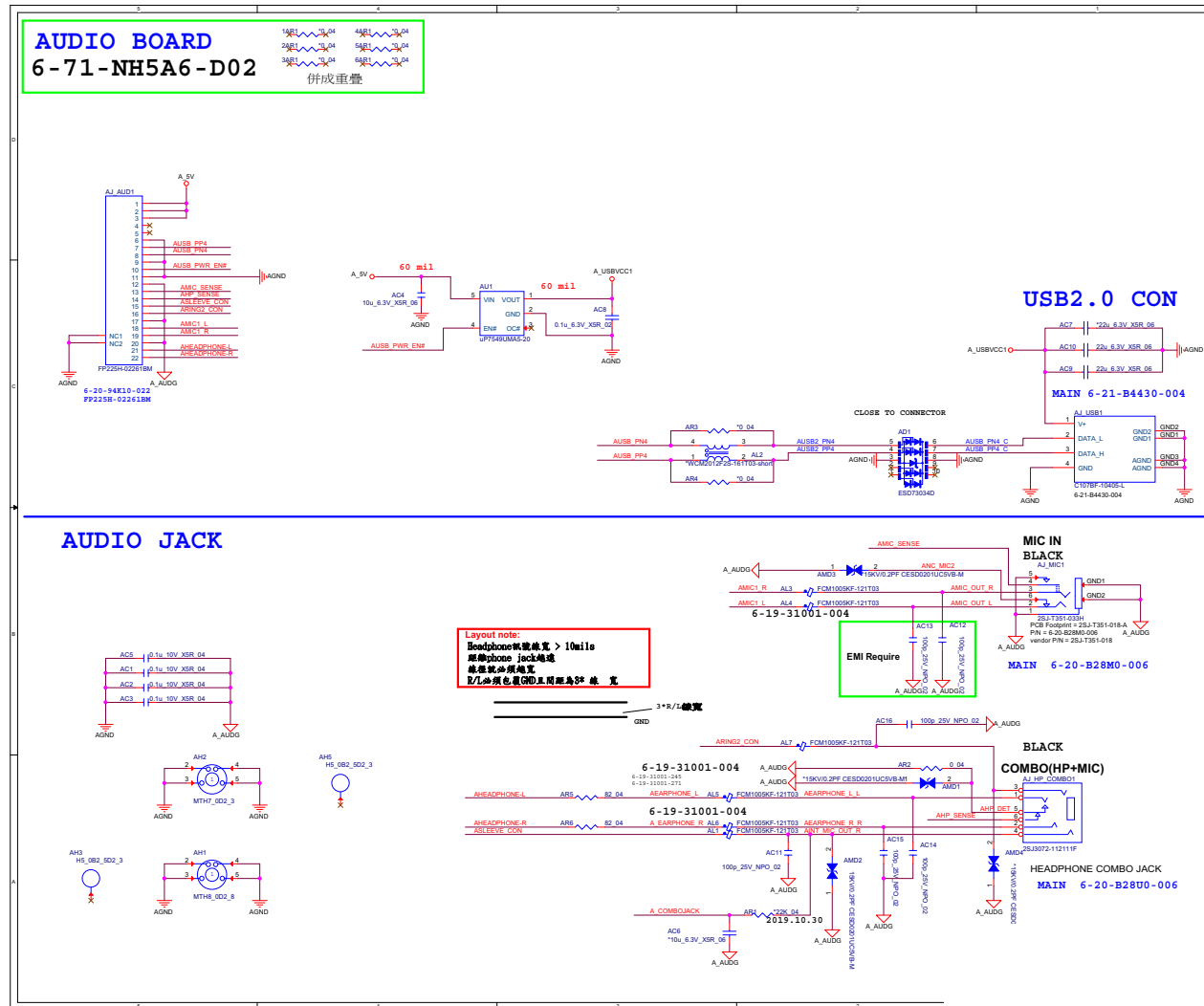


# VDDP\_ALW

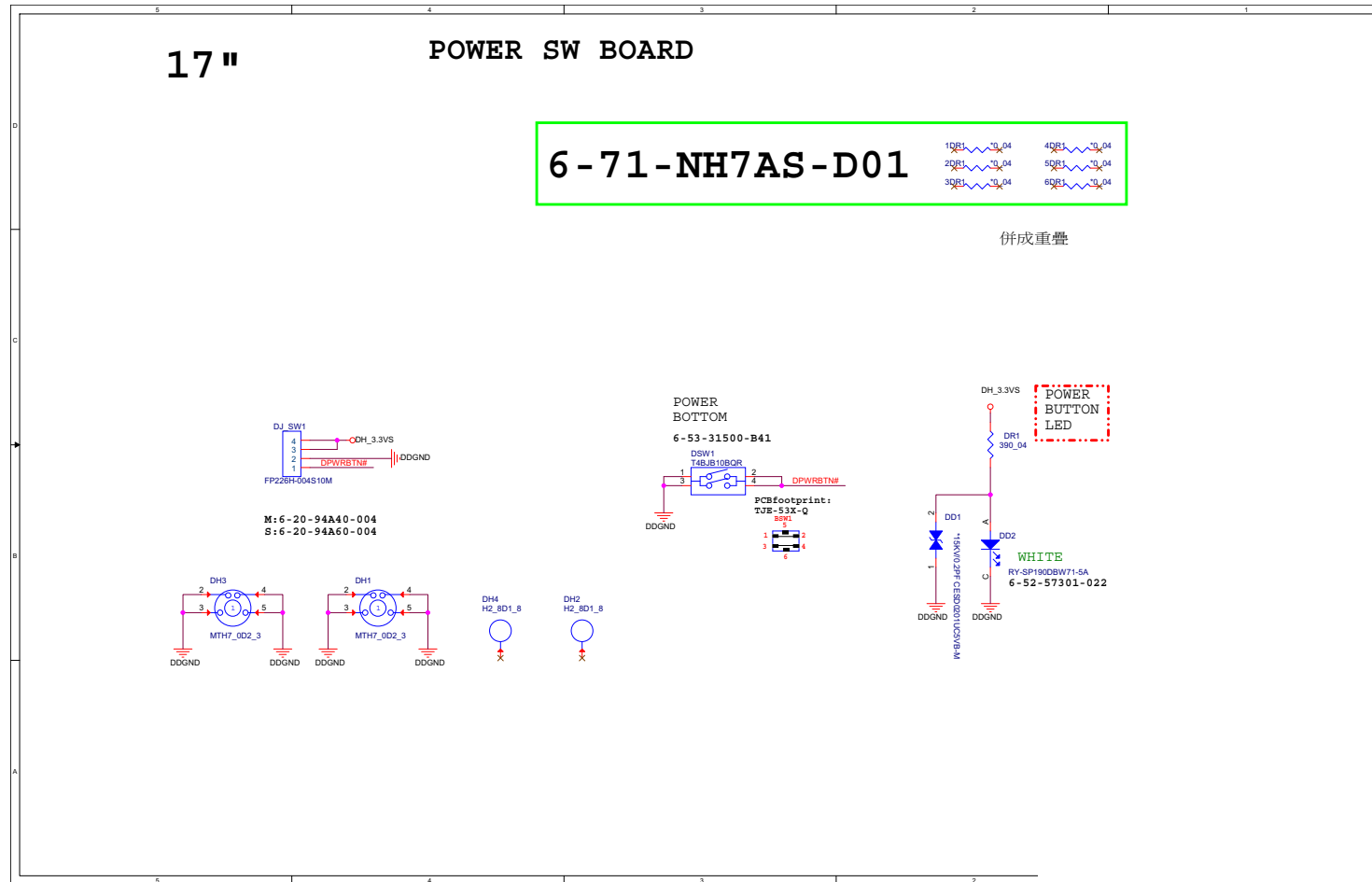


# Audio Board

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Audio Board



# PW Board

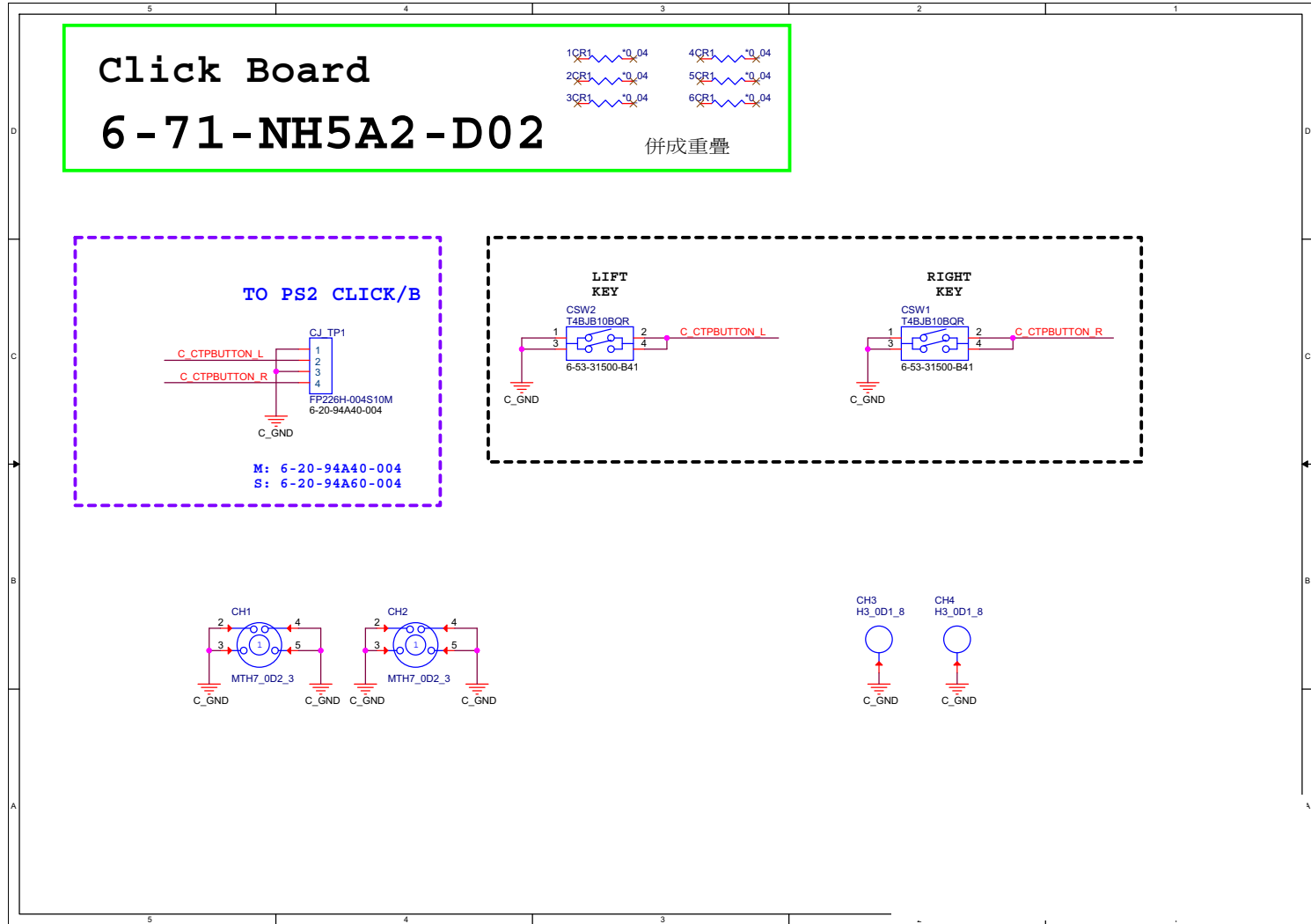


Sheet 70 of 73  
PW Board

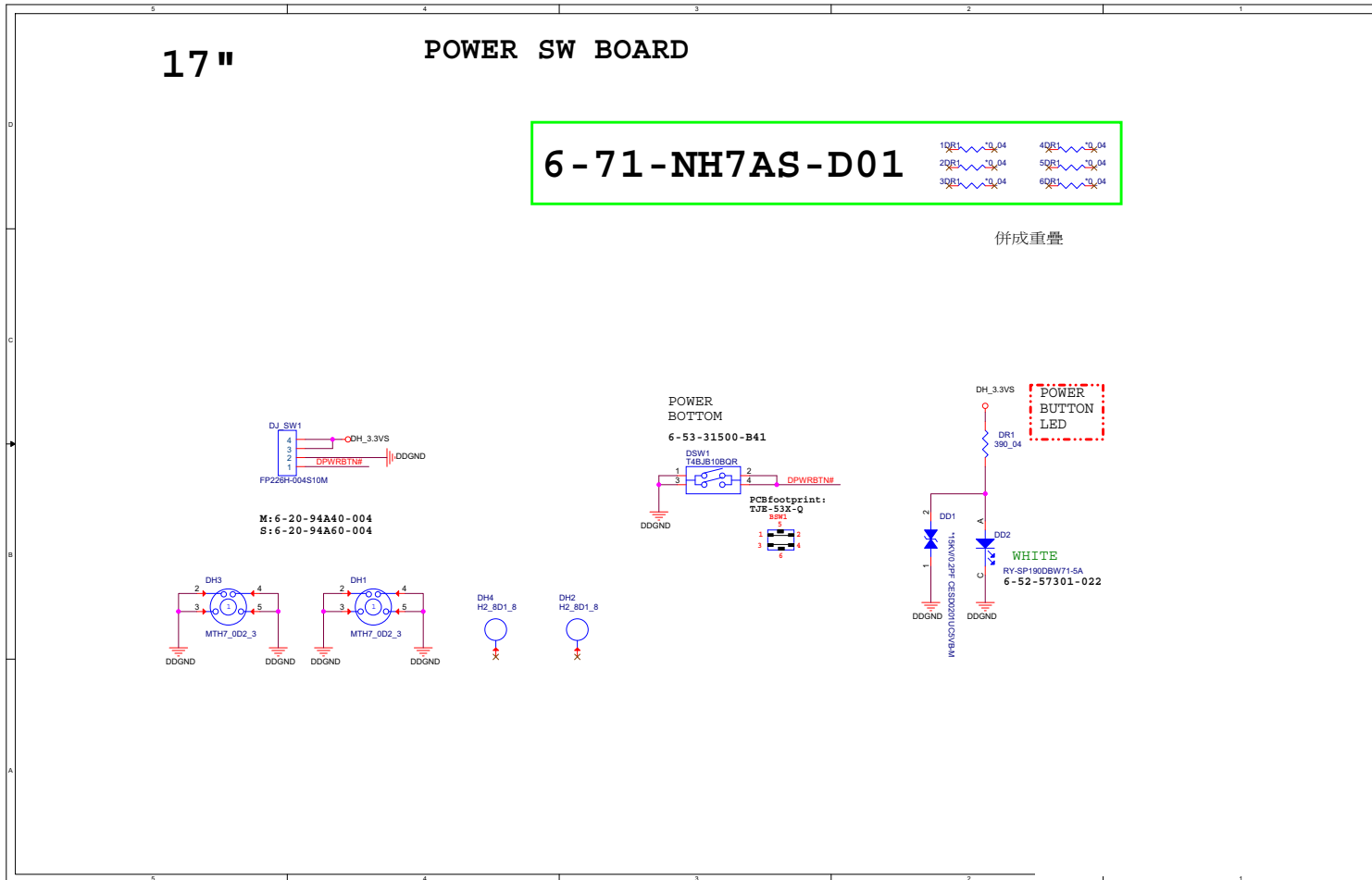
B.Schematic Diagrams

# Click Board

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Click Board



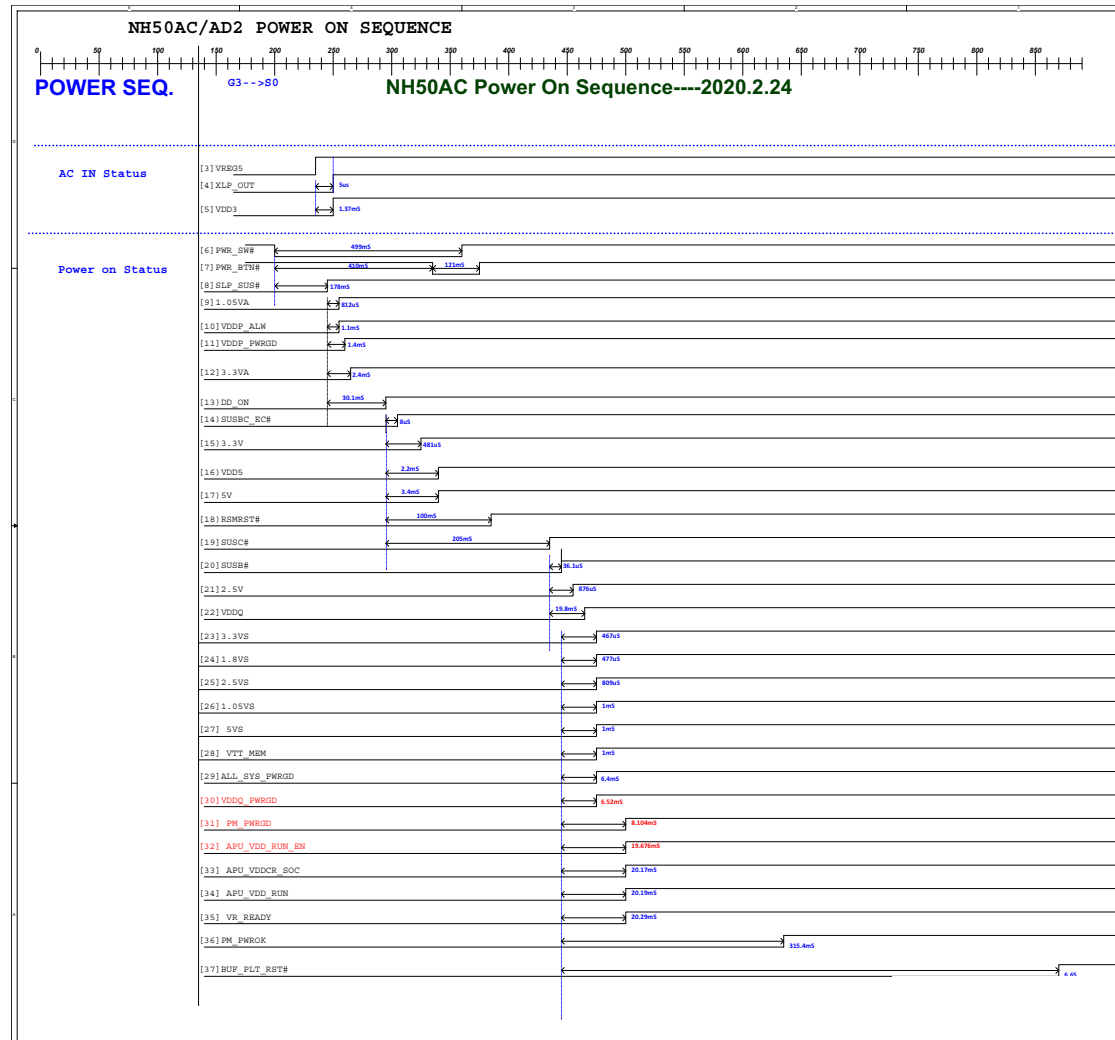
PW Board



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PW Board

B.Schematic Diagrams

# Power Sequence



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Power Sequence