

SERVICE MANUAL

P955ER

notebook



Notebook Computer

P955ER

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 **P955ER** series notebook PC.

The following information is included:

Chapter 1, Introduction, provides general information about the location of system elements and their specifications.
Chapter 2, Disassembly, provides step-by-step instructions for disassembling parts and subsystems and how to upgrade elements of the system.

Appendix A, Part Lists

Appendix B, Schematic Diagrams

Appendix C, Updating the FLASH ROM BIOS

Preface

IMPORTANT SAFETY INSTRUCTIONS

Follow basic safety precautions, including those listed below, to reduce the risk of fire, electric shock and injury to persons when using any electrical equipment:

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit as follows:
 - AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19V, 7.89A (**150 Watts**) minimum AC/DC Adapter.

FCC Statement

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

This device may not cause harmful interference.

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

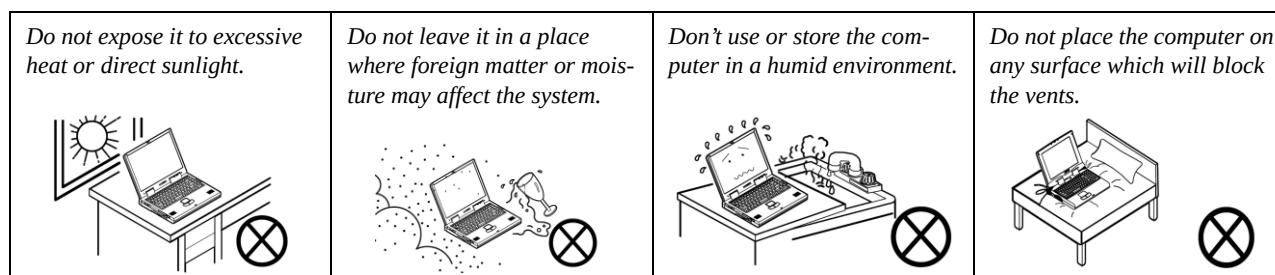
Instructions for Care and Operation

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

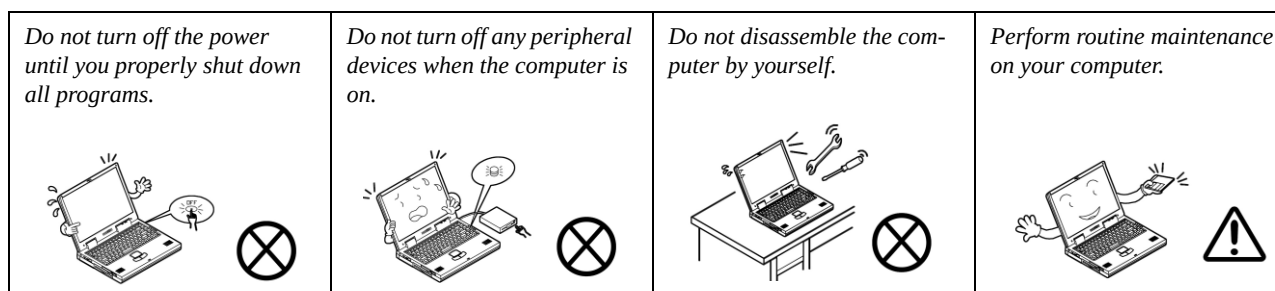
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



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

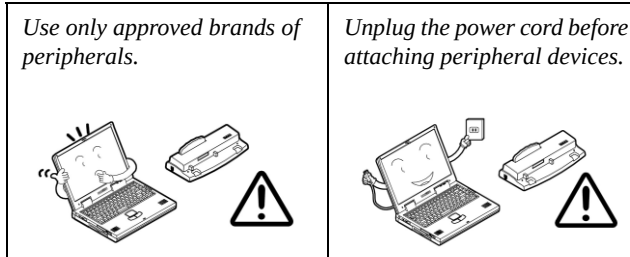


3. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.



Preface

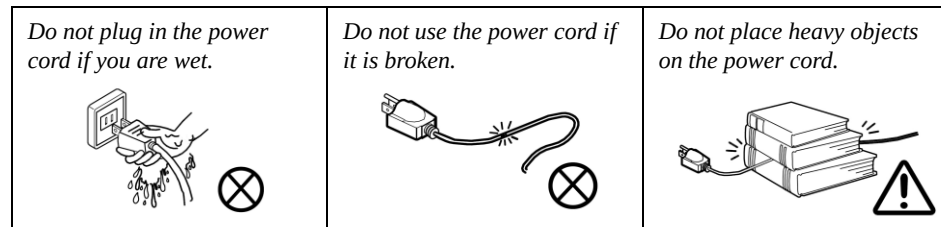
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



Power Safety

The computer has specific power requirements:

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



Power Safety Warning

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

Battery Precautions

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

Battery Guidelines

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

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



Battery Disposal

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

Caution

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

Battery Level

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

Preface

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 left of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter and **leave it there for 6 seconds or longer**.
 - Remove the adapter cord from the computer's DC-In jack, and then plug it back in again; the battery will now be unlocked.
6. Use one hand to raise the lid/LCD to a comfortable viewing angle (do not exceed 130 degrees); use the other hand (as illustrated in Figure 1) to support the base of the computer (**Note: Never** lift the computer by the lid/LCD).
7. Press the power button to turn the computer "on".

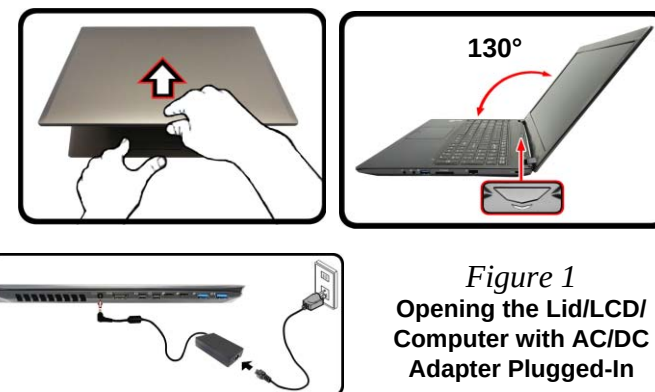


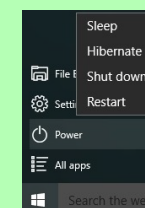
Figure 1
**Opening the Lid/LCD/
Computer with AC/DC
Adapter Plugged-In**



Shut Down

Note that you should always shut your computer down by choosing the **Shut down** command in **Windows** (see below). This will help prevent hard disk or system problems.

1. Click the Start Menu icon .
2. Click the **Power** item .
3. Choose **Shut Down** from the menu.



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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **P955ER** 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 **P955ER** 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 Speed & Computer in DC Mode

Note that when the computer is in DC mode (powered by the battery only) the CPU may not run at full speed. This is a design feature implemented in order to protect the battery.



SO-DIMM Memory Types

All SO-DIMM memory modules installed in the system should be identical (the same size and brand) in order to prevent unexpected system behavior.

Do not mix SO-DIMM memory module sizes and brands otherwise unexpected system problems may occur.

Processor Options

i7-8750H (2.20GHz)

9MB Smart Cache, 14nm, DDR4-2666MHz, TDP 45W

i5-8300H (2.30GHz)

9MB Smart Cache, 14nm, DDR4-2666MHz, TDP 45W

Core Logic

Intel® HM370 Express Chipset

LCD Options

15.6" (39.62cm), 16:9, UHD (3840x2160)/FHD (1920x1080)

BIOS

AMI BIOS (128Mb SPI Flash-ROM)

Memory

Two 260 Pin SO-DIMM Sockets Supporting **DDR4 2400MHz/DDR4 2666MHz** Memory

Memory Expandable from **8GB (minimum)** up to **32GB (maximum)**

Security

Security (Kensington® Type) Lock Slot

BIOS Password

Intel PTT for Systems Without TPM Hardware

(Factory Option) TPM 2.0

(Factory Option) Fingerprint Reader Module

Video Adapter Options

Microsoft Hybrid Graphics Mode

Supports up to 4 Active Displays

Supports NVIDIA Surround View via HDMI x 1 and MiniDP x2

Intel Integrated GPU

Intel® UHD Graphics 630

Dynamic Frequency

Intel Dynamic Video Memory Technology

Microsoft DirectX®12 Compatible

NVIDIA® Discrete GPU

NVIDIA® GeForce GTX 1070 Max-Q

8GB GDDR5 Video RAM

Microsoft DirectX®12 Compatible

Pointing Device

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

Or

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

Keyboard

Full Color Illuminated Full-size Winkey Keyboard (with numeric keypad)

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)

Audio

High Definition Audio Compliant Interface
S/PDIF Digital Output
Two Speakers
Sound BlasterX® Pro-Gaming 360°
Built-In Array Microphone

Communication

Built-In 10/100/1000Mb Base-TX Ethernet LAN
2.0M FHD PC Camera Module
(**Factory Option**) M.2 3042 **4G** 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

Card Reader

Embedded Multi-In-1 Push-Push 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**
(**Factory Option**) Slot 3 for **4G** Module

Interface

Three USB 3.0 (USB 3.1 Gen 1) Type-A Ports (Including one AC/DC Powered USB Port)
Two USB 3.1 Gen 2 Type-C Ports*
**The maximum amount of current supplied by USB Type-C ports is 500mA (USB 2.0)/900mA (USB 3.1).*
Two Mini DisplayPorts (1.3)
One HDMI-Out Port
One 2-In-1 Audio Jack (Headphone & S/PDIF Optical Output Combo Jack)
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.

Features

Intel® Optane™ Technology
Virtual Reality Ready
Supports Windows® 10 Cortana with Voice
(**Factory Option**) USB Drive

Environmental Spec**Temperature**

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

Relative Humidity

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

Power

Embedded 4-Cell Polymer Battery Pack, 55WH

Full Range AC/DC Adapter
AC Input: 100 - 240V, 50 - 60Hz
DC Output: 19V, 7.89A (**150W**)

Dimensions & Weight

380mm (w) * 255mm (d) * 18.6mm (h)
1.98kg (Barebone with 60WH 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. Speakers
6. Power Button
7. Keyboard
8. Touchpad & Buttons
9. Fingerprint Reader (Optional)

External Locator - Top View with LCD Panel Open



External Locator - Front & Right Side Views

Figure 2
Front View

1. LED Indicator

FRONT VIEW



Figure 3
Right Side View

1. Microphone-In Jack
2. Headphone & S/PDIF Combo Jack
3. USB 3.0 (USB 3.1 Gen 1) Port
4. Multi-in-1 Card Reader
5. USIM Card Reader (for 3G/4G USIM Cards)
6. RJ-45 LAN Jack

RIGHT SIDE VIEW



Introduction

External Locator - Left Side & Rear View

Figure 4
Left Side View

1. Security Lock Slot
2. Vent
3. DC-In Jack
4. HDMI-Out Port
5. Mini DisplayPorts
6. USB 3.1 Gen 2 Type-C Ports
7. USB 3.0 (USB 3.1 Gen 1) Ports
8. Powered USB 3.0 Port

LEFT SIDE VIEW



Figure 5
Rear View

1. Vent

REAR VIEW



External Locator - Bottom View

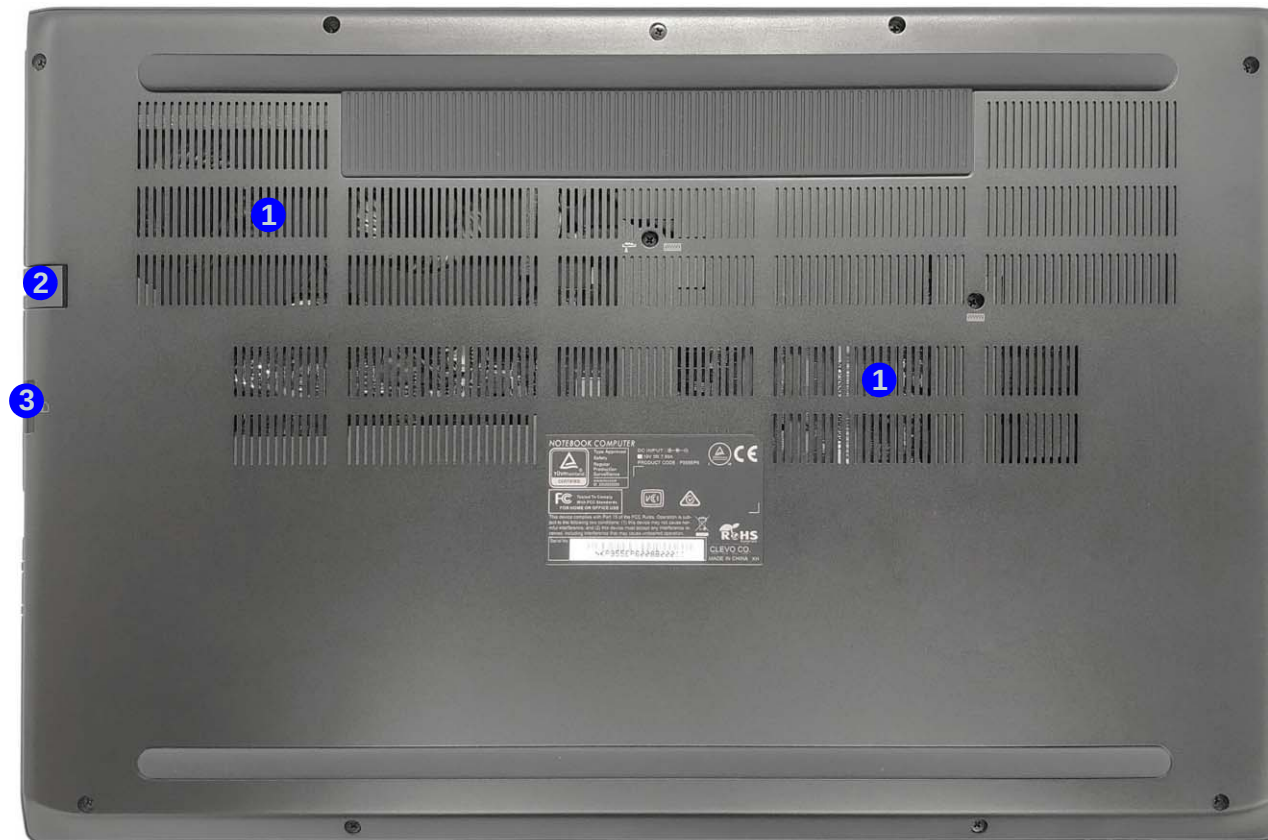


Figure 6
Bottom View

1. Vent
2. RJ-45 LAN Jack
3. USIM Card Reader (for 3G/4G USIM Cards)



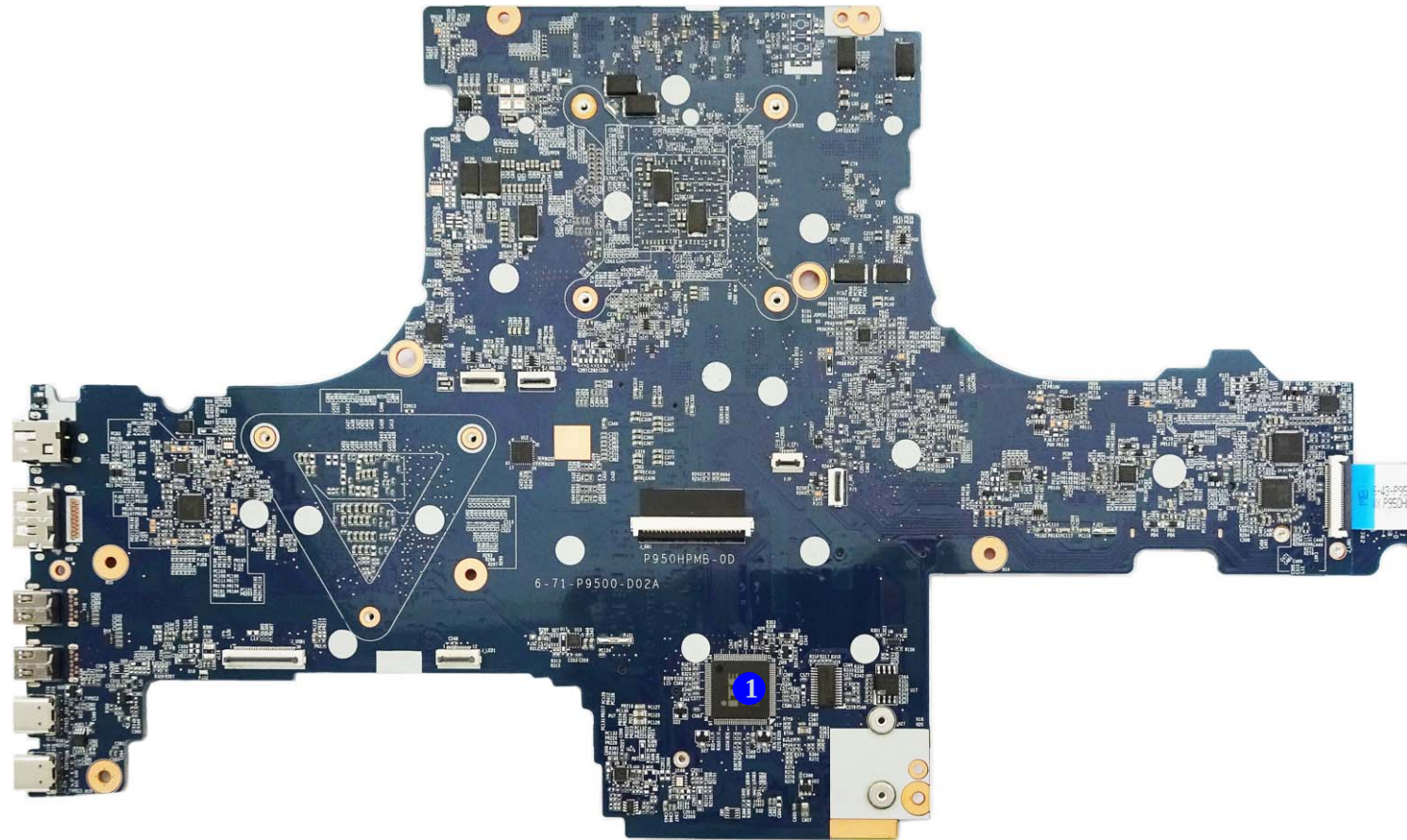
Overheating

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

Figure 7
**Mainboard Top
Key Parts**

1. KBC-ITE IT8587

Mainboard Overview - Top (Key Parts)



Mainboard Overview - Bottom (Key Parts)

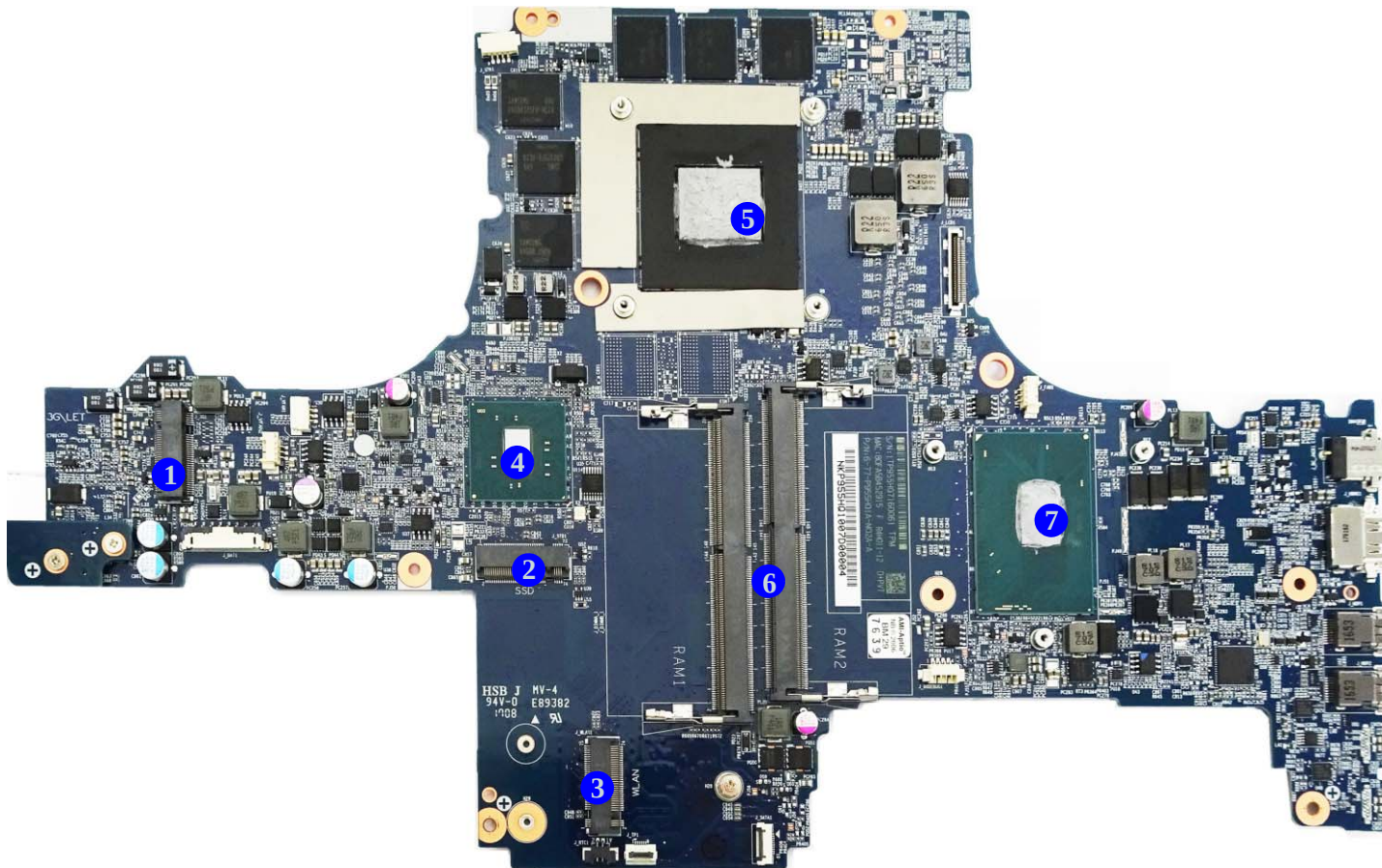


Figure 8
**Mainboard Bottom
Key Parts**

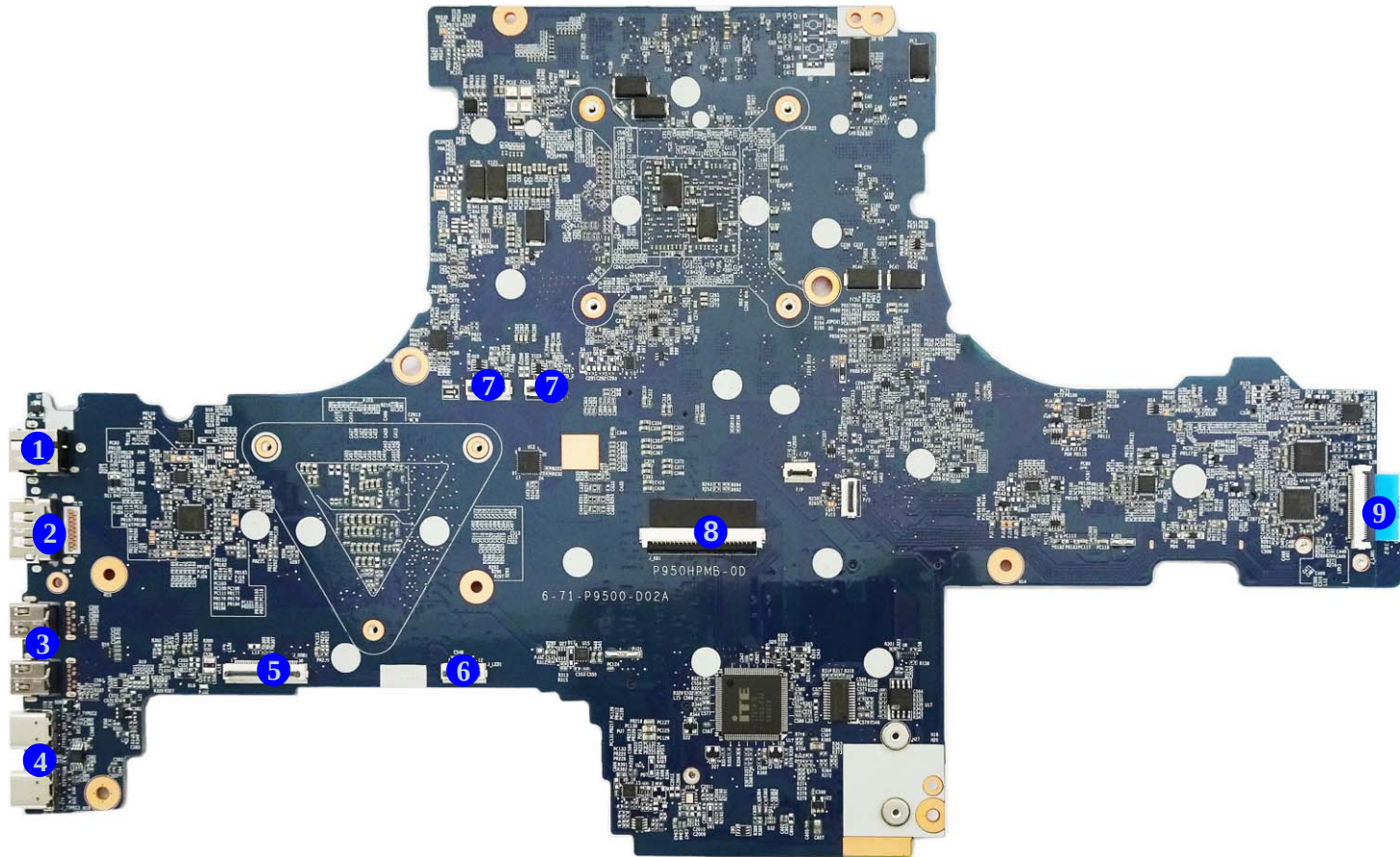
1. Mini-Card Connector (M.2 3G/SATA Module)
2. Mini-Card Connector (M.2 PCIE/SATA SSD Module)
3. Mini-Card Connector (WLAN Module)
4. PCH
5. GPU-GTX1070
6. Memory Slots (DDR4 SO-DIMM)
7. CPU

Introduction

Figure 9
**Mainboard Top
Connectors**

1. DC-In Jack
2. HDMI Port
3. Mini Display Ports
4. USB Port 3.1
Connector
5. USB Board
Connector
6. LED Board
Connector
7. LED KB
Connector
8. Keyboard Cable
Connector
9. LAN Board
Connector

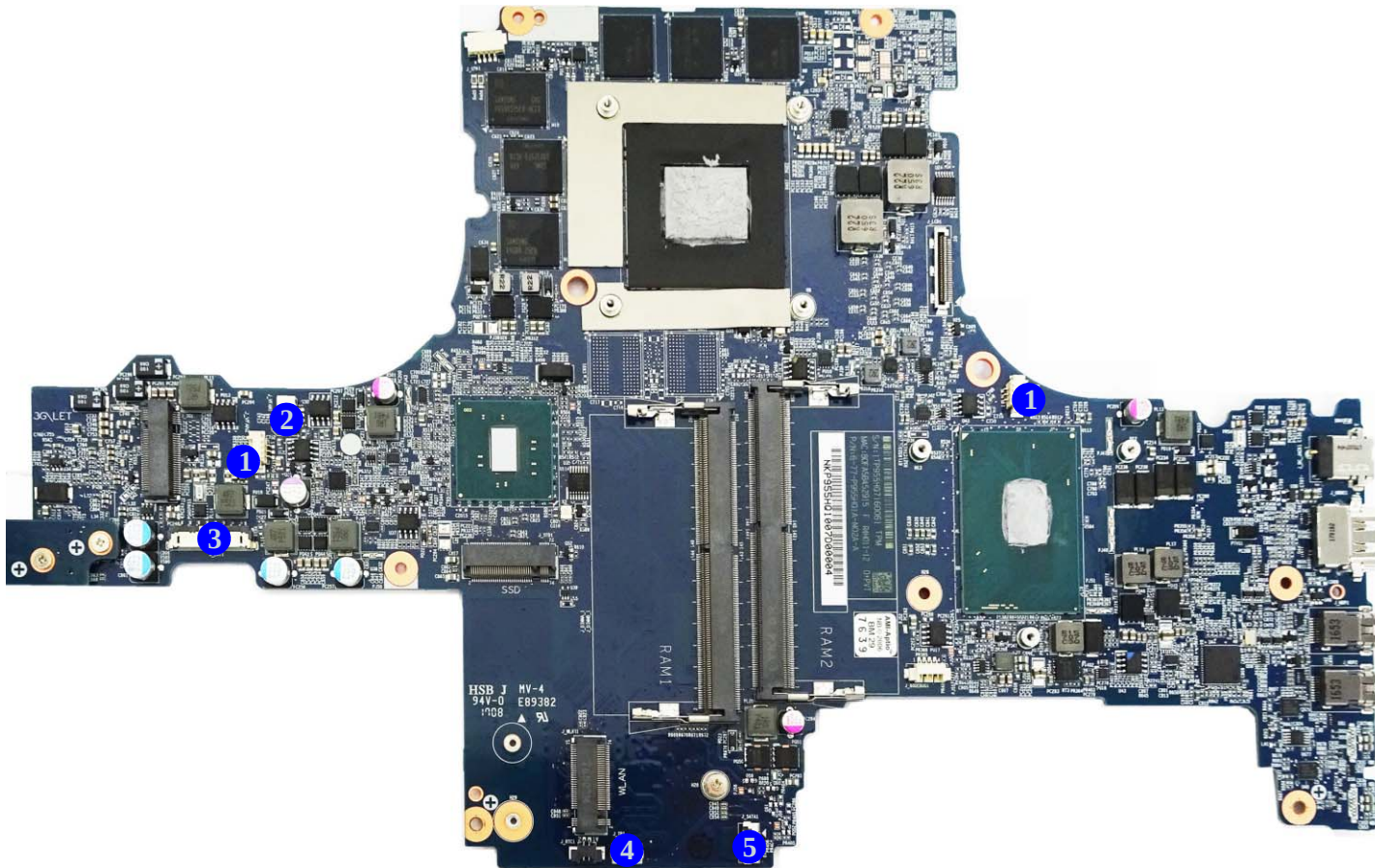
Mainboard Overview - Top (Connectors)



Mainboard Overview - Bottom (Connectors)

Figure 10
**Mainboard Bottom
Connectors**

1. Fan Connector
2. Fan Connector
3. Battery Connector
4. Touchpad Cable Connector
5. HDD Connector



Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the **P955ER** 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.



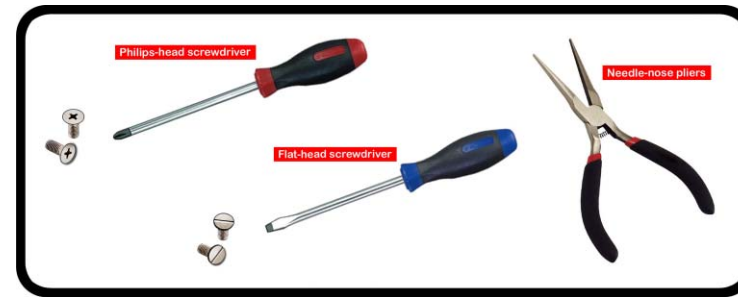
Disassembly

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 Keyboard:

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

To remove the Battery:

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

To remove the HDD:

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

To remove the System Memory:

1. Remove the keyboard [page 2 - 5](#)
2. Remove the battery [page 2 - 6](#)
3. Remove the system memory [page 2 - 10](#)

To remove and install the M.2 SSD:

1. Remove the keyboard [page 2 - 5](#)
2. Remove the battery [page 2 - 6](#)
3. Remove the M.2 SSD [page 2 - 11](#)

To remove the Wireless LAN Module:

1. Remove the keyboard [page 2 - 5](#)
2. Remove the battery [page 2 - 6](#)
3. Remove the WLAN [page 2 - 12](#)

To remove the 4G Module:

1. Remove the keyboard [page 2 - 5](#)
2. Remove the battery [page 2 - 6](#)
3. Remove the 4G [page 2 - 14](#)

To remove the CCD Module:

1. Remove the keyboard [page 2 - 5](#)
2. Remove the battery [page 2 - 6](#)
3. Remove the CCD module [page 2 - 15](#)

To remove the CPU Fan Unit:

1. Remove the keyboard [page 2 - 5](#)
2. Remove the battery [page 2 - 6](#)
3. Remove the CPU fan unit [page 2 - 17](#)

To remove the GPU Fan Unit:

1. Remove the keyboard [page 2 - 5](#)
2. Remove the battery [page 2 - 6](#)
3. Remove the GPU fan unit [page 2 - 18](#)

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 1a**).
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 1b**).
5. Carefully lift the keyboard **6** off the computer (**Figure 1c**).

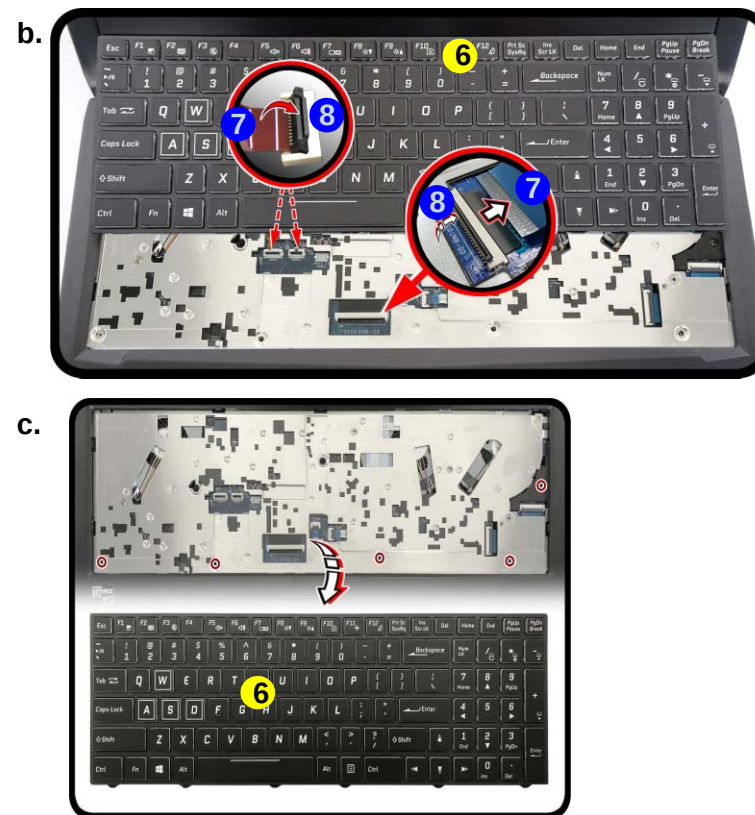


Figure 1
Keyboard Removal

- 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

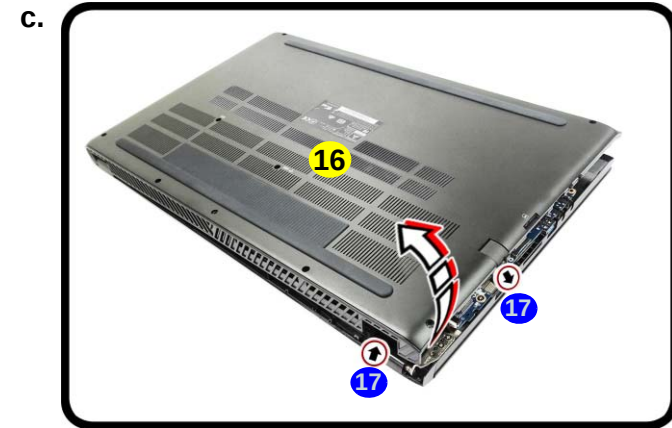
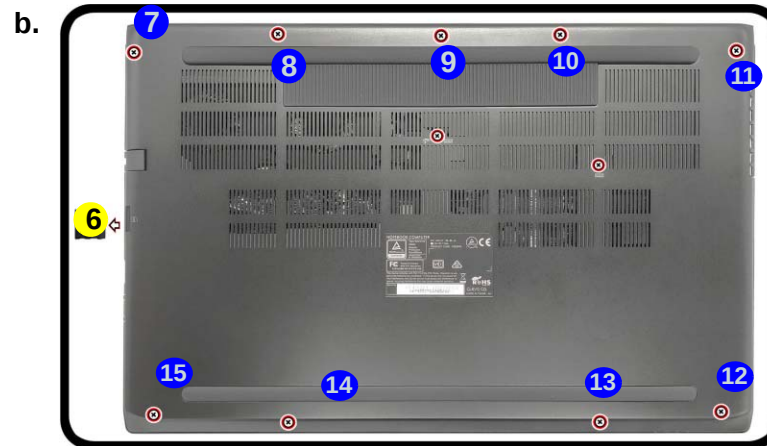
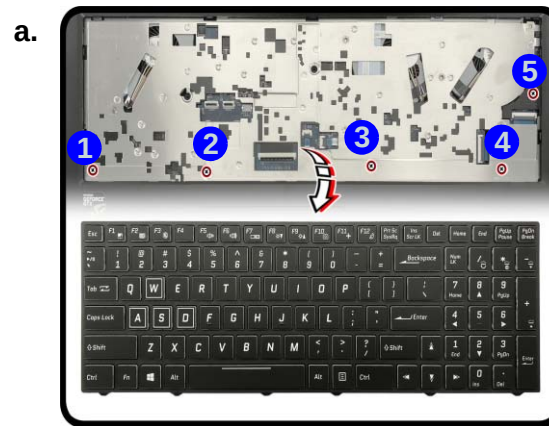
Disassembly

Figure 2
Battery Removal

- Remove the screws.
- Remove the SD cover and screws.
- Remove the bottom case.

Removing the Battery

- Turn the computer **off**, and remove the keyboard ([page 2 - 5](#)).
- Remove screws **1** - **5** ([Figure 2a](#)).
- Remove the SD card cover **6** and screws **7** - **15** ([Figure 2b](#)).
- Carefully lift the bottom case **16** up in the direction of the arrow at point **17** and remove it ([Figure 2c](#)).



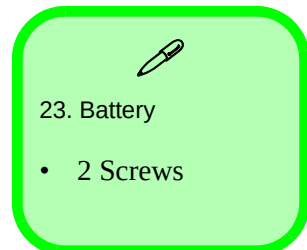
1. SD Card Cover
16. Bottom Case

- 14 Screws

5. The battery will be visible at point **18** on the computer (**Figure 3d**).
6. Carefully disconnect the cable **19**, then remove screws **20** - **21** (**Figure 3e**).
7. Lift the battery **22** off the computer (**Figure 3f**).
8. Reverse the process to install a new battery (do not forget to replace all the screws and bottom cover).

Figure 3
Battery Removal
(cont'd.)

- d. Locate the battery.
- e. Disconnect the cable and remove the screws.
- f. Lift the battery off the computer.



Disassembly

Figure 4
**HDD Assembly
Removal**

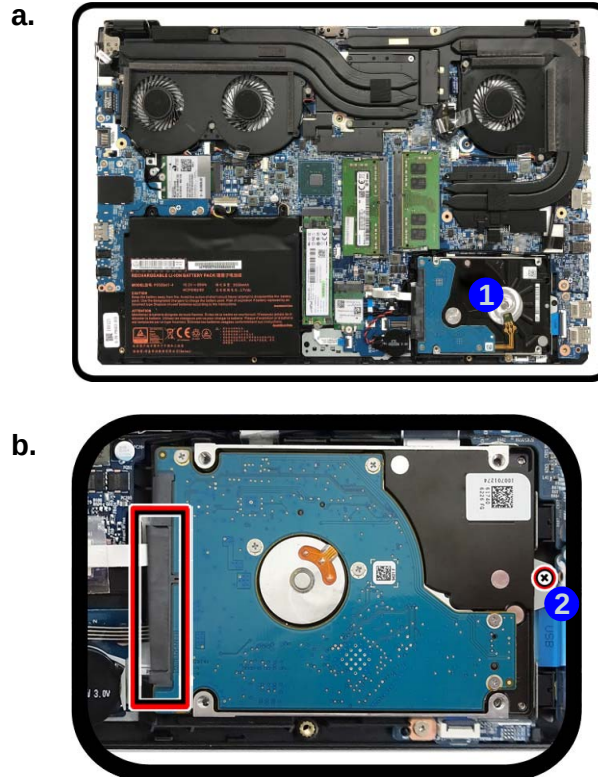
- Locate the HDD.
- Remove the screw.

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 - 6](#)).
- The HDD will be visible at point **1** on the mainboard ([Figure 4a](#)).
- Remove screws **2** from the HDD assembly ([Figure 4b](#)).



6. Hard Disk

- 1 Screw



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.

4. Slightly slide and pull the hard disk out.
5. Lift the hard disk assembly **3** out of the bay **4** (*Figure 5c*).
6. Remove screws **5** - **6** and bracket **7** from the hard disk **8** (*Figure 5d*).
7. Reverse the process to install a new hard disk (do not forget to replace the screws).

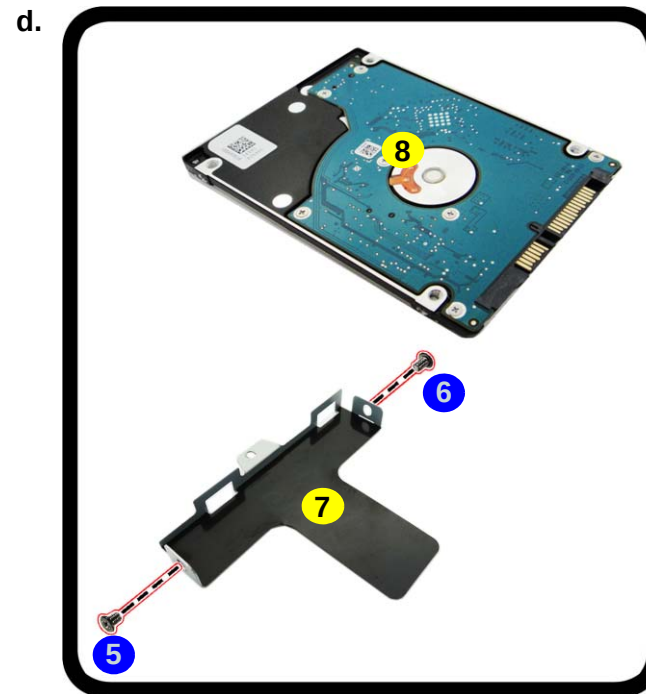
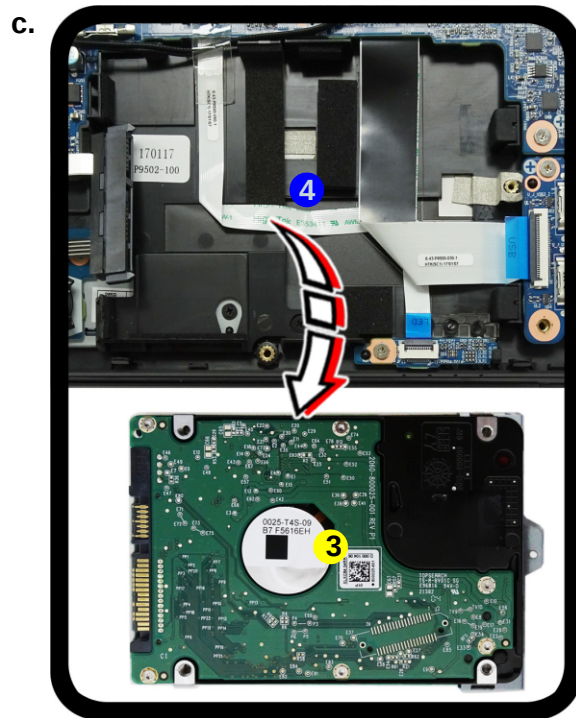


Figure 5
**HDD Assembly
Removal (cont'd.)**

- c. Slide and pull the HDD assembly out of the bay.
- d. Remove the screws and bracket from the HDD.



- 3. HDD Assembly
- 7. HDD Bracket
- 8. HDD
- 2 Screws

Disassembly

Figure 6
RAM Module Removal

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



Contact Warning

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



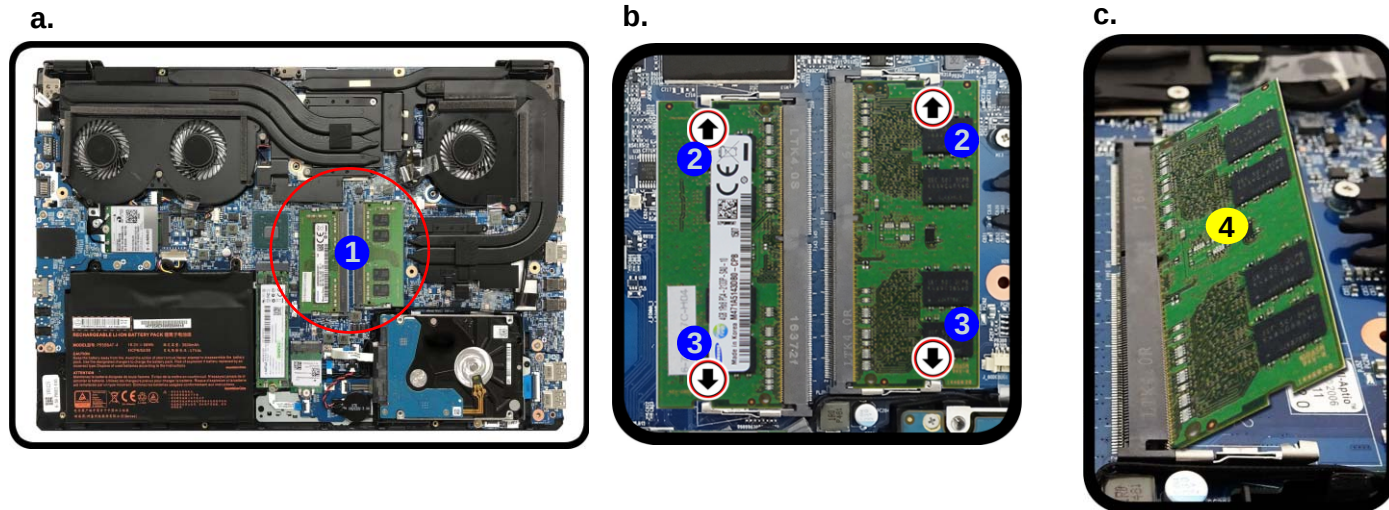
4. RAM Module

Removing the System Memory (RAM)

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



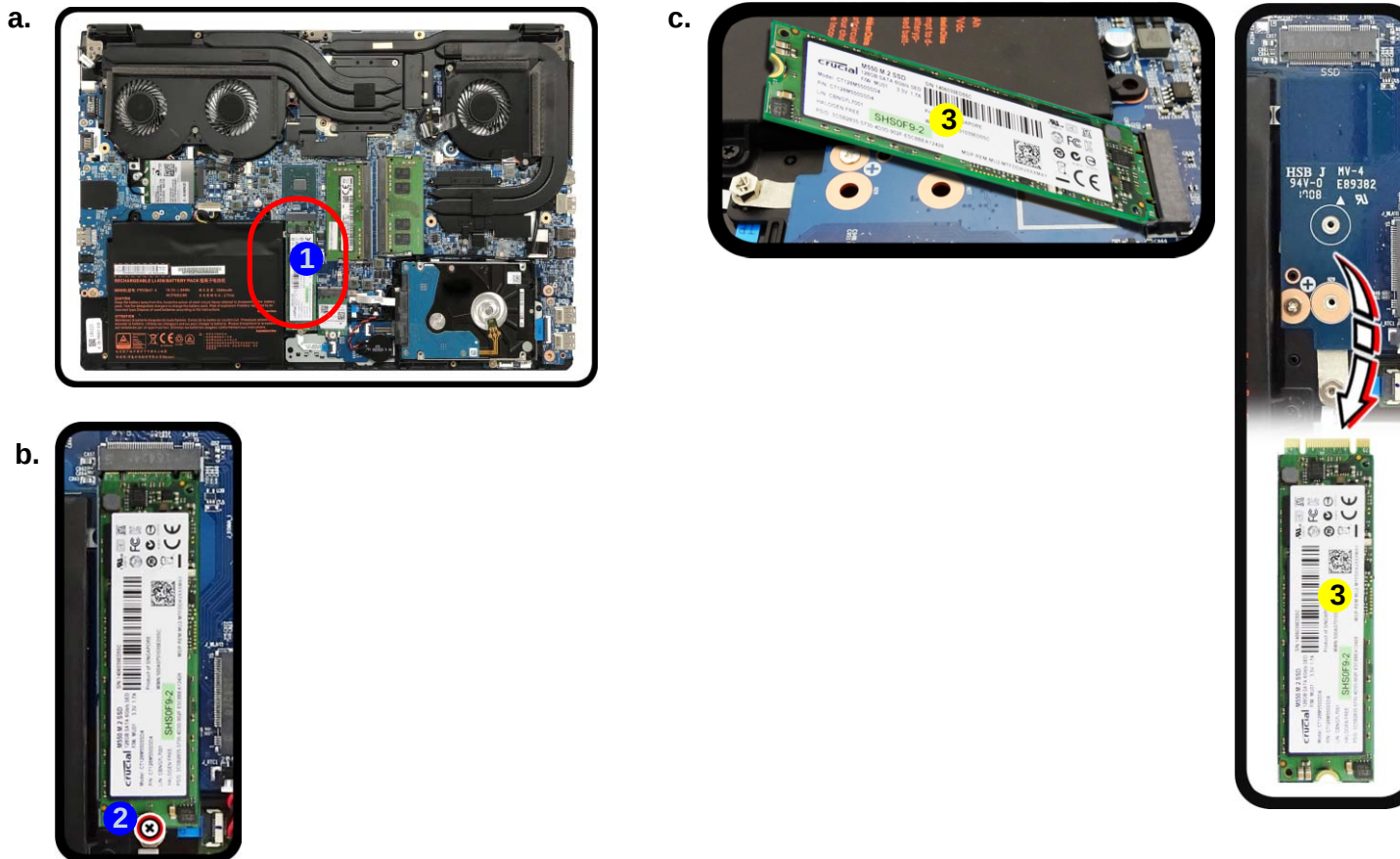
Removing the M.2 SSD Module

M.2 SSD-1 Removal Procedure

1. Turn **off** the computer, turn it over, remove the battery ([page 2 - 6](#)).
2. The M.2 SSD module will be visible at point **1** on the mainboard ([Figure 7a](#)).
3. Remove the screw **2** ([Figure 7b](#)).
4. The M.2 SSD module **3** ([Figure 7c](#)) 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 screws and thermal pad).

Figure 7
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.



Disassembly

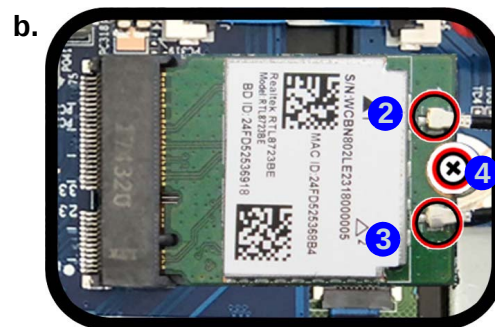
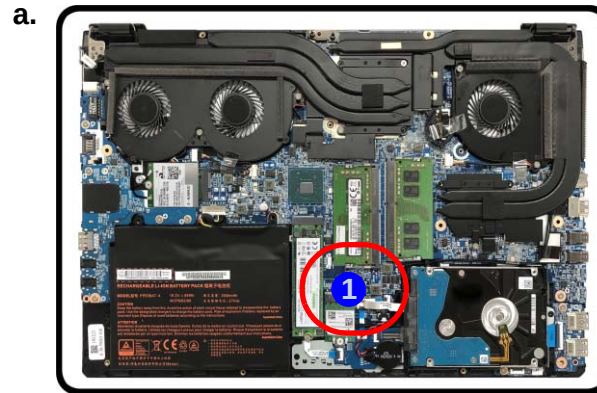
Figure 8
**Wireless LAN
Module Removal**

- Locate the WLAN.
- Disconnect the cables **2** & **3**, and remove the screw **4** (*Figure 8b*).
- The WLAN module will pop up.

Note: Make sure you reconnect the antenna cable to the “1 + 2” socket (*Figure 8b*).

Removing the Wireless LAN Module

- Turn **off** the computer, turn it over, remove the battery (*page 2 - 6*).
- The Wireless LAN module will be visible at point **1** on the mainboard (*Figure 8a*).
- Carefully disconnect the cables **2** & **3**, and then remove the screw **4** (*Figure 8b*).
- The Wireless LAN module **5** (*Figure 8c*) will pop-up, and you can remove it from the computer.



5. Wireless LAN Module

- 1 Screw

Wireless LAN, Combo, & LTE Module Cables

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

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

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

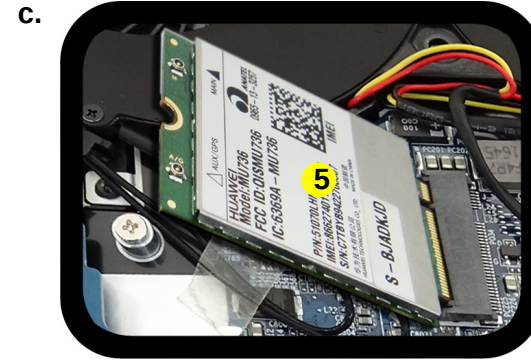
Disassembly

Figure 9
4G Module Removal

Removing the 4G Module

4G Module Removal Procedure

- a. Locate the module.
 - b. Disconnect the cables and remove the screw.
 - c. The module will pop-up.
 - d. Lift the module up off the socket.
1. Turn **off** the computer, remove the battery ([page 2 - 6](#)).
 2. Locate the module, it is visible at point **1** ([Figure 9a](#)).
 3. Carefully disconnect the cables **2** & **3**, and then remove the screw **4** from the module ([Figure 9b](#)).
 4. The module **5** will pop-up ([Figure 9c](#)).
 5. Lift the module **5** up and off the computer ([Figure 9d](#)).



5. 3G/4G Module

- 1 Screw

Removing the CCD

1. Turn **off** the computer, turn it over to remove the battery ([page 2 - 6](#)).
2. Lay the computer down on a flat surface with the top case up forming a 130 degree angle. Carefully remove the mylar covers **1** - **2** and screws **3** - **4**.
3. Run your fingers around the inner frame of the LCD panel to lift at points **5** - **6** as indicated by the arrows, and slightly lift up the outer frame at point **7** as indicated by the arrows, and then run your fingers again around the inner frame at the lower point **8** as indicated by the arrows ([Figure 10a](#)).
4. Remove the LCD front cover **5** ([Figure 10b](#)).

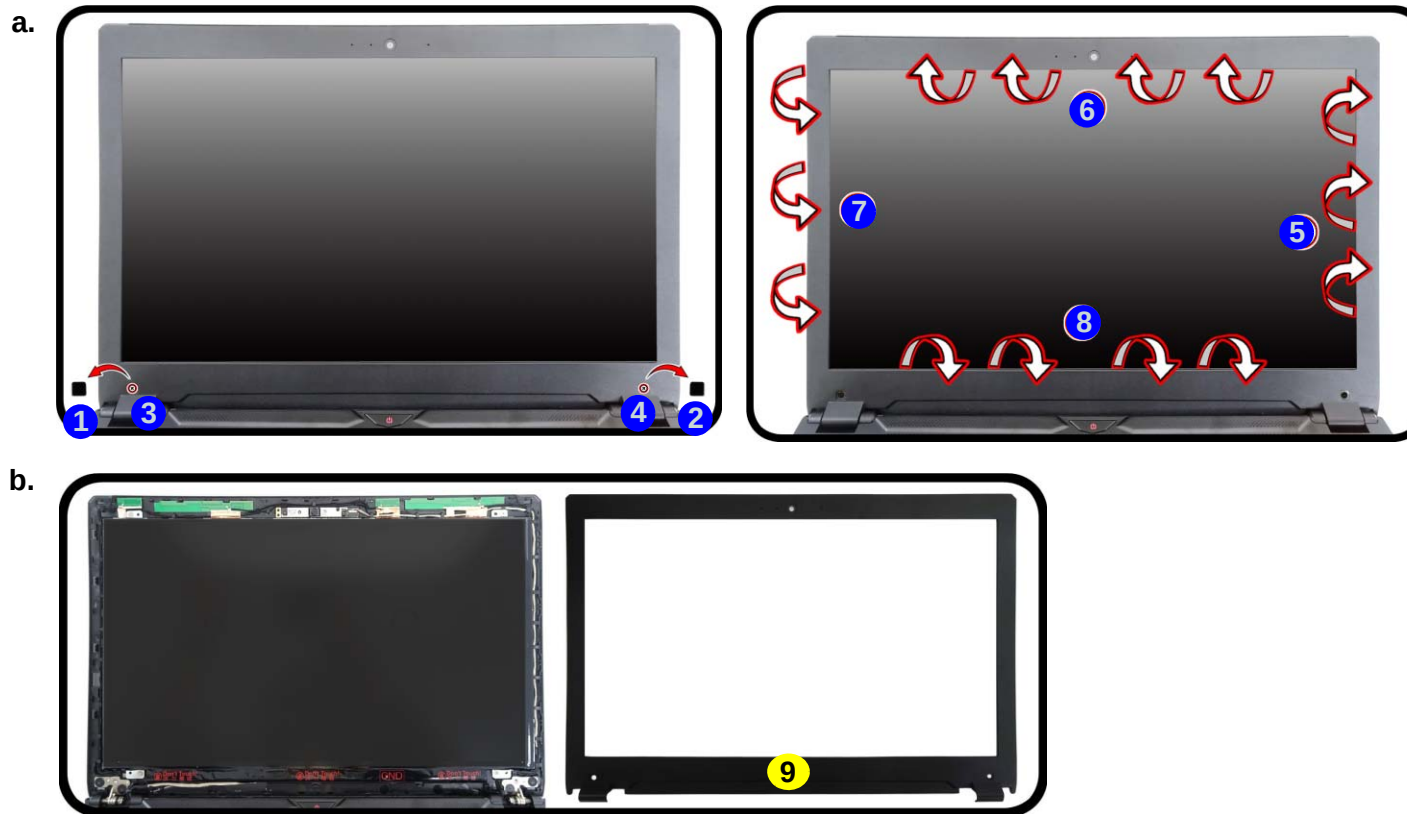


Figure 10
CCD Removal

- a. Remove rubber and screws and then carefully release the inner frame of the LCD panel at the points indicated by the arrows.
- b. Remove the LCD front cover.



9. LCD Front Cover

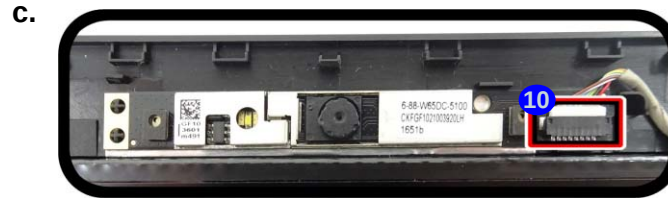
- 2 Screws

Disassembly

Figure 11
CCD Removal
(cont'd)

- c. Disconnect the cable.
- d. Remove the CCD module.

- 5. Disconnect the cable **10** (*Figure 11c*).
- 6. Remove the CCD module **11** (*Figure 11d*).
- 7. Reverse the process to install a new CCD module.



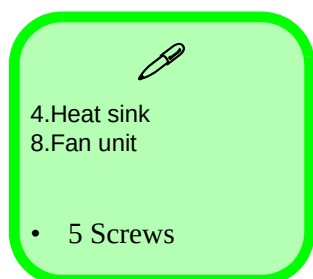
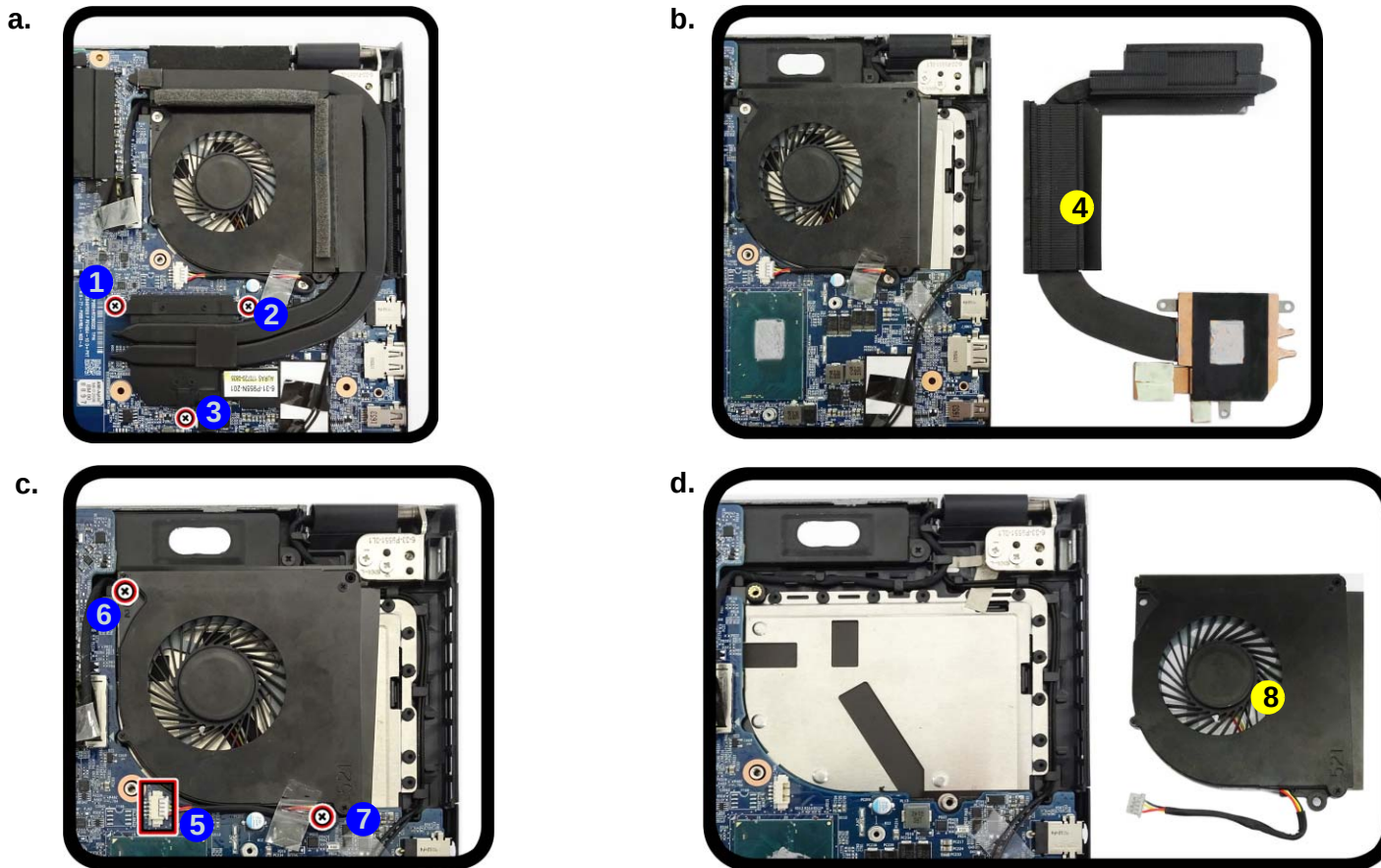
11. CCD Module

Removing the CPU Fan Unit

1. Turn **off** the computer, turn it over, remove the battery ([page 2 - 6](#)).
2. Remove screws **1** - **3** to release the heatsink ([Figure 12a](#)).
3. Carefully (it may be hot) remove the heatsink **4** ([Figure 12b](#)).
4. Disconnect the cables **5**, and then remove screws **6** - **7** ([Figure 12c](#)).
5. Remove the CPU fan unit **8** ([Figure 12d](#)).
6. Reverse the process to install a new fan unit (remember to apply the whole tube of the thermal grease to the center of the CPU).

Figure 12
CPU Fan Unit Removal

- a. Remove the screws.
- b. Lift the heat sink unit out.
- c. Disconnect the cables and remove the screws.
- d. Remove the fan unit.



Disassembly

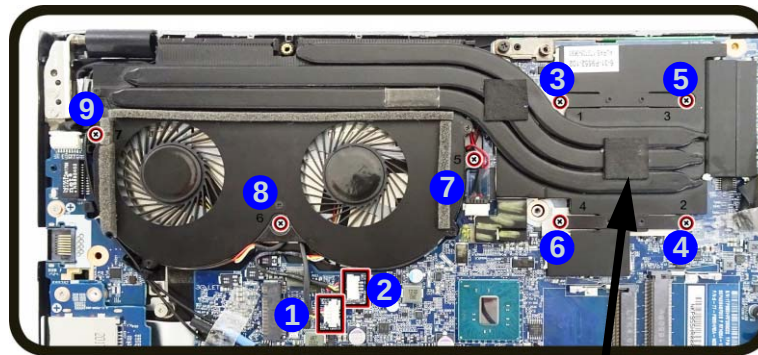
Figure 13
**GPU Fan Unit
Removal**

- a. Disconnect the cables and remove the screw.
- b. Remove the fan unit.

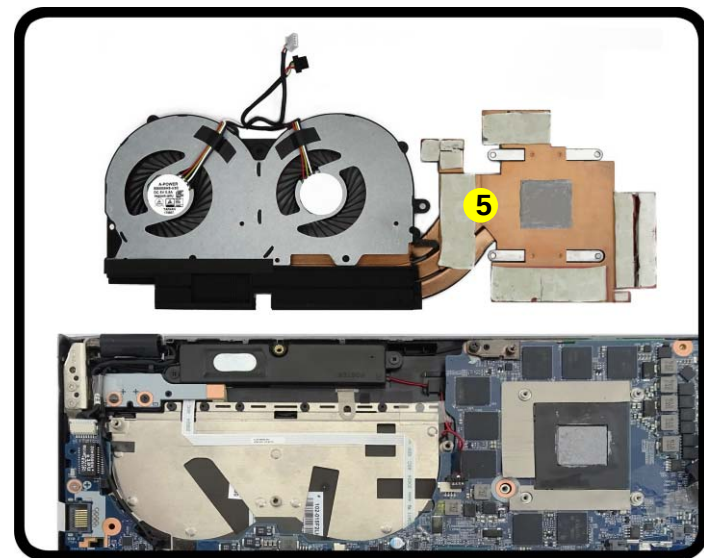
Removing the GPU Fan Unit

1. Turn **off** the computer, turn it over, remove the battery ([page 2 - 6](#)).
2. Carefully disconnect the cables **1** & **2**, and then remove the screw **3** - **9** from the heat sink unit in the order indicated on the label (i.e screw **4** first through to screw **1** last [Figure 13a](#)).
3. Carefully (it may be hot) remove the fan unit **10** ([Figure 13b](#)).
4. Reverse the process to install a new fan unit (remember to apply the whole tube of the thermal grease to the center of the GPU).

a.



b.



Note:

Loosen or tighten the screws in the order as indicated in the label.



5.GPU Fan Unit

- 7 Screws

Appendix A:Part Lists

This appendix breaks down the **P955ER** 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	<i>page A - 3</i>
Bottom	<i>page A - 4</i>
Main Board	<i>page A - 5</i>
HDD	<i>page A - 6</i>
LCD	<i>page A - 7</i>

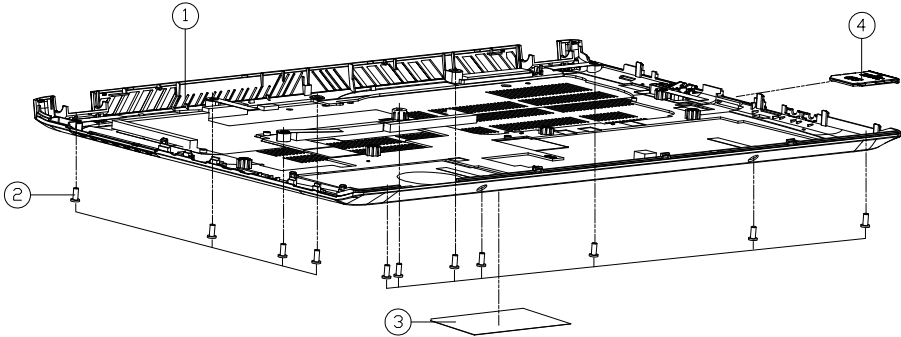
A. Part Lists



Top A - 3

Bottom

Figure A - 2
Bottom



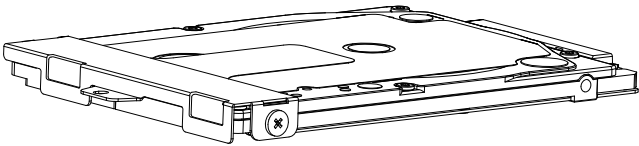
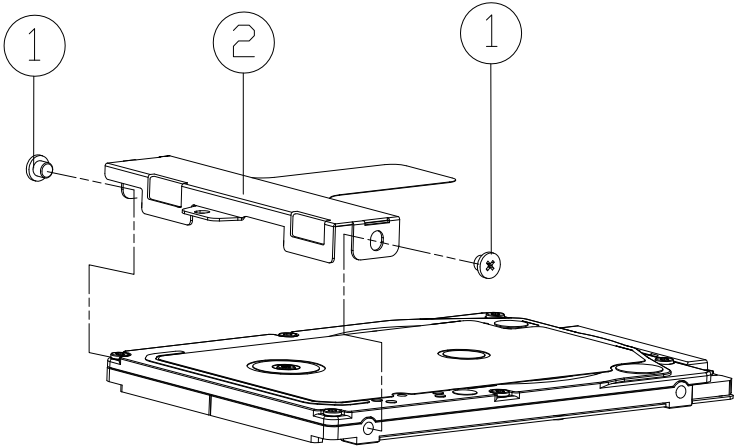
ITEM	PART NAME	PART NO	REMARK
1	BOTTOM CASE MODULE P955ER	6-39-P95E3-511	
2	.SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
3	PRODUCT LABEL FOR P955ER	6-45-P955ER03-010	
3	PRODUCT LABEL FOR P955EP6	6-45-P955EP63-010	
4	DUMMY PIN NON PUSH TYPE PC4ABS (C7230P-770UCXCHWAZ) W970SW	6-42-W9708-011	

A.Part Lists

Main Board A - 5

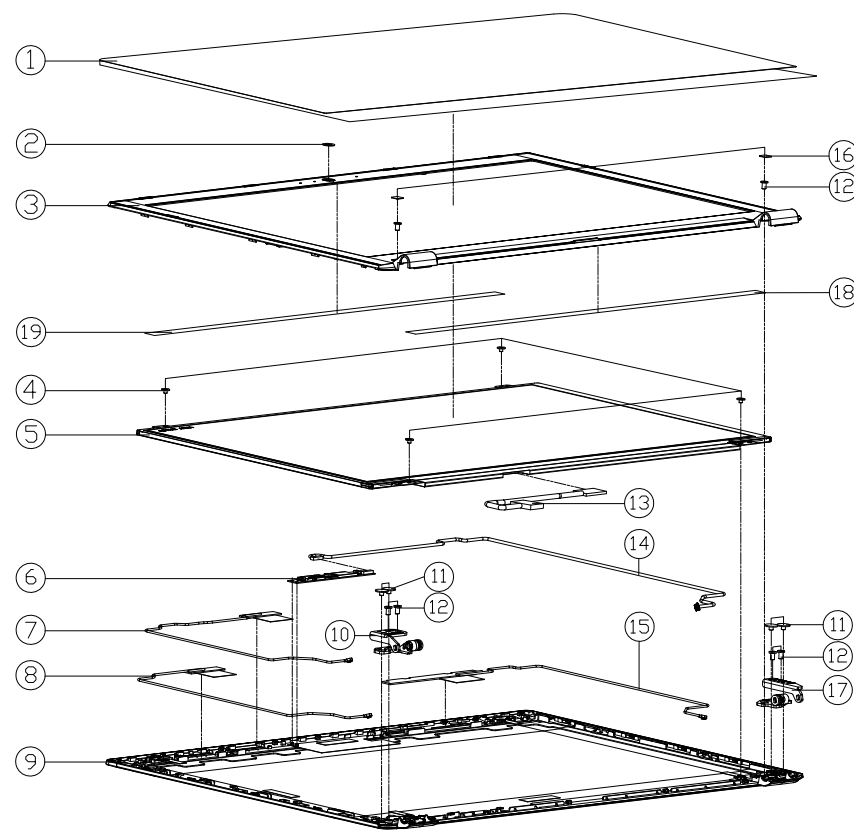
HDD

Figure A - 4
HDD



ITEM	PART NAME	PART NO	REMARK
1	SCREW M3*2.5L KI NI ICT NY	6-35-B1130-2R5	
2	HDD BKT 7MM SECC T=0.5 N250LU	6-33-N250J-011	

LCD



ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT MYLAR BOPP N650DU	6-40-N6508-040	
2	CCD LENS PC P950HP6	6-42-P9501-020	
3	FRONT COVER MODULE P955HQ3	6-39-P9551-014	
4	SCREW M2*2L KI NI ICT NY (DD=Ø5 ,T=0.5)	6-35-B1120-2R0	FOR 6-50-LBB26-L120 6-50-LBB26-L120 6-50-LBB26-L120
5	LCD 15.6" UHD/VVA/NT/NDN GT/EP AU B562ND22 19VVAULED 32NM	6-50-L1B32-G020	
5	LCD 15.6" FHD/PS/5W G-SYNC/NT/NDN GT/EP LG LPS6W6-SP2 QLED 32NM	6-50-LBB32-L090	
5	LCD 15.6" FHD/PS/5W G-SYNC/NT/NDN GT/EP INNOVIX N554HE-GAI QLED32NM	6-50-LBB32-V070	
5	LCD 15.6" FHD/PS/5W G-SYNC/NT/NDN GT/EP LG LPS6W6-SP2 QLED 32NM	6-50-LBB26-L120	
6	INC CAMERA CHROMY TCU OPTIC/RECEIVER IN FHD D2000 W5000 FOCUS W/WHITE-LED W20-MC	6-88-W65DC-5100	OPTION
6	INC CAMERA CHROMY TCU OPTIC/RECEIVER IN FHD D2000 W5000 FOCUS W/WHITE-LED W20-MC	6-88-P775C-4901	OPTION
7	ANTENNA IPX4 WLAN WGT WLT PCB AL 2.4G/5G W2-800MM N250L0	6-23-7N85K-030	
8	ANTENNA IPX4 WLAN WGT WLT PCB 2.4G/5G L-750MM N250L0	6-23-7N250-030	
9	BACK COVER MODULE P955HQ3	6-39-P9551-024	
9	(PRE-PROCESS) BACK COVER MODULE FOR LG P955ER	6-78-P955ER01-010	ONLY FOR 6-50-LBB26-L120
10	HINGE L (SGCC) SNR P955HQ3	6-33-P9551-0L1	
11	SCREW M2.5*2.5L KI BK/Z ICT NY(Ø0.8,T=0.6)	6-35-B6125-2R5	
12	SCREW M2.5*4L KI NI ICT NY	6-35-21125-4R0	
13	CABLE FOR EP 300M (D) 19V 30PIN HT/V CONDUCTOR/300M P955HQ3	6-43-P9501-020-1N	
13	WIRE CABLE FOR EP 300M (D) 19V 30PIN HT/V CONDUCTOR/300M P955HQ3	6-43-P9501-010-2N	
14	WIRE CABLE CCD+MIC TO MB 8PIN W840SU-T (HL)	6-43-W840T-012	
15	ANTENNA IPX4 WLAN WGT WLT PCB AL 2.4G/5G W2-800MM N250L0	6-23-7P955-030	
16	FRONT COVER SCREW MYLAR PC P750ZM	6-40-P7508-030	
17	HINGE R (SGCC) SNR P955HQ3	6-33-P9551-0R1	
18	FRONT COVER GLUE UBD (HTD) 5000 330*40(15) FOR W655S2	6-40-W6551-010	ONLY FOR 6-50-L1B32-G020
19	LCD FRONT COVER DOUBLE SIDE TAPE(GF95220B 330*40(27))	6-40-N85C1-030	

Figure A - 5
LCD

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the **P955ER** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page	Diagram - Page
System Block Diagram - Page B - 2	Frame Buffer Partition C_D - Page B - 23	ASM1562 1/3 - Page B - 44	AC_In, Charger - Page B - 65
Processor 1/7 - Page B - 3	GPU Decoupling 1 - Page B - 24	ASM1543 2/3 - Page B - 45	LED Board - Page B - 66
Processor 2/7 - Page B - 4	GPU Decoupling 2 - Page B - 25	ASM1543 3/3 - Page B - 46	Click Board - Page B - 67
Processor 3/7 - Page B - 5	Straps and XTAL - Page B - 26	TPM, TP - Page B - 47	Reader Board - Page B - 68
Processor 4/7 - Page B - 6	IFP I/O Interface - Page B - 27	Connector - Page B - 48	USB Board - Page B - 69
Processor 5/7 - Page B - 7	Misc - GPIO, I2C and ROM - Page B - 28	MFan, LID, LED - Page B - 49	LAN Board - Page B - 70
Processor 6/7 - Page B - 8	GPU NVVDD, FBVDDQ - Page B - 29	M.2 WLAN+BT, PCIE4X SSD - Page B - 50	Power Board - Page B - 71
Processor 7/7 - Page B - 9	GPU GND & Sequence - Page B - 30	M.2 3G/LTE, SIM - Page B - 51	Power Sequence - Page B - 72
DDR4 CHA SO-DIMM_0 - Page B - 10	PCH 1/9 - Page B - 31	5V, 5VS, 3.3V, 3.3VS - Page B - 52	USB Board, Receiver - Page B - 73
DDR4 CHB SO-DIMM_0 - Page B - 11	PCH 2/9 - Page B - 32	VDD3, VDD5 - Page B - 53	
Panel, Inverter - Page B - 12	PCH 3/9 - Page B - 33	1V8_RUN/AON, 3.3VA - Page B - 54	
Mini DP Port - Page B - 13	PCH 4/9 - Page B - 34	1.8VA/1.05V_XX, NV3V3 - Page B - 55	
HDMI Connector - Page B - 14	PCH 5/9 - Page B - 35	PEX_VDD - Page B - 56	
VGA PCI Express - Page B - 15	PCH 6/9 - Page B - 36	1.05VA, VCCIO - Page B - 57	
GPU Frame Buffer Partition - Page B - 16	PCH 7/9 - Page B - 37	DDR 1.2V, 0.6VS - Page B - 58	
Frame Buffer Partition A - Page B - 17	PCH 8/9 - Page B - 38	VCore & VCCGT & VCCSA - Page B - 59	
Frame Buffer Partition B - Page B - 18	PCH 9/9 - Page B - 39	VCore Output - Page B - 60	
Frame Buffer Partition A_B - Page B - 19	KBC IT8587 - Page B - 40	VCCGT, VCCSA Output - Page B - 61	
GPU Frame Buffer Partition - Page B - 20	Backlight KB - Page B - 41	VNVDD 1 - Page B - 62	
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**SCHEMATIC
DIAGRAMS**

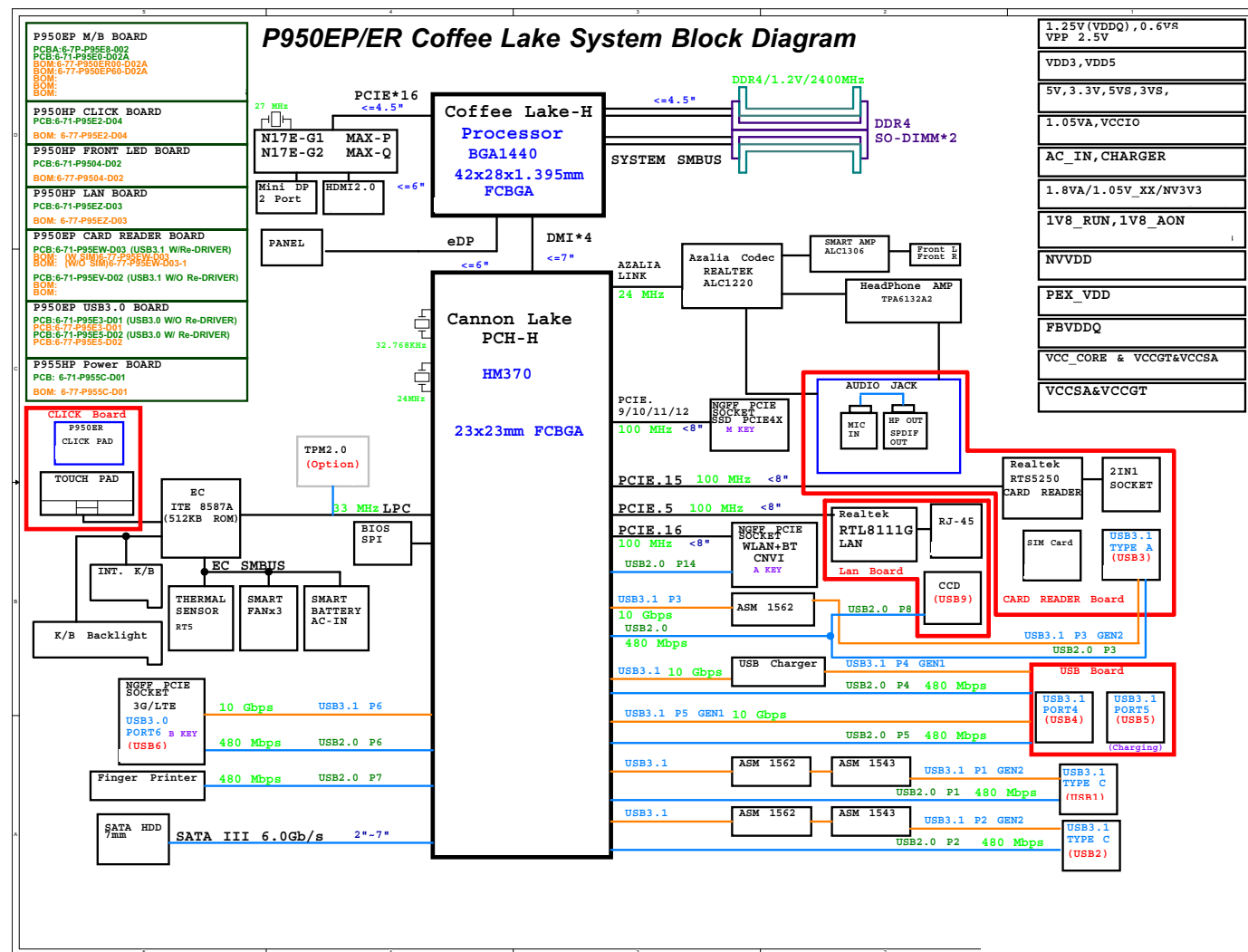


Version Note

The schematic diagrams in this chapter are based upon version 6-7P-P95E8-002. 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 72
System Block
Diagram



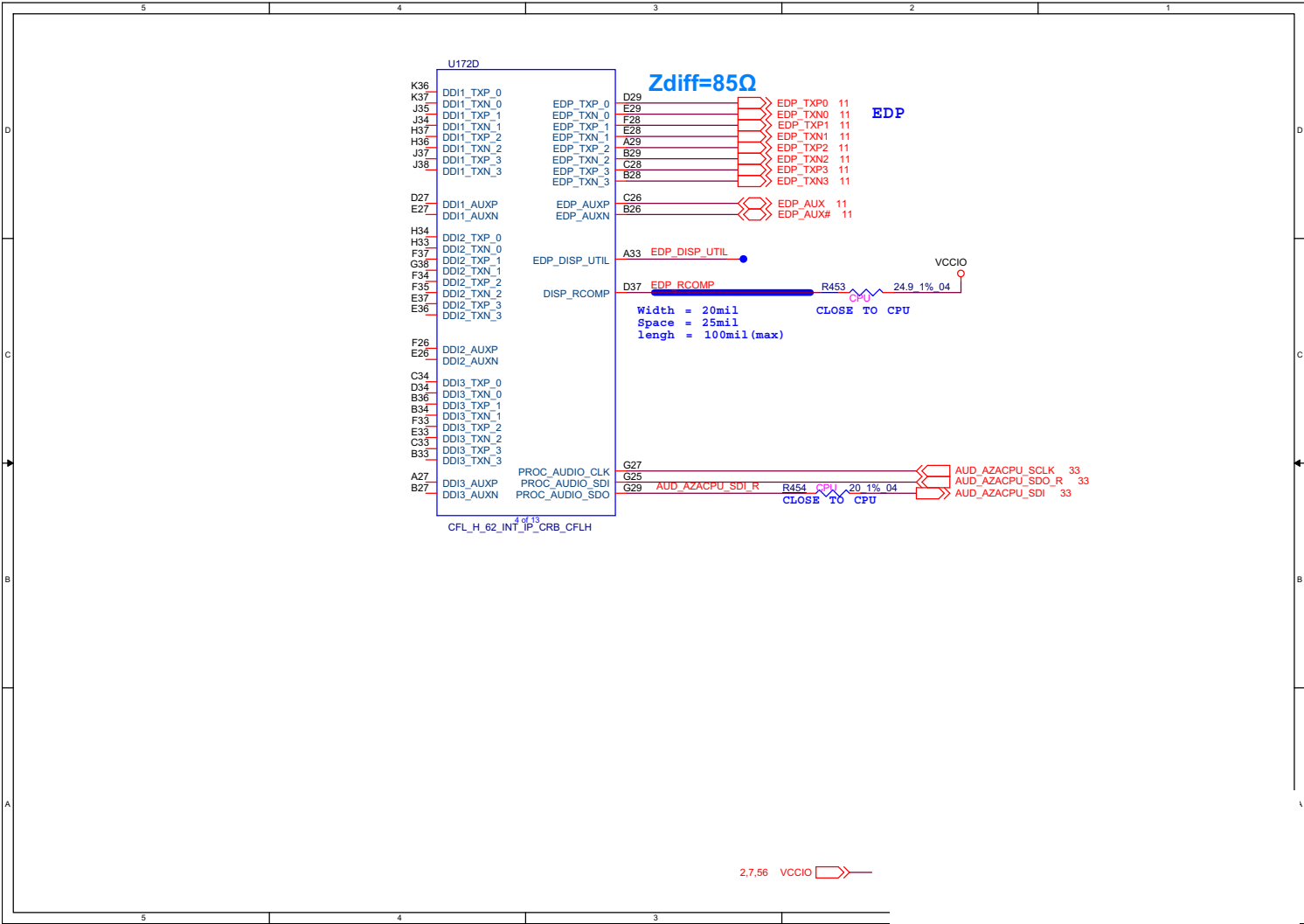
Processor 1/7



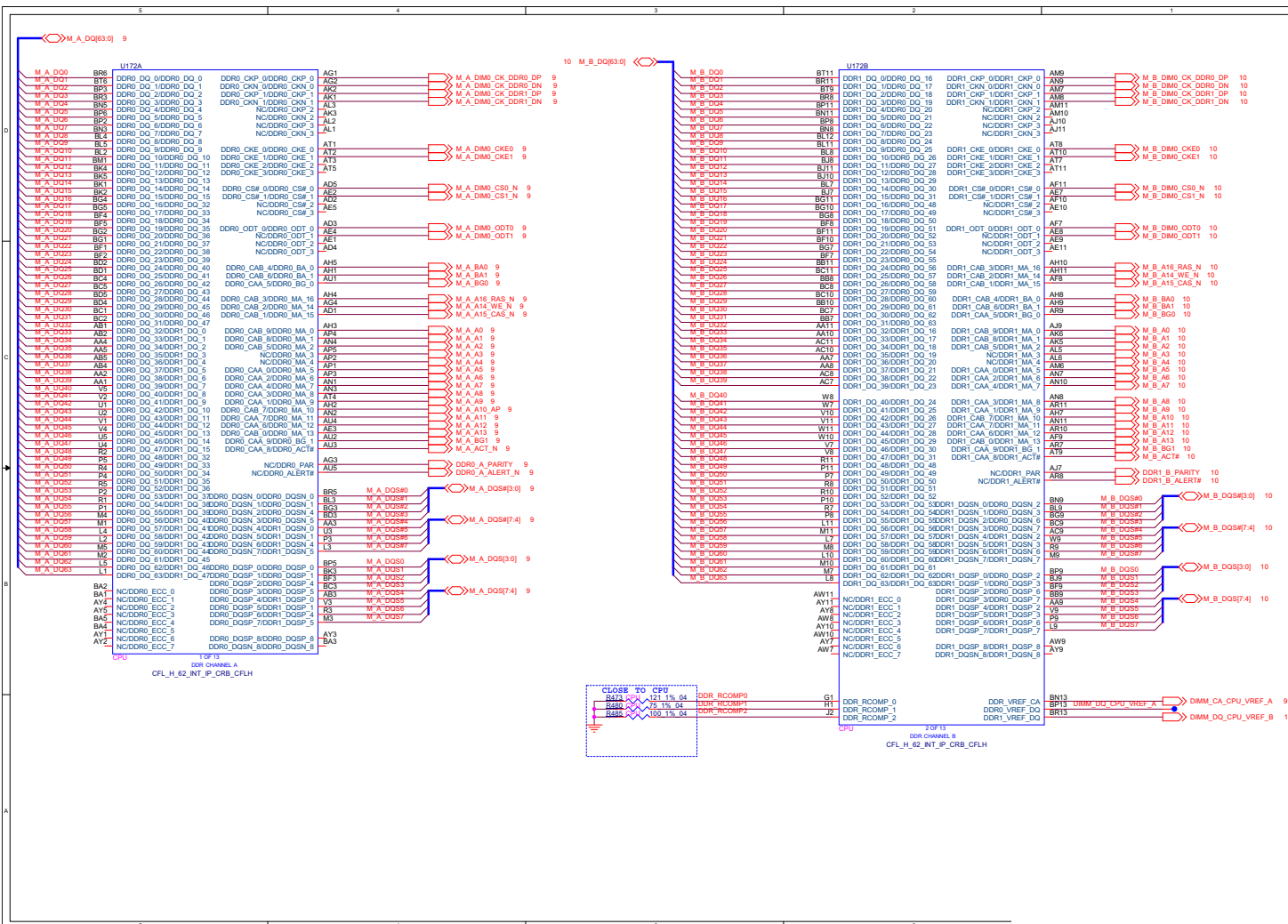
Schematic Diagrams

Processor 2/7

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Processor 2/7



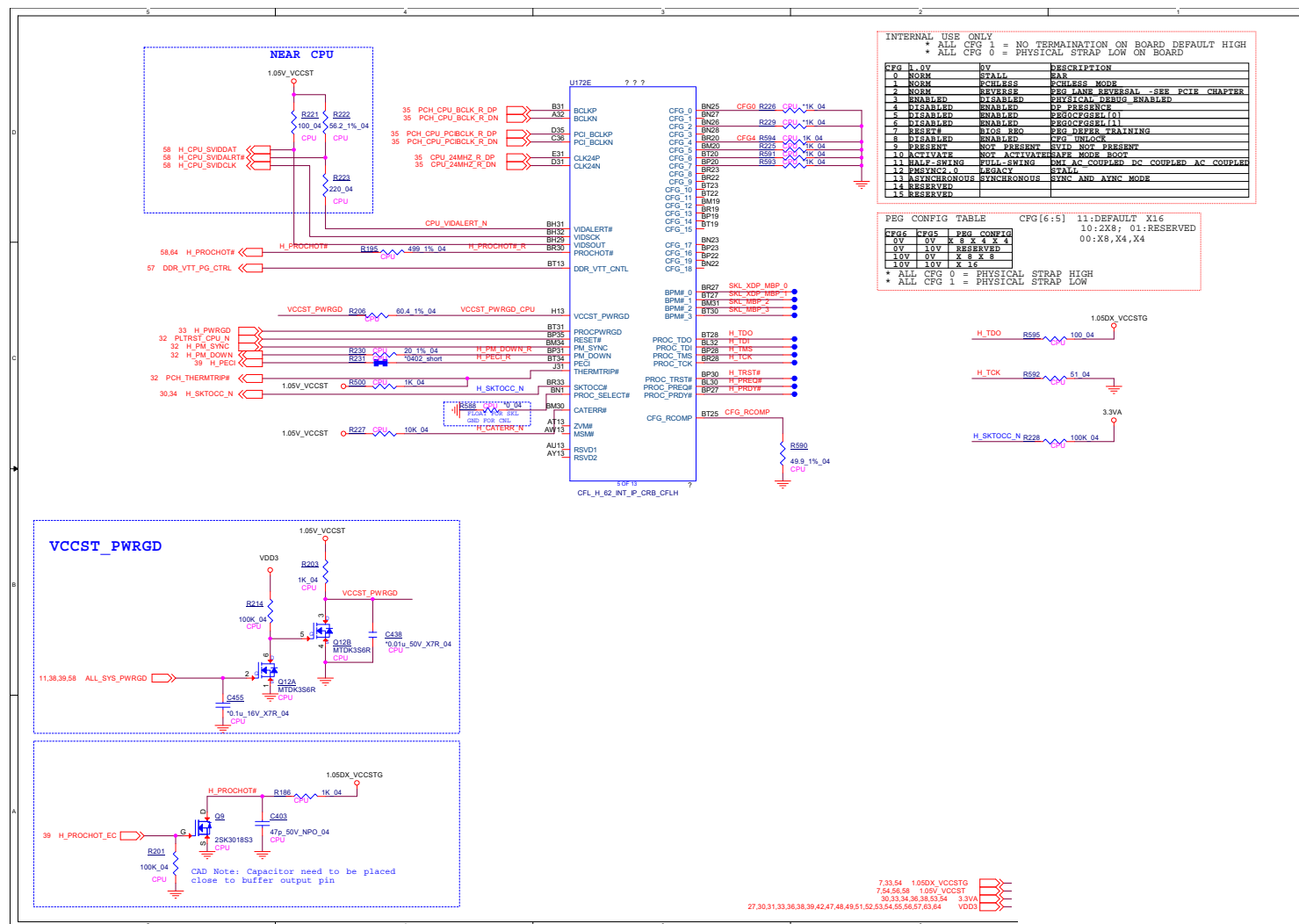
Processor 3/7

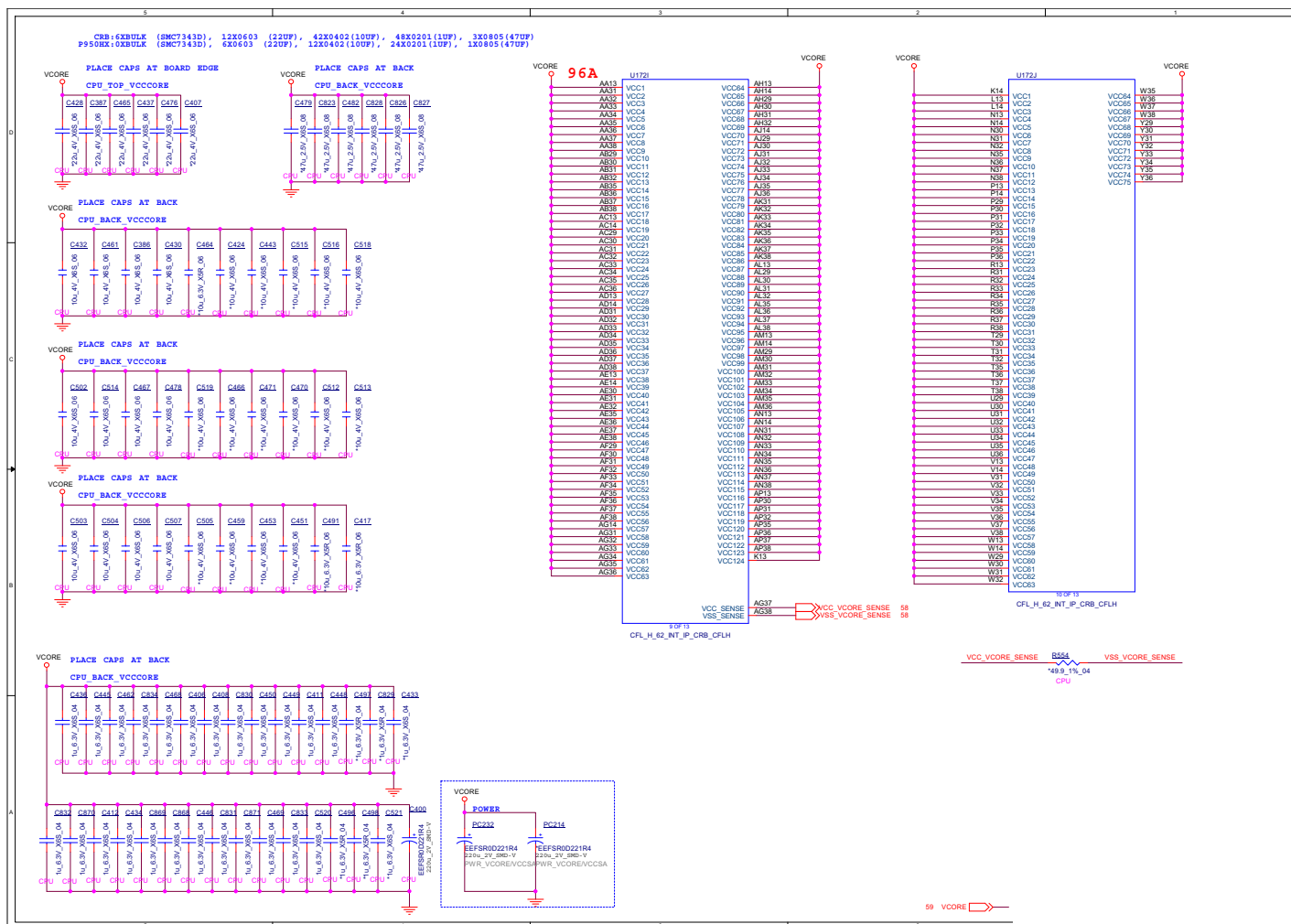
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B.Schematic Diagrams

Processor 4/7

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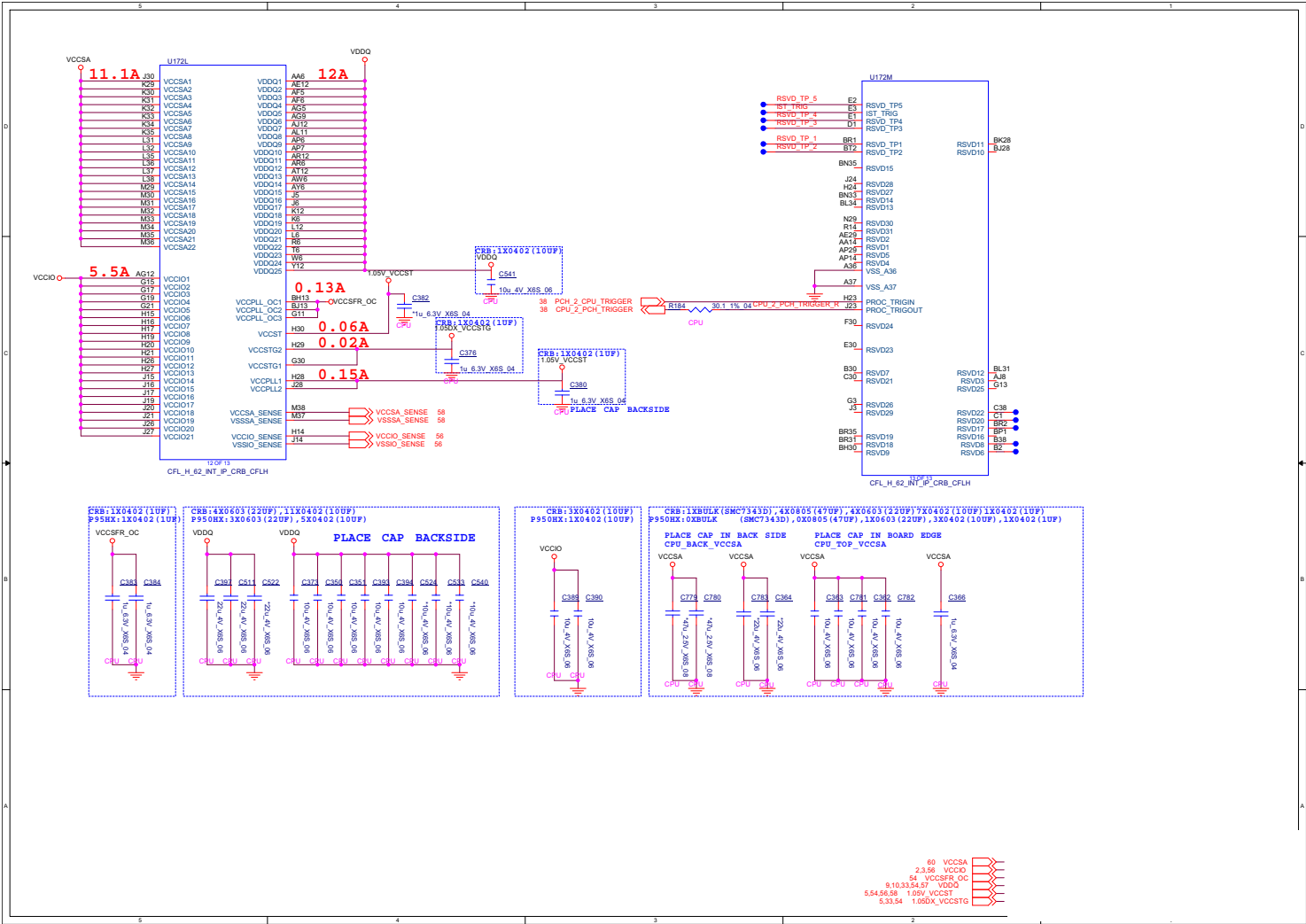




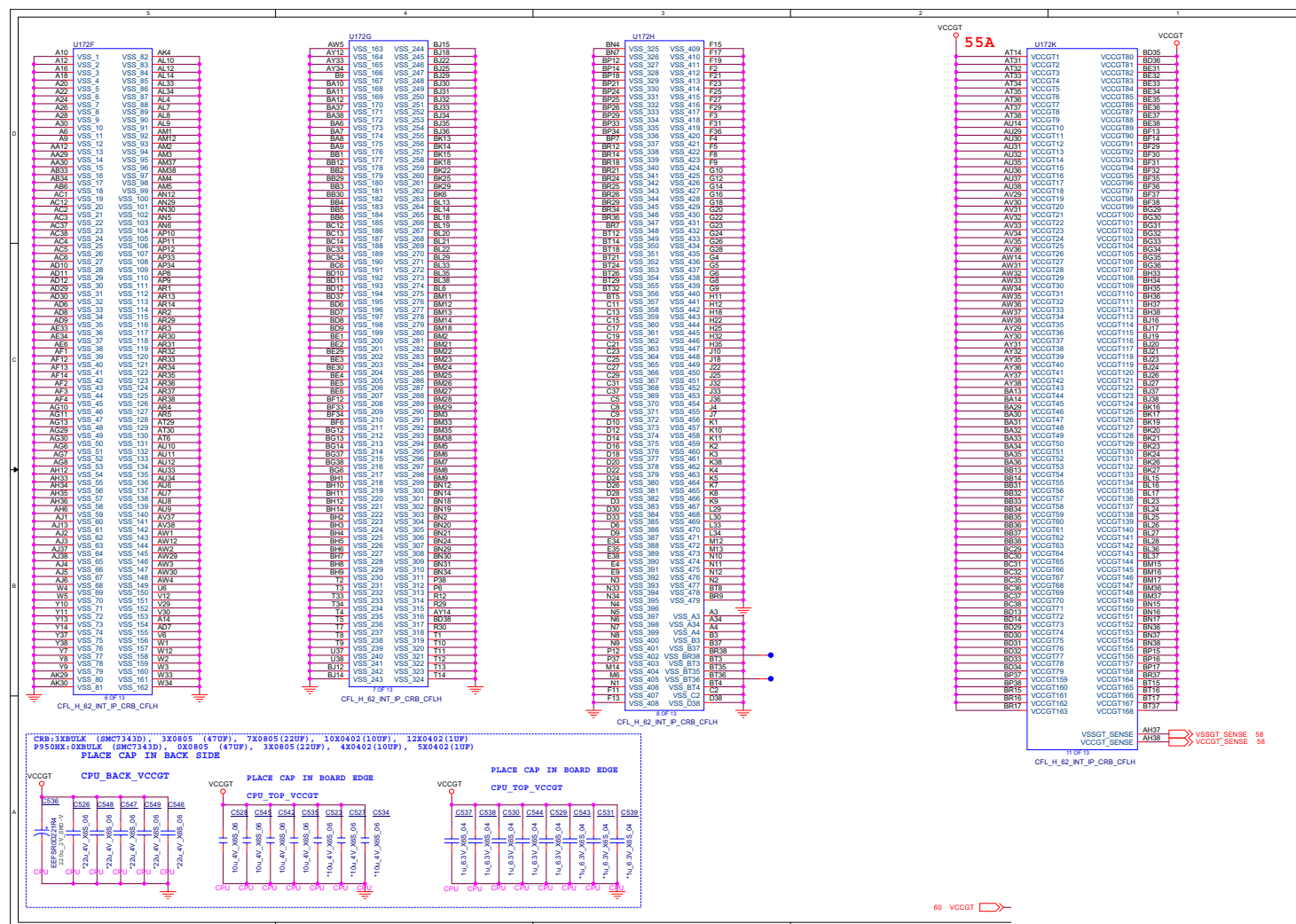
Schematic Diagrams

Processor 6/7

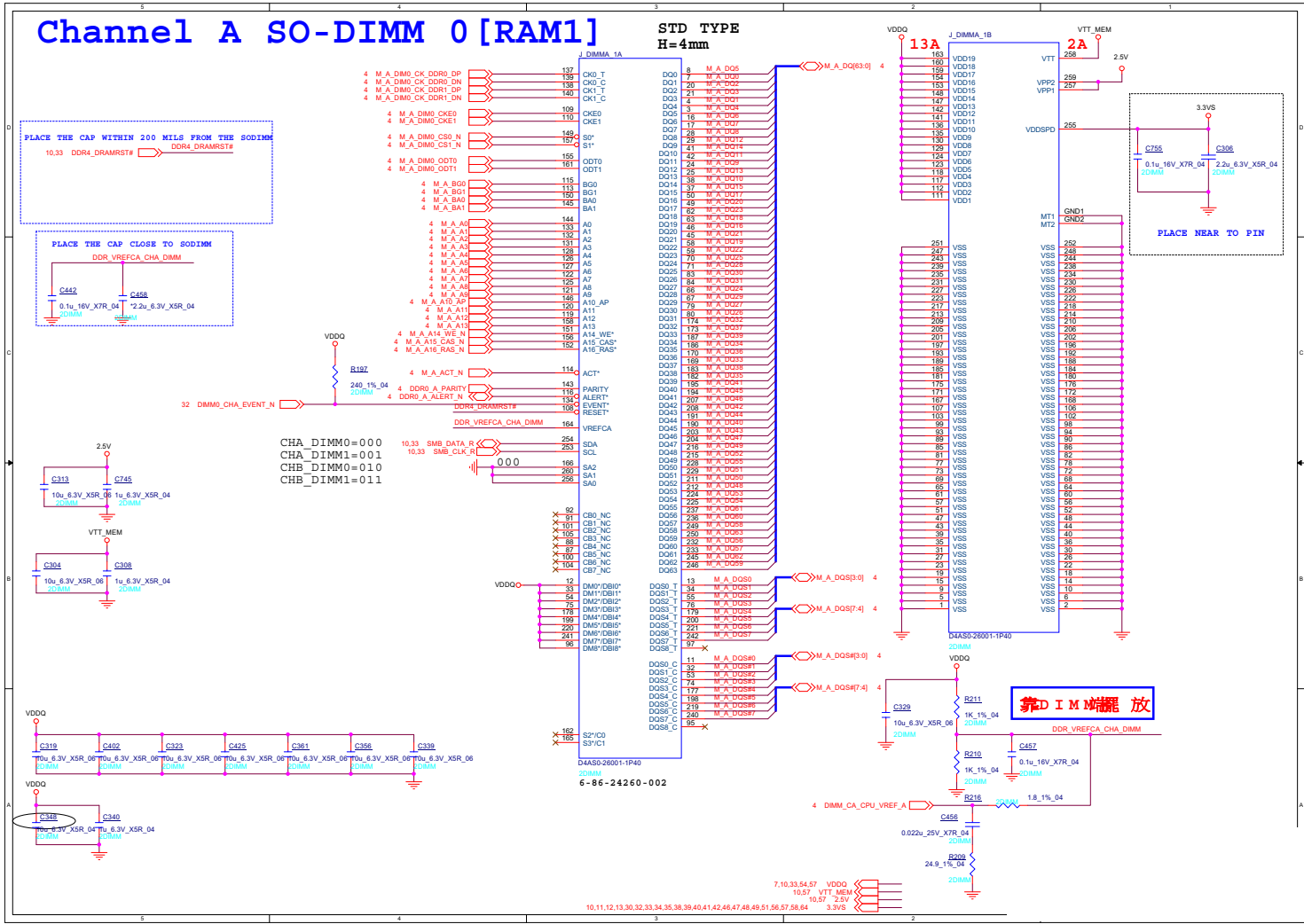
Sheet 7 of 72
Processor 6/



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DDR4 CHA SO-DIMM 0

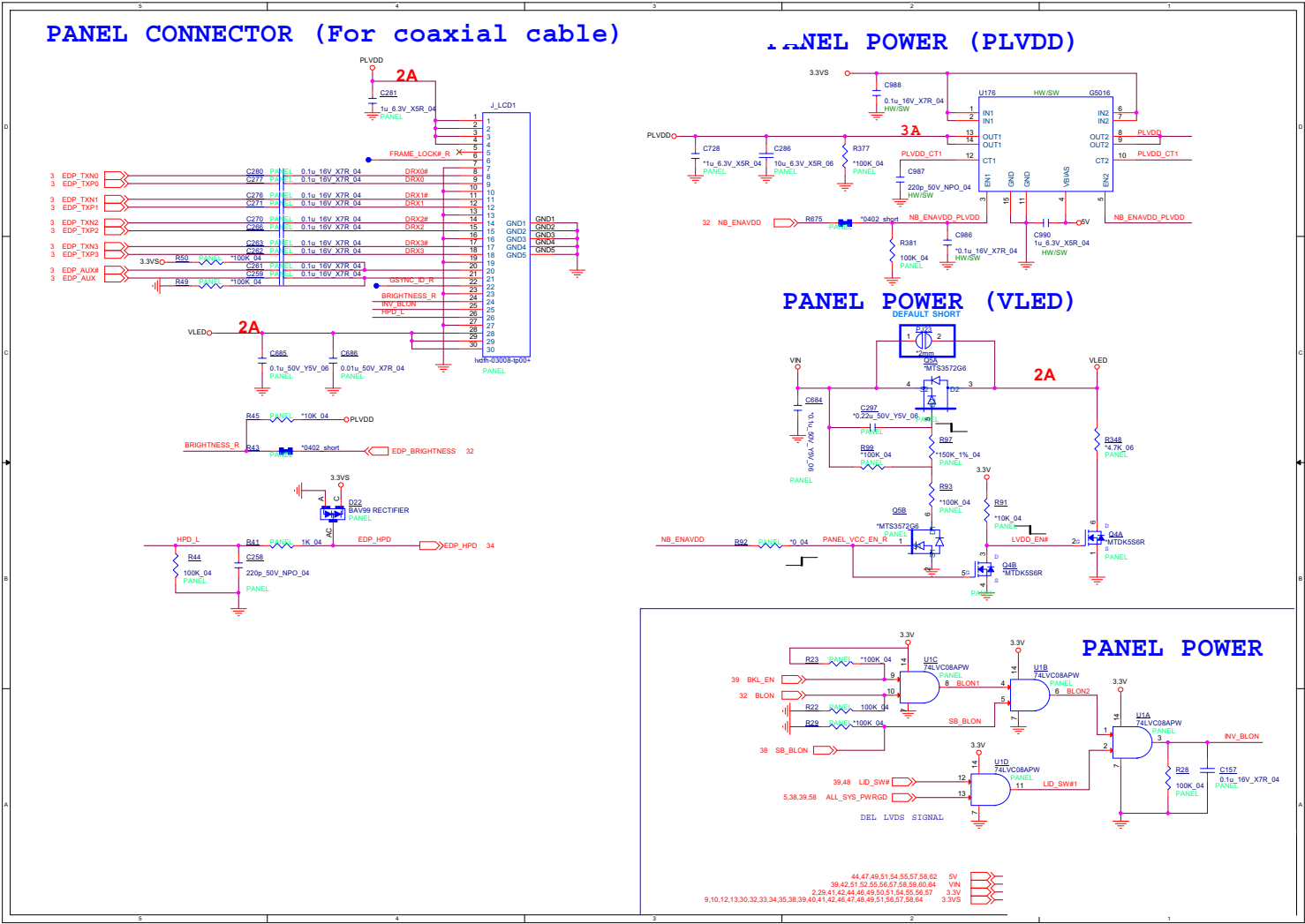


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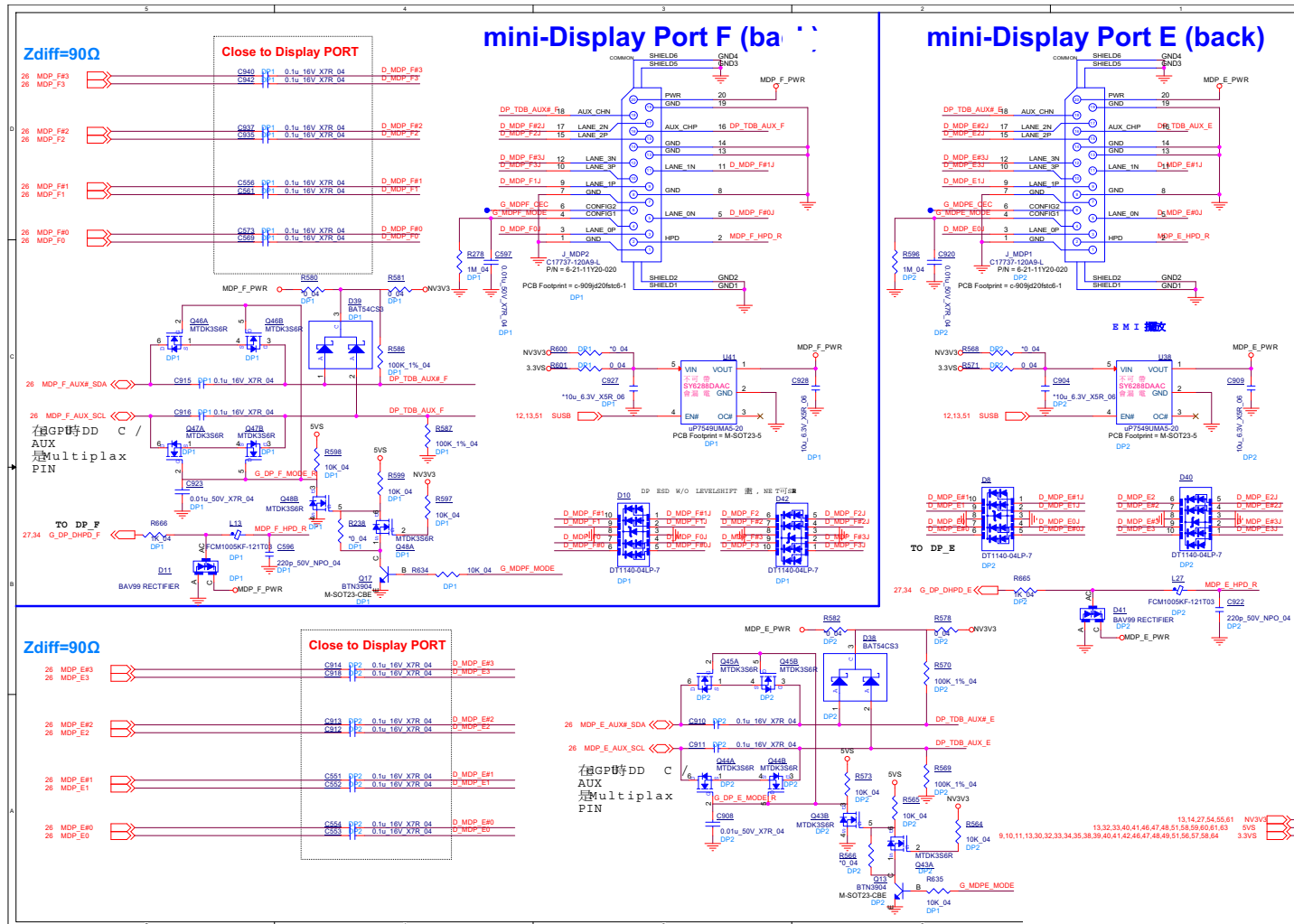
B.Schematic Diagrams

Panel, Inverter

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Panel, Inverter

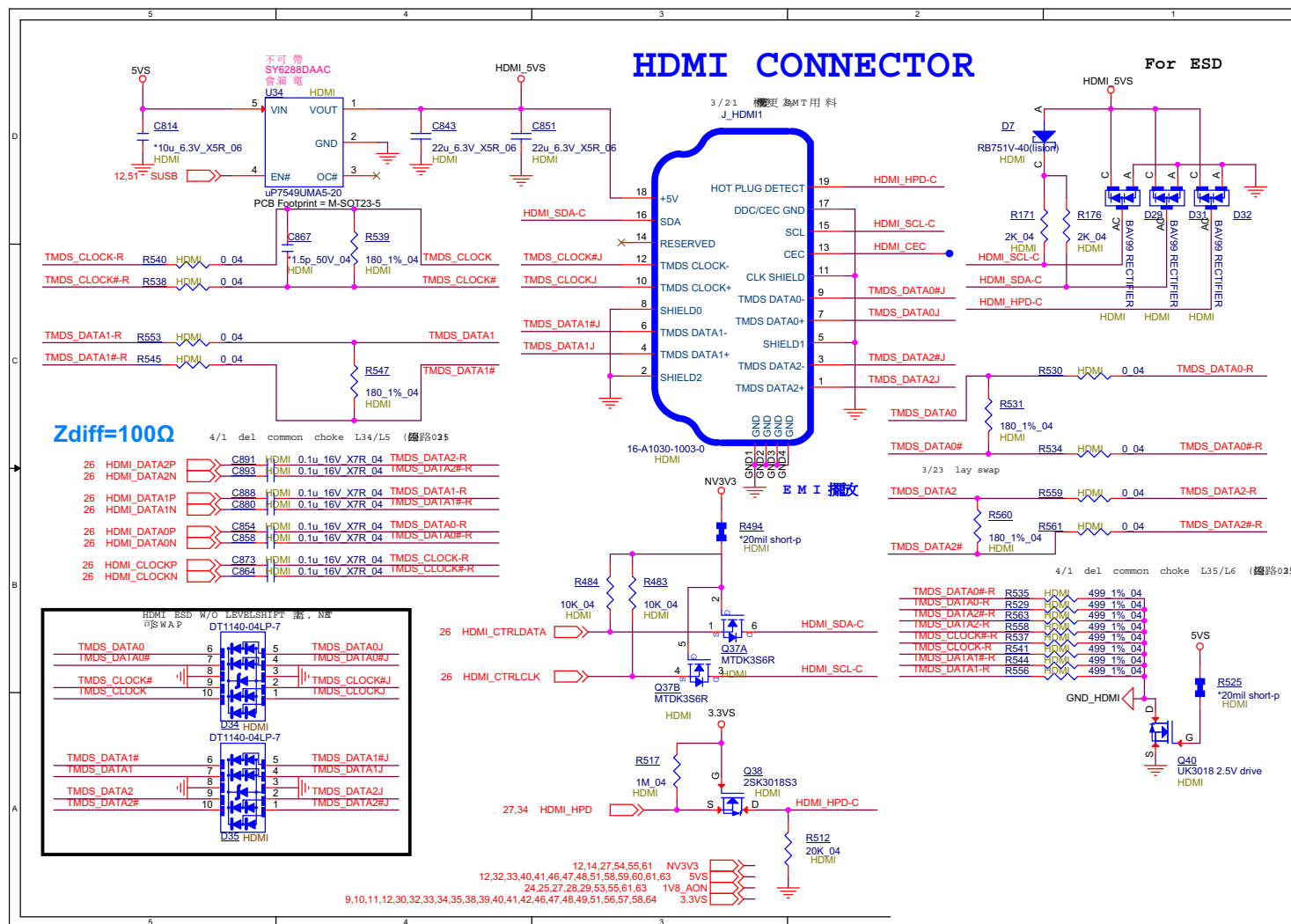


Mini DP Port

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Mini DP Port

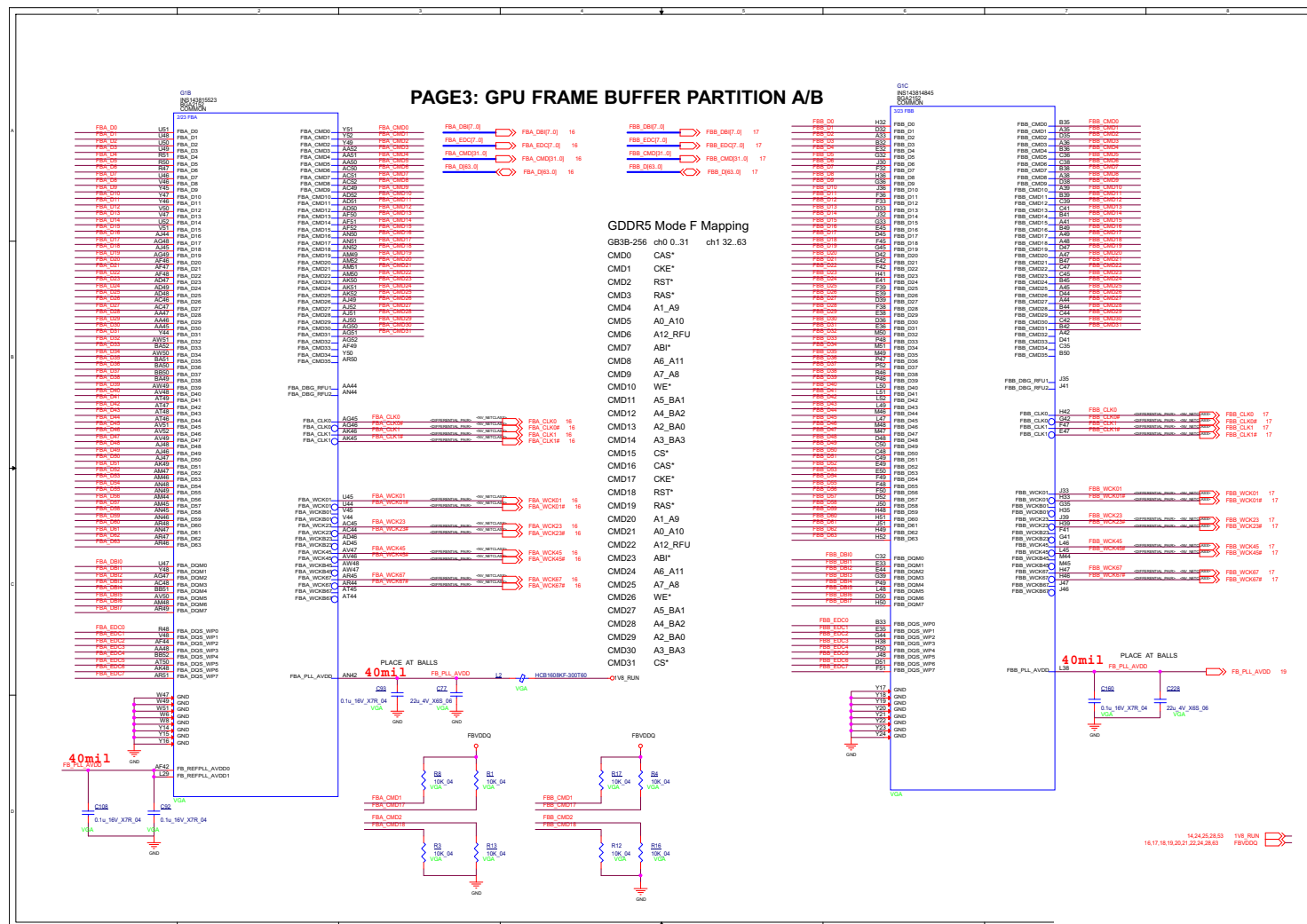
HDMI Connector

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HDMI Connector

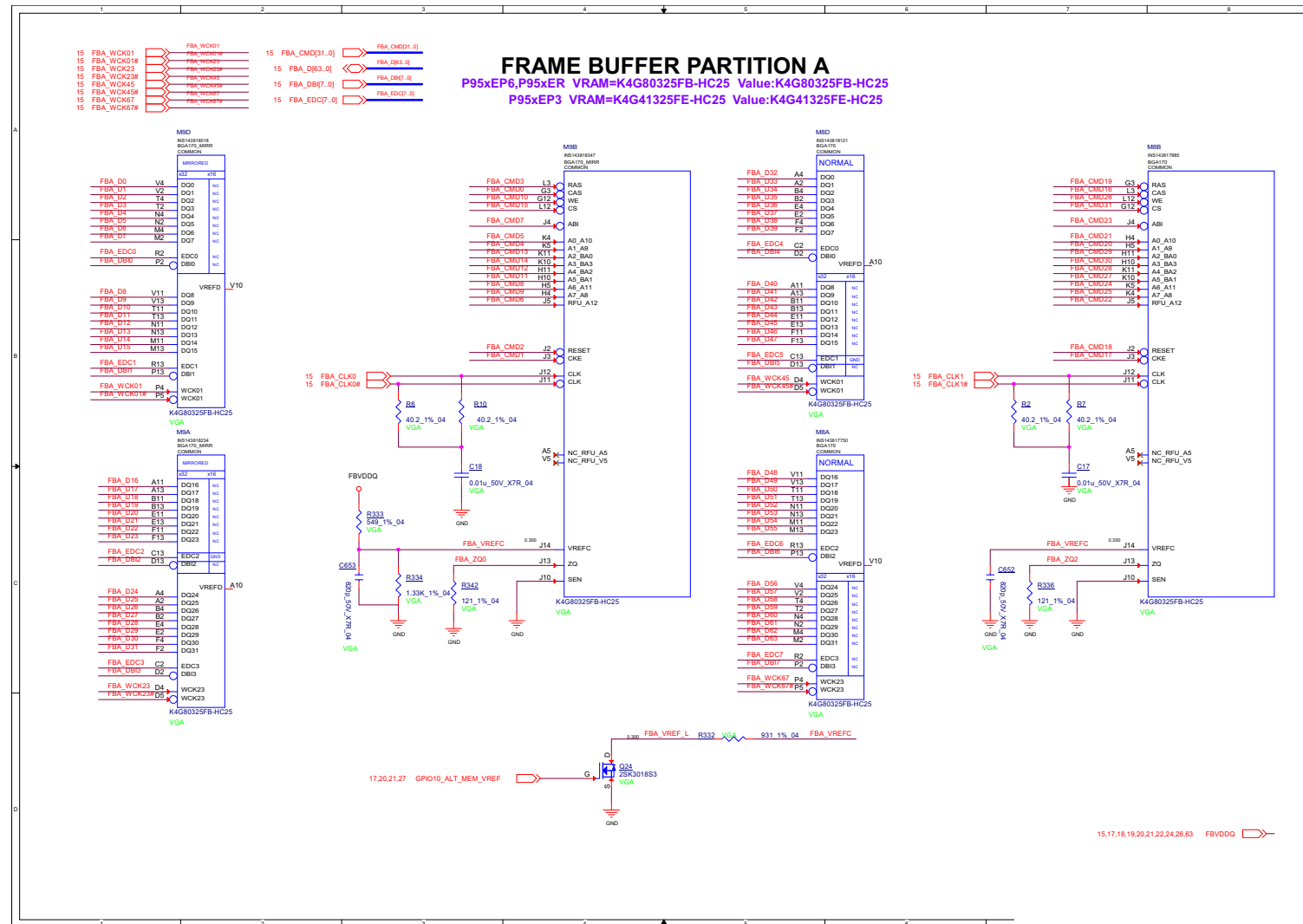


VGA PCI Express B - 15





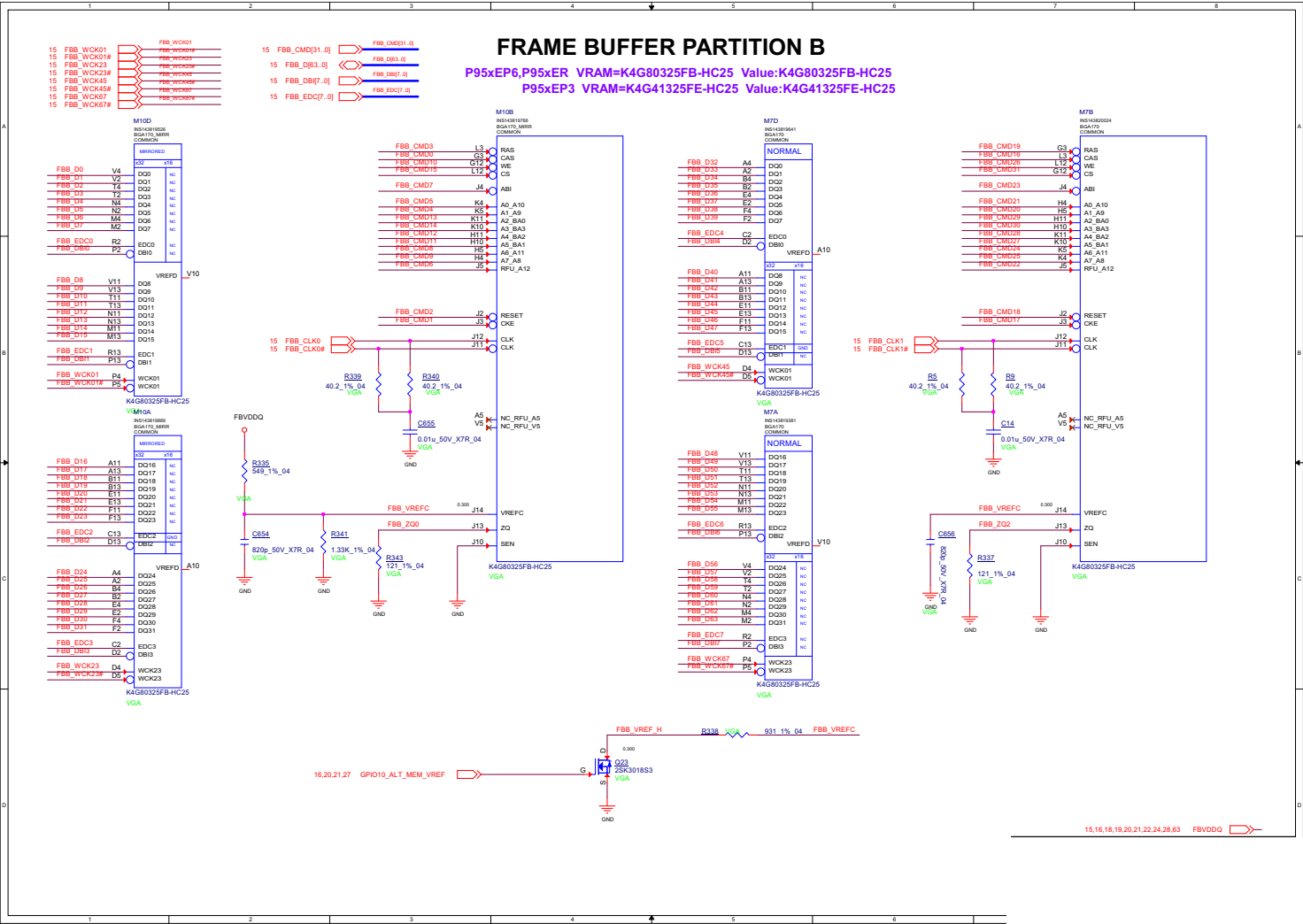
Frame Buffer Partition A



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Frame Buffer
Partition A

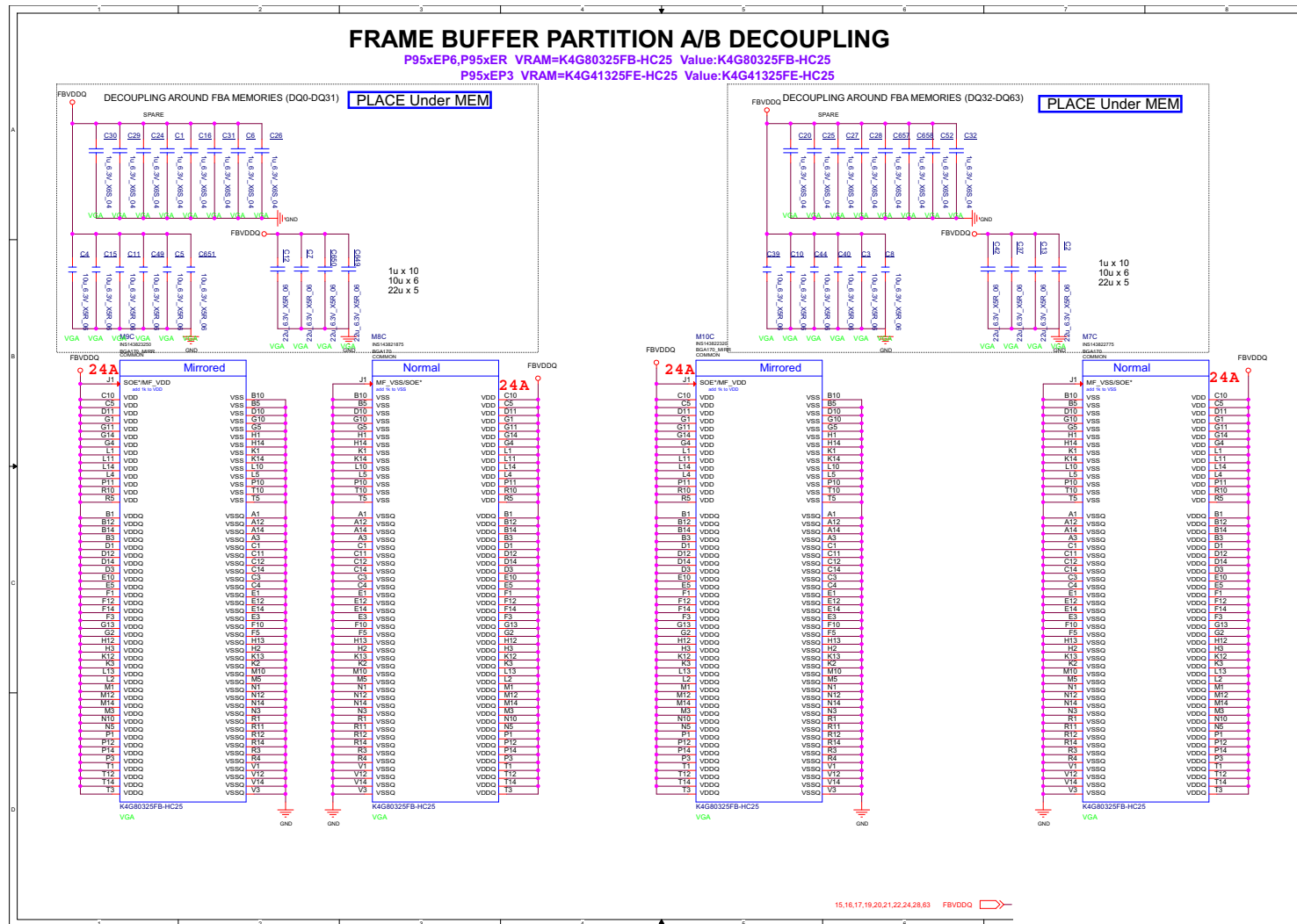
Frame Buffer Partition B

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Frame Buffer
Partition B



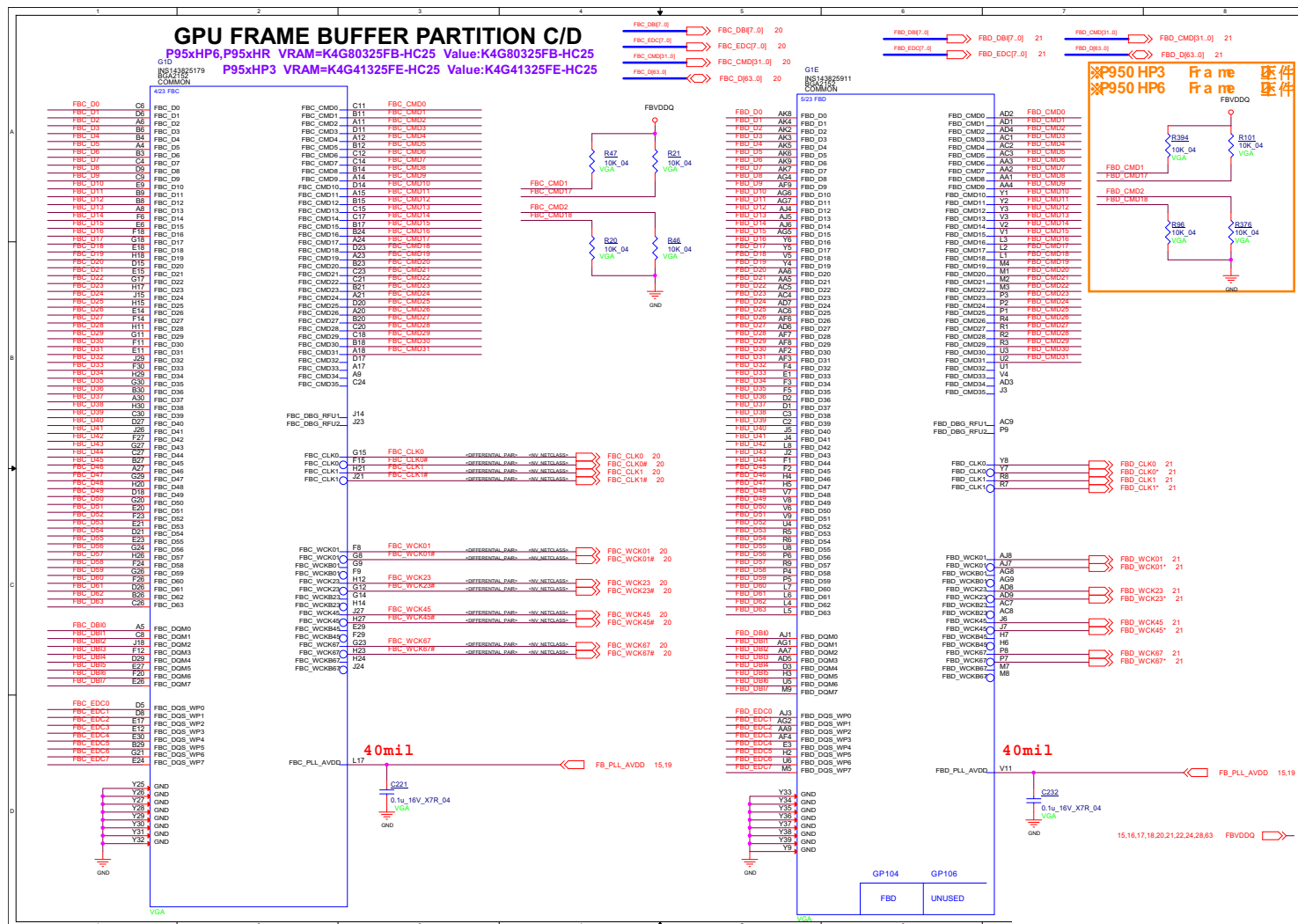
Frame Buffer Partition A_B

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Frame Buffer
Partition A_B



GPU Frame Buffer Partition

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GPU Frame Buffer
Partition



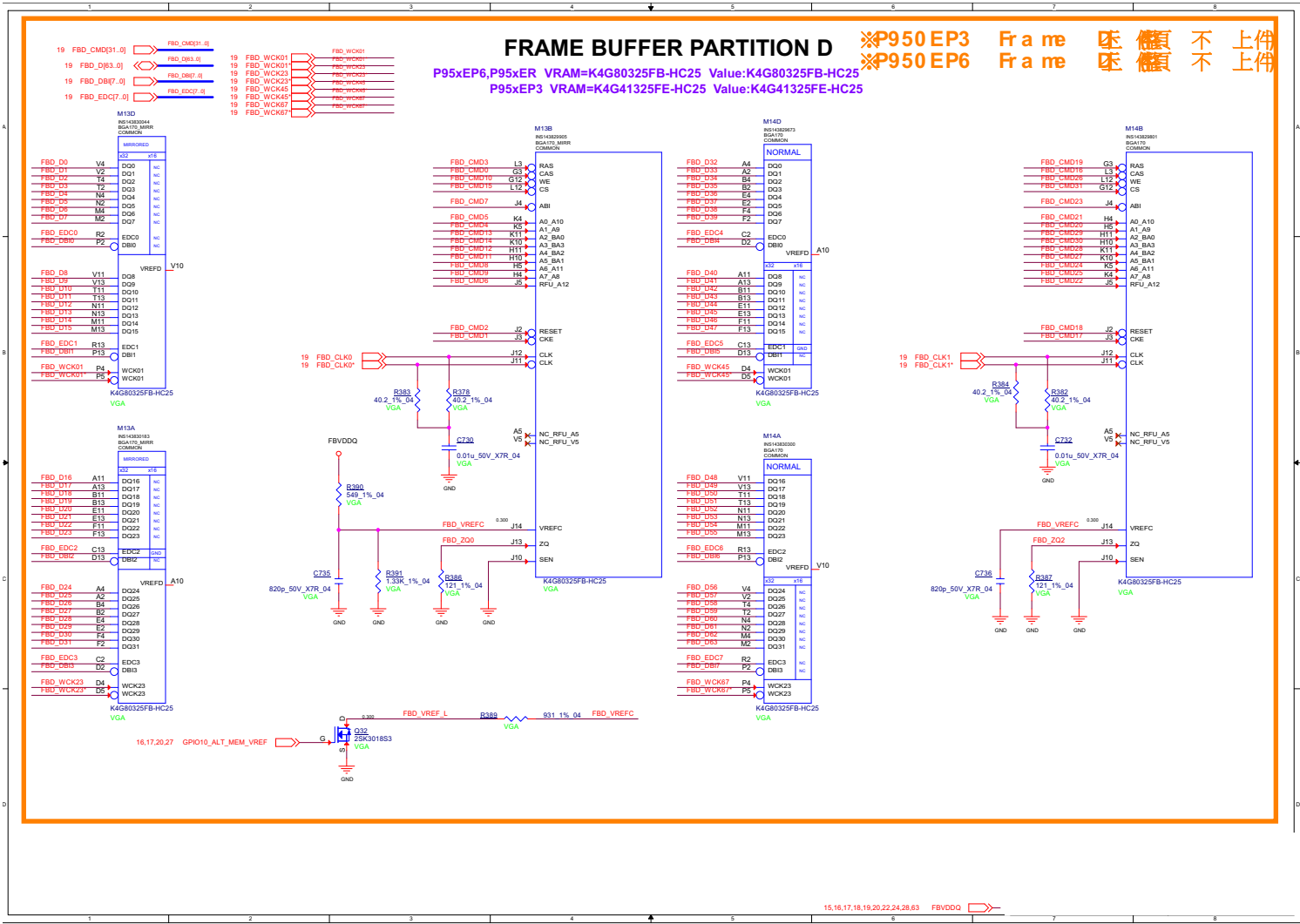
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Frame Buffer
Partition C



Frame Buffer Partition D

B. Schematic Diagrams

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Frame Buffer
Partition D

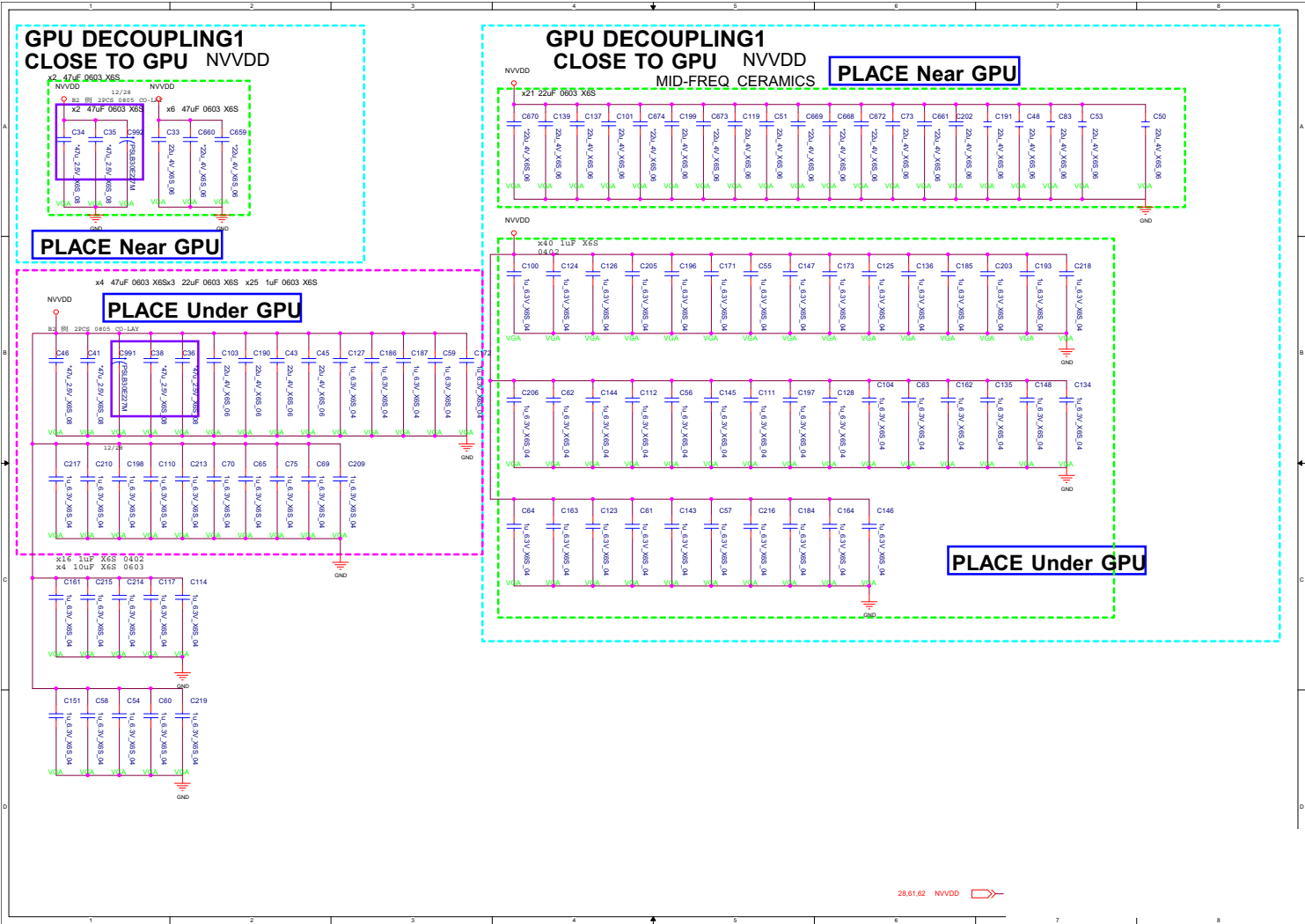


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Frame Buffer
Partition C D

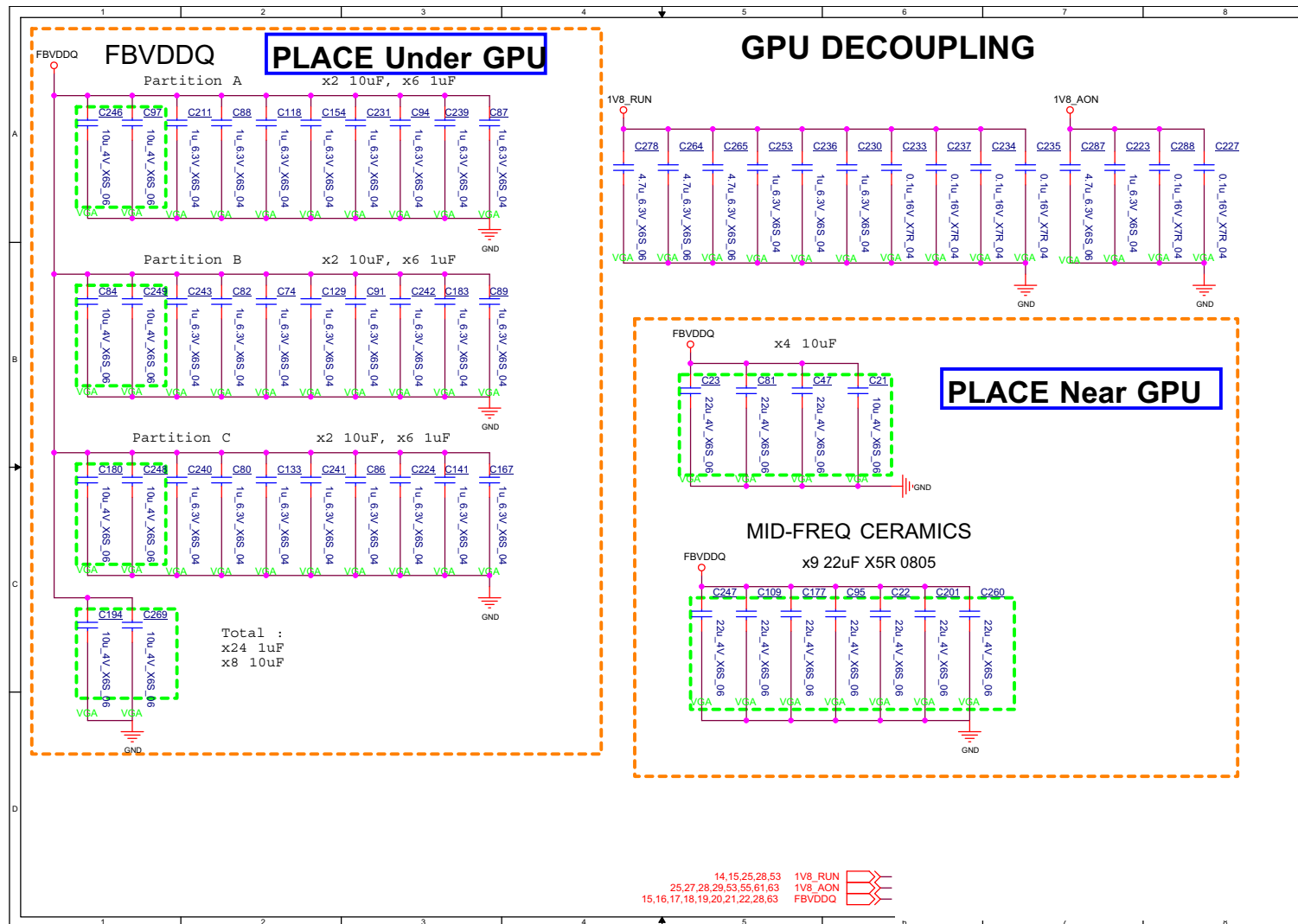


GPU Decoupling 1

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GPU Decoupling 1

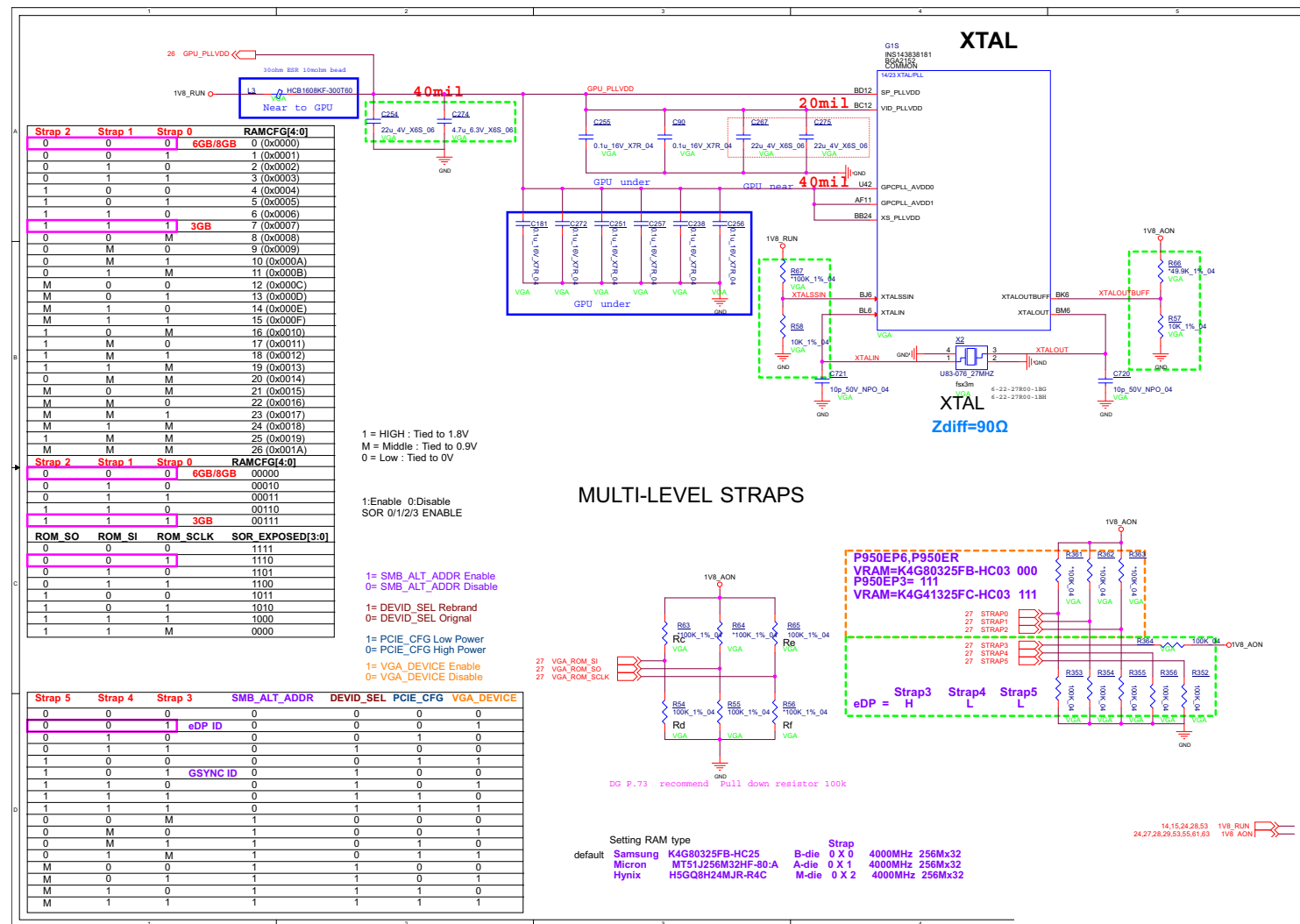


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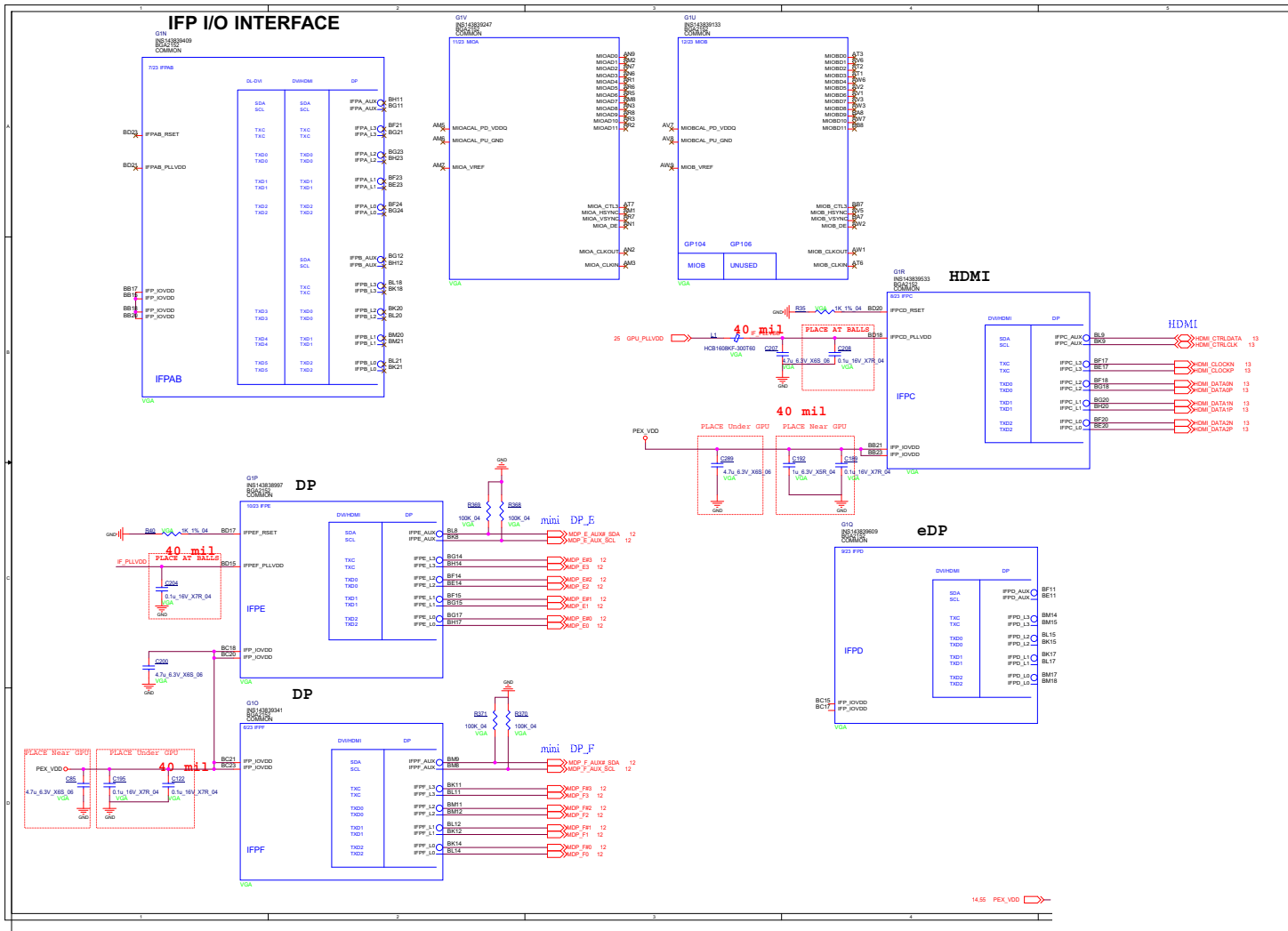


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GPU Decoupling 2

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Straps and XTAL



IFP I/O Interface



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IFP I/O Interface



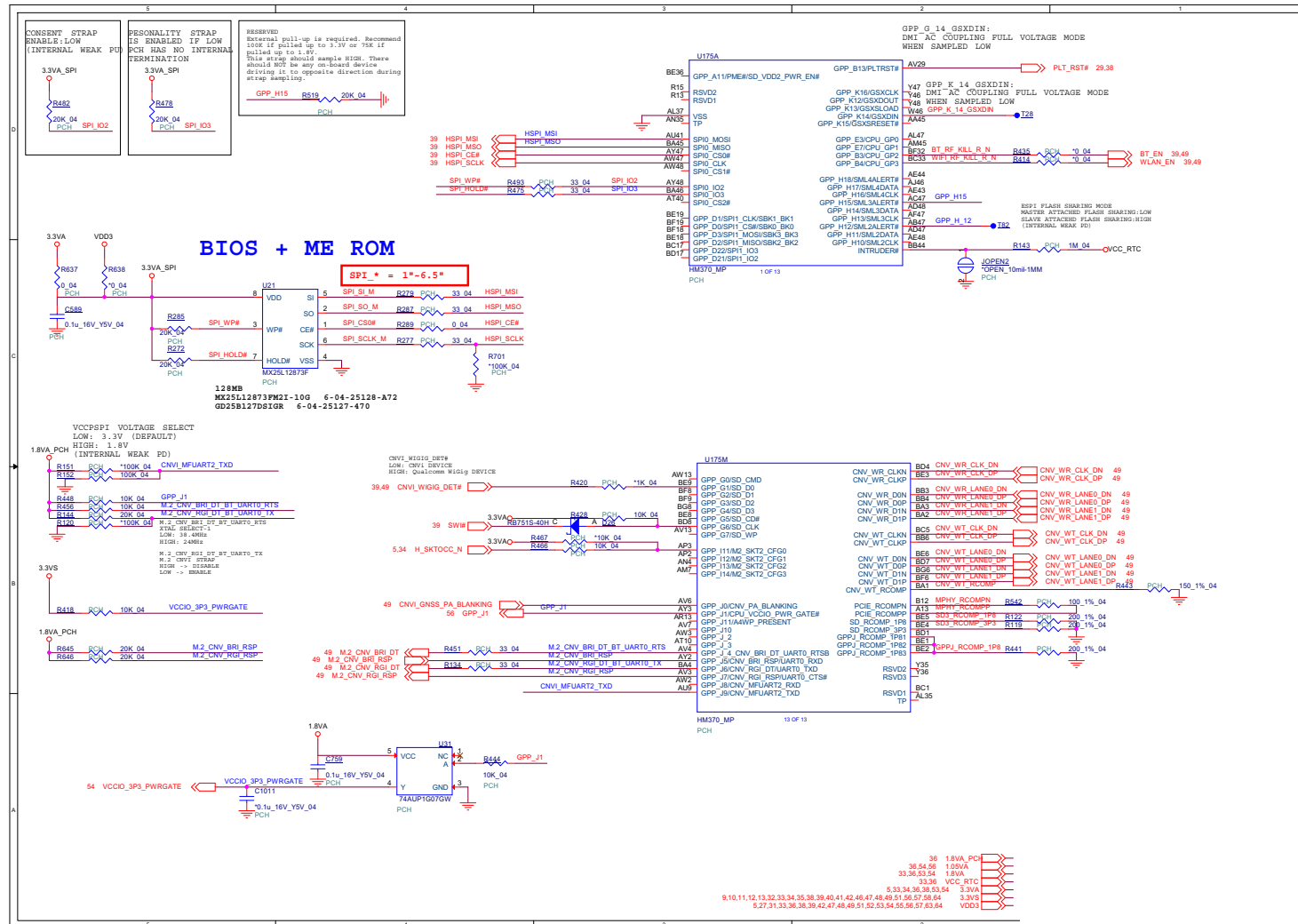
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GPU NVVDD,
FBVDDQ



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GPU GND &
Sequence

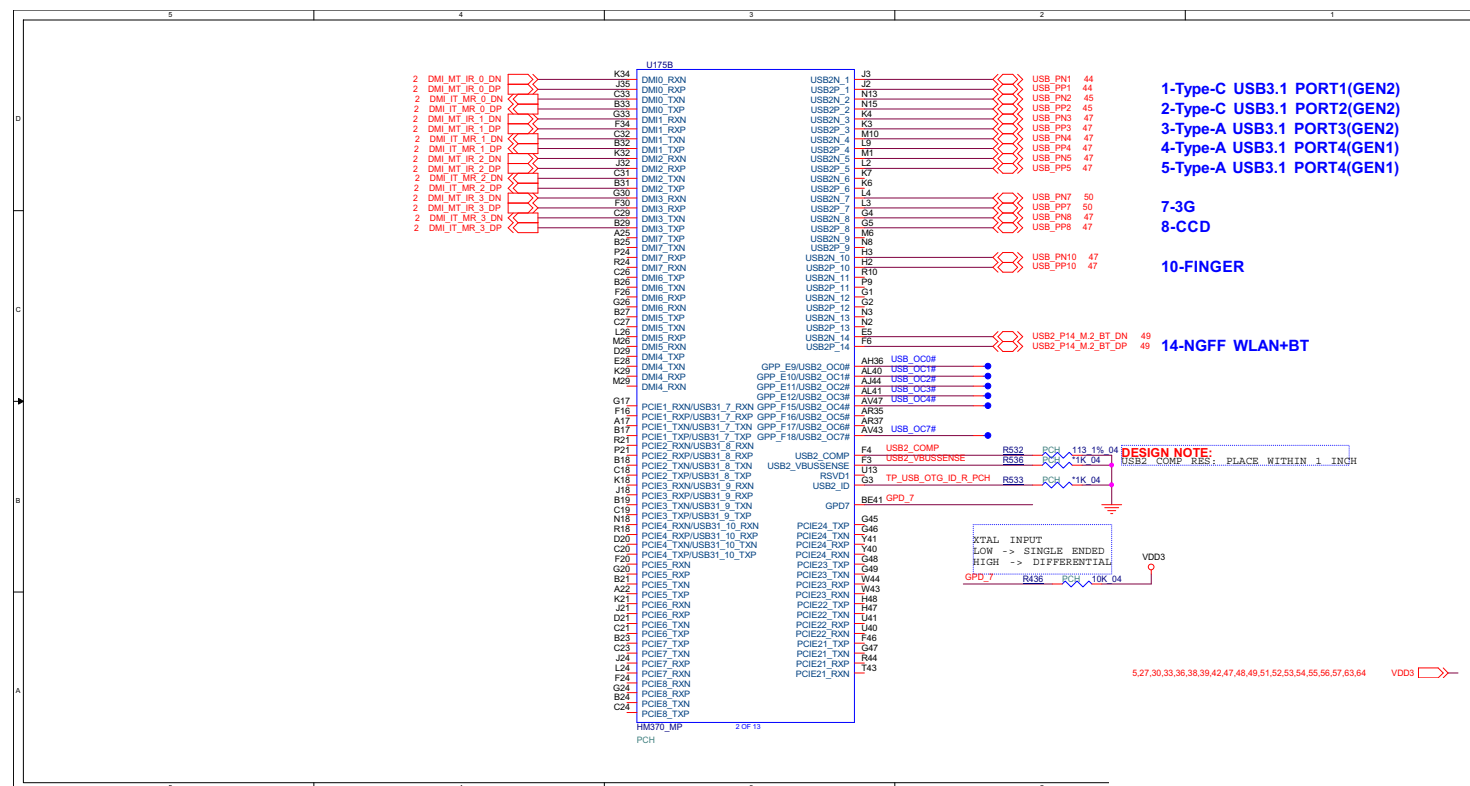


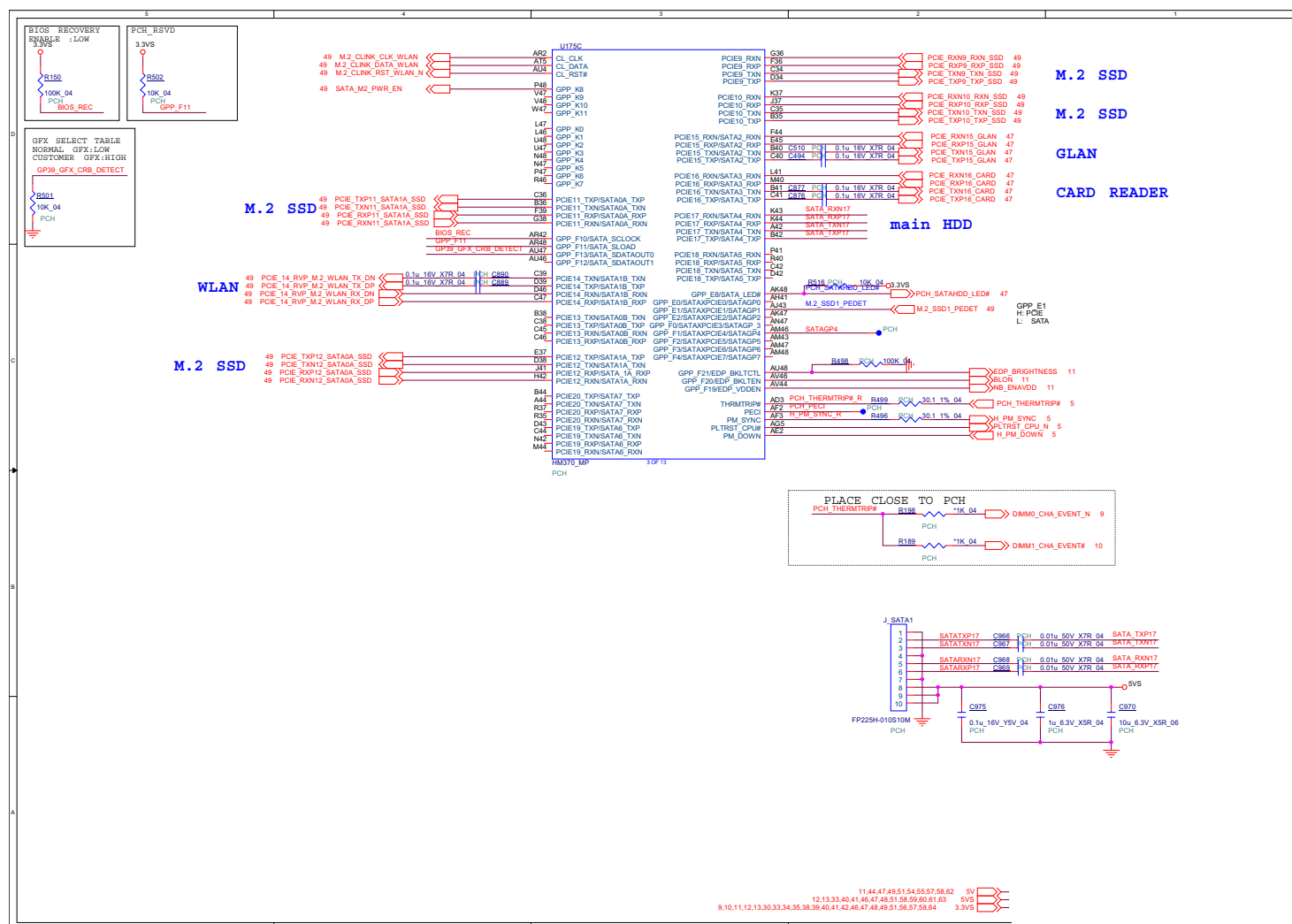
PCH 1/9 B - 31



PCH 2/9

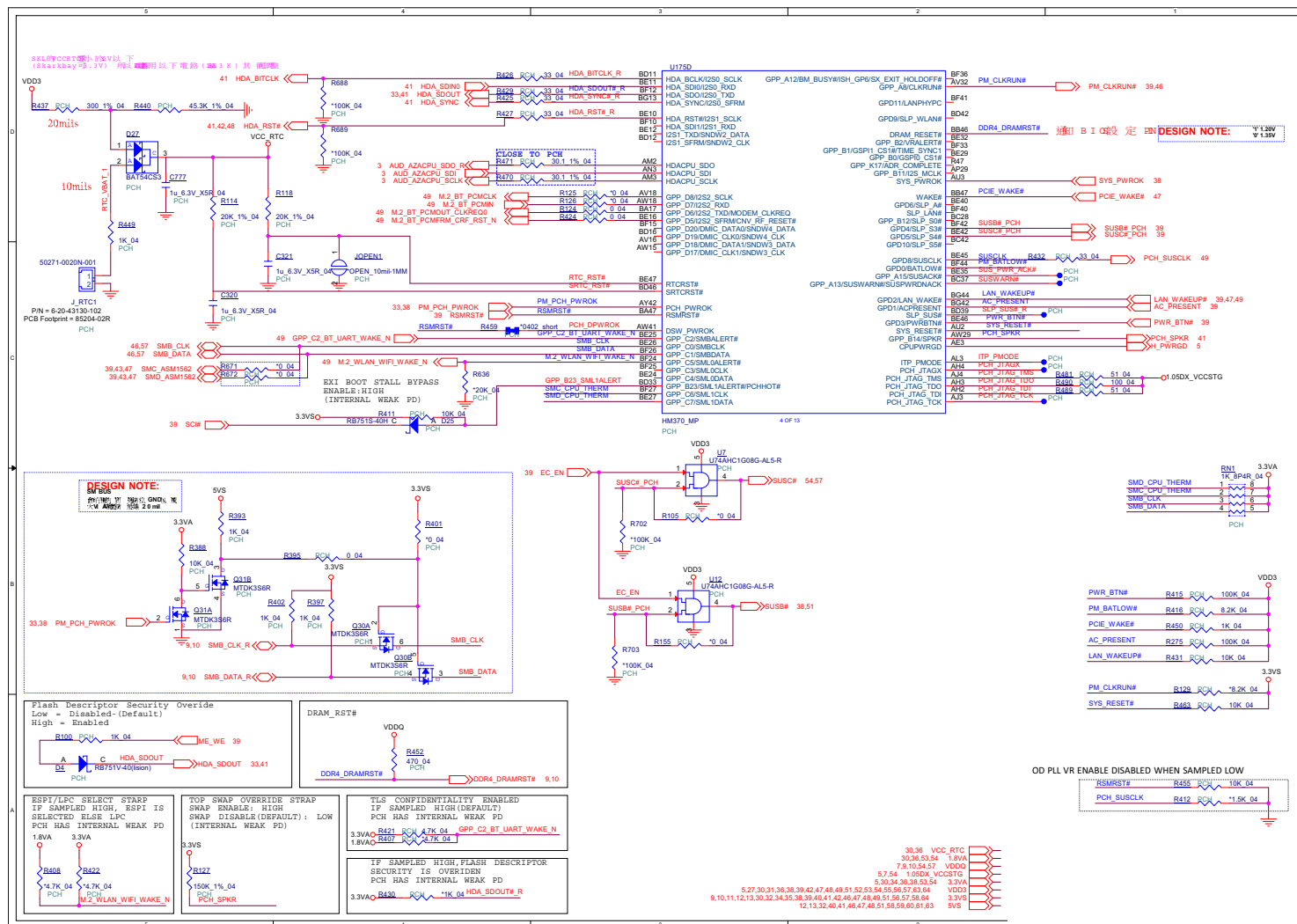
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PCH 2/9



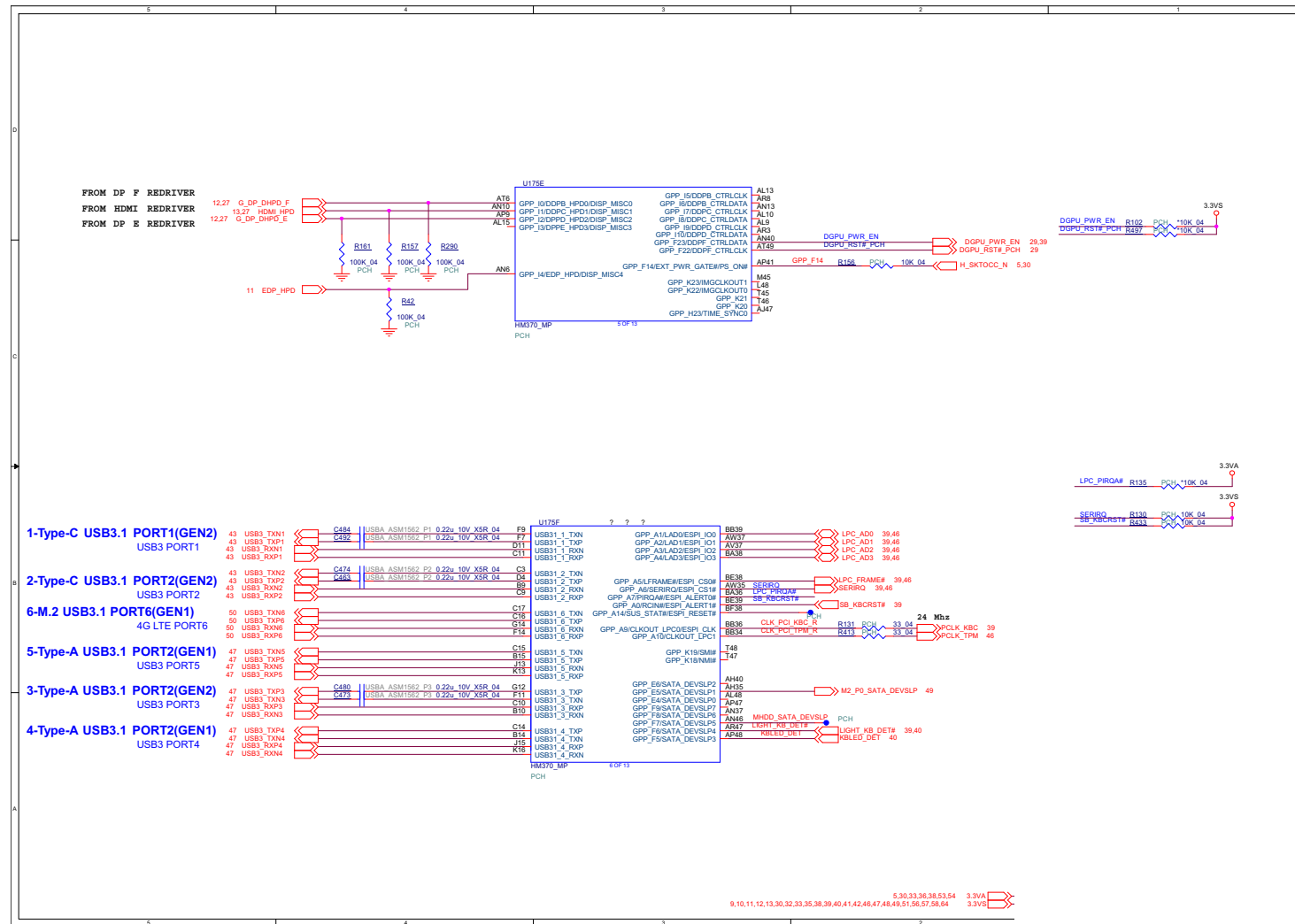


PCH 4/9

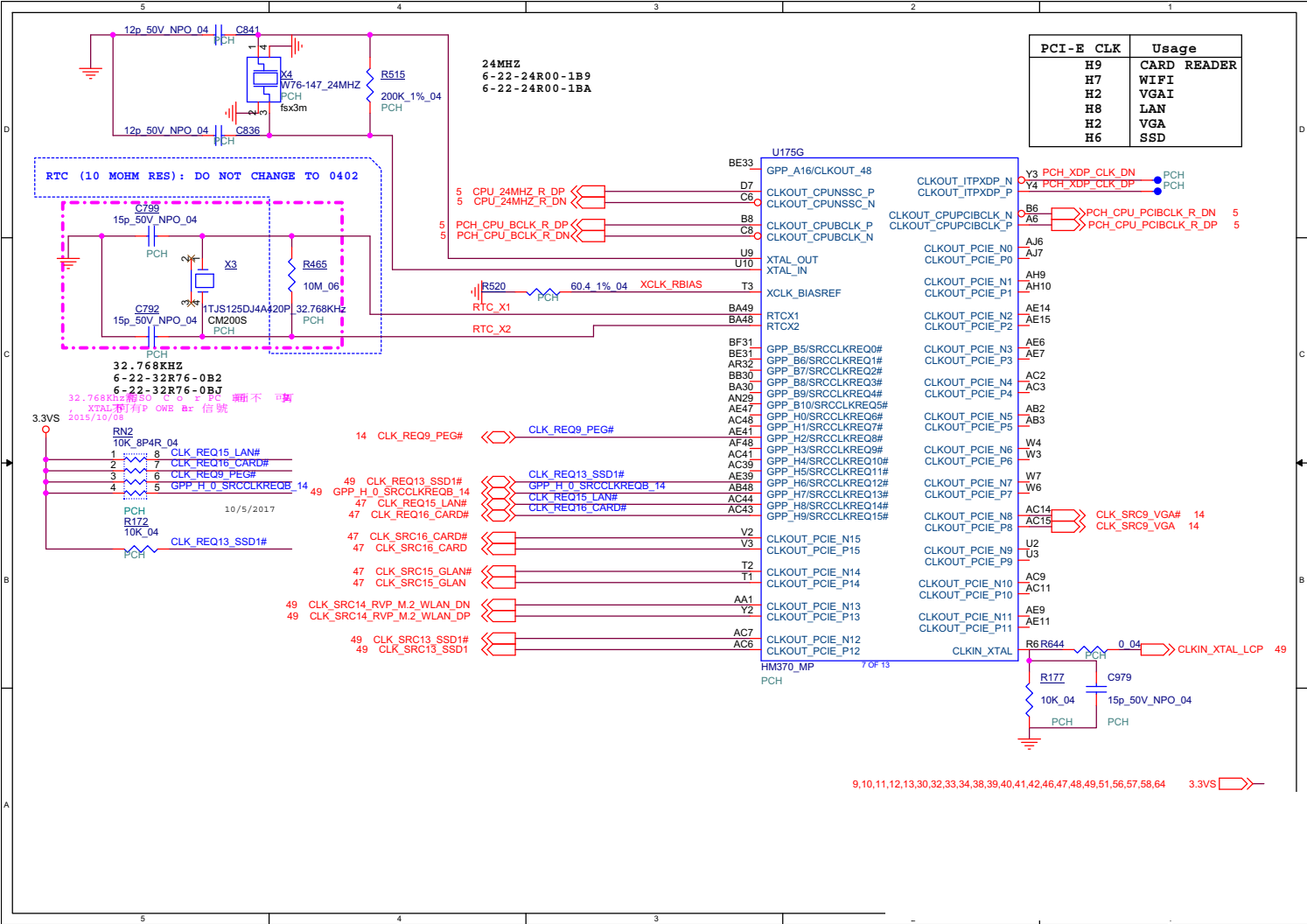
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PCH 4/9



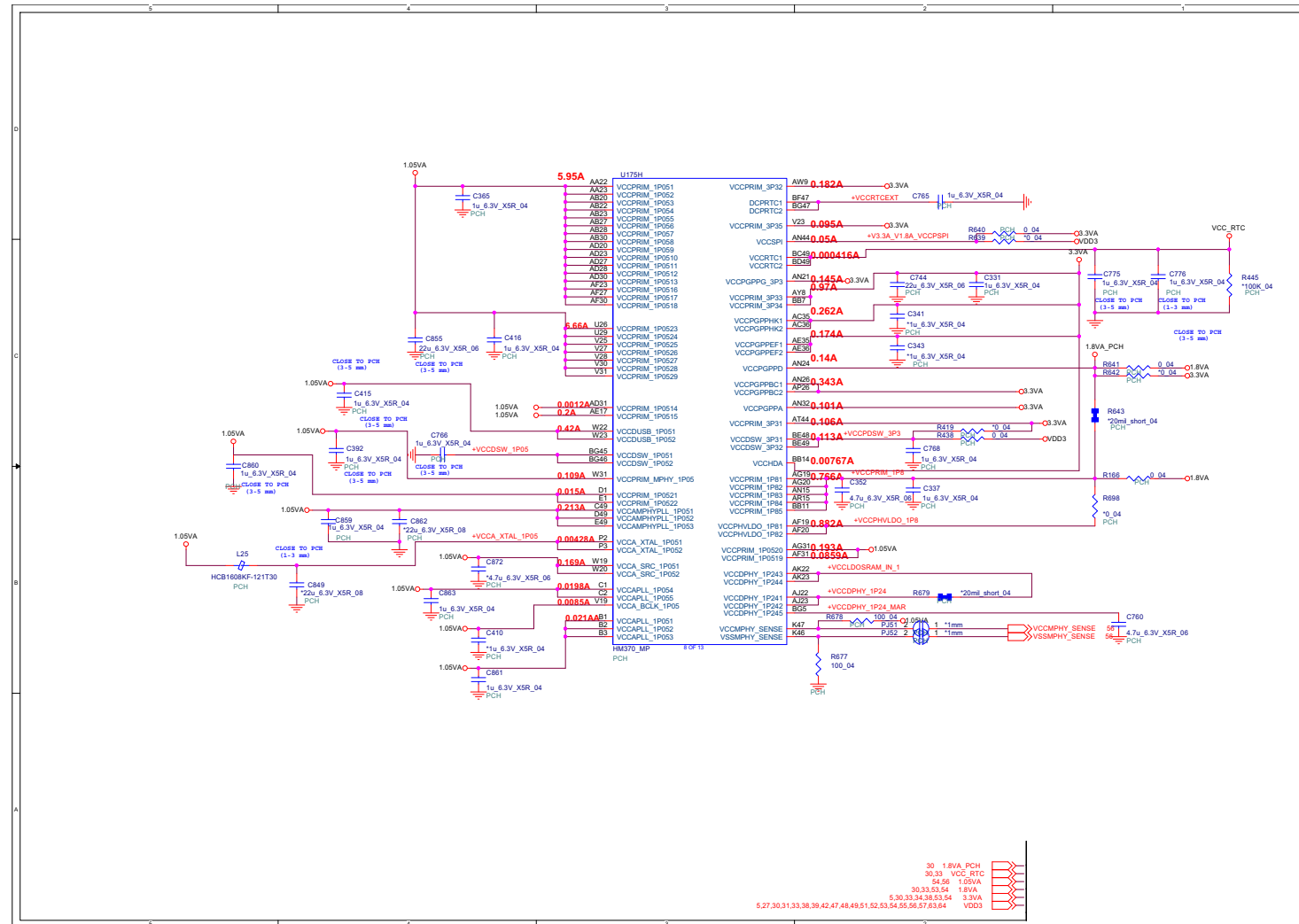
PCH 5/9 B - 35



PCH 6/9



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PCH 6/9

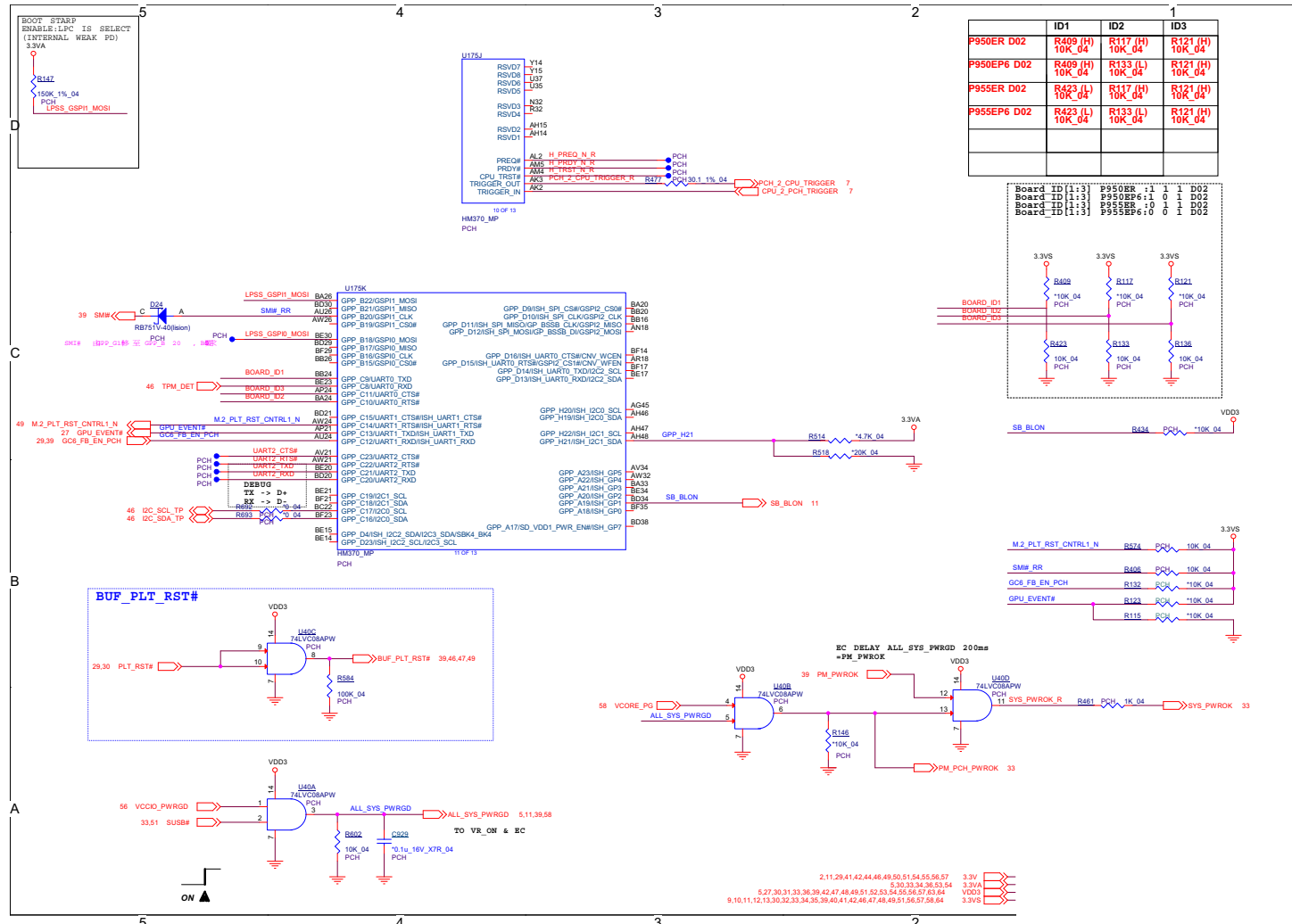


PCH 8/9

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PCH 8/9



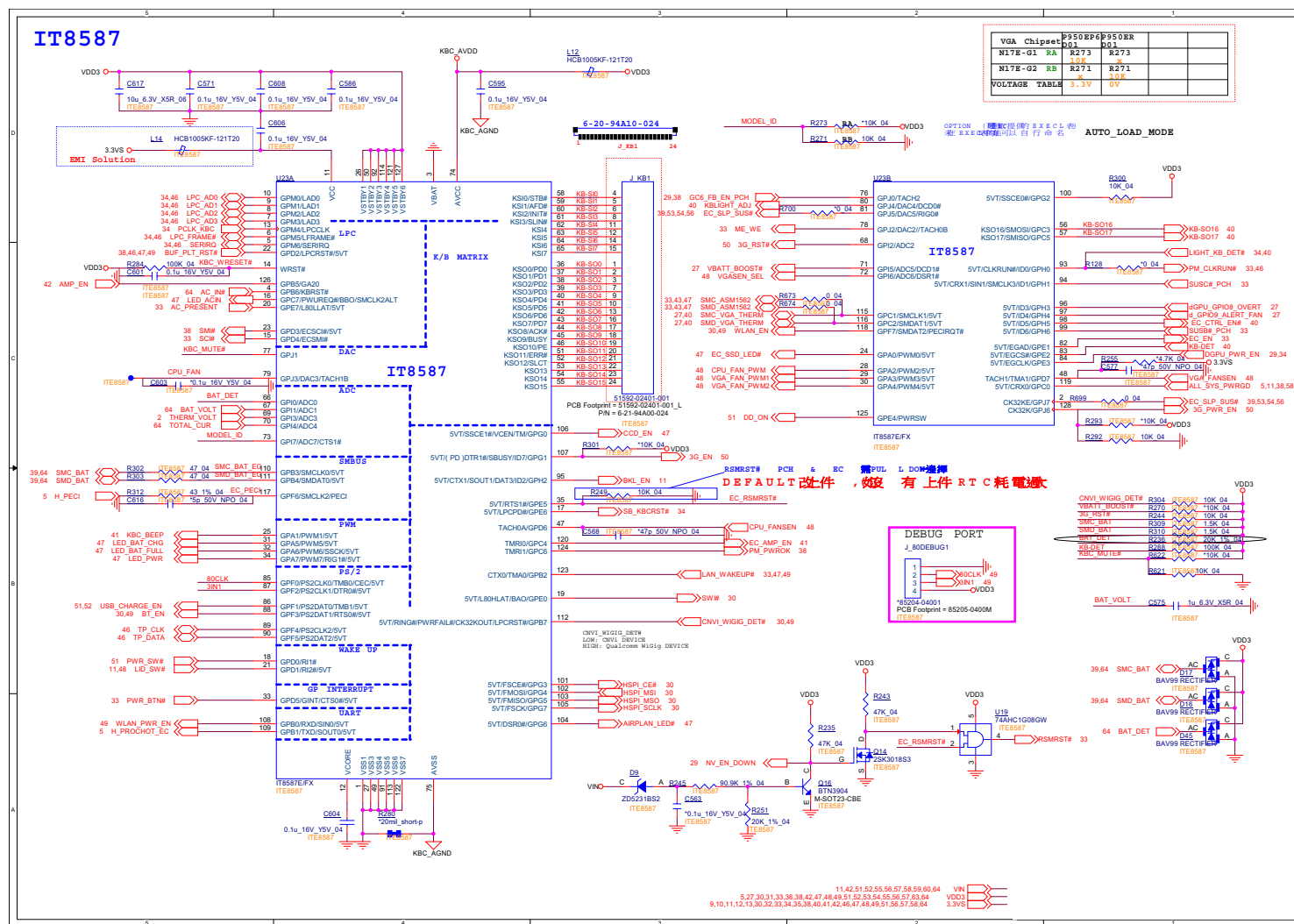
PCH 9/9

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PCH 9/9

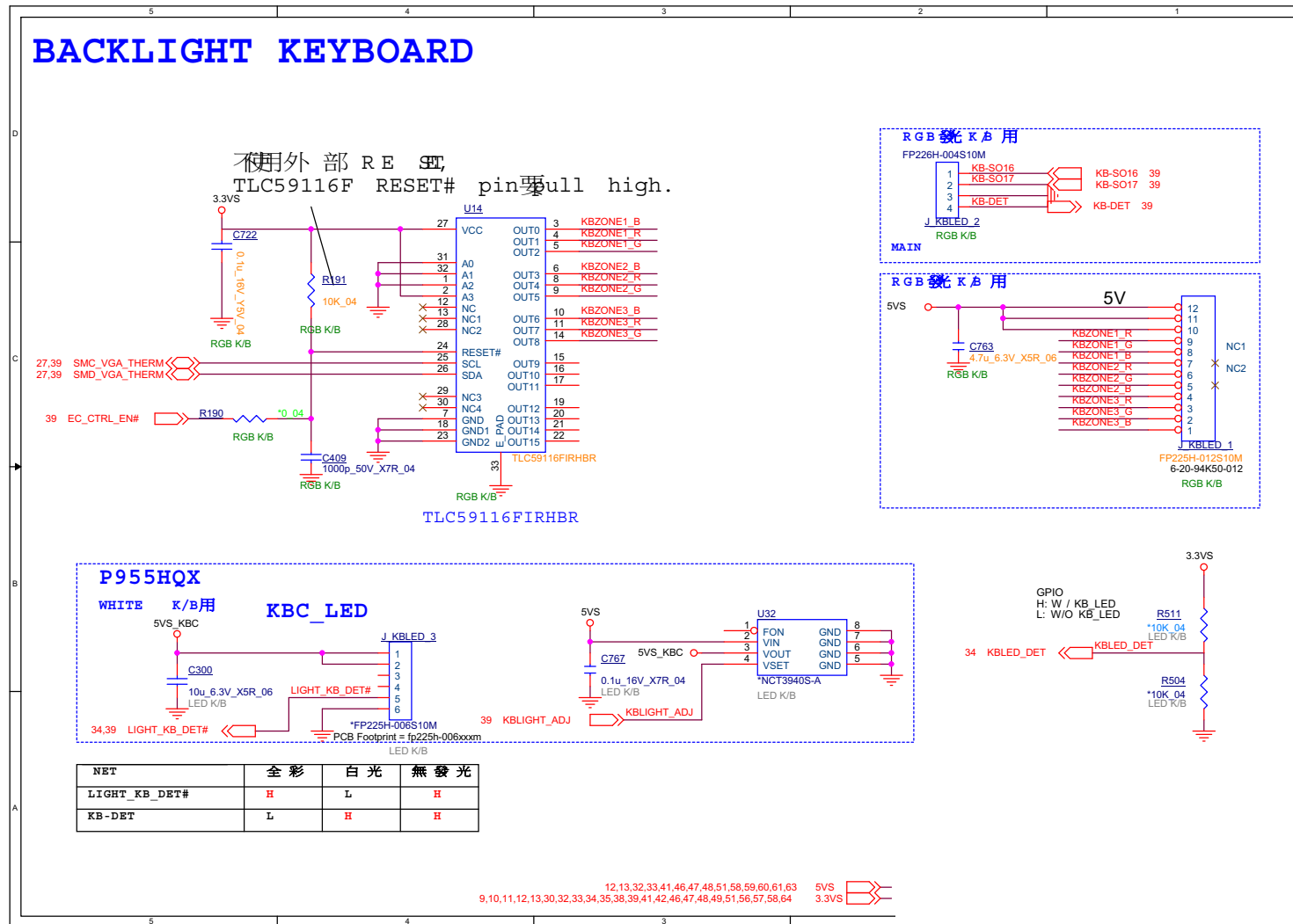
KBC IT8587

B. Schematic Diagrams

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KBC IT8587

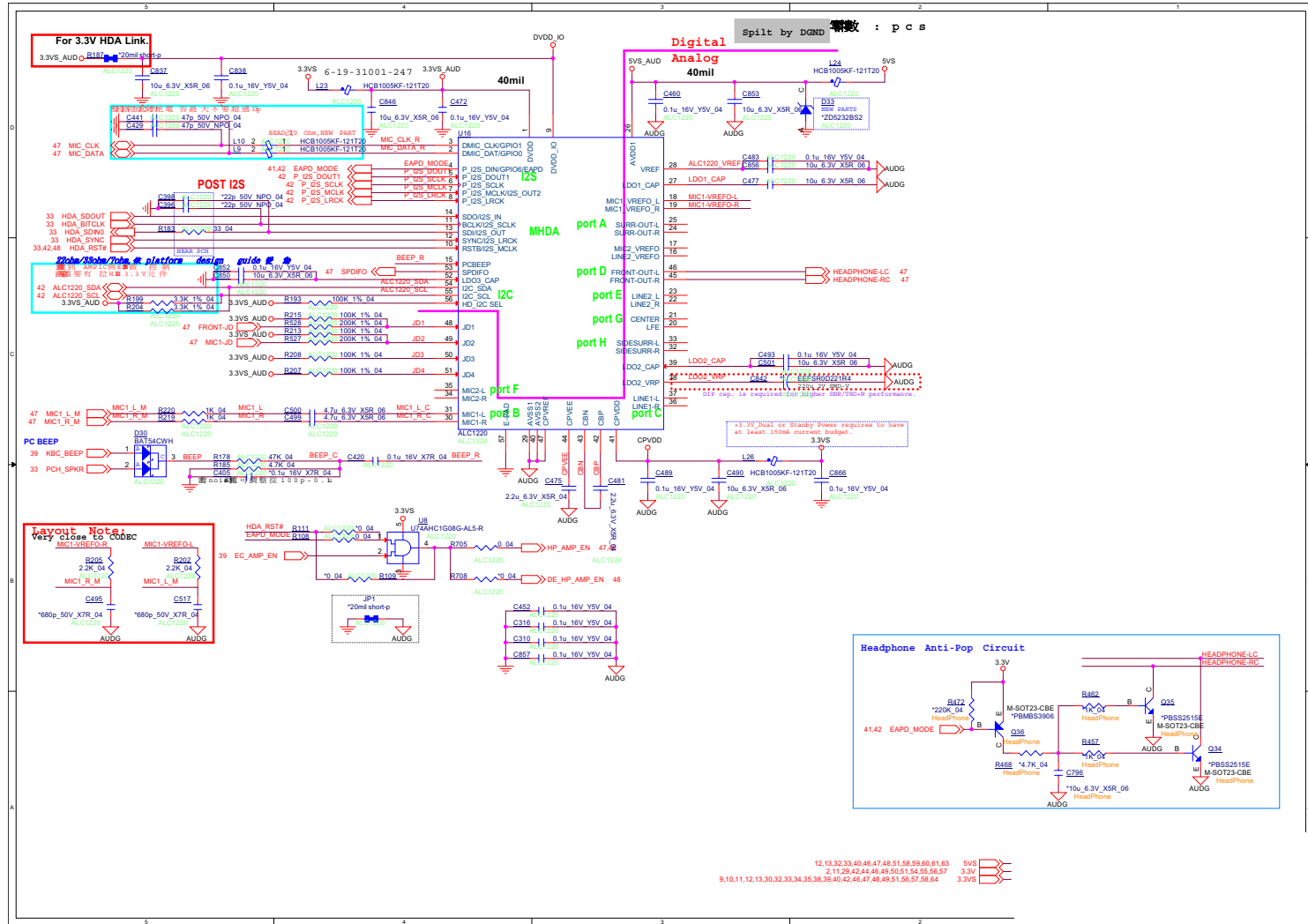


Backlight KB

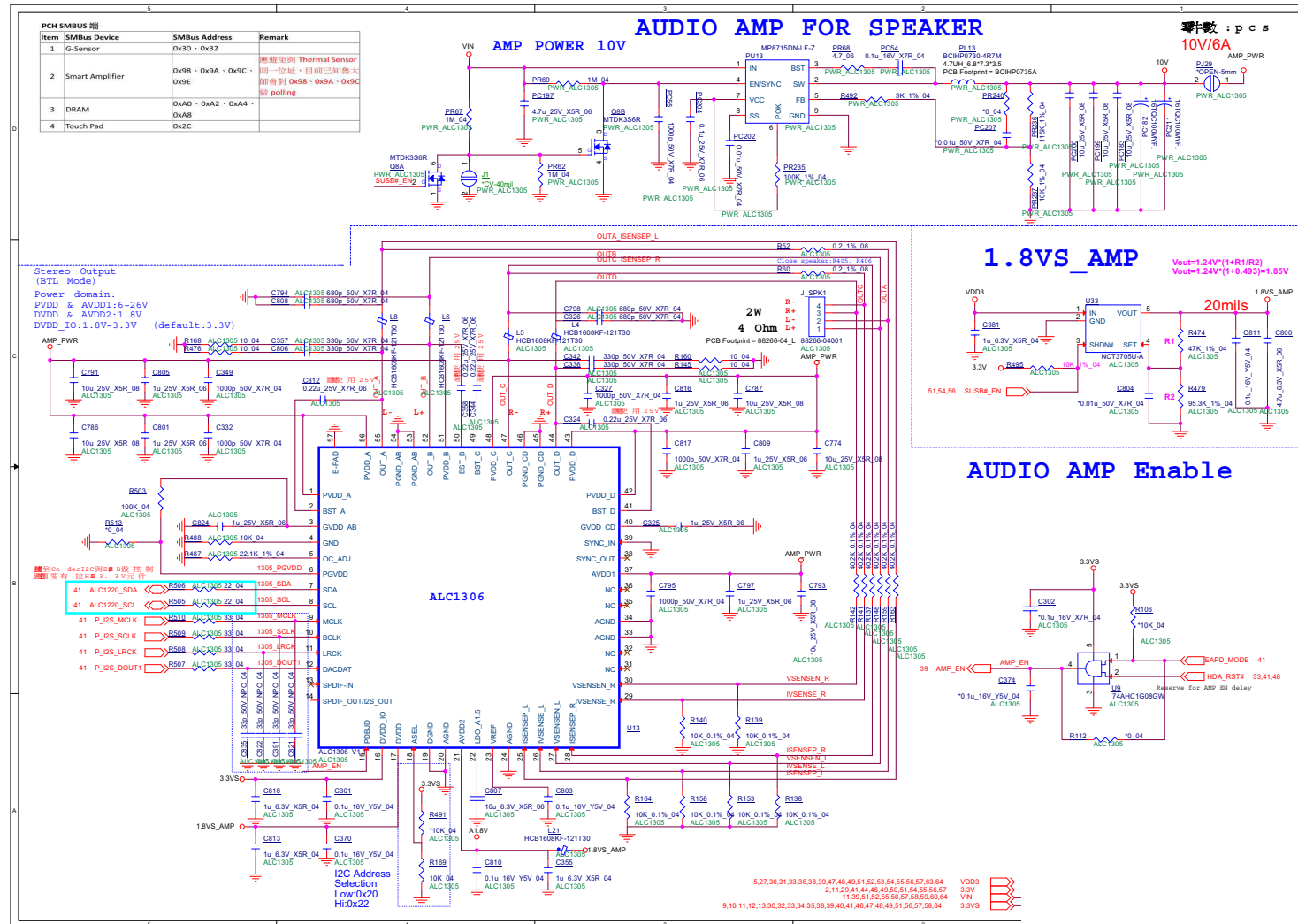
Sheet 40 of 72
Backlight KB

Realtek ALC1220

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Realtek ALC1220

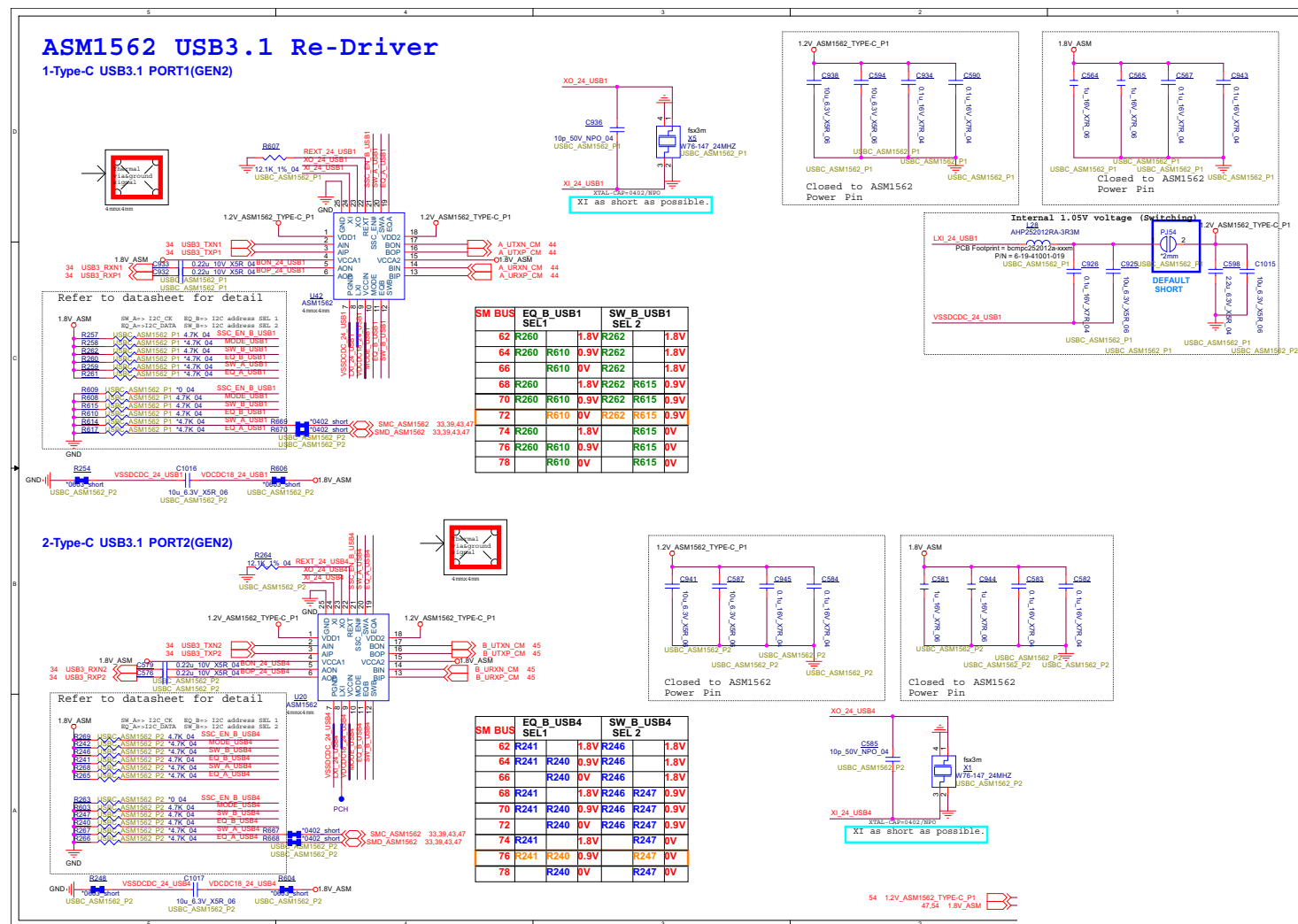


Smart AMP ALC1306

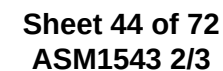


ASM1562 1/3

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ASM1562 1/3



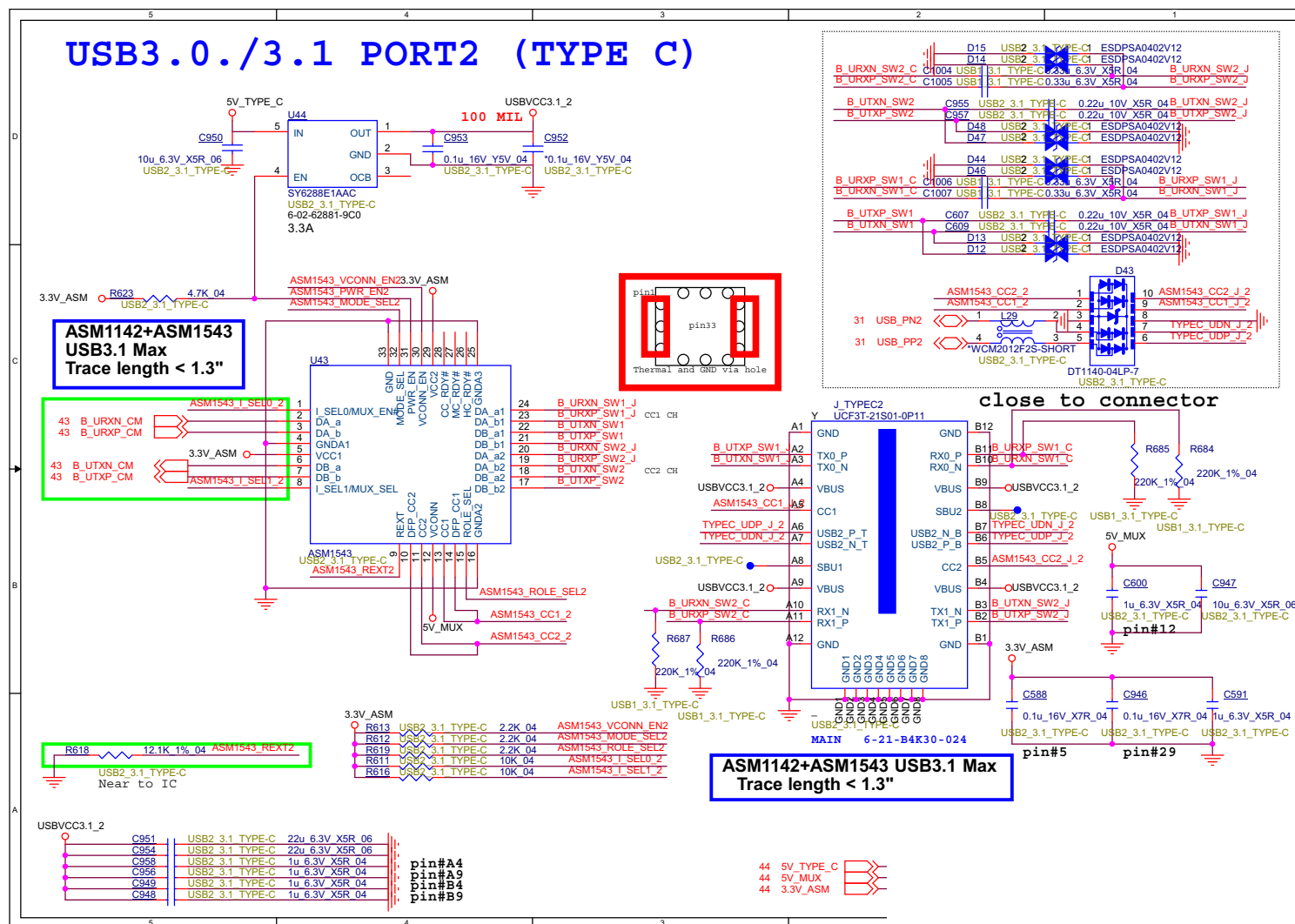
ASM1543 2/3 B - 45



ASM1543 3/3

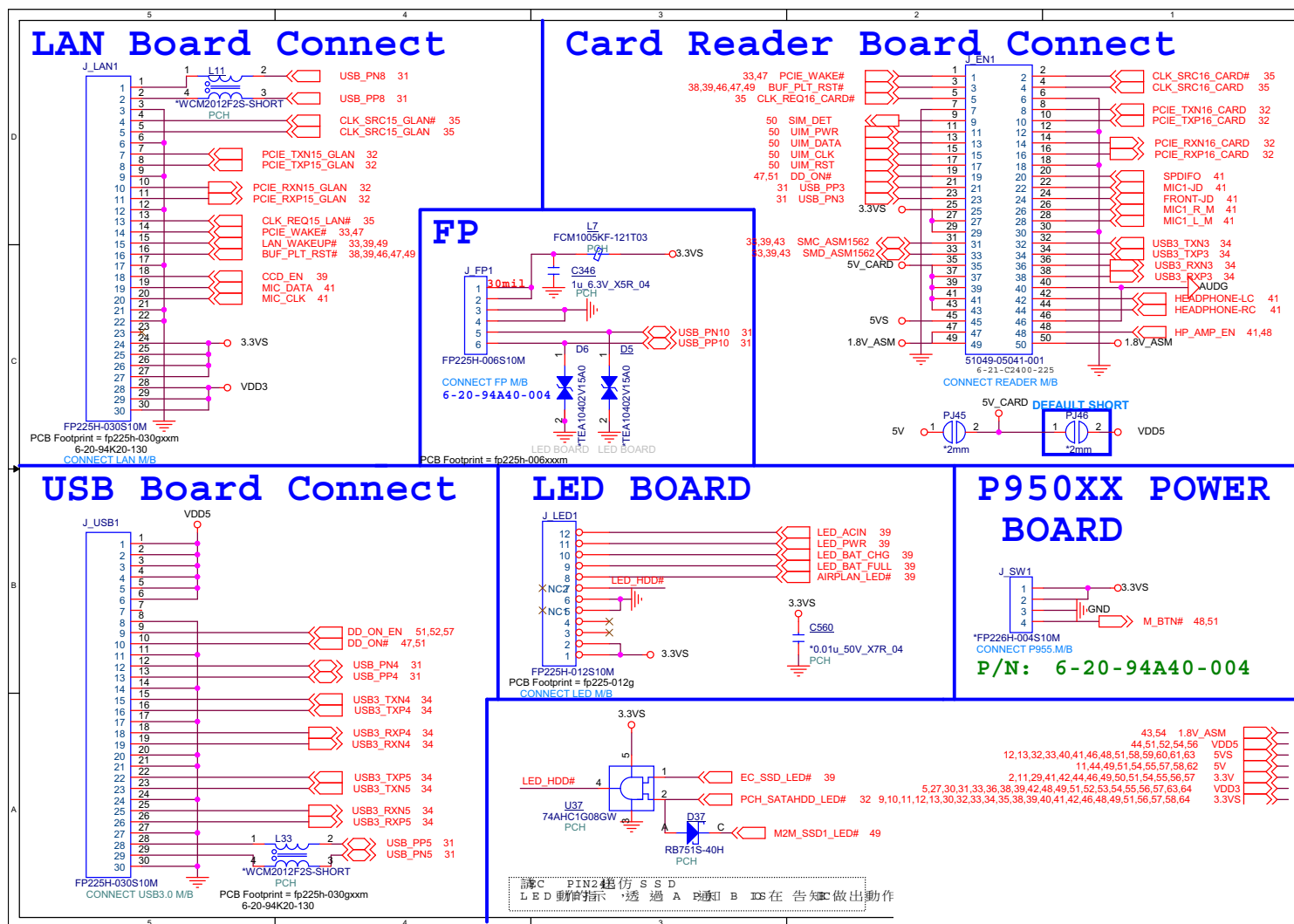
Sheet 45 of 72
ASM1543 3/3

B. Schematic Diagrams

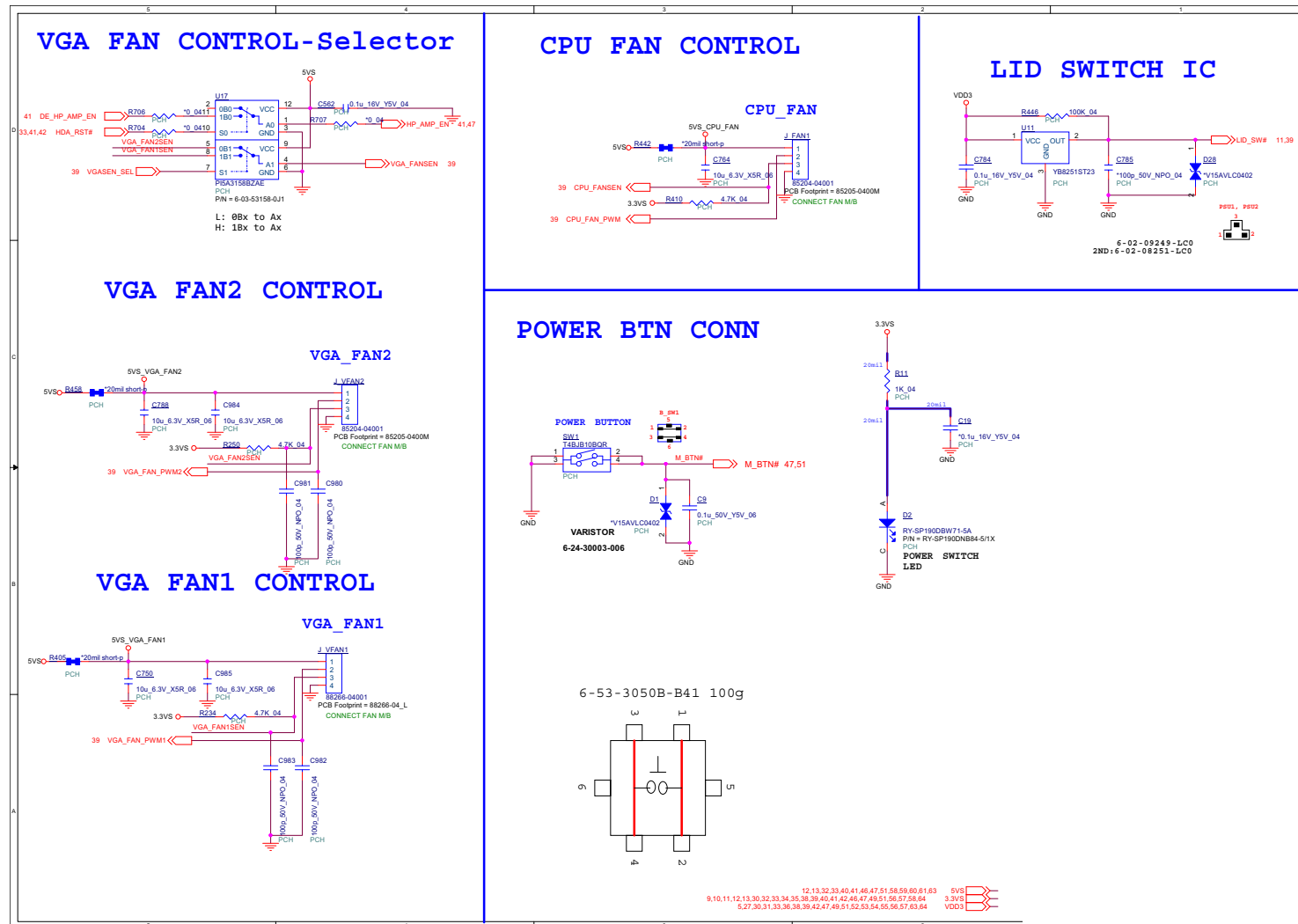


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Connector



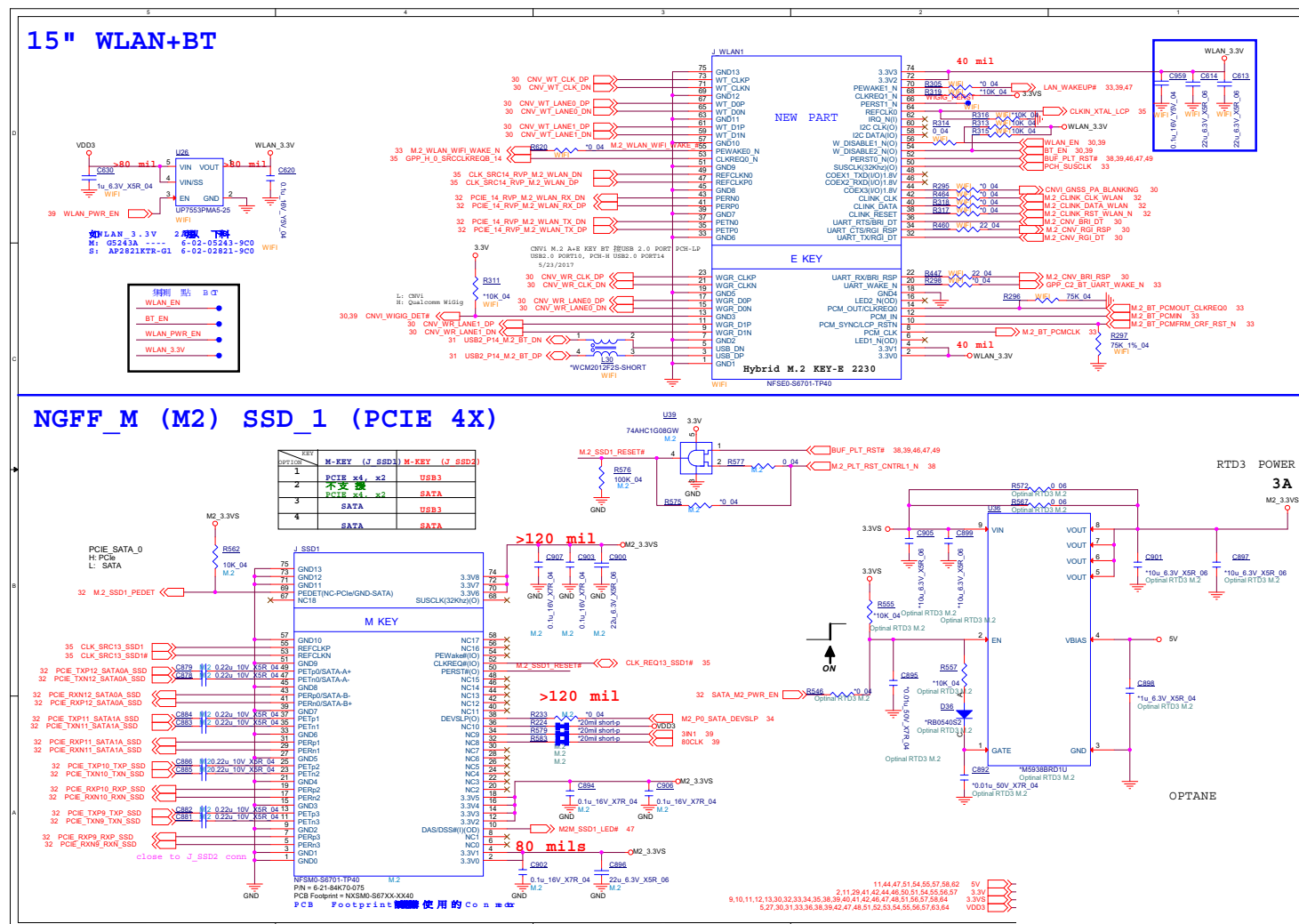
MFan, LID, LED



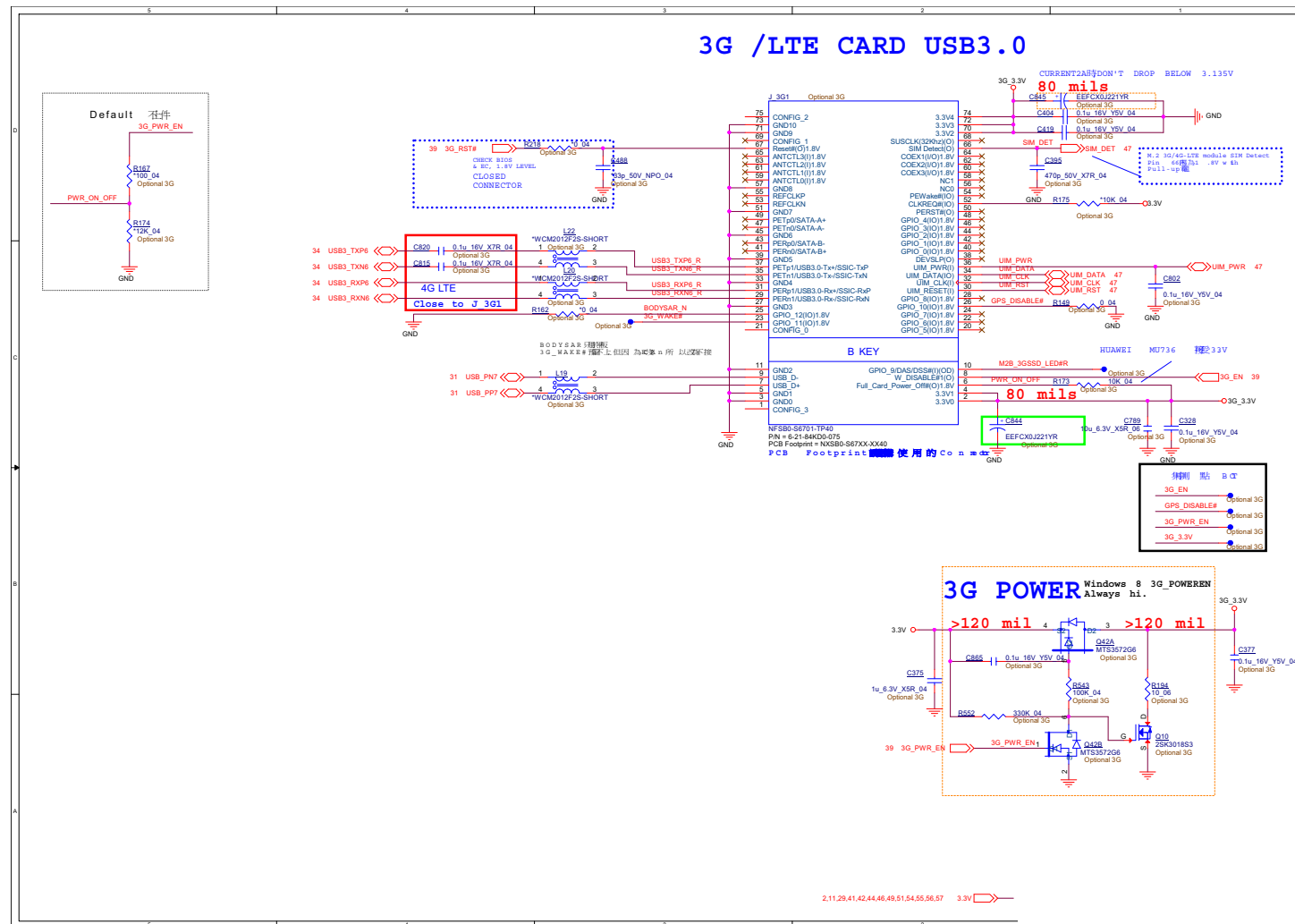
Sheet 48 of 72
Fan, LID, LED

B.Schematic Diagrams

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M.2 WLAN+BT,
PCIE4X SSD



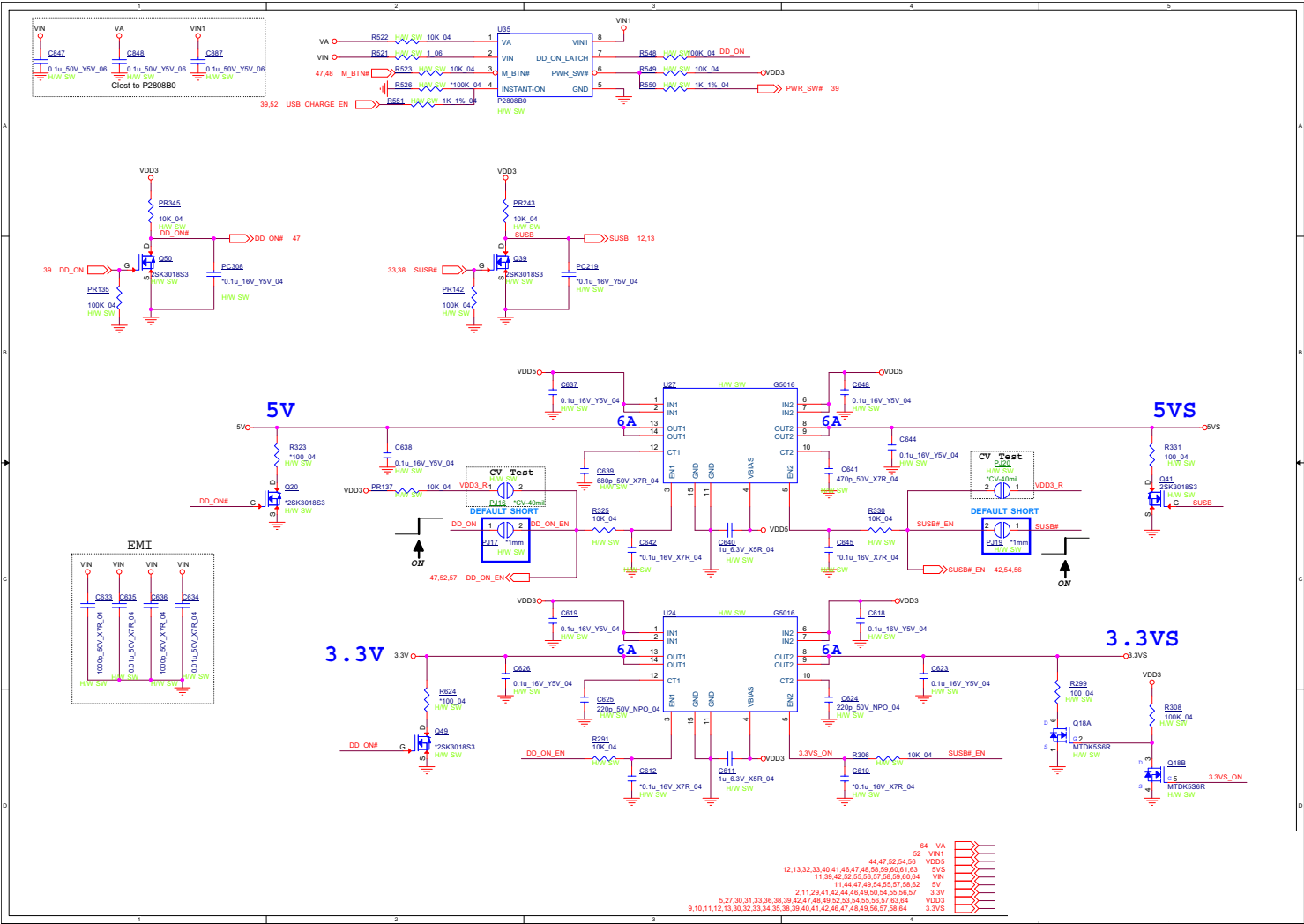
M.2 3G/LTE, SIM B - 51



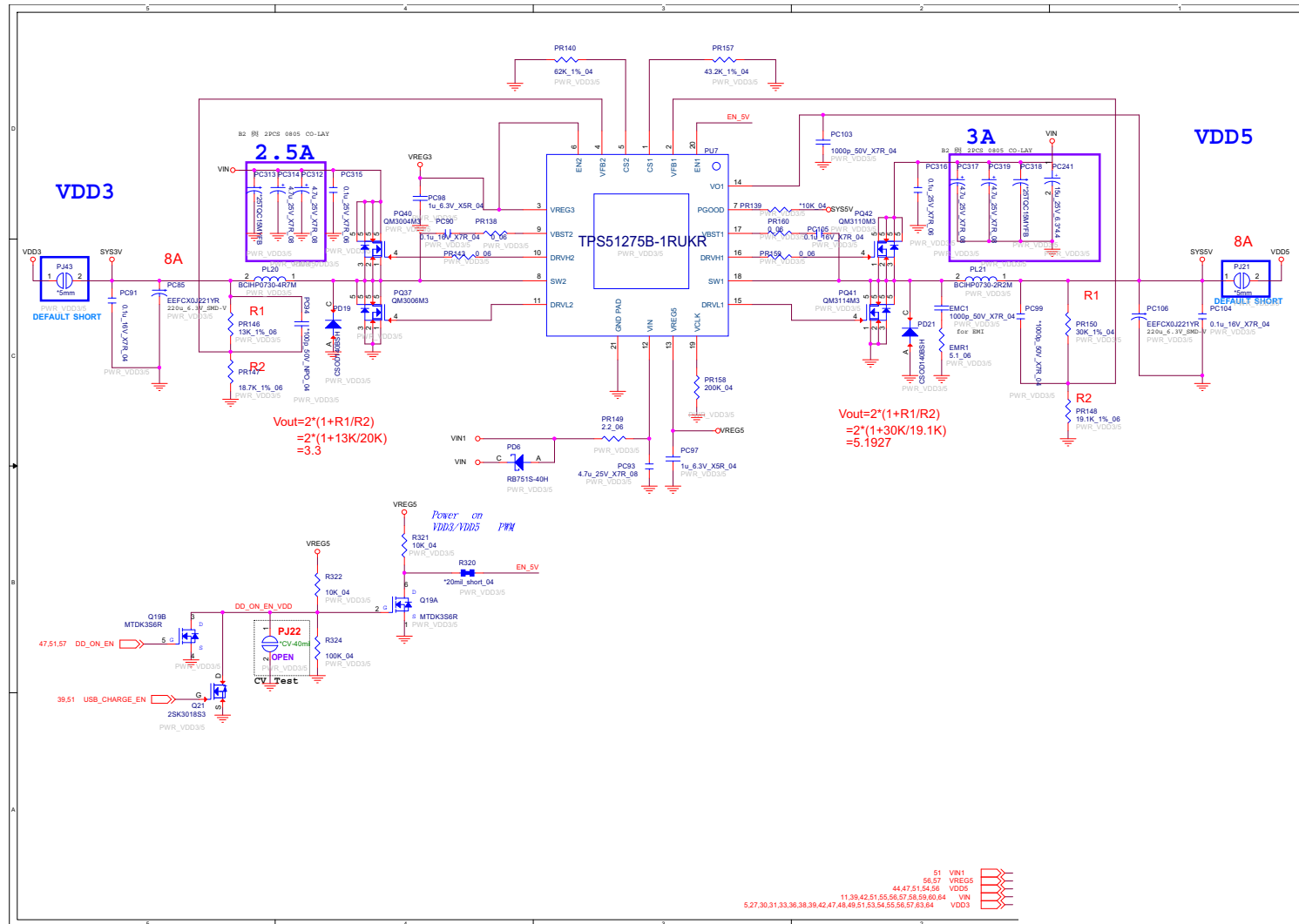
Schematic Diagrams

5V, 5VS, 3.3V, 3.3VS

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5V, 5VS, 3.3V,
3.3VS



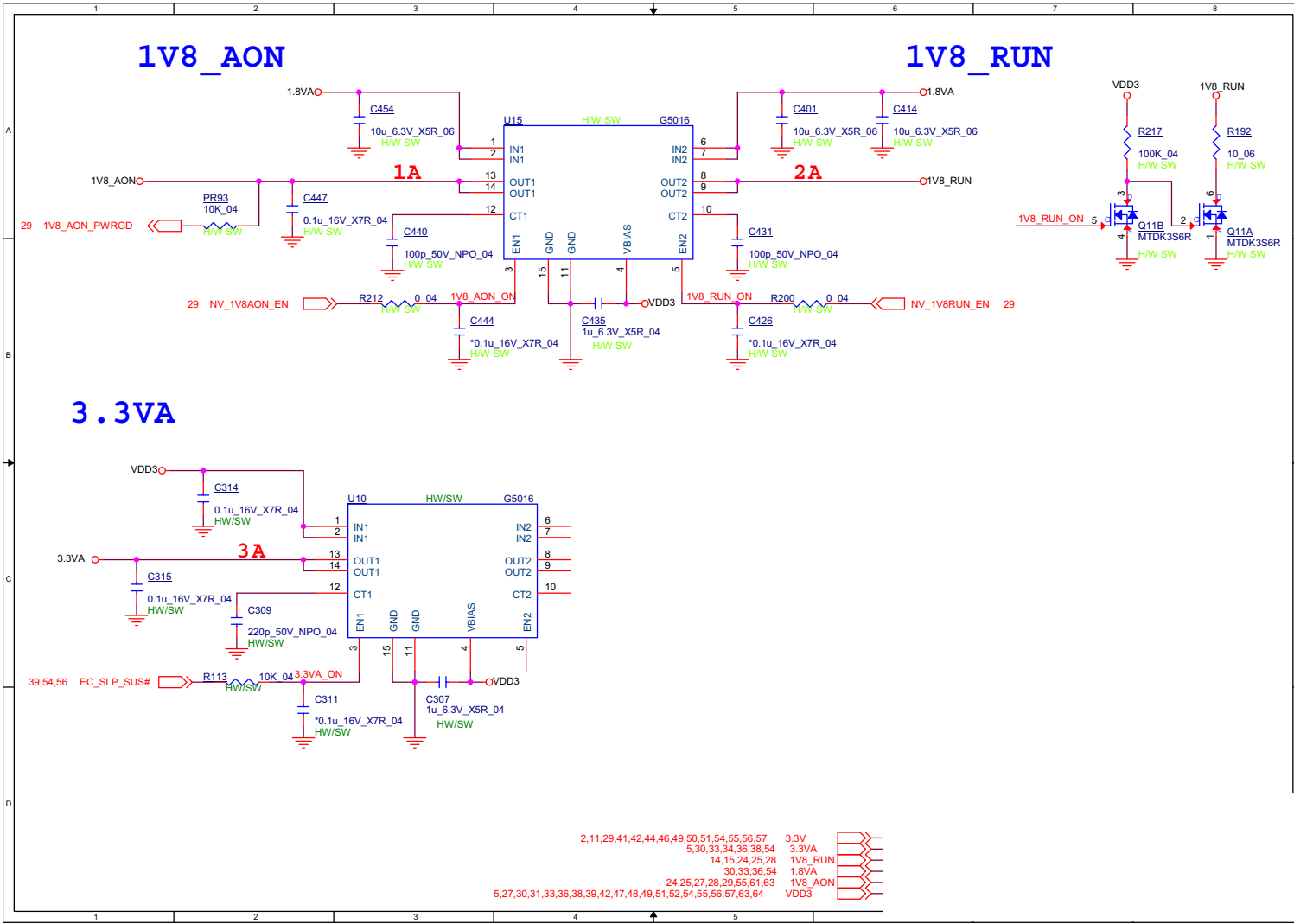
VDD3, VDD5

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VDD3, VDD5

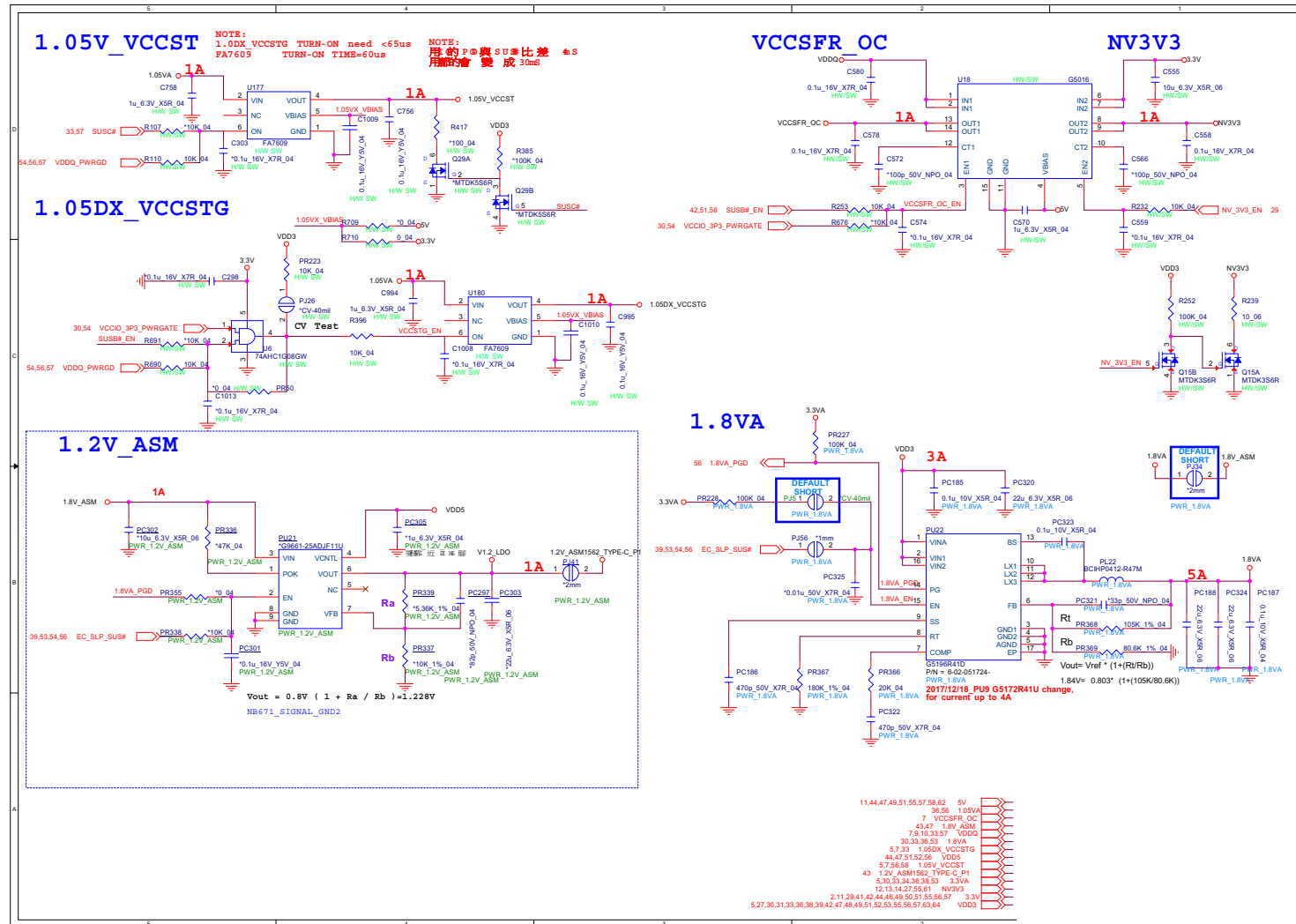
Schematic Diagrams

1V8_RUN/AON, 3.3VA

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1V8_RUN/AON,
3.3VA



1.8VA/1.05V_XX, NV3V3

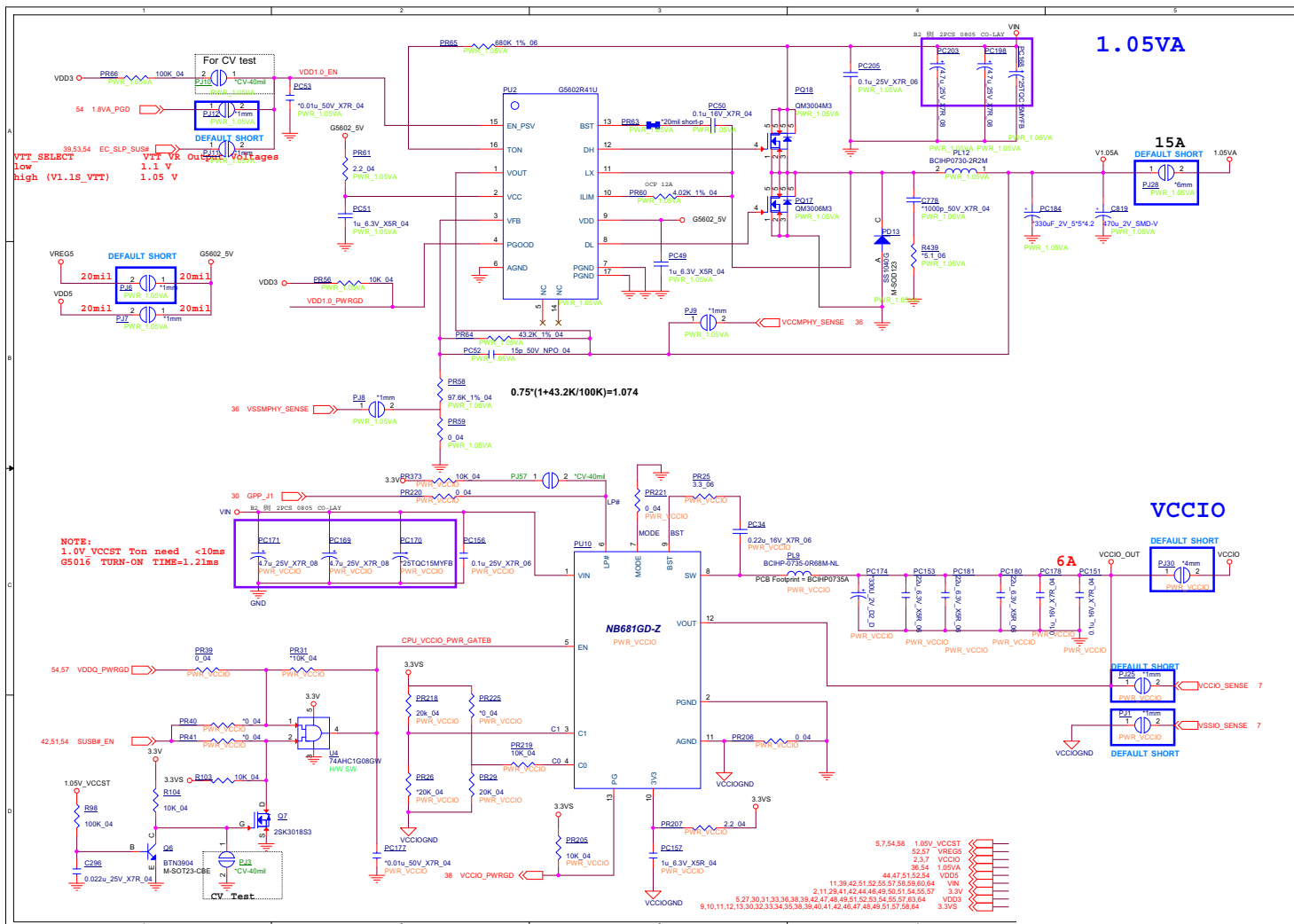


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1.8VA/1.05V_XX,
NV3V3

Sheet 55 of 72
PEX_VDD



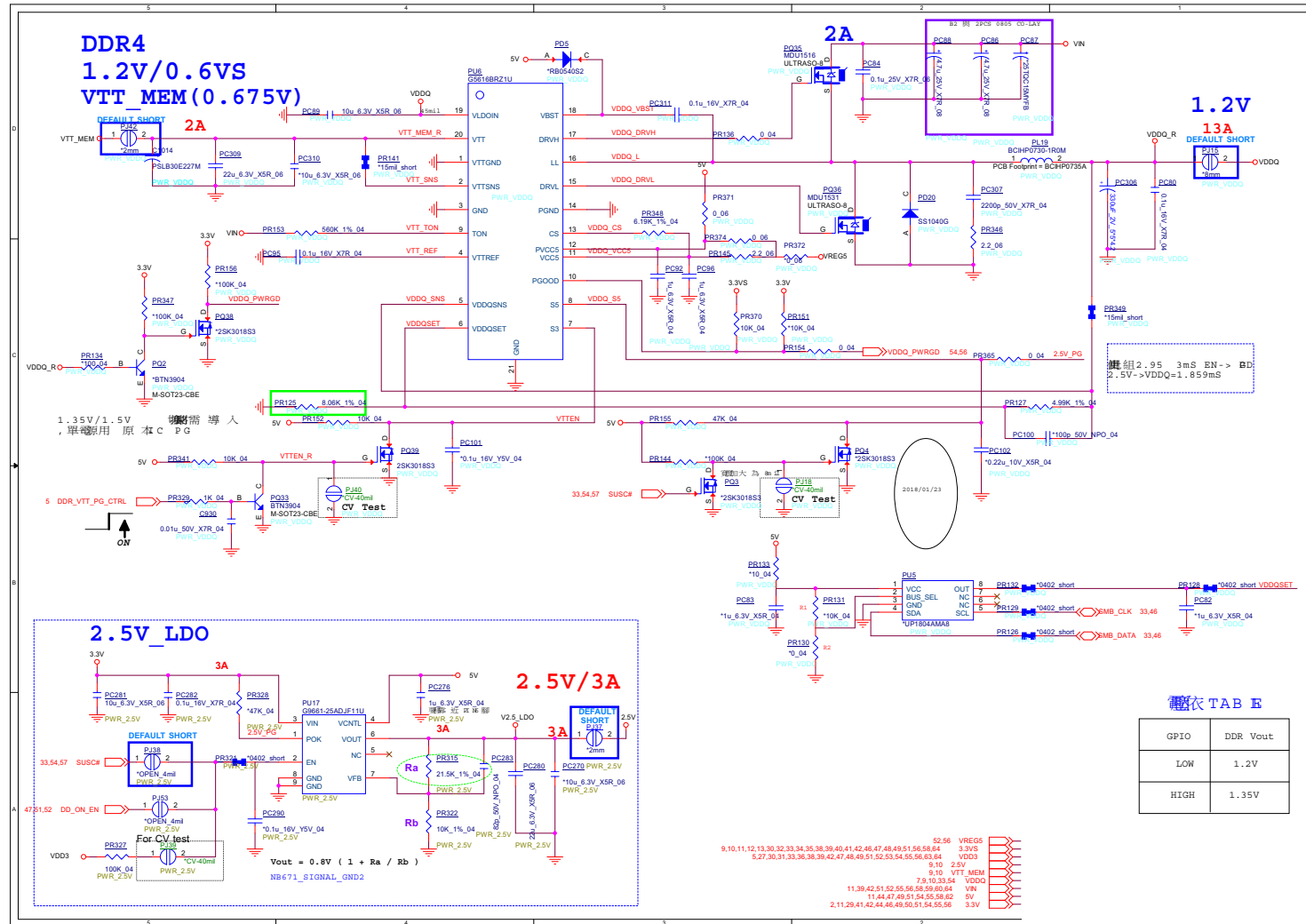
1.05VA, VCCIO

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1.05VA, VCCIO

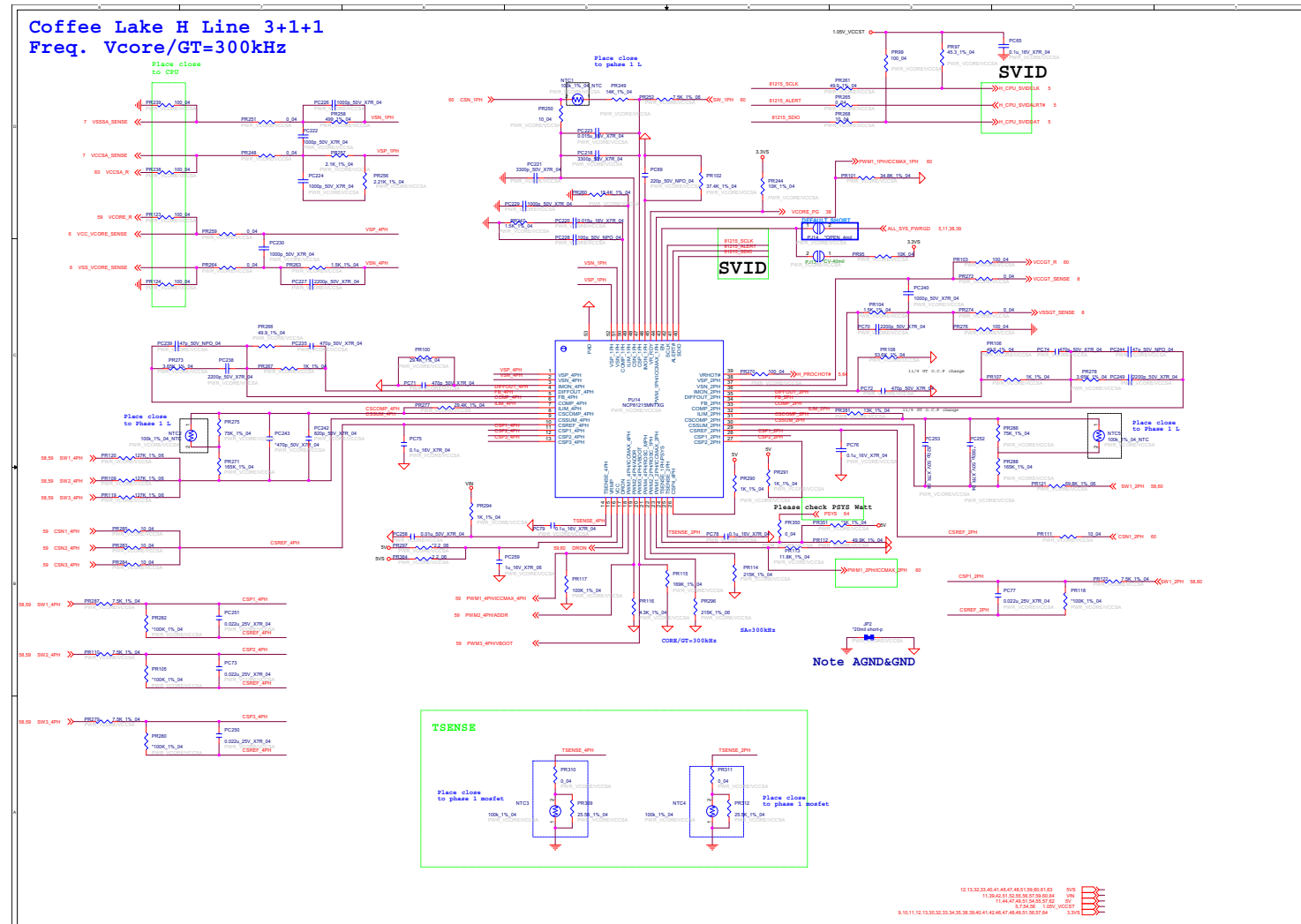
Schematic Diagrams

DDR 1.2V, 0.6VS

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DDR 1.2V, 0.6VS

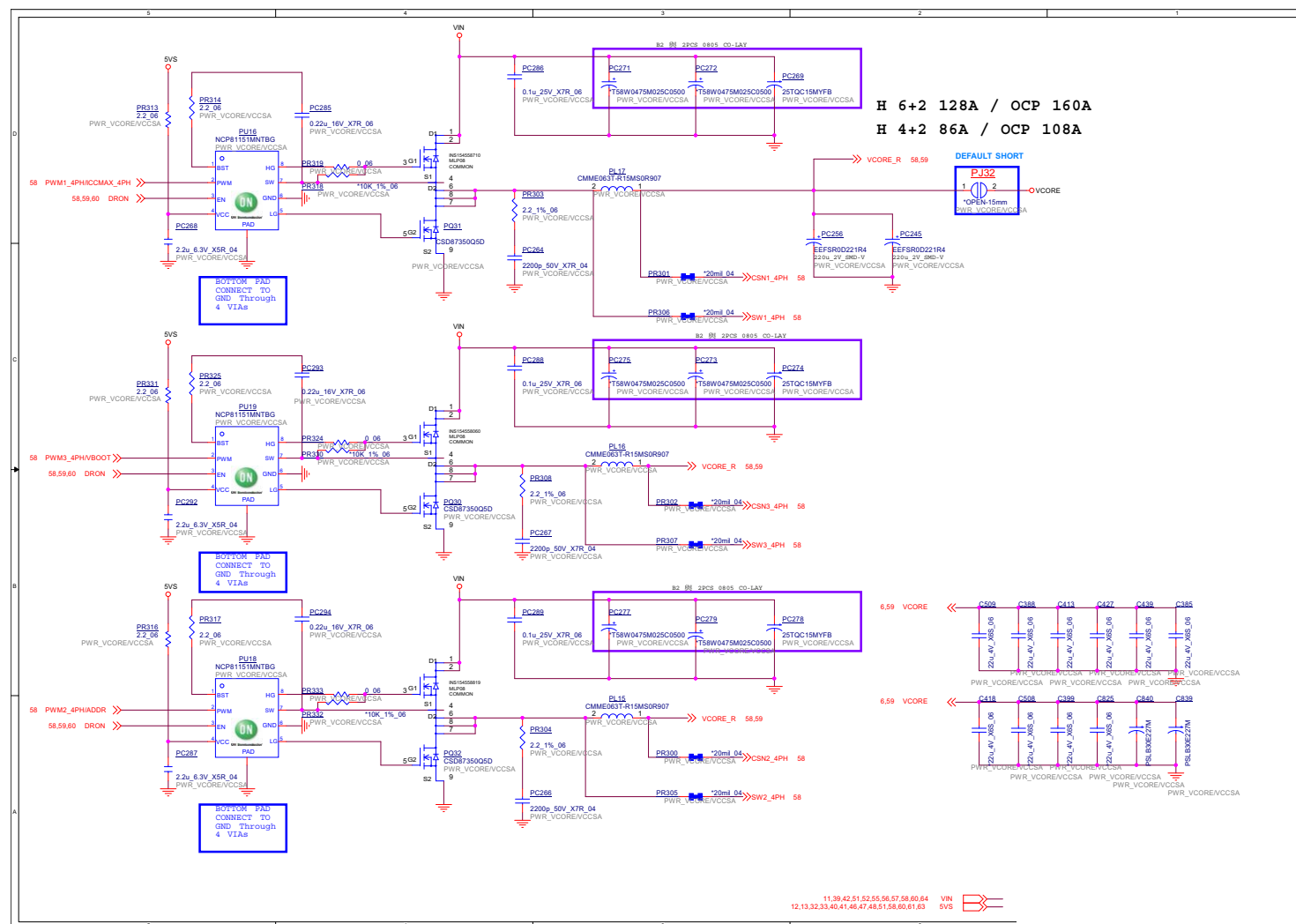


VCore & VCCGT & VCCSA

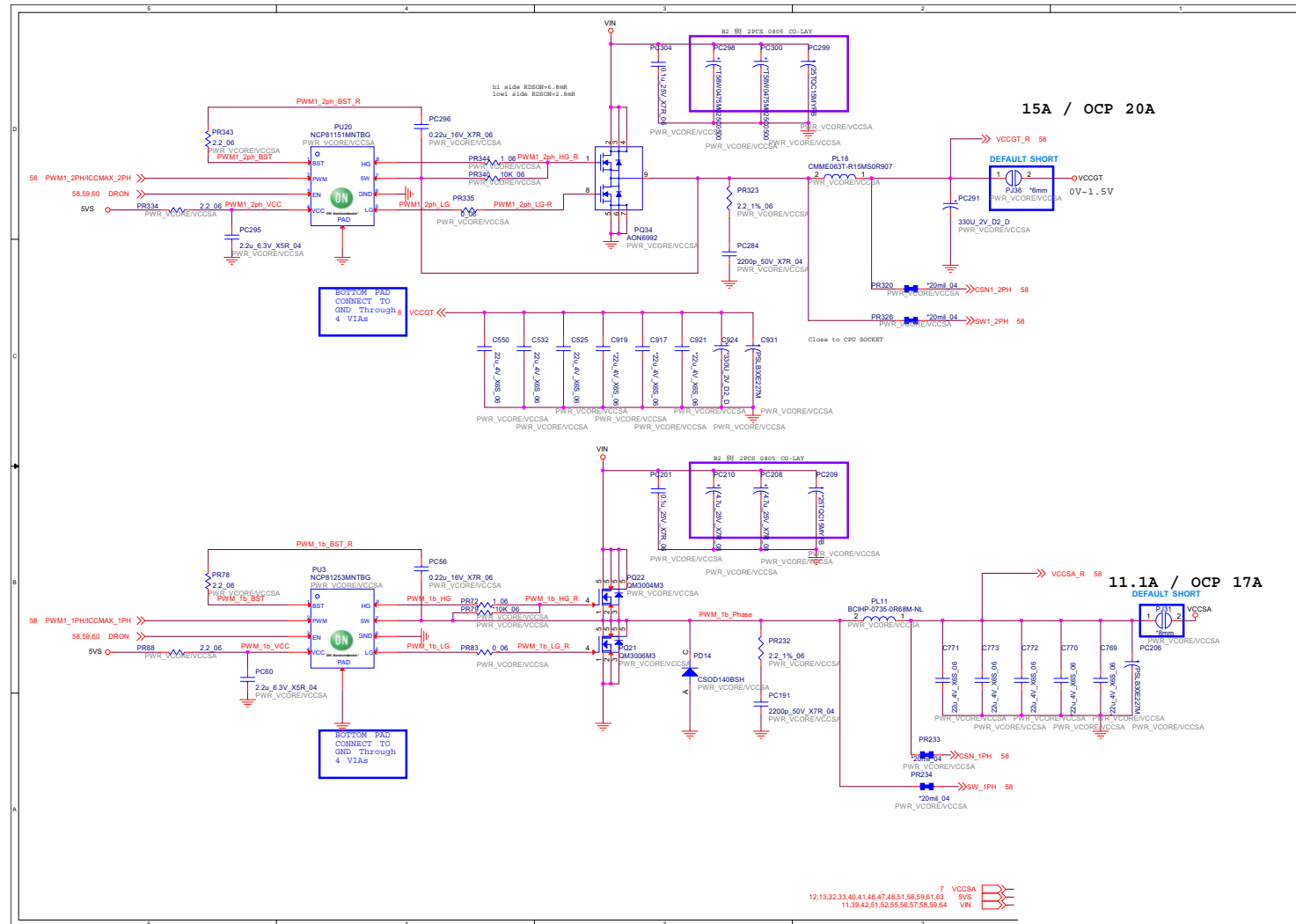


VCore Output

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VCore Output



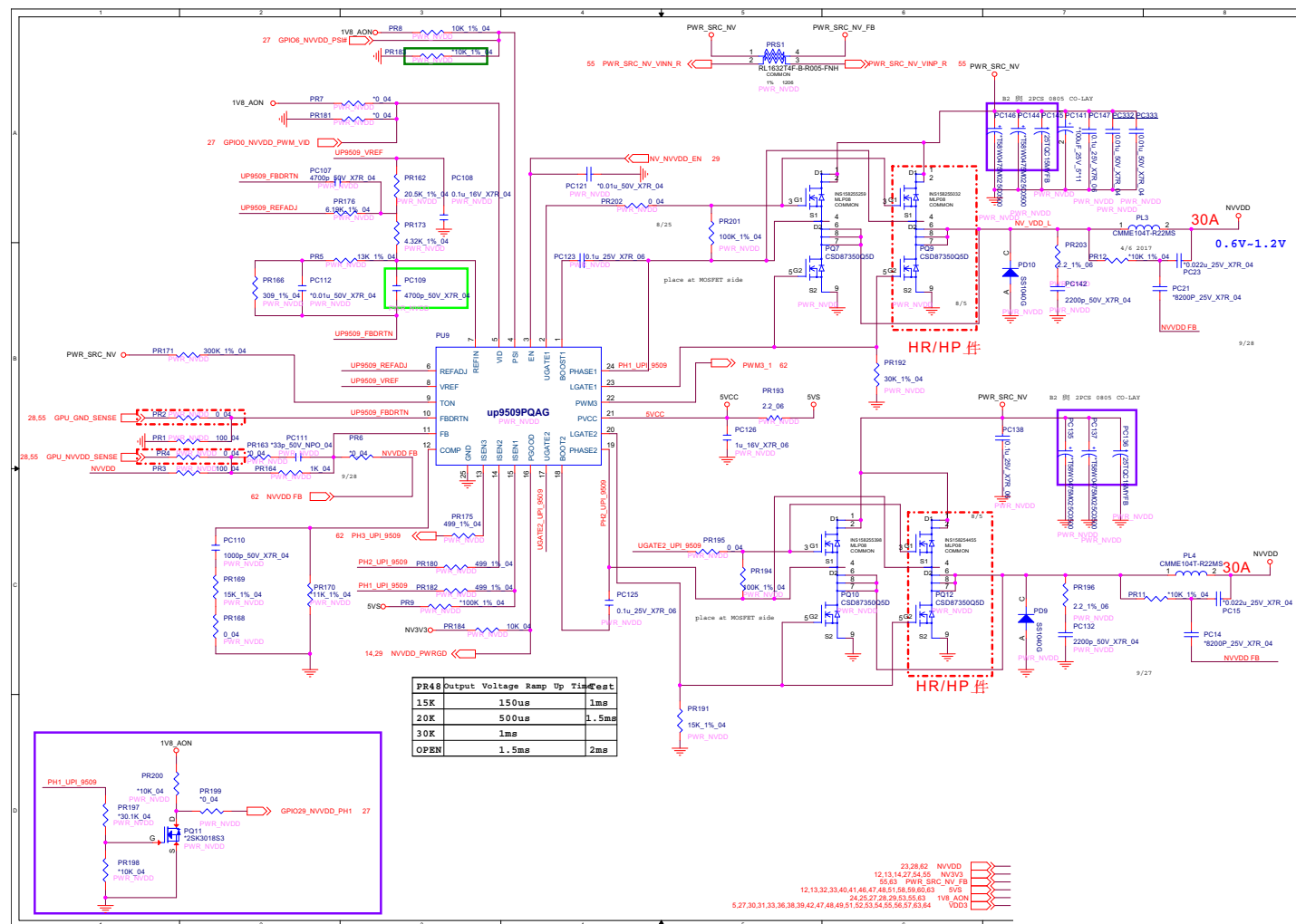
VCCGT, VCCSA Output



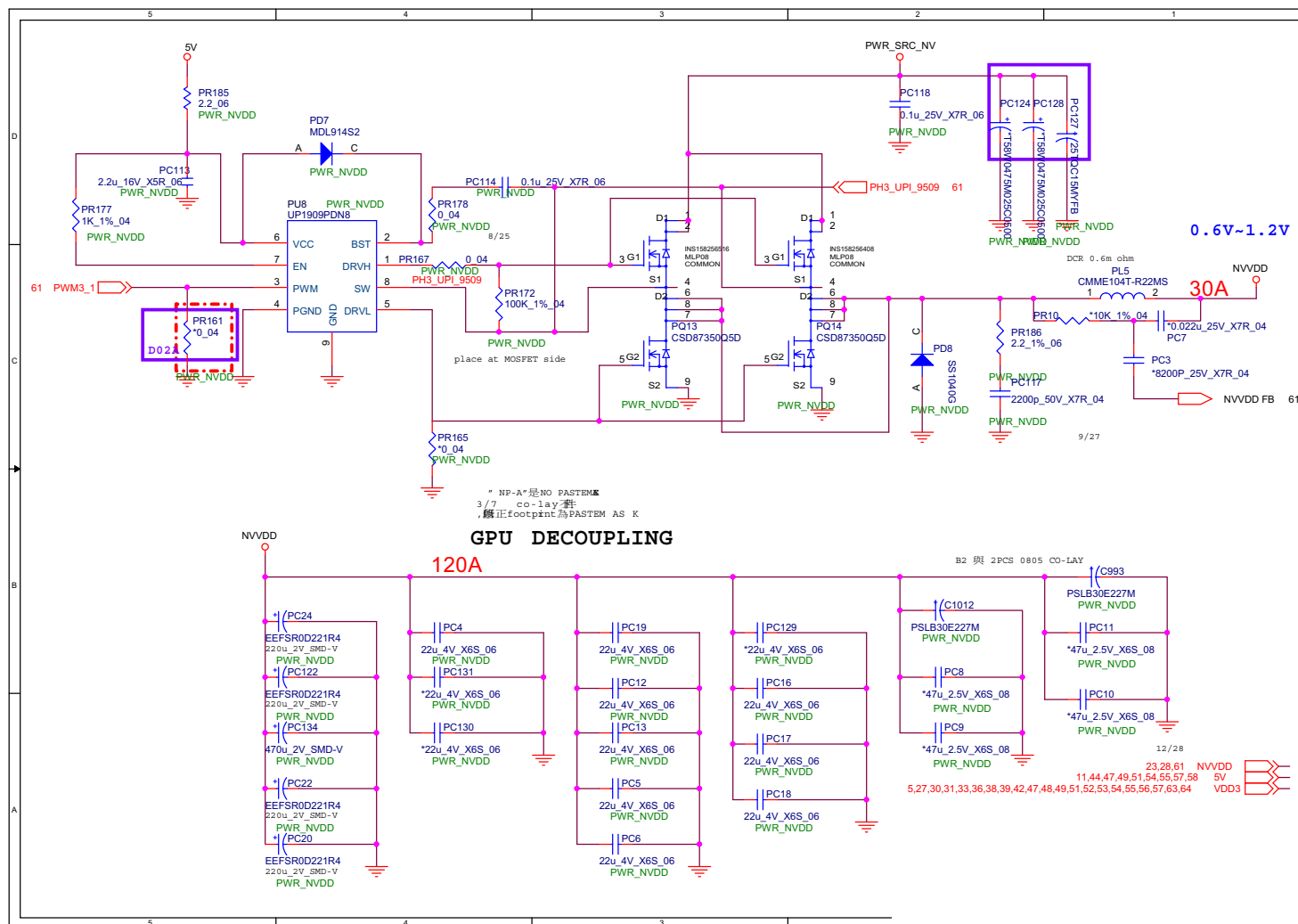
Sheet 60 of 72
VCCGT, VCCSA
Output

VNVVDD 1

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NVVDD 1

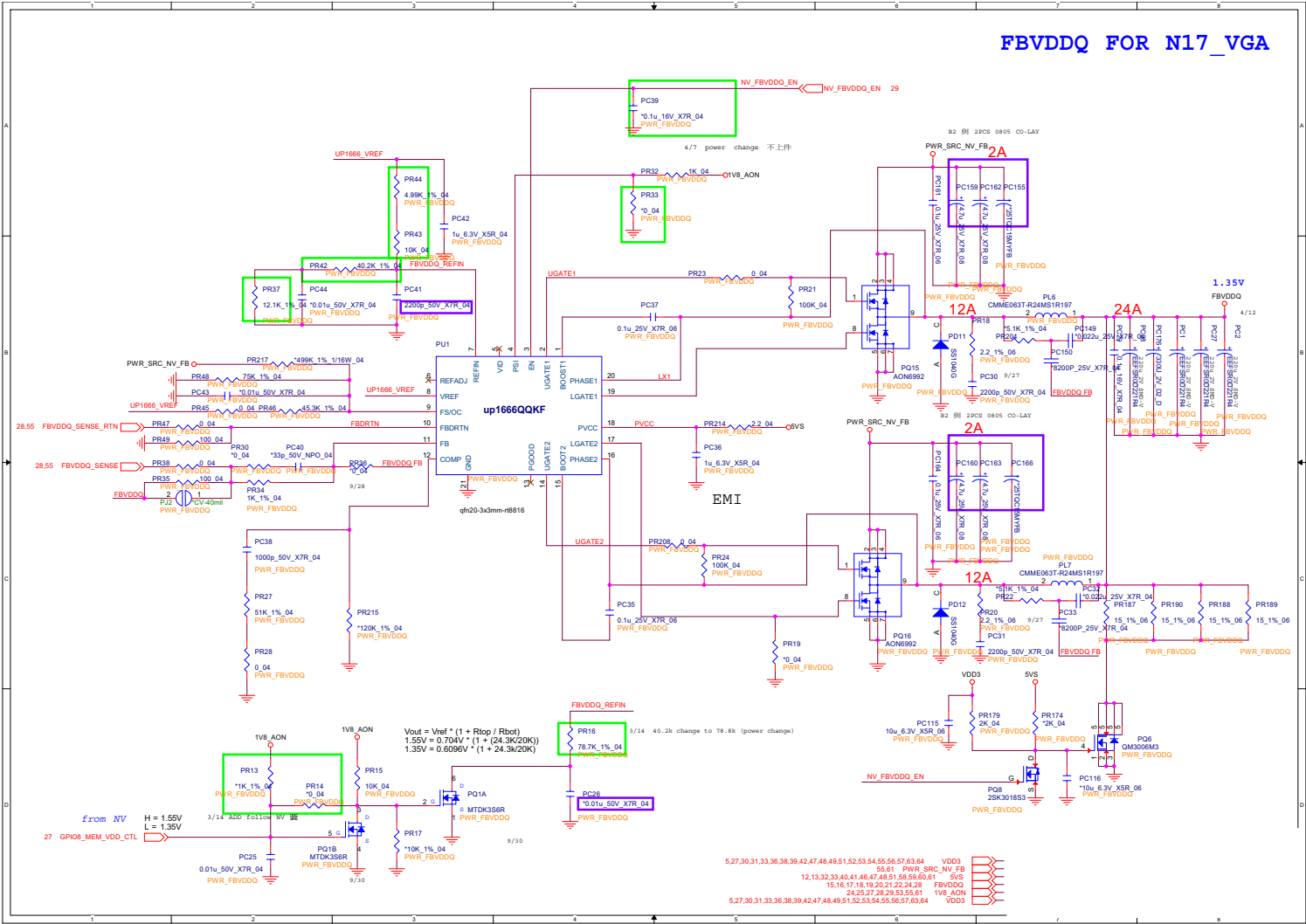


NVVDD 2

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NVVDD 2

FBVDDQ

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FBVDDQ



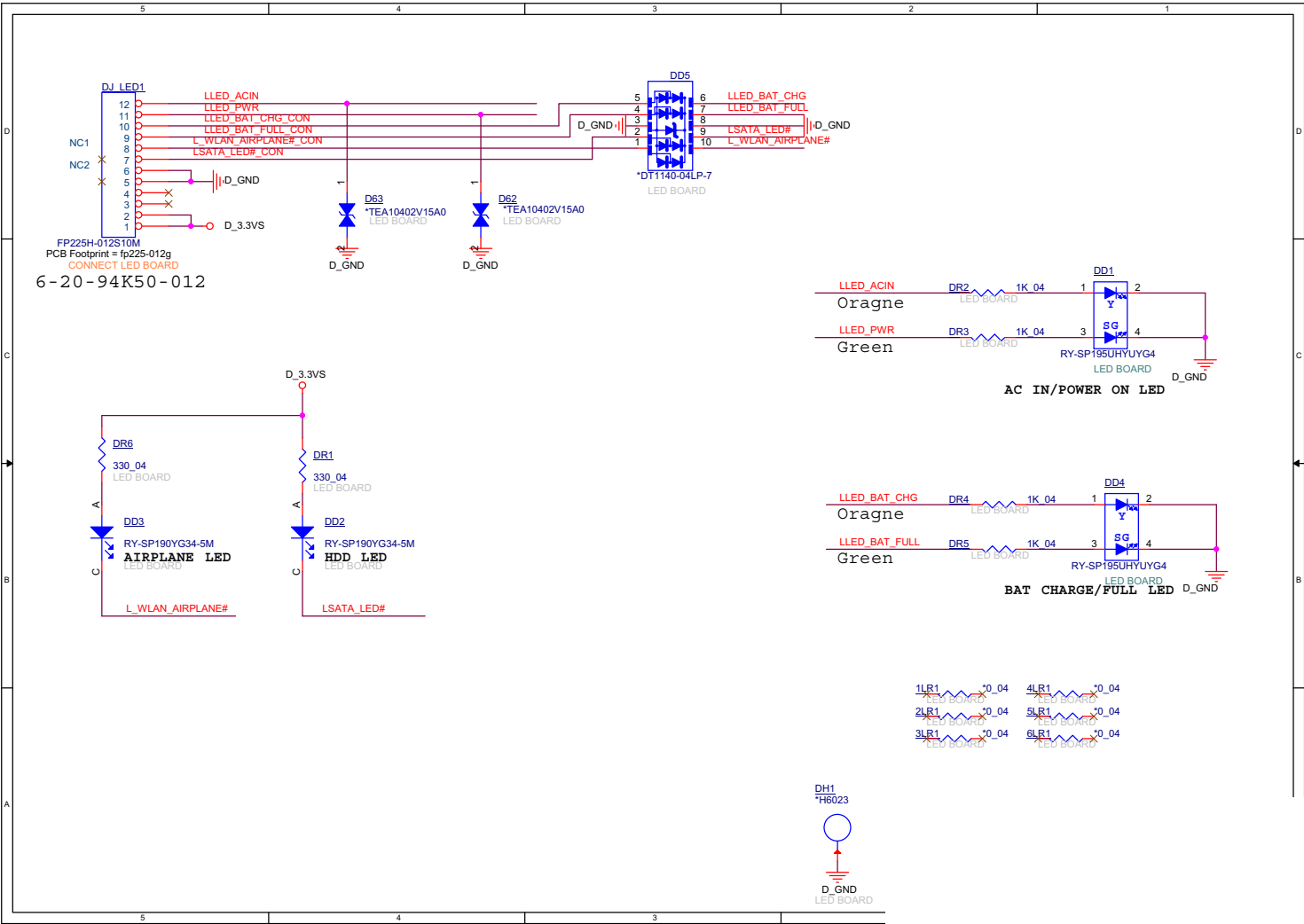
AC_In, Charger B - 65



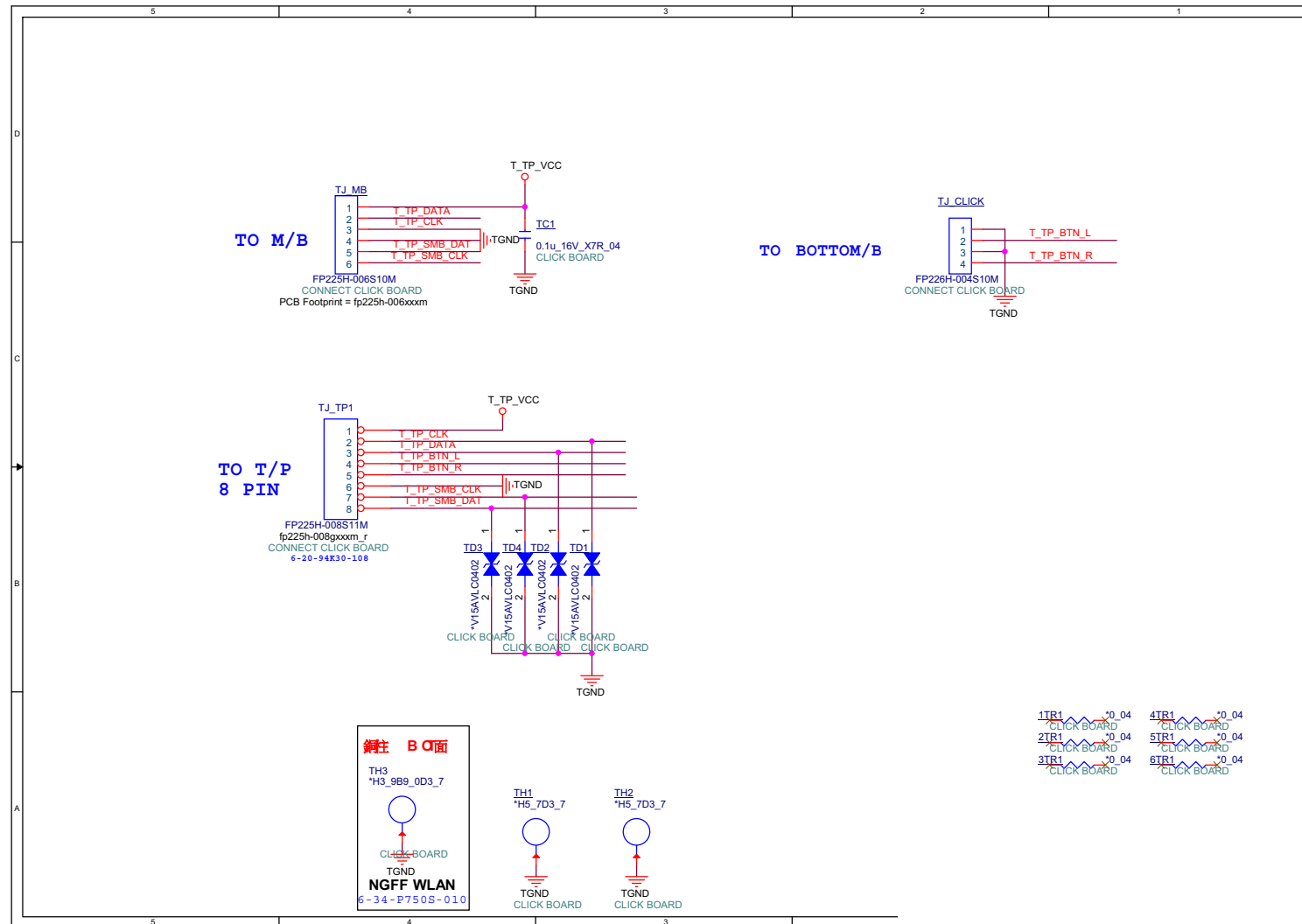
Schematic Diagrams

LED Board

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LED Board



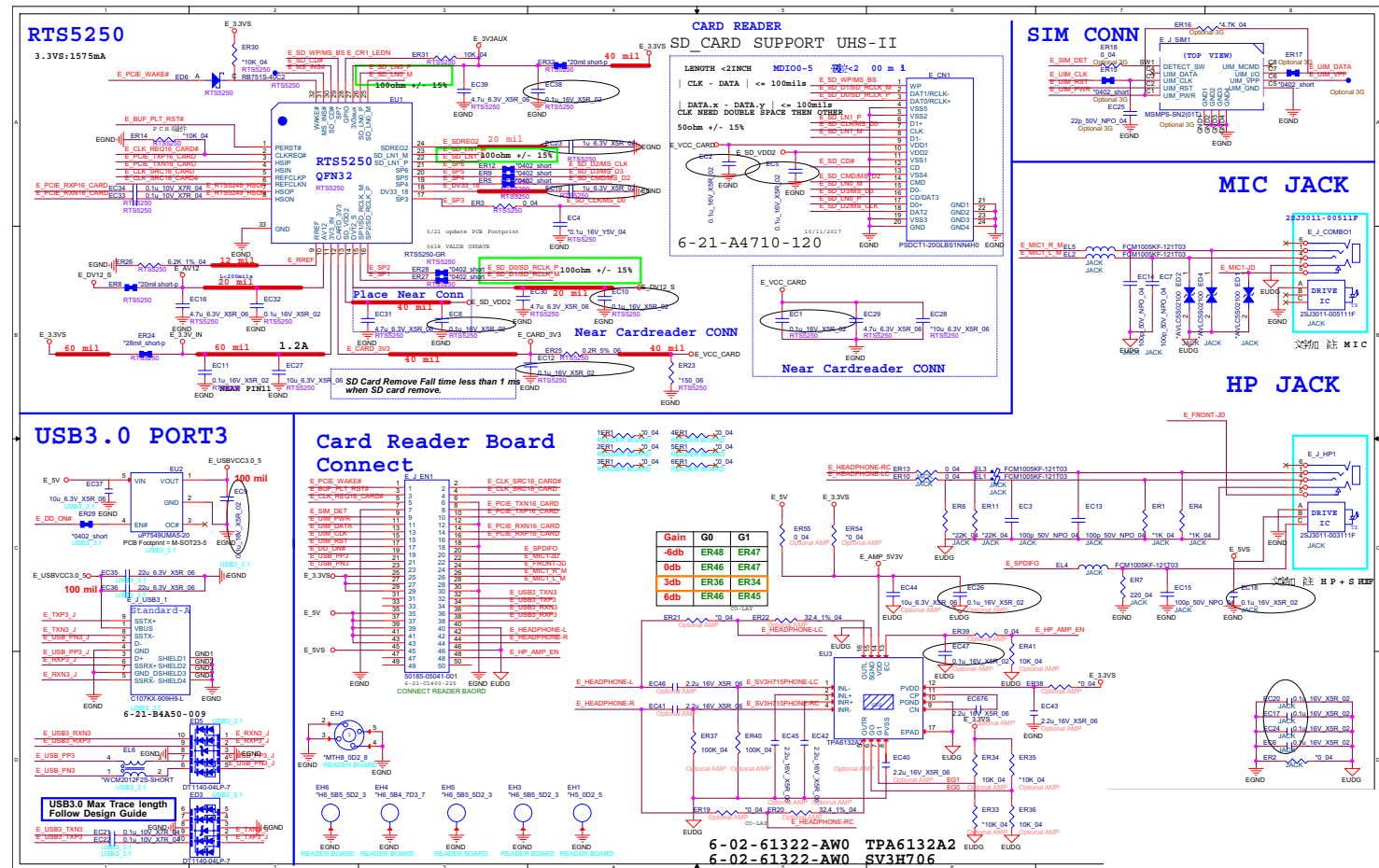
Click Board



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Click Board

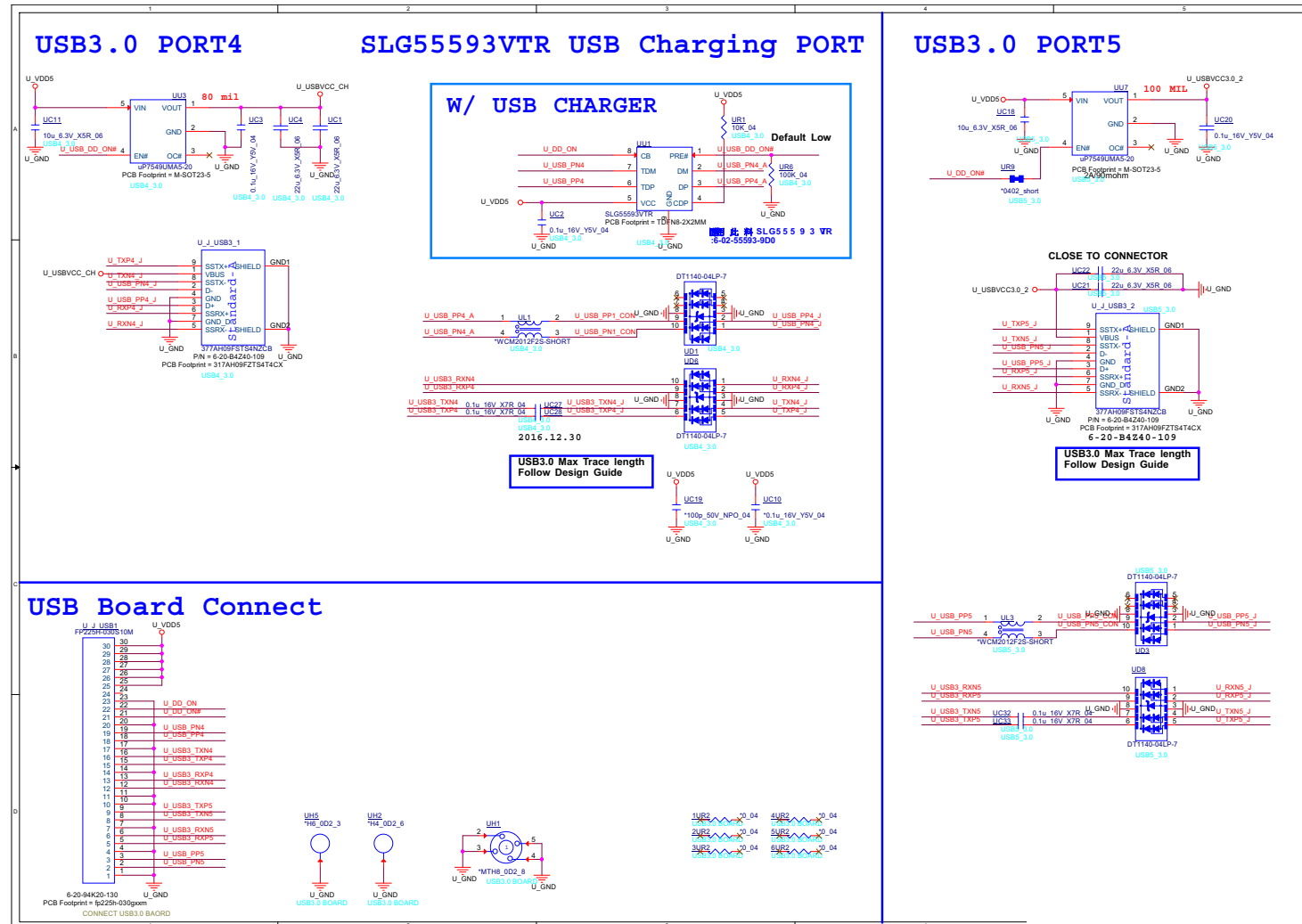
Schematic Diagrams

Reader Board

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Reader Board

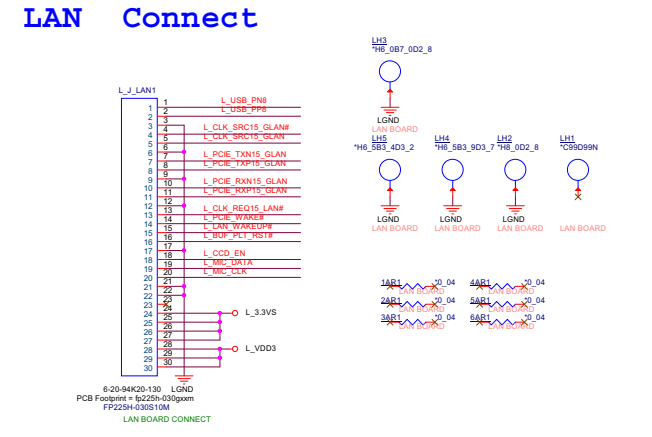
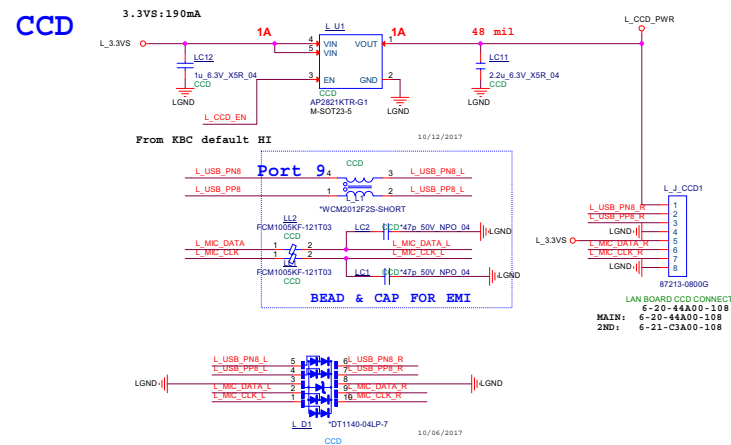
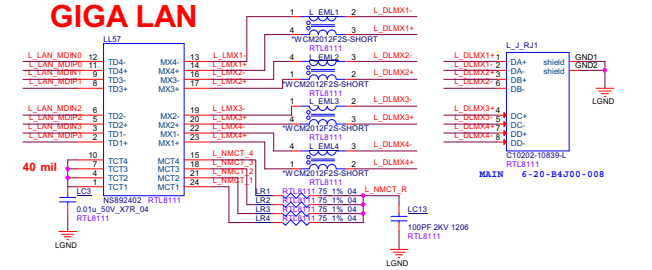
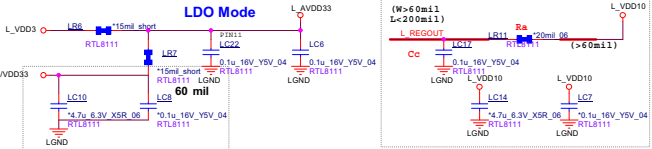
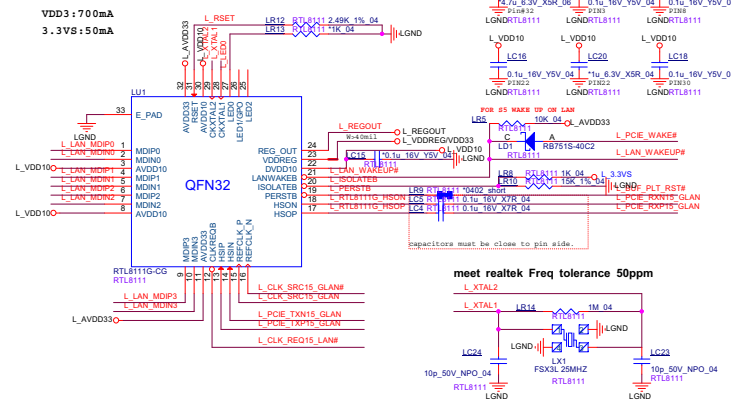
Schematic Diagrams

USB Board



LAN Board

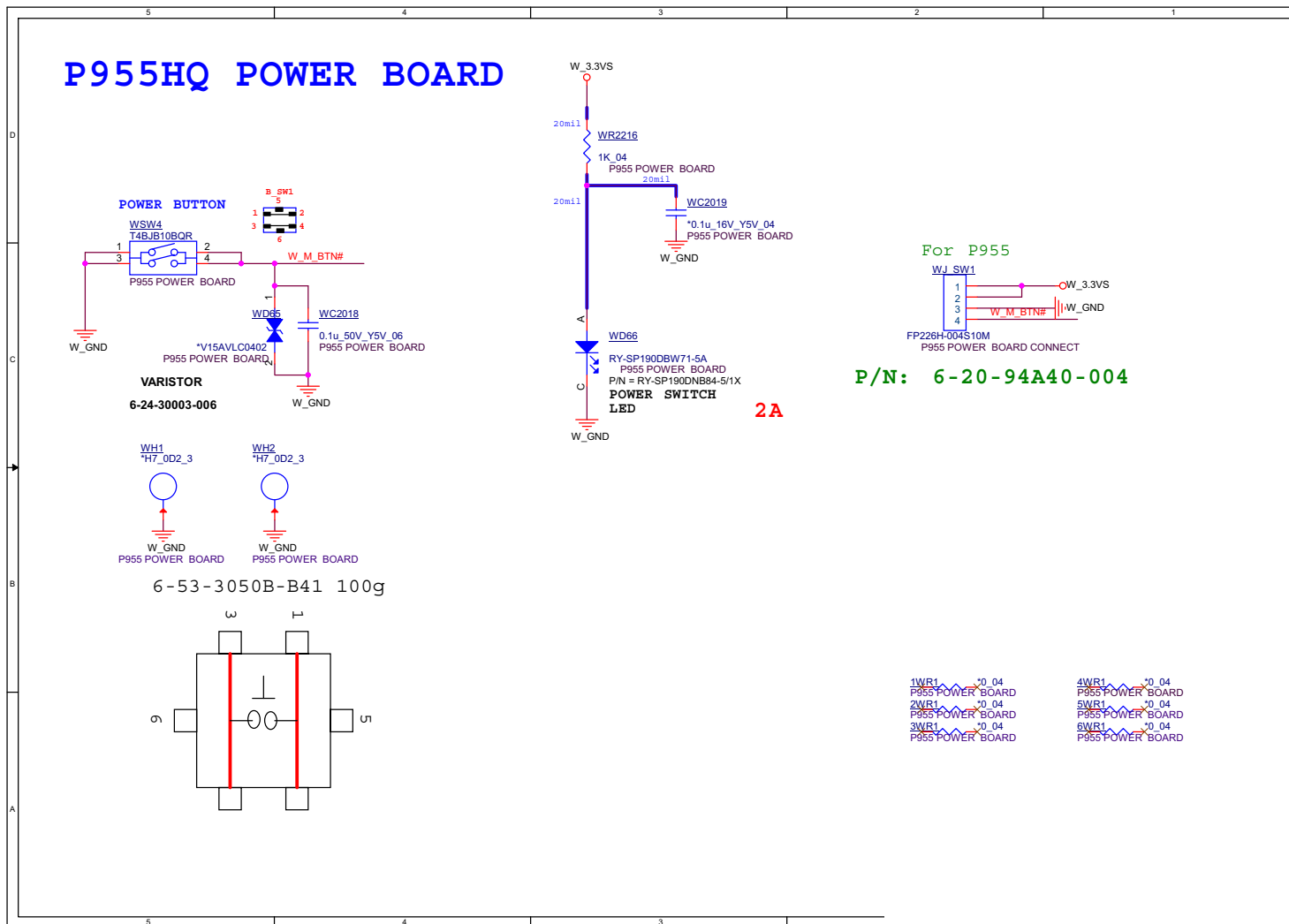
LAN Board
GIGA LAN
(RTL8111GS & RTL8118AS)



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LAN Board

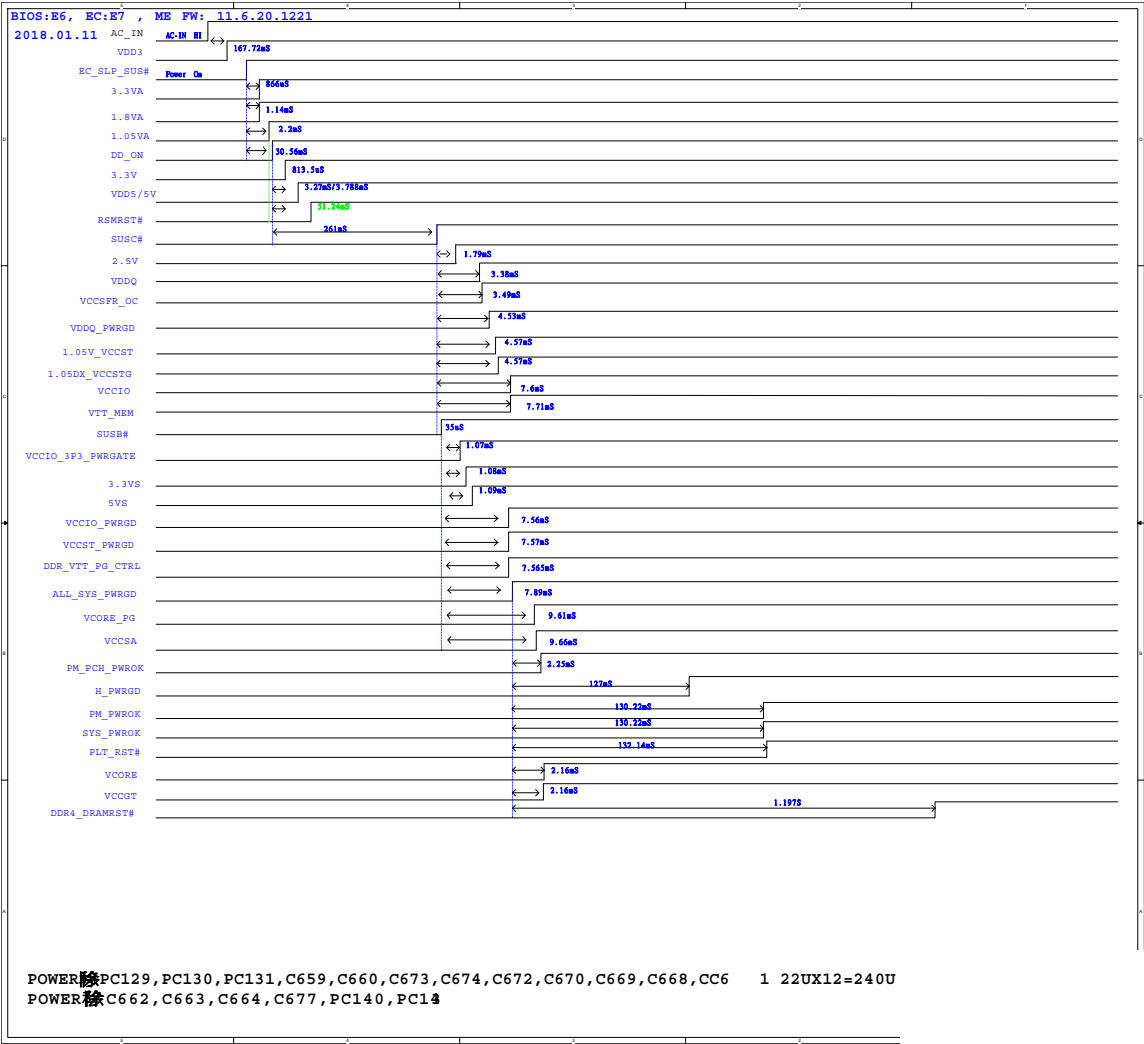
B.Schematic Diagrams

Power Board

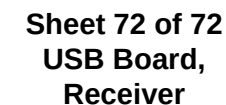
Sheet 70 of 72
Power Board

Power Sequence

Sheet 71 of 72
Power Sequence



Schematic Diagrams



Appendix C: Updating the FLASH ROM BIOS

To update the FLASH ROM BIOS, you must:

- Download the BIOS update from the web site.
- Unzip the files onto a bootable CD/DVD/USB Flash Drive.
- Reboot your computer from an external CD/DVD/USB Flash Drive.
- Use the flash tools to update the flash BIOS using the commands indicated below.
- Restart the computer booting from the HDD and press **F2** at startup enter the BIOS.
- Load setup defaults from the BIOS and save the default settings and exit the BIOS to restart the computer.
- After rebooting the computer you may restart the computer again and make any required changes to the default BIOS settings.

Download the BIOS

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

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

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

Set the computer to boot from the external drive

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



BIOS Version

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

You should only download BIOS versions that are V1.0X.XX or higher as appropriate for your computer model.

Note that BIOS versions are not backward compatible and therefore you may not downgrade your BIOS to an older version after upgrading to a later version (e.g if you upgrade a BIOS to ver 1.0X.05, you **MAY NOT** then go back and flash the BIOS to ver 1.0X.04).

BIOS Update

Use the flash tools to update the BIOS

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

fsX:\> Flash.nsh

4. The utility will then proceed to flash the BIOS.
5. You should then be prompted to press any key to restart the system or turn the power off, and then on again but make sure you remove the CD/DVD/USB flash drive from the CD/DVD drive/USB port before the computer restarts.

Restart the computer (booting from the HDD)

1. With the CD/DVD/USB flash drive removed from the CD/DVD drive/USB port the computer should restart from the HDD.
2. Press **F2** as the computer restarts to enter the BIOS.
3. Use the arrow keys to highlight the **Exit** menu.
4. Select **Load Setup Defaults** (or press **F3**) and select “**Yes**” to confirm the selection.
5. Press **F4** to save any changes you have made and exit the BIOS to restart the computer.

Your computer is now running normally with the updated BIOS

You may now enter the BIOS and make any changes you require to the default settings.