SERVICE MANUAL

notebook

NL40LU1 / NL41LU1

Notebook Computer

NL40LU1 / NL41LU1

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 ***NL40LU1 / NL41LU1*** 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 with an AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19V, 2.37A (**45** Watts) minimum AC/DC Adapter.

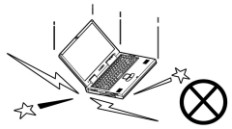
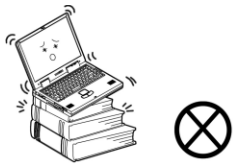
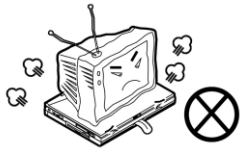
FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
This device may not cause harmful interference.
This device must accept any interference received, including interference that may cause undesired operation.

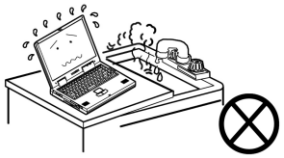
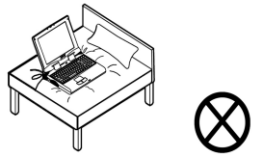
Instructions for Care and Operation

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

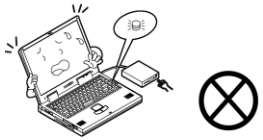
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.

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

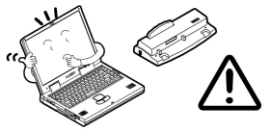
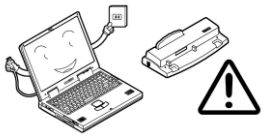
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

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

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

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

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

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

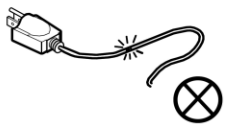
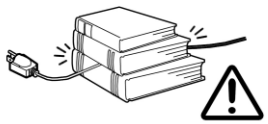
Power Safety

The computer has specific power requirements:

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

Power Safety Warning

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

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

Battery Precautions

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

Battery Guidelines

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

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

Battery Disposal

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

Caution

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

Battery Level

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

Related Documents

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

User's Manual on CD/DVD

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

System Startup

1. Remove all packing materials.
2. Place the computer on a stable surface.
3. Insert the battery and make sure it is locked in position.
4. Securely attach any peripherals you want to use with the computer (e.g. keyboard and mouse) to their ports.
5. **When first setting up the computer use the following procedure** (as to safeguard the computer during shipping, the battery will be locked to not power the system until first connected to the AC/DC adapter and initially set up as below):
   - Attach the AC/DC adapter cord to the DC-In jack on the right 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 180 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 on the left side of the computer to turn the computer "on" (note that the lid/LCD must be open for the power button to function).

Powering the Computer On

After every disassembly, make sure that the bottom case's screws are all inserted and tightened before turning the computer on.

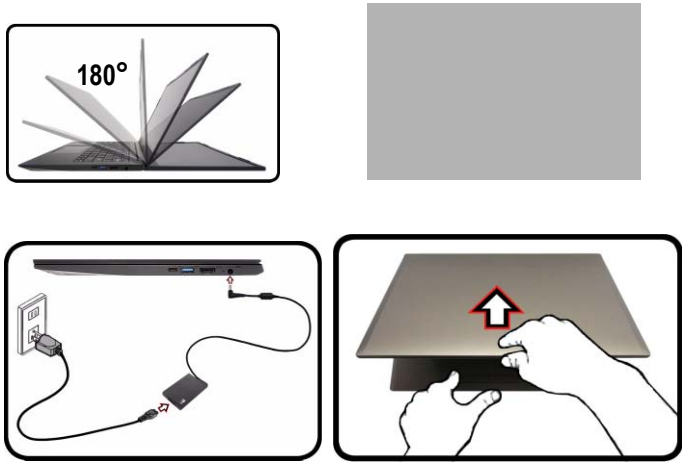


Figure 1
Opening the Lid/LCD/ Computer with AC/DC Adapter Plugged-In

Shut Down

Note that you should always shut your computer down by choosing **Shut Down** from the **Start** Menu.

This will help prevent hard disk or system problems.

Contents

Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the ***NL40LU1 / NL41LU1*** series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about dri-vers (e.g. VGA & audio) is also found in the *User's Manual*. The manual is shipped with the computer.

Operating systems (e.g. *Window 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 ***NL40LU1 / NL41LU1*** series notebook is designed to be upgradeable. See ***Disassembly on page 2 - 1*** for a detailed description of the upgrade procedures for each specific component. Please take note of the warning and safety information indicated by the "  " symbol.

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

Specifications

Latest Specification Information

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

CPU

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

Processor Options

Intel® Core™ i7 Processor
i7-1065G7 (1.30GHz)
8MB Smart Cache, **14nm**, DDR4-3200MHz, TDP 15W
Intel® Core™ i5 Processor
i5-1035G1 (1.00GHz)
6MB Smart Cache, **14nm**, DDR4-3200MHz, TDP 15W
Intel® Core™ i3 Processor
i3-1005G1U (1.20GHz)
4MB Smart Cache, **14nm**, DDR4-3200MHz, TDP 15W

BIOS

128Mb SPI Flash ROM
Insyde BIOS

Memory

Dual Channel DDR4
Two 260 Pin SO-DIMM Sockets
Supporting **DDR4 2666MHz** (Depending on CPU Type) Memory Modules
Memory Expandable up to 32GB
Compatible with 4GB, 8GB or 16GB Modules

LCD Options

14" (35.56cm), 16:9, HD (1366x768) /FHD (1920x1080)

Storage

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

Card Reader

MicroSD Card Reader

Video Adapter

Intel Iris Plus Graphics (i7-1065G7)
HDR 10 HW support
BT.2020 24bpc precision pipleline
Microsoft DirectX®12 Compatible
Intel UHD Graphics 620 (i5-1035G1, i3-1005G1)
HDR 10 HW support
BT.2020 24bpc precision pipleline
Microsoft DirectX®12 Compatible

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)

Keyboard

Keyboard
Or
(**Factory Option**) **White**-LED Keyboard

Audio

High Definition Audio Compliant Interface
2 * Built-In Speakers
Built-In Array Microphone
Or
(**Factory Option**) Built-In Microphone

Security

Security (Kensington® Type) Lock Slot
BIOS Password
Intel PTT for Systems Without TPM Hardware
(**Factory Option**) TPM 2.0
(**Factory Option**) Fingerprint Sensor

M.2 Slots

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

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

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 9462 Wireless LAN (**802.11ac**) + Bluetooth

(**Factory Option**) Intel® Dual Band Wi-Fi 6 AX200 Wireless LAN (**802.11ax**) + Bluetooth

(**Factory Option - Design I Only**) Intel® Dual Band Wi-Fi 6 AX201 Wireless LAN (**802.11ax**) + Bluetooth

Interface

One USB 3.2 Gen 2 Type-C Port*

**The maximum amount of current supplied by USB Type-C ports is 500mA (USB 2.0)/900mA (USB3.2).*

One USB 3.2 Gen 2 Type-A Port

One HDMI-Out Port

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

One DC-in Jack

One RJ-45 LAN Jack

One USB 2.0 Port

Or

(**Factory Option**) One USB 3.2 Gen 1 Type-A Port

Power

Full Range AC/DC Adapter

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

DC Output: 19V, 2.37A (**45W**)

(**Factory Option)** Embedded 3 Cell Smart Lithium-Ion Battery Pack, 36WH

(**Factory Option)** Embedded 4 Cell Smart Lithium-Ion Battery Pack, 49WH

Environmental Spec

Temperature

Operating: 5°C - 35°C

Non-Operating: -20°C - 60°C

Relative Humidity

Operating: 20% - 80%

Non-Operating: 10% - 90%

Dimensions & Weight

324.9mm (w) * 219.5mm (d) * 19.4mm (h)

(Height Excluding Battery Area)

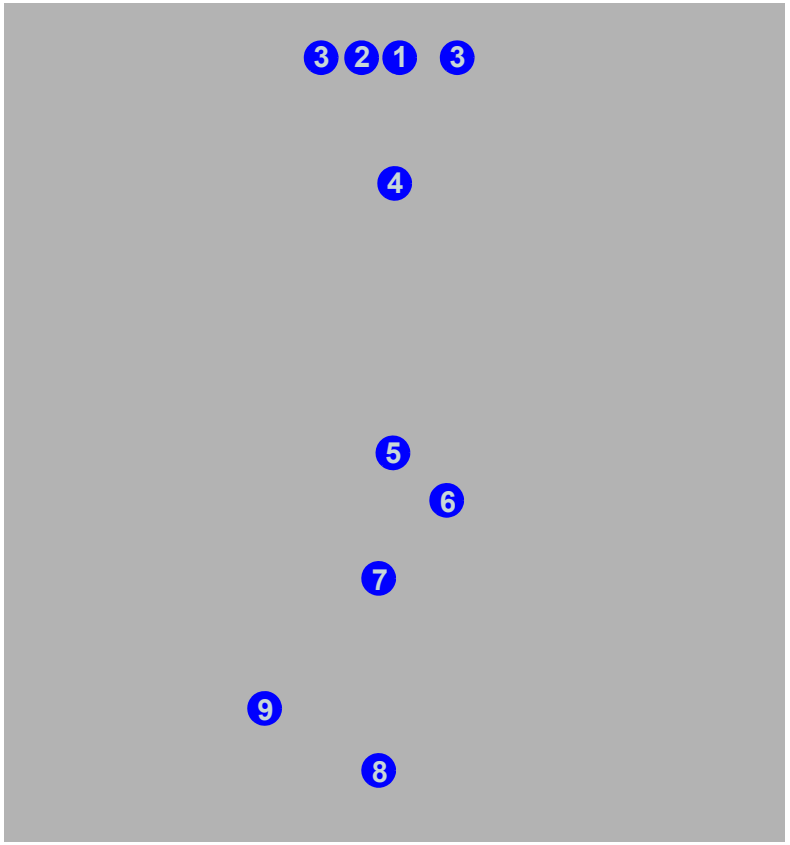
1.29kg (Barebone with 36WH Battery)

Or

1.35kg (Barebone with 49WH Battery)

External Locator - Top View with LCD Panel Open

Figure 1
Top View



1. PC Camera
2. *PC Camera LED
   **When the PC camera is in use, the LED will be illuminated in white.*
3. Built-In Microphone
4. Display
5. Vent
6. LED Indicators
7. Keyboard
8. Touchpad & Buttons
9. (**Factory Option**) Fingerprint Sensor

External Locator - Front & Right Side Views

Figure 2
Front View

FRONT VIEW

Figure 3
Right Side View

RIGHT SIDE VIEW

1. Speaker
2. USB 3.2 Gen 2 Type-C Port
3. USB 3.2 Gen 2 Type-A Port
4. HDMI-Out Port
5. Battery Power LED Indicator
6. DC-In Jack

External Locator - Left Side & Rear View

Figure 4
Left Side View

1. Security Lock Slot
2. RJ-45 LAN Jack
3. MicroSD Card Reader
4. USB 2.0 Port
   Or
   (**Factory Option**) USB 3.2 Gen 1 Type-A Port
5. Power Button
6. 2-In-1 Audio Jack (Headphone and Microphone)
7. Speaker

Figure 5
Rear View

External Locator - Bottom View

Figure 6
Bottom View

1. Vent
2. RJ-45 LAN Jack
3. Speakers

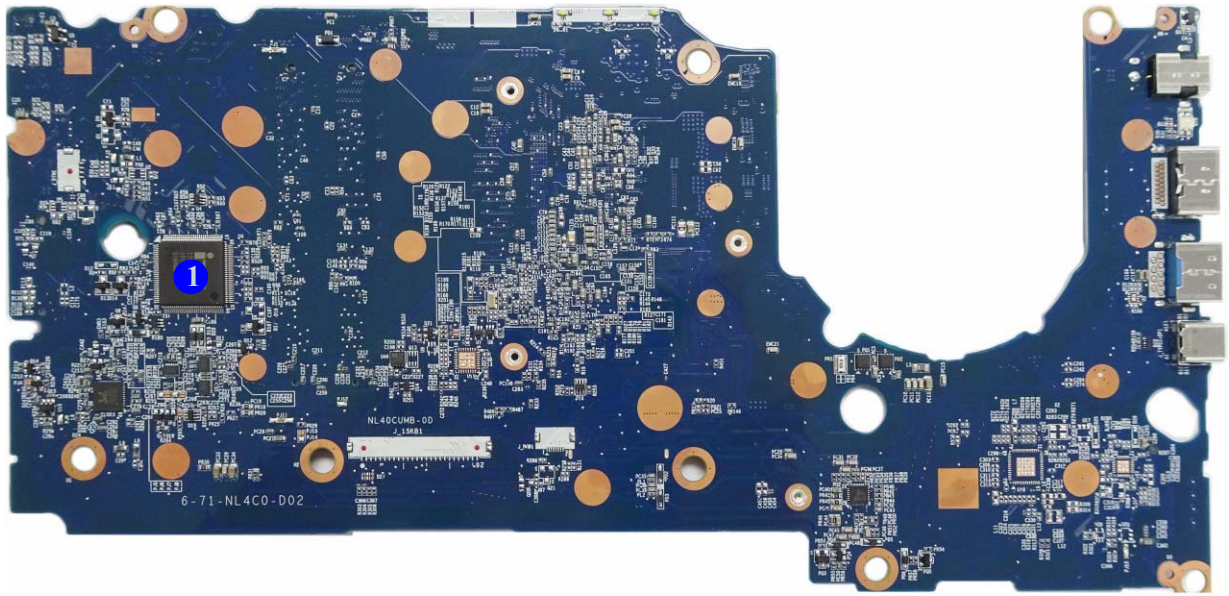
Overheating

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

Mainboard Overview - Top (Key Parts)

Figure 7
Mainboard Top Key Parts

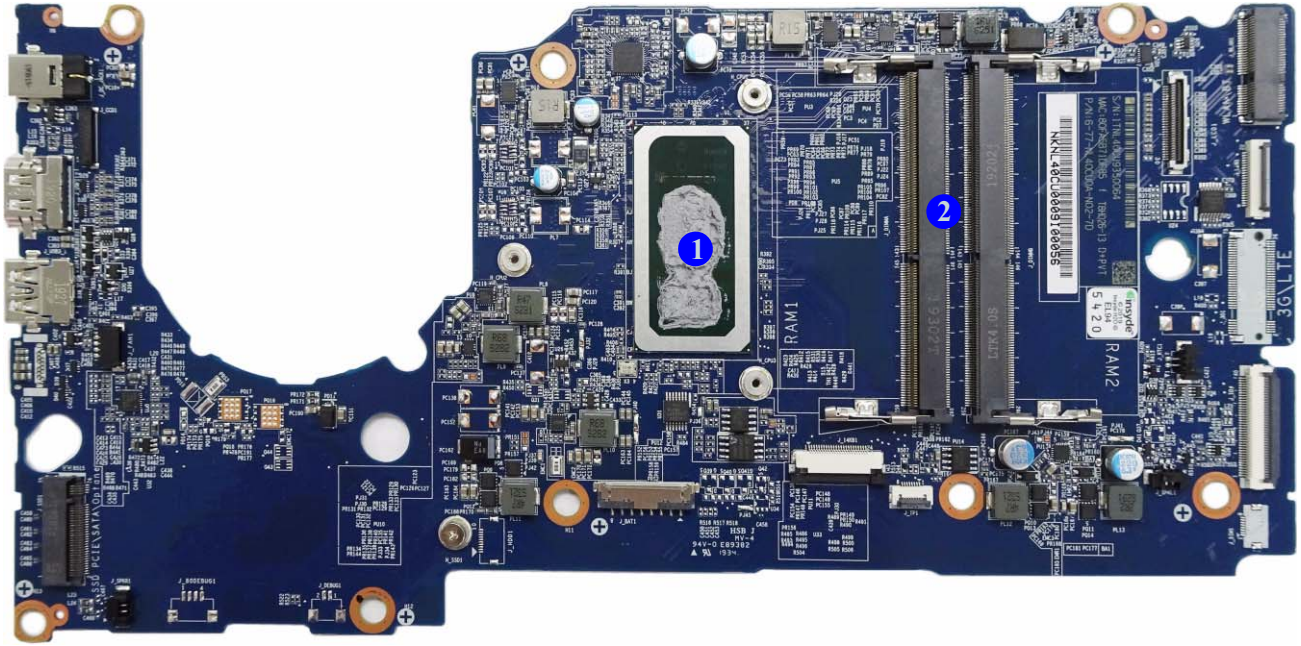
1. KBC-ITE IT5570



Mainboard Overview - Bottom (Key Parts)

Figure 8
Mainboard Bottom Key Parts

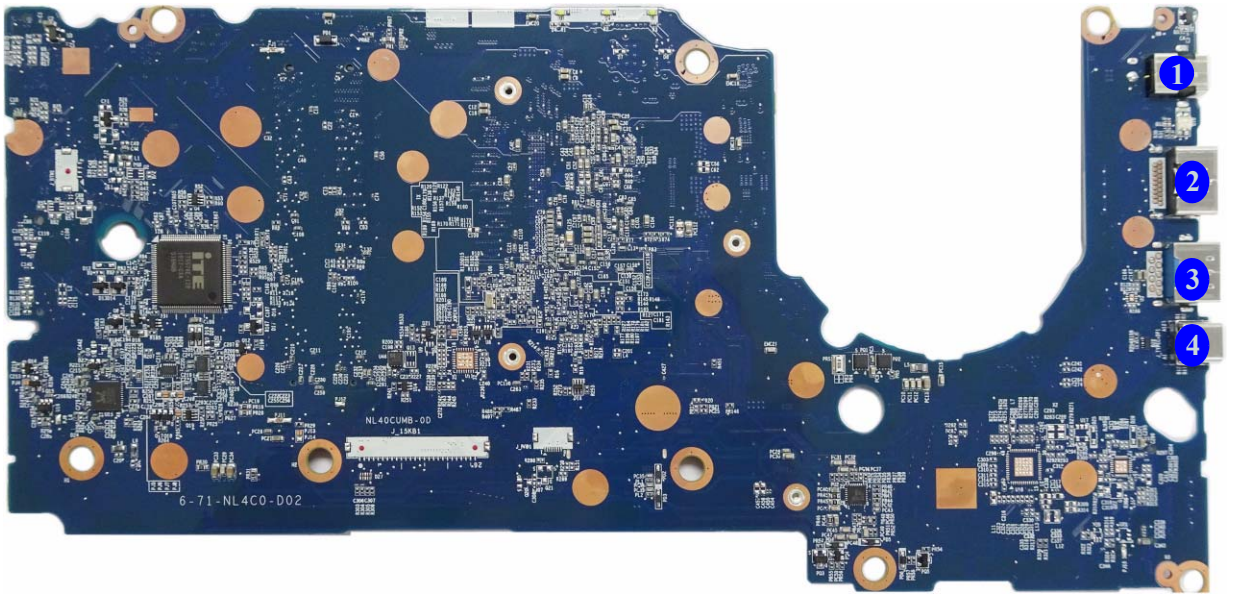
1. CPU
2. Memory Slots DDR4 SO-DIMM



Mainboard Overview - Top (Connectors)

Figure 9
Mainboard Top Connectors

1. DC-In Jack
2. HDMI-Out Port
3. USB 3.1 Gen 2 Type-A Port
4. USB 3.1 Gen 2 Type-C Port



Mainboard Overview - Bottom (Connectors)

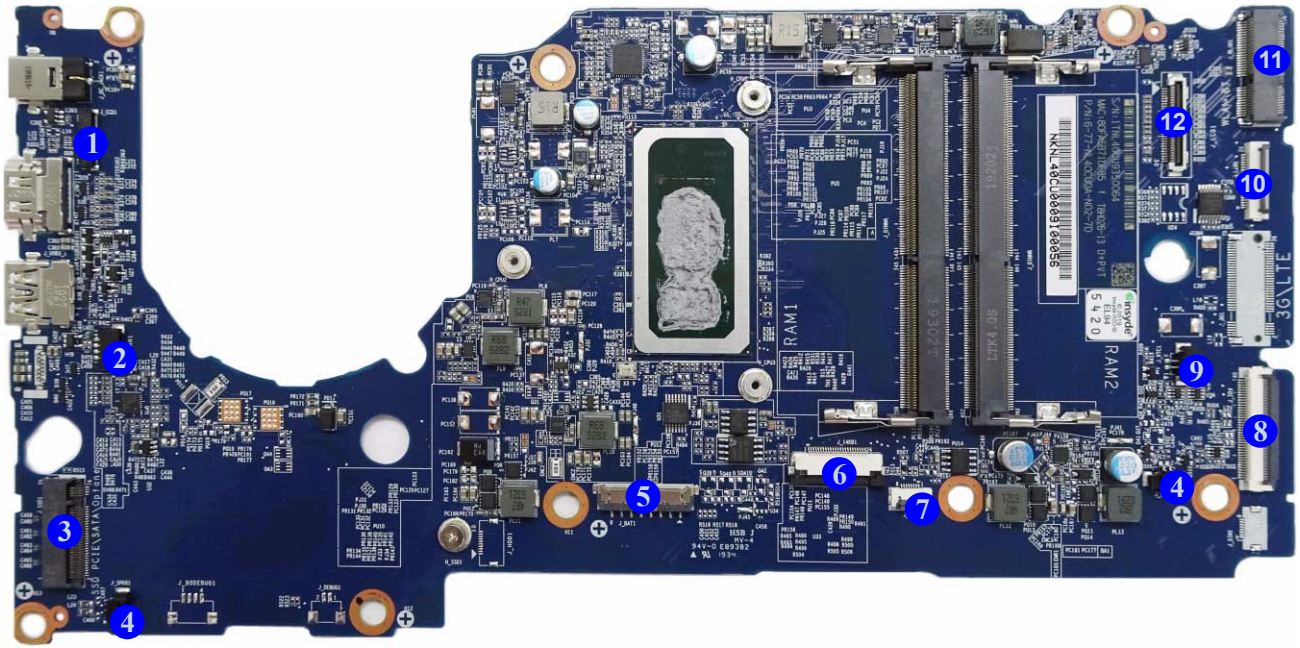


Figure 10
Mainboard Bottom Connectors

1. CCD Cable Connector
2. Fan Connector
3. M.2 Card Connector
4. Speaker Connecto
5. Battery Connector
6. Keyboard Connector
7. Touchpad Connector
8. USB Board Connector
9. CMOS Battery Connector
10. LAN Board Connector
11. WLAN/BT Connector
12. LCD Cable Connector

Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the ***NL40LU1 / NL41LU1*** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

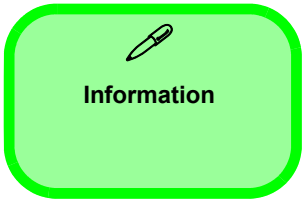
We suggest you completely review any procedure before you take the computer apart.

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

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

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

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

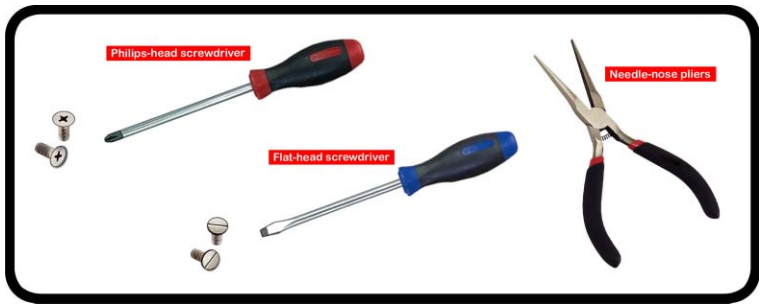


NOTE: All disassembly procedures assume that the system is turned **OFF**, and disconnected from any power supply (the battery is removed too).

Maintenance Tools

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

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



Connections

Connections within the computer are one of four types:

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

Maintenance Precautions

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

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

Power Safety Warning

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

Cleaning

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

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

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

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

Disassembly Steps

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

To remove the Battery:

1. Remove the battery *page 2 - 5*

To remove the System Memory:

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

To remove the Wireless LAN Module:

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

To remove and install the M.2 SSD Module:

1. Remove the battery *page 2 - 5*
2. Remove the SSD-1 module *page 2 - 13*

To remove the CCD Module:

1. Remove the battery *page 2 - 5*
2. Remove the CCD module *page 2 - 14*

Removing the Battery

Note that battery removal procedure will differ depending on the battery type installed:

- See 36WH Battery Upgrade Process on *page 2 - 5*
- See 48WH Battery Upgrade Process on *page 2 - 7*

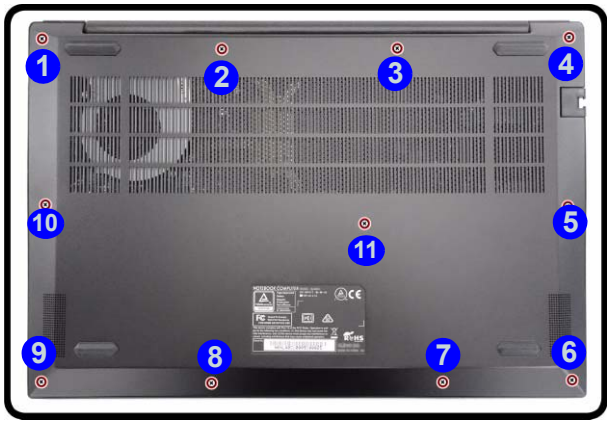
36WH Battery Upgrade Process

1. Turn **off** the computer, turn it over.
2. Remove screws 1 - 11 on the bottom case (*Figure 1a*).
3. Note to remove screws 6 - 9, do so with the screwdriver angled at about 90 degrees to the computer surface as shown (*Figure 1b*).
4. Carefully lift the bottom case 12 up.
5. The battery will be visible at point 13 on the computer (*Figure 1c*).

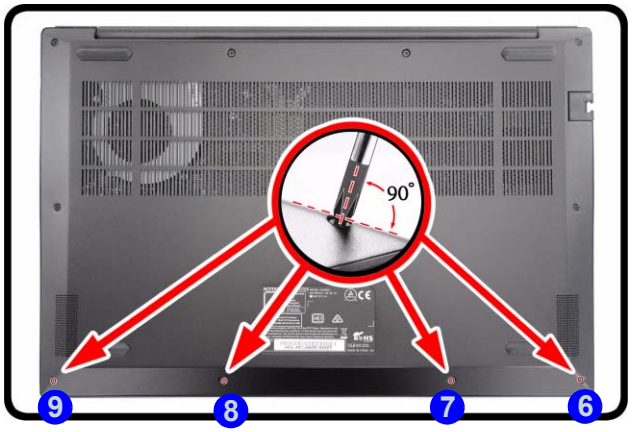
Figure 1
Battery Removal - 36WH

a. Remove the screws.
b. Remove the bottom case.
c. Locate the battery.

a.



b.



c.

12. Bottom Case

- 11 Screws

Figure 2
Battery Removal - 36WH (cont'd.)

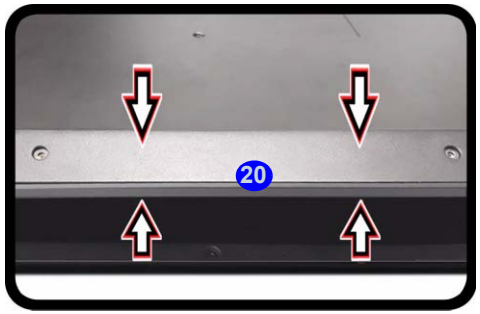
c. Disconnect the cable and remove the screws.
d. Lift the battery off the computer.
f. Close the bottom cover as shown.

6. Carefully disconnect the cable 14, then remove screws 15 - 18 (***Figure 2d***).
7. Lift the battery 19 off the computer (***Figure 2e***).
8. Reverse the process to install a new battery (do not forget to replace all the screws and bottom cover).
9. Make sure you close the bottom cover by applying pressure at point 20 as shown (***Figure 2f***).

d.

e.

f.



Powering the Computer On

After every disassembly, make sure that the bottom case's screws are all inserted and tightened before turning the computer on.

19. Battery

- 4 Screws

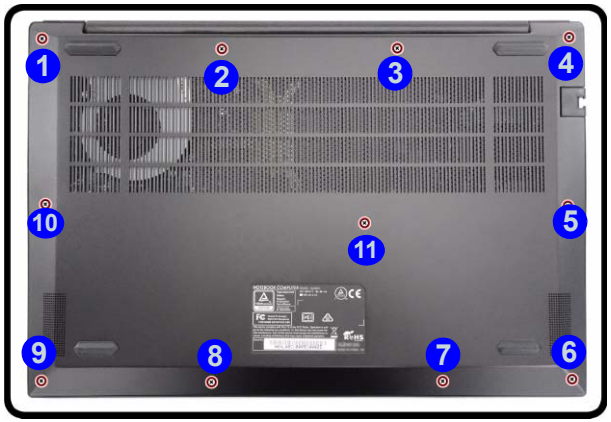
48WH Battery Upgrade Process

1. Turn **off** the computer, turn it over.
2. Remove screws 1 - 11 on the bottom case (*Figure 1a*).
3. Note to remove screws 6 - 9, do so with the screwdriver angled at about 90 degrees to the computer surface as shown (*Figure 1b*).
4. Carefully lift the bottom case 12 up.
5. The battery will be visible at point 13 on the computer (*Figure 1c*).

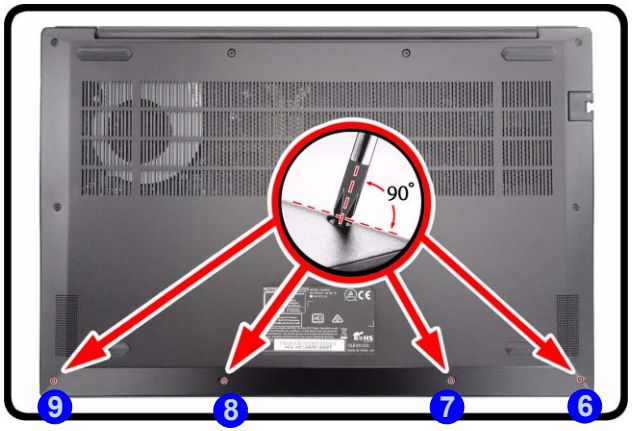
Figure 3
Battery Removal - 48WH

a. Remove the screws.
b. Remove the bottom case.
c. Locate the battery.

a.



b.



c.

12. Bottom Case

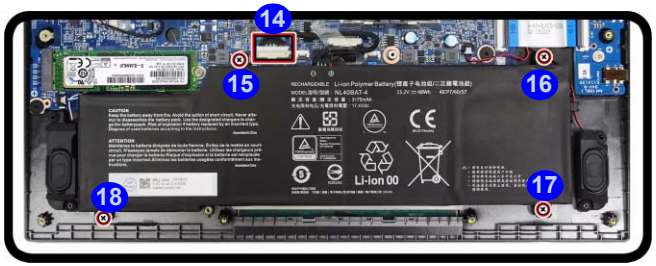
- 11 Screws

Figure 4
Battery Removal - 48WH (cont'd.)

c. Disconnect the cable and remove the screws.
d. Lift the battery off the computer.
f. Close the bottom cover as shown.

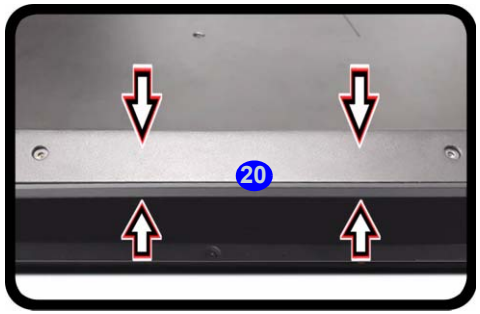
6. Carefully disconnect the cable 14, then remove screws 15 - 18 (*Figure 2d*).
7. Lift the battery 19 off the computer (*Figure 2e*).
8. Reverse the process to install a new battery (do not forget to replace all the screws and bottom cover).
9. Make sure you close the bottom cover by applying pressure at point 20 as shown (*Figure 2f*).

d.



e.

f.



Powering the Computer On

After every disassembly, make sure that the bottom case's screws are all inserted and tightened before turning the computer on.

19. Battery

- 4 Screws

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 2666MHz. The main memory can be expanded up to 32GB. The total memory size is automatically detected by the POST routine once you turn on your computer.

Memory Upgrade Process

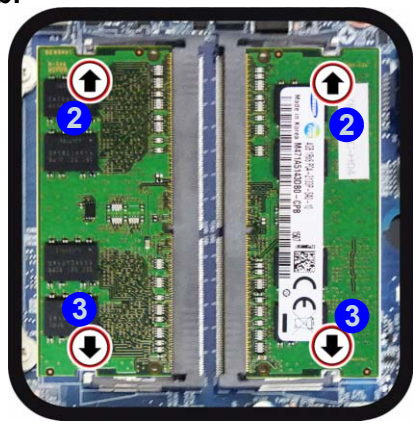
1. Turn **off** the computer, turn it over to remove the battery (*page 2 - 5*).
2. The RAM modules will be visible at point 1 on the mainboard (*Figure 5b*).
3. Gently pull the two release latches (2 & 3) on the sides of the memory socket in the direction indicated by the arrows (*Figure 5b*).
4. The RAM module 4 will pop-up (*Figure 5c*), and you can then remove it.

Figure 5
RAM Module Removal

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

a.

b.



c.

Single Memory Module Installation

If your computer has a single memory module, then insert the module into the **Channel 0 (JDIMM1 / RAM1)** socket.

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

5. Pull the latches to release the second module if necessary.
6. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
7. 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.
8. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
9. Replace the bottom case and the screws (see ***page 2 - 5***).
10. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

Removing the Wireless LAN Module

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

a.

b.

c.

Figure 6
Wireless LAN Module Removal

a. Locate the WLAN.
b. Disconnect the cable and remove the screw.
c. The WLAN module will pop up and lift it out of the computer.

Note: Make sure you reconnect the antenna cable to the "1 + 2" socket (*Figure 6b*).

5.Wireless LAN Module

- 1 Screw

Wireless LAN, and Combo Module Cables

Note that the cables for connecting to the antennae on WLAN, WLAN & Bluetooth Combo, 3G 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	WL 1	Black	Transparent
	WL 2	Black	White

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

Removing and Installing the M.2 SSD Module

M.2 SSD Removal Procedure

1. Turn **off** the computer, turn it over to remove the battery (*page 2 - 5*).
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 thermal pad, screws and bottom cover).

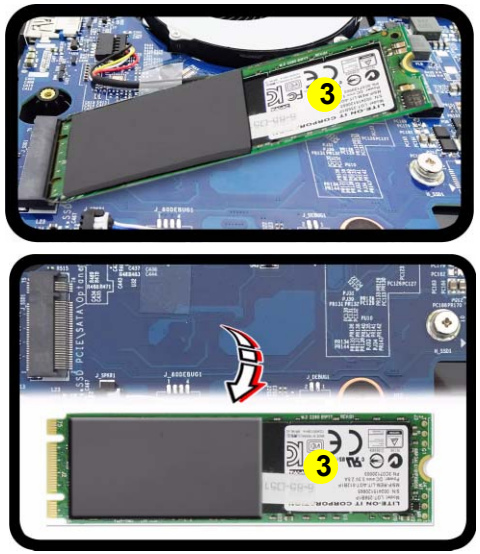
Figure 7
M.2 SSD Module Removal

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

a.

b.

c.



Thermal Pad

Make sure to place the thermal pad's adhesive side down on the module's surface as illustrated. Insert the module with the thermal pad facing the mainboard.

3.M2 SATA Module

- 1 Screw

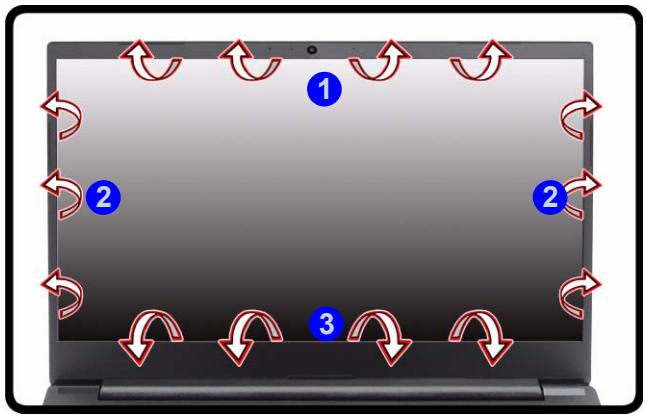
Figure 8
CCD Removal

a. Run your fingers around the inner frame of the LCD panel at the points indicated by the arrows.
b. Lay the computer down on a flat surface with the top case up forming a 130 degree angle. Lift the LCD front panel upwards.

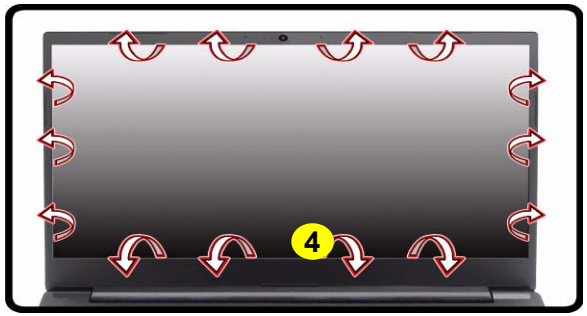
Removing the CCD

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

a.



b.



5. LCD Front Cover

4. Disconnect the cable 6 (*Figure 9c*).
5. Remove the CCD module 7 (*Figure 9d*).
6. Reverse the process to install a new CCD module.

c.

d.

Figure 9
CCD Removal (cont'd.)

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

7. CCD Module

Appendix A: Part Lists

This appendix breaks down the ***NL40LU1 / NL41LU1*** series notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

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

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

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

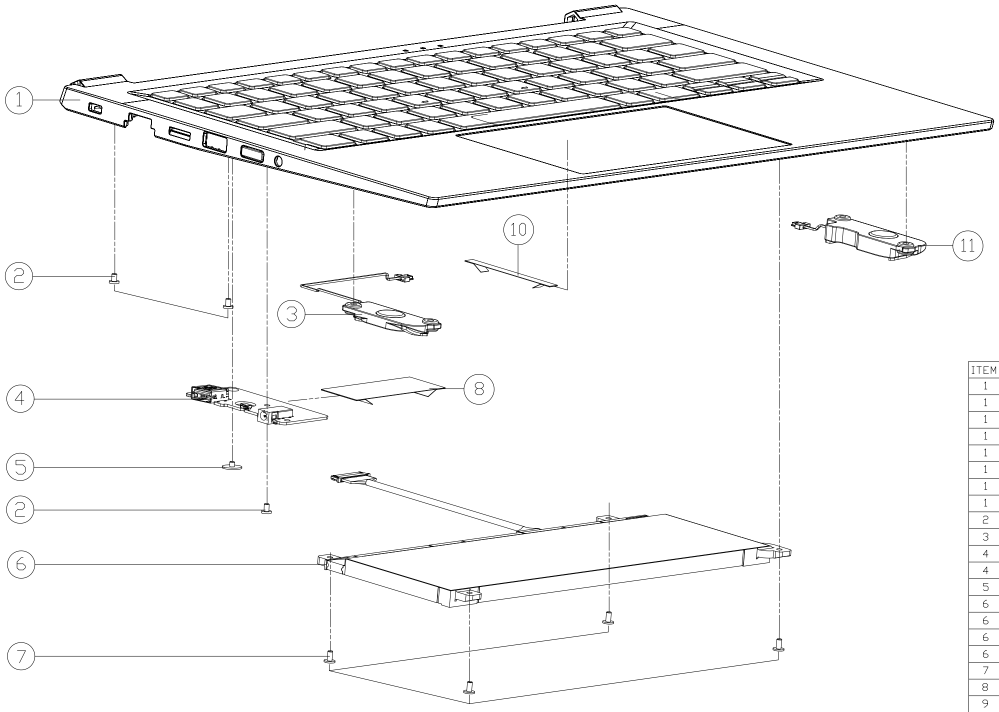
Part List Illustration Location

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

Table A - 1
Part List Illustration Location

Part	
Top	*page A - 3*
Bottom	*page A - 4*
LCD	*page A - 5*
MB	*page A - 6*

Top

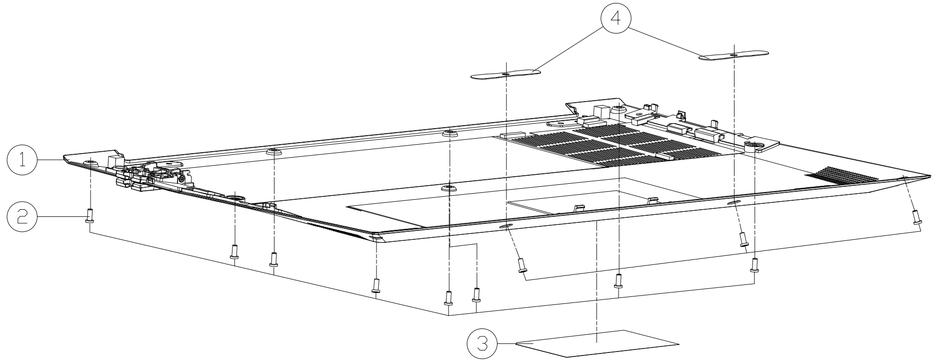


ITEM	PART NAME	PART NO	REMARK
1	KB FOR NON BL KB SERIES NL40LU2	6-NL40LU2-KB-NBL	
1	KB FOR WHITE BL KB SERIES NL40LU2	6-NL40LU2-KB-WBL	
1	KB FOR NON BL KB SERIES NL40LU1	6-NL40LU1-KB-NBL	
1	KB FOR WHITE BL KB SERIES NL40LU1	6-NL40LU1-KB-WBL	
1	KB FOR NON BL KB SERIES NL41LU1	6-NL41LU1-KB-NBL	
1	KB FOR WHITE BL KB SERIES NL41LU1	6-NL41LU1-KB-WBL	
1	KB FOR NON BL KB SERIES NL41LU2	6-NL41LU2-KB-NBL	
1	KB FOR WHITE BL KB SERIES NL41LU2	6-NL41LU2-KB-WBL	
2	SCREW M2*3L KI NI ICT NY (DD=Ø4.0,DT=0.8)	6-35-B1120-3RD	
3	SPK+CABLE L L44*23 2W 4? L150MM VTS251410-03 NL50CU	6-23-5NL5C-0L0	
4	I/O BOARD (USB 2.0+PHONE JACK) V3.0 NL40CU	6-77-NL4C1-D03	
4	I/O BOARD (USB 3.1 GEN1+PHONE JACK) V3.0B NL40CU	6-77-NL4C1-D03B	
5	SCREW M2*2L KI BK/Z ICT NY(Ø8,T=0.6)	6-35-B6120-2RE	
6	BAT.P S LI 11.4V/3.23AH/36WH 3S1P SCUD/EBTEB R54K03990011 (3175MAH) NL40GU	6-87-NL40S-33G21	
6	BAT.P S LI 11.4V/3.175AH/36WH PSE 3S1P GETAC/VEKEN (POLYMER)541391120001 /(3175MAH)	6-87-NL4CS-32B01	
6	BAT.P S LI 15.2V/3.23AH/49WH 4S1P SCUD/EBTEB R54K03990012(3175MAH) NL40CU(LABEL48V CHANGE TO 49W)	6-87-NL4CS-43G01	
6	BAT.P S LI 15.2V/3.23AH/49WH 4S1P SMP/VEKEN 980QA040H(3175MAH) NL40CU	6-87-NL4CS-41B01	
7	SCREW M2*4L KI NI ICT NY (DD=Ø4.5,DT=0.8)	6-35-B1120-4RC	
8	FFC IO TO MB (P=0.5) 51.0MM 60V 40PIN NL40CU	6-43-NL4C0-020-1	
9	FFC CLICK TO MB (P=0.5) 49.0MM 60V 8PIN NL40CU	6-43-NL4C0-011-1	
10	SPK+CABLE R L44*23 2W 4? L50MM VTS251410-04 NL50CU	6-23-5NL5C-0R0	

Figure A - 1
Top

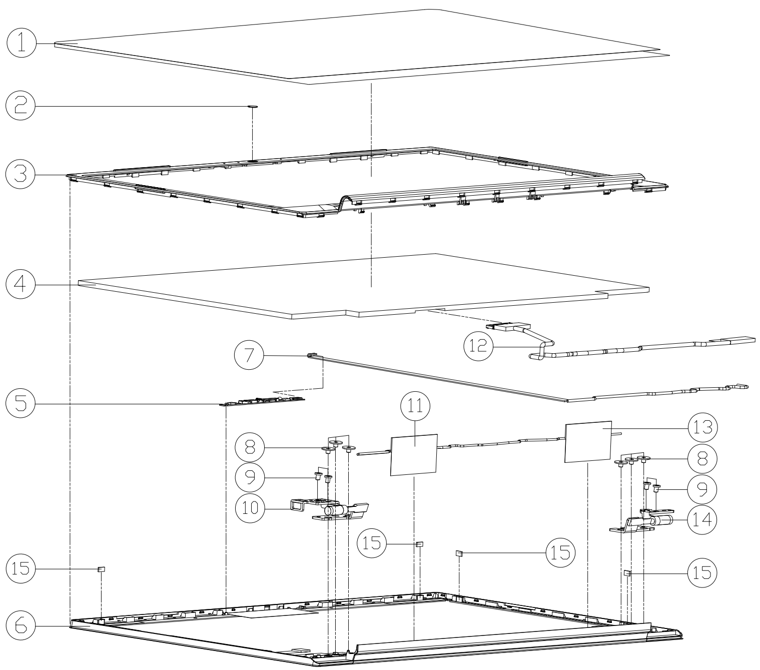
Bottom

Figure A - 2
Bottom



ITEM	PART NAME	PART NO	REMARK
1	BOTTOM CASE MODULE NL40CU	6-39-NL4C3-015	
2	SCREW M2*5L K(T=0.8 D=3.5) BK/Z ICT NY	6-35-B6120-5RC	
3	PRODUCT LABEL FOR NL40CU	6-45-NL40CU03-010	
3	PRODUCT LABEL FOR NL41CU	6-45-NL41CU03-010	
3	PRODUCT LABEL FOR NL40CU1	6-45-NL40CU13-010	
3	PRODUCT LABEL FOR NL41CU1	6-45-NL41CU13-010	
3	PRODUCT LABEL FOR NL40CU2	6-45-NL40CU23-010	
3	PRODUCT LABEL FOR NL41CU2	6-45-NL41CU23-010	
3	PRODUCT LABEL FOR NL40ZU	6-45-NL40ZU03-010	
3	PRODUCT LABEL FOR NL41ZU	6-45-NL41ZU03-010	
3	PRODUCT LABEL FOR NL41ZU1	6-45-NL41ZU13-010	
3	PRODUCT LABEL FOR NL40ZU1	6-45-NL40ZU13-010	
3	PRODUCT LABEL FOR NL40LU1	6-45-NL40LU13-010	
3	PRODUCT LABEL FOR NL40LU2	6-45-NL40LU23-010	
3	PRODUCT LABEL FOR NL41LU1	6-45-NL41LU13-010	
3	PRODUCT LABEL FOR NL41LU2	6-45-NL41LU23-010	
4	BOTTOM CASE BOSS MYLAR 38*8*0.3T(0.15T MYLAR+0.15 DS-15) NL40CU	6-40-NL4C3-010	

LCD

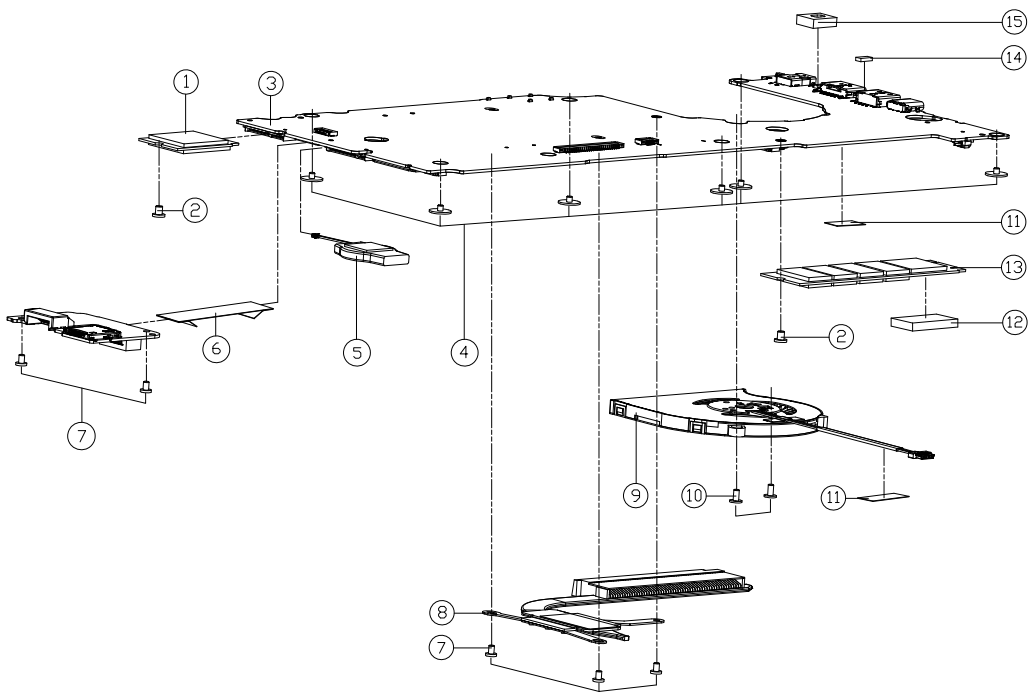


ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT MYLAR BOPP N130BU	6-40-N1308-011	
2	CCD LENS PMMA (DIAMETER 3.6MM) (MP1) P970EN	6-42-P97N1-011-1	
3	FRONT COVER MODULE NL40GU	6-39-NL401-013	
4	LCD N14.0" HD/NON GT/EDP INNOLUX N140BGA-EA4 (NO BRACKET) LED 3.0MM	6-50-J8B30-V002	
4	LCD N14.0" FHD/NON GT/EDP BOE NT140FHM-N43 LED 3.0MM	6-50-JBB30-Z000	
4	LCD N14.0" HD/NON GT/EDP BOE NT140WHM-N44 (NO BRACKET) LED 3.0MM	6-50-J8B30-Z003	
4	LCD N14.0" FHD/WVA/N4/NON GT/EDP INNOLUX N140HCA-EAD LED 3.0MM	6-50-JBB30-V016	
5	UVC CAMERA BISON FIX(RGB) BNH419VXB-010 1M HD OV9734 NL40GU FW0601 W/WHITE-LED W/D-MIC(NARROW BORDER WITH FFC)	6-88-NL40C-4900	OPTION
5	UVC CAMERA CHICONY FIX(RGB) CNFIH382100392ILH 1M HD OV9734 NL40GU FV5404 W/WHITE-LED W/D-MIC(NARROW BORDER WITH FFC)	6-88-NL40C-5100	OPTION
5	UVC CAMERA BISON FIX(RGB) BNH419VXB-000 1M HD OV9734 N150ZU FW0601 W/WHITE-LED W/2D-MIC(NARROW BORDER WITH FFC)	6-88-N15ZC-4900	OPTION
5	UVC CAMERA CHICONY FIX(RGB) CNFIH382100392OLH 1M HD OV9734 N150ZU FV5404 W/WHITE-LED W/2D-MIC(NARROW BORDER WITH FFC)	6-88-N15ZC-5100	OPTION
6	BACK COVER MODULE NL40GU	6-39-NL401-022	
6	BACK COVER MODULE NL41CU	6-39-NL411-021	
7	WIRE+FFC CABLE FOR CCD(NEW UPDATE) 400MM 12P TO 8P 3.3V (JS) L140CU	6-43-L140T-021-1	
8	SCREW M2.5*2.5L KI BK/Z ICT NY(Ø8,T=0.6)	6-35-B6125-2R5	
9	.SCREW M2.5*5L KI BK/Z ICT NY	6-35-B6125-5RA	
10	HINGE L (SK7) NL40CU1	6-33-NL4C1-0L0	
11	ANTENNA IPEX4 WLAN JEM WL2 PCB OR 40X9MM 2.4G/5G L= 550MM NL50CU	6-23-7NL5C-021	
12	WIRE CABLE FOR EDP FHD 200MM (I) 19V 30PIN (CNJS/LW CON:LV03130-212) NJ50CU	6-43-NJ501-011-1N	
13	ANTENNA IPEX4 WLAN JEM WL1 PCB OR 40X9MM 2.4G/5G L= 350MM NL50CU	6-23-7NL5C-011	
14	HINGE R (SK7) NL40CU1	6-33-NL4C1-0R0	
15	LCD RUBBER (4.8*3*0.9) NL50GU	6-47-NL501-010	

Figure A - 3
LCD

A.Part Lists

MB



ITEM	PART NAME	PART NO	REMARK
1	[illegible]	6-88-N24GF-4200	OPTION
1	[illegible]	6-88-N15CF-4210	OPTION
1	[illegible]	6-88-NV40F-4210	OPTION
2	SCREW M2*2L KI NI ICT NY (OD=Ø5 ,T=0.8)	6-35-B1120-2RA	
3	BAT. 20MM 3V 220MAH W/CABLE 55MM BCR2032H5	6-23-22015-TE0	
4	[illegible]	6-77-NL40LU1A-N02-A	
4	[illegible]	6-77-NL40LU1A-N02-B	
4	[illegible]	6-77-NL40LU1A-N02-3B	
4	[illegible]	6-77-NL40LU1A-N02-3C	
4	[illegible]	6-77-NL40LU1A-N02-7C	
5	SCREW M2*2L KI BK/Z ICT NY(Ø8,T=0.6)	6-35-B6120-2RE	
6	FFC R.J TO MB (P=0.5) 48.5MM 60V 22PIN NL40CU	6-43-NL4C0-030-1	
7	.SCREW M2*3L KI NI ICT NY (OD=Ø4.0,DT=0.8)	6-35-B1120-3RD	
8	CPU HEATSINK MODULE NL40LU1	6-31-NL4LN-100	
9	FAN MODULE (WINMA) PWM NI41WU	6-31-N14WS-102-1	
10	SCREW M2*4L KI NI ICT NY (OD=Ø4.5,DT=0.8)	6-35-B1120-4RC	
11	TAPE MYLAR (C),MYLAR M550J	6-40-M55J2-030	
12	THERMAL PAD FOR N2 SSD TFLEXB25 30MM*18MM NL40CU	6-48-NL4CS-010	
13	[illegible]	6-85-D511T-W01	OPTION
13	[illegible]	6-85-D511T-S05	OPTION
13	[illegible]	6-85-D515B-W02	OPTION
13	[illegible]	6-85-D515B-S0A	OPTION
13	[illegible]	6-85-D515B-S0B	OPTION
13	[illegible]	6-85-D515B-102	OPTION
13	[illegible]	6-85-D515B-K00	OPTION
13	[illegible]	6-85-D515B-B00	OPTION
13	[illegible]	6-85-D515B-T00	OPTION
13	[illegible]	6-85-D51R6-101	OPTION
13	[illegible]	6-85-D51R6-W02	
13	[illegible]	6-85-D51R6-Z04	
13	[illegible]	6-85-D5164-Z02	
13	[illegible]	6-85-D511T-S04	
14	LCD RUBBER SILICONE 7*3*2.15MM U P950EN	6-47-P95N1-031	
15	SPONGE(C)11*9.5*1.65HD FOR DC LENS DS-15 NL40GU	6-47-0019A-A14	

Figure A - 4
MB

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the ***NL40LU1 / NL41LU1*** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

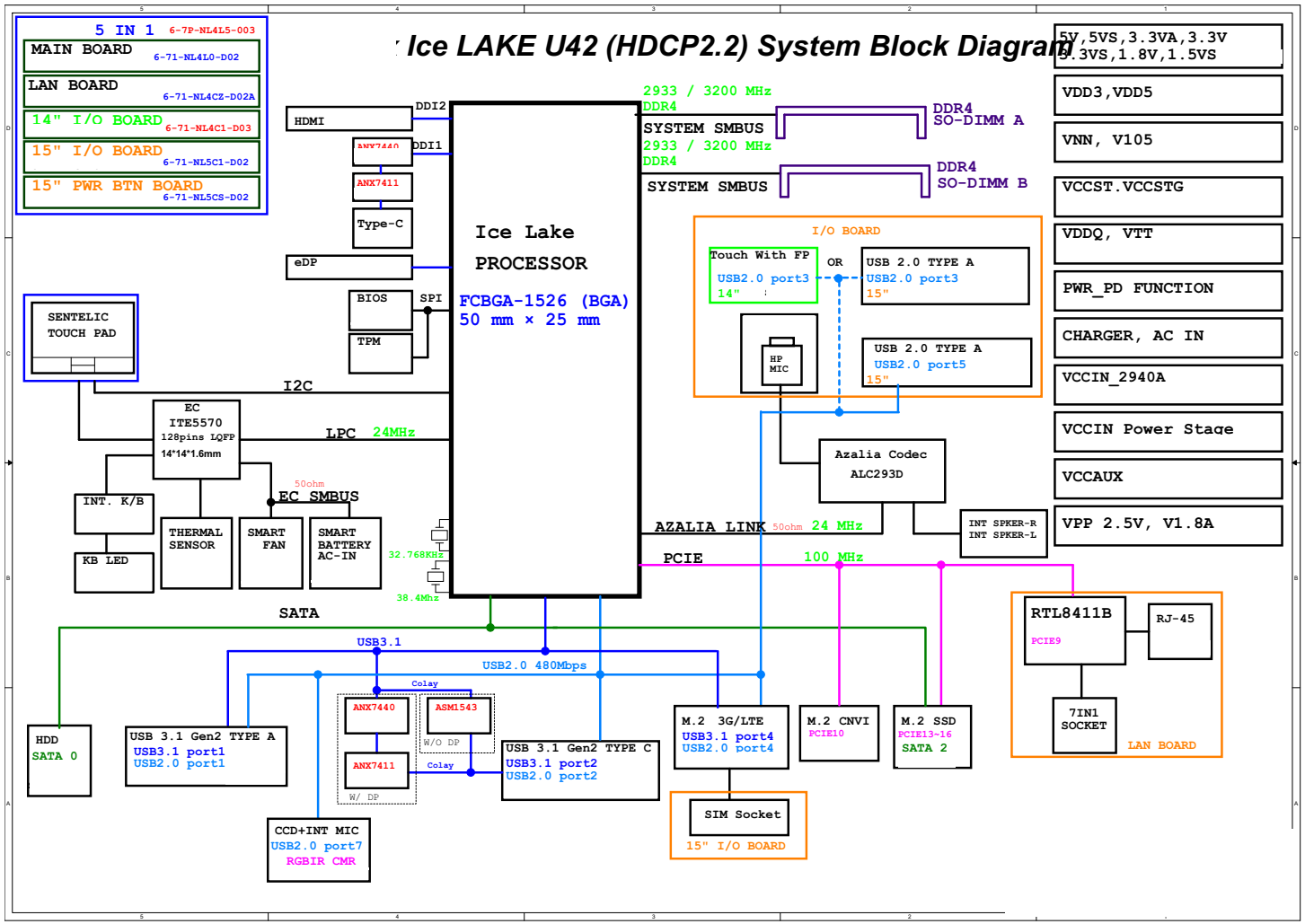
Table B - 1
SCHEMATIC DIAGRAMS

Version Note

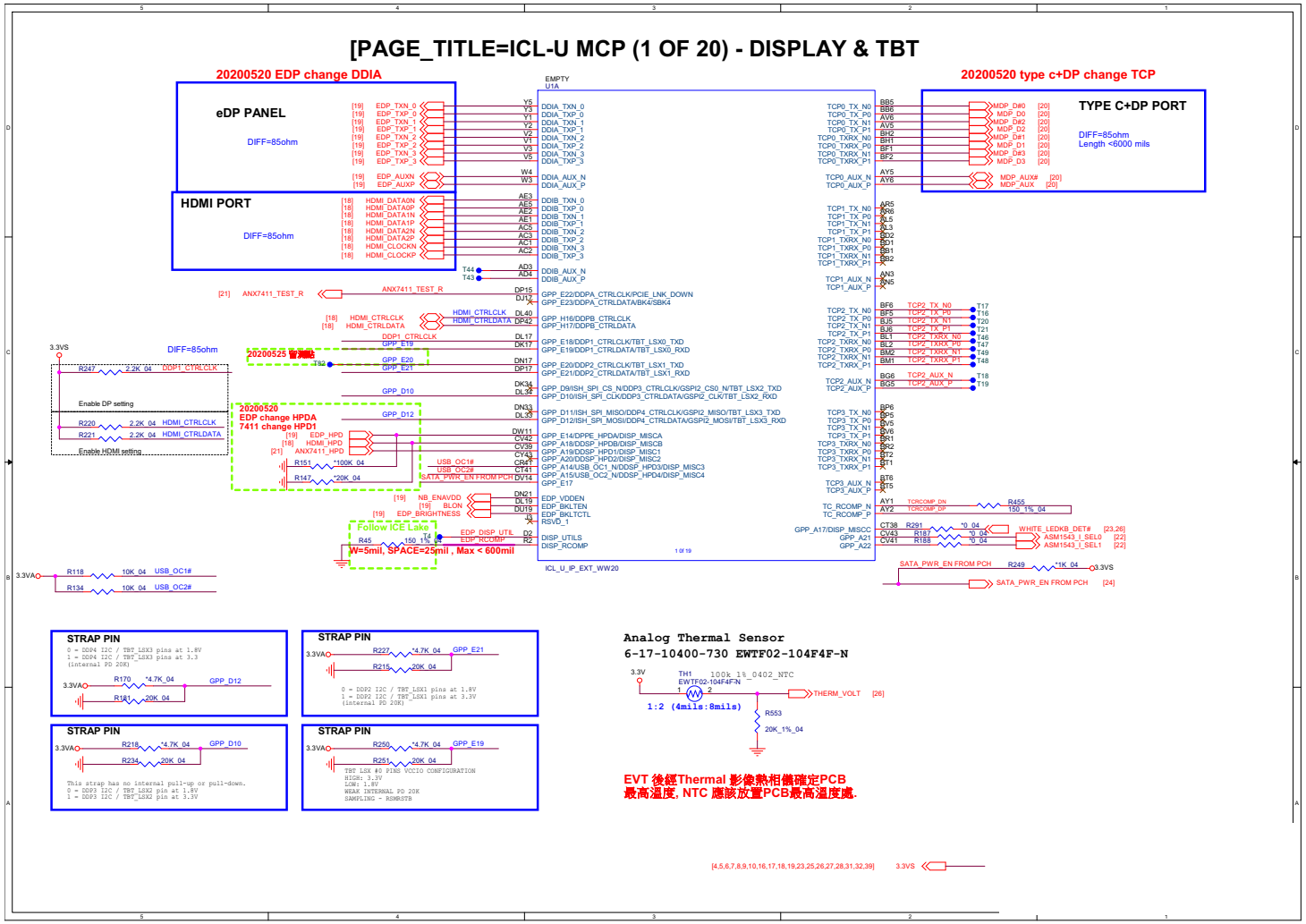
The schematic diagrams in this chapter are based upon version 6-7P-NL4L5-003. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

System Block Diagram

Sheet 1 of 43
System Block Diagram



Processor 1/14

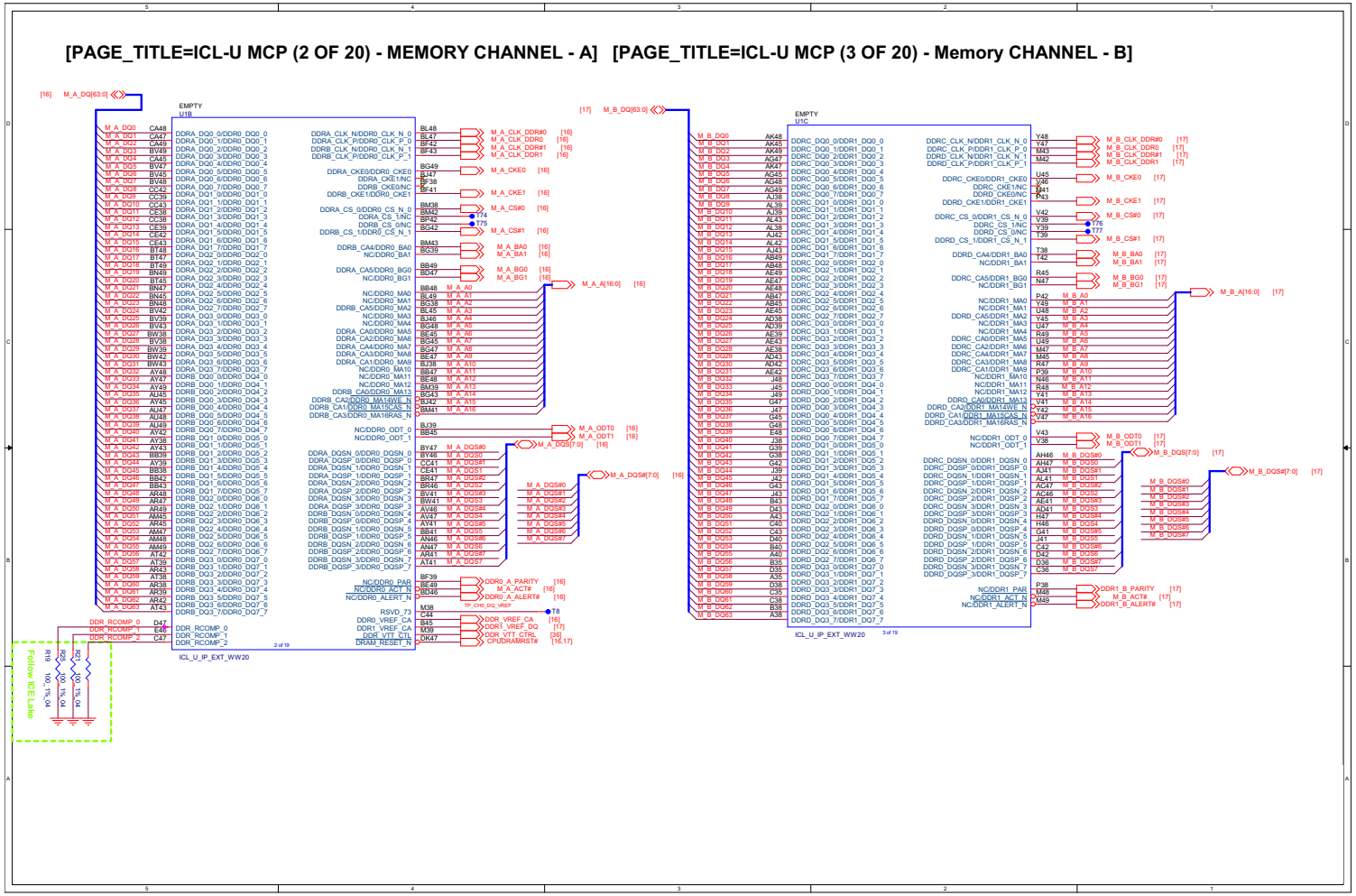


Sheet 2 of 43
Processor 1/14

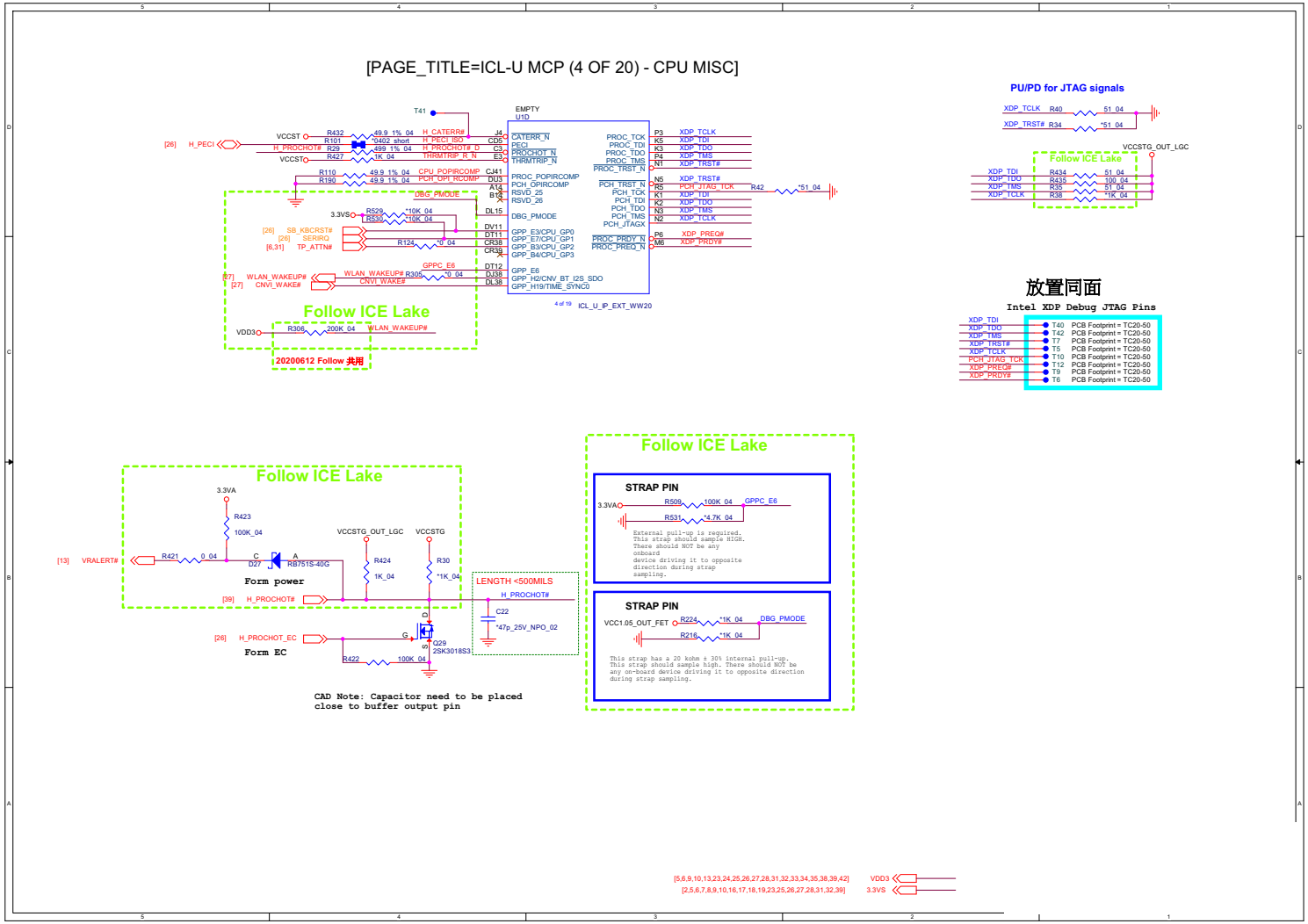
B.Schematic Diagrams

Processor 2/14

Sheet 3 of 43
Processor 2/14



Processor 3/14



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Processor 3/14

Processor 4/14

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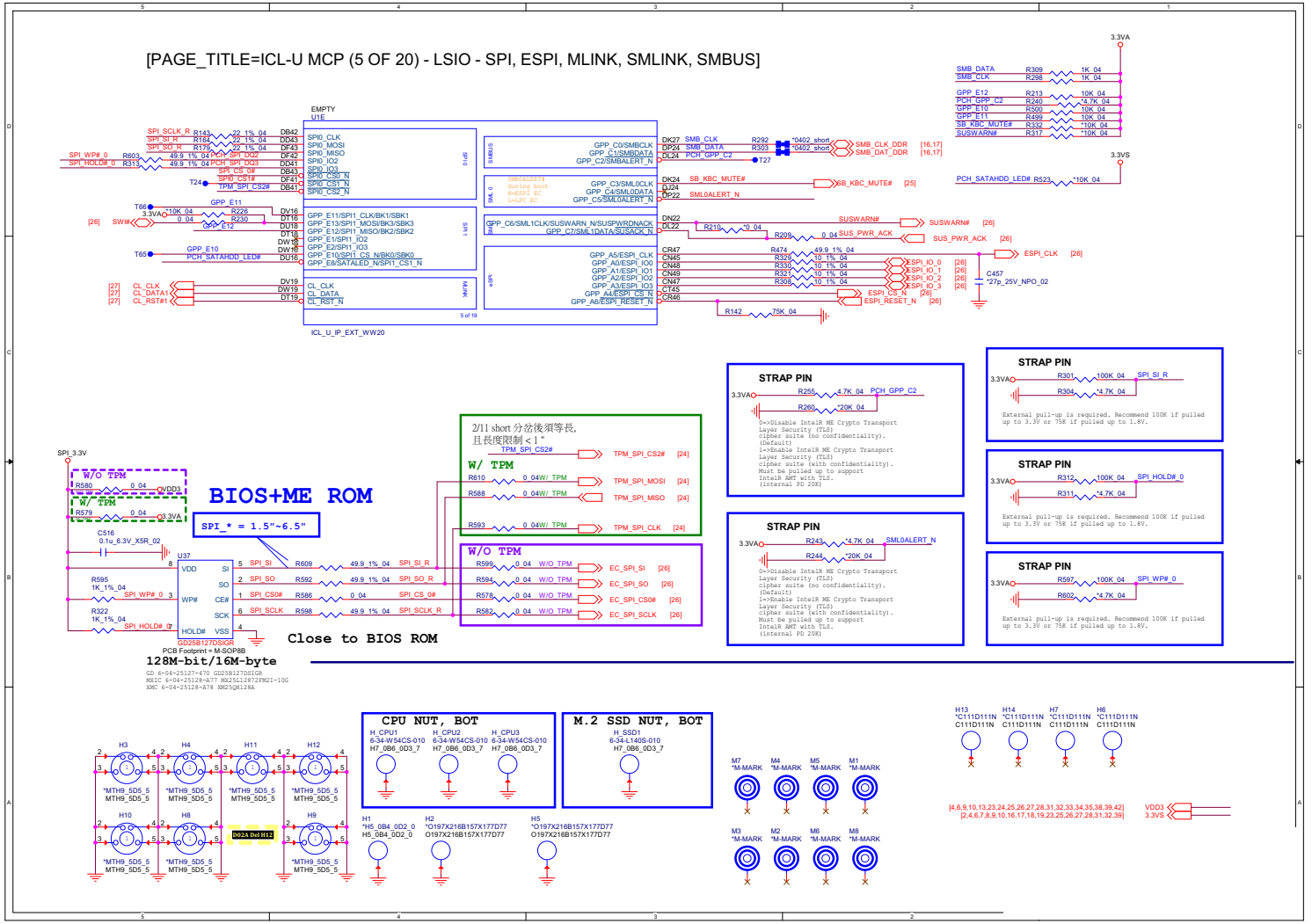
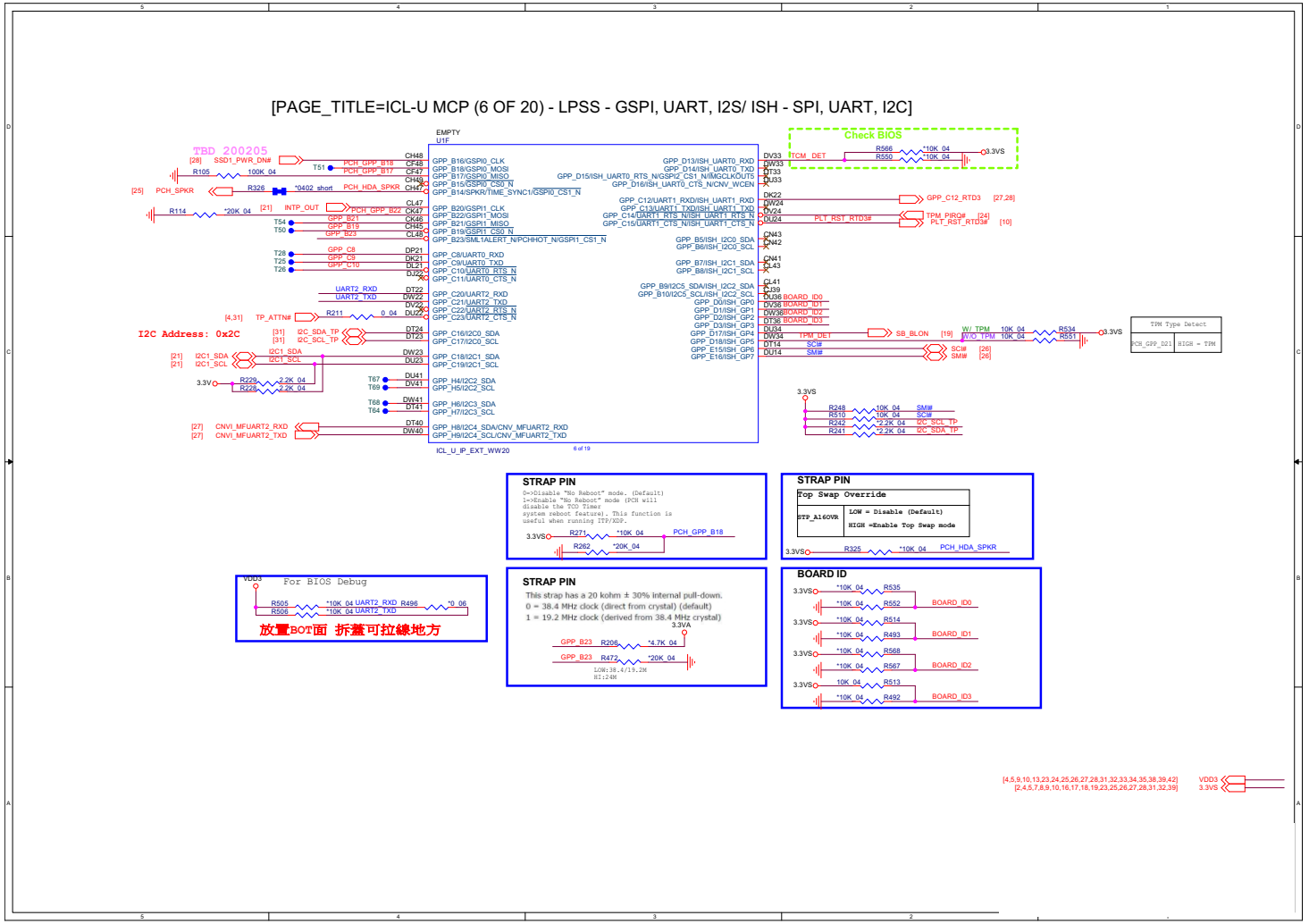
Processor 4/14



Processor 5/14



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Processor 5/14

Processor 6/14

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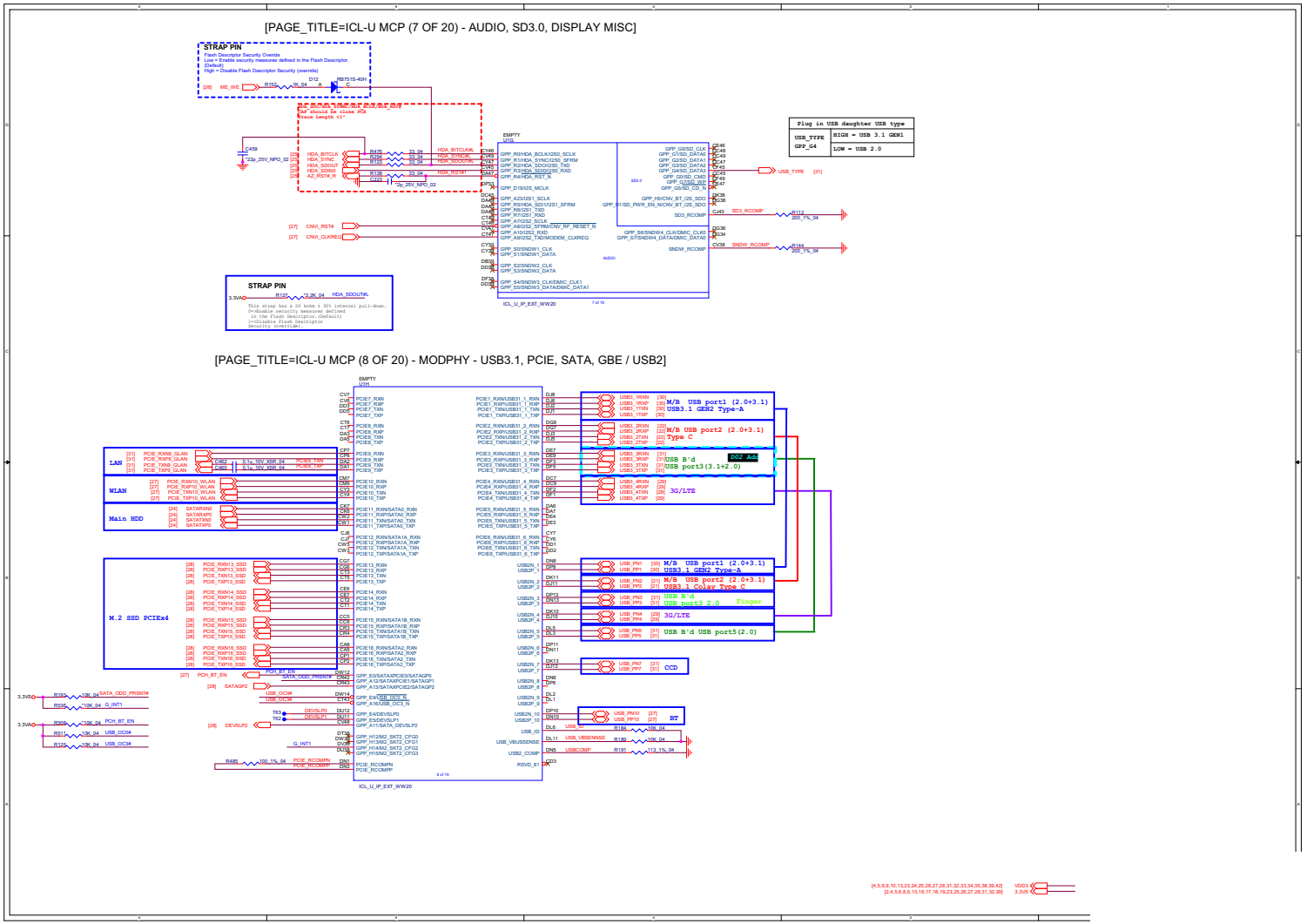
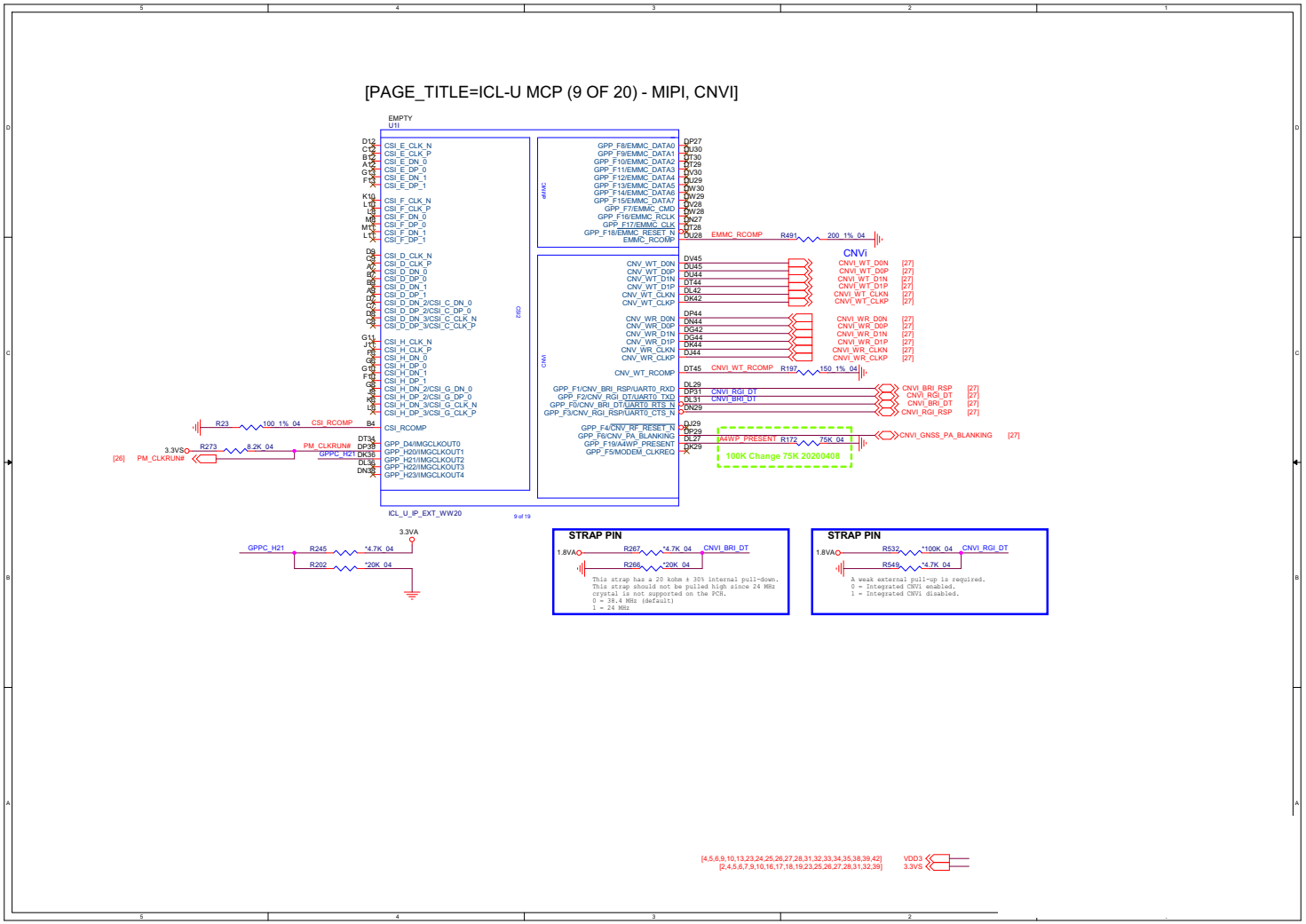
Processor 6/14



Processor 7/14



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Processor 7/14

Processor 8/14

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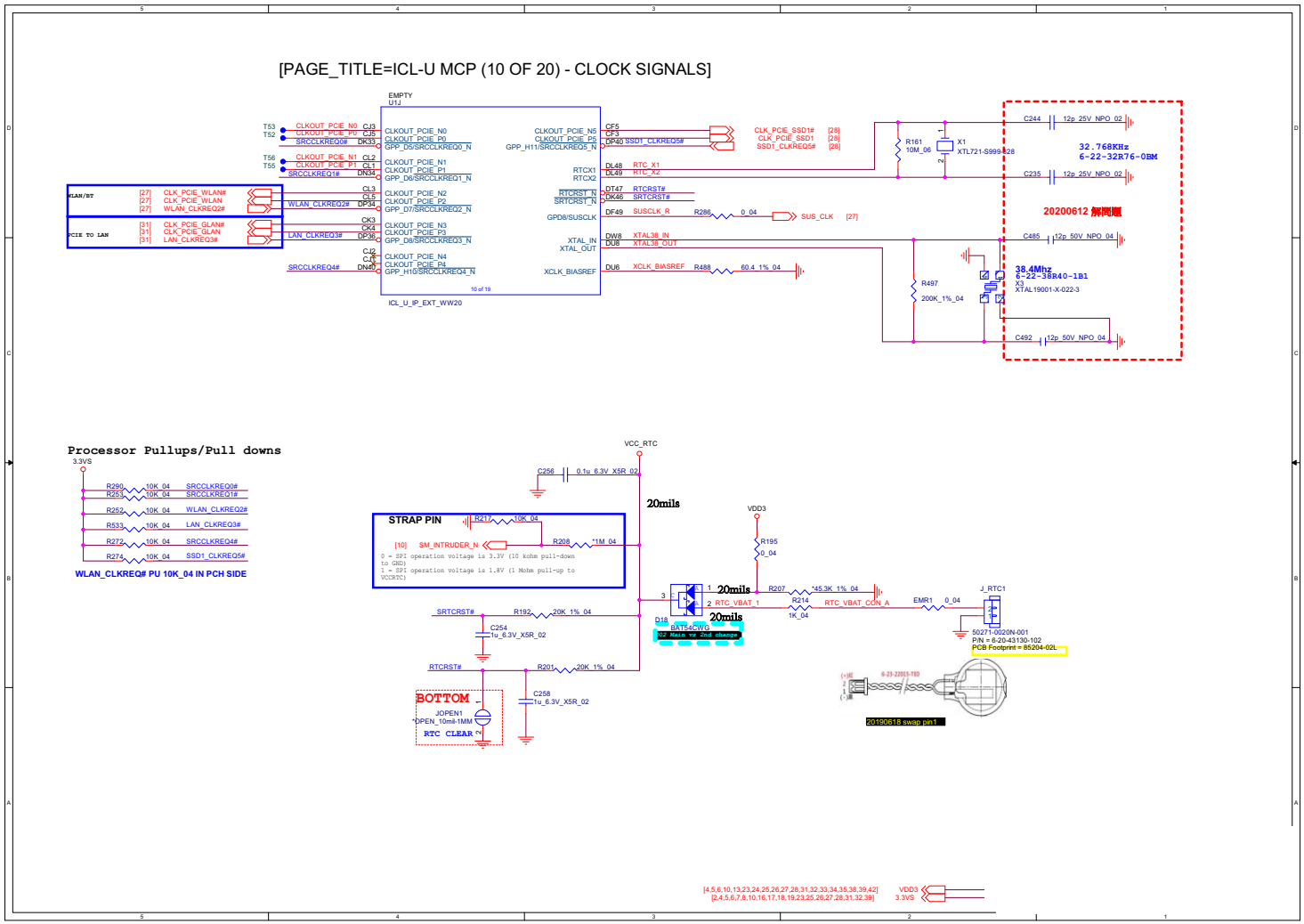
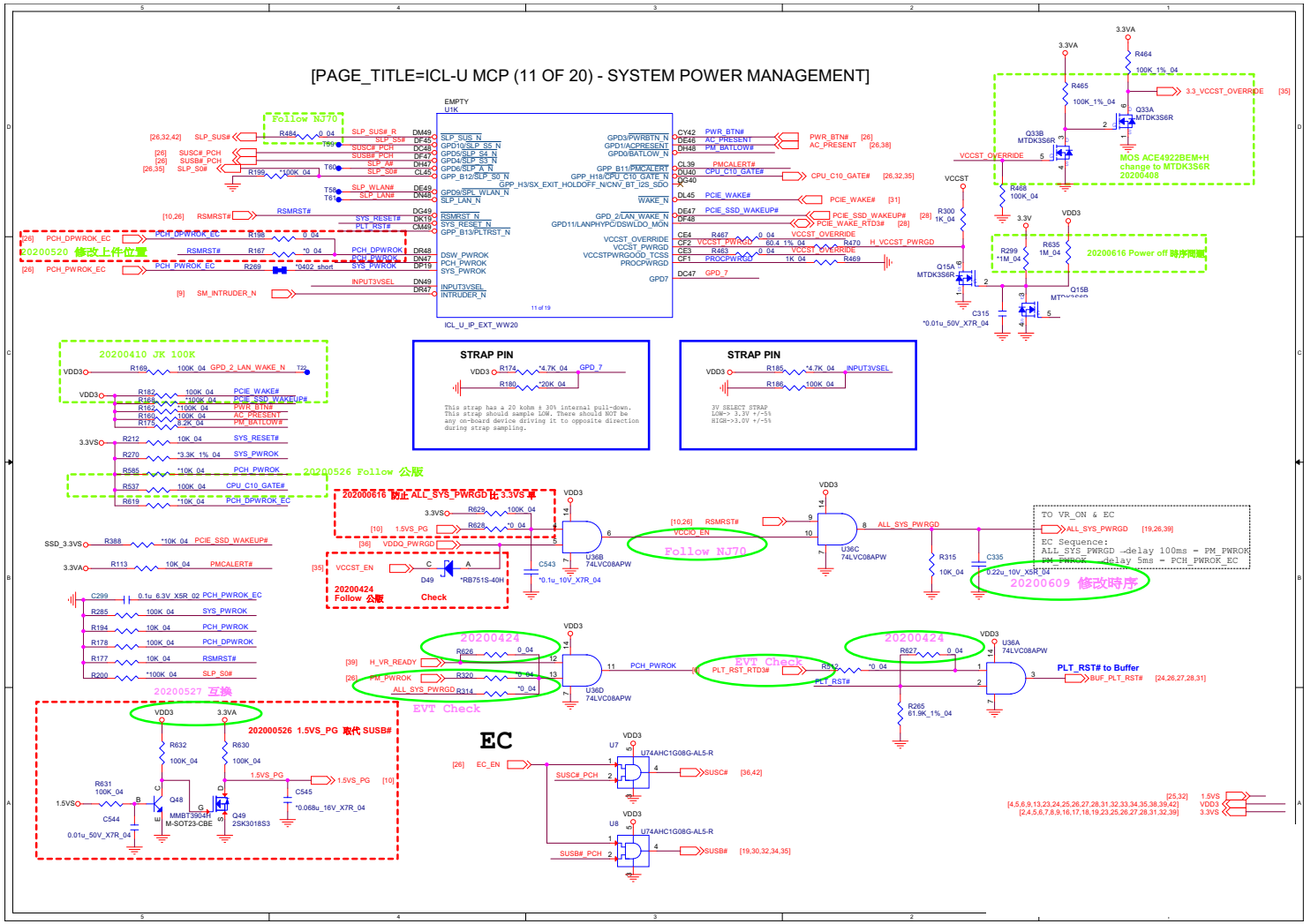
Processor 8/14



Processor 9/14



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Processor 9/14

Processor 10/14

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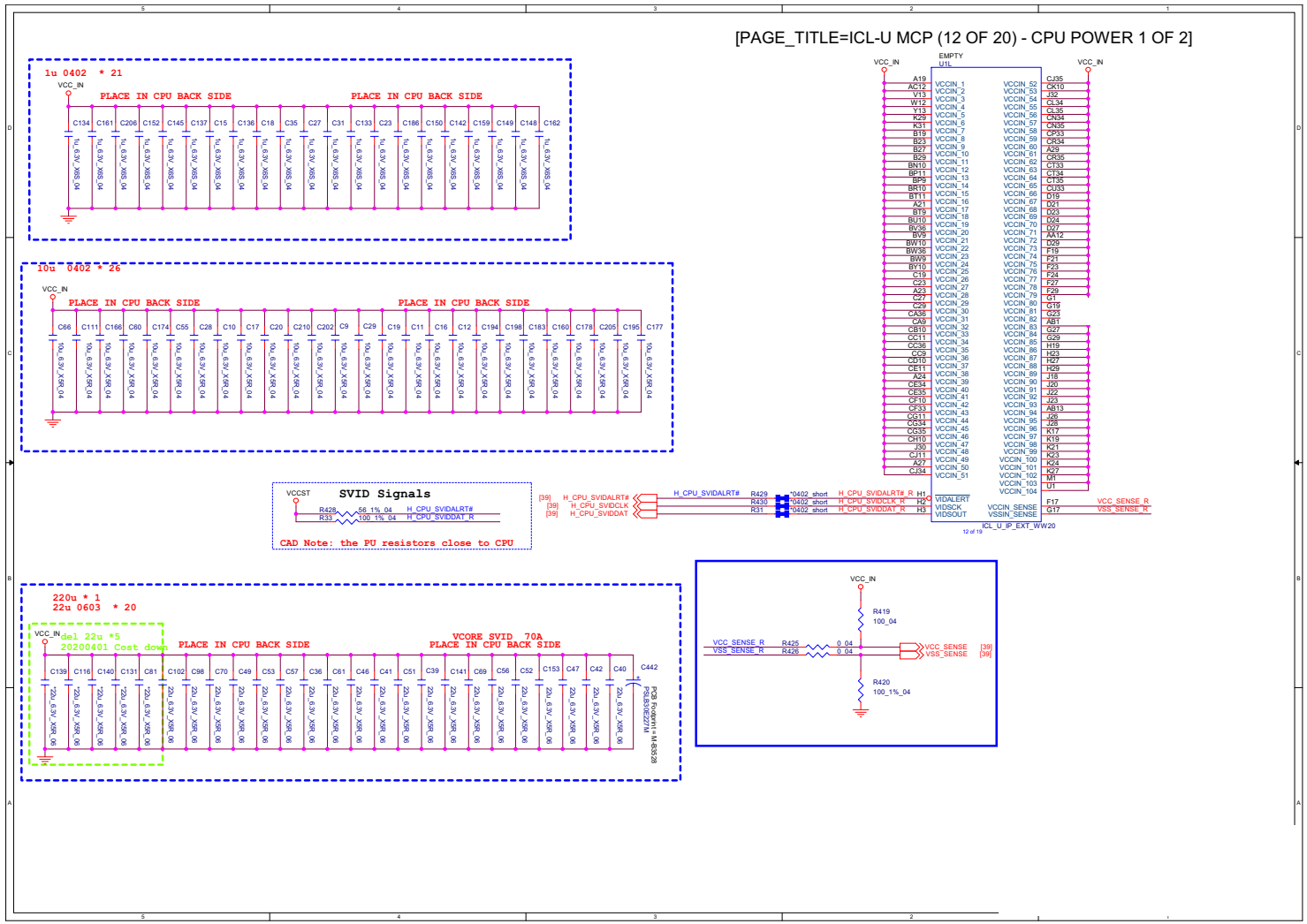
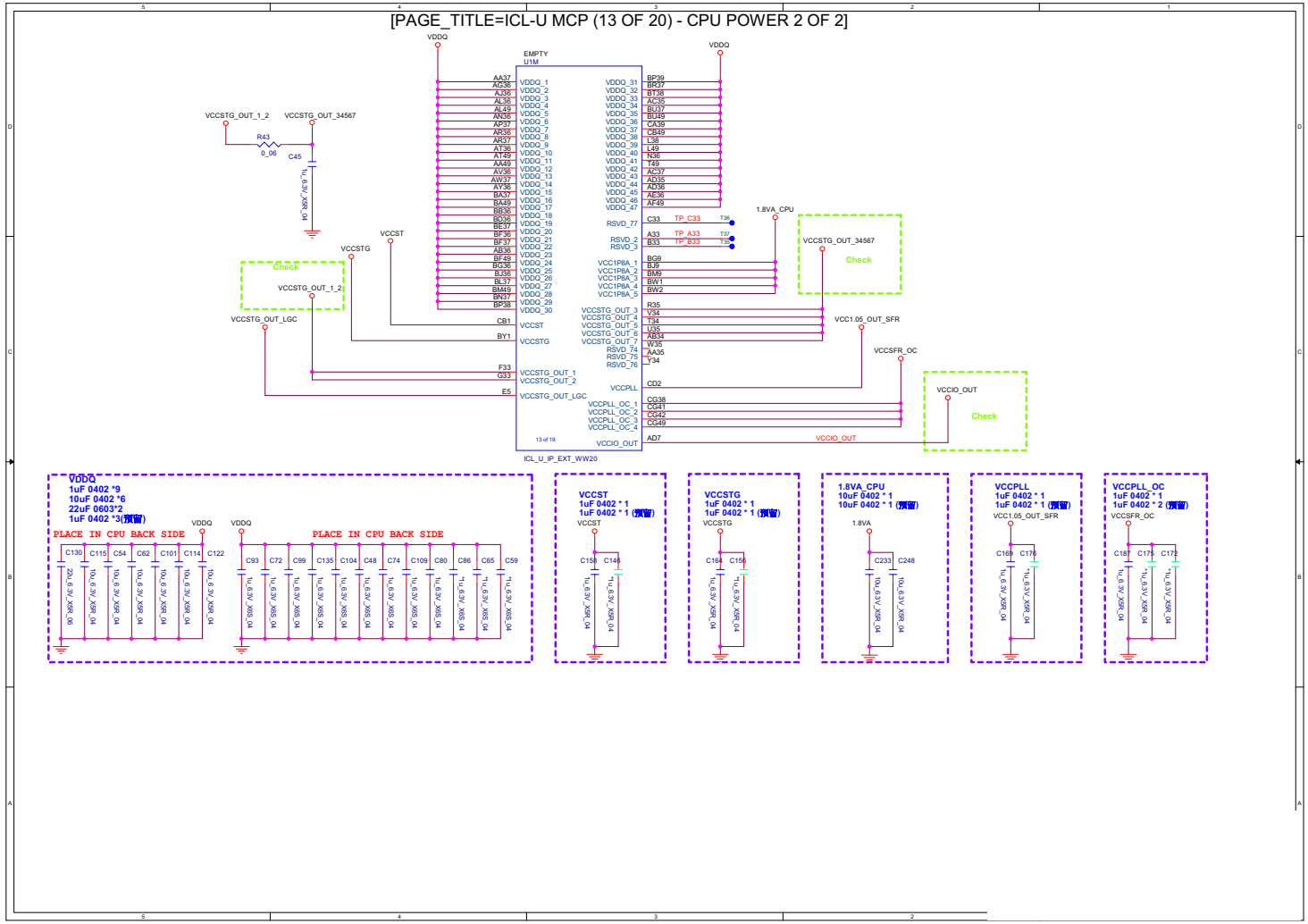
Processor 10/14



Processor 11/14



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Processor 11/14

Processor 12/14

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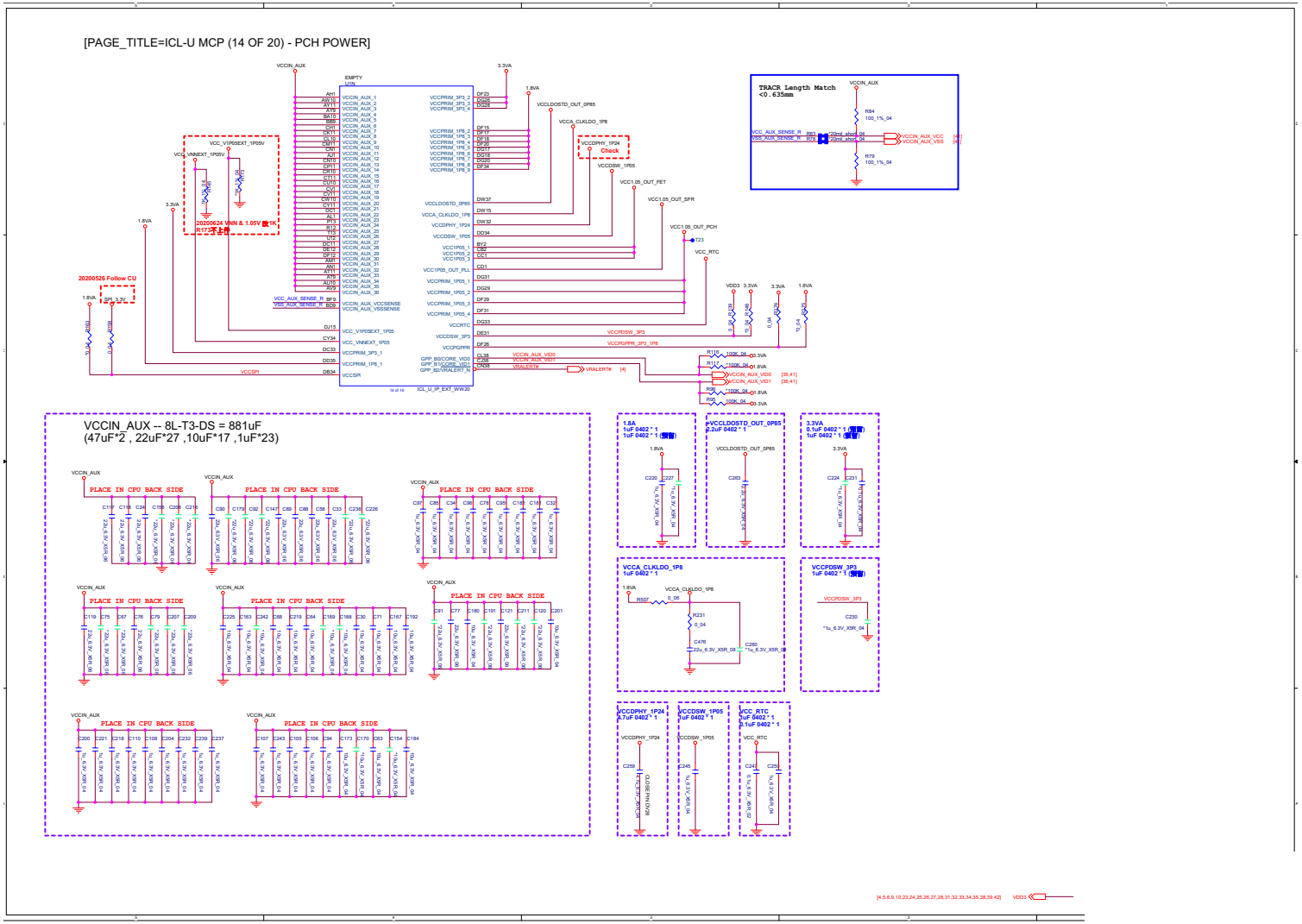
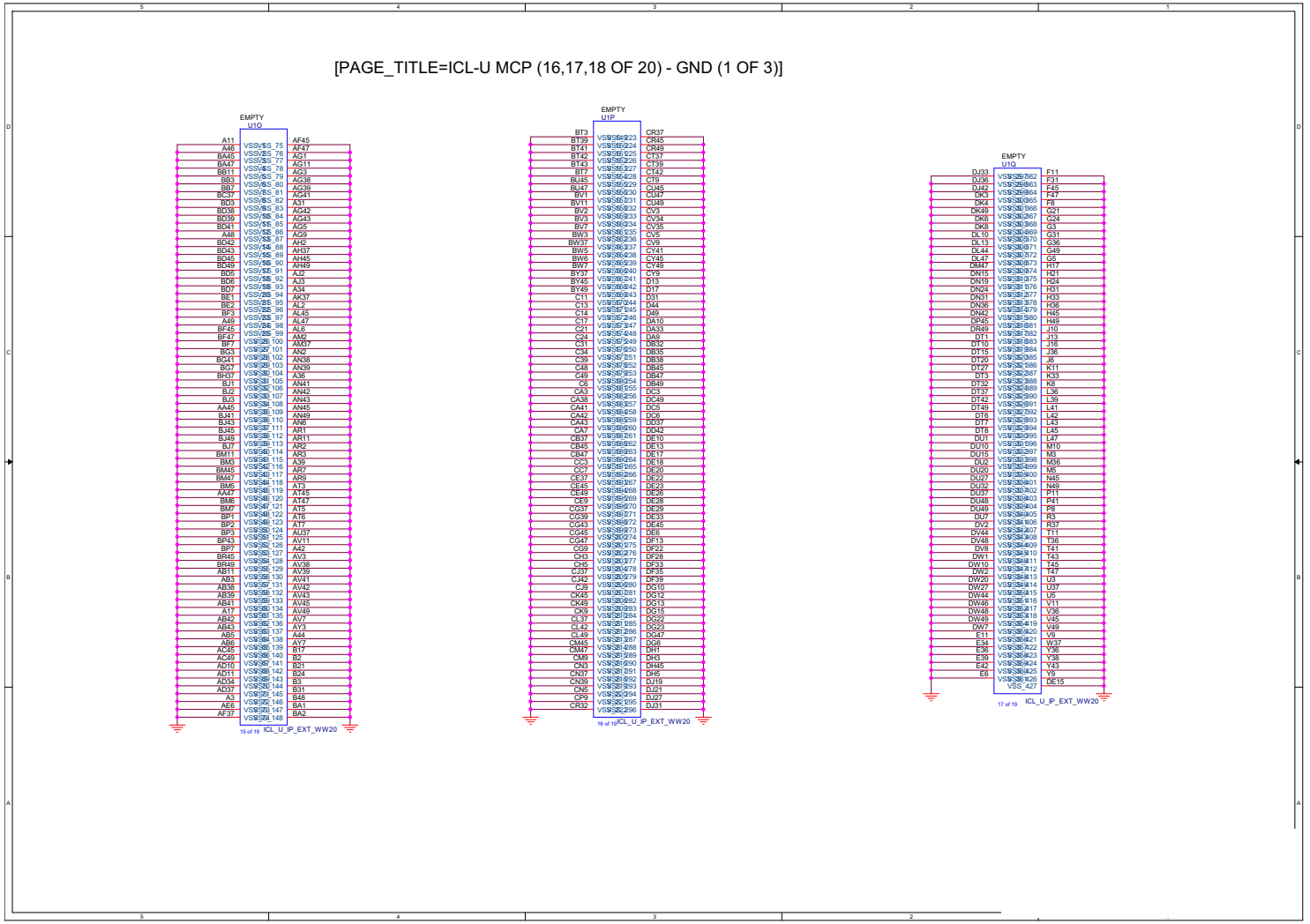
Processor 12/14



Processor 13/14



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Processor 13/14

B.Schematic Diagrams

Processor 14/14

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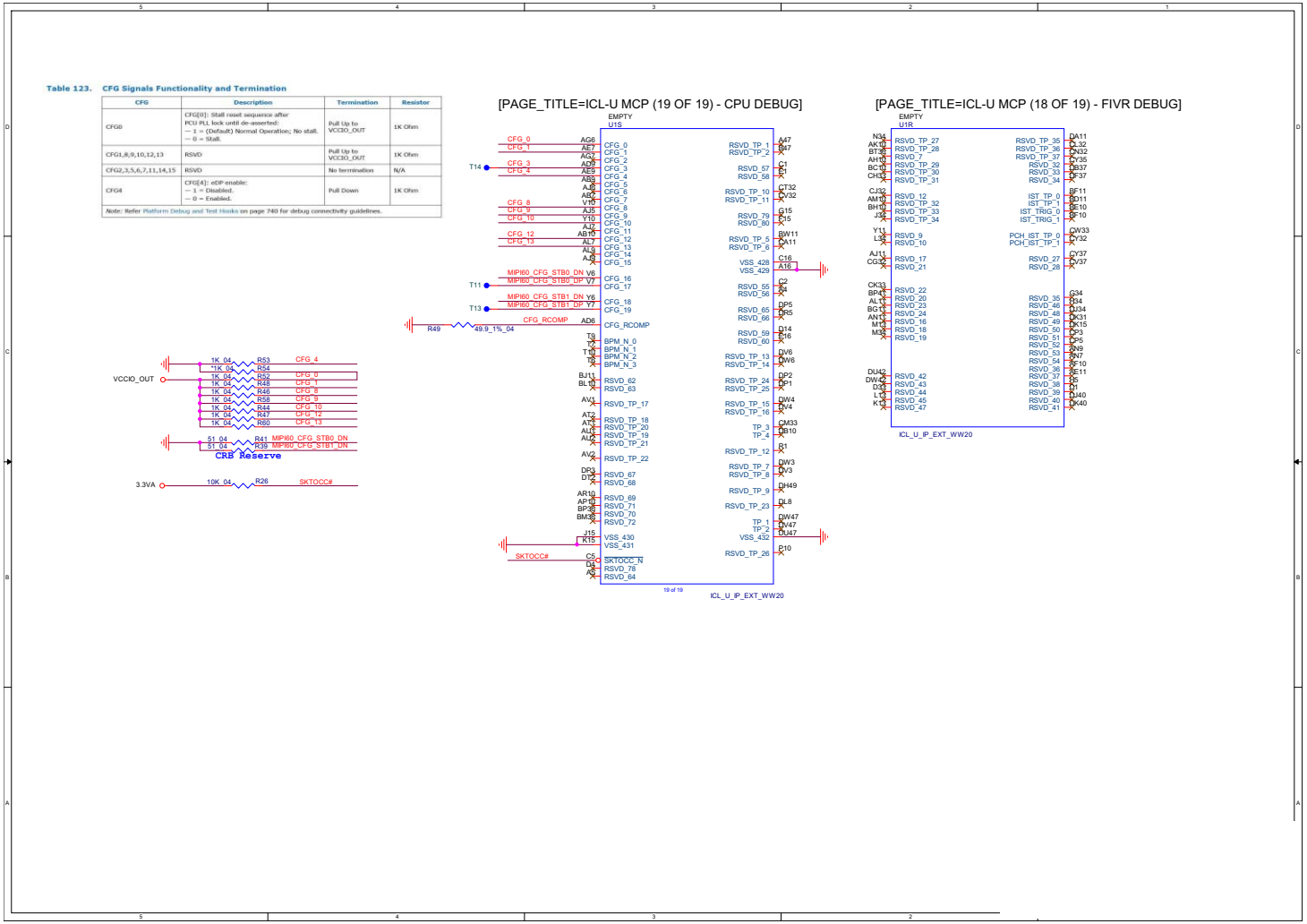
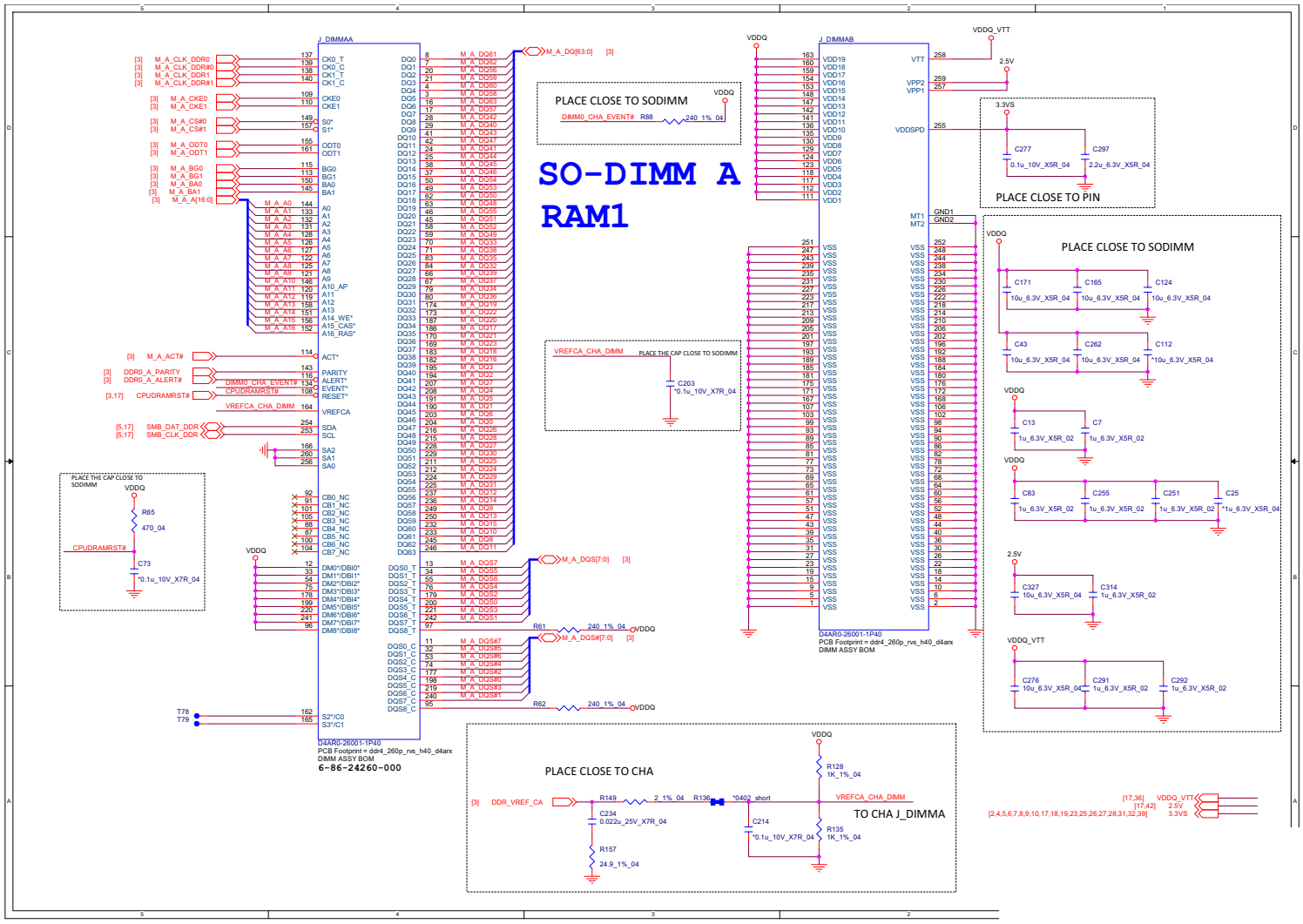
Processor 14/14



DDR4 SO-DIMM_0



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DDR4 SO-DIMM_0

DDR4 SO-DIMM_1I

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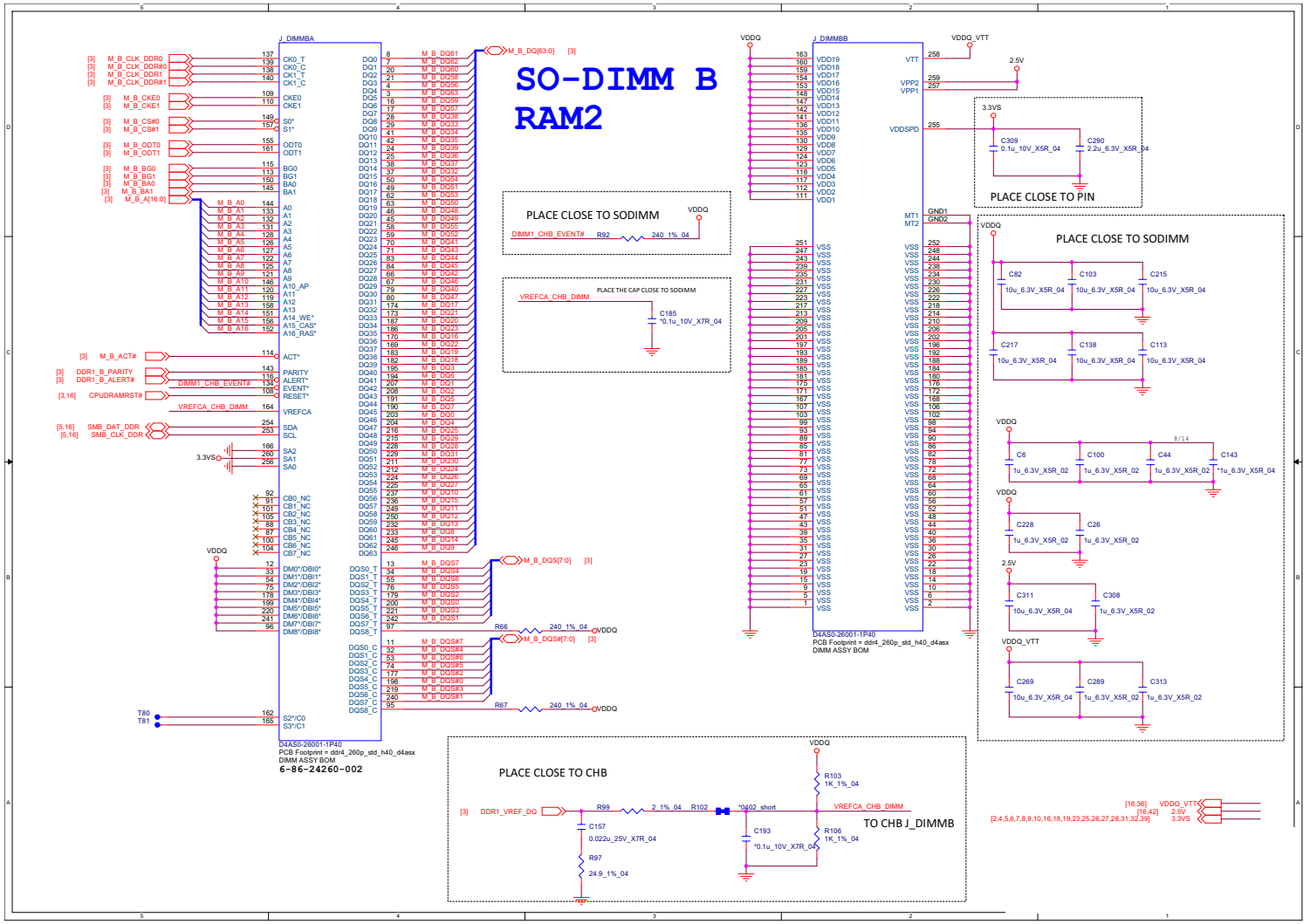
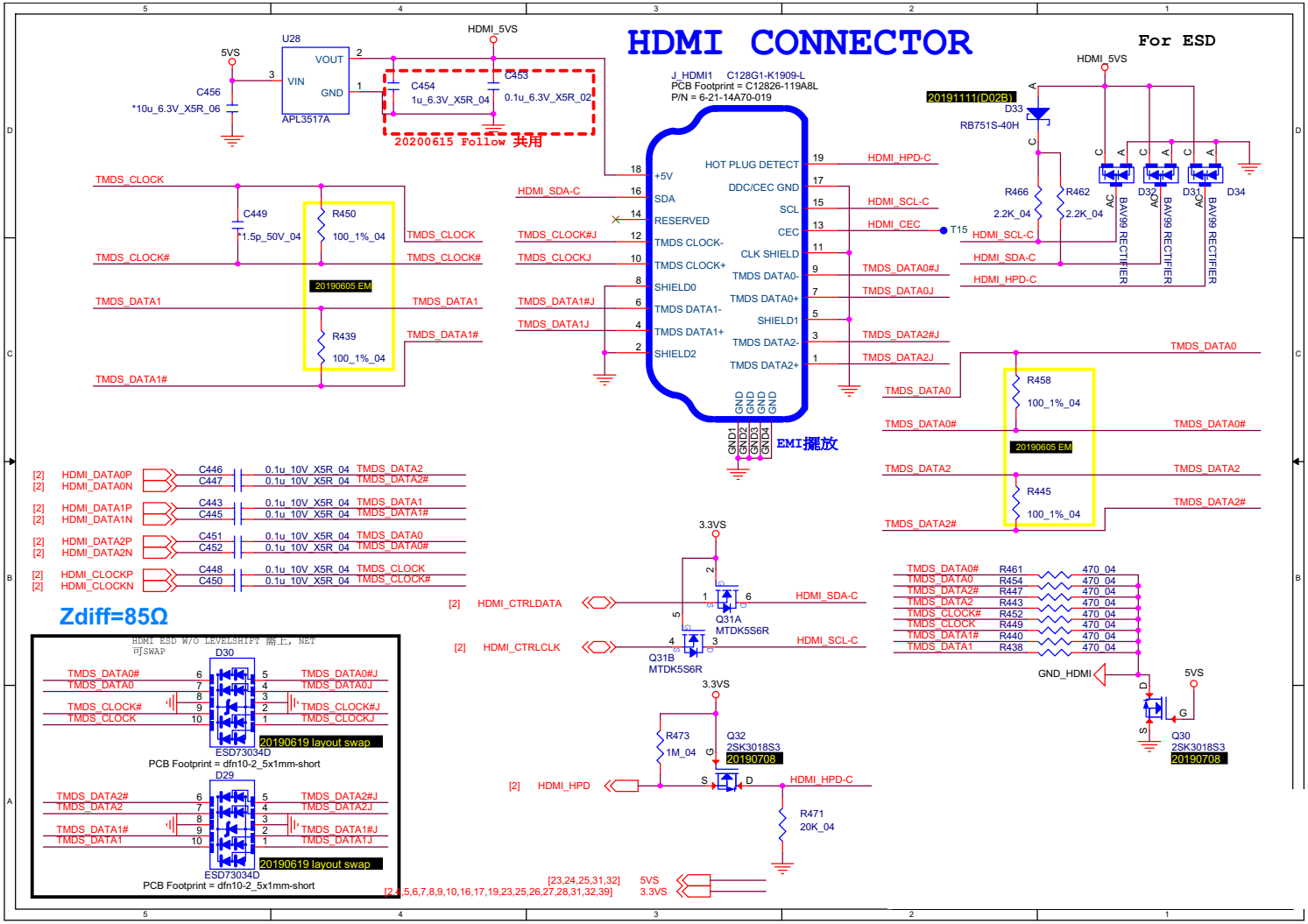
DDR4 SO-DIMM_1



HDMI



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HDMI

Panel

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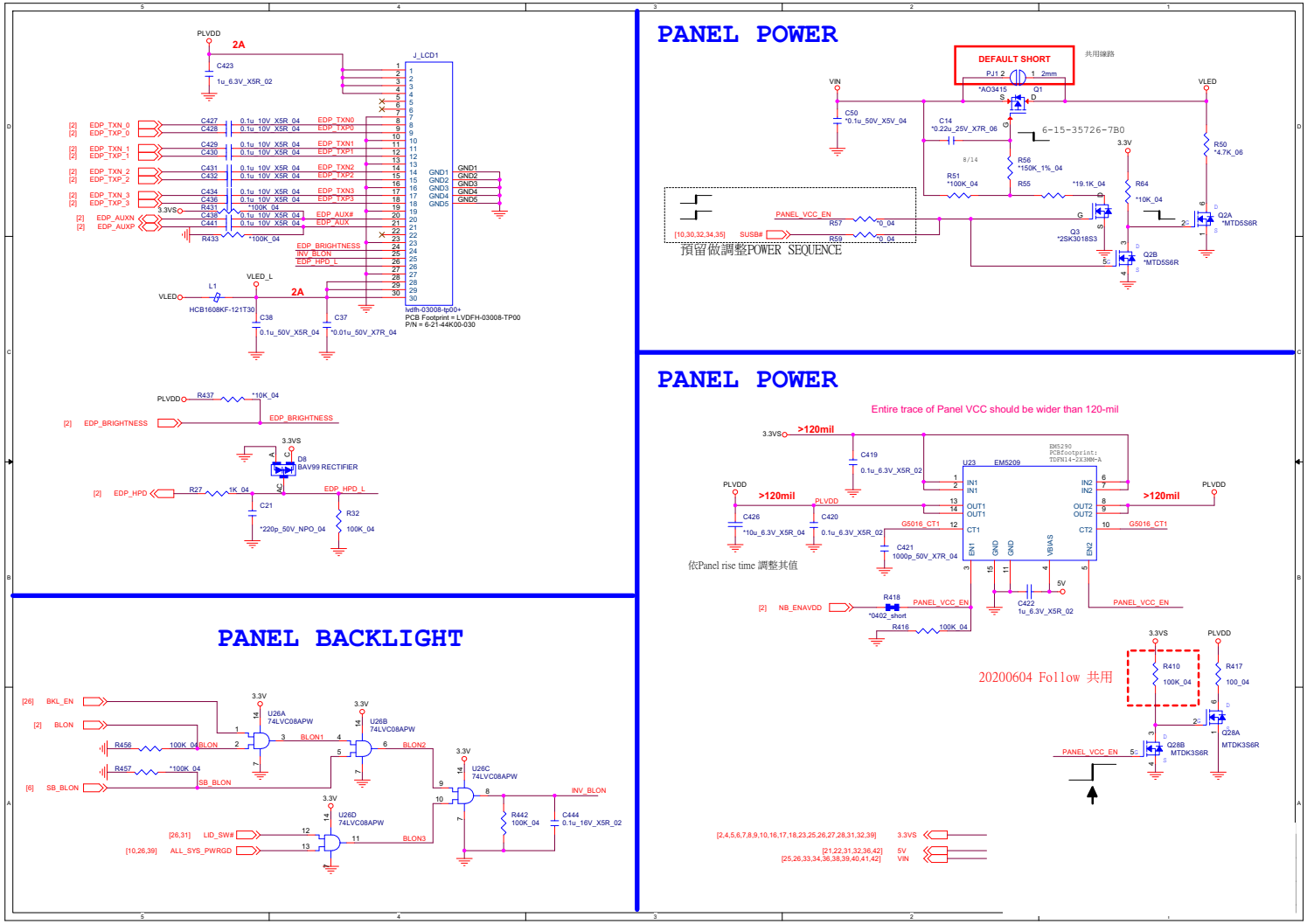
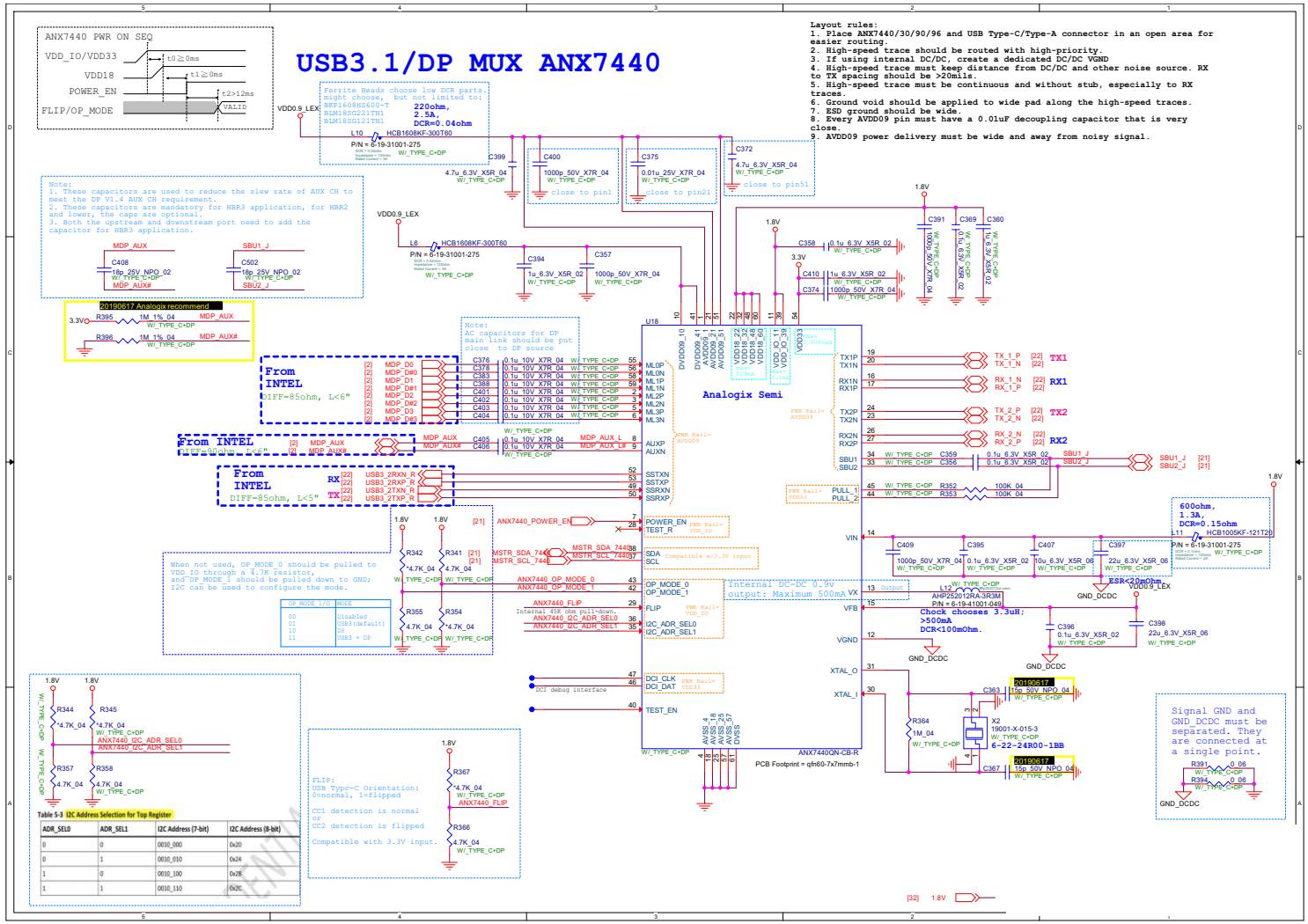
Panel



USB / DP MUX ANX7440



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USB / DP MUX
ANX7440

ANX7411, Type-C

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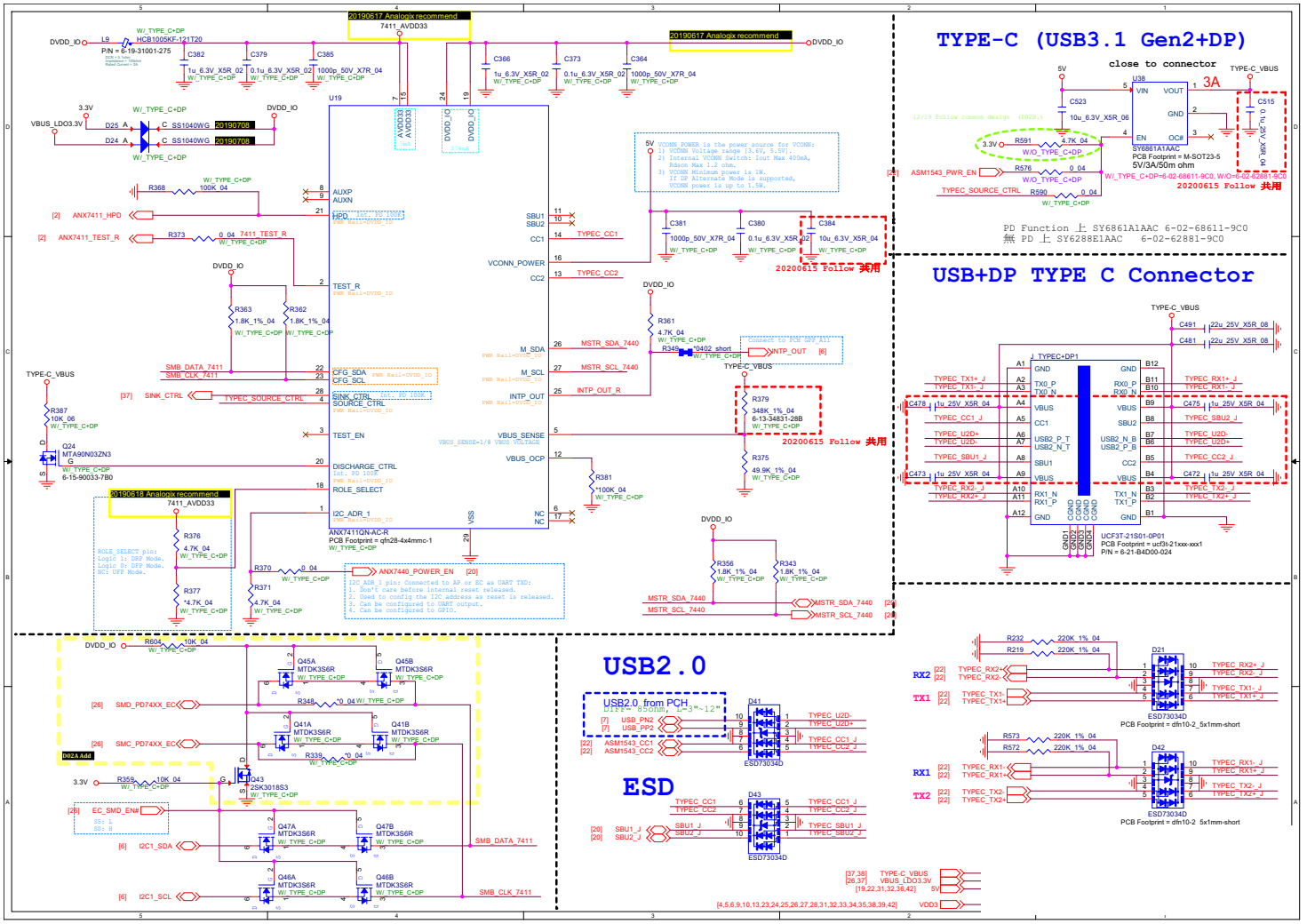
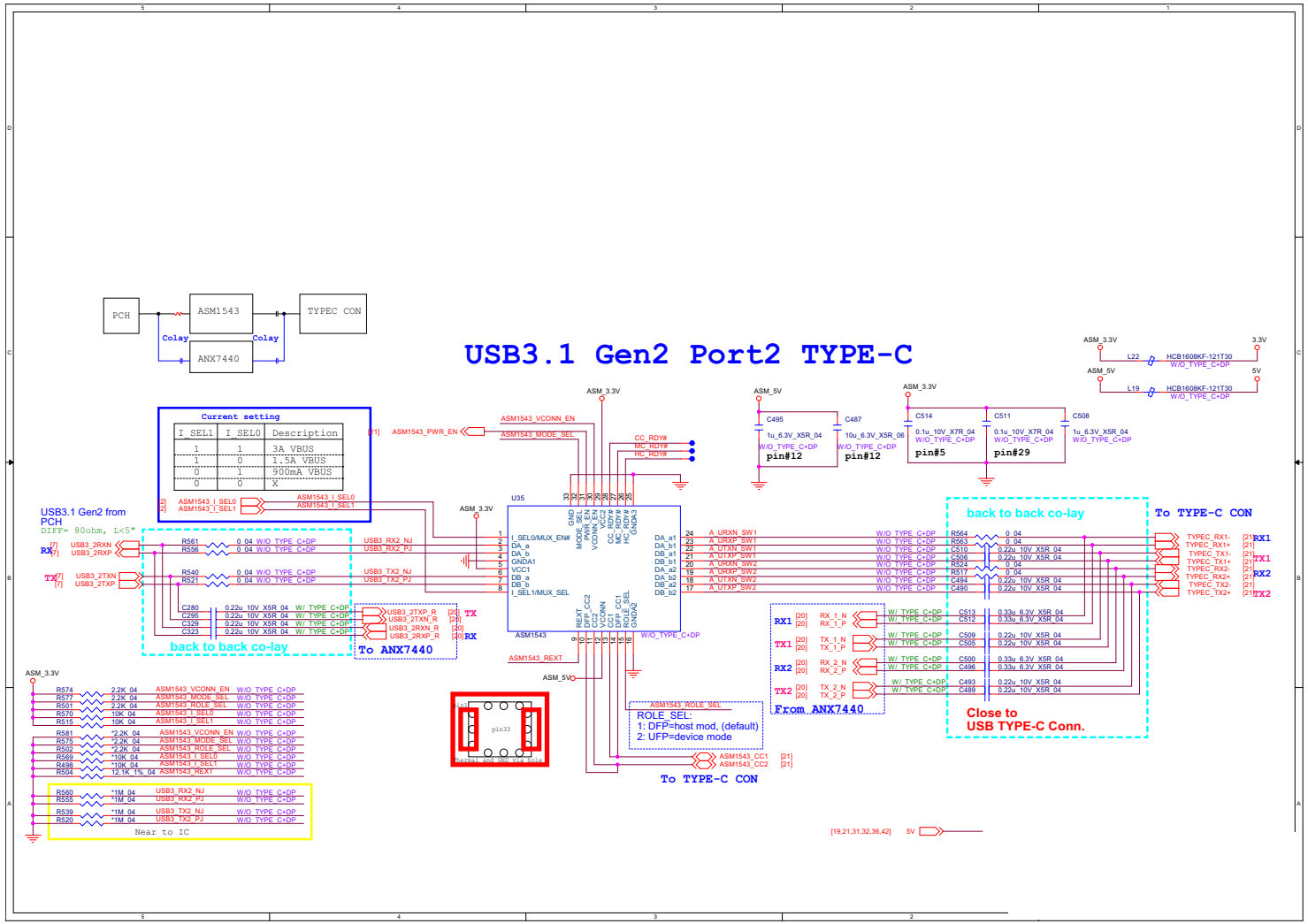
ANX7411, Type-C



ASM1543



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ASM1543

B.Schematic Diagrams

LED KB, LED

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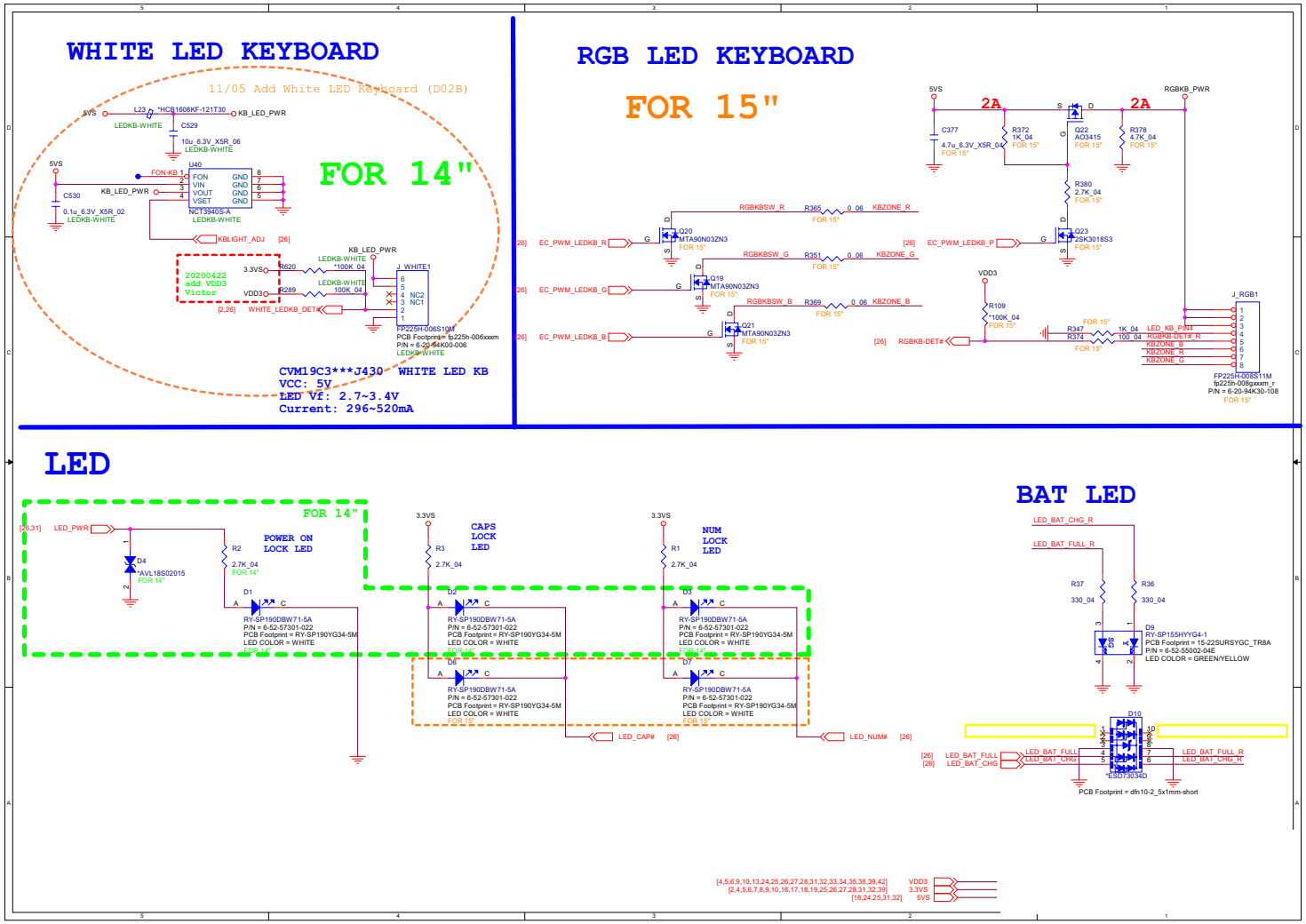
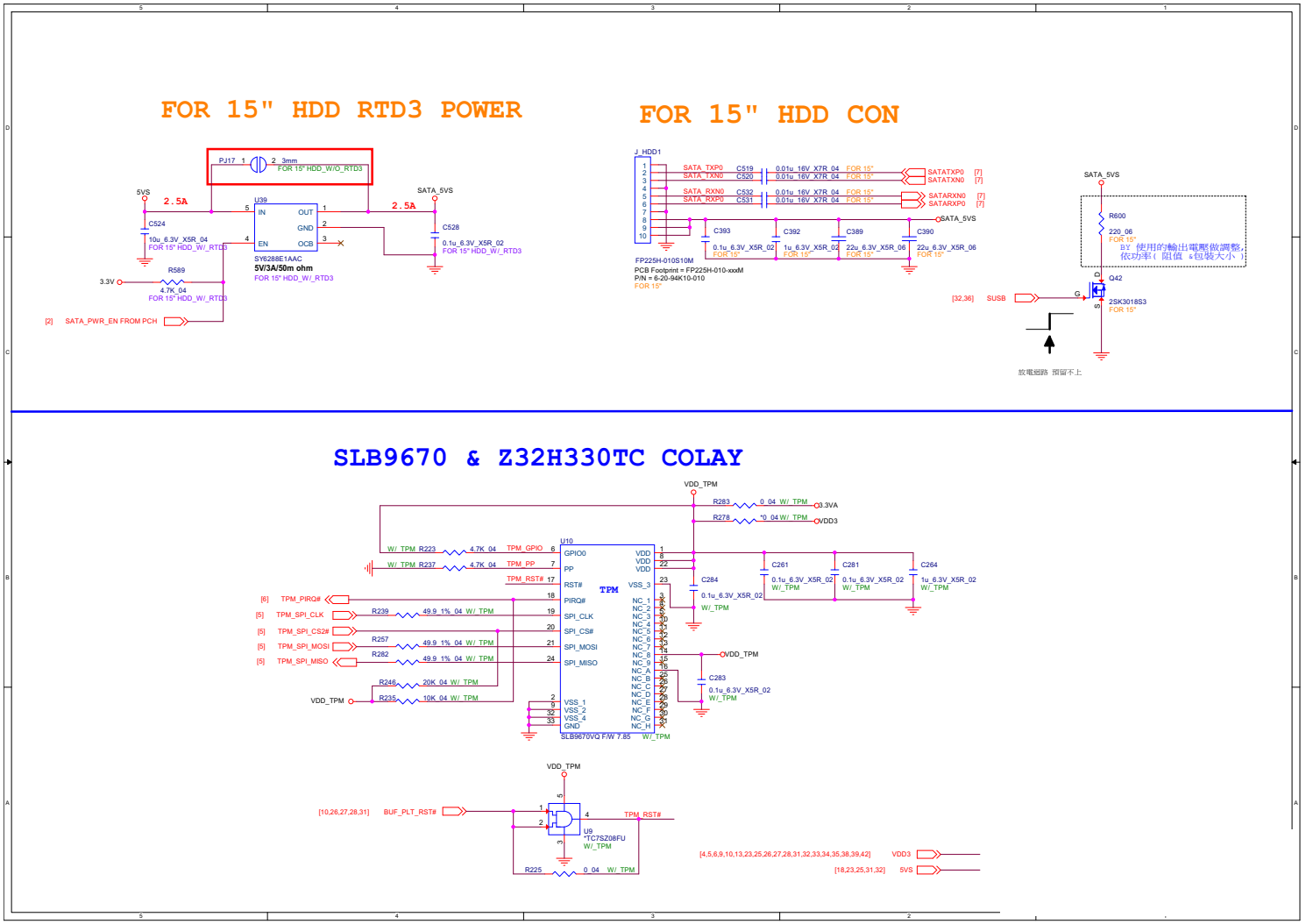
LED KB, LED



SATA HDD, TPM



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SATA HDD, TPM

Audio Codec

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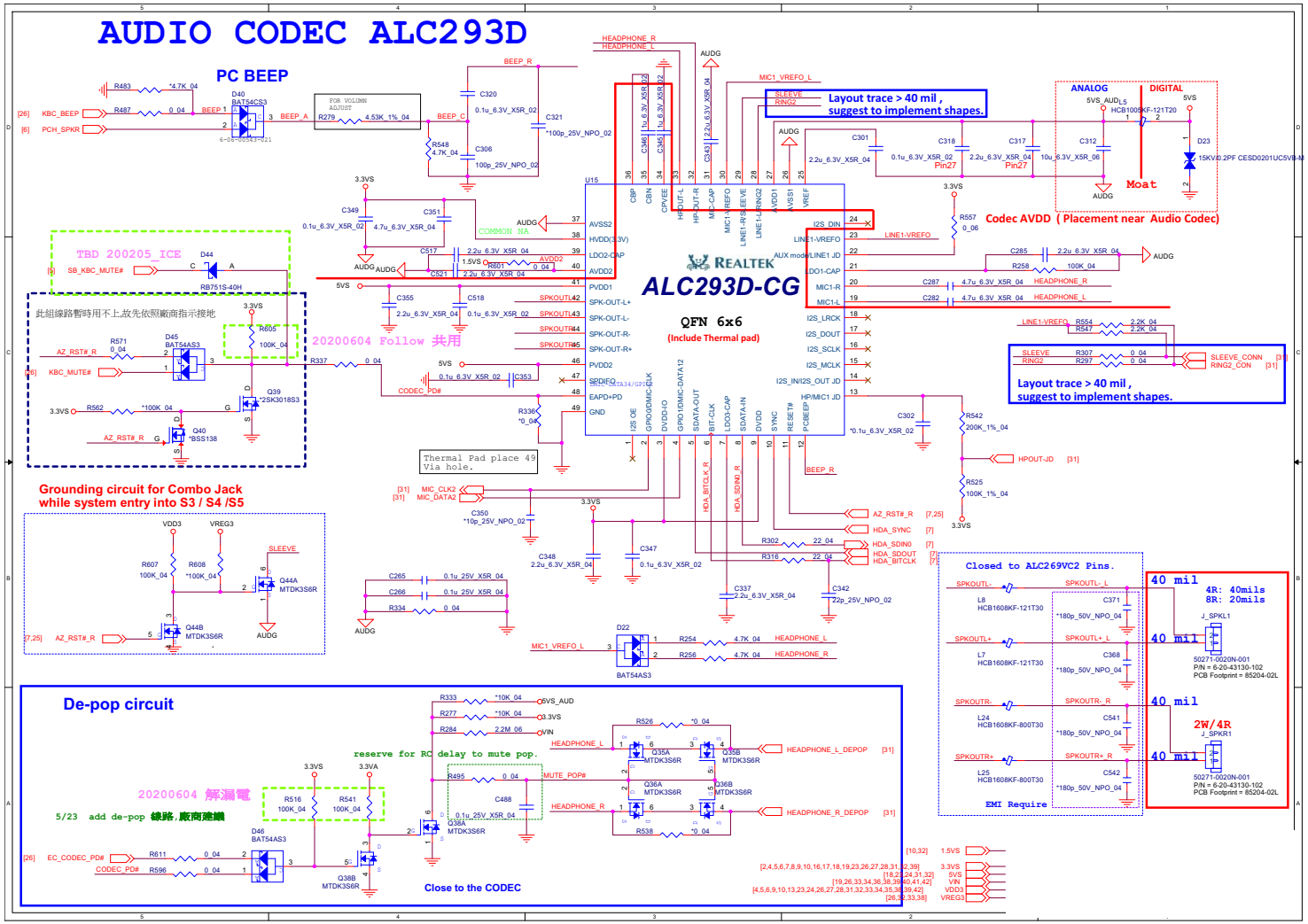
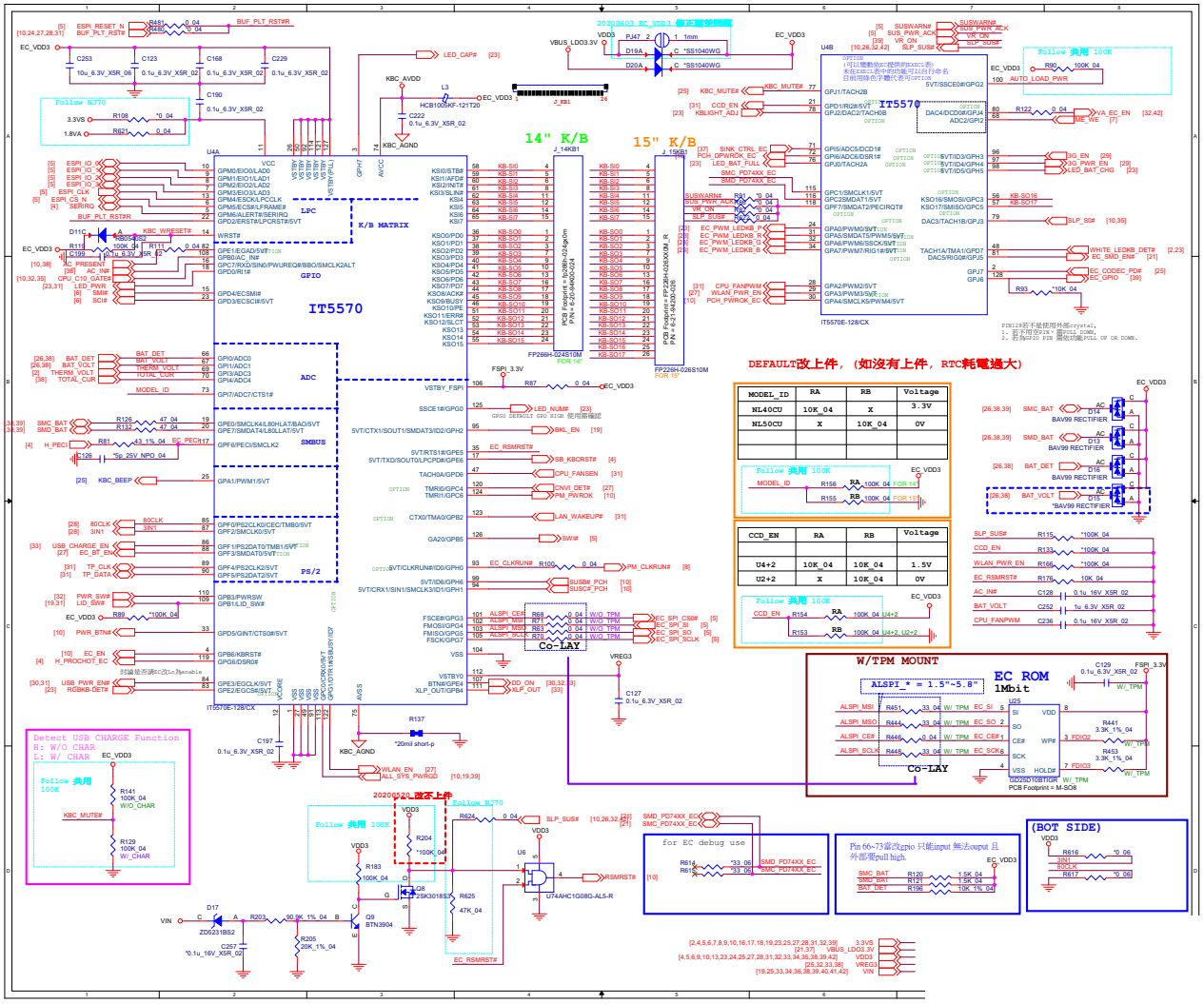
Audio Codec



KBC ITE IT5570



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KBC ITE IT5570

WLAN

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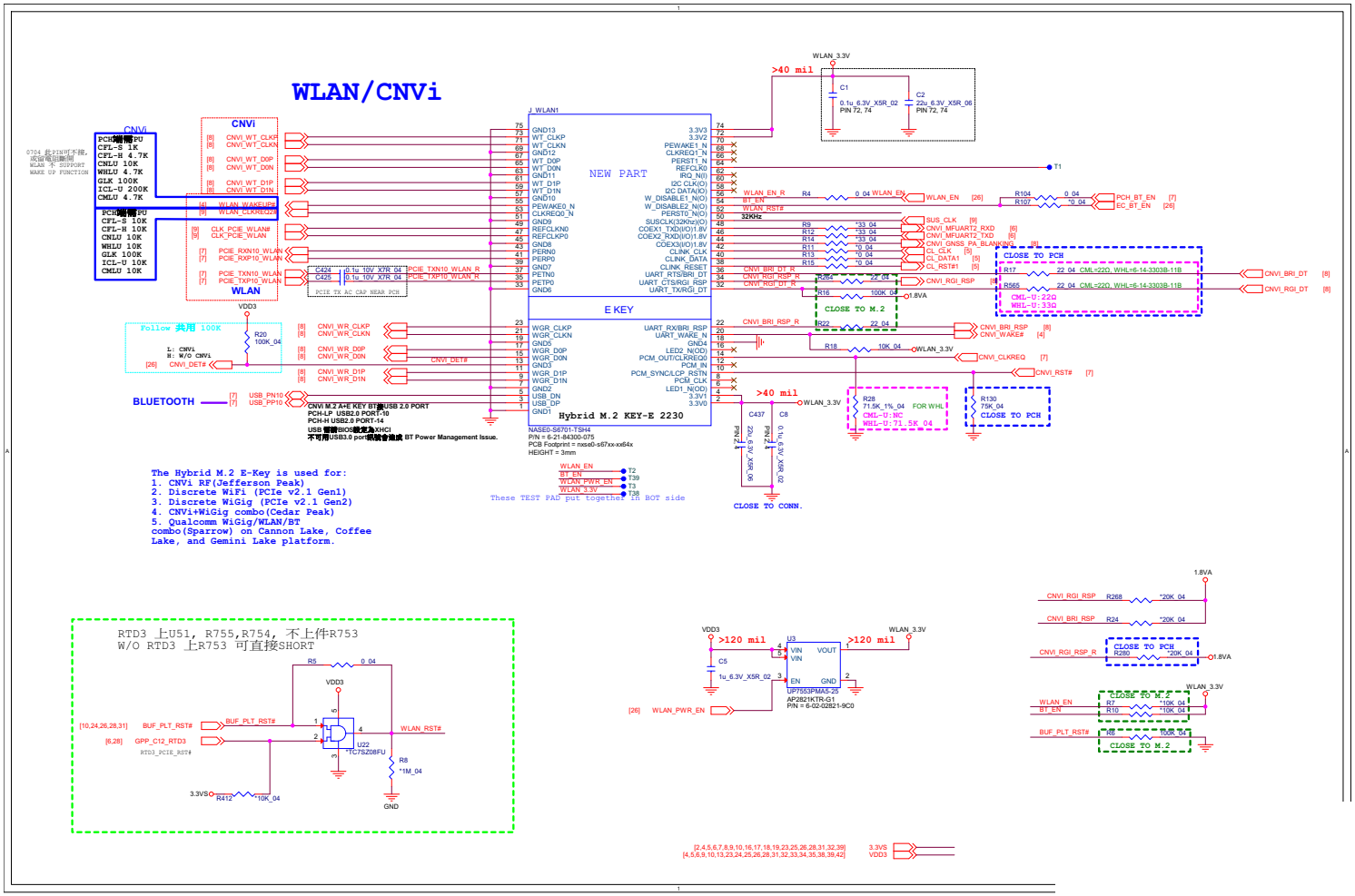
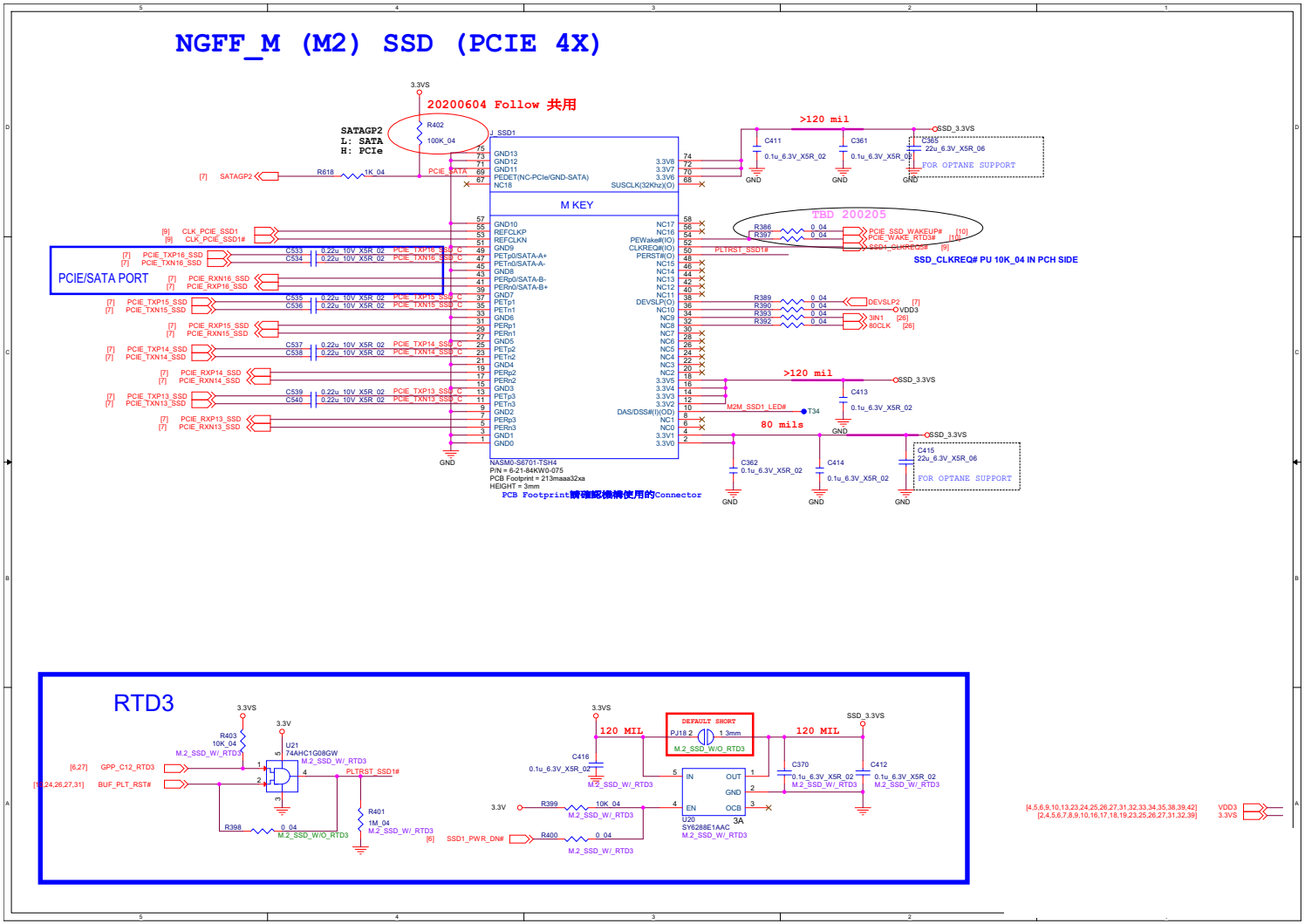
WLAN



M Key PCIE SSD



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M Key PCIE SSD

3G/LTE

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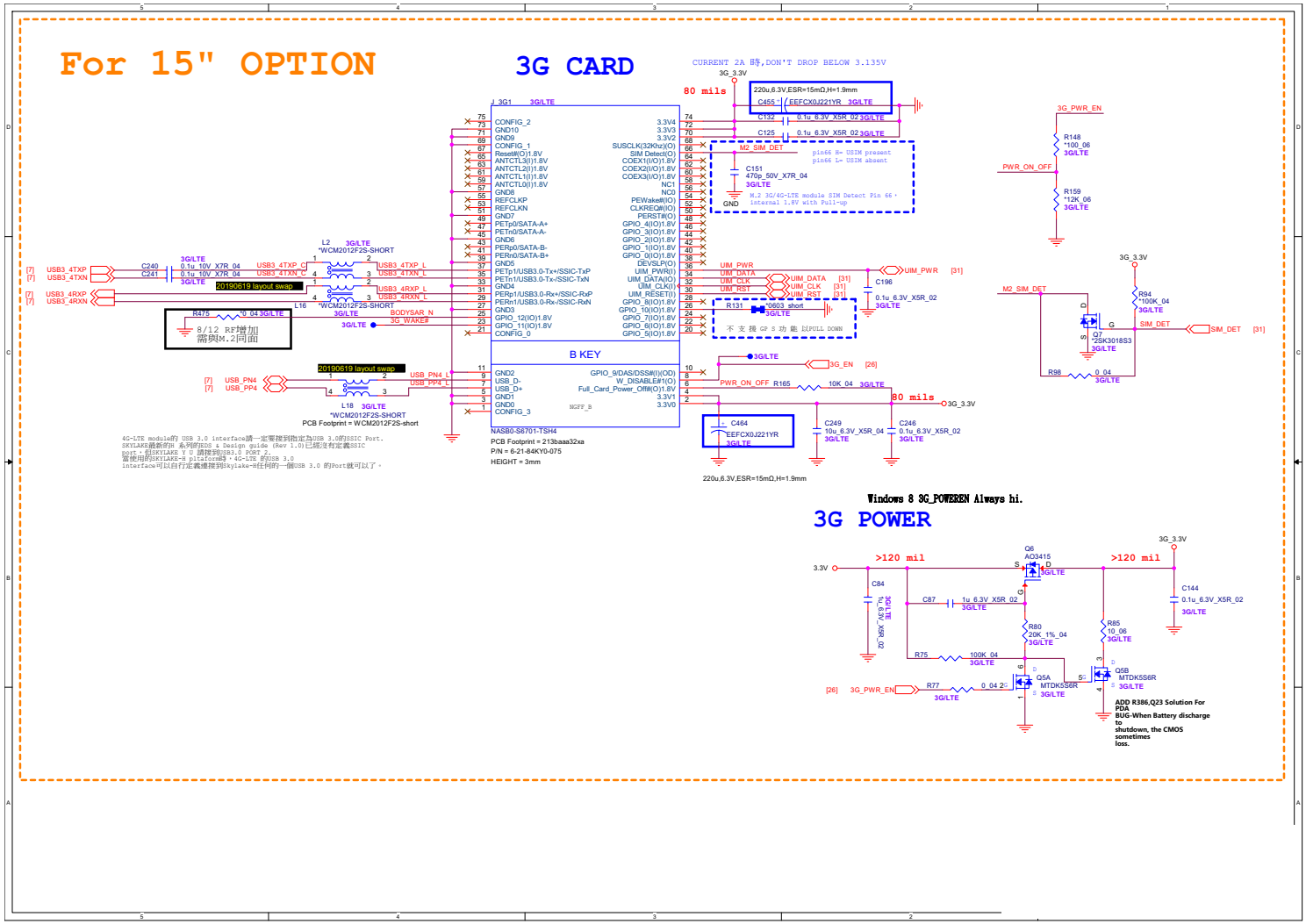
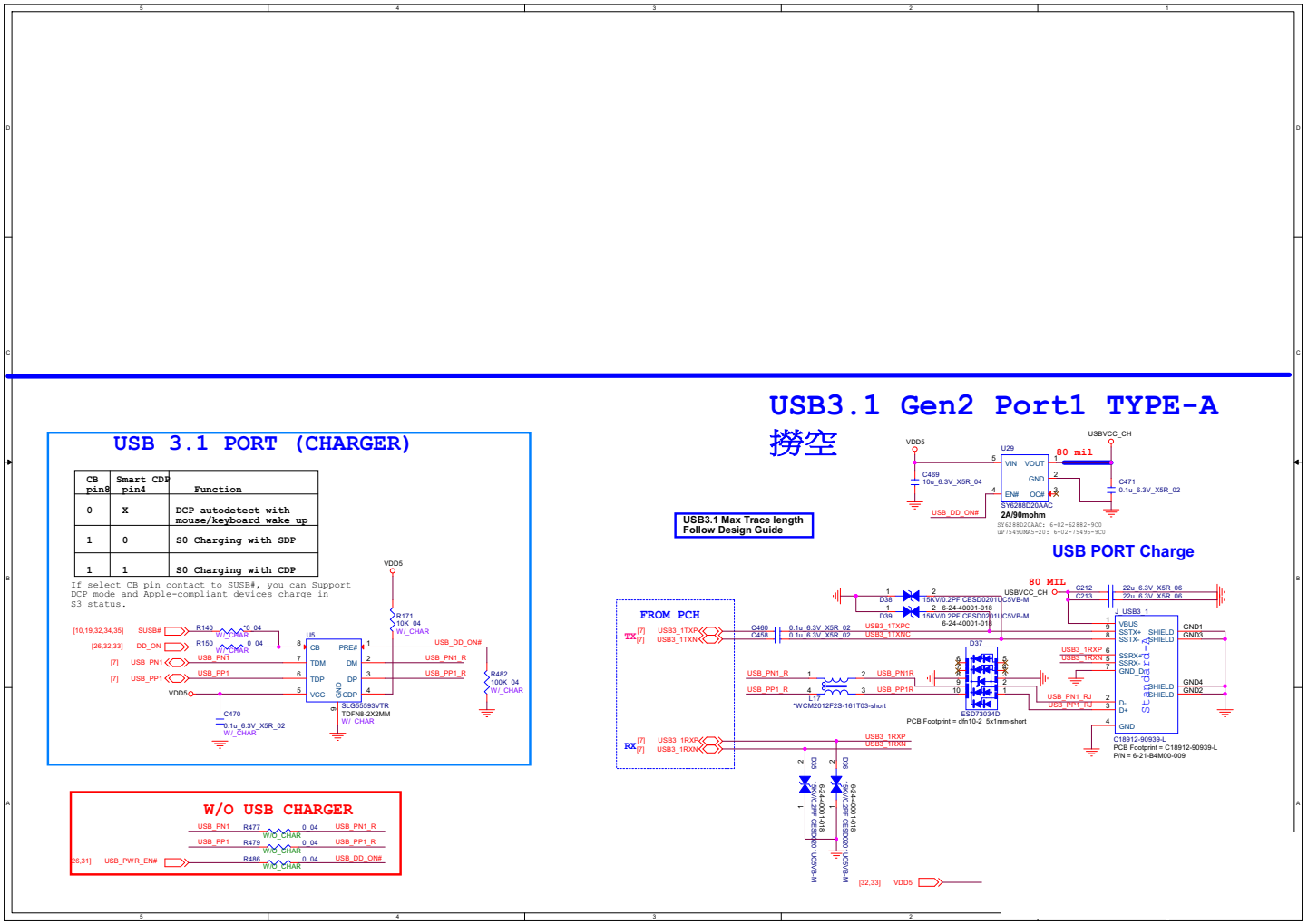
3G/LTE



USB Type-A



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USB Type-A

Conn, CCD, Fan, TP

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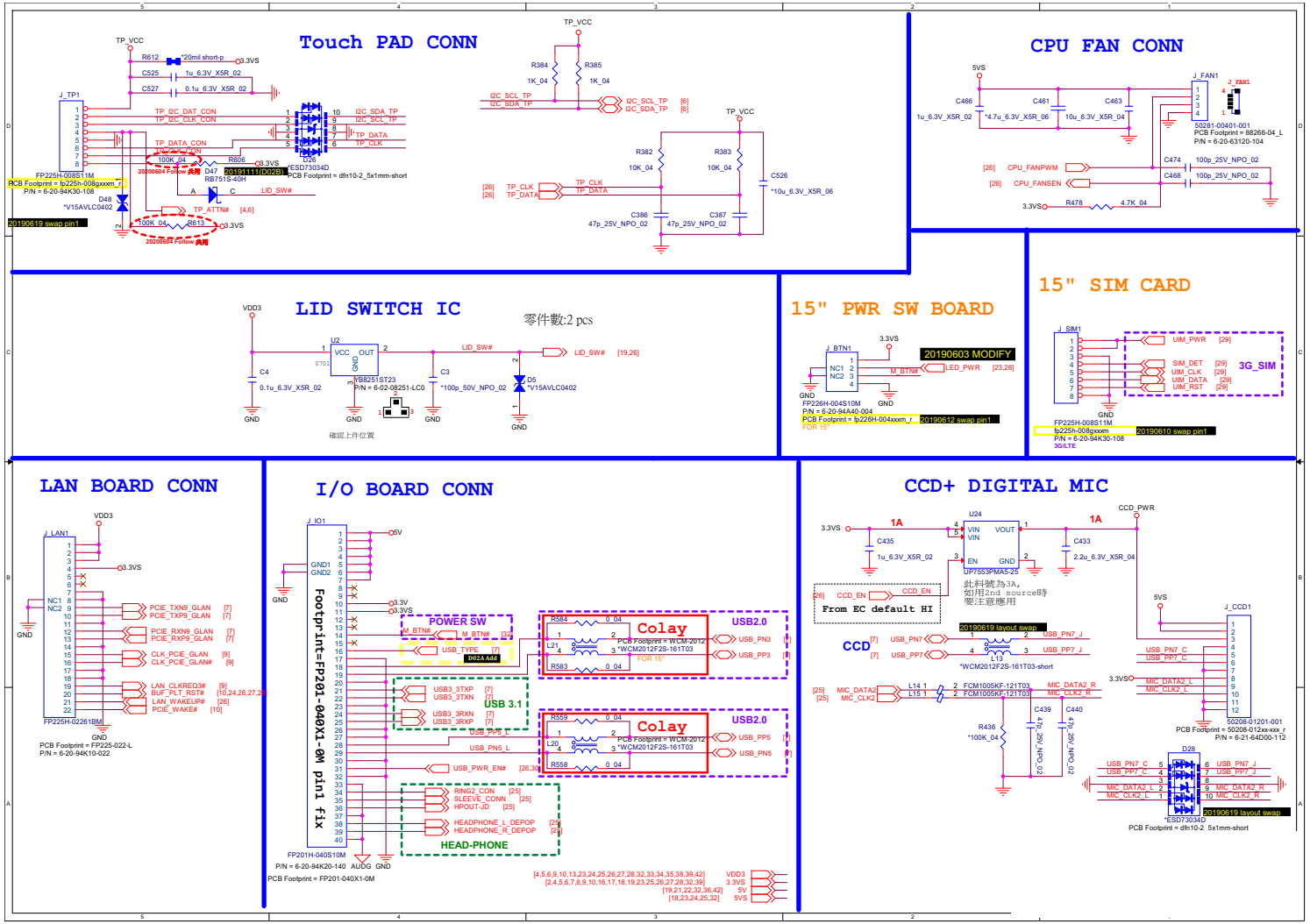
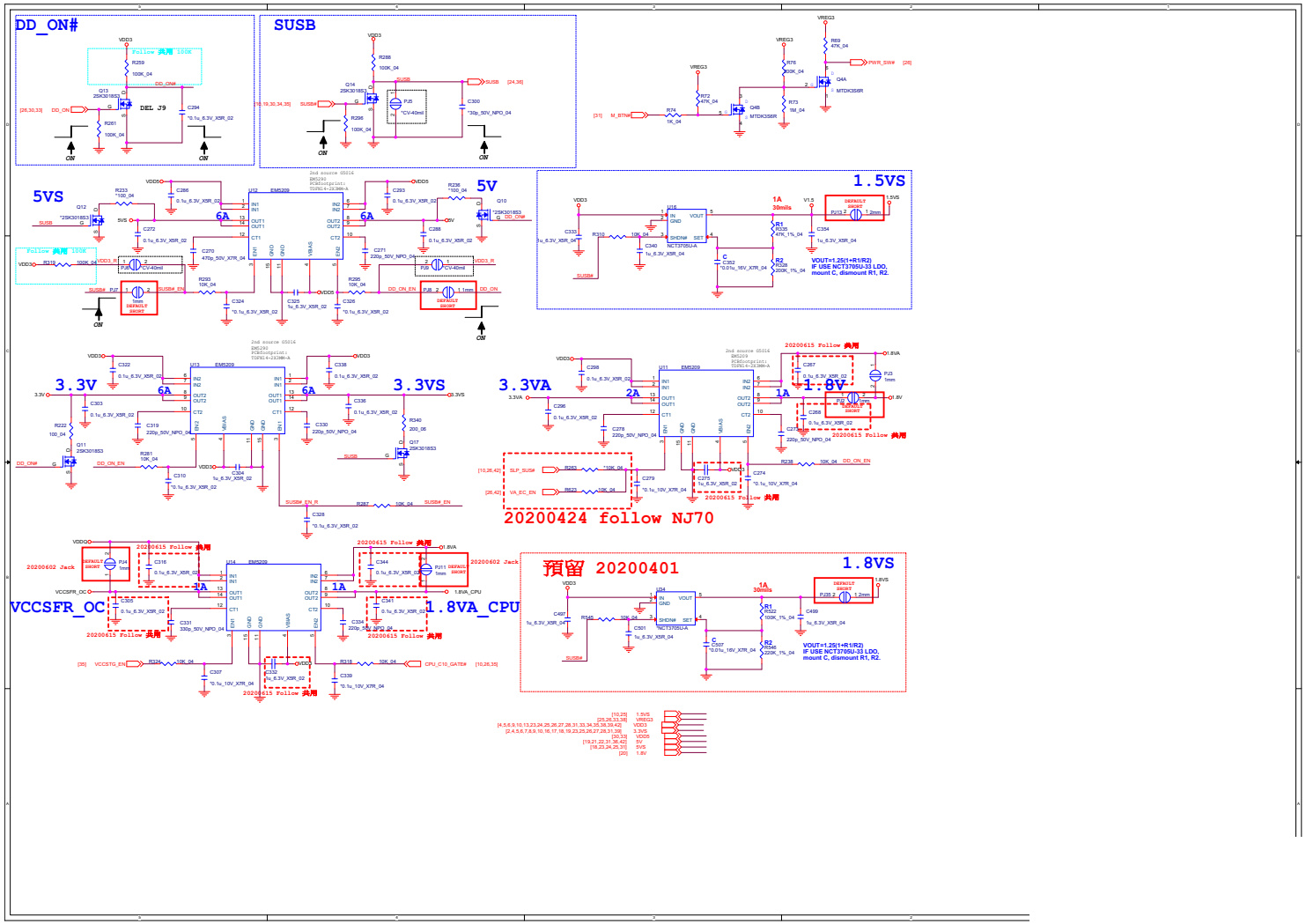
Conn, CCD, Fan, TP



3V, 5V, 3VS, 5VS, 1.8V, 1.5VS



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3V, 5V, 3VS, 5VS,
1.8V, 1.5VS

VDD3, VDD5

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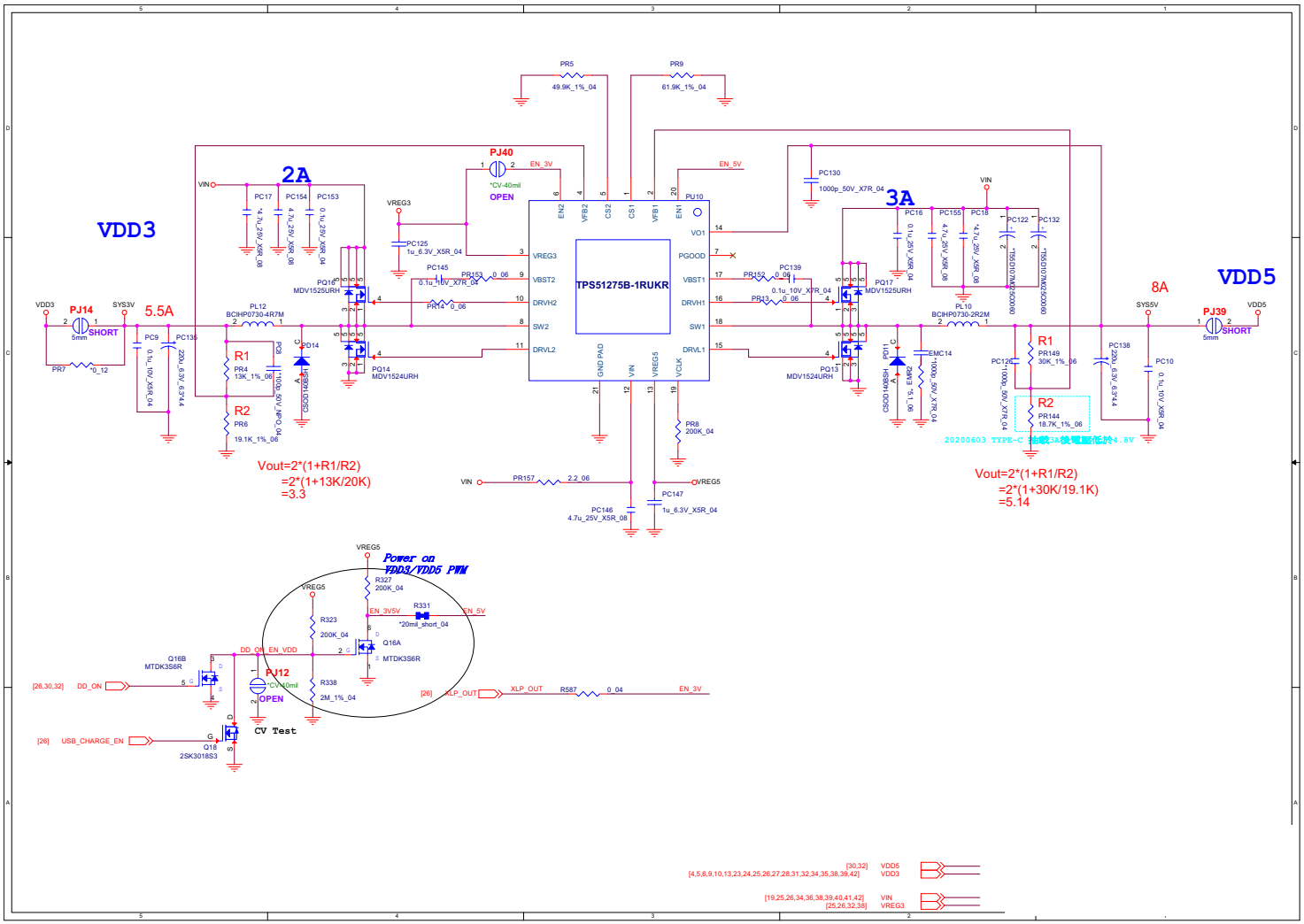
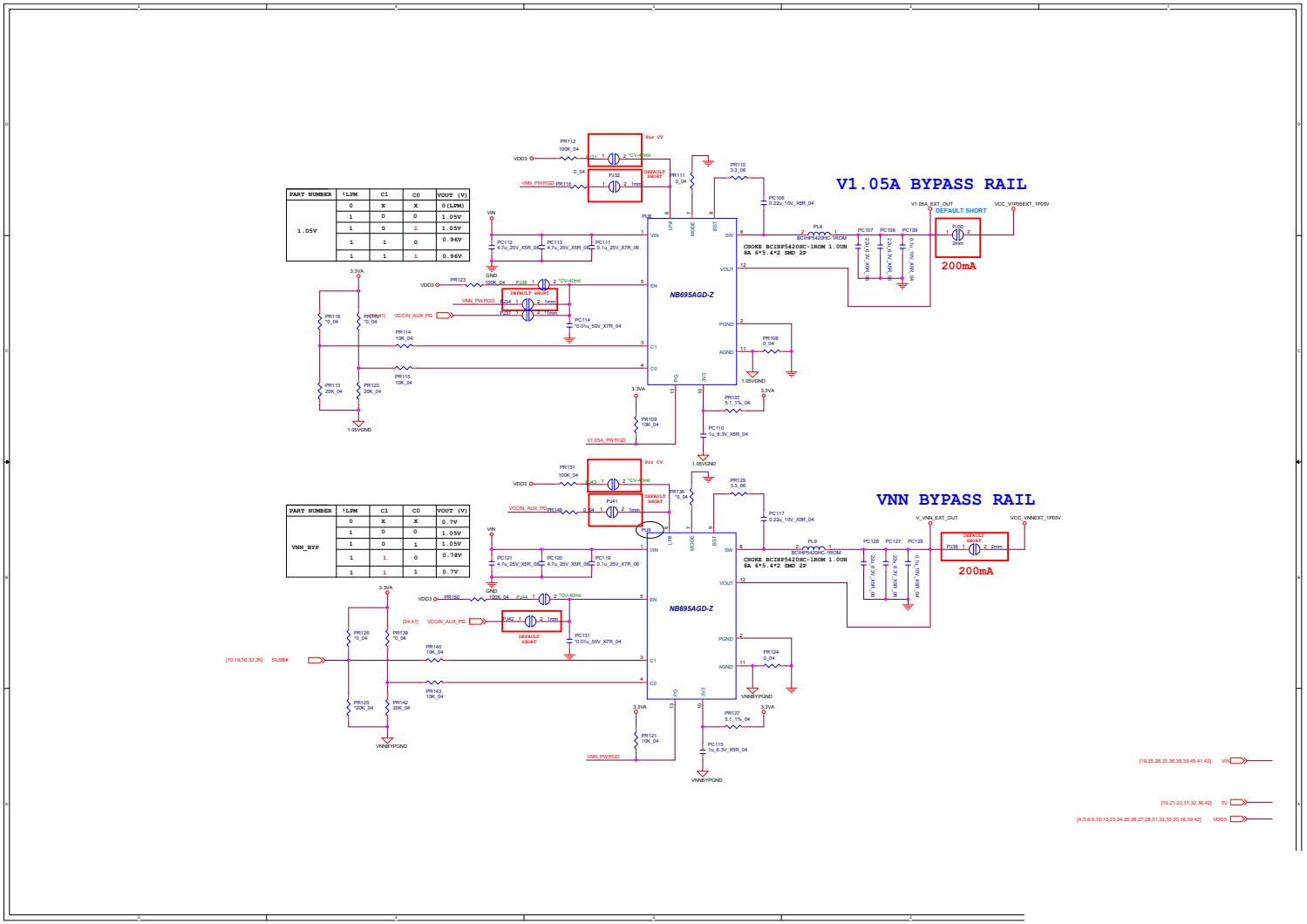
VDD3, VDD5



VNN & V1.05A



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VNN & V1.05A

VCCST, VCCSTG

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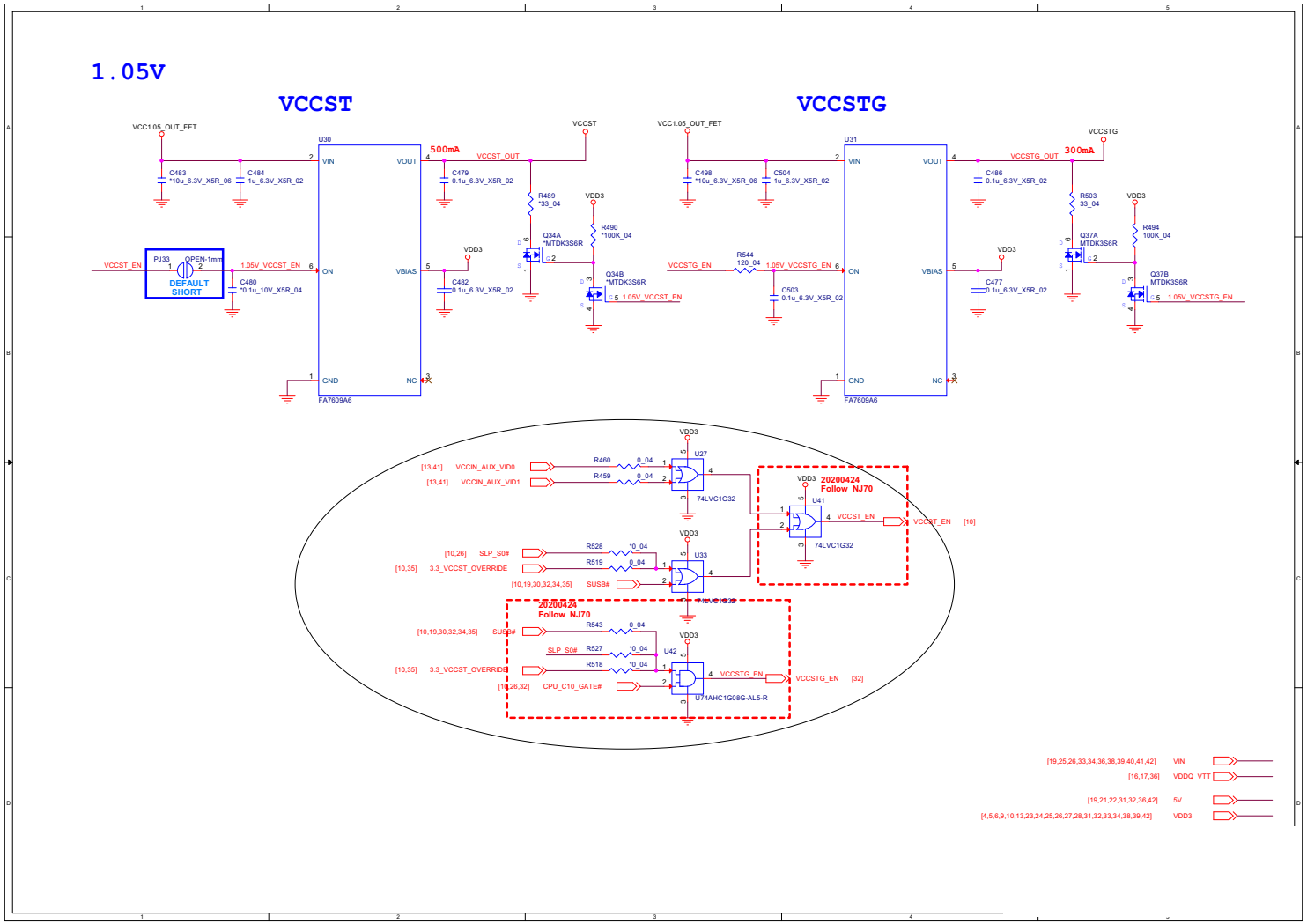
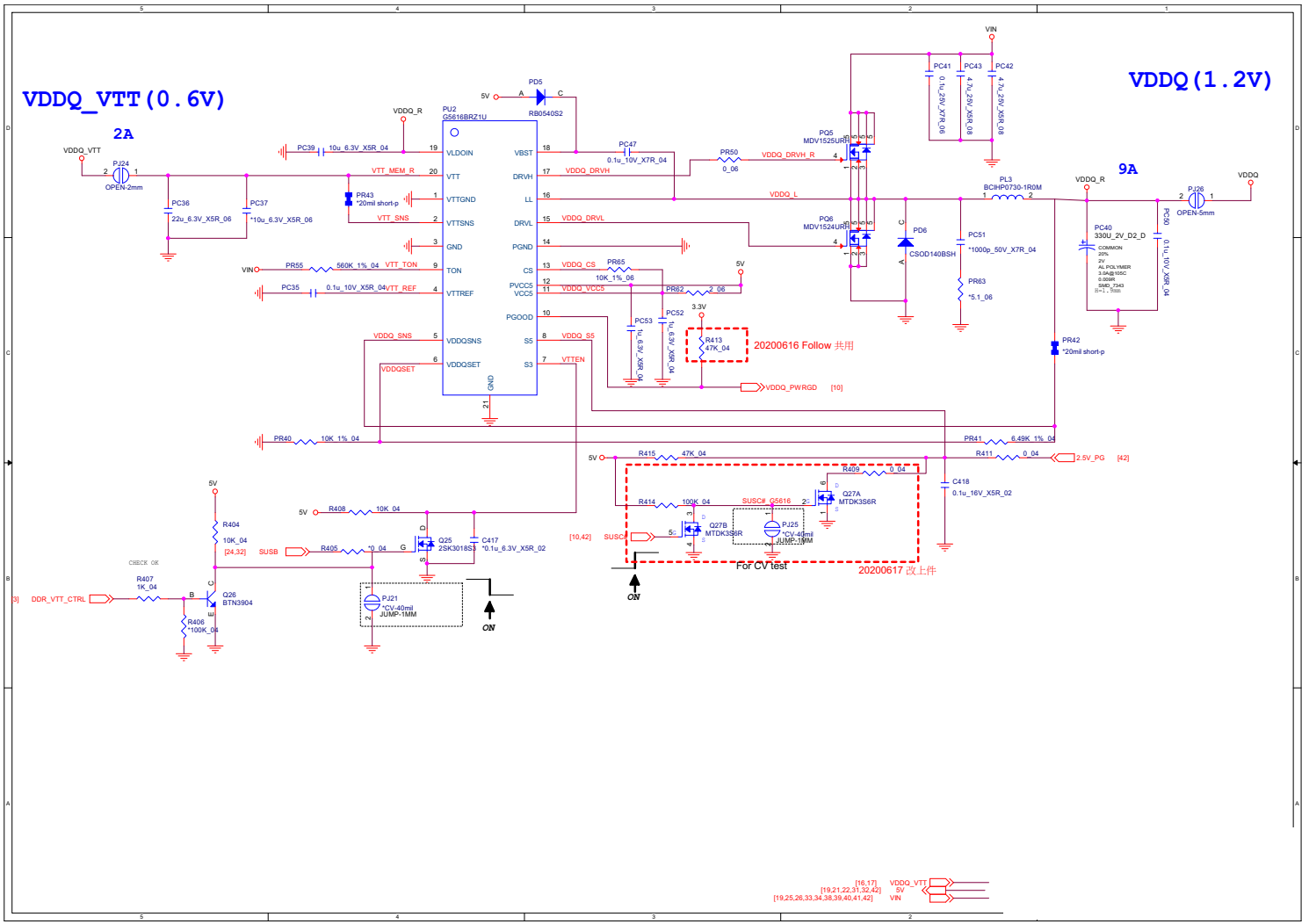
VCCST, VCCSTG



VDDQ, VDDQ_VTT



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VDDQ, VDDQ_VTT

Power PD Function

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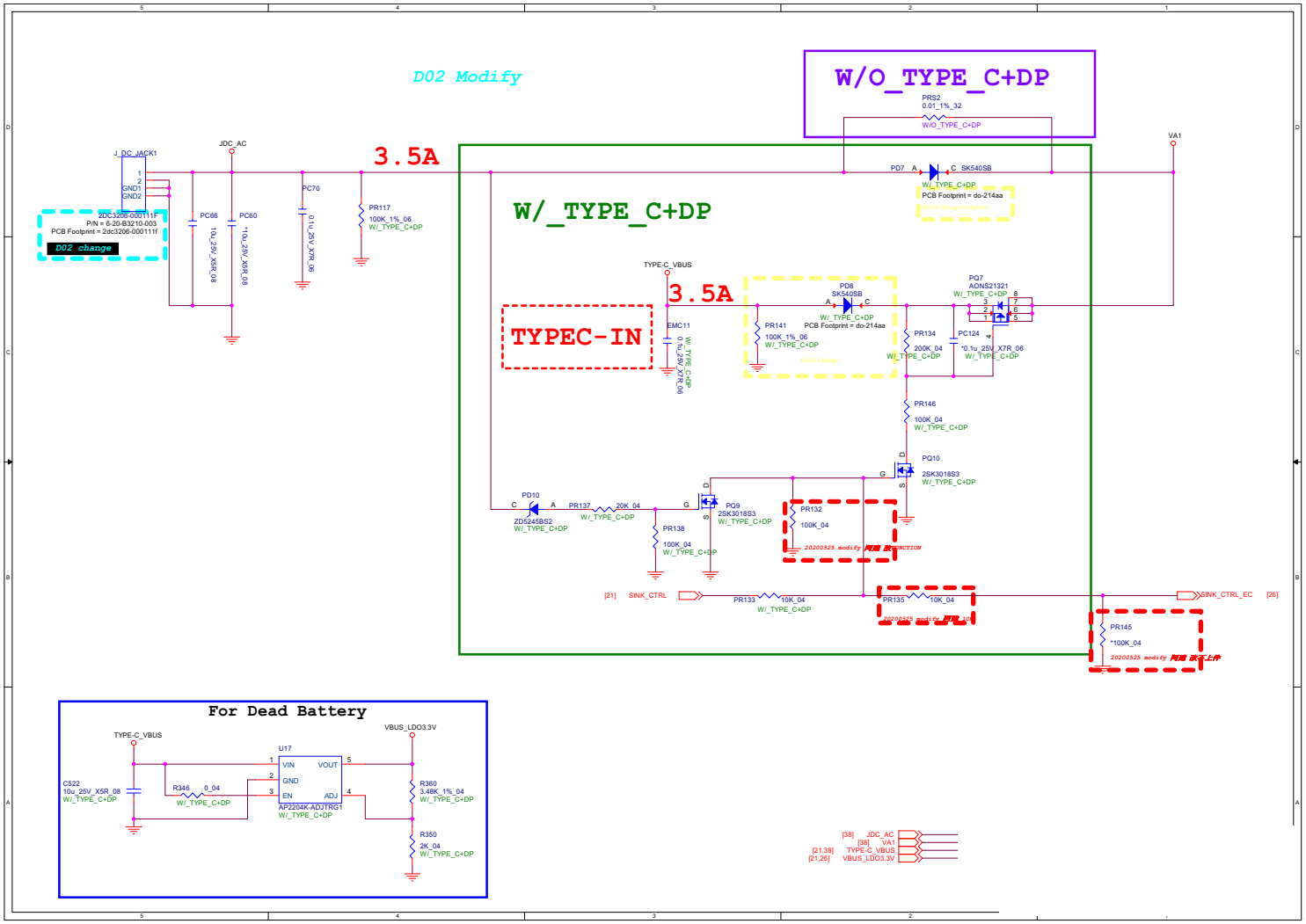
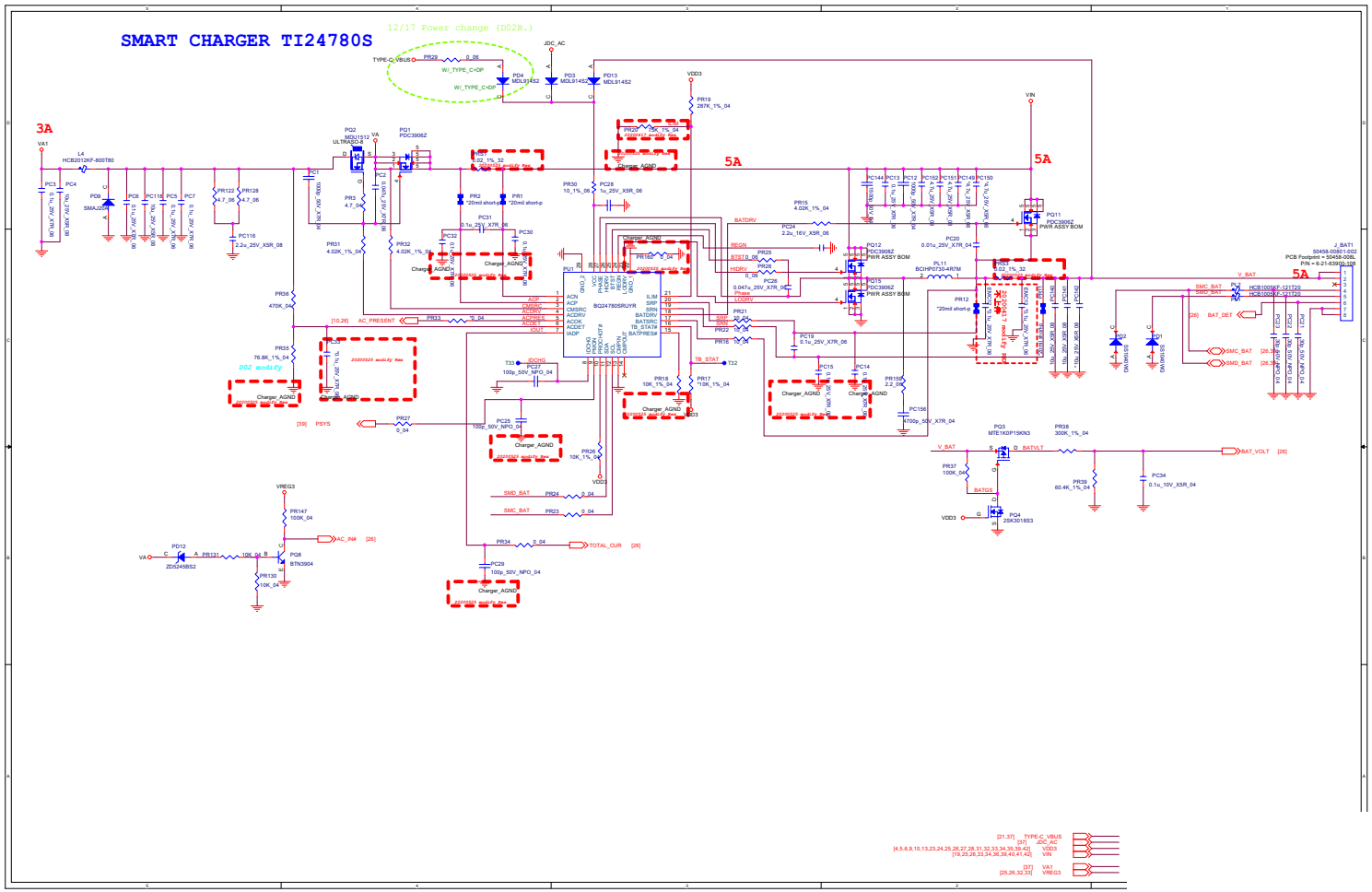
Power PD Function



Charger, AC IN



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Charger, AC IN

VCCIN

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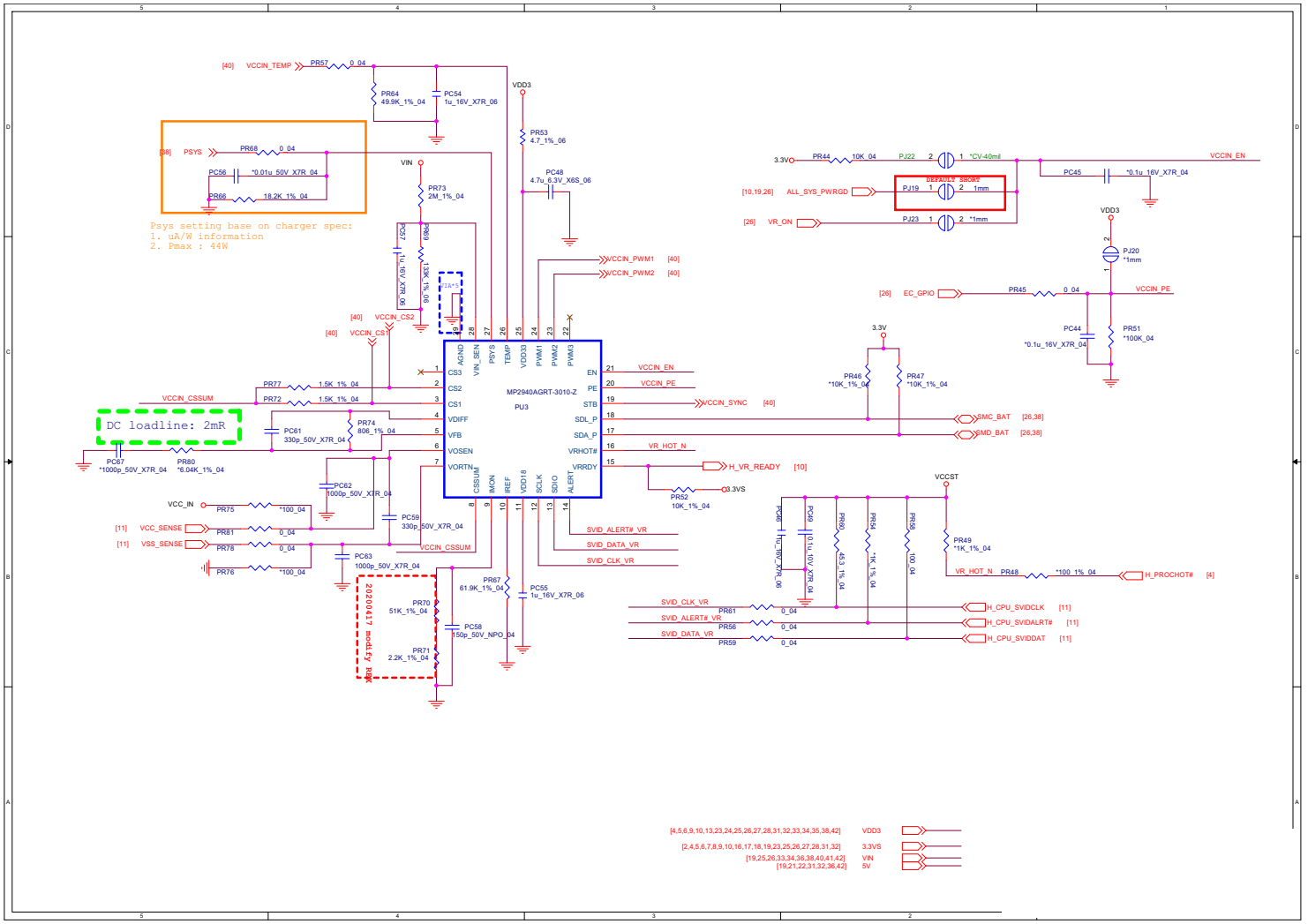
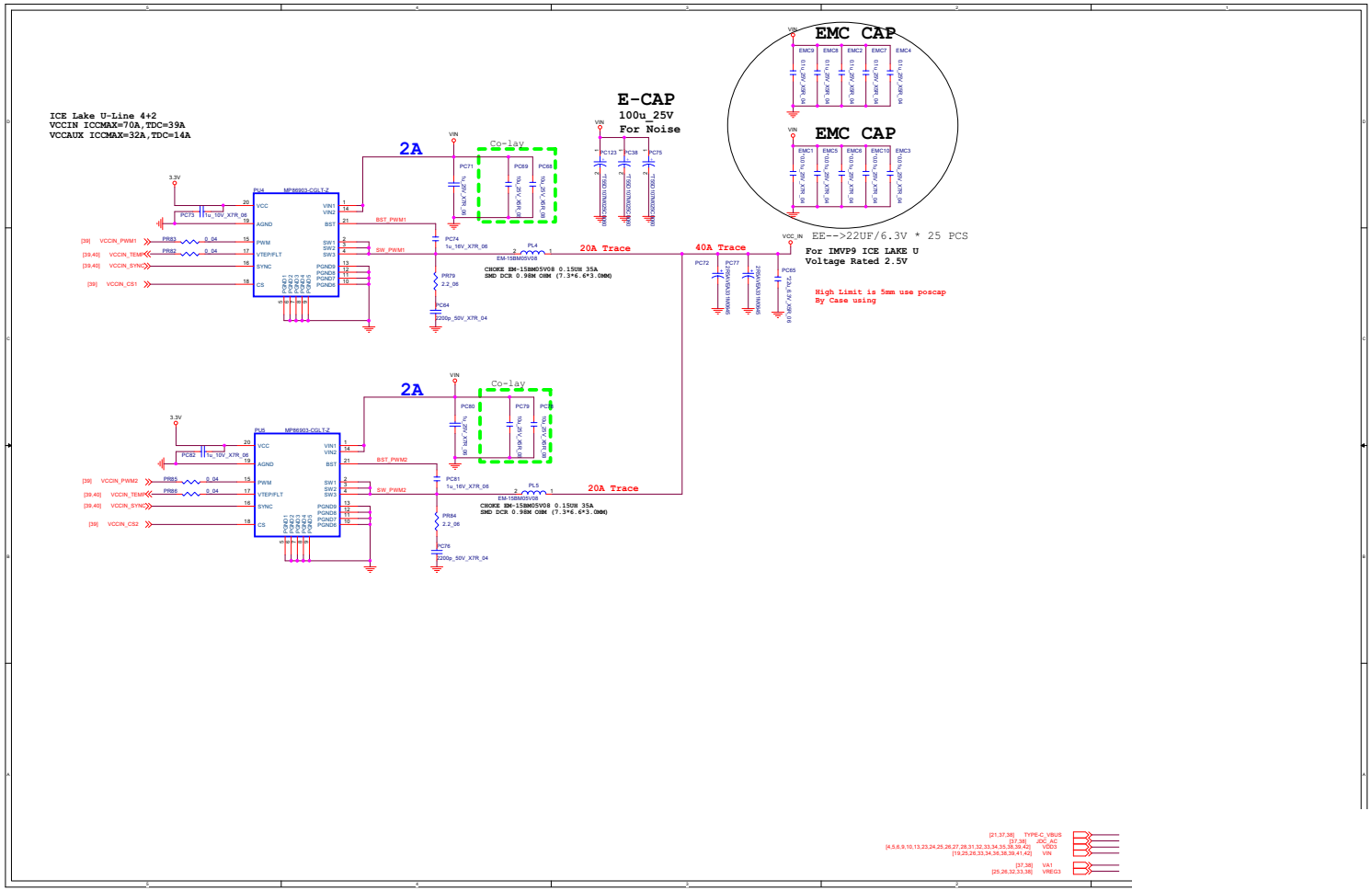
VCCIN



VCCIN Power Stage



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VCCIN Power Stage

VCCAUX

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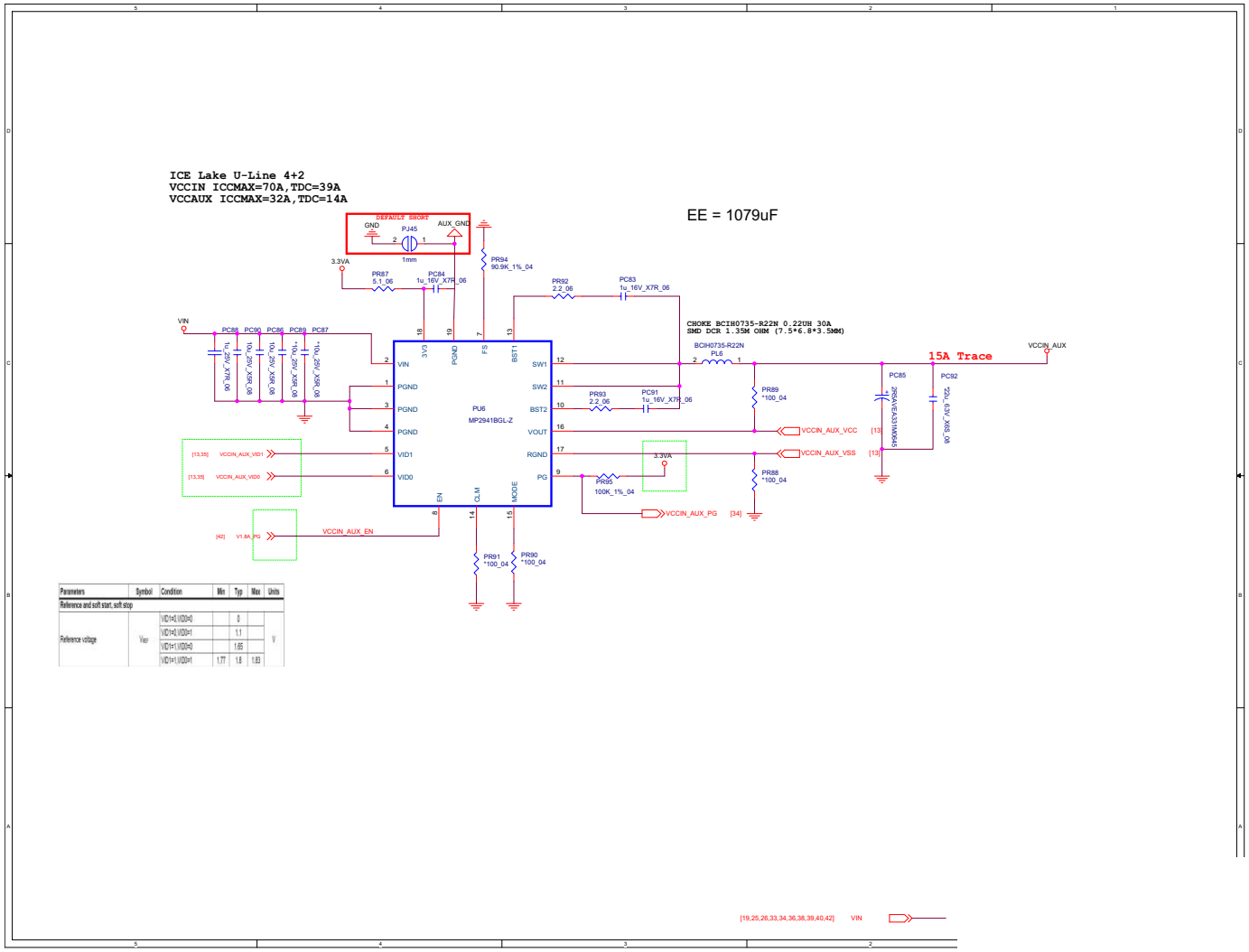
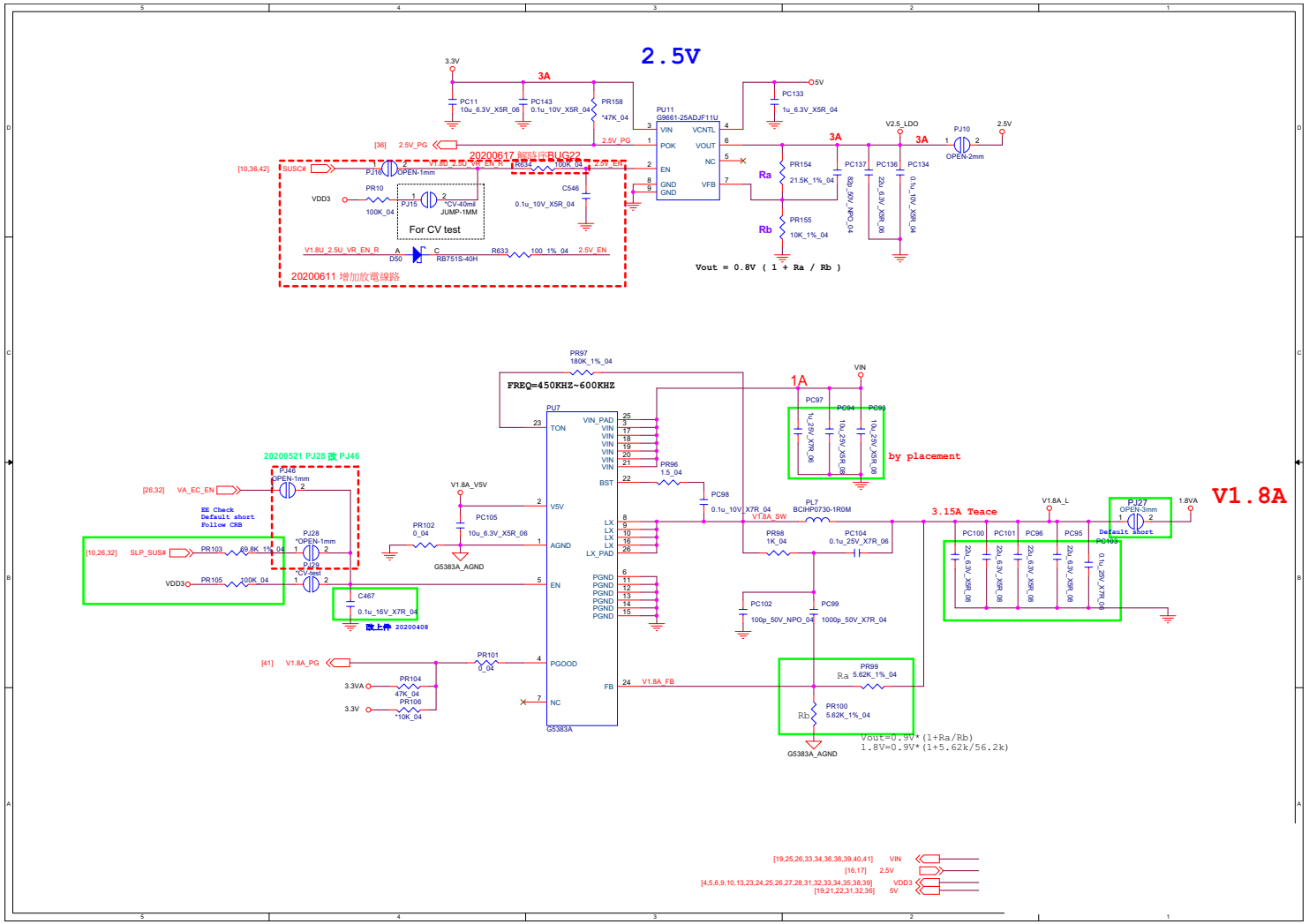
VCCAUX



VPP 2.5V, V1.8A



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VPP 2.5V, V1.8A

RTL8411B

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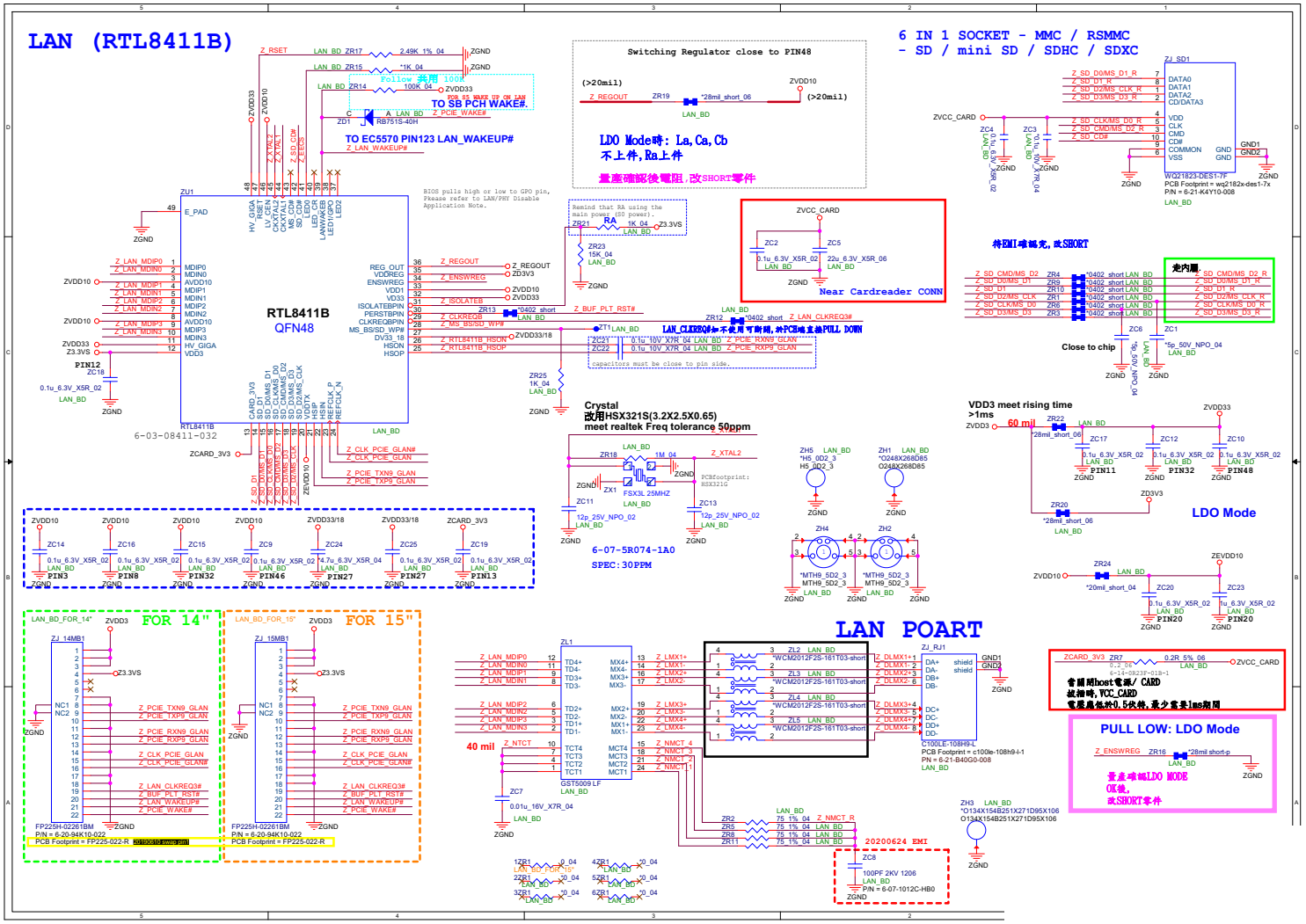
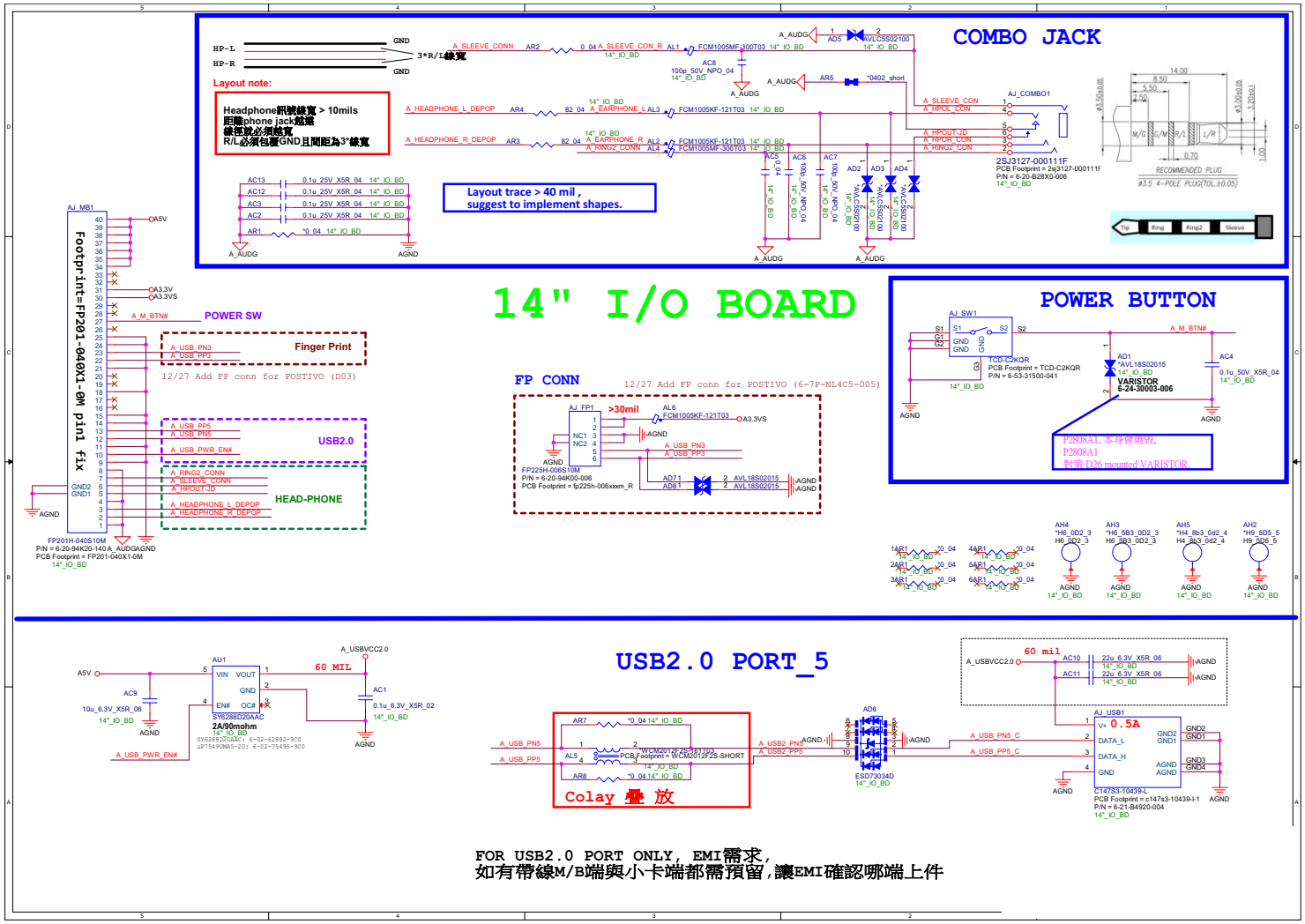
RTL8411B



NL40 I/O Board



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NL40 I/O Board

NL50 I/O Board-1

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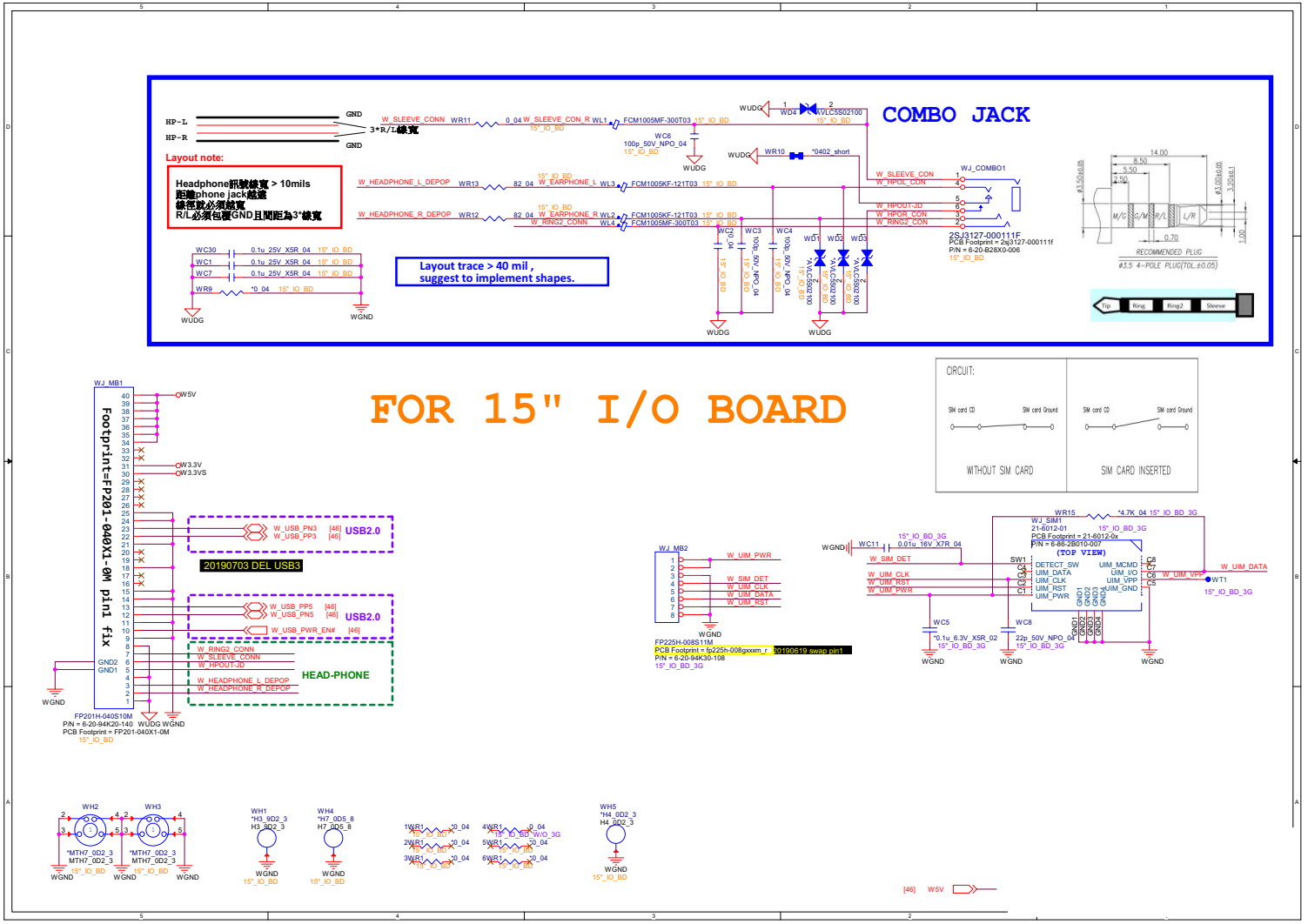
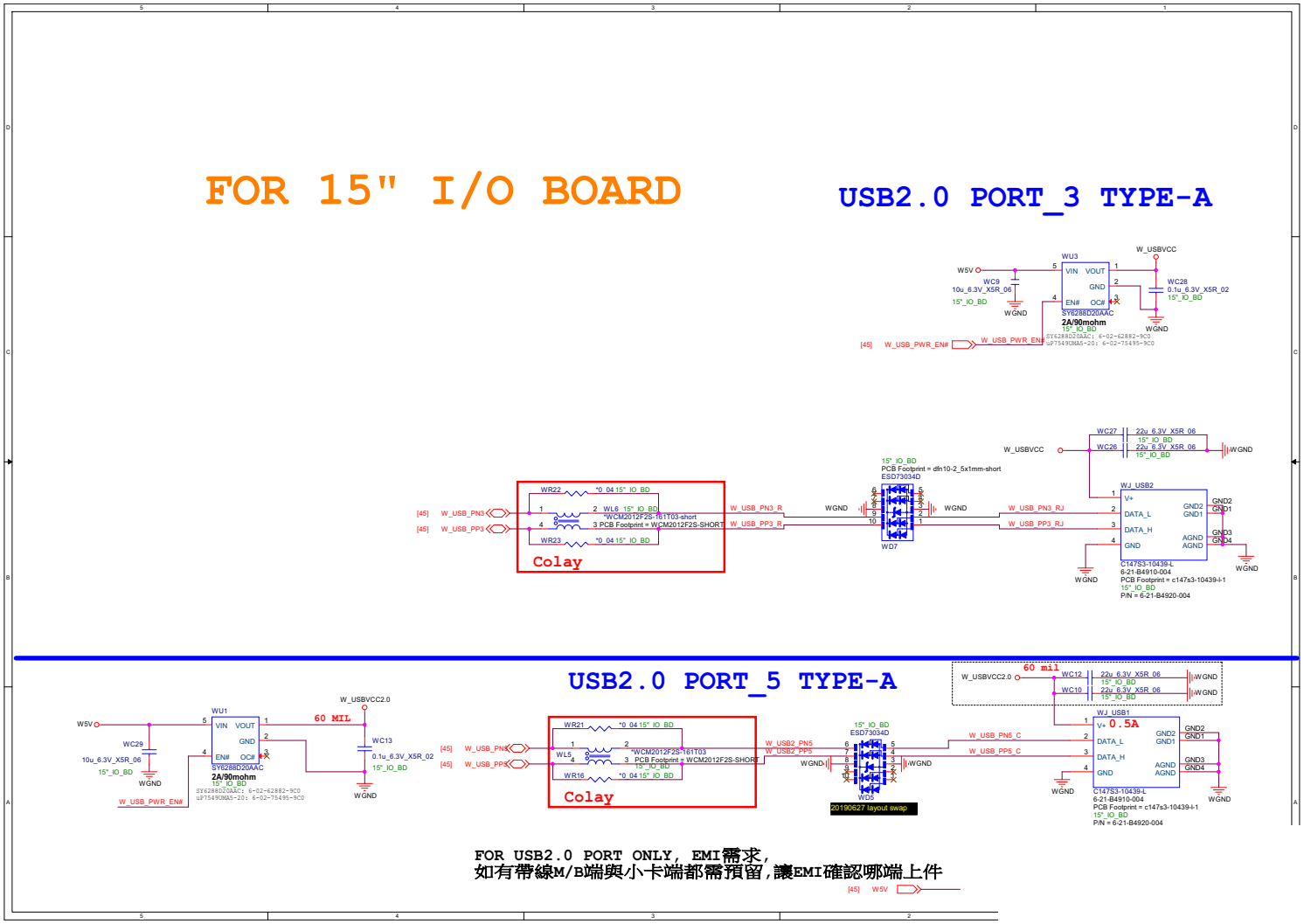
NL50 I/O Board-1



NL50 I/O Board-2



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NL50 I/O Board-2

NL50 Power Button Board

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NL50 Power Button Board