

SERVICE MANUAL

notebook

NL50CU / NL51CU



Notebook Computer

NL50CU / NL51CU

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 *NL50CU* / *NL51CU* 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

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 with an AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19V, 2.1A (**40 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.

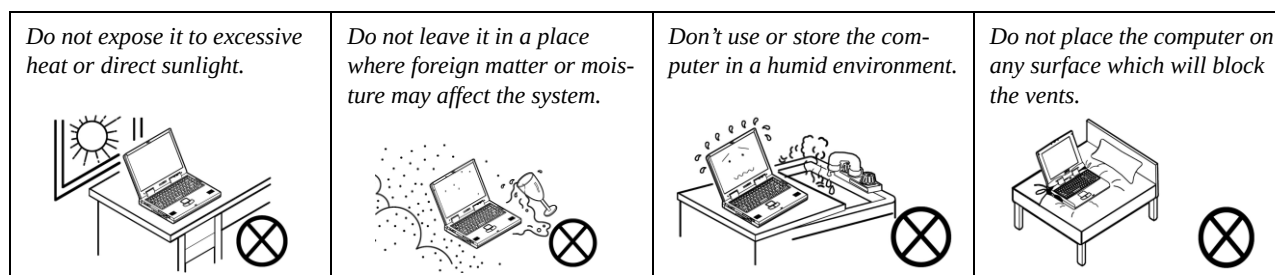
Instructions for Care and Operation

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

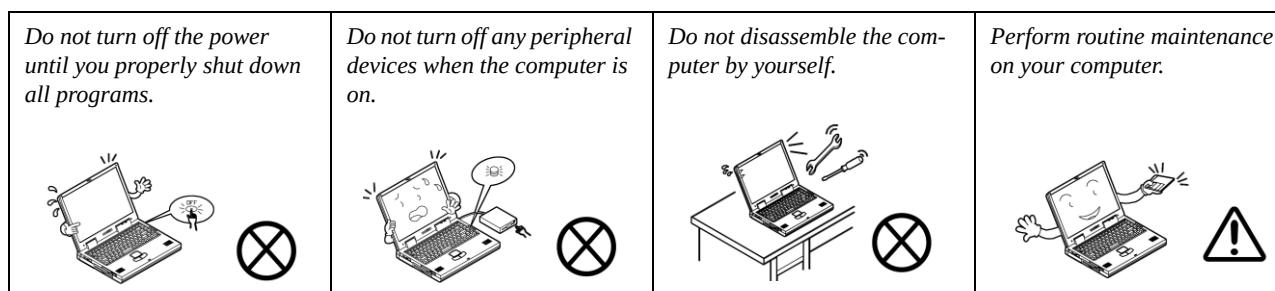
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



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.

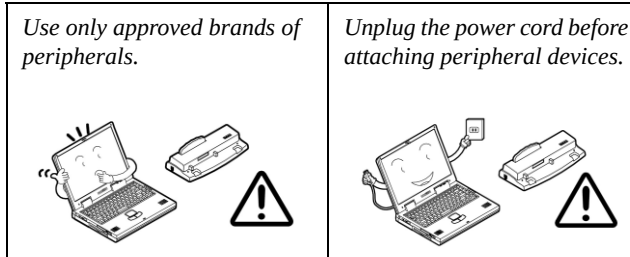


3. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.



Preface

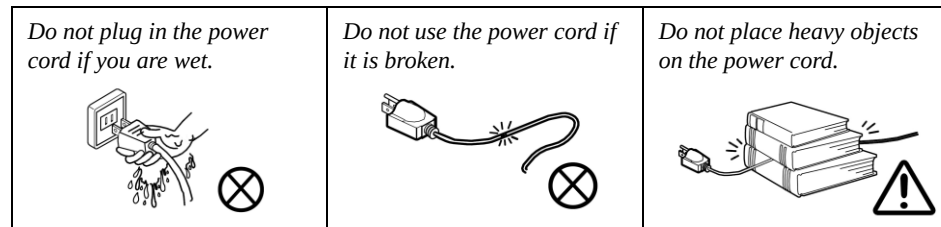
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



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 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.

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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **NL50CU / NL51CU** 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. *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 **NL50CU / NL51CU** 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.

Note that this computer model series may support a range of CPUs and/or video adapters.

To find out which CPU is installed on your system go to the **Start** menu and select **Settings**, and then select **System** and click **About**. This will also provide information on the amount of **Installed RAM** etc.

To get information on your system's **video adapter** go to the **Start** menu and select **Settings**, and then select **System** and click **Display > Advanced display settings > Display adapter properties**.



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

i7-10510U (1.80GHz)

8MB Smart Cache, **14nm**, DDR4-2666MHz, TDP 15W

Intel® Core™ i5 Processor

i5-10210U (1.60GHz)

6MB Smart Cache, **14nm**, DDR4-2666MHz, TDP 15W

Intel® Core™ i3 Processor

i3-10110U (2.10GHz)

4MB Smart Cache, **14nm**, DDR4-2666MHz, 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

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

Storage

One Changeable 2.5" 7mm (h) SATA HDD/SSD

(Factory Option) One M.2 2280 SATA/PCIe Gen3 x4 Solid State Drive (SSD)

Video Adapter

Intel UHD Graphics 620

Dynamic Frequency

Intel Dynamic Video Memory Technology

Microsoft DirectX®12 Compatible

Pointing Device

Built-in Click pad (with Microsoft PTP Multi Gesture & Scrolling Functionality)

Keyboard

Full-size Keyboard (with Numeric Keypad)

Or

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

Audio

High Definition Audio Compliant Interface

2 * Built-In Speakers

Built-In Array Microphone

Security

Security (Kensington® Type) Lock Slot

BIOS Password

Intel PTT for Systems Without TPM Hardware

(Factory Option) TPM 2.0

M.2 Slots

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

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

(Factory Option) Slot 3 for **LTE** Module

Card Reader

MicroSD Card Reader

Communication

Built-In 10/100/1000Mb Base-TX Ethernet LAN

1.0M HD Camera Module

(Factory Option) 4G M.2 Module

WLAN/ Bluetooth M.2 Modules:

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

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

Interface

One USB 3.1 Gen 2 Type-C Port*

**The maximum amount of current supplied by USB Type-C ports is 500mA (USB 2.0)/1500mA (USB 3.1).*

One USB 3.1 Gen 2 Type-A Port

One HDMI-Out Port

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

One DC-in Jack

One RJ-45 LAN Jack

Two USB 2.0 Ports

**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.

Power

Full Range AC/DC Adapter

AC Input: 100 - 239.3V, 50 - 60Hz

DC Output: 19V, 2.1A **(40W)**

Embedded Lithium-Ion Polymer Battery Pack, 36WH

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

360.4mm (w) * 239.3mm (d) * 19.7mm (h)

1.59kg (Barebone with 36WH Battery)

Introduction

Figure 1
Top View

External Locator - Top View with LCD Panel Open

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



External Locator - Front & Right Side Views

Figure 2
Front View

FRONT VIEW



Figure 3
Right Side View

RIGHT SIDE VIEW



1. Speaker
2. USB 3.1 Gen 2 Type-C Port
3. USB 3.1 Gen 2 Type-A Port
4. HDMI-Out Port
5. Battery Power LED Indicator
6. DC-In Jack

Introduction

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
5. USIM Card Reader
6. 2-In-1 Audio Jack (Headphone and Microphone)
7. Speaker

LEFT SIDE VIEW



Figure 5
Rear View

REAR VIEW



External Locator - Bottom View



Figure 6
Bottom View

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



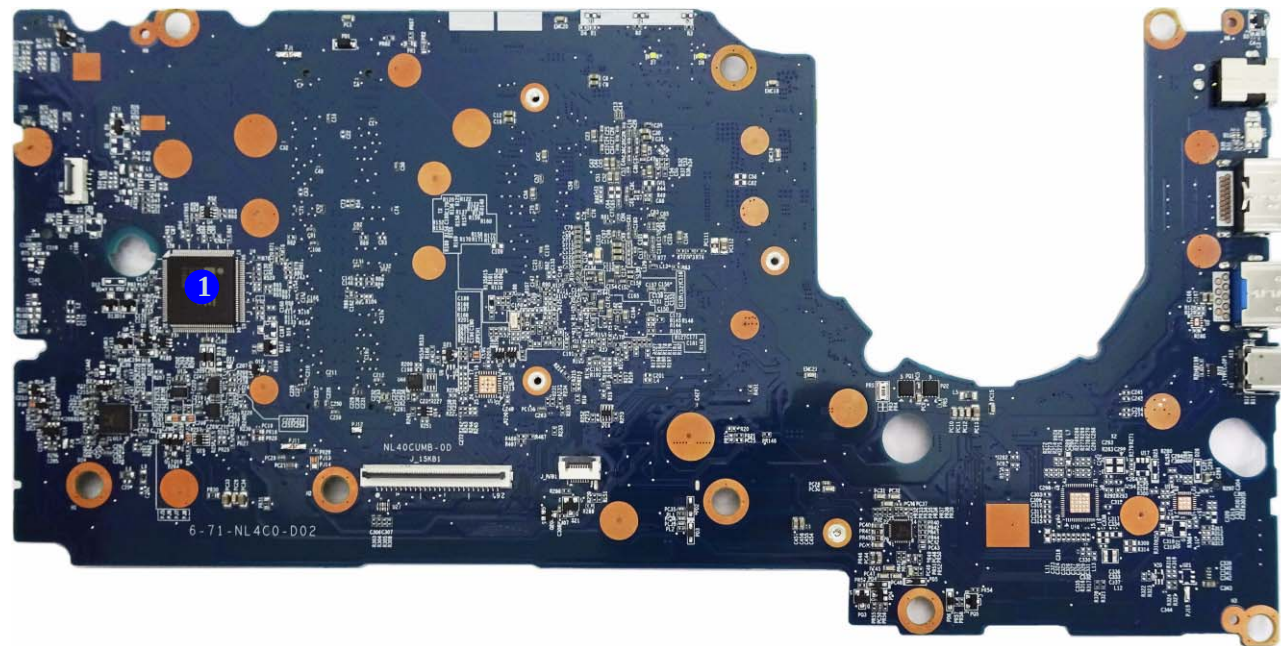
Overheating

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

Figure 7
**Mainboard Top
Key Parts**

1. KBC-ITE IT5570

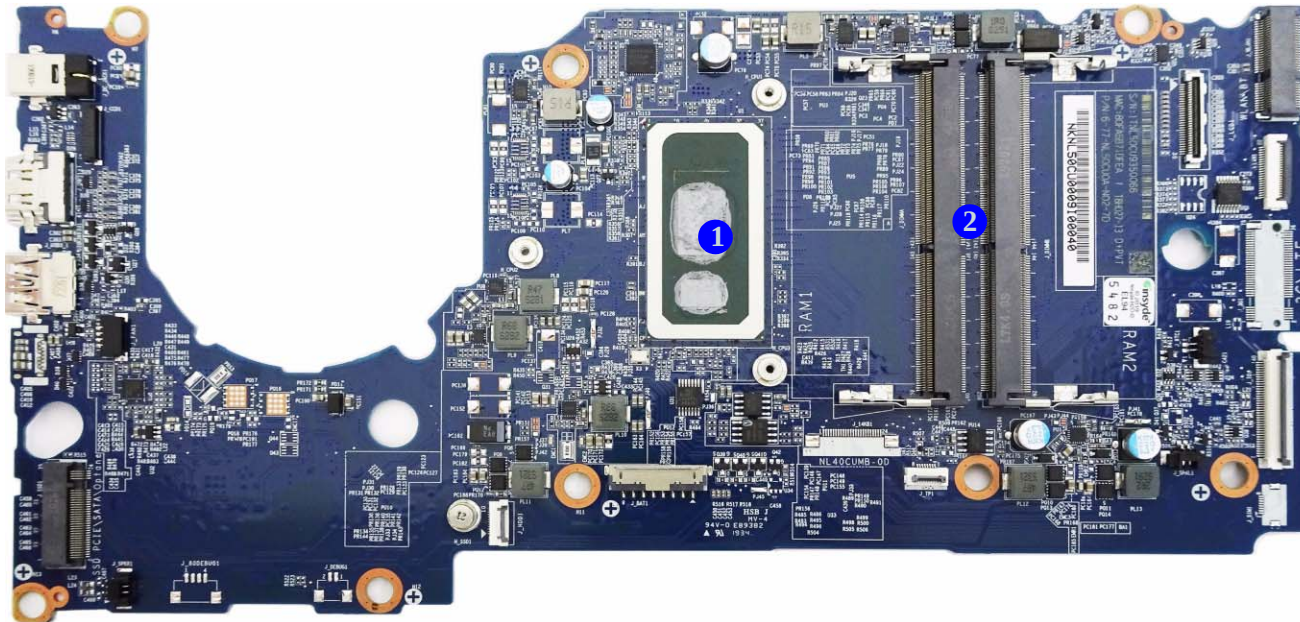
Mainboard Overview - Top (Key Parts)



Mainboard Overview - Bottom (Key Parts)

Figure 8
**Mainboard Bottom
Key Parts**

1. CPU
2. Memory Slots
DDR4 SO-DIMM



Introduction

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
5. LED Keyboard Connector
6. Keyboard Cable Connector
7. Power Switch Connector

Mainboard Overview - Top (Connectors)



Mainboard Overview - Bottom (Connectors)

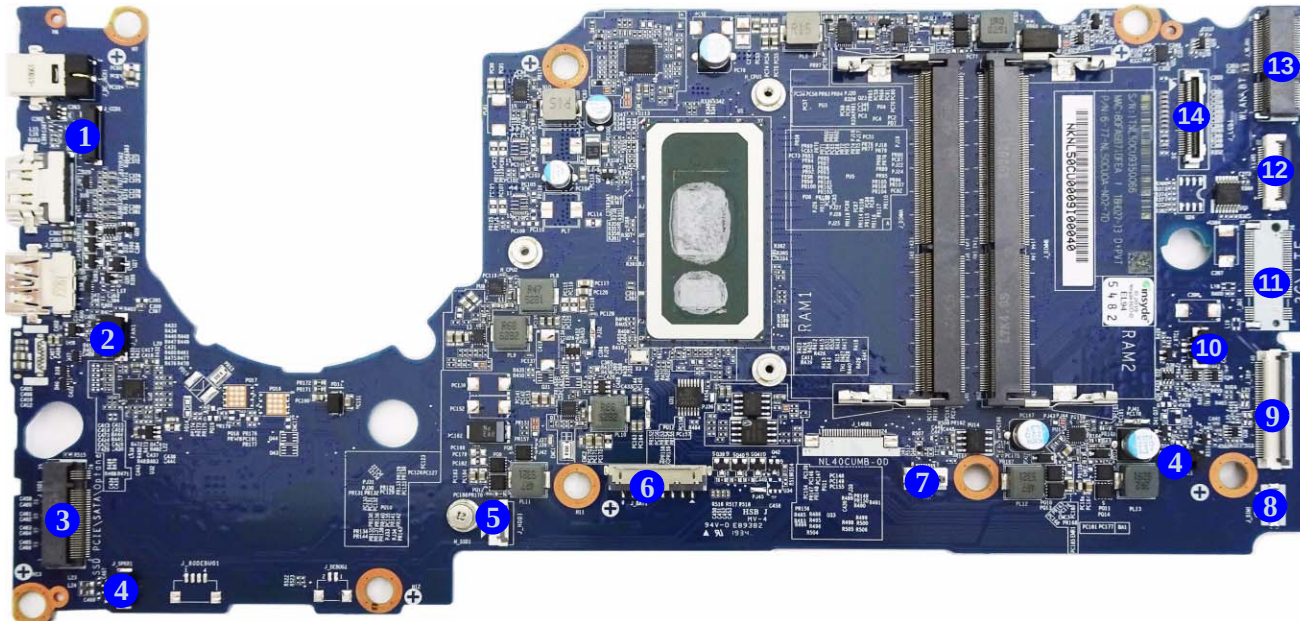


Figure 10
**Mainboard Bottom
Connectors**

1. CCD Cable Connector
2. Fan Connector
3. M.2 Card Connector
4. Speaker Connector
5. HDD Connector
6. Battery Connector
7. Touchpad Connector
8. USIM Card Reader Connector
9. USB Board Connector
10. CMOS Battery Connector
11. 3G/LTE Connector
12. LAN Board Connector
13. WLAN/BT Connector
14. LCD Cable Connector

Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the *NL50CU* / *NL51CU* series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

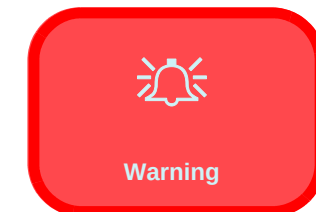
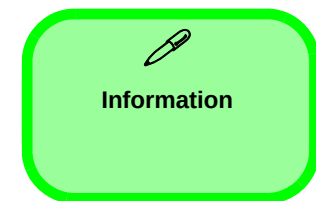
We suggest you completely review any procedure before you take the computer apart.

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 Battery:

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

To remove the HDD:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 7](#)

To remove the System Memory:

1. Remove the battery [page 2 - 5](#)
2. Remove the system memory [page 2 - 9](#)

To remove the Keyboard:

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

To remove the Wireless LAN Module:

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

To remove the 4G Module:

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

To remove the M.2 SSD Module:

1. Remove the battery [page 2 - 5](#)
2. Remove the SSD module [page 2 - 15](#)

To remove the CCD Module:

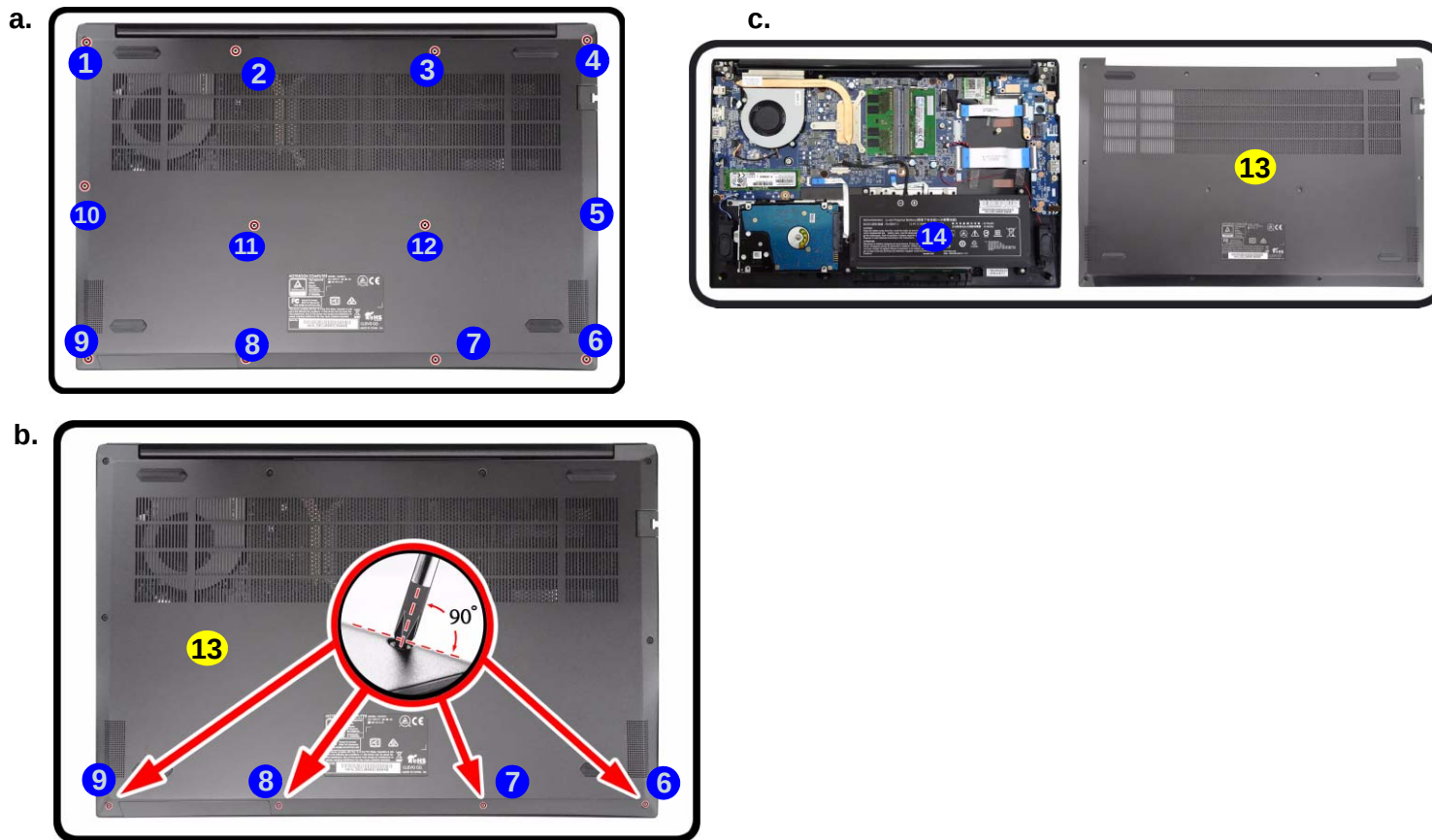
1. Remove the battery [page 2 - 5](#)
2. Remove the CCD module [page 2 - 16](#)

Removing the Battery

1. Turn **off** the computer, turn it over.
2. Remove screws **1** - **12** 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 **13** up and remove it.
5. The battery will be visible at point **14** on the computer (*Figure 1c*).

Figure 1
Battery Removal

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



- 
13. Bottom Case
- 12 Screws

Disassembly

Figure 2
Battery Removal
(cont'd.)

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

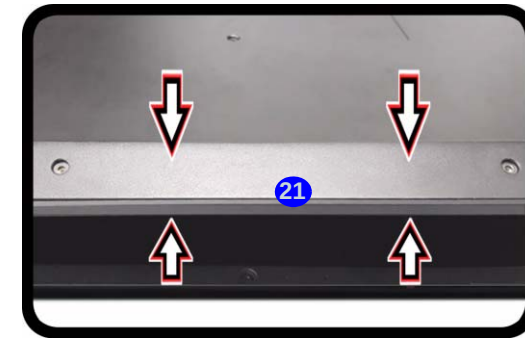
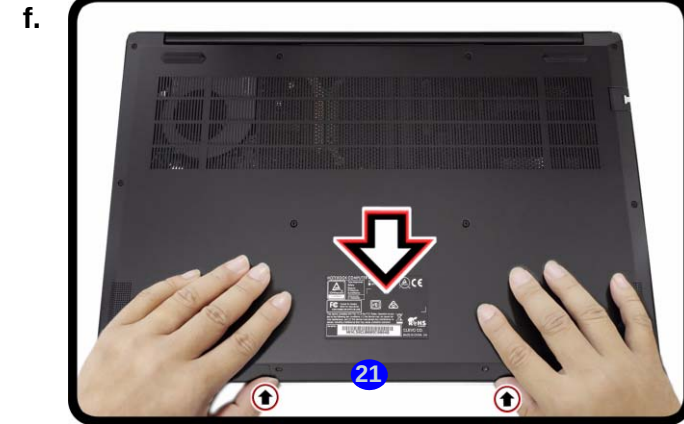
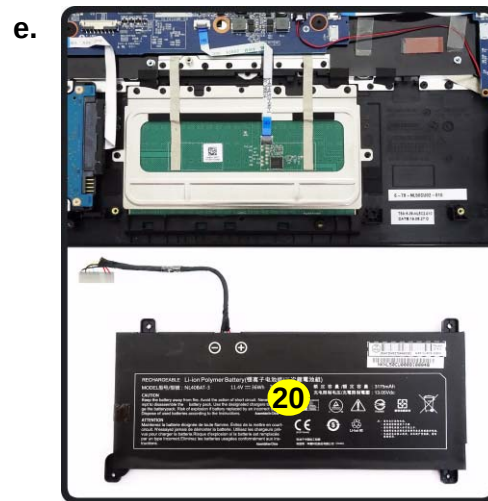
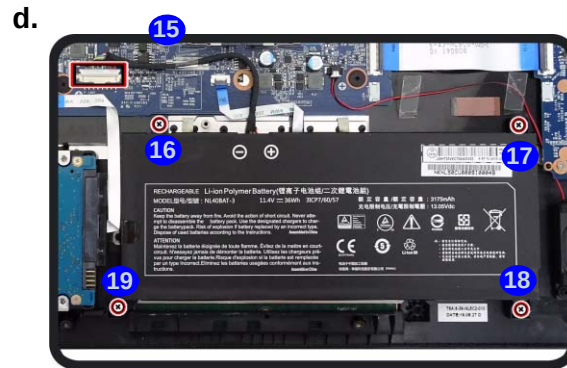
Powering the Computer On

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

20. Battery

- 4 Screws

- 6. Carefully disconnect the cable **15**, then remove screws **16** - **19** (*Figure 2d*).
- 7. Lift the battery **20** 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 **21** as shown (*Figure 2f*).



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 7.0mm (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 Upgrade Process

1. Turn **off** the computer, and remove the battery ([page 2 - 5](#)).
2. The HDD will be visible at point **1** on the mainboard ([Figure 3a](#)).
3. Remove screws **2** from the HDD assembly. Slightly lift and disconnect the hard disk assembly from the connector **3** ([Figure 3b](#)).
4. Lift the hard disk assembly **4** out of the bay **5** ([Figure 3c](#)).

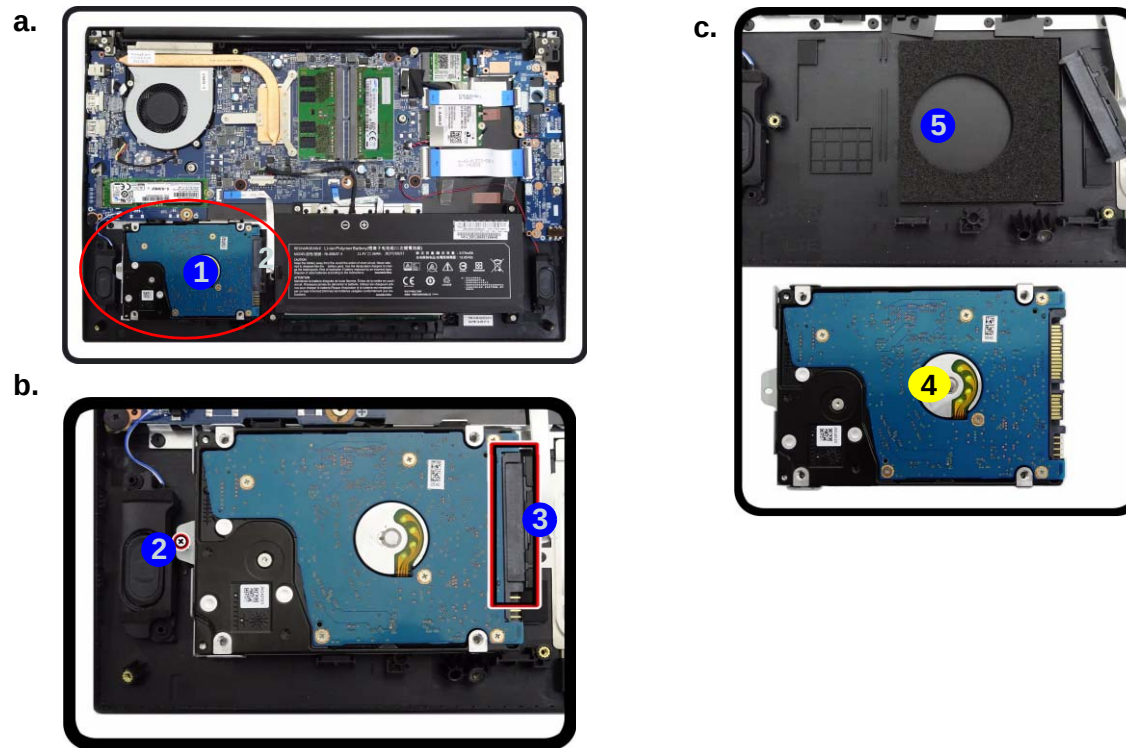


Figure 3
HDD Assembly Removal

- Locate the HDD.
- Remove the screws and disconnect the HDD from the connector.
- Lift the HDD assembly out of the bay.



Powering the Computer On

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



4. HDD Assembly

- 1 Screw

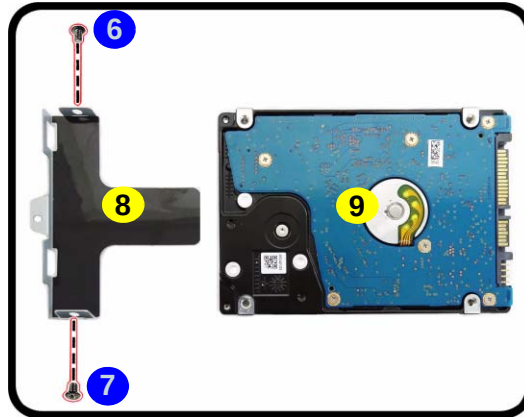
Disassembly

Figure 4
**HDD Assembly
Removal (cont'd.)**

d. Remove the screws and bracket from the HDD.

5. Remove screws ⑥ - ⑦ and bracket ⑧ from the hard disk ⑨ (*Figure 4d*).
6. Reverse the process to install a new hard disk (do not forget to replace the screws).

d.



6. Bracket
 7. HDD
- 2 Screws



HDD System Warning

New HDD's are blank. Before you begin make sure:

You have backed up any data you want to keep from your old HDD.

You have all the CD-ROMs and FDDs required to install your operating system and programs.

If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.

Removing the System Memory (RAM)

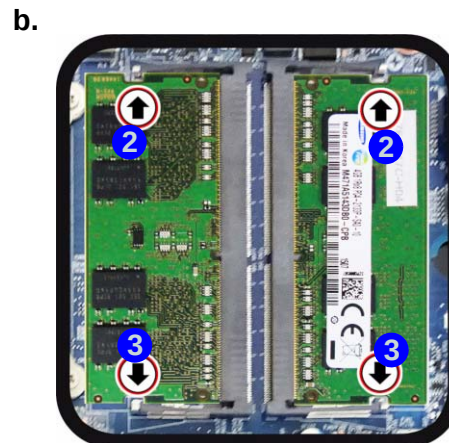
The computer has two memory sockets for 260 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR4 2400MHz. The main memory can be expanded up to 32GB. The total memory size is automatically detected by the POST routine once you turn on your computer.

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.



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.



Single Memory Module Installation

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



4. RAM Module

Disassembly

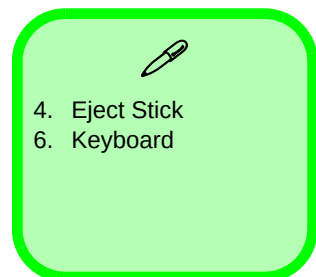
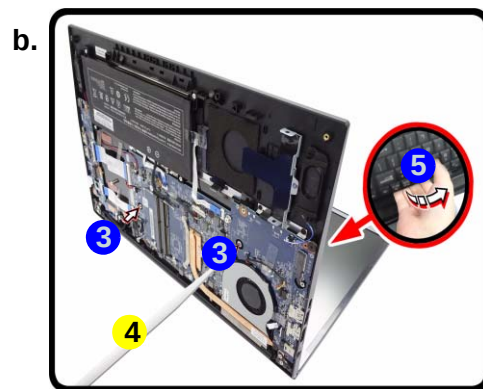
5. Pull the latches to release the second module if necessary.
6. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
7. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will 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 Keyboard

1. Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)).
2. Locate the release points **1** - **2** from the open bottom case ([Figure 6a](#)).
3. Open it up with the LCD on a flat surface before pressing at point **3** to release the keyboard module (use the specific eject stick **4** to do this) while releasing the keyboard in the direction of the arrow **5** as shown ([Figure 6b](#)).
4. Carefully lift the keyboard **6** up, being careful not to bend the keyboard ribbon cable **7**. Disconnect the keyboard ribbon cable from the locking collar socket **8** ([Figure 6c](#)).
5. Carefully lift up the keyboard **6** off the computer ([Figure 6d](#)).
6. Reverse the process to install the keyboard (be careful not to bend the keyboard ribbon cable).

Figure 6
Keyboard Removal

- a.
- b. Release the keyboard by pressing at point **3**.
- c. Disconnect the keyboard ribbon cable from the locking collar socket.
- d. Remove the keyboard.



Disassembly

Figure 7
**Wireless LAN
Module Removal**

- Locate the WLAN.
- Disconnect the cable and remove the screw.
- 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 7b*).

5. Wireless LAN Module

- 1 Screw

Removing the Wireless LAN Module

- Turn **off** the computer, turn it over to remove the battery (*page 2 - 5*).
- The Wireless LAN module will be visible at point **1** on the mainboard (*Figure 7a*).
- Carefully disconnect the cables **2** & **3**, and then remove the screw **4** (*Figure 7b*).
- The Wireless LAN module **5** (*Figure 7c*) will pop-up, and you can remove it from the computer.
- Reverse the process to install a new module (do not forget to replace all the screws and bottom cover).



Wireless LAN, and Combo Module Cables

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

Module Type	Antenna Type	Cable Color	Cable Cover Type
WLAN/WLAN & Bluetooth Combo	WM 1	Black	Transparent
	WM 2	Black	White
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).

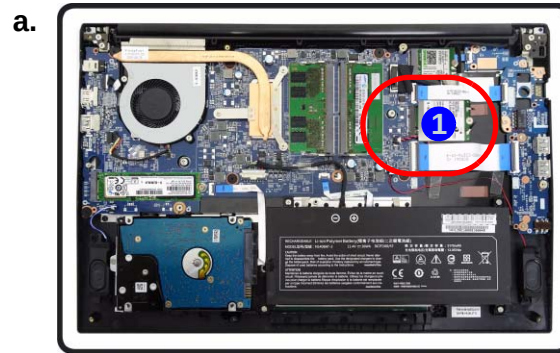
Disassembly

Figure 8
4G Module Removal

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

Removing the 4G Module

- Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)).
- The module will be visible at point **1** on the mainboard ([Figure 7a](#)).
- Carefully disconnect the cables **2** & **3**, and then remove the screw **4** ([Figure 7b](#)).
- The module **5** ([Figure 7c](#)) will pop-up, and you can remove it from the computer.
- Reverse the process to install a new module (do not forget to replace all the screws and bottom cover).



5.4G Module

- 1 Screw

Removing the M.2 SSD Module

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 9a](#)).
3. Remove the screw **2** ([Figure 9b](#))
4. The M.2 SSD module **3** ([Figure 9c](#)) will pop-up, and you can remove it from the computer.
5. Reverse the process to install a new module (do not forget to replace all the screws and bottom cover).

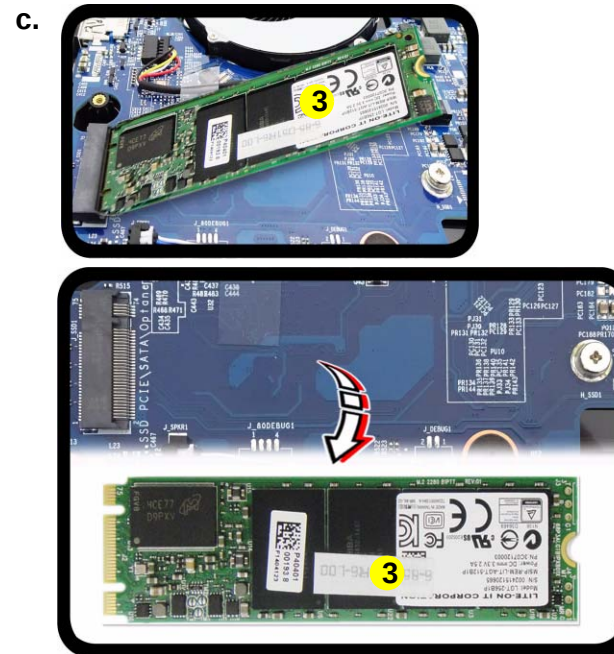
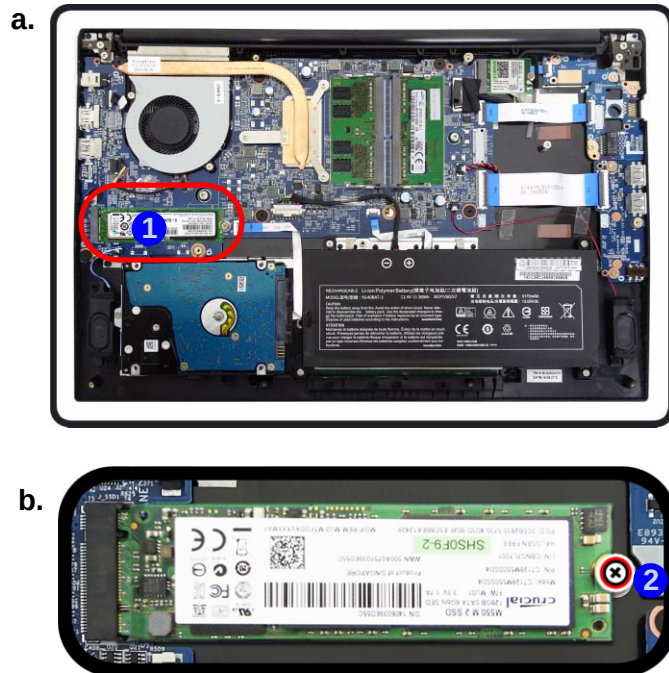


Figure 9
M.2 SSD Module Removal

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



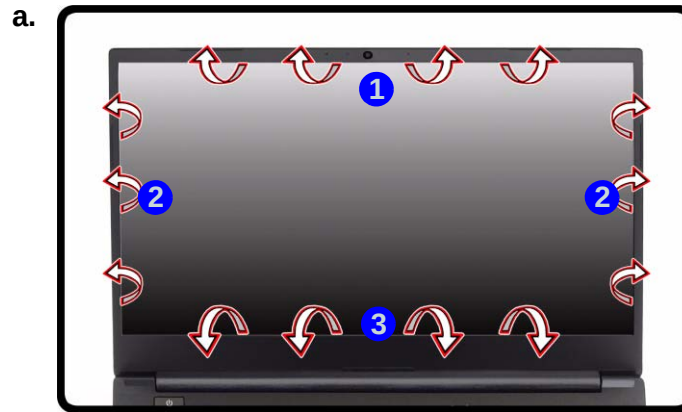
3.M2 SATA Module

- 1 Screw

Disassembly

Figure 10
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 90 degree angle. Lift the LCD front panel upwards.
1. Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)).
 2. Run your fingers around the inner frame of the LCD panel at the points as indicated by the arrows **1** - **3** ([Figure 10a](#)).
 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 10b](#)).



4. LCD Front Cover

4. Disconnect the cable **5** (*Figure 11f*).
5. Remove the CCD module **6** (*Figure 11g*).
6. Reverse the process to install a new CCD module.



Figure 11
CCD Removal
(cont'd.)

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



6. CCD Module

Appendix A:Part Lists

This appendix breaks down the *NL50CU* / *NL51CU* 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.

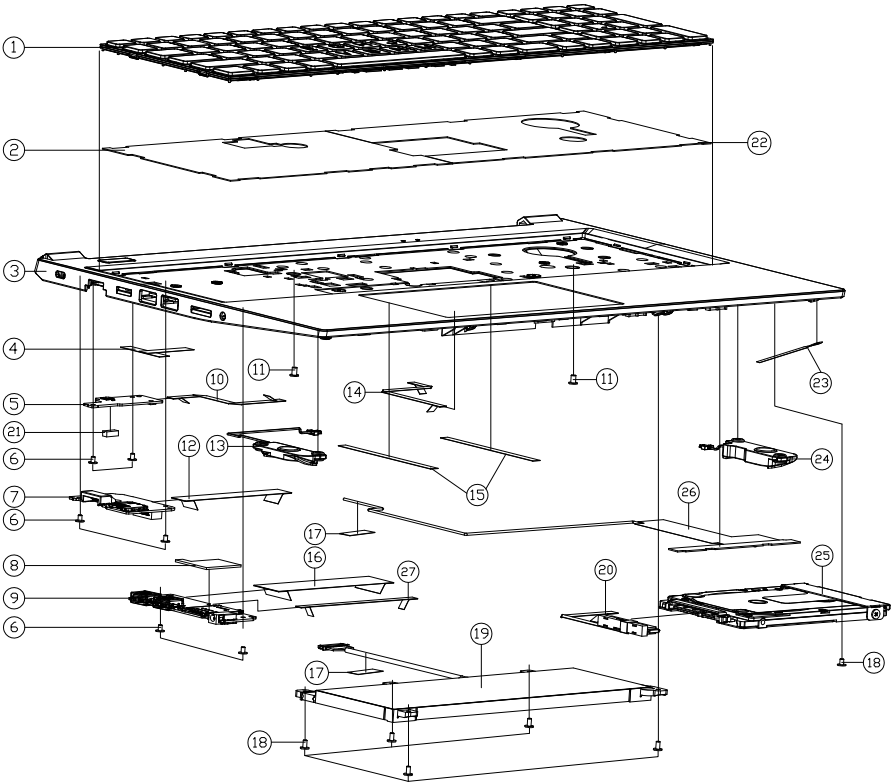
Part List Illustration Location

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>
LCD	<i>page A - 5</i>
HDD	<i>page A - 6</i>
MB	<i>page A - 7</i>

Top

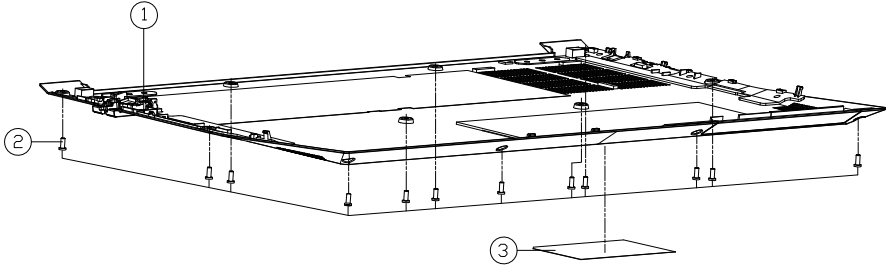


ITEM	PART NAME	PART NO	REMARK
1	KG USA COMPRESS-430 NESUO BLACK ISOLATION WITH VARIO KEY	6-80-NISZ0-012-1	
1	KG BRCELAM COMPRESS-430 NESUO BLACK ISOLATION WITH VARIO KEY	6-80-NISZ0-333-1	
1	KG JAPANESE COMPRESS-430 NESUO BLACK ISOLATION WITH VARIO KEY	6-80-NISZ0-212-1	
1	KG UK COMPRESS-430 NESUO BLACK ISOLATION WITH VARIO KEY	6-80-NISZ0-192-1	
1	KG JAPANESE COMPRESS-430 NESUO BLACK ISOLATION WITH VARIO KEY (COPPER FOR NJ)	6-80-NISZ0-212-1M	
1	KG JAPANESE COMPRESS-430 NESUO BLACK ISOLATION WITH VARIO KEY (COPPER FOR NJ)	6-80-NISZ0-210-1M	
1	KG JAPANESE COMPRESS-430 NESUO BLACK ISOLATION WITH VARIO KEY (COPPER FOR NJ)	6-80-NISZ0-19D-1	
1	KG JAPANESE COMPRESS-430 NESUO BLACK ISOLATION WITH VARIO KEY (COPPER FOR NJ)	6-80-NISZ0-21D-1	
1	KG JAPANESE COMPRESS-430 NESUO BLACK ISOLATION WITH VARIO KEY (COPPER FOR NJ)	6-80-NISZ0-33E-1	
1	KG JAPANESE COMPRESS-430 NESUO BLACK ISOLATION WITH VARIO KEY (COPPER FOR NJ)	6-80-NISZ0-01D-1	
2	KG MYLAR IS LEFT TYPE 1-30W-7550V0502005-2450 NL50CU	6-40-NL5C2-011	
3	(PRE-PROCESS) TOP CASE MODULE NL50CU	6-78-NL50CU08-010	
3	(PRE-PROCESS) TOP CASE MODULE NL50CU	6-78-NL51CU02-010	
4	CONDUCTIVE CLOTH FOR TP (326*740LT) N950TF	6-47-N95T2-010	
5	PWR BOARD V2.0 NL50CU	6-77-NL5CS-D02	
6	SCREW M2X4L KI NI TCT NY (00-844.0.DT-08D)	6-35-B1120-3RD	
7	LAN BOARD V2.0 NL50CU	6-77-NL4C2-D02-A	
8	W/D 3G RUBBER PCK-240*220*1000 RUBBER PCK05E	6-47-P6502-020	
9	L/D BOARD Q03+PHONE JACK (W/LTE) V2.0 NL50CU	6-77-NL5C1-D02	
9	L/D BOARD Q03+PHONE JACK (W/D LTE) V2.0 NL50CU	6-77-NL5C1-D02-1	
10	FFC CABLE FOR POWER TO NO L-30MM 6W PITCH 45*40MM 40 NL50CU	6-43-NL5C0-031	
11	SCREW M2.5X4L (0-46.1-08D) KI NI TCT NY	6-35-B1125-4RA	
12	FFC CABLE FOR RJ TO NO L-30MM 6W PITCH 45*40MM 40 NL50CU	6-43-NL5C0-051	
13	SPR/CABLE L 1.44*23 2W 4T L50MM V1025000-03 NL50CU	6-23-SNL5C-0L0	
14	FFC CABLE FOR TP TO NO L-30MM 6W PITCH 45*40MM 40 NL50CU	6-43-NL5C0-041	
15	TP CONDUCTIVE CLOTH (63*54*0.1T) NL50CU	6-47-NL502-030	
16	FFC CABLE FOR RJ TO NO L-30MM 6W PITCH 45*40MM 40 NL50CU	6-43-NL5C0-021	
17	TAPE MYLAR TRANSPARENT (2000*400S) P1800M	6-40-P1803-020	
18	SCREW M2X4L KI NI TCT NY (00-844.5.DT-08D)	6-35-B1120-4RC	
19	IMP S 1.1 10V/250V/50W TOP CONDUCTED EPOXY/PCB CEMENT W/NO	6-87-NL40S-33GB1	
19	IMP S 1.1 10V/250V/50W PE TOP CONDUCTED EPOXY/PCB CEMENT W/NO	6-87-NL4CS-32B01	
20	HDD COMP/AV/PHONE LINE CDR FFC CABLE 95*50*3-100*50MM	6-23-FNL5C-011	
21	RUBBER POWER SILICONE (10*5*3) NL50CU	6-47-NL502-070	
22	KG MYLAR IS RIGHT TYPE 1-30W-7550V0502007-4004015D NL50CU	6-40-NL5C2-030	
23	TOP BRSS GASKET 2 (36*740LT) NL50CU	6-47-00190-369	
24	SPR/CABLE R 1.44*23 2W 4T L50MM V1025000-04 NL50CU	6-23-SNL5C-0R0	
25	W/D HDD ASS'Y NL50CU	6-79-NL50CU0J-010	
25	W/HDD ASS'Y NL50CU	6-79-NL50CU0J-020	
26	IMP/IMP BATE LINE 700 IN 100MM/50MM/50MM/50MM/50MM/50MM	6-23-7NL5C-040	
27	FFC CABLE FOR 3G TO NO L-30MM 6W PITCH 45*40MM 40 NL50CU	6-43-NL5C0-011	

Figure A - 1
Top

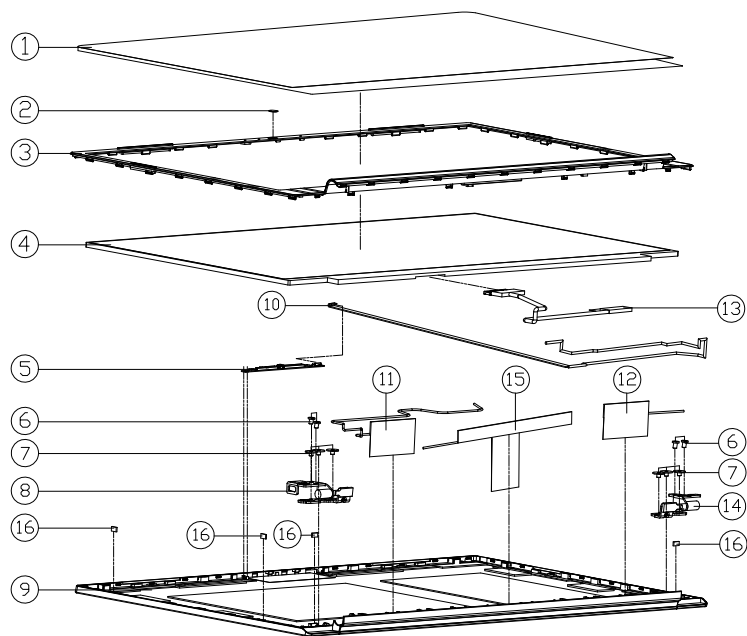
Bottom

Figure A - 2
Bottom



ITEM	PART NAME	PART NO	REMARK
1	BOTTOM CASE MODULE NL50CU	6-39-NL5C3-012	
2	SCREW M2*SL K1CT=0.8 D=3.5 BK/Z ICT NY	6-35-B6120-5RC	
3	PRODUCT LABEL FOR NL50CU	6-45-NL50CU03-010	
3	PRODUCT LABEL FOR NL51CU	6-45-NL51CU03-010	
3	PRODUCT LABEL FOR NL50ZU	6-45-NL50ZU03-010	
3	PRODUCT LABEL FOR NL51ZU	6-45-NL51ZU03-010	

LCD

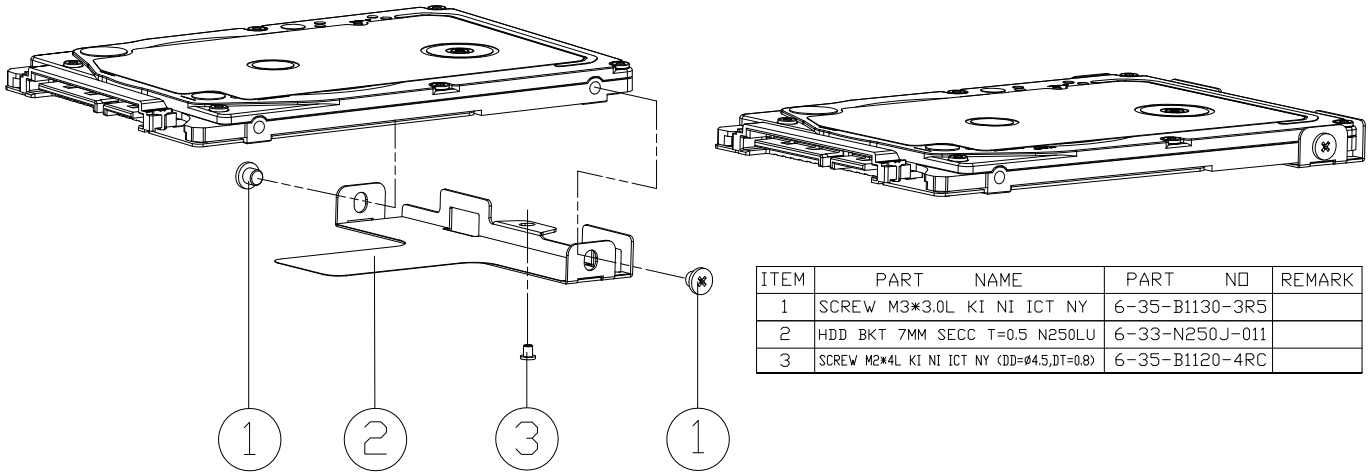


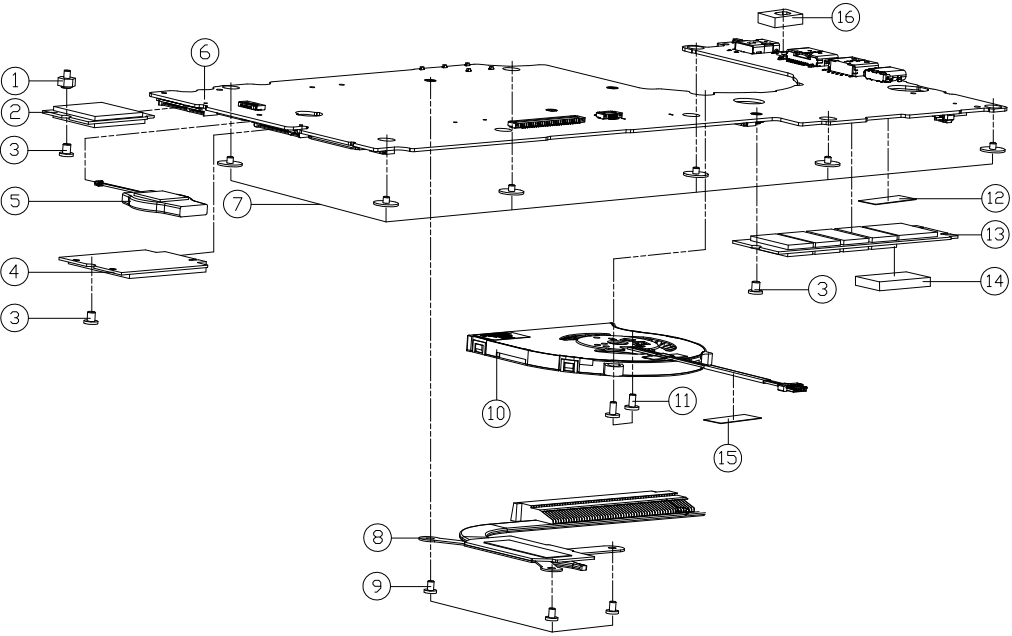
ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT MYLAR BOPP N150ZU	6-40-N15Z8-010	
2	CCD LENS PMMA (DIAMETER 36MM) (MP1) P970EN	6-42-P97N1-011-1	
3	FRONT COVER MODULE NL50GU	6-39-NL501-012	
4	LCD N156" FHD/NDN GT/EDP INNOLOX N156BGA-EA3 QLED 32 MM	6-50-L8B32-V001	
4	LCD N156" FHD/NDN GT/EDP INNOLOX N156BGA-EA3 QLED 32MM	6-50-LBB32-V002	
4	LCD N156" FHD/NDN GT/EDP LG L1P156WFC-SPB3 LED 32MM	6-50-LBB32-L015	
4	LCD N156" FHD/NDN GT/EDP BOE NT156FH1-N61 QLED 32 MM	6-50-LBB32-Z007	
5	AVC CAMERA BEZEL FRAME IMPRINTED ON IN IN DIVER BLAND TIGER WHITE LED VIB MEMORANDU UNDER WITH ITD	6-88-NL40C-4900	OPTION
5	AVC CAMERA BEZEL FRAME IMPRINTED ON IN IN DIVER BLAND TIGER WHITE LED VIB MEMORANDU UNDER WITH ITD	6-88-NL40C-5100	OPTION
5	AVC CAMERA BEZEL FRAME IMPRINTED ON IN IN DIVER BLAND TIGER WHITE LED VIB MEMORANDU UNDER WITH ITD	6-88-N15ZC-4900	OPTION
5	AVC CAMERA BEZEL FRAME IMPRINTED ON IN IN DIVER BLAND TIGER WHITE LED VIB MEMORANDU UNDER WITH ITD	6-88-N15ZC-5100	OPTION
6	.SCREW M2.5*5L KI BK/Z ICT NY	6-35-B6125-5RA	
7	SCREW M2.5*2.5L KI BK/Z ICT NY(Ø8,T=0.6)	6-35-B6125-2R5	
8	HINGE L (SK7) NL50GU	6-33-NL501-1L1	
9	BACK COVER MODULE NL50GU	6-39-NL501-022	
9	BACK COVER MODULE NL51CU	6-39-NL5C1-121	
10	CCD CABLE L=450MM 30V 8P(IN (HL) NL50CU	6-43-NL5CT-011	
11	ANTENNA IPEX4 WLAN JEN M2 PCB DR 40X5MM 2.4G/5G L= 350MM NL50CU	6-23-7NL5C-021	
12	ANTENNA IPEX4 WLAN JEN M1 PCB DR 40X5MM 2.4G/5G L= 350MM NL50CU	6-23-7NL5C-011	
13	WIRE CABLE FOR EDP 250MM 1 30V 30PIN (HL/LV COM/LV+AC/LV-PS) NL50CU	6-43-NL5C1-011-N	
14	HINGE R (SK7) NL50GU	6-33-NL501-1R1	
15	ANTENNA IPEX4 WLAN JEN M1 PCB DR 40X5MM 2.4G/5G L= 350MM NL50CU	6-23-7NL5C-031	
16	LCD RUBBER (4.8*3*1.0) NL40GU	6-47-NL401-051	

Figure A - 3
LCD

HDD

Figure A - 4
HDD





ITEM	PART NAME	PART NO	REMARK
1	SCREW M2X4.5 0.45 150 STEEL SET W/ TORX KEY (CROSSWING)	6-35-ZA120-2RS-1	
2	SCREW M2X4.5 0.45 150 STEEL SET W/ TORX KEY (CROSSWING)	6-88-P95EF-4200	OPTION
2	SCREW M2X4.5 0.45 150 STEEL SET W/ TORX KEY (CROSSWING)	6-88-N24GF-4200	OPTION
2	SCREW M2X4.5 0.45 150 STEEL SET W/ TORX KEY (CROSSWING)	6-88-N24GF-4220	OPTION
2	SCREW M2X4.5 0.45 150 STEEL SET W/ TORX KEY (CROSSWING)	6-88-N1SCF-4210	OPTION
2	SCREW M2X4.5 0.45 150 STEEL SET W/ TORX KEY (CROSSWING)	6-88-L140F-4210	OPTION
3	SCREW M2X4.5 KI NI ICT NY (OD=0.5, T=0.8)	6-35-B1120-2RA	
4	SCREW M2X4.5 KI NI ICT NY (OD=0.5, T=0.8)	6-88-N5506-8B02	OPTION
5	BAT. 2000 3V 200MH V/CABLE 500MH 1000000000	6-23-22015-TE0	
6	MAIN BOARD/PCB/BOARD VIA EP/PROCESSOR/PROCESSOR	6-77-NL50CU00-D02-3C	
6	MAIN BOARD/PCB/BOARD VIA EP/PROCESSOR/PROCESSOR	6-77-NL50CU00-D02-4B	
6	MAIN BOARD/PCB/BOARD VIA EP/PROCESSOR/PROCESSOR	6-77-NL50CU00-D02-7C	
6	MAIN BOARD/PCB/BOARD VIA EP/PROCESSOR/PROCESSOR	6-77-NL50CU00-D02-7D	
6	MAIN BOARD/PCB/BOARD VIA EP/PROCESSOR/PROCESSOR	6-77-NL50CU00-D02-8	
6	MAIN BOARD/PCB/BOARD VIA EP/PROCESSOR/PROCESSOR	6-77-NL50CU00-D02-A	
6	MAIN BOARD/PCB/BOARD VIA EP/PROCESSOR/PROCESSOR	6-77-NL50CU00-D02-BA	
6	MAIN BOARD/PCB/BOARD VIA EP/PROCESSOR/PROCESSOR	6-77-NL50CU00-D02-3A	
6	MAIN BOARD/PCB/BOARD VIA EP/PROCESSOR/PROCESSOR	6-77-NL50CU00-D02-3B	
6	MAIN BOARD/PCB/BOARD VIA EP/PROCESSOR/PROCESSOR	6-77-NL50CU00-D02-4A	
6	MAIN BOARD/PCB/BOARD VIA EP/PROCESSOR/PROCESSOR	6-77-NL50CU00-D02-7A	
6	MAIN BOARD/PCB/BOARD VIA EP/PROCESSOR/PROCESSOR	6-77-NL50CU00-D02-7C	
7	SCREW M2X4.5 KI NI ICT NY (OD=0.5, T=0.8)	6-35-B6120-2RE	
8	CPU HEAT SINK MODULE NL40CU	6-31-NL4CN-101	
9	SCREW M2X4.5 KI NI ICT NY (OD=0.5, T=0.8)	6-31-B1120-3RD	
10	FAN MODULE (70MM) PWM NL41VU	6-31-N14VS-102-1	
11	SCREW M2X4.5 KI NI ICT NY (OD=0.5, T=0.8)	6-35-B1120-4RC	
12	TAPE MYLAR (C) MYLAR M550J	6-40-M55J2-030	
13	SCREW M2X4.5 KI NI ICT NY (OD=0.5, T=0.8)	6-85-D511T-S04	OPTION
13	SCREW M2X4.5 KI NI ICT NY (OD=0.5, T=0.8)	6-85-D515B-W01	OPTION
13	SCREW M2X4.5 KI NI ICT NY (OD=0.5, T=0.8)	6-85-D516C-H04	OPTION
13	SCREW M2X4.5 KI NI ICT NY (OD=0.5, T=0.8)	6-85-D516C-K00	OPTION
13	SCREW M2X4.5 KI NI ICT NY (OD=0.5, T=0.8)	6-85-D516C-H03	OPTION
13	SCREW M2X4.5 KI NI ICT NY (OD=0.5, T=0.8)	6-85-D516C-H05	OPTION
13	SCREW M2X4.5 KI NI ICT NY (OD=0.5, T=0.8)	6-85-D516C-Z04	OPTION
13	SCREW M2X4.5 KI NI ICT NY (OD=0.5, T=0.8)	6-85-D515B-S0A	OPTION
14	HEAT SINK FOR PC SSD THERMAL 3000000 NL50U	6-48-NL5CS-010	
15	TAPE MYLAR TRANSPARENT (CROSSWING) P1000	6-40-P1803-020	
16	SPONGE COMPOSITE FOR DC LEADS DS-15 NL40U	6-47-0019A-A14	

Figure A - 5
MB

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *NL50CU* / *NL51CU* notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

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Processor 1/12 - Page B - 3	USB / DP MUX ANX7440 - Page B - 19	Power PD Function - Page B - 35
Processor 2/12 - Page B - 4	ANX7411, Type-C - Page B - 20	VCore - Page B - 36
Processor 3/12 - Page B - 5	ASM1543 - Page B - 21	VCCIN, VCCGT, VCCSA - Page B - 37
Processor 4/12 - Page B - 6	LED KB, LED - Page B - 22	VCCIO, 2.5V - Page B - 38
Processor 5/12 - Page B - 7	SATA HDD, TPM - Page B - 23	Charger, AC IN - Page B - 39
Processor 6/12 - Page B - 8	Audio Codec - Page B - 24	RTL8411B - Page B - 40
Processor 7/12 - Page B - 9	KBC ITE IT5570 - Page B - 25	14" I/O Board - Page B - 41
Processor 8/12 - Page B - 10	WLAN - Page B - 26	15" I/O Board-1 - Page B - 42
Processor 9/12 - Page B - 11	M Key PCIE SSD - Page B - 27	15" I/O Board-2 - Page B - 43
Processor 10/12 - Page B - 12	3G/LTE - Page B - 28	Power Button Board - Page B - 44
Processor 11/12 - Page B - 13	USB Type-A - Page B - 29	
Processor 12/12 - Page B - 14	Conn, CCD, Fan, TP - Page B - 30	
DDR4 SO-DIMM_0 - Page B - 15	3V, 5V, 3VS, 5VS, 1.8V, 1.5VS - Page B - 31	
DDR4 SO-DIMM_1 - Page B - 16	VDD3, VDD5 - Page B - 32	
HDMI - Page B - 17	1.05VA, VCCST, VCCSTG - Page B - 33	

Table B - 1
**SCHEMATIC
DIAGRAMS**

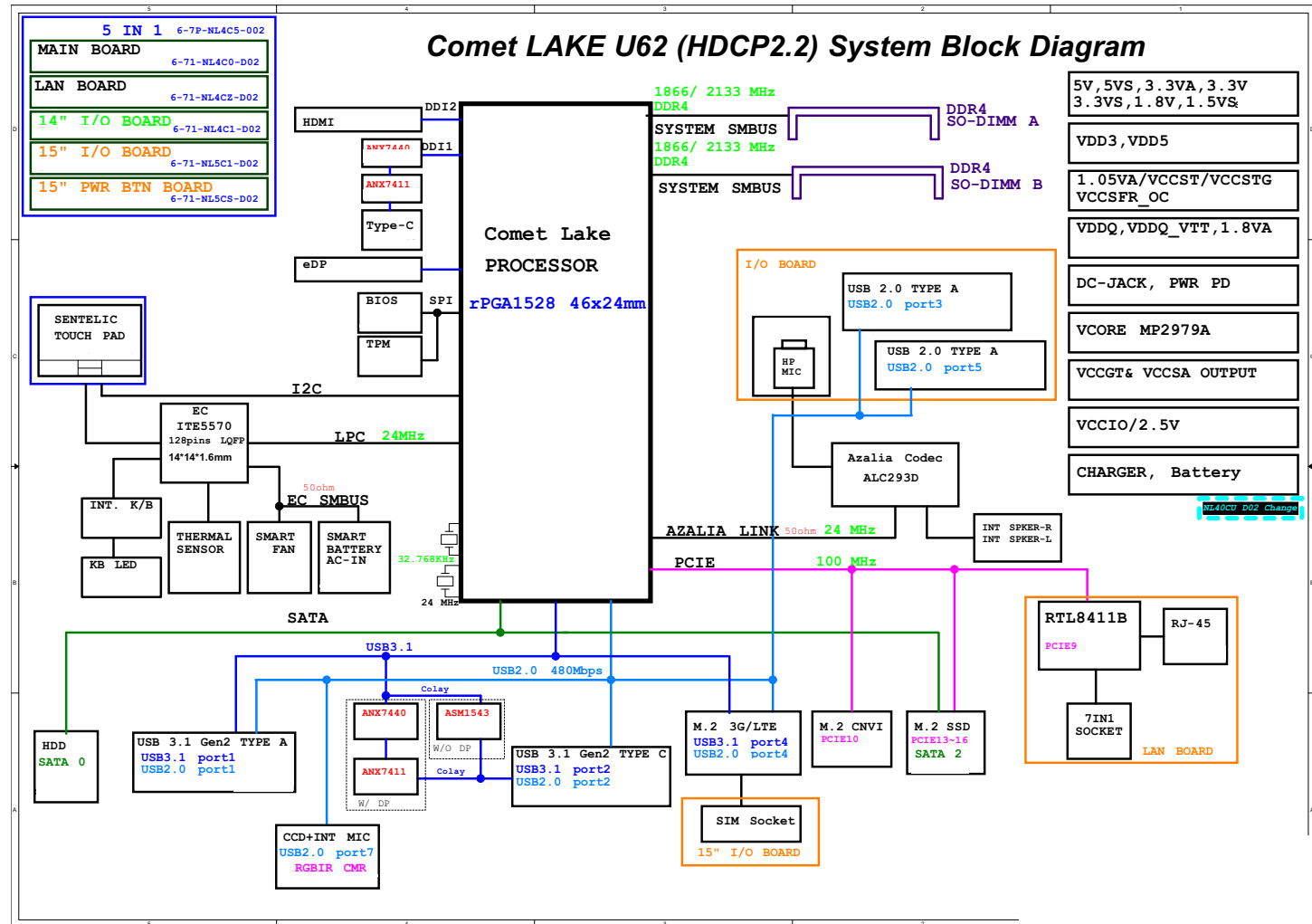


Version Note

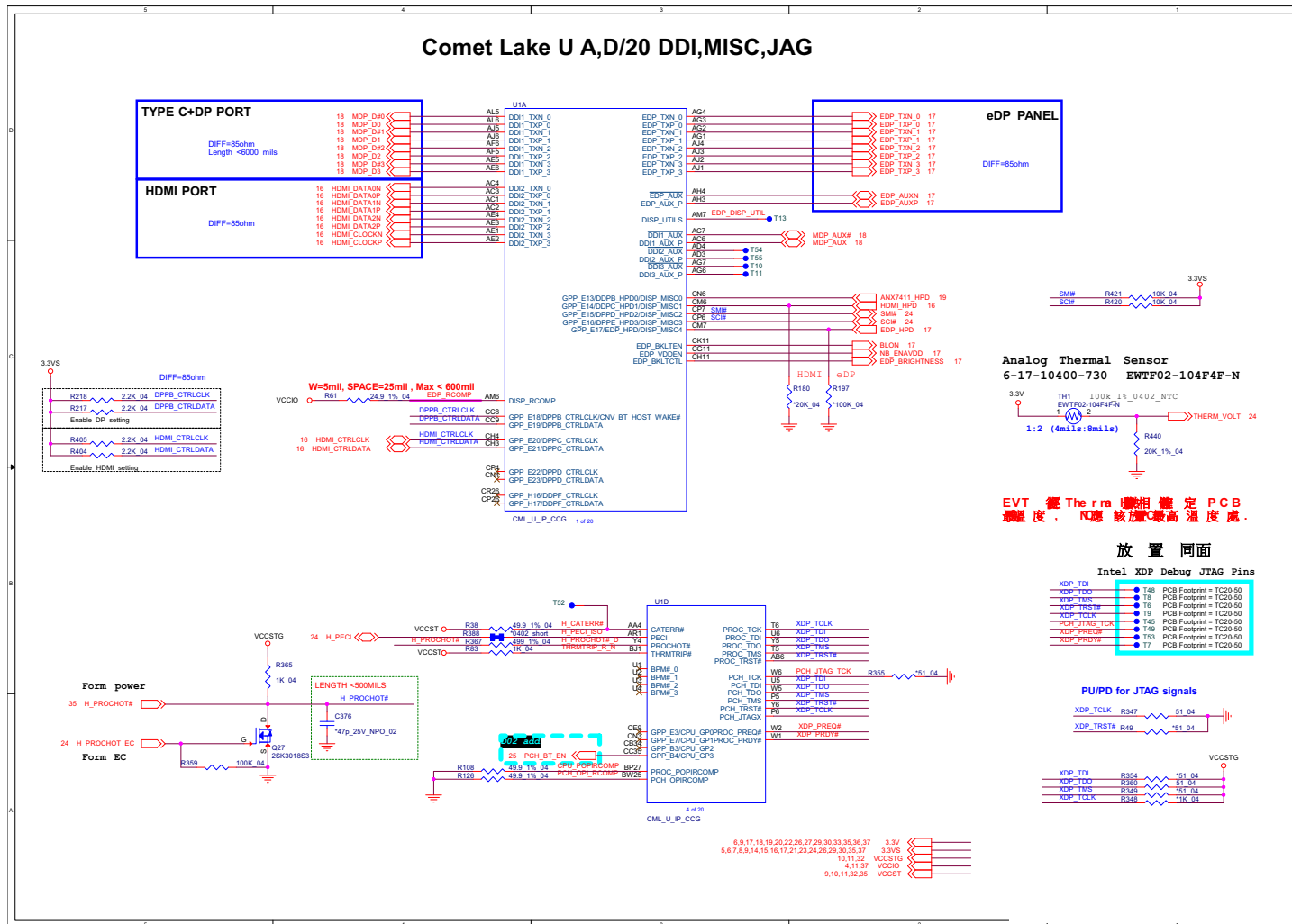
The schematic diagrams in this chapter are based upon version 6-7P-NL4C5-002. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

System Block Diagram

Sheet 1 of 43
System Block
Diagram

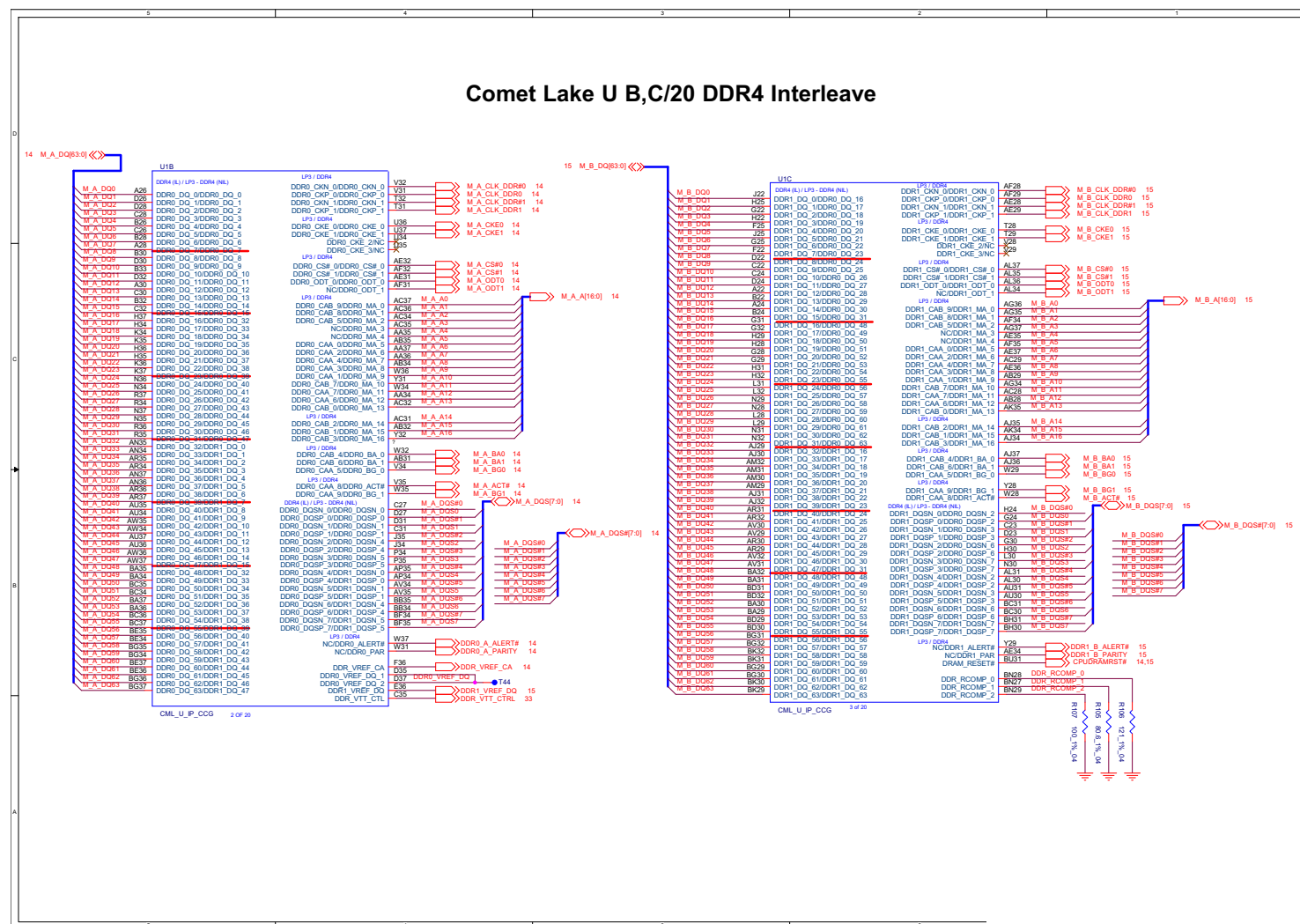


Processor 1/12

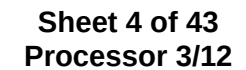
Sheet 2 of 43
Processor 1/12

Processor 2/12

Sheet 3 of 43
Processor 2/12

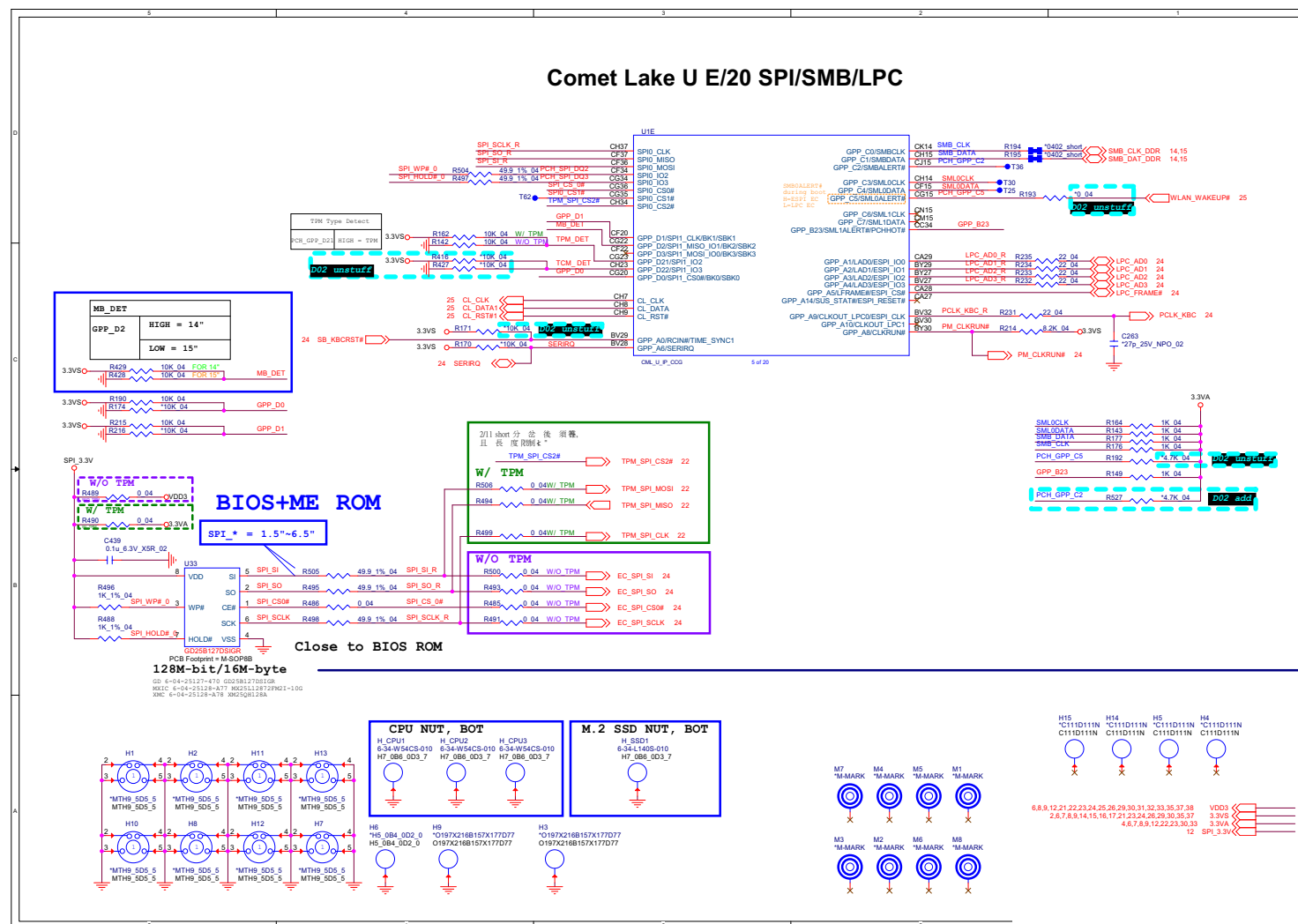


Processor 3/12 B - 5

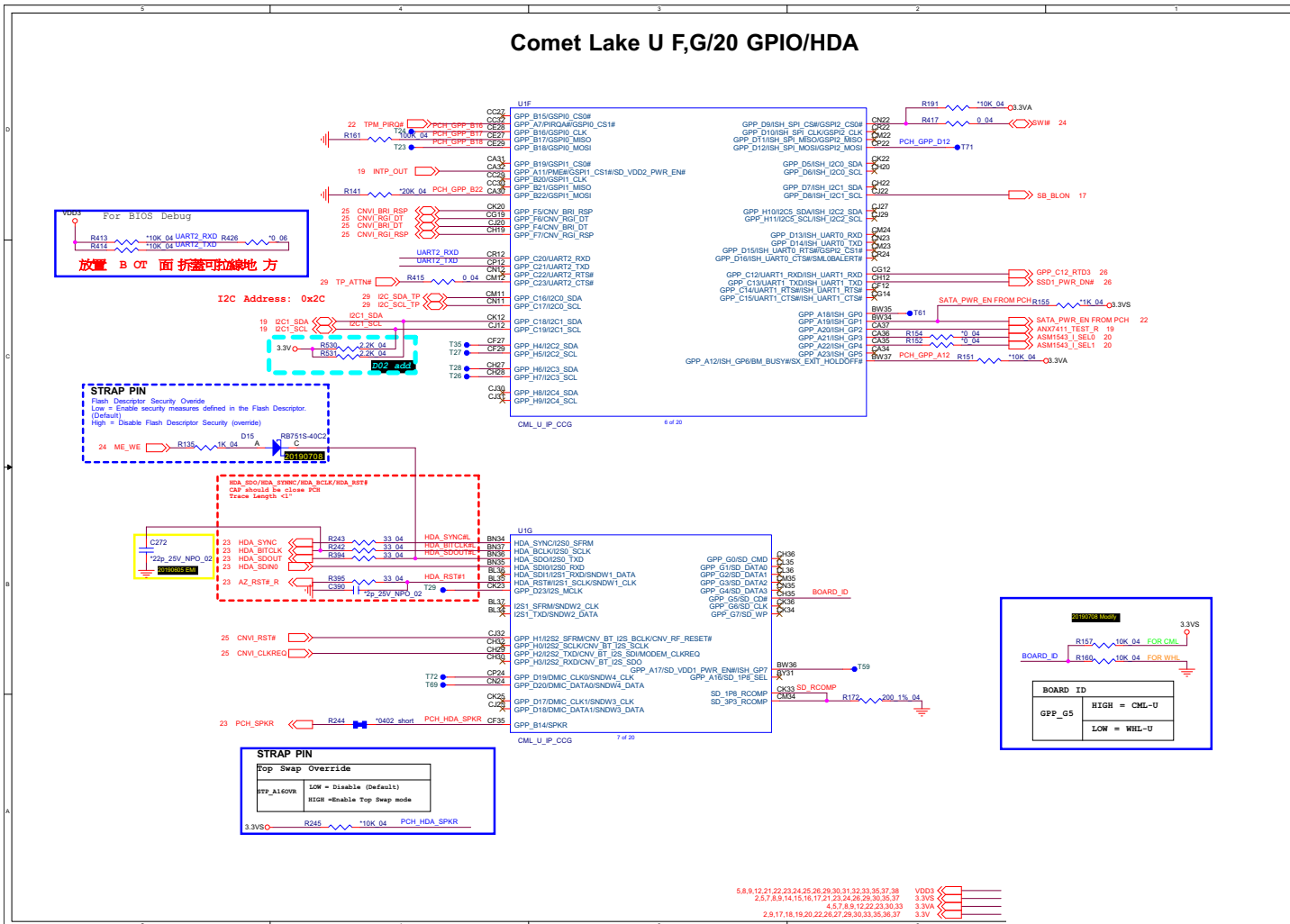


Processor 4/12

Sheet 5 of 43
Processor 4/12

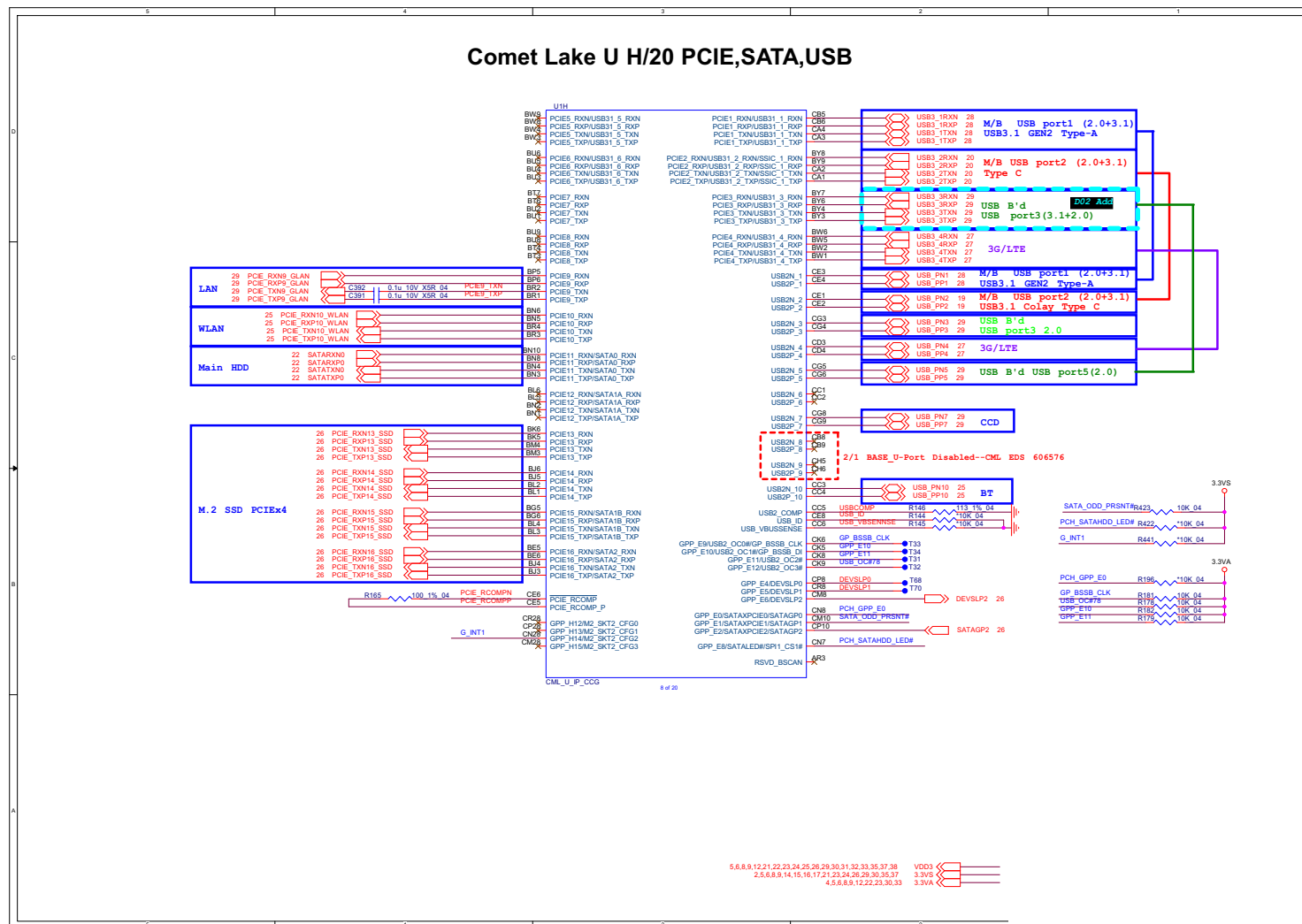


Processor 5/12

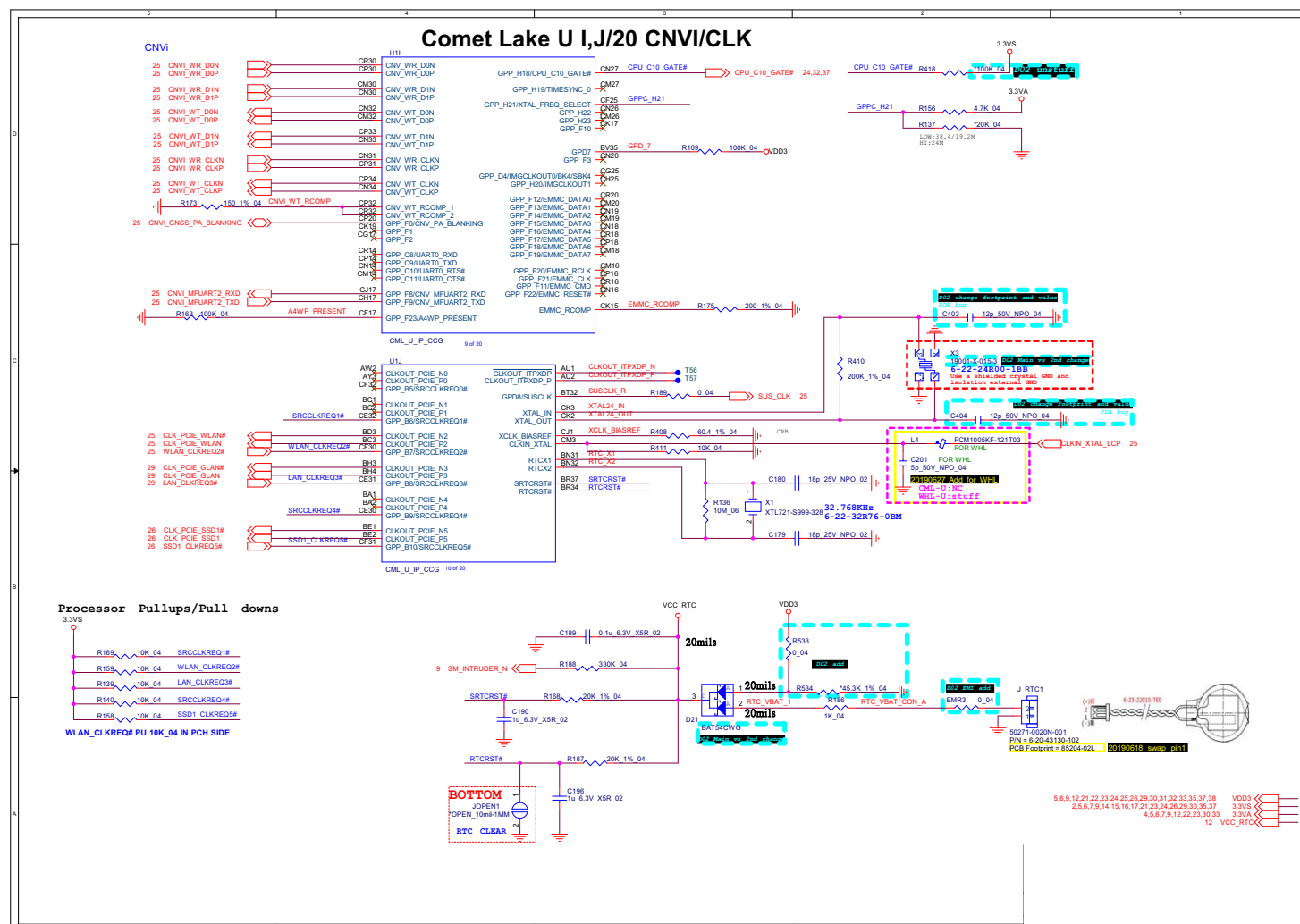
Sheet 6 of 43
Processor 5/12

Processor 6/12

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Processor 6/12

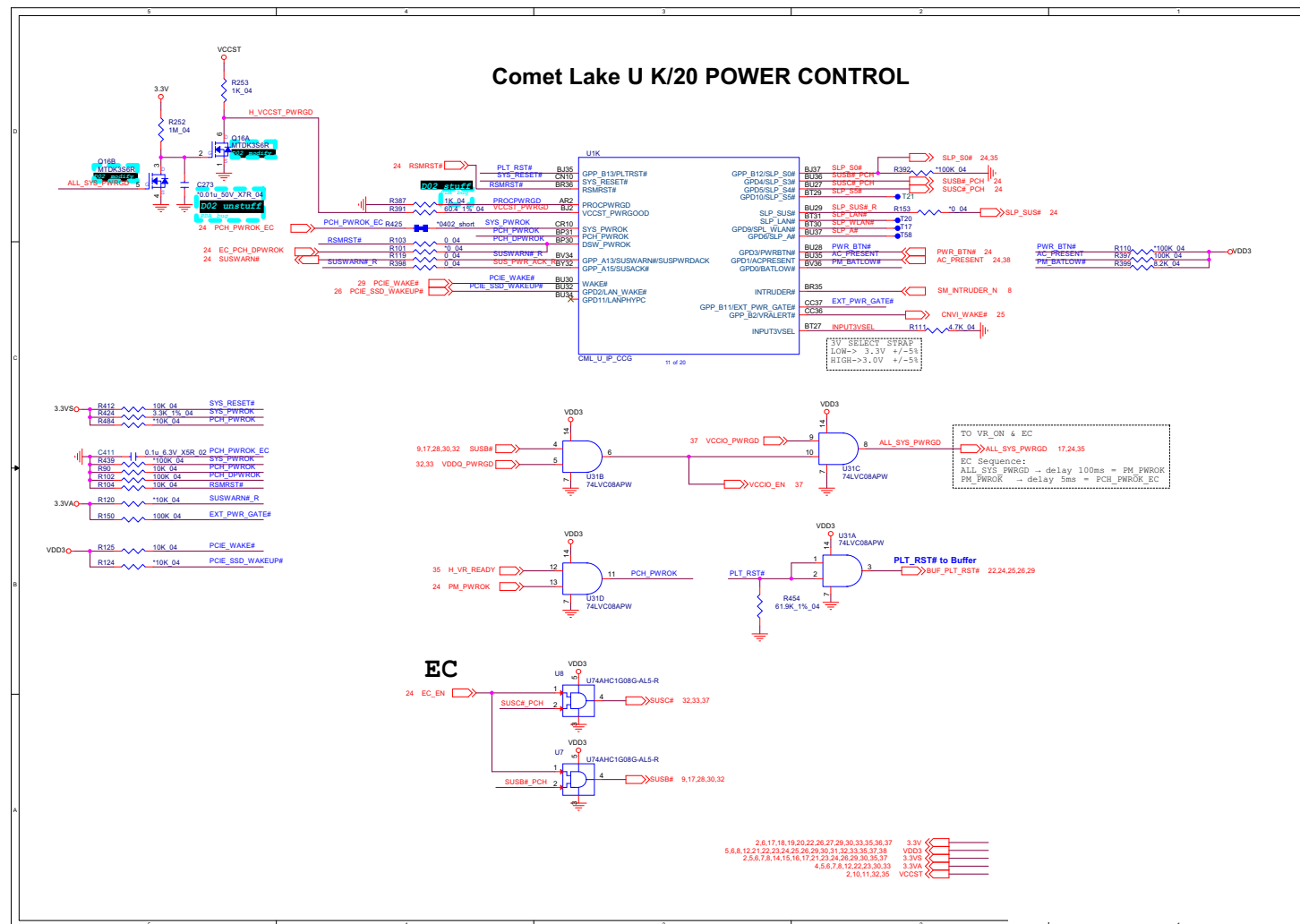


Processor 7/12 B - 9

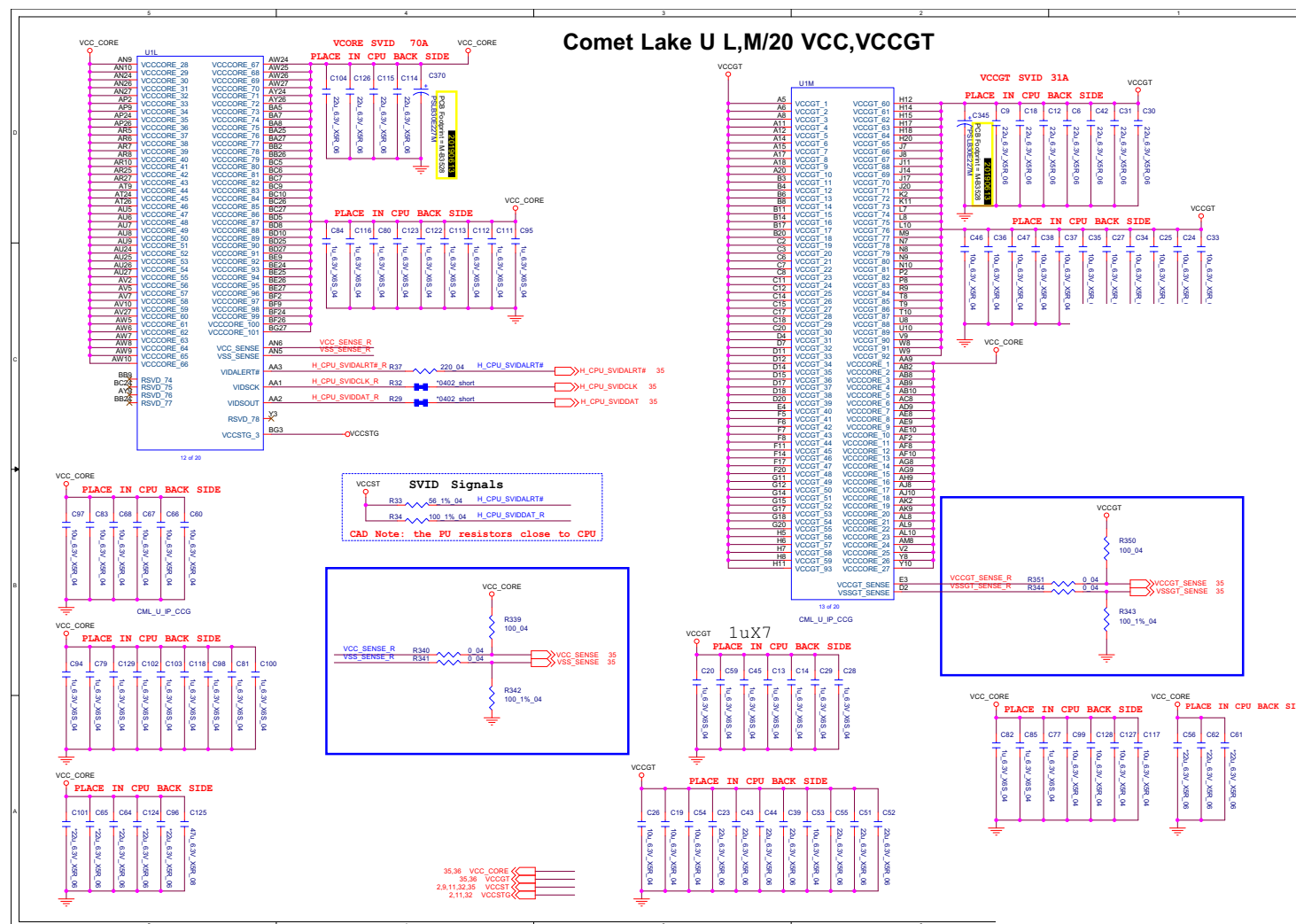


Processor 8/12

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Processor 8/12

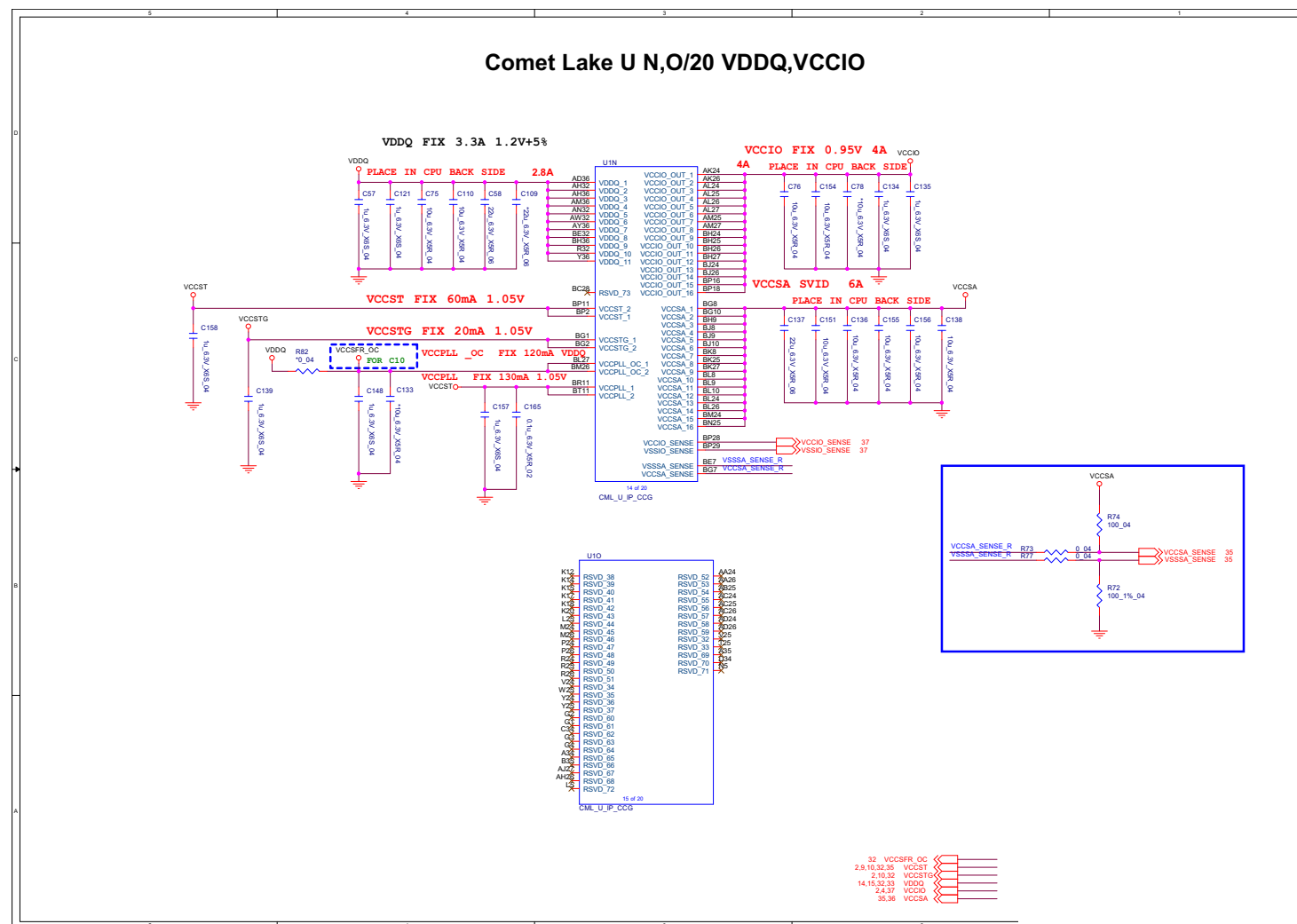


Processor 9/12 B - 11



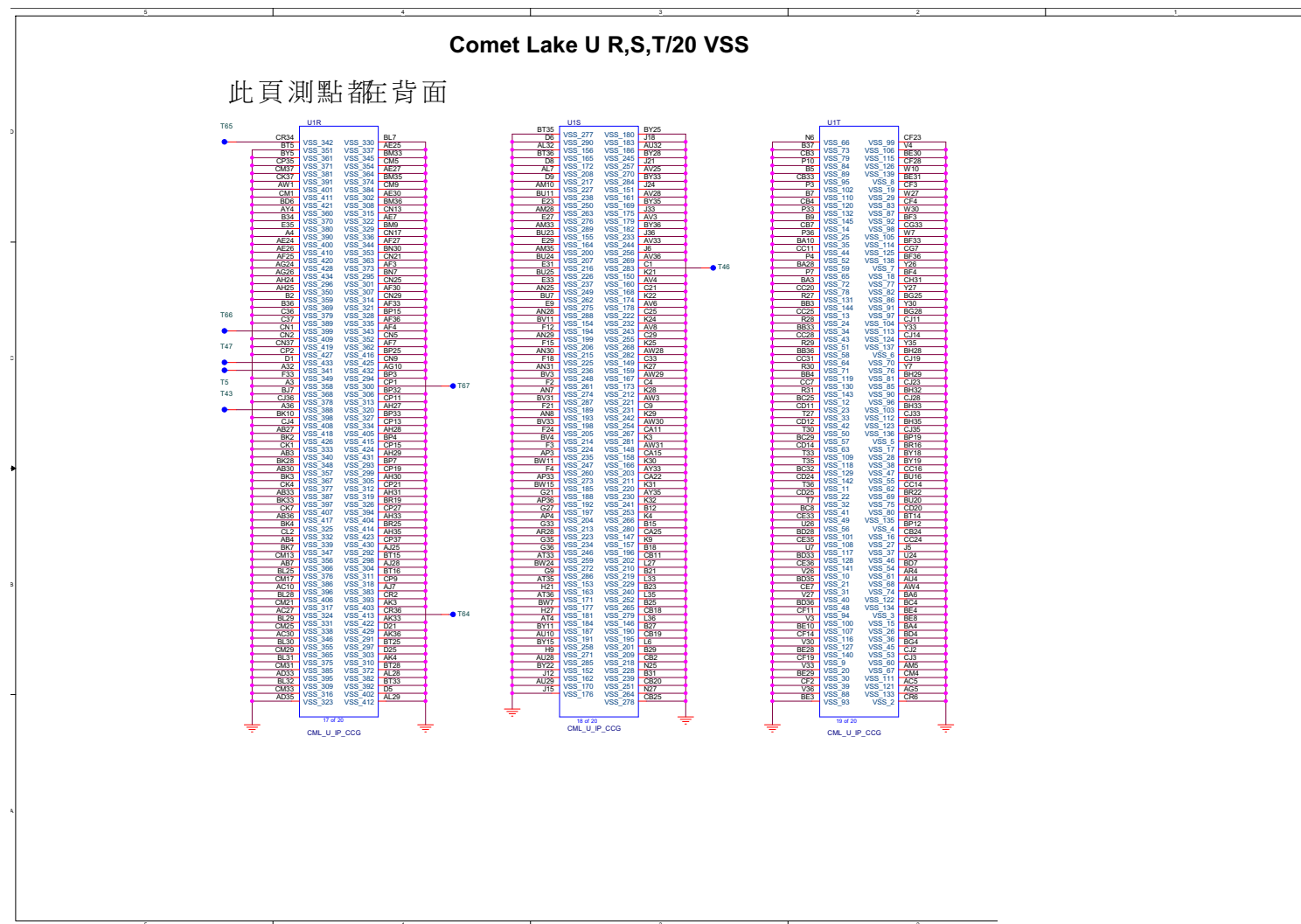
Processor 10/12

Sheet 11 of 43
Processor 10/12

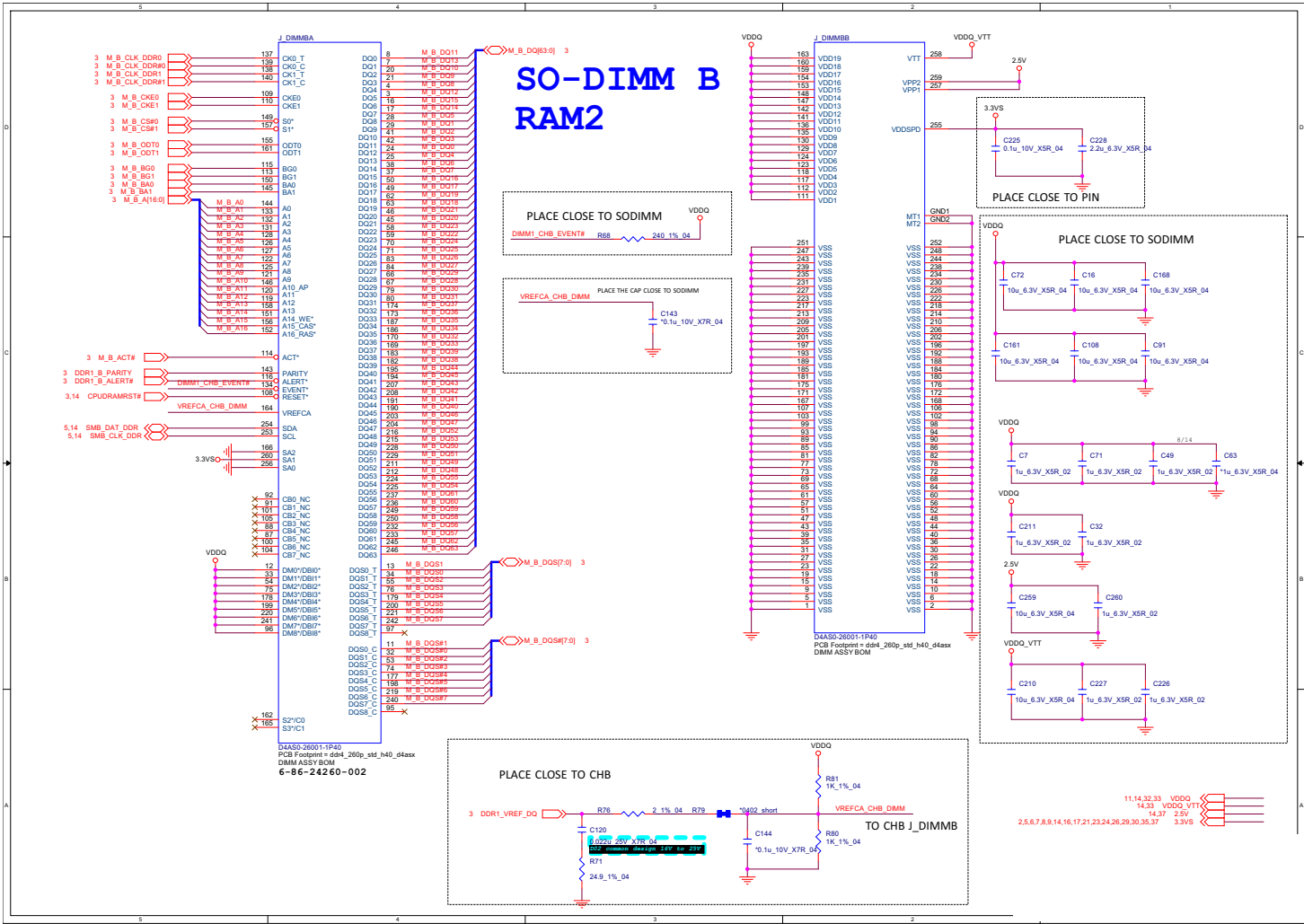


Processor 12/12

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Processor 12/12

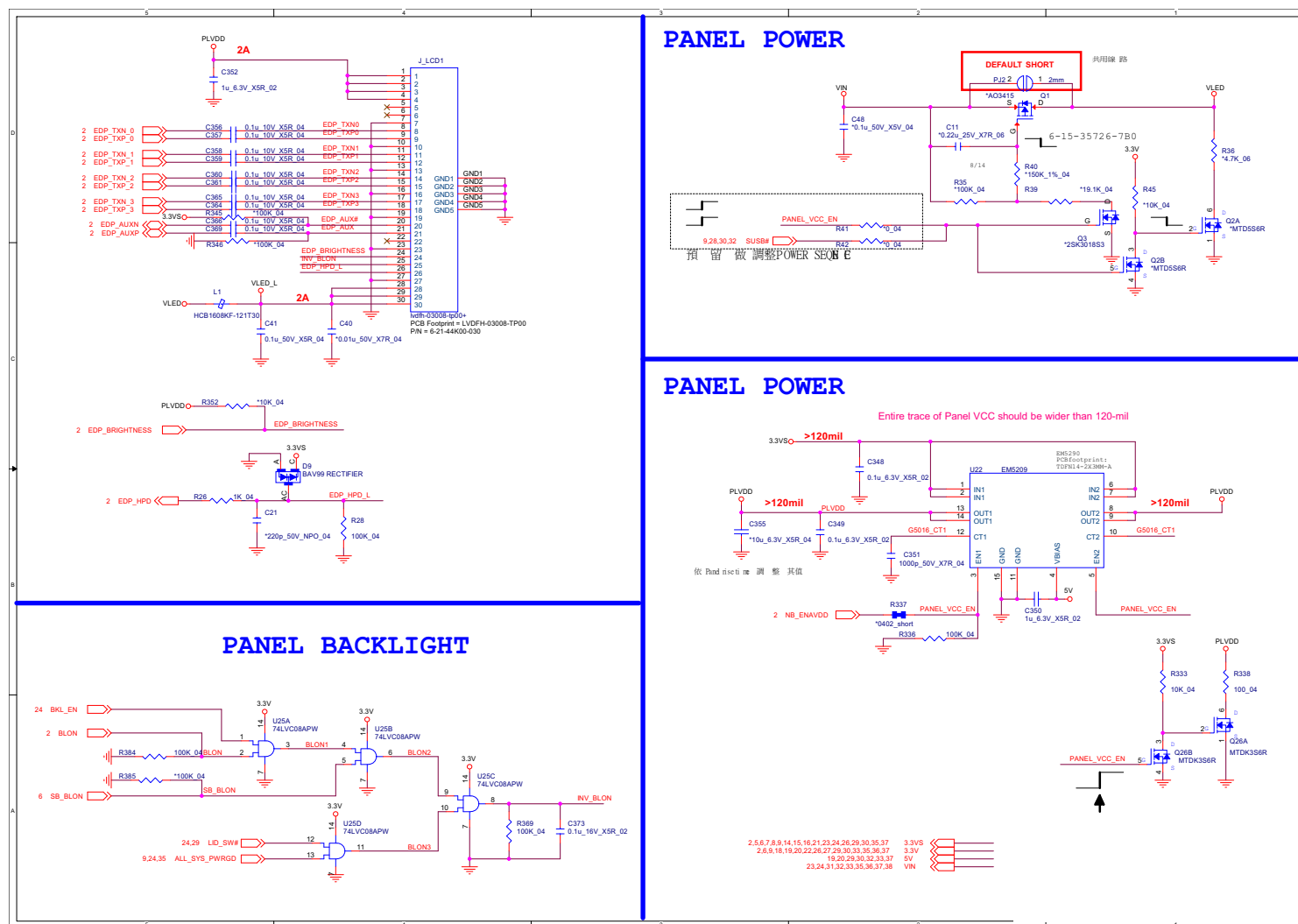


DDR4 SO-DIMM 1





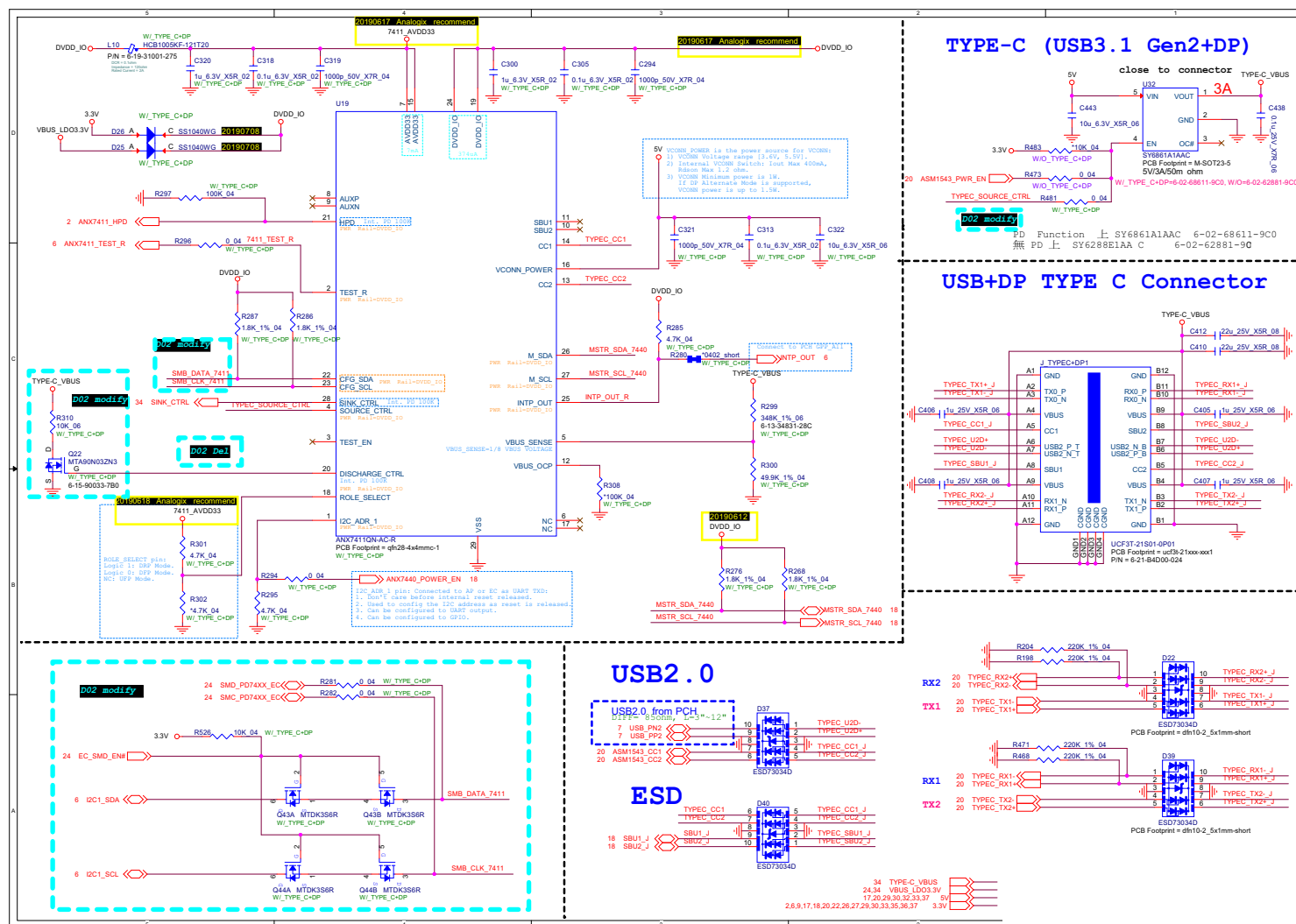
Sheet 17 of 43
Panel



ANX7411, Type-C

B. Schematic Diagrams

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ANX7411, Type-C



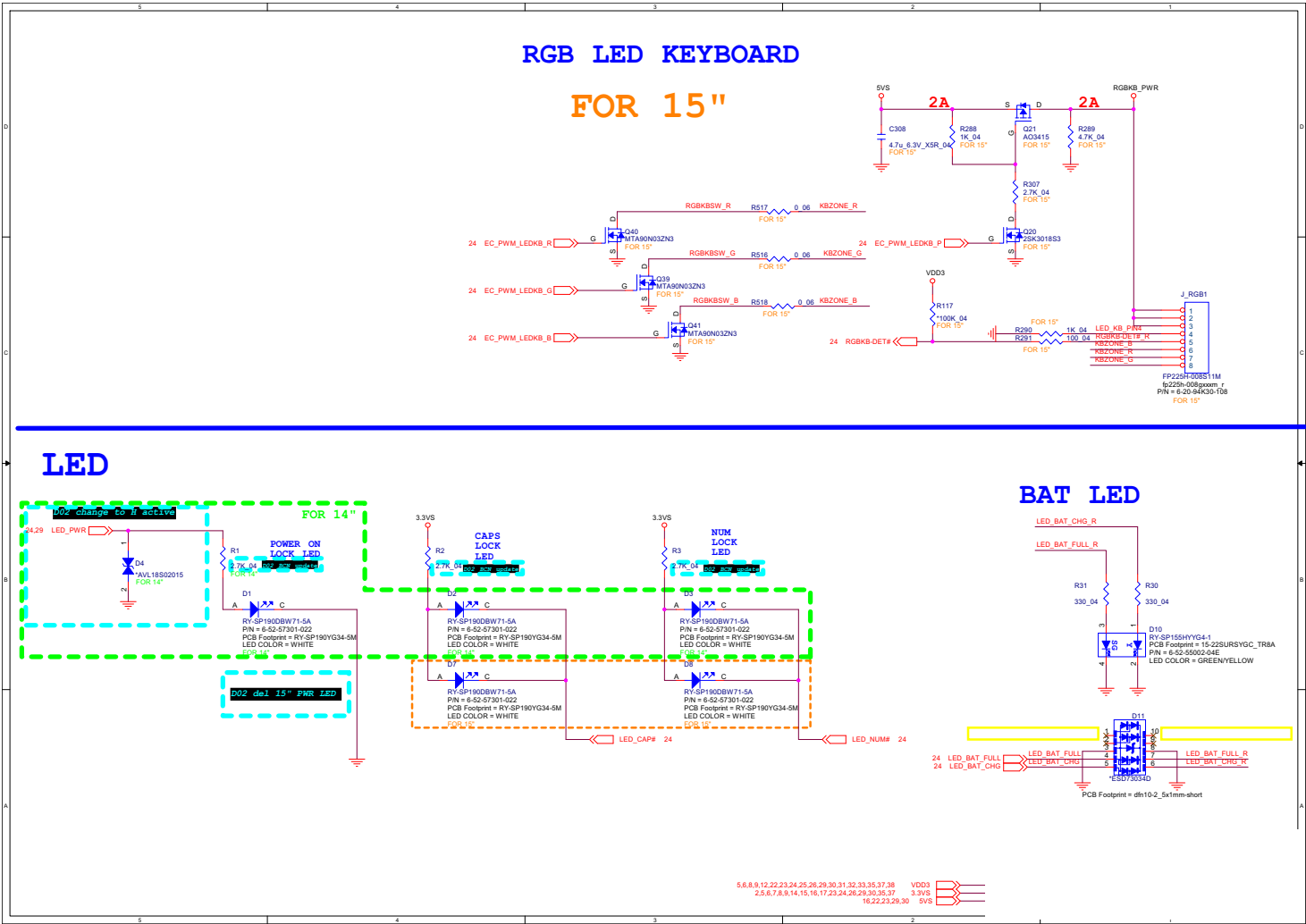
Sheet 20 of 43
ASM1543



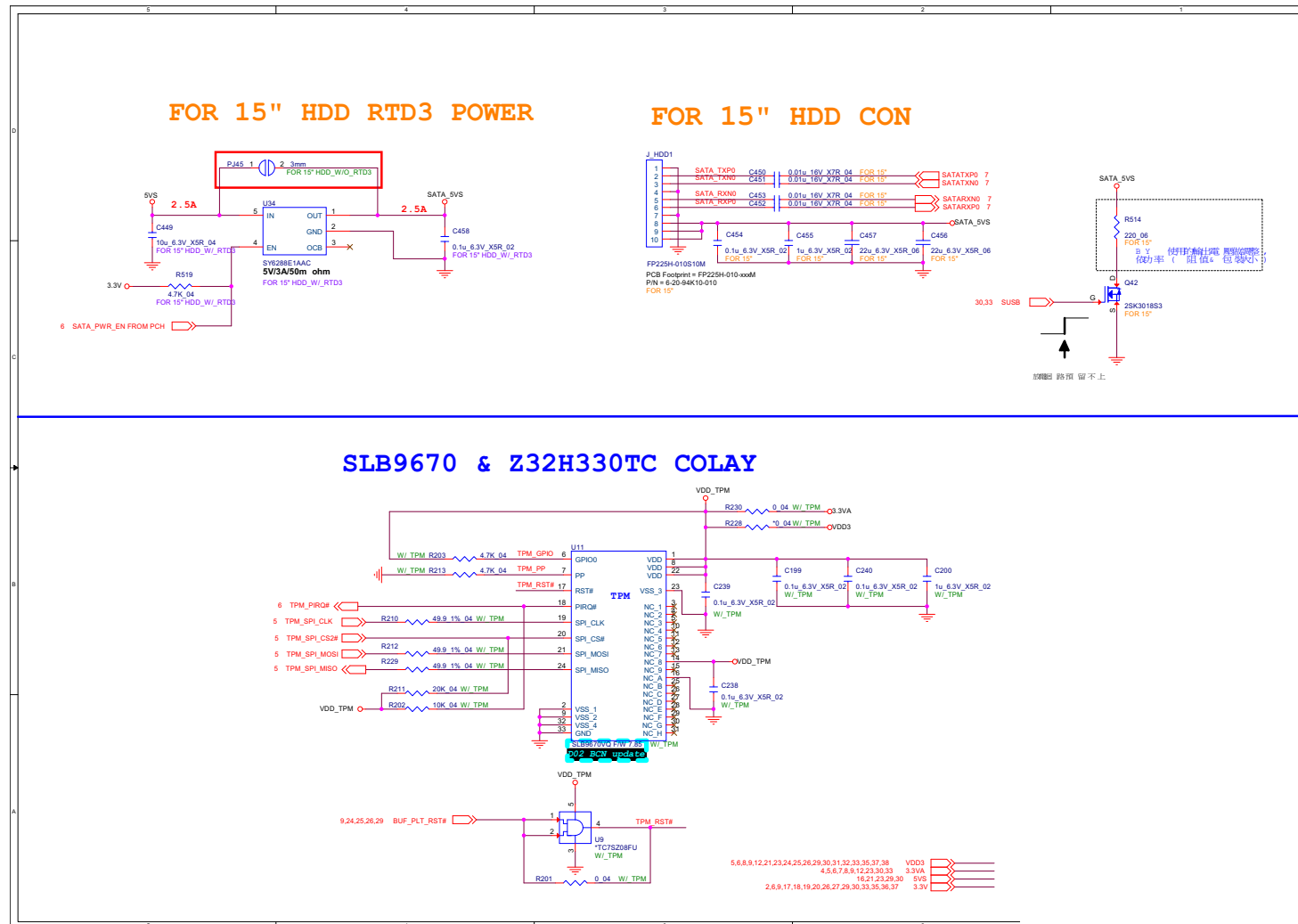
Schematic Diagrams

LED KB, LED

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LED KB, LED



SATA HDD, TPM

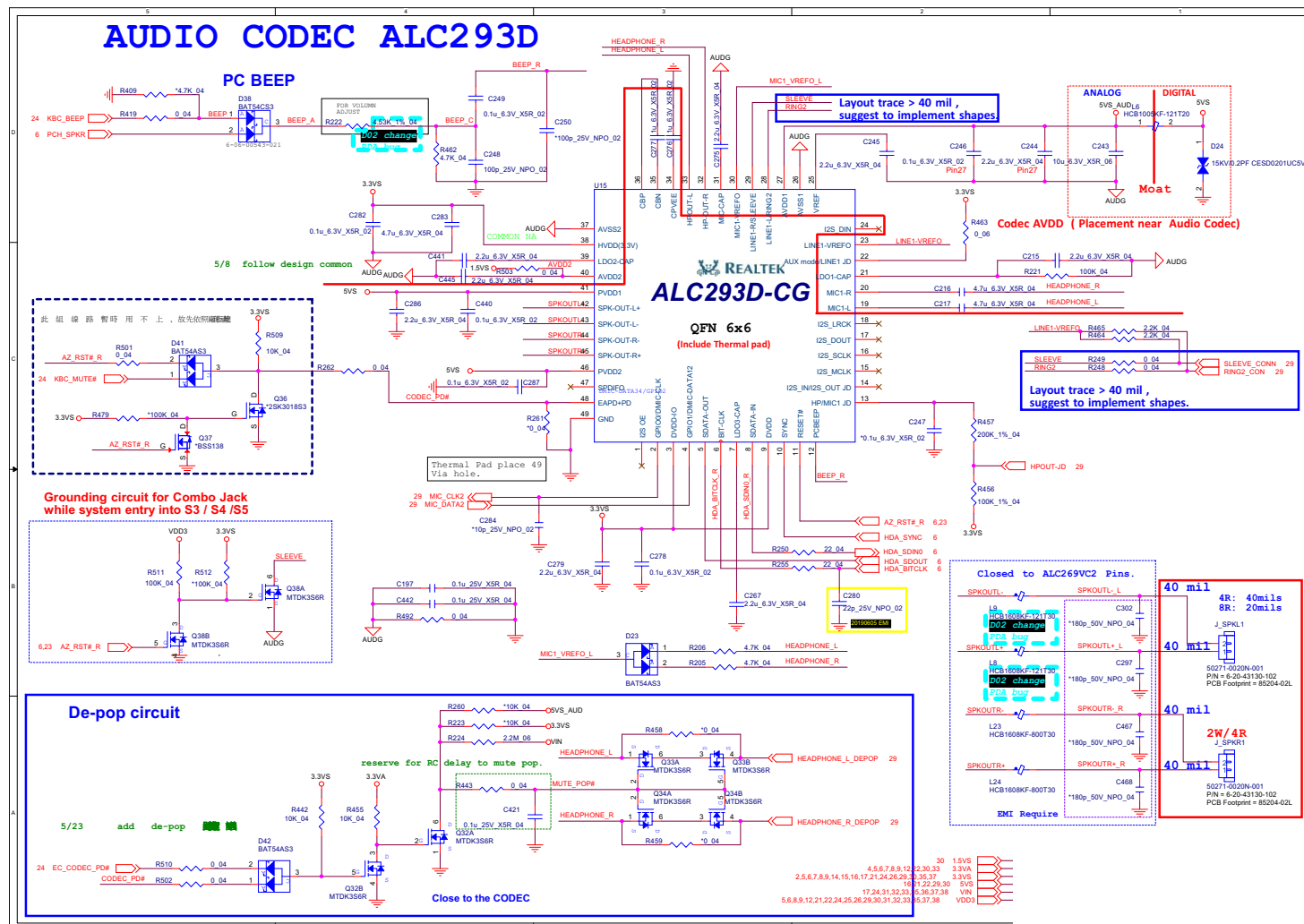


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SATA HDD, TPM

Audio Codec

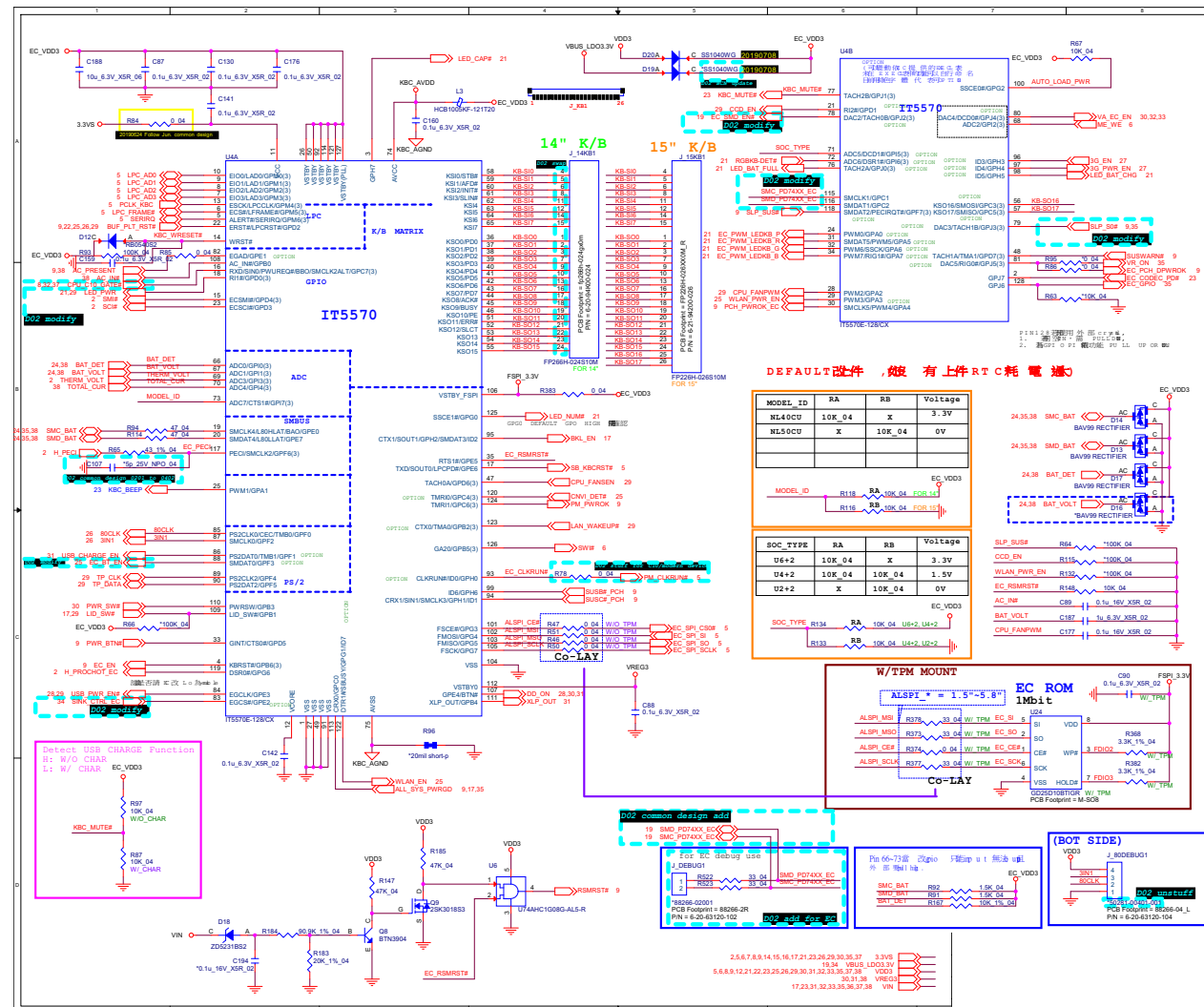
B. Schematic Diagrams

Sheet 23 of 43
Audio Codec



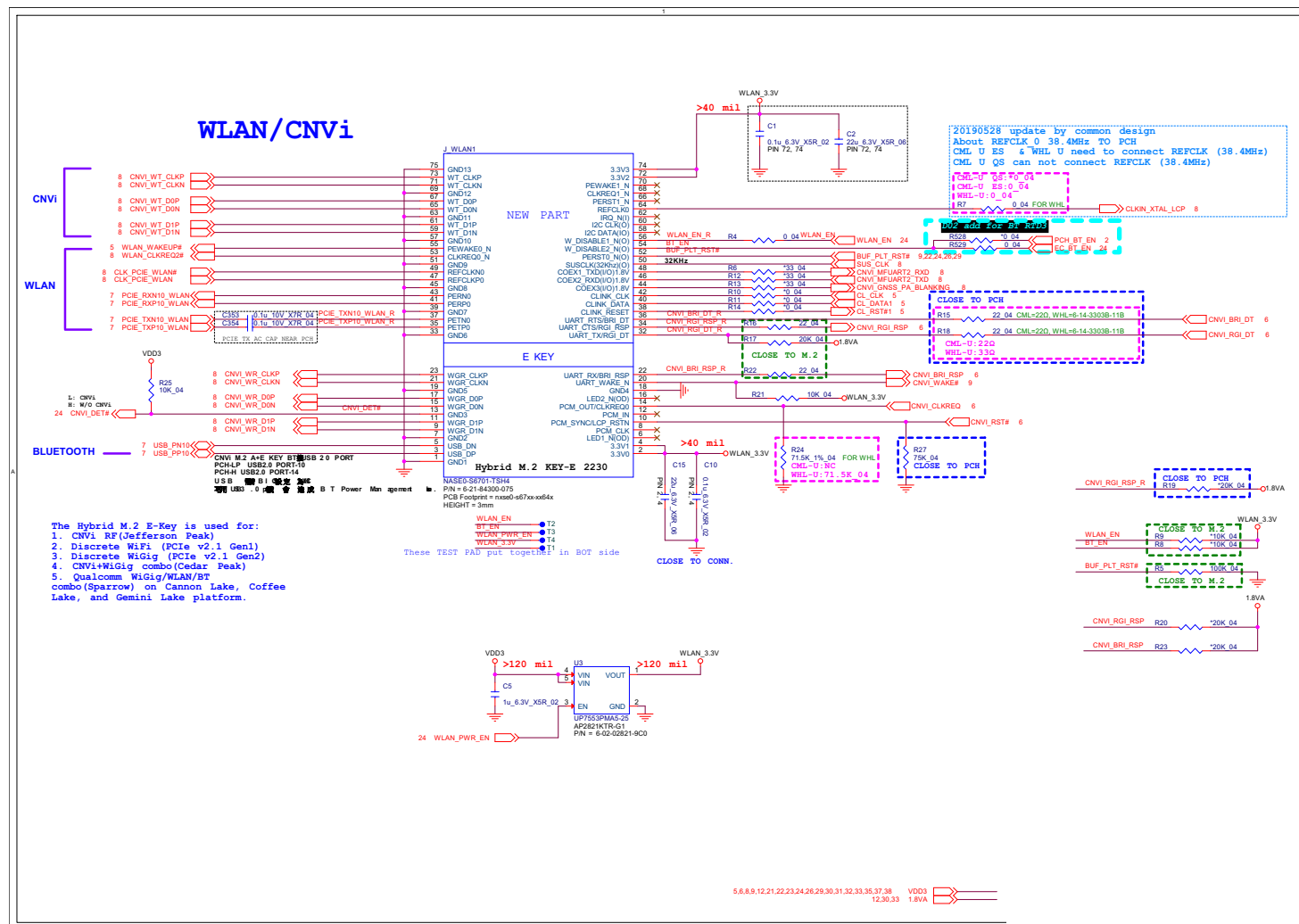
KBC ITE IT5570 B - 25

B.Schematic Diagrams

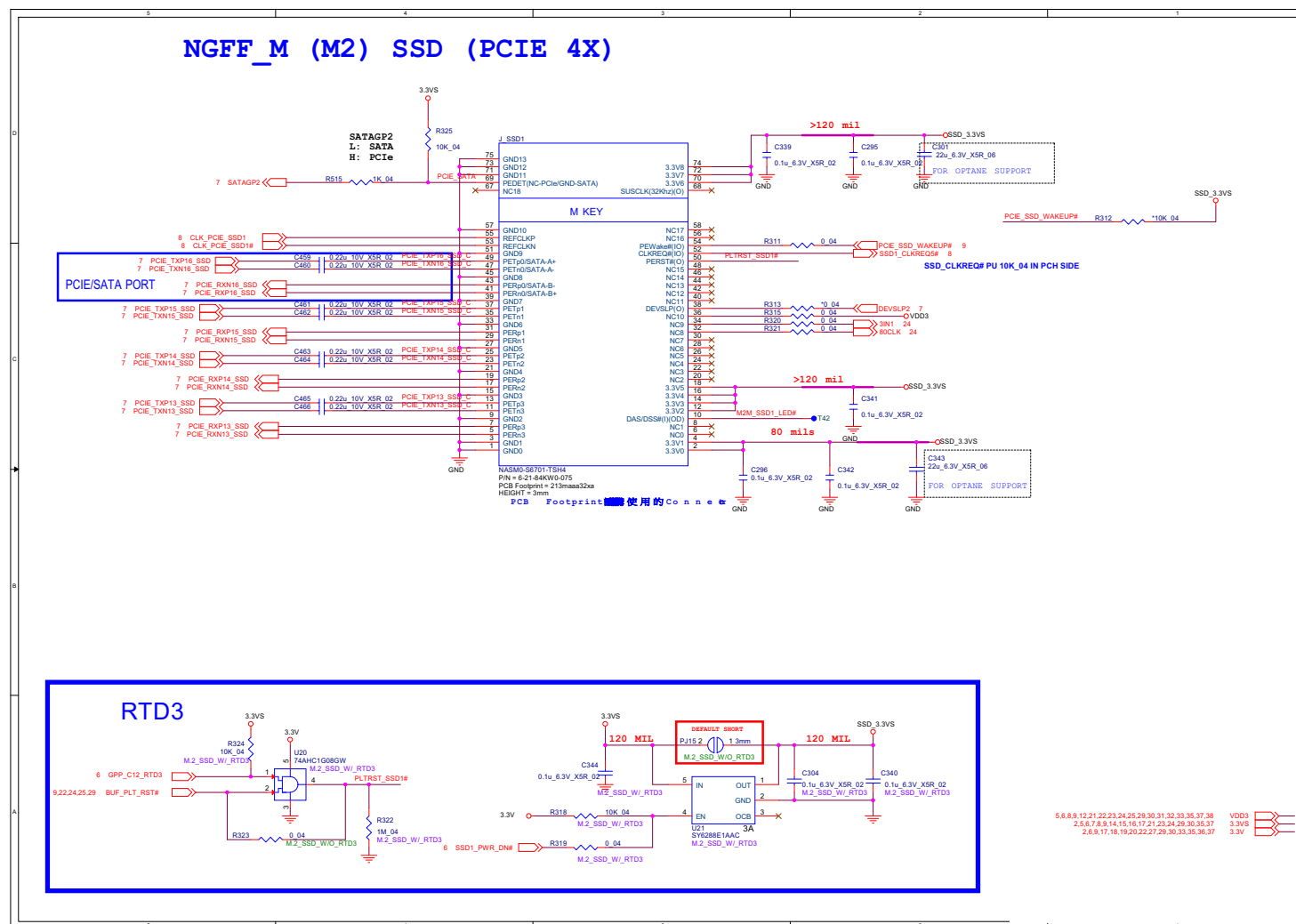


WLAN

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WLAN

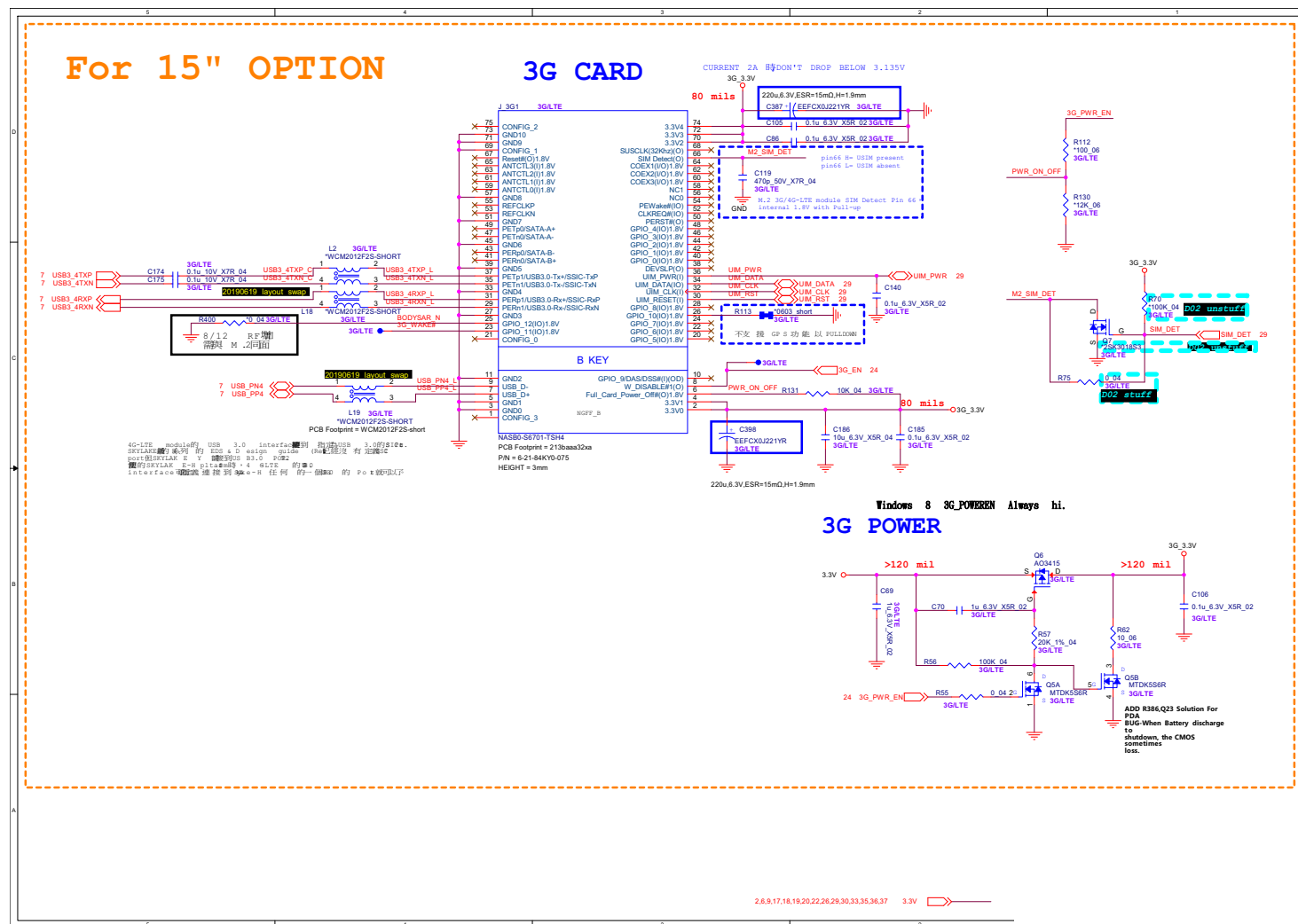


M Key PCIe SSD B - 27



3G/LTE

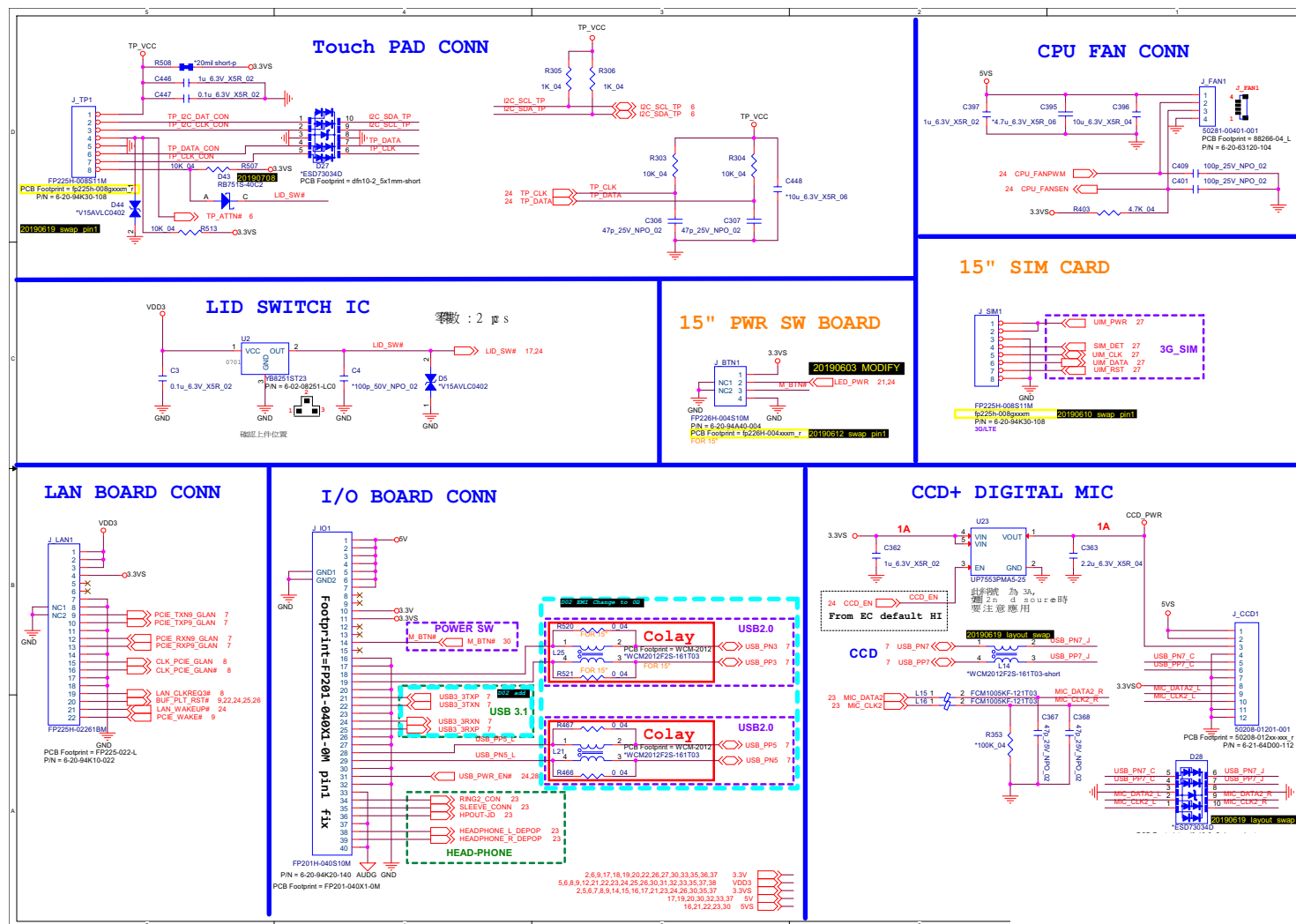
Sheet 27 of 43
3G/LTE



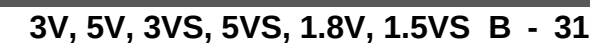
USB Type-A B - 29



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Conn, CCD, Fan, TP



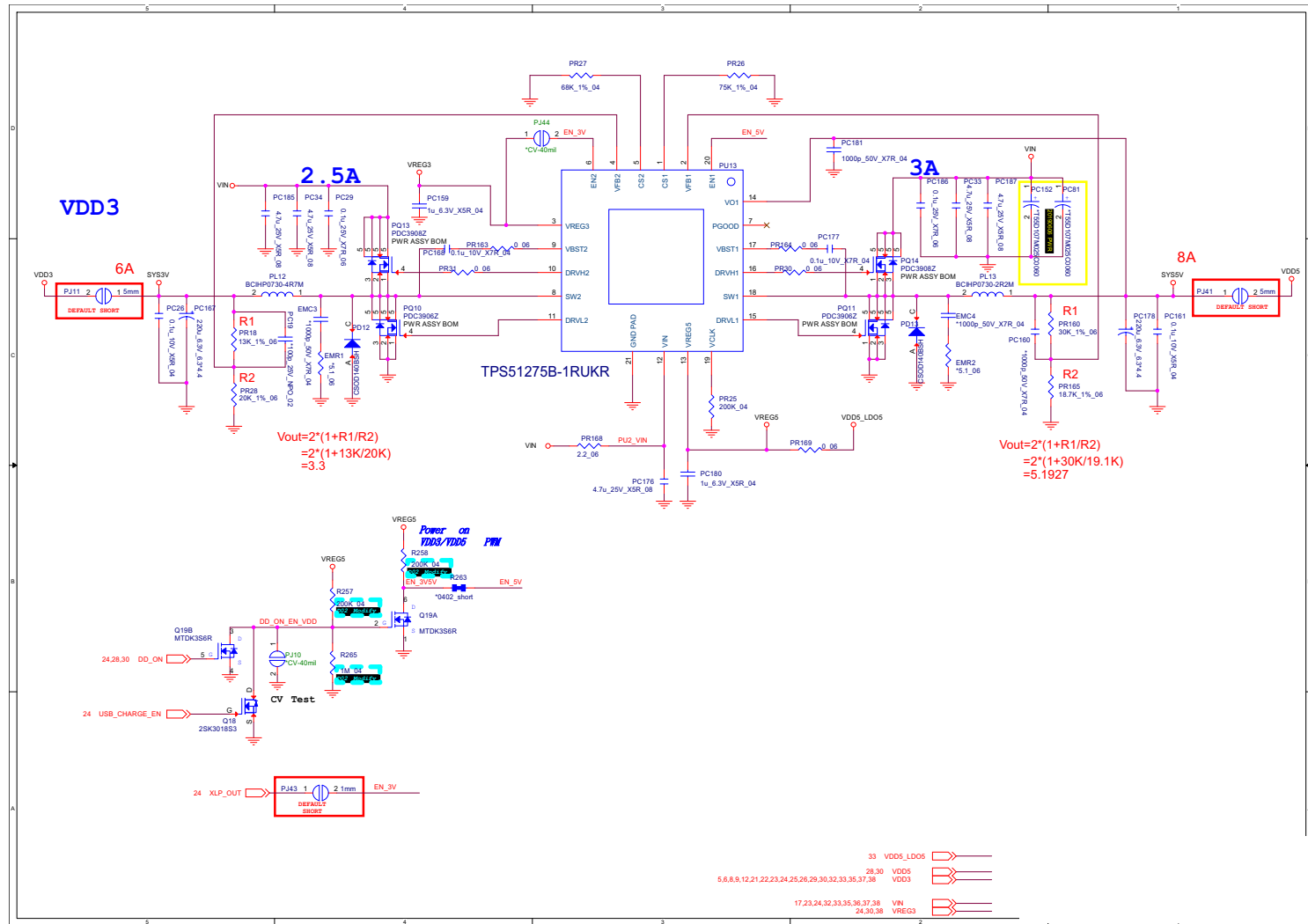
Sheet 30 of 43
3V, 5V, 3VS, 5VS,
1.8V, 1.5VS



Schematic Diagrams

VDD3, VDD5

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VDD3, VDD5



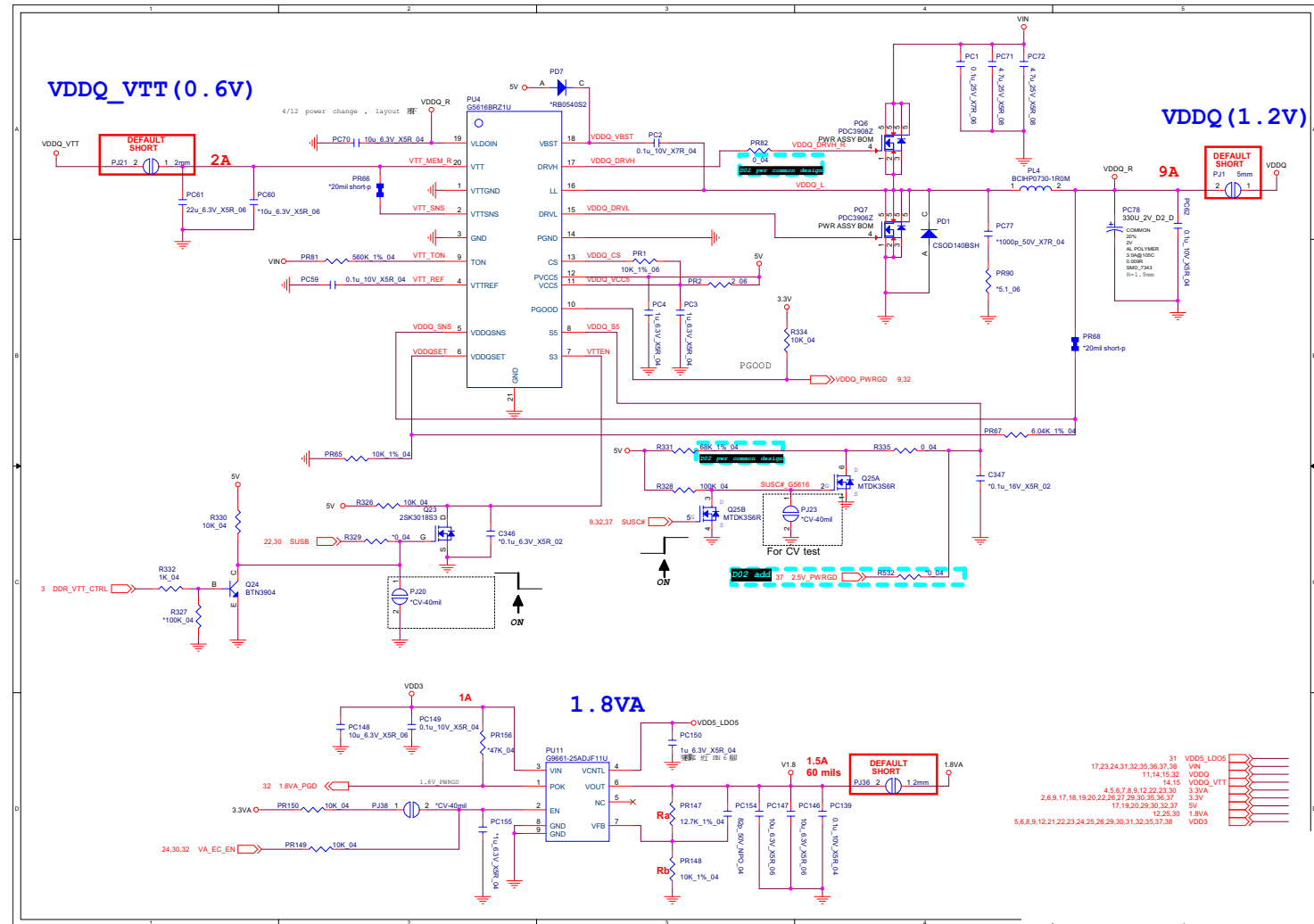
Sheet 32 of 43
1.05VA, VCCST,
VCCSTG



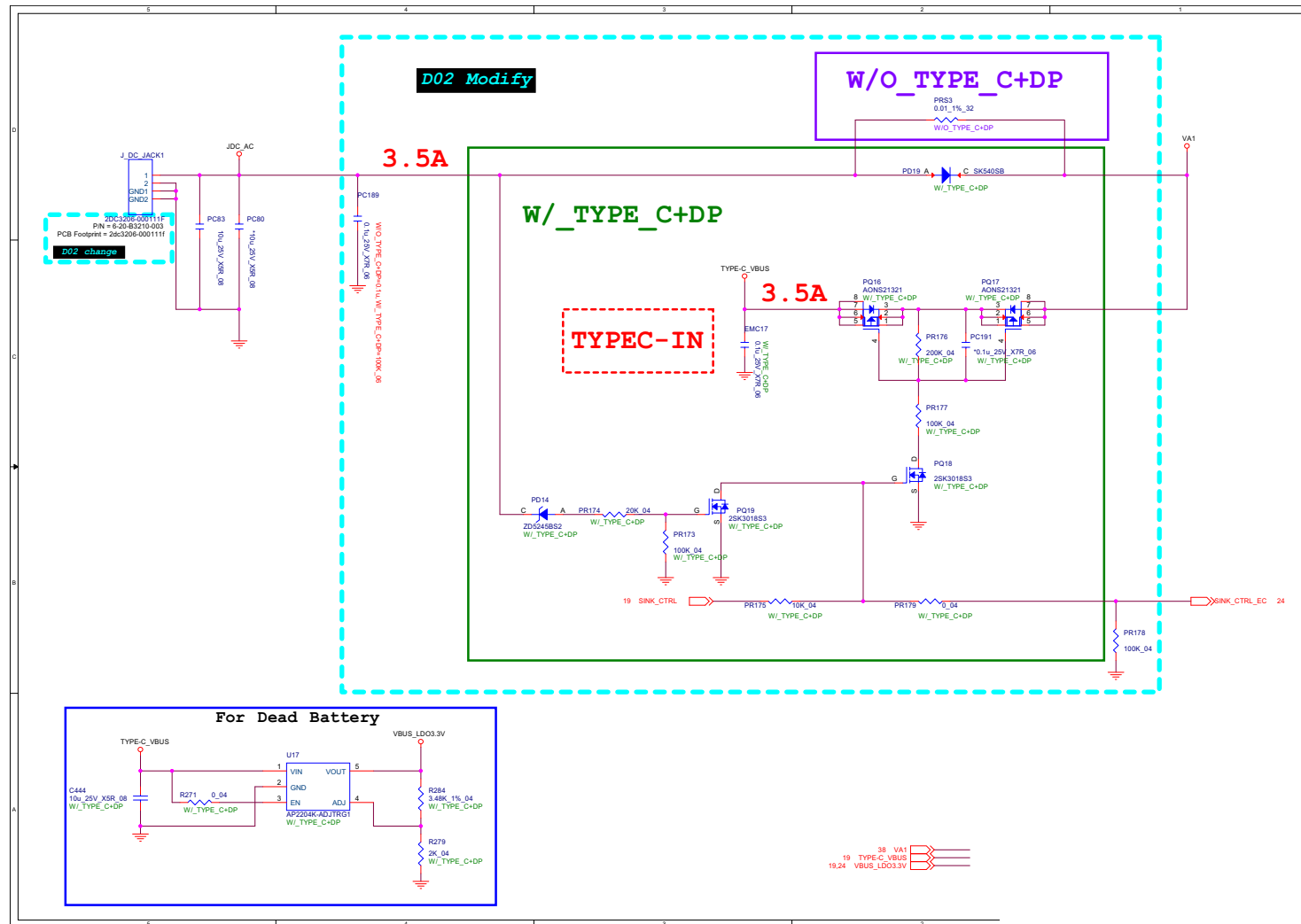
Schematic Diagrams

VDDQ, VDDQ_VTT, 1.8VA

Sheet 33 of 43
VDDQ, VDDQ_VTT,
1.8VA



Power PD Function

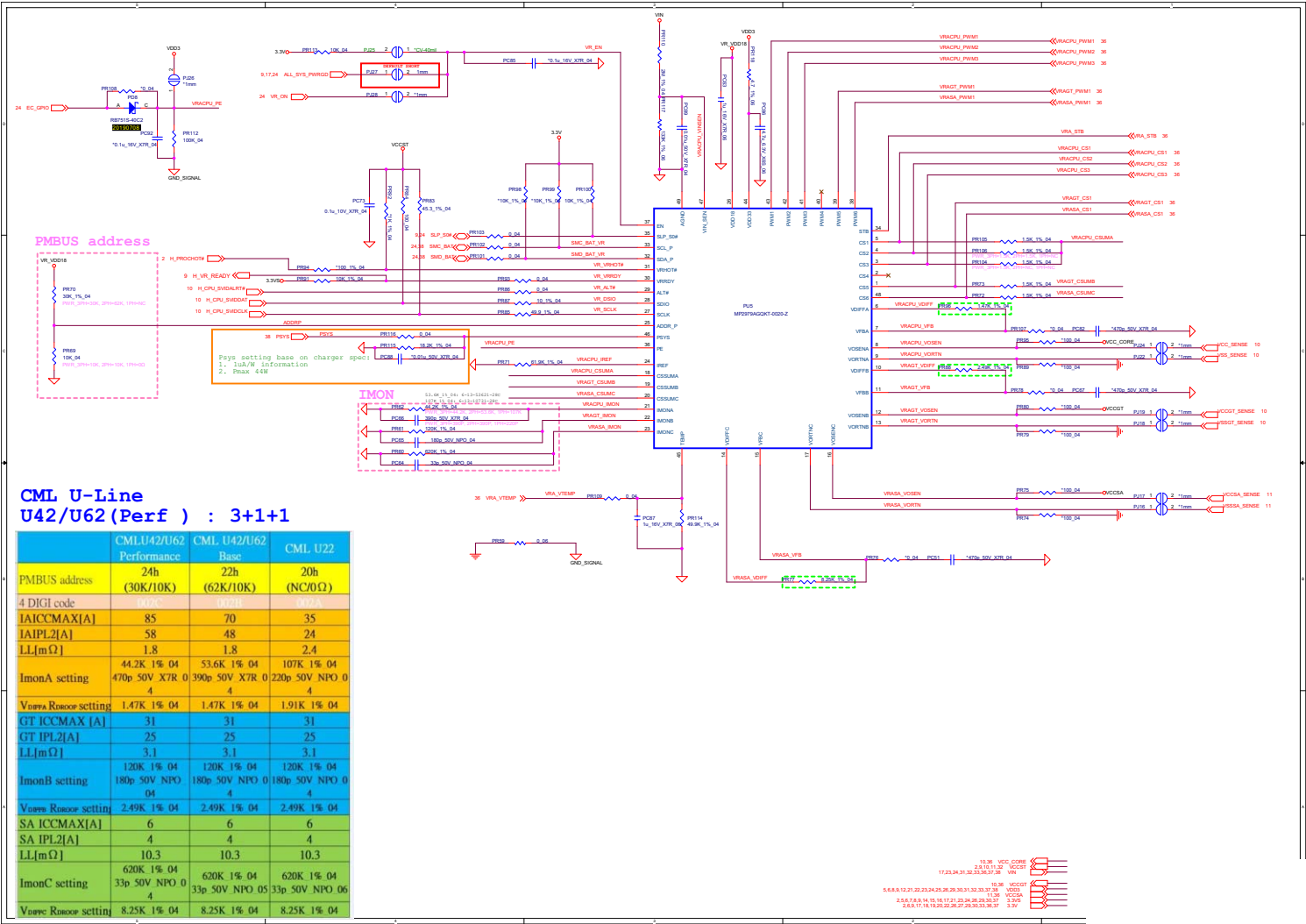


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Power PD Function

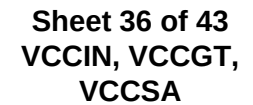
Schematic Diagrams

VCore

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VCore



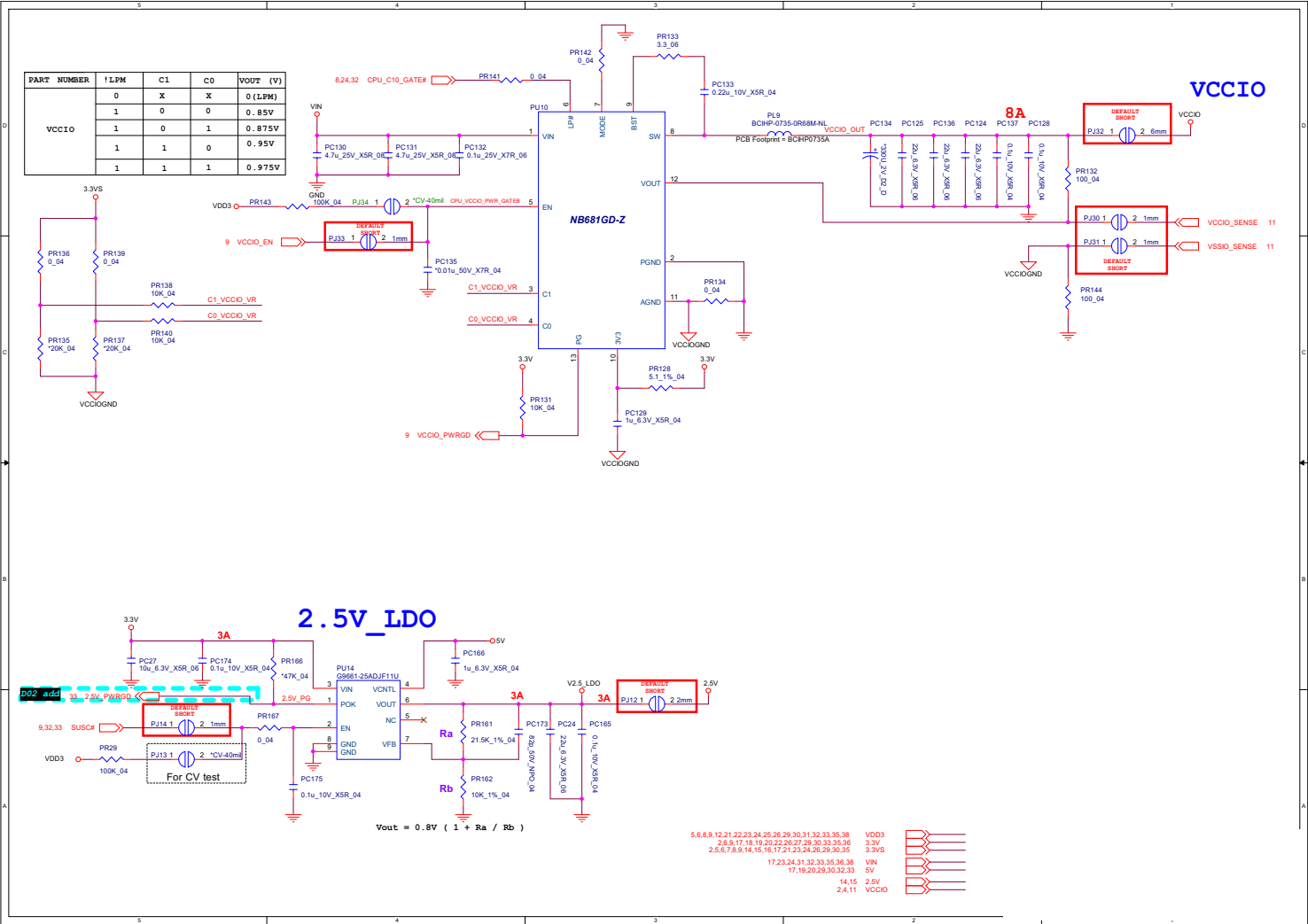
Schematic Diagrams



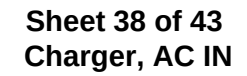
Schematic Diagrams

VCCIO, 2.5V

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VCCIO, 2.5V

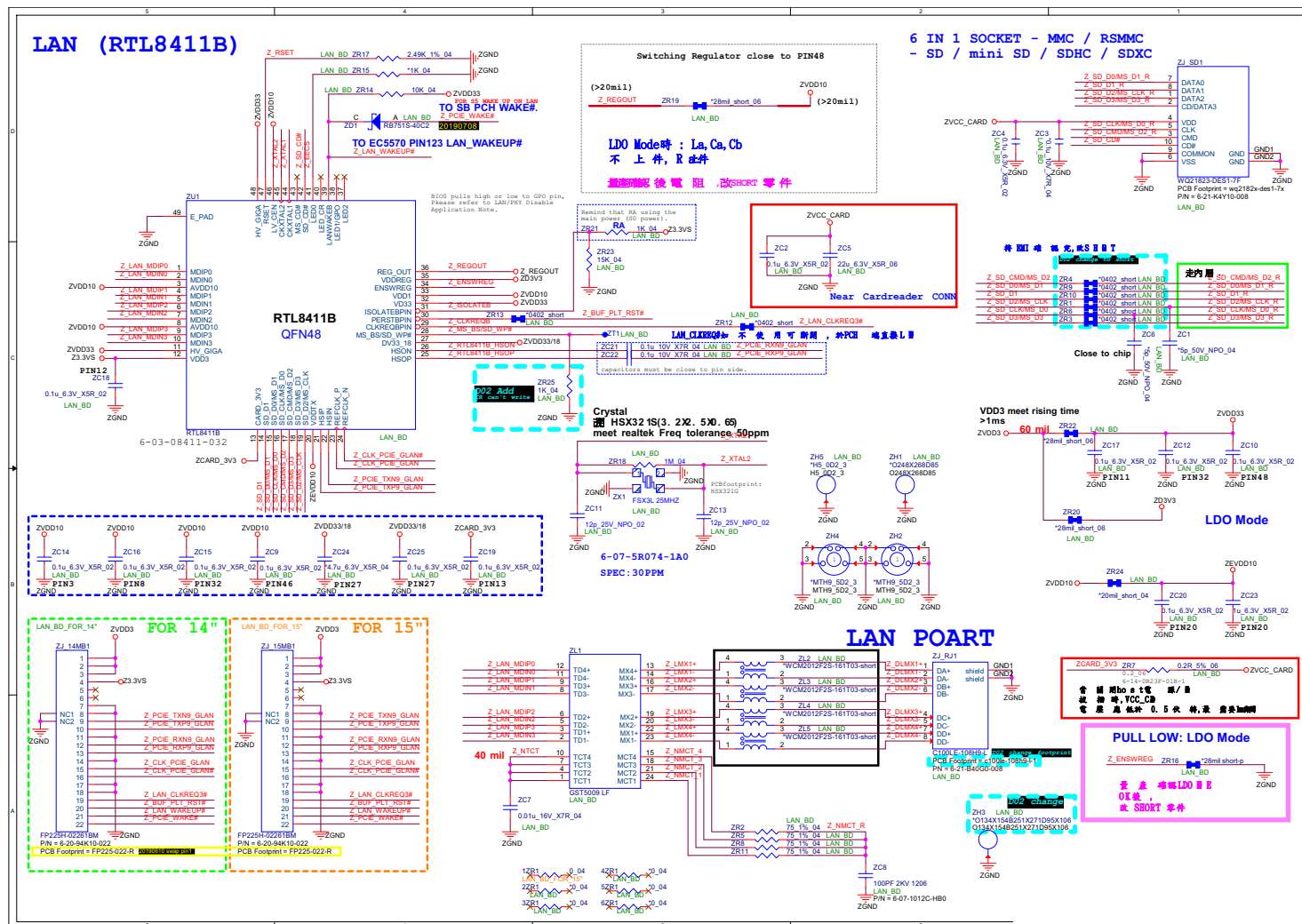


Charger, AC IN B - 39

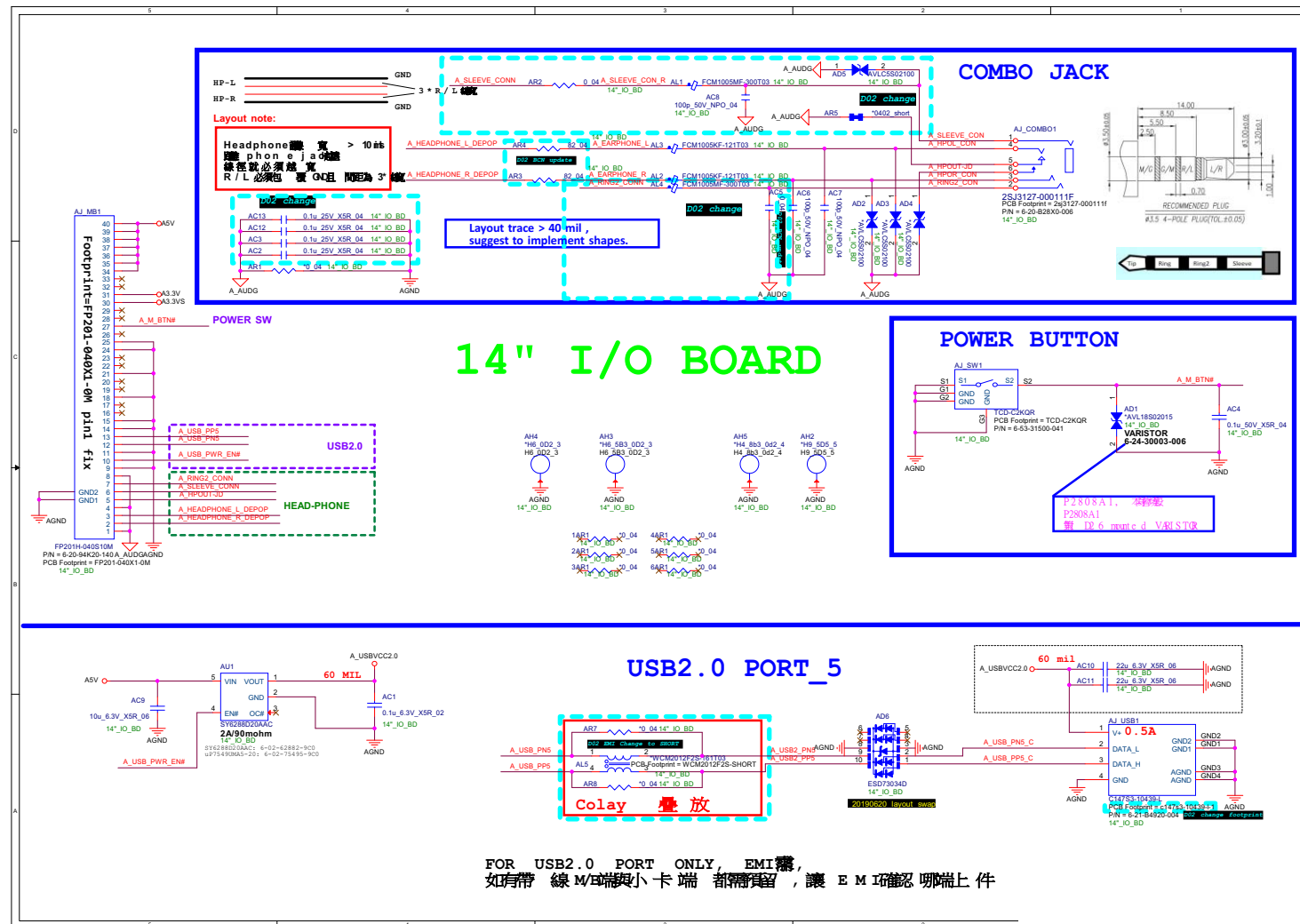


RTL8411B

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RTL8411B

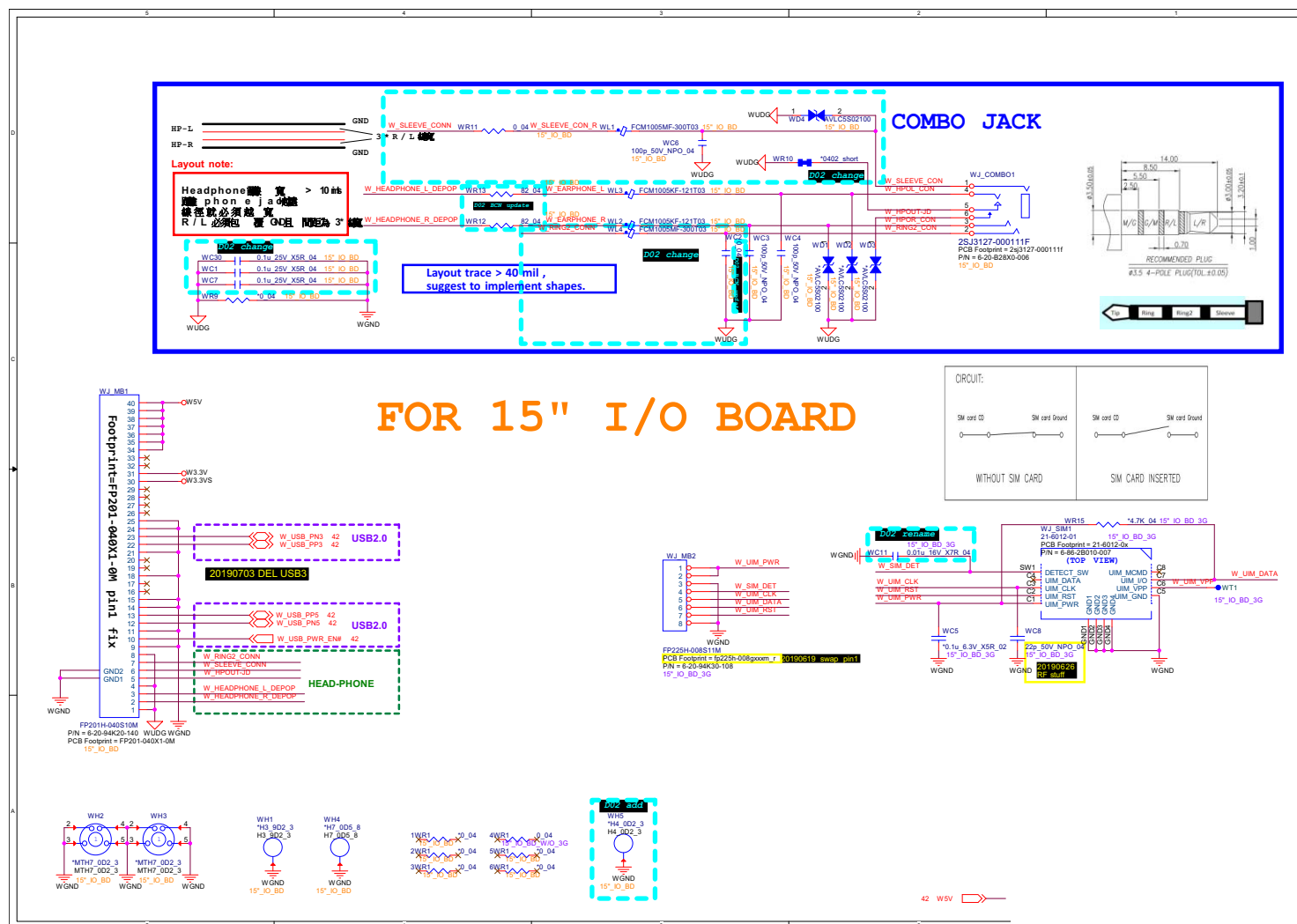


14" I/O Board

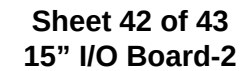
Sheet 40 of 43
14" I/O Board

B. Schematic Diagrams

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15" I/O Board-1



15" I/O Board-2 B - 43



Schematic Diagrams

Power Button Board

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Power Button
Board

