

SERVICE MANUAL

N250GU / N252GU

notebook



Notebook Computer

N250GU / N252GU

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 *N250GU* / *N252GU* series notebook PC.

The following information is included:

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

Appendix A, Part Lists

Appendix B, Schematic Diagrams

Appendix C, Updating the FLASH ROM BIOS

Preface

IMPORTANT SAFETY INSTRUCTIONS

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

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit 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.

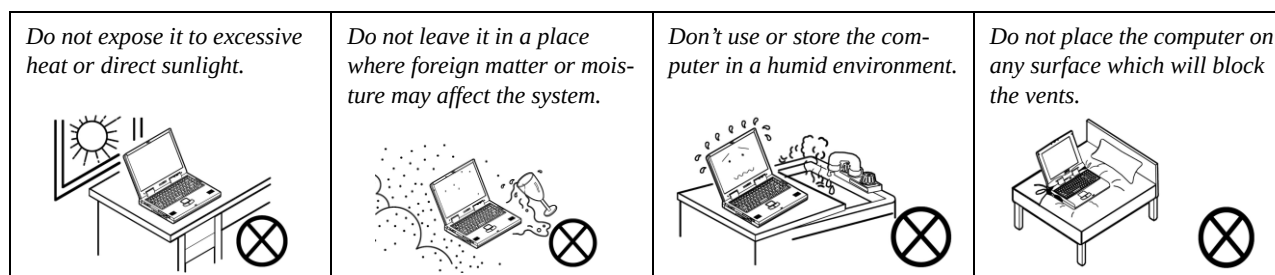
Instructions for Care and Operation

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

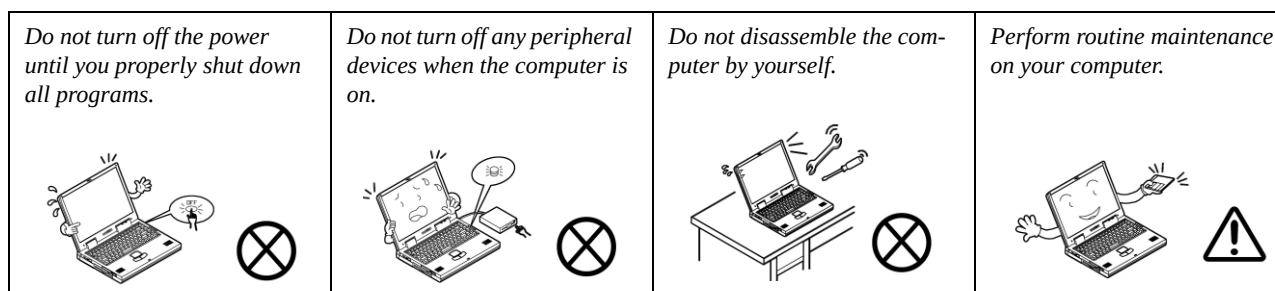
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



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.

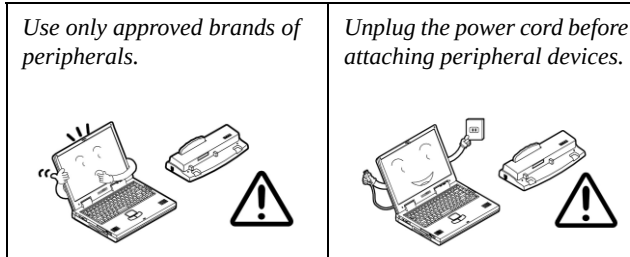


3. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.



Preface

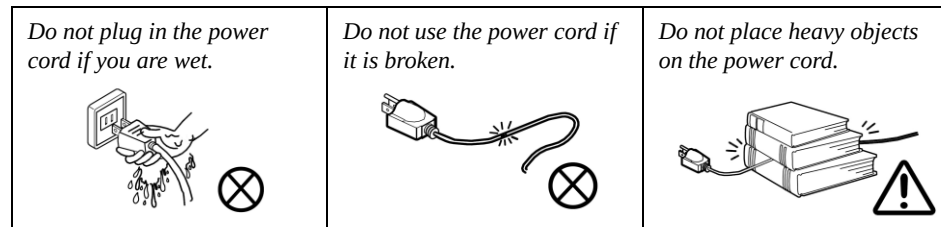
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



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



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.



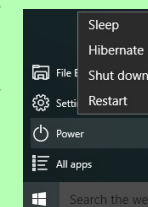
Figure 1
Opening the Lid/LCD/
Computer with AC/DC
Adapter Plugged-In



Shut Down

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

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



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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **N250GU / N252GU** 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 **N250GU / N252GU** series notebook is designed to be upgradeable. See [Disassembly on page 2 - 1](#) for a detailed description of the upgrade procedures for each specific component. Please take note of the warning and safety information indicated by the “” symbol.

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

Introduction

Specifications



Latest Specification Information

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



CPU

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

Processor Options

Intel® Pentium® Processor

Silver N5000 (1.10GHz)

4MB Smart Cache, 14nm, DDR4-2400MHz, TDP 6W

Intel® Celeron® Processor

N4100 (1.10GHz), N4000 (1.10GHz)

4MB Smart Cache, 14nm, DDR4-2400MHz, TDP 6W

BIOS

64Mb SPI Flash ROM

Insyde BIOS

Memory

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

Memory Expandable up to 8GB

Compatible with 4GB, or 8GB Modules

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

LCD Options

15.6" (39.62cm), 16:9, HD (1366x768)/FHD (1920x1080)

Video Adapter

Intel GPU (CPU integrated)

Intel UHD Graphics 605 (N5000 CPU)

Dynamic Frequency

Intel Dynamic Video Memory Technology

Microsoft DirectX®12 Compatible

Intel UHD Graphics 600 (N4100, N4000 CPU)

Dynamic Frequency

Intel Dynamic Video Memory Technology

Microsoft DirectX®12 Compatible

Storage

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

(**Factory Option**) One M.2 **SATA** Solid State Drive (SSD)

(**Factory Option**) eMMC 32GB/64GB/128GB

Pointing Device

Built-in Touchpad

Keyboard

Full-size "WinKey" keyboard (with numeric keypad)

Or

(**Factory Option**) Full-size "WinKey" **Illuminated White-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

M.2 Slots

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

Slot 2 for **SATA SSD**

(**Factory Option**) Slot 3 for **4G** LTE Module

Card Reader

Embedded Multi-In-1 Card Reader

MMC (MultiMedia Card) / RS MMC

SD (Secure Digital) / Mini SD / SDHC/ SDXC

Interface

Two USB 2.0 Ports

One USB 3.0 (USB 3.1 Gen 1) Port

One USB 3.0 (USB 3.1 Gen 1) Type-C Port*

**The maximum amount of current supplied by USB Type-C ports is 500mA (USB 2.0)/900mA (USB 3.1).*

One HDMI-Out Port

One External Monitor Port

One Microphone-In Jack

One Headphone & S/PDIF (Optical) Out Combo Jack

One RJ-45 LAN Jack

One DC-in Jack

Communication

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

1.0M HD PC Camera Module

(Factory Option) 4G LTE M.2 Module

WLAN/ Bluetooth M.2 Modules:

(Factory Option) Intel® Dual Band Wireless-AC 9260 Wireless LAN **(802.11ac)** + Bluetooth

(Factory Option) Intel® Dual Band Wireless-AC 9560 Wireless LAN **(802.11ac)** + Bluetooth

(Factory Option) Intel® Dual Band Wireless-AC 9462 Wireless LAN **(802.11ac)** + Bluetooth

Power

Full Range AC/DC Adapter

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

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

Removable 4 Cell Smart Lithium-Ion Battery Pack, 32WH

(Factory Option) Removable 4 Cell Smart Lithium-Ion Battery Pack, 44WH

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

377mm (w) * 259mm (d) * 22.8mm (h)

(Height Excluding Battery Area)

2.1kg (Barebone with 32WH Battery)

Introduction

Figure 1
Top View

1. PC Camera
2. *PC Camera LED
**When the PC camera is in use, the LED will be illuminated in red.*
3. Built-In Microphone (W950LU only)
4. LCD
5. Power Button
6. Keyboard
7. Touchpad & Buttons

External Locator - Top View with LCD Panel Open



External Locator - Front & Right Side Views

Figure 2
Front View

1. LED Indicator

FRONT VIEW



RIGHT SIDE VIEW



Figure 3
Right Side View

1. USB 2.0 Port
2. Multi-in-1 Card Reader
3. External Monitor Port
4. RJ-45 LAN Jack

Introduction

External Locator - Left Side & Rear View

Figure 4
Left Side View

1. Security Lock Slot
2. DC-In Jack
3. HDMI-Out Port
4. Vent
5. USB 3.0/3.1 Port
6. USB 3.0/3.1 Type C Port
7. Microphone-In Jack
8. Headphone-Out Jack

LEFT SIDE VIEW



USB Ports

The USB 3.0 ports capable of 5Gbps (SuperSpeed) are classified as **USB 3.1 Gen 1**. This model includes 2 * USB 3.0 (USB3,1 Gen 1) ports and 1* USB 2.0 port.

Figure 5
Rear View

1. Battery

REAR VIEW



External Locator - Bottom View

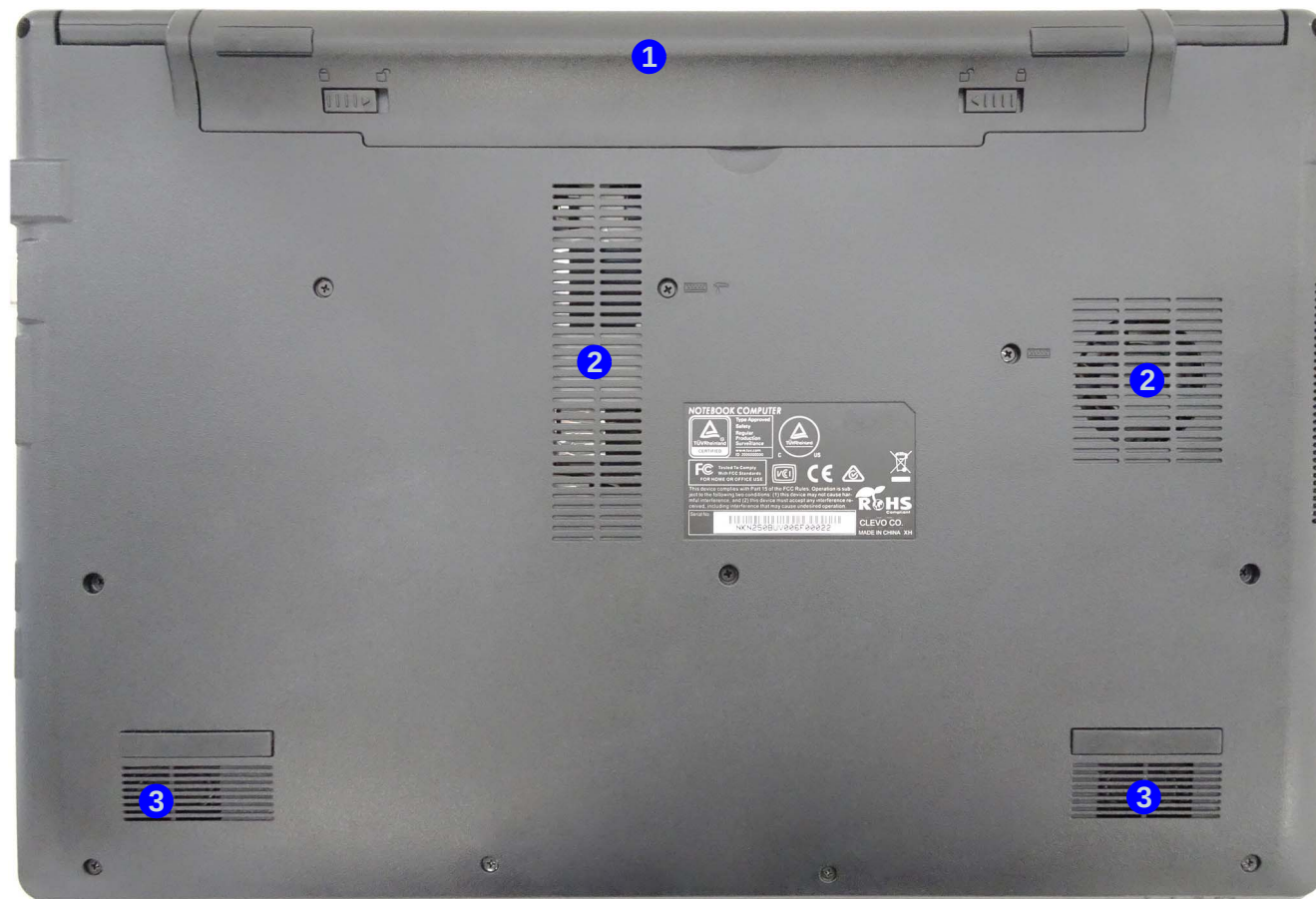


Figure 6
Bottom View

1. Battery
2. Vent
3. Speakers



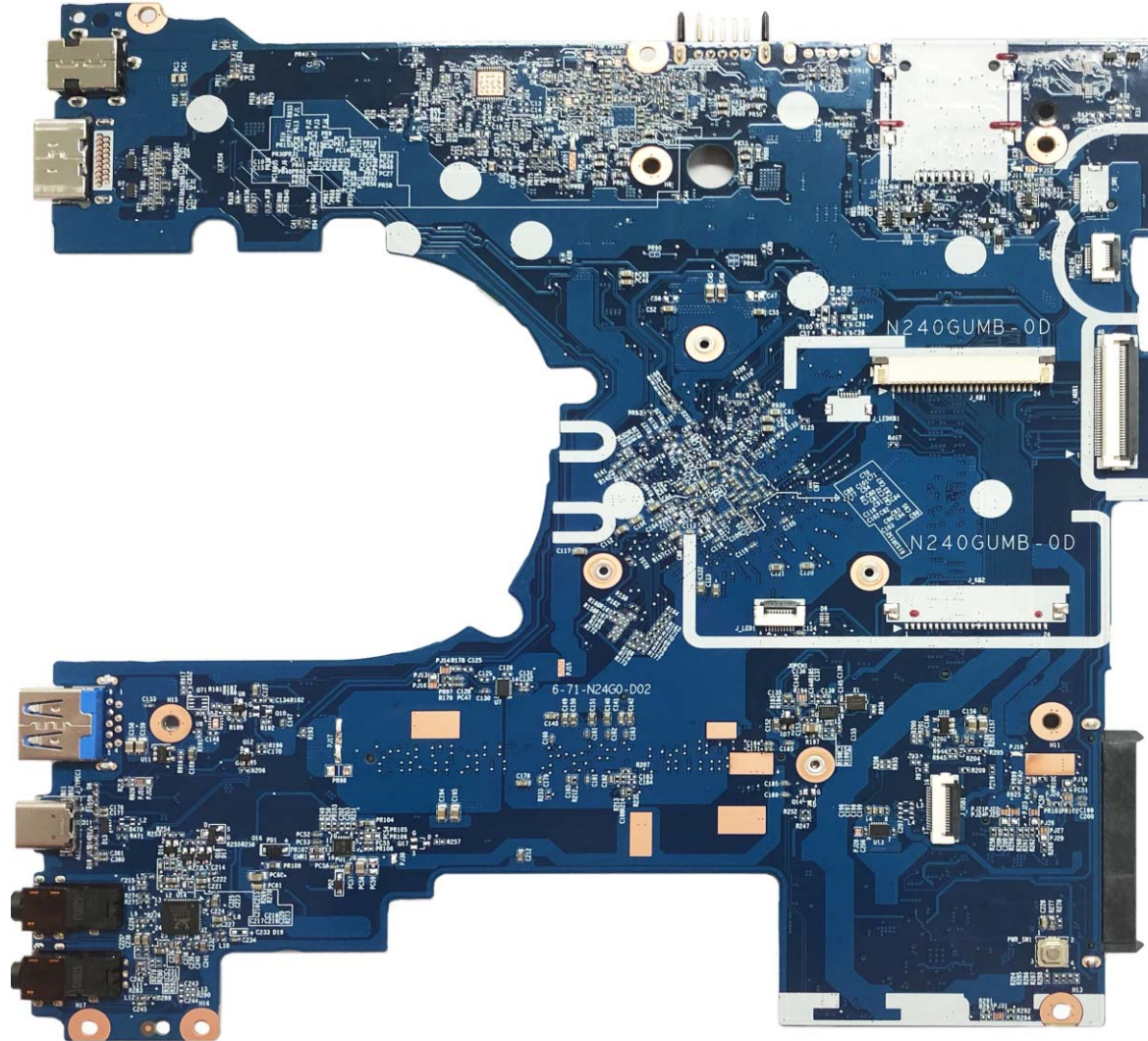
Overheating

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

Introduction

Figure 7
Mainboard Top
Key Parts

Mainboard Overview - Top (Key Parts)



Mainboard Overview - Bottom (Key Parts)

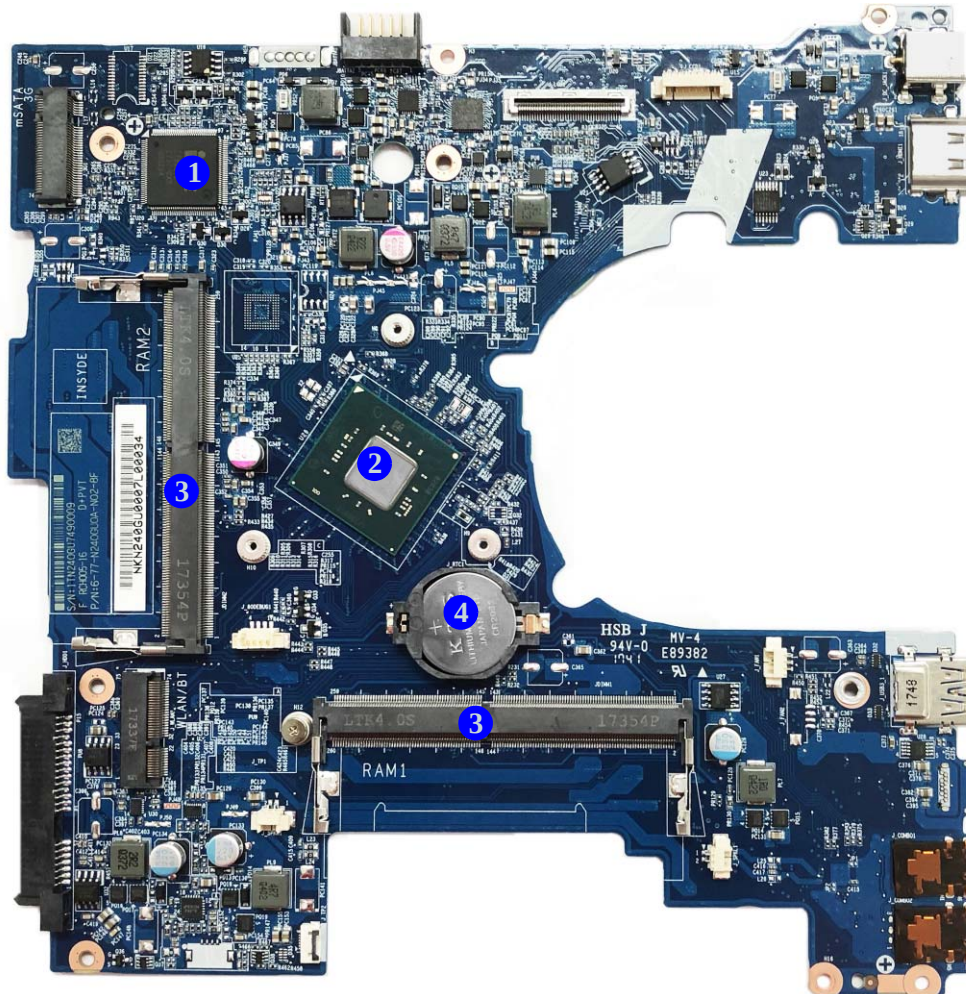


Figure 8
**Mainboard Bottom
Key Parts**

1. KBC-ITE IT8987E
2. CPU
3. Memory Slots
DDR4 SO-DIMM
4. CMOS Battery

Introduction

Figure 9
**Mainboard Top
Connectors**

1. DC-In Jack
2. HDMI-Out Port
3. USB Port 3.0/3.1
4. USB Port 3.0/3.1
Type C Port
5. Microphone-In
Jack
6. Headphone-Out
Jack
7. SIM Card Reader
8. Keyboard Cable
Connector

Mainboard Overview - Top (Connectors)

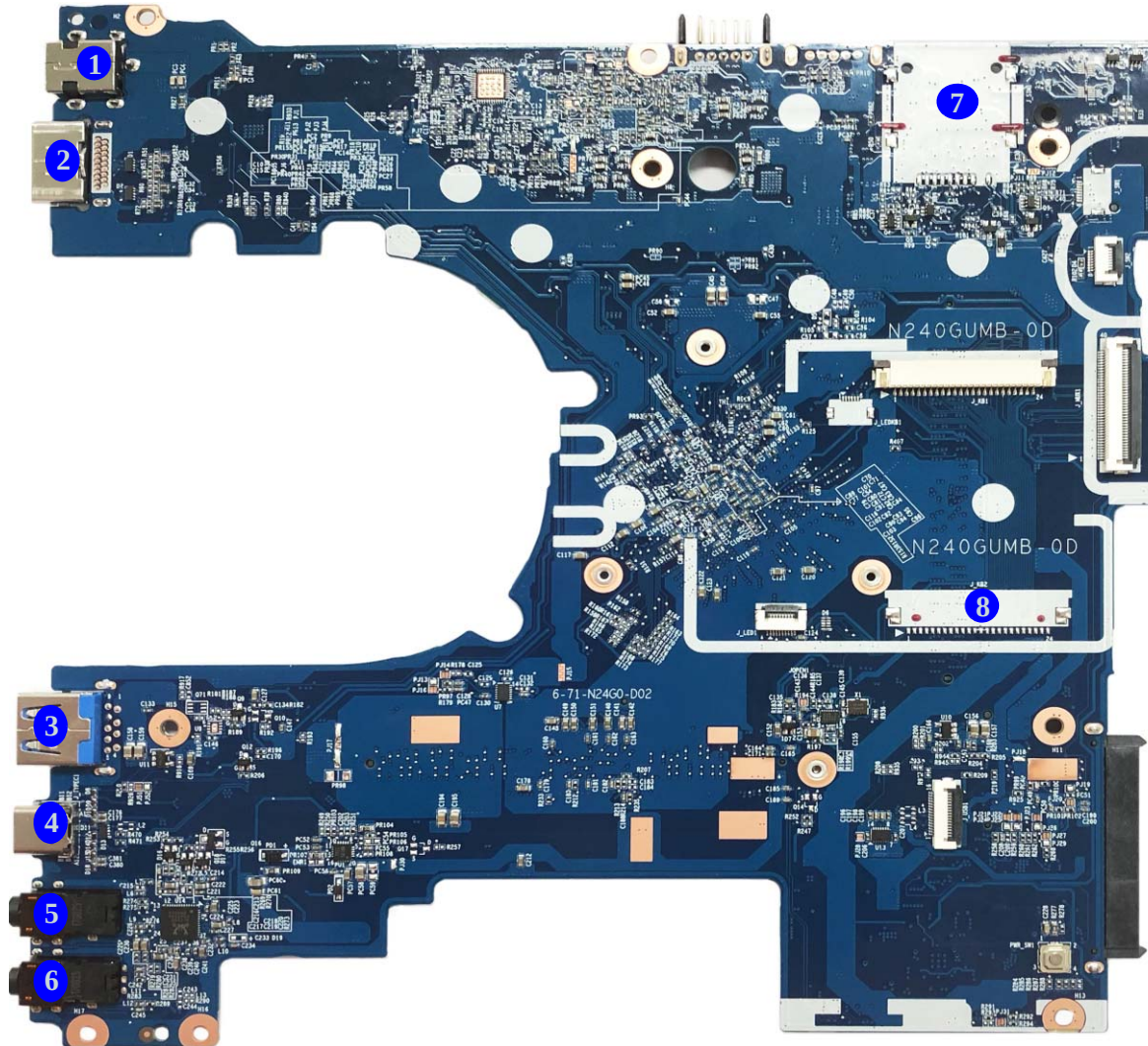
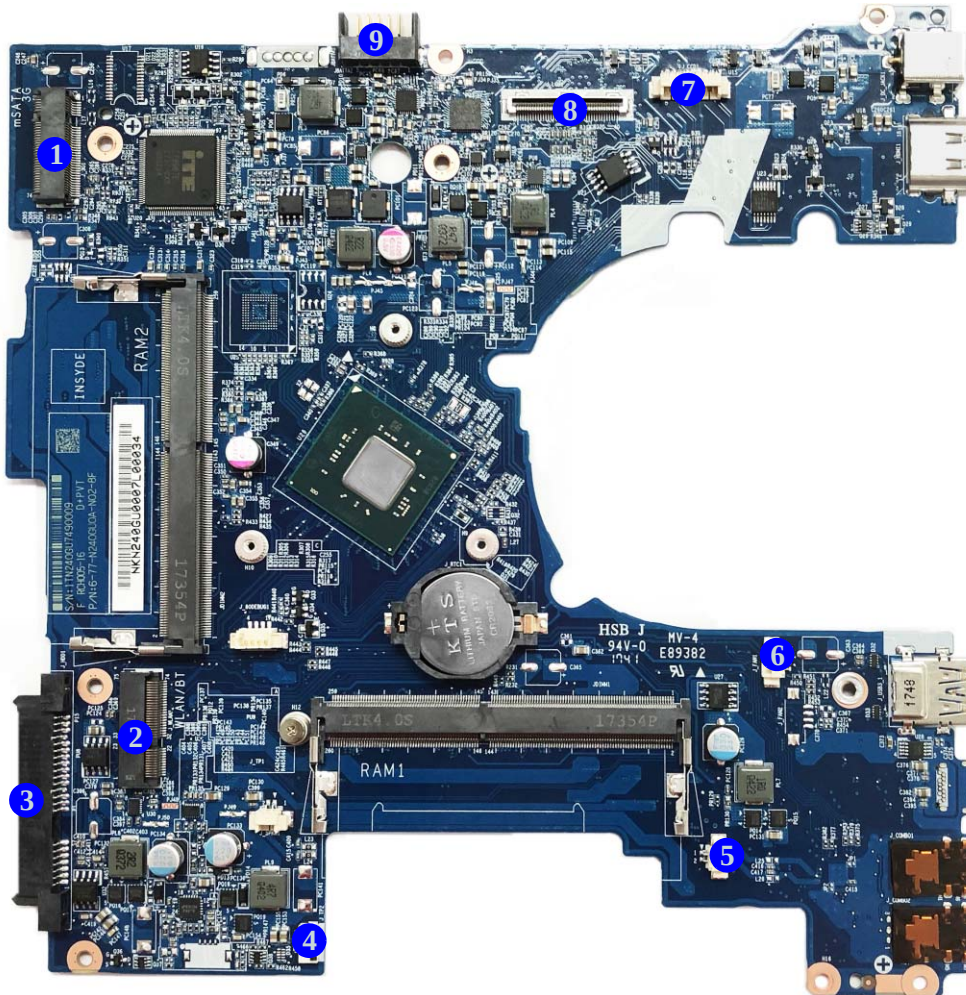


Figure 10
**Mainboard Bottom
Connectors**

1. M.2 Card Connector
2. WLAN Connector
3. HDD Connector
4. Touchpad Connector
5. Speaker Connector
6. Fan Connector
7. LCD Cable Connector
8. CCD Connector
9. Battery Connector



Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the *N250GU* / *N252GU* 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.


Information

Warning

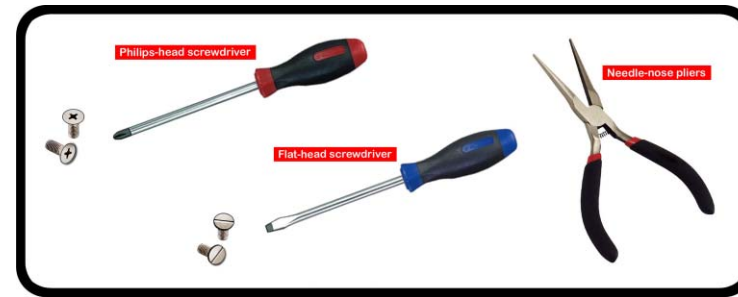
Disassembly

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 - 6](#)

To remove the System Memory:

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

To remove the Keyboard:

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

To remove the Wireless LAN Module:

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

To remove the 4G:

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

To remove the M.2 SSD:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Remove the SSD [page 2 - 15](#)
4. Install the SSD [page 2 - 16](#)

To remove the CCD Module:

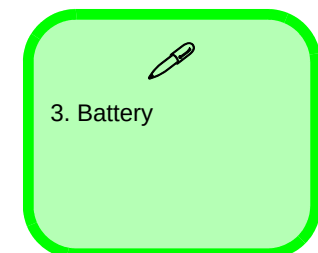
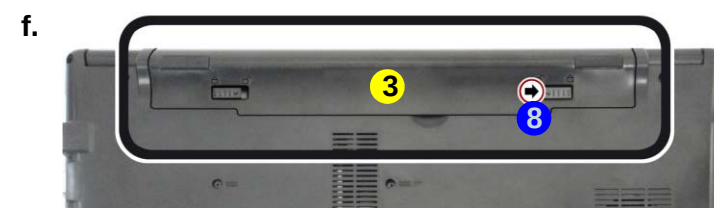
1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Remove the CCD module [page 2 - 17](#)

Removing the Battery

1. Turn **off** the computer, turn it over.
2. Slide the latch **1** in the direction of the arrow (*Figure 1a*).
3. Slide the latch **2** in the direction of the arrow, and hold it in place (*Figure 1b*).
4. Turn the battery **3** in the direction of the arrow **4** and lift it out (*Figure 1c*).
5. Insert a new battery **3** by aligning the battery to the pins **5** & **6** (*Figure 1d*).
6. Turn the battery **3** in the direction of the arrow **7** (*Figure 1e*).
7. Slide the latch **8** in the direction of the arrow to lock it in place (*Figure 1f*).

Figure 1
Battery Removal

- a. Slide the latch and hold it in place.
- b. Turn the battery in the direction of the arrow.
- c. Lift the battery out.
- d. Insert a new battery by aligning it to the pins.
- e. Turn the battery in the direction of the arrow.
- f. Lock the latch in place.



Disassembly

Figure 2
**HDD Assembly
Removal**

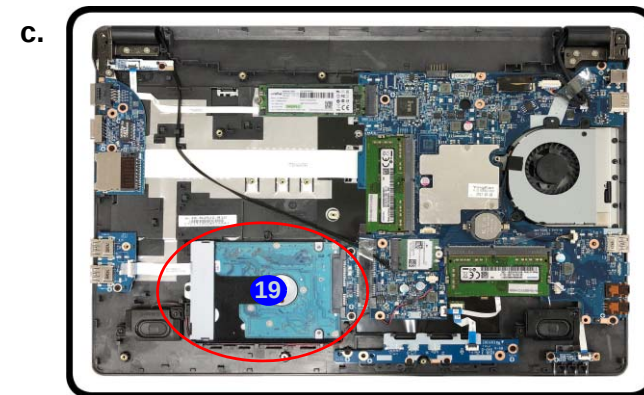
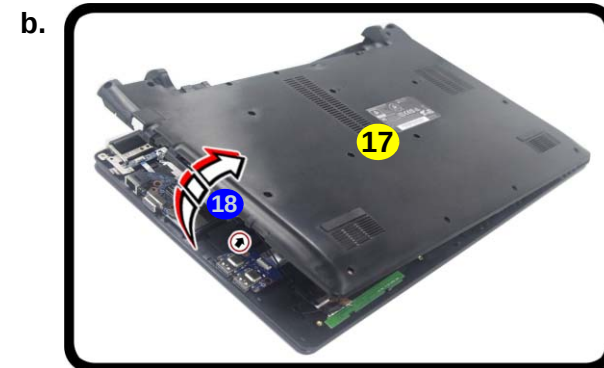
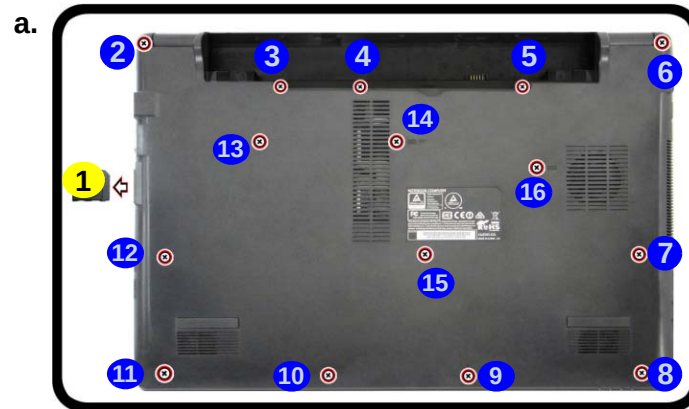
- Remove the screws.
- Remove the bottom cover.
- Locate the HDD assembly.

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

- Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)).
- Remove the SD card cover **1** and screws **2** - **16** ([Figure 2a](#)).
- Lift the bottom cover **17** up from point **18** ([Figure 2b](#)).
- The hard disk drive will be visible at point **19** ([Figure 2c](#)).



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.



1. SD Card Cover
17. Bottom Cover
- 15 Screws



Screw Size

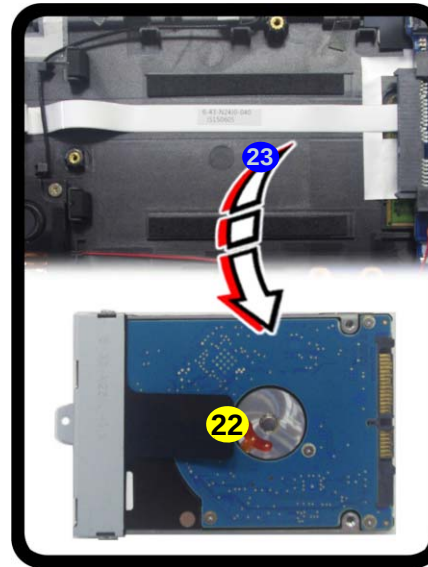
Note that the size of screw **9** is M2 x 5L.

5. Remove the screw 20 from the hard disk assembly (Figure 3d).
6. Slightly lift and pull the hard disk assembly in the direction of arrow 21 (Figure 3e).
7. Lift the hard disk assembly 22 out of the bay 23 (Figure 3f).
8. Remove the screws 24 - 25 and the HDD bracket 26 from the hard disk 27 (Figure 3g).
9. Reverse the process to install a new hard disk (do not forget to replace all the screws and bottom cover).

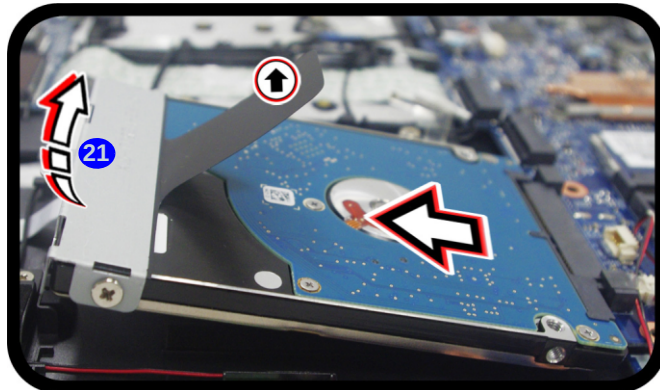
d.



f.



e.



g.

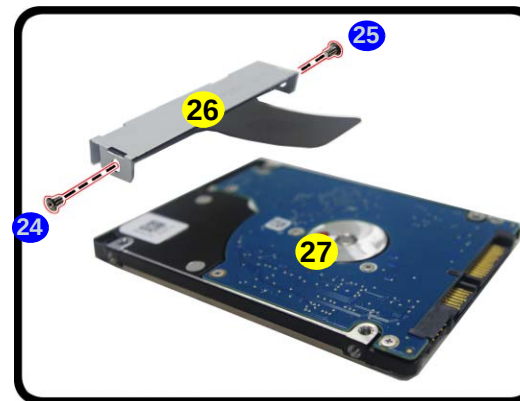


Figure 3
**HDD Assembly
Removal (cont'd.)**

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

22. HDD Assembly
26. HDD Bracket
27. HDD

- 3 Screws

Disassembly

Figure 4
RAM Module Removal

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

Removing the System Memory (RAM)

The computer has two memory sockets for 260 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR4 Up to 2133 MHz. The main memory can be expanded up to 32GB. The total memory size is automatically detected by the POST routine once you turn on your computer.

Memory Upgrade Process

- Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)) and bottom cover ([page 2 - 6](#)).
- The RAM modules will be visible at point ① on the mainboard ([Figure 4b](#)).
- Gently pull the two release latches (② & ③) on the sides of the memory socket in the direction indicated by the arrows ([Figure 4b](#)).
- The RAM module ④ will pop-up ([Figure 4c](#)), and you can then remove it.



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.



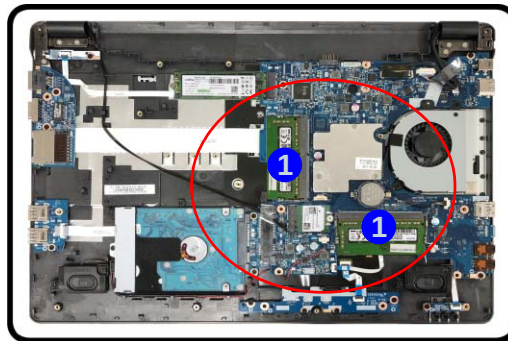
4. RAM Module



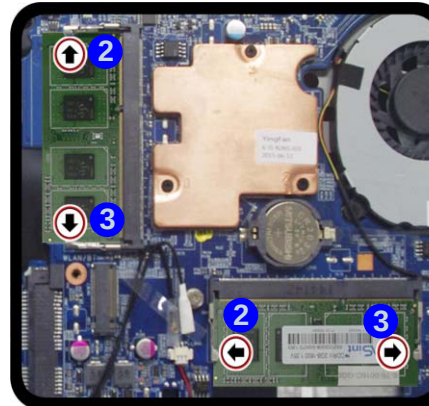
Single Memory Module Installation

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

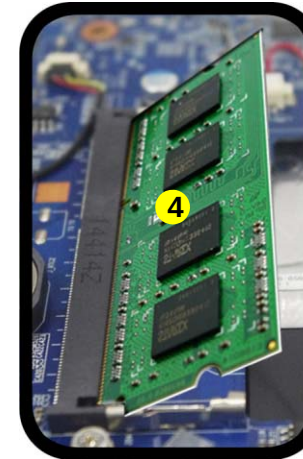
a.



b.



c.

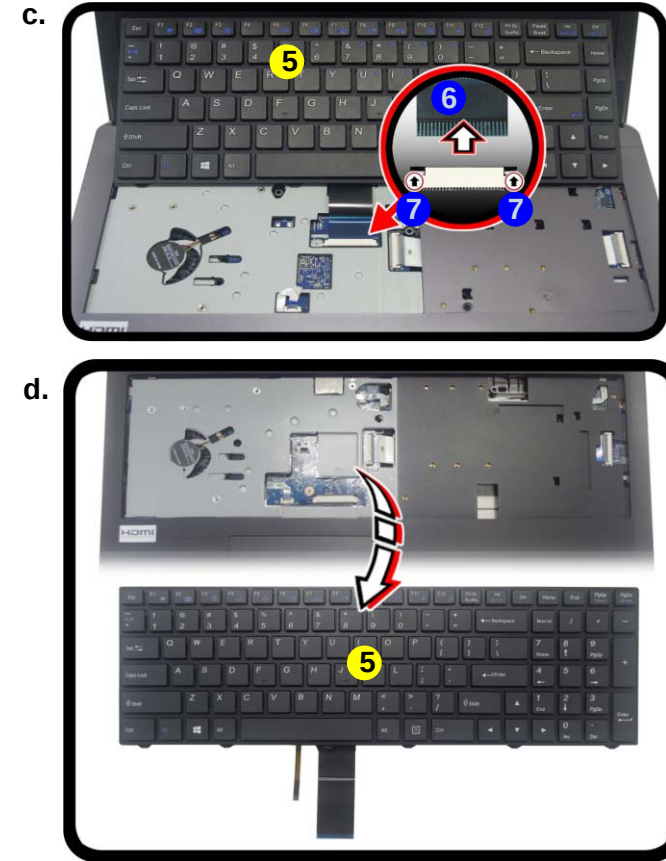
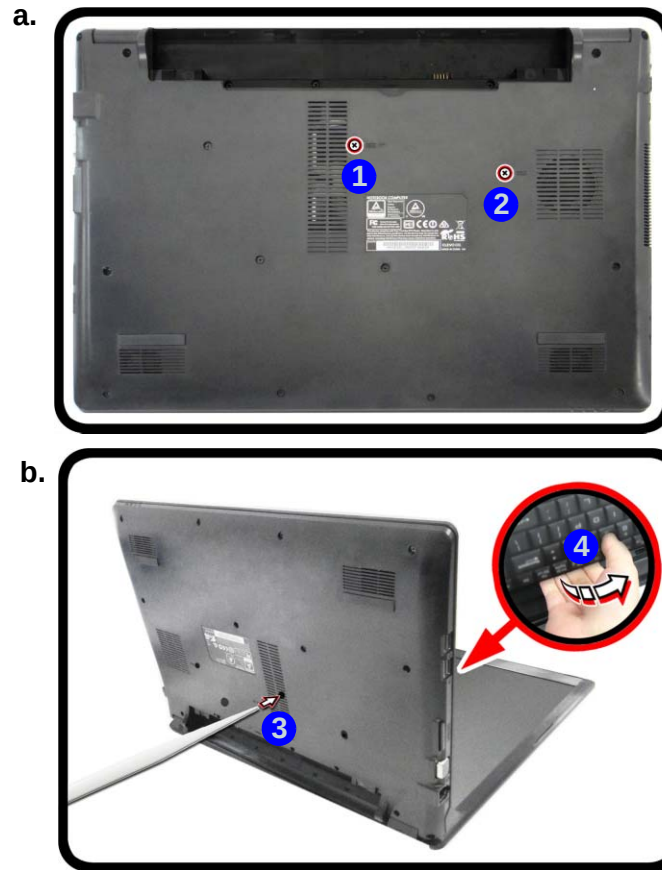


5. Pull the latches to release the second module if necessary.
6. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
7. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE IT; it should fit without much pressure.
8. Replace the bottom case and the screws (see [page 2 - 6](#)).
9. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

Disassembly

Figure 5
Keyboard Removal

- a. Remove the screws.
 - b. Release the keyboard by pressing at point ③.
 - c. Disconnect the keyboard ribbon cable from the locking collar socket.
 - d. Remove the keyboard.
1. Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)).
 2. Remove screws ① - ② from the bottom case ([Figure 5a](#)).
 3. Open it up with the LCD on a flat surface before pressing at point ③ to release the keyboard module while releasing the keyboard in the direction of the arrow ④ as shown ([Figure 5c](#)).
 4. Carefully lift the keyboard ⑤ up, being careful not to bend the keyboard ribbon cable ⑥. Disconnect the keyboard ribbon cable from the locking collar socket ⑦ ([Figure 5d](#)).
 5. Carefully lift up the keyboard ⑤ off the computer ([Figure 5e](#)).



5. Keyboard

- 2 Screws

Figure 6
Keyboard Assembly

- d. Connect the keyboard ribbon cable to the locking collar socket.
- e. Insert the keyboard at point 9 and slide it in.
- f. Tighten the screws.

6. Connect the keyboard ribbon cable to the locking collar socket 8, and be careful not to bend the keyboard ribbon cable 7 (Figure 6d).
7. Insert the keyboard 4 at point 9 and then slide the keyboard in at point 10 and 11 (Figure 6e).
8. Tighten the screws 12 - 13 to secure the keyboard (Figure 6f).

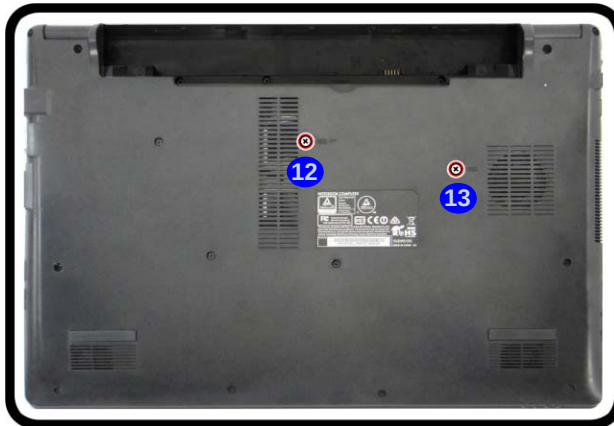
d.



e.



f.



4. Keyboard

- 2 Screws

Disassembly

Figure 7
WLAN 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.

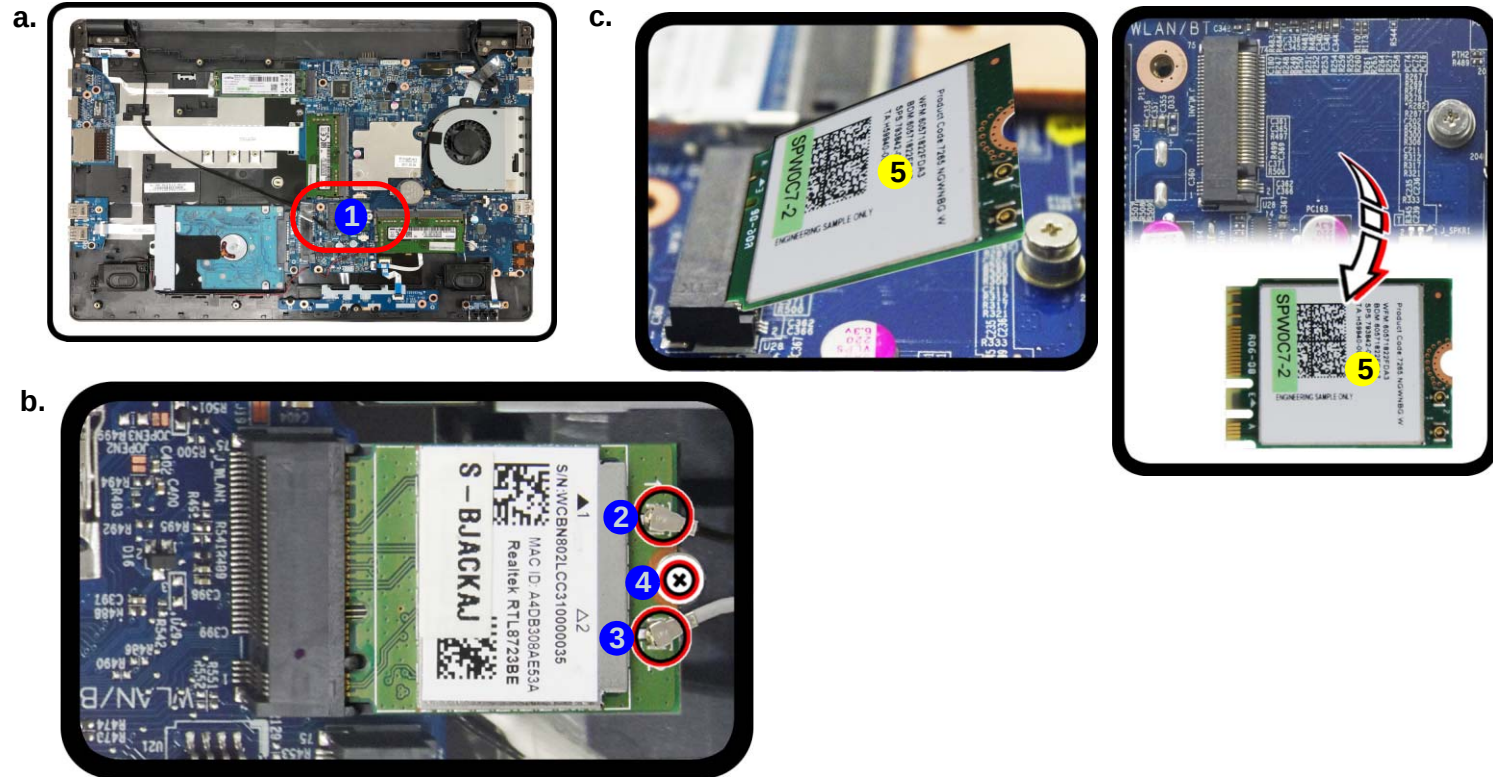
Note: Make sure you reconnect the antenna cable to the “1 + 2” socket (Figure 7b).

5. Wireless LAN Module

- 1 Screw

Removing the Wireless LAN Module

1. Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)) and bottom cover ([page 2 - 6](#)).
2. The Wireless LAN module will be visible at point **1** on the mainboard ([Figure 7a](#)).
3. Carefully disconnect the cables **2** & **3**, and then remove the screw **4** ([Figure 7b](#)).
4. The Wireless LAN module **5** ([Figure 7c](#)) will pop-up, and you can remove it from the computer.



Wireless LAN and Combo Module Cables

Note that the cables for connecting to the antennae on WLAN and 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).

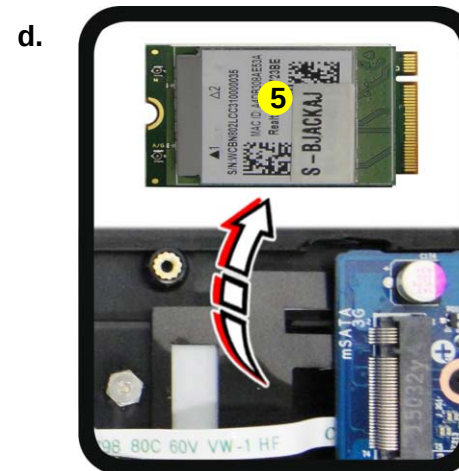
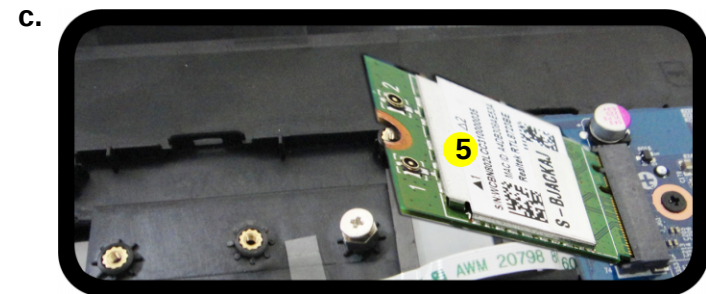
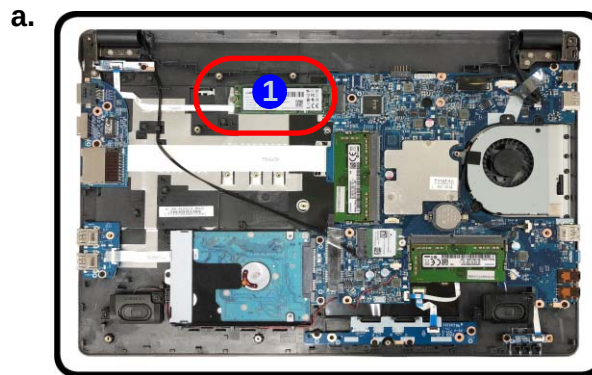
Disassembly

Figure 8
4G Module Removal

Removing the 4G Module

4G Module Removal Procedure

- Locate the module.
 - Disconnect the cables and remove the screw.
 - The module will pop up.
 - Lift the module up and off the socket
- Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)) and bottom cover ([page 2 - 6](#)).
 - The module will be visible at point **1** on the mainboard ([Figure 8a](#)).
 - Carefully disconnect the cables **2** & **3**, and then remove the screw **4** from the module ([Figure 8b](#)).
 - The module **5** will pop-up ([Figure 8c](#)).
 - Lift the module **5** up and off the computer ([Figure 8d](#)).



3.M2 SATA-1 Module

- 1 Screw

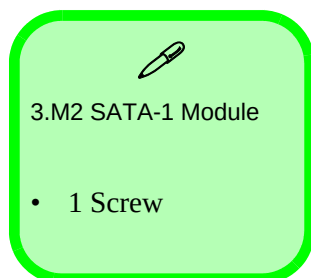
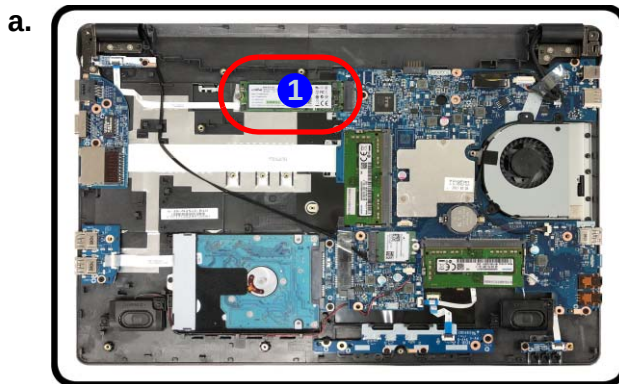
Removing and Installing the M.2 SSD Module

m.2 SSD Removal Procedure

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

Figure 9
M.2 SSD Module Removal

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



Disassembly

Figure 10
M.2 SSD Module Installation

- Place the thermal pad.
- Insert the module.
- Tighten the screw.

M.2 SSD Installation Procedure

- Place the thermal pad **1** on the bottom case as shown (*Figure 10a*).
- Insert the module **2** in the computer (*Figure 10b*).
- Tighten the screw **3** to secure it in place (*Figure 10c*).

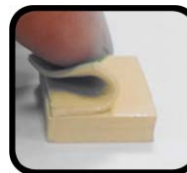
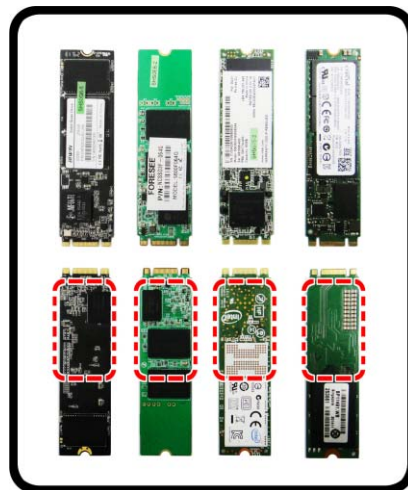
a.



b.



c.



- Thermal Pad
- M.2 SSD Module

- 1 Screw



Thermal Pad

Be sure to place the thermal pad's adhesive side down onto the mainboard surface.

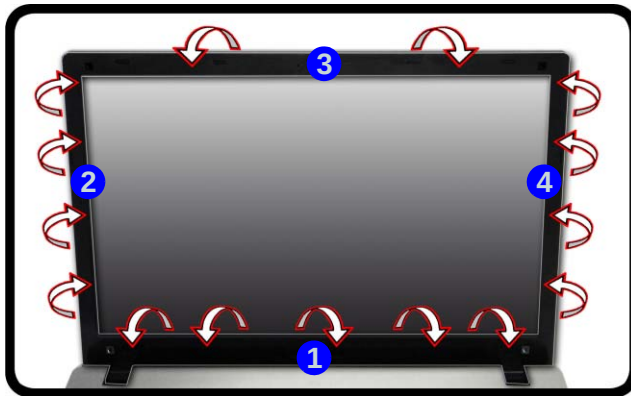
The thermal pad's thickness differ for different M.2 SSD module:

- For module with chip, use 2.5mm thick thermal pad.
- For module without chip, use 3.5mm thick thermal pad.

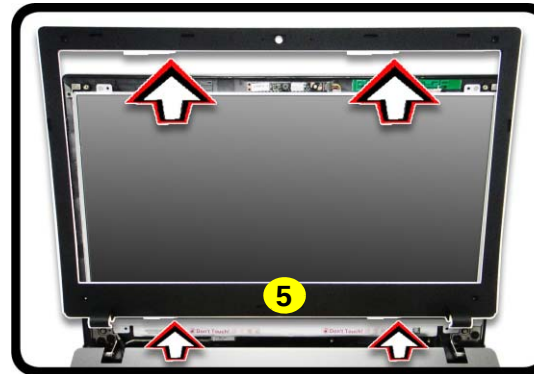
Removing the CCD

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** - **4** ([Figure 11a](#)).
3. Lay the computer down on a flat surface with the top case up forming a 90 degree angle. Push the LCD front cover **5** upwards before carefully lifting it up.
4. Remove the LCD front cover **5** ([Figure 11c](#)).

a.



b.



c.



Figure 11
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. Push the LCD front panel upwards before carefully lifting it up.
- c. Remove the LCD front cover.



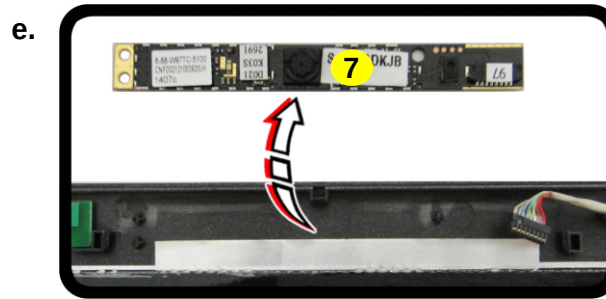
5. LCD Front Cover

Disassembly

Figure 12
CCD Removal
(cont'd)

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

- 5. Disconnect the cable ⑥.
- 6. Remove the CCD module ⑦ (*Figure 12f*).
- 7. Reverse the process to install a new CCD module.



7. CCD Module

Appendix A:Part Lists

This appendix breaks down the *N250GU / N252GU* 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.

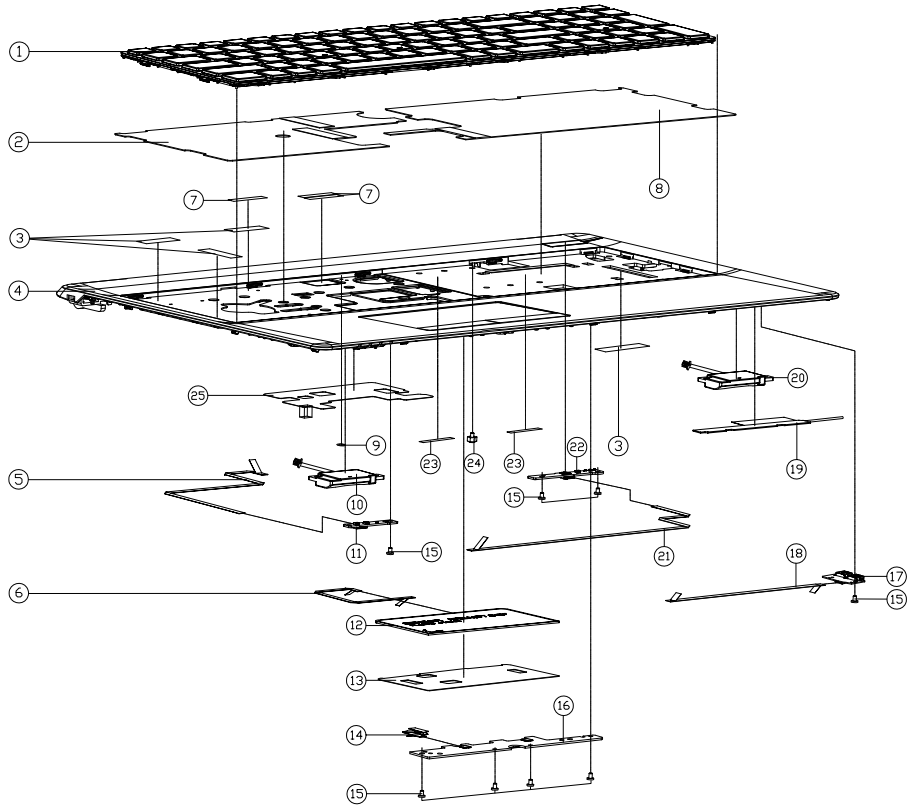
Part List Illustration Location

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

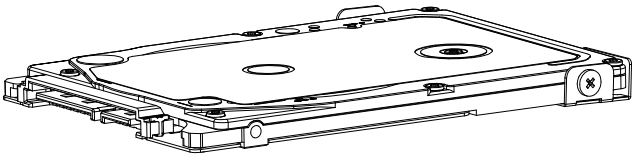
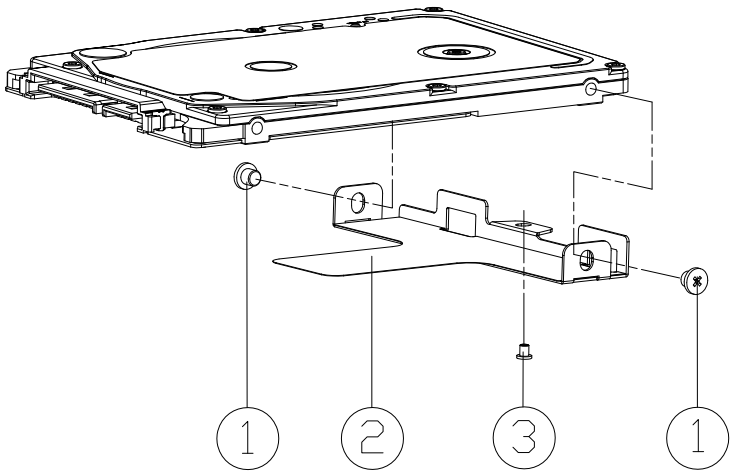


ITEM	PART NAME	PART NO	REMARK
1	WIRE IL TO DA CMOS2000K N250U W/ VIB KEY + CO FRAME	6-80-N2500-011-1	
1	WIRE IL TO DA CMOS2000K N250U W/ VIB KEY + CO FRAME	6-80-N2520-010-1	
1	VIBO V/B USABLOCK FRAMEUS MODULE FOR N250PPYP4P6-100	6-79-N250LUOK-011-WG	
1	VIBO V/B KOREANWHITEA FRAMEUS MODULE FOR N252U	6-79-N252LUOK-110-W	
2	W/O BL KB MYLAR L PET MYLAR+US15 N250LU	6-40-N2508-021	ONLY FOR W/O BL KB
3	TAPE MYLAR (C)MYLAR M550J	6-40-M55J2-030	ONLY FOR W/ BL KB
4	TOP CASE MODULE N250BU	6-39-N25J2-B10	
4	TOP CASE MODULE N252BU	6-39-N25J2-210	
5	LED BD TO MB FFC CABLE 5V 8P L=223MM N250LU	6-43-N2500-030-1	
6	TP TO MB FFC CABLE 5V 6P L=116.5MM N250LU	6-43-N2500-050-1	
7	MYLAR MAGNET 35*5*0.3MM FOR W740SU	6-40-W7402-080	
8	W/O BL KB MYLAR R PET MYLAR+G4000 N250LU	6-40-N2508-011	ONLY FOR W/O BL KB
9	WASHER (W5*W25*0.5T) FOR BACK COVER BOSS M5X06	6-37-02000-504	
10	SPK-CABLE L 2944 15W 4T 23MM L254X00P (OVD N250U AND RUBBER)	6-23-5N250-1L2	
11	LED BOARD V1.0 N240PU	6-77-N24P4-D01	
12	TOUCH PAD SYNOPSIS PTP TM-0309-002 (0.065MM VAS00C (CPC)	6-49-W65D3-011	
13	TOP TP MYLAR PET N250LU	6-40-N2502-040	
14	TP TO CLICK FFC CABLE 5V 4P L=45.0MM N250LU	6-43-N2500-060-1	
15	SCREW M2*3L KT BZ ICT NY (OD=04.5,DT=0.4)	6-35-B6120-3RD	
16	CLICK BOARD V1.0 N250PU	6-77-N24P2-D01-A	
17	USB BOARD V2.0 N250PU	6-77-N24P3-D02-A	
18	USB BD TO MB FFC CABLE 5V 16L L=198MM N250LU	6-43-N2500-010-1	
19	ANTENNA PERI-SHIELD W/ L=2 P3 R USABLOCK/USABLOCK/USABLOCK L=30MM N250U	6-23-7N250-021	
20	SPK-CABLE R 2944 15W 4T 23MM L254X00P (OVD N250U AND RUBBER)	6-23-5N250-1R2	
21	POWER BD TO MB FFC CABLE 5V 8P L=203.5MM N250LU	6-43-N2500-040-1	
22	POWER SW BOARD V1.0 N250GU (HALL SENSOR LOCATION CHANGE)	6-77-N24GS-D01-B	
23	TAPE MYLAR TRANSPARENT (30*5*0.05) W251HPQ	6-40-W25P3-010	
24	SCREW M2*3L 0.25 1-90 STEEL ICT NY FOR MFT CARTRIDGE	6-35-ZA120-2R5-1	
25	TOP CASE FOIL ALUMINUM N250GU	6-47-N25G2-010	

Figure A - 1
Top

HDD

Figure A - 4
HDD



ITEM	PART NAME	PART NO	REMARK
1	SCREW M3*2.5L KI NI ICT NY	6-35-B1130-2R5	
2	HDD BKT 7MM SECC T=0.5 N250LU	6-33-N250J-011	
3	SCREW M2*3L KI BZ ICT NY (DD=Ø4.5,DT=0.4)	6-35-B6120-3RD	



Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *N250GU* / *N252GU* notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
System Block Diagram - Page B - 2	Panel - Page B - 16	VCGI, VNN - Page B - 30
Processor 1/9 - Page B - 3	HDMI - Page B - 17	VCore - Page B - 31
Processor 2/9 - Page B - 4	Audio Codec - Page B - 18	1.05VS, 1.8VA - Page B - 32
Processor 3/9 - Page B - 5	SATA, LED, HUB - Page B - 19	AC-In Charger - Page B - 33
Processor 4/9 - Page B - 6	USB Port / TPM - Page B - 20	USB Board - Page B - 34
Processor 5/9 - Page B - 7	Conn, CCD, Fan, Click, TV - Page B - 21	Multi-Board CRT - Page B - 35
Processor 6/9 - Page B - 8	WLAN, 3G/mSATA - Page B - 22	RTL8411B - Page B - 36
Processor 7/9 - Page B - 9	KBC ITE IT8987E - Page B - 23	Pwer SW Board - Page B - 37
Processor 8/9 - Page B - 10	USB - Page B - 24	Click Board - Page B - 38
Processor 9/9 - Page B - 11	Level Shifter 1 - Page B - 25	LED Board - Page B - 39
eMMC - Page B - 12	Level Shifter 2 - Page B - 26	HDD Board - Page B - 40
DDR4 SO-DIMM_0 - Page B - 13	System Power - Page B - 27	Power Sequence - Page B - 41
DDR4 SO-DIMM_1 - Page B - 14	VDD3, VDD5 - Page B - 28	
RTD2136N - Page B - 15	1.2V, 0.6VS, 2.5V - Page B - 29	

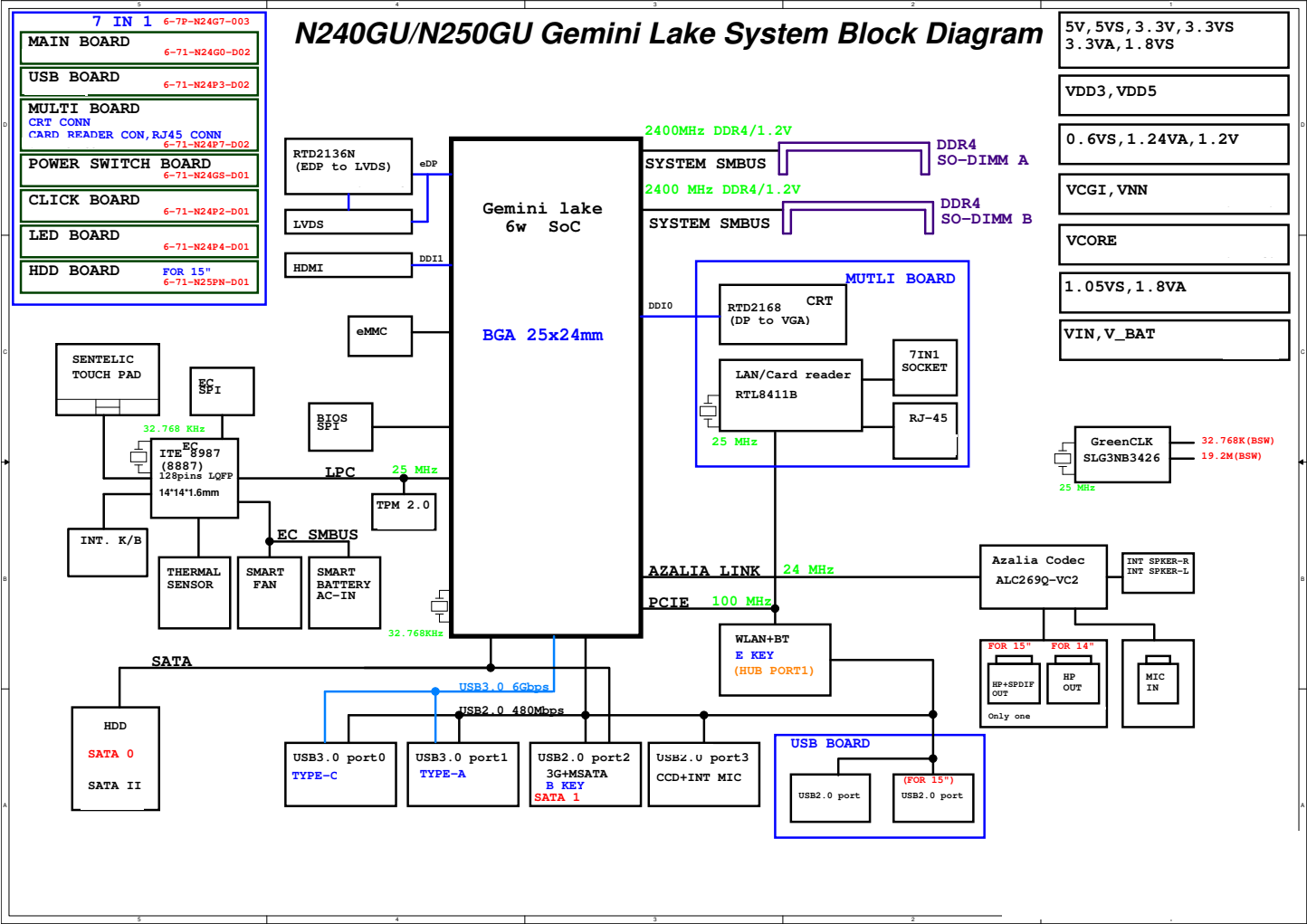
Table B - 1
**SCHEMATIC
DIAGRAMS**



Version Note

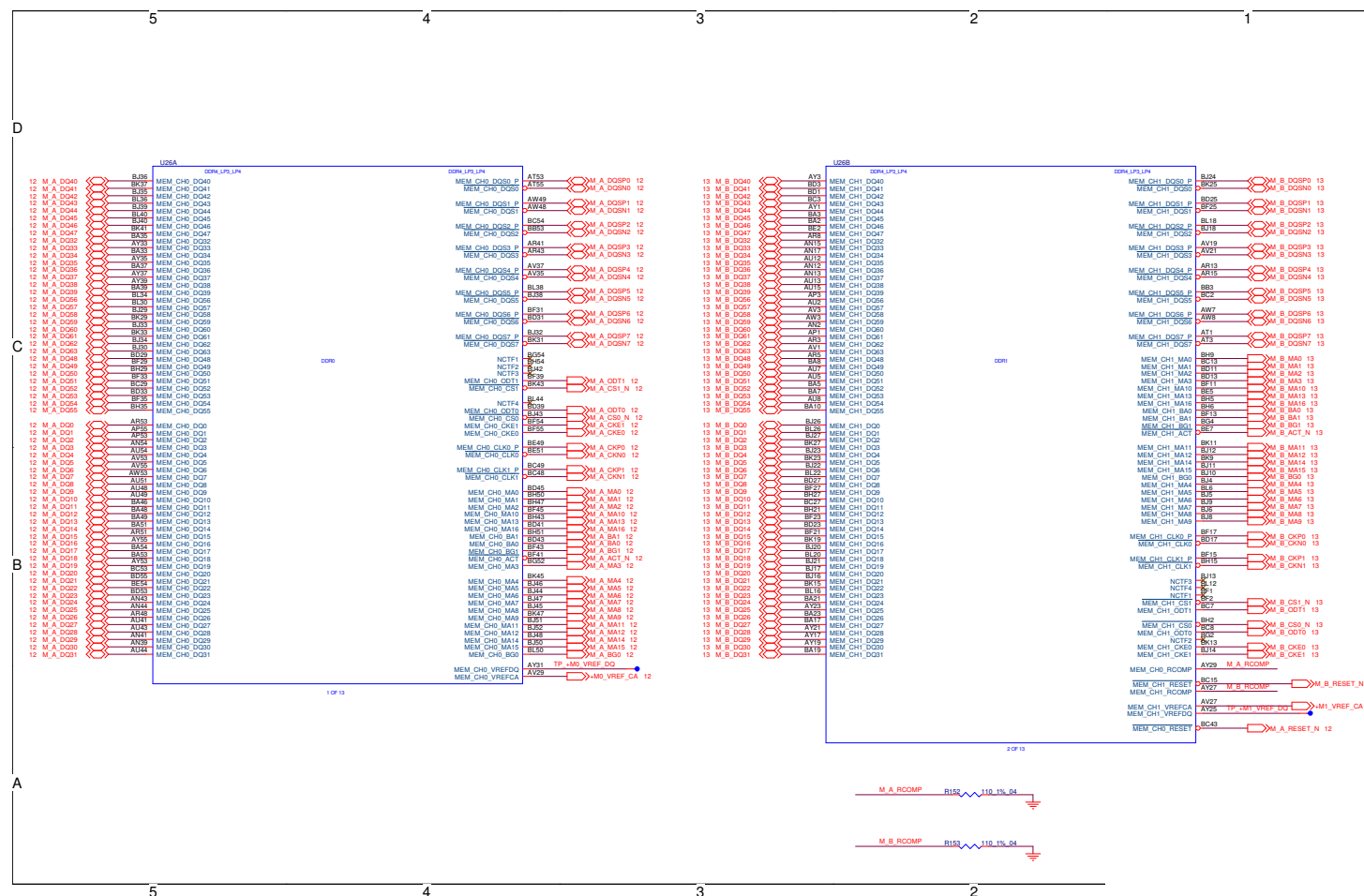
The schematic diagrams in this chapter are based upon version 6-7P-N24G7-003. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

System Block Diagram



Sheet 1 of 40
System Block
Diagram

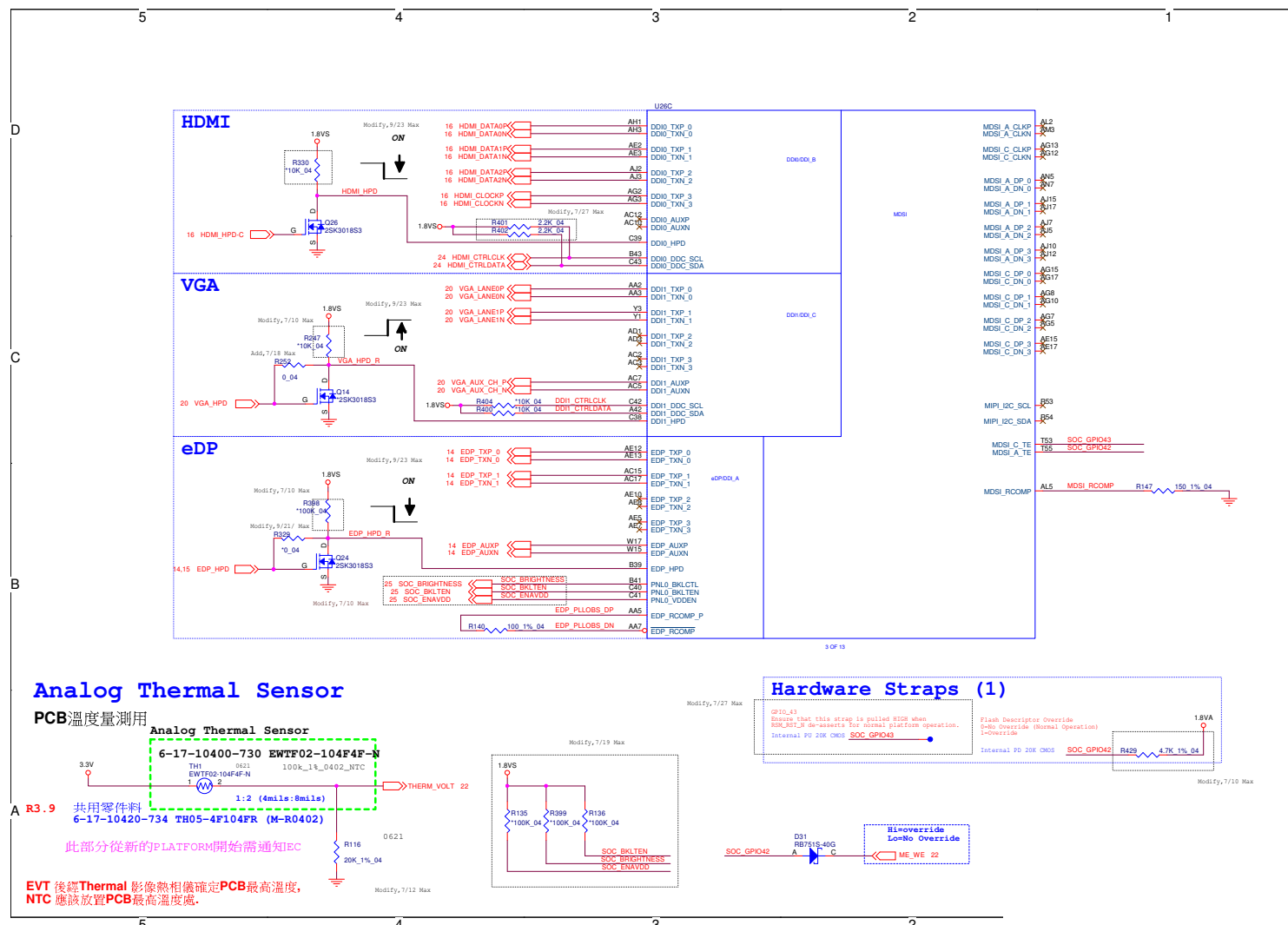
B.Schematic Diagrams



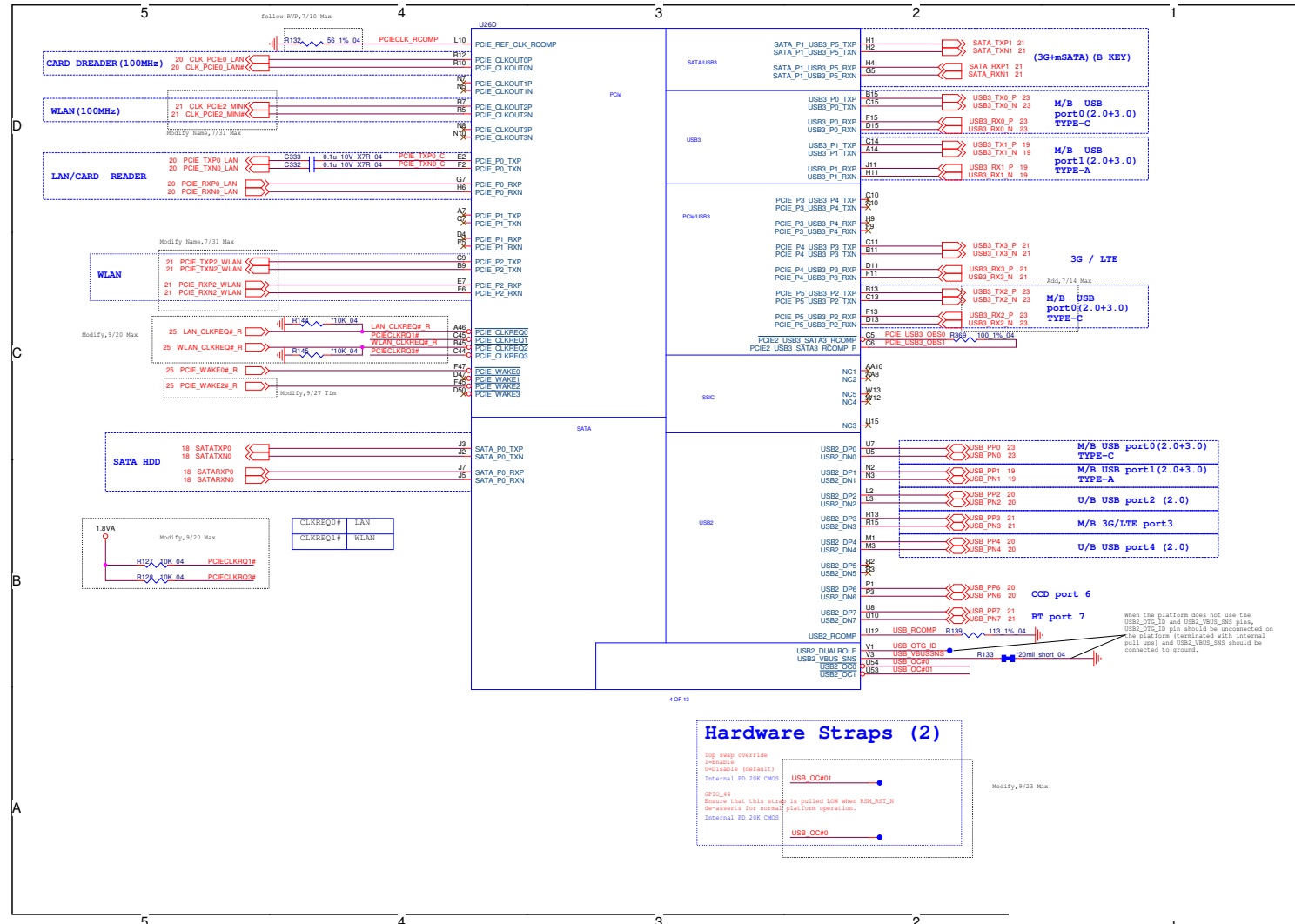
Sheet 2 of 40
Processor 1/9

Processor 2/9

Sheet 3 of 40
Processor 2/9



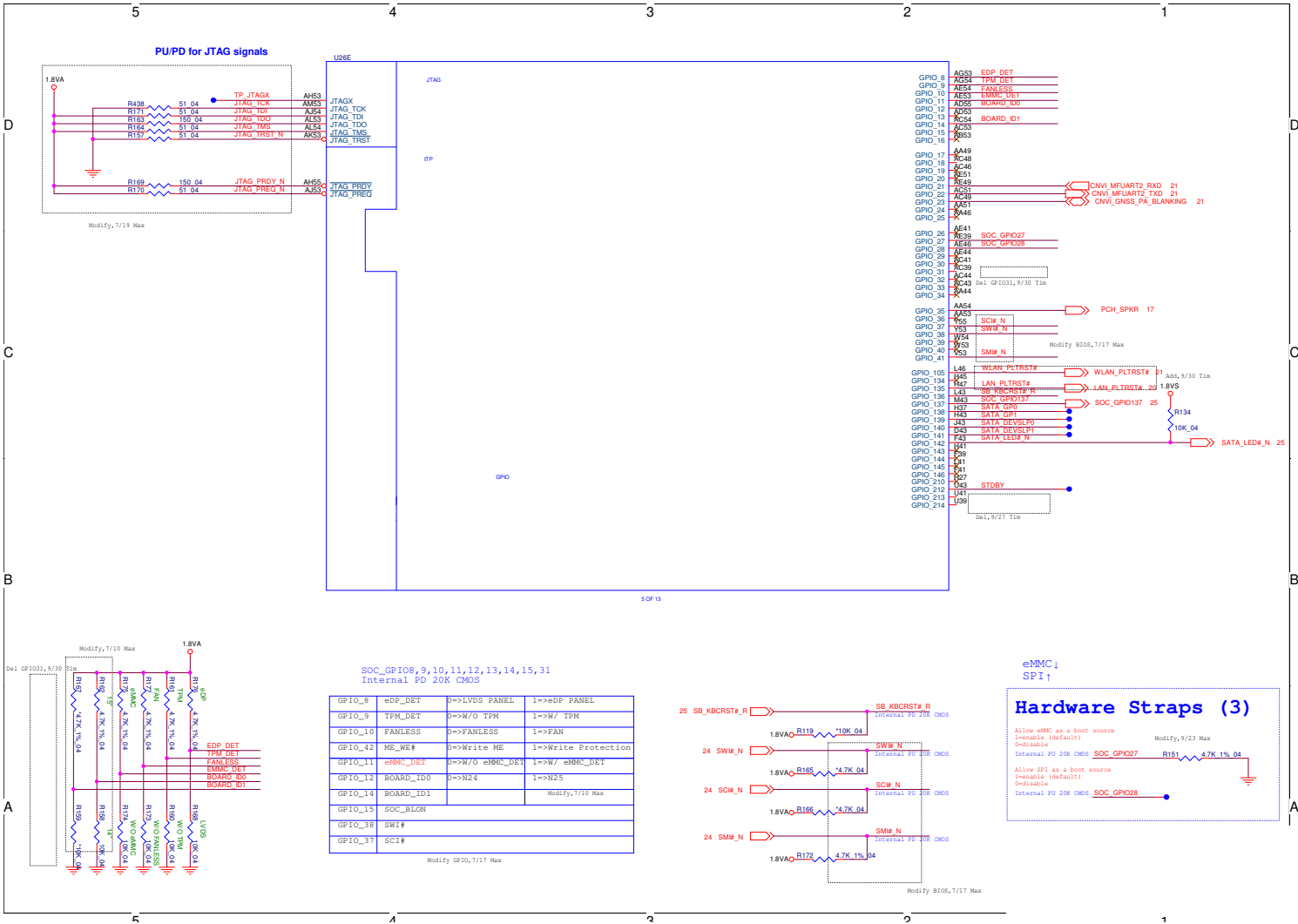
Processor 3/9



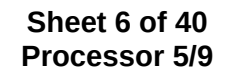
Schematic Diagrams

Processor 4/9

Sheet 5 of 40
Processor 4/9



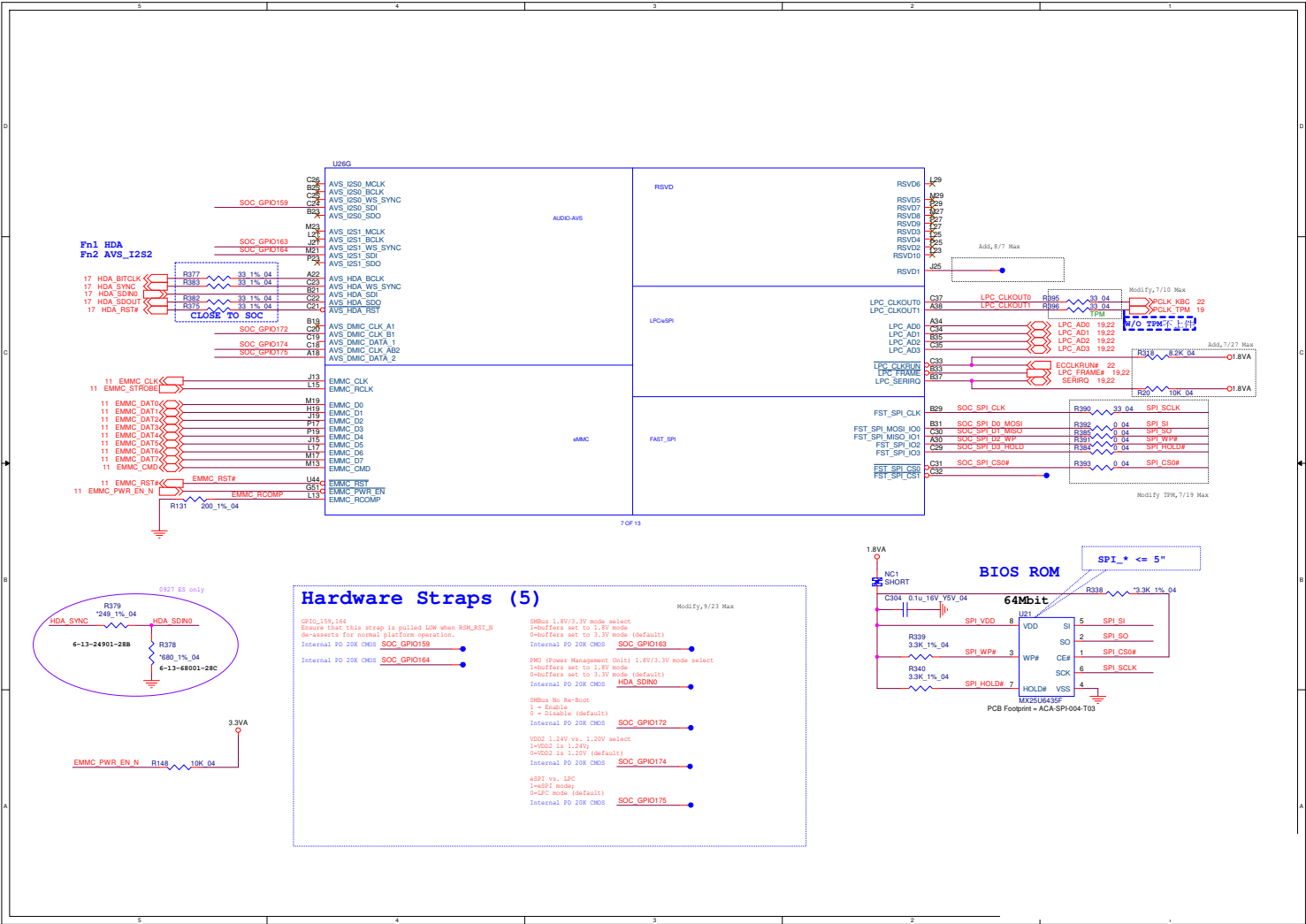
B.Schematic Diagrams



Schematic Diagrams

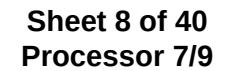
Processor 6/9

Sheet 7 of 40
Processor 6/9



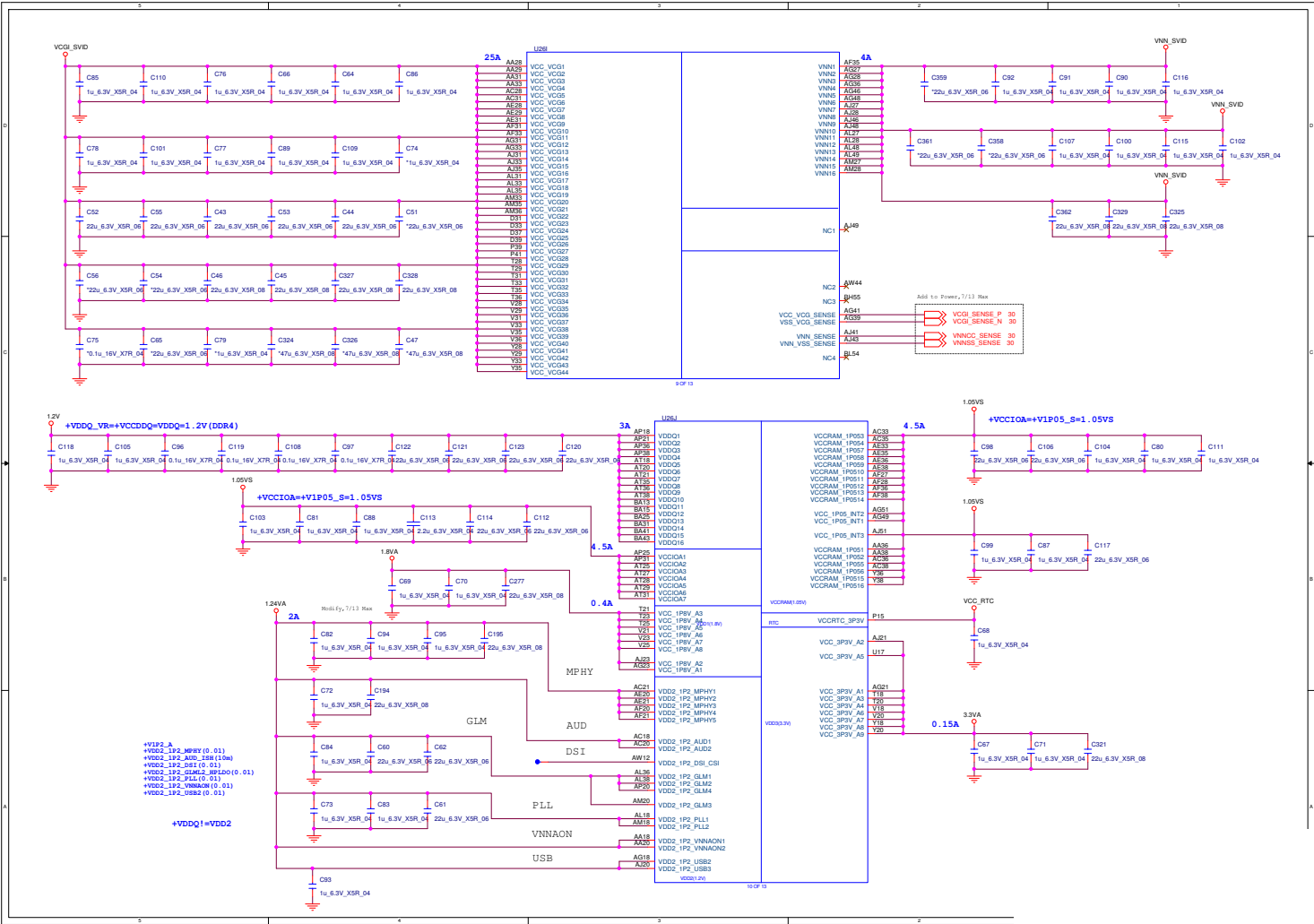
Processor 7/9 B - 9

B.Schematic Diagrams

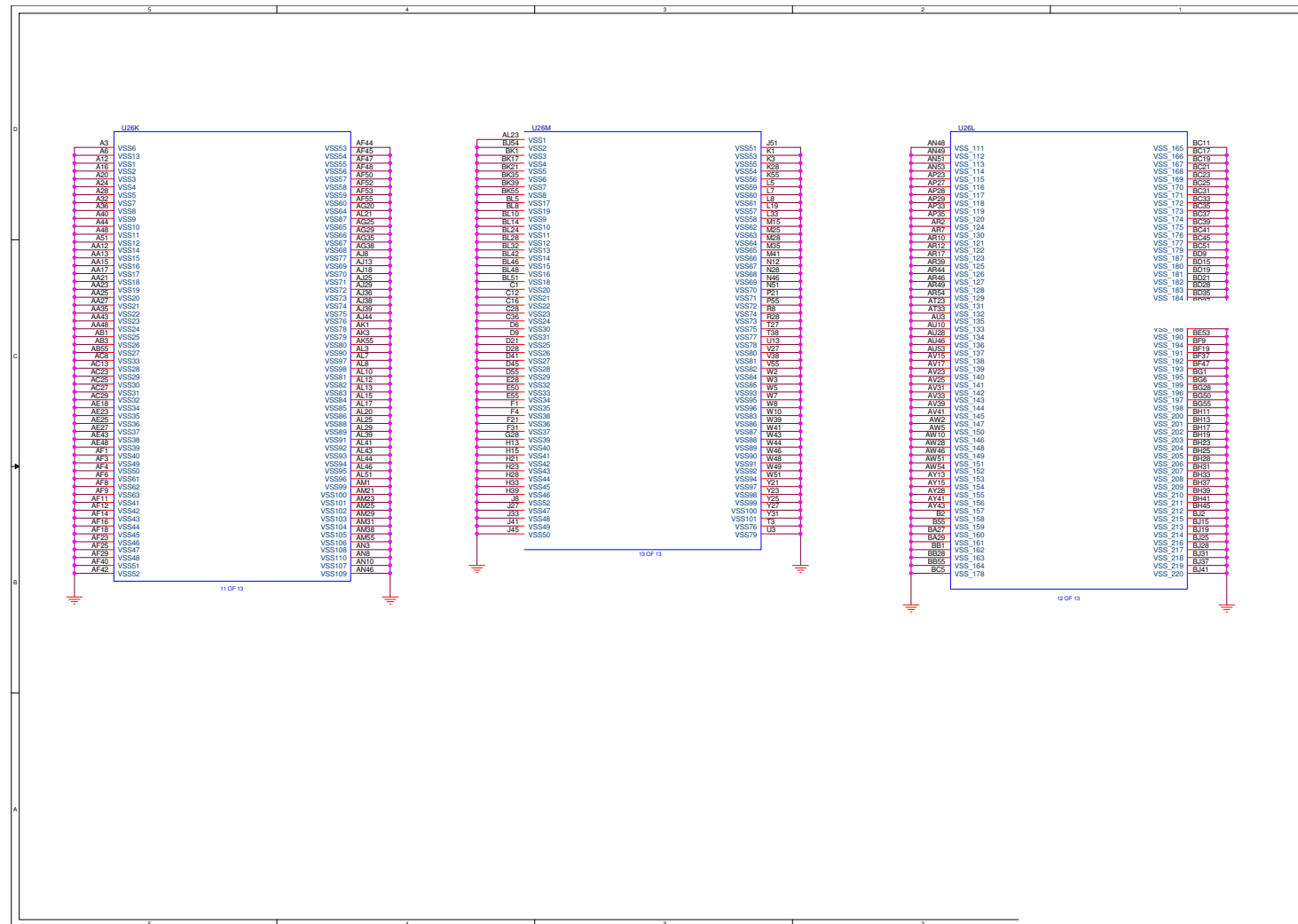


Processor 8/9

Sheet 9 of 40
Processor 8/9



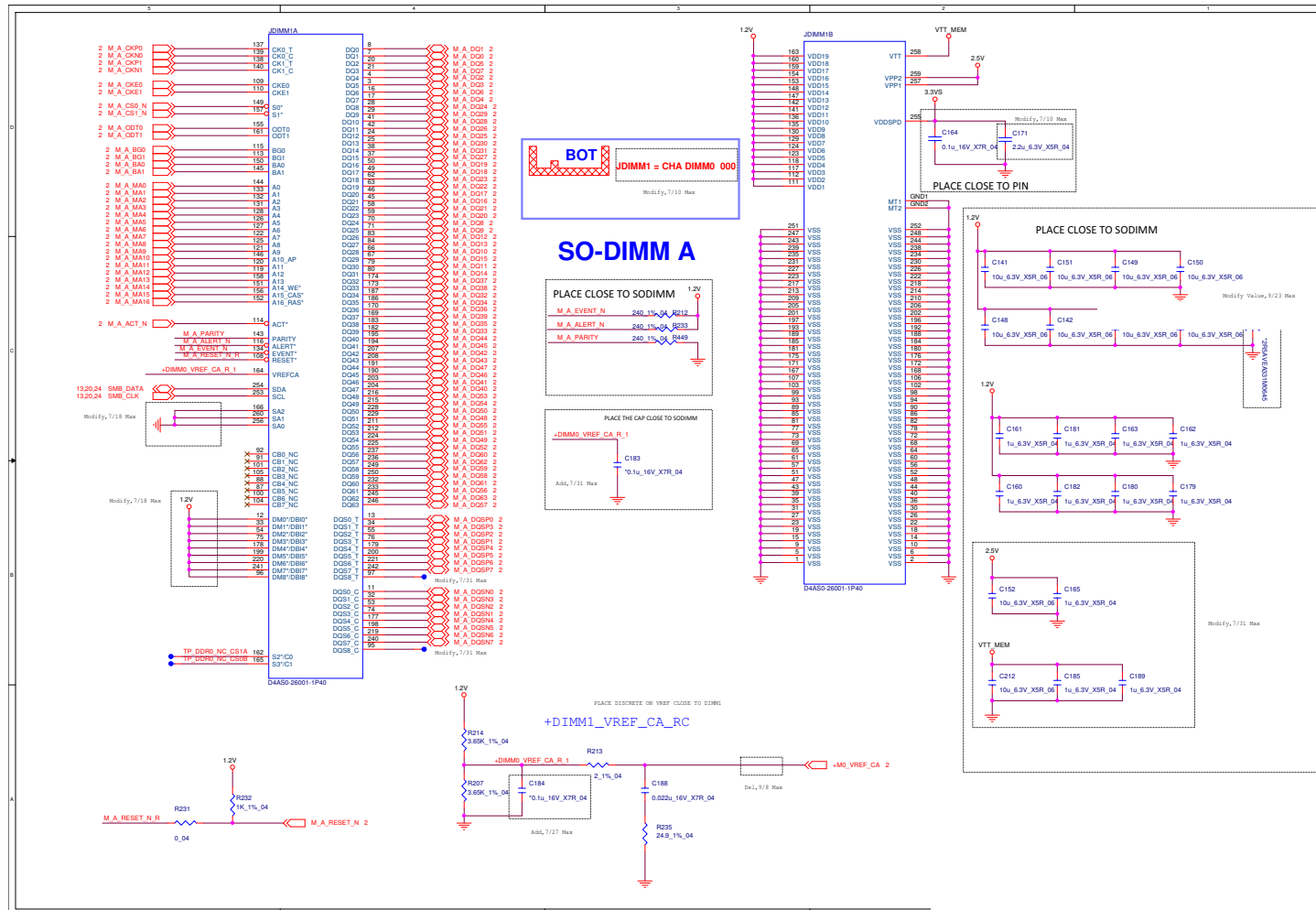
Processor 9/9

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Processor 9/9

B.Schematic Diagrams

B - 12 eMMC

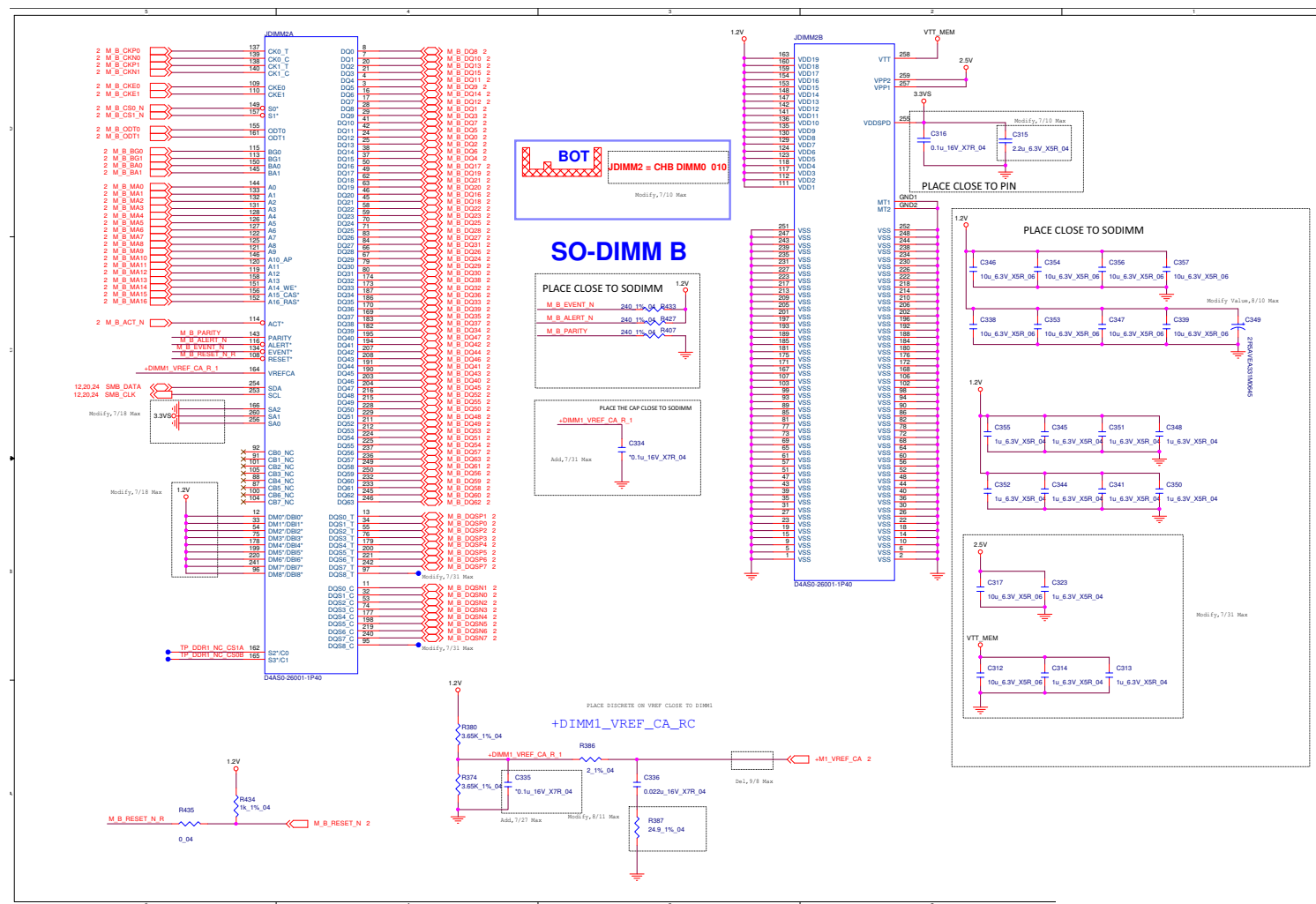
B. Schematic Diagrams



DDR4 SO-DIMM_1

B.Schematic Diagrams

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DDR4 SO-DIMM_1



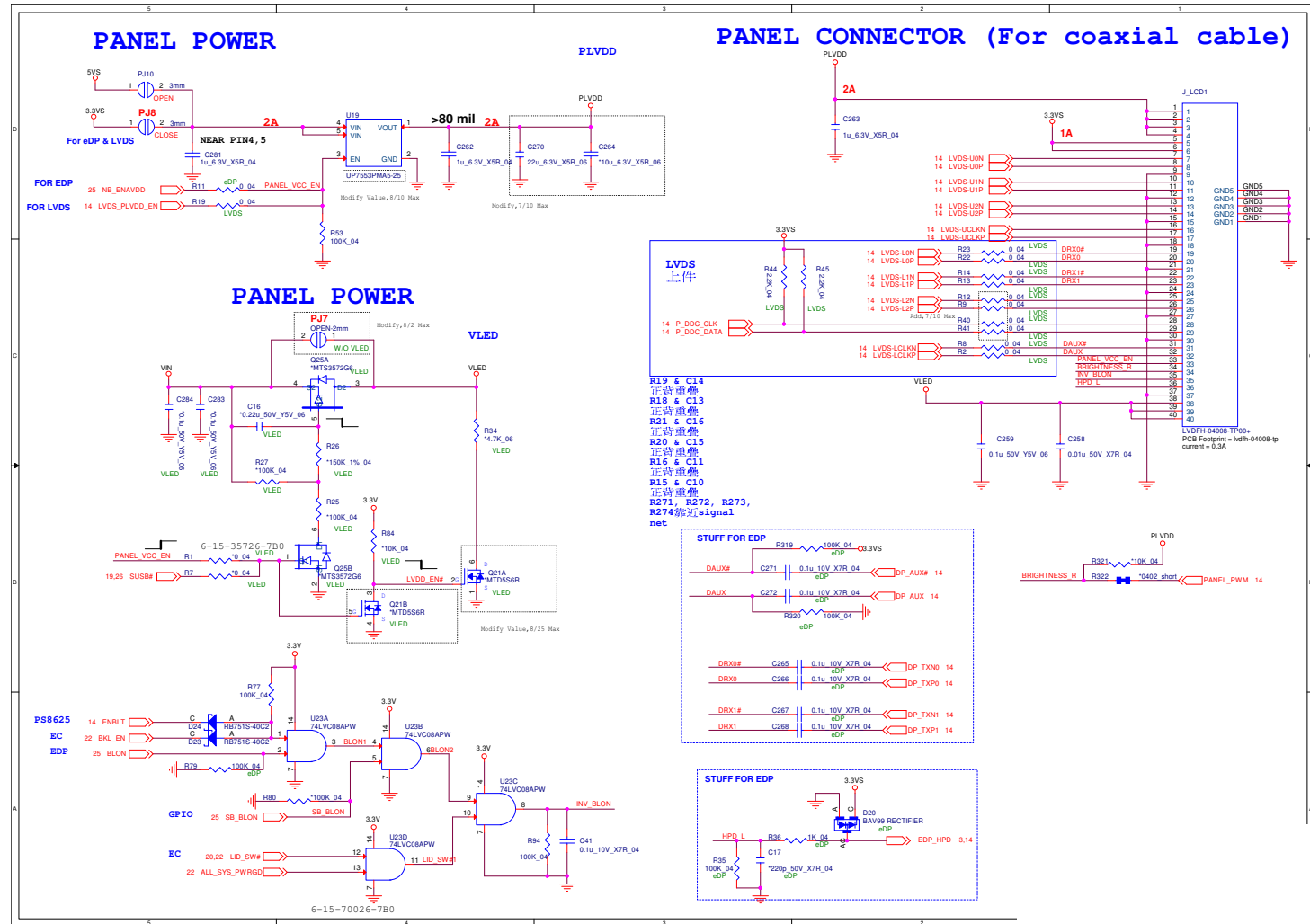
Sheet 14 of 40
RTD2136N



Schematic Diagrams

Panel

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Panel



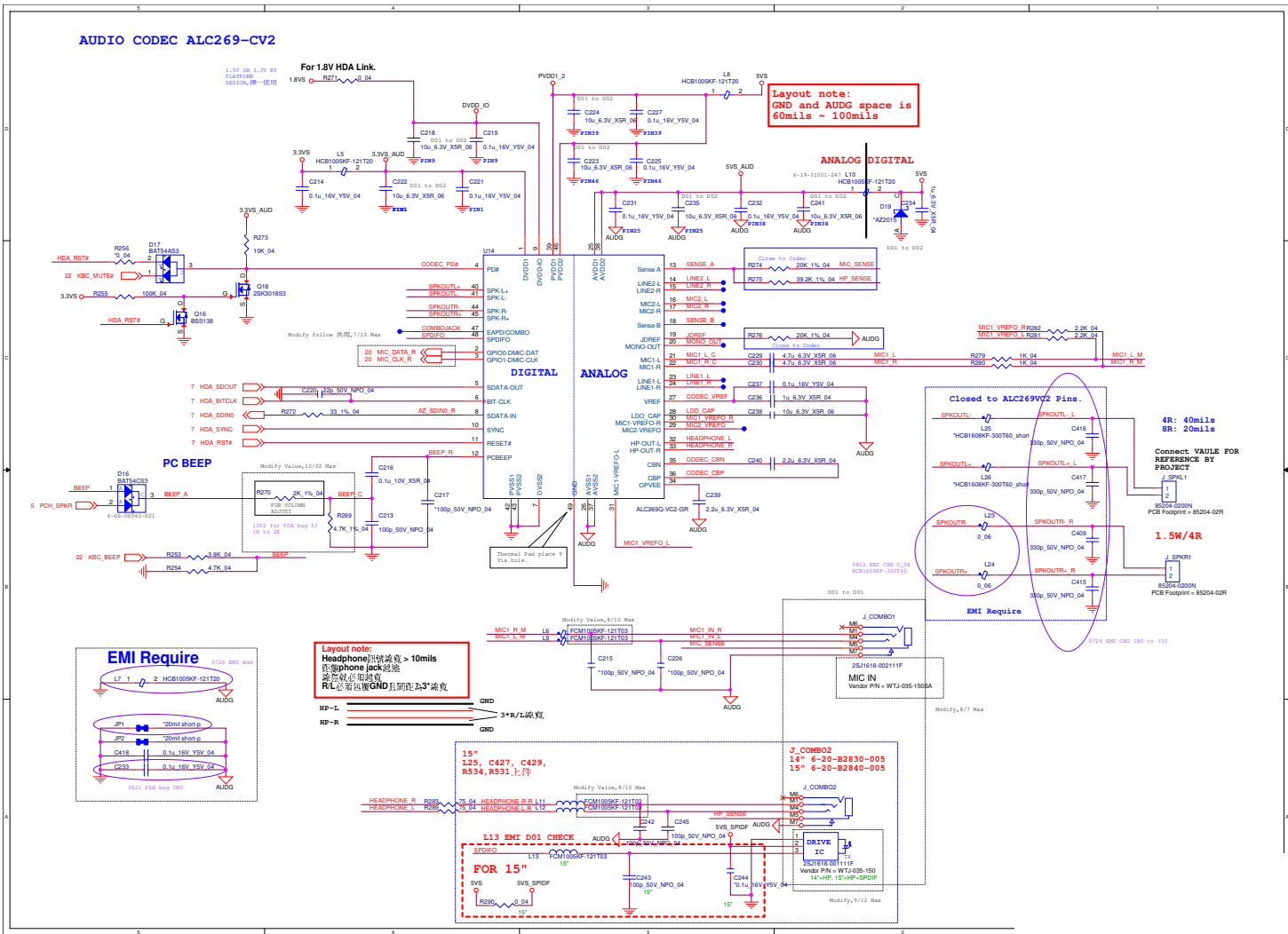
Schematic Diagrams



Audio Codec

B.Schematic Diagrams

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Audio Codec



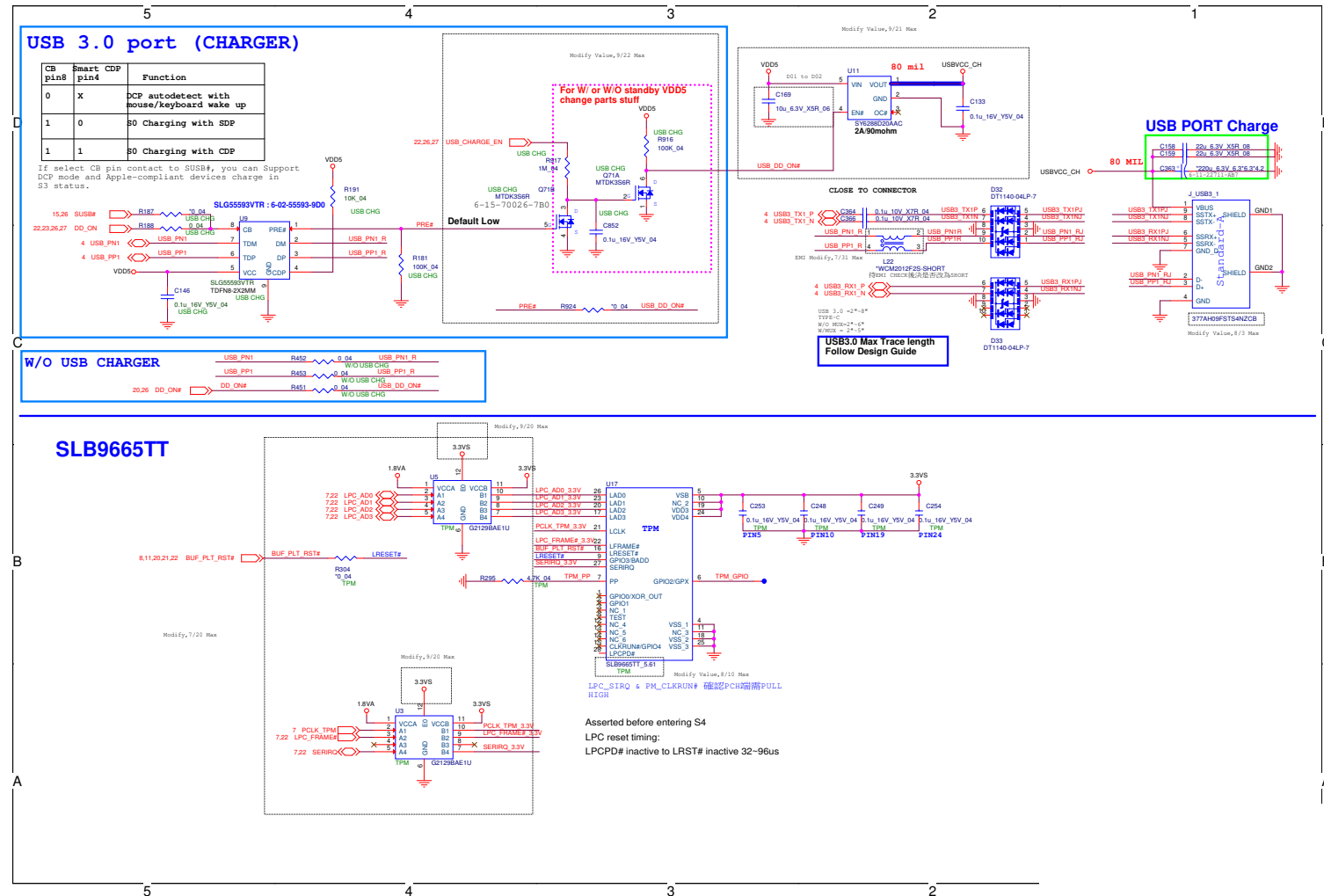
Sheet 18 of 40
SATA, LED, HUB



Schematic Diagrams

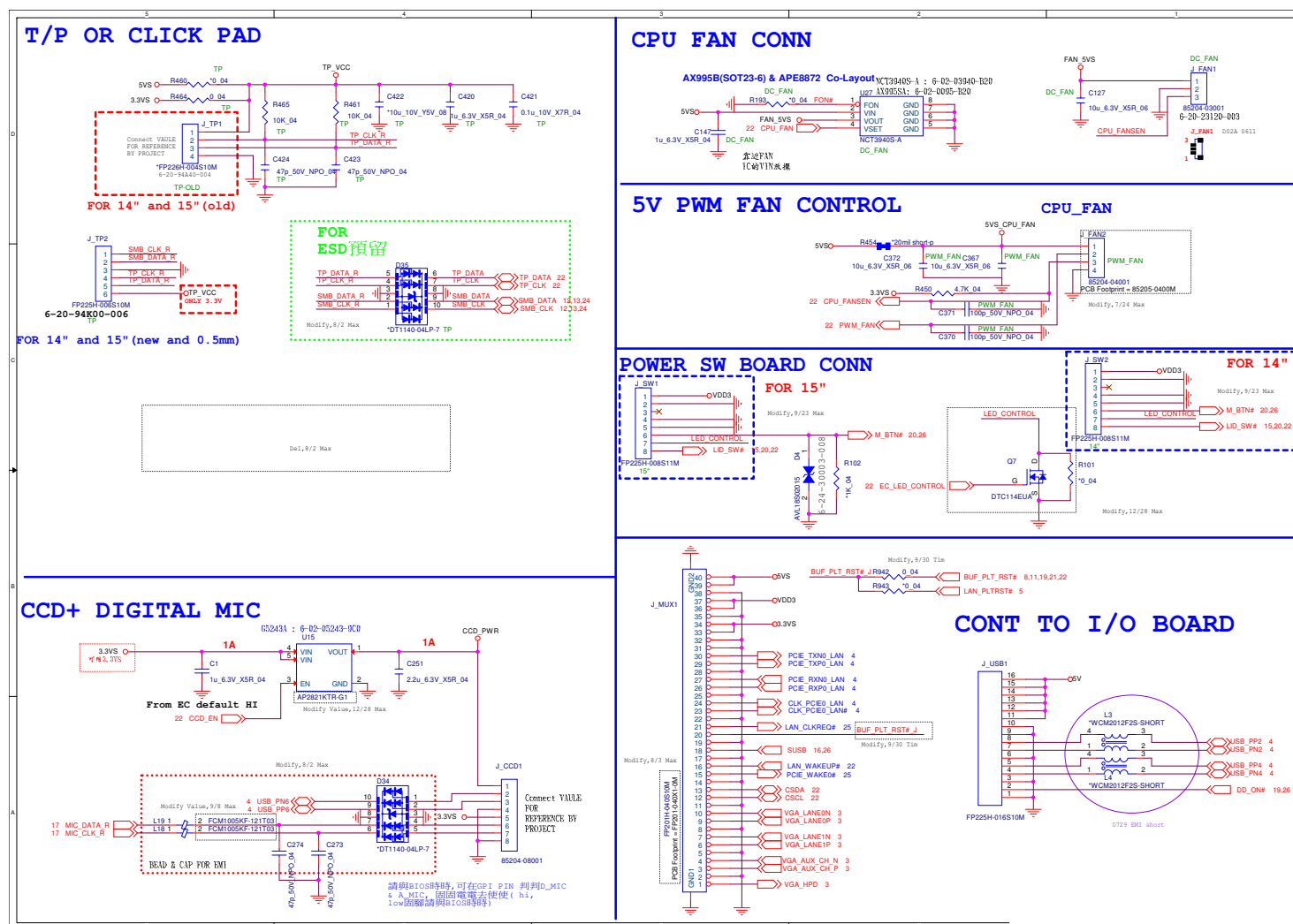
USB Port / TPM

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USB Port / TPM



Conn, CCD, Fan, Click, TV

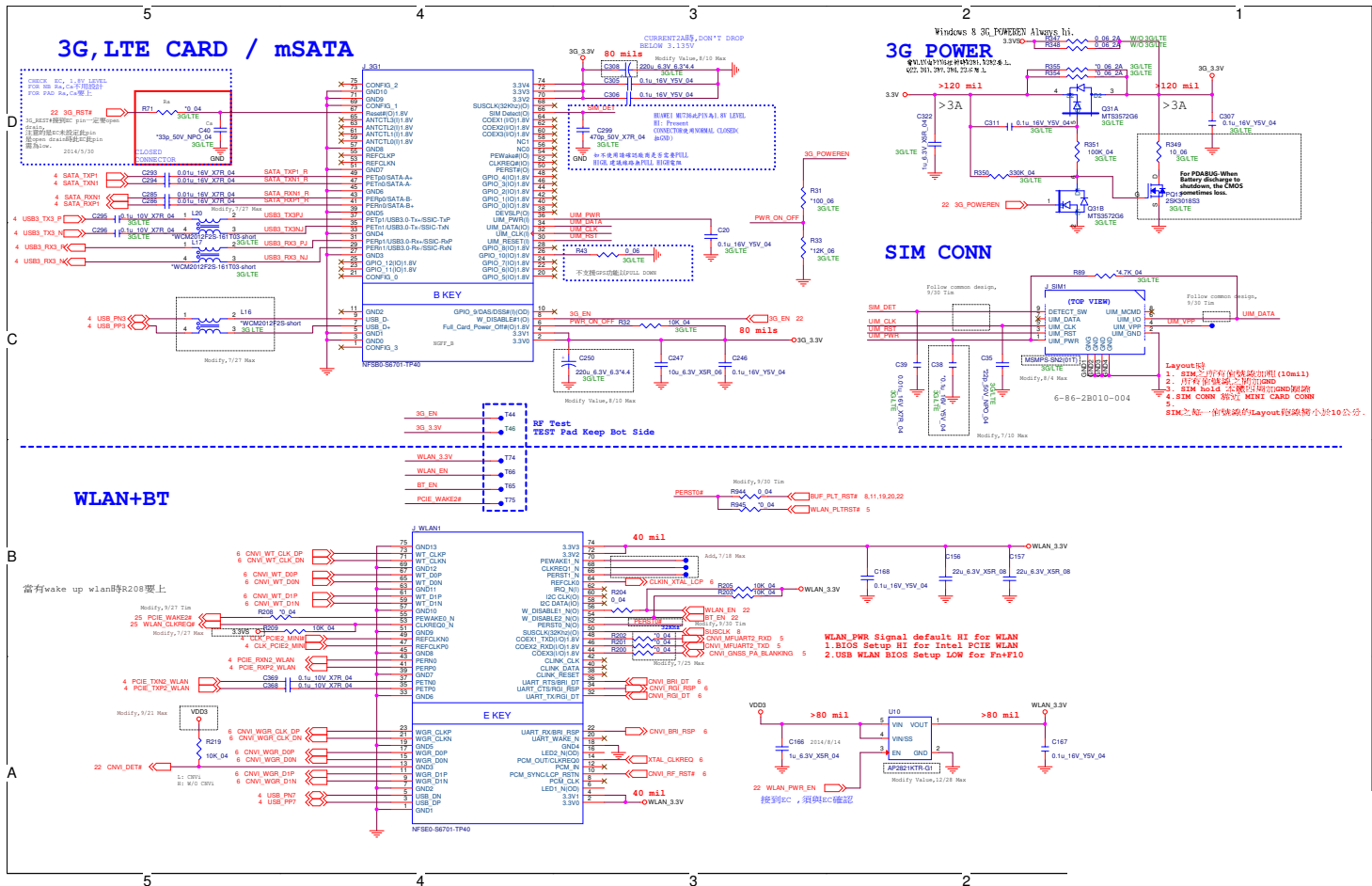
Sheet 20 of 40
Conn, CCD, Fan,
Click, TV



Schematic Diagrams

WLAN, 3G/mSATA

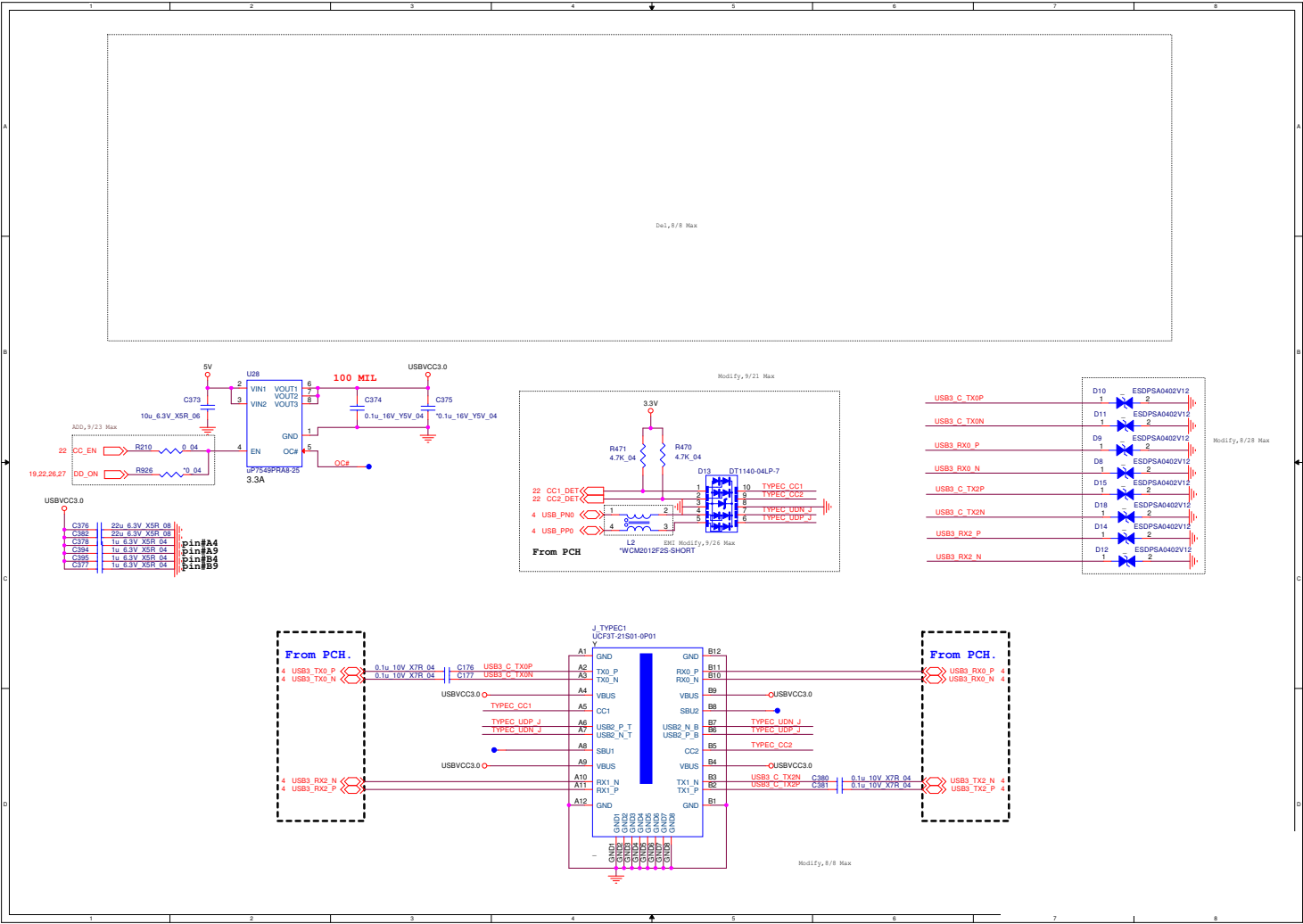
Sheet 21 of 40
WLAN, 3G/mSATA



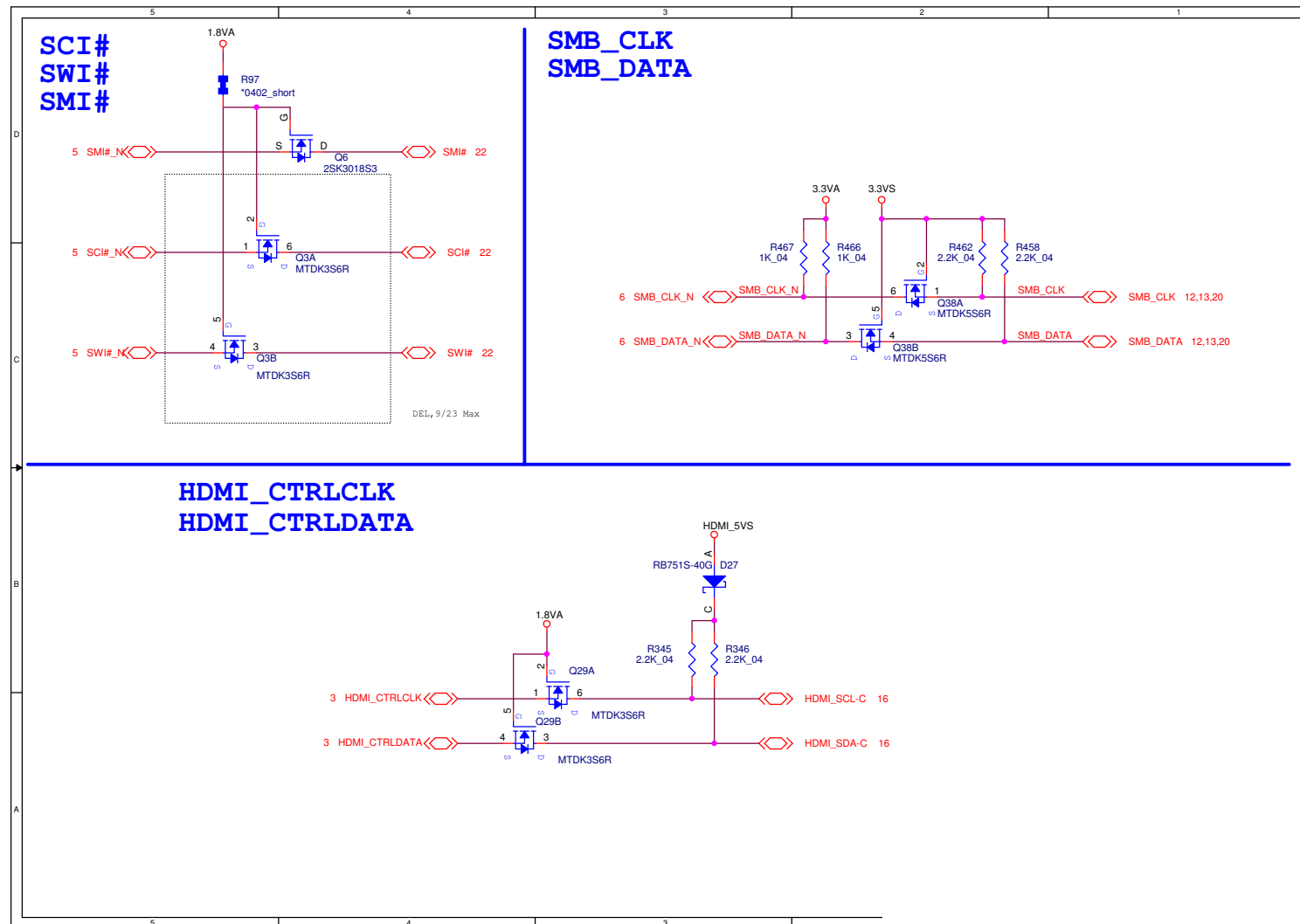
Schematic Diagrams

USB

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USB

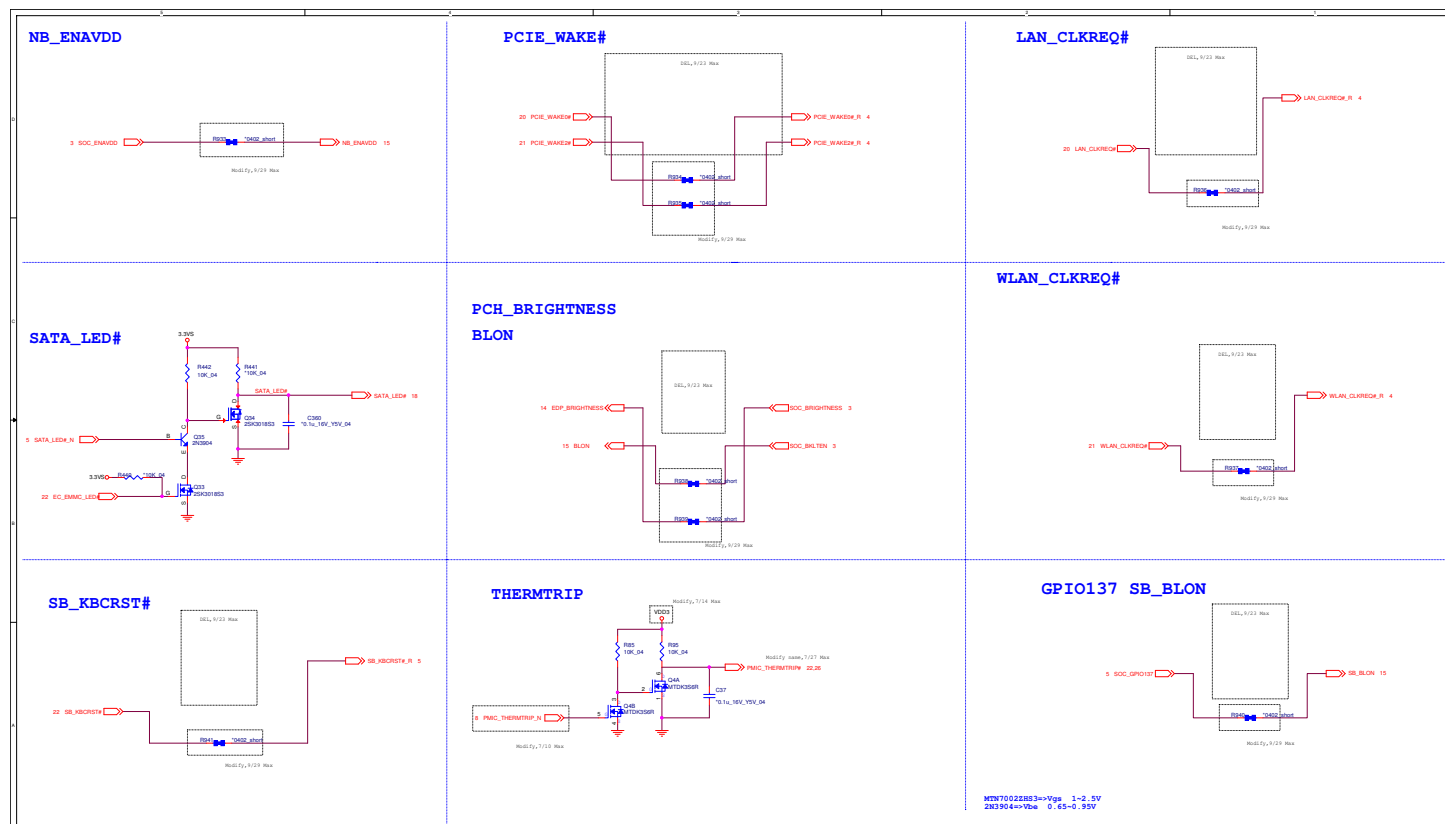


Level Shifter 1

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Level Shifter 1

Level Shifter 2

B. Schematic Diagrams

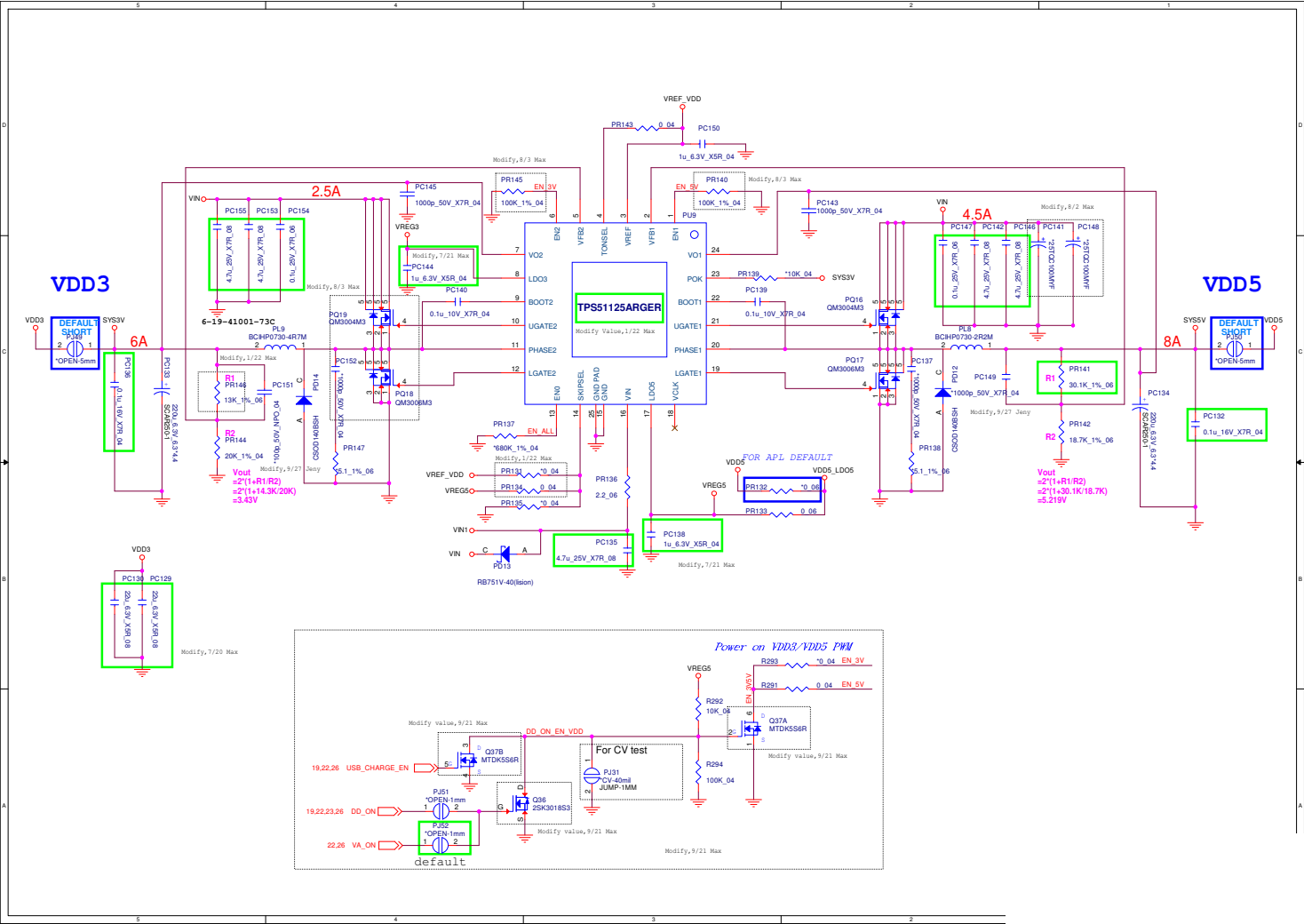


B.Schematic Diagrams

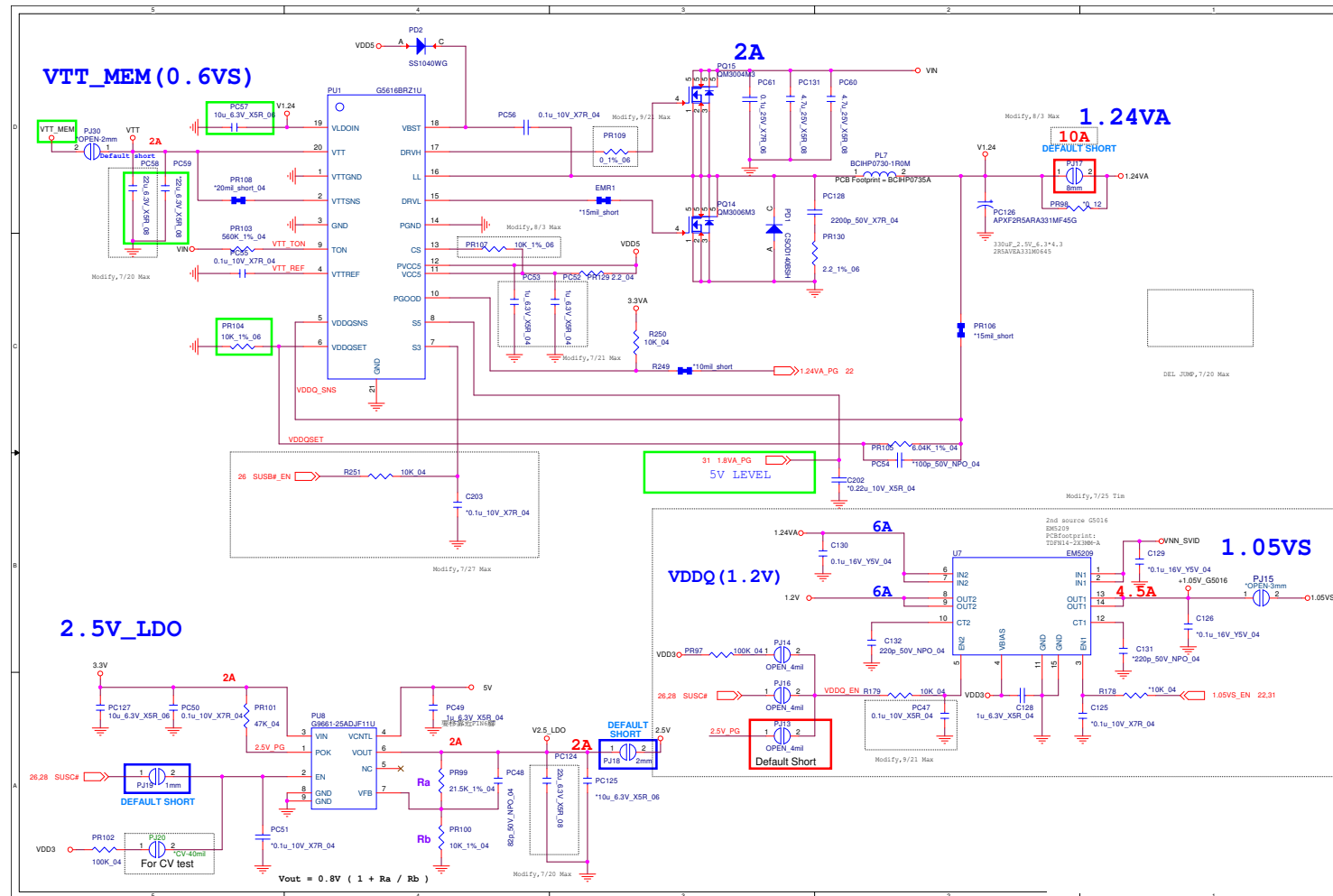


VDD3, VDD5

Sheet 27 of 40
VDD3, VDD5



1.2V, 0.6VS, 2.5V

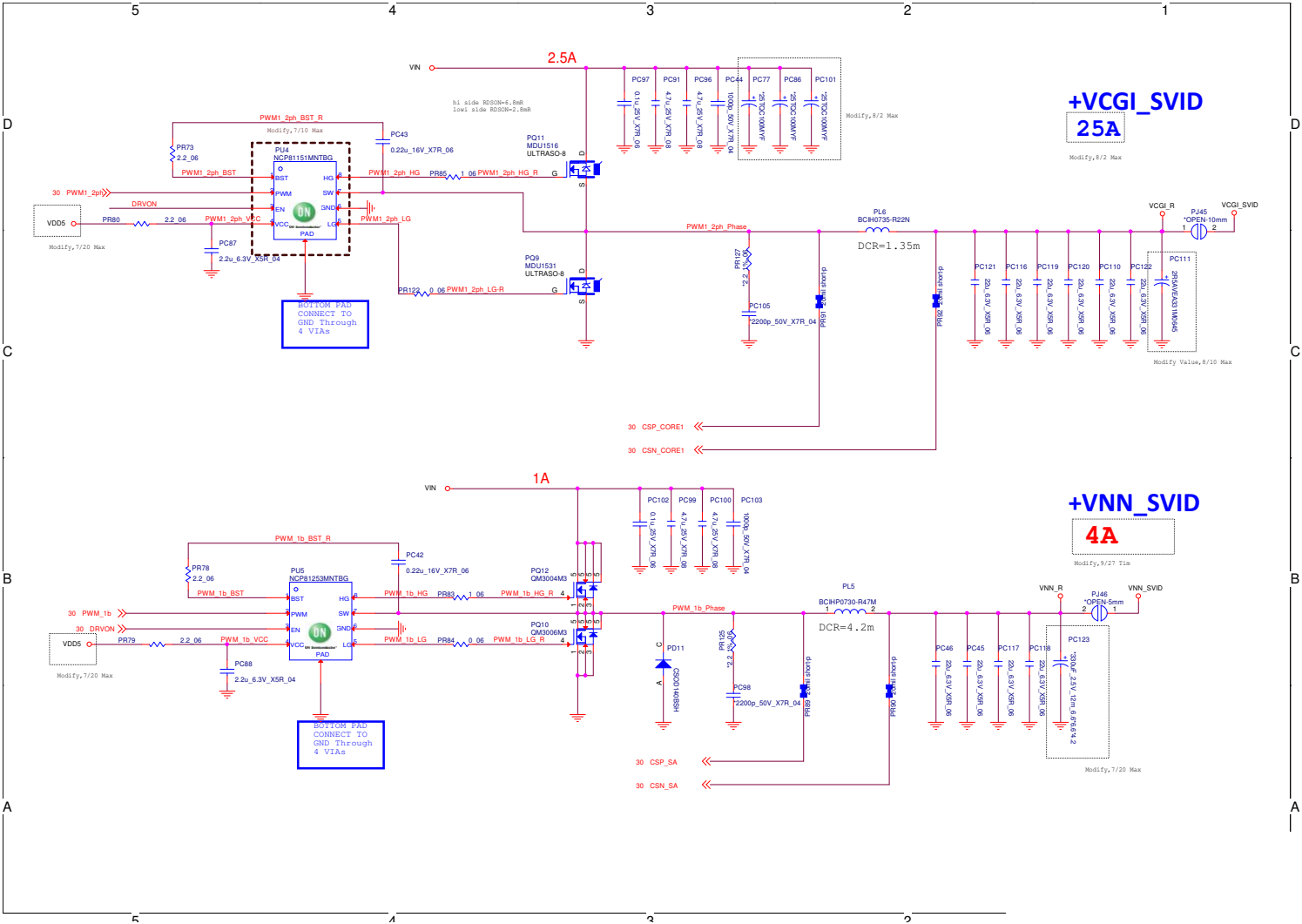


Sheet 28 of 40
1.2V, 0.6VS, 2.5V

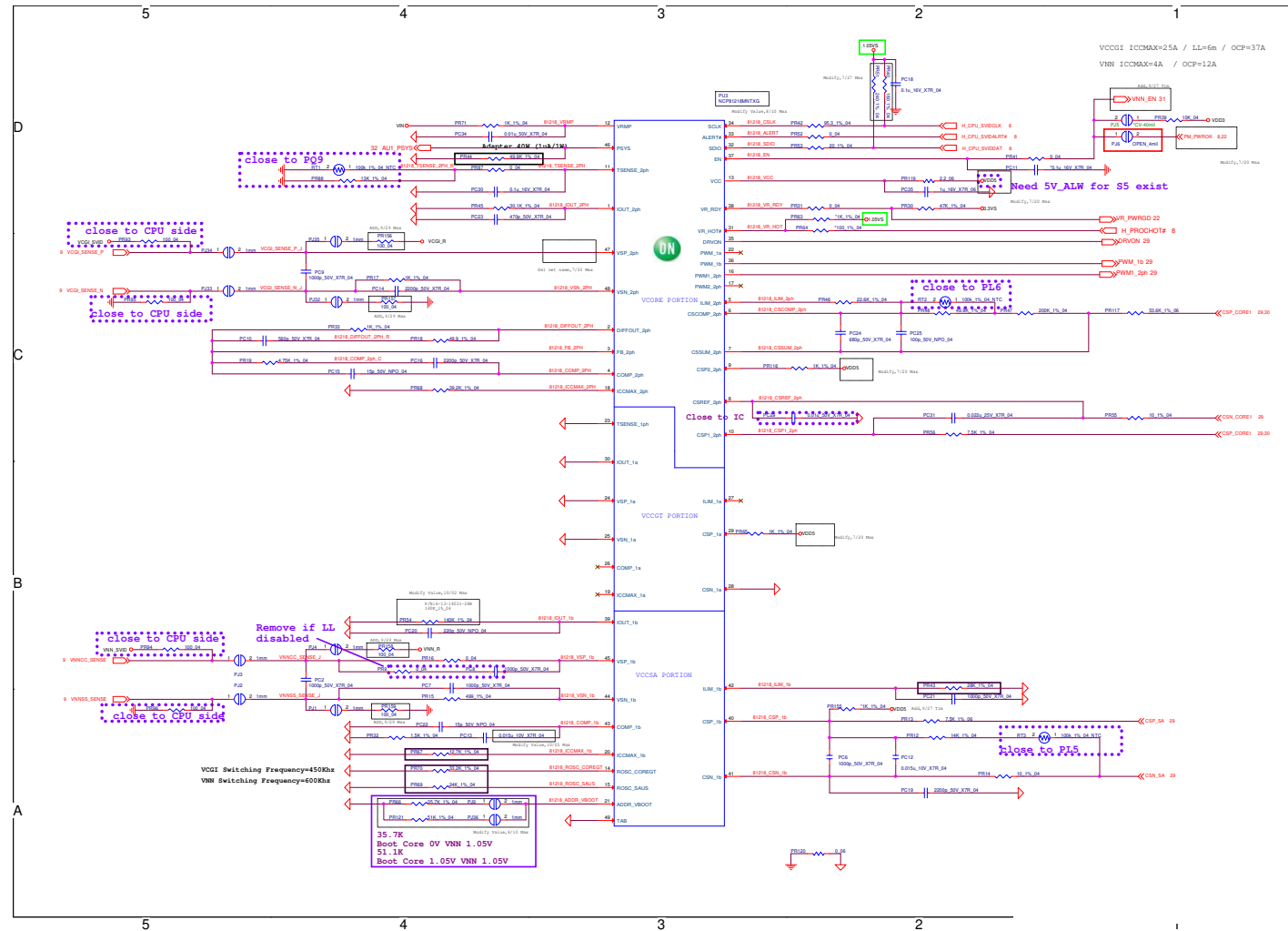
Schematic Diagrams

VCGI, VNN

Sheet 29 of 40
VCGI, VNN

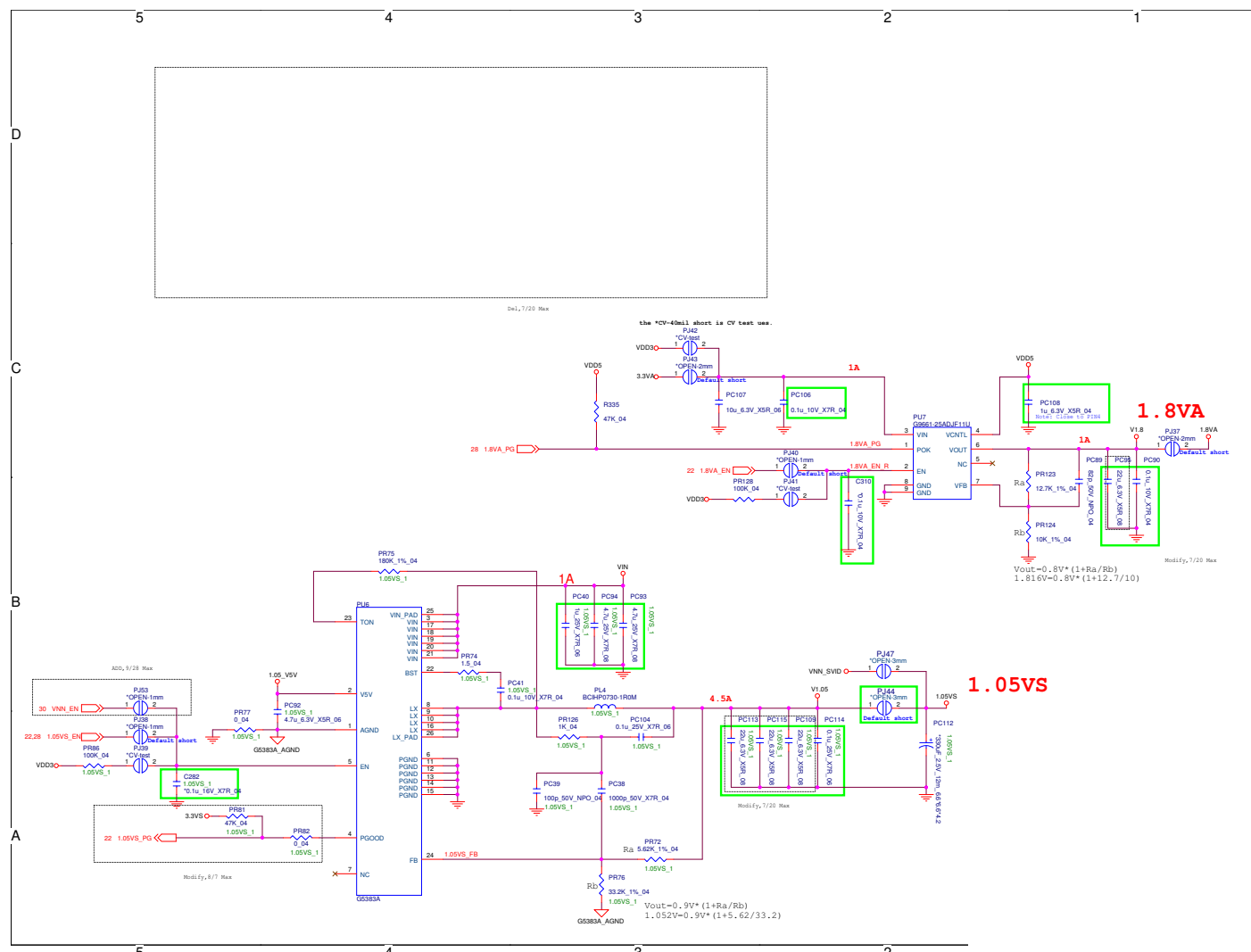


VCore

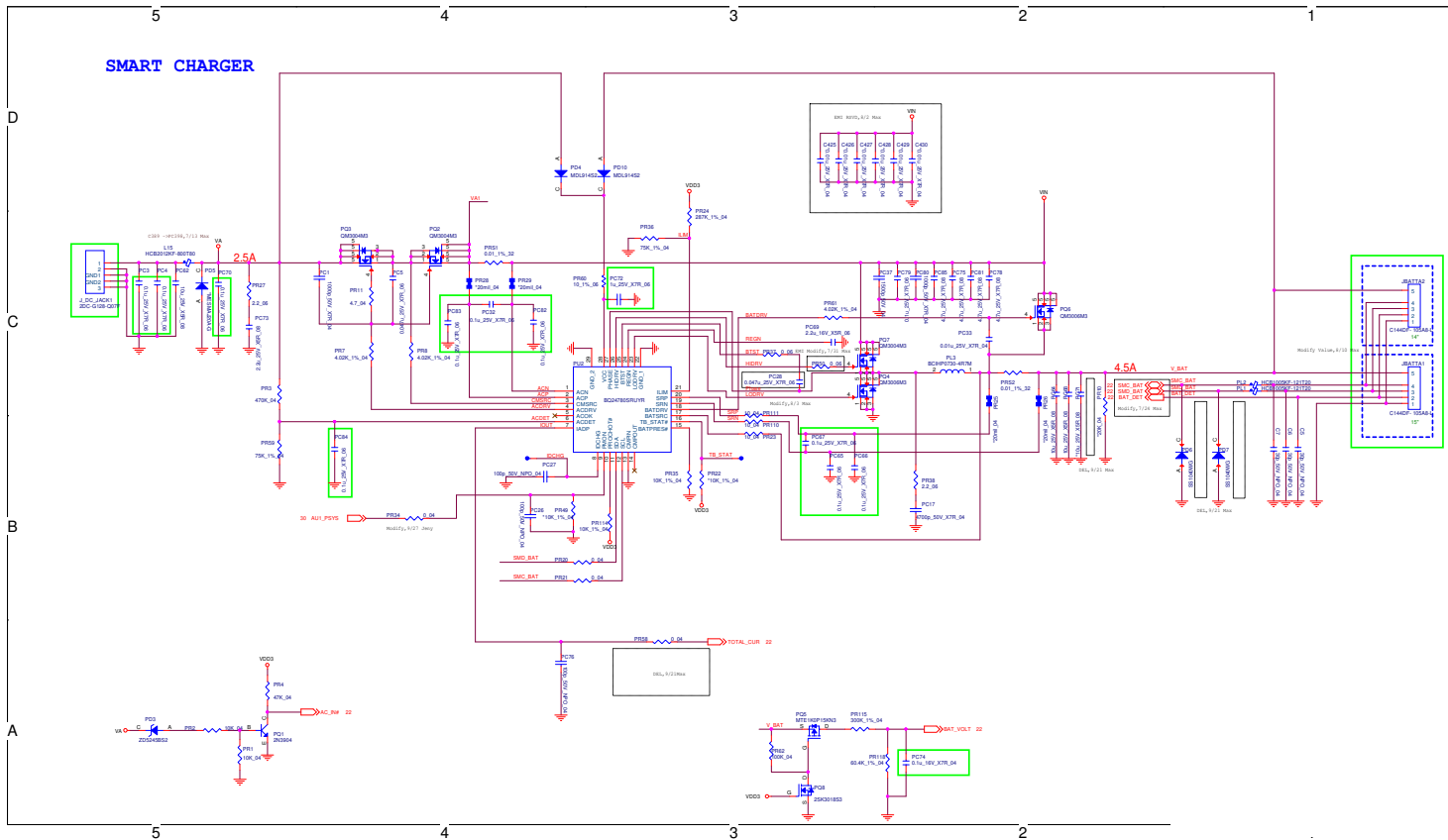
Sheet 30 of 40
VCore

B. Schematic Diagrams

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1.05VS, 1.8VA



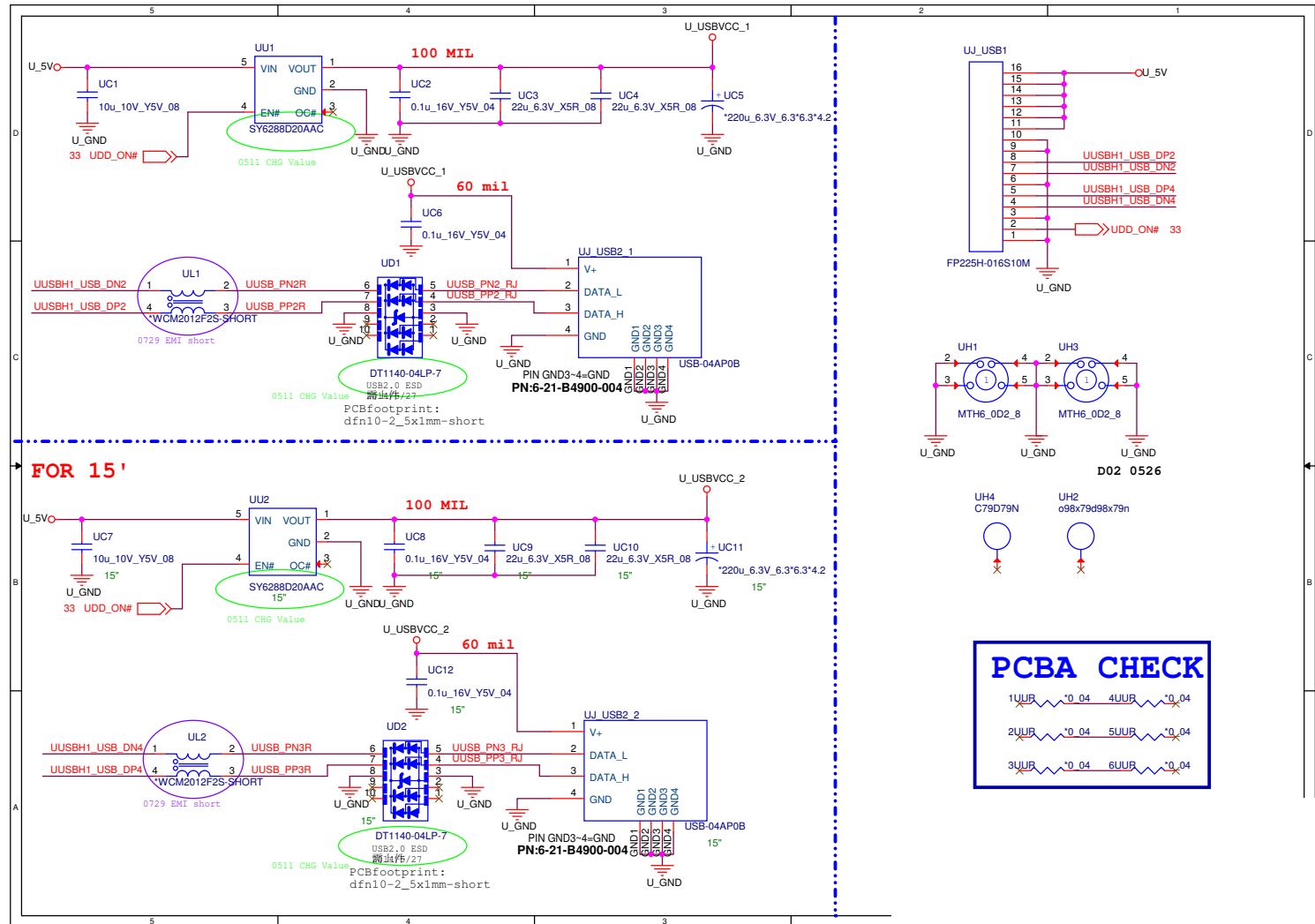
AC-In Charger



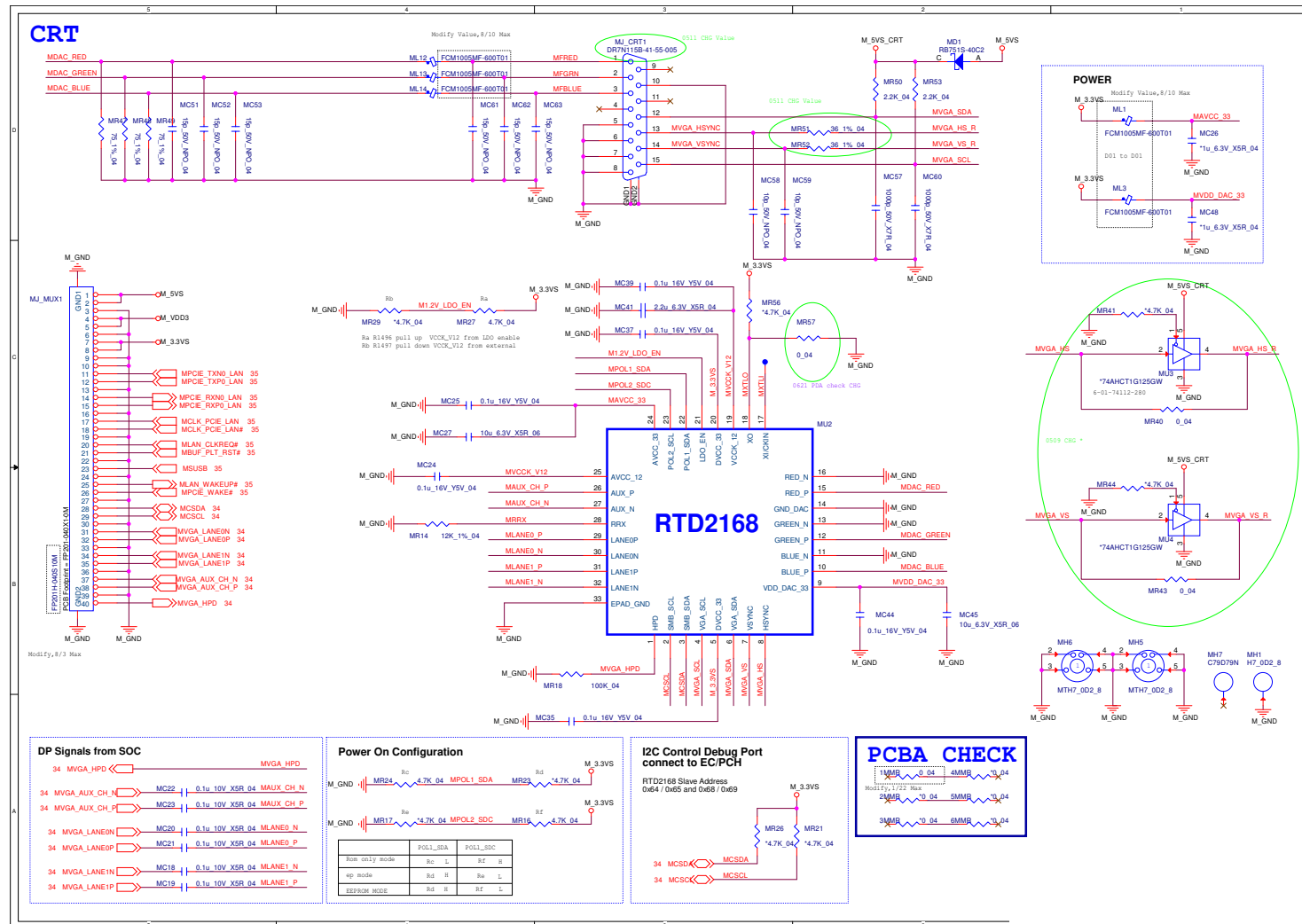
Sheet 32 of 40
AC-In Charger

USB Board

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USB Board



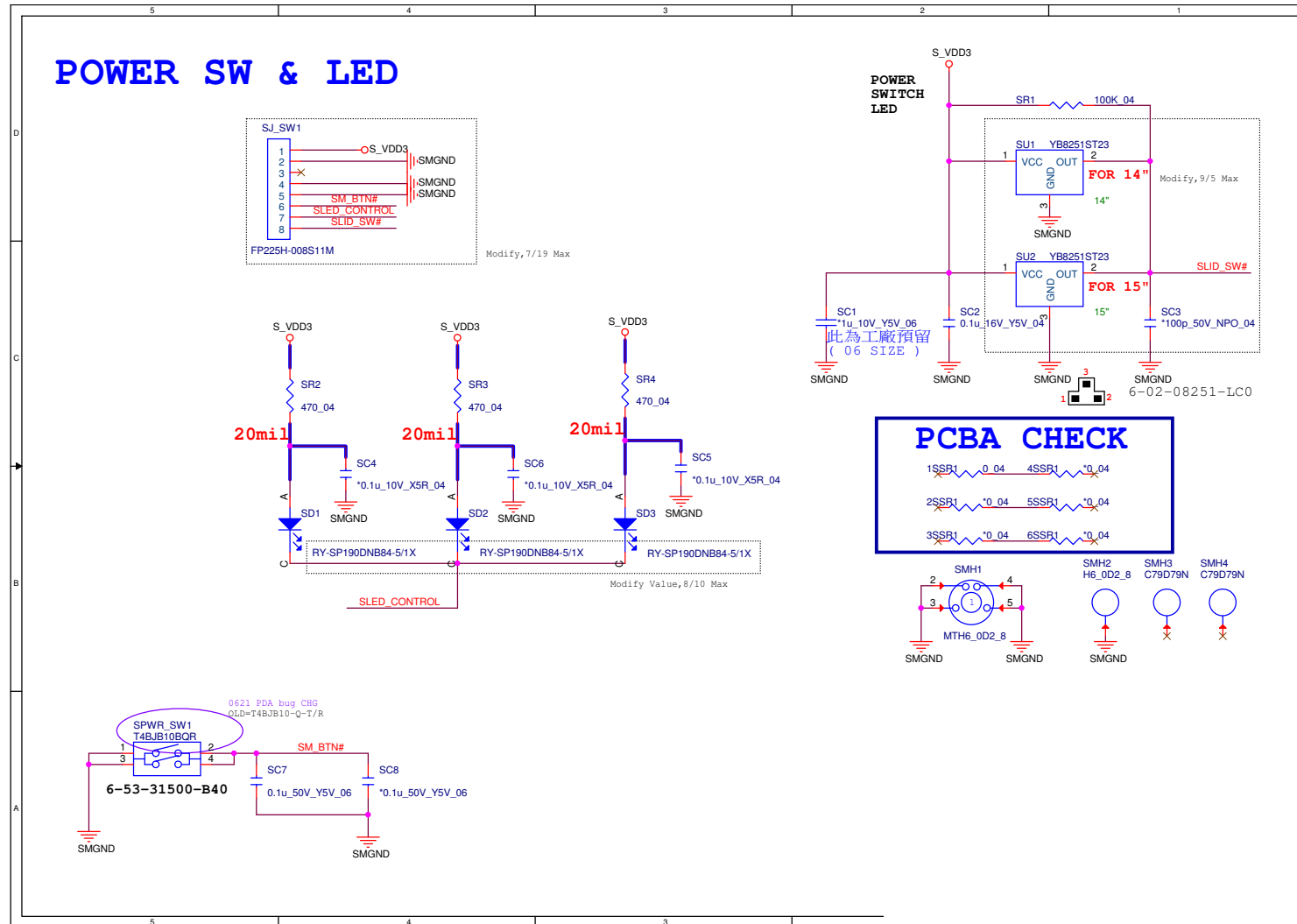
Multi-Board CRT B - 35



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RTL8411B



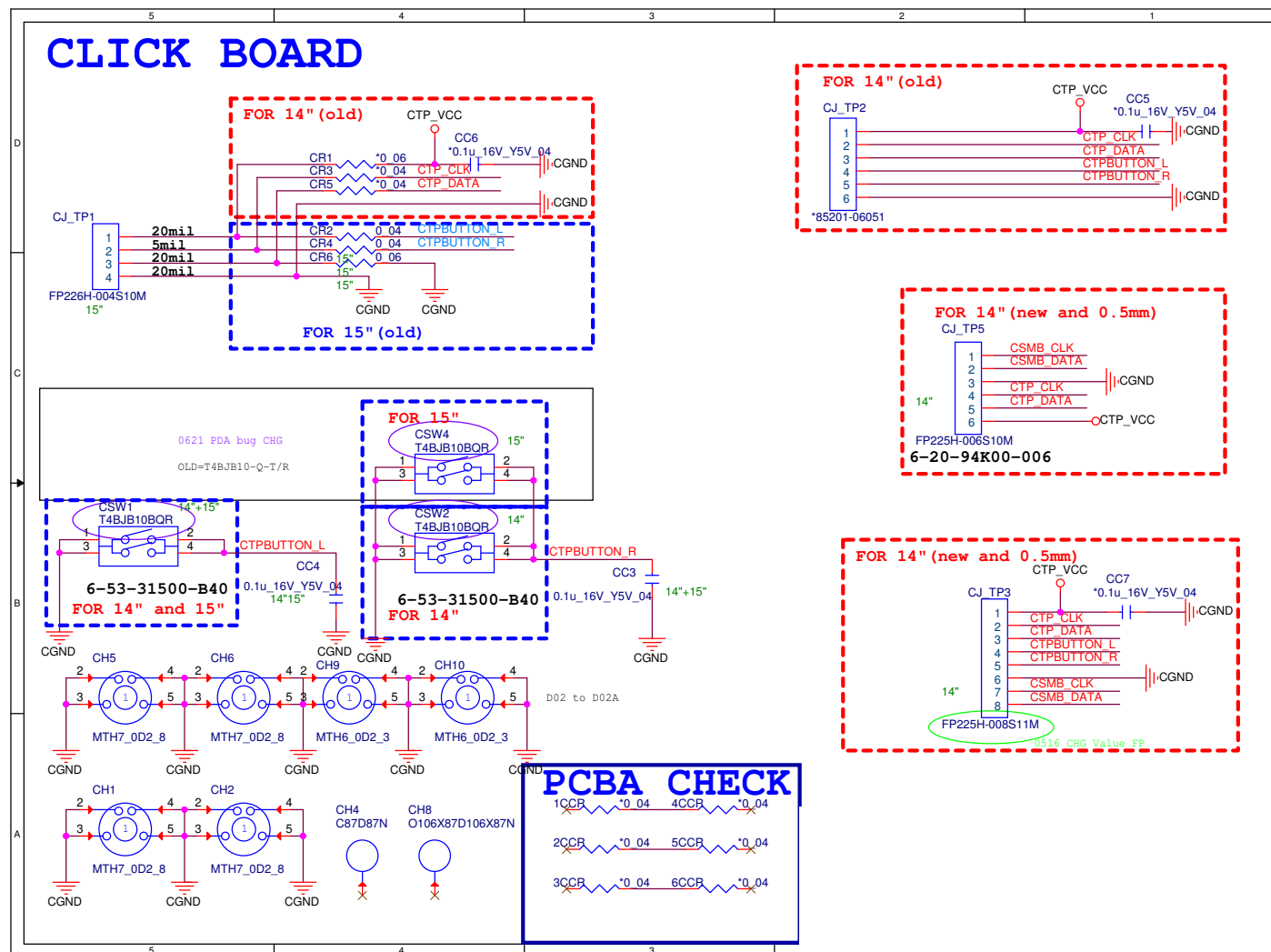
Pwer SW Board



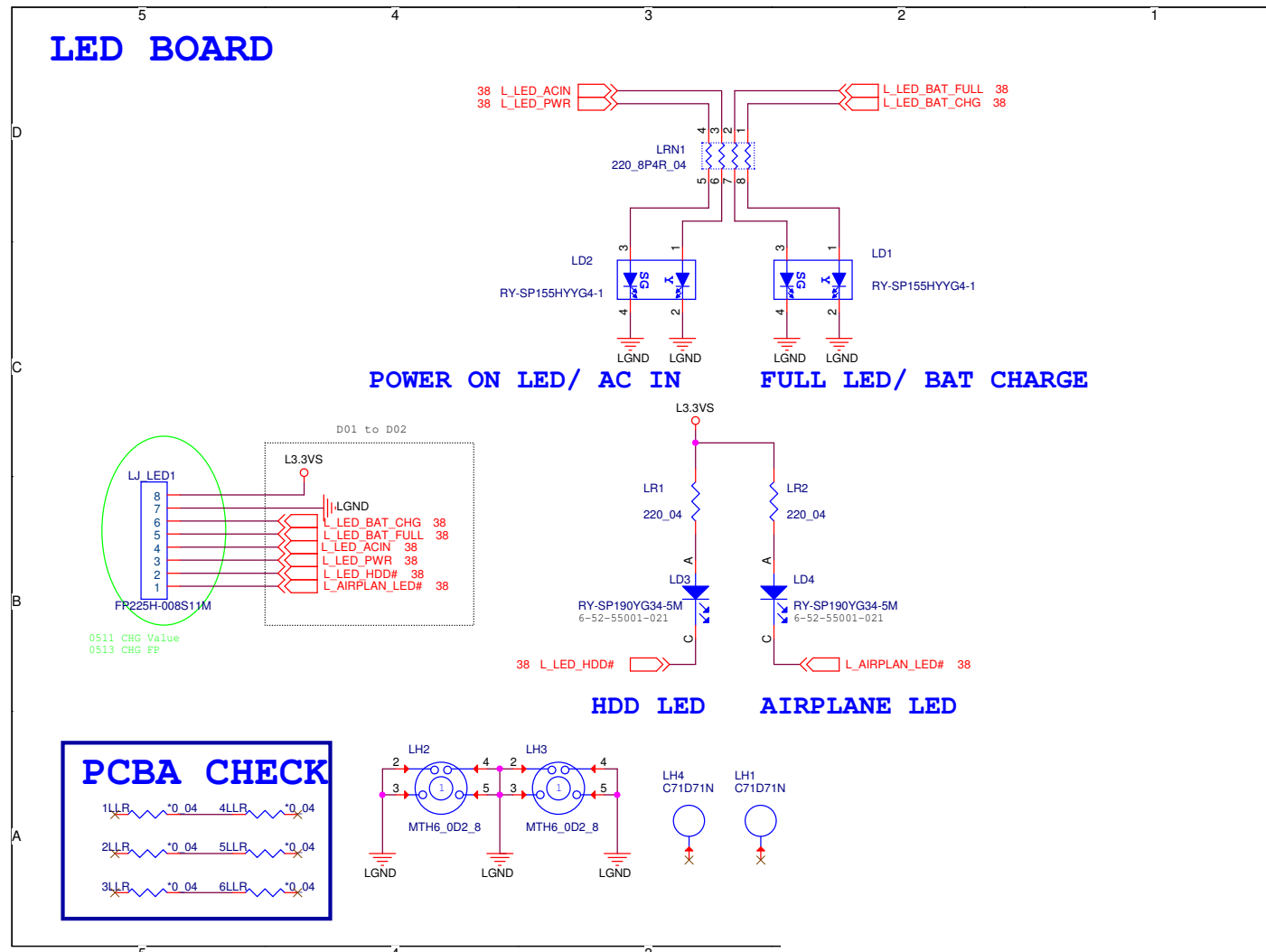
Sheet 36 of 40
Power SW Board

Click Board

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Click Board



LED Board

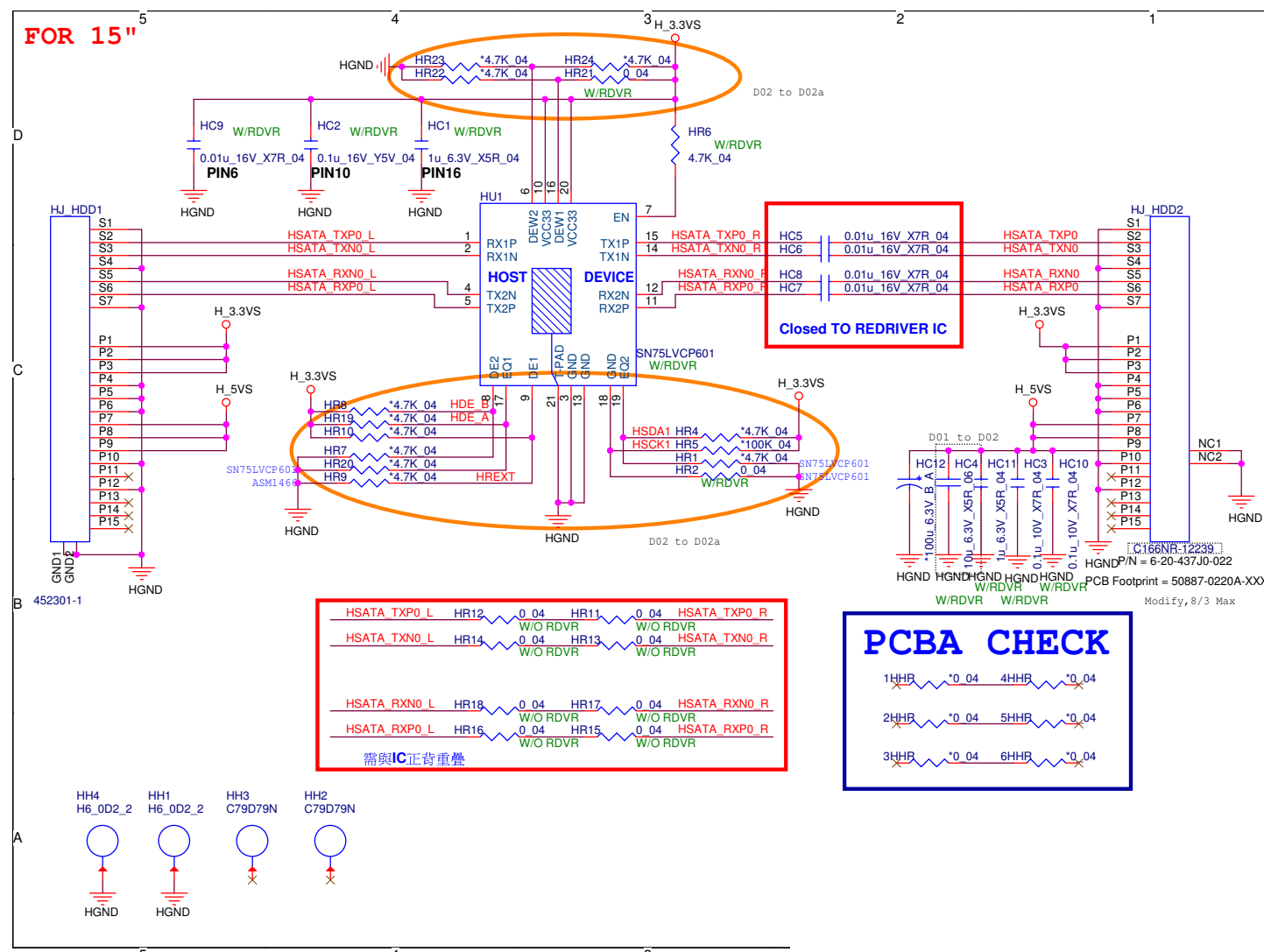


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LED Board

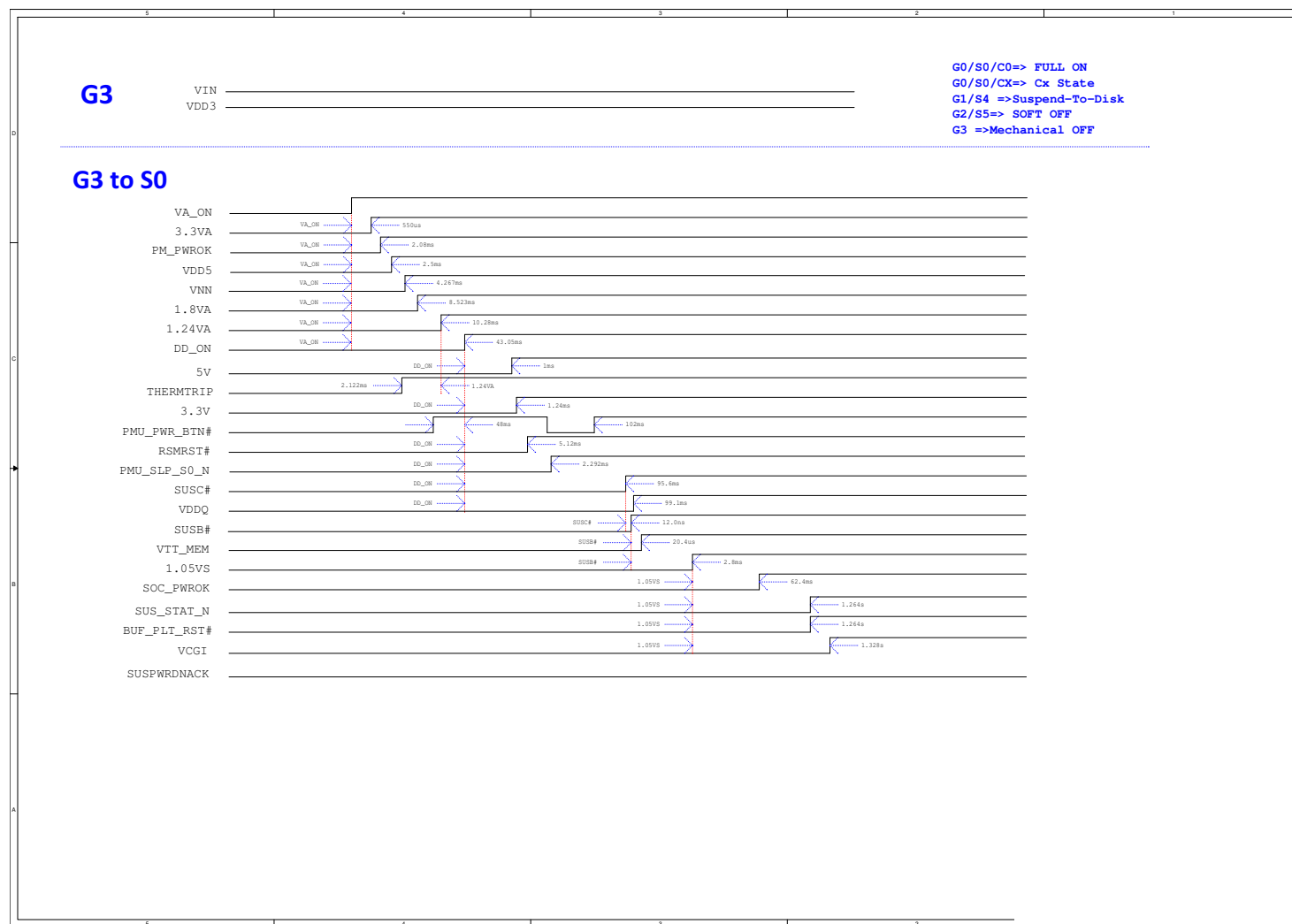
HDD Board

B.Schematic Diagrams

Sheet 39 of 40
HDD Board



Power Sequence

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Power Sequence

Appendix C: Updating the FLASH ROM BIOS

To update the FLASH ROM BIOS, you must:

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

Download the BIOS

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

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

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

Set the computer to boot from the external drive

1. With the bootable CD/DVD/USB flash drive containing the BIOS files in your CD/DVD drive/USB port, restart the computer and press **F2** (in most cases) to enter the BIOS.
2. Use the arrow keys to highlight the **Boot** menu.
3. Use the “+” and “-” keys to move boot devices up and down the priority order.
4. Make sure that the CD/DVD drive/USB flash drive is set first in the boot priority of the BIOS.
5. Press **F10** to save any changes you have made and exit the BIOS to restart the computer.



BIOS Version

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

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

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

BIOS Update

Use the flash tools to update the BIOS

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

fsX:\> Flash.nsh

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

Restart the computer (booting from the HDD)

1. With the CD/DVD/USB flash drive removed from the CD/DVD drive/USB port the computer should restart from the HDD.
2. Press **F2** as the computer restarts to enter the BIOS.
3. Use the arrow keys to highlight the **Exit** menu.
4. Select **Load Setup Defaults** (or press **F9**) and select “**Yes**” to confirm the selection.
5. Press **F10** to save any changes you have made and exit the BIOS to restart the computer.

Your computer is now running normally with the updated BIOS

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