

SERVICE MANUAL

notebook

NB50TK1 / NB55TK1



Notebook Computer

NB50TK1 / NB55TK1

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 *NB50TK1* / *NB55TK1* 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

IMPORTANT SAFETY INSTRUCTIONS

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

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

FCC Statement

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

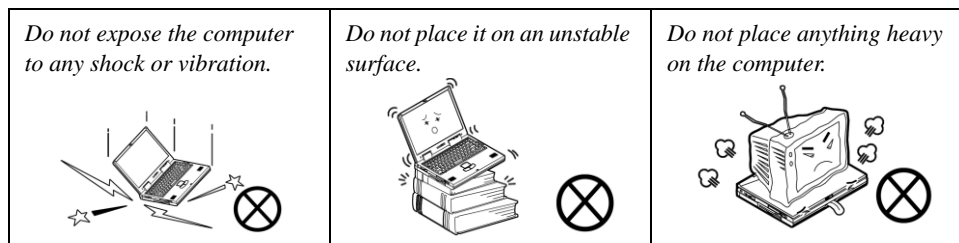
This device may not cause harmful interference.

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

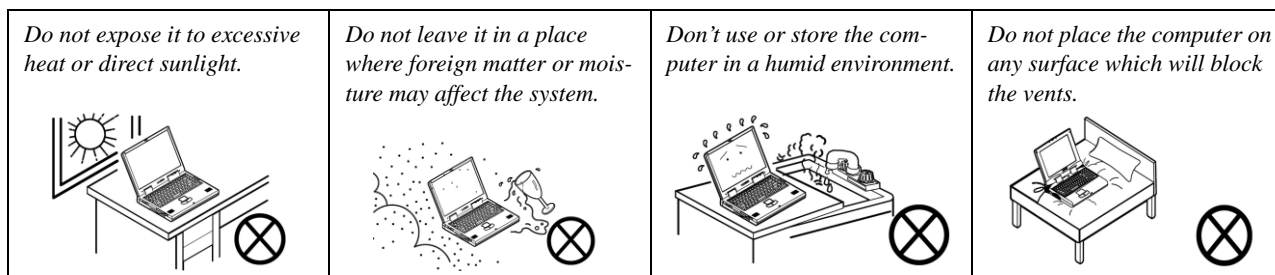
Instructions for Care and Operation

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

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



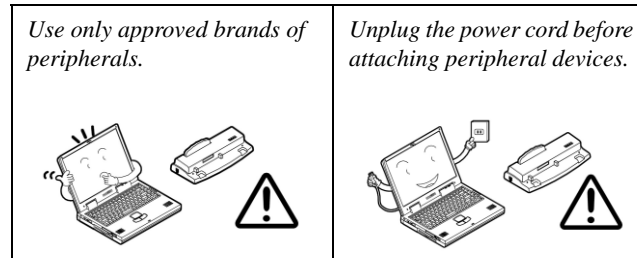
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.



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



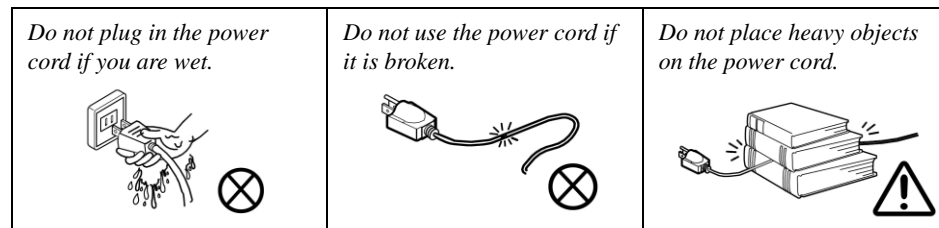
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



Power Safety

The computer has specific power requirements:

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



Power Safety Warning

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

Battery Precautions

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

Battery Guidelines

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

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




Battery Disposal

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

Caution

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

Battery Level

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

Related Documents

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

User's Manual on CD/DVD

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

System Startup

1. Remove all packing materials.
2. Place the computer on a stable surface.
3. Insert the battery and make sure it is locked in position.
4. Securely attach any peripherals you want to use with the computer (e.g. keyboard and mouse) to their ports.
5. Attach the AC/DC adapter 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.
6. Use one hand to raise the lid/LCD to a comfortable viewing angle (do not exceed 130 degrees); use the other hand (as illustrated in Figure 1) to support the base of the computer (**Note: Never** lift the computer by the lid/LCD).
7. Press the power button to turn the computer "on".

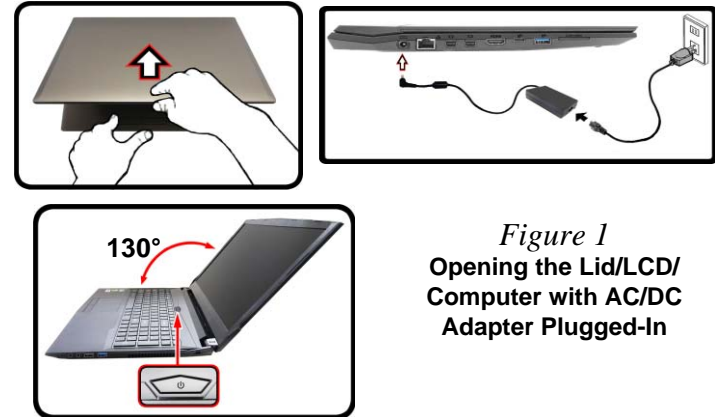



Figure 1
**Opening the Lid/LCD/
Computer with AC/DC
Adapter Plugged-In**


Shut Down

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

Click the icon  in the **Start Screen** and choose **Shut down** from the menu.



Or

Right-click the **Start button**  at the bottom of the **Start Screen** or the **Desktop** and choose **Shut down or sign out** > **Shut down** from the context menu.

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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the *NB50TK1 / NB55TK1* series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in the *User's Manual*. The manual is shipped with the computer.

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

The *NB50TK1 / NB55TK1* series notebook is designed to be upgradeable. See [Disassembly on page 2 - 1](#) for a detailed description of the upgrade procedures for each specific component. Please take note of the warning and safety information indicated by the “⚠” symbol.

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

Specifications



Latest Specification Information

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



CPU

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

Processor Options

Intel® Core™ i7 Processor

i7-8700 (3.20GHz)

12MB Smart Cache, 14nm, DDR4-2666MHz, TDP 65W

Intel® Core™ i5 Processor

i5-8400 (2.80GHz)

9MB Smart Cache, 14nm, DDR4-2666MHz, TDP 65W

Intel® Core™ i3 Processor

i3-8100 (3.60GHz)

6MB Smart Cache, 14nm, DDR4-2400MHz, TDP 65W

Intel® Pentium Processor

Pentium Gold G5400 (3.70GHz)

4MB Smart Cache, 14nm, DDR4-2400MHz, TDP 54W

Intel® Celeron Processor

Celeron G4920 (3.20GHz)

2MB Smart Cache, 14nm, DDR4-2400MHz, TDP 54W

Core Logic

Intel® H370 Chipset

BIOS

128Mb SPI Flash ROM

AMI BIOS

Memory

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

Memory Expandable up to 32GB

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

LCD Options

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

Video Adapter

Intel® Integrated GPU and NVIDIA® Discrete GPU

Supports Microsoft Hybrid Graphics

Intel Integrated GPU

Intel® UHD Graphics 630 (i7-8700, i5-8400, i3-8100)

Dynamic Frequency

Intel Dynamic Video Memory Technology

Microsoft DirectX®12 Compatible

Intel® UHD Graphics 610 (G5400, G4920)

Dynamic Frequency

Intel Dynamic Video Memory Technology

Microsoft DirectX®12 Compatible

NVIDIA® Discrete GPU

NVIDIA® GeForce GTX 1050Ti

4GB GDDR5 Video RAM on board

Microsoft DirectX® 12 Compatible

Storage

One Changeable 2.5" 9.5mm/7.0mm (h) SATA3 HDD/SSD
(**Factory Option**) One M.2 **SATA/PCIe Gen3 x4** Solid State Drive (SSD)

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

Audio

High Definition Audio Compliant Interface

2 * Built-In Speakers

Built-In Array Microphone

Sound Blaster™ Cinema 5

Security

Security (Kensington® Type) Lock Slot

BIOS Password

Intel PTT for systems without hardware TPM

Keyboard

Full-size **White-LED Illuminated** Keyboard (with numeric keypad)

Or

(Factory Option) Full Color Illuminated Full-size Keyboard (with numeric keypad)

Pointing Device

Built-in Touchpad

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)/900mA (USB 3.1).*

Two USB 3.1 Gen 2 Type-A Ports

One USB 2.0 Port

One HDMI-Out Port

Two Mini DisplayPorts 1.3

One Headphone-Out Jack

One Microphone-In Jack

One RJ-45 LAN Jack

One DC-in Jack

Card Reader

Embedded Multi-In-1 Card Reader

MMC (MultiMedia Card) / RS MMC

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

M.2 Slots

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

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

Slot 3 for **PCIe Gen3 x4 SSD**

Communication

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

1.0M HD PC Camera Module

WLAN/ Bluetooth M.2 Modules:

(Factory Option) Intel® Dual Band Wireless-AC 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

Environmental Spec**Temperature**

Operating: 5°C - 35°C

Non-Operating: -20°C - 60°C

Relative Humidity

Operating: 20% - 80%

Non-Operating: 10% - 90%

Power

Full Range AC/DC Adapter

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

DC Output: 19V, 7.89A (**150W**)

(Factory Option) Built-in 6 Cell Battery Pack, 47WH

Dimensions & Weight

NB50TK1: 378mm (w) * 250mm (d) * 29.8mm (h)

NB55TK1: 378mm (w) * 250mm (d) * 29.6mm (h)

2.3kg (Barebone with 47WH Battery)

Introduction

Figure 1
Top View

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

External Locator - Top View with LCD Panel Open



External Locator - Front & Right Side Views

FRONT VIEW



Figure 2
Front View
1. LED Indicator

RIGHT SIDE VIEW



Figure 3
Right Side View
1. Multi-in-1 Card Reader
2. Headphone-Out Jack
3. Microphone-In Jack
4. USB 2.0 Port
5. RJ-45 LAN Jack
6. DC-In Jack
7. Security Lock Slot

Introduction

External Locator - Left Side & Rear View

Figure 4

Left Side View

1. Vent
2. Mini Display Port
3. HDMI-Out Port
4. USB 3.1 Gen 2 Type-C Port
5. USB 3.1 Gen 2 Type-A Ports



Figure 5

Rear View

1. Battery
2. Vent



External Locator - Bottom View



Figure 6
Bottom View

1. Battery
2. Vent
3. Speakers



Overheating

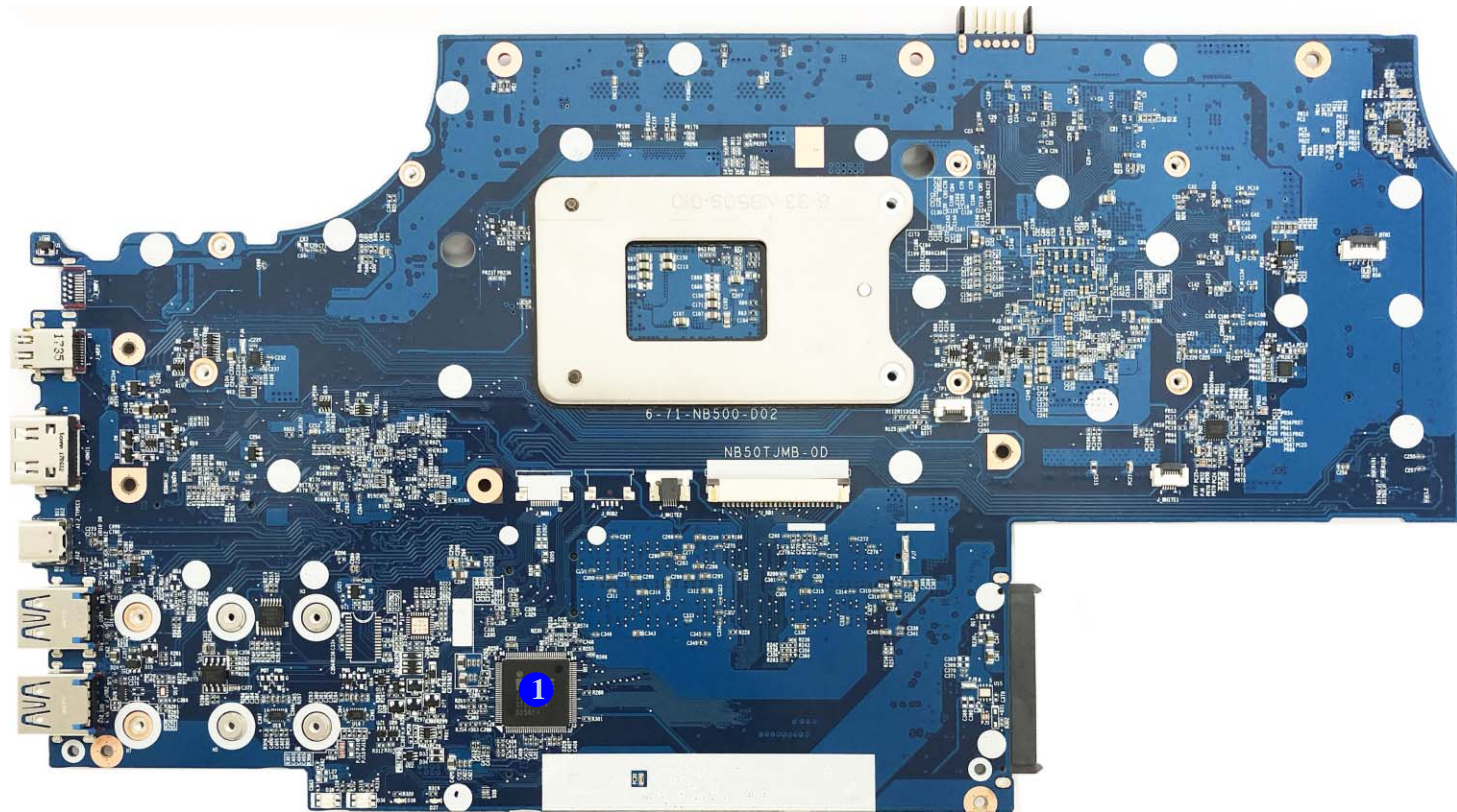
To prevent your computer from overheating, make sure nothing blocks any vent while the computer is in use.

Introduction

Figure 7
Mainboard Top
Key Parts

1. KBC-ITE IT8587

Mainboard Overview - Top (Key Parts)



Mainboard Overview - Bottom (Key Parts)

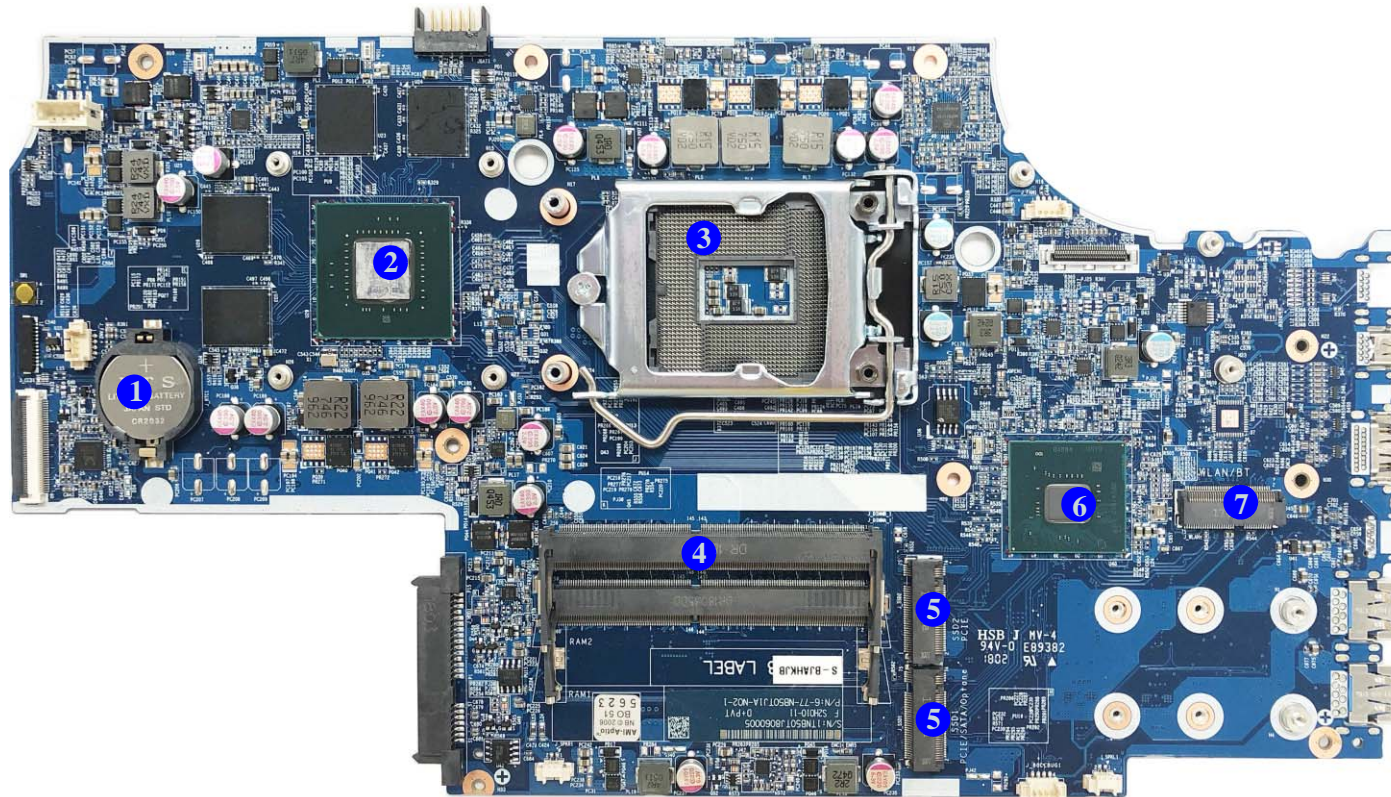


Figure 8
**Mainboard Bottom
Key Parts**

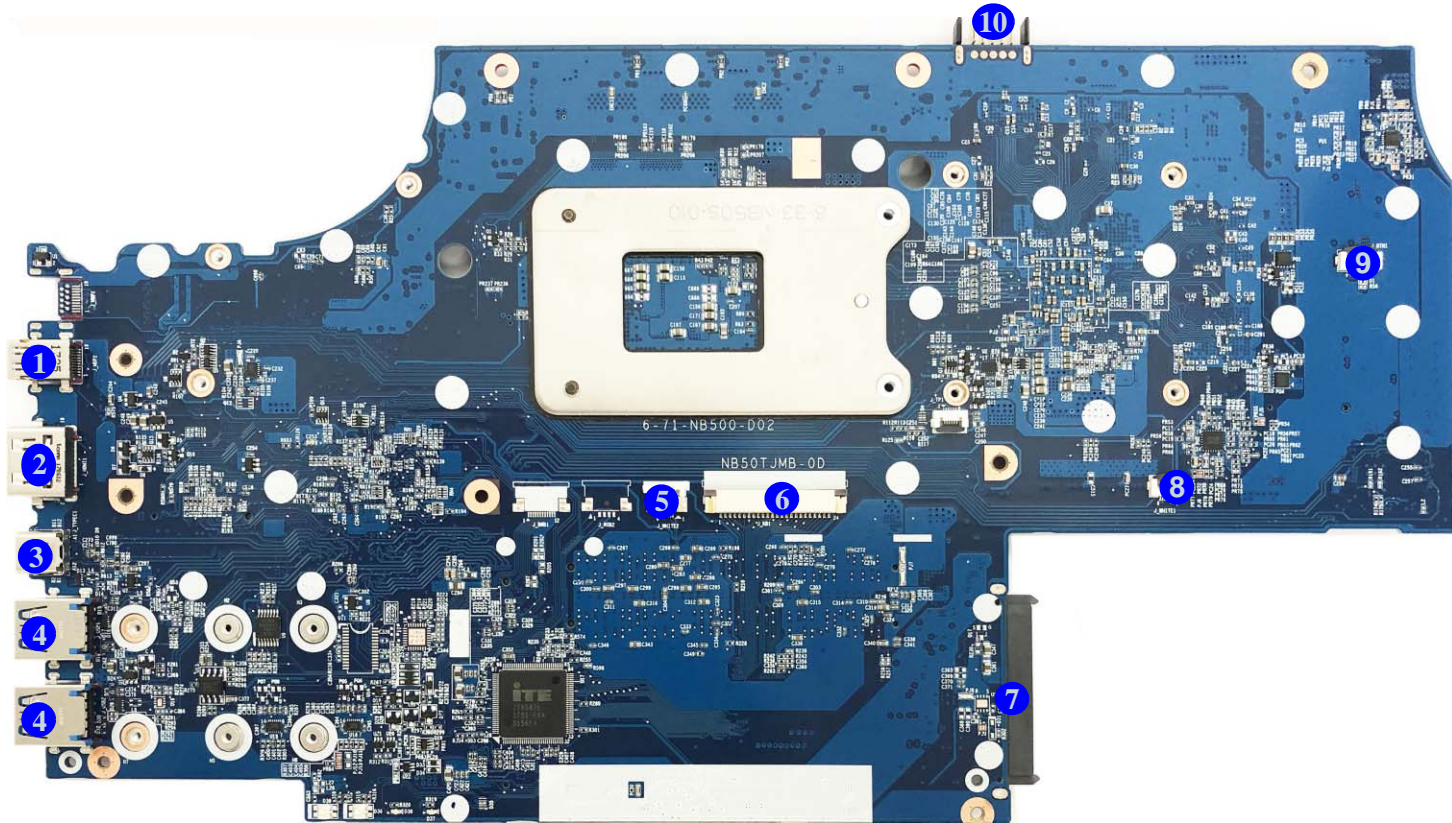
1. CMOS Battery
2. GPU
3. CPU
4. Memory Slots
DDR4 SO-DIMM
5. M.2-Card
Connector (SSD
Module)
6. PCH
7. M.2-Card
Connector (WLAN
Module)

Introduction

Figure 9
**Mainboard Top
Connectors**

Mainboard Overview - Top (Connectors)

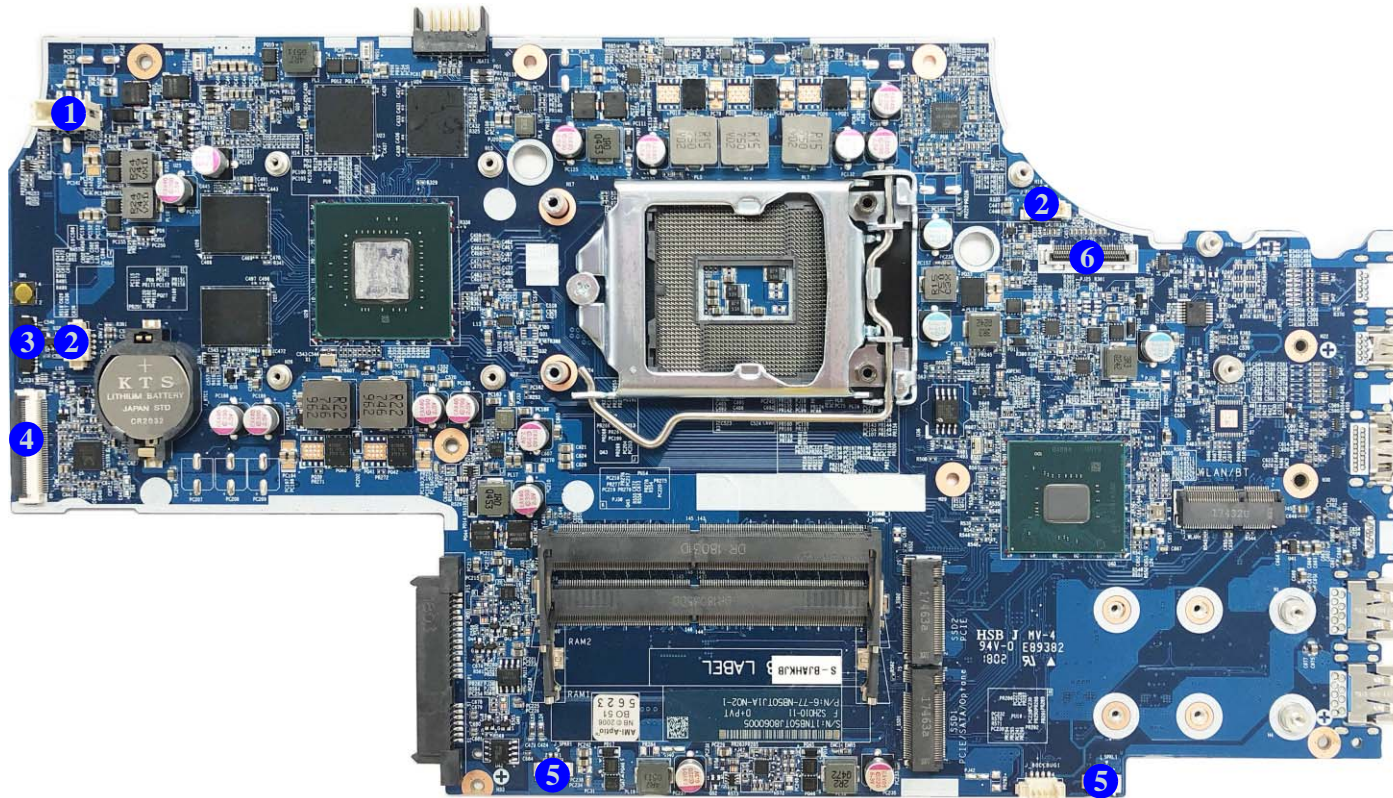
1. Mini Display Port
2. HDMI-Out Port
3. USB Port 3.1 (Type C) Connector
4. USB Port 3.1 (Type A) Connector
5. KB LED (White) Connector
6. Keyboard Cable Connector
7. HDD Connector
8. KB LED (White) Connector
9. Power Button Connector
10. Battery Connector



Mainboard Overview - Bottom (Connectors)

Figure 10
**Mainboard Bottom
Connectors**

1. DC-In Connector
2. CCD Connector
3. Fan Connector
4. J_MUX Connector
5. Speaker Connector
6. LCD Connector




Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the *NB50TK1 / NB55TK1* 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 - 6](#)

To remove the Keyboard:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Remove the keyboard [page 2 - 9](#)

To remove and install the Processor:

1. Remove the battery [page 2 - 5](#)
2. Remove the HDD [page 2 - 6](#)
3. Remove the processor [page 2 - 10](#)
4. Install the processor [page 2 - 12](#)

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 - 13](#)

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 - 14](#)

To remove the Wireless LAN Module:

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

To remove the CCD Module:

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

Removing the Battery

1. Turn the computer **off**, and 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.
4. While holding the latch **2**, slide the battery **3** out of the compartment (*Figure 1b*).
5. Reverse the process to install a new battery.

a.



b.

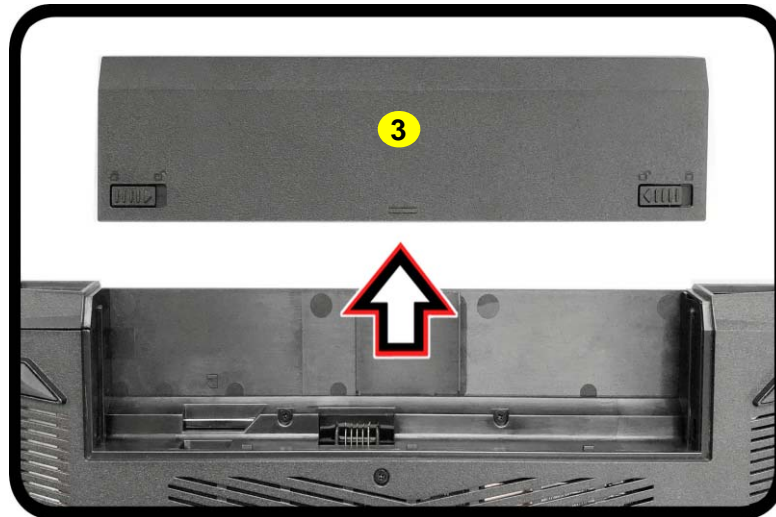


Figure 1
Battery Removal

- a. Slide the latch **1** in the direction of the arrow, and slide the latch **2** in the direction of the arrow.
- b. Remove the battery.

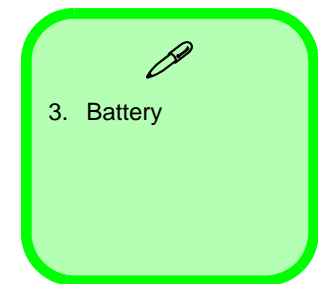


Figure 2
**HDD Assembly
Removal**

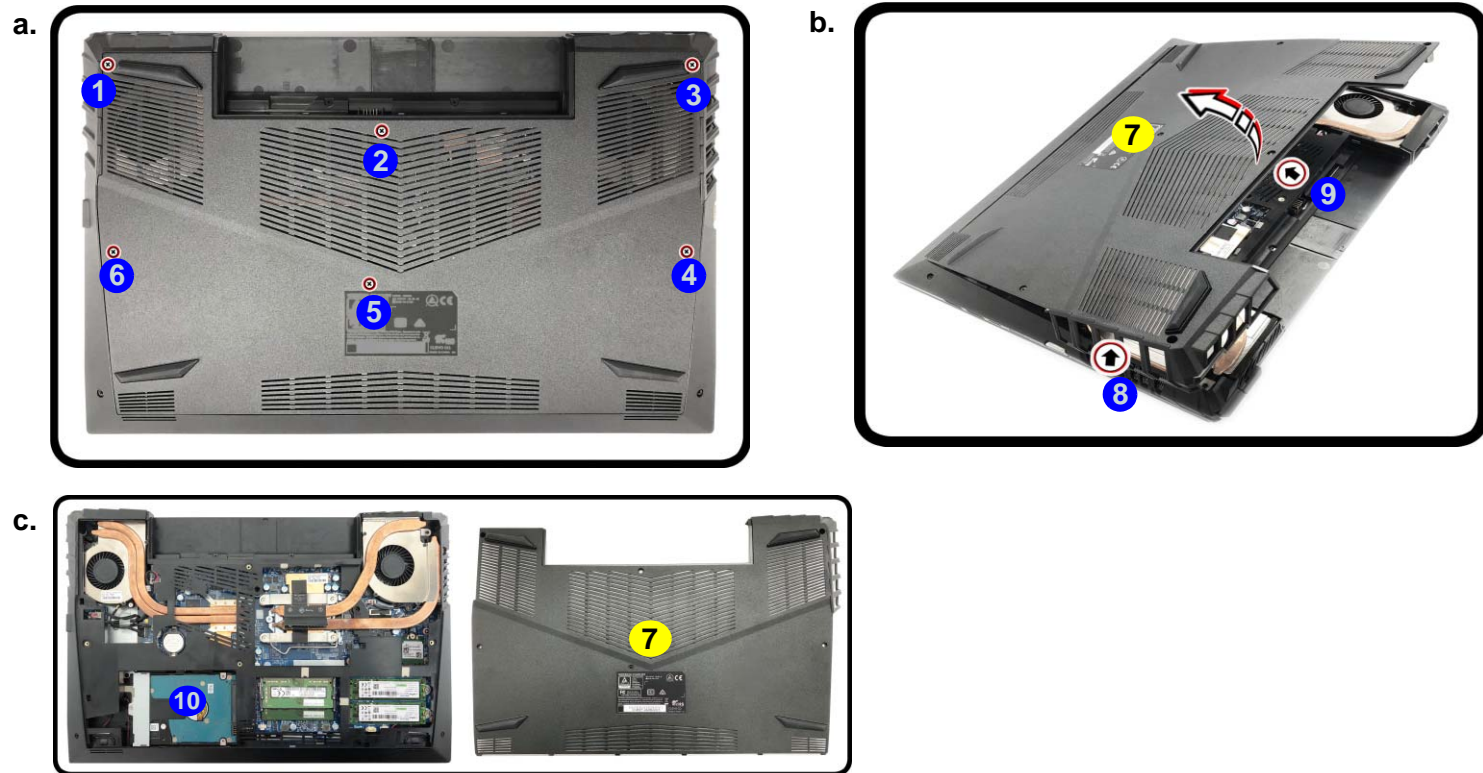
- Remove the SD card cover and screws.
- Remove the bottom case.
- Locate the HDD.

Removing the Hard Disk Drive

The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 7mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

Hard Disk Disassembly Process

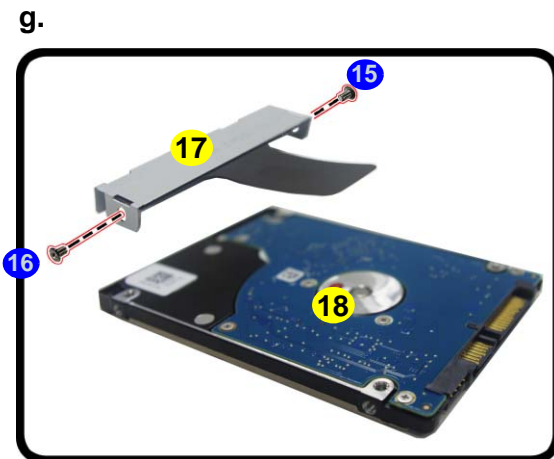
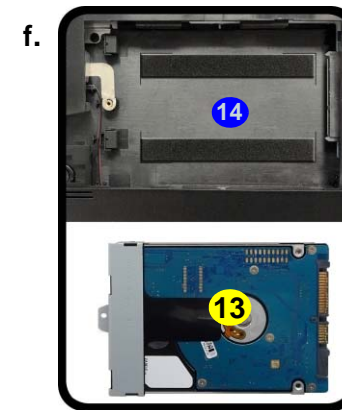
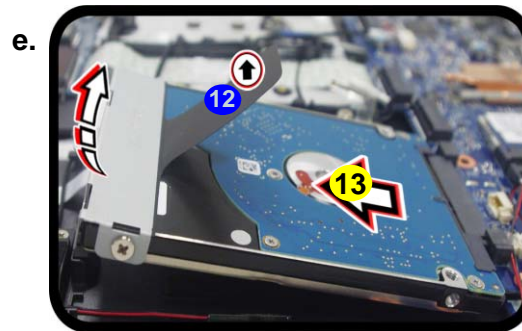
- Turn **off** the computer, and remove the battery ([page 2 - 5](#)).
- Remove screws **1** - **6** ([Figure 2a](#)).
- Carefully lift the bottom case **7** up from point **8** first and then **9** to remove it ([Figure 2b](#)).
- The HDD will be visible at point **10** on the mainboard ([Figure 2c](#)).



7. Bottom Case


- 6 Screws

5. Remove screws **11** from the HDD assembly (*Figure 3d*).
6. Slightly lift and pull the hard disk assembly in the direction of arrow **12** (*Figure 3e*).
7. Lift the hard disk assembly **13** out of the bay **14** (*Figure 3f*).
8. Remove screws **15** - **16** and bracket **17** from the hard disk **18** (*Figure 3g*).
9. Reverse the process to install a new hard disk (do not forget to replace the screws).



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

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



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.



13. HDD Assembly
 17. Bracket
 18. HDD

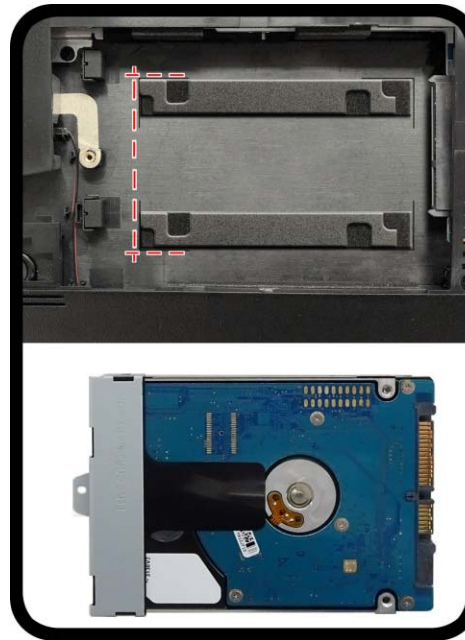
- 3 Screws

Disassembly

Hard Disk Size Note (Foam Rubber Insert)

Note that the hard disks pictured on these pages are all 9.5mm(H) hard disk drives. In some cases 7mm(H) hard disk drives will be installed.

Figure 4
**Foam Rubber
Insert for 7mm(H)
HDDs**



- If you are replacing a 9.5mm(H) HDD with a 7mm(H) HDD then insert the foam rubber insert.
- If you are replacing a 7mm(H) HDD with a 9.5mm(H) HDD then remove the foam rubber insert.

Removing the Keyboard

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)) and bottom cover ([page 2 - 6](#)).
2. Remove screws **1** - **2** from the bottom of the computer.
3. Open it up with the LCD on a flat surface before pressing at point **3** to release the keyboard module (use the special eject stick **4** to do this) while releasing the keyboard in the direction of the arrow **5** as shown ([Figure 5a](#)).
4. Carefully lift the keyboard **6** up, being careful not to bend the keyboard ribbon cable **7**. Disconnect the keyboard ribbon cable **7** from the locking collar socket by using a flat-head screwdriver to pry the locking collar pins **8** away from the base ([Figure 5b](#)).
5. Carefully lift the keyboard **6** off the computer ([Figure 5c](#)).
6. Reverse the process to install a new keyboard (do not forget to replace all the screws).

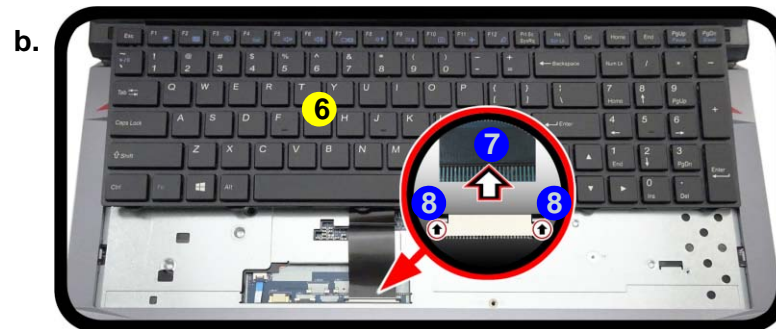
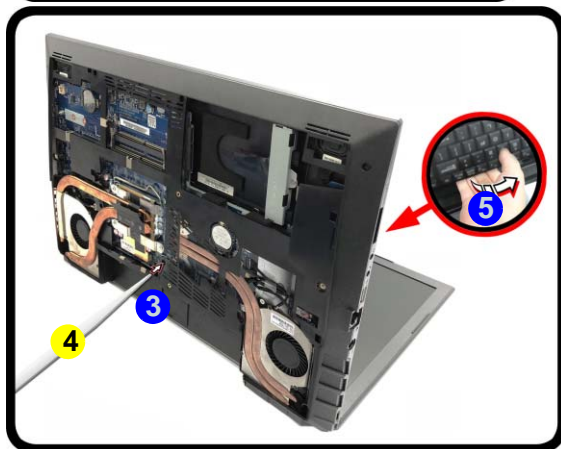
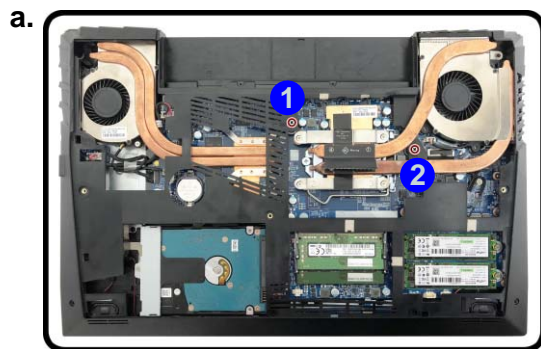


Figure 5
Keyboard Removal

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



Re-inserting the Keyboard

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



4. Eject Stick
6. Keyboard

- 2 Screws

Disassembly

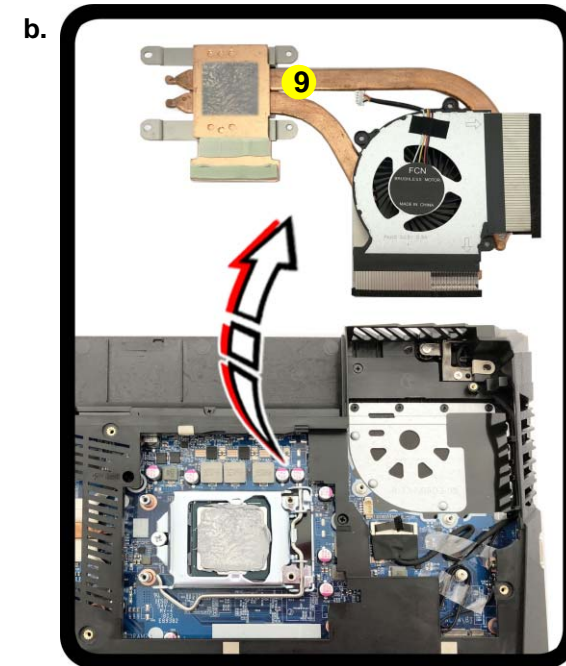
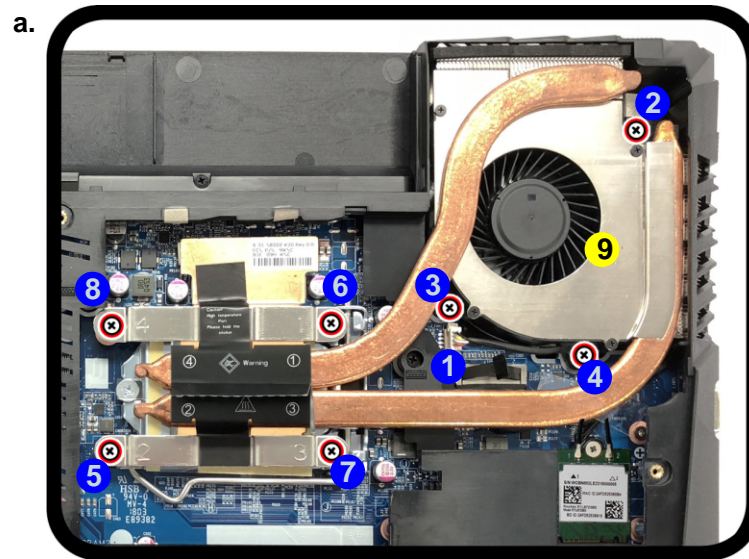
Figure 6 Processor Removal Procedure

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

Removing and Installing the Processor

Processor Removal Procedure

1. Turn off the computer, remove the battery ([page 2 - 5](#)) and bottom cover ([page 2 - 6](#)).
2. Disconnect the cable **1** and remove screws **2 - 8** from the CPU fan & heat sink unit **9** in the order indicated on the label (i.e screw **8** first through to screw **2** last [Figure 6a](#)).
3. Carefully (it may be hot) remove the heat sink unit **9** as shown by the arrow ([Figure 6b](#)).



9. Heat Sink Unit

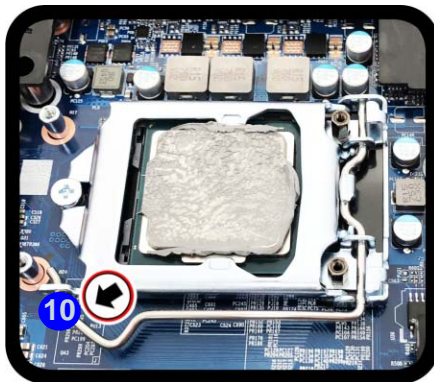
- 7 Screws

4. Press down and hold the latch **10** (with the latch held down you will be able to release it).
5. Move the latch **10** and bracket **11** fully in the direction indicated to unlock the CPU(*Figure 7d*).
6. Carefully (it may be hot) lift the CPU **A** up out of the socket (*Figure 7e*).
7. See [page 2 - 12](#) for information on inserting a new CPU.
8. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!).

Figure 7
Processor Removal (cont'd)

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

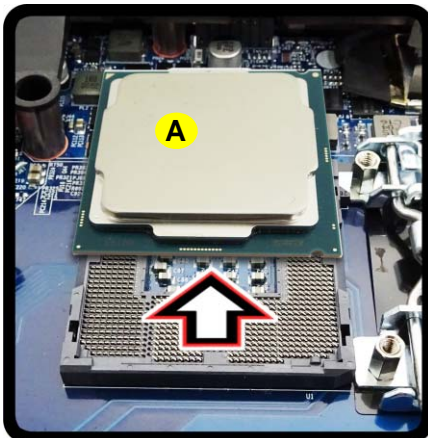
c.




Unlock

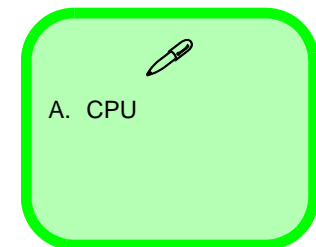


d.




Caution

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



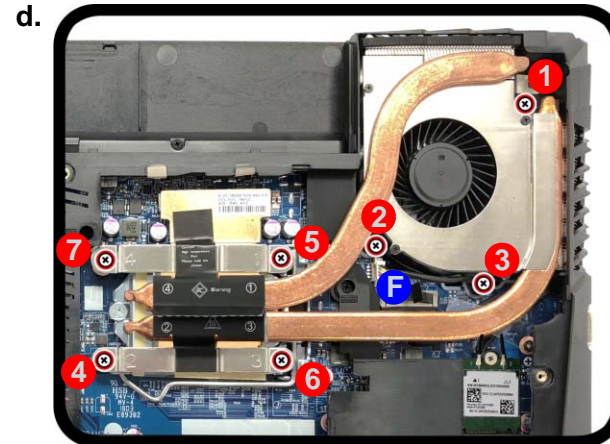
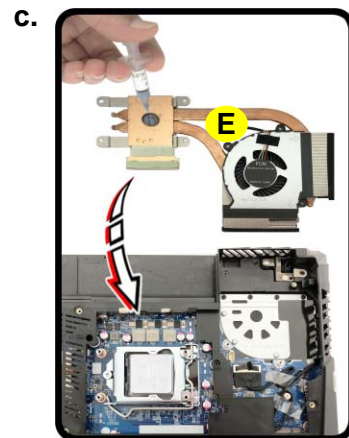
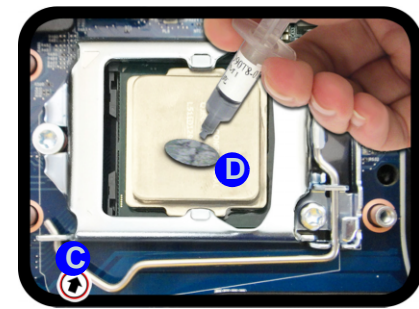
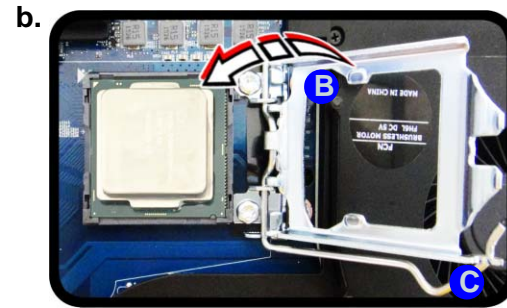
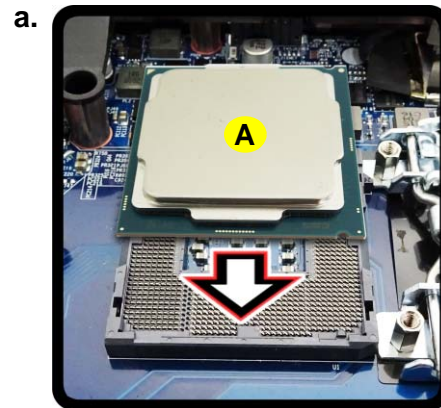
Disassembly

Figure 8
Processor Installation

- Insert the CPU.
- Move the latch and bracket fully in the direction indicated to lock the CPU. Apply thermal grease.
- Insert the heat sink.
- Tighten the screws.

Processor Installation Procedure

- Insert the CPU **A**; pay careful attention to the pin alignment (*Figure 8a*), it will fit only one way (DO NOT FORCE IT!).
- Move the bracket **B** and latch **C** fully in the direction indicated to lock the CPU.
- Apply the thermal grease **D** to the top of the CPU as shown (*Figure 8b*).
- Insert the heat sink unit **E** as indicated in *Figure 8c*.
- Tighten the CPU heat sink screws in the order **1** - **7** (the order as indicated on the label and *Figure 8d*).
- Connect the CPU fan cable **F**, component bay cover and tighten the screws (*page 2 - 10*).



A. CPU
E. Heat Sink

- 4 Screws

Removing the System Memory (RAM)

The computer has two memory sockets for 260 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR4 2400 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

1. Turn **off** the computer, turn it over, remove the battery ([page 2 - 5](#)).
2. The RAM-2 modules will be visible at point **1** on the mainboard ([Figure 9a](#)).
3. Gently pull the two release latches (**2** & **3**) on the sides of the memory socket in the direction indicated by the arrows ([Figure 9b](#)). The RAM module **4** will pop-up ([Figure 9c](#)), and you can then remove it.
4. Pull the latches to release the second module if necessary.
5. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
6. 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.
7. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
8. Replace the bottom cover 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.

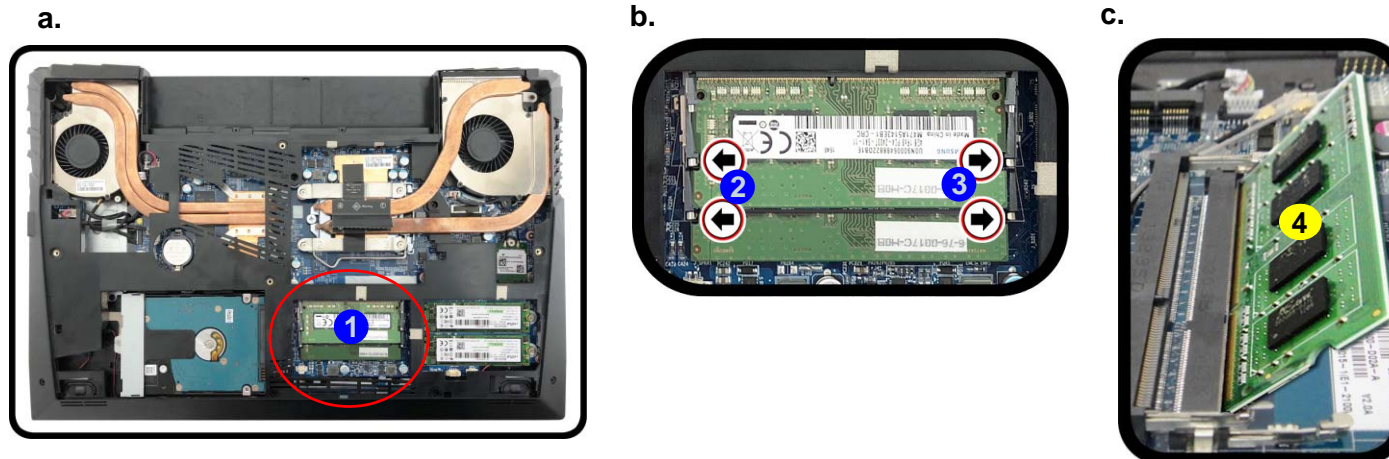


Figure 9
RAM Module Removal

- 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.



4. RAM Module

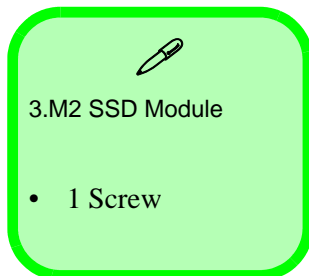
Disassembly

Figure 10
M.2 SSD Module Removal

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

Removing the M.2 SSD Module

- Turn off the computer, turn it over, remove the battery ([page 2 - 5](#)).
- The M.2 SSD module will be visible at point **1** on the mainboard ([Figure 10a](#)).
- Remove the screw **2** ([Figure 10b](#)).
- The M.2 SSD module **3** ([Figure 10c](#)) 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).



Removing the Wireless LAN Module

1. Turn **off** the computer, turn it over, remove the battery ([page 2 - 5](#)).
2. The Wireless LAN module will be visible at point **1** on the mainboard ([Figure 11a](#)).
3. Carefully disconnect the cables **2** & **3**, and then remove the screw **4** ([Figure 11b](#)).
4. The Wireless LAN module **5** ([Figure 11c](#)) will pop-up, and you can remove it from the computer.
5. Reverse the process to install a new module (do not forget to replace all the screws).

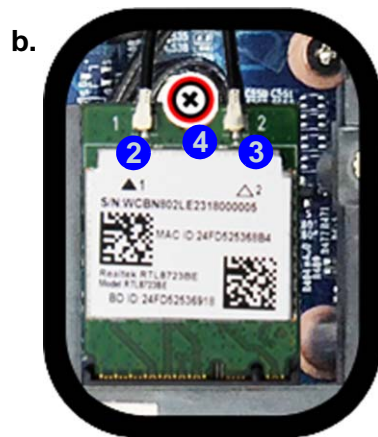
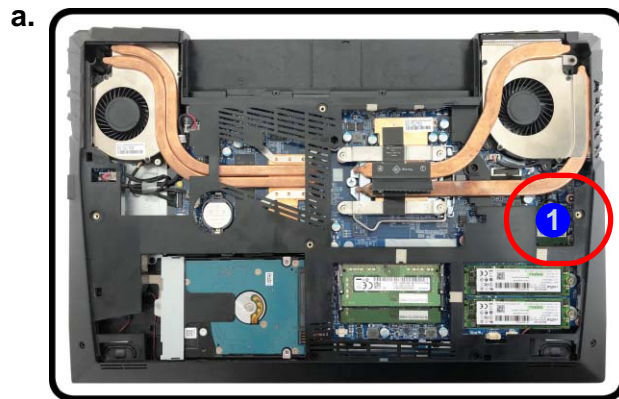



Figure 11
**Wireless LAN
Module Removal**

- a. Locate the WLAN.
- b. Disconnect the cables and remove the screw.
- c. The WLAN module will pop up.

Note: Make sure you reconnect the antenna cable to the “1 + 2” socket ([Figure 11b](#)).



5. Wireless LAN Module

- 1 Screw

Wireless LAN, Combo Module Cables

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

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

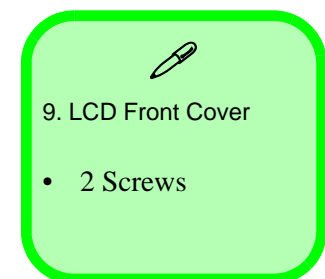
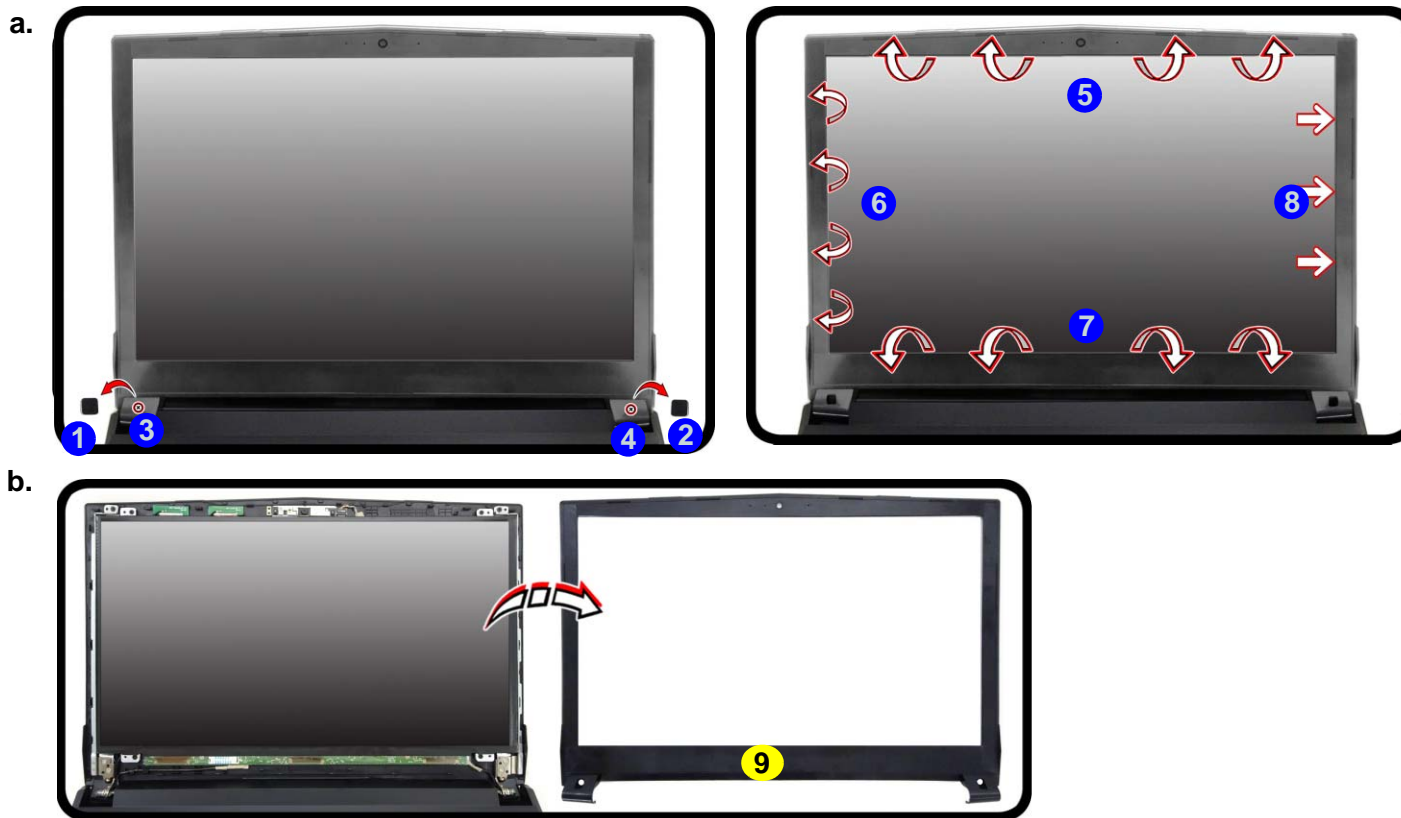
Cable 1 is usually connected to antenna 1 (Main) on the module, and cable 2 to antenna 2 (Aux).

Removing the CCD

1. Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)).
2. Lay the computer down on a flat surface with the top case up forming a 90 degree angle. Carefully remove the rubber covers **1** - **2** and screws **3** - **4**.
3. Run your fingers around the inner frame of the LCD panel to lift at the upper point **5** as indicated by the arrows, continue to lift up the inner frame at points **6** - **7** as indicated by the arrows, and then remove the inner frame at point **8** as indicated by the arrows ([Figure 12a](#)).
4. Remove the LCD front cover **5** ([Figure 12b](#)).

Figure 12
CCD Removal

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

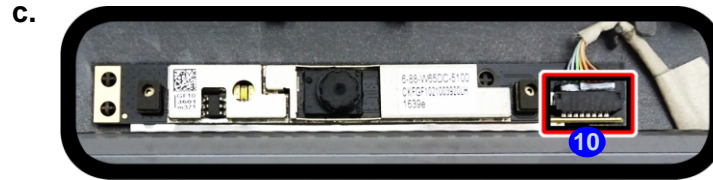


Disassembly

Figure 13
CCD Removal
(cont'd)

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

5. Disconnect the cable **10** (*Figure 13c*).
 6. Remove the CCD module **11** (*Figure 13d*).
 7. Reverse the process to install a new CCD module.



11. CCD Module

Appendix A:Part Lists

This appendix breaks down the *NB50TK1 / NB55TK1* 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.

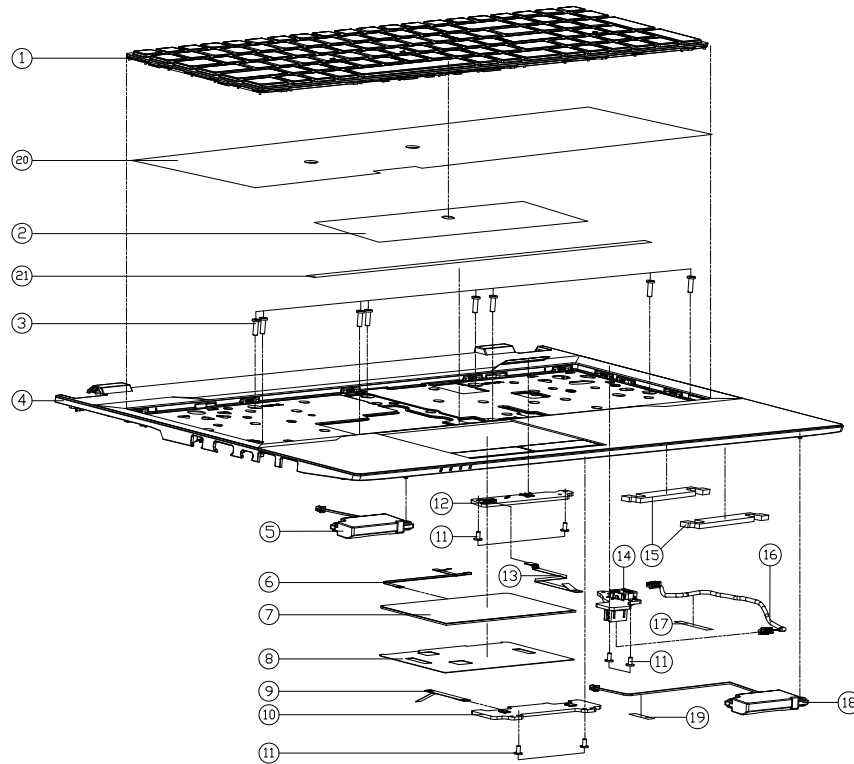
Part List Illustration Location

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

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

Part	NB50TK1	NB55TK1
Top	<i>page A - 3</i>	<i>page A - 4</i>
Bottom	<i>page A - 5</i>	
Main Board	<i>page A - 6</i>	
HDD	<i>page A - 7</i>	
LCD	<i>page A - 8</i>	<i>page A - 9</i>

Top (NB50TK1)



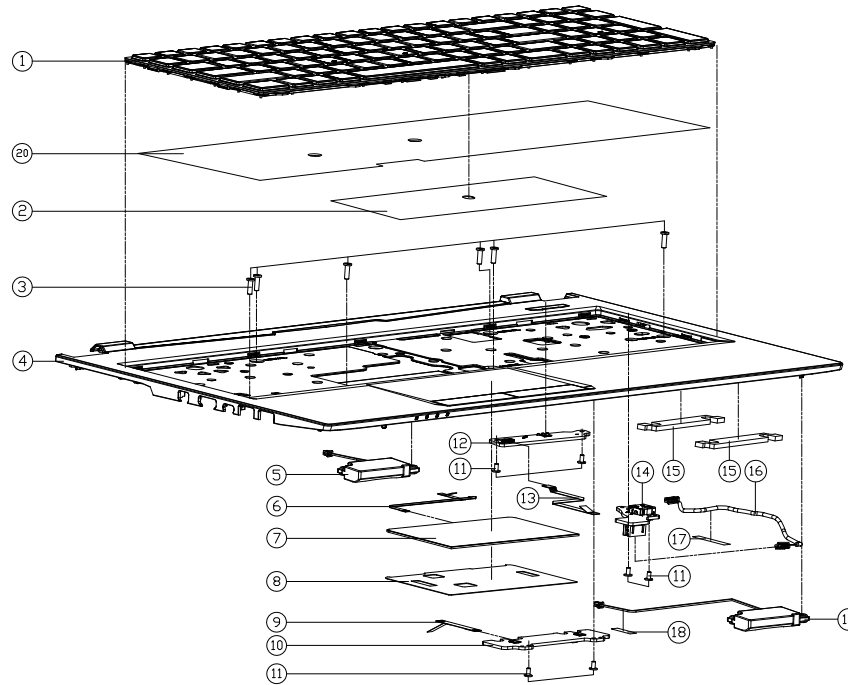
ITEM	PART NAME	PART NO	REMARK
1	MYLAR CR4382 340.95*105.6*0.41 FOR KB	6-80-N8500-011-1	
1	WHITE BL USG CMV230CA30R N500 BLACK COILATION WITH VINO KEY + K/B FRAME	6-80-N7500-012-1HB	
1	WHITE BL USG CMV230CA30R N500 BLACK COILATION WITH VINO KEY + K/B FRAME	6-80-N7500-012-1R	
1	WHITE BL USG CMV230CA30R N500 BLACK COILATION WITH VINO KEY + K/B FRAME	6-80-N7500-012-1	
2	BACKLIGHT KB THERMAL (0.631*4.52) AL FEOL+3M467 N500RC	6-47-N5507-010	FOR KB WHITE BL SERIES FOR KB MULT BL SERIES
3	SCREW M2.5*8L KI BK/Z NY ICT	6-35-B6125-8R0	
4	TOP CASE MODULE NB50TJ1	6-39-NB502-013	
5	SPK+CABLE L 1.25*14 2W 49 250MM DC2540040K007L-HF NB50LJ1	6-23-5NB50-0L0	
6	FFC CABLE TP TO MB L=120MM 3V 6PIN PITCH=0.5MM (010) N500P6	6-43-NB5K0-040	
7	TOUCH PAD SYNAPTICS PTP TM-8309-02 (00865940 V650DC (CP2)	6-49-W65D3-011	
8	TOP TP MYLAR PET N250LU	6-40-N2502-040	
9	FFC CABLE CLICK TO TP (P=10) 41MM 60V 4PIN N500RC	6-43-N5500-052	
10	CLICK BOARD V2.0 NB50TJ1	6-77-NB502-D02	
11	SCREW M2*4L KI NI ICT NY (DD=04.5,DT=0.4)	6-35-B1120-4RE	
12	POWER SW BOARD V2.0 NB50TJ1	6-77-NB50S-D02	
13	FFC POWER TO MB 92.5MM 3.3V 4PIN NB50TJ(KGX)	6-43-NB500-020	
14	DC JACK BOARD V1.0A NB50TJ1	6-77-NB50C-D01A	
15	SPONGE (76*10*2.5) CR4305 FOR 7MM HUB VS40E(UNCHANGE)	6-47-0019A-763	
16	WIRE CABLE FOR DC-IN TO MB 120MM 30V 4PIN NB50TJ1	6-43-NB500-030	
17	TAPE MYLAR (C),MYLAR M550J	6-40-M55J2-030	
18	SPK+CABLE R 1.25*14 2W 49 250MM DC2540040K007R-HF NB50LJ1	6-23-5NB50-0R0	
19	TOP CASE MYLAR FR83 25*7*0.05 P180HM	6-40-P1802-030	
20	MYLAR+CR4382 (340.95*105.6*0.41)FOR KB N850HC	6-40-N8502-060	DUALY KB FOR NON BL US SERIES
21	FRONT COVER BLACK PET MYLAR 300*340.3T	6-40-00150-30B	DUALY KB FOR NON BL US SERIES

Figure A - 1
Top (NB50TK1)

A.Part Lists

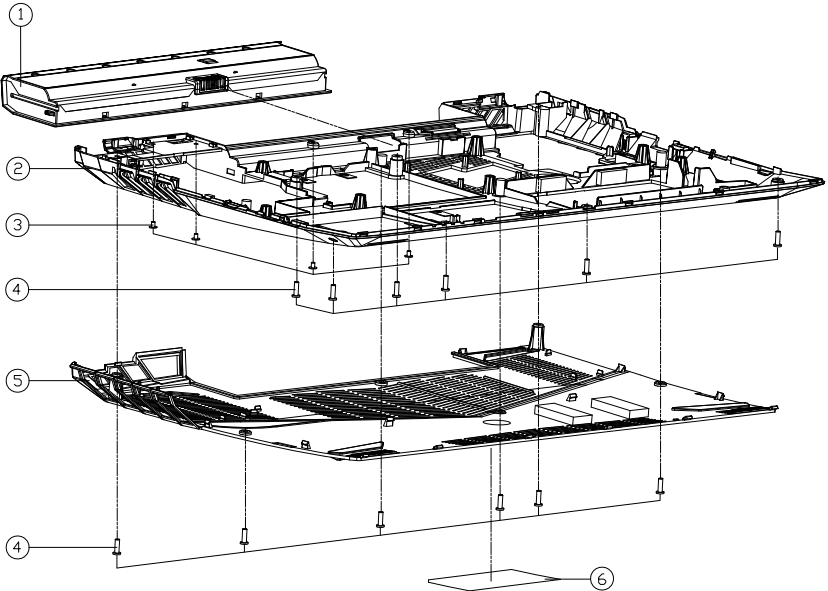
Top (NB55TK1)

Figure 2
Top (NB55TK1)



ITEM	PART NAME	PART NO	REMARK
1	WTL R 10 US CVM523050P NB50 BLACK ISOLATION WITH VINO KEY + DO FRAME "WELL"	6-80-N8500-011-1	
1	WTL R 10 US CVM523050P NB50 BLACK ISOLATION WITH VINO KEY + DO FRAME "WELL"	6-80-N7500-012-1HB	
1	WTL R 10 US CVM523050P NB50 BLACK ISOLATION WITH VINO KEY + DO FRAME"DO"	6-80-N7500-012-1R	
1	KB USA CVM5F3805-430 NB50LU BLACK ISOLATION WITH VINO KEY	6-80-N25J0-011-1	
2	BACKLIGHT KB THERMAL(0.69)1455D AL FOIL+3M467 NB50RC	6-47-N5507-010	
3	.SCREW M2.5*8L KI BK/Z NY ICT	6-35-B6125-8R0	
4	TOP CASE MODULE NB55TK1	6-39-NB552-011	
5	SPK+CABLE L L2544 2V 47 35MM D3251404R007L-HF NB50TJ1	6-23-5NB50-0L0	
6	FFC CABLE TP TO MB L=120MM 3V 6PIN PITCH=0.5MM (HT) NB50TP6	6-43-NB5K0-040	
7	TOUCH PAD SYNAPTICS PTP TH-1039-002 (000659M) NB500C (CPD)	6-49-W65D3-011	
8	TOP TP MYLAR PET N250LU	6-40-N2502-040	
9	FFC CABLE CLICK TO TP (P-10) 4MM 60V 4PIN NB50RC	6-43-N5500-052	
10	CLICK BOARD V2.0 NB50TJ1	6-77-NB502-D02	
11	.SCREW M2*4L KI NI ICT NY (DD=04.5,DT=0.4)	6-35-B1120-4RE	
12	POWER SW BOARD V2.0 NB55TJ1	6-77-NB50S-D02-A	
13	FFC POWER TO MB 92.5MM 3.3V 4PIN NB50TJ1(CN)JS	6-43-NB500-020-2	
14	DC JACK BOARD V1.0A NB50TJ1	6-77-NB50C-D01A	
15	SPRNGE (76*10*25T) CR4305 FOR 7MM HDD V54RE(CHANGE)	6-47-0019A-763	
16	WIRE CABLE FOR DC-IN TO MB 120MM 30V 4PIN NB50TJ1	6-43-NB500-030	
17	TAPE MYLAR (C),MYLAR M550J	6-40-M55J2-030	
18	TOP CASE MYLAR FR83 25*7*0.05 P180HM	6-40-P1802-030	
19	SPK+CABLE R L2544 2V 47 25MM D3251404R007R-HF NB50TJ1	6-23-5NB50-0R0	
20	MYLAR+CR4382 C340.95*105.6*0.4T(FOR KB NB50HC	6-40-NB502-060	ONLY KB FOR NON US SERIES

Bottom



ITEM	PART NAME	PART NO	REMARK
1	IMP S LI BUBV4ANW4W4W3ZCP SMP/PCB CAC QN62259 FI (TEXTURE) NEGTLR	6-87-NB50S-41C02	
1	IMP S LI BUBV4ANW4W4W3ZCP SMP/PCB CAC QN62259 FI (TEXTURE) NEGTLR	6-87-NB50S-41D02	
2	BOTTOM CASE MODULE NB50TJ1	6-39-NB503-013	
3	SCREW M2*3L KI BZ ICT NY (DD=04.5,DT=0.4)	6-35-B6120-3RD	
4	SCREW M2.5*8L KI BK/Z NY ICT	6-35-B6125-8R0	
5	CPU COVER MODULE NB50TJ1	6-42-NB508-103	
6	PRDDUCT LABEL FDR NB50TK1	6-45-NB50TK13-010	
6	PRDDUCT LABEL FDR NB50TJ1	6-45-NB50TJ13-010	
6	PRDDUCT LABEL FDR NB55TJ1	6-45-NB55TJ13-010	
6	PRDDUCT LABEL FDR NB55TK1	6-45-NB55TK13-010	
6	PRDDUCT LABEL FDR NB55TK1-H	6-45-NB55TK1H-010	
6	PRDDUCT LABEL FDR NB55TJ1-H	6-45-NB55TJ1H-010	

Figure A - 3
Bottom

Main Board

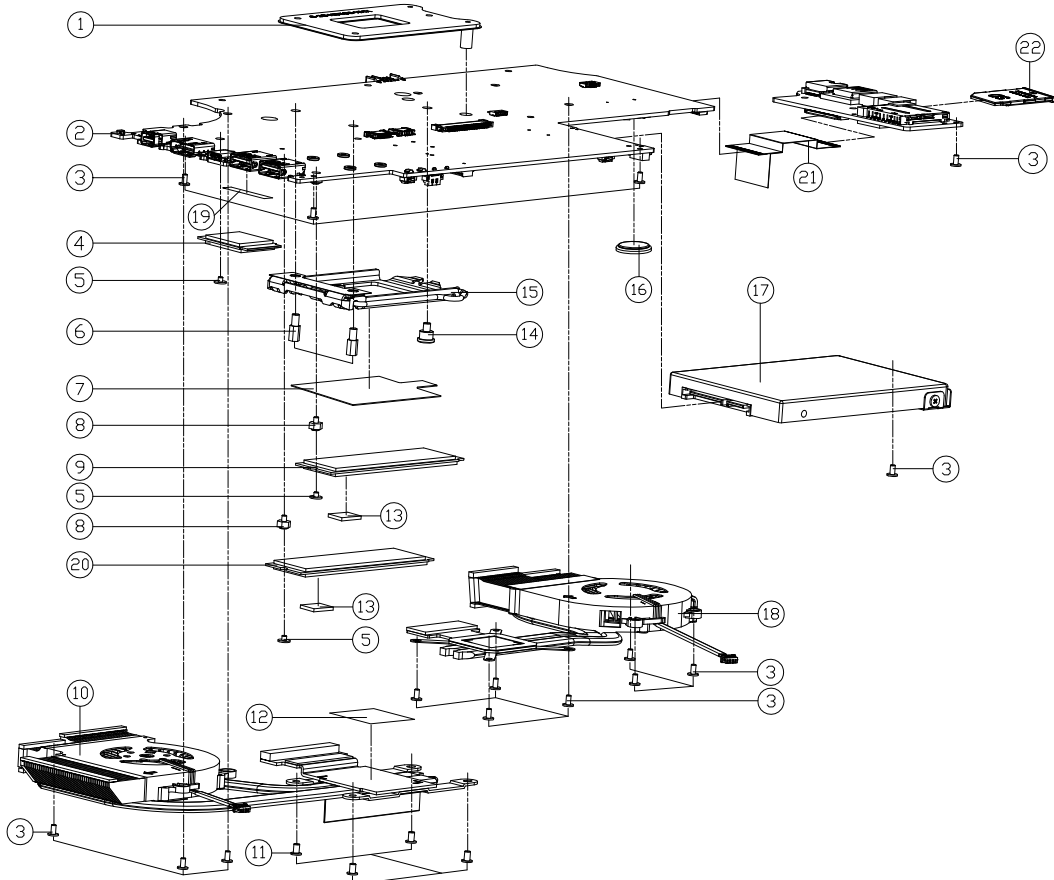
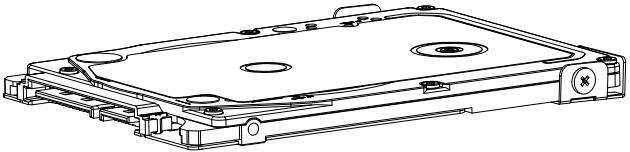
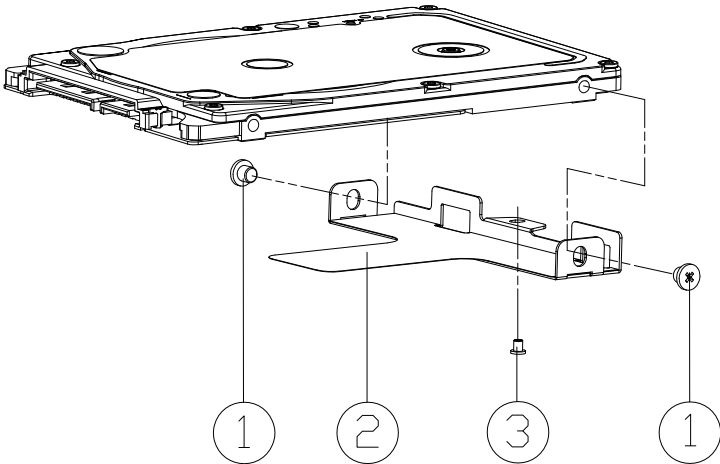


Figure A - 4
Main Board

ITEM	PART NAME	PART NO	REMARK
1	CPU SOCKET COVER (SINGLE) (LGA) (45/38/40) (S) (0.2)	6-33-NBS0S-010	
2	MAIN BOARD PCB (PRINTED) (LGA) (MULTI) (S) (0.2)	6-77-NBS0TJIA-N02-1	FDR NBS0TJ1
2	MAIN BOARD PCB (PRINTED) (LGA) (MULTI) (S) (0.2)	6-77-NBS0TKIA-N02	FDR NBS0TK1
2	MAIN BOARD PCB (PRINTED) (LGA) (MULTI) (S) (0.2)	6-77-NBS0TKIA-N02-1	FDR NBS0TK1
2	MAIN BOARD PCB (PRINTED) (LGA) (MULTI) (S) (0.2)	6-77-NBS5TJH-N02	FDR NBS5TJ-H
2	MAIN BOARD PCB (PRINTED) (LGA) (MULTI) (S) (0.2)	6-77-NBS5TKH-N02	FDR NBS5TK-H
2	MAIN BOARD PCB (PRINTED) (LGA) (MULTI) (S) (0.2)	6-77-NBS5TKH-N02-1	FDR NBS5TK-H
3	SCREW M2.5*4L NI ICT NY (S) (0.2) (0.4)	6-35-B1120-4RE	
4	COVER FOR I/O PORTS (LGA) (S) (0.2)	6-88-P75FF-4210	
4	COVER FOR I/O PORTS (LGA) (S) (0.2)	6-88-N24GF-4200	
4	COVER FOR I/O PORTS (LGA) (S) (0.2)	6-88-N24GF-4220	
4	COVER FOR I/O PORTS (LGA) (S) (0.2)	6-88-P655F-4210	
5	SCREW M2.5*4L NI ICT NY (S) (0.2) (0.4)	6-35-B1120-2R0	
6	SCREW M3.0*5.0L NI ICT NY FOR CPU SOCKET	6-35-Z1130-5R0	FDR NBS0TK1
6	SCREW M3.0*5.0L NI ICT NY FOR CPU SOCKET	6-35-Z1130-5R5	FDR NBS0TJ1
7	CPU SOCKET MYLAR FOR D900F	6-40-D90F-070	
8	SCREW M2.5*4L NI ICT NY (S) (0.2) (0.4)	6-35-ZA120-BP5-1	
9	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D515B-Z00	
9	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D515B-S08	
9	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D51R6-H04	
9	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D51R6-101	
9	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D511T-Z00	
9	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D515B-S05	
9	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D515B-H00	
9	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D511T-S00	
9	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D5116-Z02	
10	CPU THERMAL MODULE (HEATSINK + FAN) (P/N) (S) (0.2)	6-31-NBS02-K21	
11	SCREW M2.5*4L NI ICT NY	6-35-21125-4R0	
12	GREASE GA-690 (0.6G) P157SM	6-47-P1578-020	
13	THERMAL PAD (MS) (0.7) (3.0) (2.7) (1.7) (1.7) (1.7) (1.7) (1.7)	6-48-N7503-010	
14	SCREW M3*3.5L B2-Z ICT NY	6-35-Z2130-3R5	
15	ILM FOR CPU SOCKET (METAL) (LGA) (S) (0.2)	6-86-25B50-001-S	
16	BATTERY 3V 220MA BB8C20228 (XTS)	6-23-6A2B2-030	
17	W/HDD ASS'Y NBS0TK1	6-79-NBS0TK1J-010	
17	W/O HDD ASS'Y NBS0TK1	6-79-NBS0TK1J-020	
18	VGA THERMAL MODULE (HEATSINK + FAN) (P/N) (S) (0.2)	6-31-NBS02-K11	
19	TAPE MYLAR (C) MYLAR M550J	6-40-M55J2-030	
20	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D515B-Z00	ONLY FOR PCIE
20	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D515B-S08	ONLY FOR PCIE
20	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D515B-S05	ONLY FOR PCIE
20	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D515B-H00	ONLY FOR PCIE
20	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D511T-S00	ONLY FOR PCIE
20	SPACER FOR I/O PORTS (LGA) (S) (0.2)	6-85-D5116-Z02	ONLY FOR PCIE
21	FFC ADDED TO MG 56M SV 40P (MS) (S) (0.2)	6-43-NB500-010-2	
22	ILM FOR CPU SOCKET (METAL) (LGA) (S) (0.2)	6-42-W9708-011	

HDD

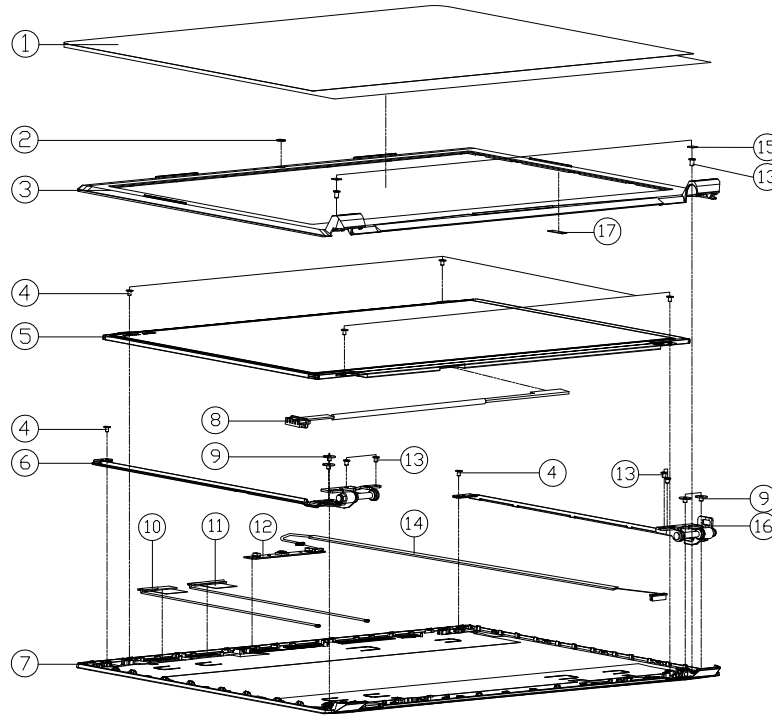


ITEM	PART NAME	PART NO	REMARK
1	SCREW M3*2.5L KI NI ICT NY	6-35-B1130-2R5	
2	HDD BKT 7MM SECC T=0.5 N250LU	6-33-N250J-011	
3	SCREW M2*4L KI NI ICT NY (DD=#4.5,DT=0.4)	6-35-B1120-4RE	

Figure A - 5
HDD

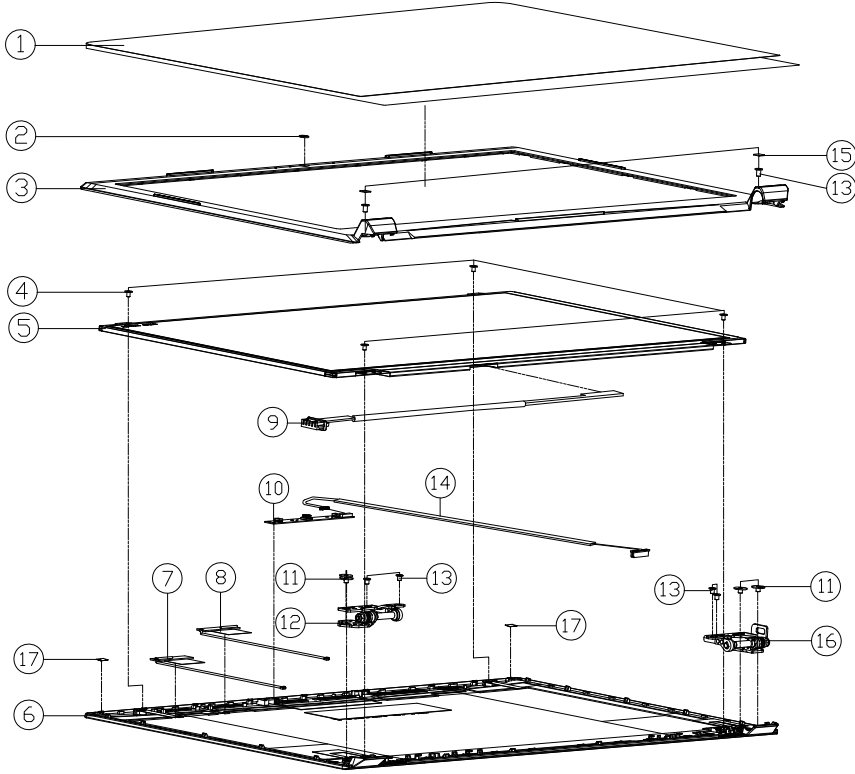
LCD (NB50TK1)

Figure A - 6
LCD (NB50TK1)



ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT MYLAR BOPP W650RC	6-40-W6508-020	
2	CCD LENS (VIEWING AREA 4MMXPMMA)W940TU	6-42-W9401-020-1	
3	FRONT COVER MODULE NB50TJ1	6-39-NB501-013	
4	SCREW M2X3L KI BZ ICT NY (DD=04.5,DT=0.4)	6-35-B6120-3RD	
5	LCD 15.6" FHD/ EDP AU B156HTN038 (H/W68) LED 3.2MM	6-50-LB232-G18	
5	LCD 15.6" FHD/ EDP AU B156HTN038 (H/W68) LED 3.2MM	6-50-LBB32-L010	
5	LCD 15.6" FHD/120HZ/MS/NDN GT/EDP TANDUOX NIS6HFE-6A1 (LED)32MM	6-50-LBB32-V070	
5	LCD 15.6" FHD/WVA/NA/NDN GT/EDP PANDA LMS6LFL03 (LED)32MM/MSCE*	6-950-LBB32-Y020-HA	
5	LCD 15.6" FHD/NDN GT/EDP BOE N156FHM-M1 FG CODE:8854 (LED) 32 MM	6-50-LBB32-Z001	
6	HINGE L (SK7+SGCC) NB50TJ1	6-33-NB501-0L0	
7	BACK COVER MODULE NB50TJ1	6-39-NB501-023	
8	WIRE CABLE FOR EDP FHD 35MM ID 19V 30PA (H/L/W CON.V0038-2E-1F) NBS0TJ1	6-43-NB501-010-N	
9	SCREW M2.5X2.5L KI BK/Z ICT NY<08,T=0.6>	6-35-B6125-2R5	
10	ANTENNA IPEX4 WLAN WGT WL1 PCB AL 24G/5G/2 WL1=500MM N240J0	6-23-7N24J-010	
11	ANTENNA IPEX4 WLAN WGT WL2 PCB AL 24G/5G WL2=450MM N850H0	6-23-7N850-020	
12	IOC CAMERA CCDM F1X OPTIF520032L1 IN HD 01974 KMPU FV06 V-WHITE-LED W2H-MC	6-88-N770C-4910	OPTION
12	IOC CAMERA CCDM F1X OPTIF520032L1 IN HD 01974 KMPU FV06 V-WHITE-LED W2H-MC	6-88-W51PC-5110	OPTION
13	SCREW M2.5X4L KI NI ICT NY	6-35-21125-4R0	
14	WIRE CABLE FOR CCD D-MIC 550MM 3.3V 8P TD 12P (H/L) NBS0TJ1	6-43-NB50T-020	
15	FRONT COVER SCREW MYLAR(PC+SM468)X5X0.25T) N150SD	6-40-N1501-010	
16	HINGE R (SK7+SGCC) NB50TJ1	6-33-NB501-0R0	
17	MYLAR (15X5X0.25T) FDR M/B N745WU-N	6-40-N7452-050-N	ONLY FOR 6-50-LBB32-V070

LCD (NB55TK1)



ITEM	PART NAME	PART NO	REMARK
1	LCD PROTECT MYLAR BOPP W650RC	6-40-W6508-020	
2	CCD LENS (VIEWING AREA 4MMX6MM)W940TU	6-42-W9401-020-1	
3	FRONT COVER MODULE NB50TJ1	6-39-NB501-014	
3	FRONT COVER MODULE(HASSEE*HASEE*) NB50TJK(KAPDK)	6-39-NB501-014-H	
3	FRONT COVER MODULE(HASSEE*DESTROYER*) NB50TJK(KAPDK)	6-39-NB501-014-D	
3	FRONT COVER MODULE(MULTICOM *MULTICOM *) NB50TJK(KAPDK)	6-39-NB501-014-M	
4	SCREW M2*3L KI BZ ICT NY (DD=04.5,DT=0.4)	6-35-B6120-3RD	
5	LCD 15.6" FHD/ EDP AU B156HTN038 (Q1/W46B) LED 32MM	6-50-LB232-G18	
5	LCD 15.6" FHD/ EDP AU B156HTN038 (Q1/W46B) LED 32MM	6-50-LB232-L010	
5	LCD 15.6" FHD/200HZ/N/NDN GT/EP DANLUX N054HC-G4U (LED)32MM	6-50-LBB32-V070	
5	LCD 15.6" FHD/VVA/N/NDN GT/EP PANDA LMS6LFLED (LED)32MM*HASEE*	6-950-LBB32-Y020-HA	
6	BACK CASE MODULE NB55TK1	6-39-NB551-021	FOR NB55TK1/TJ1
6	BACK COVER MODULE NB55TK1-H	6-39-NB551-021-H	FOR NB55TK1-H/TJ1-H
7	ANTENNA IPEX4 WLAN WGT VLI PCB AL 246/59HZ VLI-500MM N240JU	6-23-7N24J-010	
8	ANTENNA IPEX4 WLAN WGT VLI PCB AL 246/59HZ VLI-450MM N050HC	6-23-7N850-020	
9	WIRE CABLE FOR EDP FHD 32MM CO FVW 30PIN 04LV CONLV020P-22-HY N050TJ1	6-43-NB501-010-N	
10	LCD COVER BEZEL TUNING INDENTIF-NO IN HD (INDICATOR) 47MM FVWB VWHITE-LED V020HC	6-88-N770C-4910	OPTION
10	LCD COVER CHROM FOR OPTIC2002021 IN HD (INDICATOR) 47MM FVWB VWHITE-LED V020HC	6-88-W51PC-5110	OPTION
11	SCREW M2.5*2.5L KI BK/Z ICT NY(Q8,T=0.6)	6-35-B6125-2R5	
12	HINGE L (SK7) NB55TK1	6-33-NB551-0L0	
13	SCREW M2.5*4L KI NI ICT NY	6-35-21125-4R0	
14	WIRE CABLE FOR CCD D-MC 550MM 3.3V BP TO I2P (HLD) NB50TJ1	6-43-NB50T-020	
15	FRONT COVER SCREW MYLAR(PVC-SM46X5X0.5) N050GD	6-40-N1501-010	
16	HINGE R (SK7) NB55TK1	6-33-NB551-0R0	
17	ACETATE CLOTH 5*8*0.35 NB55TK1	6-47-NB552-010	

Figure A - 7
LCD (NB55TK1)

A.Part Lists



Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *NB50TK1 / NB55TK1* notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
<i>System Block Diagram - Page B - 2</i>	<i>PCH 1/9 - Page B - 25</i>	<i>VCCSA - Page B - 48</i>
<i>Processor 1/6 - Page B - 3</i>	<i>PCH 2/9 - Page B - 26</i>	<i>AC_In, Charger - Page B - 49</i>
<i>Processor 2/6 - Page B - 4</i>	<i>PCH 3/9 - Page B - 27</i>	<i>NVVDD - Page B - 50</i>
<i>Processor 3/6 - Page B - 5</i>	<i>PCH 4/9 - Page B - 28</i>	<i>FBVDDQ - Page B - 51</i>
<i>Processor 4/6 - Page B - 6</i>	<i>PCH 5/9 - Page B - 29</i>	<i>IV8_RUN IV8_AON, PEXVDD - Page B - 52</i>
<i>Processor 5/6 - Page B - 7</i>	<i>PCH 6/9 - Page B - 30</i>	<i>DC_Jack Board - Page B - 53</i>
<i>Processor 6/6 - Page B - 8</i>	<i>PCH 7/9 - Page B - 31</i>	<i>Multi Board - Page B - 54</i>
<i>DDR4 CHA SO-DIMM - Page B - 9</i>	<i>PCH 8/9 - Page B - 32</i>	<i>RTL8411B - Page B - 55</i>
<i>DDR4 CHB SO-DIMM - Page B - 10</i>	<i>PCH 9/9 - Page B - 33</i>	<i>Power SW Board - Page B - 56</i>
<i>VGA PCI-E Interface - Page B - 11</i>	<i>M.2 WLAN+BT, SSD - Page B - 34</i>	<i>Click Board - Page B - 57</i>
<i>VGA Frame Buffer Interface - Page B - 12</i>	<i>USB Type-A - Page B - 35</i>	<i>Power Sequence - Page B - 58</i>
<i>VGA Frame Buffer A - Page B - 13</i>	<i>USB Conn, USB Charger - Page B - 36</i>	
<i>VGA Frame Buffer A - Page B - 14</i>	<i>HDD, Click TP, Audio, Hall Con. - Page B - 37</i>	
<i>VGA Frame Buffer B - Page B - 15</i>	<i>LED, CCD, TPM - Page B - 38</i>	
<i>VGA Frame Buffer B - Page B - 16</i>	<i>Audio Codec ALC269 VC2 - Page B - 39</i>	
<i>VGA I/O - Page B - 17</i>	<i>White/RGB KB, Fan - Page B - 40</i>	
<i>NVIDIA Power Sequence - Page B - 18</i>	<i>KBC-ITE IT8587 - Page B - 41</i>	
<i>GPU Decoupling - Page B - 19</i>	<i>5V, 5VS, 3.3V, 3.3VS, 3.3VA - Page B - 42</i>	
<i>PS8330B - Page B - 20</i>	<i>VDD1.05V, VCCIO - Page B - 43</i>	
<i>MDP - Page B - 21</i>	<i>VDD3, VDD5 - Page B - 44</i>	
<i>MDP - Page B - 22</i>	<i>DDR 1.2V / 0.6VS, 2.5V - Page B - 45</i>	
<i>HDMI - Page B - 23</i>	<i>VCore, VCCGT - Page B - 46</i>	
<i>Panel, Inverter - Page B - 24</i>	<i>VCore, VCCGT Output Stage - Page B - 47</i>	

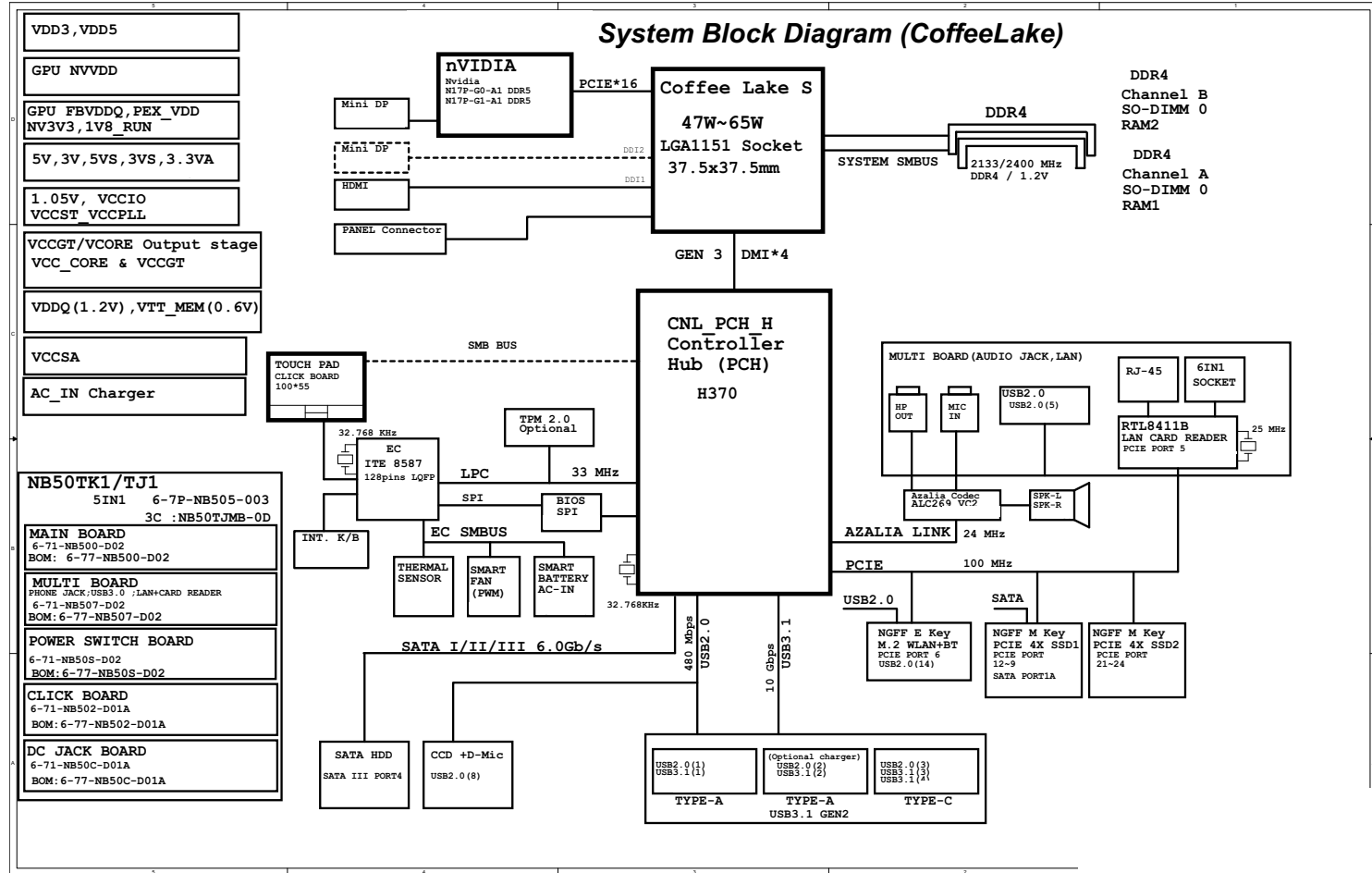
Table B - 1
**SCHEMATIC
DIAGRAMS**



Version Note

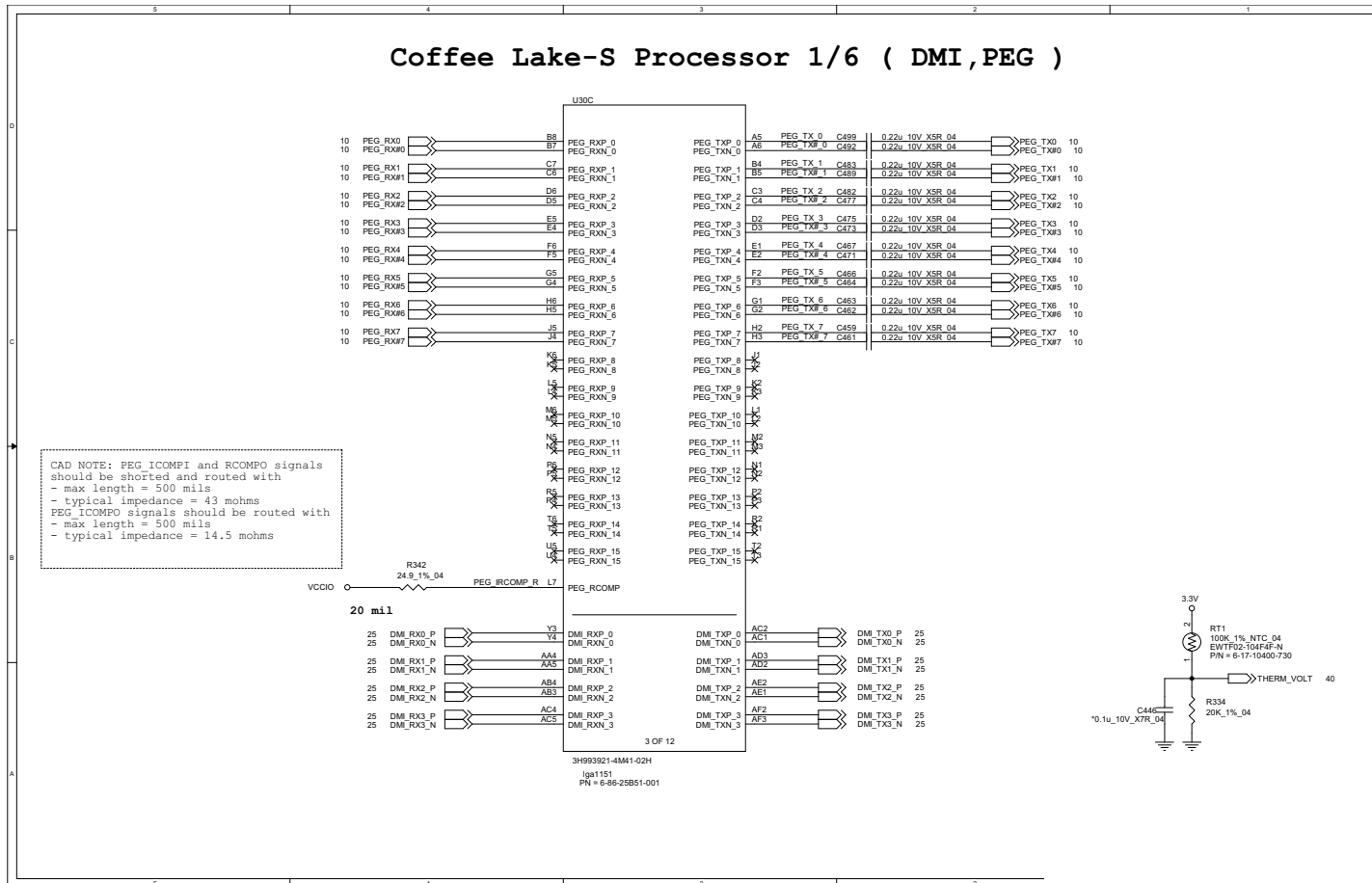
The schematic diagrams in this chapter are based upon version 6-7P-N85H7-002. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

System Block Diagram



Sheet 1 of 57
System Block
Diagram

Processor 1/6

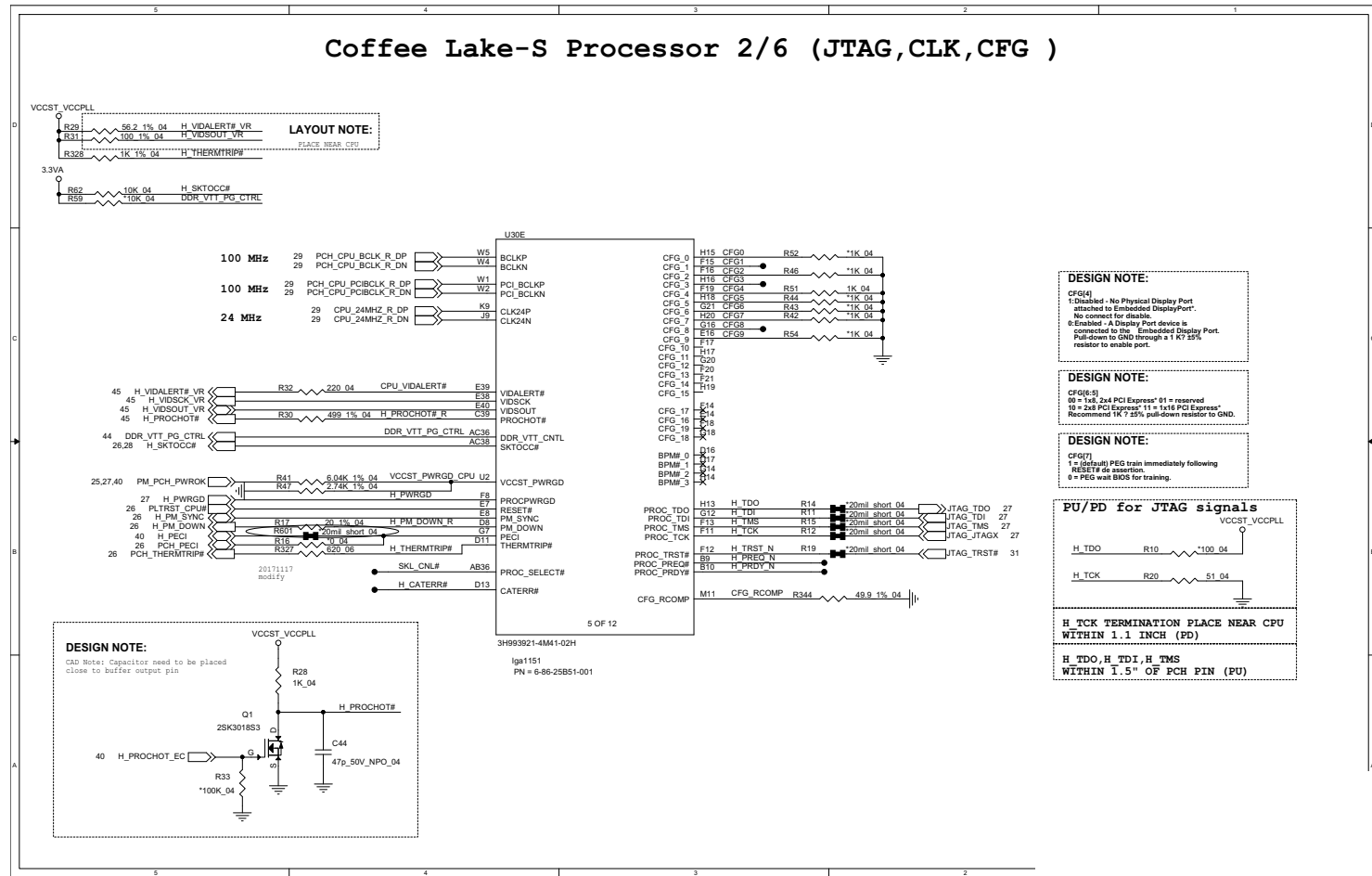


Sheet 2 of 57
 Processor 1/6

B.Schematic Diagrams

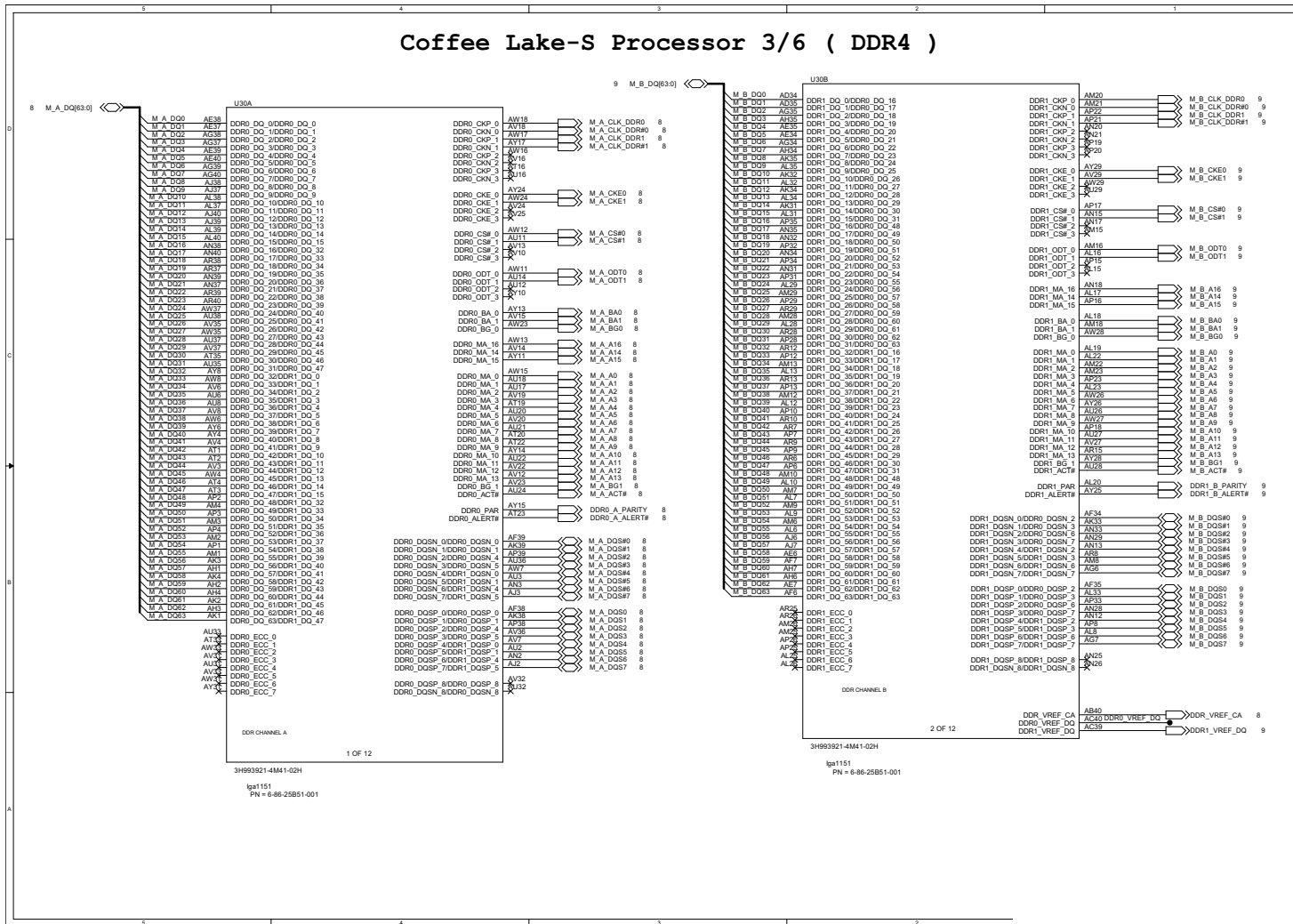
Processor 2/6

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Processor 2/6



Processor 3/6

Coffee Lake-S Processor 3/6 (DDR4)

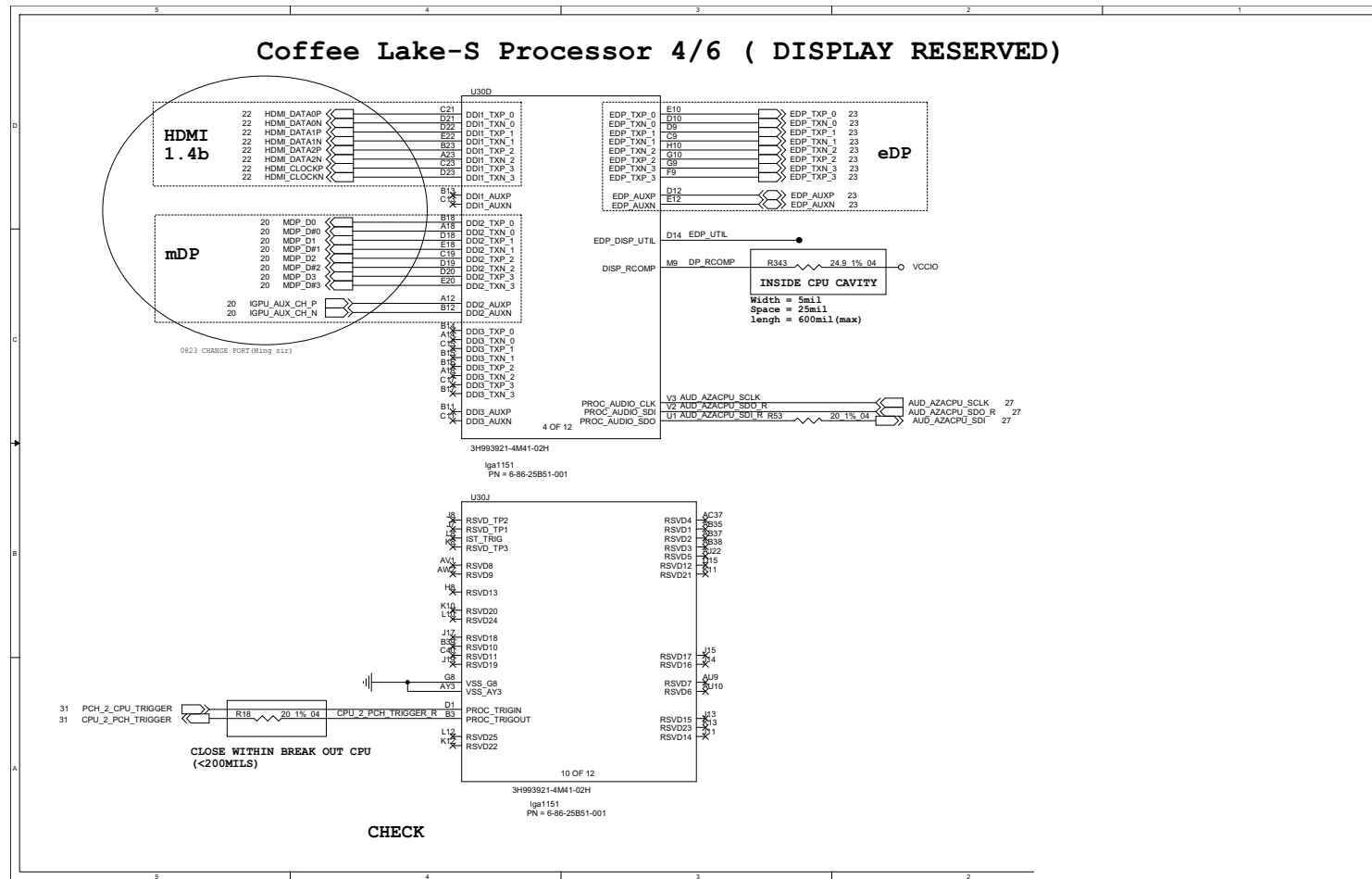


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Processor 3/6

B.Schematic Diagrams

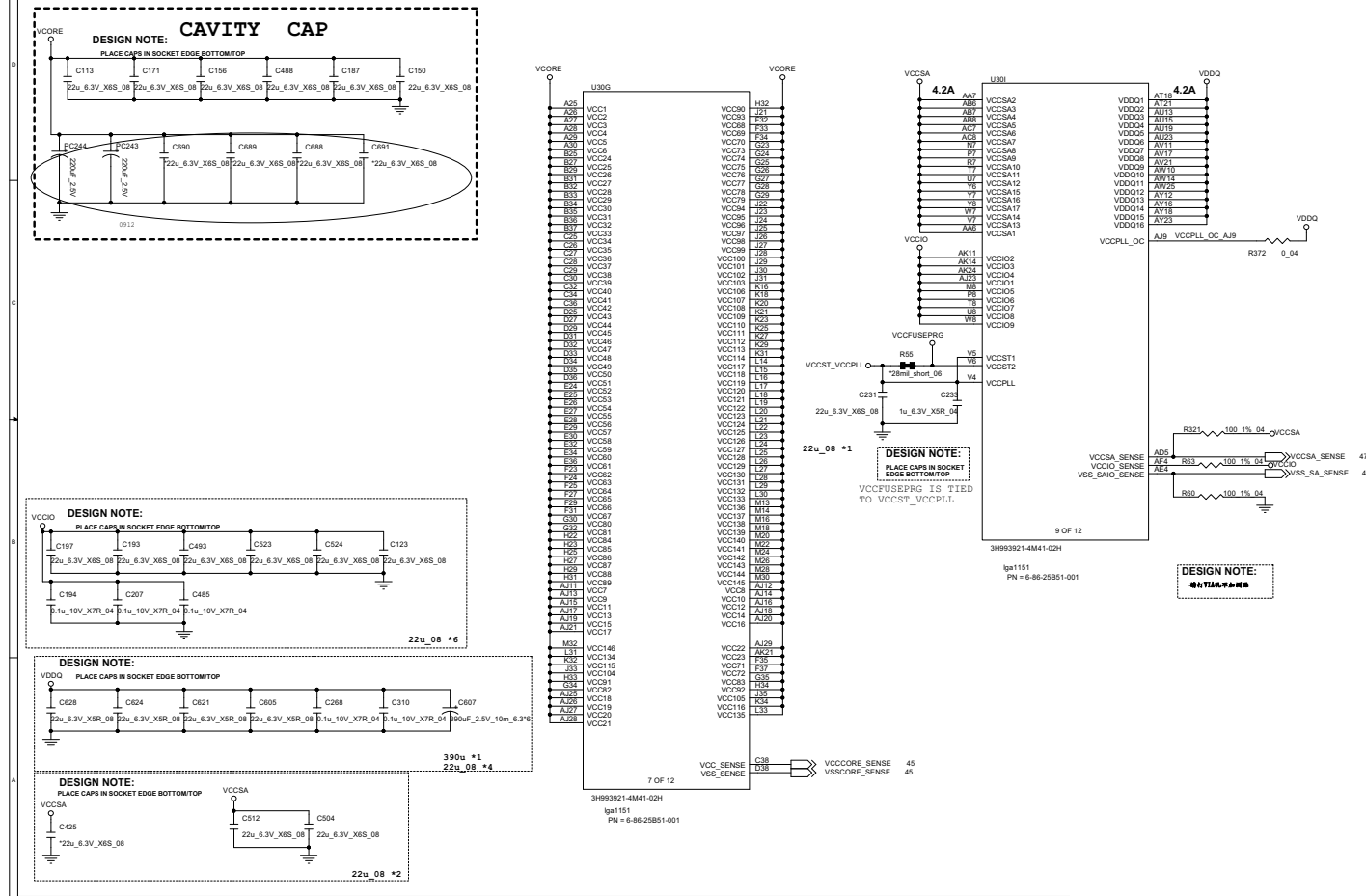
Processor 4/6

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Processor 4/6



Processor 5/6

Coffee Lake-S Processor 5/6 (POWER)



Sheet 6 of 57
Processor 5/6

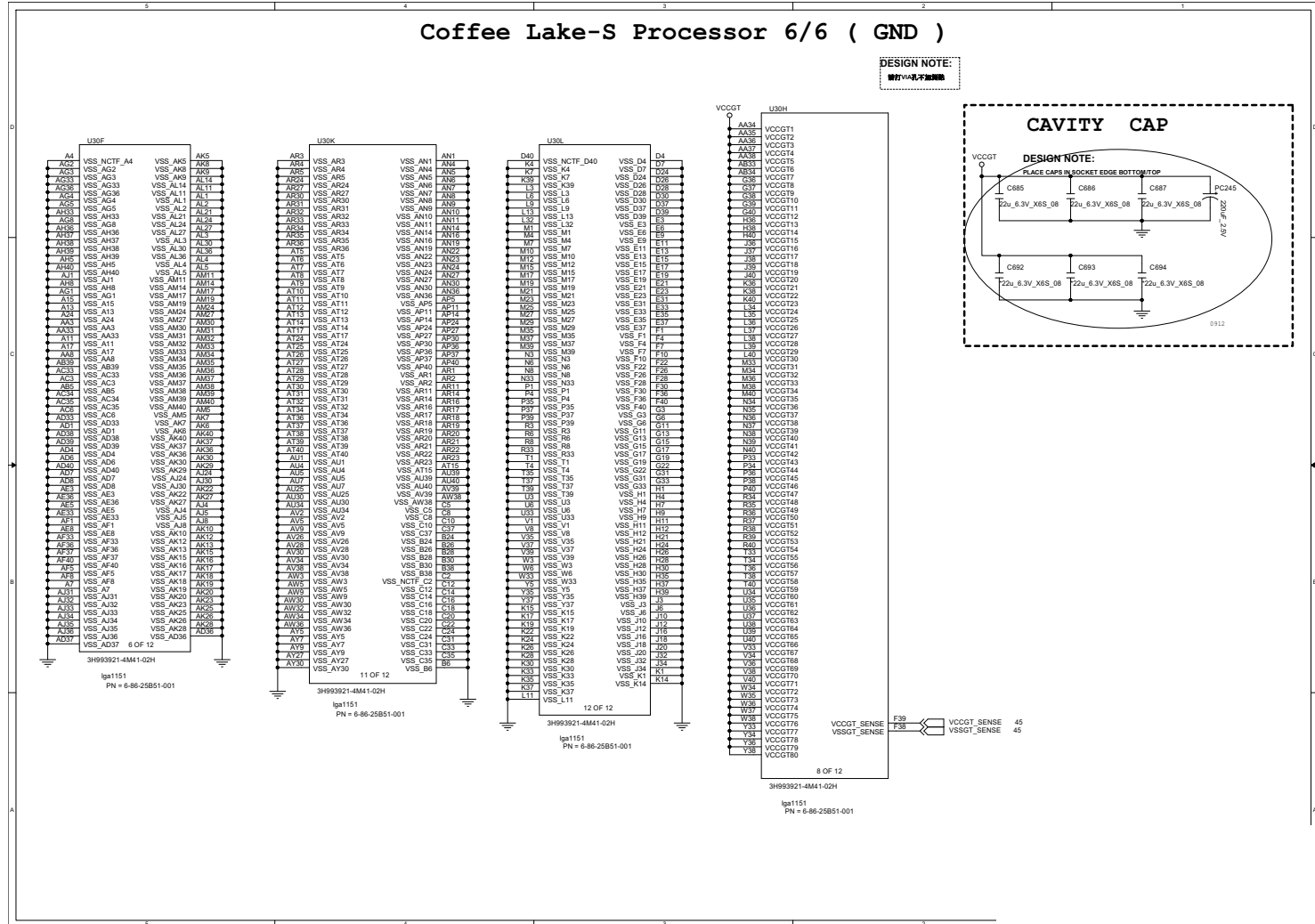
B.Schematic Diagrams

Processor 6/6

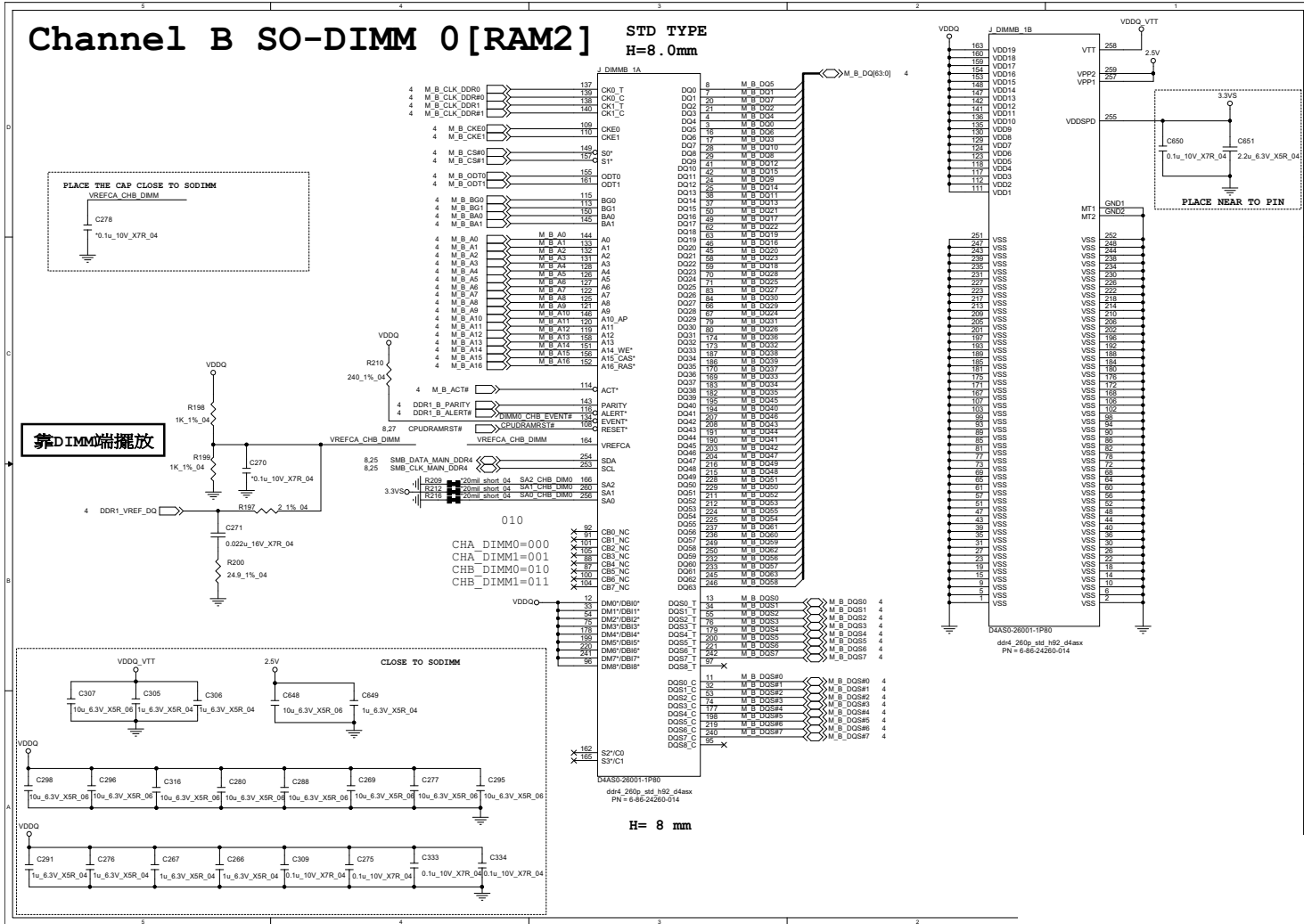
Sheet 7 of 57
Processor 6/6

Coffee Lake-S Processor 6/6 (GND)

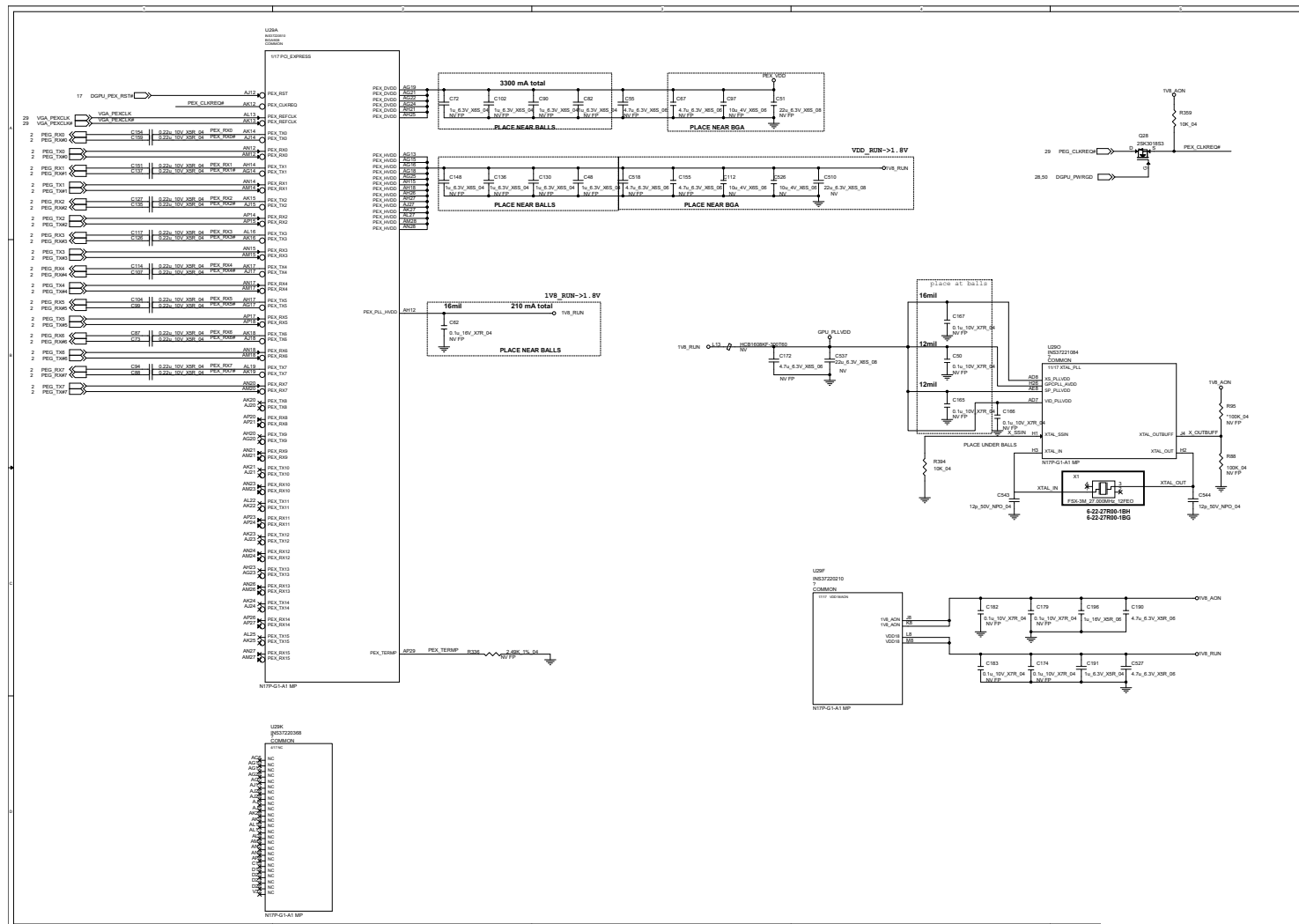
DESIGN NOTE:
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DDR4 CHB SO-DIMM



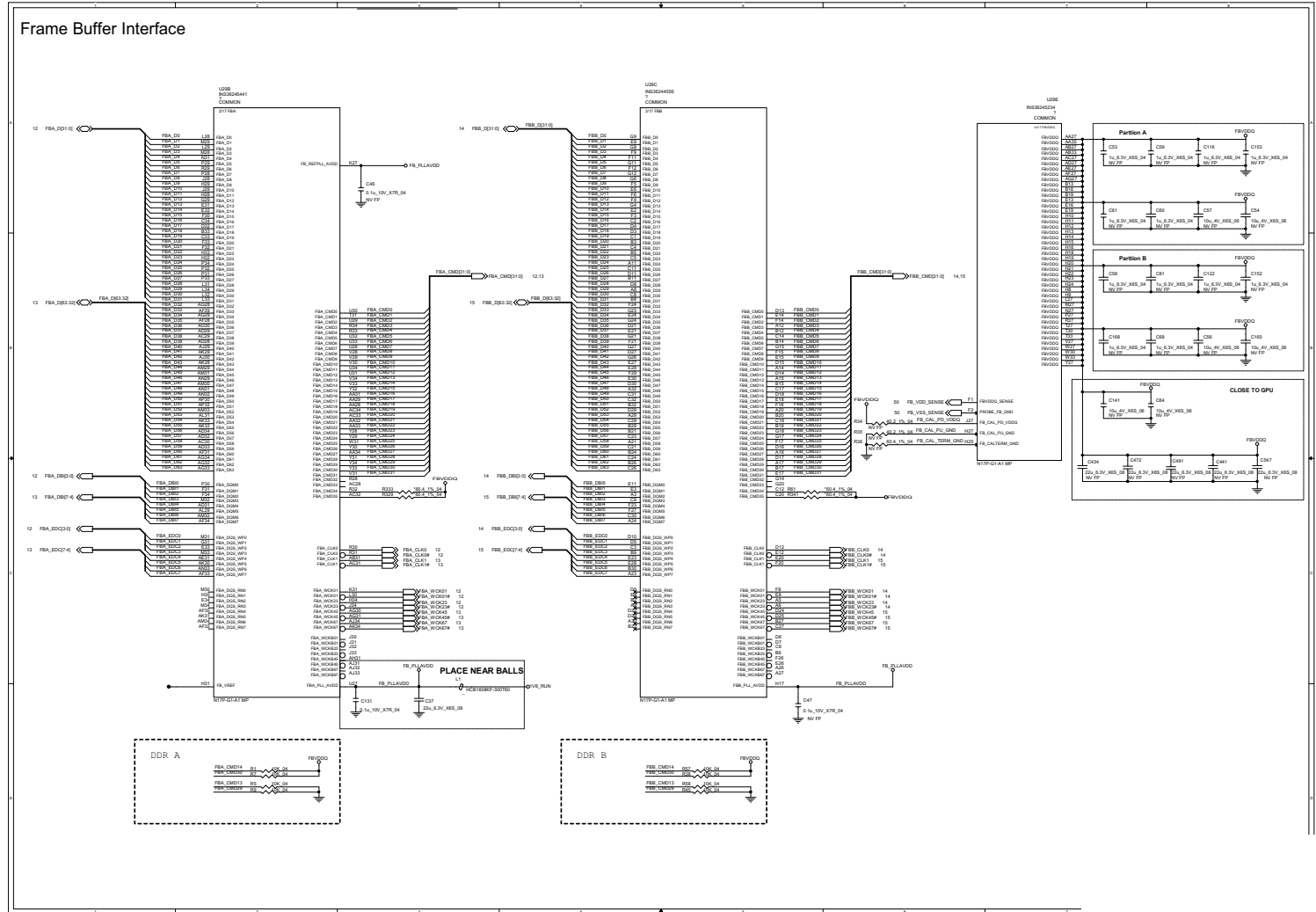
VGA PCI-E Interface



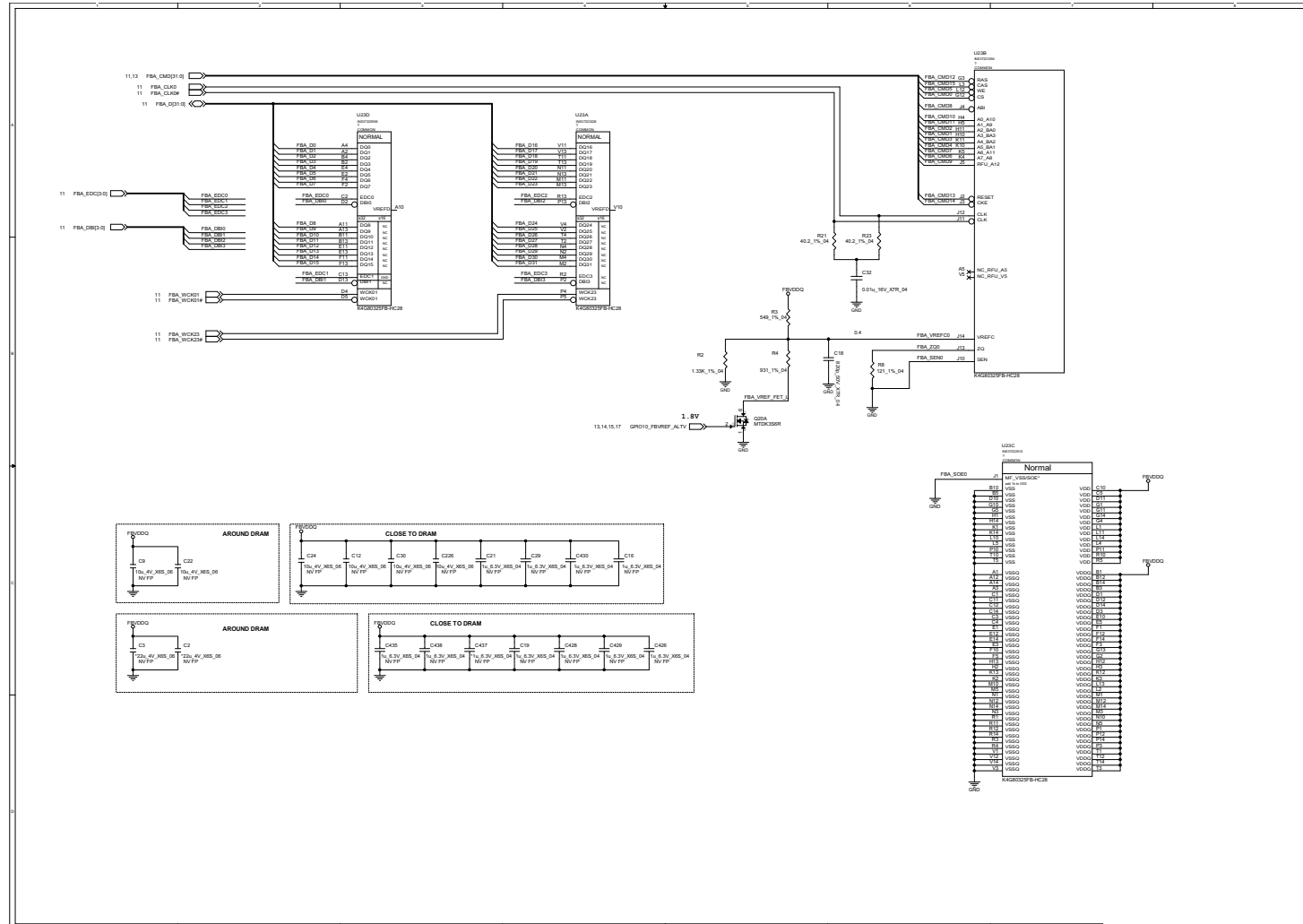
Sheet 10 of 57
VGA PCI-E
Interface

VGA Frame Buffer Interface

Sheet 11 of 57
VGA Frame Buffer Interface



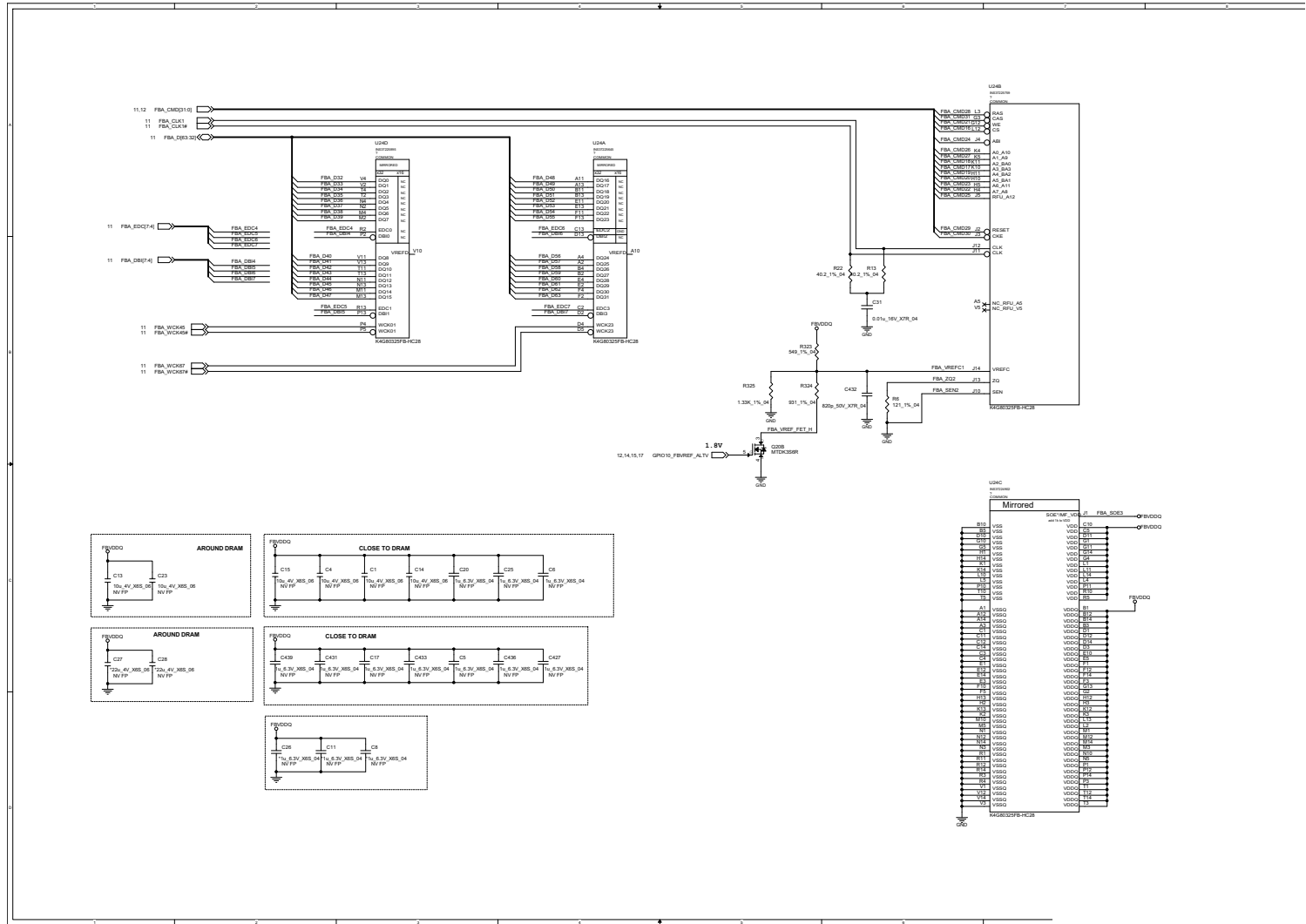
VGA Frame Buffer A



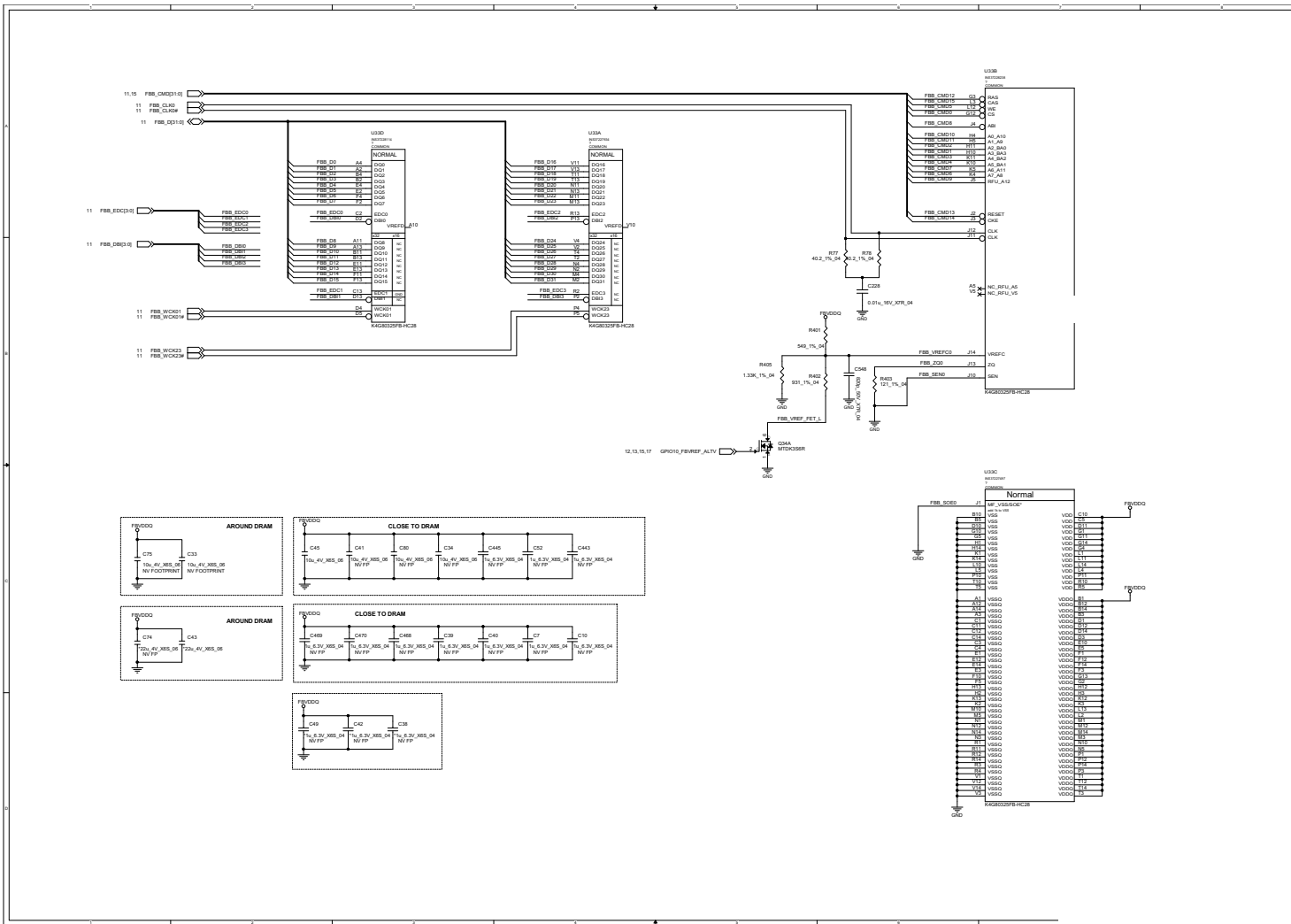
Sheet 12 of 57
VGA Frame Buffer
A

VGA Frame Buffer A

Sheet 13 of 57
VGA Frame Buffer
A

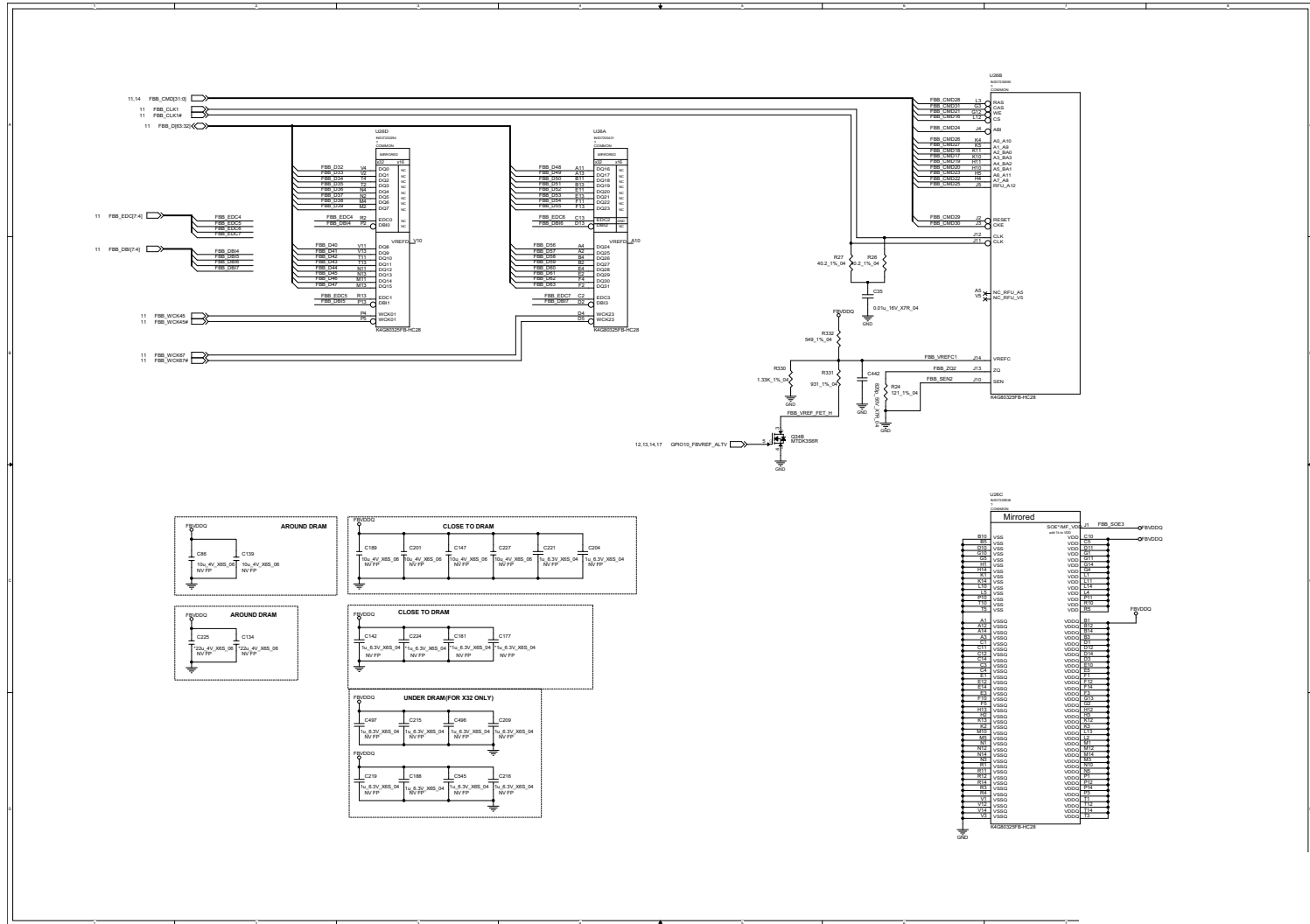


VGA Frame Buffer B



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VGA Frame Buffer
B

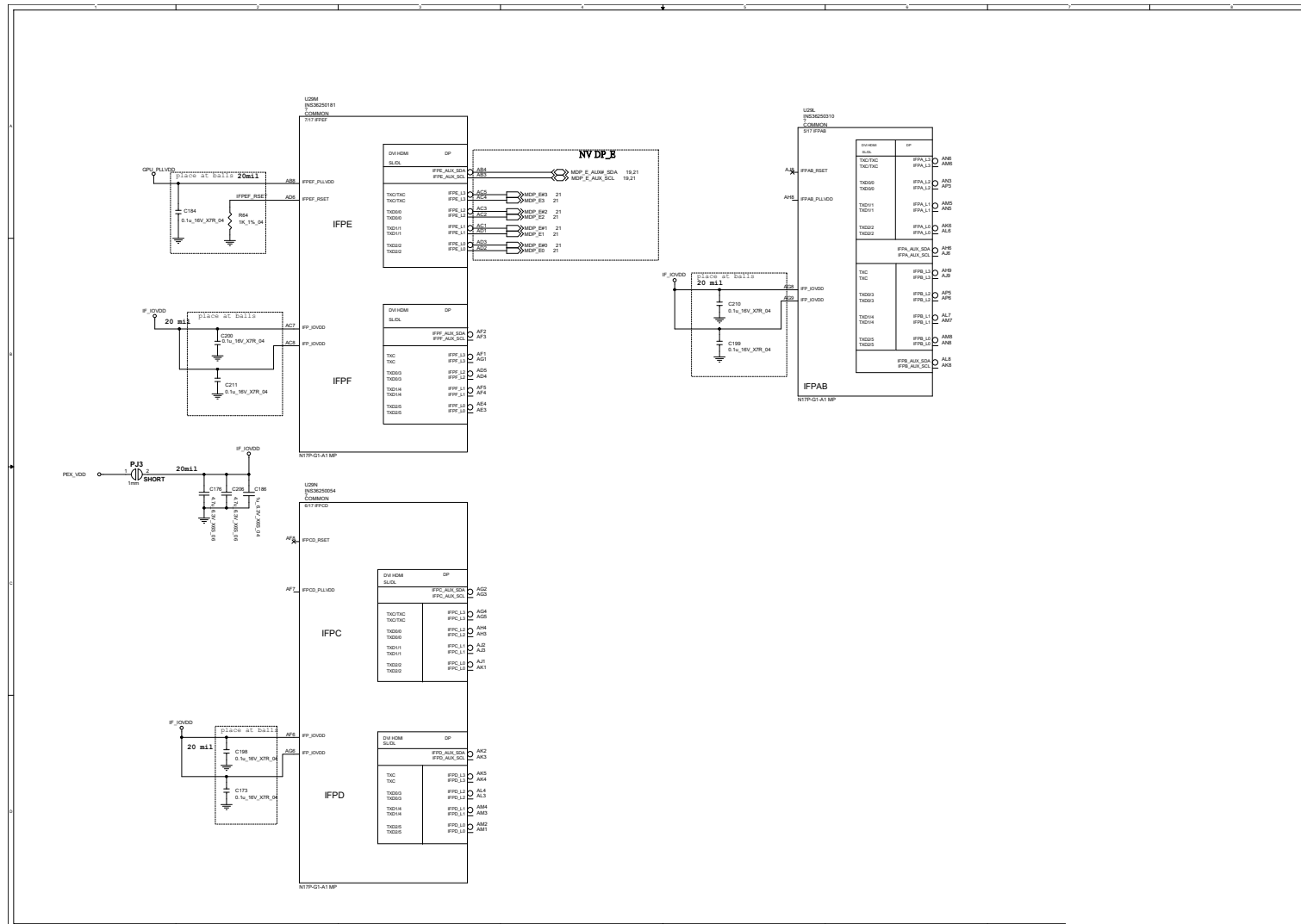
VGA Frame Buffer B



Sheet 15 of 57
VGA Frame Buffer
B

B.Schematic Diagrams

VGA I/O

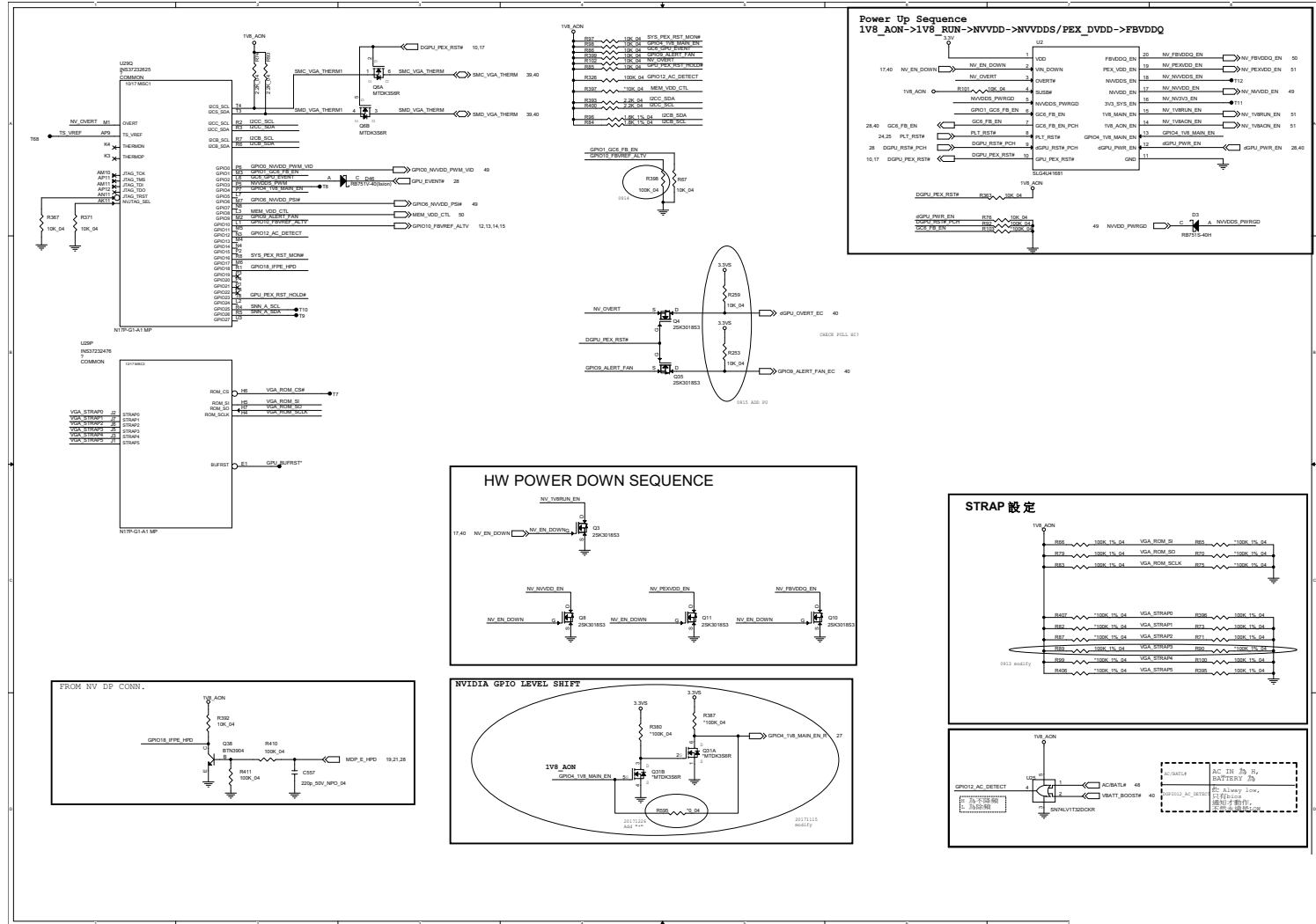


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VGA I/O

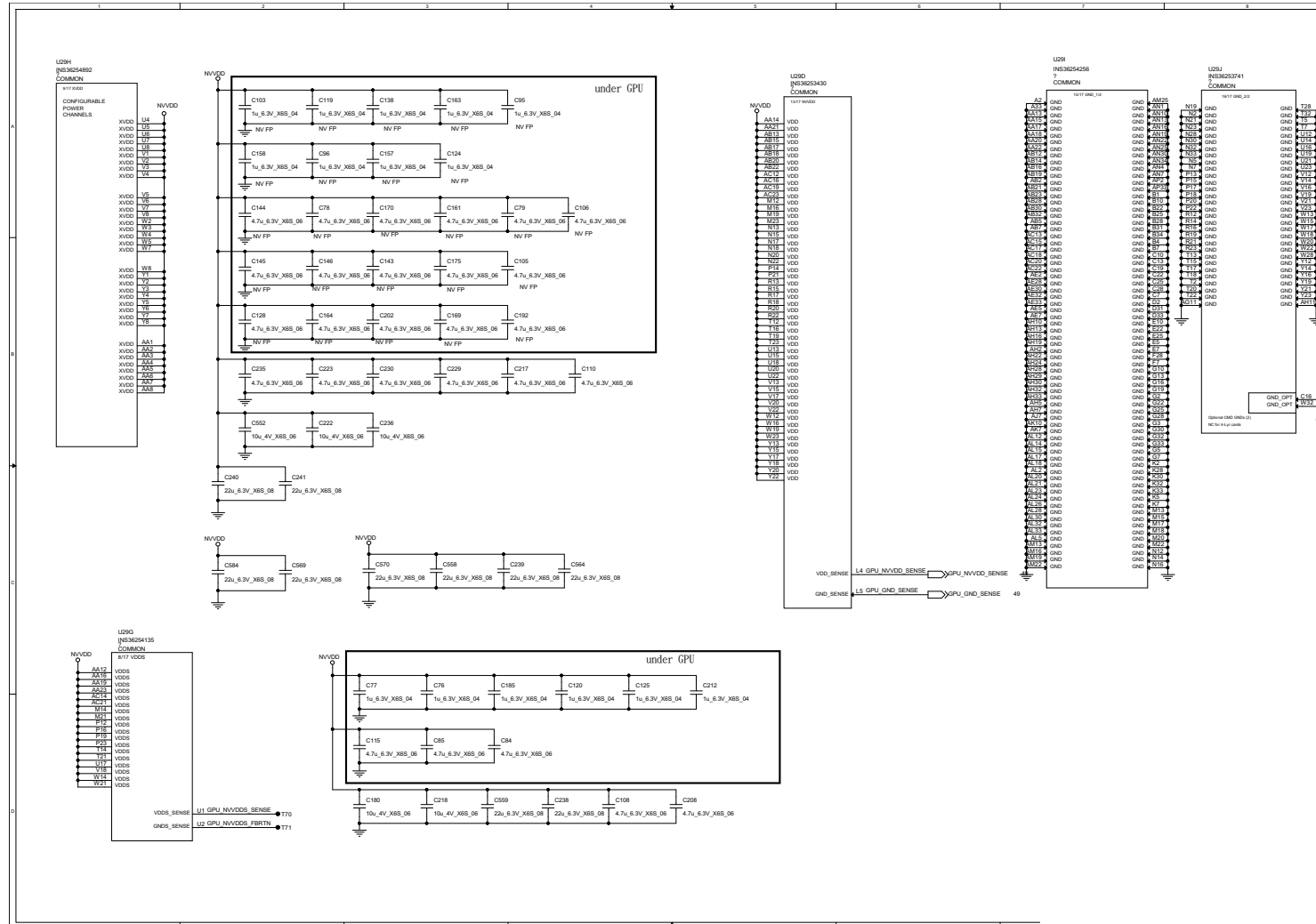
B. Schematic Diagrams

NVIDIA Power Sequence

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NVIDIA Power Sequence



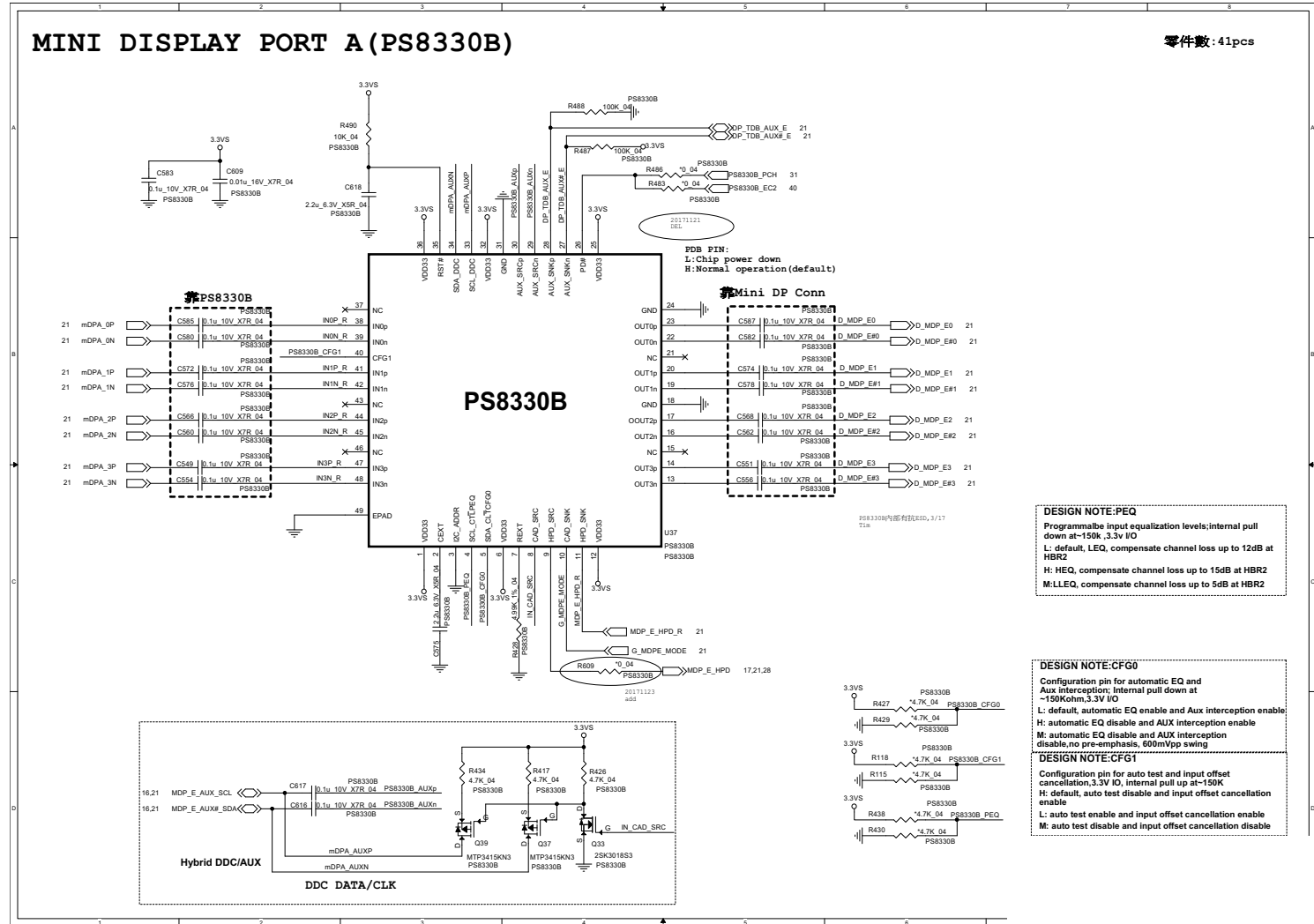
GPU Decoupling



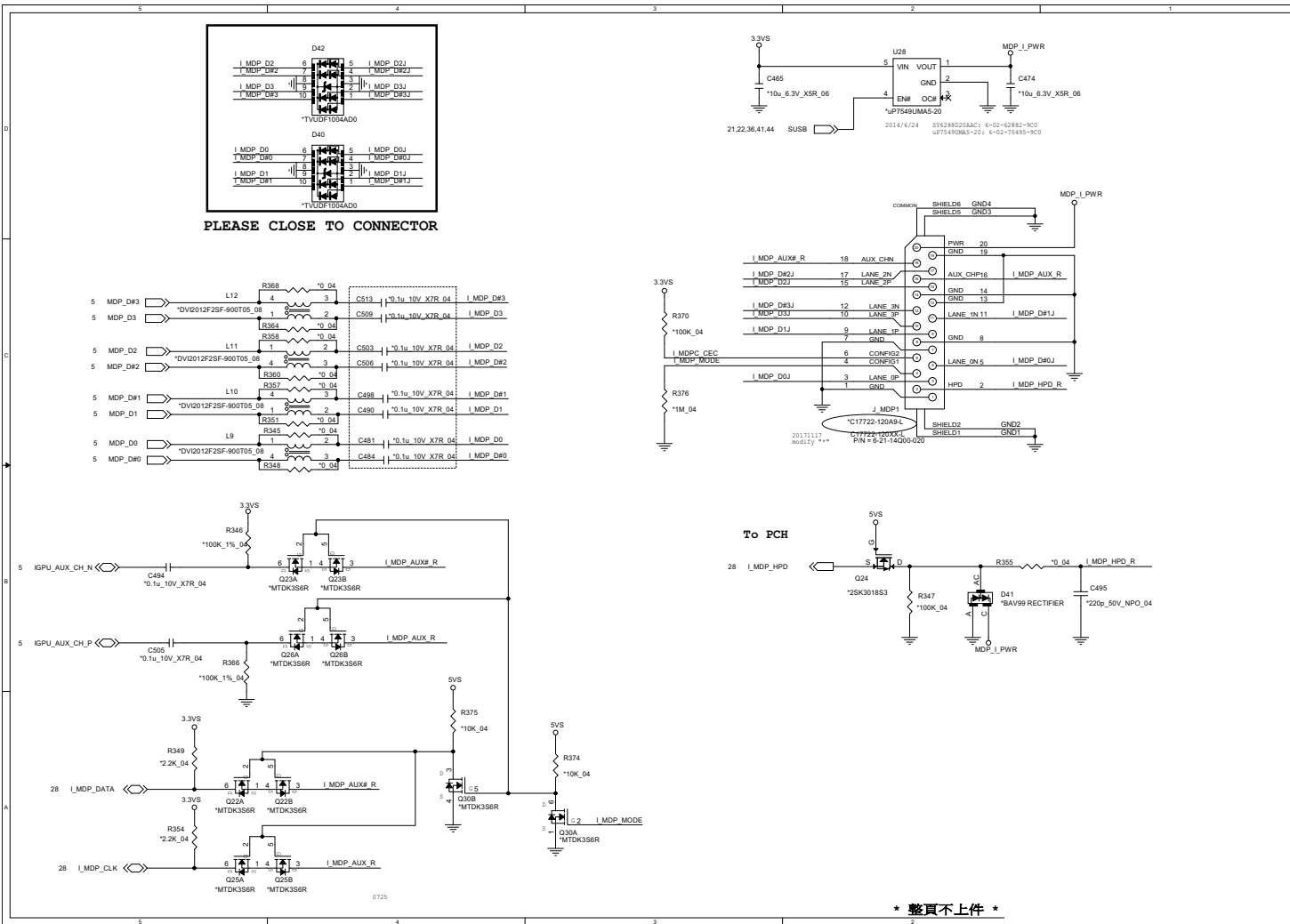
Sheet 18 of 57
GPU Decoupling

B.Schematic Diagrams

PS8330B



MDP



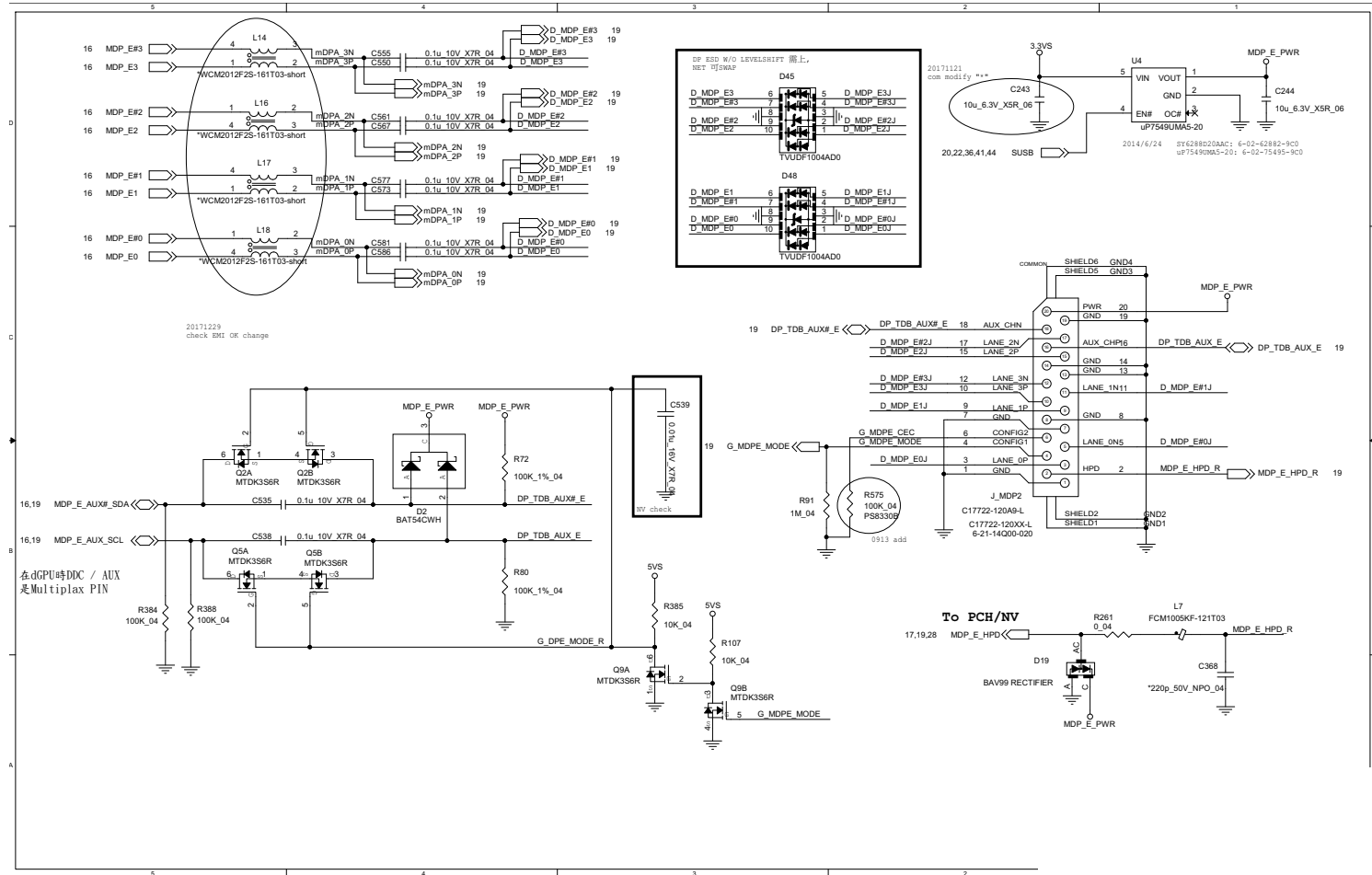
Sheet 20 of 57
MDP

B.Schematic Diagrams

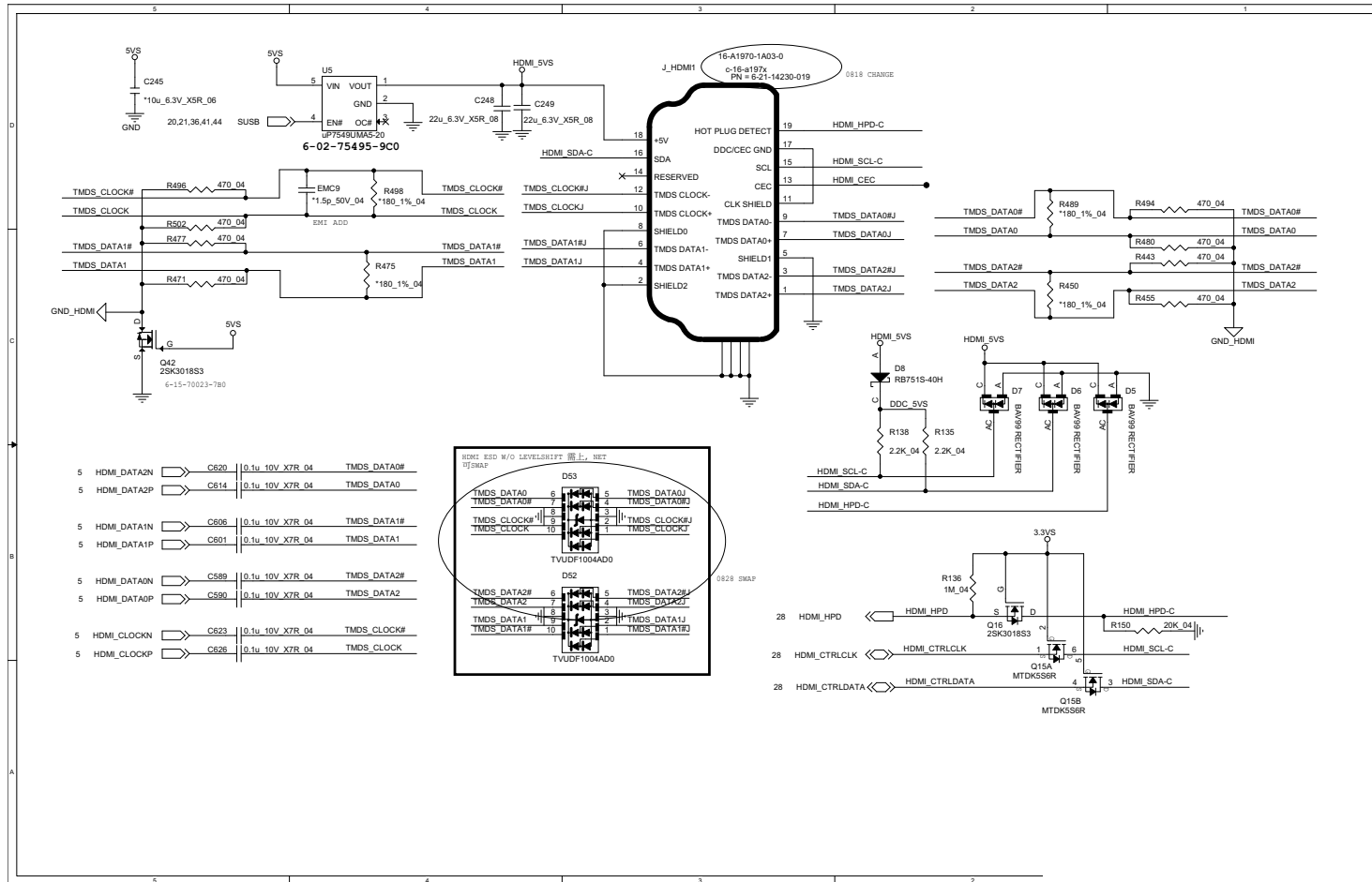
Schematic Diagrams

MDP

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MDP



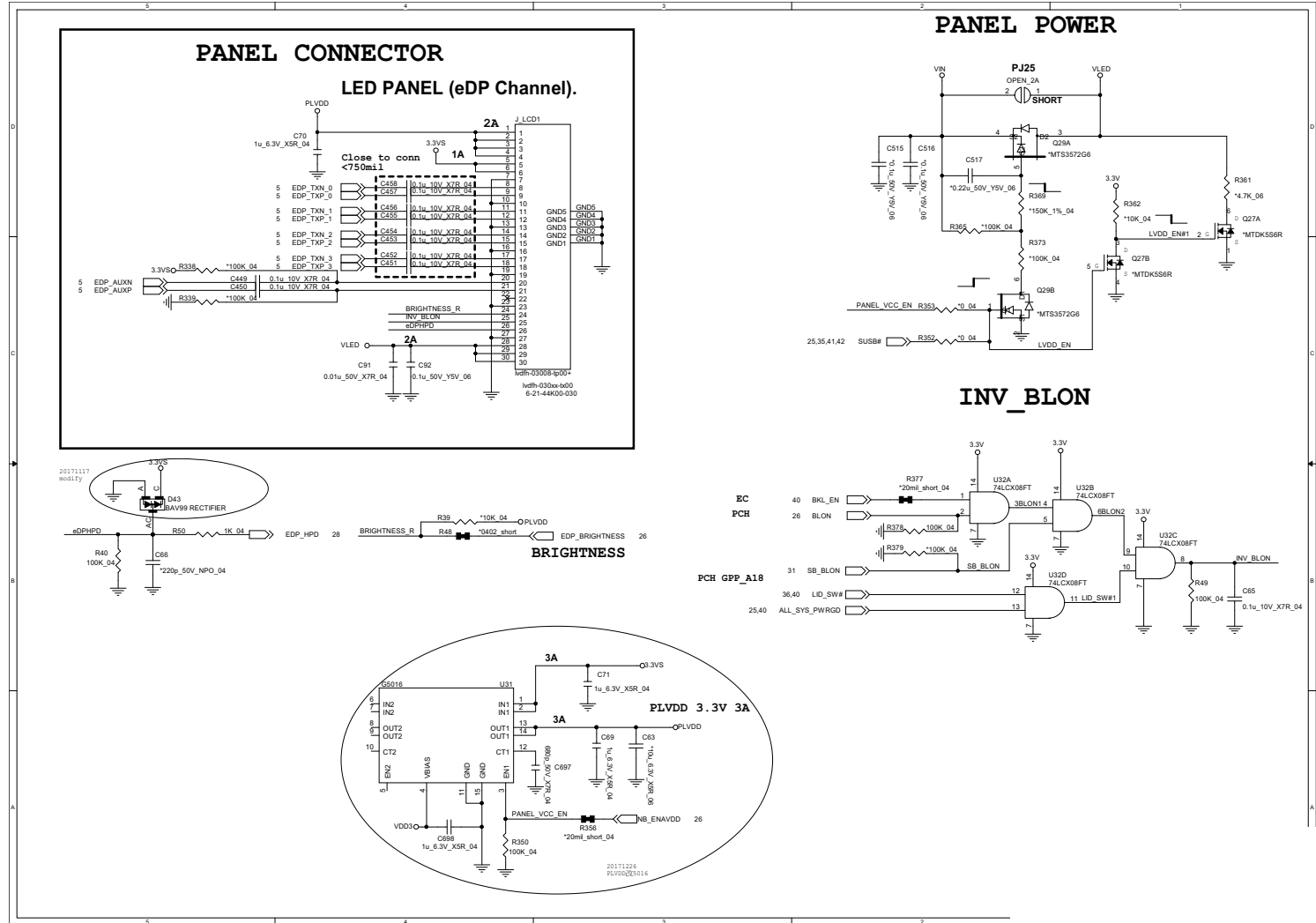
HDMI



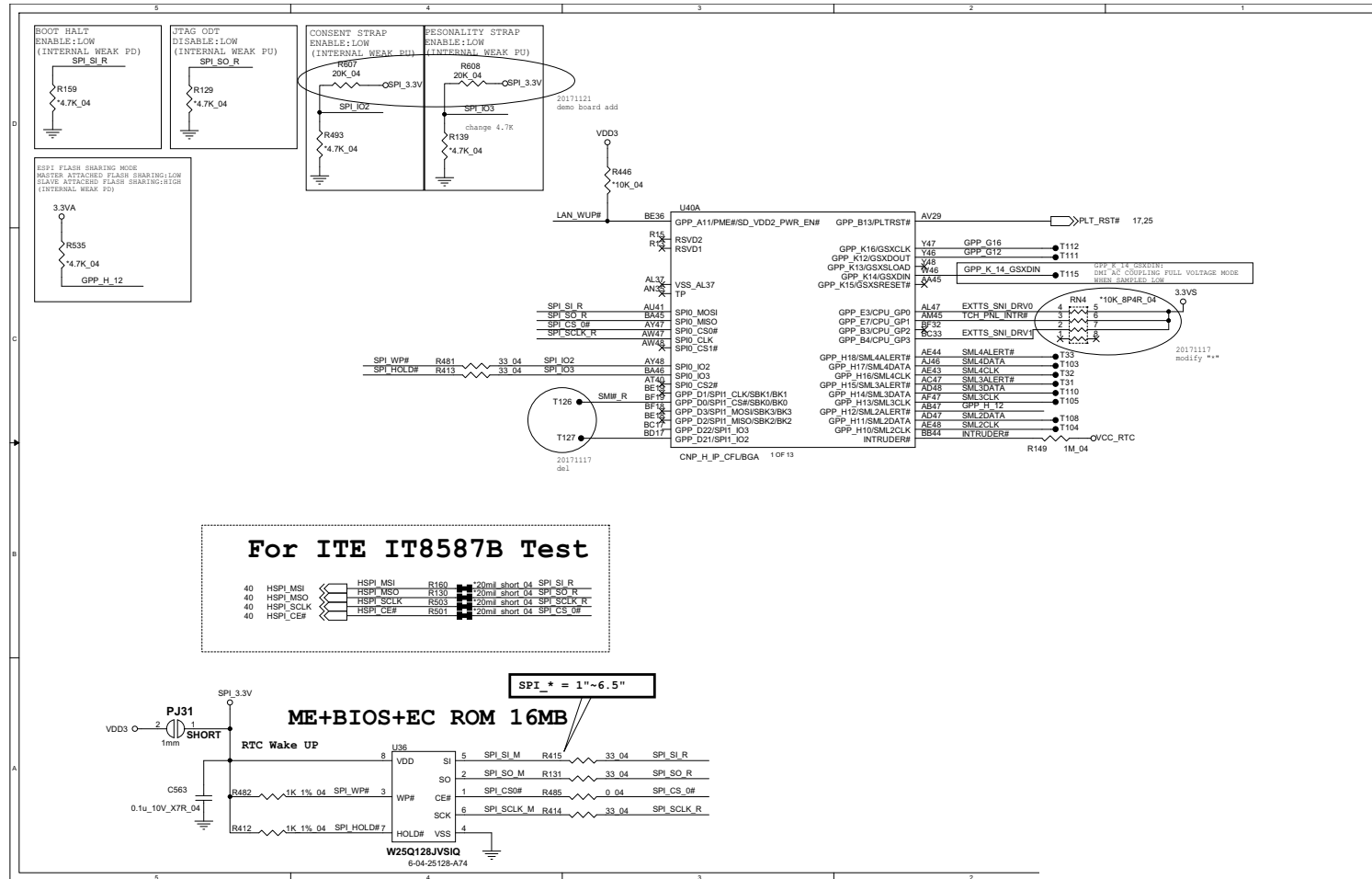
Sheet 22 of 57
HDMI

Panel, Inverter

Sheet 23 of 57
Panel, Inverter



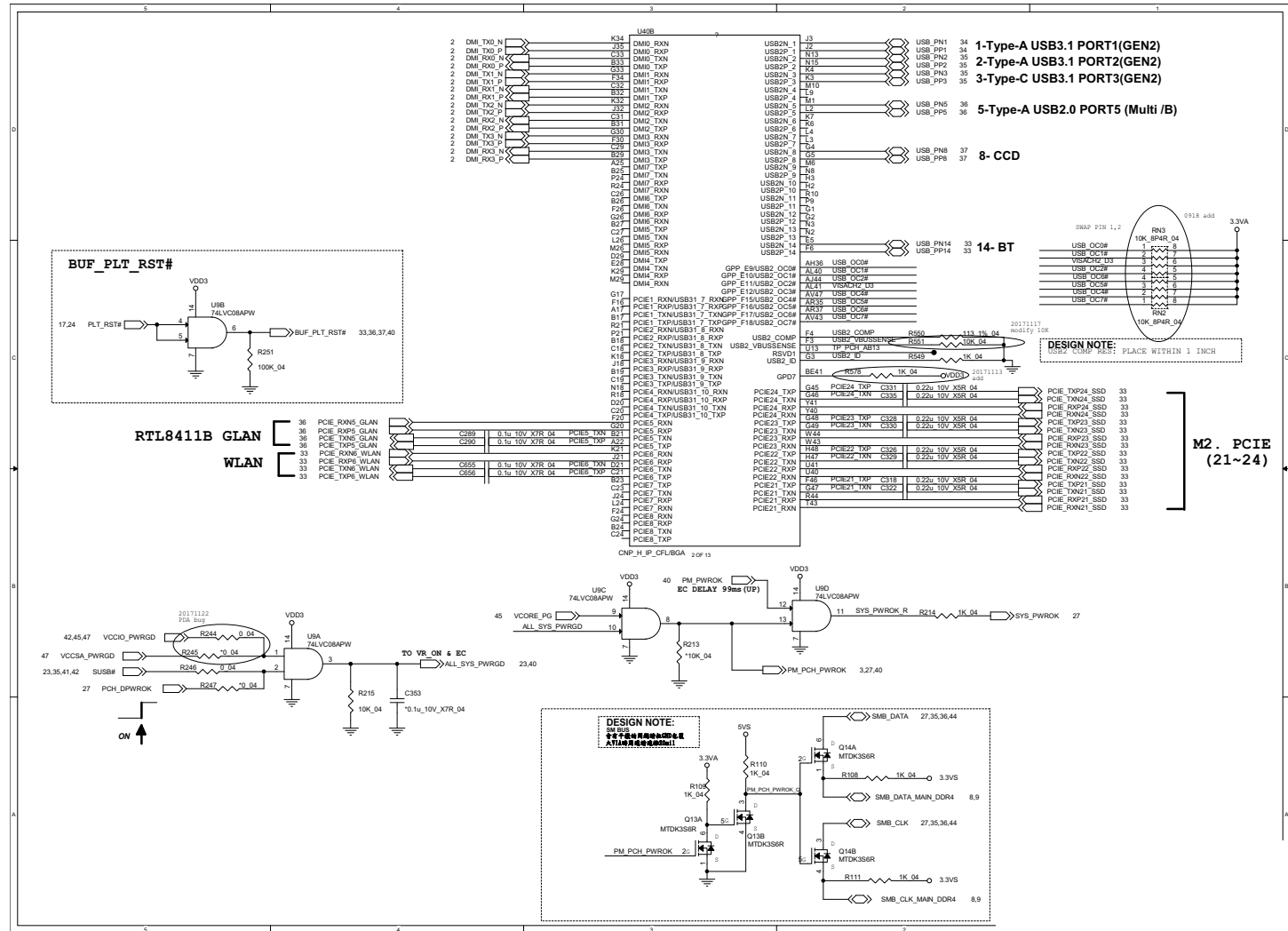
PCH 1/9



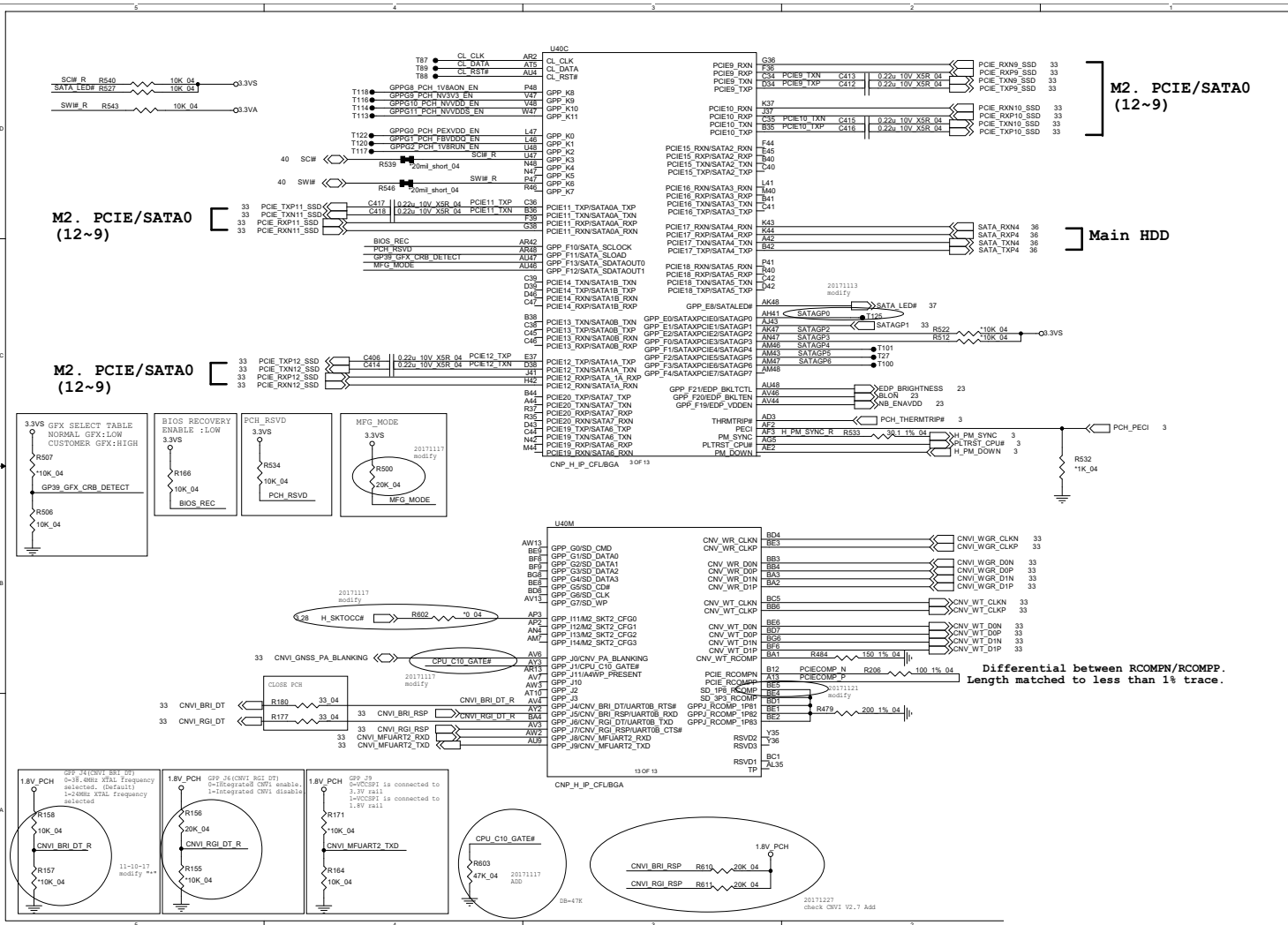
Sheet 24 of 57
PCH 1/9

PCH 2/9

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PCH 2/9



PCH 3/9

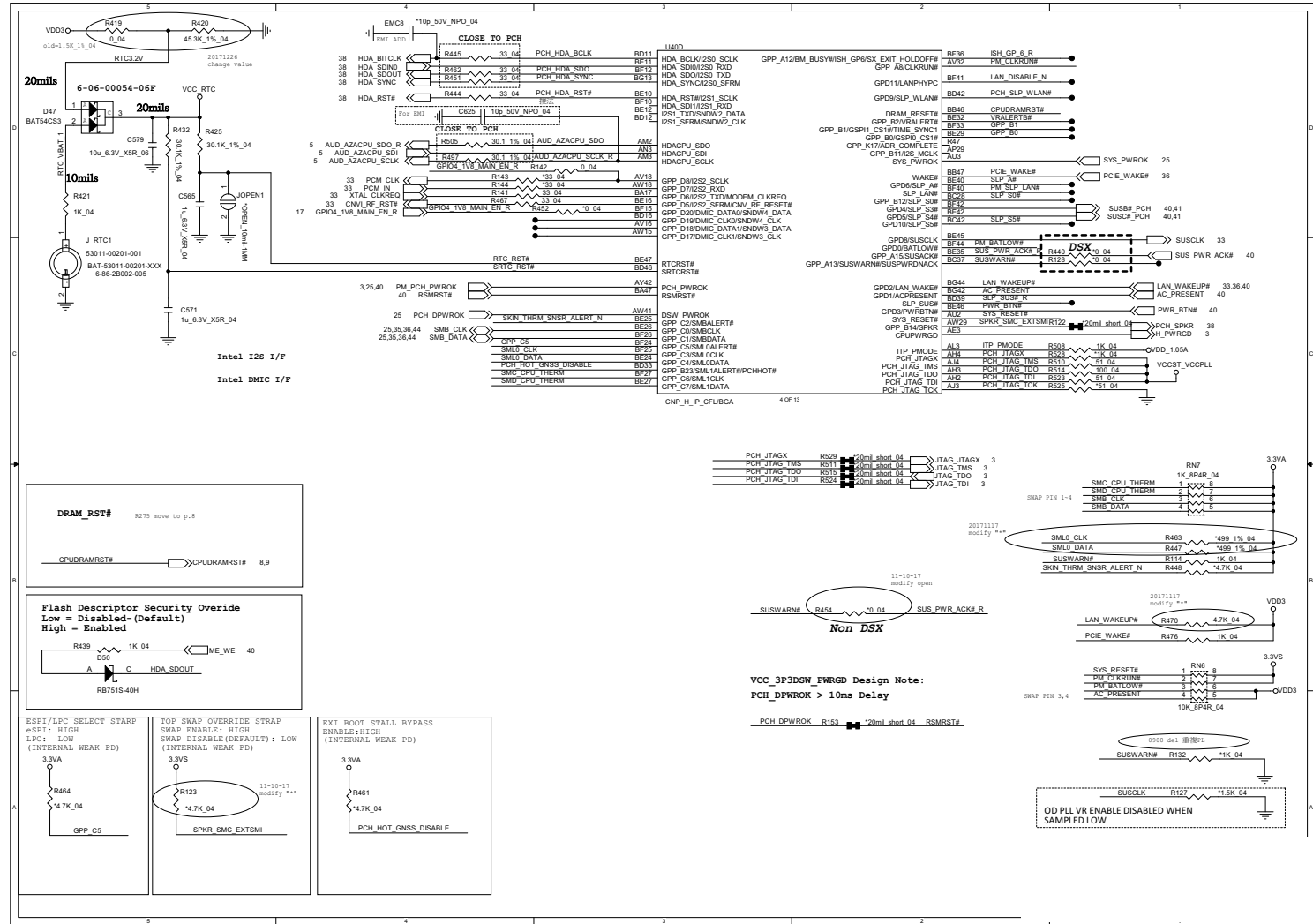


Sheet 26 of 57
PCH 3/9

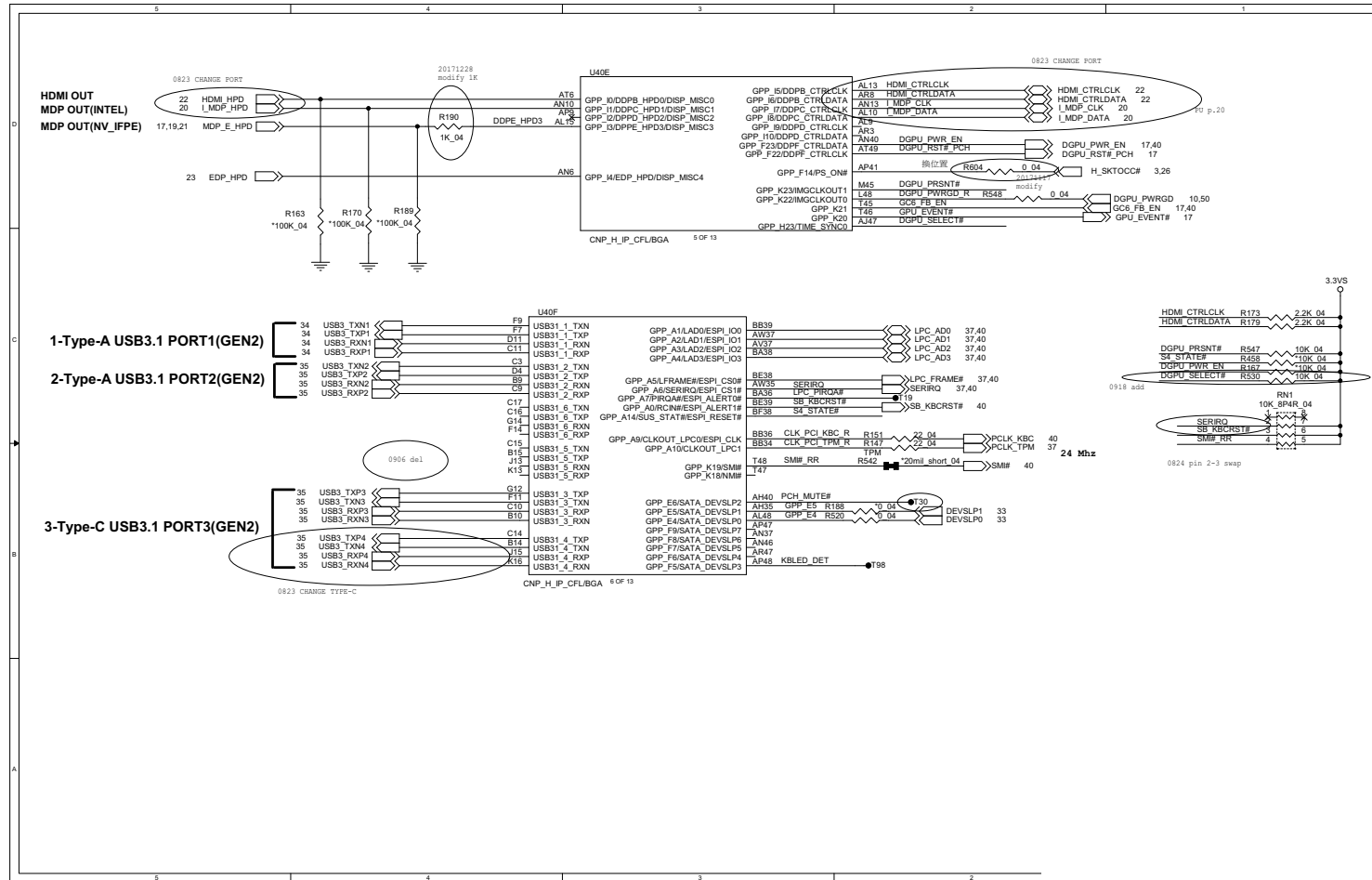
B.Schematic Diagrams

PCH 4/9

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PCH 4/9



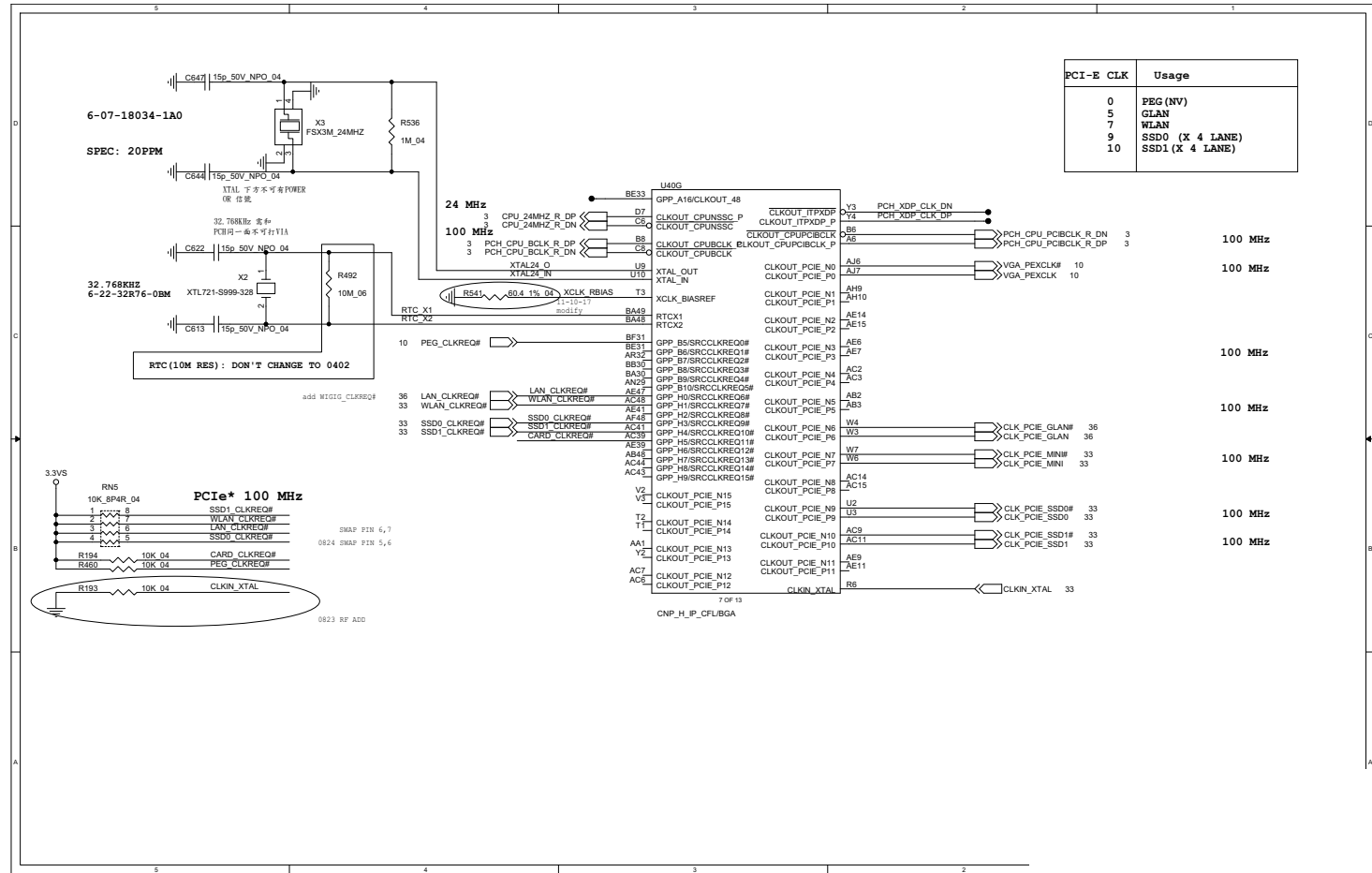
PCH 5/9



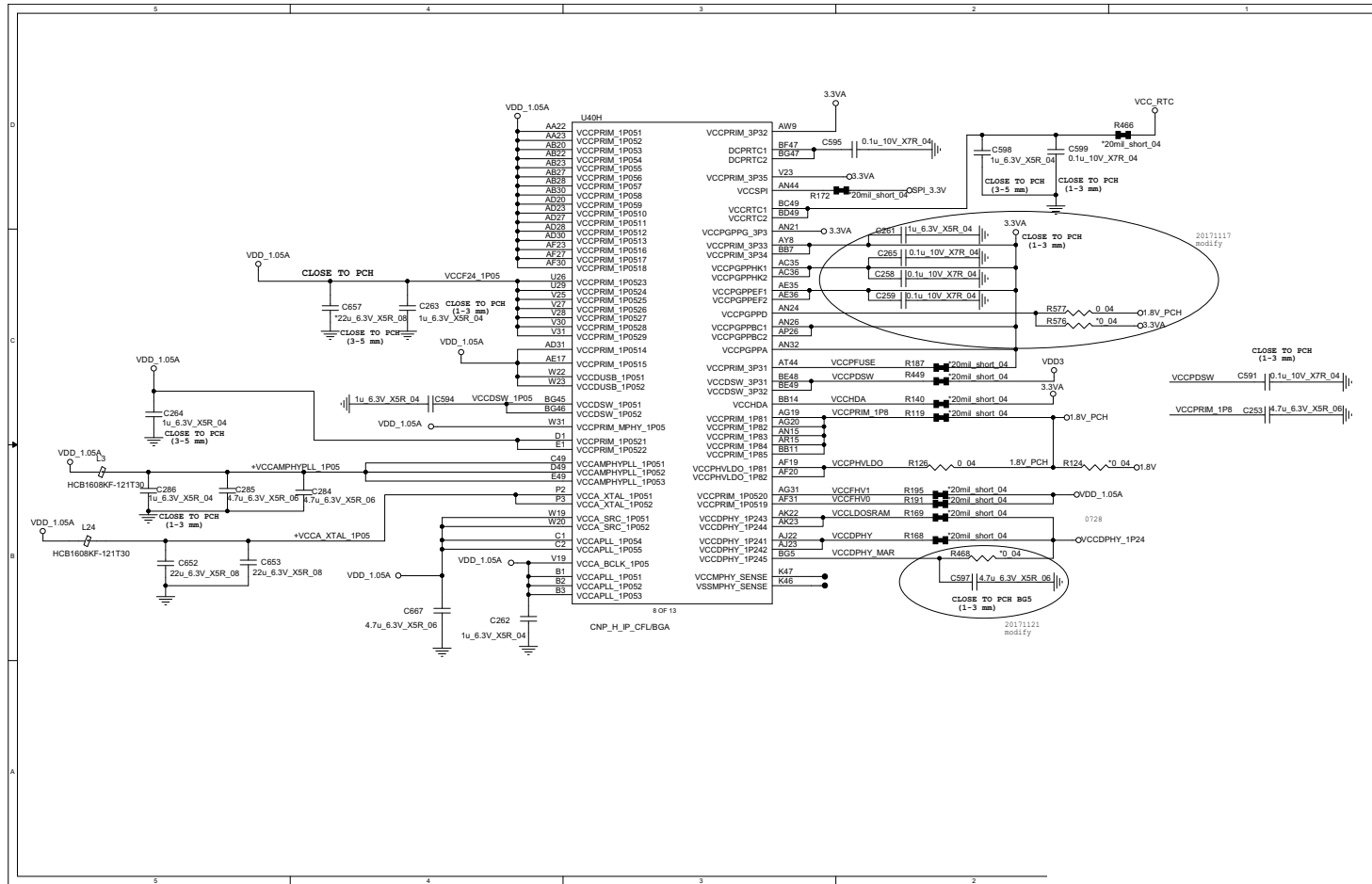
Sheet 28 of 57
PCH 5/9

PCH 6/9

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PCH 6/9



PCH 7/9

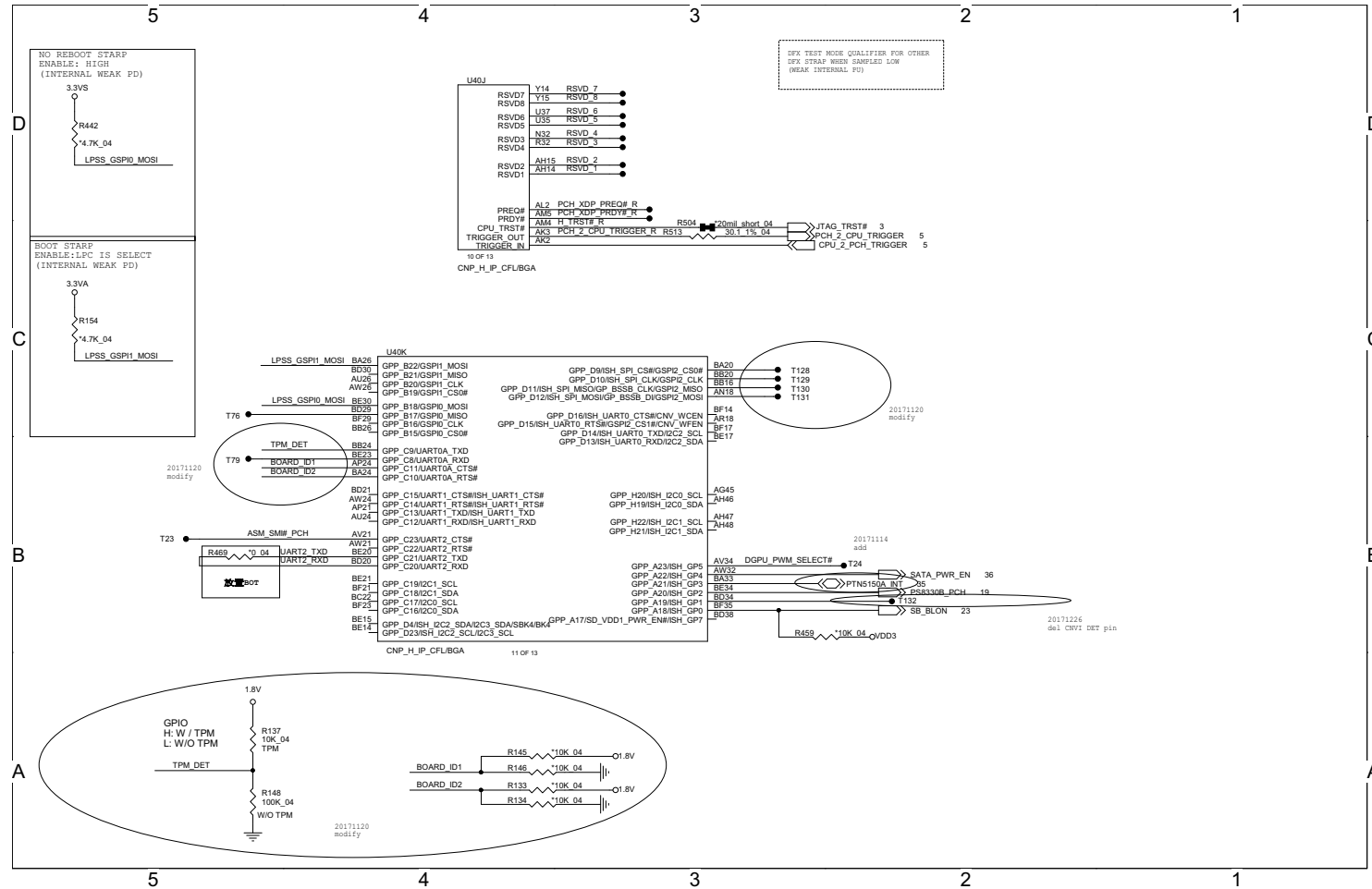


Sheet 30 of 57
PCH 7/9

B. Schematic Diagrams

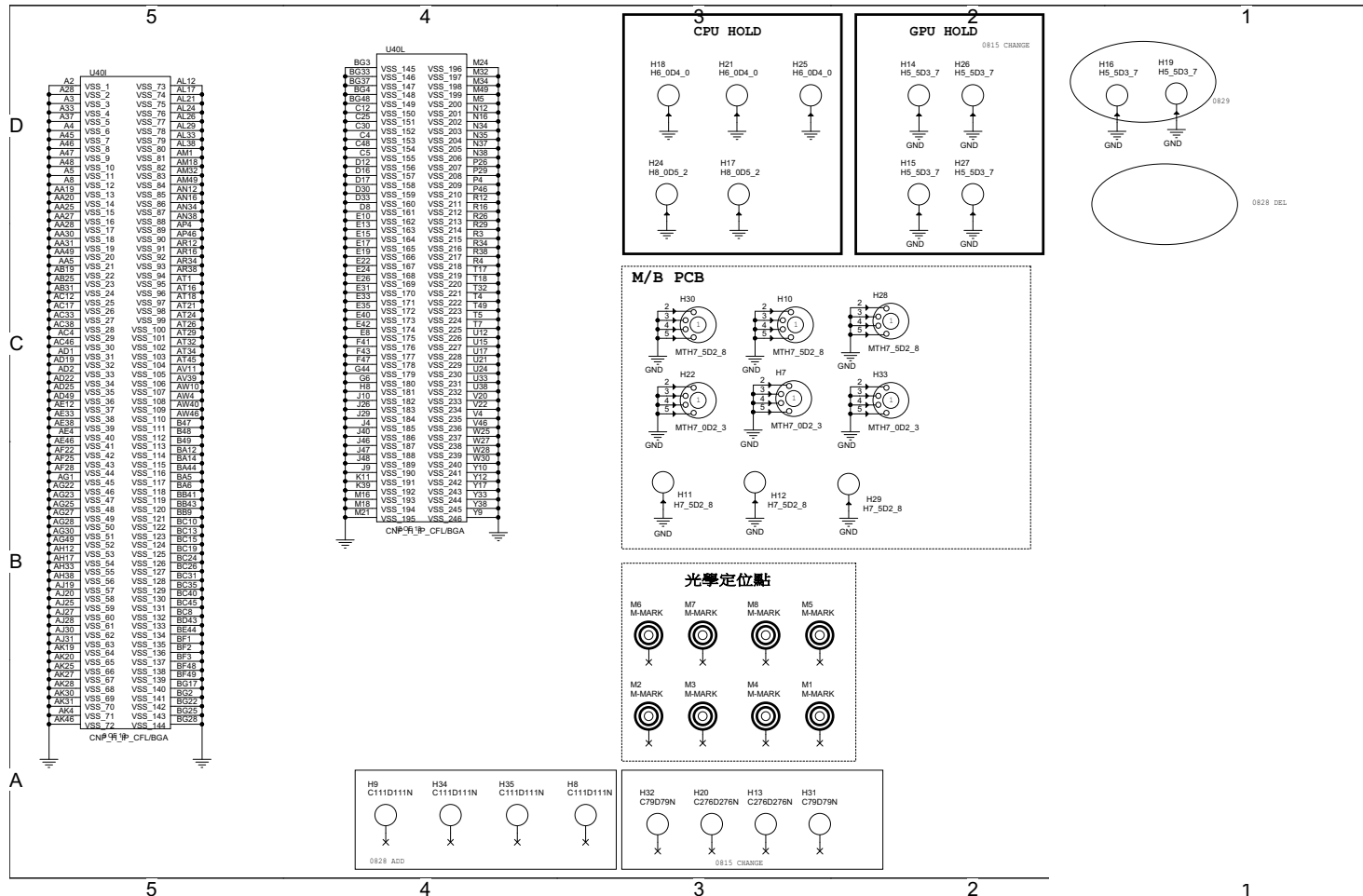
PCH 8/9

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PCH 8/9



B.Schematic Diagrams

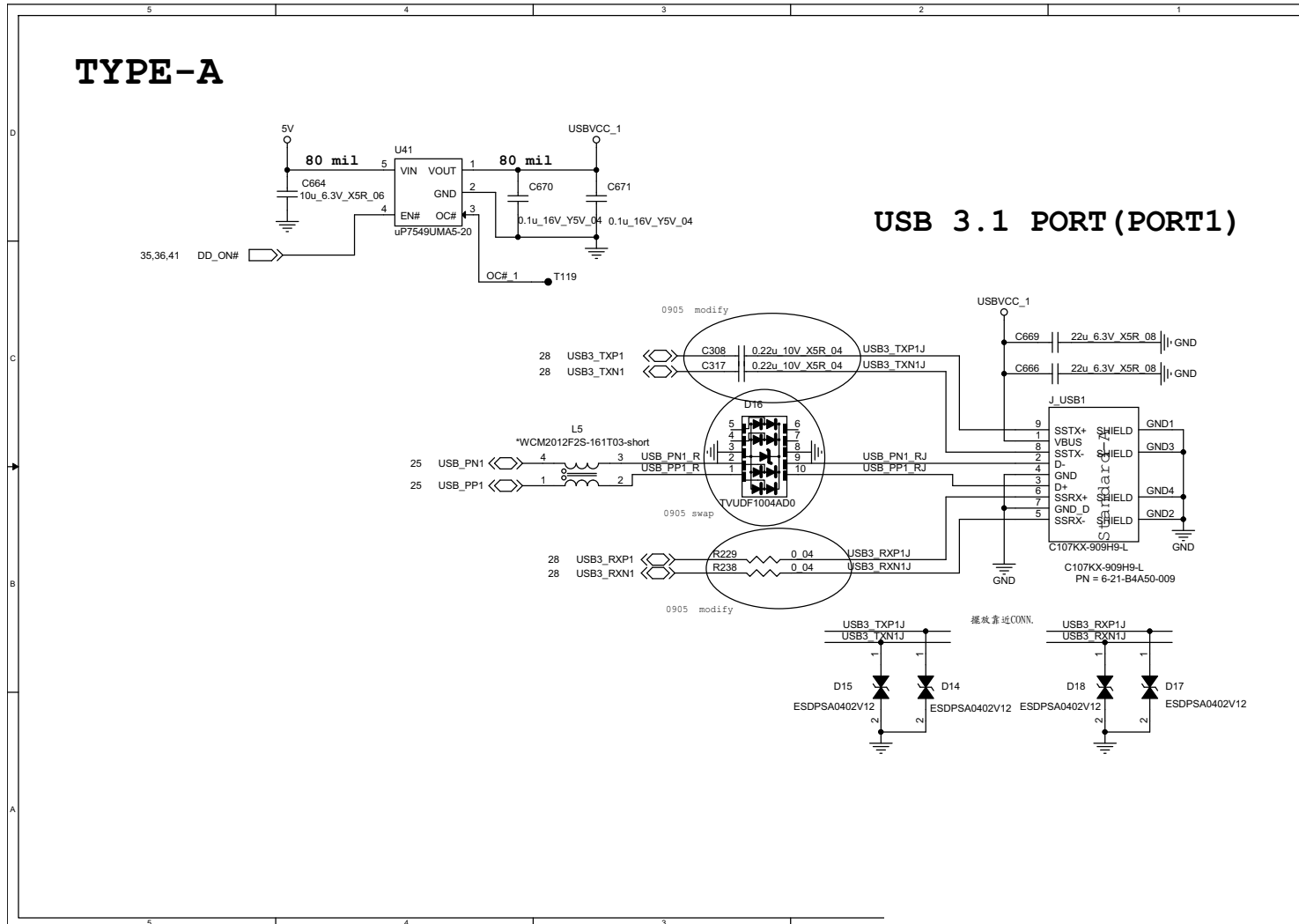
PCH 9/9



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PCH 9/9

B.Schematic Diagrams

USB Type-A

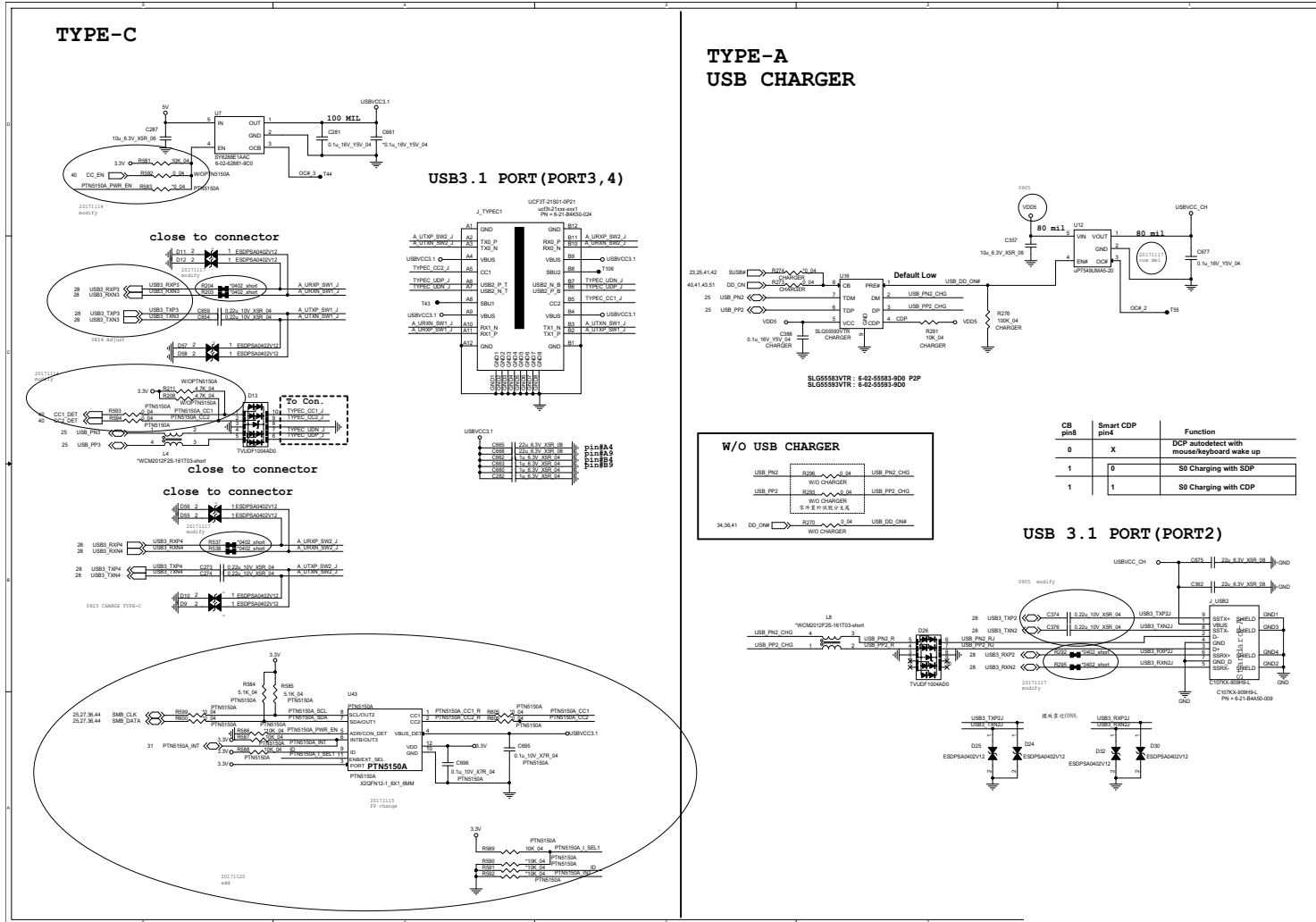


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USB Type-A

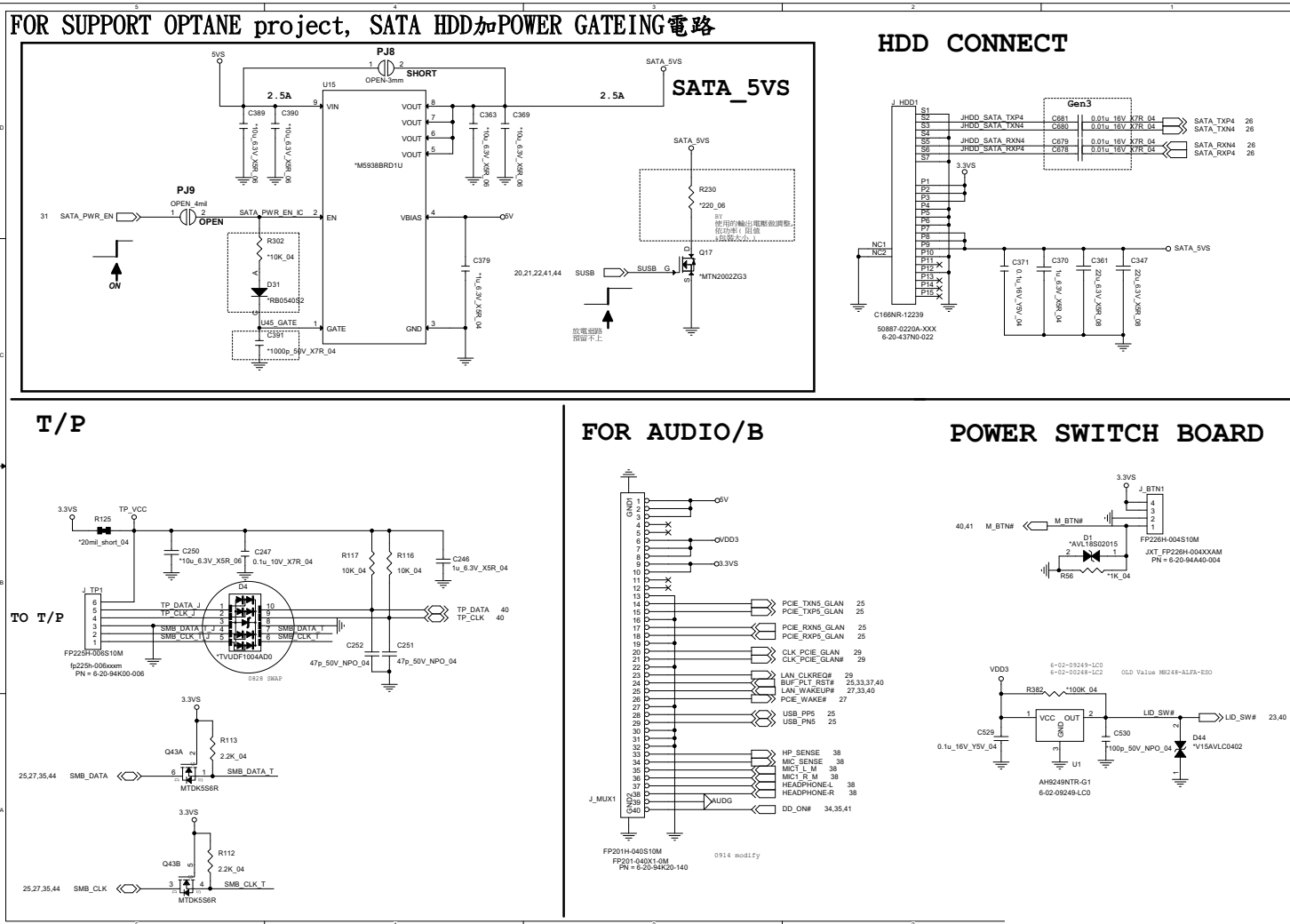
B.Schematic Diagrams

USB Conn, USB Charger

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USB Conn,
USB Charger



HDD, Click TP, Audio, Hall Con.

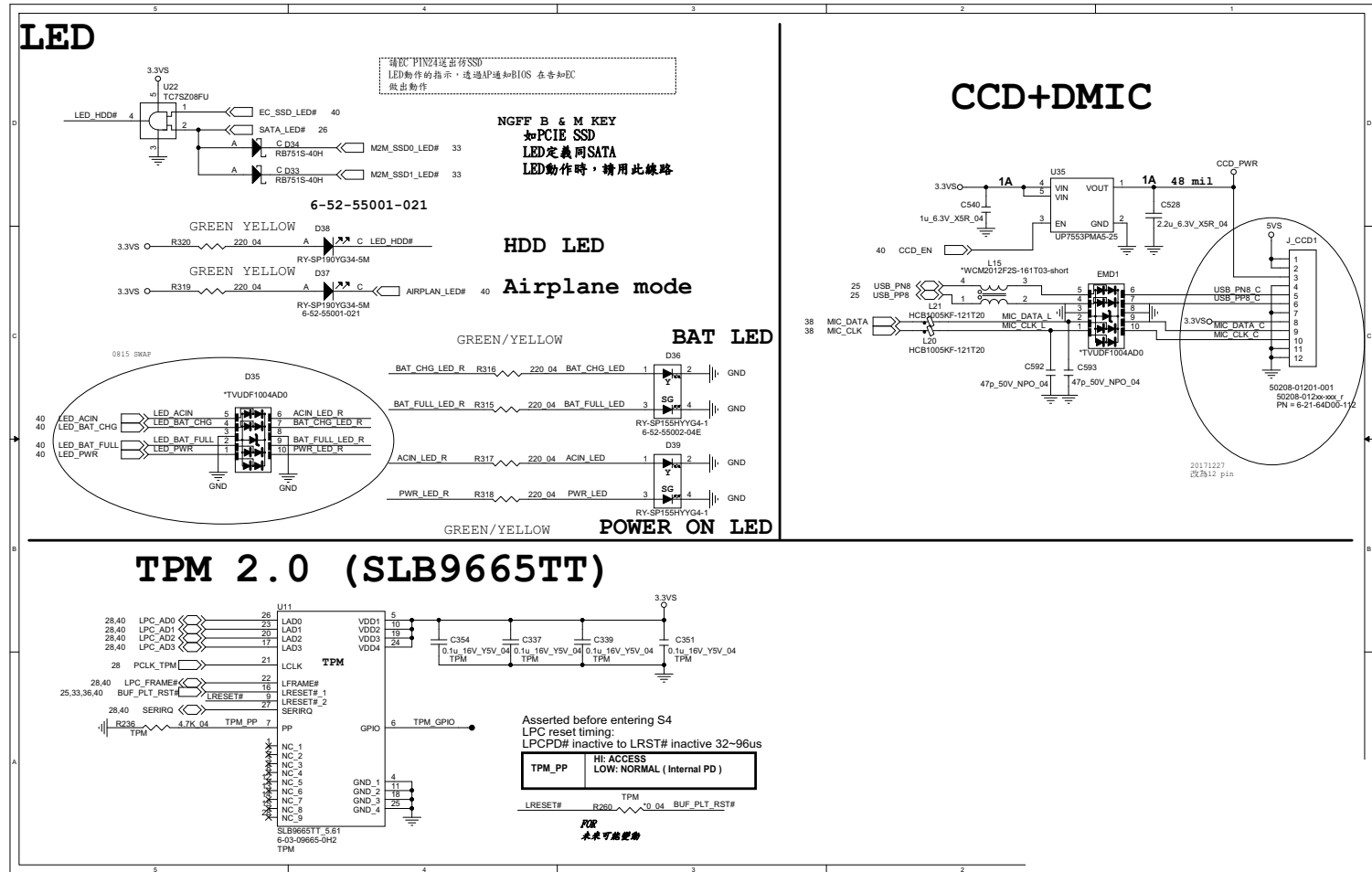


Sheet 36 of 57
HDD, Click TP,
Audio, Hall Con.

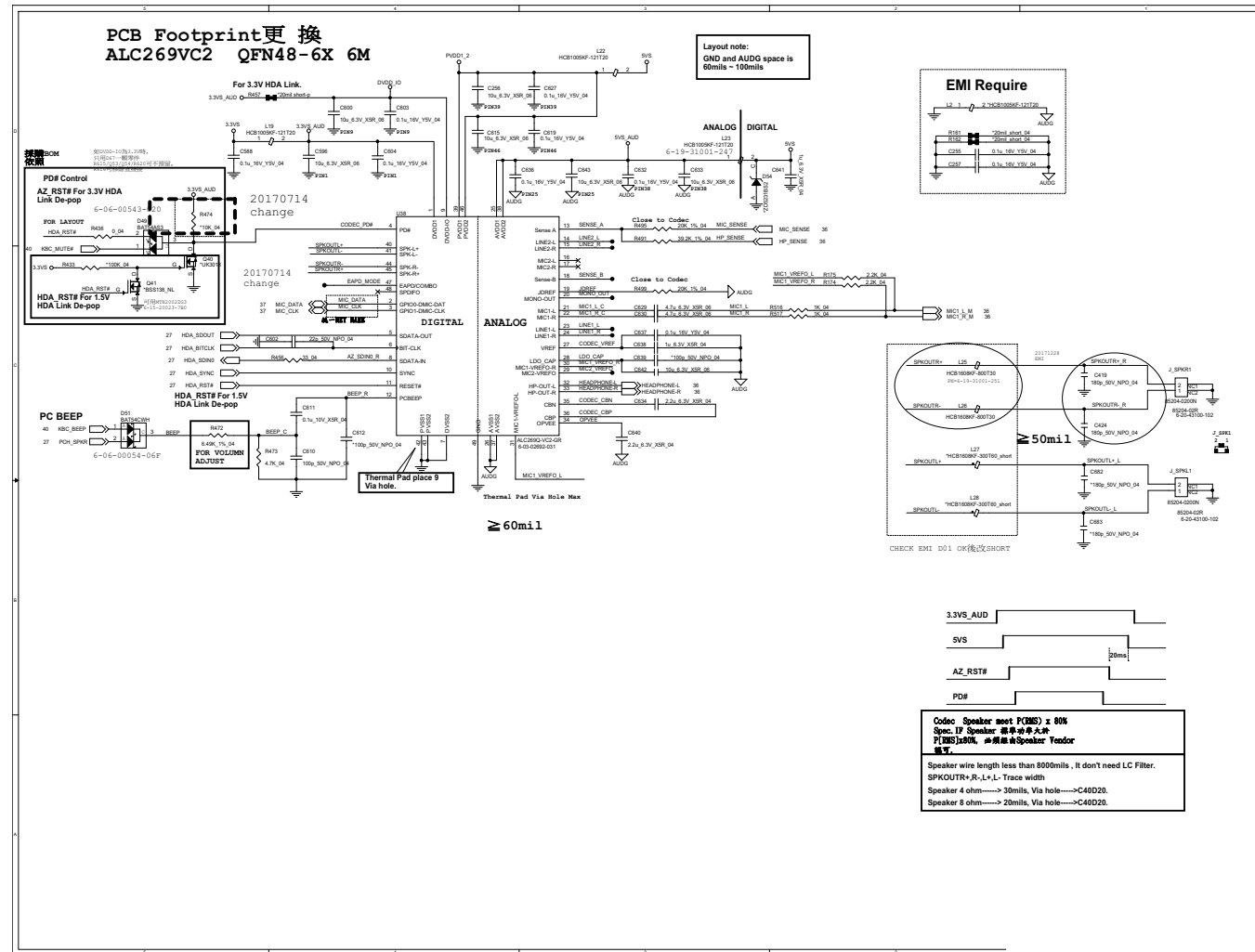
B.Schematic Diagrams

LED, CCD, TPM

Sheet 37 of 57
LED, CCD, TPM



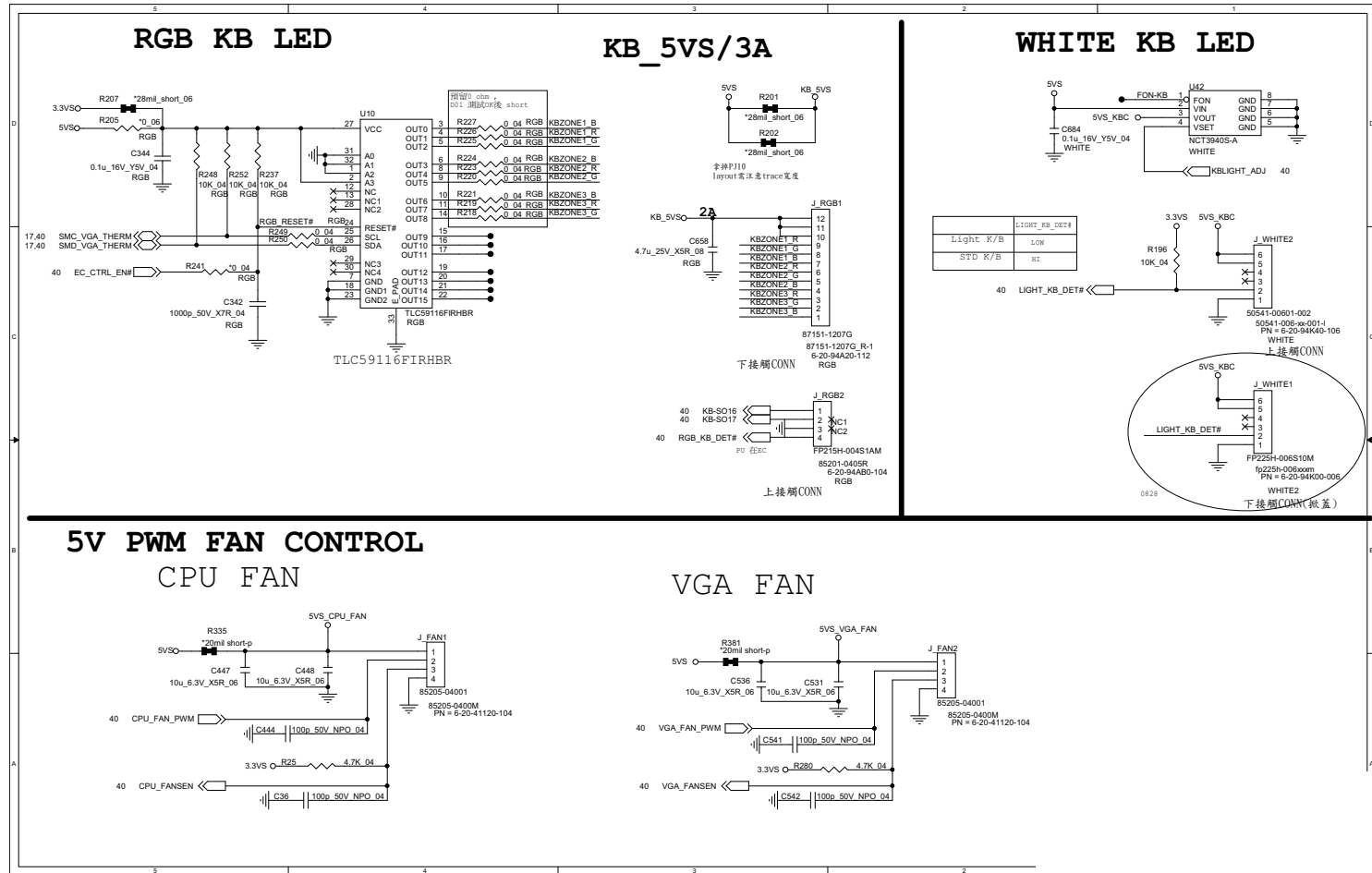
Audio Codec ALC269 VC2



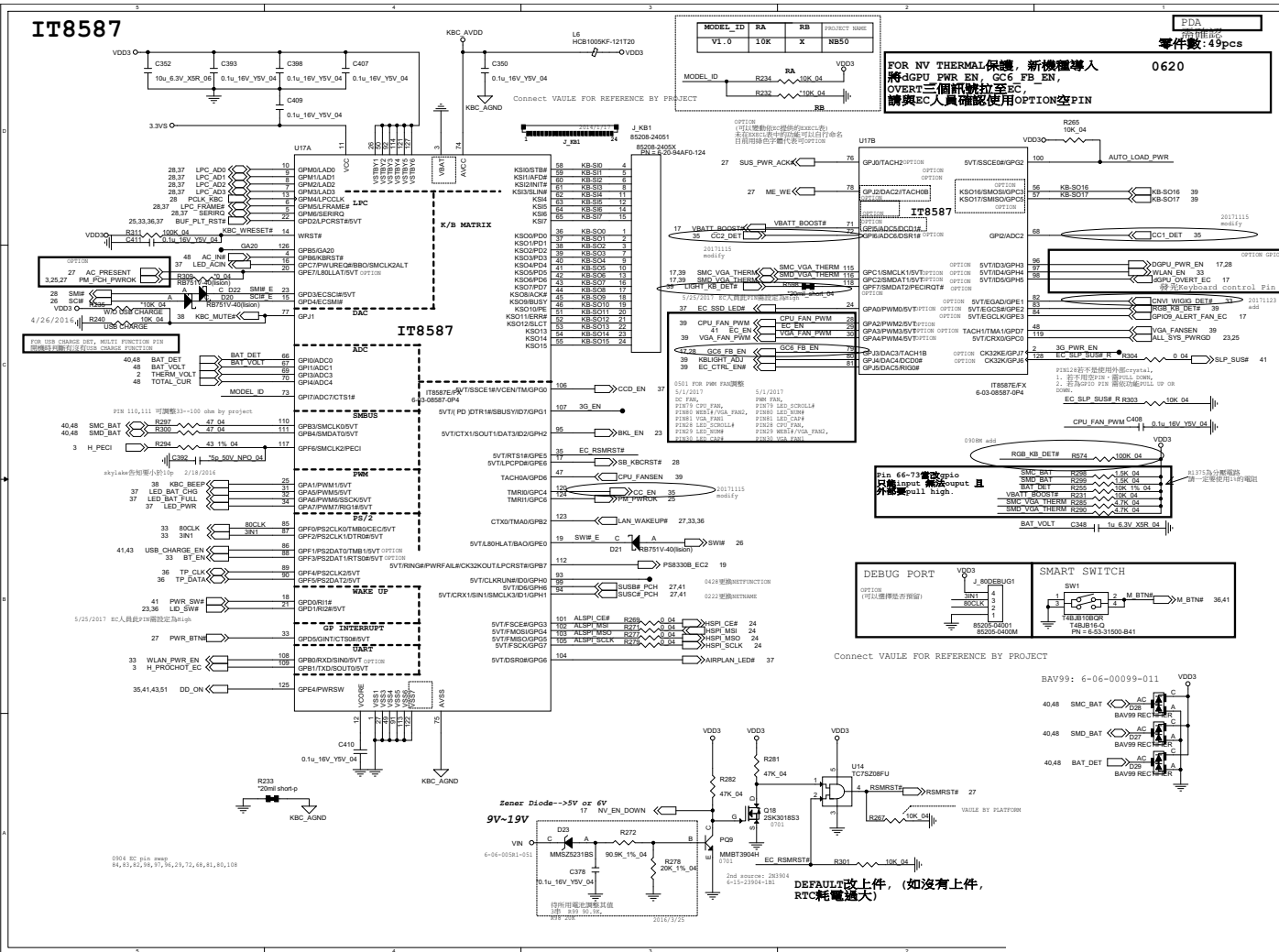
Sheet 38 of 57
Audio Codec
ALC269 VC2

White/RGB KB, Fan

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White/RGB KB, Fan



KBC-ITE IT8587



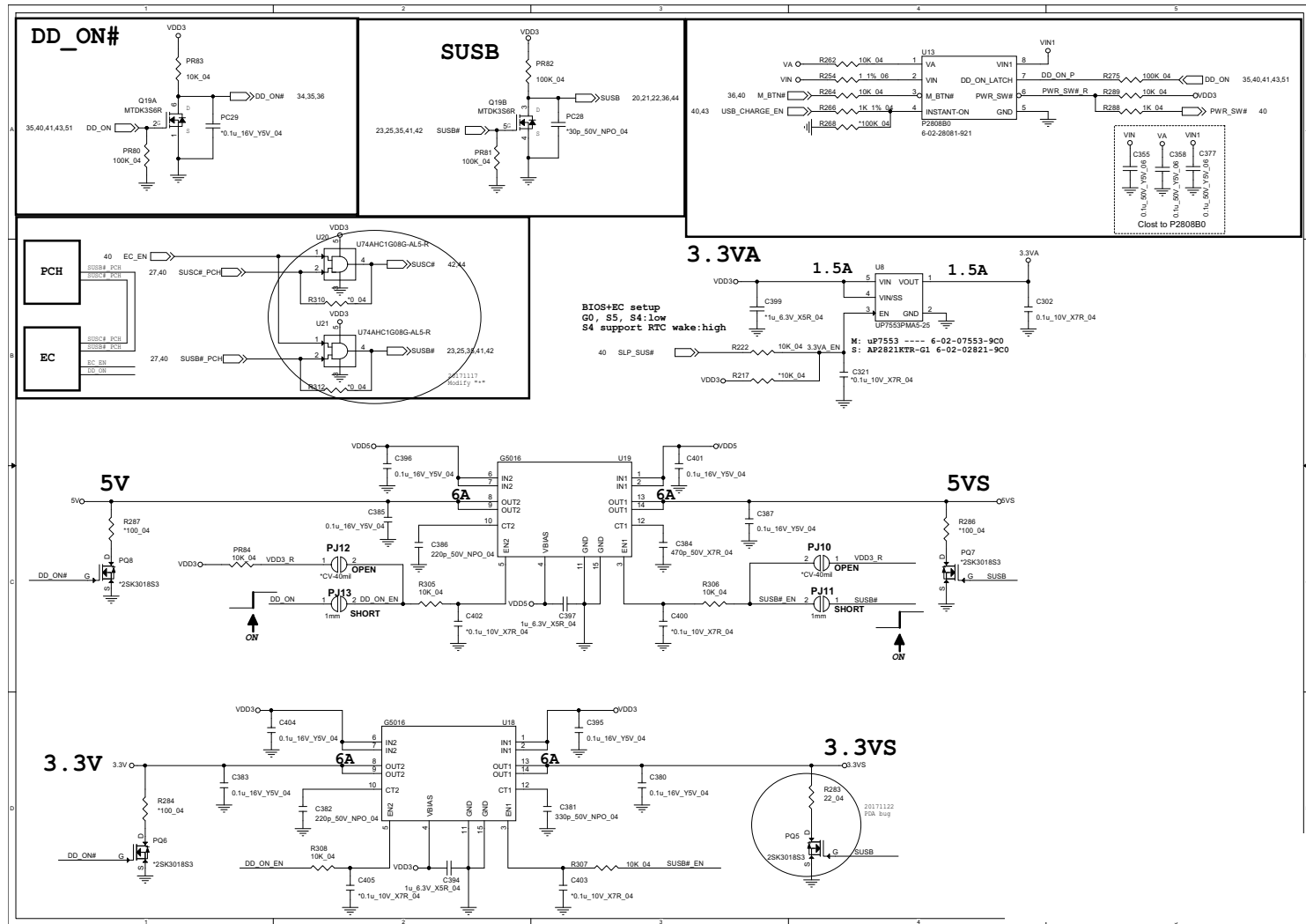
Sheet 40 of 57
KBC-ITE IT8587

B.Schematic Diagrams

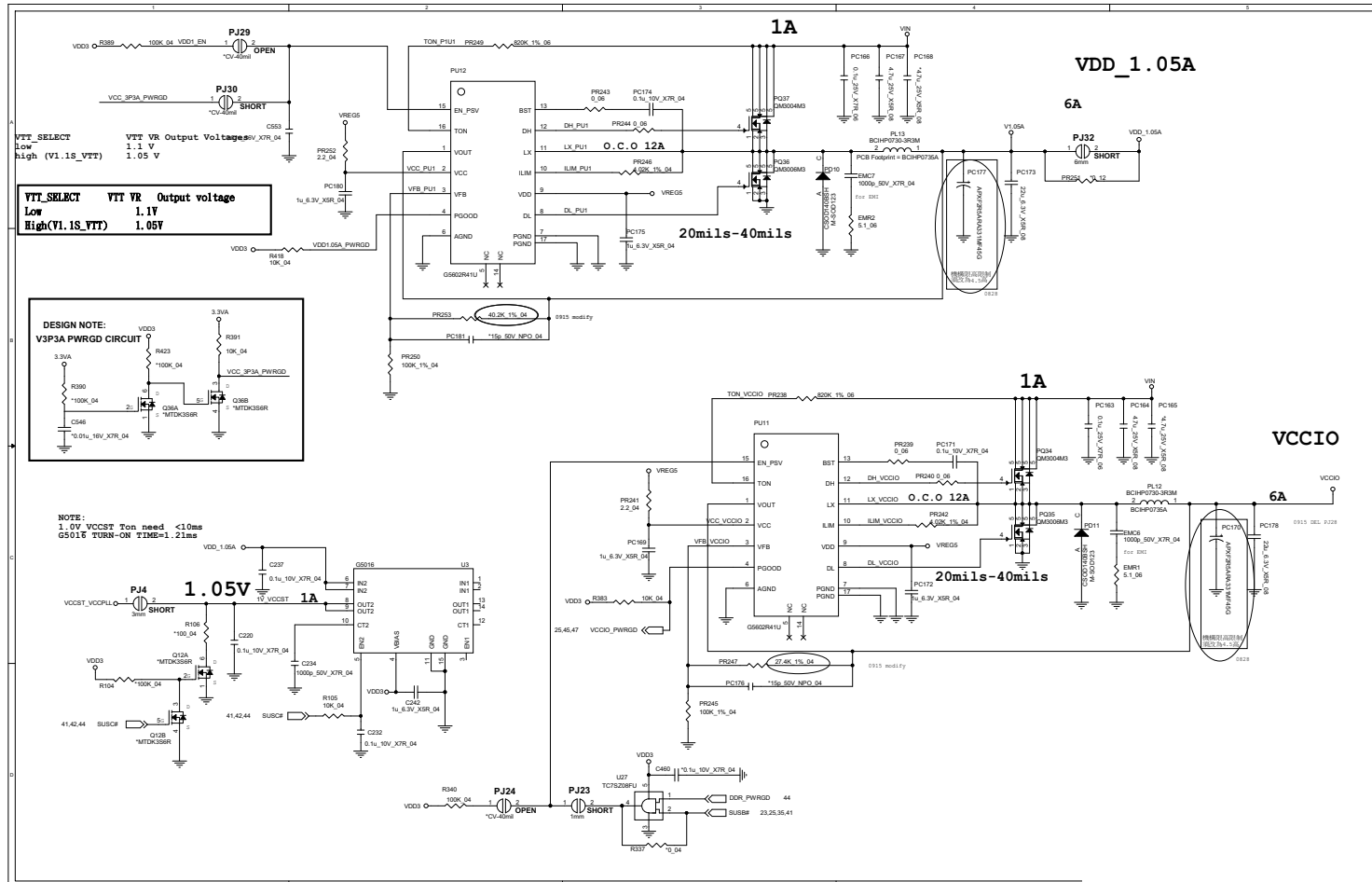
Schematic Diagrams

5V, 5VS, 3.3V, 3.3VS, 3.3VA

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5V, 5VS, 3.3V,
3.3VS, 3.3VA



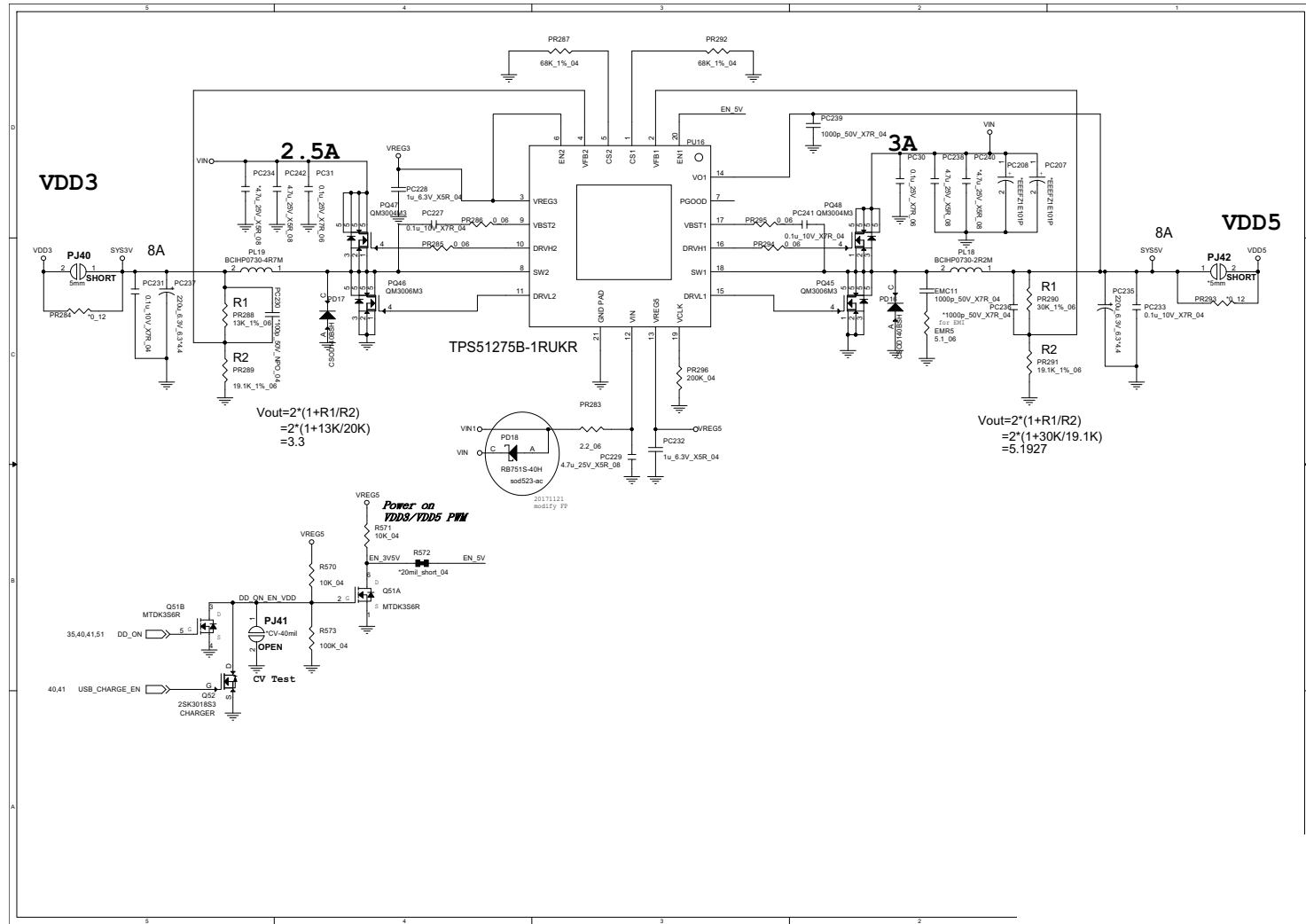
VDD1.05V, VCCIO



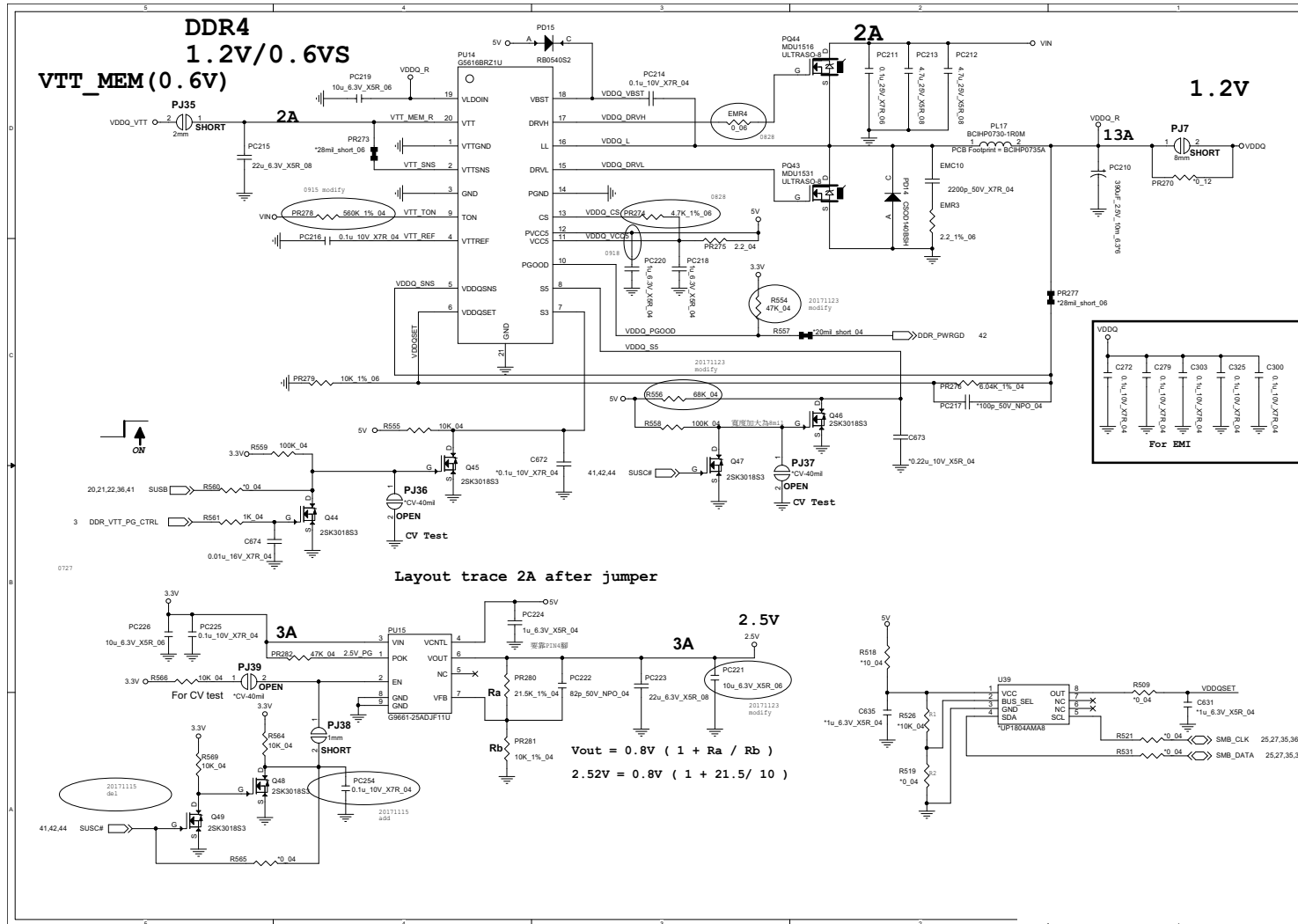
Sheet 42 of 57
 VDD1.05V, VCCIO

VDD3, VDD5

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VDD3, VDD5



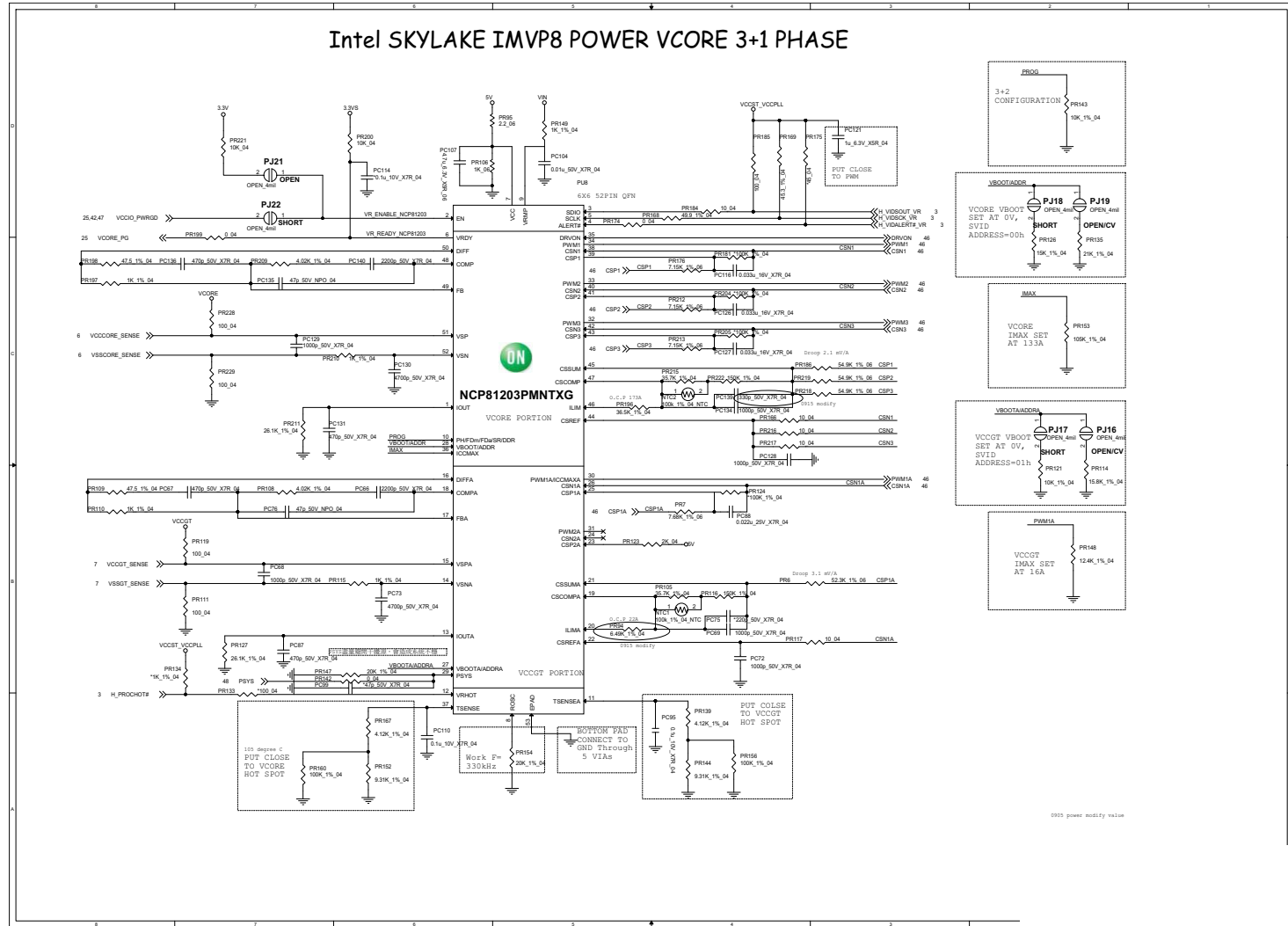
DDR 1.2V / 0.6VS, 2.5V



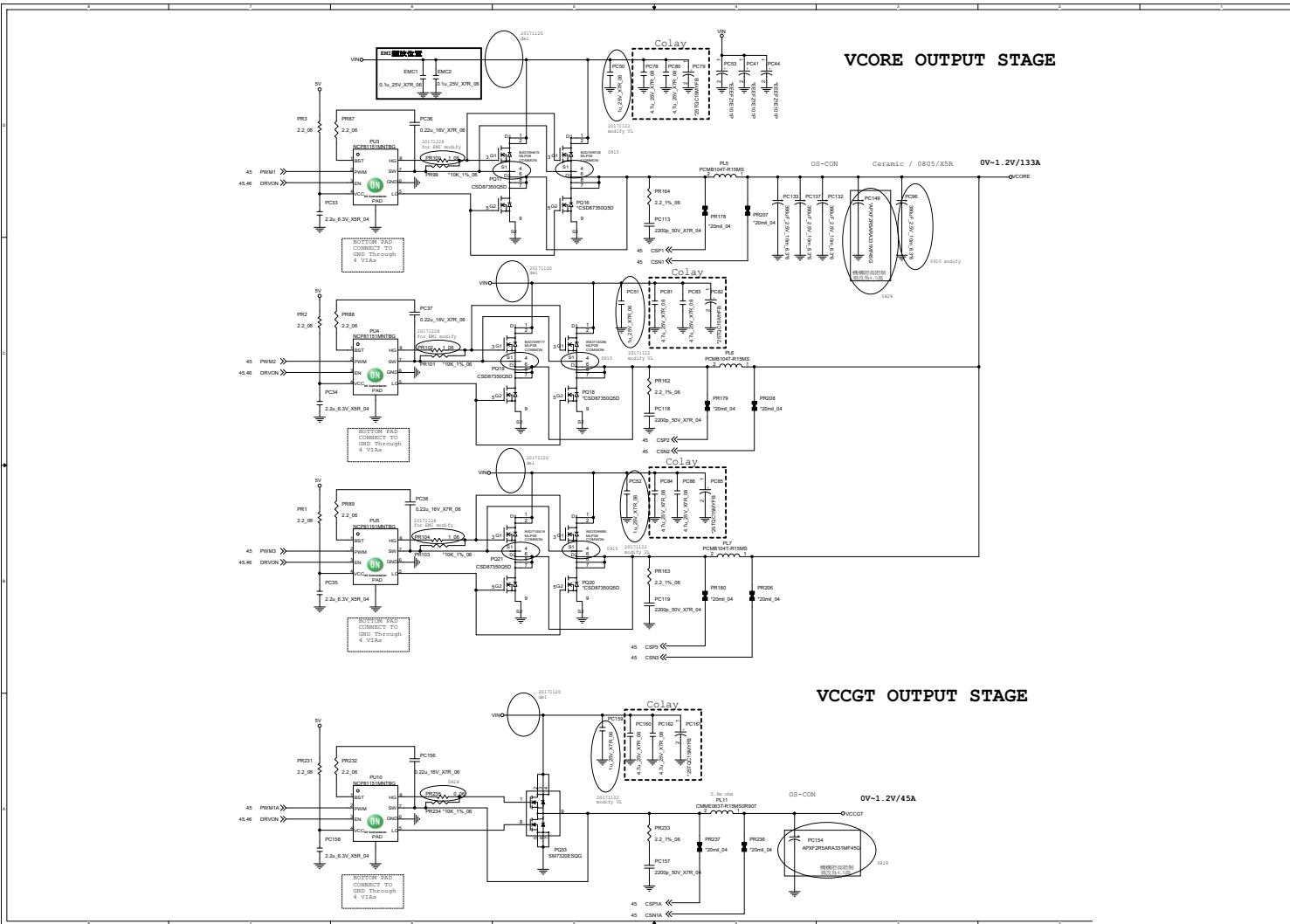
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DDR 1.2V / 0.6VS,
2.5V

VCore, VCCGT

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VCore, VCCGT

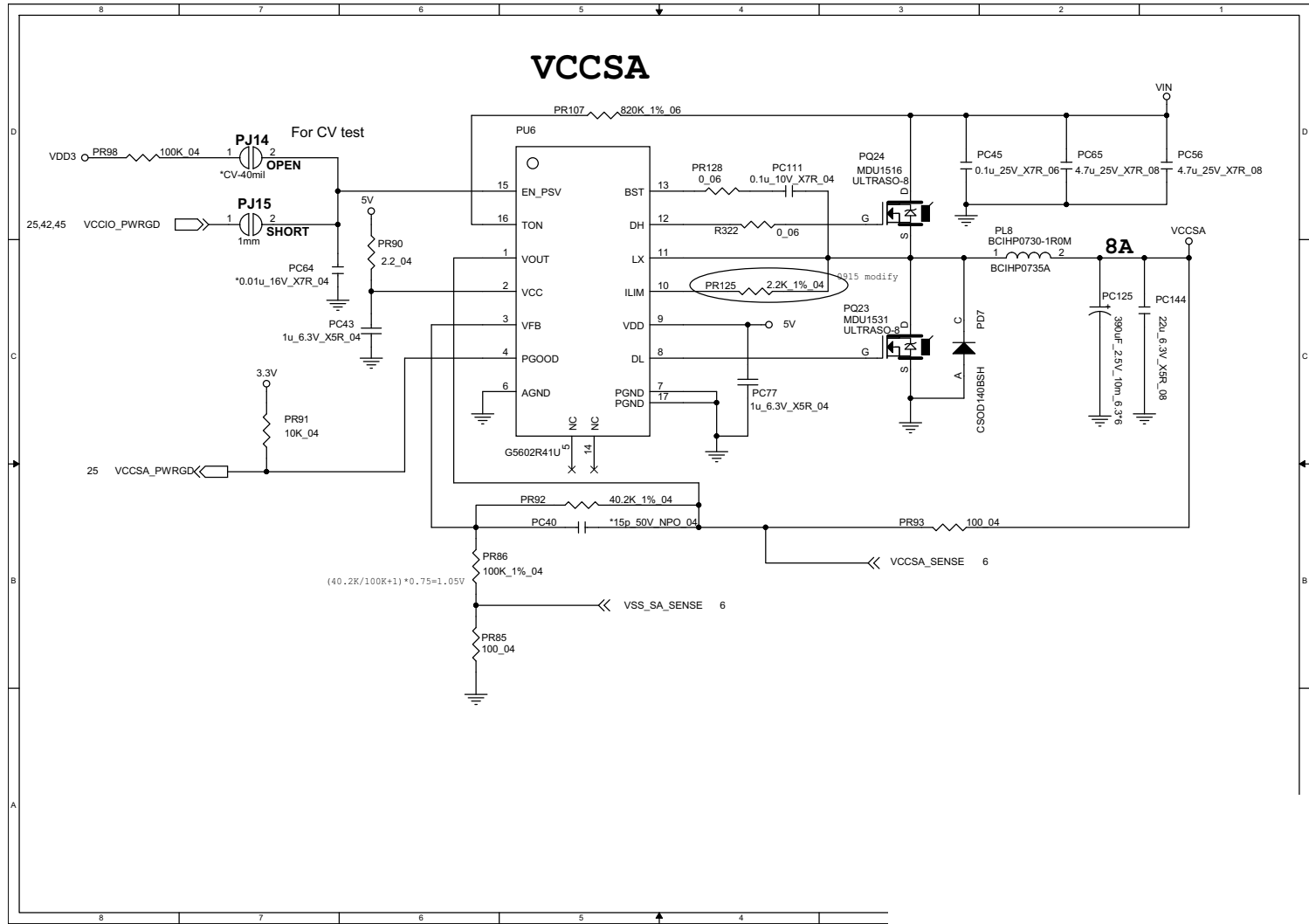


VCore, VCCGT Output Stage



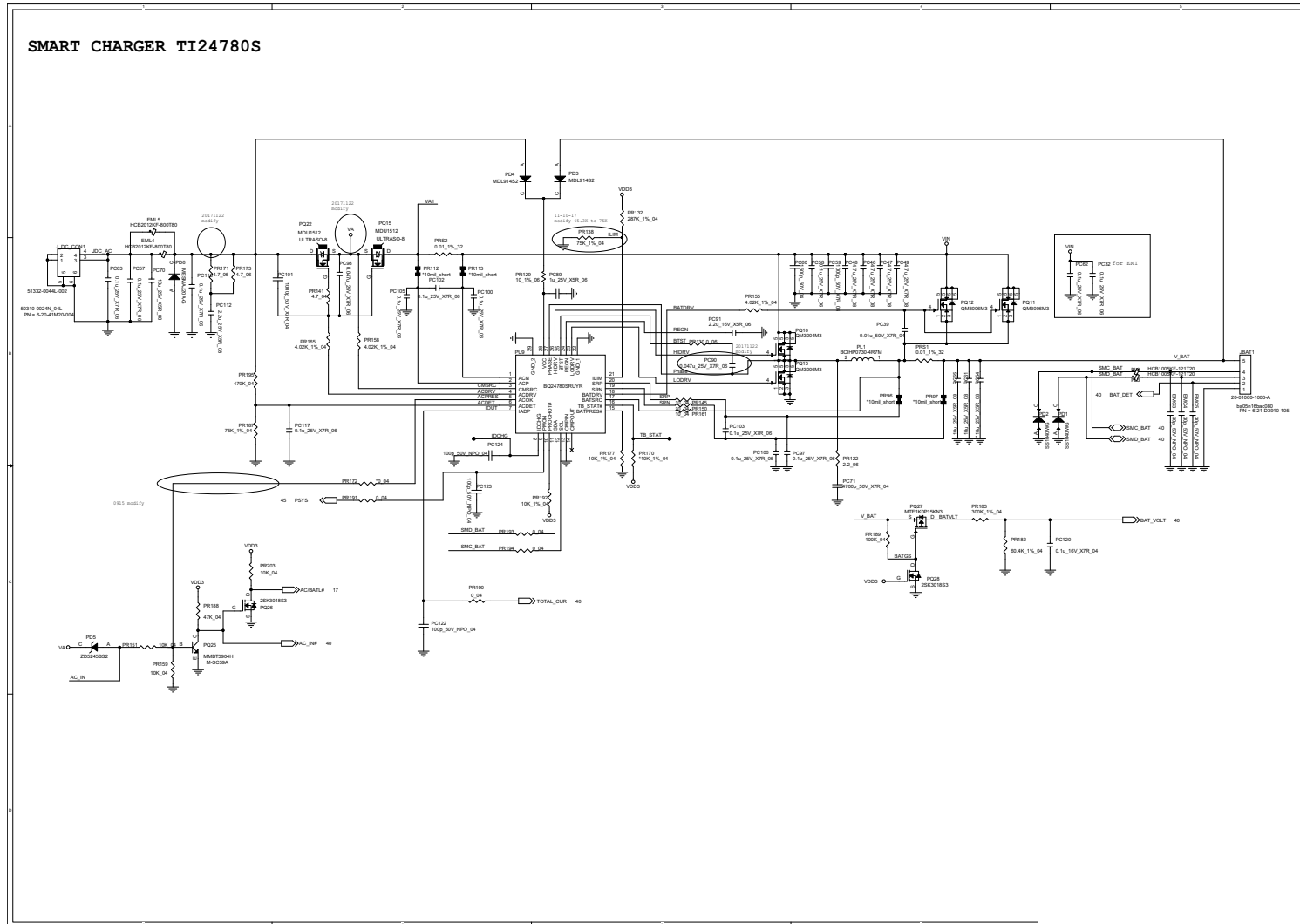
Sheet 46 of 57
VCore, VCCGT
Output Stage

VCCSA



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VCCSA

AC_In, Charger

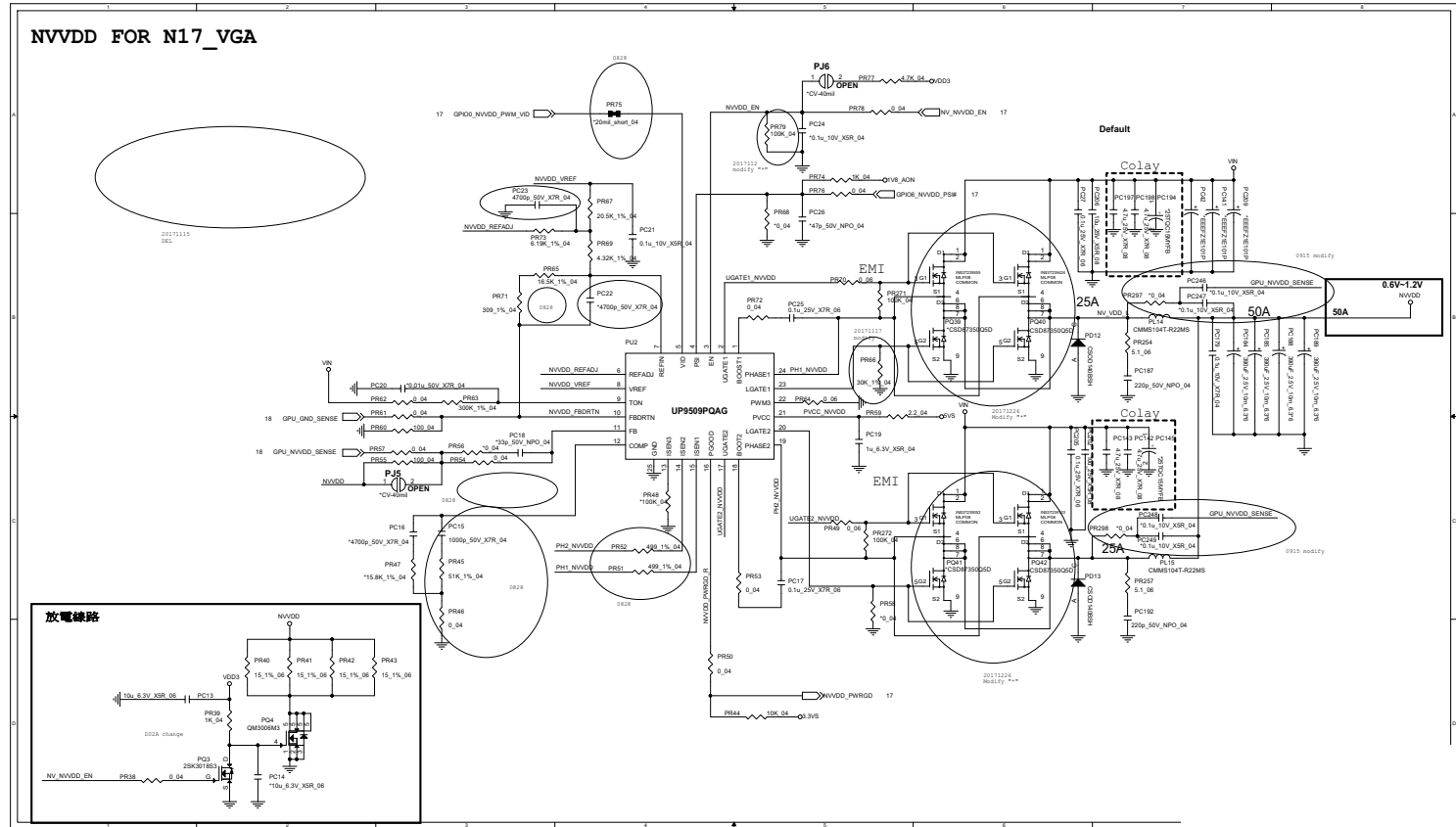


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AC_In, Charger

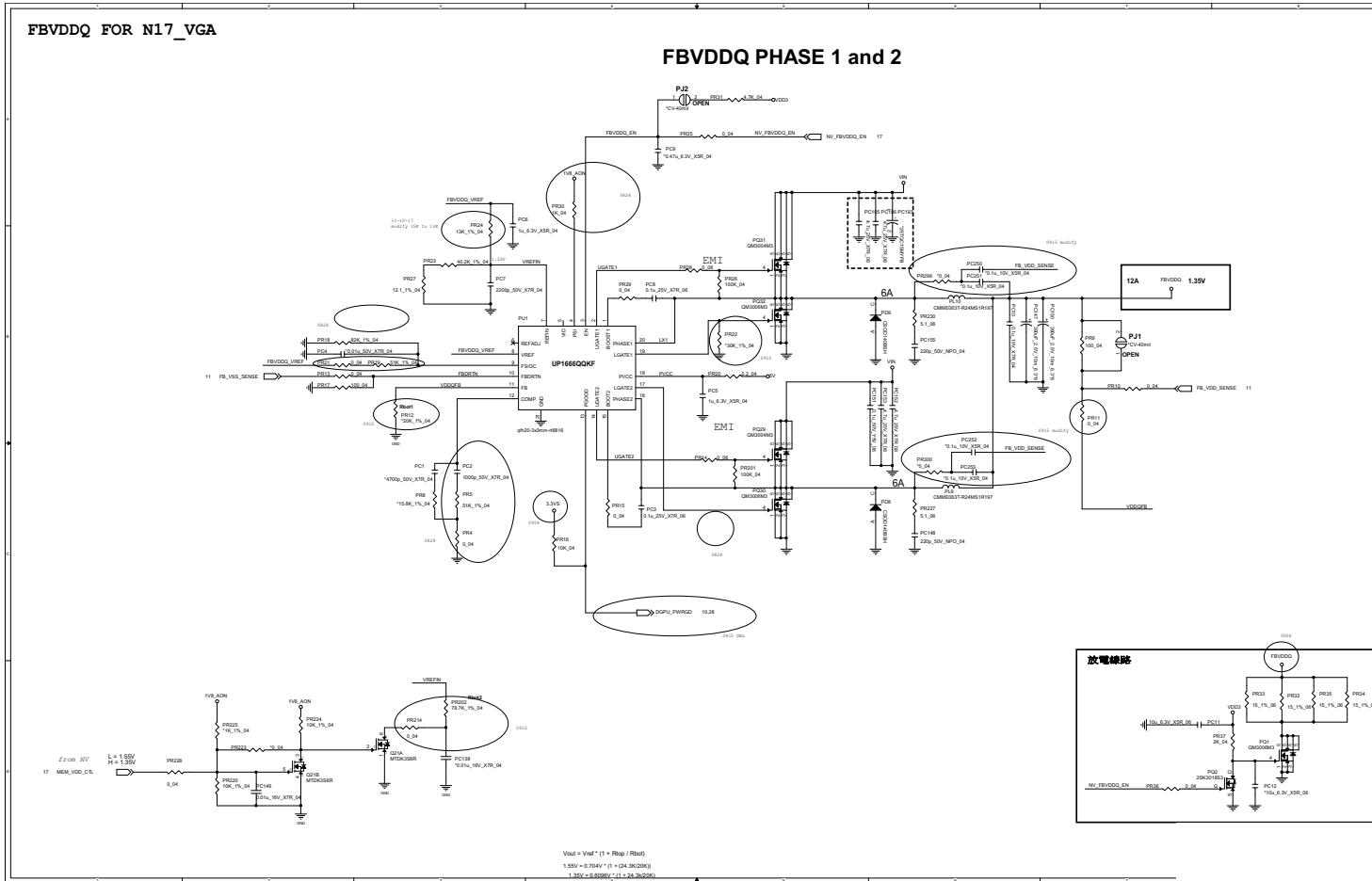
B.Schematic Diagrams

NVDD

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NVDD



FBVDDQ



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FBVDDQ

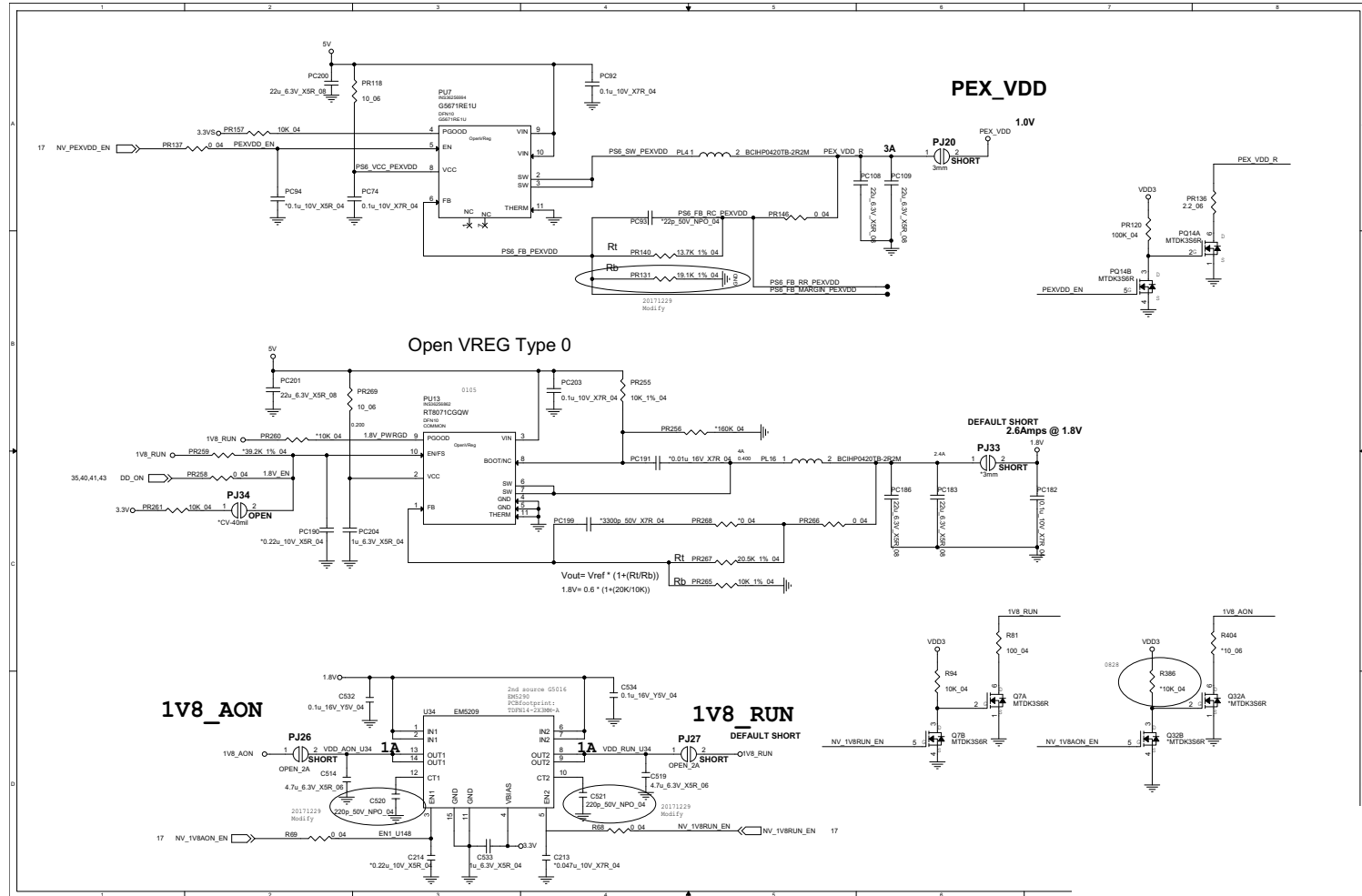
B.Schematic Diagrams

Schematic Diagrams

1V8_RUN 1V8_AON, PEXVDD

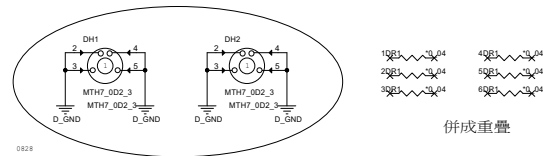
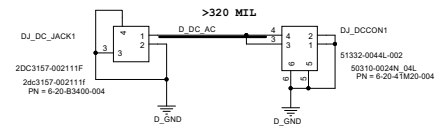
B.Schematic Diagrams

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1V8_RUN
1V8_AON, PEXVDD



DC_Jack Board

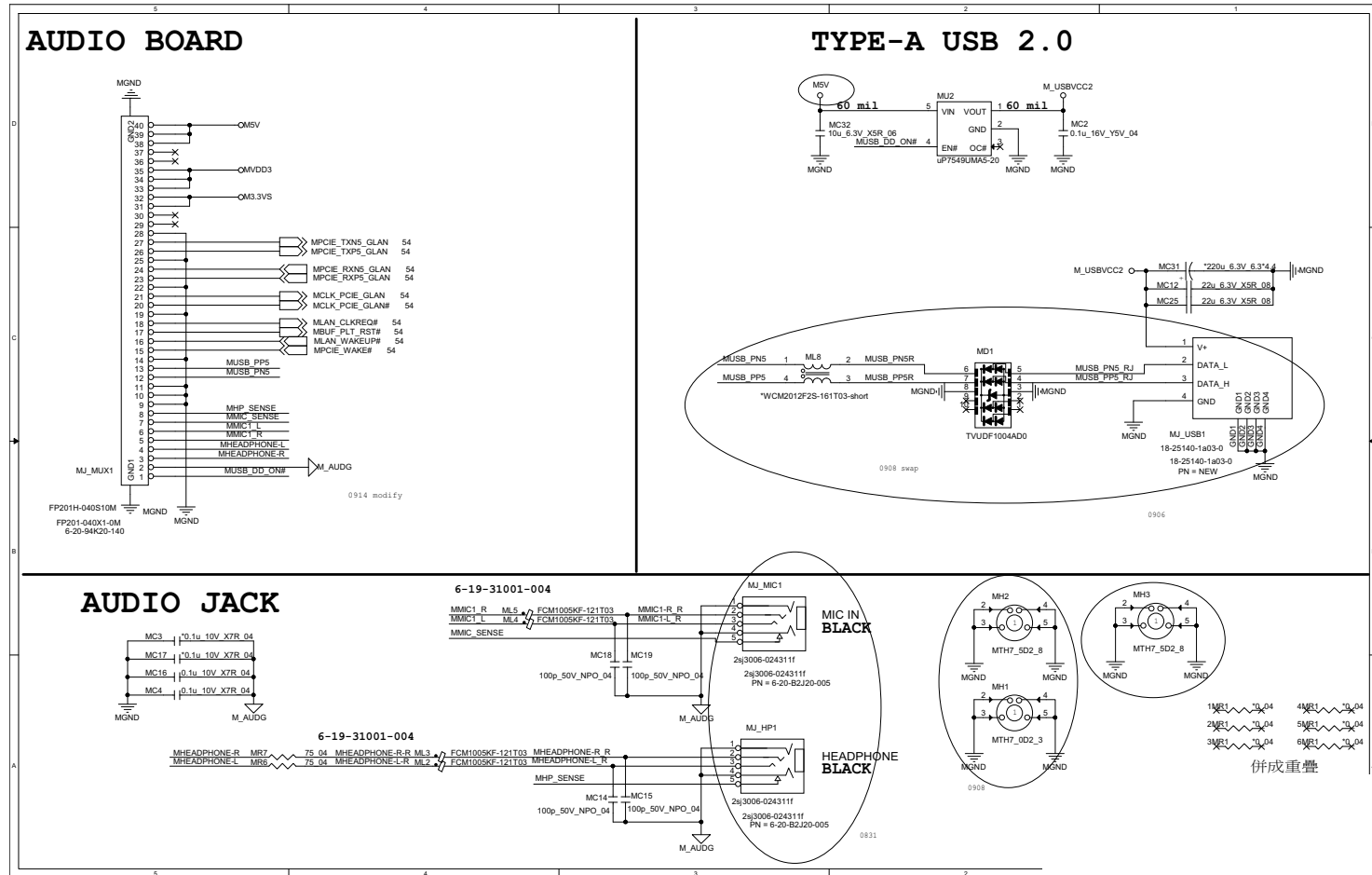
DC_JACK BOARD



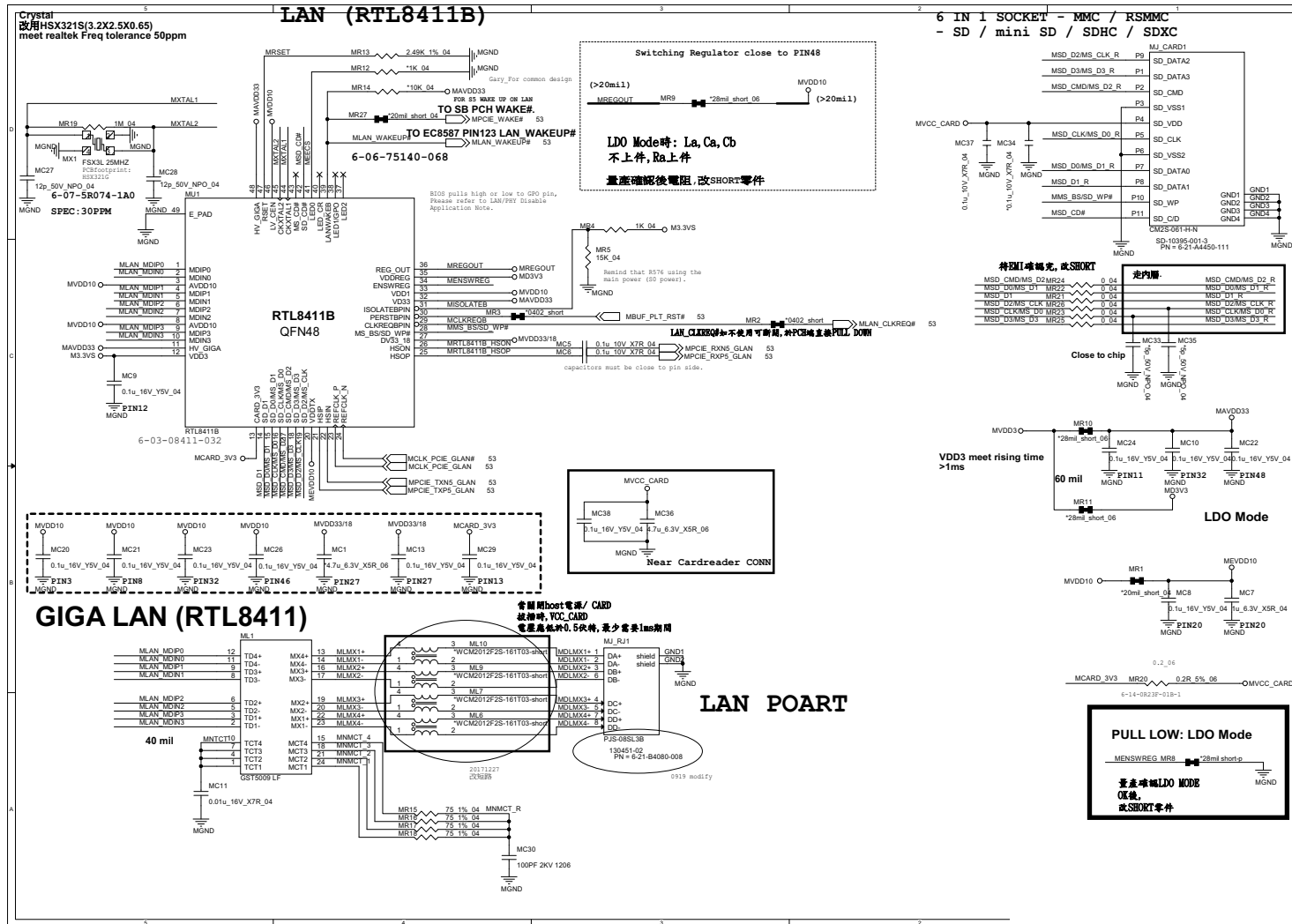
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DC_Jack Board

Multi Board

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Multi Board



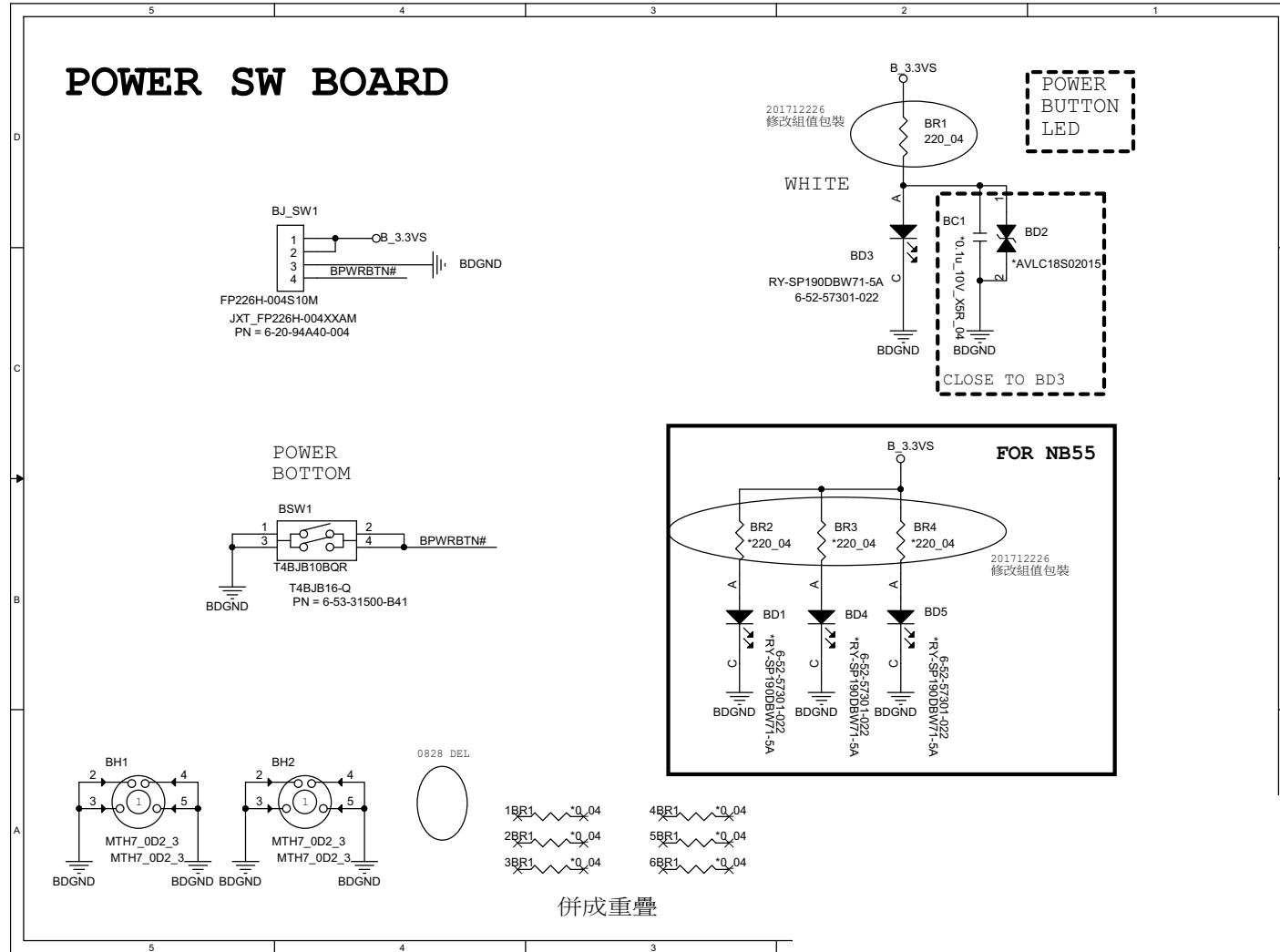
RTL8411B



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 RTL8411B

B.Schematic Diagrams

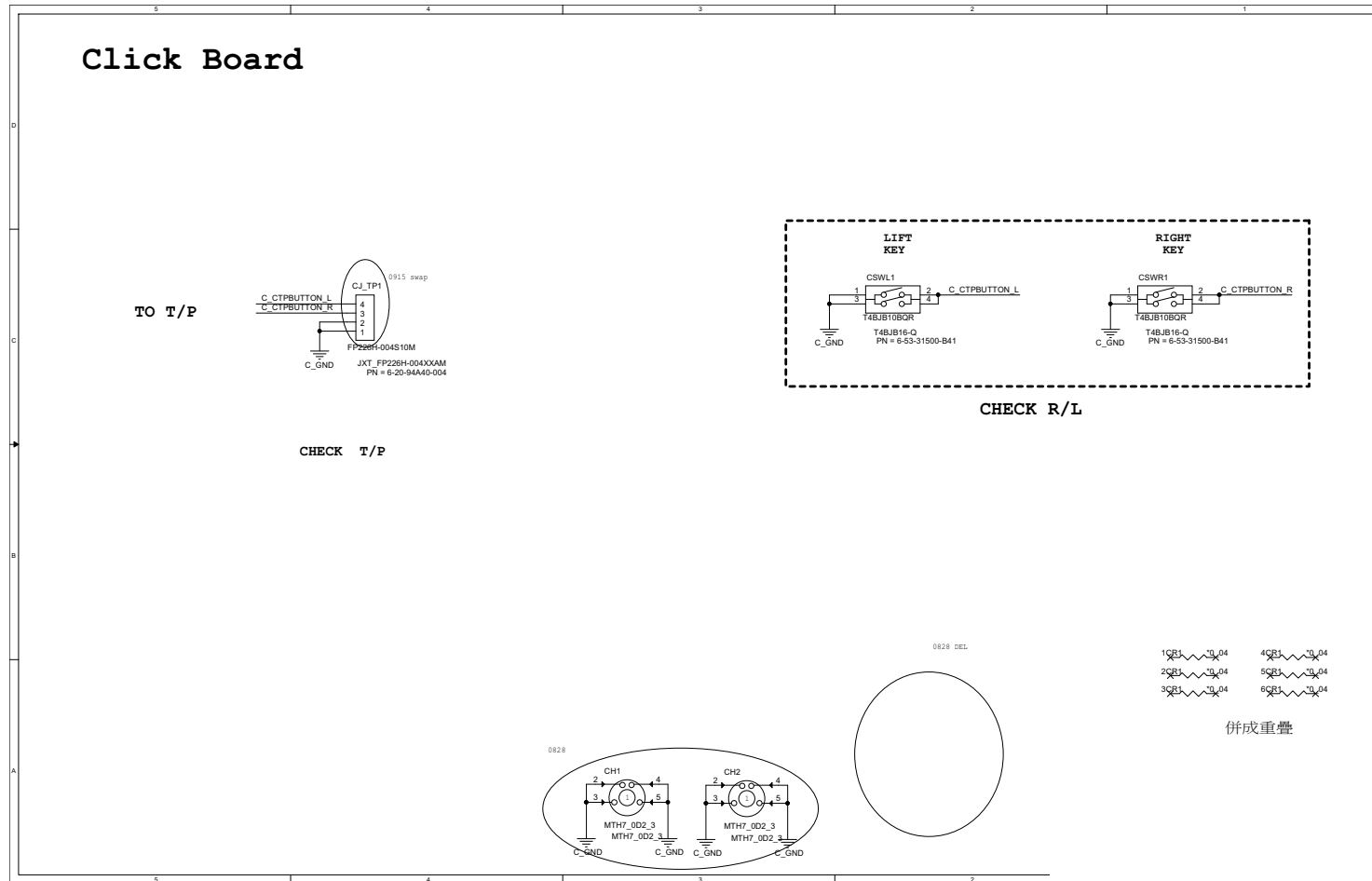
Power SW Board



B.Schematic Diagrams

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 Power SW Board

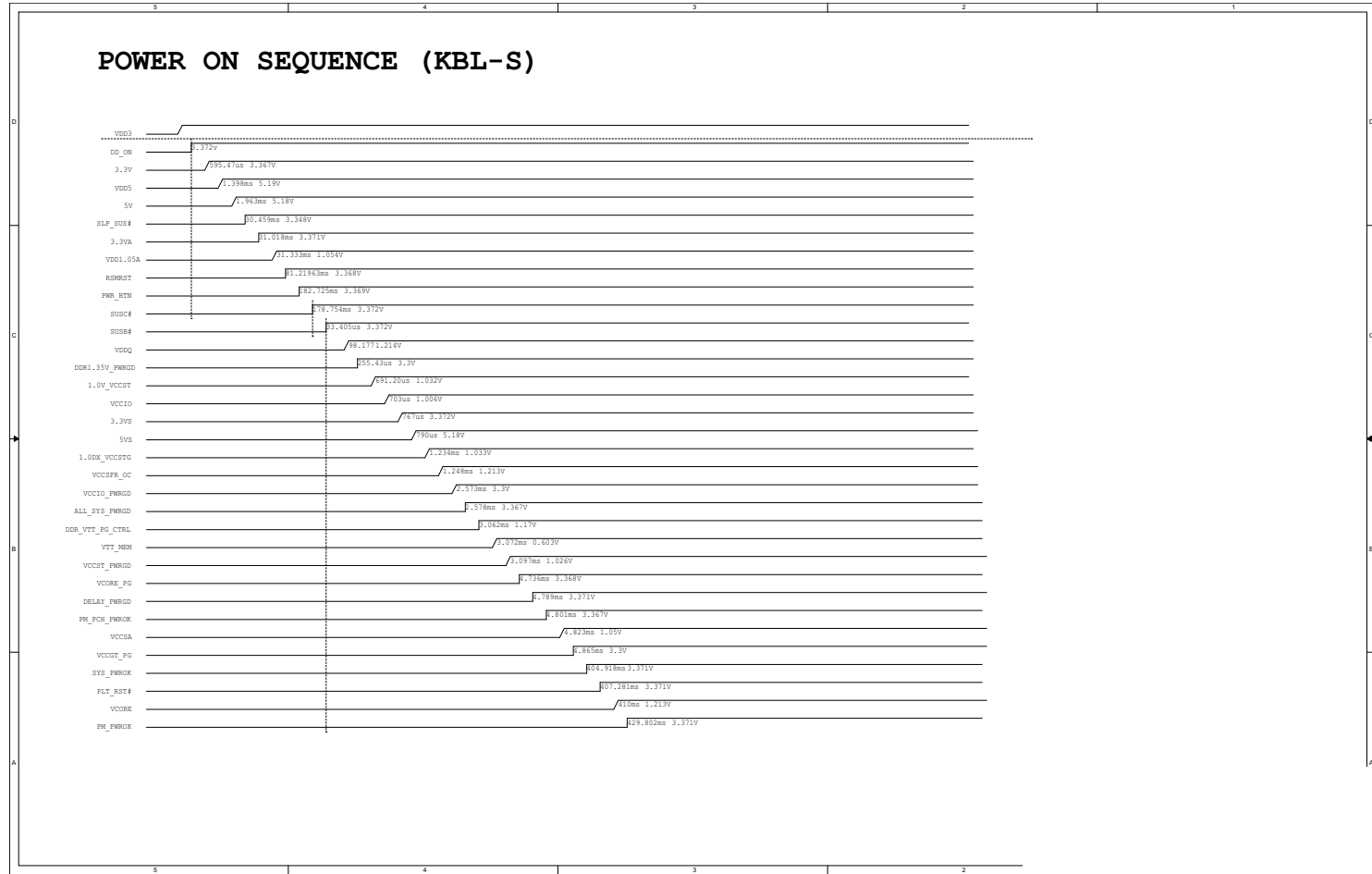
Click Board



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Click 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 **F4** to save any changes you have made and exit the BIOS to restart the computer.



BIOS Version

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

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

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

BIOS Update

Use the flash tools to update the BIOS

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

fsX:\> Flash.nsh

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

Restart the computer (booting from the HDD)

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

Your computer is now running normally with the updated BIOS

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