

SERVICE MANUAL

W945TUQ

notebook



Notebook Computer

W945TUQ

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 **W945TUQ** 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, 1.58A (**30 Watts**) minimum AC/DC Adapter.

CAUTION

This Computer's Optical Device is a Laser Class 1 Product

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.

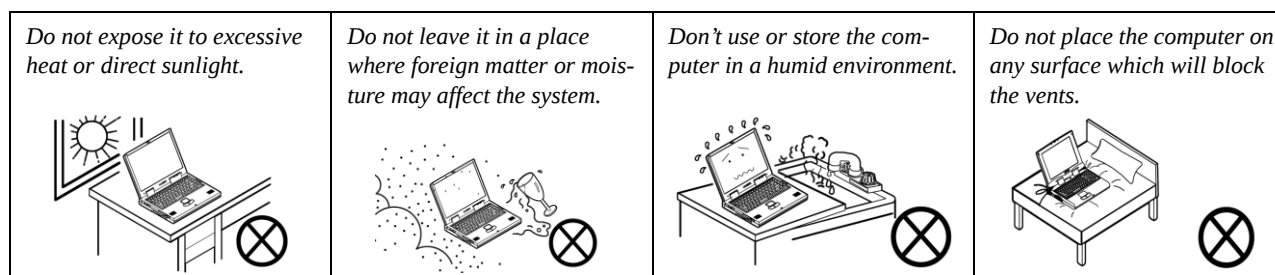
Instructions for Care and Operation

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.

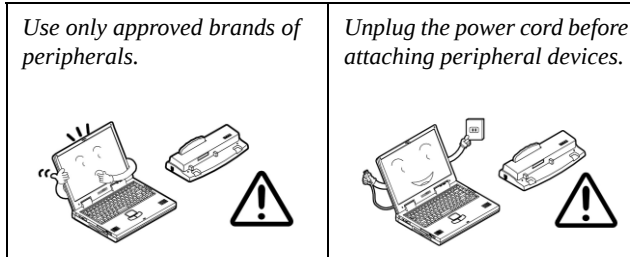


3. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.



Preface

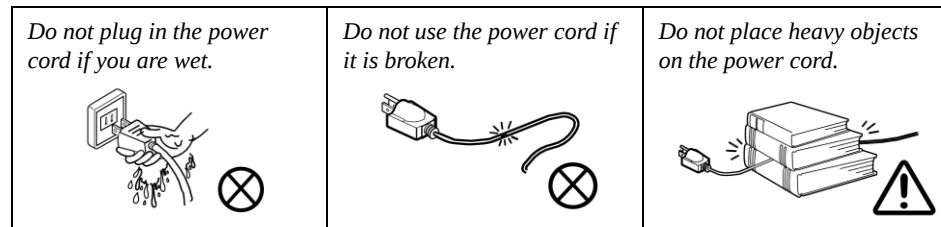
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



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. Attach the AC/DC adapter to the DC-In jack at the rear 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 127 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".

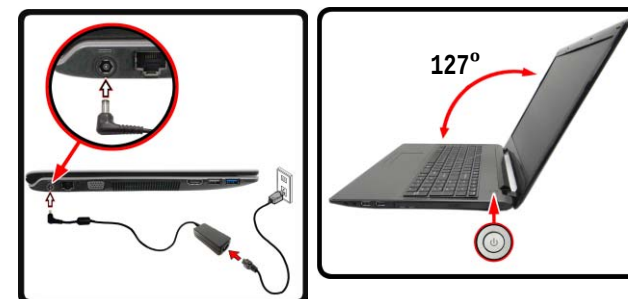


Figure 1
**Opening the Lid/LCD/
Computer with AC/DC
Adapter Plugged-In**



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 **Settings** in the **Charms Bar** (use the **Windows Logo Key**  + **C** key combination to access the Charms Bar) and choose **Shut down** from the **Power** menu.

Or

Choose **Shut down or sign out > Shut down** from the context menu (use the **Windows Logo Key**  + **X** key combination to access the context menu).

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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **W945TUQ** 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 8*, 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 **W945TUQ** 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

N3520 (2.17GHz)

2MB L2 Cache, **22nm**, DDR3L-1333MHz, TDP 7.5W

Intel® Celeron™ Processor

N2920 (1.86GHz)

2MB L2 Cache, **22nm**, DDR3L-1066MHz, TDP 7.5W

N2820 (2.13GHz), N2815 (1.86GHz)

1MB L2 Cache, **22nm**, DDR3L-1066MHz, TDP 7.5W

N2806 (1.60GHz)

1MB L2 Cache, **22nm**, DDR3L-1066MHz, TDP 4.3W

N2805 (1.46GHz)

2MB L2 Cache, **22nm**, DDR3L-1066MHz, TDP 4.3W

BIOS

64Mb SPI Flash ROM

AMI BIOS

Memory

For N3520, N2920, N2820 & N2815 Processors:

Two 204 Pin SO-DIMM Sockets Supporting **DDR3L 1066/1333MHz** Memory

Memory Expandable up to 8GB

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

For N2806 & N2805 Processors:

One 204 Pin SO-DIMM Socket Supporting **DDR3L 1066MHz** Memory

Memory Expandable up to 8GB

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

LCD

14" (35.56cm) HD

Video Adapter

Intel HD Graphics

Dynamic Frequency (Intel Dynamic Video Memory Technology for up to **1.7GB**)

Microsoft DirectX® 11 Compatible

Storage

(**Factory Option**) One Changeable 9.5mm(h) Super Multi Optical Device Drive

One Changeable 2.5" 7.0mm (h) SATA HDD

Audio

High Definition Audio Compliant Interface

2 * Built-In Speakers

Built-In Microphone

Security

Security (Kensington® Type) Lock Slot

BIOS Password

Keyboard

"WinKey" keyboard (with embedded numeric keypad)

Pointing Device

Built-in Touchpad

Interface

Two USB 2.0 Ports

One USB 3.0 Port

One HDMI-Out Port

One External Monitor Port

One Headphone-Out Jack

One Microphone-In Jack

One RJ-45 LAN Jack

One DC-in Jack

Mini Card Slot

One Slot for **WLAN** Module or **WLAN and Bluetooth** Combo Module

Card Reader

Embedded Multi-In-1 Card Reader

MMC (MultiMedia Card) / RS MMC

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

MS (Memory Stick) / MS Pro / MS Duo

Communication

Built-In 10/100Mb Ethernet LAN

1.0M HD PC Camera Module

WLAN/ Bluetooth Half Mini-Card Modules:

(**Factory Option**) Intel® Wireless-N 3160 Wireless LAN
(**802.11b/g/n**) + Bluetooth **4.0**

(**Factory Option**) Intel® Wireless-N 7260 Wireless LAN
(**802.11b/g/n**) + Bluetooth **4.0**

(**Factory Option**) Third-Party Wireless LAN (**802.11b/g/n**)

(**Factory Option**) Third-Party Wireless LAN (**802.11b/g/n**) +
Bluetooth **4.0**

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, 1.58A (**30W**)

(**Factory Option**) 4 Cell Smart Lithium-Ion Battery Pack,
32WH

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

Dimensions & Weight

340mm (w) * 242mm (d) * 26.5mm (h)

(Height Excluding Battery Area)

2.0kg (with ODD and 44WH 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
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
2. Multi-in-1 Card Reader

RIGHT SIDE VIEW



Figure 3
Right Side View

1. Microphone-In Jack
2. Headphone-Out Jack
3. USB 2.0 Port
4. Optical Device Drive Bay
5. Emergency Eject Hole
6. Security Lock Slot

Introduction

External Locator - Left Side & Rear View

Figure 4
Left Side View

1. DC-In Jack
2. RJ-45 LAN Jack
3. External Monitor Port
4. Vent
5. HDMI-Out Port
6. USB 2.0 Port
7. USB 3.0 Port

LEFT SIDE VIEW



Figure 5
Rear View

REAR VIEW



External Locator - Bottom View

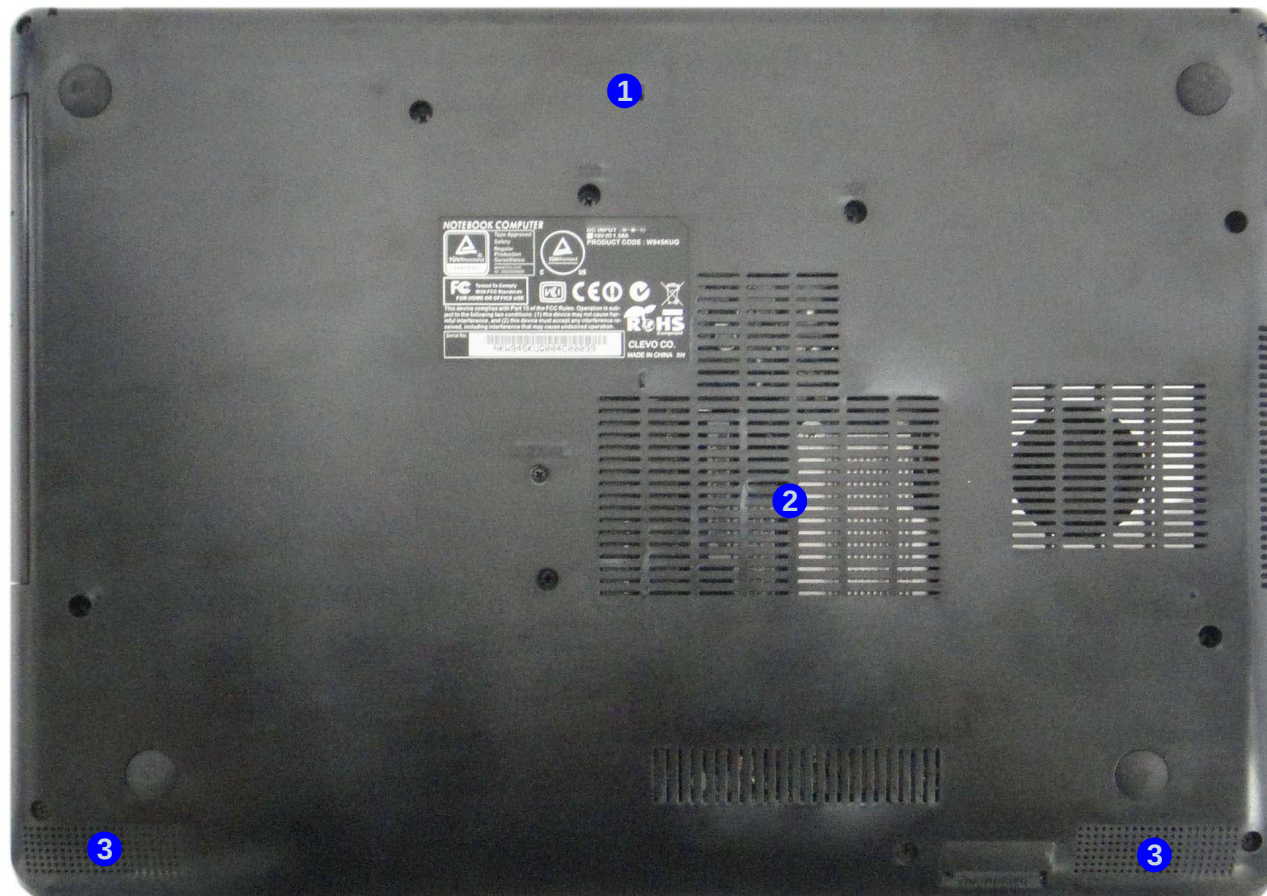


Figure 6
Bottom View

1. Battery Location
2. Vent
3. Speakers



Overheating

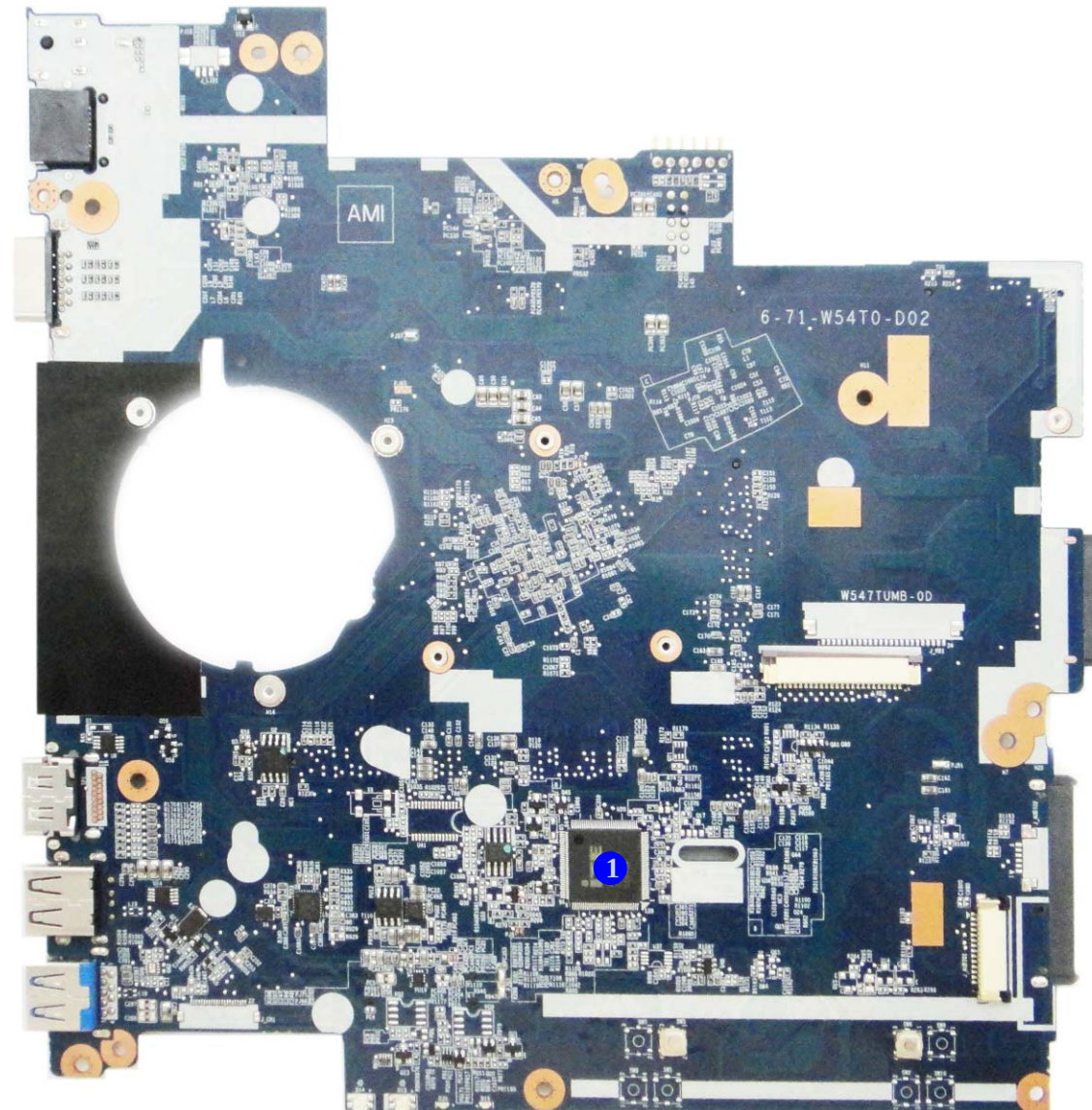
To prevent your computer from overheating, make sure nothing blocks any vent while the computer is in use.

Introduction

Figure 7
**Mainboard Top
Key Parts**

1. KBC-ITE IT8587

Mainboard Overview - Top (Key Parts)



Mainboard Overview - Bottom (Key Parts)

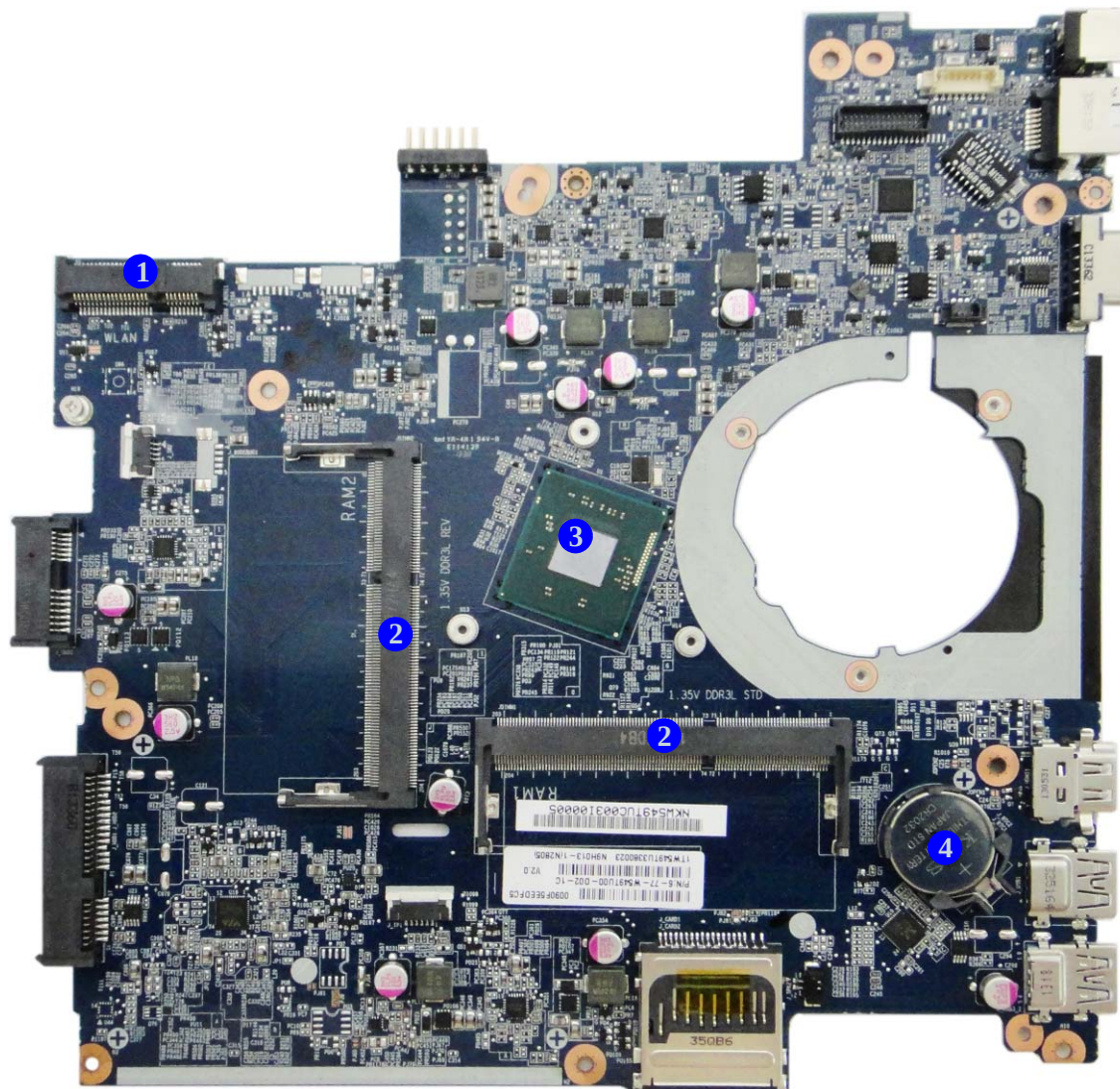


Figure 8
**Mainboard Bottom
Key Parts**

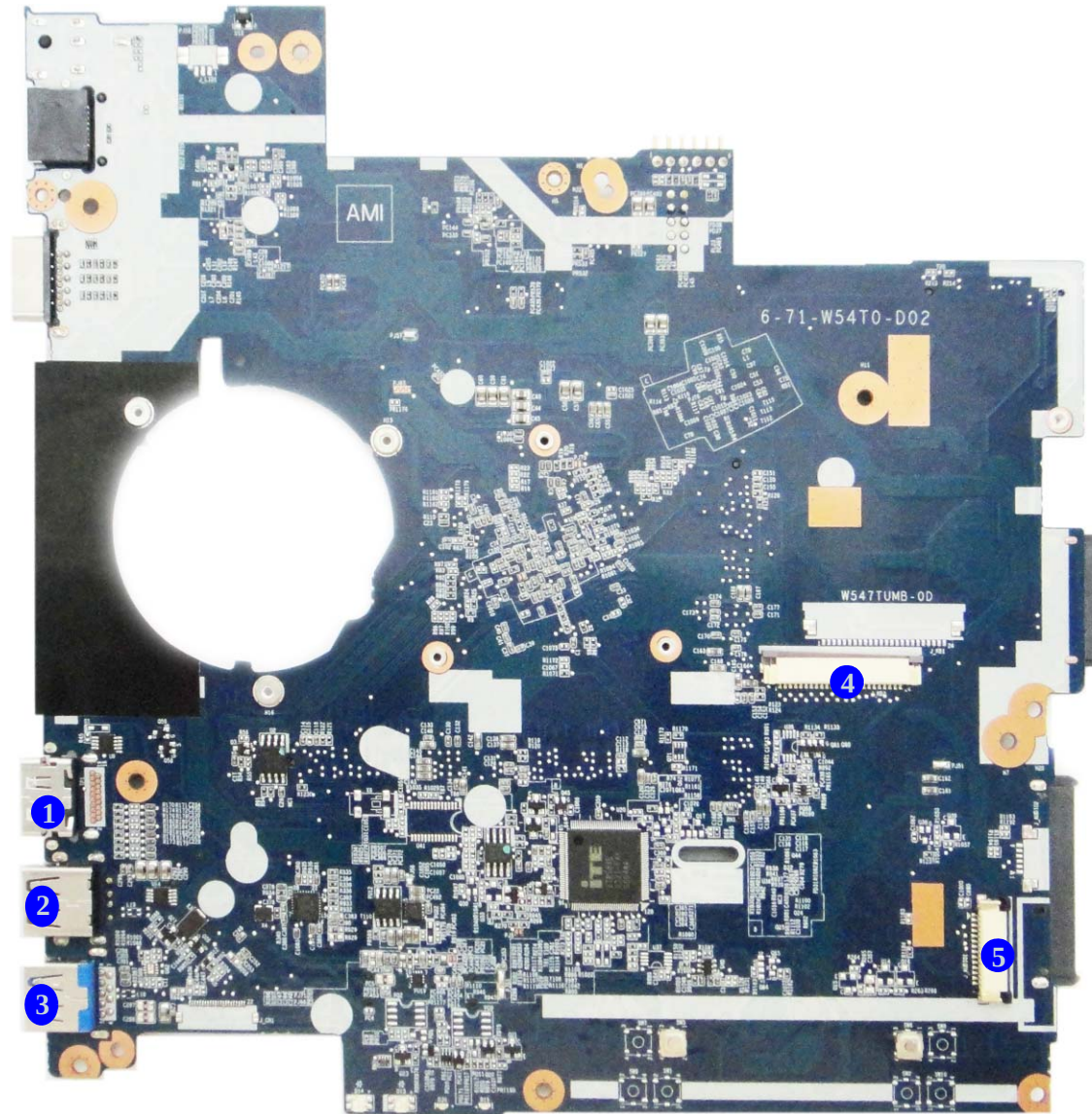
1. Mini-Card Connector
2. Memory Slots
DDR3 SO-DIMM
3. CPU
4. CMOS Battery

Introduction

Figure 9
**Mainboard Top
Connectors**

1. HDMI-Out Port
2. USB Port 2.0
3. USB Port 3.0
4. Keyboard Cable Connector
5. Audio Board Cable Connector

Mainboard Overview - Top (Connectors)



Mainboard Overview - Bottom (Connectors)

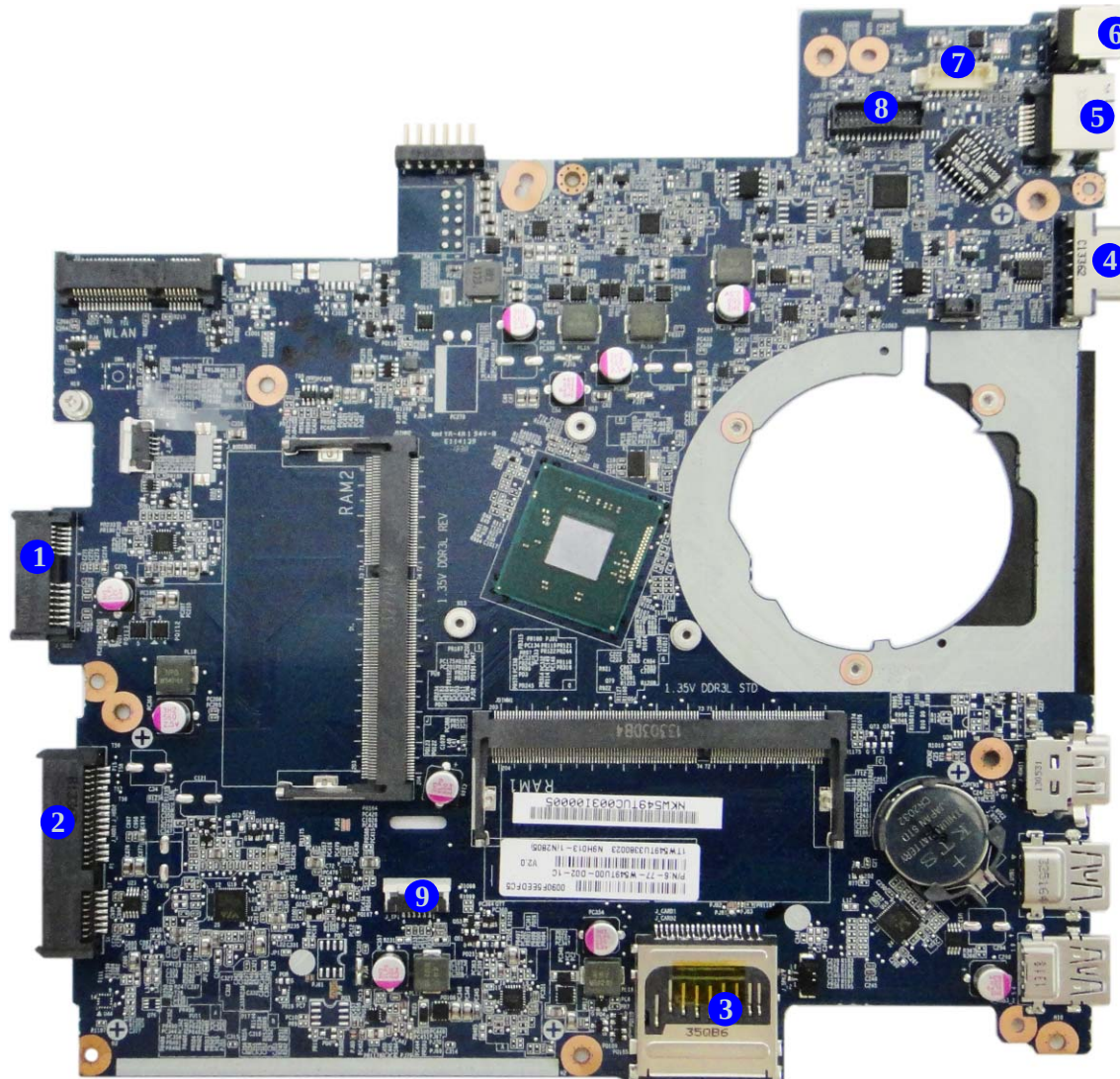


Figure 10
**Mainboard Bottom
Connectors**

1. ODD Connector
2. HDD Connector
3. Multi-in-1 Card Reader
4. External Monitor Port
5. RJ-45 LAN Jack
6. DC-In Jack
7. CCD Connector
8. LCD Cable Connector
9. Touchpad Connector

Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the **W945TUQ** 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.



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 Optical Device:

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

To remove the HDD:

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

To remove the System Memory:

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

To remove the Keyboard:

1. Remove the battery [page 2 - 5](#)
2. Remove the keyboard [page 2 - 13](#)

To remove the Wireless LAN Module:

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

To remove the CCD Module:

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

Removing the Battery

1. Turn **off** the computer, turn it over.
2. Remove the SD card cover **1** and screws **2** - **14** from the bottom case (**Figure 1a**).
3. Carefully separate the bottom cover **15** from the top case in the direction of the arrow at point **16** - **17** (**Figure 1b**).
4. The battery will be visible at point **18** (**Figure 1c**).

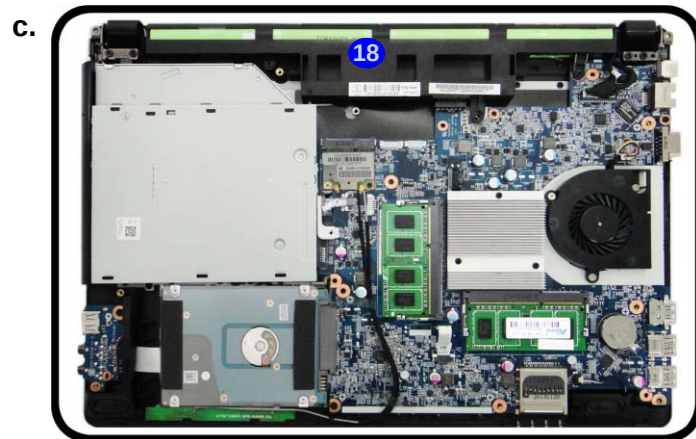
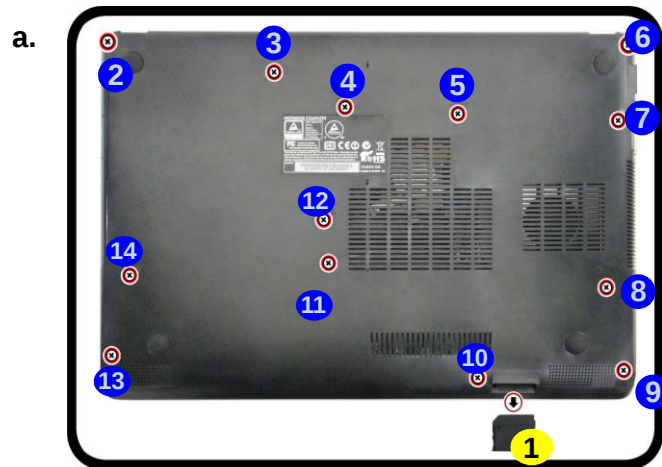


Figure 1
Battery Removal

- Remove the cover and screws from the bottom case.
- Separate the top and bottom case.
- The battery will be visible.



1. SD Card Cover
15. Bottom Cover

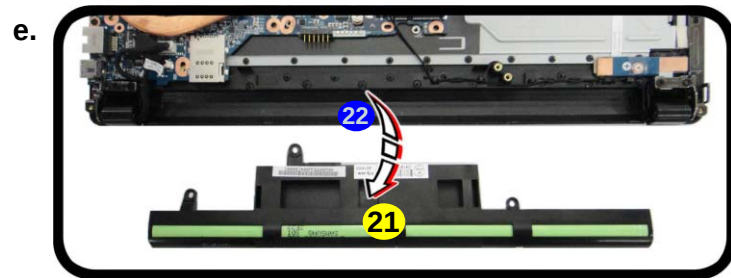
- 13 Screws

Disassembly

Figure 2
Battery Removal & Assembly (cont'd.)

- d. Remove the screws.
- e. Lift the battery out.
- f. Reattach the bottom cover and top case.

5. Remove screws 19 - 20 from the battery (*Figure 2d*).
6. Lift the battery 21 off the computer in the direction of the arrow 22 (*Figure 2e*).
7. Reverse the process to insert a new battery (do not forget to replace all the screws).
8. Reattach the bottom cover with the top case at point 23 in the direction of the arrow 24 (*Figure 2f*).
9. Snap together the sides of the bottom cover and top case and replace the corresponding screws.



21. Battery

- 2 Screws

Removing the Optical (CD/DVD) Device

1. Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)).
2. Carefully pull out the optical device **1** out of the bay at point **2** ([Figure 3a](#)).
3. Carefully pry the bezel **4** off the optical device at point **3** ([Figure 3b](#)).
4. Separate the bezel **4** and the optical device ([Figure 3c](#)).

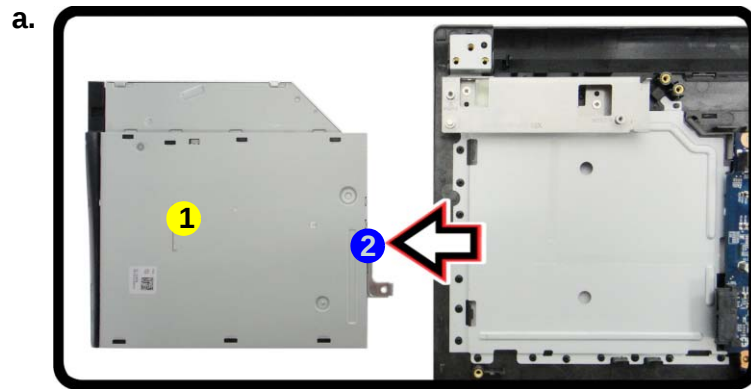


Figure 3
**Optical Device
Removal**

- a. Pull out the optical device.
- b. Pry the bezel off the optical device.
- c. Separate the bezel and optical device



1. Optical Device
4. Bezel

Disassembly

Figure 4
**Optical Device
Assembly**

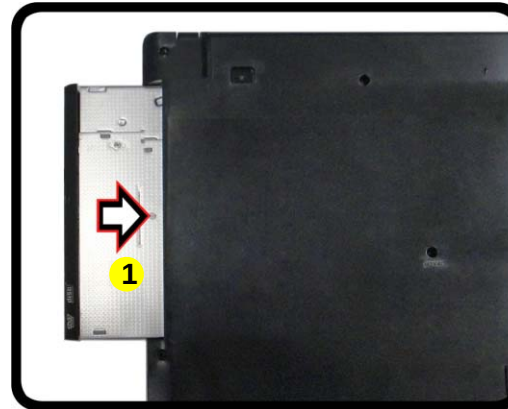
- d. Install the front bezel.
e. Insert the optical device.
f. Tighten the screw.

5. Reverse the process to attach the front bezel **4** with the new optical device at point **5** (*Figure 4e*).
6. Insert the new optical device **1** and carefully slide it into the computer (the device only fits one way. DO NOT FORCE IT; The screw holes should line up).
7. Replace the bottom cover and tighten the screw **6** (*Figure 4g*).
8. Restart the computer to allow it to automatically detect the new device.

d.



e.



f.



1. Optical Device
4. Bezel

- 1 Screw

Removing the Hard Disk Drive

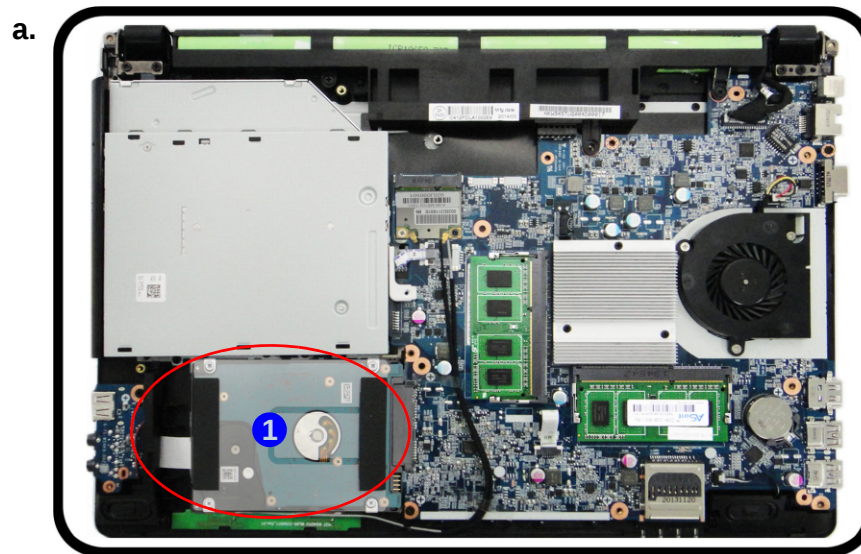
The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 7.0mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

Hard Disk Upgrade Process

1. Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)).
2. The hard disk drive will be visible at point **1** ([Figure 5a](#)).

Figure 5
HDD Assembly Removal

a. Locate the HDD assembly.



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.

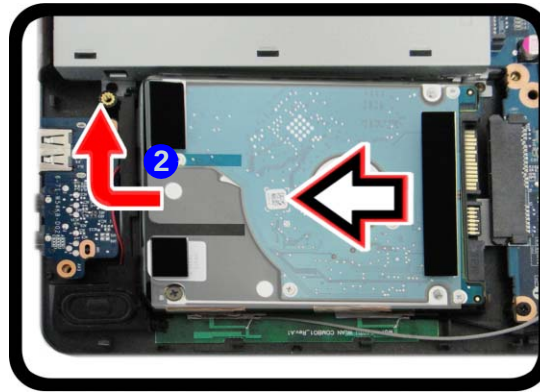
Disassembly

Figure 6
**HDD Assembly
Removal (cont'd.)**

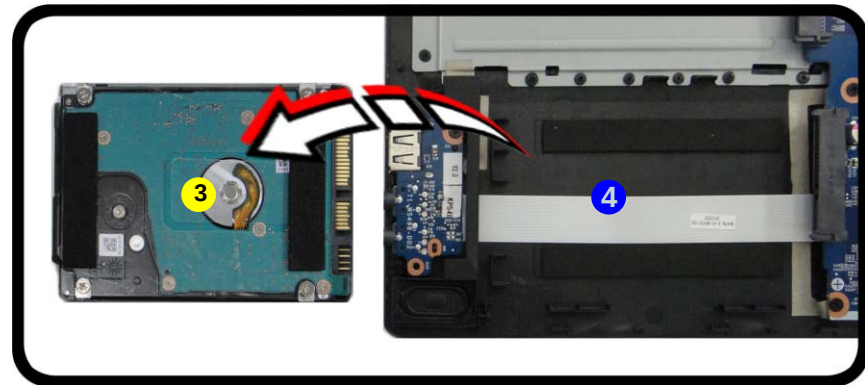
- b. Slightly lift and pull the HDD assembly in the direction of the arrow.
- c. Lift the HDD assembly out of the bay.
- d. Remove the screws and adhesive cover.

- 3. Slightly lift and pull the hard disk assembly in the direction of arrow ② (*Figure 6b*).
- 4. Lift the hard disk assembly ③ out of the bay ④ (*Figure 6c*).
- 5. Remove the screws ⑤ - ⑥ and the adhesive cover ⑦ from the hard disk ⑧ (*Figure 6d*).
- 6. Reverse the process to install a new hard disk (do not forget to replace all the screws and bottom cover).

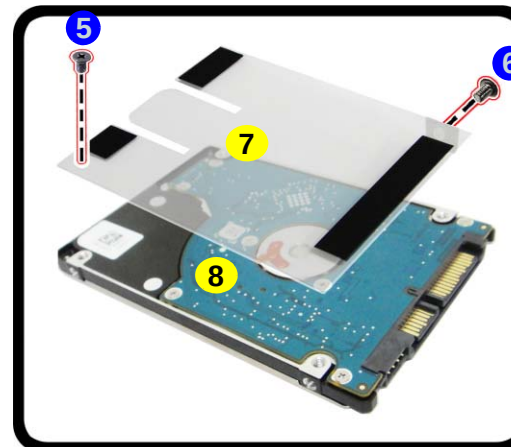
b.



c.



d.



- 3. HDD Assembly
- 7. Adhesive Cover
- 8. HDD

- 2 Screws

Removing the System Memory (RAM)

The computer has two memory sockets for 204 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting single or dual channel DDR3L depending on the CPU. The main memory can be expanded up to 8GB. The SO-DIMM modules supported are 1024MB and 2048MB **DDR3L** Modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

Memory Upgrade Process

1. Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)).
2. The RAM modules will be visible at point **1** on the mainboard ([Figure 7b](#)).
3. Gently pull the two release latches (**2** & **3**) on the sides of the memory socket in the direction indicated by the arrows ([Figure 7b](#)). The RAM module **4** will pop-up ([Figure 7c](#)), and you can then remove it.

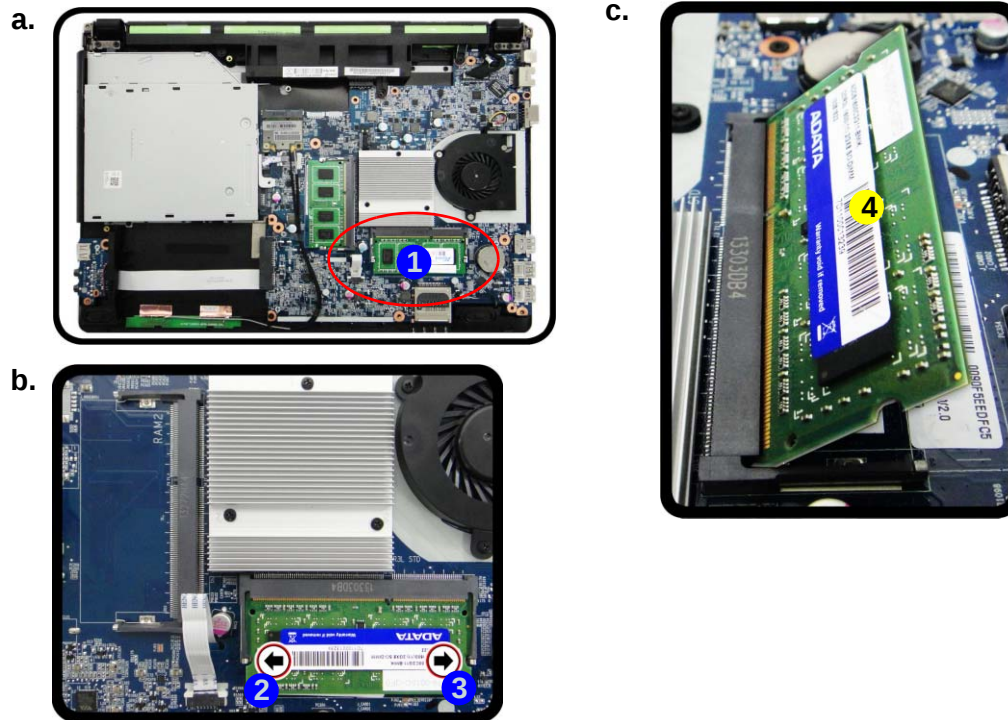


Figure 7

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.



Single Memory Module Installation

If your computer has a single memory module, then insert the module into the **Channel 0 (JDIMM1)** socket. In this case this is the **horizontal** memory socket.



Contact Warning

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



4. RAM Module

Disassembly

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 case and the screws (see [page 2 - 5](#)).
9. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

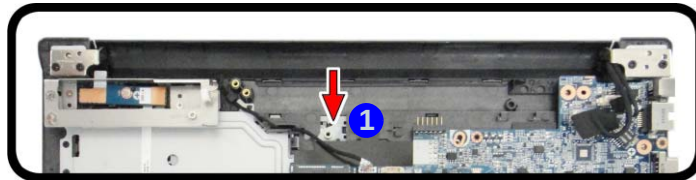
Removing the Keyboard

1. Turn **off** the computer, turn it over to remove the battery ([page 2 - 5](#)).
2. Press at point **1** to release the keyboard ([Figure 8a](#)).
3. Turn the computer over, remove the keyboard **2** ([Figure 8b](#)).
4. Carefully lift the keyboard up, being careful not to bend the keyboard ribbon cable **3**. Disconnect the keyboard ribbon cable from the locking collar socket **4** ([Figure 8b](#)).
5. Carefully lift up the keyboard **2** off the computer ([Figure 8c](#)).
6. Reverse the process to install the keyboard (be careful not to bend the keyboard ribbon cable).

Figure 8
Keyboard Removal

- a. Release the keyboard by pressing at point **1**.
- b. Disconnect the keyboard ribbon cable from the locking collar socket.
- c. Remove the keyboard.

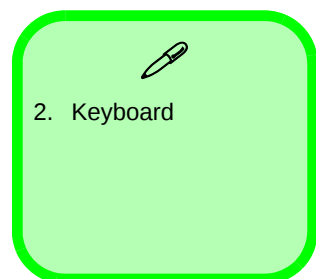
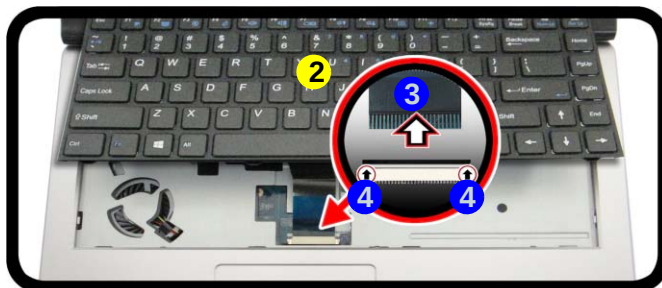
a.



c.



b.



Disassembly

Figure 9
**Wireless LAN
Module Removal**

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

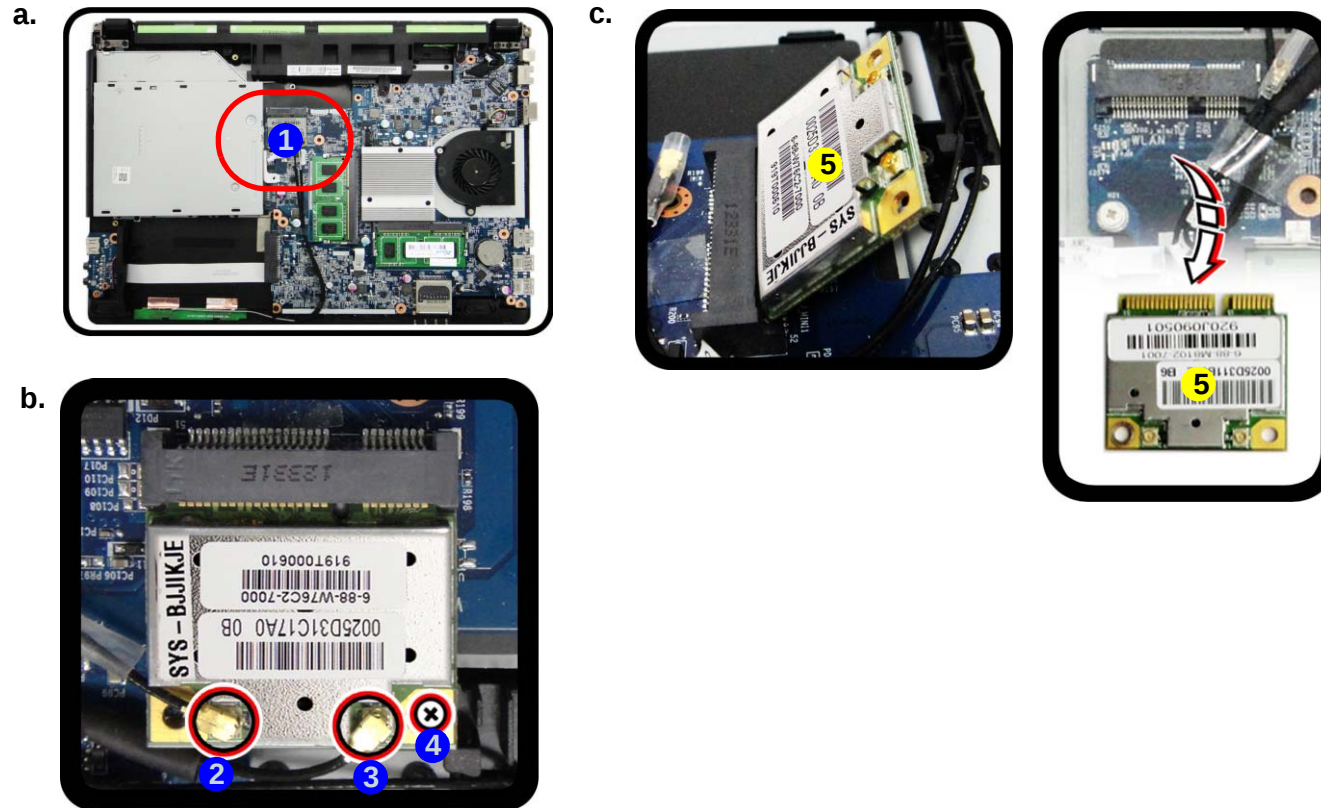
Note: Make sure you reconnect the antenna cable to the “1 + 2” socket (*Figure 9b*).

5. Wireless LAN Module

- 1 Screw

Removing the Wireless LAN Module

- Turn **off** the computer, turn it over to remove the battery (*page 2 - 5*).
- The Wireless LAN module will be visible at point **1** on the mainboard (*Figure 9a*).
- Carefully disconnect the cables **2** & **3**, and then remove the screw **4** (*Figure 9b*).
- The Wireless LAN module **5** (*Figure 9c*) 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	Gray	
	WM 3	White	

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

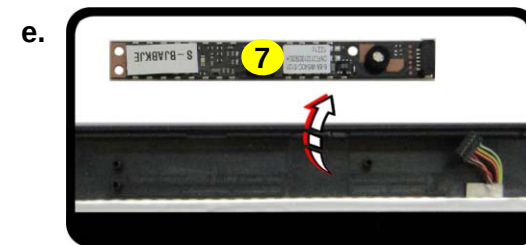
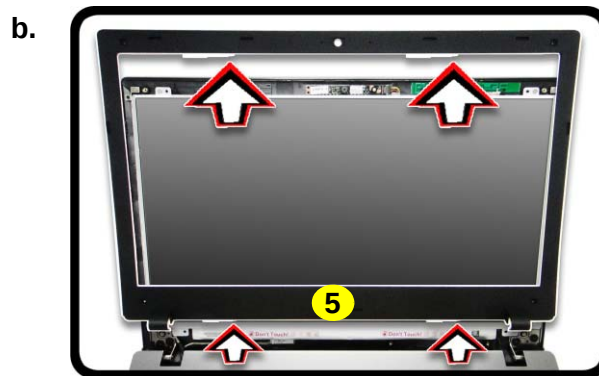
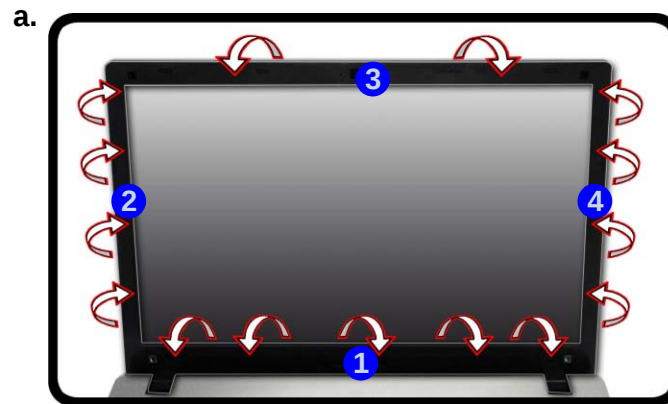
Disassembly

Figure 10
CCD Removal

- a. Run your fingers around the inner frame of the LCD panel at the points indicated by the arrows.
- b. Lay the computer down on a flat surface with the top case up forming a 90 degree angle. Push the LCD front panel upwards before carefully lifting it up.
- c. Remove the LCD front cover.
- d. Disconnect the cable.
- e. Remove the CCD module.

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**.
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 10c](#)).
5. Disconnect the cable **6**.
6. Remove the CCD module **7** ([Figure 10e](#)).
7. Reverse the process to install a new CCD module.



5. LCD Front Cover
7. CCD Module

Appendix A:Part Lists

This appendix breaks down the **W945TUQ** 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.

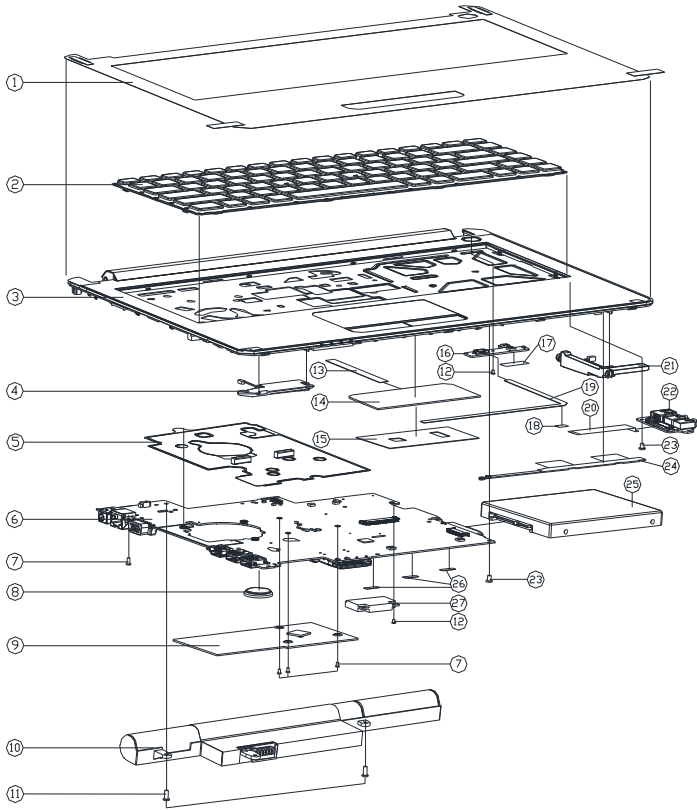
Part List Illustration Location

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

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

Part	
Top (1-DIMM)	<i>page A - 3</i>
Top (2-DIMM)	<i>page A - 4</i>
Bottom	<i>page A - 5</i>
LCD	<i>page A - 6</i>
HDD	<i>page A - 7</i>
DVD Dual Drive	<i>page A - 8</i>

Top (1-DIMM)

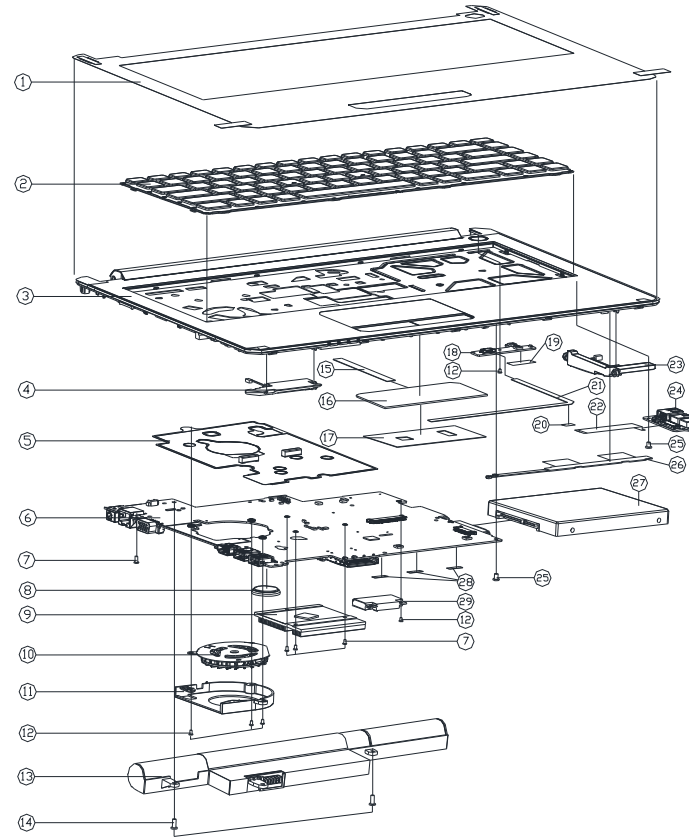


ITEM	PART NAME	PART NO	REMARK
1	TOP CASE PROTECT MYLAR 0805*30 0950	6-40-W9452-060	
2	VIBR K/B USA (BLACK) FRAME (US) MODULE W940U-I	6-79-W941TUTK-010-W	
3	TOP CASE MODULE W945TU0	6-39-W9452-T11	
4	SPK-CABLE L (27) LOW 87 W940U (QVTECH)	6-23-5W940-0L1	
5	AL FOIL 01 + MYLAR 01 + TAPE 05-5 W940U	6-47-W9405-010	
6	MAIN BOARD CPU/MB/SSD V30 01501 DIMM/010 W945TU0	6-77-W945TU00-D03-3P	
6	MAIN BOARD CPU/MB/SSD V30 01501 DIMM/010 W945TU0	6-77-W945TU00-D03-2P	
6	MAIN BOARD CPU/MB/SSD V30 01501 DIMM/010 W945TU0	6-77-W945TU00-D03-6P	
6	MAIN BOARD CPU/MB/SSD V30 01501 DIMM/010 W945TU0	6-77-W945TU00-D03-7P	
7	SCREW M2*4L K1 BZ ICT NY	6-35-B6120-4RA	
8	BATTERY 3V 220MA BBRCR2032B (KTS)	6-23-6A2B2-030	
9	CPU HEATSINK MODULE W945TU0	6-33-W945N-T00	
10	W/111 (S/N) 01501 CPU/MB/SSD V30 01501 DIMM/010 W945TU0	6-87-W9455-42L1	
10	W/111 (S/N) 01501 CPU/MB/SSD V30 01501 DIMM/010 W945TU0	6-87-W9455-42F1	
11	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
12	SCREW M2*3L K1 NI ICT NY (000-045,01-04)	6-35-B1120-3RE	
13	FTC CABLE FOR TOUCH PAD 72MM 60V 6PIN 050 W940TU	6-43-W9402-011	
14	TOUCH PAD SYNAPTICS TM-01146-003 MULTI-GE3	6-49-C4802-010	
15	MYLAR FOR TOUCHPAD (TRANSPARENT) MYLAR-TE34P650 W940U	6-40-W3402-020	
16	POWER SWITCH BOARD V3.0 W950SU2	6-77-W54KS-D03-B	
17	TOP CASE MYLAR SONY G4000 (30*40*0.25) W940TU	6-40-W9402-020	
18	TAPE MYLAR TRANSPARENT (20*40*0.05) P1800M	6-40-P1803-020	
19	FTC CABLE FOR FINGER BOARD TO W/111 26MM 60V 4P 050 W940TU	6-43-W5470-011	
20	FTC CABLE FOR AUDIO BOARD TO W/111 14P 050 W940TU	6-43-W5470-020	
21	SPK-CABLE R (50) LOW 87 W940TU (QVTECH)	6-23-5W940-0R1	
22	AUDIO BOARD V2.0 W547KU	6-77-W54K8-D02	
23	SCREW M2.5*4L K1CT-0.5 D=4.5 BK/Z ICT	6-35-B6125-4R0	
24	W/111 (S/N) 01501 CPU/MB/SSD V30 01501 DIMM/010 W945TU0	6-23-7W940-022	
25	W/O HDD ASS'Y W940TU	6-79-W940TU0J-010	
25	W/O HDD ASS'Y W940TU	6-79-W940TU0J-020	
26	TAPE MYLAR TRANSPARENT (30*50*0.05) W25HP3	6-40-W25P3-010	
27	W/111 (S/N) 01501 CPU/MB/SSD V30 01501 DIMM/010 W945TU0	6-88-W54SF-7000	
27	W/111 (S/N) 01501 CPU/MB/SSD V30 01501 DIMM/010 W945TU0	6-88-W54SF-9400	
27	W/111 (S/N) 01501 CPU/MB/SSD V30 01501 DIMM/010 W945TU0	6-88-P3702-9400	
27	W/111 (S/N) 01501 CPU/MB/SSD V30 01501 DIMM/010 W945TU0	6-88-P3702-7000	
27	W/111 (S/N) 01501 CPU/MB/SSD V30 01501 DIMM/010 W945TU0	6-88-W25WF-4200	
27	W/111 (S/N) 01501 CPU/MB/SSD V30 01501 DIMM/010 W945TU0	6-88-W230F-4210	

Figure A - 1
Top (1-DIMM)

Top (2-DIMM)

Figure A - 2
Top (2-DIMM)



ITEM	PART NAME	PART NO	REMARK
1	TOP CASE PROTECT MYLAR 10825-IN 8953 W94500	6-40-W9452-060	
2	W/R K/B USA BLACKS FRAME QSS MODULE W940U-1	6-79-W941UTK-010-W	
3	TOP CASE MODULE W945TU0	6-39-W9452-T11	
4	SPK-CABLE L (27) 10W 81 W940U (VITYTCD)	6-23-5W940-OL1	
5	AL FOIL 01 + MYLAR 01 + TAPE DS-5 W940TU	6-47-W940S-010	
6	MAIN BOARD CPU/PC/20250 V30 01V02 DIMM/02 10W W94000	6-77-W945TU00-003-10	
6	MAIN BOARD CPU/PC/20250 V30 01V02 DIMM/02 10W W94000	6-77-W945TU00-003-1N	
6	MAIN BOARD CPU/PC/20250 V30 01V02 DIMM/02 10W W94000	6-77-W945TU00-003-0	
6	MAIN BOARD CPU/PC/20250 V30 01V02 DIMM/02 10W W94000	6-77-W945TU00-003-5L	
7	SCREW M2*4L KI BZ ICT NY	6-35-B6120-4RA	
8	BATTERY 3V 220MA BBBCR2032B (KTS)	6-23-6A2B2-030	
9	CPU HEATSINK AL6063 W940TU	6-31-W940S-011	
10	FAN MODULE (A-POWER) W547BL	6-31-W547S-102-1	
11	FAN HOUSING TENJINPC+ABS TH075BX W940TU	6-42-W940S-011	
12	SCREW M2*3L KI NI ICT NY C00-045,01-04)	6-35-B1120-3RE	
13	TOP CASE PROTECT MYLAR 10825-IN 8953 W94500	6-40-W9452-060	
13	TOP CASE PROTECT MYLAR 10825-IN 8953 W94500	6-87-W945S-42L1	
13	TOP CASE PROTECT MYLAR 10825-IN 8953 W94500	6-87-W945S-42F1	
14	SCREW M2*5*6L K BZ ICT NY	6-35-82125-6RA	
15	FFC CABLE FOR TOUCH PAD 72MM 00V 00V W940TU	6-43-W9402-011	
16	TOUCH PAD SYNAPTICS TM-01146-003 MULTI-DES	6-49-C4802-010	
17	MYLAR FOR TOUCHPAD (TRANSPARENT MYLAR+TESAPAD) W9400	6-40-W3402-020	
18	POWER SWITCH BOARD V3.0 W950S02	6-77-W54KS-003-B	
19	TOP CASE MYLAR SONY G4000 (30*94*25) W940TU	6-40-W9402-020	
20	TAPE MYLAR TRANSPARENT (20*10*0.05) P1800M	6-40-P1803-020	
21	FFC CABLE FOR POWER BATTERY TO W/R 20MM 00V 00V W940TU	6-43-W5470-011	
22	FFC CABLE FOR AUDIO HEADS TO W/R 14P 00V W547BL	6-43-W5470-020	
23	SPK-CABLE R (50) 10W 81 W940TU (VITYTCD)	6-23-5W940-OR1	
24	AUDIO BOARD V2.0 W547KU	6-77-W54KB-D02	
25	SCREW M2*5*4L KI(T=0.5 D=4.5) BK/2 ICT	6-35-B6125-4R0	
26	MAIN BOARD CPU/PC/20250 V30 01V02 DIMM/02 10W W94000	6-23-7W940-022	
27	W/D HDD ASS'Y W940TU	6-79-W940TU0J-010	
27	W/HDD ASS'Y W940TU	6-79-W940TU0J-020	
28	TAPE MYLAR TRANSPARENT (20*10*0.05) W25HPD	6-40-W25P3-010	
29	MYLAR TRANSPARENT (20*10*0.05) W25HPD	6-88-W54SF-7000	
29	MYLAR TRANSPARENT (20*10*0.05) W25HPD	6-88-W54SF-9400	
29	MYLAR TRANSPARENT (20*10*0.05) W25HPD	6-88-P3702-9400	
29	MYLAR TRANSPARENT (20*10*0.05) W25HPD	6-88-P3702-7000	
29	MYLAR TRANSPARENT (20*10*0.05) W25HPD	6-88-W25WF-4200	
29	MYLAR TRANSPARENT (20*10*0.05) W25HPD	6-88-W230F-4210	

Bottom

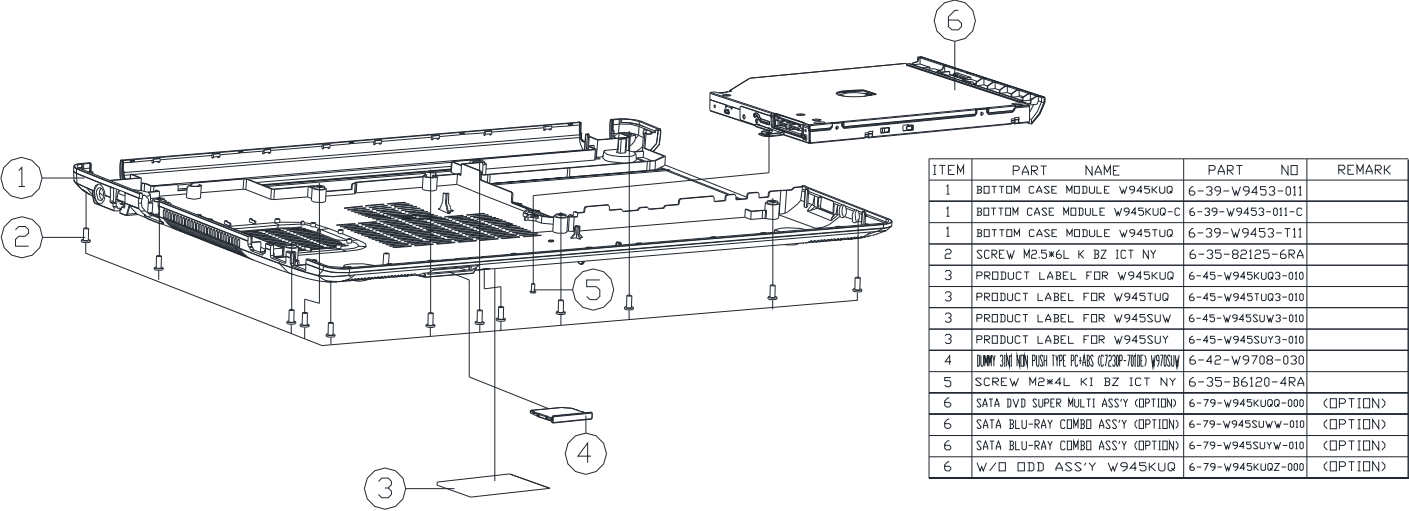


Figure A - 3
Bottom

A.Part Lists

[illegible]

HDD

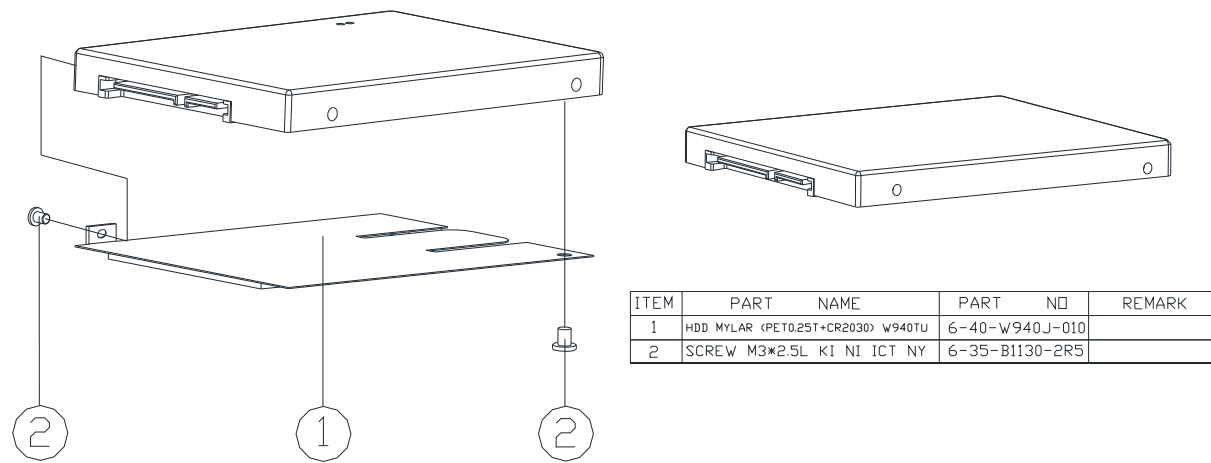
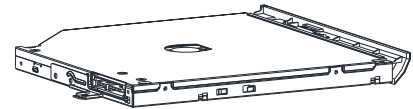
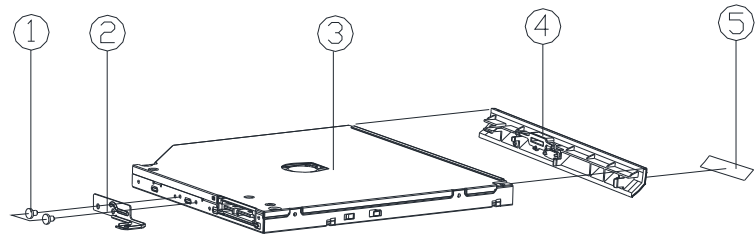


Figure A - 5
HDD

DVD DUAL

Figure A - 6
DVD DUAL



ITEM	PART NAME	PART NO	REMARK
1	NON-STEEL SCREW M2X3.0 KI NI ICT GTY-PATCH	6-35-B1120-3RE	
2	ODD BRACKET CSUS430 T=0.50MM W540EU	6-33-W540Z-010	
3	ODD BEZEL MODULE W945KU0	6-85-A088X-L03	FOR PLDS
3	ODD BEZEL MODULE W945KU0	6-85-A088X-T06	FOR TSST
3	ODD BEZEL MODULE W945KU0	6-85-A088X-P05	FOR PANASONIC
4	ODD BEZEL MODULE W945KU0	6-42-W945Z-101	
5	SUPER MULTI ODD BEZEL LABEL (SIZE CHANGE)	6-45-W8600-011	

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the **W945TUQ** 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, CRT - Page B - 14	1.5VS, 1.5V, VTT_MEM - Page B - 26
Processor 1/8 - Page B - 3	HDMI - Page B - 15	1.0V, 1.05VS, 1.24V - Page B - 27
Processor 2/8 - Page B - 4	LAN, Card Reader - Page B - 16	VCore - Page B - 28
Processor 3/8 - Page B - 5	Mini Card - Page B - 17	AC IN, Charger - Page B - 29
Processor 4/8 - Page B - 6	HDD, ODD, LED, LID - Page B - 18	Audio Board - Page B - 30
Processor 5/8 - Page B - 7	USB, Touch Panel - Page B - 19	TPM - Page B - 31
Processor 6/8 - Page B - 8	Conn, CCD, Fan, Click, TV - Page B - 20	SW Board - Page B - 32
Processor 7/8 - Page B - 9	Audio Codec - Page B - 21	Touch Panel Board - Page B - 33
Processor 8/8 - Page B - 10	KBC-ITE IT8587E - Page B - 22	Level Shifter 1 - Page B - 34
DDR3 SO-DIMM_0 - Page B - 11	AU6259 - Page B - 23	Level Shifter 2 - Page B - 35
DDR3 SO-DIMM_1 - Page B - 12	5VS, 3VS, 1.8VS, 1.0VS - Page B - 24	
RTD2136 - Page B - 13	VDD3, VDD5 - Page B - 25	

Table B - 1
**SCHEMATIC
DIAGRAMS**

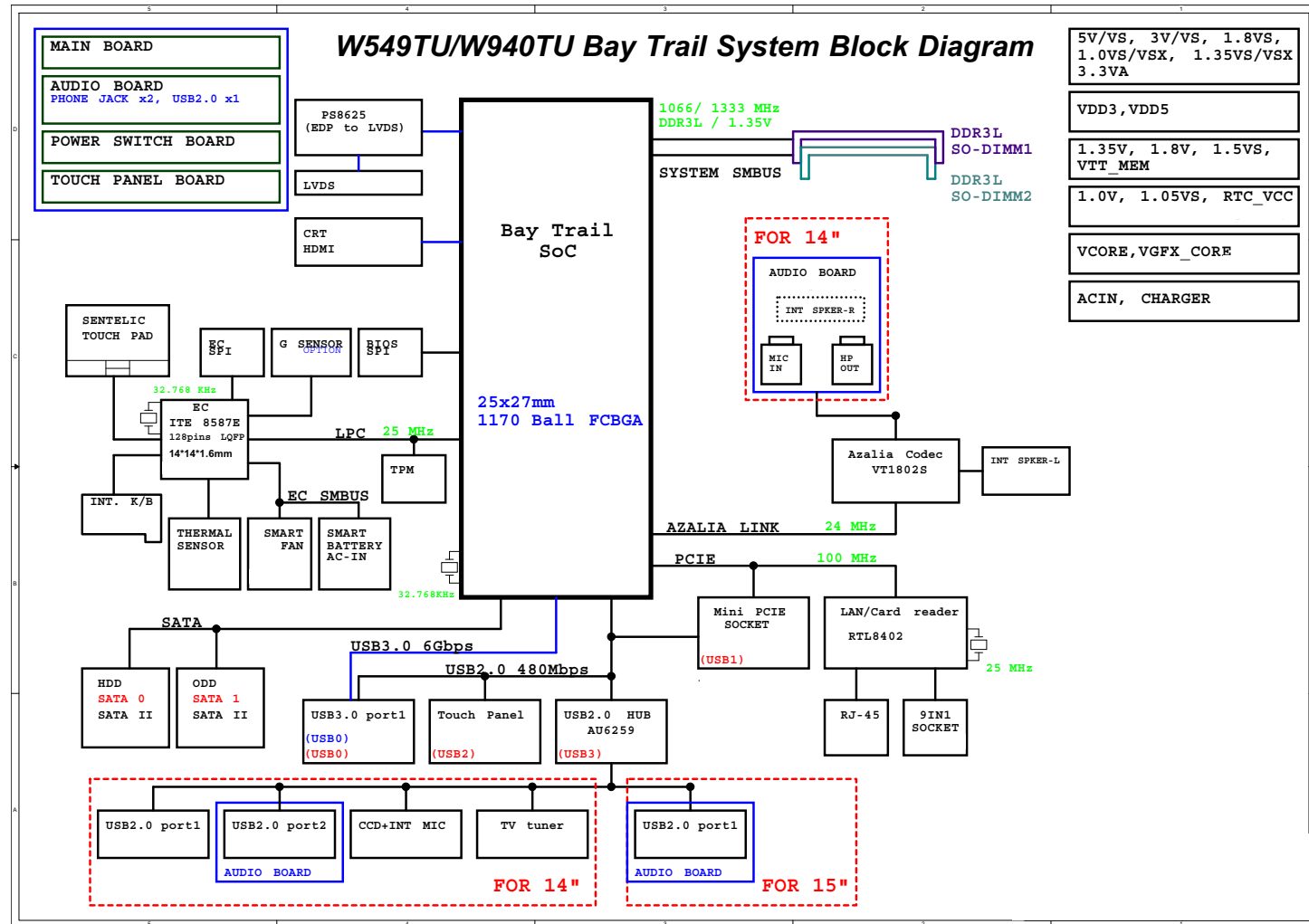


Version Note

The schematic diagrams in this chapter are based upon version 6-7P-W54T4-004. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

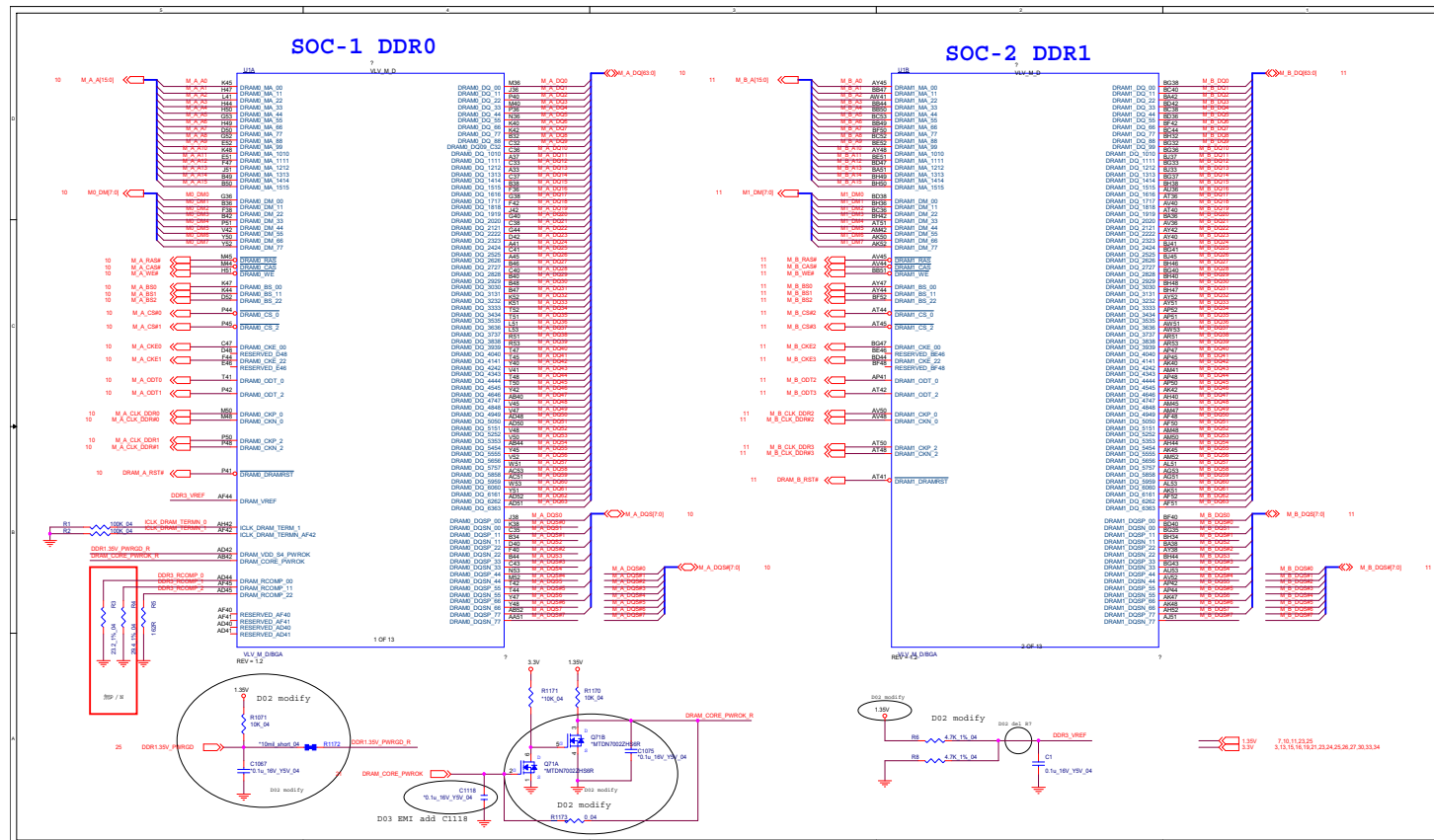
System Block Diagram

Sheet 1 of 34
System Block
Diagram



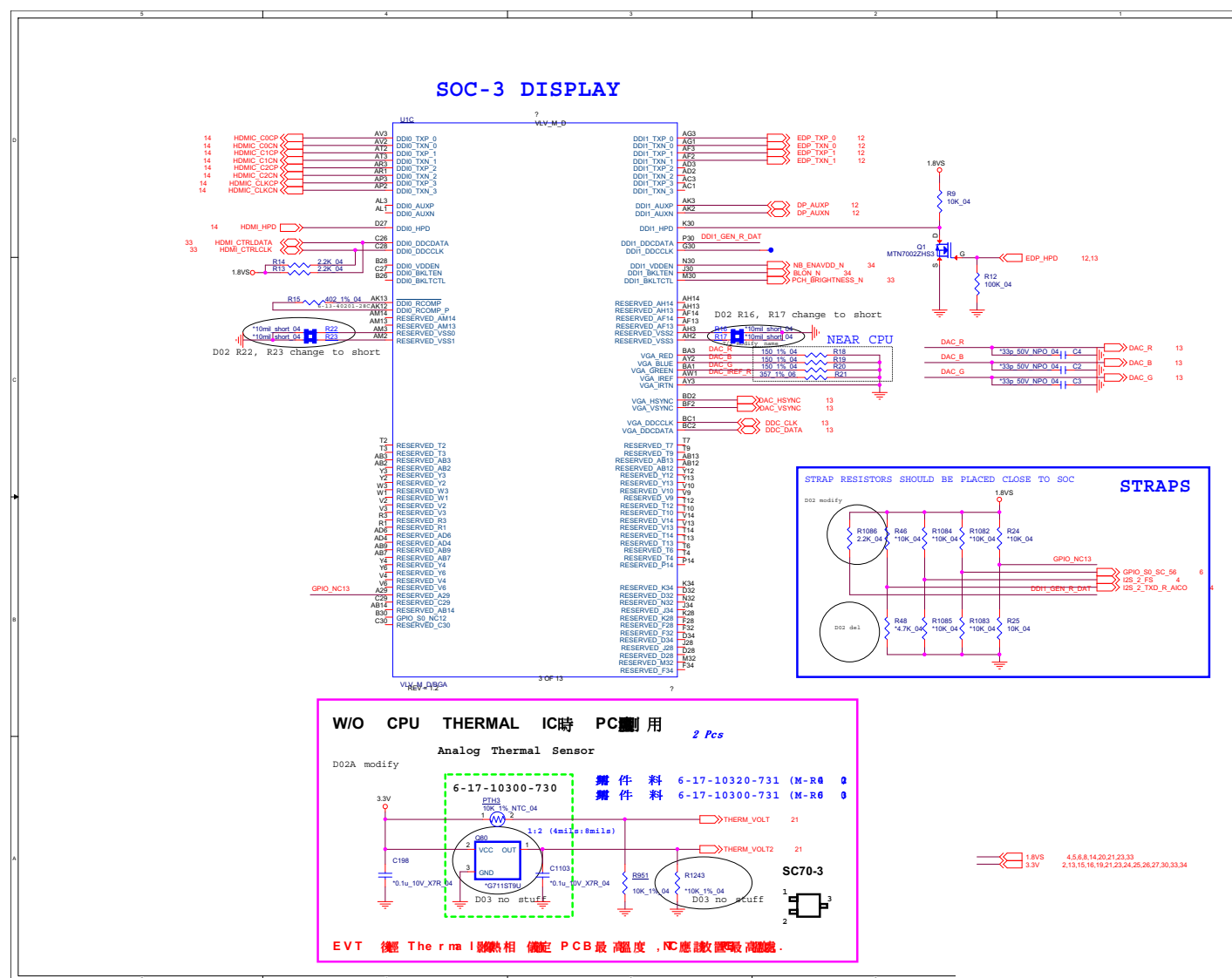
Processor 1/8 B - 3

B.Schematic Diagrams



Sheet 2 of 34
Processor 1/8

Sheet 3 of 34
Processor 2/8



Processor 3/8 B - 5

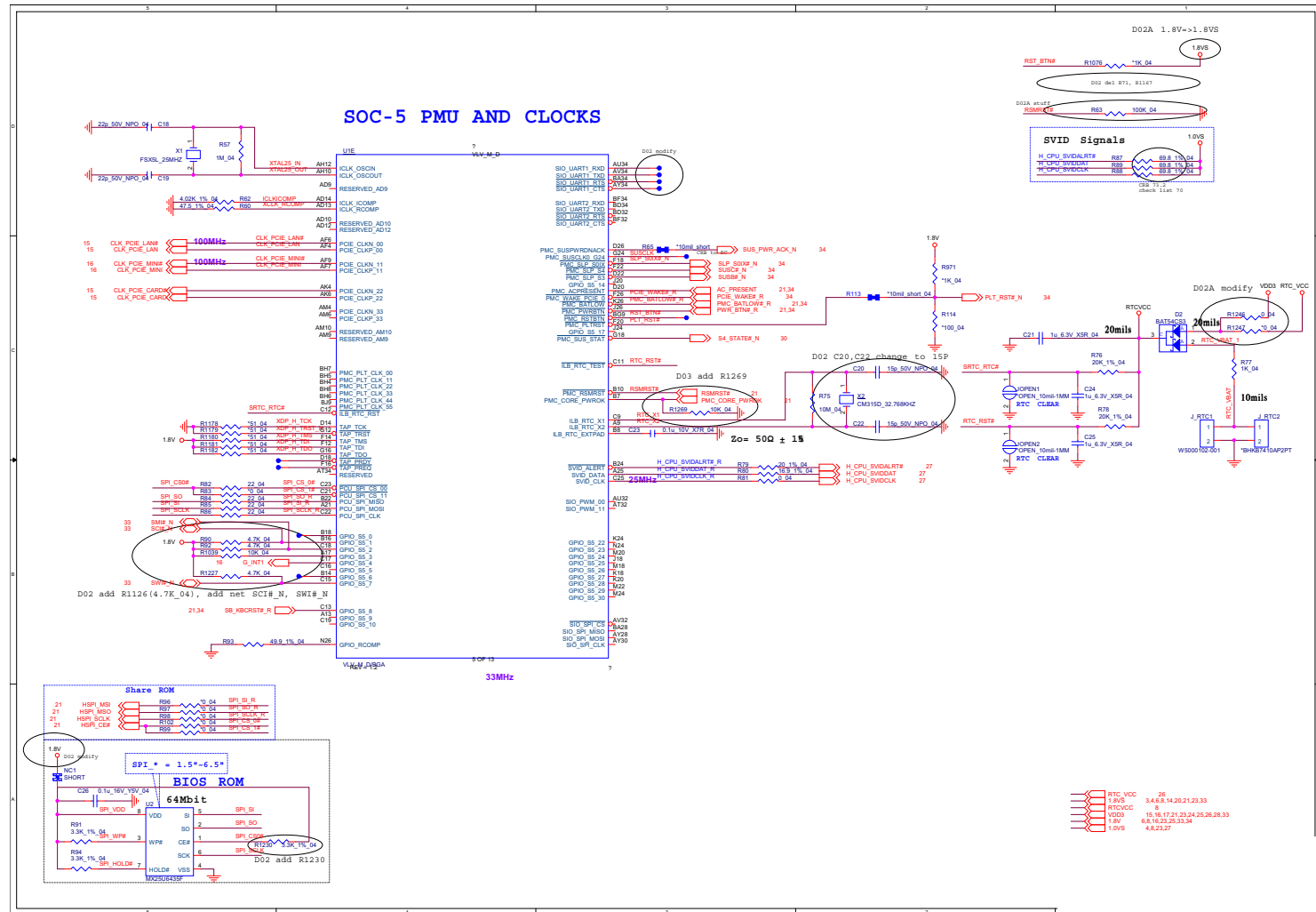
Processor 3/8 B - 5



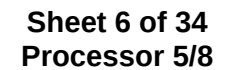
Schematic Diagrams

Processor 4/8

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Processor 4/8

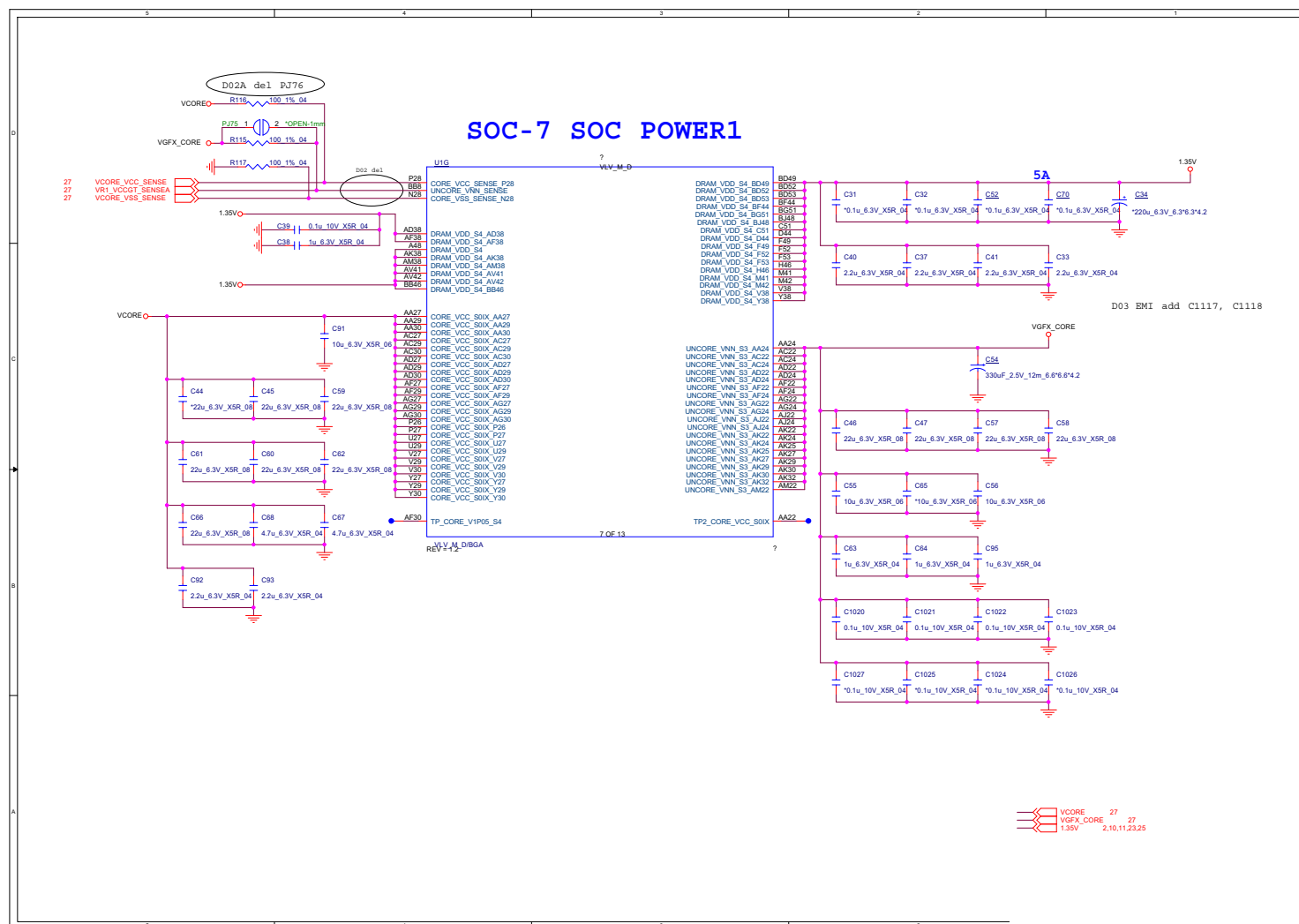


Processor 5/8 B - 7

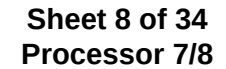


Processor 6/8

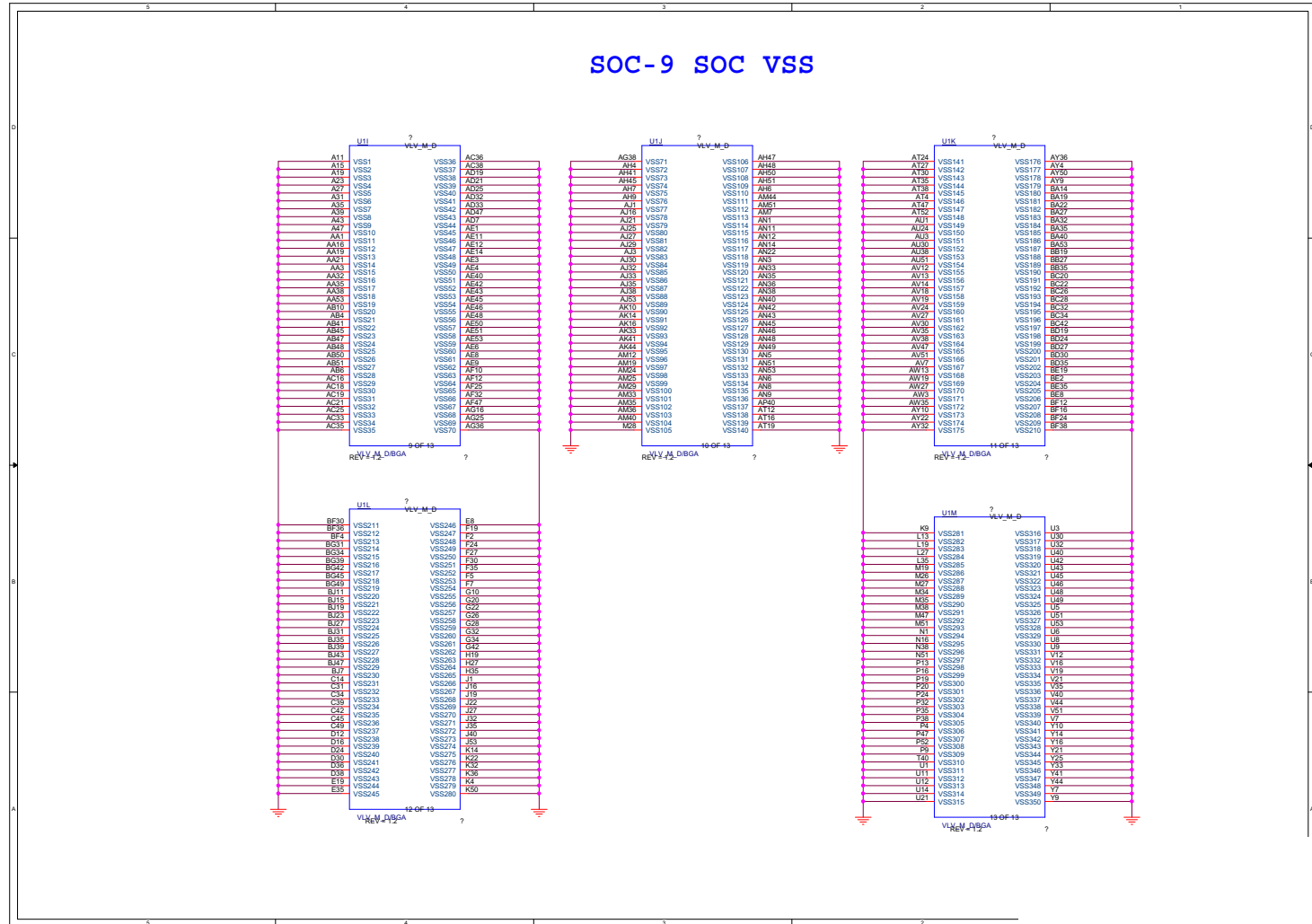
Sheet 7 of 34
Processor 6/8



B.Schematic Diagrams

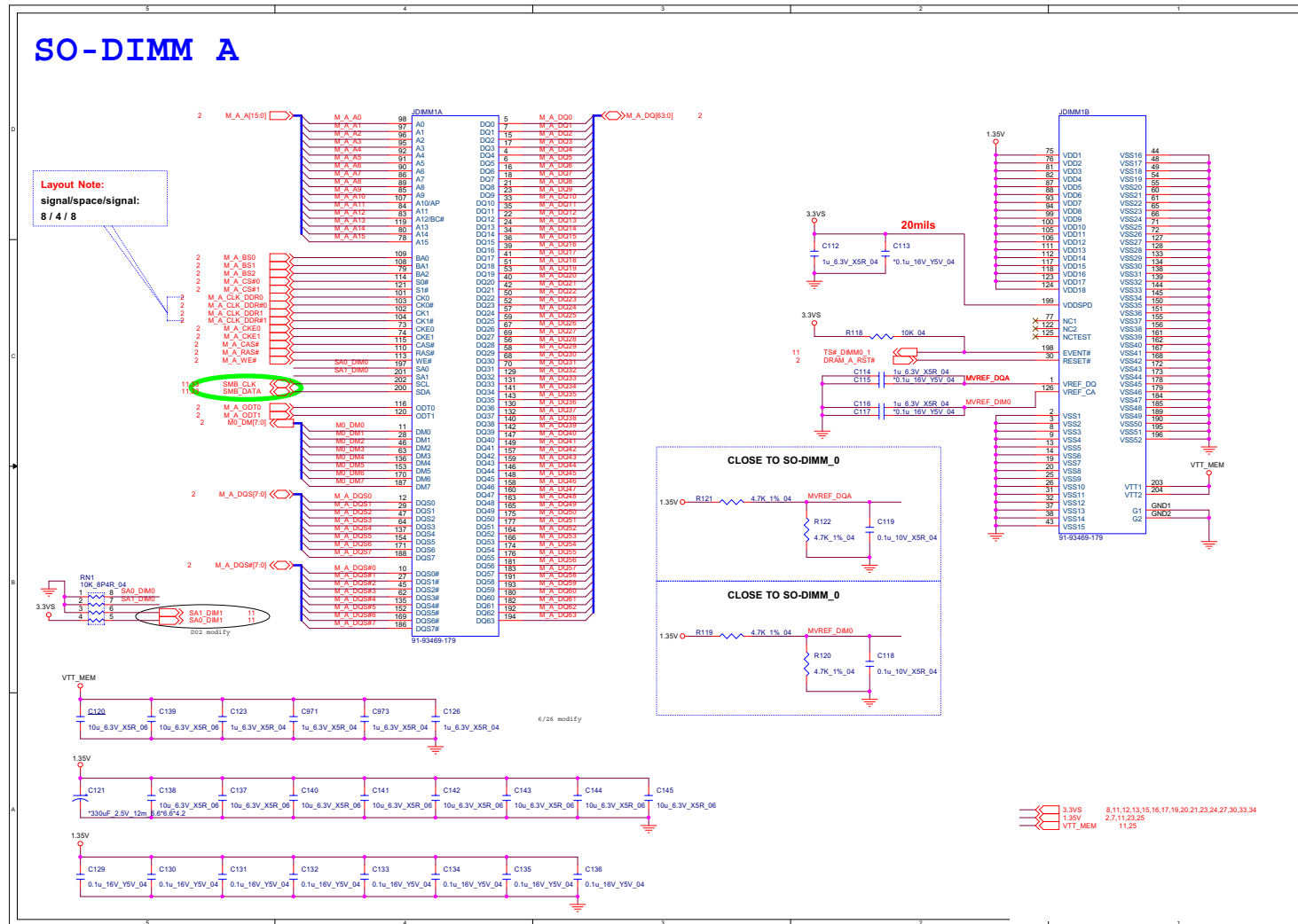


Processor 8/8

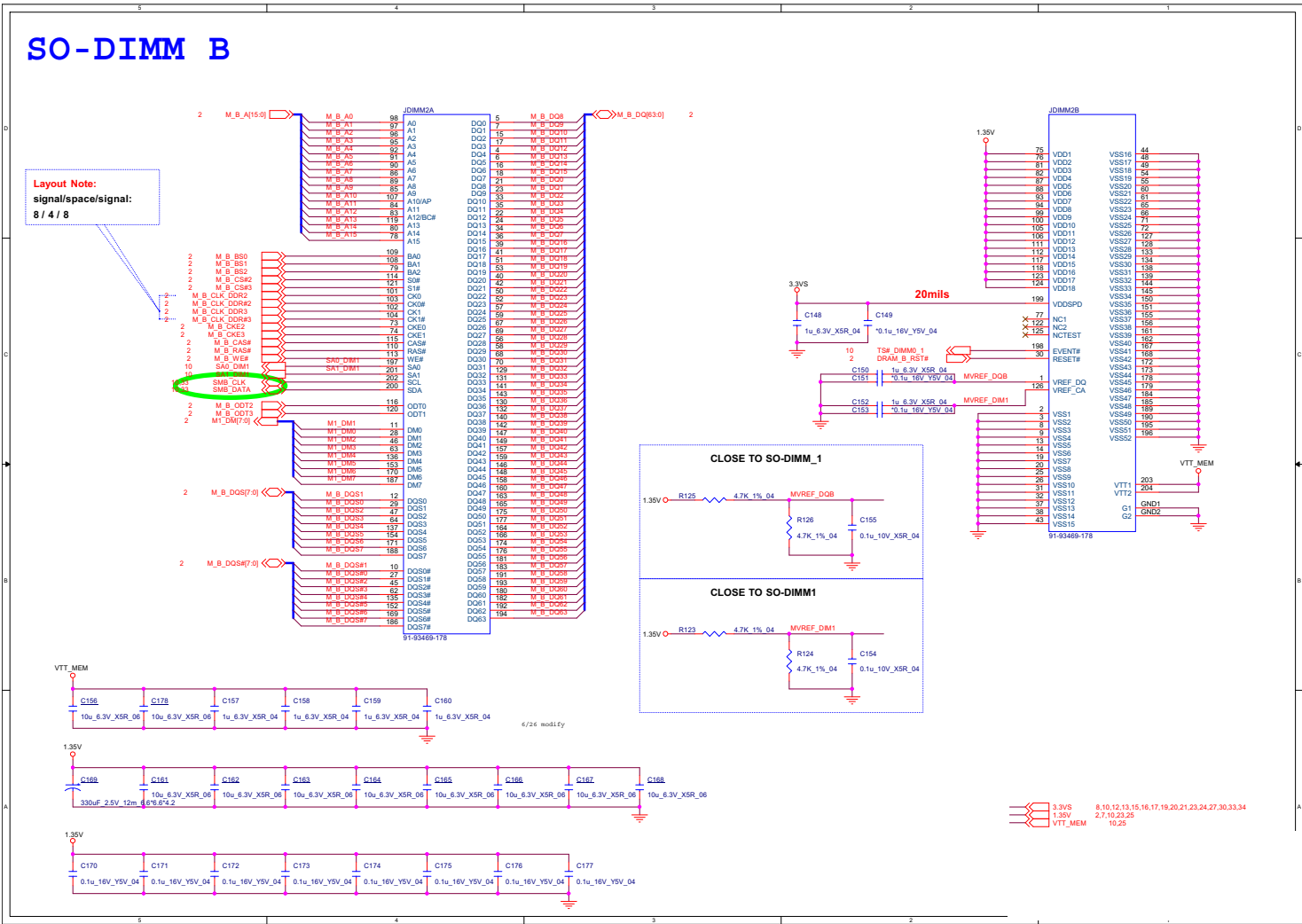


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Processor 8/8

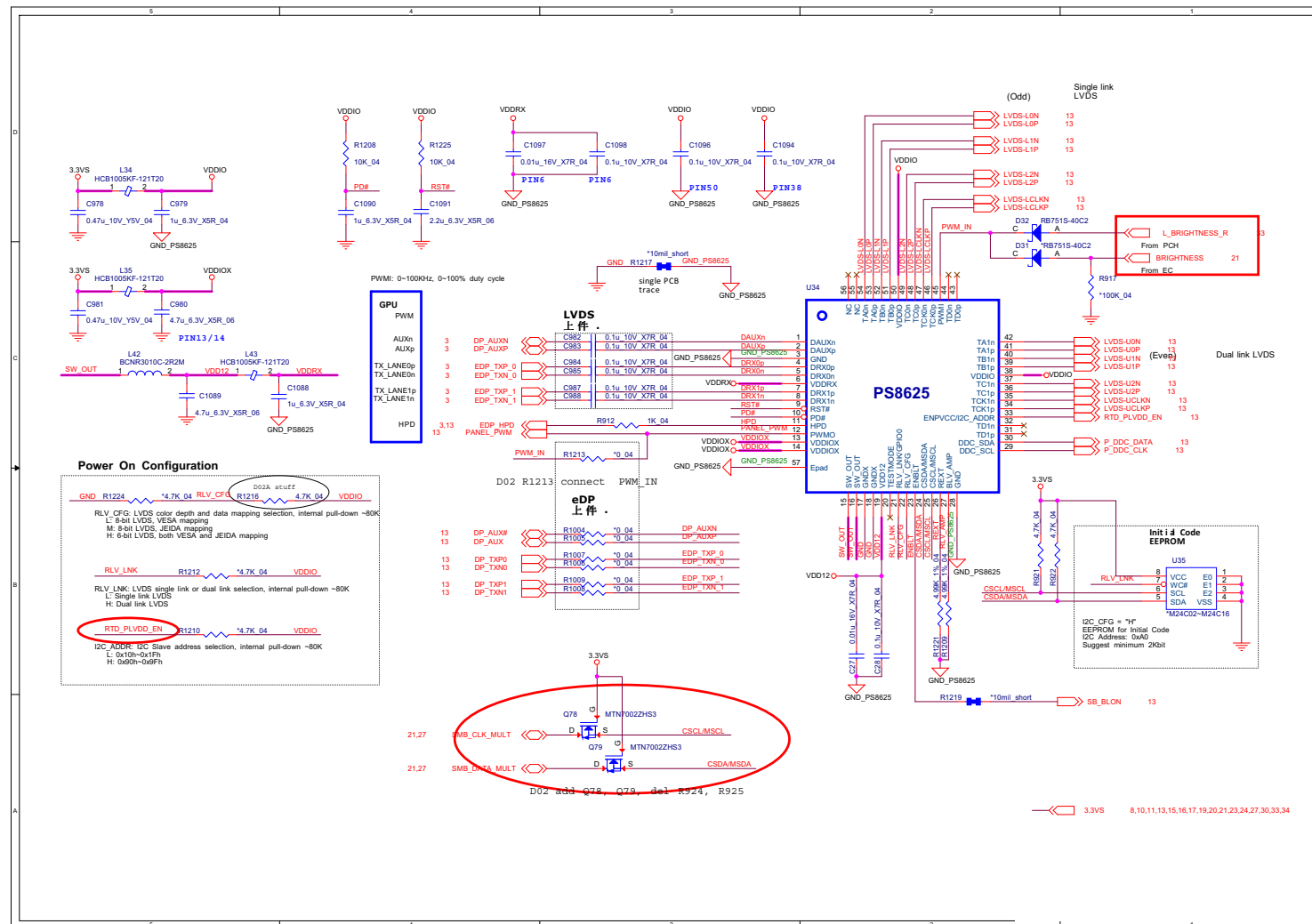
DDR3 SO-DIMM_0



DDR3 SO-DIMM_1



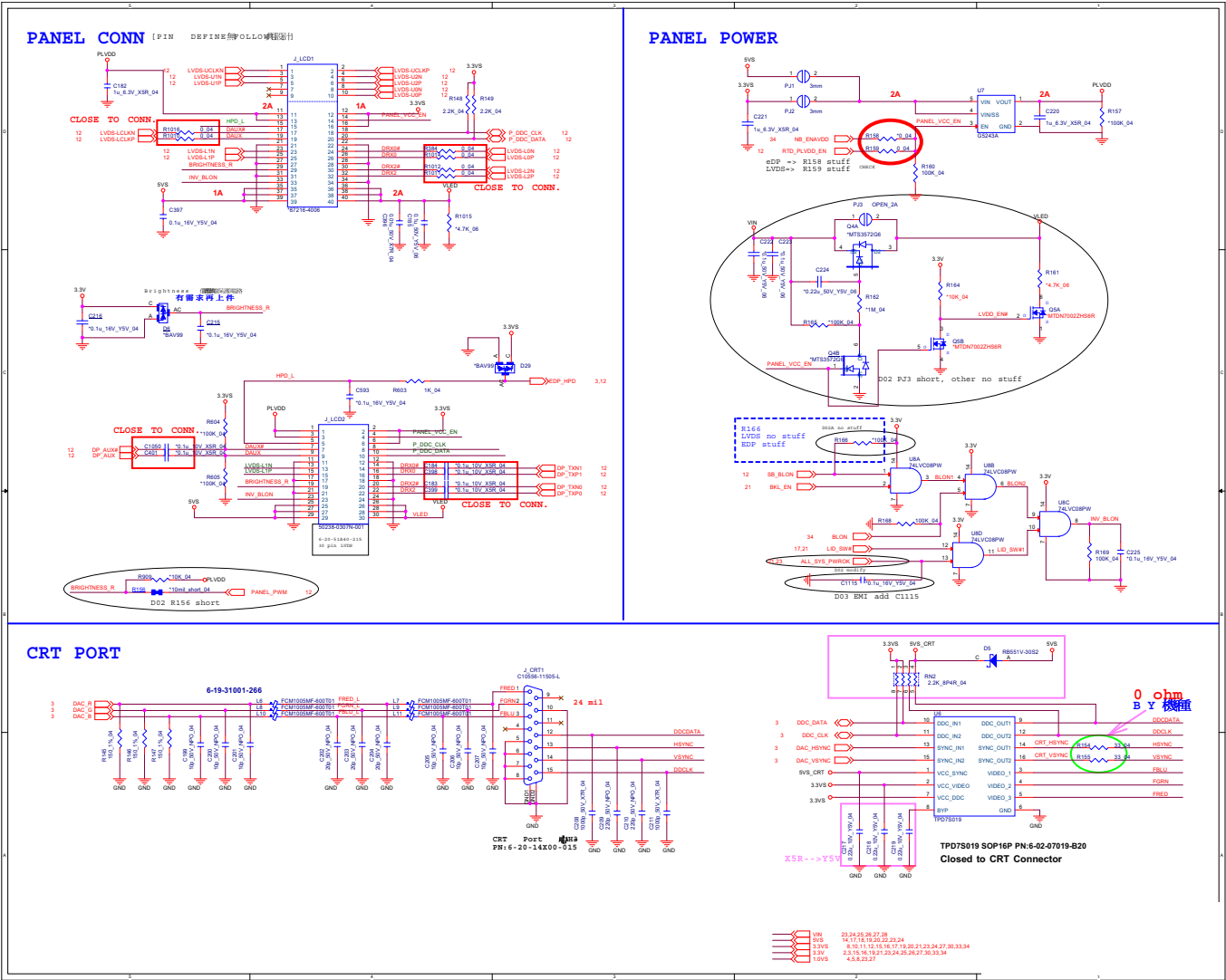
RTD2136



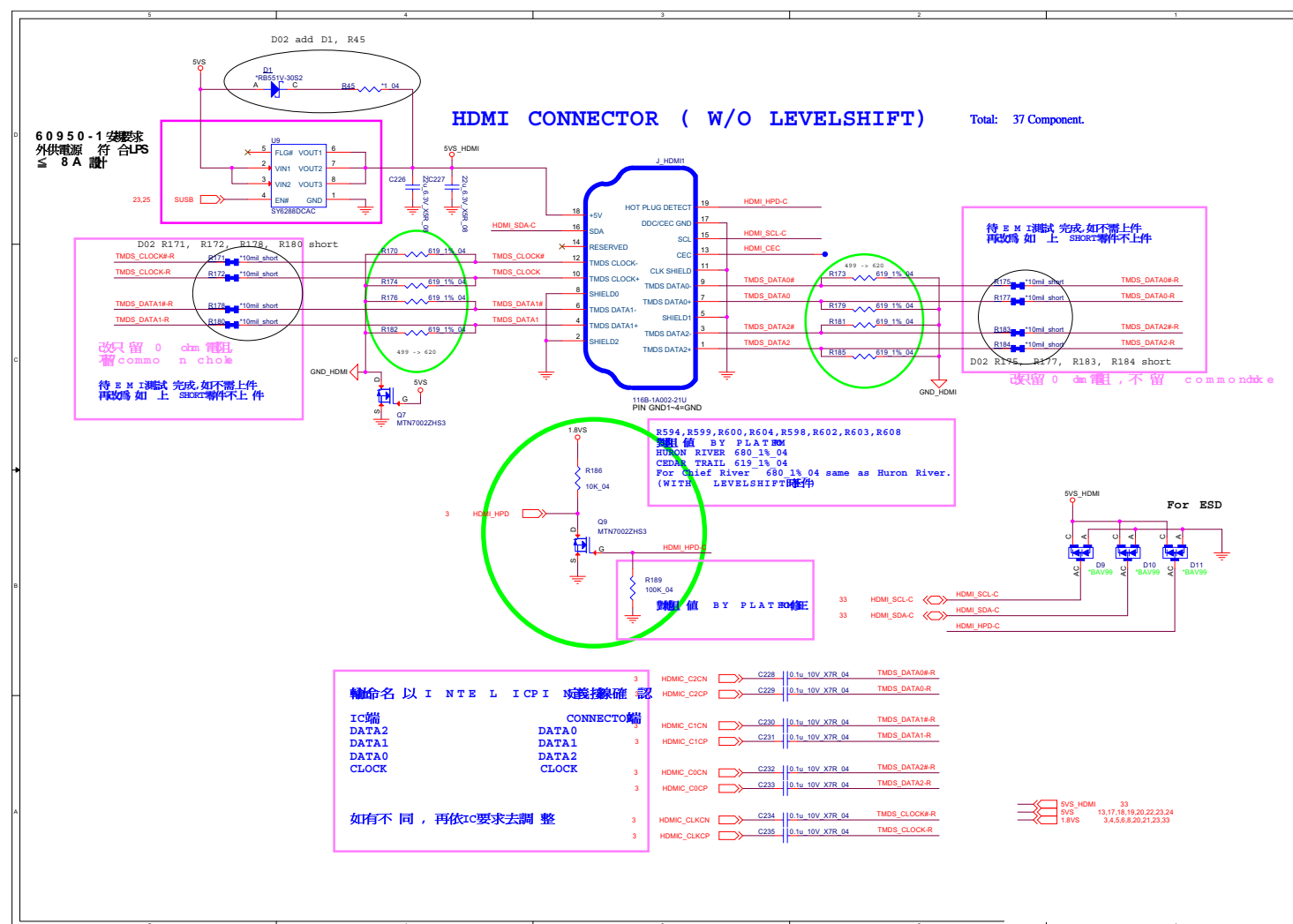
Schematic Diagrams

Panel, CRT

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Panel, CRT



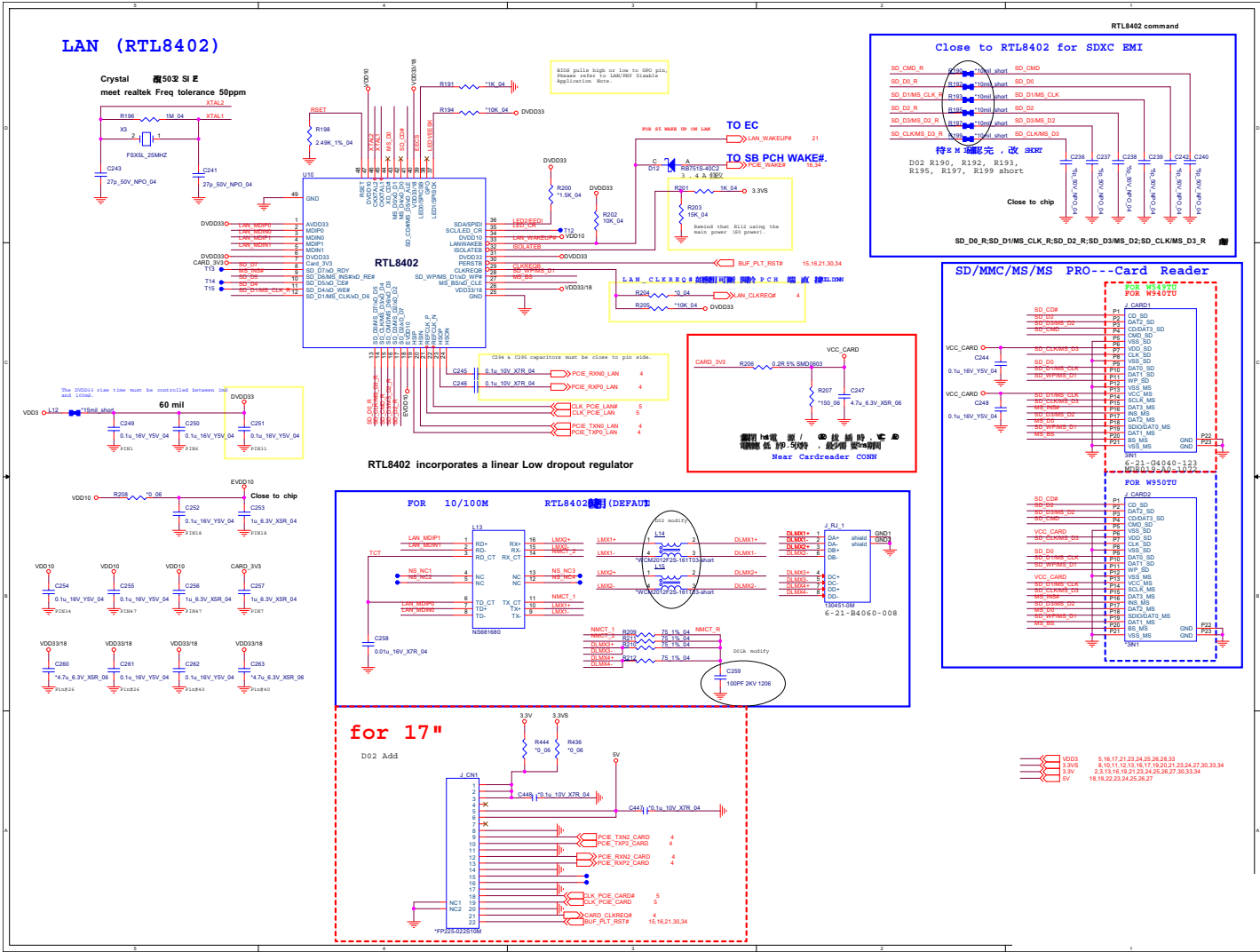
HDMI

Sheet 14 of 34
HDMI

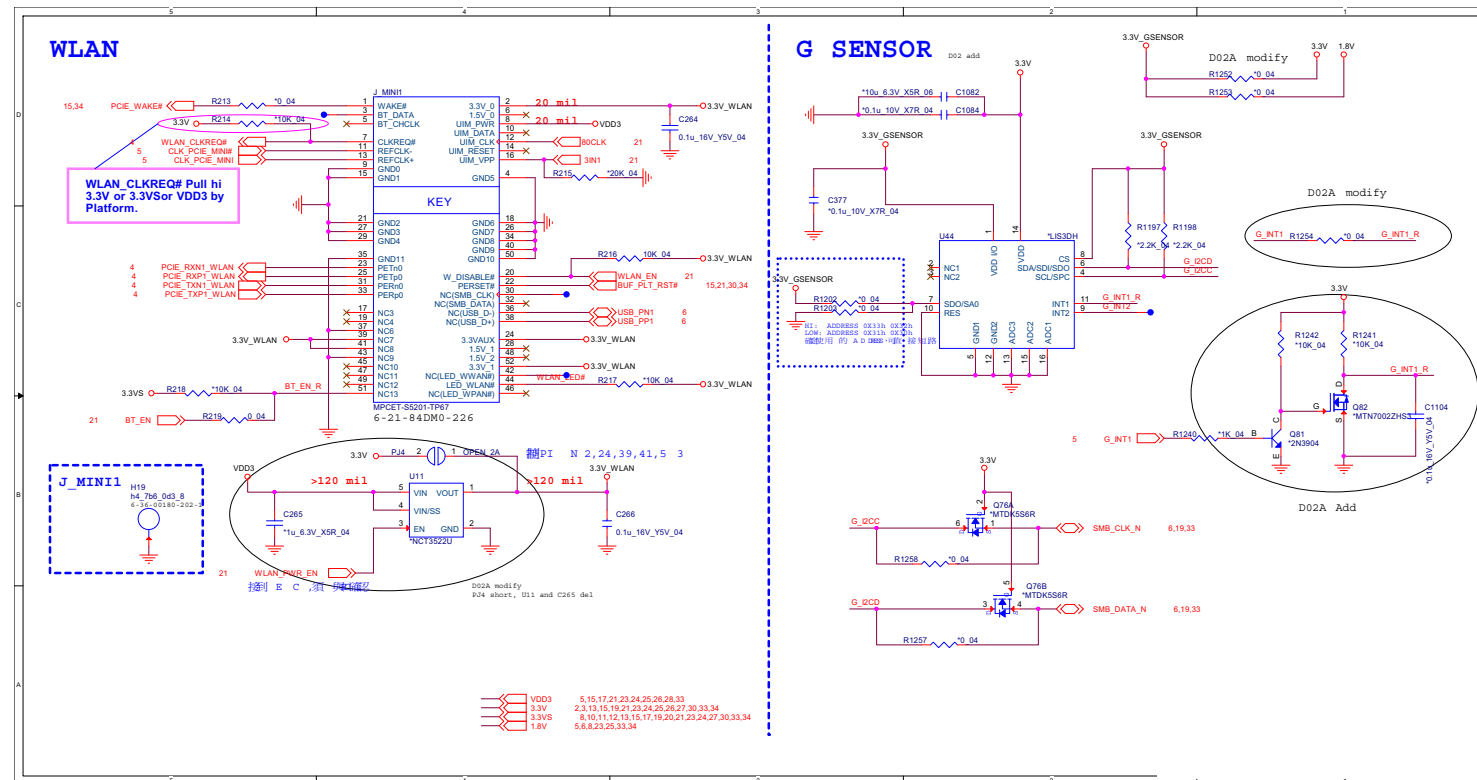
LAN, Card Reader

B. Schematic Diagrams

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LAN, Card Reader



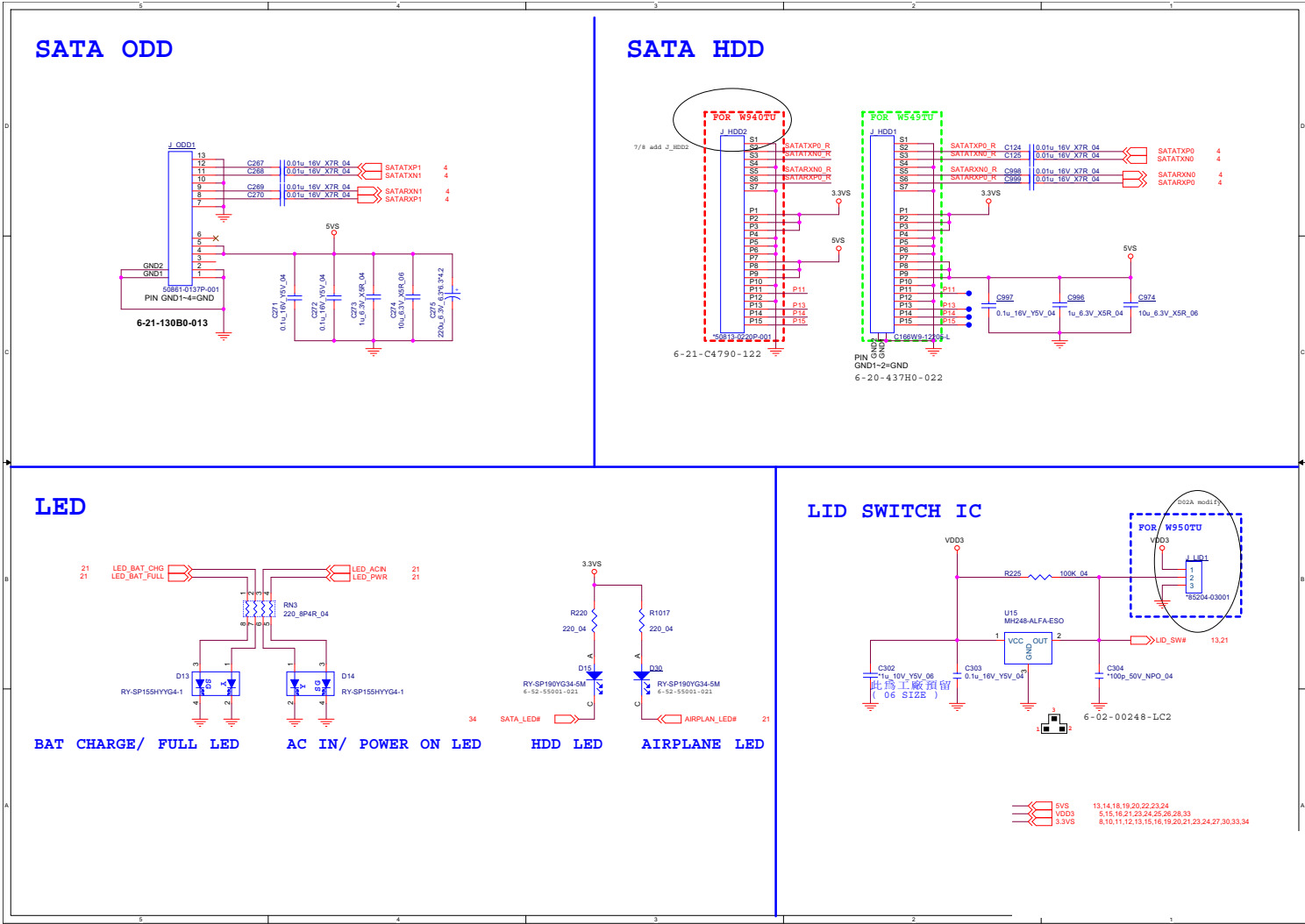
Mini Card

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Mini Card

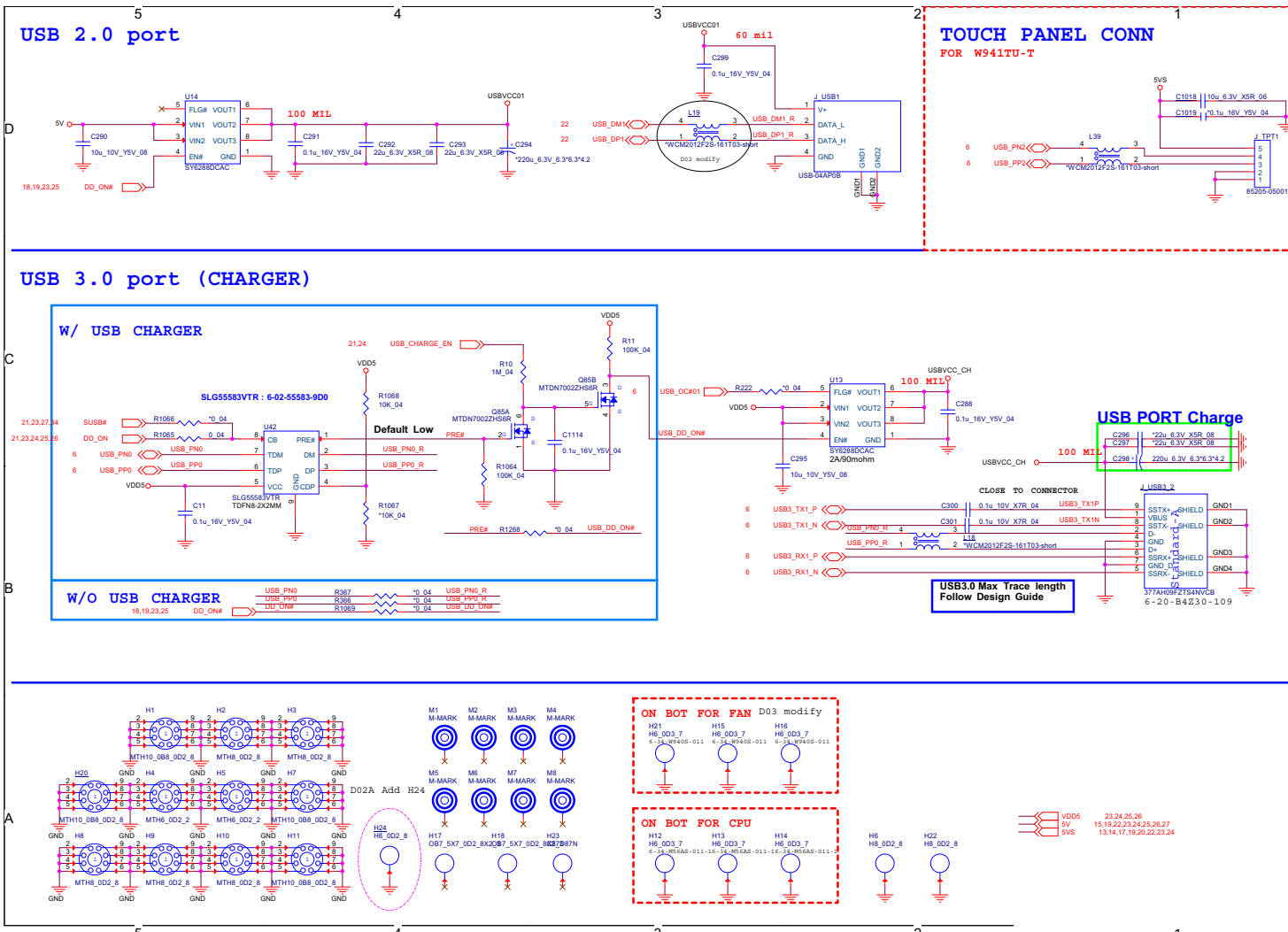
Schematic Diagrams

HDD, ODD, LED, LID

Sheet 17 of 34
HDD, ODD, LED,
LID



USB, Touch Panel

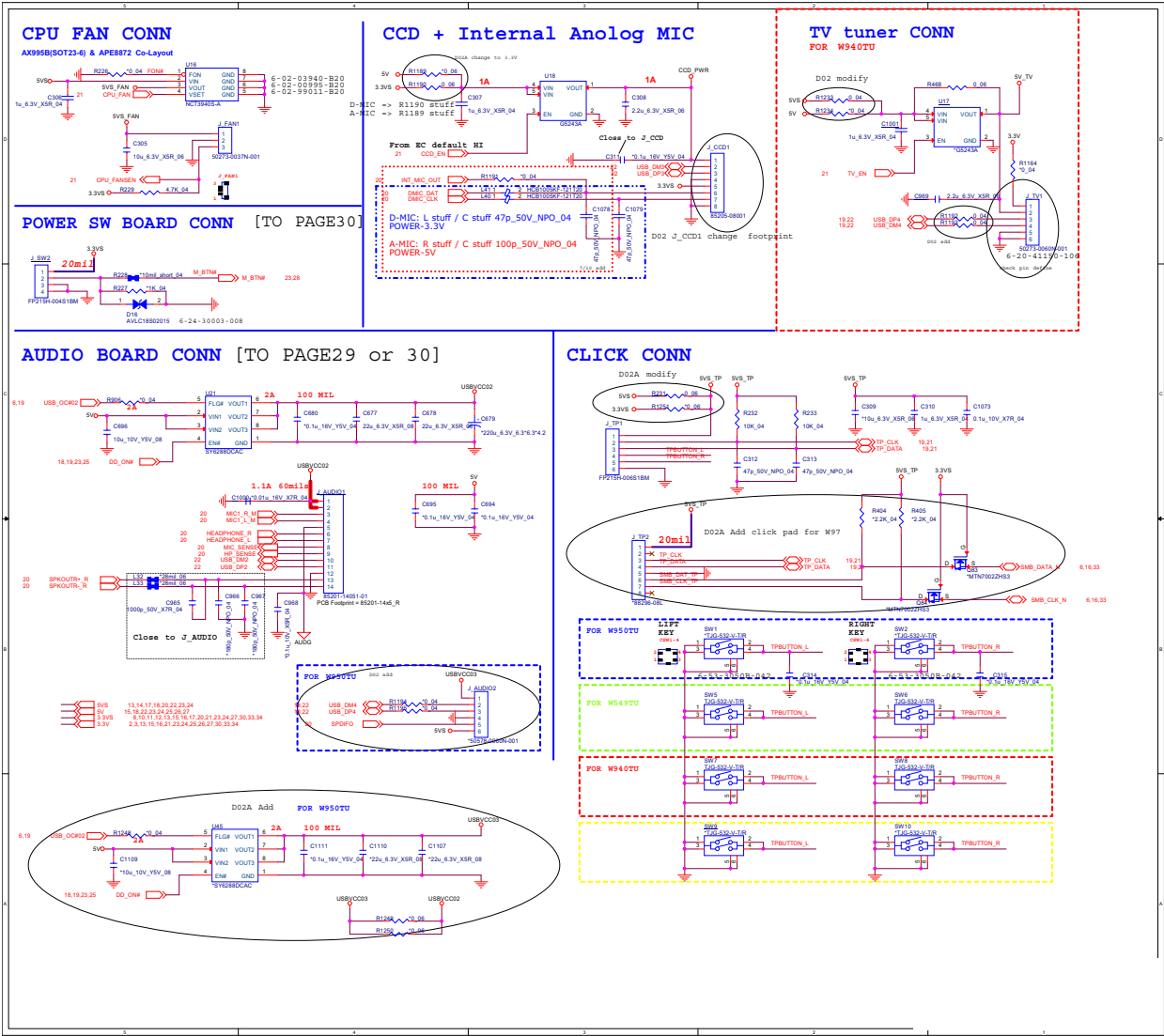


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USB, Touch Panel

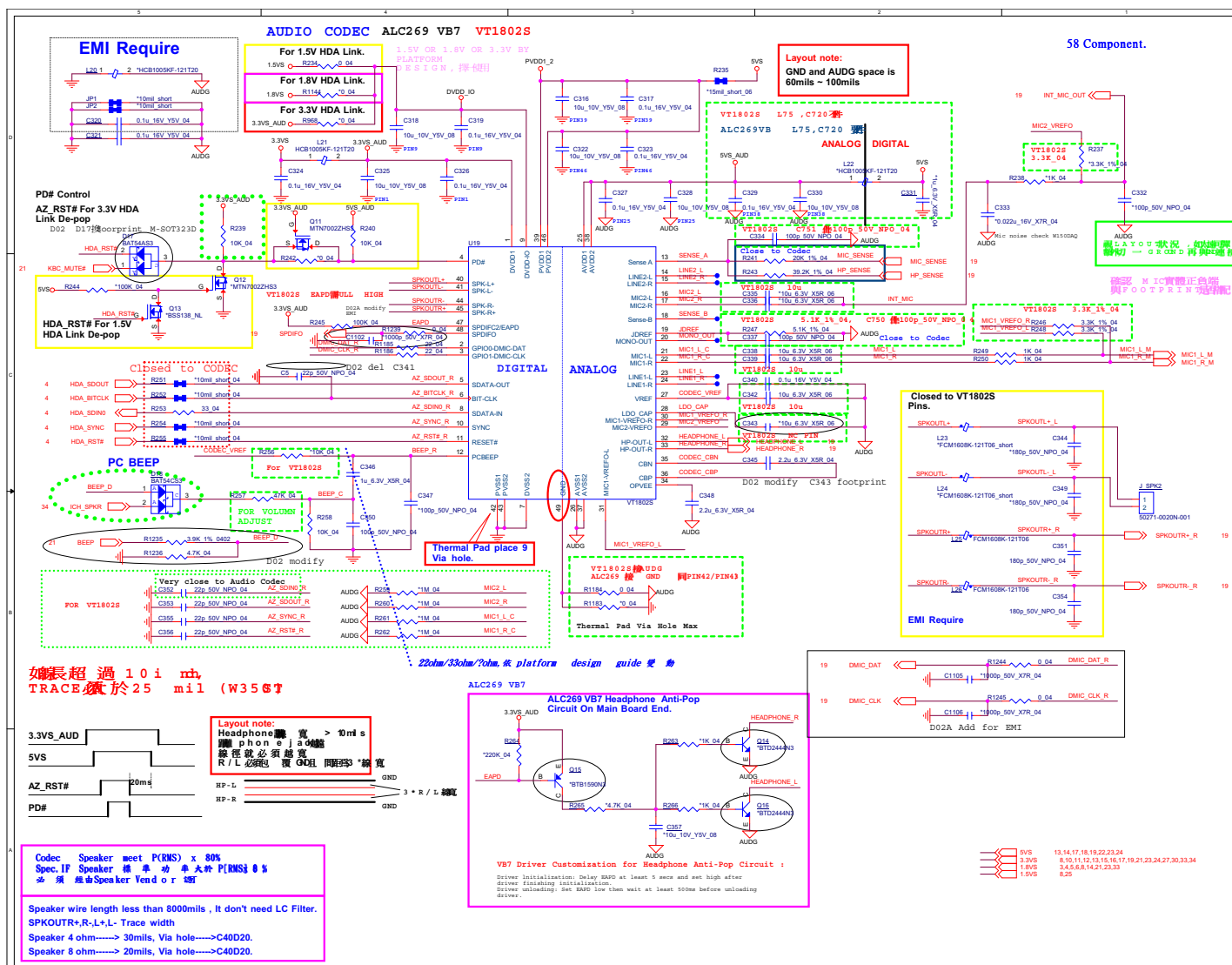
Schematic Diagrams

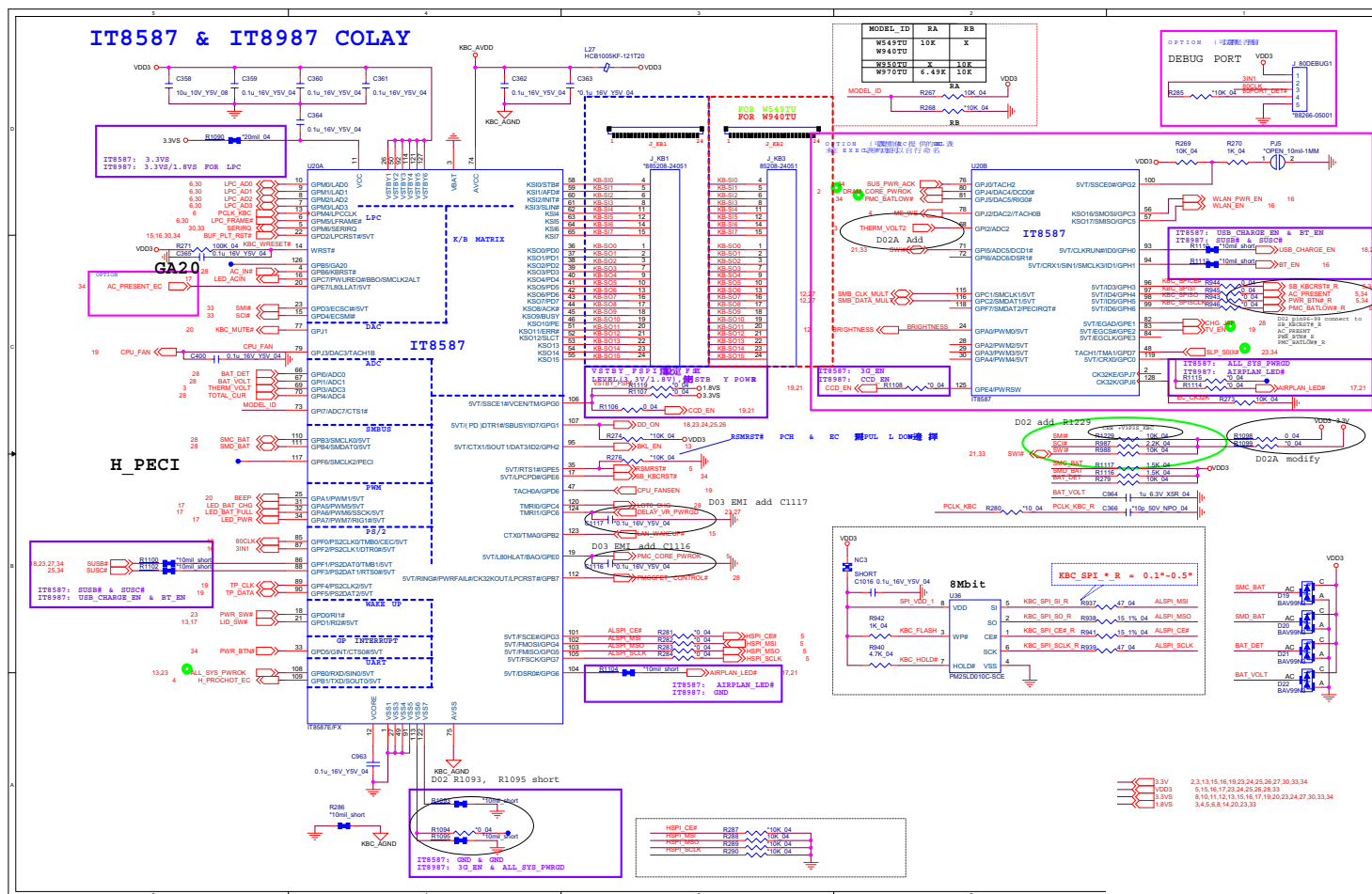
Conn, CCD, Fan, Click, TV

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Conn, CCD, Fan,
Click, TV

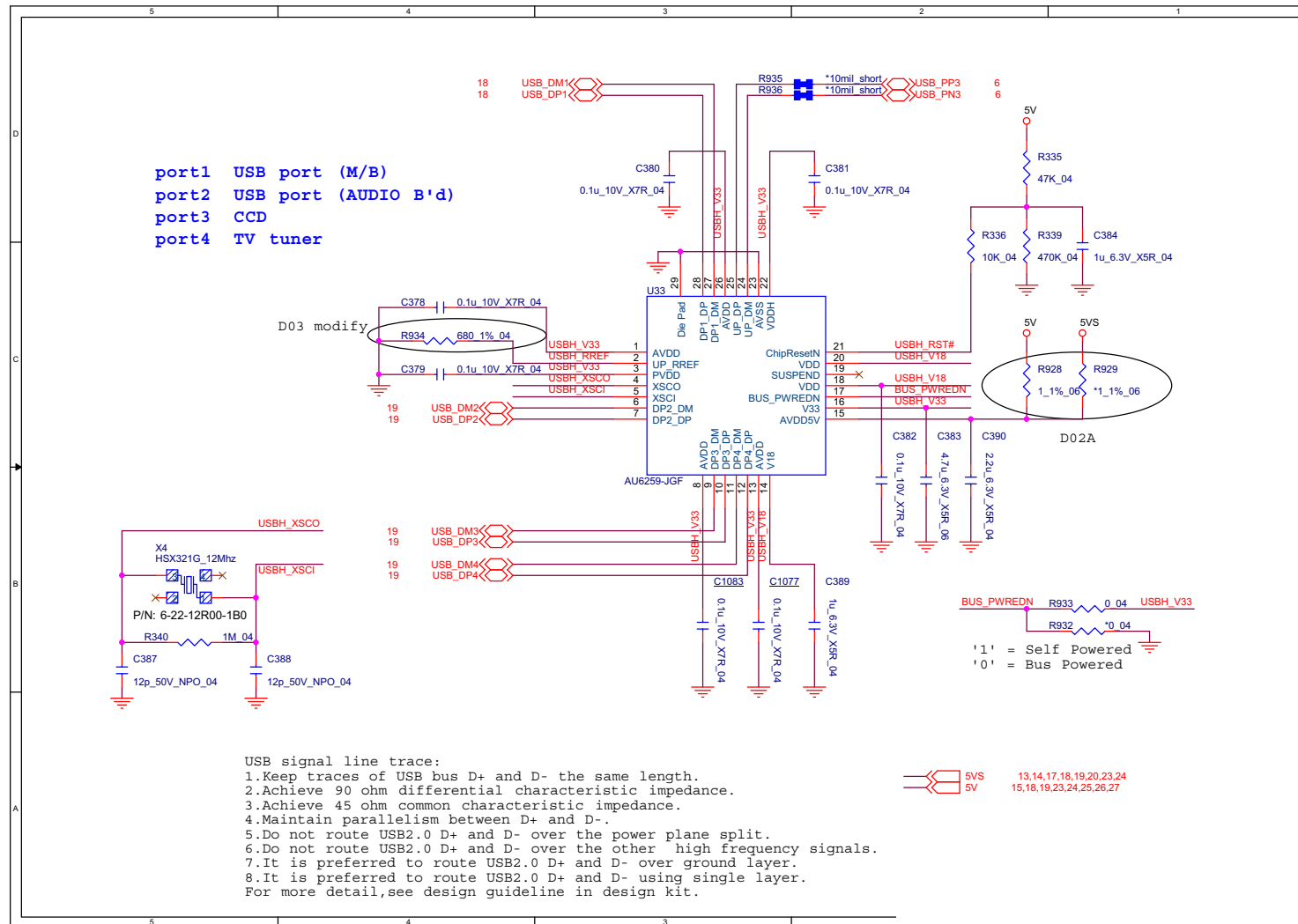


Audio Codec B - 21



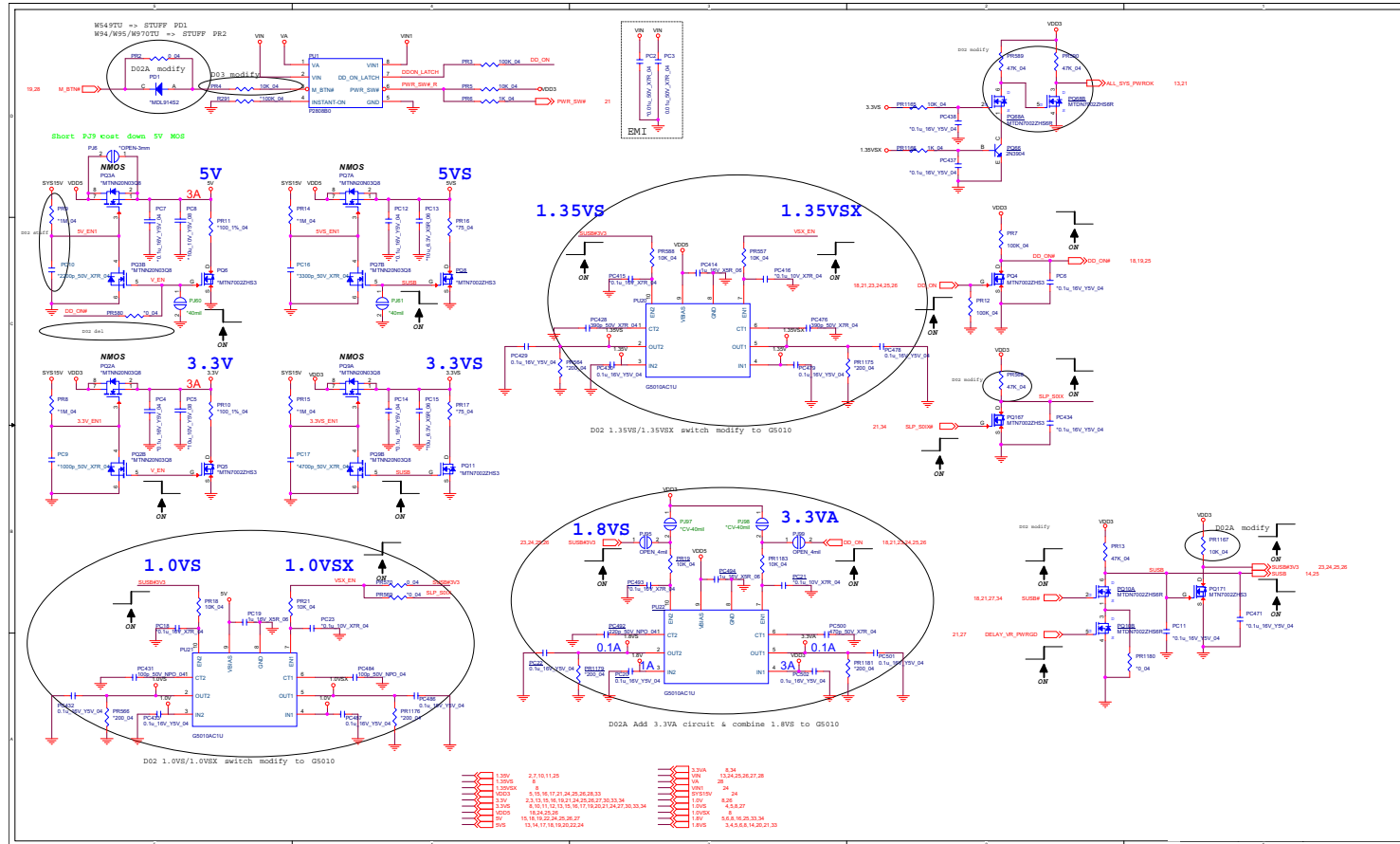


AU6259 B - 23

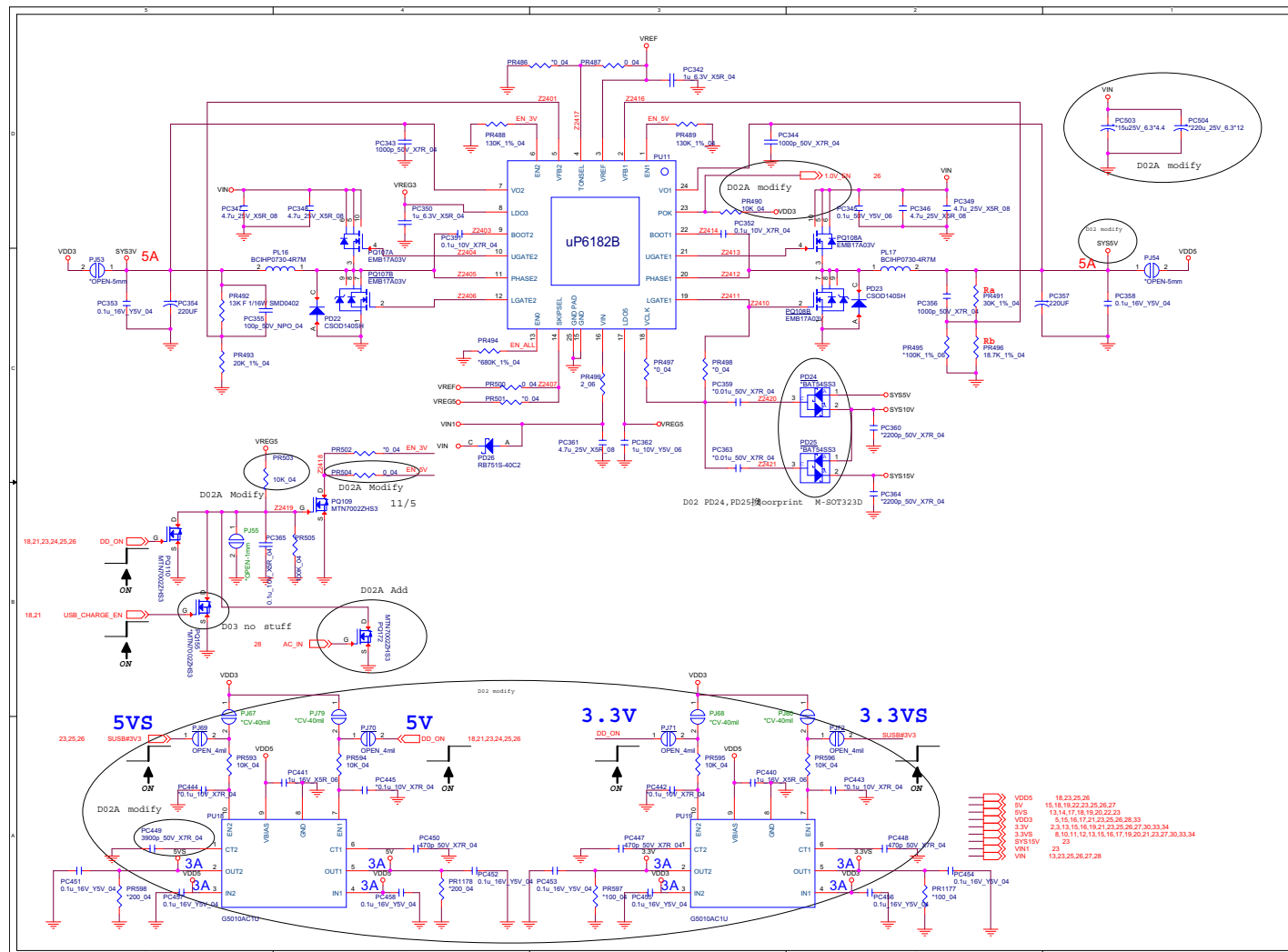


Schematic Diagrams

5VS, 3VS, 1.8VS, 1.0VS

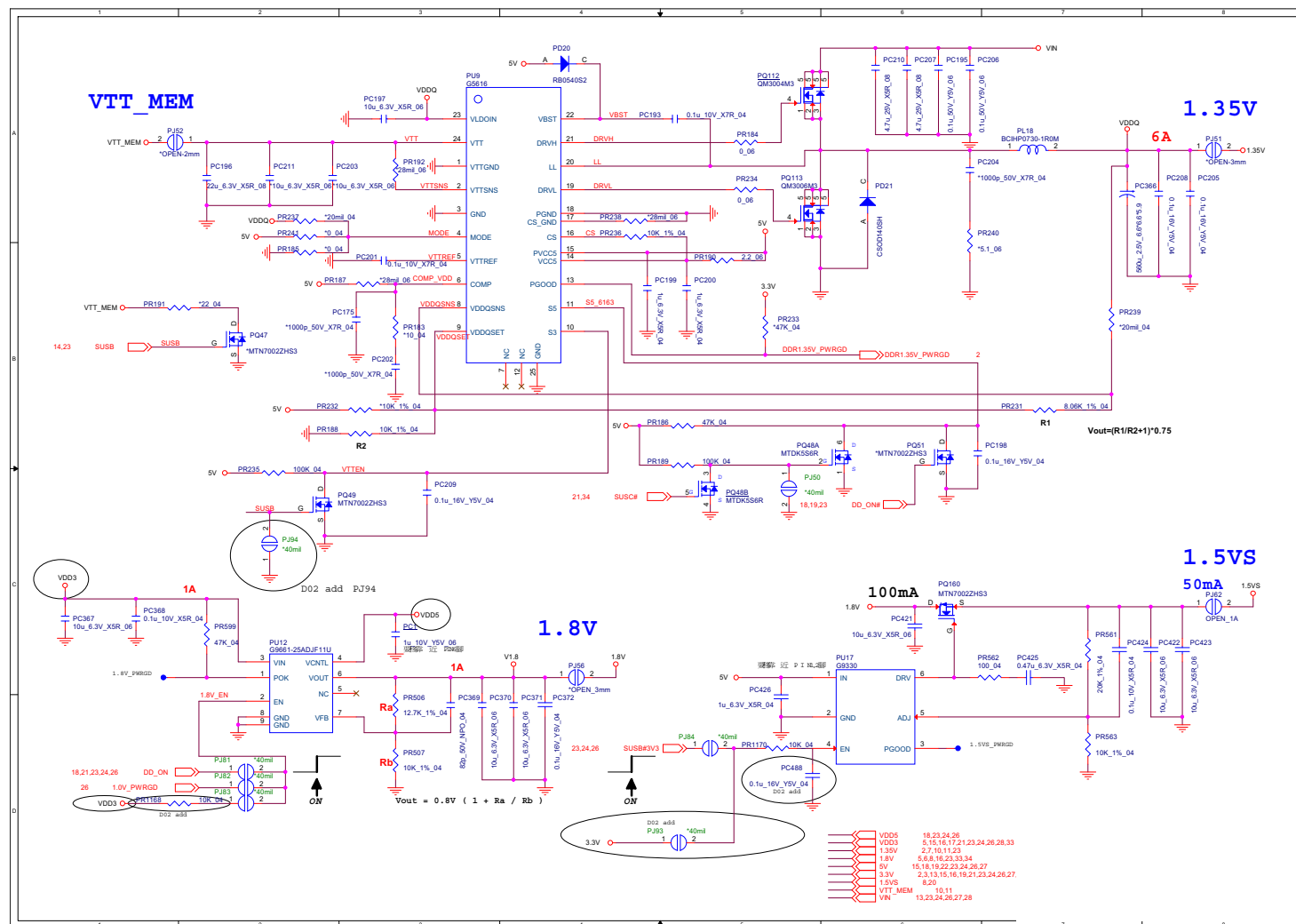


VDD3, VDD5 B - 25



1.5VS, 1.5V, VTT_MEM

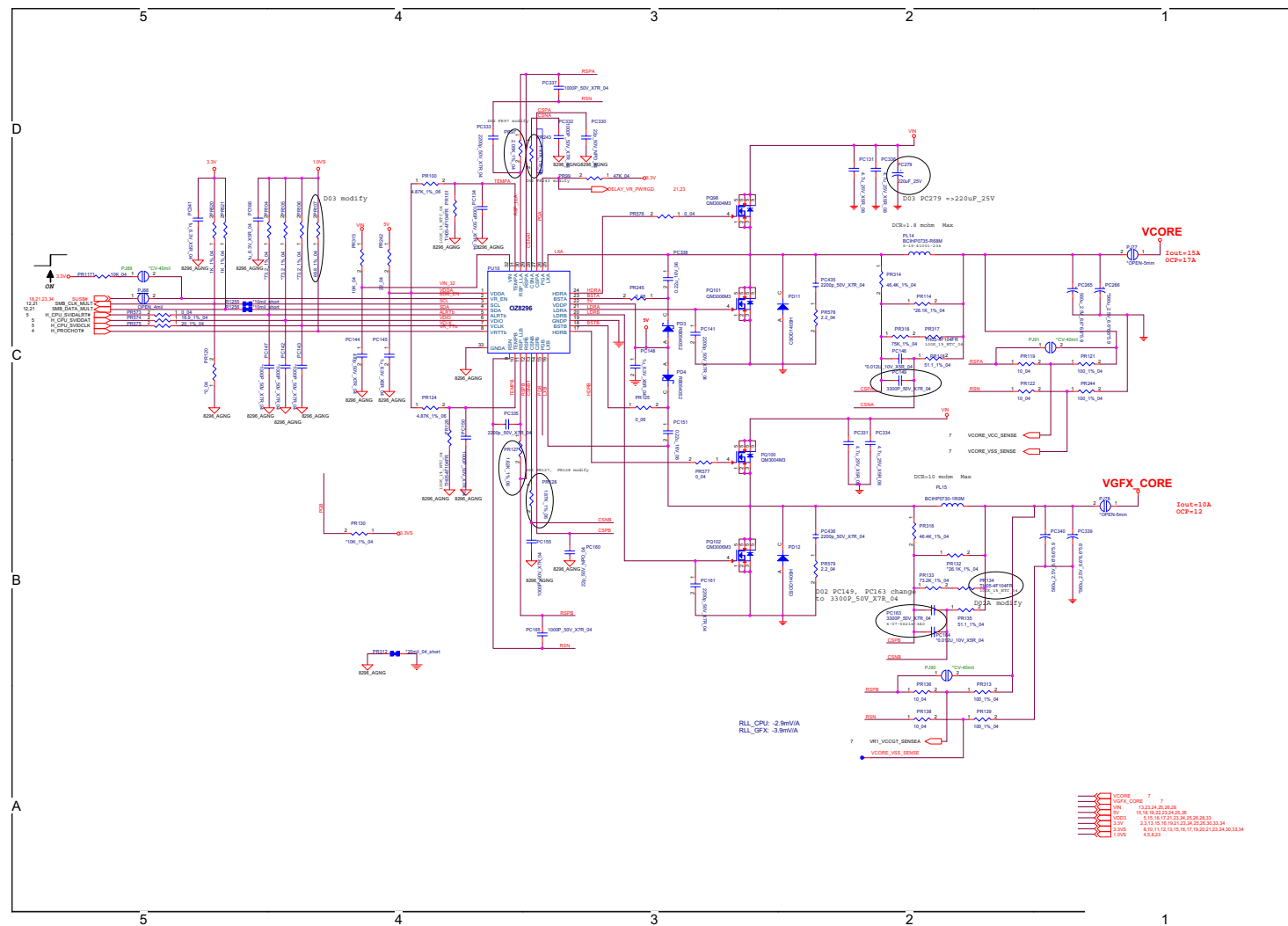
Sheet 25 of 34
1.5VS, 1.5V,
VTT_MEM



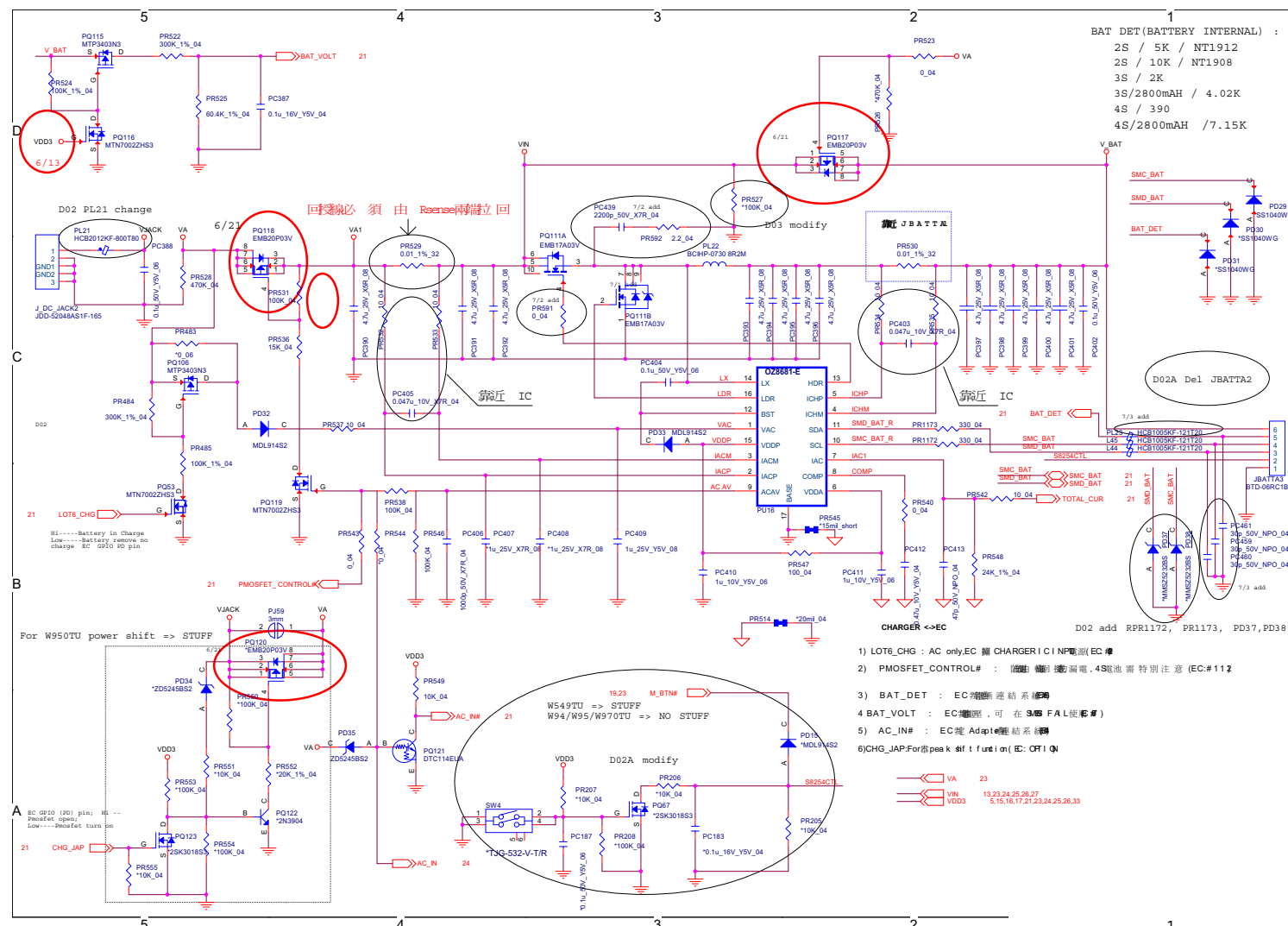
1.0V, 1.05VS, 1.24V B - 27

VCore

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VCore



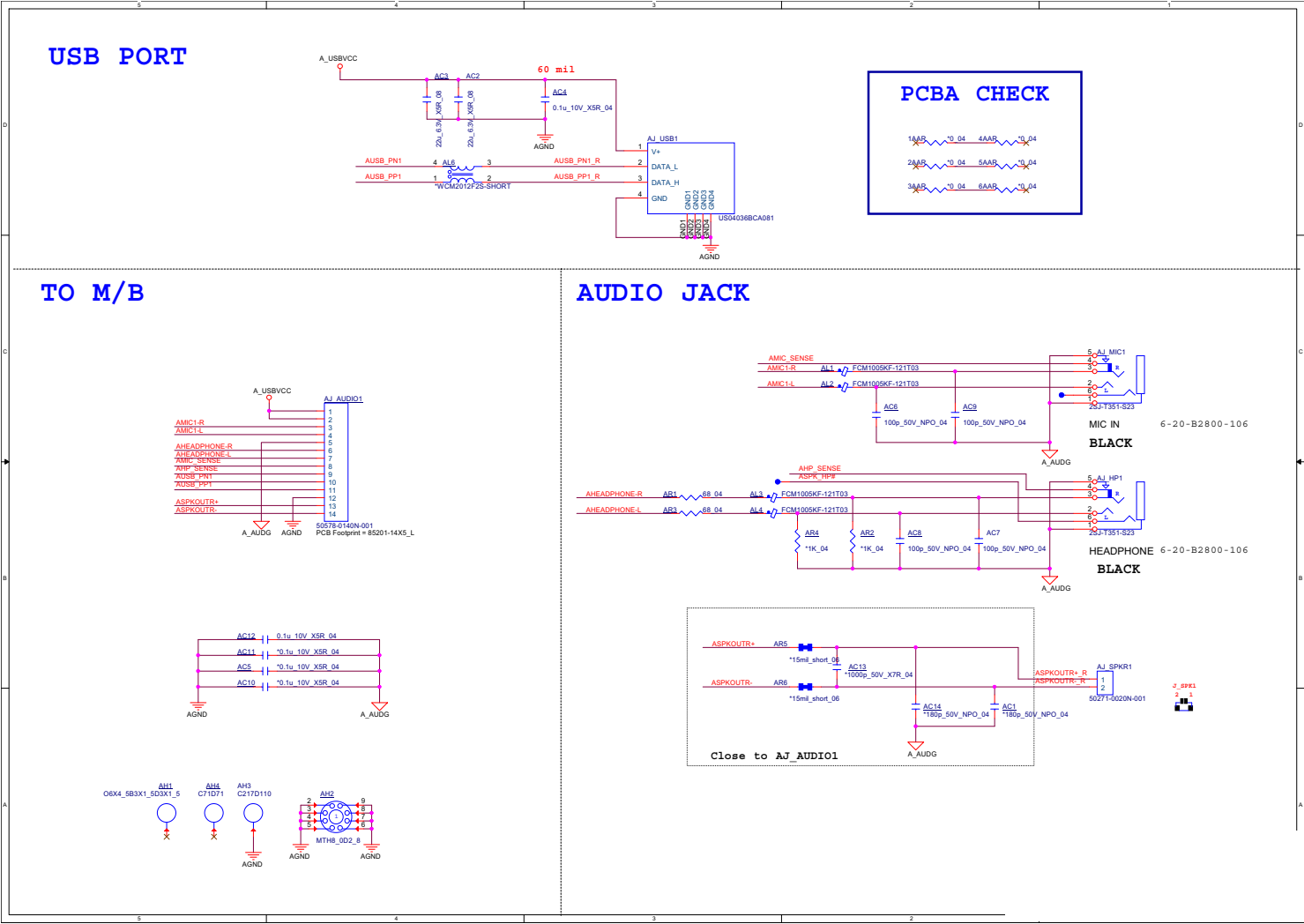
AC IN, Charger

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AC In, Charger

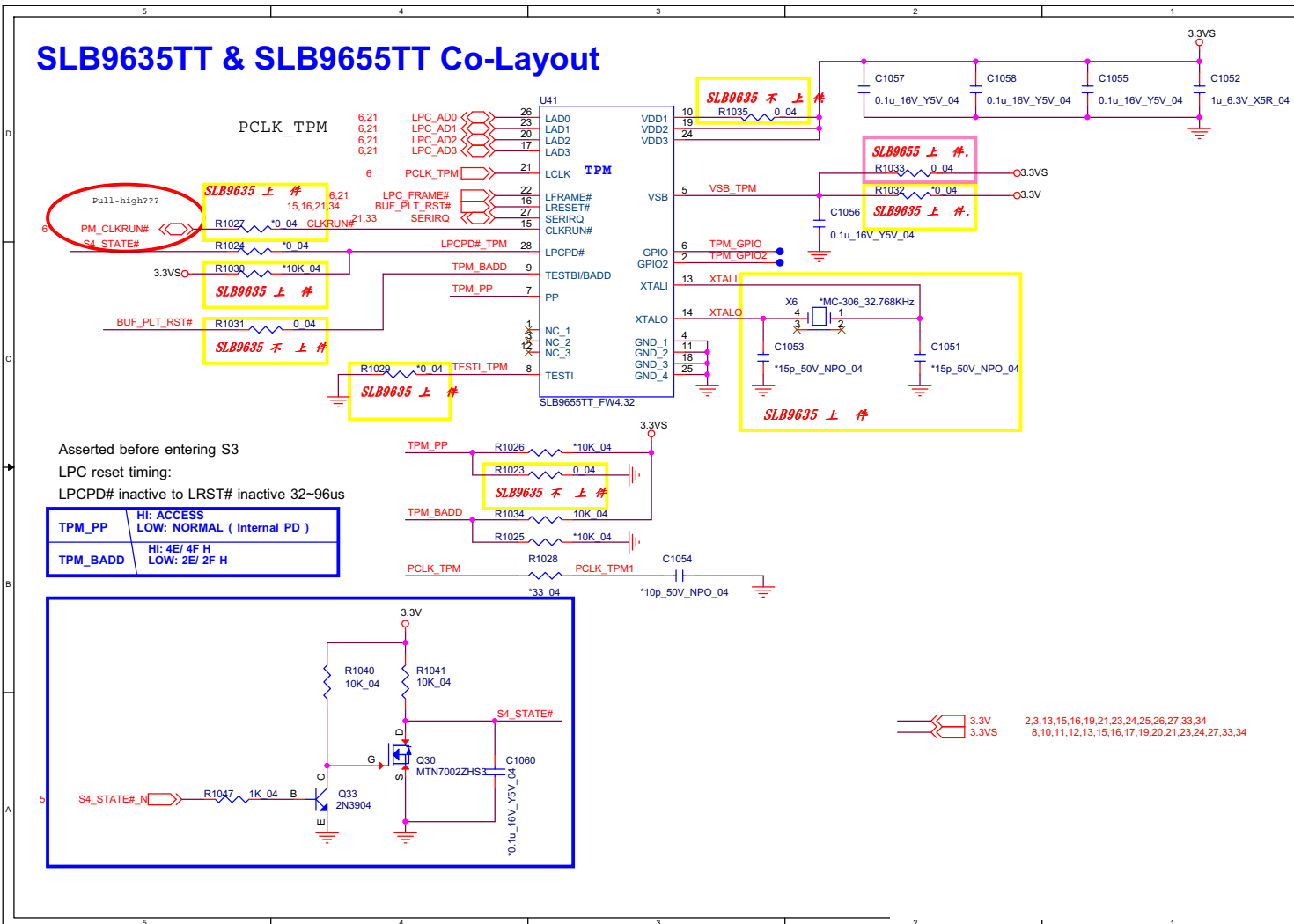
Schematic Diagrams

Audio Board

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Audio Board



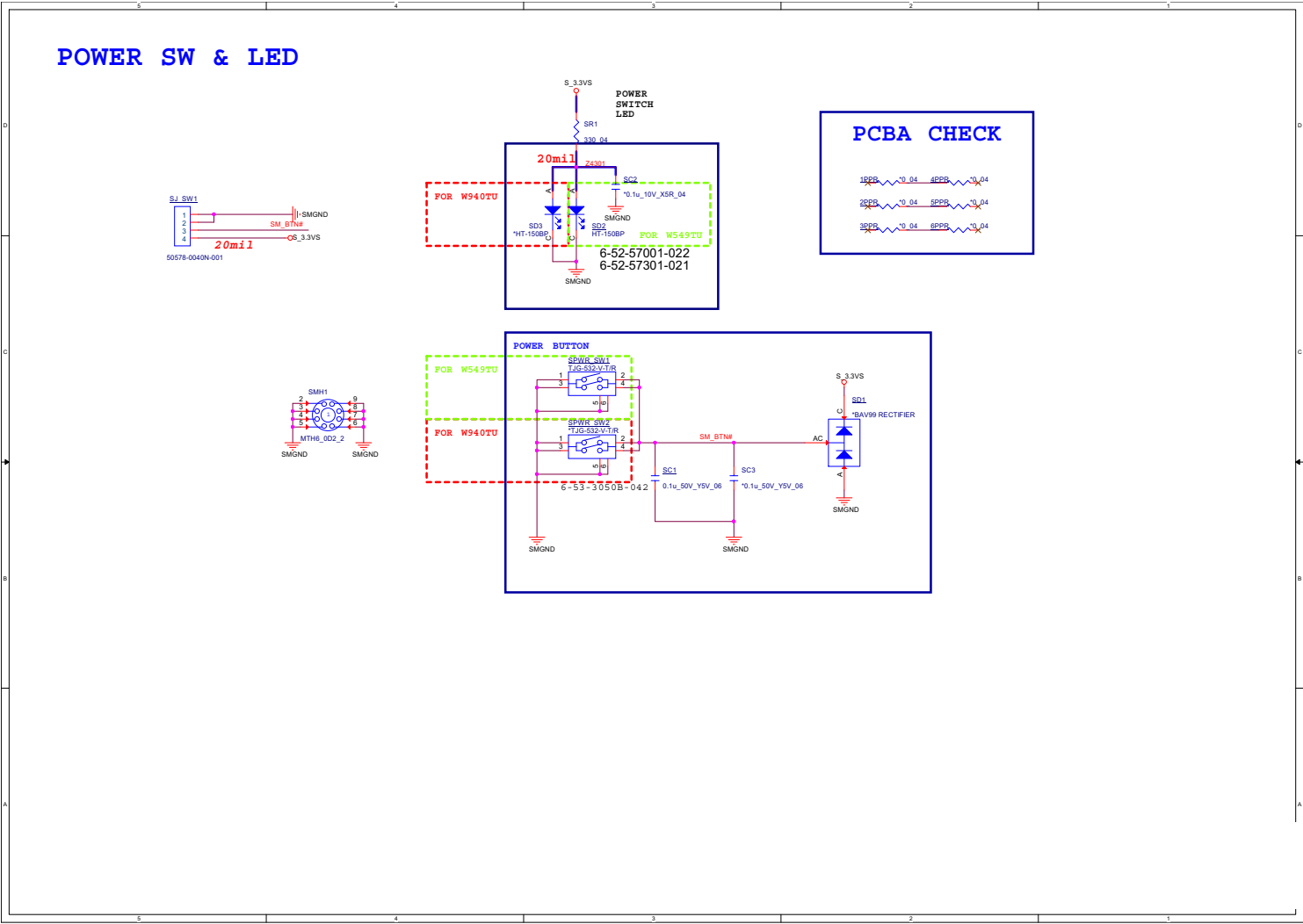
TPM

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TPM

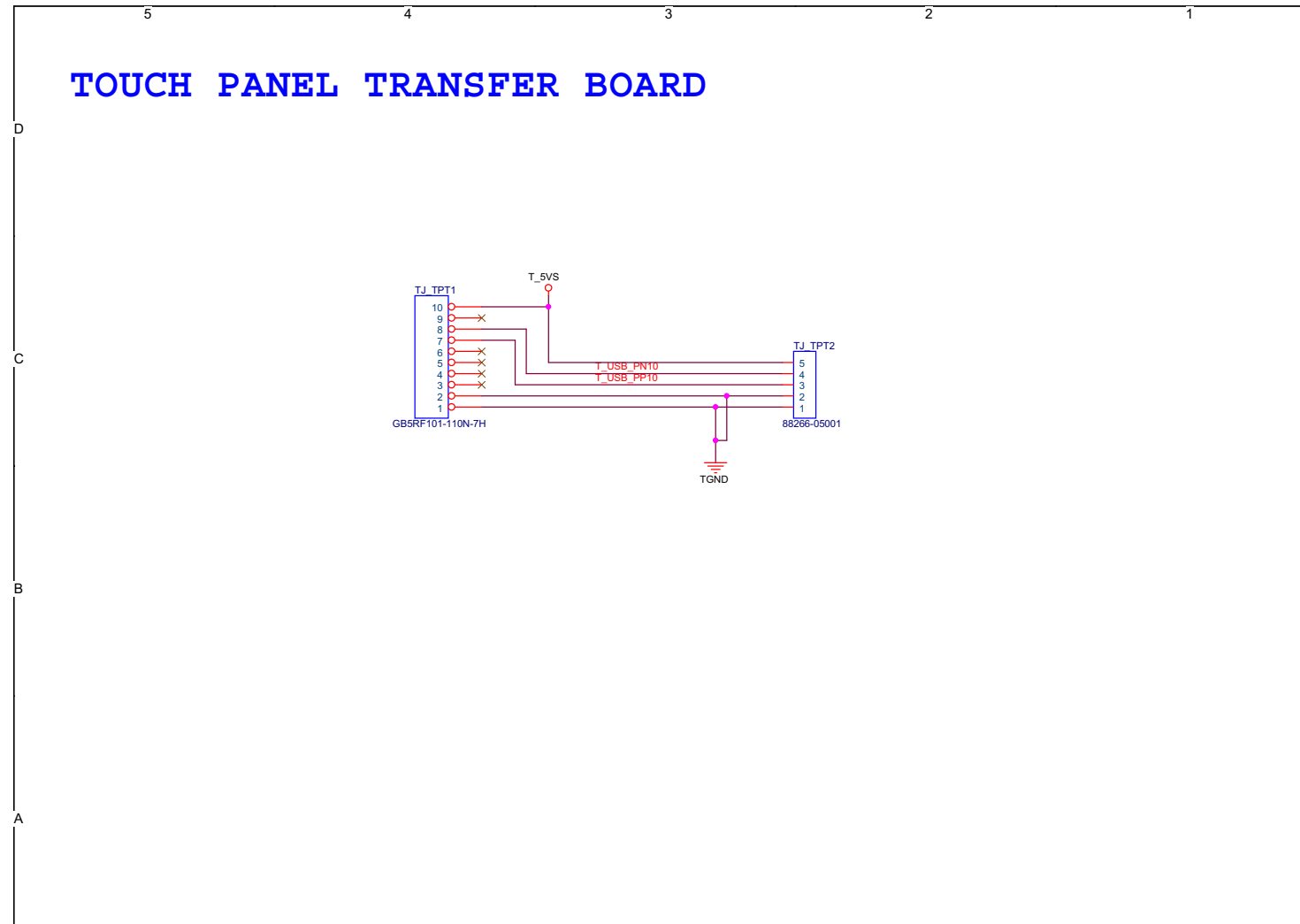
Schematic Diagrams

SW Board

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SW Board



Touch Panel Board

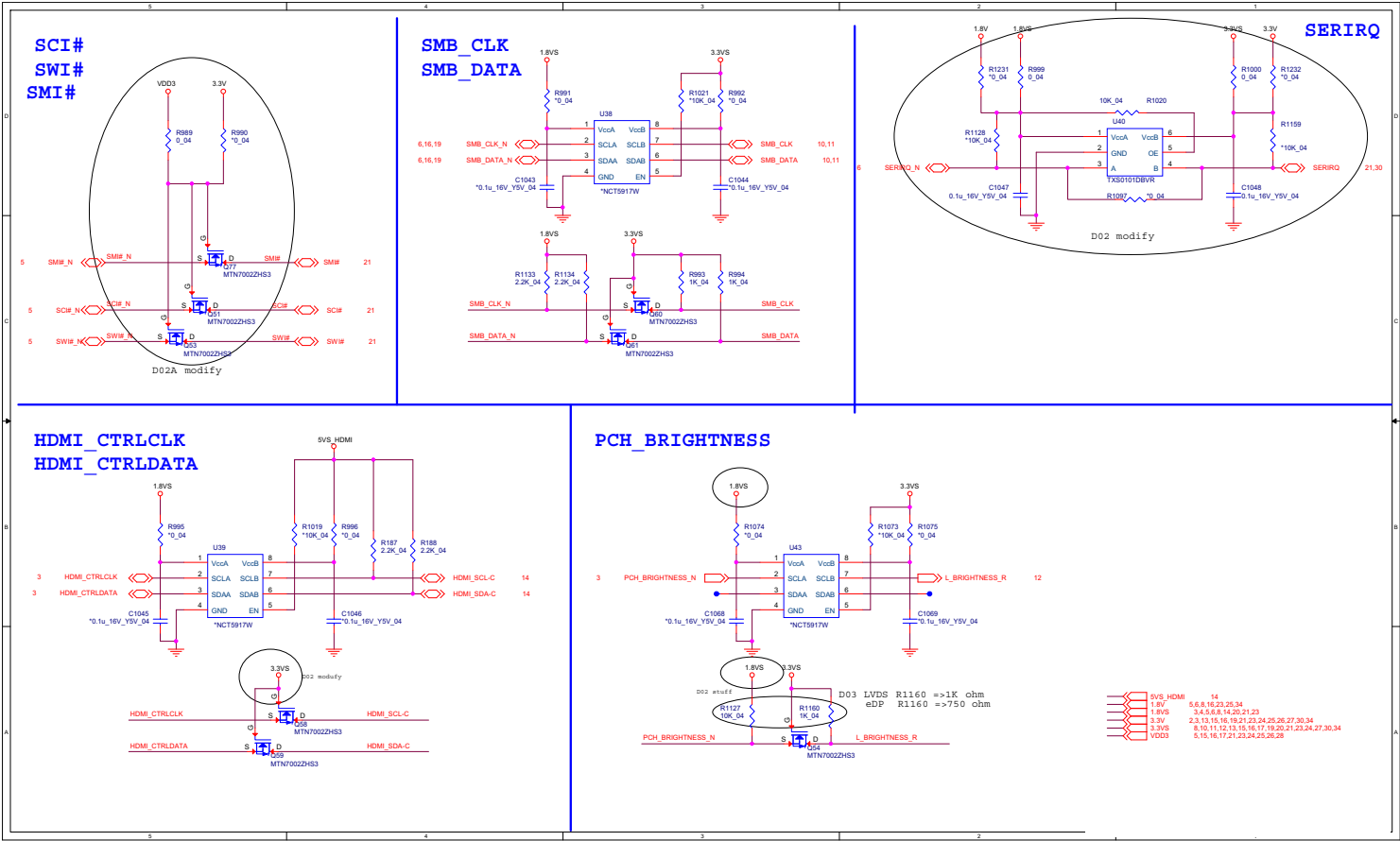


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Touch Panel Board

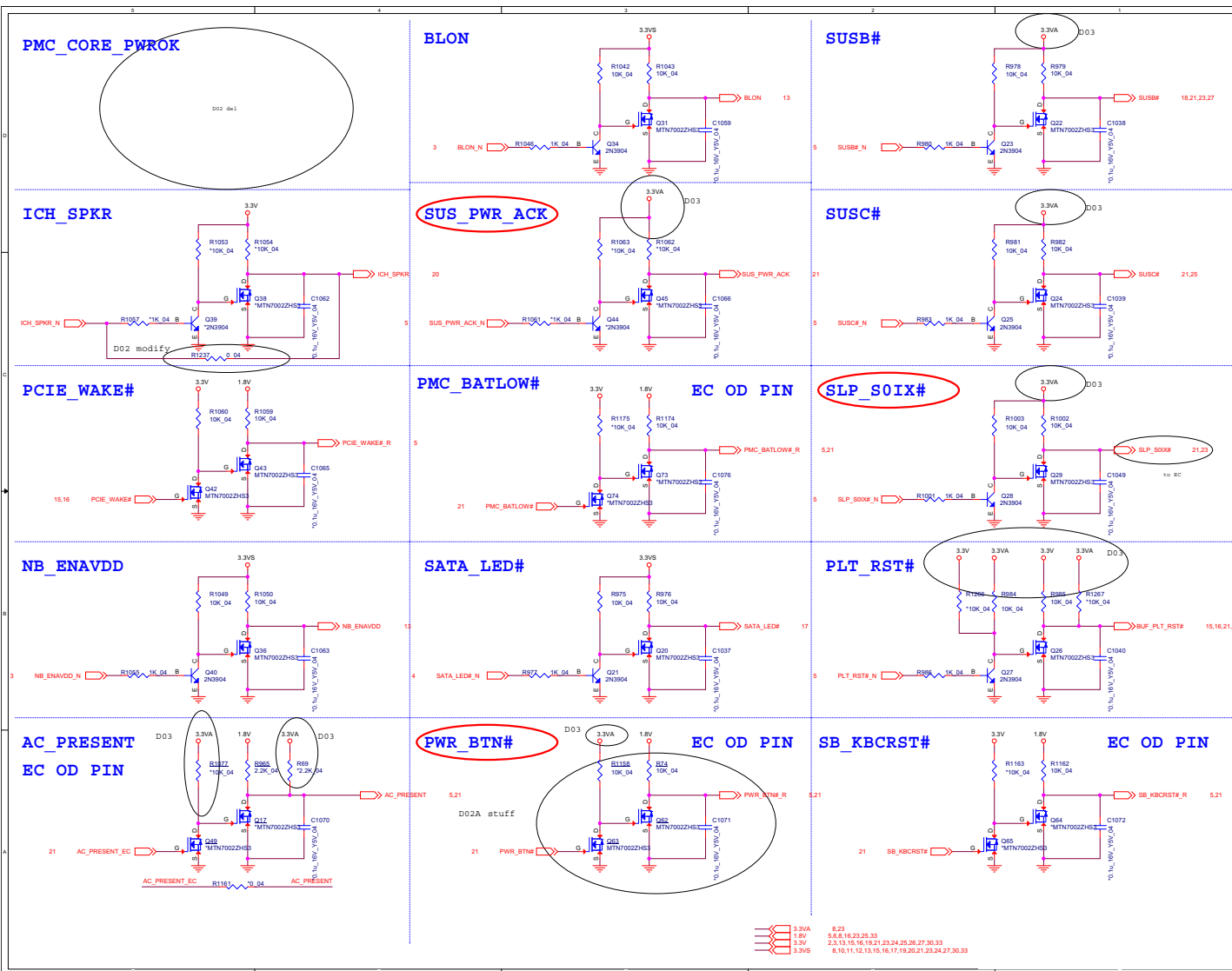
Schematic Diagrams

Level Shifter 1

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Level Shifter 1



Level Shifter 2



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Level Shifter 2

