

# *SERVICE MANUAL*

*notebook*

W510TU





**Notebook Computer**

**W510TU**

**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 **W510TU** 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

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### 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.

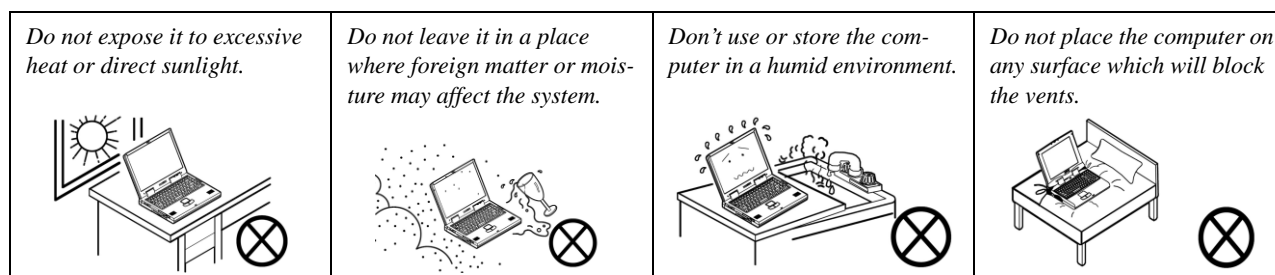
## Instructions for Care and Operation

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

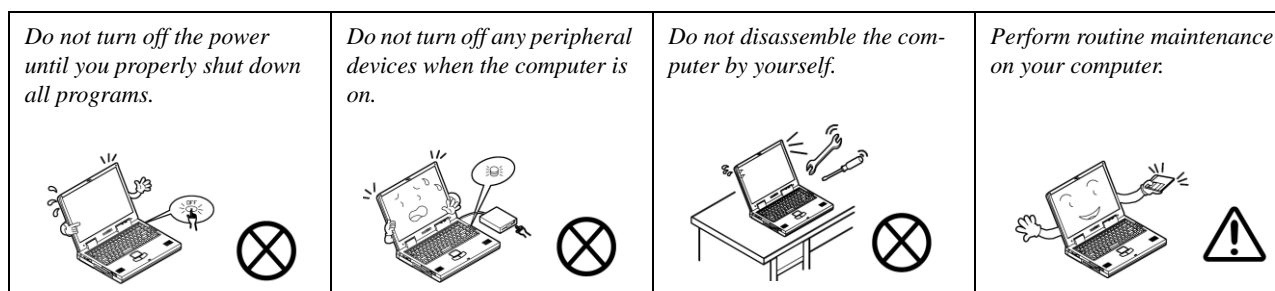
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



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.

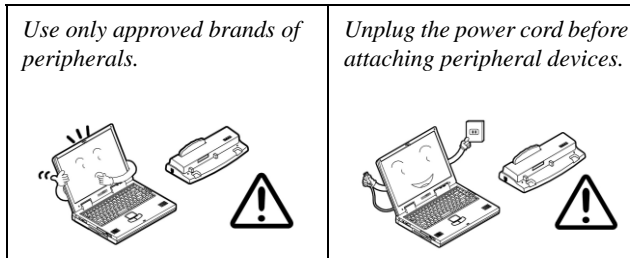


3. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.



## 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 Warning

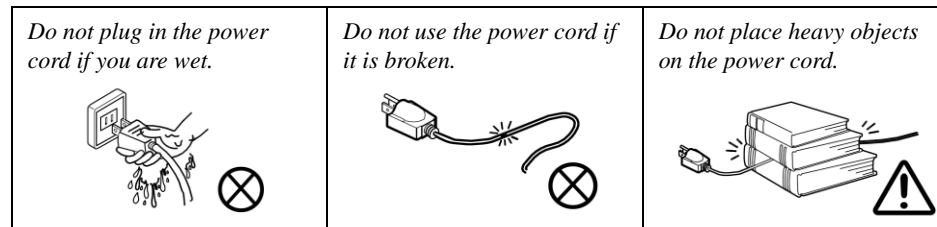
Before you undertake any upgrade procedures, make sure that you have turned off the power, and disconnected all peripherals and cables (including telephone lines and power cord).

You must also remove your battery in order to prevent accidentally turning the machine on. **Before removing the battery disconnect the AC/DC adapter from the computer.**

## 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.





## 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 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.

### FCC Statement

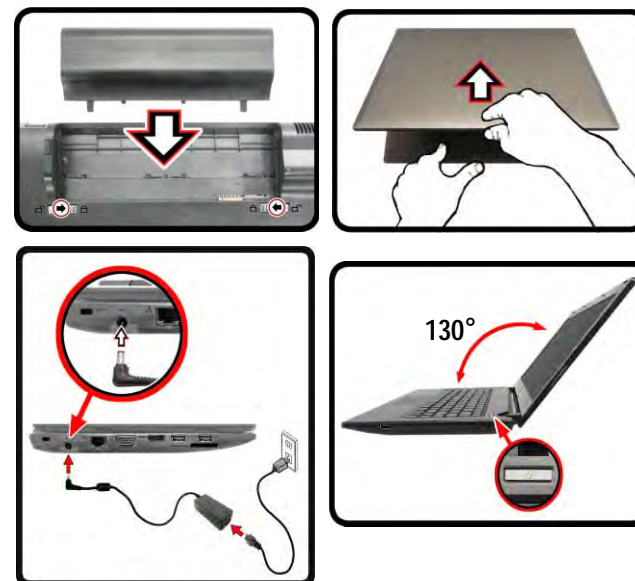
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

This device may not cause harmful interference.

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

### 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. 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.
5. 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).
6. Press the power button to turn the computer "on".



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

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# Chapter 1: Introduction

## Overview

This manual covers the information you need to service or upgrade the **W510TU** 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.) has its 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 **W510TU** 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

##### N2930 (1.83GHz)

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

##### 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

##### N2807 (1.58GHz), N2806 (1.60GHz)

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

### BIOS

64Mb SPI Flash ROM

AMI BIOS

### Storage

One Changeable 2.5" 7.0mm (h) SATA **HDD**

(**Factory Option**) One mSATA Solid State Drive (SSD)

### Memory

One 204 Pin SO-DIMM Socket Supporting **DDR3L 1600MHz** Memory

Memory Expandable up to 8GB

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

### LCD

11.6" (19.46cm) HD (Thickness: 3.6mm)

### Video Adapter

#### Intel HD Graphics

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

Microsoft DirectX® 11 Compatible

### 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 Slots

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

Slot 2 for mSATA **SSD**

(**Factory Option**) Slot 3 for **3G** Module or mSATA **SSD**

### 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

1M HD PC Camera Module/300K Pixels PC Camera Module

**(Factory Option)** 3G Mini-Card Module

#### WLAN/ Bluetooth Half Mini-Card Modules:

**(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)**

Built-in 3 Cell Smart Lithium-Ion Battery Pack, 24WH

**(Factory Option)** Built-in 6 Cell Smart Lithium-Ion Battery Pack, 31WH

### Dimensions & Weight

292.4mm (w) \* 210.5mm (d) \* 22.7mm (h)

**1.3kg** (with 24WH 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



RIGHT SIDE VIEW



*Figure 2*  
**Front View**

1. LED Indicators

*Figure 3*  
**Right Side View**

1. USB 2.0 Ports
2. Multi-in-1 Card Reader
3. DC-In Jack
4. RJ-45 LAN Jack

## Introduction

### External Locator - Left Side & Rear View

*Figure 4*  
**Left Side View**

1. Security Lock Slot
2. External Monitor Port
3. Vent
4. HDMI-Out Port
5. USB 3.0 Port
6. Microphone-In Jack
7. Headphone-Out Jack

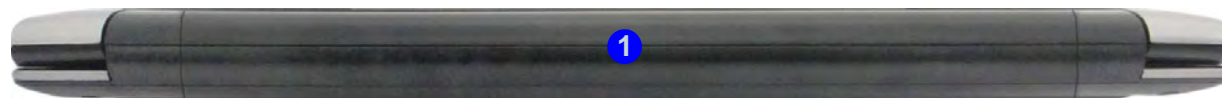
LEFT SIDE VIEW



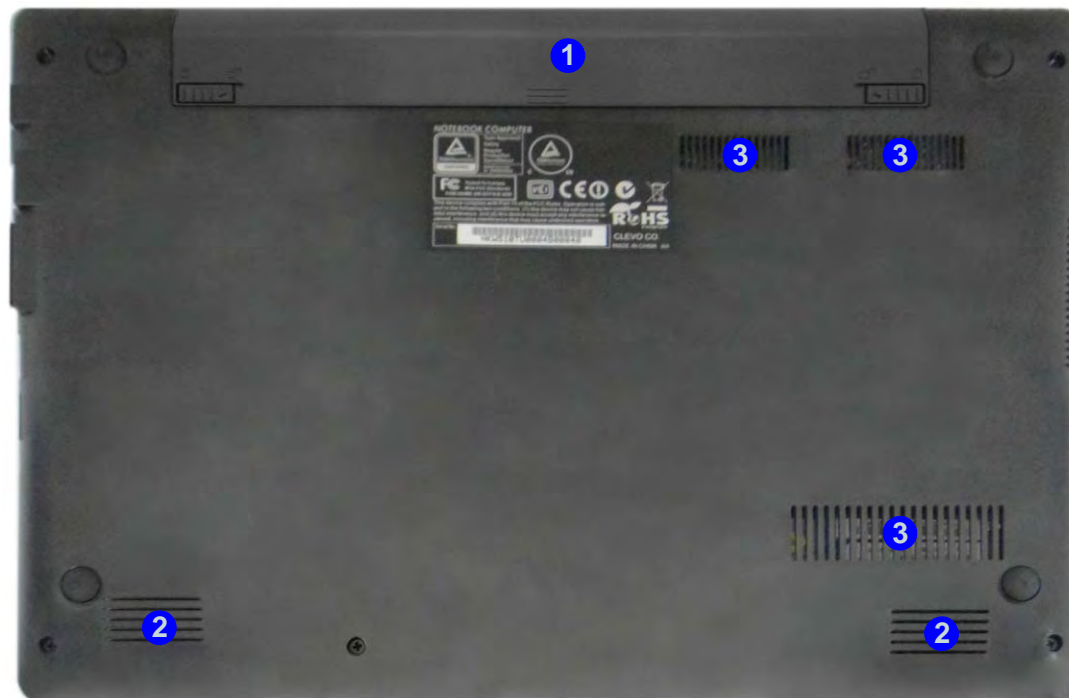
*Figure 5*  
**Rear View**

1. Battery
- 2.

REAR VIEW



## External Locator - Bottom View



*Figure 6*  
**Bottom View**

1. Battery
2. Speakers
3. Fan Intake/Vent



### Overheating

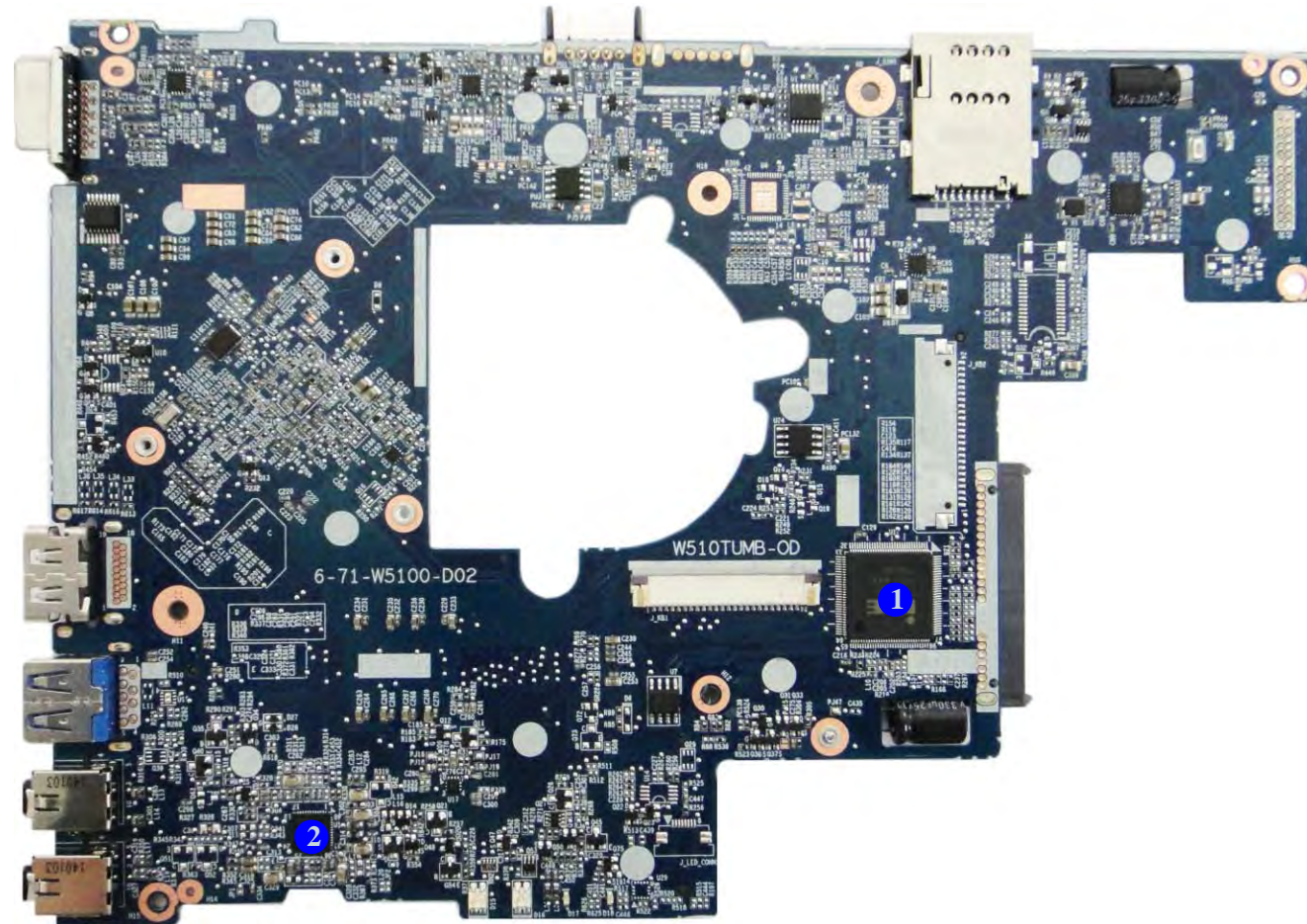
To prevent your computer from overheating, make sure nothing blocks any vent while the computer is in use.

## Introduction

*Figure 7*  
**Mainboard Top  
Key Parts**

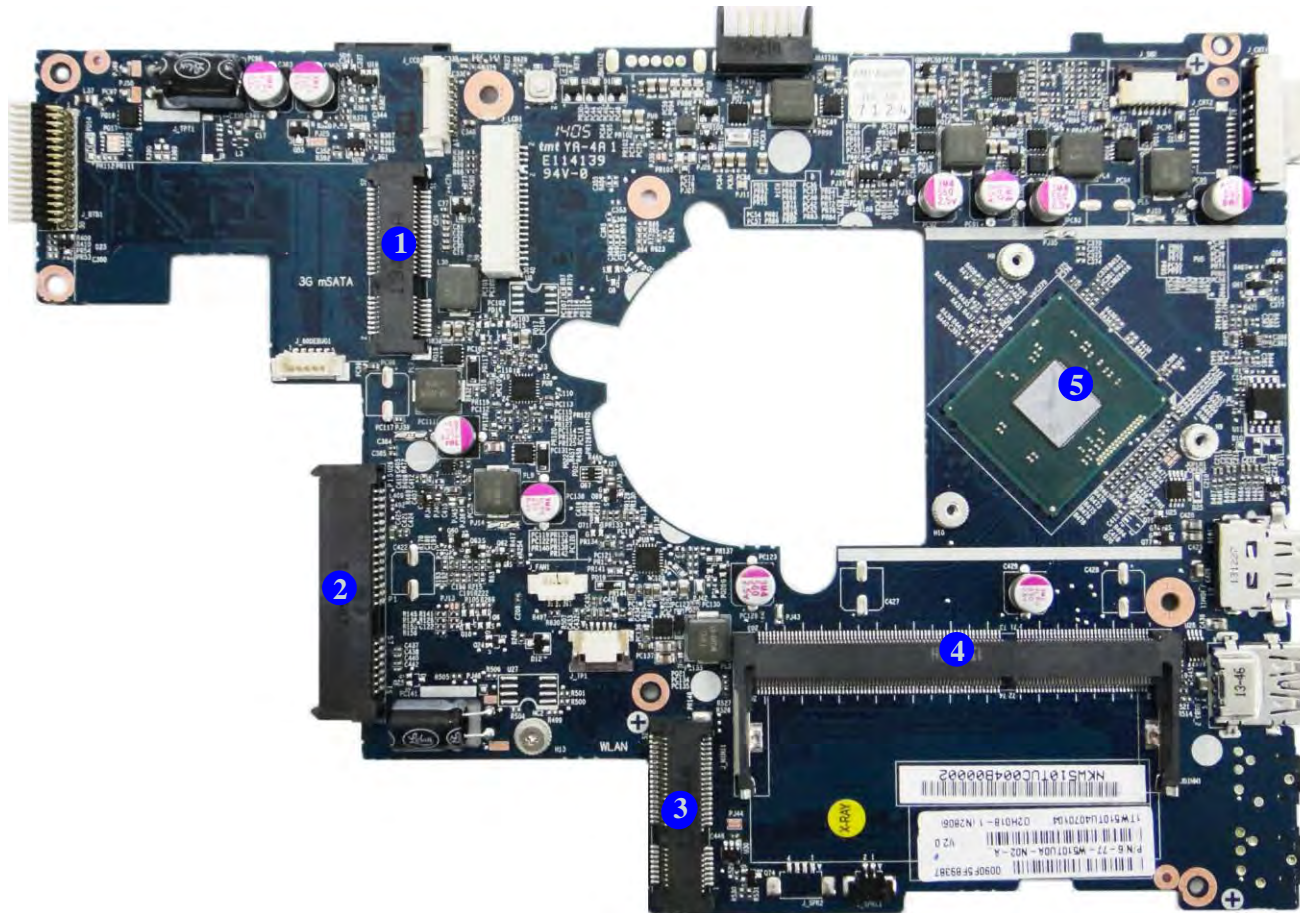
1. KBC ITE IT8987E
2. Audio Codec  
VT1802S

## Mainboard Overview - Top (Key Parts)





## Mainboard Overview - Bottom (Key Parts)



*Figure 8*  
**Mainboard Bottom  
Key Parts**

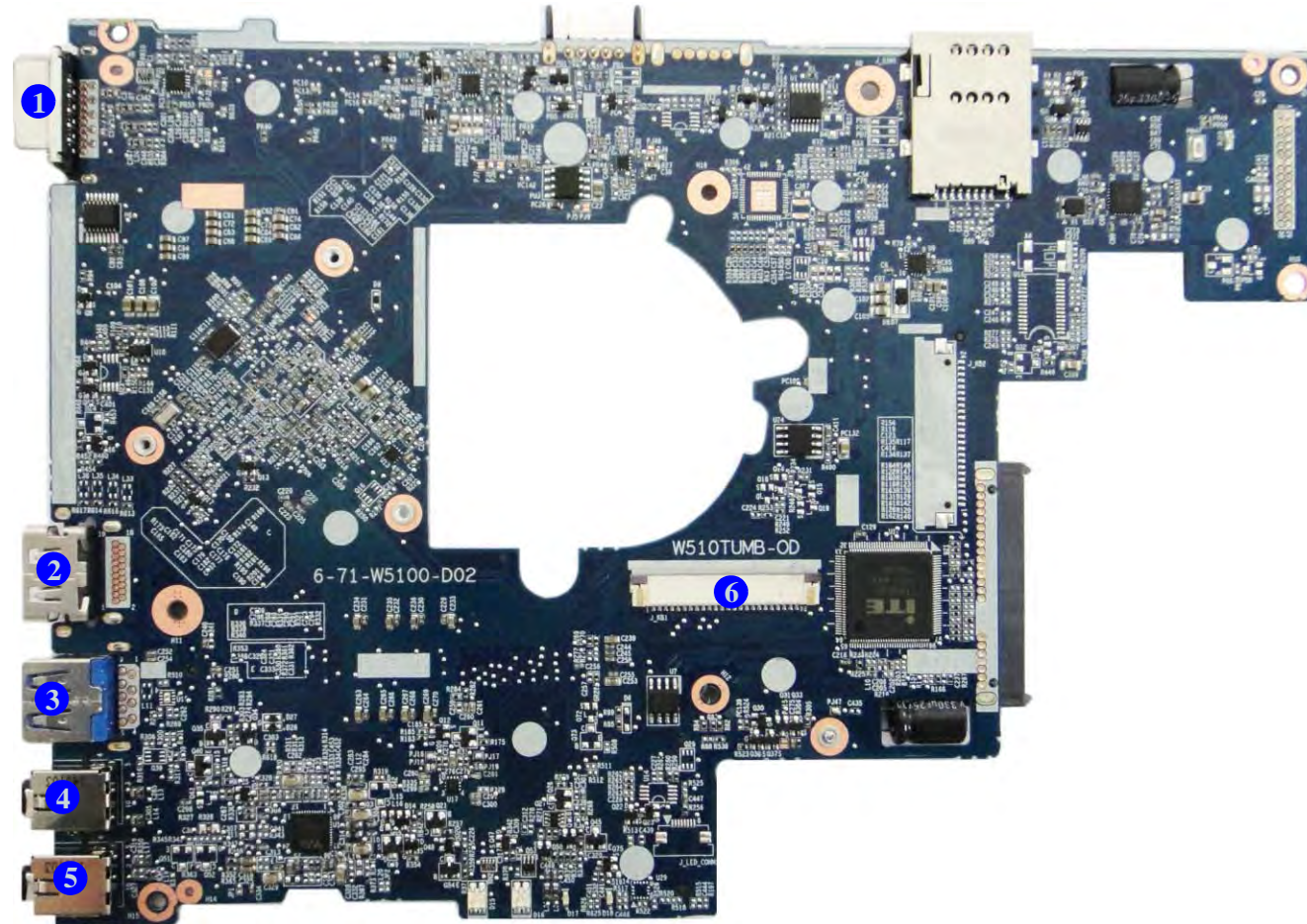
1. Mini-Card Connector (3G/mSATA module)
2. HDD Connector
3. Mini-Card Connector (WLAN Module)
4. Memory Slot (DDR3L SO-DIMM)
5. CPU

## Introduction

*Figure 9*  
**Mainboard Top  
Connectors**

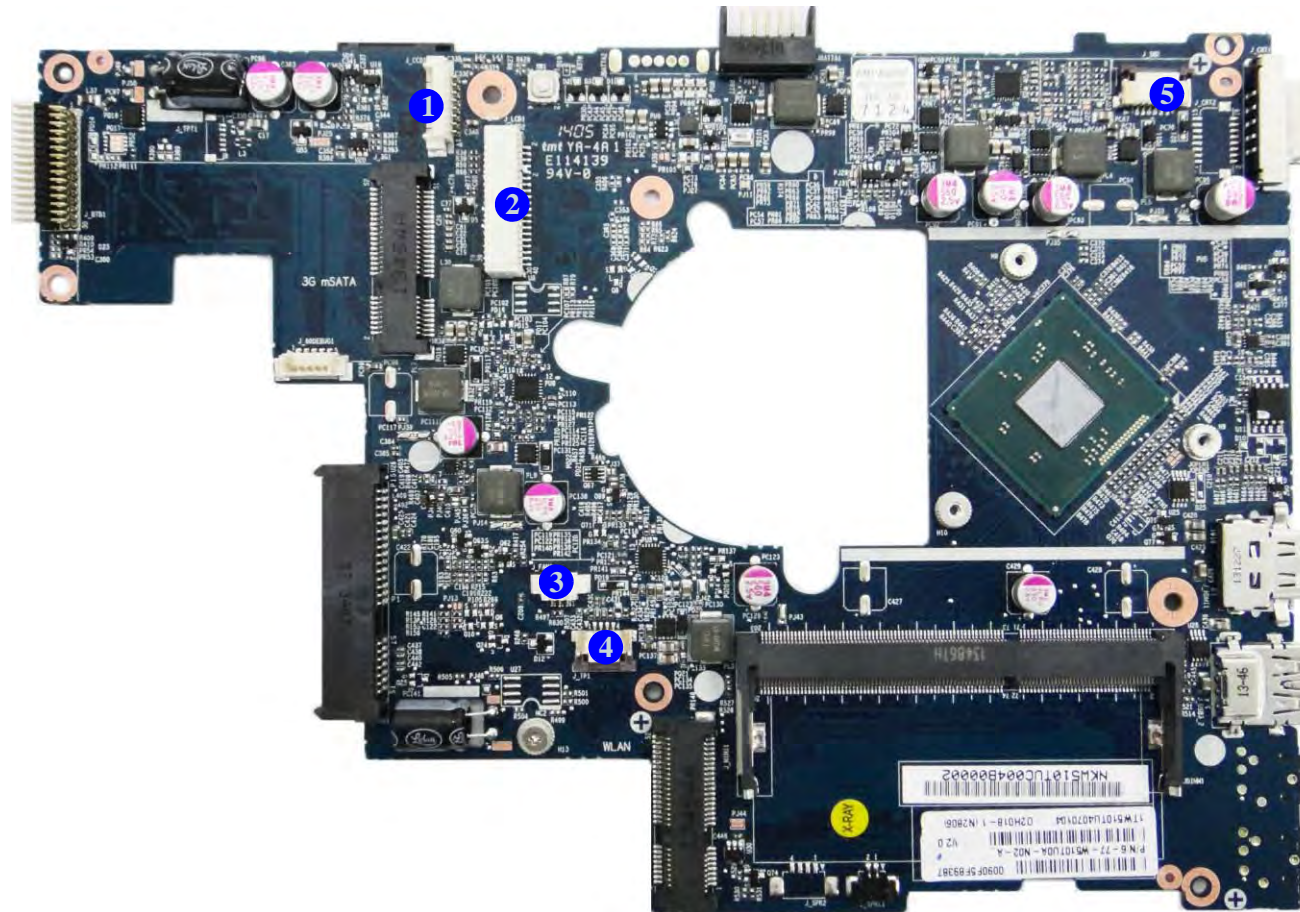
1. External Monitor Port
2. HDMI-Out Port
3. USB 3.0 Port
4. Microphone-In Jack
5. Headphone-Out Jack
6. Keyboard Cable Connector

## Mainboard Overview - Top (Connectors)





## Mainboard Overview - Bottom (Connectors)



*Figure 10*  
**Mainboard Bottom  
Connectors**

1. CCD Cable Connector
2. LCD Connector
3. Fan Cable Connector
4. Touchpad Connector
5. Power Switch Connector






# Chapter 2: Disassembly

## Overview

This chapter provides step-by-step instructions for disassembling the **W510TU** series notebook's parts and subsystems. When it comes to reassembly, reverse the procedures (unless otherwise indicated).

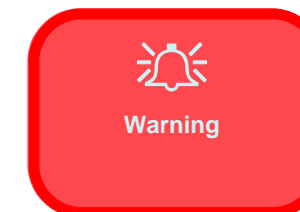
We suggest you completely review any procedure before you take the computer apart.

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.



### 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). 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 Keyboard:

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

### To remove the HDD:

1. Remove the battery [page 2 - 5](#)
2. Remove the keyboard [page 2 - 6](#)
3. Remove the HDD [page 2 - 7](#)

### To remove the System Memory:

1. Remove the battery [page 2 - 5](#)
2. Remove the keyboard [page 2 - 6](#)
3. Remove the HDD [page 2 - 7](#)
4. Remove the system memory [page 2 - 9](#)

### To remove the Wireless LAN Module:

1. Remove the battery [page 2 - 5](#)
2. Remove the keyboard [page 2 - 6](#)
3. Remove the HDD [page 2 - 7](#)
4. Remove the wireless LAN [page 2 - 11](#)

### To remove the Click Board:

1. Remove the battery [page 2 - 5](#)
2. Remove the keyboard [page 2 - 6](#)
3. Remove the HDD [page 2 - 7](#)
4. Remove the wireless LAN [page 2 - 11](#)
5. Remove the click board [page 2 - 15](#)

### To remove the Wireless LAN Module:

1. Remove the battery [page 2 - 5](#)
2. Remove the keyboard [page 2 - 6](#)
3. Remove the HDD [page 2 - 7](#)
4. Remove the wireless LAN [page 2 - 11](#)

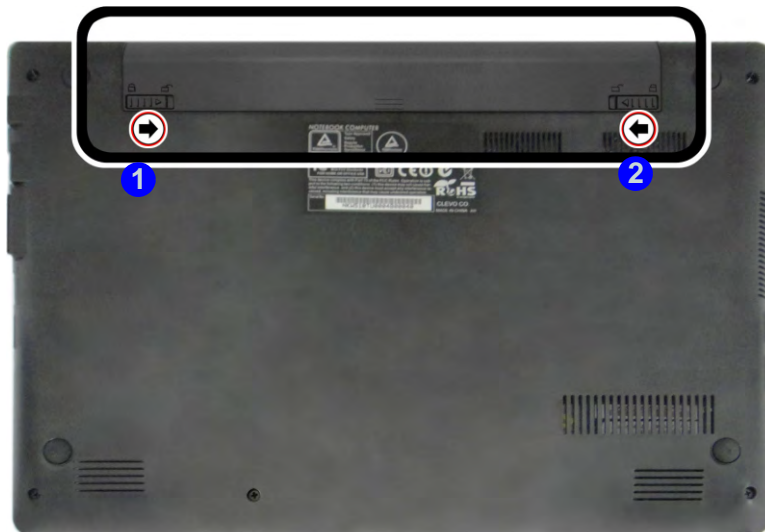
### To remove the CCD:

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

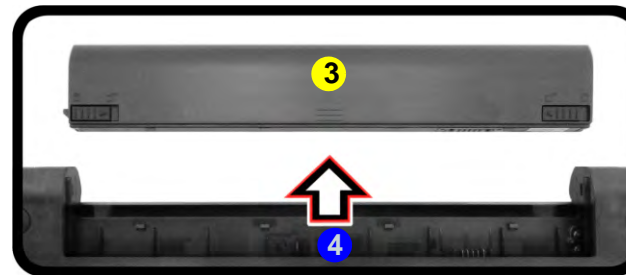
## Removing the Battery

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, and hold it in place (*Figure 1a*).
4. Slide the battery ③ in the direction of the arrow ④ (*Figure 1b*).

a.



b.



*Figure 1*  
**Battery Removal**

- a. Slide the latch and hold in place.
- b. Slide the battery in the direction of the arrow.



3. Battery

## Disassembly

Figure 2  
Keyboard Removal

- Press the four latches to release the keyboard.
- Lift the keyboard up and disconnect the cable from the locking collar.
- Remove the keyboard.
- Remove screws to release bottom case.



#### Re-Inserting the Keyboard

When re-inserting the keyboard, align first the **three** keyboard tabs (Figure 2e) that are located at the bottom, to the slots in the case.



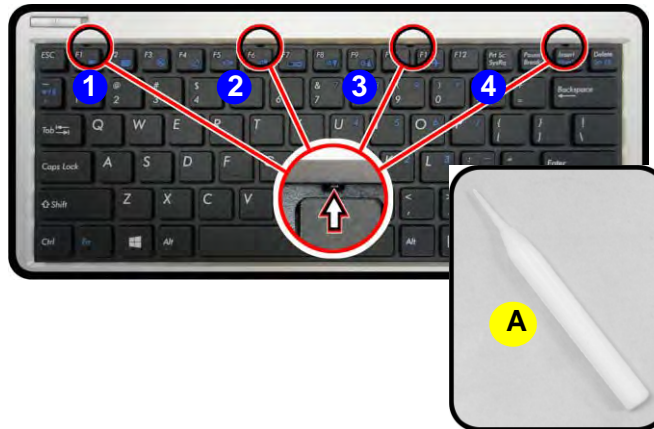
5. Keyboard

- 5 Screws

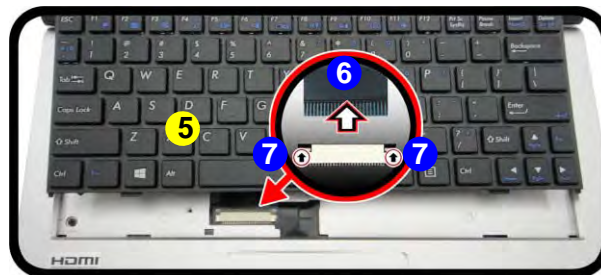
## Removing the Keyboard

- Turn **off** the computer and remove the battery ([page 2 - 5](#)).
- Use **only** the small tool **A** provided (see picture below) to carefully press the **four** keyboard latches **1** - **4** at the top of the keyboard to elevate the keyboard from its normal position ([Figure 2a](#)).
- Carefully lift the keyboard **5** up, being careful not to bend the keyboard ribbon cable **6** ([Figure 2b](#)).
- Disconnect the keyboard ribbon cable **6** from the locking collar socket **7** ([Figure 2b](#)).
- Carefully lift up the keyboard **5** ([Figure 2c](#)) off the computer.
- Remove screws **8** - **12** to release the bottom case ([Figure 2d](#)).

a.



b.



c.



d.



e.



Keyboard Tabs



## Removing the Hard Disk Drive

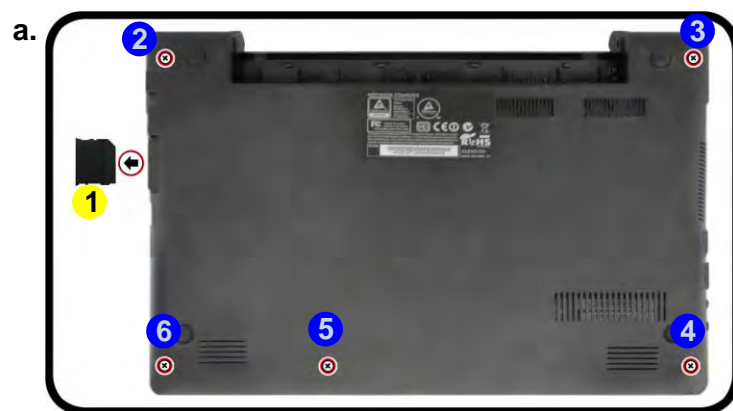
The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 9.5mm (h) and a speed of **5400 RPM** or lower. Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

### Hard Disk Upgrade Process

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)) and keyboard ([page 2 - 6](#)).
2. Remove the SD card cover **1** and screws **2** - **6** ([Figure 3a](#)).
3. Carefully lift the bottom case **8** up in the direction of the arrow **7** and remove it ([Figure 3b](#)).
4. The hard disk will be visible at point **9** on the computer. ([Figure 3b](#))

*Figure 3*  
**HDD Assembly Removal**

- a. Remove the cover and screws.
- b. Remove the bottom case and locate the hard disk.



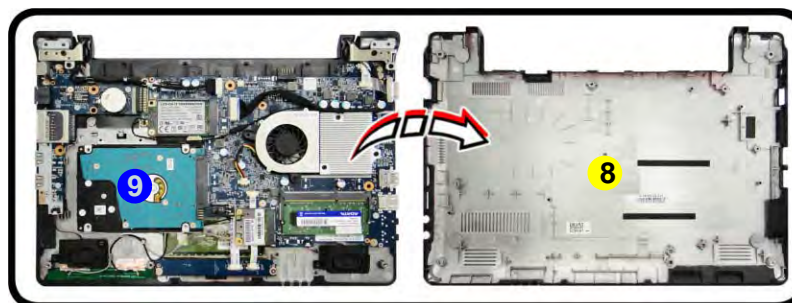
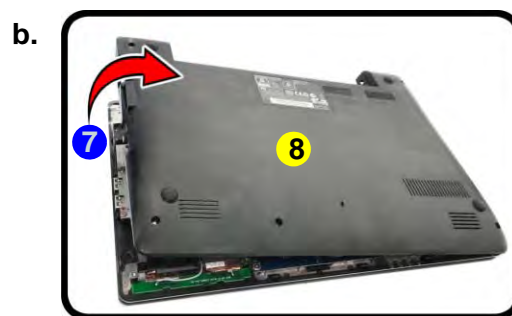
#### HDD System Warning

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

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

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

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



1. SD Card Cover
8. Bottom case

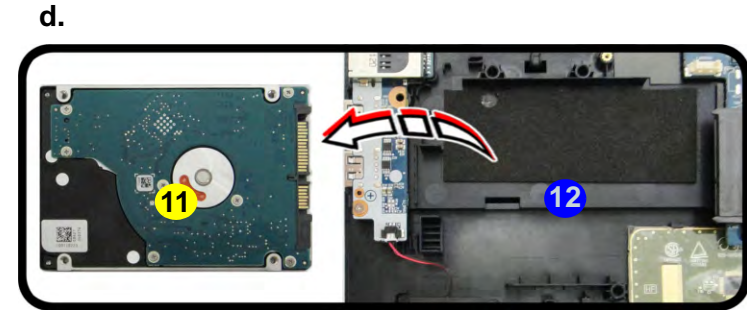
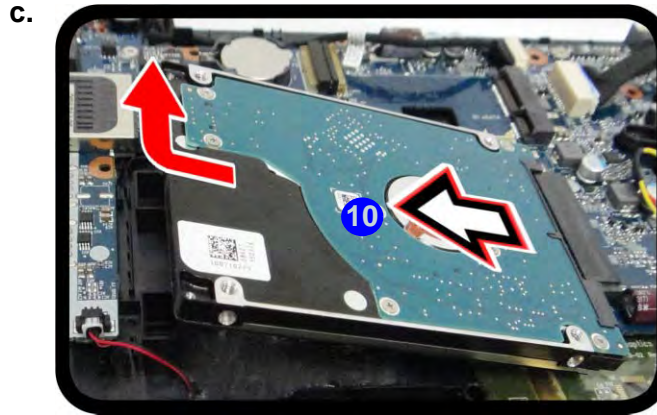
- 5 Screws

## Disassembly

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

- c. Slightly lift and pull the HDD in the direction of the arrow.  
d. Lift the HDD assembly out of the bay.

5. Slightly lift and pull the hard disk in the direction of arrow ⑩ (*Figure 4c*).  
6. Lift the hard disk ⑪ out of the bay ⑫ (*Figure 4d*).  
7. Reverse the process to install a new hard disk (do not forget to replace all the screws and cover).



11. HDD

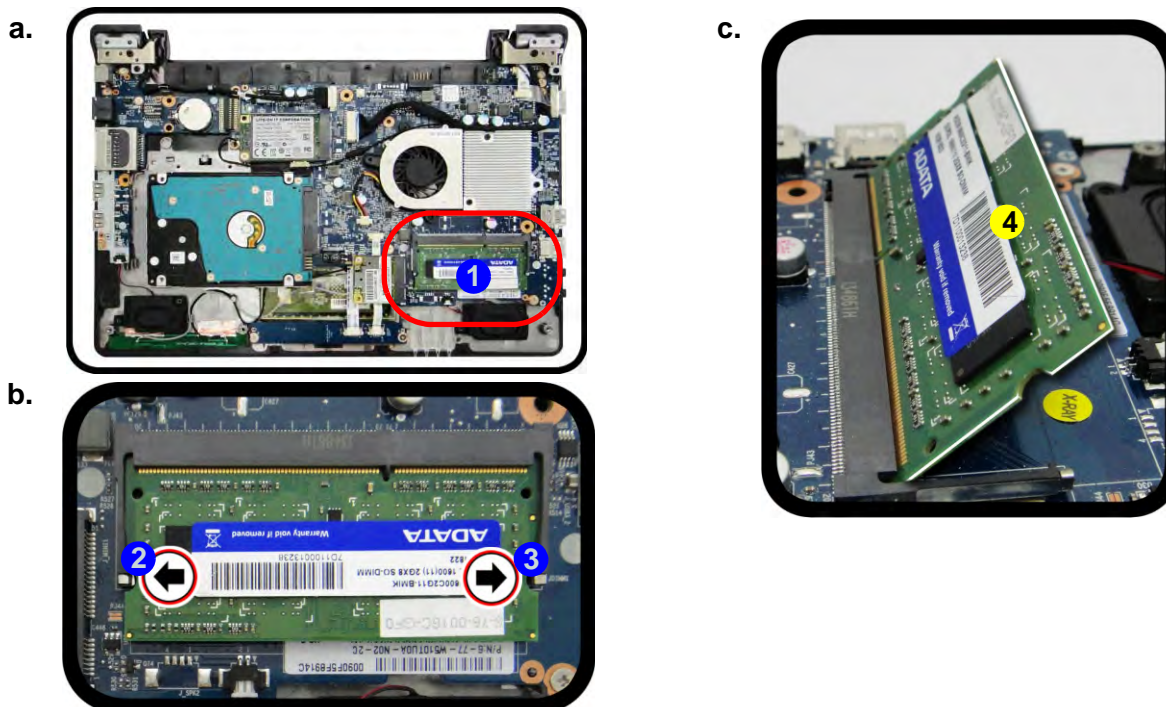


## Removing the System Memory (RAM)

The computer has two memory sockets for 200 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR3L Up to 1600MHz. 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, remove the battery ([page 2 - 5](#)), keyboard ([page 2 - 6](#)), and bottom case ([page 2 - 7](#)).
2. The RAM modules will be visible at point **1** on the mainboard ([Figure 5a](#)).
3. Gently pull the two release latches (**2** & **3**) on the sides of the memory socket in the direction indicated by the arrows ([Figure 5b](#)).
4. The RAM module **4** will pop-up ([Figure 5c](#)), and you can then remove it.



*Figure 5*  
**RAM Module Removal**

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



#### Contact Warning

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



4. RAM Module

## Disassembly

### *Figure 6* **RAM Module Removal (cont'd)**

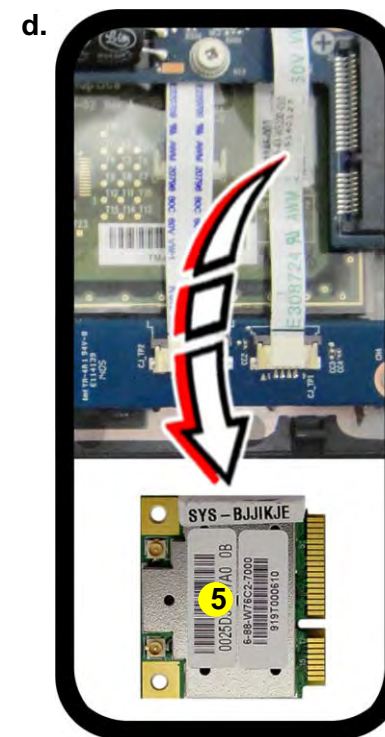
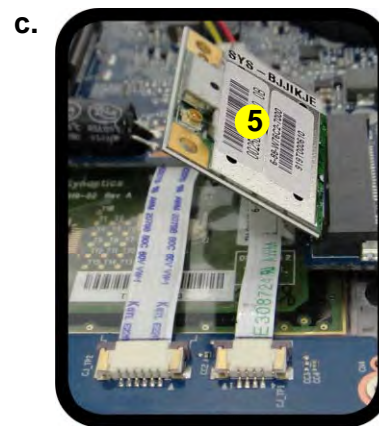
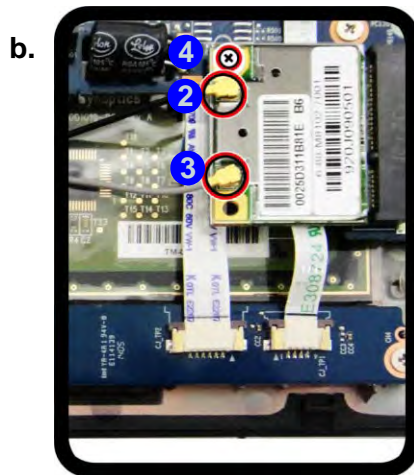
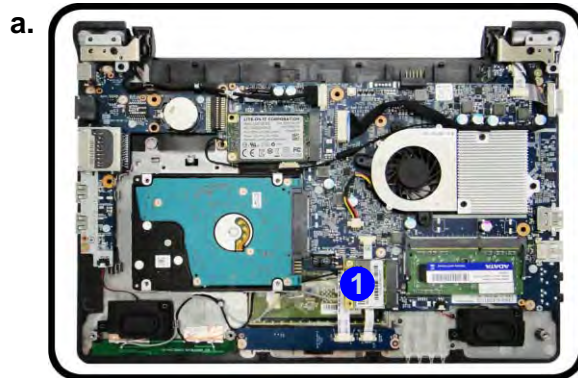
d. Replace the bottom case and tighten the screws.

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 tighten the screws and cover (*Figure 6d*).
9. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.



## Removing the Wireless LAN Module

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



*Figure 7*  
**Wireless LAN  
Module Removal**

- a. Locate the wireless LAN module.
- b. Disconnect the cables and remove the screw.
- c. The WLAN module will pop up.
- d. Lift the WLAN module out.

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



5. WLAN Module.

- 1 Screw

## Disassembly

### Wireless LAN, and Combo Module Cables

Note that the cables for connecting to the antennae on WLAN, WLAN & Bluetooth Combo, 3G and LTE modules are not labelled. The cables/covers (each cable will have either a black or transparent cable cover) are color coded for identification as outlined in the table below.

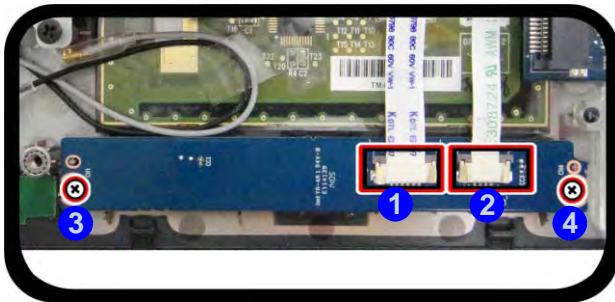
Module Type	Antenna Type	Cable Color	Cable Cover Type
WLAN/WLAN & Bluetooth Combo	WM 1	Black	Transparent
	WM 2	Gray	
	WM 3	White	
LTE Broadband	LTE 1	Black	Black
	LTE 2	Gray	
3G Broadband	3G 1	Black	Black
	3G 2	Gray	

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

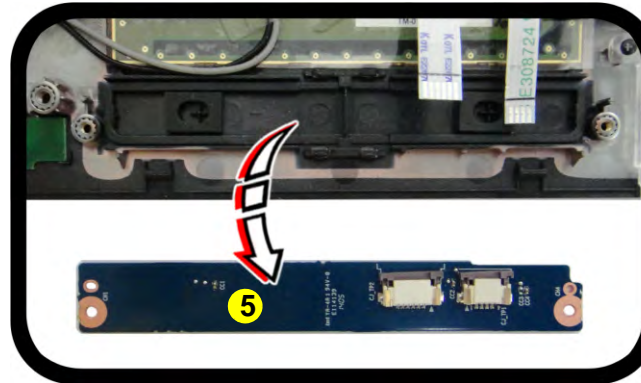
## Removing the Click Board Module

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)), keyboard ([page 2 - 6](#)), bottom case ([page 2 - 7](#)), and WLAN ([page 2 - 11](#)).
2. Carefully disconnect cables **1** & **2**, then remove screws **3** & **4** from the module ([Figure 7a](#)).
3. Lift the click board module **5** ([Figure 7b](#)) up and off the computer.

a.



b.



*Figure 8*  
**Click Board Module Removal**

- a. Disconnect the cables and remove the screw.
- b. Lift the click board out.



5. Click Board Module

- 2 Screws



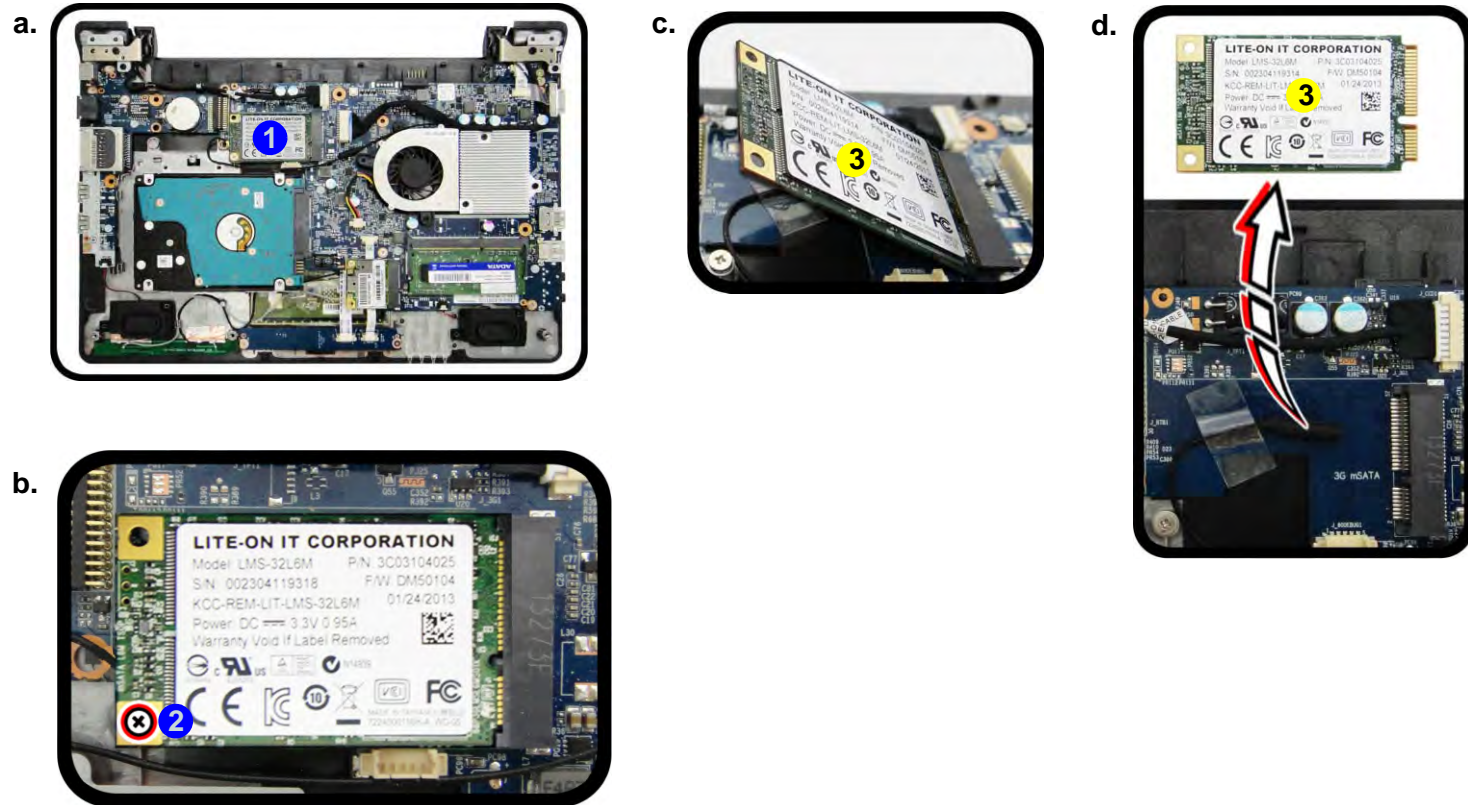
## Disassembly

*Figure 9*  
**MSATA Module Removal**

- Locate the wireless LAN module.
- Remove the screw.
- The mSATA module will pop up.
- Lift the mSATA module out.

## Removing the MSATA Module

- Turn **off** the computer, remove the battery ([page 2 - 5](#)), keyboard ([page 2 - 6](#)), and bottom case ([page 2 - 7](#)).
- The mSATA module will be visible at point **1** ([Figure 7a](#)) on the mainboard.
- Remove screw **2** from the module socket ([Figure 7b](#)).
- The mSATA module **3** ([Figure 7c](#)) will pop-up.
- Lift the mSATA module **3** ([Figure 7d](#)) up and off the computer.

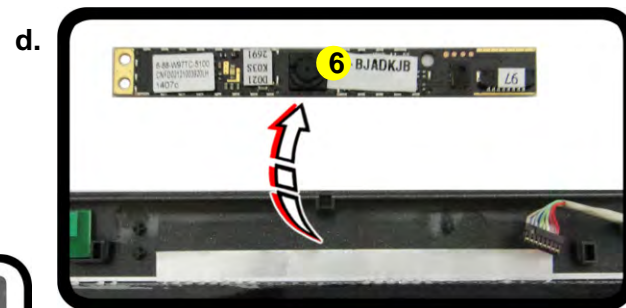
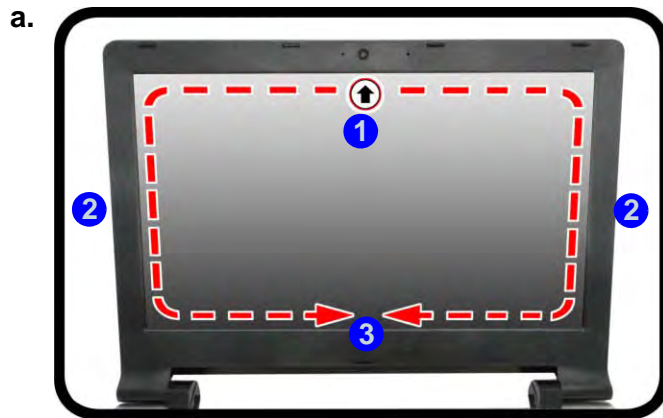


3. mSATA Module.

- 1 Screw

## Removing the CCD Module

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)).
2. Turn the computer over, run your fingers around the inner frame of the LCD panel at the points indicated by the arrows **1** - **3** ([Figure 10a](#)).
3. Carefully remove the LCD panel **4** off ([Figure 10b](#)).
4. Disconnect the cable **5** ([Figure 10c](#)).
5. Remove the CCD module **6** off ([Figure 10d](#)).



*Figure 10*  
**CCD Module Removal**

- a. Run your fingers around the inner frame of the LCD panel at the points indicated by the arrow.
- b. Remove the LCD panel.
- c. Disconnect the cable.
- d. Remove the CCD module.



4. LCD Front Panel  
6. CCD Module





# Appendix A:Part Lists

This appendix breaks down the **W510TU** 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 Lists

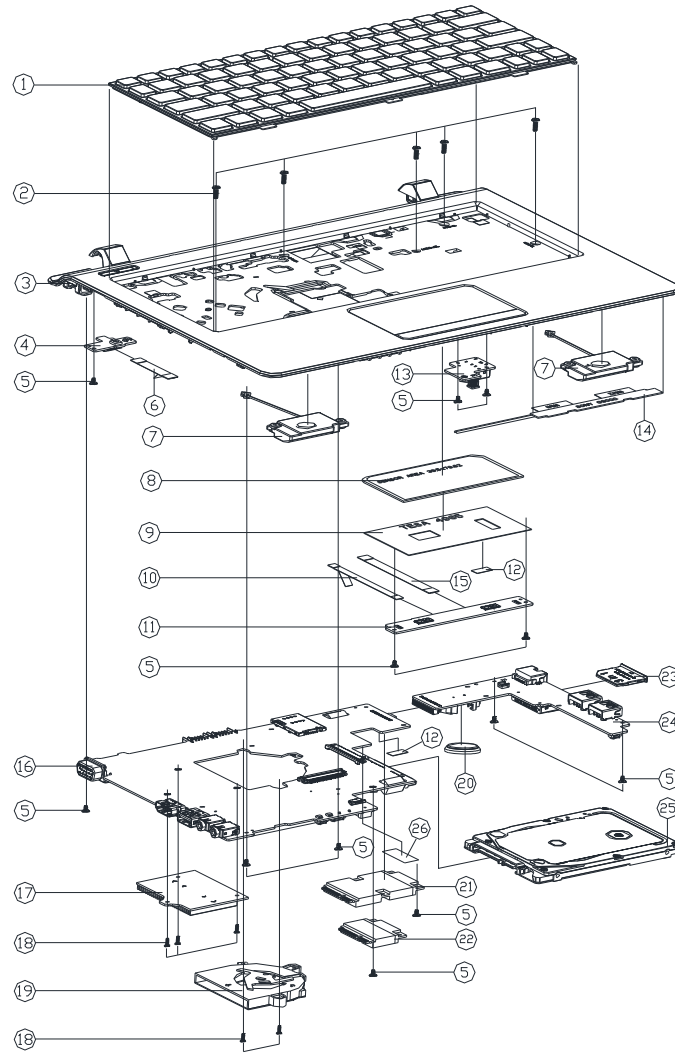
### Parts List Illustration Location

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

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

Parts	
Top (10W)	<i>page A - 3</i>
Top (43W)	<i>page A - 5</i>
Bottom (10W)	<i>page A - 5</i>
Bottom (43W)	<i>page A - 5</i>
LCD	<i>page A - 7</i>

Top (10W)



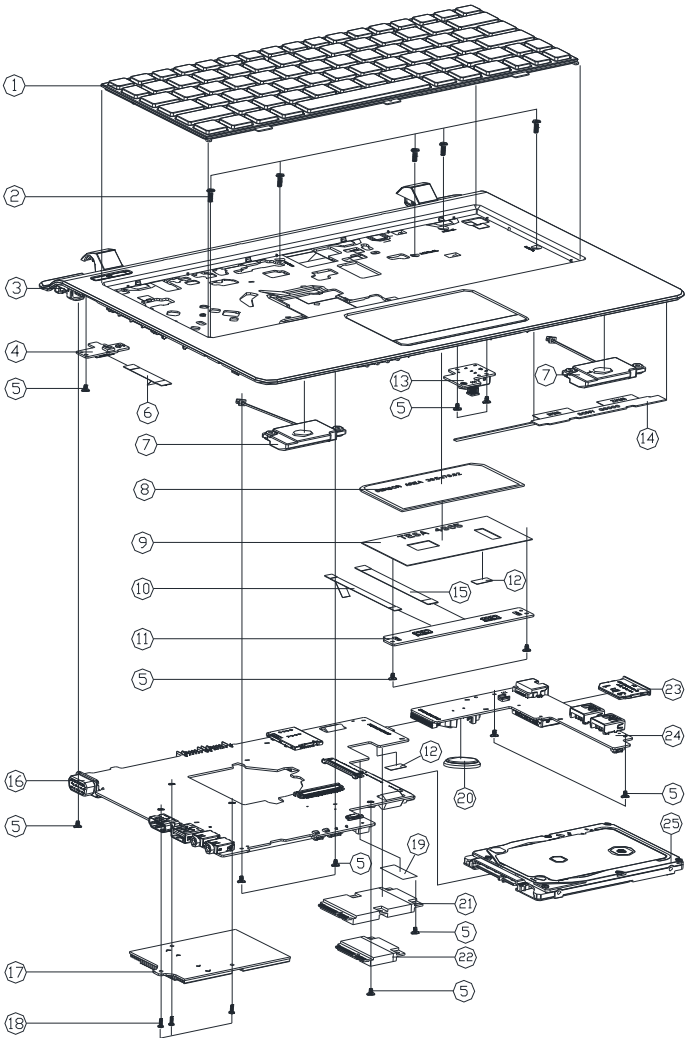
ITEM	PART NAME	PART NO	REMARK
1	WINB K/B USA <BLACK> FRAME <US> MODULE W310CZ	6-79-W310CZ0K-010-W	
2	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
3	TOP CASE MODULE W510TU	6-39-W5102-011	
3	TOP CASE MODULE W510TU-C	6-39-W5102-011-C	
4	POWER SWITCH BOARD V2.0 W510TU	6-77-W510S-D02	
5	SCREW M2*3L KI NI ICT NY <DD=04.5,DT=0.4>	6-35-B1120-3RE	
6	FFC CABLE FOR POWER BOARD TO NB 22MM 5V 4PIN <CNUS> W510TU	6-43-W5100-020	
7	SPK+CABLE R/L 23*44 15W 4? 35MM L125A777XL <VVD> W300CZ	6-23-5W310-0S0	
8	TOUCH PAD SYMPATICS TM-01146-003 MULTI-GEASURE C4800	6-49-C4802-010	
9	TP TAPE MYLAR PET W540EU	6-40-W5401-010	
10	FFC CABLE CLICK TO MB 64MM 5V 4PIN <CNUS> W510TU	6-43-W5100-010	
11	CLICK BOARD V2.0 W510TU	6-77-W5102-D02	
12	TAPE MYLAR <B>MYLAR M550J	6-40-M55J2-020	
13	DC CONNECTOR BOARD V2.0 W510TU	6-77-W510C-D02	
14	MAIN BOARD CPU/4200/160 Y20 ECP QV/320V/10 TPU/US CHARGE/TV TUNER/350 W510TU	6-23-7W510-011	
15	FFC CABLE FOR TOUCH PAD 67mm 60V 6PIN FOR W240BU <VVD>	6-43-C4502-010-3	
16	MAIN BOARD CPU/4200/160 Y20 ECP QV/320V/10 TPU/US CHARGE/TV TUNER/350 W510TU	6-77-W510TU00-D02-A	
16	MAIN BOARD CPU/4200/160 Y20 ECP QV/320V/10 TPU/US CHARGE/TV TUNER/350 W510TU	6-77-W510TU00-D02-E	
16	MAIN BOARD CPU/4200/160 Y20 ECP QV/320V/10 TPU/US CHARGE/TV TUNER/350 W510TU	6-77-W510TU00-D02-ID	
16	MAIN BOARD CPU/4200/160 Y20 ECP QV/320V/10 TPU/US CHARGE/TV TUNER/350 W510TU	6-77-W510TU00-D02-2C	
16	MAIN BOARD CPU/4200/160 Y20 ECP QV/320V/10 TPU/US CHARGE/TV TUNER/350 W510TU	6-77-W510TU00-D02-3B	
16	MAIN BOARD CPU/4200/160 Y20 ECP QV/320V/10 TPU/US CHARGE/TV TUNER/350 W510TU	6-77-W510TU00-D02-1B	
16	MAIN BOARD CPU/4200/160 Y20 ECP QV/320V/10 TPU/US CHARGE/TV TUNER/350 W510TU	6-77-W510TU00-D02-1C	
16	MAIN BOARD CPU/4200/160 Y20 ECP QV/320V/10 TPU/US CHARGE/TV TUNER/350 W510TU	6-77-W510TU00-D02-1E	
16	MAIN BOARD CPU/4200/160 Y20 ECP QV/320V/10 TPU/US CHARGE/TV TUNER/350 W510TU	6-77-W510TU00-D02-C	
17	CPU HEATSINK MODULE TYPE-A FOR 75-10W <AL6063> W510TU	6-31-W510N-101	
18	SCREW M2*4L KI BZ ICT NY	6-35-B6120-4RA	
19	FAN MODULE 50*50*5MM 25V 0.2A RPM5600 ADDA W510TU	6-31-W510S-100	
20	BATTERY 3V 220MA BBBCR2032B <KTS>	6-23-6A2B2-030	
21	VCM/CM H/MT/1 <REDA> FULL HMM C/RO FOR VCM AND VCM 1/FA FOR T/MS FOR INTERFACE W510TU	6-88-W650W-8800	
22	MAIN AUTOWAVE IN W/220P POLYURETHANE 2 INC. REACTION TO H/MT HMM C/RO FOR E W510TU	6-88-W230F-4210	
22	MAIN LITEN W/220P POLYURETHANE 2 INC. REACTION TO H/MT HMM C/RO FOR E W510TU	6-88-W25WF-4200	
22	MAIN COM AUTOWAVE IN W/220P POLYURETHANE 2 INC. REACTION TO H/MT HMM C/RO FOR E W510TU	6-88-W54SF-7000	
22	MAIN LITEN W/220P POLYURETHANE 2 INC. REACTION TO H/MT HMM C/RO FOR E W510TU	6-88-P3702-9400	
22	MAIN LITEN W/220P POLYURETHANE 2 INC. REACTION TO H/MT HMM C/RO FOR E W510TU	6-88-W54SF-9400	
23	PL/MTY 30MM 10MM PUSH TYPE PC+ABS <CT220P-70010> W510TU	6-42-W9708-030	
24	ID BOARD V2.0 W510TU	6-77-W5101-D02	
25	W/O HDD ASS'Y W510TU	6-79-W510TU0J-010	
26	MYLAR 30*15*0.1 P170EM	6-40-P17E3-010	

Figure A - 1  
Top (10W)

Part Lists

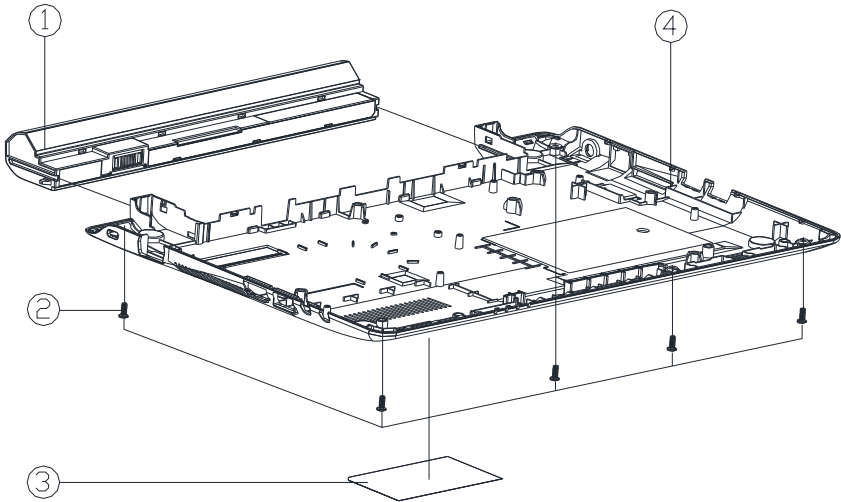
Top (43W)

Figure A - 1  
Top (43W)



ITEM	PART NAME	PART NO	REMARK
1	WING K/B USA (BLACK) FRAME (US) MODULE W30CZ	6-79-W310CZ0K-010-W	
2	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
3	TOP CASE MODULE W510TU	6-39-W5102-011	
4	TOP CASE MODULE W510TU-C	6-39-W5102-011-C	
5	POWER SWITCH BOARD V2.0 W510TU	6-77-W510S-D02	
6	SCREW M2*3L KI NI ICT NY (DD=4.5,DT=0.4)	6-35-B1120-3RE	
7	FFC CABLE FOR POWER BOARD TO MB 22MM 5V 4PIN (CNUS) W510TU	6-43-W5100-020	
8	SPRING CABLE R/L 23*44 15W 4? 35MM L1251477X (V1Y) W30CZ	6-23-5W310-0S0	
9	TOUCH PAD SYNAPTICS TM-01146-003 MULTI-GEASURE C4800	6-49-C4802-010	
10	TP TAPE MYLAR PET W540EU	6-40-W5401-010	
11	FFC CABLE CLICK TO MB 64MM 5V 4PIN (CNUS) W510TU	6-43-W5100-010	
12	CLICK BOARD V2.0 W510TU	6-77-W5102-D02	
13	TAPE MYLAR (B),MYLAR M550J	6-40-M55J2-020	
14	DC CONNECTOR BOARD V2.0 W510TU	6-77-W510C-D02	
15	MAIN BOARD CPU/P280/160 V28 CPU QV1200V0 TP/USC CHARGE IV TUNER3D W510TU	6-23-7W510-011	
16	FFC CABLE FOR TOUCH PAD 67mm 60V 6PIN FOR W2400U (V1C)	6-43-C4502-010-3	
16	MAIN BOARD CPU/P280/160 V28 CPU QV1200V0 TP/USC CHARGE IV TUNER3D W510TU	6-77-W510TU00-D02-A	
16	MAIN BOARD CPU/P280/160 V28 CPU QV1200V0 TP/USC CHARGE IV TUNER3D W510TU	6-77-W510TU00-D02-1A	
16	MAIN BOARD CPU/P280/160 V28 CPU QV1200V0 TP/USC CHARGE IV TUNER3D W510TU	6-77-W510TU00-D02-3F	
16	MAIN BOARD CPU/P280/160 V28 CPU QV1200V0 TP/USC CHARGE IV TUNER3D W510TU	6-77-W510TU00-D02-3A	
16	MAIN BOARD CPU/P280/160 V28 CPU QV1200V0 TP/USC CHARGE IV TUNER3D W510TU	6-77-W510TU00-D02-2A	
17	CPU HEATSINK MODULE TYPE-B FOR 43W (AL1050) W510TU	6-31-W510N-201	
18	SCREW M2*4L KI BZ ICT NY	6-35-B6120-4RA	
19	MYLAR 30*15*0.1 P170EM	6-40-P17E3-010	
20	BATTERY 3V 220MA BBBCR2032B (KTS)	6-23-6A2B2-030	
21	MAIN BOARD CPU/P280/160 V28 CPU QV1200V0 TP/USC CHARGE IV TUNER3D W510TU	6-88-W650W-8800	
22	MAIN BOARD CPU/P280/160 V28 CPU QV1200V0 TP/USC CHARGE IV TUNER3D W510TU	6-88-W230F-4210	
22	MAIN BOARD CPU/P280/160 V28 CPU QV1200V0 TP/USC CHARGE IV TUNER3D W510TU	6-88-W25WF-4200	
22	MAIN BOARD CPU/P280/160 V28 CPU QV1200V0 TP/USC CHARGE IV TUNER3D W510TU	6-88-W54SF-7000	
22	MAIN BOARD CPU/P280/160 V28 CPU QV1200V0 TP/USC CHARGE IV TUNER3D W510TU	6-88-P3702-9400	
22	MAIN BOARD CPU/P280/160 V28 CPU QV1200V0 TP/USC CHARGE IV TUNER3D W510TU	6-88-W54SF-9400	
23	DUMMY 3INCH INCH PUSH TYPE PC-HABS (C720P-7010C) W970SLW	6-42-W9708-030	
24	ID BOARD V2.0 W510TU	6-77-W5101-D02	
25	W/O HDD ASS'Y W510TU	6-79-W510TU0J-010	

Bottom (10W)



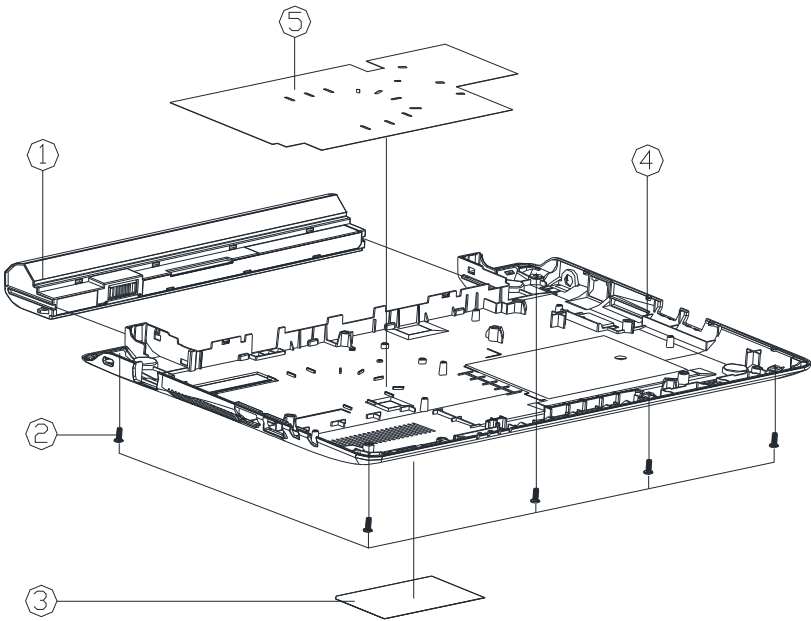
ITEM	PART NAME	PART NO	REMARK
1	BATP S LI 11.1V/28Ah/20Wh 3SP SMP/SDI 9807/02140F W510TU	6-87-W510S-4291	
1	BATP S LI 11.1V/22Ah/24Wh 3SP SMP/SDI 9807/02142F W510TU	6-87-W510S-42F1	
1	BATP S LI 11.1V/22Ah/24Wh 3SP CE/AC/LISEN 54128630001 W510TU	6-87-W510S-4UF1	
2	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
3	PRODUCT LABEL FOR W510TU	6-45-W510TU03-010	
4	BOTTOM CASE MODULE W510TU	6-39-W5103-011	
4	BOTTOM CASE MODULE W510TU-C	6-39-W5103-011-C	

Figure A - 1  
Bottom (10W)

Part Lists

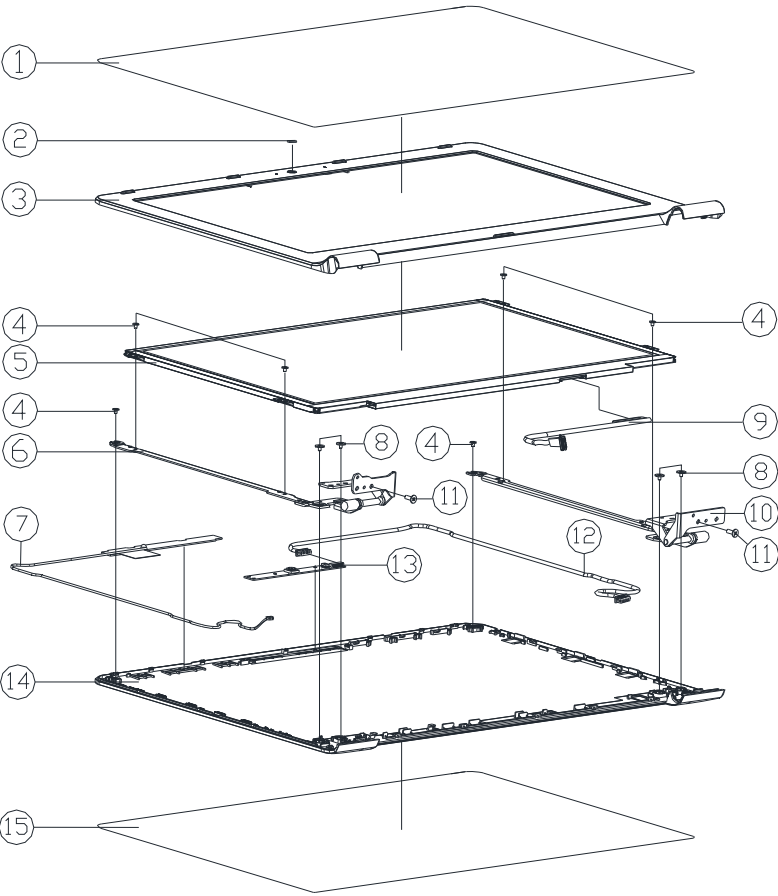
Bottom (43W)

Figure A - 1  
Bottom (43W)



ITEM	PART NAME	PART NO	REMARK
1	BATP S LI 11.1V/2200mAh/330P SMP/SDI 9801/02/14/F W510TU	6-87-W510S-4291	
1	BATP S LI 11.1V/2200mAh/330P SMP/SDI 9801/02/14/F W510TU	6-87-W510S-42F1	
1	BATP S LI 11.1V/2200mAh/330P GETAC/LI/SHEN 54103630001 W510TU	6-87-W510S-4UF1	
2	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
3	PRODUCT LABEL FOR W510TU	6-45-W510TU03-010	
4	BOTTOM CASE MODULE W510TU	6-39-W5103-011	
4	BOTTOM CASE MODULE W510TU-C	6-39-W5103-011-C	
5	BOTTOM CASE CU FOIL 0.25T W510TU	6-47-W5103-020	

LCD



ITEM	PART NAME	PART NO	REMARK
1	LCD PANEL PROTECT MYLAR PET W310CZ	6-40-W3101-010	
2	CCD LENS (PMMA) W510TU	6-42-W5101-010	
3	LCD FRONT COVER MODULE W510TU	6-39-W5101-011	
4	SCREW M2*2.5L K1 BK/Z ICT NY#35 T=0.3	6-35-B6120-2RB	
5	LCD 11.6" HD AU W510TU V1 FH GLARE TYPE Q3800 LEDD (EDP)	6-50-B8136-G03	
5	LCD 11.6" HD CHINEL W510TU V1.42 VIR GLARE TYPE QLED 3.0MM	6-50-B8134-D01	
6	EDP HINGE MODULE L (SK7+SECC) W510TU	6-33-W5101-L11	FOR EDP
6	LVDS HINGE MODULE L (SK7+SECC) W510TU	6-33-W5101-L01	FOR LVDS
7	EDP HINGE MODULE R (SK7+SECC) W510TU	6-23-7W510-031	
8	SCREW M2*2L K1 BK/Z ICT NY#08,T=0.6	6-35-B6120-2RE	
9	WIRE CABLE FOR EDP 33MM 33V 4P W510TU/HL CONDUIT#9002-H1 W510TU	6-43-W5101-011-C	FOR EDP
9	WIRE CABLE FOR LVDS 42MM 33V 8P W510TU/HL CONDUIT#9002 W510TU	6-43-W5101-021-1C	FOR LVDS
10	EDP HINGE MODULE R (SK7+SECC) W510TU	6-33-W5101-R11	FOR EDP
10	LVDS HINGE MODULE R (SK7+SECC) W510TU	6-33-W5101-R01	FOR LVDS
11	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
12	WIRE CABLE FOR CCD 505MM 3.3V 8P (HL) W510TU	6-43-W510T-011	
13	LCD CAMERA BODY FIX CHINEL 30K 100K 100K 100K 100K 100K 100K 100K	6-88-W940C-4901	
13	LCD CAMERA BODY FIX CHINEL 30K 100K 100K 100K 100K 100K 100K 100K	6-88-W940C-5100	
13	LCD CAMERA BODY FIX CHINEL 30K 100K 100K 100K 100K 100K 100K 100K	6-88-W97TC-5100	
14	LCD BACK COVER MODULE W510TU	6-39-W5101-021	
14	LCD BACK COVER MODULE W510TU-C	6-39-W5101-021-C	
15	LCD BACK COVER PROTECT MYLAR PET W310CZ	6-40-W3101-020	

Figure A - 2  
LCD





# Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the **W510TU** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

*Table B - 1*  
**SCHEMATIC  
DIAGRAMS**

Diagram - Page	Diagram - Page	Diagram - Page
<i>System Block Diagram - Page B - 2</i>	<i>Audio Codec ALC269 - Page B - 15</i>	<i>AC-In Conn - Page B - 28</i>
<i>SOC 1/8 - Page B - 3</i>	<i>AU6259-JGF - Page B - 16</i>	<i>Audio Board - Page B - 29</i>
<i>SOC 2/8 - Page B - 4</i>	<i>HDD, TouchPanel, LED, G-Sensor - Page B - 17</i>	<i>RTL8402 - Page B - 30</i>
<i>SOC 3/8 - Page B - 5</i>	<i>USB, Touch Panel - Page B - 18</i>	<i>Power SW Board - Page B - 31</i>
<i>SOC 4/8 - Page B - 6</i>	<i>Conn, CCD, Fan, Click, TV - Page B - 19</i>	<i>Click Board - Page B - 32</i>
<i>SOC 5/8 - Page B - 7</i>	<i>Mini Card - Page B - 20</i>	<i>Level Shifter 1 - Page B - 33</i>
<i>SOC 6/8 - Page B - 8</i>	<i>KBC ITE IT8587E - Page B - 21</i>	<i>Level Shifter 2 - Page B - 34</i>
<i>SOC 7/8 - Page B - 9</i>	<i>System Power - Page B - 22</i>	<i>Power Diagram - Page B - 35</i>
<i>SOC 8/8 - Page B - 10</i>	<i>VDD3, VDD5 - Page B - 23</i>	<i>Power On SEQ - Page B - 36</i>
<i>DDR3 SO-DIMM_0 - Page B - 11</i>	<i>POWER 1.5V/0.75V - Page B - 24</i>	
<i>PS8625 - Page B - 12</i>	<i>POWER 1.0VA, 1.05VS - Page B - 25</i>	
<i>Panel, CRT - Page B - 13</i>	<i>Power 0.85VS, 1.8VS - Page B - 26</i>	
<i>HDMI - Page B - 14</i>	<i>AC-In, Charger - Page B - 27</i>	

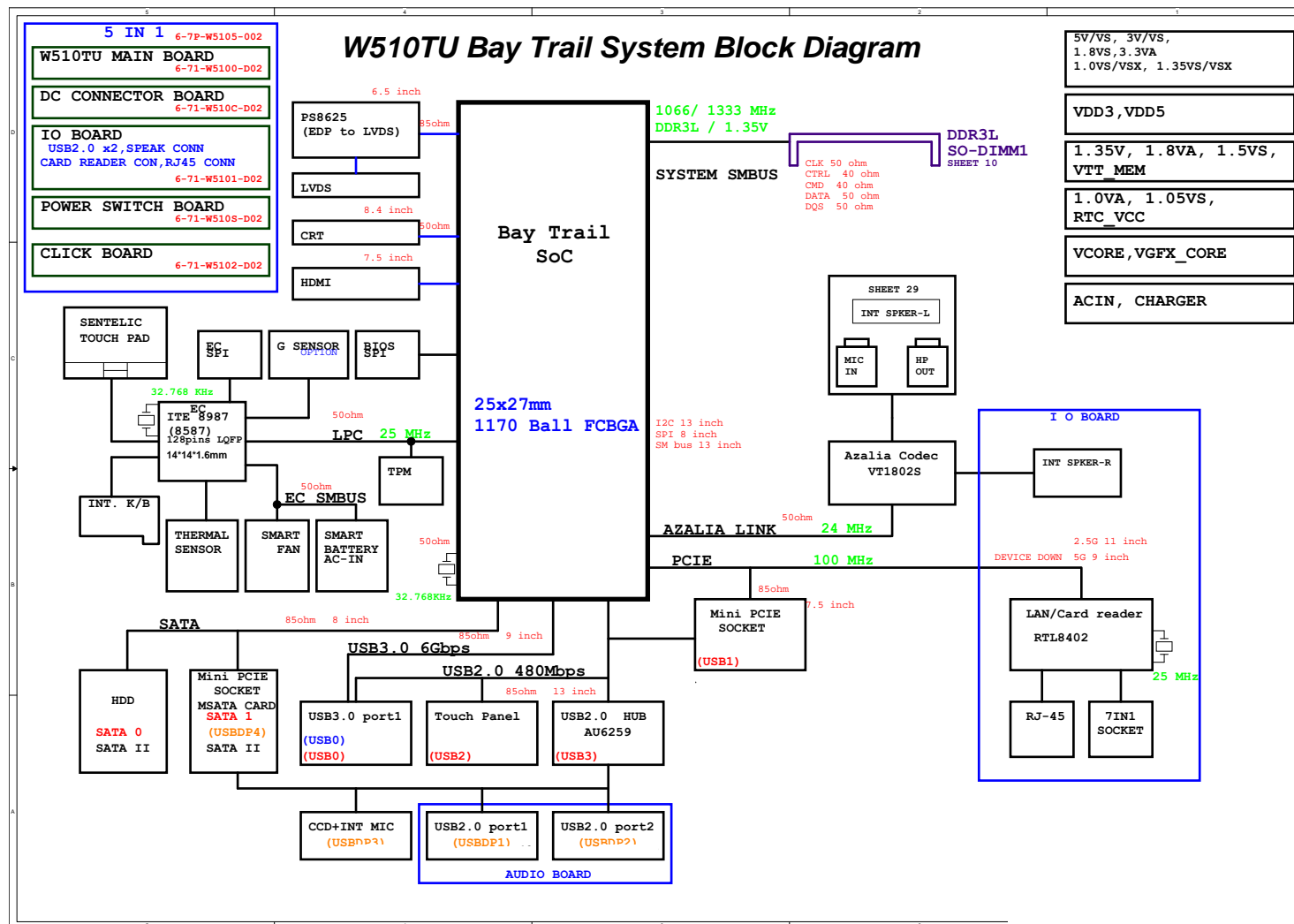


## Version Note

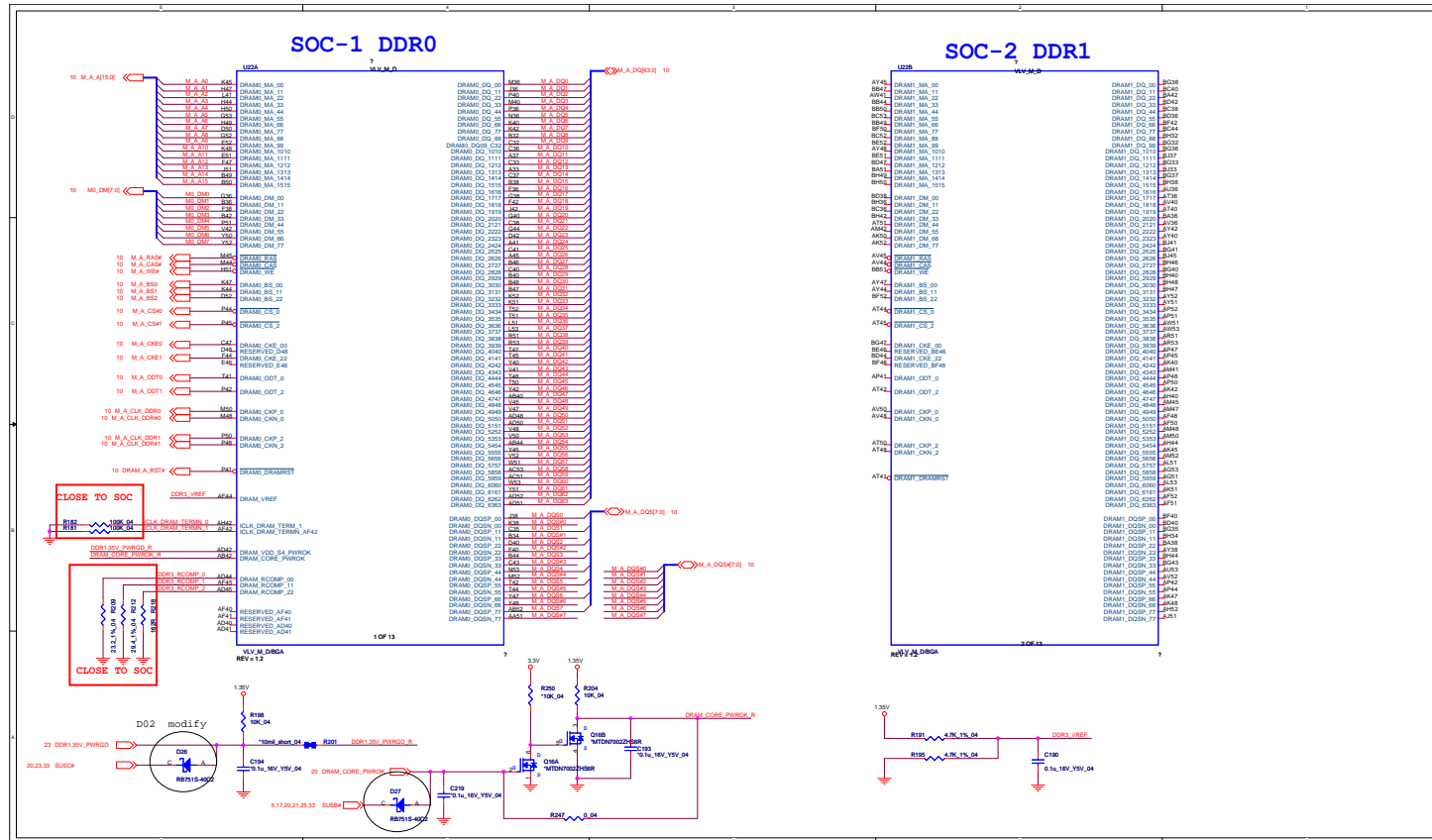
The schematic diagrams in this chapter are based upon version 6-7P-W5105-002. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

## System Block Diagram

**Sheet 1 of 42**  
**System Block**  
**Diagram**



## SOC 1/8

Sheet 2 of 42  
SOC 1/8

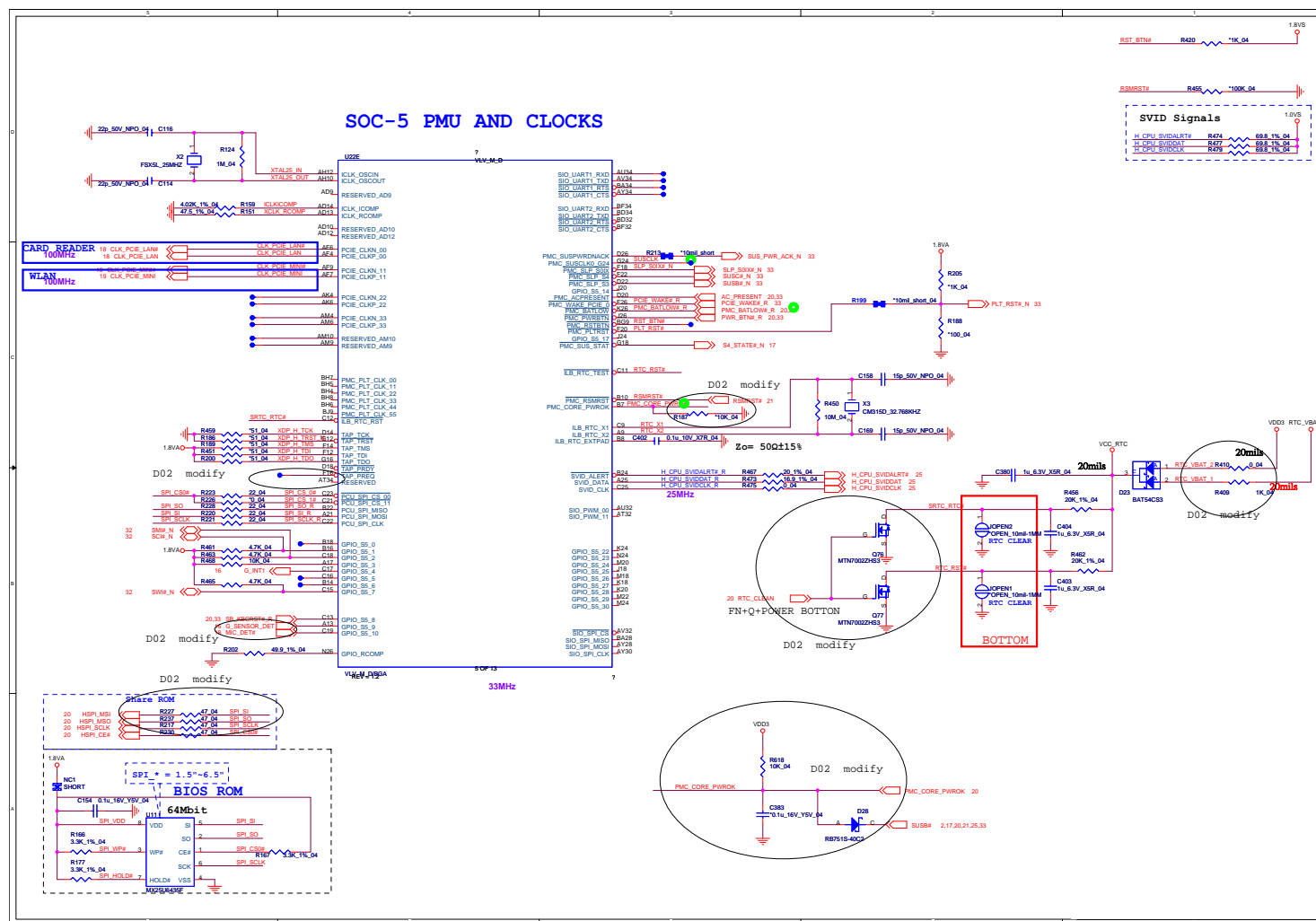




**SOC 4/8**

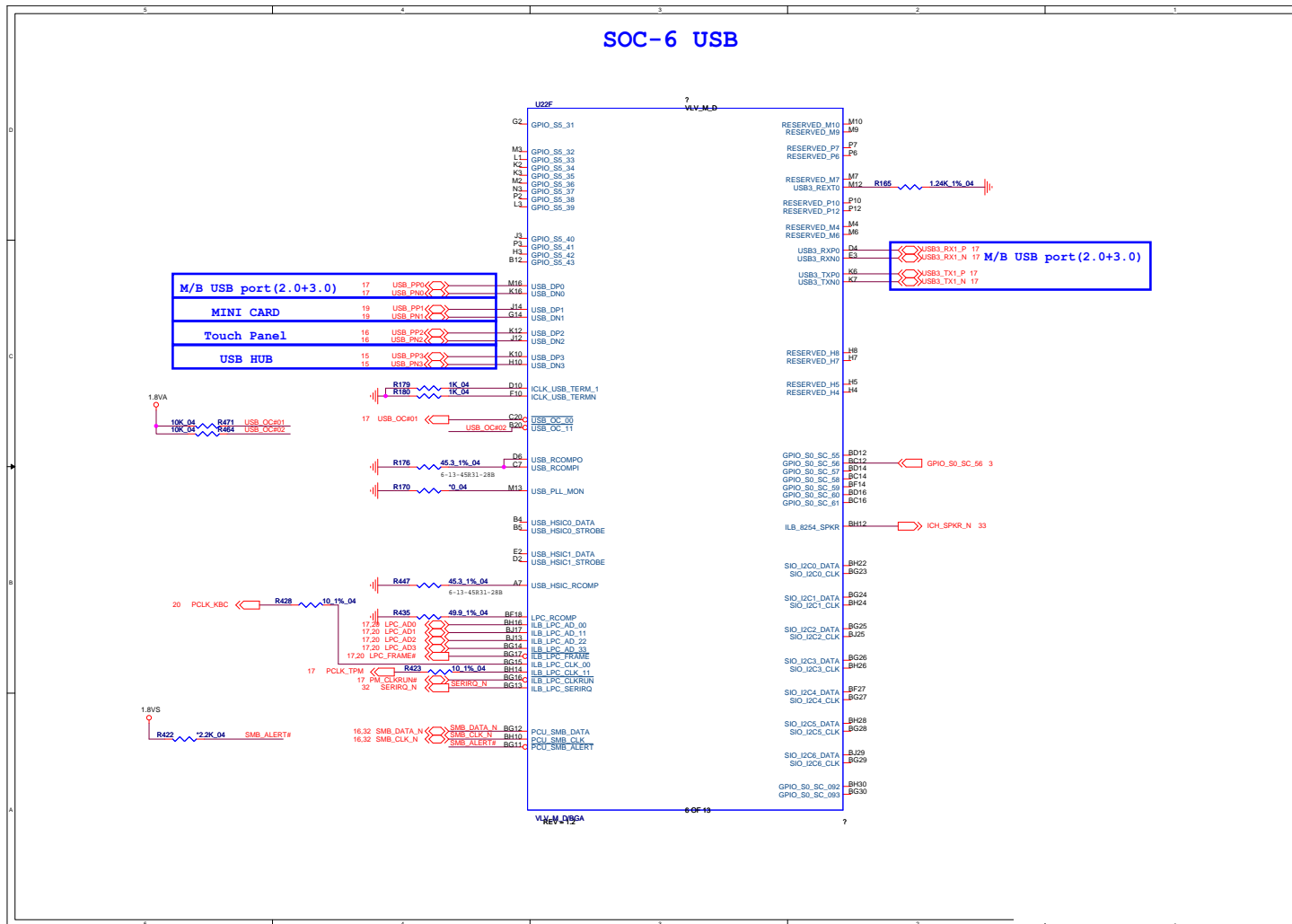
## B.Schematic Diagrams

Sheet 5 of 42  
SOC 4/8





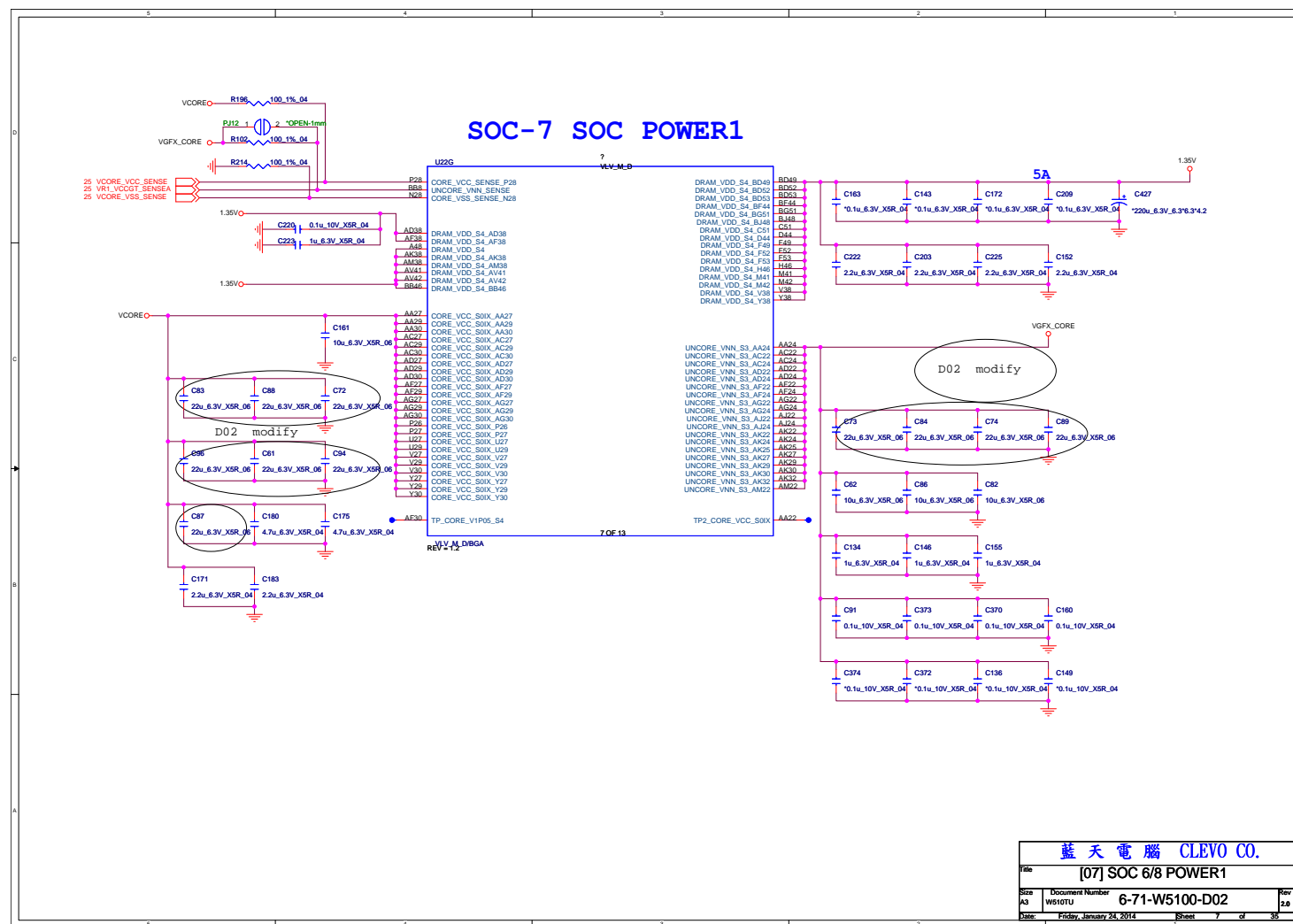
# SOC 5/8



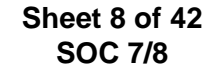
Sheet 6 of 42  
SOC 5/8

**SOC 6/8**

Sheet 7 of 42  
SOC 6/8

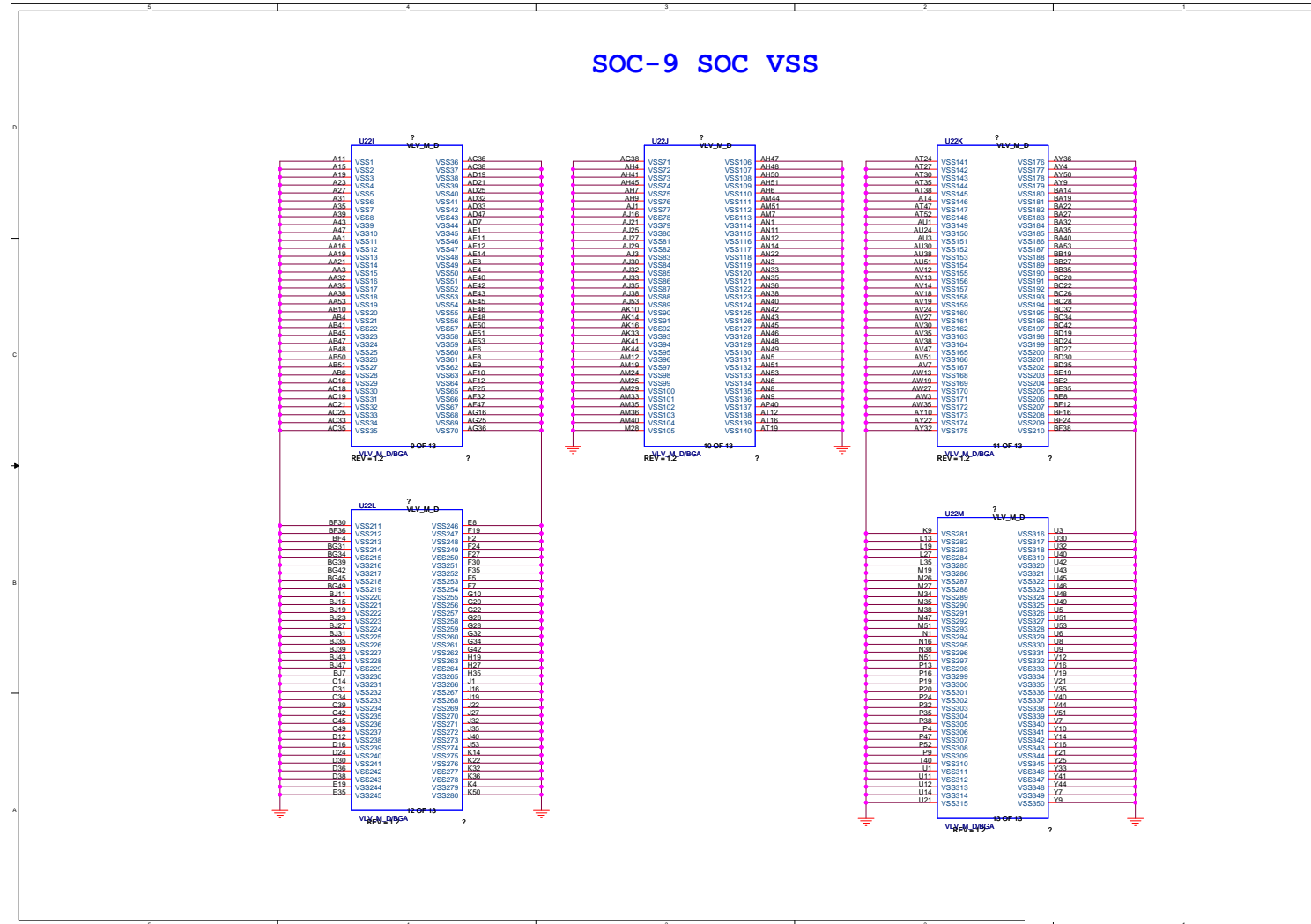


## B.Schematic Diagrams



# SOC 8/8

Sheet 9 of 42  
SOC 8/8

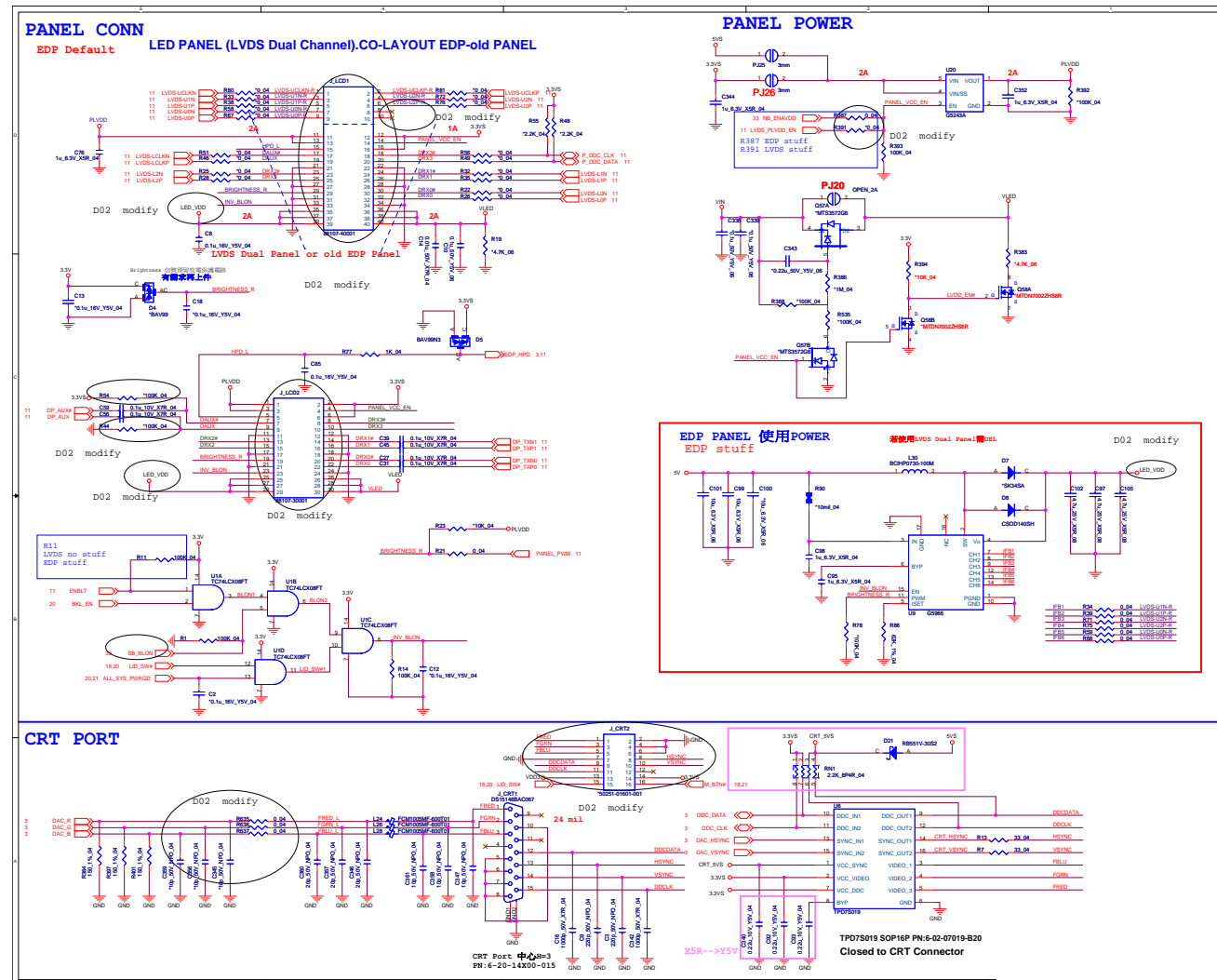








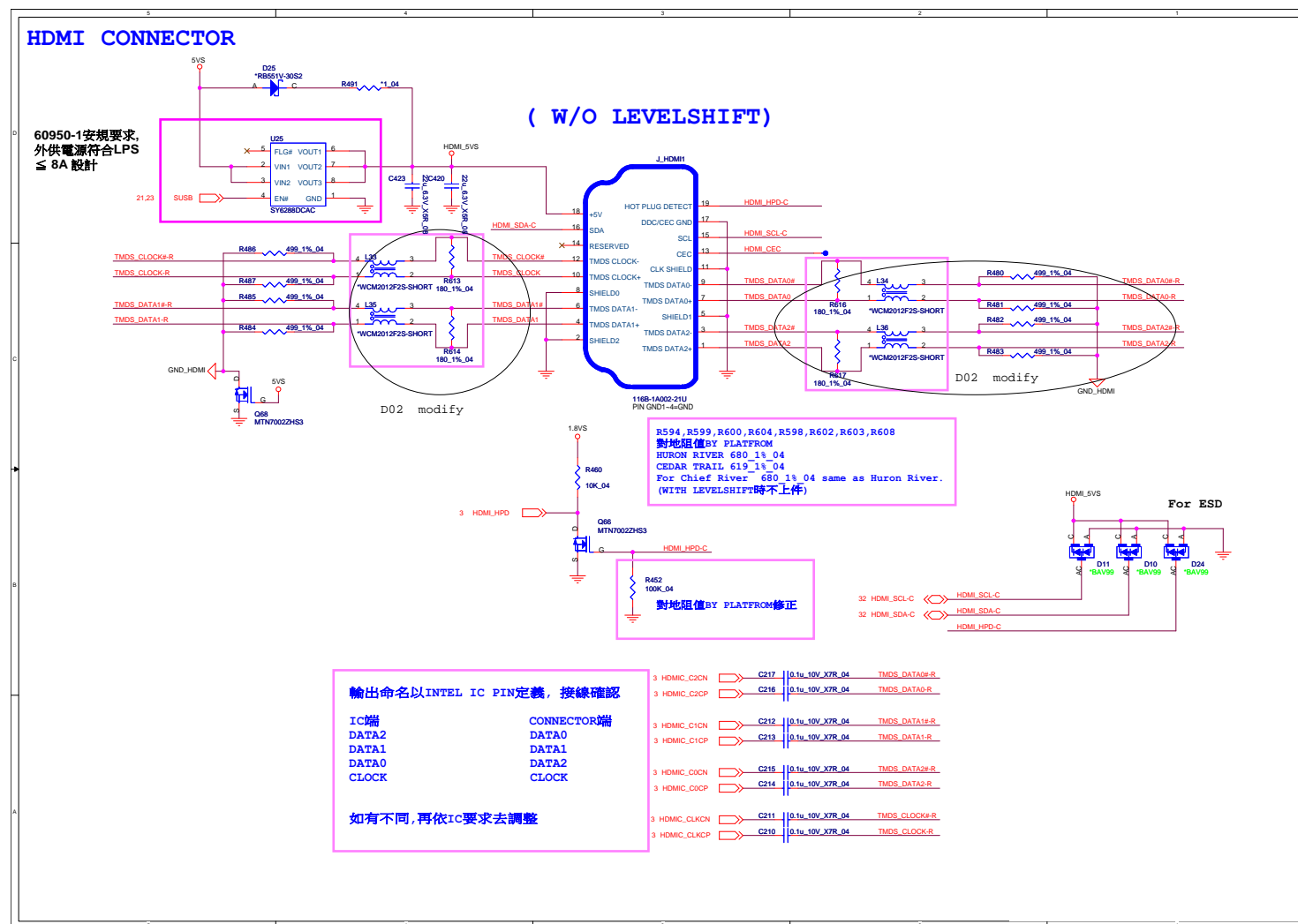
# Panel, CRT



Sheet 12 of 42  
Panel, CRT

## HDMI

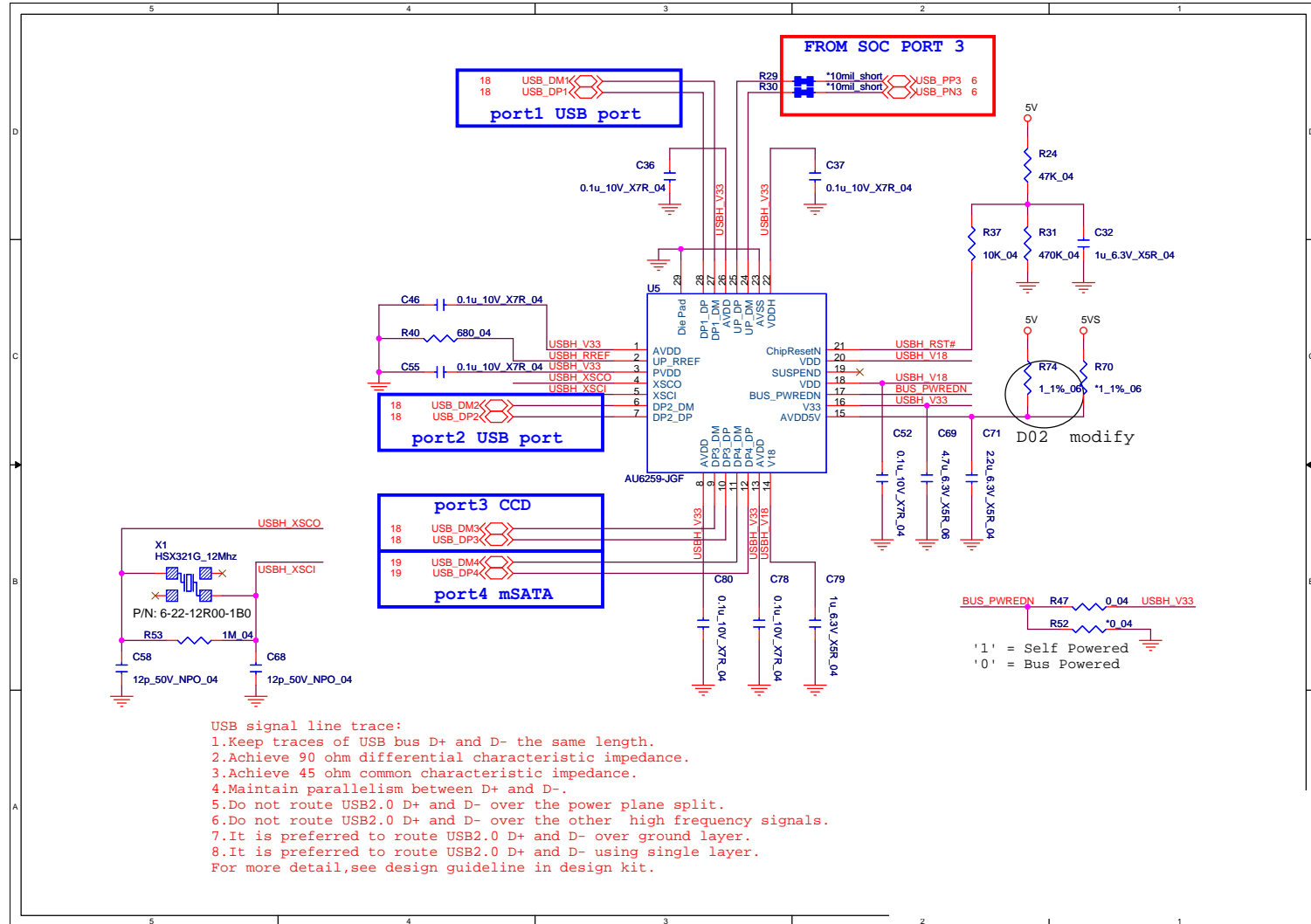
**Sheet 13 of 42**  
**HDMI**





# AU6259-JGF

Sheet 15 of 42  
AU6259-JGF



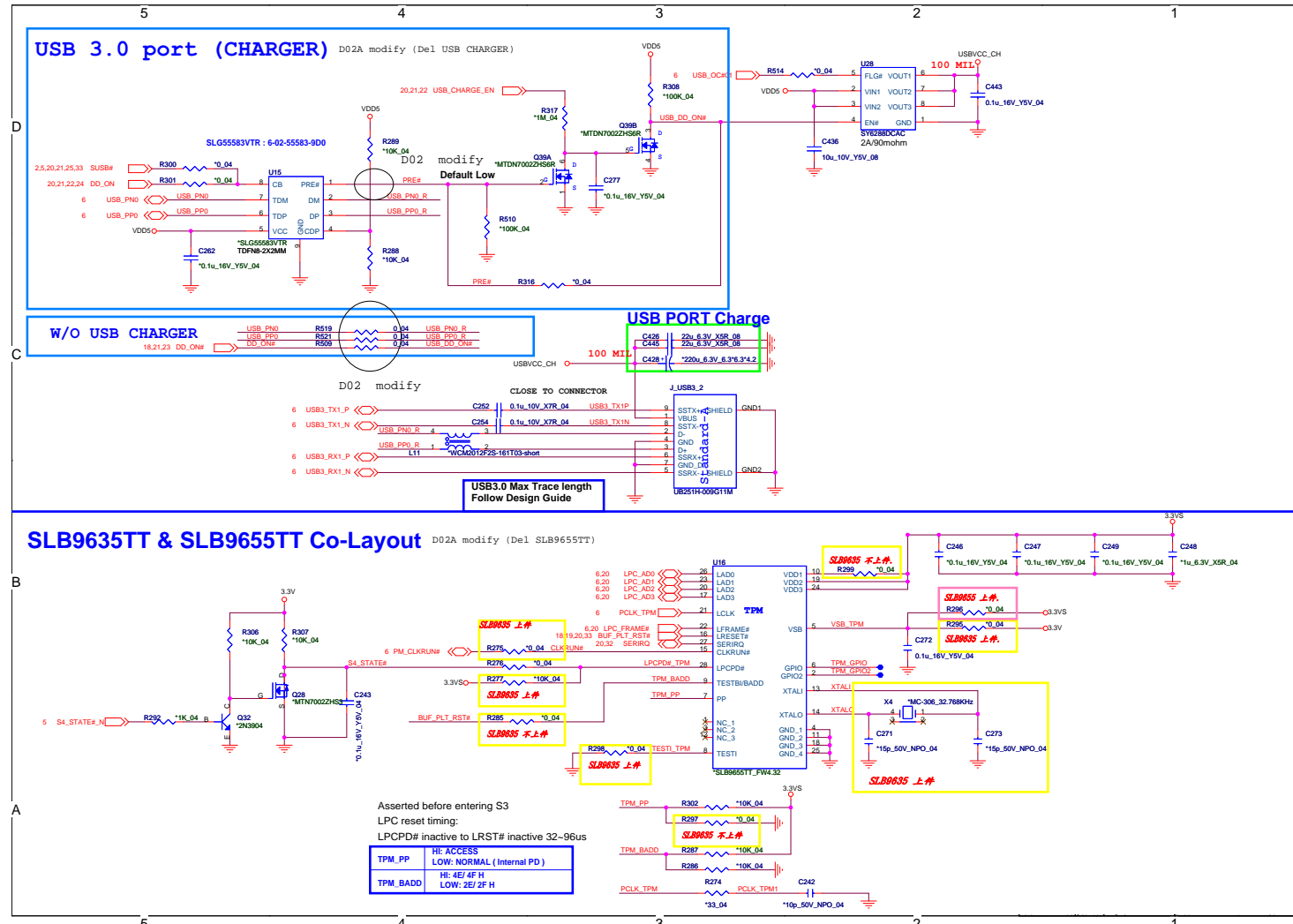
## Schematic Diagrams



## Schematic Diagrams

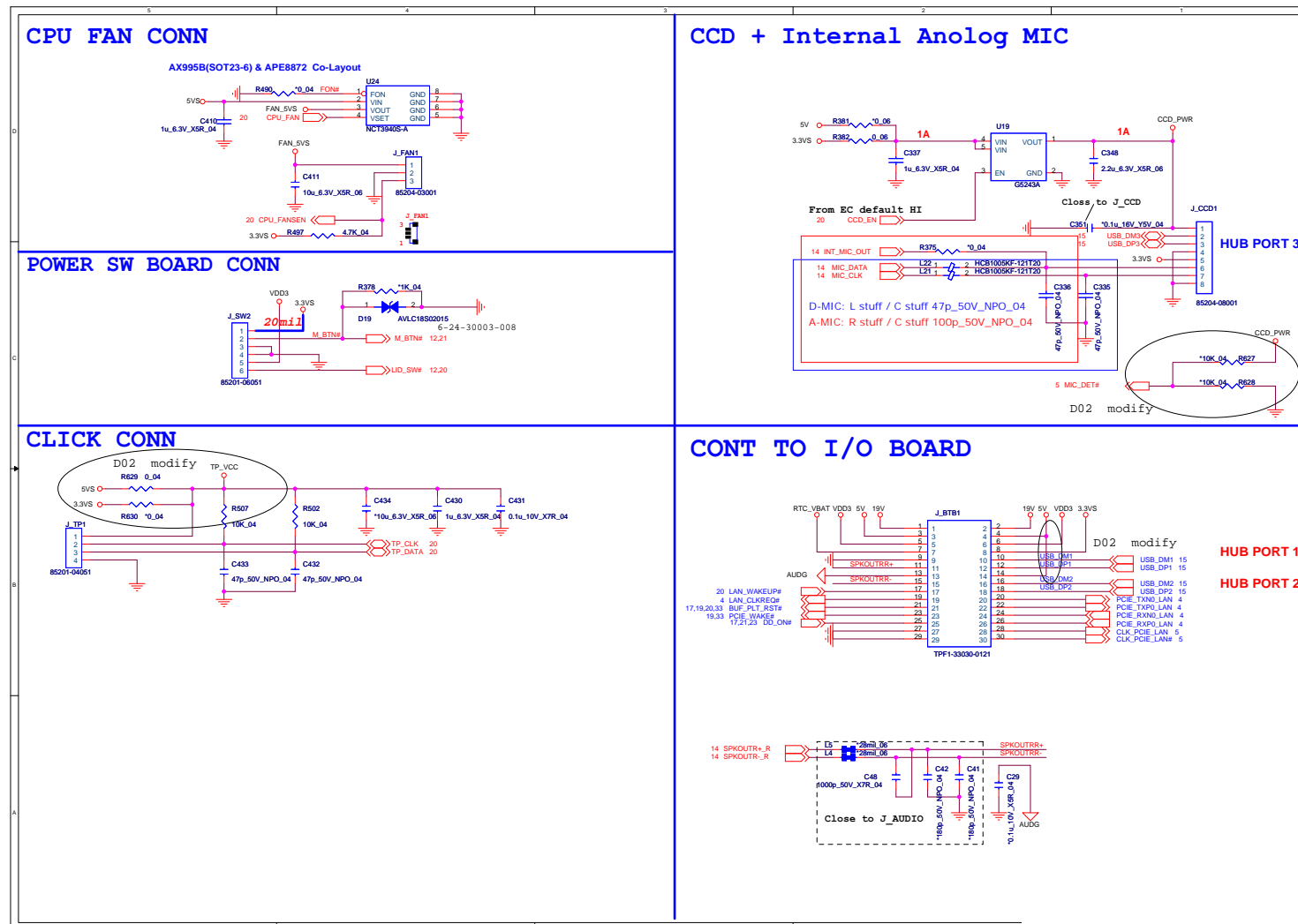
## USB, Touch Panel

Sheet 17 of 42  
USB, Touch Panel





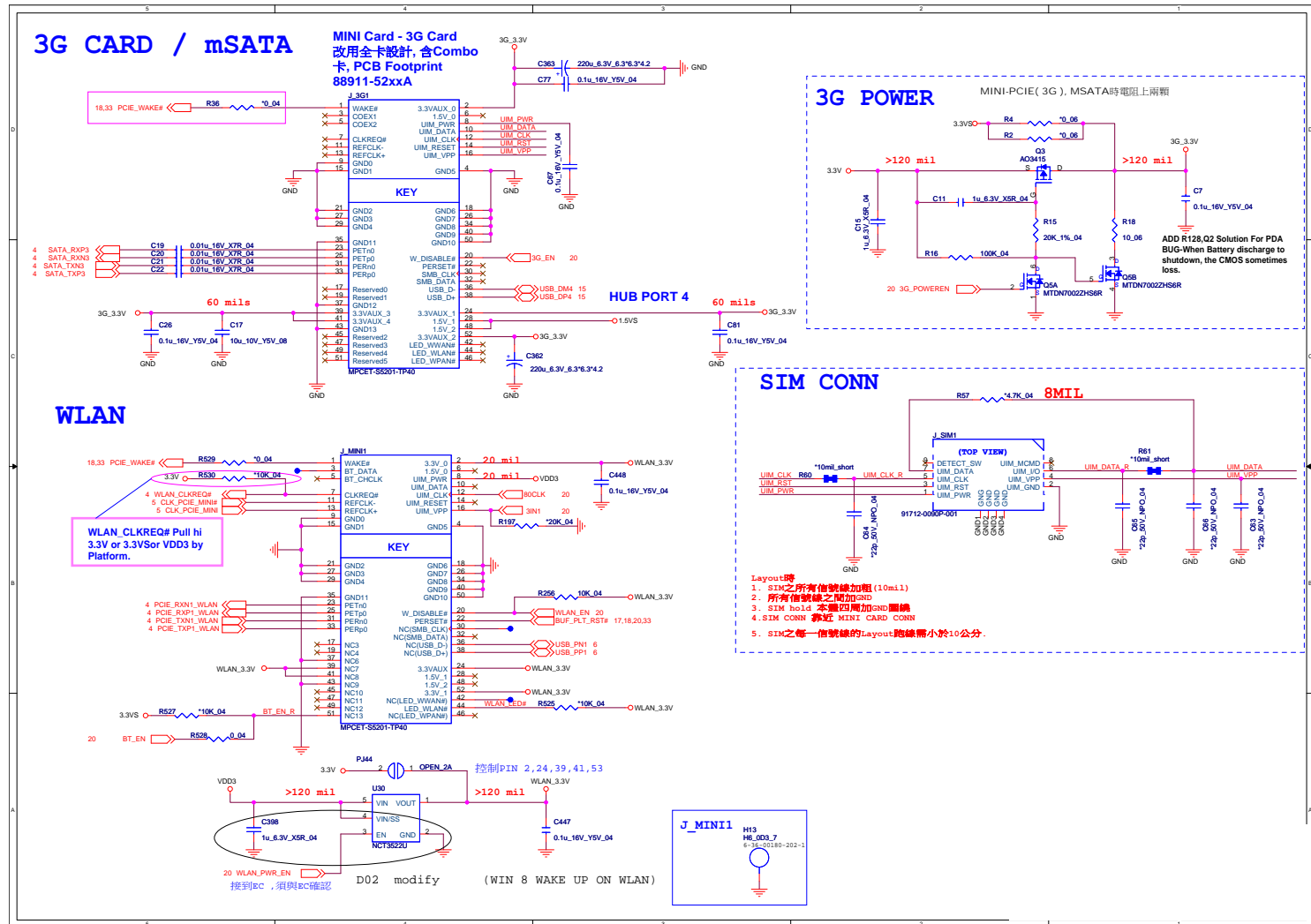
# Conn, CCD, Fan, Click, TV



Sheet 18 of 42  
Conn, CCD, Fan,  
Click, TV

## Mini Card

Sheet 19 of 42  
Mini Card



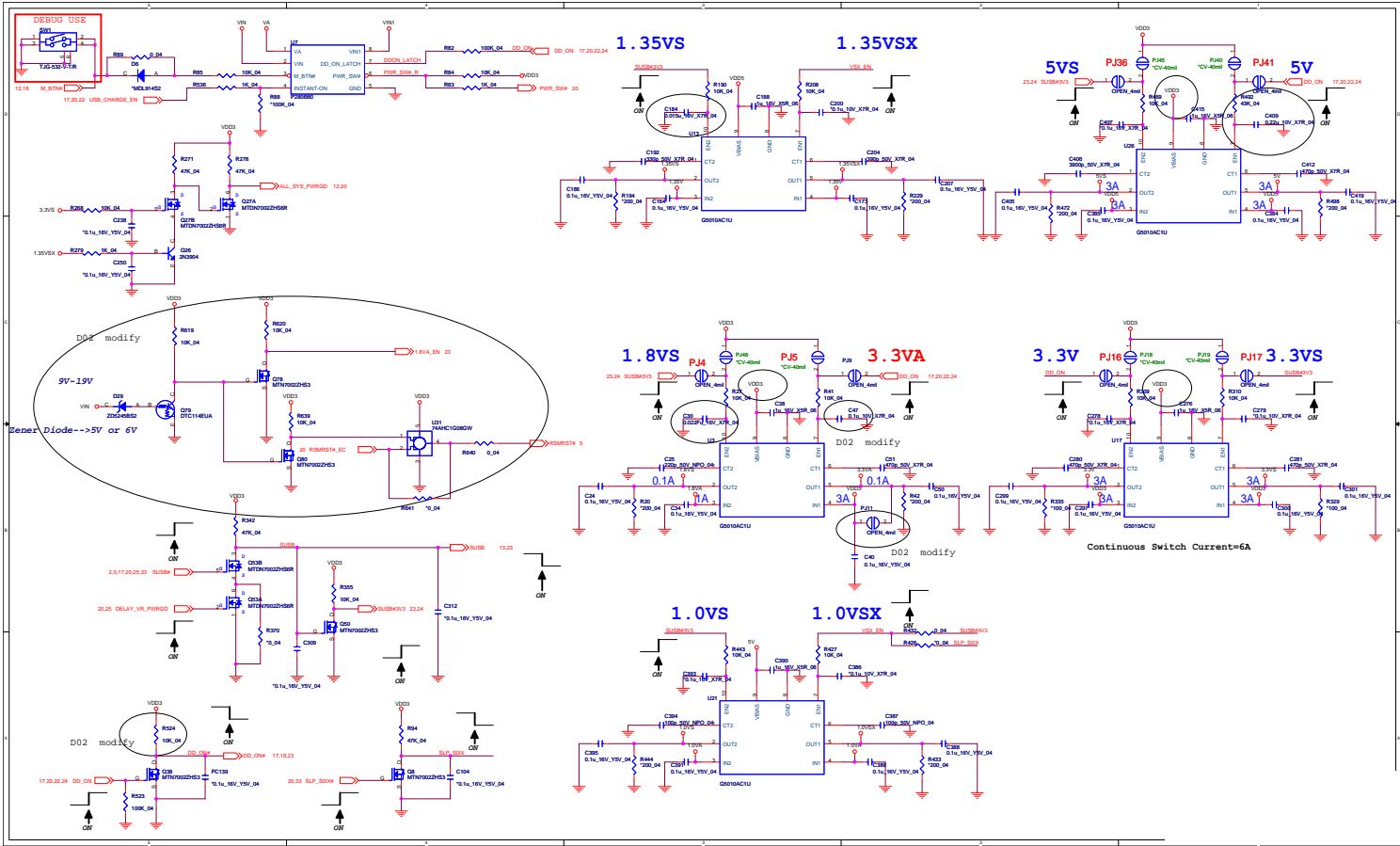
The diagram is a detailed schematic of the IT5857 & IT8987 COLAY board. It shows the internal components, including the L9611 DC-DC converter, various capacitors, resistors, and integrated circuits. The diagram is annotated with 'D02 modify' and 'D02 modify' in red, indicating modifications to the original design. The board is labeled 'IT5857 & IT8987 COLAY' and 'D02 modify'.

**Component Values Table:**

REF	VALUE	UNIT	REF	VALUE	UNIT
C100	100K	Ω	R100	10K	Ω
C101	100K	Ω	R101	10K	Ω
C102	100K	Ω	R102	10K	Ω
C103	100K	Ω	R103	10K	Ω
C104	100K	Ω	R104	10K	Ω
C105	100K	Ω	R105	10K	Ω
C106	100K	Ω	R106	10K	Ω
C107	100K	Ω	R107	10K	Ω
C108	100K	Ω	R108	10K	Ω
C109	100K	Ω	R109	10K	Ω
C110	100K	Ω	R110	10K	Ω
C111	100K	Ω	R111	10K	Ω
C112	100K	Ω	R112	10K	Ω
C113	100K	Ω	R113	10K	Ω
C114	100K	Ω	R114	10K	Ω
C115	100K	Ω	R115	10K	Ω
C116	100K	Ω	R116	10K	Ω
C117	100K	Ω	R117	10K	Ω
C118	100K	Ω	R118	10K	Ω
C119	100K	Ω	R119	10K	Ω
C120	100K	Ω	R120	10K	Ω
C121	100K	Ω	R121	10K	Ω
C122	100K	Ω	R122	10K	Ω
C123	100K	Ω	R123	10K	Ω
C124	100K	Ω	R124	10K	Ω
C125	100K	Ω	R125	10K	Ω
C126	100K	Ω	R126	10K	Ω
C127	100K	Ω	R127	10K	Ω
C128	100K	Ω	R128	10K	Ω
C129	100K	Ω	R129	10K	Ω
C130	100K	Ω	R130	10K	Ω
C131	100K	Ω	R131	10K	Ω
C132	100K	Ω	R132	10K	Ω
C133	100K	Ω	R133	10K	Ω
C134	100K	Ω	R134	10K	Ω
C135	100K	Ω	R135	10K	Ω
C136	100K	Ω	R136	10K	Ω
C137	100K	Ω	R137	10K	Ω
C138	100K	Ω	R138	10K	Ω
C139	100K	Ω	R139	10K	Ω
C140	100K	Ω	R140	10K	Ω
C141	100K	Ω	R141	10K	Ω
C142	100K	Ω	R142	10K	Ω
C143	100K	Ω	R143	10K	Ω
C144	100K	Ω	R144	10K	Ω
C145	100K	Ω	R145	10K	Ω
C146	100K	Ω	R146	10K	Ω
C147	100K	Ω	R147	10K	Ω
C148	100K	Ω	R148	10K	Ω
C149	100K	Ω	R149	10K	Ω
C150	100K	Ω	R150	10K	Ω
C151	100K	Ω	R151	10K	Ω
C152	100K	Ω	R152	10K	Ω
C153	100K	Ω	R153	10K	Ω
C154	100K	Ω	R154	10K	Ω
C155	100K	Ω	R155	10K	Ω
C156	100K	Ω	R156	10K	Ω
C157	100K	Ω	R157	10K	Ω
C158	100K	Ω	R158	10K	Ω
C159	100K	Ω	R159	10K	Ω
C160	100K	Ω	R160	10K	Ω
C161	100K	Ω	R161	10K	Ω
C162	100K	Ω	R162	10K	Ω
C163	100K	Ω	R163	10K	Ω
C164	100K	Ω	R164	10K	Ω

## B.Schematic Diagrams

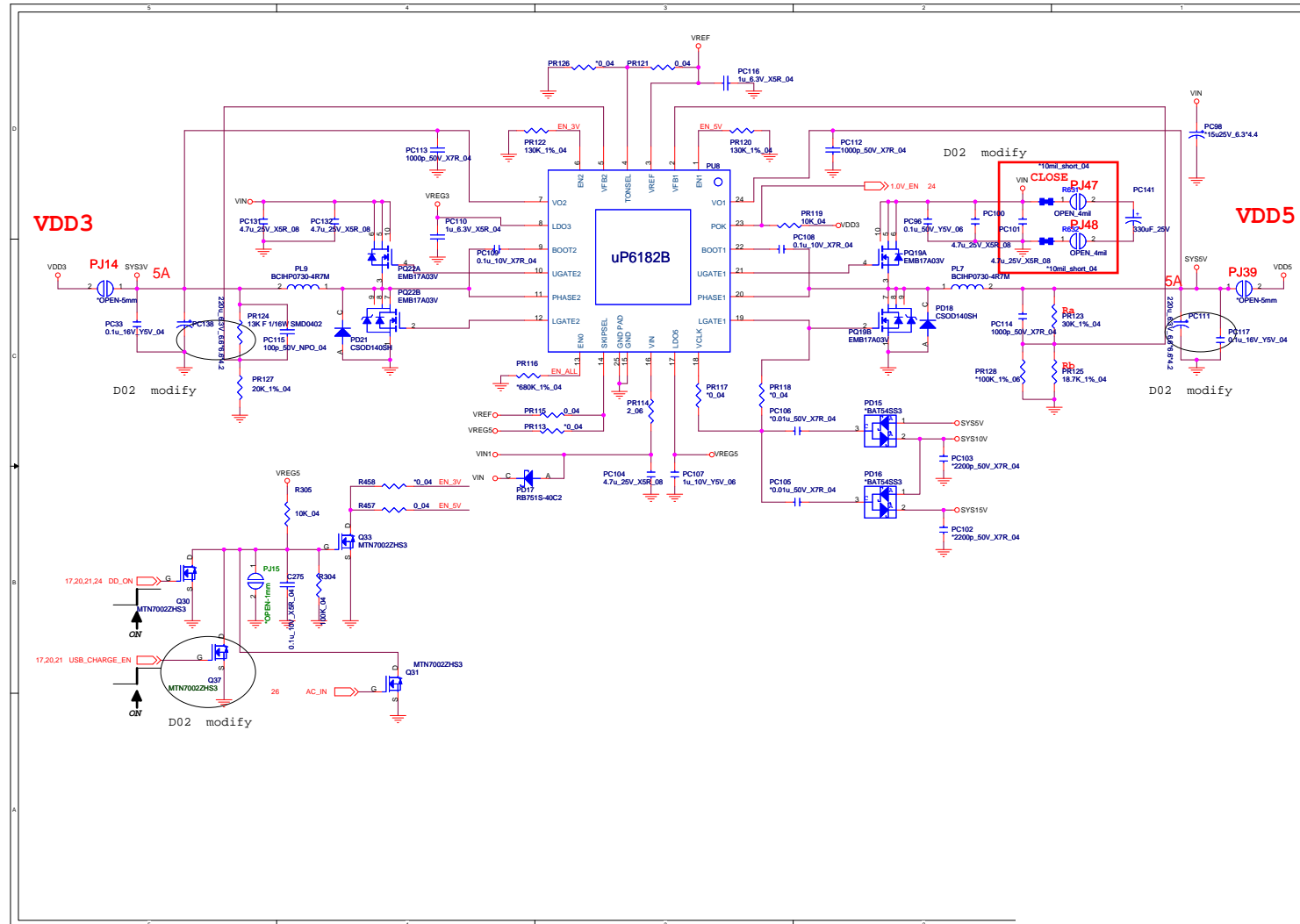
System Power



Sheet 21 of 42  
System Power

B.Schematic Diagrams

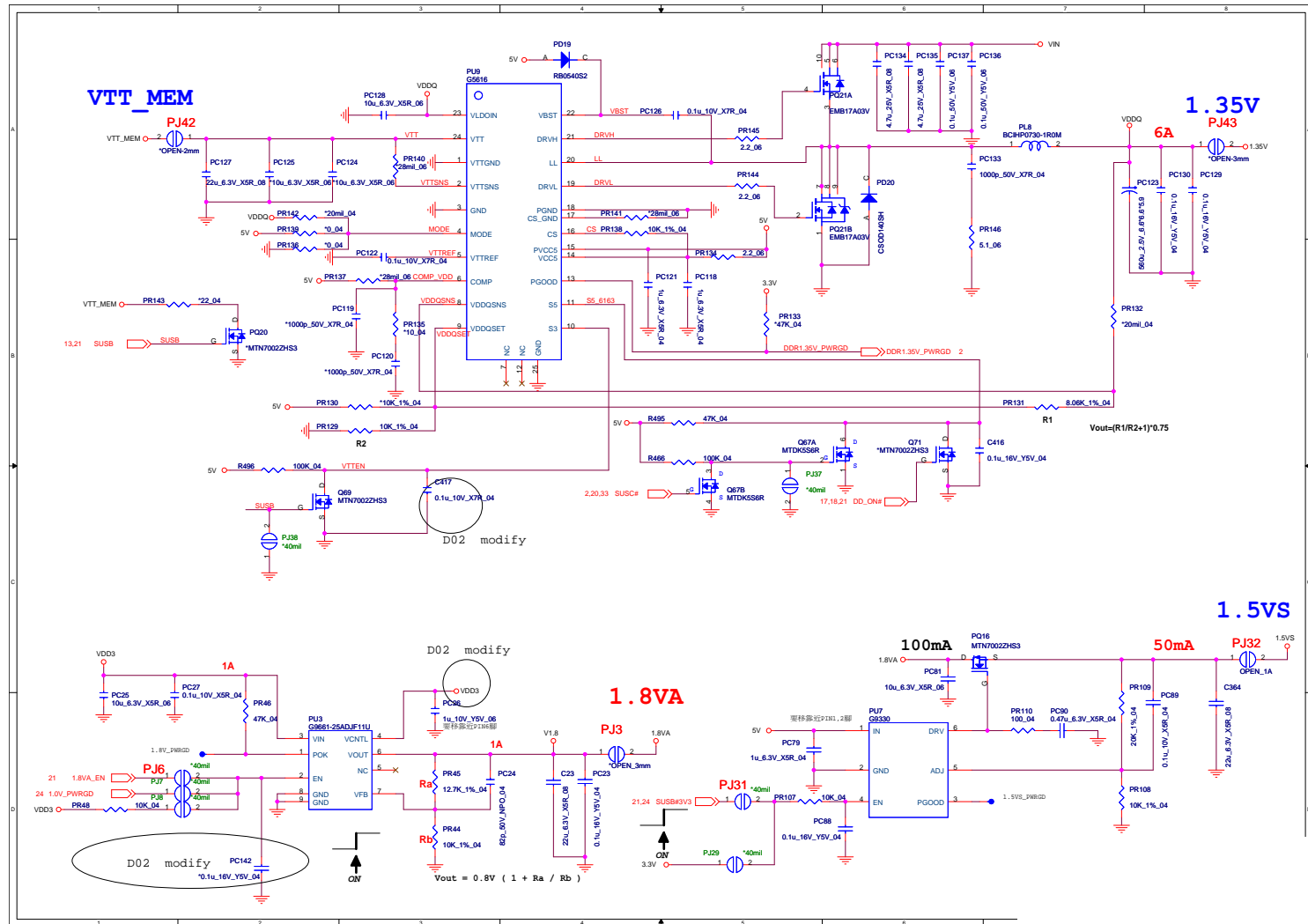
# VDD3, VDD5



Sheet 22 of 42  
VDD3, VDD5

## Schematic Diagrams

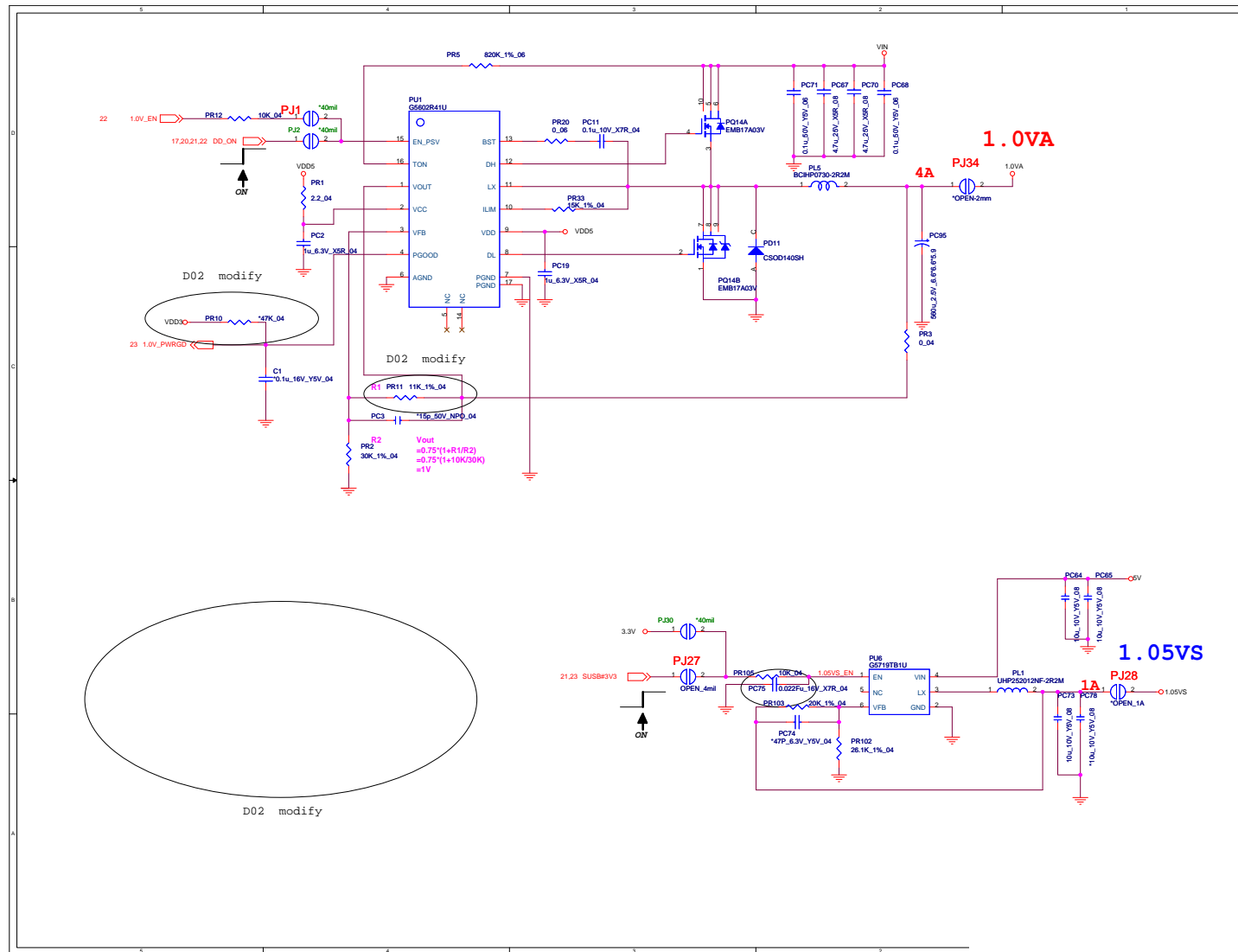
# POWER 1.5V/0.75V



Sheet 23 of 42  
POWER 1.5VS,  
1.8VA, VTT\_MEM

B.Schematic Diagrams

# POWER 1.0VA, 1.05VS



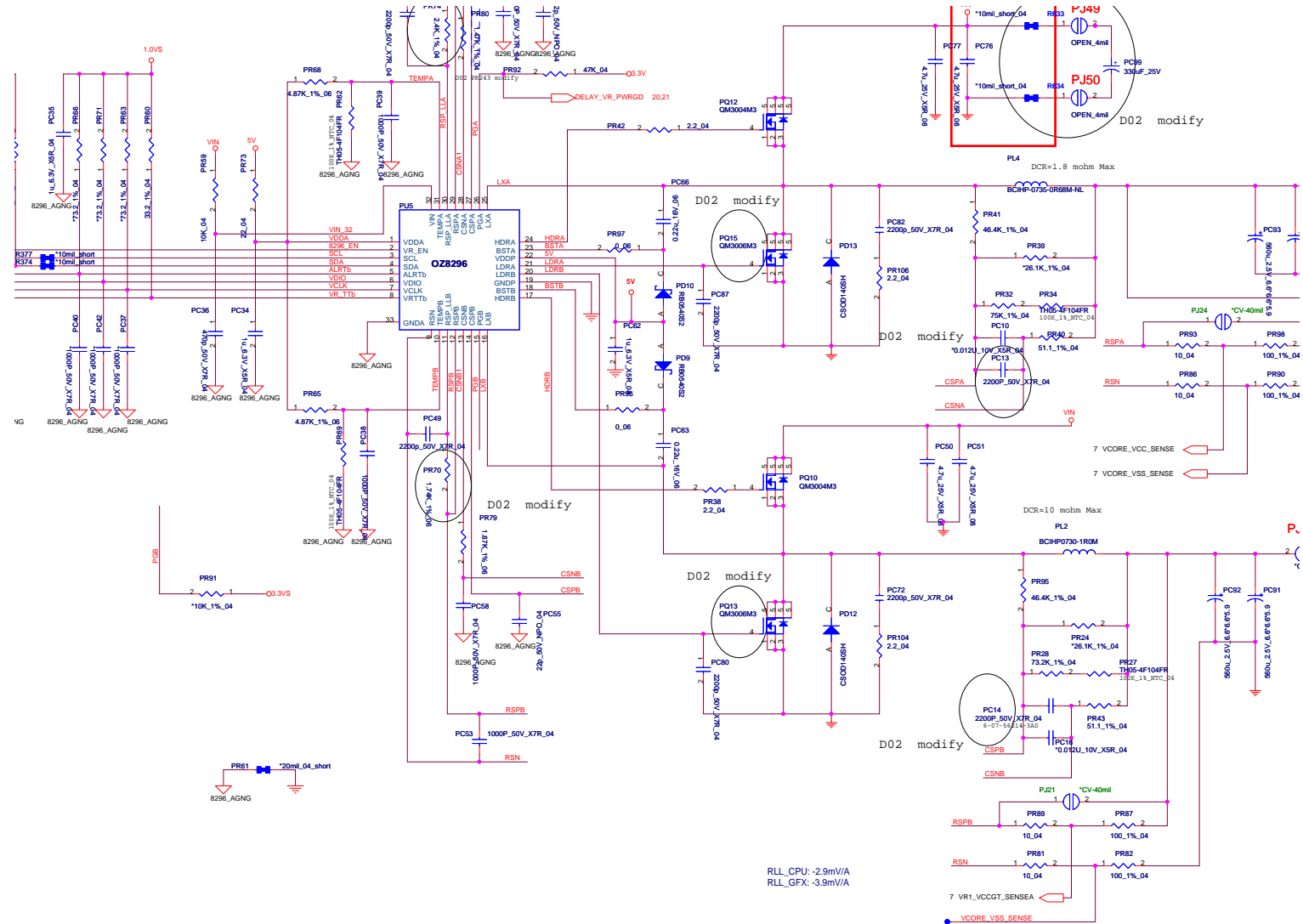
Sheet 24 of 42  
POWER 1.0VA,  
1.05VS



## Schematic Diagrams

## Power 0.85VS, 1.8VS

Sheet 25 of 42  
Power 0.85VS,  
1.8VS



**19V**

回授線必須由Rsense兩端拉回

靠近IC

D02 modify

BAT DET (BATTERY INTERNAL):  
 2S / 5K / NT1912  
 2S / 10K / NT1908  
 3S / 2K  
 3S / 2800mAh / 4.02K  
 4S / 390  
 4S / 2800mAh / 7.15K

D02 modify

D02 modify

CHARGER <=> EC

1) LOT6\_CHG : ac only EC 關斷 CHARGER IC INPUT 電源 (EC:#120)  
 2) PMOSFET\_CONTROL : 防止充電電流輸出端回流 造成的漏電 AS 電池高阻抗 (EC:#112)  
 3) BAT\_DET : EC 判定電池有無連結系統 (EC:#66)  
 4) BAT\_VOLT : EC 判定電池電壓, 可在 SMBUS FAIL 使用 (EC:#67)  
 5) AC\_IN#N : EC 判定 Adapter 有無連結系統 (EC:#4)  
 6) CHG\_JAP\_For : Bit speak shift function (EC:OPTION)

3S1P  
 2200mAh / 22.42Wh  
 2800mAh / 31.08Wh

BAT DET(BATTERY INTERN  
2S / 5K / NT1912  
2S / 10K / NT1908  
3S / 2K  
3S/2800mAH / 4.02K  
4S / 390  
4S/2800mAH / 7.15K

1) L0T6\_CHG : AC only EC 關閉 CHARGER IC INPUT 電源 (EC:#120) 220 UomA  
2800 UomA

2) PMOSFET\_CONTROL# : 防止充電電, 由輸出端回流 造成的漏電, 4S 電池需特別注意 (EC:#112)

3) BAT\_DET : EC 判定電池有無連接系統 (EC:#66)

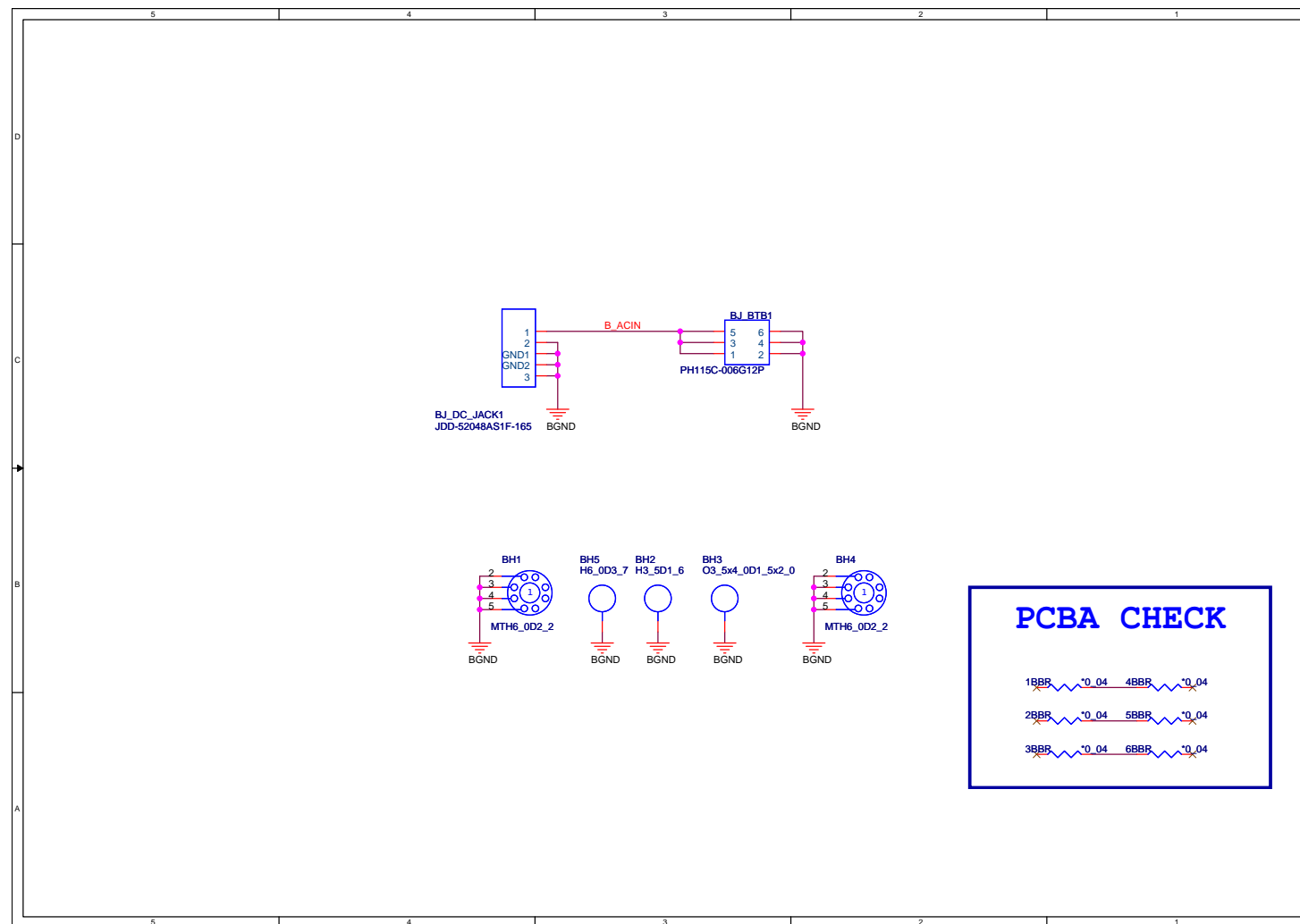
4) BAT\_VOLT : EC 判定電池電壓, 可在 SMBUS FAIL 使用 (EC:#67)

5) AC\_in# : EC 判定 Adapter 有無連接系統 (EC:#4)

6) CHG\_JAP: For di peak shift function (EC:OPTION)

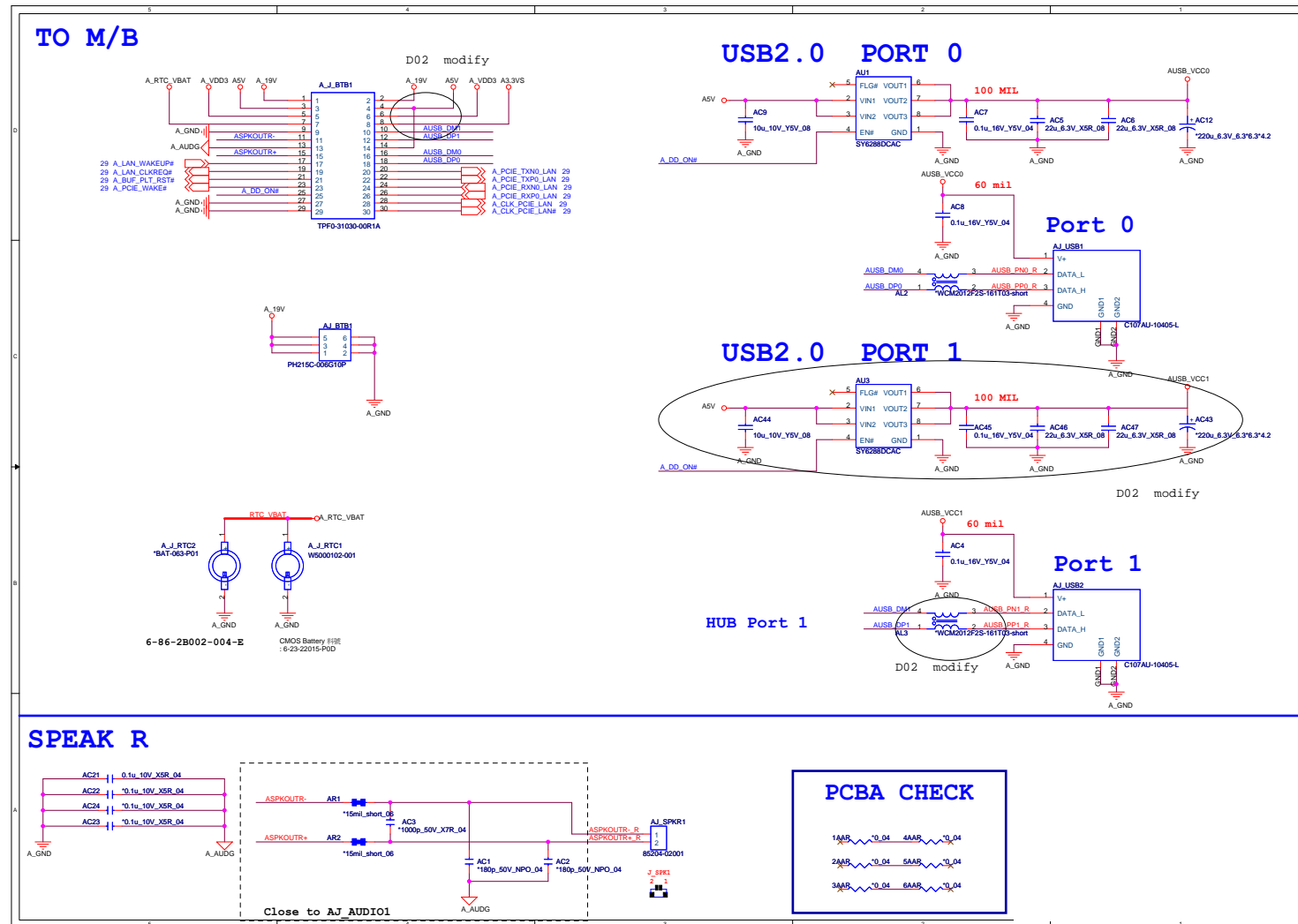
3S1P  
2200mAh/22.42Wh  
2800mAh/31.08Wh

Sheet 27 of 42  
AC-In Conn



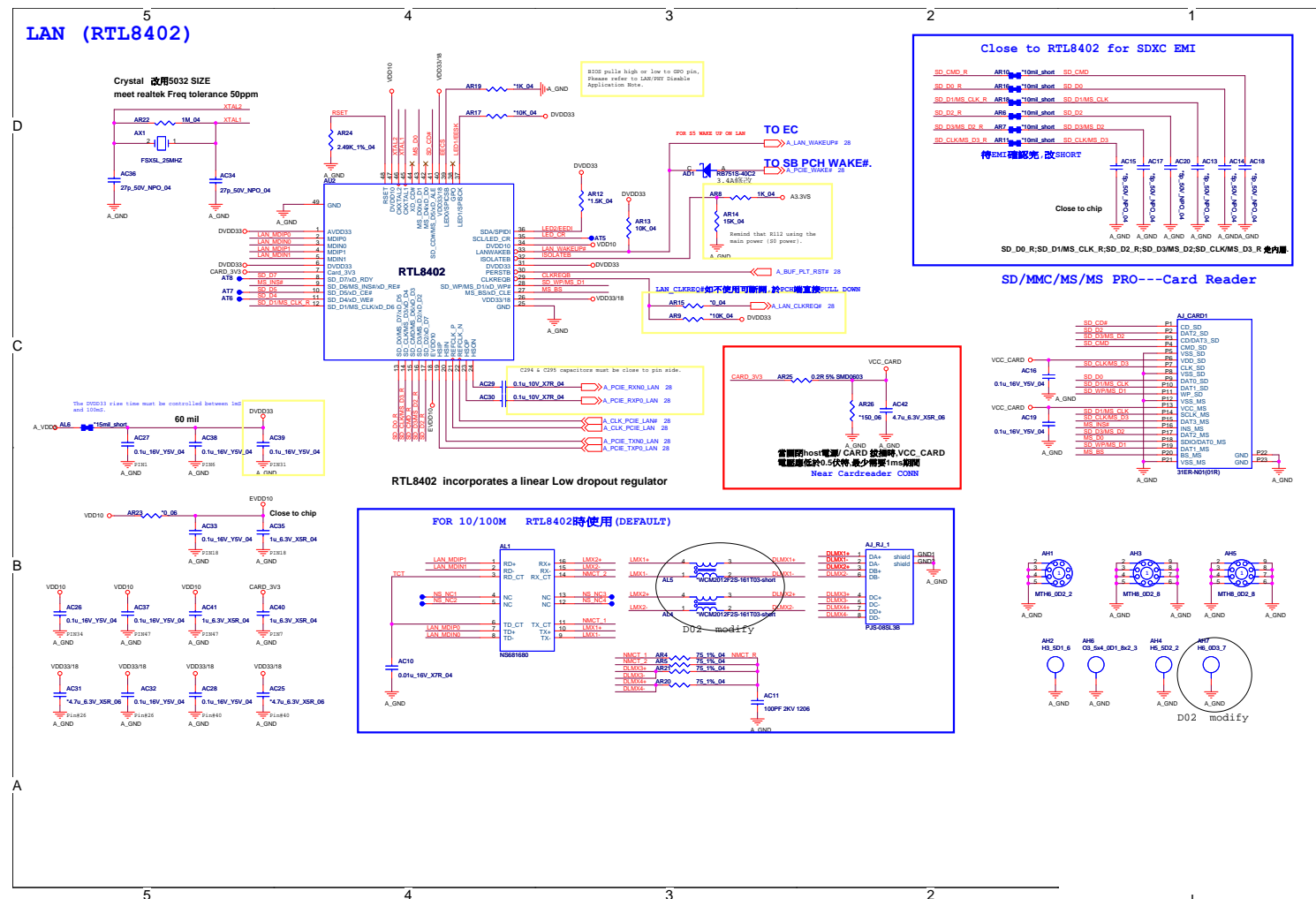
# Audio Board

Sheet 28 of 42  
Audio Board



# RTL8402

## B.Schematic Diagrams



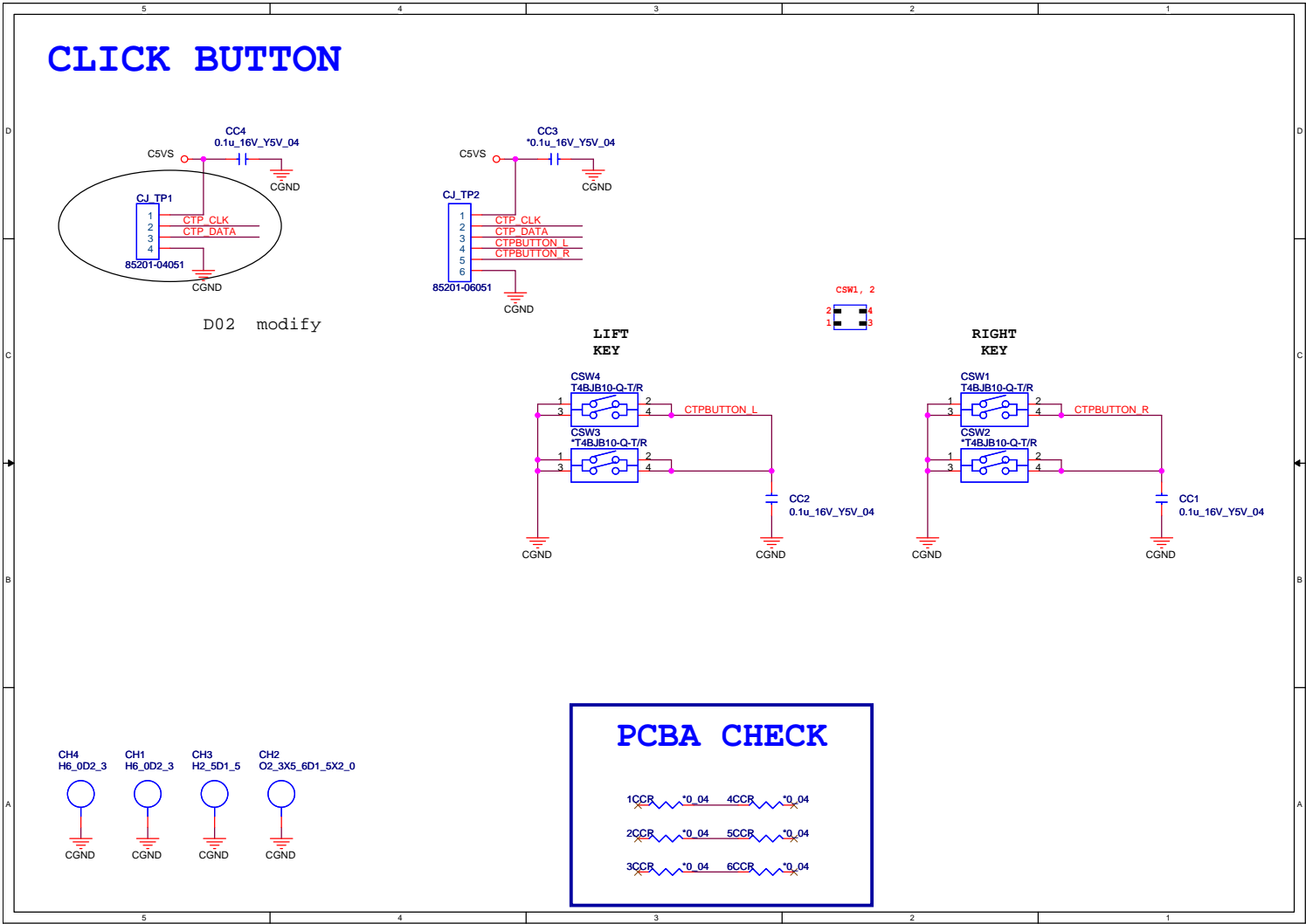
## Power SW Board B - 31



Schematic Diagrams

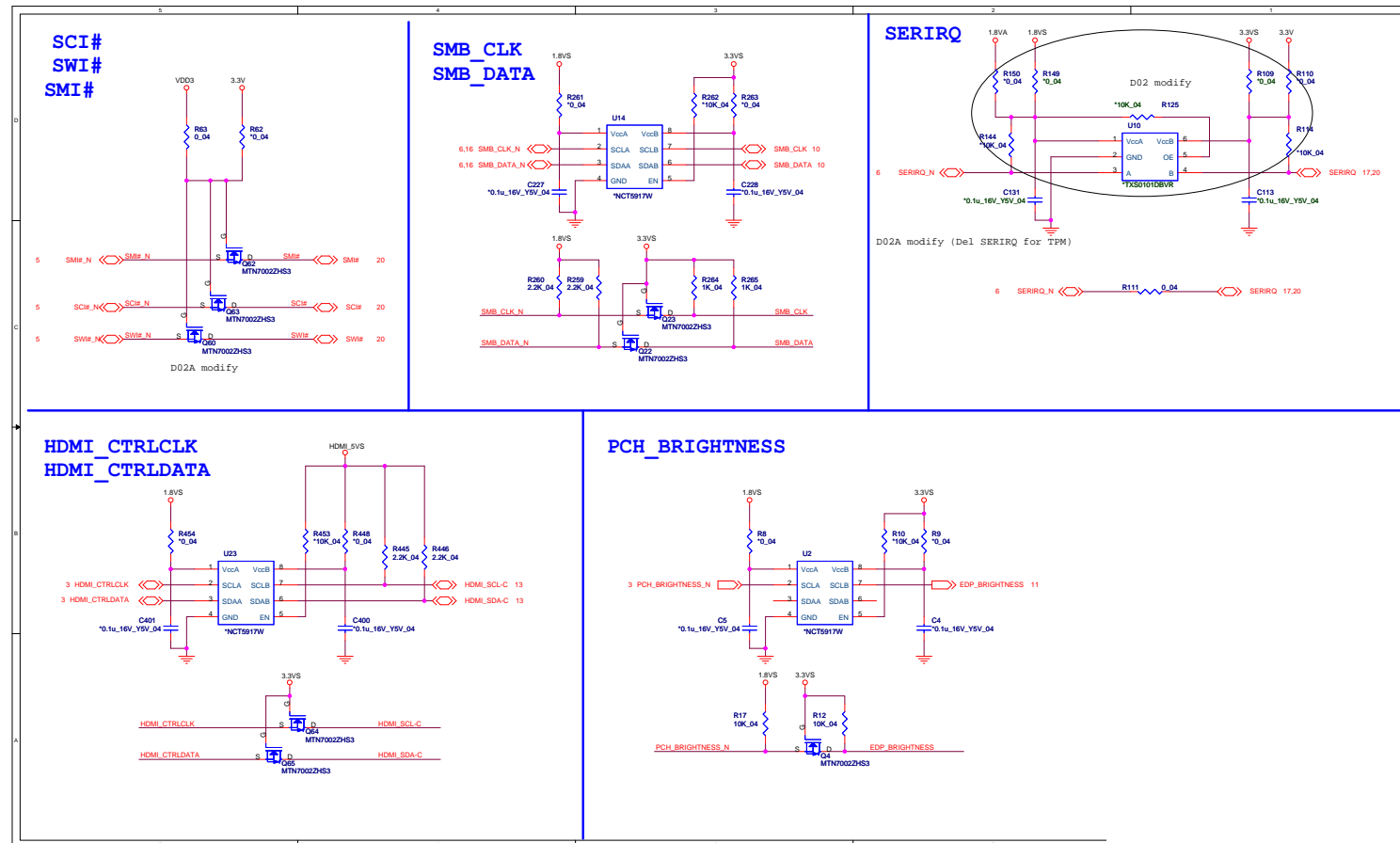
Click Board

Sheet 31 of 42  
Click Board





# Level Shifter 1

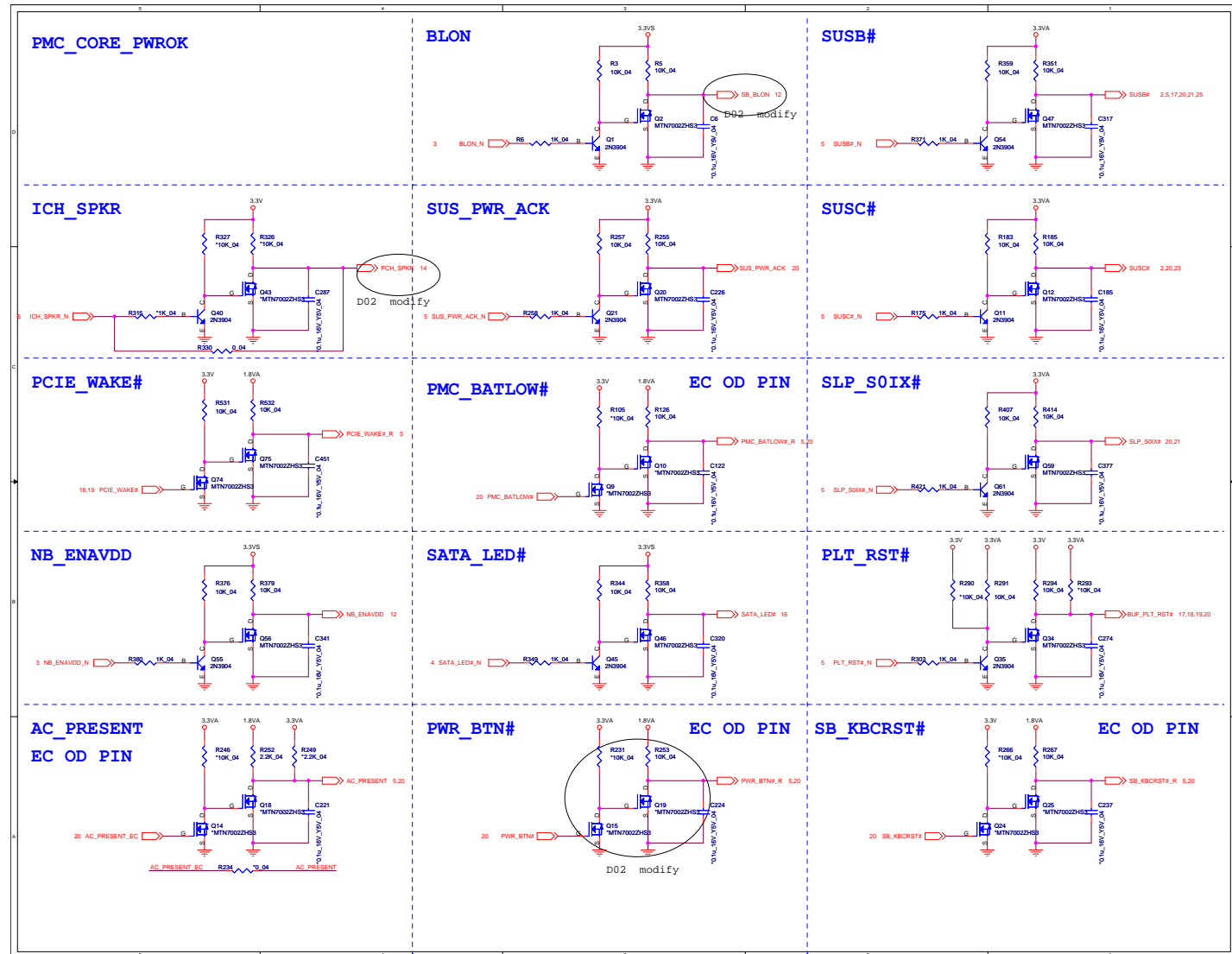


Sheet 32 of 42  
Level Shifter 1

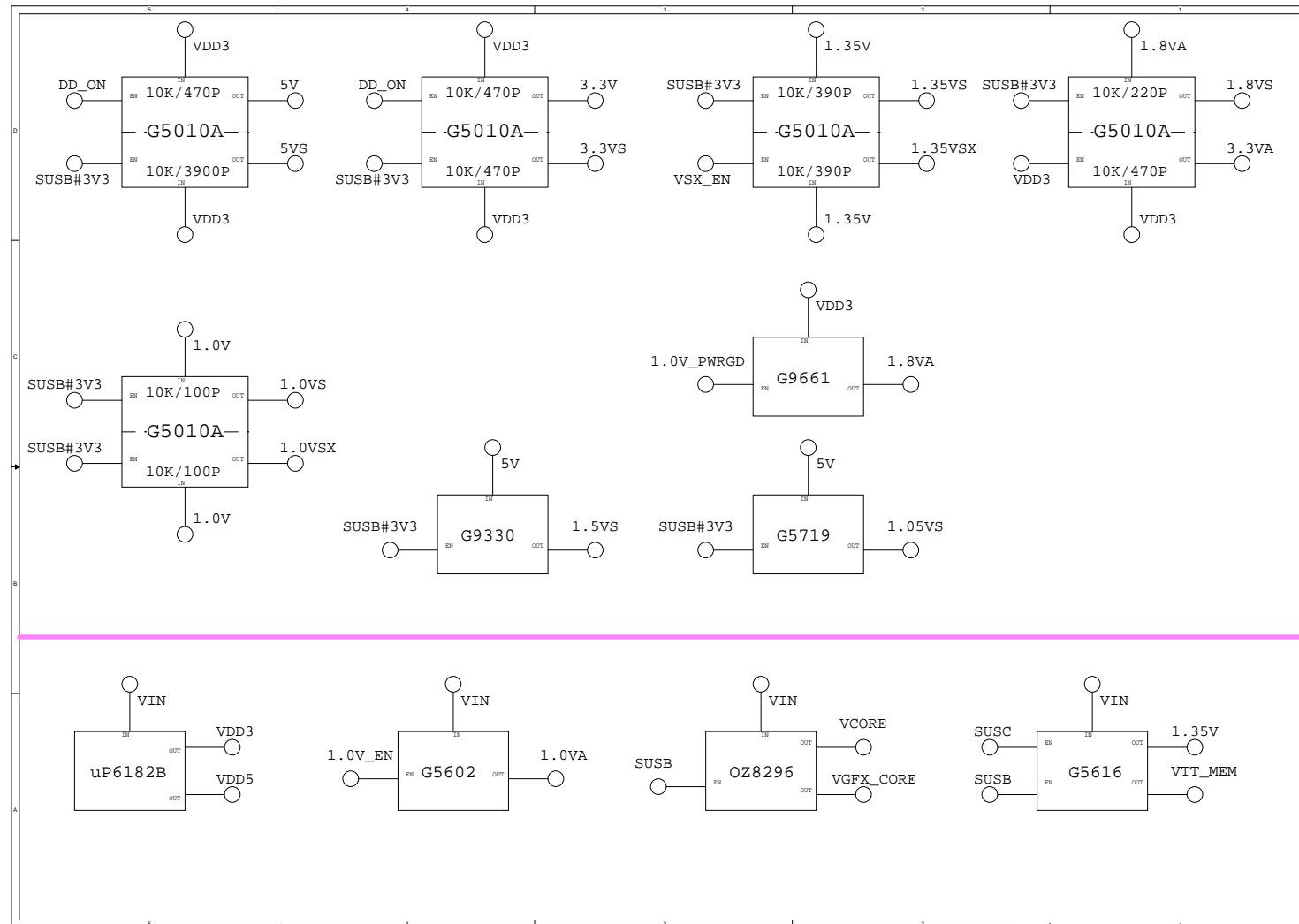
## Schematic Diagrams

### Level Shifter 2

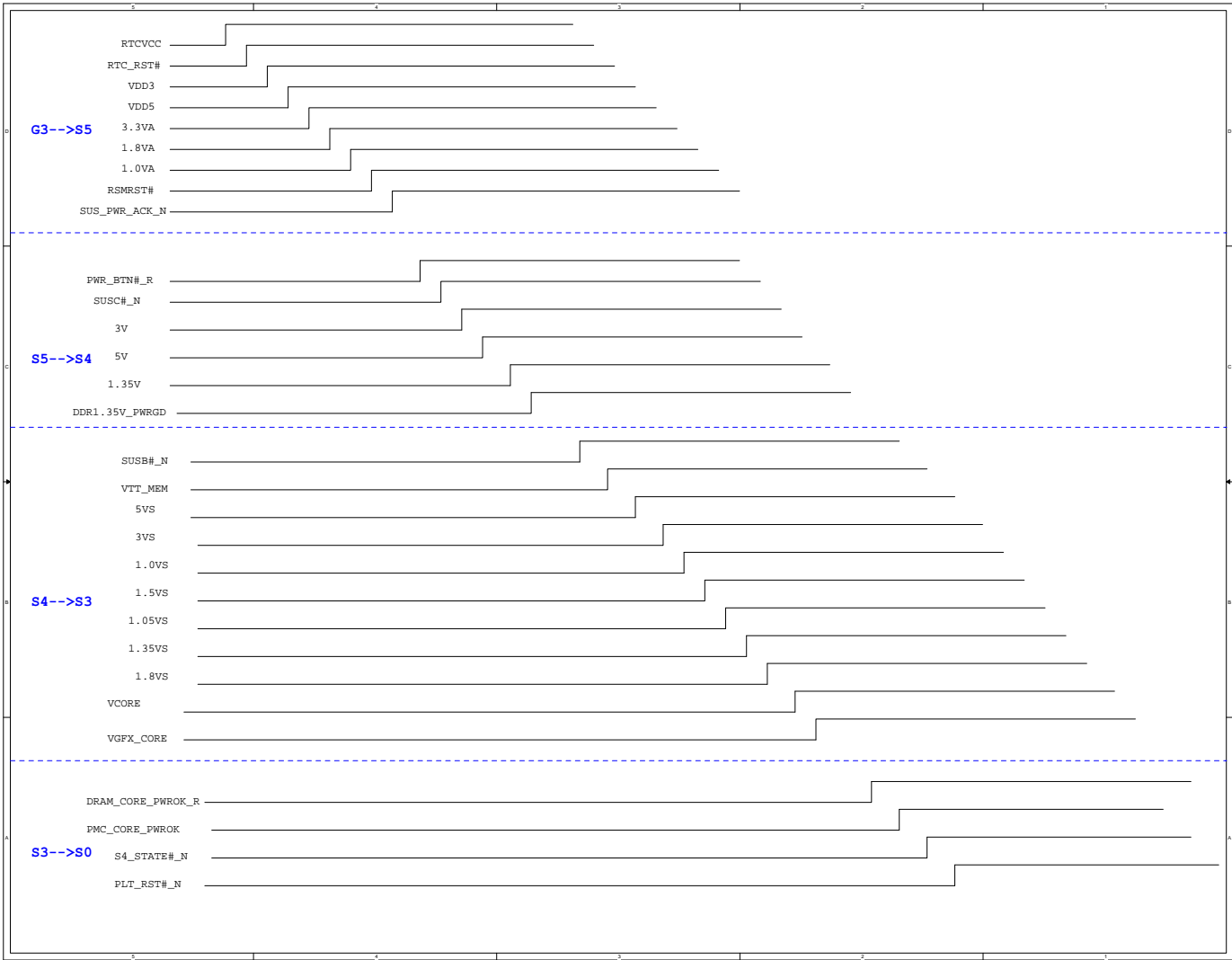
Sheet 33 of 42  
Level Shifter 2



## Power Diagram

Sheet 34 of 42  
Power Diagram

Power On SEQ



Sheet 35 of 42  
Power On SEQ

# 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](http://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 V1.01.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 1.01.05, you **MAY NOT** then go back and flash the BIOS to ver 1.01.04).

## 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.