SERVICE MANUAL

W970SUW

notebook

Notebook Computer

W970SUW

Service Manual

Notice

Version 1.0
May 2014

Trademarks

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 ***W970SUW*** series notebook PC.

The following information is included:

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

Appendix A, Part Lists
Appendix B, Schematic Diagrams
Appendix C, Updating the FLASH ROM BIOS

IMPORTANT SAFETY INSTRUCTIONS

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

1. Do not use this product near water, for example near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.
5. This product is intended to be supplied by a Listed Power Unit with an AC Input of 100 - 240V, 50 - 60Hz, DC Output of 19V, 3.42A (**65** Watts) minimum AC/DC Adapter.

CAUTION

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

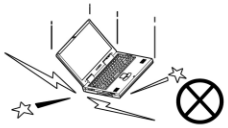
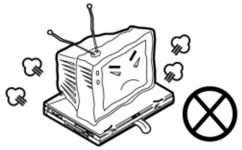
FCC Statement

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.

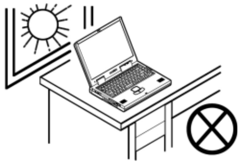
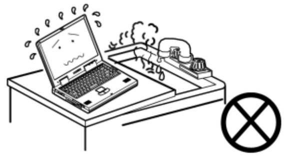
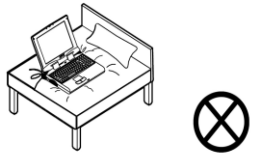
Instructions for Care and Operation

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

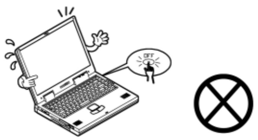
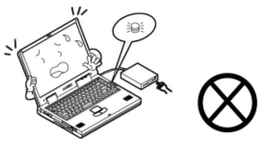
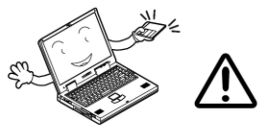
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.

Do not expose the computer to any shock or vibration. 	*Do not place it on an unstable surface.* 	*Do not place anything heavy on the computer.* 

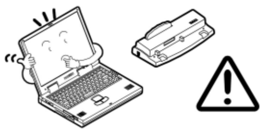
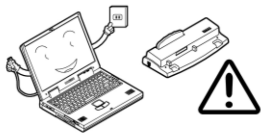
2. **Keep it dry, and don't overheat it.** Keep the computer and power supply away from any kind of heating element. This is an electrical appliance. If water or any other liquid gets into it, the computer could be badly damaged.

Do not expose it to excessive heat or direct sunlight. 	*Do not leave it in a place where foreign matter or moisture may affect the system.* 	*Don't use or store the computer in a humid environment.* 	*Do not place the computer on any surface which will block the vents.* 

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.

Do not turn off the power until you properly shut down all programs. 	*Do not turn off any peripheral devices when the computer is on.* 	*Do not disassemble the computer by yourself.* 	*Perform routine maintenance on your computer.* 

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**.

Use only approved brands of peripherals. 	*Unplug the power cord before attaching peripheral devices.* 

Preface

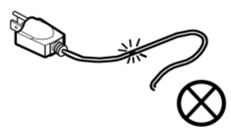
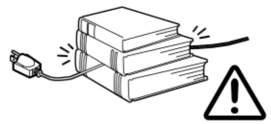
Power Safety Warning

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.

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.

Do not plug in the power cord if you are wet. 	*Do not use the power cord if it is broken.* 	*Do not place heavy objects on the power cord.* 

Battery Precautions

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

Battery Guidelines

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

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

Battery Disposal

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

Caution

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

Battery Level

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

Related Documents

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

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

System Startup

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

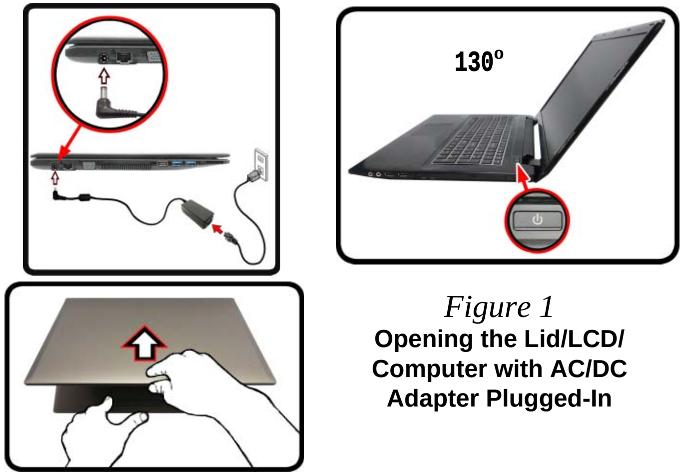


Figure 1
Opening the Lid/LCD/ Computer with AC/DC Adapter Plugged-In

Shut Down

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

Click **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).

Contents

Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the ***W970SUW*** series notebook computer. Informa-tion about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about dri-vers (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 ***W970SUW*** series notebook is designed to be upgradeable. See ***Disassembly on page 2 - 1*** for a detailed description of the upgrade procedures for each specific component. Please take note of the warning and safety information indicated by the "" symbol.

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

Specifications

Latest Specification Information

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

CPU

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

Processor Options

Intel® Core™ i7 Processor
i7-4702MQ (2.20GHz)
6MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 37W
i7-4600M (2.9GHz)
4MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 37W
i7-4610M (3.0GHz)
3MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 37W
Intel® Core™ i5 Processor
i5-4340M (2.90GHz), i5-4330M (2.80GHz), i5-4310M (2.70GHz), i5-4300M (2.60GHz), i5-4200M (2.50GHz)
3MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 37W
Intel® Core™ i3 Processor
i3-4100M (2.50GHz), i3-4000M (2.40GHz)
3MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 37W

Intel® Pentium® Processor
3550M (2.30GHz)
2MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 37W
Intel® Celeron® Processor
2950M (2.0GHz)
2MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 37W

Core Logic

Intel® HM86 Chipset

BIOS

48Mb SPI Flash ROM
AMI BIOS

Memory

Two 204 Pin SO-DIMM Sockets Supporting **DDR3L 1600MHz** Memory
Memory Expandable up to 16GB

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

Storage

(**Factory Option**) One Changeable 9.5mm(h) Optical Device Type Drive (Super Multi Drive Module or Blu-Ray Combo Drive Module)
(**Factory Option**) Dummy ODDor Caddy Bay
One Changeable 2.5" 7.0mm/9.5mm (h) SATA **HDD**
(**Factory Option**) One mSATA Solid State Drive (SSD)

LCD

17.3" (43.94cm) HD+/FHD

Video Adapter

Intel GPU (CPU integrated)

Intel HD Graphics 4600 (Core i7/i5 CPU)
Dynamic Frequency (Intel Dynamic Video Memory Technology for up to **1.7GB**)
Microsoft DirectX®11 Compatible
Or
Intel HD Graphics (Core i3/Pentium/Celeron CPU)
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
(**Factory Option**) TPM v1.2

Keyboard

Full-size “WinKey” keyboard (with numeric keypad)

Pointing Device

Built-in Clickpad

Interface

Two USB 3.0 Ports
Two USB 2.0 Ports
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

Communication

Built-In 10/100/1000Mb Base-TX Ethernet LAN
1.0M HD PC Camera Module

WLAN/ Bluetooth Half Mini-Card Modules:

(**Factory Option**) Intel® Wireless-N 7260 Wireless LAN (**802.11ac**) + Bluetooth 4.0

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

(**Factory Option**) Intel® Wireless-AC 3160 Wireless LAN (**802.11ac**) + 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**

Mini Card Slots

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

(**Factory Option**) Slot 2 for mSATA **SSD**

Card Reader

Embedded Multi-In-1 Card Reader
- MMC (MultiMedia Card) / RS MMC
- SD (Secure Digital) / Mini SD / SDHC/ SDXC

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, 3.42A (**65W**)

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

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

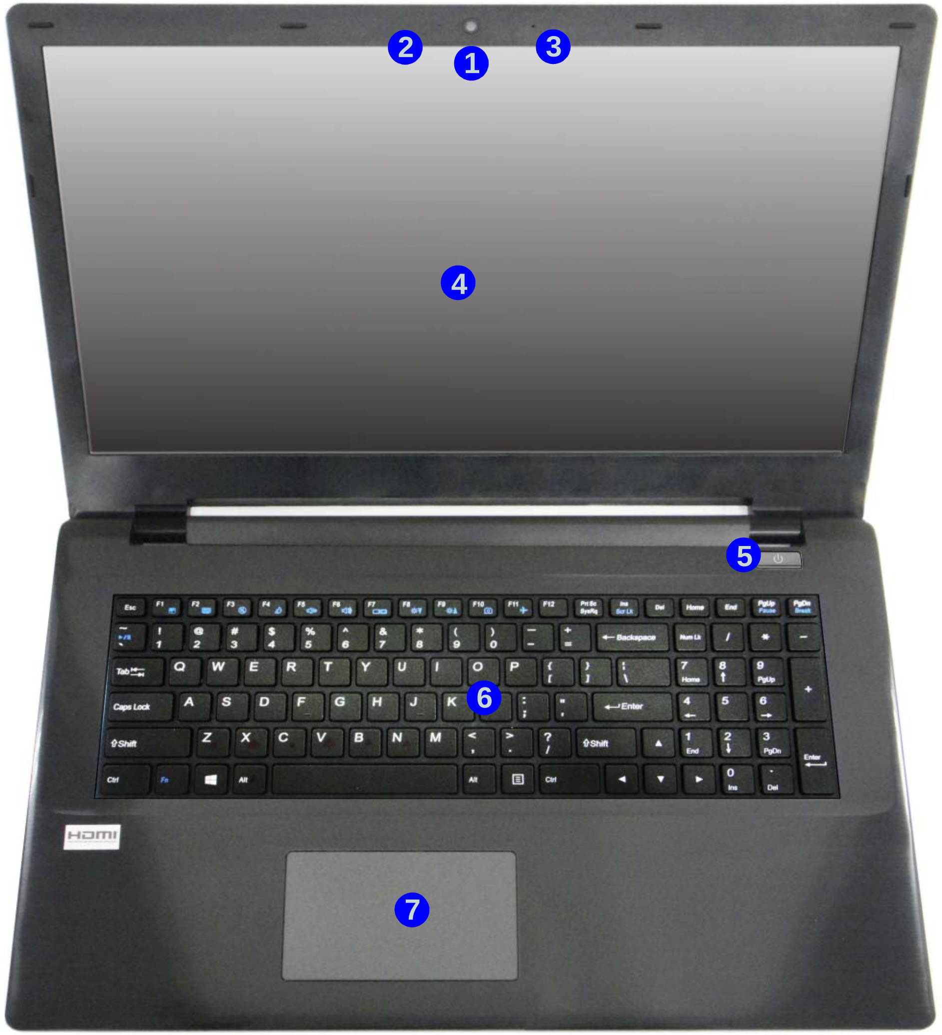
Dimensions & Weight

413mm (w) * 273mm (d) * 12.7 - 28.5mm (h)
2.5kg (Barebone with ODD and 32WH Battery)

External Locator - Top View with LCD Panel Open

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. Clickpad & Buttons



External Locator - Front & Right Side Views

FRONT VIEW

Figure 2
Front View

1. LED Indicator

RIGHT SIDE VIEW

Figure 3
Right Side View

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

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 3.0 Ports
7. Multi-in-1 Card Reader

LEFT SIDE VIEW

Figure 5
Rear View

1. Battery

REAR VIEW

External Locator - Bottom View

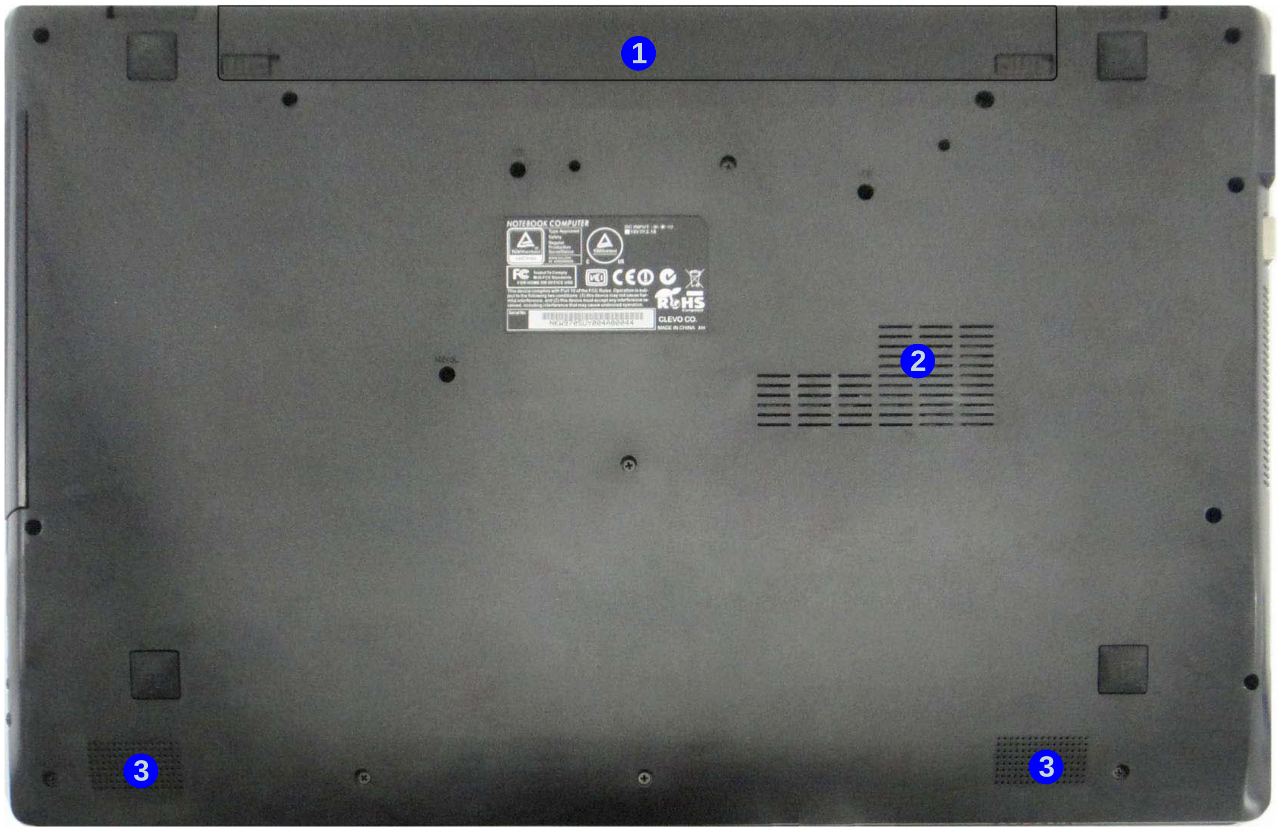


Figure 6
Bottom View

1. Battery Location
2. Vent
3. Speakers

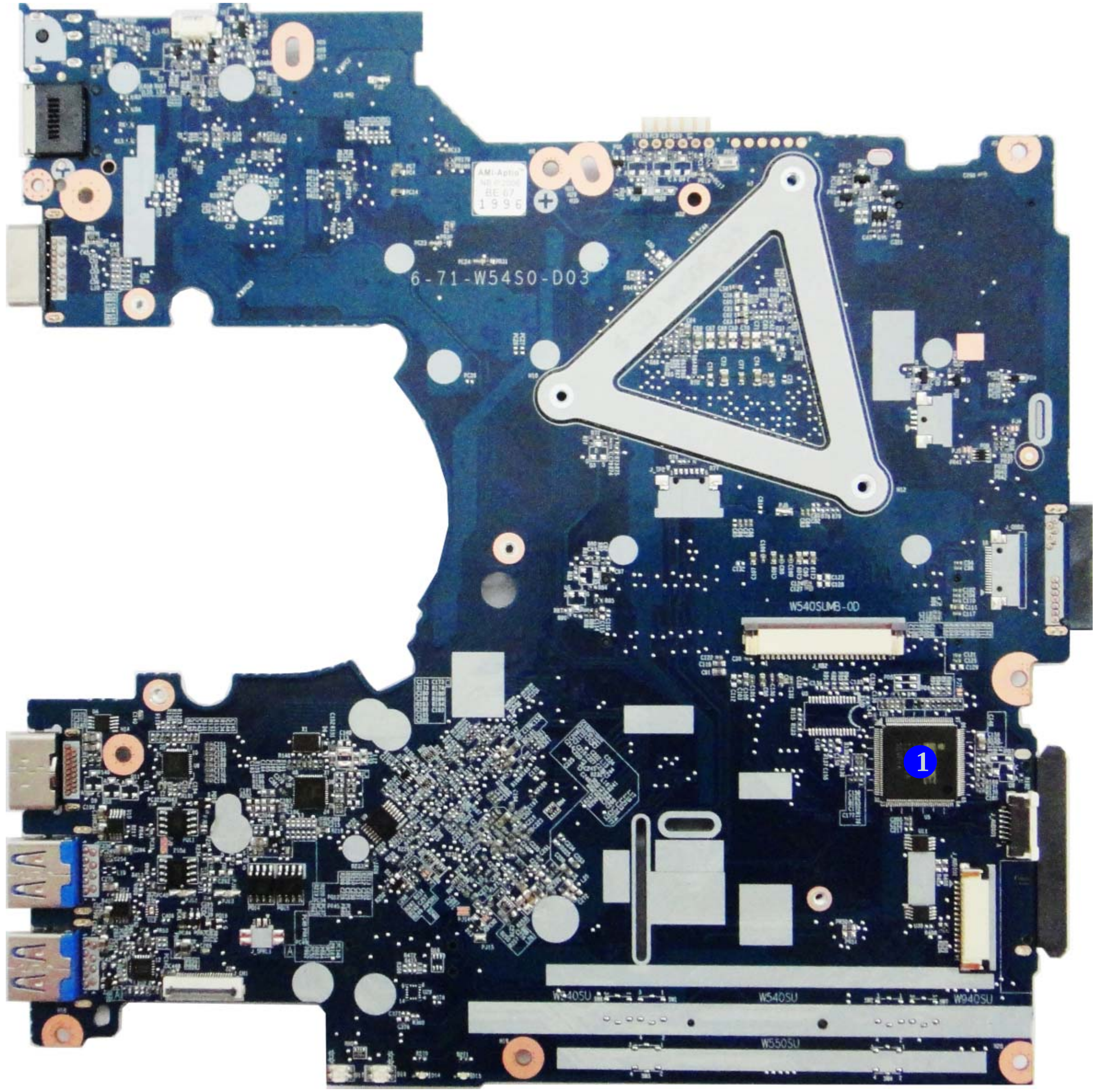
Overheating

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

Figure 7
Mainboard Top Key Parts

1. KBC-ITE IT8587

Mainboard Overview - Top (Key Parts)



Mainboard Overview - Bottom (Key Parts)

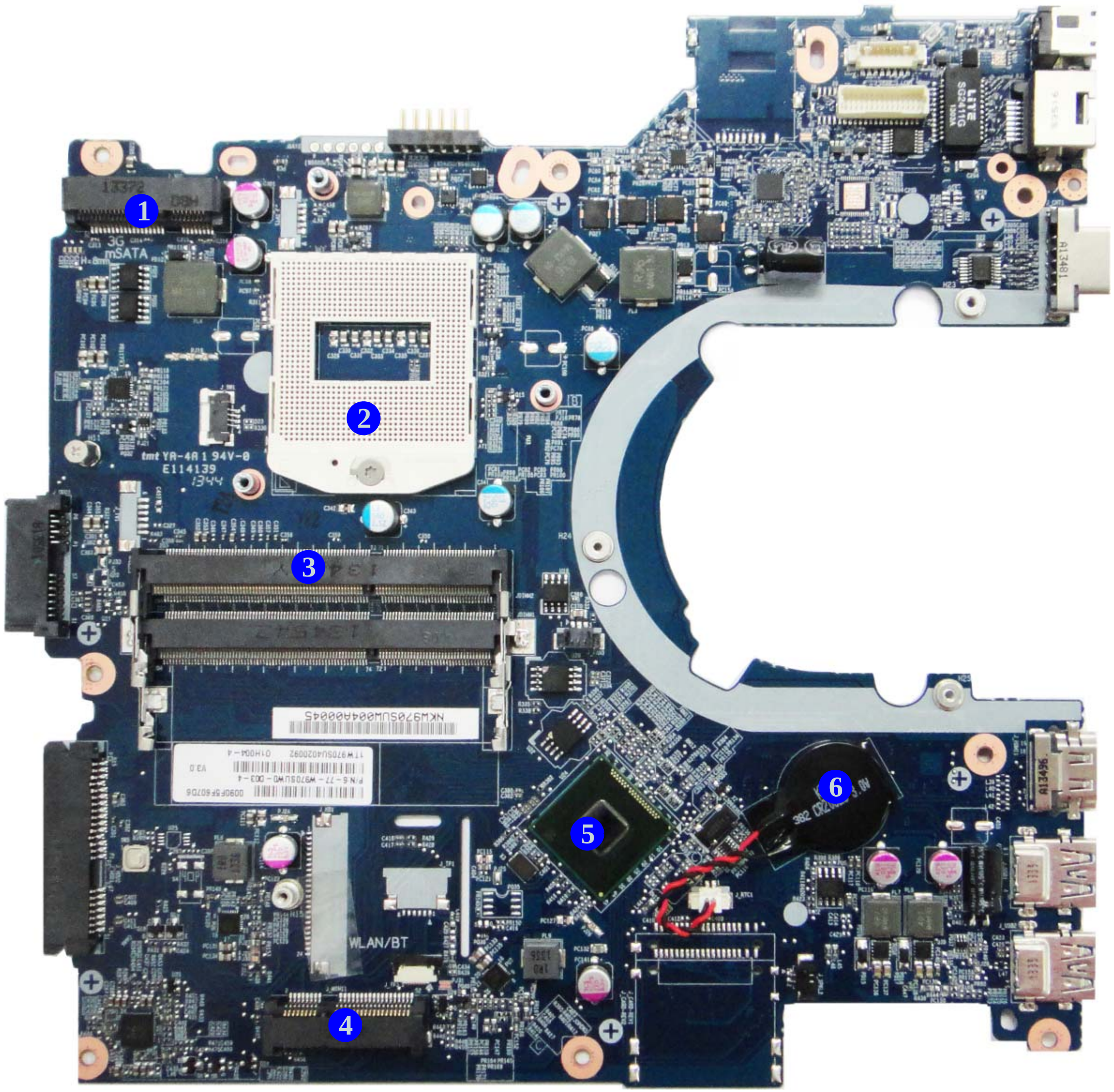


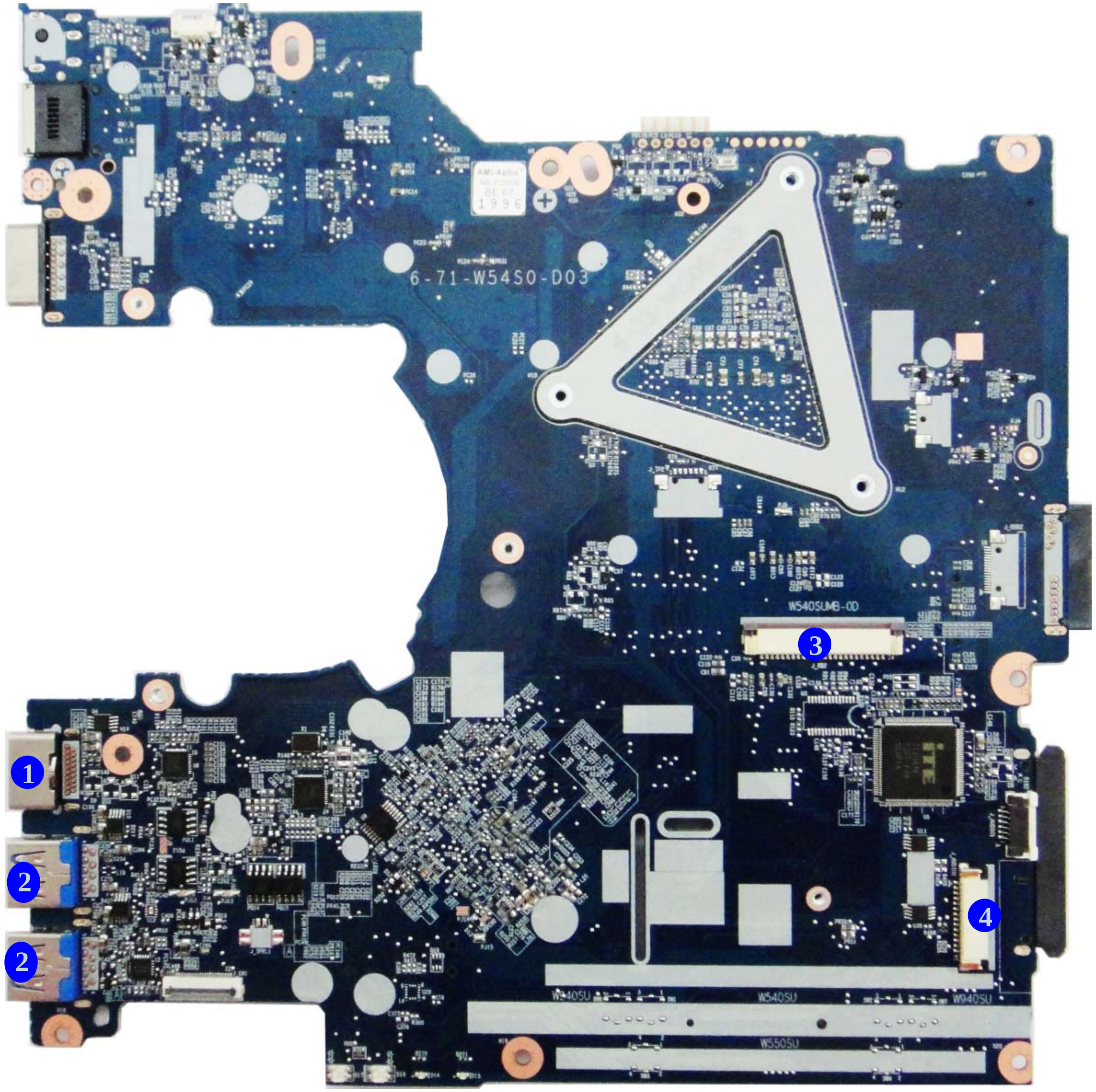
Figure 8
Mainboard Bottom Key Parts

1. Mini-Card Connector (mSATA module)
2. CPU
3. Memory Slots DDR3L SO-DIMM
4. Mini-Card Connector (WLAN Module)
5. Intel PCH
6. CMOS Battery

Mainboard Overview - Top (Connectors)

Figure 9
Mainboard Top Connectors

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



Mainboard Overview - Bottom (Connectors)

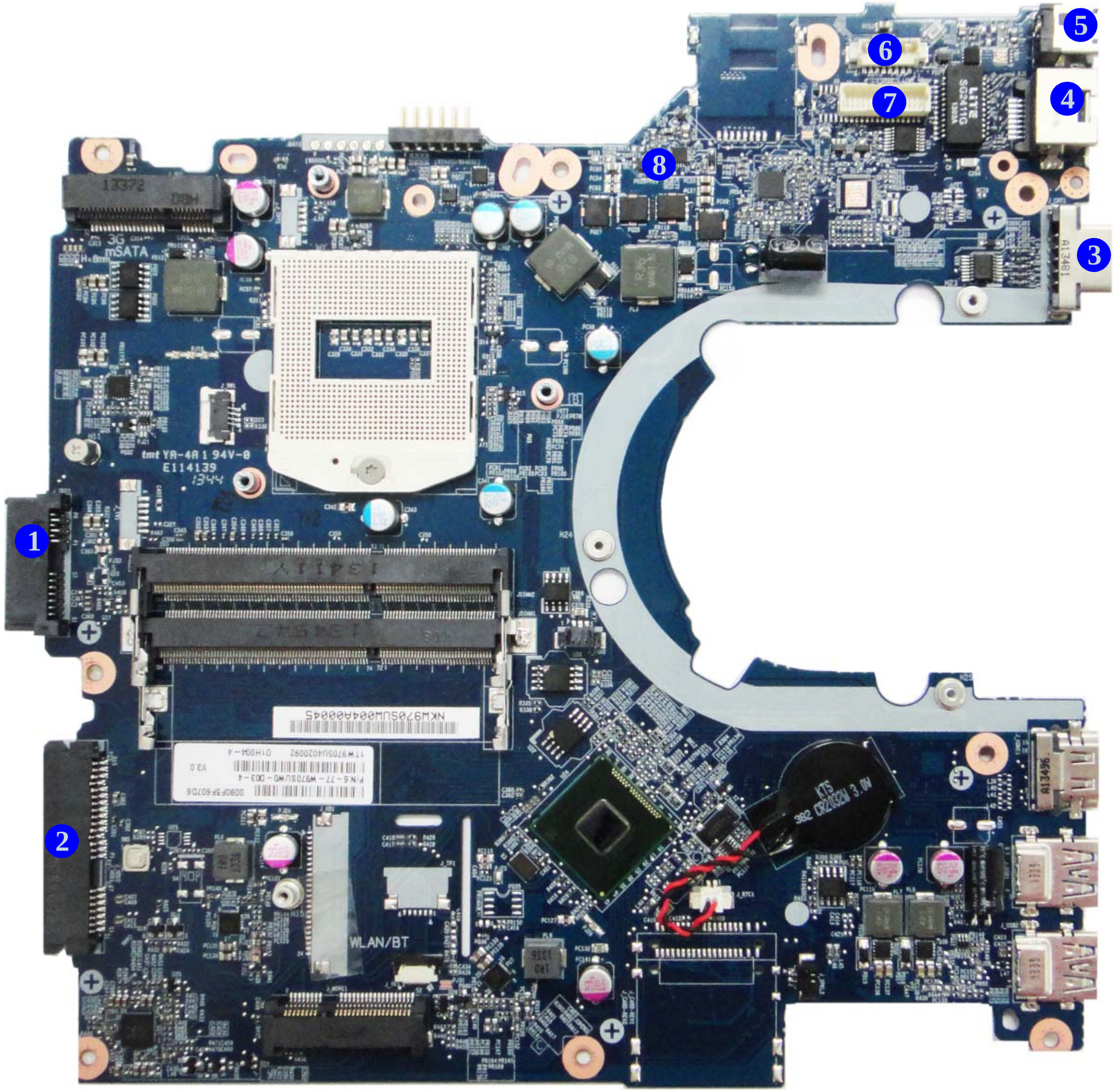


Figure 10
Mainboard Bottom Connectors

1. ODD Connector
2. HDD Connector
3. External Monitor Port
4. RJ-45 LAN Jack
5. DC-In Jack
6. CCD Connector
7. LCD Cable Connector

Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the ***W970SUW*** 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

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 HDD:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 6*

To remove the Optical Device:

1. Remove the battery *page 2 - 5*
2. Remove the optical device *page 2 - 9*

To remove the 2nd HDD:

1. Remove the battery *page 2 - 5*
2. Remove the optical device *page 2 - 9*
3. Remove the 2nd HDD *page 2 - 11*

To remove and install a Processor:

1. Remove the battery *page 2 - 5*
2. Remove the processor *page 2 - 12*
3. Install the processor *page 2 - 14*

To remove the System Memory:

1. Remove the battery *page 2 - 5*
2. Remove the system memory *page 2 - 15*

To remove the Keyboard:

1. Remove the battery *page 2 - 5*
2. Remove the keyboard *page 2 - 17*

To remove the Wireless LAN Module:

1. Remove the battery *page 2 - 5*
2. Remove the WLAN *page 2 - 19*

To remove the mSATA Module:

1. Remove the battery *page 2 - 5*
2. Remove the mSATA *page 2 - 21*

To remove the CCD Module:

1. Remove the battery *page 2 - 5*
2. Remove the CCD module *page 2 - 22*

Removing the Battery

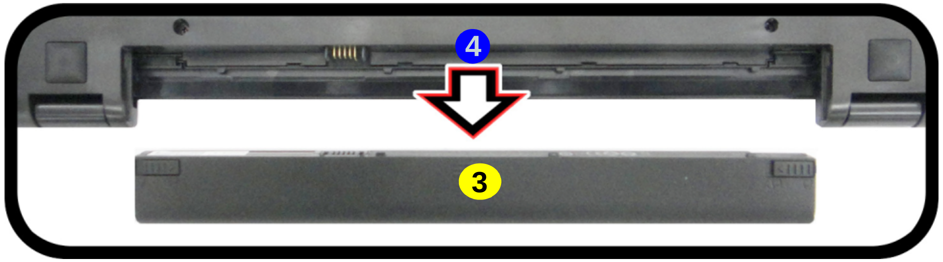
1. Turn **off** the computer, turn it over.
2. Slide the latch 1 in the direction of the arrow (***Figure 1a***).
3. Slide the latch 2 in the direction of the arrow, and hold it in place (***Figure 1a***).
4. Slide the battery 3 in the direction of the arrow 4 (***Figure 1b***).

Figure 1
Battery Removal

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

a.

b.



3. Battery

2.Disassembly

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 or 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.

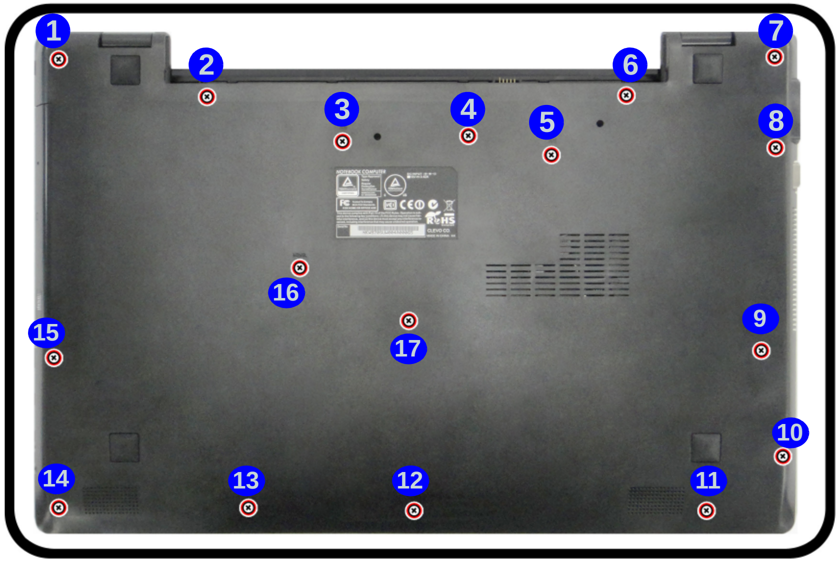
Hard Disk Upgrade Process

1. Turn **off** the computer, turn it over to remove the battery (***page 2 - 5***).
2. Remove screws 1 - 17 (***Figure 2a***).

Figure 2
HDD Assembly Removal

a. Remove the screws.

a.



- 17 Screws

HDD System Warning

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

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

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

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

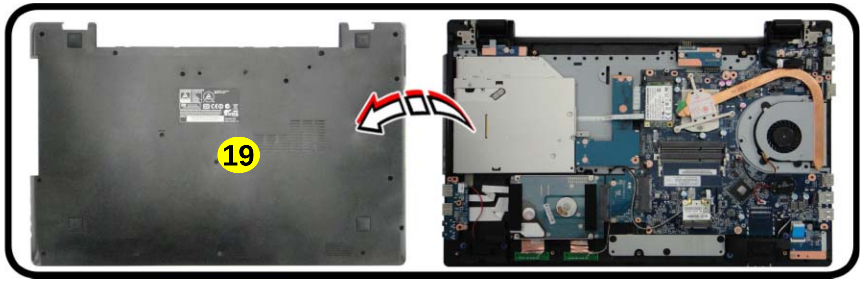
3. Lift the bottom cover from point 18 (*Figure 3b*).
4. Remove the bottom cover 19 (*Figure 3c*).
5. Slightly lift and pull the hard disk assembly in the direction of arrow 20 (*Figure 3d*).
6. Lift the hard disk assembly 21 out of the bay 22 (*Figure 3e*).
7. Remove the screw 23 - 24 and the adhesive cover 25 from the hard disk 26 (*Figure 3f*).
8. Reverse the process to install a new hard disk (do not forget to replace all the screws and bay cover).

Figure 3
HDD Assembly Removal (cont'd.)

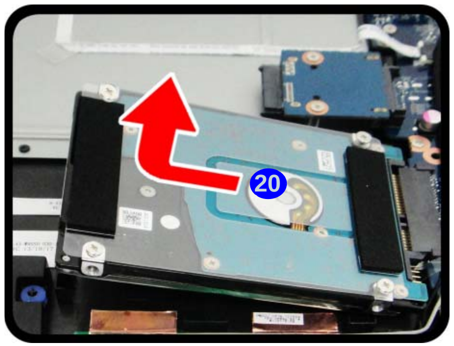
b. Lift the bottom cover.
c. Remove the bottom cover.
d. Slightly lift and pull the HDD assembly in the direction of the arrow.
e. Lift the HDD assembly out of the bay.
f. Remove the screws and adhesive cover.

b.

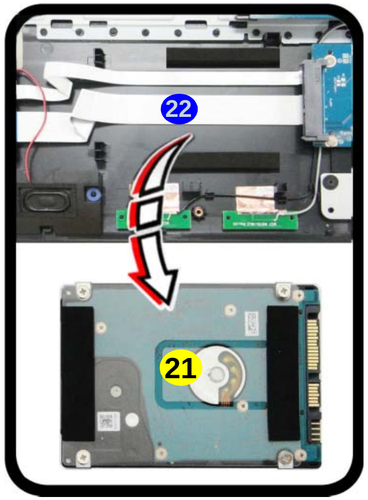
c.



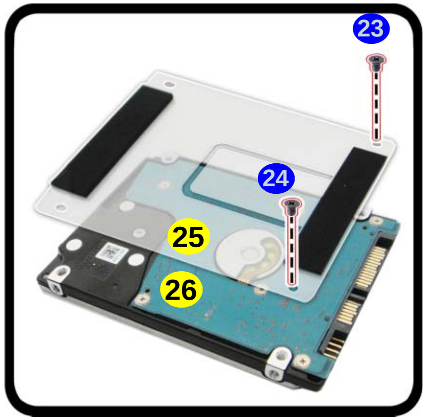
d.



e.



f.



19. Bottom Cover
21. HDD Assembly
25. Adhesive Cover
26. HDD

- 2 Screws

Hard Disk Size Note (Foam Rubber Insert)

Note that the hard disks pictured on the following pages are all 9.5mm(H) hard disk drives. In some cases 7mm(H) hard disk drives will be installed. For more information contact your distributor/supplier, and bear in mind your warranty terms.

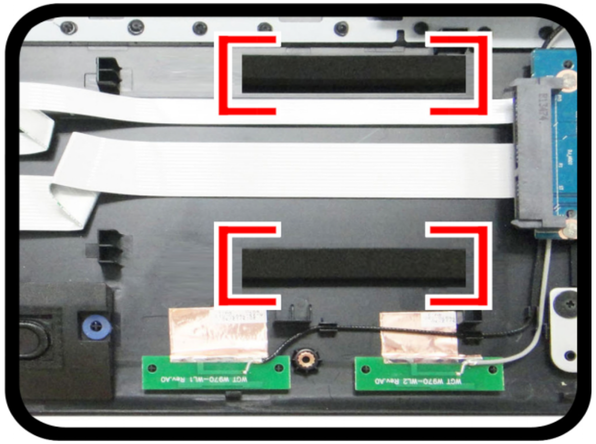


Figure 4
Foam Rubber Insert for 7mm(H) HDDs

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

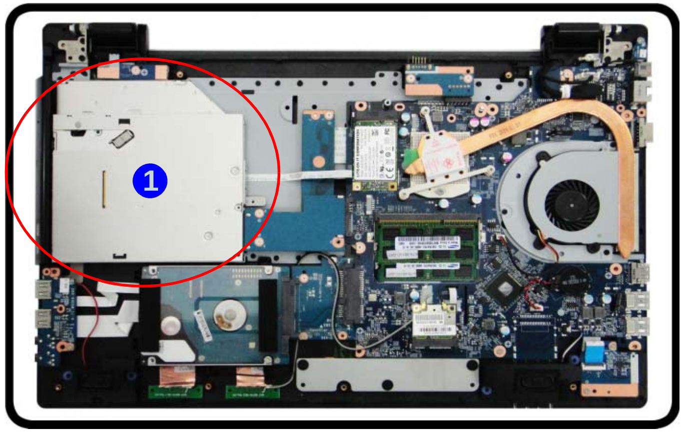
Removing the Optical (CD/DVD) Device

1. Turn **off** the computer, turn it over to remove the battery (***page 2 - 5***) and bottom cover (***page 2 - 6***).
2. The optical device will be visible at point 1 on the mainboard (***Figure 5a***).
3. Carefully pull out the optical device 3 out of the bay at point 2 (***Figure 5b***).
4. Carefully pry the bezel 5 off the optical device at point 4 (***Figure 5c***).
5. Separate the bezel 5 and the optical device (***Figure 5d***).

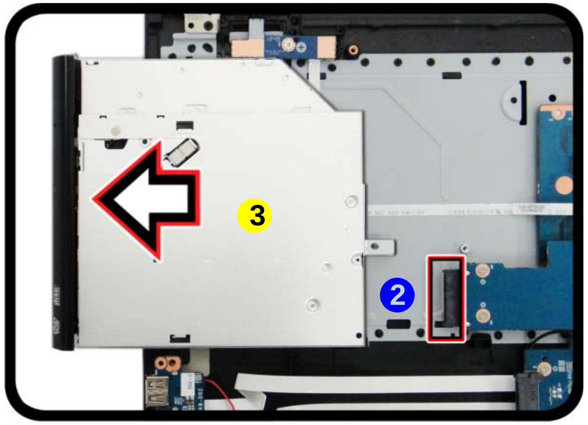
Figure 5
Optical Device Removal

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

a.



b.



c.

d.

1. Dummy ODD Cover
3. Optical Device
5. Bezel

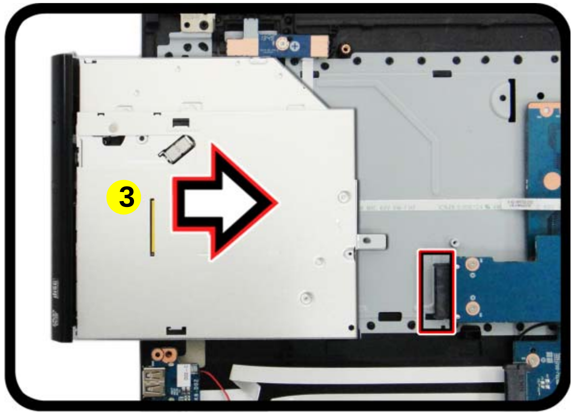
Figure 6
Optical Device Assembly

e. Install the front bezel.
f. Insert the optical device.

6. Reverse the process to attach the front bezel 5 with the new optical device at point 6 (***Figure 6e***).
7. Insert the new optical device 3 and carefully slide it into the computer (the device only fits one way. DO NOT FORCE IT; The screw holes should line up).
8. Replace the bottom cover and tighten the screws.
9. Restart the computer to allow it to automatically detect the new device.

e.

f.



3. Optical Device
5. Bezel

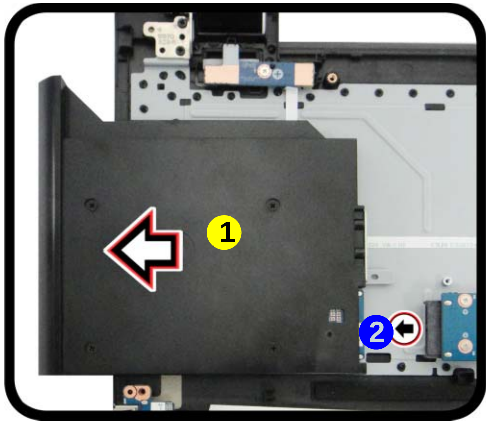
Removing the 2nd (7mm) HDD from the Caddy Bay

1. Turn **off** the computer, turn it over to remove the battery (***page 2 - 5***), bottom cover (***page 2 - 6***) and ODD (***page 2 - 9***).
2. Carefully pull the caddy bay 1 out of the bay at point 2 (***Figure 7a***).
3. Remove screws 3 - 6 from the bottom of the caddy bay (***Figure 7b***).
4. Slide the 2nd (7mm) hard disk in the direction of arrow 7 (***Figure 7c***).
5. Lift the 2nd (7mm) hard disk 8 out of the bay (***Figure 7d***).
6. Reverse the process to install a new 7mm HDD.

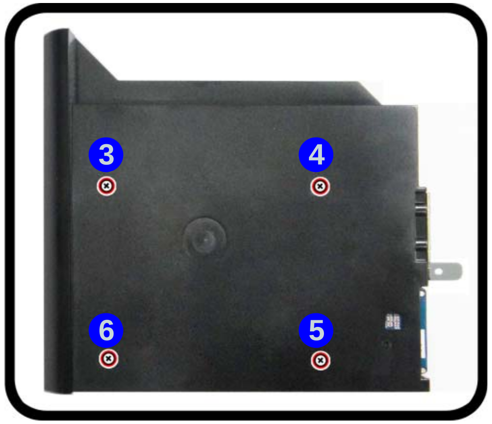
Figure 7
2nd (7mm) HDD Removal

a. Pull out the caddy bay.
b. Remove the screws.
c. Slide the 7mm HDD out of the bay.
d. Lift the 7mm HDD out of the bay.

a.



b.



c.

d.

Note that the caddy bay only supports 7.0mm (H) hard disks.

1. Caddy Bay
8. 2nd (7mm) HDD

- 4 Screws

Figure 8
Processor Removal

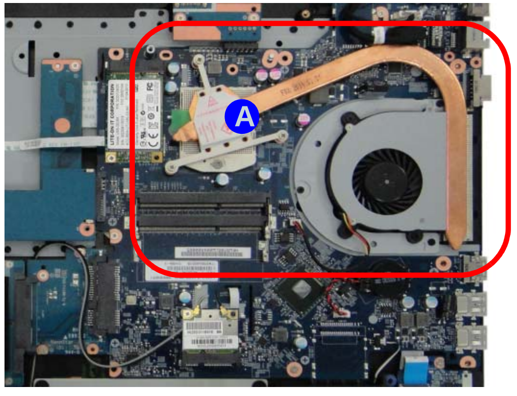
a. Locate the CPU heat sink.
b. Disconnect the cable and remove the screws.
c. Remove the fan.
d. Remove the screws.

Removing and Installing a Processor

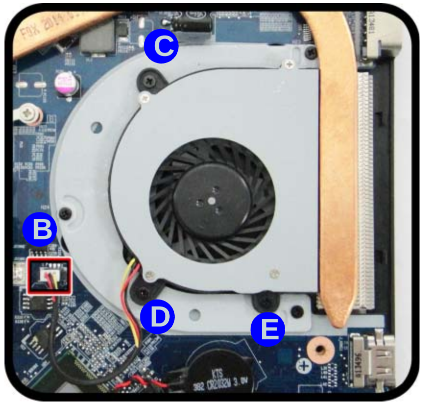
Processor Removal Procedure

1. Turn **off** the computer, turn it over, remove the battery (***page 2 - 5***) and the component bay cover (***page 2 - 9***).
2. The CPU heat sink will be visible at point A (***Figure 8a***).
3. Carefully disconnect the fan cable B ,and then remove the screws C - E(***Figure 8b***).
4. Lift the fan F out of the bay (***Figure 8c***).
5. Loosen the CPU heat sink screws in the order 3, 2 & 1 (the reverse order as indicated on the label ***Figure 8d***.

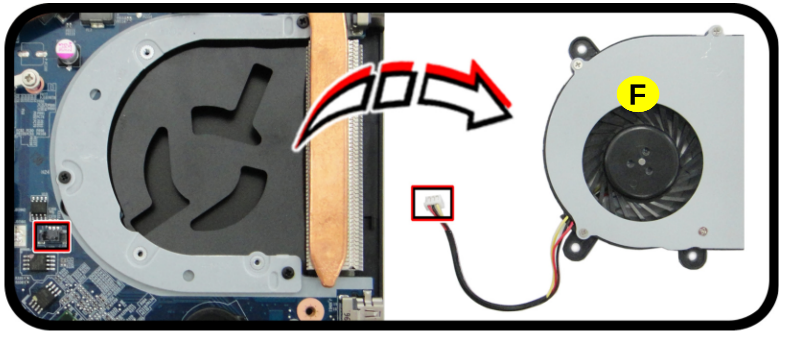
a.



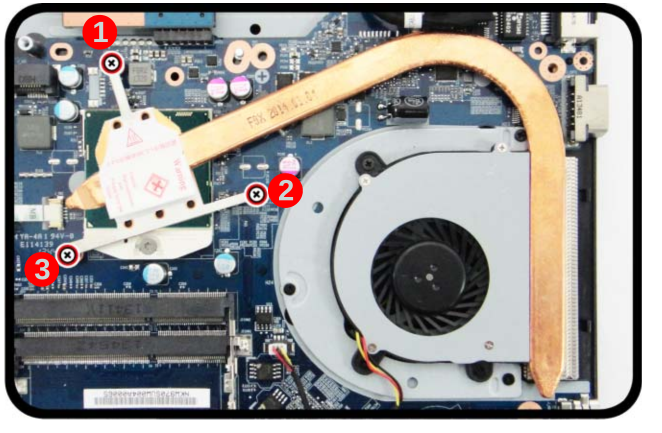
b.



c.



d.



F. Fan

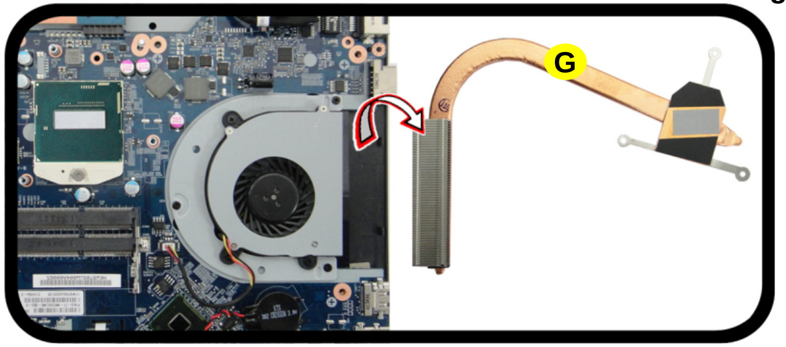
- 3 Screws

6. Carefully (it may be hot) remove the heat sink unit G off the computer (***Figure 9e***).
7. Turn the release latch H towards the unlock symbol to release the CPU (***Figure 9f***).
8. Carefully (it may be hot) lift the CPU I up and out of the socket (***Figure 9g***).
9. Reverse the process to install a new CPU.
10. When re-inserting the CPU, pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!)

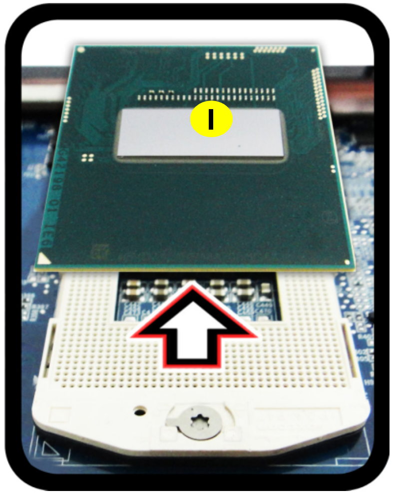
Figure 9
Processor Removal (cont'd)

e. Carefully remove the heat sink unit.
f. Turn the release latch to unlock the CPU.
g. Lift the CPU out of the socket.

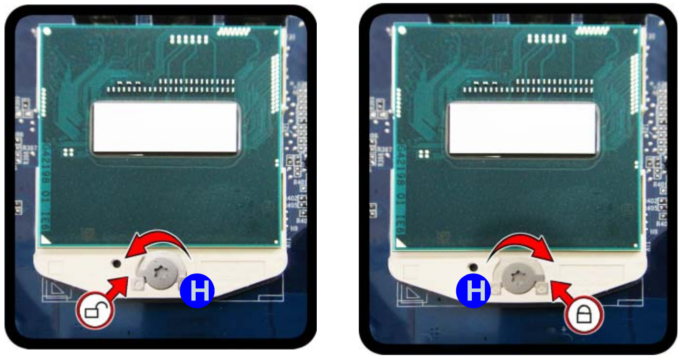
e.



g.



f.



Caution

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

G. Heat Sink
I. CPU

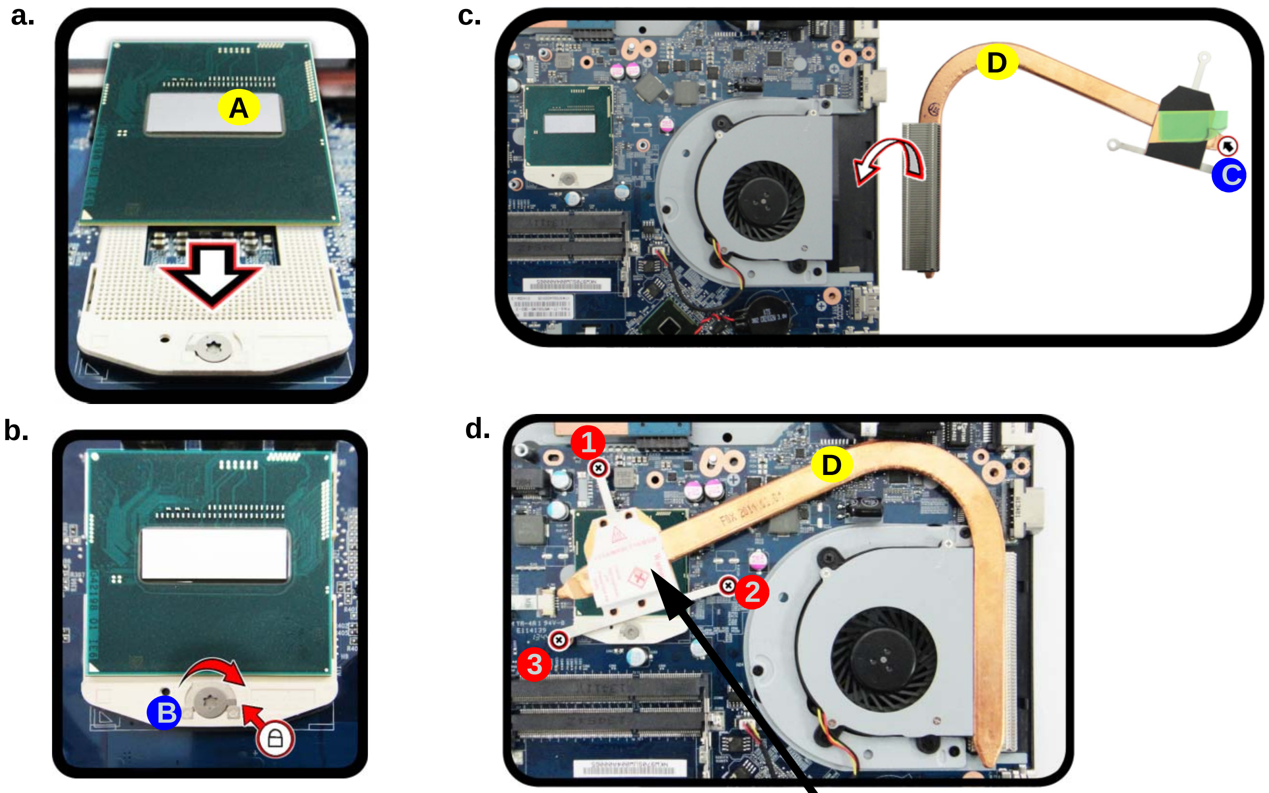
- 6 Screws

Figure 10
Processor Installation

a. Insert the CPU.
b. Turn the release latch towards the lock symbol.
c. Insert the heat sink.
d. Tighten the screws.

Processor Installation Procedure

1. Insert the CPU A (***Figure 10a***), pay careful attention to the pin alignment, it will fit only one way (DO NOT FORCE IT!), and turn the release latch B towards the lock symbol 🔒 (***Figure 10b***).
2. **Remove the sticker** C (***Figure 10c***) from the heat sink unit.
3. Insert the heat sink D as indicated in ***Figure 10c***.
4. Tighten the CPU heat sink screws in the order 1, 2 & 3 (the order as indicated on the label and ***Figure 10d***).
5. Replace the CPU fan, component bay cover and tighten the screws (***page 2 - 12***).



Note:
Tighten the screws in the order as indicated on the label.

A. CPU
D. Heat Sink

- 3 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 16GB. 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

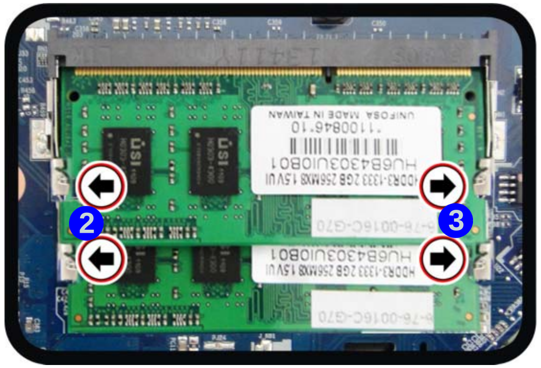
1. Turn **off** the computer, turn it over to remove the battery (***page 2 - 5***) and bottom cover (***page 2 - 6***).
2. The RAM modules will be visible at point 1 on the mainboard (***Figure 11b***).
3. Gently pull the two release latches (2 & 3) on the sides of the memory socket in the direction indicated by the arrows (***Figure 11b***). The RAM module 4 will pop-up (***Figure 11c***), and you can then remove it.

Figure 11
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.

a.

b.



c.

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

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.

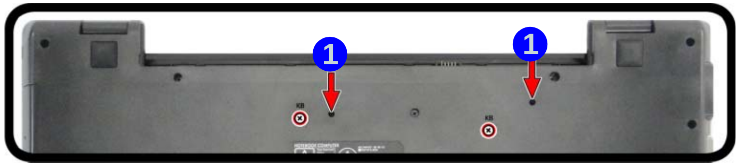
Removing the Keyboard

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 12a***).
3. Turn the computer over, remove the keyboard 2 (***Figure 12c***).
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 12d***).
5. Carefully lift up the keyboard 2 off the computer (***Figure 12e***).

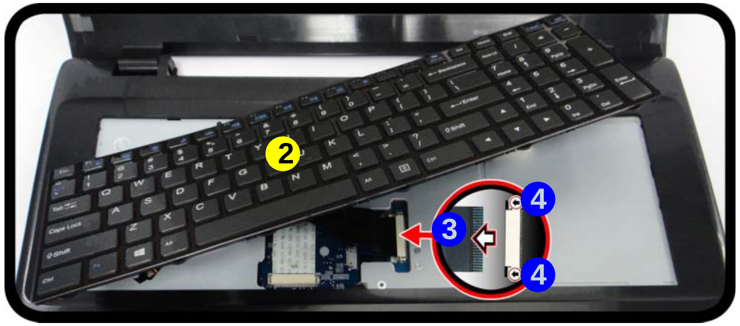
Figure 12
Keyboard Removal

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.



b.



c.

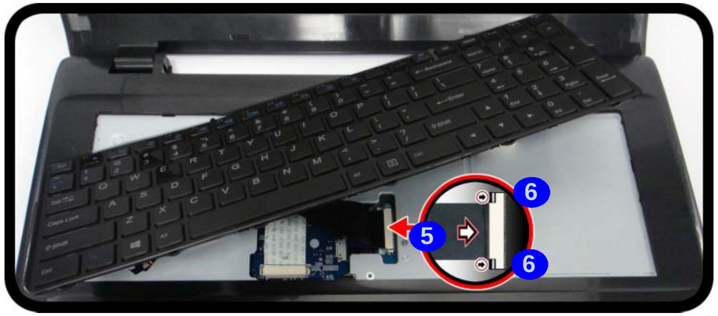
2. Keyboard

Figure 13
Keyboard Assembly

d. Connect the keyboard ribbon cable to the locking collar socket.

6. Connect the keyboard ribbon cable from the locking collar socket 6, and be careful not to bend the keyboard ribbon cable 5 (***Figure 13f***).
7. Replace and tighten the screws (***Figure 12a***).

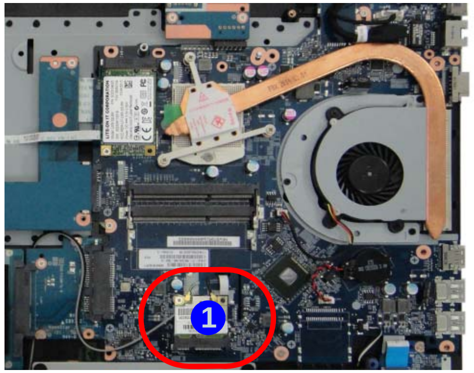
d.



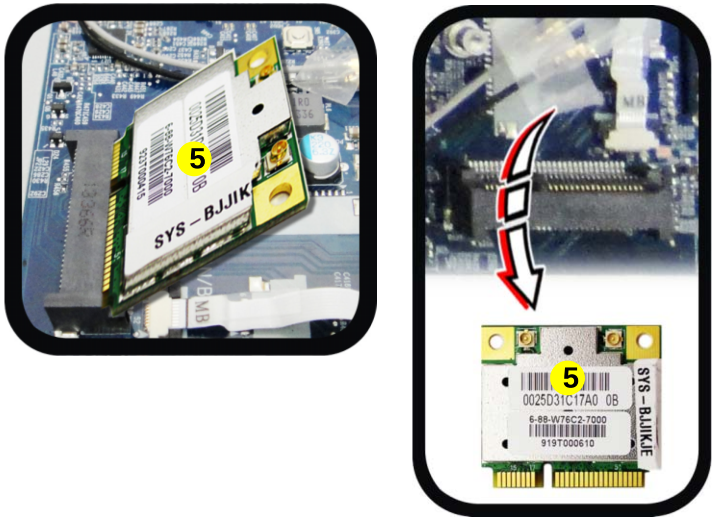
Removing the Wireless LAN Module

1. Turn **off** the computer, turn it over to remove the battery (***page 2 - 5***) and bottom cover (***page 2 - 6***).
2. The Wireless LAN module will be visible at point 1 on the mainboard (***Figure 14a***).
3. Carefully disconnect the cables 2 & 3, and then remove the screw 4 (***Figure 14b***)
4. The Wireless LAN module 5 (***Figure 14c***) will pop-up, and you can remove it from the computer.

a.



c.



b.

Figure 14
Wireless LAN Module Removal

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

Note: Make sure you reconnect the antenna cable to the “1 + 2” socket (***Figure 14b***).

5.Wireless LAN Module

- 1 Screw

2.Disassembly

Wireless LAN and Combo Module Cables

Note that the cables for connecting to the antennae on WLAN, WLAN & Bluetooth Combo, LTE and 3G 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 Broadbank	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 mSATA Module

1. Turn **off** the computer, turn it over, remove the battery (***page 2 - 12***) and bottom cover (***page 2 - 6***).
2. The mSATA module will be visible at point 1 on the mainboard (***Figure 15a***).
3. Carefully remove the screw 2 (***Figure 15b***).
4. The mSATA module 3 (***Figure 15c***) will pop-up, and you can remove it from the computer (***Figure 15d***).

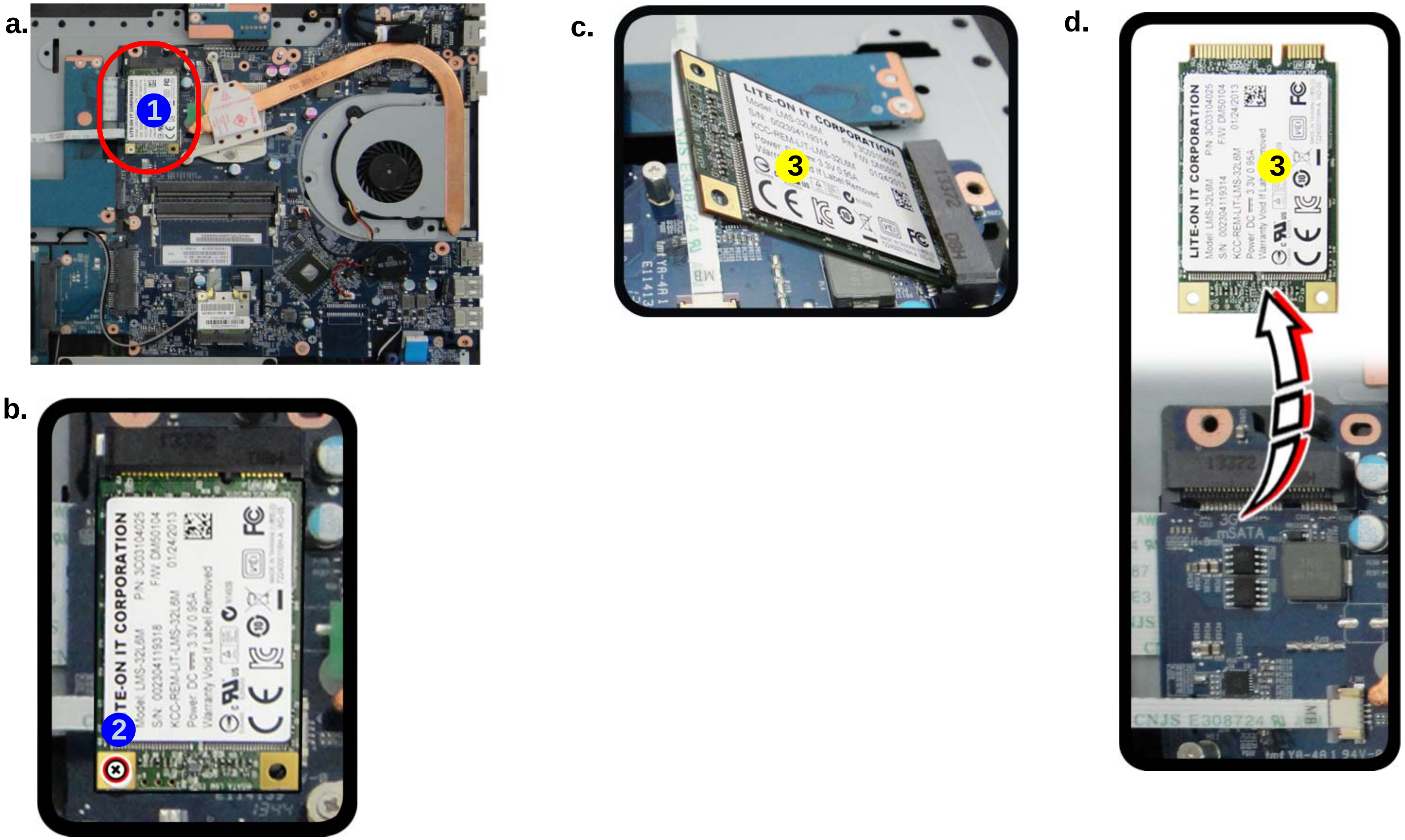


Figure 15
mSATA Module Removal

a. Locate the mSATA module.
b. Remove the screw.
c. The module will pop-up.
d. Remove the mSATA module.

3. mSATA Module

- 1 Screw

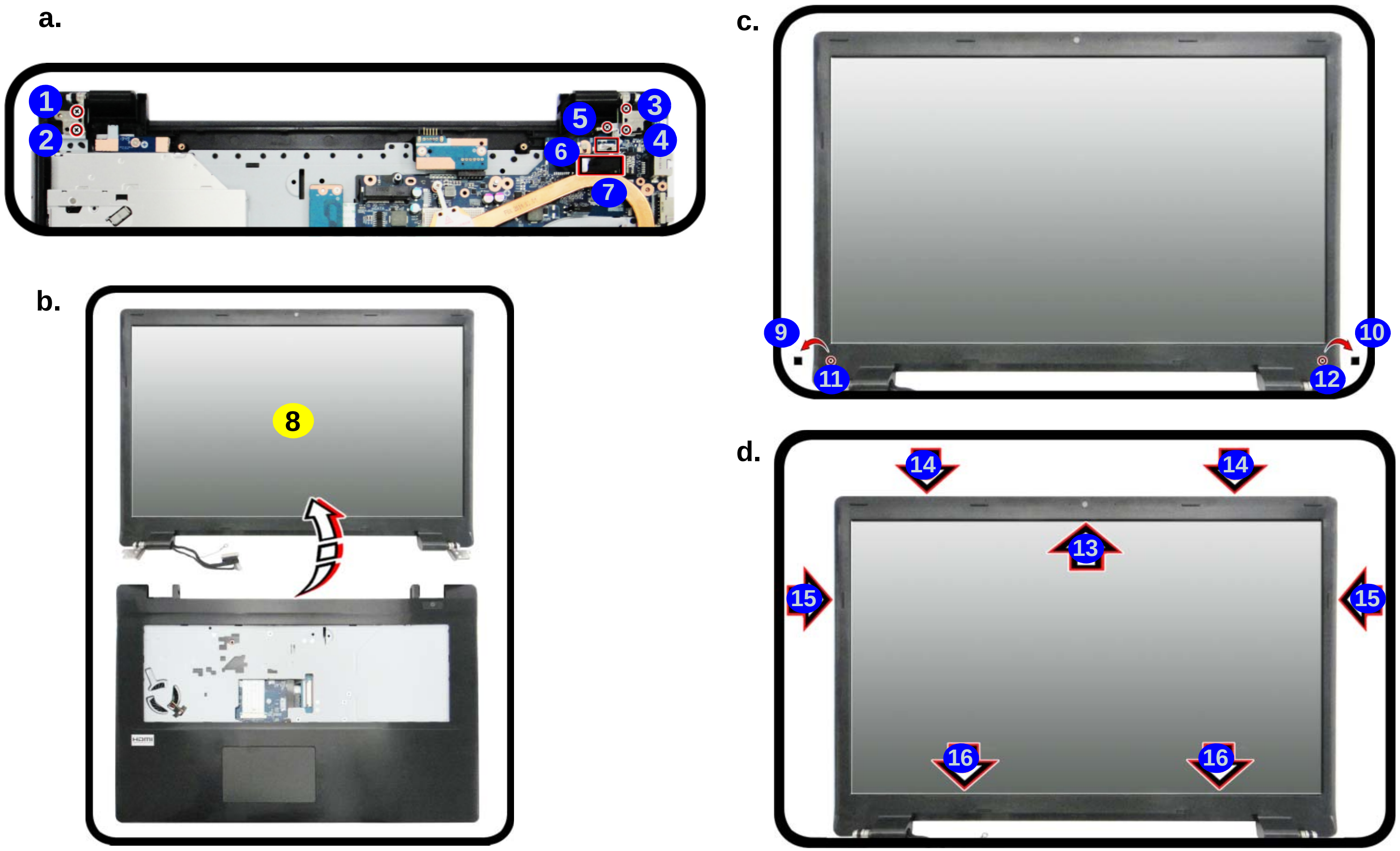
2.Disassembly

Figure 16
CCD Removal

a. Remove the screws and disconnect the cables.
b. Separate the LCD panel from the bottom assembly.
c. Carefully remove the rubber screw covers and screws from the front cover.
d. Run your fingers around the inner frame of the LCD panel at the points indicated by the arrows.

Removing the CCD

1. Turn **off** the computer, turn it over to remove the battery (***page 2 - 5***) and bottom cover (***page 2 - 6***).
2. Remove screws 1 - 5 and disconnect cables 6 & 7 from the bottom assembly (***Figure 16a***).
3. Separate the LCD panel 8 from the bottom assembly (***Figure 16b***).
4. Carefully remove the rubber screw covers 9 - 10 and screws 11 - 12 from the front cover (***Figure 16c***).
5. Run your fingers around the inner frame of the LCD panel at the points as indicated by the arrows 13 - 16 .



8. LCD Front Panel

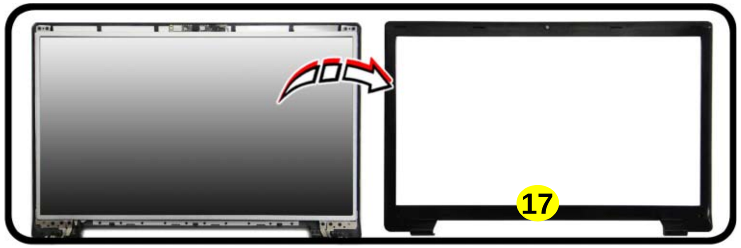
- 7 Screws

6. Remove the LCD front cover 17 (*Figure 16c*).
7. Disconnect the cable 18.
8. Remove the CCD module 19 (*Figure 17f*).
9. Reverse the process to install a new CCD module.

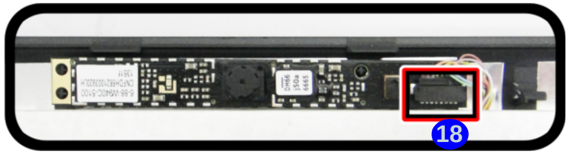
Figure 17
CCD Removal (cont'd)

e. Remove the LCD front cover.
f. Disconnect the cable.
g. Remove the CCD module.

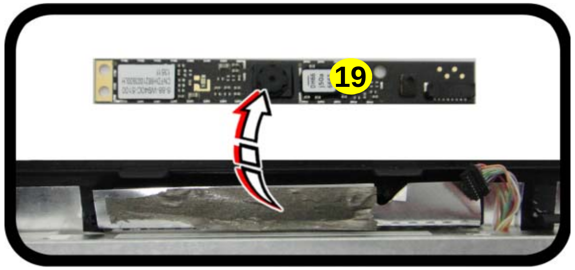
e.



f.



g.



17. LCD Front Cover
19. CCD Module

Appendix A:Part Lists

This appendix breaks down the ***W970SUW*** 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	*page A - 3*
Bottom	*page A - 4*
LCD	*page A - 5*
HDD	*page A - 6*
Combo	*page A - 7*
DVD Dual Drive	*page A - 8*

Top

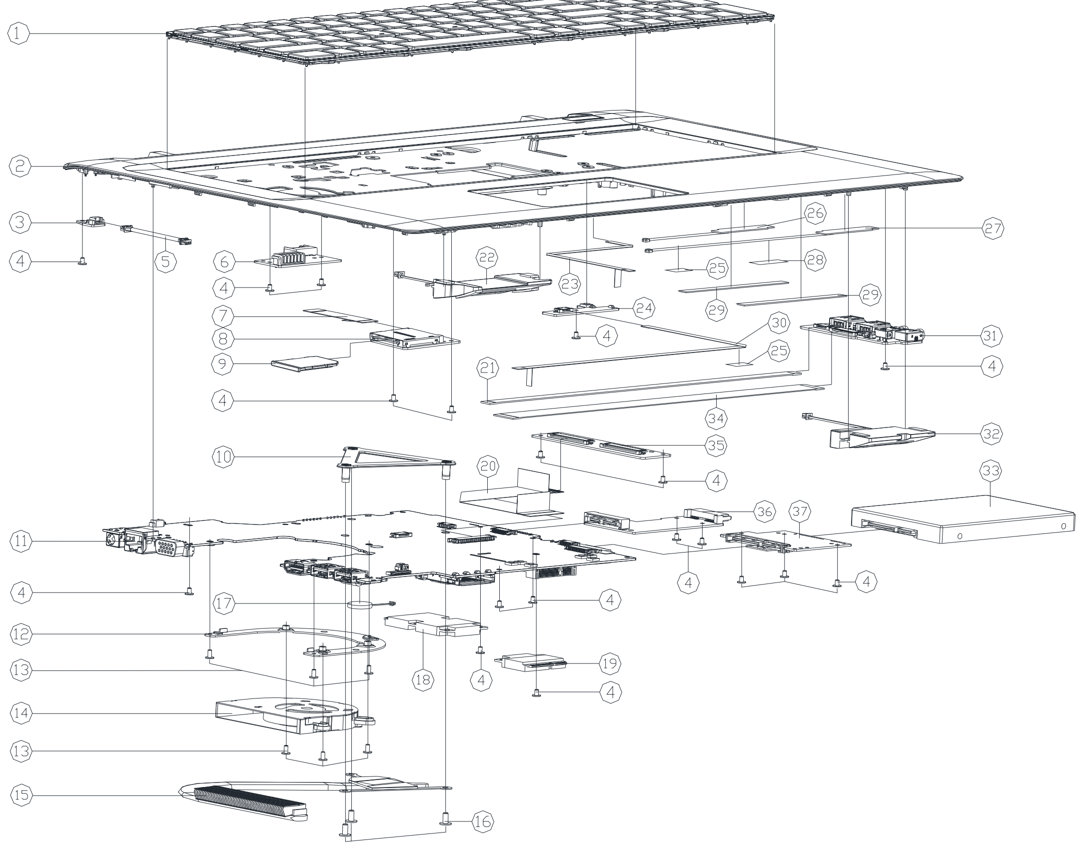
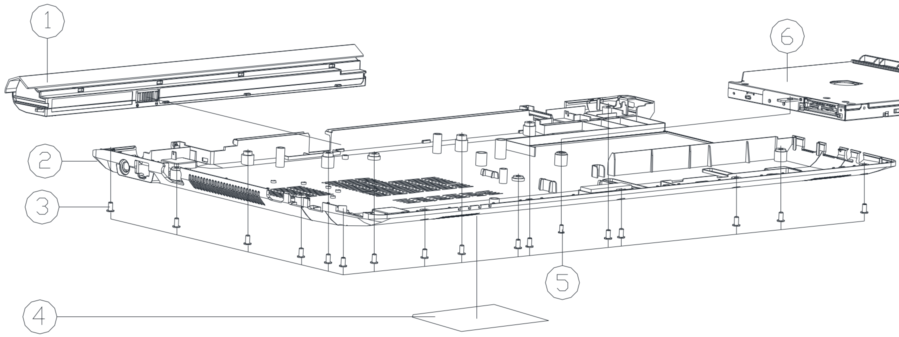


Figure A - 1
Top

ITEM	PART NAME	PART NO	REMARK
1	WIN8 K/B US-INTERNATIONAL(BLACK)& FRAME(US) MODULE WA50SRQ/WA50SHQ	6-79-WA50SH0K-101-W	
2	(PRE-PROCESS)TOP CASE ASS'Y W970SUW	6-78-W970SUW2-010	
3	HALL SENSOR BOARD V1.0 W970SUW	6-77-W95K1-D01-A	
4	SCREW M2*3L KI NI ICT NY (DD=Ø4.5,DT=0.4)	6-35-B1120-3RE	
5	WIRE CABLE FOR LID 3P 40MM (HL) W550EU	6-43-W5503-011	
6	BATTERY BOARD V2.0 W970SUW	6-77-W970Q-D02	
7	FFC CABLE FOR CARDREADER TO MB 46MM 5V 22PIN W970SUW	6-43-W9700-010	
8	CARD READER BOARD PCIE V2.0 W970TUQ	6-77-W970V-D02-A	
9	DUMMY SD PSUH PUSH TYPE PC+ABS (C7230P-701DE) W970SUW	6-42-W9708-010	
10	CPU SUPPORTER FOR HURON RIVER SECC W150HNM	6-33-W150S-011	
11	MAIN BOARD V3.0 (LVDS) (W/TPM,USB CHARGER) W970SUW	6-77-W970SUW0-D03	
11	MAIN BOARD V3.0 (EDP) (W/TPM,USB CHARGER) W970SUW	6-77-W970SUW0-D03-1	
11	MAIN BOARD V3.0 (EDP) (W/TPM) W970SUW	6-77-W970SUW0-D03-2	
11	MAIN BOARD V3.0 (LVDS) (W/O TPM) W970SUW	6-77-W970SUW0-D03-3	
11	MAIN BOARD V3.0 (EDP) (W/O TPM) W970SUW	6-77-W970SUW0-D03-4	
11	MAIN BOARD V3.0 (LVDS) (W/TPM) W970SUW	6-77-W970SUW0-D03-5	
12	FAN BRACKET SECC(0.8MM) W940SU1	6-33-W9S1S-012	
13	SCREW M2*4L KI BZ ICT NY	6-35-B6120-4RA	
14	FAN MODULE W251HUQ	6-31-W25HS-100	
15	CPU HEATSINK MODULE (AL FIN)(DEL CPU PAD) W540EU	6-31-W540N-102	
16	SCREW M2.5*5L KI NI ICT NY	6-35-B1125-5RA	
17	BAT. 20MM 3V 220MAH W/CABLE 55MM BCR2032H5.5VM1UB (SHIHND)	6-23-22015-TE0	
18	MSATA3 SSD 240GB MLC CT240M500SSD3 CRUCIAL (M5 SERIES)	6-85-D40Q0-100	
18	MSATA3 SSD 128GB MLC CT128M400SSD3 CRUCIAL (M4 SERIES) (F/W: XXXX)	6-85-D40C8-100	
18	MSATA3 SSD 256GB MLC SSE256GPTC0-S81(F/W=6.1) PHISON	6-85-D40R6-H00	
18	MSATA 3 SSD 128GB (LITEON,MT-128M6M) (CONTROLLER: MARVELL 88SS9187) (FLASH: TSB 19NM TOGGLE)	6-85-D40C8-L01	
18	MSATA3 SSD 480GB MLC CT480M500SSD3 CRUCIAL	6-85-D404J-100	
18	MSATA3 SSD 240GB MLC SSDMCEAW240A4XX INTEL (530 SERIES)	6-85-D40Q0-Z01	
19	WLAN+BT COMBO AZUREWAVE AW-NB159H (RTL8723BE) 802.11BGN 1X1 (PCI-E) +BT4.0 LE (USB) HALF MINI-CARD W540SU1	6-88-W54SF-7000	
19	WLAN+BT COMBO LITEON WCBN611LH-CC (RTL8723BE) 802.11BGN 1X1 (PCI-E) +BT4.0 LE (USB) HALF MINI-CARD W540SU1	6-88-W54SF-9400	
19	WLAN LITEON WN6611LH-CC (RTL8188EE) 2 ANT. 802.11BGN 1X1 HALF MINI-CARD PCI-E FOR WOWLAN P370SM	6-88-P3702-9400	
19	WLAN AZUREWAVE AW-NE238H (RTL8188EE) 2 ANT. 802.11BGN 1X1 HALF MINI-CARD PCI-E FOR WOWLAN P370SM	6-88-P3702-7000	
19	WLAN+BT COMBO INTEL DUAL BAND WIRELESS-AC 7260 WILKINS PEAK 2 2X2 AC+BT 7260HMW HALF MINI-CARD PCI-E W230ST	6-88-W230F-4200	
19	WLAN+BT COMBO INTEL WIRELESS-N 7260 (WILKINS PEAK 2), 2X2 BGN+BT 4.0 LE 7260HMWBNGW HMC PCI-E W230ST	6-88-W230F-4210	
19	WLAN+BT COMBO INTEL WIRELESS-AC 3160 (WILKINS PEAK 1), 1X1 AC + BT 3160HMWGW HALF MINI-CARD PCI-E	6-88-W25WF-4200	
20	FFC CABLE FOR KB TRANSFORM BD TO MB 52MM 5V 24PIN W970SUW	6-43-W9700-020	
21	FFC CABLE FOR AUDIO TO MB 230MM 5V 6PIN W970SUW	6-43-W9700-050	
22	SPK+CABLE L 2W 4? 35MM (PK251249XM) W970SUW	6-23-5W970-0L0	
23	FFC CABLE FOR CLICK TO MB 68.5MM 5V 8PIN W970SUW	6-43-W9700-060	
24	POWER SWITCH BOARD V3.0 W950SU2	6-77-W54KS-D03-B	
25	TAPE MYLAR TRANSPARENT (20*10*0.05) P180HM	6-40-P1803-020	
26	ANTENNA WIMAX WGT WM2 PCB 2.4G/5G L=250MM W970SUW	6-23-7W970-021	
27	ANTENNA WIMAX WGT WM1 PCB 2.4G/5G L=300MM W970SUW	6-23-7W970-010	
28	TAPE MYLAR TRANSPARENT (30*5*0.05) W251HPQ	6-40-W25P3-010	
29	7MM HDD SPONGE CR4305 (56x9x3.15T) W970SUW	6-47-0019A-70E	
30	FFC CABLE FOR POWER BD TO MB 173MM 5V 4PIN W970SUW	6-43-W9700-030	
31	AUDIO BOARD (HEADPHONE) V2.0 W970SUW	6-77-W95K8-D02-C	
32	SPK+CABLE R 2W 4? 68MM (PK251249XM) W950KU	6-23-5W95K-0R1	
33	W/O HDD ASS'Y W970SUW	6-79-W970SUWJ-010	
34	W/HDD ASS'Y W970SUW	6-79-W970SUWJ-020	
34	FFC CABLE FOR AUDIO TO MB 230MM 5V 14PIN W970SUW	6-43-W9700-040	
35	KEYBOARD SWITCH BOARD V2.0 W970SUW	6-77-W9707-D02	
36	EXT ODD BOARD V2.0 W970SUW	6-77-W970N-D02	
37	EXT HDD BOARD V2.0 W970SUW	6-77-W970J-D02	

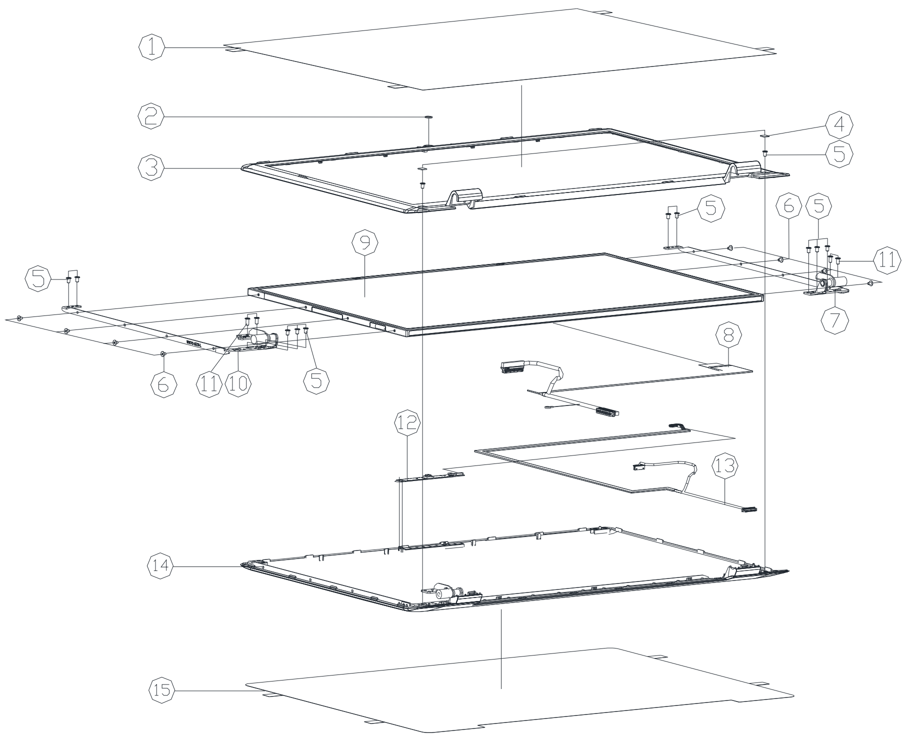
Bottom

Figure A - 2
Bottom



ITEM	PART NAME	PART NO	REMARK
1	BAT.P S LI 15.12V/2.95AH/44WH PSE 4S1P SMP/SDI 980Q2137F W970KLQ	6-87-W97KS-42L	
1	BAT.P S LI 14.8V/32WH 4S1P SMP/SDI 980Q2132F 2.2AH W950KU "TEXTURE"	6-87-W95KS-42F1	
2	BOTTOM CASE MODULE W970SUW	6-39-W97K3-011	
3	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
4	PRODUCT LABEL FOR W970SUY	6-45-W955KL03-010	
4	PRODUCT LABEL FOR W970KLQ	6-45-W970KLQ3-010	
4	PRODUCT LABEL FOR W970TUQ	6-45-W970TUQ3-010	
4	PRODUCT LABEL FOR W970SUW	6-45-W970SUW3-010	
5	SCREW M2*5L K(T=0.8 D=4.0) BK/Z ICT NY	6-35-B6120-5R0	
6	SATA DVD SUPER MULTI ASS'Y (OPTION)	6-79-W970SUWQ-000	(OPTION)
6	SATA BLU-RAY COMBO ASS'Y (OPTION)	6-79-W970SUWW-010	(OPTION)
6	W/O ODD ASS'Y W970SUW	6-79-W970SUWZ-000	(OPTION)
6	2ND HDD CADDY ASS'Y W/O HDD W970SUW	6-79-W970SUWJ-030	(OPTION)
6	2ND HDD CADDY ASS'Y W/HDD W970SUW	6-79-W970SUWJ-040	(OPTION)

LCD



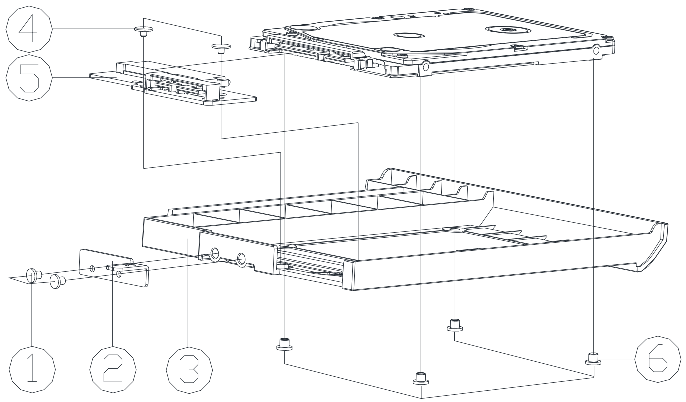
ITEM	PART NAME	PART NO	REMARK
1	LCD FRONT COVER PROTECTION MYLAR (MP) W670SRQ	6-40-W6701-011	
2	CCD LENS PMMA W650SR	6-42-W6501-010	
3	LCD FRONT COVER MODULE W970SUW	6-39-W9701-011	
4	RUBBER FRONT COVER SCREW SILICONE W970SUW	6-47-W9701-041	
5	SCREW M2.5*4L KI(T=0.5 D=4.5) BK/Z ICT	6-35-B6125-4R0	
6	SCREW M2*3L KI NI ICT NY (DD=ø4.5,DT=0.4)	6-35-B1120-3RE	
7	LCD HINGE R SK7+SECC W970SUW	6-33-W9701-0R1	
8	WIRE CABLE FOR LCD TO MB 40PIN 19V LVDS 85.6MM (HL/LW CON:LV03140-212-HF) W970SUW.	6-43-W9701-010-N	
8	WIRE CABLE FOR LCD TO MB 30PIN 19V EDP 85.6MM (HL/LW CON:LV03130-212-HF) W970SUW.	6-43-W9701-021-N	
8	WIRE CABLE FOR LVDS TO MB 85.6MM 19V 40PIN (HL/LA CON:LA0906MD-40-HF) W970KLQ	6-43-W97K1-010-P	
8	WIRE CABLE FOR EDP TO MB 85.6MM 19V 30PIN (HL/LA CON:LA0903MD-30) W970KLQ	6-43-W97K1-021-P	
9	LCD 17.3" HD+ LG LP173WD1-TLE1 (GLARE TYPE) (LED) 6.0 MM	6-50-NA160-L09	
9	LCD 17.3" HD+ LG LP173WD1-TLF1 (LED) 6.0 MM	6-50-NA160-L08	
9	LCD 17.3" FHD CHIMEI N173HGE-L11 (LED) 6.0 MM	6-50-NB260-D01	
9	LCD 17.3" HD+(EDP)(GLARE TYPE) LG LP173WD1-TPE1 (LED) 6.0 MM	6-50-NA160-L0A	
9	LCD 17.3" FHD (EDP) CHIMEI N173HGE-E11(LED) 6.0 MM	6-50-NB260-D03	
10	LCD HINGE L SK7+SECC W970SUW	6-33-W9701-0L1	
11	SCREW M2.5*6L K BZ ICT NY	6-35-82125-6RA	
12	UVC CAMERA BISON FIX BN8V1GYK7-300 1M HD HYNIX 162 W940TU FW0606 W/LED W/D-MIC	6-88-W940C-4901	
12	UVC CAMERA CHICONY FIX CNFDH66 1M HD SETI ST171 W940TU FW6665 W/LED W/D-MIC	6-88-W940C-5100	
13	WIRE CABLE CCD+MIC TO MB 8PIN 3.3V 107MM(50375-00811) W970SUW	6-43-W970T-010	
14	LCD BACK COVER MODULE W970SUW	6-39-W9701-021	
15	BACK COVER PROTECT FILM 8B35 W970SUW	6-40-W9701-010	

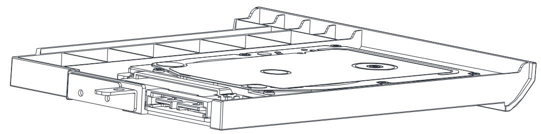
Figure A - 3
LCD

A.Part Lists

HDD

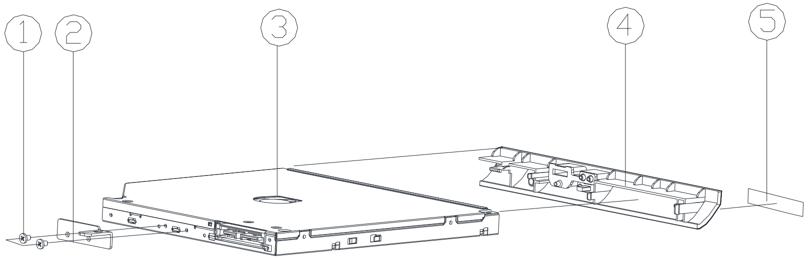
Figure A - 4
HDD

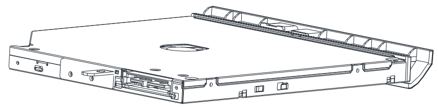




ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*3L KI BK/Z ICT NY (Ø3.5 t=0.3)	6-35-B6120-3RE	
2	CD ROM LOCK BRACKET SECC(9.5H) M740S (ZJ)	6-33-M74SZ-020-1	
3	CADDY BAY CASE PC+ABS SABIC C7230P W970SU	6-42-W9703-011	
4	SCREW M2*2L KI BK/Z ICT NY(Ø8,T=0.6)	6-35-B6120-2RE	
5	ODD TO HDD BOARD V3.0 W950SU2 (W/ REPEATER)	6-77-W95KN-D13-A	FOR W970SUY/TUQ
5	ODD TO HDD BOARD V3.0 (W/O REPEATER) W950KU	6-77-W95KN-D13	FOR W970SUW/KLQ
6	SCREW M3*4L KI BZ ICT NY (D=4.8 T=0.5)	6-35-B6130-4RB	

Combo





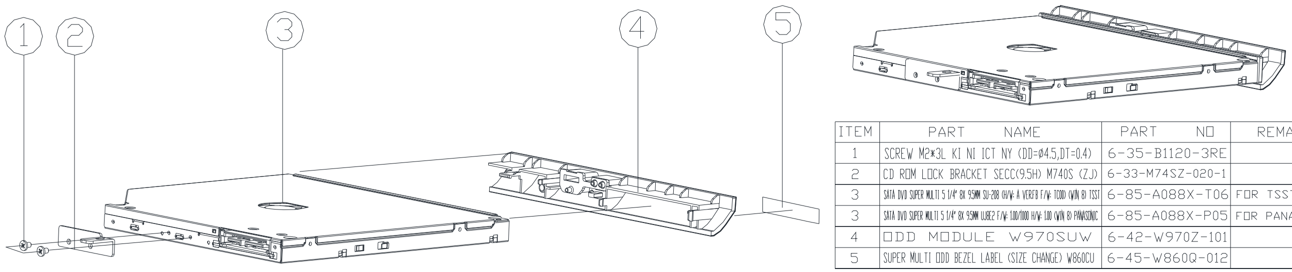
ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*3L KI NI ICT NY (DD=Ø4.5,DT=0.4)	6-35-B1120-3RE	
2	CD ROM LOCK BRACKET SECC(9.5H) M740S (ZJ)	6-33-M74SZ-020-1	
3	SATA BLU-RAY COMBO 5 1/4" 6X 9.5MM UJ172 (H/W: 1.00 F/W: 1.00) (WIN 8, BDXL) PANASONIC	6-85-B086X-P11	FOR PANASONIC
4	ODD MODULE W970SUW	6-42-W970Z-101	
5	BLU-RAY ODD BEZEL LABEL (SIZE CHANGE) W860CU	6-45-W860W-011	

Figure A - 5
Combo

A.Part Lists

DVD DUAL

Figure A - 6
DVD DUAL



ITEM	PART NAME	PART NO	REMARK
1	SCREW M2*3L KI NI ICT NY (DD=ø4.5,DT=0.4)	6-35-B1120-3RE	
2	CD ROM LOCK BRACKET SECC(9.5H) M740S (ZJ)	6-33-M74SZ-020-1	
3	SATA DVD SUPER MULTI 5 1/4" 8X 9.5MM SU-208 (H/W: A VER.FB F/W: TC00) (WIN 8) TSST	6-85-A088X-T06	FOR TSST
3	SATA DVD SUPER MULTI 5 1/4" 8X 9.5MM UJ8E2 F/W: 1.00/1000 H/W: 1.00 (WIN 8) PANASONIC	6-85-A088X-P05	FOR PANASONIC
4	ODD MODULE W970SUW	6-42-W970Z-101	
5	SUPER MULTI ODD BEZEL LABEL (SIZE CHANGE) W860CU	6-45-W860Q-012	

Appendix B: Schematic Diagrams

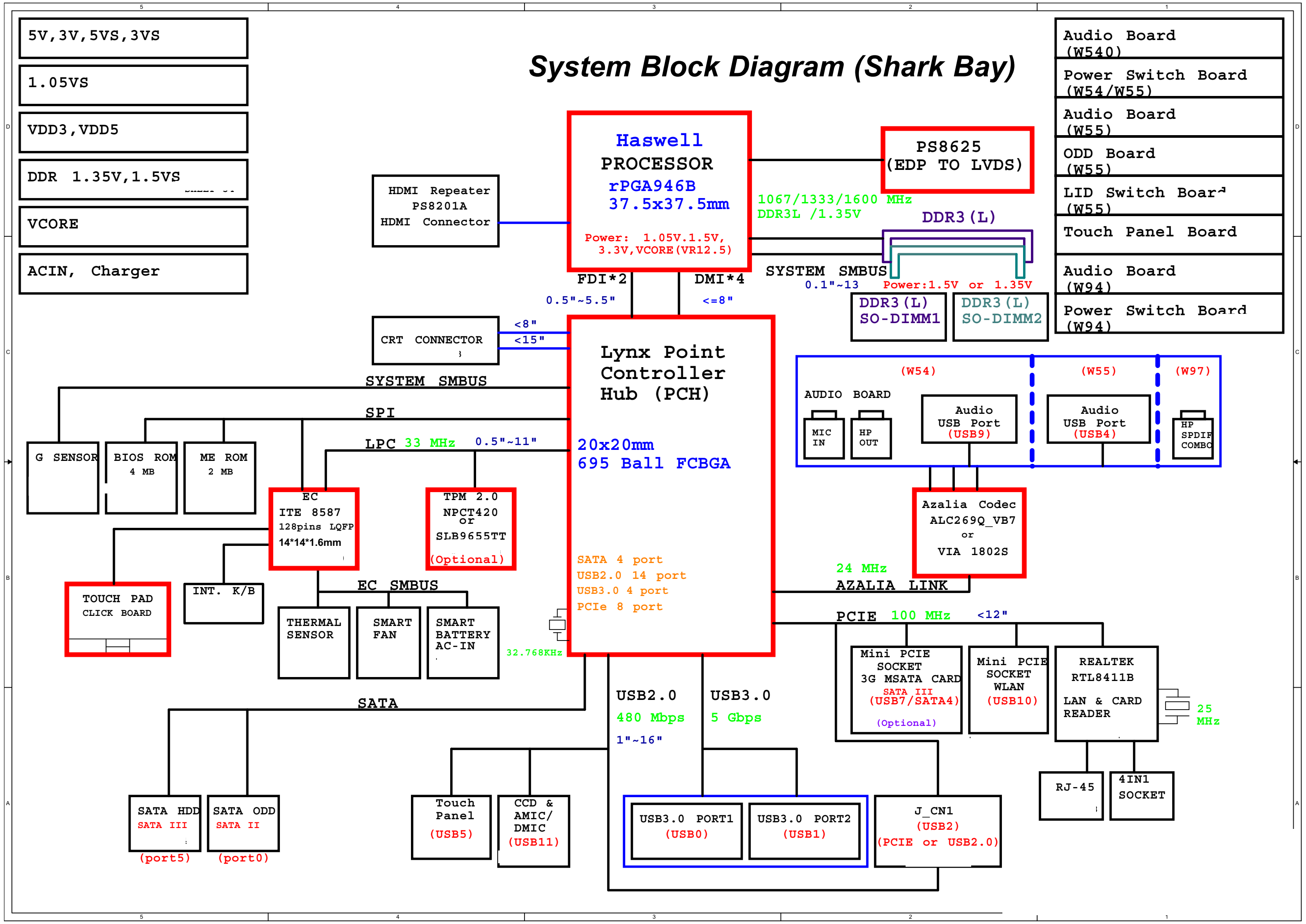
This appendix has circuit diagrams of the ***W970SUW*** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Table B - 1
SCHEMATIC DIAGRAMS

Version Note

The schematic diagrams in this chapter are based upon version 6-7P-W54S9-003. If your mainboard (or other boards) are a later version, please check with the Service Center for updated diagrams (if required).

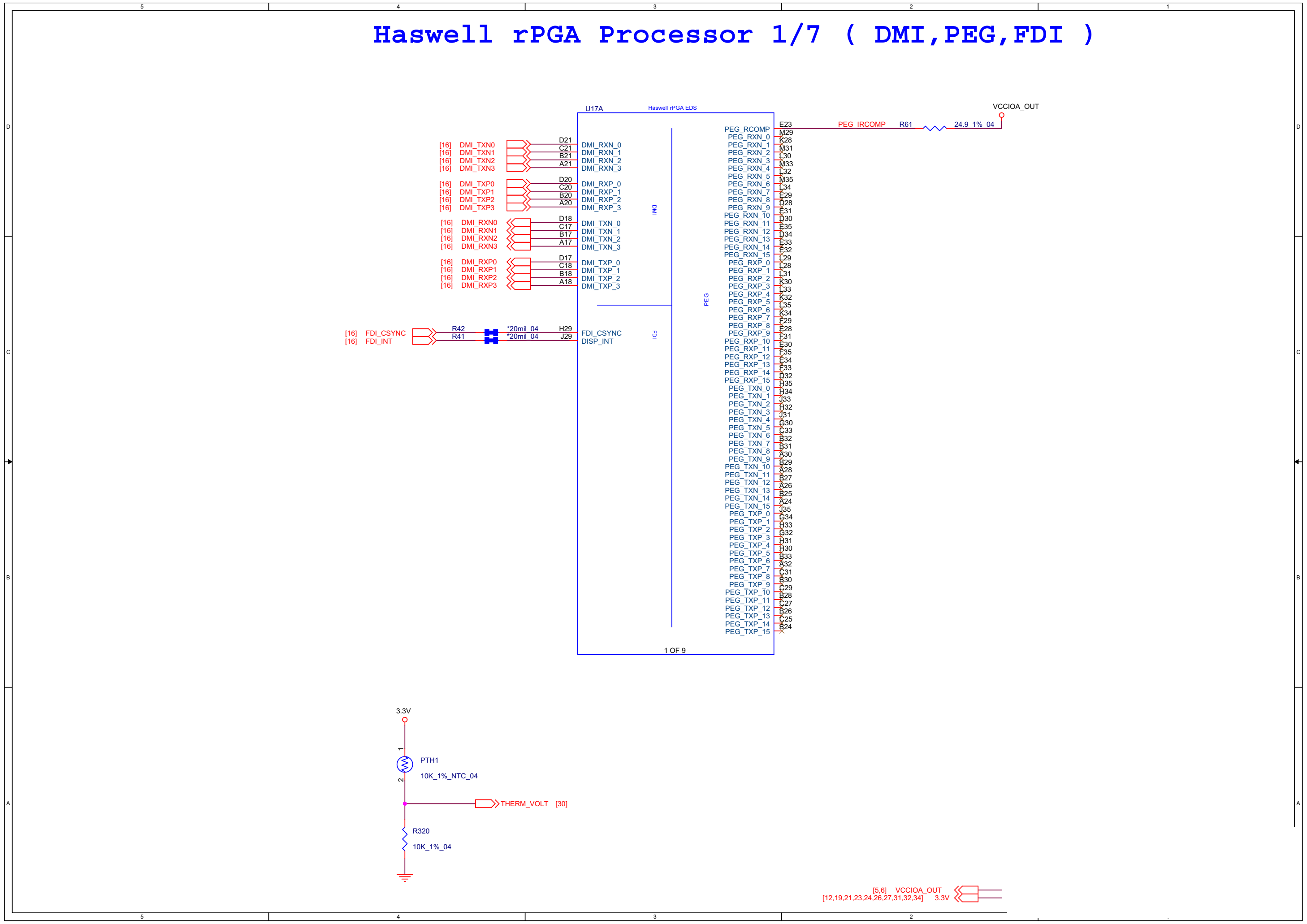
System Block Diagram



Sheet 1 of 45
System Block
Diagram

B.Schematic Diagrams

Processor 1/7

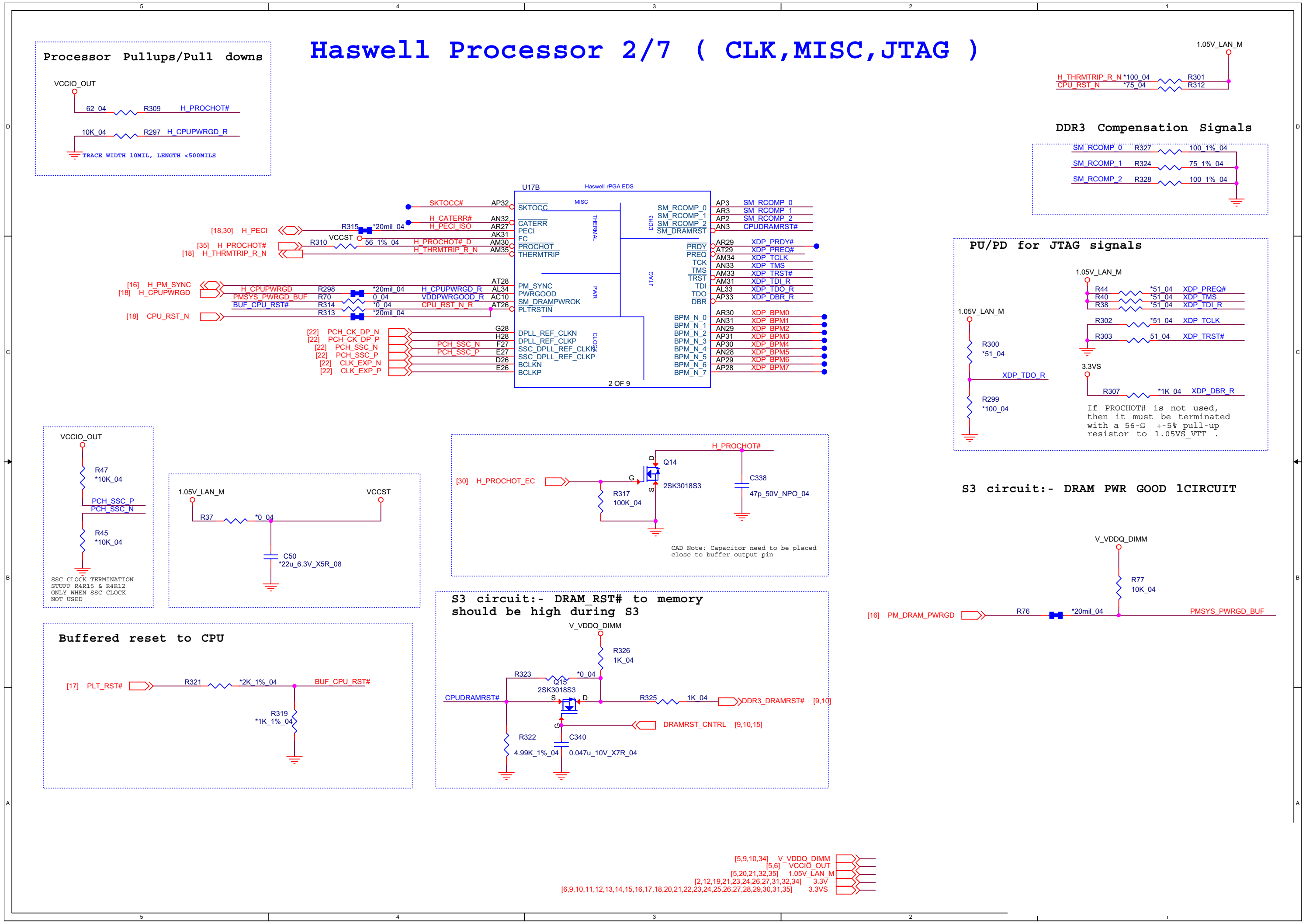


Sheet 2 of 45
Processor 1/7

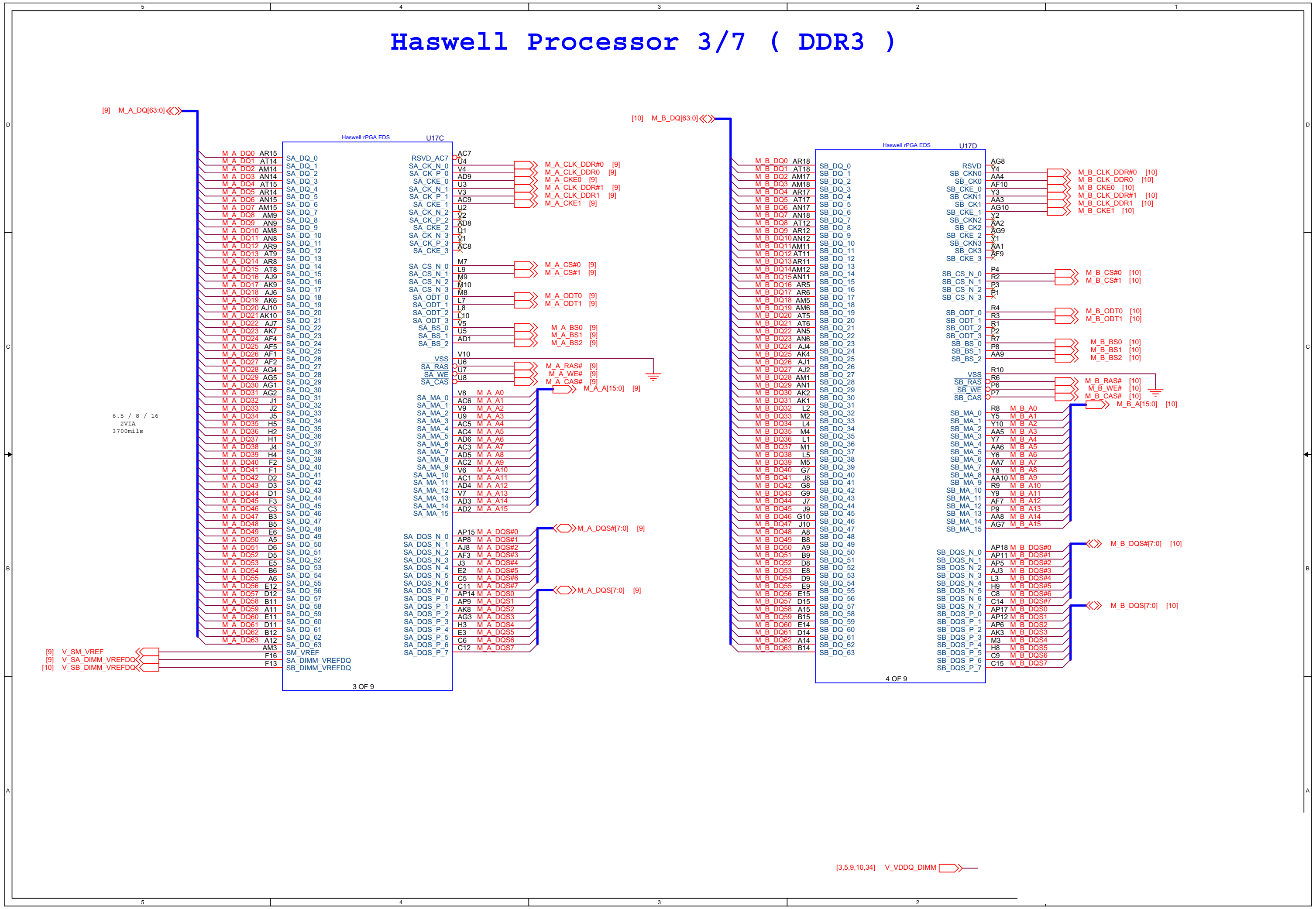
B.Schematic Diagrams

Processor 2/7

Sheet 3 of 45
Processor 2/7

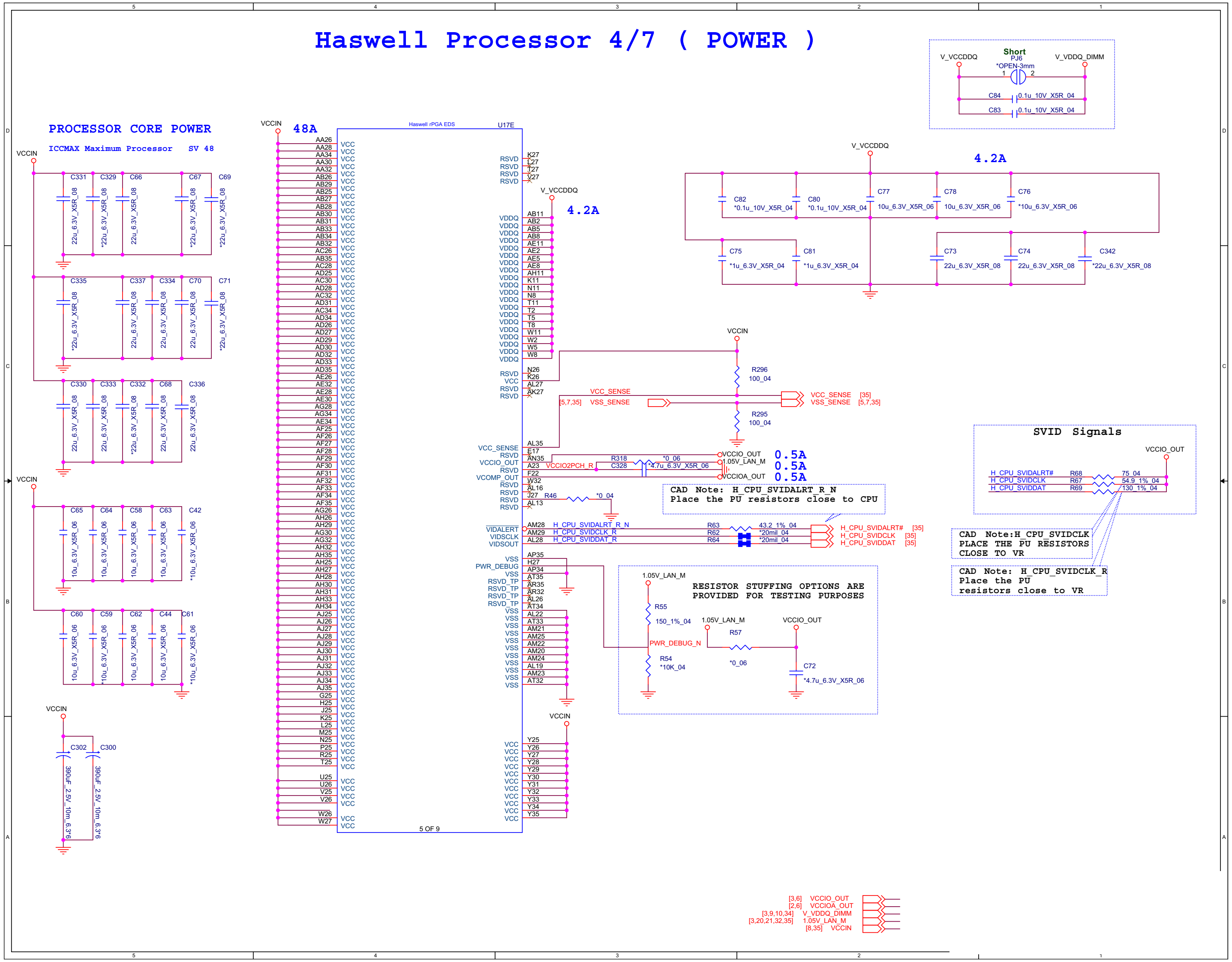


Processor 3/7



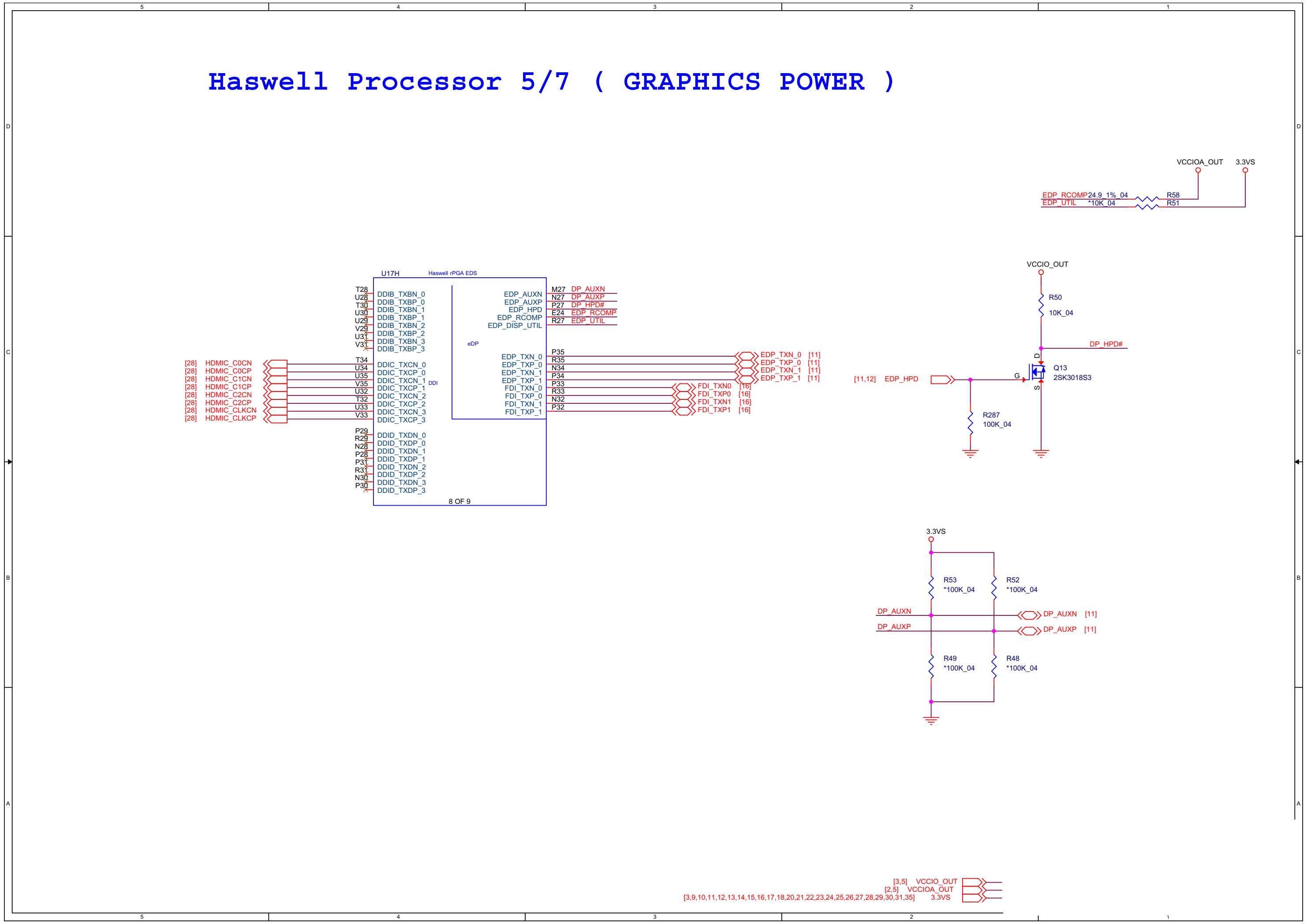
Sheet 4 of 45
Processor 3/7

Processor 4/7



Sheet 5 of 45
Processor 4/7

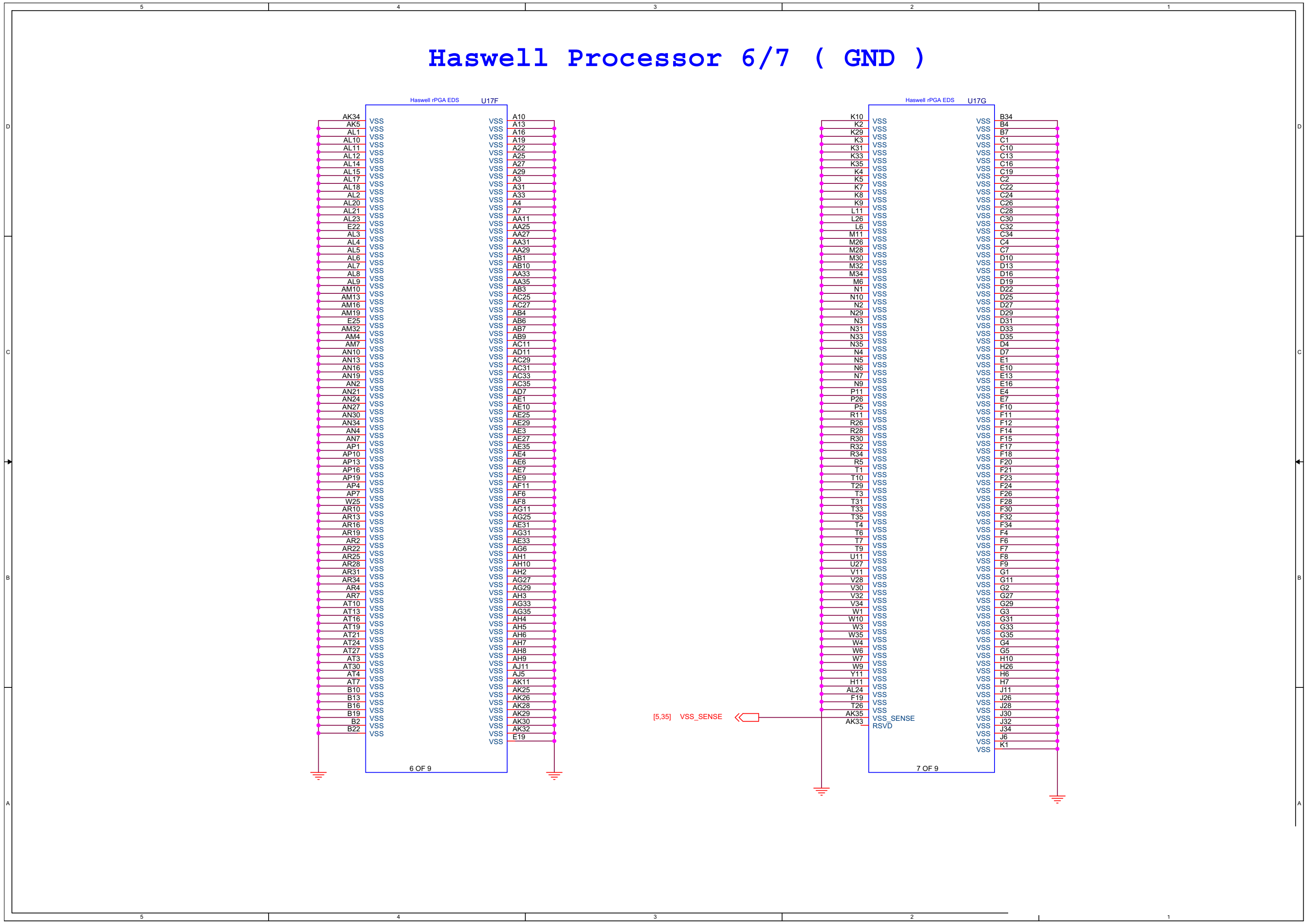
Processor 5/7



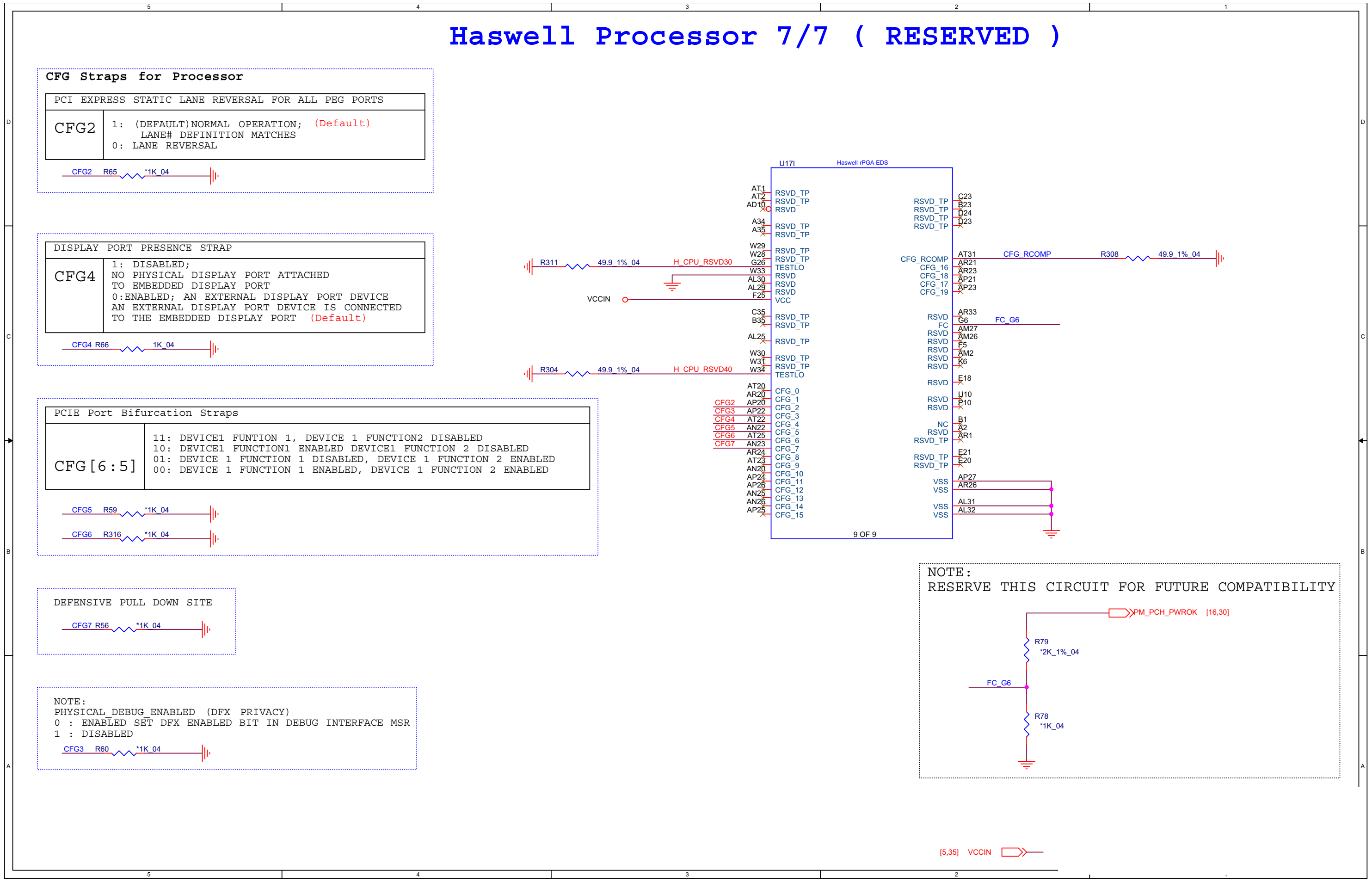
Sheet 6 of 45
Processor 5/7

Processor 6/7

Sheet 7 of 45
Processor 6/7



Processor 7/7



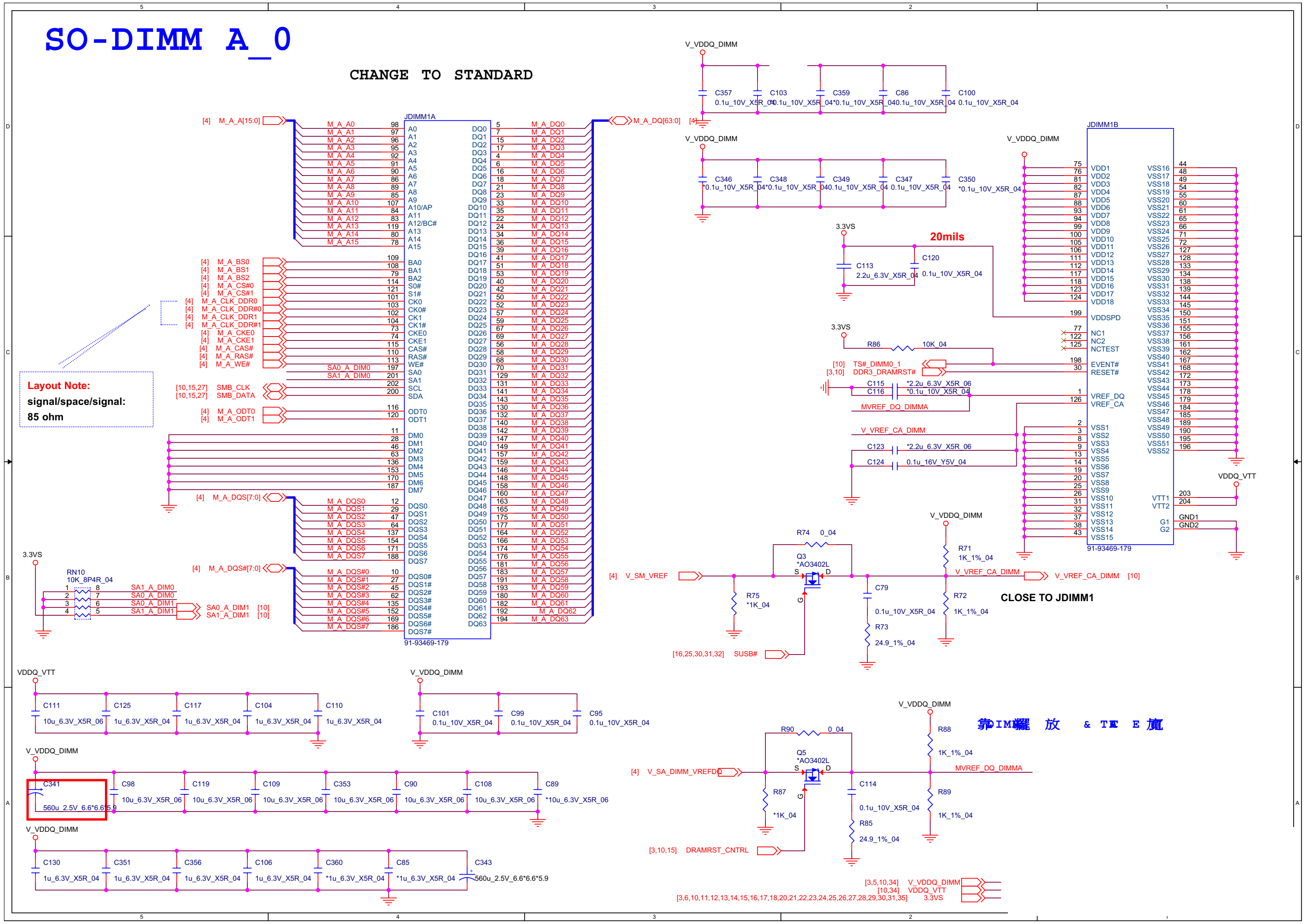
Sheet 8 of 45
Processor 7/7

B.Schematic Diagrams

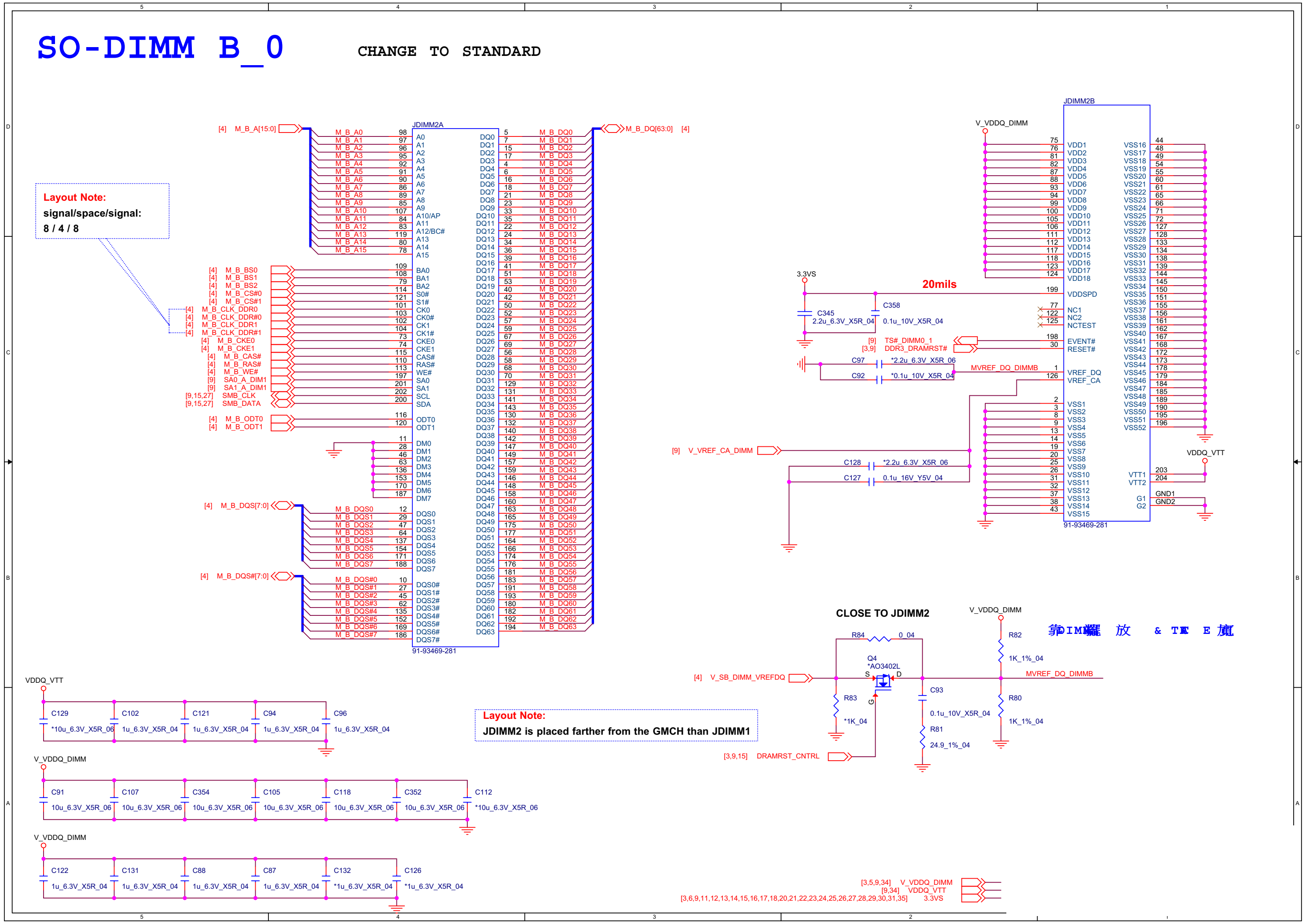
DDR3 SO-DIMM_1

B.Schematic Diagrams

Sheet 9 of 45
DDR3 SO-DIMM_1



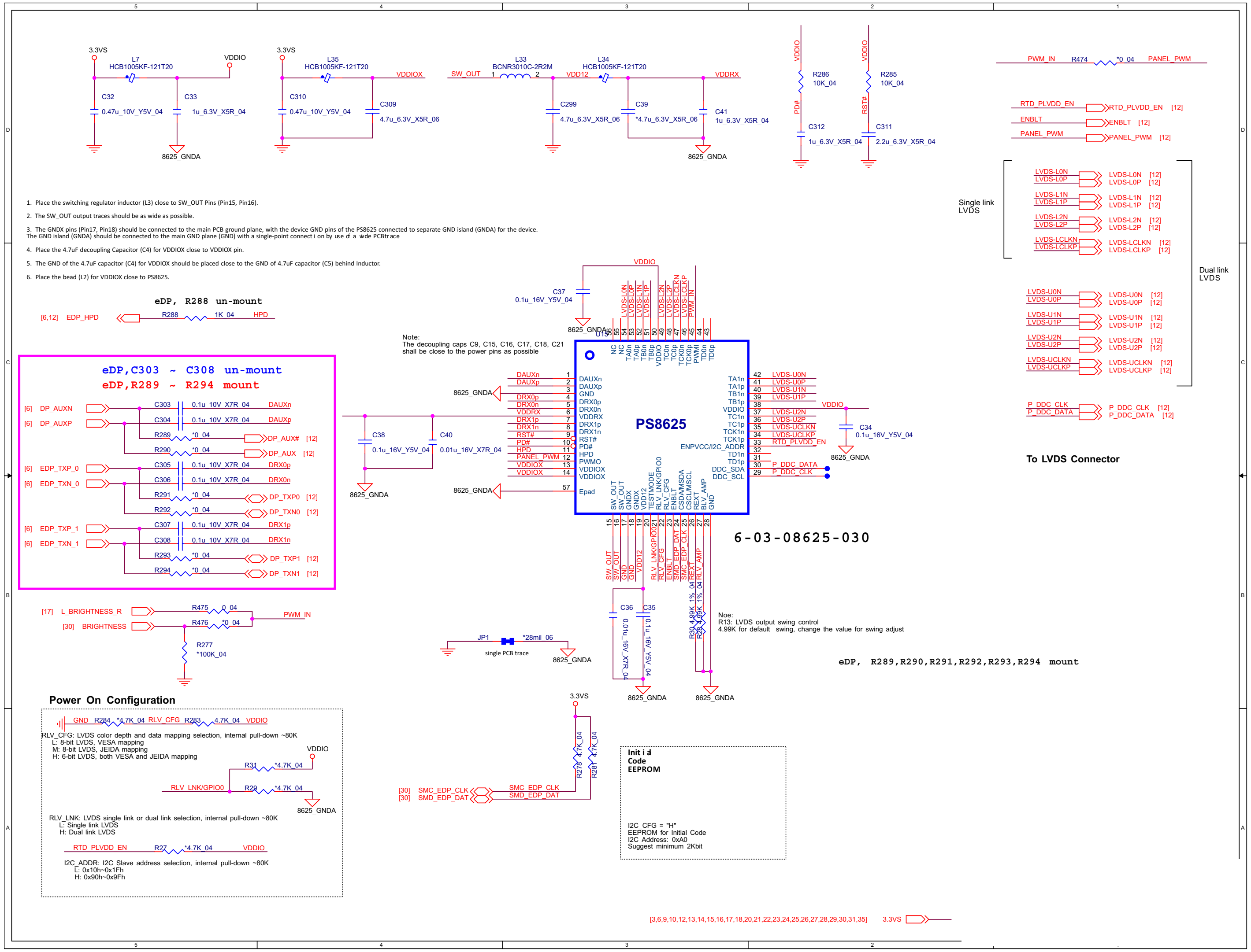
DDR3 SO-DIMM_0



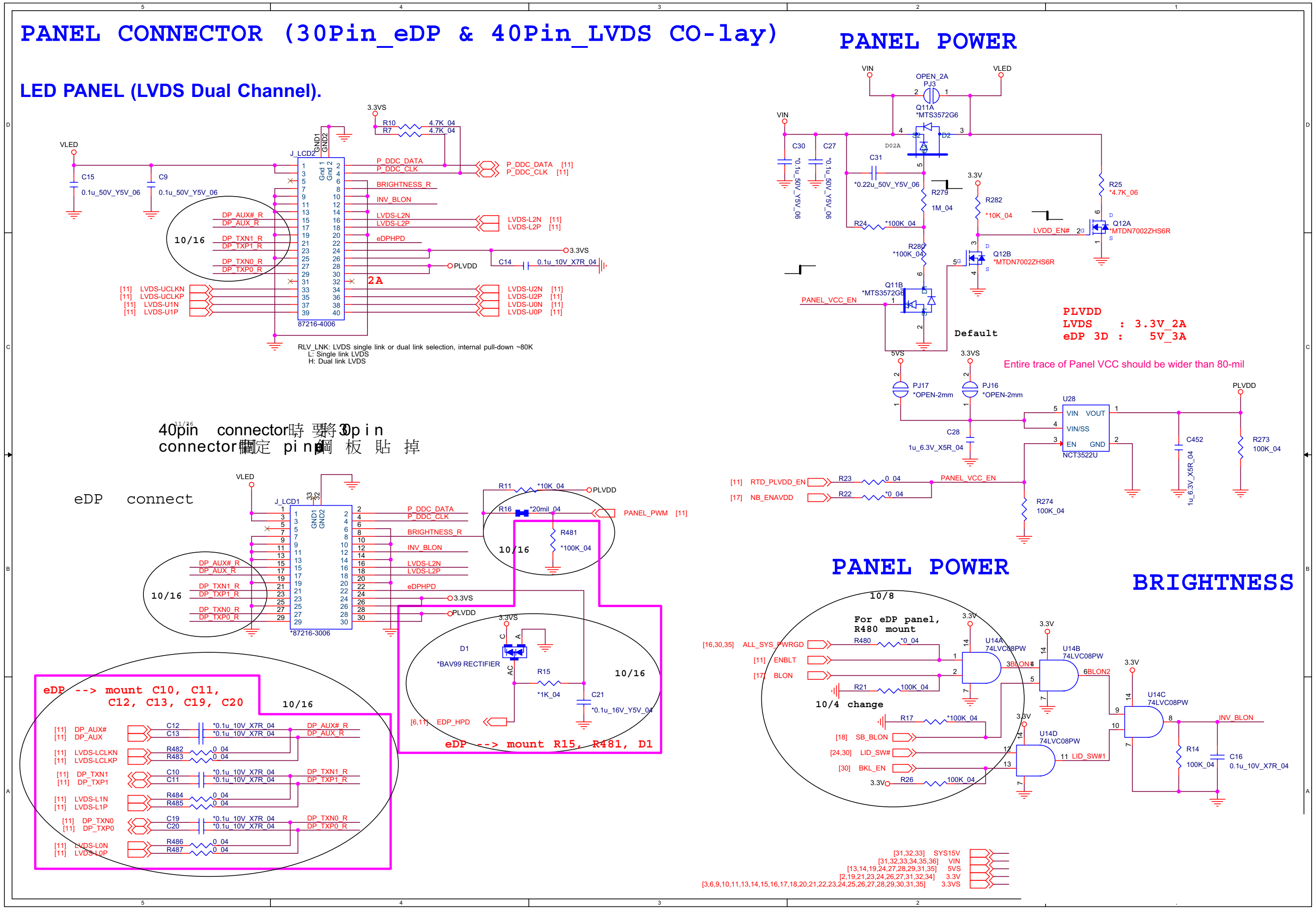
Sheet 10 of 45
DDR3 SO-DIMM_0

PS8625

Sheet 11 of 45
PS8625



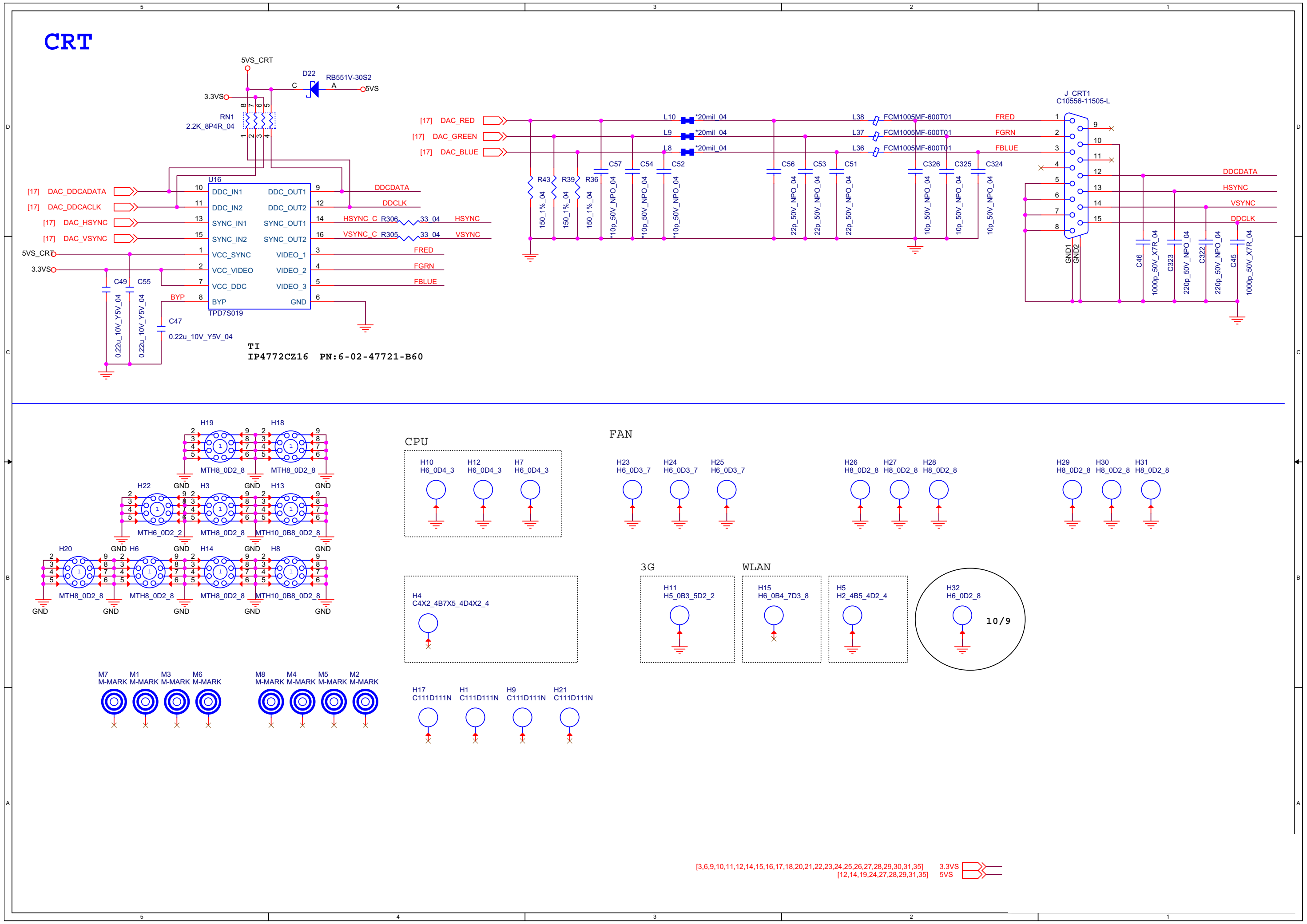
Panel, Inverter



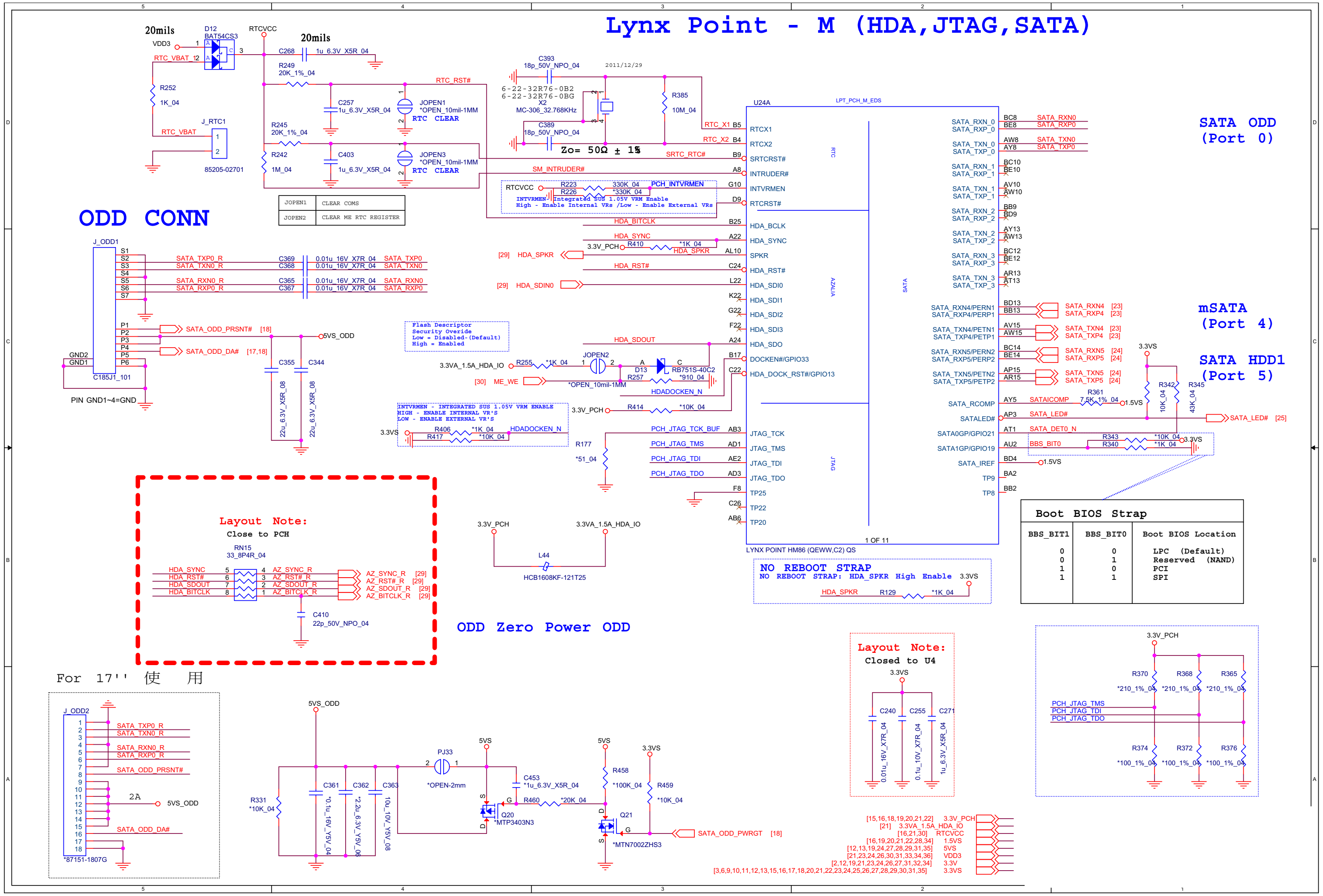
Sheet 12 of 45
Panel, Inverter

CRT

Sheet 13 of 45
CRT



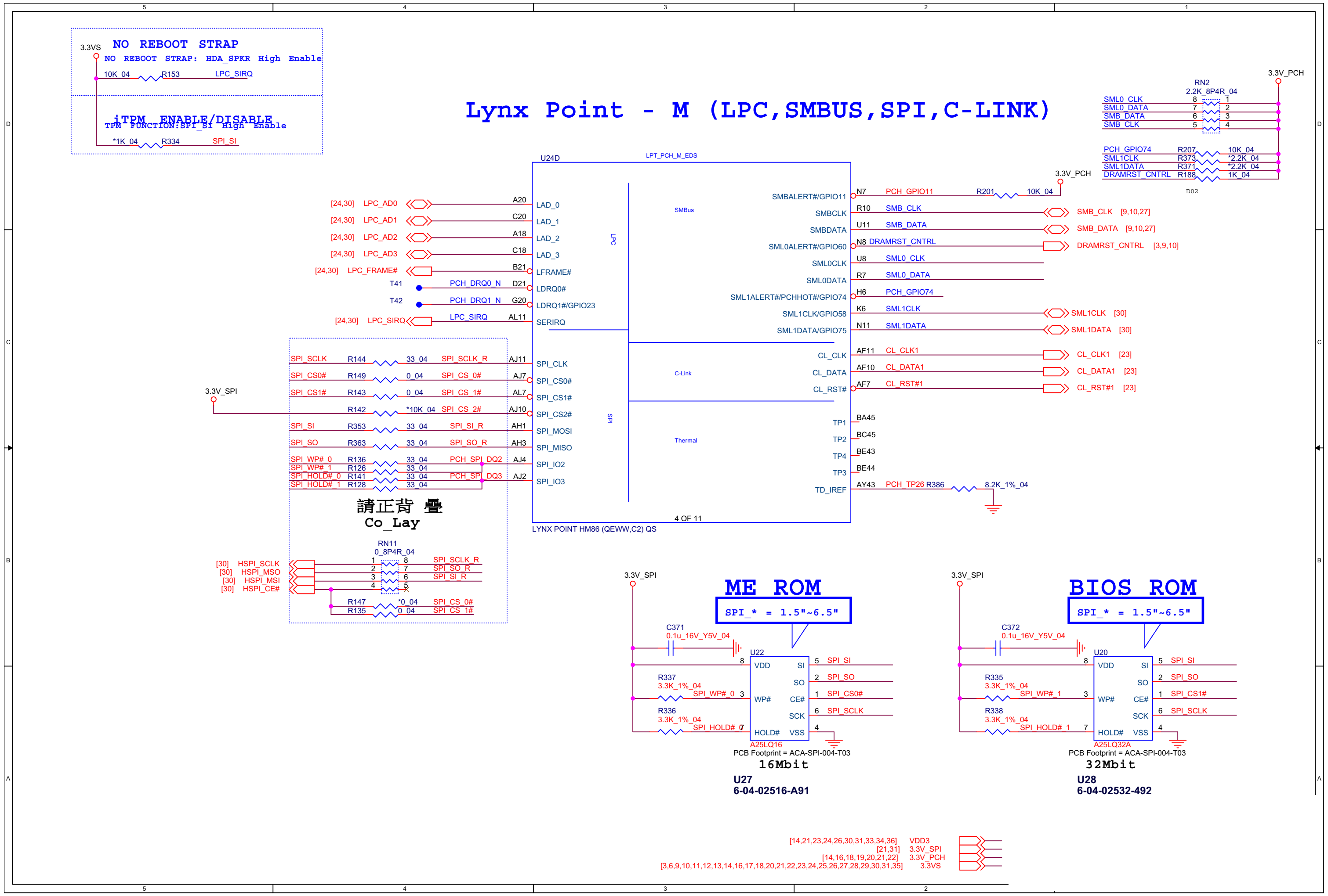
Lynx 1/9



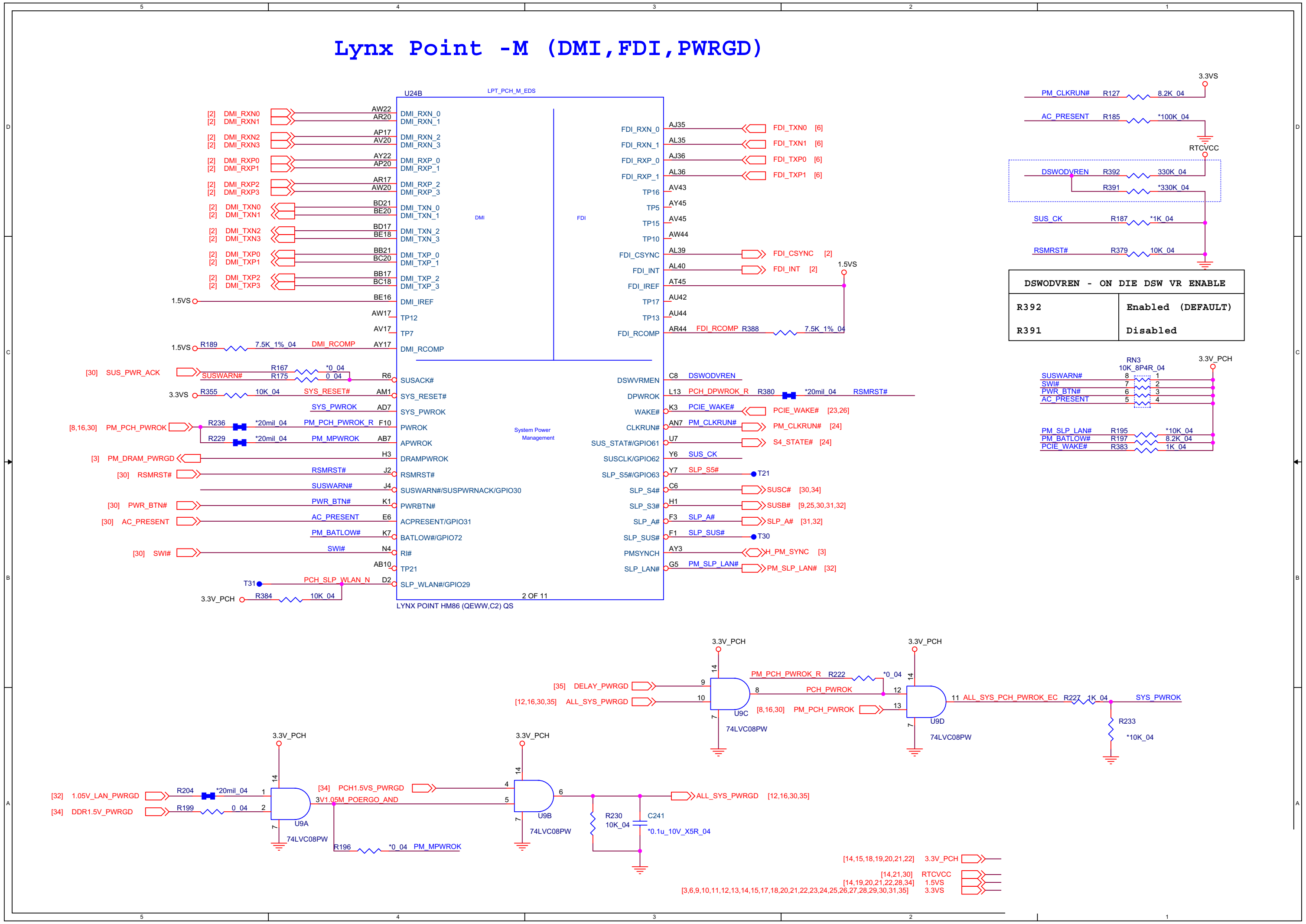
Sheet 14 of 45
Lynx 1/9

Lynx 2/9

Sheet 15 of 45
Lynx 2/9



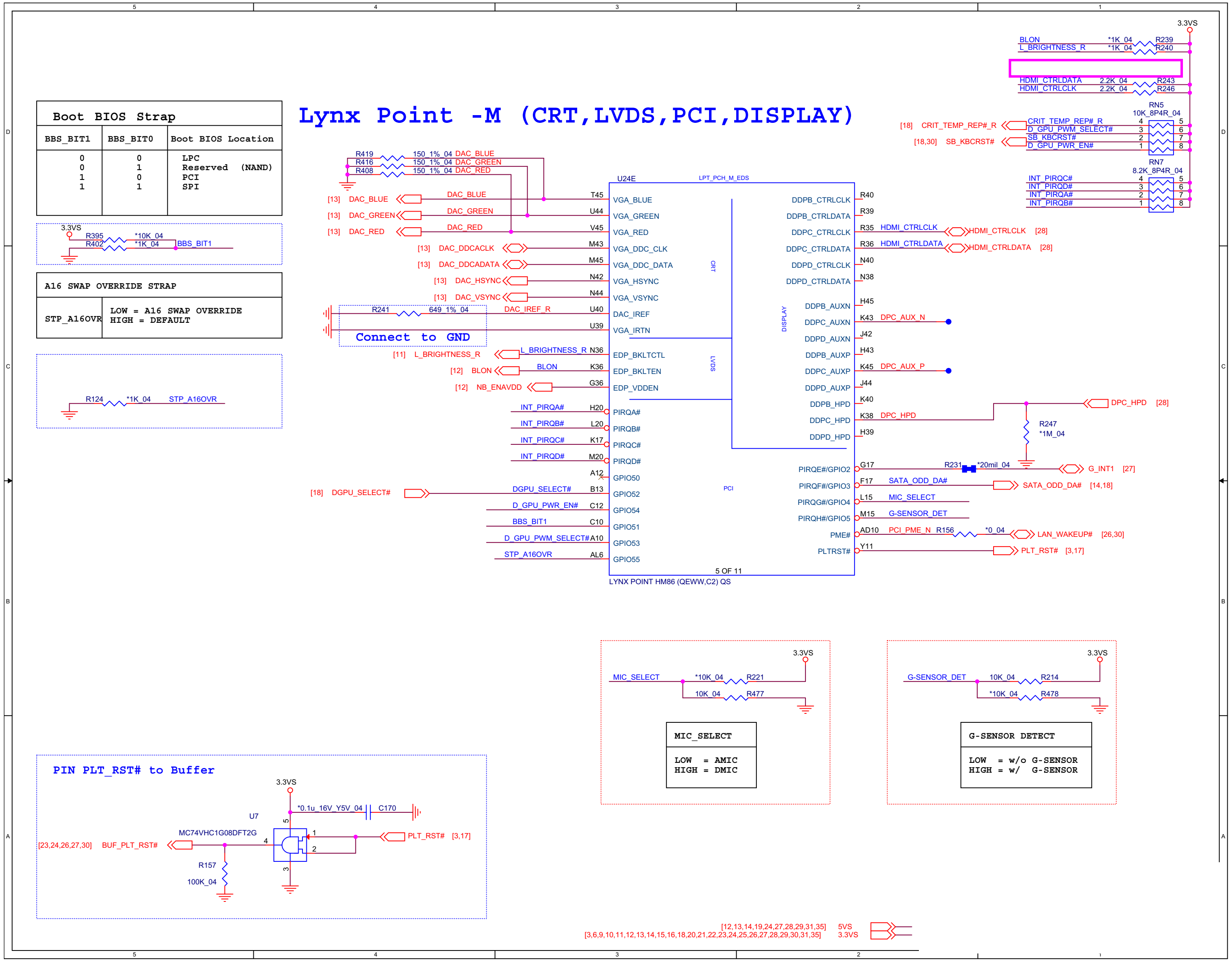
Lynx 3/9



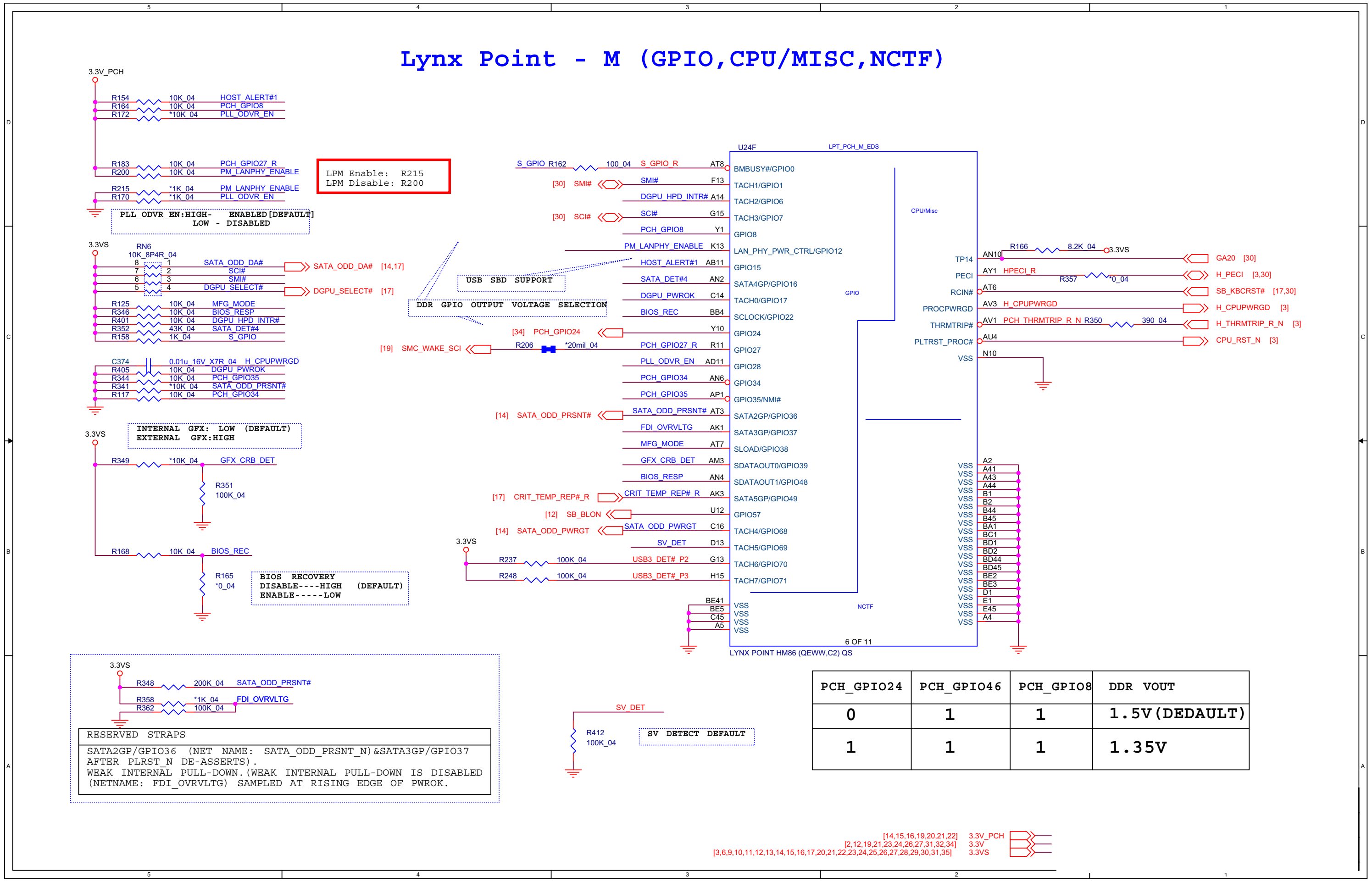
Sheet 16 of 45
Lynx 3/9

Lynx 4/9

Sheet 17 of 45
Lynx 4/9



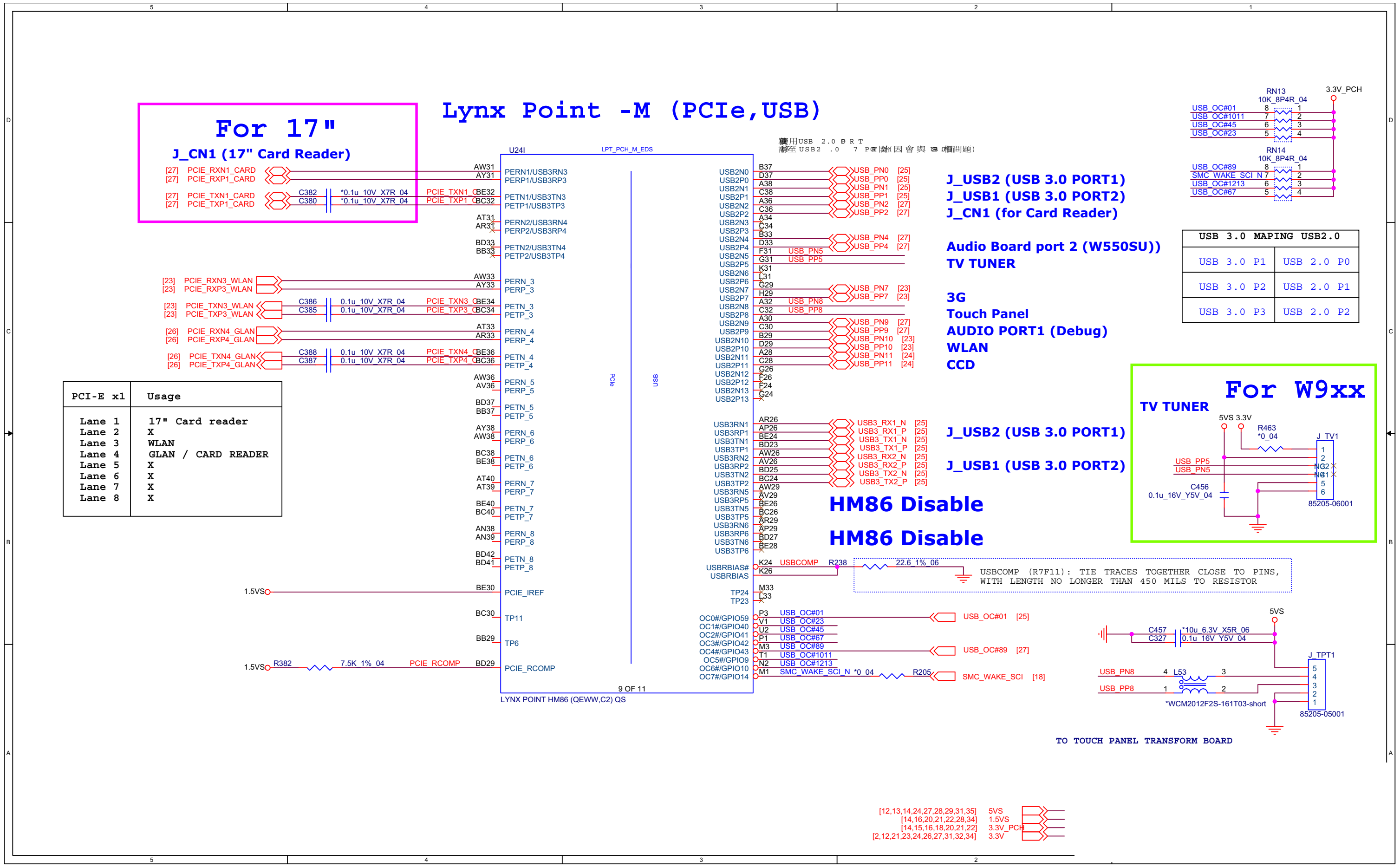
Lynx 5/9



Sheet 18 of 45
Lynx 5/9

Lynx 6/9

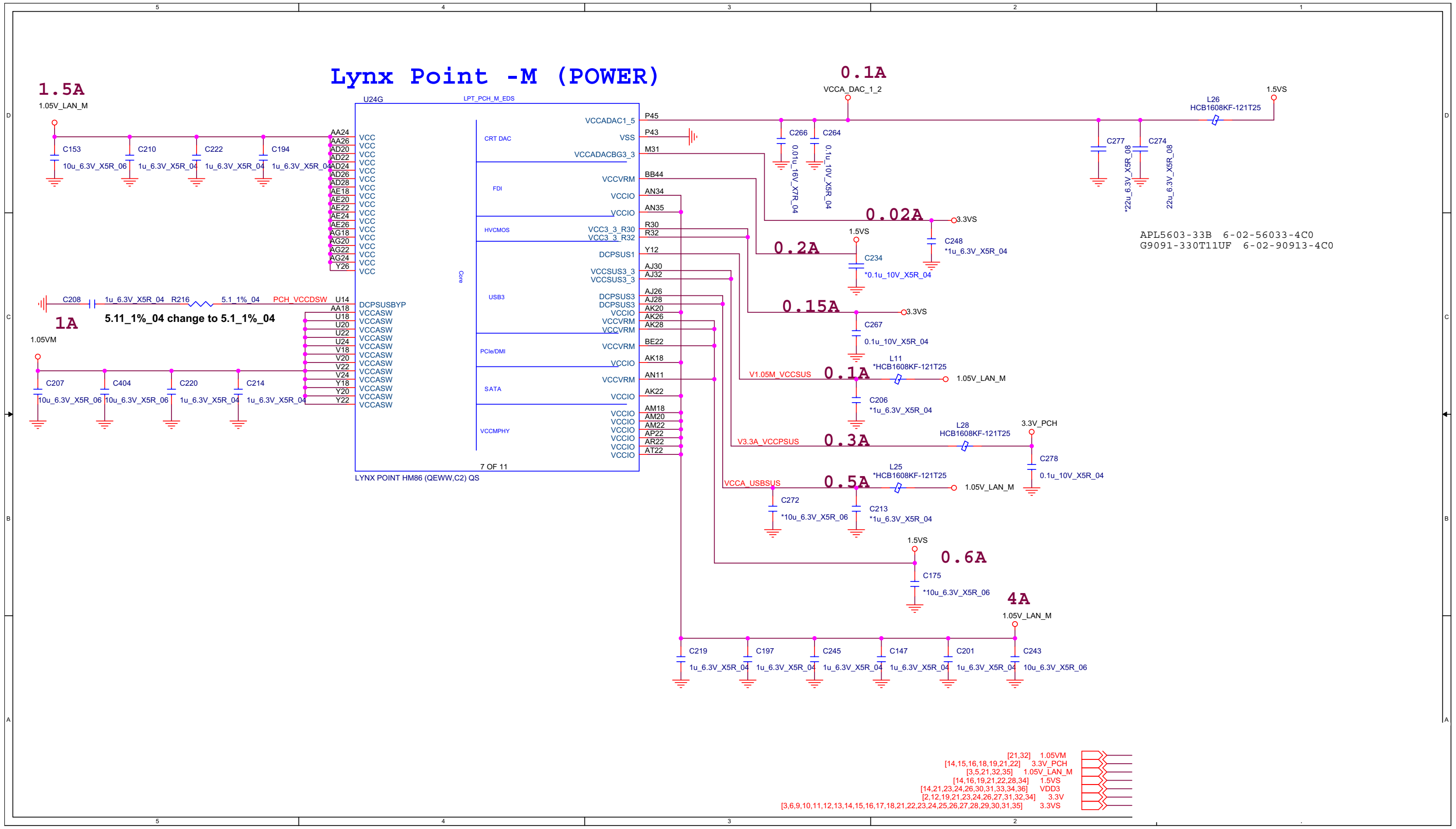
Sheet 19 of 45
Lynx 6/9



PCI-E x1	Usage
Lane 1	17" Card reader
Lane 2	X
Lane 3	WLAN
Lane 4	GLAN / CARD READER
Lane 5	X
Lane 6	X
Lane 7	X
Lane 8	X

USB 3.0 MAPING	USB2.0
USB 3.0 P1	USB 2.0 P0
USB 3.0 P2	USB 2.0 P1
USB 3.0 P3	USB 2.0 P2

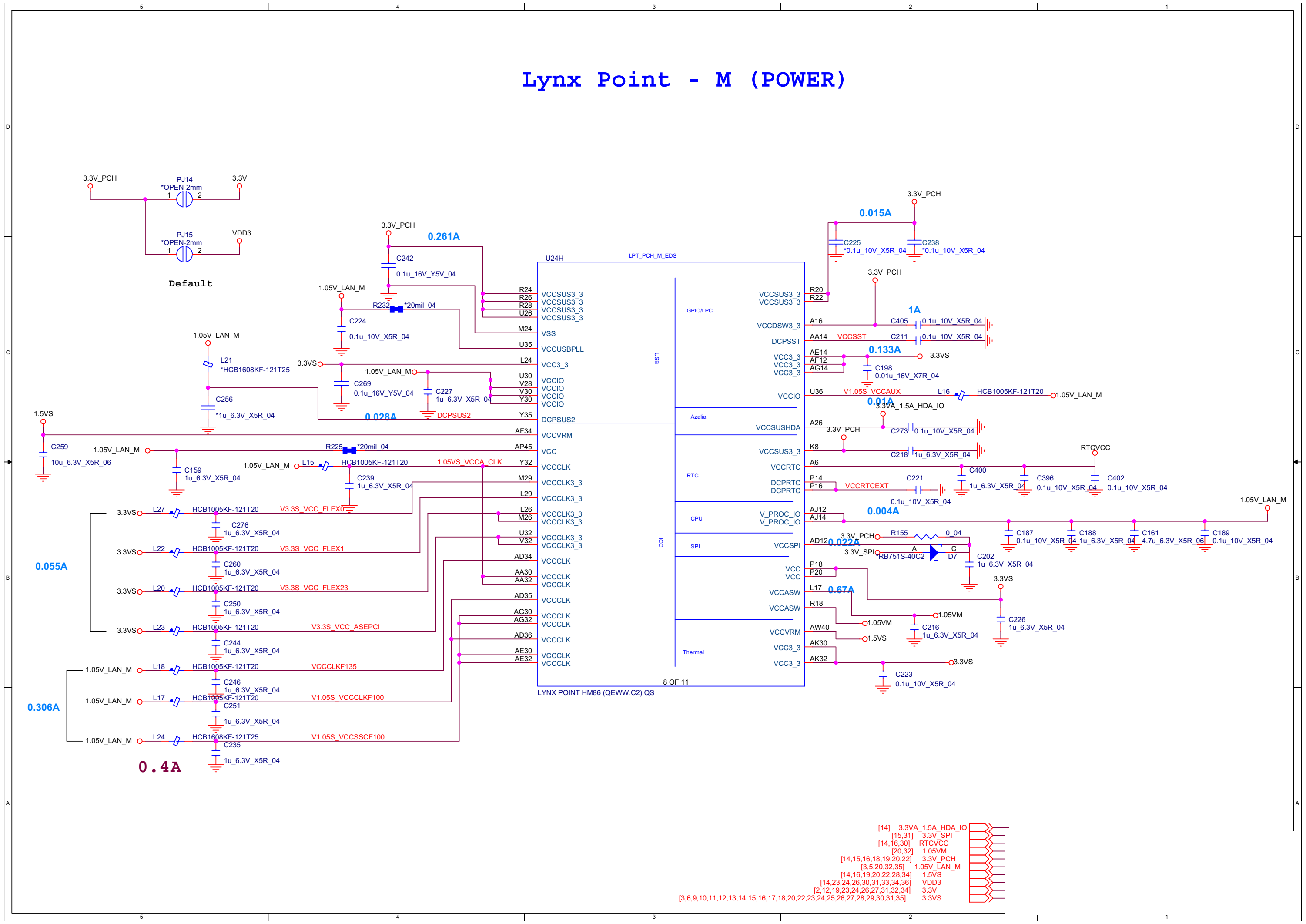
Lynx 7/9



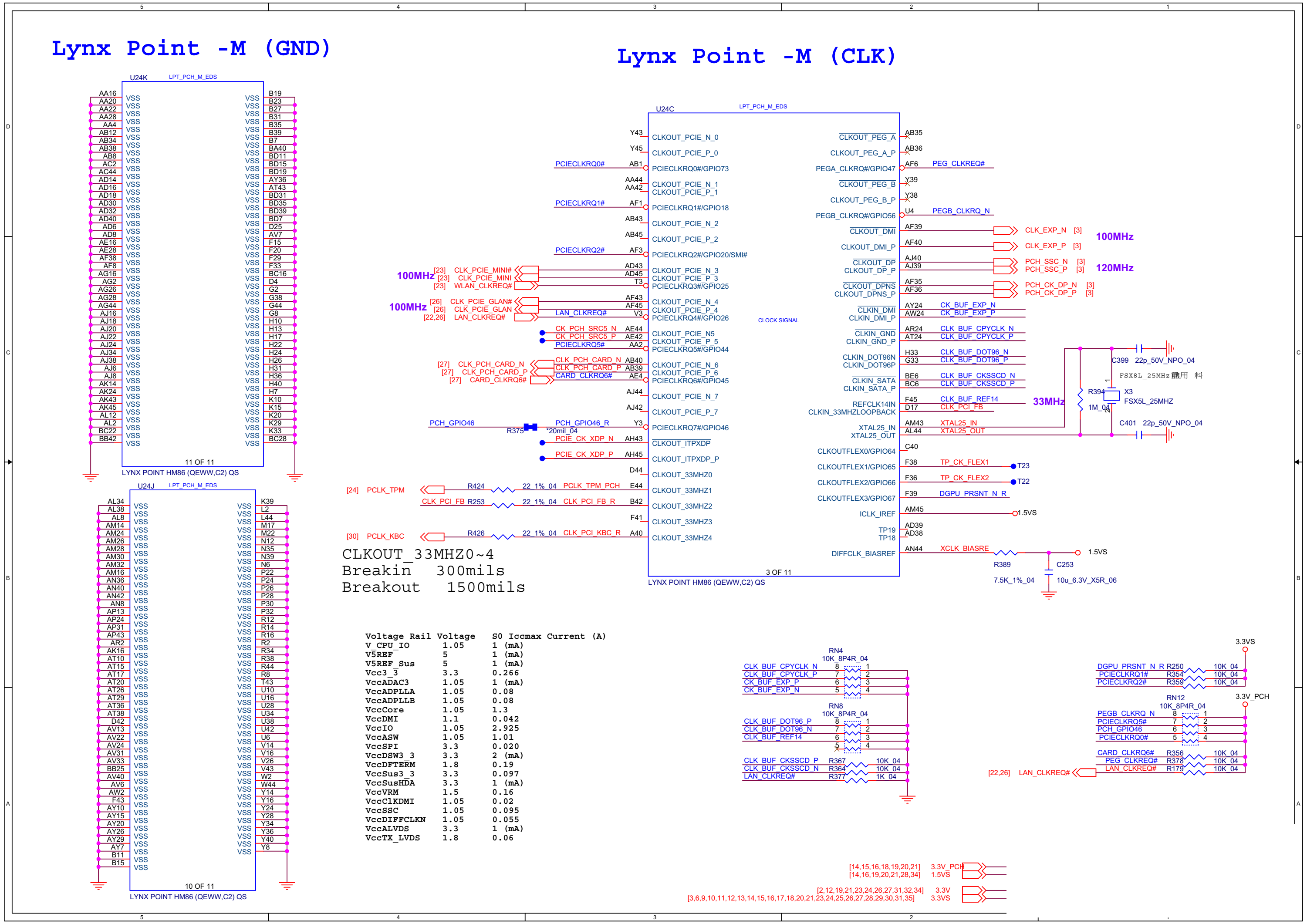
Sheet 20 of 45
Lynx 7/9

Lynx 8/9

Sheet 21 of 45
Lynx 8/9



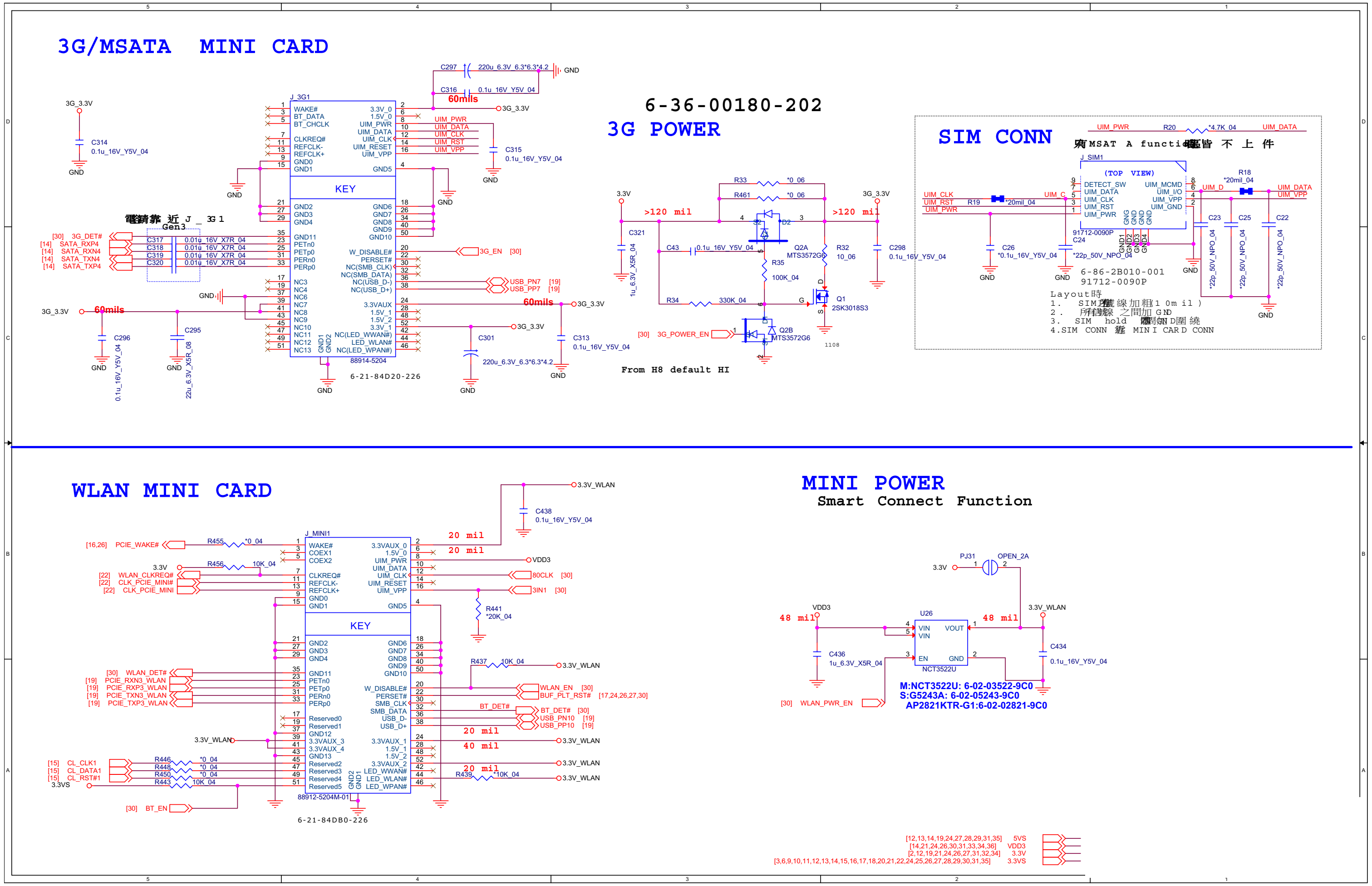
Lynx 9/9



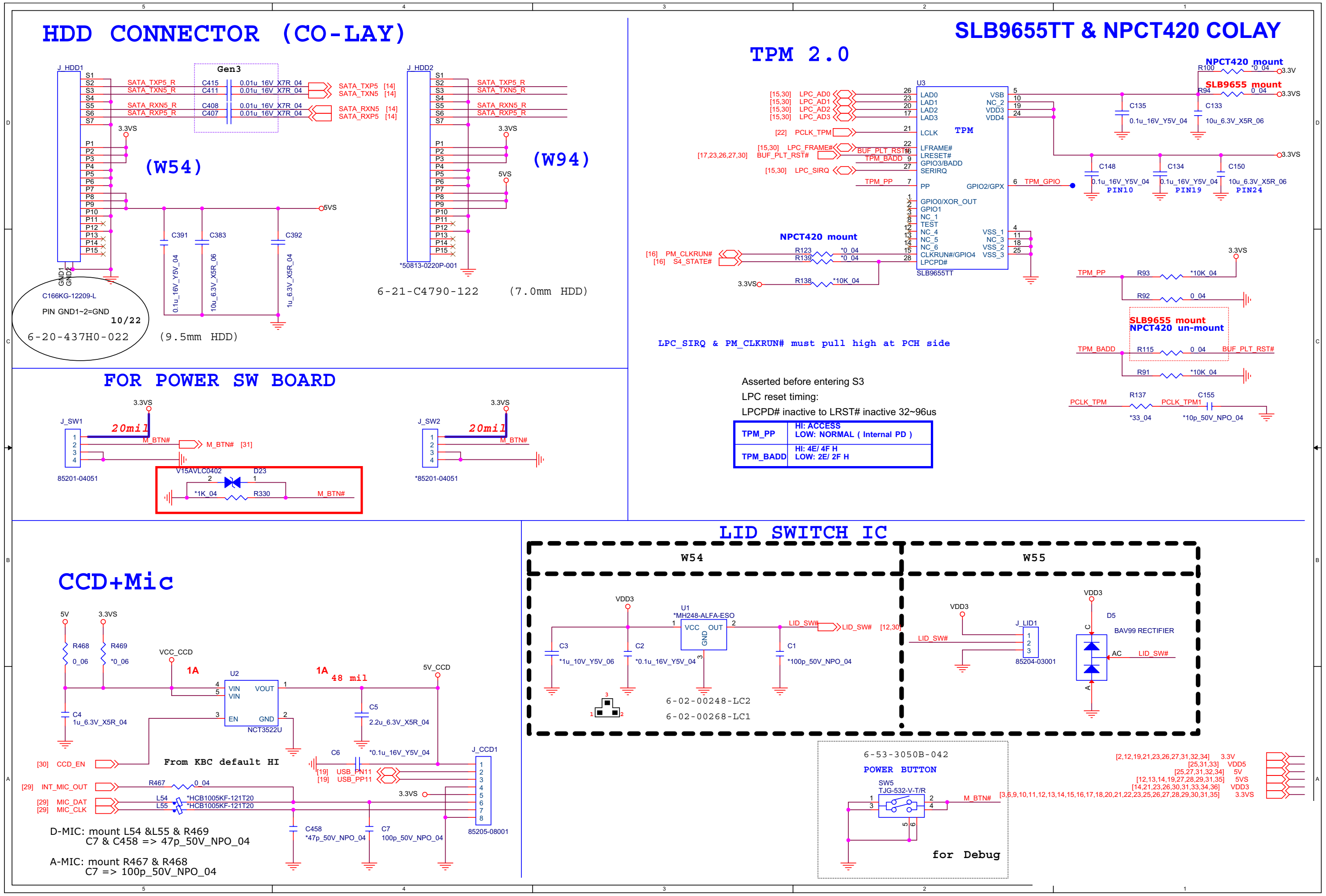
Sheet 22 of 45
Lynx 9/9

3G, WLAN, MSATA

Sheet 23 of 45
3G, WLAN, MSATA



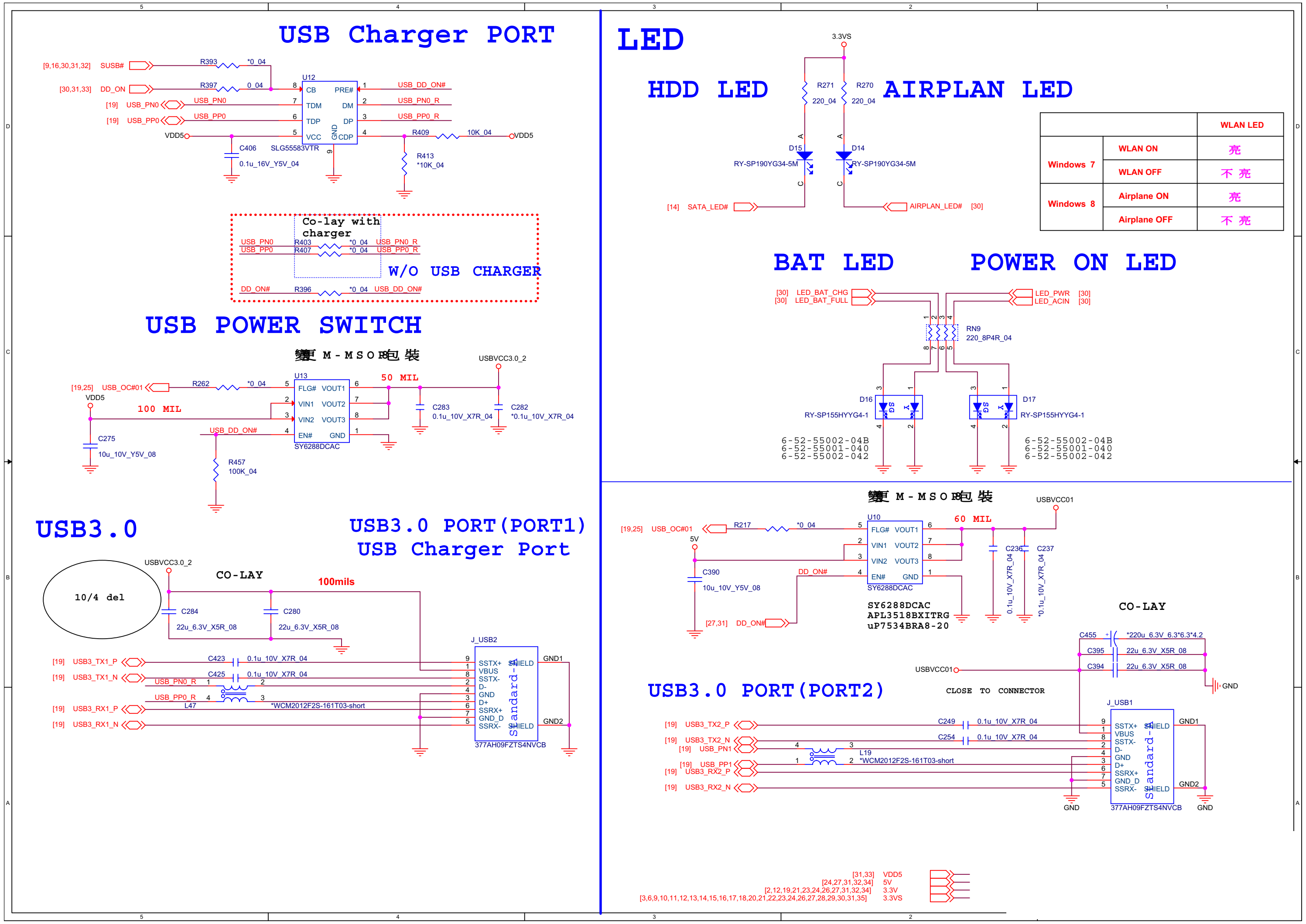
HDD, CCD, TPM, Power Con



Sheet 24 of 45
HDD, CCD, TPM,
Power Con

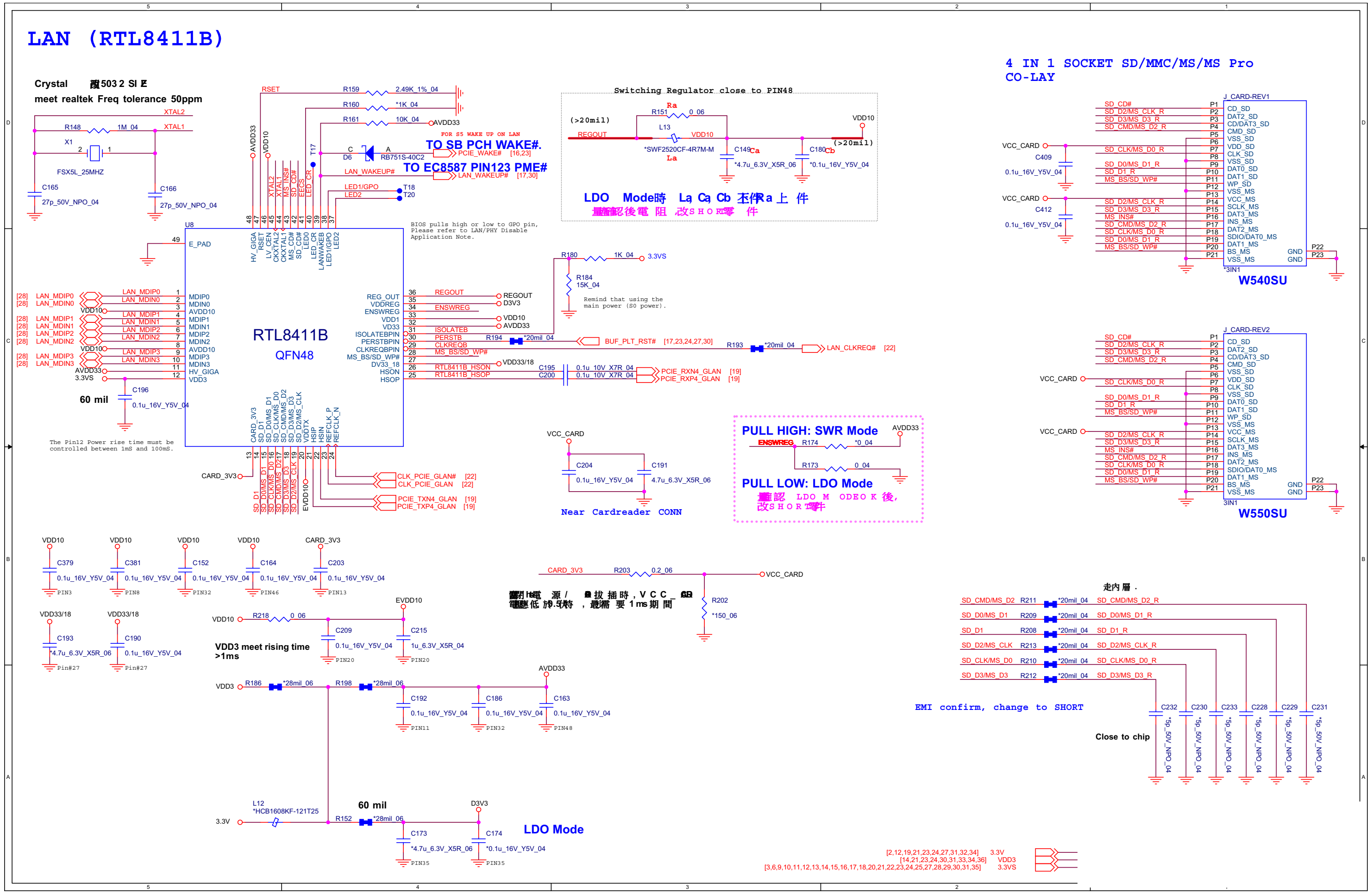
USB3.0, LED, USB Charger

Sheet 25 of 45
USB3.0, LED, USB
Charger



		WLAN LED
Windows 7	WLAN ON	亮
	WLAN OFF	不 亮
Windows 8	Airplane ON	亮
	Airplane OFF	不 亮

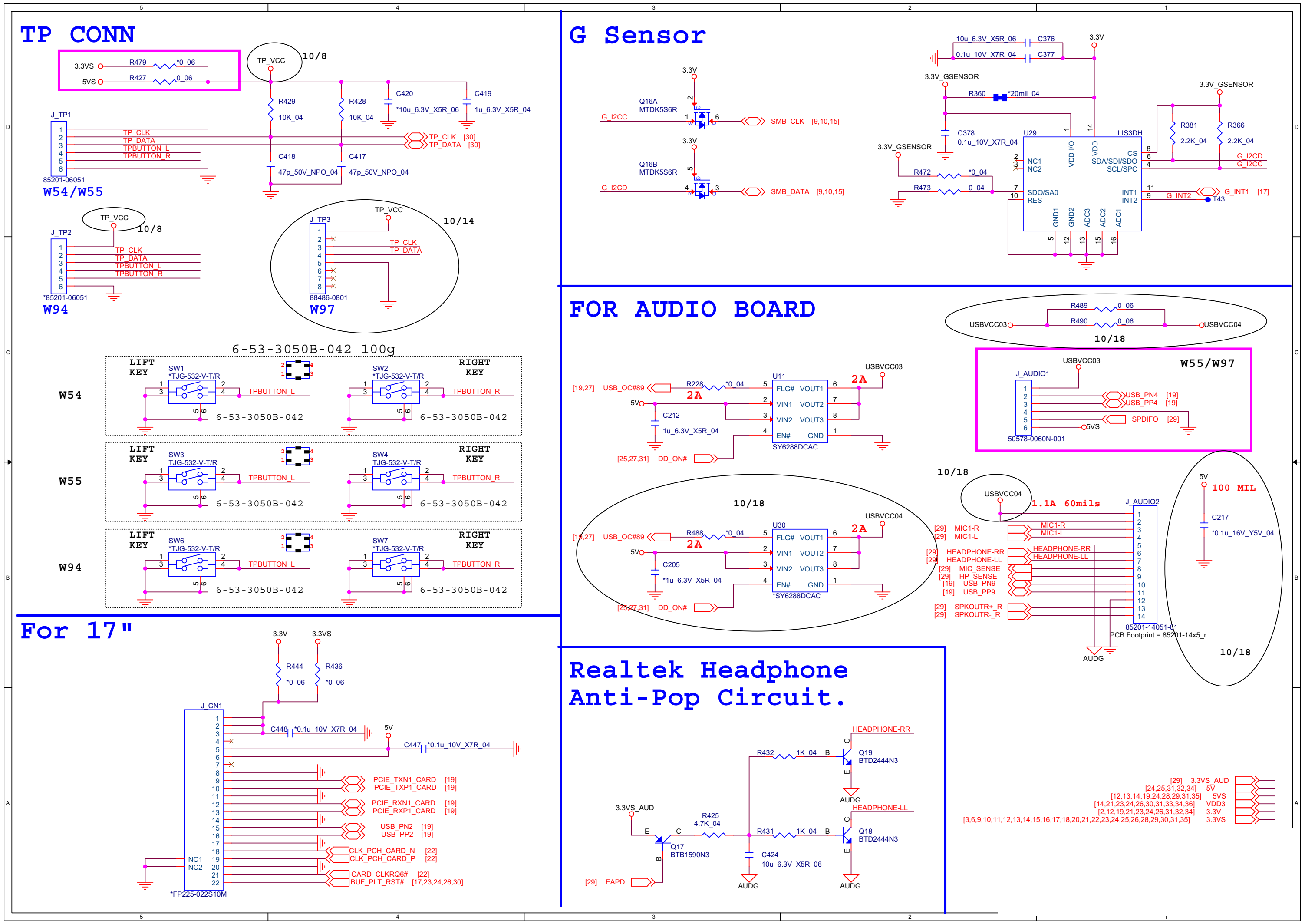
Card Reader / LAN RTL8411B



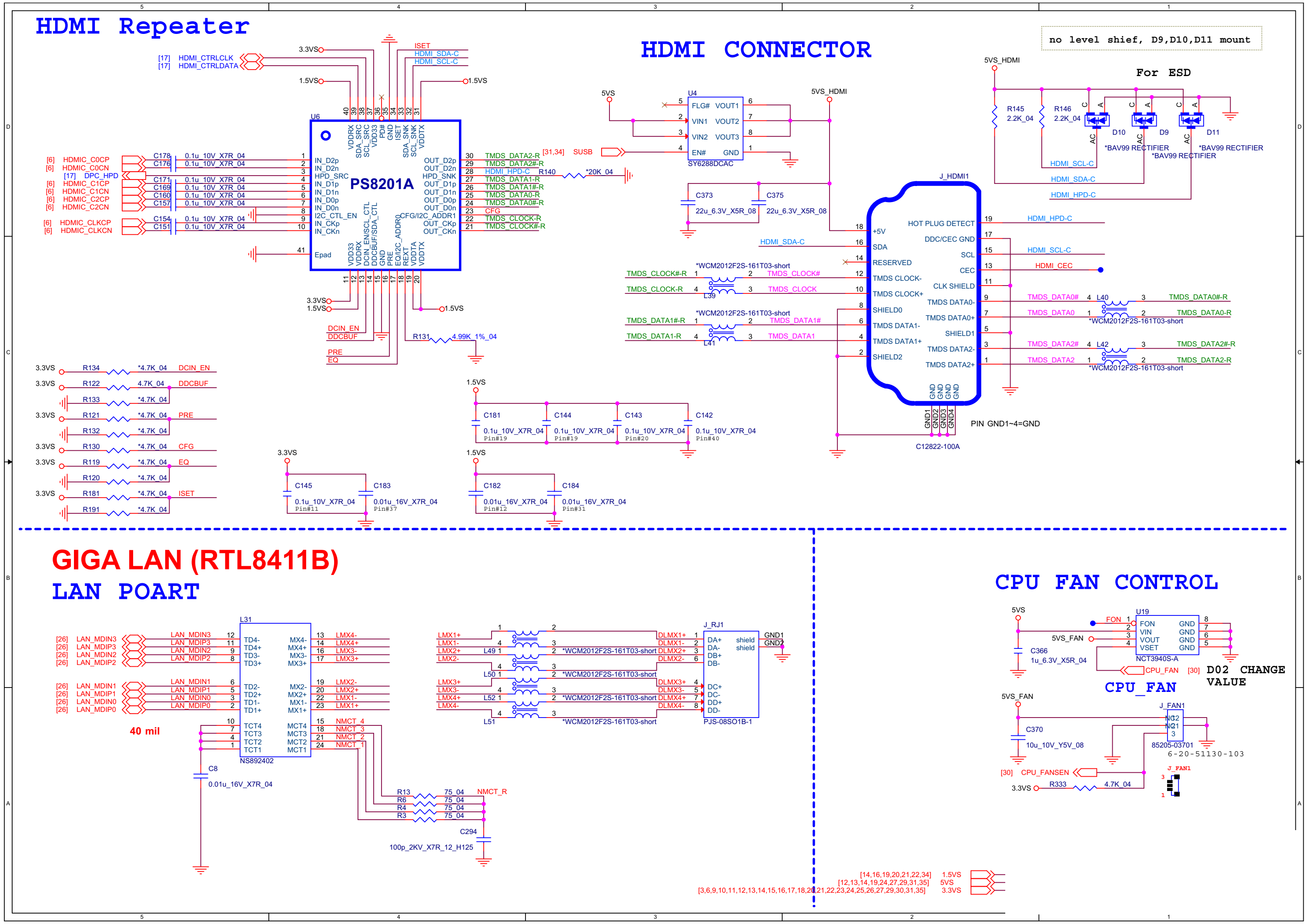
Sheet 26 of 45
Card Reader / LAN
RTL8411B

TP/Audio Con, G-Sensor

Sheet 27 of 45
TP/Audio Con,
G-Sensor



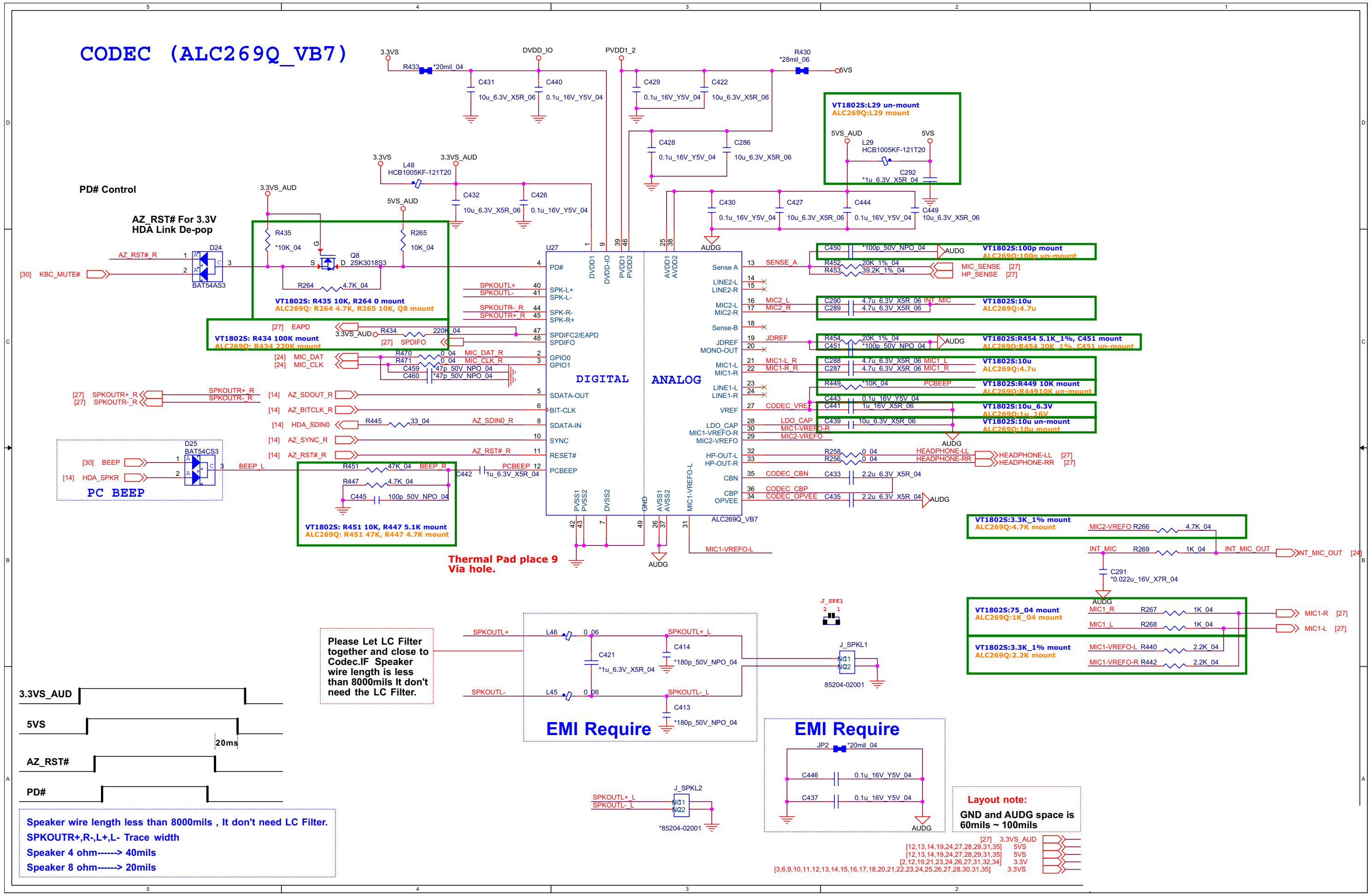
HDMI, RJ45, Fan



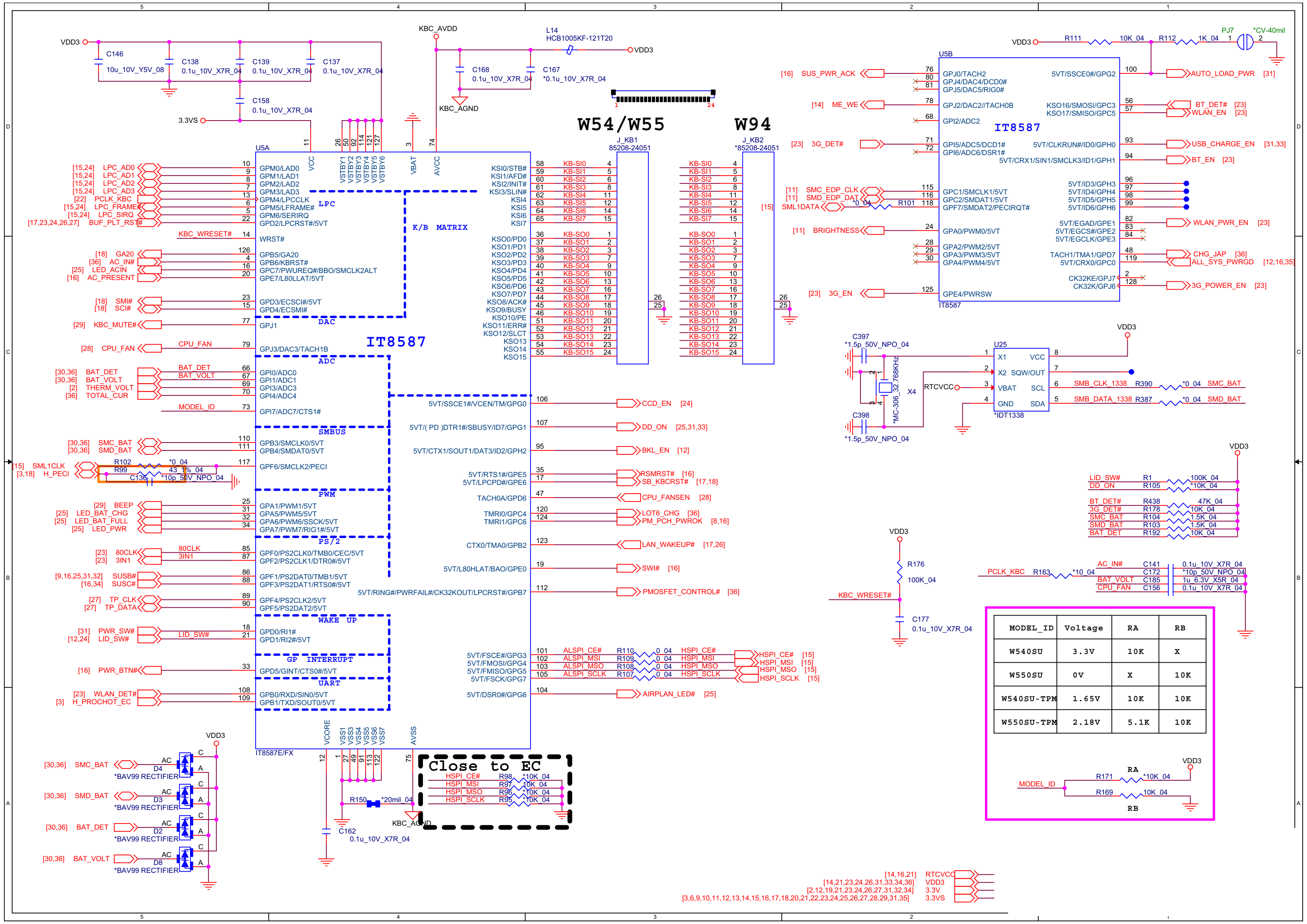
Sheet 28 of 45
HDMI, RJ45, Fan

Audio Codec VT1802S

Sheet 29 of 45
Audio Codec
VT1802S



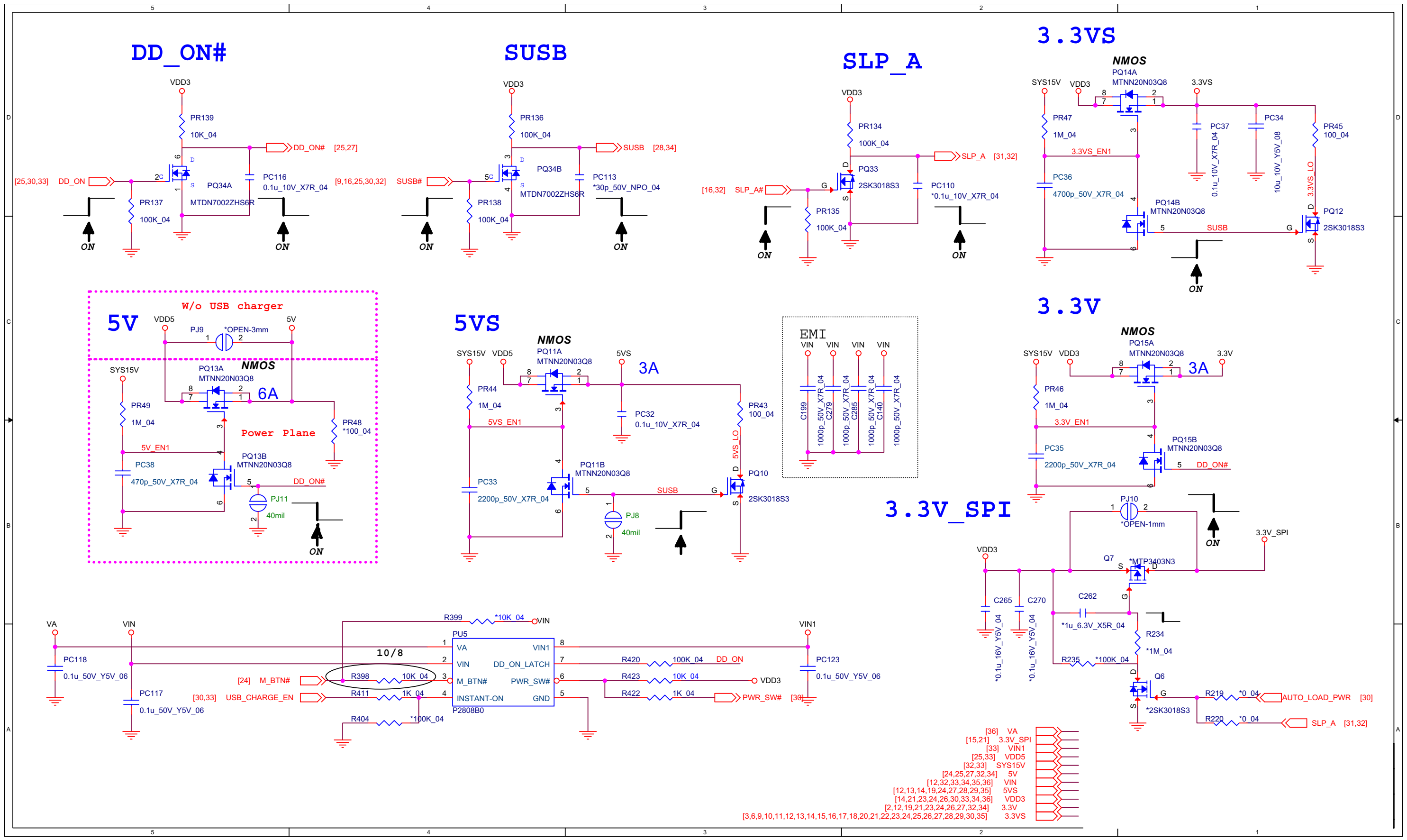
KBC-ITE IT8587



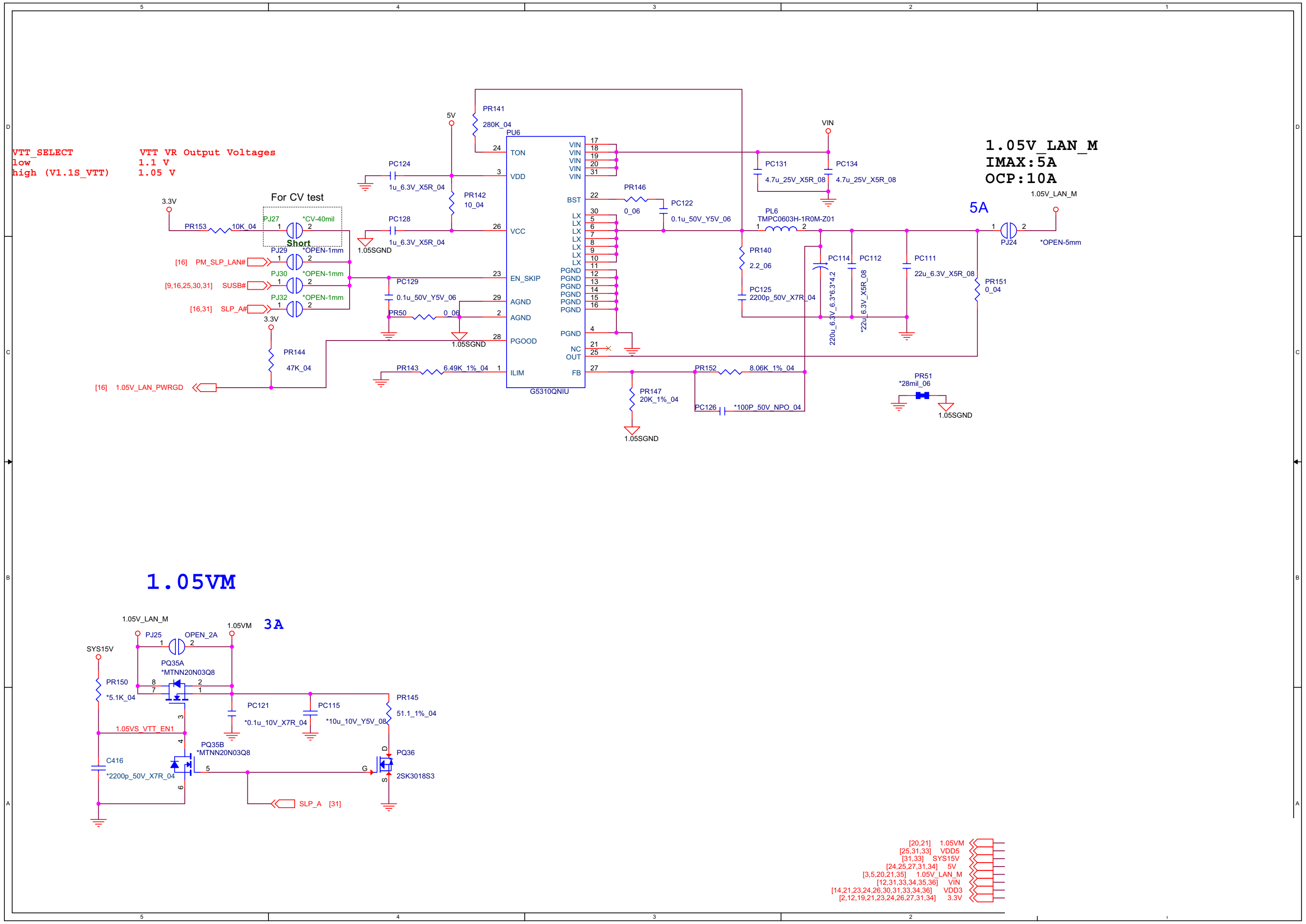
Sheet 30 of 45
KBC-ITE IT8587

5VS, 3VS, 3.3VM, 1.5VS CPU

Sheet 31 of 45
5VS, 3VS, 3.3VM,
1.5VS CPU



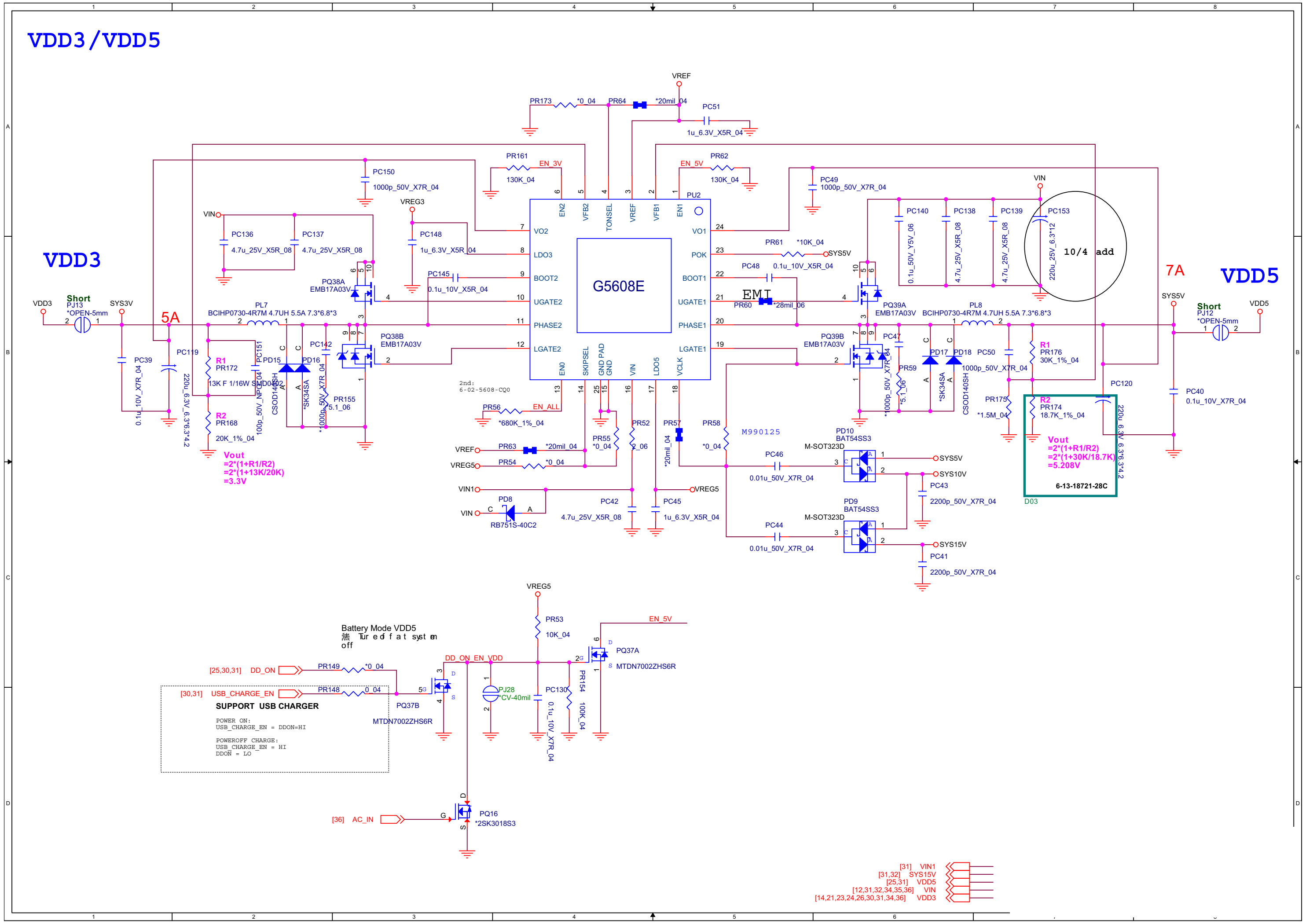
1.05V Series



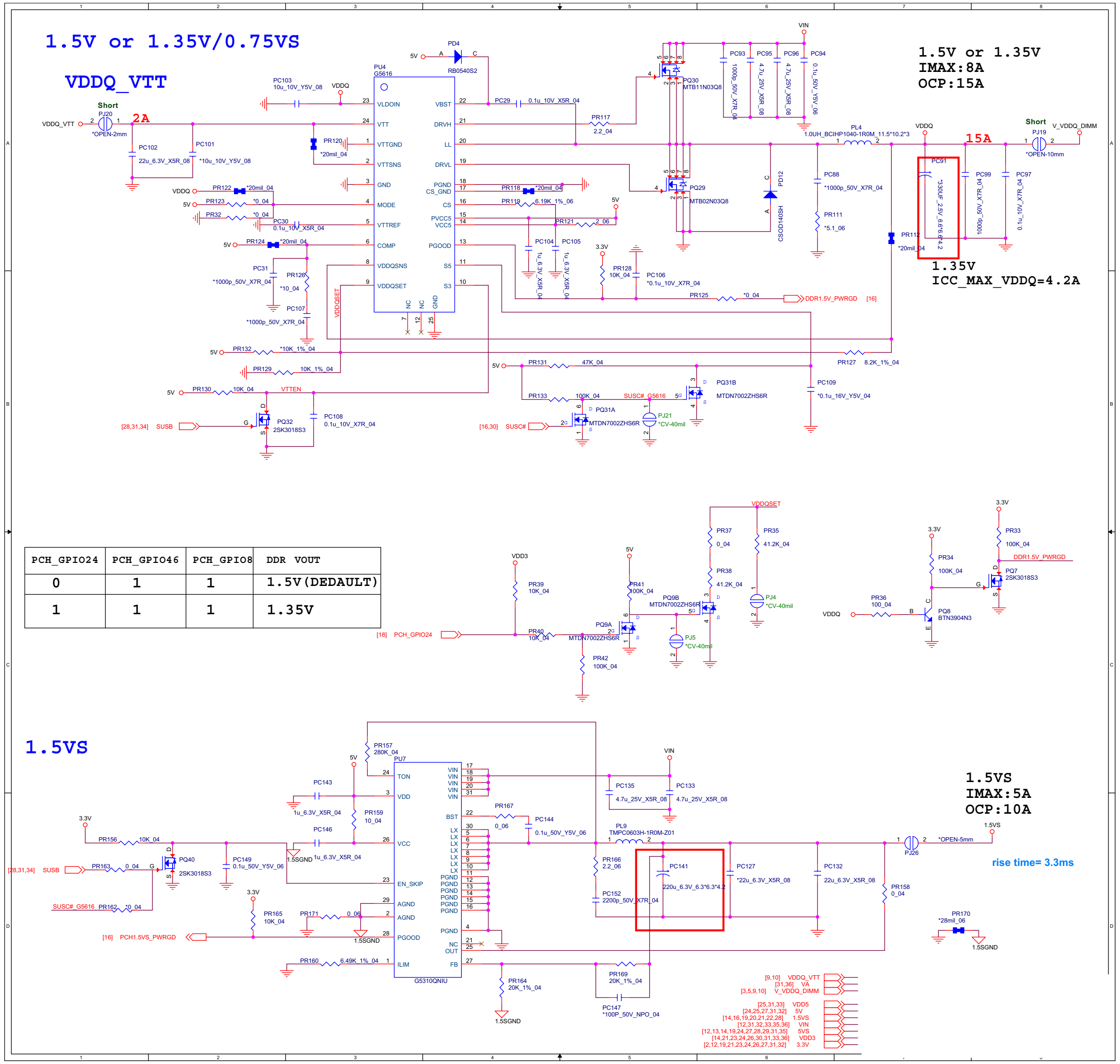
Sheet 32 of 45
1.05V Series

VDD3, VDD5

Sheet 33 of 45
VDD3, VDD5



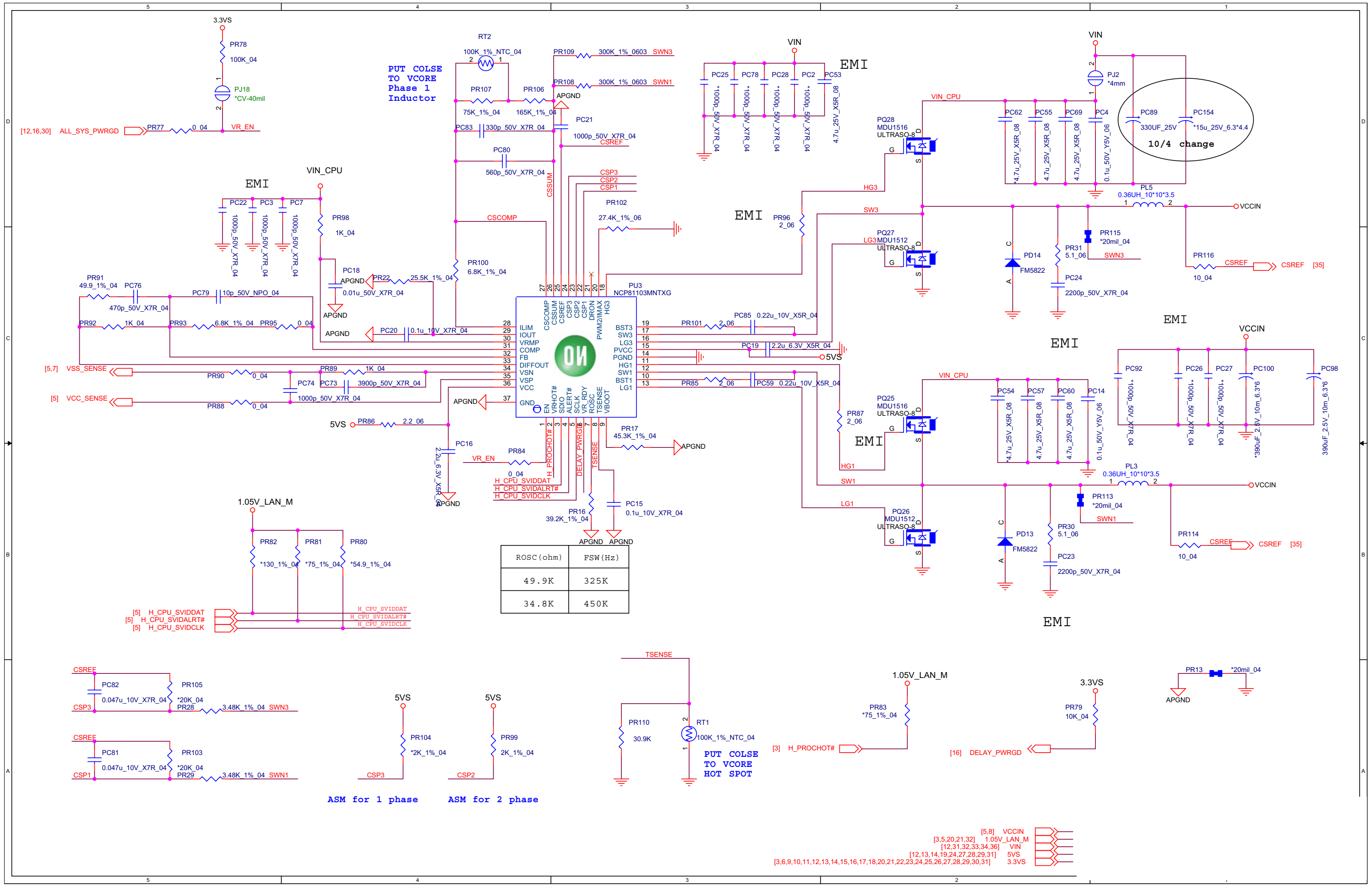
DDR 1.5V or 1.35V/0.75VS PCH 1.5VS



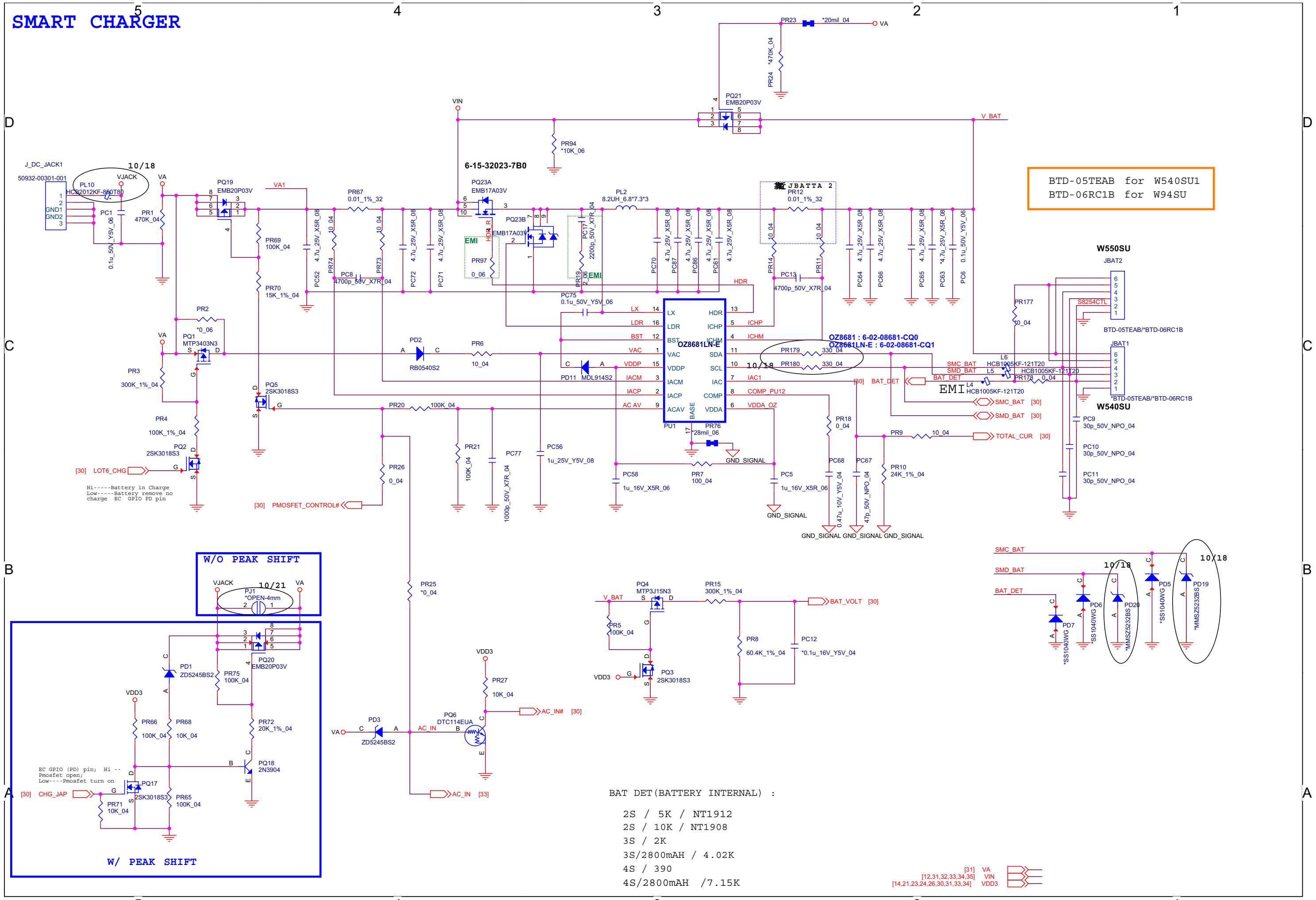
Sheet 34 of 45
DDR 1.5V or 1.35V /
0.75VS PCH 1.5VS

VCore

Sheet 35 of 45
VCore



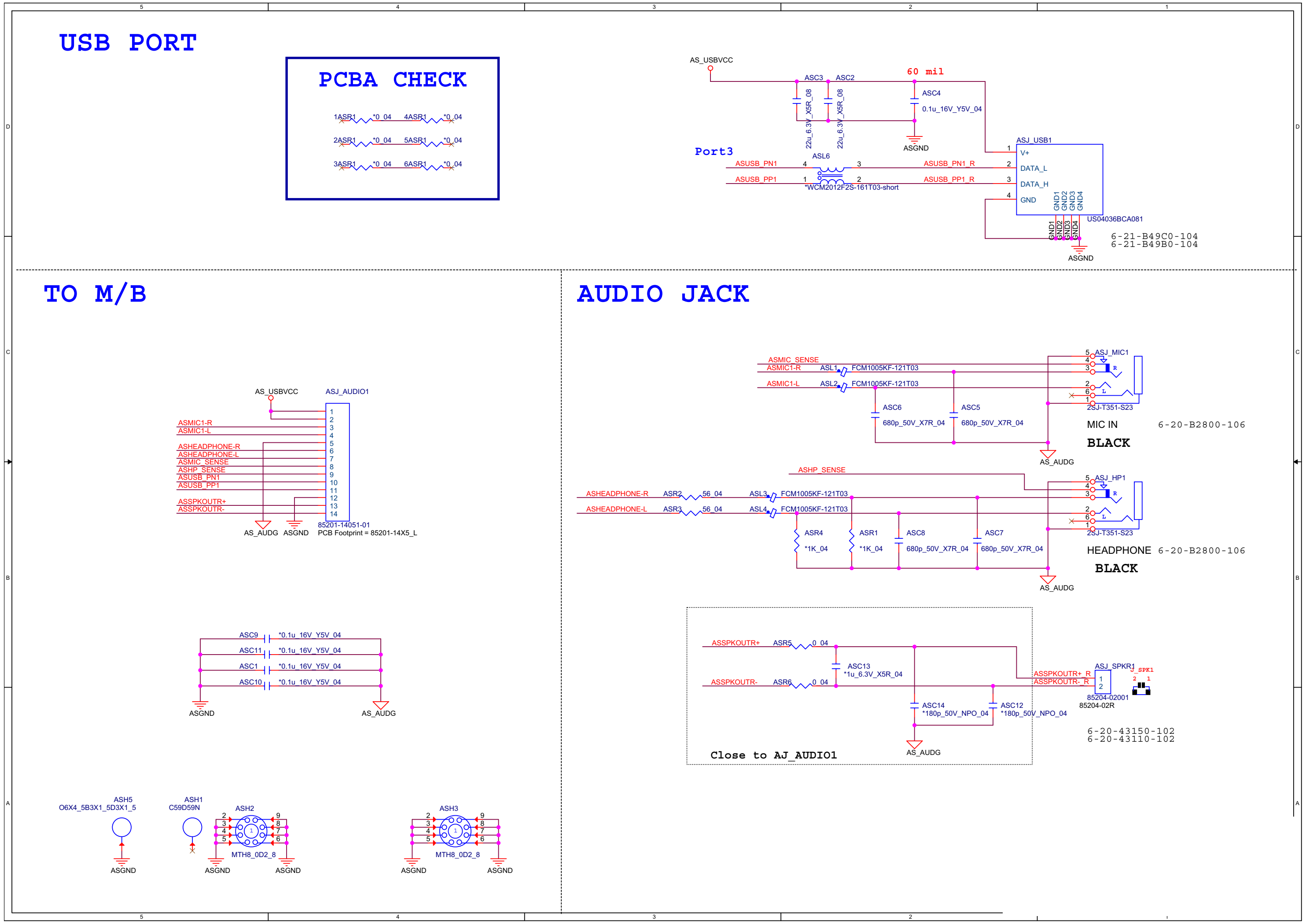
Charger, DC IN



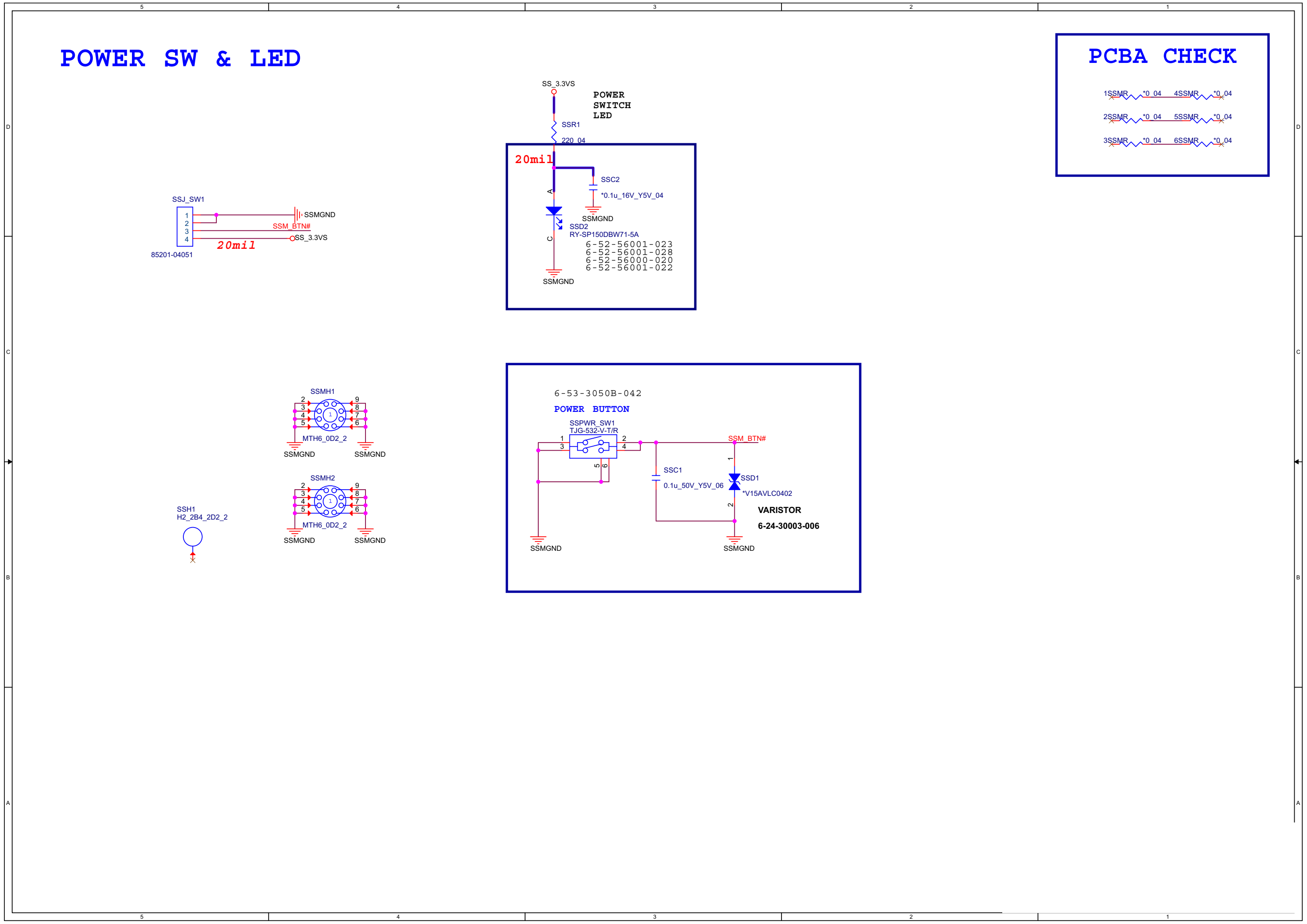
Sheet 36 of 45
Charger, DC IN

Audio Board

Sheet 37 of 45
Audio Board



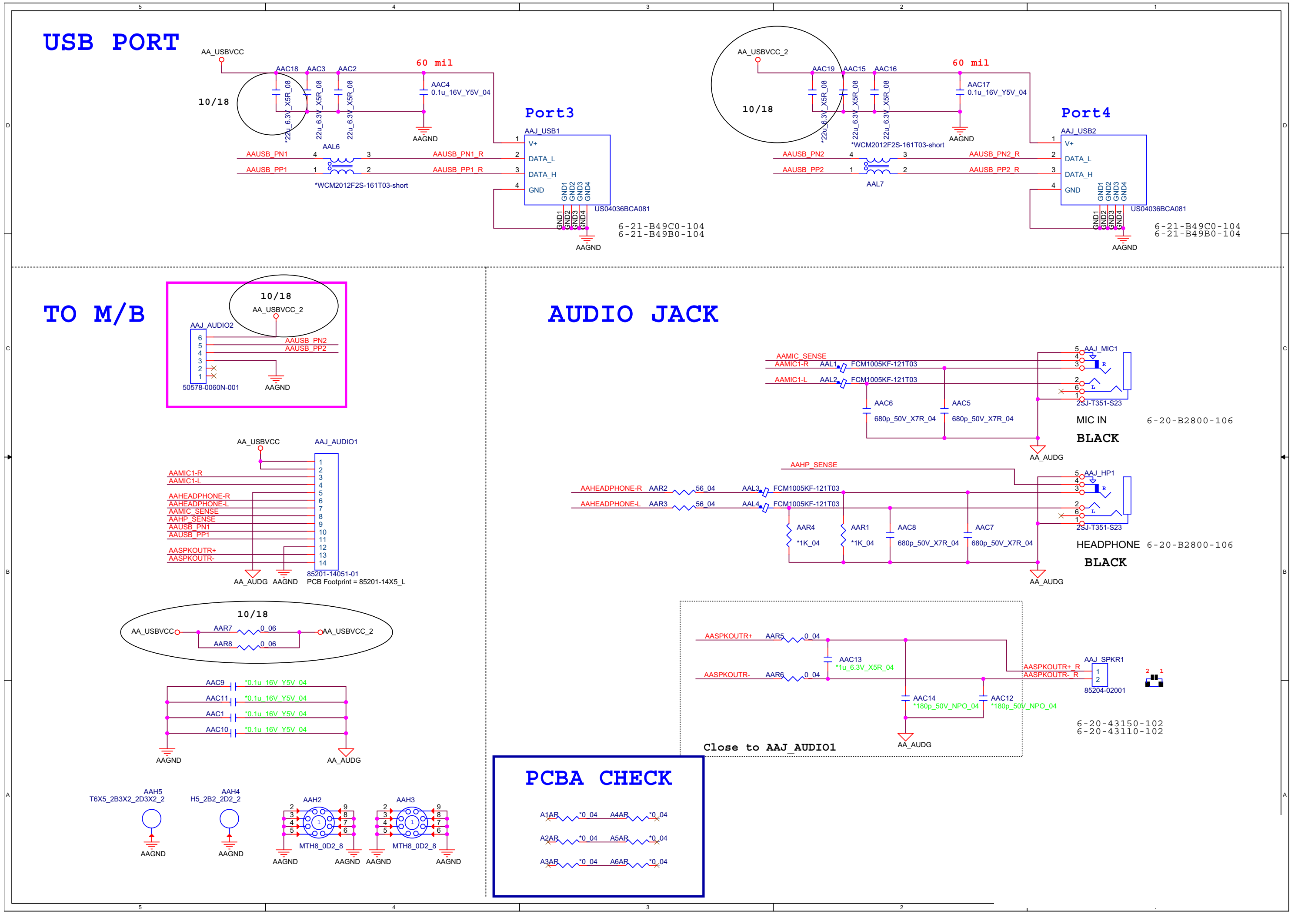
Power Switch Board



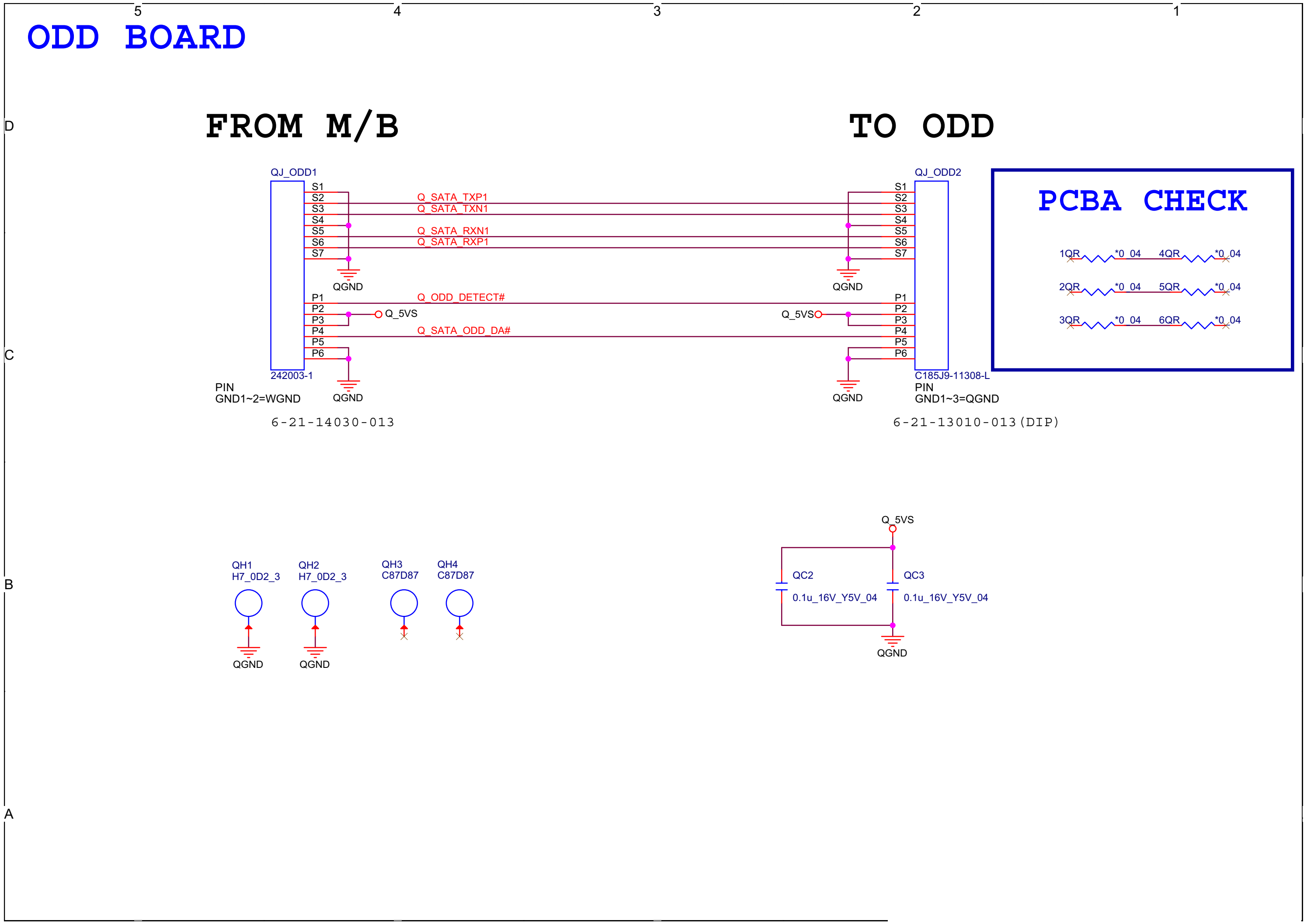
Sheet 38 of 45
Power Switch
Board

Audio Board

Sheet 39 of 45
Audio Board



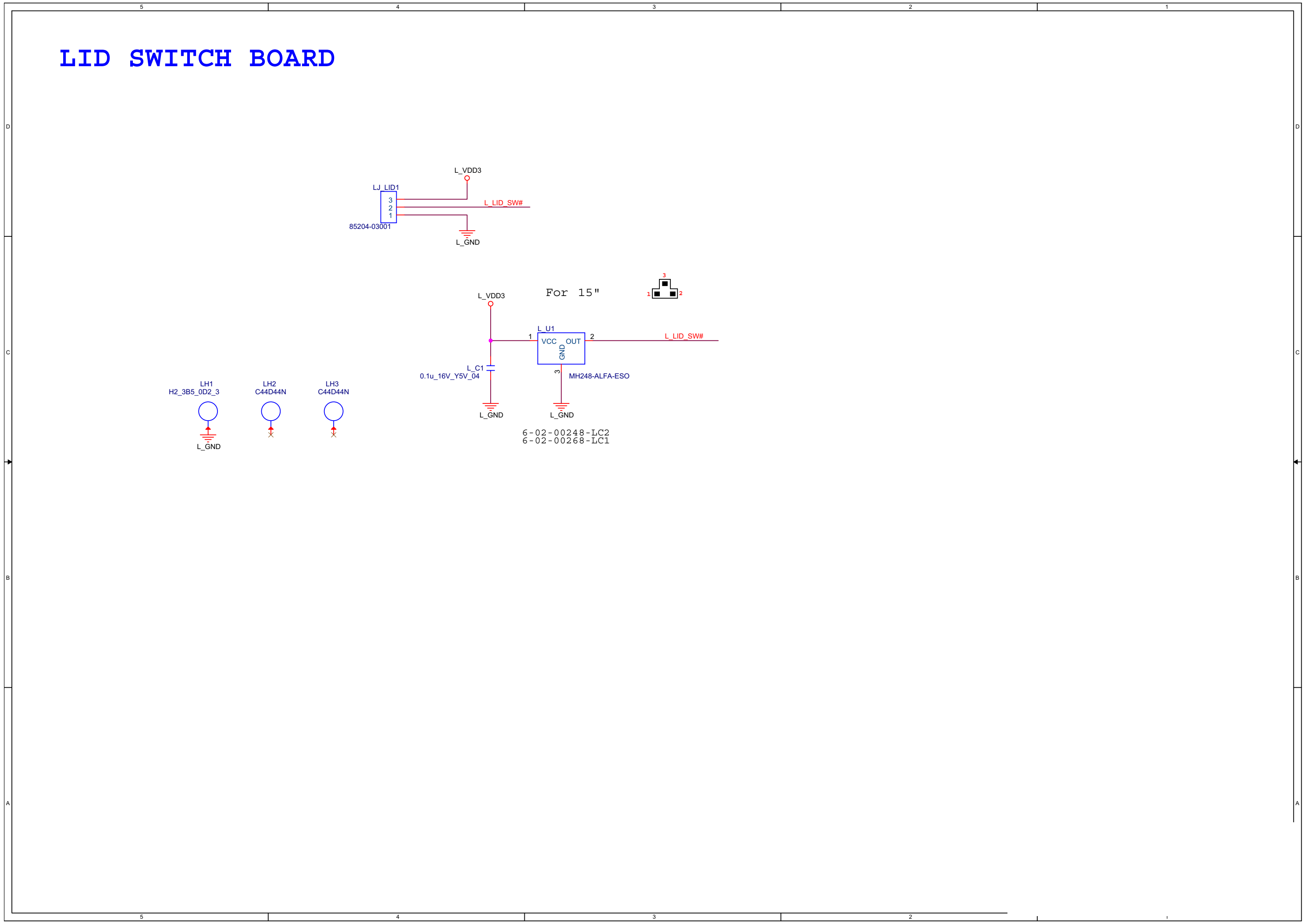
External ODD Board



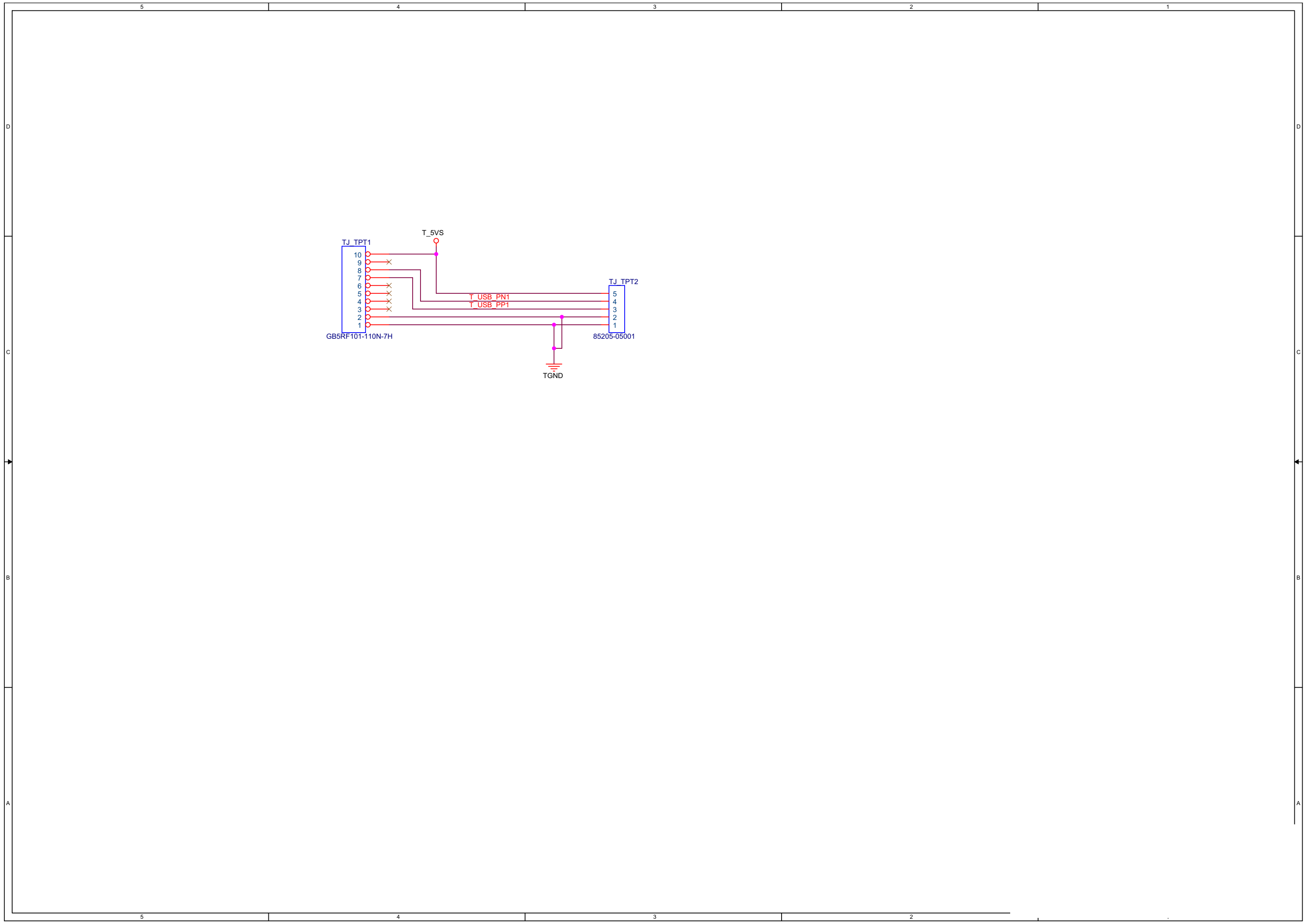
Sheet 40 of 45
External ODD
Board

LID Switch Board

Sheet 41 of 45
LID Switch Board



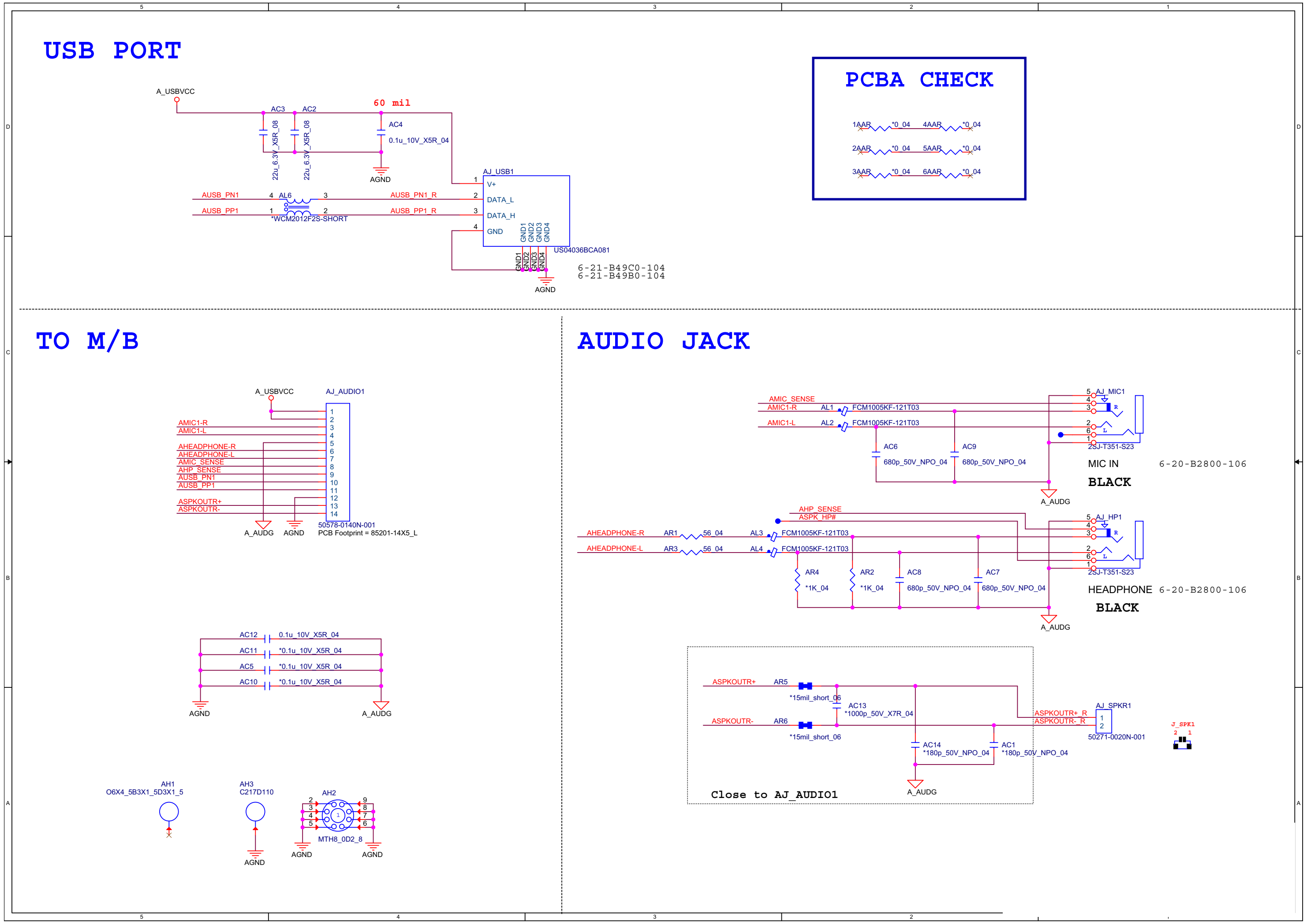
Touch Panel Board



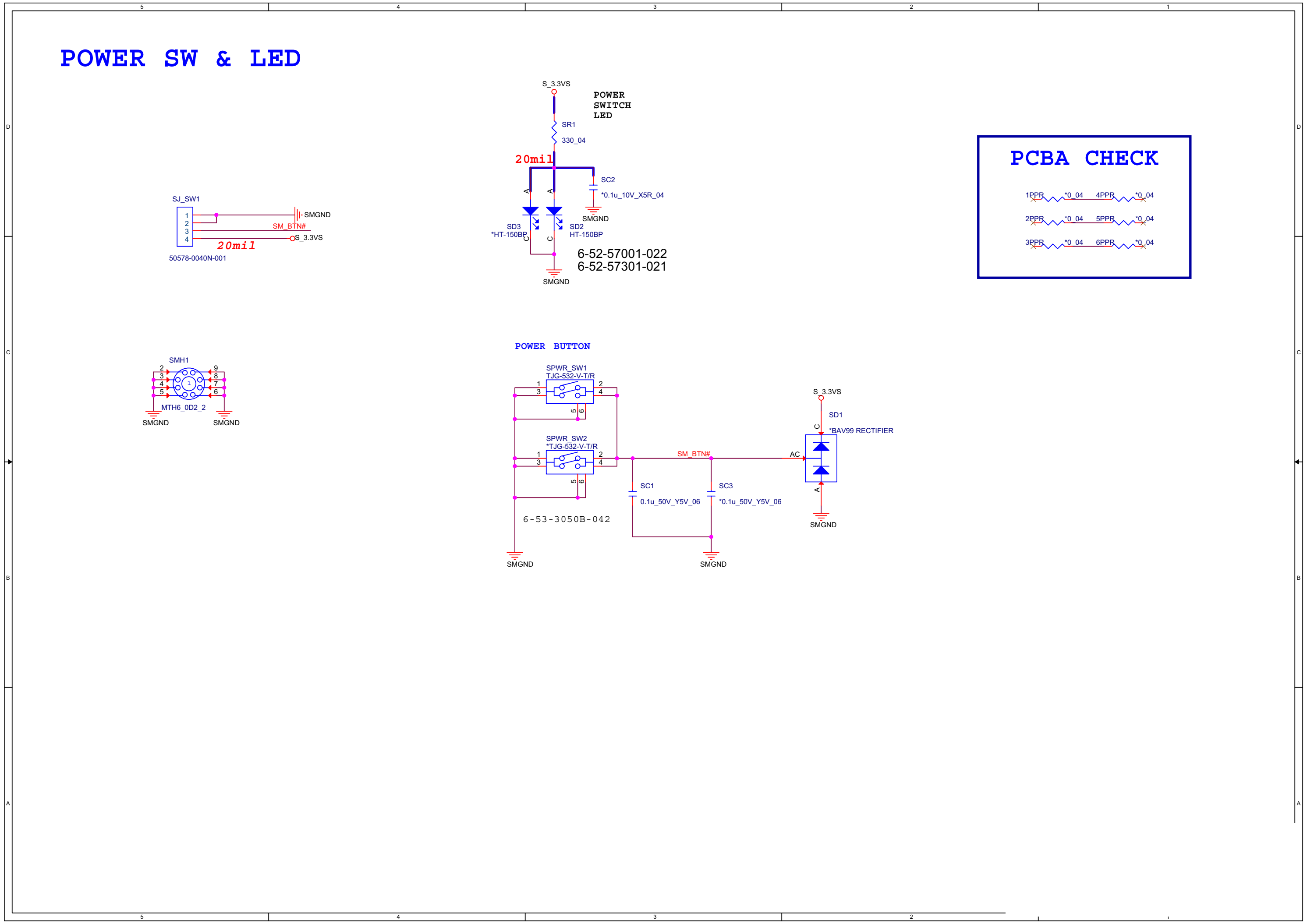
Sheet 42 of 45
Touch Panel Board

Audio Board (W94)

Sheet 43 of 45
Audio Board (W94)



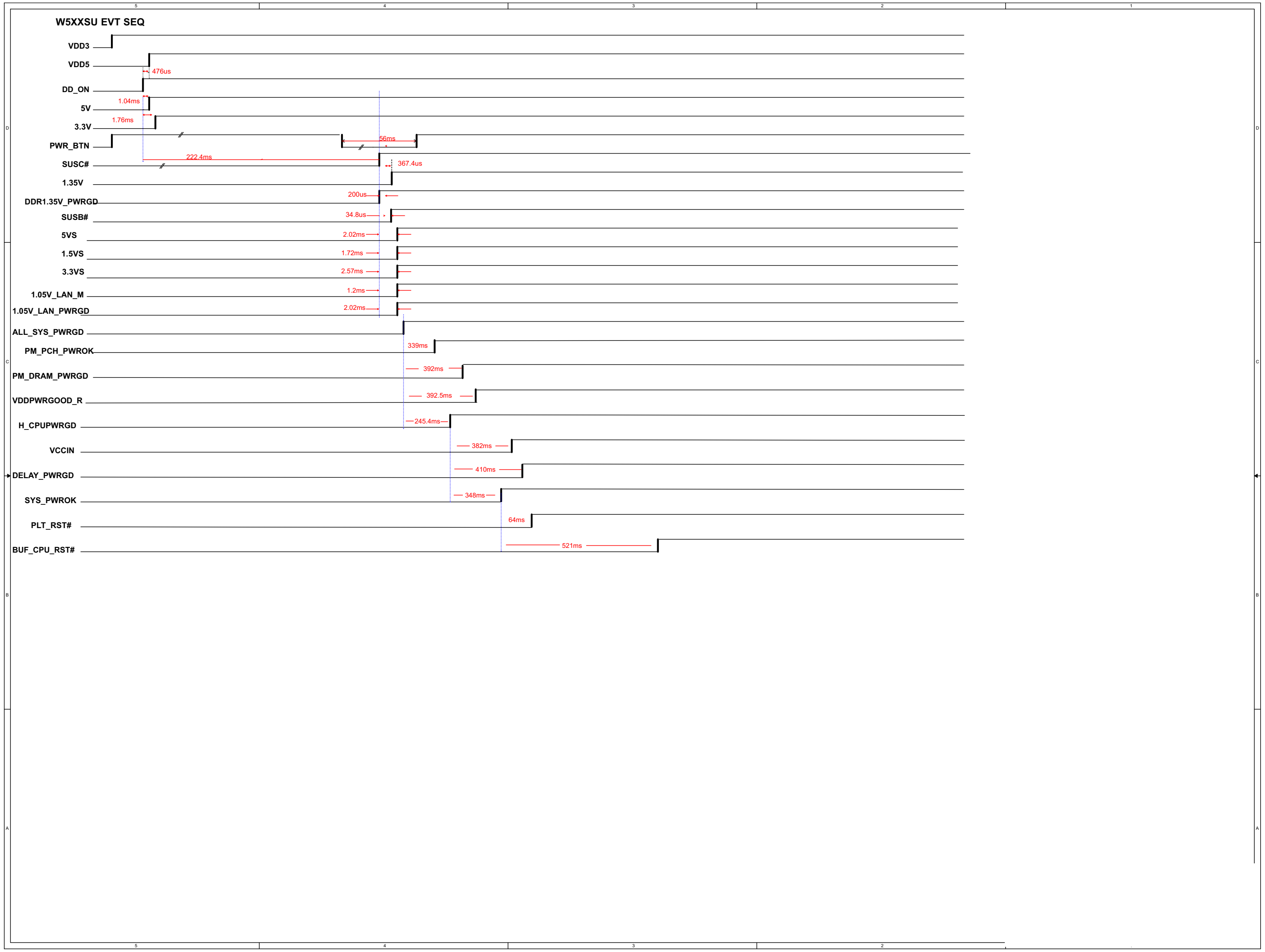
Power Switch Board (W94)



Sheet 44 of 45
Power Switch
Board (W94)

Power On SEQ

Sheet 45 of 45
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** 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).

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 “**Starting MS-DOS**”. You will then be prompted to give “**Y**” or “**N**” responses to the programs being loaded by DOS. Choose “N” for any memory management programs.
2. You should now be at the DOS prompt e.g: DISK **C**:\> (C is the designated drive letter for the CD/DVD drive/USB flash drive).
3. **Type the following command** at the DOS prompt:

    C:\> Flash.bat

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.