

SERVICE MANUAL

W840SN

notebook



Notebook Computer

W840SN

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 **W840SN** series notebook PC.

The following information is included:

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

Appendix A, Part Lists

Appendix B, Schematic Diagrams

Appendix C, Updating the FLASH ROM BIOS

Preface

IMPORTANT SAFETY INSTRUCTIONS

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

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

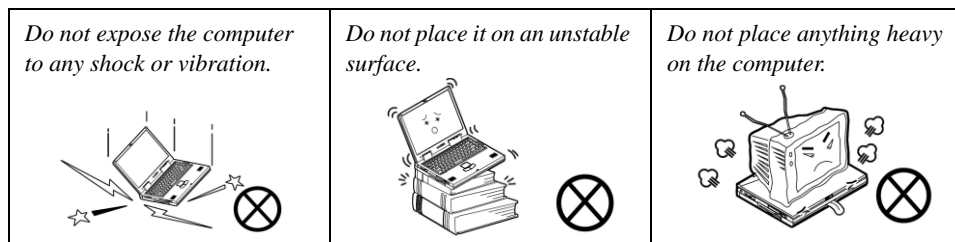
This device may not cause harmful interference.

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

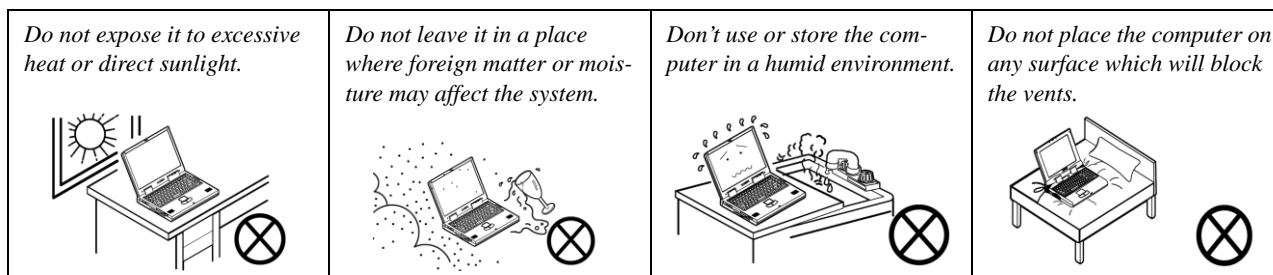
Instructions for Care and Operation

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

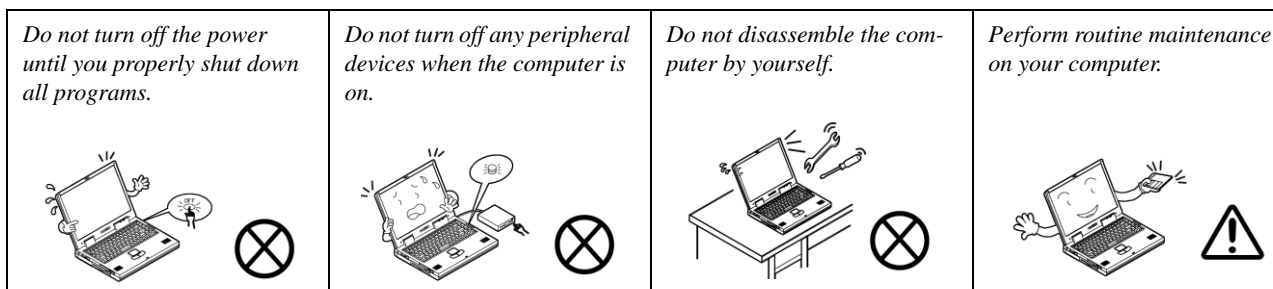
1. **Don't drop it, or expose it to shock.** If the computer falls, the case and the components could be damaged.



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

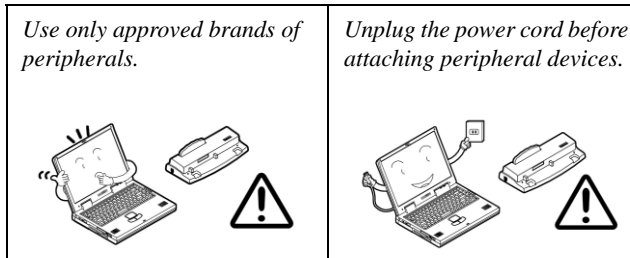


3. **Follow the proper working procedures for the computer.** Shut the computer down properly and don't forget to save your work. Remember to periodically save your data as data may be lost if the battery is depleted.



Preface

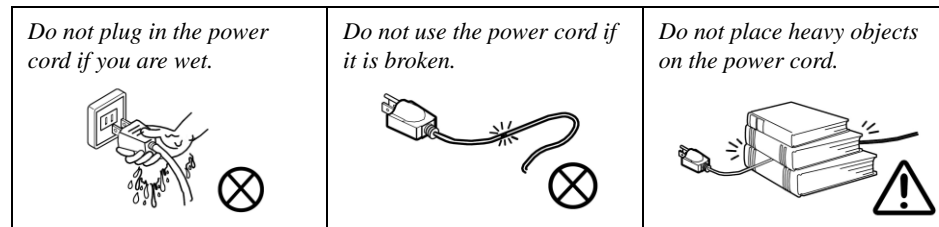
4. **Avoid interference.** Keep the computer away from high capacity transformers, electric motors, and other strong magnetic fields. These can hinder proper performance and damage your data.
5. **Take care when using peripheral devices.**



Power Safety

The computer has specific power requirements:

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



Power Safety Warning

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

Battery Precautions

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

Battery Guidelines

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

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




Battery Disposal

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

Caution

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

Battery Level

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

Preface

Related Documents

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

User's Manual on CD/DVD

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

System Startup

1. Remove all packing materials.
2. Place the computer on a stable surface.
3. Insert the battery and make sure it is locked in position.
4. Securely attach any peripherals you want to use with the computer (e.g. keyboard and mouse) to their ports.
5. Attach the AC/DC adapter to the DC-In jack on the right of the computer, then plug the AC power cord into an outlet, and connect the AC power cord to the AC/DC adapter.
6. Use one hand to raise the lid/LCD to a comfortable viewing angle (do not exceed 127 degrees); use the other hand (as illustrated in Figure 1) to support the base of the computer (**Note: Never** lift the computer by the lid/LCD).
7. Press the power button to turn the computer "on".

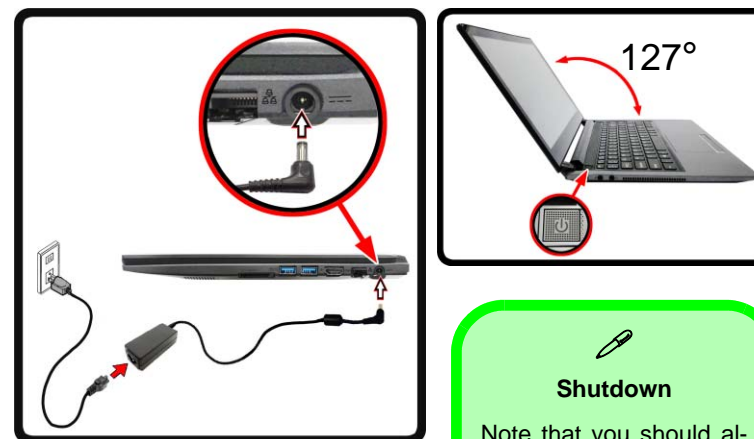


Figure 1
**Opening the Lid/LCD/
Computer with AC/DC
Adapter Plugged-In**



Shutdown

Note that you should always shut your computer down by choosing the **Shut Down** command from the **Power** item in **Settings** in the **Charms Bar** (use the **Windows Logo Key + C** key combination to access the **Charms Bar**) in **Windows 8**. This will help prevent hard disk or system problems.

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Chapter 1: Introduction

Overview

This manual covers the information you need to service or upgrade the **W840SN** series notebook computer. Information about operating the computer (e.g. getting started, and the *Setup* utility) is in the *User's Manual*. Information about drivers (e.g. VGA & audio) is also found in the *User's Manual*. The manual is shipped with the computer.

Operating systems (e.g. *Window 8*, etc.) have their own manuals as do application softwares (e.g. word processing and database programs). If you have questions about those programs, you should consult those manuals.

The **W840SN** 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® Core™ i7 Processor

i7-4500U (1.80GHz)

4MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 15W

Intel® Core™ i5 Processor

i5-4200U (1.60GHz)

3MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 15W

Intel® Core™ i3 Processor

i3-4010U (1.70GHz)

3MB L3 Cache, **22nm**, DDR3L-1600MHz, TDP 15W

BIOS

96Mb 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.)

LCD

14" (35.56cm) HD/ HD+/ FHD (Thickness: 3.2mm)

Storage

One Changeable 2.5" 7.0mm (h) SATA HDD

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

Audio

High Definition Audio Compliant Interface

2 * Built-In Speakers

Built-In Microphone

Sound Blaster™ Cinema

Security

Security (Kensington® Type) Lock Slot

BIOS Password

(Factory Option) TPM 1.2

Keyboard

"WinKey" keyboard

Pointing Device

Built-in Touchpad

Interface

Two USB 3.0 Ports

One HDMI-Out Port

One Headphone-Out Jack

One Microphone-In Jack

One RJ-45 LAN Jack

One DC-in Jack

Mini Card Slot

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

(Factory Option) Slot 2 for **3G** Module or mSATA **SSD**

Video Adapter

Intel® Integrated GPU and NVIDIA® Discrete GPU

Supports NVIDIA® Optimus Technology

Intel Integrated GPU

Intel® HD Graphics 4400

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

Microsoft DirectX®11 Compatible

NVIDIA Discrete GPU

NVIDIA® GeForce 745M

2GB GDDR3L Video RAM

Microsoft DirectX®11.1 Compatible

Card Reader

Embedded Multi-in-1 Push-Push Card Reader

MMC (MultiMedia Card) / RS MMC

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

Communication

Built-In 10/100/1000Mb Ethernet LAN

1M HD 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, 3.42A (**65W**)

4 Cell Smart Lithium-Ion Battery Pack, 44.6WH

Dimensions & Weight

340mm (w) * 240mm (d) * 21mm (h)

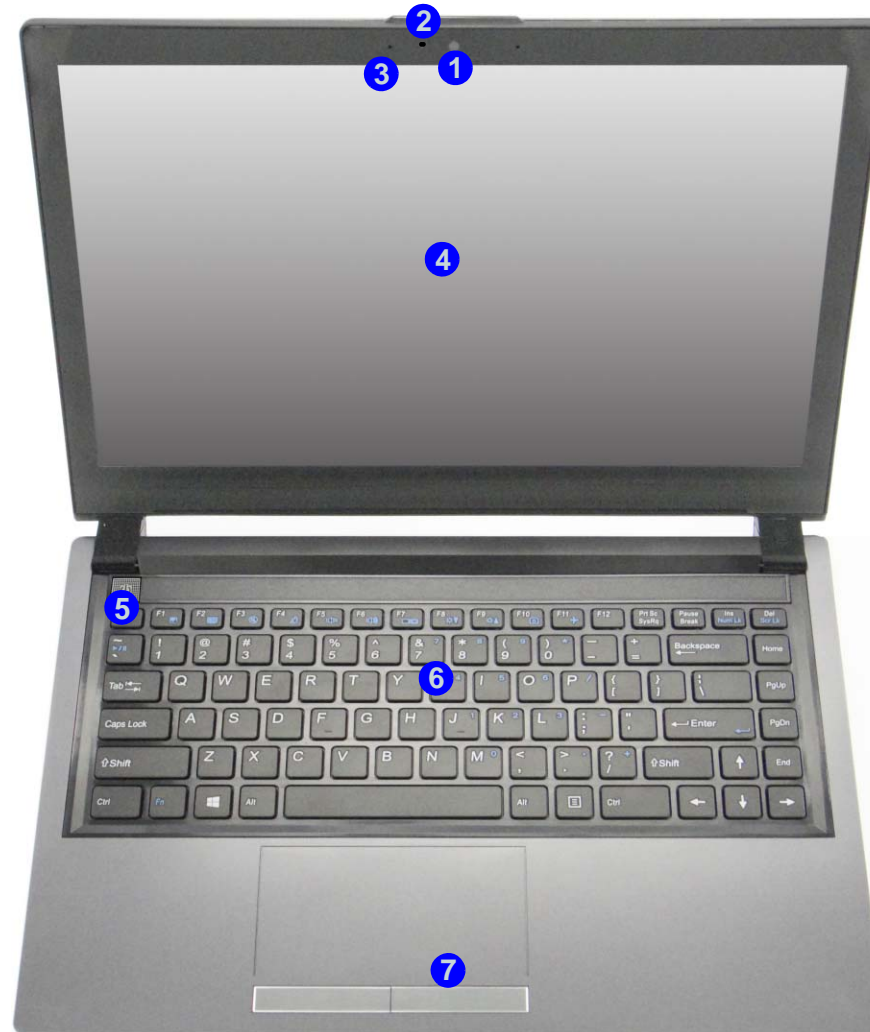
1.8kg (with Battery)

Introduction

Figure 1
Top View

1. PC Camera
2. PC Camera LED
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

Figure 2
Front View

1. LED Indicator

FRONT VIEW



RIGHT SIDE VIEW



Figure 3
Right Side View

1. Multi-in-1 Card Reader
2. USB 3.0 Ports
3. HDMI-Out Port
4. RJ-45 LAN Jack
5. DC-In Jack

Introduction

External Locator - Left Side & Rear View

Figure 4
Left Side View

1. Security Lock Slot
2. Microphone-In Jack
3. Headphone-Out Jack
4. Vent/Fan Intake/Outlet

LEFT SIDE VIEW



Figure 5
Rear View

1. Battery

REAR VIEW



External Locator - Bottom View

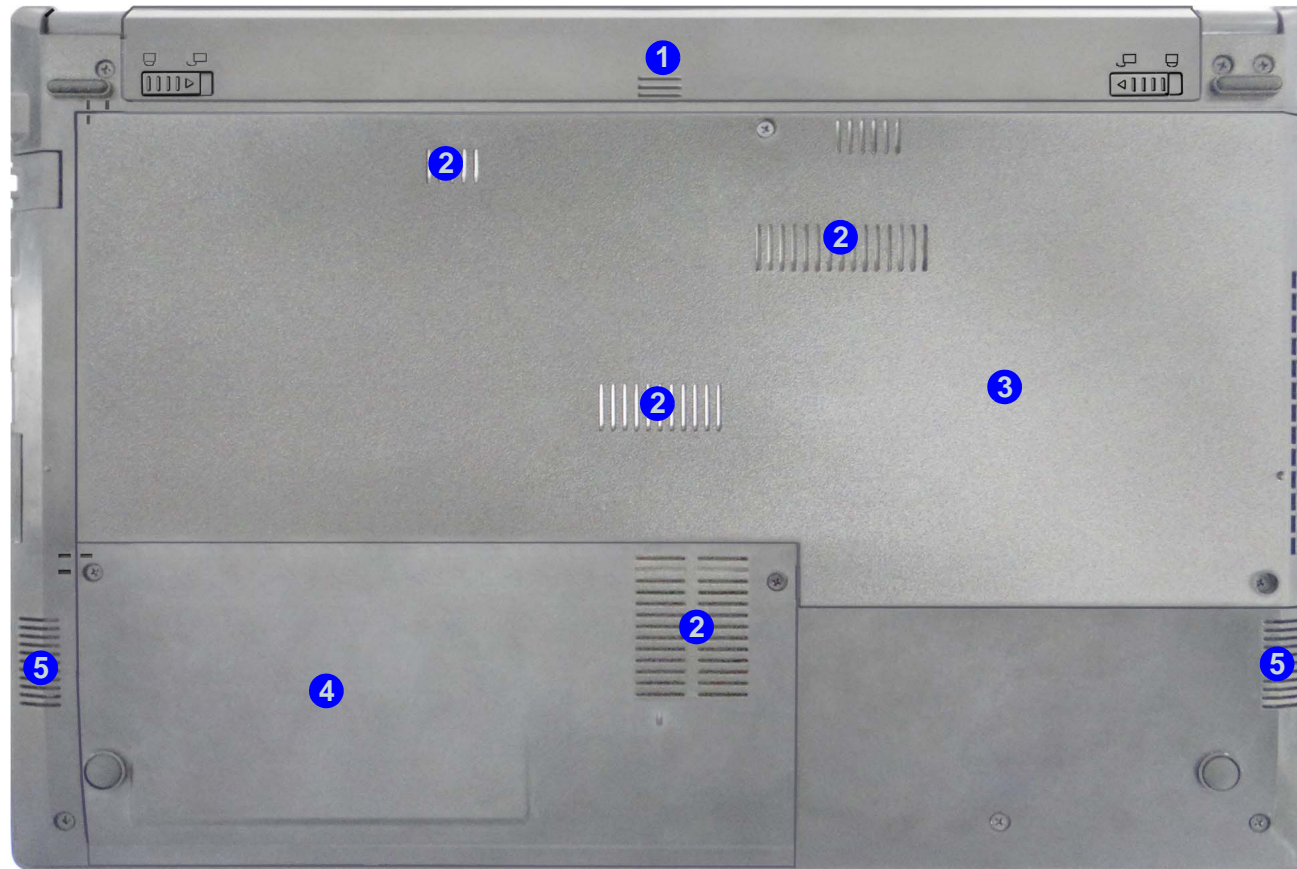


Figure 6
Bottom View

1. Battery
2. Vent/Fan Intake/Outlet
3. Component Bay Cover
4. HDD Bay
5. Speakers



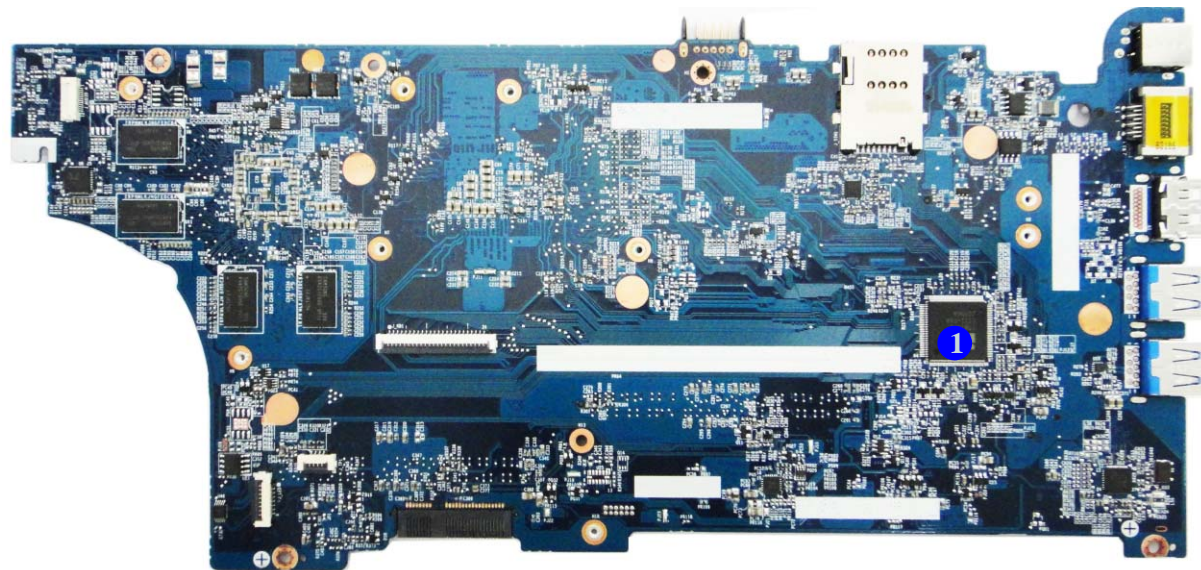
Overheating

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)

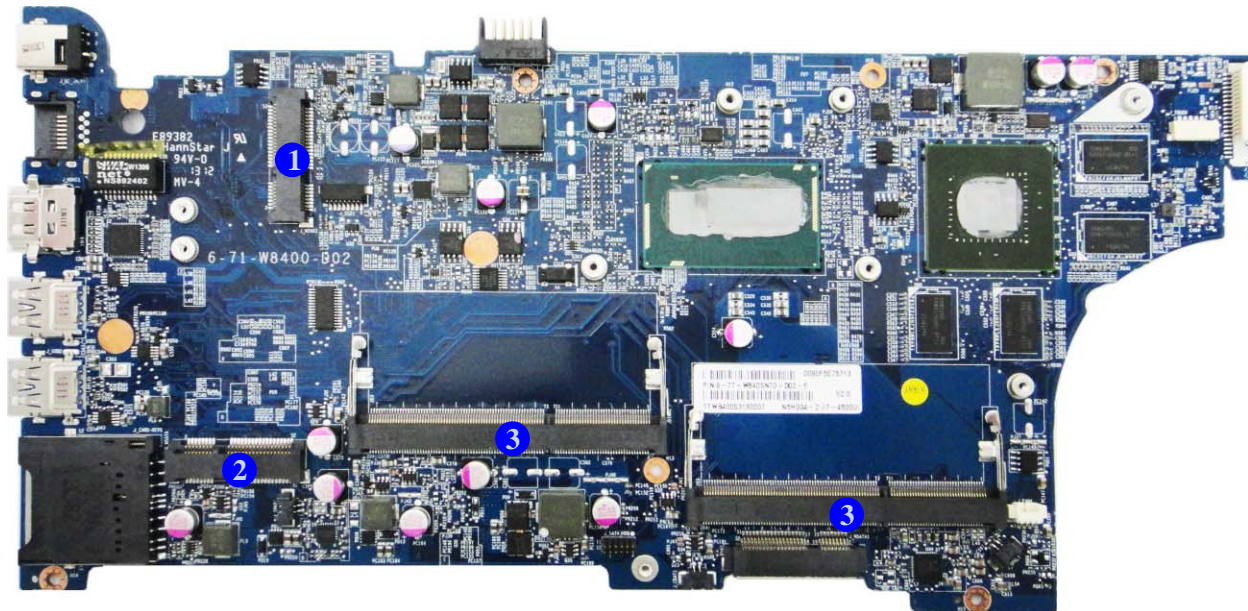


Figure 8
**Mainboard Bottom
Key Parts**

1. Mini-Card Connector (WLAN Module)
2. Mini-Card Connector (3G Module)
3. Memory Slots DDR3L SO-DIMM

Introduction

Figure 9
**Mainboard Top
Connectors**

1. Audio Board Cable Connector
2. LED Board Cable Connector
3. TP Cable Connector
4. Keyboard Cable Connector
5. USB Port 3.0
6. HDMI-Out Port
7. RJ-45 LAN Jack
8. DC-In Jack
9. SIM Card Connector

Mainboard Overview - Top (Connectors)

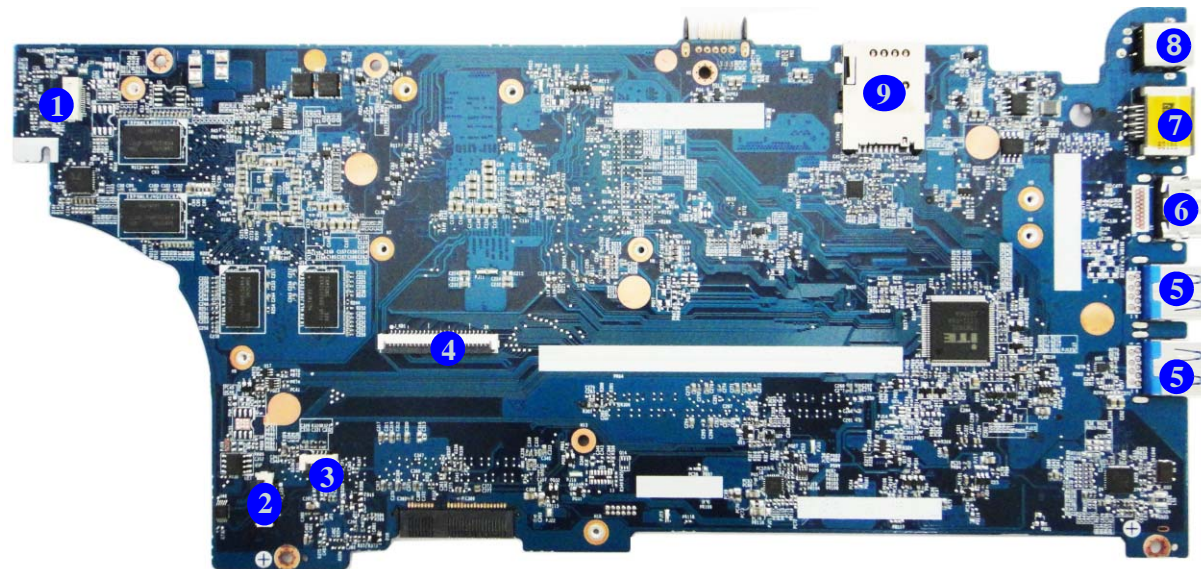
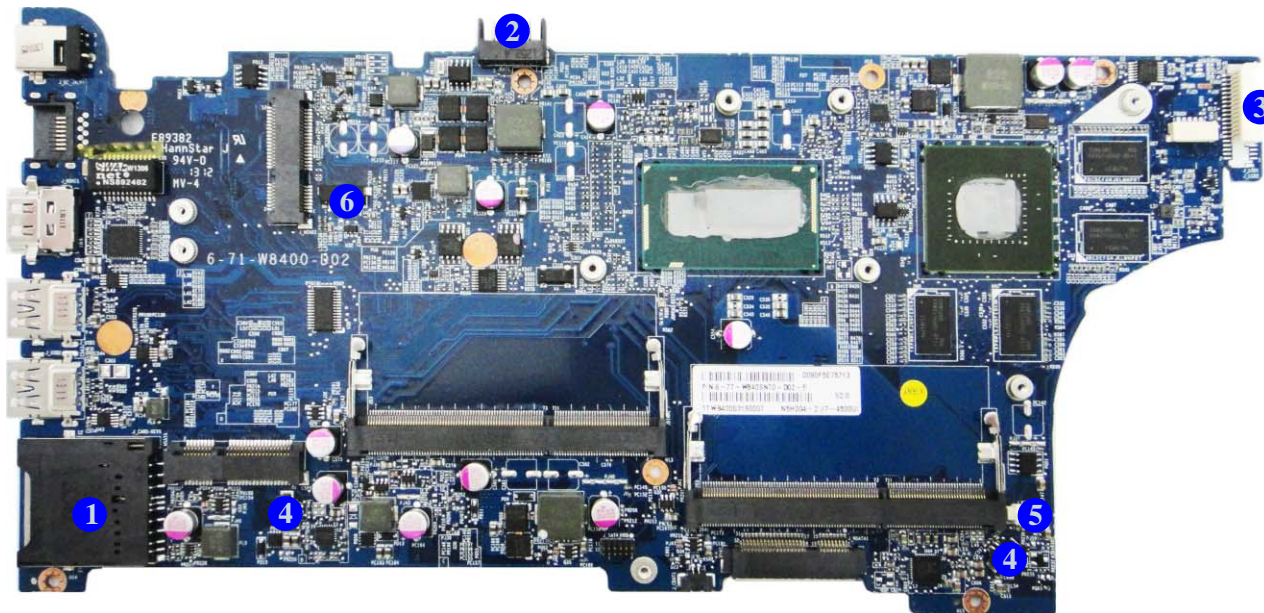


Figure 10
**Mainboard Bottom
Connectors**

1. Multi-in-1 Card Reader
2. Battery Connector
3. Panel Connector
4. Speaker Connector
5. Fan Connector
6. CCD + Mic Connector




Chapter 2: Disassembly

Overview

This chapter provides step-by-step instructions for disassembling the **W840SN** 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 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 System Memory:

1. Remove the battery *page 2 - 5*
2. Remove the system memory *page 2 - 6*

To remove the HDD:

1. Remove the battery *page 2 - 5*
2. Remove the HDD *page 2 - 8*

To remove the SSD:

1. Remove the battery *page 2 - 5*
2. Remove the SSD *page 2 - 10*

To remove the Wireless LAN Module:

1. Remove the battery *page 2 - 5*
2. Remove the WLAN *page 2 - 11*

To remove the Keyboard:

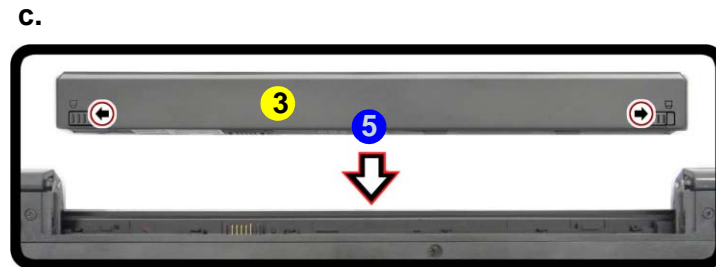
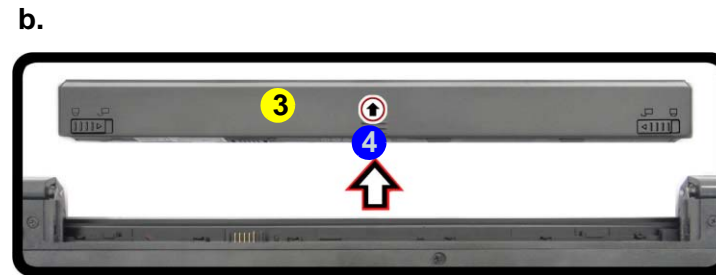
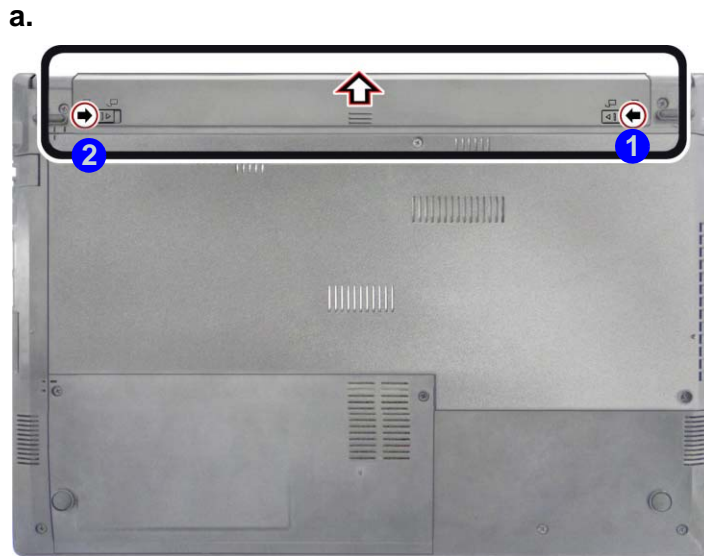
1. Remove the battery *page 2 - 5*
2. Remove the keyboard *page 2 - 12*

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*).
5. Reinsert the battery as illustrated below **5** (*Figure 1c*).

Figure 1
Battery Removal

- a. Slide the latch and hold it in place.
- b. Slide the battery out.
- c. Reinsert the battery.



3. Battery

Disassembly

Figure 2
RAM Module Removal

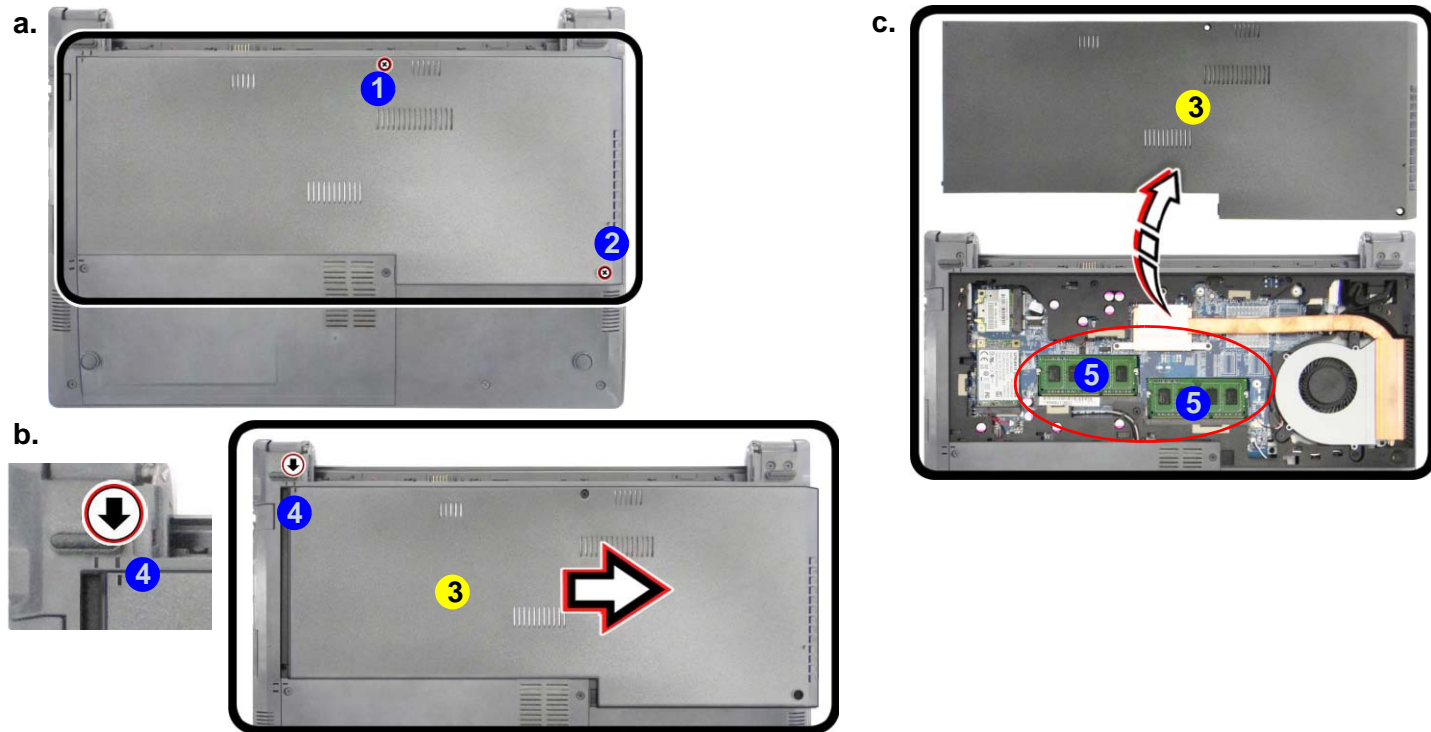
- Remove the screws.
- Slide the component bay cover out.
- Remove the component bay cover.

Removing the System Memory (RAM)

The computer has two memory sockets for 204 pin Small Outline Dual In-line Memory Modules (SO-DIMM) supporting DDR3L Up to 1600 MHz. The SO-DIMM modules supported are 1024MB and 2048MB **DDRIII** Modules. The total memory size is automatically detected by the POST routine once you turn on your computer.

Memory Upgrade Process

- Turn **off** the computer, turn it over, remove the battery ([page 2 - 5](#)).
- Locate the component bay cover and remove screws **1** - **2** ([Figure 2a](#)).
- Slide the bay cover **3** until the cover and case indicators **4** are aligned ([Figure 2b](#)).
- The RAM modules will be visible at point **5** on the mainboard ([Figure 2b](#)).

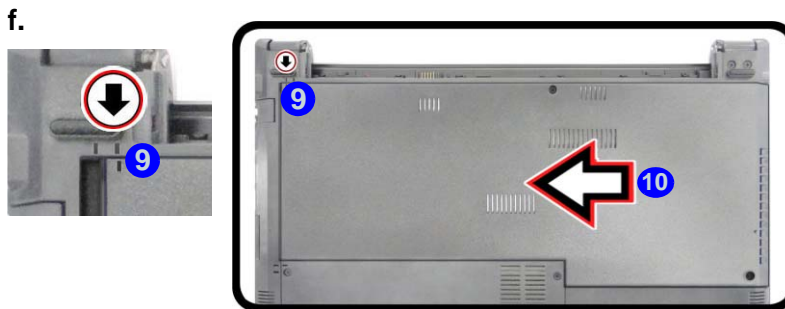
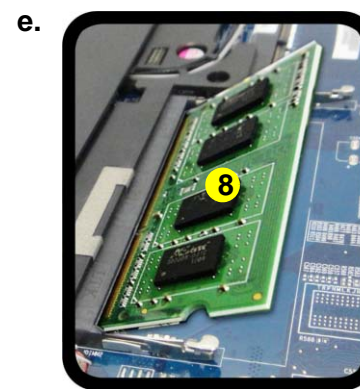
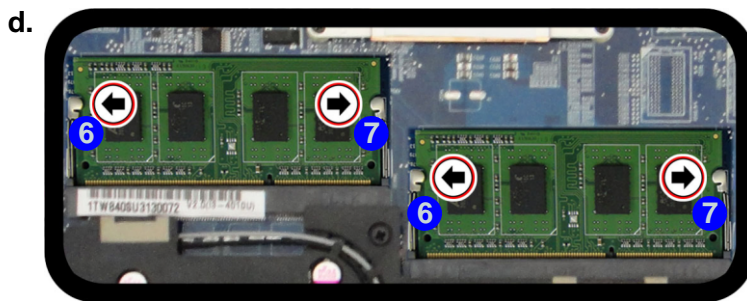


3. Component Bay Cover

5. Gently pull the two release latches (6 & 7) on the sides of the memory socket in the direction indicated by the arrows (**Figure 2b**). The RAM module 8 will pop-up, and you can then remove it.
6. Pull the latches to release the second module if necessary.
7. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
8. 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.
9. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
10. Reinsert the component bay cover by placing it on the bottom case assembly, and make sure the case markers line up 9.
11. Apply downward pressure and sliding the cover in the direction of arrow 10.
12. Replace the screws and battery (see [page 2 - 6](#)).
13. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.

Figure 3
RAM Module Removal (contd)

- d. Pull the release latches to remove the module(s).
- e. Remove the module(s).
- f. Reinstall the component bay cover.



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.



8. RAM Module

Disassembly

Figure 4
**HDD Assembly
Removal**

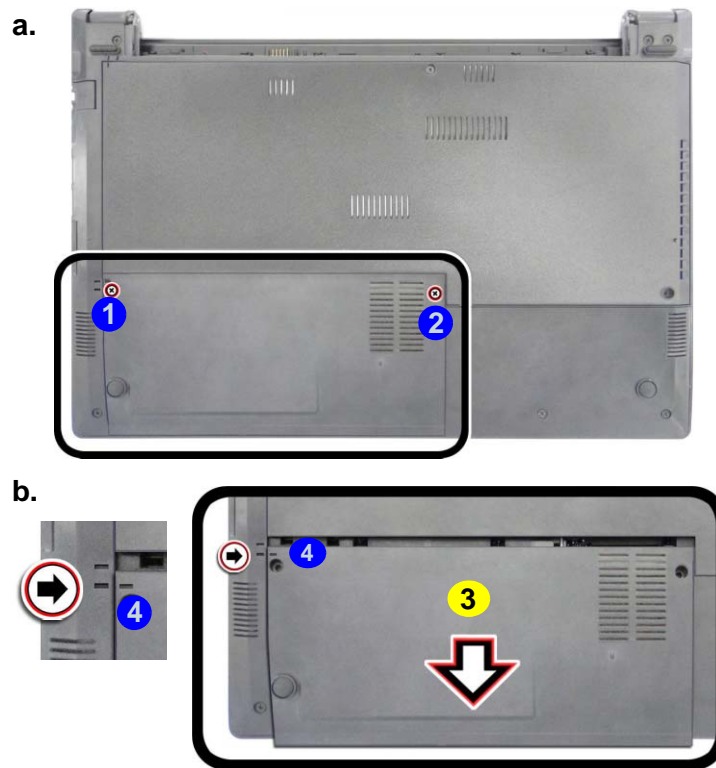
- a. Remove the screws.
- b. Remove the cover.

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 7mm (h). Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

Hard Disk Upgrade Process

1. Turn **off** the computer, turn it over.
2. Locate the hard disk bay cover and remove screws ① - ② from the bottom cover (*Figure 4a*).
3. Slide the bay cover ③ until the cover and case indicators ④ are aligned (*Figure 4b*).



3. Hard Disk Bay Cover
- 2 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.

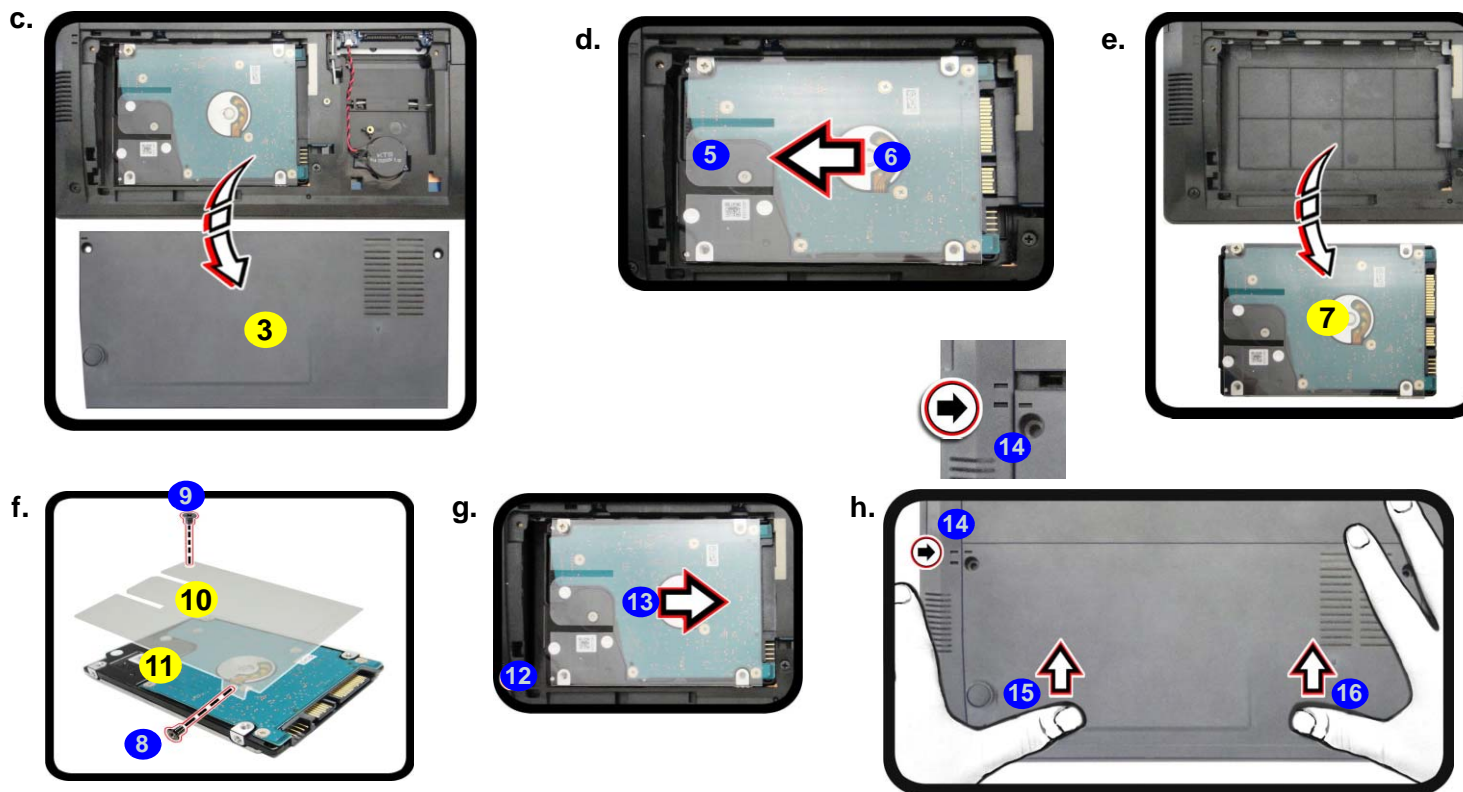
You have all the CD-ROMs and FDDs required to install your operating system and programs.

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.

4. Remove the HDD bay cover **3** (*Figure 5c*).
5. Grip the tab **5** and slide the hard disk assembly in the direction of arrow **6** (*Figure 5d*).
6. Lift the hard disk assembly **7** out of the bay (*Figure 5e*).
7. Remove the screws **8** - **9** and the hard disk cover **10** from the hard disk **11** (*Figure 5f*).
8. Replace the HDD assembly by using a finger to push it in at point **12** in the direction of arrow **13**.
9. Reinsert the HDD bay cover by placing it on the bottom case assembly, and make sure the case markers line up **14**.
10. Apply downward pressure with both thumbs at points **15** & **16** and slide the cover in the direction of the arrows as illustrated.
11. Replace the screws and battery (see [page 2 - 8](#)).

Figure 5
HDD Assembly Removal (cont'd.)

- c. Remove the HDD bay cover.
- d. Grip the tab and slide the HDD assembly in the direction of the arrow.
- e. Lift the HDD assembly out of the bay.
- f. Remove the screws and cover from HDD.
- g. Reinstall HDD assembly.
- h. Replace the HDD bay cover.



- 3. HDD Bay Cover
- 7. HDD Assembly
- 10. HDD Cover
- 11. HDD
- 2 Screws

Disassembly

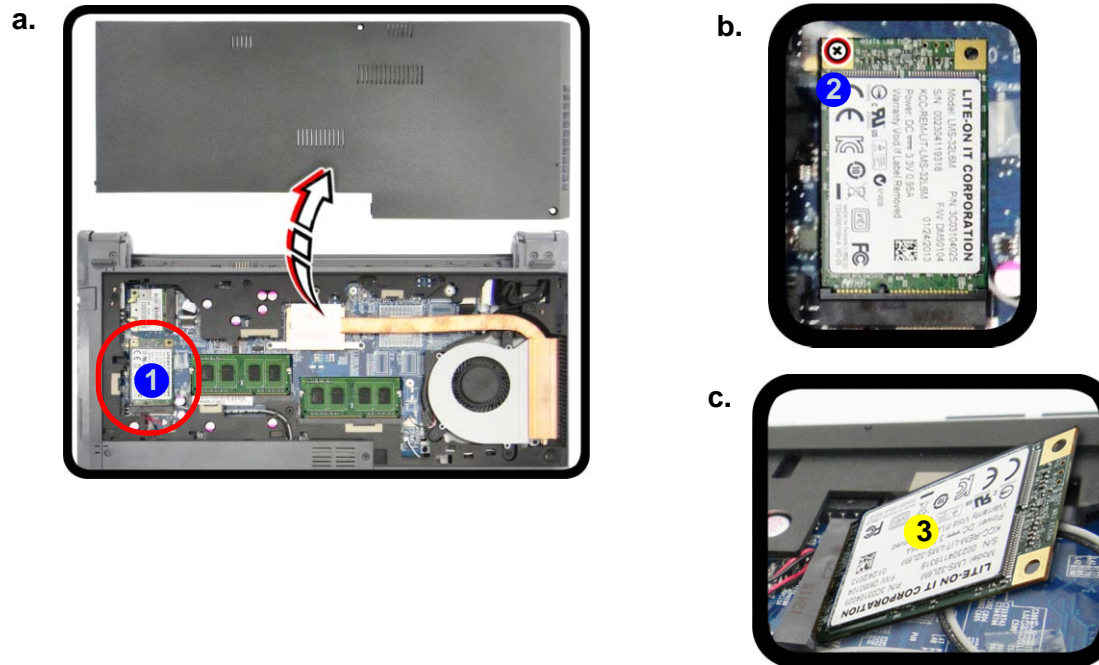
Figure 6
SSD Module Removal

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

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

Removing the SSD Module

- Turn **off** the computer, turn it over, remove the battery ([page 2 - 5](#)) and component bay cover ([page 2 - 6](#)).
- The SSD module will be visible at point **1** on the mainboard (*Figure 6a*).
- Remove the screw **2** (*Figure 6b*).
- The SSD module **3** (*Figure 6c*) will pop-up, and you can remove it from the computer.
- Replace the SSD by angling it as illustrated, and then fit the connector firmly into the slot.
- The SSD module's pin alignment will allow it to only fit one way. Make sure the module is seated as far into the slot as it will go. **DO NOT FORCE** the module; it should fit without much pressure.
- Press the SSD module down towards the mainboard and replace screw **2** and the component bay cover.



3.SSD Module

- 1 Screw

Removing the Wireless LAN Module

1. Turn **off** the computer, turn it over, remove the battery ([page 2 - 5](#)) and keyboard ([page 2 - 12](#)).
2. The Wireless LAN module will be visible at point **1** on the mainboard ([Figure 7a](#)).
3. Carefully disconnect the cable **2** & **3**, and then remove the screw **4** ([Figure 7b](#)).
4. The Wireless LAN module **5** ([Figure 7c](#)) will pop-up, and you can remove it from the computer.

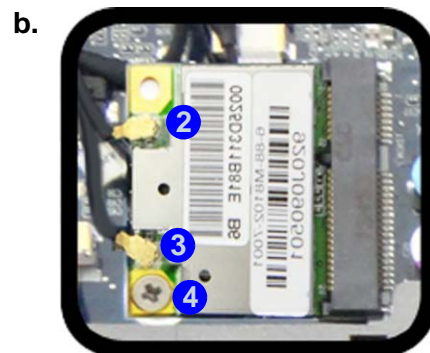
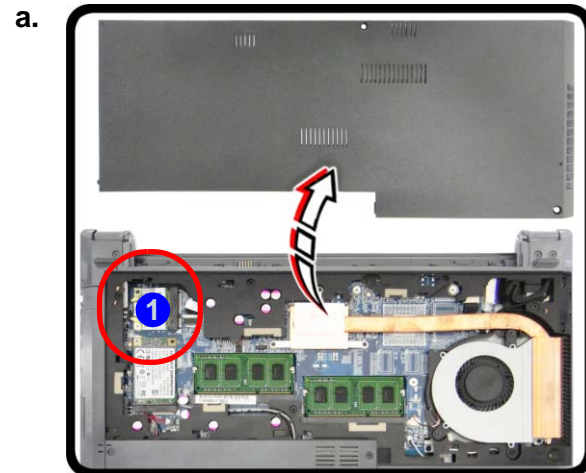


Figure 7
**Wireless LAN
Module Removal**

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

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



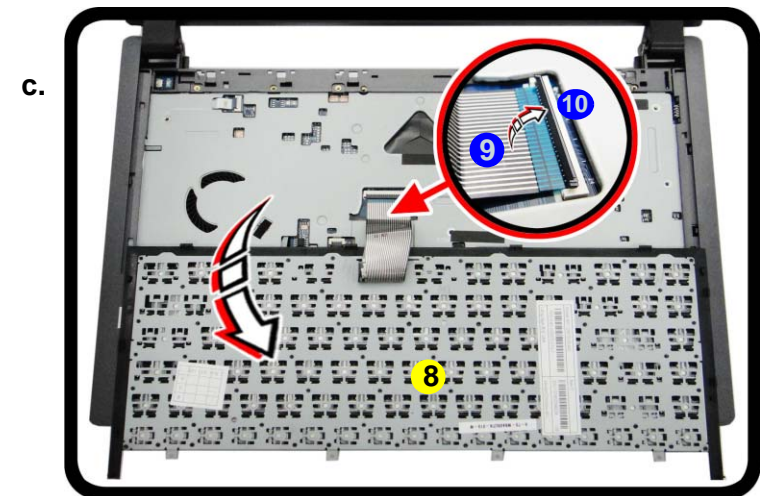
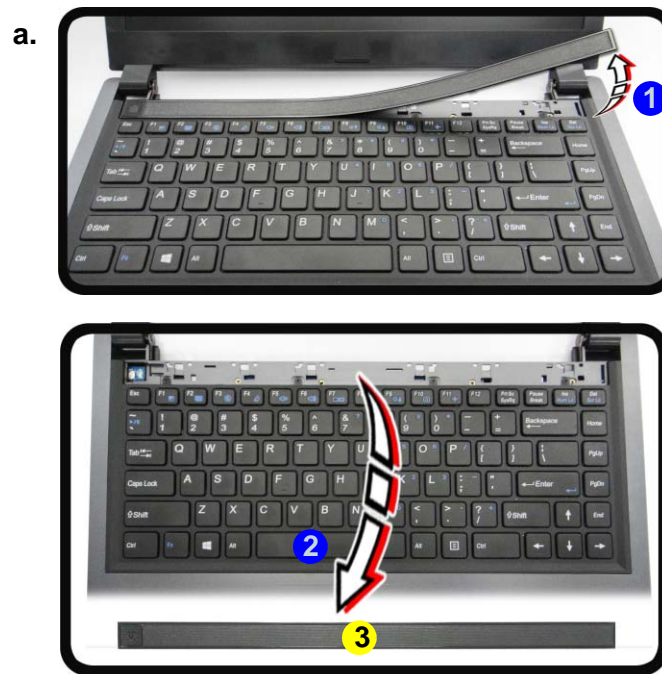
5. Wireless LAN Module

- 1 Screw

Disassembly

Figure 8
Keyboard Removal

- Lift the center cover.
 - Remove the center cover and screws.
 - Disconnect the keyboard ribbon cable from the locking collar socket.
- Turn **off** the computer, turn it over, remove the battery ([page 2 - 5](#)).
 - Lift the center cover at point **1** toward the direction of the arrow **2** ([Figure 8a](#)).
 - Remove the center cover module **3** and screws **4** - **7** ([Figure 8b](#)).
 - Carefully lift the keyboard **8** up, being careful not to bend the keyboard ribbon cable **9** ([Figure 8c](#)).
 - Disconnect the keyboard ribbon cable from the locking collar socket **10** ([Figure 8c](#)).

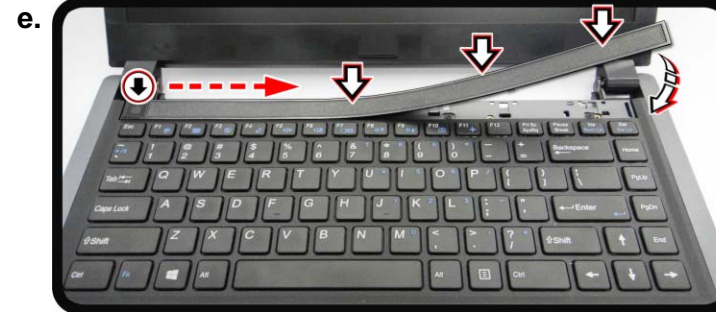


3.Center Cover Module
8.Keyboard

- 2 Screws

Figure 9
**Keyboard Removal
(cont'd.)**

- d. Remove the keyboard.
- e. Remove the keyboard shielding plate.



Appendix A:Part Lists

This appendix breaks down the *W840SN* series notebook's construction into a series of illustrations. The component part numbers are indicated in the tables opposite the drawings.

Note: This section indicates the *manufacturer's* part numbers. Your organization may use a different system, so be sure to cross-check any relevant documentation.

Note: Some assemblies may have parts in common (especially screws). However, the part lists DO NOT indicate the total number of duplicated parts used.

Note: Be sure to check any update notices. The parts shown in these illustrations are appropriate for the system at the time of publication. Over the product life, some parts may be improved or re-configured, resulting in *new* part numbers.

Part List Illustration Location

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

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

Part	
Top	<i>page A - 3</i>
Bottom	<i>page A - 4</i>
HDD	<i>page A - 5</i>
LCD	<i>page A - 6</i>

Top

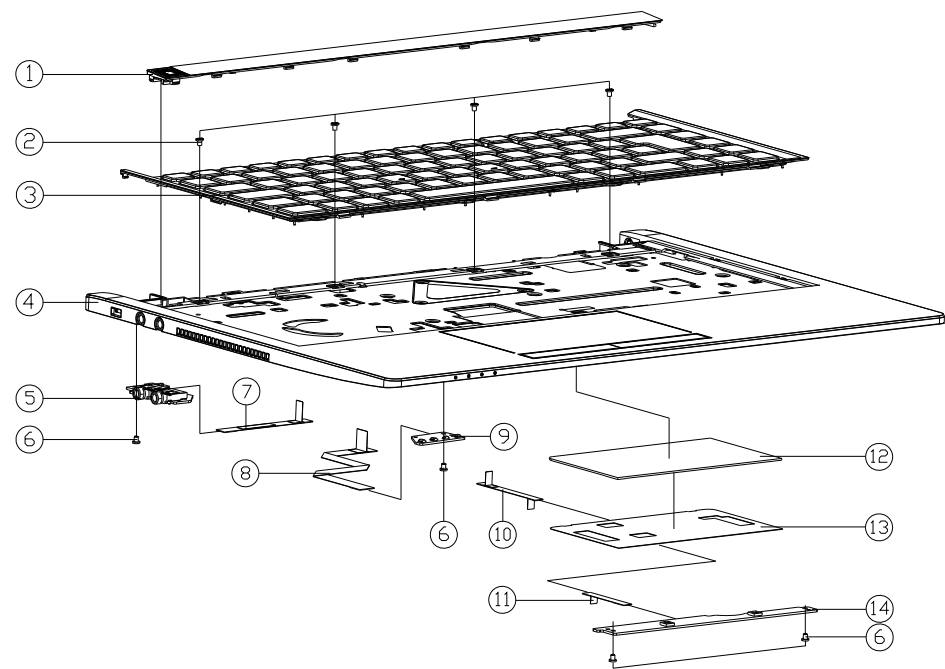


Figure A - 1
Top

ITEM	PART NAME	PART NO	REMARK
1	CENTER COVER MODULE W840SU-T	6-42-W8402-102	
2	SCREW M2x2.5L K1 BK/Z ICT NY Ø3.5 T=0.3	6-35-B6120-2RB	
3	WING K/B USA(BLACK) FRAME(US) MODULE W840SU-T	6-79-W840SUTK-010-W	
4	TOP CASE MODULE W840SU-T	6-39-W8402-012	
5	AUDIO & SWITCH BOARD V3.0 W840SN	6-77-W8408-D03	
6	SCREW M2x3L K1 NI ICT NY (DD=Ø4.5,DT=0.4)	6-35-B1120-3RE	
7	FFC CABLE FOR AUDIO TO MB 12PIN W840SU-T(CNJS)	6-43-W8400-031	
8	FFC CABLE FOR LED TO MB 8PIN W840SU-T(CNJS)	6-43-W8400-022	
9	LED BOARD V3.0 W840SN	6-77-W8404-D03	
10	FFC CABLE FOR CN1 TO MB 4PIN W840SU-T(CNJS)	6-43-W8400-011	
11	FFC CABLE FOR CLICK TO TP CN2 4PIN W840SU-T	6-43-W8400-042	
12	TOUCH PAD ELAN SA055D-6200 W650EH	6-49-W65E3-010	
13	MELAN (Ø0.55x2.05) BLACK PET/PSA 402 FOR TOUCH PAD W840SU-T	6-40-W8402-021	
14	CLICK BOARD V4.0 W840SN	6-77-W8402-D04	

A.Part Lists

This exploded view diagram illustrates the internal components of the HP ZBook Firefly G1, showing their relative positions and assembly sequence. The components are numbered 1 through 21:

- 1: Main chassis/base plate
- 2: Top cover
- 3: Battery pack
- 4: Front bezel
- 5: Various internal modules and connectors
- 6: Display panel
- 7: Display bezel
- 8: Camera module
- 9: Microphone module
- 10: Speaker module
- 11: Keyboard
- 12: Trackpoint
- 13: Touchpad
- 14: Bottom cover
- 15: Various internal modules and connectors
- 16: Memory module
- 17: Storage module
- 18: Wireless LAN module
- 19: Thermal management components
- 20: Cooling fan
- 21: Various internal modules and connectors

ITEM	PART NAME	PART NO	REMARK
1	SCREW M2x56, KI BZ/CZ ICT NY	6-35-86125-SR0	
2	MAIN BOARD VIO CPU W/2X 386/60-100MHz-5000000000	6-77-W4840SN-003-1	
2	MAIN BOARD VIO CPU W/2X 386/60-100MHz-5000000000	6-77-W4840SN-003-1	
3	MAIN BOARD VIO CPU W/2X 386/60-100MHz-5000000000	6-77-W4840SN-003-1	
3	CPU HEATSINK MODULE W4840S	6-31-W8403-201	
4	80287/80288 CPU W/2X 386/60-100MHz-5000000000	6-87-W8405-40L2	
5	SCREW M2x2, KI BZ/CZ ICT NY (453 +143)	6-35-86120-3RE	
6	80287/80288 CPU W/2X 386/60-100MHz-5000000000	6-88-P3702-7000	(OPTION)
6	80287/80288 CPU W/2X 386/60-100MHz-5000000000	6-88-P3702-9400	(OPTION)
6	80287/80288 CPU W/2X 386/60-100MHz-5000000000	6-88-W345F-7000	(OPTION)
6	80287/80288 CPU W/2X 386/60-100MHz-5000000000	6-88-W345F-9400	(OPTION)
6	80287/80288 CPU W/2X 386/60-100MHz-5000000000	6-88-W230F-5000	(OPTION)
7	80287/80288 CPU W/2X 386/60-100MHz-5000000000	6-88-W230F-8800	(OPTION)
8	80287/80288 CPU W/2X 386/60-100MHz-5000000000	6-23-W5840-082	
9	SATA HDD BOARD V30 W4840S	6-77-W840J-030	
10	80287/80288 CPU W/2X 386/60-100MHz-5000000000	6-23-W840A-010	
11	80287/80288 CPU W/2X 386/60-100MHz-5000000000	6-23-W584A-012	
12	BOTTOM CASE MODULE W4840S-U	6-39-W8403-011	
13	FAN MODULE F0RCCECU W4840S-U	6-31-W8405-102	
14	CPU COVER MODULE W4840S-U	6-42-W8408-102	
15	SCREW M2x56, KI BZ/CZ ICT NY	6-35-86125-M6A	
16	PRODUCT LABEL FOR W4840S	6-45-W4840SN-003-1	
17	MAINBOARD VIO CPU W/2X 386/60-100MHz-5000000000	6-85-D400C-200	(OPTION)
18	MAINBOARD VIO CPU W/2X 386/60-100MHz-5000000000	6-85-D400C-101	(OPTION)
19	BAT. 2000 V 2200mAh VIOABLE POWER W4840S-U2000000	6-23-22015-T1C	
20	ADAPTER 5VDC 1.5A 7.5W VIOABLE POWER W4840S-U2000000	6-23-W840-022	
20	ADAPTER 5VDC 1.5A 7.5W VIOABLE POWER W4840S-U2000000	6-85-D248C-100	
20	SATA HDD BOARD V30 W4840S-U	6-85-D248C-100	
20	SATA HDD BOARD V30 W4840S-U	6-42-W840J-102	

HDD

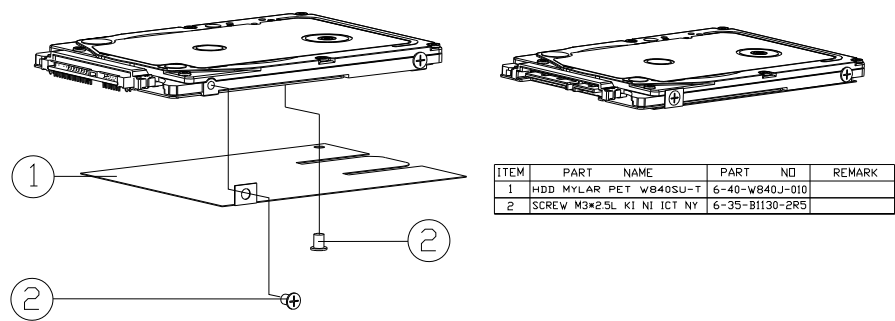
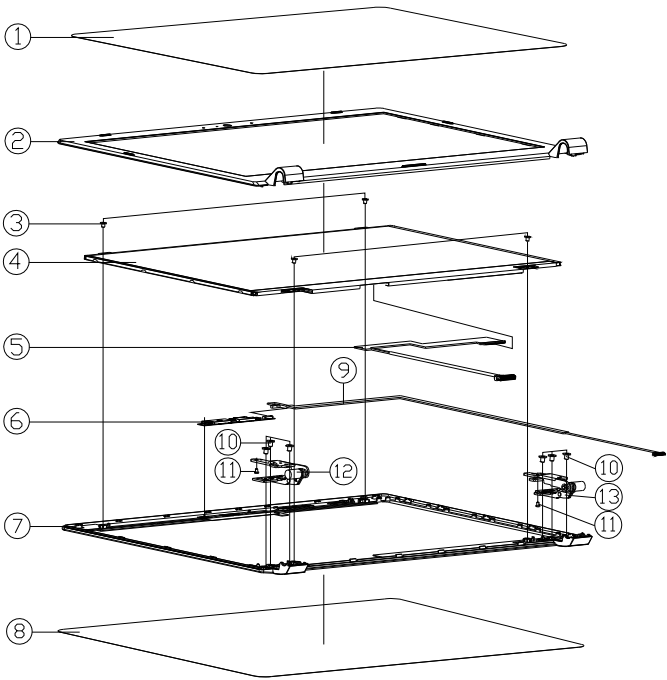


Figure A - 3
HDD

LCD

Figure A - 4
LCD



ITEM	PART NAME	PART NO	REMARK
1	LCD FRONT COVER PROTECT MYLAR PET W740SU	6-40-W7401-030	
2	LCD FRONT COVER MODULE W840SU	6-39-W8401-031	
3	SCREW M2x3L KI NI ICT NY (DO=045.0T-04)	6-35-B1120-3RE	
4	LCD TAP HUB CONNECT HUB/FLAT-FLAT 32MM (TOP)	6-50-JA130-D00	
4	LCD TAP HUB CONNECT HUB/FLAT-FLAT 32MM (TOP)	6-50-JB232-G00	
4	LCD TAP HUB CONNECT HUB/FLAT-FLAT 32MM (TOP)	6-50-JB132-M00	
5	WIRE CABLE FOR LCD TO MB 8PIN (COPPER) 28-40 W740SU	6-43-W8401-040-N	FOR eDP CONN
5	WIRE CABLE FOR LCD TO MB 8PIN (COPPER) 28-40 W740SU	6-43-W8401-030-N	FOR LVDS CONN
6	LCD BACK COVER PROTECT MYLAR PET W740SU	6-88-W740C-4901	
7	LCD BACK COVER MODULE W840SU	6-39-W8401-041	
8	LCD BACK COVER PROTECT MYLAR PET W740SU	6-40-W7401-010	
9	WIRE CABLE CCD-MIC TO MB 8PIN W840SU-T (HL)	6-43-W840T-012	
10	SCREW M2.5x3L KI NI ICT NY	6-35-B1125-3R0	
11	SCREW M2.5x5L KI NI ICT NY	6-35-B6125-5R0	
12	LCD HINGE L SK7 W840SU	6-33-W8401-1L0	
13	LCD HINGE R SK7 W840SU	6-33-W8401-1R0	

Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the *W840SN* notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

Diagram - Page	Diagram - Page	Diagram - Page
<i>System Block Diagram - Page B - 2</i>	<i>VGA PCI-E Interface - Page B - 17</i>	<i>Charger, DC In - Page B - 32</i>
<i>Processor 1/11 - Page B - 3</i>	<i>VGA Frame Buffer Interface - Page B - 18</i>	<i>1.05V - Page B - 33</i>
<i>Processor 2/11 - Page B - 4</i>	<i>VGA Frame Buffer A - Page B - 19</i>	<i>VDD3, VDD5 - Page B - 34</i>
<i>Processor 3/11 - Page B - 5</i>	<i>VGA Frame Buffer B - Page B - 20</i>	<i>1.8VS, 1.5VS, 5V, 5VS, SATA_5VS - Page B - 35</i>
<i>Processor 4/11 - Page B - 6</i>	<i>VGA I/O - Page B - 21</i>	<i>DDR 1.5V or 1.35V / 0.75VS PCH 1.5VS - Page B - 36</i>
<i>Processor 5/11 - Page B - 7</i>	<i>VGA NVVDD Decoupling - Page B - 22</i>	<i>VCORE - Page B - 37</i>
<i>Processor 6/11 - Page B - 8</i>	<i>PS8625 - Page B - 23</i>	<i>N14P, NVVDD, PEX, FBVDDQ - Page B - 38</i>
<i>Processor 7/11 - Page B - 9</i>	<i>Card Reader / LAN RTL8411B - Page B - 24</i>	<i>Audio Board - Page B - 39</i>
<i>Processor 8/11 - Page B - 10</i>	<i>WLAN, MSATA - Page B - 25</i>	<i>HDD Board - Page B - 40</i>
<i>Processor 9/11 - Page B - 11</i>	<i>HDMI, RJ45, Fan - Page B - 26</i>	<i>Click Board - Page B - 41</i>
<i>Processor 10/11 - Page B - 12</i>	<i>Audio Codec ALC282 - Page B - 27</i>	<i>LED Board - Page B - 42</i>
<i>Processor 11/11 - Page B - 13</i>	<i>USB Charger, USB, LED - Page B - 28</i>	<i>Power Sequence - Page B - 43</i>
<i>DDR3 SO-DIMM_0 - Page B - 14</i>	<i>KBC-ITE IT8587 - Page B - 29</i>	
<i>DDR3 SO-DIMM_1 - Page B - 15</i>	<i>CCD, TPM, I/O Connector, LID - Page B - 30</i>	
<i>PANEL, INVERTER - Page B - 16</i>	<i>KBC-ITE IT8587E - Page B - 31</i>	

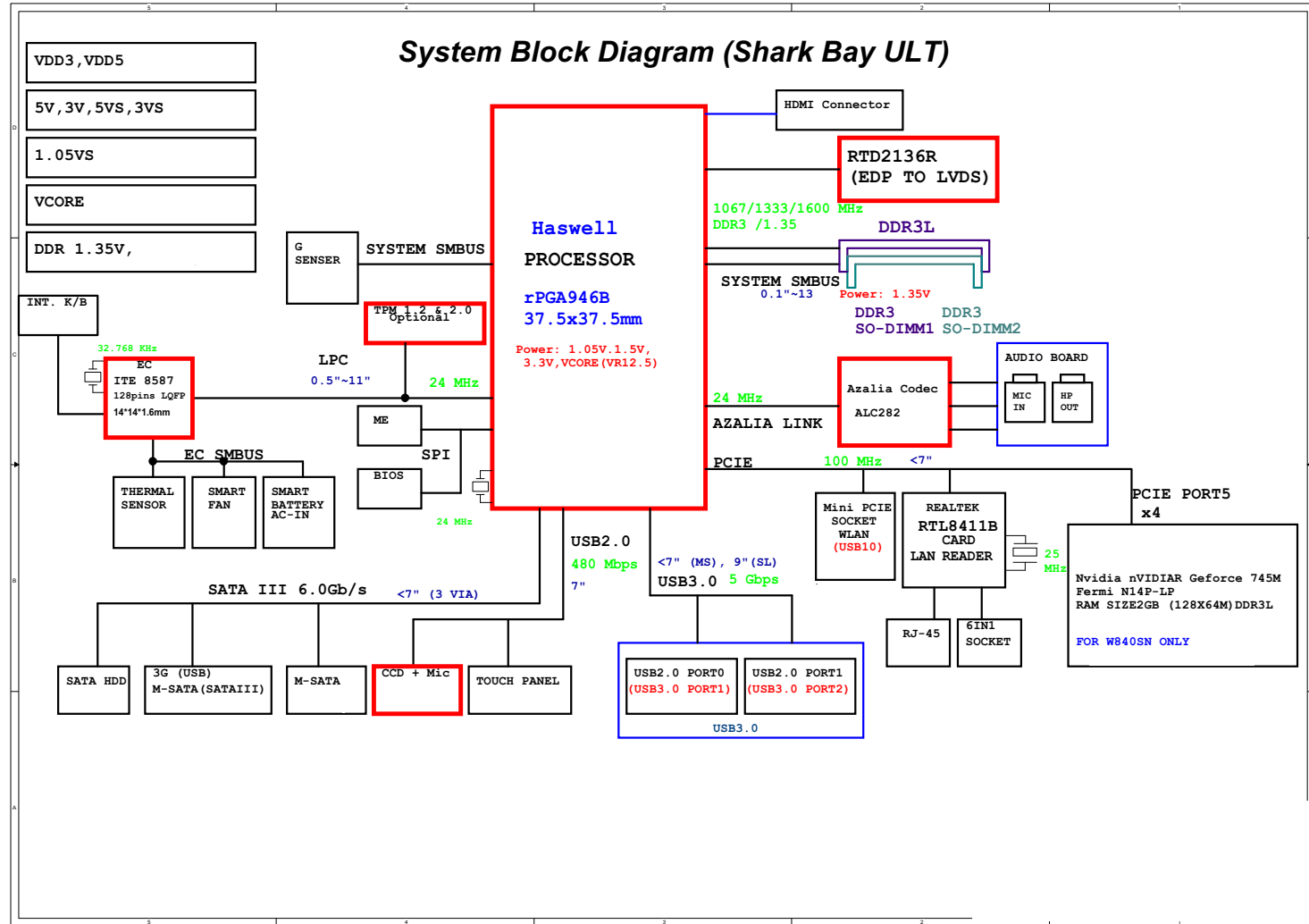
Table B - 1
**SCHEMATIC
DIAGRAMS**



Version Note

The schematic diagrams in this chapter are based upon version 6-7P-W8405-003. 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 42
System Block
Diagram

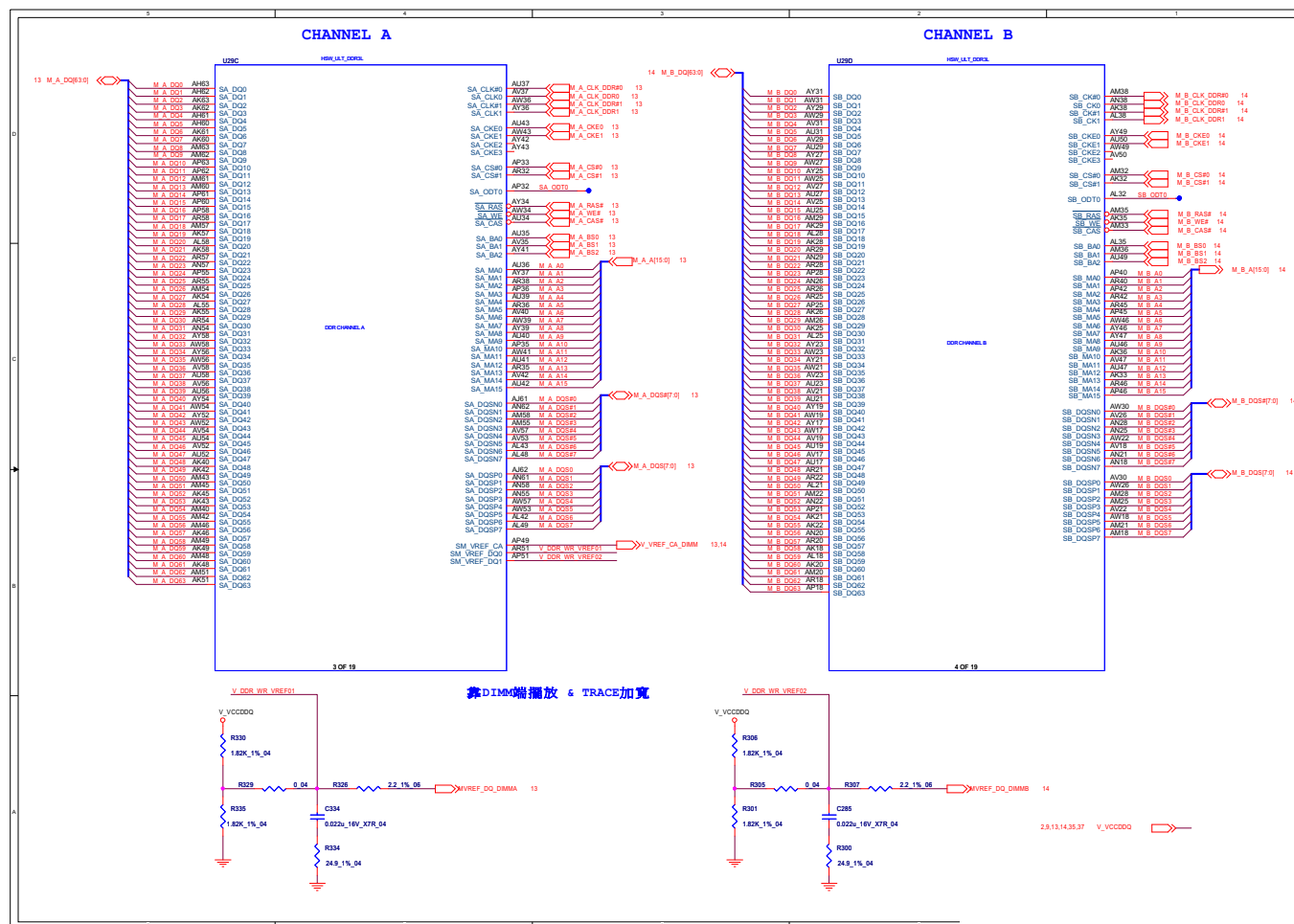
Processor 1/11 B - 3

B.Schematic Diagrams

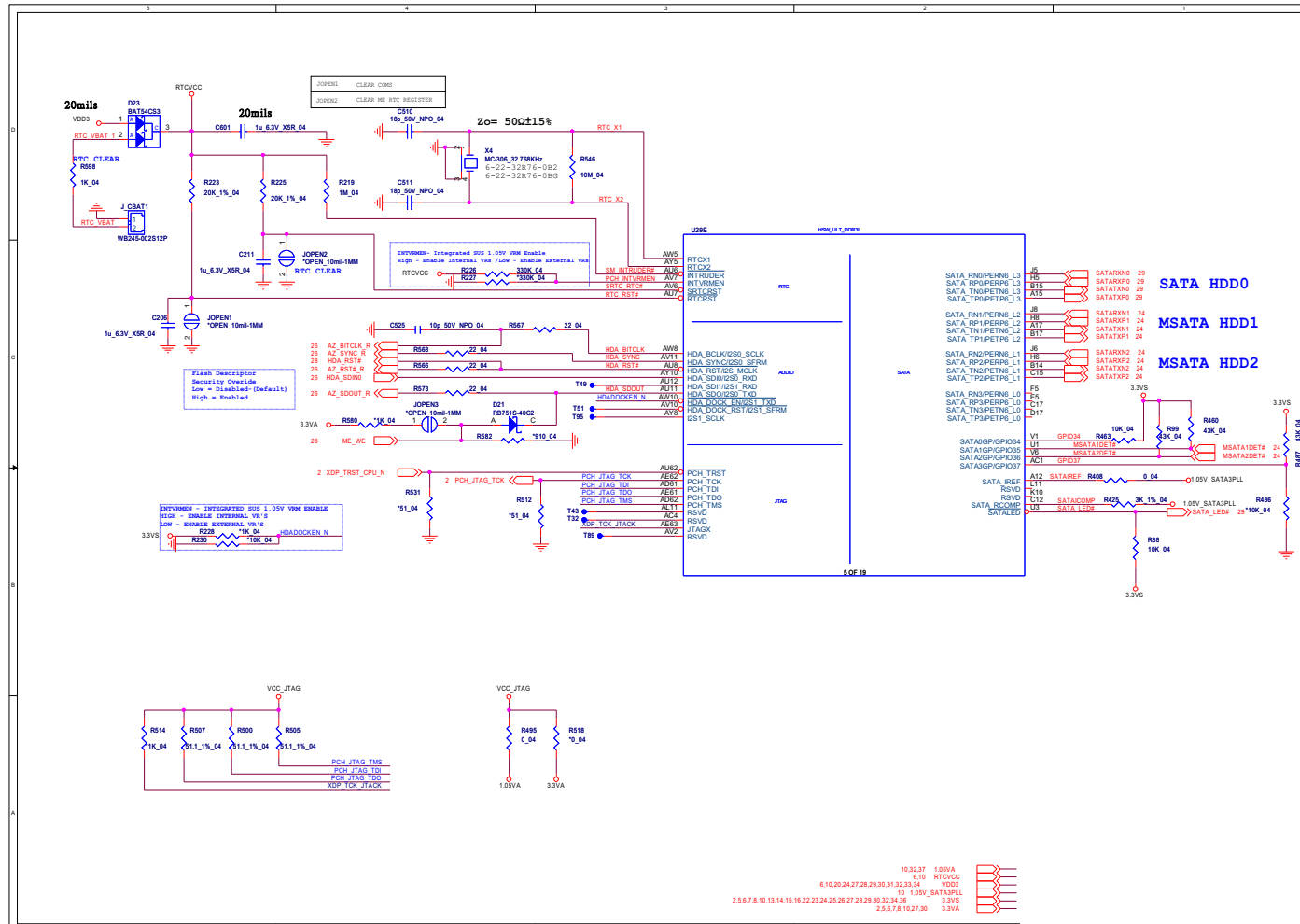


Processor 2/11

Sheet 3 of 42
Processor 2/11



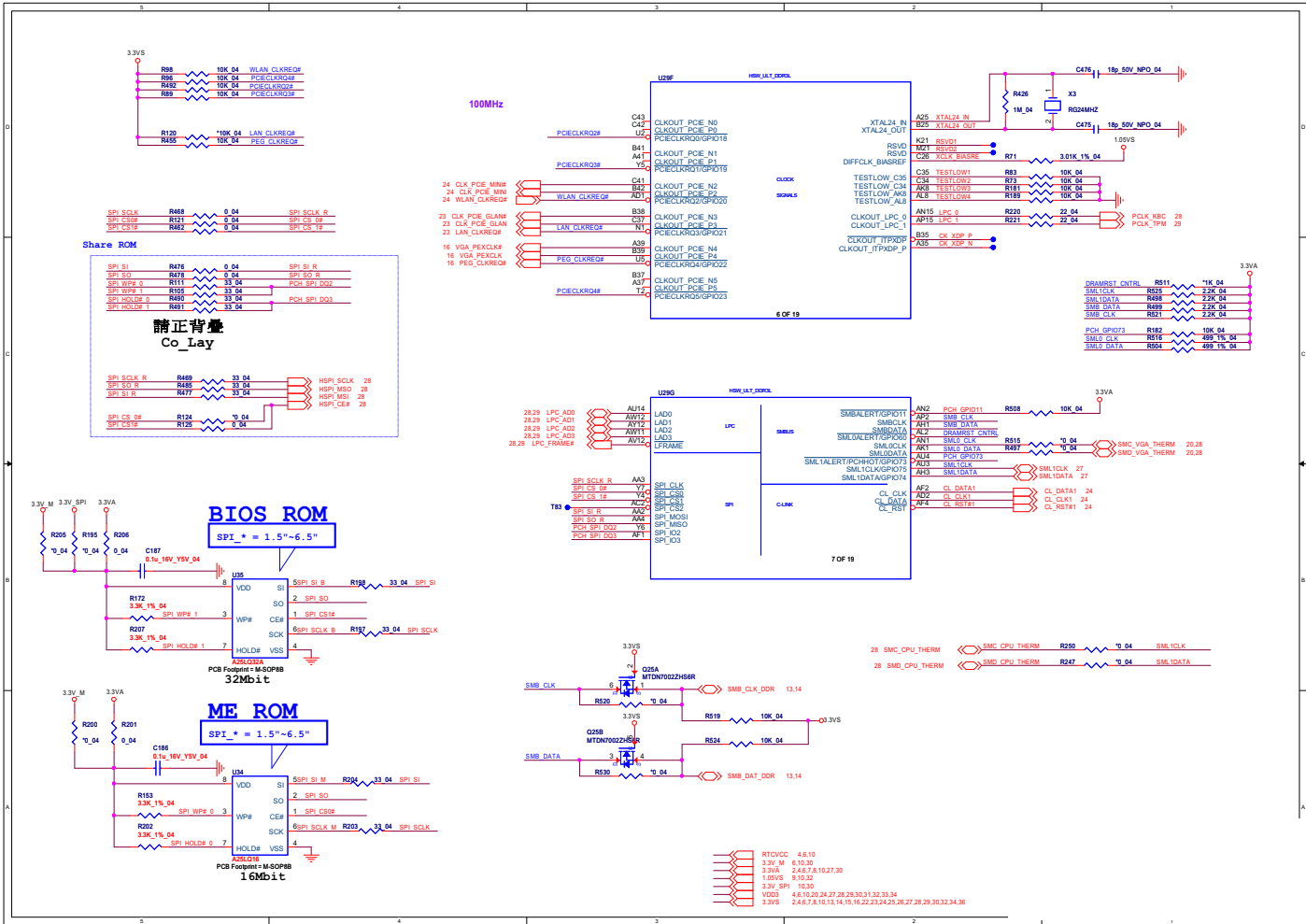
Processor 3/11 B - 5



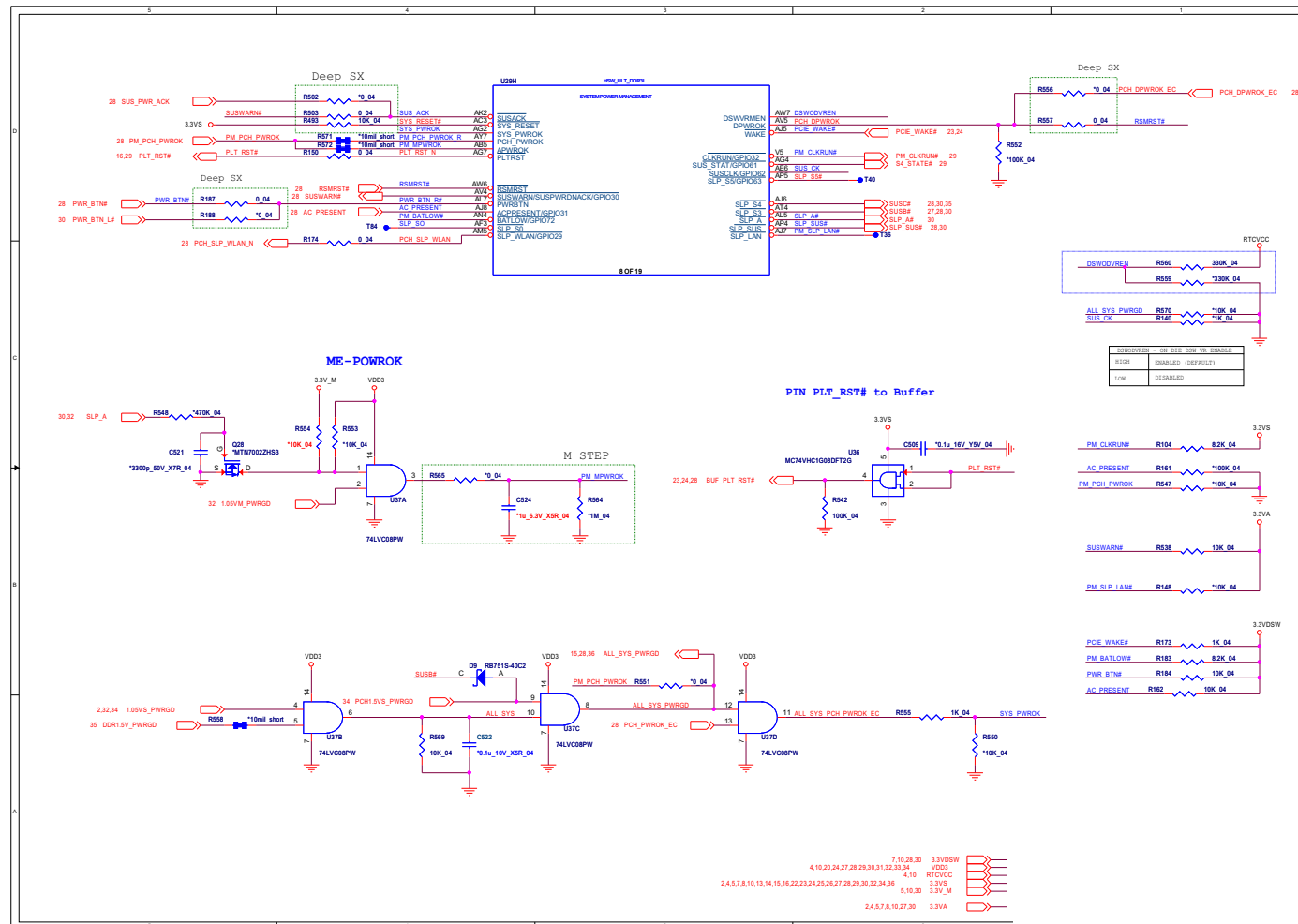
Processor 4/11

B. Schematic Diagrams

Sheet 5 of 42
Processor 4/11

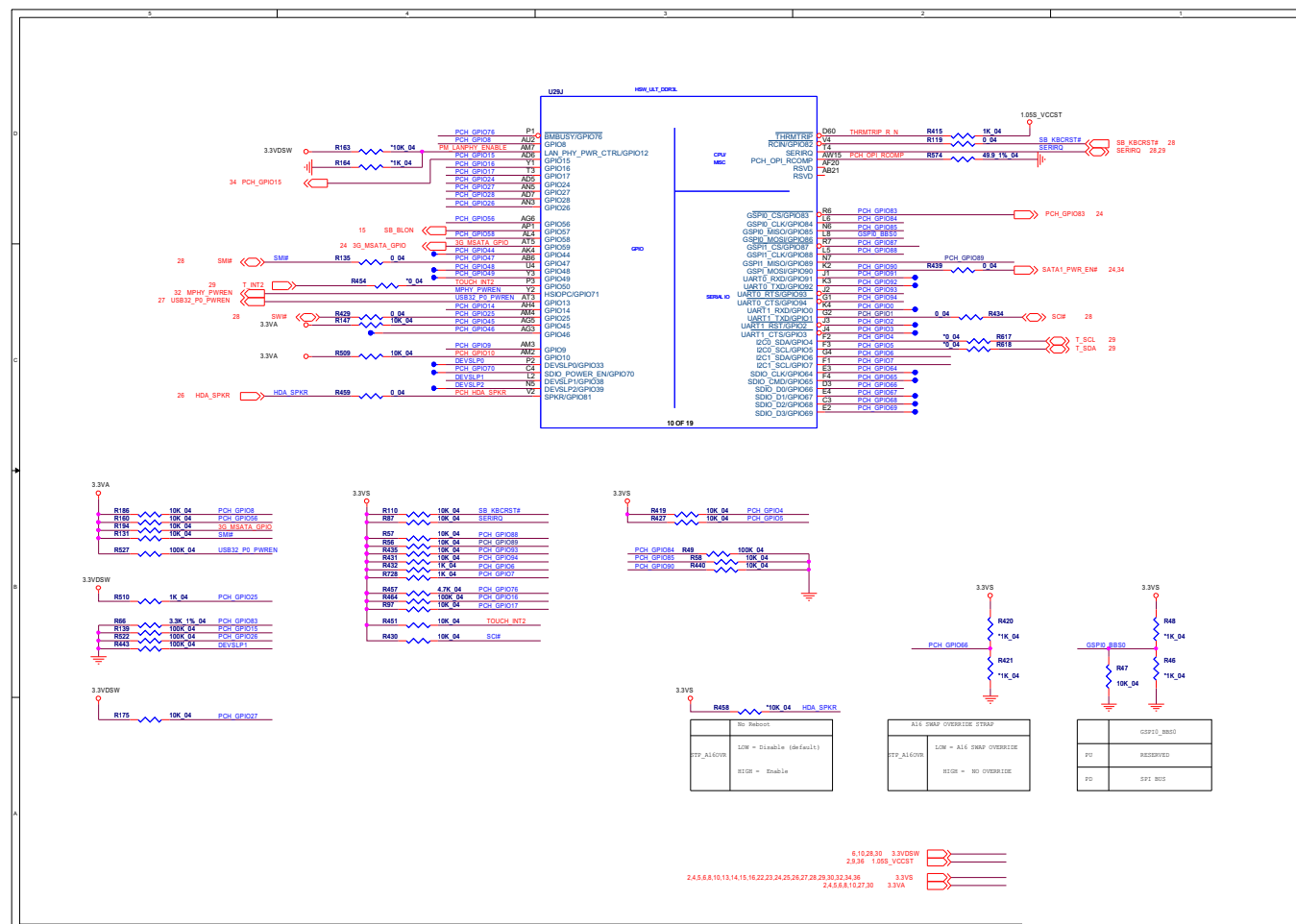


Processor 5/11 B - 7



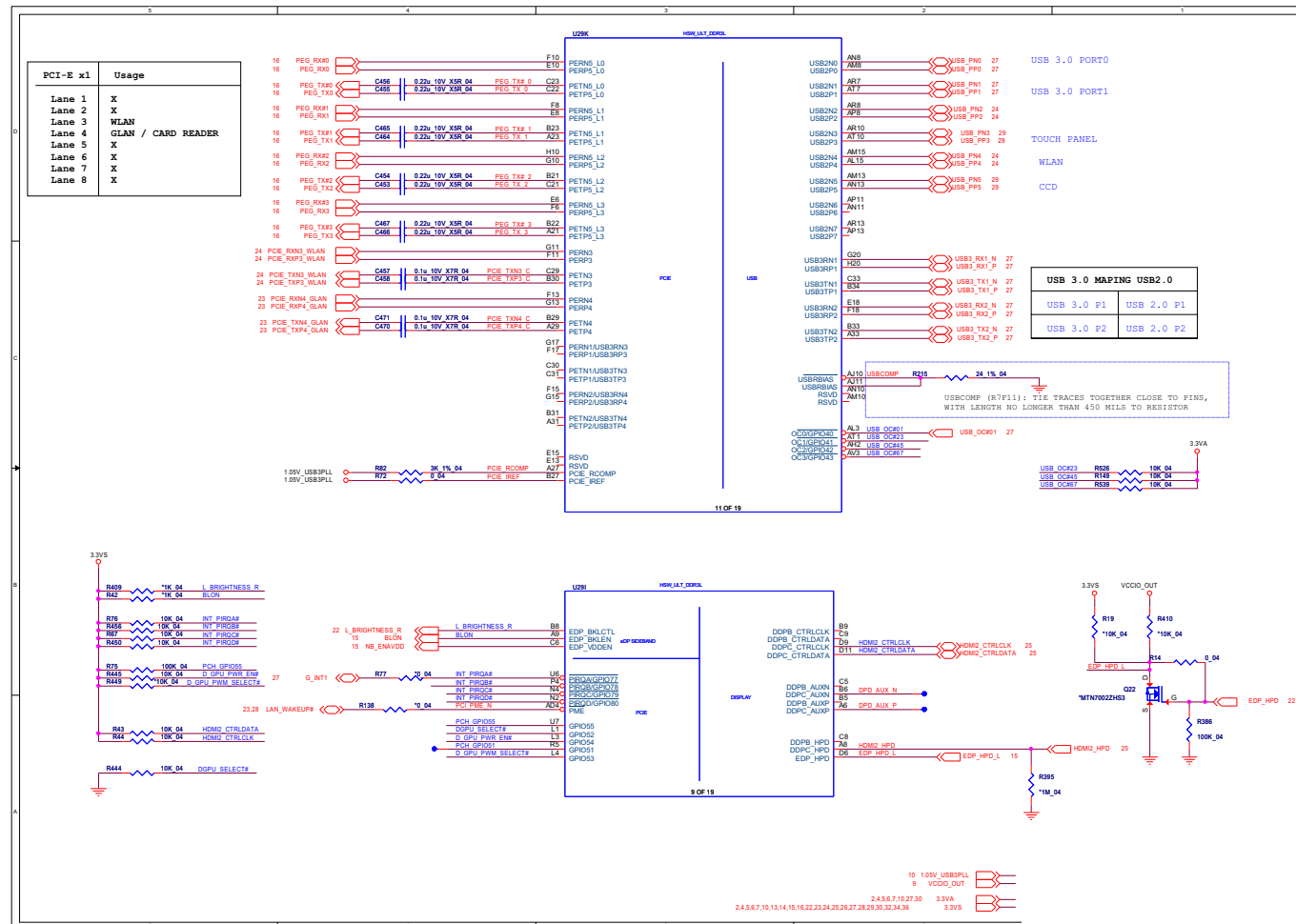
Processor 6/11

Sheet 7 of 42
Processor 6/11



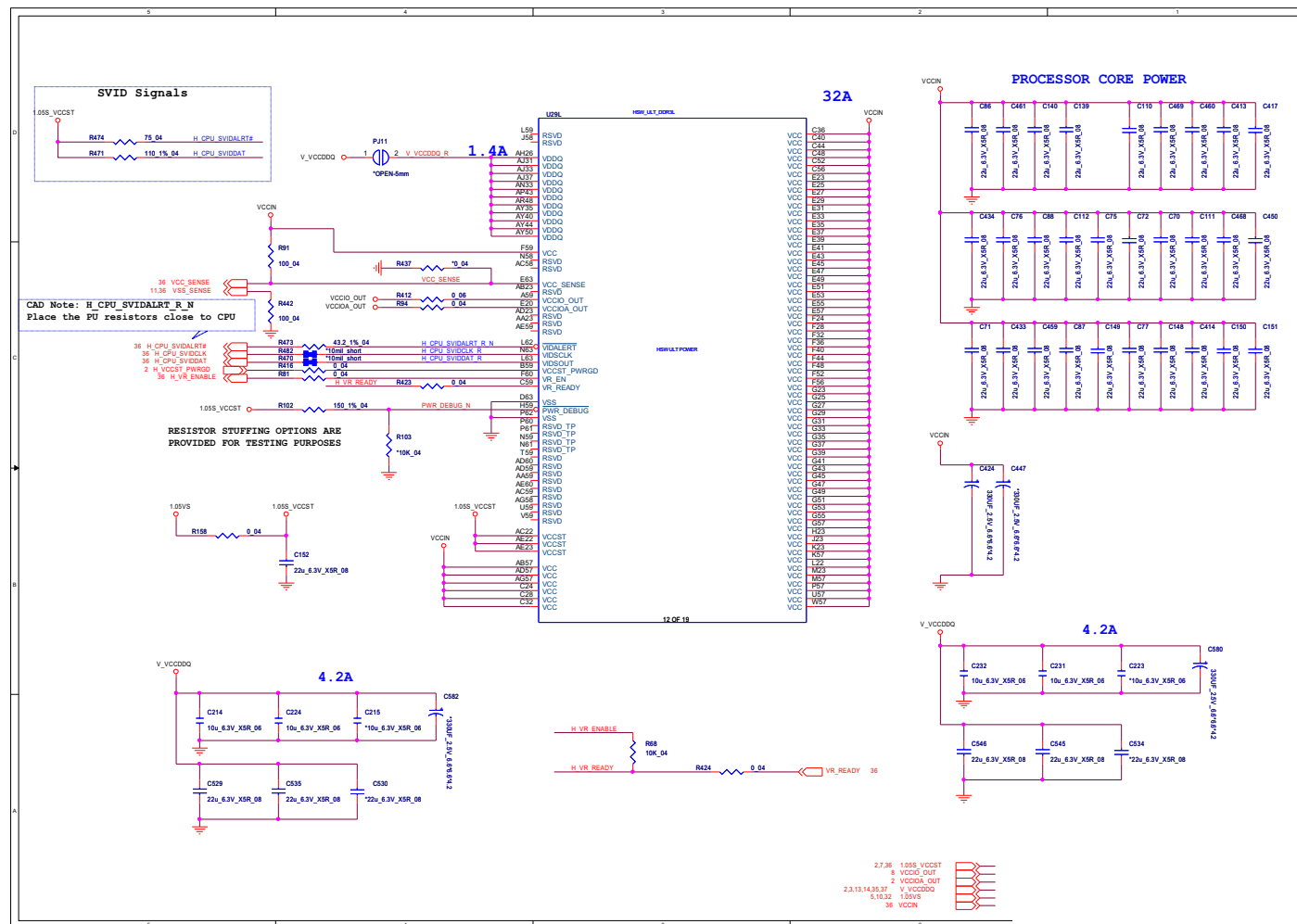
Processor 7/11 B - 9

B.Schematic Diagrams

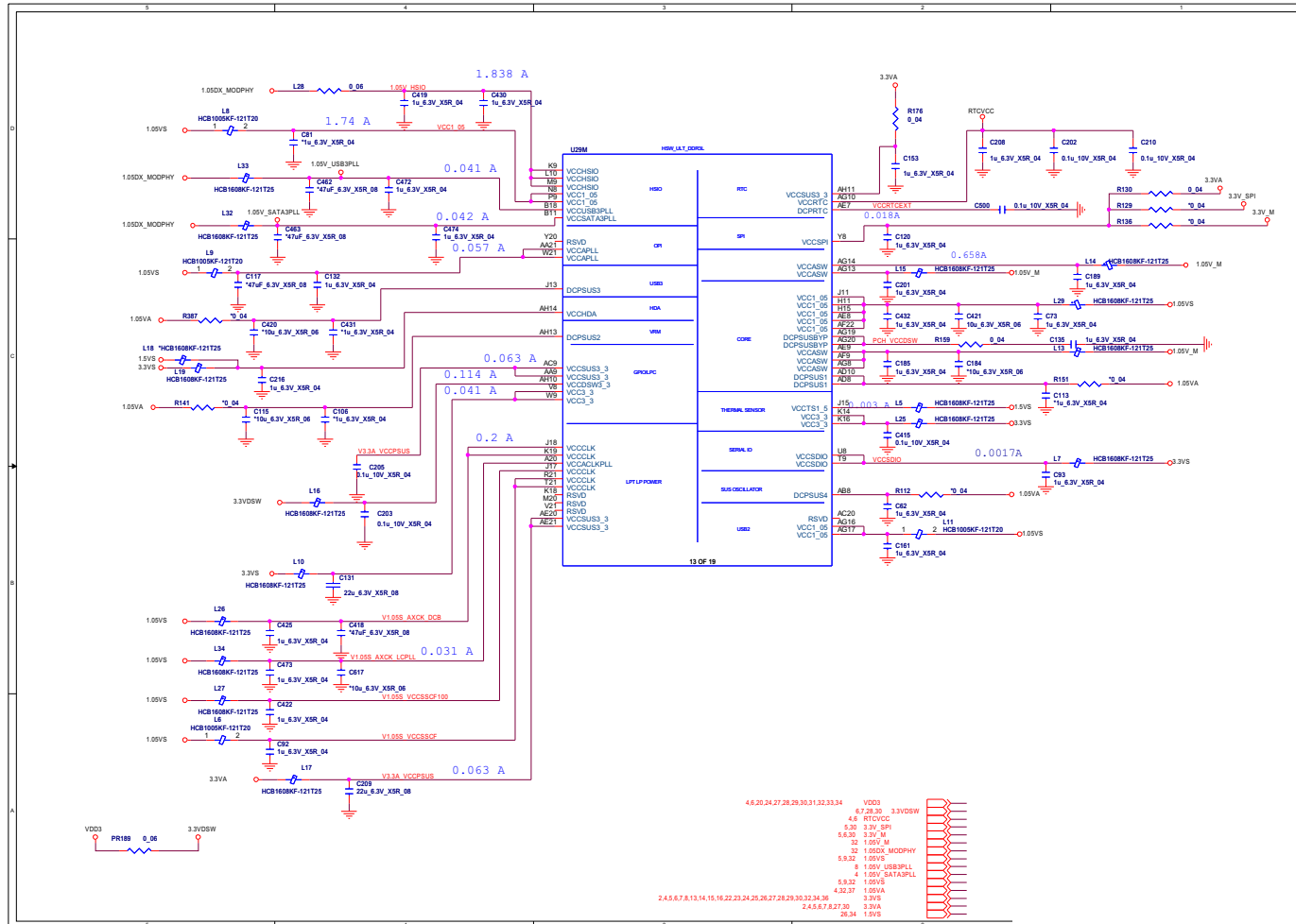


Processor 8/11

Sheet 9 of 42
Processor 8/11



Processor 9/11



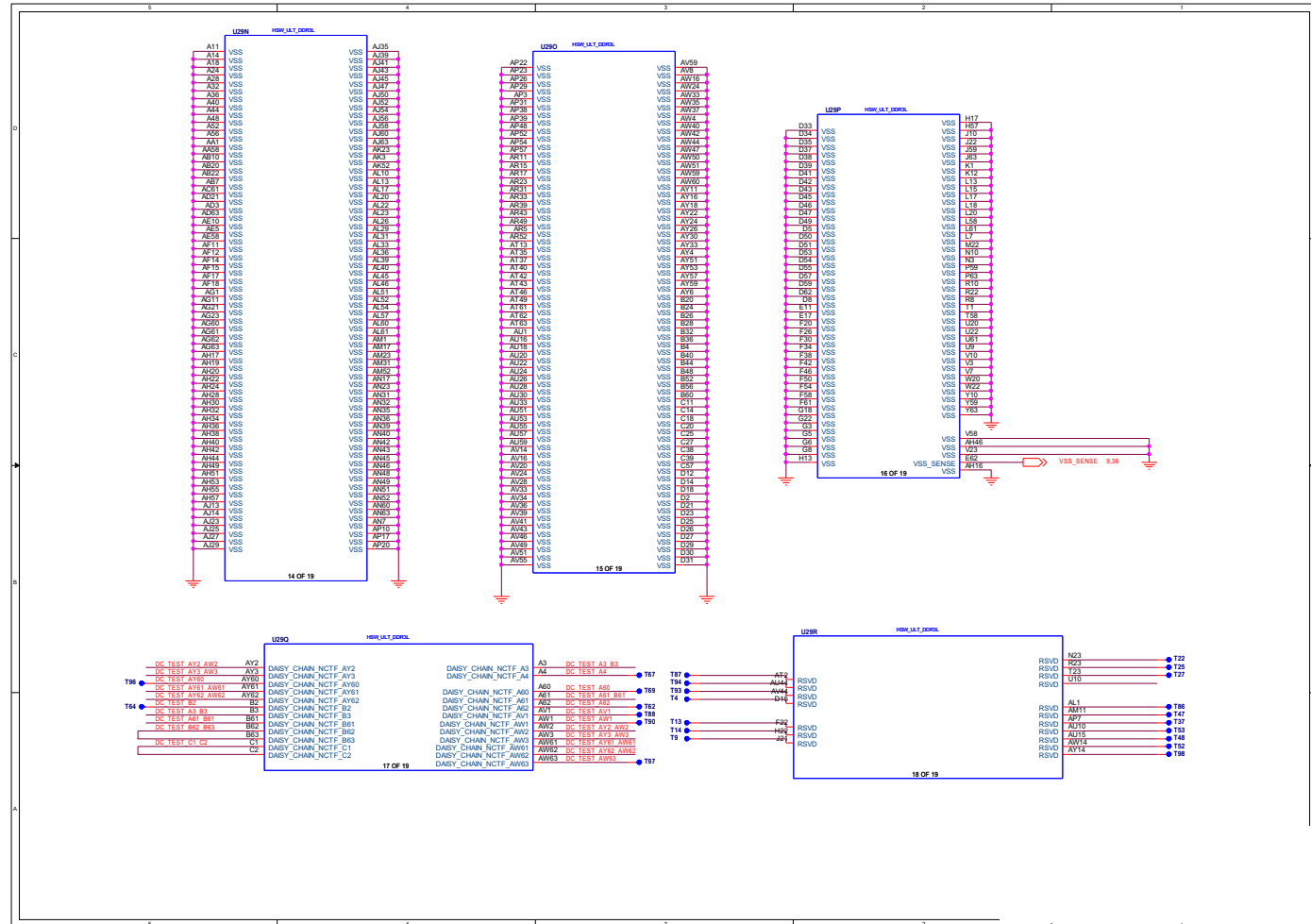
Sheet 10 of 42
Processor 9/11

B.Schematic Diagrams

Schematic Diagrams

Processor 10/11

Sheet 11 of 42
Processor 10/11



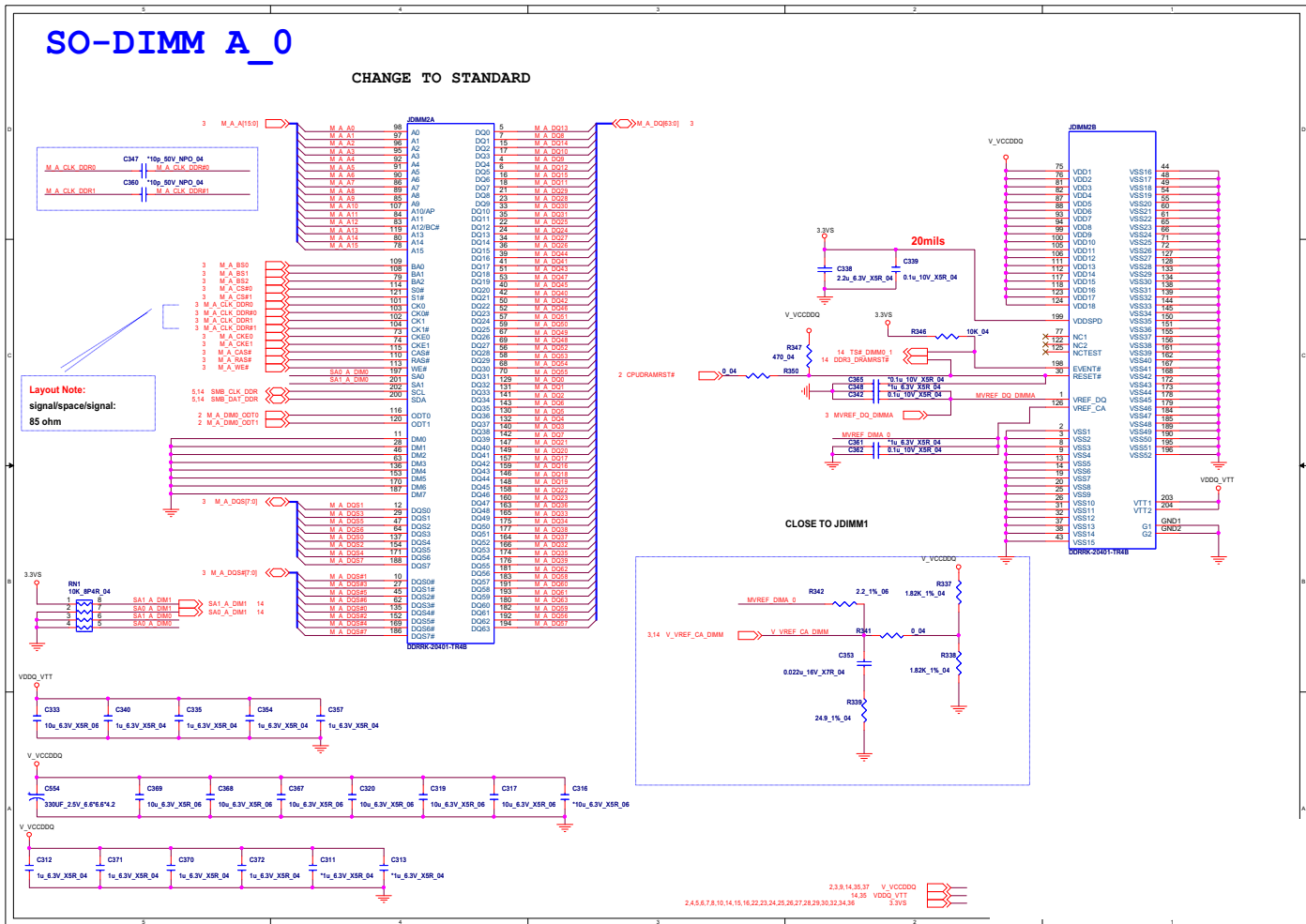
Processor 11/11 B - 13



DDR3 SO-DIMM_0

3. Schematic Diagrams

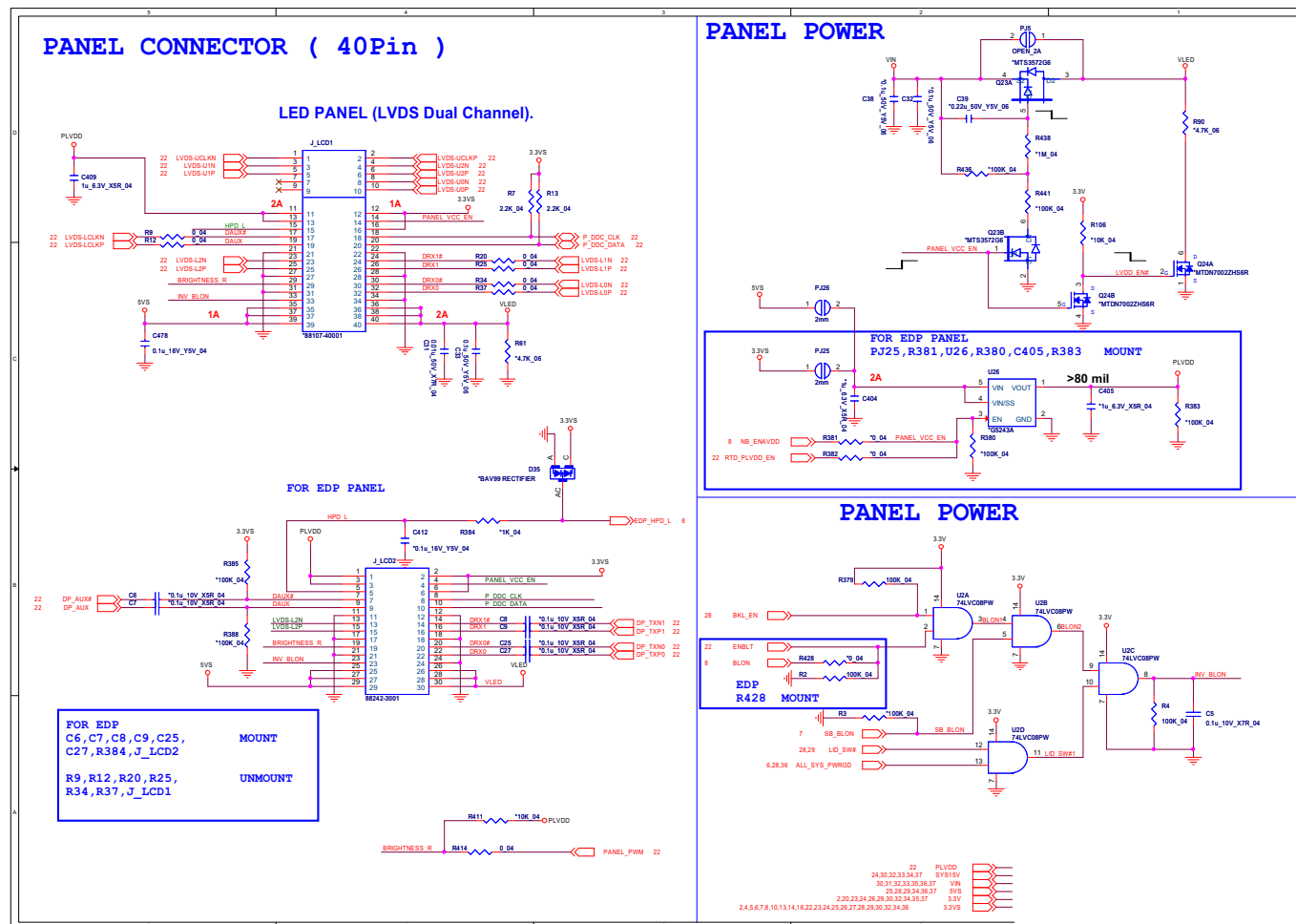
Sheet 13 of 42
DDR3 SO-DIMM_0



DDR3 SO-DIMM_1 B - 15



Sheet 15 of 42
PANEL, INVERTER



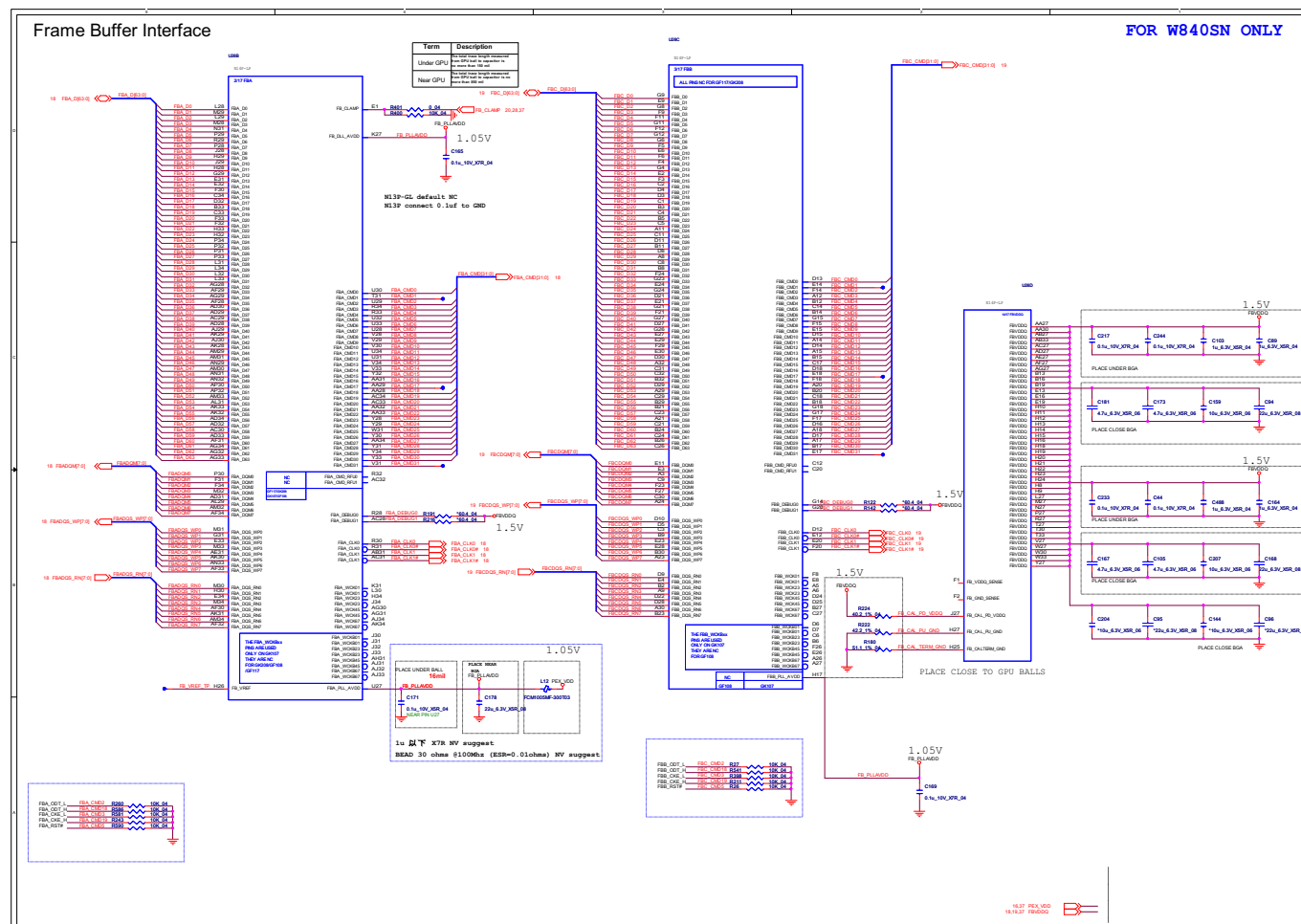
Sheet 16 of 42
VGA PCI-E
Interface



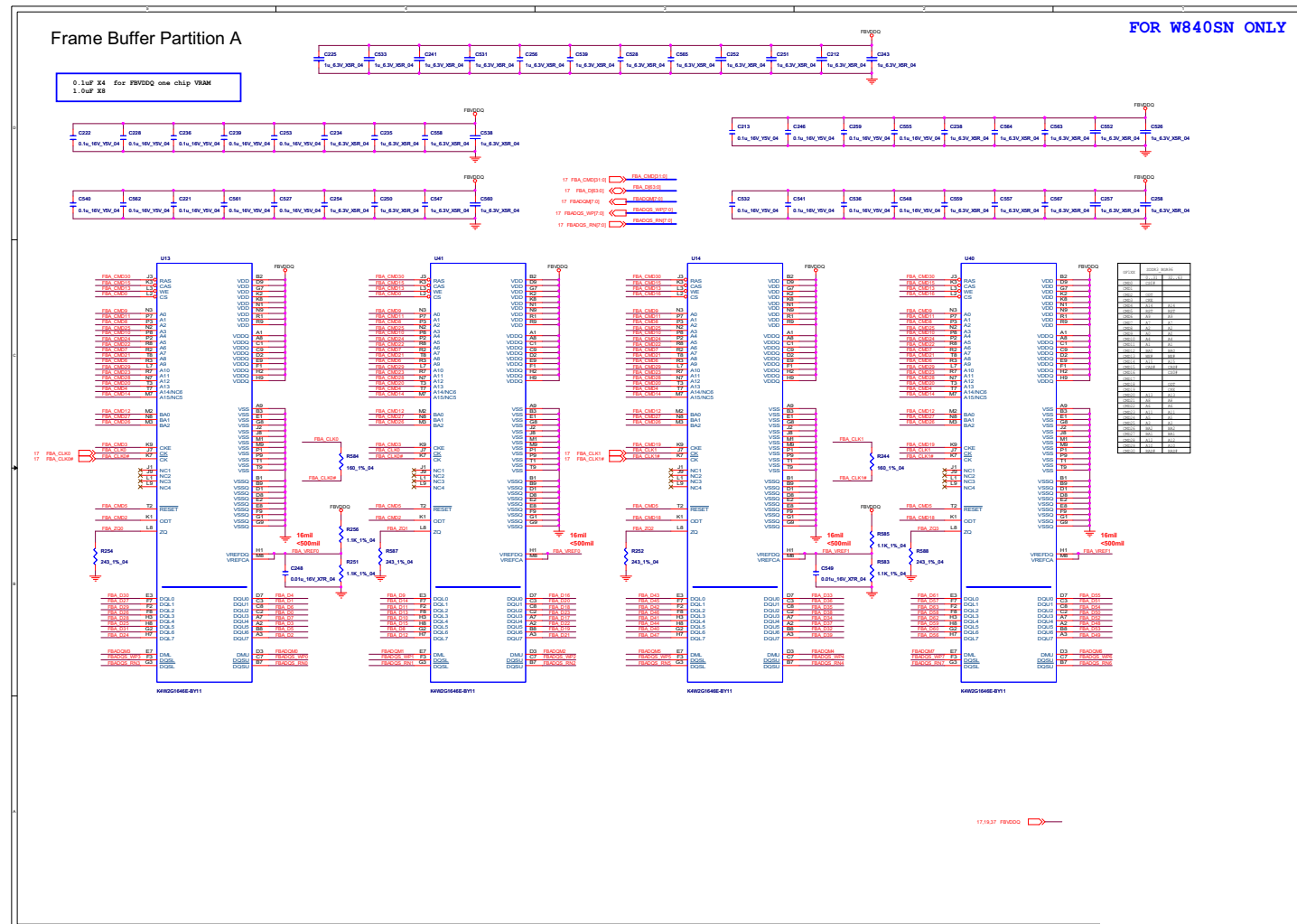
VGA Frame Buffer Interface

B. Schematic Diagrams

Sheet 17 of 42
VGA Frame Buffer
Interface



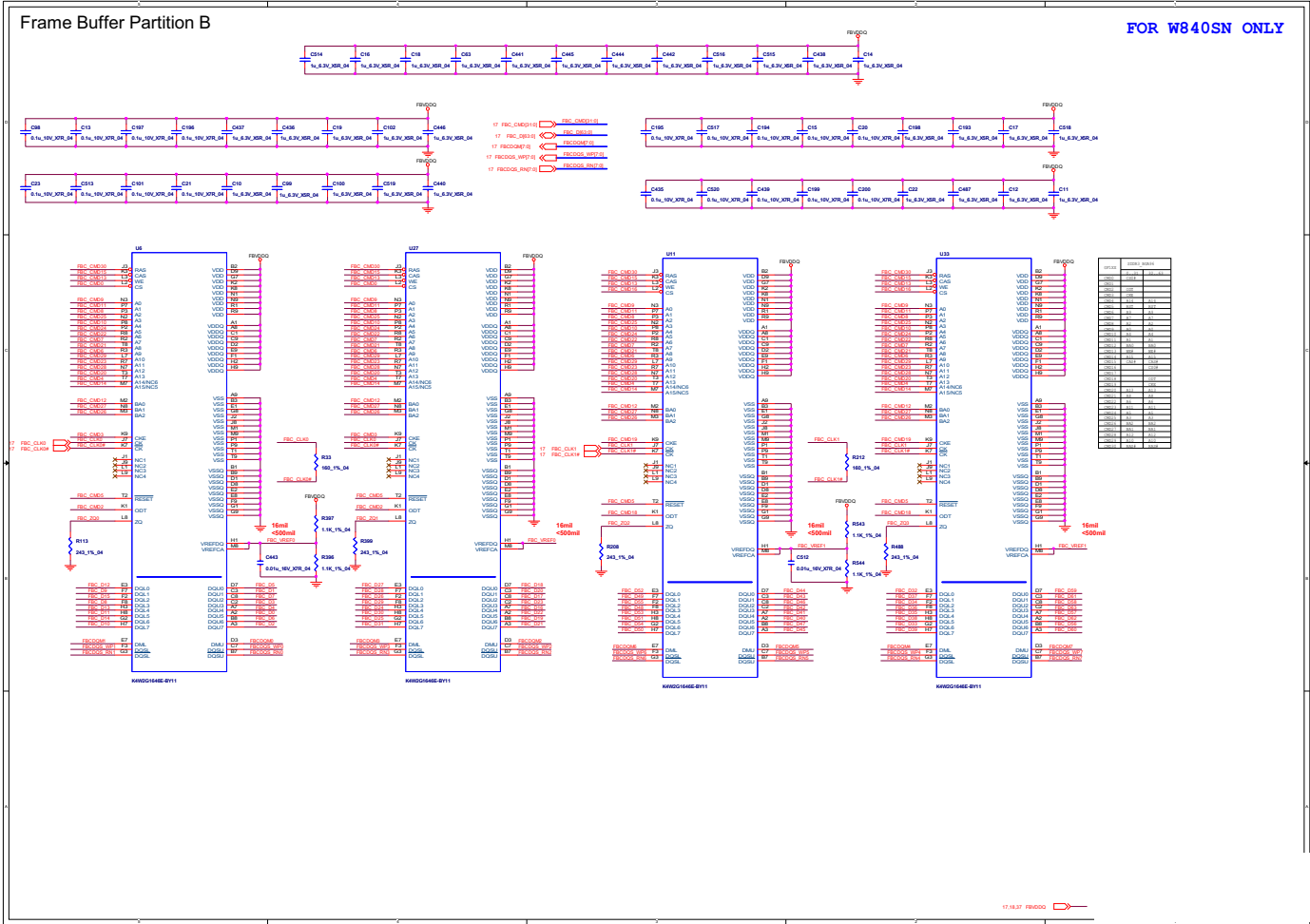
VGA Frame Buffer A



VGA Frame Buffer B

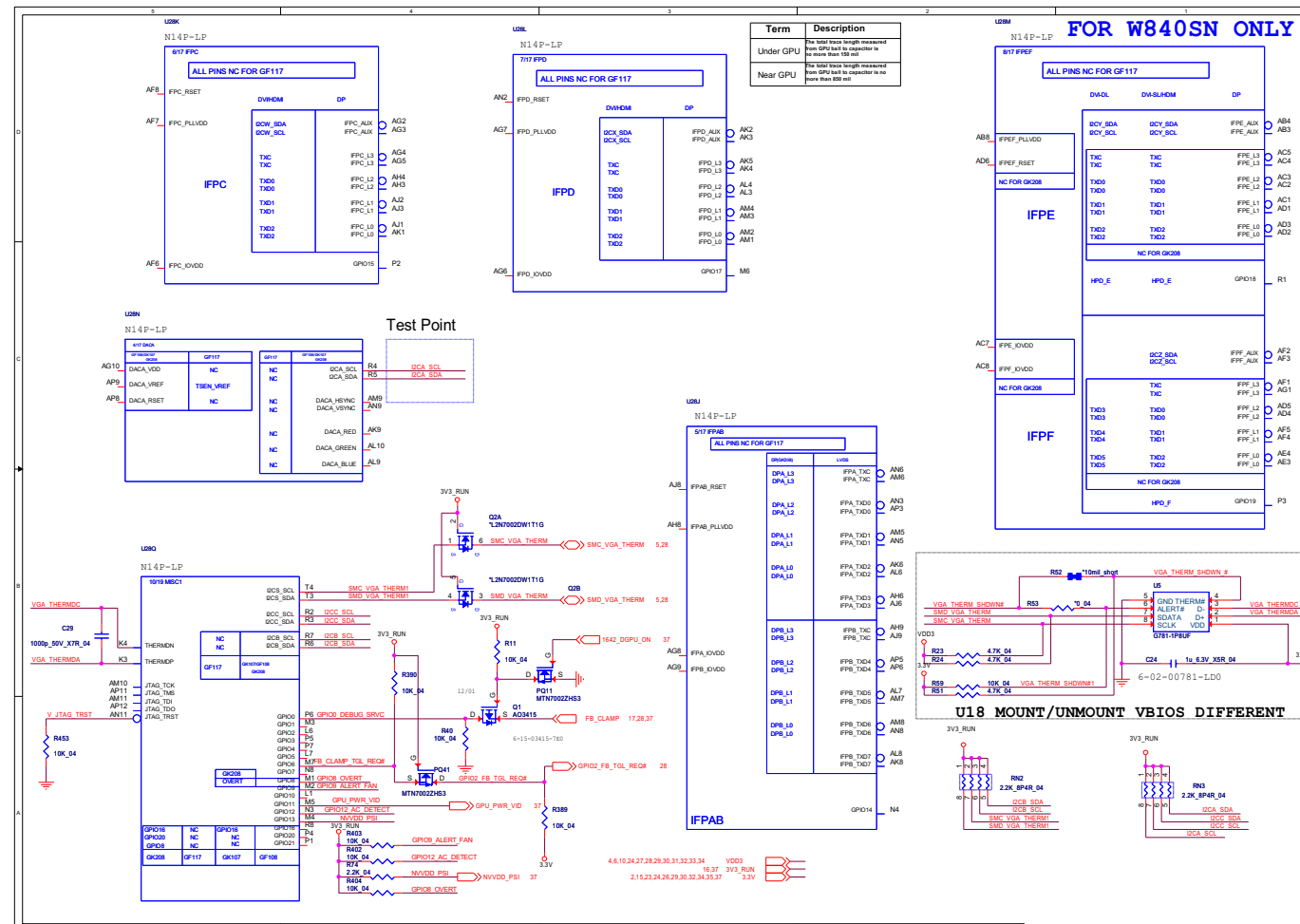
B. Schematic Diagrams

Sheet 19 of 42
VGA Frame Buffer
B



Schematic Diagrams

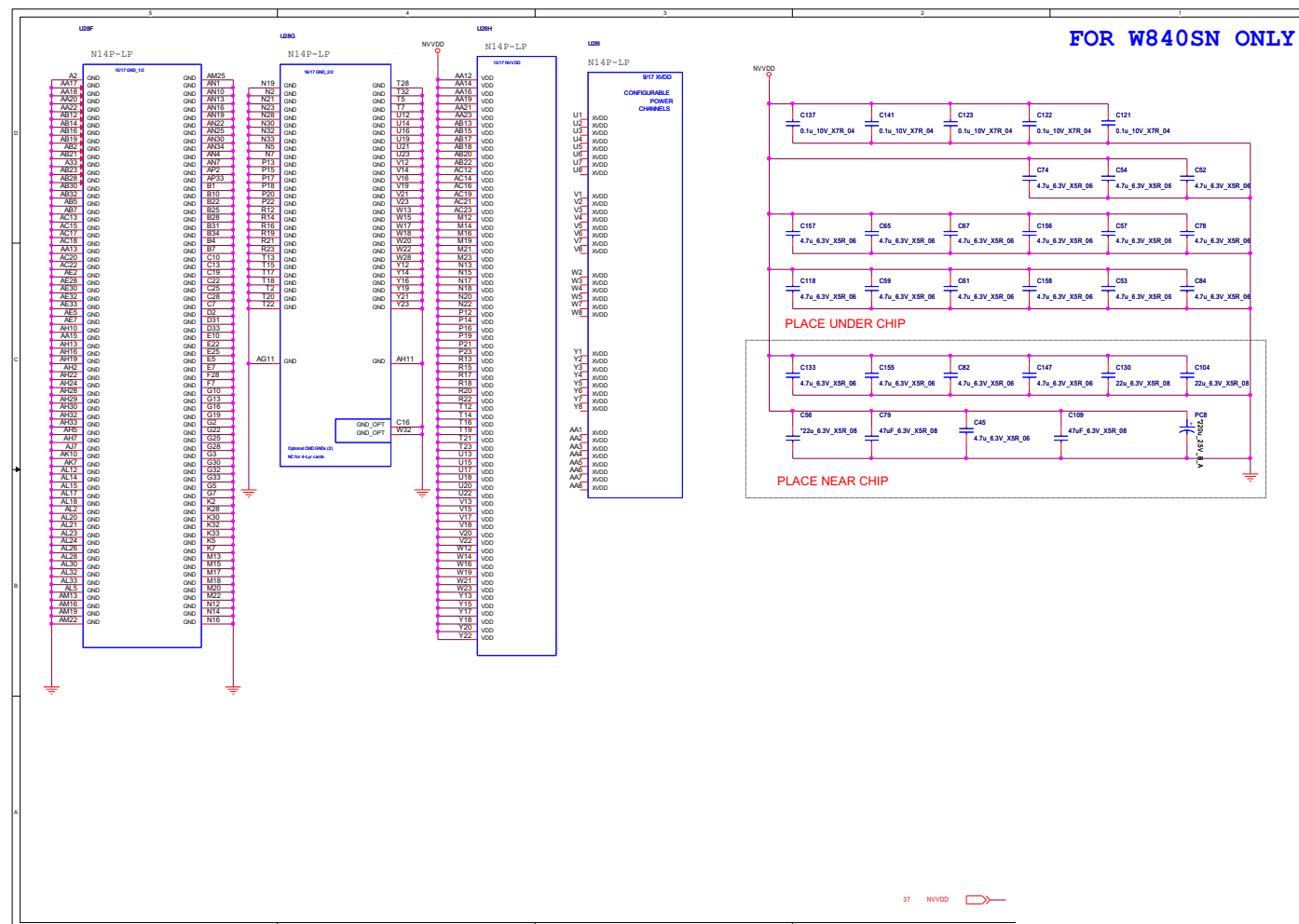
VGA I/O



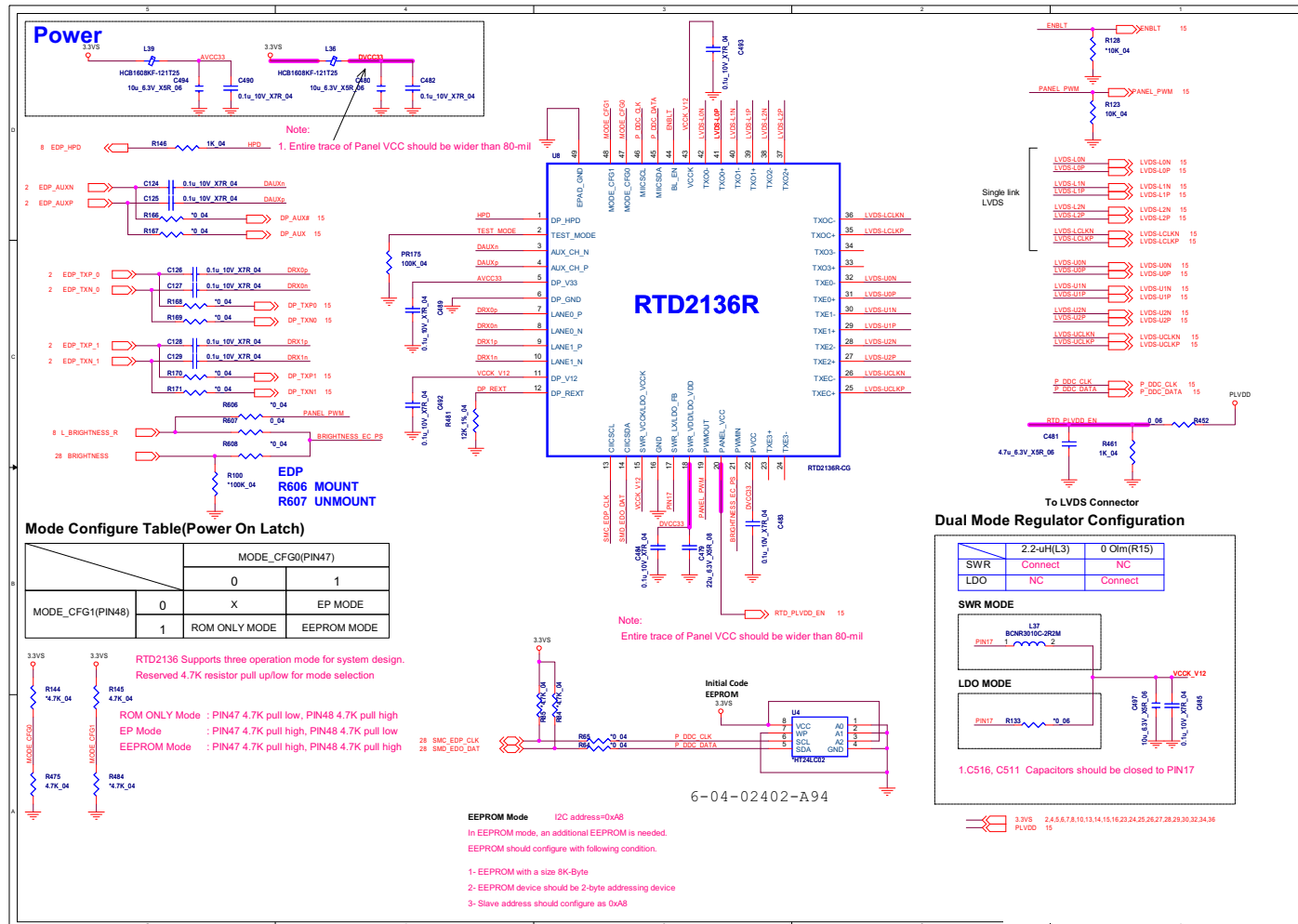
Sheet 20 of 42
VGA I/O

B.Schematic Diagrams

Sheet 21 of 42
VGA NVVDD
Decoupling



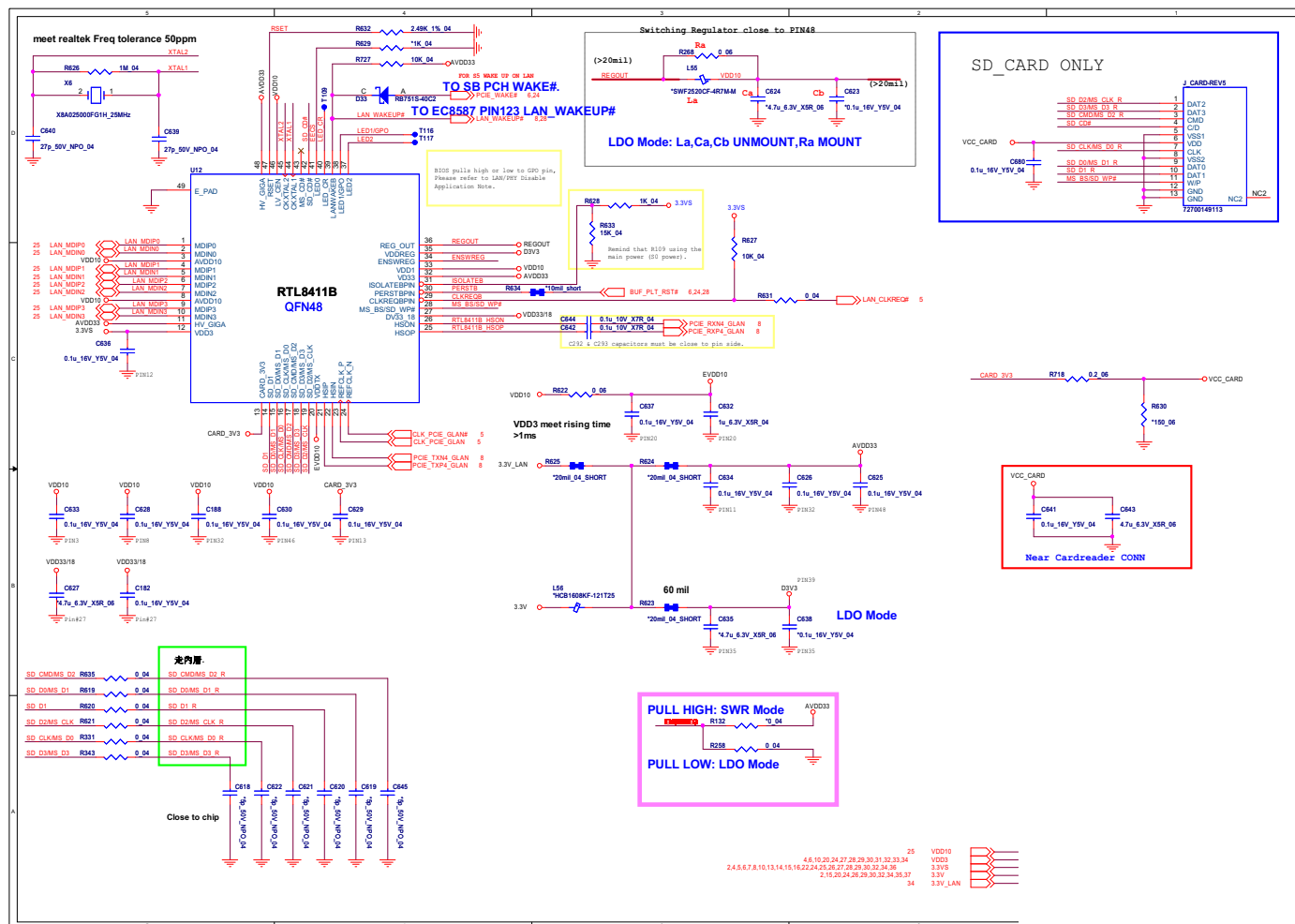
PS8625

Sheet 22 of 42
PS8625

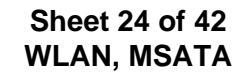
Card Reader / LAN RTL8411B

B. Schematic Diagrams

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Card Reader /
LAN RTL8411B



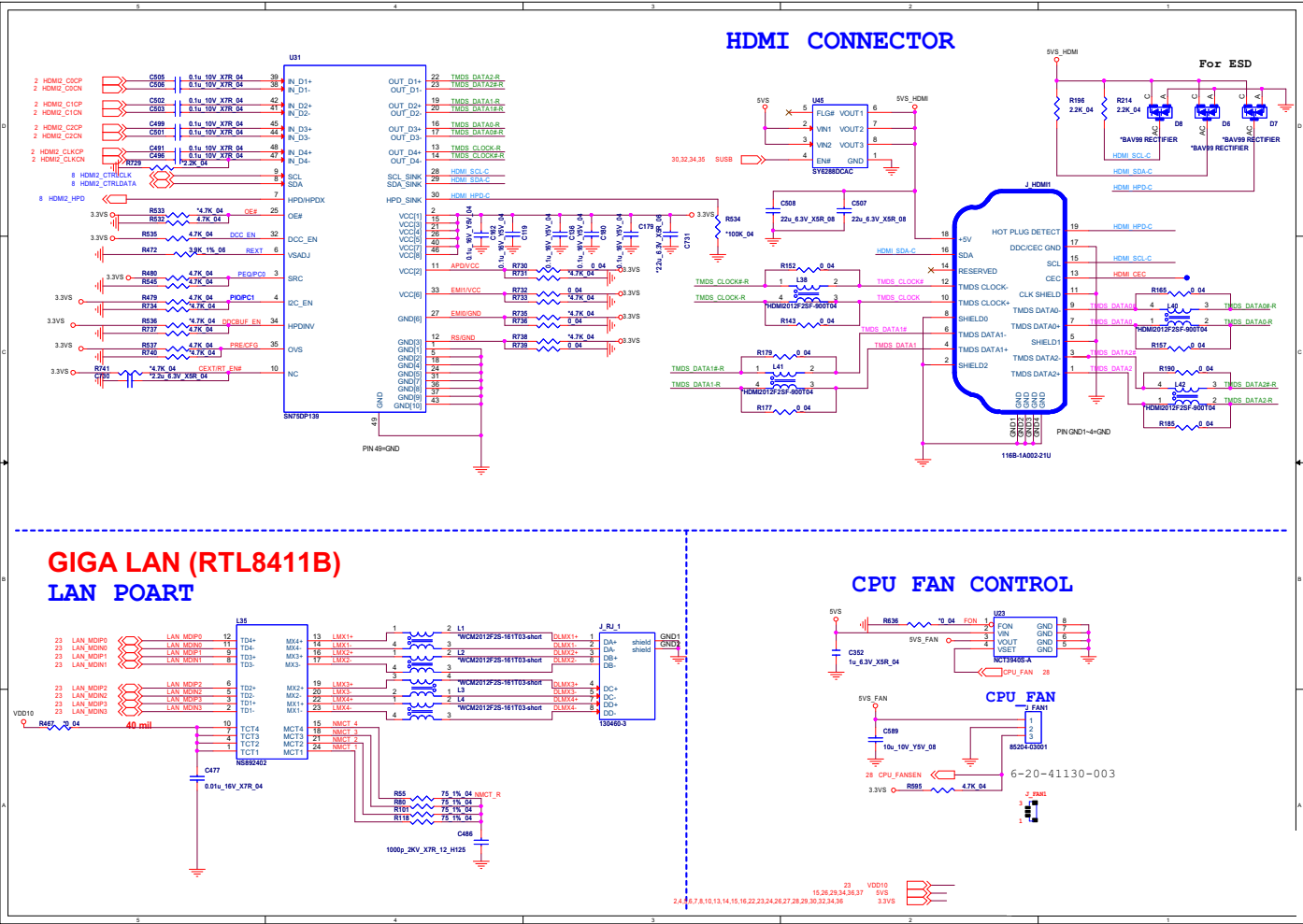
WLAN, MSATA B - 25



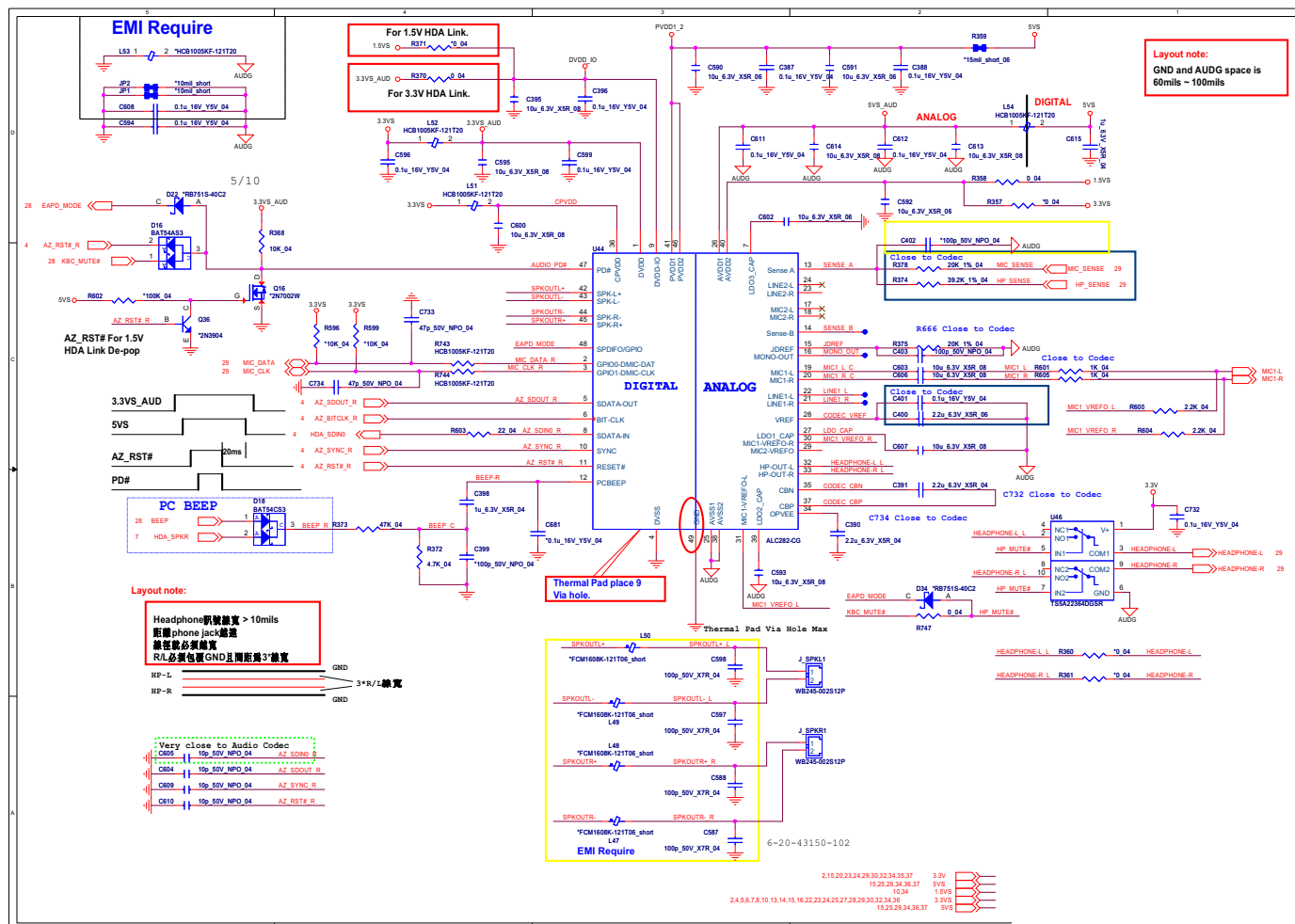
Schematic Diagrams

HDMI, RJ45, Fan

Sheet 25 of 42
HDMI, RJ45, Fan



Audio Codec ALC282

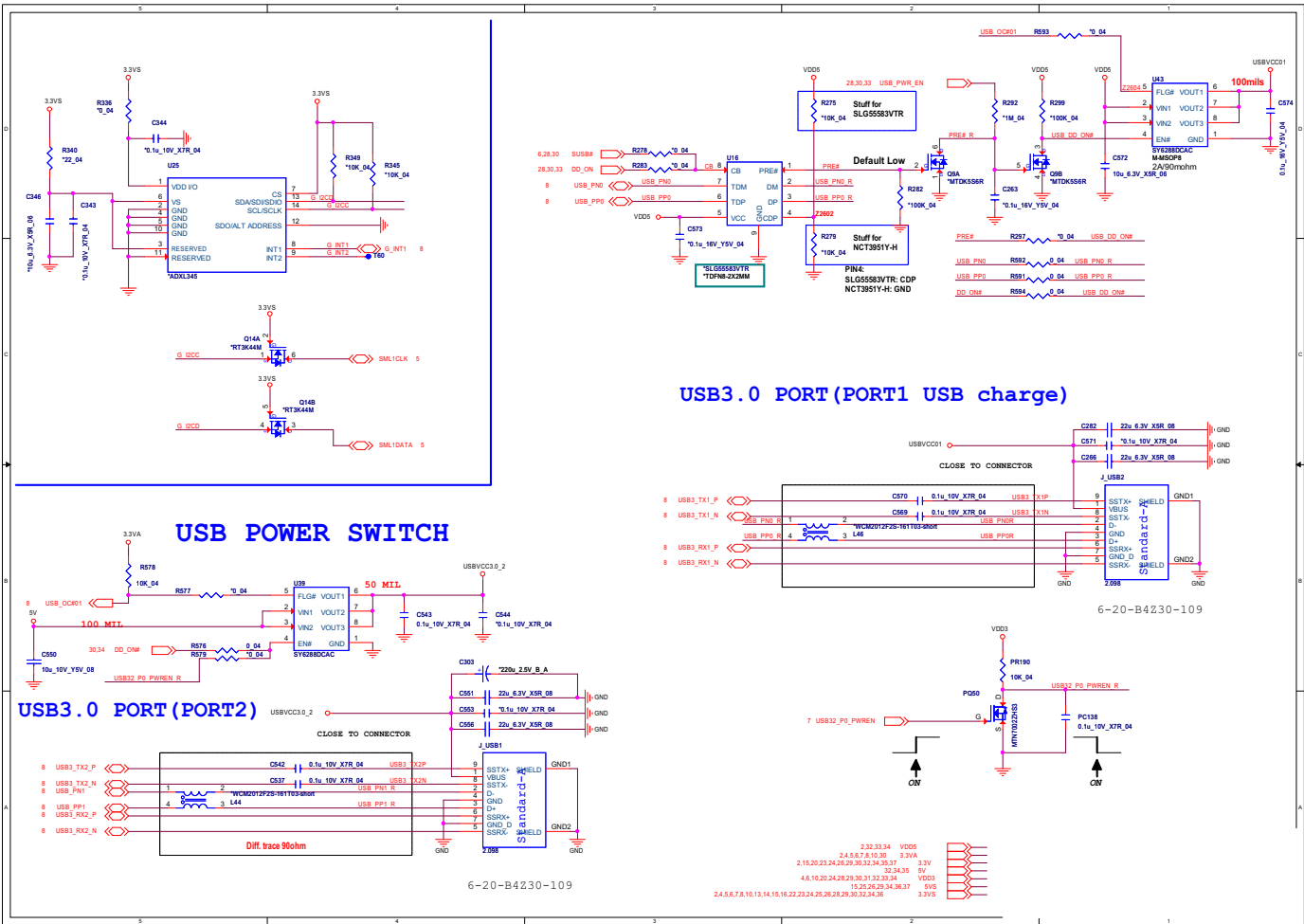


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Audio Codec
ALC282

USB Charger, USB, LED

B. Schematic Diagrams

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USB Charger, USB,
LED



The diagram illustrates the internal circuitry of the IT8587 module, which is a power management IC. It shows the connection of various components to the IC's pins, including resistors, capacitors, and other ICs. The diagram is divided into several sections, each representing a different functional block of the module.

Power Management Section: This section shows the power input/output and the internal power management circuitry. It includes components like the 3.3V_KBC, 3.3VSW, and 3.3V_KBC. The power input is connected to the 3.3V_KBC pin, and the power output is connected to the 3.3VSW pin. The internal power management circuitry includes the 3.3V_KBC, 3.3VSW, and 3.3V_KBC.

Signal Processing Section: This section shows the signal processing circuitry, including the 3.3V_KBC, 3.3VSW, and 3.3V_KBC. It includes components like the 3.3V_KBC, 3.3VSW, and 3.3V_KBC.

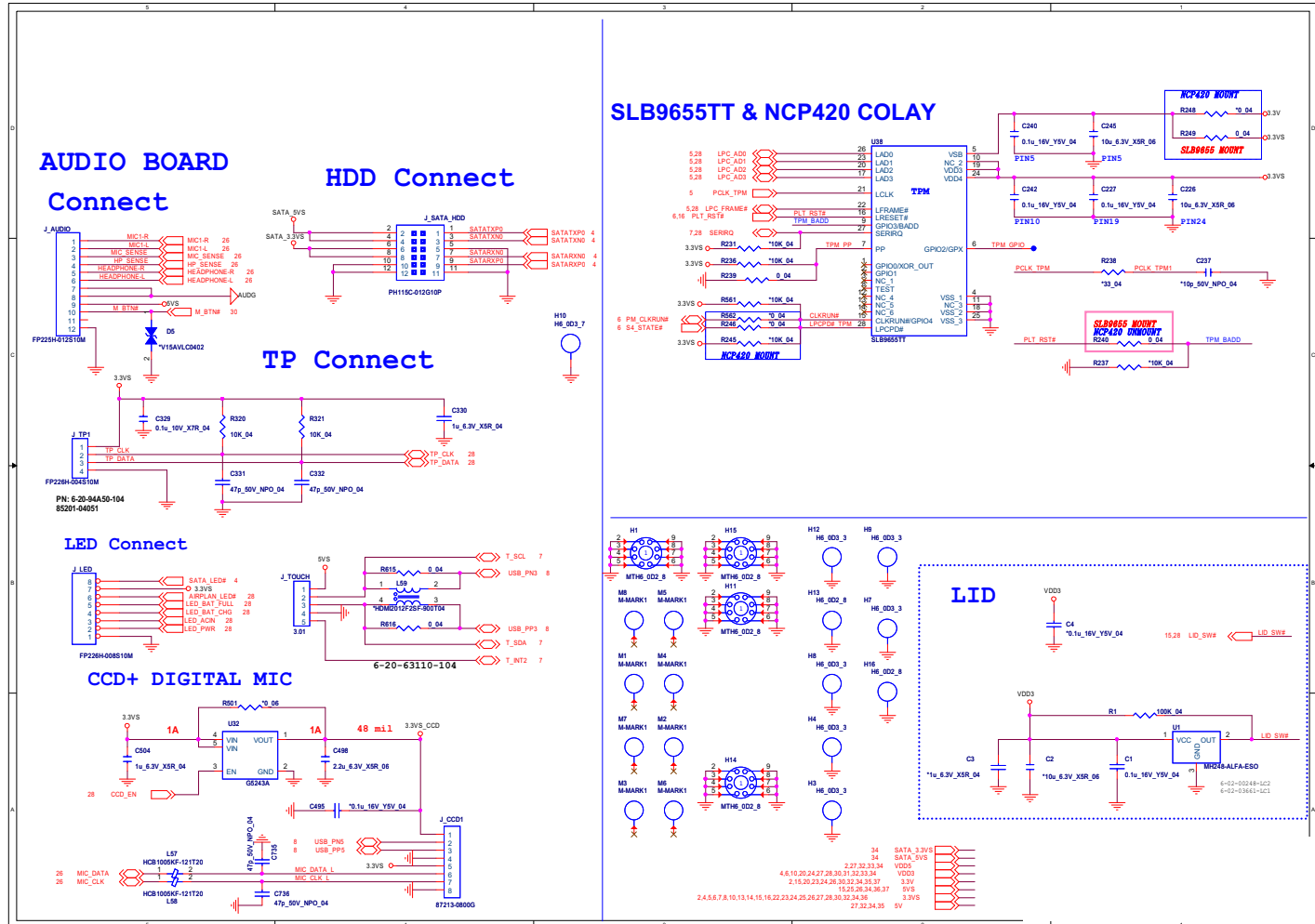
Status Indicators Section: This section shows the status indicators, including the 3.3V_KBC, 3.3VSW, and 3.3V_KBC. It includes components like the 3.3V_KBC, 3.3VSW, and 3.3V_KBC.

Table:

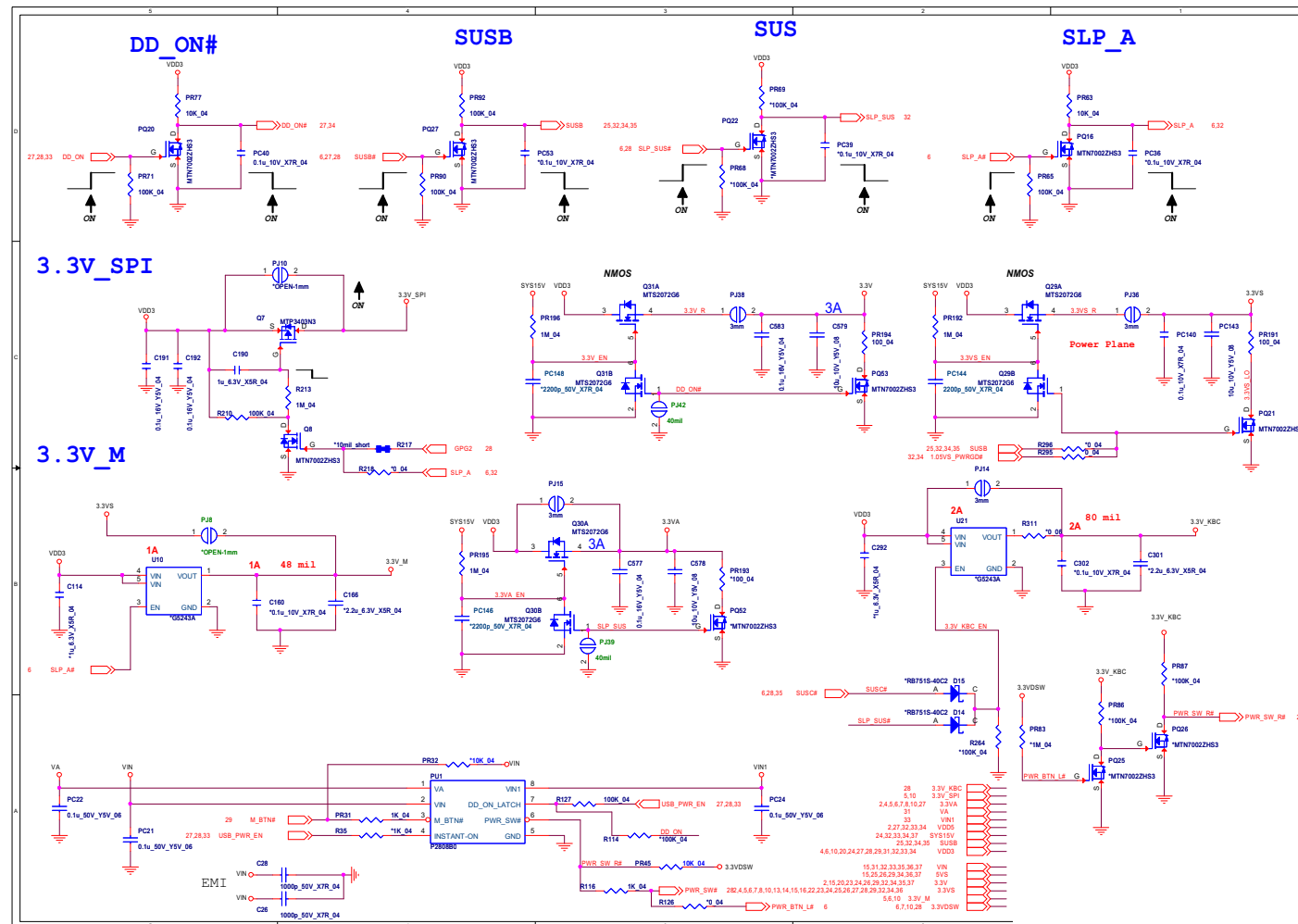
Windows 8	Airplane ON	亮
Airplane OFF	不亮	

CCD, TPM, I/O Connector, LID

Sheet 29 of 42
CCD, TPM,
I/O Connector, LID



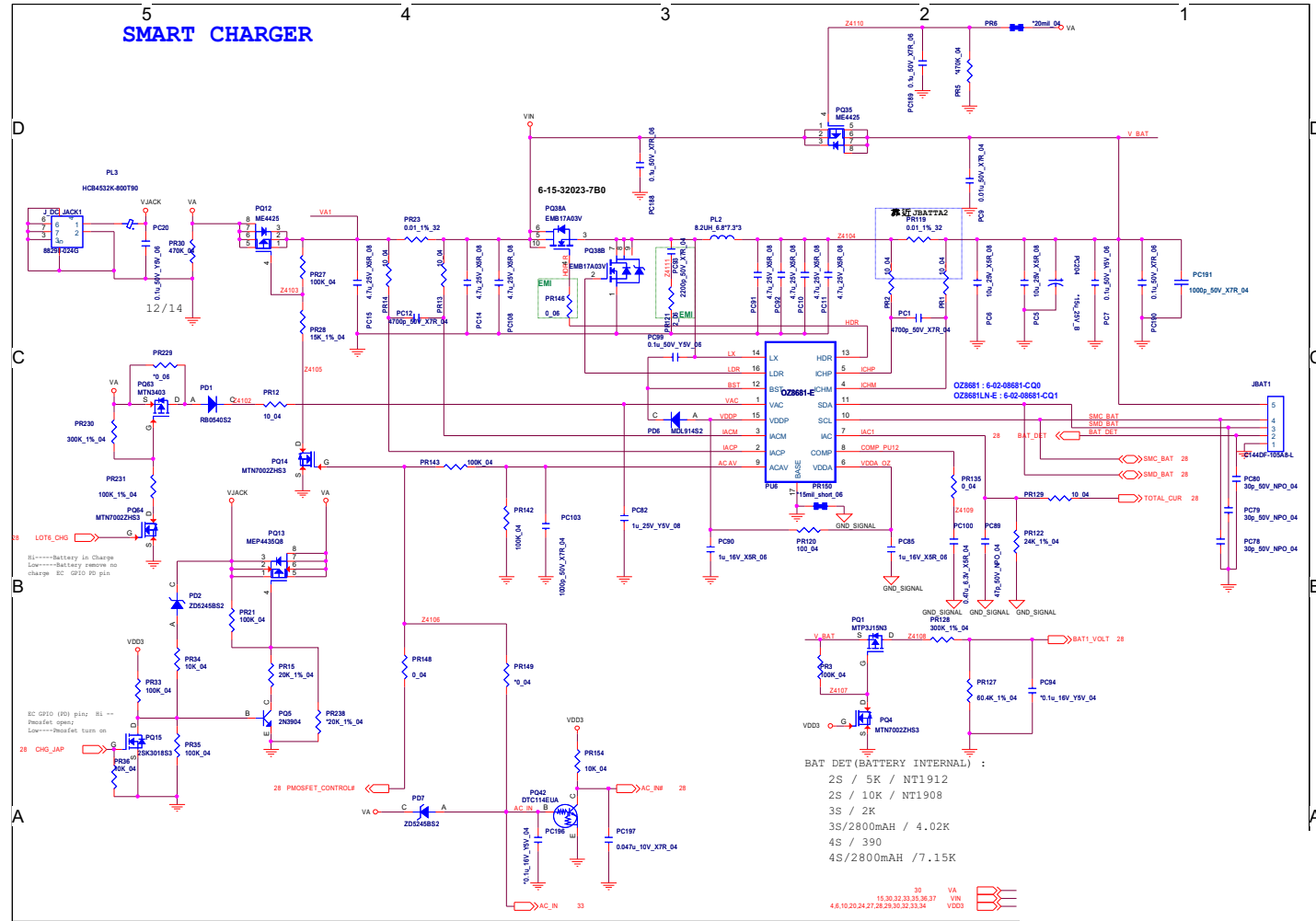
KBC-ITE IT8587E



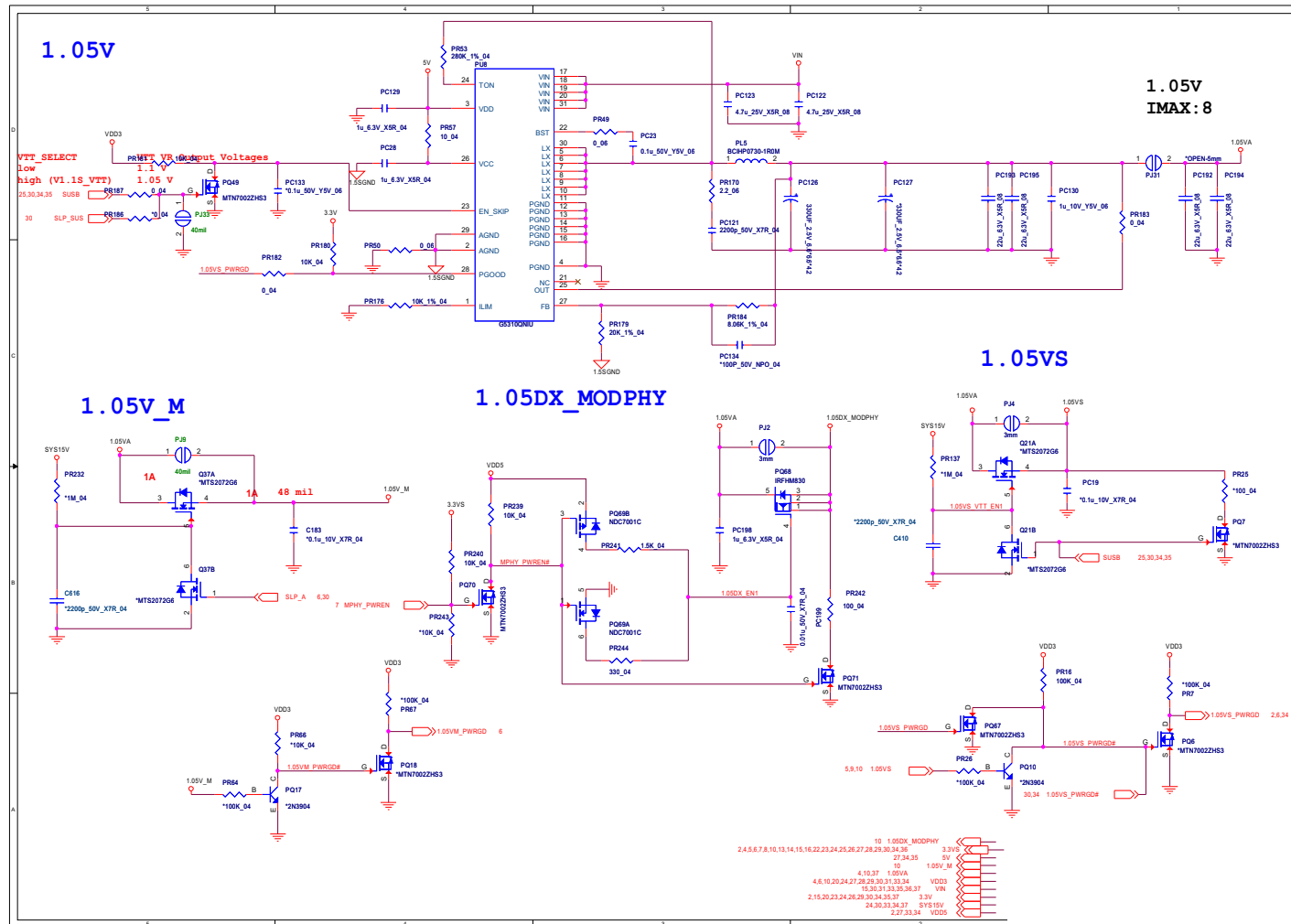
Sheet 30 of 42
3.3V_SPI, 3.3VS,
3.3V_M, 3.3V

Charger, DC In

Sheet 31 of 42
Charger, DC In

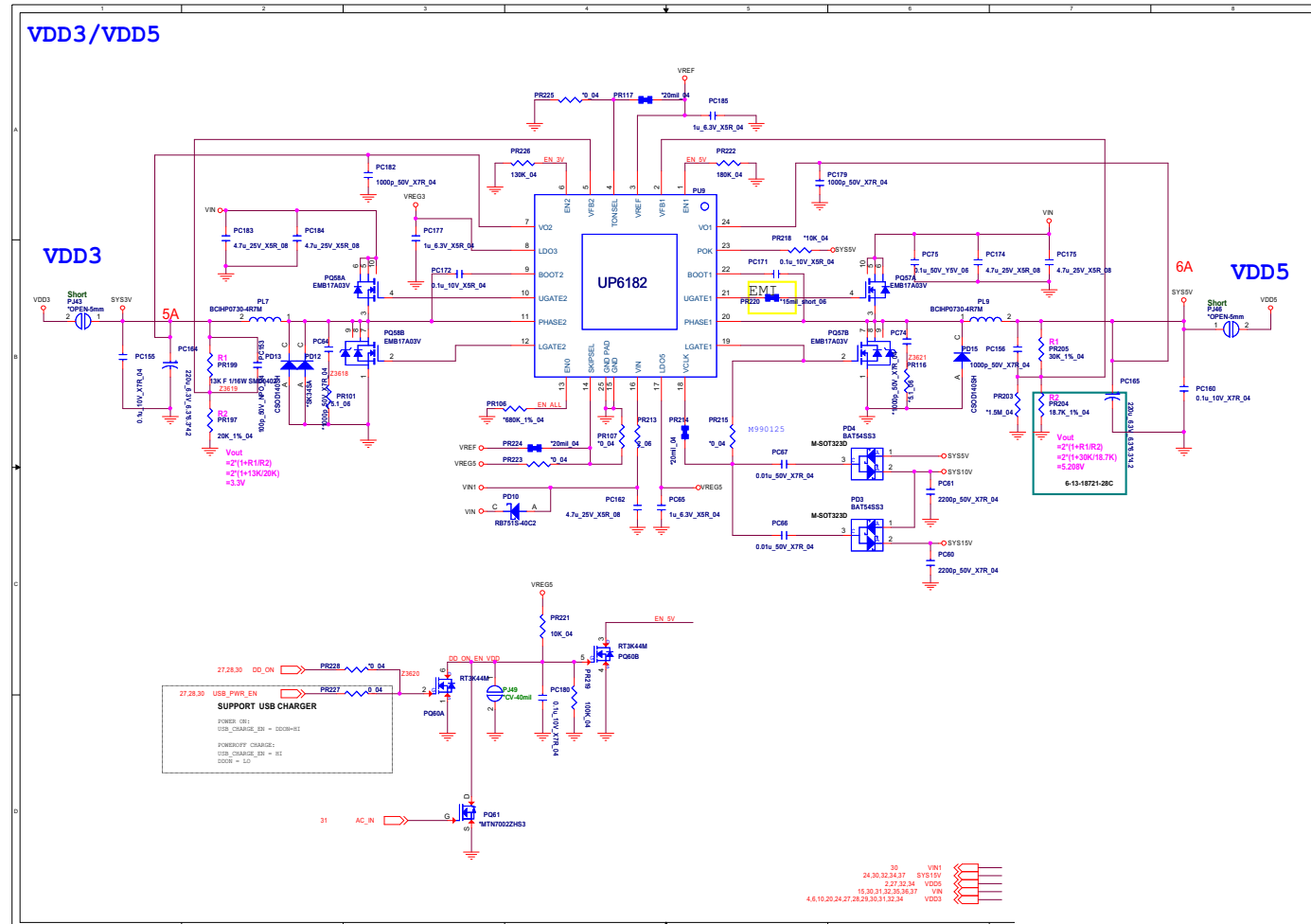


1.05V

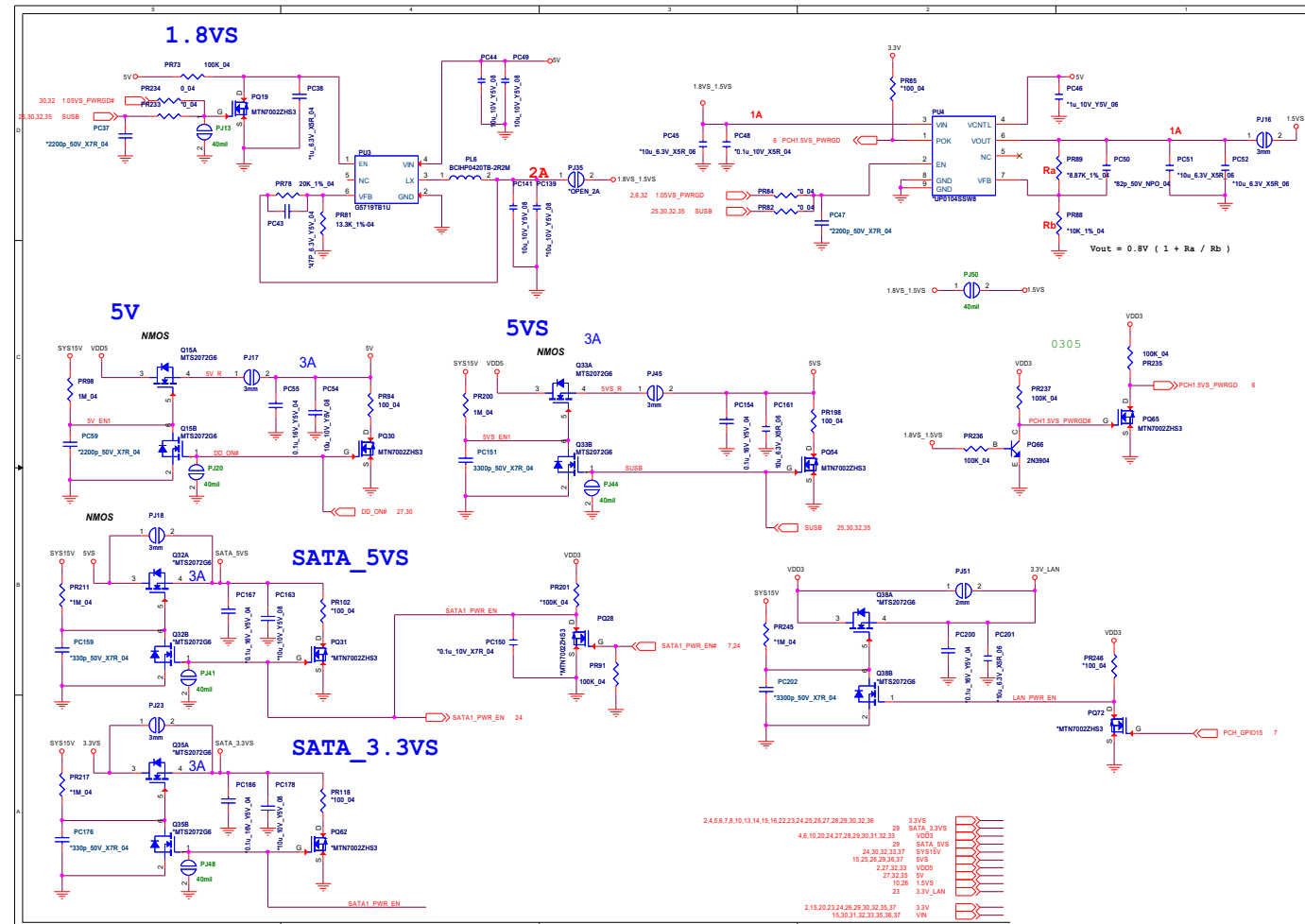


VDD3, VDD5

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VDD3, VDD5



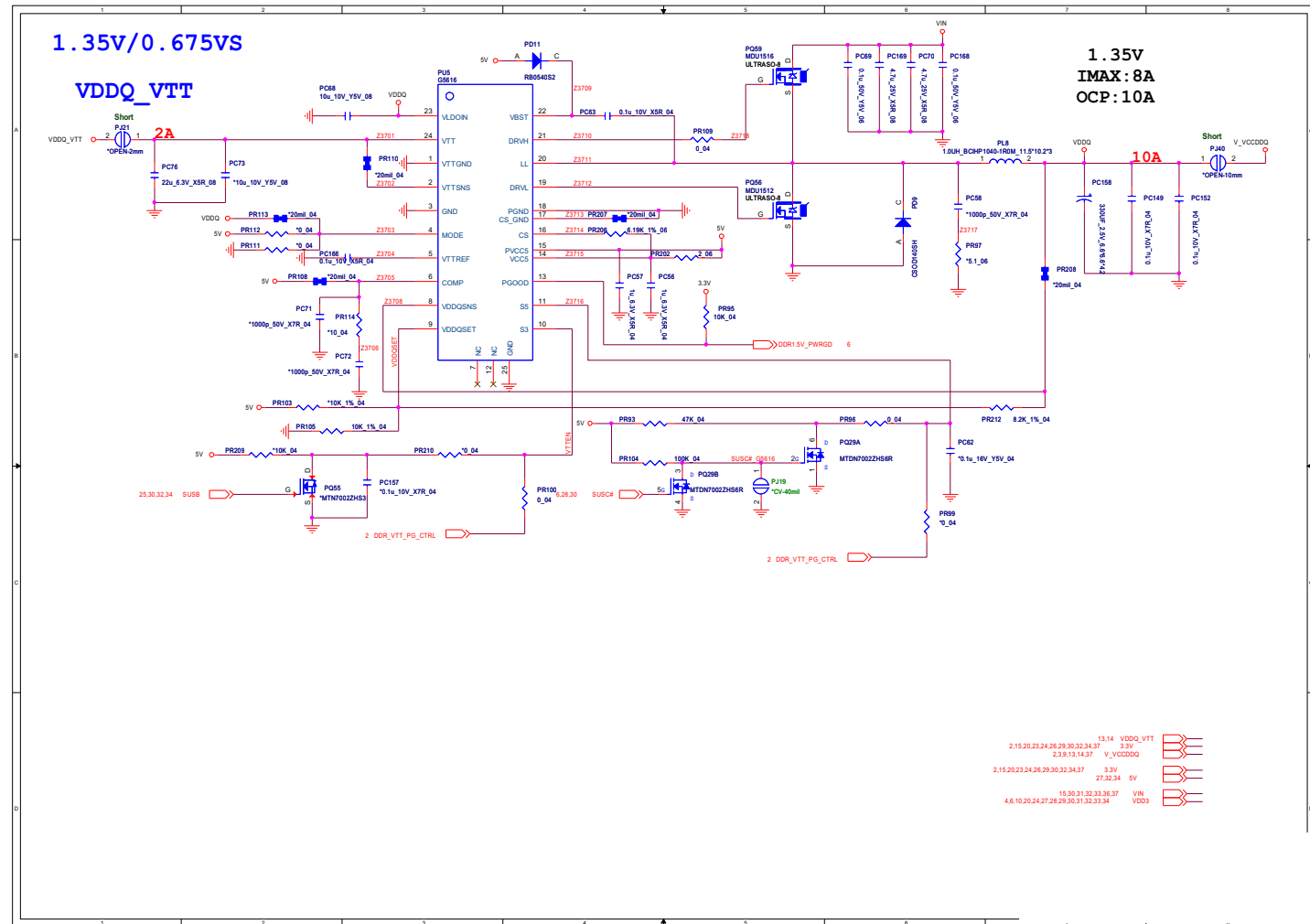
1.8VS, 1.5VS, 5V, 5VS, SATA_5VS



Sheet 34 of 42
1.8VS, 1.5VS, 5V,
5VS, SATA_5VS

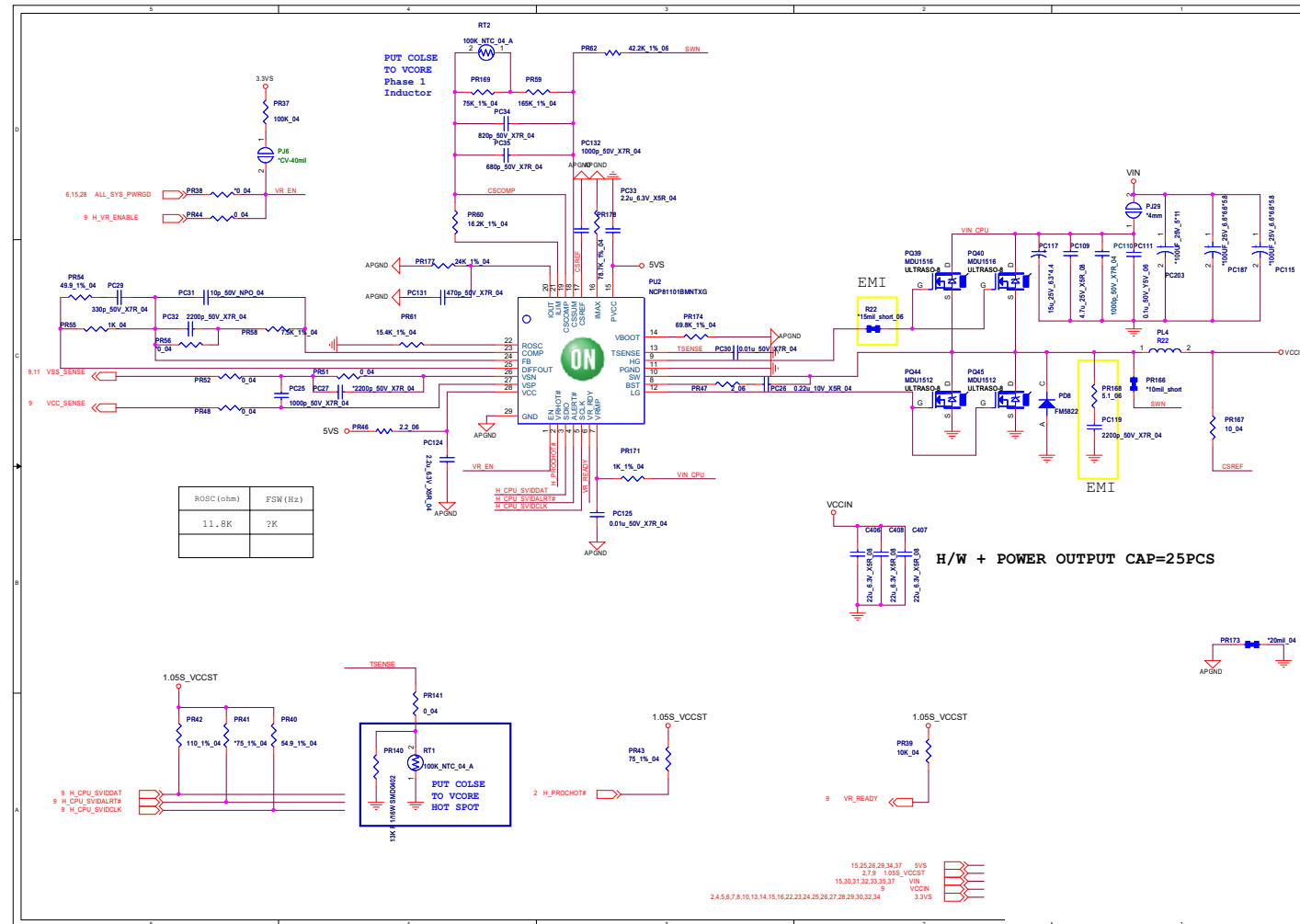
Schematic Diagrams

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



Sheet 35 of 42
DDR 1.5V or 1.35V /
0.75VS PCH 1.5VS

VCORE

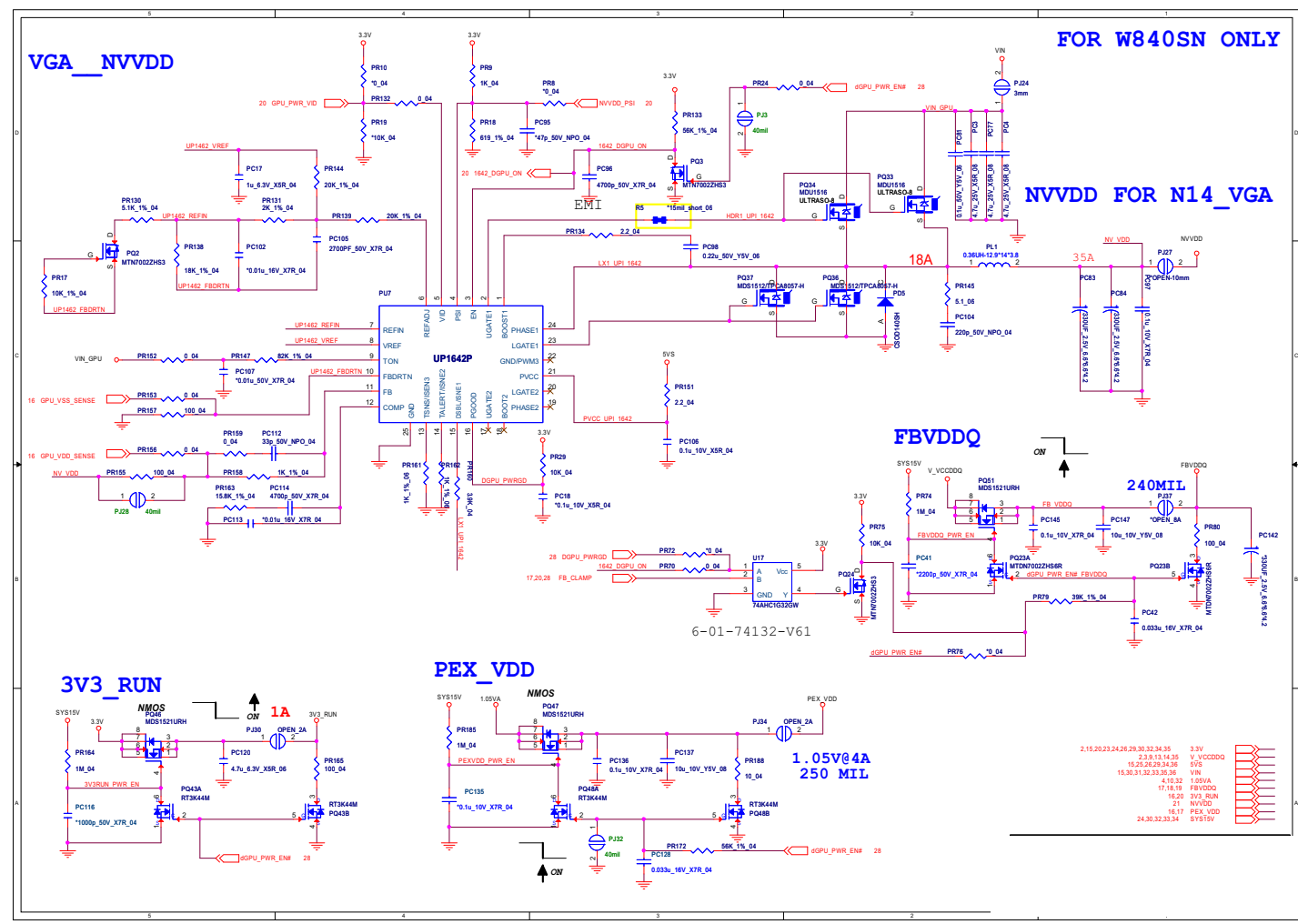


Sheet 36 of 42
VCORE

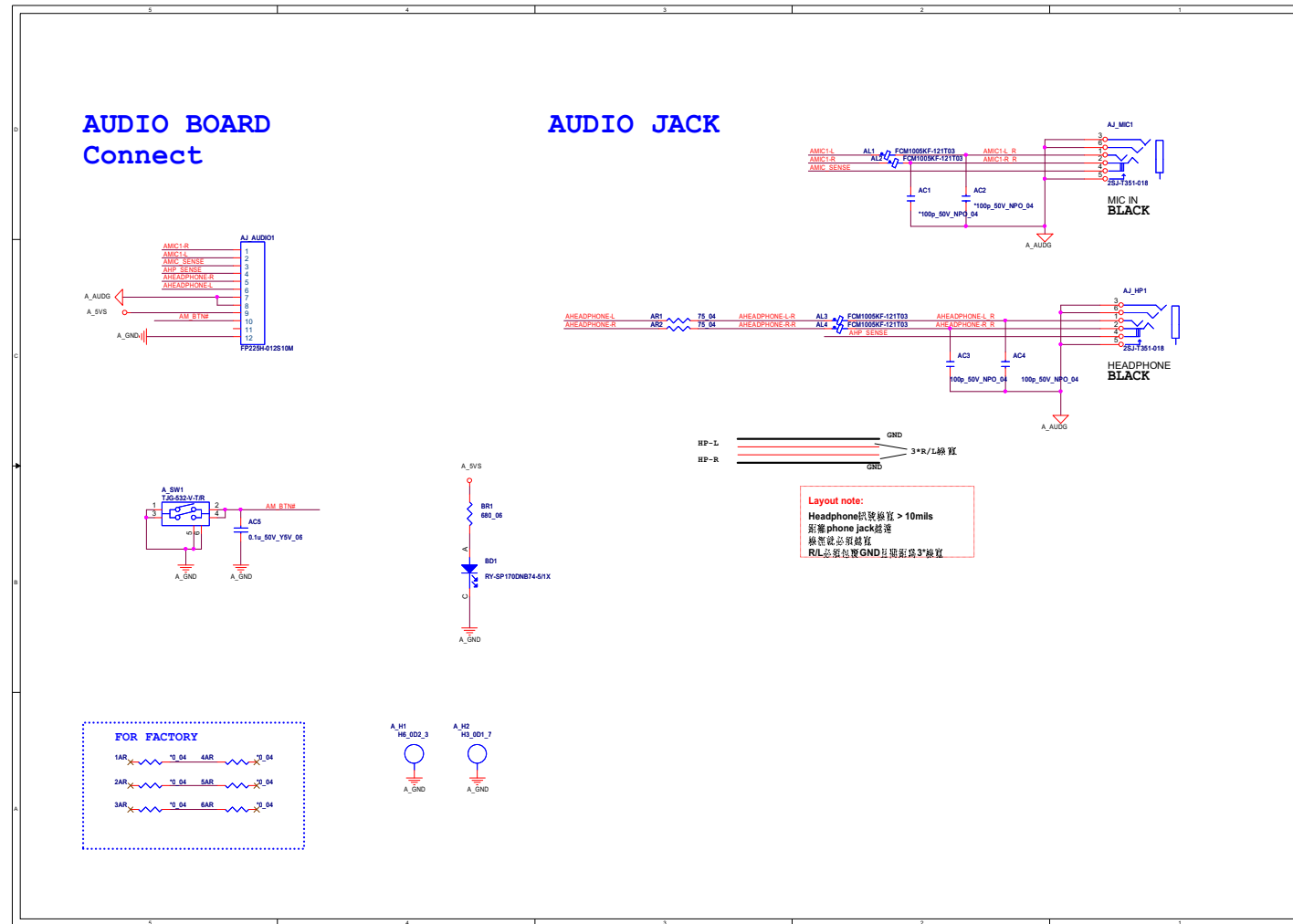
Schematic Diagrams

N14P, NVVDD, PEX, FBVDDQ

Sheet 37 of 42
N14P, NVVDD, PEX,
FBVDDQ



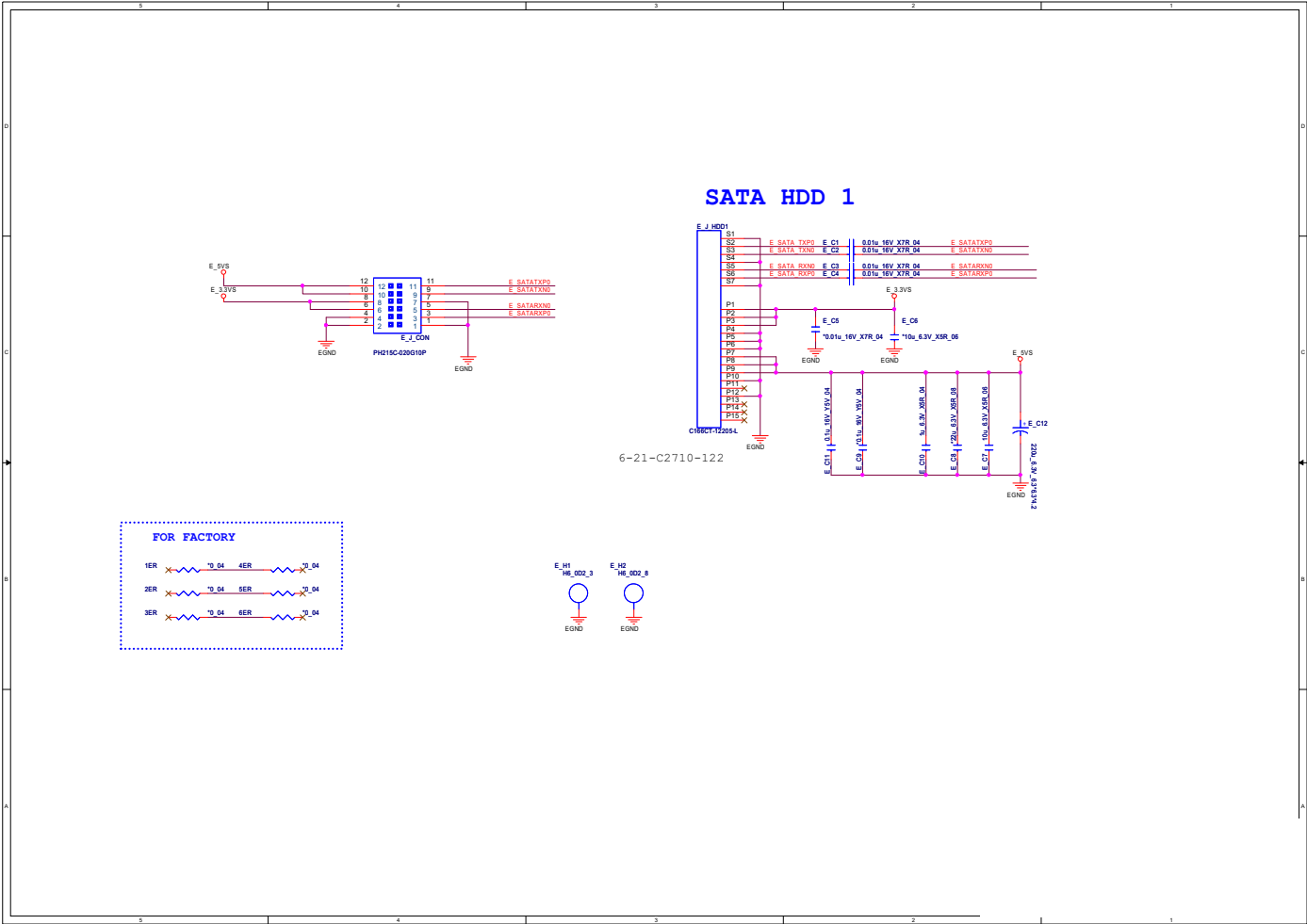
Audio Board

Sheet 38 of 42
Audio Board

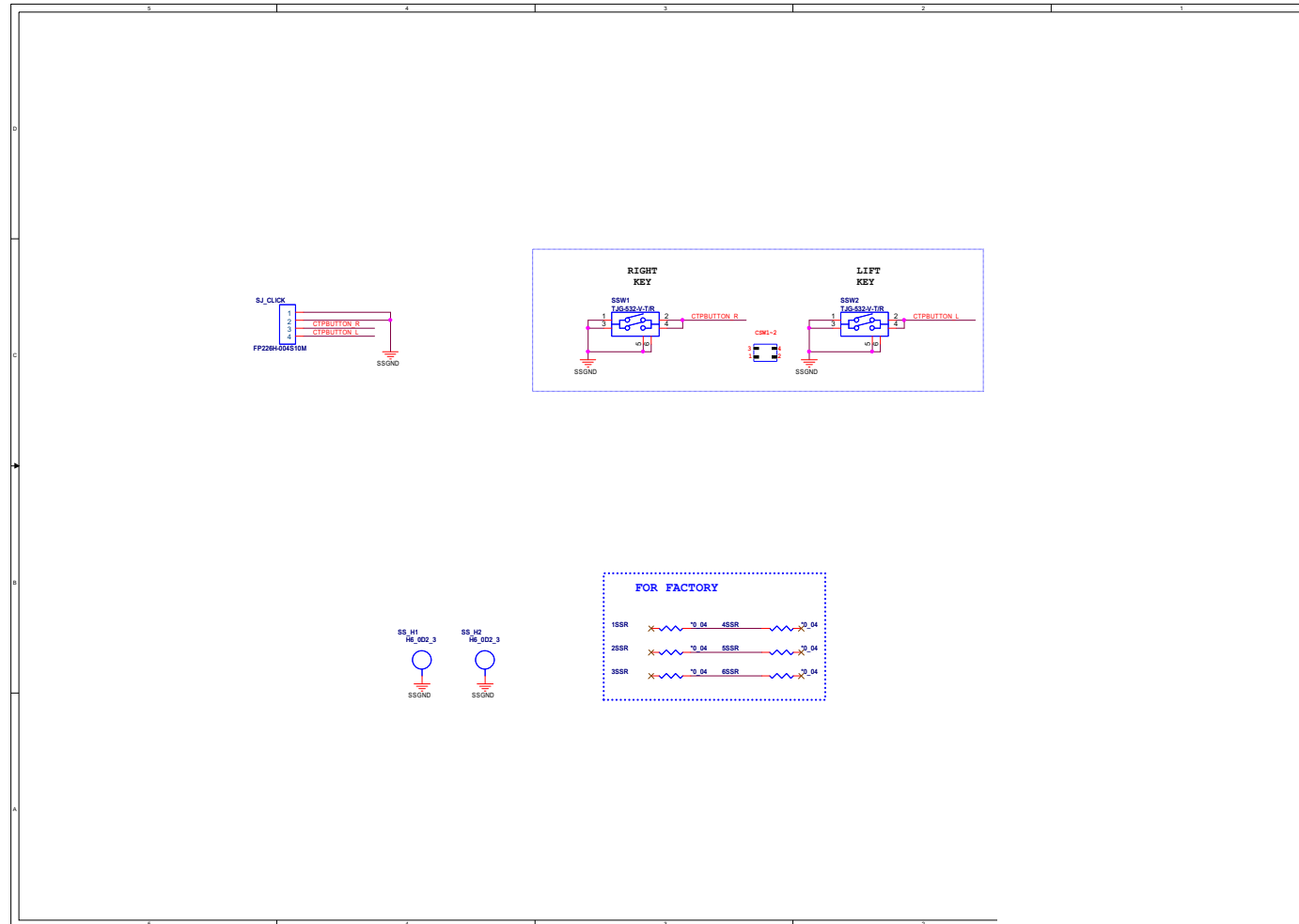
Schematic Diagrams

HDD Board

Sheet 39 of 42
HDD Board



Click Board

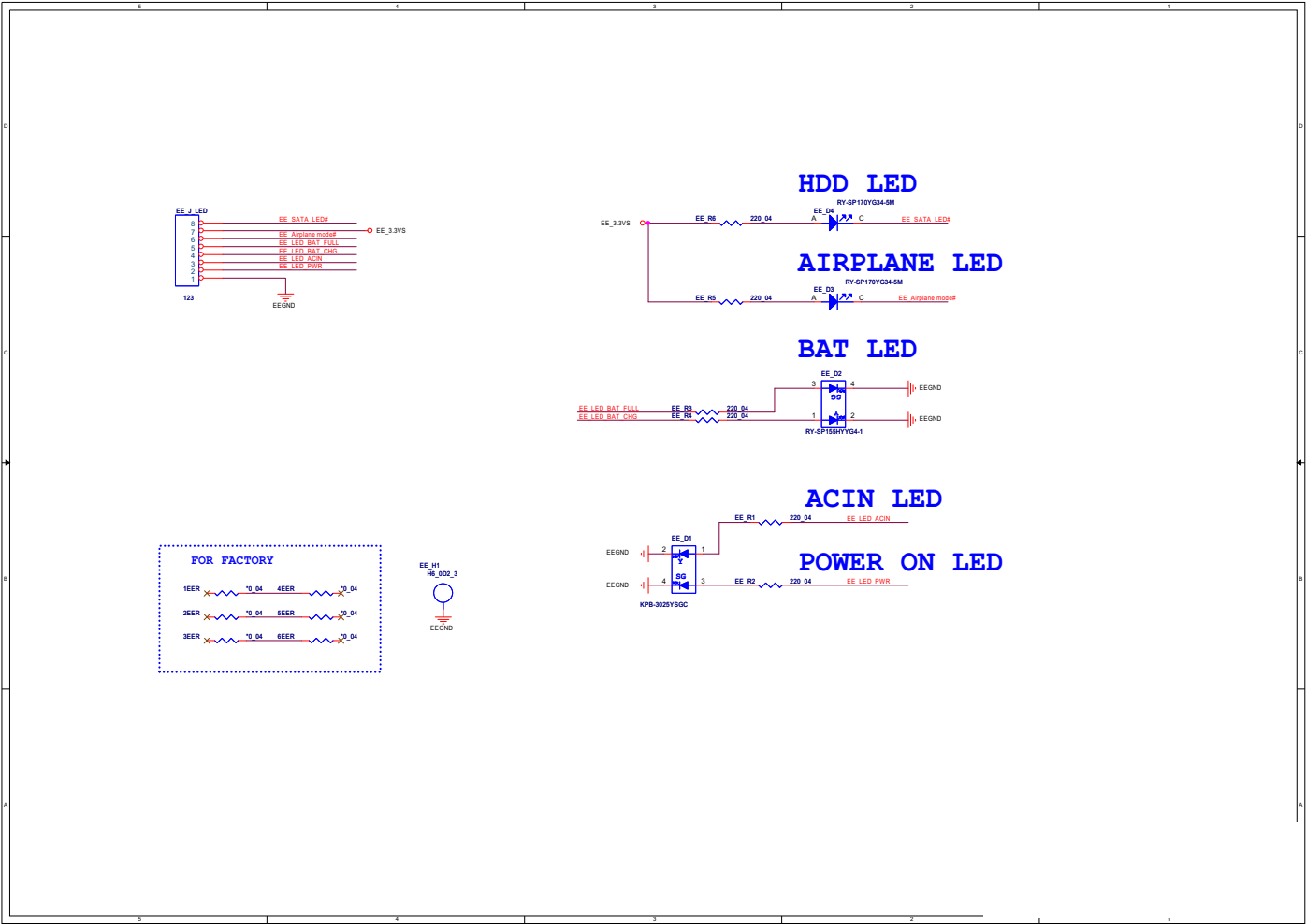


Sheet 40 of 42
Click Board

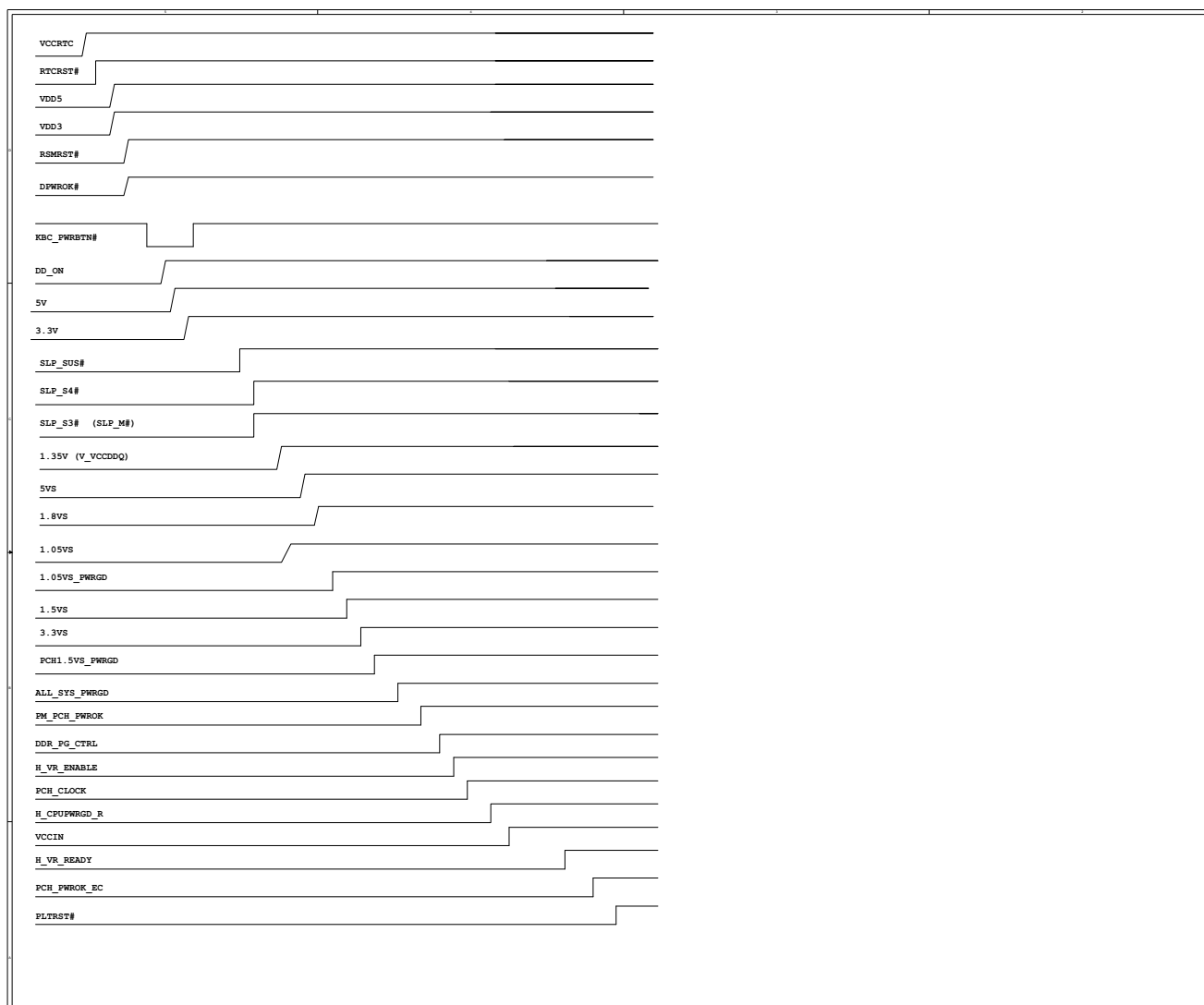
Schematic Diagrams

LED Board

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LED Board



Power Sequence



Sheet 42 of 42
Power Sequence

Appendix C: Updating the FLASH ROM BIOS

To update the FLASH ROM BIOS, you must:

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

Download the BIOS

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

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

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

Set the computer to boot from the external drive

1. With the bootable CD/DVD/USB flash drive containing the BIOS files in your CD/DVD drive/USB port, restart the computer and press **F2** (in most cases) to enter the BIOS.
2. Use the arrow keys to highlight the **Boot** menu.
3. Use the “+” and “-” keys to move boot devices up and down the priority order.
4. Make sure that the CD/DVD drive/USB flash drive is set first in the boot priority of the BIOS.
5. Press **F4** to save any changes you have made and exit the BIOS to restart the computer.



BIOS Version

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

You should only download BIOS versions that are V1.01.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 “**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.