

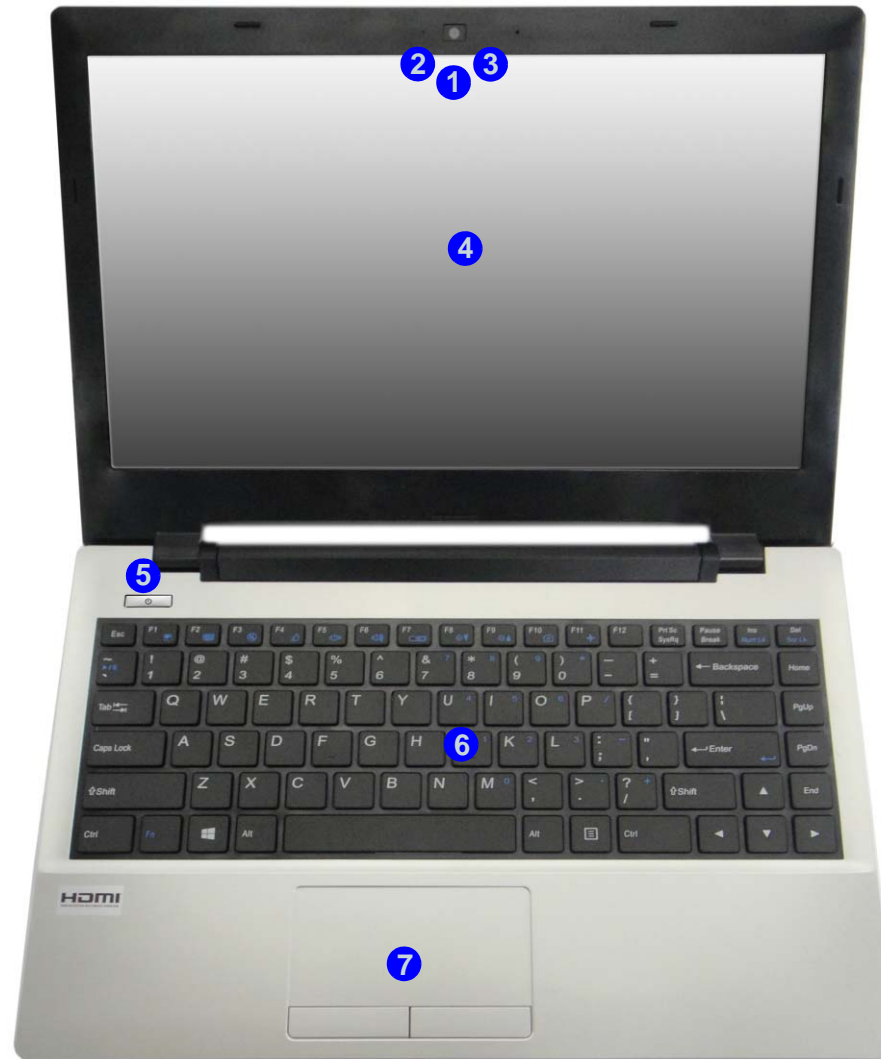
**Notebook Computer**  
**W330AU / W331AU**  
**Service Manual**

## Introduction

*Figure 1*  
**Top View**

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

## External Locator - Top View with LCD Panel Open



## External Locator - Front & Right Side Views

*Figure 2*  
**Front View**

1. LED Indicators



RIGHT SIDE VIEW



*Figure 3*  
**Right Side View**

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

## Introduction

### External Locator - Left Side & Rear View

*Figure 4*  
**Left Side View**

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



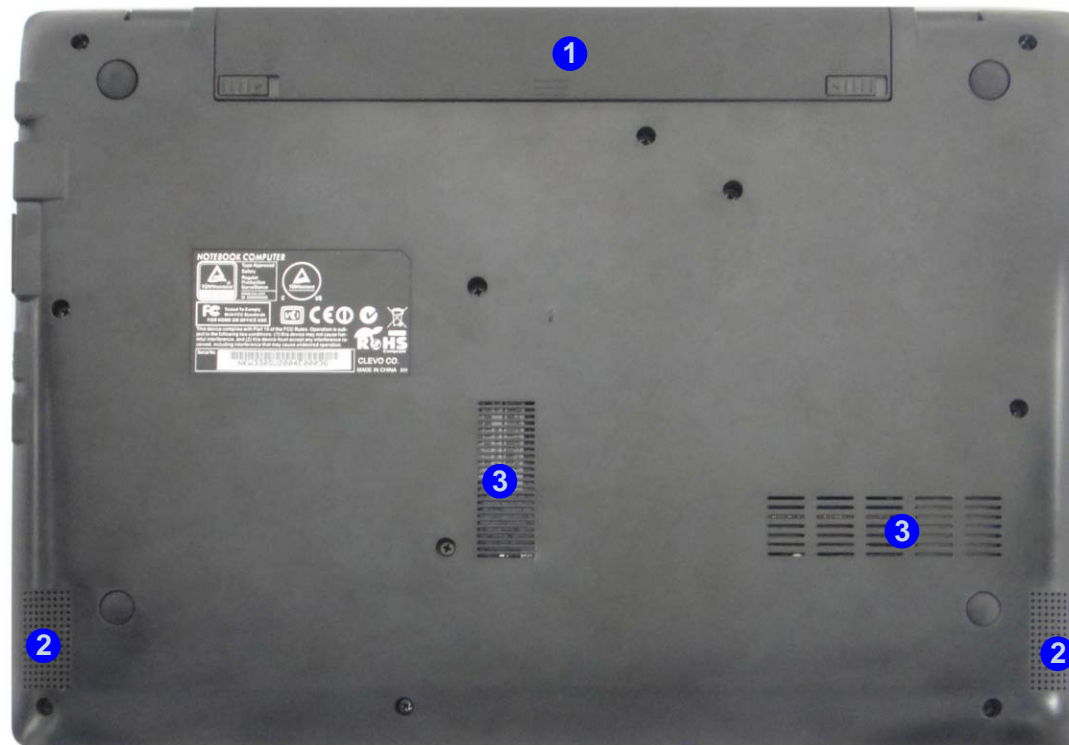
*Figure 5*  
**Rear View**

1. Battery





## External Locator - Bottom View



*Figure 6*  
**Bottom View**

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



### Overheating

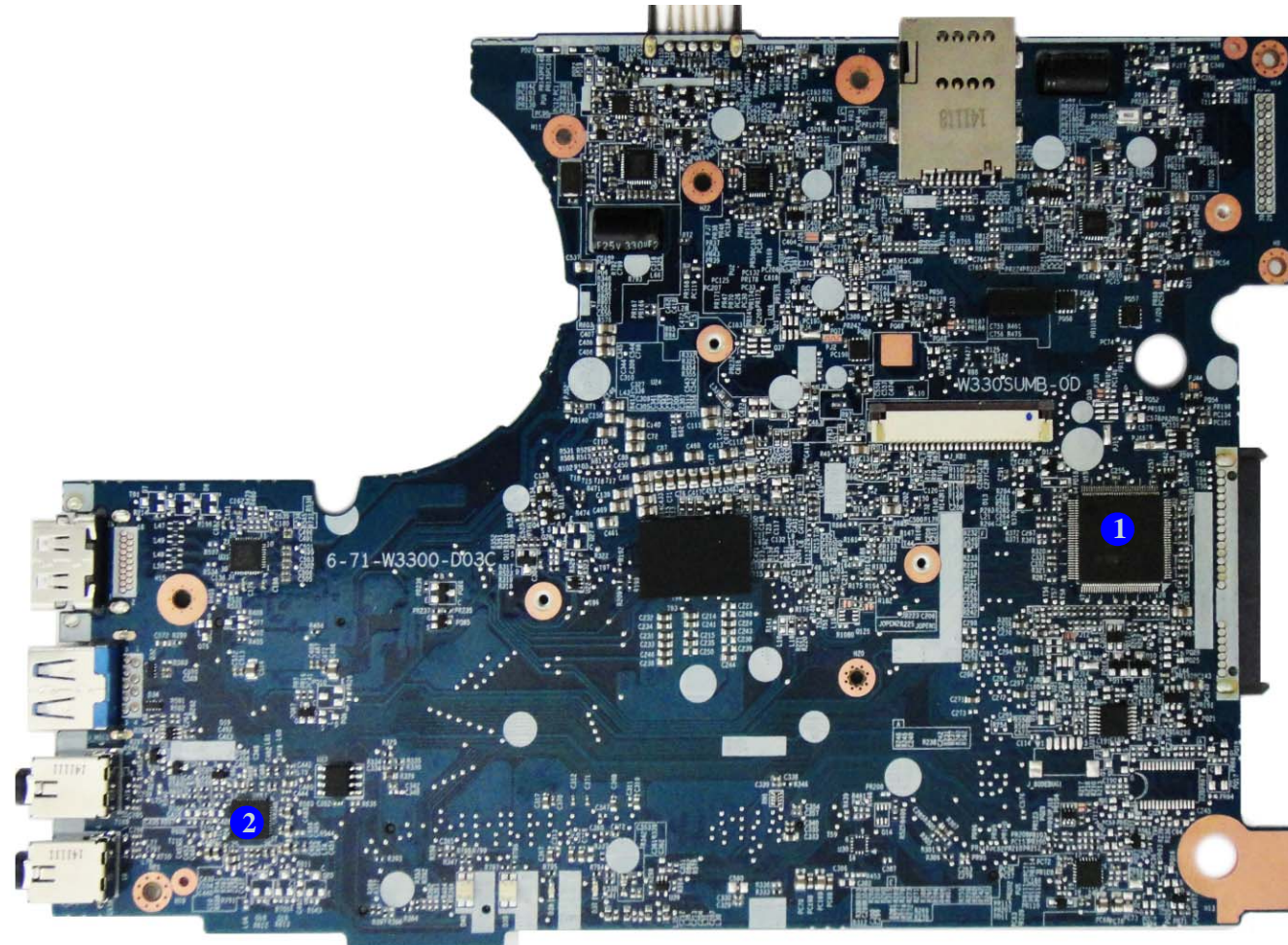
To prevent your computer from overheating, make sure nothing blocks any vent while the computer is in use.

## Introduction

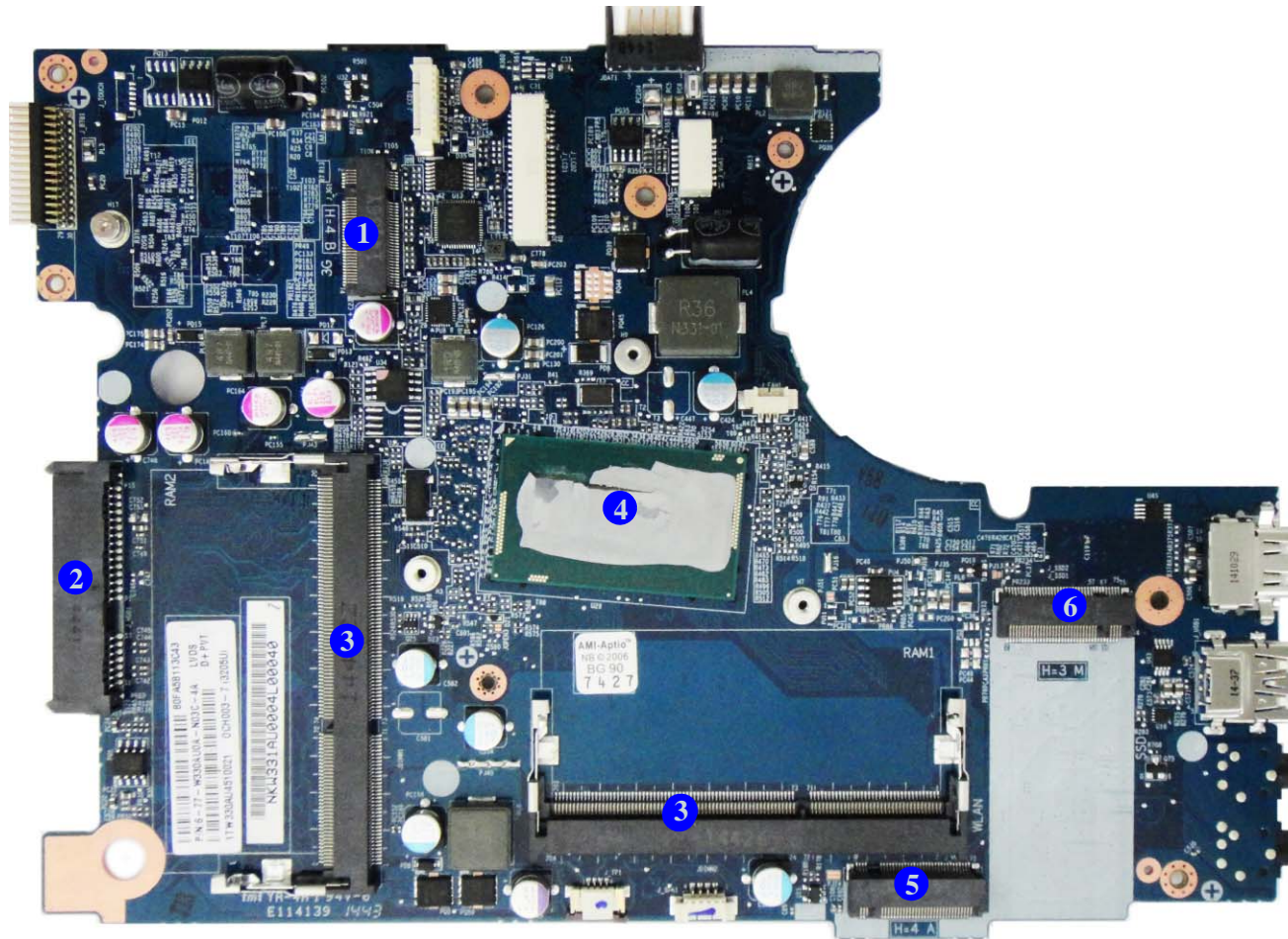
*Figure 7*  
**Mainboard Top  
Key Parts**

1. KBC ITE  
IT8587E/FX
2. Audio Codec  
ALC2690\_VC2

## Mainboard Overview - Top (Key Parts)



## Mainboard Overview - Bottom (Key Parts)



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

1. M.2 Connector (3G module)
2. HDD Connector
3. Memory Slot (DDR3L SO-DIMM)
4. CPU
5. M.2 Connector (WLAN Module)
6. M.2 Connector (SSD Module)

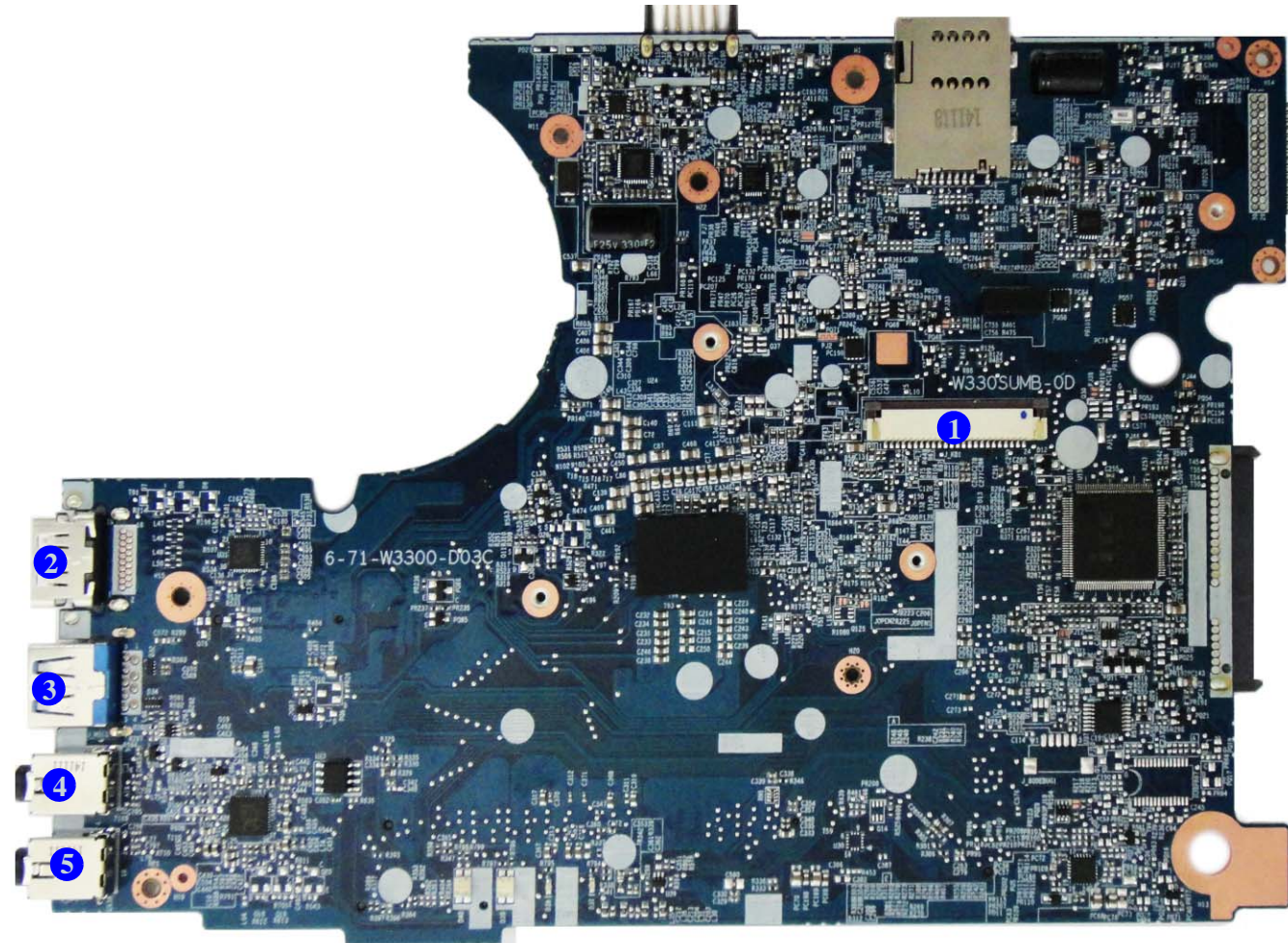


## Introduction

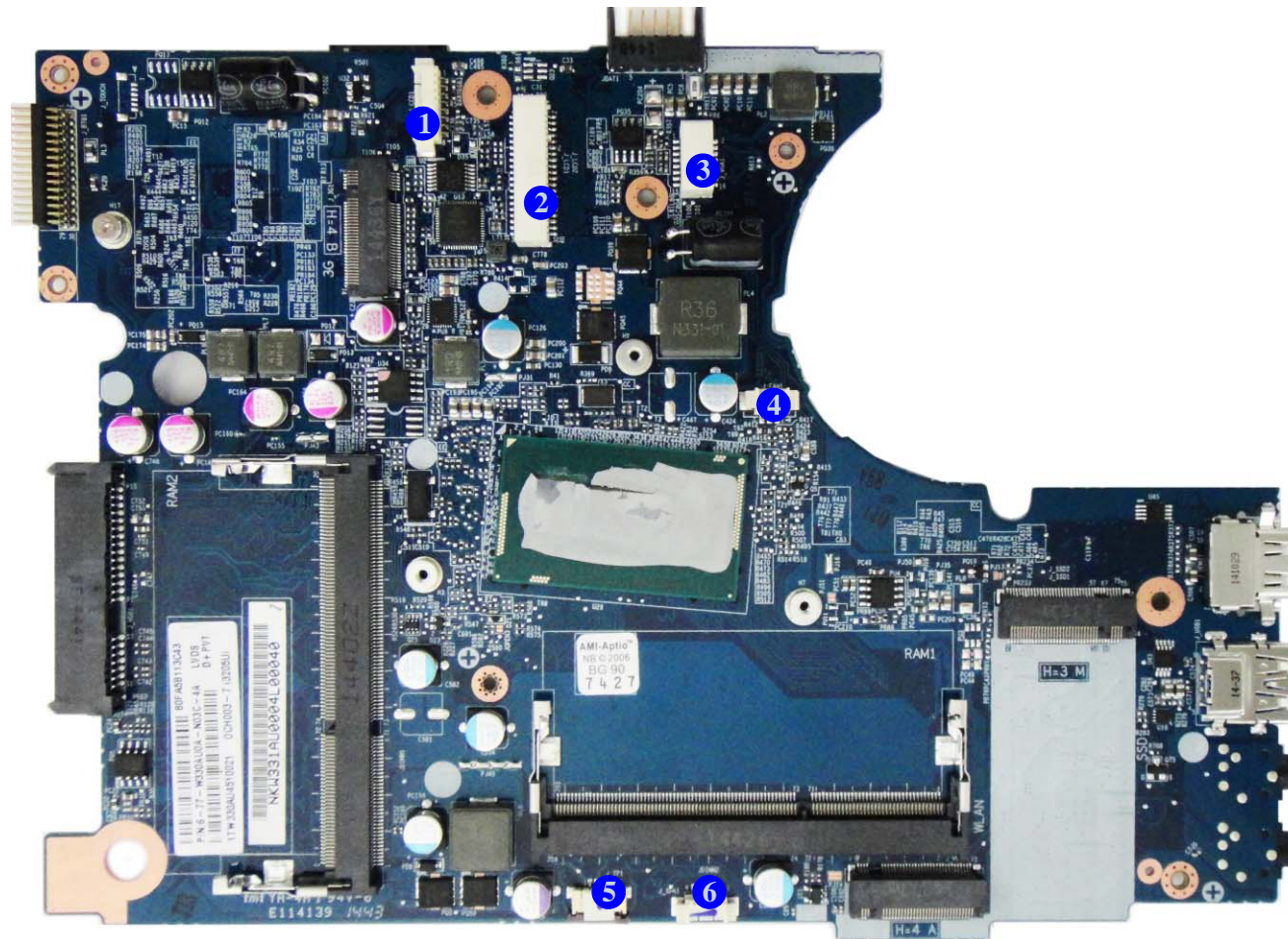
*Figure 9*  
**Mainboard Top  
Connectors**

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

## Mainboard Overview - Top (Connectors)



## Mainboard Overview - Bottom (Connectors)



*Figure 10*  
**Mainboard Bottom  
Connectors**

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

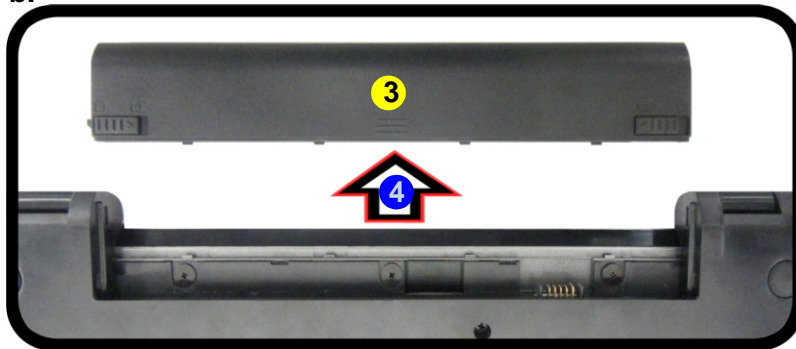
## Removing the Battery

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

a.

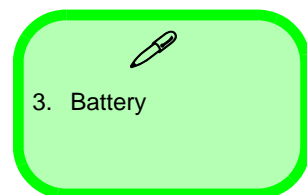


b.



*Figure 1*  
**Battery Removal**

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





## Disassembly

*Figure 2*  
**HDD Assembly  
Removal**

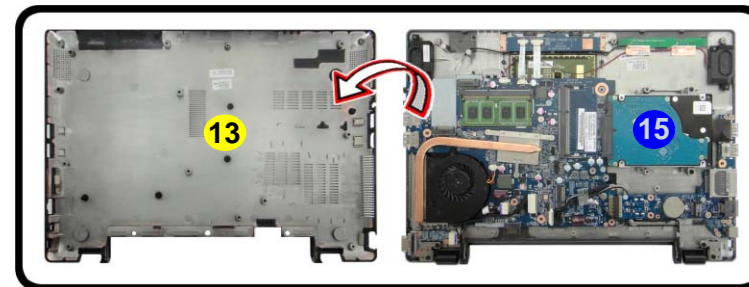
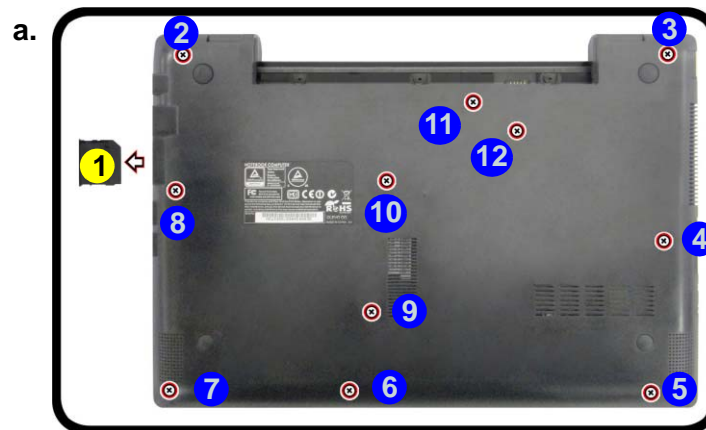
- Remove the cover and screws.
- Remove the bottom case and locate the hard disk.

## Removing the Hard Disk Drive

The hard disk drive can be taken out to accommodate other 2.5" serial (SATA) hard disk drives with a height of 7mm (h) and a speed of **5400 RPM** or lower. Follow your operating system's installation instructions, and install all necessary drivers and utilities (as outlined in **Chapter 4 of the User's Manual**) when setting up a new hard disk.

### Hard Disk Upgrade Process

- Turn **off** the computer and remove the battery ([page 2 - 5](#)).
- Remove the SD card cover **1** and screws **2** - **12** ([Figure 2a](#)).
- Carefully lift the bottom case **13** up in the direction of the arrow **14** and remove it ([Figure 2b](#)).
- The hard disk will be visible at point **15** on the computer. ([Figure 2b](#))



#### HDD System Warning

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

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

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

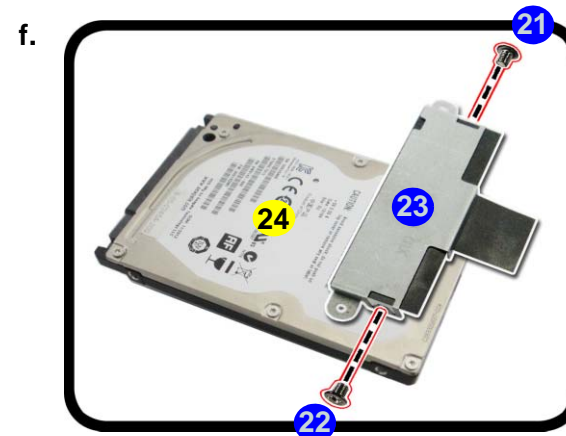
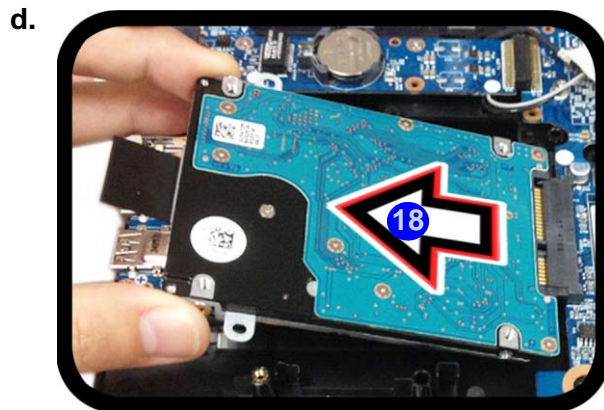
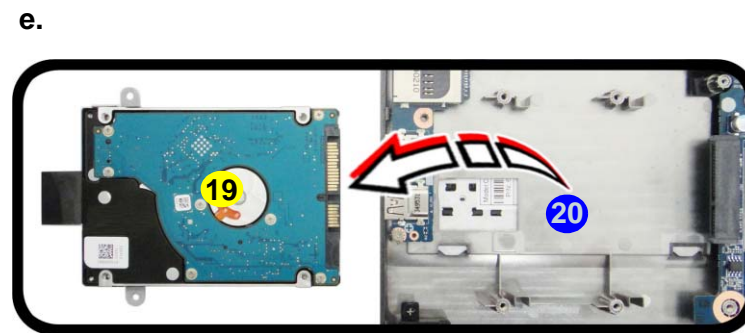
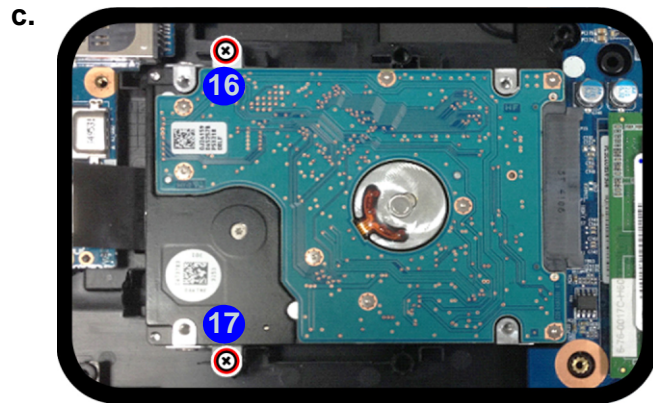
If you have access to the internet, download the latest application and hardware driver updates for the operating system you plan to install. Copy these to a removable medium.



1. SD Card Cover  
13. Bottom case

- 15 Screws

5. Remove screws **16** - **17** from the HDD assembly (**Figure 3c**).
6. Slightly lift and pull the hard disk in the direction of arrow **18** (**Figure 3d**).
7. Lift the hard disk assembly **19** out of the bay **20** (**Figure 3e**).
8. Remove screws **21** - **22** and bracket **23** from the hard disk **24** (**Figure 3f**).
9. Reverse the process to install a new hard disk (do not forget to replace all the screws and cover).



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

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

19. HDD Assembly  
23. HDD Bracket  
24. HDD

- 2 Screws



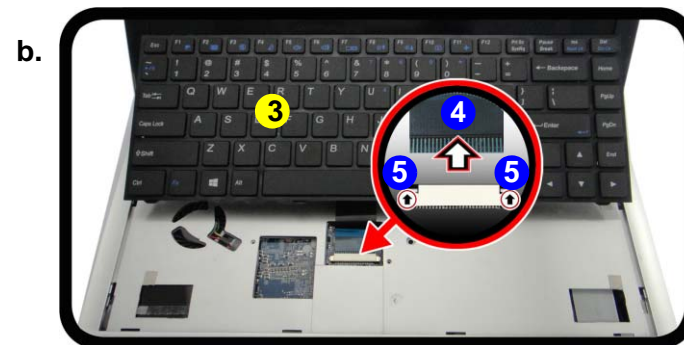
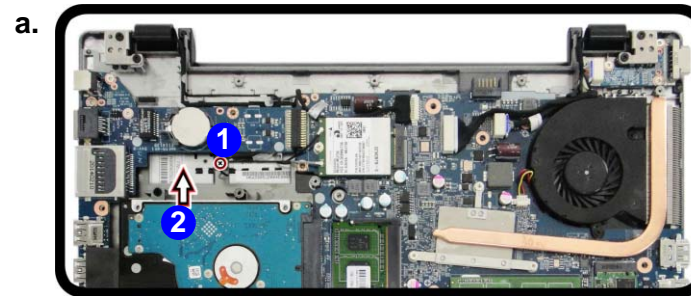
## Disassembly

*Figure 4*  
**Keyboard Removal**

- Remove screw and press at point ① to release the keyboard.
- Lift the keyboard up and disconnect the cable from the locking collar.
- Remove the keyboard.

## Removing the Keyboard

- Turn **off** the computer, remove the battery ([page 2 - 5](#)), and bottom case ([page 2 - 6](#)).
- Remove screw ① and carefully press the keyboard at point ② to elevate the keyboard from its normal position ([Figure 4a](#)).
- Carefully lift the keyboard ③ up, being careful not to bend the keyboard ribbon cable ④ ([Figure 4b](#)).
- Disconnect the keyboard ribbon cable ④ from the locking collar socket ⑤ ([Figure 4b](#)).
- Carefully lift up the keyboard ③ ([Figure 4c](#)) off the computer.



### Re-Inserting the Keyboard

When re-inserting the keyboard, align first the **four** keyboard tabs ([Figure 4d](#)) that are located at the bottom, to the slots in the case.

3. Keyboard

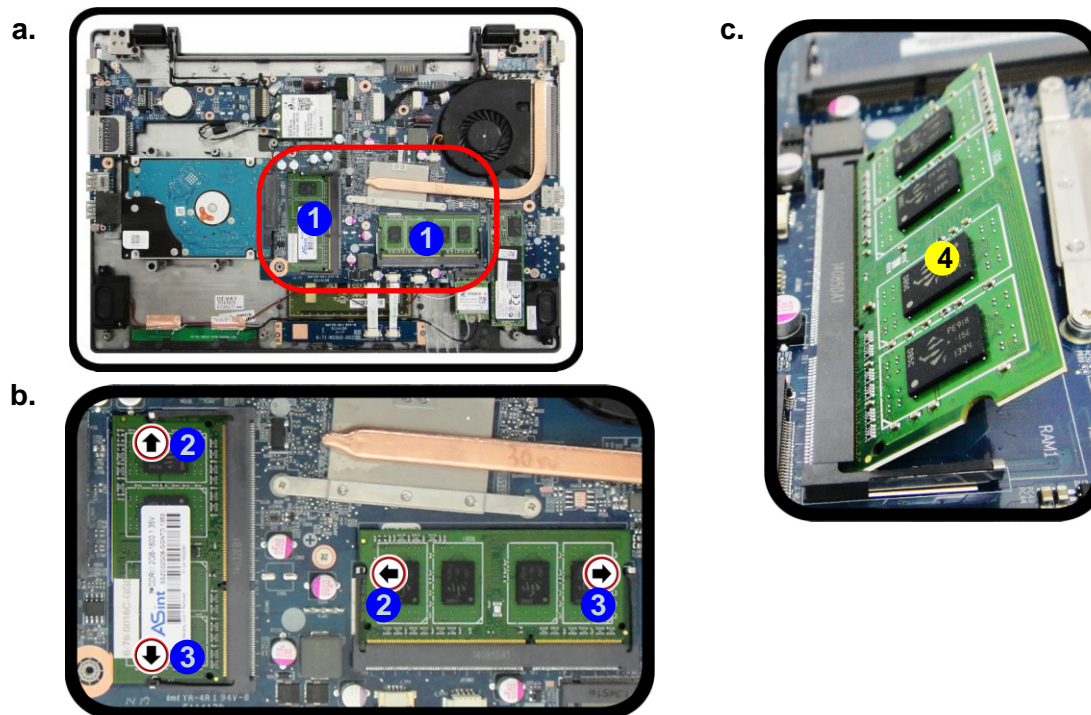
- 1 Screw

## 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 1600MHz. The total memory size is automatically detected by the POST routine once you turn on your computer.

### Memory Upgrade Process

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



*Figure 5*  
**RAM Module Removal**

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



#### Contact Warning

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



4. RAM Module

## Disassembly

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

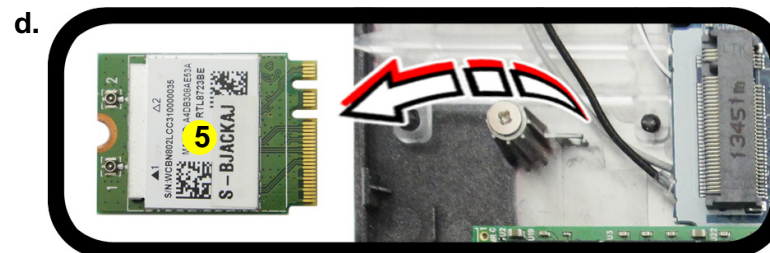
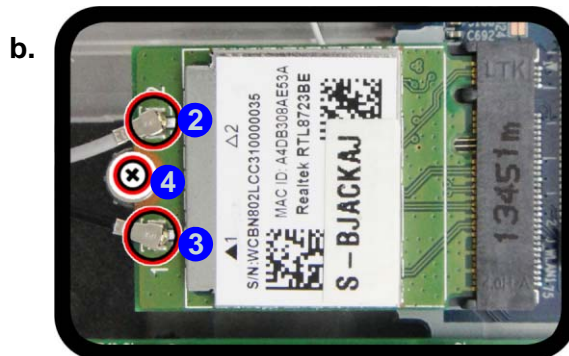
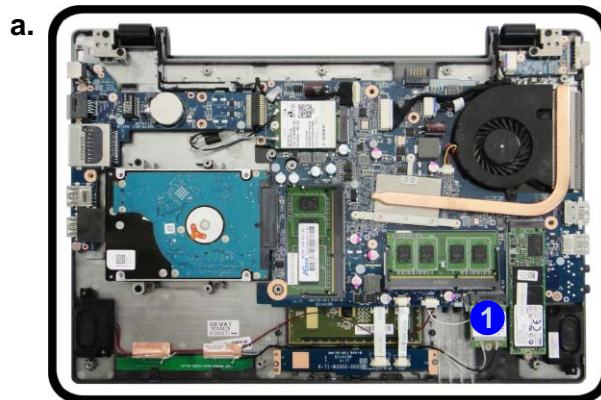
d. Replace the bottom case and tighten the screws.

5. Insert a new module holding it at about a 30° angle and fit the connectors firmly into the memory slot.
6. The module will only fit one way as defined by its pin alignment. Make sure the module is seated as far into the slot as it will go. DO NOT FORCE IT; it should fit without much pressure.
7. Press the module in and down towards the mainboard until the slot levers click into place to secure the module.
8. Replace the bottom case and tighten the screws and cover (*Figure 6d*).
9. Restart the computer to allow the BIOS to register the new memory configuration as it starts up.



## Removing the Wireless LAN Module

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



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

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

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



5. WLAN Module.

- 1 Screw

## Wireless LAN, and Combo Module Cables

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

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

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



## Removing the 3G Module

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

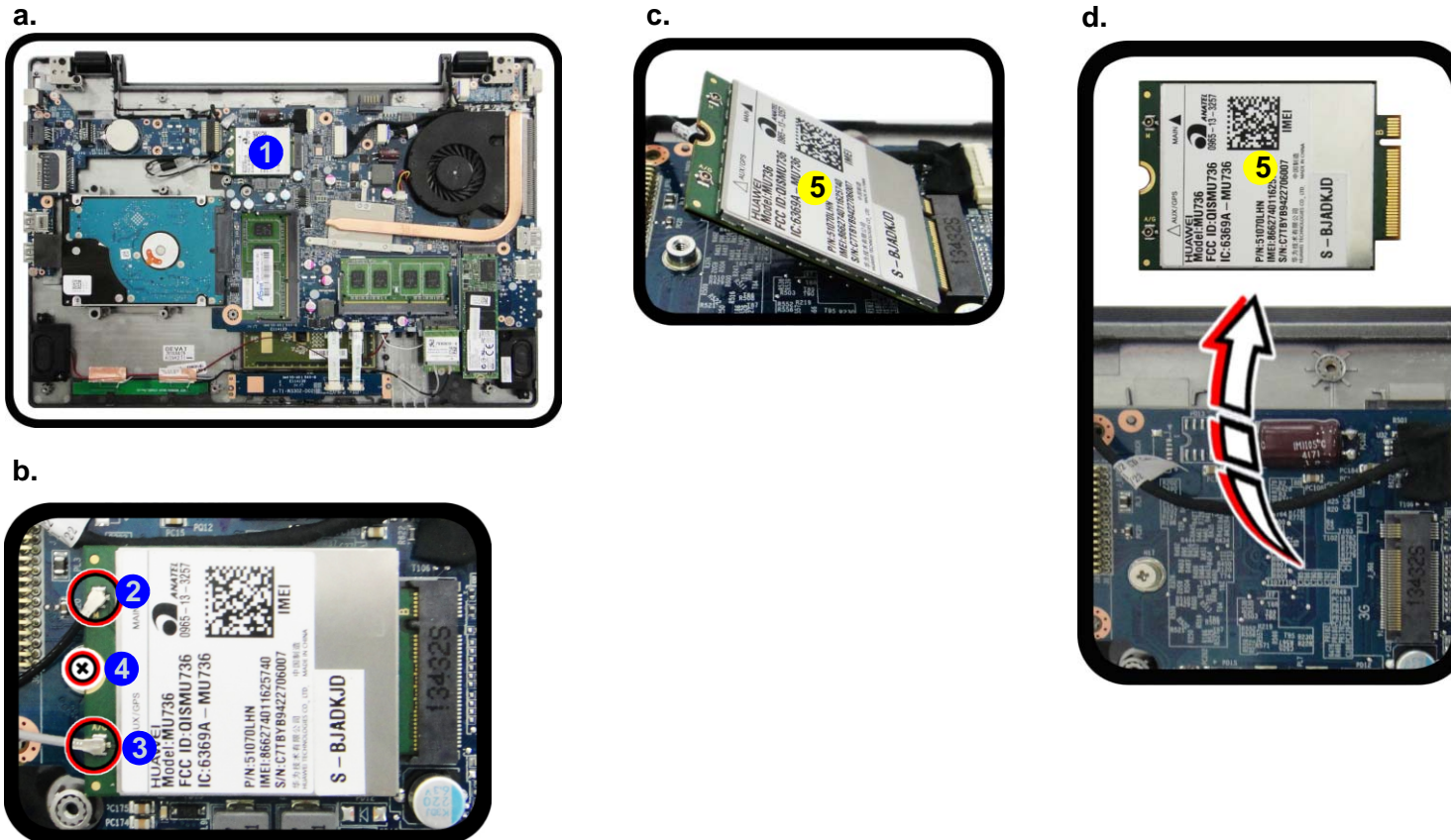
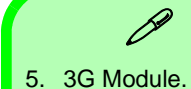


Figure 8  
3G Module Removal

- Locate the 3G module.
- Disconnect the cables and remove the screw.
- The 3G module will pop up.
- Lift the 3G module out.

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



5. 3G Module.

- 1 Screw

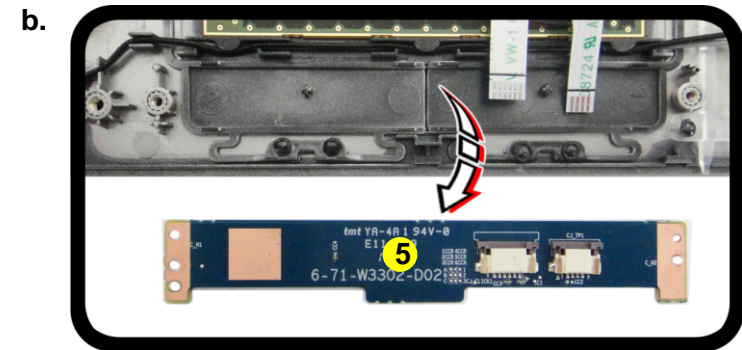
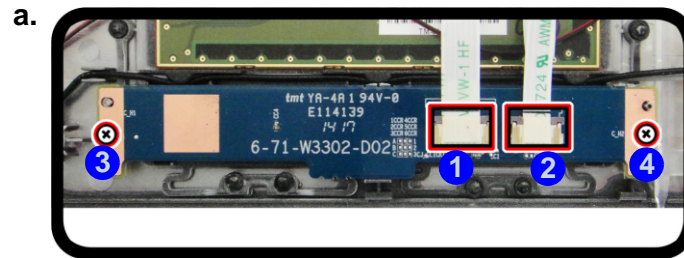
## Disassembly

*Figure 9*  
**Click Board Module Removal**

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

## Removing the Click Board Module

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



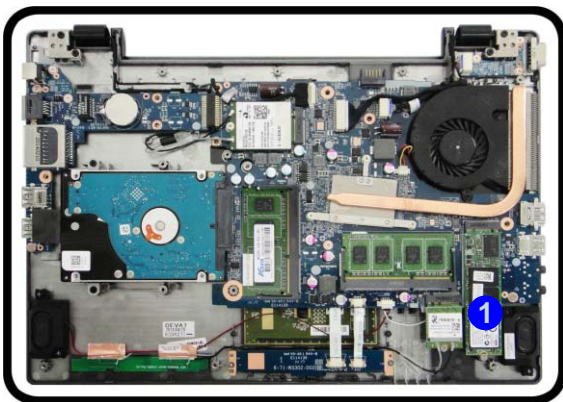
### 5. Click Board Module

- 2 Screws

## Removing the mSATA Module

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)), keyboard ([page 2 - 8](#)), and bottom case ([page 2 - 6](#)).
2. The mSATA module will be visible at point **1** ([Figure 7a](#)) on the mainboard.
3. Remove screw **2** from the module socket ([Figure 7b](#)).
4. The mSATA module **3** ([Figure 7c](#)) will pop-up.
5. Lift the mSATA module **3** ([Figure 7d](#)) up and off the computer.

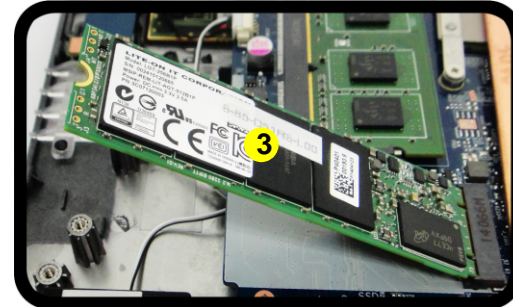
a.



b.



c.



d.



*Figure 10*  
**mSATA Module Removal**

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



3. SSD Module.

- 1 Screw



## Disassembly

*Figure 11*  
**SSD-1 Module Removal**

- Locate the SSD assembly.
- Remove the screw.
- The SSD assembly will pop up.
- Lift the SSD assembly out.
- Remove the screw to separate the SSD module and bracket.



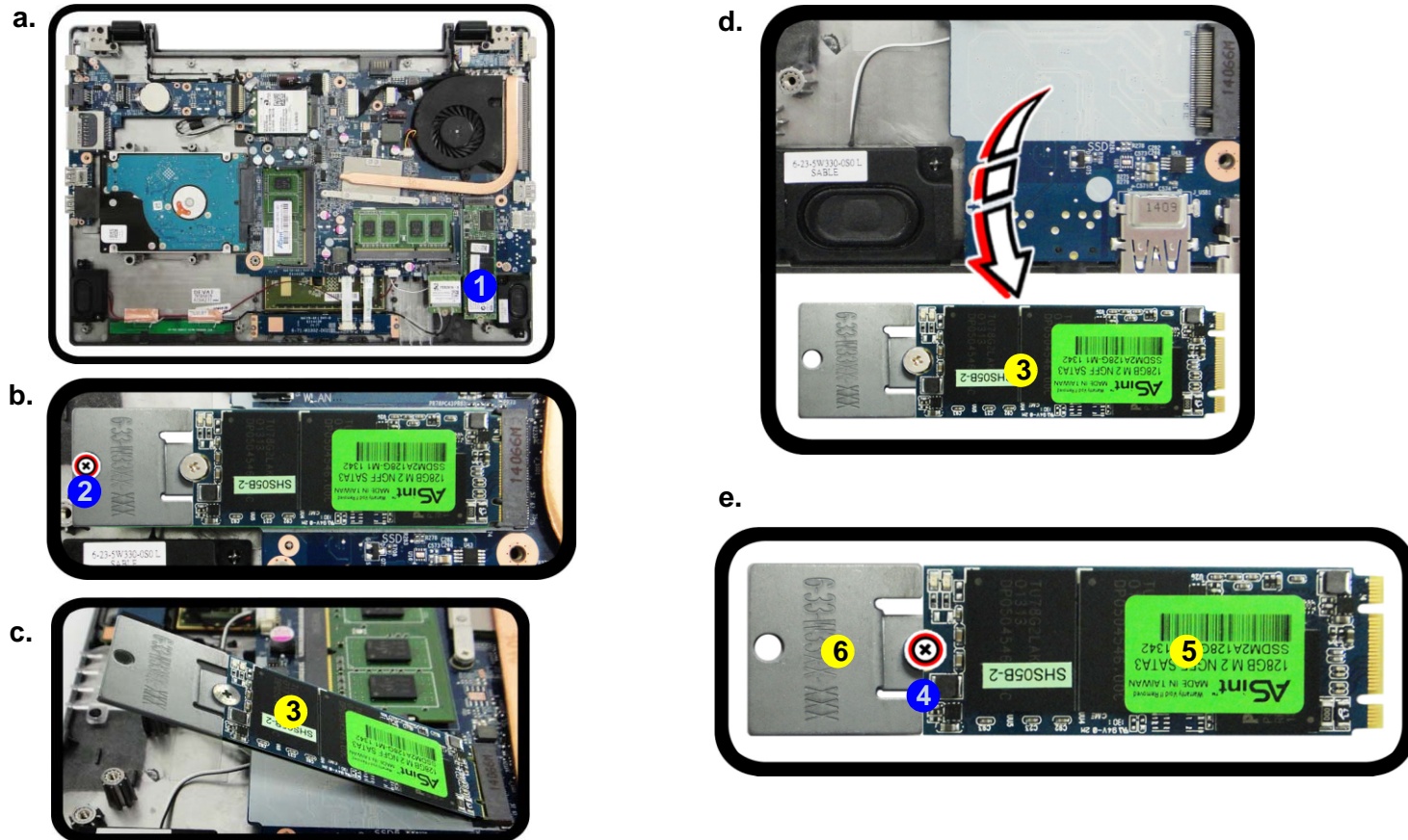
- SSD Assembly
- SSD Module
- Bracket

- 2 Screws

## Removing the SSD Module

### SSD-1 module removal

- Turn **off** the computer, remove the battery ([page 2 - 5](#)), keyboard ([page 2 - 8](#)), and bottom case ([page 2 - 6](#)).
- The SSD module will be visible at point **1** ([Figure 7a](#)) on the mainboard.
- Remove screw **2** from the module socket ([Figure 7b](#)).
- The SSD assembly **3** ([Figure 7c](#)) will pop-up.
- Lift the SSD assembly **3** ([Figure 7d](#)) up and off the computer.
- Remove screw **4** to separate the SSD module **5** and bracket **6** ([Figure 7e](#)).

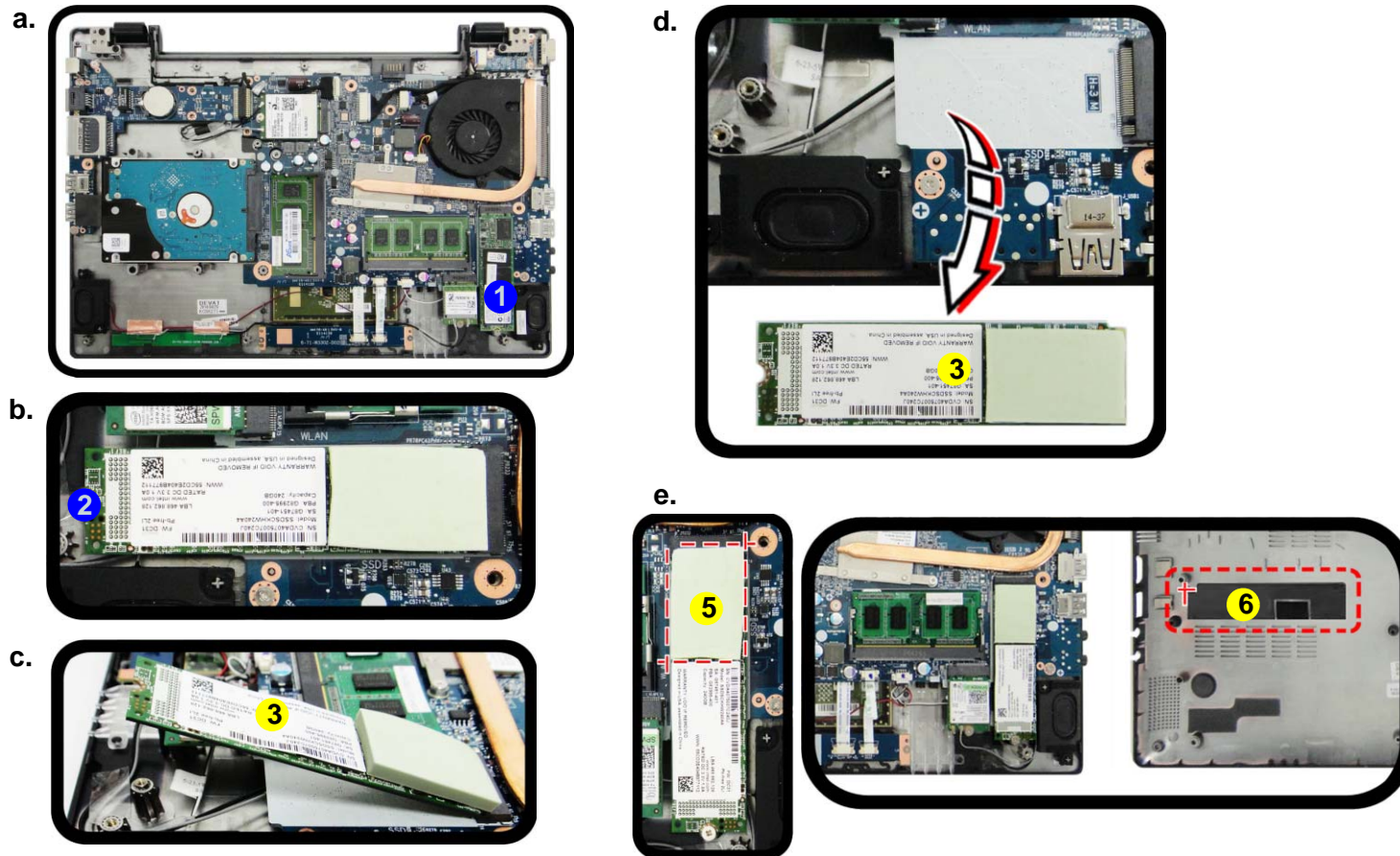


## SSD-2 module removal

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)), keyboard ([page 2 - 8](#)), and bottom case ([page 2 - 6](#)).
2. The SSD module will be visible at point **1** ([Figure 7a](#)) on the mainboard.
3. Remove screw **2** from the module socket ([Figure 7b](#)).
4. The SSD module **3** ([Figure 7c](#)) will pop-up.
5. Lift the SSD module **3** ([Figure 7d](#)) up and off the computer.
6. Reverse the process to install a new module (do not forget to place the thermal pad in the module, & copper shielding in the bottom cover as shown in [Figure 7e](#)).

*Figure 12*  
**SSD-2 Module Removal**

- a. Locate the SSD.
- b. Remove the screw.
- c. The SSD assembly will pop up.
- d. Lift the SSD assembly out.



- 3. SSD Module
- 5. Thermal pad
- 6. Copper Shielding
- 1 Screw

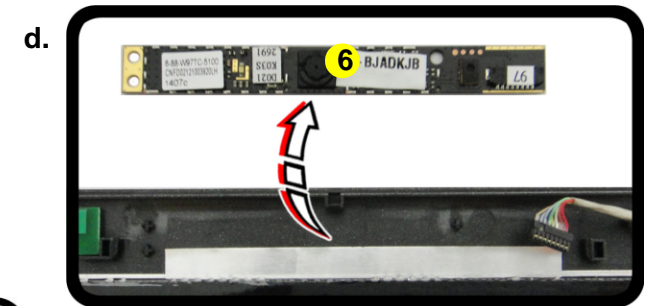
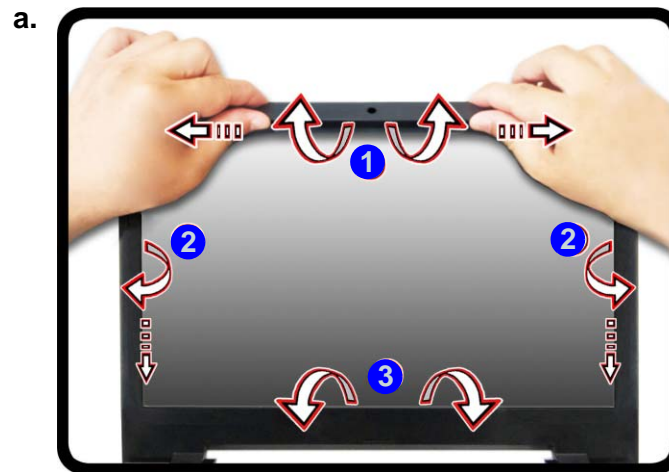
## Disassembly

*Figure 13*  
**CCD Module Removal**

- a. Insert your fingers to lift the frame up around 10~15 degrees and then slide your fingers along to separate the frame and LCD.
- b. Remove the LCD front panel.
- c. Disconnect the cable.
- d. Remove the CCD module.

## Removing the CCD Module

1. Turn **off** the computer, remove the battery ([page 2 - 5](#)).
2. Turn the computer over and open the LCD,
3. Insert your fingers under the frame of the LCD at the point ① and lift it up around 10~15 degrees and then slide your finger along the inner frame towards points ② & ③ to separate it from the LCD ([Figure 13a](#)).
4. Remove the LCD front panel ④ from the LCD ([Figure 13b](#)).
5. Disconnect the cable ⑤ ([Figure 13c](#)).
6. Remove the CCD module ⑥ off ([Figure 13d](#)).



4. LCD Front Panel
6. CCD Module

## Part Lists

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### Parts List Illustration Location

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

*Table A - 1*

**Parts List Illustration  
Location**

Parts	
Top (10W)	<i>page A - 3</i>
Bottom	<i>page A - 4</i>
LCD (Sharp)	<i>page A - 5</i>
LCD (Samsung)	<i>page A - 6</i>
LCD (Chimei)	<i>page A - 7</i>
HDD	<i>page A - 8</i>



# Appendix B: Schematic Diagrams

This appendix has circuit diagrams of the **W330AU / W331AU** notebook's PCB's. The following table indicates where to find the appropriate schematic diagram.

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

Diagram - Page	Diagram - Page	Diagram - Page
<i>System Block Diagram - Page B - 2</i>	<i>Panel, Inverter - Page B - 16</i>	<i>1.05V Series - Page B - 30</i>
<i>Haswell ULT (Display, Misc, CLK) - Page B - 3</i>	<i>LVDS_PS8625 - Page B - 17</i>	<i>VDD3, VDD5 - Page B - 31</i>
<i>Haswell ULT DDR Channel-A/B - Page B - 4</i>	<i>PS8613 - Page B - 18</i>	<i>1.5V or 1.35V/0.75VS PCH 1.5VS - Page B - 32</i>
<i>Haswell ULT RTC/HDA/SAT - Page B - 5</i>	<i>HDMI, Fan - Page B - 19</i>	<i>VCore - Page B - 33</i>
<i>Haswell ULT LPC/SPI/SMB/CL - Page B - 6</i>	<i>Audio Codec - Page B - 20</i>	<i>PW SW Board - Page B - 34</i>
<i>Haswell ULT Power Management - Page B - 7</i>	<i>USB Charge, USB 3.0, I/O Con - Page B - 21</i>	<i>IO Board - LAN - Page B - 35</i>
<i>Haswell ULT GPIOs - Page B - 8</i>	<i>CCD, TPM, TP, HDD, LED - Page B - 22</i>	<i>IO Board - USB - Page B - 36</i>
<i>Haswell ULT PCIE, USB, eDP - Page B - 9</i>	<i>NGFF_WLAN - Page B - 23</i>	<i>AC-In Conn - Page B - 37</i>
<i>Haswell ULT Power 1 - Page B - 10</i>	<i>NGFF_3G - Page B - 24</i>	<i>Click Board - Page B - 38</i>
<i>Haswell ULT Power 2 - Page B - 11</i>	<i>NGFF_SSD - Page B - 25</i>	<i>Power On / S4 Resume - Page B - 39</i>
<i>Haswell ULT Power-VSS - Page B - 12</i>	<i>KBC-ITE IT8587 - Page B - 26</i>	<i>Power Off / Into S4 - Page B - 40</i>
<i>Haswell ULT CFG, RSVD - Page B - 13</i>	<i>DC-In, Charger - Page B - 27</i>	<i>Into S3 - Page B - 41</i>
<i>DDR3 SO-DIMM_A_0 - Page B - 14</i>	<i>3.3V_SPI, 3.3VS, 3.3V_M, 3.3V - Page B - 28</i>	<i>S3 Resume - Page B - 42</i>
<i>DDR3 SO-DIMM_B_0 - Page B - 15</i>	<i>1.8VS, 1.5VS, 5V, 5VS - Page B - 29</i>	

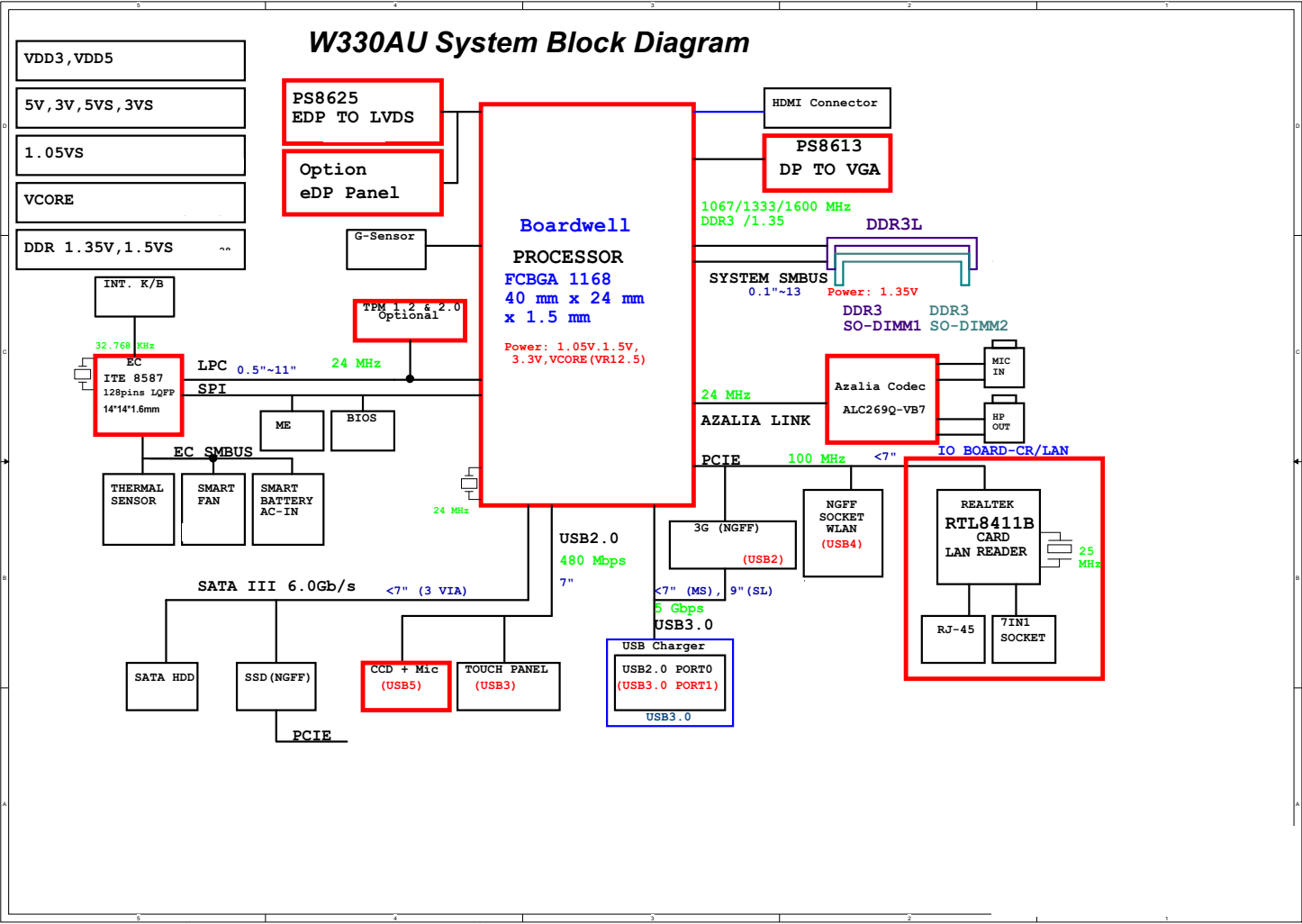


## Version Note

The schematic diagrams in this chapter are based upon version 6-7P-W3305-006. 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 41  
System Block  
Diagram



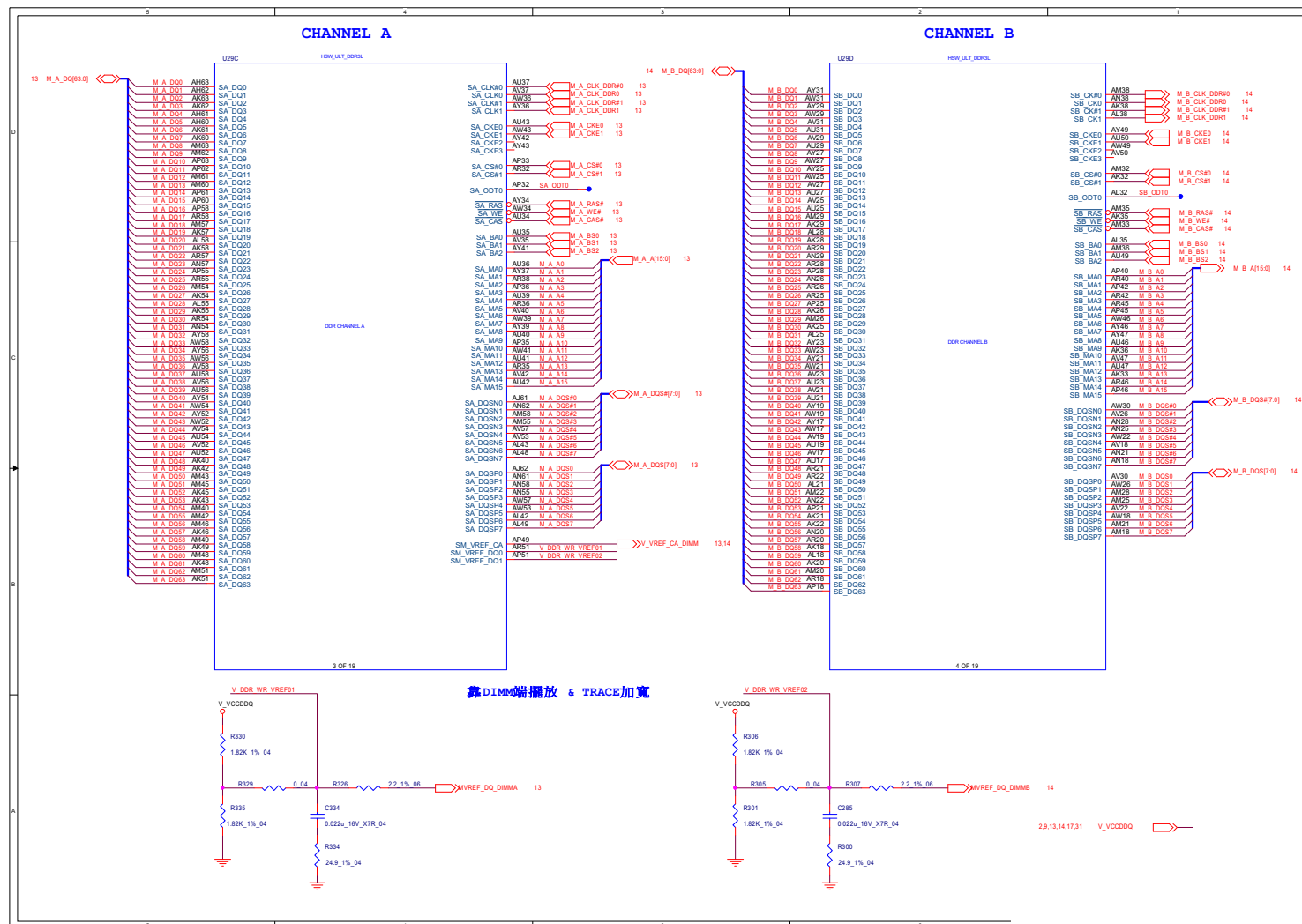
Sheet 2 of 41  
Haswell ULT  
(Display, Misc,  
CLK)



## Haswell ULT DDR Channel-A/B

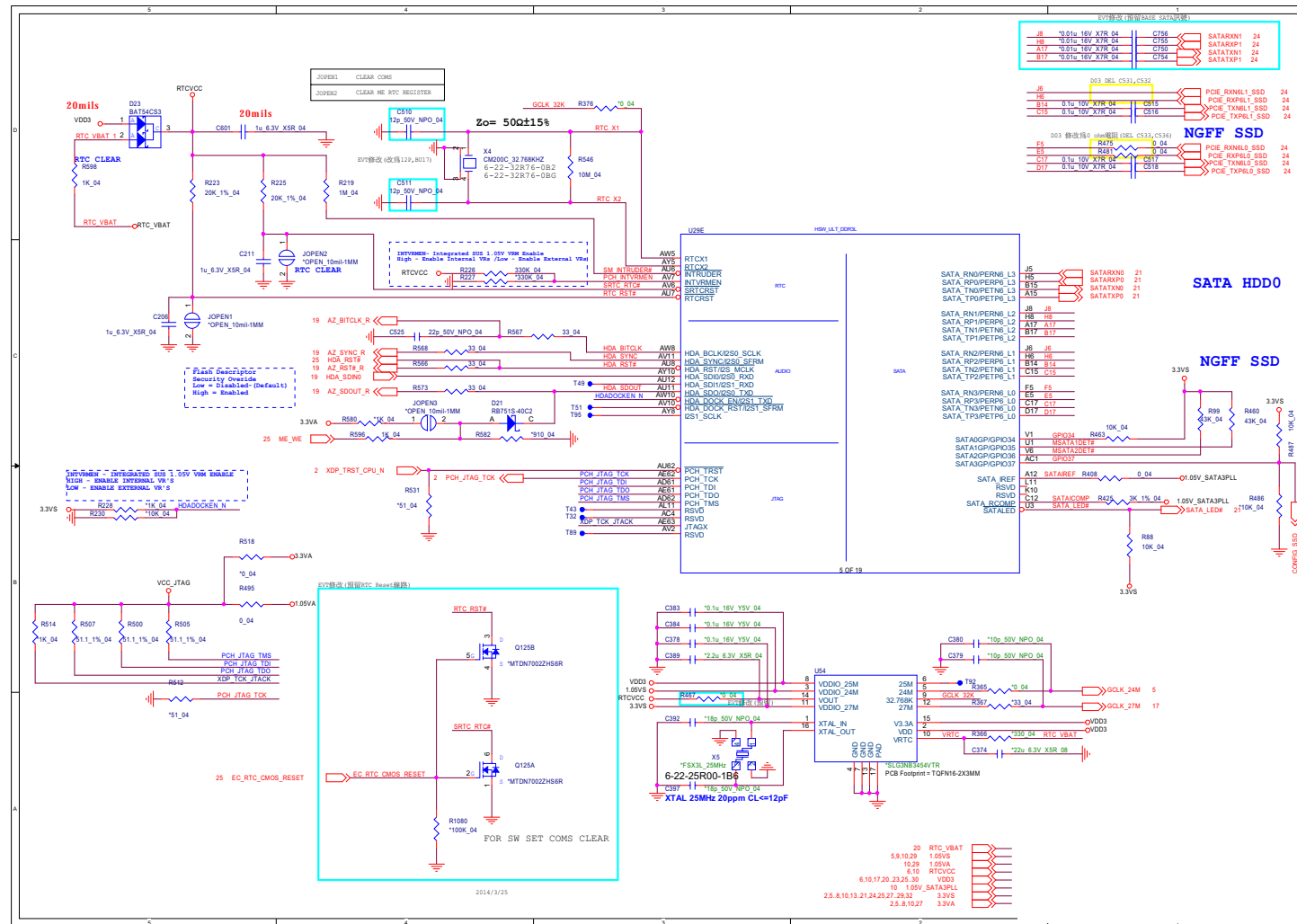
## B. Schematic Diagrams

Sheet 3 of 41  
Haswell ULT DDR  
Channel-A/B





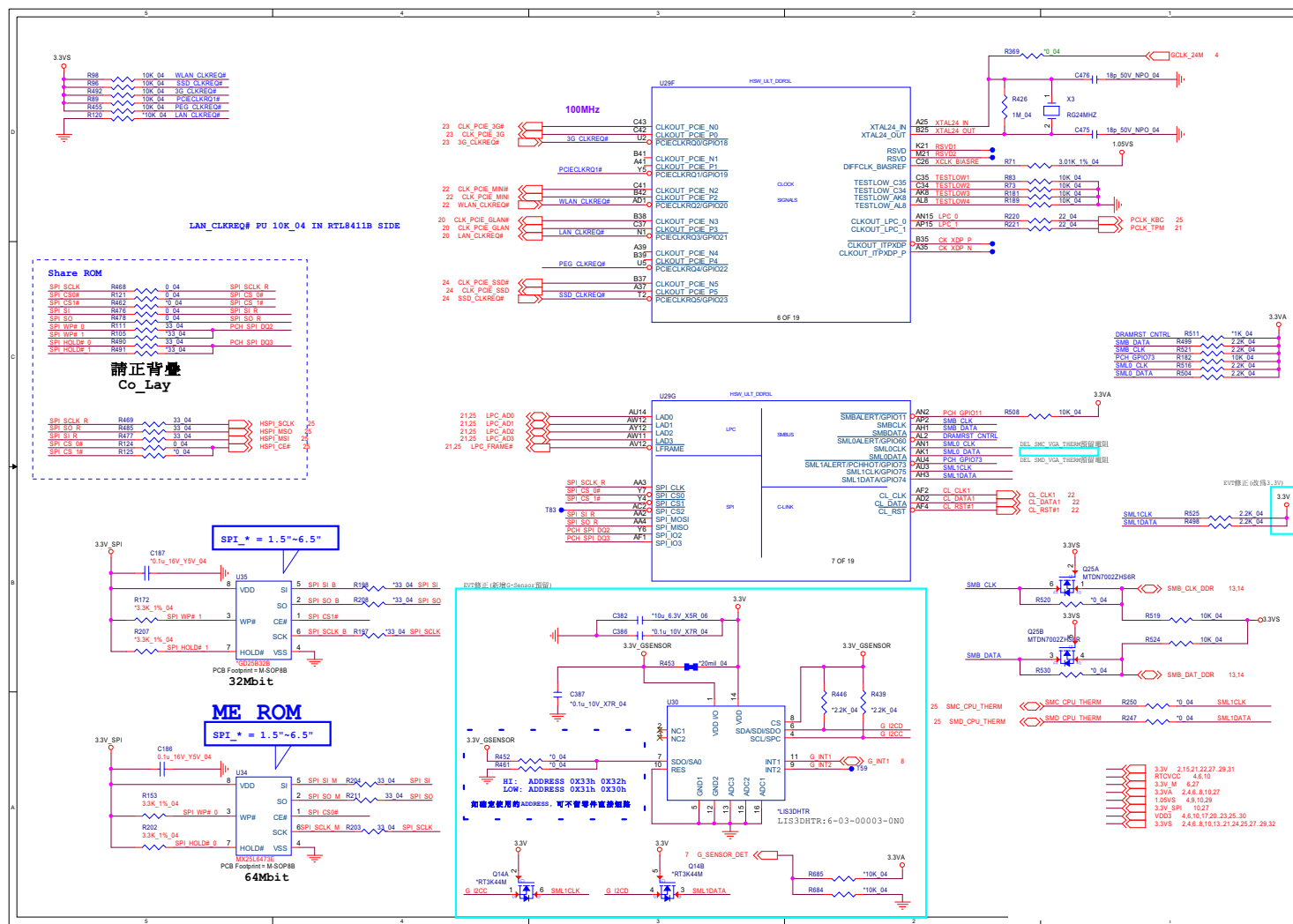
# Haswell ULT RTC/HDA/SAT



Sheet 4 of 41  
Haswell ULT RTC/  
HDA/SAT

## Haswell ULT LPC/SPI/SMB/CL

**Sheet 5 of 41**  
**Haswell ULT LPC/  
SPI/SMB/CL**

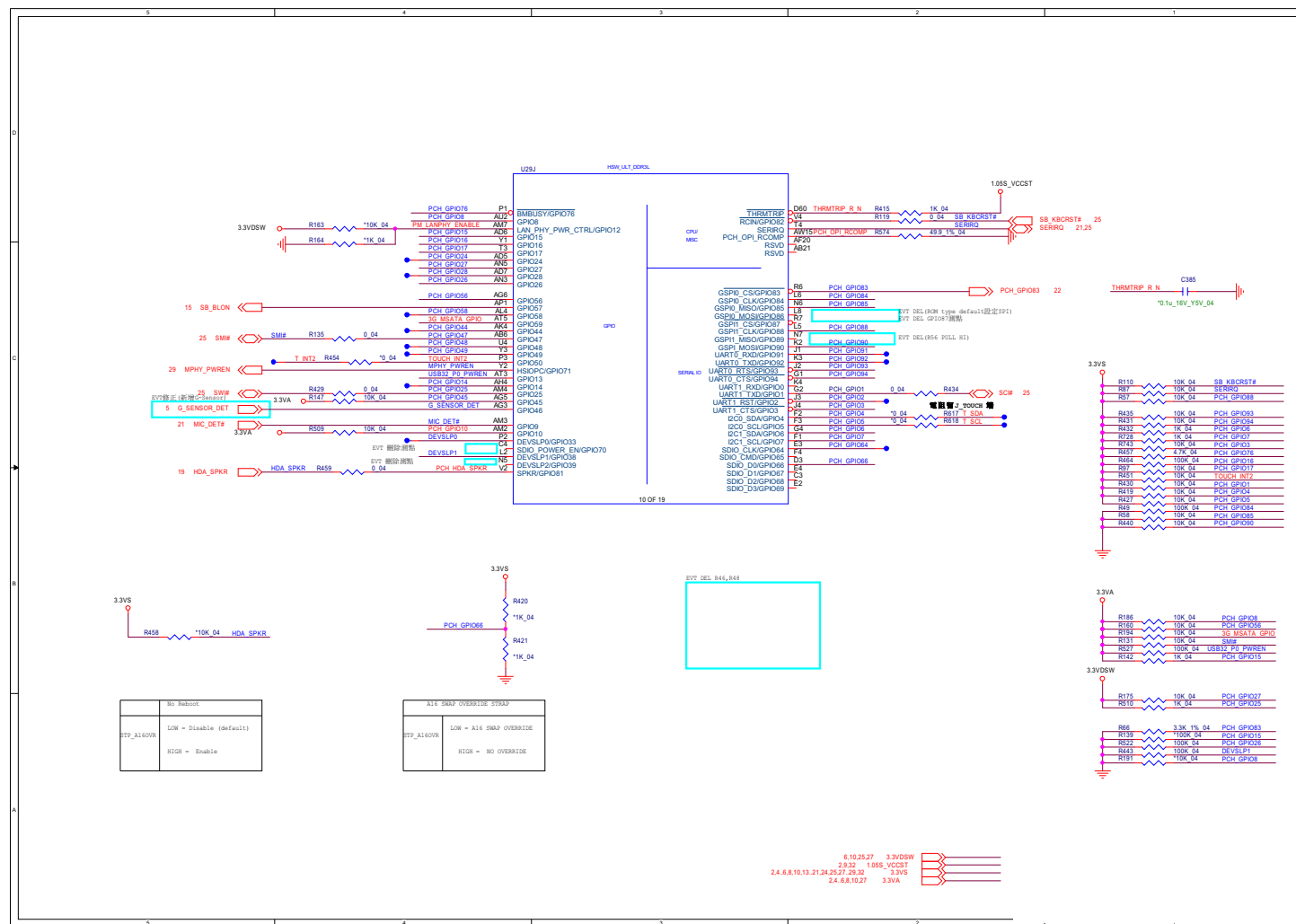




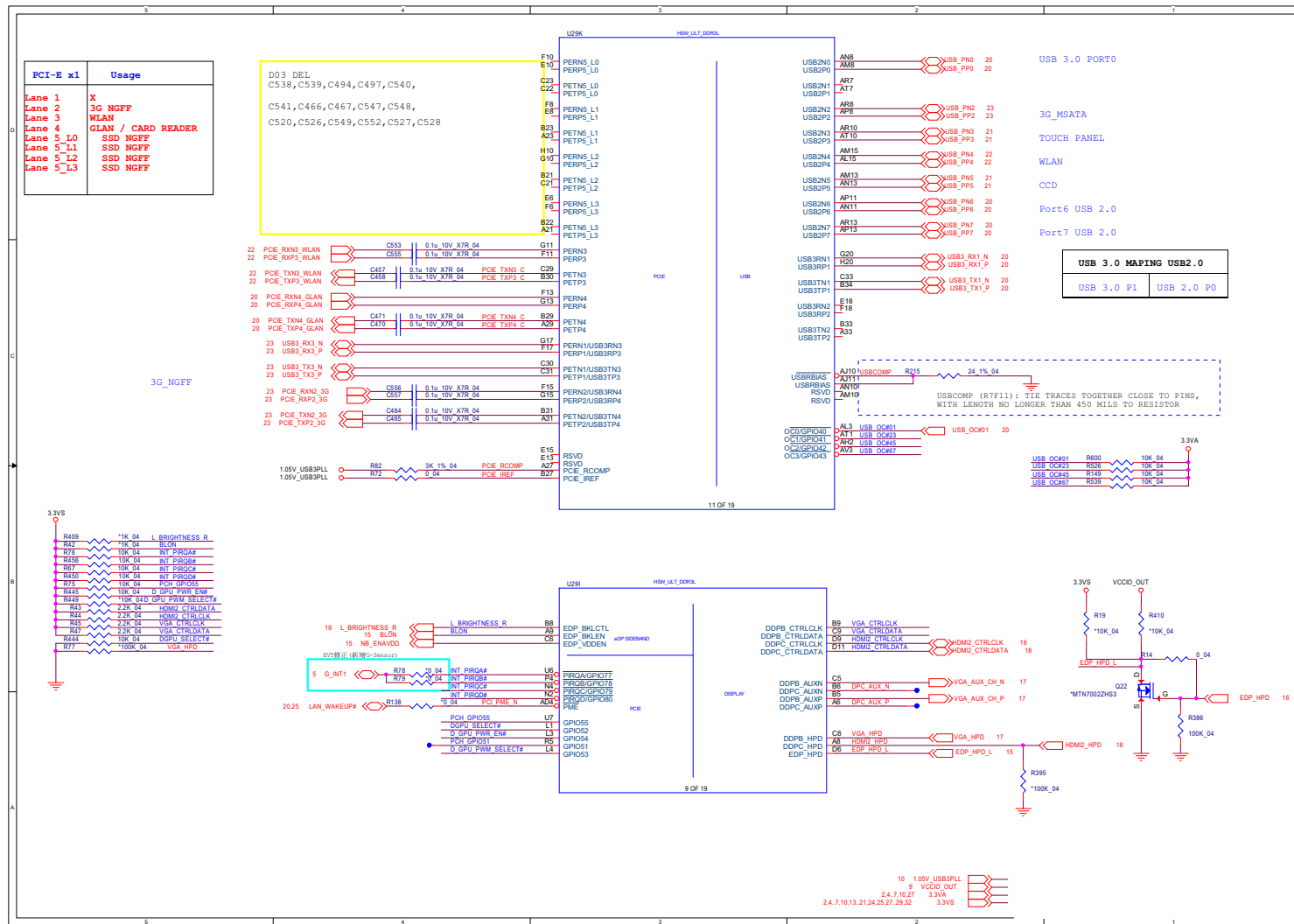
## Haswell ULT GPIOs

## B.Schematic Diagrams

Sheet 7 of 41  
Haswell ULT GPIOs



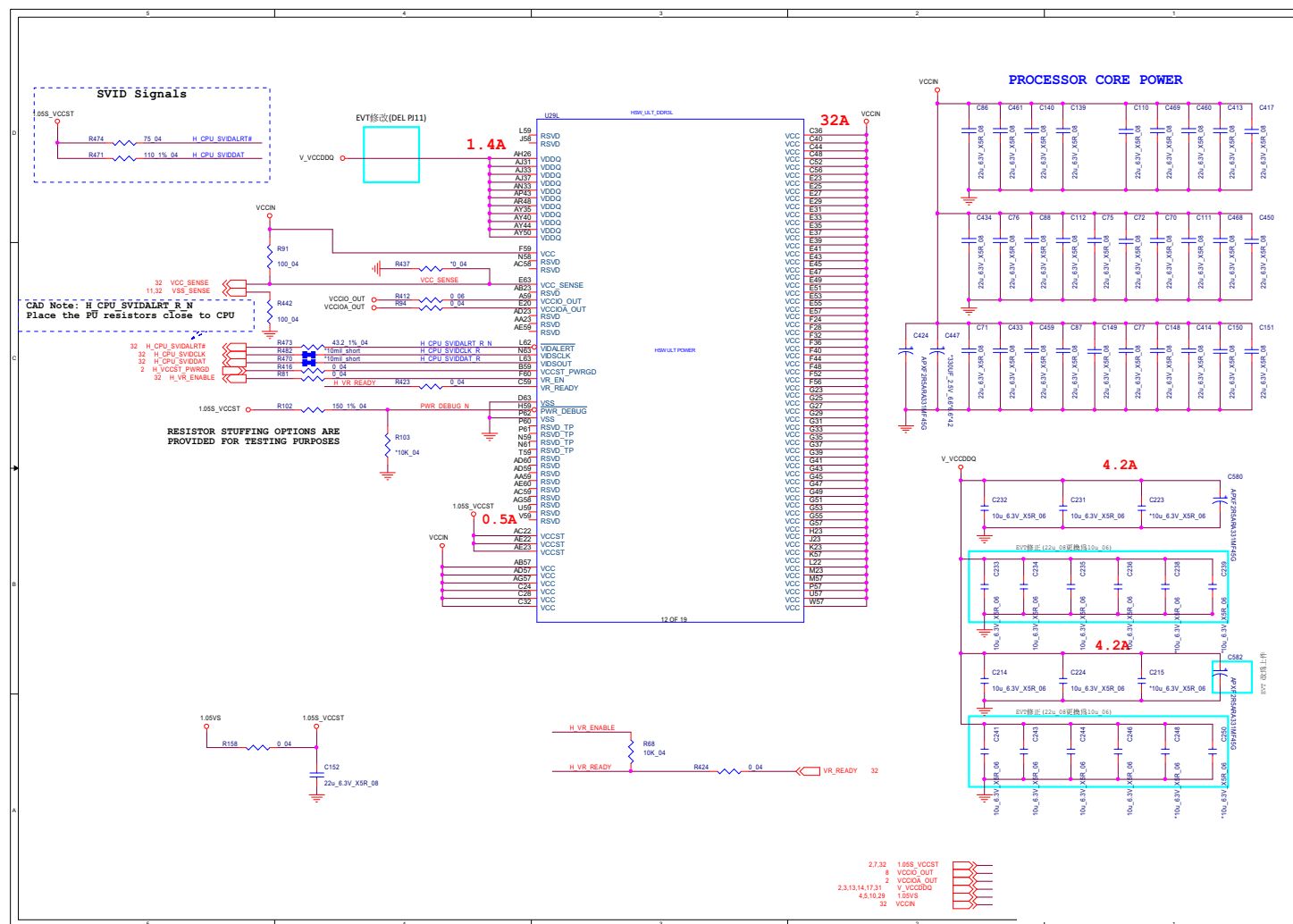
# Haswell ULT PCIE, USB, eDP



Sheet 8 of 41  
Haswell ULT PCIE,  
USB, eDP

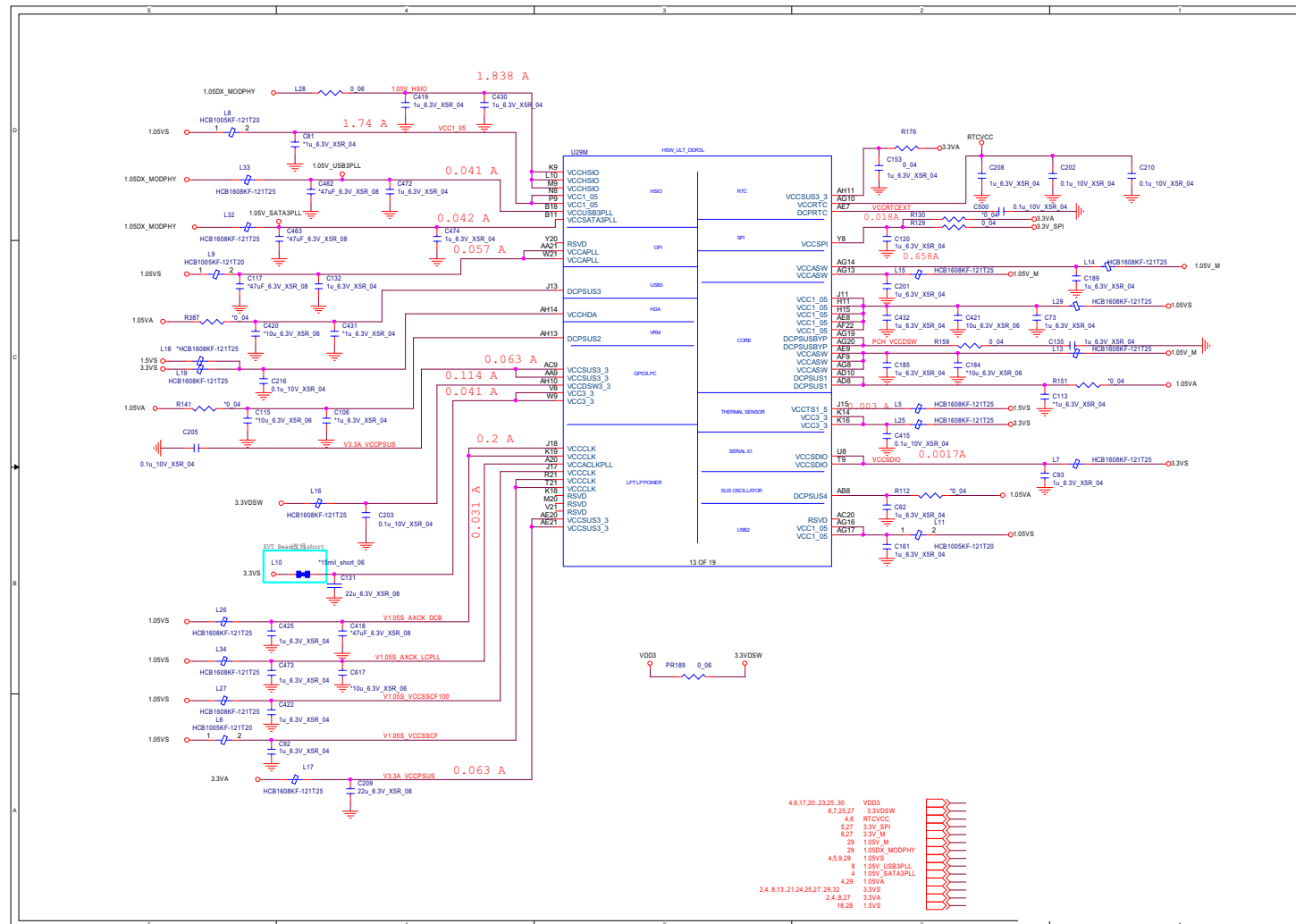
## Haswell ULT Power 1

Sheet 9 of 41  
Haswell ULT Power  
1



# Haswell ULT Power 2

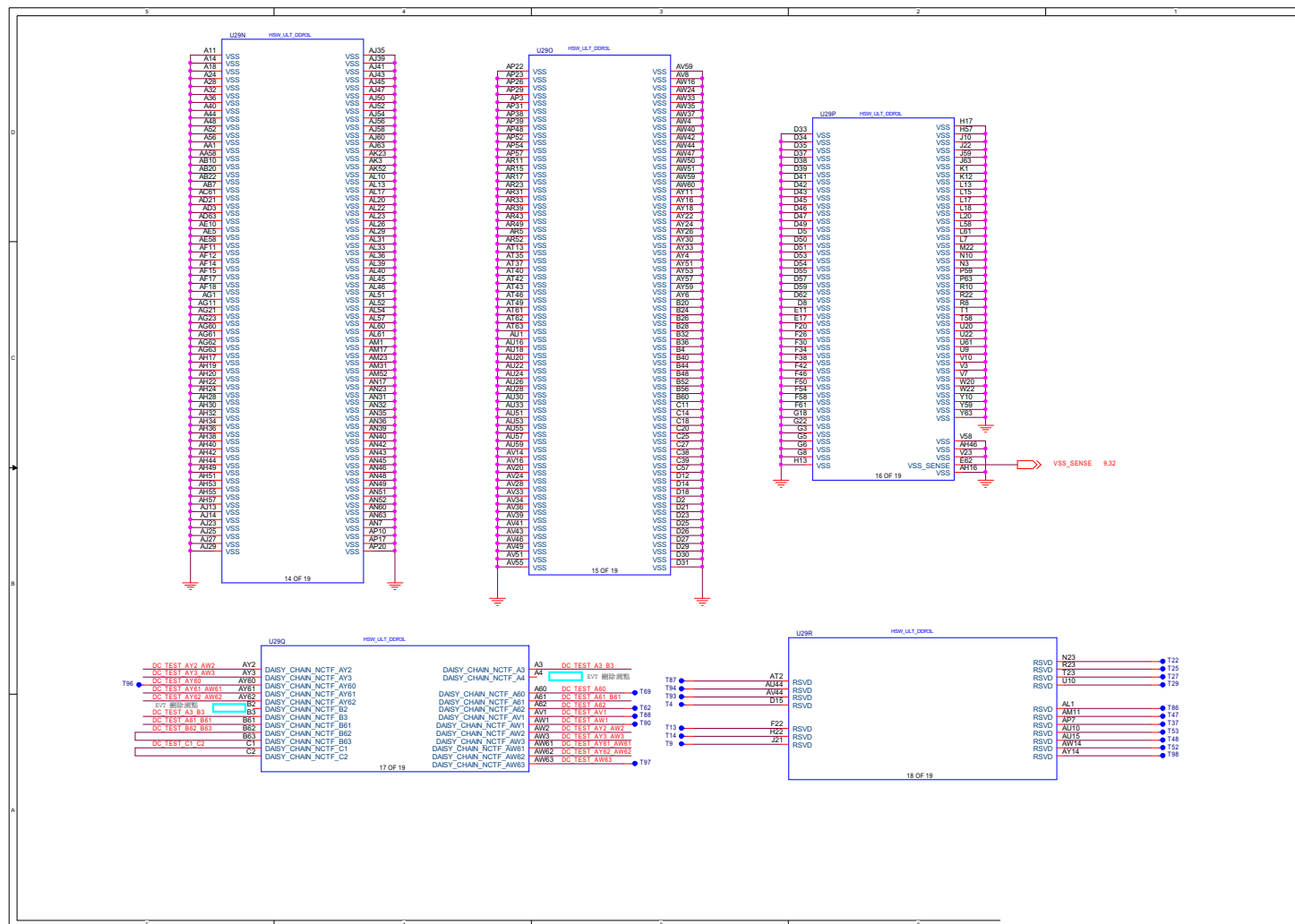
Sheet 10 of 41  
Haswell ULT Power  
2



## Haswell ULT Power-VSS

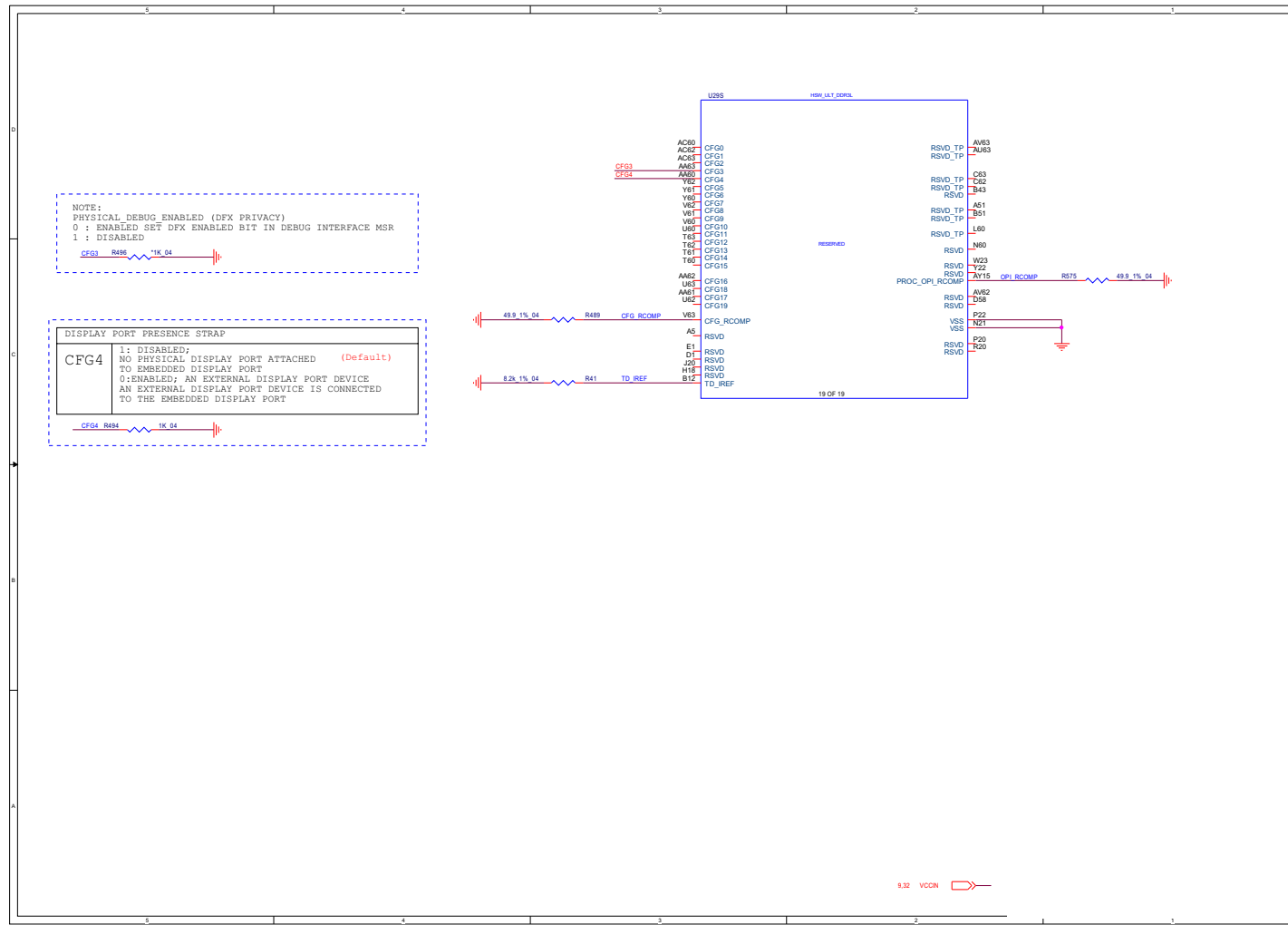
## B. Schematic Diagrams

Sheet 11 of 41  
Haswell ULT  
Power-VSS





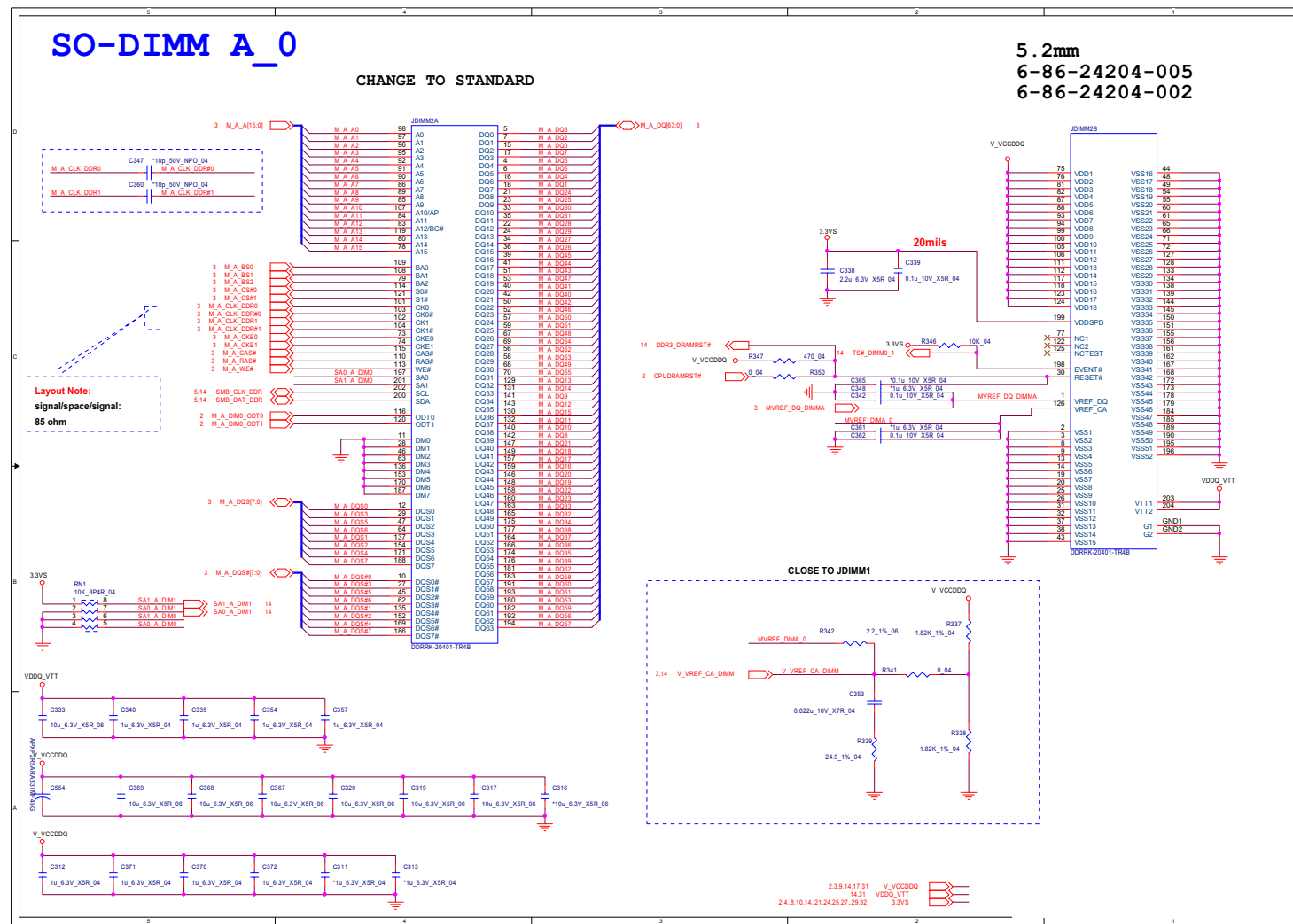
## Haswell ULT CFG, RSVD



**Sheet 12 of 41**  
**Haswell ULT CFG,**  
**RSVD**

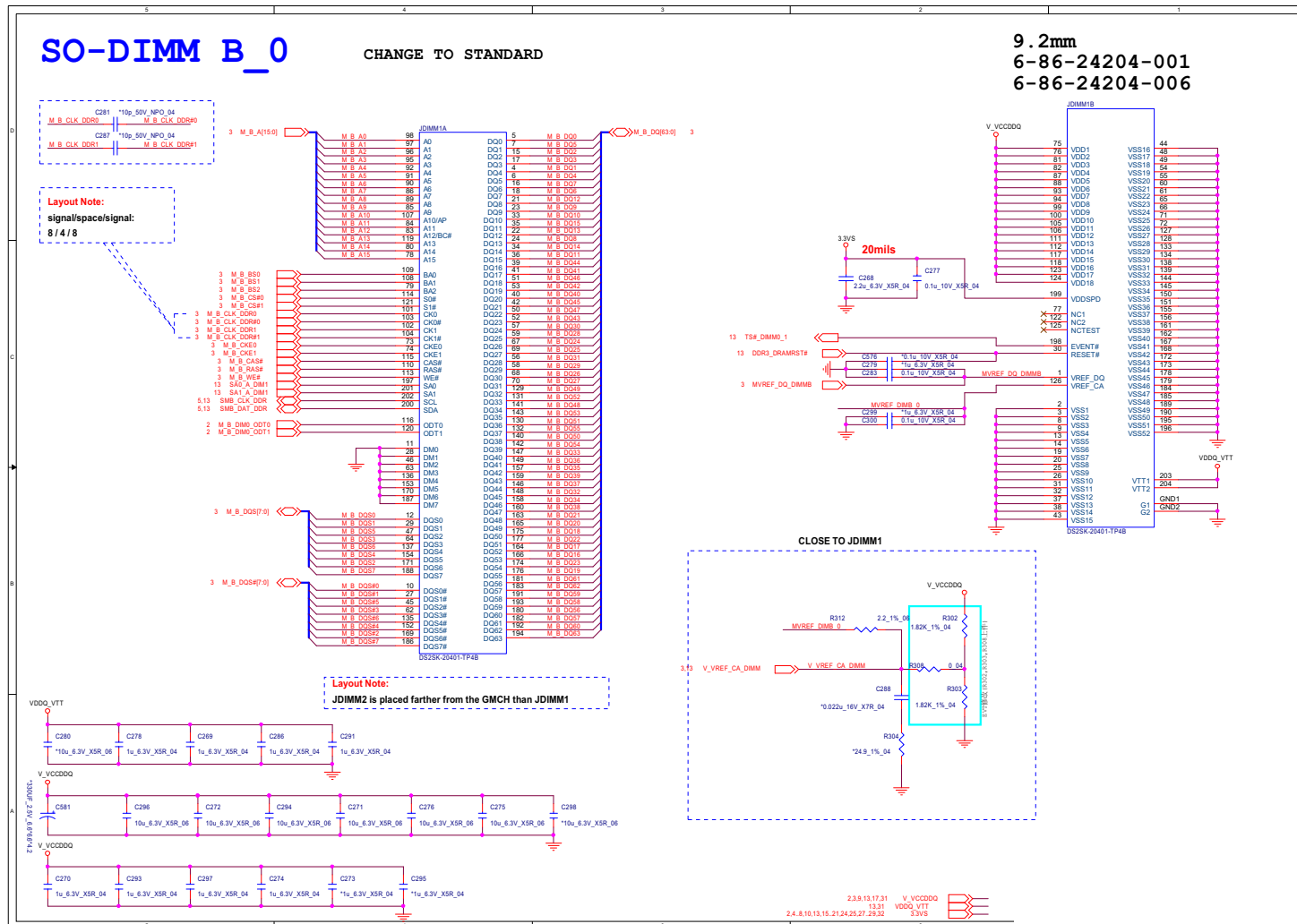
## DDR3 SO-DIMM\_A\_0

Sheet 13 of 41  
DDR3 SO-  
DIMM A 0



## Schematic Diagrams

## DDR3 SO-DIMM\_B\_0



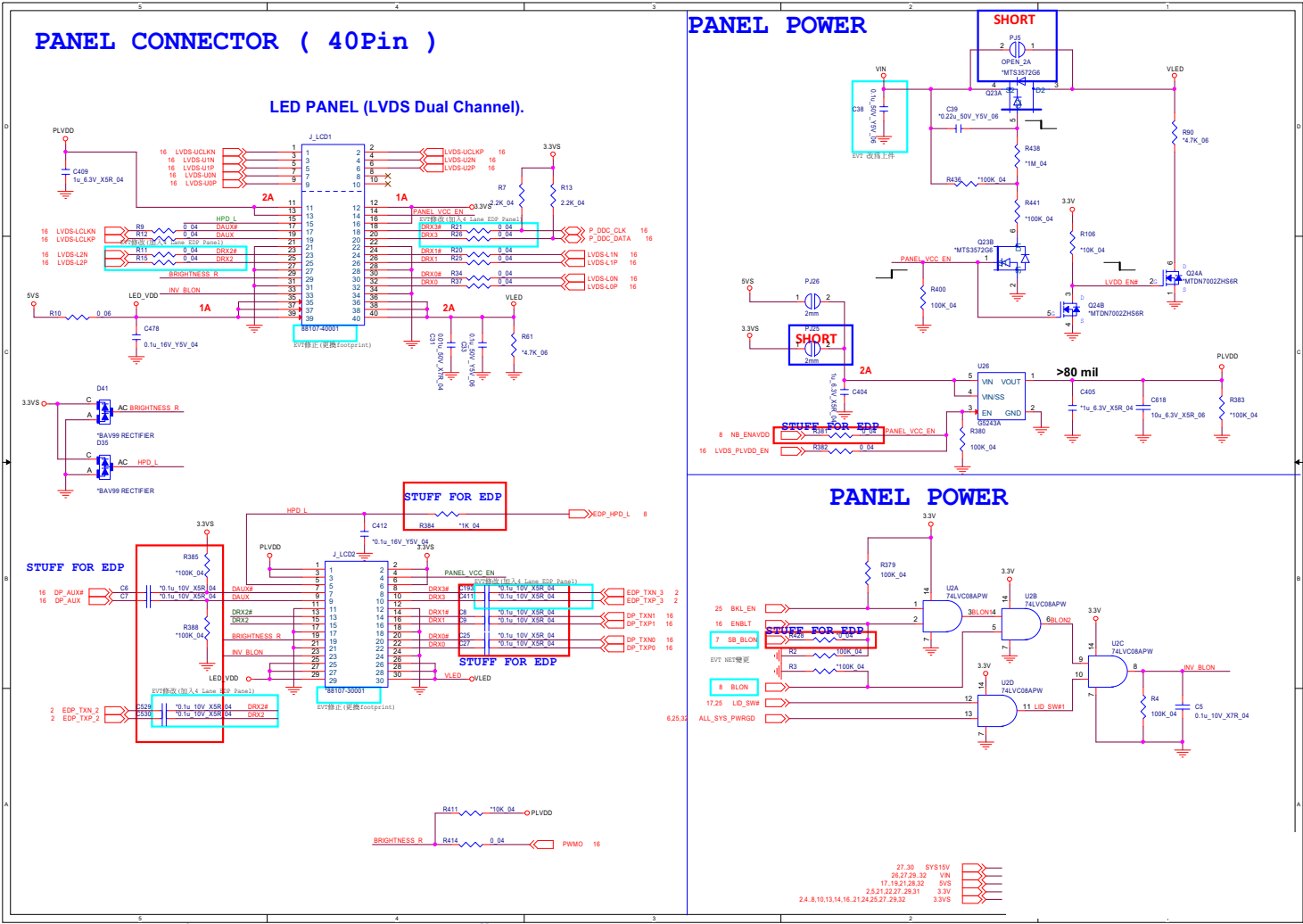
Sheet 14 of 41  
DDR3 SO-  
DIMM\_B\_0

## B.Schematic Diagrams

Schematic Diagrams

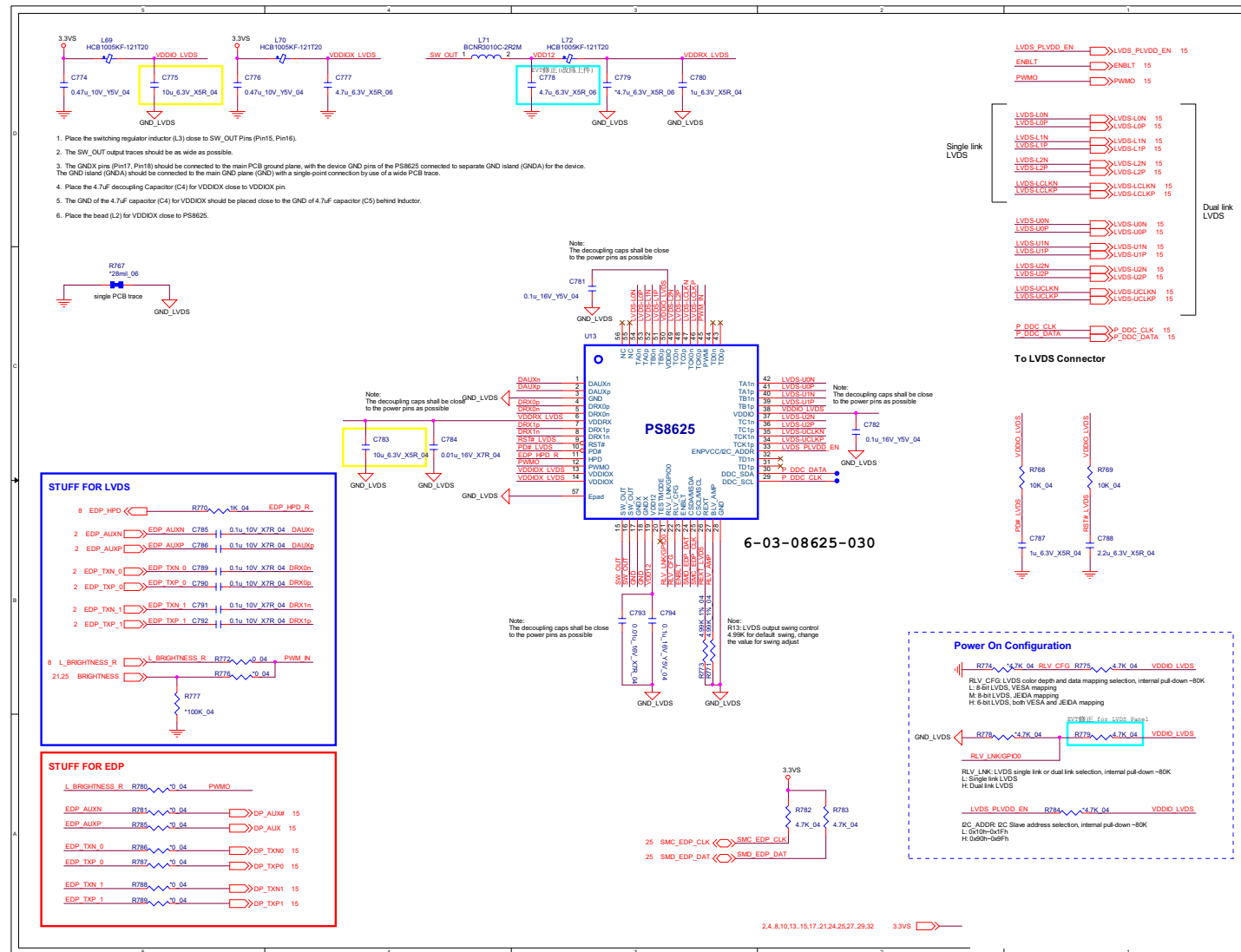
Panel, Inverter

Sheet 15 of 41  
Panel, Inverter



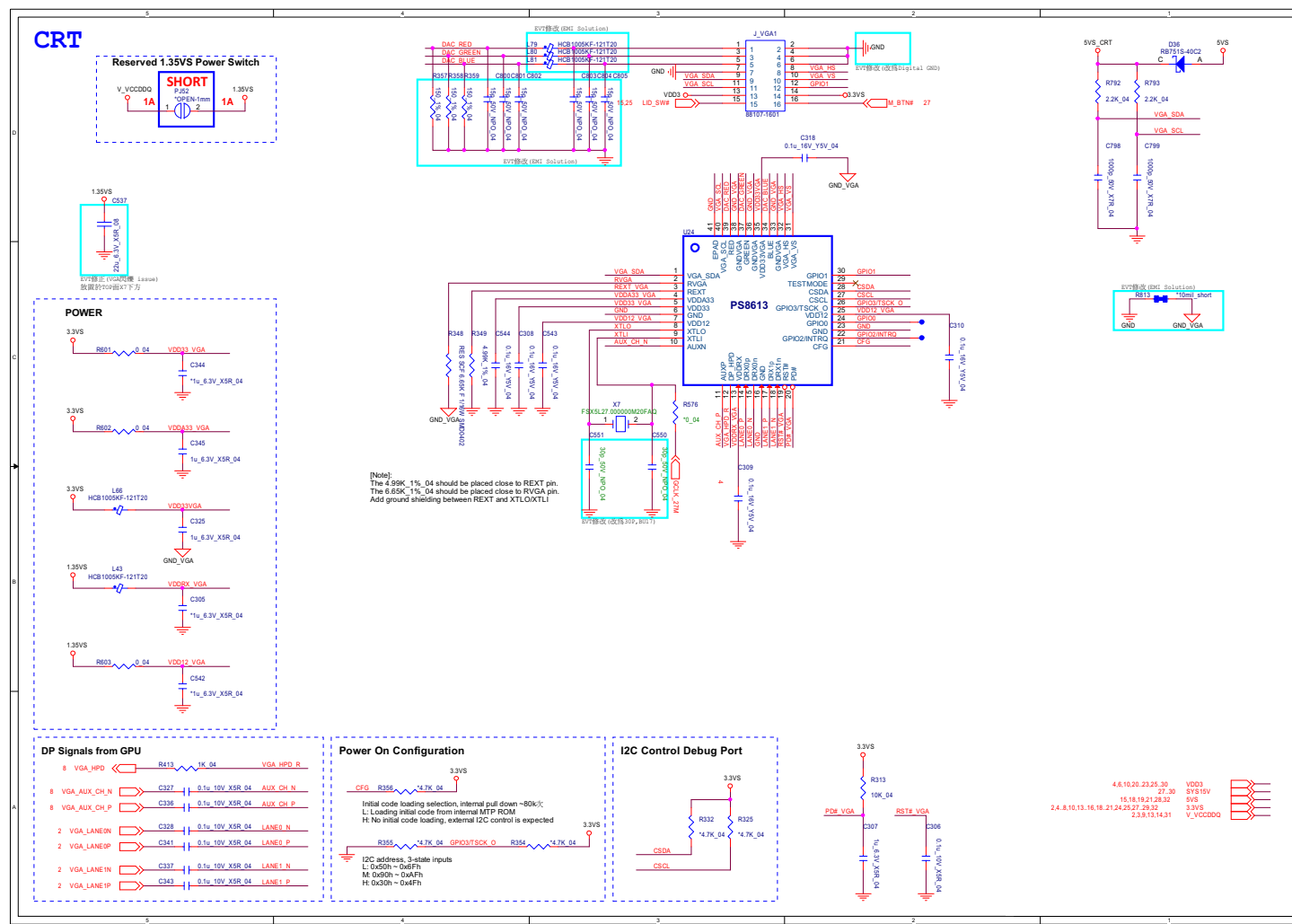
## LVDS\_PS8625 B - 17

## B.Schematic Diagrams



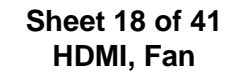
**PS8613**

Sheet 17 of 41  
PS8613



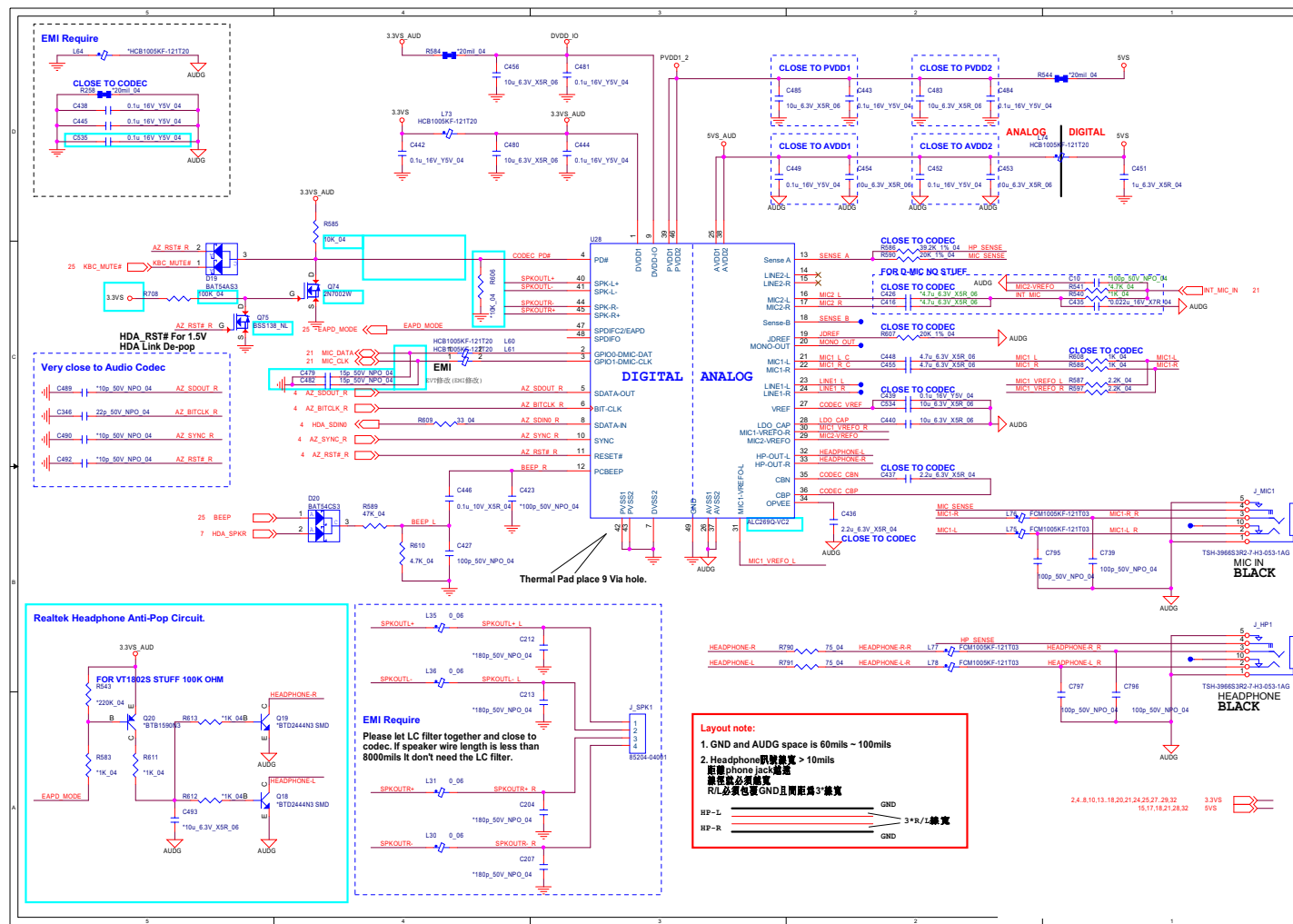


## HDMI, Fan B - 19

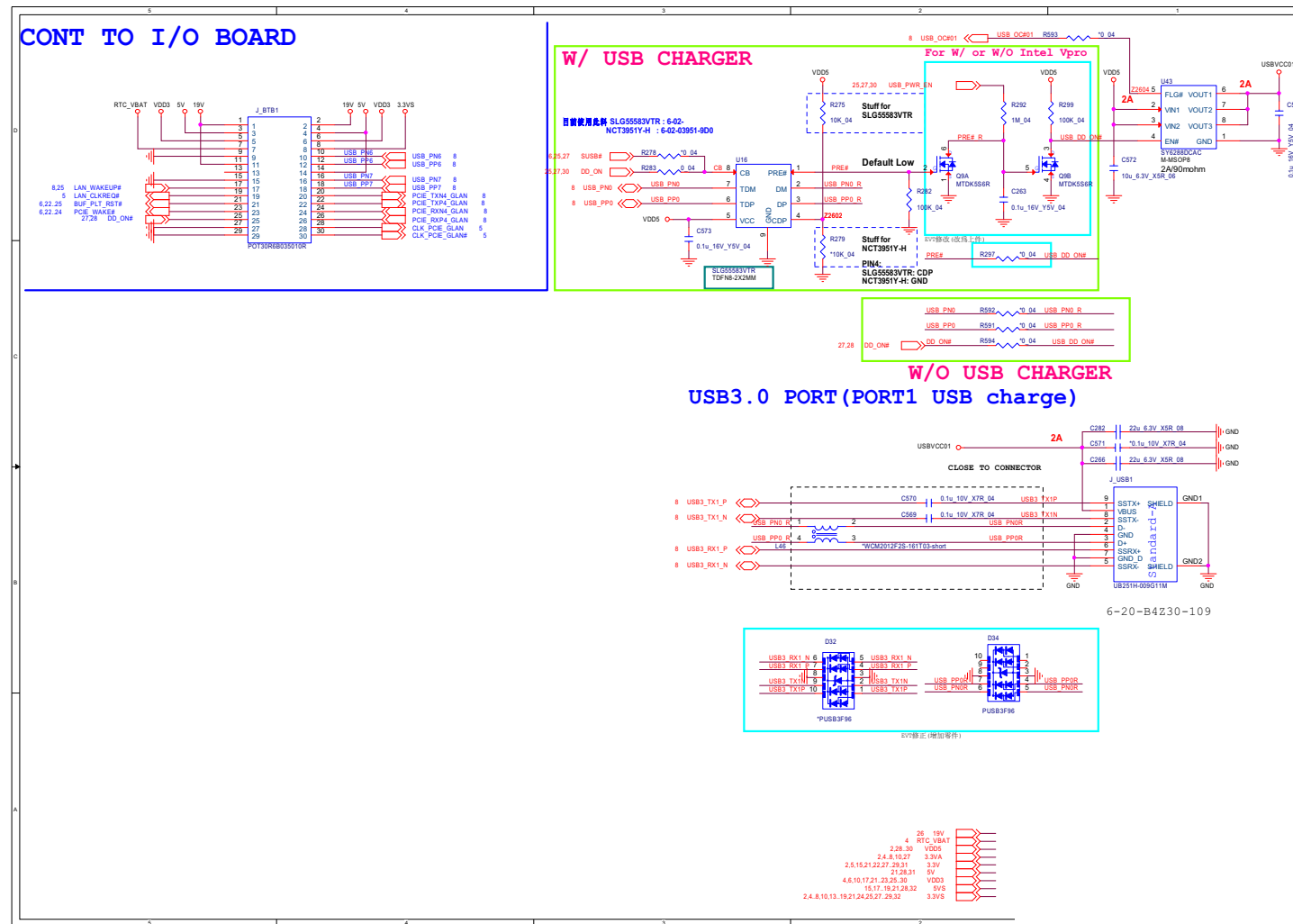


## Audio Codec

**Sheet 19 of 41**  
**Audio Codec**



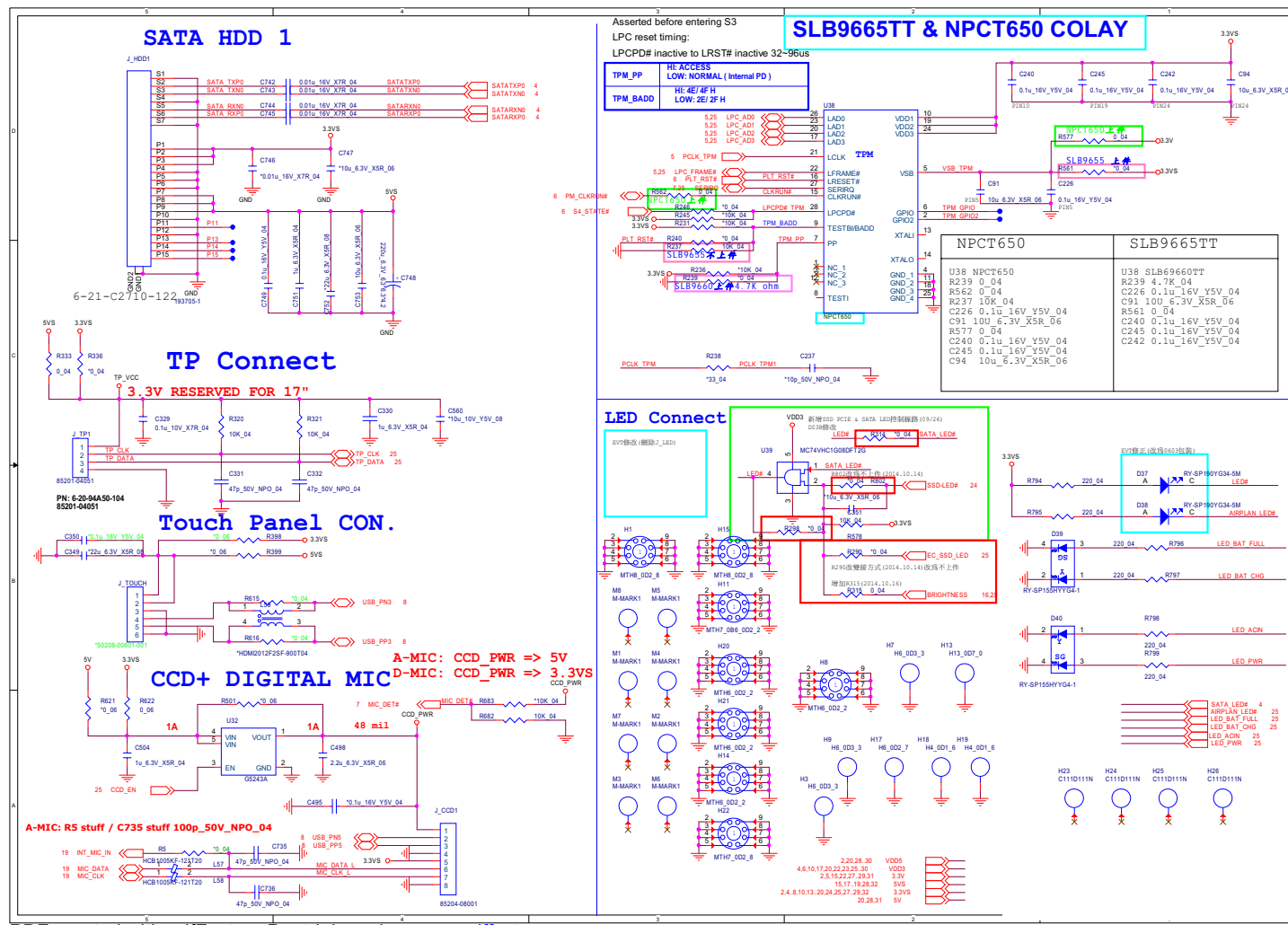
# USB Charge, USB 3.0, I/O Con



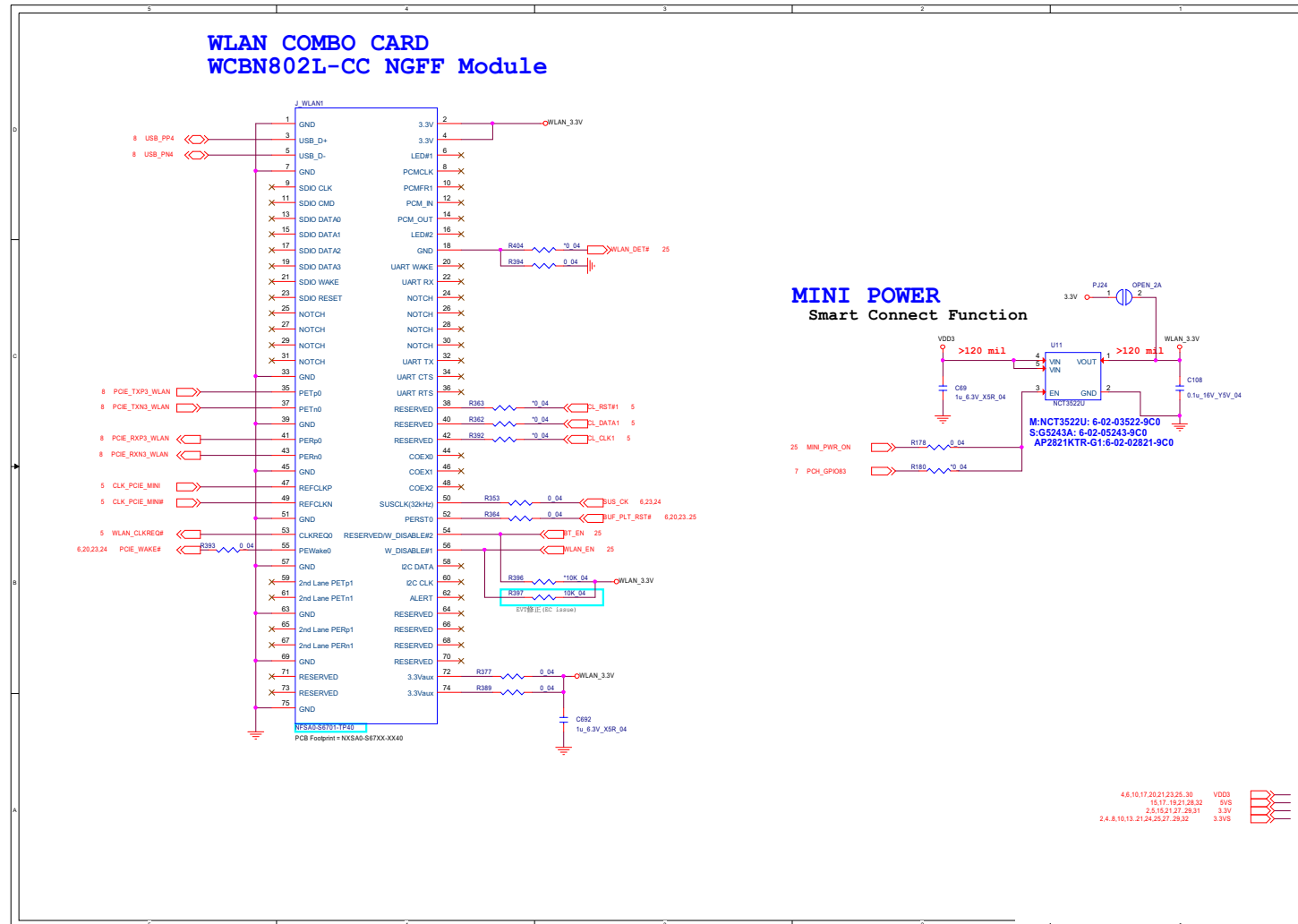
Sheet 20 of 41  
USB Charge,  
USB 3.0, I/O Con

## CCD, TPM, TP, HDD, LED

Sheet 21 of 41  
CCD, TPM, TP,  
HDD, LED



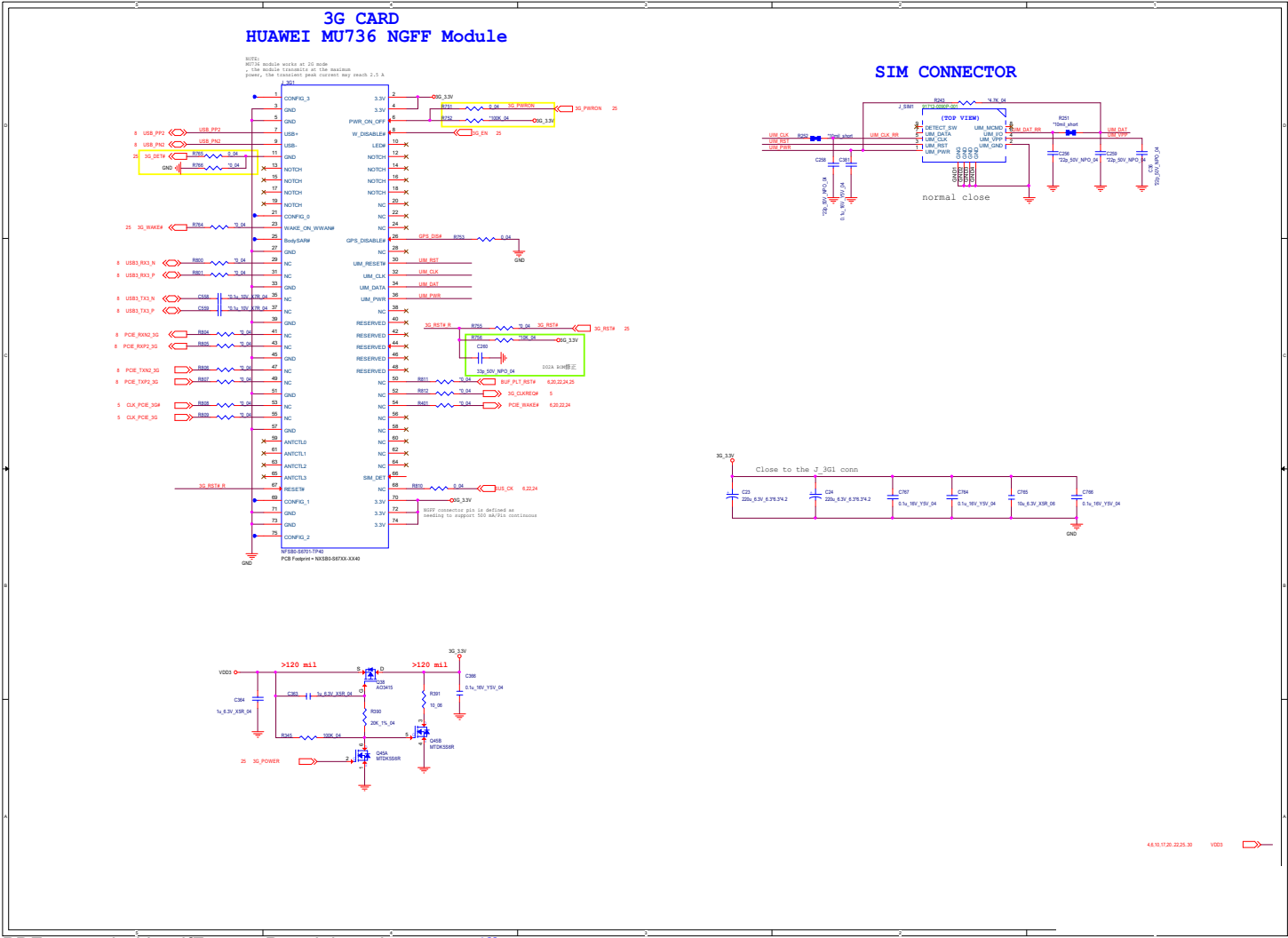
## NGFF\_WLAN

Sheet 22 of 41  
NGFF\_WLAN

Schematic Diagrams

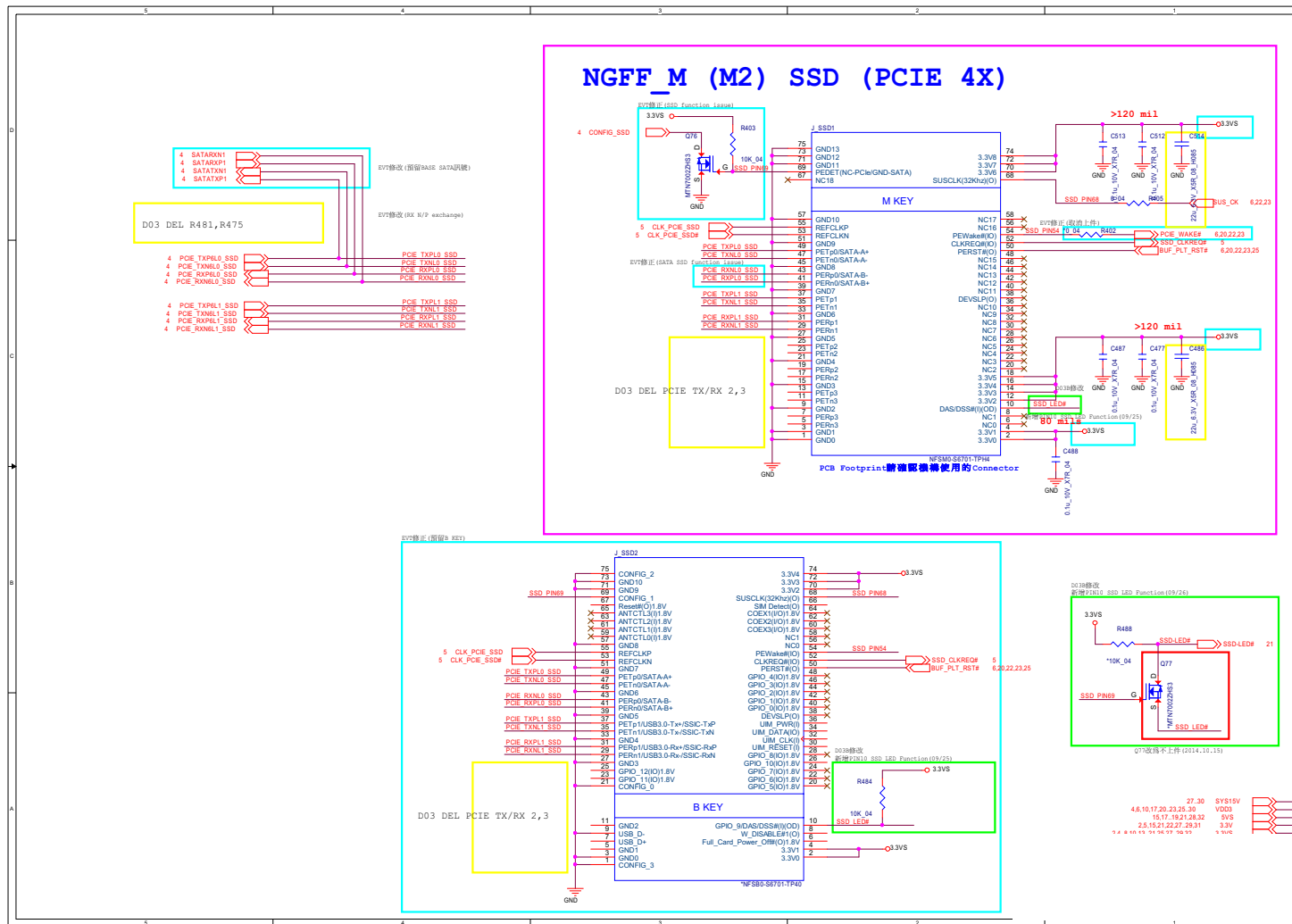
NGFF\_3G

Sheet 23 of 41  
NGFF\_3G

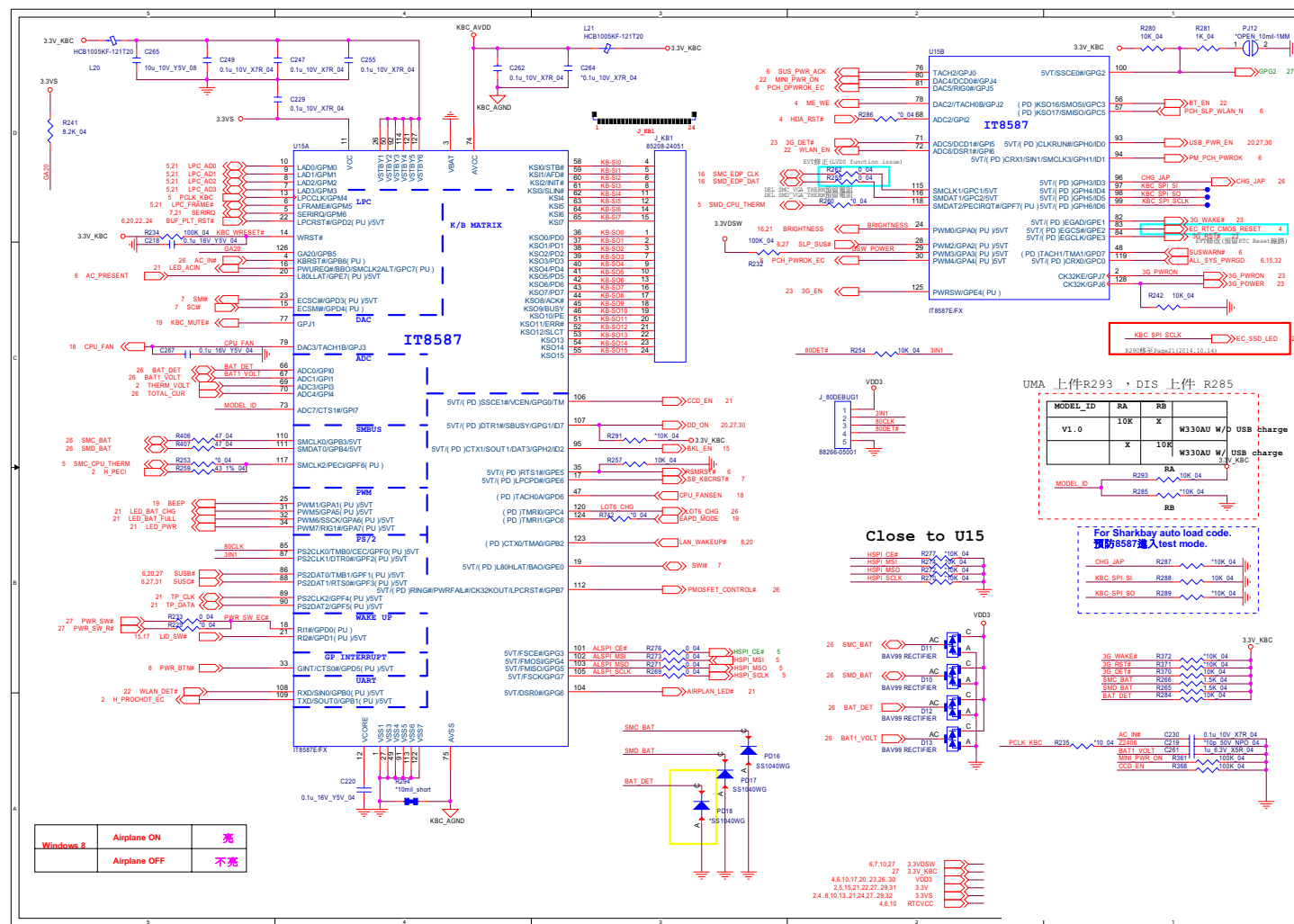




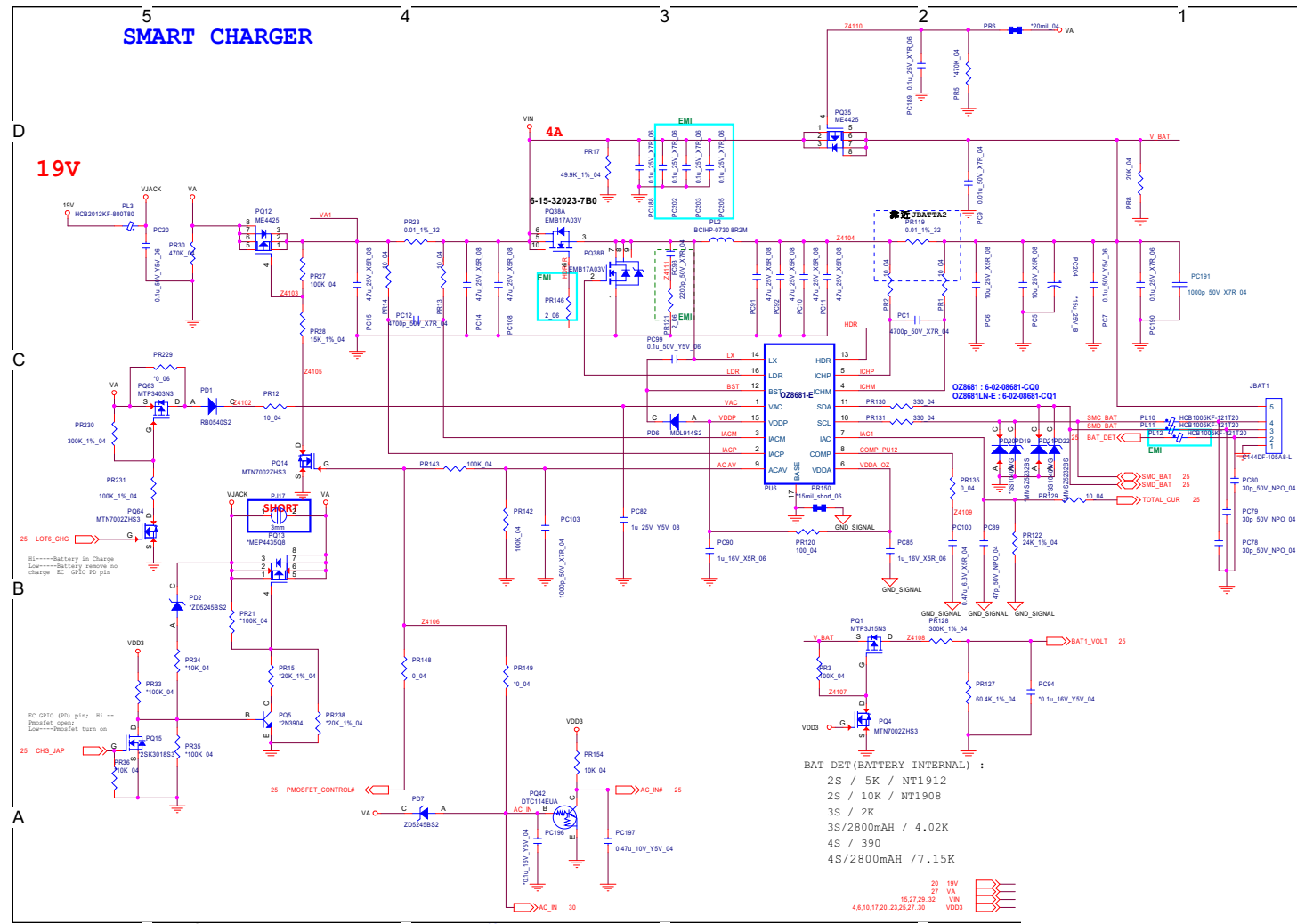
## NGFF\_SSD

Sheet 24 of 41  
NGFF\_SSD

**B - 26 KBC-ITE IT8587**



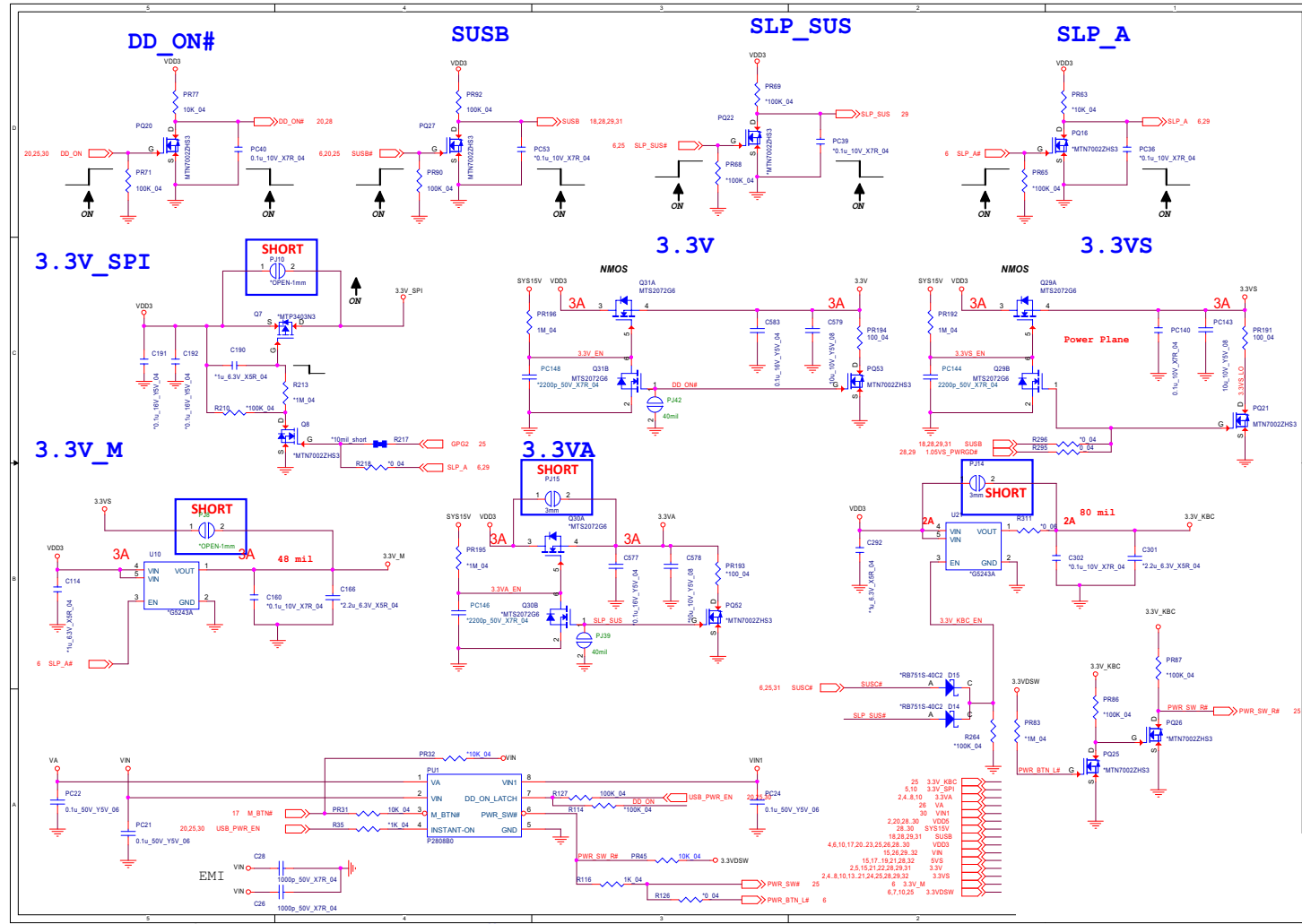
## B.Schematic Diagrams



## Schematic Diagrams

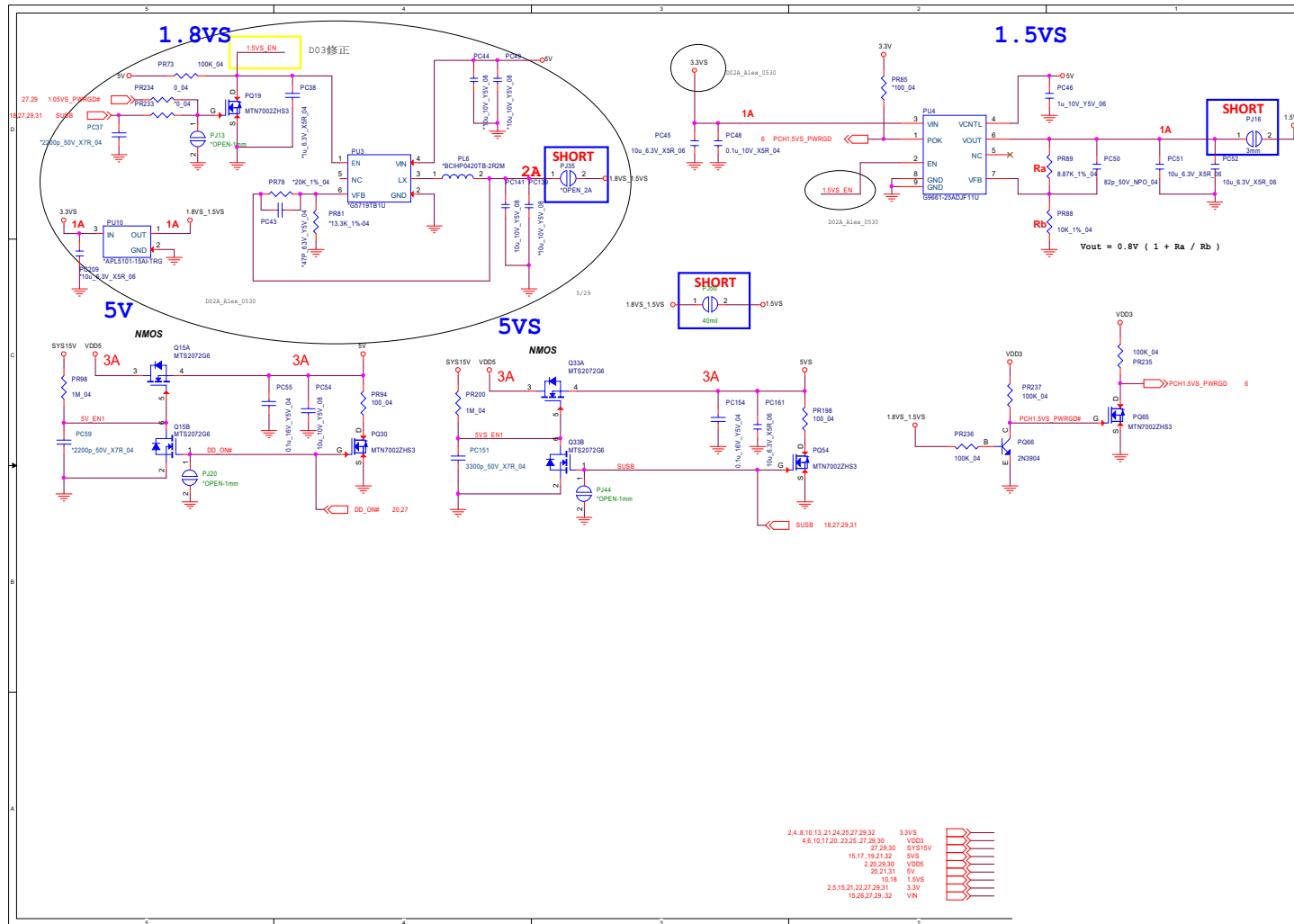
### 3.3V\_SPI, 3.3VS, 3.3V\_M, 3.3V

Sheet 27 of 41  
3.3V\_SPI, 3.3VS,  
3.3V\_M, 3.3V



# 1.8VS, 1.5VS, 5V, 5VS

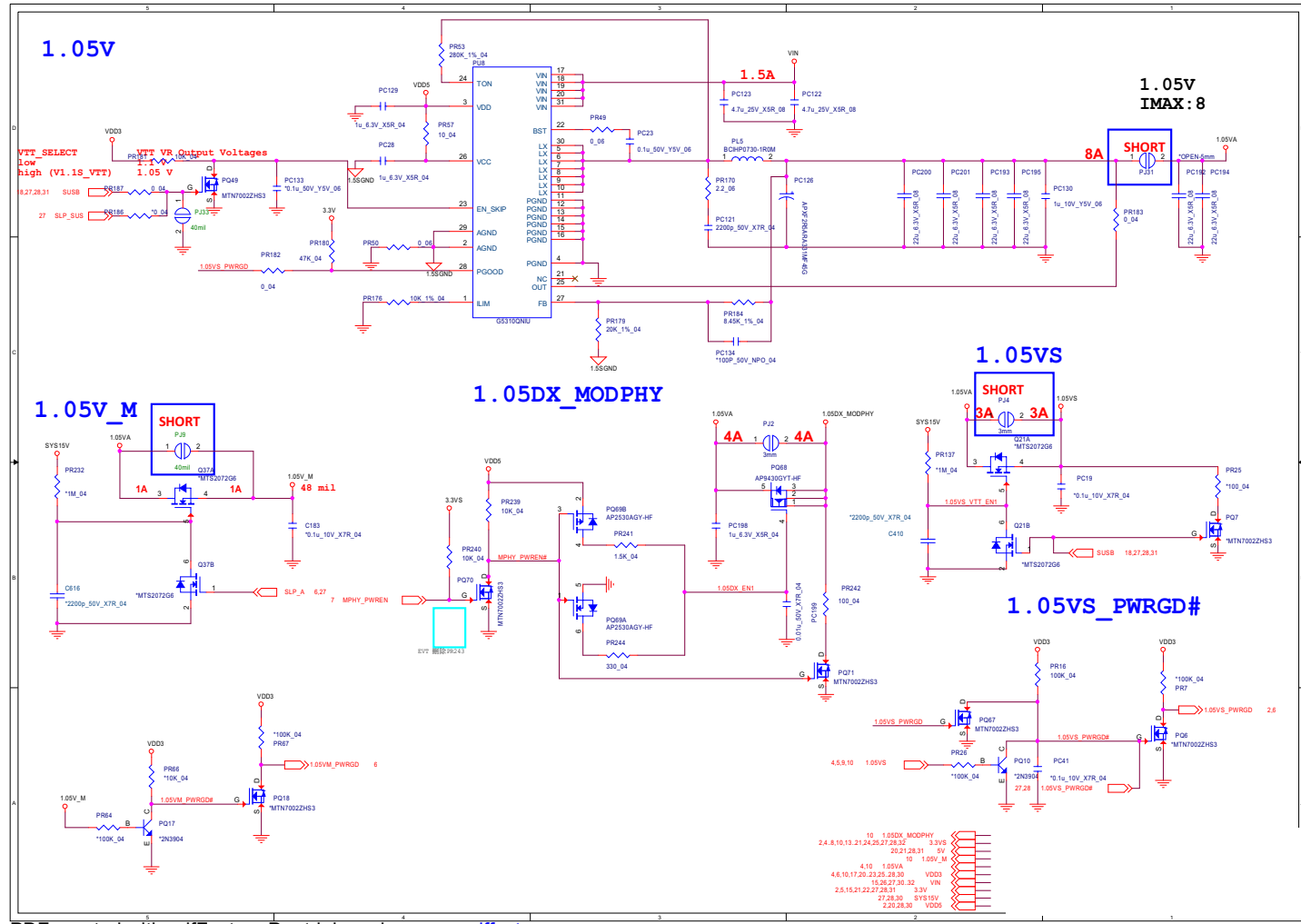
Sheet 28 of 41  
1.8VS, 1.5VS, 5V,  
5VS



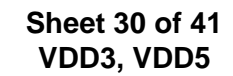


# 1.05V Series

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1.05V Series



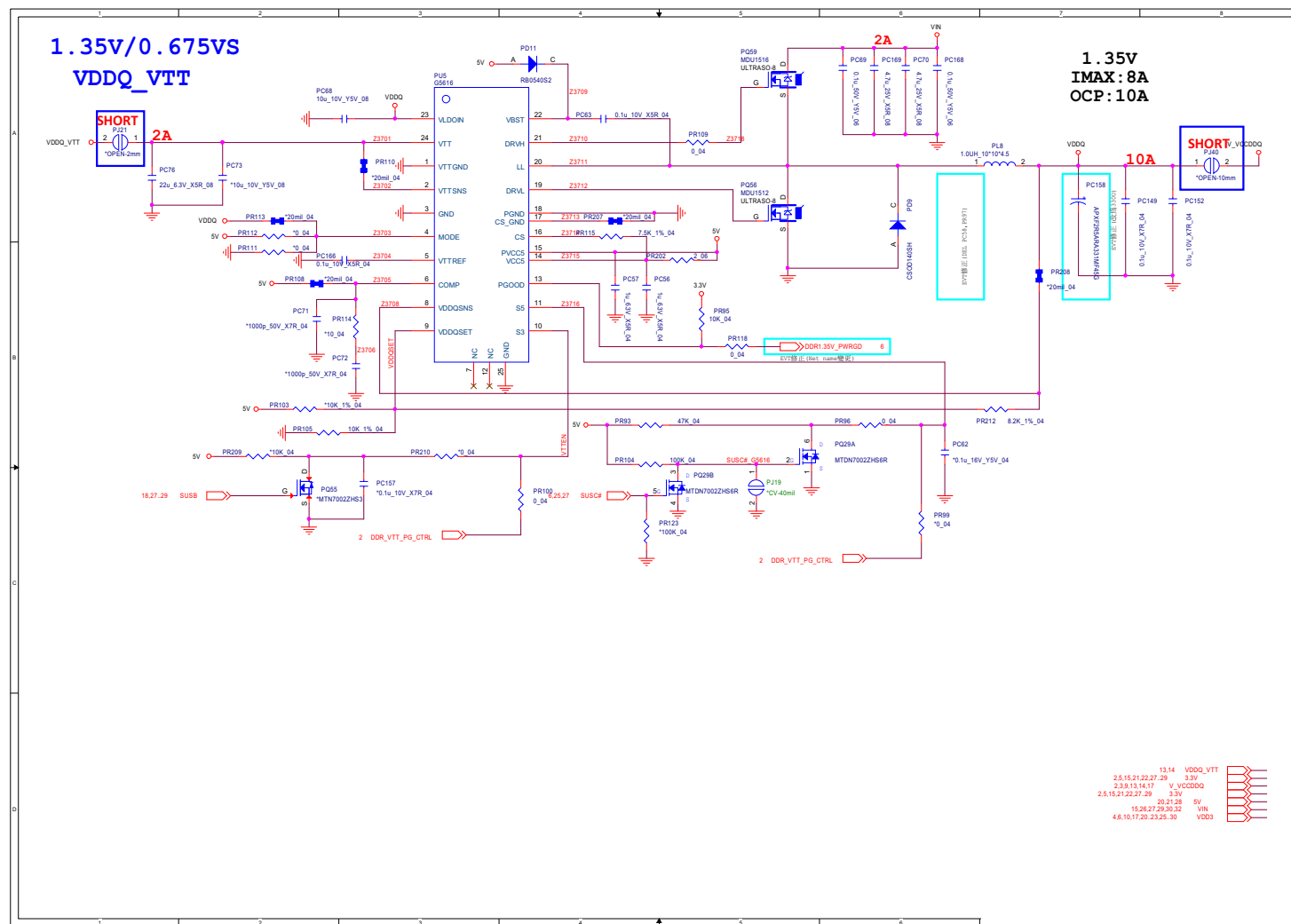
## B.Schematic Diagrams



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

## B. Schematic Diagrams

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1.5V or 1.35V/  
0.75VS PCH 1.5VS



## Schematic Diagrams

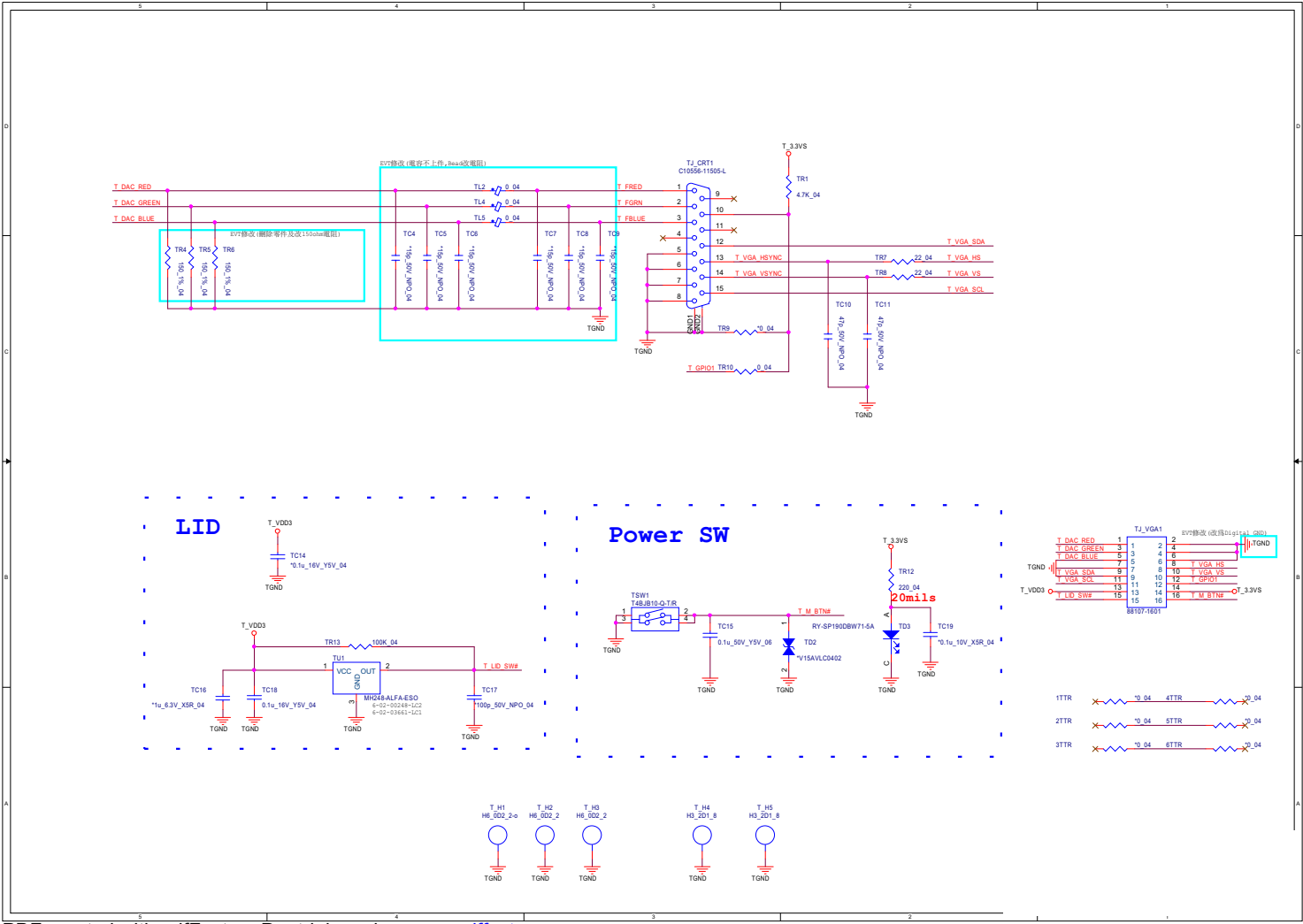


## Schematic Diagrams

Schematic Diagrams

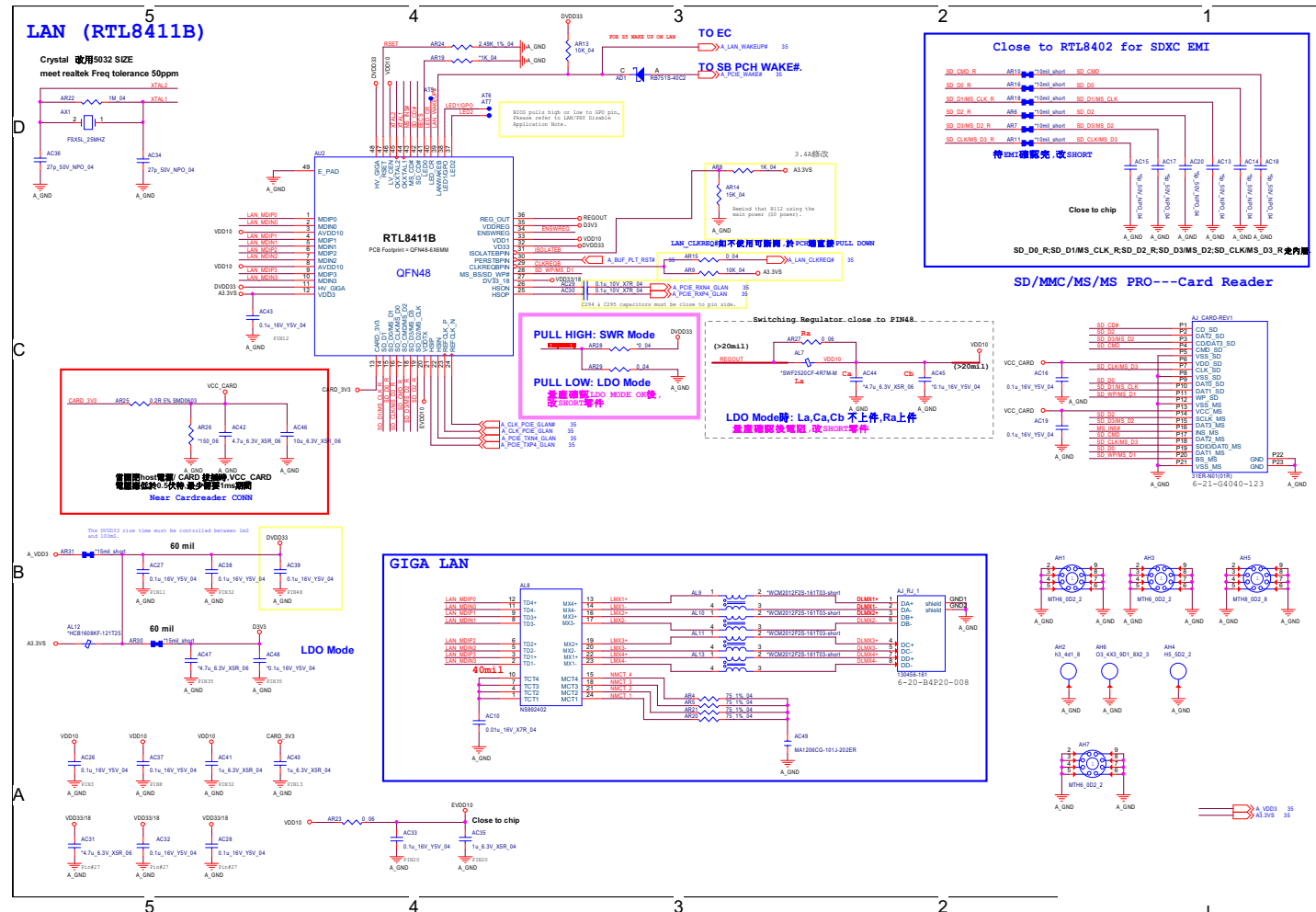
PW SW Board

Sheet 33 of 41  
PW SW Board



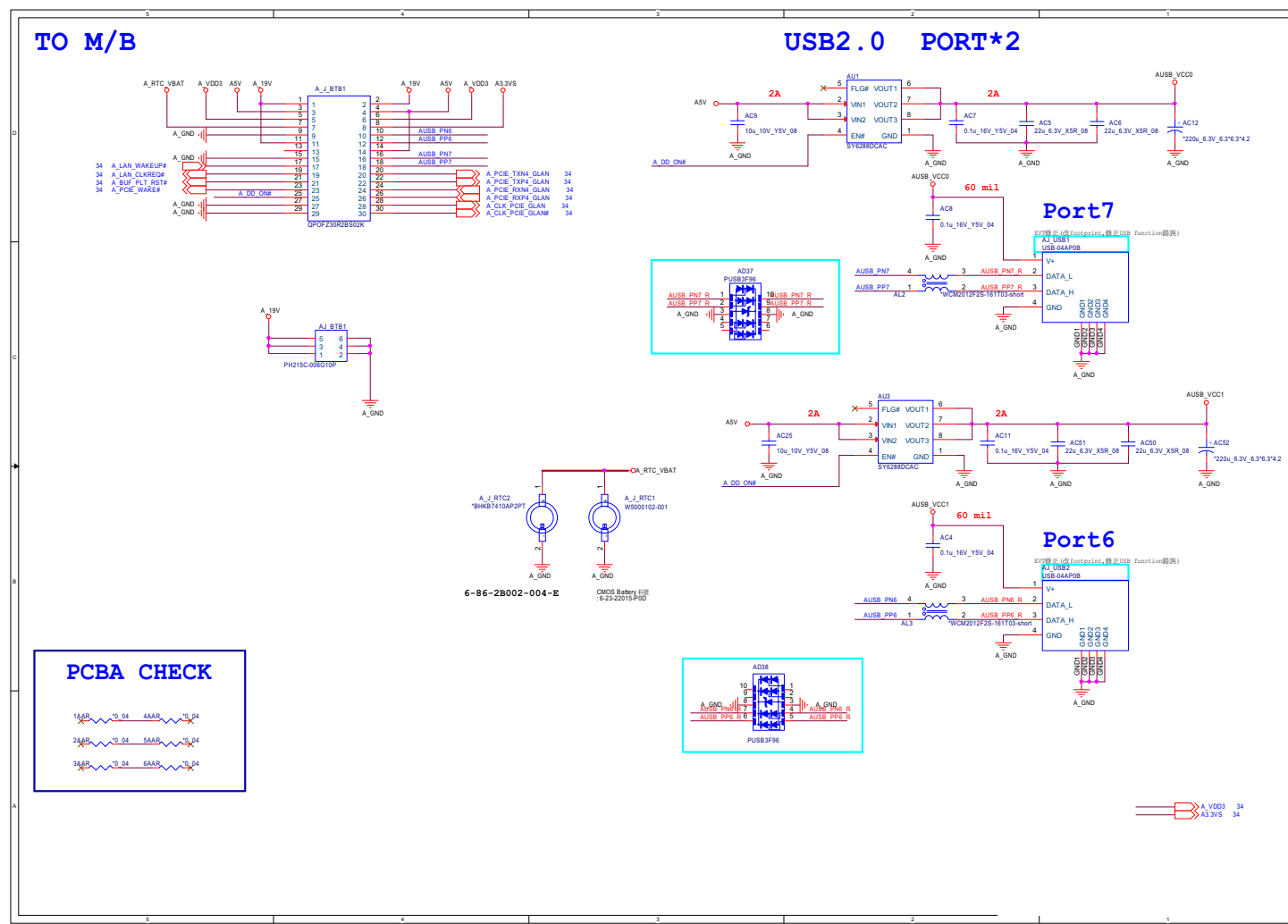


## IO Board - LAN B - 35

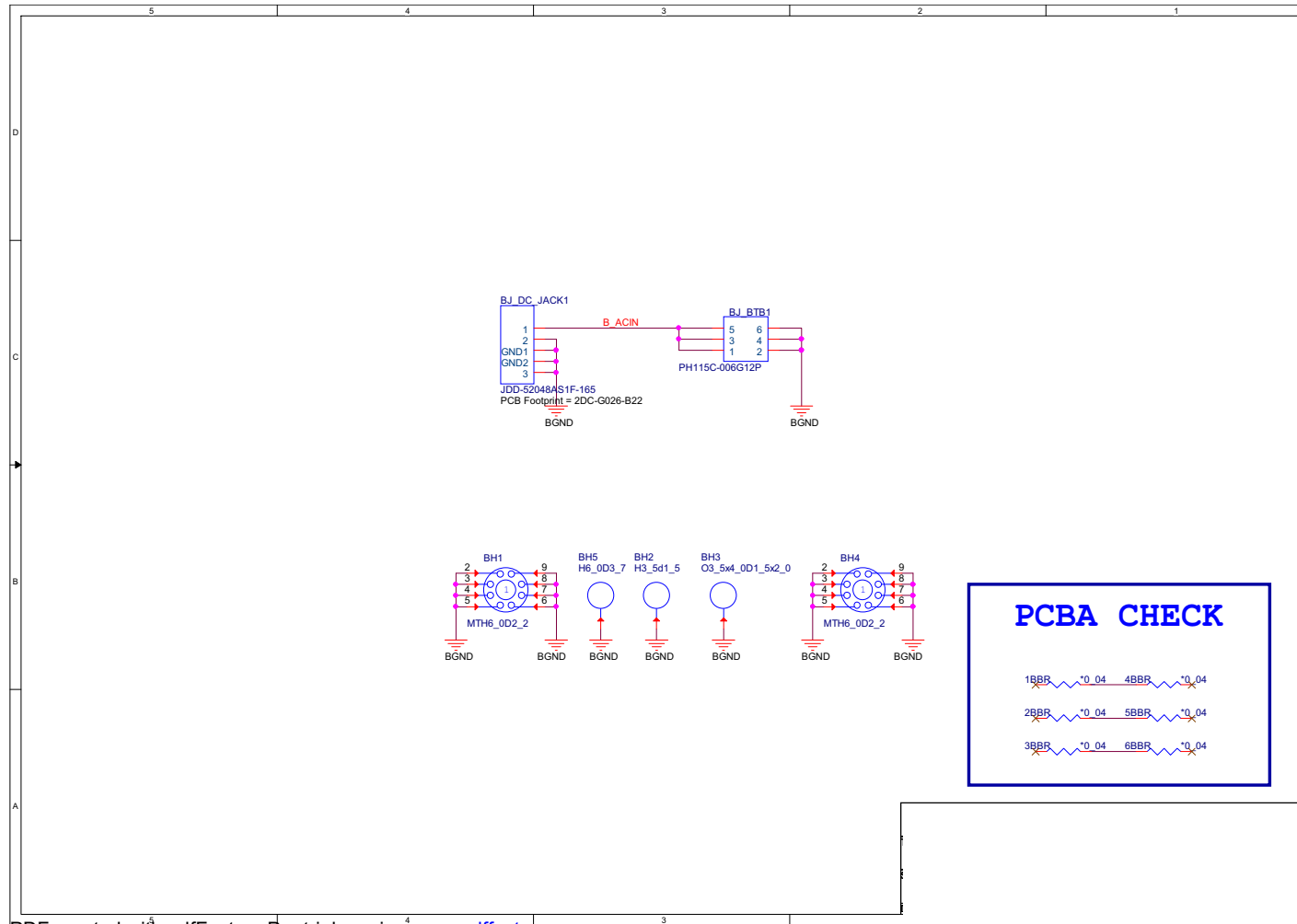


## IO Board - USB

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**IO Board - USB**



# AC-In Conn



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AC-In Conn

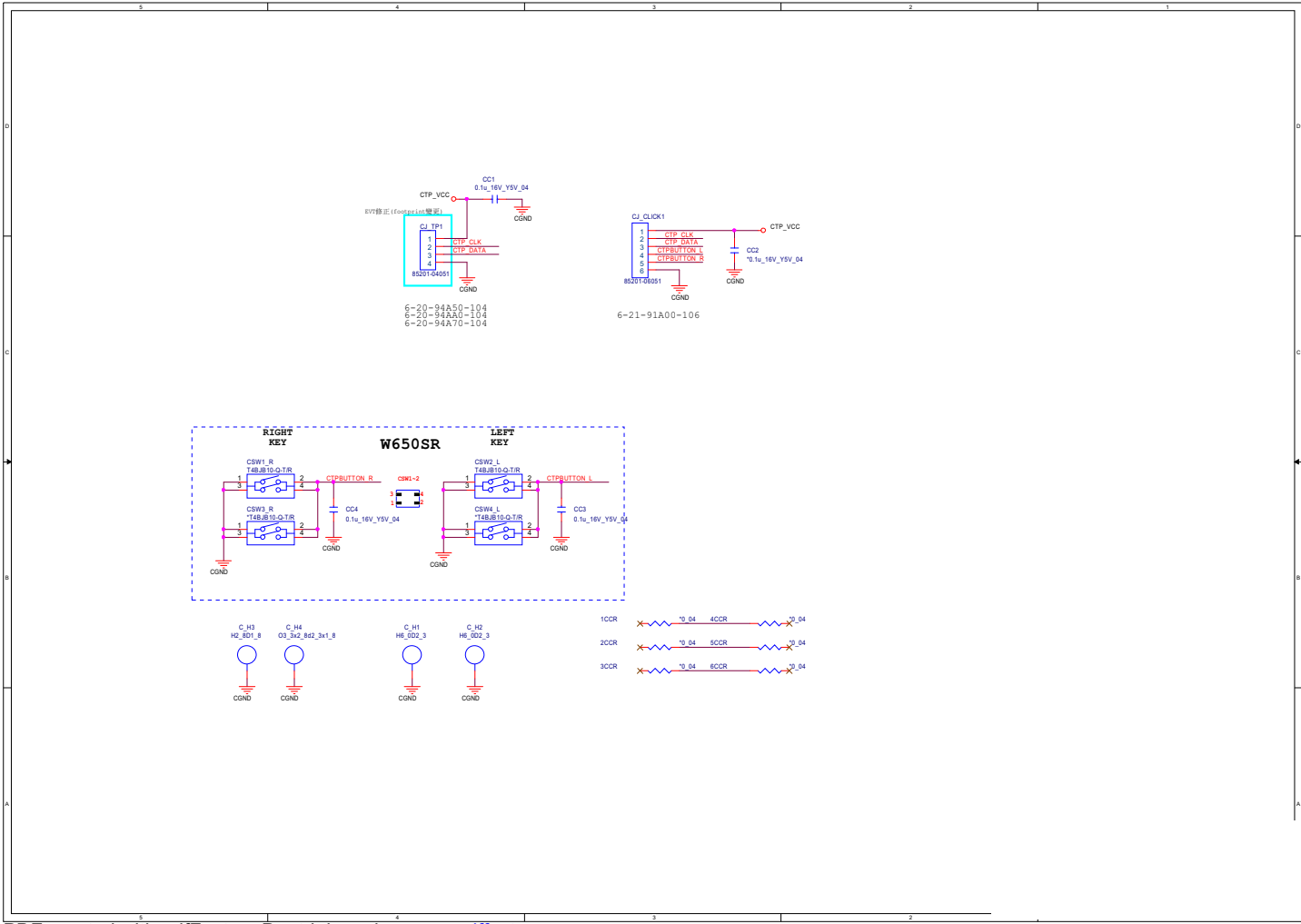
## PCBA CHECK

18BR ~\*0.04 4BBR ~\*0.04  
26BR ~\*0.04 5BBR ~\*0.04  
36BR ~\*0.04 6BBR ~\*0.04

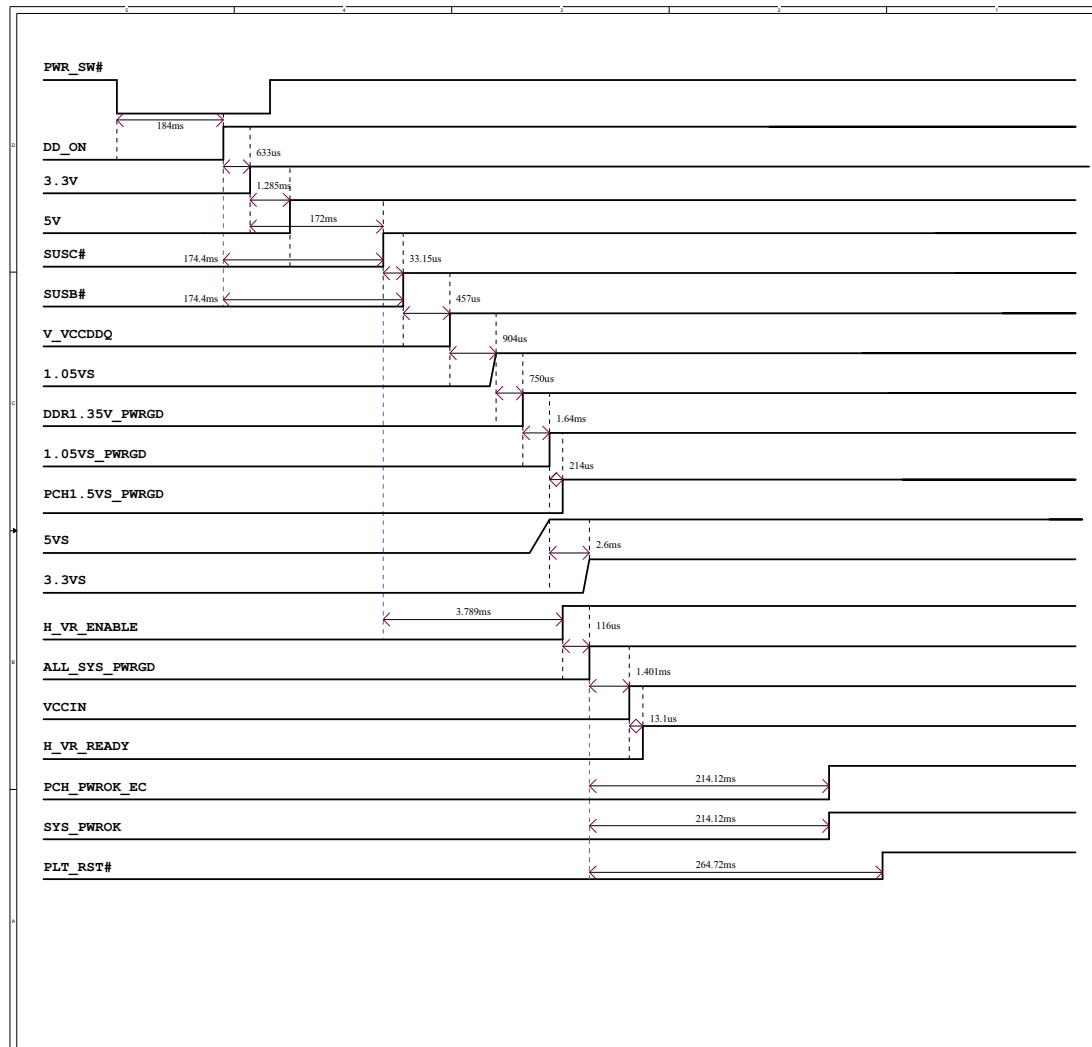
Schematic Diagrams

Click Board

Sheet 37 of 41  
Click Board



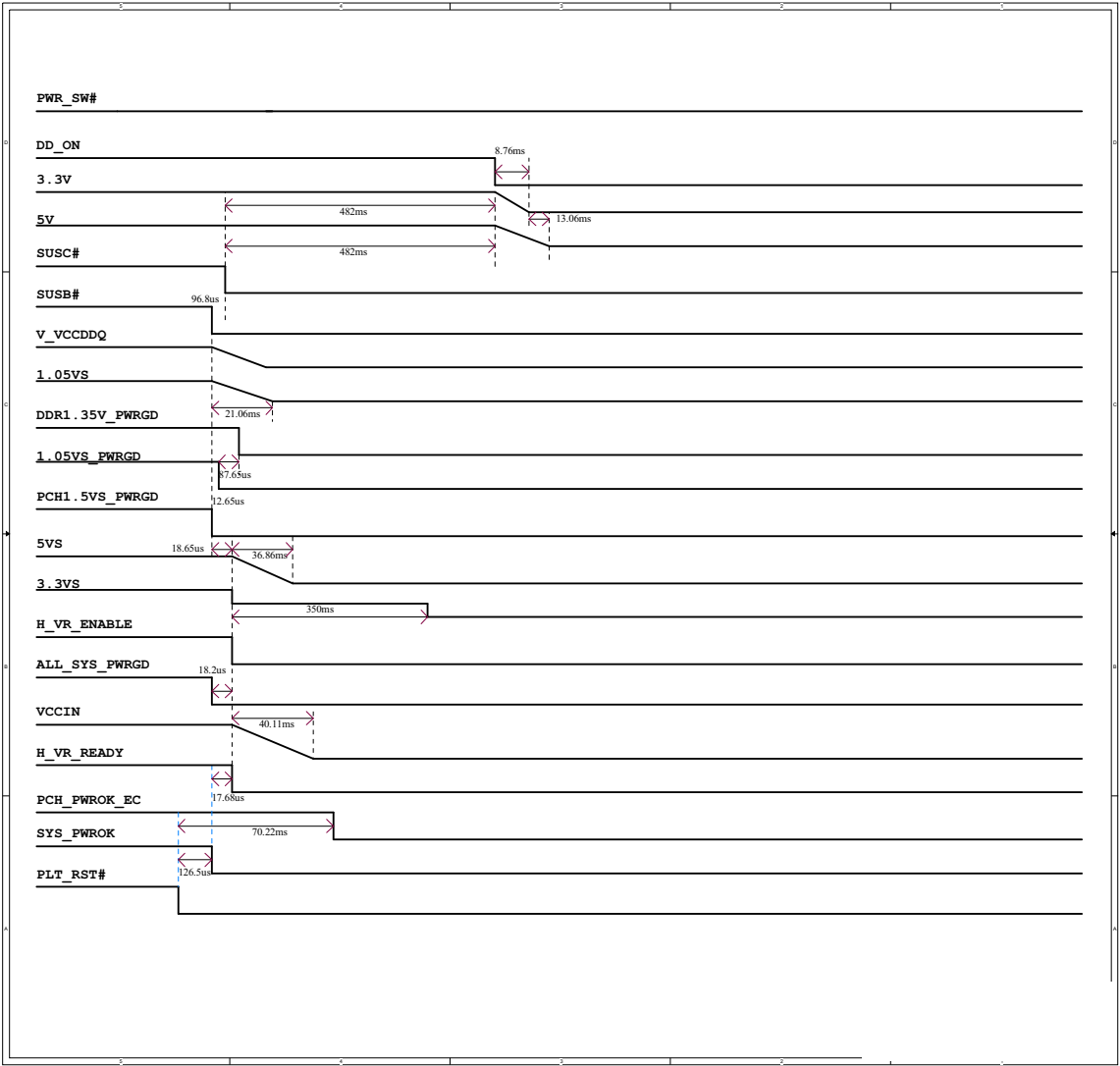
## Power On / S4 Resume



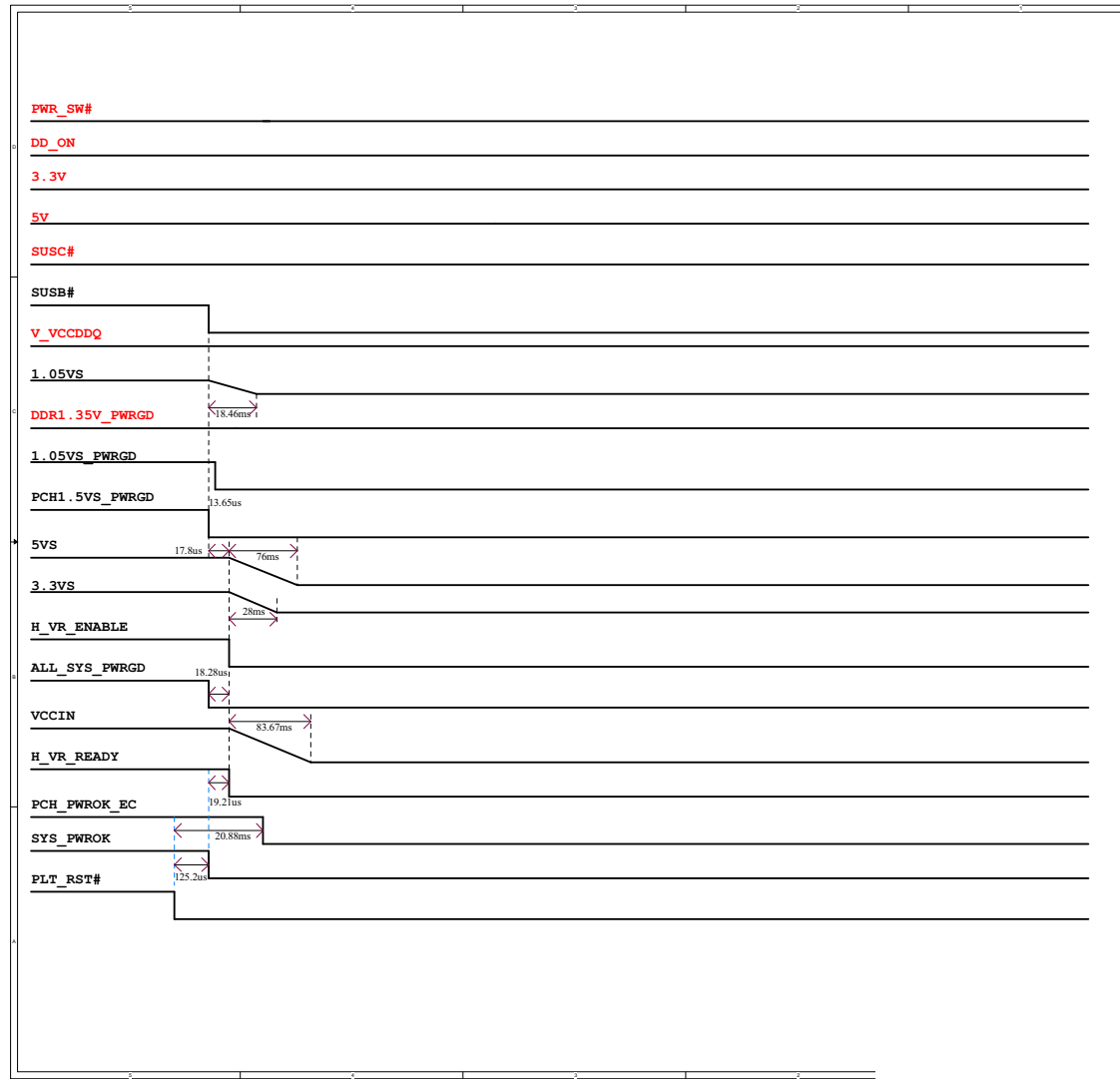
Sheet 38 of 41  
Power On /  
S4 Resume

Power Off / Into S4

Sheet 39 of 41  
Power Off / Into S4



## Into S3

Sheet 40 of 41  
Into S3



S3 Resume

Sheet 41 of 41  
S3 Resume

