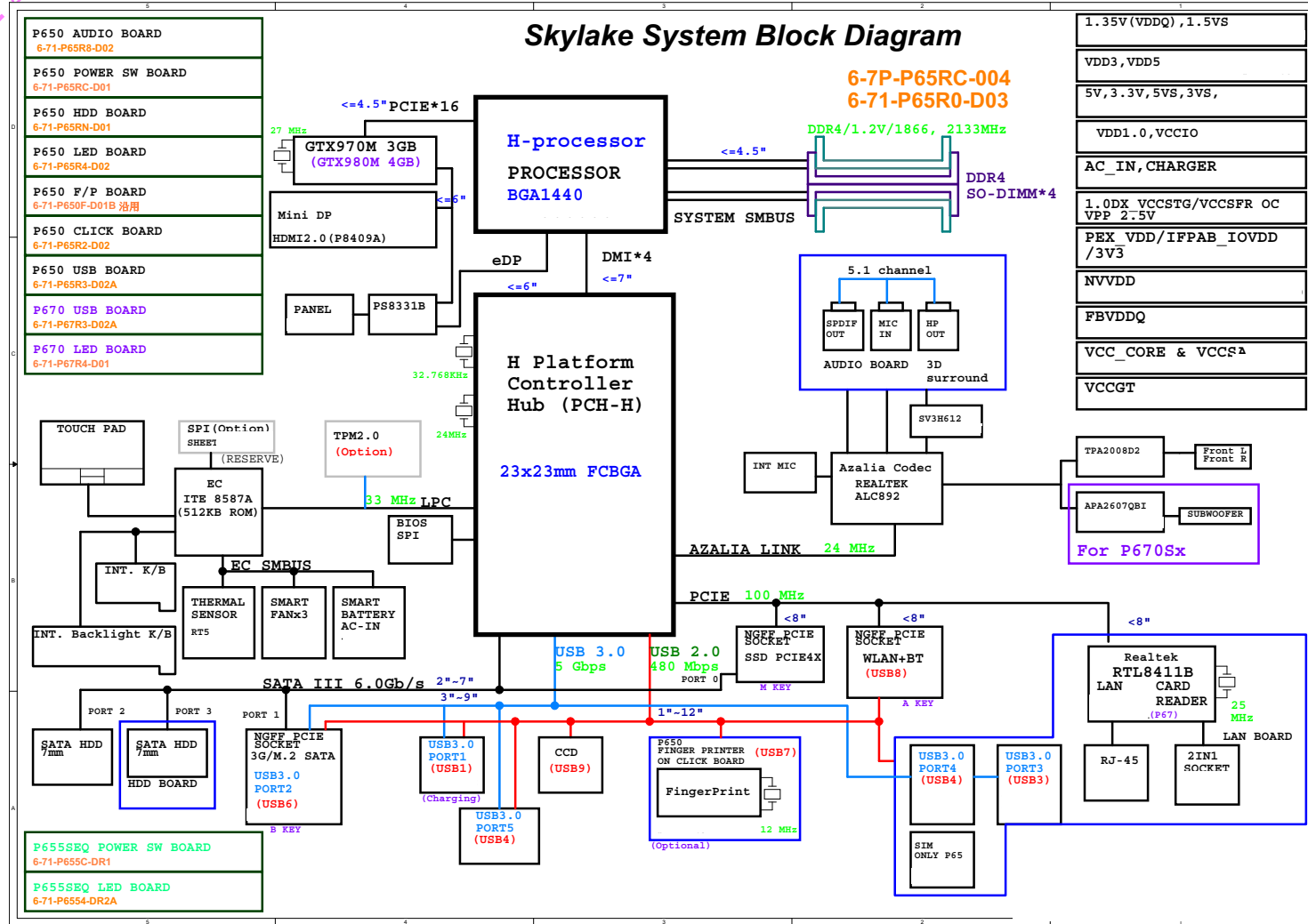
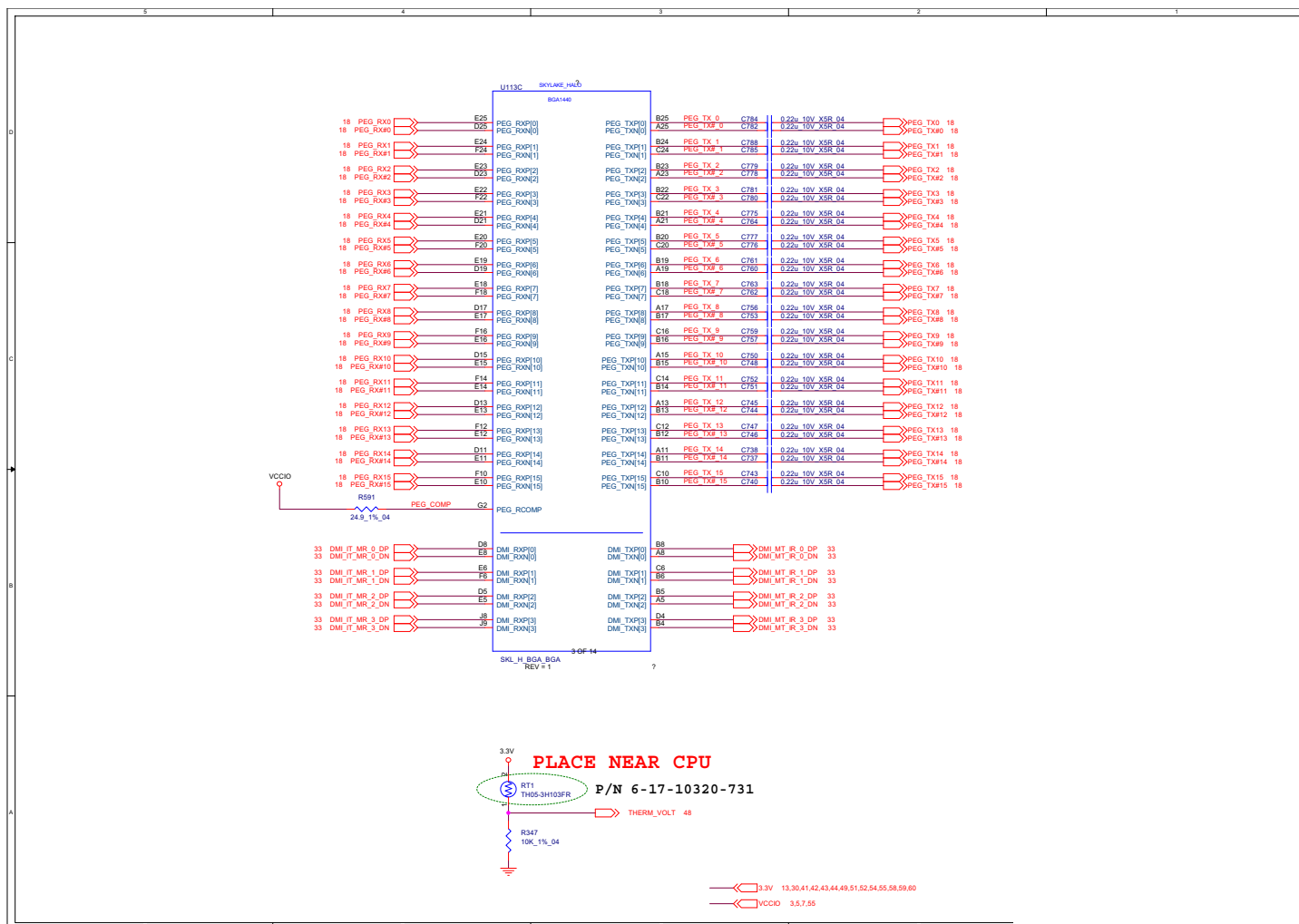


# System Block Diagram

Sheet 1 of 79  
System Block  
Diagram



## Processor 1/7

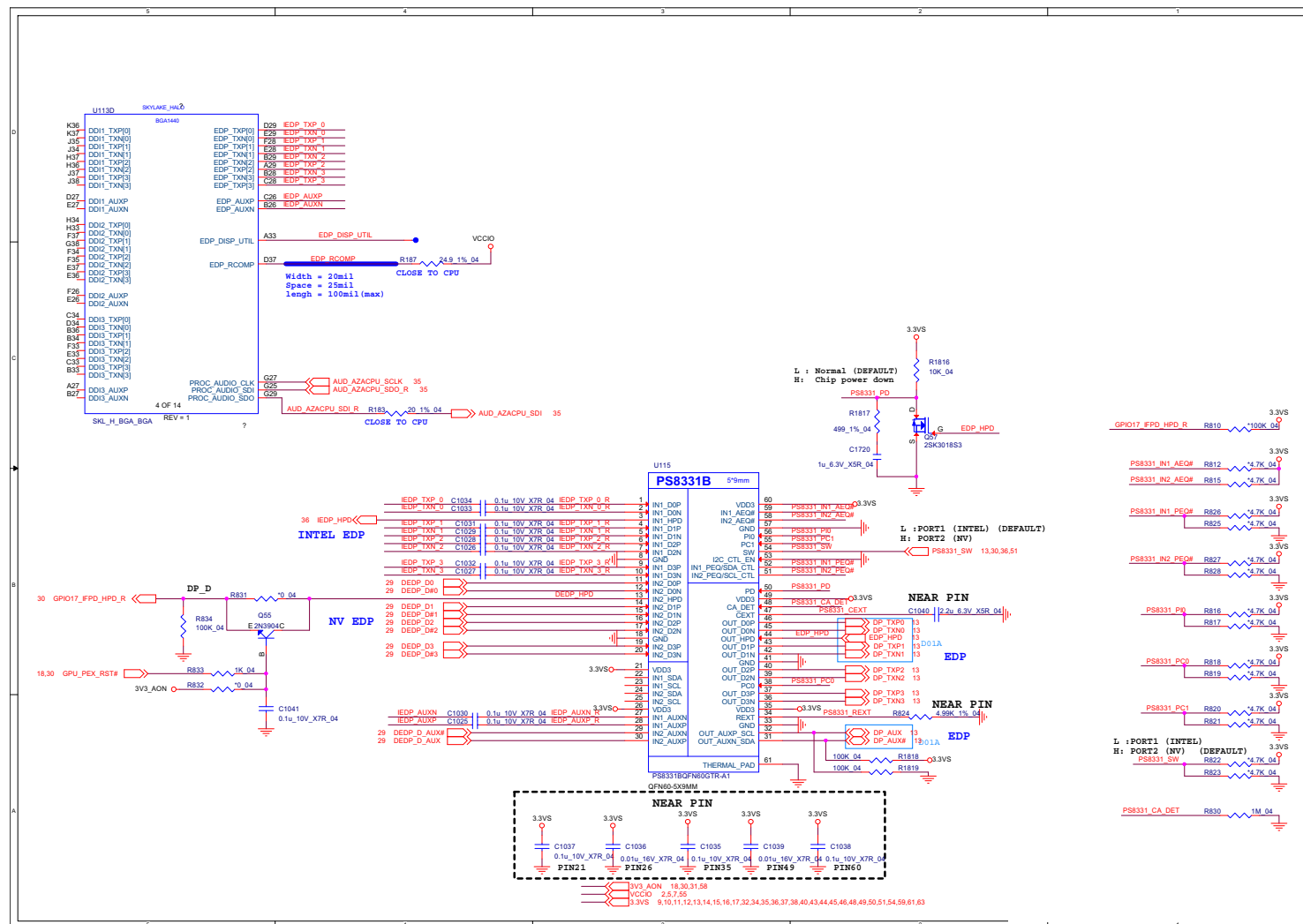


Sheet 2 of 79  
Processor 1/7

B.Schematic Diagrams

## Processor 2/7

## B.Schematic Diagrams



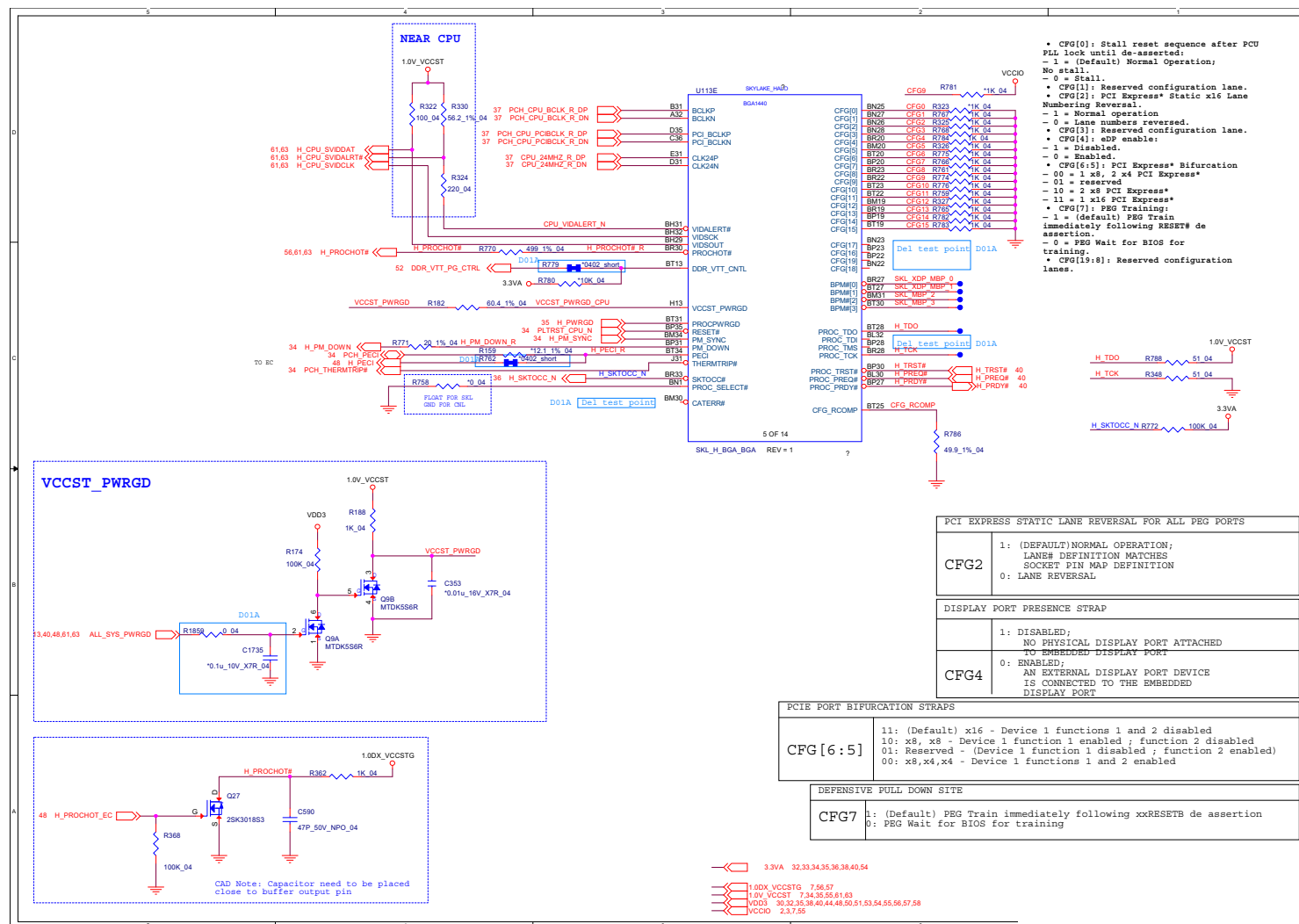
**Processor 3/7 B - 5**

Sheet 4 of 79  
Processor 3/7

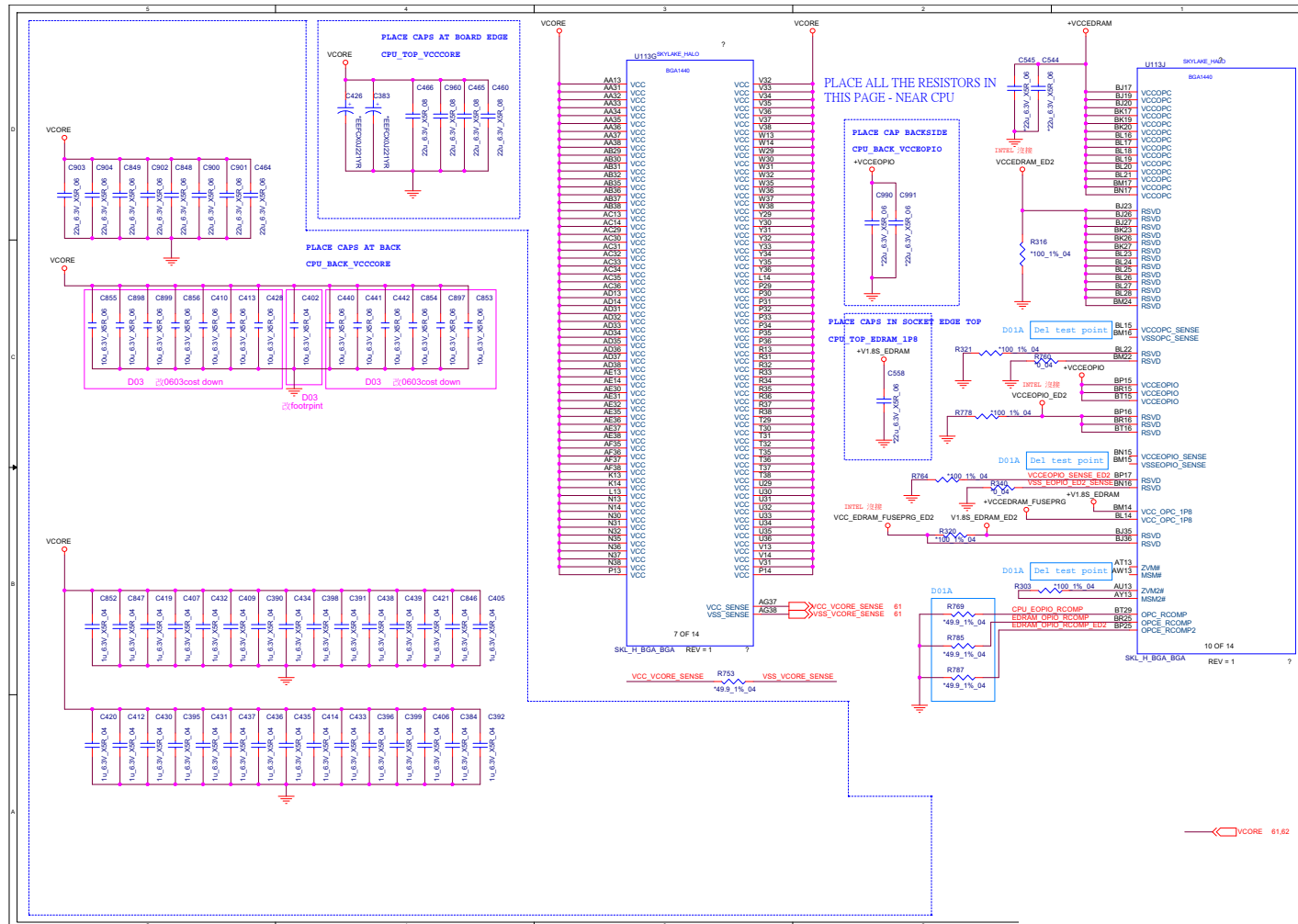


## B. Schematic Diagrams

Sheet 5 of 79  
Processor 4/7

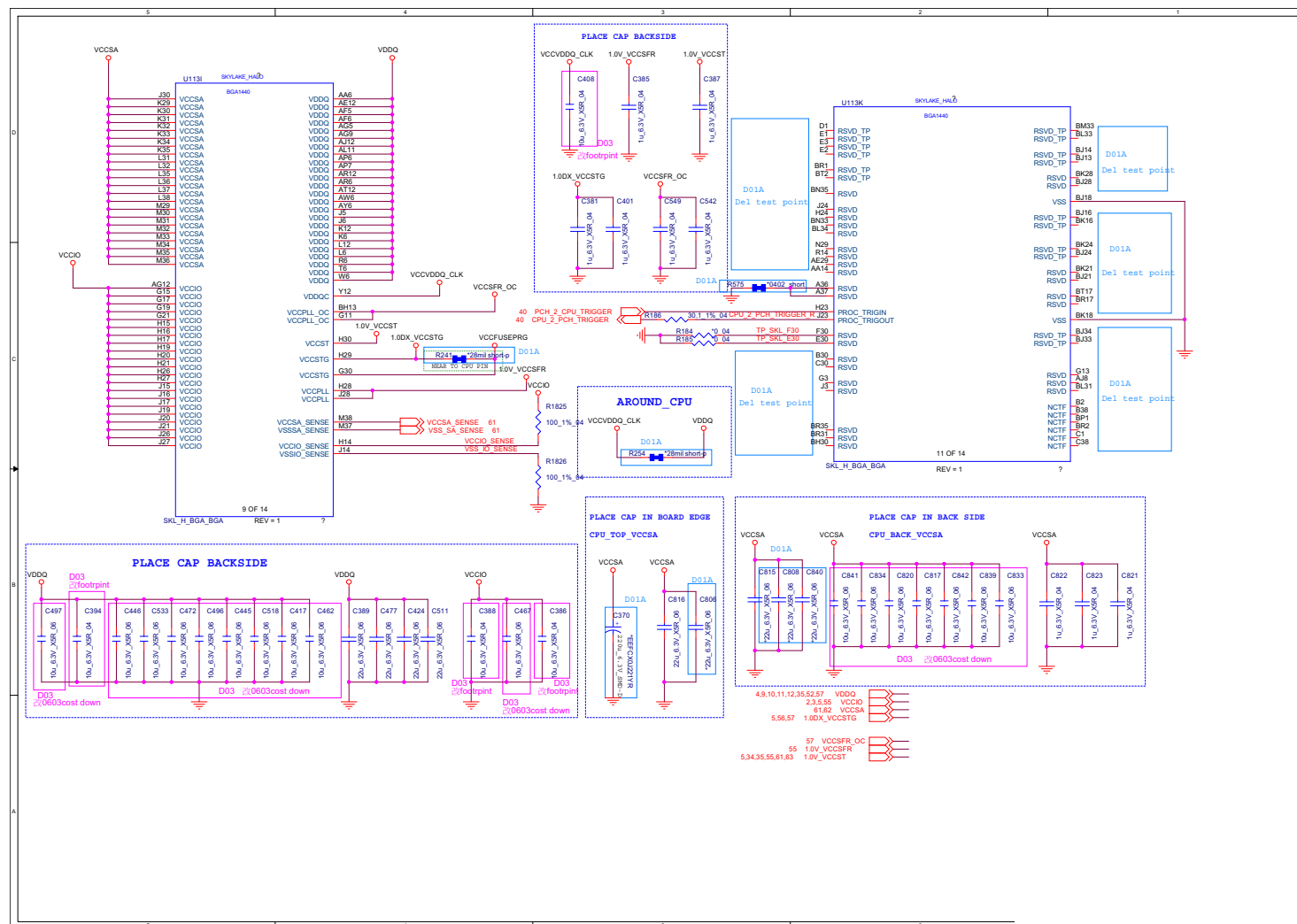


**Processor 5/7 B - 7**

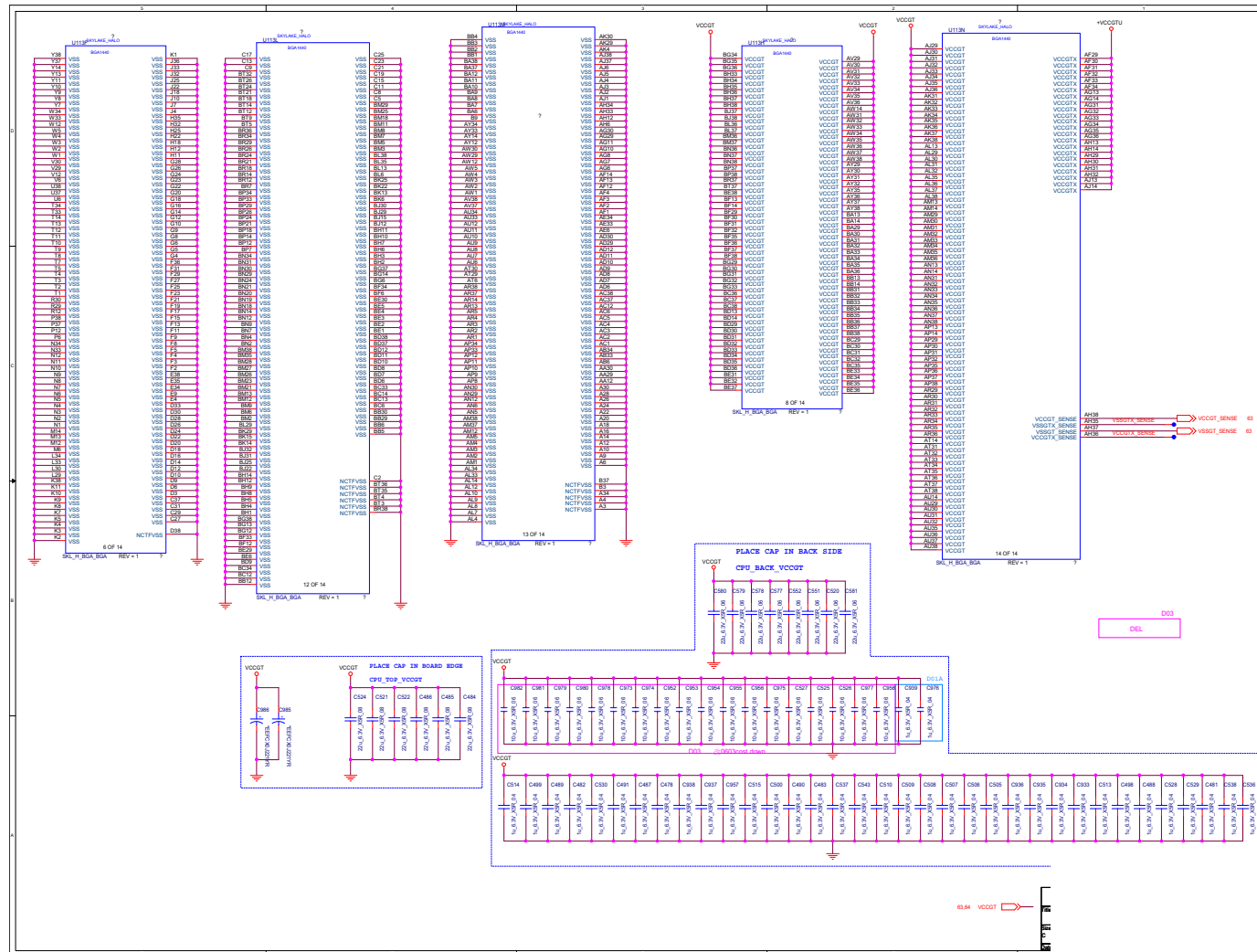


## Processor 6/7

Sheet 7 of 79  
Processor 6/7



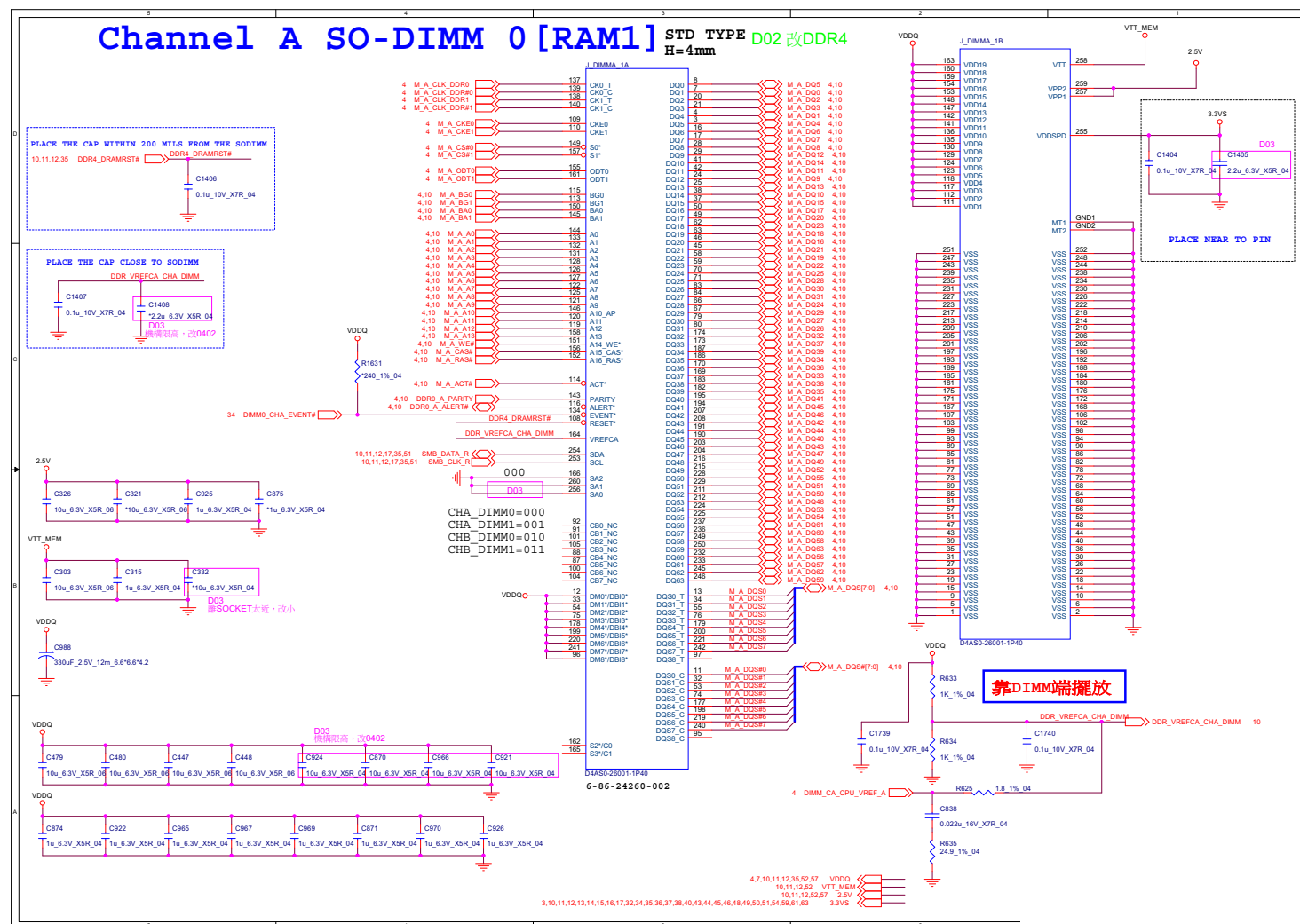
## Processor 7/7

Sheet 8 of 79  
Processor 7/7



## DDR4 CHA SO-DIMM\_0

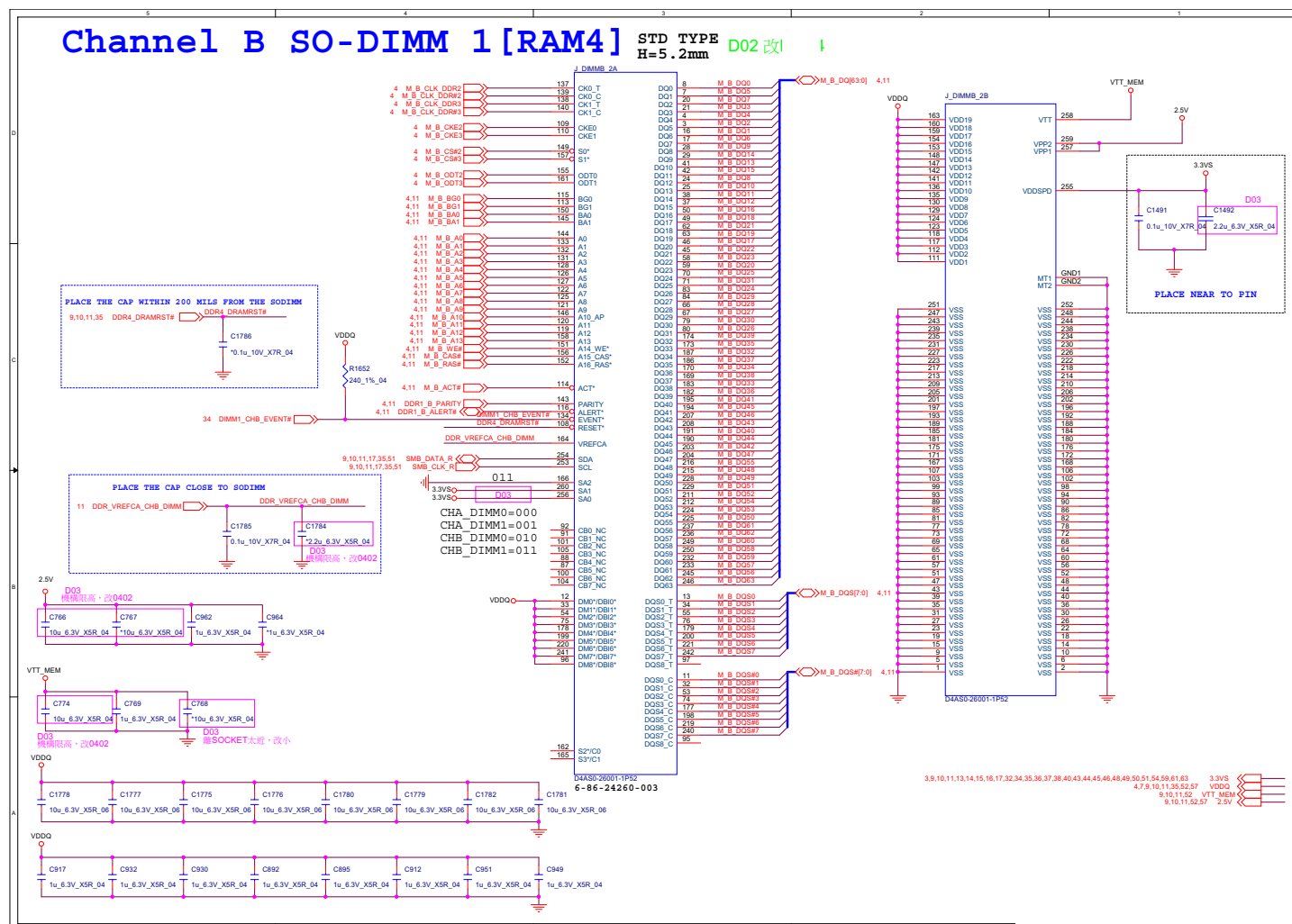
Sheet 9 of 79  
DDR4 CHA SO-  
DIMM 0







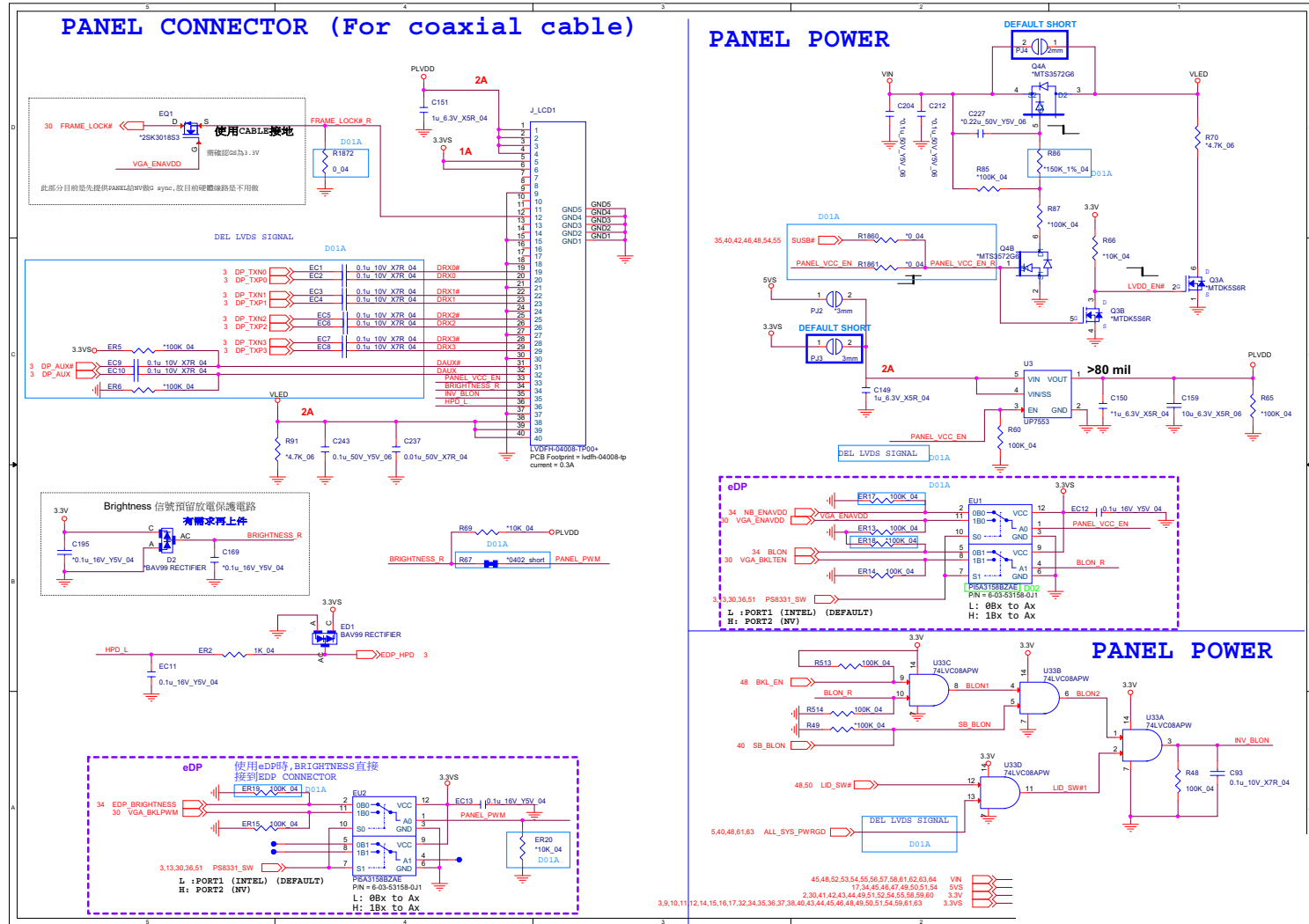
## DDR4 CHB SO-DIMM\_1



Sheet 12 of 79  
DDR4 CHB SO-  
DIMM\_1

# Panel, Inverter

Sheet 13 of 79  
Panel, Inverter



## B.Schematic Diagrams

## Redriver

**NV\_DP\_F**

Pin	SN75DP130SS	PS8330B
pin2	1uF GND	2.2uF GND
pin3	*10K VCC, *10K GND	GND
pin4	x	*4.7K VCC, *4.7K GND
pin5	x	*4.7K VCC, *4.7K GND
pin7	x	4.99K GND
pin35	0.22uF GND	10K VCC, 2.2uF GND
pin40	x	*4.7K VCC, *4.7K GND
pin46	x	x

**NV\_DP\_E**

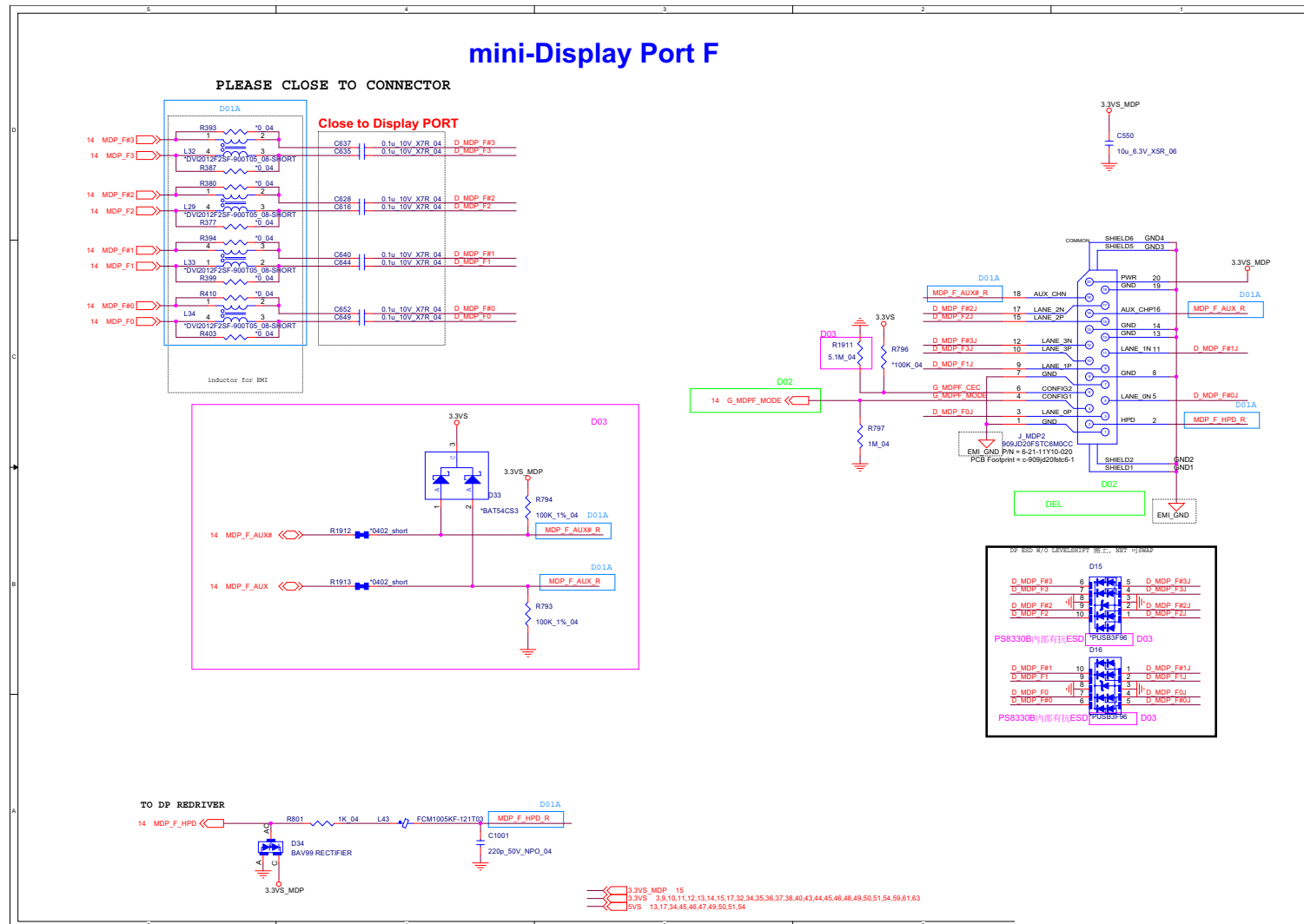
Pin	T1 6-02-75130-BQ0	PARADA 6-03-08330-030
U39	SN75DP130SSRGZR	PS8330B
C826	1u_6.3V_X5R_04	2.2u_6.3V_X5R_04
R618	*10K_04	0_04
R627	X	4.99K_1%_04
R619	X	10K_04
C828	0.22u_10V_X5R_04	2.2u_6.3V_X5R_04
U44	SN75DP130SSRGZR	PS8330B
C886	1u_6.3V_X5R_04	2.2u_6.3V_X5R_04
R694	*10K_04	0_04
R726	X	4.99K_1%_04
R691	X	10K_04
C890	0.22u_10V_X5R_04	2.2u_6.3V_X5R_04

The schematic shows two differential signaling interfaces: NV\_DP\_F and NV\_DP\_E. Each interface consists of a transmitter (T1) and a receiver (PARADA). The NV\_DP\_F section includes components like R818, C828, U39, and U44, with signal paths labeled Zdiff=90Ω and Zdiff=100Ω. The NV\_DP\_E section includes components like R694, C886, U44, and U39, with signal paths labeled Zdiff=100Ω. Both sections show connections to various power planes (GND, VCC, XSR) and signal sources (FROM NV, TO CON, FROM CON, TO NV & PCH).

**Sheet 14 of 79**  
**Redriver**



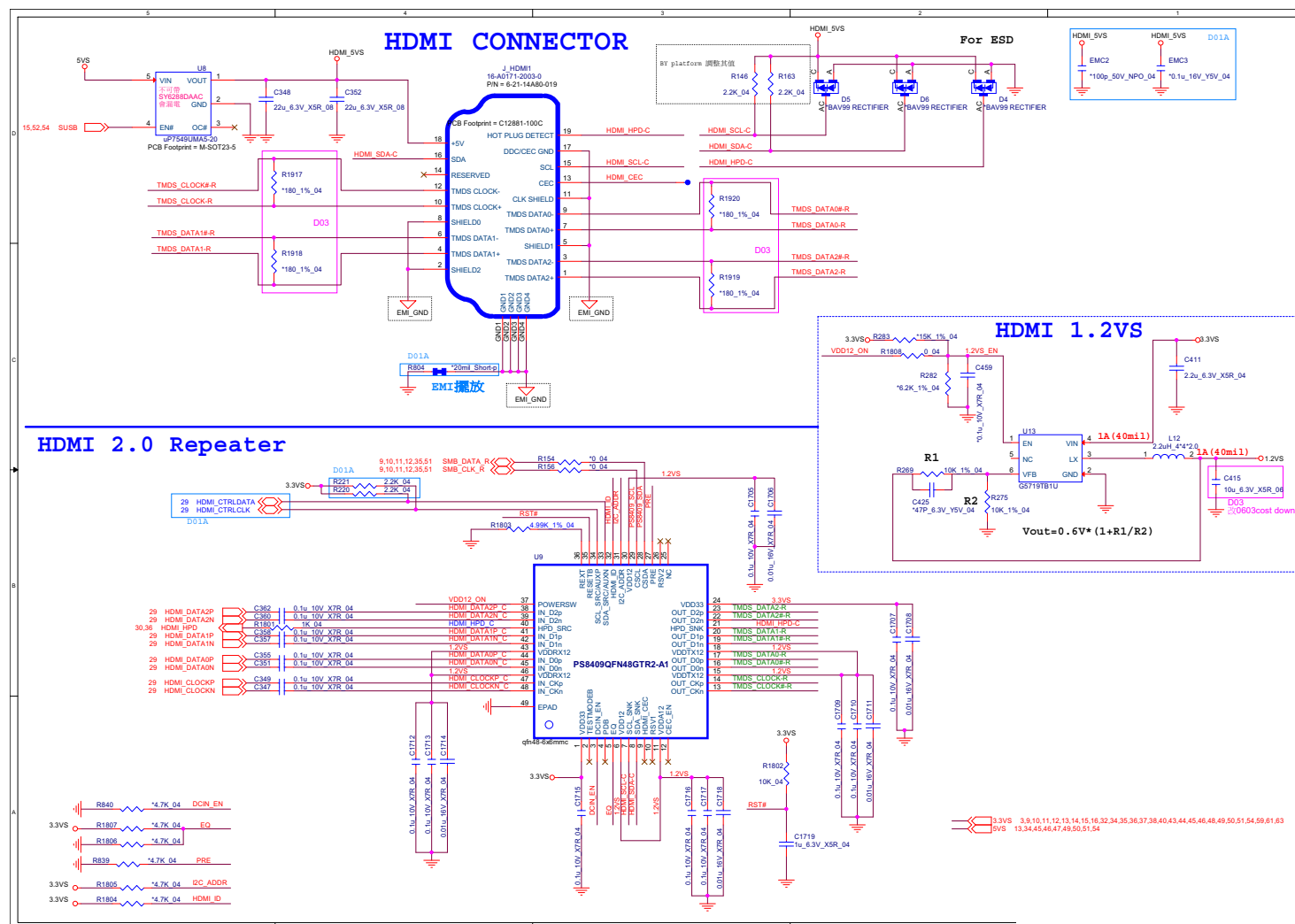
### Mini DP Port F B - 17



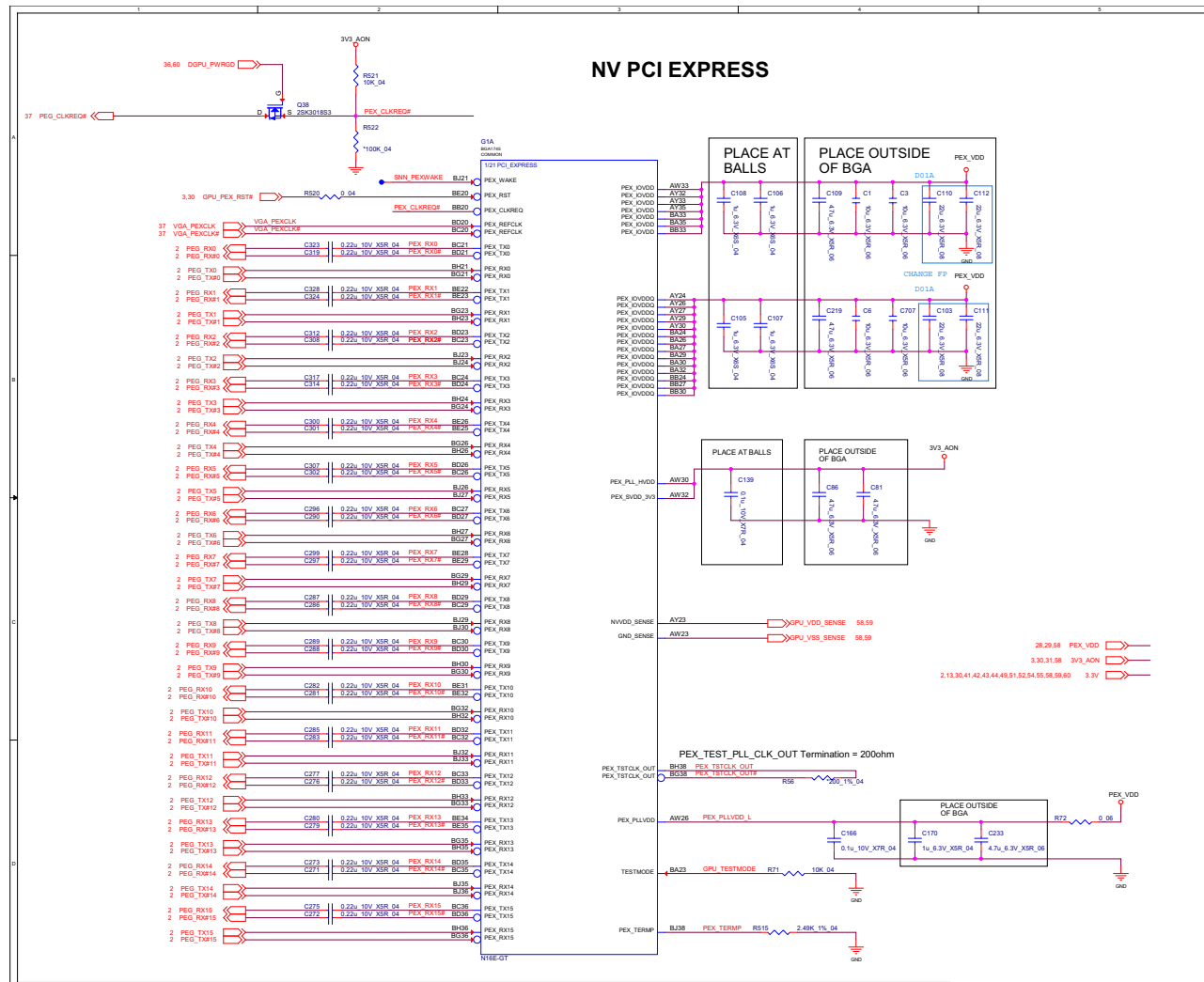


## HDMI Connector

**Sheet 17 of 79**  
**HDMI Connector**

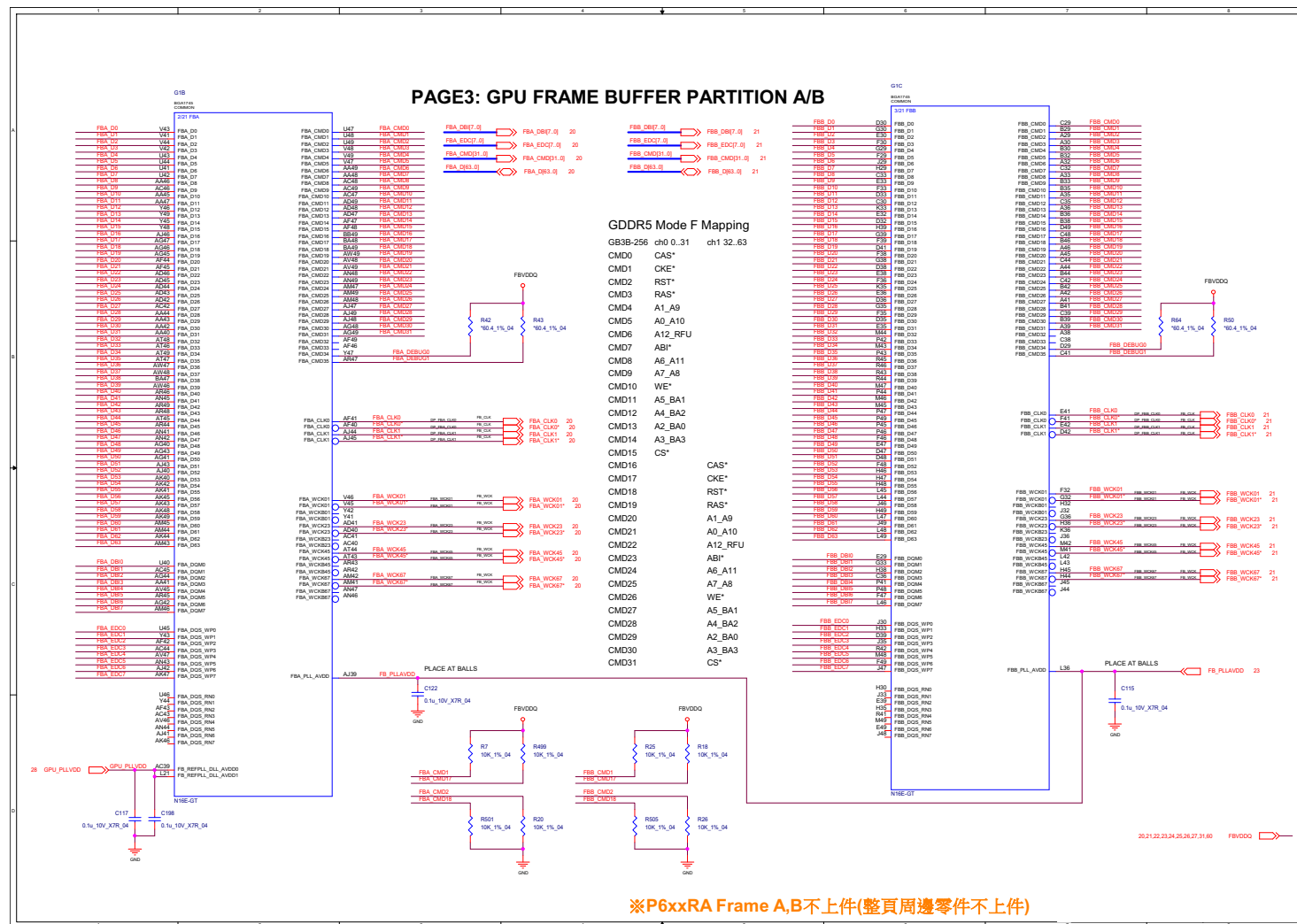


## VGA PCI Express B - 19



## VGA Frame Buffer Partition

Sheet 19 of 79  
VGA Frame Buffer  
Partition



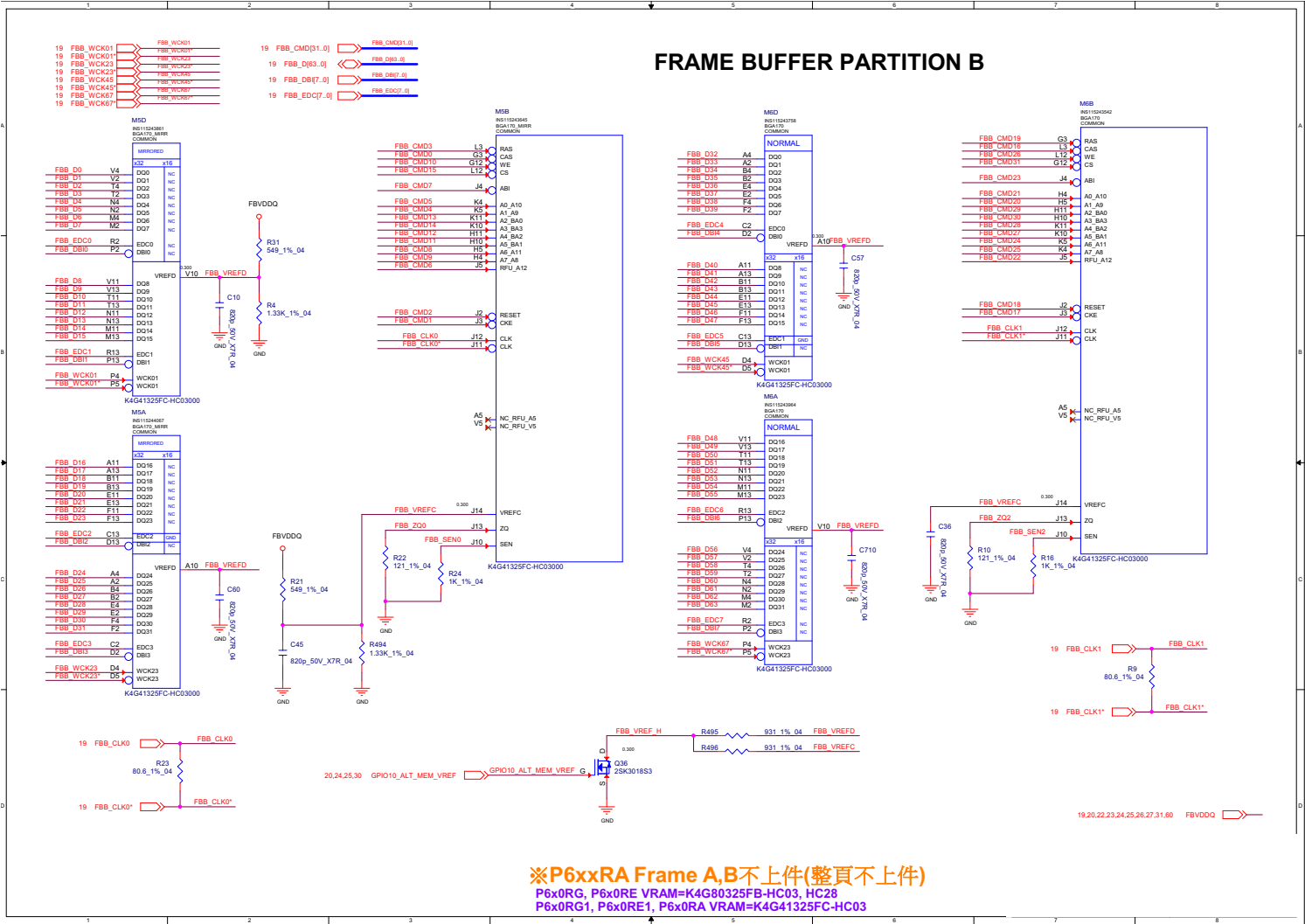
**Sheet 20 of 79**  
**Frame Buffer**  
**Partition A**



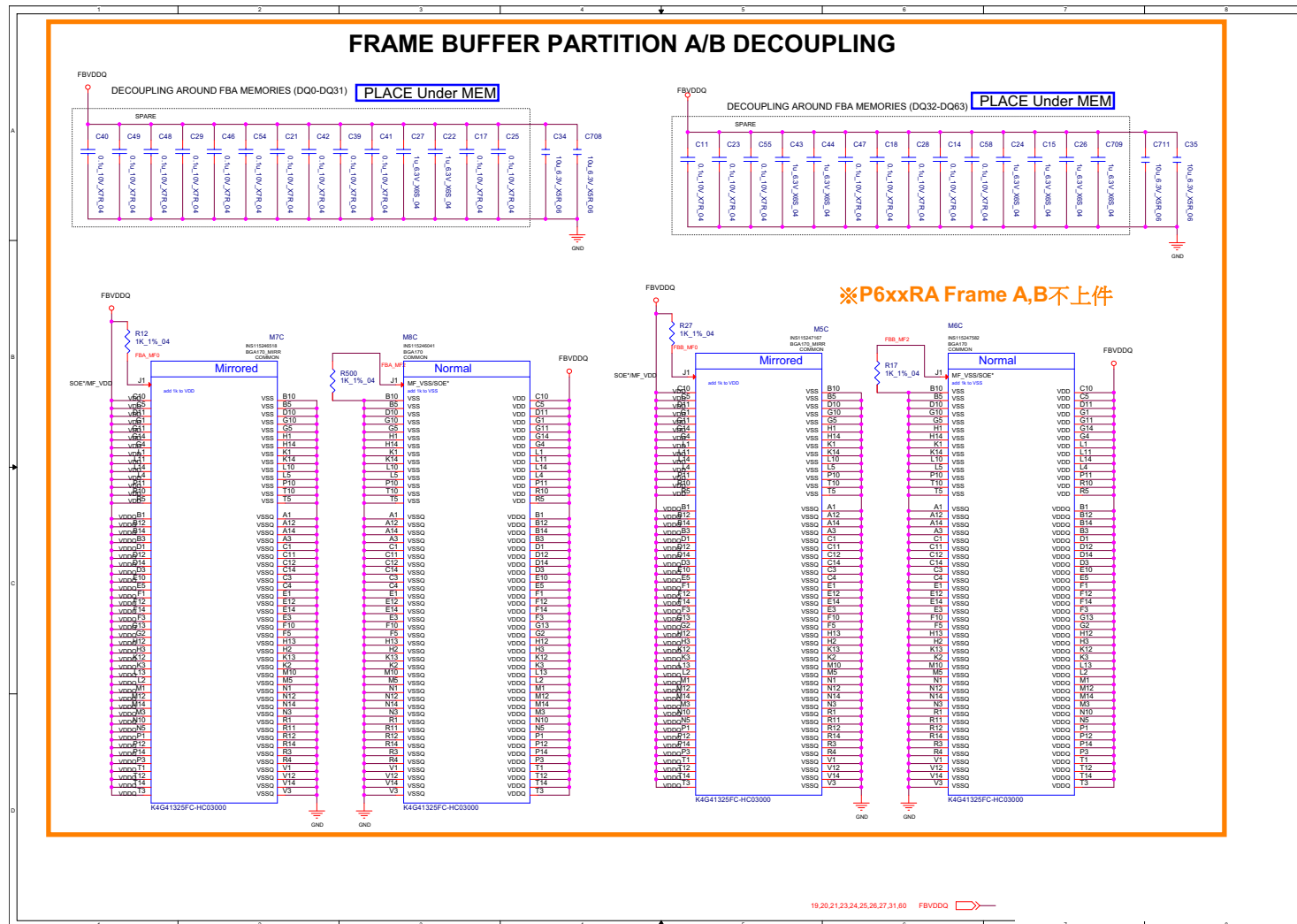
Schematic Diagrams

Frame Buffer Partition B

Sheet 21 of 79  
Frame Buffer  
Partition B

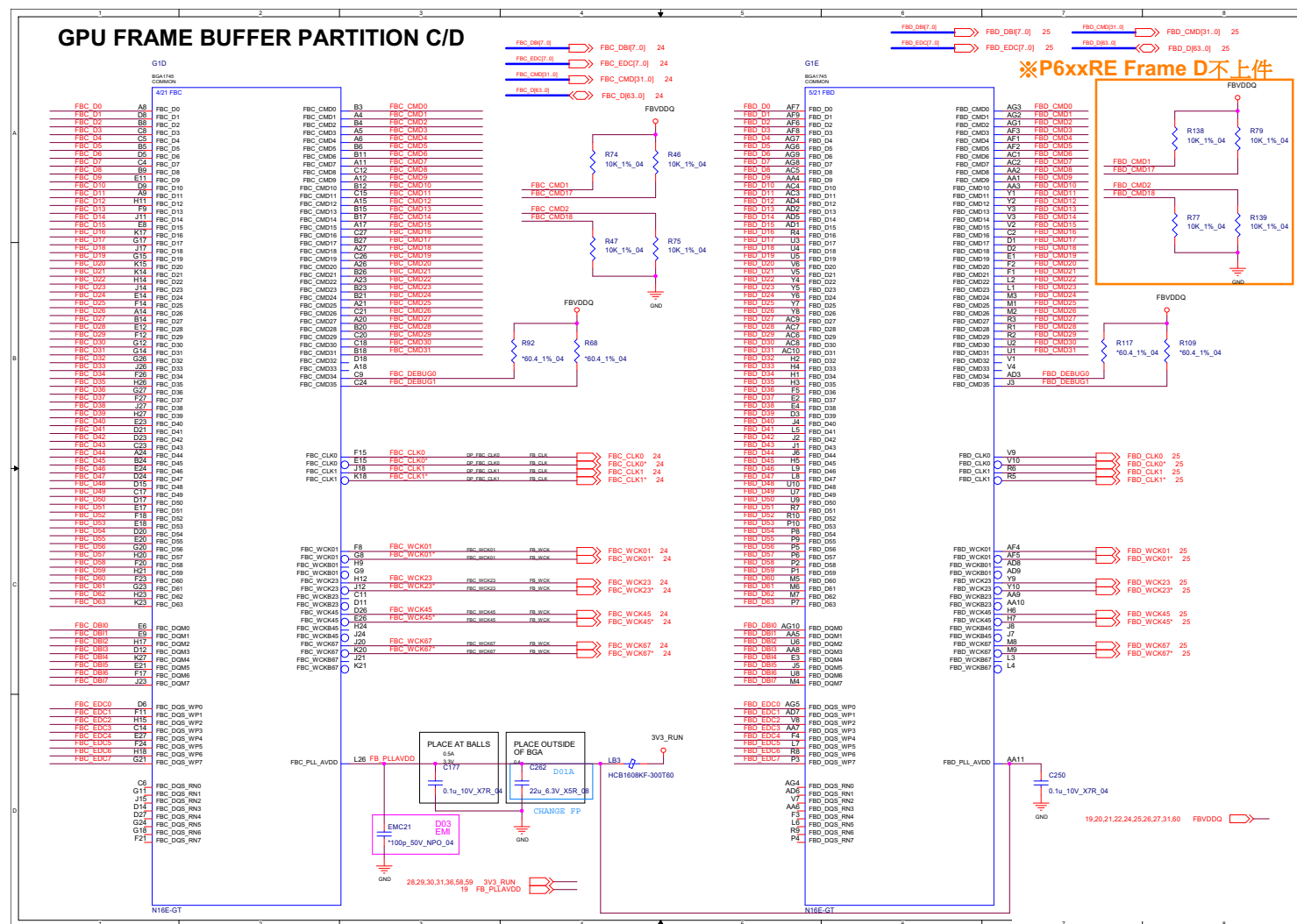


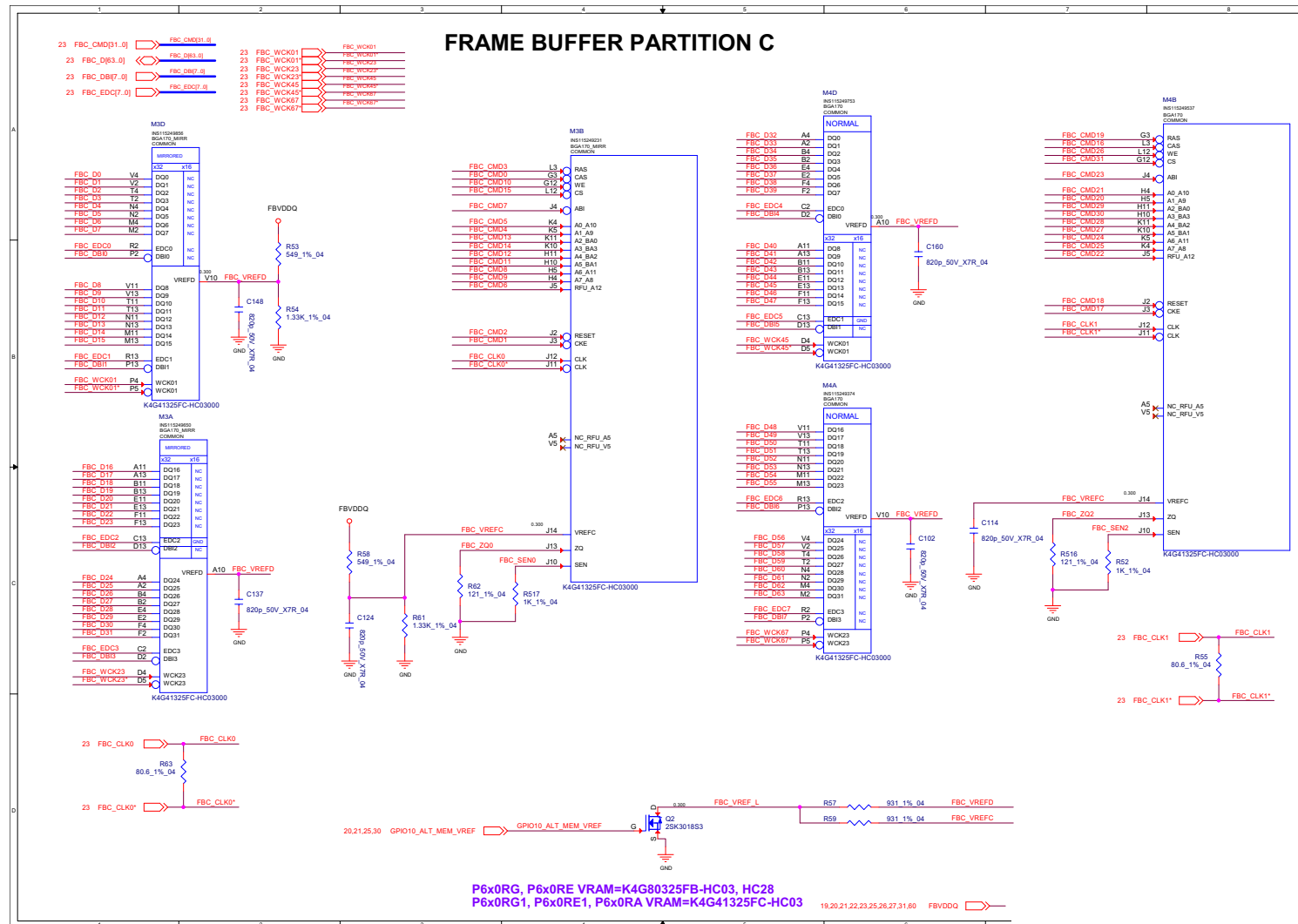
# Frame Buffer Partition A\_B



## GPU Frame Buffer Partition

Sheet 23 of 79  
GPU Frame Buffer  
Partition

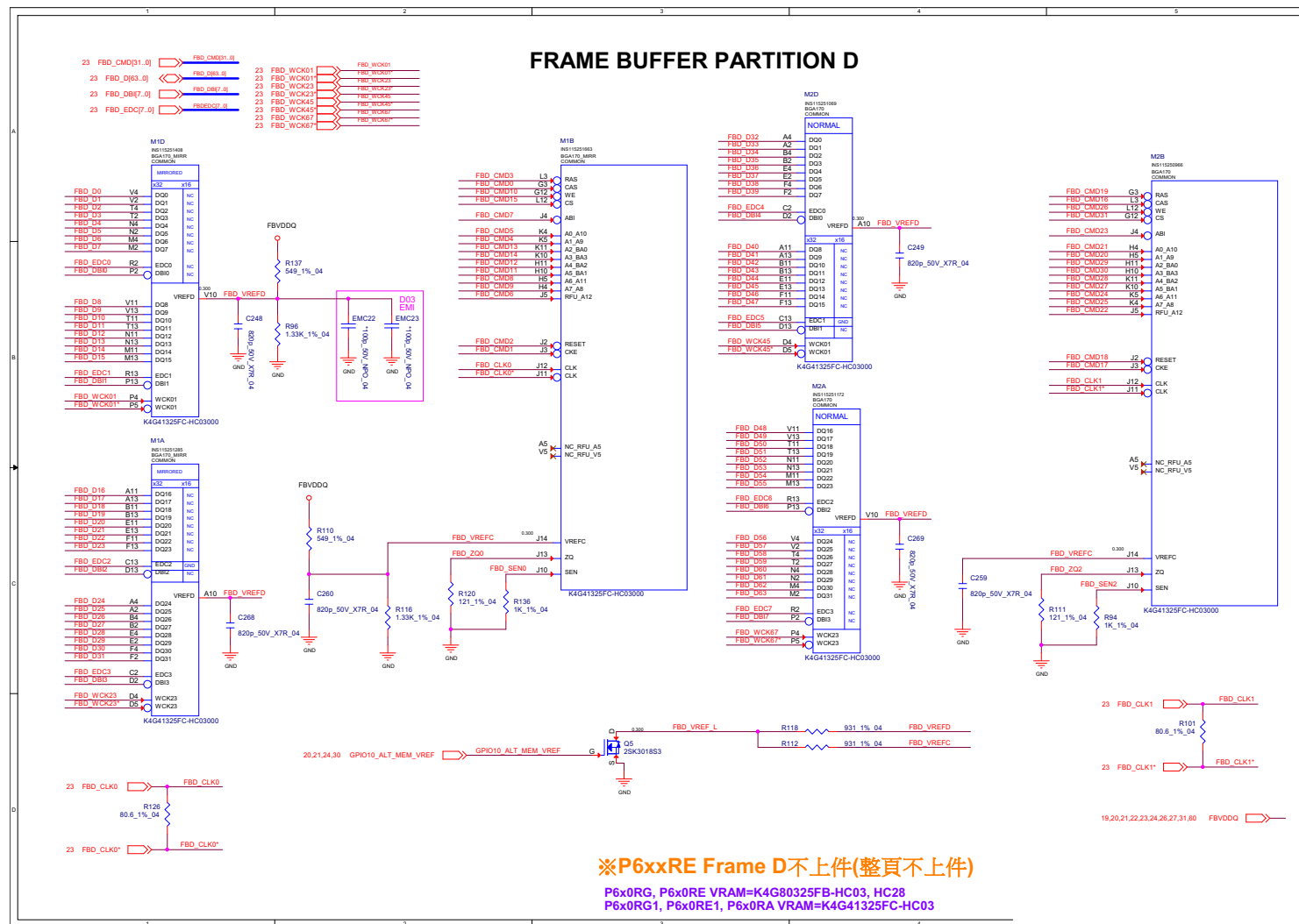




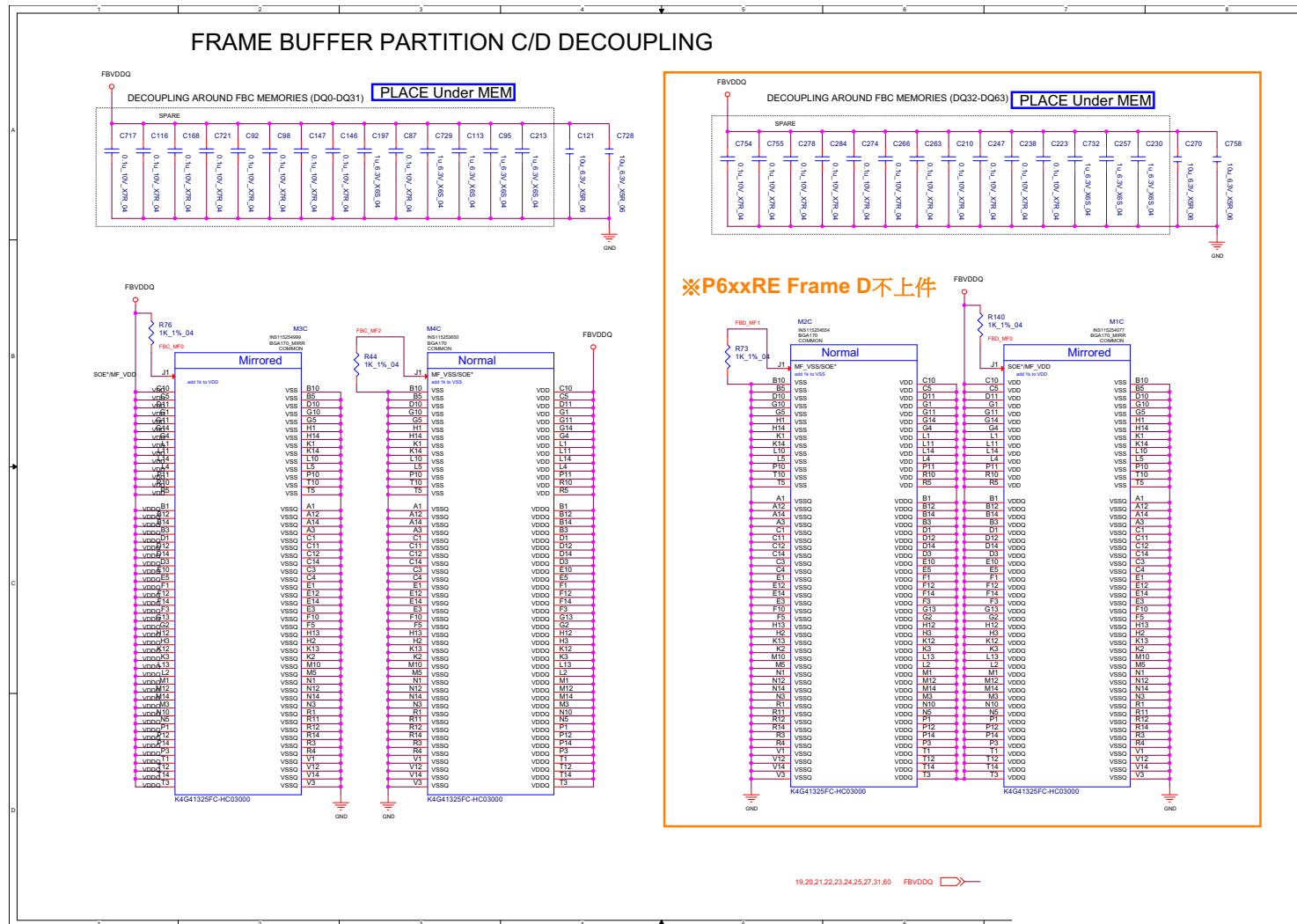


## Frame Buffer Partition D

Sheet 25 of 79  
Frame Buffer  
Partition D

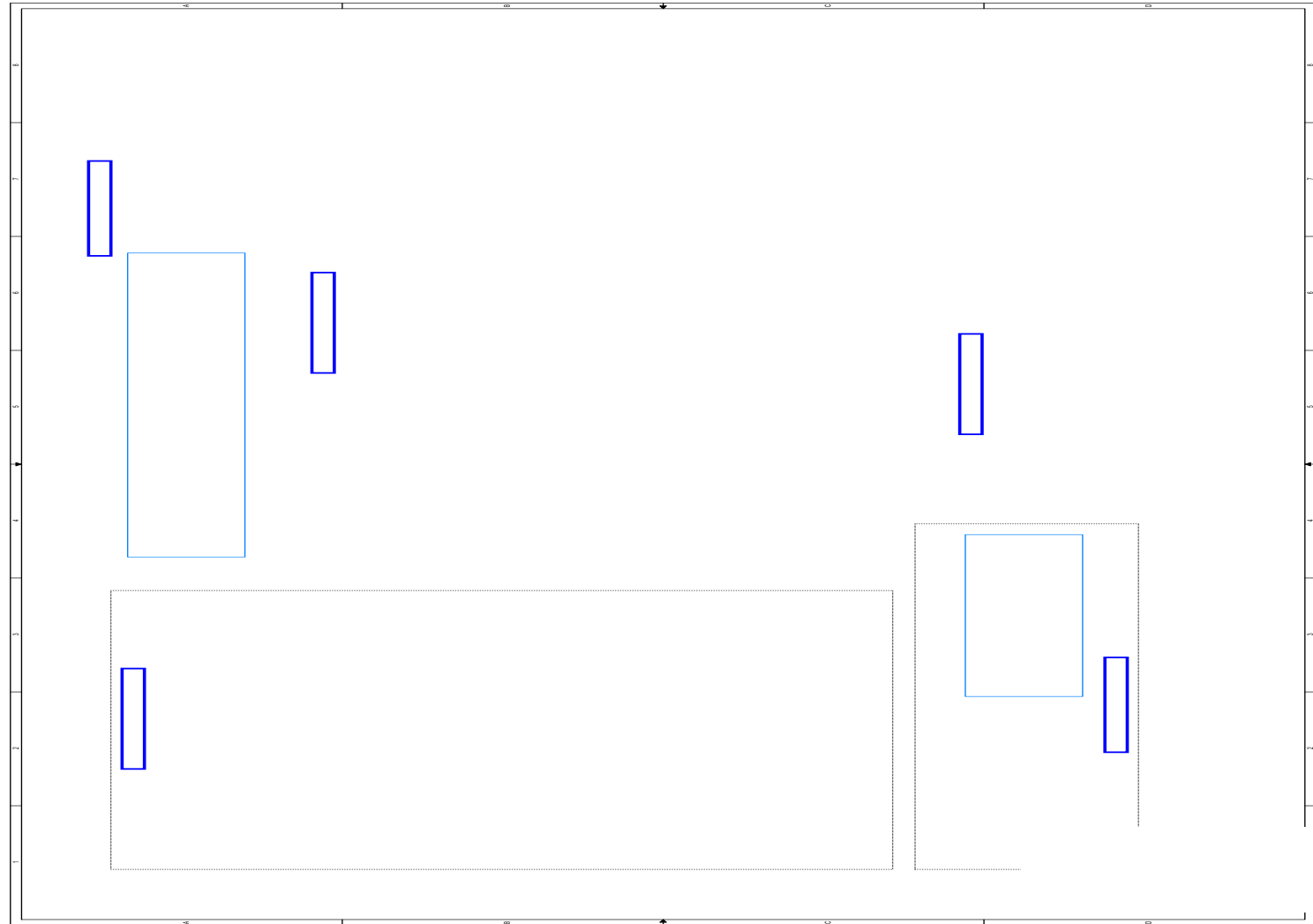


# Frame Buffer Partition C\_D



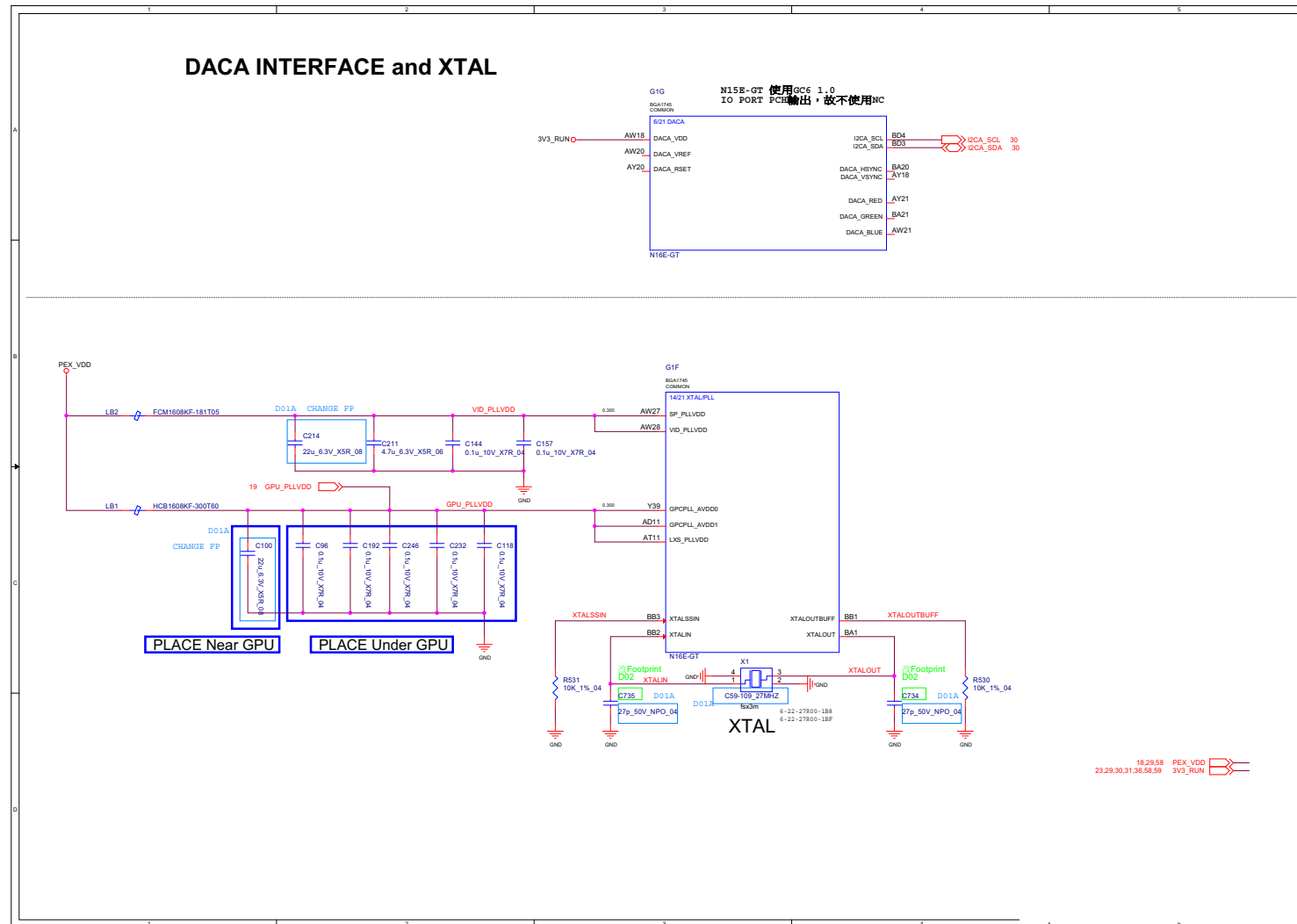
Sheet 26 of 79  
Frame Buffer  
Partition C\_D

## GPU Decoupling



Sheet 27 of 79  
GPU Decoupling

# DACA Interface & XTAL

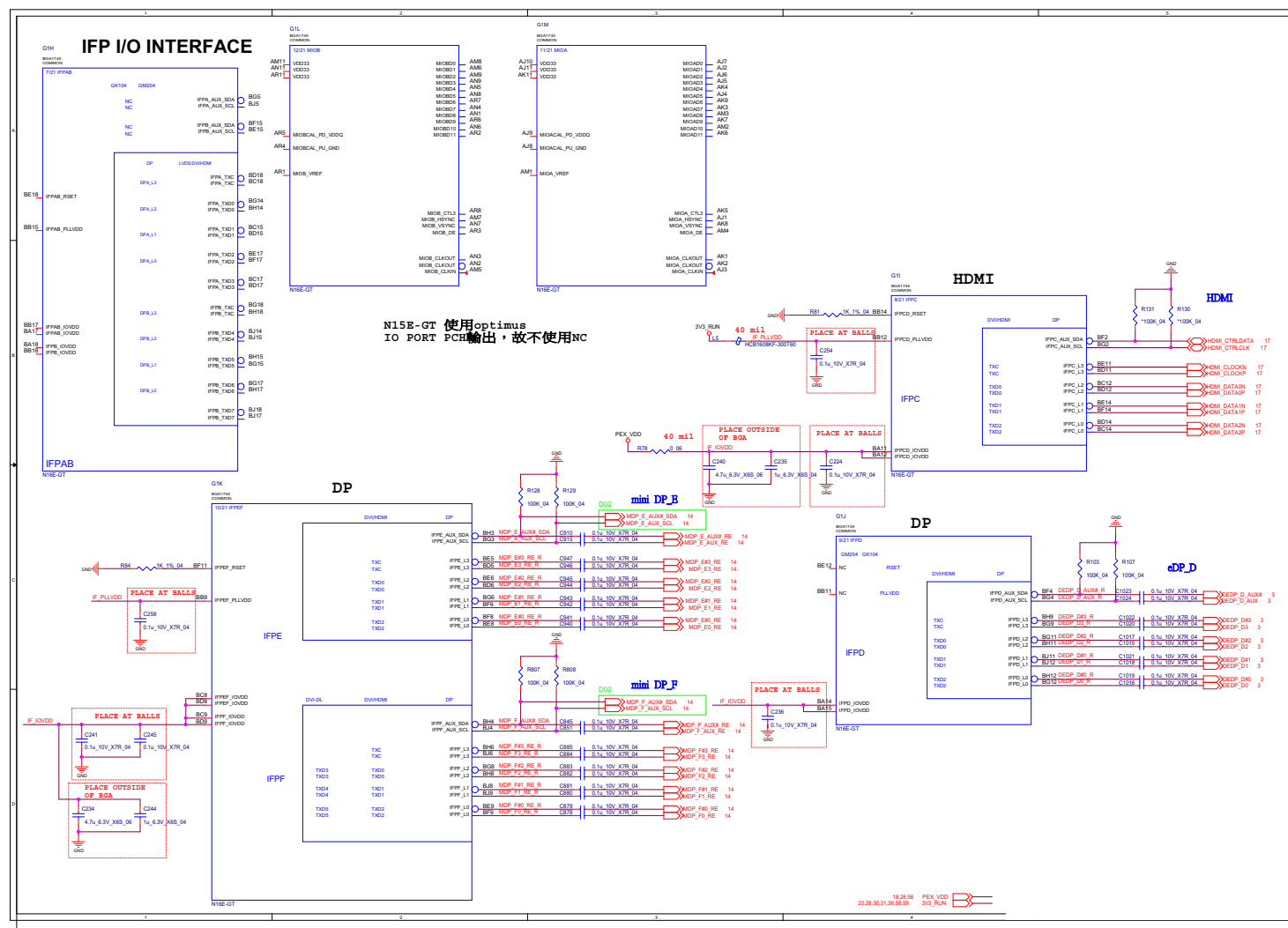


Sheet 28 of 79  
DACA Interface and  
XTAL

## IFP I/O Interface

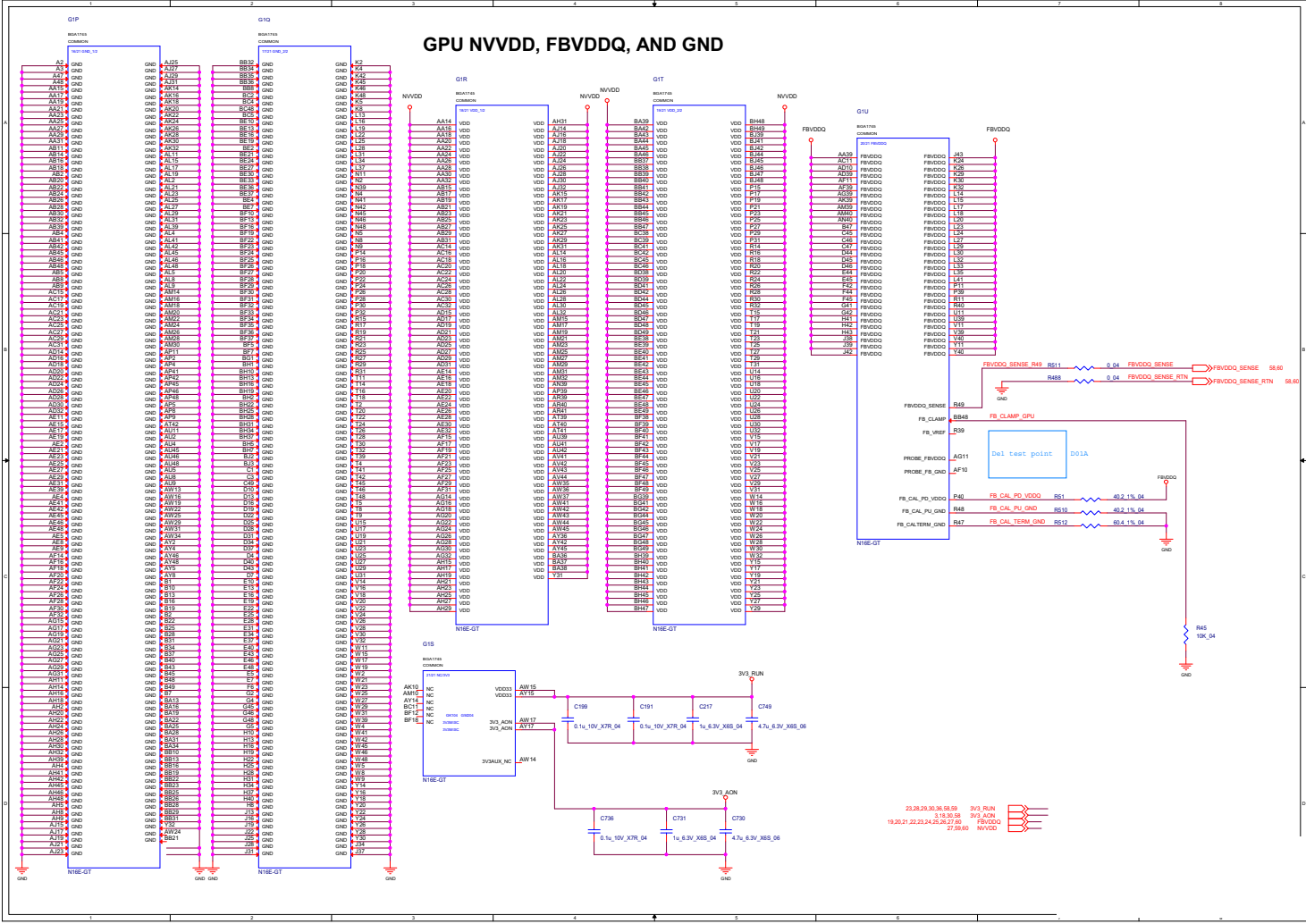
## B. Schematic Diagrams

Sheet 29 of 79  
IFP I/O Interface

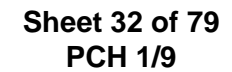


Sheet 30 of 79  
Misc - GPIO, I2C  
and ROM





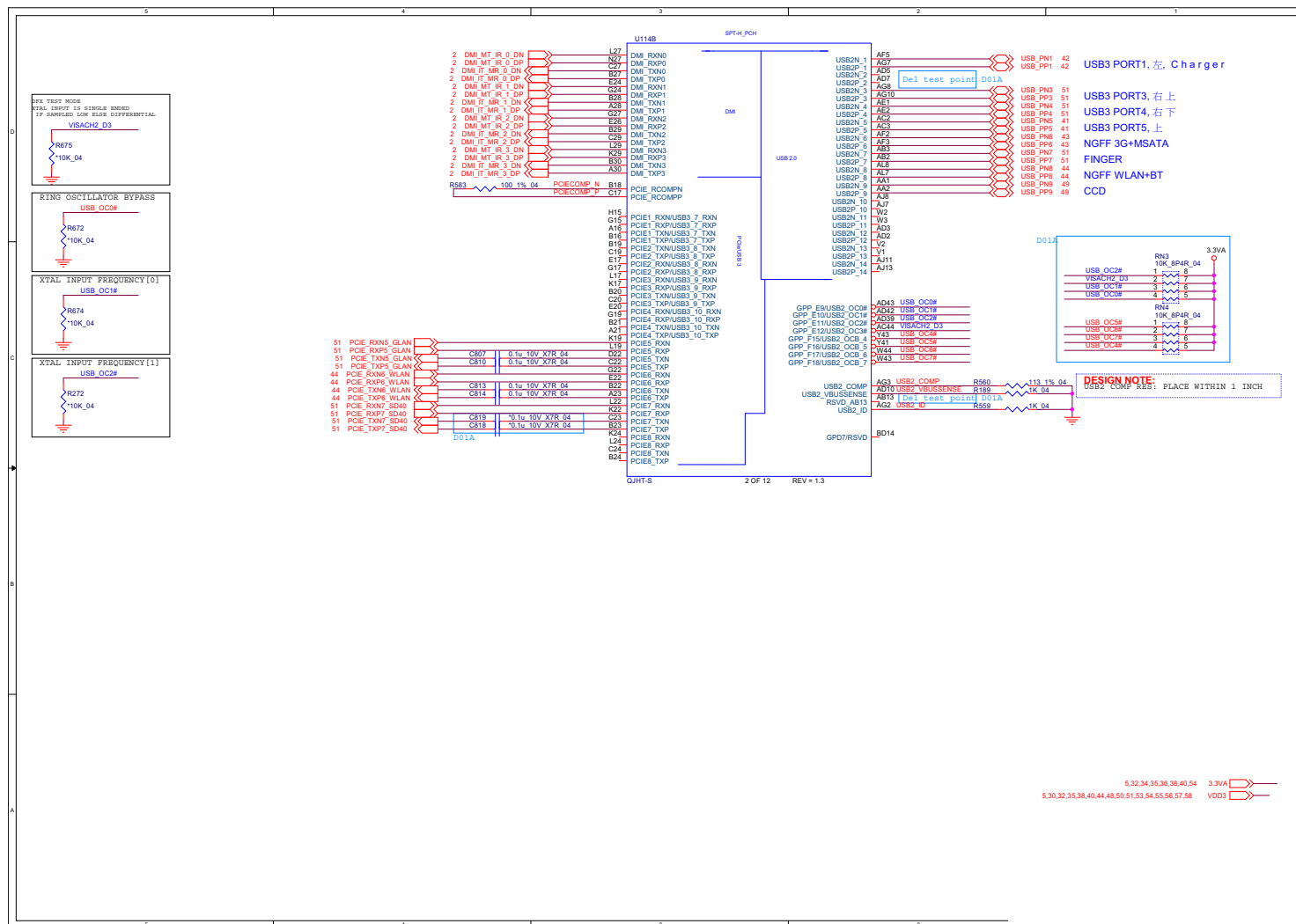
**PCH 1/9 B - 33**





**PCH 2/9**

Sheet 33 of 79  
PCH 2/9

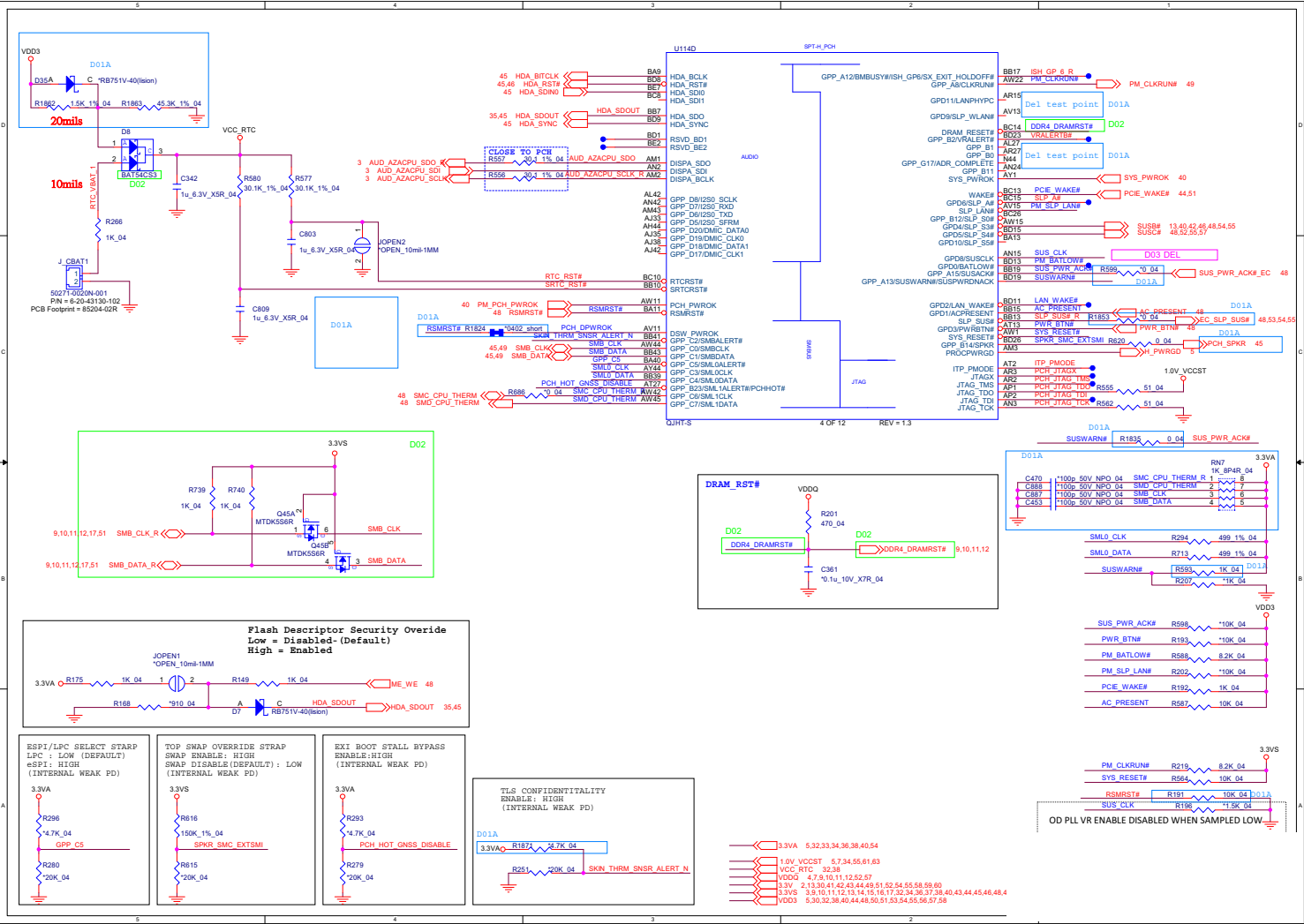


[illegible]

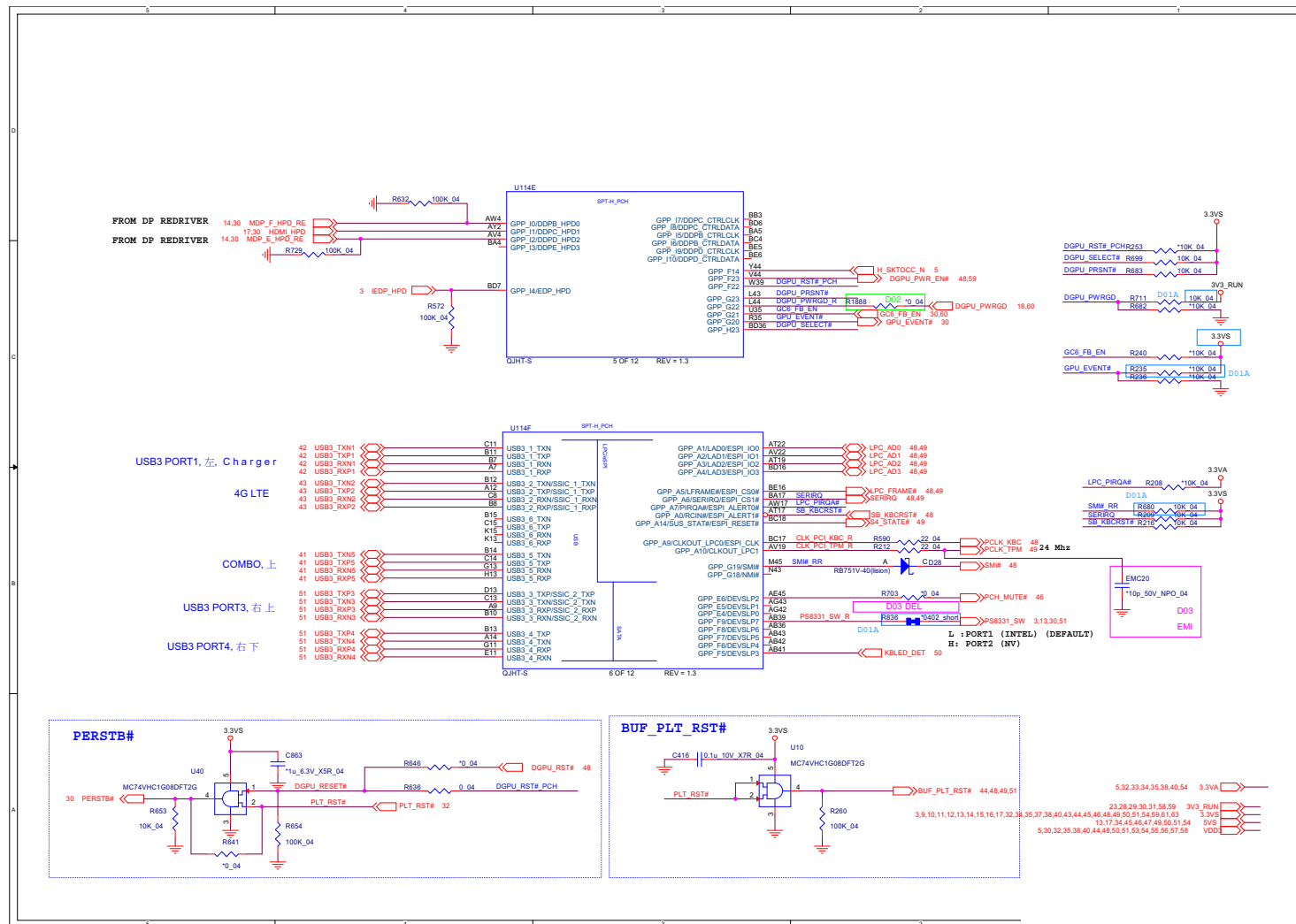
Schematic Diagrams

PCH 4/9

Sheet 35 of 79  
PCH 4/9



## PCH 5/9

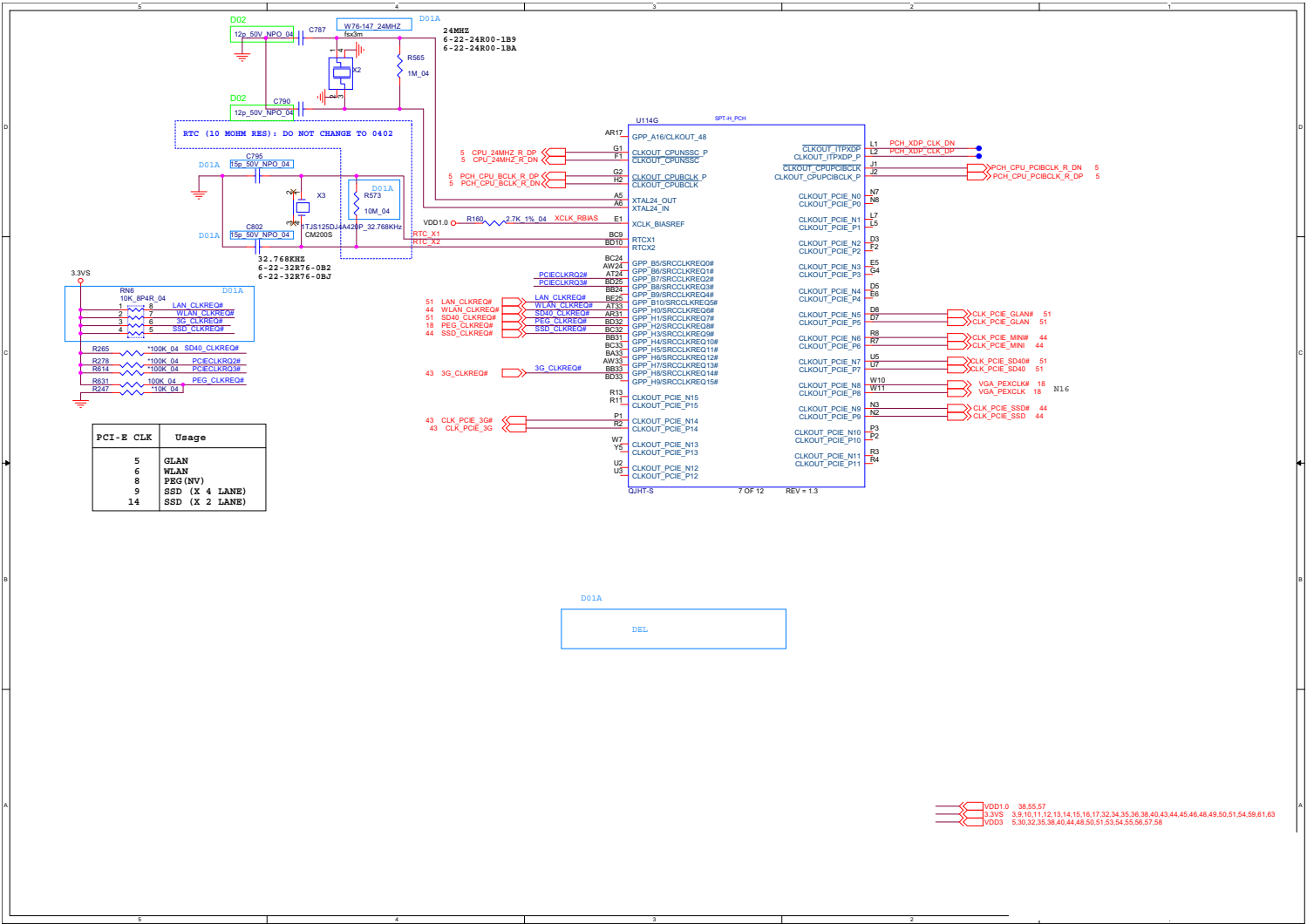
Sheet 36 of 79  
PCH 5/9

Schematic Diagrams

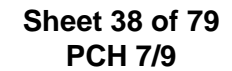
PCH 6/9

Sheet 37 of 79  
PCH 6/9

PCI-E CLK	Usage
5	GLAN
6	WLAN
8	PEG (NV)
9	SSD (X 4 LANE)
14	SSD (X 2 LANE)



## B.Schematic Diagrams



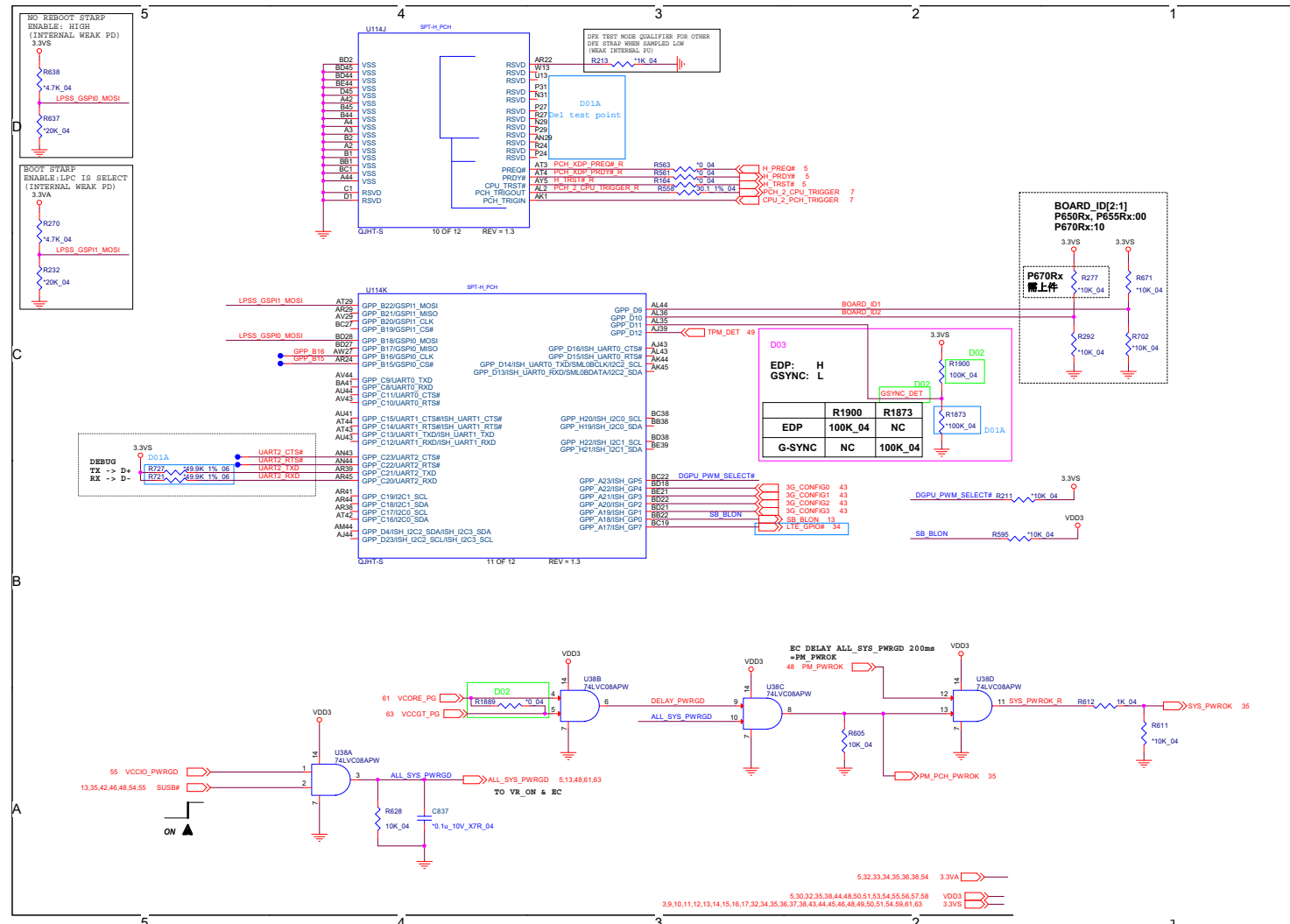
PCH 8/9



Sheet 39 of 79  
PCH 8/9

B.Schematic Diagrams

# PCH 9/9



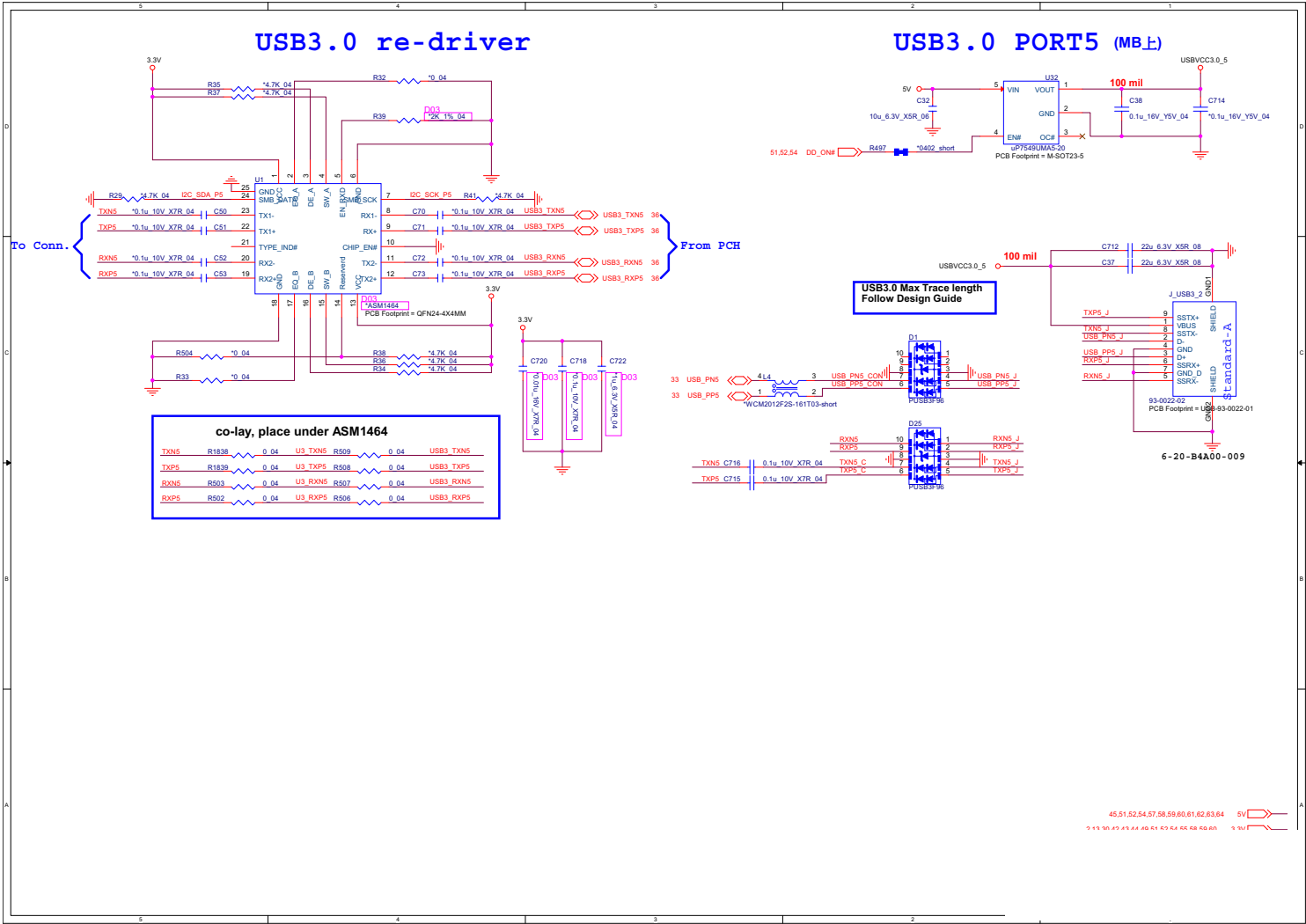
Sheet 40 of 79  
PCH 9/9



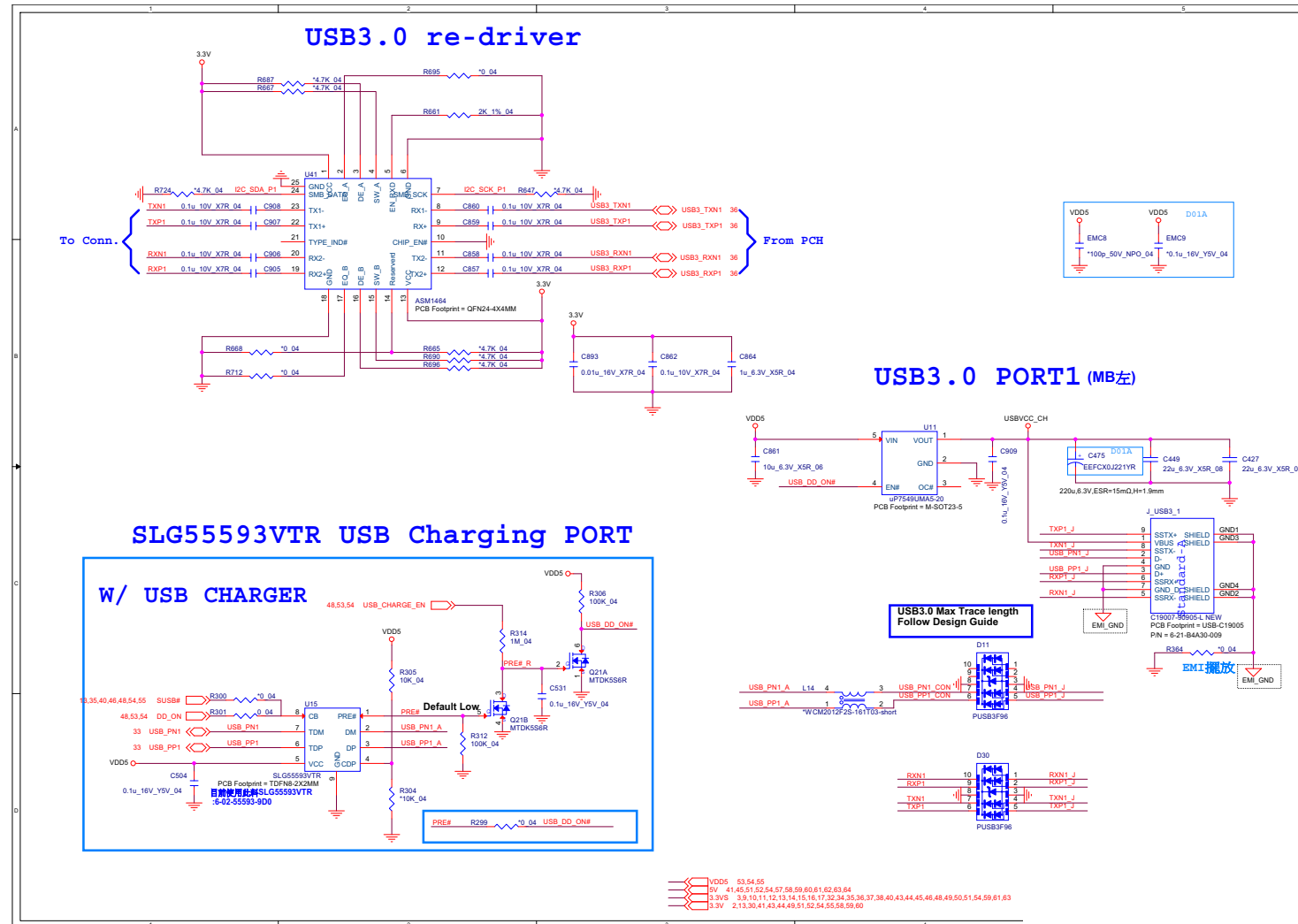
Schematic Diagrams

USB3.0

Sheet 41 of 79  
USB3.0

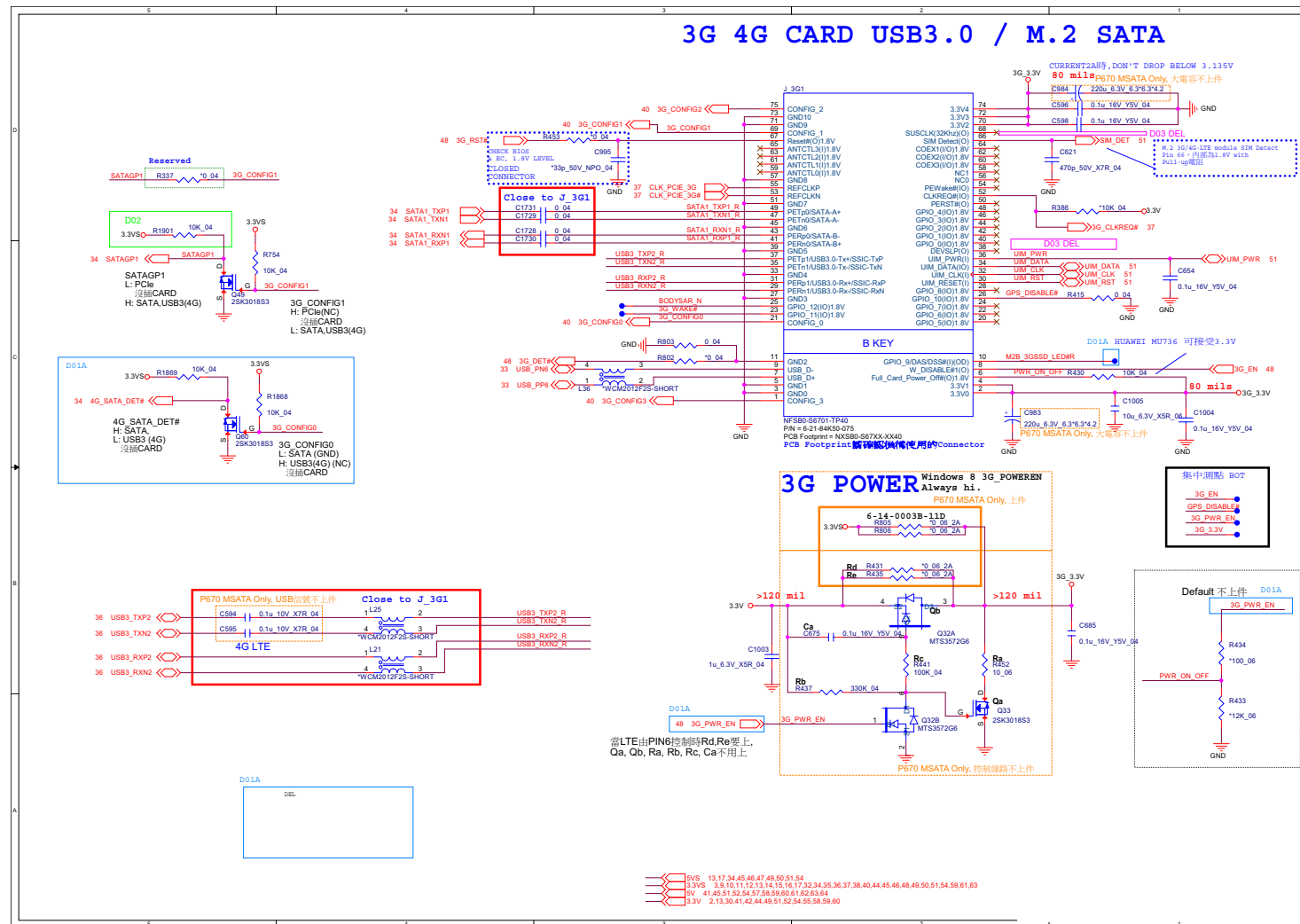


### USB Charger B - 43

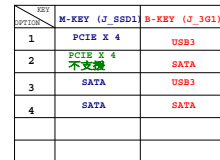


## M.2 3G + M.2 SATA

Sheet 43 of 79  
M.2 3G + M.2 SATA

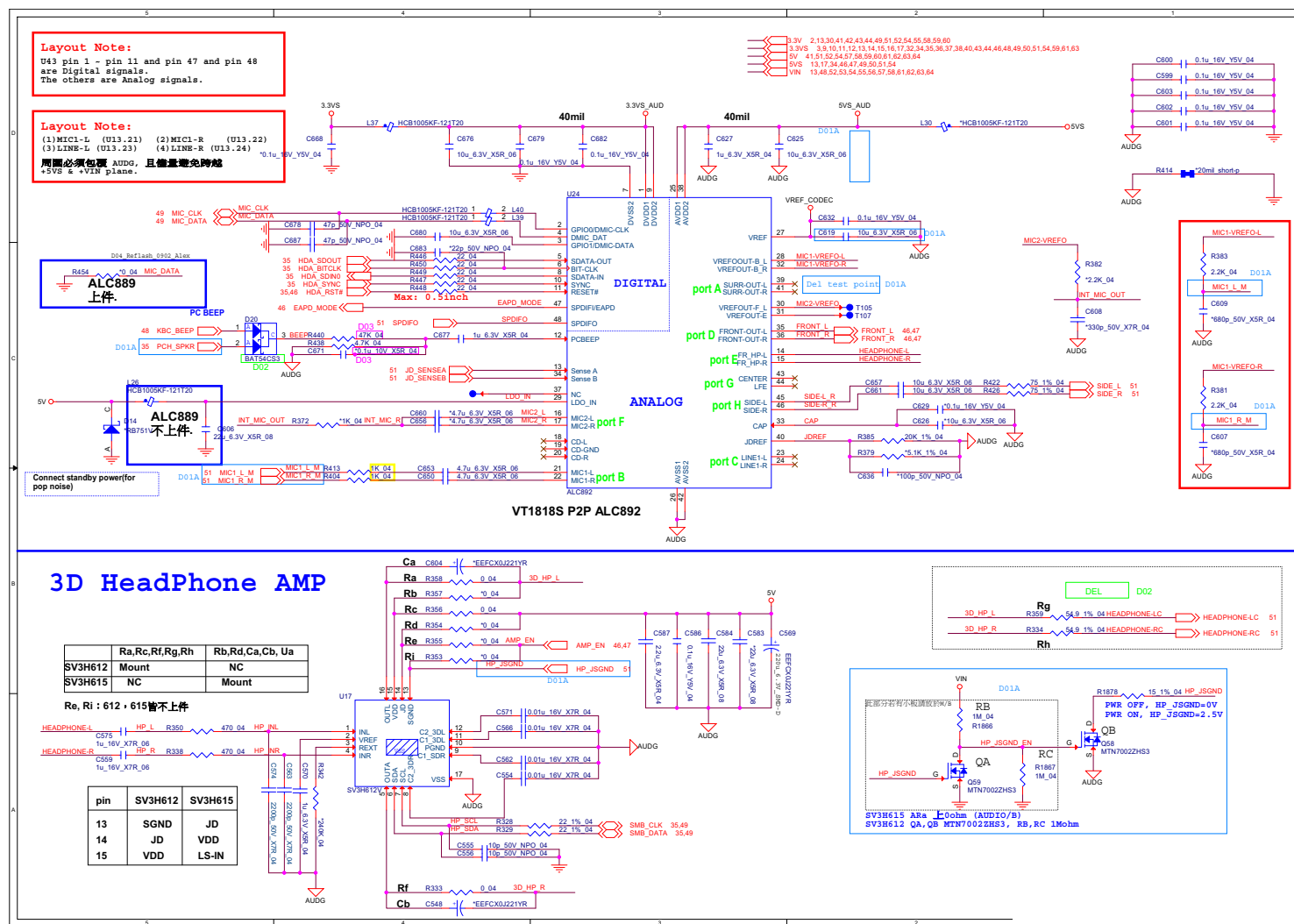


**Sheet 44 of 79**  
**M.2 WLAN+BT,**  
**PCIE4X SSD**



# Realtek ALC892

Sheet 45 of 79  
Realtek ALC892



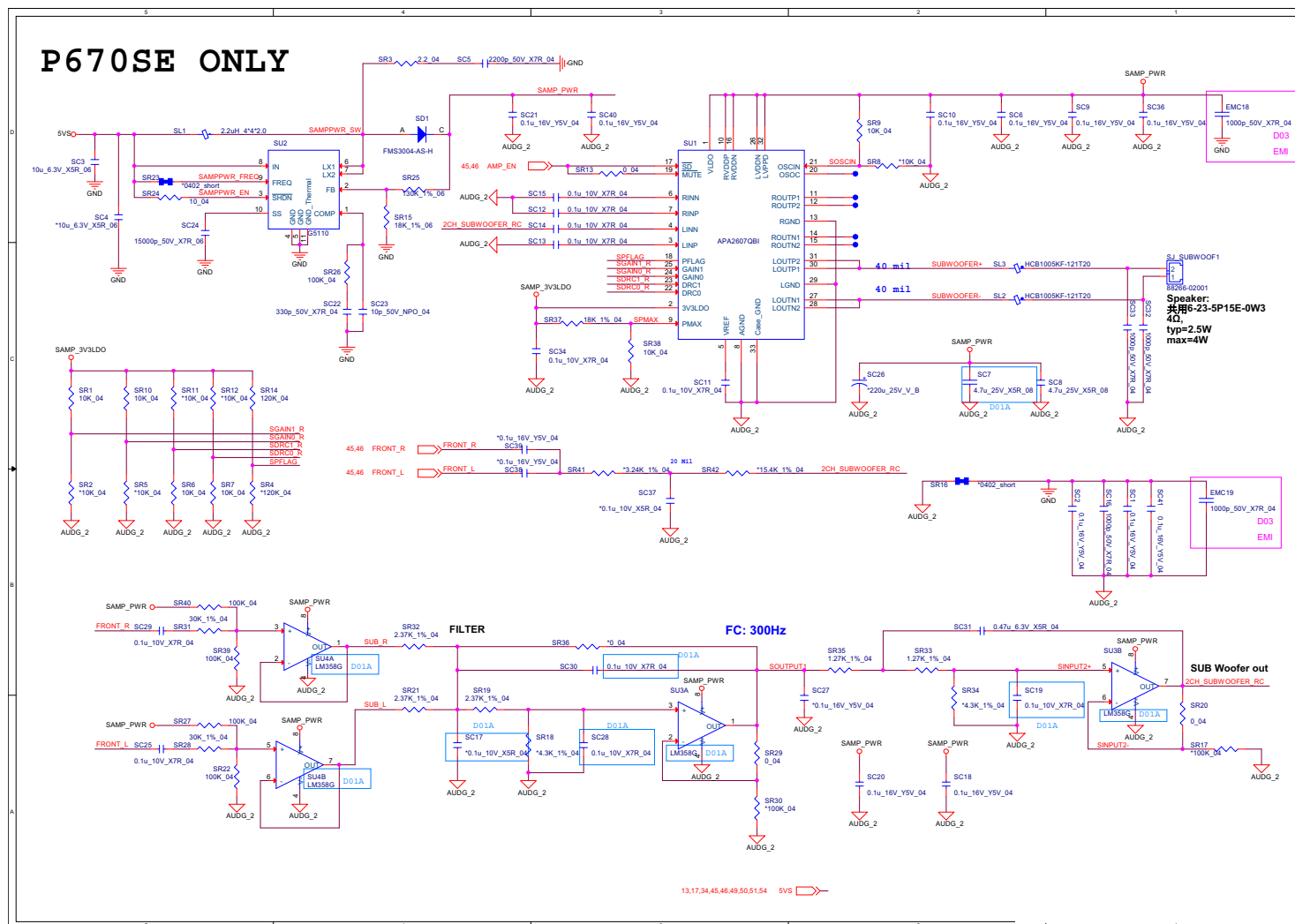
## TPA2008D2 B - 47

## B.Schematic Diagrams

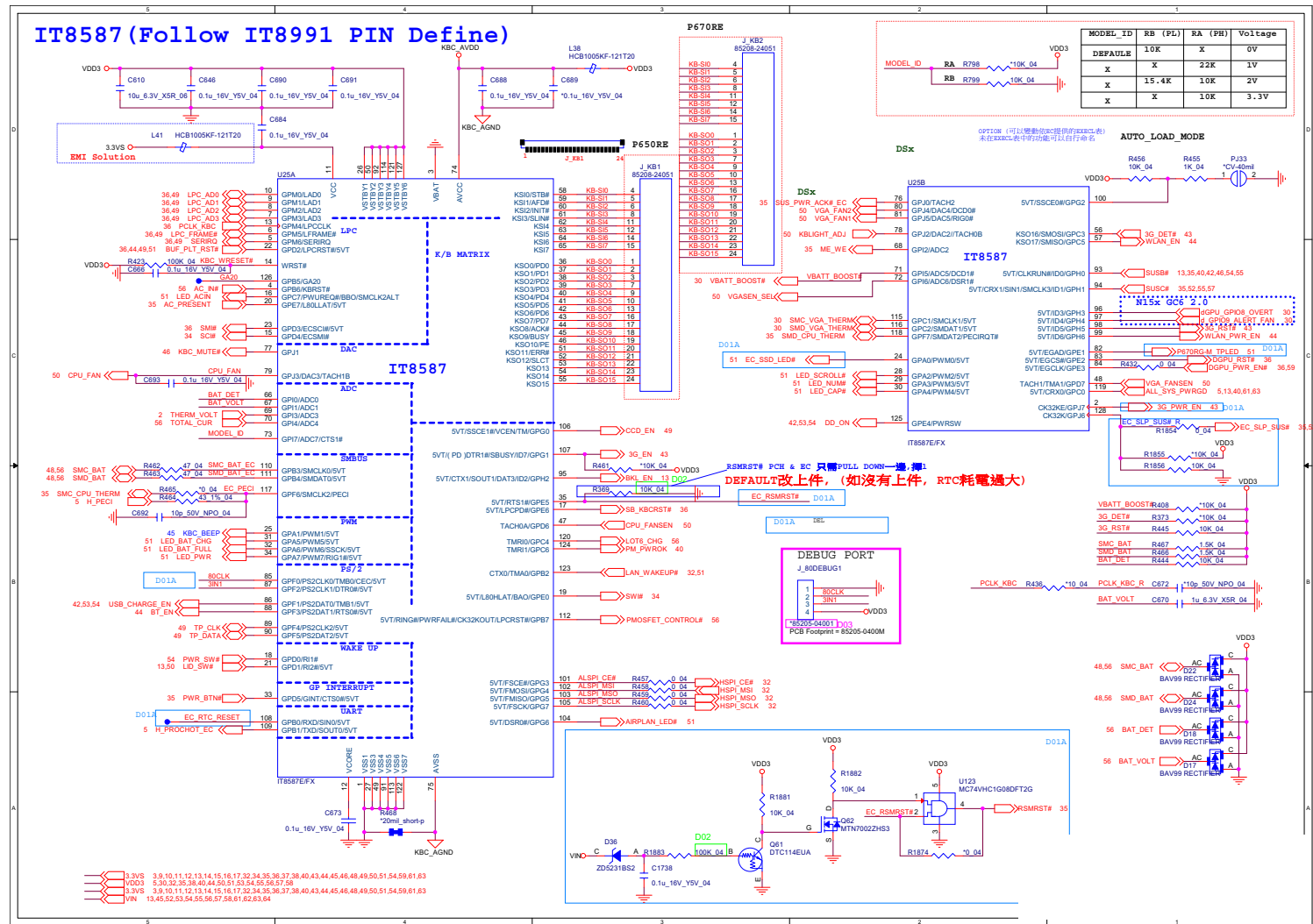


## Subwoofer

**P670SE ONLY**



## KBC-ITE IT8587

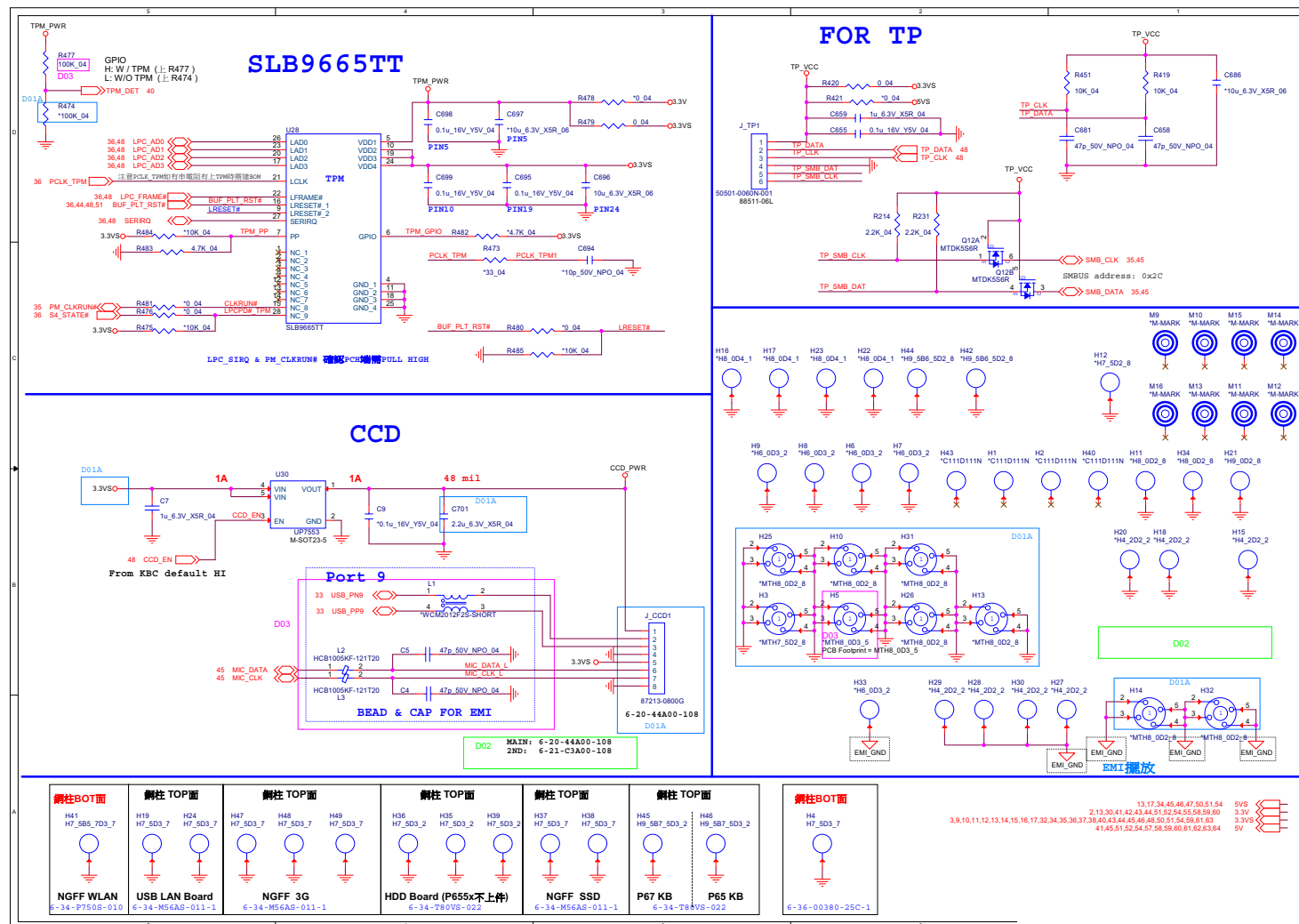


Sheet 48 of 79  
KBC-ITE IT8587

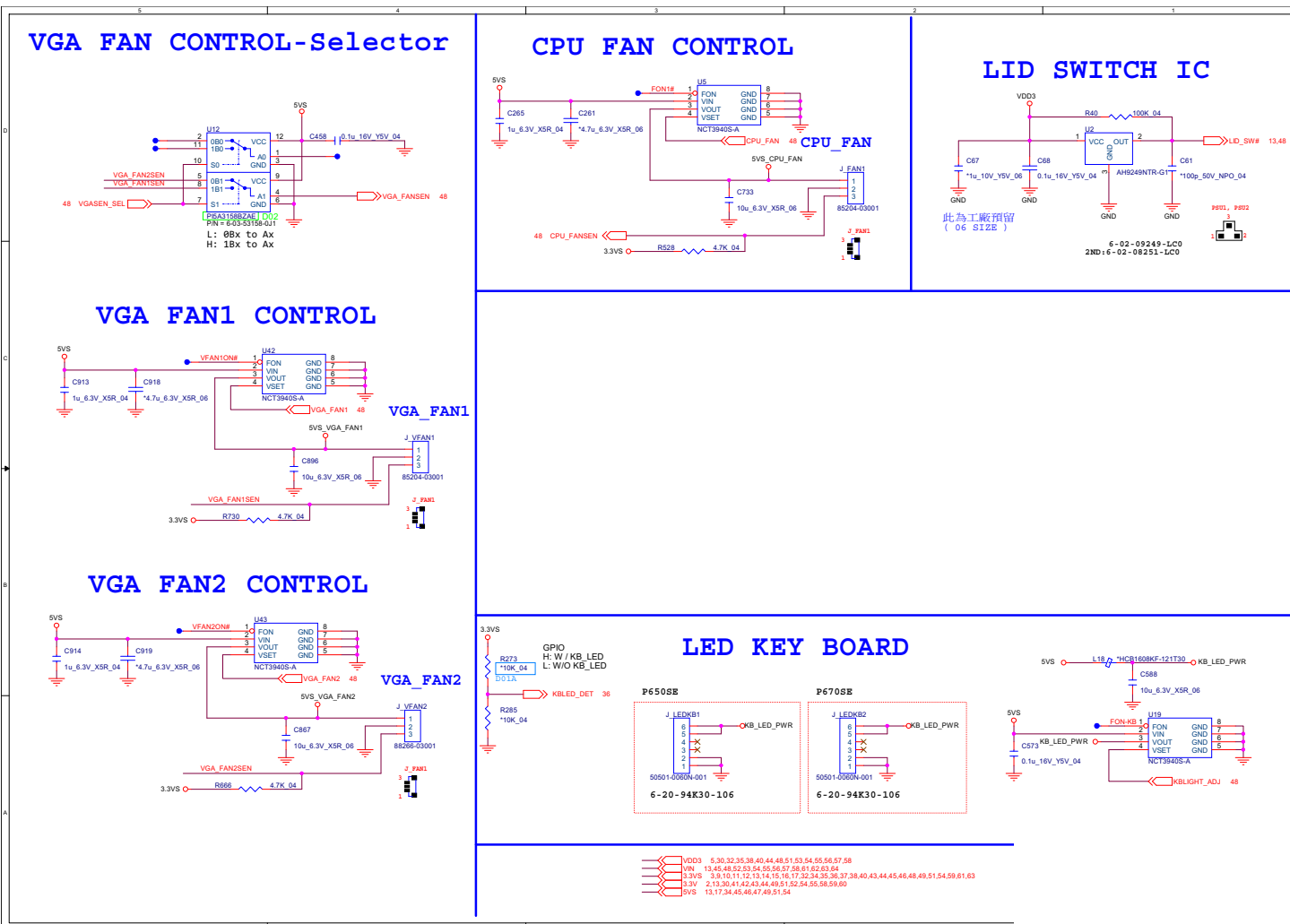


## TPM, CCD, TP

Sheet 49 of 79  
TPM, CCD, TP



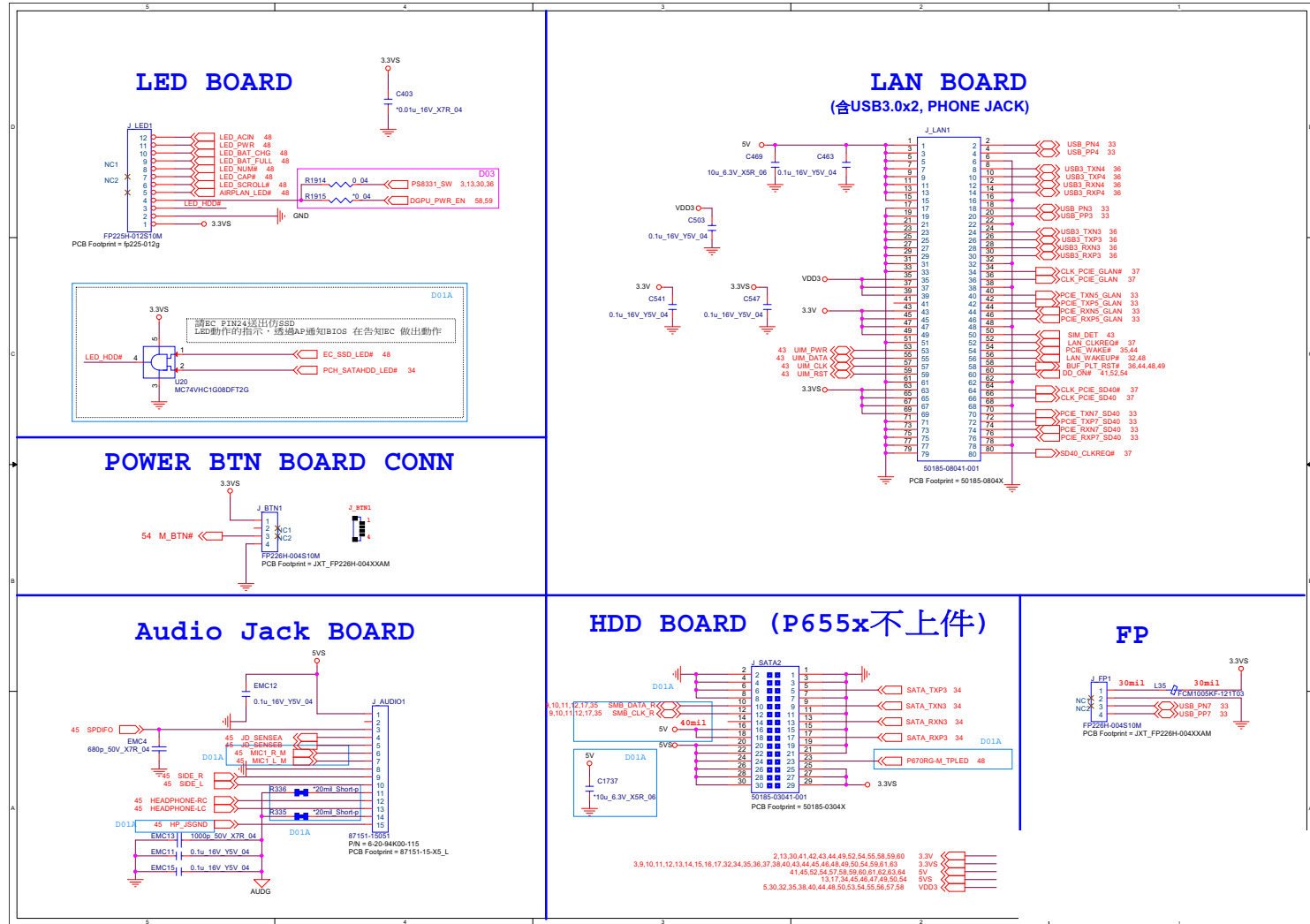
# Fan, LID, KB, LED



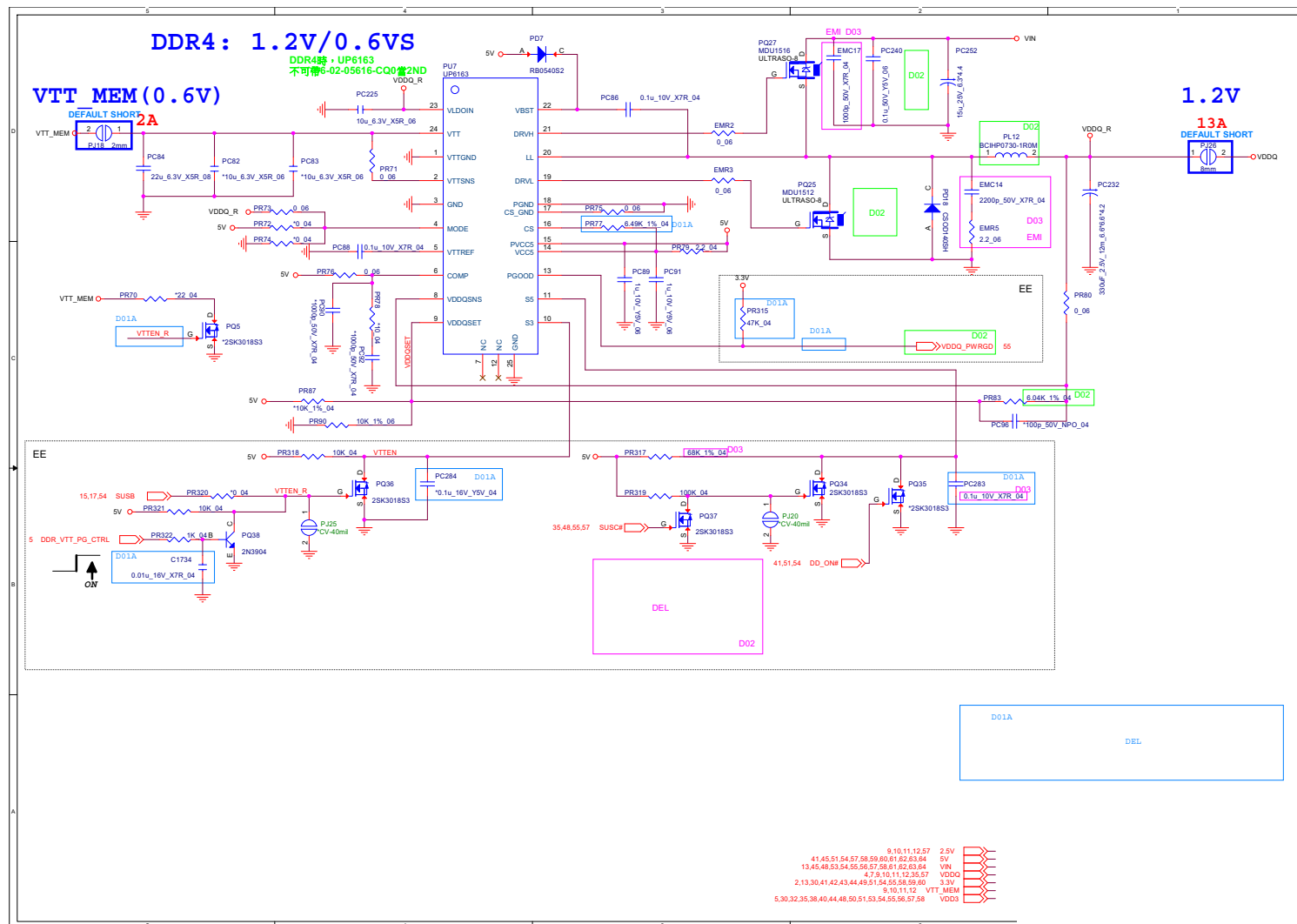
Sheet 50 of 79  
Fan, LID, KB, LED

# Connector

Sheet 51 of 79  
Connector

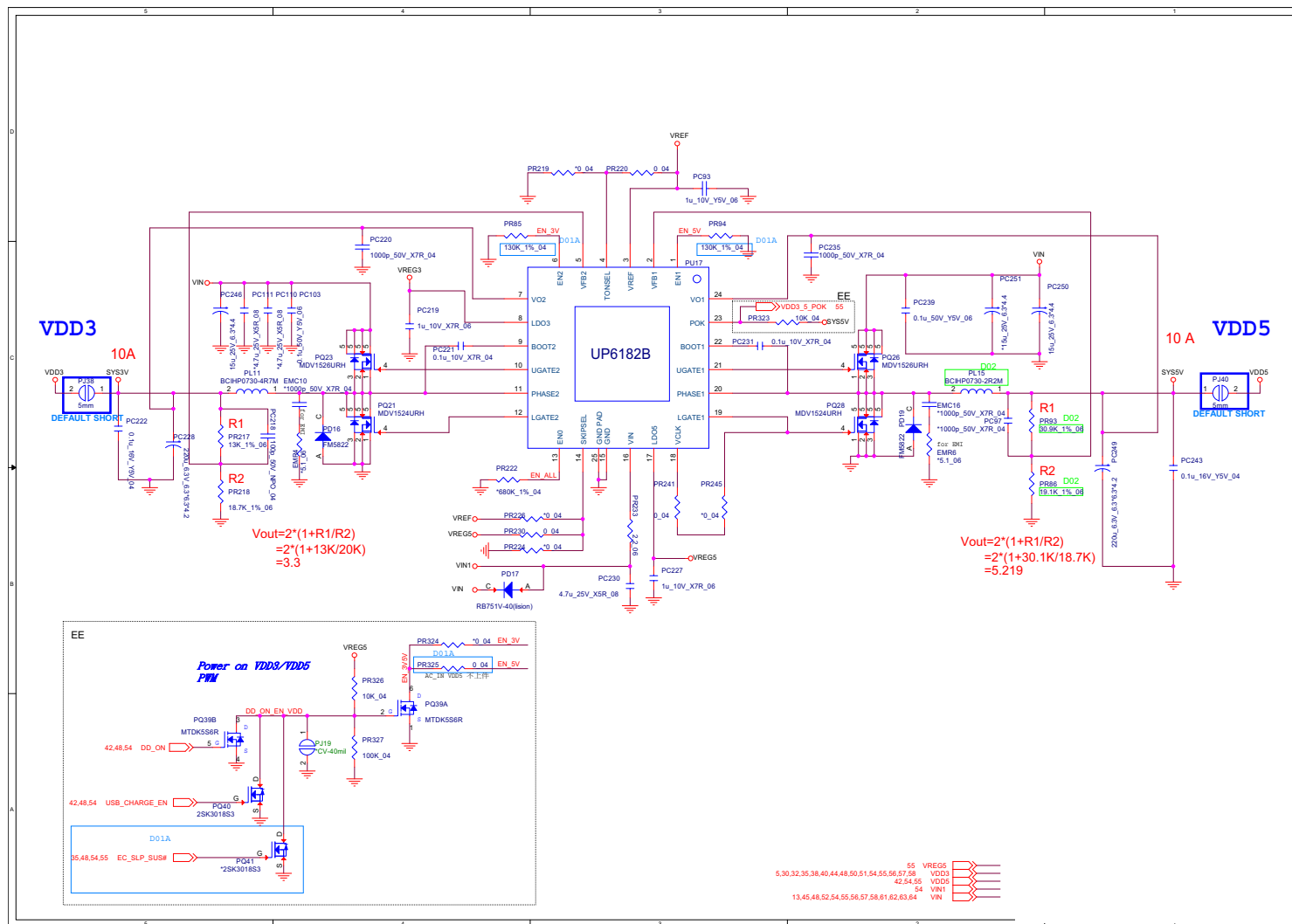


## DDR 1.2V / 0.6VS

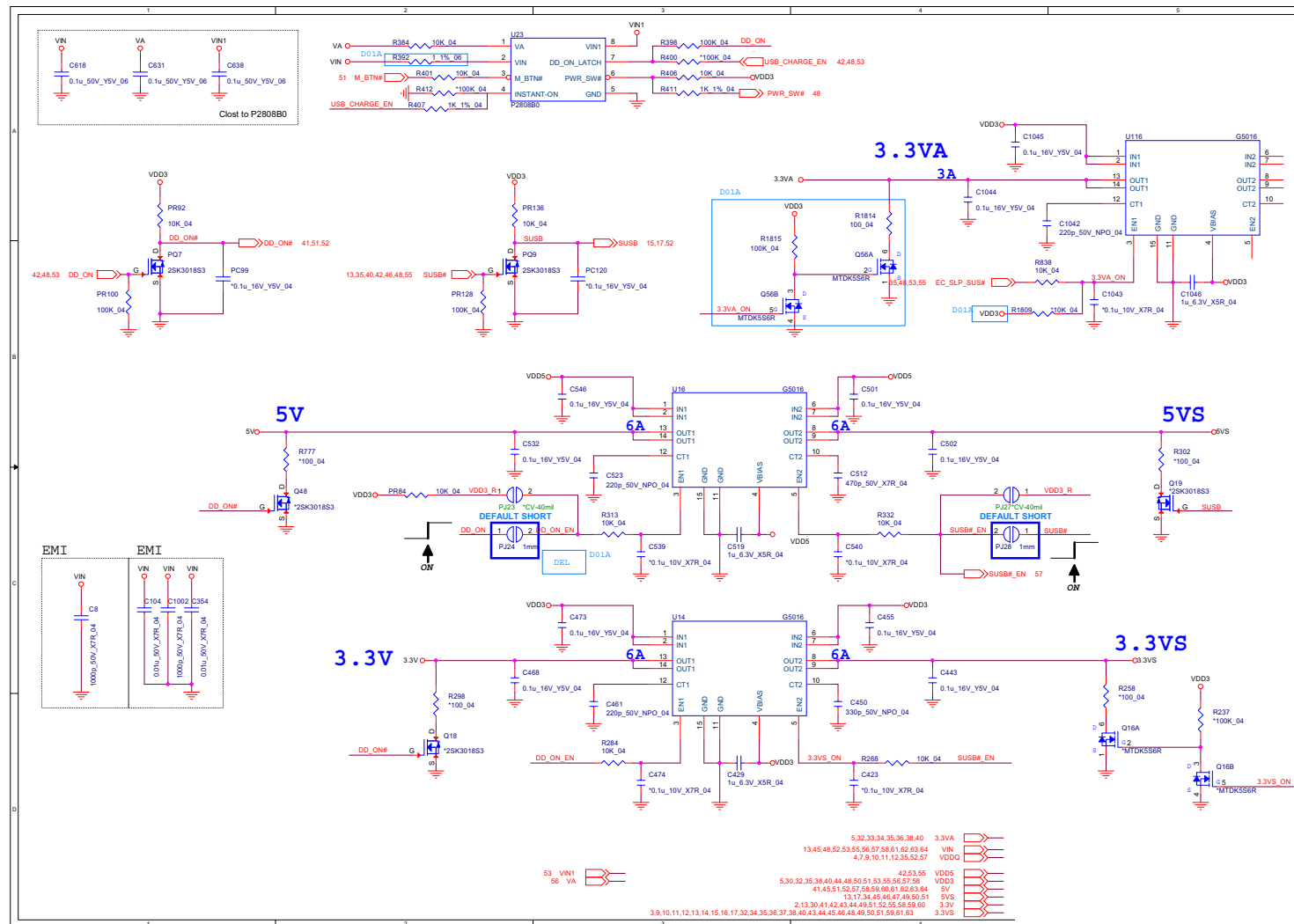


## VDD3, VDD5

**Sheet 53 of 79**  
**VDD3, VDD5**



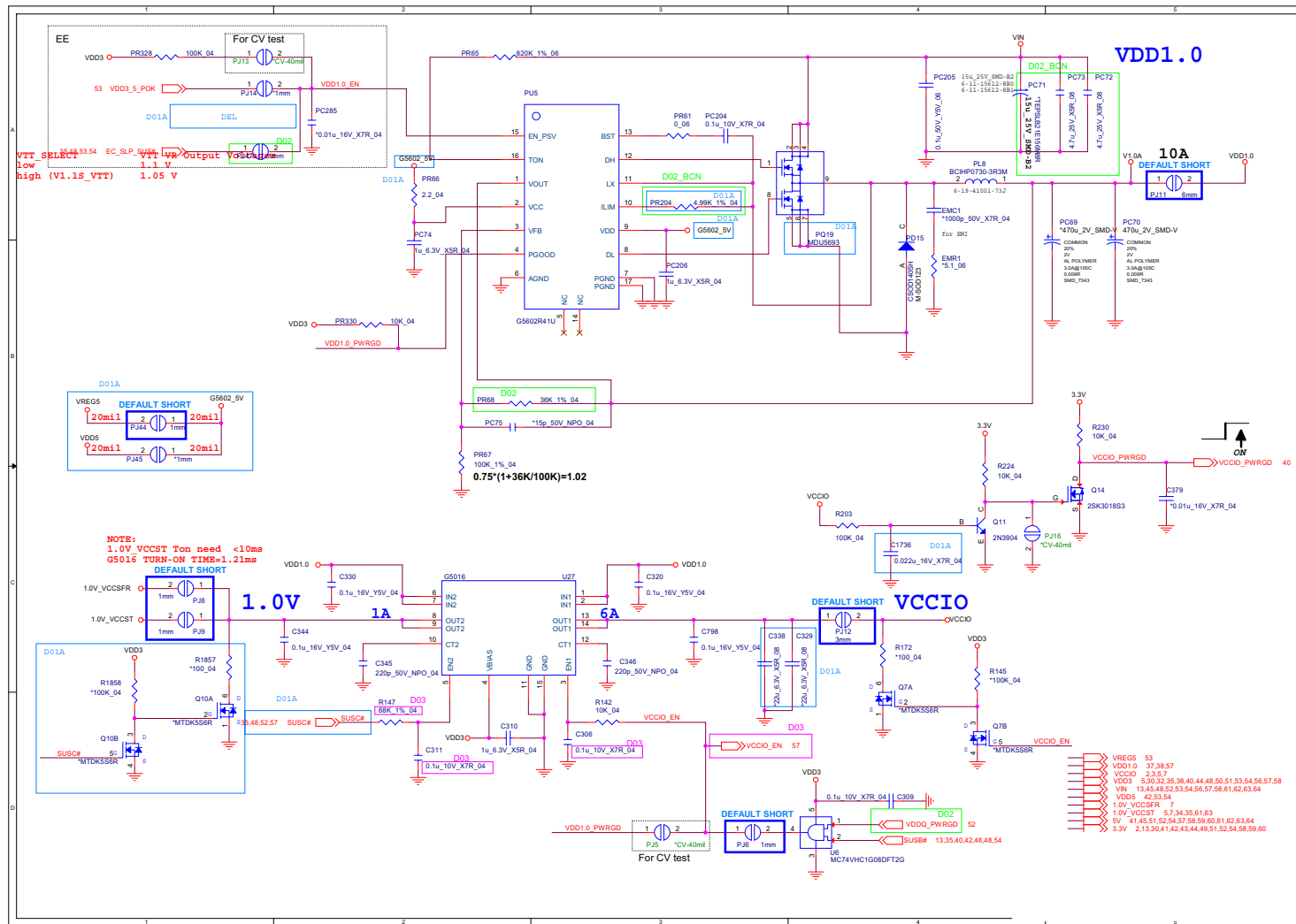
# 5V, 5VS, 3.3V, 3.3VS, 3.3VA



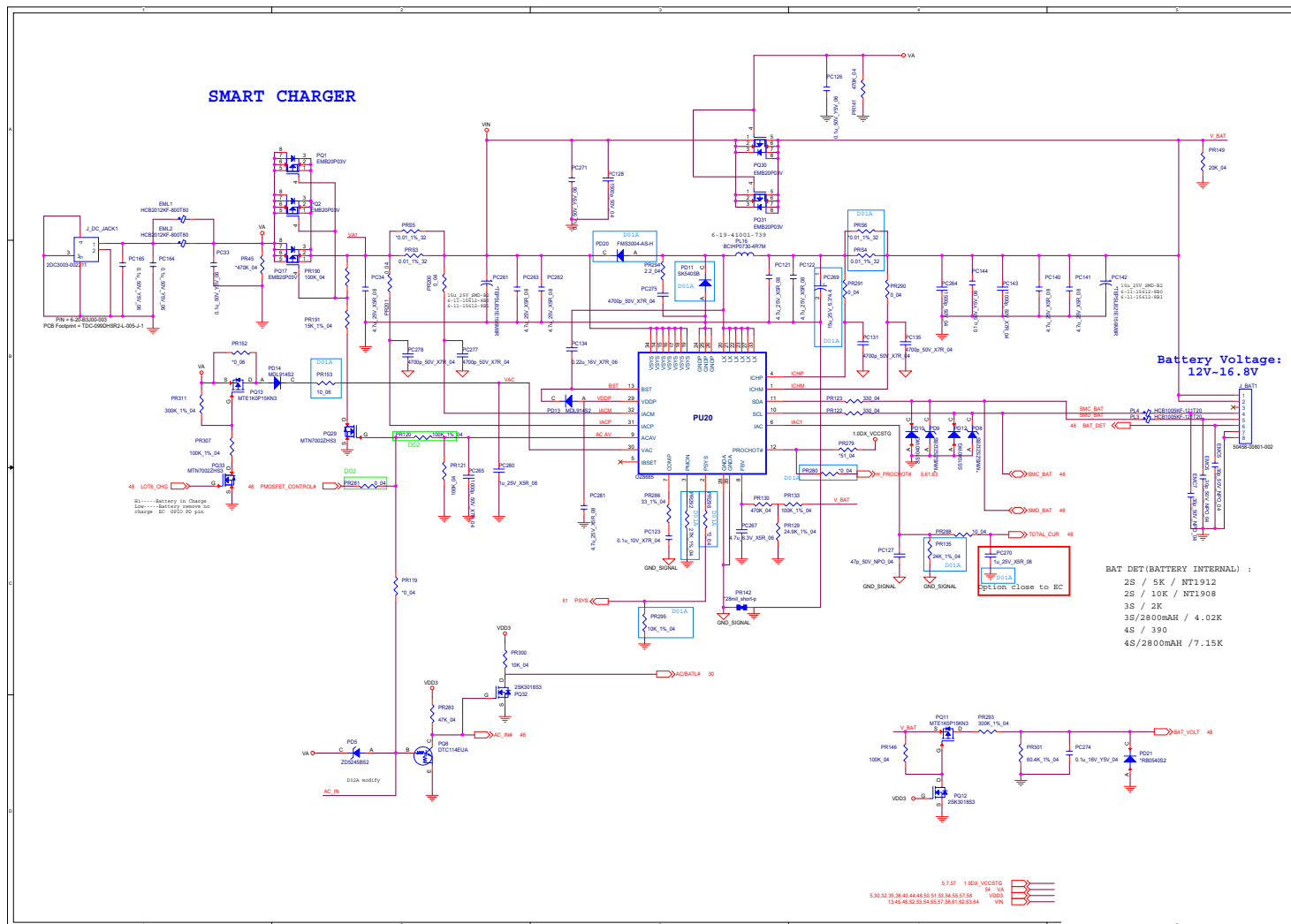
Sheet 54 of 79  
5V, 5VS, 3.3V,  
3.3VS, 3.3VA

\_\_\_\_\_

## Power 1.0V, VCCIO



## B.Schematic Diagrams

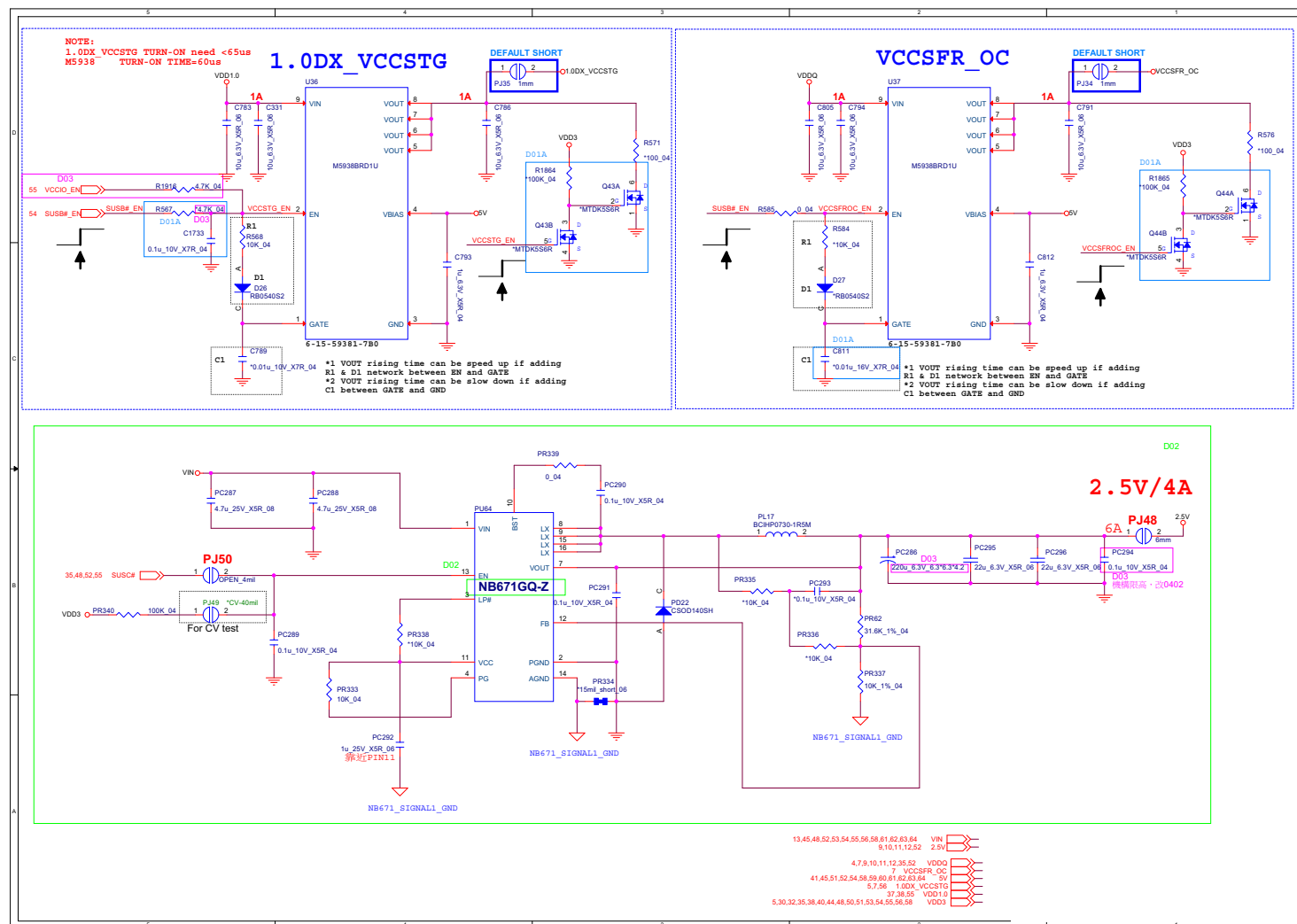




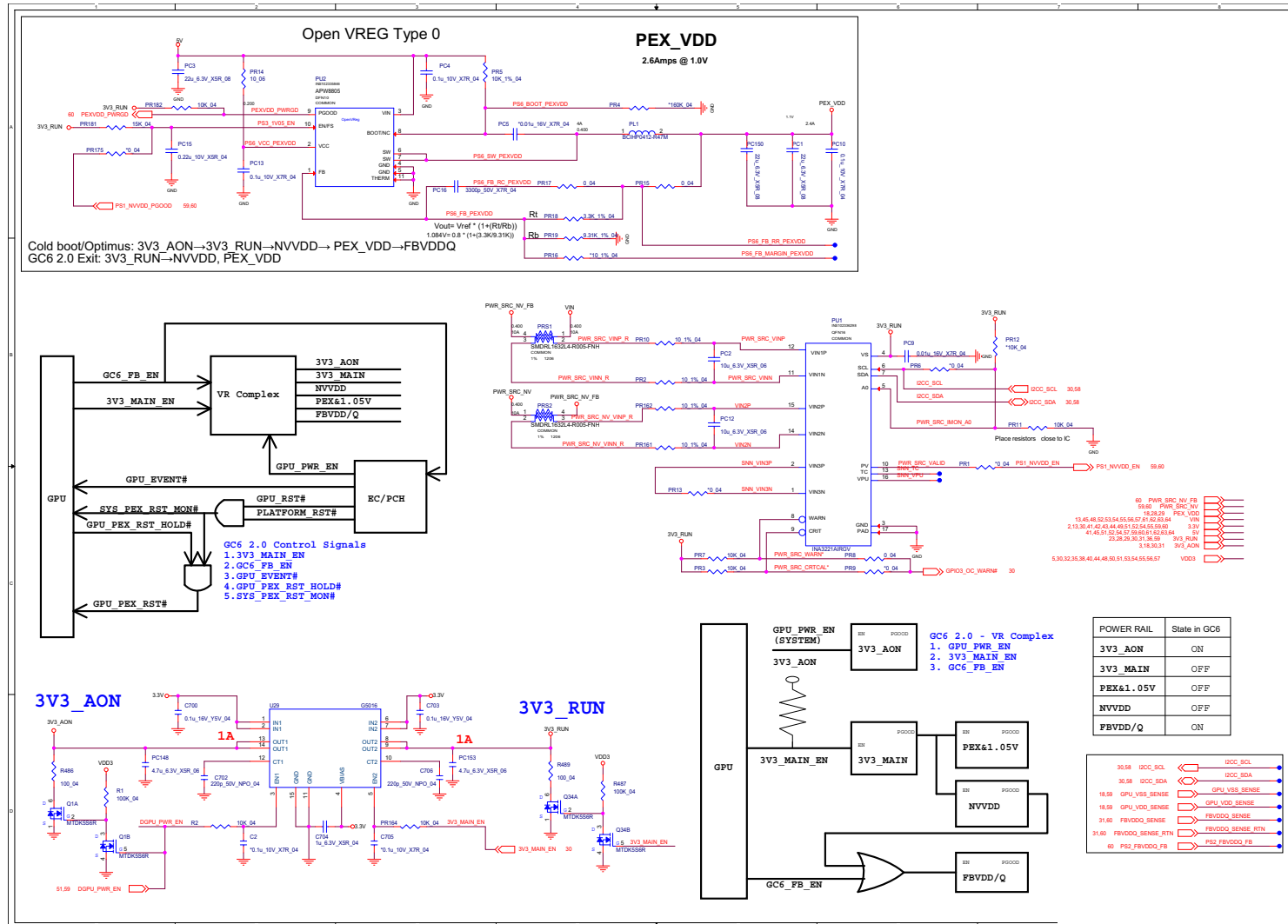
## Schematic Diagrams

## 1.0DX\_VCCSTG/VCCSFR\_OC/2.5V

Sheet 57 of 79  
1.0DX\_VCCSTG/  
VCCSFR\_OC/2.5V



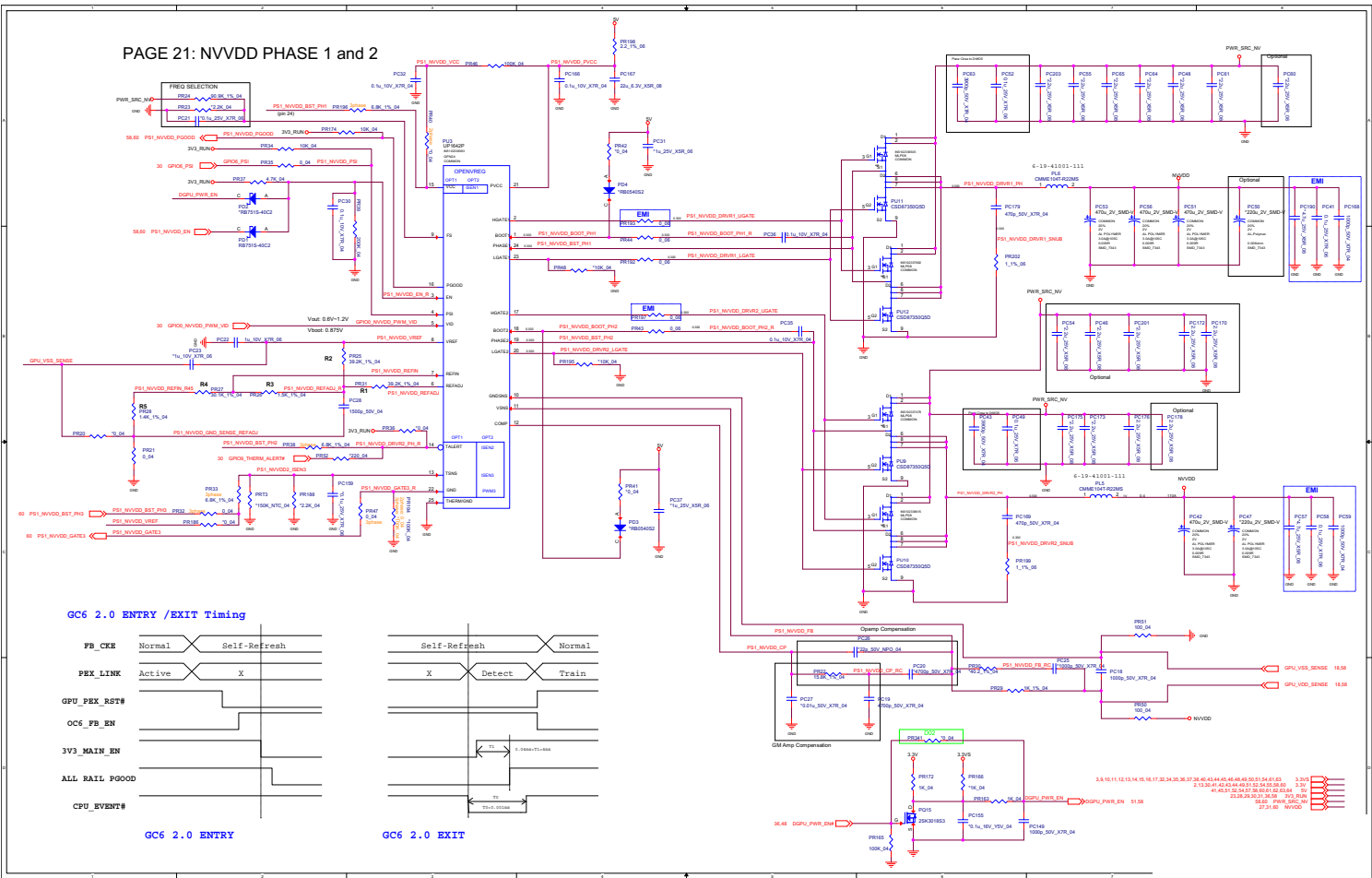
## PEX\_VDD, 3V3\_AON, 3V3\_RUN



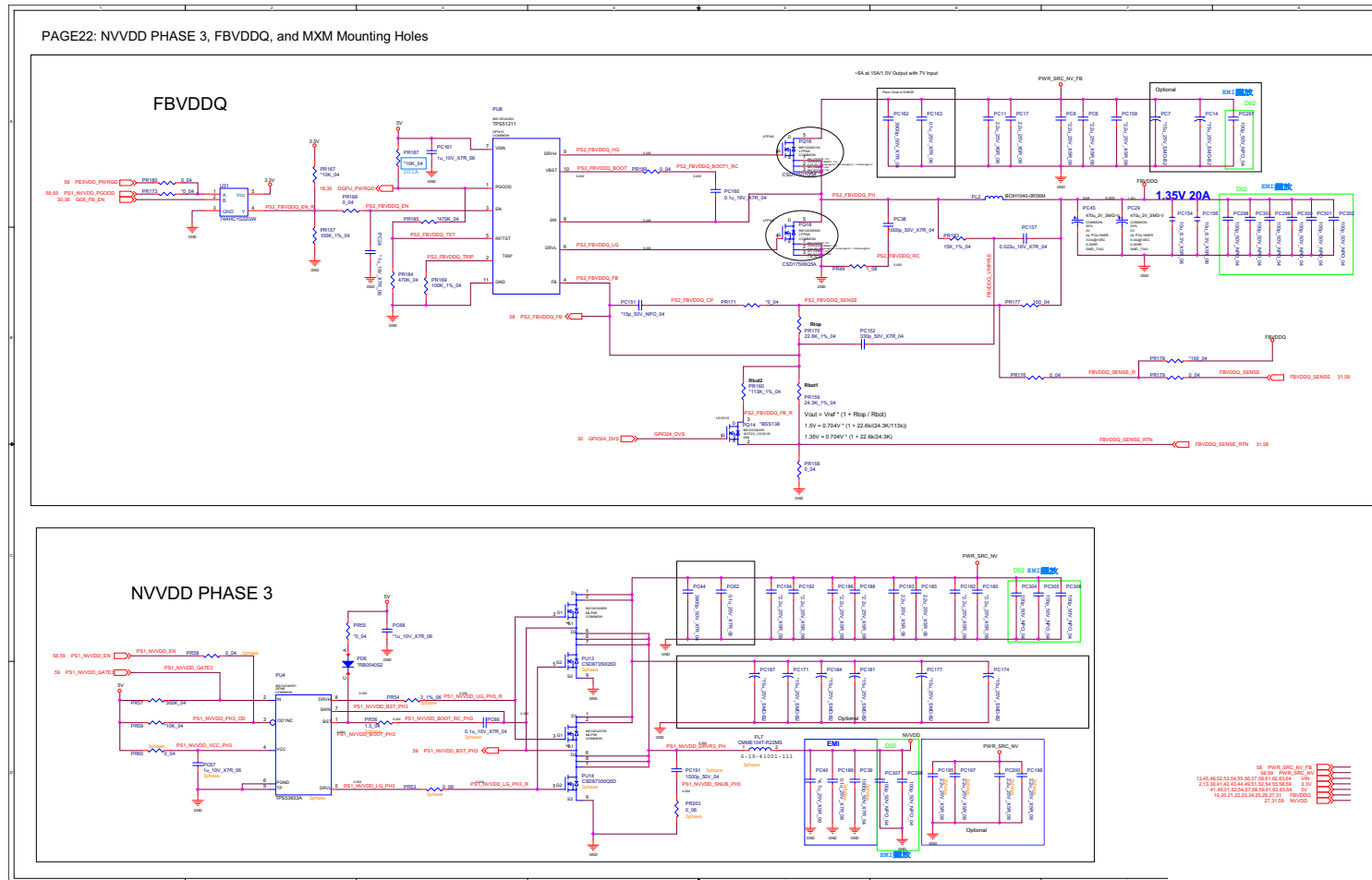
Schematic Diagrams

NVDD Phase 1 & 2

Sheet 59 of 79  
NVDD Phase 1 & 2



# FBVDDQ

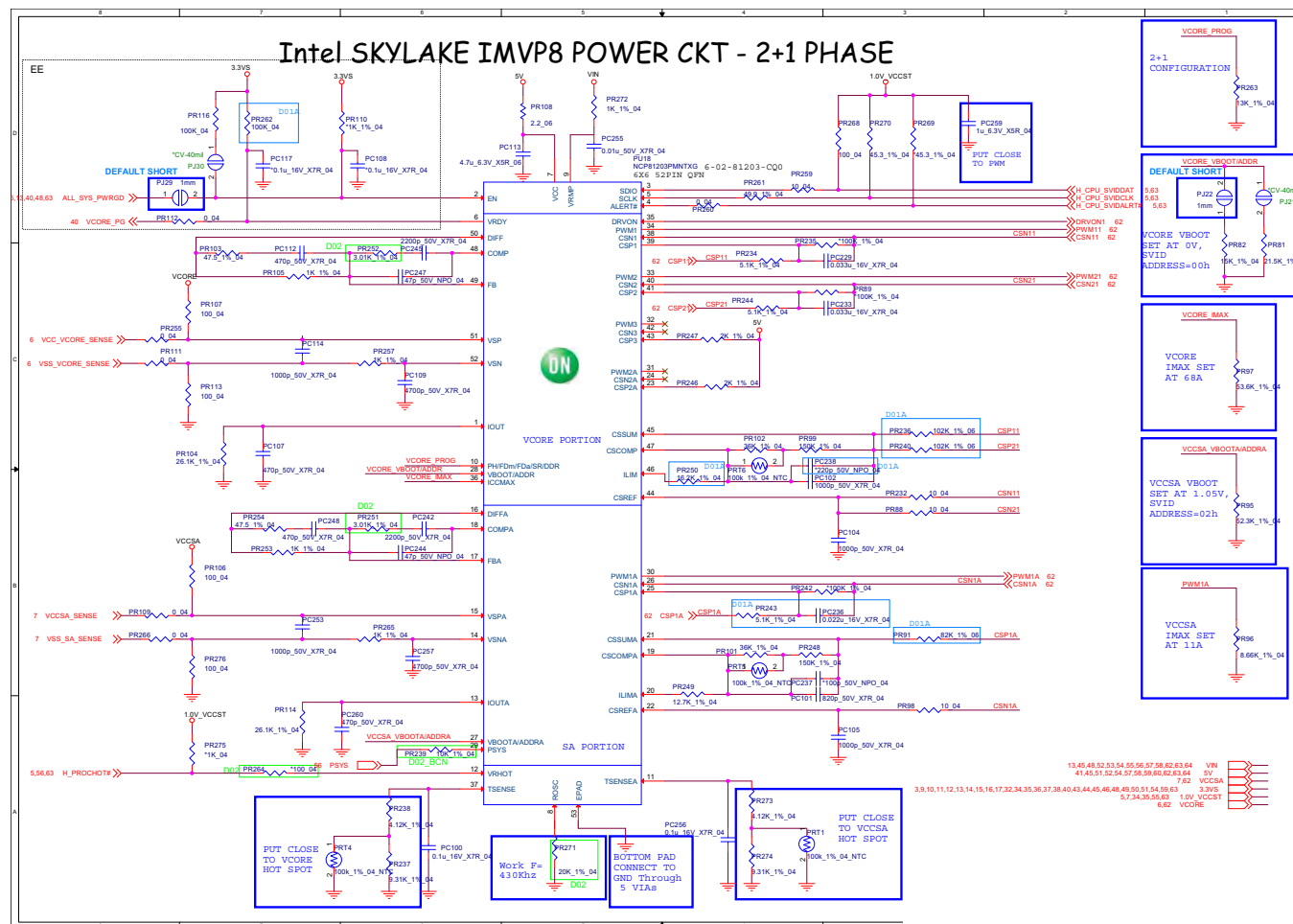


Sheet 60 of 79  
FBVDDQ

## VCC\_Core & VCCSA

## B. Schematic Diagrams

Sheet 61 of 79  
VCC\_Core &  
VCCSA



Sheet 62 of 79  
VCore & VCCSA  
Output Stage

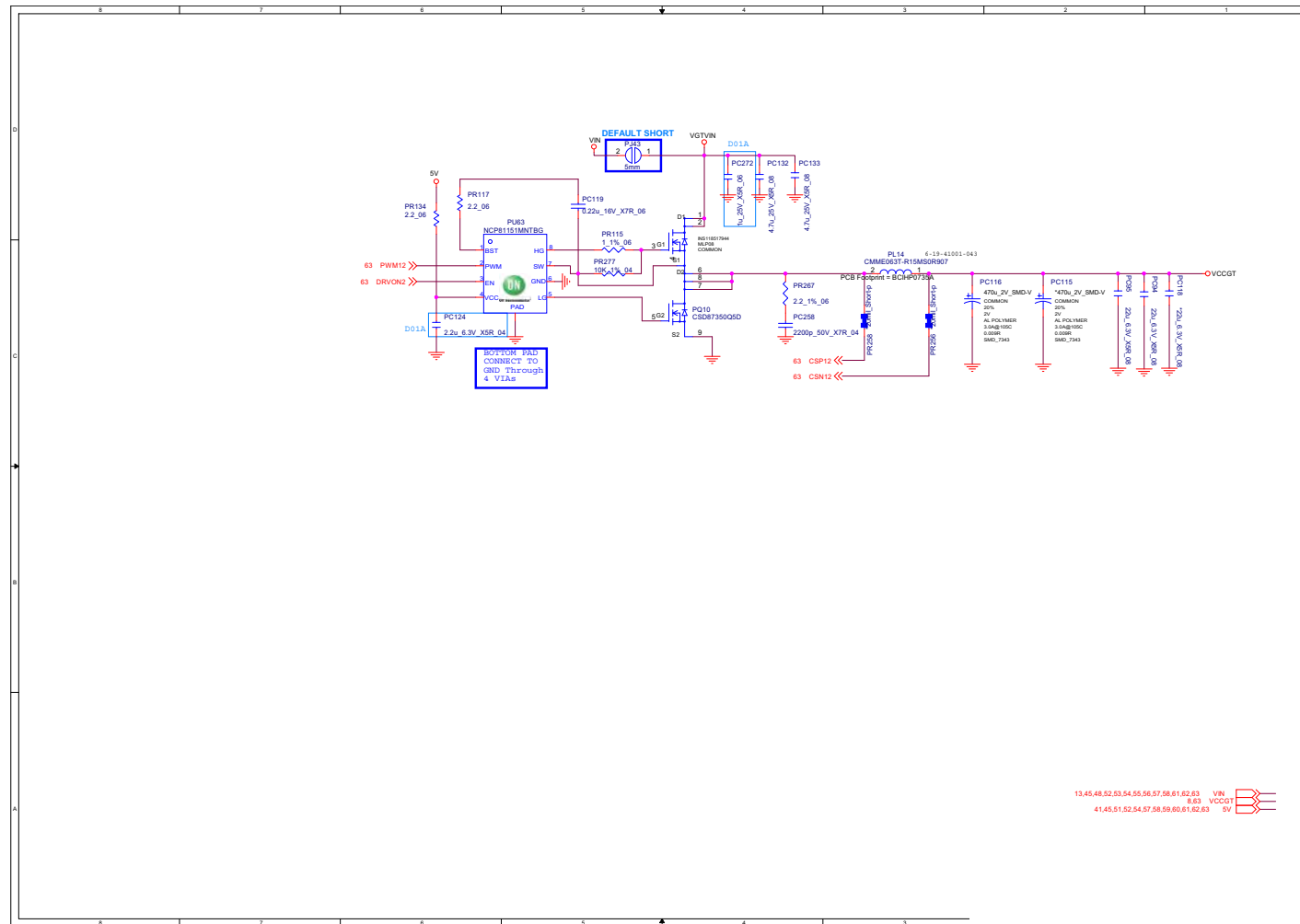


# VCCGT

## B.Schematic Diagrams



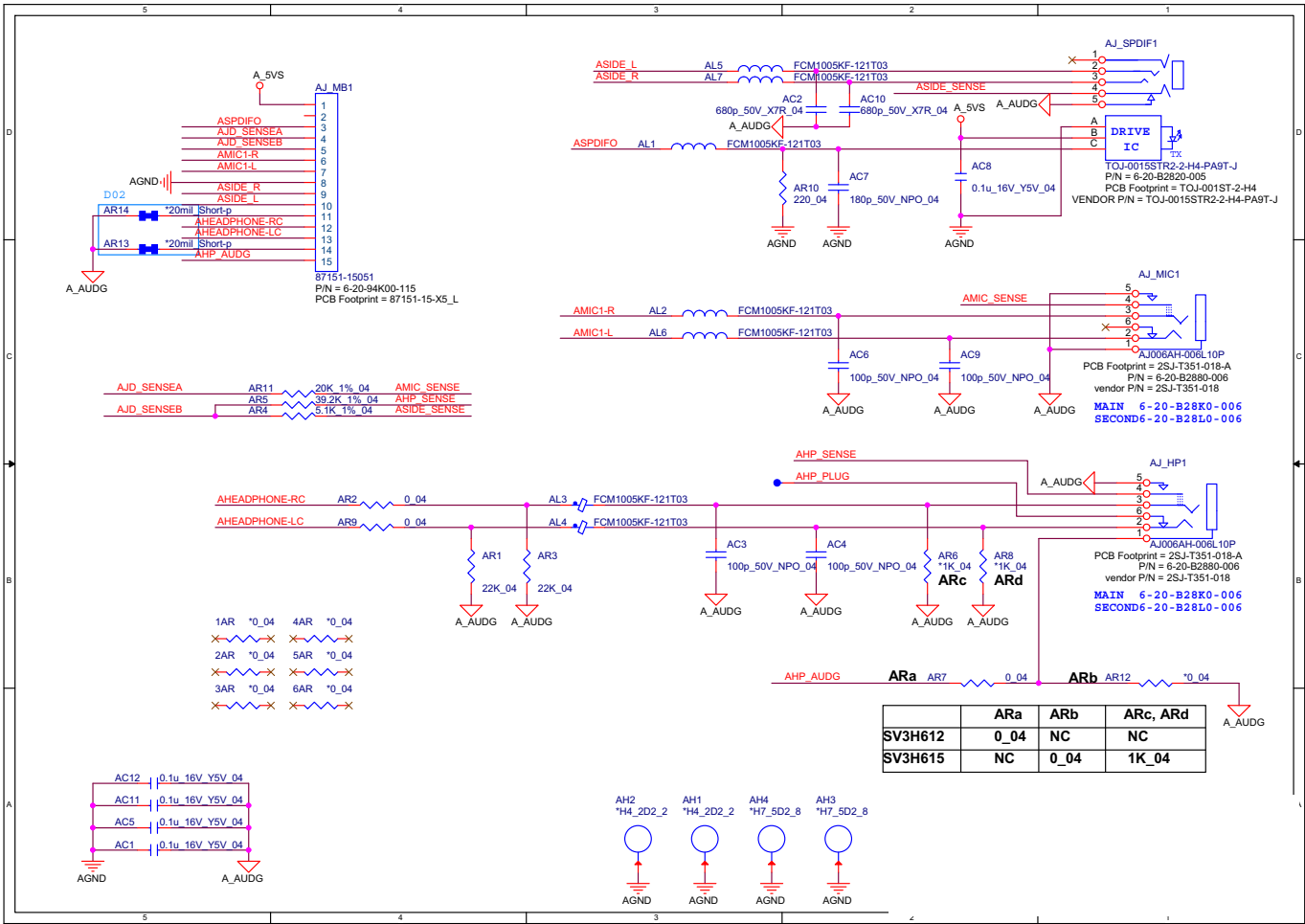
**Sheet 64 of 79**  
**VCCGT Output**  
**Stage**



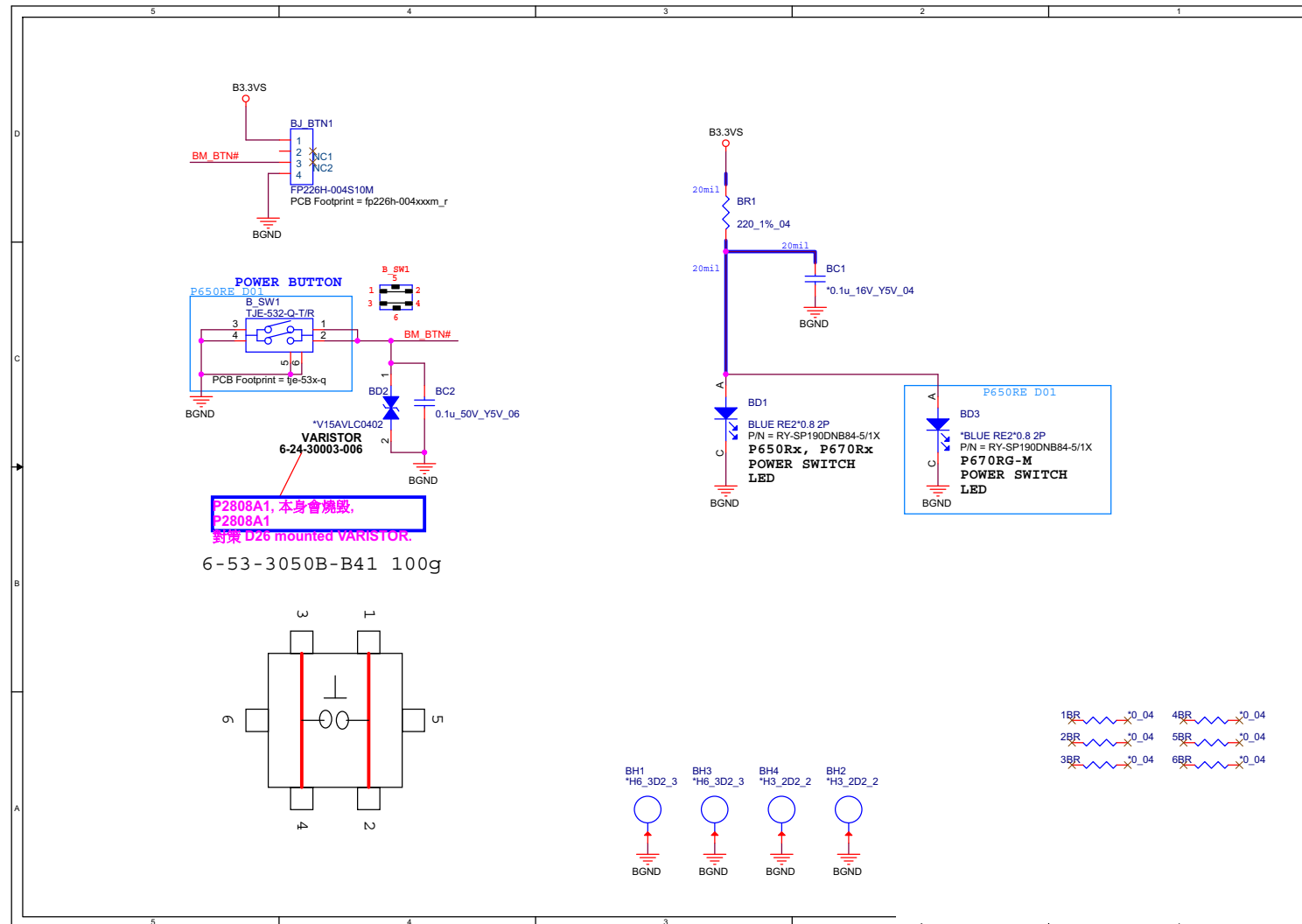


P650RE Audio Board A

Sheet 65 of 79  
P650RE Audio  
Board A



# P650RE Power Board



Sheet 66 of 79  
P650RE Power  
Board

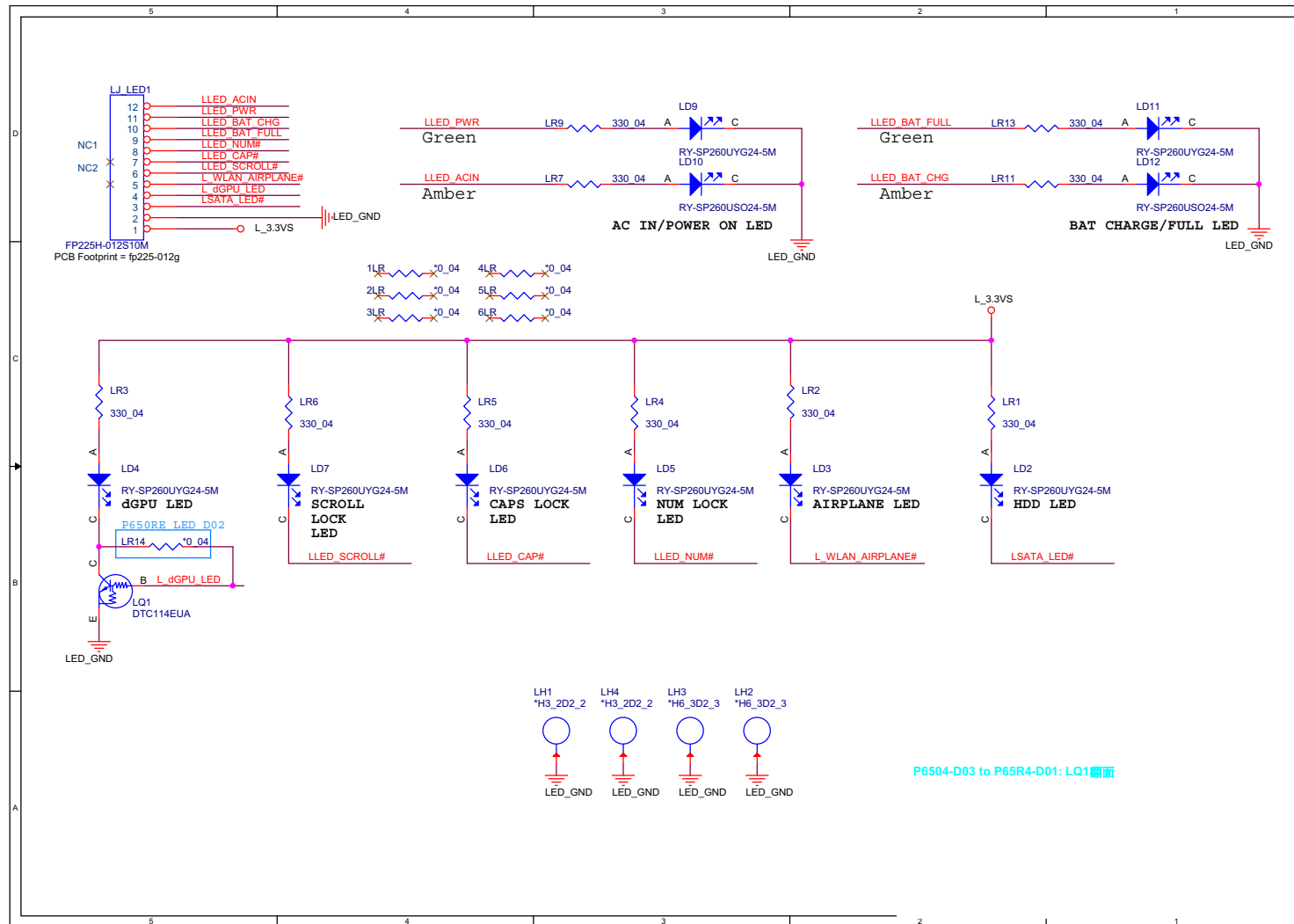
## B. Schematic Diagrams

Sheet 67 of 79  
P650RE HDD Board



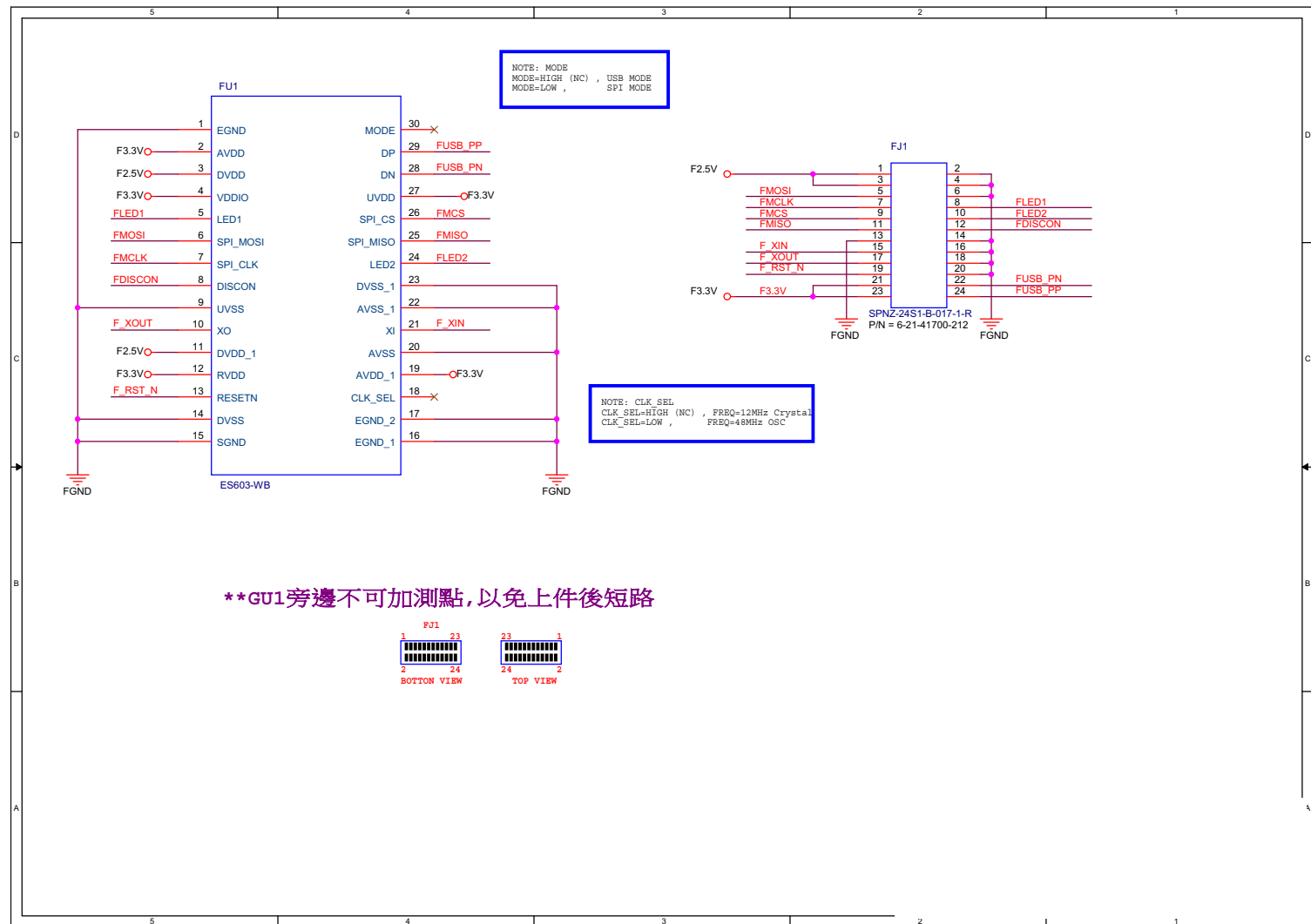
## P650RE LED Board

Sheet 68 of 79  
P650RE LED Board

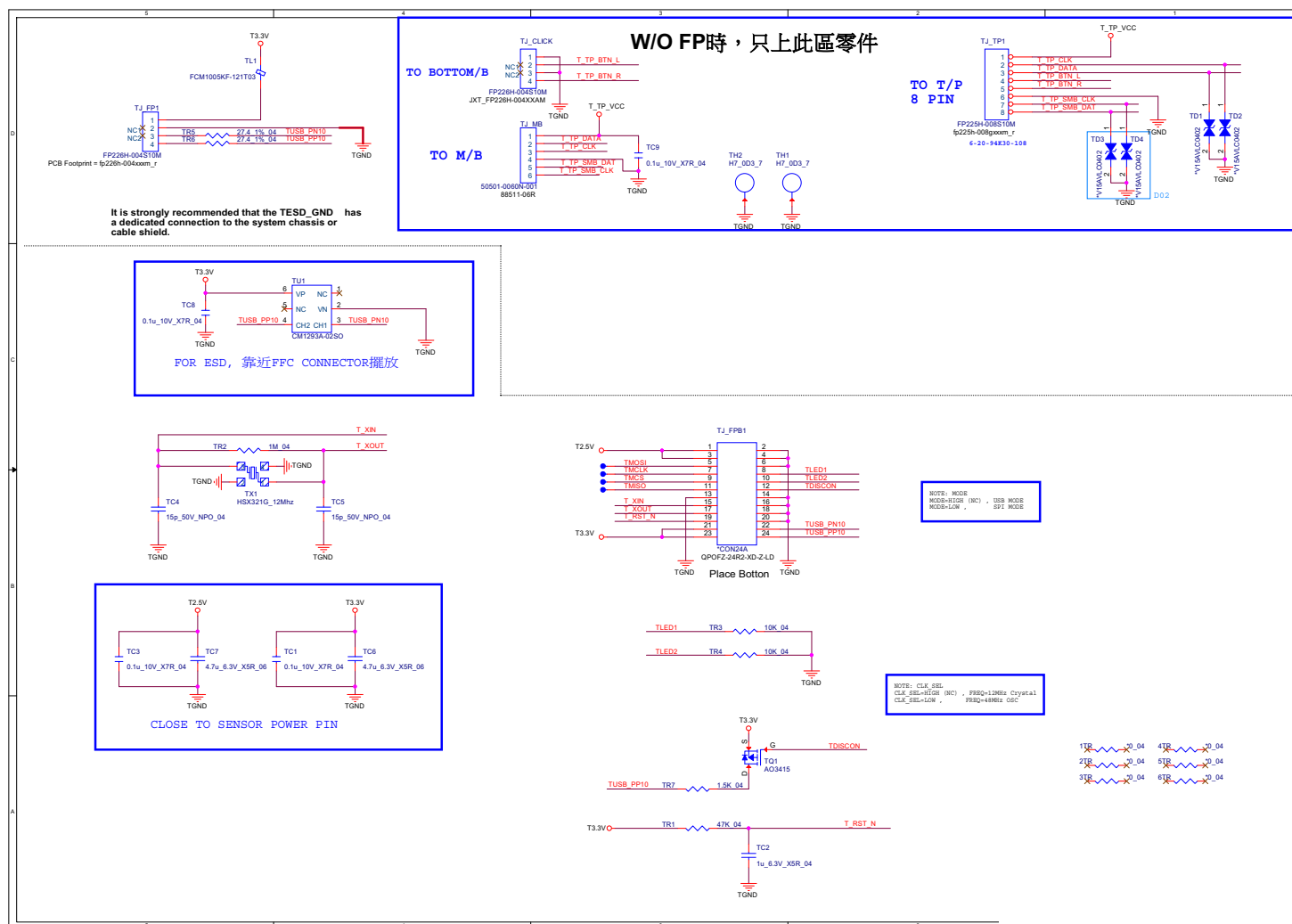


## Schematic Diagrams

## Finger Sensor Board

Sheet 69 of 79  
Finger Sensor  
Board

# P650RE Click Board



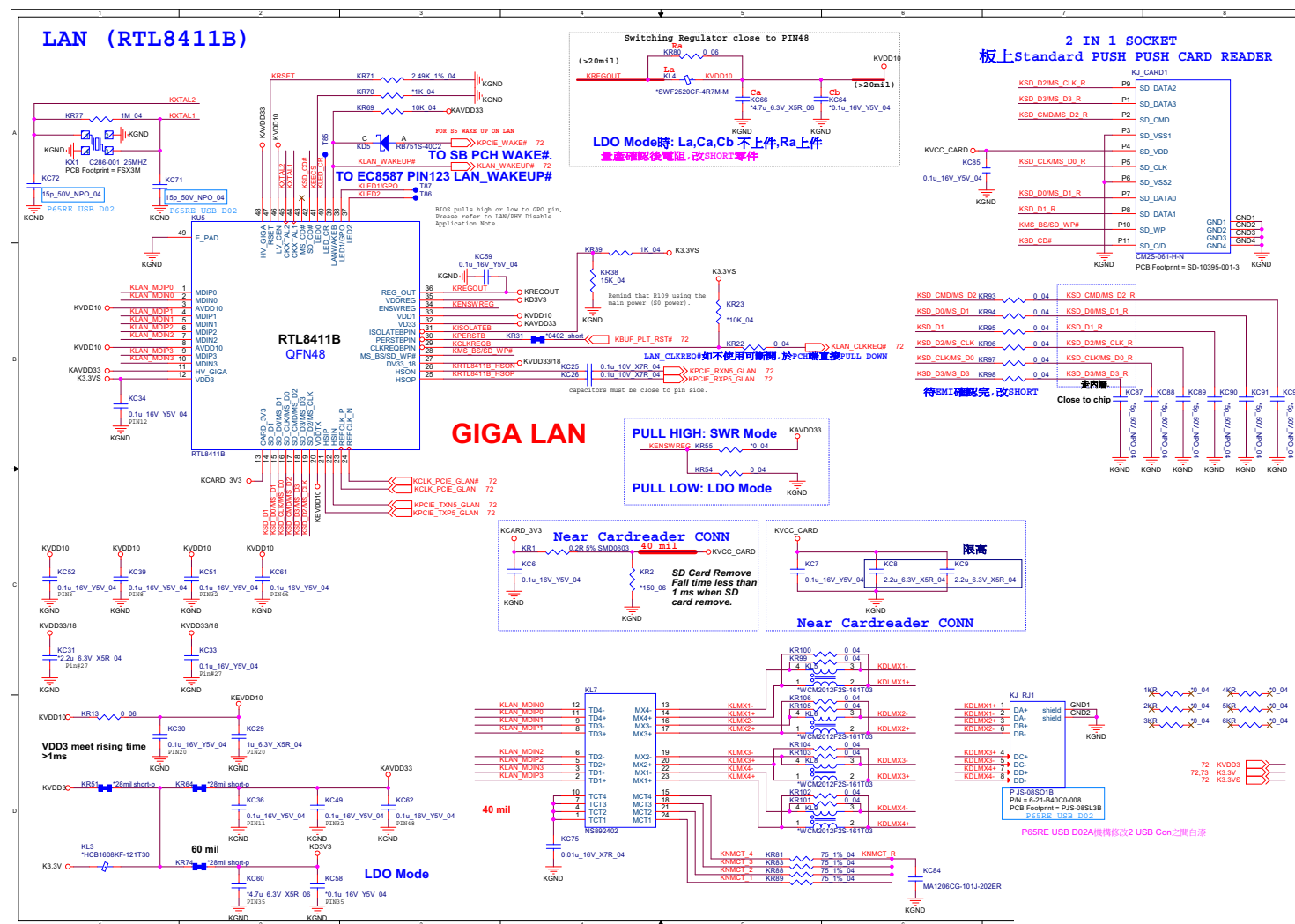
Sheet 70 of 79  
P650RE Click  
Board

B.Schematic Diagrams

## P650RE USB Board 1/3

## B. Schematic Diagrams

Sheet 71 of 79  
P650RE USB Board  
1/3



Sheet 72 of 79  
P650RE USB Board  
2/3

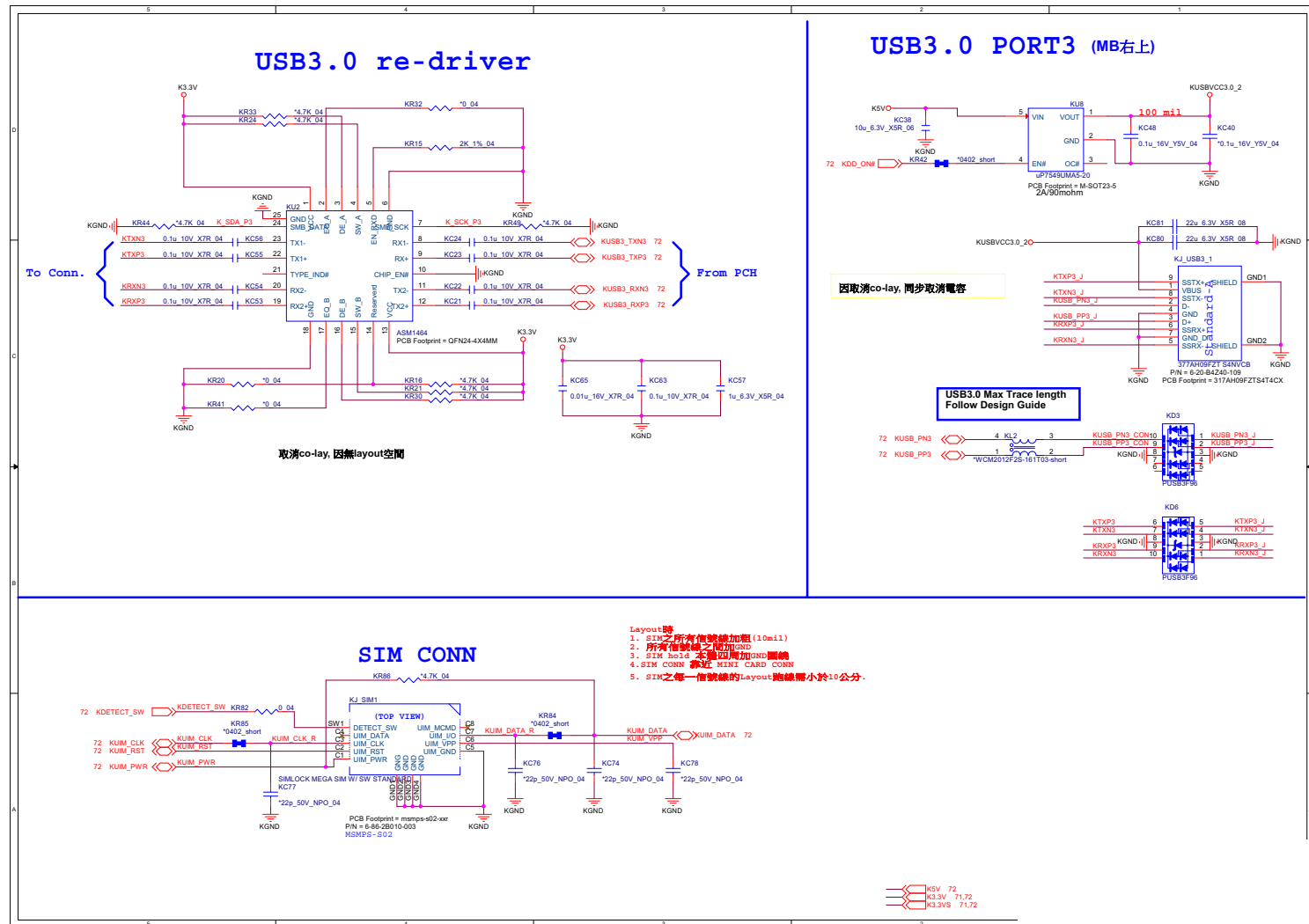




## Schematic Diagrams

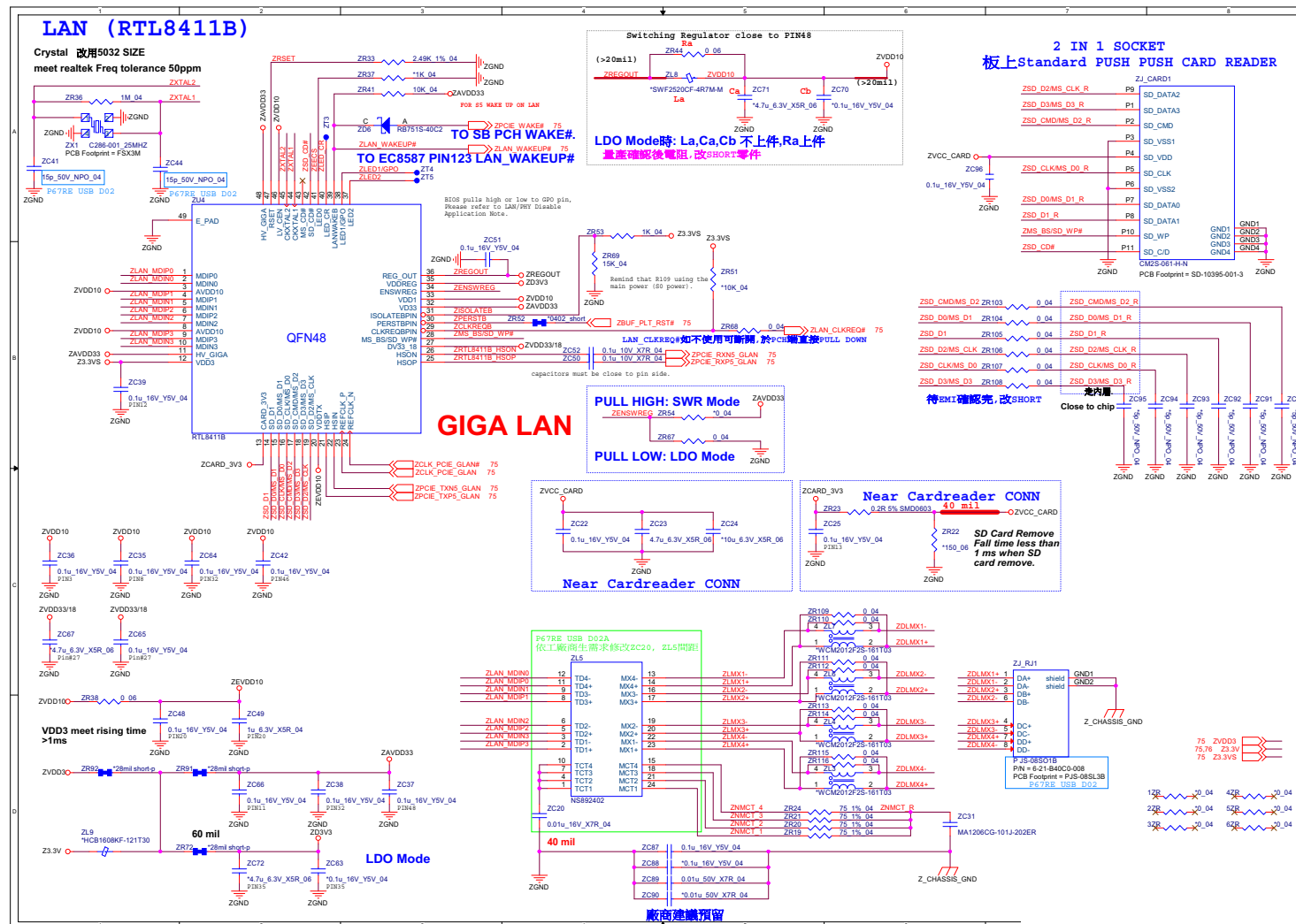
## P650RE USB Board 3/3

Sheet 73 of 79  
P650RE USB Board  
3/3



## Schematic Diagrams

## P670RE USB Board 1/3



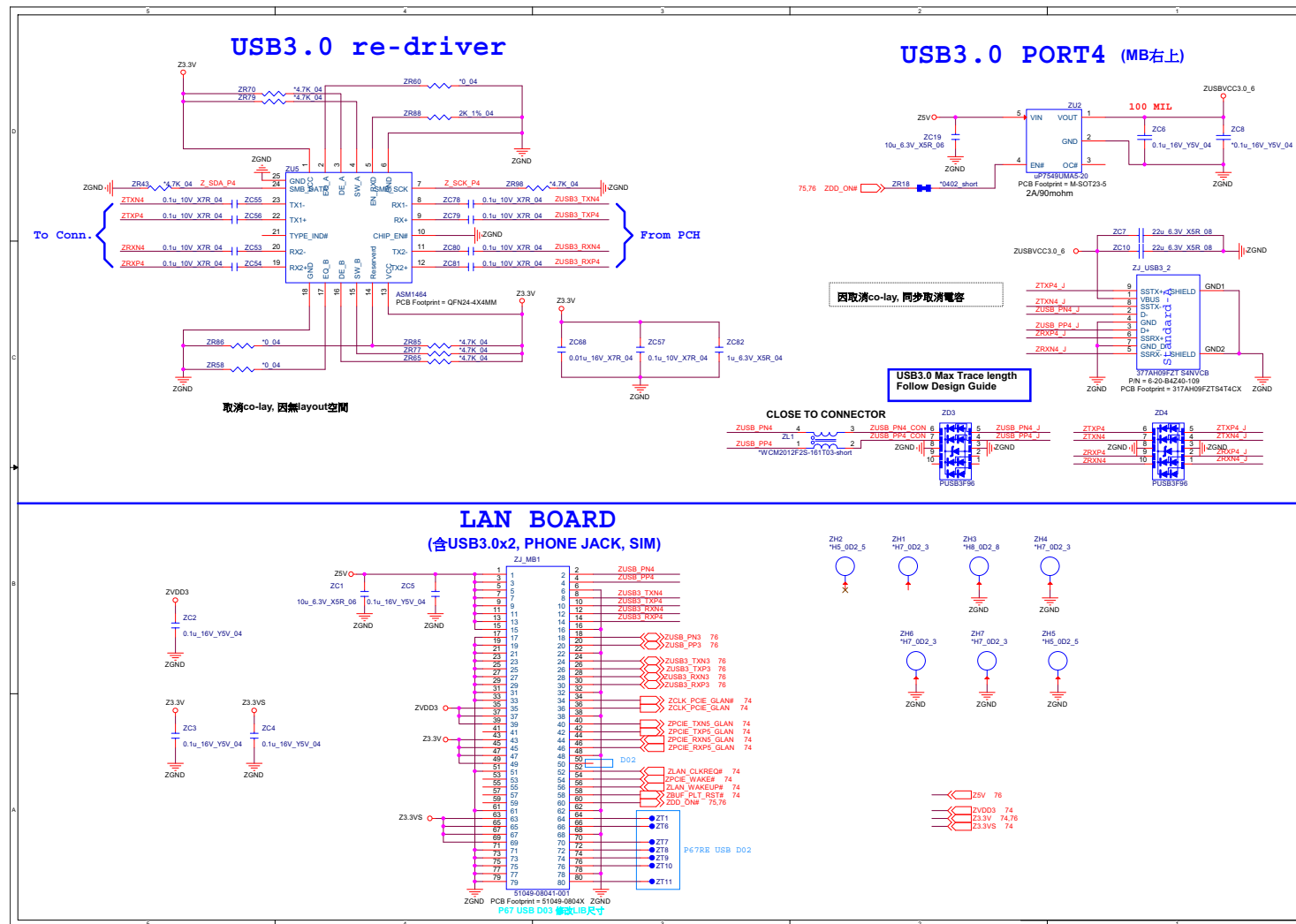
Sheet 74 of 79  
P670RE USB Board  
1/3

## B.Schematic Diagrams

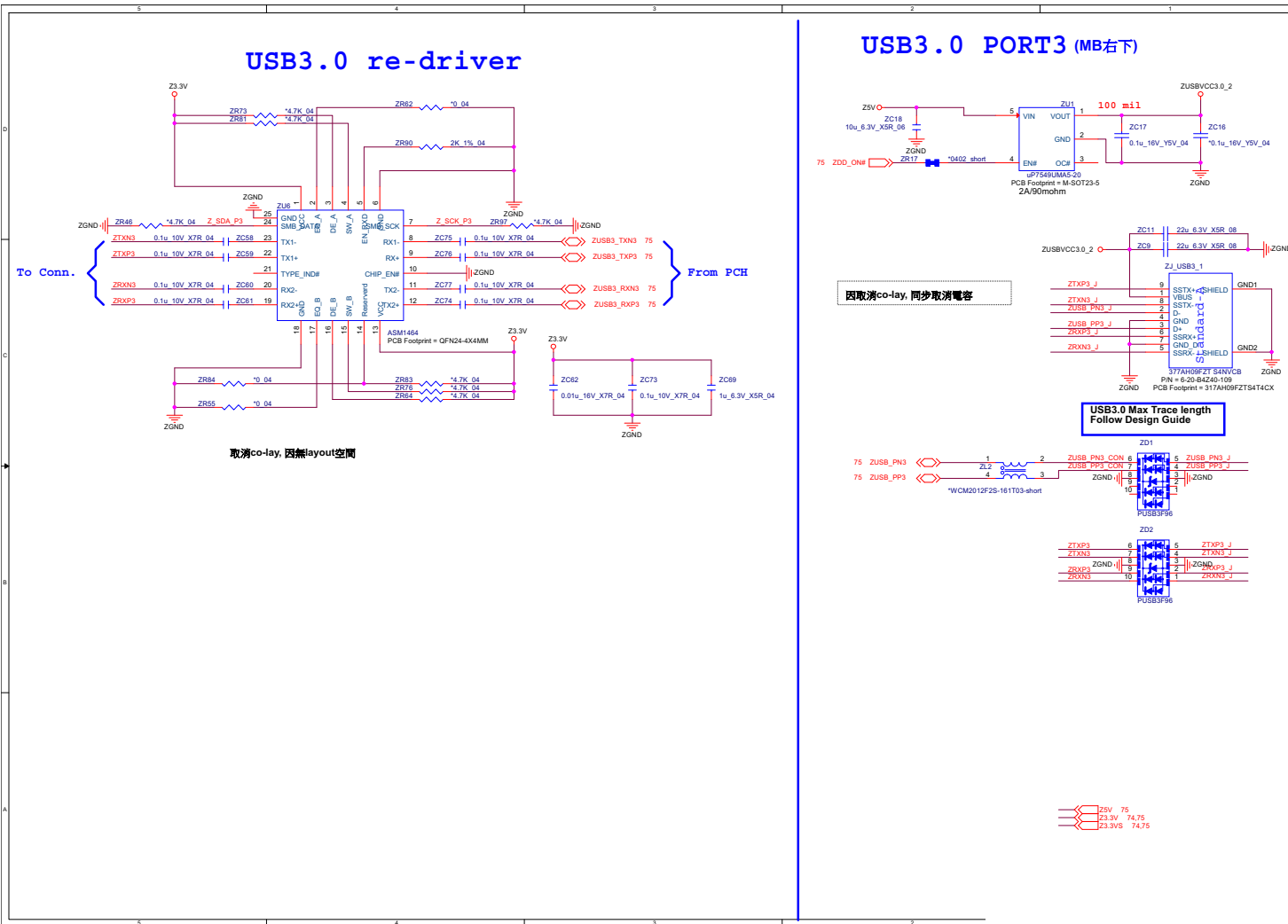
## P670RE USB Board 2/3

## B. Schematic Diagrams

Sheet 75 of 79  
P670RE USB Board  
2/3

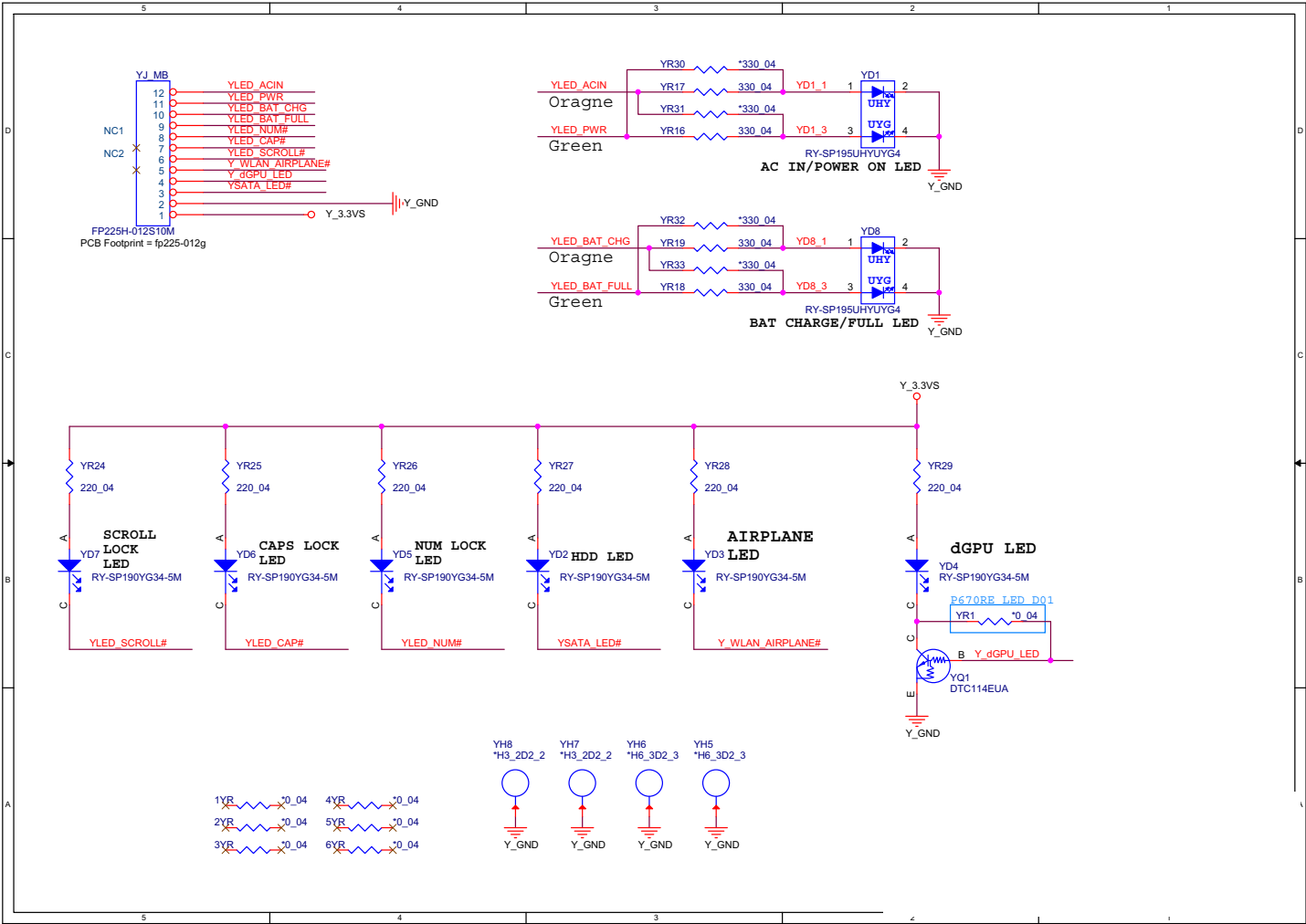


# P670RE USB Board 3/3

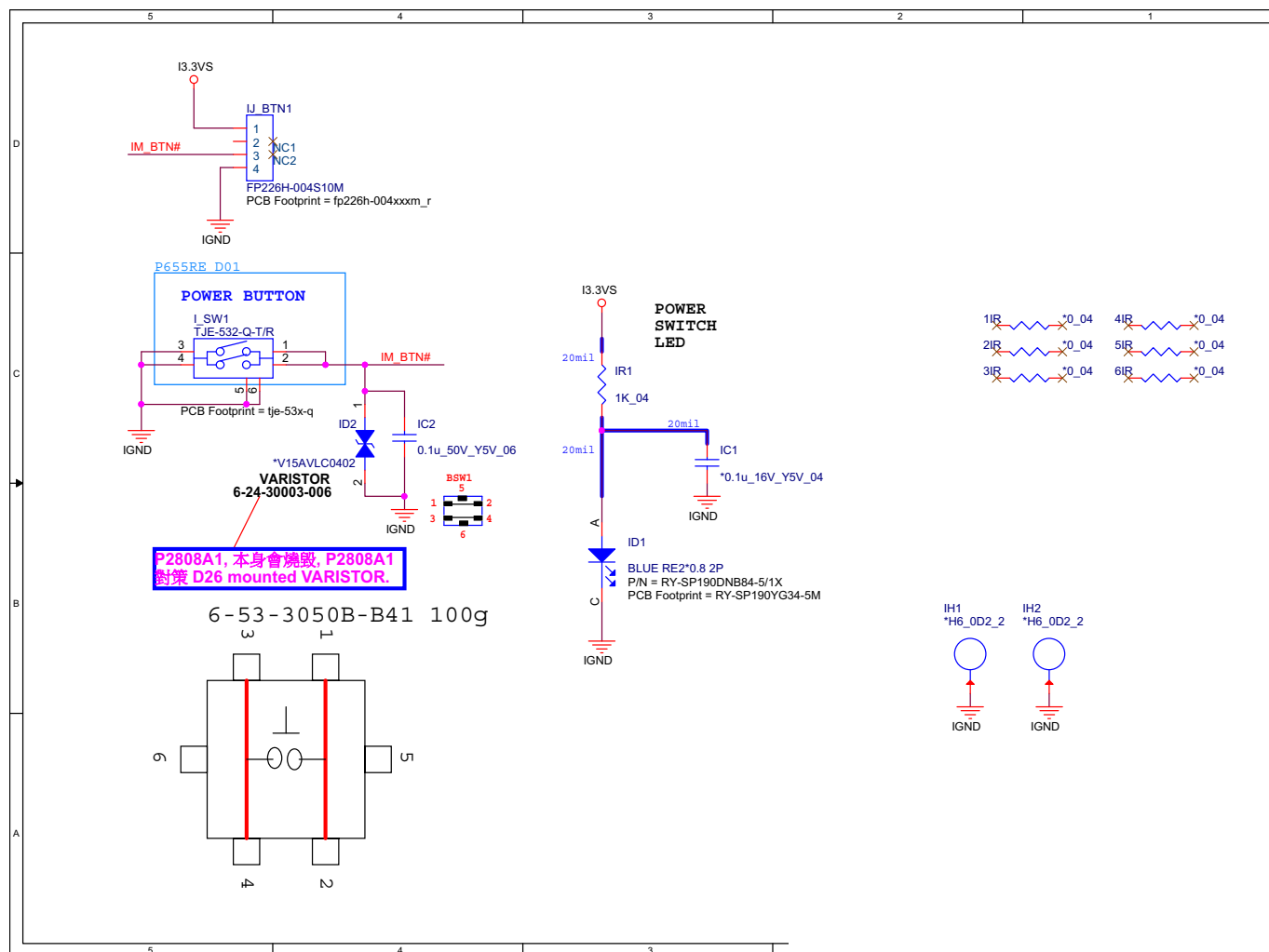


Sheet 76 of 79  
P670RE USB Board  
3/3

P670RE LED Board



# P655RE Power Board

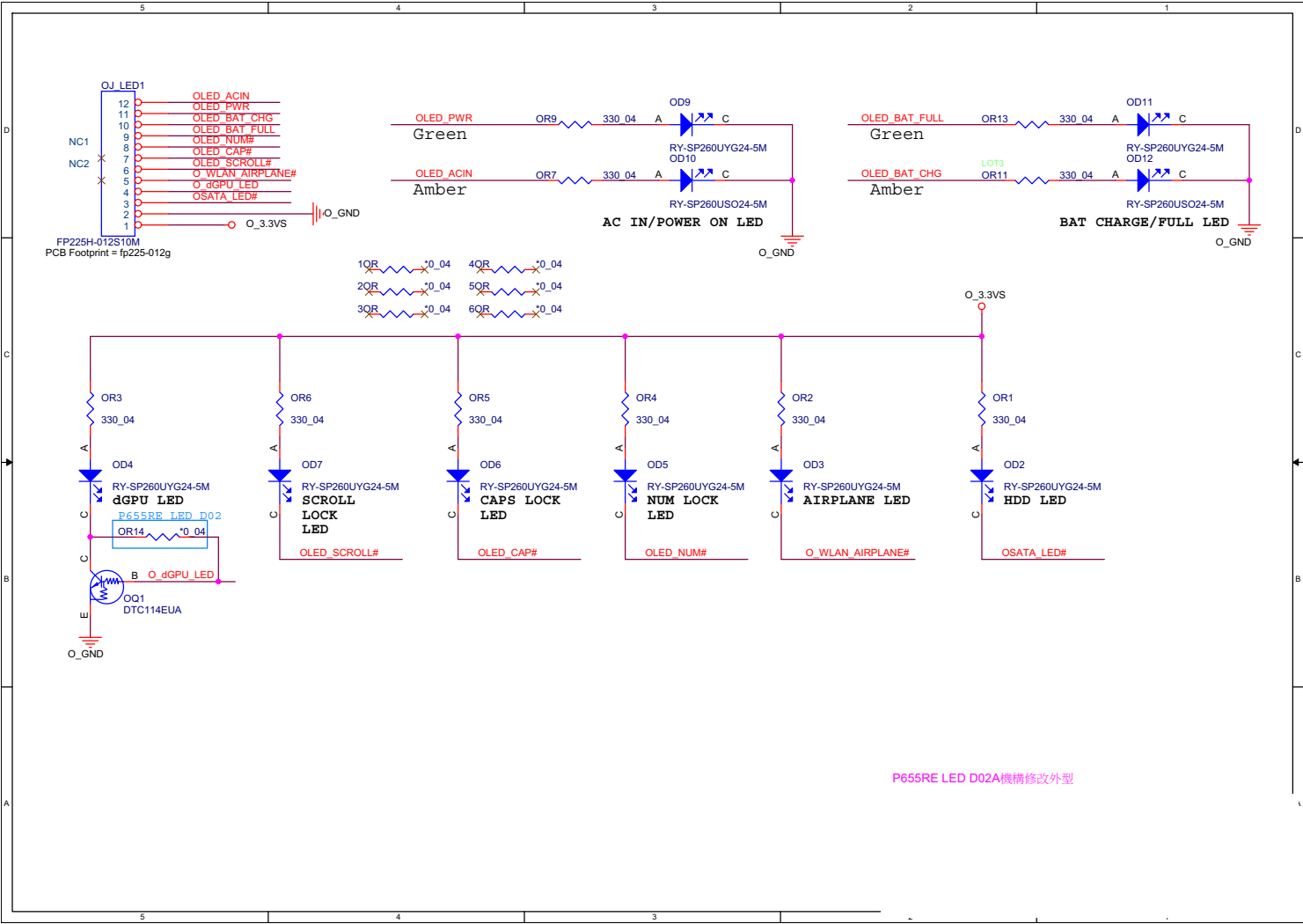


Sheet 78 of 79  
P655RE Power  
Board

# Schematic Diagrams

## P655RE LED Board

Sheet 79 of 79  
P655RE LED Board



# Appendix C: Updating the FLASH ROM BIOS

## To update the FLASH ROM BIOS, you must:

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

## Download the BIOS

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

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

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

## Set the computer to boot from the external drive

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



### BIOS Version

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

**You should only download BIOS versions that are V1.00.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 1.00.05, you **MAY NOT** then go back and flash the BIOS to ver 1.00.04).



## BIOS Update

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### Use the flash tools to update the BIOS

1. Make sure you are not loading any memory management programs such as HIMEM by holding the **F8** key as you see the message “**EFI Shell**”. You will then be prompted to give “**Y**” or “**N**” responses to the programs being loaded by EFI Shell. Choose “**N**” for any memory management programs.
2. You should now see **DISK fsX:\>** (X is the designated drive number for the CD/DVD drive/USB flash drive).
3. **Type the following command:**

**fsX:\> Flash.nsh**

4. The utility will then proceed to flash the BIOS.
5. You should then be prompted to press any key to restart the system or turn the power off, and then on again but make sure you remove the CD/DVD/USB flash drive from the CD/DVD drive/USB port before the computer restarts.

### Restart the computer (booting from the HDD)

1. With the CD/DVD/USB flash drive removed from the CD/DVD drive/USB port the computer should restart from the HDD.
2. Press **F2** as the computer restarts to enter the BIOS.
3. Use the arrow keys to highlight the **Exit** menu.
4. Select **Load Setup Defaults** (or press **F3**) and select “**Yes**” to confirm the selection.
5. Press **F4** to save any changes you have made and exit the BIOS to restart the computer.

### Your computer is now running normally with the updated BIOS

You may now enter the BIOS and make any changes you require to the default settings.