


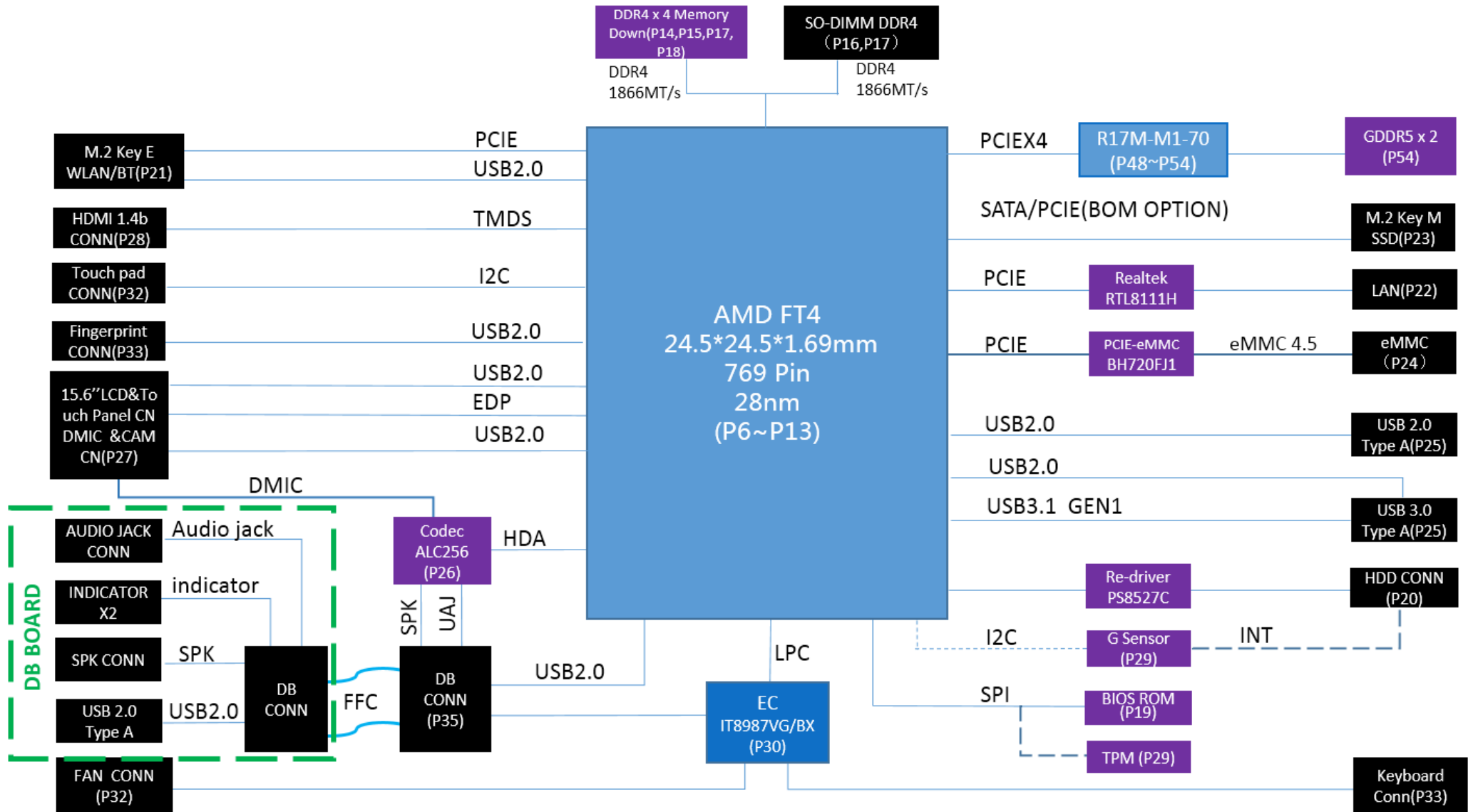
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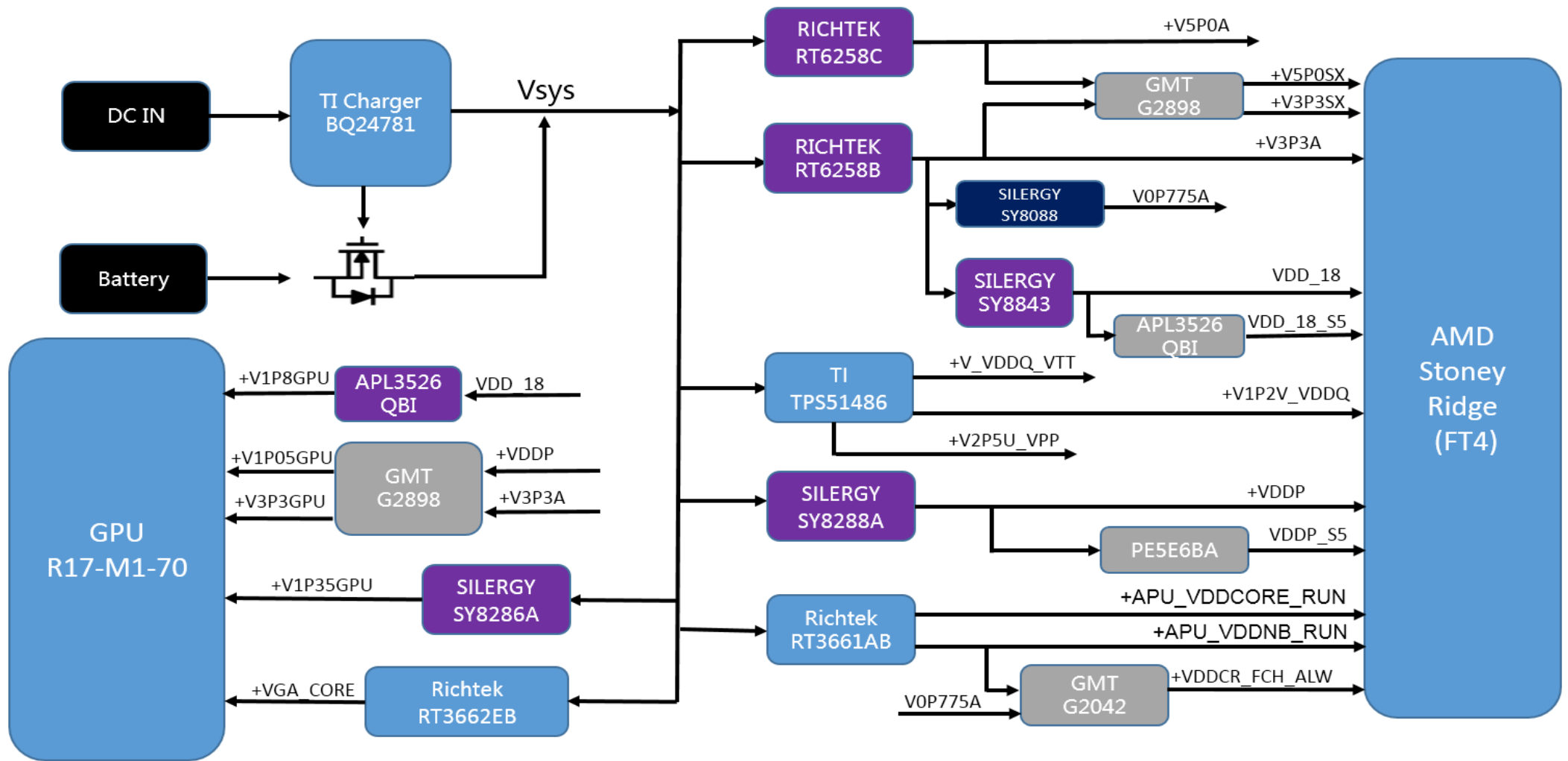
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# MB Block Diagram



# MB Power Map



Power States(Adapater)																				
Signal	+VCC3P3_LDO_OUT	+V5P0A	+V3P3A	+V1P8A	+V0P95A	+V0P776A	+VDDCR_PCH_ALW	+V1P2V_VDDQ	+V5P0SX	+V3P3SX	+V1P8SX	+VDDP_S0	+V_VDDQ_VTT	+APU_VDDC0R8_RUN	+APU_VDD0R8_RUN	+V3P3GPU	+V1P8GPU	+V0P95GPU	+V1P35GPU	+VGA_CORE
S0 (Pull On)	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
S3 (STM)	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
S5 (SoftOff)	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

#### Power States(Battery)

Signal	+VCC3P3_LDO_OUT	+V5P0A	+V3P3A	+V1P8A	+V0P95A	+V0P776A	+VDDCR_PCH_ALW	+V1P2V_VDDQ	+V5P0SX	+V3P3SX	+V1P8SX	+VDDP_S0	+V_VDDQ_VTT	+APU_VDDC0R8_RUN	+APU_VDD0R8_RUN	+V3P3GPU	+V1P8GPU	+V0P95GPU	+V1P35GPU	+VGA_CORE
S0 (Pull On)	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
S3 (STM)	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
S5 (SoftOff)	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

#### BOARD ID

BOARD ID5 1--RUI83 0--RUI91	BOARD ID4 1--RUI82 0--RUI90	BOARD ID3 1--RUI81 0--RUI89	BOARD ID2 1--RUI80 0--RUI88	BOARD ID1 1--RUI79 0--RUI87	BOARD ID0 1--RUI78 0--RUI86
1--DGPU 0--UMA	1--SATA SSD 0--PCI-E SSD	RESERVE	MEMORY ID		

#### SMBUS/I2C Control Table

	SOURCE	GPU	BATT	IT8987E	SODIMM	Touch Pad	Thermal Sensor	APU	Charger	G-SENSOR Sensor
SM_BAT_CLK SM_BAT_DATA	IT8987E +V3P3A_EC	X	V		X	X	X	X	V	X
SM_THRM_SCL SM_THRM_SDA	IT8987E +V3P3SX_EC	V	X		X	X	V	V APU_SIC APU_SID +V1P8SX	X	X
APU_SMB_CLK APU_SMB_DATA	APU +V3P3SX	X	X	X	V	X	X		X	X
GSEN_I2C0_SCL GSEN_I2C0_SDA	APU +V1P8_GSENSOR	X	X	X	X	X	X		X	V
TOUCHPAD_I2C_CLK TOUCHPAD_I2C_SDA	APU +V3P3A_CP	X	X	X	X	V	X		X	X

#### PCIe/GFX Port

PCIE	Device
0	LAN
1	WLAN
2	eMMC
3	SSD
GFX	Device
0~3	DGPU

#### SATA Port

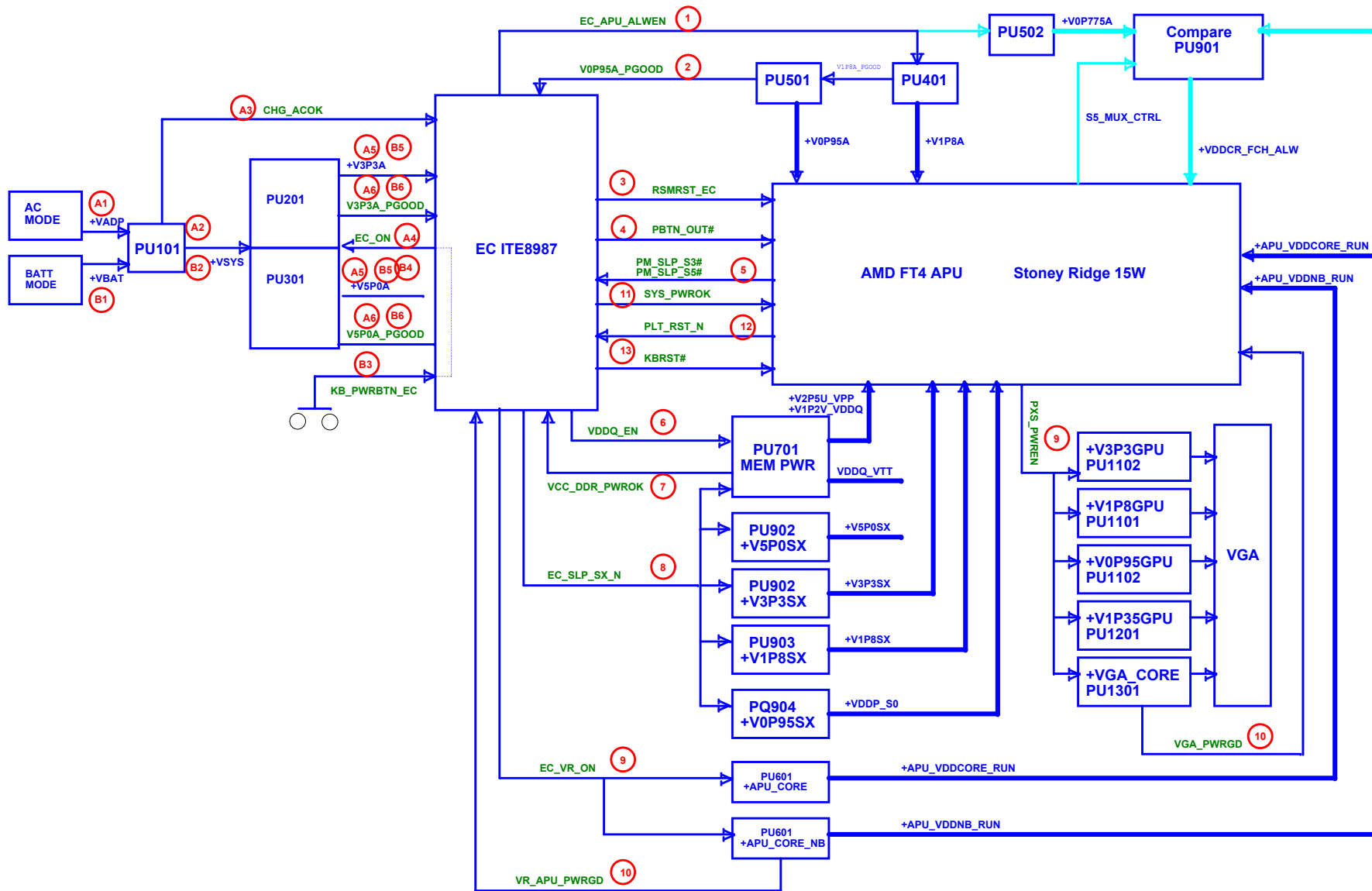
Port	Device
0	HDD
1	SSD

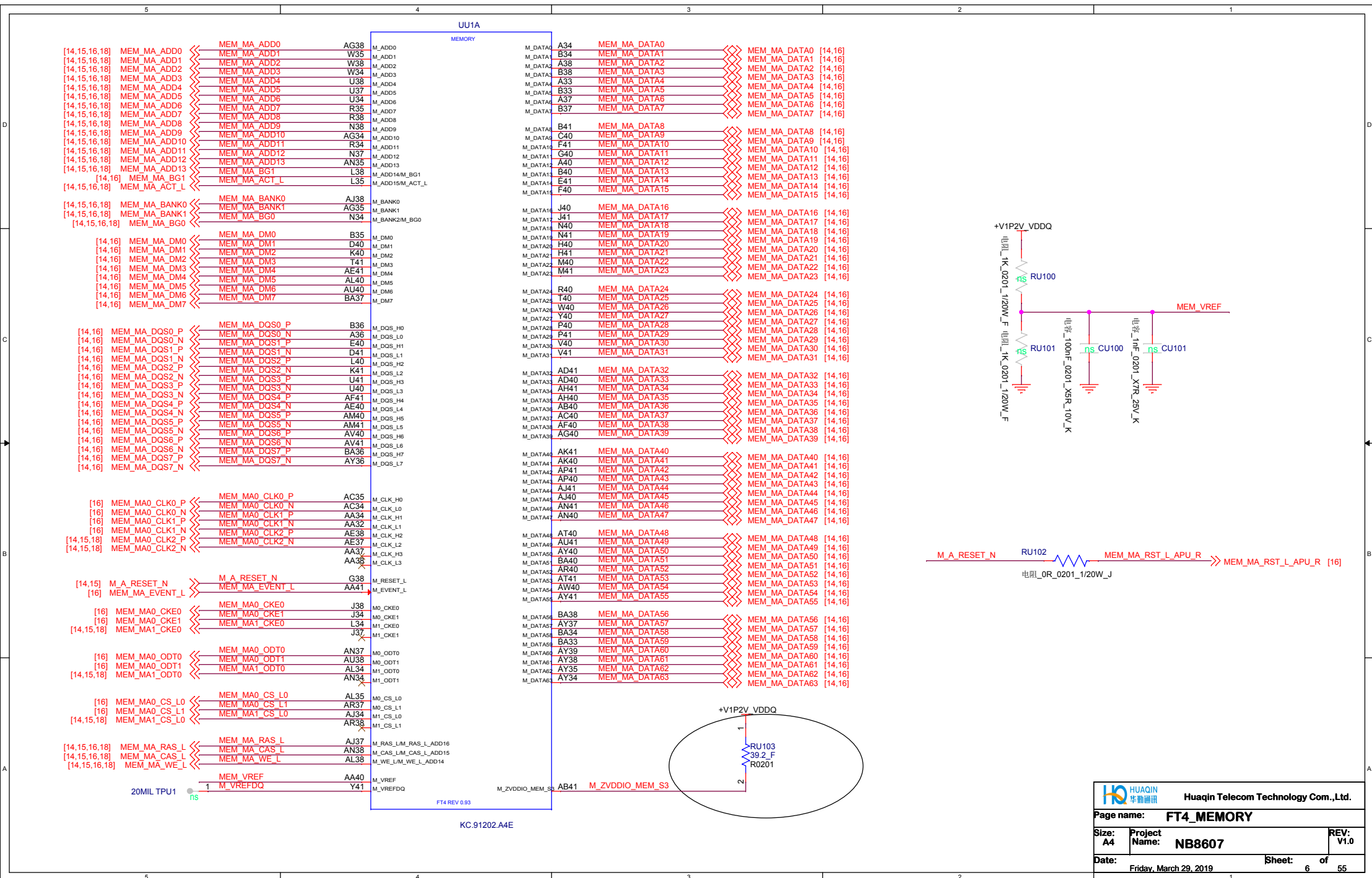
#### USB2.0 Port

Port	Device
0	Blue Tooth
1	DB USB2.0
2	Finger print
4	USB 3.0 Port
5	USB2.0
6	Touch Panel
7	Camera

#### USB3.0 Port

Port	Device
0	USB3.0 Type-A
1	NA



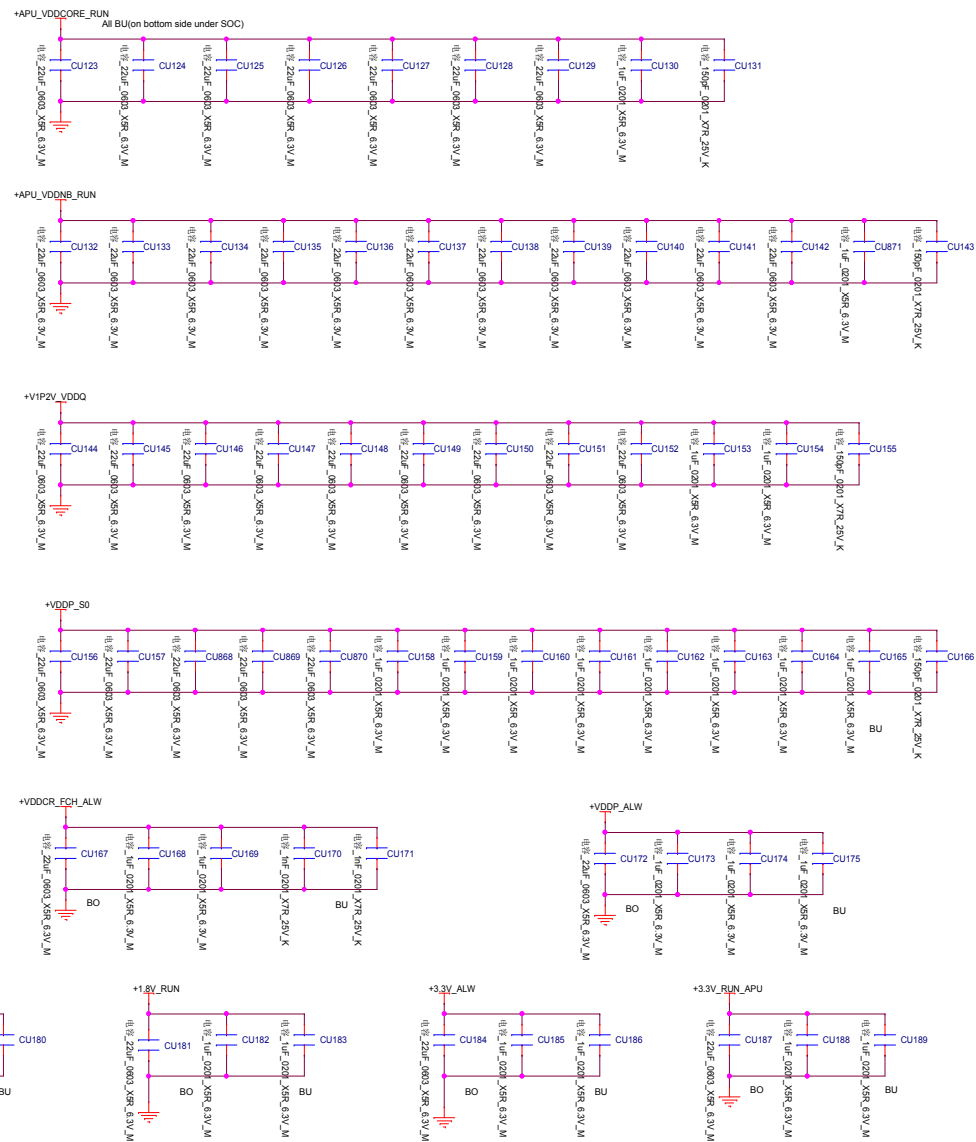
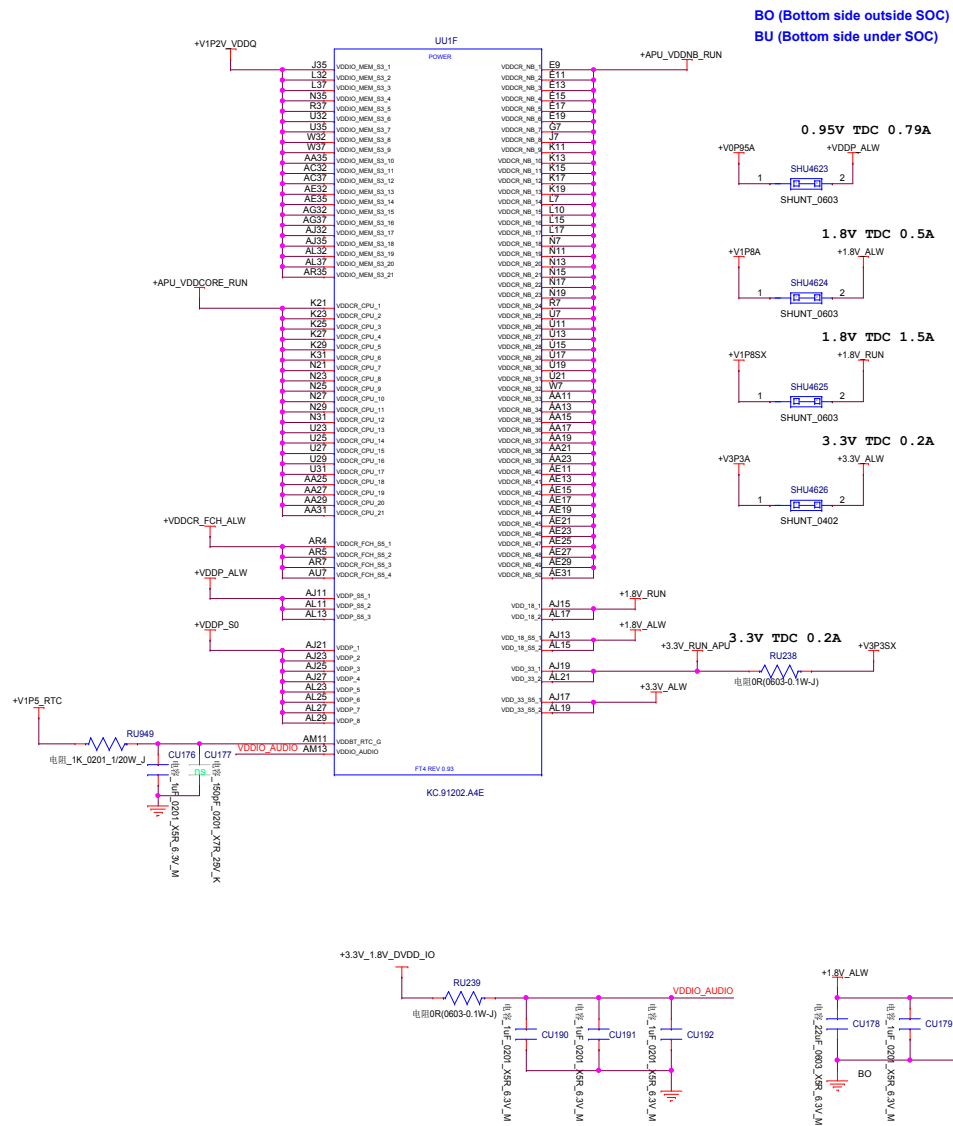


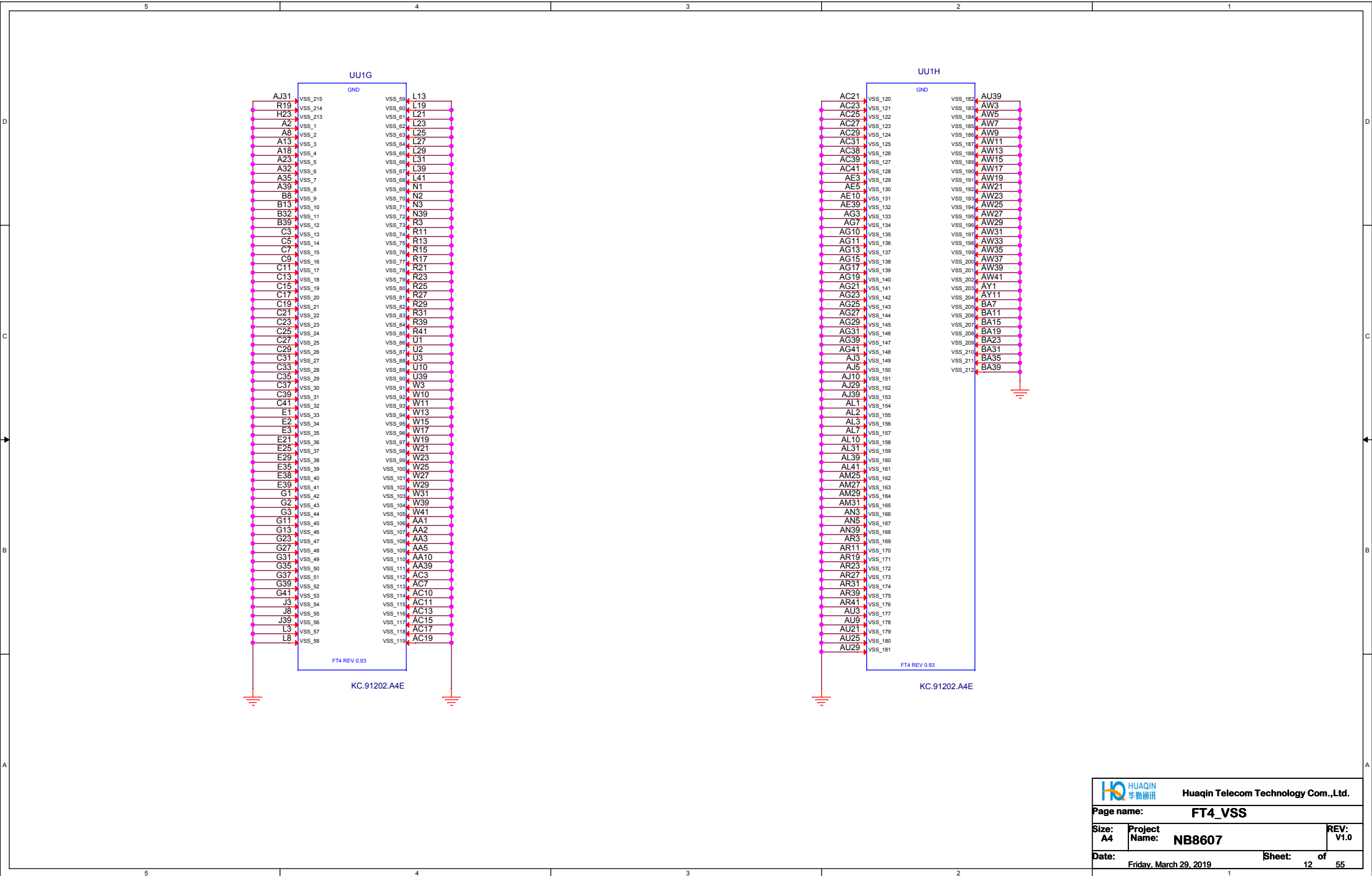


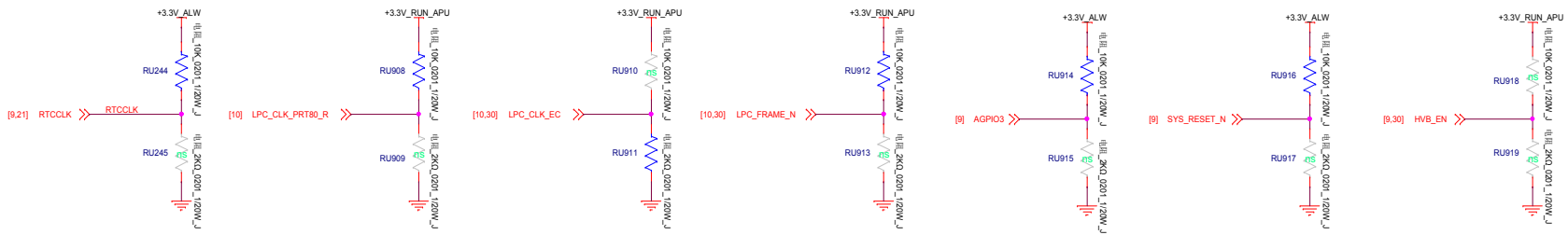




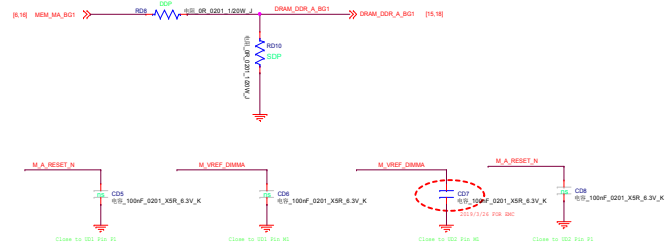
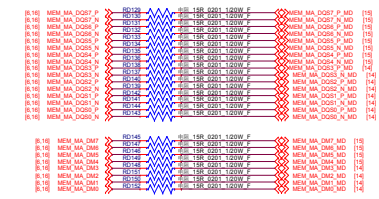
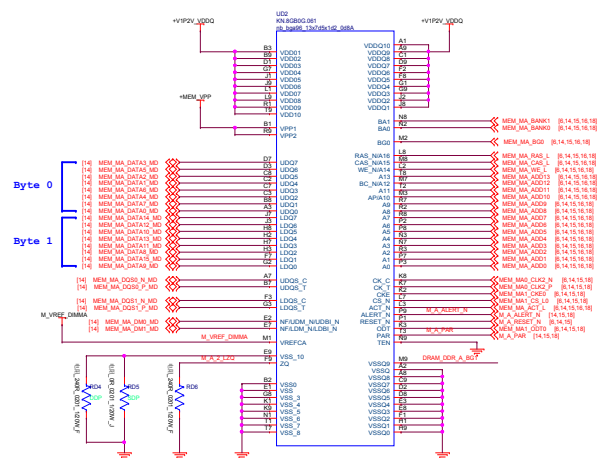


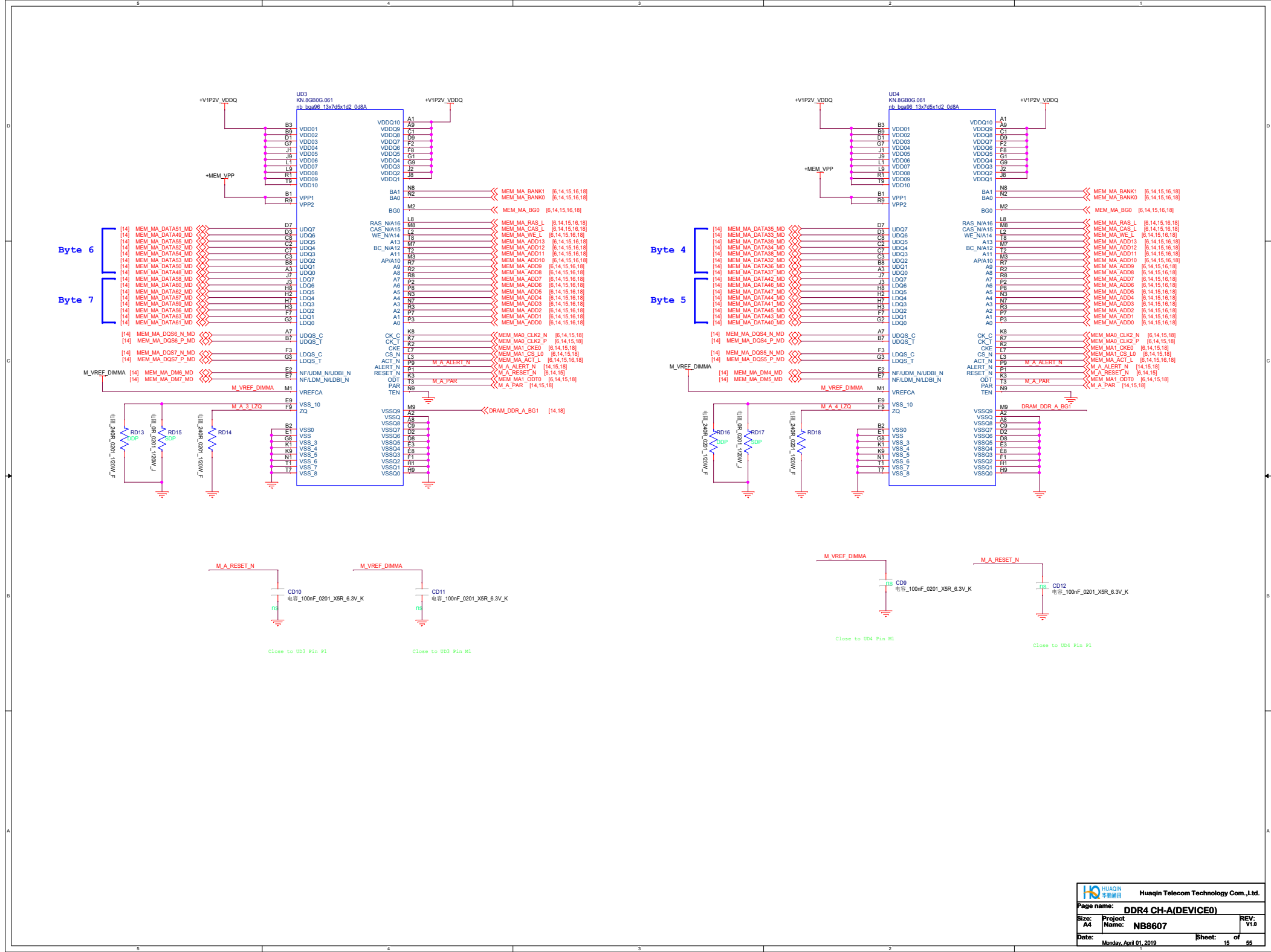


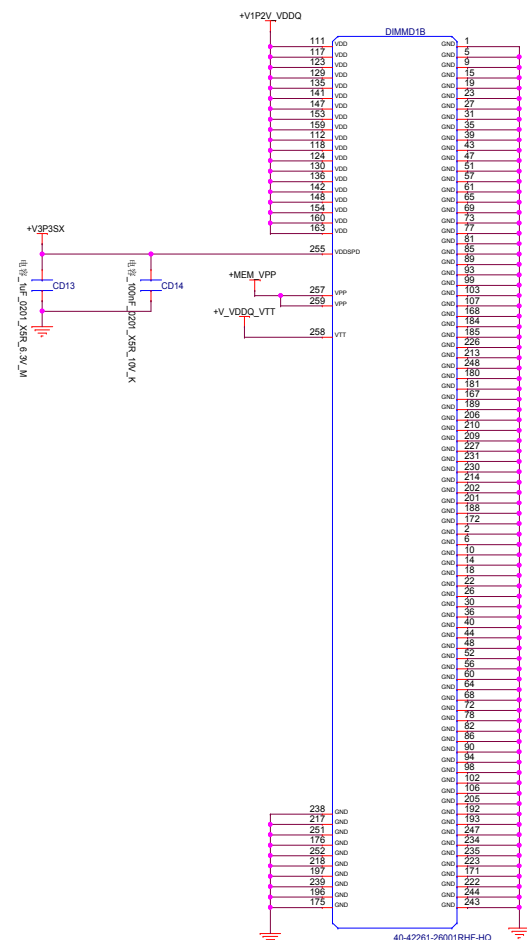




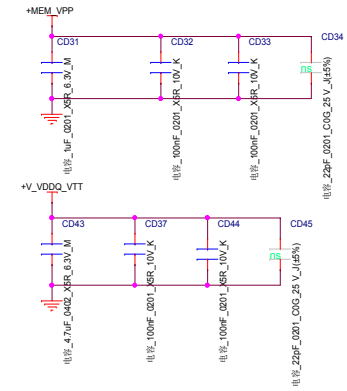
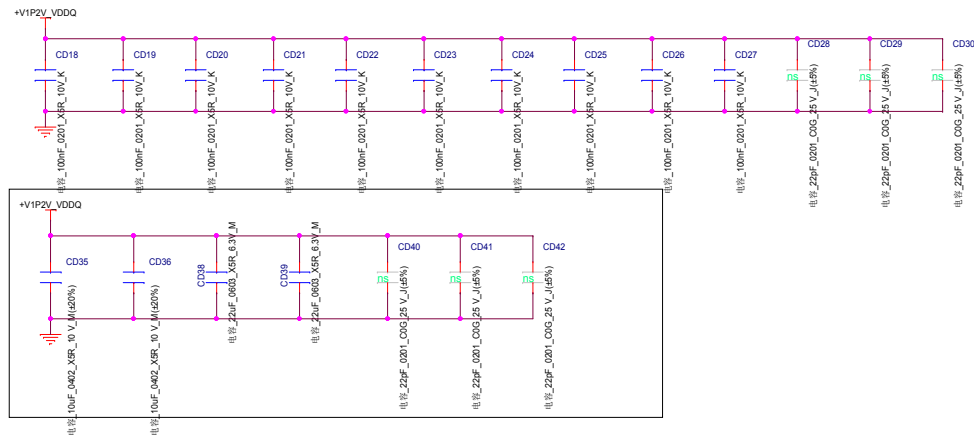
	LPC_CLK0 (LPC_CLK_EC)	LPC_CLK1 (LPC_CLK_PRT80_R)	LFRAME_L	AGPIO3 Int pull-up	RTC_CLK Int pull-up	SYS_RST# Int pull-up	HVB_EN
PULL HIGH	BOOT FAIL TIMER ENABLED	Use 48Mhz crystal clock and generate both internal and external clocks (DEFAULT)	SPI ROM (DEFAULT)	Enhanced reset (for quicker S5 (DEFAULT)	Coin battery is on board. (DEFAULT)	normal reset mode (DEFAULT)	floating Disable HVB
PULL LOW	BOOT FAIL TIMER DISABLED (DEFAULT)	Use 100Mhz PCIE clock as reference clock and generate internal clocks only	LPC ROM	Default to traditional reset logic	Coin battery is not on board.	short reset mode	connected to VSS Enable HVB



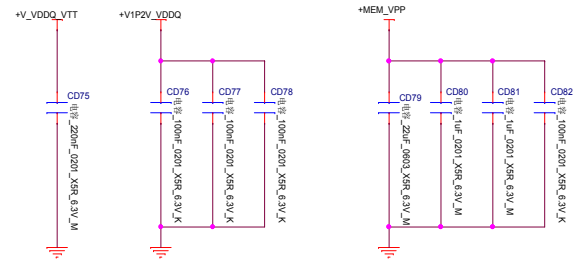
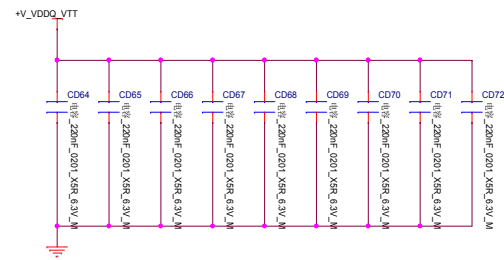
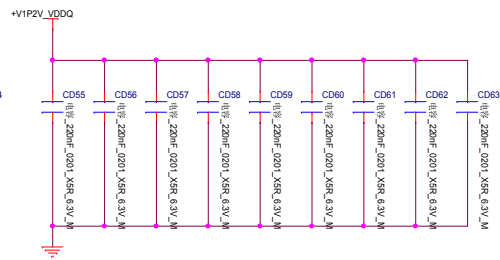
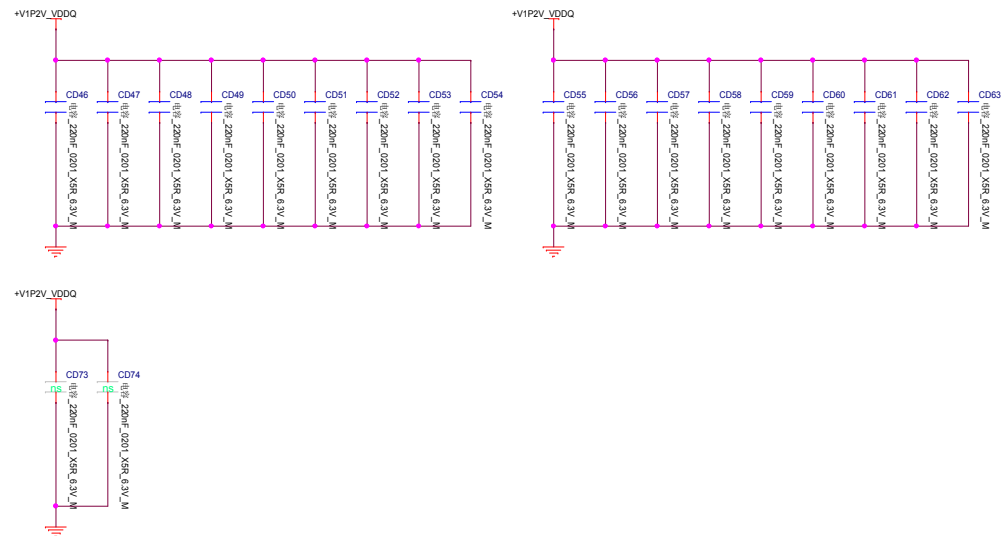




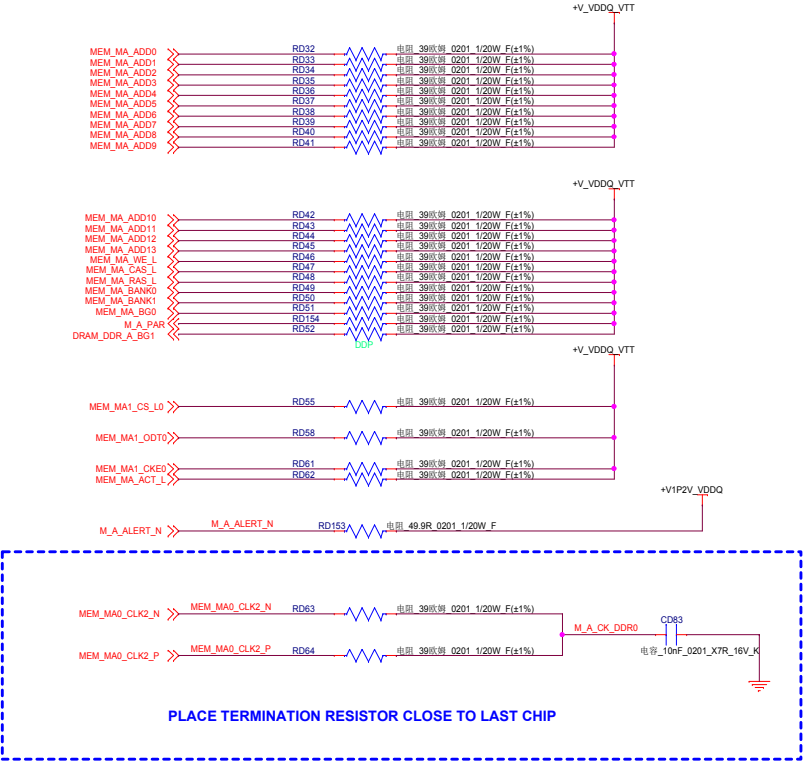
## Layout Note: Place near SODIMM



## DECOUPLING CAPACITORS FOR MEMORY DOWN

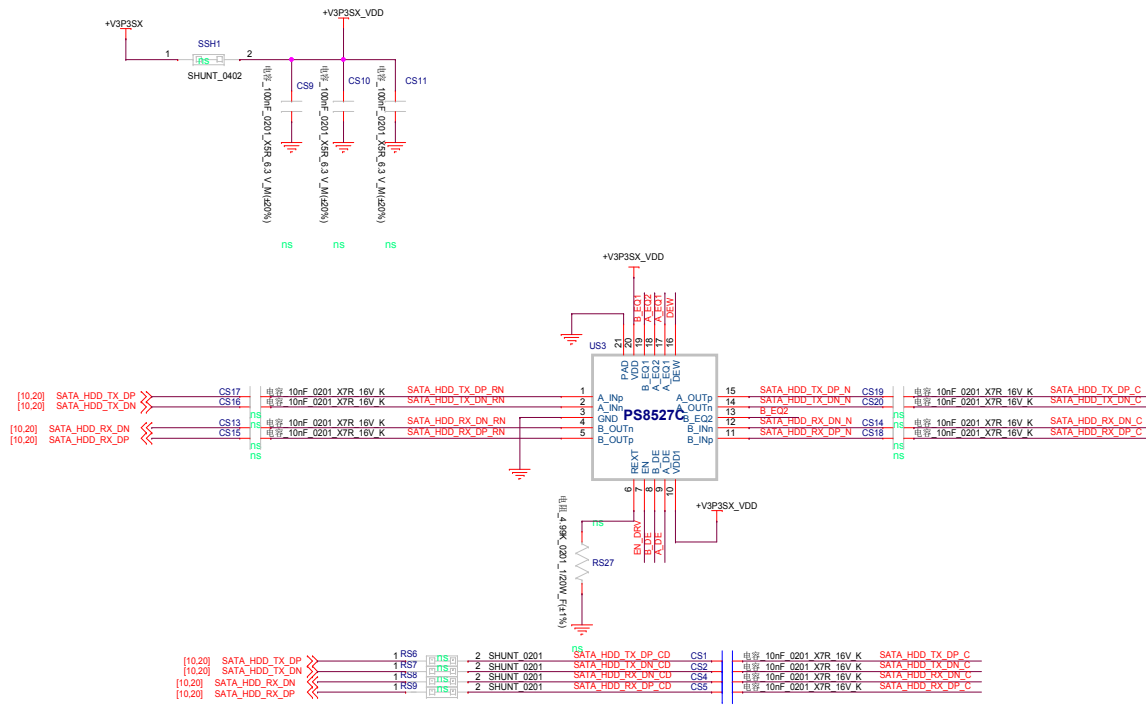


MEMORY TERMINATIONS FOR MEMORY DOWN





SATA Redriver IC

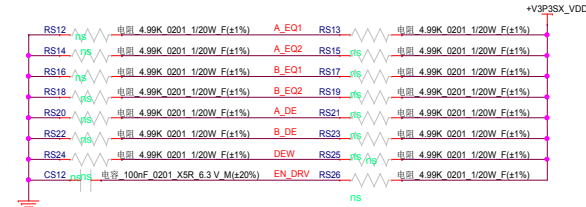


**For PS8527C**

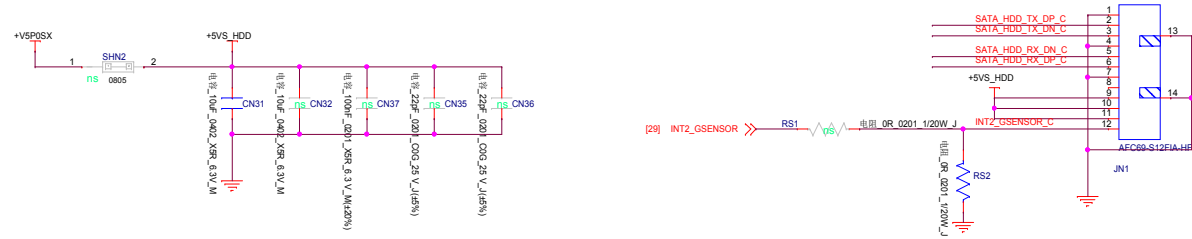
Equalization level setting for Channel x(x=A/B), internally tied to VDD/2  
[x\_EQ0, x\_EQ1] ==  
L: for channel loss up to 2.4dB  
LH: for channel loss up to 7.4dB  
LH: for channel loss up to 14.4dB  
MH: for channel loss up to 12.2dB  
MH: for channel loss up to 9.4dB  
MH: for channel loss up to 13.3dB  
MH: for channel loss up to 6.2dB  
H: for channel loss up to 11.2dB  
H: for channel loss up to 5dB

De-emphasis level setting for Channel x(x=A/B), internally tied to VDD/2  
[x\_DE] ==  
L: 0dB  
H: -1.5dB

De-emphasis width adjustment, internally pulled down  
[DEW] ==  
L: for SATA3  
H: for SATA2

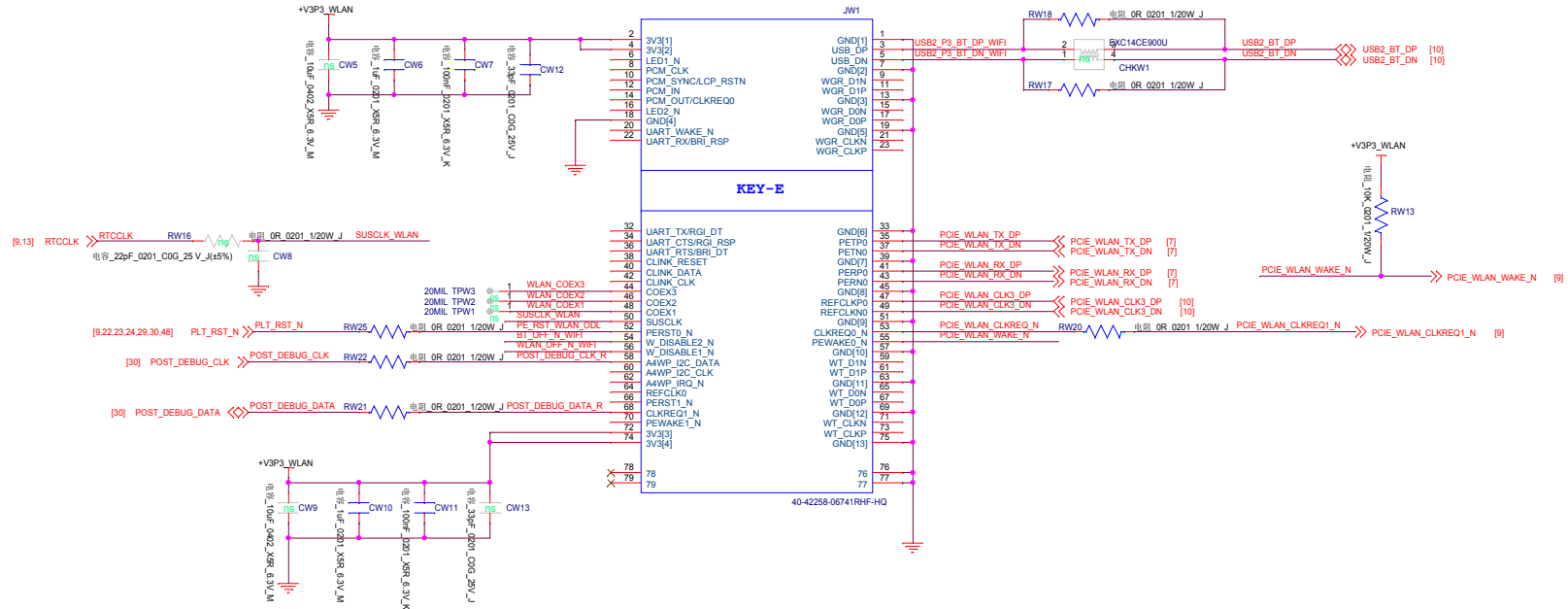
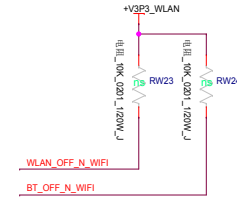
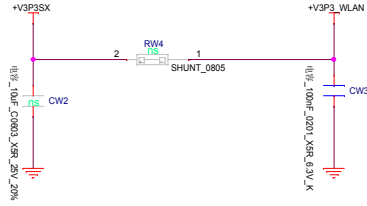


SATA HDD CONN



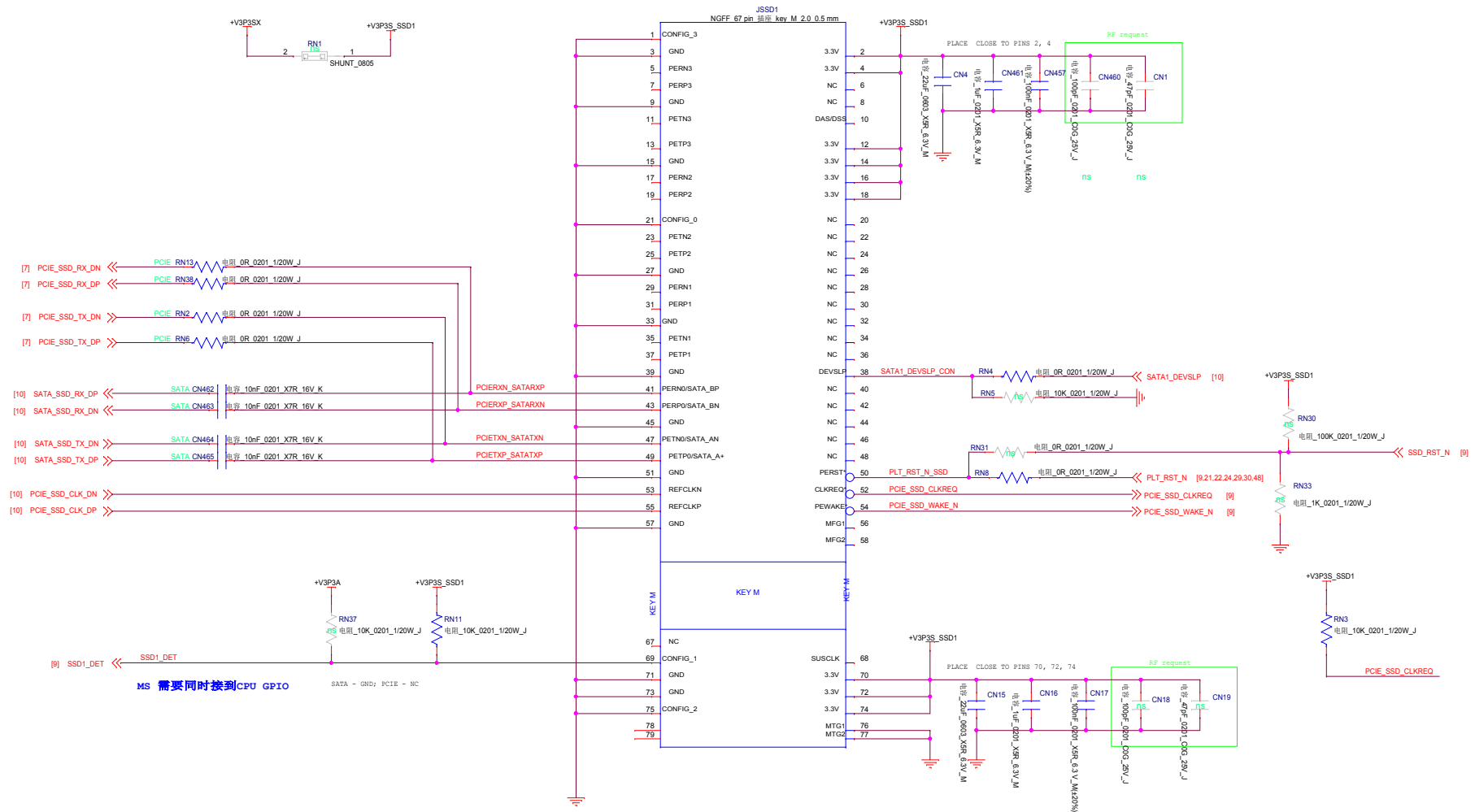
# WLAN

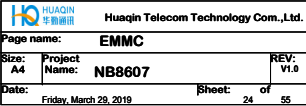
## WLAN Power



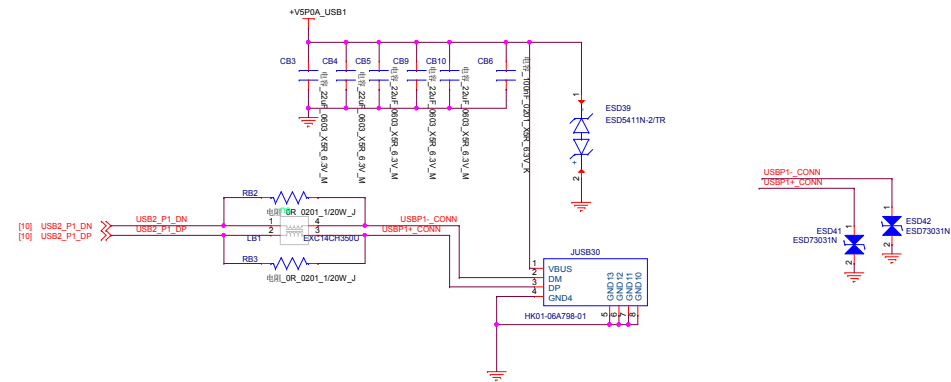


# SSD CONN

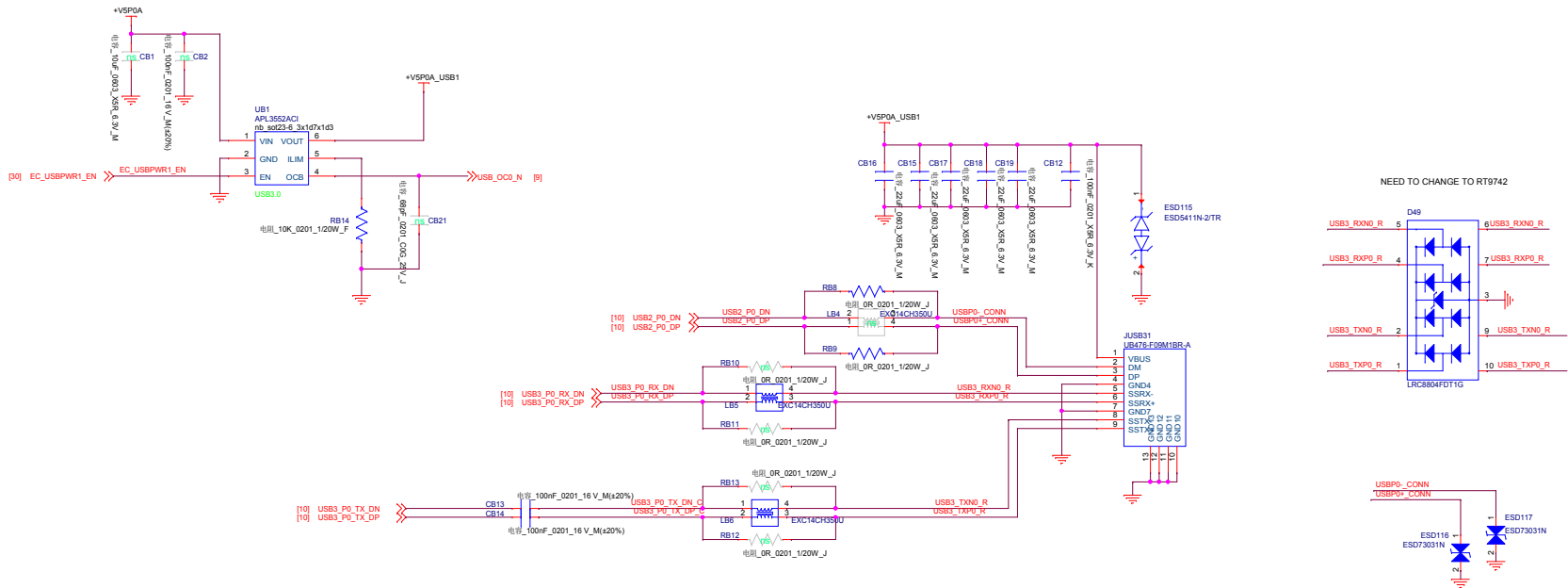


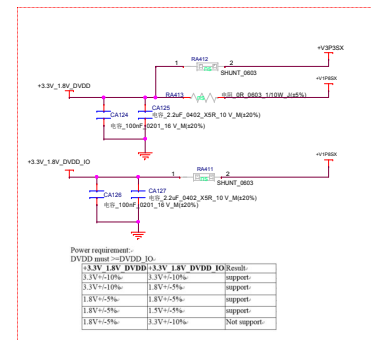
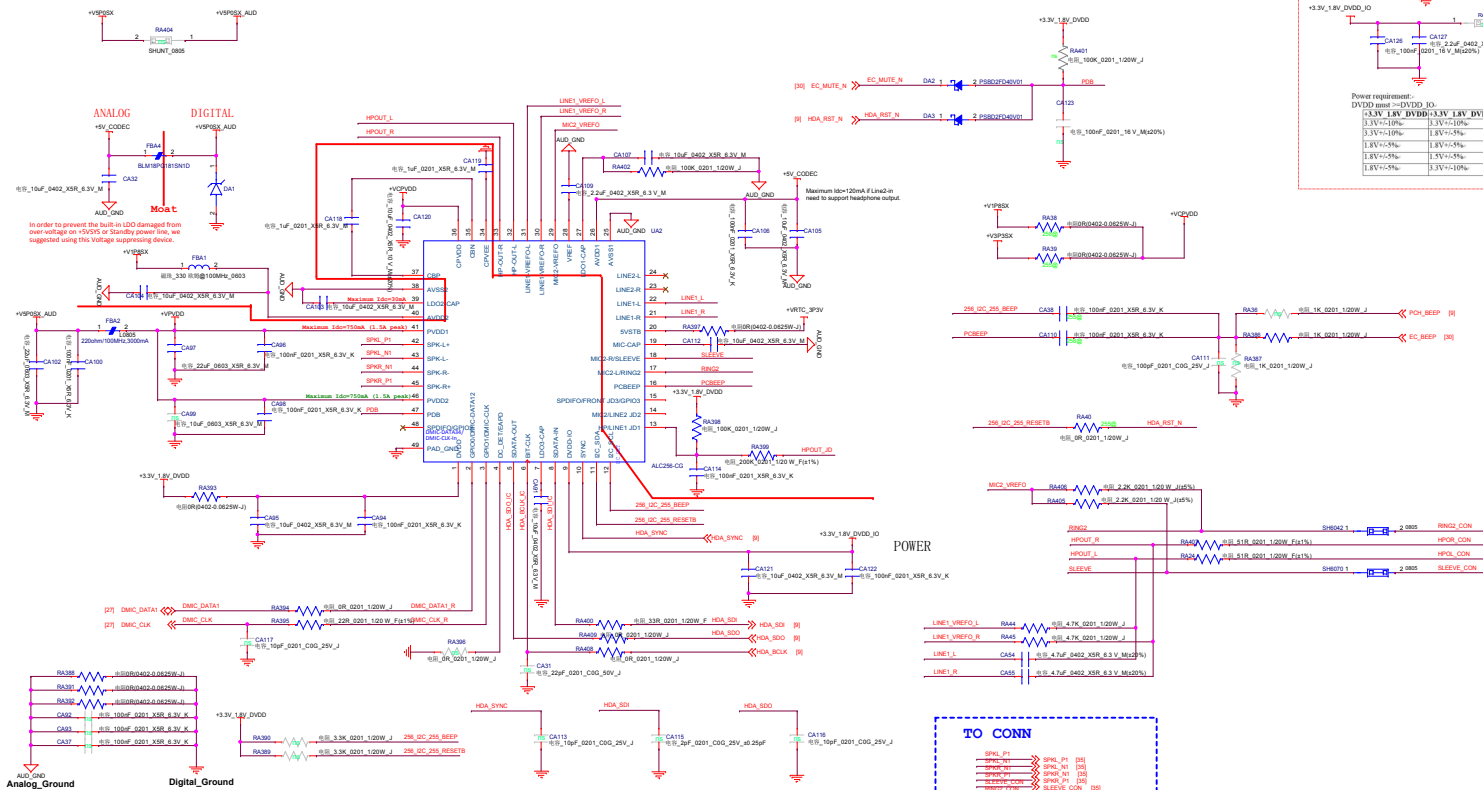


## USB2.0 CONN



## USB3.0 CONN





[illegible][illegible][illegible]

**MIC**

[26] DMIC\_CLK >> RX900 电阻 0R 0201 1/20W J DMIC\_CLK\_CONN

[26] DMIC\_DATA1 << RX909 电阻 0R 0201 1/20W J DMIC\_DATA1\_CONN

+V3P3SX

RX907 电阻 0R0402-0.0625W-J

+V3P3\_MIC

CX21

电容\_100nF\_0201\_XSR\_6.3 V\_M(±20%)

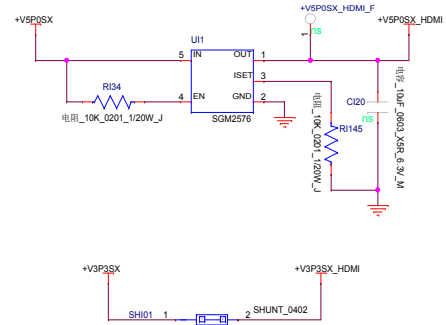
ESD2  
ESD5342N-3/TR

1 2

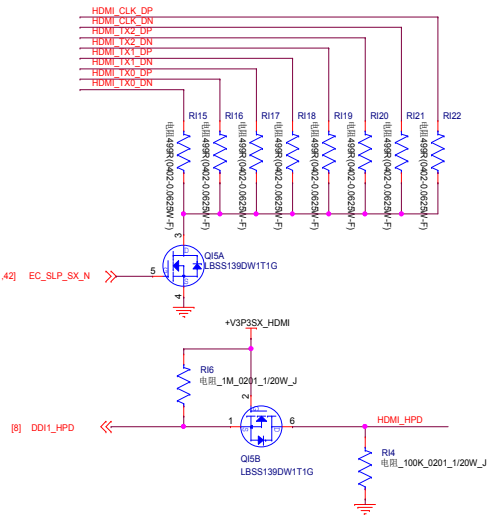
ES

The schematic diagram illustrates the internal circuitry of the AFD01-S40FCA-00 module. It shows the power supply section with inputs for +V3P3\_DISPLAY, +V3P3\_TS, +V3P3\_MIC, +V3P3\_CAM\_CONN, and +V3P3\_DISPLAY. The signal section includes inputs for EDP\_TX3\_CONN\_DP, EDP\_TX3\_CONN\_DN, EDP\_TX2\_CONN\_DP, EDP\_TX2\_CONN\_DN, EDP\_TX1\_CONN\_DP, EDP\_TX1\_CONN\_DN, EDP\_TX0\_CONN\_DP, EDP\_TX0\_CONN\_DN, EDP\_AUX\_CONN\_DP, EDP\_AUX\_CONN\_DN, EDP\_BKLT\_PWM\_LT, EDP\_BKLT\_EN\_LT, EDP\_HPD\_R, IS\_EN, TP\_USB\_N\_CONN, TP\_USB\_P\_CONN, CAM\_USB\_N\_CONN, CAM\_USB\_P\_CONN, DMIC\_DATA1\_CONN, DMIC\_CLK\_CONN, and +VBATA\_BKLT\_IN. The module is connected to a 42-pin connector (JX3) and a 41-pin connector (JX4). The module is labeled AFD01-S40FCA-00.

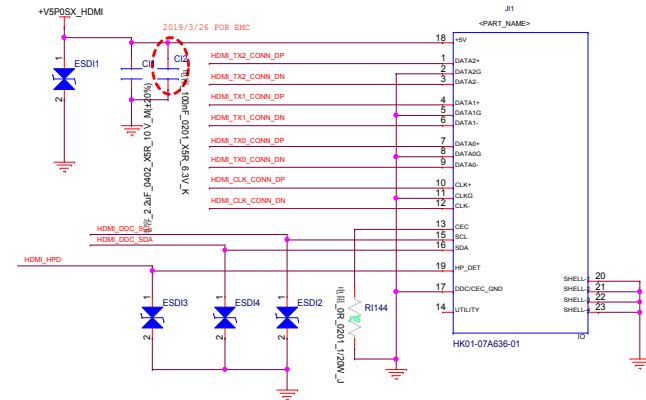
## HDMI power



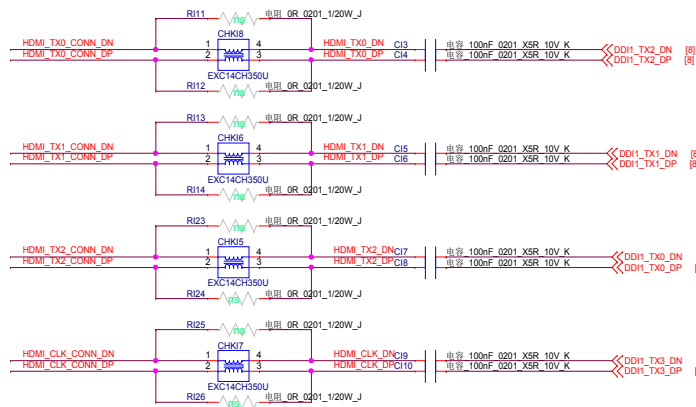
[30.41.42] EC\_SLP\_SX\_N



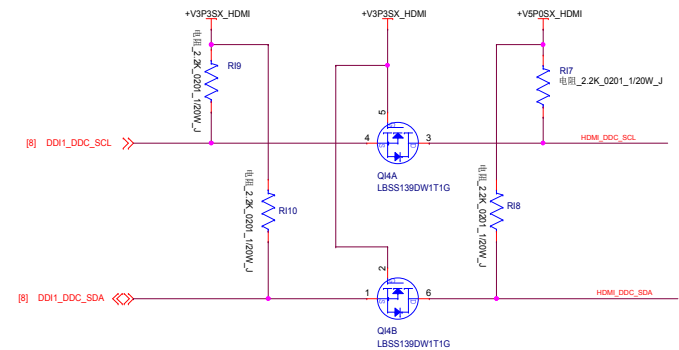
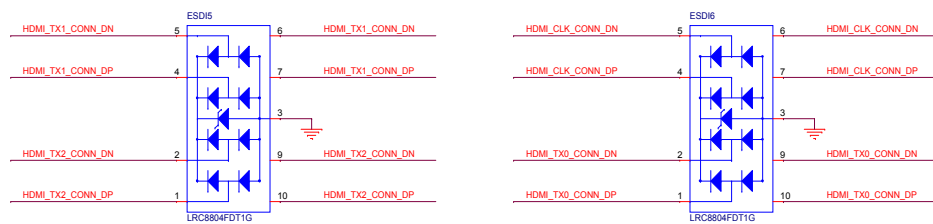
## HDMI CONN



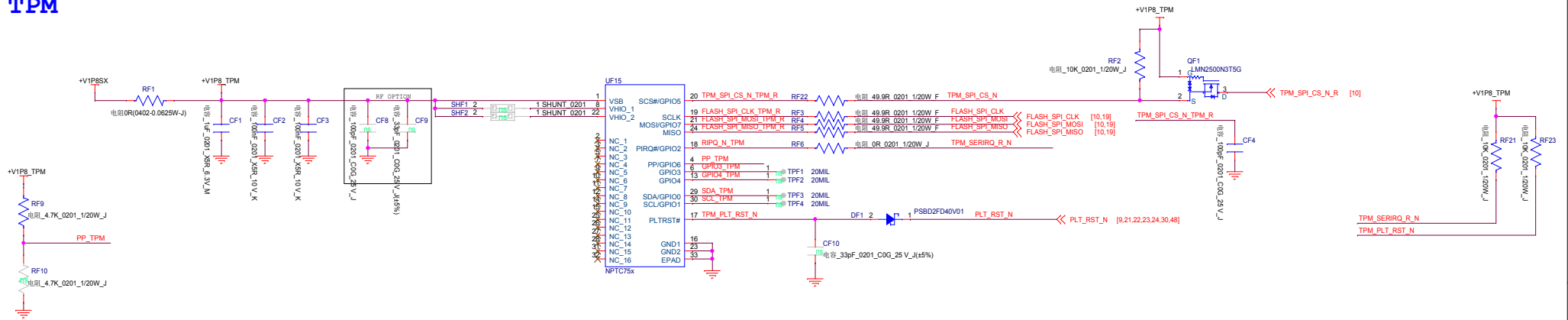
## Signal



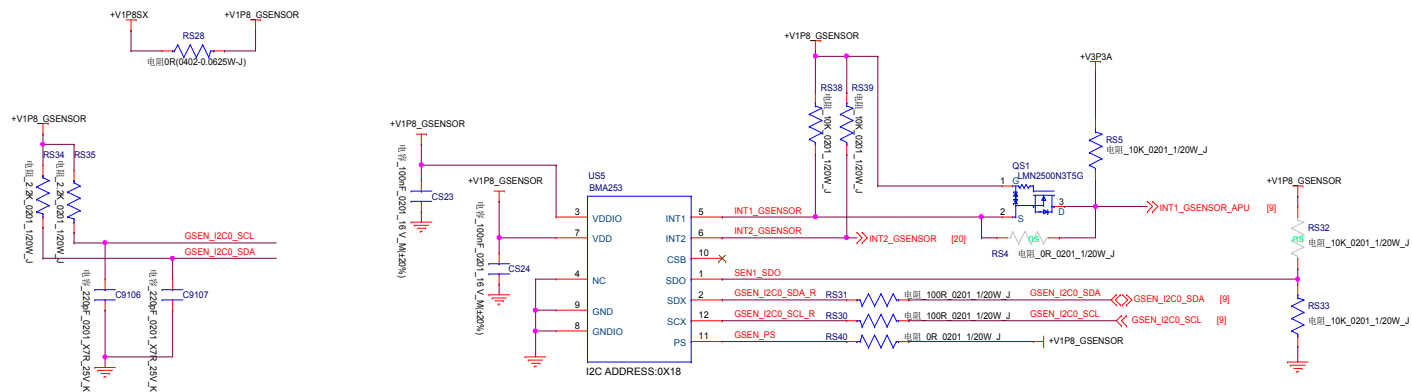
## ESD



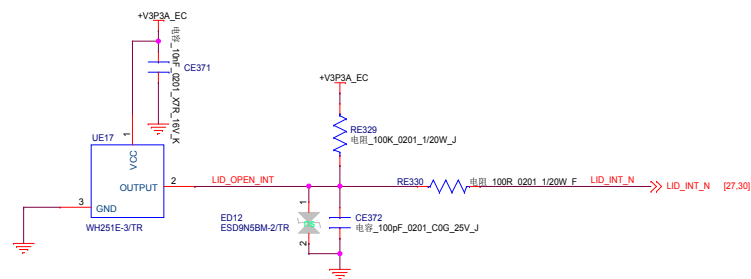
## TPM



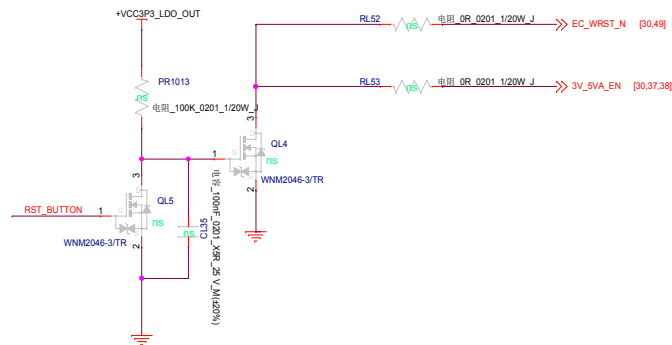
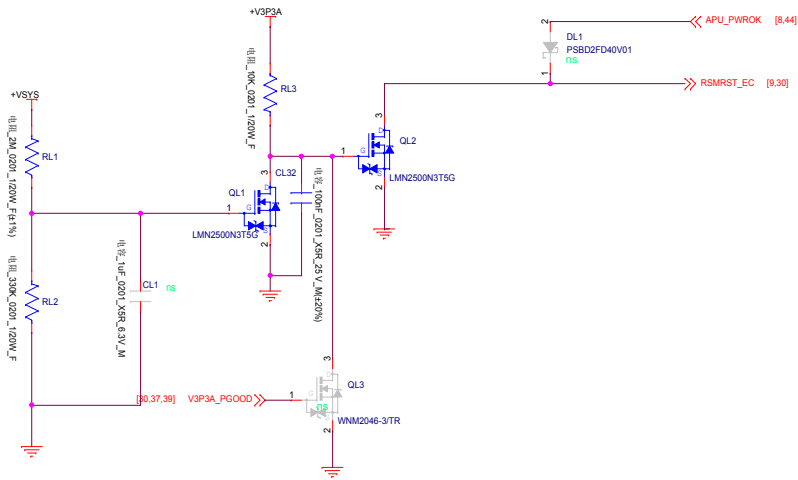
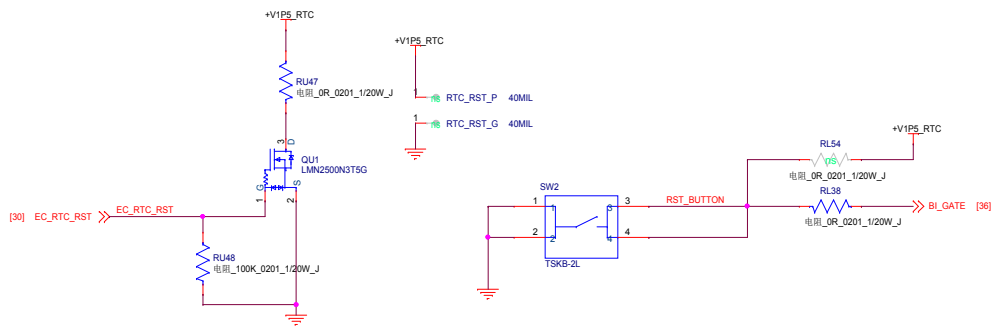
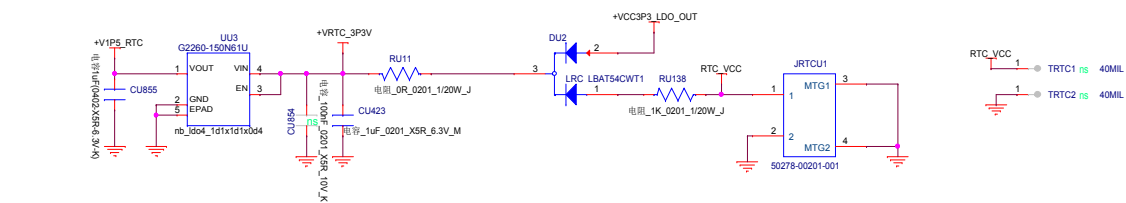
## G-SENSOR

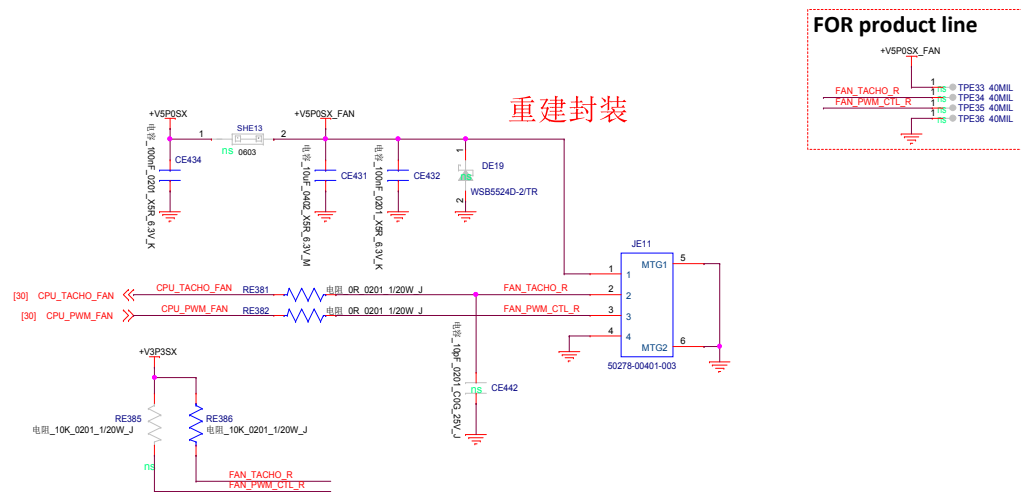
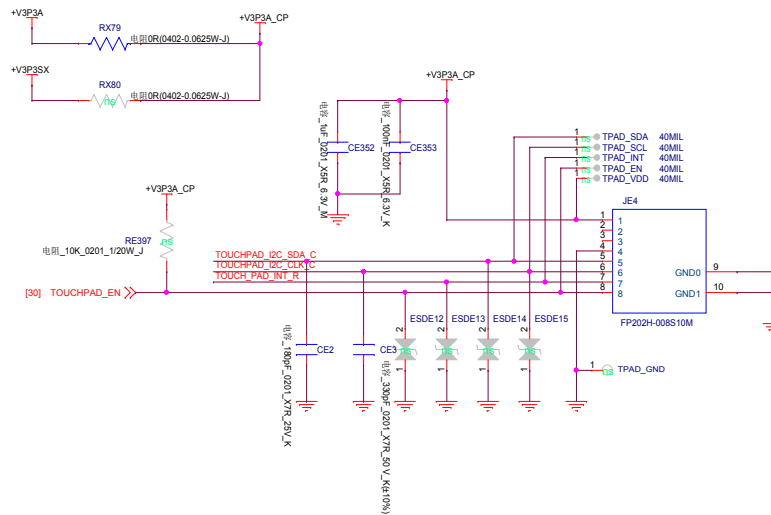
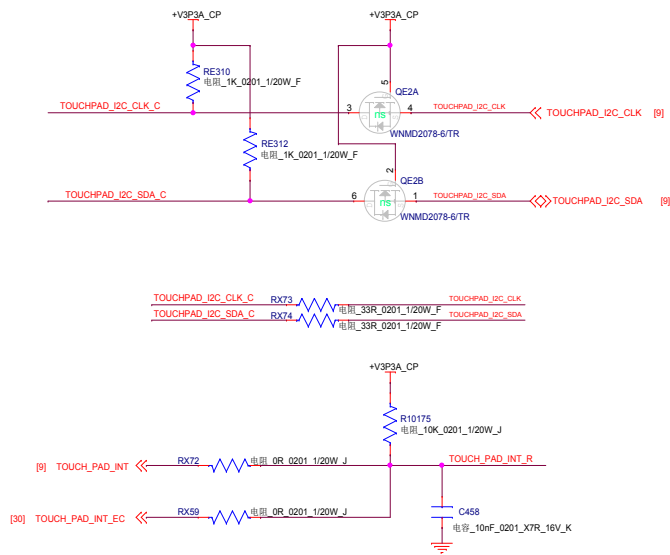


## Hall-SENSOR

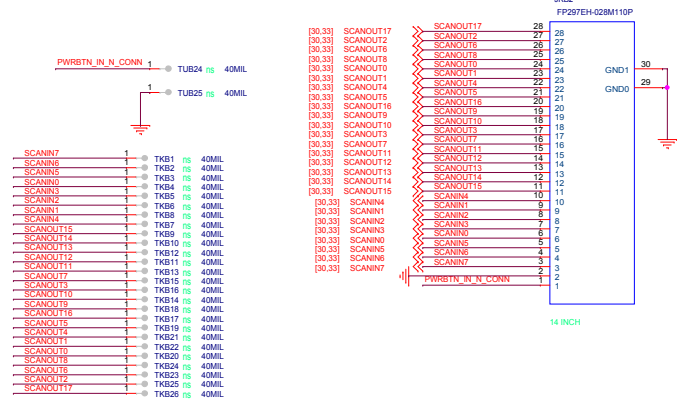
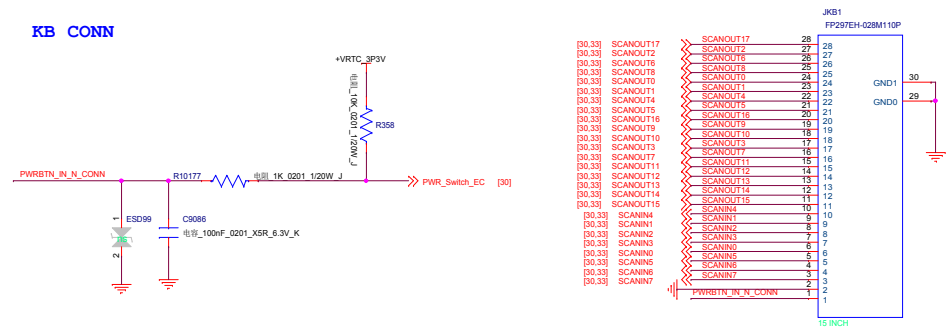




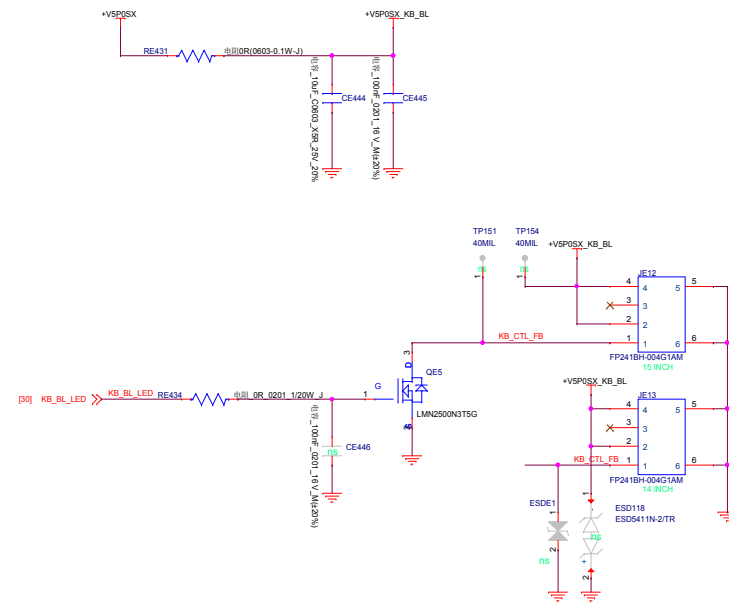




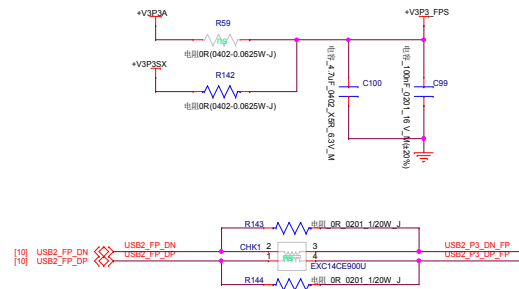
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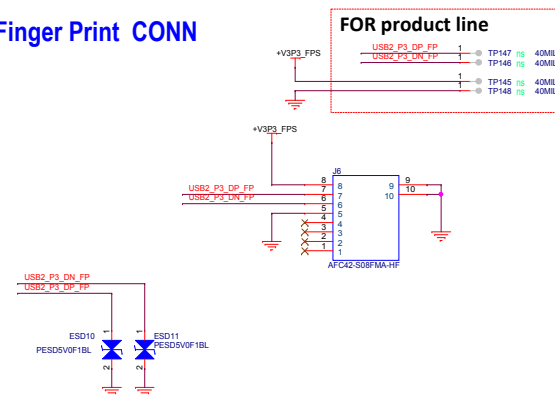
## KB Backlight



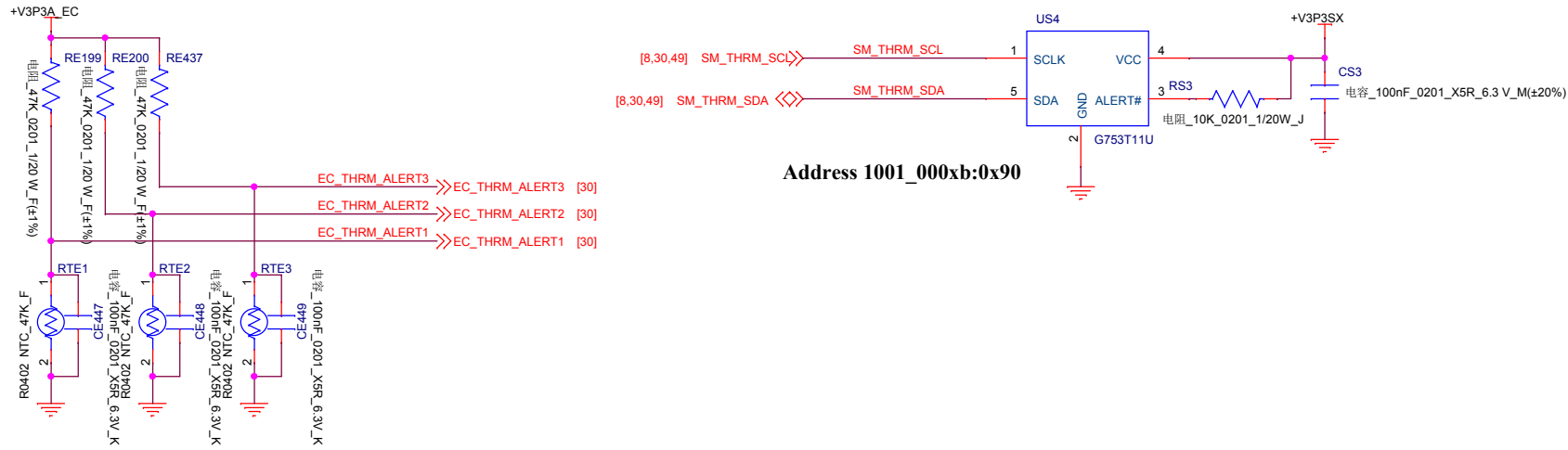
## Finger Print



## Finger Print CONN

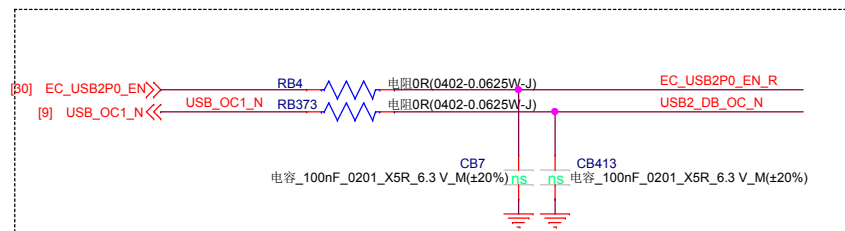
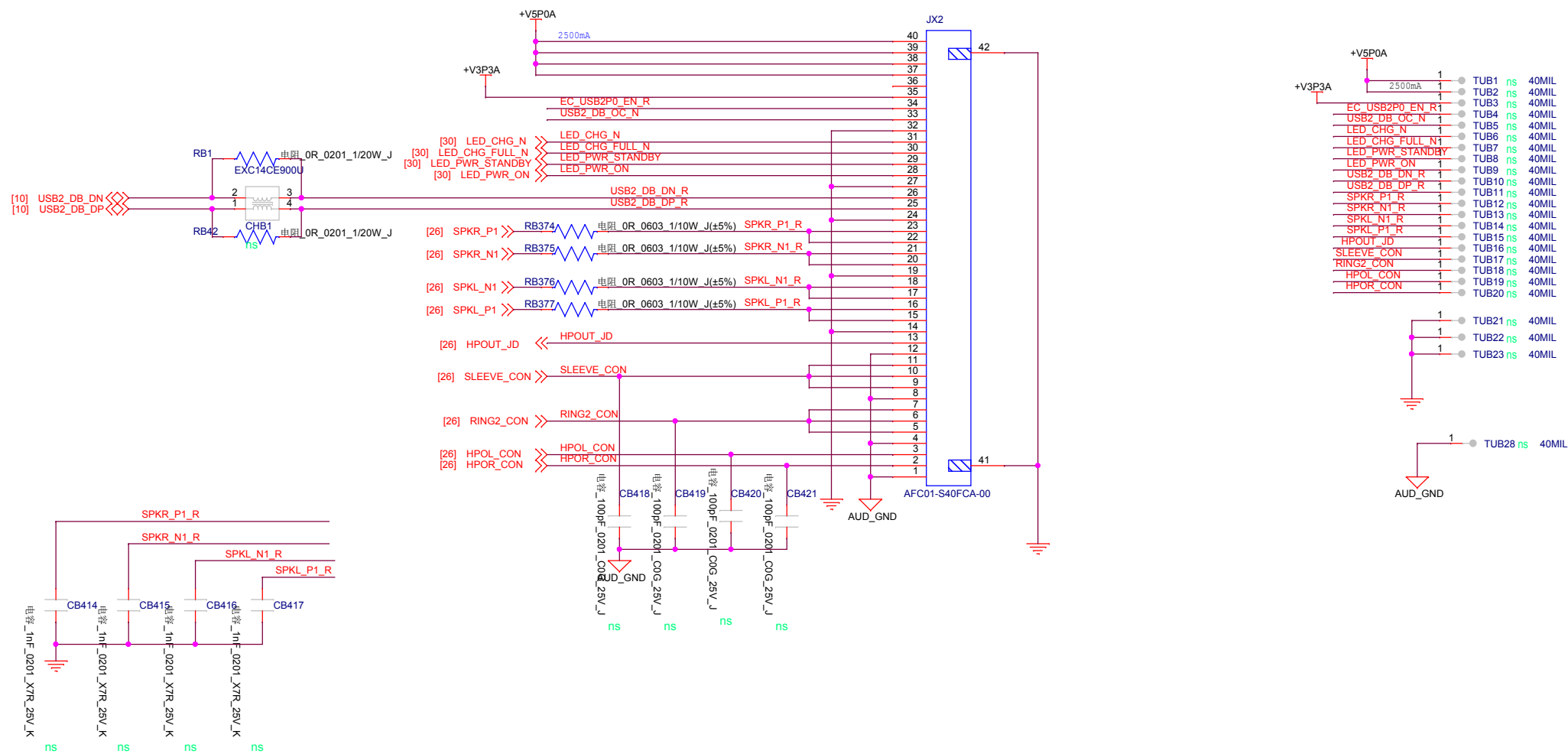


Thermal sensor

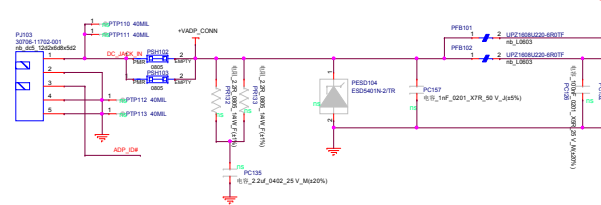


Address 1001\_000xb:0x90

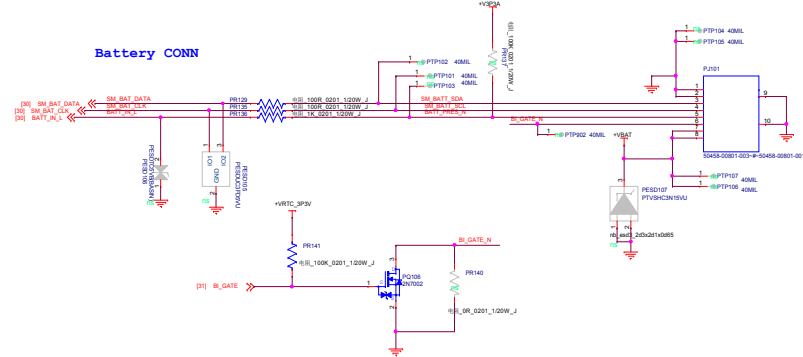
## IO Board Conn



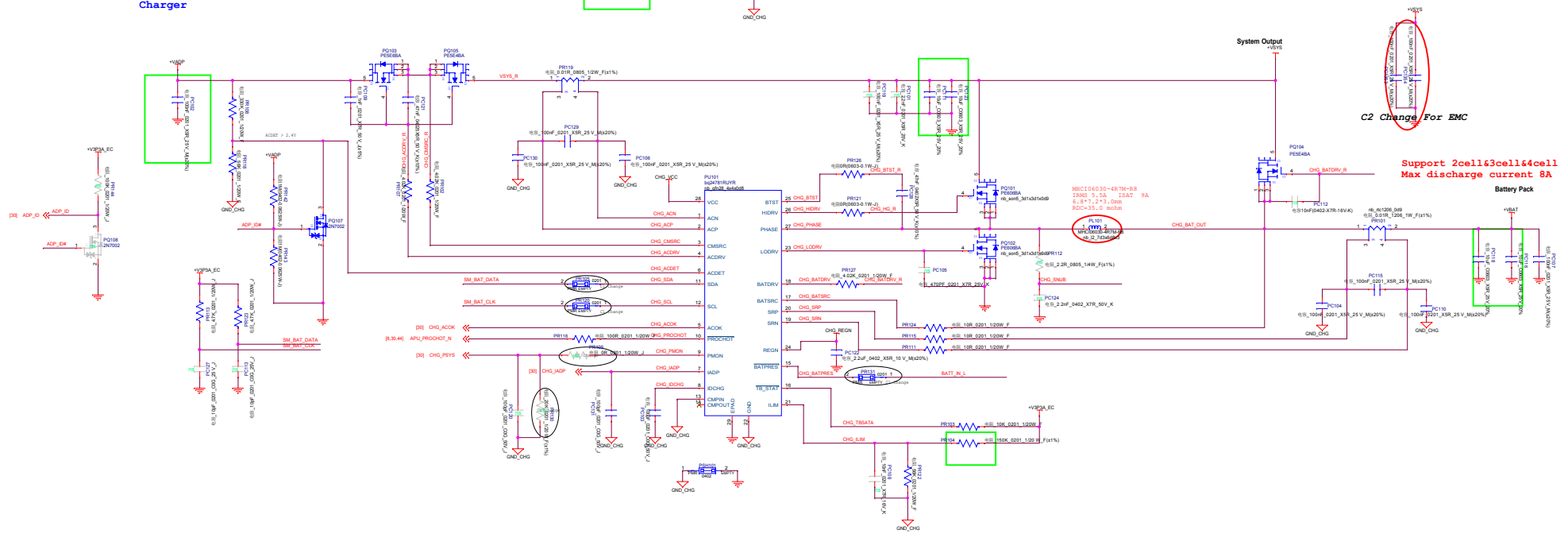
# DC-IN

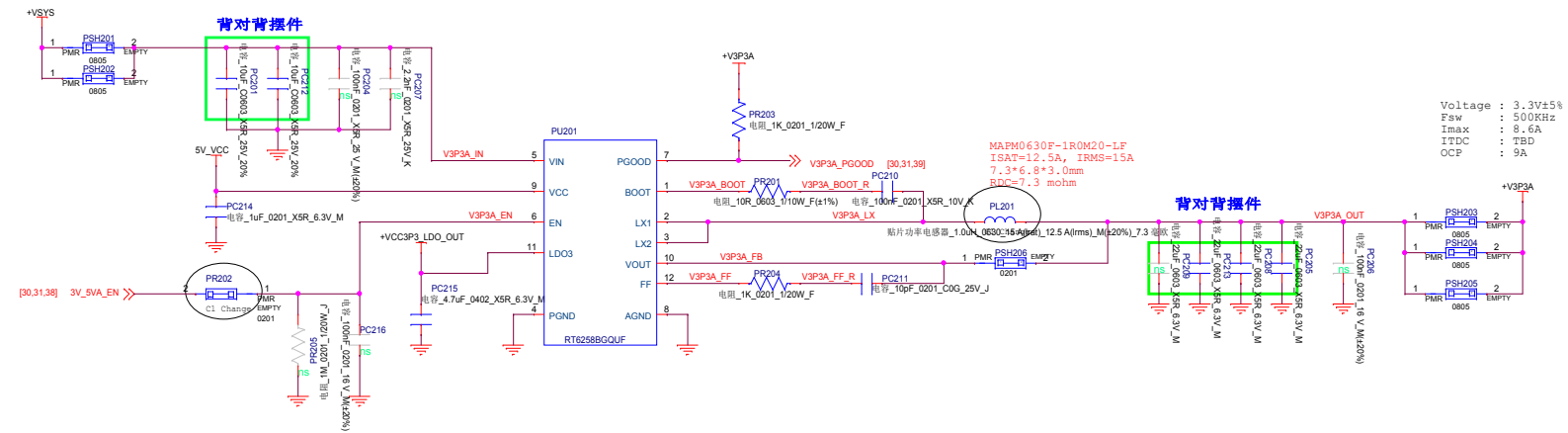


# Battery CONN



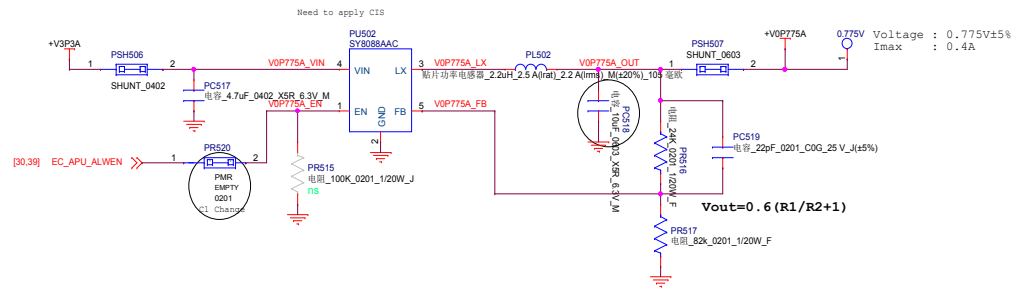
# Charger



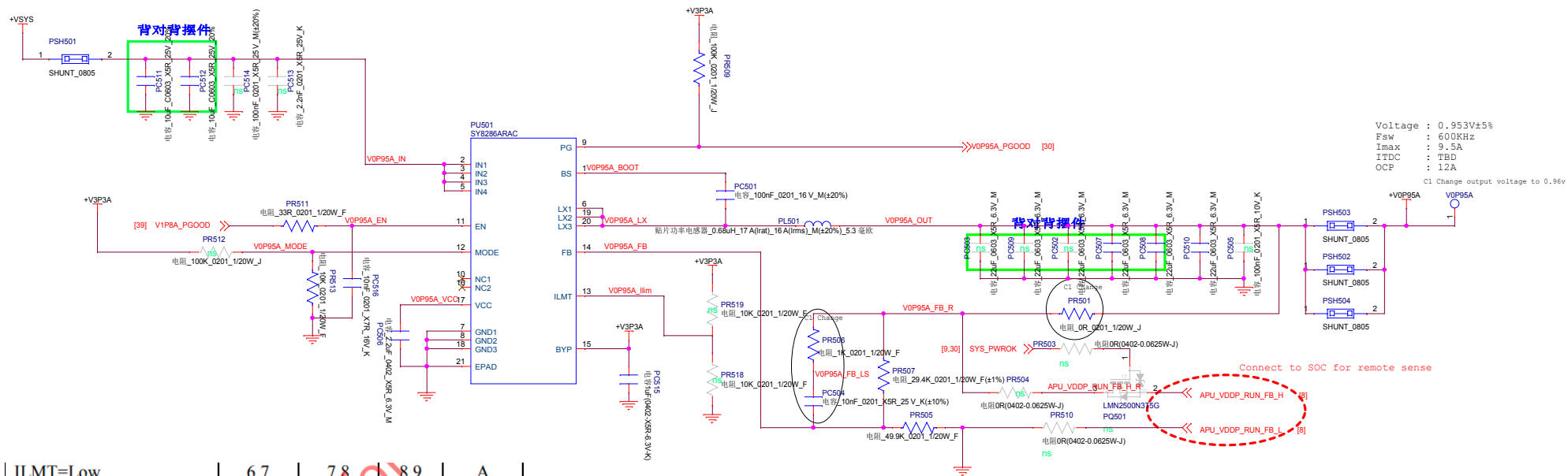




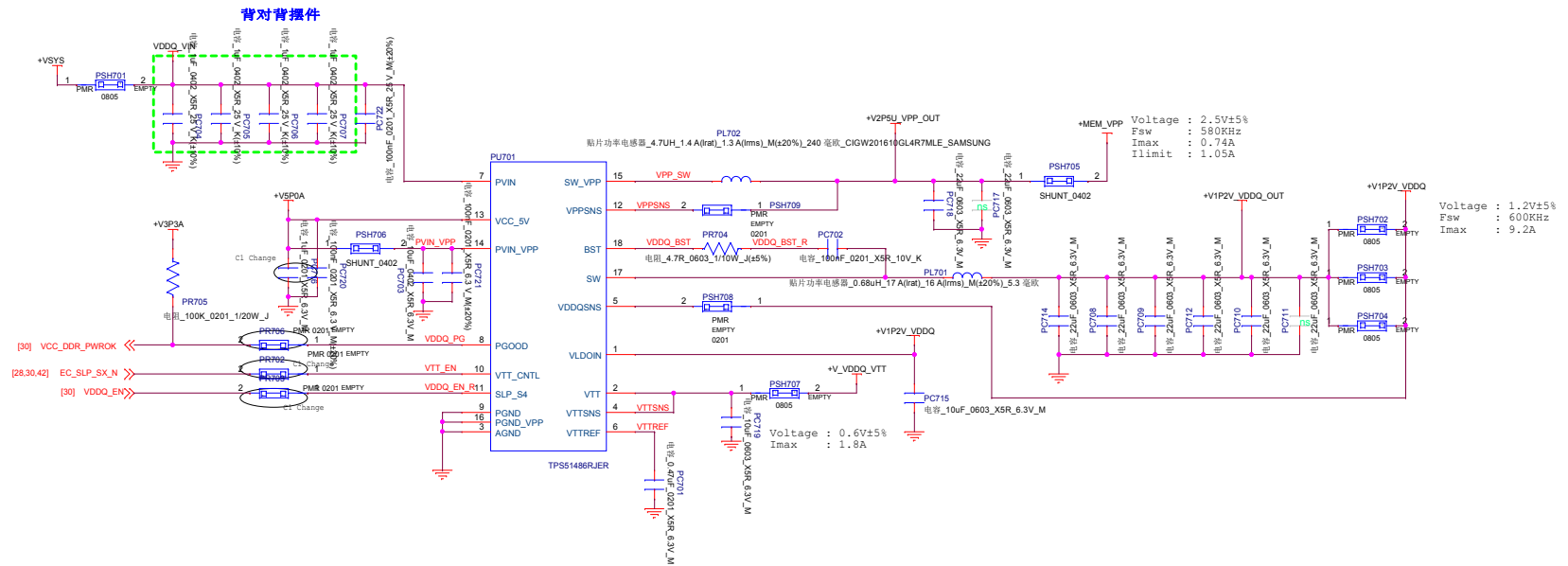
## +V0P775A



# +VOP95A

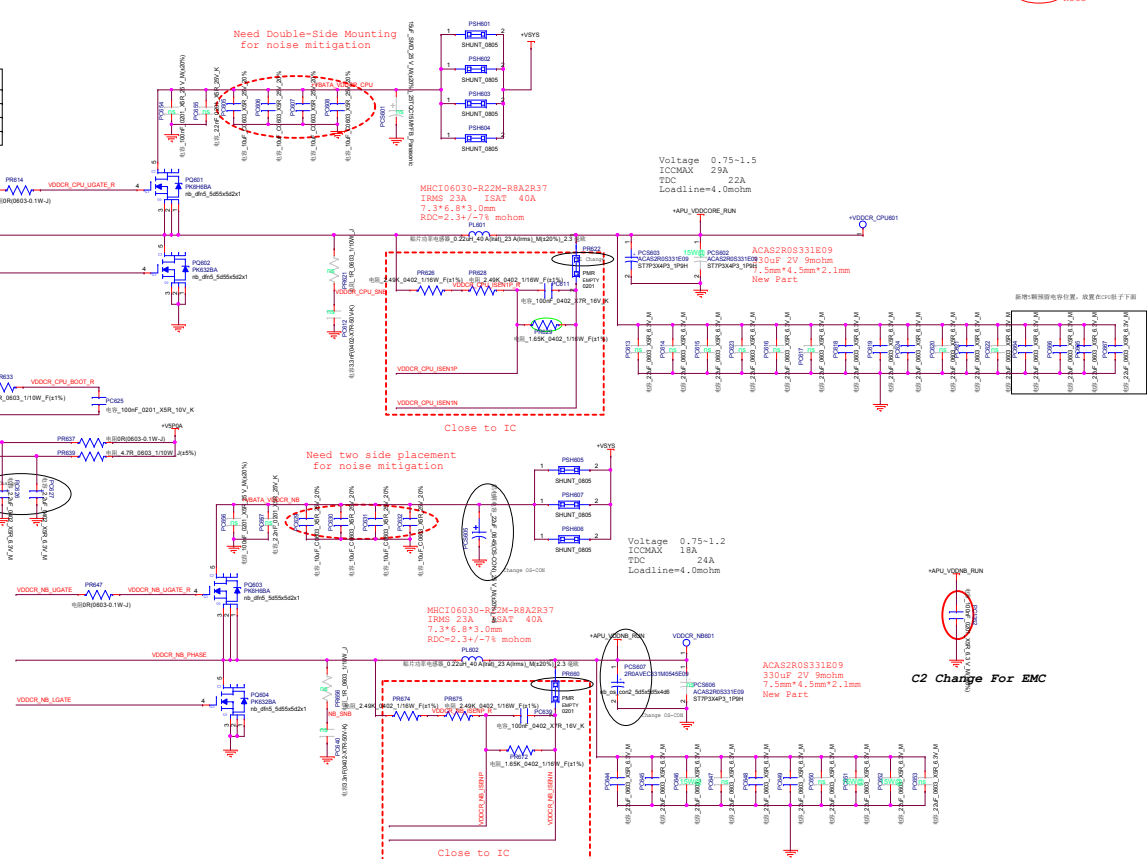


Voltage : 0.953V±5%  
 Fsw : 600KHz  
 Imax : 9.5A  
 ITDC : TBD  
 OCP : 12A  
 C1 Change output voltage to 0.96v







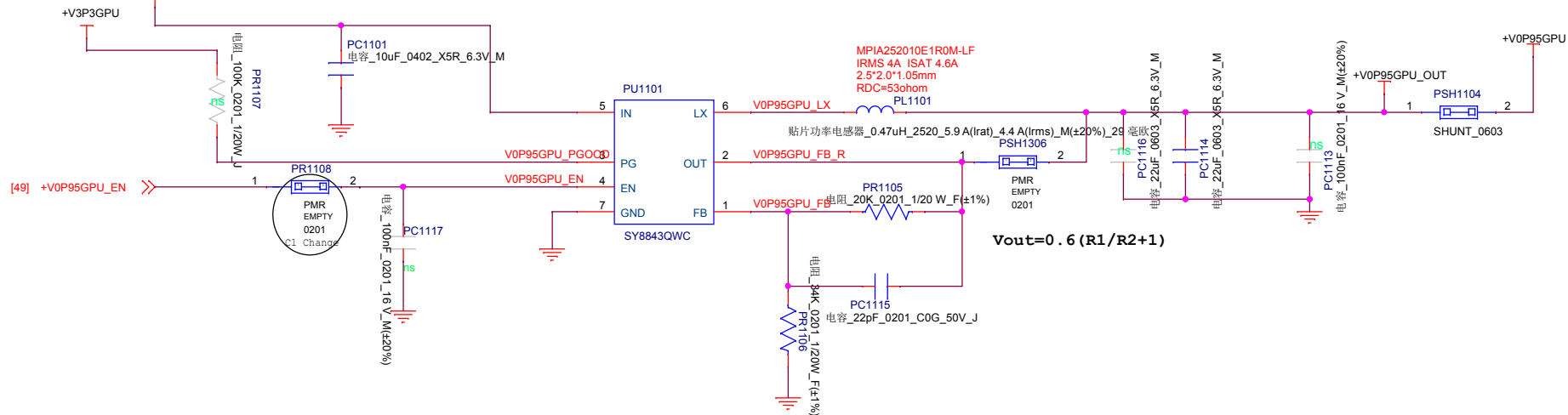


SVC	SVD	Boot Voltage
0	0	1.1V
0	1	1.0V
1	0	0.9V(Default)
1	1	0.8V

Supply <sup>1</sup>	Nominal Voltage (V) <sup>2</sup>	Condition	SYSTEM CONFIGURATION			
			10 (25W)	9 (15W)	11 (10W)	12 (6W)
VDDCR_CPU	Variable (0.75–1.5) <sup>13</sup>	TDC <sup>3</sup>	24	22	18	11
		EDC	32	29	24	15
		Max Loadstep <sup>4</sup>	21	20	18	11
VDDCR_NB	Variable (0.75–1.2) <sup>13</sup>	TDC <sup>3</sup>	22	18	15	11
		EDC	29	24	20	15
		Max Loadstep <sup>4</sup>	19	16	13	10
VDDCR_FCH_S5	0.775 <sup>11</sup>	TDC		0.1		
	Variable <sup>12</sup>	TDC		0.4		

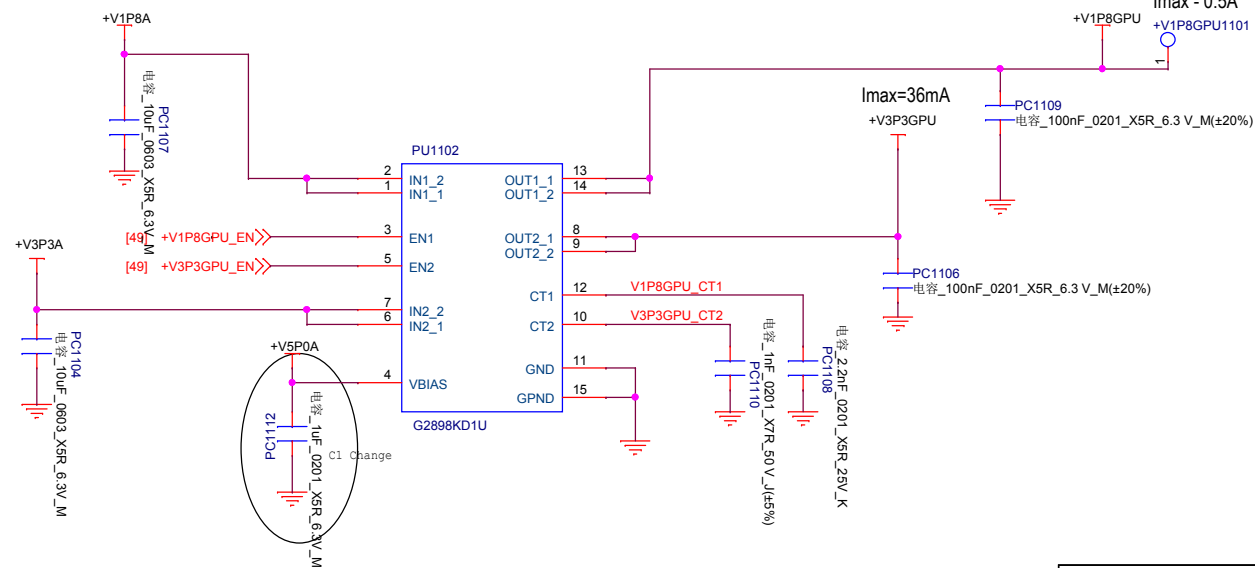
+V0P95GPU

I<sub>max</sub>=2A



+V1P8GPU  
+V3P3GPU

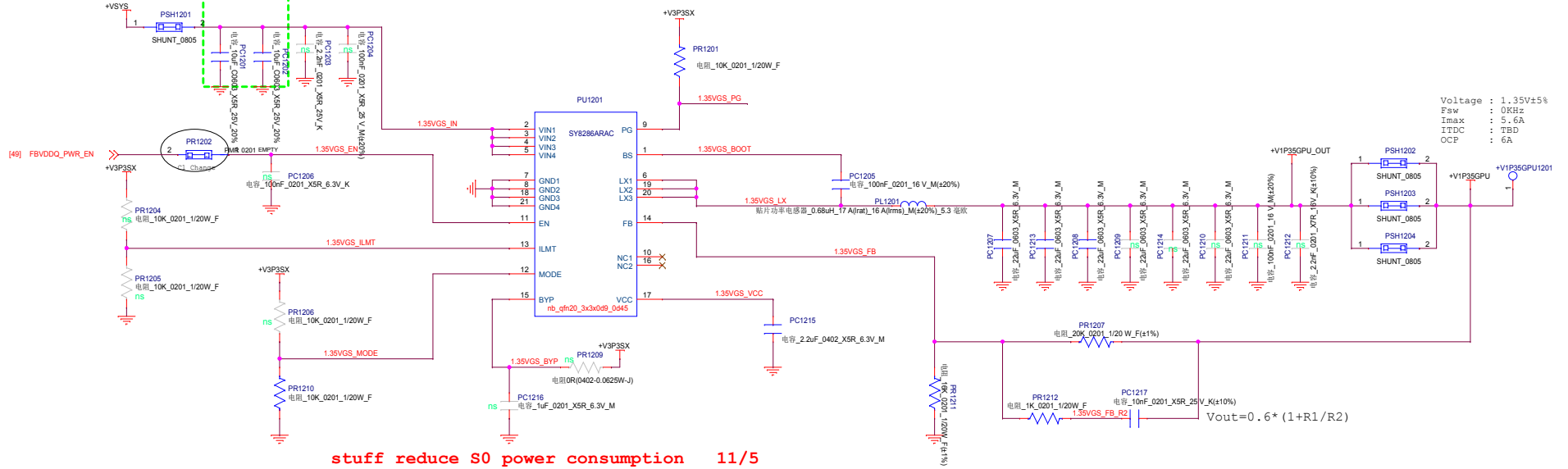
I<sub>max</sub> - 0.5A

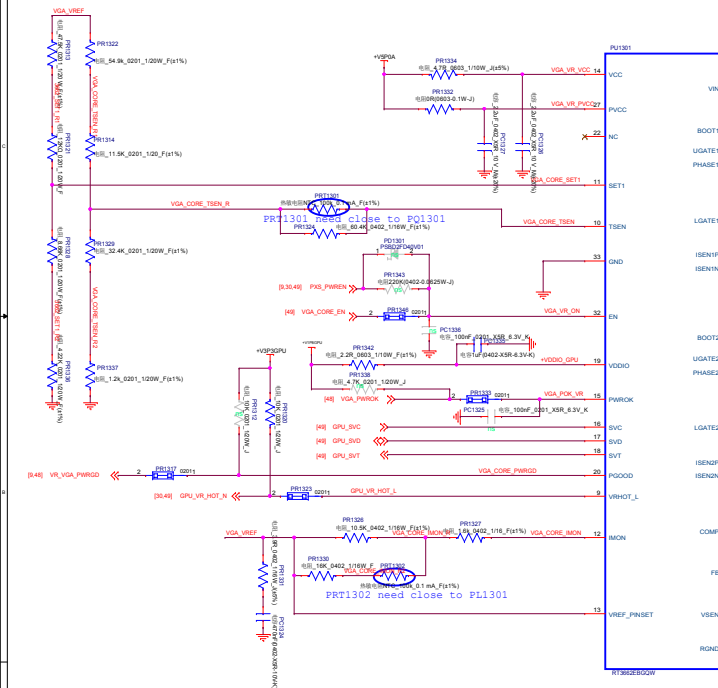


ILMT=Low	6.7	7.8	8.9	A
ILMT=Floating	9.3	10.6	11.9	A
ILMT=High	12	13.3	14.8	A

背对背摆件

Update according to vendor--2018/9/19

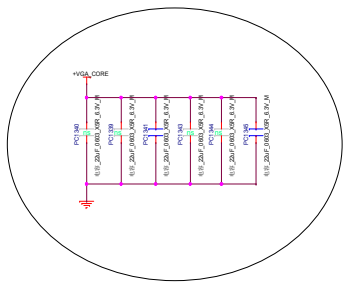
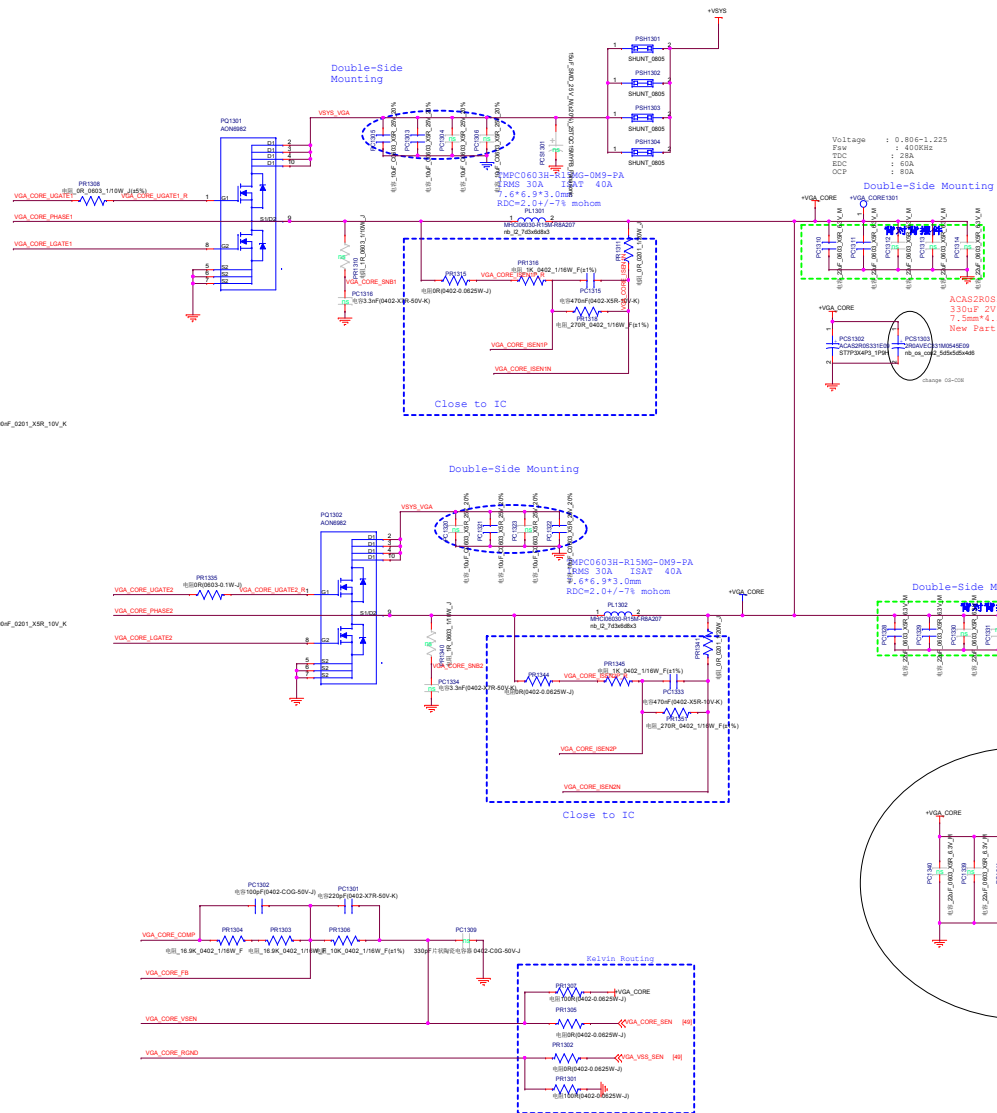
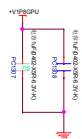




PRE-PWROK METAL VID CODES

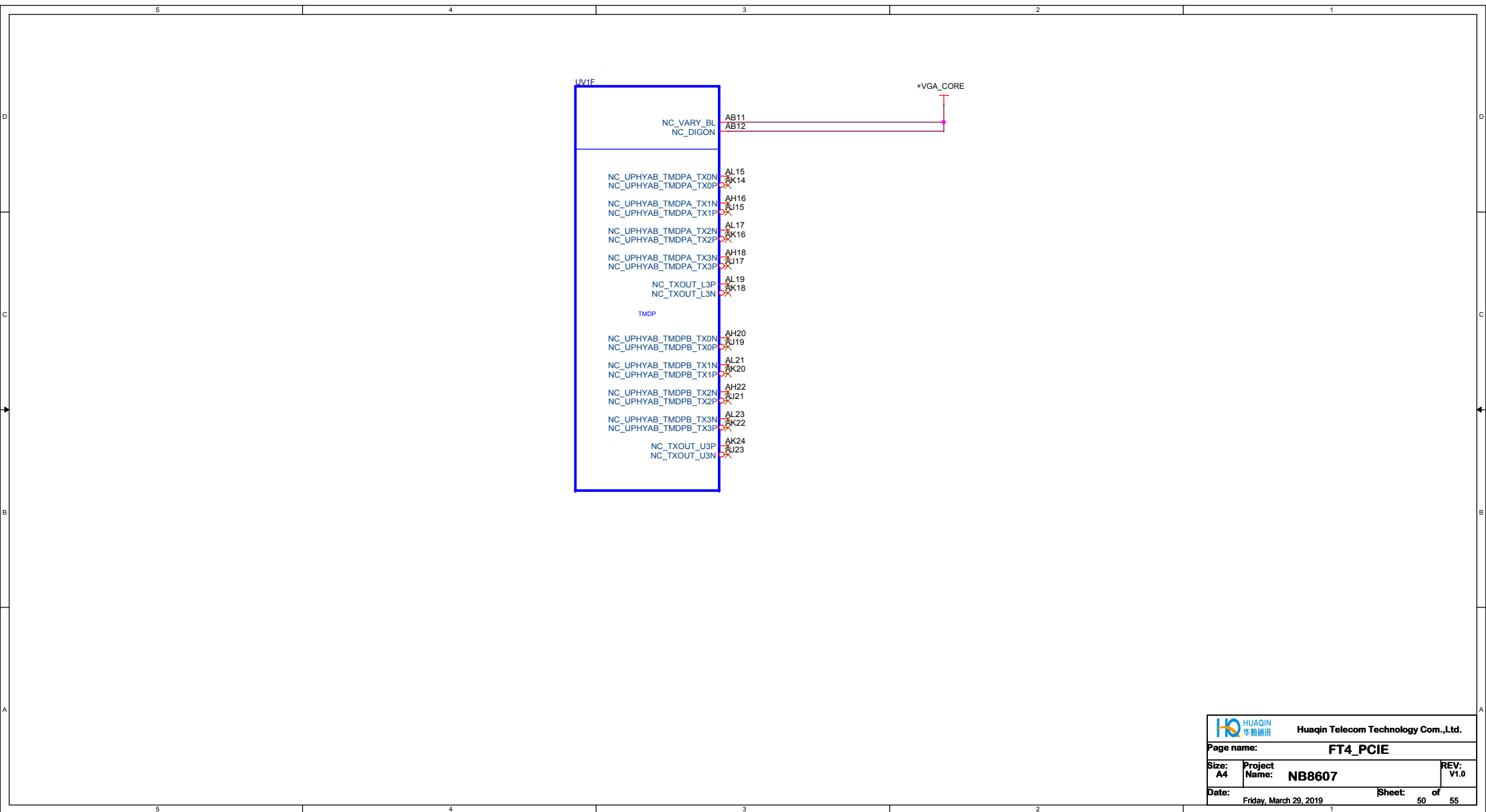
SVC	SVD	Boot Voltage
0	0	1.1V
0	1	1.0V
1	0	0.9V(Default)
1	1	0.8V

VDDC + VDDCI	"R17M-M2-50" - 25W TDP	VID_VDDC - 0.806 V to 1.225 V	Max: 1 VDDC x 1.0 VID_VDDC + 50 mV	40 A (TDC) 60 A (EDC)
	"R17M-M2-50" - 18W TDP	0.806 V to 1.218 V	Min: VID_VDDC - 1 VDDC x 1.0 mV -30 mV	28 A (TDC) 60 A (EDC)
	"R17M-M1-70"	0.806 V to 1.218 V		28 A (TDC) 42 A (EDC)









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3

2

1

