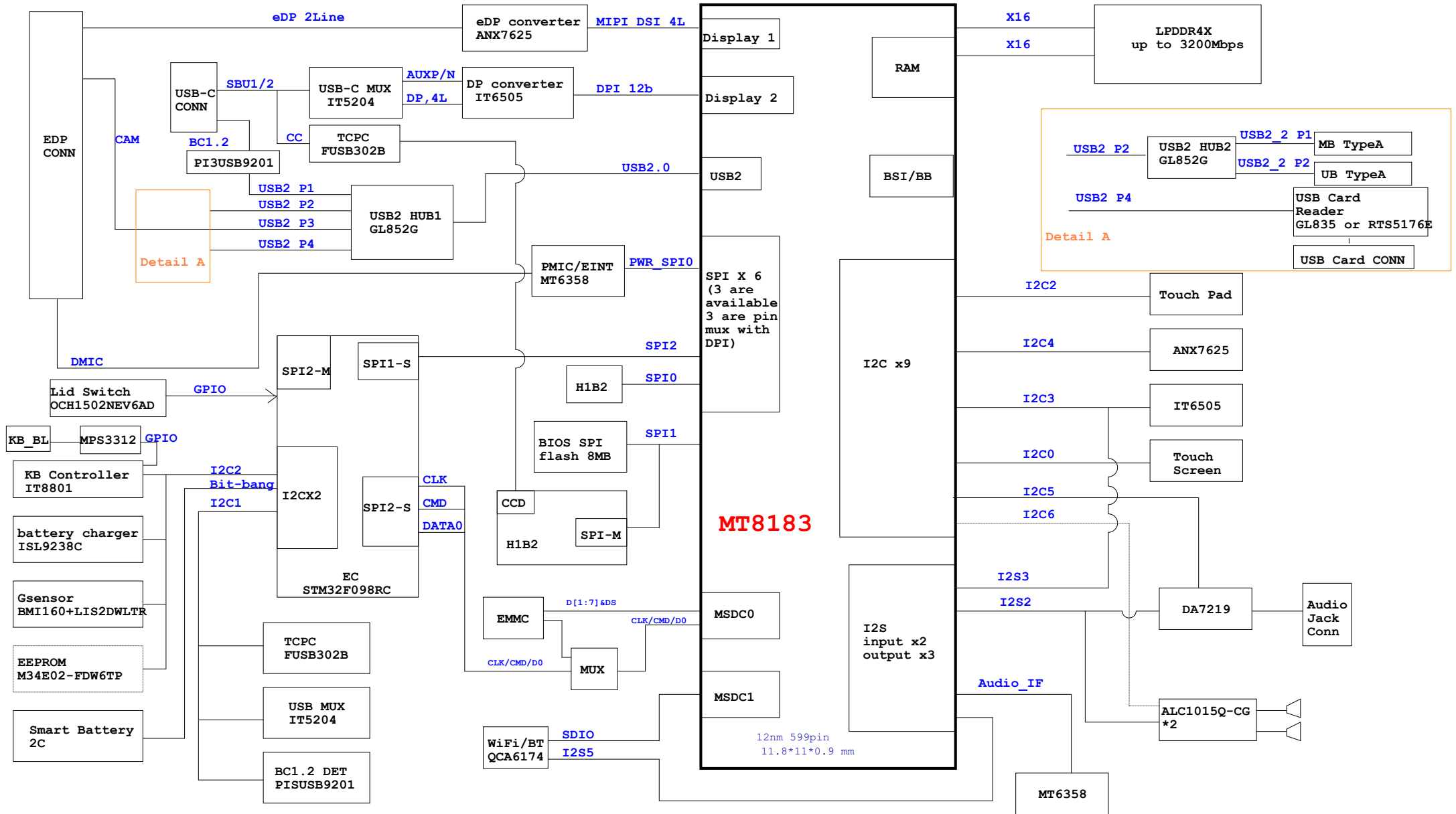
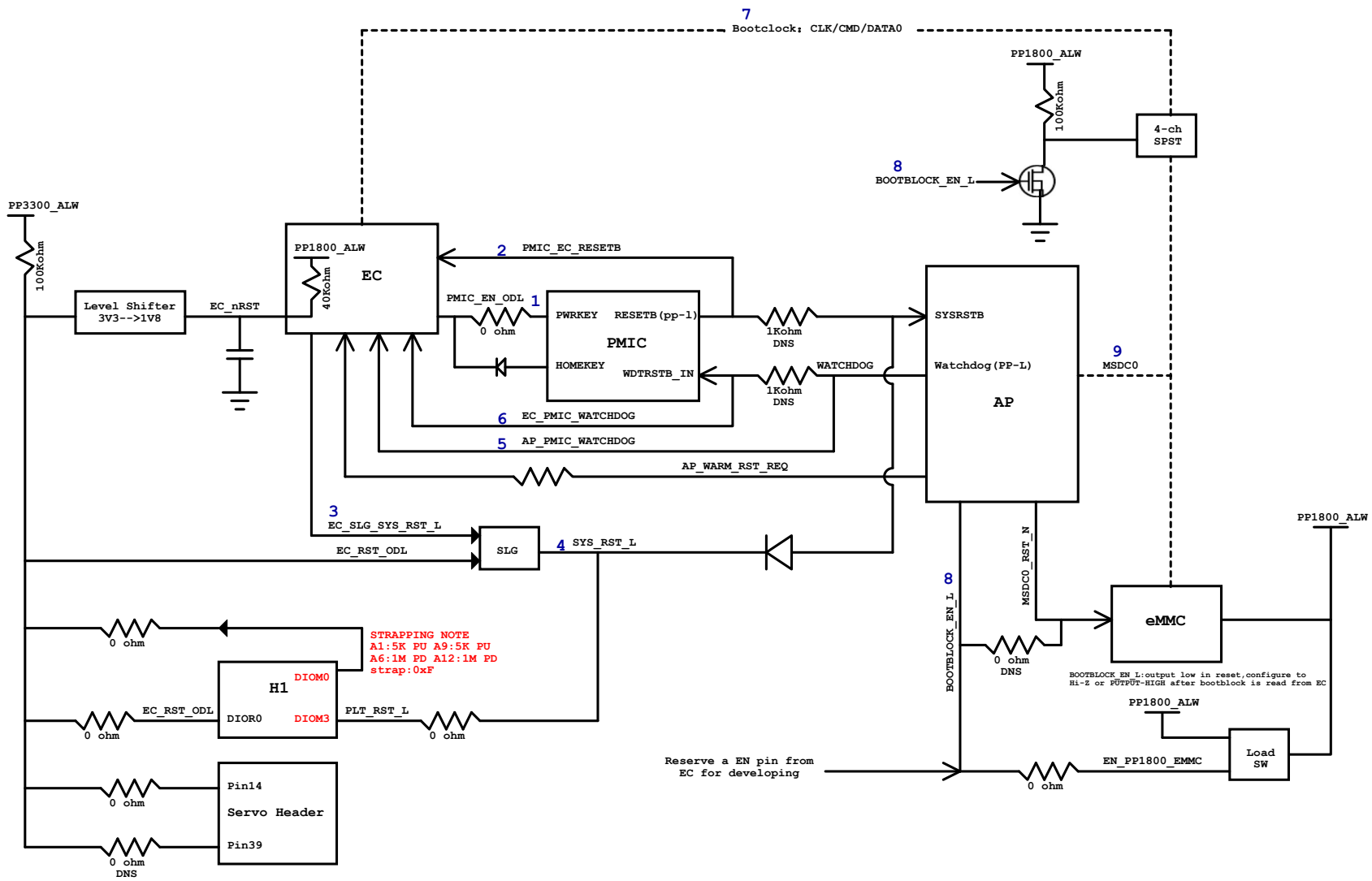


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20	POWER_MT6358-Buck		
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BLOCK DIAGRAM





All I2C address should be expressed in 7 bits.

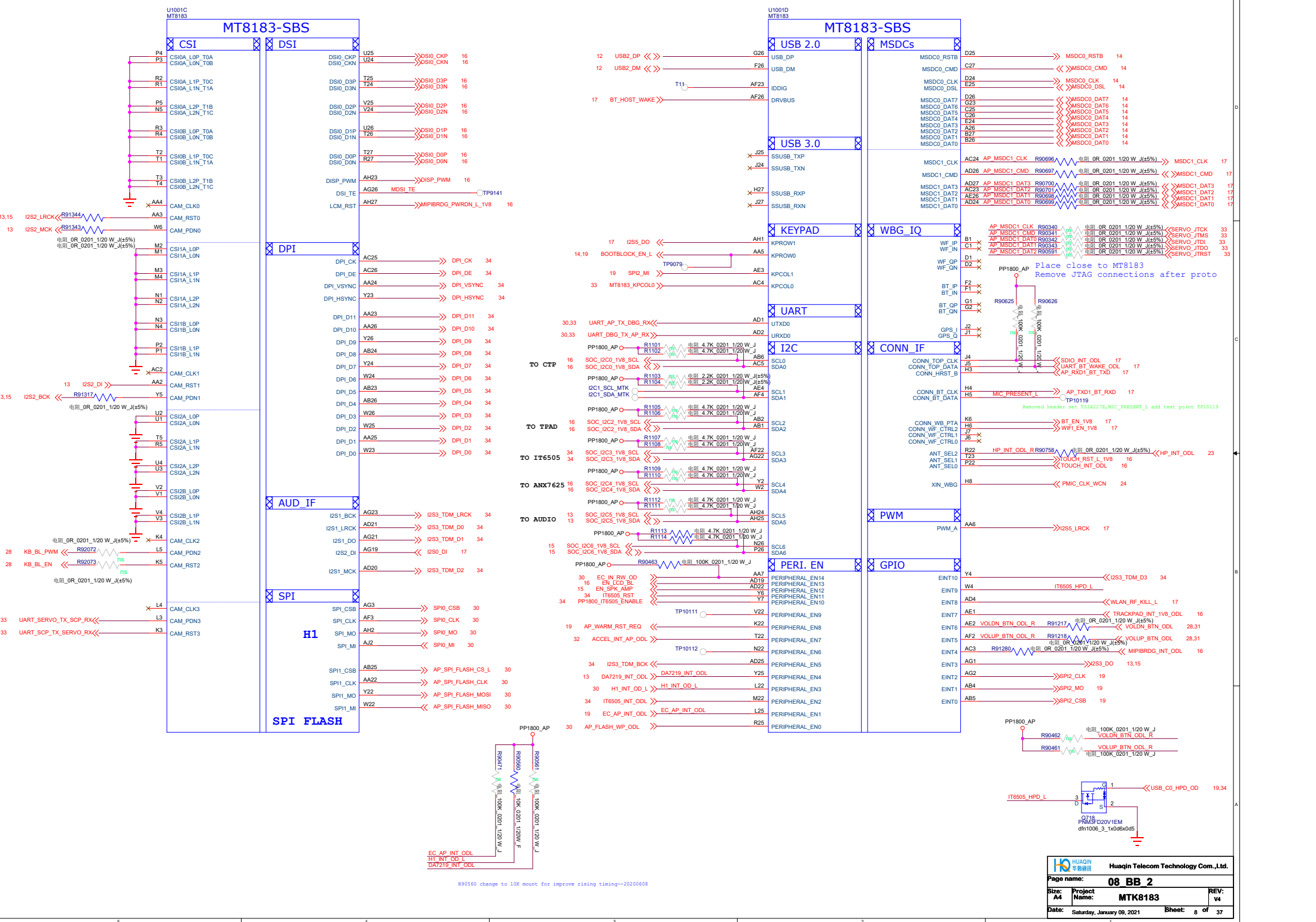
SOC-I2C	AP, SCP	Function	I2C Spec.	Budget Timing	I2C Slave Address (7-bit mode)	Note
I2C-0	AP	CTP		Yes.	0x10	
I2C-1 (I3C)	TBD					Default NC
I2C-2 (I3C)	AP	TOUCH-PAD		Yes.	0x15	
I2C-3	AP	IT6505		Yes.	0x5C	
I2C-4 (I3C)	AP	ANX7625		Yes.	0x2C	
I2C-5	AP	DA7219		Yes.	0x1A	
I2C-6	SPK Amplifier	ALC1015Q-CG----L/R			0x28/0X29	Reserve for SPK Amplifier

Note : I2C Spec. : Standard mode (100 kbps) and Fast mode (400 kbps), Fast mode Plus (1 Mbps) and High-speed mode (3.4 Mbps)

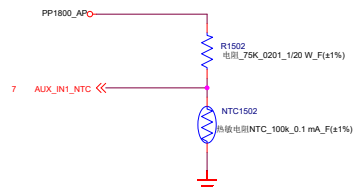
EC_I2C	Function	I2C Spec.	Budget Timing	I2C Slave Address (7-bit mode)	Note
I2C-1	PI3USB9201ZTAEX			0x5F	
	FUSB302BUCX			0x22	
	IT5204FN/BX			0x48	
	IT8801BFN/CX			0x38	Default NC, Controlled by I2C-2
I2C-2	M34E02-FMC6TG			Memory area select code: 0x50, PSWP: 0x30	M34E02-FMC6TG ns
	ISL9238CHRTZ-T			0x09	
	IT8801BFN/CX			0x38	
	BMI160 Sensor			0x68	Default NC, Controlled by EC Sensor SPI
	LIS2DWLTR Sensor			0x19	
	Battery	100kHz		0x16	Default NC, Controlled by Bit Bang
Bit Bang	Battery	100kHz		0x16	

I2S	Device	Function
I2S2_MCK I2S2_BCK I2S2_LRCK I2S2_DI I2S3_DO	DA7219	Earphone
I2S5_BCK I2S5_LRCK I2S0_DI I2S5_DO	ALC1015Q-CG	Speaker AMP
I2S3_TDM_BCK I2S3_TDM_LRCK I2S3_TDM_D0 I2S3_TDM_D1 I2S3_TDM_D2 I2S3_TDM_D3	U69H025.XX	Wifi Module BT
	IT6505	DPI to DP bridge audio

SPI		
Net Name	Master	Slave
SPI0_CLK SPI0_CSB SPI0_MO SPI0_MI	AP	H1
AP_SPI_FLASH_CS_L AP_SPI_FLASH_CLK AP_SPI_FLASH_MOSI AP_SPI_FLASH_MISO	AP	NOR FLASH
SPI2_CLK SPI2_CSB SPI2_MO SPI2_MI	AP	EC
DEBUG_SPI_FLASH_CS_L DEBUG_SPI_FLASH_CLK DEBUG_SPI_FLASH_MOSI DEBUG_SPI_FLASH_MISO	H1 or Servo	NOR FLASH
PWRAP_SPI0_CK PWRAP_SPI0_CSN PWRAP_SPI0_MO PWRAP_SPI0_MI	AP	PMIC

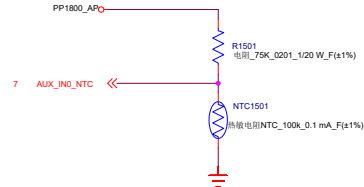


R90560 change to 10K mount for improve rising timing--20220608



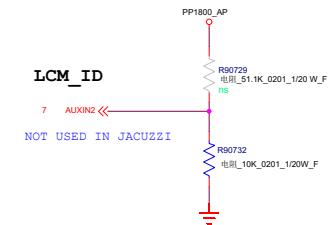
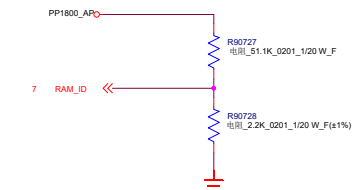
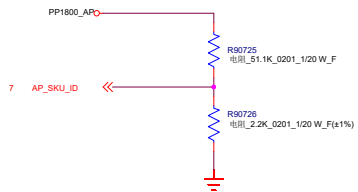
Thermistor to sense ambient temperature

1. NTC_AMBIENT must close to earphone



Thermistor to sense AP temperature

1. NTC_AP must keep a distance about 6-8 mm away from AP and far from other heat sources 10 mm at least.
2. The distance is the shortest distance from package edge to edge.

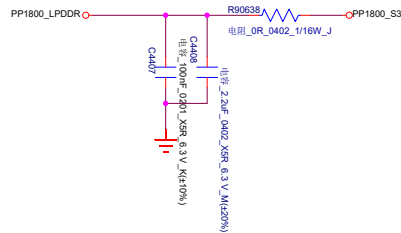


change R90732 to 10K---0919

SKU_ID (AP_AUXIN4)							
Number	ID	PR/K	PD/K	Voltage/V	SKU	Proto	VIO
	51.1	2.2	0.074	0.074	Fennel114 w/nc w/o touch ,no KB_BL		1.8V
	51.1	6.81	0.212	0.212	Fennel with KB_BL , With touch	1	
	51.1	11	0.319	0.319			
3	57.6	18	0.429	0.429			
	51.1	22	0.542	0.542	cancel		
5	51.1	30	0.666	0.666			
	51.1	39.2	0.781	0.781	Fennel w/o KB_BL , with touch	6	
	56	56	0.9	0.9			
	47	61.9	1.023	1.023			
	47	80.6	1.137	1.137			
10	56	124	1.24	1.24			
11	51.1	150	1.343	1.343			
12	47	200	1.457	1.457			

RAM_ID (AP_AUXIN3)							
Number	ID	PR/K	PD/K	Voltage/V	VIO/V	Vender	MPN
	51.1	2.2	0.074	0.074	1.8V		K4UB3D4AA-MCGR
1	51.1	6.81	0.212	0.212			
	51.1	11	0.319	0.319			
	57.6	18	0.429	0.429			
	51.1	22	0.542	0.542			W9AC09NCPMBLX0-REE
	51.1	30	0.666	0.666			
	51.1	39.2	0.781	0.781			MT53E2G32D4HQ-046 WT1A
	56	56	0.9	0.9			
	47	61.9	1.023	1.023			
	47	80.6	1.137	1.137			
9	56	124	1.24	1.24			
10	56	124	1.24	1.24			
11	51.1	150	1.343	1.343			

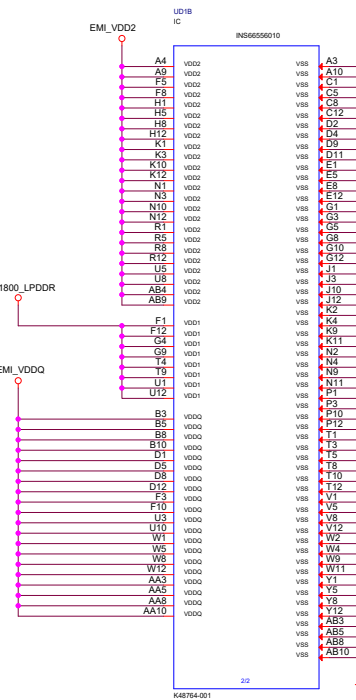
LDO for EMI_VDD1 of LPDDR4 VDD1



LPDDR4X AVL

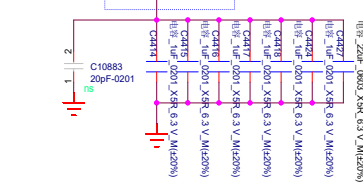
SR SKU	BQ P/N	Vendor	Vendor P/N
4GB	1	MICRON	MT53B16G32D48Q-046 WT:E
	2	SAMSUNG	K4U0B3248A-85C-R
8GB	1	MICRON	MT53B2G32D8QD-046 WT:E
	2	SAMSUNG	K4UCB3248A-85C-R

Note: 44-2



Note: 44-4

Note: 44-1



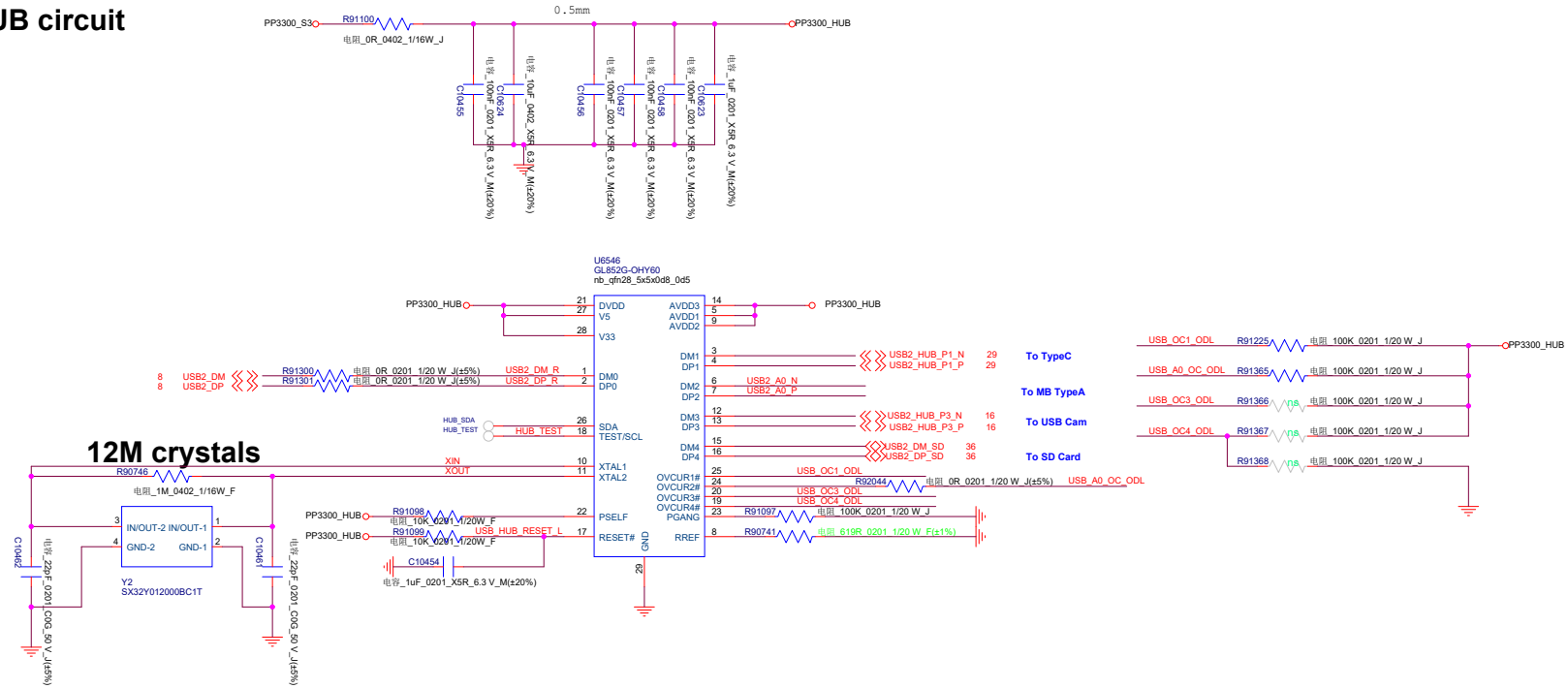
Schematic design notice of "Memory_LPDDR4"

Note 44-1: Please refer to power supply related page select VDRAM 2 / VDRAM1 output voltage properly for LPDDR4

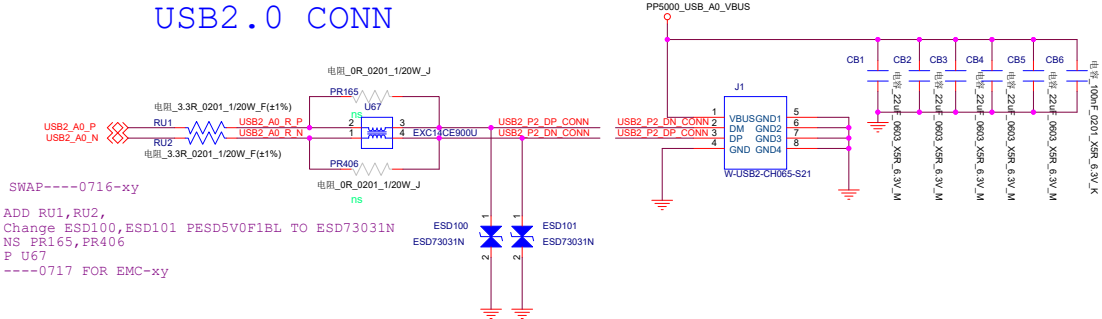
Note 44-2: DRAM ZQx resistor = 240ohm (1%) that must be connected to VDDQ,

Note 44-4: VDD2 VDDQ decoupling cap: closed to DRAM ball.
For other cap for PMIC (>10uF, at PMIC page);
please also refer to MMD and layout guide for placement.

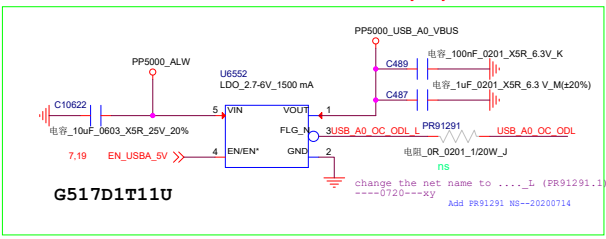
USB-HUB circuit



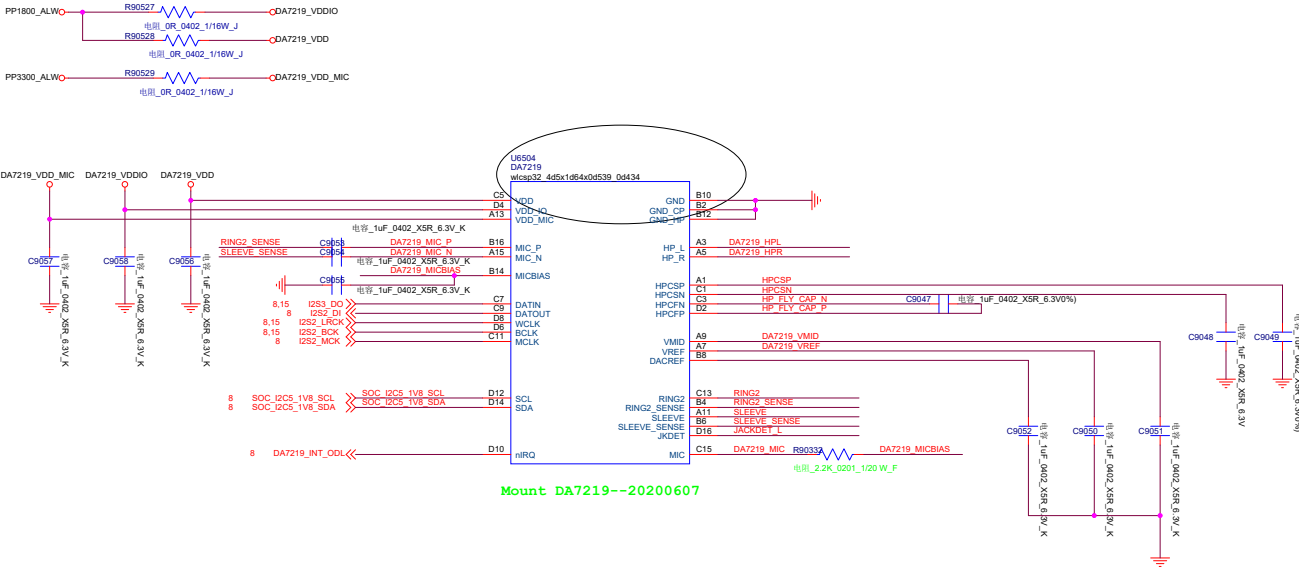
USB2.0 CONN



SWAP---0716-xy
ADD RU1,RU2,
Change ESD100,ESD101 PESD5V0F1BL TO ESD73031N
NS PR165,PR406
P U67
---0717 FOR EMC-xy



Earphone Audio

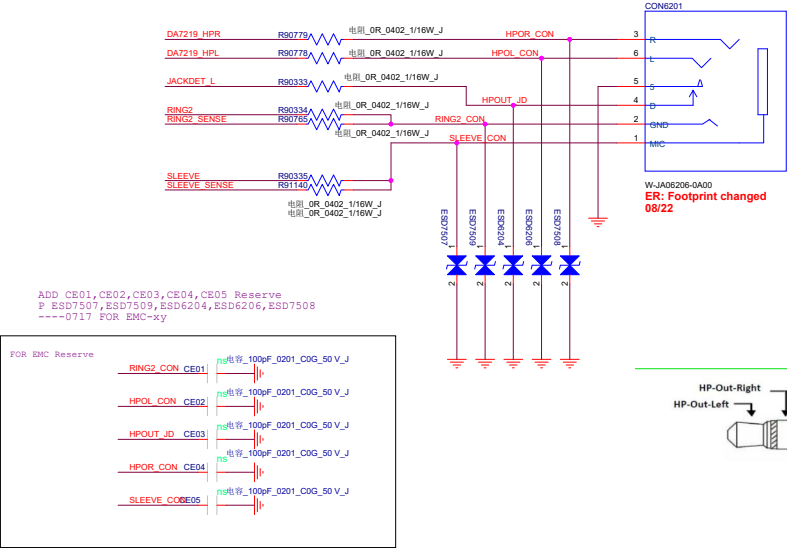


THE TWO SENSE SIGNALS NEED TO BE CLOSE TO THE JACK CONNECTOR
ROUTE HP_RING2 AND HP_RING2 SENSE TOGETHER (TREAT AS DIFF PAIR EXCEPT NO NEED FOR IMPEDANCE CONTROL)
THE SAME APPLIES TO HP_SLEEVE AND HP_SLEEVE SENSE SIGNALS
ROUTE HP_RING2, HP_RING2 SENSE, HP_SLEEVE, HP_SLEEVE SENSE BETWEEN HP_LEFT AND HP_RIGHT WHERE POSSIBLE

RING2_CON	1	FTP005	26MIL
HPOL_CON	1	FTP006	26MIL
HPOL_OUT	1	FTP007	26MIL
HPOL_CON	1	FTP008	26MIL
SLEEVE_CON	1	FTP009	26MIL

Earphone Microphone

Removed PMIC integrated Reader set TS3A227E parts,
for CRB this channel has noise

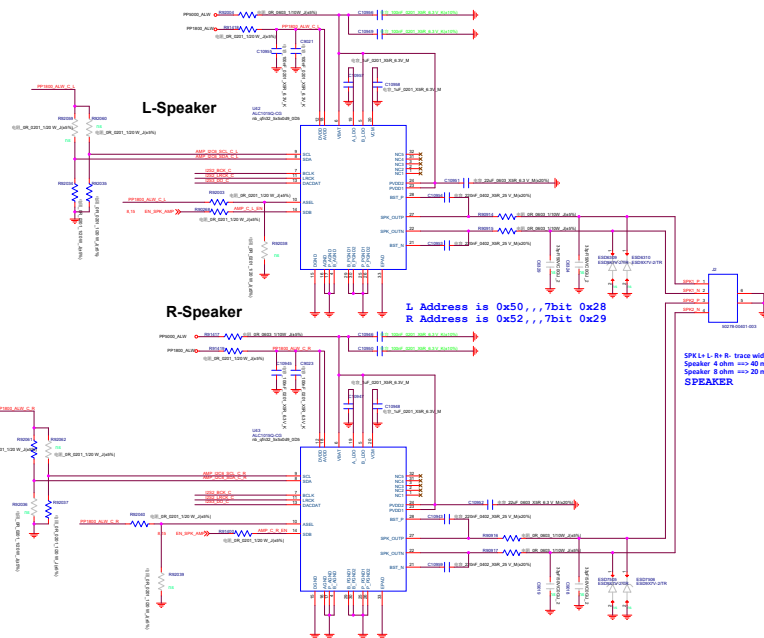
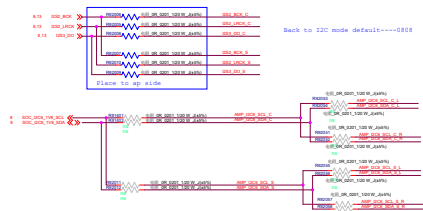


Schematic design notice of "62_PERI_AUDIO_IO" page.

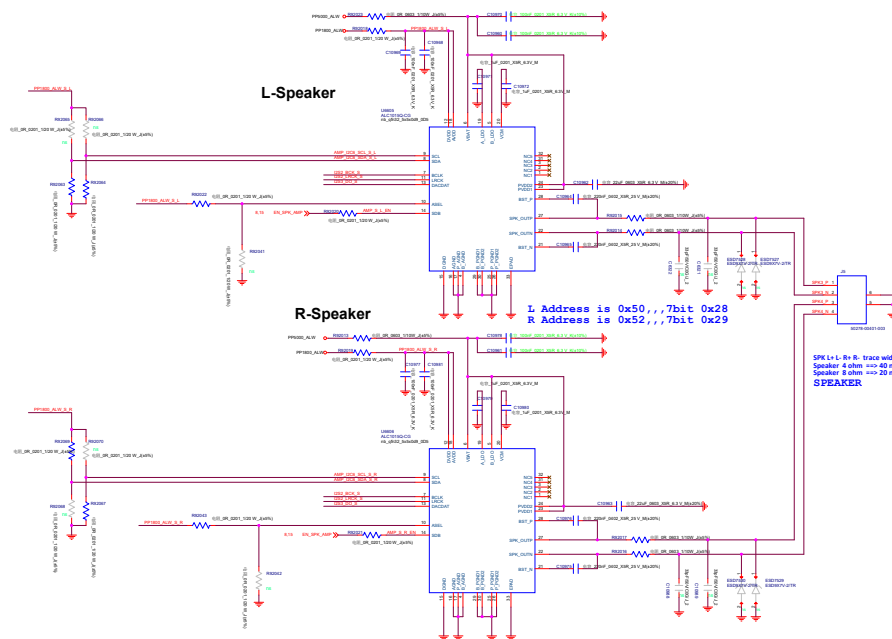
Note 62-2: Reserved Cap for CS/RS test,
please double check multi-key function when used

Speaker

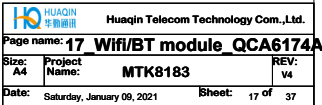
C360 place U42 U43
S360 place U6605 U6606
For different con location requirement



SPK L-L-R-R trace width
Speaker 4 ohm => 40 mils
Speaker 8 ohm => 50 mils
SPEAKER



SPK L-L-R-R trace width
Speaker 4 ohm => 40 mils
Speaker 8 ohm => 50 mils
SPEAKER



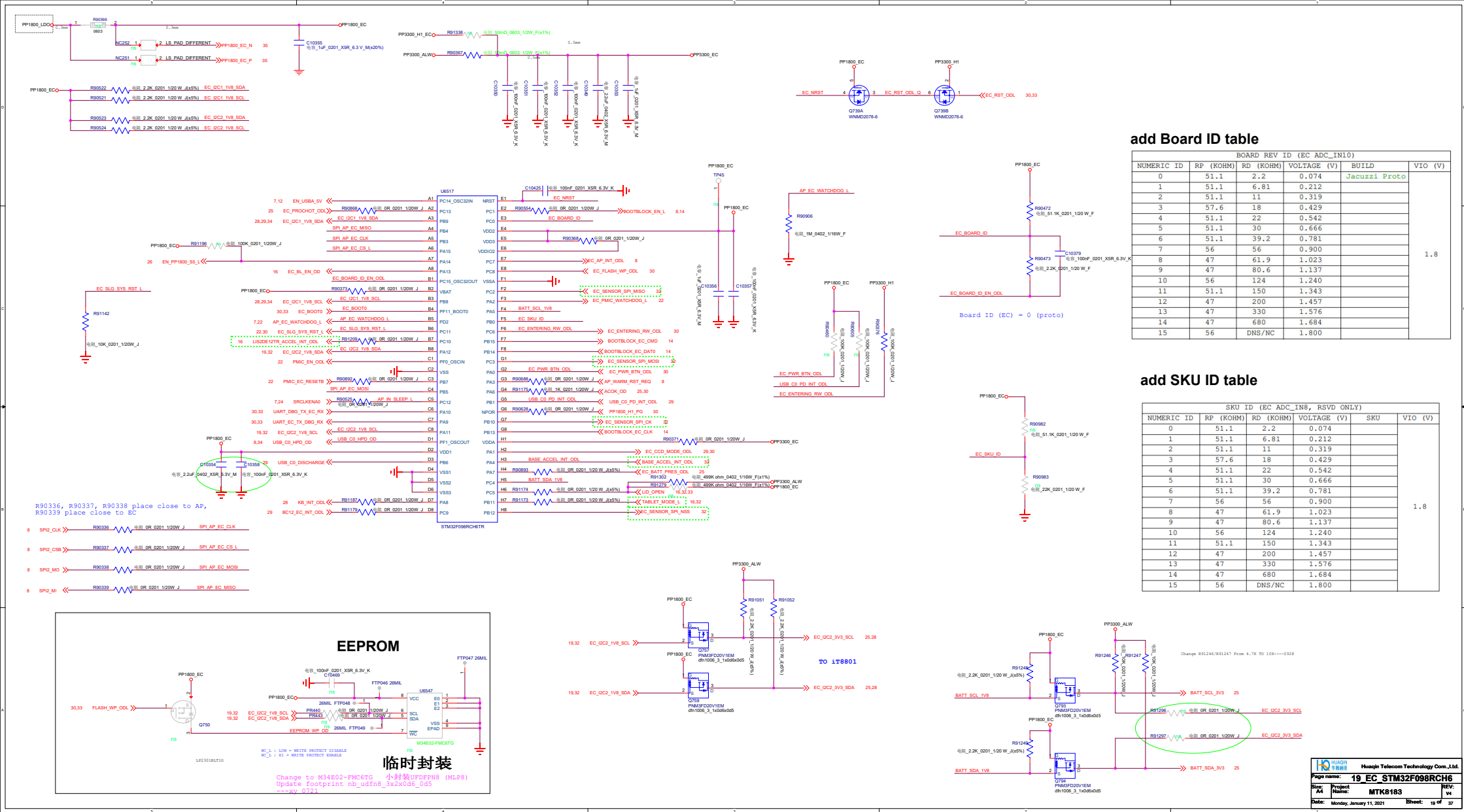


HUAQIN
华勤通信

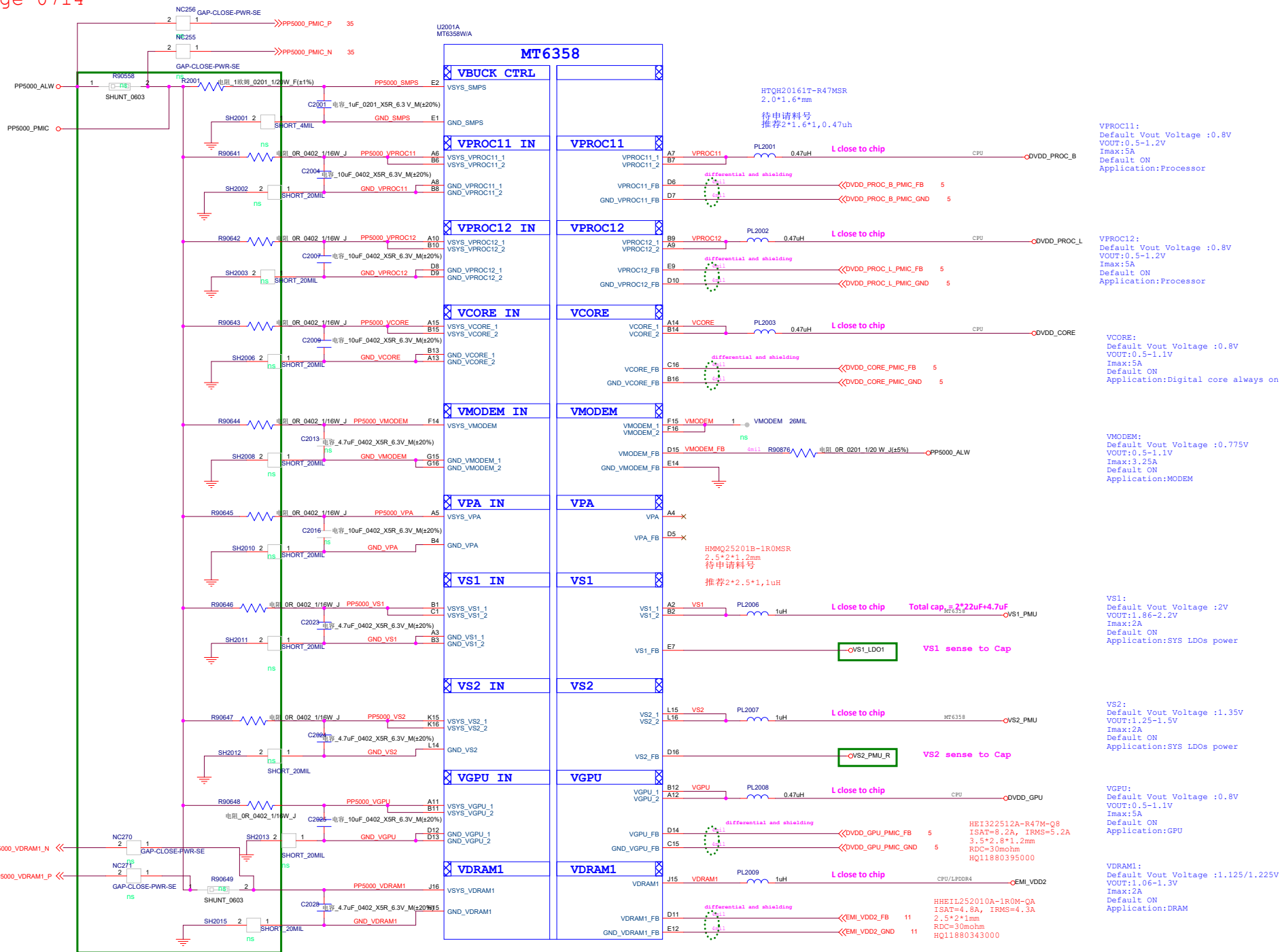
Huaqin Telecom Technology Com.,Ltd.

Page name: 18 MIPI Camera

Size: A4	Project Name: MTK8183	REV: V4
Date: Saturday, January 09, 2021	Sheet: 18 of 37	

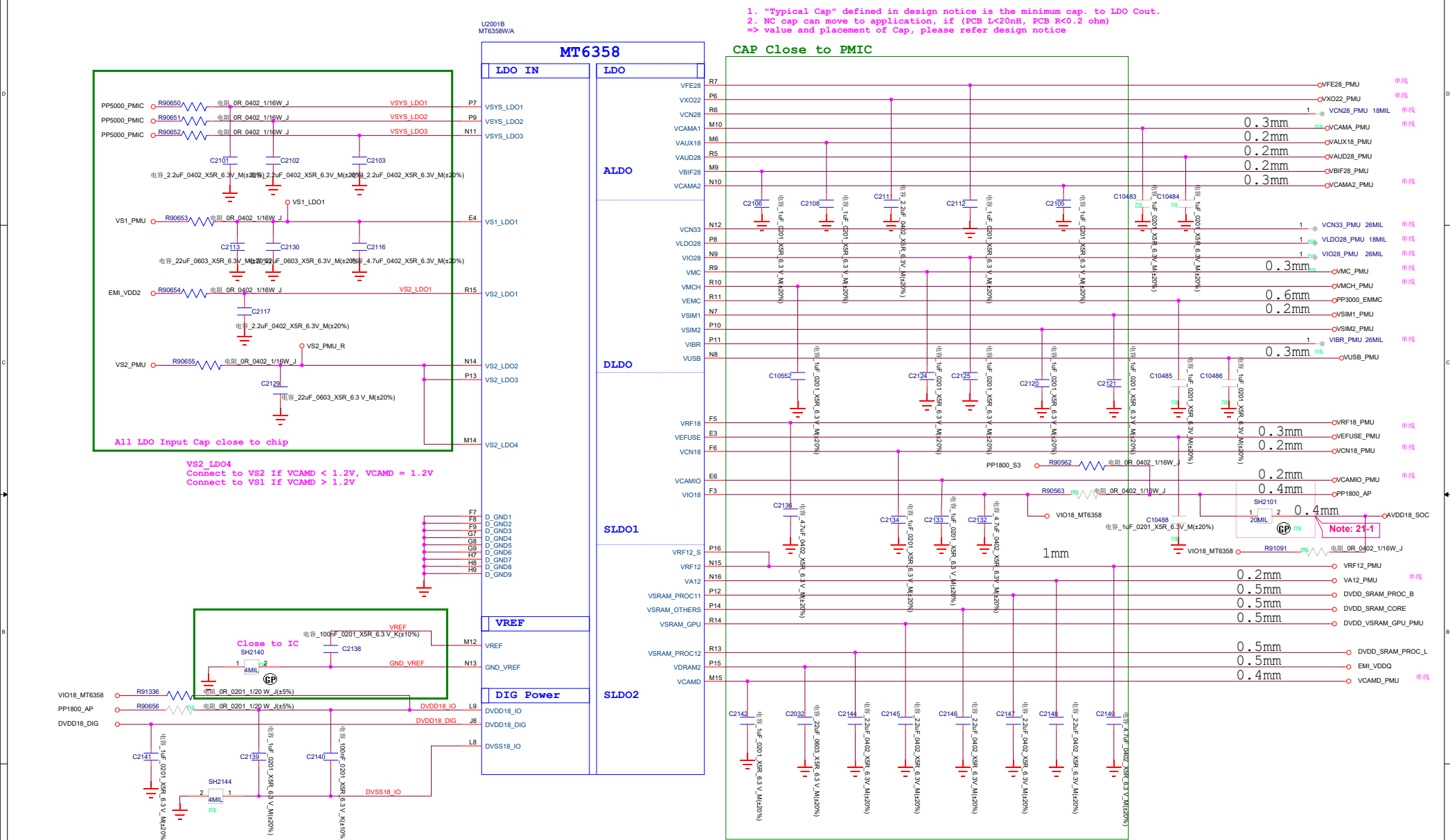


change 0714



All Buck Input Cap close to chip

change 0724

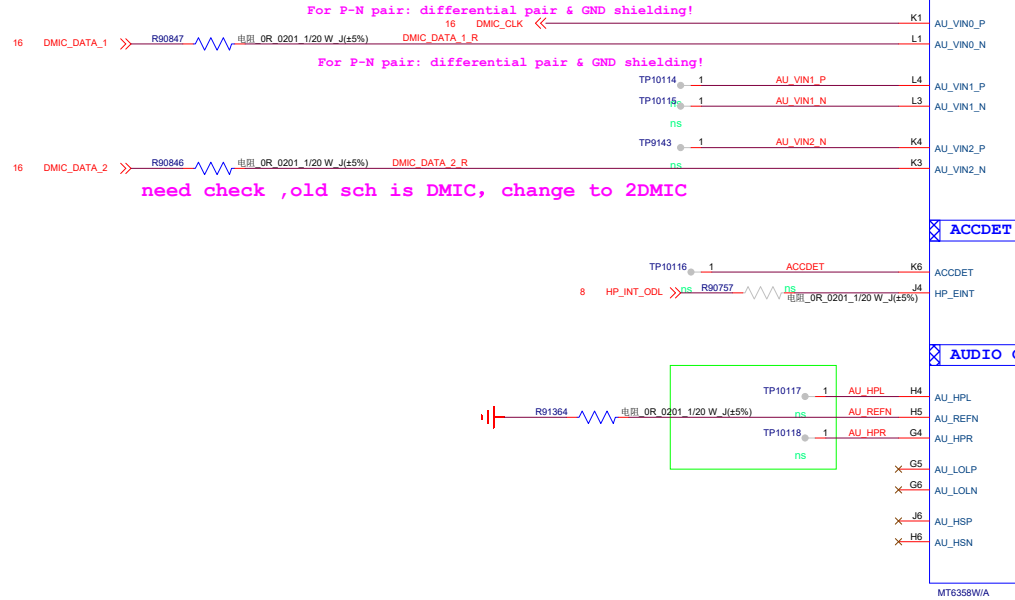
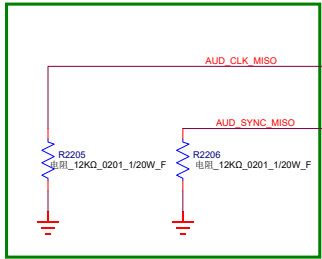


Schematic design notice of "POWER_MT6358-LDO" page.

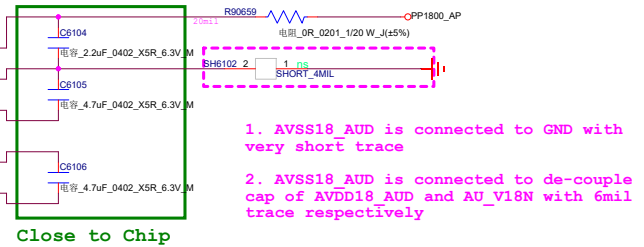
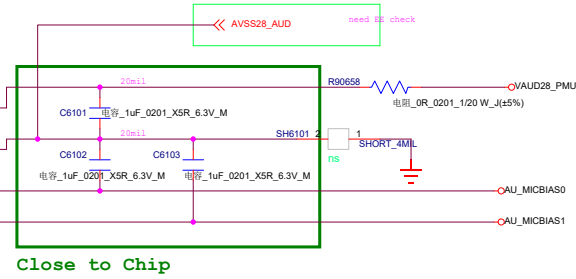
Note 21-1: Please set R1600 close to C1629, making star connection between VIO18_PMU and AVDD18_SOC near to LDO cap. C1629
Please also refer to MT6358 design notice for further detail design information

Note 21-2: If these power trace can meet LDO layout constraint, these CAP can be NC or removed.
Please refer to MT6358 design notice.

MT6358 HW trapping for DRAM



-AU_HPL and AU_HPR should be routed as single end signal and be guarded by GND, up and down, left and right respectively
-The suggested layout pattern of AU_HPL/ AU_HPR/ AU_REFN is " GND AU_HPL AU_REFN AU_HPR GND"

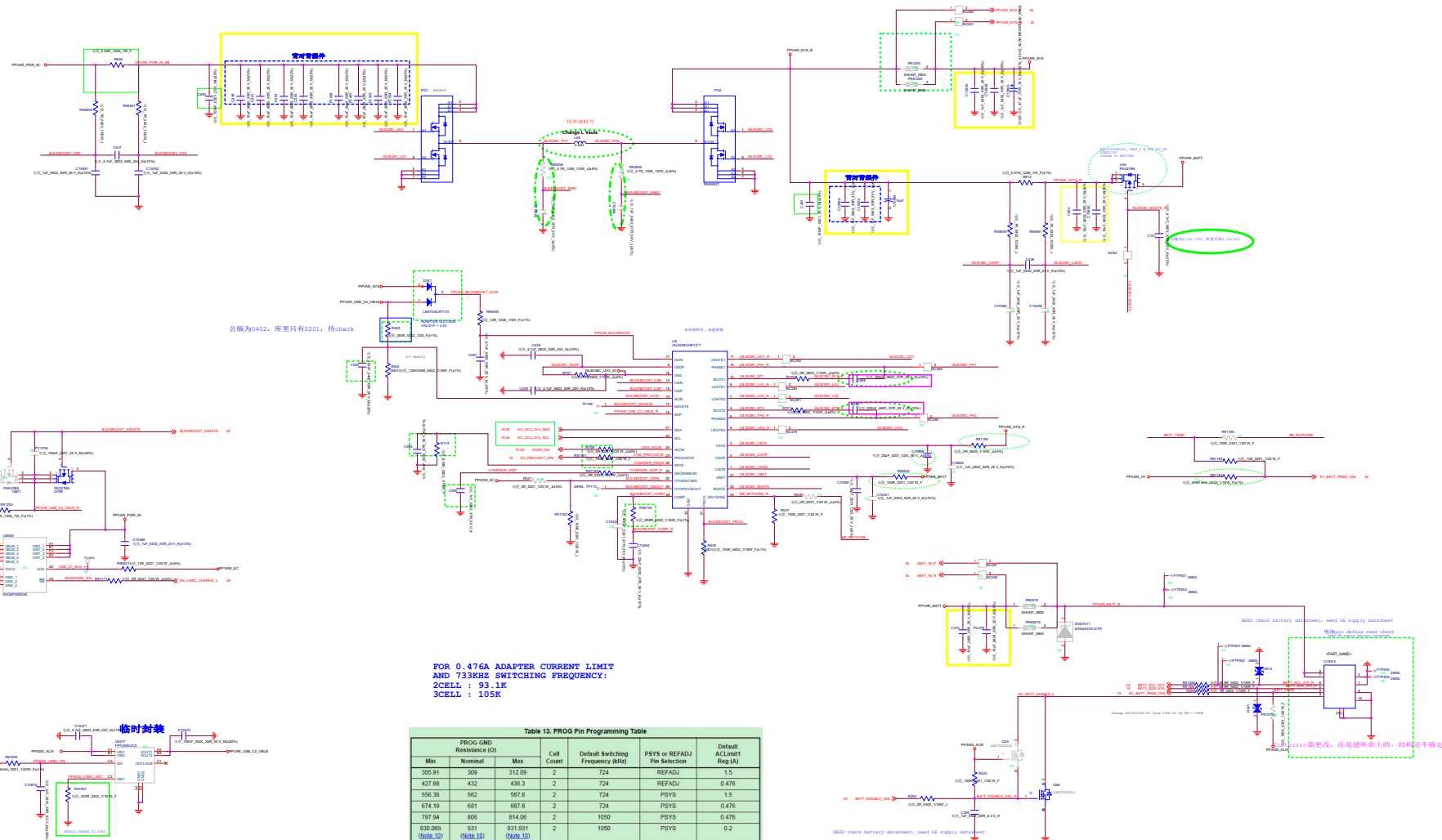


1. AVSS18_AUD is connected to GND with very short trace
2. AVSS18_AUD is connected to de-couple cap of AVDD18_AUD and AU_V18N with 6mil trace respectively

Schematic design notice of "POWER_MT6358-Audio"

Note 23-1: VDRAM 2 / VDRAM1 output voltage vs. trap pin.

HW GPIO configuration		Trapping Option		DRAM type	VDRAM2 Power source (VS2_LDO1_ball)
AUD_SYNC_MISO	AUD_CLK_MISO	VDRAM1	VDRAM2		
0	0	1.125V	0.6V	LP4X	VDRAM1
0	1	OFF	1.8V	LP4X (Ext x 2 EN)	VS1
1	0	1.225V	OFF	LP3	VDRAM1
1	1	1.125V	1.8V	LP4X (Ext x 1 EN)	VS1



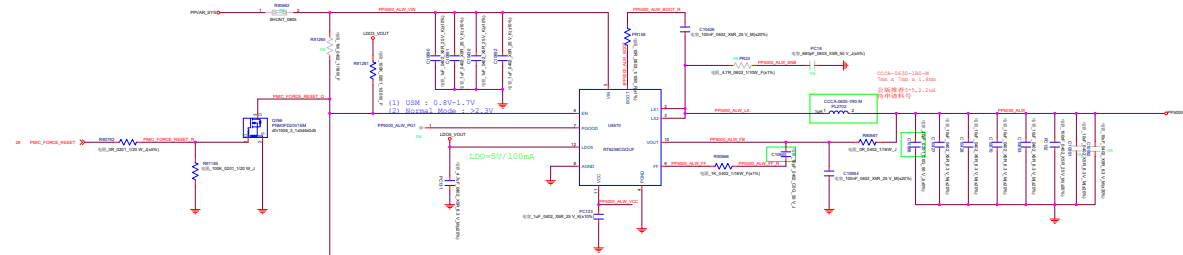
FOR 0.476A ADAPTER CURRENT LIMIT
AND 733KHZ SWITCHING FREQUENCY:
2CELL : 93.1K
3CELL : 105K

PROG-DN Resistance (Ω)		Cell Count	Default Switching Frequency (Hz)	PSYS or REFADJ Pin Selection	Default AC Limit (mA)
Min	Max				
305.91	309	312.09	2	724	REFADJ
427.68	432	436.3	2	724	REFADJ
556.38	562	567.6	2	724	PSYS
674.19	681	687.8	2	724	PSYS
797.94	805	814.06	2	1050	PSYS
946.260 (Note 10)	931	933.031 (Note 10)	2	1050	PSYS
1089.0	1100	1111	2	724	PSYS
1356.3	1370	1383.7	2	724	REFADJ
1603.8	1620	1636.2	2	724	REFADJ
1851.3	1876	1886.7	3	724	PSYS
2167.8	2210	2232.3	3	724	PSYS
2712.6	2740	2767.4	3	724	PSYS
3207.6	3240	3272.4	3	1050	PSYS
3702.6	3740	3777.4	3	1050	PSYS
4375.8	4420	4464.2	3	724	REFADJ
5435.1	5440	5549.9	3	724	REFADJ
6425.1	6440	6549.9	3	724	REFADJ
7425.0	7500	7575.0	4	724	REFADJ
8365.5	8450	8534.5	4	1050	PSYS
9216.9	9310	9403.1	4	1050	PSYS
1089	11000	11110	4	724	PSYS
12573	12700	12827	4	724	PSYS

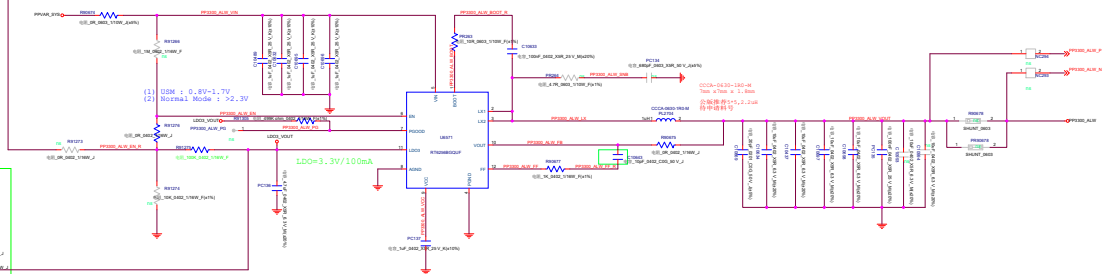
Note 10: Tolerance is tighter for this selection. 0.1% required. Other selections are typically 1% tolerance.

Note:
10. Tolerance is tighter for this selection, 0.1% required. Other selections are typically 1% tolerance.

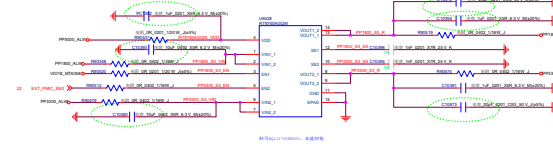
Standby Power 5V 4A(Always on)



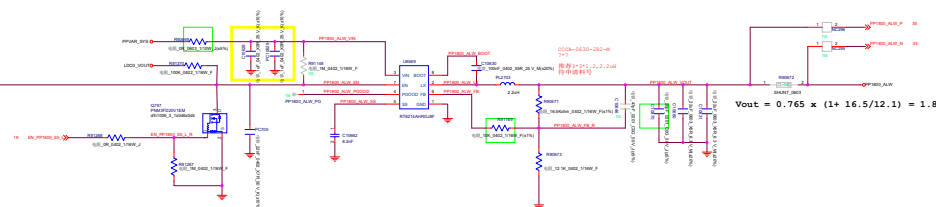
Standby Power 3.3V 3A (Always on)



POWER_1V8/POWER_3V3 (S0/S3 on)

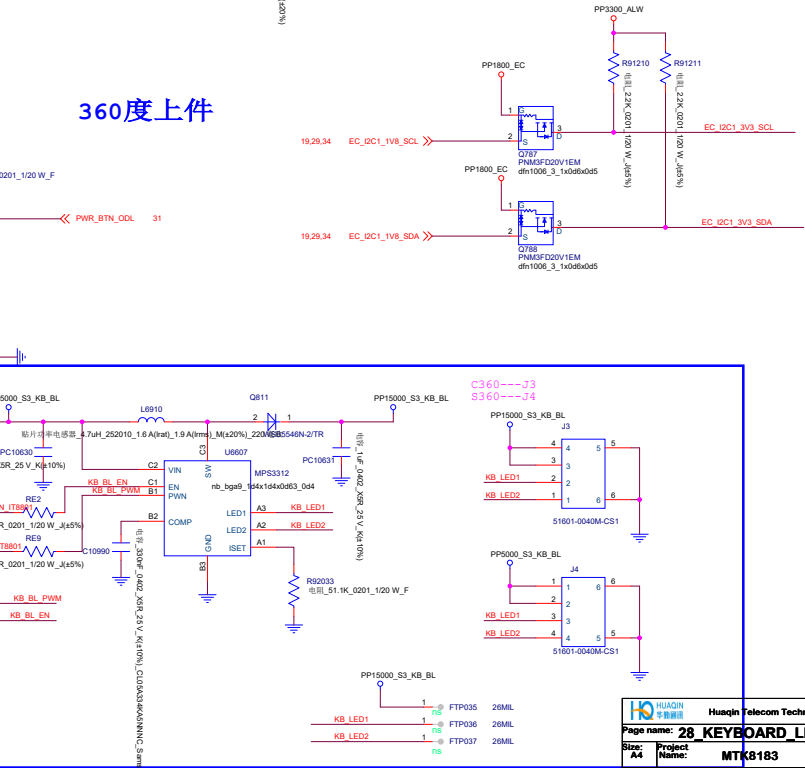
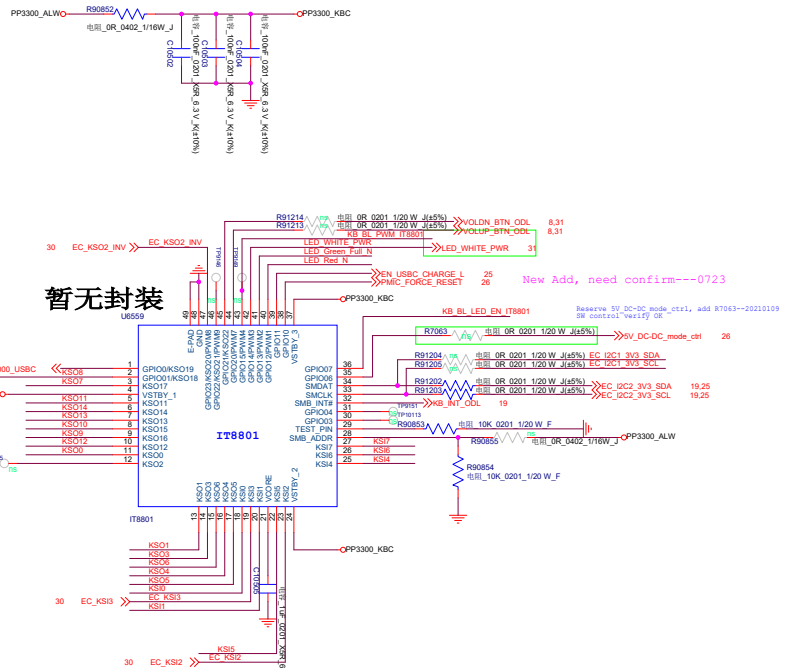
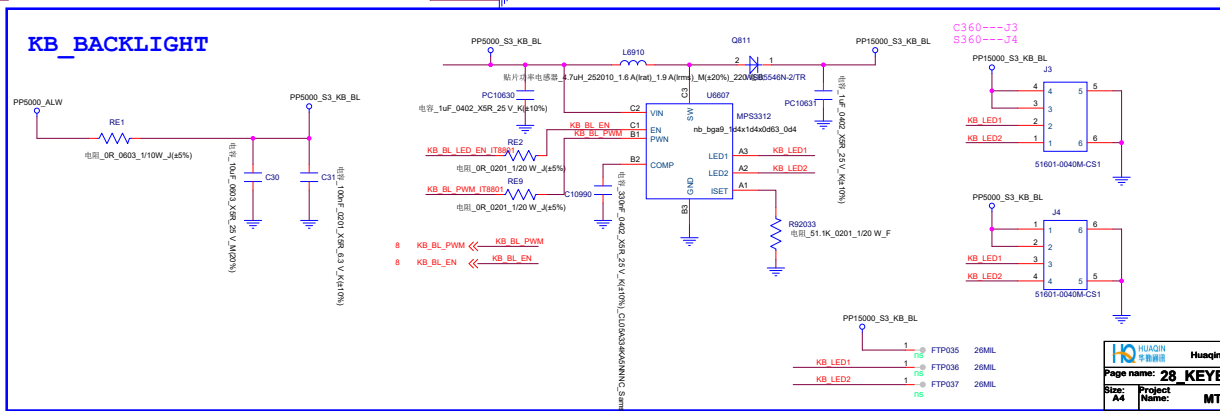
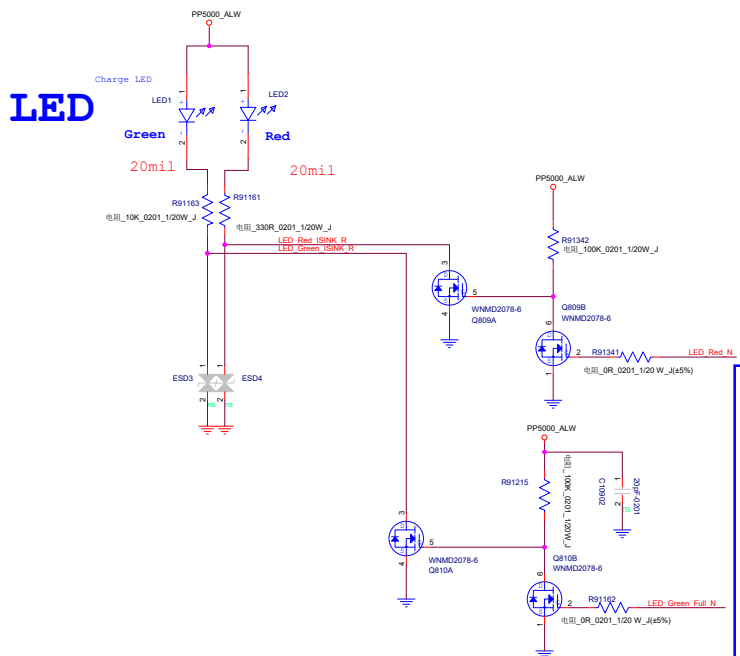
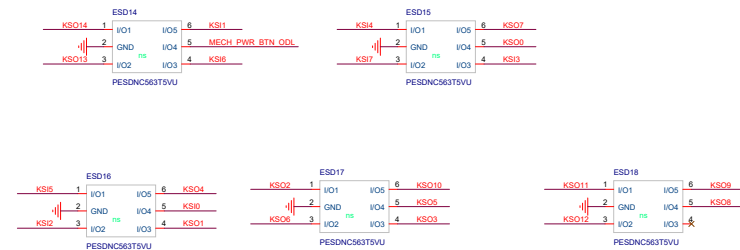
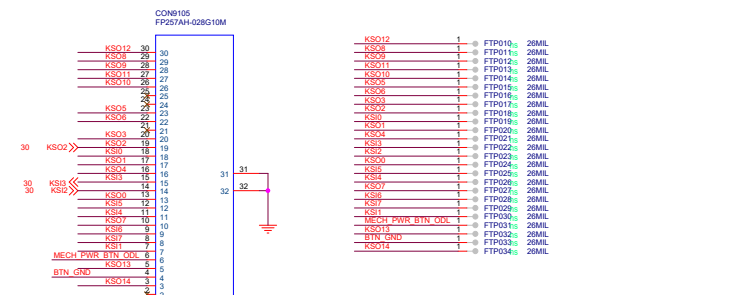


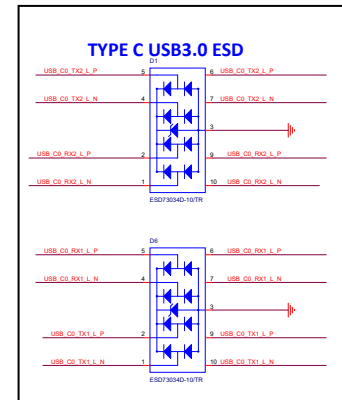
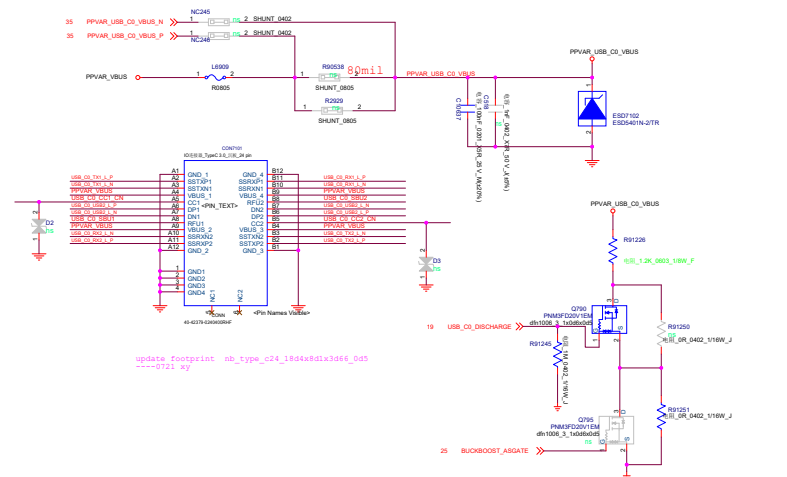
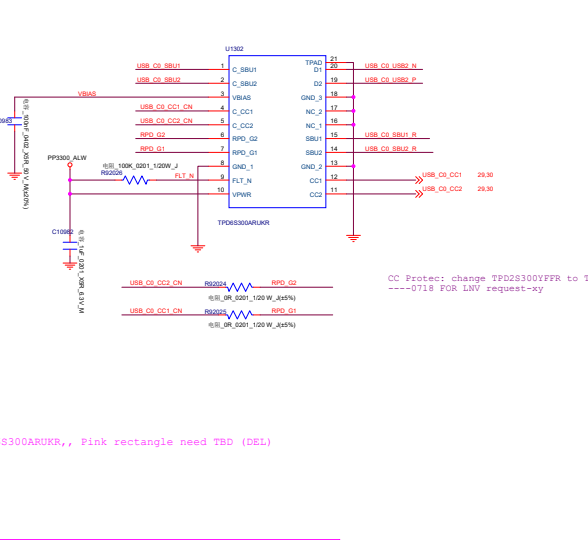
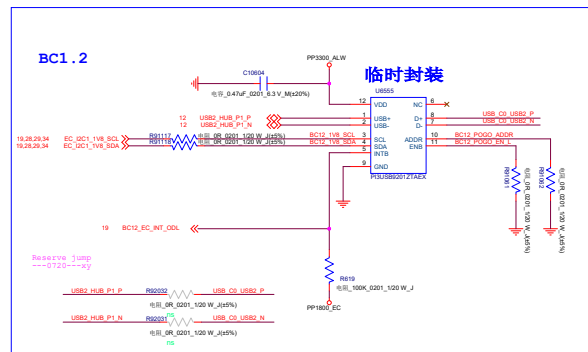
Standby Power 1.8V 2A(Always on)

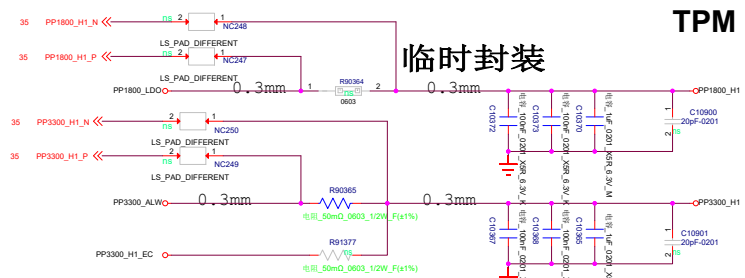


$$V_{out} = 0.765 \times (1 + 16.5/12.1) = 1.8V$$

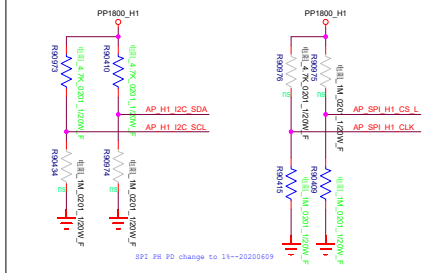
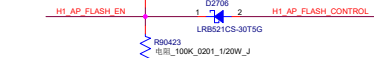
KEY BOARD



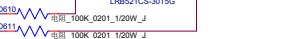
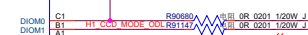
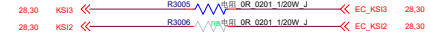




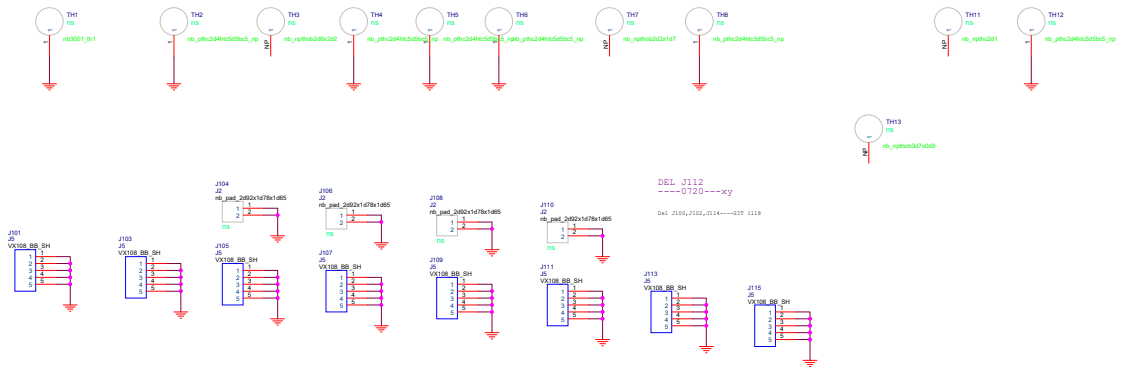
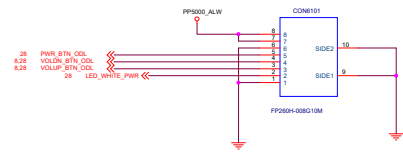
82, R91081, R91080 place close to AP,
79 place close to H1



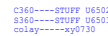
```
Default (refresh on F3 - KSI - KSI2 - KSO2 ) : Stuff R3001, R3003 & R3005
DNS : R3002, R3004 & R3006
New KB (refresh on F2 - KSI - KSI3 - KSO2 ) : Stuff R3002, R3004 & R3006
DNS : R3001, R3003 & R3005
```



TO SUB BOARD VOLUME BUTTON CONN

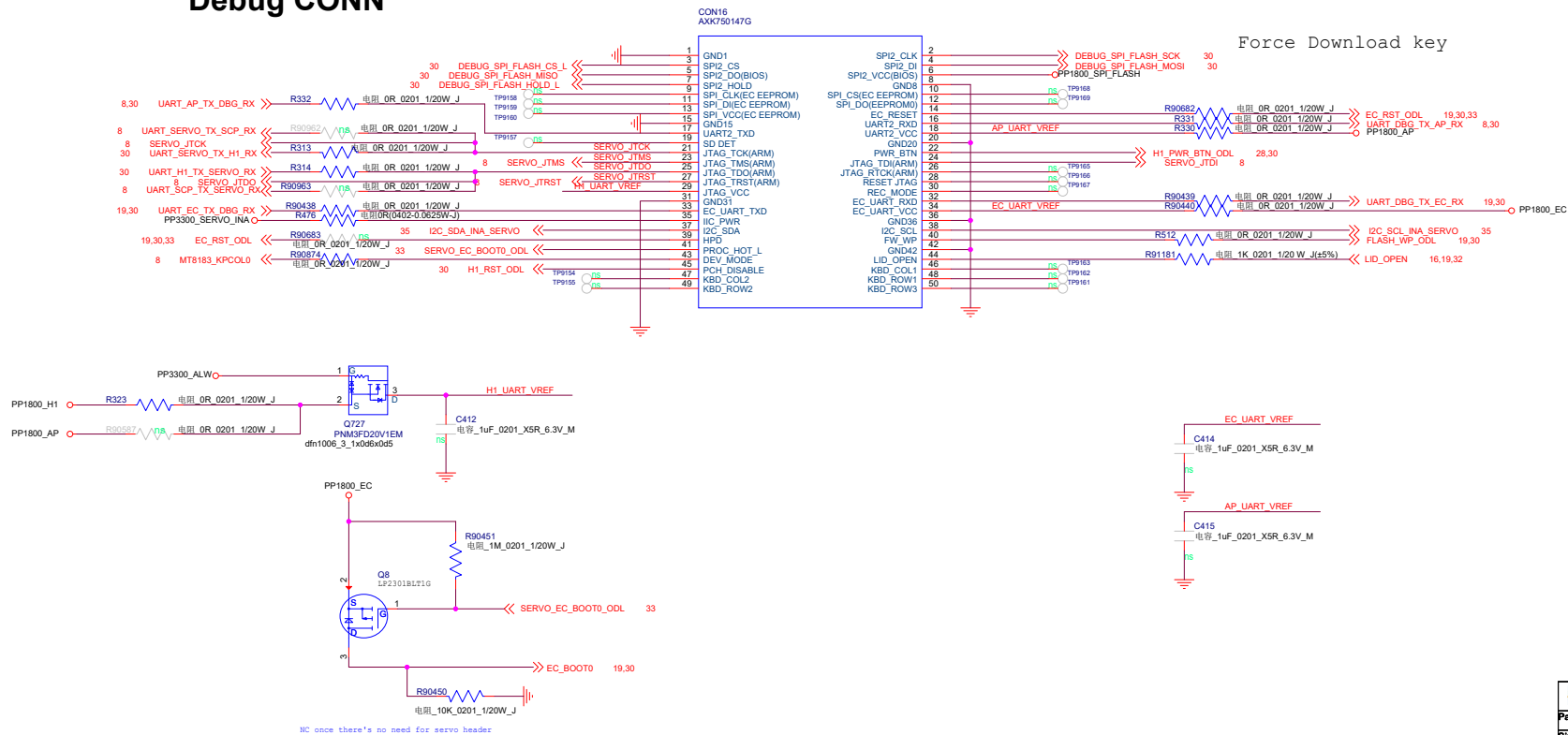


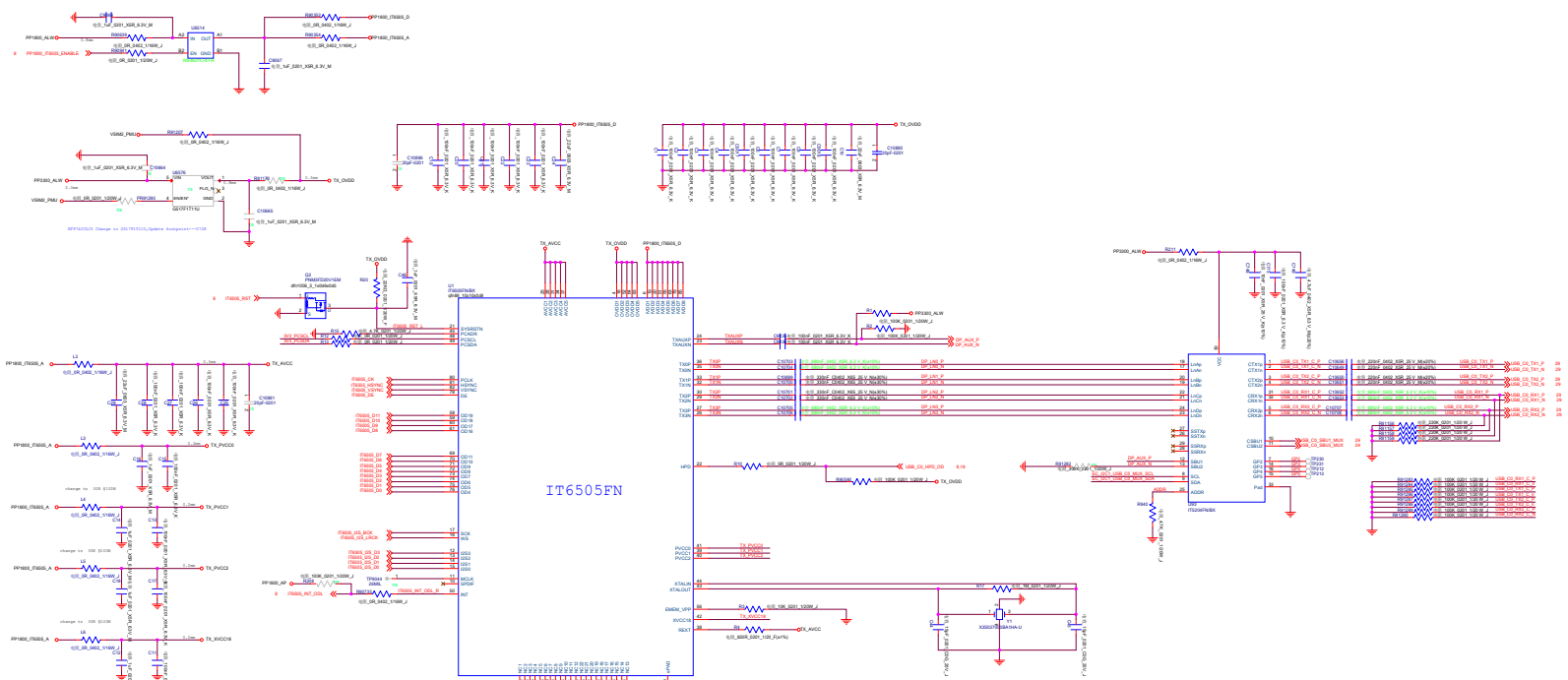
Accerometer + Gyro Sensor

[illegible]

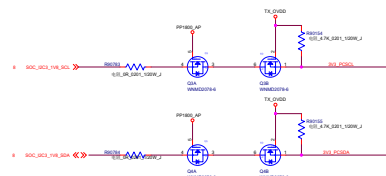
ALPS GMR

Debug CONN





Please add at least
10 GND via s for
B2A20 4000



BYPASS



I2C address:
0x40, A0 connects to GND
0x41, A0 connects to VS
0x42, A0 connects to SDA
0x43, A0 connects to SCL

I2C address:
0x44, A1 connects to VS
0x45, A1 connects to VS
0x46, A1 connects to VS
0x47, A1 connects to SDA

I2C address:
0x44, A1 connects to VS
0x45, A1 connects to VS
0x46, A1 connects to VS
0x47, A1 connects to SDA

I2C address:
0x44, A1 connects to VS
0x45, A1 connects to VS
0x46, A1 connects to VS
0x47, A1 connects to SDA

I2C address:
0x44, A1 connects to VS
0x45, A1 connects to VS
0x46, A1 connects to VS
0x47, A1 connects to SDA

临时封装

临时封装

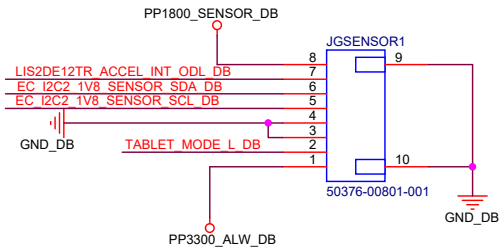
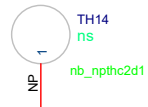
临时封装

临时封装

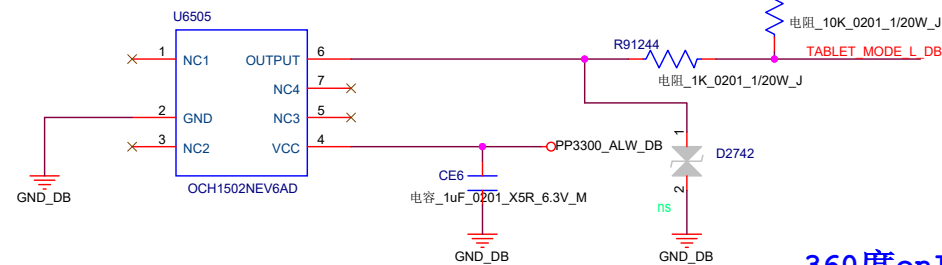
临时封装

临时封装

临时封装



HALL Sensor



360度only

