

MODEL NAME : SF4H8
Board Number :
FILE NAME : Main Board

Revision	Description Of Changes	Date (M-D-Y)	Phase
A10	BOM cost estimate	08-04-2010	PR1
A11	Schematic Update	11-19-2010	PR1
A12	BOM LOCK DOWN	11-25-2010	PR1
A20	BOM LOCK DOWN	12-03-2010	PR1.5
B10	Schematic Update	02-11-2011	PR2
B11	BOM LOCK DOWN	03-17-2011	PR2
B20	Schematic Update	03-17-2011	PR2.5

01 Index & History

02 System Block

03 Power Block

04 CPU MSM8255-1_Memory & SDIO

05 CPU MSM8255-1_RF & WCA & Ctr

06 CPU MSM8255-1_PERIPHERAL

07 CPU MSM8255-1_POWER1

08 CPU MSM8255-1_POWER2

09 CPU MSM8255-1_GND

10 eMMC

11 Sensor & USIM

12 USB & JTAG & CLK & BID

13 B2B

A01 Audio_Internal_Portion

A02 Audio_External_Portion

A03 Audio_CODEC

C01_Flash Driver

L01_Display_4.08"_LCM

P01_SMPS/LDO

P02_Charger

P03_Control/MPP/GPIO

W01_PRIMARY_ASM(SKY)

W03_TX_CHAIN_BC1(Skyworks)

W04_TX_CHAIN_BC11(Mitsubishi)

W06_GSM_TX_QUAD_BAND_PA

W07_RX_MATCHING / GPS

W08_QTR8601

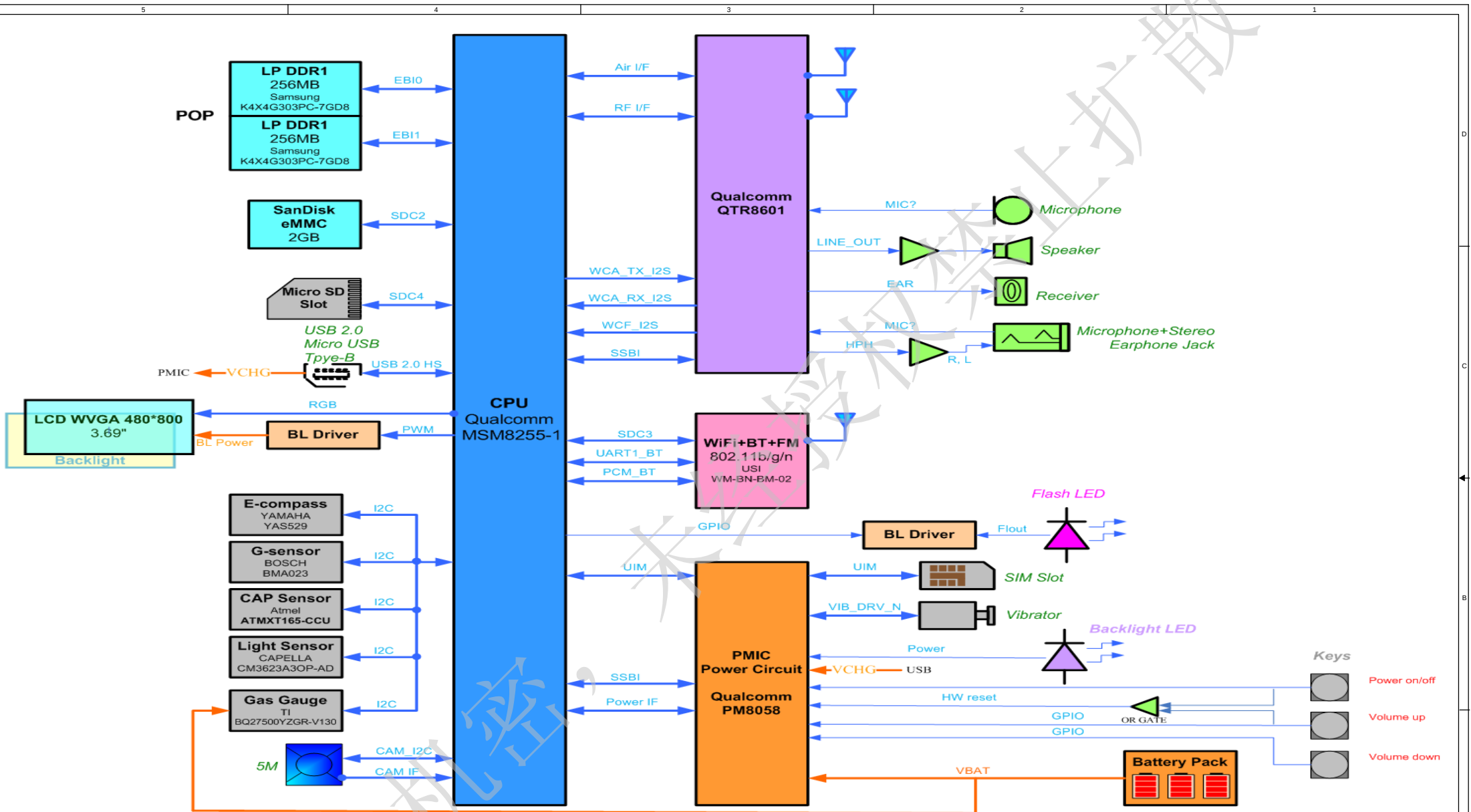
W09_QTR8601_PWR

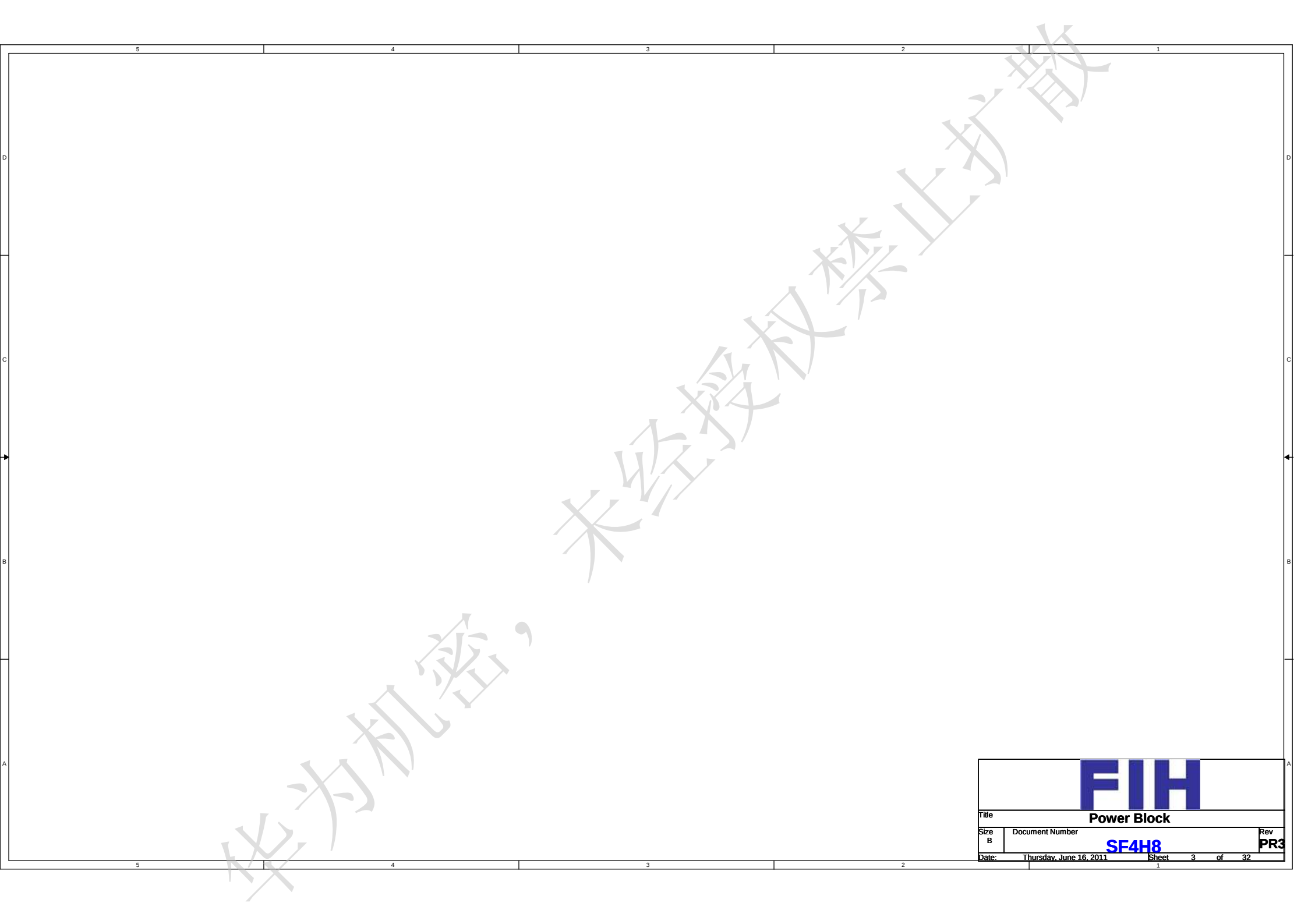
W10_QTR8601_WCA

W11_WLAN/BT/FM_USI(WM-BN-BM-02)

W12_Antenna Page

Z01_Changed list



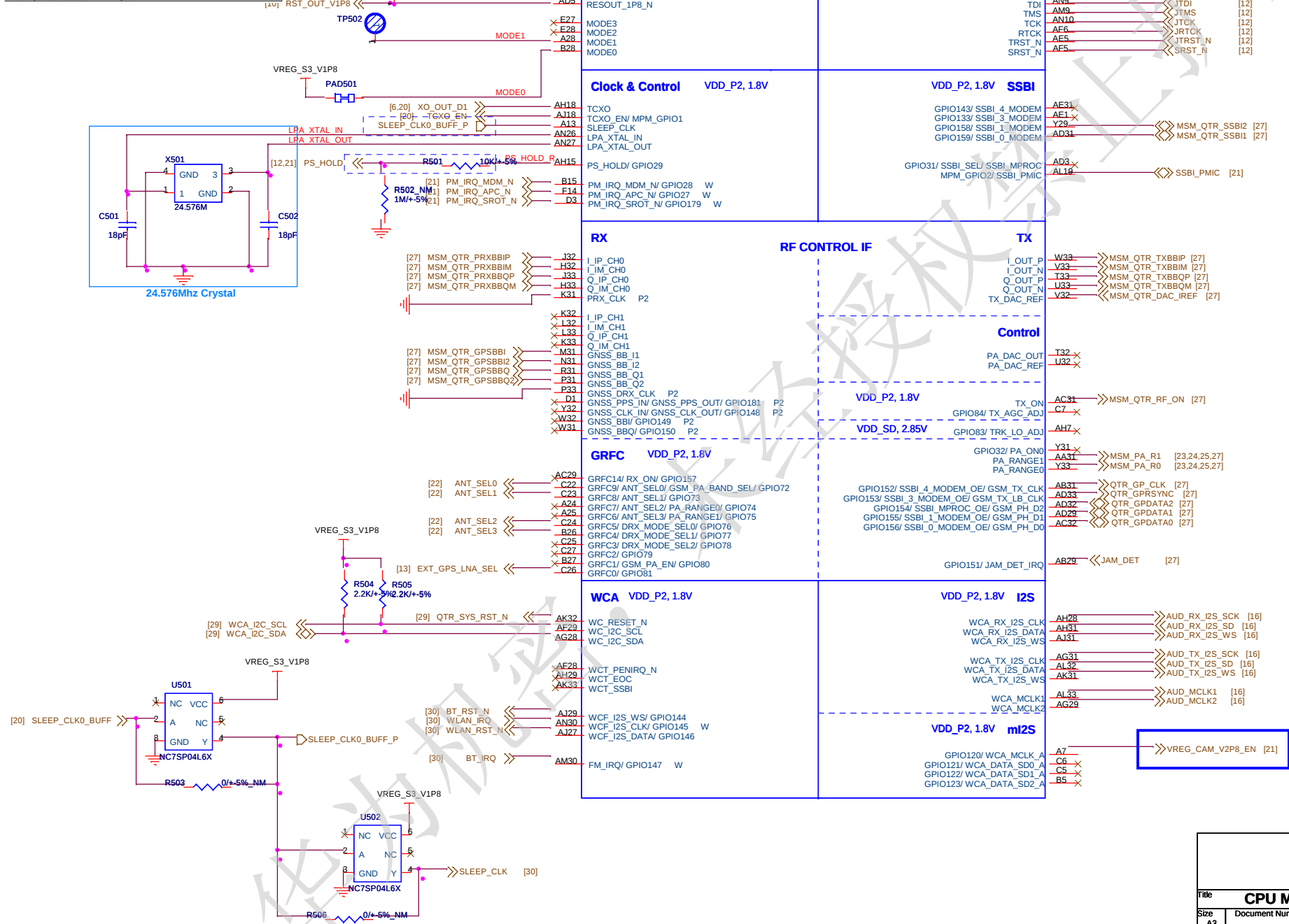


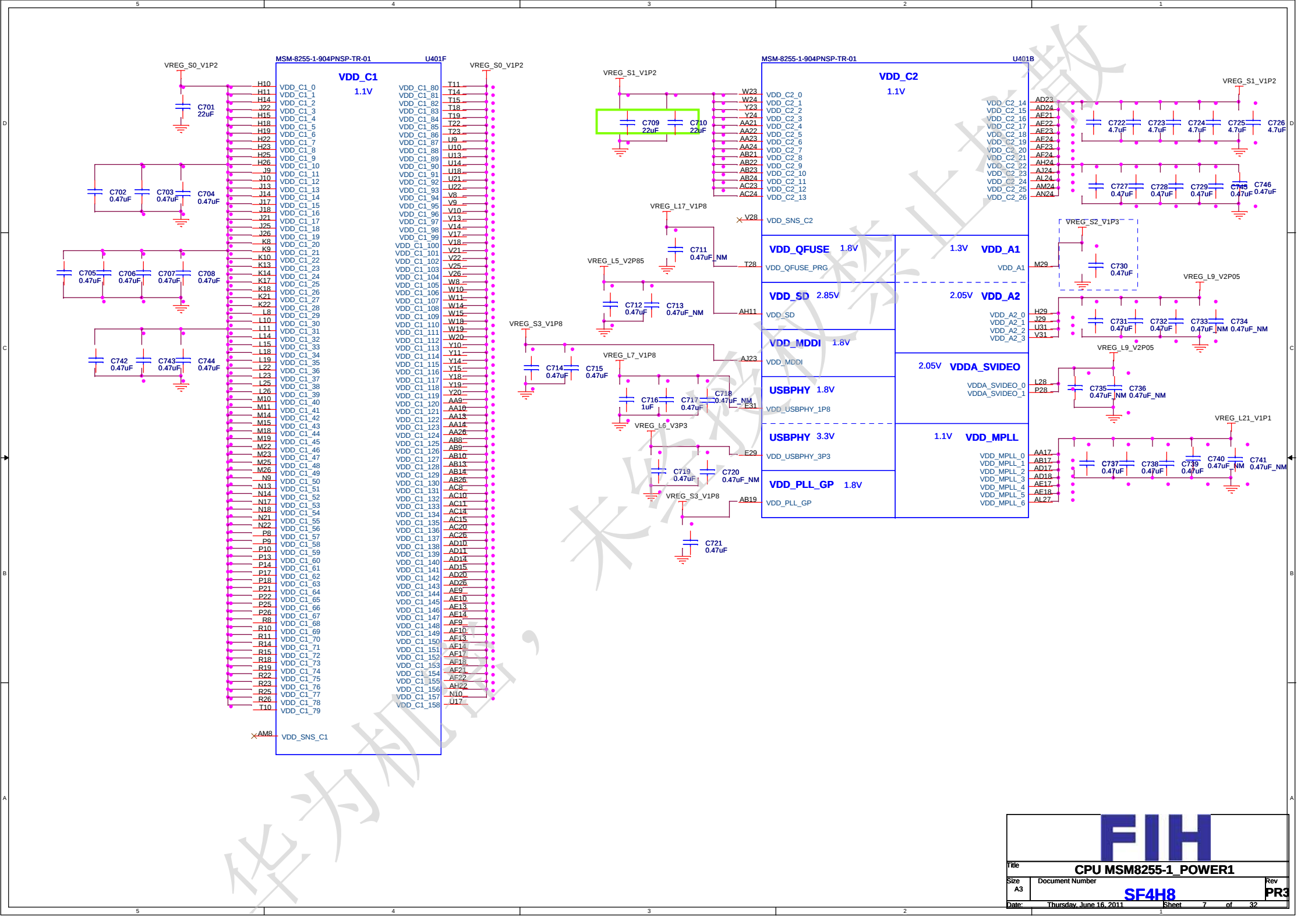
华为机密，

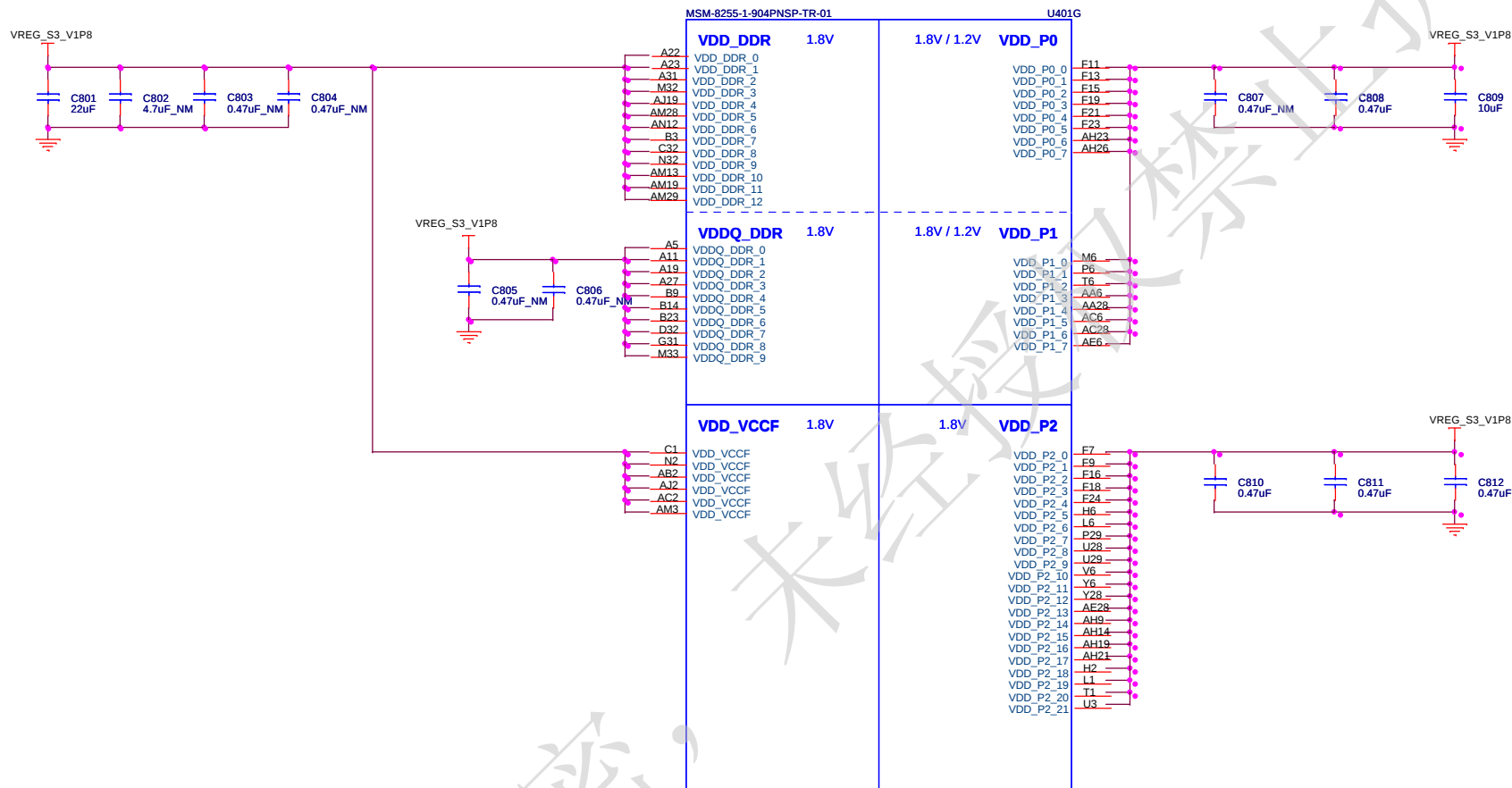
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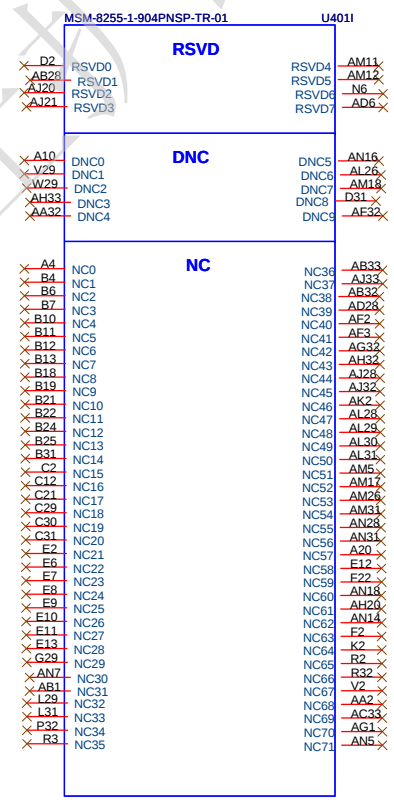
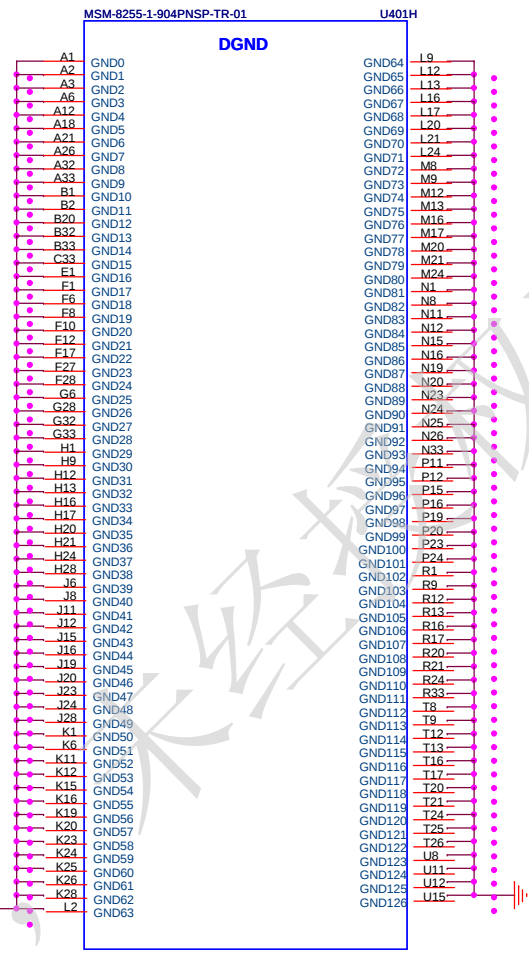
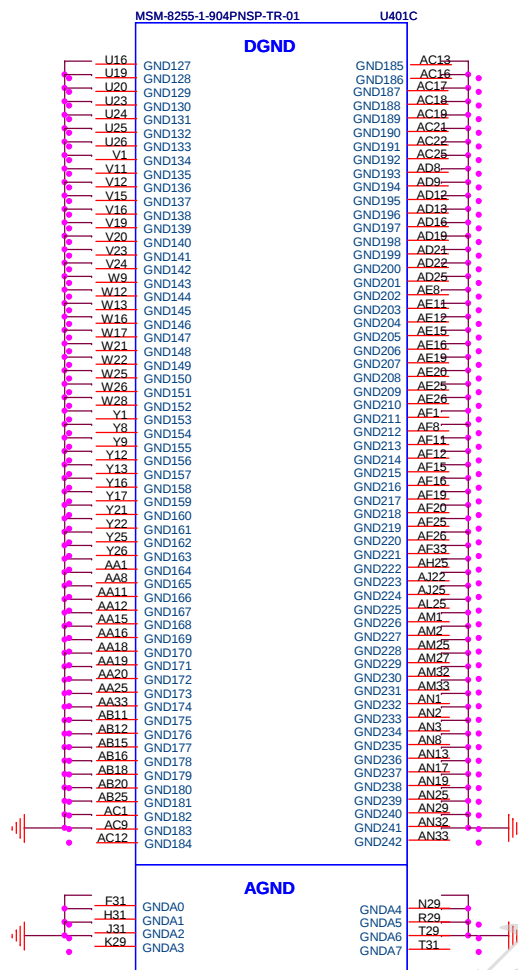
FIH	
Title Power Block	
Size B	Document Number
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Modes	Function	Description
0000	MPOC only	ARM111 on Pri-JTAG
0001	SW Modes	JTAG SW controlled modes
0011	SC only	SC on primary JTAG
0100	Native MSM JTAG	MSM tap controller on Pri-JTAG
0110	Analog ARM11 PJTAG	Analog test mode with ARM11 on Pri-JTAG
1100	MSM JTAG	MSM tap controller on Pri-JTAG.ATPG mode
1101	JTAG fuse pgm	N/A

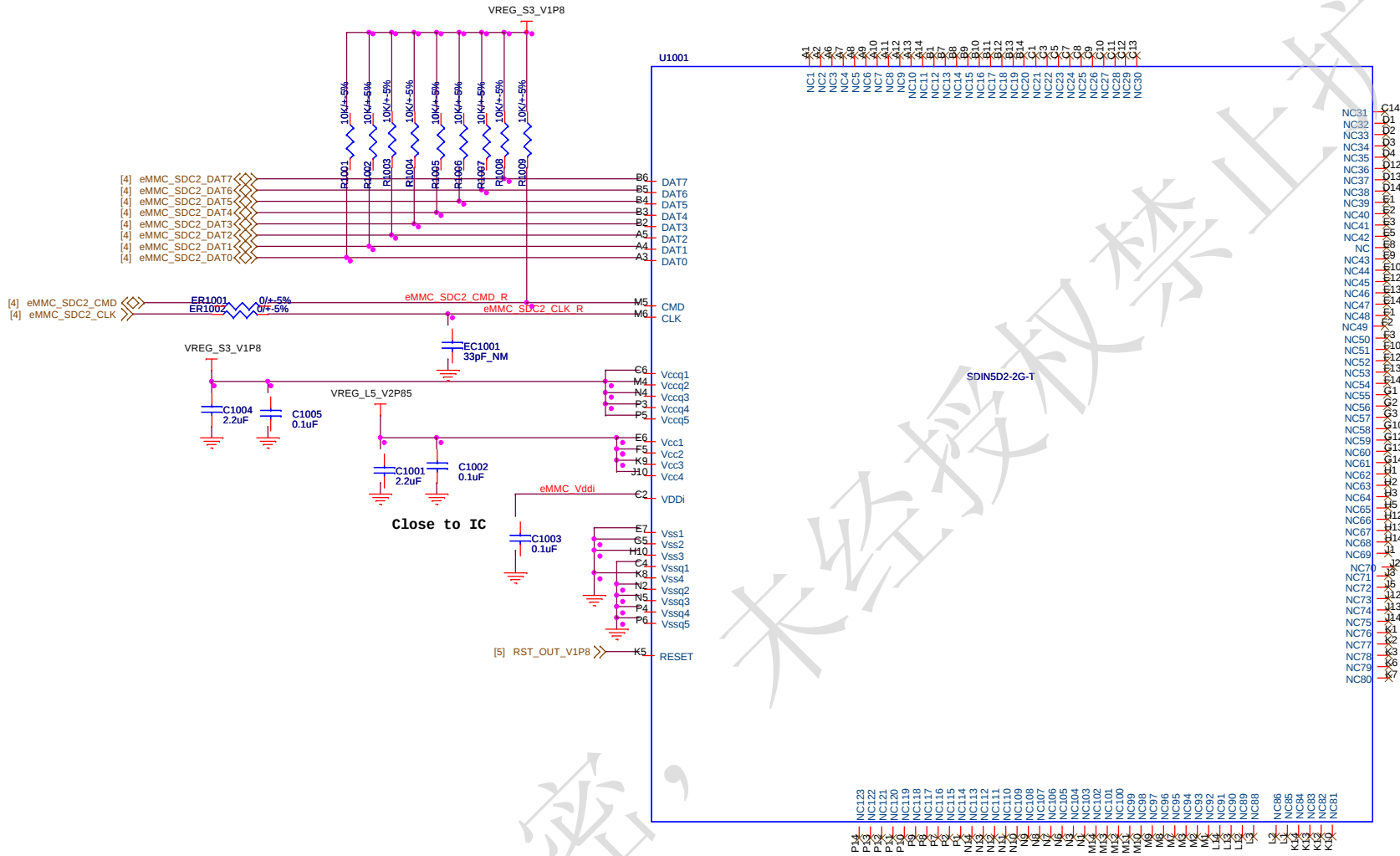




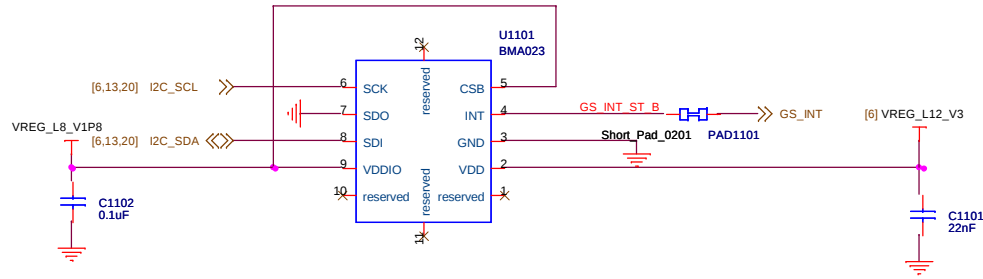




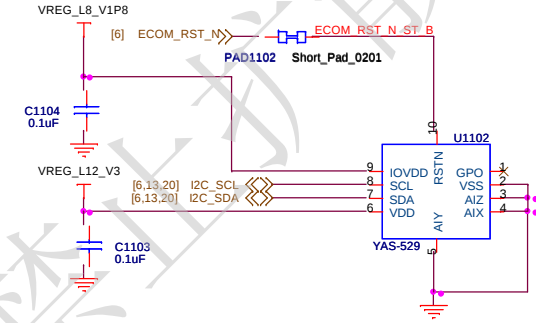
Sandisk eMMC 2GB



G-Sensor



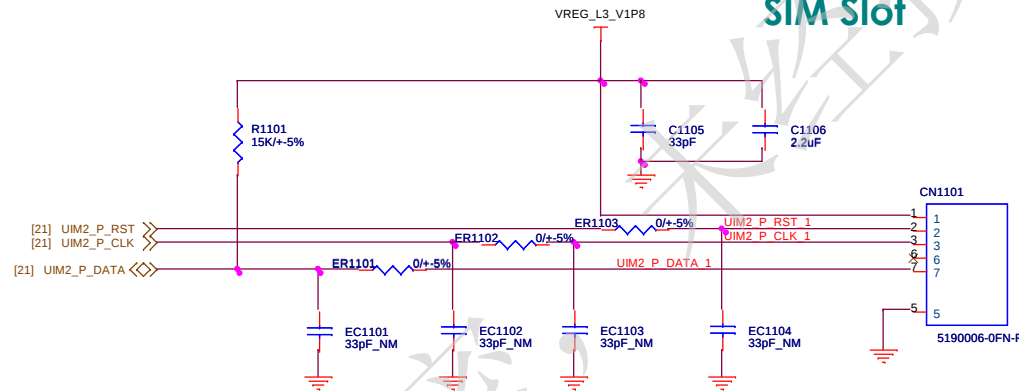
E-Compass (YAMAHA)



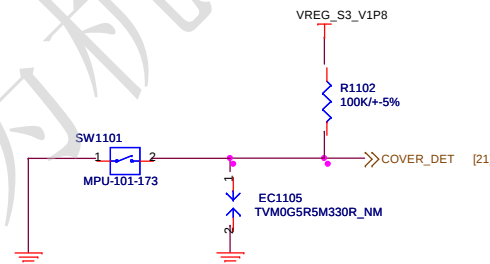
I2C Address: 0101110b (2Eh)
If RSTN no use, connect it to IOVDD

I2C Address: 0111000b (38h)

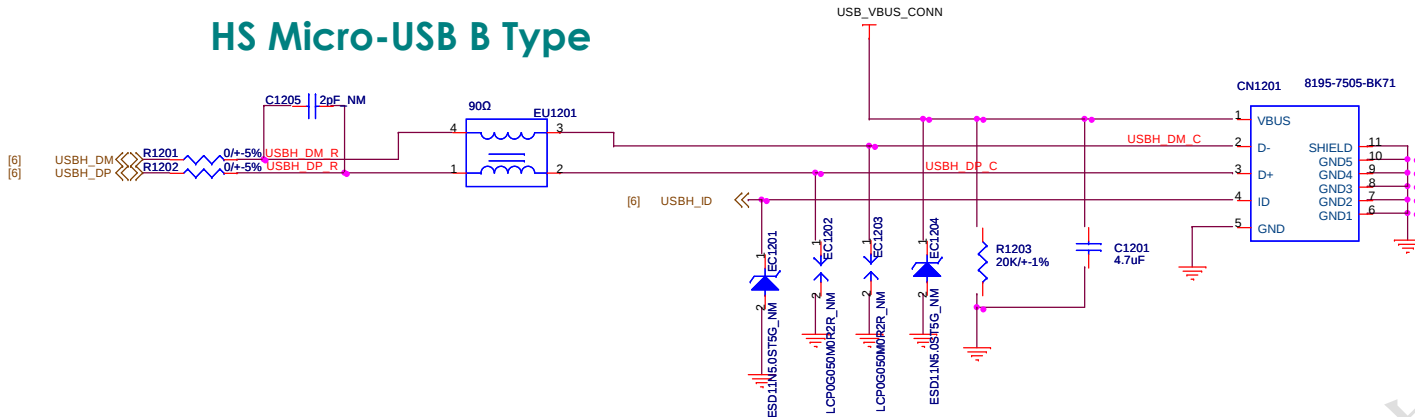
SIM Slot



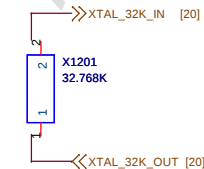
Cover Detect Switch



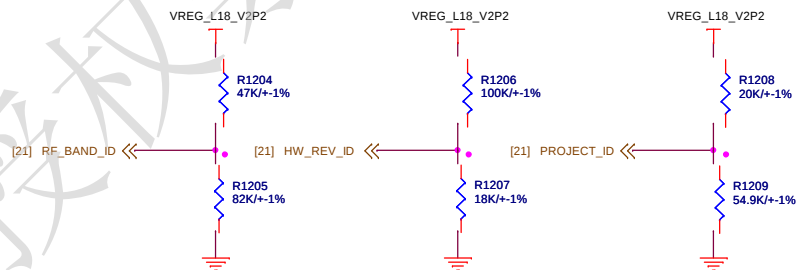
HS Micro-USB B Type



32.768K Sleep CLK

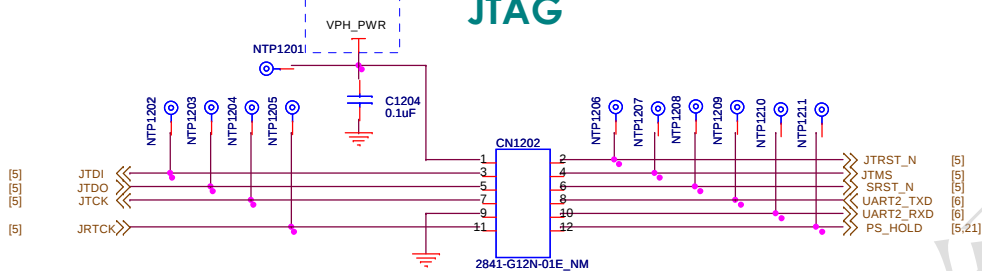


Board ID

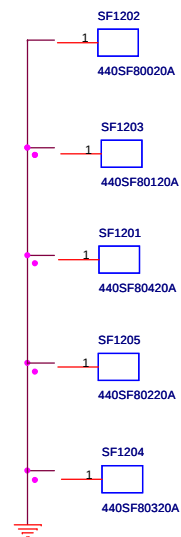


根據JTAG Board Update.

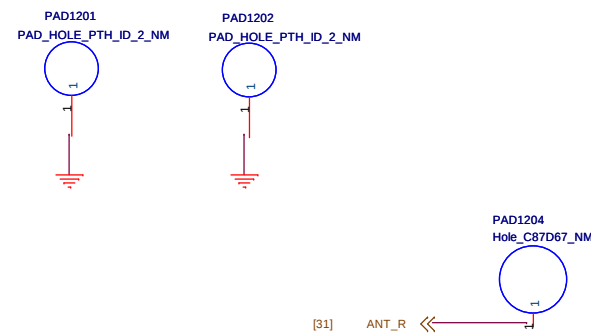
JTAG



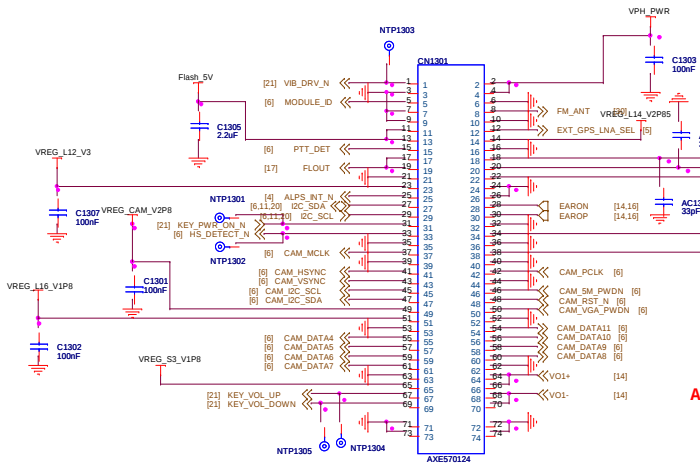
Shielding Frame



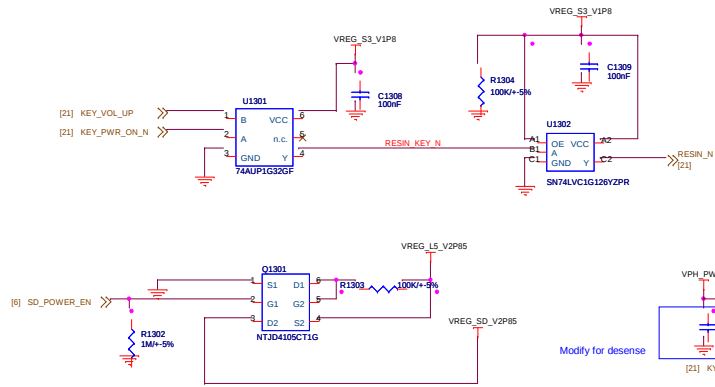
PTH



LINK FPC

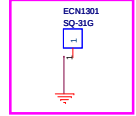


HW RESET

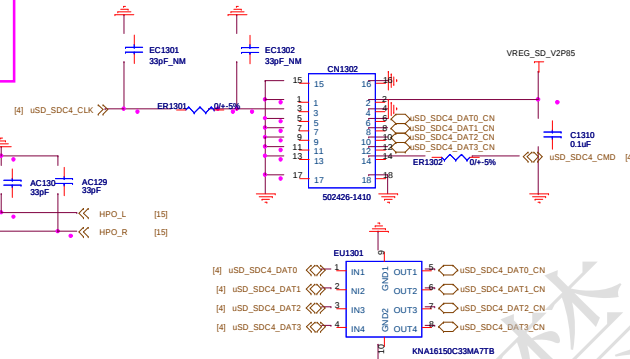


EMC 20101103 update

EMC 20110221 update

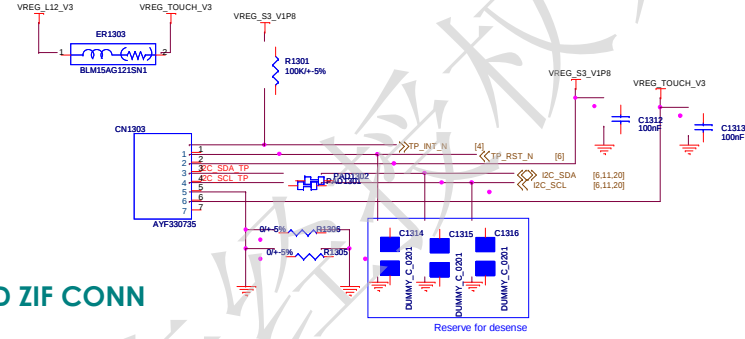


SD_Board B2B

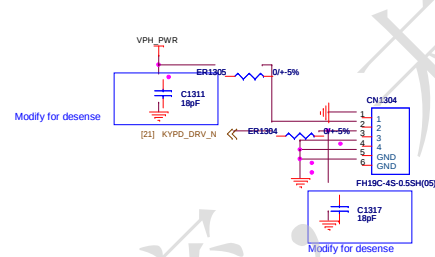


ATMEL Touch controller : mXT165

Touch Panel ZIF CONN

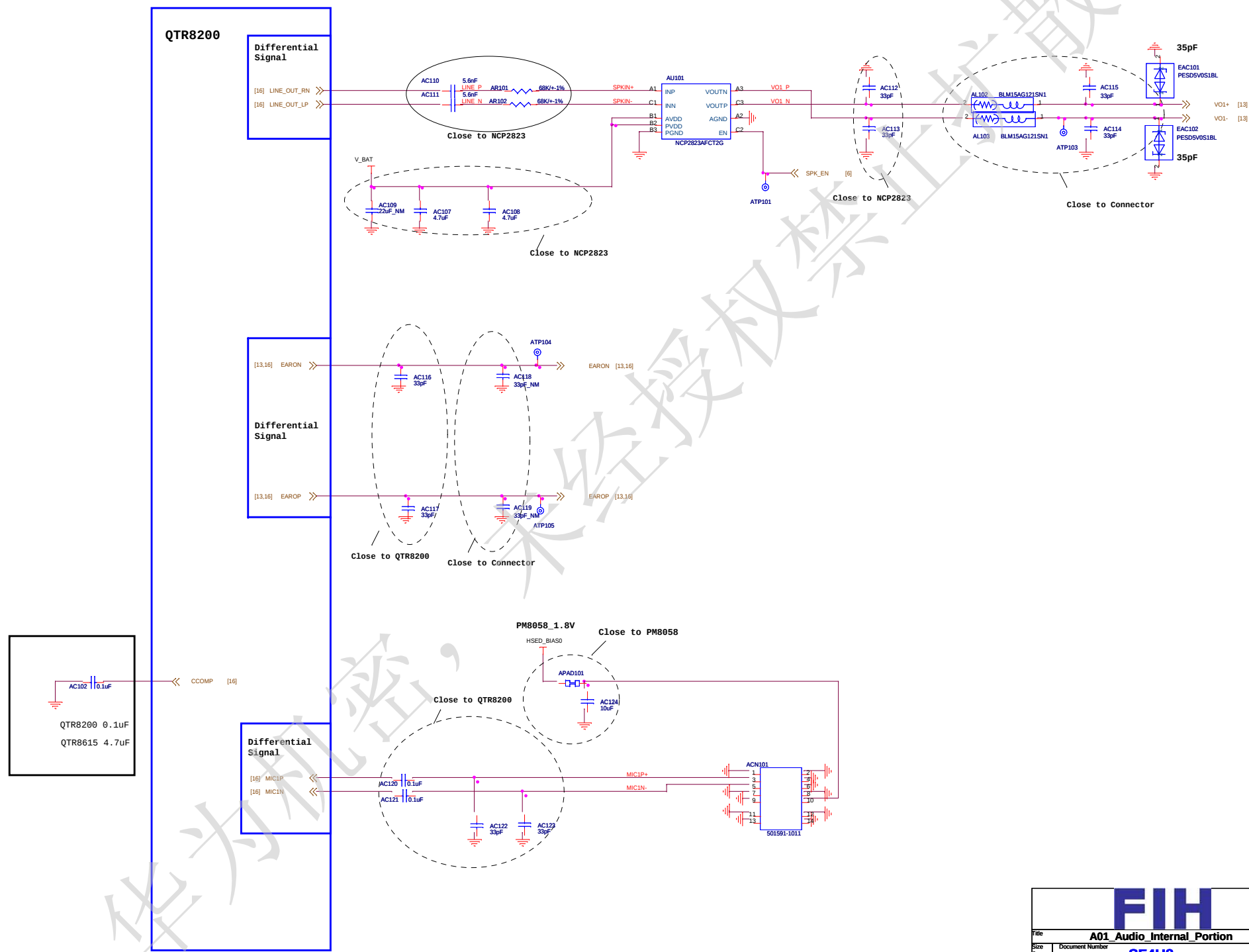


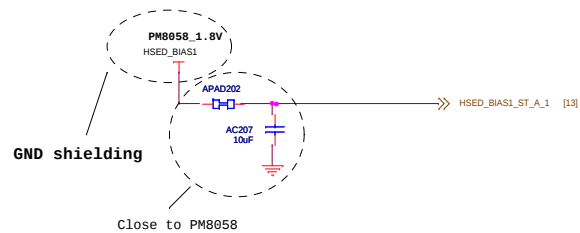
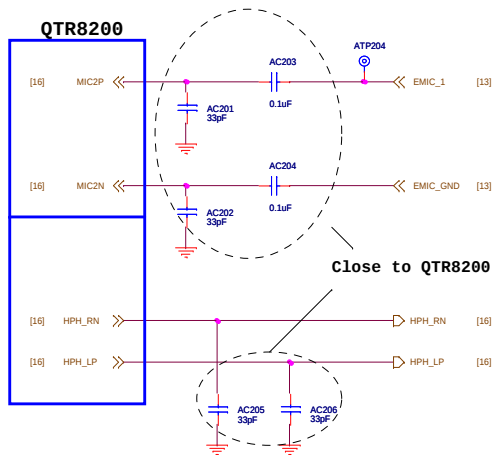
LED ZIF CONN



FIH

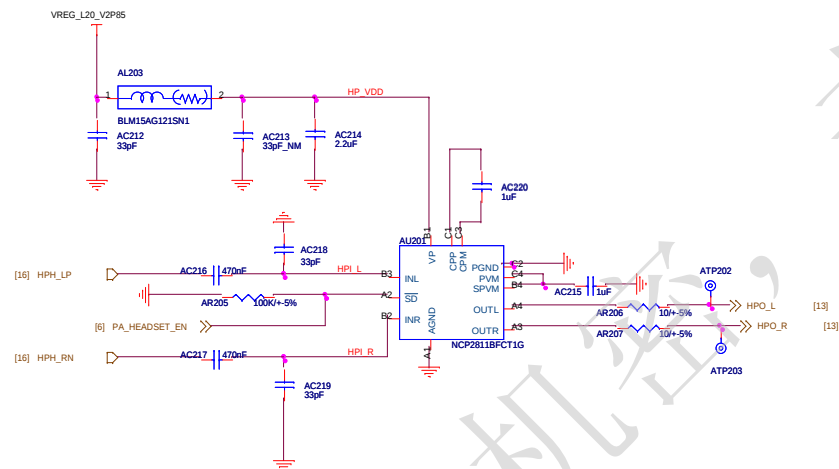
Internal Audio SCH

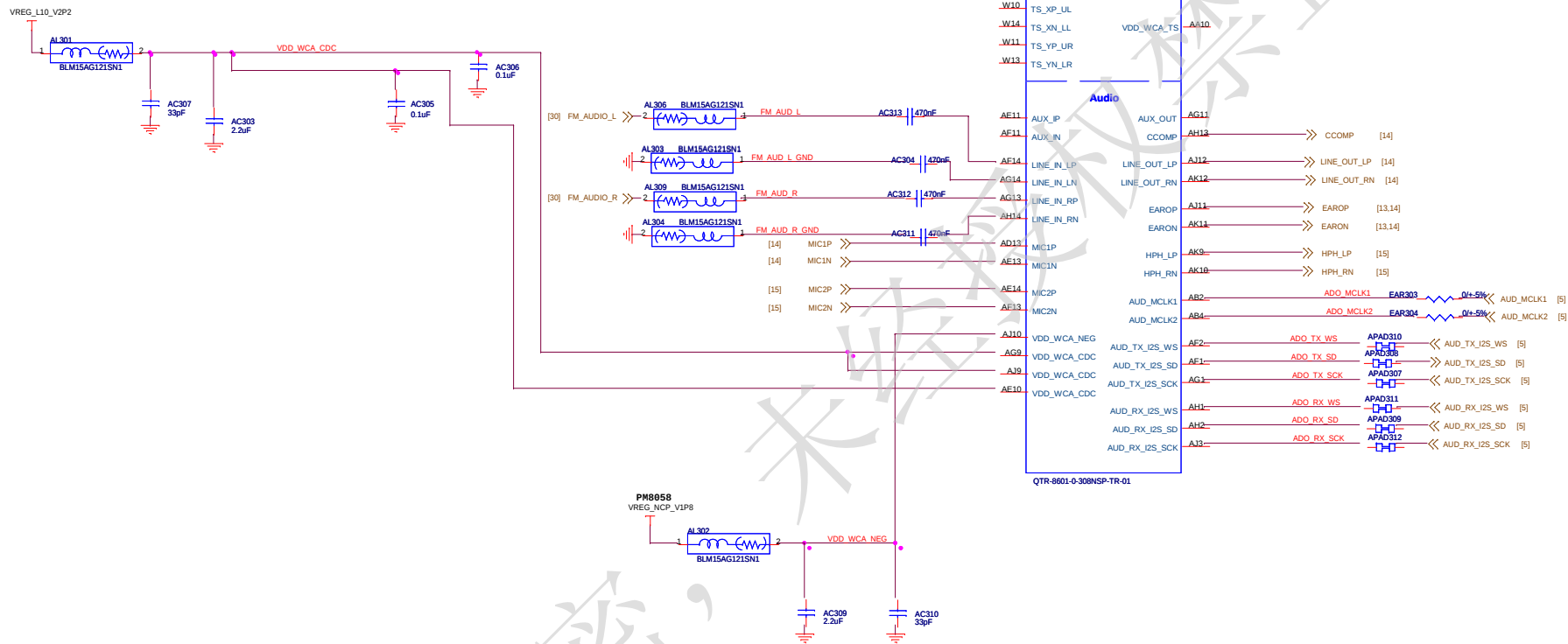




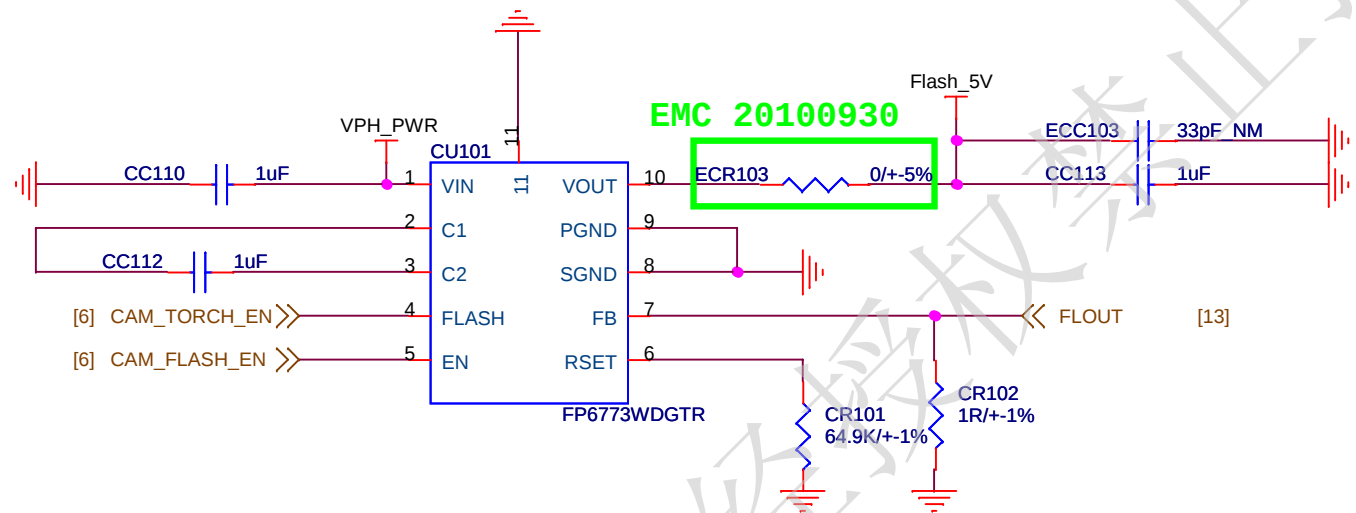
PTT_DET	State
H	Have push
L	No push

Headset (All Close to AU201)

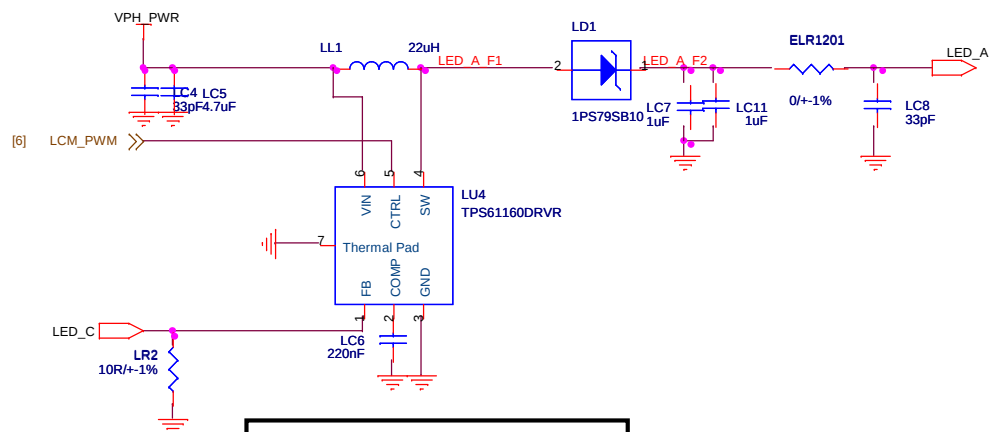




FLASH DRIVER

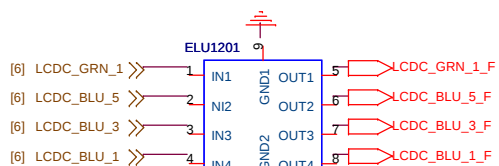


Title			Flash Driver		
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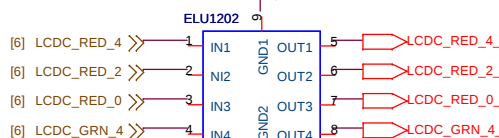


$R_{set} = 0.2 / I_{LED}$
 $I_{LED} = 20mA, R_{SET} = 10 \text{ ohm}$

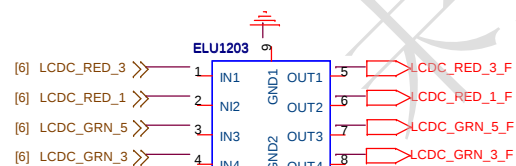
B/L Boost_Driver IC_For 7 LED



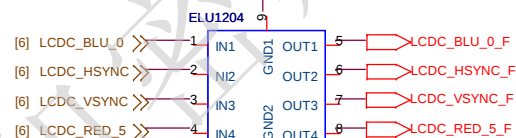
KNA16150C33MA7TB



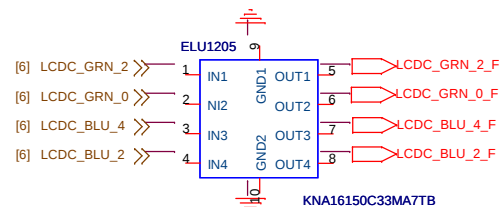
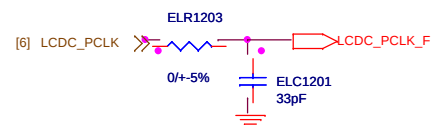
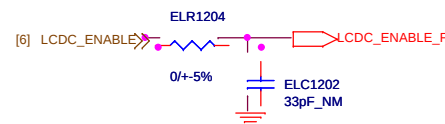
KNA16150C33MA7TB



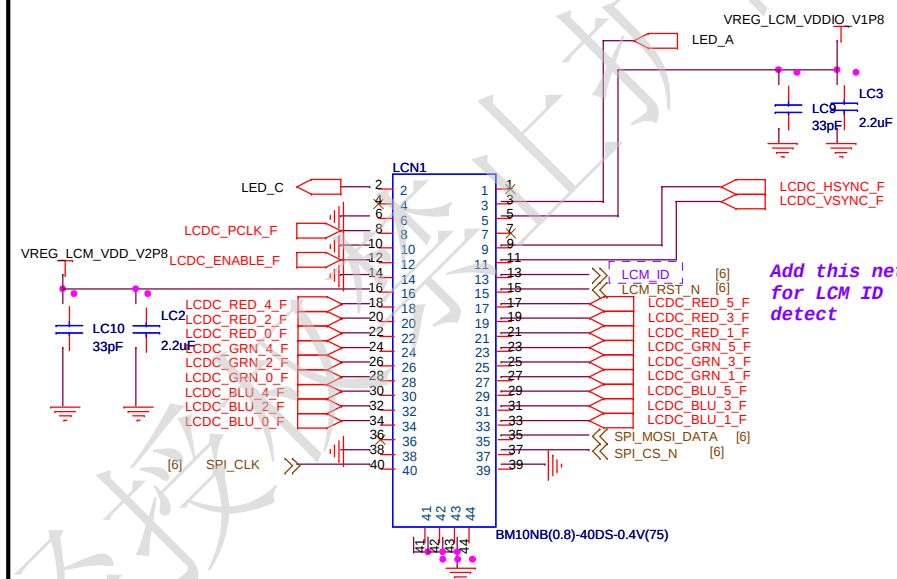
KNA16150C33MA7TB



KNA16150C33MA7TB



KNA16150C33MA7TB



Add this net
for LCM ID
detect

1. LED_PWM
2. LED-
3. LED+
4. NC
5. VDD
6. GND
7. MTP_2
8. DOTCLK
9. HSYNC
10. GND
11. VSYNC
12. ENABLE
13. ID0
14. GND
15. RESETB/ID1
16. AVDD
17. R5
18. R4
19. R3
20. R2
21. R1
22. R0
23. G5
24. G4
25. G3
26. G2
27. G1
28. G0
29. B5
30. B4
31. B3
32. B2
33. B1
34. B0
35. SPI_DI
36. NC
37. SPI_CS
38. GND
39. MTP_1
40. SPI_CLK

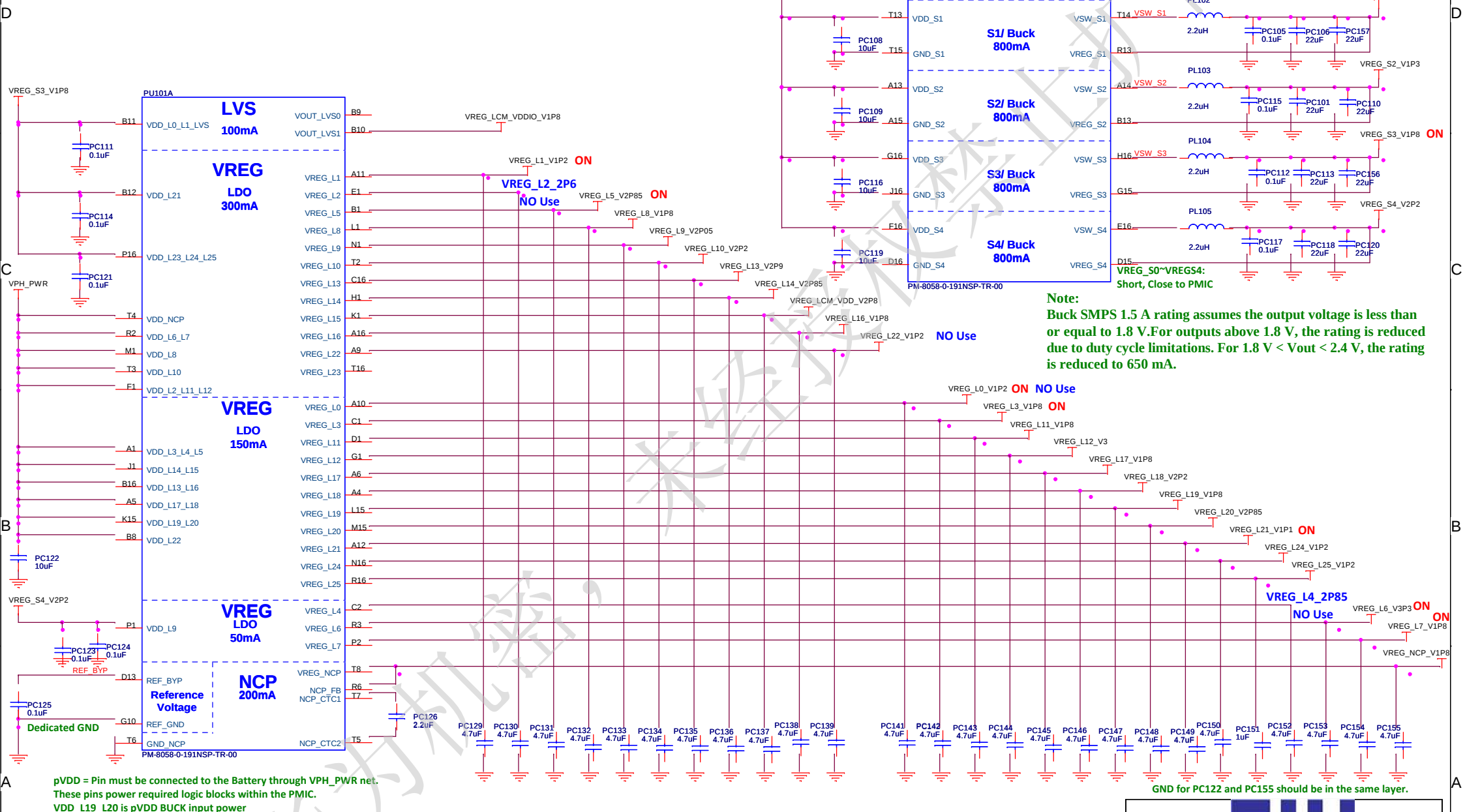
SONY_3.69" _LCM_Connector



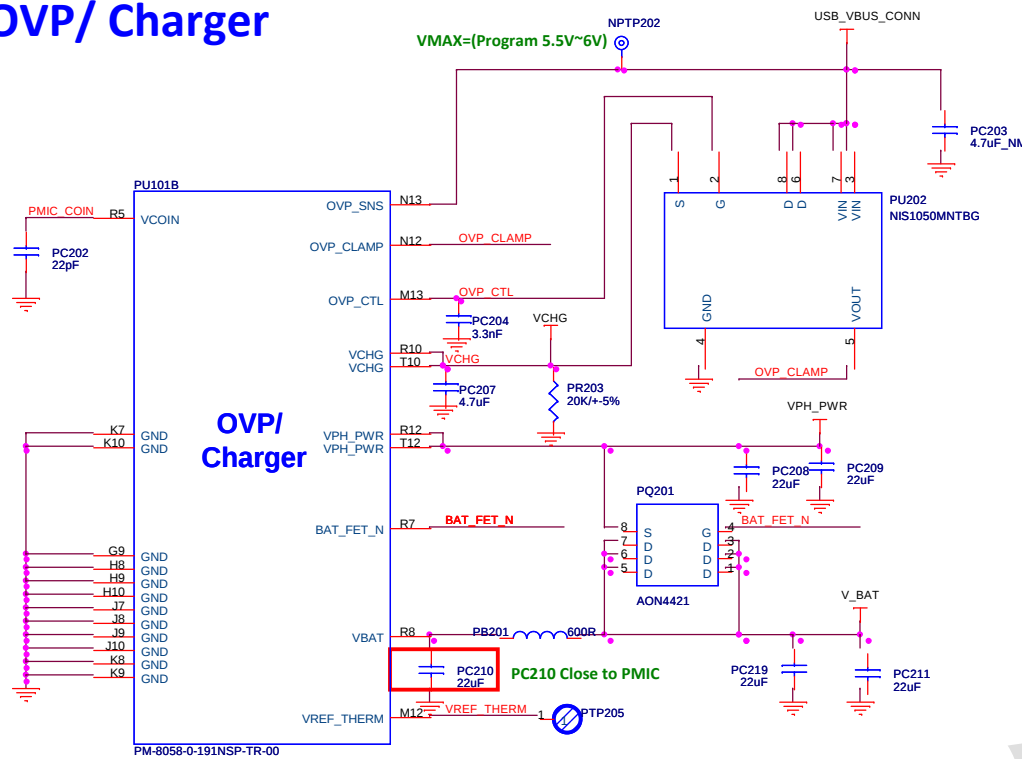
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Rev
PR3

SMPS/ Linear regulator

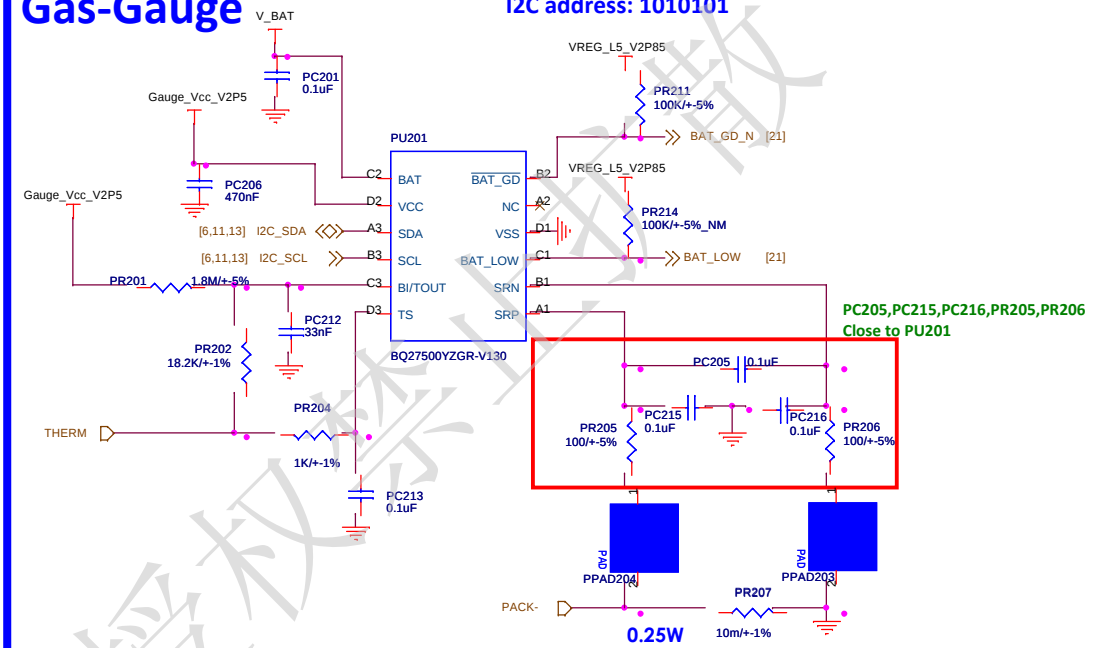


OVP/ Charger

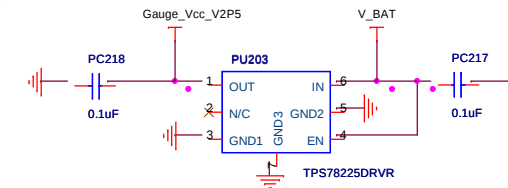


Gas-Gauge

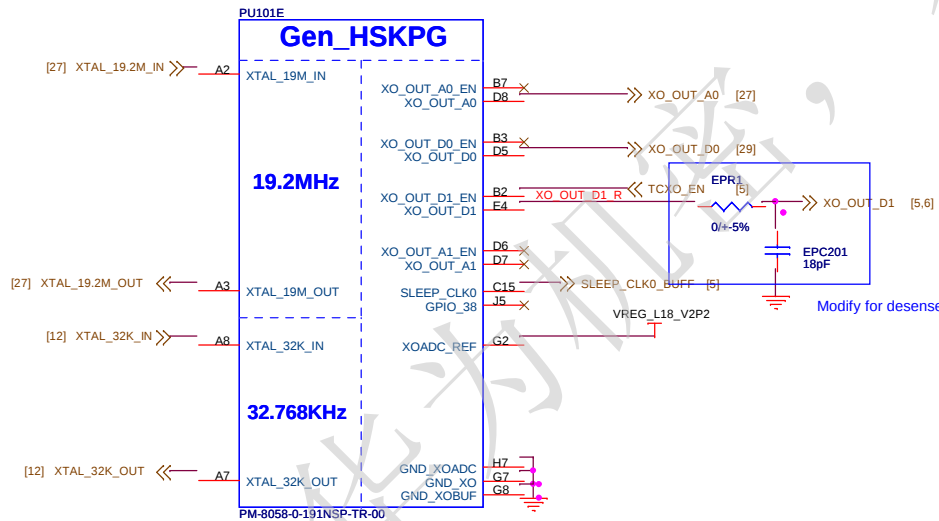
I2C address: 1010101



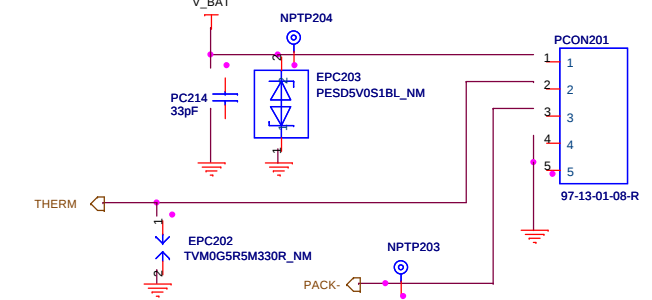
Gauge external power



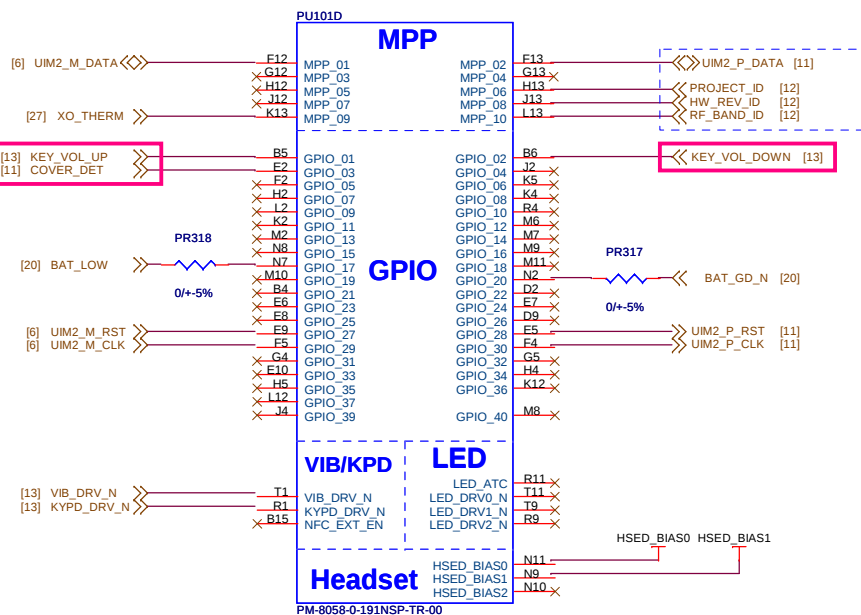
General Housekeeping



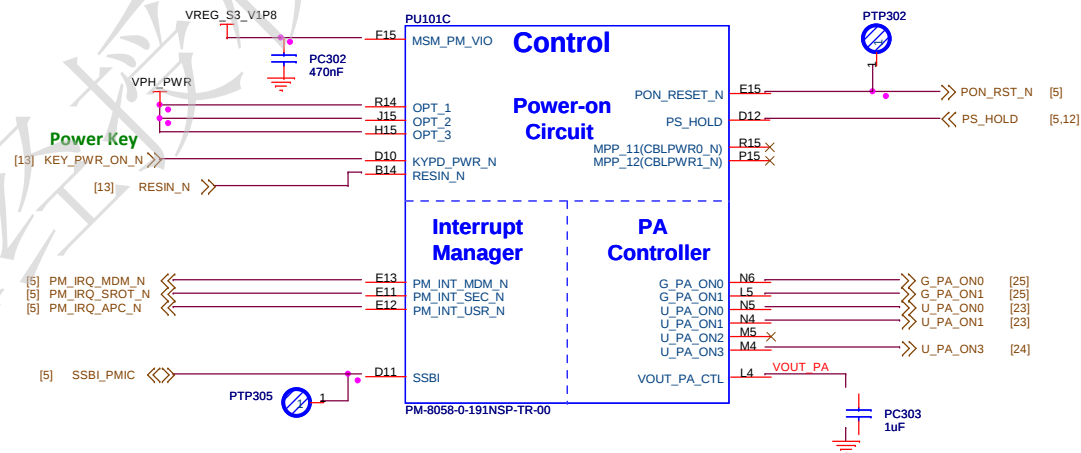
Battery Connector



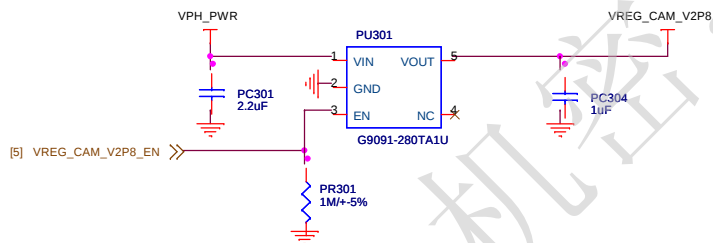
MPP/GPIO



Control



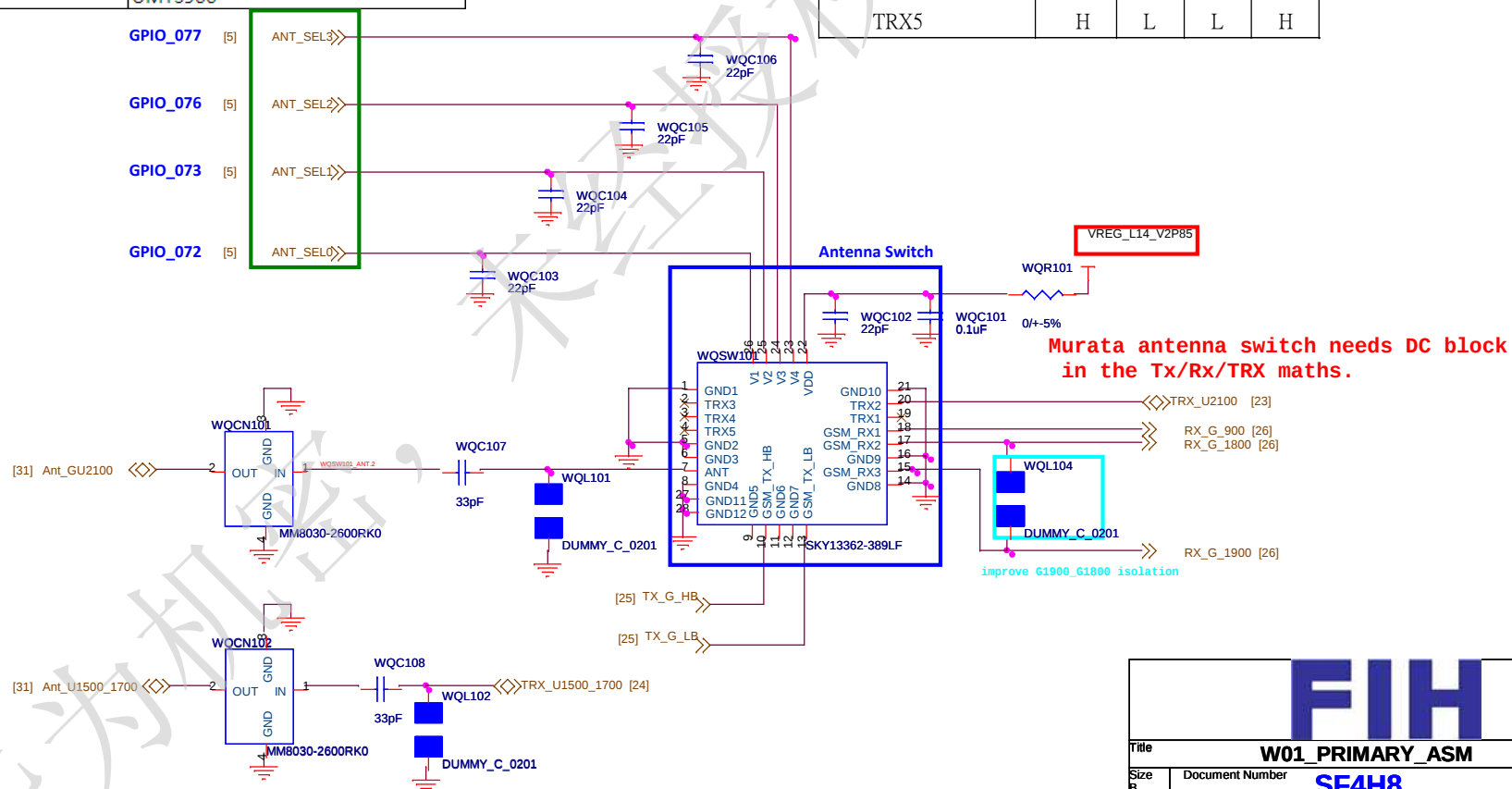
Camera Power



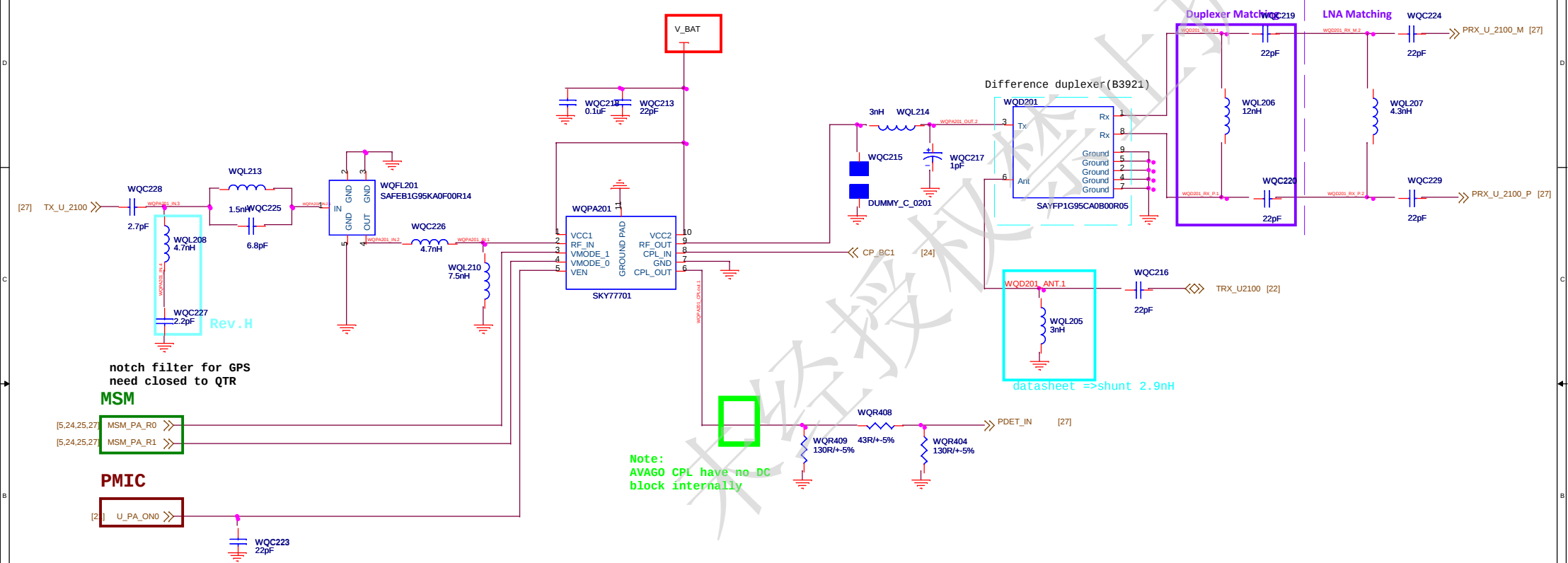
FIH

RX	GLOBAL	GLOBAL SUBSET C
QTR input		
PRX HB	AWS	AWS
PRX MB1	UMTS 2100	UMTS 2100
PRX MB2	UMTS 1900	UMTS 1900
PRX LB1	UMTS 850/GSM850	UMTS 900/GSM900
PRX LB2	UMTS900	
DRX MB1	GSM1800/1900(2:1 SAW)	GSM1800/1900(2:1 SAW)
DRX LB2	GSM900	GSM850
TX	GLOBAL	GLOBAL SUBSET C
TX_MB4	UMTS 2100	UMTS 2100
TX_MB3	UMTS 1900	UMTS 1900
TX_MB2	AWS	AWS
TX_MB1	GSM1800/GSM1900	GSM1800/GSM1900
TX_LB4	GSM850/GSM900	GSM850/GSM900
TX_LB3	UMTS900	
TX_LB1	UMTS850	UMTS900

Active Path	Vctrl			
	V1	V2	V3	V4
GSM LB Tx	H	H	L	L
GSM HB Tx	H	L	L	L
GSM_RX1(900)	L	L	H	L
GSM_RX2(1800)	L	H	H	L
GSM_RX3(1900)	L	H	L	L
TRX1	H	L	H	L
TRX2(U2100)	H	H	H	L
TRX3	H	L	H	H
TRX4(U1500/U1700)	H	H	H	H
TRX5	H	L	L	H



WCDMA TX CHAIN (BC1)



POWER MODE	PA_R1	PA_R0
HIGH POWER	L	L
MEDIUM POWER	L	H
LOW POWER	H	H

WCDMA TX CHAIN (BC11)

Need change
for BC9

PMIC

[21] U_PA_ON1

Need change
for BC11

PMIC

[21] U_PA_ON2

MSM

[5,23,25,27] MSM_PA_R0

[5,23,25,27] MSM_PA_R1

Rout PA_R0 and PA_R1 as
sensitive RF paths

BC11/BC9 Co-Layout

BC11/BC9 Co-Layout

LNA Matching

Duplexer Matching

BC11/BC9 Co-Layout

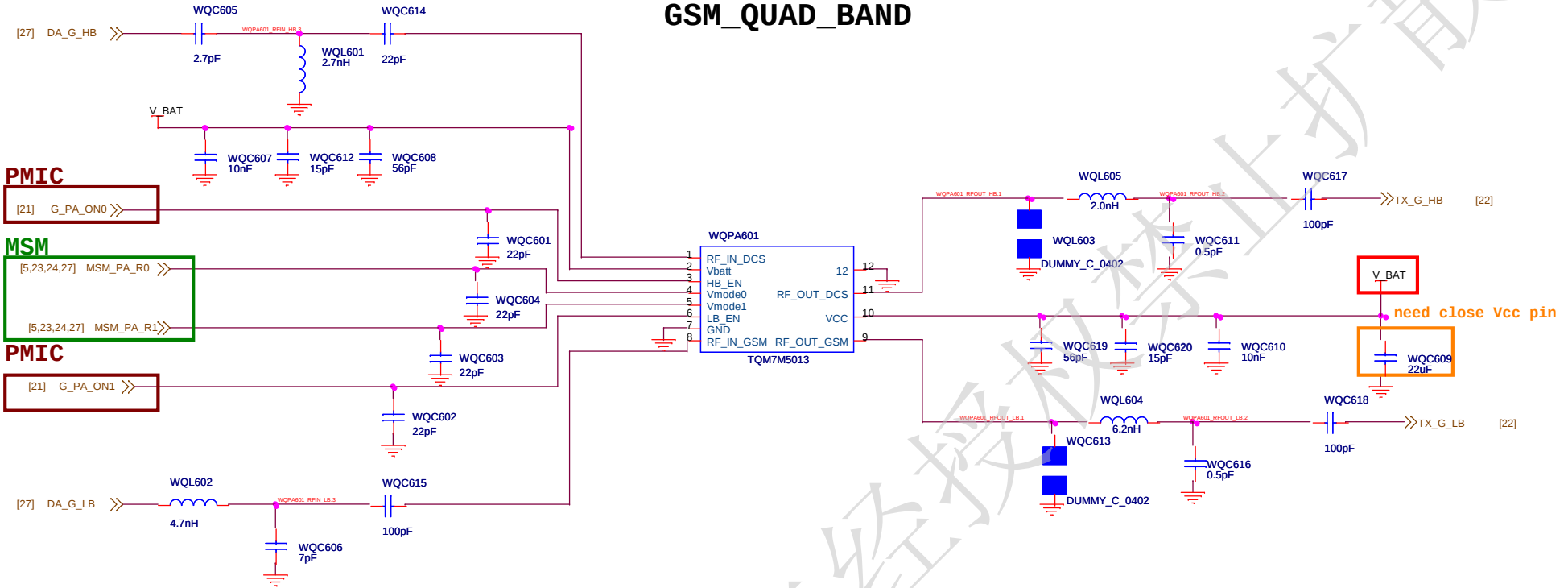
Need to check PA RF_IN
have DC block or not

Note:
AVAGO CPL have no DC
block internally

POWER MODE	PA_R1	PA_R0
HIGH POWER	L	L
MEDIUM POWER	L	H
LOW POWER	H	H

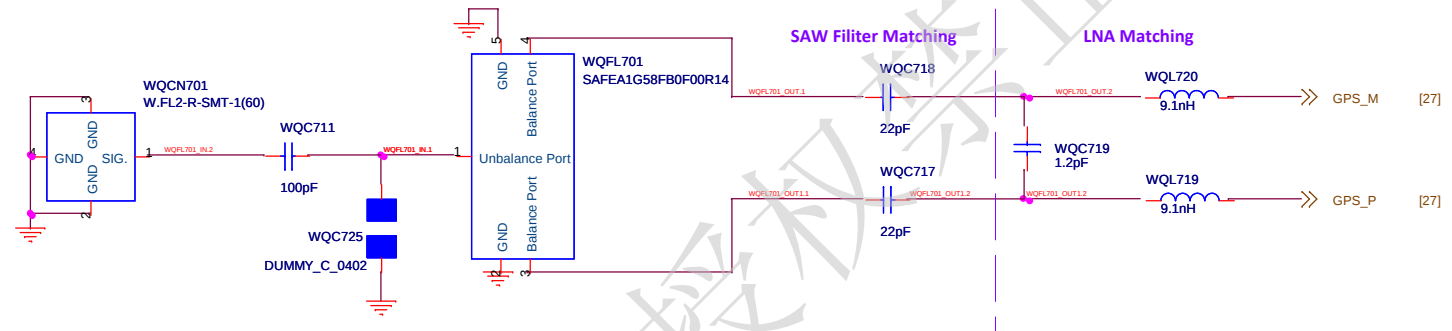
		
Title	W04_TX_CHAIN_BC11(Mitsubishi)	
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GSM_QUAD_BAND

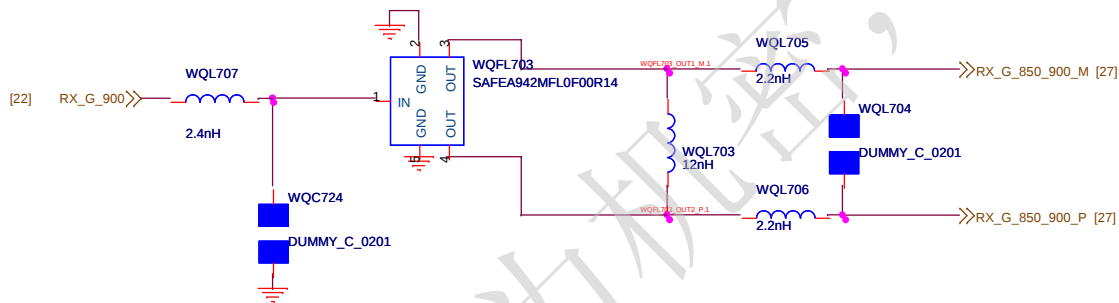


MODE	PA_ON_G_LB	PA_ON_G_HB	PA_R0	PA_R1
Low band - High-power mode	H	L	L	L
Low band - Medium Power mode	H	L	L	H
Low band - Low-power mode	H	L	H	L
Low band - Ultra-Low-power mode	H	L	H	H
High band - High-power mode	L	H	L	L
High band - Low-power mode	L	H	H	L
High band - Ultra-Low-power mode	L	H	H	H

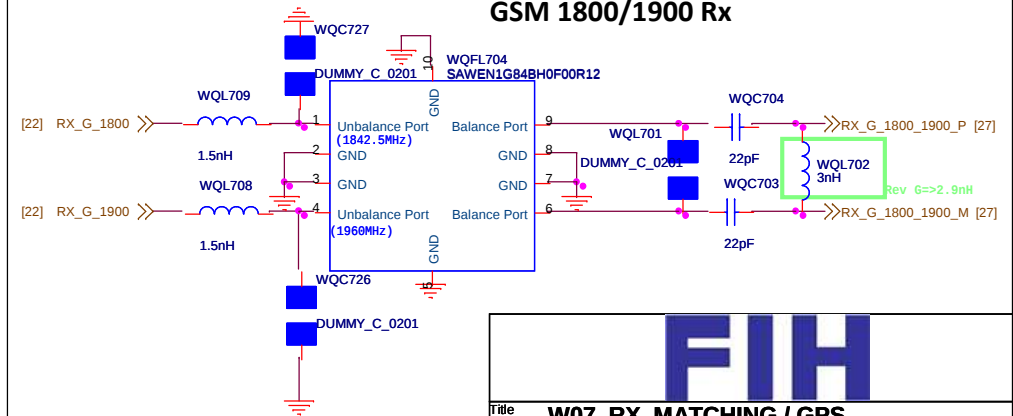
GPS RX CHAIN (Close to GPS antenna)



GSM 900 Rx

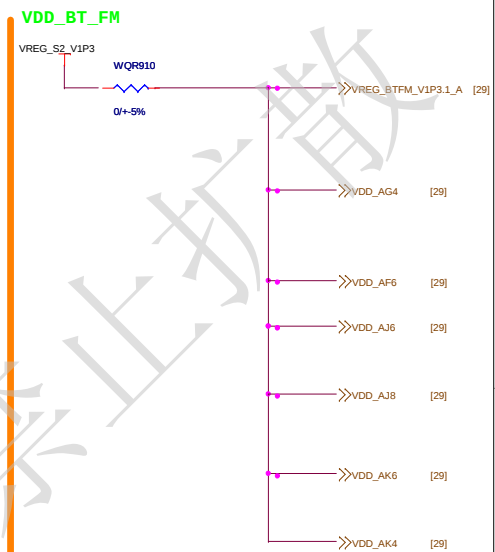
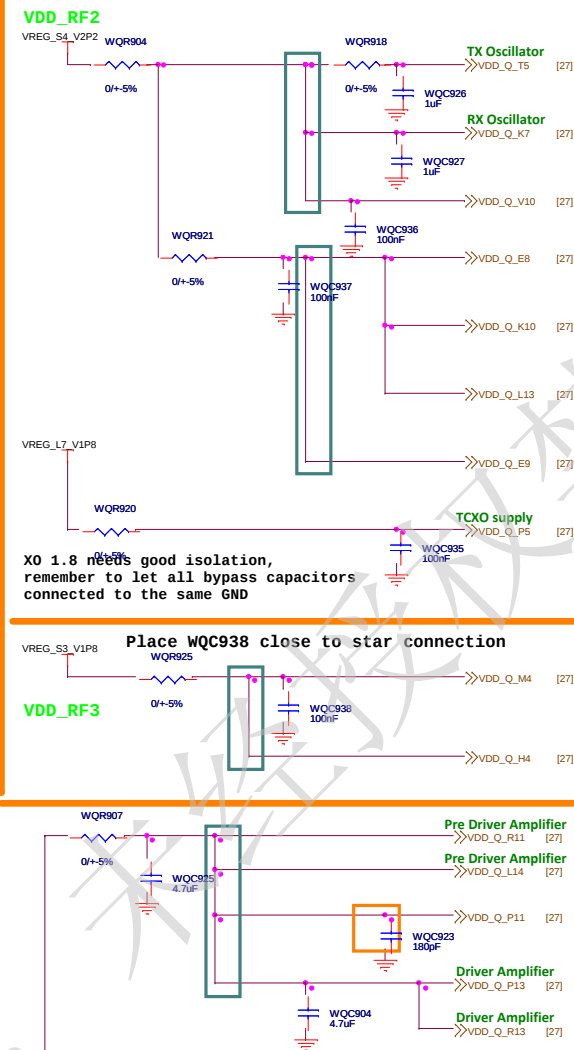
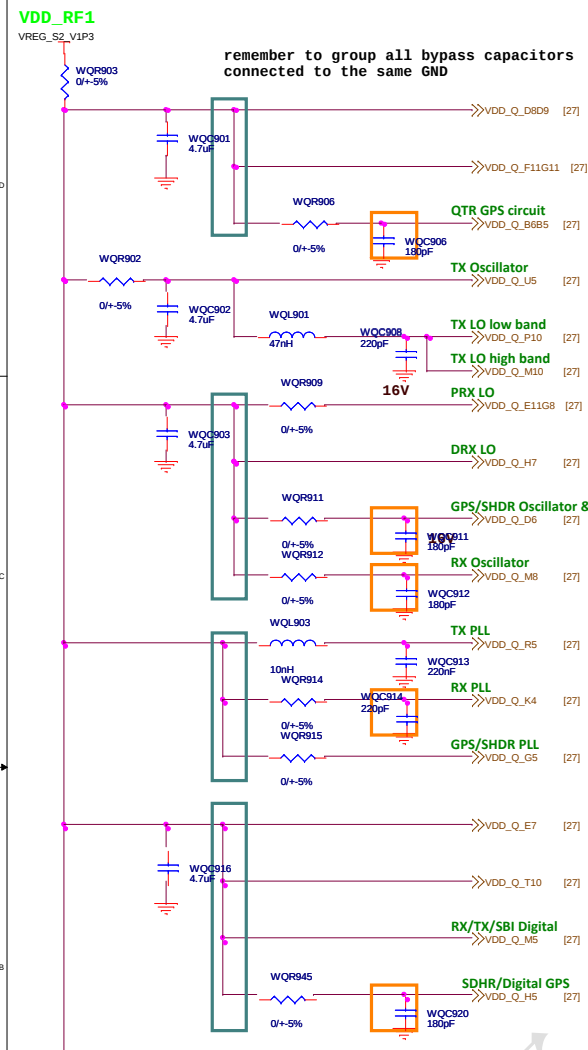


GSM 1800/1900 Rx



FIH

Title	W07_RX_MATCHING / GPS		
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==>Indicates star connections

Sensitive RF Supply Pins - See next schematic page

Description	Pin #	Noise Generator	Noise Sensitive	Decoupling Purpose	Priority
TX Oscillator	T5, U5	Yes (RF harmonics)	Yes (most sensitive)	Noise Suppression	First
RX Oscillator	K7, M8	Yes (RF harmonics)	Yes (most sensitive)	Noise Suppression	First
GPS/SHDR Oscillator & LO	D6	Yes (RF harmonics)	Yes	Noise Suppression	First
RX PLL	K4	Yes (2nd aggressor)	Yes (2nd sensitive)	Noise Suppression	First
TX PLL	R5	Yes (2nd aggressor)	Yes (2nd sensitive)	Noise Suppression	First
GPS/SHDR PLL	G5	Yes (2nd aggressor)	Yes (2nd sensitive)	Noise Suppression	First
RX/TX/SBI Digital	M5	Yes (1st aggressor)	No	Noise Suppression	First
SDHR/Digital GPS	H5	Yes (1st aggressor)	No	Noise Suppression	First
TCXO Supply	P5	Yes (1st aggressor)	Yes (most sensitive)	TCXO Harmonic Suppression, improves PLL ref clock noise	First
Driver Amplifier	P13, R13	Yes (RF harmonics)	Yes	Improves Tx fundamental/harmonic, RX band noise/emissions	Third
Pre Driver Amplifier	L14, R11	Yes (RF harmonics)	Yes	Improves TX Path Stability, fundamental/harmonic, RX band noise/emissions	Third
PRX LO	E11, G8	No	Yes	Improves RX blocking, integrated phase noise, TX IM2	Second
DRX LO	H7	No	Yes	Improves RX blocking, integrated phase noise, TX IM2	Second
TX LO	P10, M10	No	Yes	Improves RX band noise/emissions	Second

NOTE: For single-sided board designs, first priority decoupling must be placed closest to the QTR device corresponding pins. Second priority decoupling can be placed after all first priority placements, and so on.

⇒Indicates star connections
Need two group :one group(Y8)
+one group (Y11, AA13, AB13,
AC13)

[28] VREG_BTFM_V1P3.1_A

MSM

[5] WCA_I2C_SCL
[5] WCA_I2C_SDA
[5] QTR_SYS_RST_N

WQC1005

[20] XO_OUT_DQ

22pF

*Need confirm from QCT
19.2MHz is required

WQR1002
10K/4-1%

pay attention to
the AF5 and AC5 pin

WQU801B

FM

Y8 VDD_WCA_FM_01
Y11 VDD_WCA_FM_02
AA13 VDD_WCA_FM_03
AB13 VDD_WCA_FM_04
AC13 VDD_WCA_FM_05

AD14 FM_LNA_RX_P
AB14 FM_LNA_RXTX

AE1 FM_RDS_INT
AG2 FM_I2S_WS
AE2 FM_I2S_SD
AK3 FM_I2S_SCK

AC1 I2C_SCL
AB1 I2C_SDA

AE4 SYS_RST_N
AF5 WCA_RBIA5

AD5 XO_WCA

AF8 DNC_01
AK2 DNC_02
AK1 DNC_03
AJ2 DNC_04
AJ1 DNC_05
AK5 DNC_06

Y5 GND_WCA_01
Y10 GND_WCA_02
Y13 GND_WCA_03
AA5 GND_WCA_04
AA8 GND_WCA_05
AA11 GND_WCA_06
AA14 GND_WCA_07
AB10 GND_WCA_08
AB11 GND_WCA_09
AC5 GND_WCA_10

AC14 GND_WCA_11
AD8 GND_WCA_12
AF4 GND_WCA_13
AF7 GND_WCA_14
AF9 GND_WCA_15
AF10 GND_WCA_16
AG5 GND_WCA_17
AG6 GND_WCA_18
AG7 GND_WCA_19
AG8 GND_WCA_20

QTR-8601-0-308NSP-TR-01

BT

VDD_WCA_BT_01 AF6 VDD_AF6 [28]
VDD_WCA_BT_02 AG4 VDD_AG4 [28]
VDD_WCA_BT_03 AJ6 VDD_AJ6 [28]
VDD_WCA_BT_04 AJ8 VDD_AJ8 [28]
VDD_WCA_BT_05 AK4 VDD_AK4 [28]
VDD_WCA_BT_06 AK6 VDD_AK6 [28]

VDD_WCA_DIG
VDD_WCA_DIG
VDD_WCA_DIG
VDD_WCA_IO

BT_HOST_WAKE V1
BT_EXT_WAKE W7

SLEEP_CLK
BT_CLK_PWR_REQ

BT_RF_IOP AK7

BT_RF_IOM AK8

UART_RTS W1
UART_CTS W2
UART_TXD Y1
UART_RXD Y2

PCM_SYNC AA4
PCM_CLK Y4
PCM_IN AA1
PCM_OUT AA2

BT_ACTIVE AB7
BT_PRIORITY AC7
WLAN_ACTIVE AD7

AG10 GND_WCA_21
AJ4 GND_WCA_22
AJ5 GND_WCA_23
AJ7 GND_WCA_24
AJ13 GND_WCA_25
AJ14 GND_WCA_26
AK13 GND_WCA_27
AK14 GND_WCA_28

PMIC

VREG_L24_V1P2

WQL1007

4.7nH

VREG_L24_V1P2_1

WQC1014

100nF

PMIC

VREG_S3_V1P8

WQC1015

100nF

Refer to QCT:

Please find the required configuration if you would like to
disable the BT/FM functions on QTR (TS not disable):

- QTR-BT
BT_ACTIVE connect GND.
BT_PRIORITY connect GND.
WLAN_ACTIVE connect GND.
SLEEP_CLK connect GND.
BT_CLK_PWR_REQ connect GND.
BT_RF_IOP leave this pin to open.
BT_RF_IOM leave this pin to open.
unused BT digital I/O (UART,PCM) connect GND.

- QTR-FM
VDD_WCA_FM connect GND.
FM_LNA_RX_P leave this pin to open.
FM_LNA_RXTX leave this pin to open.
FM digital I/O connect GND.
FM_RDS_INT connect GND.
FM_I2S_SCK connect GND.
FM_I2S_SD connect GND.
FM_I2S_WS connect GND.

- 1.Place WQC1010 and WQC1009 next to BALUN
for common mode rejection
2. Pin AJ13 need through "VIA" connect to main
ground independently and the trace width=10
mil

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Title W10_QTR8601_WCA

Size B Document Number

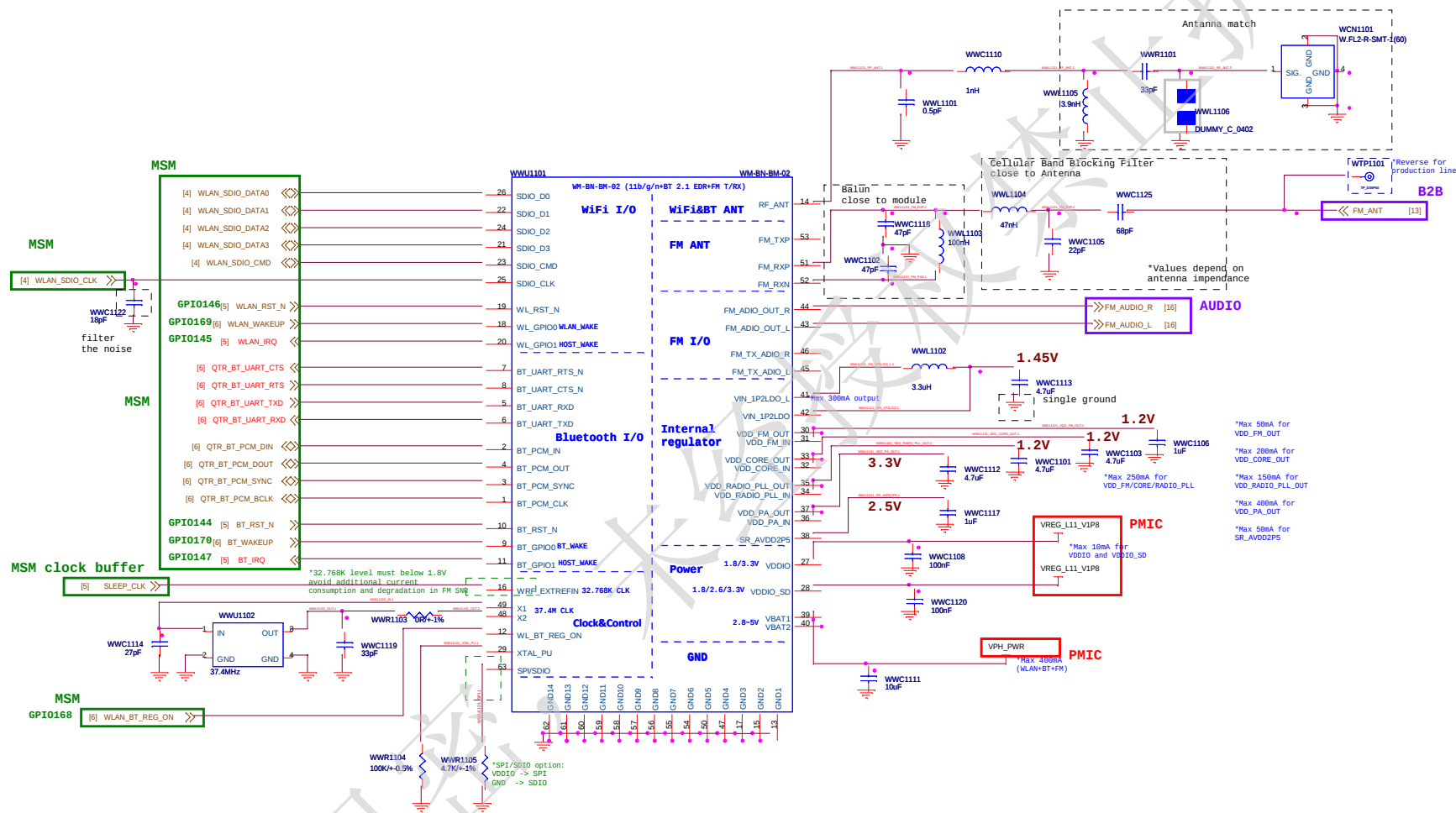
SF4H8

Rev

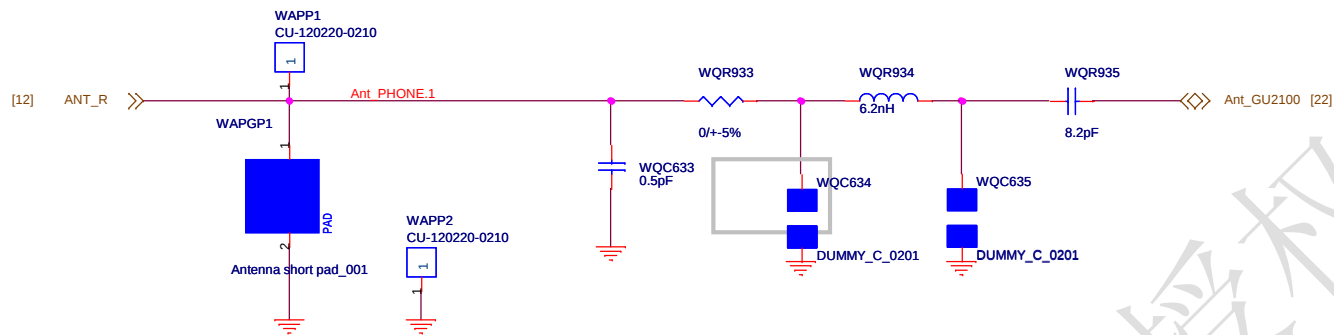
PR3

Date: Thursday, June 16, 2011

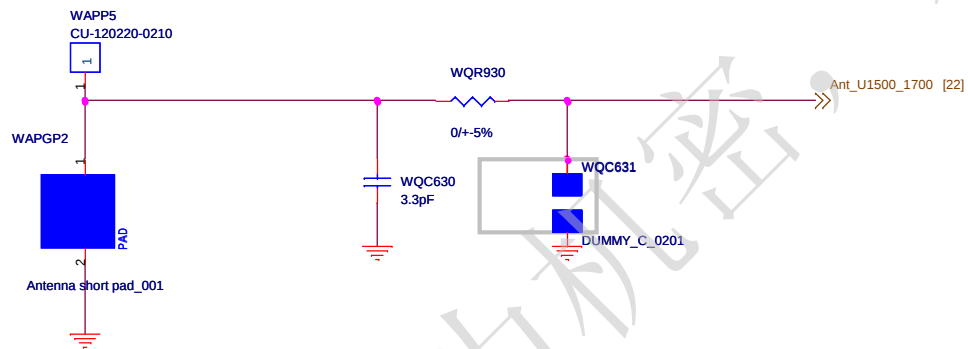
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Phone Antenna



U1500_1700 Antenna



FIH

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Rev
PR3

Date	Sheet	Contents	Remark
2011/02/21	04	Add R404 pull high to VREG_S3_V1P0 ; Remove GP1040: GS_INT	
	13	Change R1301.2 pull up to VREG_S3_V1P0 + CN1303.3 connect to VREG_S3_V1P0	
		Add CN1301.5: MODULE_ID	
		ECM130: 模块, SC-240 change to 50-240.	
		EUS301: 模块, WFA18SL307V1A45L change to KMA18150C33MA5TS.	
	C01	Change CR101 to 62K Ohm	
	12	R1207 change to 28K ohm ; Remove CL1202 + CL1203 ; X1201: 模块 P/N:QL13FC1350000200	
	00	Add GP10_142: GS_INT ; GP1017:Module_ID ; GP1017:CAN_RST_N ; GP1017:CAN_VGA_PWDN	
		Remove GP100: CAN_VGA_PWDN + GP101: CAN_RST_N	
		Change NET:CAN_I2C_SCL + CAN_I2C_SDA pull up to VREG_S3_V1P0	
	L01	change the manufacturer of EL101021-1205 from murata to kyocera	
	P02	Change PR200 to PR101 ; change PC210 from 4.7uF to 22uF ; Add PC210	
2011/02/23	10	Change eMMC to P/N: SD1M502-2G-T ; Add net: RST_OUT_V1P0	
	5	Add NET_RST_OUT_V1P0	
2011/02/24	10	Change R1001-R1009 to 10K ohm	
	W03	Add WQF1201.	
	W04	Change WQC410 to 27pF, WQL413 to 10nH, WQC417 to 4.3nH, WQC420 to 0.5pF	
	W05	Remove WQW001, WQW002, WQW003, WQW004, WQW005, WQW006.	
	5	C501 + C502 change to 10pF	
2011/02/27	V12	Change WQC033 to 1.3pF, WQW033 to 0 ohm, WQW034 to 2.4pF, WQW035 to 5.6nH, WQC030 to 3.3pF	
	12	Remove CN1204	
2011/03/01	P02	Change P1203 to P/N:TP5782250RVR	
2011/03/02	12	Change CN1201 to P/N:8195-7505-AM01	
	A01	Change AC107 to R1 ; Modify value of AC108 to 4.7uF.	
2011/03/03	00	Change NET:SPI_CS_N from GP1040 to GP1040	
	12	Change CN1201 to P/N:8195-7505-0K71	
2011/03/04	P02	Change PR101 to PR201 ; Change PC107 on board	
	W11	change WML101 to 0.5pF ; WML110 to 1nH ; WML105 to 3.9nH ; WML101 to 33pF	
2011/05/16	A01	Change AC107 and AC108 to 4.7uF	
		Remove AL101 and net SPI_VDD	
	L01	ELC1201 模块上件	
2011/05/17	W03	Change WQC220 to 4.7nH, WQL210 to 7.5nH	
	W12	Change WQC033 to 0.5pF, WQW034 to 6.2nH, WQC035 to R1, WQW035 to 8.2pF	