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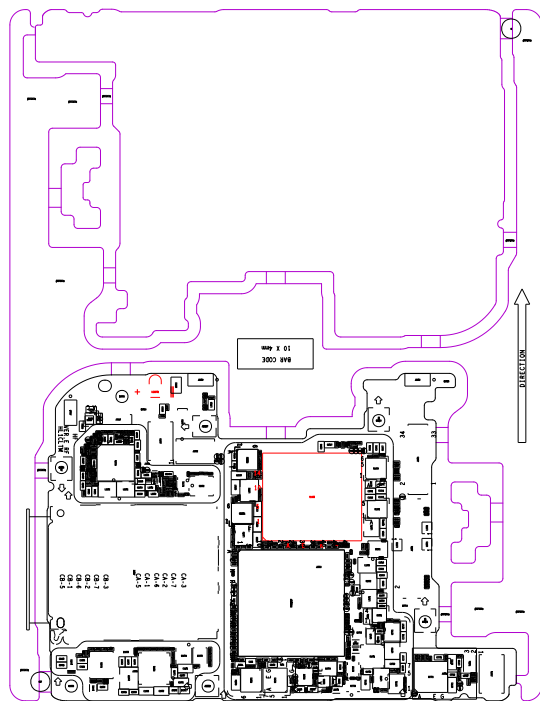
D

A

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D



HL1CLTM VER.E SILKSCREEN TOP
SPELL MODE:1x2

ALI PRO +967777617810

VERSIONS		
VER	DESIGNER	DATE
A	LIYAN 00346750	2017-8-31
B	LIYAN 00346750	2017-10-17
C	LIYAN 00346750	2017-11-14
D	LIYAN 00346750	2017-11-25
E	CAOXIAOWEN 00269686	2017-12-11
F		

DESIGNED		CAOXIAOWEN 00269686		E-MAIL		CAOXIAOWEN1@HUAWEI.COM		TEL		15921329013	
		E		03024VHC		1:1		A3			
BOARD NAME		HL1CLTM		DATE		2017-12-11		DRAWING NO.		03012USD_CAMZH	
SPELL MODE		1*2		OPEN WINDOWS		NA		ECA NO.		NA	
										SHEET 1 OF 2	
										HUAWEI TECH CO.,LTD	

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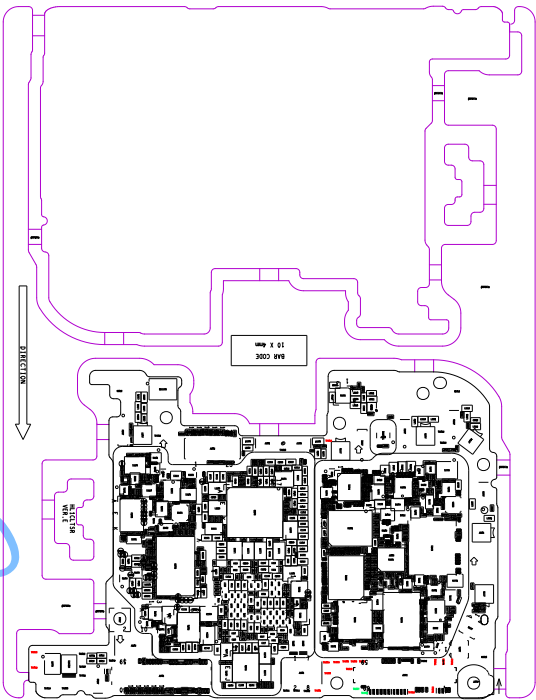
A

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C

D

VERSIONS		
VER	DESIGNER	DATE
A	LIYAN 00346750	2017-8-31
B	LIYAN 00346750	2017-10-17
C	LIYAN 00346750	2017-11-14
D	LIYAN 00346750	2017-11-25
E	CAOXIAOWEN 00269686	2017-12-11
F		



ALI PRO +967777617810

HL1CLTM VER.E SILKSCREEN BOTTOM
SPELL MODE:1x2

		BOARD NAME		HL1CLTM		DATE		2017-12-11		
		DRAWING NO.		03012USD_CAMZH		ECA NO.		NA		
DESIGNED	CAOXIAOWEN 00269686		SPELL MODE		1*2		SHEET 2 OF 2			
E-MAIL	CAOXIAOWEN1@HUAWEI.COM		OPEN WINDOWS		NA		HUAWEI TECH CO.,LTD			
TEL	18621784252 18621784252		VER	PART NO.	SCALE	SIZE				
			E	03024VHC	1:1	A3				

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Baseband Schematic

1. Contents
2. Block Diagramm
3. SOC PWR1
4. SOC PWR2
5. SOC PWR3
6. SOC HS Interface
7. SOC GPIO Interface
8. SOC RF Interface
9. SOC GND & NC
10. PMU LDO
11. PMU BUCK
12. PMU MISC & BUCKBOOST
13. HI6422-2
14. UFS and LPDDR4
15. Battery & Fuel gauge
16. Charge Management
17. LCD Interface
18. Direct Charge LoadSwitch
19. Flash LED
20. Camera Interface
21. TYPEC INTERFACE
22. Codec HI6403
23. MIC/VIB
24. Headphone
25. Audio
26. X-Sensor1
27. X-Sensor2
28. SIM Card
29. FPC Interface
30. Test Point/Shielding

MODEM Schematic

31. RF Interface
32. APT Power
33. RF Transceiver_0
34. RF FRONT END HB
35. RF FRONT END B42
36. RF FRONT END MB
37. RF Front End LB
38. RF Front End Switch /Main ANT
39. RF Front End Diversity
40. RF Front End Diversity
41. Reserved for CDMA Modem
42. Reserved for CDMA Modem
43. Reserved for CDMA Modem
44. Reserved for CDMA Modem
45. Reserved for CDMA Modem
46. Reserved for CDMA Modem
47. Reserved for CDMA Modem
48. Reserved for CDMA Modem
49. Reserved
50. Reserved
51. BCM43455 BB
52. BCM43455 POWER
53. Reserved
54. WALN RF0
55. WLAN RF1
56. GPS
57. NFC
58. RF Transceiver2
59. Reserved
60. ANT Tuner

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2. Block Diagramm

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C

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ALI PRO +967777617810

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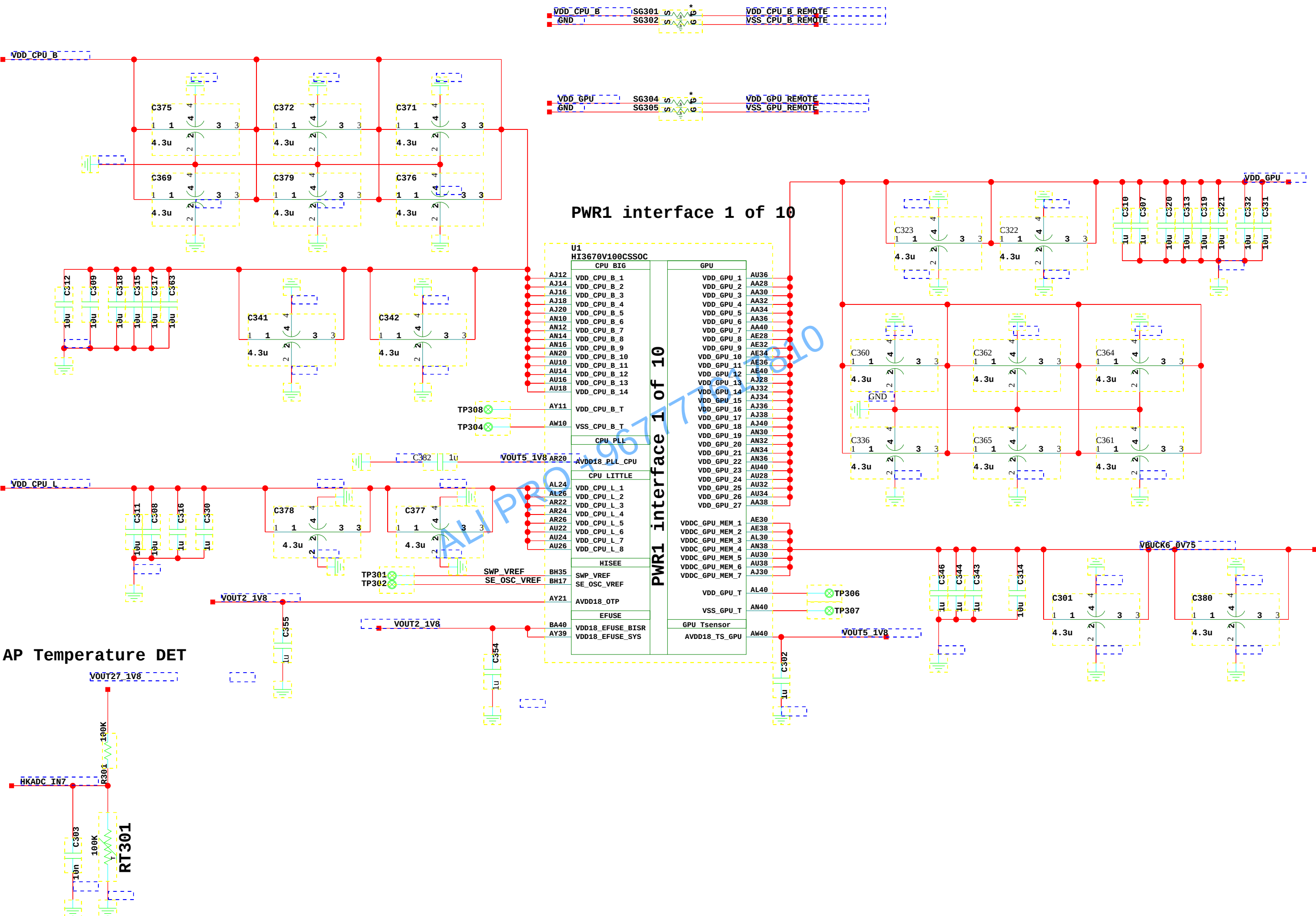
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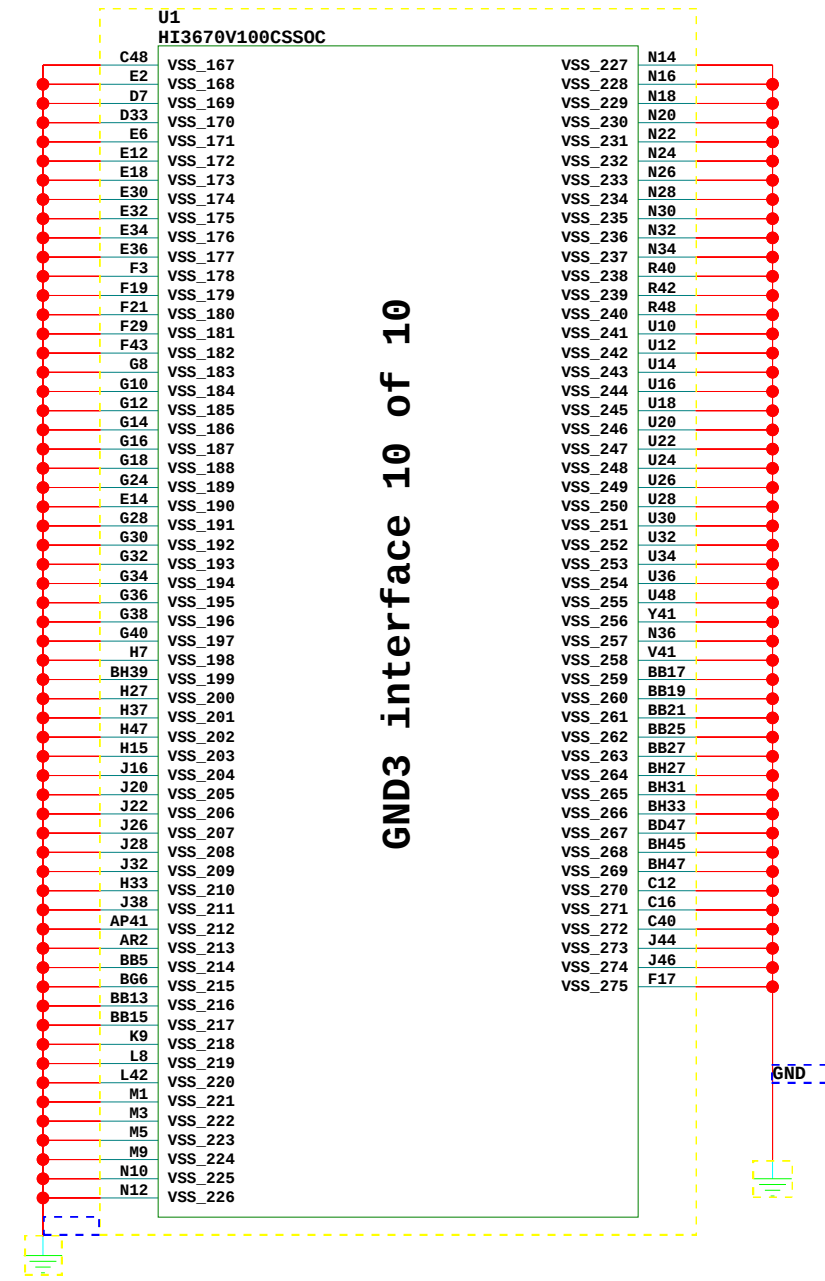
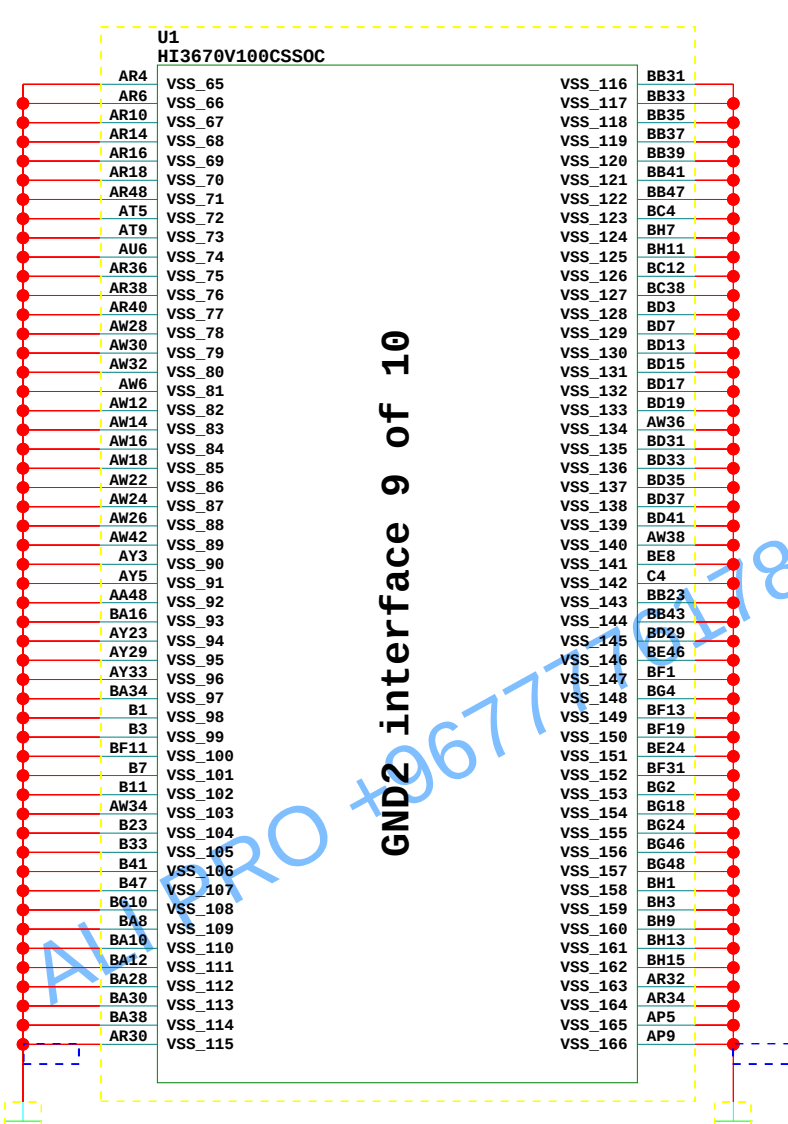
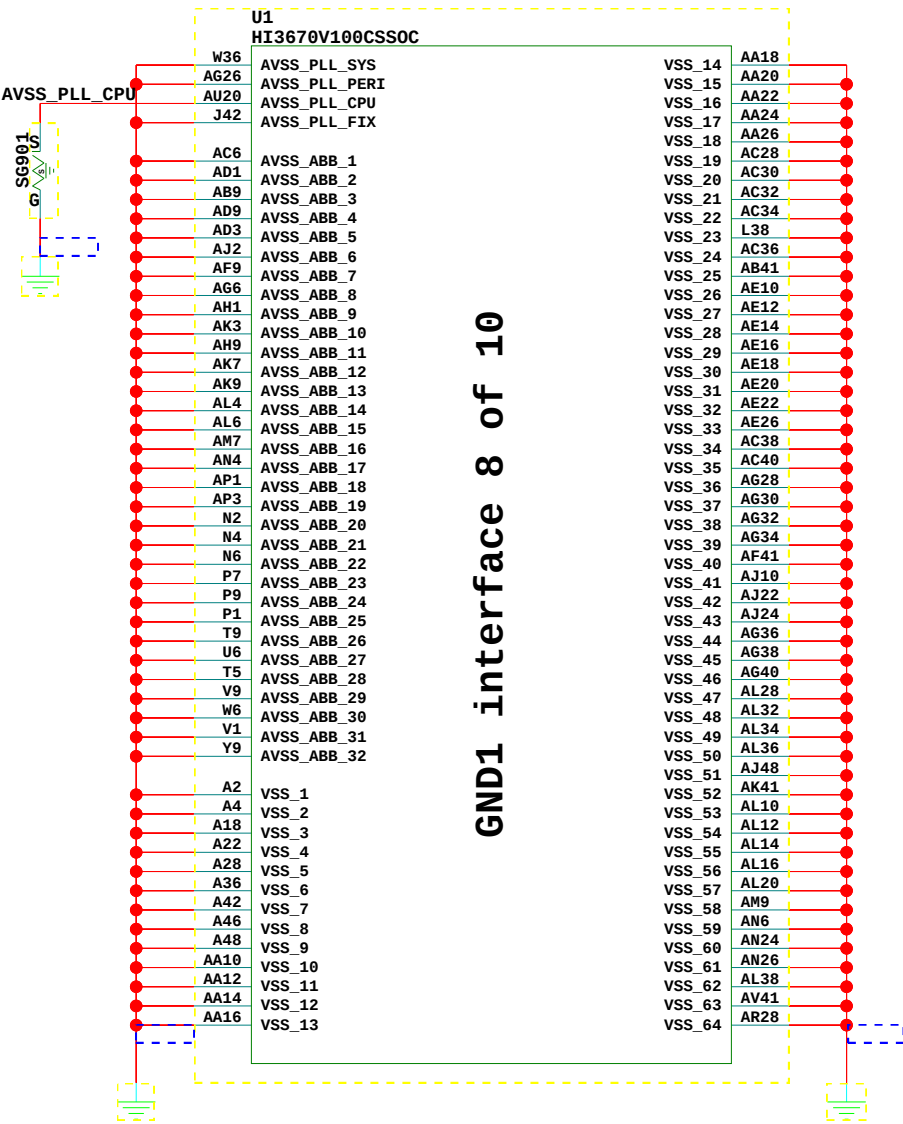
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6

3.SOC PWR1

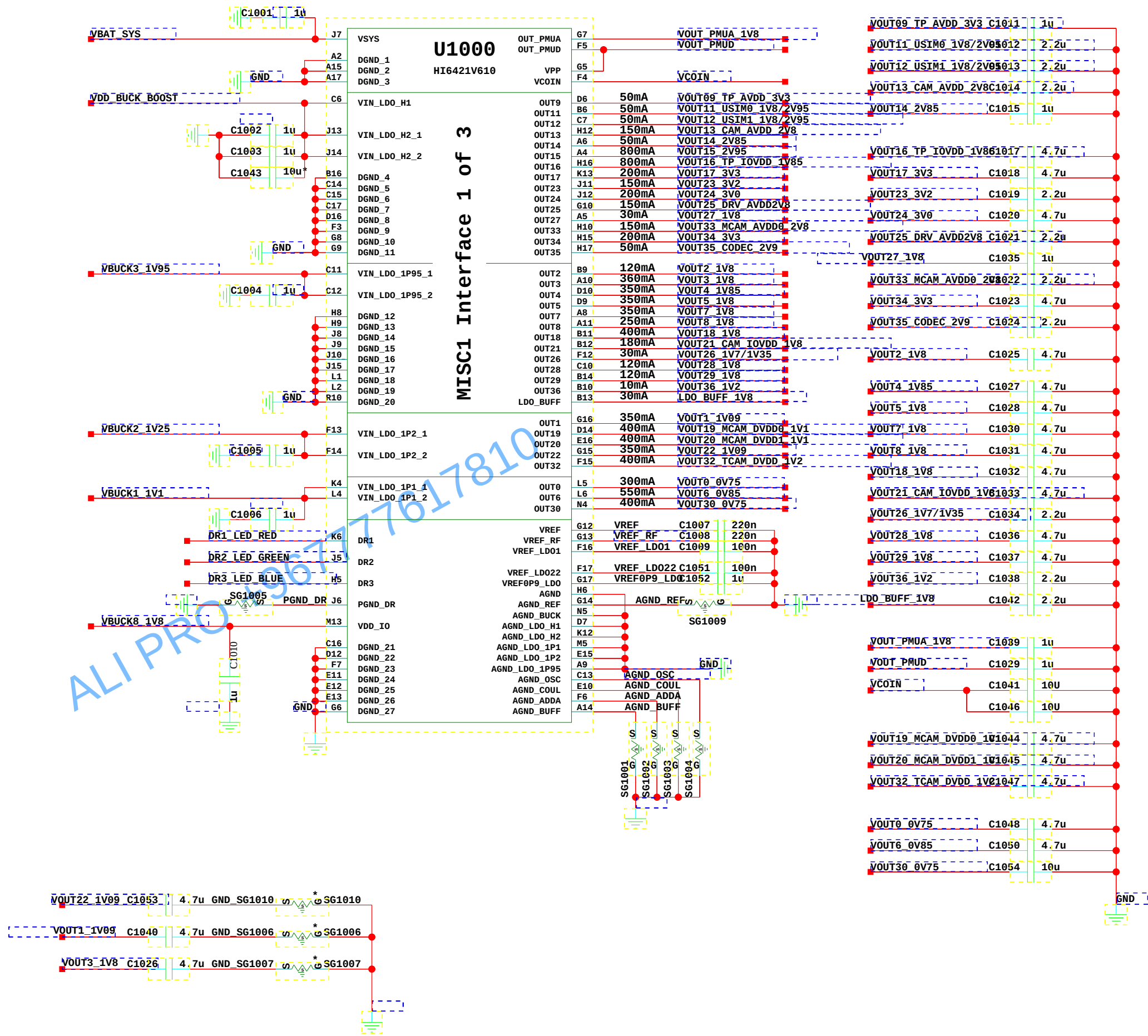


9.SOC GND



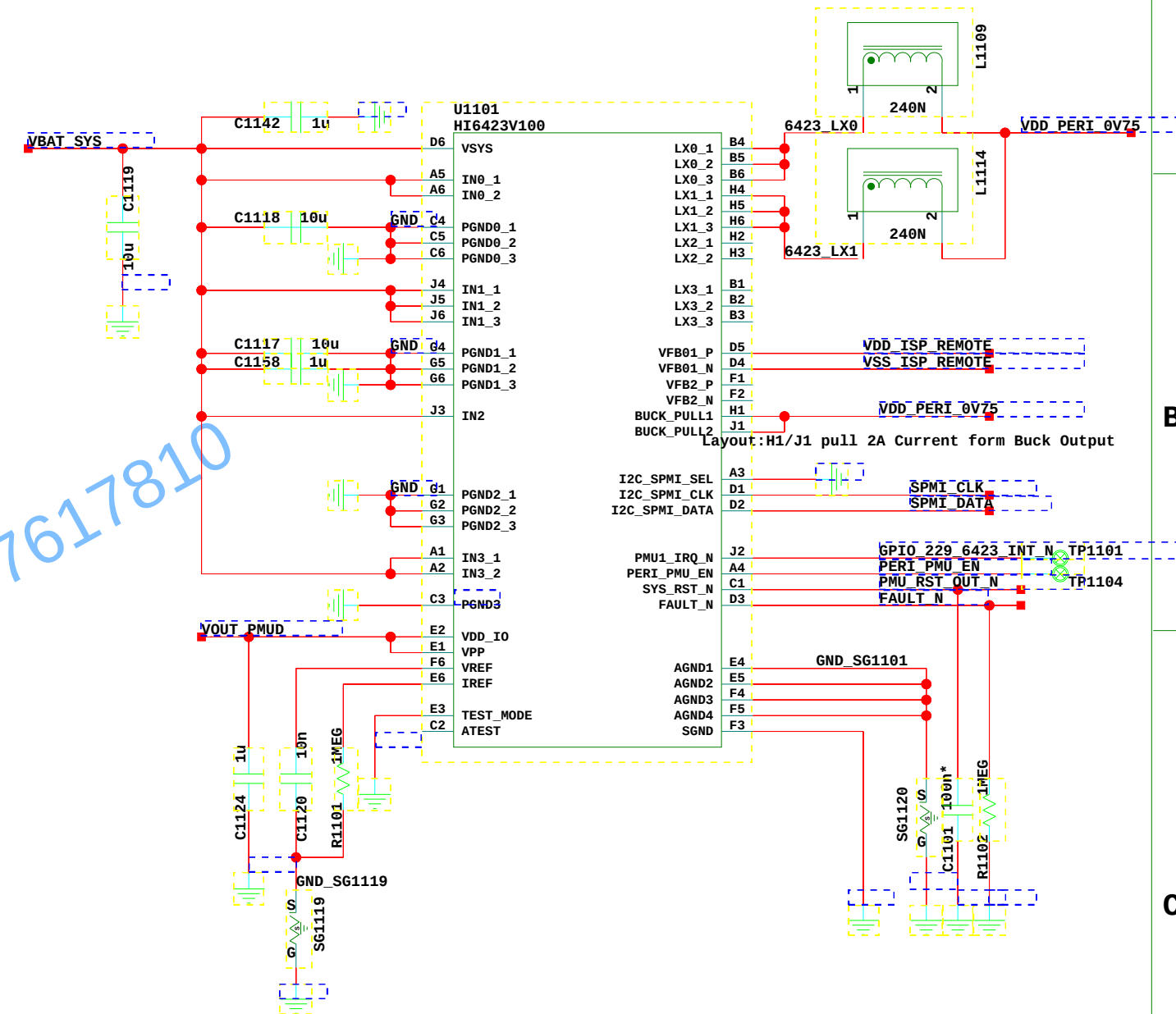
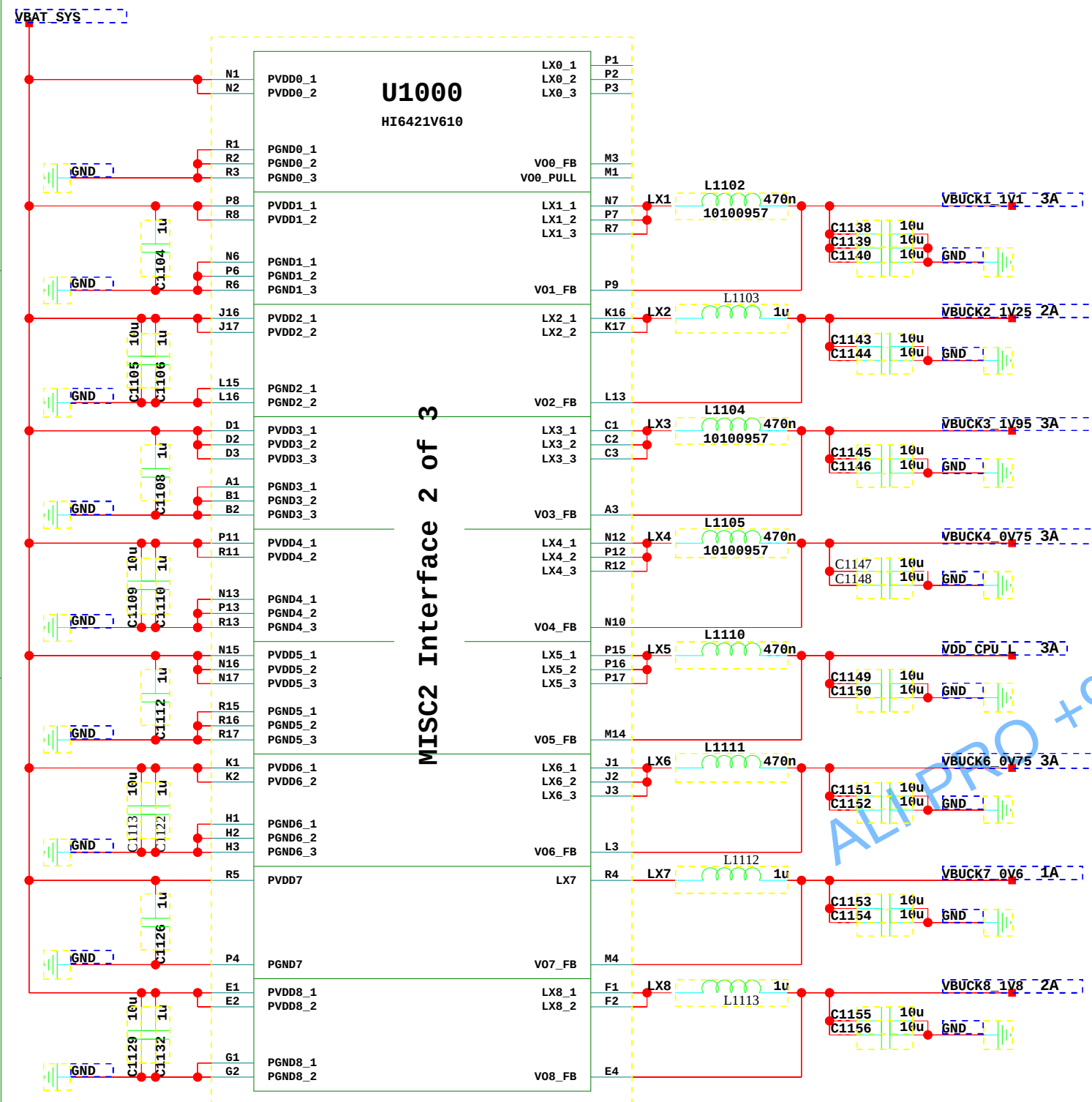
1	2
10. Hi6421 LDO	

NUM	Vol	Current	Function
LD00	0.75	300	SOC:UFS,SYS,PLL_SYS
LD01	1.09	350	RFIC0 AVDD10
LD02	1.8	120	SOC_EFUSE&HISEE
LD03	1.8	360	RFIC AVDD18,LNA_VDD
LD04	1.85	350	LCD&TP 1.8V IO
LD05	1.8	350	SOC 1.8V AVDD
LD06	0.85	550	SOC:AVDD085_ABB
LD07	1.8	350	SOC:AVDD18_ABB
LD08	1.8	250	IOVDD FOR Codec/RF
LD09	3.3	50	TP AVDD 3.3V
LD011	1.8/2.95	50	SIM0
LD012	1.8/2.95	50	SIM1
LD013	2.8	150	CAM_AVDD
LD014	2.85	50	RF switch VDD
LD015	2.95	800	UFS_VCC
LD016	2.95	800	TPIO_VDD
LD017	3.3	200	LCD&TP
LD018	1.8	400	PERI IOVDD
LD019	1.2	400	MCAM_DVDD0
LD020	1.1	400	MCAM_DVDD1
LD021	1.8	180	CAM IOVDD
LD022	1.09	350	RESEVERD
LD023	3.2	150	USB 2.0 PHY
LD024	2.8	200	Sensor VDD
LD025	2.85	150	MCAM_DRVVDD
LD026	1.7	30	38.4MHZ XO CORE
LD027	1.8	30	HKADC,XOADC
LD028	1.8	120	RF switch VIO
LD029	1.8	120	VPH_UFS,PLL_SYS
LD030	0.75	400	FIX 0.75 For SOC
LD032	1.1	400	SlaveCAM_DVDD
LD033	2.8	150	MCAM_AVDD0
LD034	3.3	200	Laser/FP/PD VDD
LD035	2.9	50	CODEC_AVDD
LD036	1.2	10	UFS refclk/rst IO

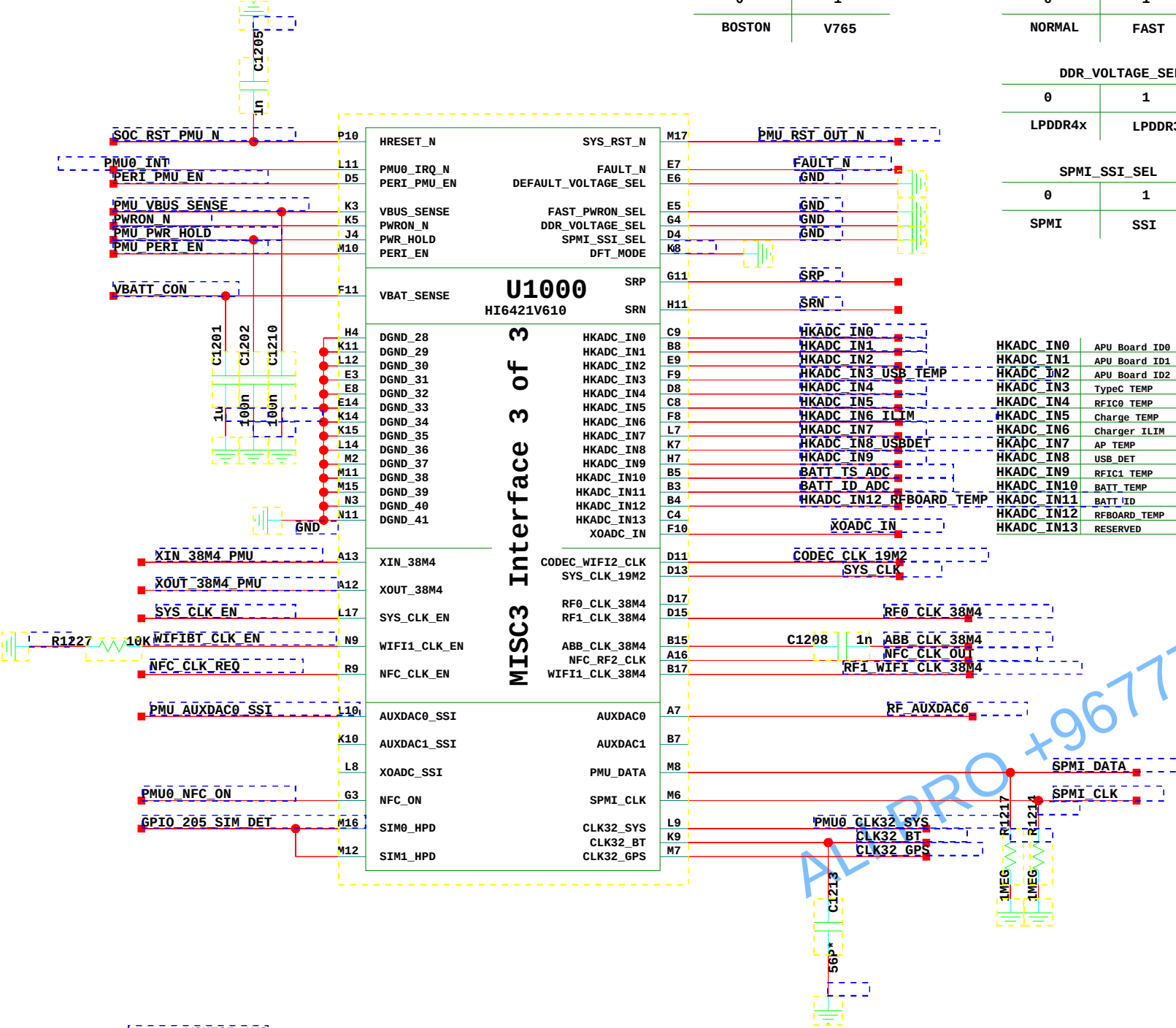


11.Hi6421 BUCK AND Hi6423

Hi6423

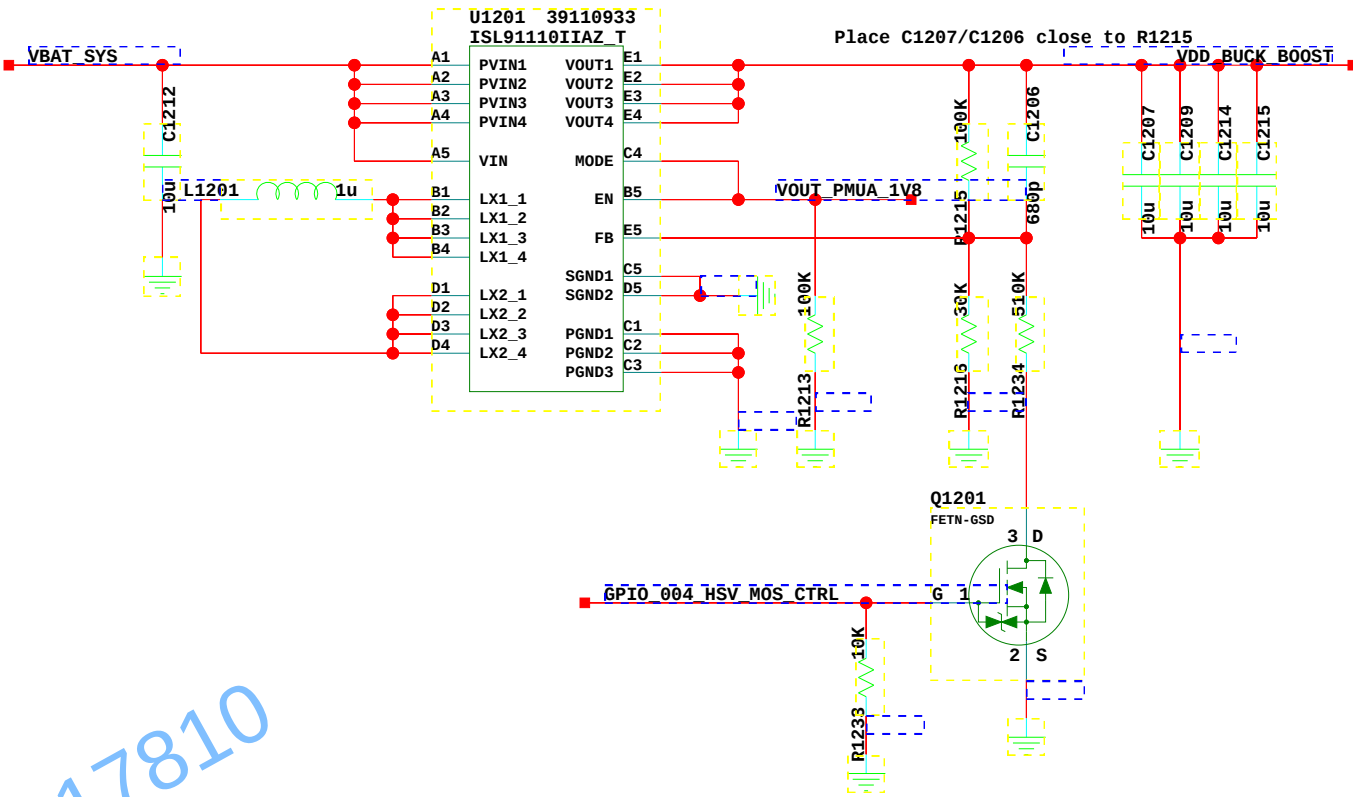


12.Hi6421 DIGITAL INTERFACE



BUCK BOOST

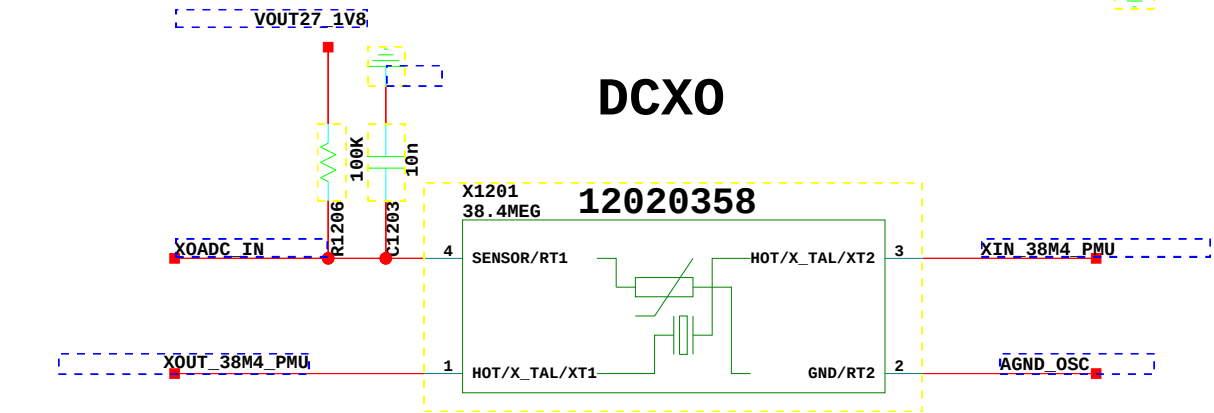
$V_{out} = 0.8 * (1 + R1/R2) = 3.467V$



BOARD ID Table

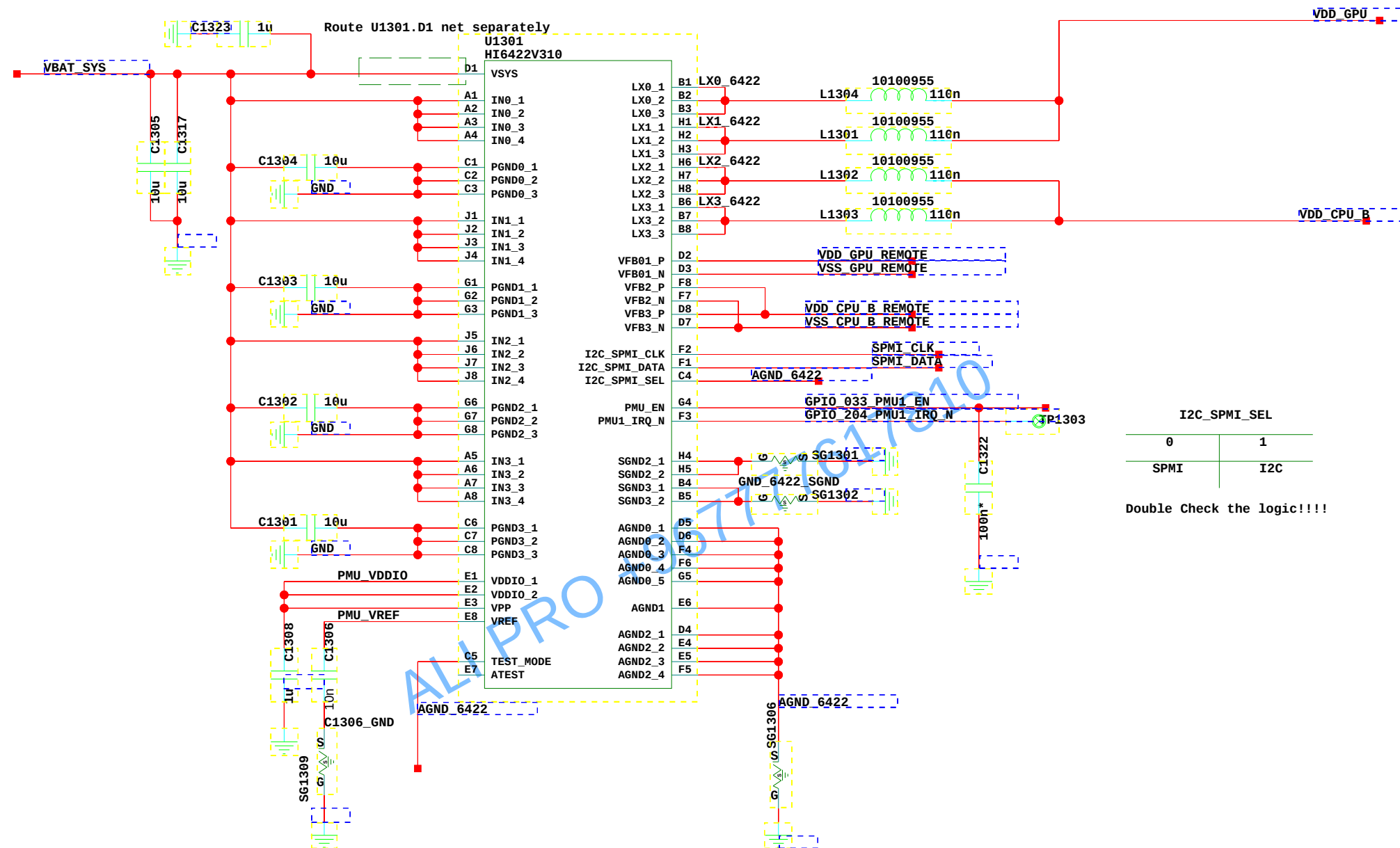
Board ID	HKADC2	HKADC1	HKADC0
V1	5	2	1
V3			

DCX0

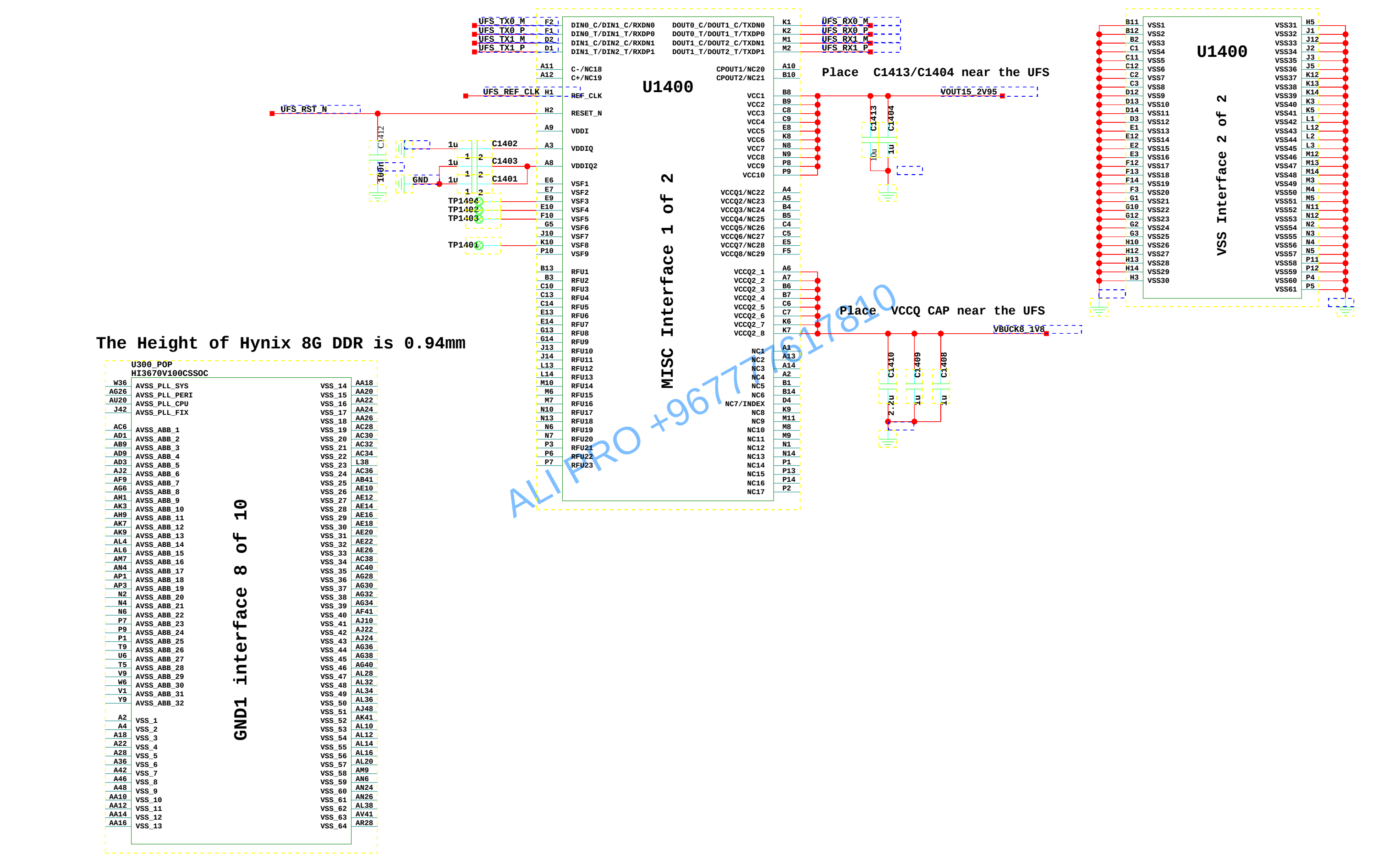


C1216 Should Be Layed Close To Wifi

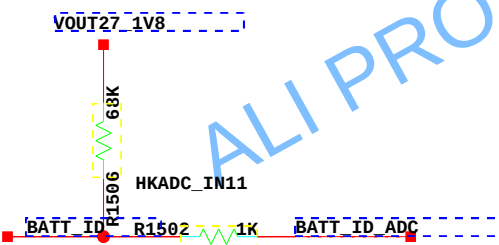
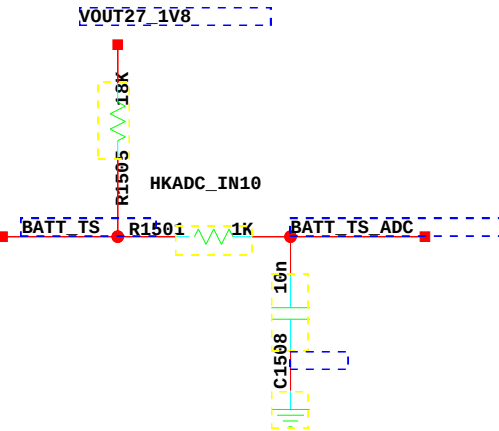
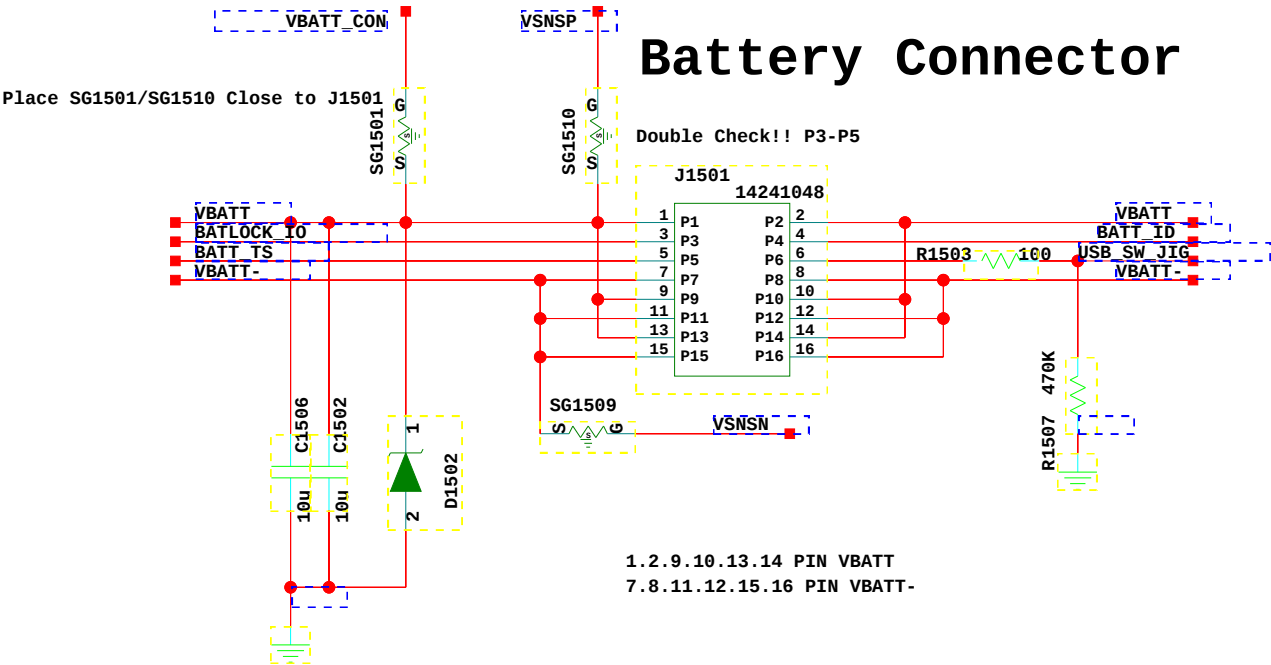
13. Hi6422V300



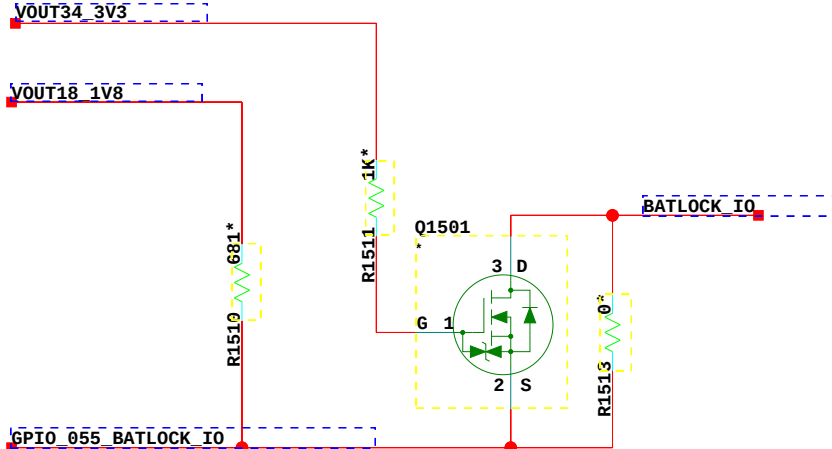
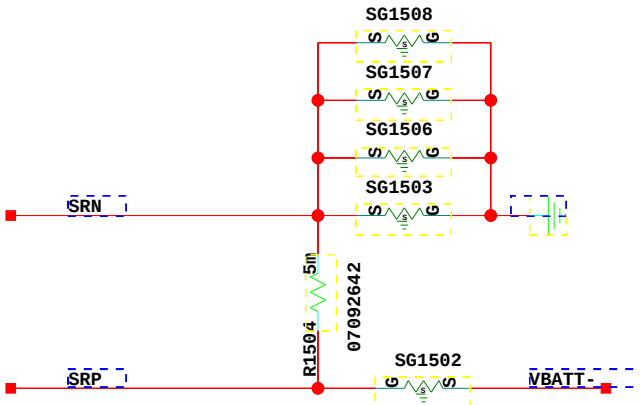
14.UFS



15. Battery & Fuel gauge



CAD note:1.Trace for 6A
2.Differential trace



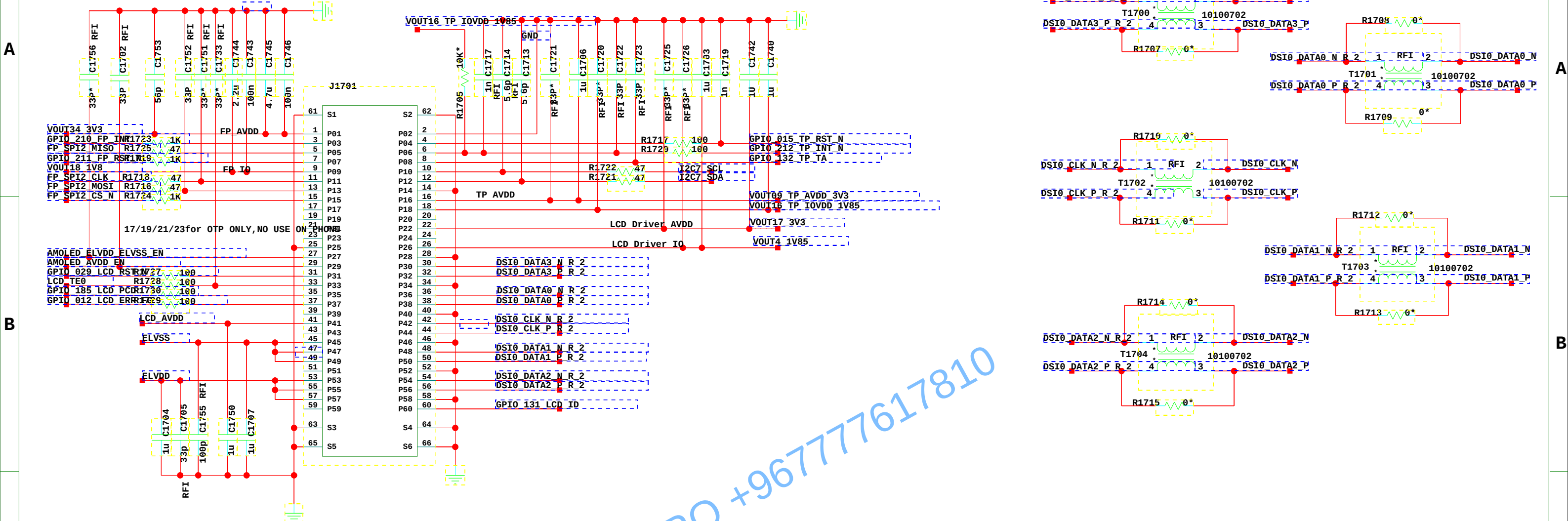
A



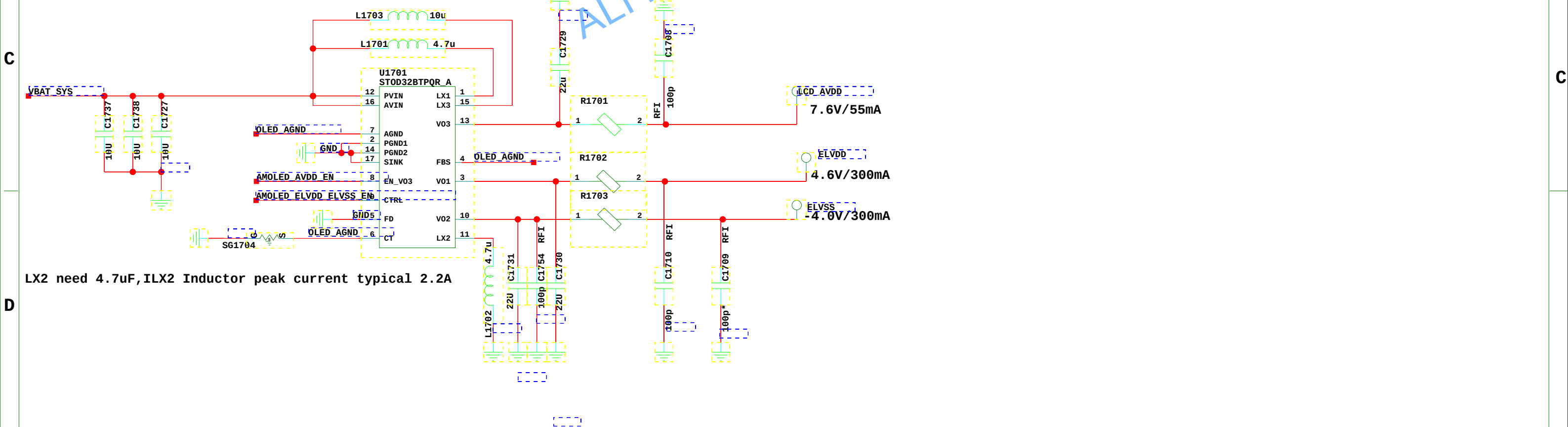
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17. LCD Interface

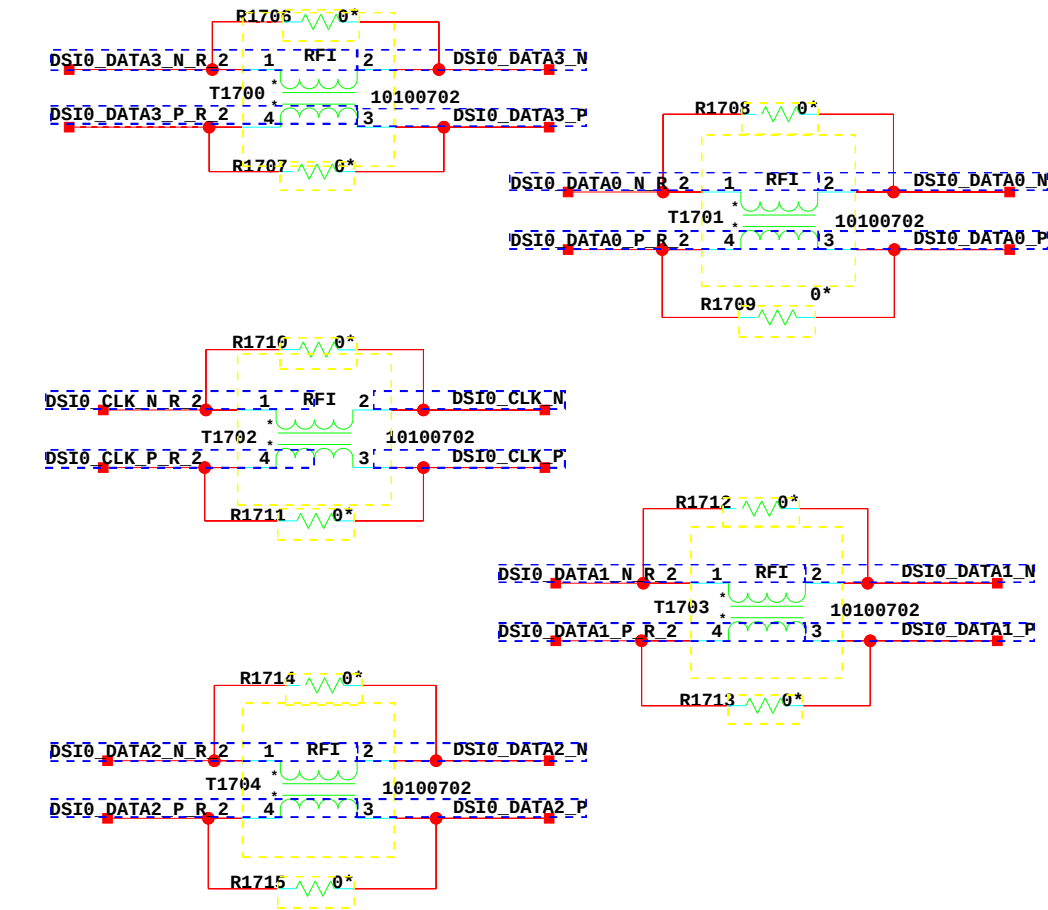


AMOLED Voltage Driver LX1 need 4.7uF, ILX1 Inductor peak current typical 1.0A



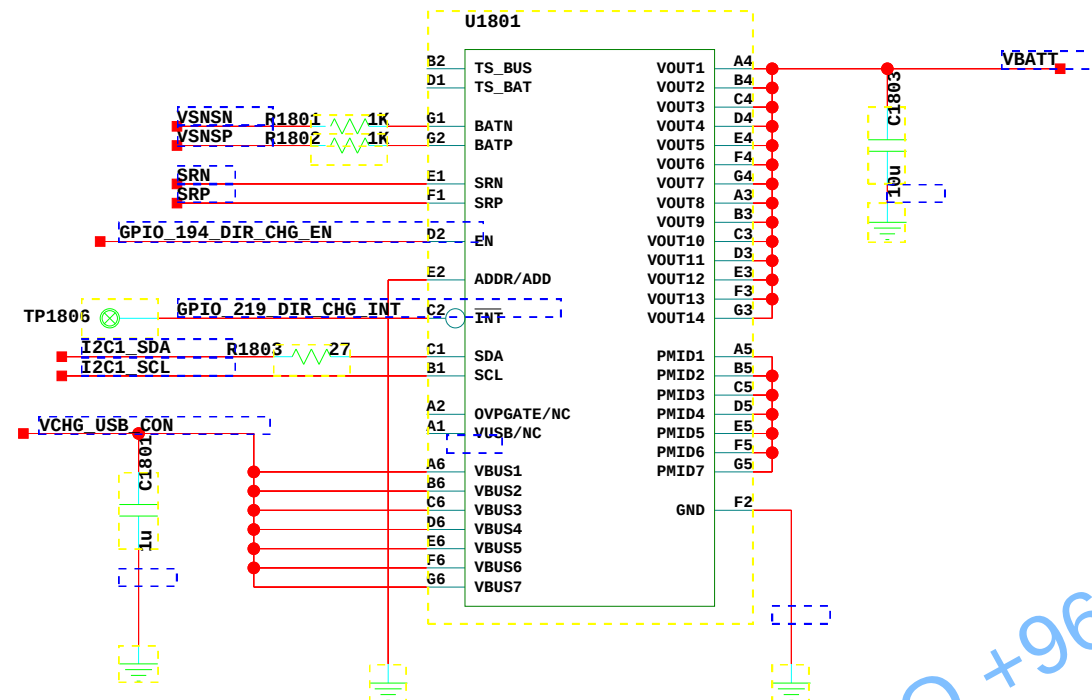
LX2 need 4.7uF, ILX2 Inductor peak current typical 2.2A

Resistors Share PADs with Inductors



18. Direct Charge LoadSwitch

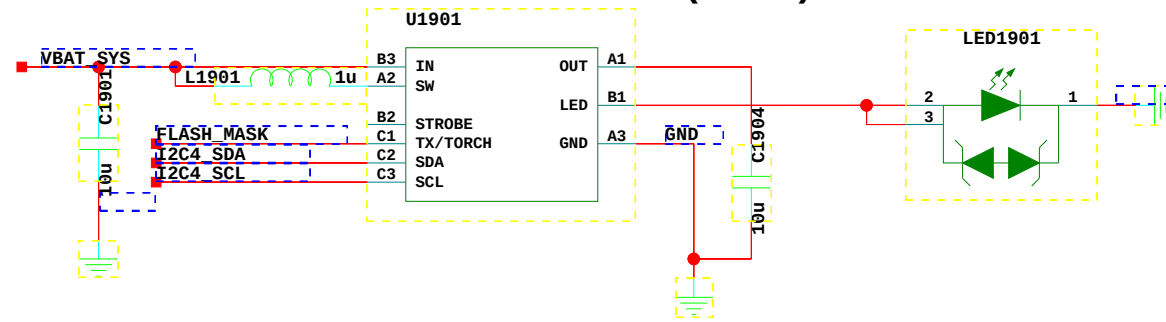
I2C Address=1100111(0x67)



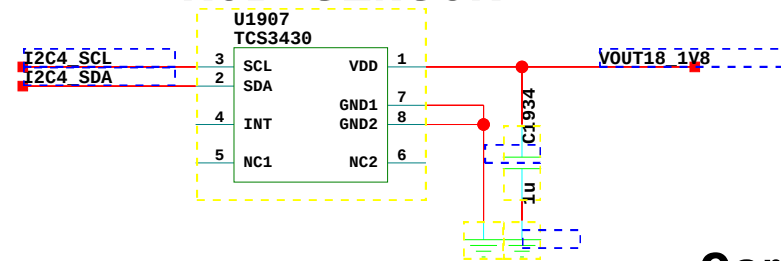
ALI PRO +967777617810

19. Flash LED

I2C Address=1100011(0x63) For TI
I2C Address=1100111(0x67) For MPS

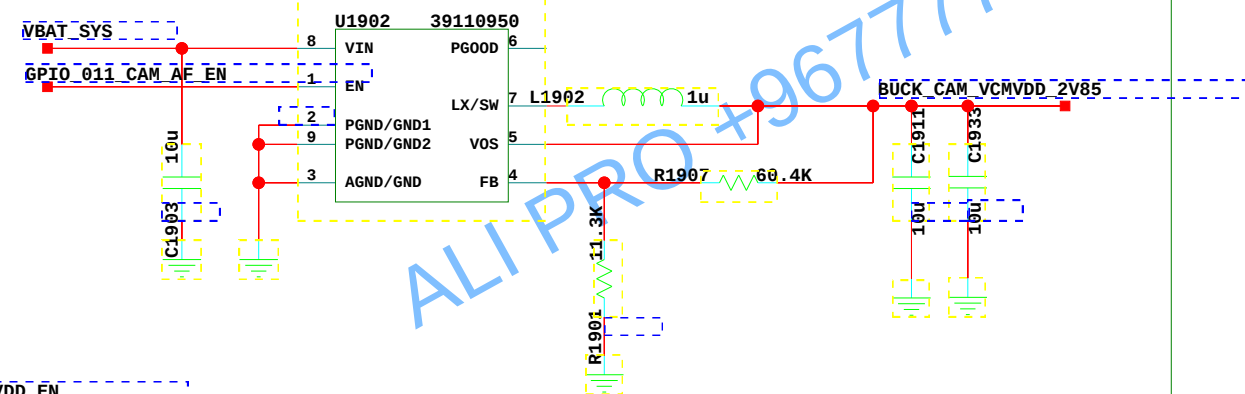


RGB SENSOR

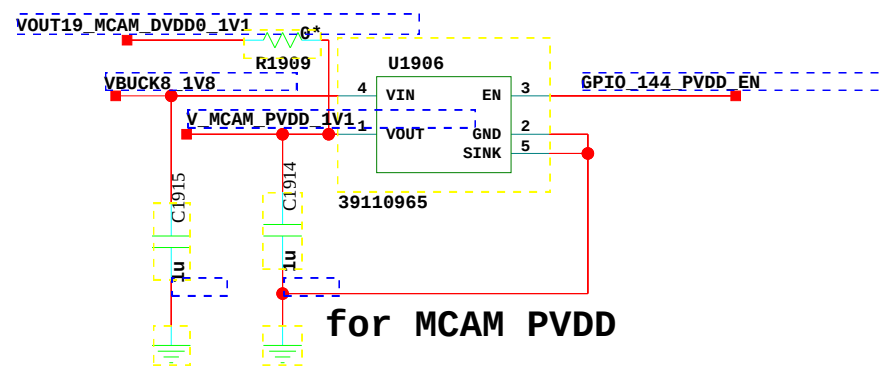


Camera BUCK

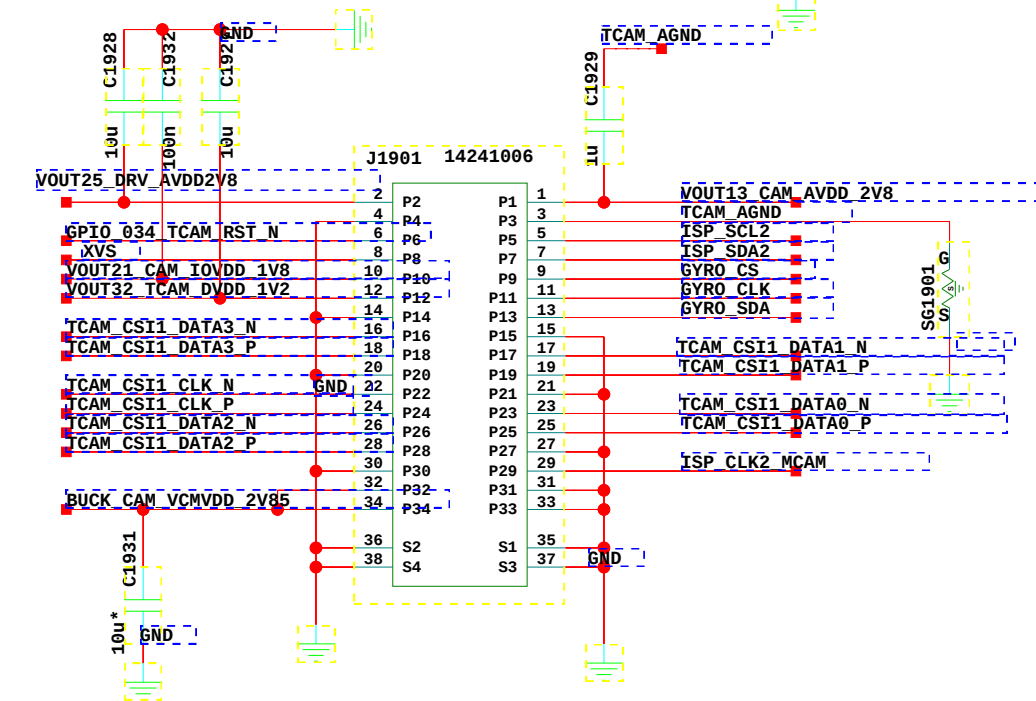
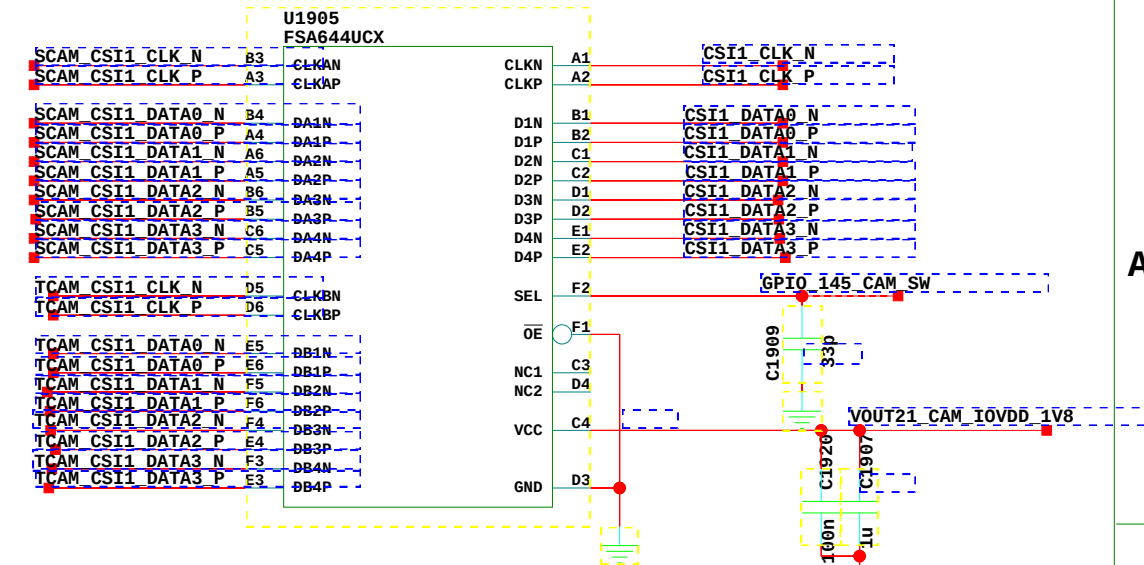
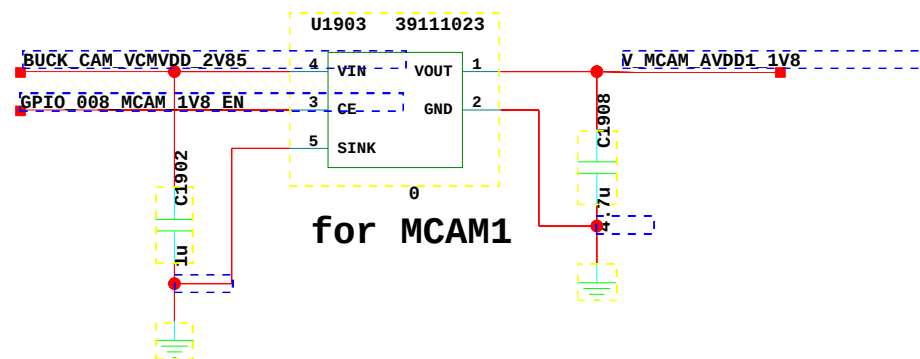
$$V_{OUT} = 0.45V * (1 + R_{1901}/R_{1902}) = 0.45 * 6.35 = 2.85V$$



for MCAM PVDD

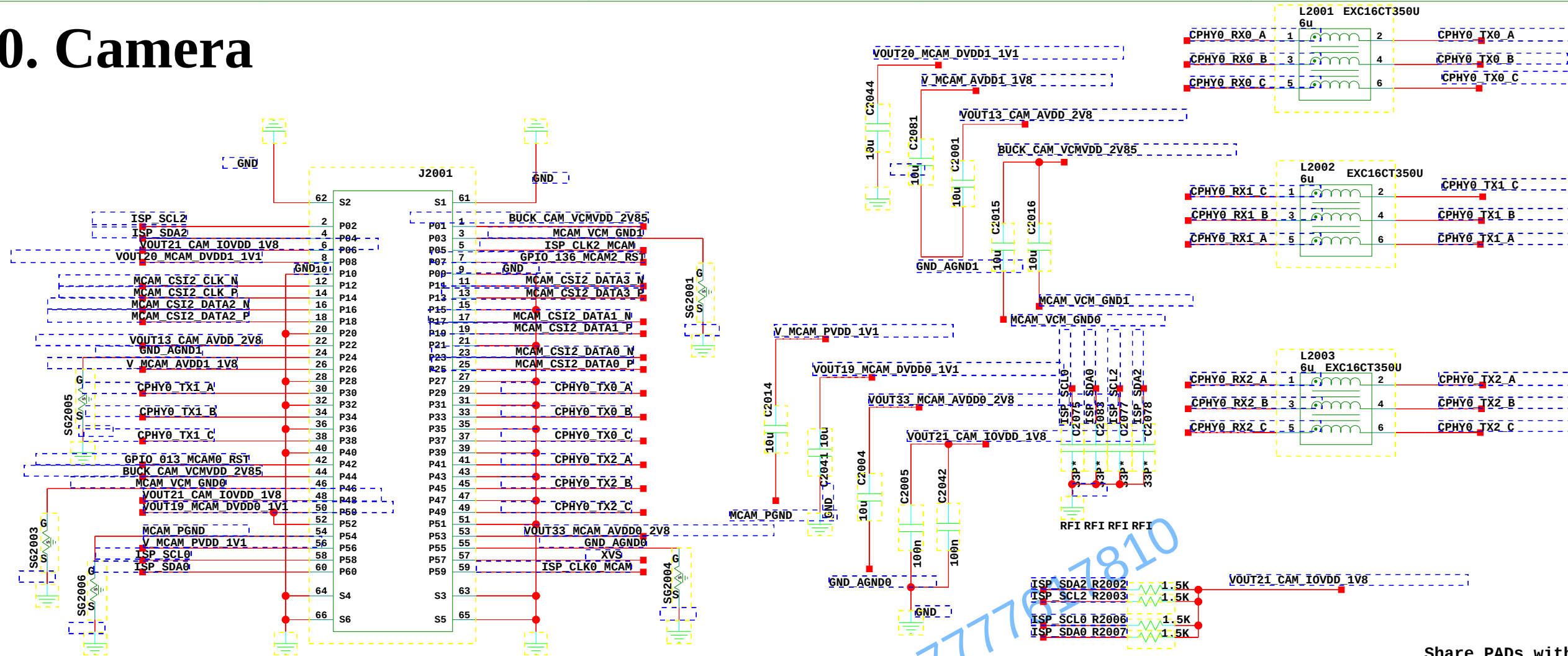


for MCAM1

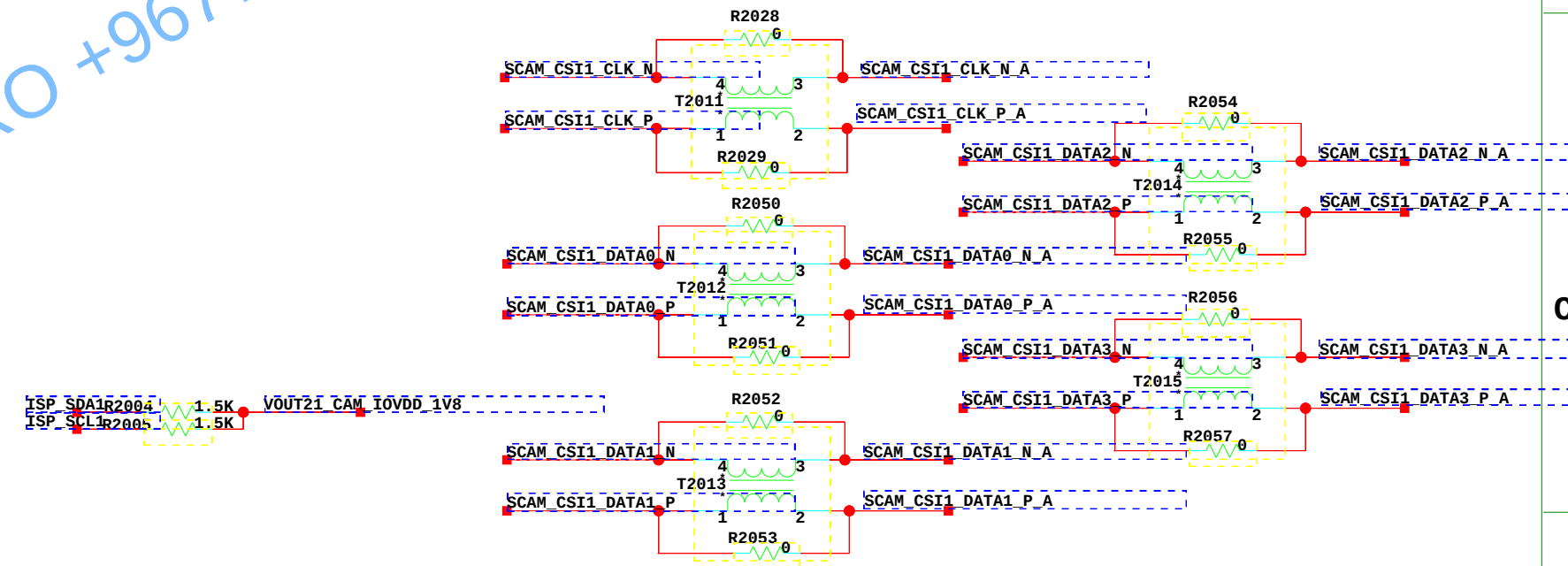
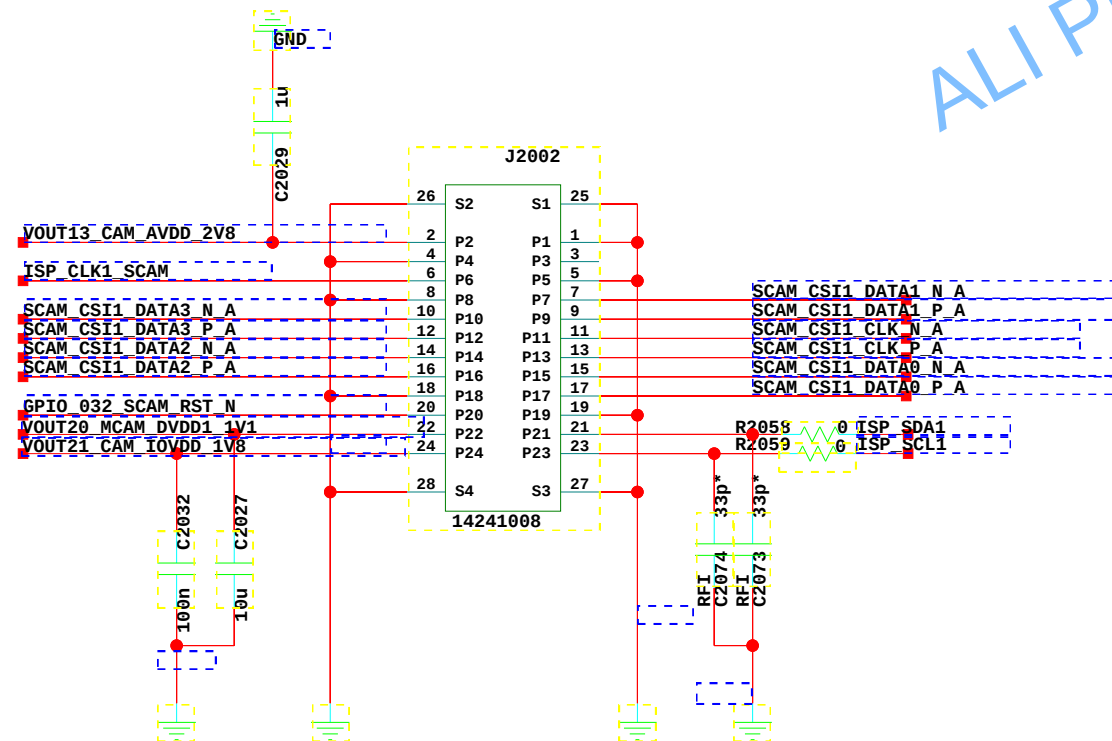


Shelter
R1910
R1911

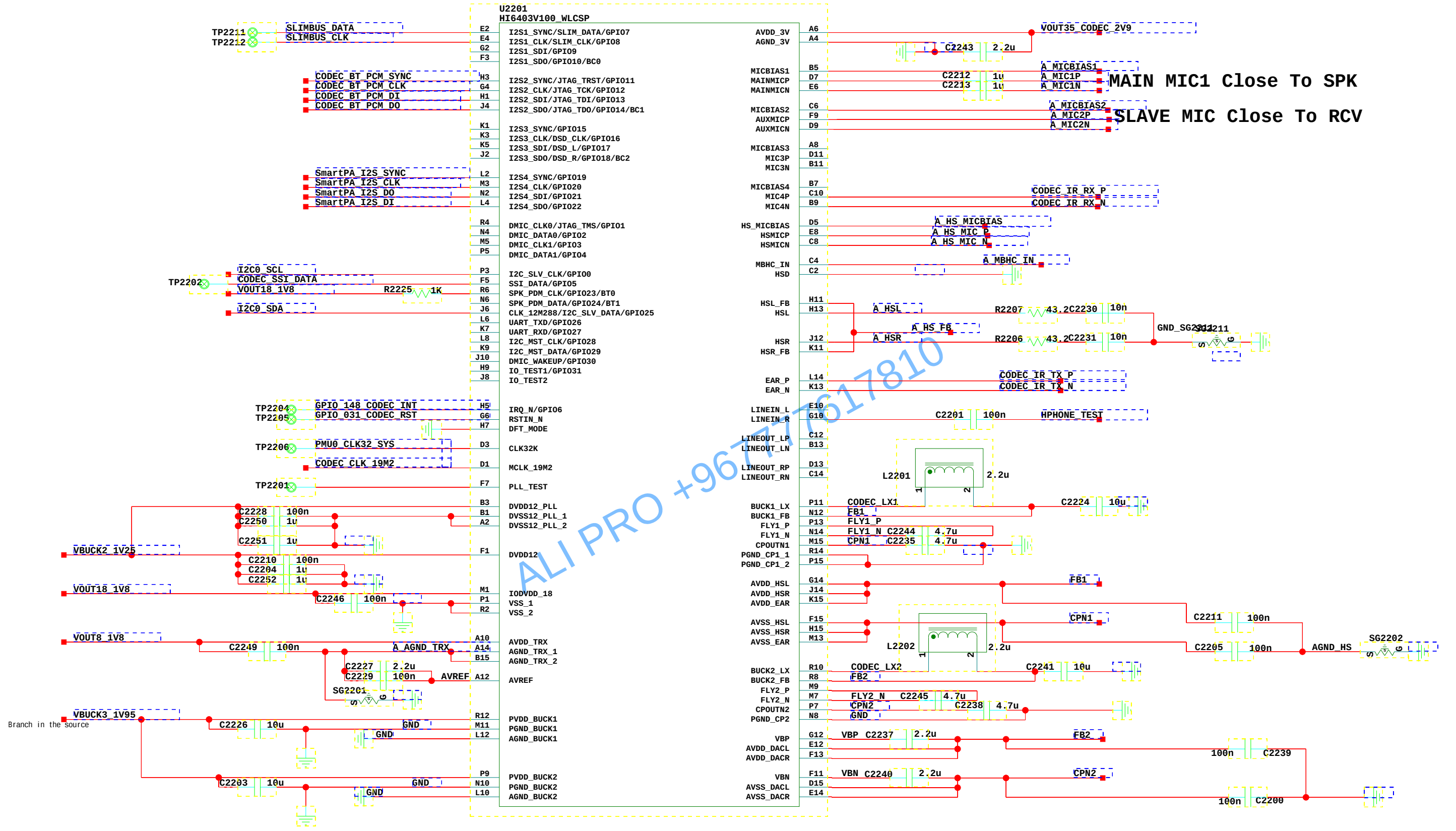
20. Camera



Share PADs with Inductors



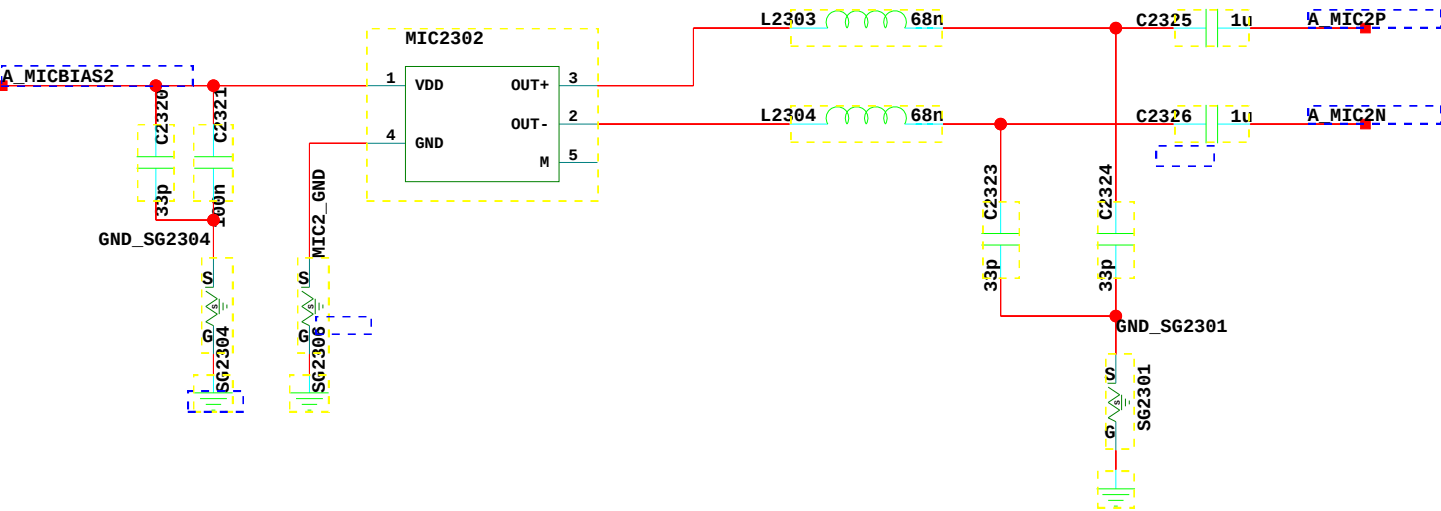
22.CODEC HI6403



BootMode0	BootMode1	Function(BootROM Start)
1	1	NA
1	0	SSI Start
0	1	I2C Start
0	0	SLIMBUS Start

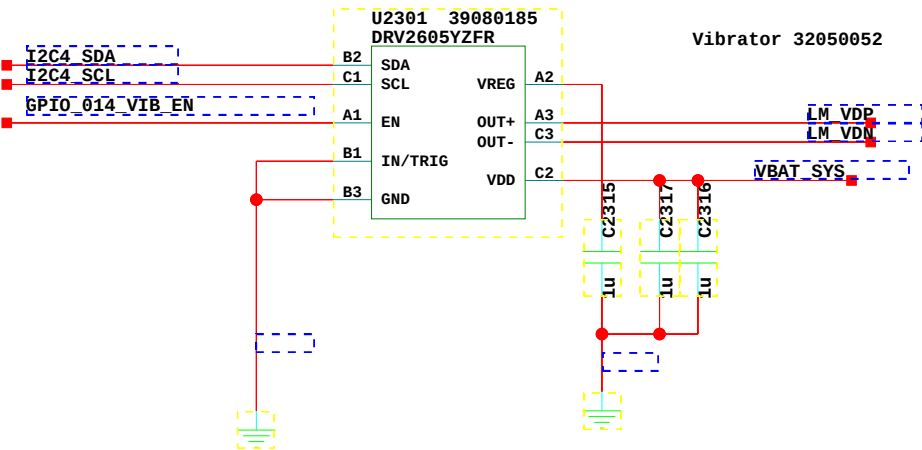
23. MIC/VIB

Slave MIC

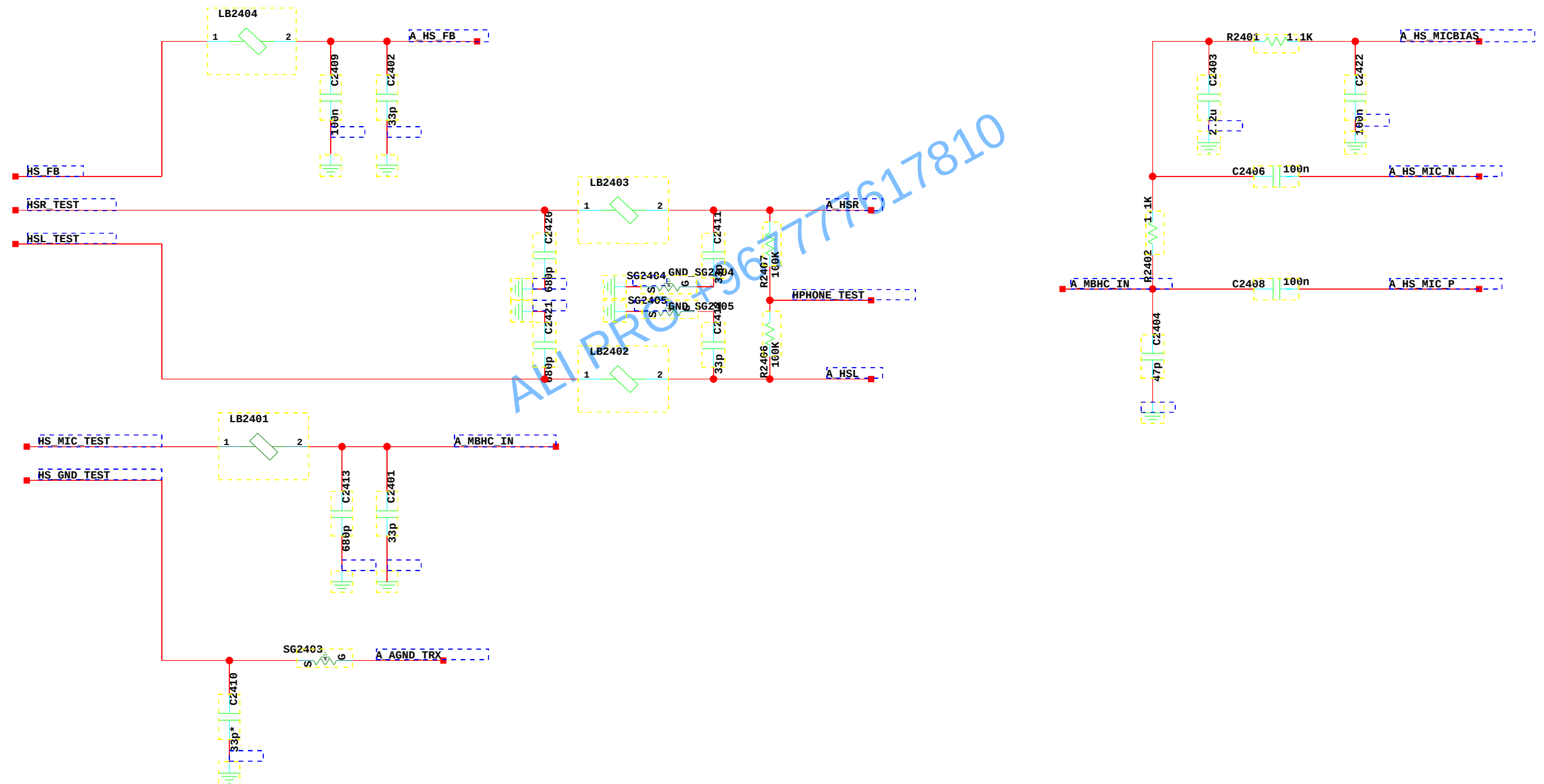


Linear Vibrator Driver

I2C address=1011010(0X5A)

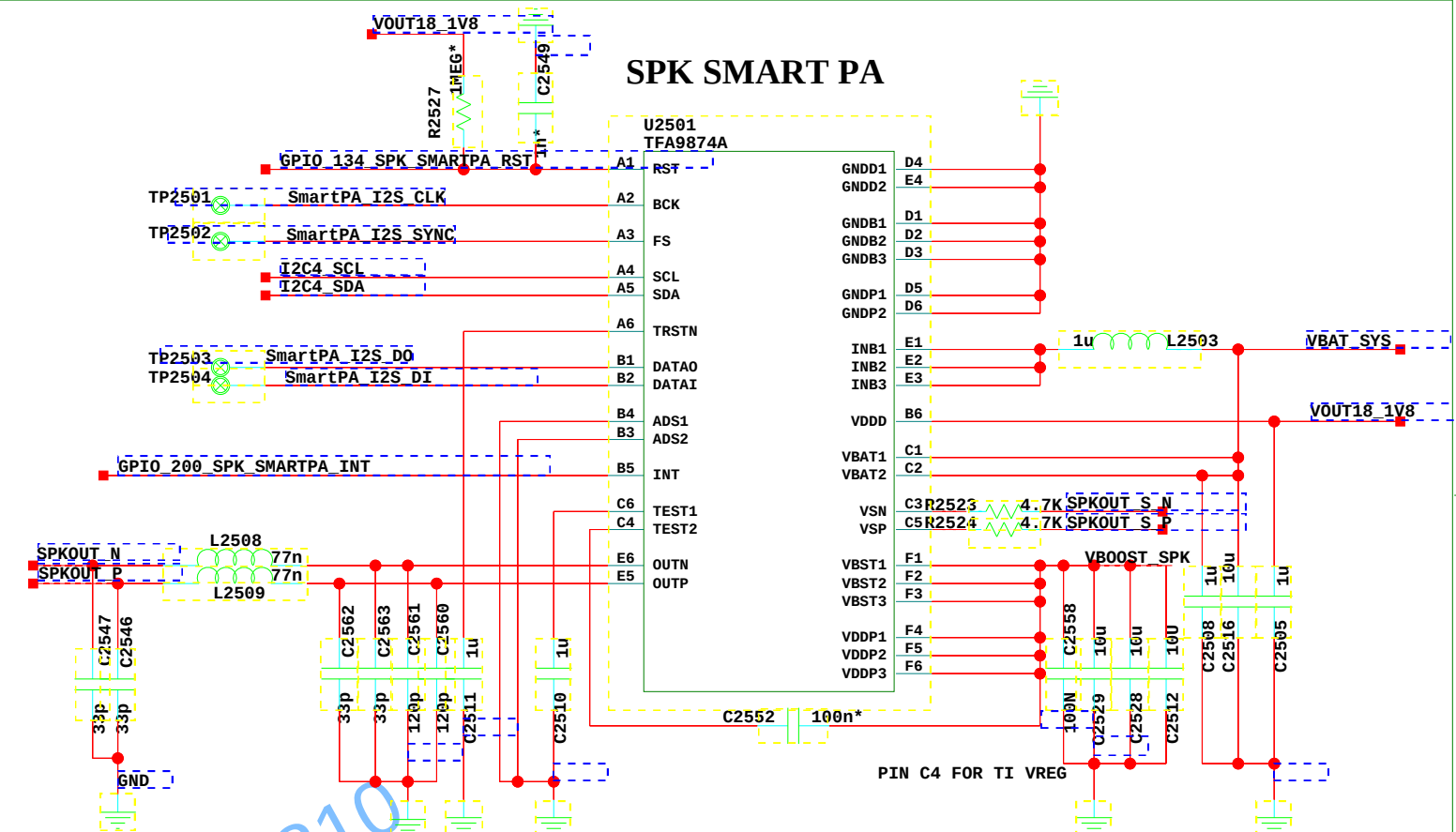
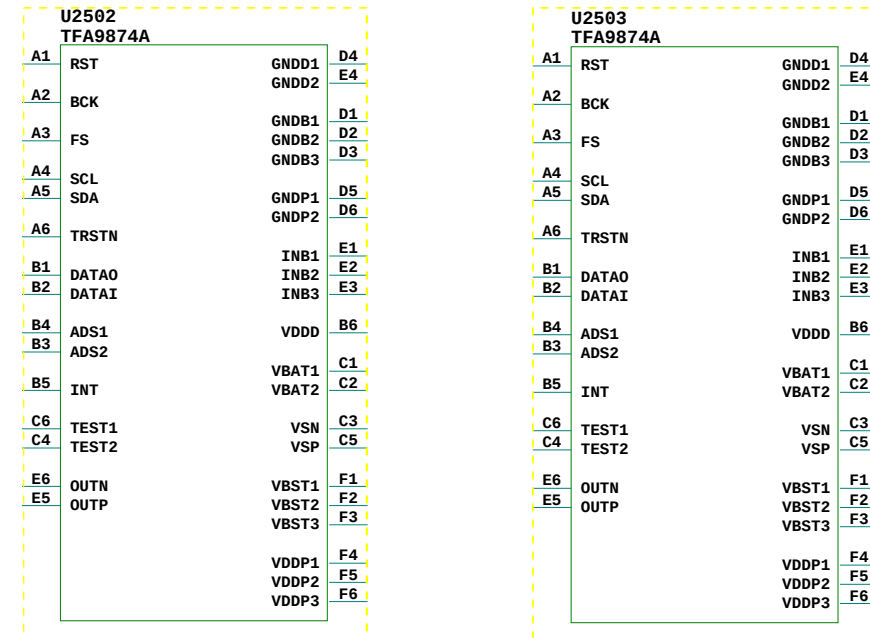


24. Headphone

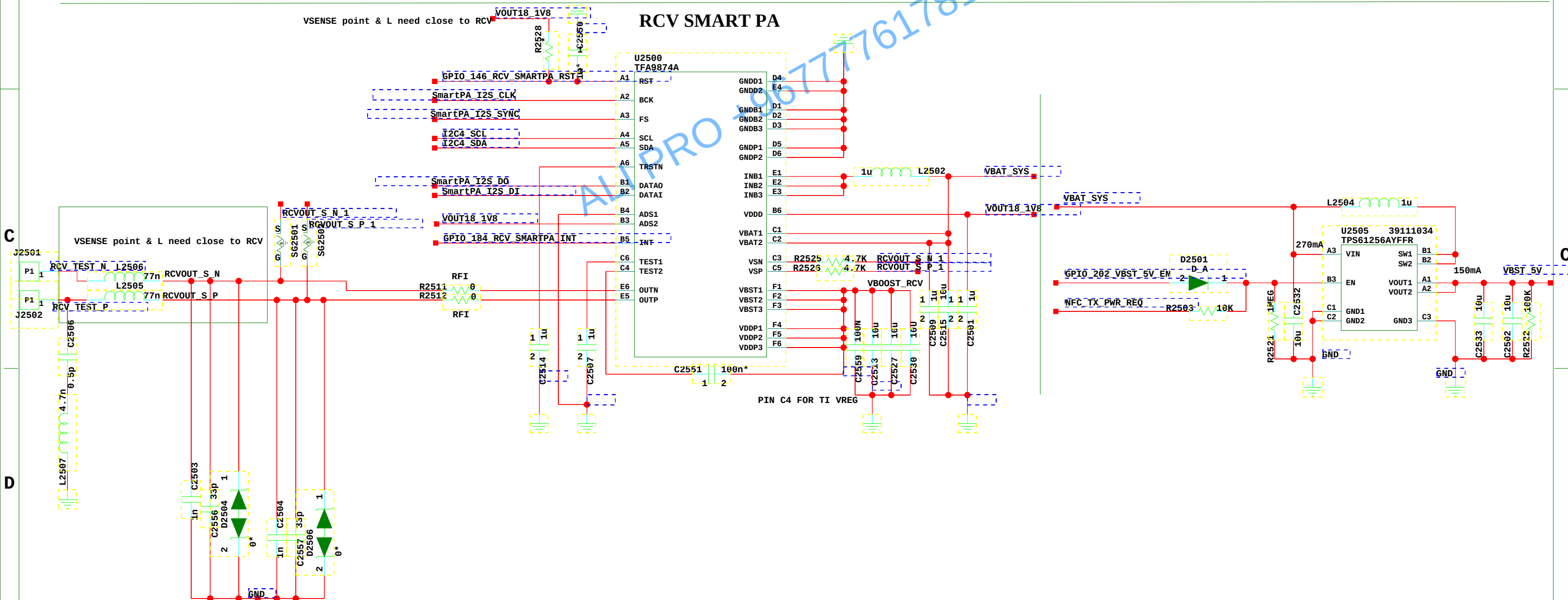


25. Audio

RCV SMART PA FOR CIRRUS SPK SMART PA FOR CIRRUS



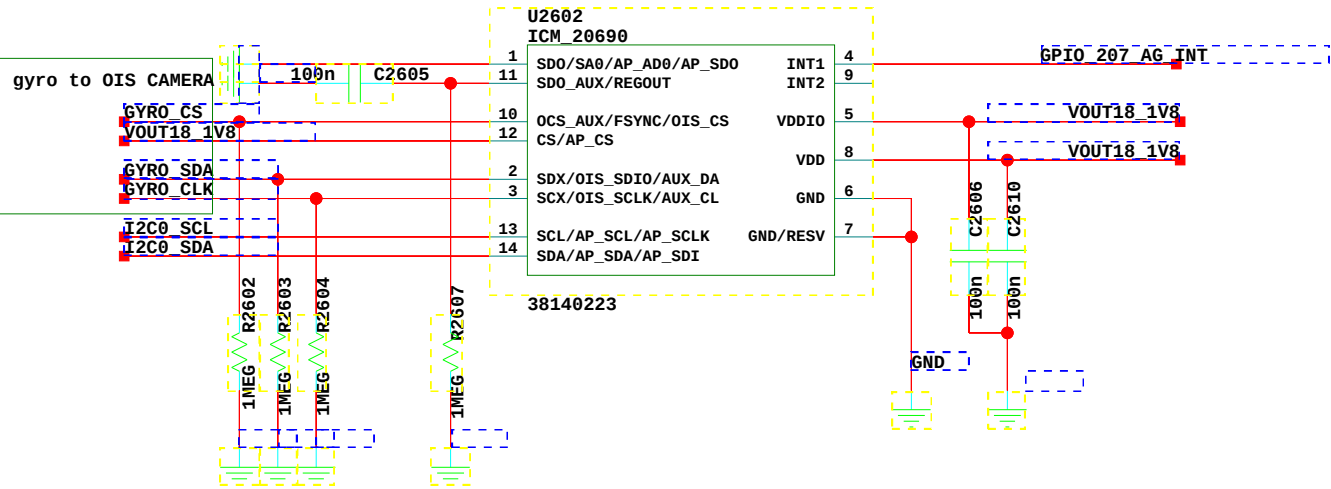
RCV SMART PA



26. X-Sensor

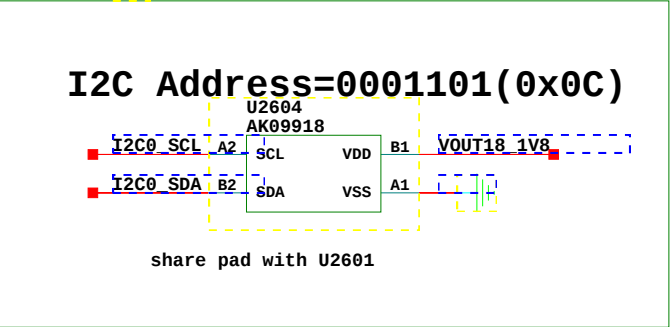
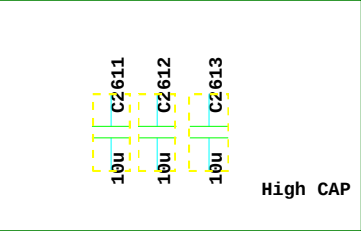
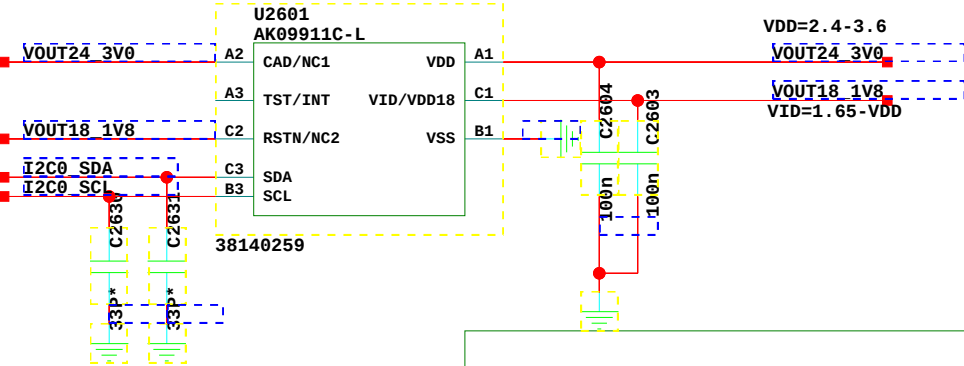
Accelerometer and Gyroscope 6-AXIS SENSOR

SD0=1 ADDRESS=0X6B(ST)/0X69(INVENSENS)
SD0=0 ADDRESS=0X6A(ST)/0X68(INVENSENS)



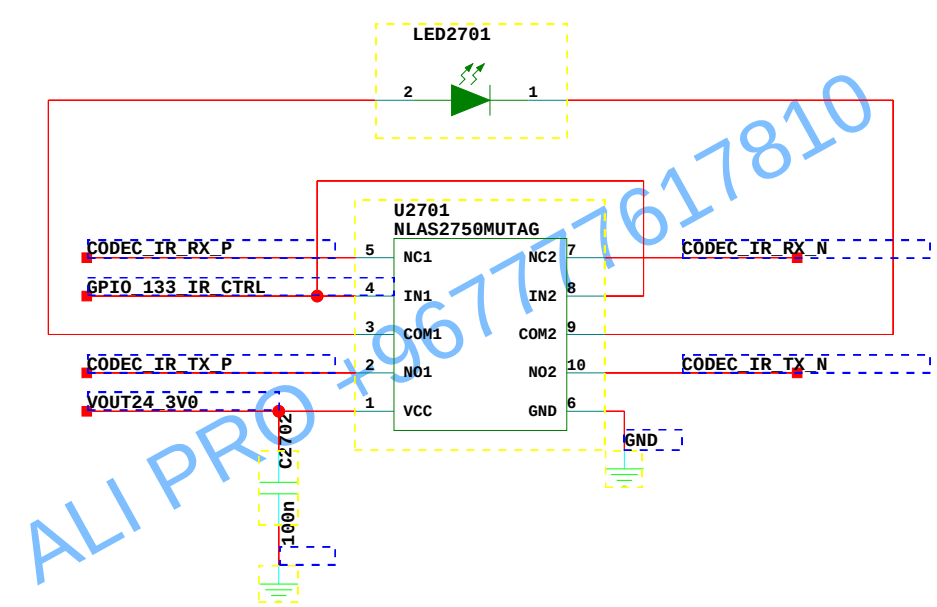
Compass

I2C Address=0101110(0x2E) For YAMAHA
I2C Address=0001101(0x0D) For AKM

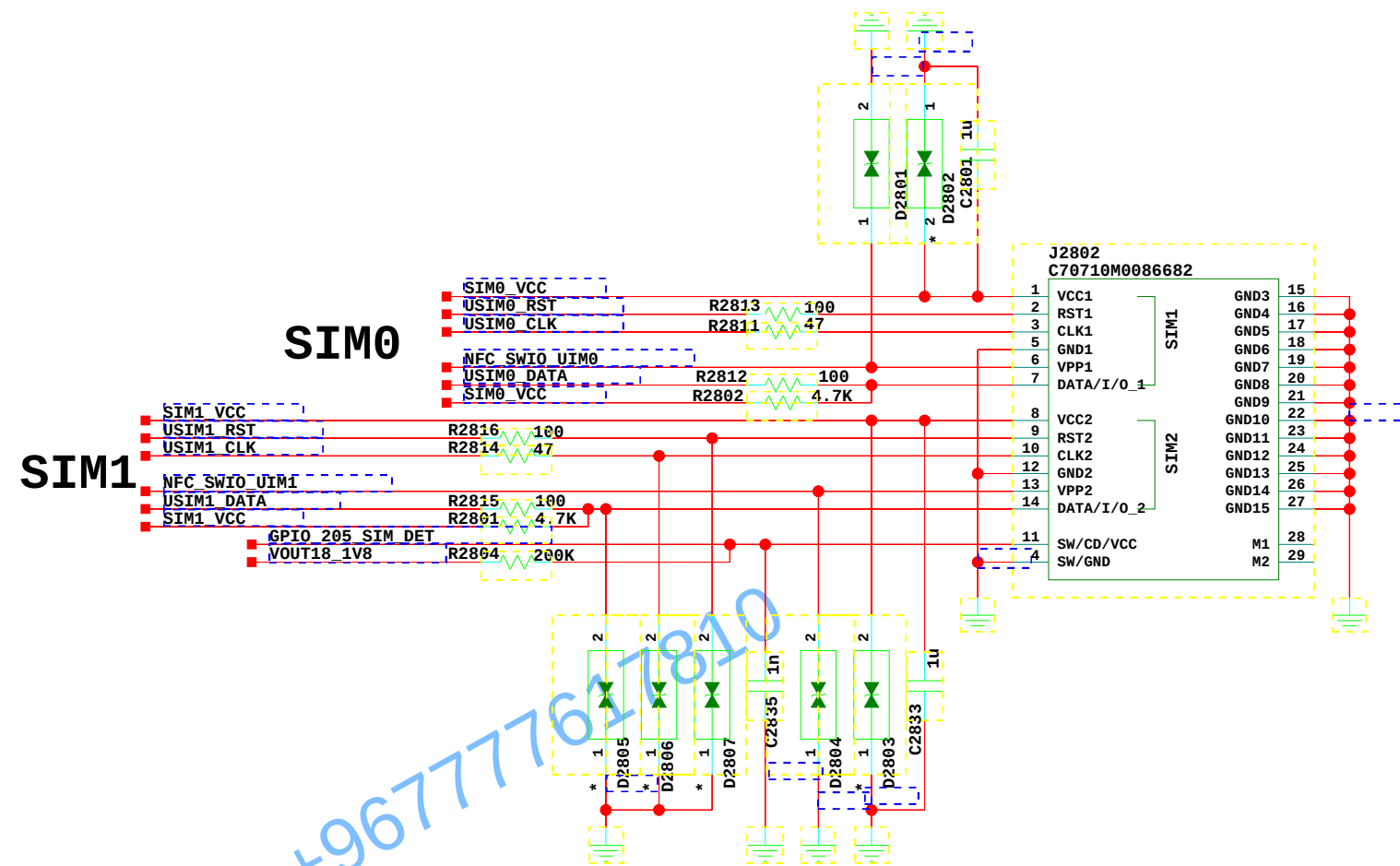


27. X-Sensor+IrDA

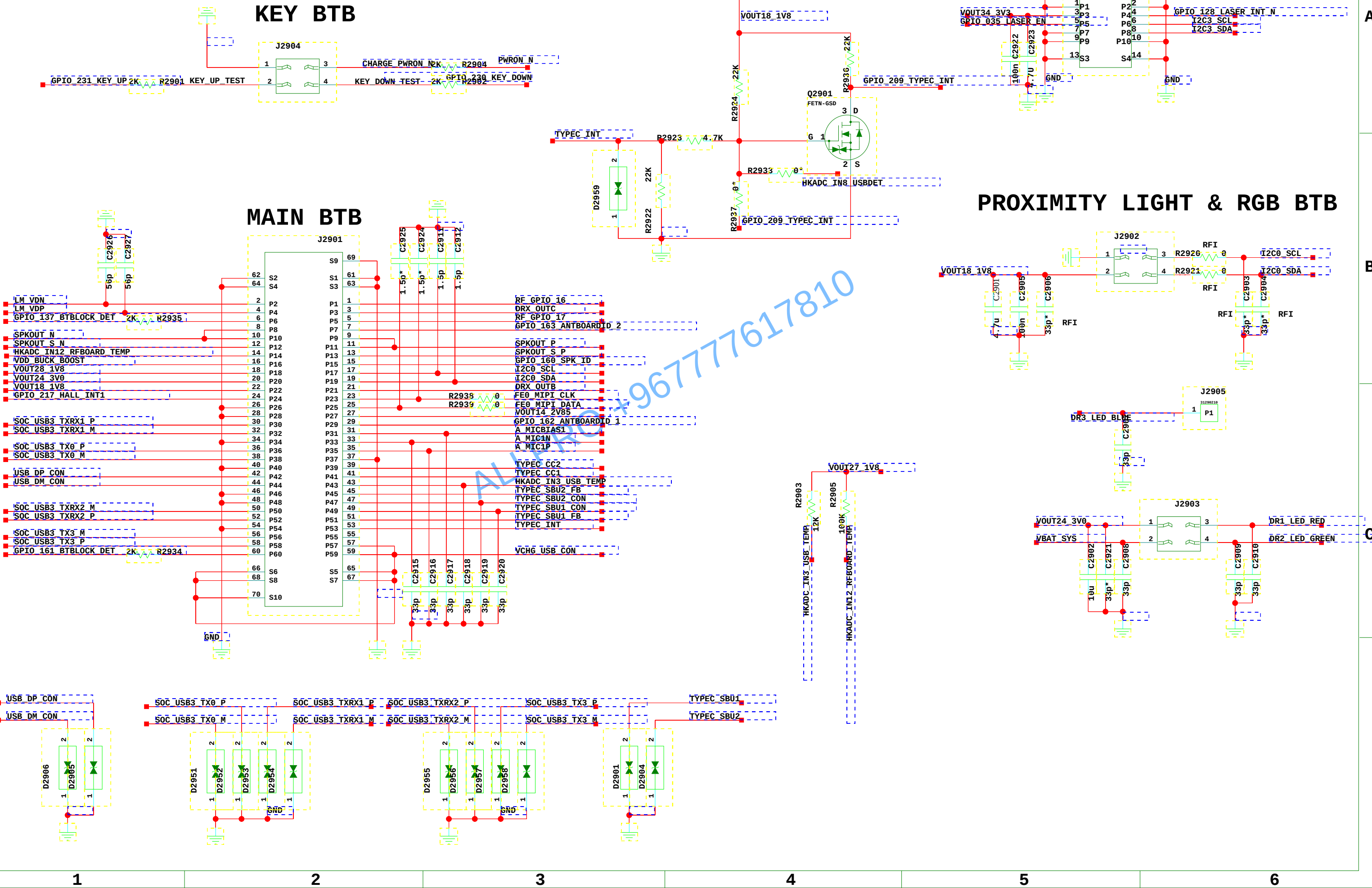
IRDA Control



28.SIM/uSD Card

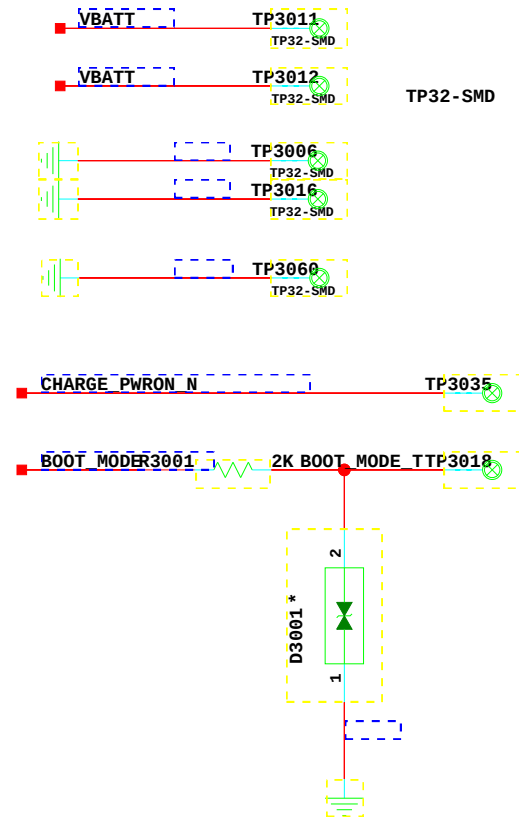


29. FPC Interface

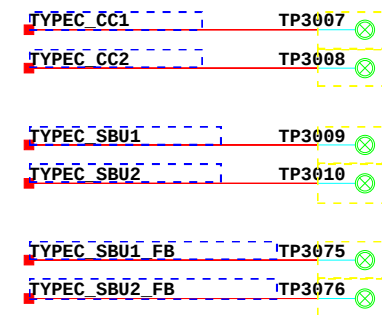


30. Test Points/Shields

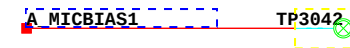
CBT TEST POINT



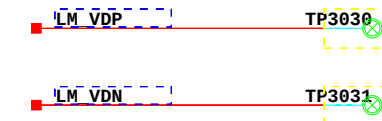
TYPE C



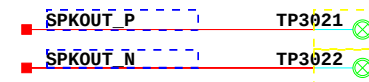
MIC



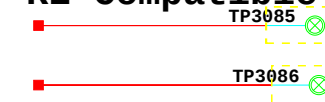
Vibrator



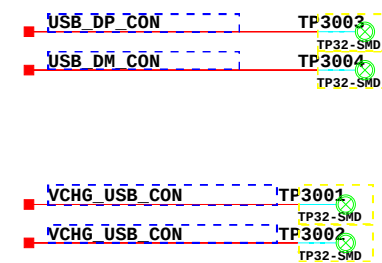
Speaker



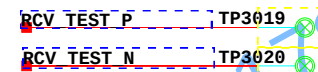
R1 Compatible



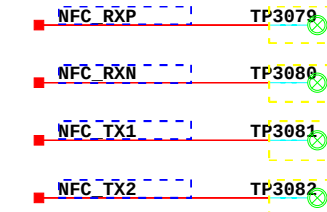
USB



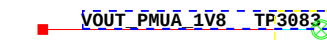
RCV



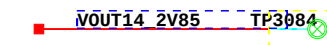
NFC



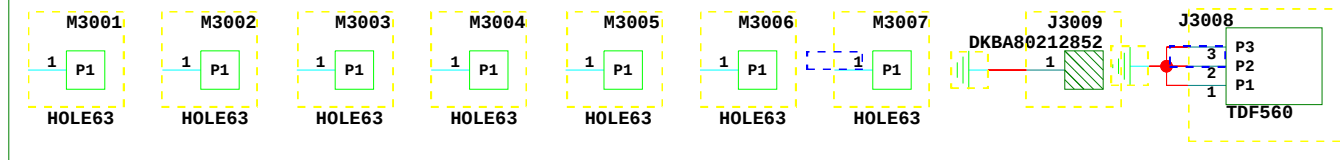
V_BUCK_BOOST



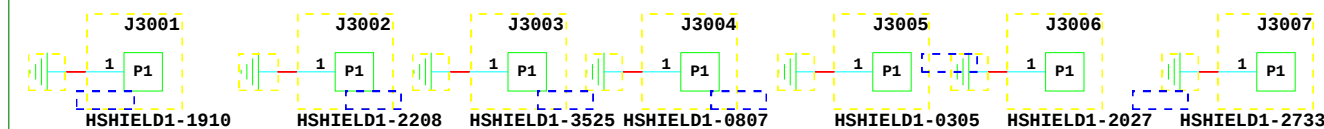
RF



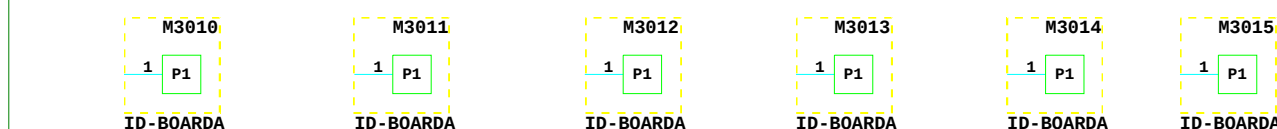
HOLE



SHIELD

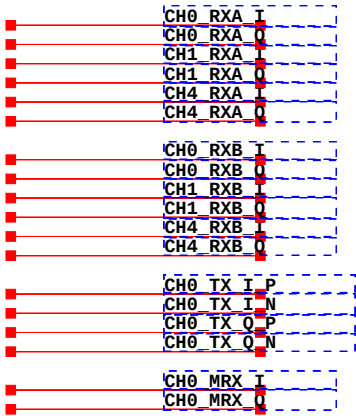


Mark Point

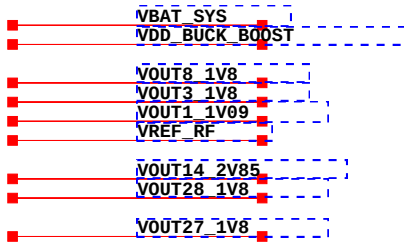


31.RF Interface

RFIC IQ



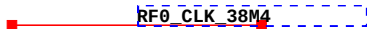
POWER



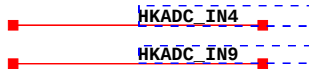
GSM



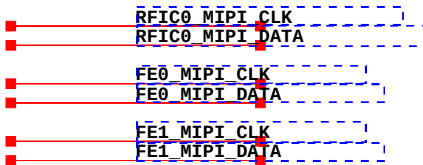
CLK



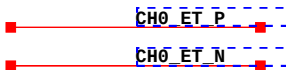
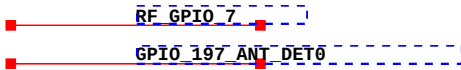
HKADC



MIPI Interface

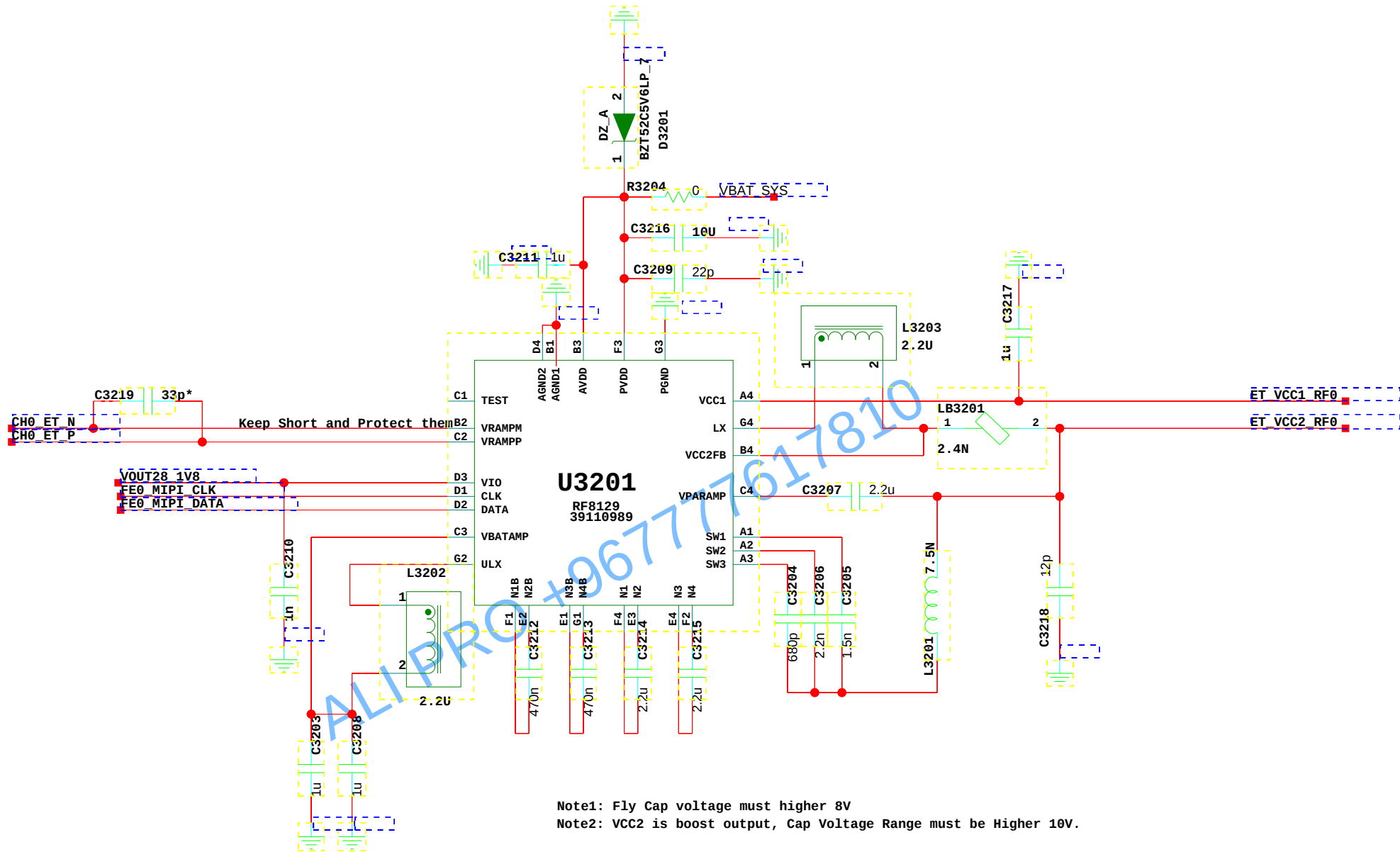


GPIO Interface



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32. RF PMU



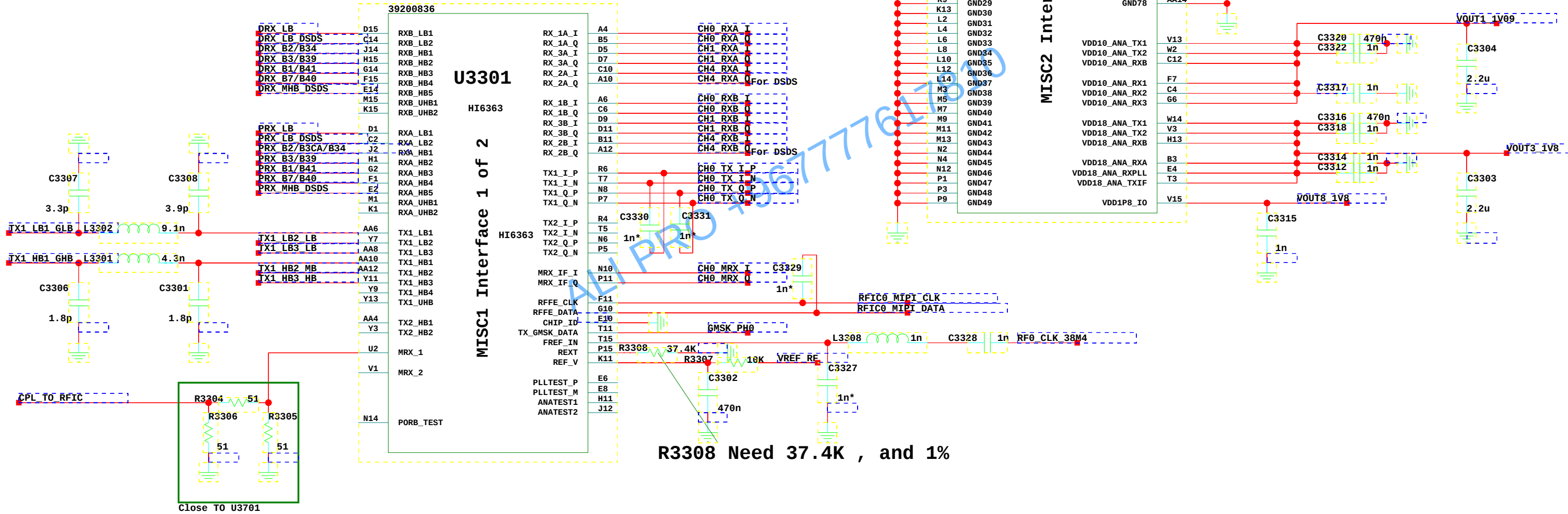
33.RF Transceiver_HI6363 _01

A

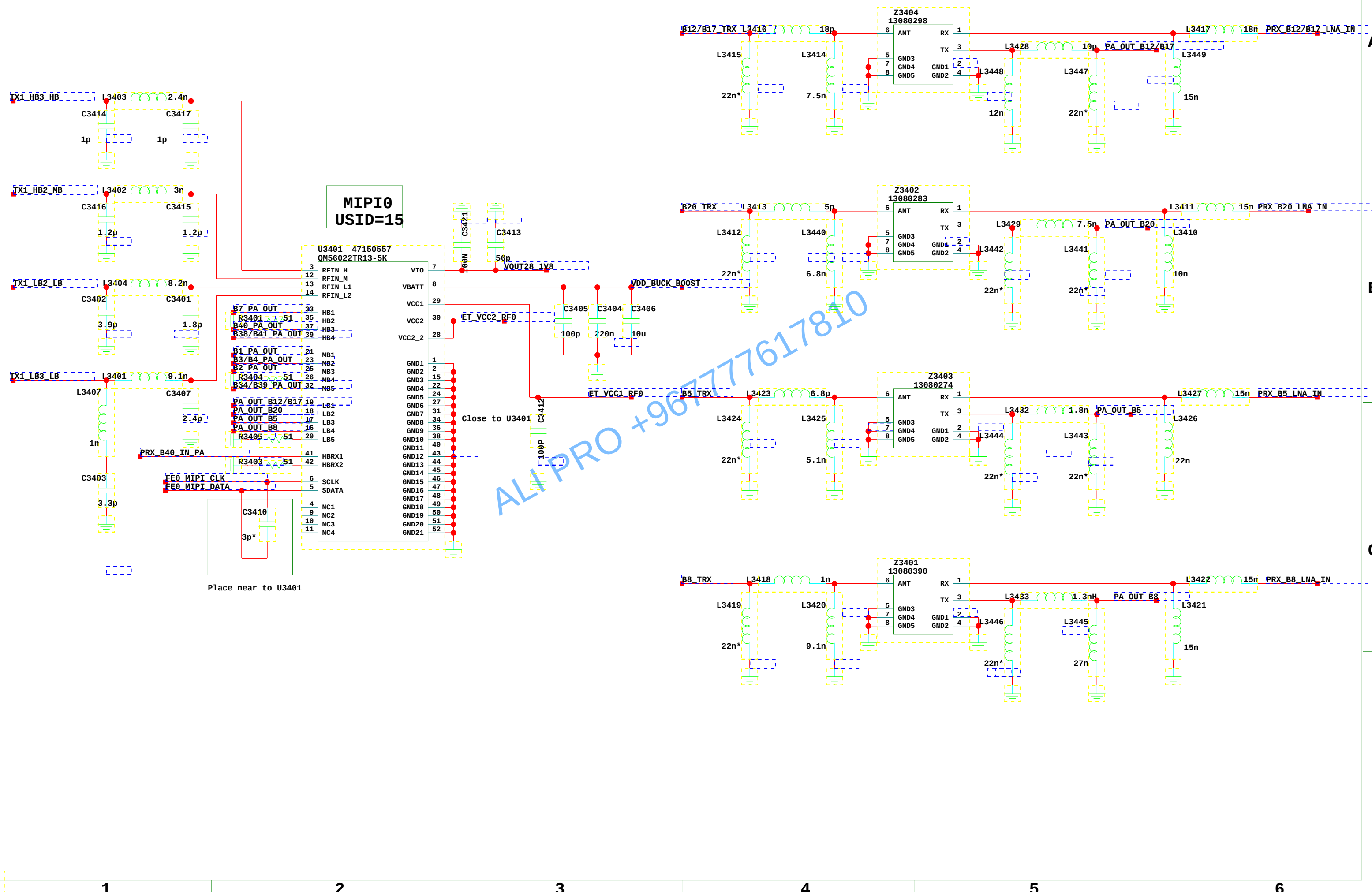
B

C

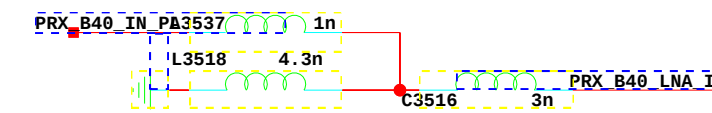
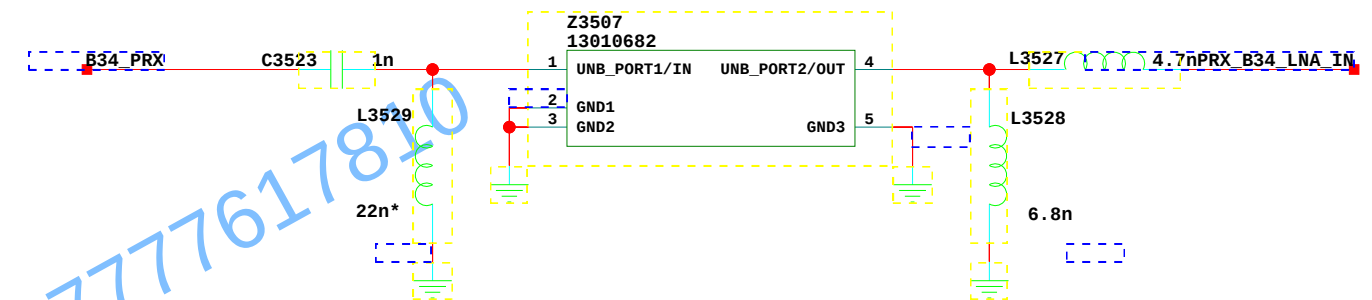
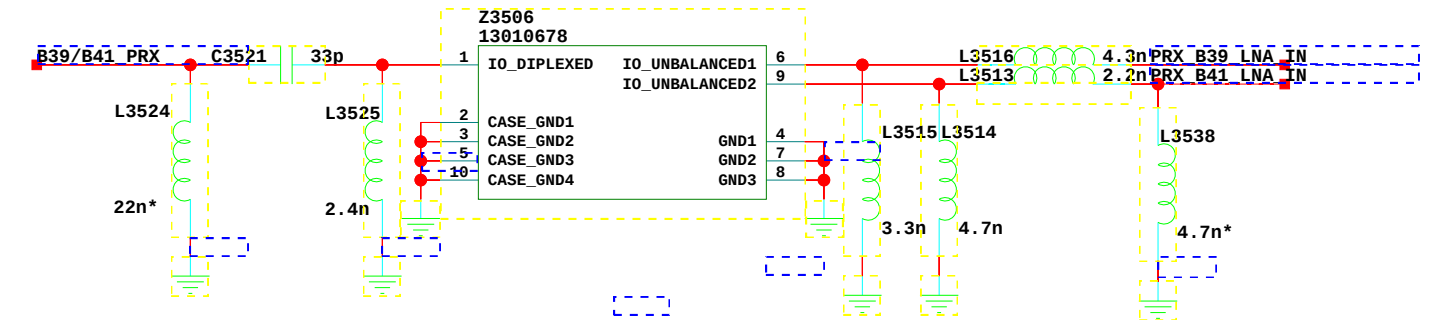
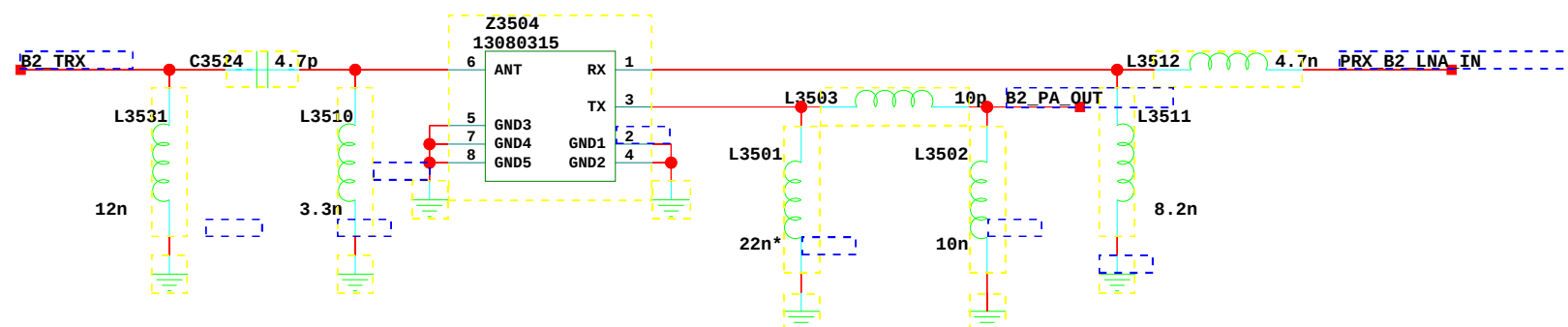
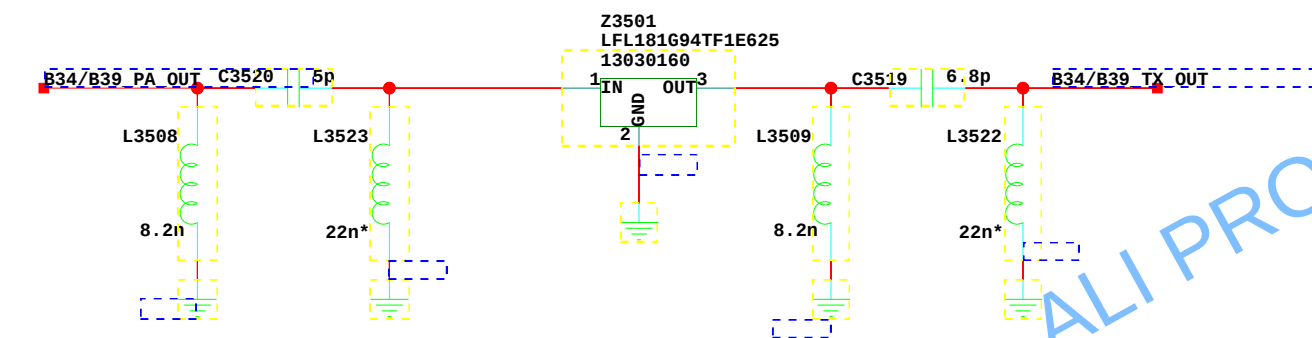
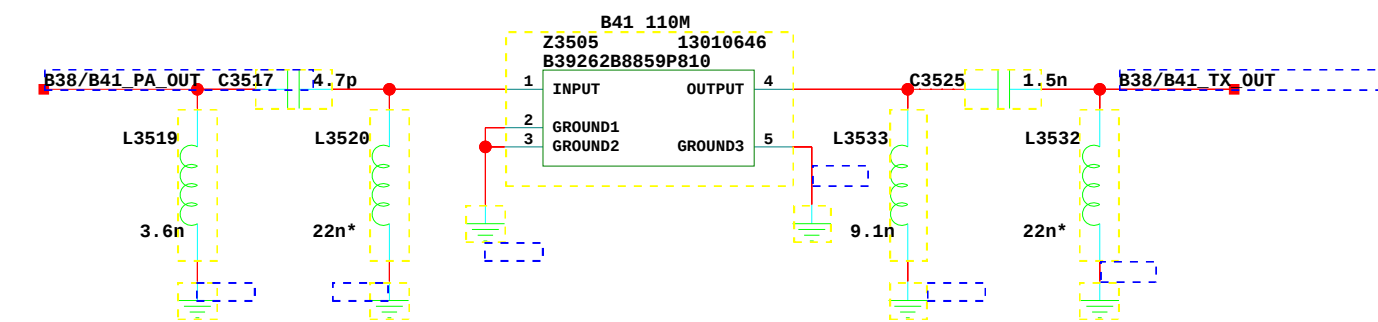
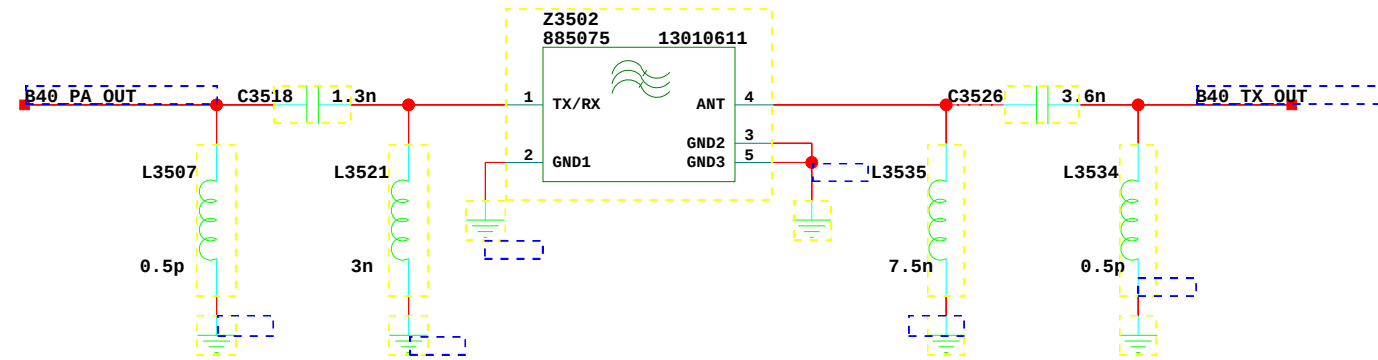
D



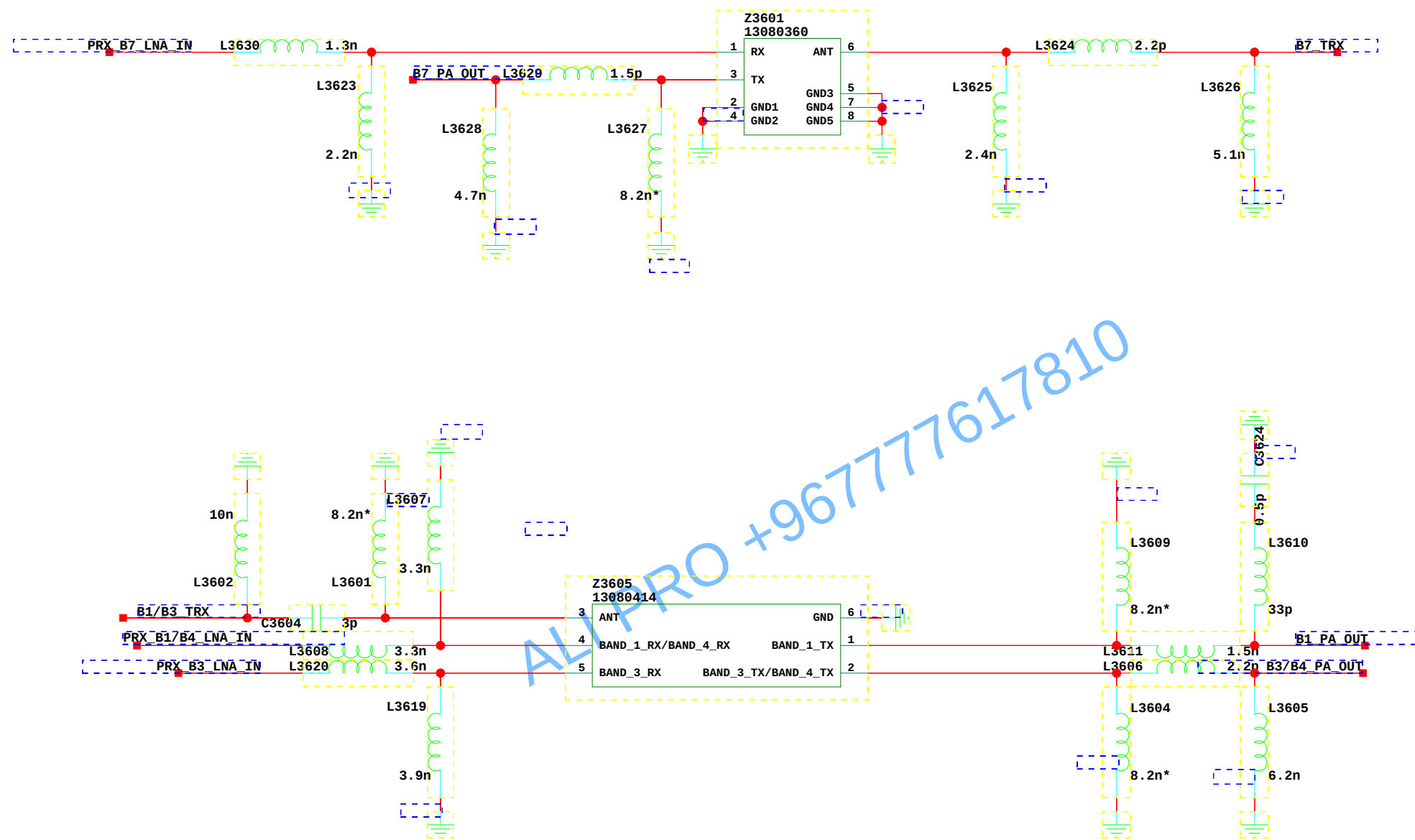
34.PHASE V PA&TRX



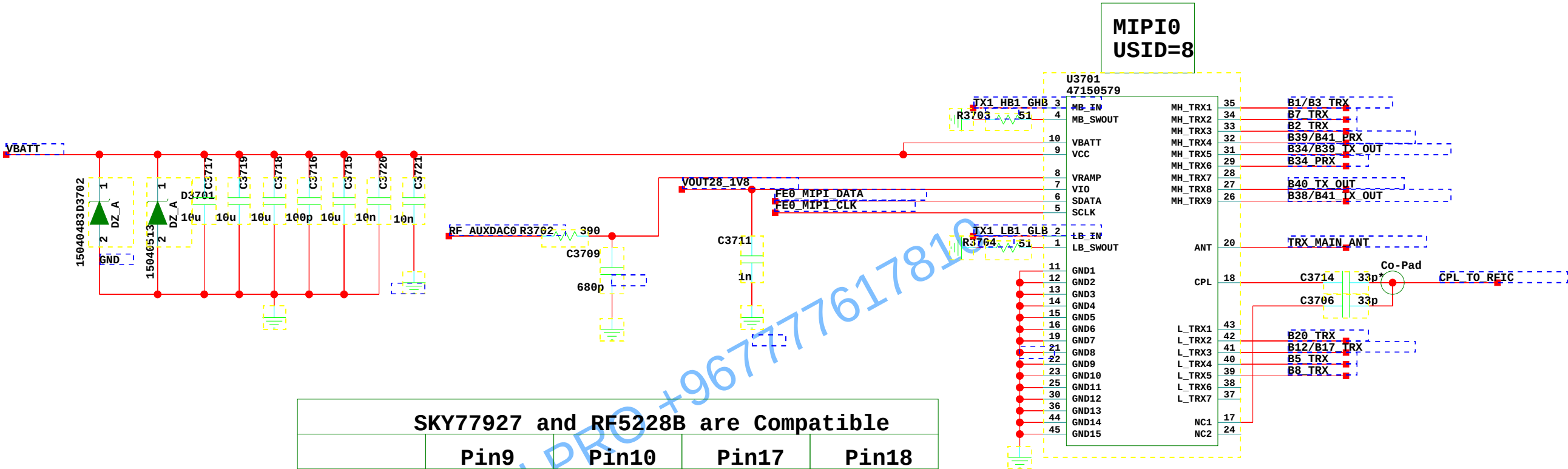
35. TRX



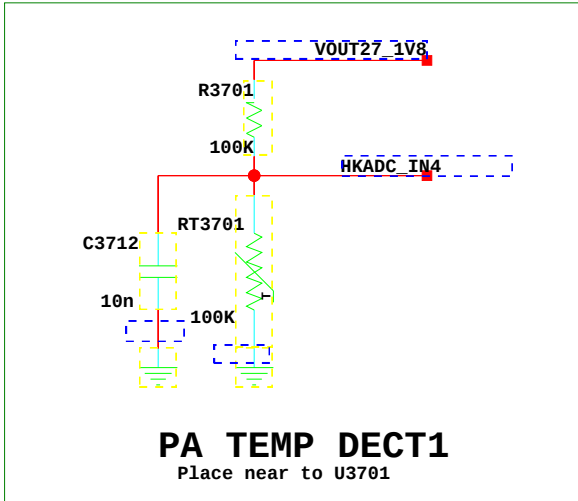
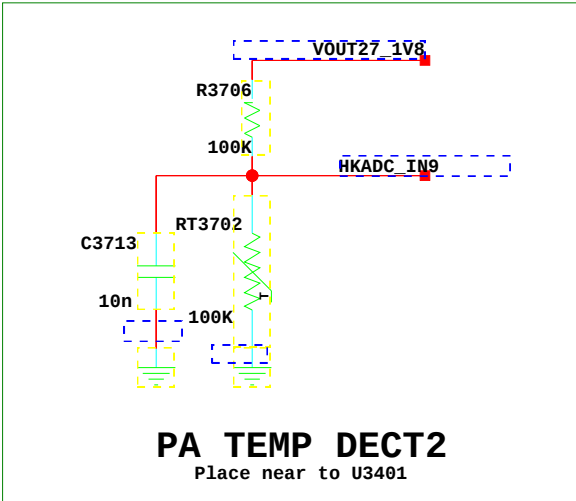
36 B1/3/4/7 TRX



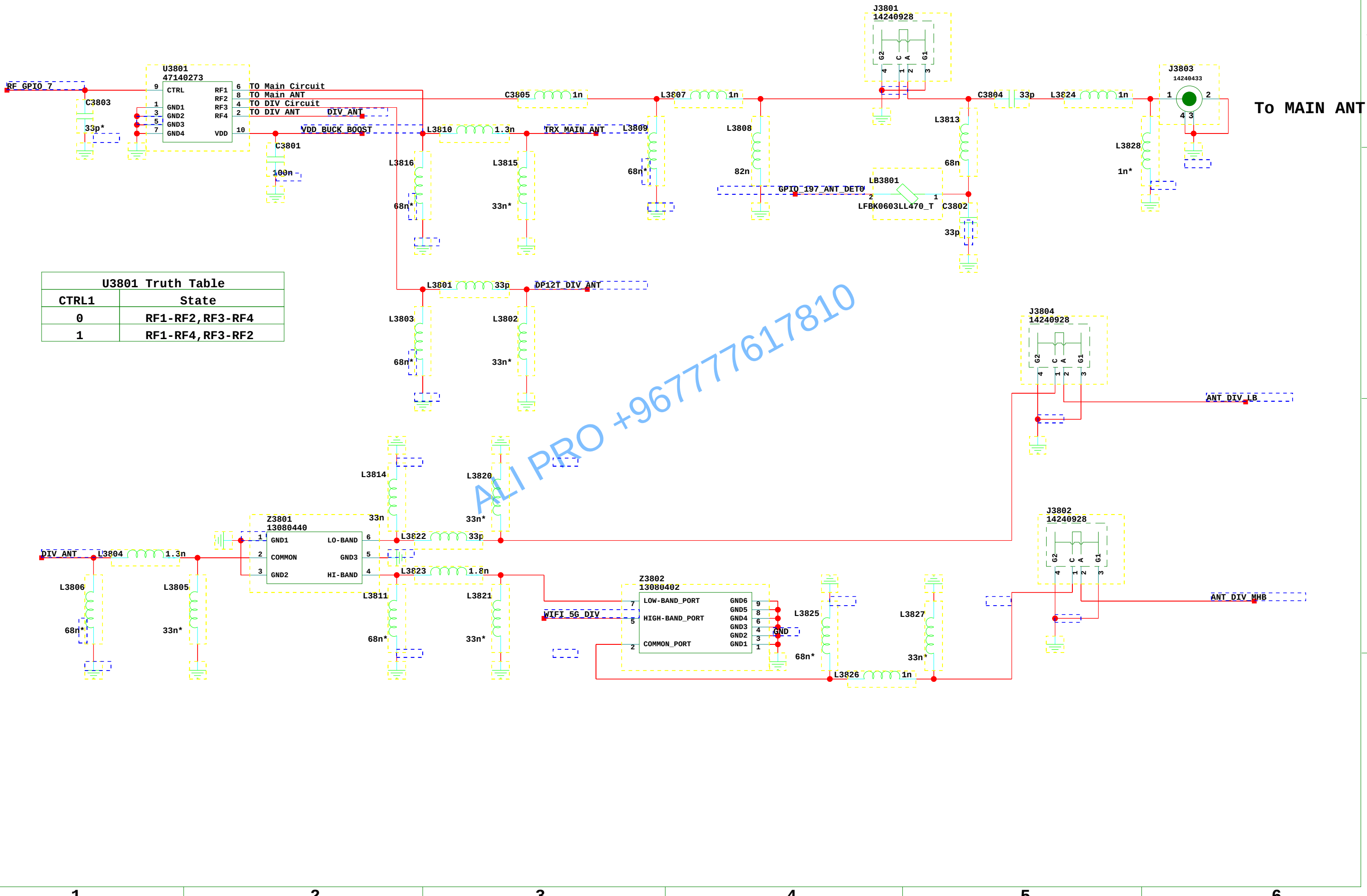
37. TXM



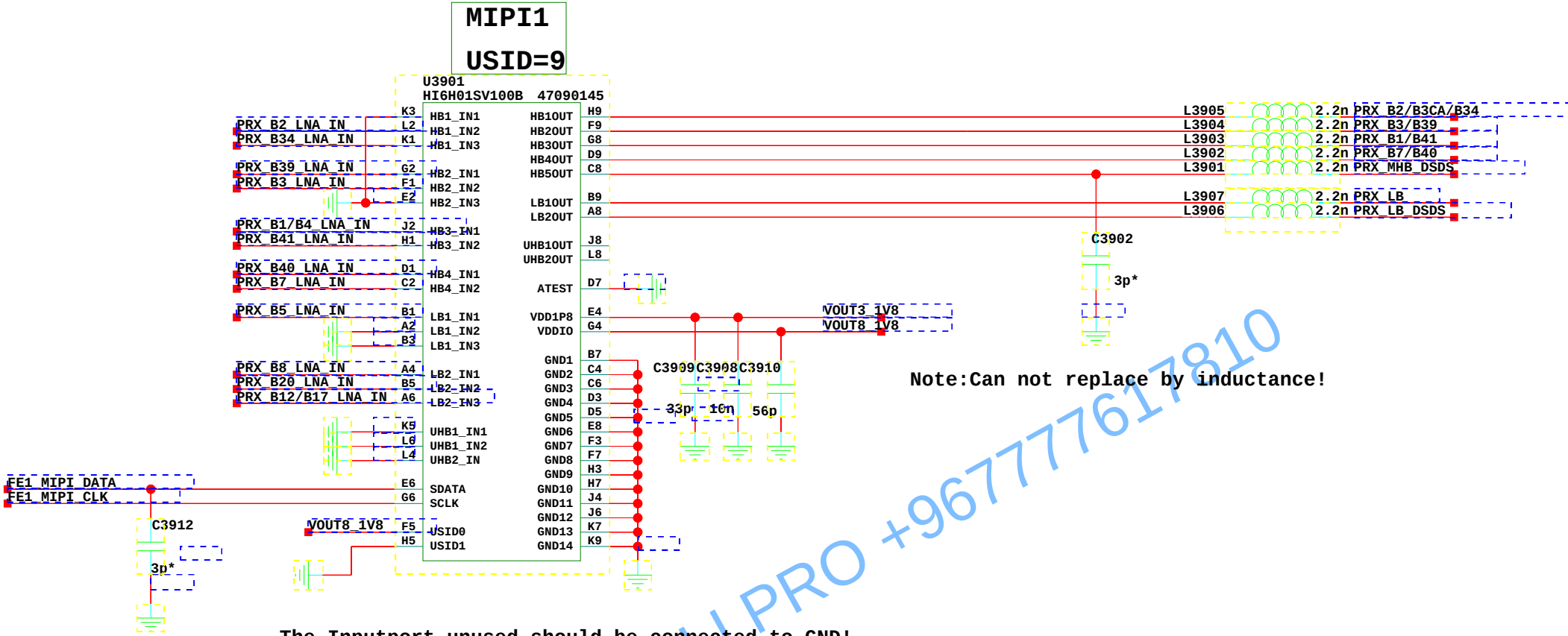
SKY77927 and RF5228B are Compatible				
	Pin9	Pin10	Pin17	Pin18
SKY77927	VSW	VPA	NC	CPL
RF5228B	VPA	VSW	CPL	NC



38. RF Front End Switch



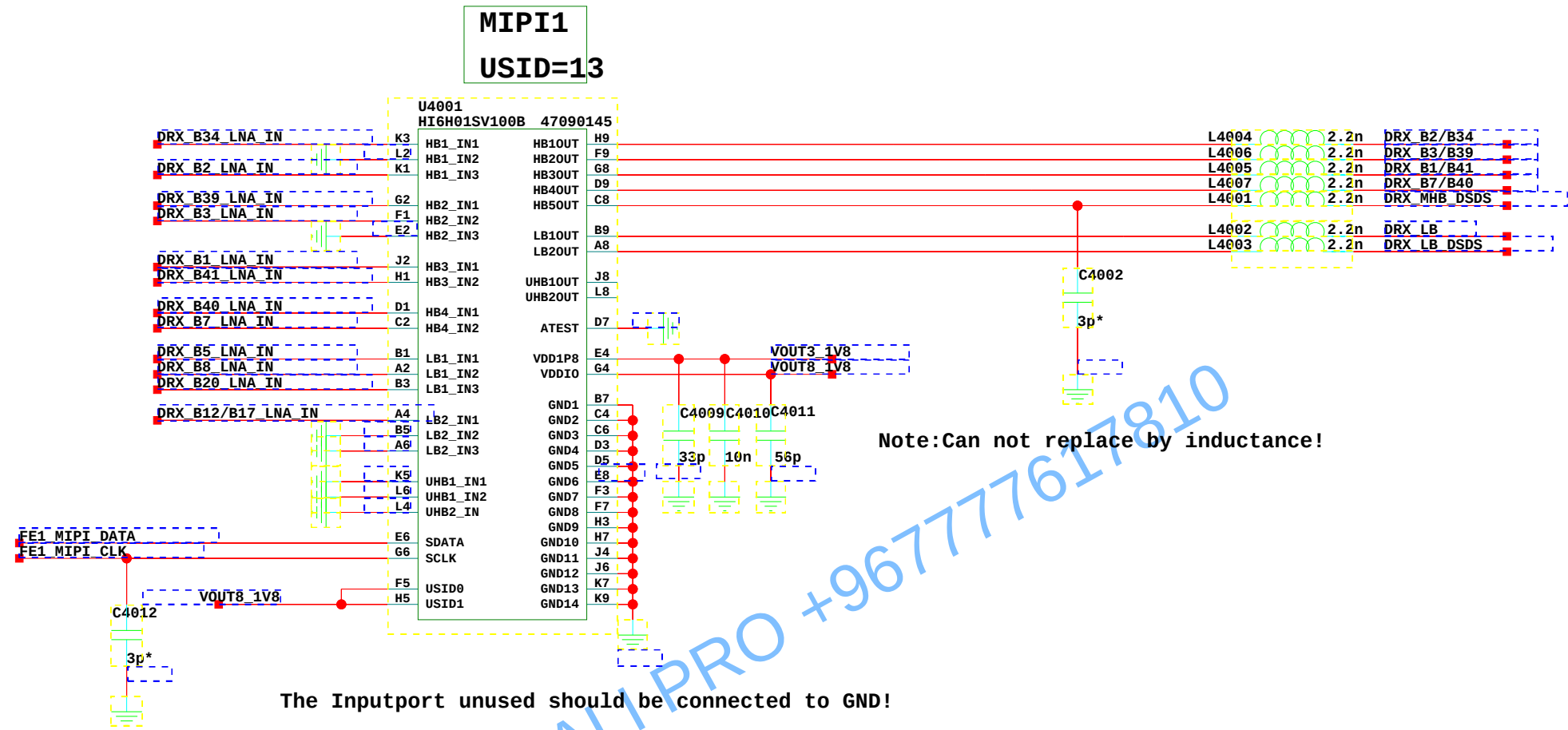
39 LNA Bank Main



The Inputport unused should be connected to GND!

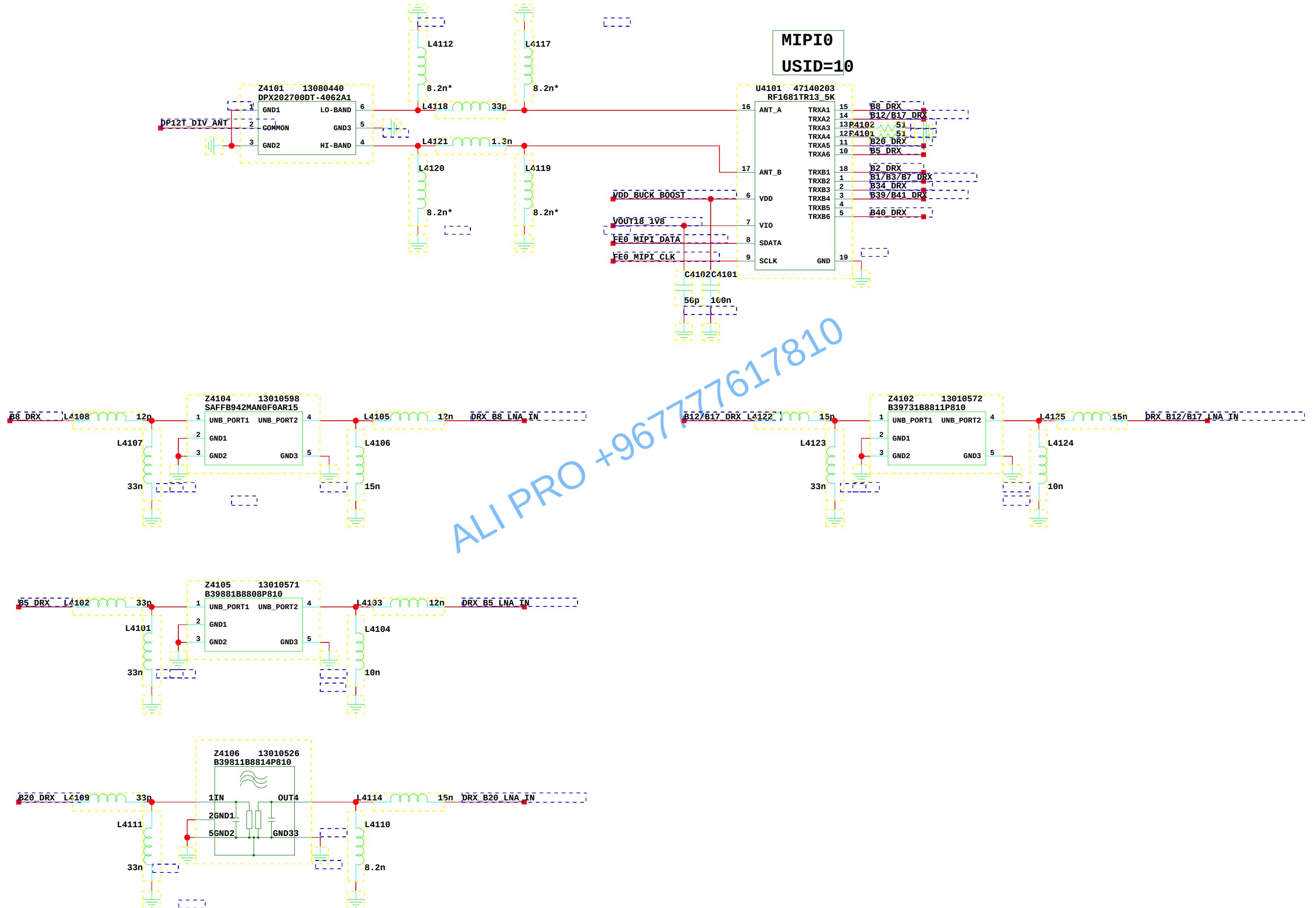
6H01 Frequency Range	
LB1_IN1	460-895MHz
LB1_IN2-3, LB2_IN_1-3	703-960MHz
HB1_IN1-3	1447-2200MHz
HB2_IN1-3	1805-2200MHz
HB3_IN1-2	2000-2690MHz
HB4_IN1-2	2000-2690MHz
UHB1_IN1, UHB2	3400-3800MHz
UHB1_IN2	5150-5925MHz

40 Div LNA Bank

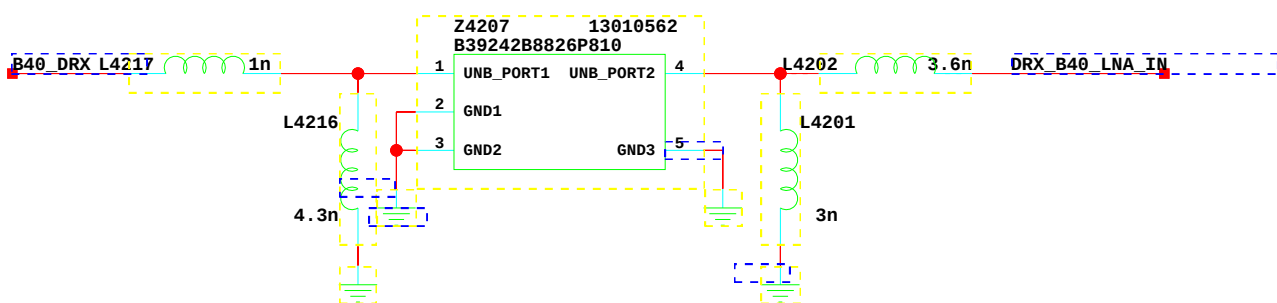
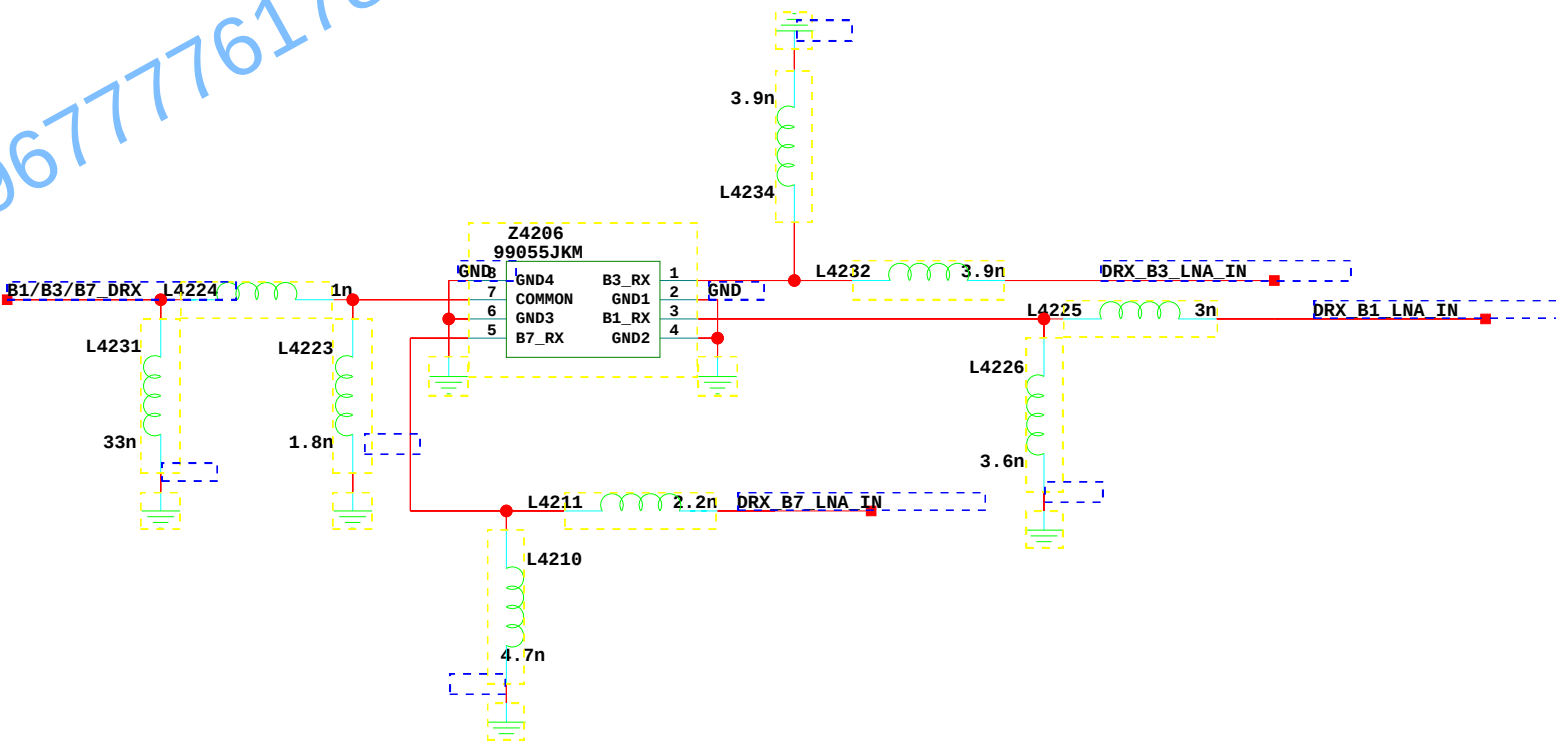
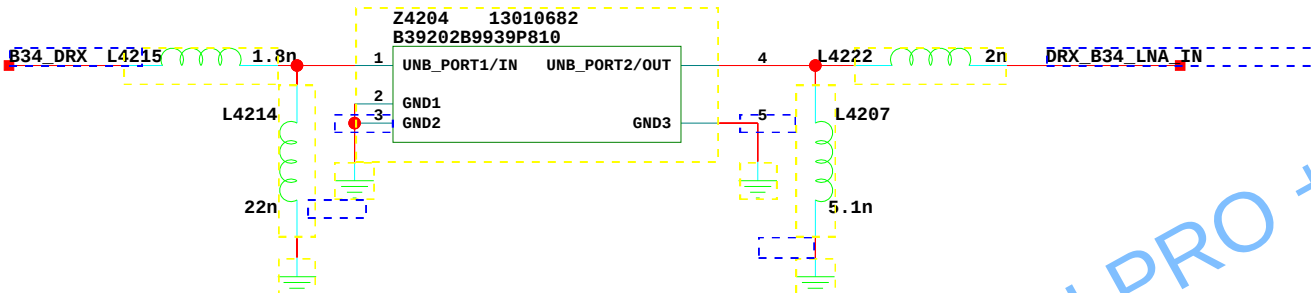
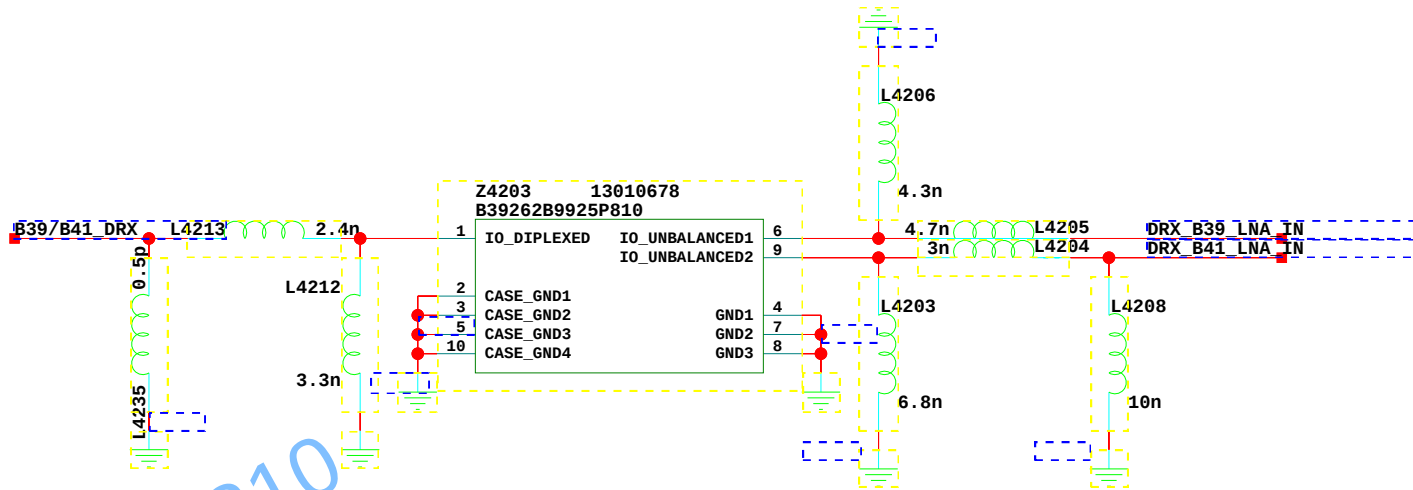
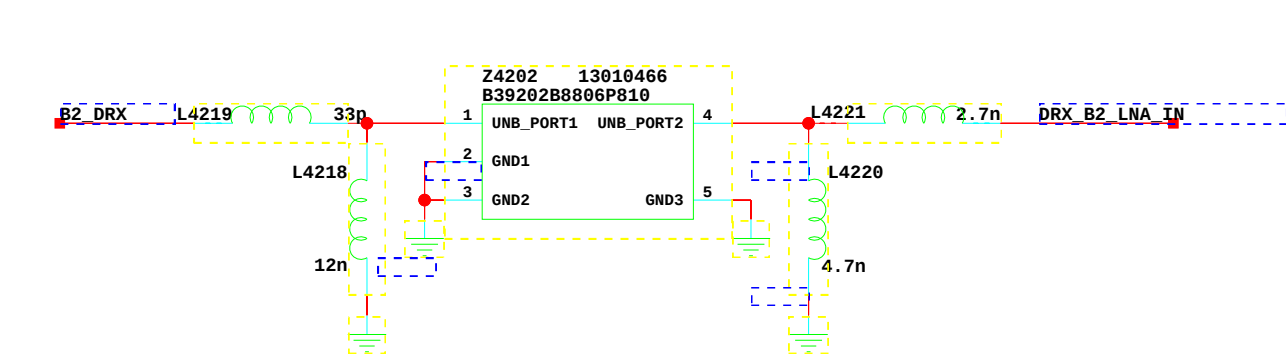


6H01 Frequency Range	
LB1_IN1	460-895MHz
LB1_IN2-3, LB2_IN_1-3	703-960MHz
HB1_IN1-3	1447-2200MHz
HB2_IN1-3	1805-2200MHz
HB3_IN1-2	2000-2690MHz
HB4_IN1-2	2000-2690MHz
UHB1_IN1, UHB2	3400-3800MHz
UHB1_IN2	5150-5925MHz

41 DRX LB



42 DRX MHB



	1	2	3	4	5	6
A						
B						
C						
D						

43 . B3/B7 MIMO

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	1	2	3	4	5	6
A	44. B42/B46 ALI PRO +967777617810					
B						
C						
D						
	1	2	3	4	5	6

	1	2	3	4	5	6
A	45.RF Transceiver_HI6363 _01					
B						
C						
D						
	1	2	3	4	5	6

ALI PRO +967777617810

	1	2	3	4	5	6
A	47. Reserved for CDMA Modem ALI PRO +967777617810					
B						
C						
D						
	1	2	3	4	5	6

	1	2	3	4	5	6
A	46. Reserved for CDMA Modem ALI PRO +967777617810					
B						
C						
D						
	1	2	3	4	5	6

1

2

3

4

5

6

48. Reserved

A

A

B

B

C

C

D

ALI PRO +967777617810

1

2

3

4

5

6

49. Reserved

ALI PRO +967777617810

1

2

3

4

5

6

50. Reserved

A

A

B

B

C

C

D

ALI PRO +967777617810

1

2

3

4

5

6

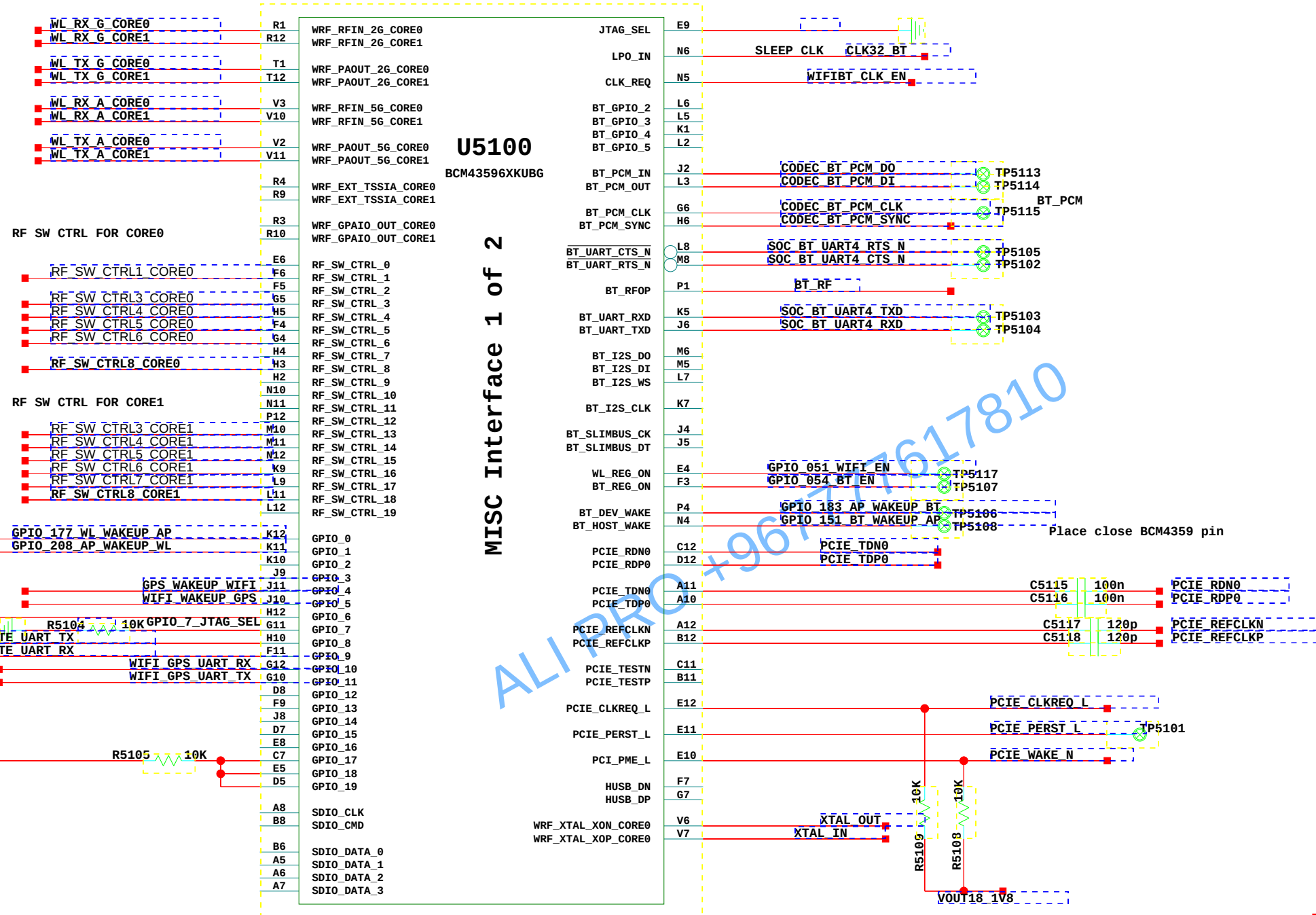
51 BCM4359 BB

A

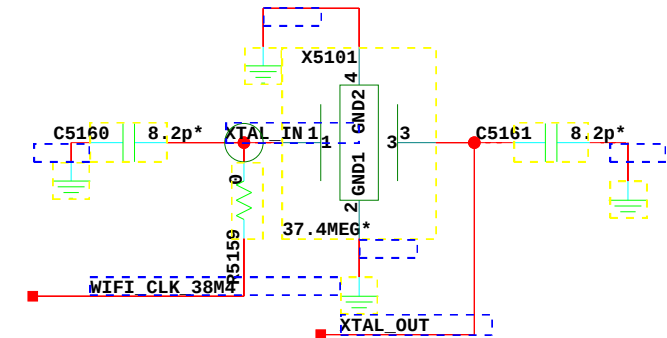
B

C

D

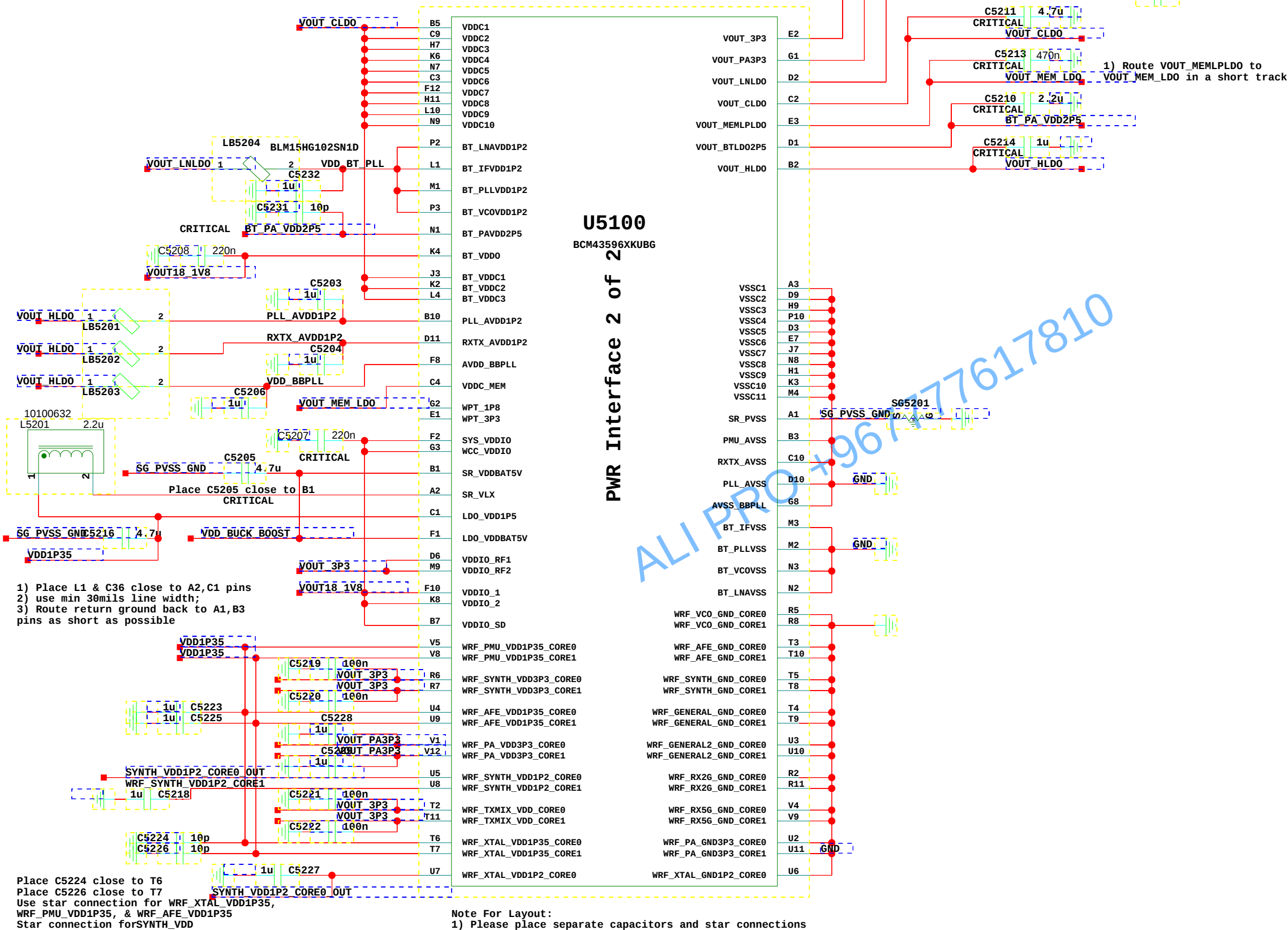


GPIO	Function	1	0
GPIO17	SDIO level select 1.8V		3.3V
GPIO18	SDIO interface	disable	enable
GPIO19	PCIE interface	enable	disable



52 BCM4359 PWR

- 1) Place VOUT_3P3, VOUT_BTLD02P5, VOUT_CLD0, VOUT_LNLD0 output decaps close to pins
- 2) Ensure good ground return connection to system ground

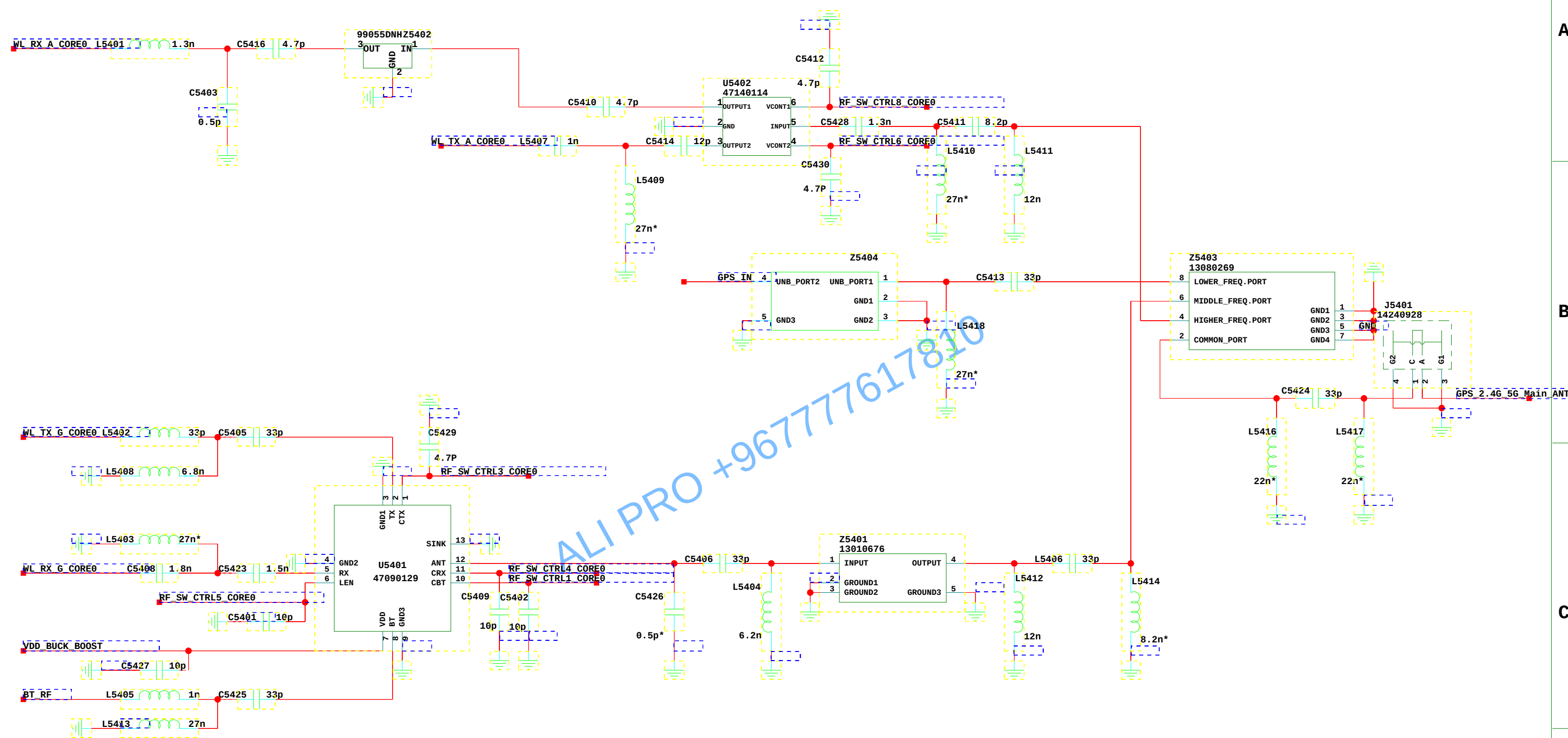


	1	2	3	4	5	6
A						
B						
C						
D						

53. Reserved

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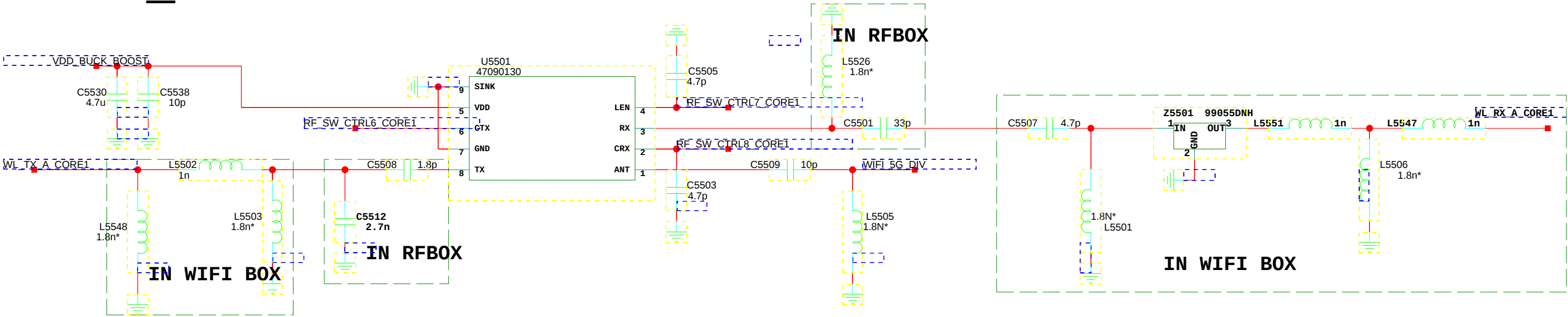
54. WIFI RF0



U5401 Control Logic				
Mode	CBT	CTX	LEN	CRX
ALL OFF	0	0	0	0
WLAN receive LNA	0	0	1	1
WLAN receive bypass	0	0	0	1
Bluetooth	1	0	0	0
WLAN transmit	0	1	0	0

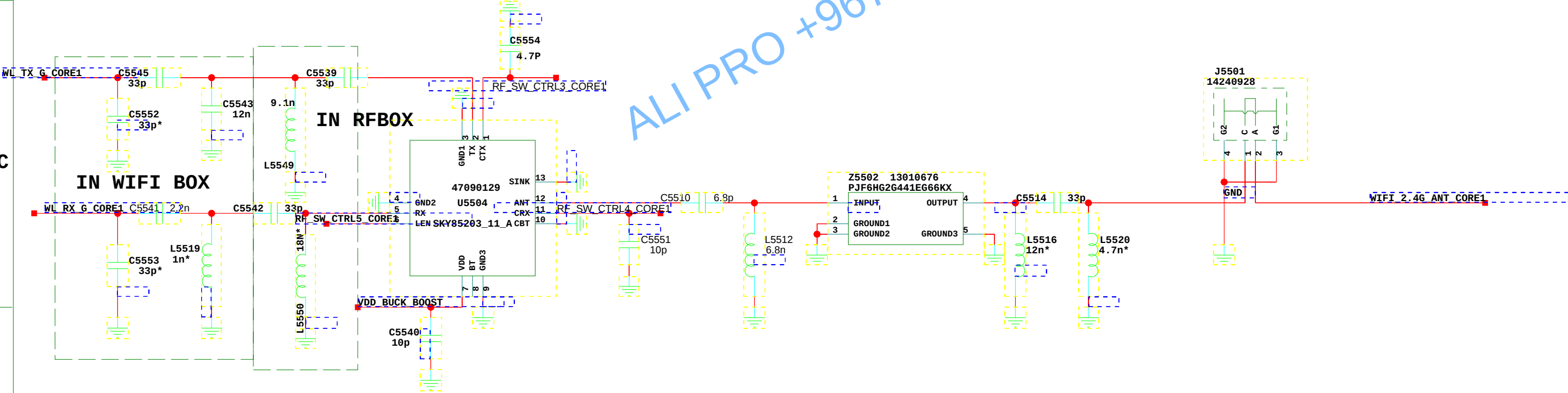
U5402 Truth Table		
State	V1	V2
RFC to RF1-Rx	1	0
RFC to RF2-Tx	0	1

55.WIFI_RF1



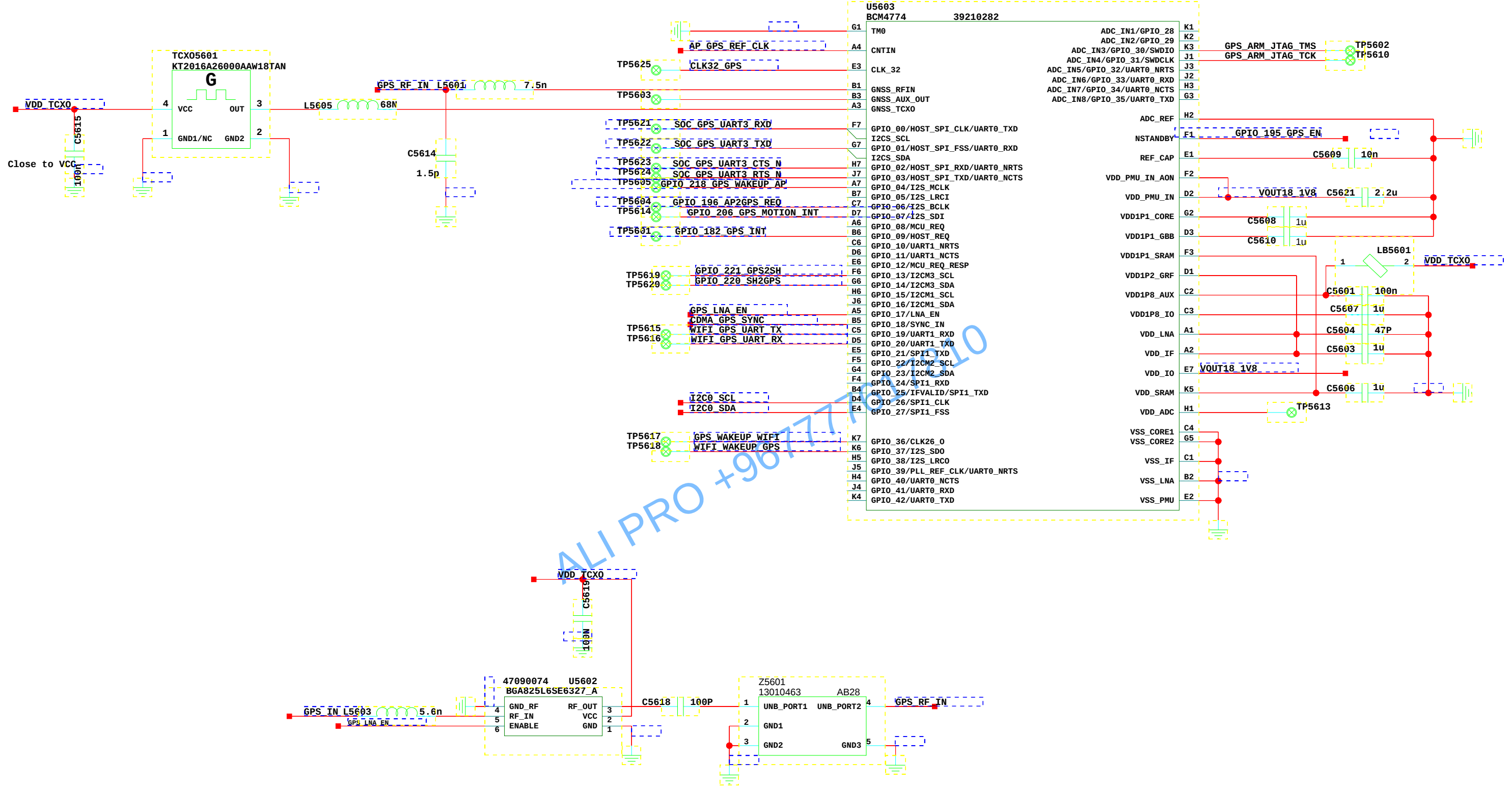
1. 「L5505&C5509 In RF box

	CRX	LEN	CTX
	C1_CTRL8	C1_CTRL7	C1_CTRL6
5G Rx	1	1	0
5G Rx Bypass	1	0	0
5G Tx	0	0	1



	CBT	CTX	LEN	CRX
	C1_CTRL3	C1_CTRL5	C1_CTRL4	
All off	0	0	0	0
2.4G Rx	0	0	1	1
2.4G Rx Bypass	0	0	0	1
2.4G Tx	0	1	0	0

56. GPS



A

B

C



1

2

3

4

5

6

58. GPS/WIFI ANT

A

B

C

D

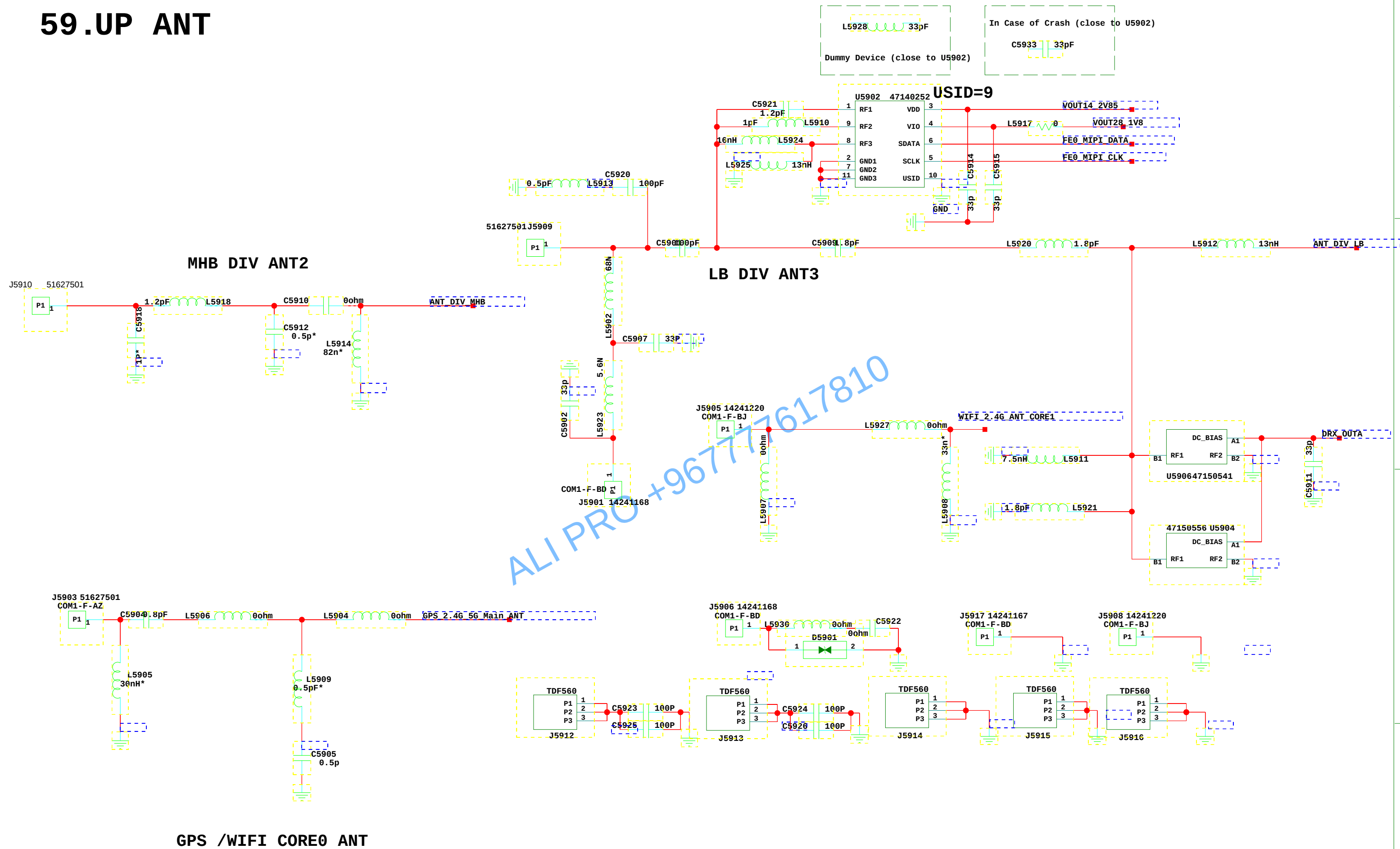
A

B

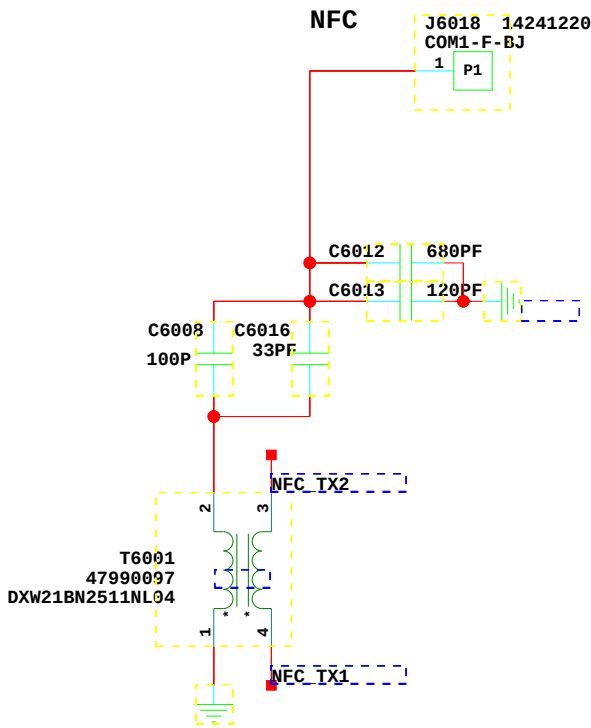
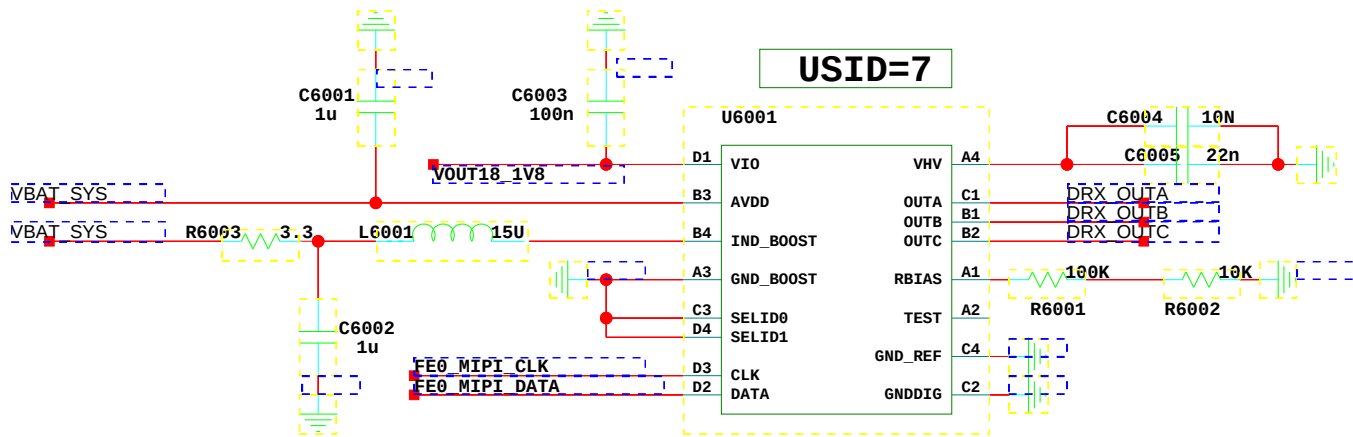
C

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59 .UP ANT



60.Antenna Tunner



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