

1. ALL RESISTANCE VALUES ARE IN OHMS, 0.1 WATT +/- 5%.
 2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
 3. ALL CRYSTALS & OSCILLATOR VALUES ARE IN HERTZ.

REV	ECN	DESCRIPTION OF REVISION	CK APPD	DATE
10	0008927012	ENGINEERING RELEASED		2017-06-06

D21 MLB - DVT (OK2FAB)

LAST_MODIFICATION= Tue Jun 6 18:57:04 2017

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35	47	AUDIO: CODEC (1/2)	sync	04/14/2017
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40	55	CG: Niki	sync	04/14/2017
41	56	CG: PMUs	sync	04/14/2017
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43	58	CG: B2B ORB + MESA	sync	04/14/2017
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81	5	WiFiANTFeeds		11/28/2016

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
051-02159	1	SCH_MLB_D21	SCH	?
820-00846	1	PCBF_MLB_D21	PCB	?



Sub Designs

SOURCE PROJECT	SUB-DESIGN NAME	VERSION	HARD/ SOFT	SYNC_DATE/TIME
D21	RADIO_MLB	0.122.0	S	2017_06_06_17:14:31
D20	NFC_MLB	0.50.0	S	2017_05_26_07:54:42
D21	WIFI_MLB	0.20.0	S	2017_05_16_02:56:32
D21	RADIO_MLB_FF	0.35.0	S	2017_06_02_14:56:02

DRAWING TITLE		DRAWING NUMBER		SIZE
SCH, MLB, D21		051-02159		D
Apple Inc.		REVISION 10.0.0		
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EEEE Codes

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION	
825-7691	1	EEEE FOR (MLB, 639-04441, JP, ULTRA)	EEEE_U08R	CRITICAL	EEEE_ULTIMATE	D21x Specific
825-7691	1	EEEE FOR (MLB, 639-03377, JP, EXTREME)	EEEE_HNV8	CRITICAL	EEEE_EXTREME	D21x Specific
825-7691	1	EEEE FOR (MLB, 639-04442, ROM, ULTRA)	EEEE_U08X	CRITICAL	EEEE_ULTIMATE_ROW	D21x Specific
825-7691	1	EEEE FOR (MLB, 639-03380, ROM, EXTREME)	EEEE_HNVF	CRITICAL	EEEE_EXTREME_ROW	D21x Specific

SOC

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION	
339S00416	1	SoC, H, 3GB 21nm T309, B1	U1000	CRITICAL	COMMON	D21x Specific

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
339S00415	339S00416	BOM_TABLE_ALTS	U1000	SoC, M, 3GB 20nm DDR, B1
339S00417	339S00416	BOM_TABLE_ALTS	U1000	SoC, S, 3GB 20nm DDR, B1
339S00418	339S00416	BOM_TABLE_ALTS	U1000	SoC, S, 3GB 1xnm DDR, B1
339S00429	339S00416	BOM_TABLE_ALTS	U1000	SoC, H, 3GB 20nm DDR, B1
339S00430	339S00416	BOM_TABLE_ALTS	U1000	SoC, M, 3GB 20nm DDR, B1
339S00431	339S00416	BOM_TABLE_ALTS	U1000	SoC, S, 3GB 20nm DDR, B1
339S00432	339S00416	BOM_TABLE_ALTS	U1000	SoC, S, 3GB 18nm DDR, B1

SIPs

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:	
339M00011	339M00010	BOM_TABLE_ALTS	M5500	NIKI, STATS SIP	D21x Specific
339M00013	339M00012	BOM_TABLE_ALTS	M4100	HUNT, STATS SIP	

SOFT-TERM CAP SUB BOMS

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
685-00152	685-00151	BOM_TABLE_ALTS	SUBBOM_CAP	SUBBOM_MLB_CAP_SOFT, D21
138S00049	138S0831	TYPICAL_CAP	ALL	CAP_0201, 2, 20P, 6, 3V, KYOCERA

To enable alt in SUBBOM

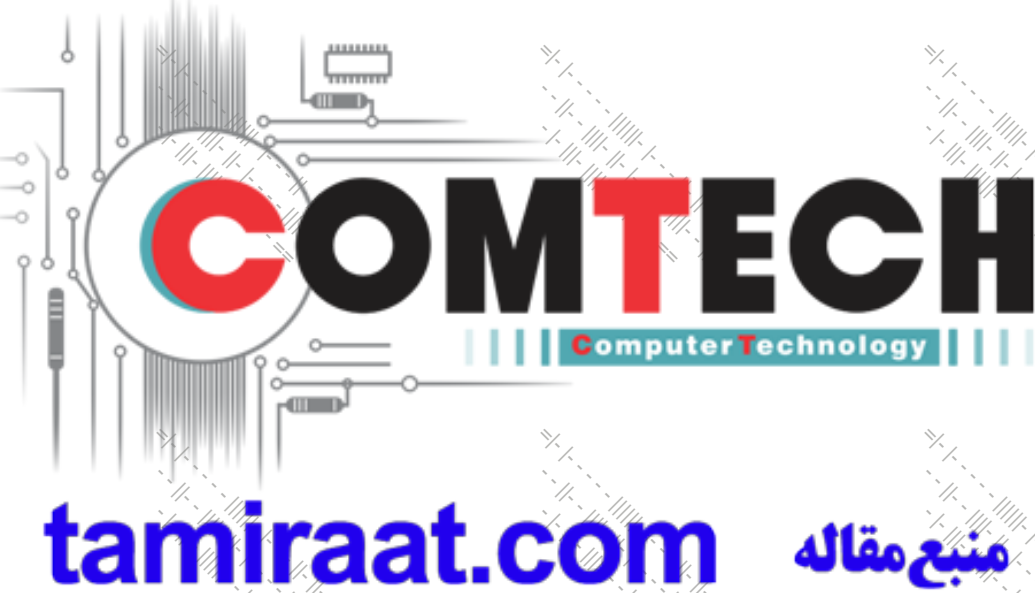
PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION	
685-00151	1	SUBBOM_MLB_SOFT-TERM, D21	SUBBOM_CAP			Default is typical
138S00159	9	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C391, C3911, C3913, C3914, C3917, C3919, C3913		SOFT_CAP	
138S0831	9	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C391, C3911, C3913, C3914, C3917, C3919, C3913		TYPICAL_CAP	
138S00159	15	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C391, C3912, C3914, C3915, C3917, C3919, C3914		SOFT_CAP	
138S0831	15	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C391, C3912, C3914, C3915, C3917, C3919, C3914		TYPICAL_CAP	
138S00159	10	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C391, C3912, C3914, C3915, C3917, C3919, C3914		SOFT_CAP	
138S0831	10	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C391, C3912, C3914, C3915, C3917, C3919, C3914		TYPICAL_CAP	
138S00159	2	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C3351, C3352		SOFT_CAP	
138S0831	2	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C3351, C3352		TYPICAL_CAP	
138S00159	3	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C3602, C3611, C3622		SOFT_CAP	
138S0831	3	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C3602, C3611, C3622		TYPICAL_CAP	
138S00159	5	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C3791, C3795-C3798		SOFT_CAP	
138S0831	5	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C3791, C3795-C3798		TYPICAL_CAP	
138S00159	3	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C3909, C3925, C3926		SOFT_CAP	
138S0831	3	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C3909, C3925, C3926		TYPICAL_CAP	
138S00159	2	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C4250, C4261		SOFT_CAP	
138S0831	2	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C4250, C4261		TYPICAL_CAP	
138S00159	1	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C4303		SOFT_CAP	
138S0831	1	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C4303		TYPICAL_CAP	
138S00159	5	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C4805, C4809, C4814, C4926, C4929		SOFT_CAP	
138S0831	5	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C4805, C4809, C4814, C4926, C4929		TYPICAL_CAP	
138S00159	5	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C5016, C5018, C5134, C5029, C5136		SOFT_CAP	
138S0831	5	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C5016, C5018, C5134, C5029, C5136		TYPICAL_CAP	
138S00159	1	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C5611		SOFT_CAP	
138S0831	1	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C5611		TYPICAL_CAP	
138S00159	4	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C5700, C5705, C5716, C5721		SOFT_CAP	
138S0831	4	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C5700, C5705, C5716, C5721		TYPICAL_CAP	
138S00159	5	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C5802-C5804, C5811, C5880		SOFT_CAP	
138S0831	5	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C5802-C5804, C5811, C5880		TYPICAL_CAP	
138S00159	1	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C5890		SOFT_CAP	
138S0831	1	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C5890		TYPICAL_CAP	
138S00159	5	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C6328, C6331, C6332, C6333, C6324		SOFT_CAP	
138S0831	5	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C6328, C6331, C6332, C6333, C6324		TYPICAL_CAP	
138S00160	4	CAP, SOFT-TERM, 10uF, 10V, 0402, MUR/KYO	C4907, C4903, C4904, C4931		SOFT_CAP	
138S0979	4	CAP, TYPICAL, 10uF, 10V, 0402, MUR/KYO	C4907, C4903, C4904, C4931		TYPICAL_CAP	
138S00160	5	CAP, SOFT-TERM, 10uF, 10V, 0402, MURATA	C5600, C5602, C5603, C5702, C5703		SOFT_CAP	
138S0979	5	CAP, TYPICAL, 10uF, 10V, 0402, MUR/KYO	C5600, C5602, C5603, C5702, C5703		TYPICAL_CAP	
138S00159	2	CAP, SOFT-TERM, 2.2uF, 6.3V, 0201, KYOCERA	C4025, C4026		SOFT_CAP	D21x Specific
138S0831	2	CAP, TYPICAL, 2.2uF, 6.3V, 0201, MURATA	C4025, C4026		TYPICAL_CAP	D21x Specific

IKTARA DIODES SUB BOMS

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
685-00172	685-00171	BOM_TABLE_ALTS	SUBBOM_DS	SUBBOM_MLB_SHOTTEY DIODES, D21

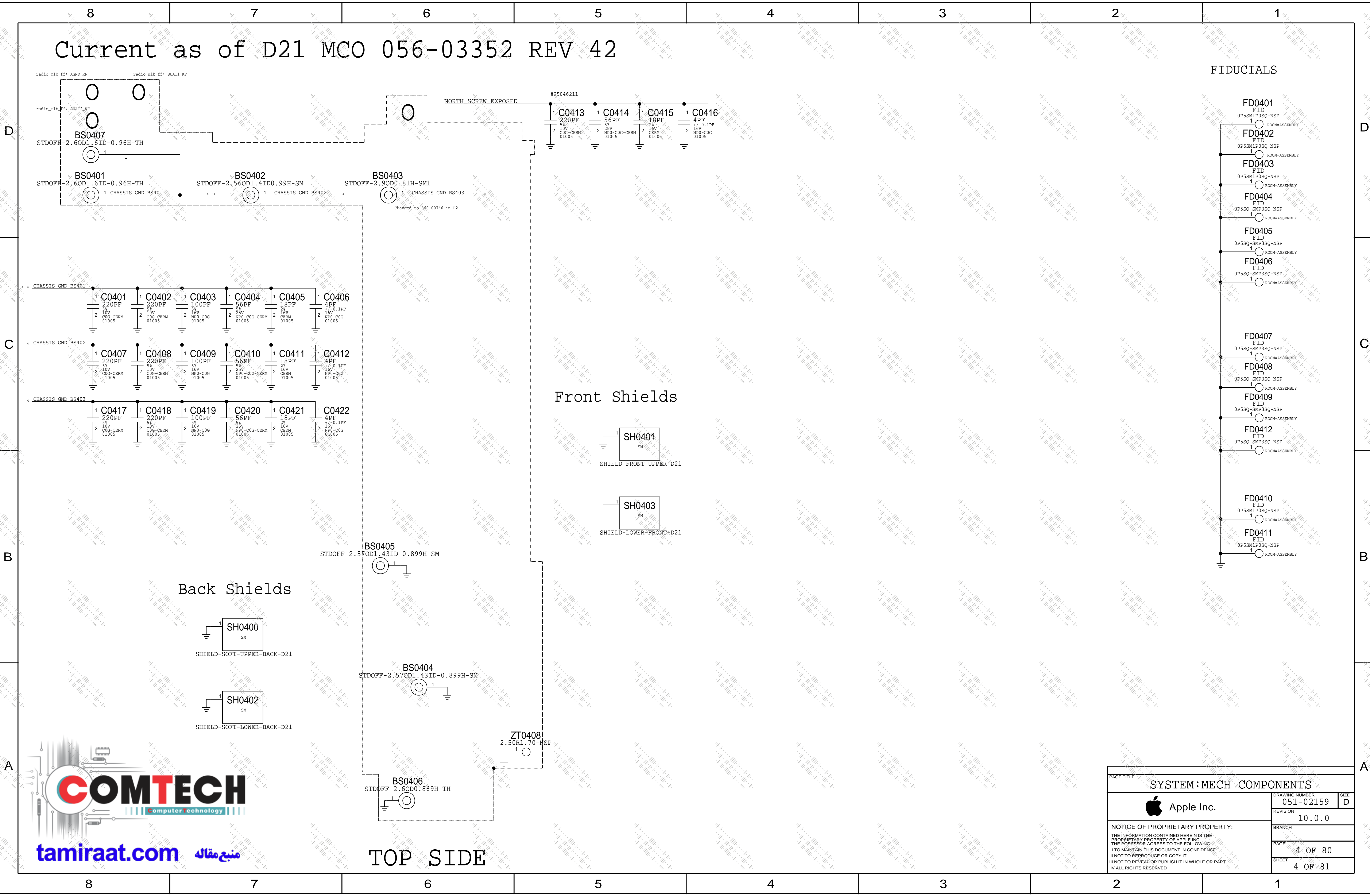
#3152972: Update Iktara Diodes APNs

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION	
685-00171	1	SUBBOM_MLB_SHOTTEY DIODES, D21	SUBBOM_DS			Footprint is ONSEMI
371S00133	4	DIODES, SHOTTEY DIODE, 30V, 2A, 0603	D3400, D3401, D3402, D3403		DIODES_DS	Primary is DIODES
371S00132	4	ONSEMI, SHOTTEY DIODE, 30V, 2A, 0603	D3400, D3401, D3402, D3403		ONSEMI_DS	



Current as of D21 MCO 056-03352 REV 42

FIDUCIALS



D

D

C

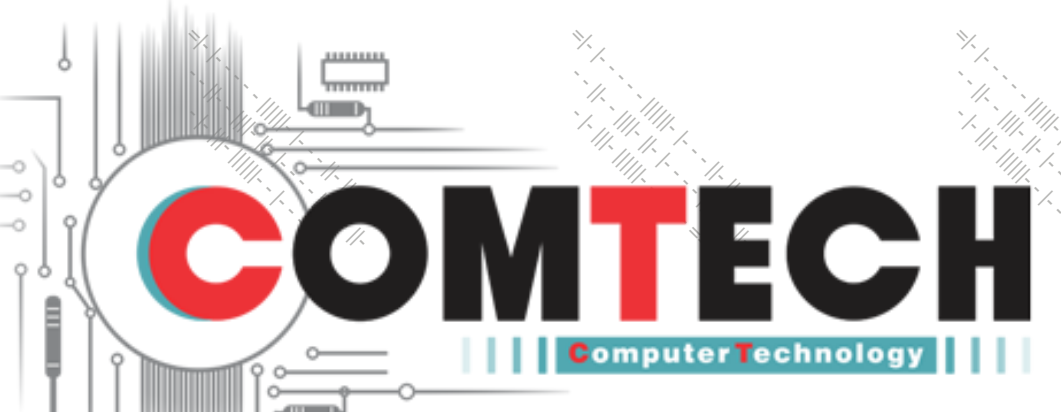
C

B

B

A

A



tamiraat.com منبع مقاله

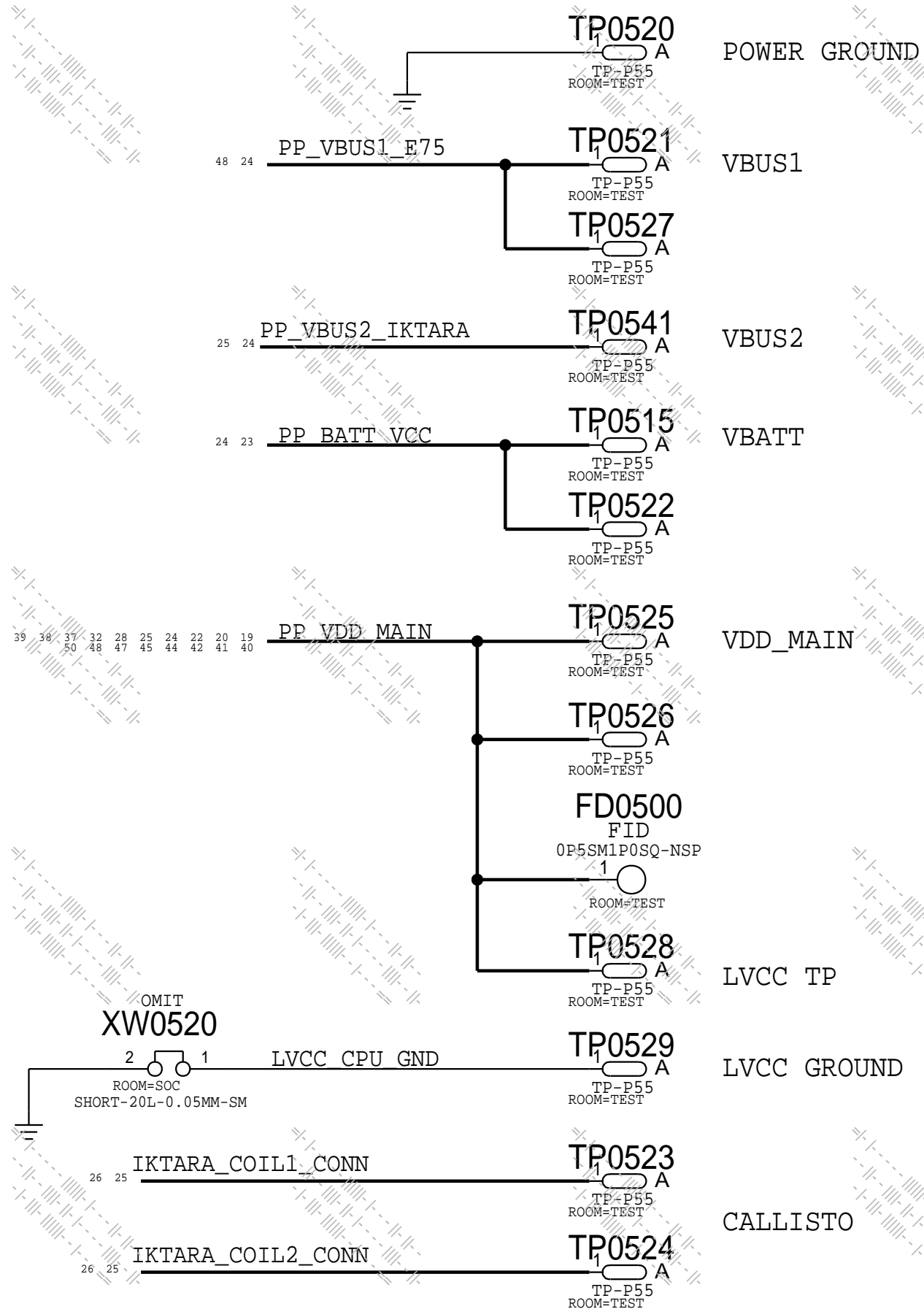
TOP SIDE

PAGE TITLE			SYSTEM:MECH COMPONENTS	
Apple Inc.		DRAWING NUMBER	051-02159	SIZE
		REVISION	10.0.0	D
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		SHEET	4 OF 81	

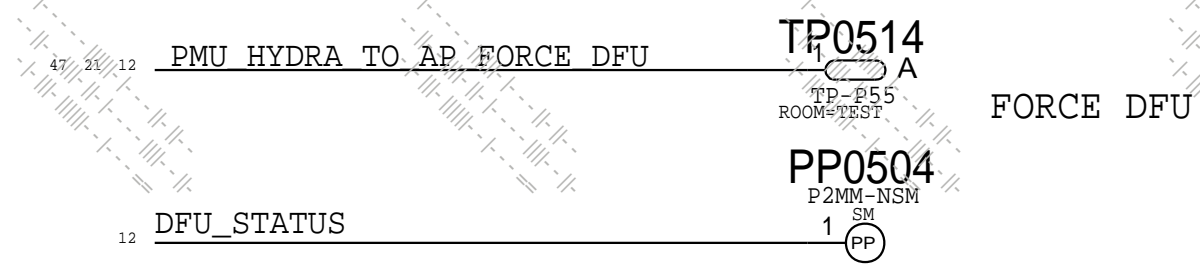
Test Points

Probe Points

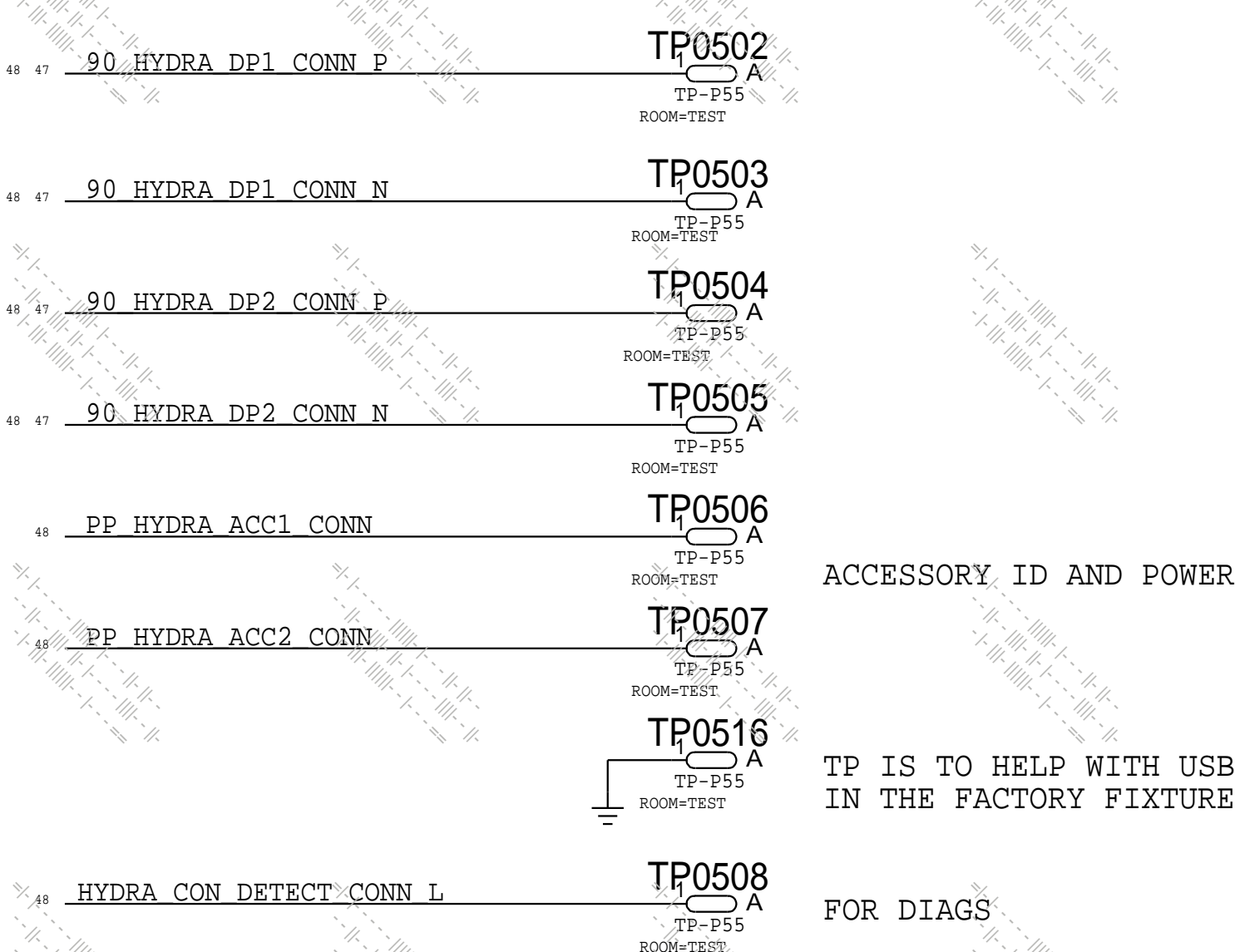
POWER



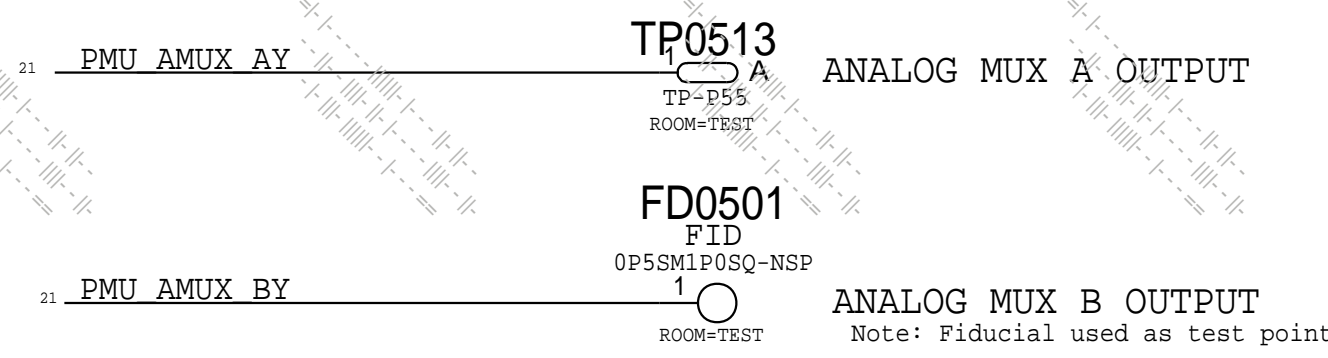
DFU



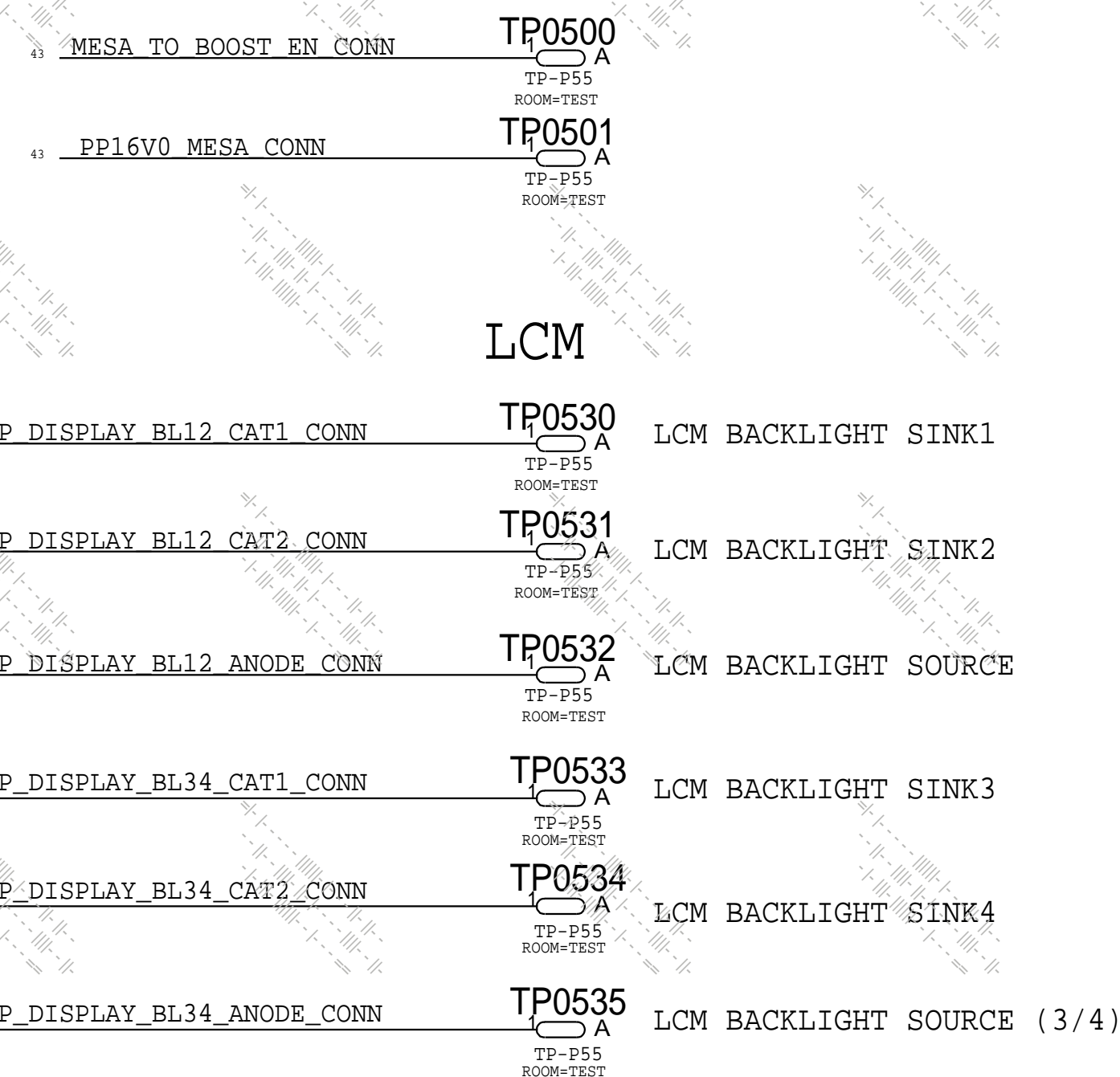
E75



AMUX



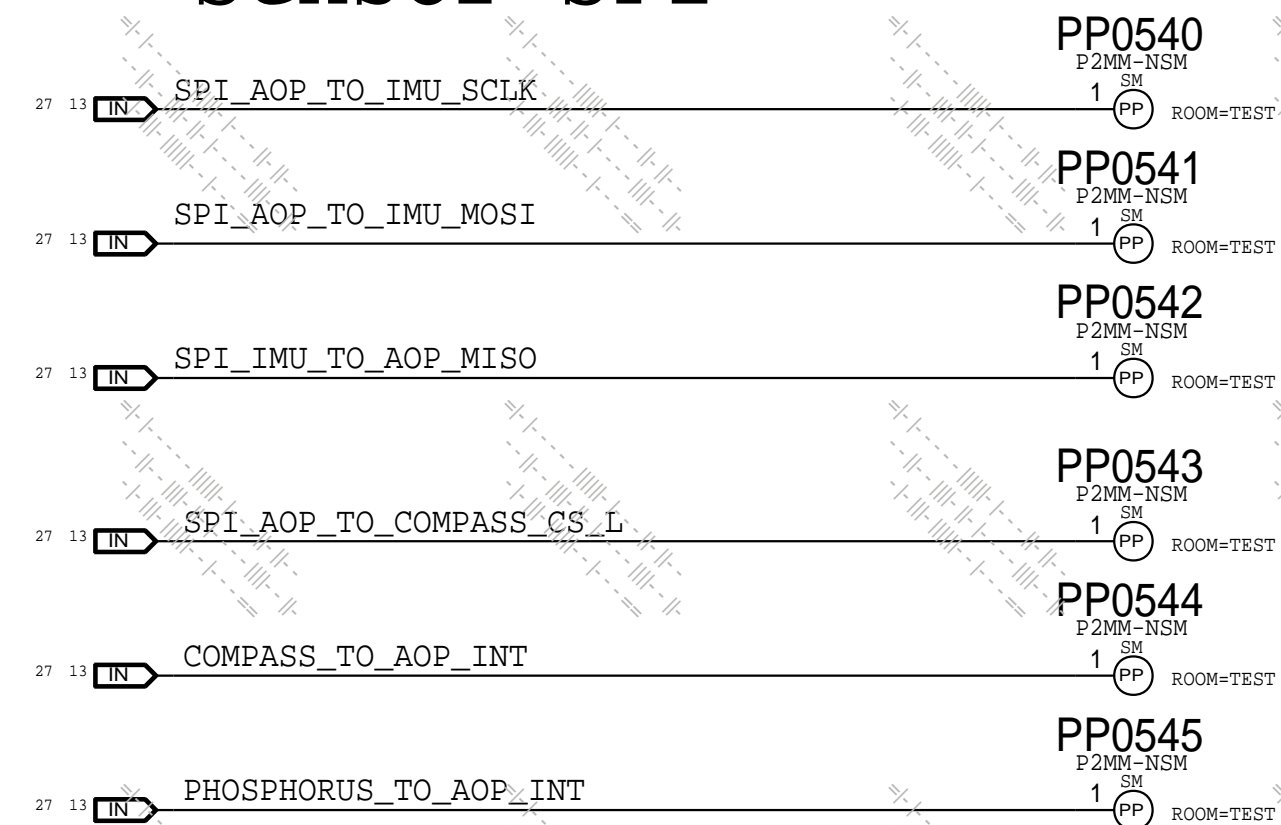
MOJAVE



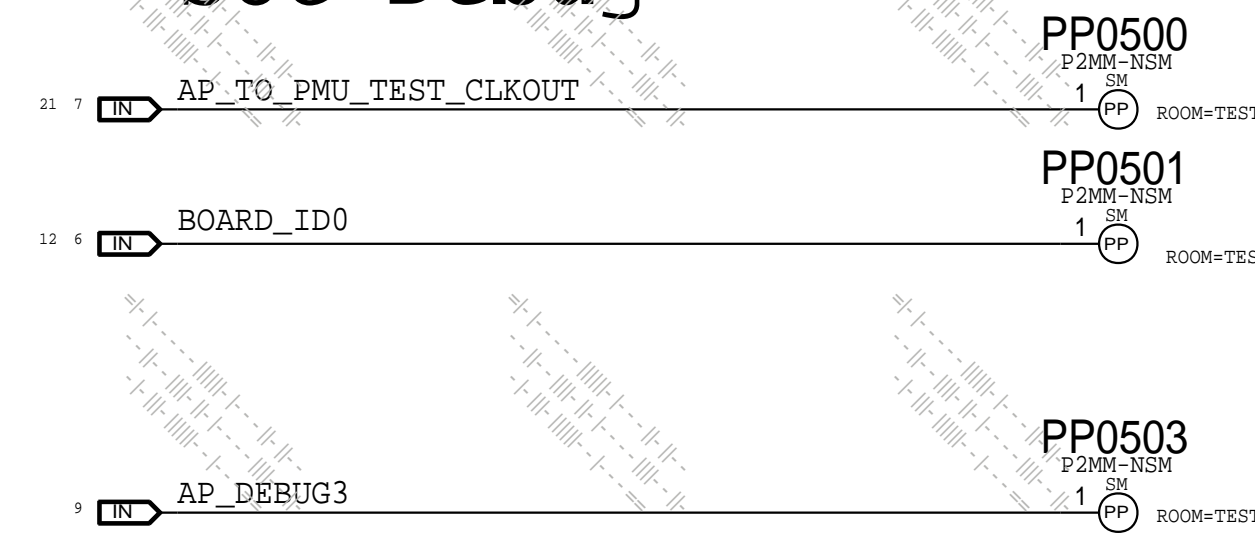
SENSE TP



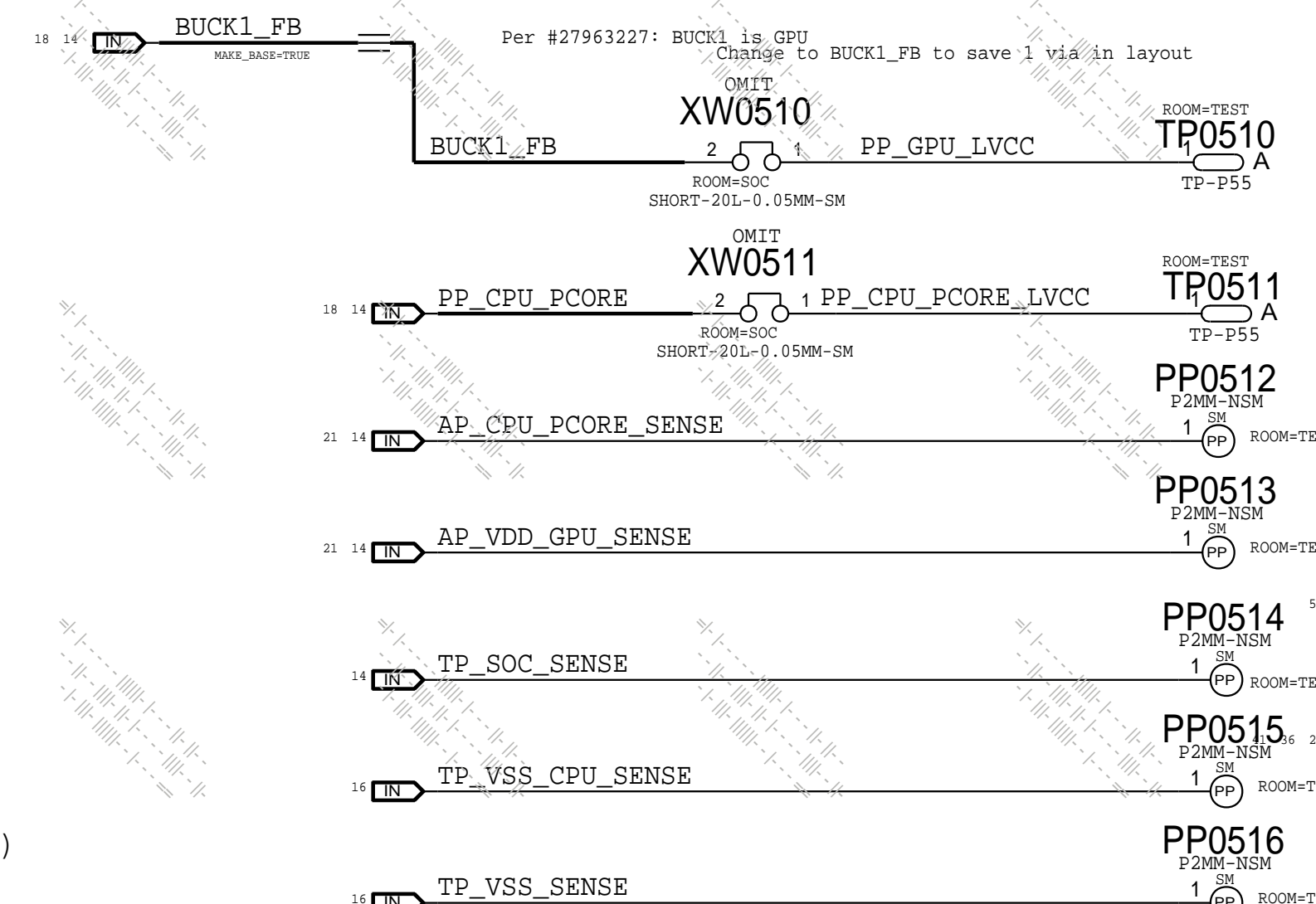
Sensor SPI



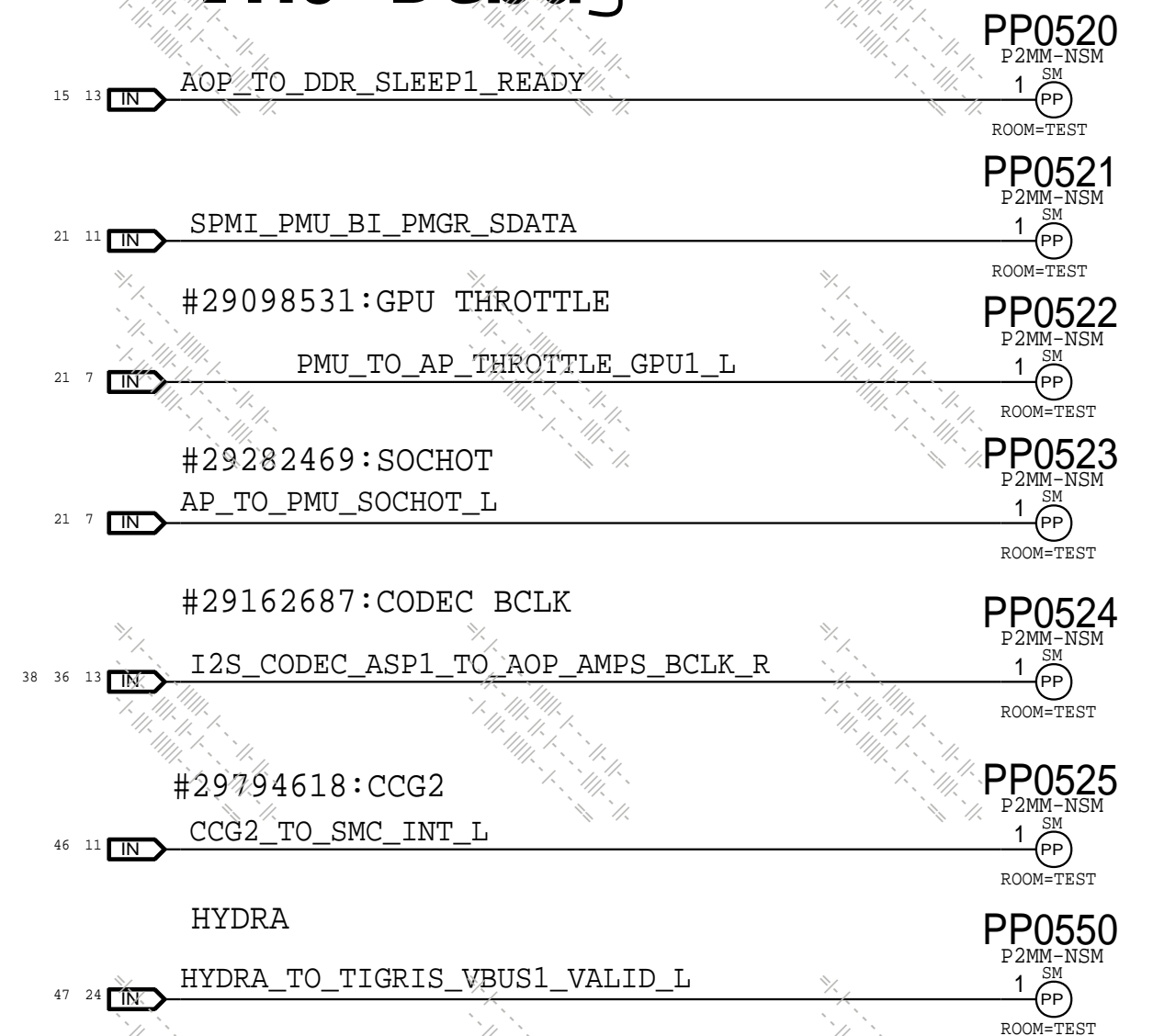
SOC Debug



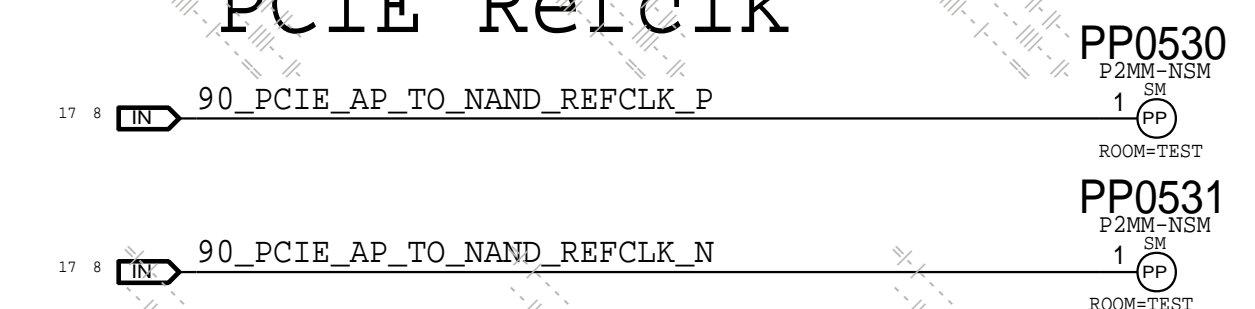
SOC CPU/GPU



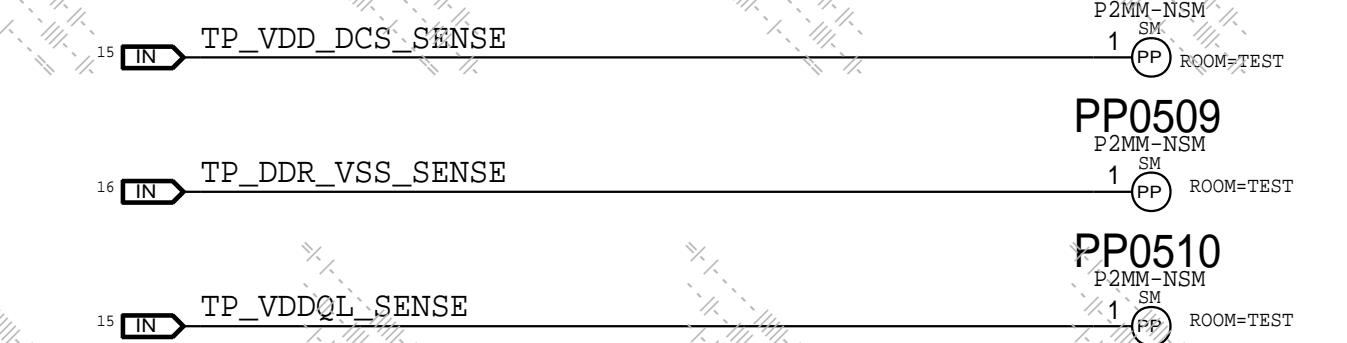
PMU Debug



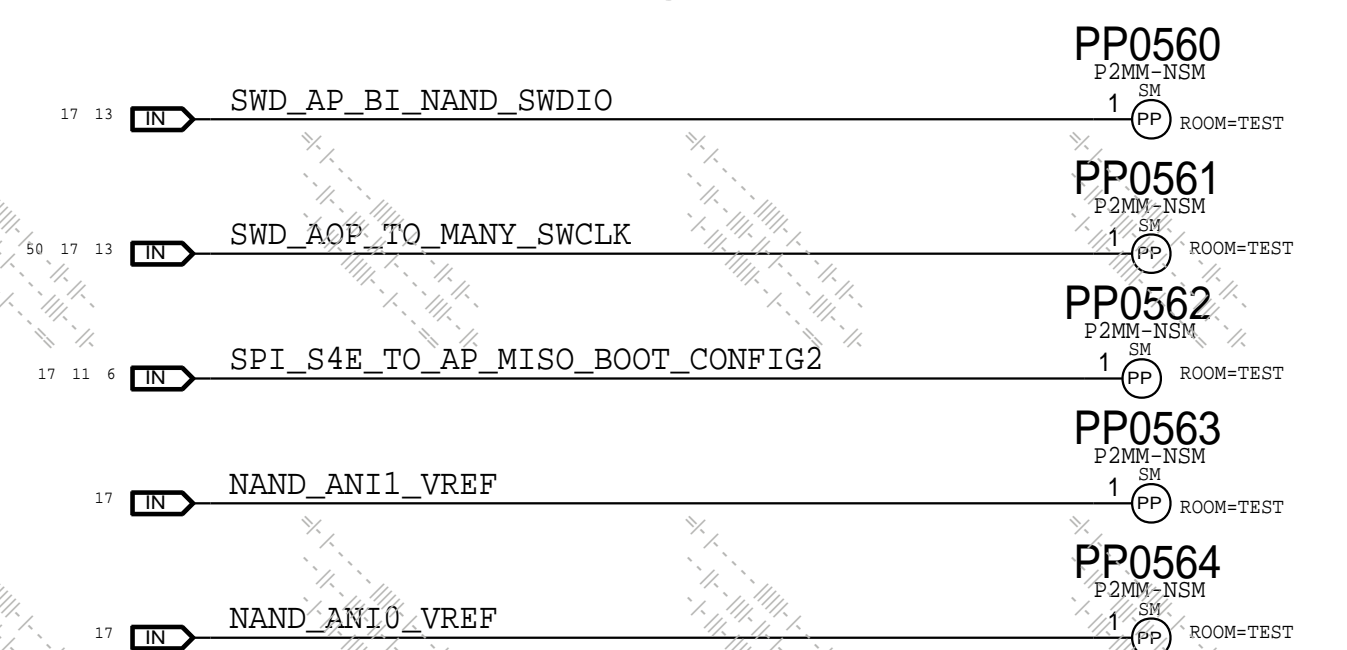
PCIE Refclk



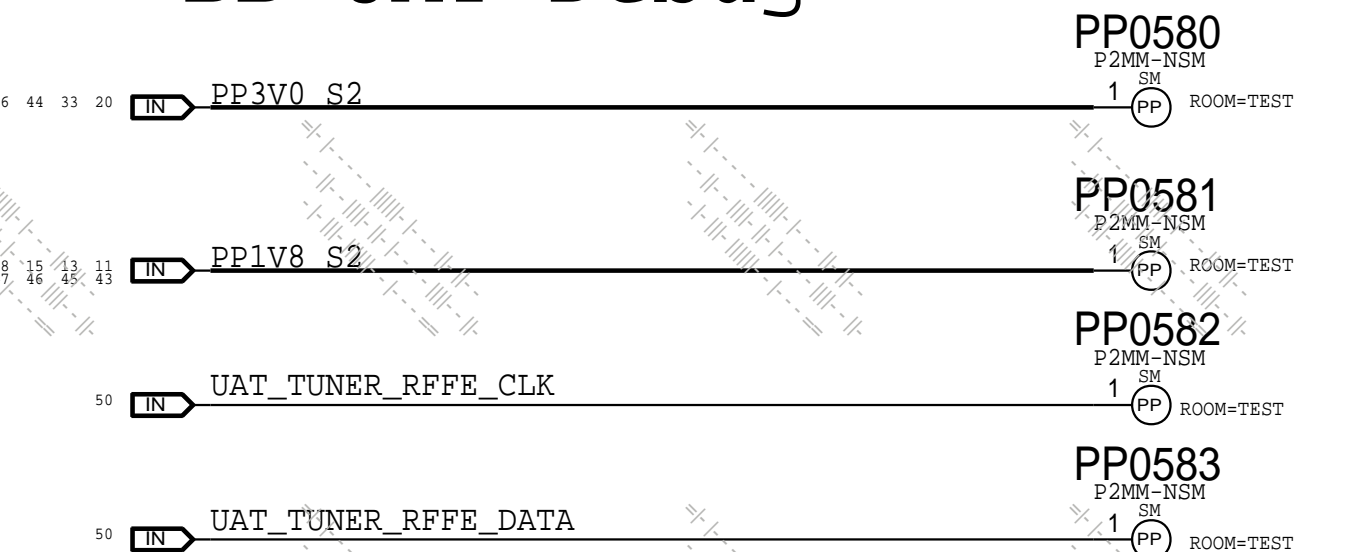
SOC DDR



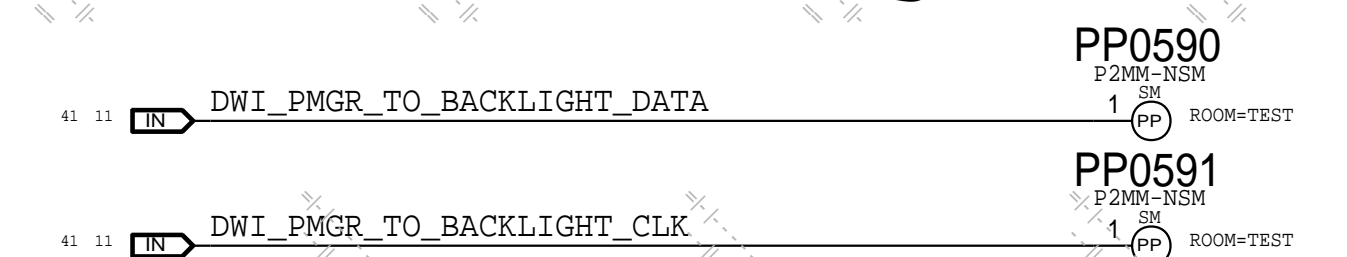
NAND Debug



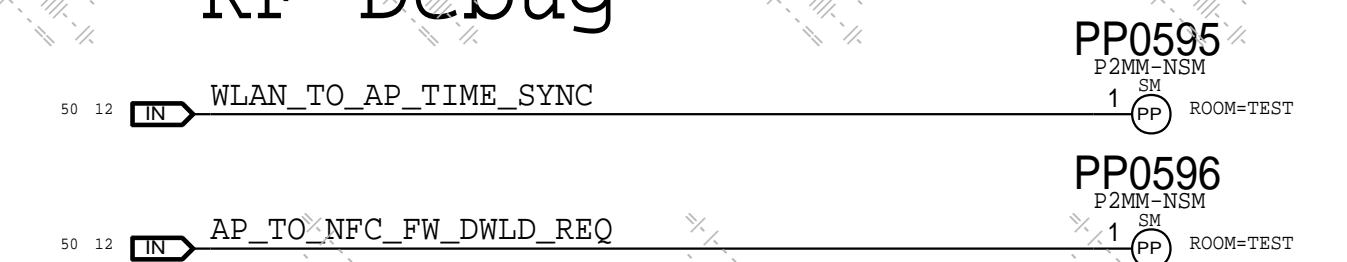
BB UAT Debug



BACKLIGHT Debug

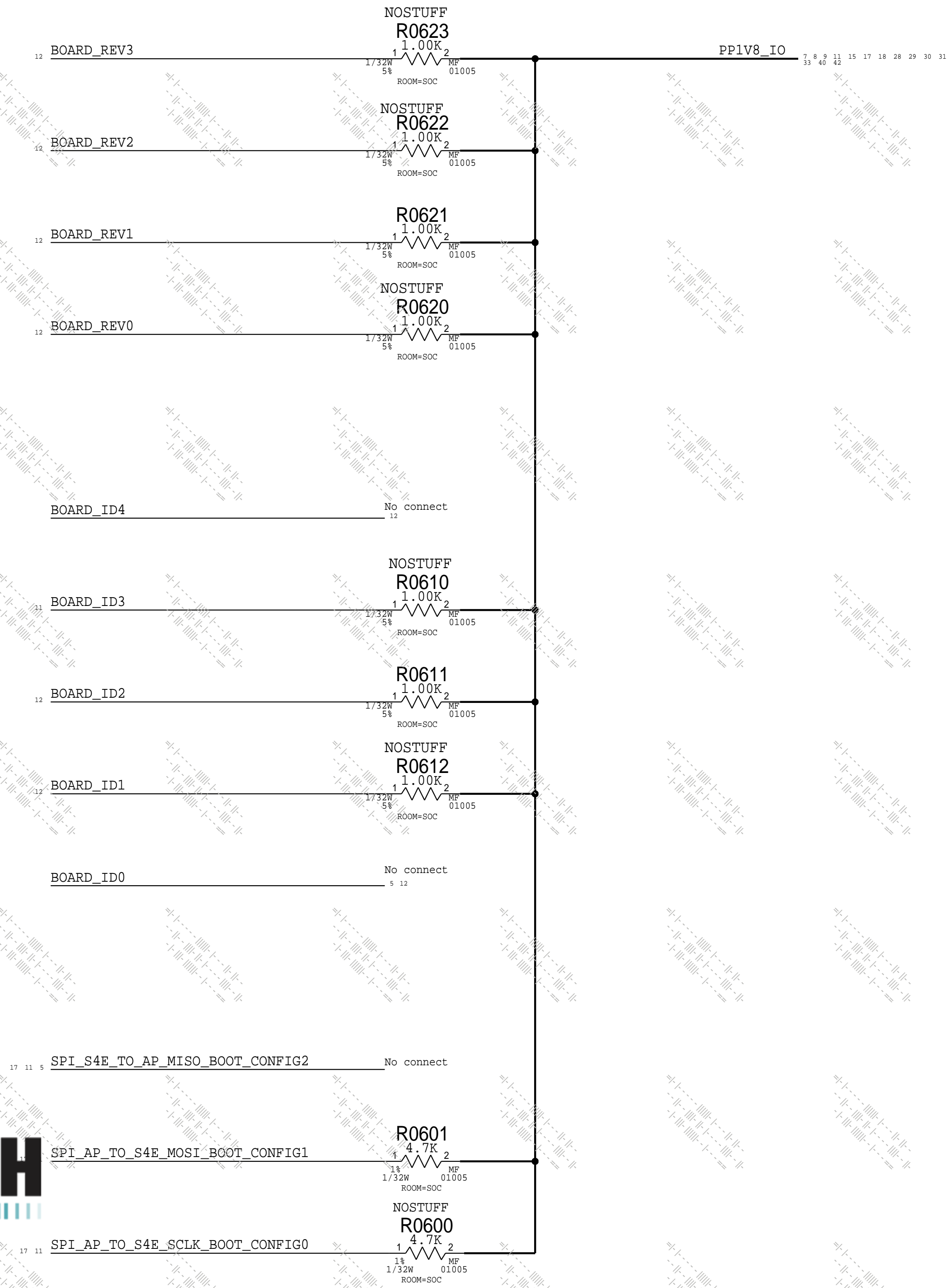


RF Debug



PAGE TITLE		
SYSTEM: Testpoints		
	DRAWING NUMBER	051-02159
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BOOTSTRAPPING: BOARD REV BOARD ID BOOT CONFIG



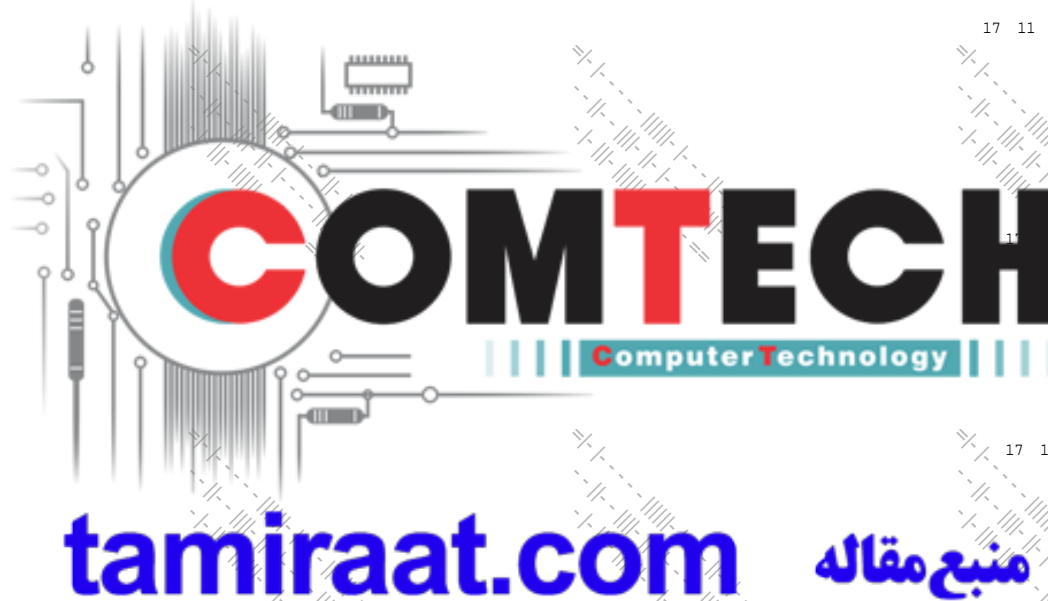
BOARD_REV[3:0]
 FLOAT=LOW, PULLUP=HIGH
 1111 Pre-Proto (Placeholder)
 1110 PROTO1
 1101 SPARE
 1100 PROTO2
 1011 PROTO2 (HALOGEN DOE)
 1001 PROTO2v5
 xxxx SPARES
 1000 EVT
 xxxx SPARES
 0100 CARRIER
 xxxx SPARE
 0010 DVT
 xxxx SPARE
 0000 PVT

Note: Future board revs TBD

BOARD_ID[4:0]
 FLOAT=LOW, PULLUP=HIGH
 00010 D20 MLB
 00011 D20 DEV
 00100 D21 MLB
 00101 D21 DEV
 01010 D201 MLB
 01011 D201 DEV
 01100 D211 MLB
 01101 D211 DEV

Legend:
 0=MLB, 1=DEV
 01=D20x, 10=D21x
 0=EUREKA, 1=KAROO

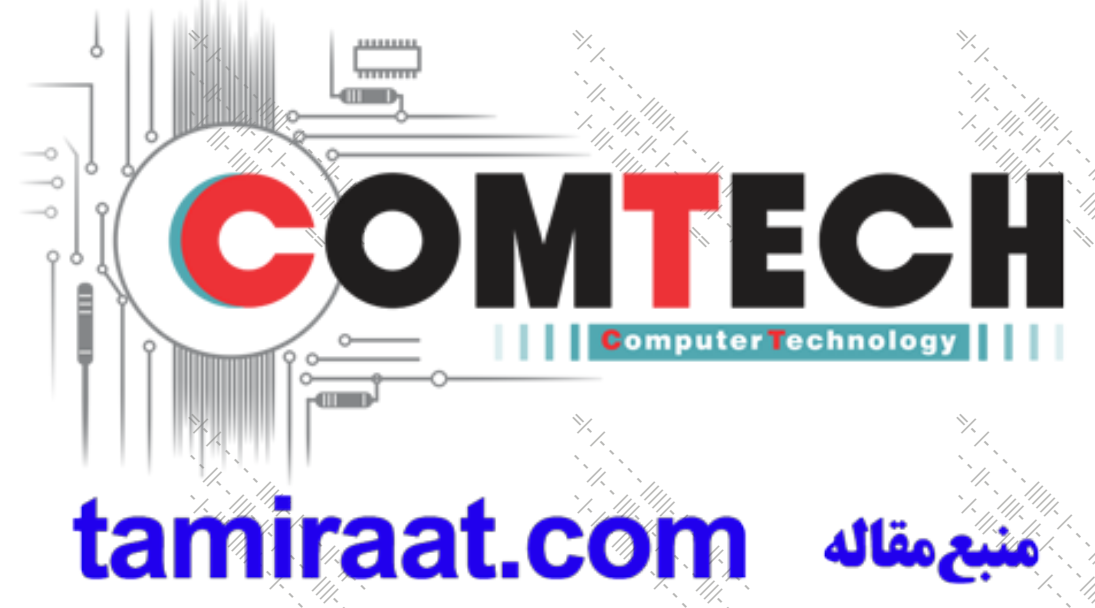
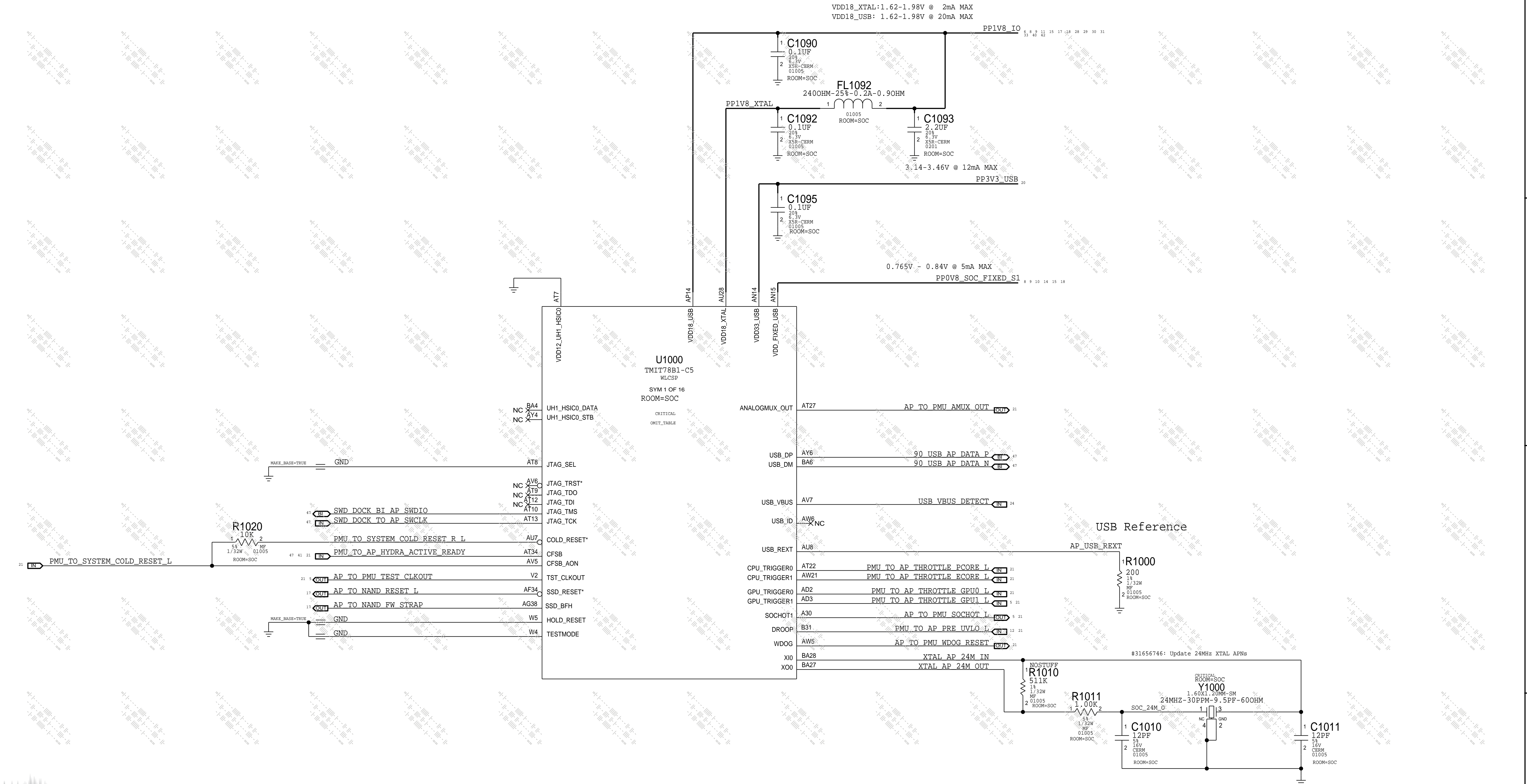
BOOT_CONFIG[2:0]
 FLOAT=LOW, PULLUP=HIGH
 000 SPI0
 001 SPI0 TEST MODE
 010 SPI0 NAND
 011 SPI0 NAND TEST
 100 n/a
 101 n/a
 110 SLOW SPI0 TEST
 111 FAST SPI0 TEST



#30903807:Nostuff R0600 to move to PoR BOOT_CONFIG

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REVISION 10.0.0			BRANCH
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SOC - USB, JTAG, XTAL



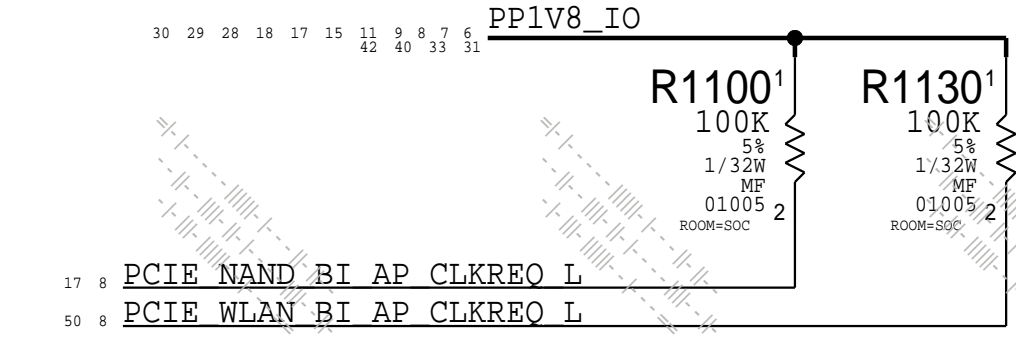
PAGE TITLE		
SOC: JTAG, USB, XTAL		
Apple Inc.	DRAWING NUMBER	051-02159
	REVISION	10.0.0
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	PAGE	10 OF 80
	SHEET	7 OF 81
	SIZE	D

SOC - PCIE INTERFACES

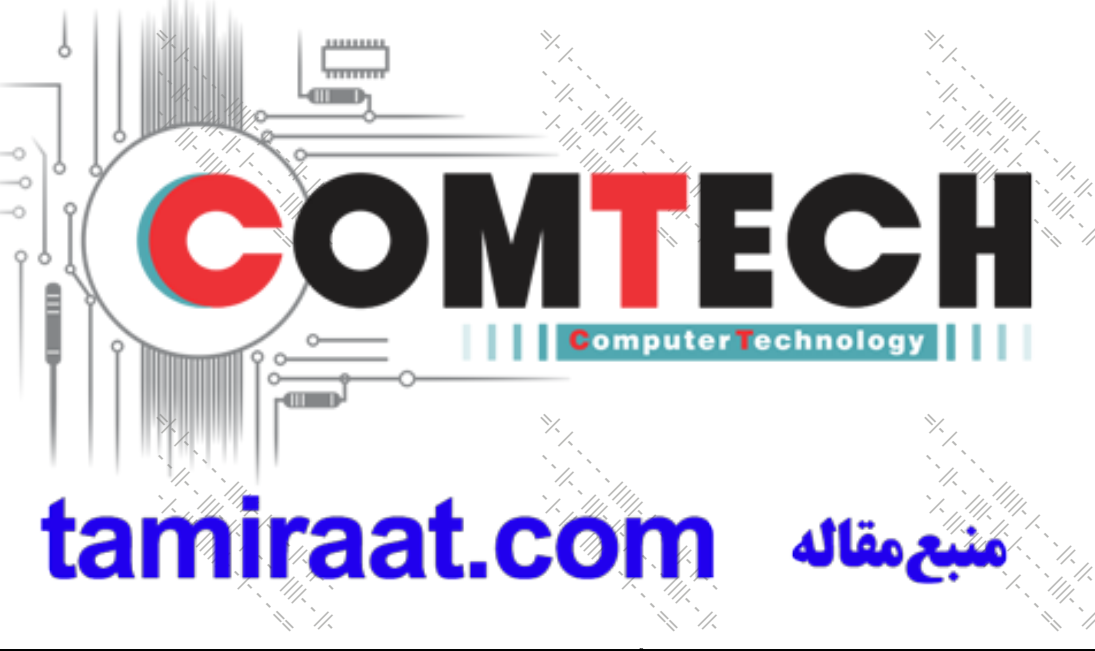
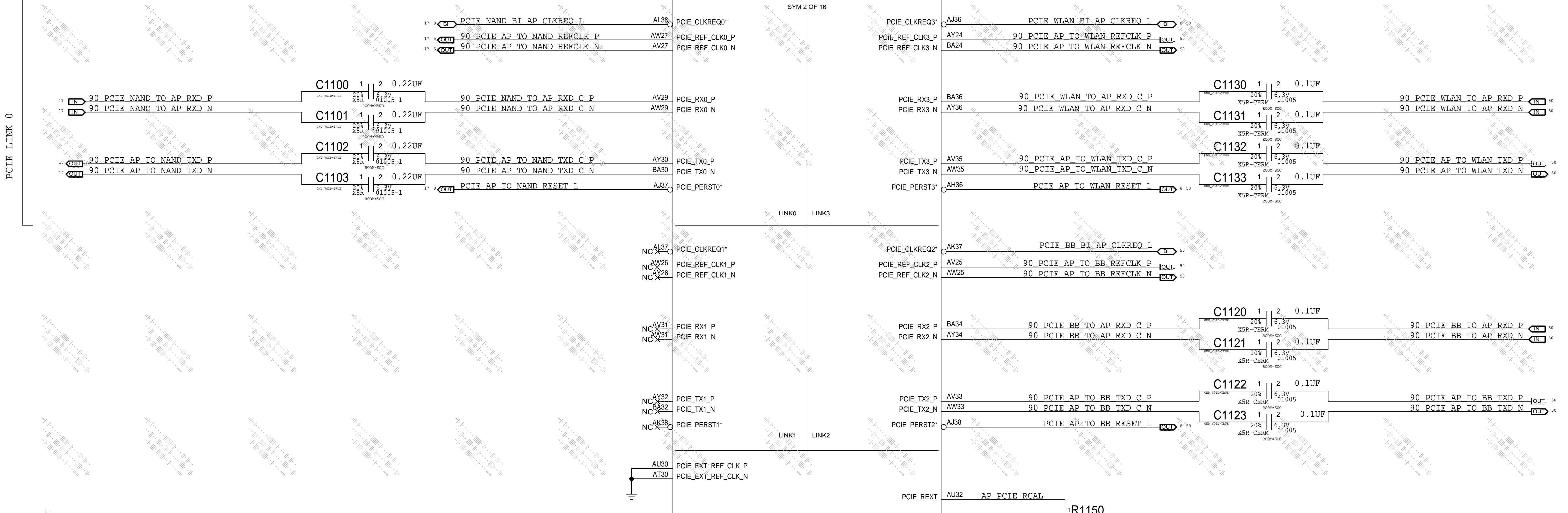
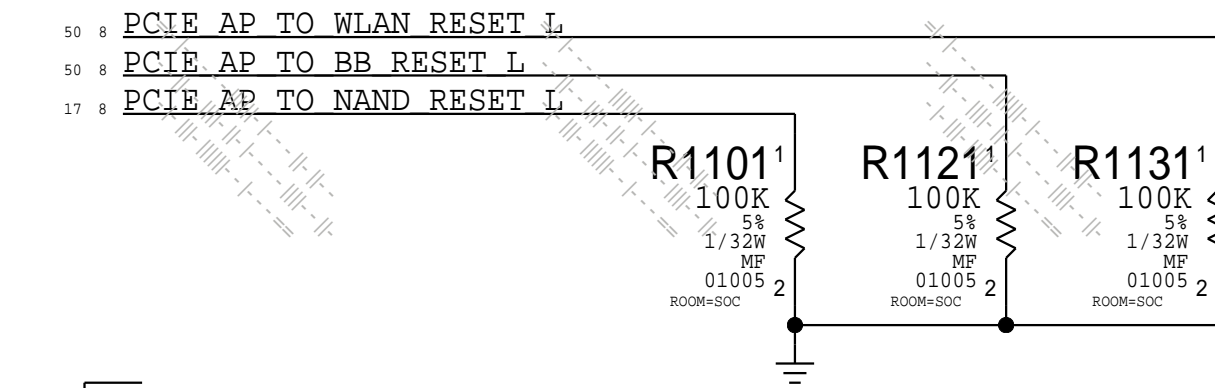
VDD12_PCIE_REFBUF:1.08V - 1.26V @ 30mA MAX

VDD18_PCIE:1.62V - 1.98V @ 81mA MAX

PCie Clock Request Pull-Ups



PCie Reset Pull-Downs

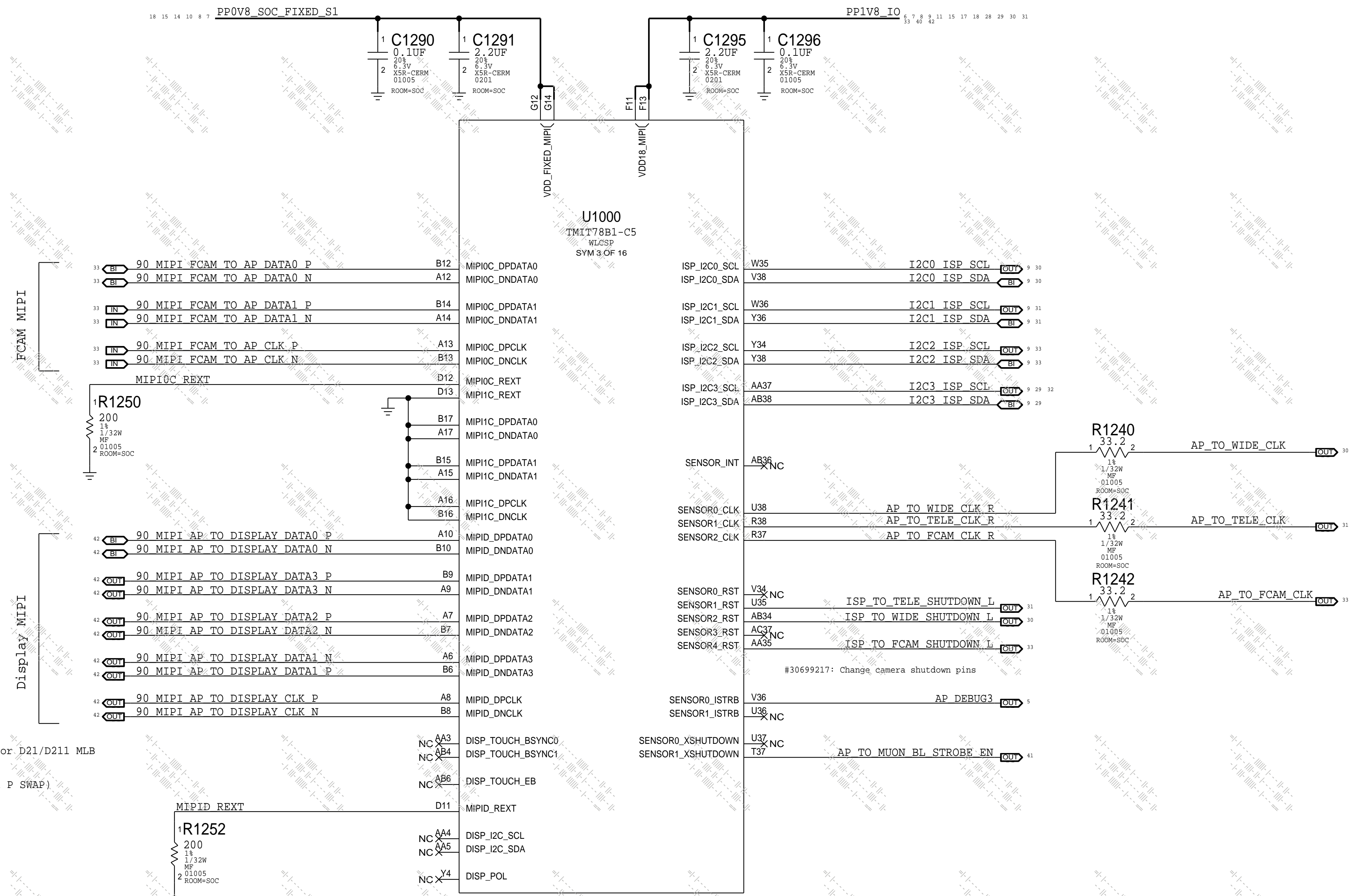


PAGE TITLE			SOC: PCIE		
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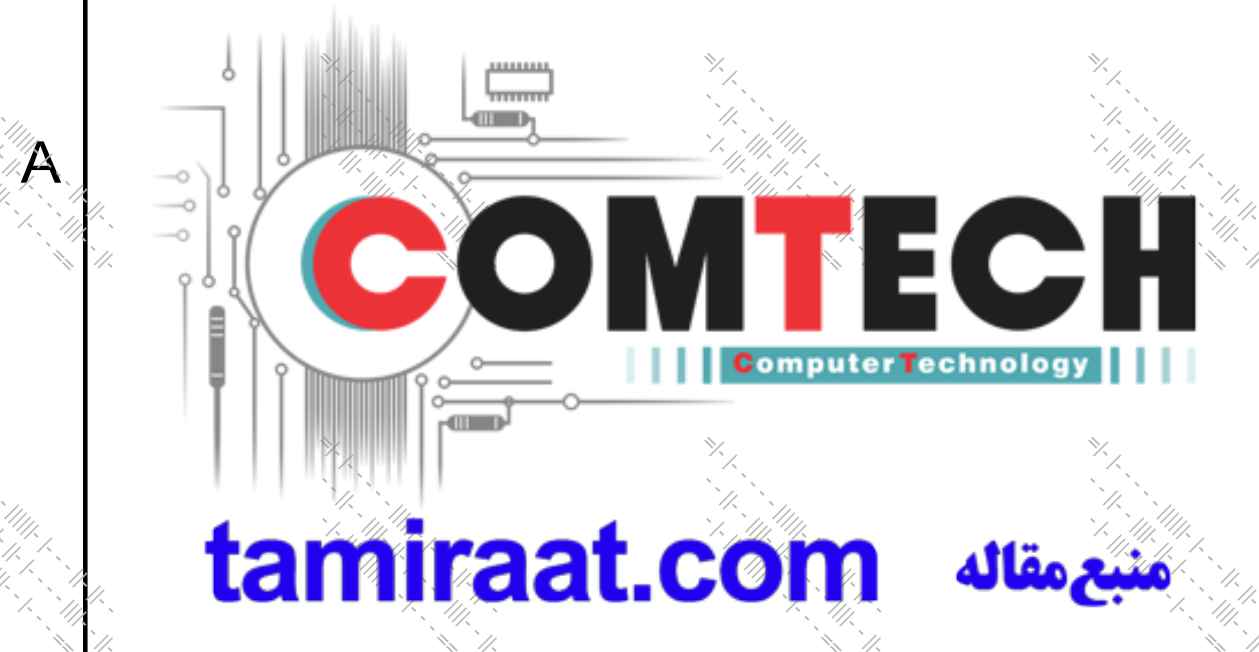
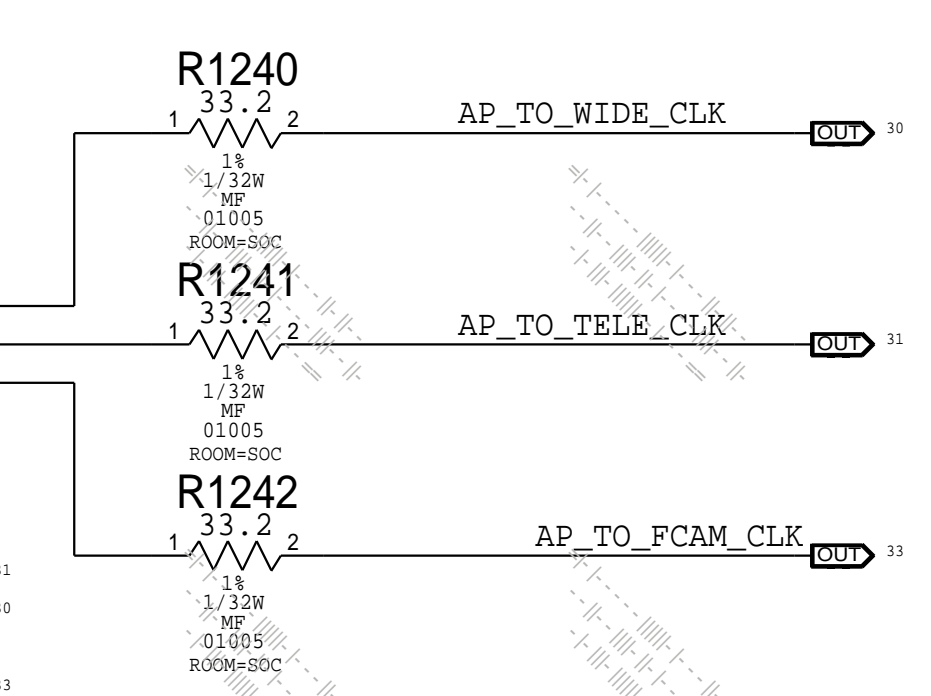
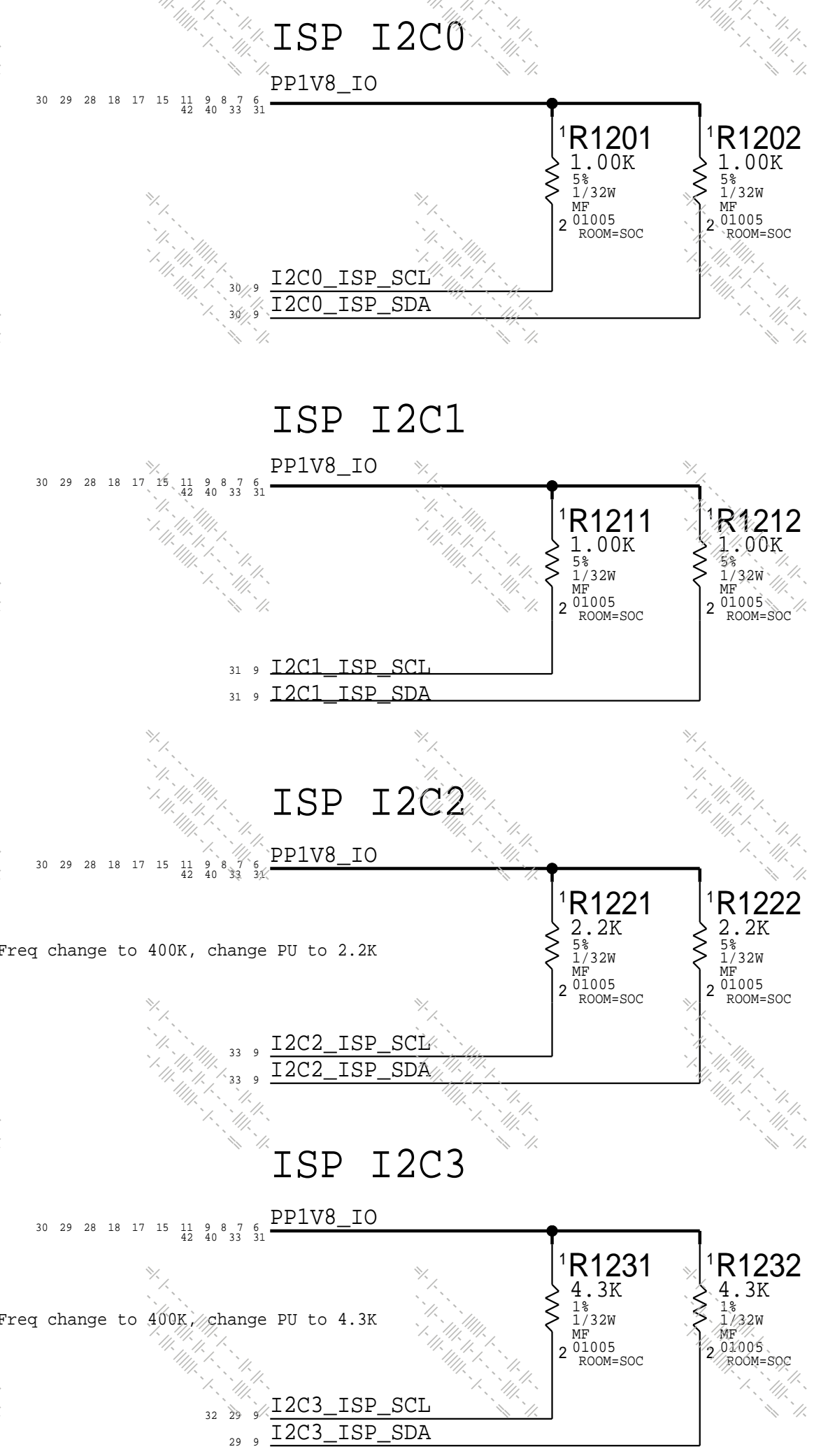
SOC - MIPI & ISP INTERFACES

VDD_FIXED_MIPI: 0.765V - 0.84V @ 40mA MAX

VDD18_MIPI: 1.62V - 1.98V @ 10mA MAX

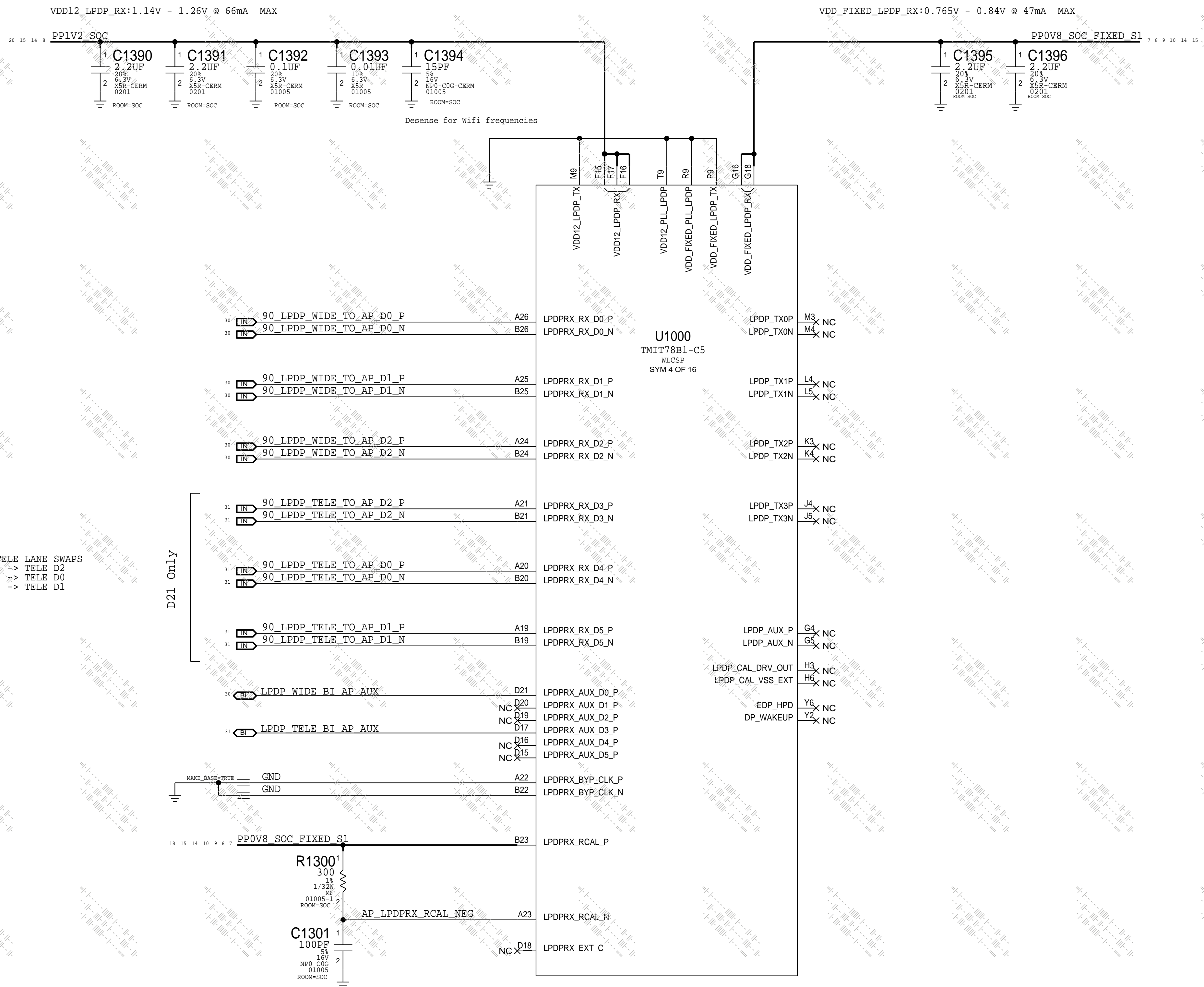


Pin assignment optimized for D21/D211 MLB
 DISPLAY MIPI LANE SWAPS
 SOC D1 -> DISPLAY D3
 SOC D3 -> DISPLAY D1 (N & P SWAP)



PAGE TITLE			SOC: MIPI + ISP		
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SHEET		9 OF 81	NOTICE OF PROPRIETARY PROPERTY:		
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SOC - LPDP INTERFACES



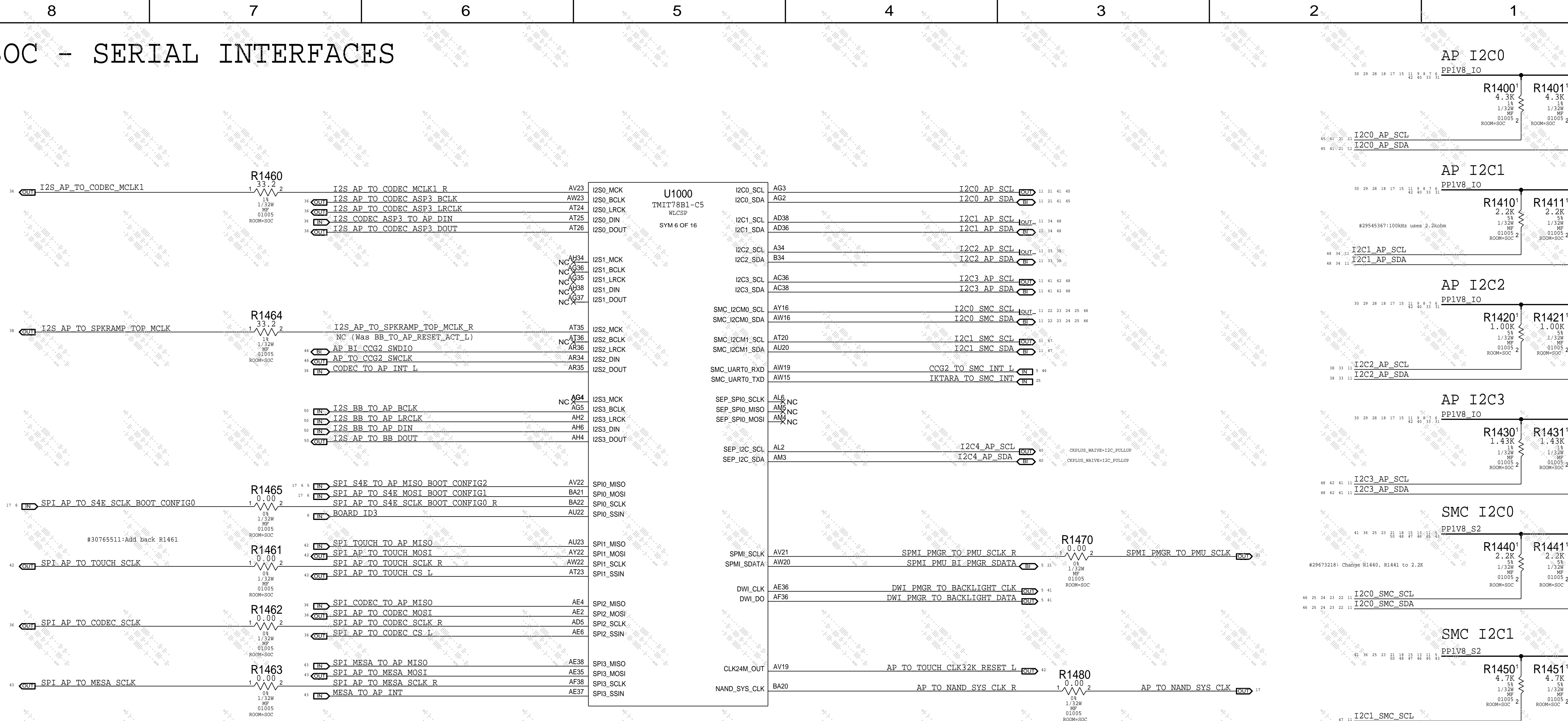
LPDP TELE LANE SWAPS
SOC D3 -> TELE D2
SOC D4 -> TELE D0
SOC D5 -> TELE D1

D21 Only



PAGE TITLE			SOC: LPDP		
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		PAGE	13 OF 80	SHEET	10 OF 81

SOC - SERIAL INTERFACES

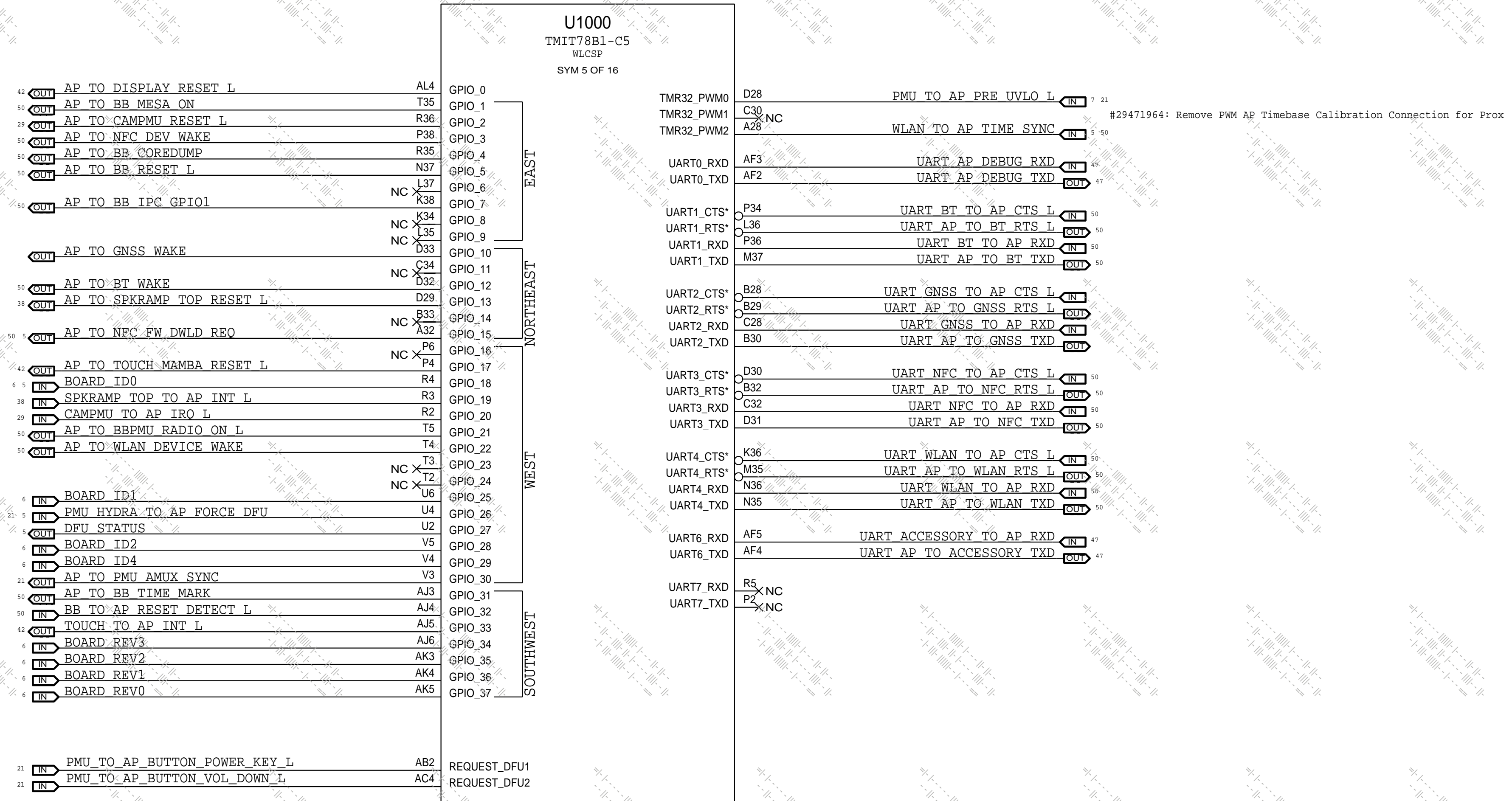


SPI: Route as Daisy-Chain (No T's Allowed)



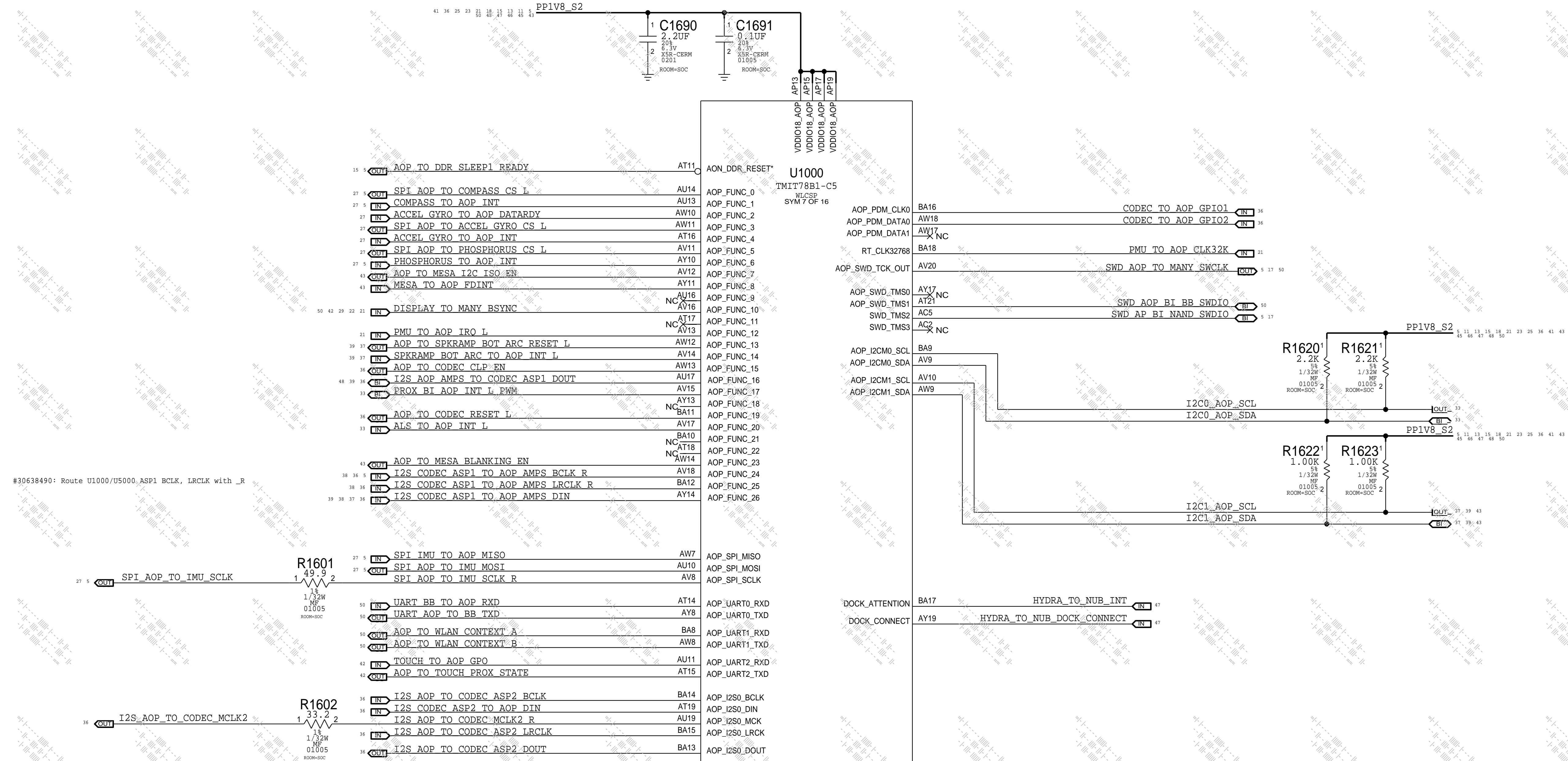
PAGE TITLE: SOC: SERIAL + SMC		
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SOC - GPIO INTERFACES



SOC - AOP

VDDIO18_AOP:1.8V @ 15mA MAX



#30638490: Route U1000/U5000.ASP1 BCLK, LRCLK with _R



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SOC - CPU, GPU & SOC RAILS

1.06V @ 11.0A MAX
 0.8V @ 6A MAX
 0.575V @ 2.7A MAX

PP_CPU_CORE

1.06V @ 18.3A MAX
 0.8V @ 10.6A MAX
 0.575V @ 3.4A MAX

PP_GPU

0.765V @ 4.9A MAX
 0.635V @ 2.6A MAX

PP_SOC_S1

0.7V @ 75mA MAX

PP0V7_VDD_LOW_S2

1.01V @ 2.1A MAX
 0.735V @ 0.6A MAX

PP_CPU_SRAM

1.06V @ 1.1A MAX
 0.80V @ 0.63A MAX
 0.675V @ 0.19A MAX

PP_GPU_SRAM

0.8V @ 6mA MAX

PP0V8_SOC_FIXED_S1

0.8V @ 6+10=16mA MAX

1.2V @ 7mA MAX (CPU)
 1.2V @ 7mA MAX (GPU)
 1.2V @ 20mA MAX (SOC)

PP1V2_SOC

2.1V @ 7mA MAX (CPU)
 2.1V @ 7mA MAX (GPU)
 2.1V @ 20mA MAX (SOC)

PP1V2_SOC

2.1V @ 7mA MAX (CPU)
 2.1V @ 7mA MAX (GPU)
 2.1V @ 20mA MAX (SOC)

PP1V2_SOC

2.1V @ 7mA MAX (CPU)
 2.1V @ 7mA MAX (GPU)
 2.1V @ 20mA MAX (SOC)

PP1V2_SOC

2.1V @ 7mA MAX (CPU)
 2.1V @ 7mA MAX (GPU)
 2.1V @ 20mA MAX (SOC)

PP1V2_SOC

2.1V @ 7mA MAX (CPU)
 2.1V @ 7mA MAX (GPU)
 2.1V @ 20mA MAX (SOC)

PP1V2_SOC

2.1V @ 7mA MAX (CPU)
 2.1V @ 7mA MAX (GPU)
 2.1V @ 20mA MAX (SOC)

PP1V2_SOC

2.1V @ 7mA MAX (CPU)
 2.1V @ 7mA MAX (GPU)
 2.1V @ 20mA MAX (SOC)

PP1V2_SOC

2.1V @ 7mA MAX (CPU)
 2.1V @ 7mA MAX (GPU)
 2.1V @ 20mA MAX (SOC)

PP1V2_SOC

2.1V @ 7mA MAX (CPU)
 2.1V @ 7mA MAX (GPU)
 2.1V @ 20mA MAX (SOC)

PP1V2_SOC

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PP1V2_SOC

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PP1V2_SOC

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PP1V2_SOC

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PP1V2_SOC

2.1V @ 7mA MAX (CPU)
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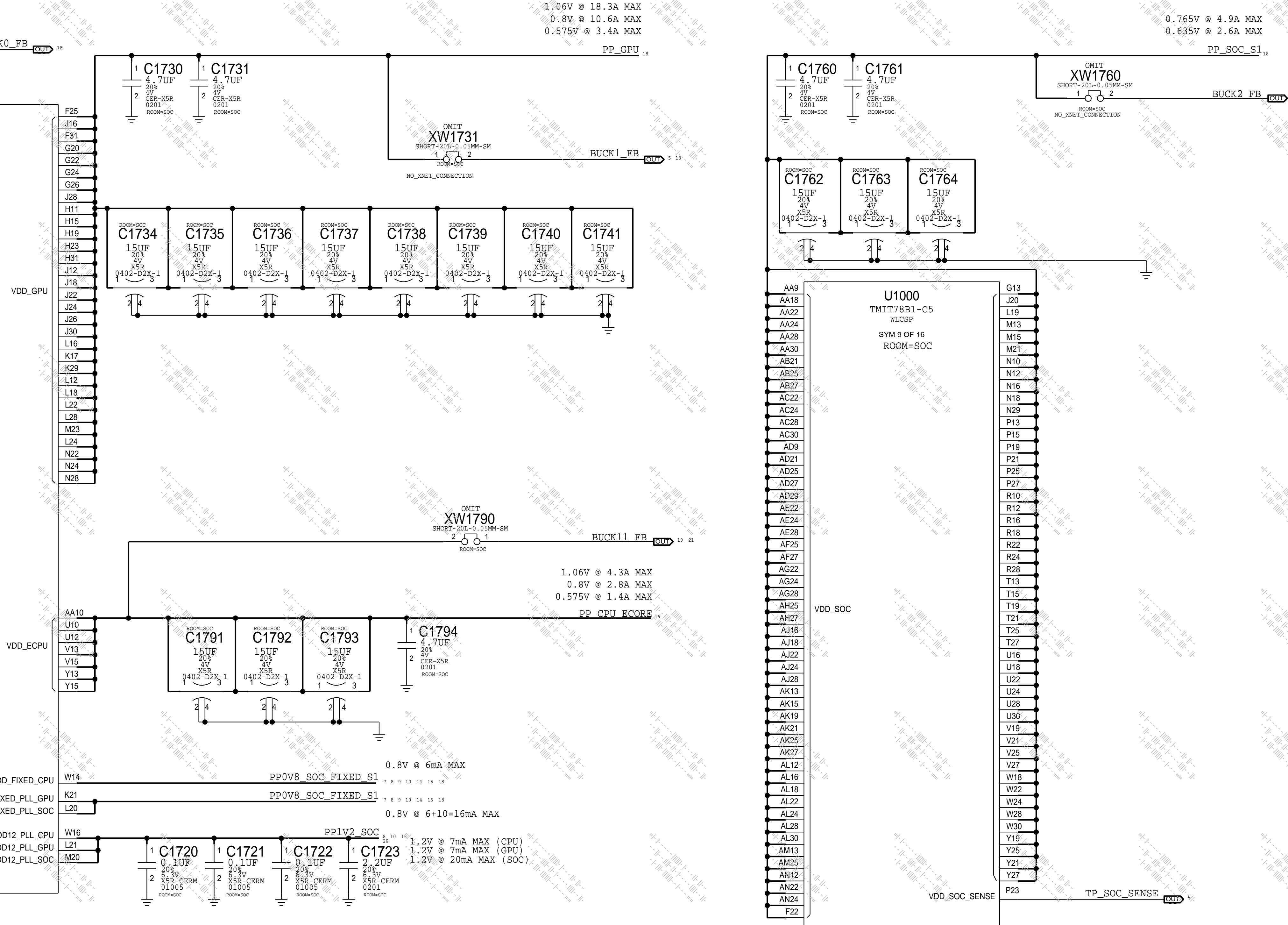
PP1V2_SOC

2.1V @ 7mA MAX (CPU)
 2.1V @ 7mA MAX (GPU)
 2.1V @ 20mA MAX (SOC)

PP1V2_SOC

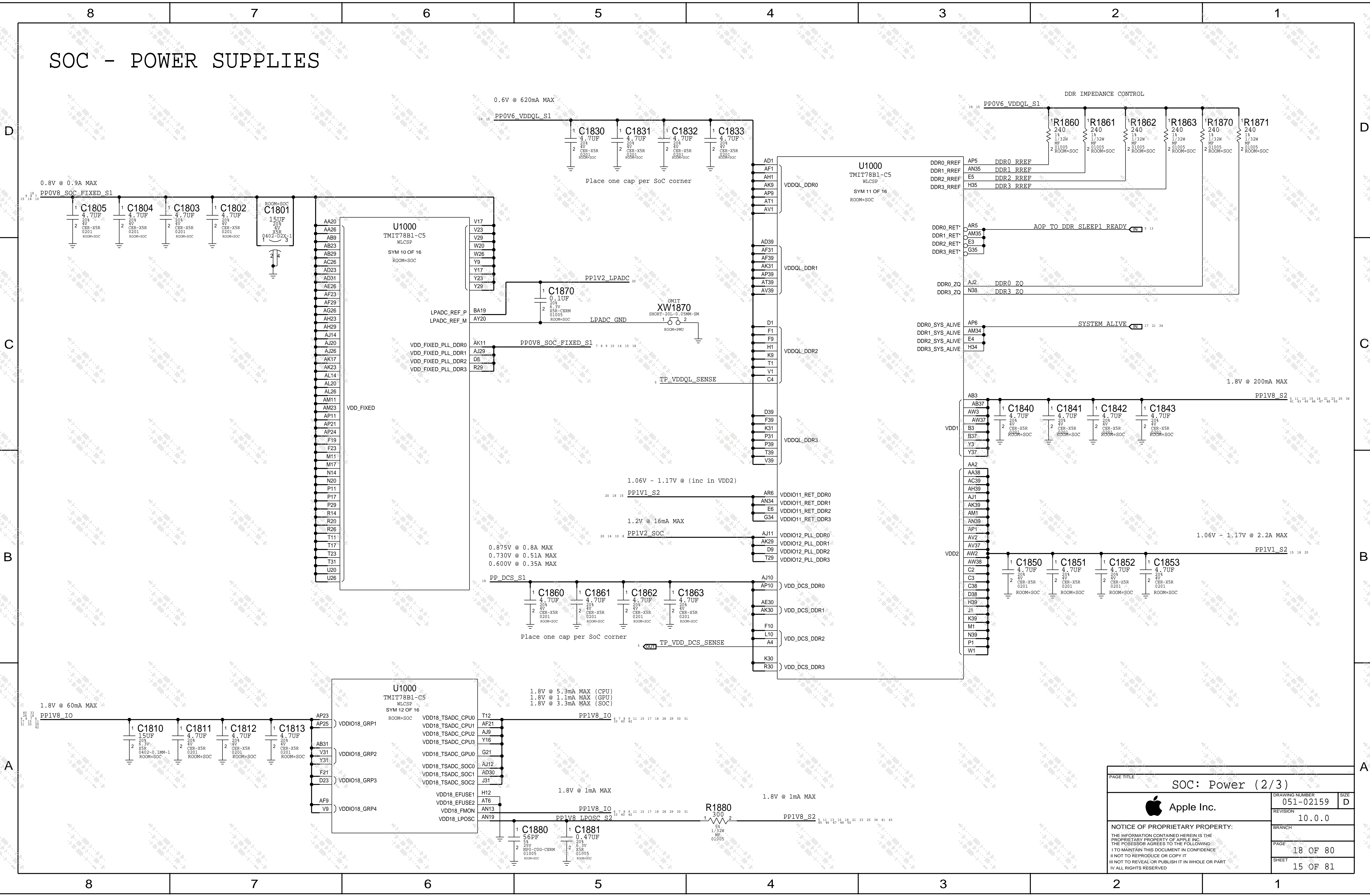


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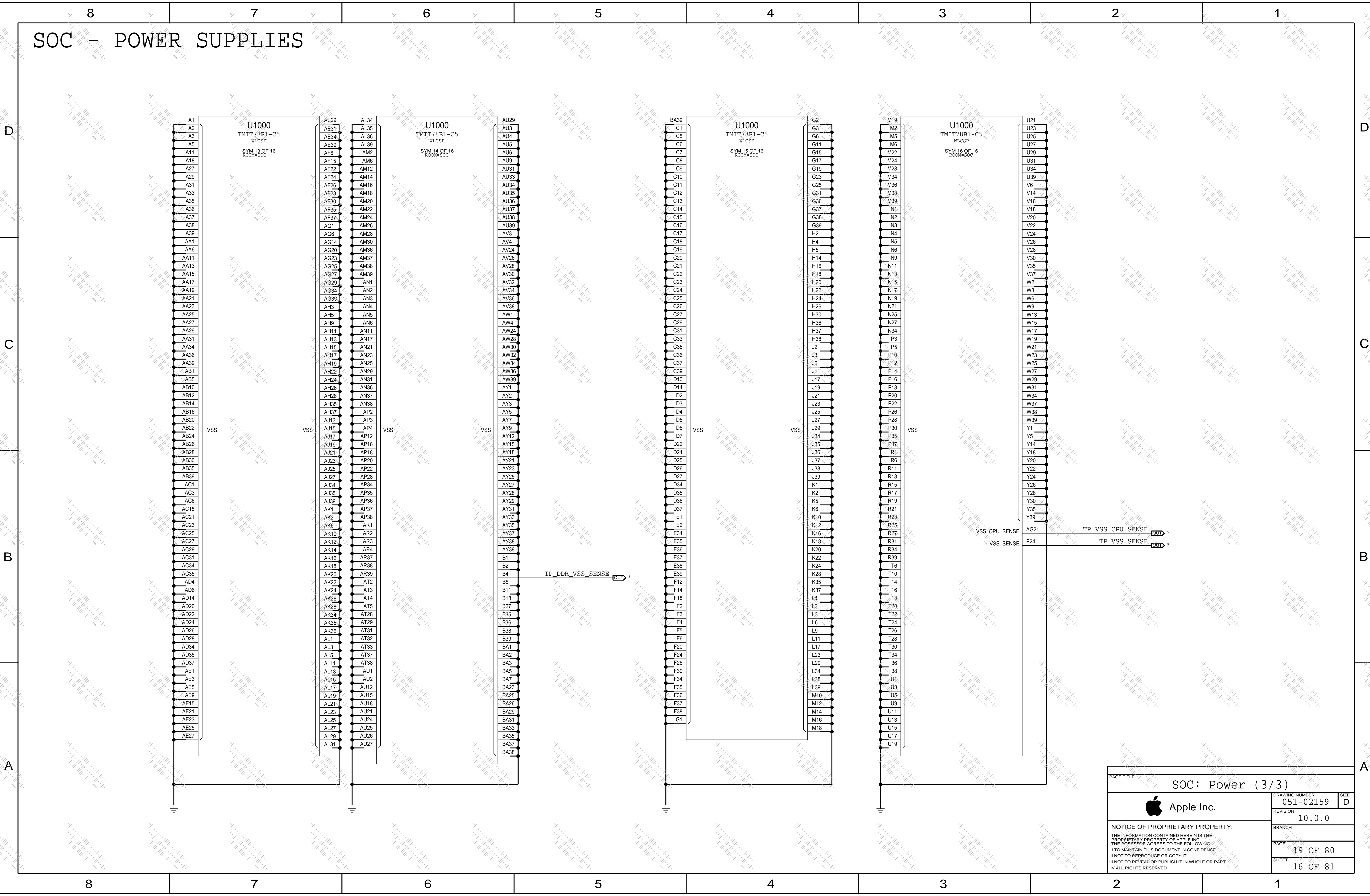
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SOC - POWER SUPPLIES

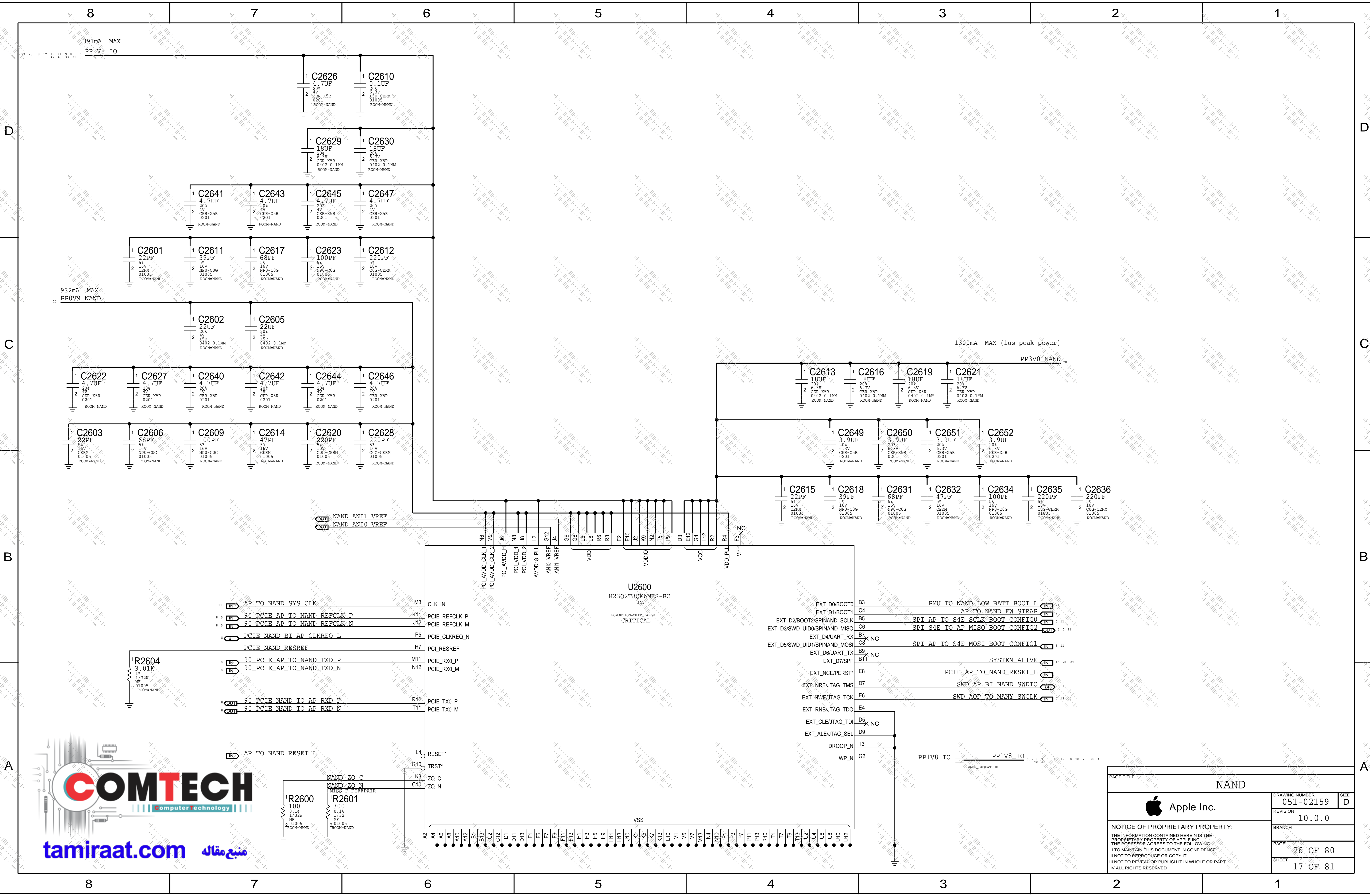


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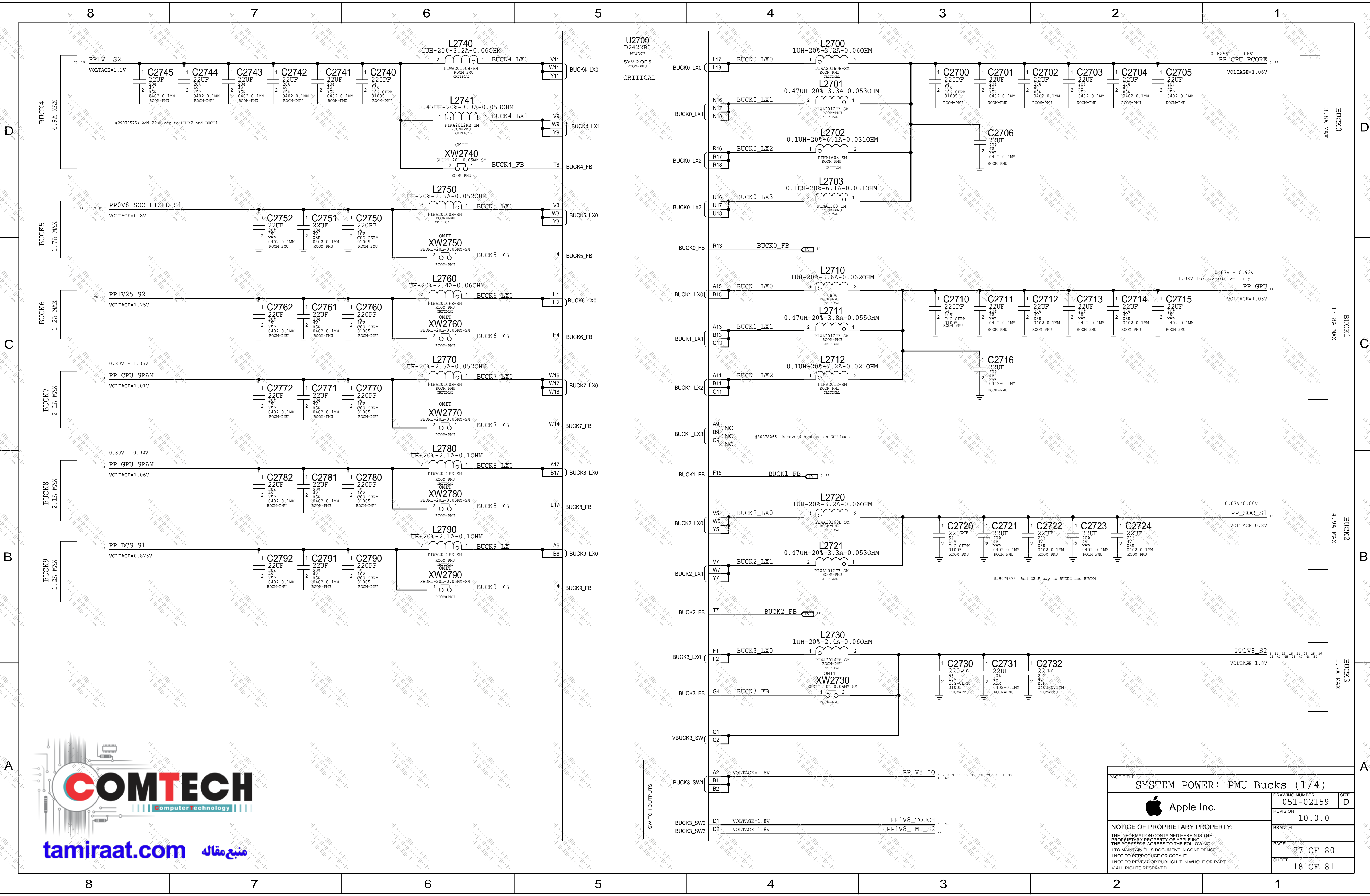
SOC - POWER SUPPLIES



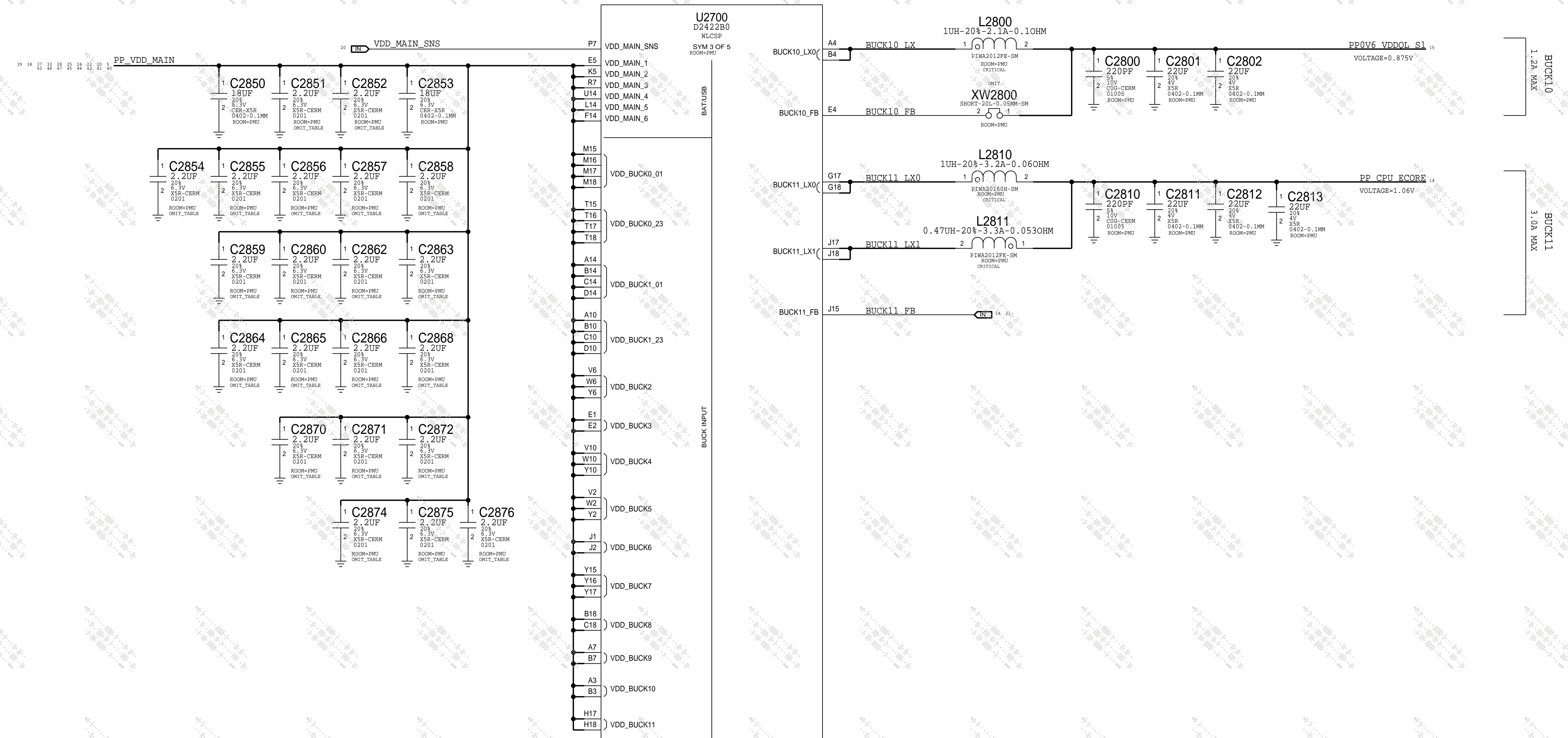
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SOC: Power (3/3)		
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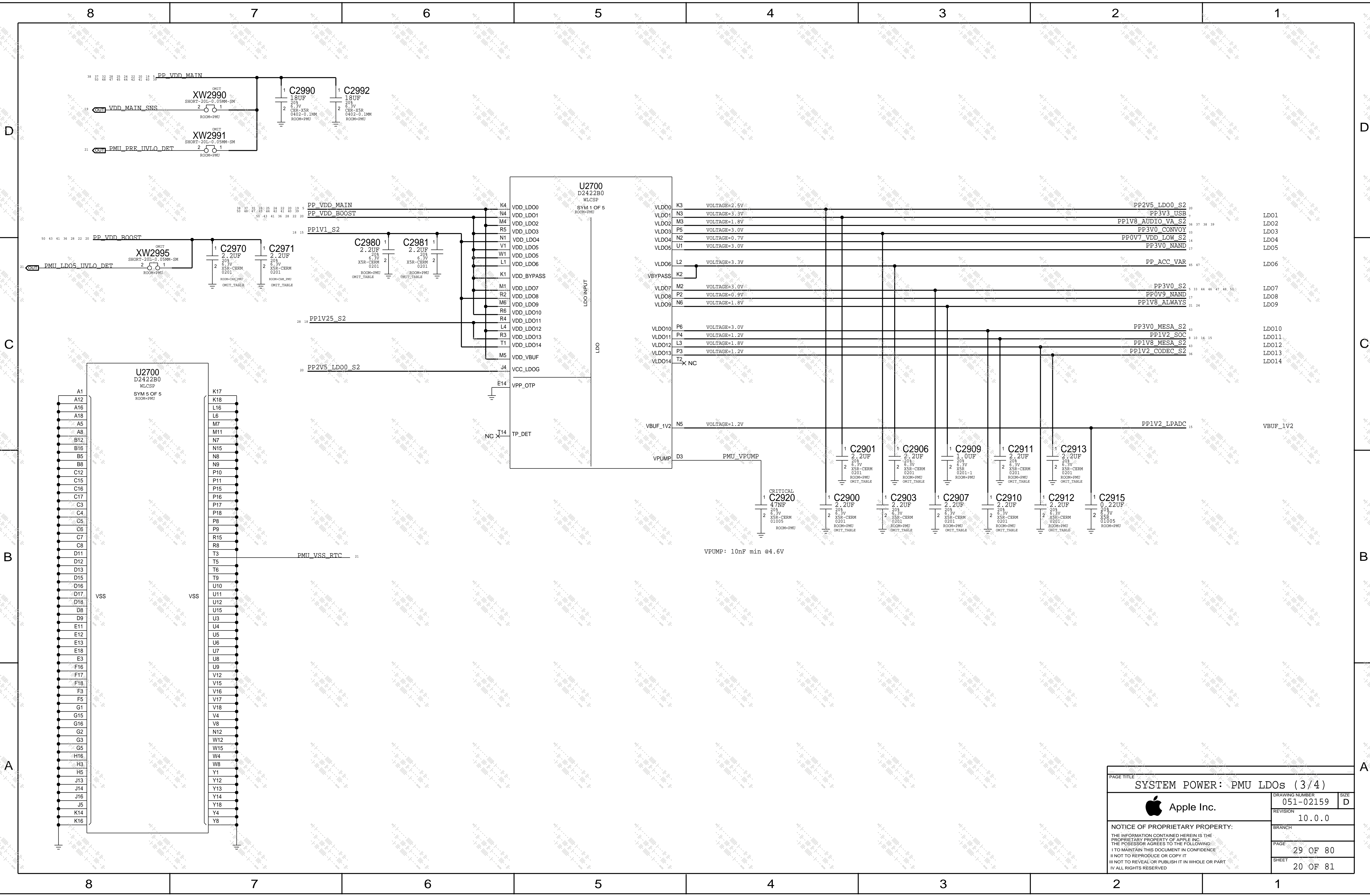
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SYSTEM POWER: PMU Bucks (1/4)		
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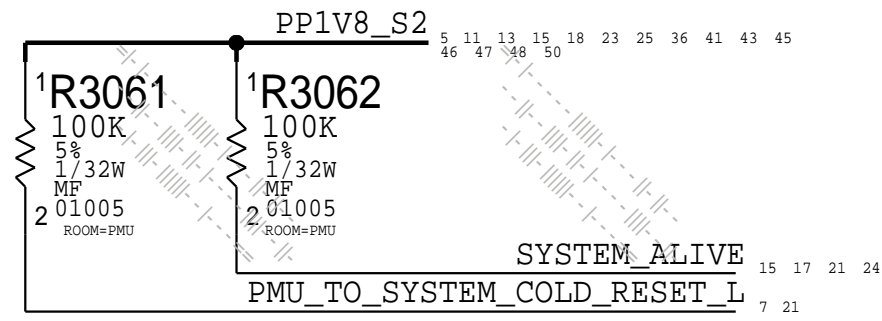


PAGE TITLE SYSTEM POWER: PMU Bucks (2/4)		
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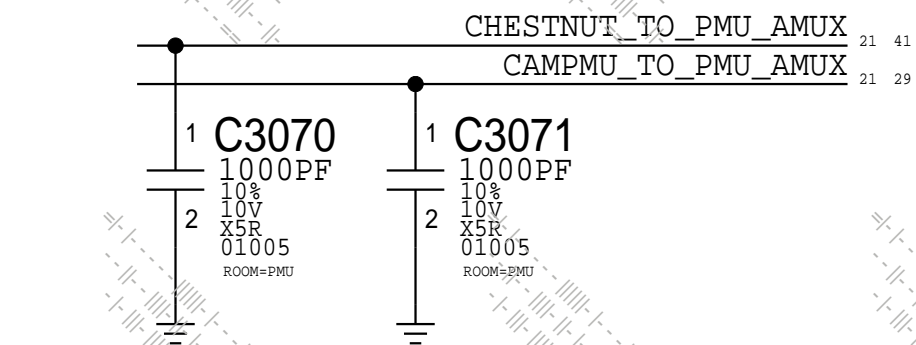


PAGE TITLE SYSTEM POWER: PMU LDOs (3/4)		
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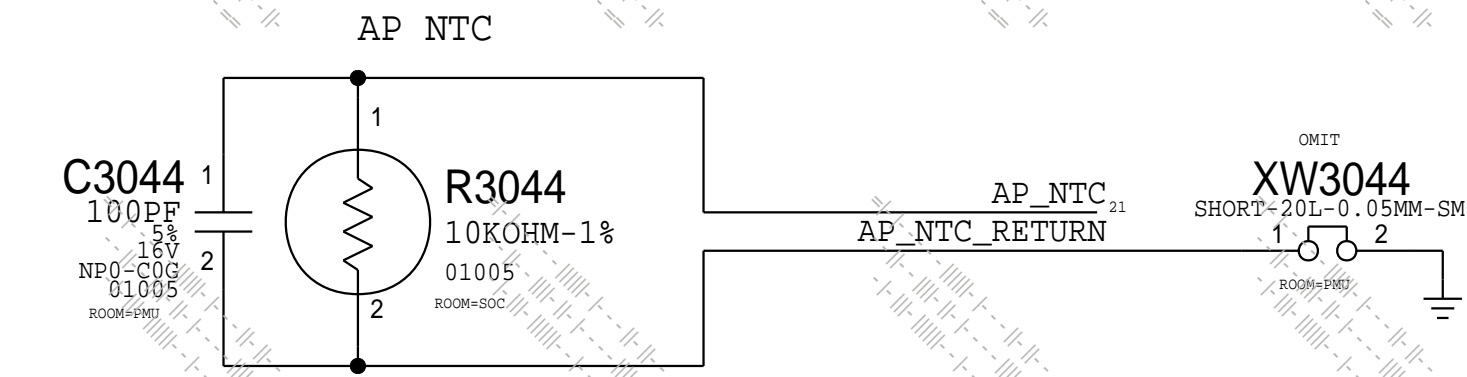
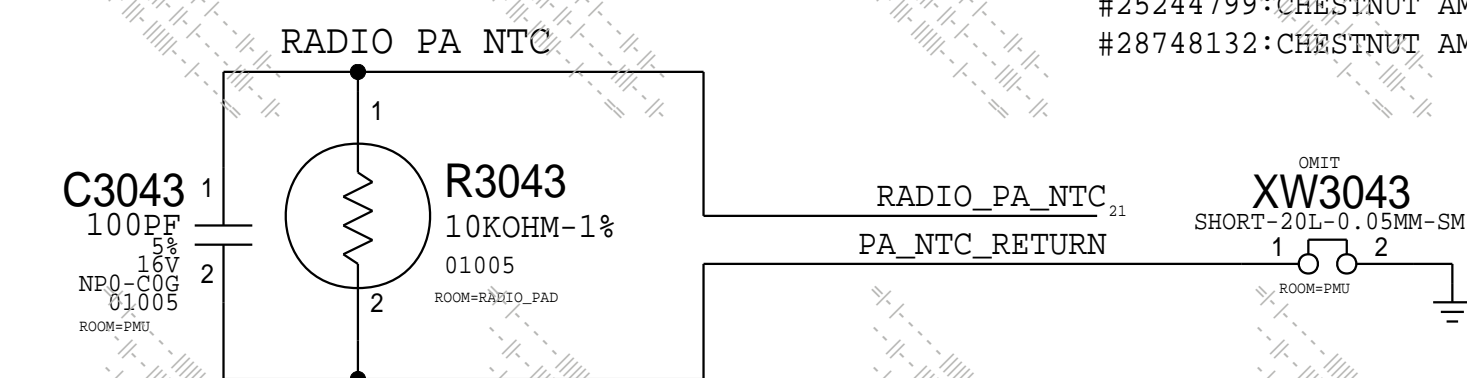
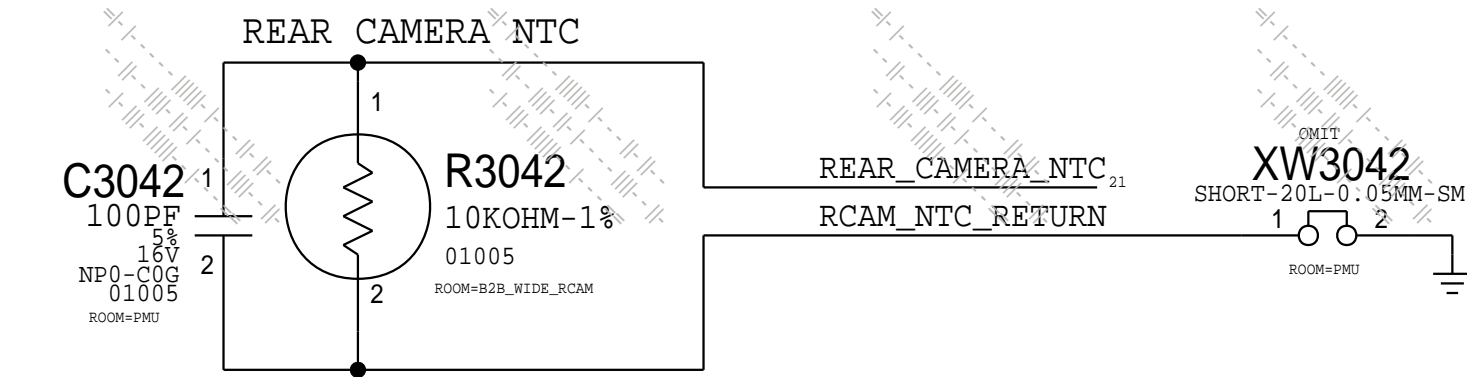
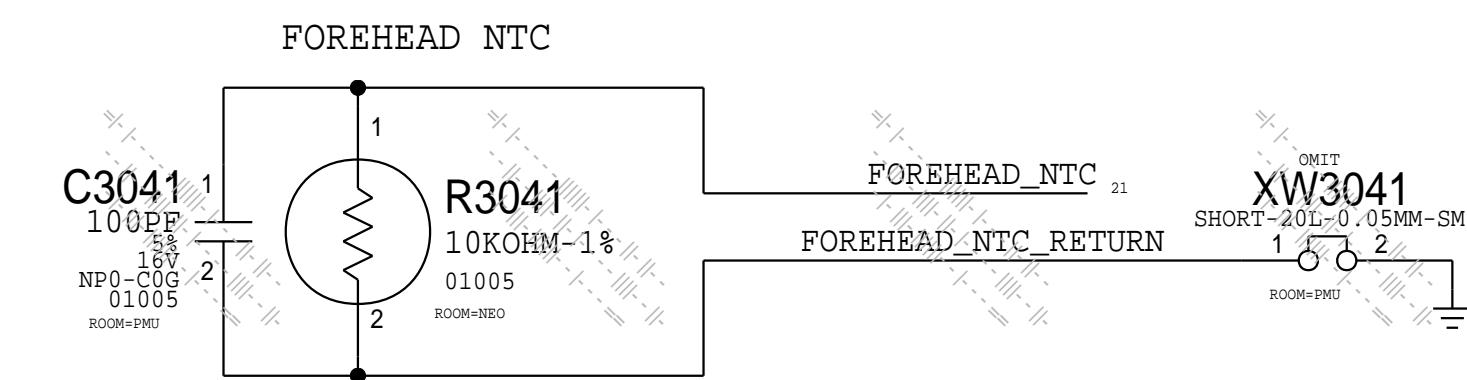
COLD_RESET & SYSTEM_ALIVE



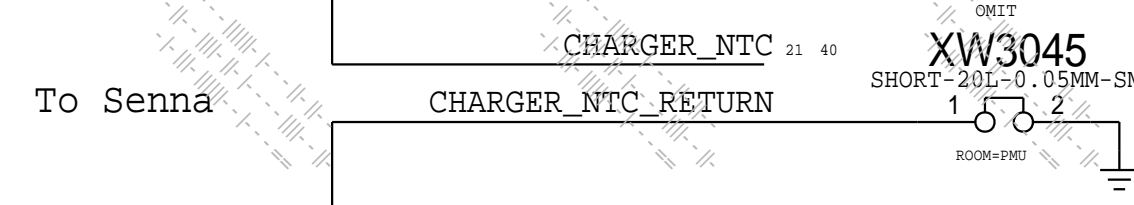
#28476673:1000PF CAP ON ANSEL AMUX
Chestnut / Ansel AMUX



NTCs



CHARGER NTC (IN SIP)



#29404057:Damping R for ACTIVE_RDY

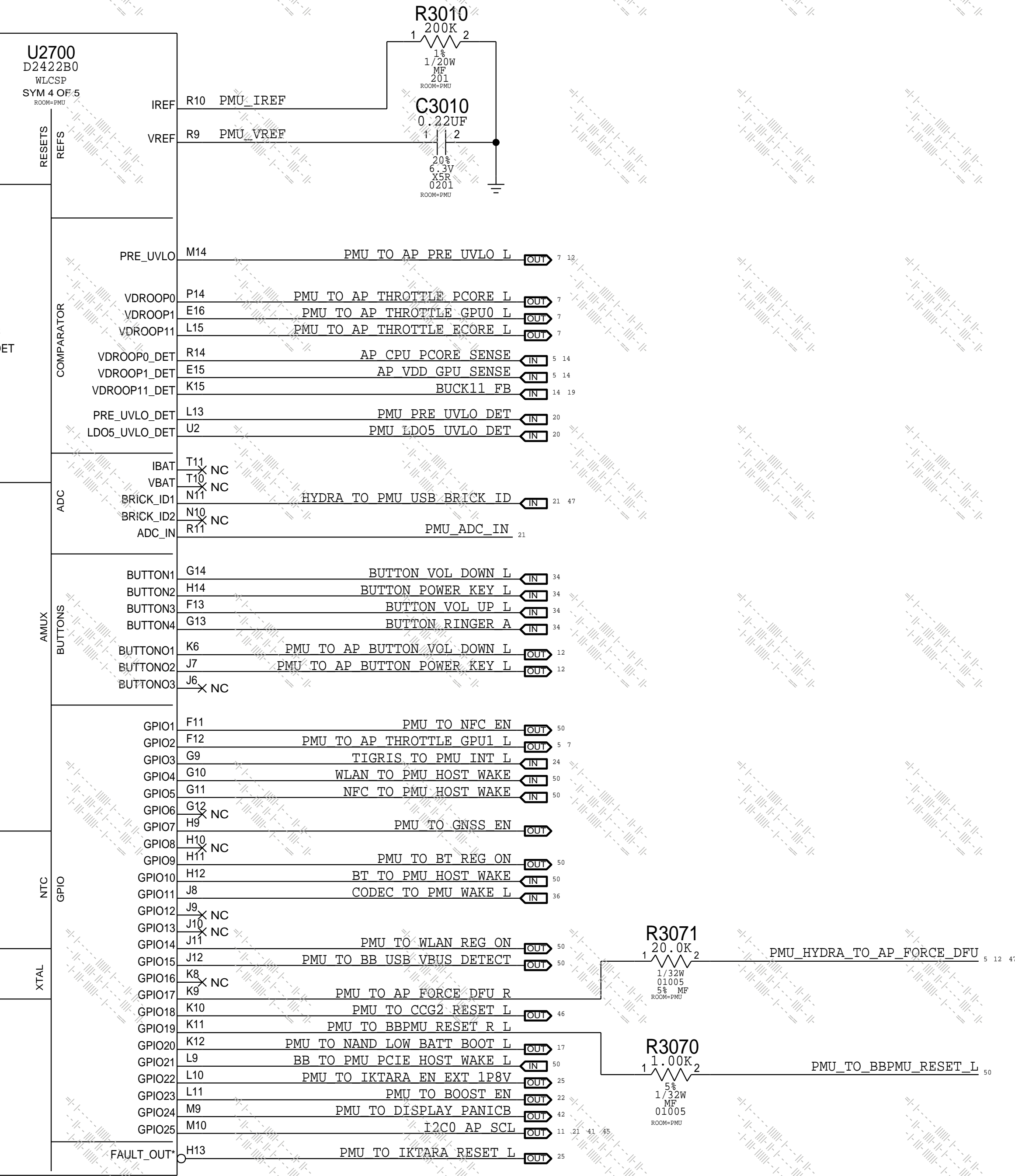
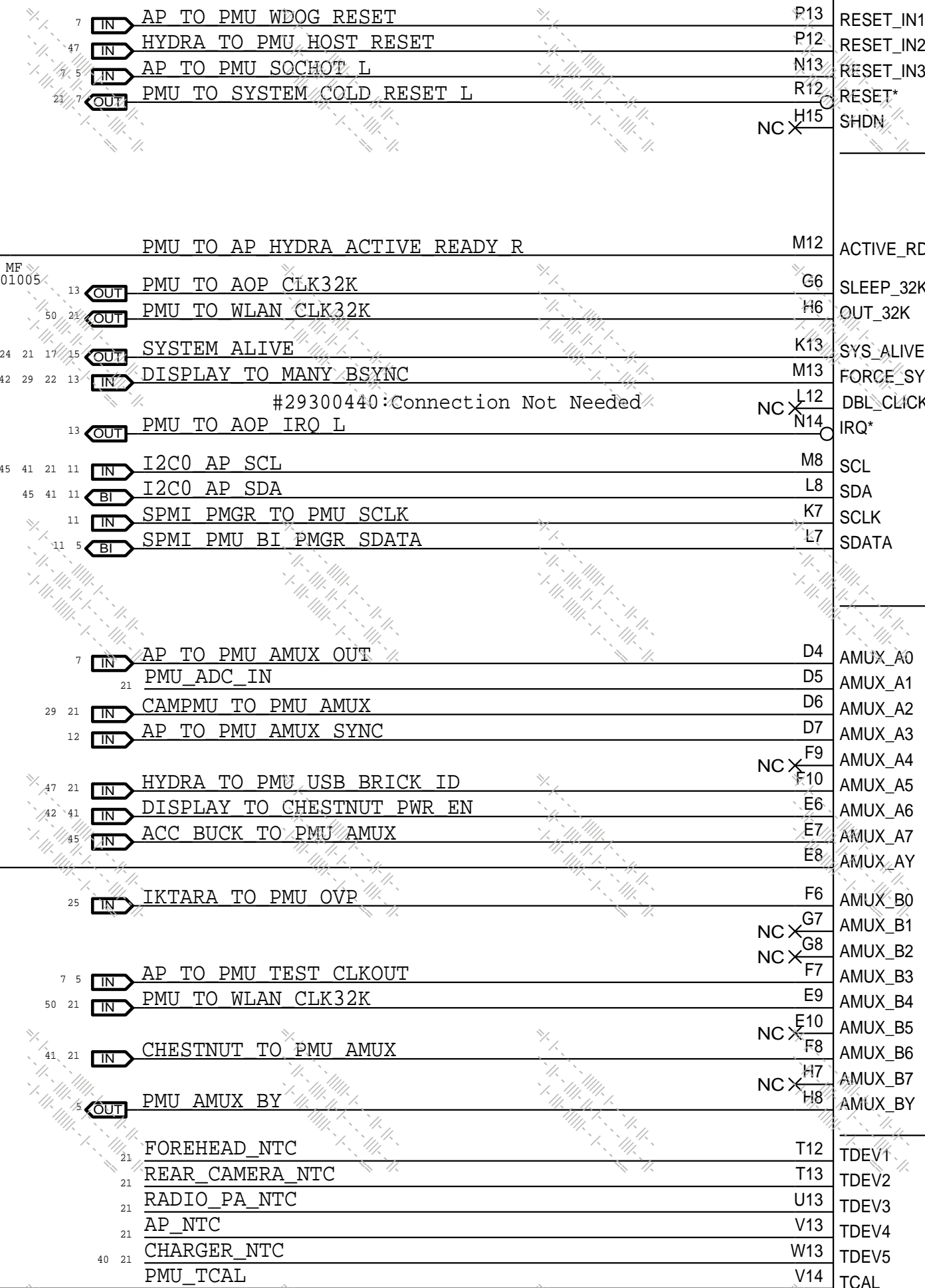
#29300440:Connect PMU crash to SoC

#27852679:No SDA R, PoR is SPMI

#25244799:CHESTNUT AMUX AND PWR_EN ON SAME CHANNEL
#28748132:CHESTNUT AMUX AND PWR_EN SWAP BETWEEN A6/B6

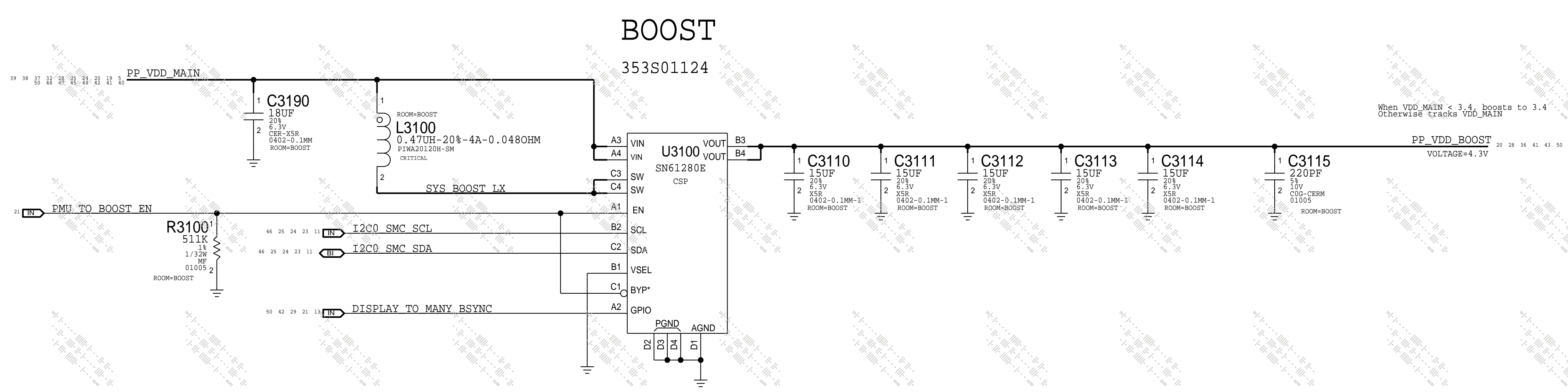
#25244799:OTP-AJ Connects XTAL1 to GND

#29312542:REPLACE PMU XTAL WITH XO



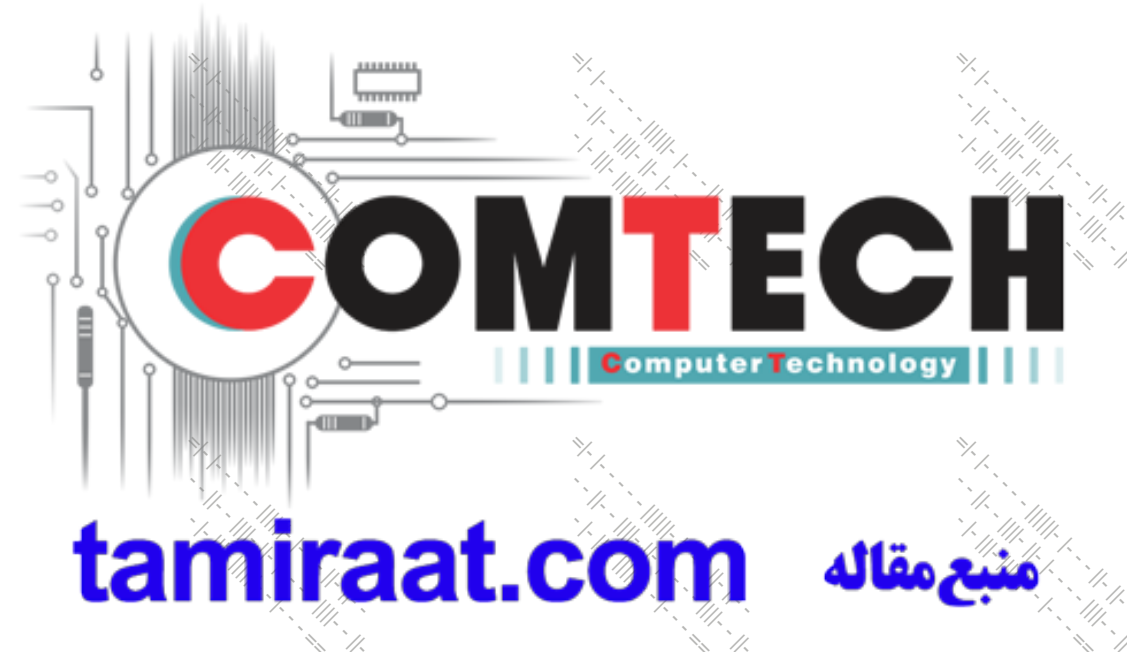
NOTE:100PF CAPS ARE THE SAMPLING CAPS FOR PMU ADC

PAGE TITLE SYSTEM POWER: PMU (4/4)		
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When VDD_MAIN < 3.4, boosts to 3.4
 Otherwise tracks VDD_MAIN

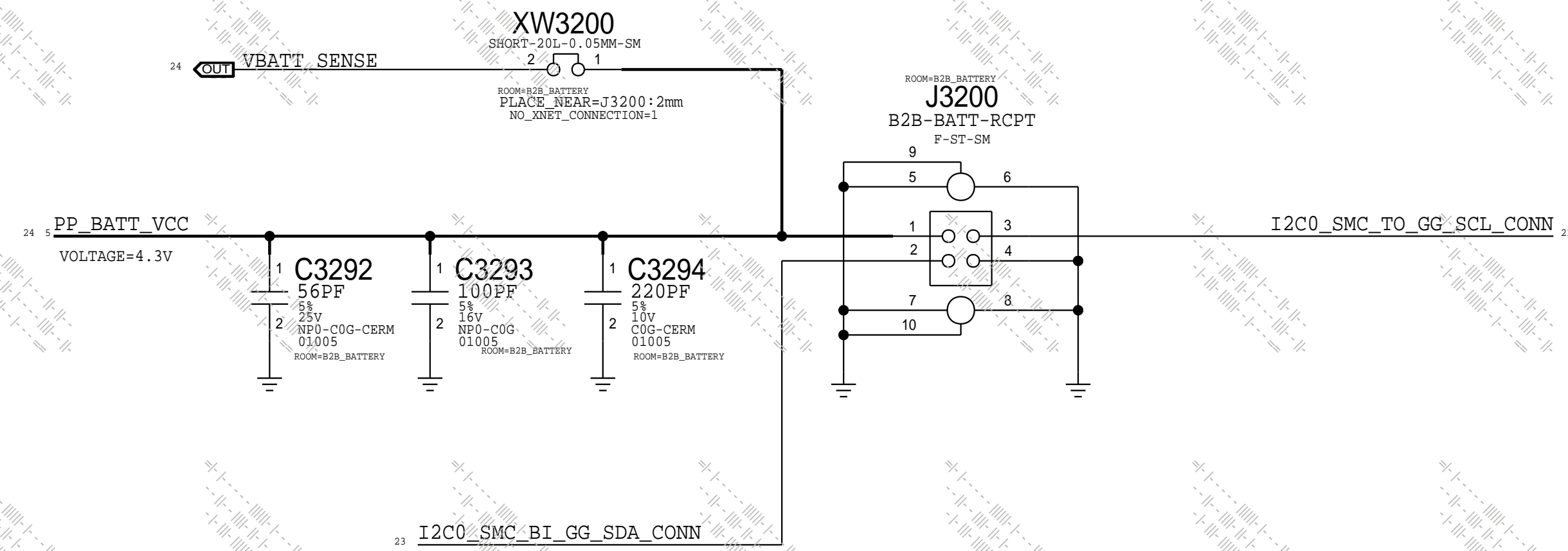
PP_VDD_BOOST
 VOLTAGE=4.3V



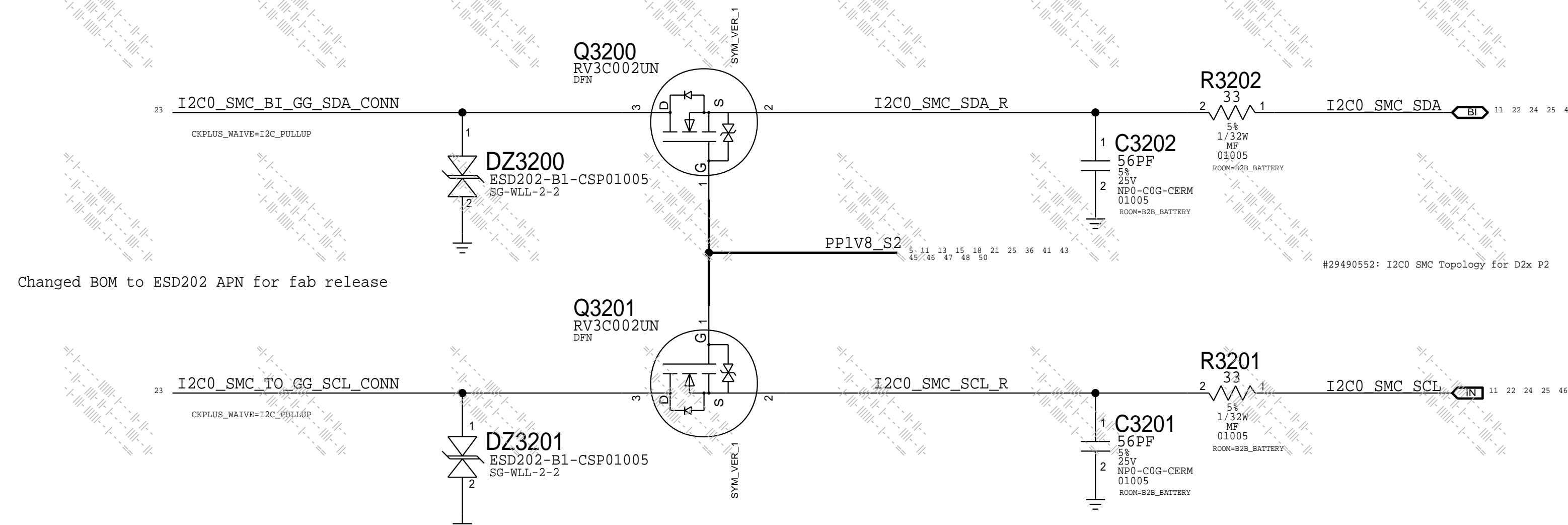
PAGE TITLE			SYSTEM POWER: Boost		
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Battery Connector

THIS ONE ON MLB ---> 516S00232



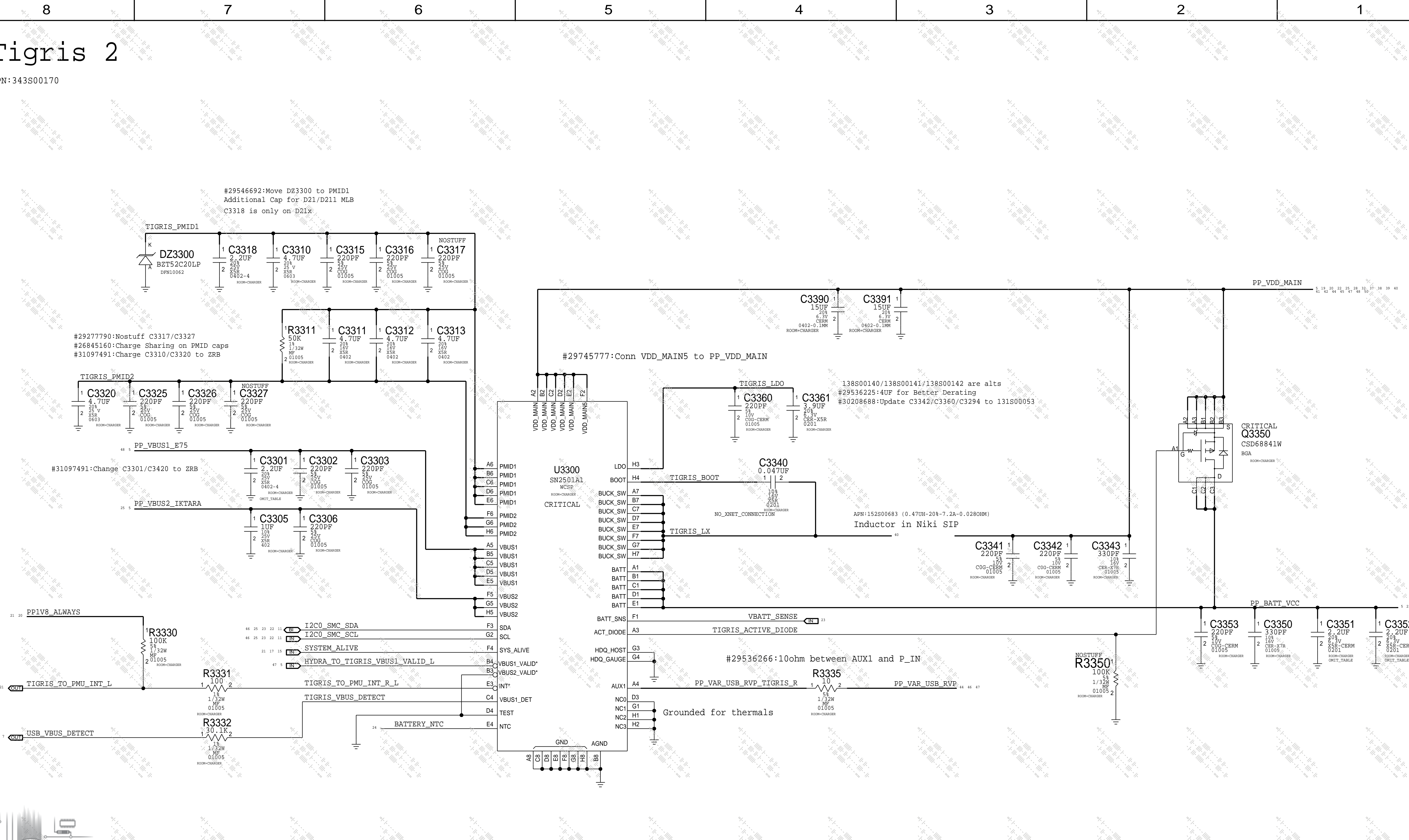
#32515053: Add DZ3200/DZ3201 on I2C CONN with 377S00001
 #31734657: Replace battery I2C FETs with 376S00134
 Gas gauge I2C level translator



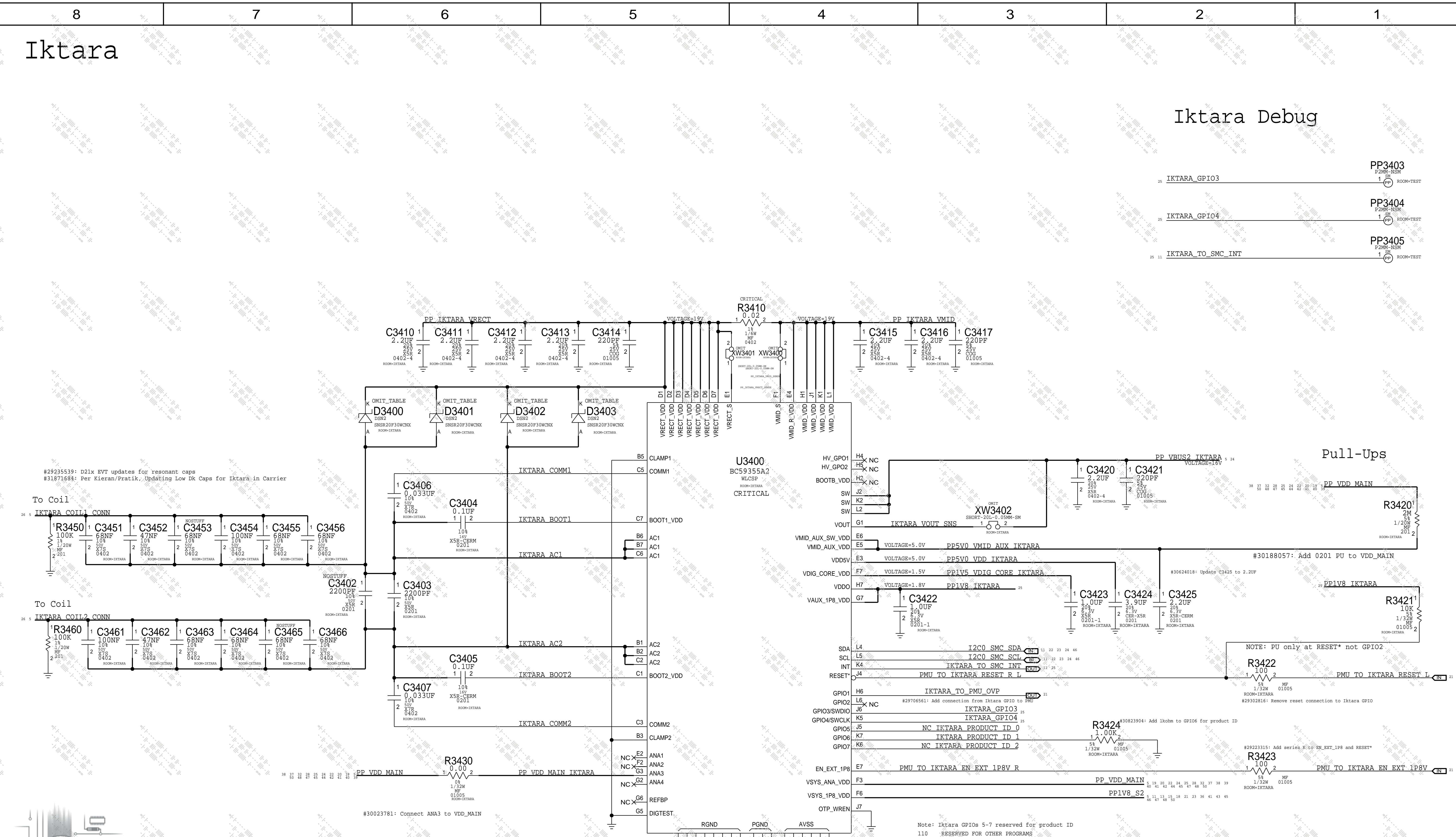
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SYSTEM POWER: B2B Battery		
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Tigris 2

APN:343S00170



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25	IKTARA_GPIO3	PP3403	P2MM-NSM	1	ROOM=TEST
25	IKTARA_GPIO4	PP3404	P2MM-NSM	1	ROOM=TEST
25	IKTARA_TO_SMC_INT	PP3405	P2MM-NSM	1	ROOM=TEST

#2923539: D21x EVT updates for resonant caps
 #31871684: Per Kieran/Pratik, Updating Low Dk Caps for Iktara in Carrier

Pull-Ups

NOTE: PU only at RESET* not GPIO2

Note: Iktara GPIOs 5-7 reserved for product ID
 110 RESERVED FOR OTHER PROGRAMS
 101 - SELECTED (D21x)
 011 RESERVED FOR OTHER PROGRAMS

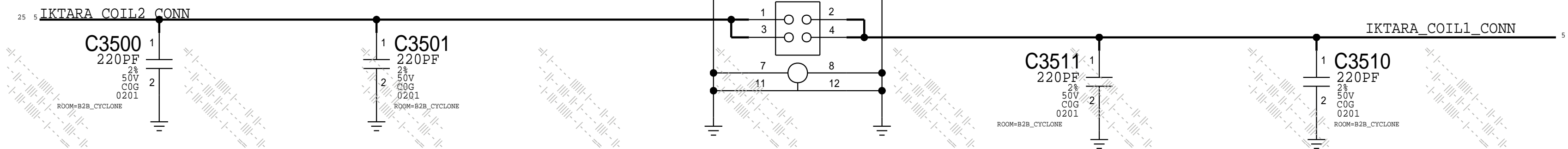


PAGE TITLE			SYSTEM POWER: Iktara		
DRAWING NUMBER		051-02159		SIZE	
REVISION		10.0.0		D	
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Cyclone connector

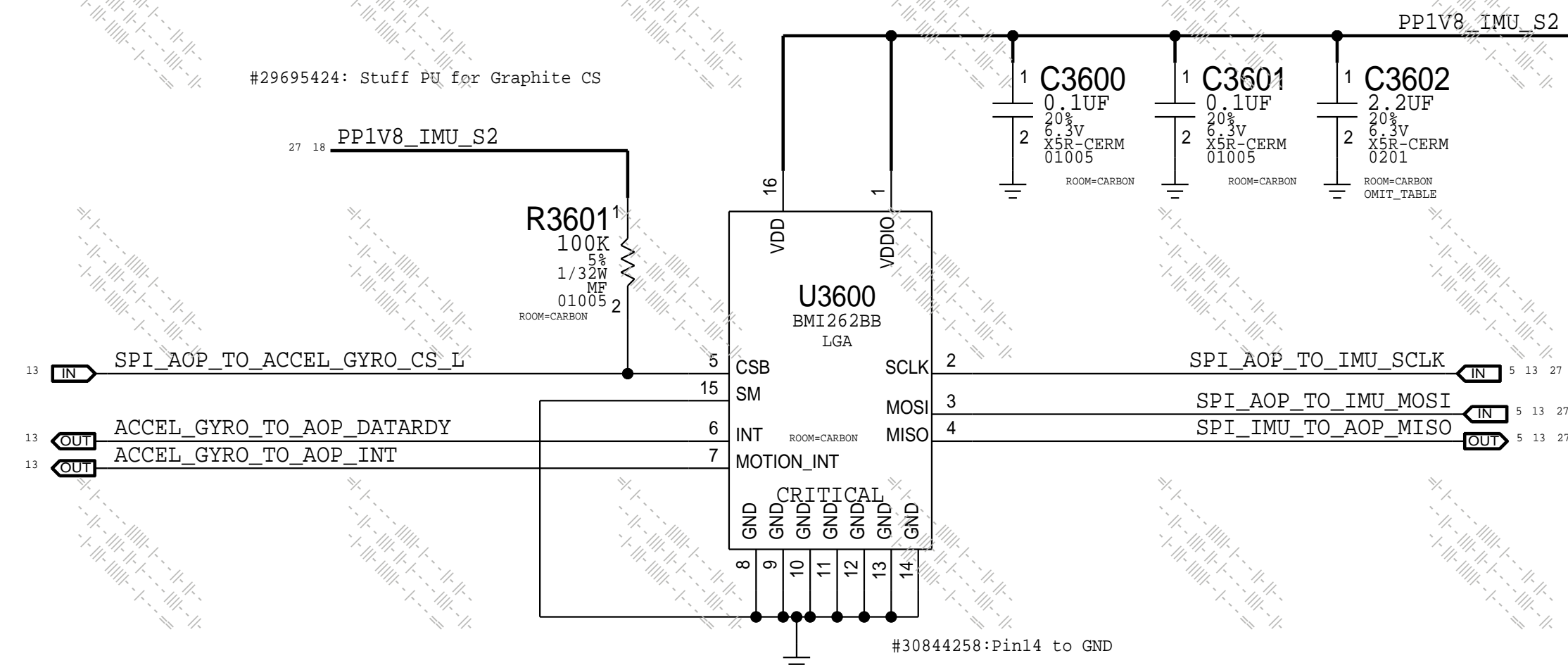
THIS ONE ON MLB ----> 516S00311

#31690340:Remove XWs on Iktara Coil Paths



Graphite - Accel & Gyro

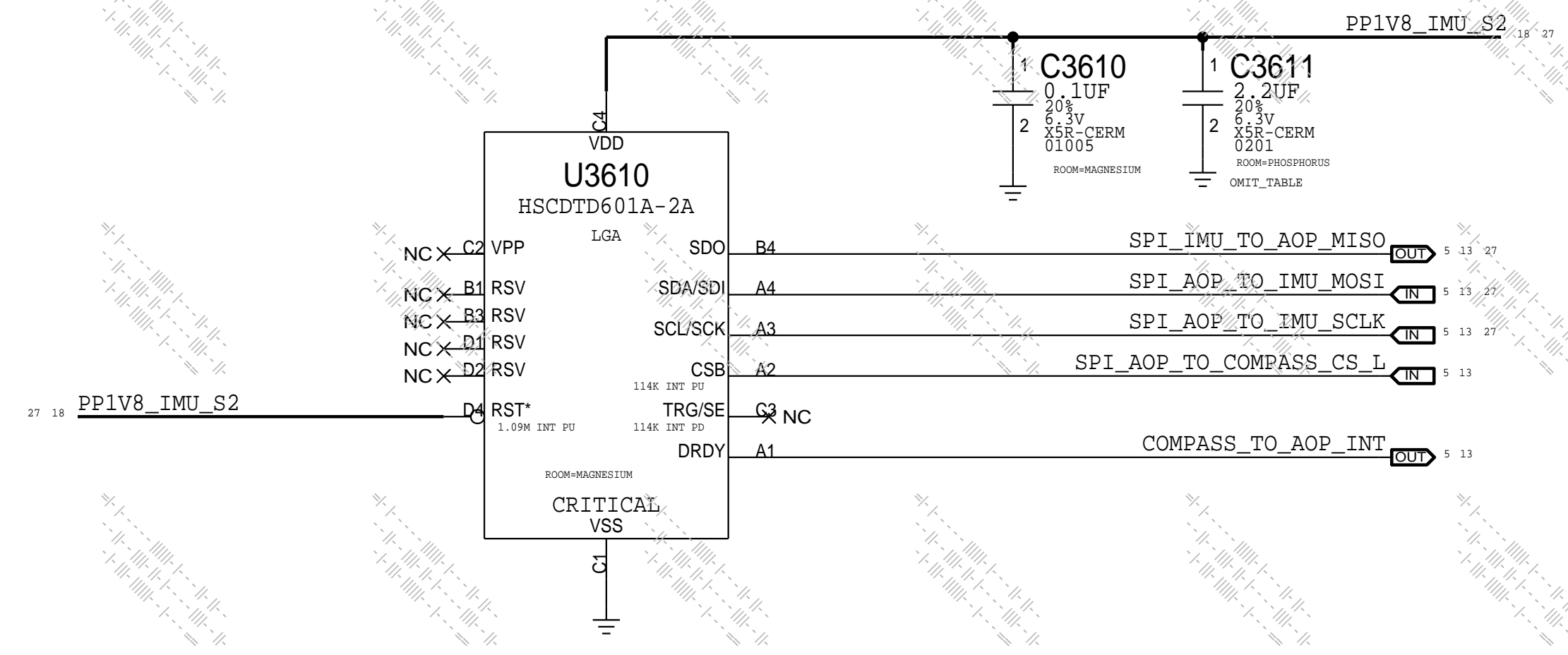
APN: 338S00304 (A1)



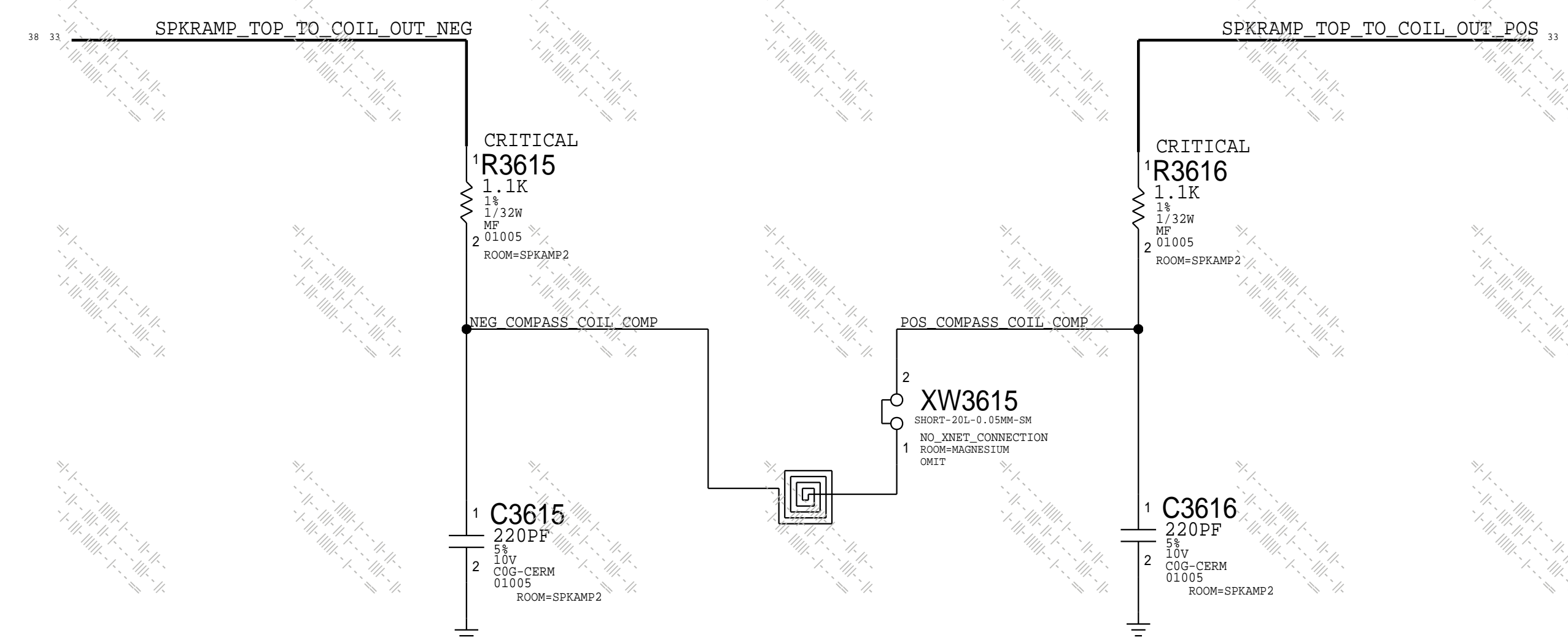
Magnesium - Compass

APN: 338S00084

Shared decoupling with Phosphorus

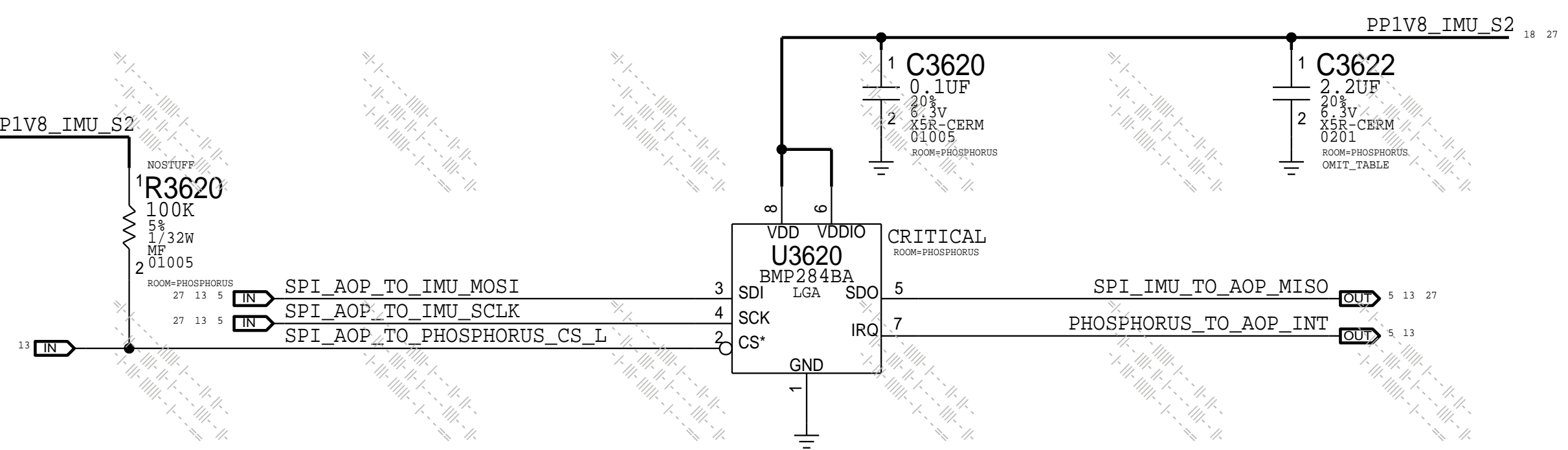


North Speaker Compass Compensation Coil



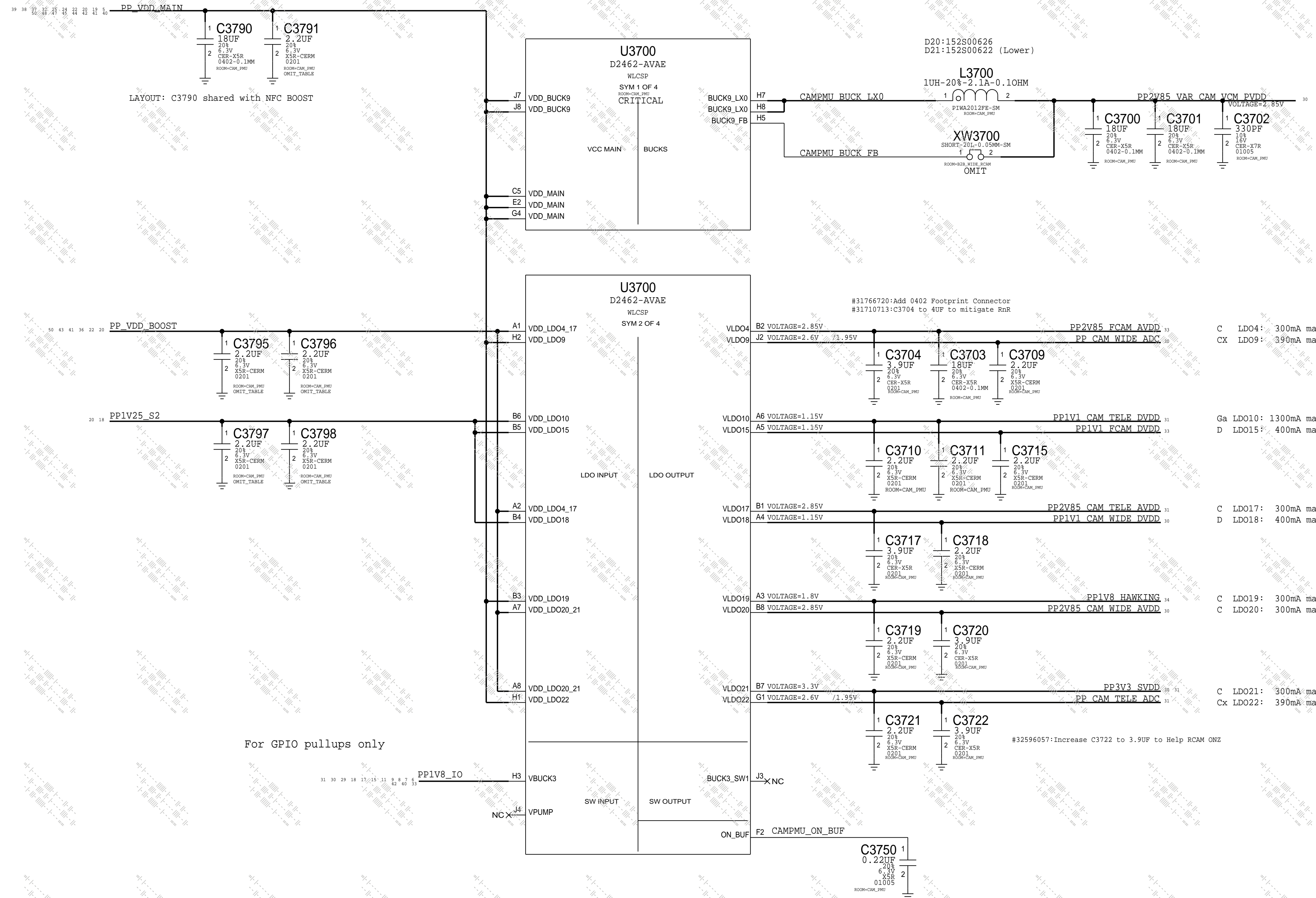
Phosphorus

APN: 338S00334



PAGE TITLE		
SENSORS		
	DRAWING NUMBER	051-02159
	REVISION	10.0.0
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Camera PMU



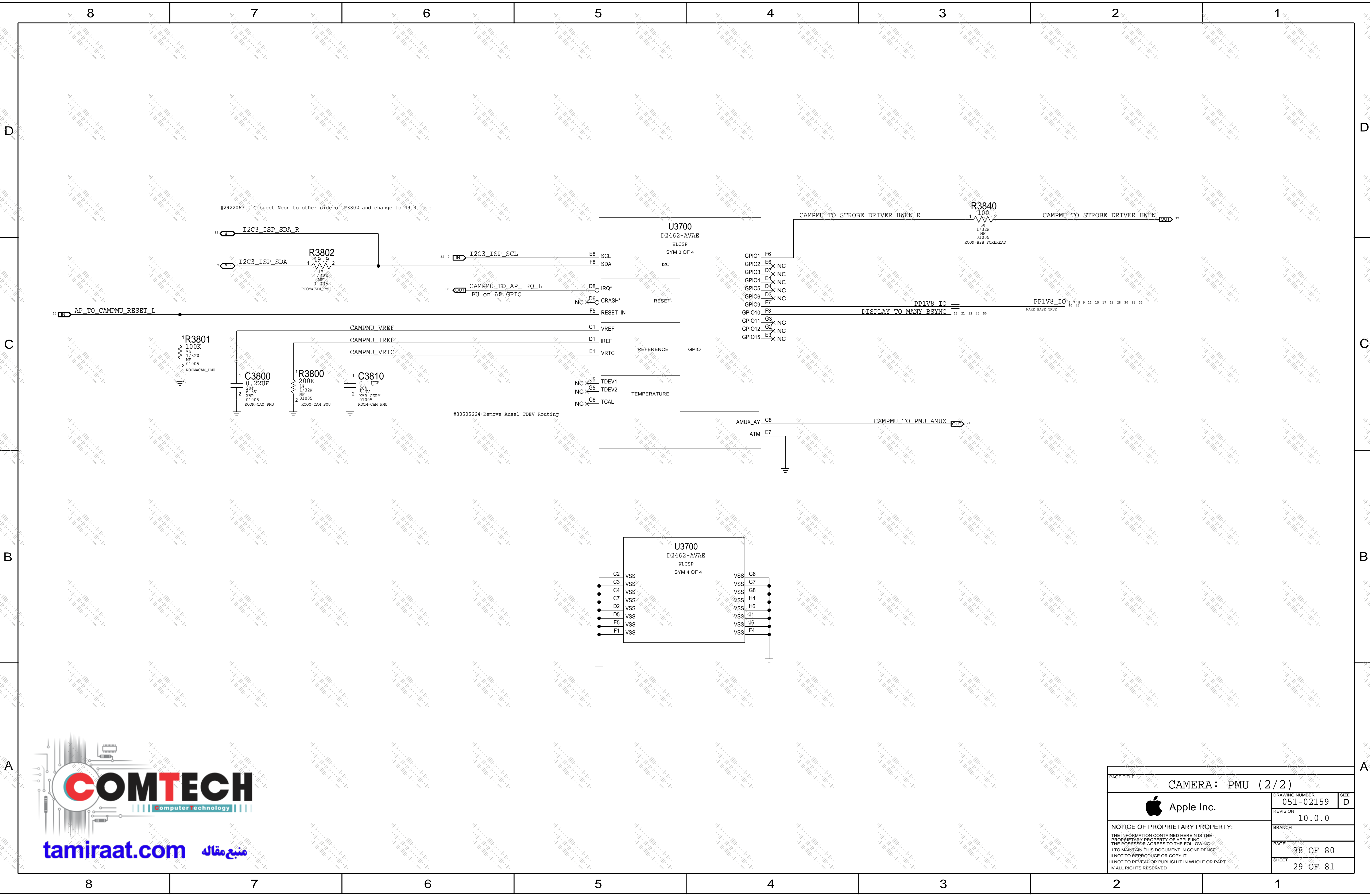
For GPIO pullups only

#32596057: Increase C3722 to 3.9UF to Help RCAM ONZ



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PAGE TITLE CAMERA: PMU (1/2)		
	DRAWING NUMBER 051-02159	SIZE D
	REVISION 10.0.0	
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BRANCH		PAGE 37 OF 80
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#29220631: Connect Neon to other side of R3802 and change to 49.9 ohms

#30505664: Remove Ansel TDEV Routing

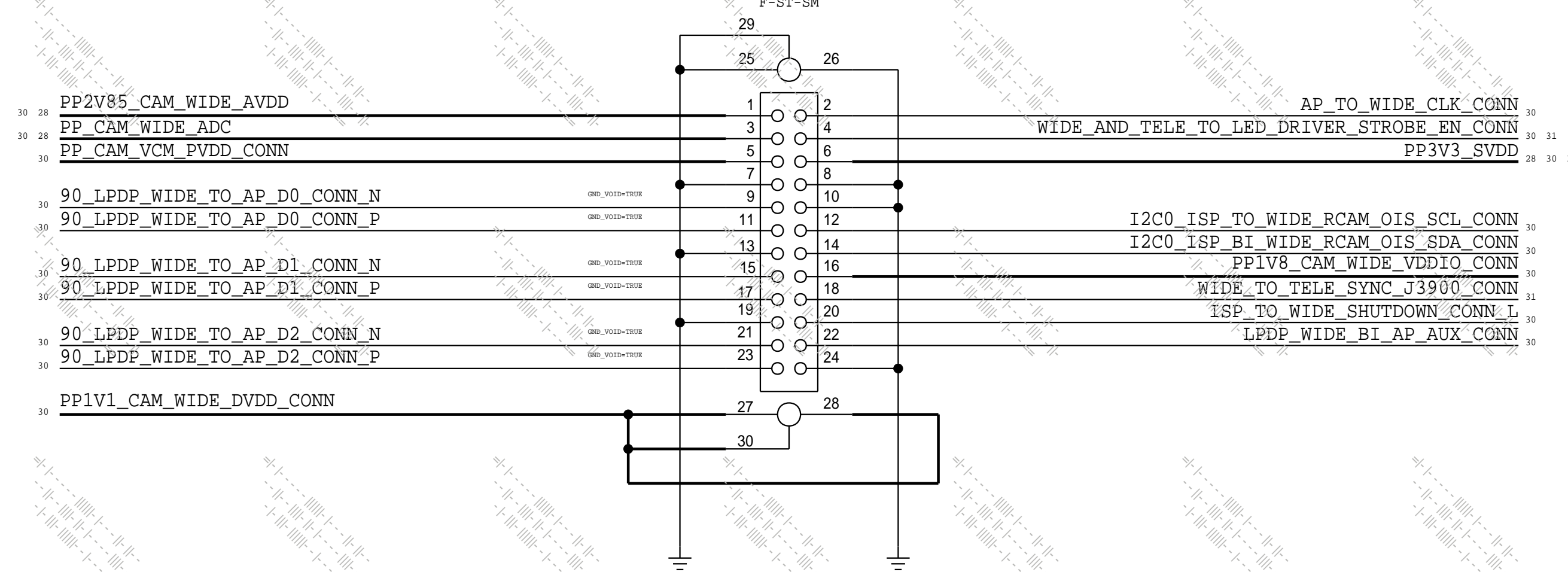


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			PAGE	38 OF 80	
			SHEET	29 OF 81	

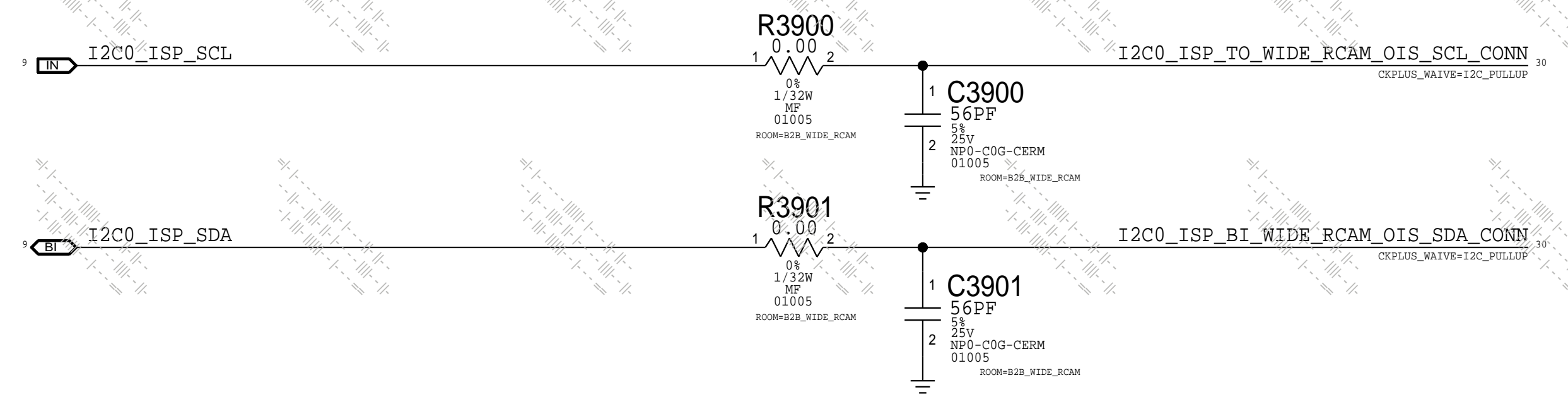
Wide Camera Connector

THIS ONE ----> 516S00310/P2 RCPT (USED ON MLB)
516S00309/P2 PLUG (USED ON FLEX)

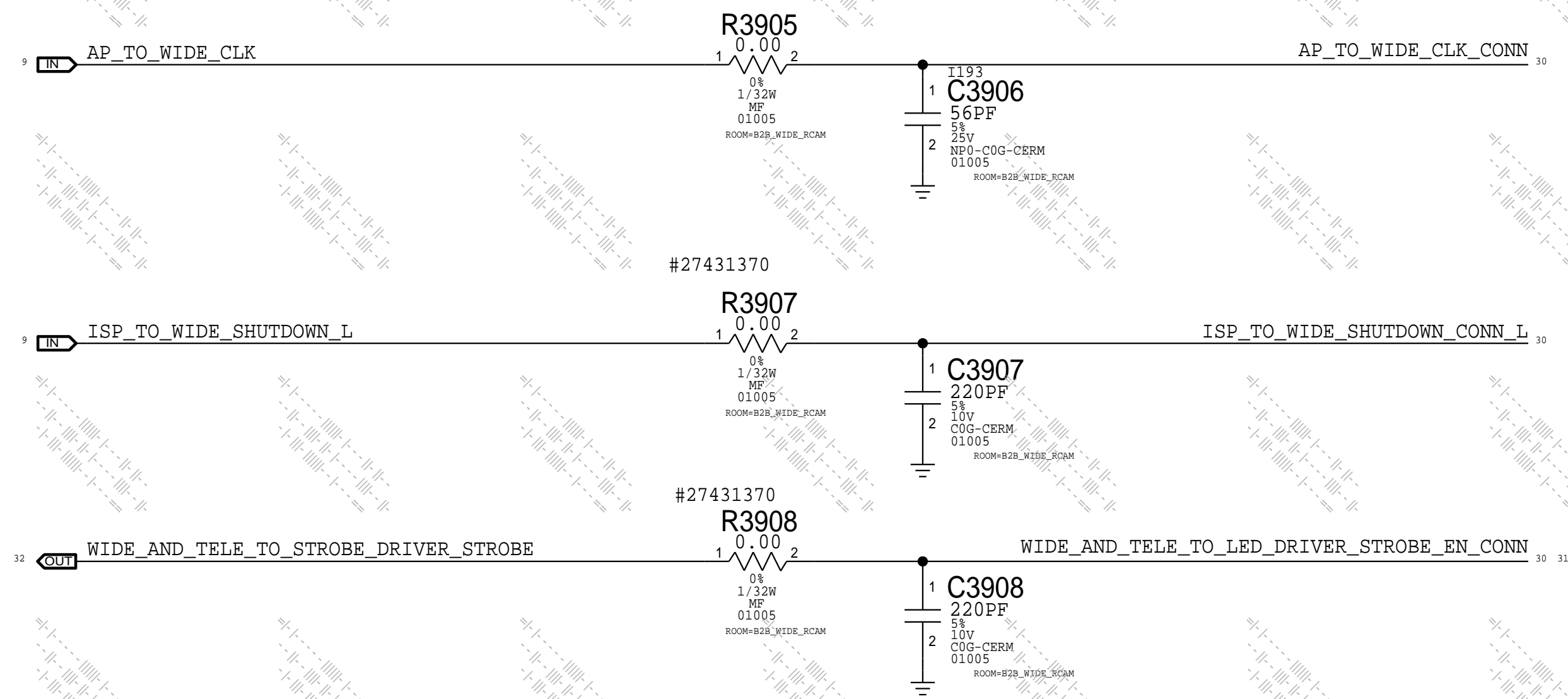
J3900
AA27DK-S024VA1
F-ST-SM



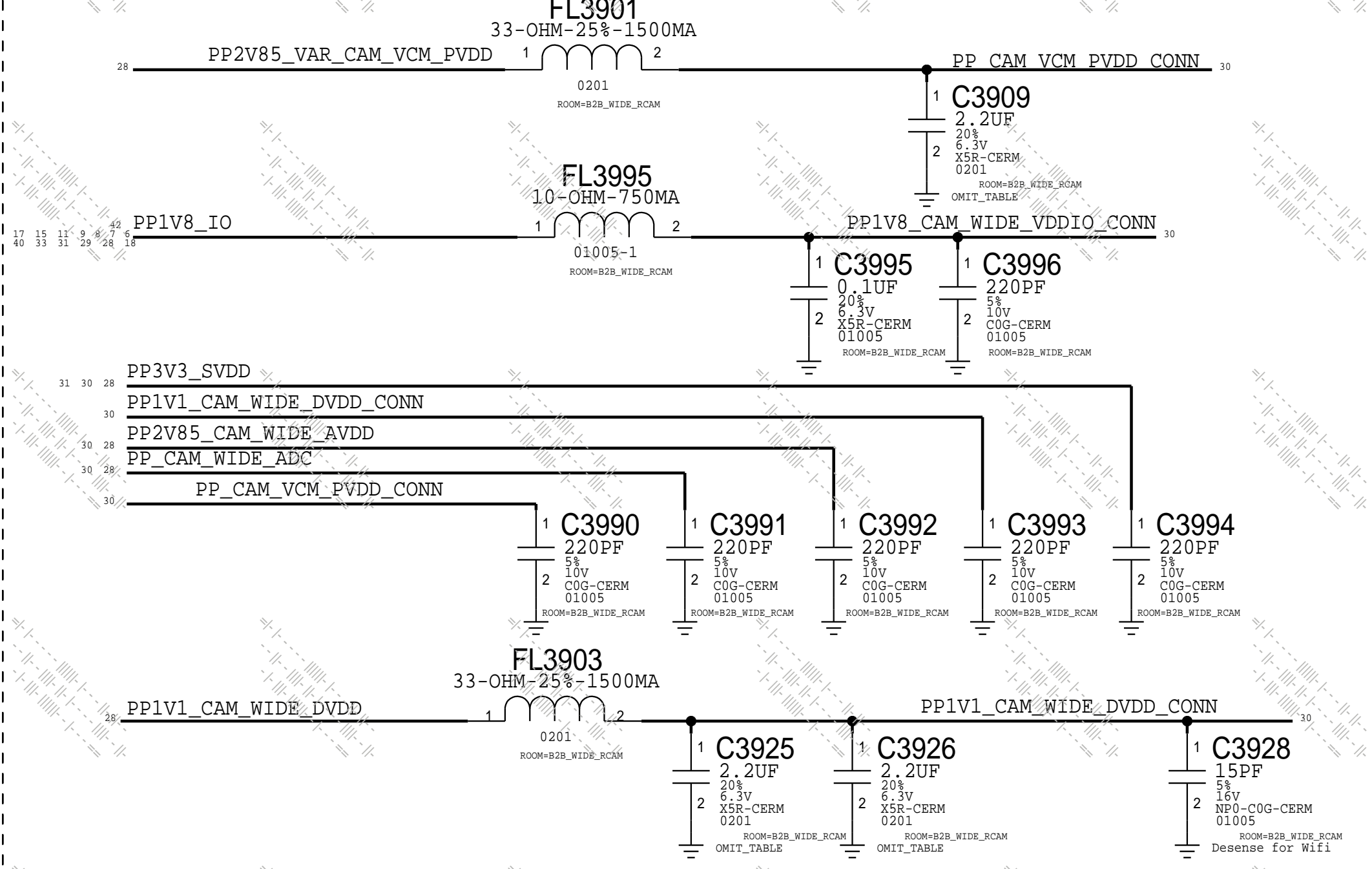
ISP I2C



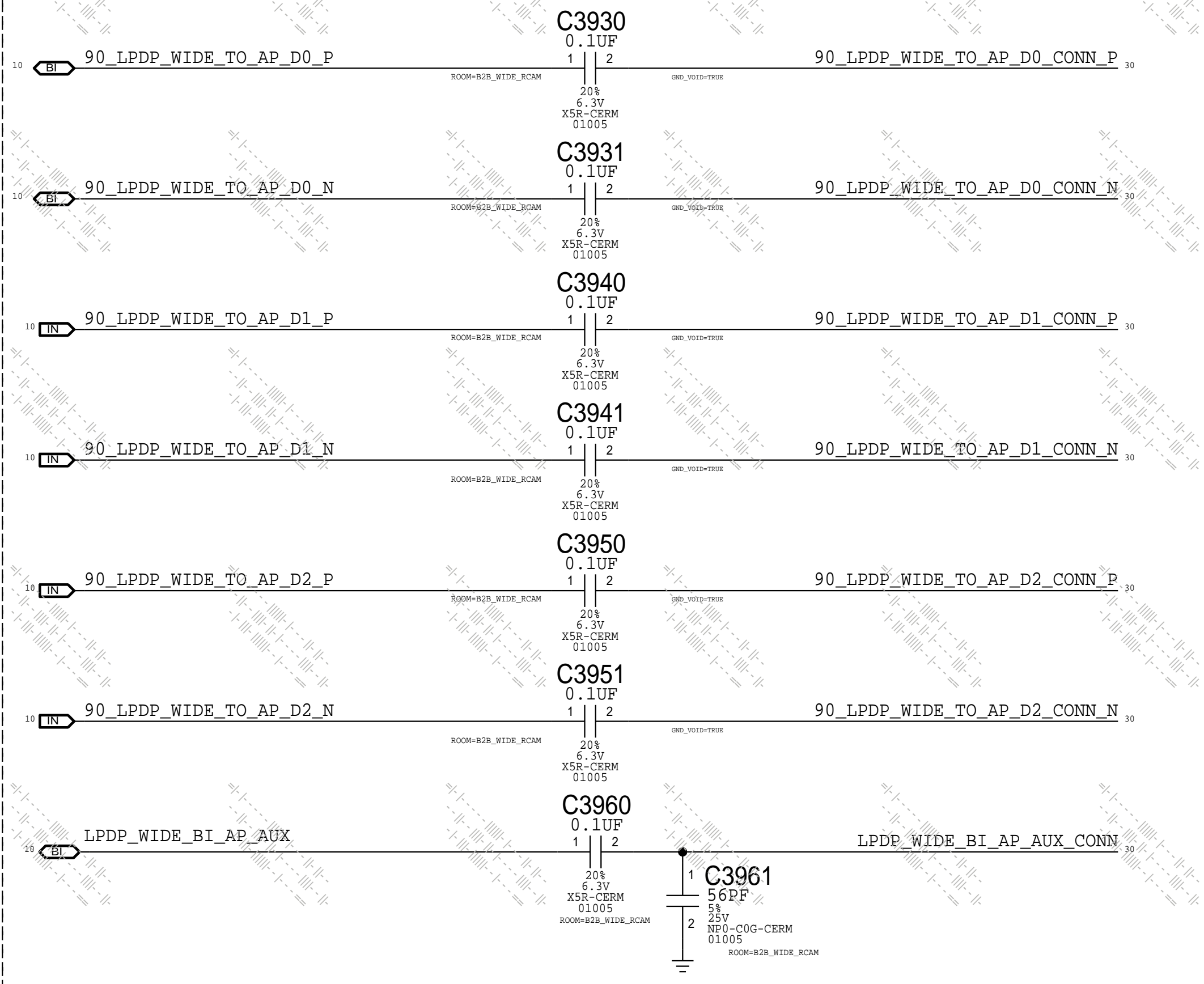
IO Filters



Power Filtering



LPDP Filters

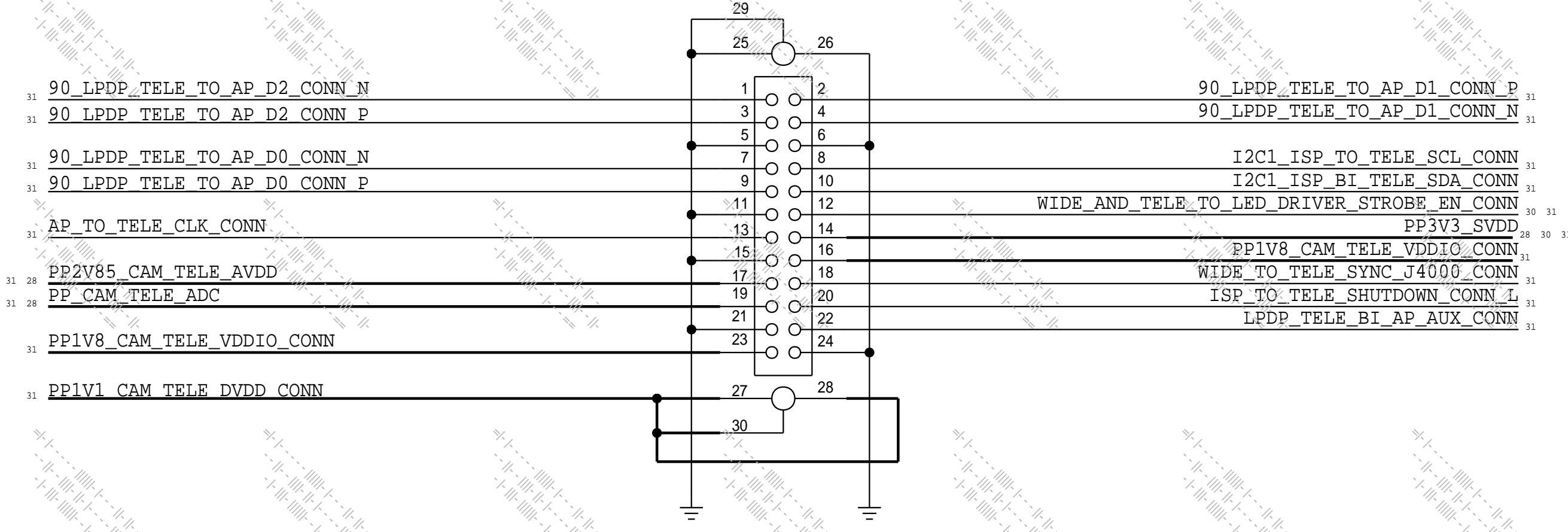


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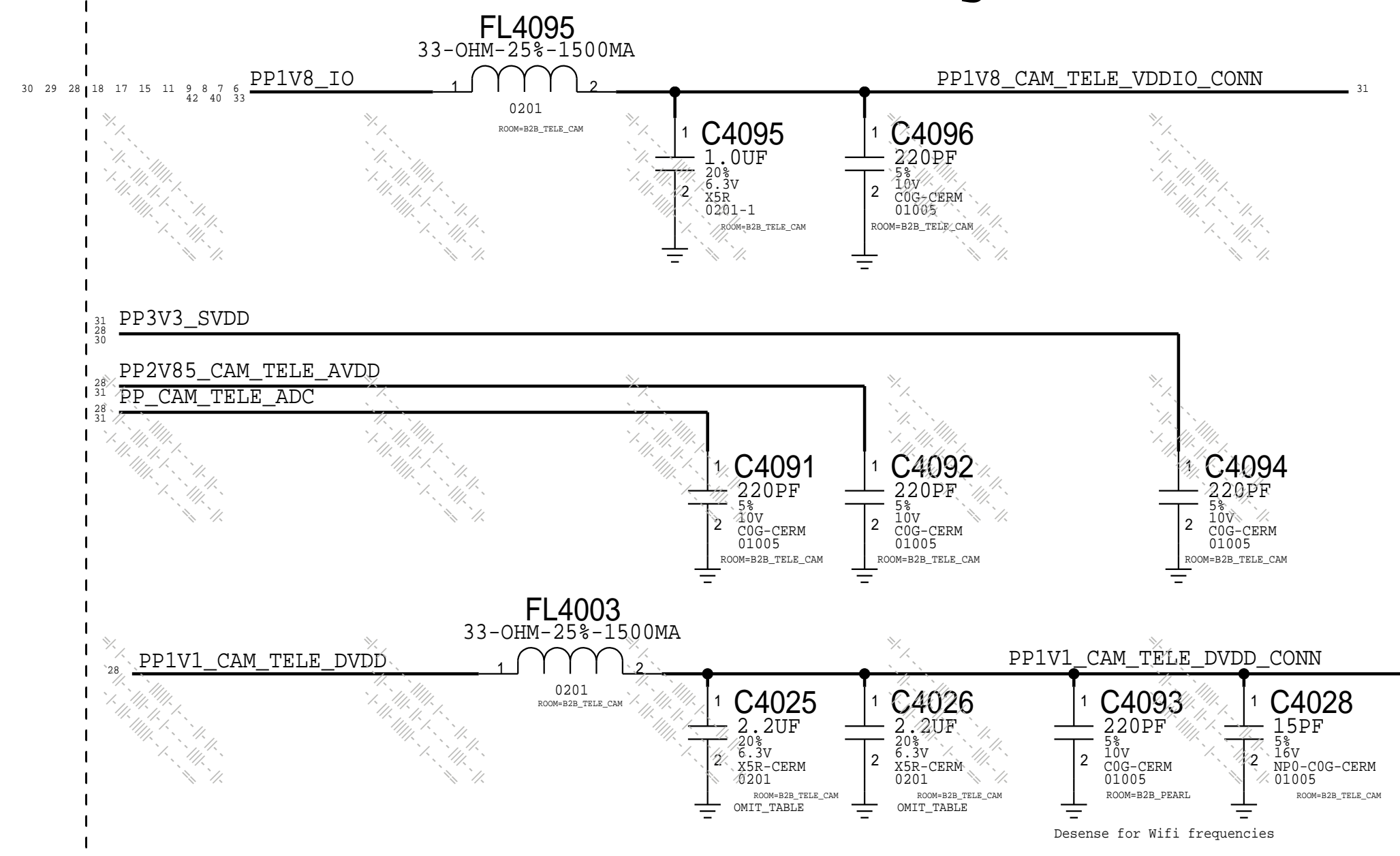
Tele Camera Connector

THIS ONE ----> 516S00310/P2 RCPT (USED ON MLB)
516S00309/P2 PLUG (USED ON FLEX)

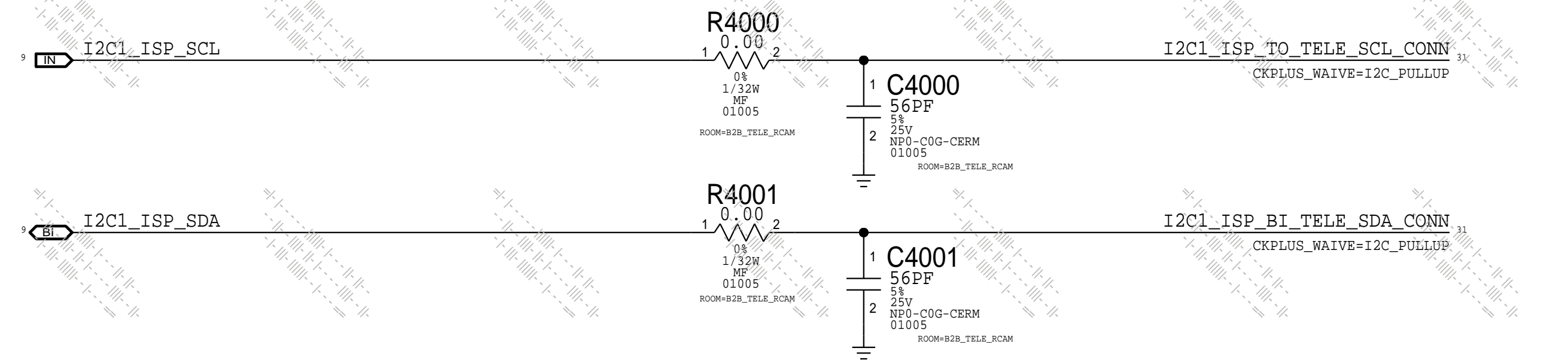
J4000
AA27DR-S024VA1
F-ST-SM



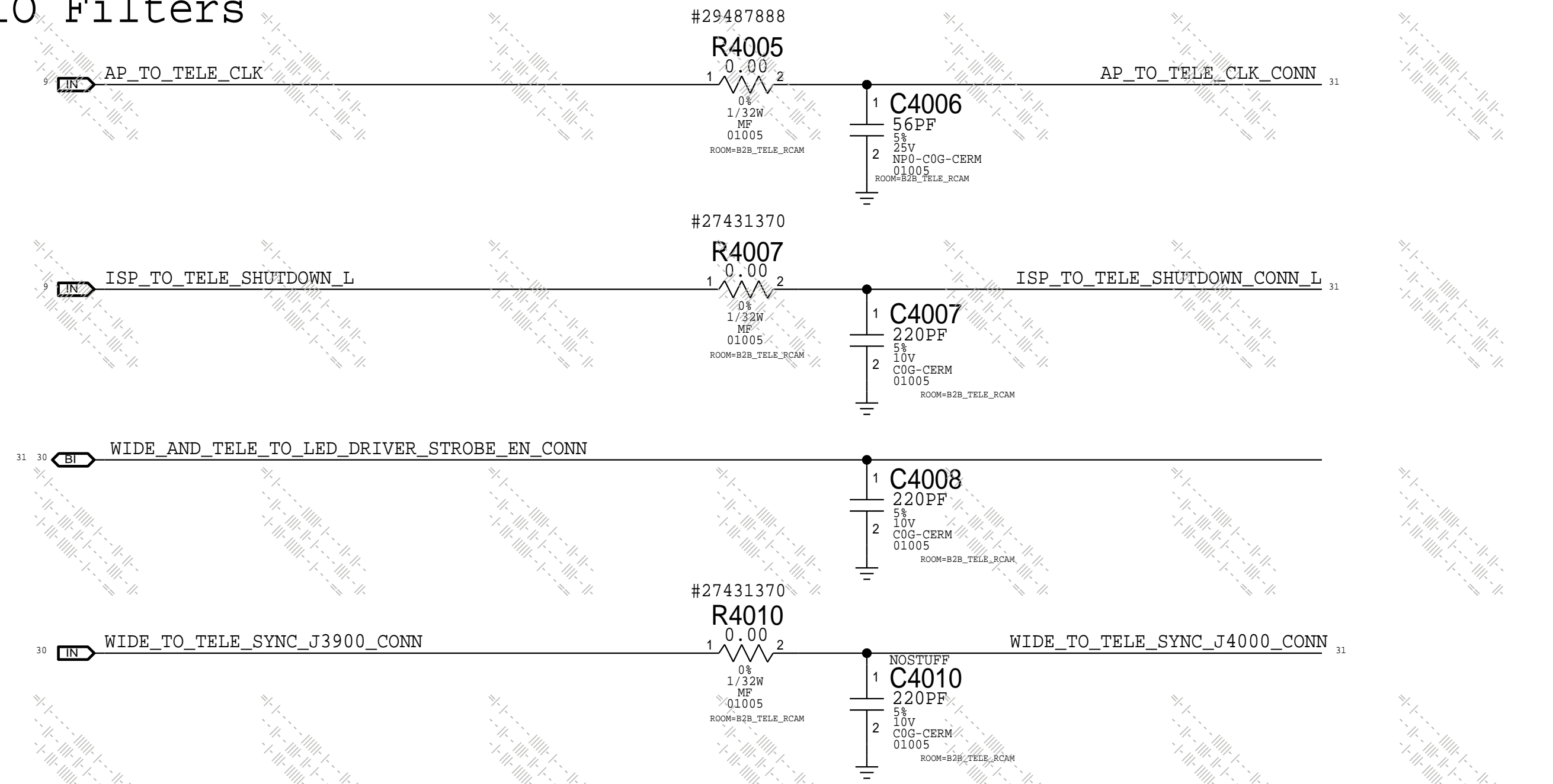
Power Filtering



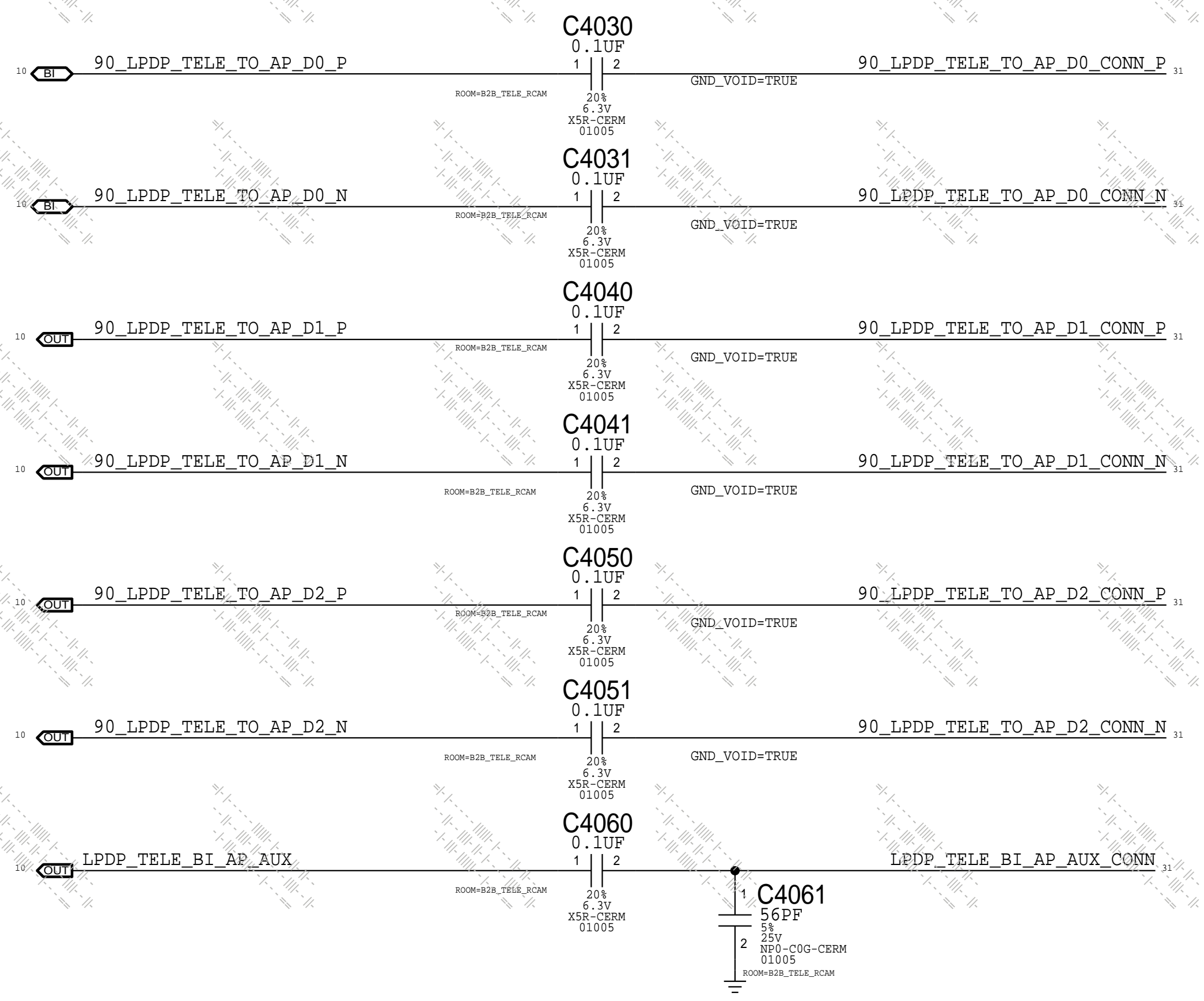
ISP I2C



IO Filters

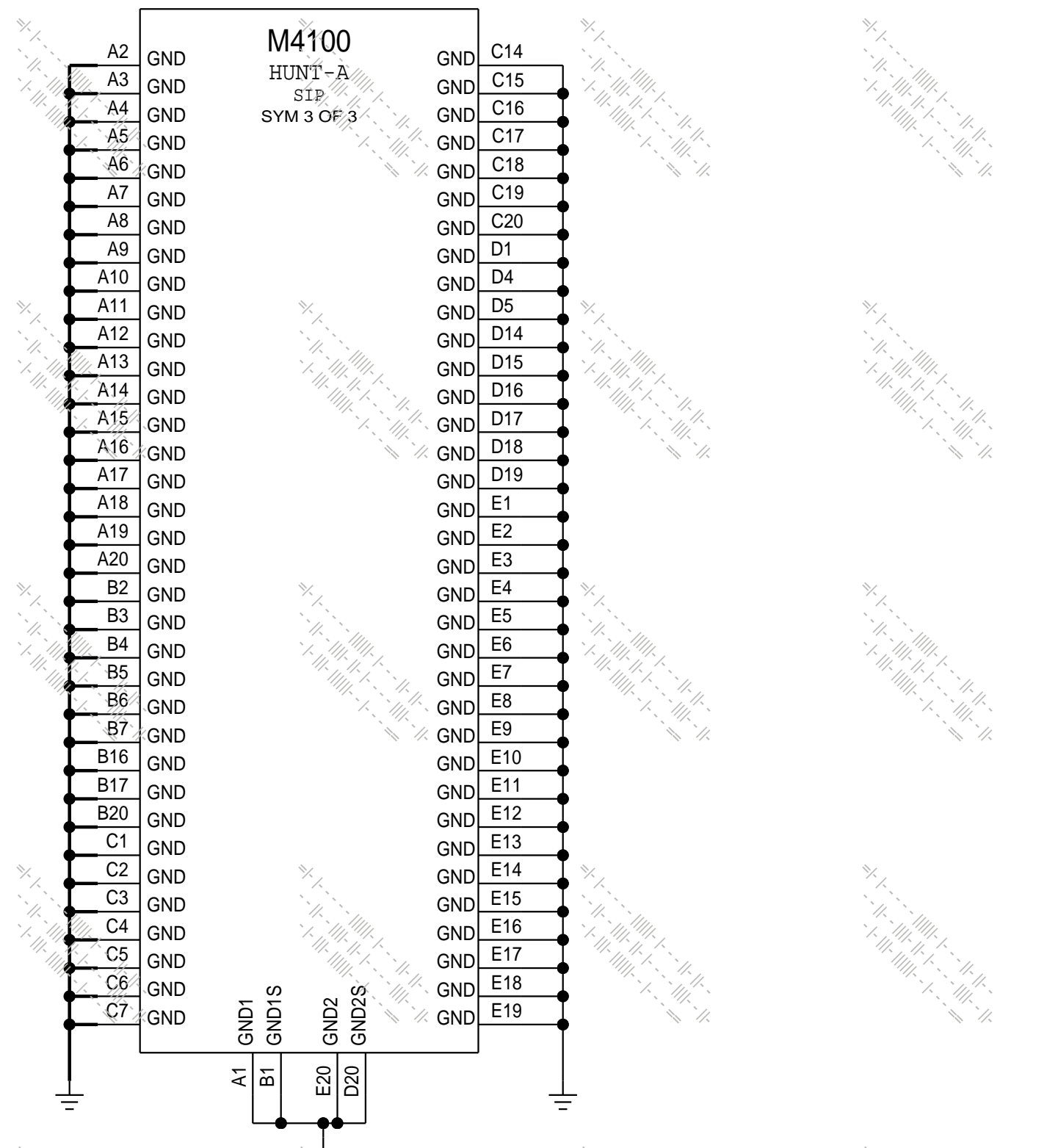
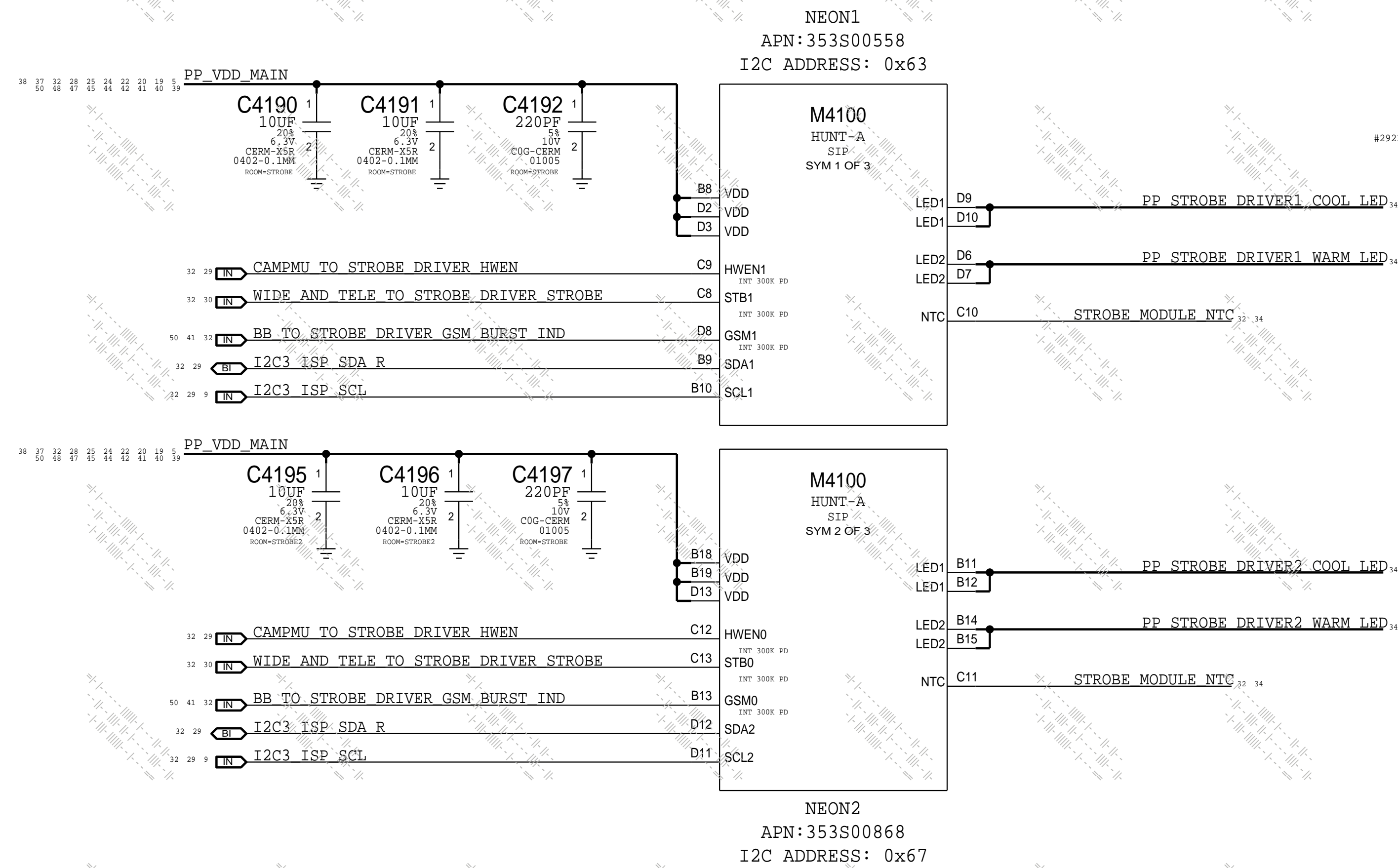


LPDP



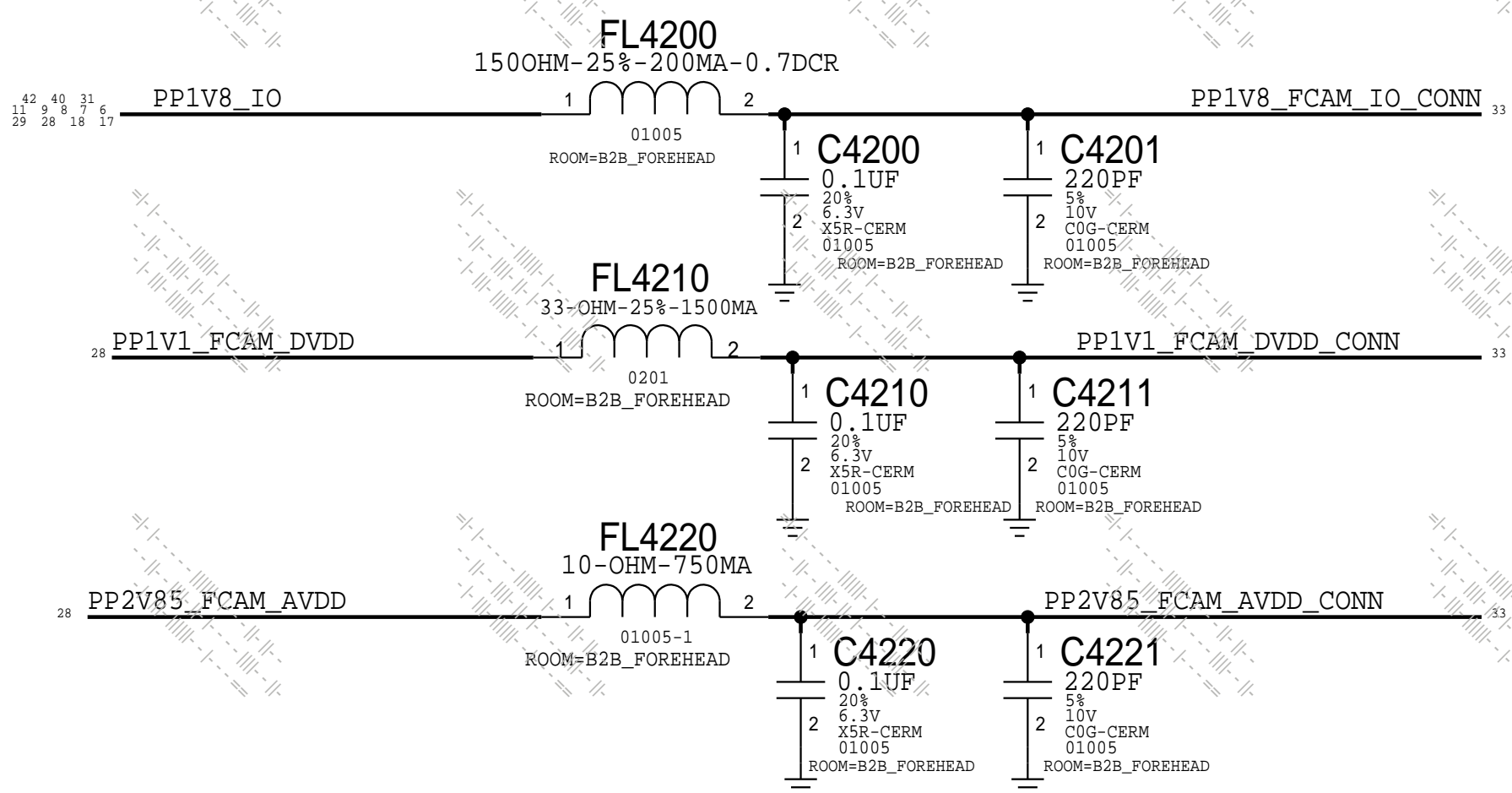
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Apple Inc.	DRAWING NUMBER	SIZE
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LED STROBE DRIVERS (NEON)

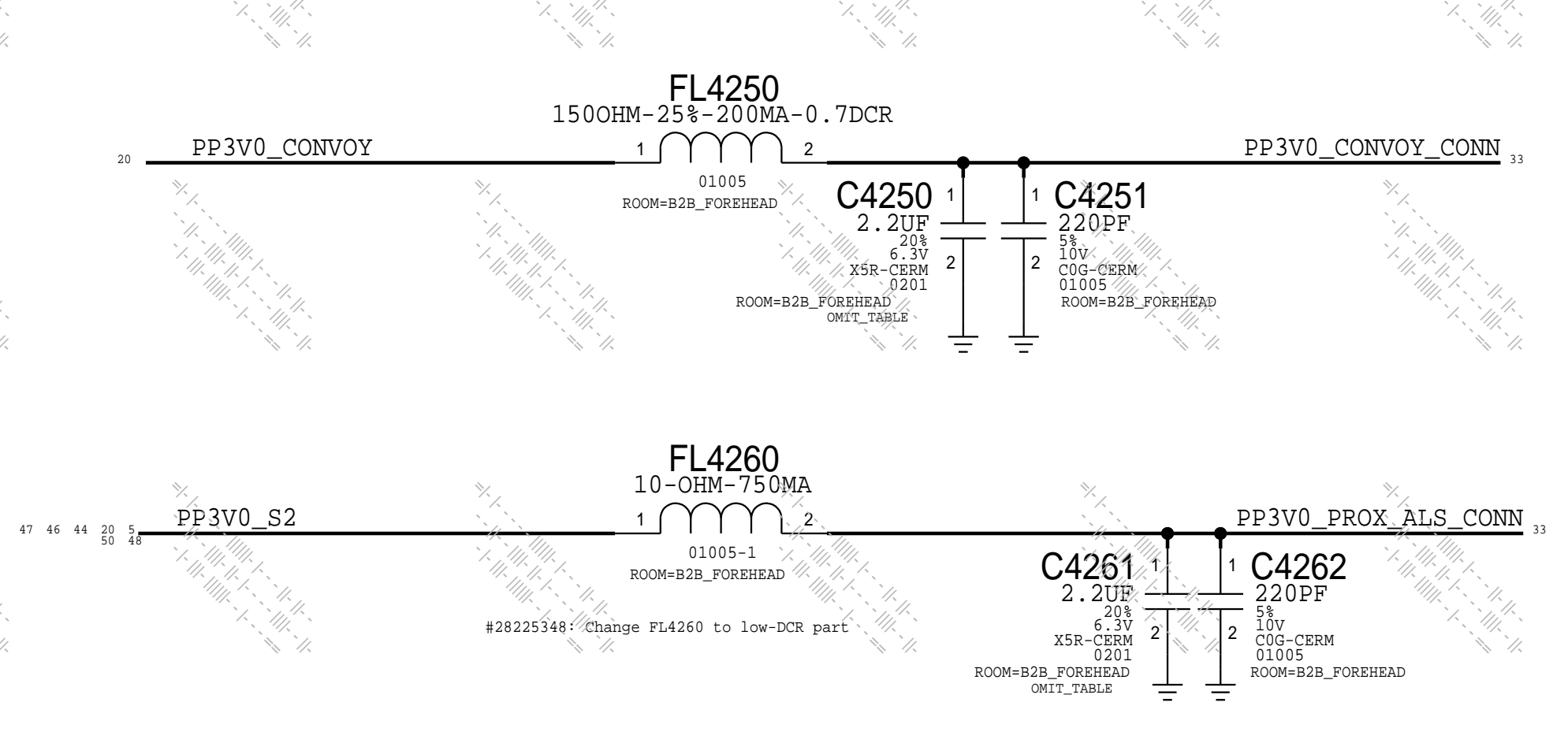


PAGE TITLE CAMERA: Strobe Drivers		
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	REVISION 10.0.0	
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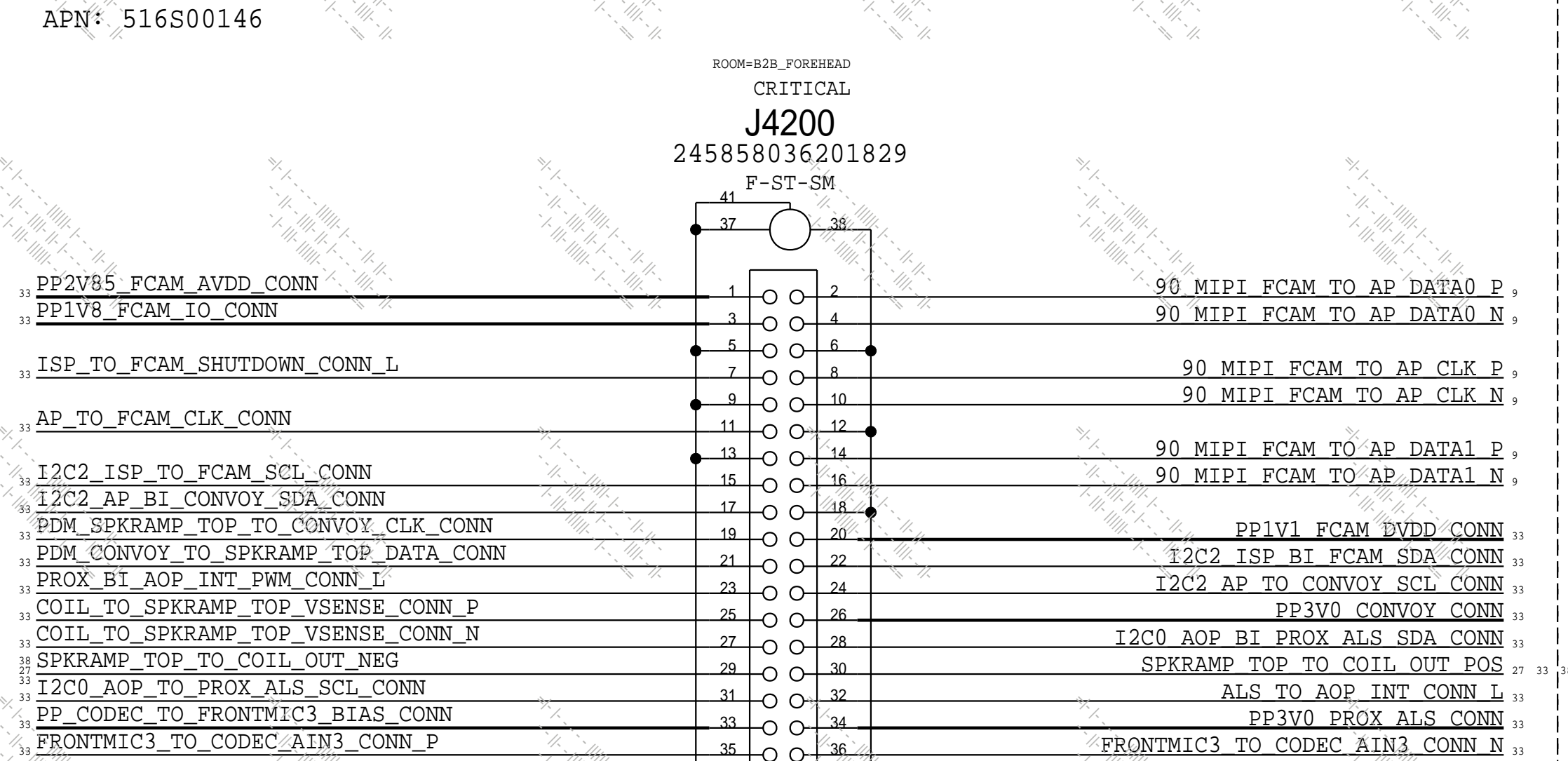
FCAM POWER



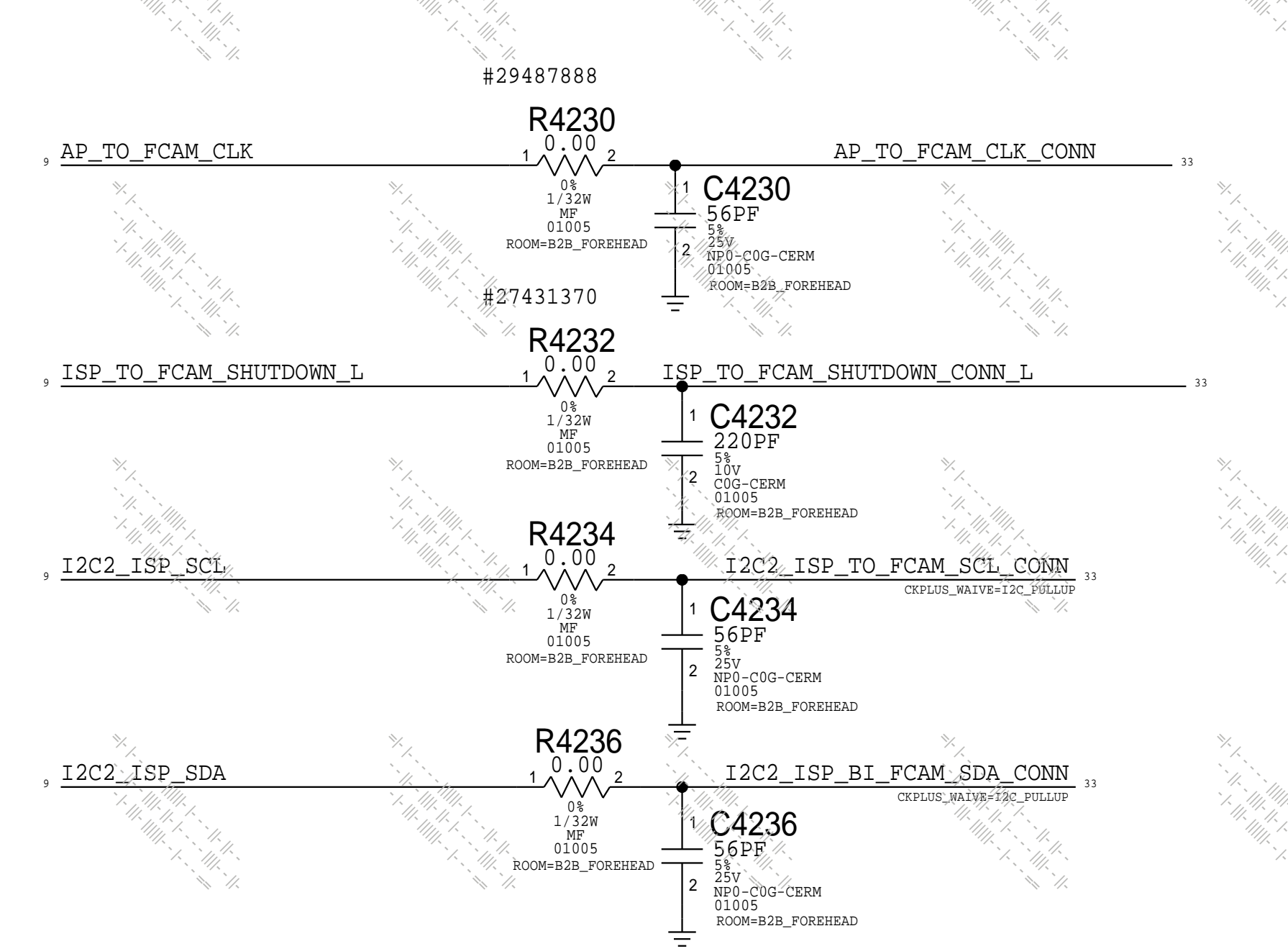
PROX + ALS + CONVOY POWER



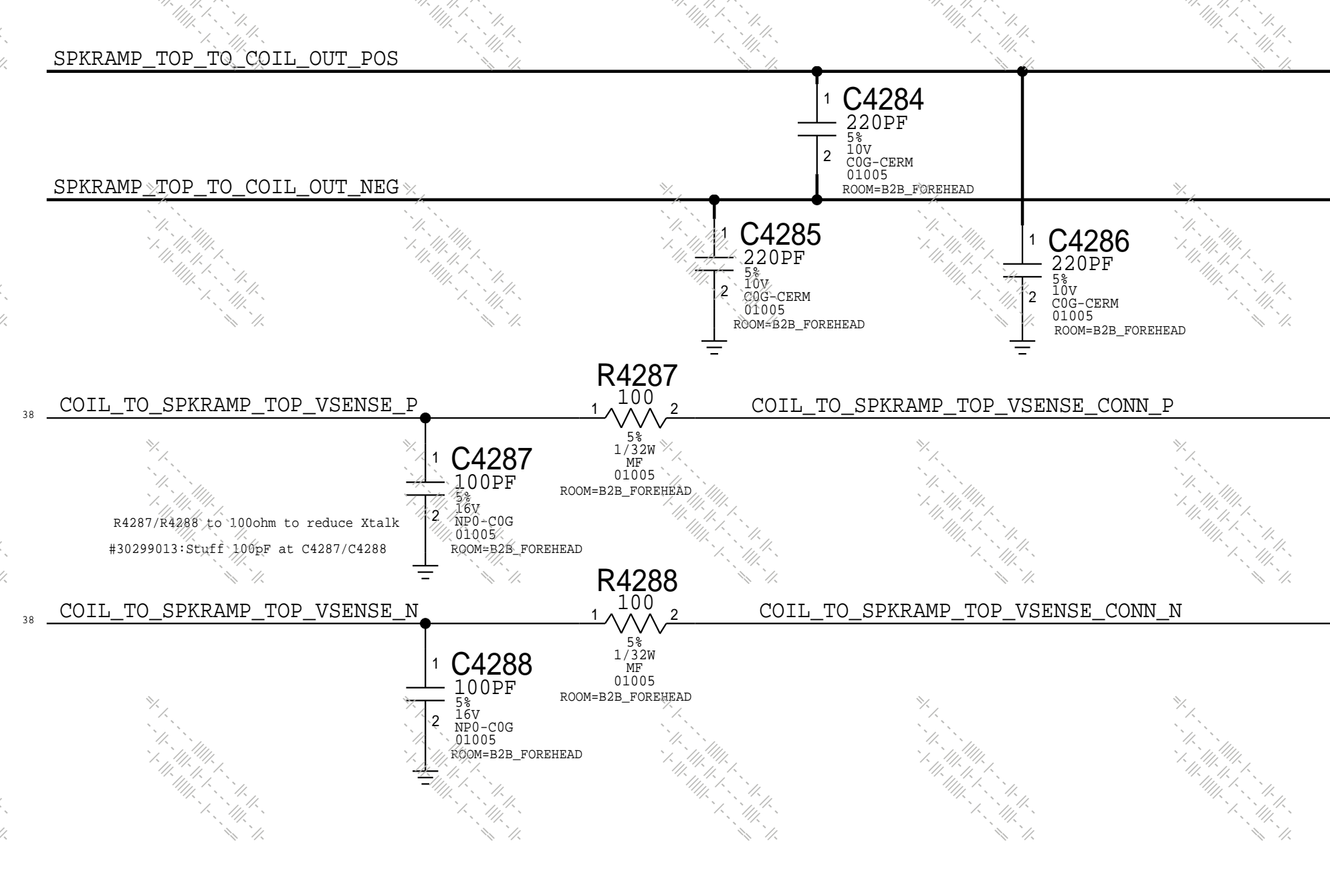
FOREHEAD CONNECTOR



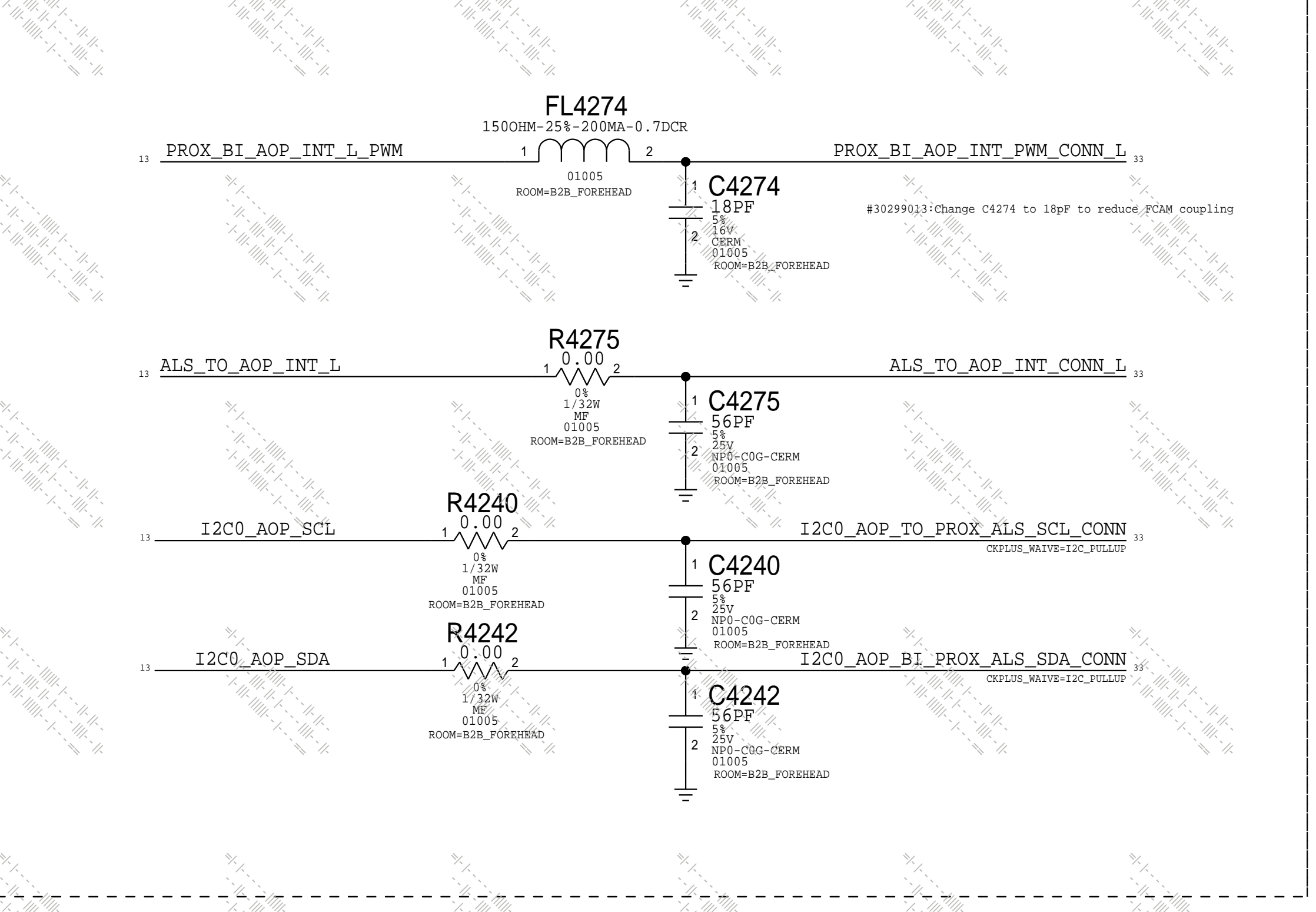
FCAM I/O



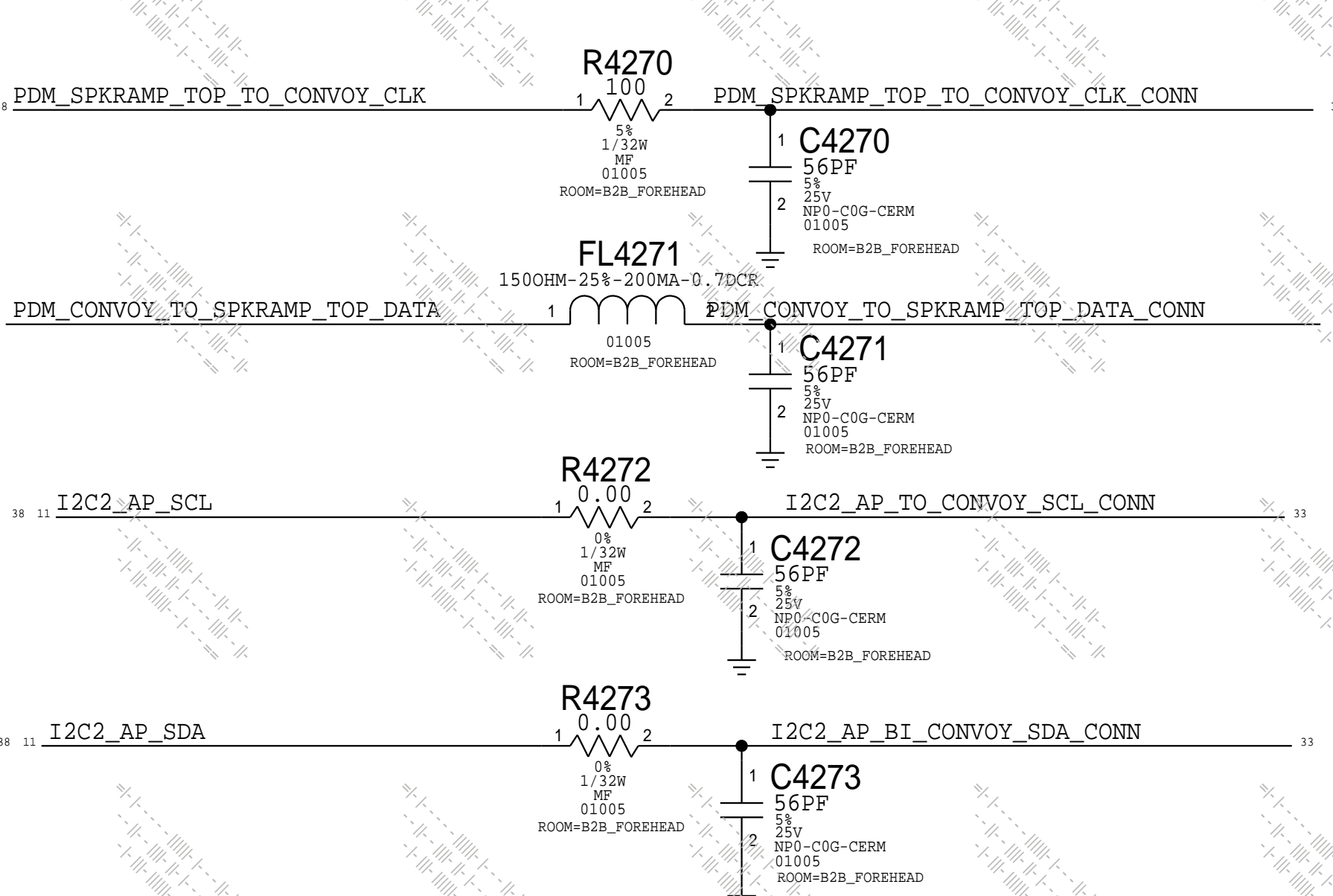
NORTH SPEAKER



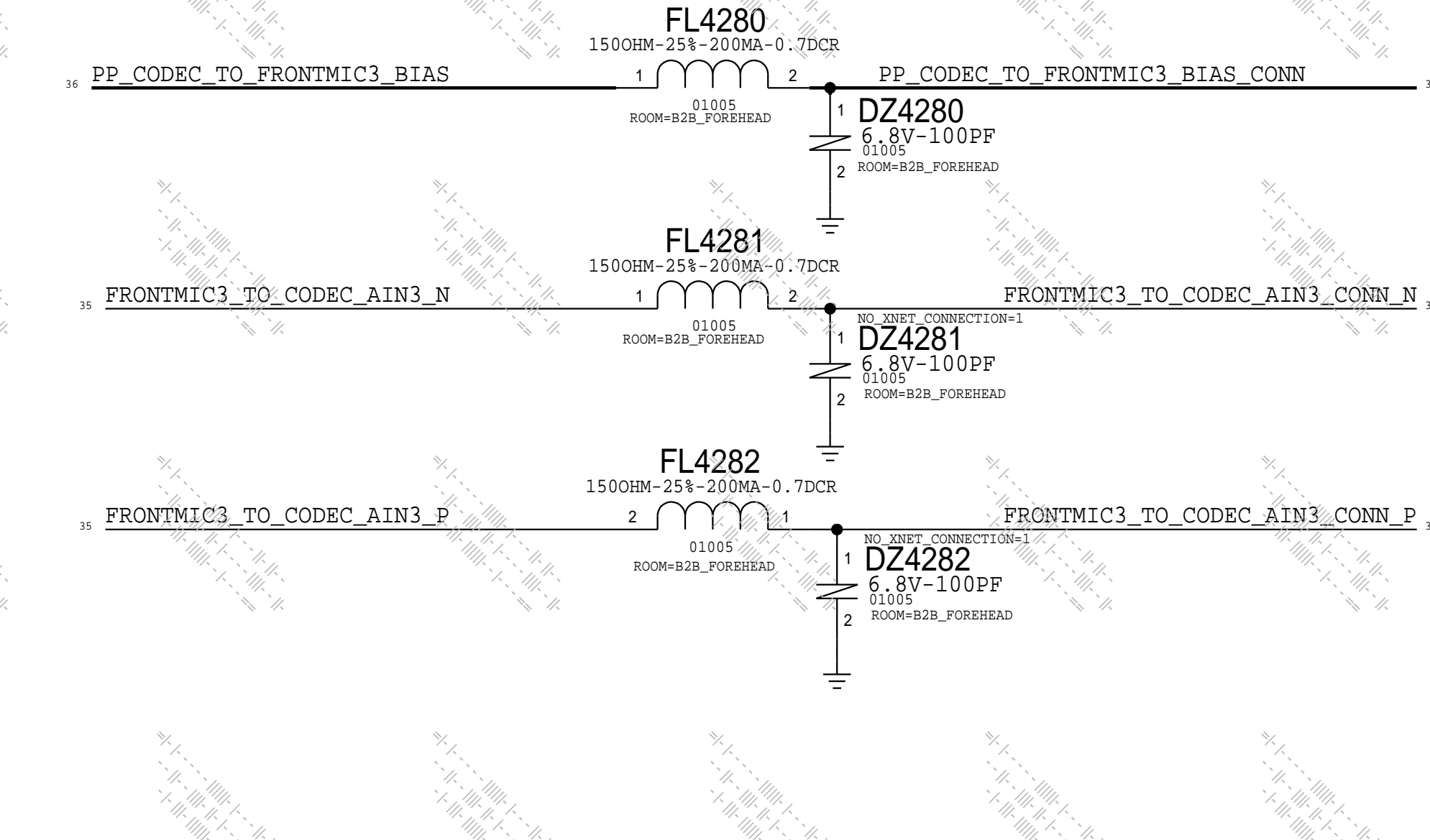
PROX + ALS I/O



CONVOY I/O

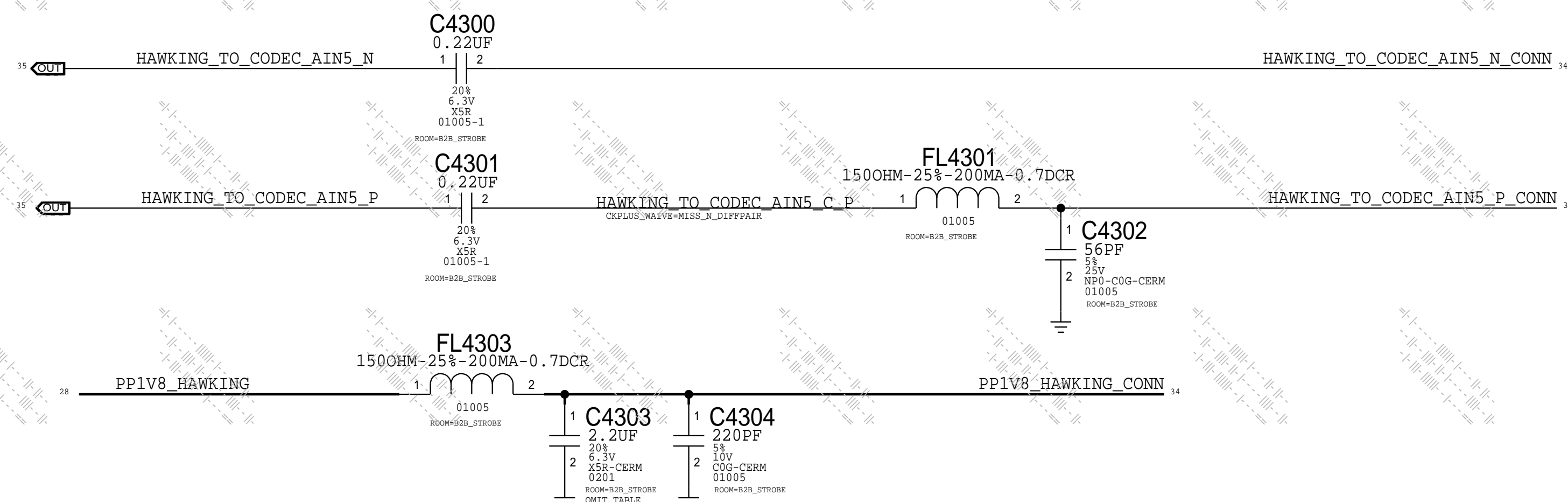


MIC3

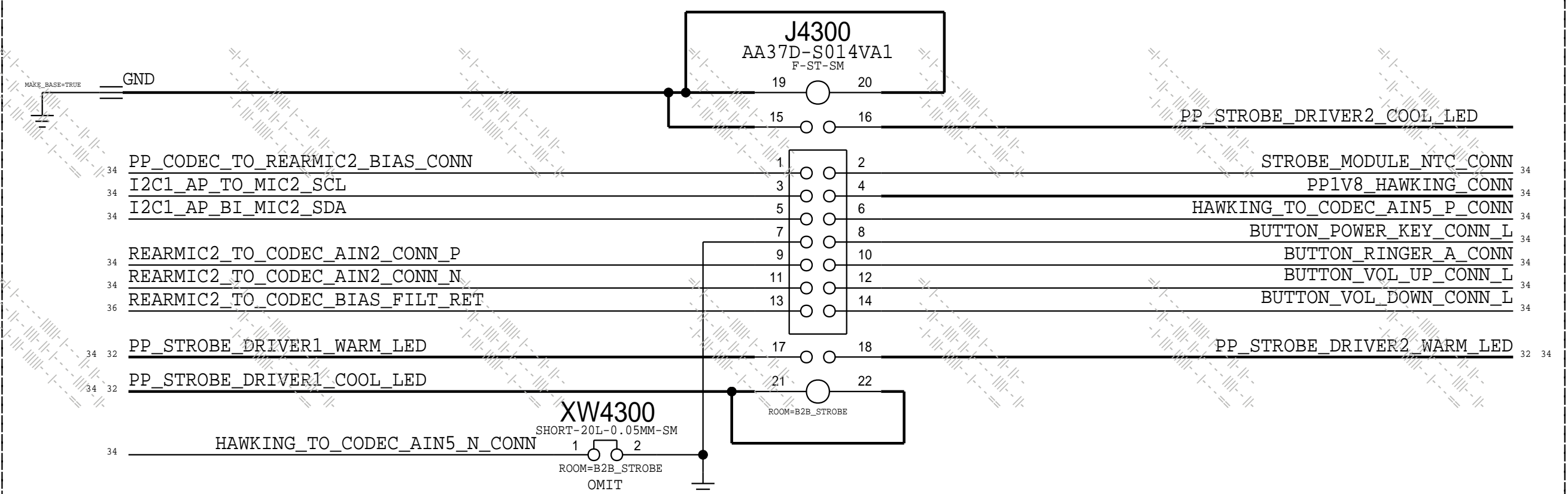


PAGE TITLE		
CAMERA: FCAM + FOREHEAD		
Apple Inc.	DRAWING NUMBER	SIZE
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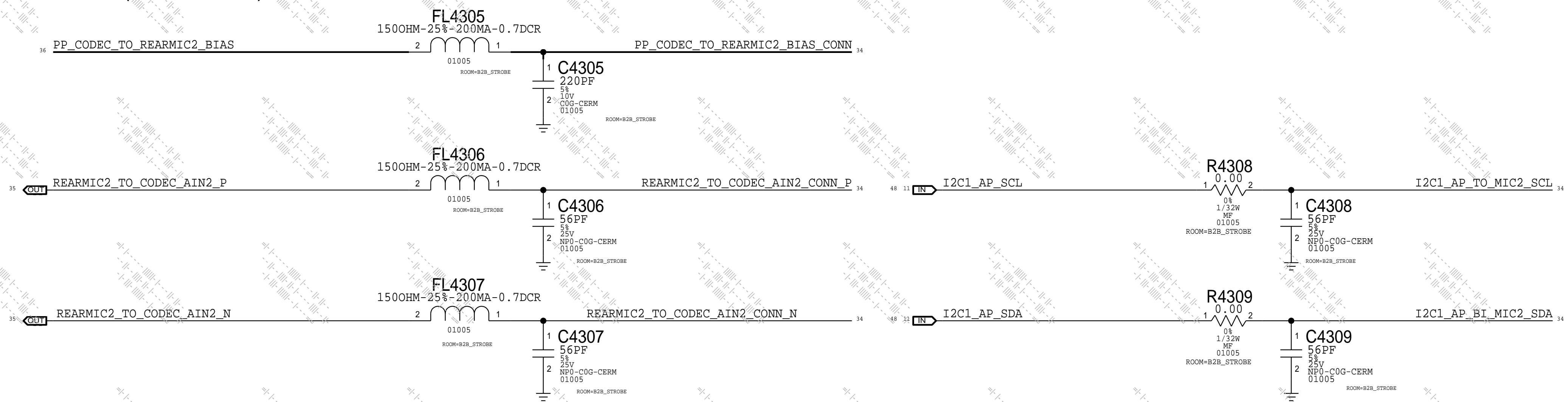
HAWKING



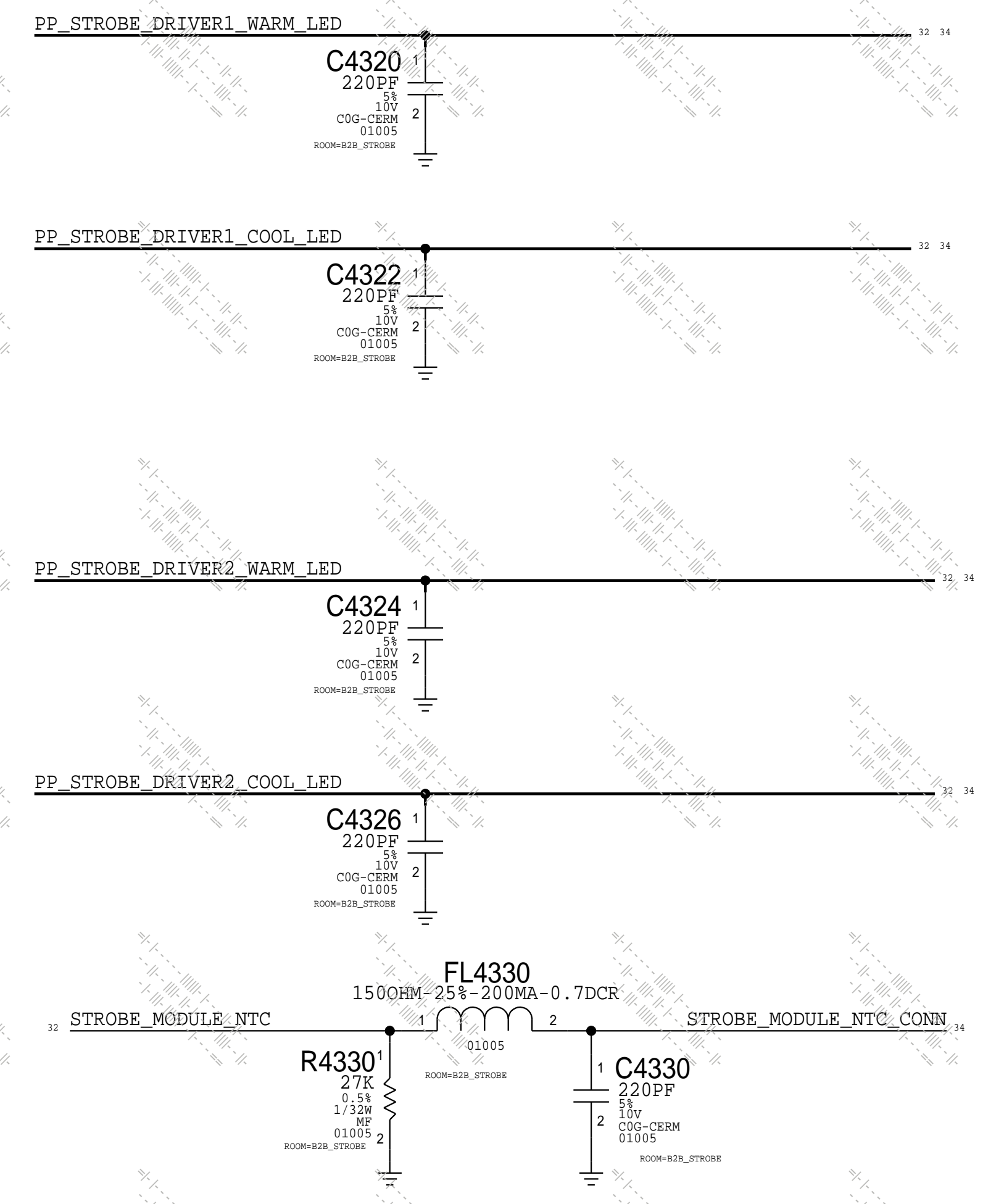
Strobe Connector



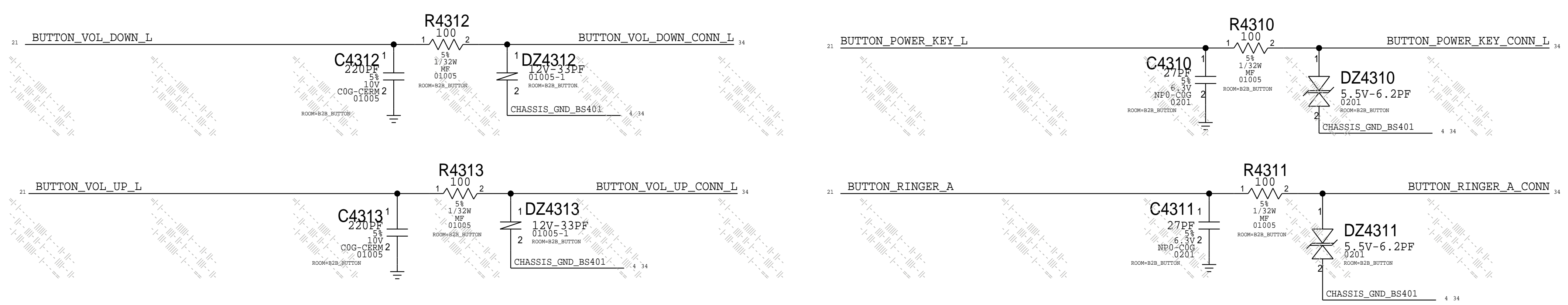
MIC2 (ANC REF)



Strobe Filtering

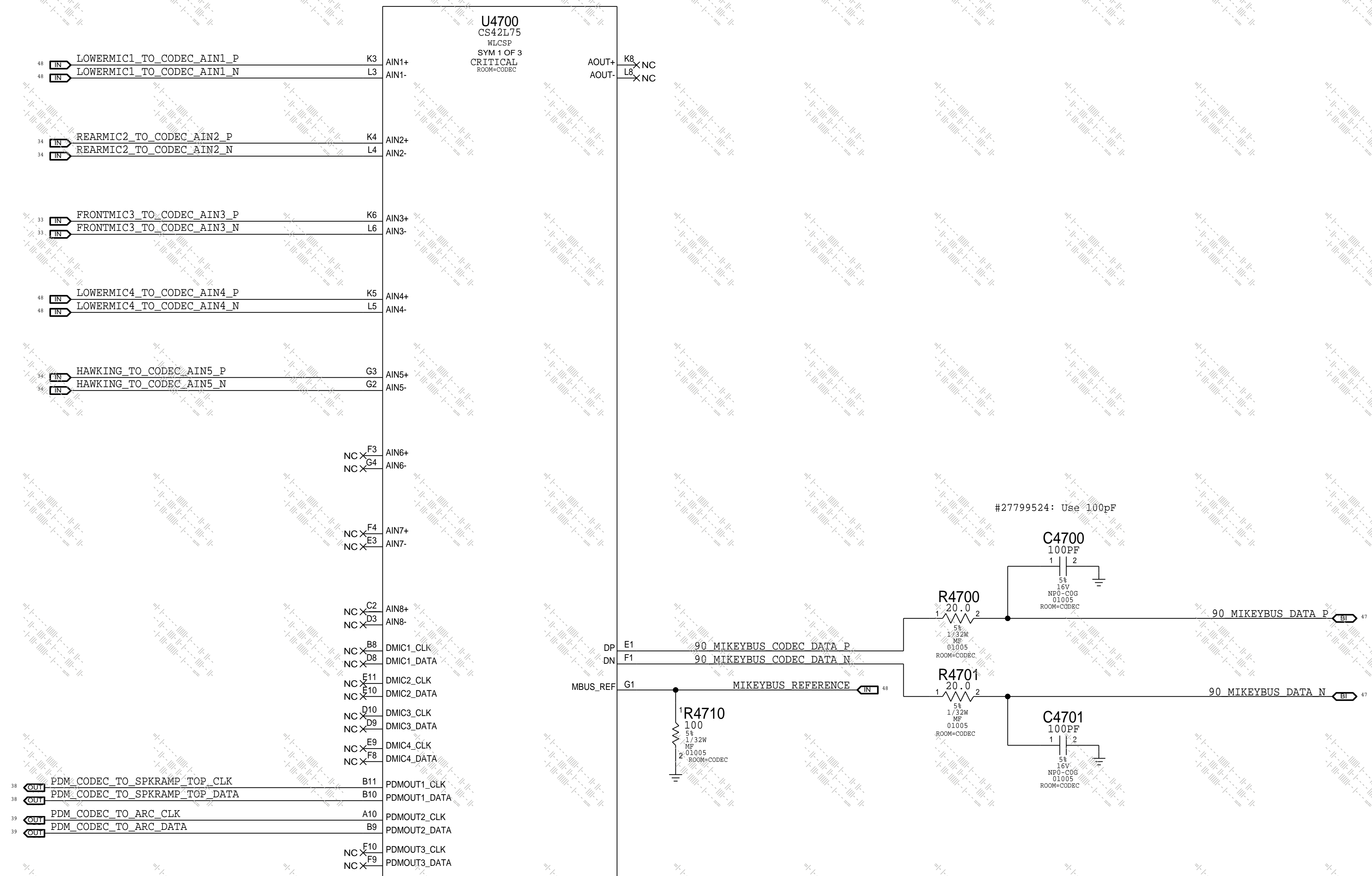


BUTTON

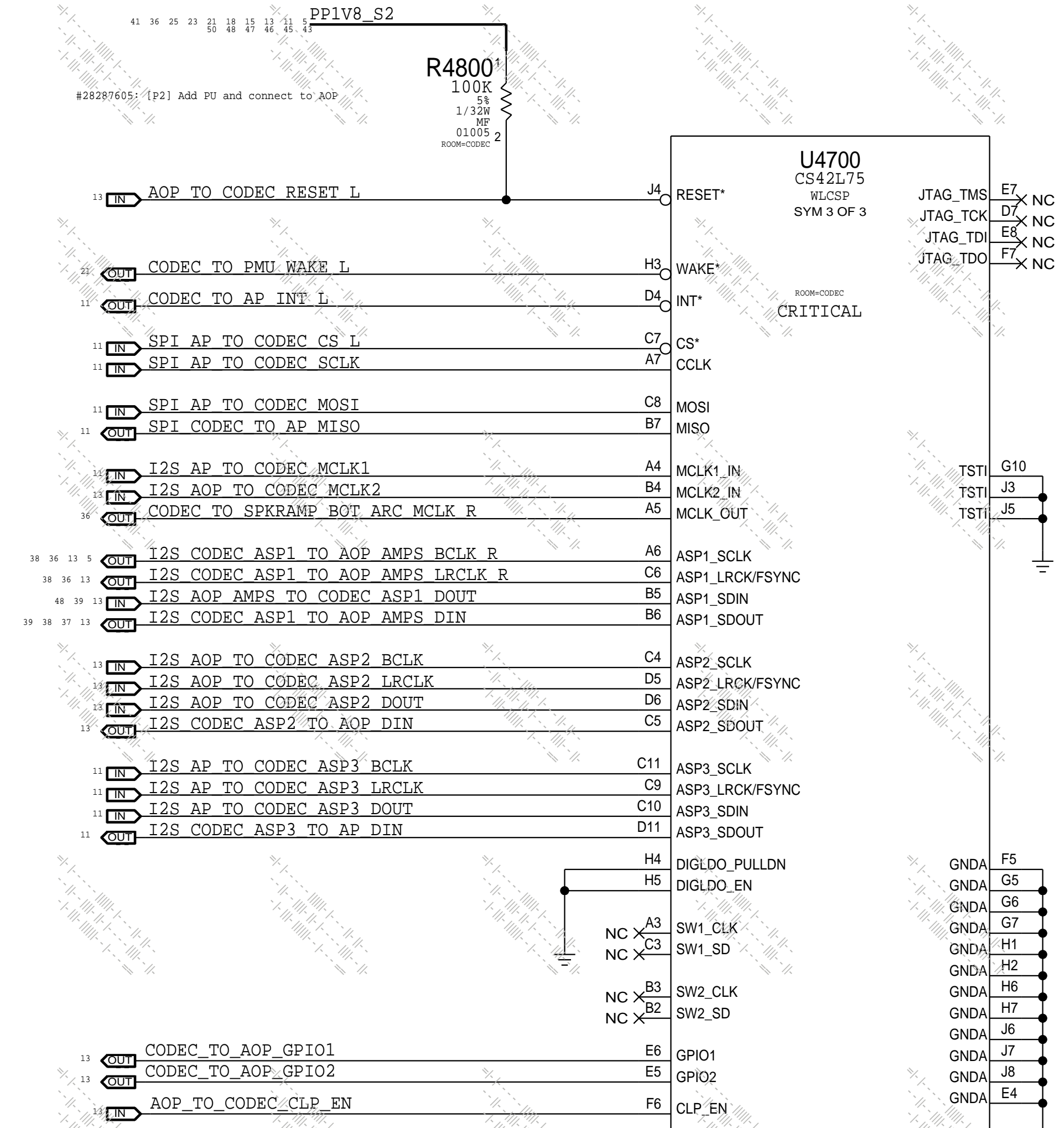
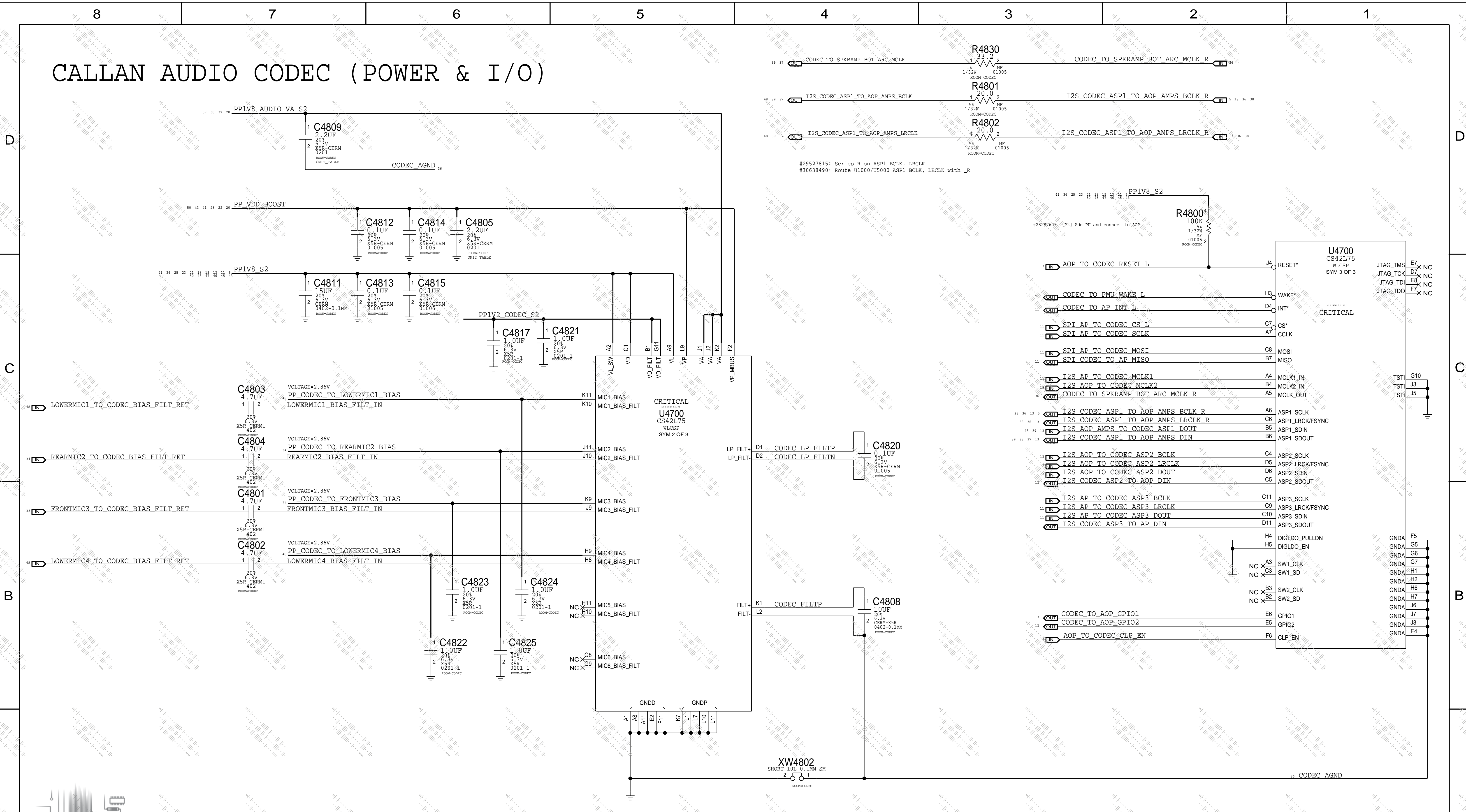


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CALLAN AUDIO CODEC (ANALOG INPUTS & OUTPUTS)



CALLAN AUDIO CODEC (POWER & I/O)

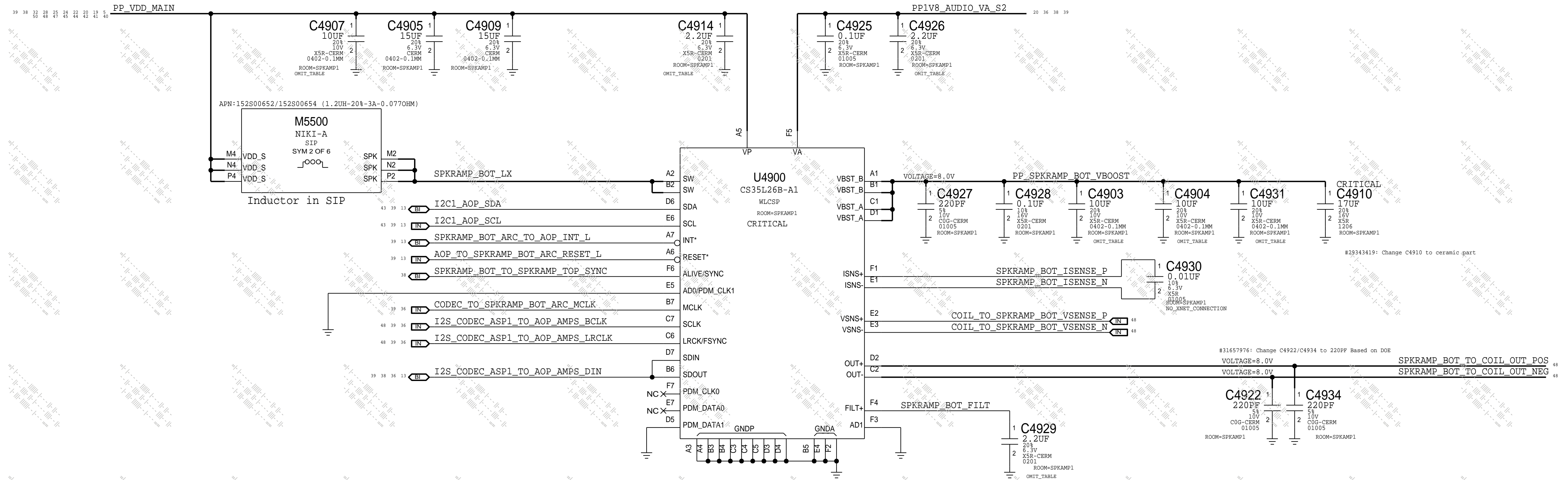


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PAGE TITLE			AUDIO: CODEC (2/2)		
DRAWING NUMBER		051-02159	SIZE	D	
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SHEET		36 OF 81	NOTICE OF PROPRIETARY PROPERTY:		
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South Speaker Amplifier

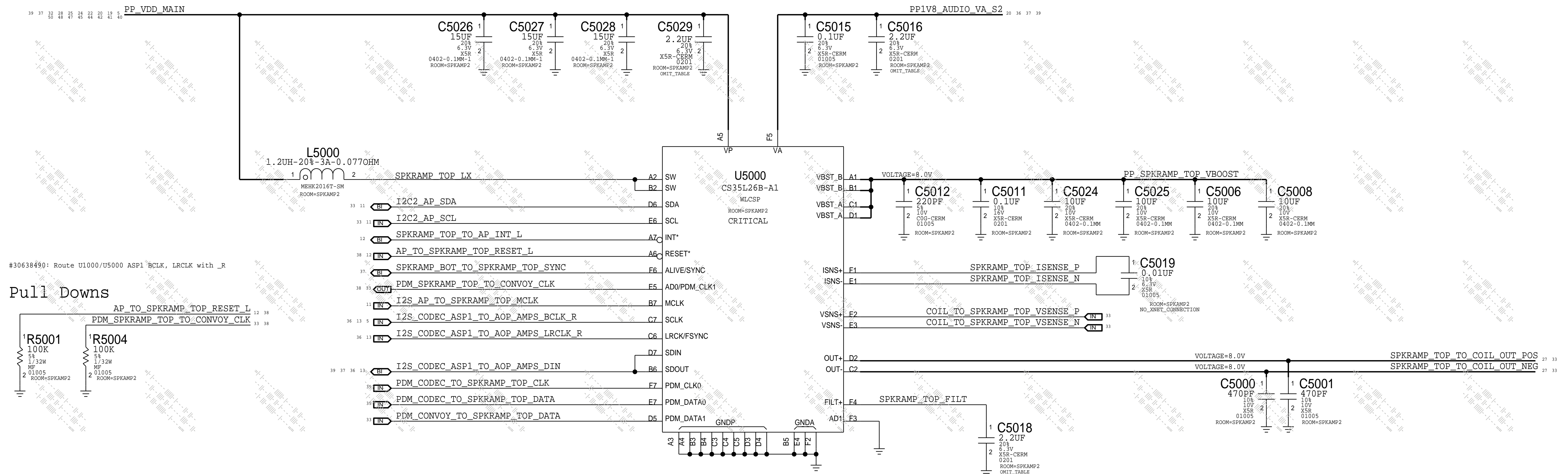
APN: 338S00143
 I2C ADDRESS: 1000 000x
 0x80



North Speaker Amplifier

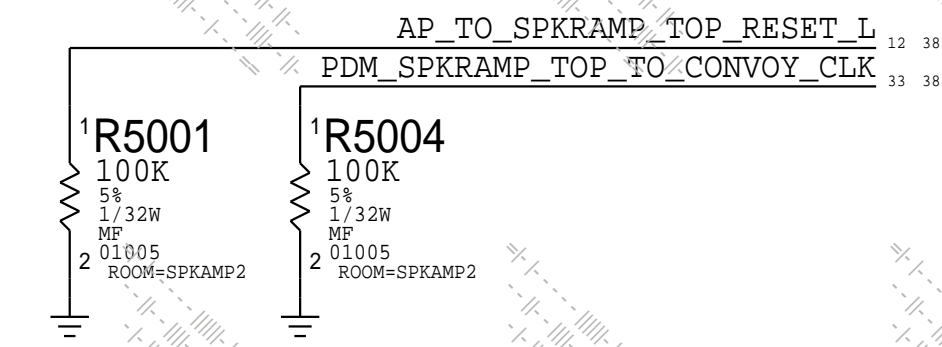
APN: 338S00295

I2C ADDRESS: 1000 000x (0x80)



#30638490: Route U1000/U5000 ASP1 *BCLK, LRCLK with _R

Pull Downs

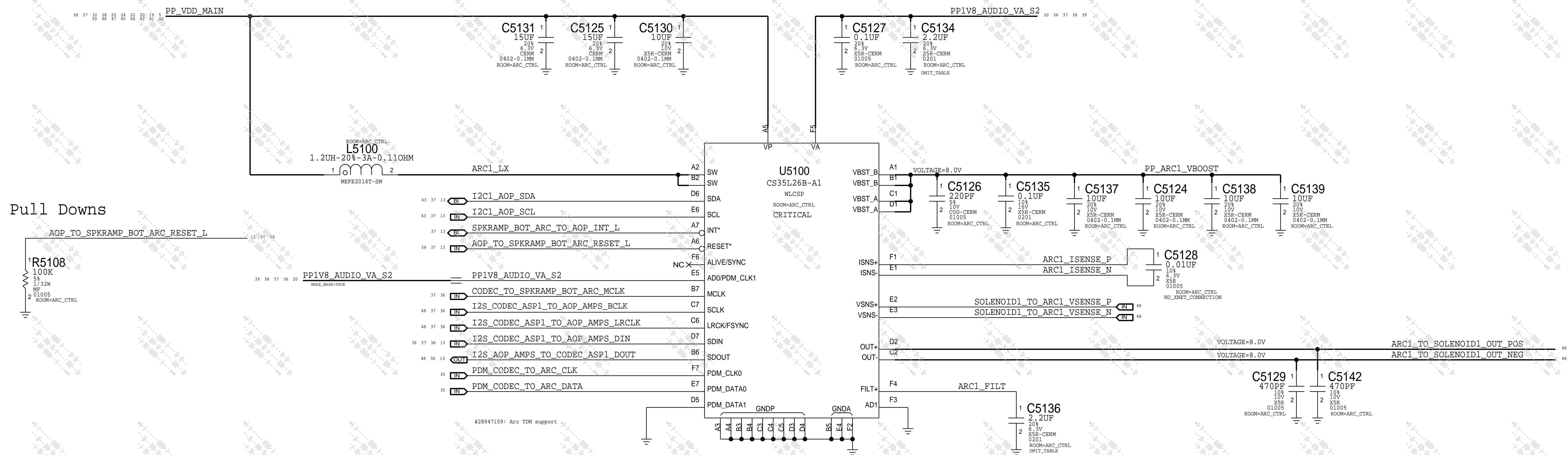


PAGE TITLE		
AUDIO: Speaker Amp Top		
Apple Inc.	DRAWING NUMBER	051-02159
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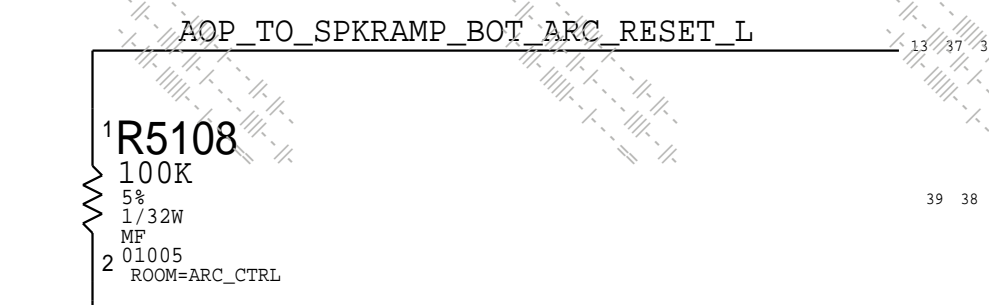
ARC DRIVER

APN: 338S00295

I2C ADDRESS: 1000 001x (0x82)

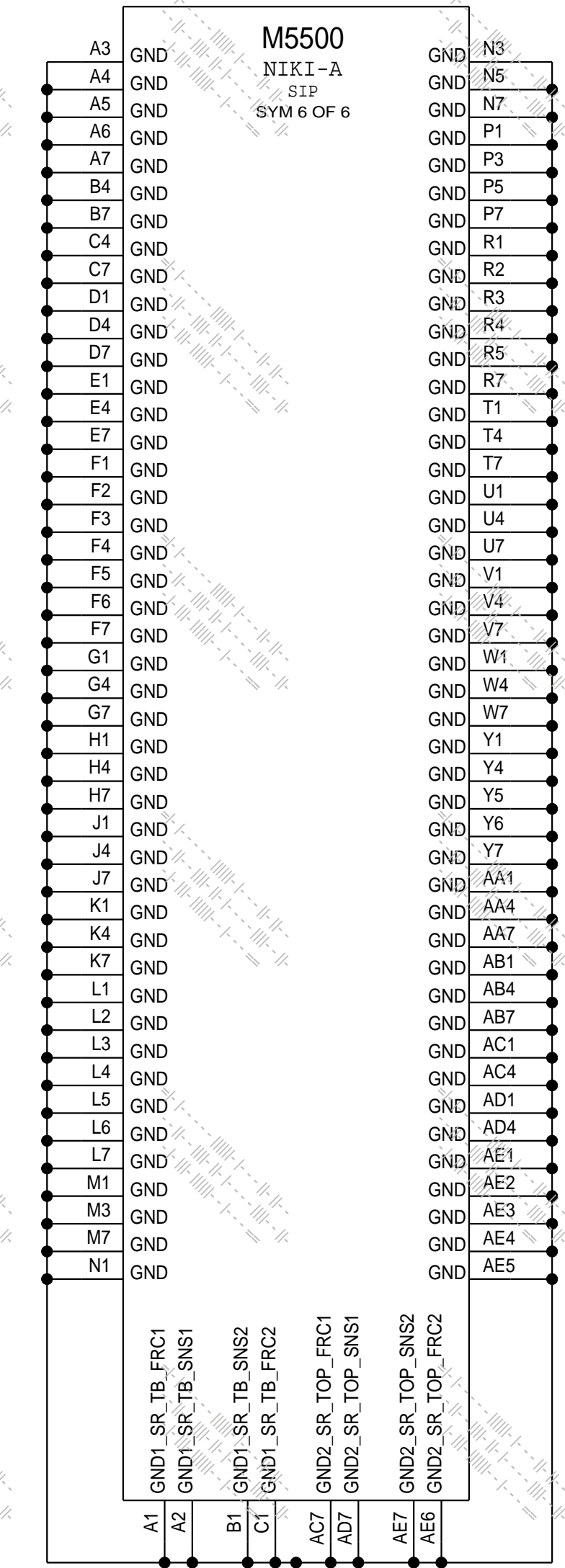
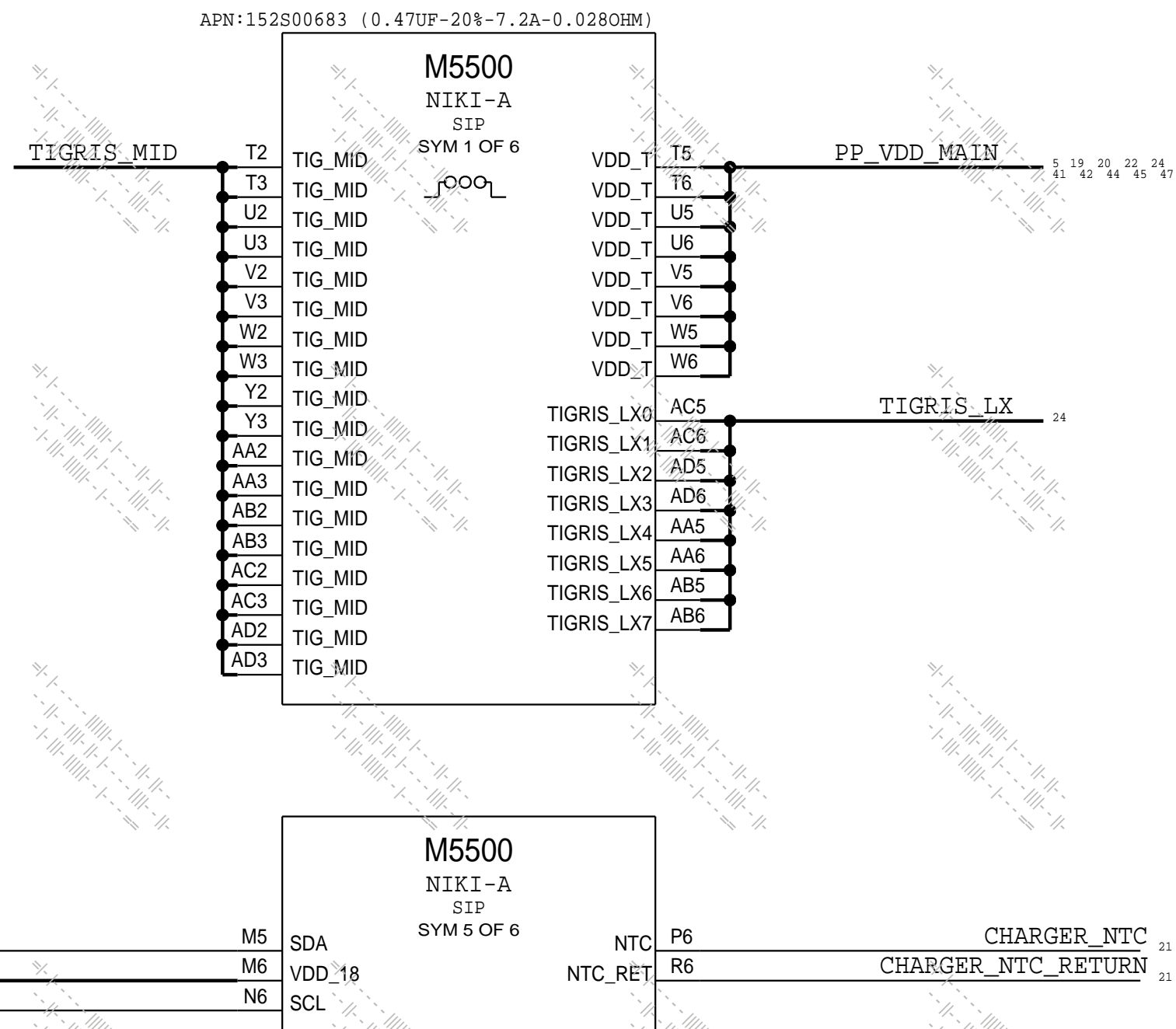


Pull Downs



#28947109: Arc TDM support

PAGE TITLE			ARC: Driver		
DRAWING NUMBER		051-02159	SIZE	D	
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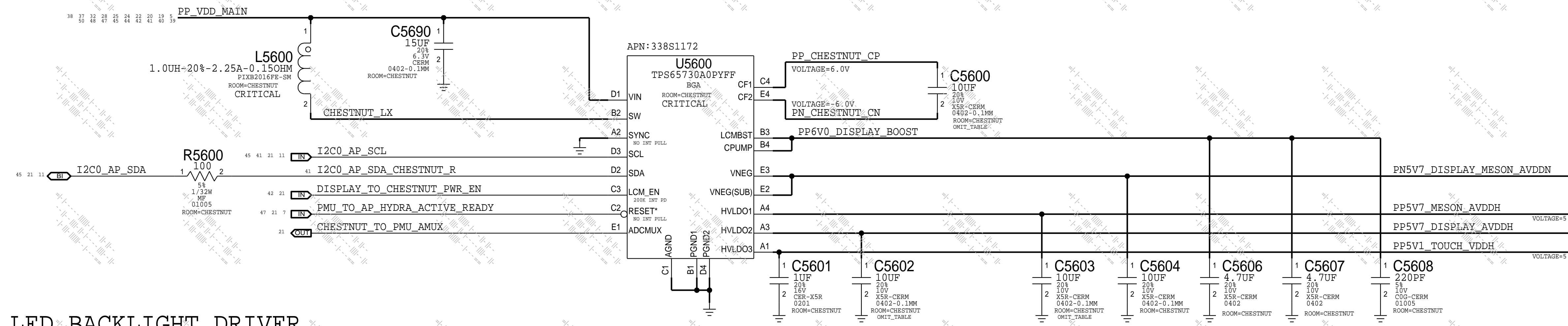


Note: inductors in SIP used for bottom speaker amplifier and backlight
See pages 49, and 56



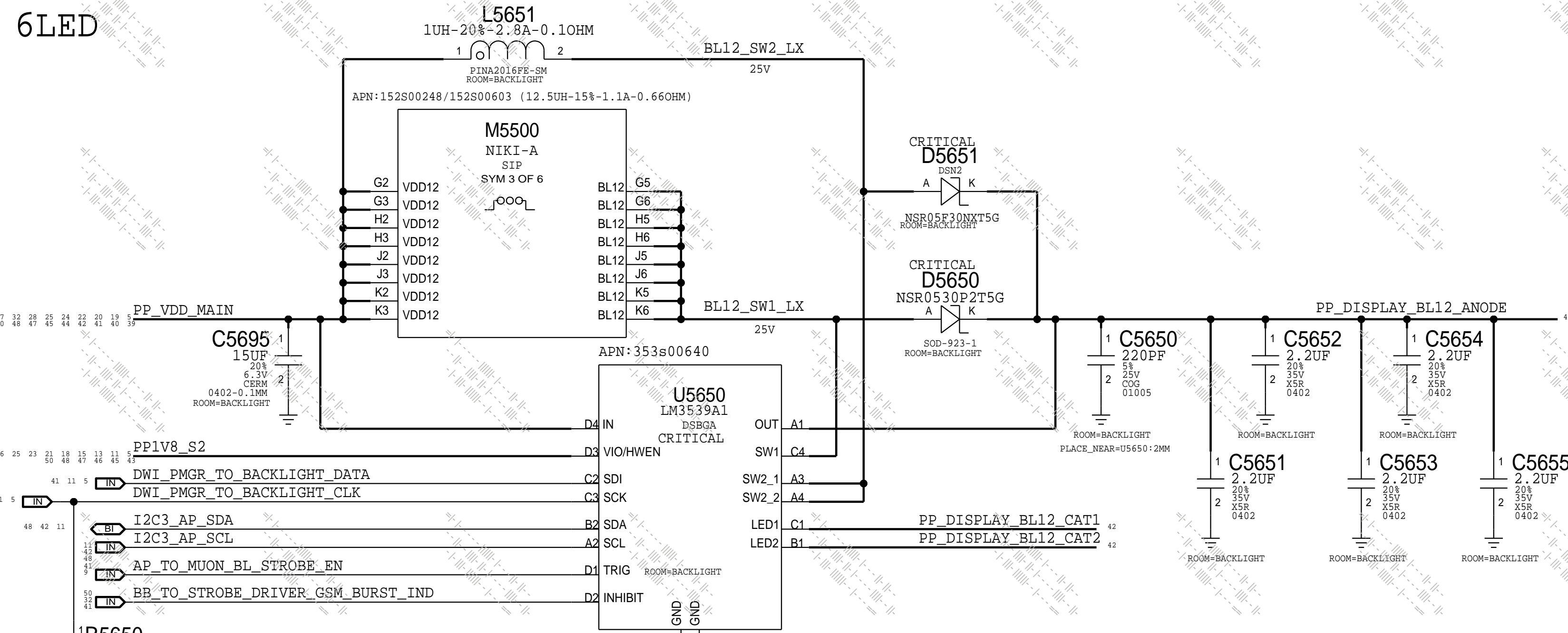
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Apple Inc.	DRAWING NUMBER	051-02159	SIZE	D
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CHESTNUT DISPLAY PMU

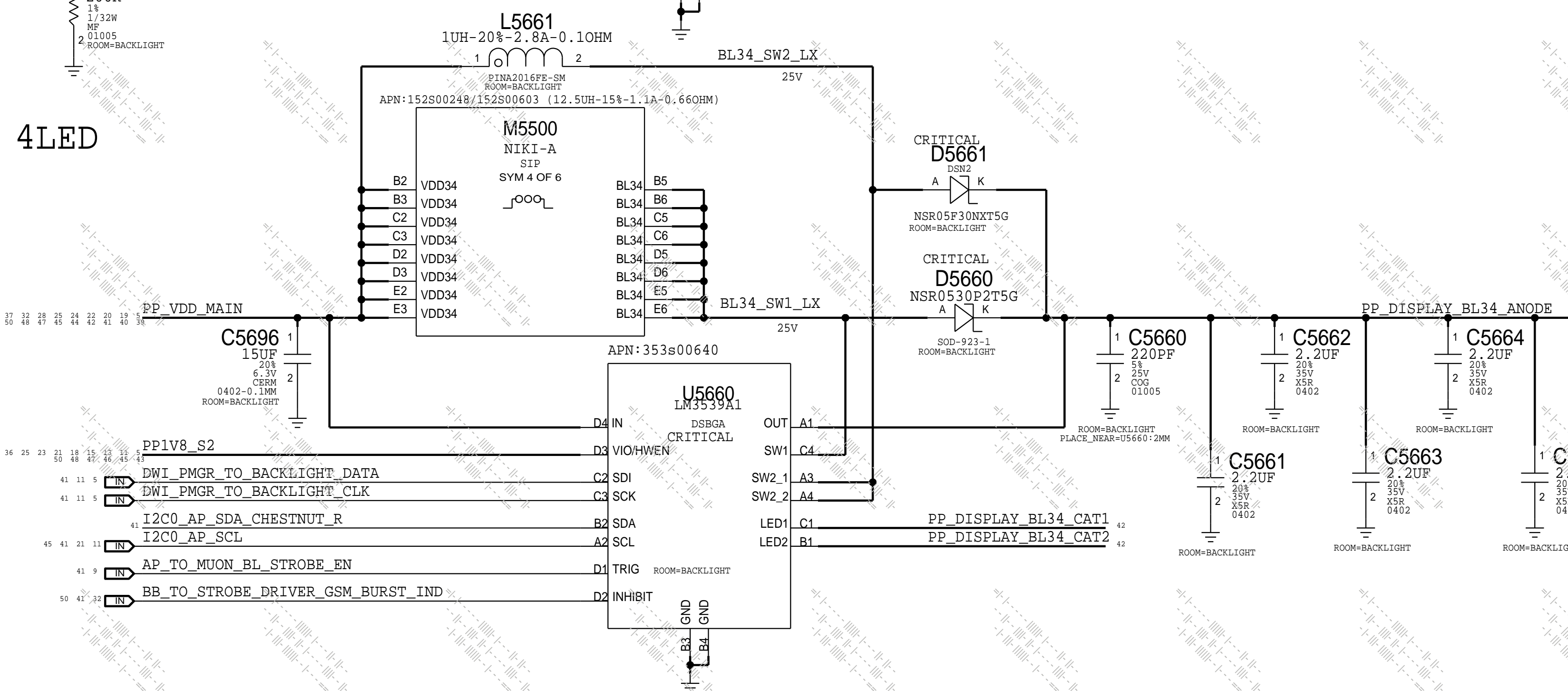


LED BACKLIGHT DRIVER

6LED

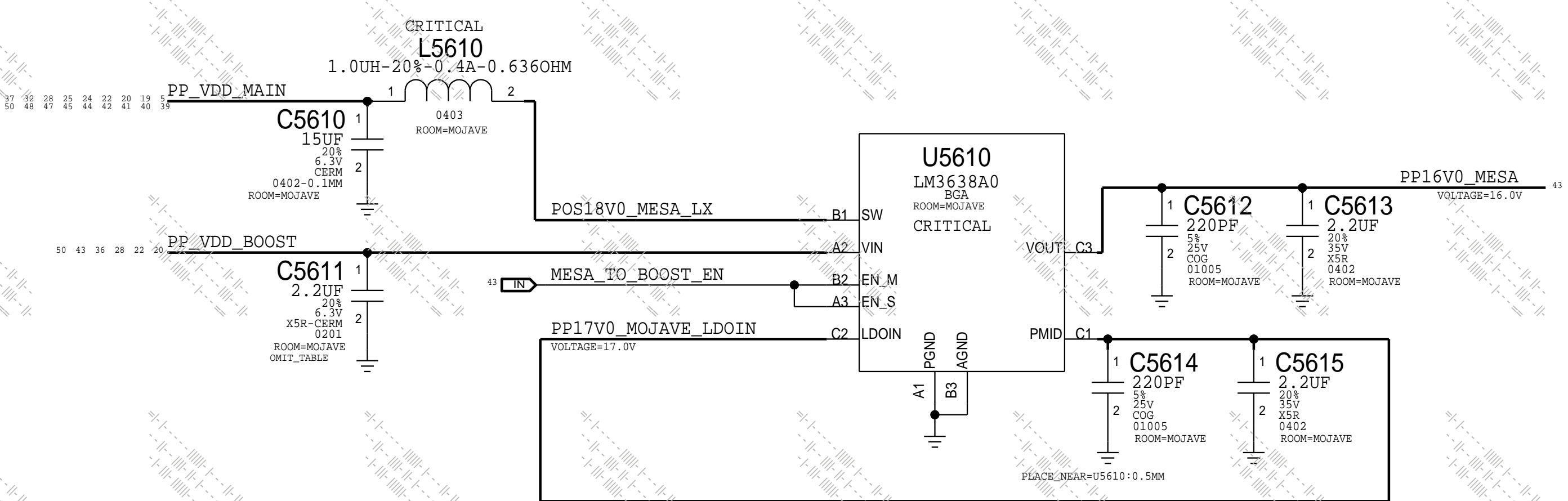


4LED

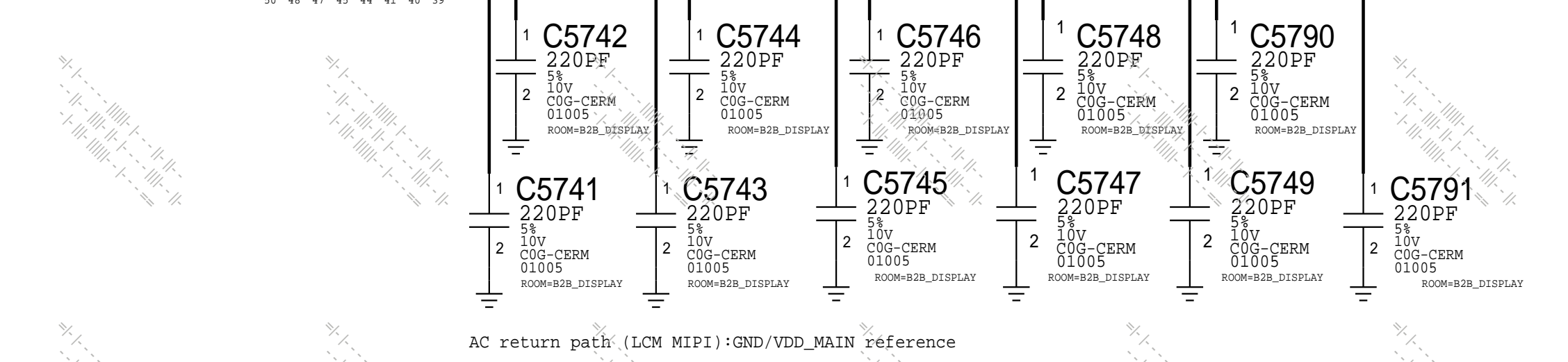
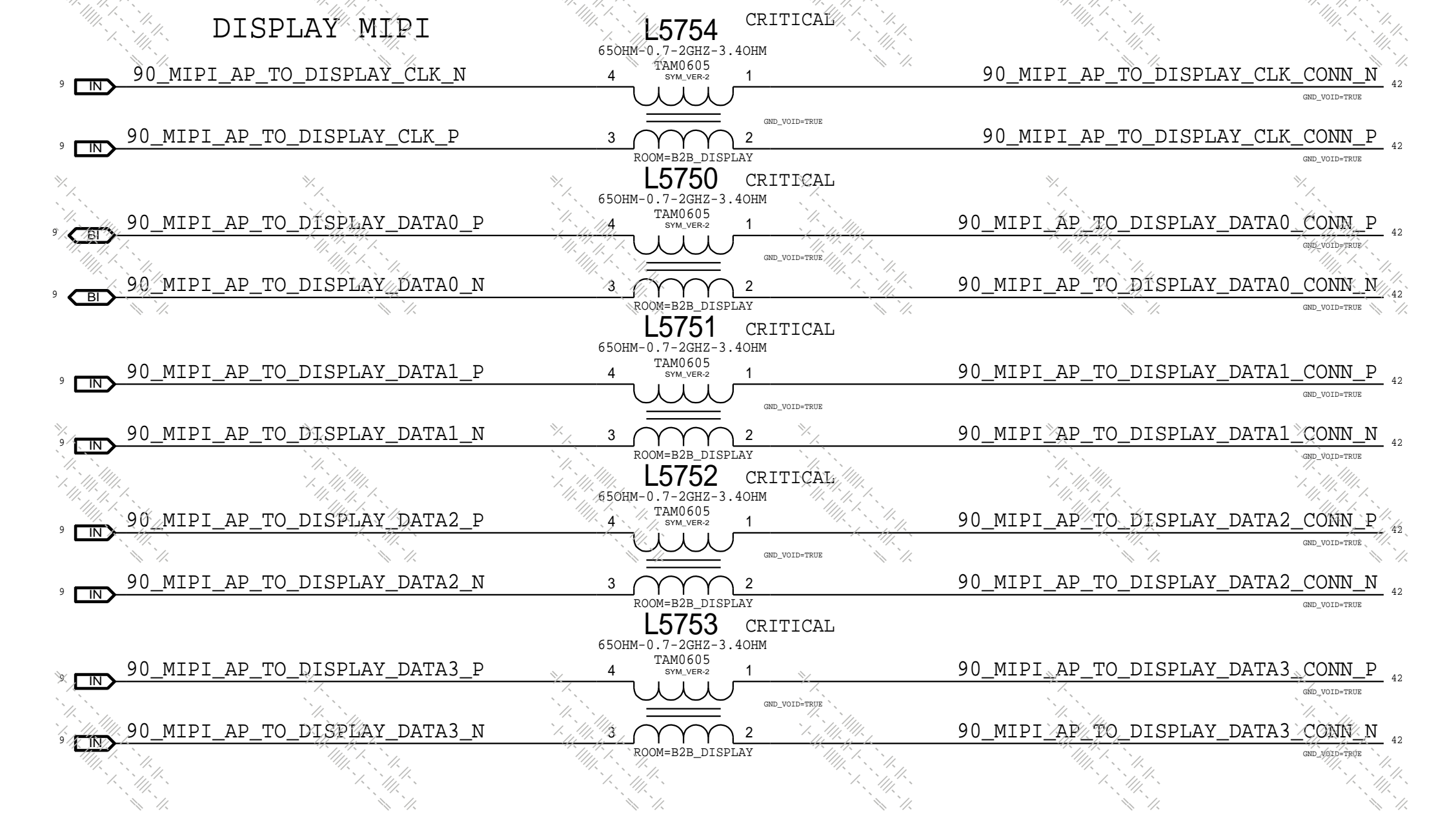
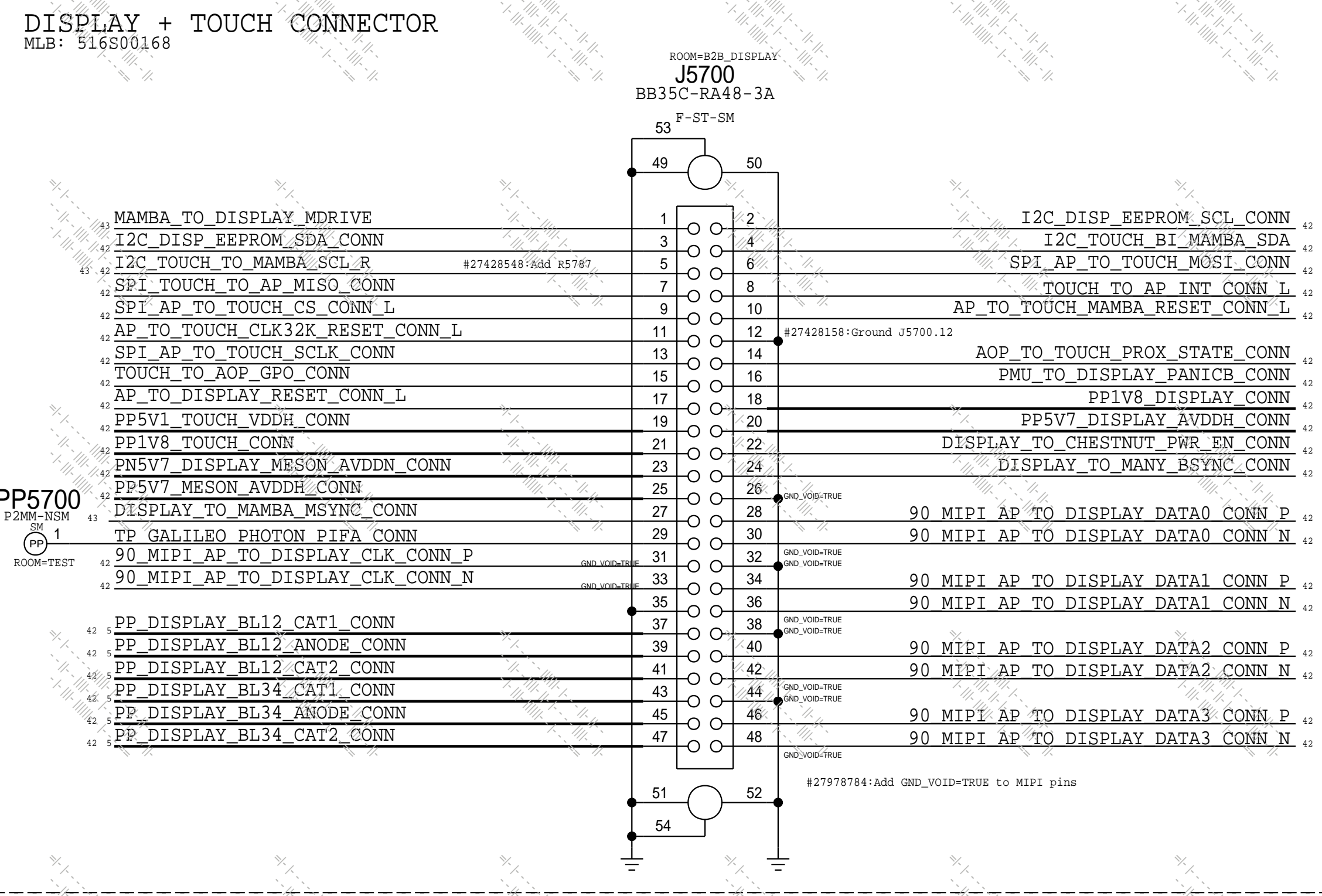
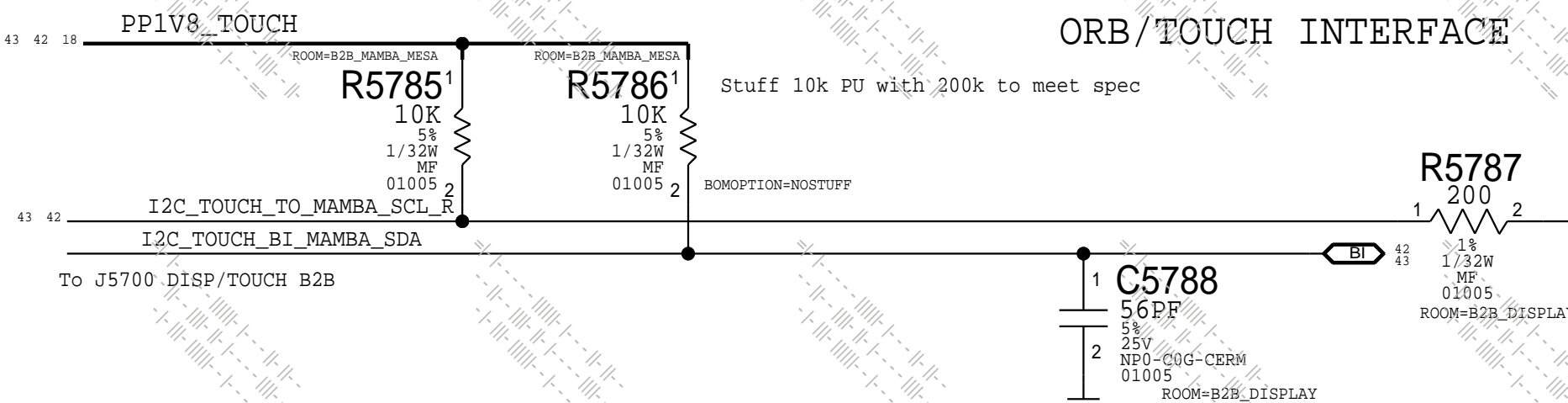
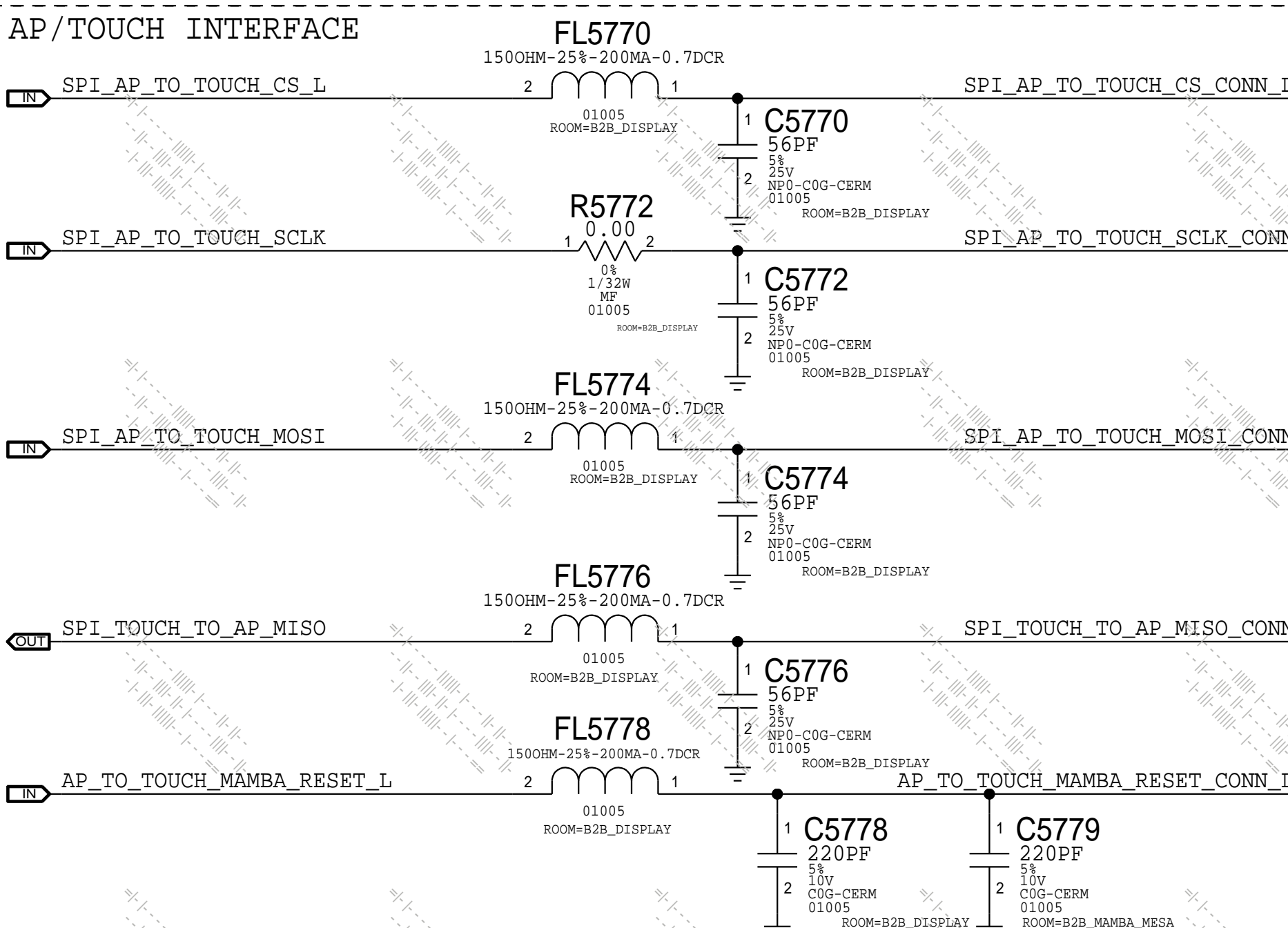
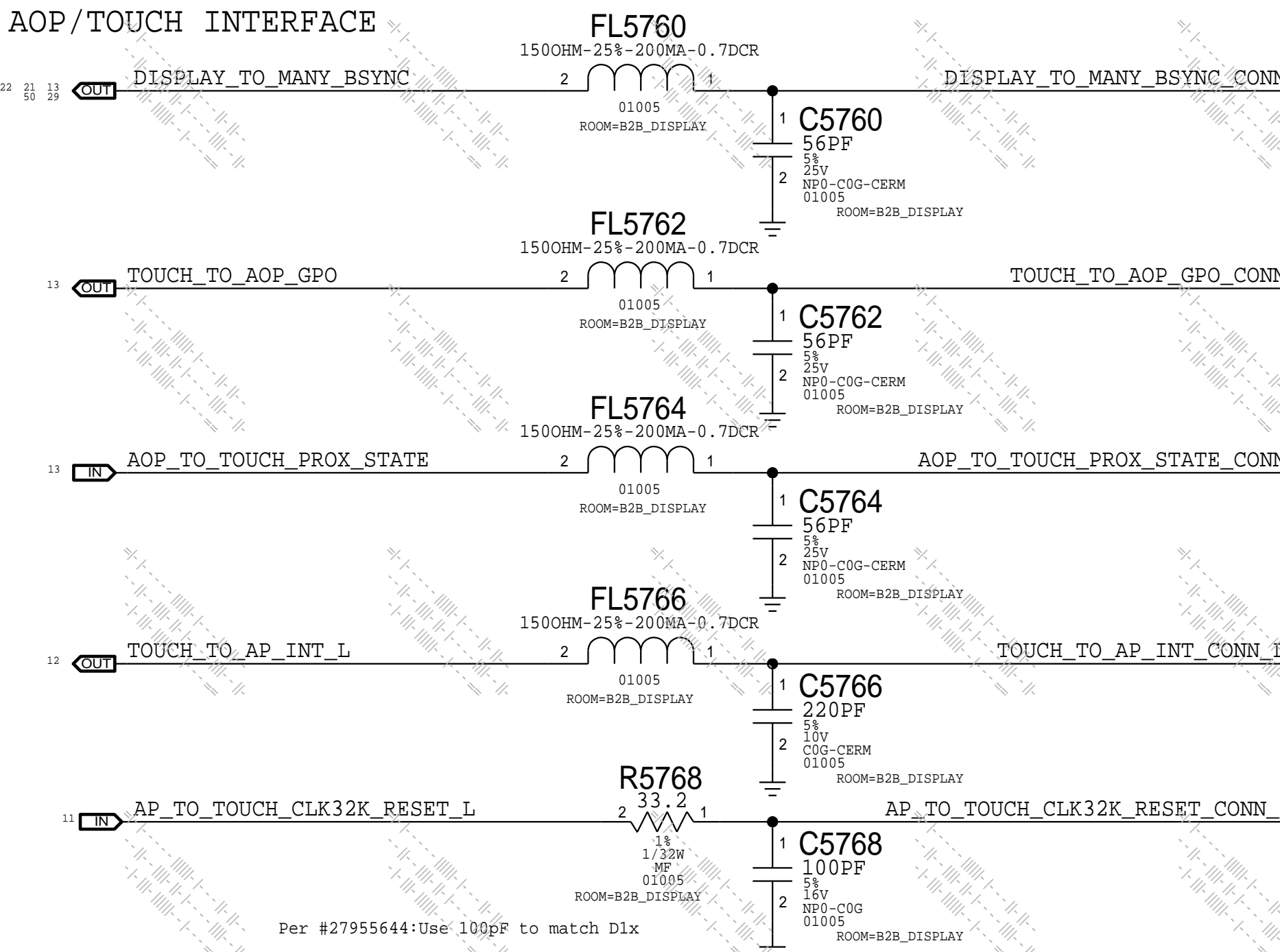
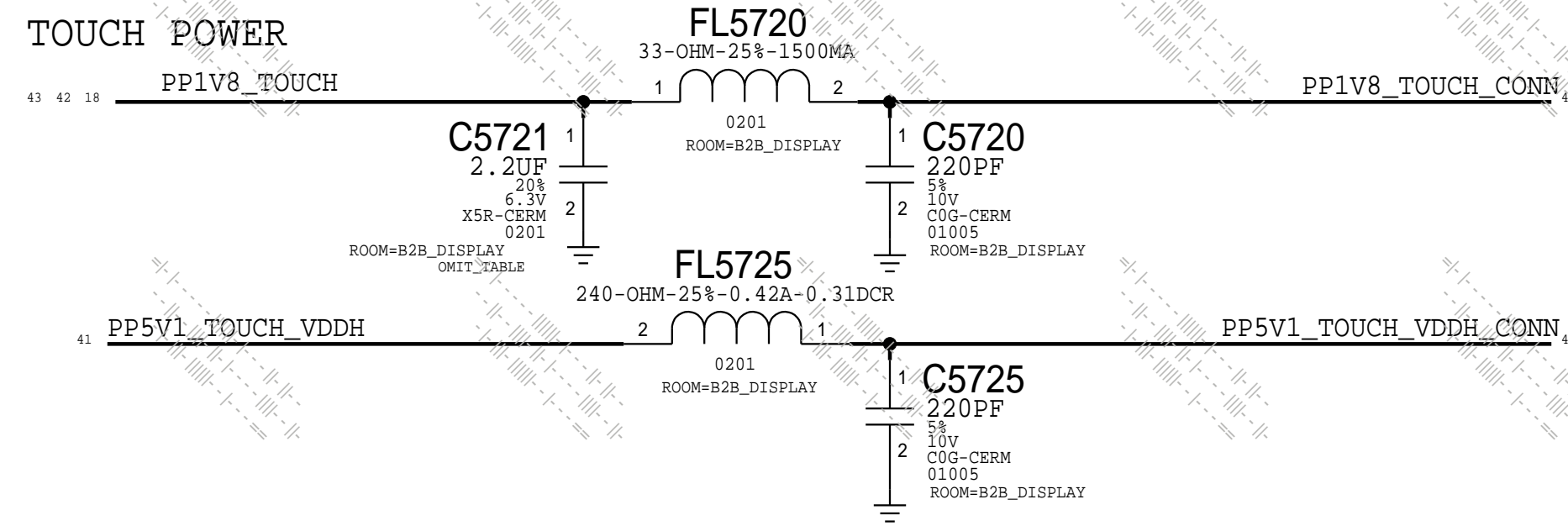
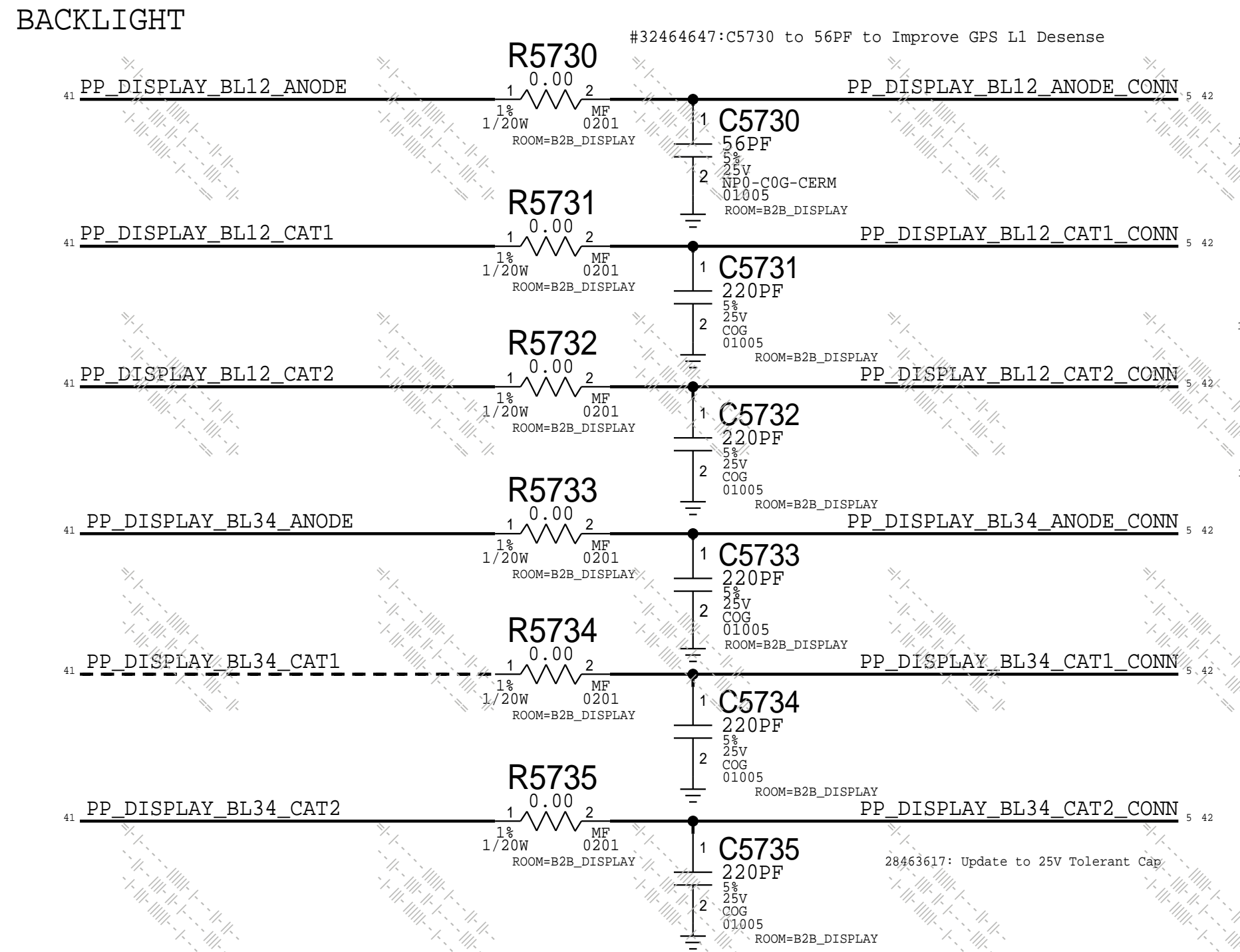
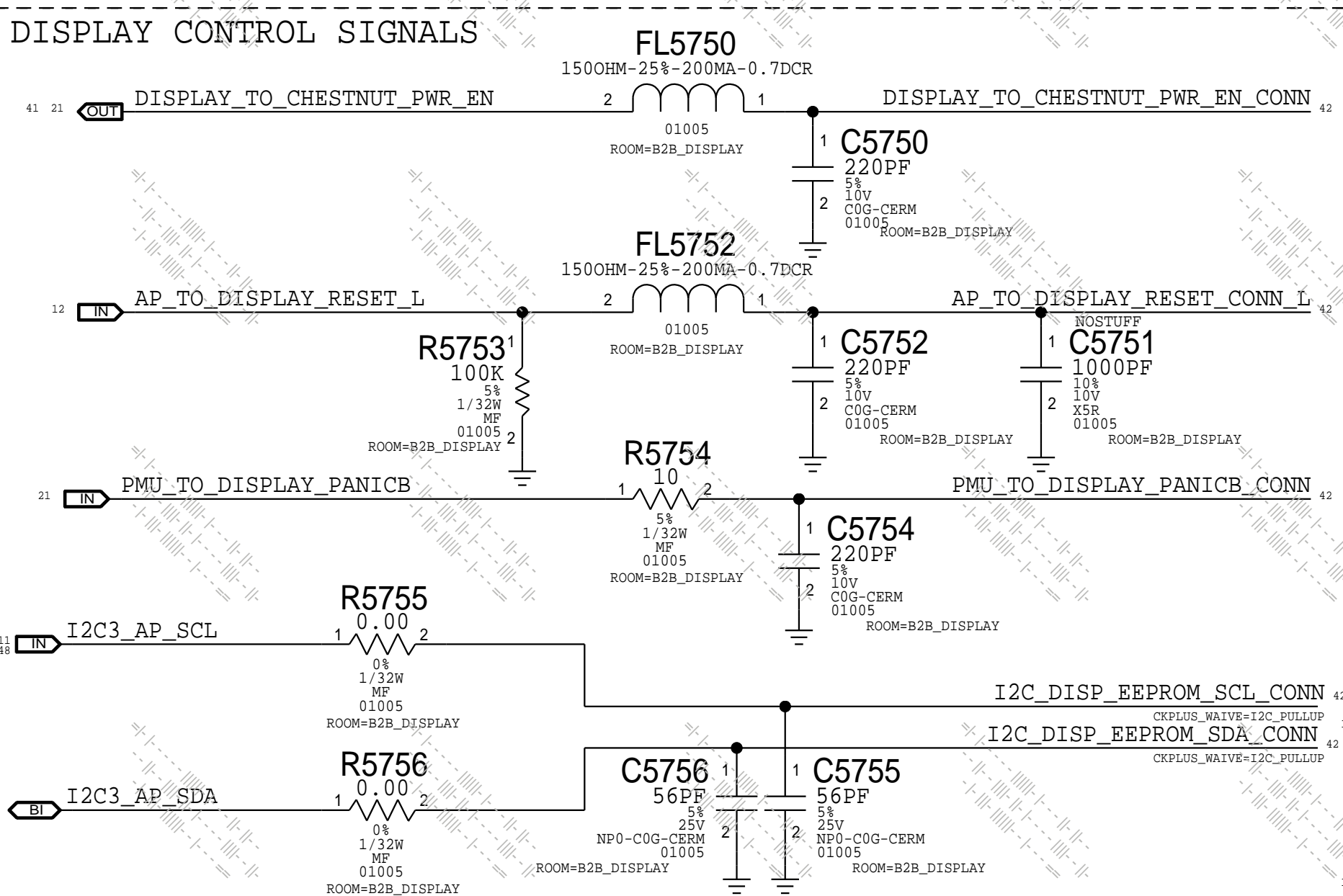
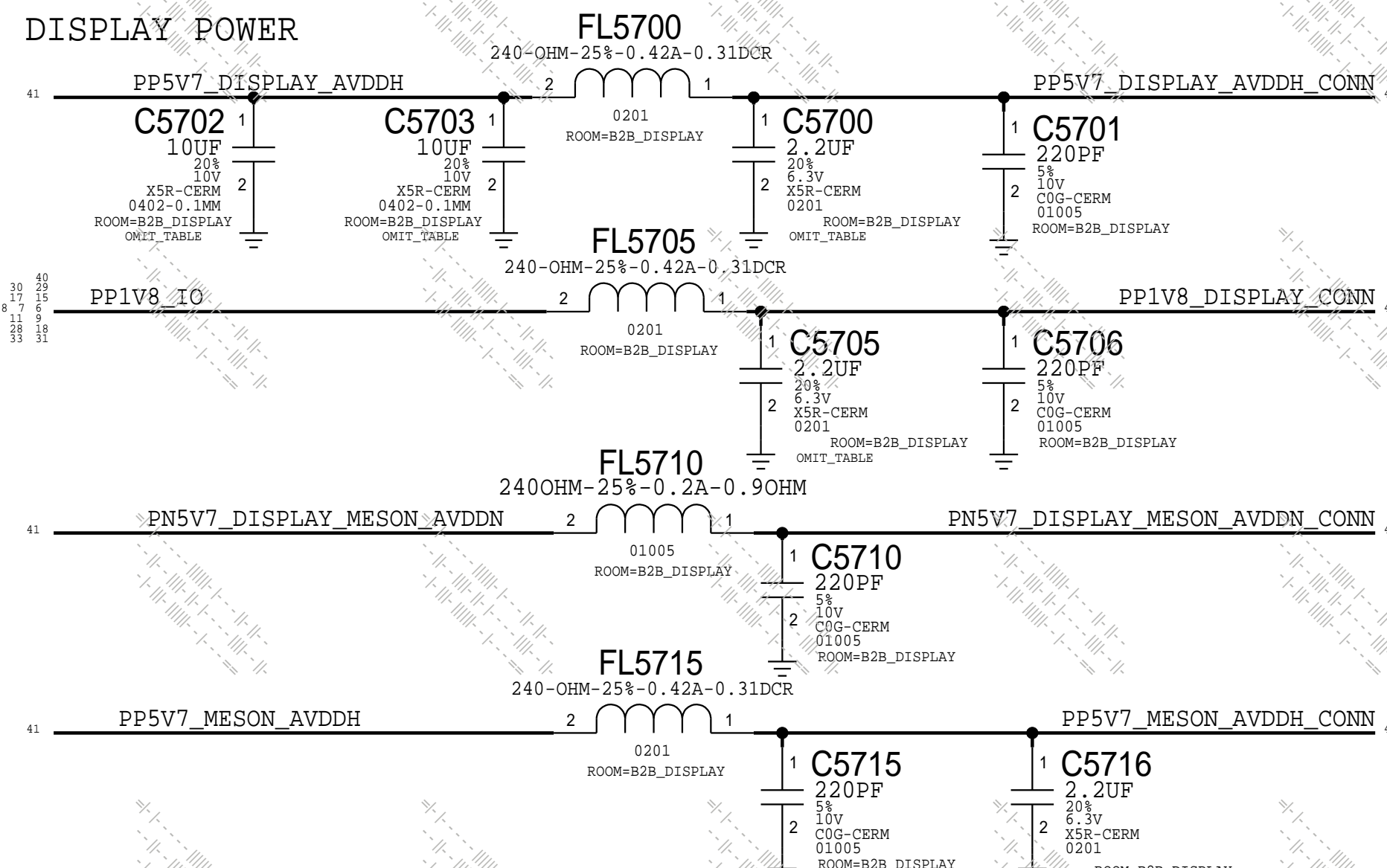


MOJAVE MESA BOOST

APN:353S00671



PAGE TITLE		CG: PMUs	
		DRAWING NUMBER	051-02159
		REVISION	10.0.0
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		PAGE	56 OF 80
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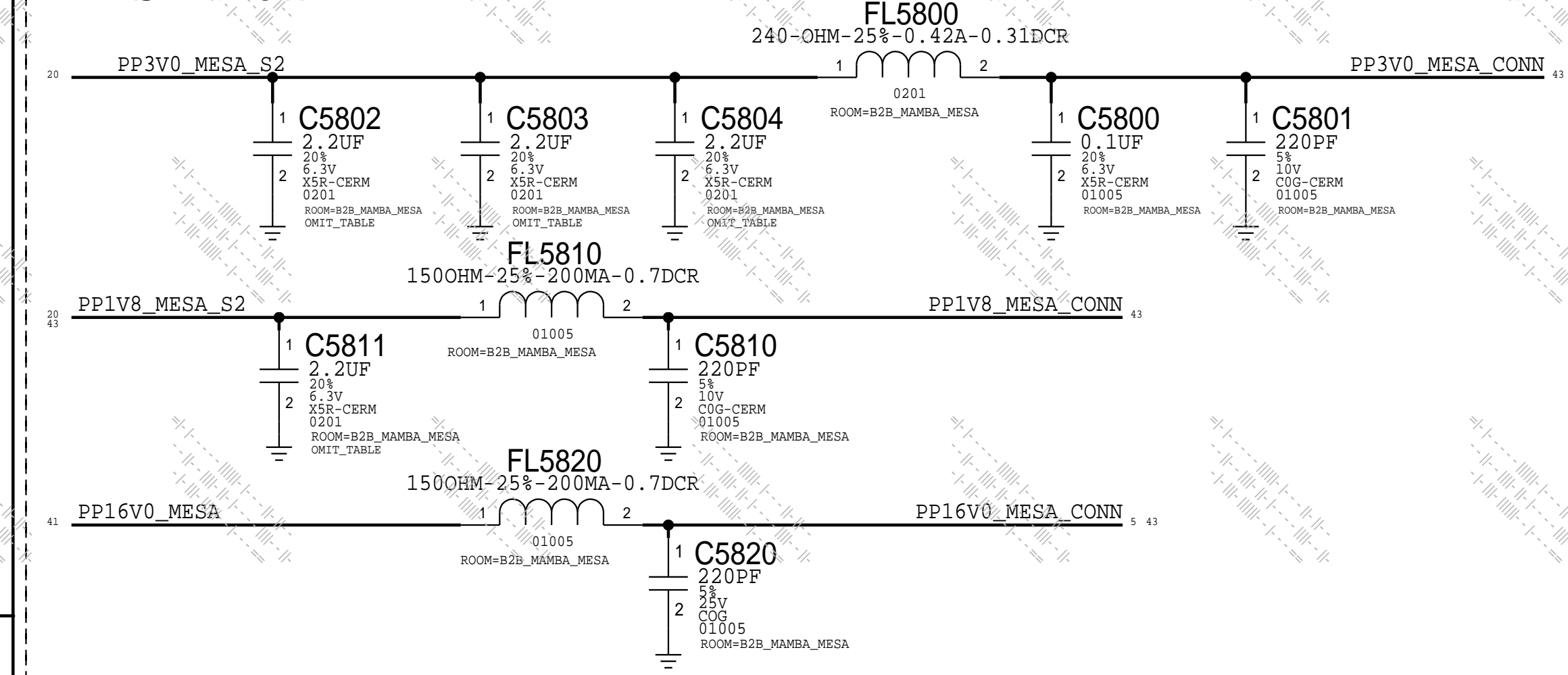


PAGE TITLE		CG: B2B DISPLAY + TOUCH	
DRAWING NUMBER		051-02159	SIZE
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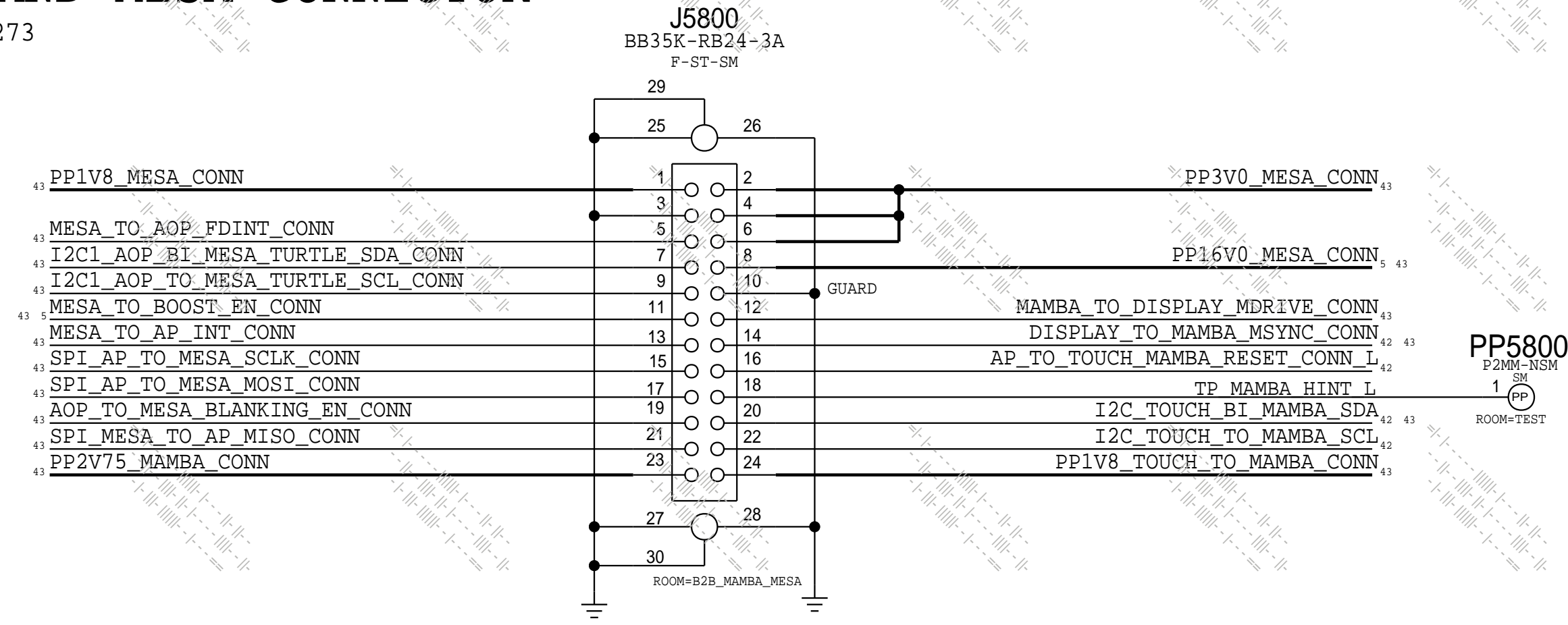
MESA POWER

#30272427: Change FL5800 to 155S00067

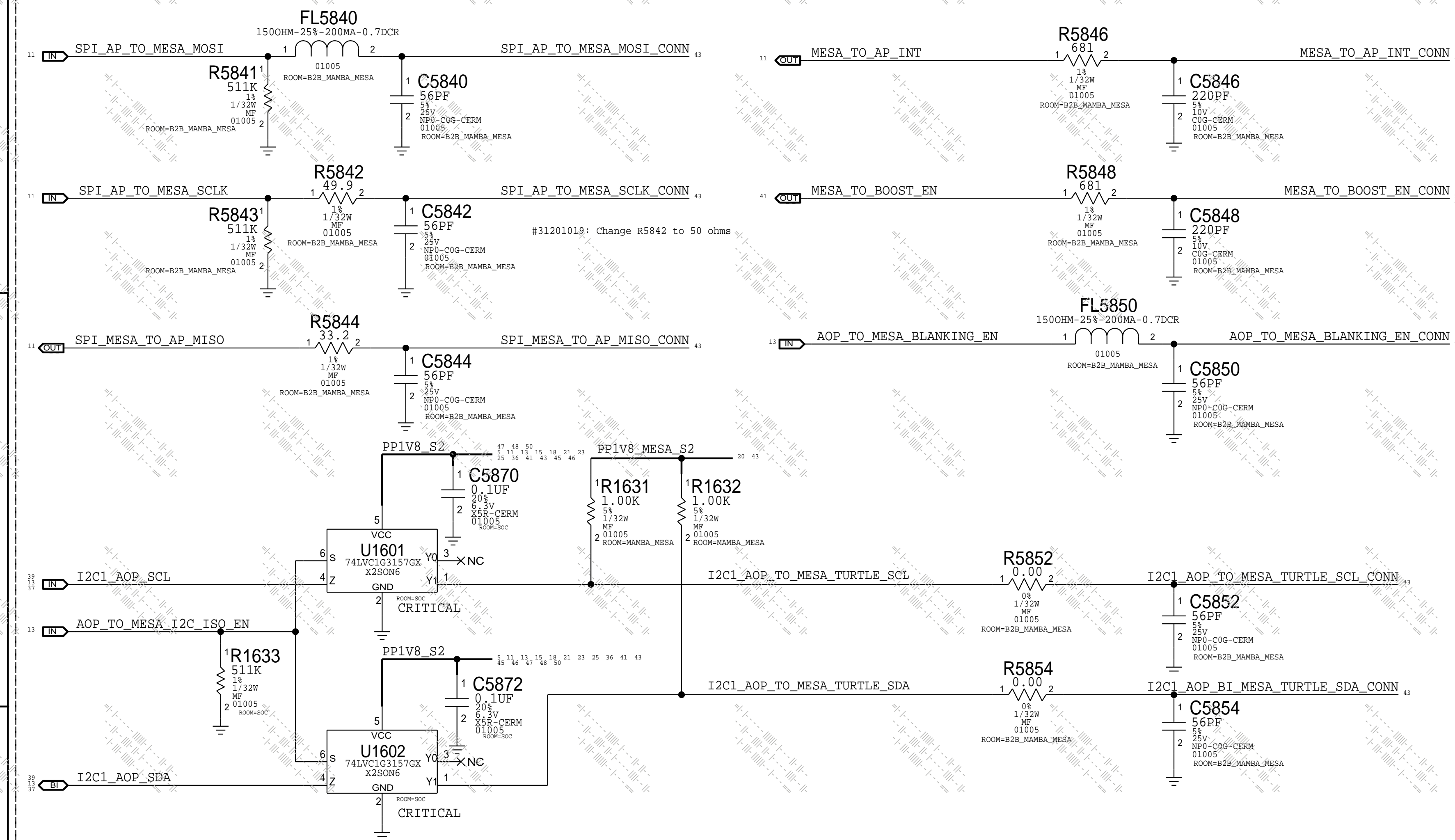


MAMBA AND MESA CONNECTOR

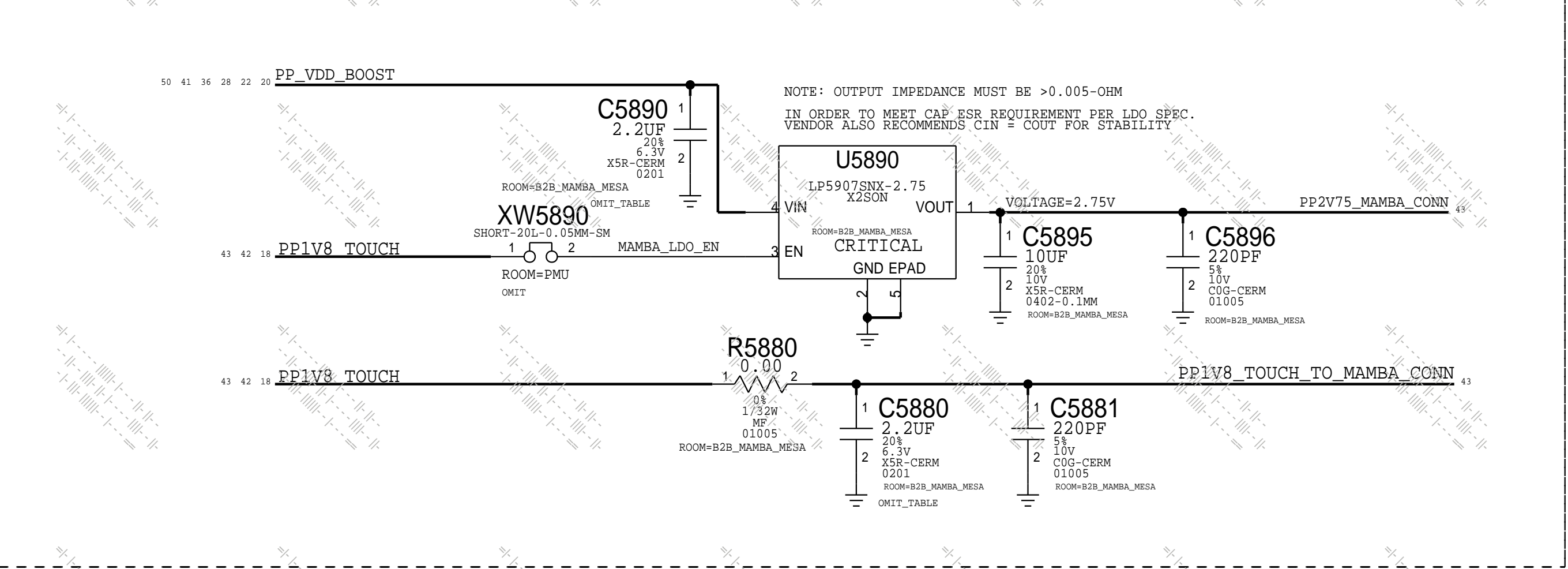
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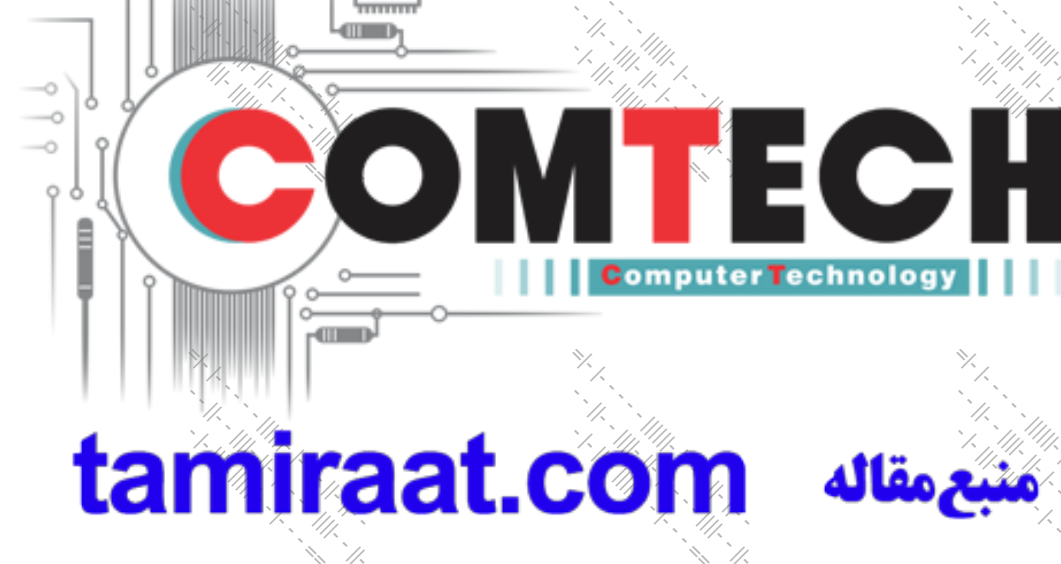
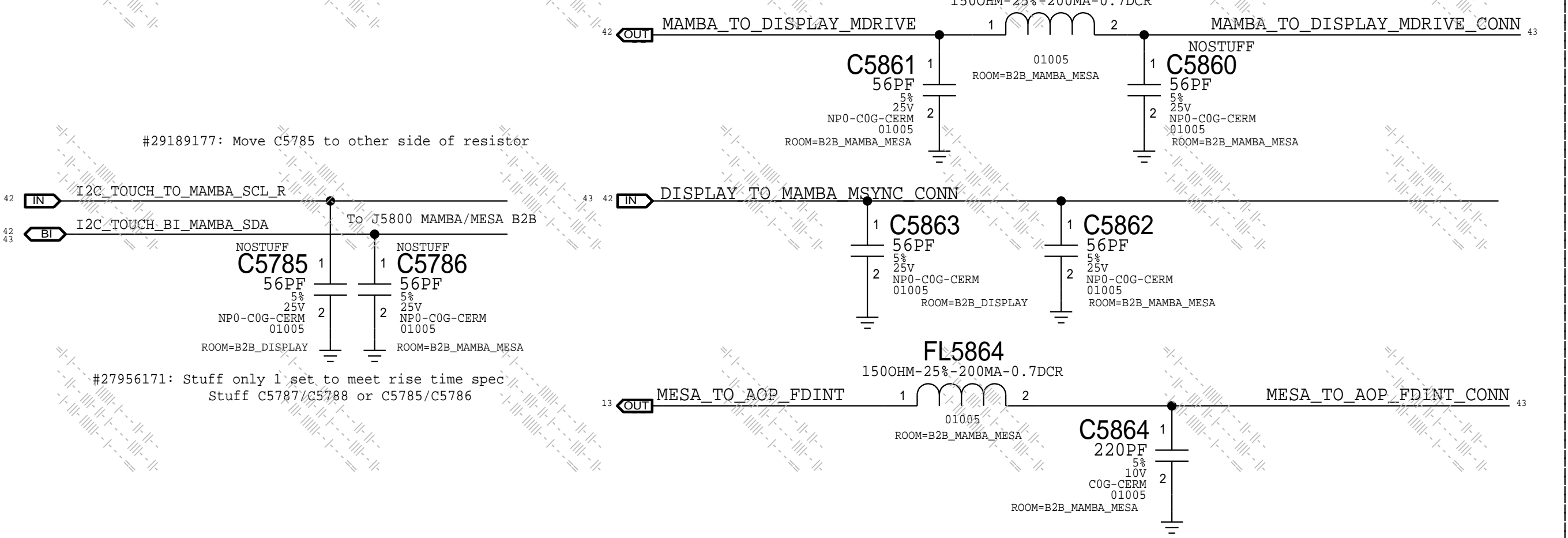
MESA DIGITAL I/O



MAMBA POWER

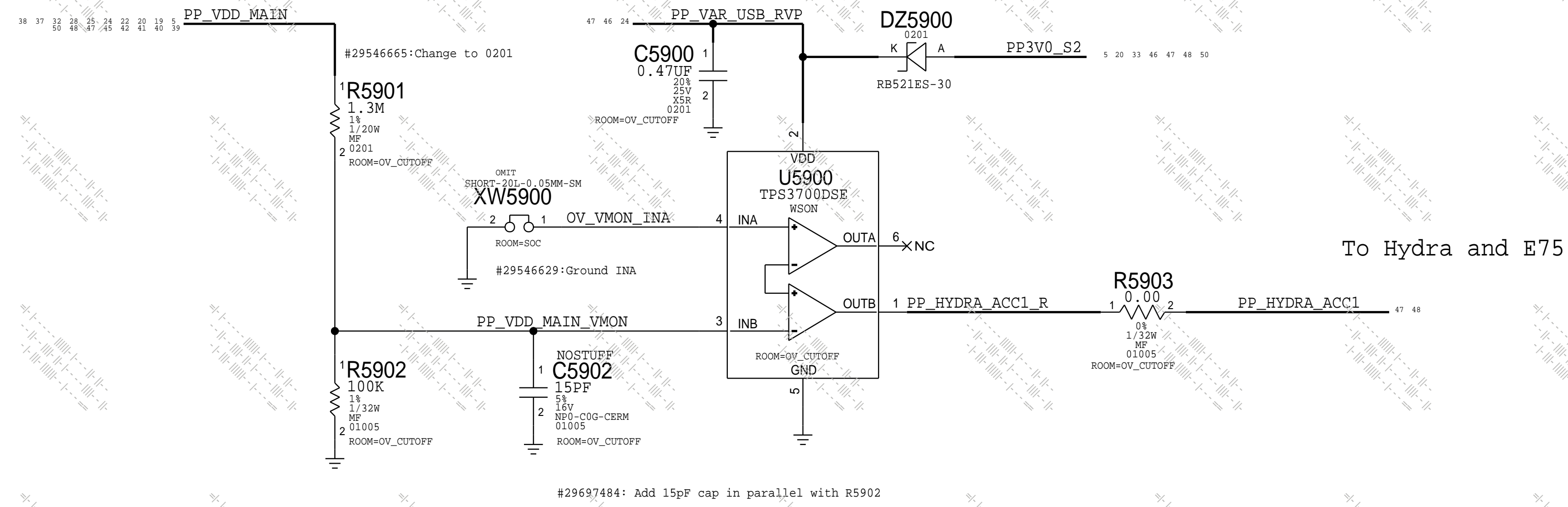


MAMBA DIGITAL I/O



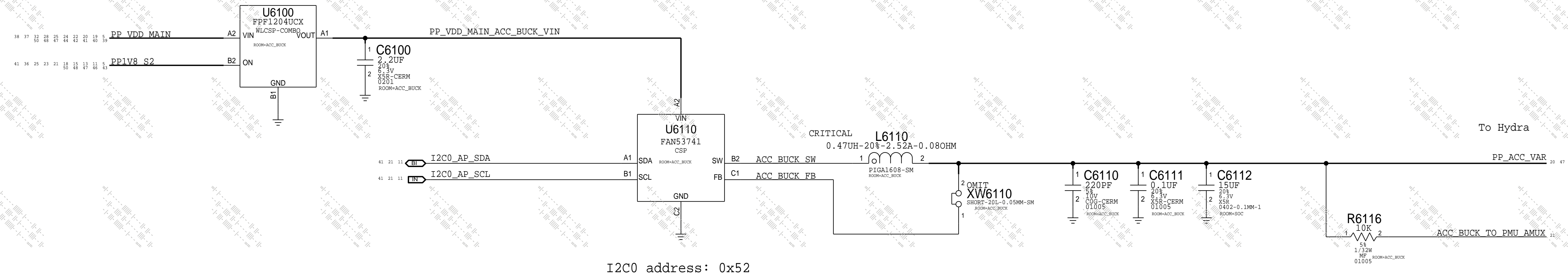
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DRAWING NUMBER		051-02159	SIZE
REVISION		10.0.0	D
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VDD_MAIN OV CUT-OFF CIRCUIT



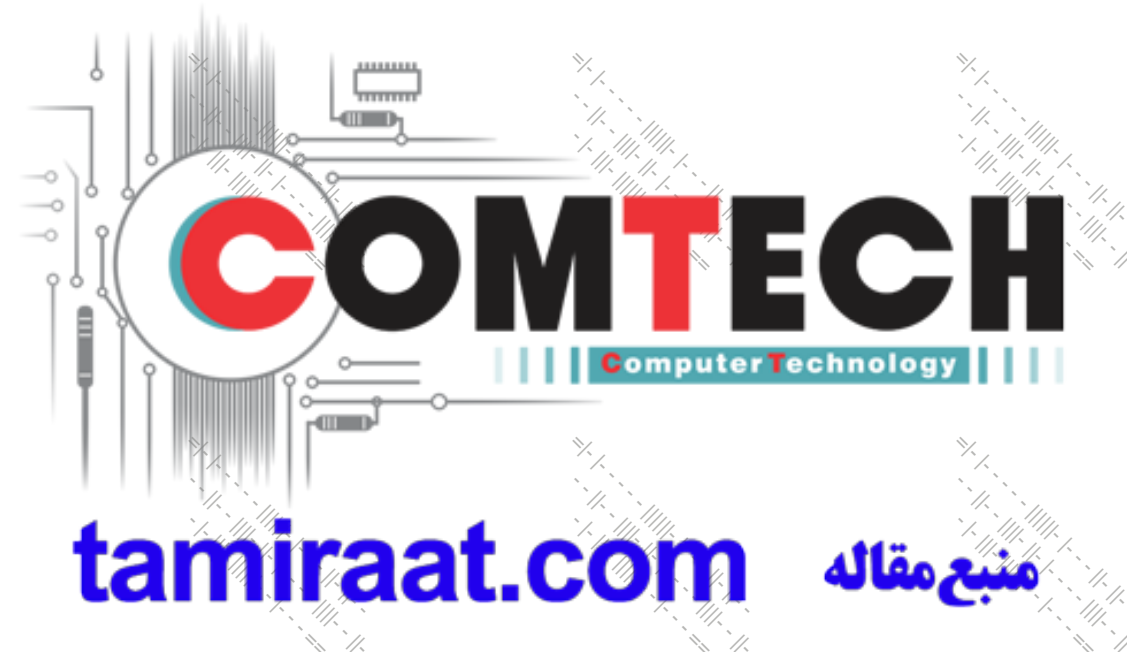
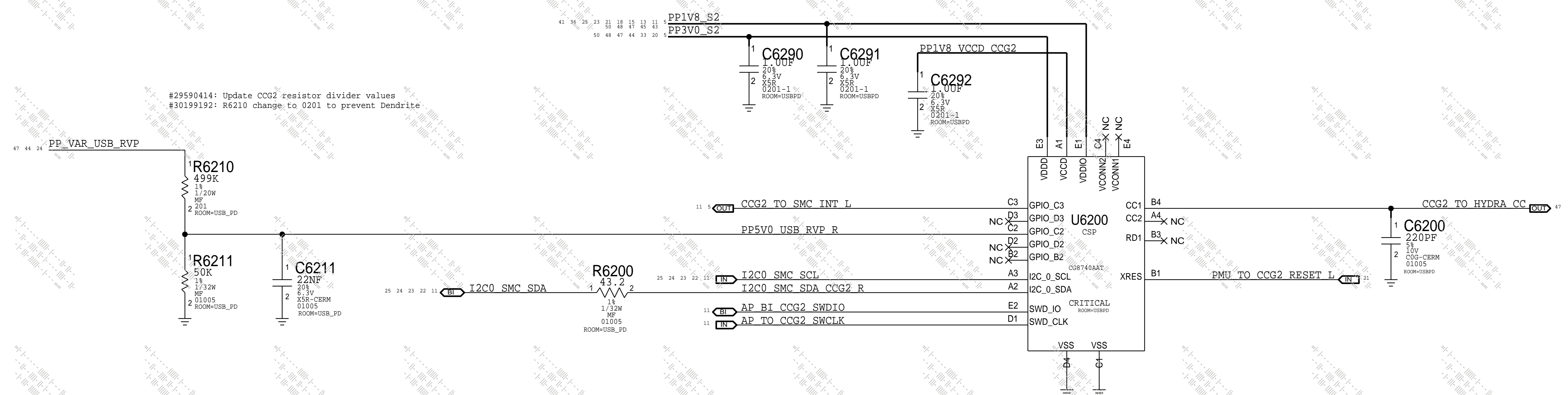
To Hydra and E75

ACCESSORY BUCK



I2C0 address: 0x52

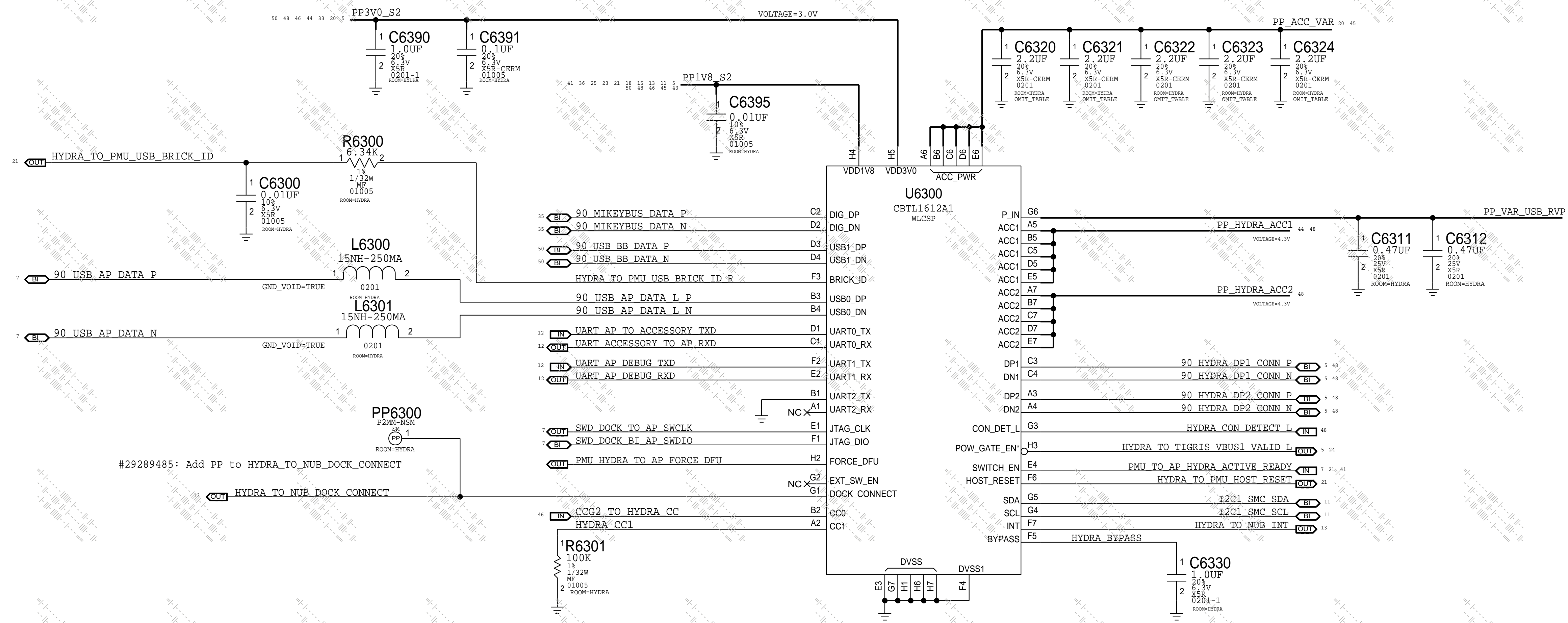
USB-PD



PAGE TITLE			I/O: USB PD		
Apple Inc.		DRAWING NUMBER	051-02159	SIZE	D
		REVISION	10.0.0		
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		PAGE	62 OF 80		
		SHEET	46 OF 81		

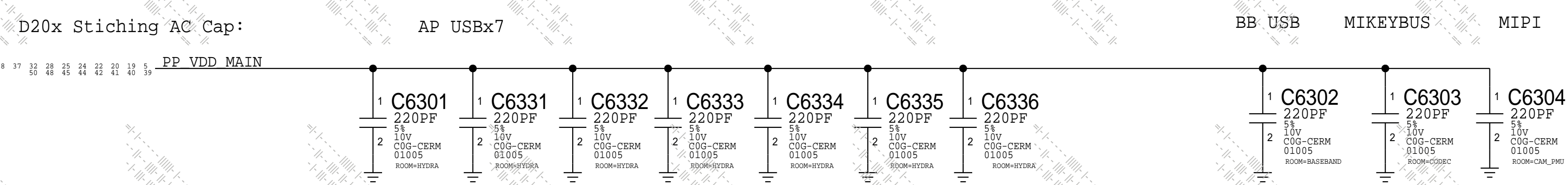
HYDRA

I2C ADDRESS: 0011010X

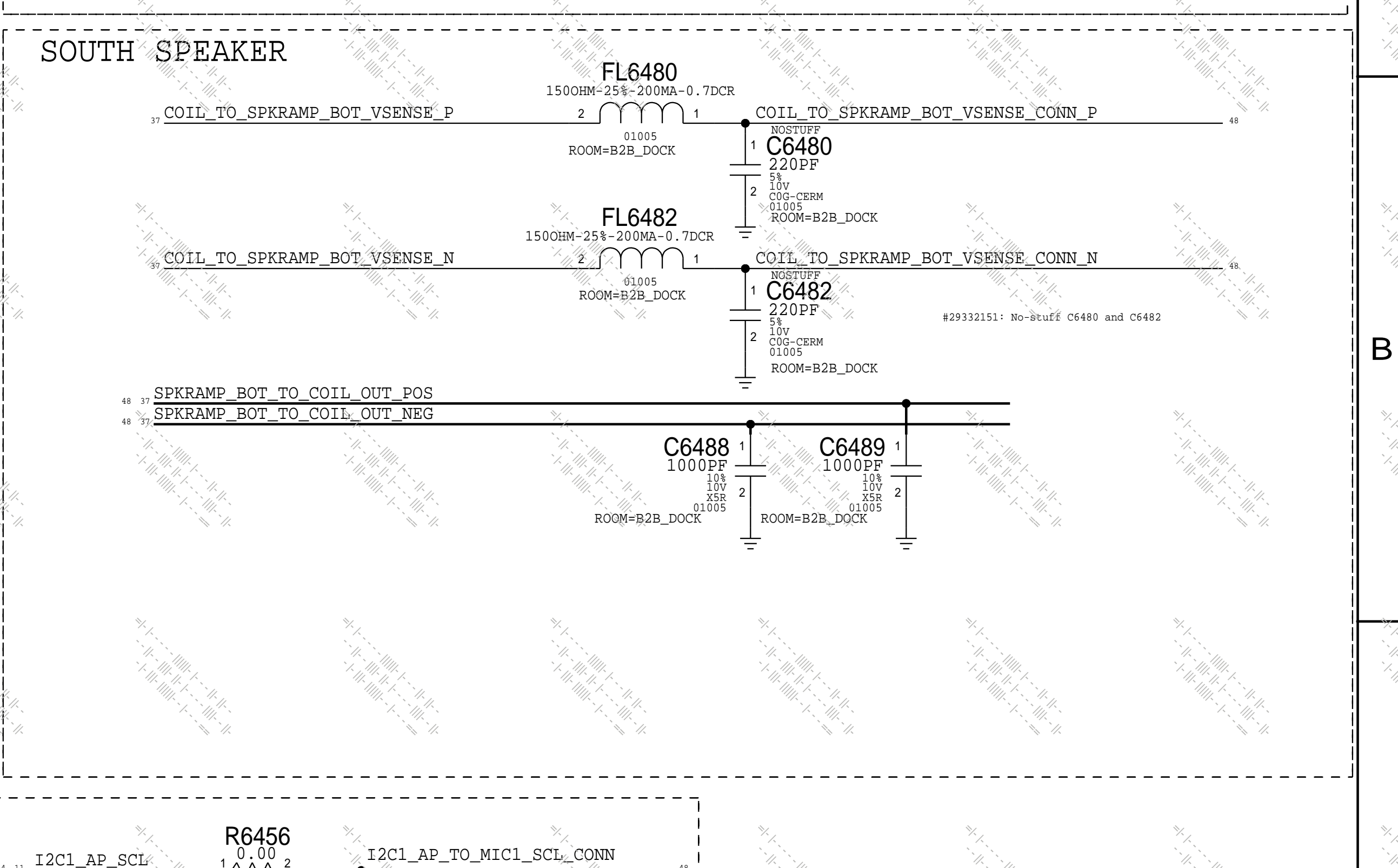
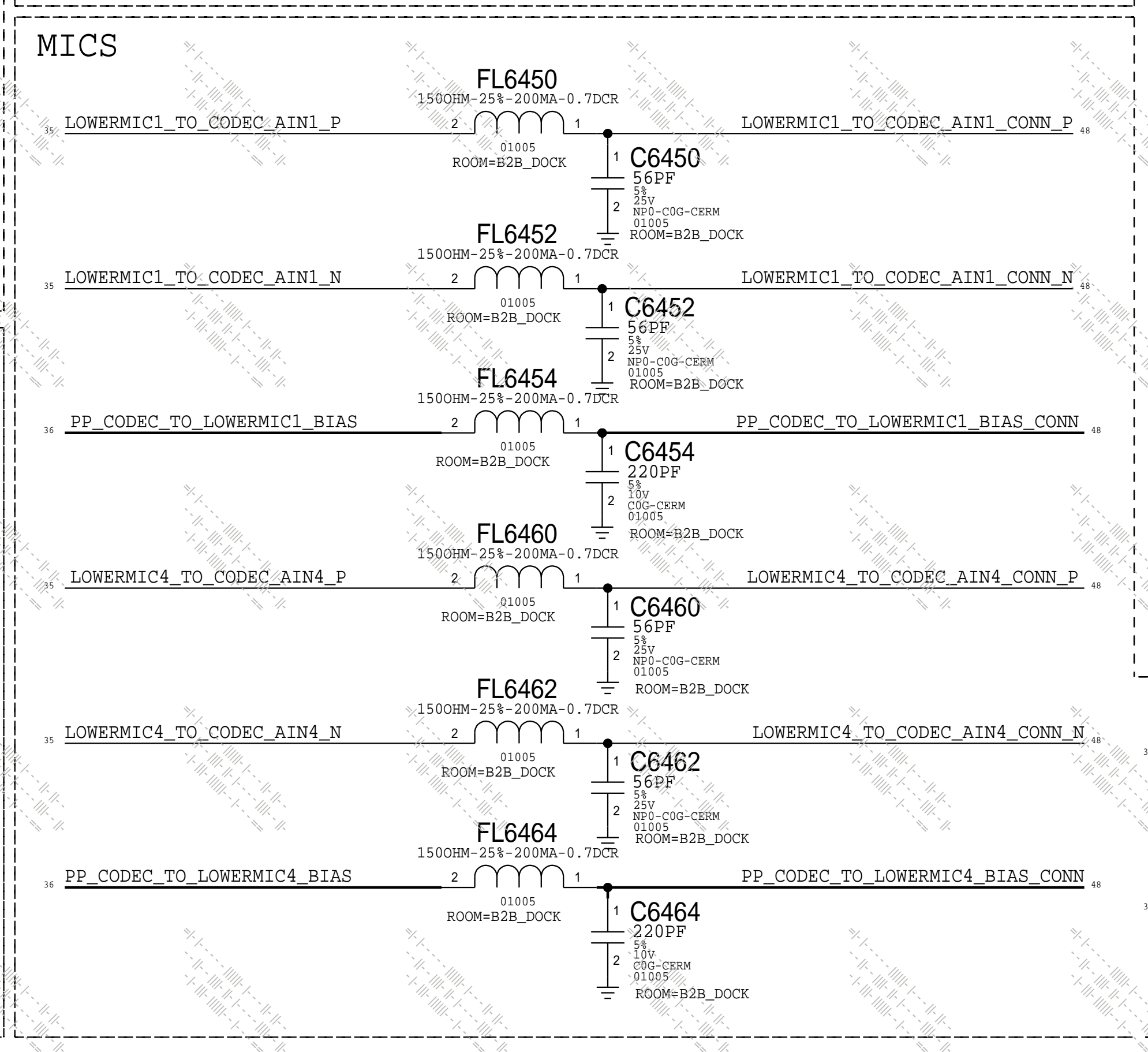
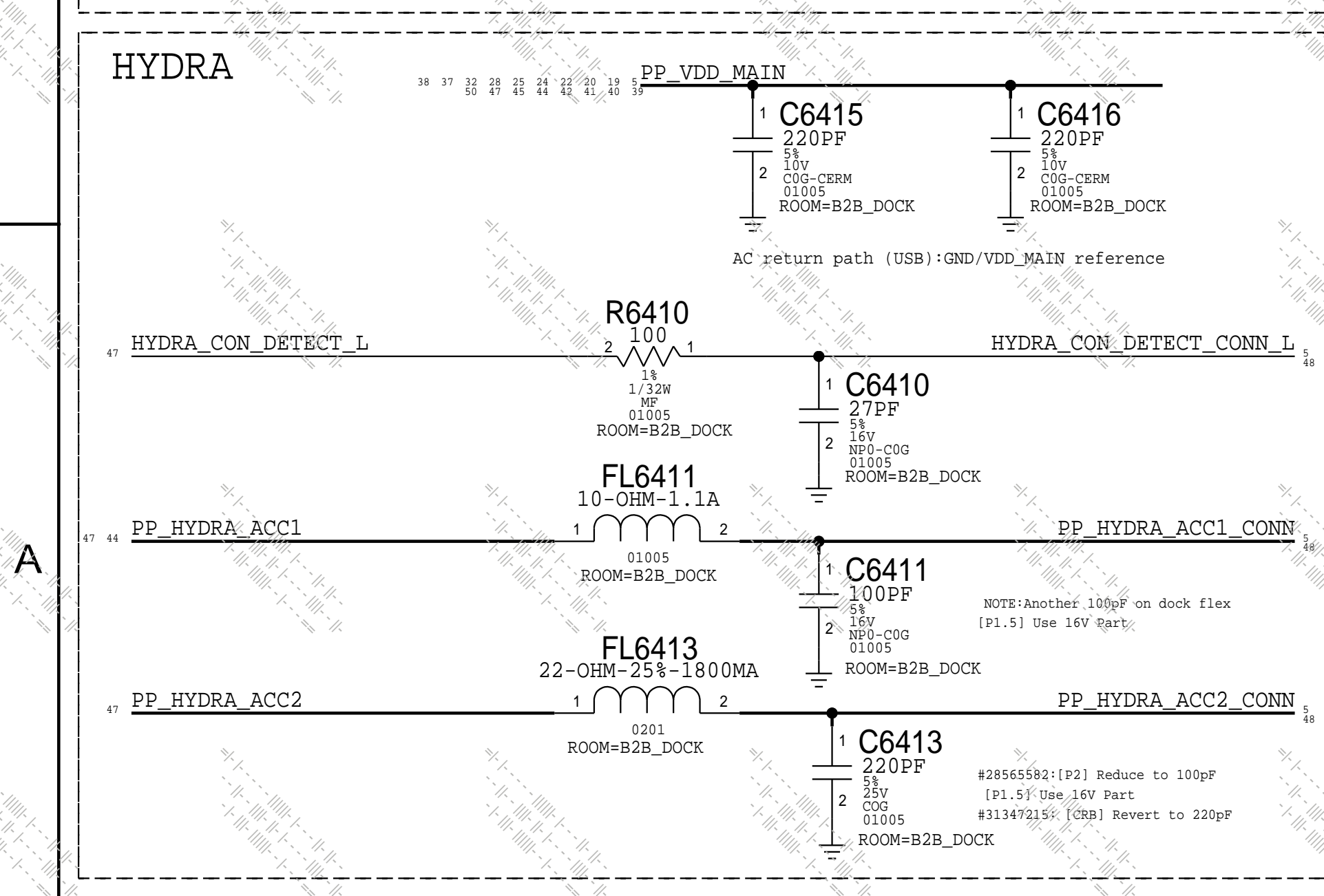
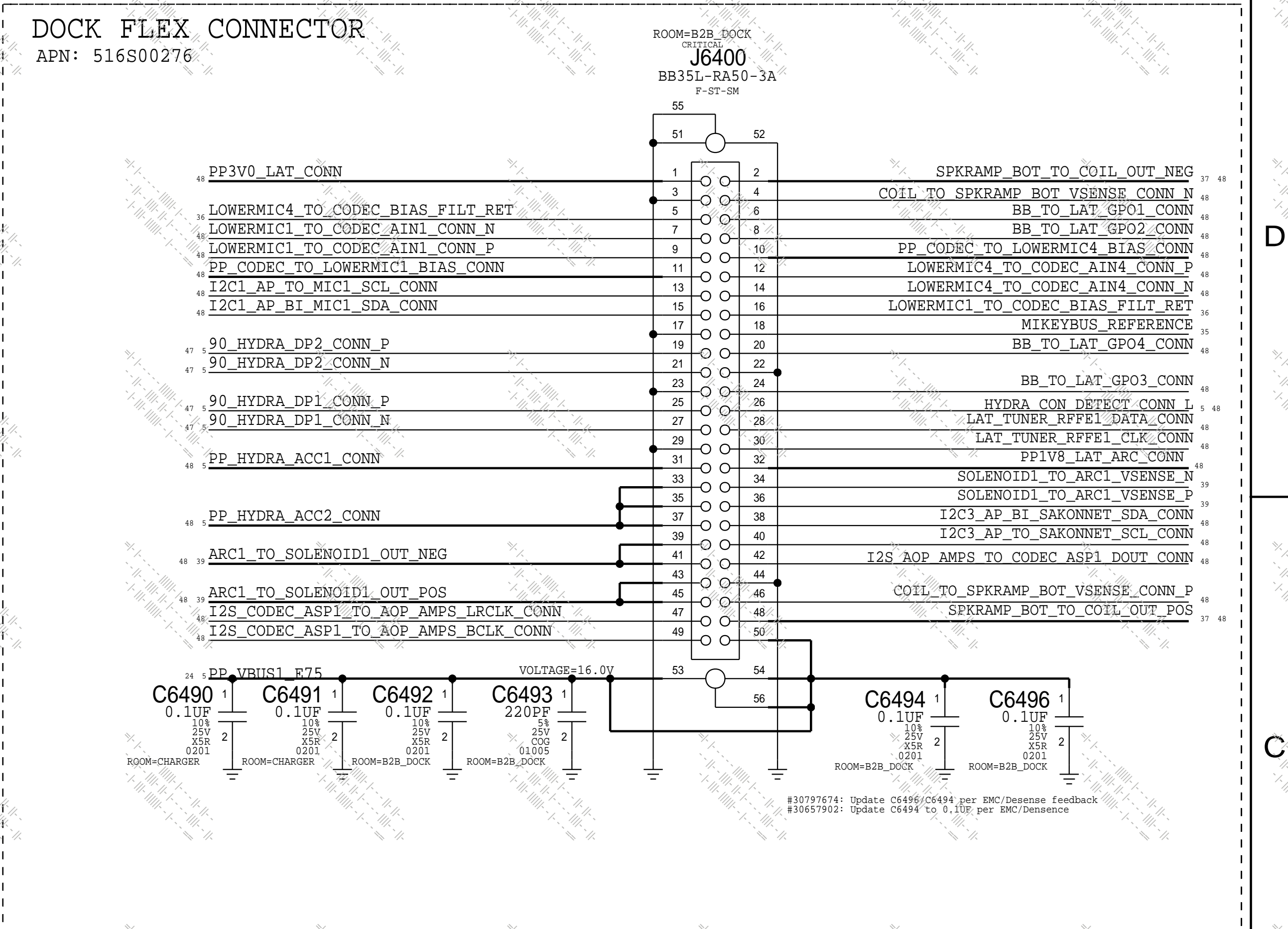
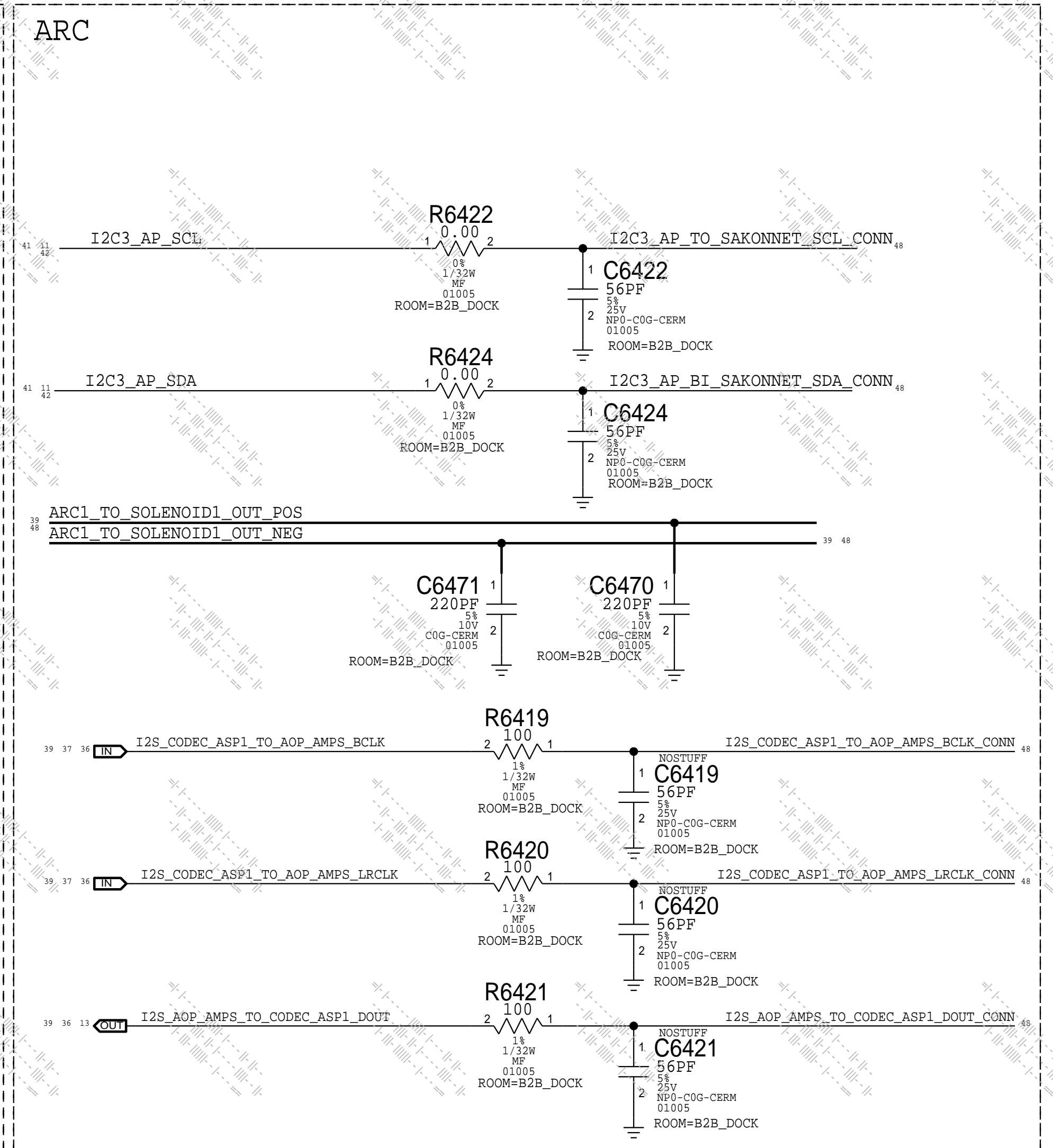
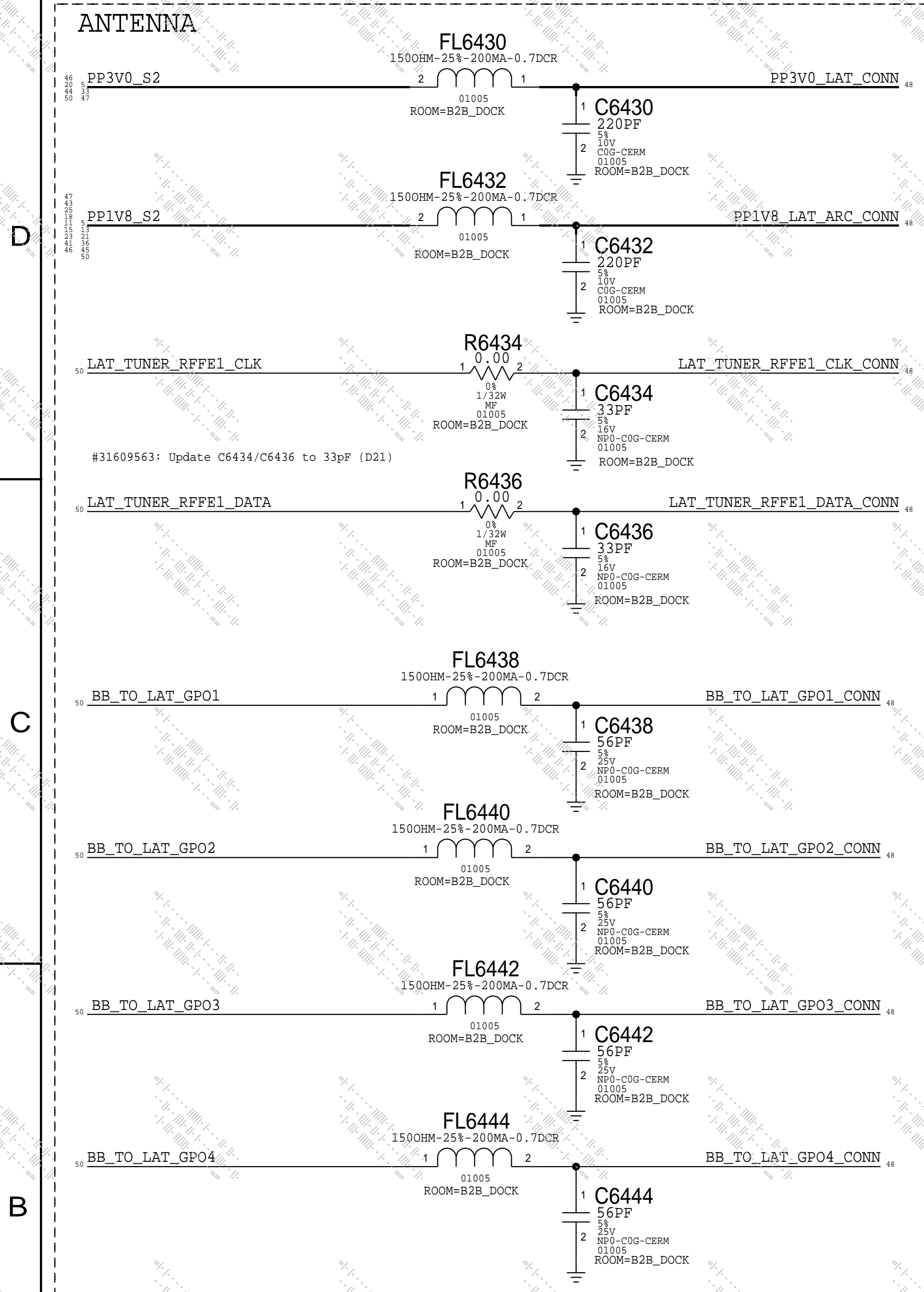


#29289485: Add PP to HYDRA_TO_NUB_DOCK_CONNECT

UART TX/RX pin names on Hydra match signal names (i.e. TX pin is input and connects to TX signal)



PAGE TITLE		I/O: Hydra	
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I/O: B2B DOCK

Apple Inc.

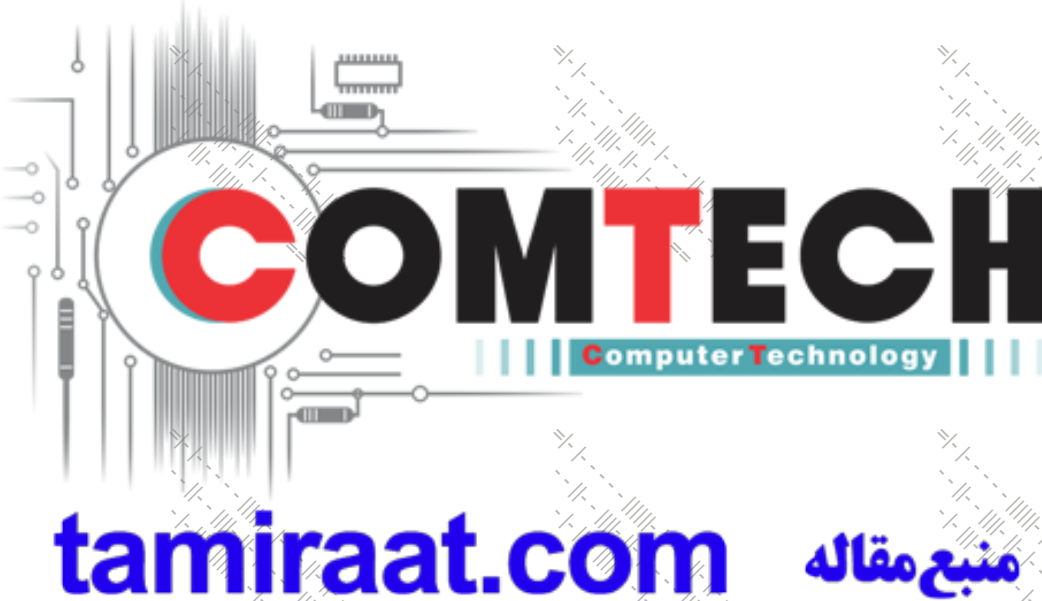
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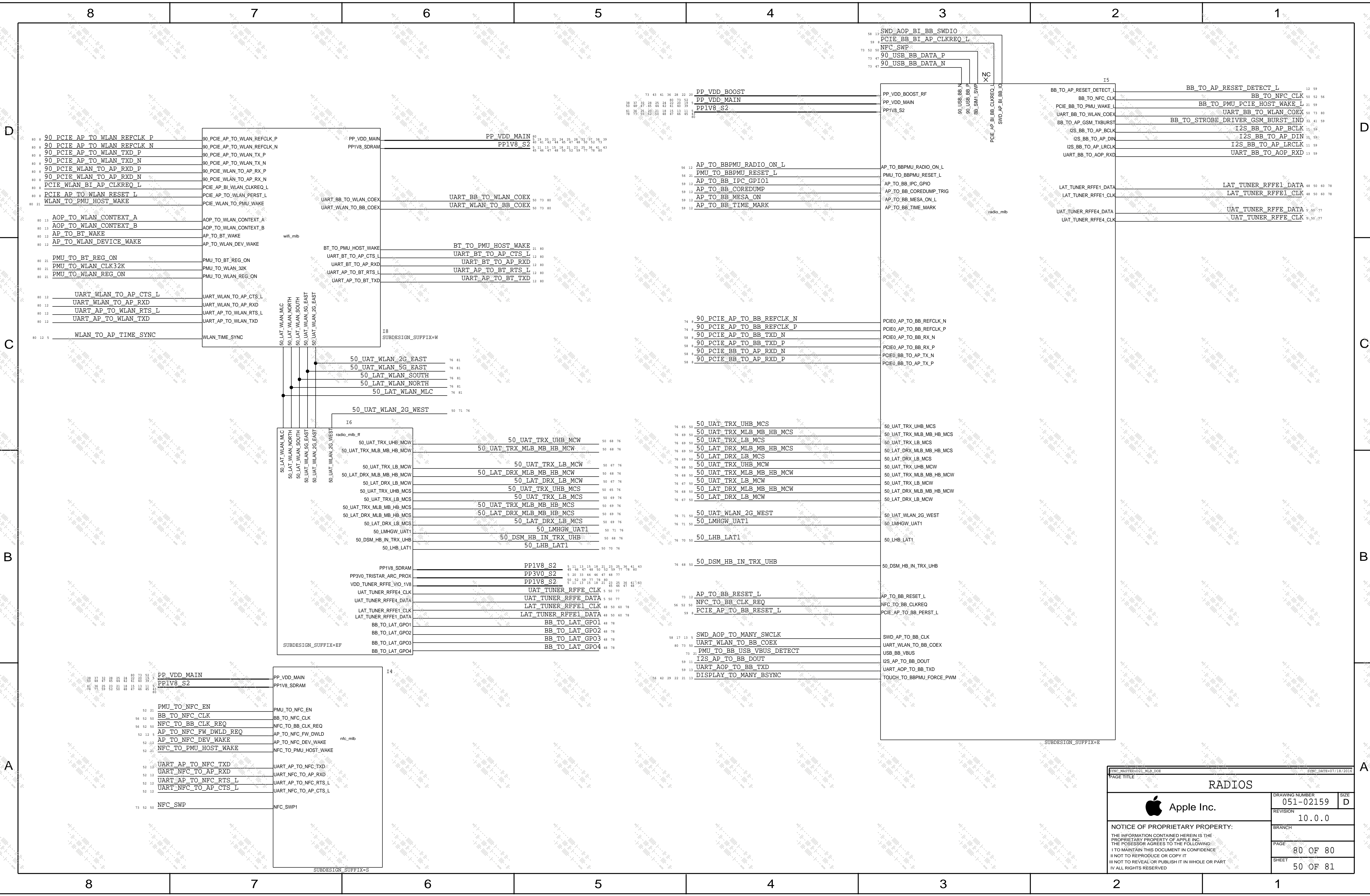
I2C MAP

(see #28857723 updates)

Diags ID	Bus	Device	7-Bit Address	8-Bit Address	Device Max Speed	Operating Speed	Net Name	
0	AP I2C0	Agnes (System PMU)	0x74	0xE8	400 Kbps	400 Kbps	I2C0_AP	
		Chestnut (Display PMU)	0x27	0x4E	400 Kbps			
		AccessoryBuck	0x52	0xA4	400 Kbps			
		Muon (Backlight Controller 2)	0x62	0xC4	1 Mbps			
1	AP I2C1	MIC1 Temp Sensor (South)	0x54	0xA8	1 Mbps	100 Kbps	I2C1_AP	
		MIC2 Temp Sensor (North Rear)	0x56	0xAC	1 Mbps			
2	AP I2C2	Adare (Top Speaker Amp)	0x40	0x80	1 Mbps	1 Mbps	I2C2_AP	
		Convoy (Top Speaker Cap Sense)	0x21	0x42	1 Mbps			
		EEPROM	0x51	0xA2	400 Kbps	400 Kbps	I2C3_AP	
		Muon (Backlight Controller 1)	0x62	0xC4	400 Kbps			
3	AP I2C3	Sakonnet (Arc: Hall Effect Sensor)	0x08	0x10	1 Mbps			
		EEPROM	0x50	0xA0	400 Kbps			
		ISP I2C0	Casper (Rear Wide Camera)	0x10	0x20	1 Mbps	1 Mbps	I2C0_ISP
		Grunberg+ (AF/OIS Wide Camera)	0x3C	0x78	1 Mbps			
ISP I2C1		Billings (Rear Tele Camera)	0x20	0x40	1 Mbps	1 Mbps	I2C1_ISP	
		Edwin (AF Tele Camera)	0x0D	0x1A	1 Mbps			
ISP I2C2		Concord (Front Camera)	0x10	0x20	1 Mbps	400 Kbps	I2C2_ISP	
ISP I2C3		Neon (Strobe - CW : LM3566)	0x63	0xC6	1 Mbps	400 Kbps	I2C3_ISP	
		Ansel (Camera PMU)	0x40	0x80	1 Mbps			
		Neon (Strobe - AM : LM35662)	0x67	0xCE	1 Mbps			
SEP I2C		EEPROM	0x51	0xA2	400 Kbps	400 Kbps	I2C4_AP	
4	AOP I2C0	Doppler (Prox Sensor)	0x58	0xB0	1 Mbps	400 Kbps	I2C0_AOP	
		CT709 (ALS : Firefish)	0x29	0x52	400 Kbps			
5	AOP I2C1	Adare (Bottom Speaker Amp)	0x40	0x80	1 Mbps	1 Mbps	I2C1_AOP	
		Adare (Arc: Driver)	0x41	0x82	1 Mbps			
		Apache3 (Mesa Power Supply)	0x61	0xC2	1 Mbps		I2C1_AOP_ISO	
		Turtle	0x2C	0x58	1 Mbps			
6	SMC I2C0	Tigris2 (Charger)	0x71	0xE2	400 Kbps	400 Kbps	I2C0_SMC	
		TSP61280 (VDD Boost)	0x75	0xEA	400 Kbps			
		CCG2 (USB PD)	0x12 (0x08)	0x24 (0x10)	1 Mbps			
		Iktara	0x39	0x72	400 Kbps			
		SN45546 (Gas Gauge)	0x55	0xAA	400 Kbps			
7	SMC I2C1	Hydra	0x1A	0x34	400 Kbps	400 Kbps	I2C1_SMC	



SYSTEM: I2C MAP		
Apple Inc.	DRAWING NUMBER 051-02159	SIZE D
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		RADIOS	
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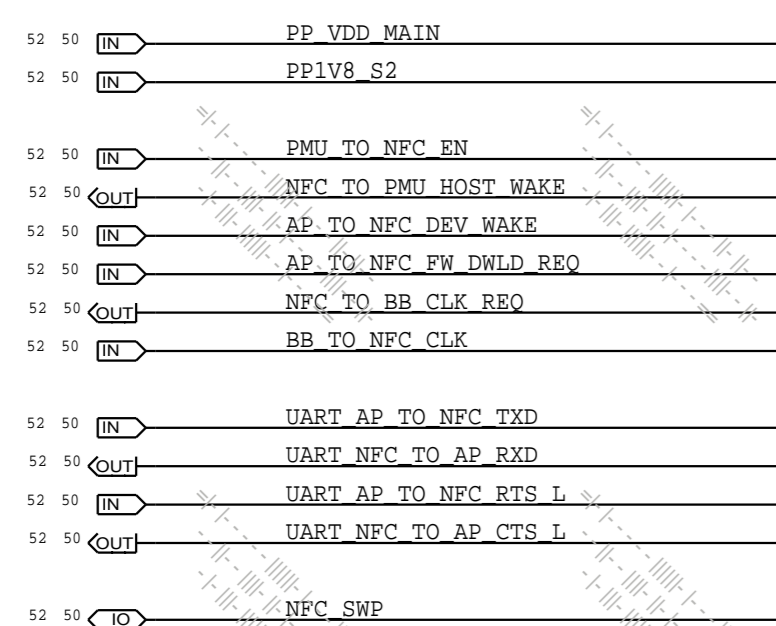
- 1. ALL RESISTANCE VALUES ARE IN OHMS, 0.1 WATT +/- 5%.
- 2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
- 3. ALL CRYSTALS & OSCILLATOR VALUES ARE IN HERTZ.

REV	ECN	DESCRIPTION OF REVISION	CK APPD	DATE
10	0008927012	ENGINEERING RELEASED		2017-06-06

NFC_MLB D20/D21

MAY 15, 2017

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
138S00159	3	CAP,SOFT TERM,2.2UF,6.3V,0201	C7500_S,C7502_S, C7505_S	CRITICAL	SOFT_CAP
138S00831	3	CAP,TYPICAL,2.2UF,6.3V,0201	C7500_S,C7502_S,C7505_S	CRITICAL	TYPICAL_CAP



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
131S00882	1	390PF, 0201, 2%, 25V	C7514_S	D20_JPN
131S00026	1	820PF, 0201, 2%, 25V	C7515_S	D20_JPN
131S00033	1	680PF, 0201, 2%, 25V	C7516_S	D20_JPN
131S00883	1	220PF, 0201, 2%, 50V	C7518_S	D20_JPN
131S00025	1	1000PF, 0201, 2%, 25V	C7510_S	D20_JPN
131S00025	1	1000PF, 0201, 2%, 25V	C7513_S	D20_JPN
157S00022	1	TDK, BALUN, 11T	T7500_S	D20_JPN

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
131S00138	1	39PF, 0201, 2%, 50V	C7512_S	D21_JPN
131S00081	1	270PF, 0201, 2%, 25V	C7514_S	D21_JPN
131S00025	1	1000PF, 0201, 2%, 25V	C7515_S	D21_JPN
131S00033	1	680PF, 0201, 2%, 25V	C7516_S	D21_JPN
131S00019	1	150PF, 0201, 2%, 50V	C7518_S	D21_JPN
131S00033	1	680PF, 0201, 2%, 25V	C7510_S	D21_JPN
131S00033	1	680PF, 0201, 2%, 25V	C7513_S	D21_JPN
157S00023	1	MURATA, BALUN, 11T	T7500_S	D21_JPN

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
131S00138	1	39PF, 0201, 2%, 50V	C7512_S	D20_ROW
131S00016	1	470PF, 0201, 2%, 25V	C7514_S	D20_ROW
131S00025	1	1000PF, 0201, 2%, 25V	C7515_S	D20_ROW
131S00825	1	560PF, 0201, 2%, 25V	C7516_S	D20_ROW
131S00883	1	220PF, 0201, 2%, 50V	C7518_S	D20_ROW
131S00026	1	820PF, 0201, 2%, 25V	C7510_S	D20_ROW
131S00026	1	820PF, 0201, 2%, 25V	C7513_S	D20_ROW
157S00022	1	TDK, BALUN, 11T	T7500_S	D20_ROW

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
131S00138	1	39PF, 0201, 2%, 50V	C7512_S	D21_ROW
131S00081	1	270PF, 0201, 2%, 25V	C7514_S	D21_ROW
131S00025	1	1000PF, 0201, 2%, 25V	C7515_S	D21_ROW
131S00033	1	680PF, 0201, 2%, 25V	C7516_S	D21_ROW
131S00019	1	150PF, 0201, 2%, 50V	C7518_S	D21_ROW
131S00033	1	680PF, 0201, 2%, 25V	C7510_S	D21_ROW
131S00033	1	680PF, 0201, 2%, 25V	C7513_S	D21_ROW
157S00023	1	MURATA, BALUN, 11T	T7500_S	D21_ROW

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
131S00138	1	39PF, 0201, 2%, 50V	C7512_S	D201
131S00016	1	470PF, 0201, 2%, 25V	C7514_S	D201
131S00025	1	1000PF, 0201, 2%, 25V	C7515_S	D201
131S00825	1	560PF, 0201, 2%, 25V	C7516_S	D201
131S00883	1	220PF, 0201, 2%, 50V	C7518_S	D201
131S00026	1	820PF, 0201, 2%, 25V	C7510_S	D201
131S00026	1	820PF, 0201, 2%, 25V	C7513_S	D201
157S00022	1	TDK, BALUN, 11T	T7500_S	D201

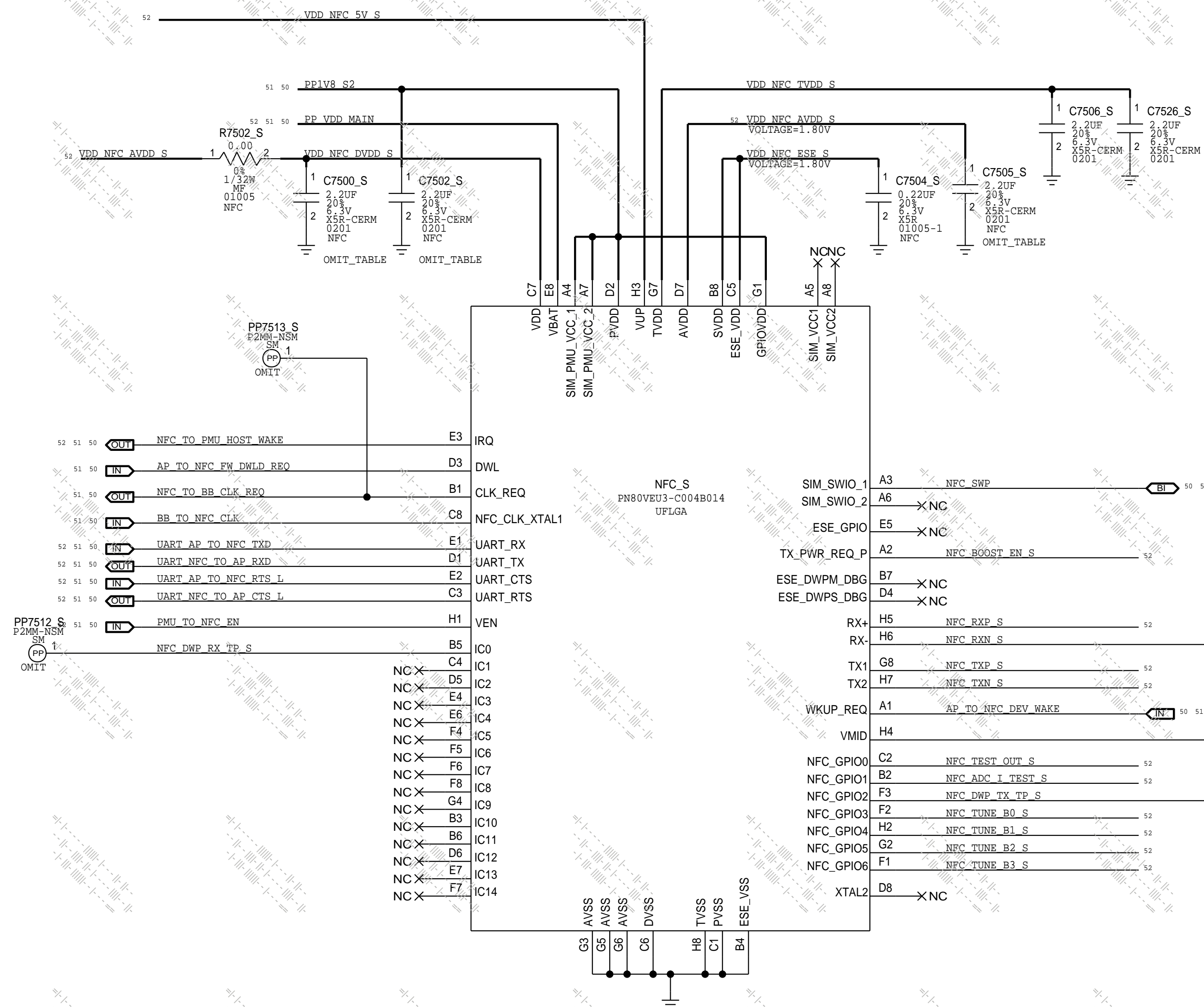
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131S00025	1	1000PF, 0201, 2%, 25V	C7515_S	D211
131S00033	1	680PF, 0201, 2%, 25V	C7516_S	D211
131S00019	1	150PF, 0201, 2%, 50V	C7518_S	D211
131S00033	1	680PF, 0201, 2%, 25V	C7510_S	D211
131S00033	1	680PF, 0201, 2%, 25V	C7513_S	D211
157S00023	1	MURATA, BALUN, 11T	T7500_S	D211



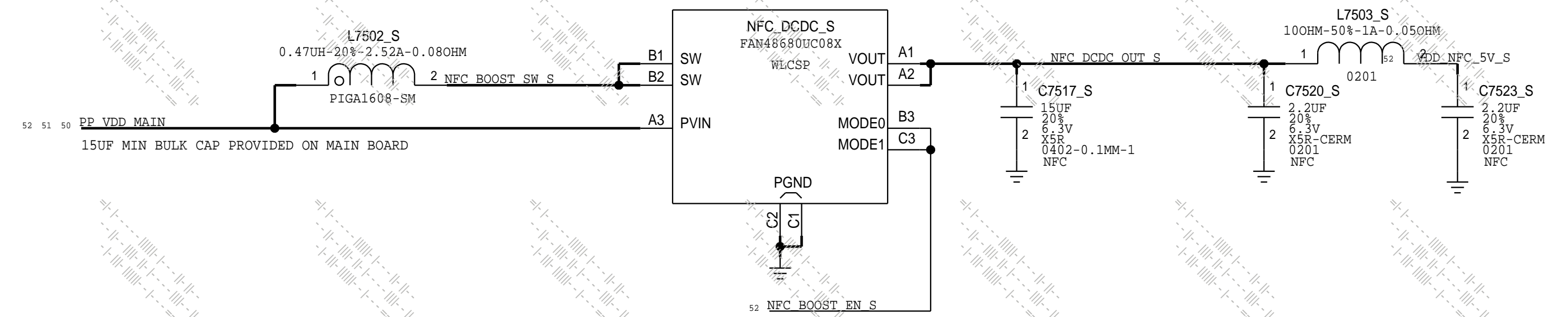
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STOCKHOLM

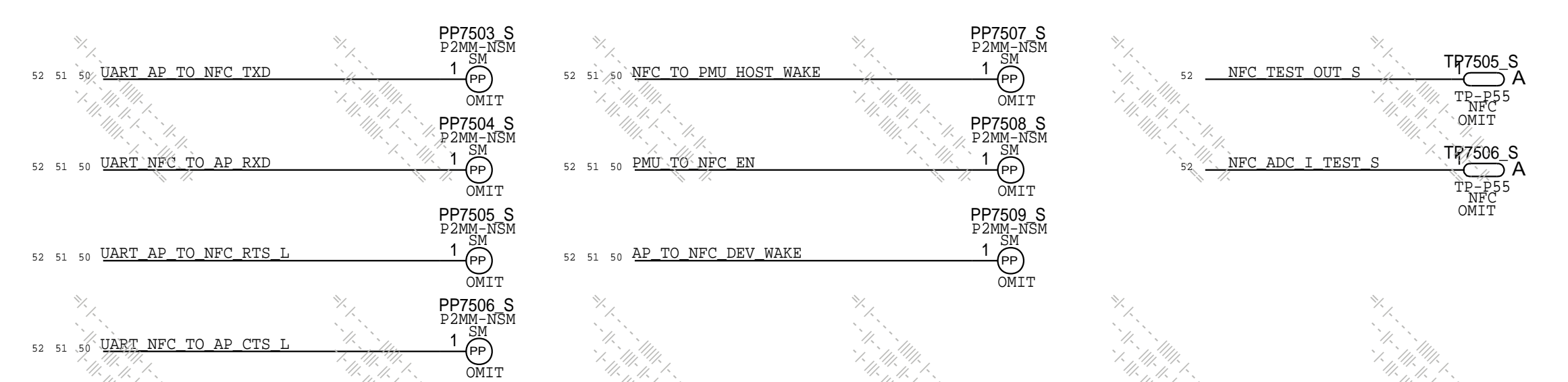
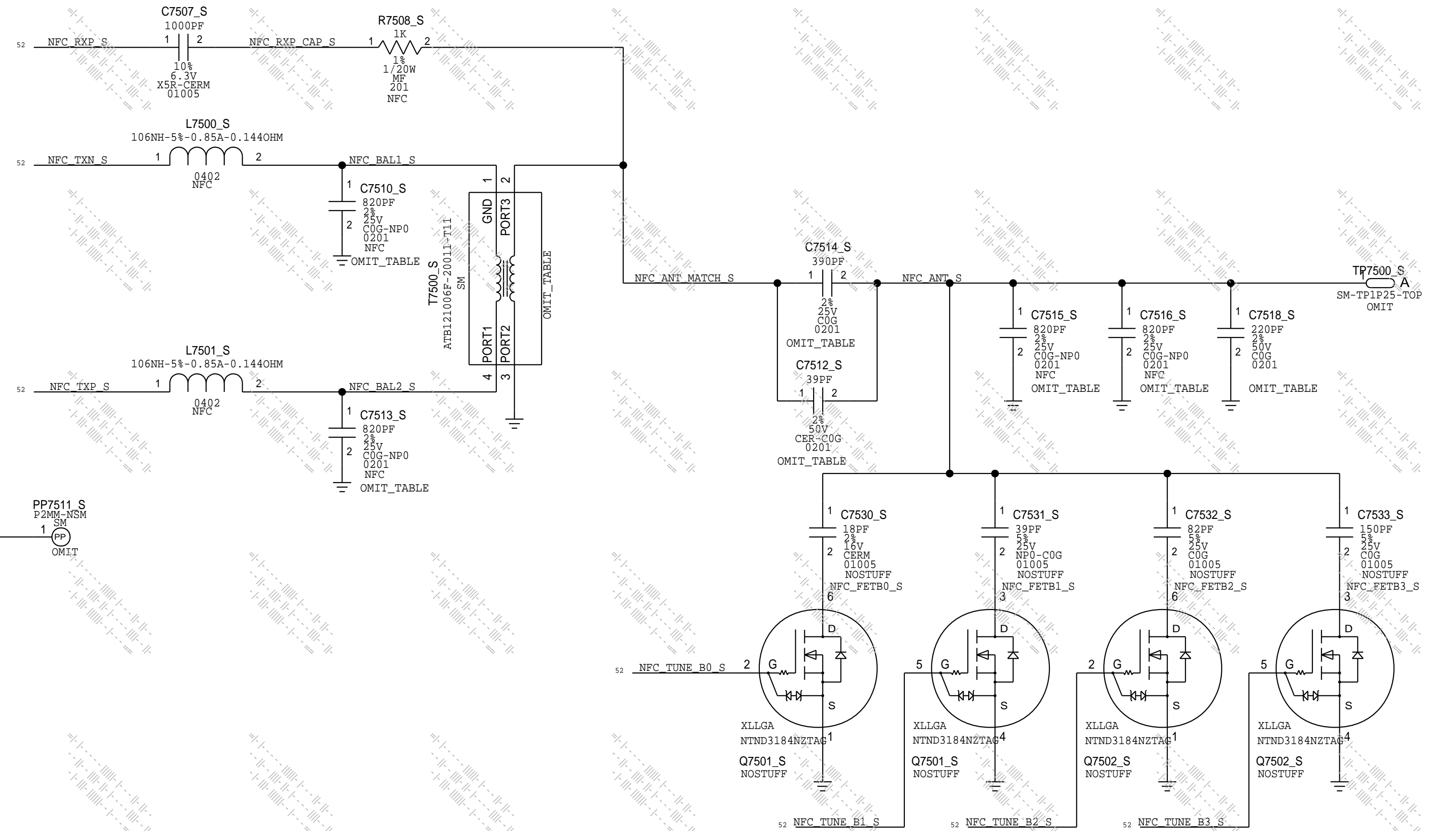
NFC CONTROLLER



5V BOOSTER



NFC FRONT END



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 2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
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REV	ECN	DESCRIPTION OF REVISION	CK APPD	DATE
10	0008927012	ENGINEERING RELEASED		2017-06-06

(MAV17.2/3) D21 RADIO_MLB

06/06/2017
 0.122.0

LAST_MODIFICATION= Tue Jun 6 18:57:01 2017

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55	3	PMIC: BUCKS & LDOS		
56	4	PMIC: CLOCKS & CONTROL		
57	5	BB: POWER		
58	6	BB: CONTROL & HS PERIPHERALS [6]		
59	7	BB: GPIOs & QLINK		
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62	10	QPOET MODULE		
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67	15	LB DSM		
68	16	HB DSM		
69	17	COUPLER2		
70	18	LOWER ANTENNA		
71	19	UPPER ANTENNA		
72	20	GNSS		
73	21	SIM, DEBUG CONN		
74	22	TEST POINTS	PROBE POINTS	07/18/2016

ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	REFERENCE DESIGNATOR(S)	DESCRIPTION	BOM OPTION
335S00013	335S0894	U_EEPROM_E	IC, EEPROM	BOM_TABLE_ALTS
197S00093	197S00065	Y401_E	XTAL, 38P4MHZ	BOM_TABLE_ALTS
197S00067	197S00065	Y401_E	XTAL, 38P4MHZ	BOM_TABLE_ALTS
353S01287	353S01109	U_QET_E	ET MODULE, QPOET	BOM_TABLE_ALTS

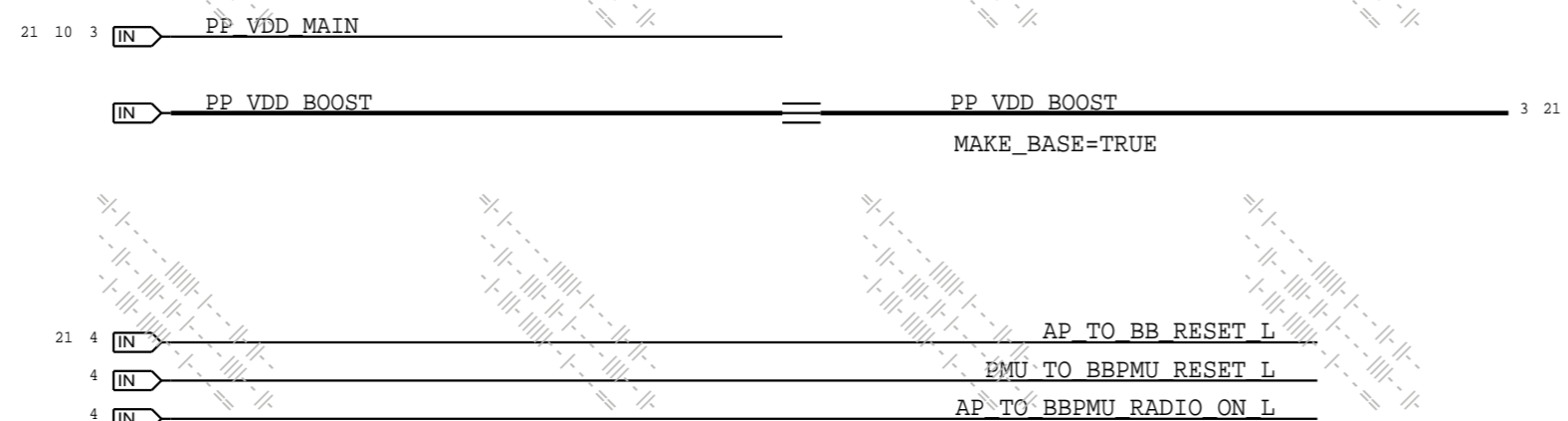


SCH # : 951-03059
 PCB # : 920-02293
 BOM # : 939-02493

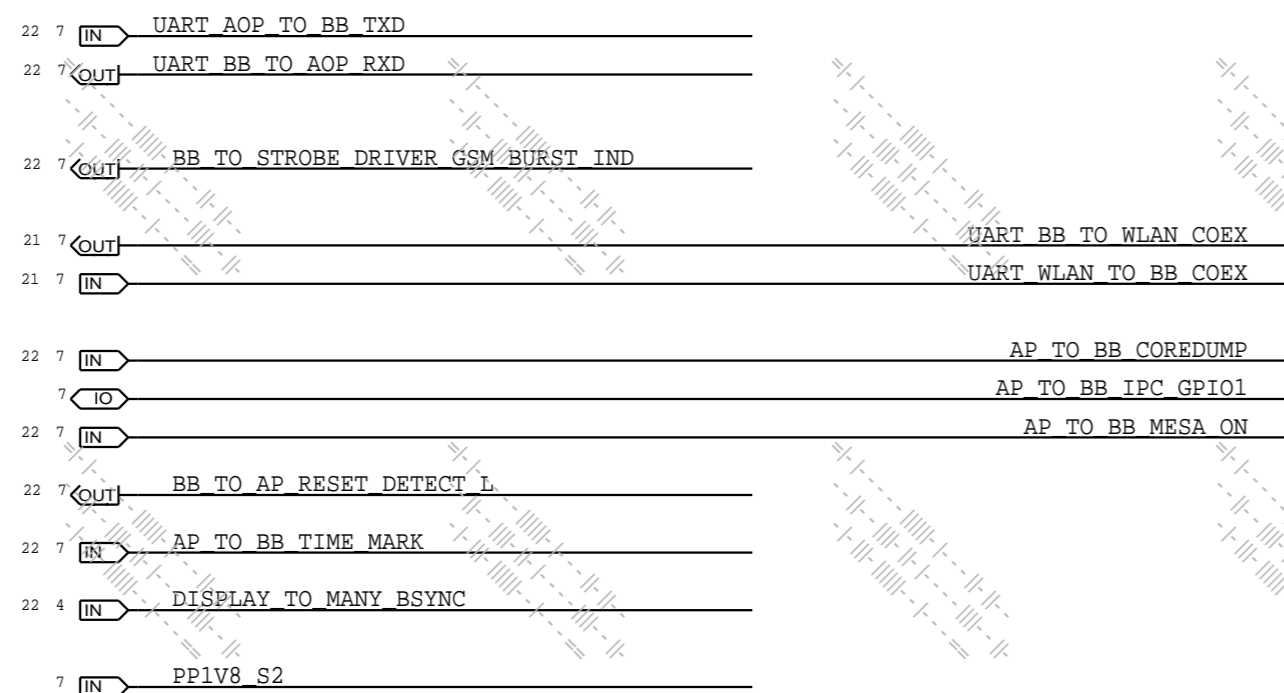
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	DRAWING NUMBER	051-02159	SIZE
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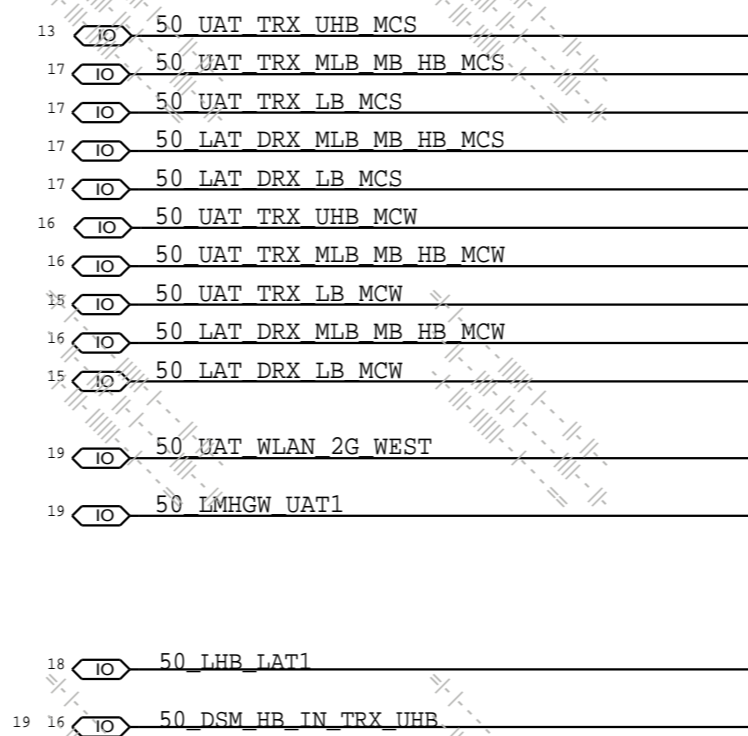
POWER



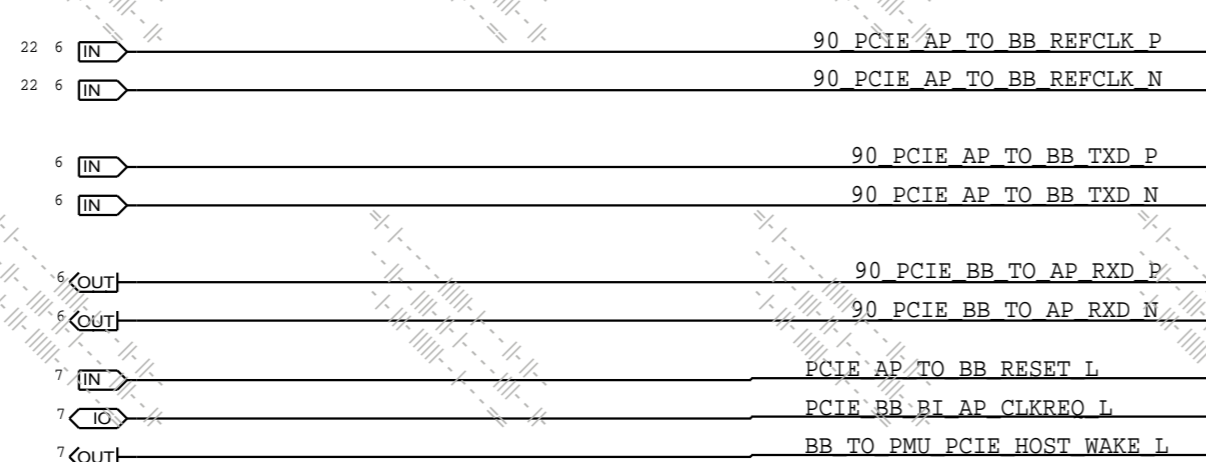
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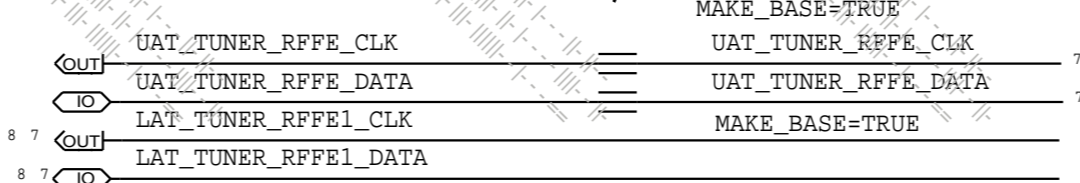
RF SIGNALS



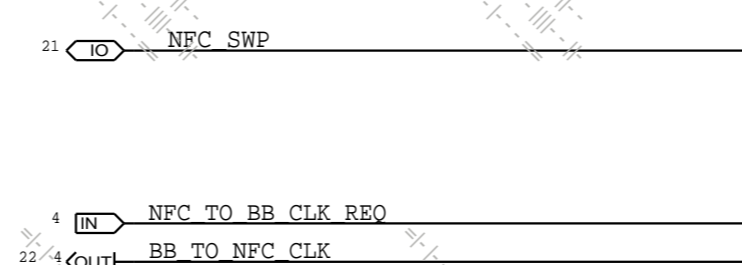
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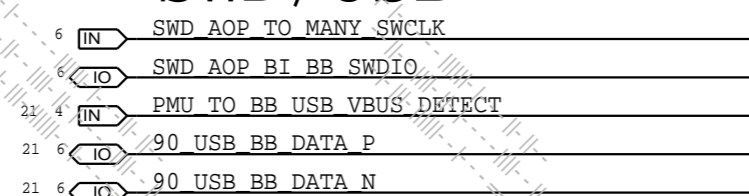
TUNER/DOCK



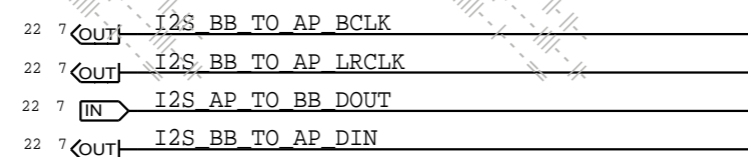
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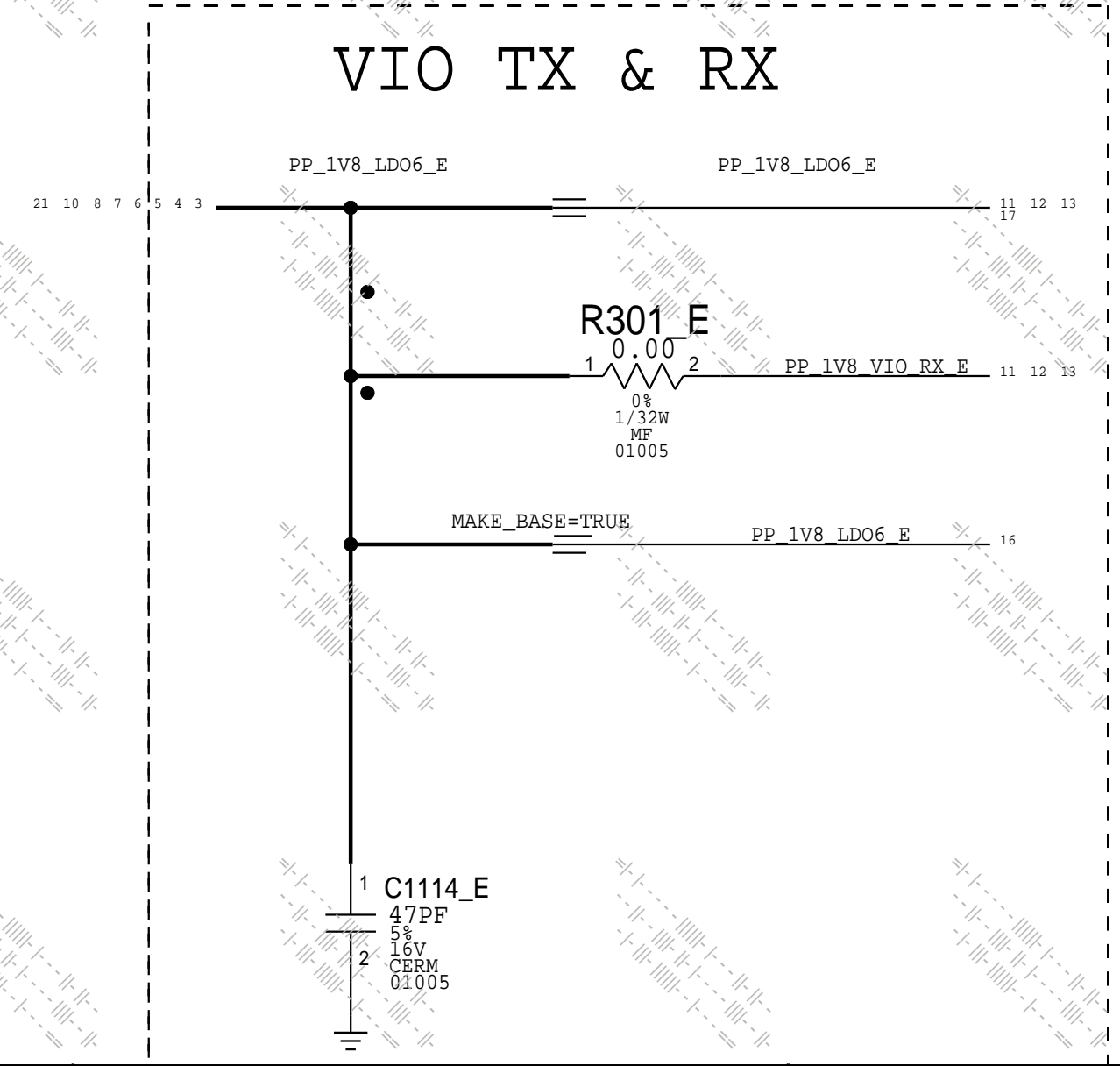
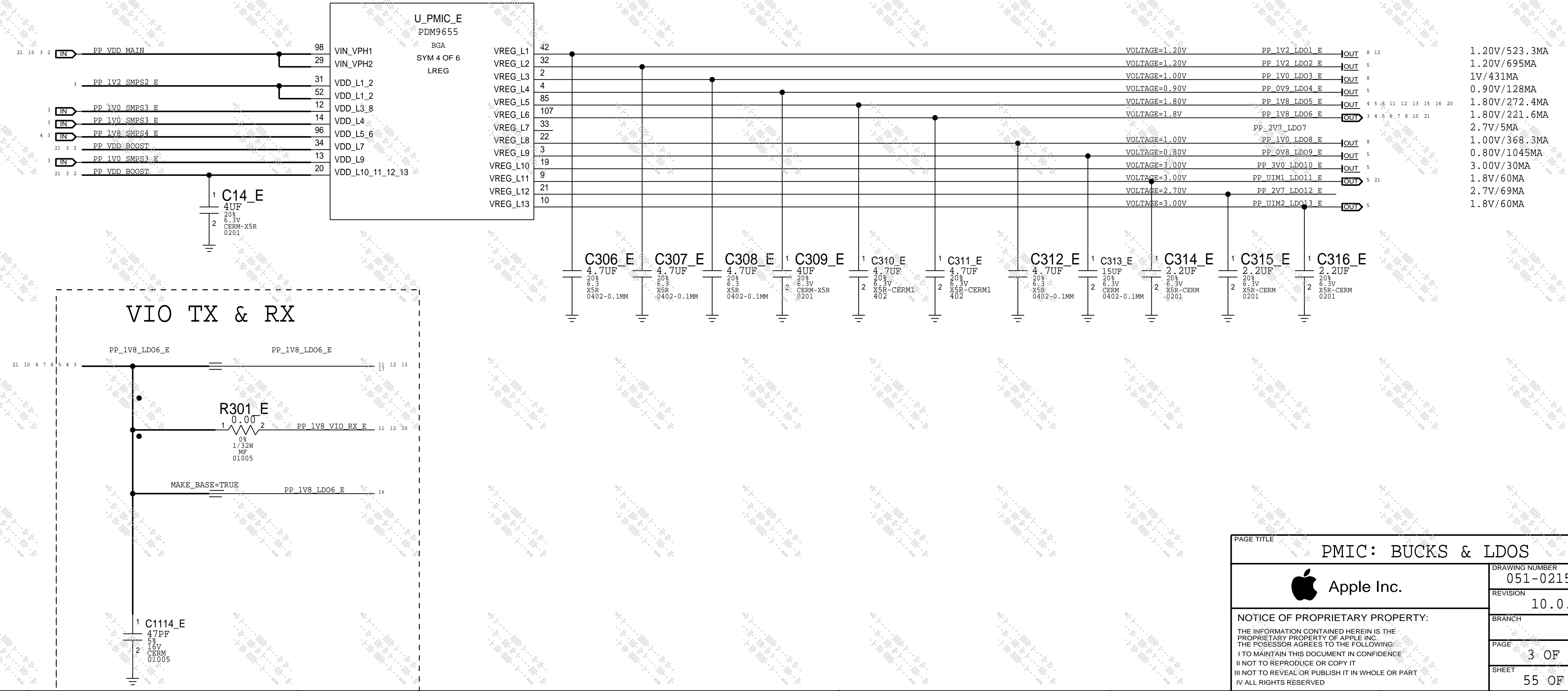
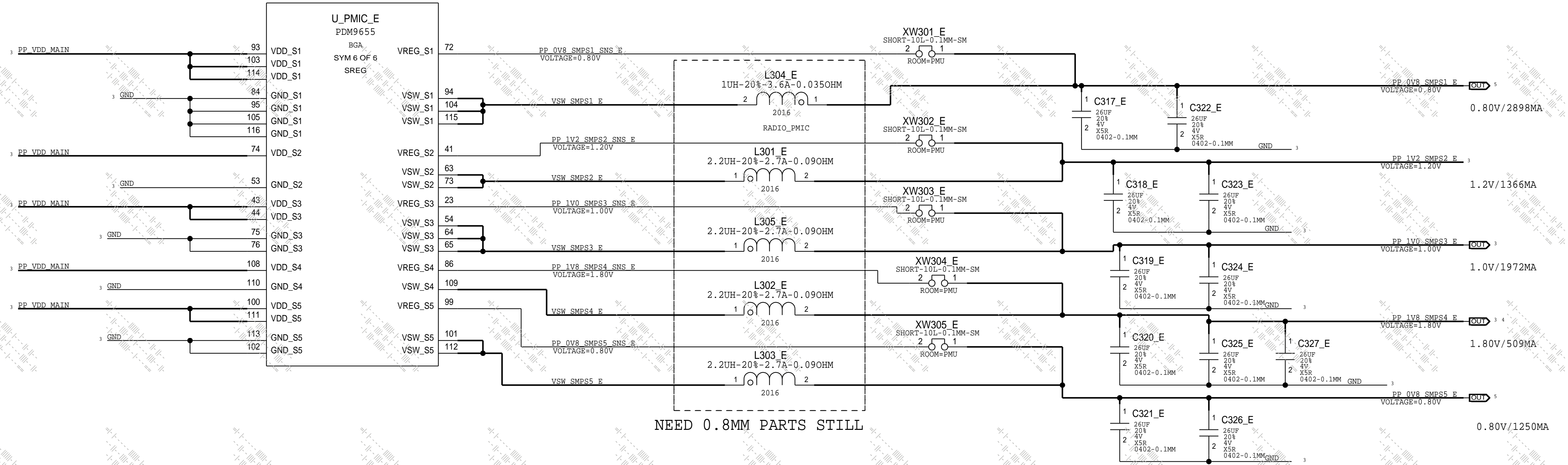
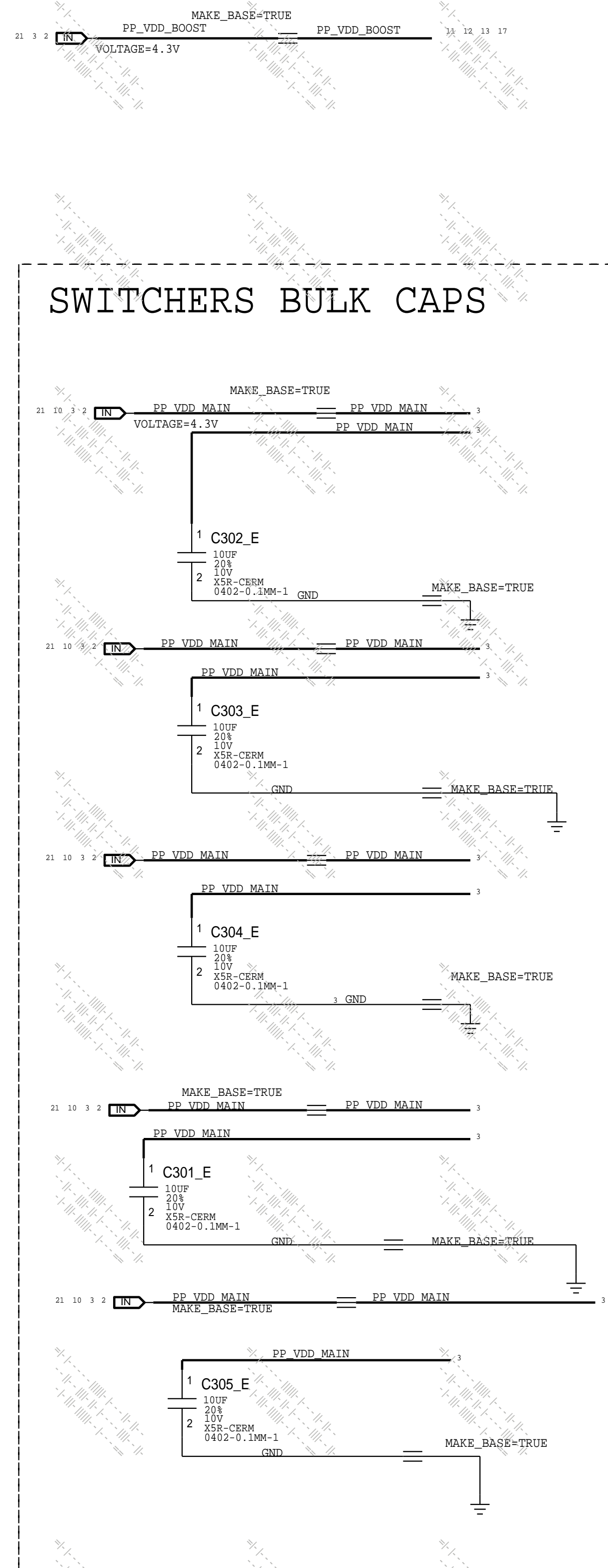


AUDIO



RF PMIC: SWITCHERS & LDOS

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BRANCH	PAGE 3 OF 22	
SHEET	55 OF 81	

RF PMIC: XTAL, CLOCKS AND MISCELLANEOUS

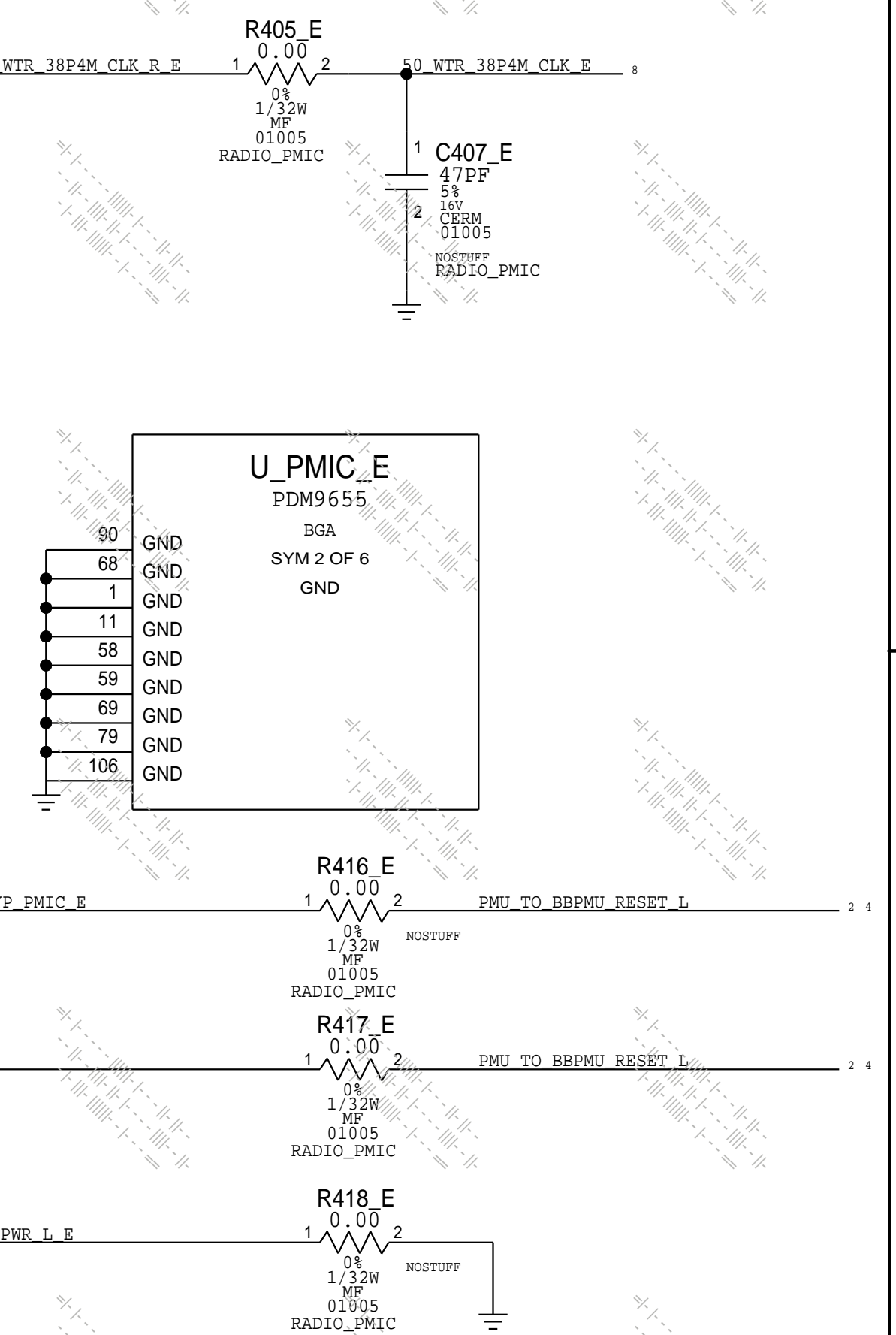
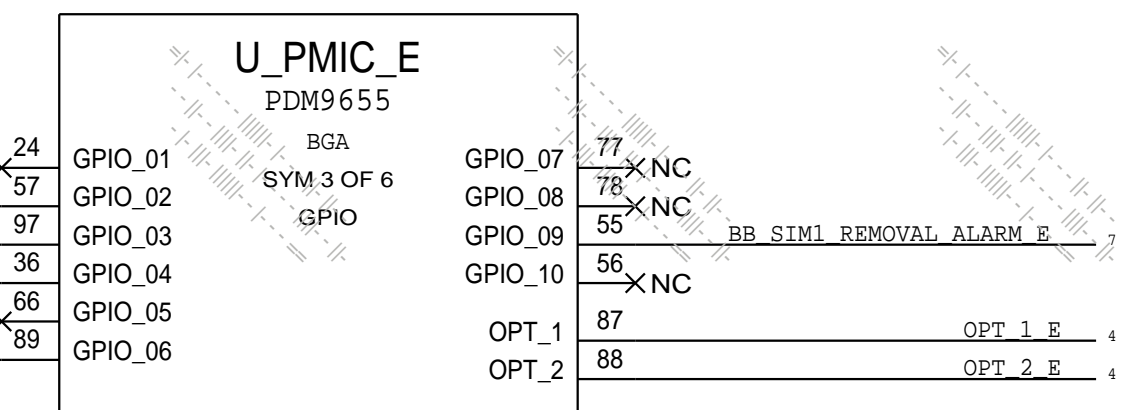
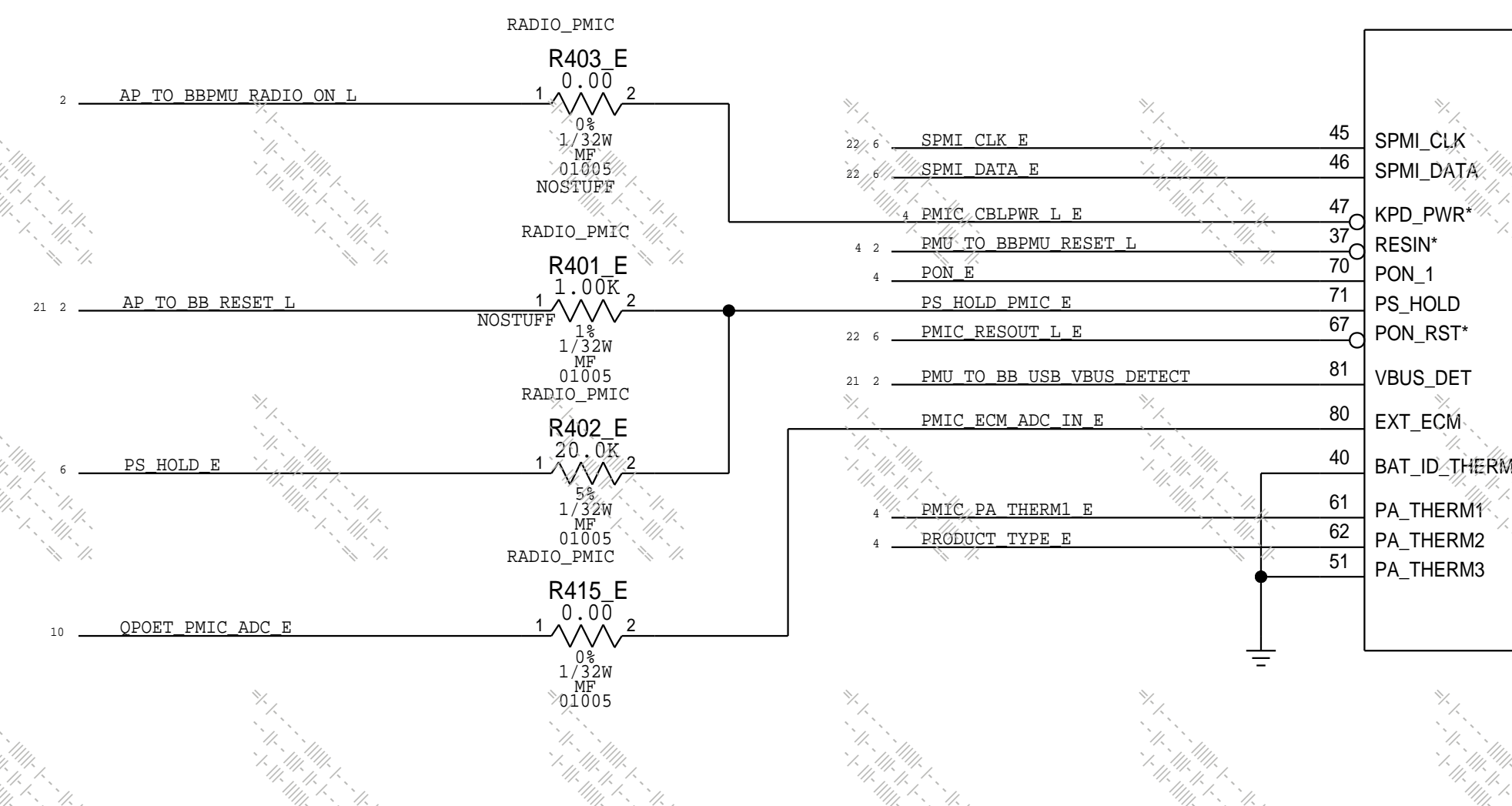
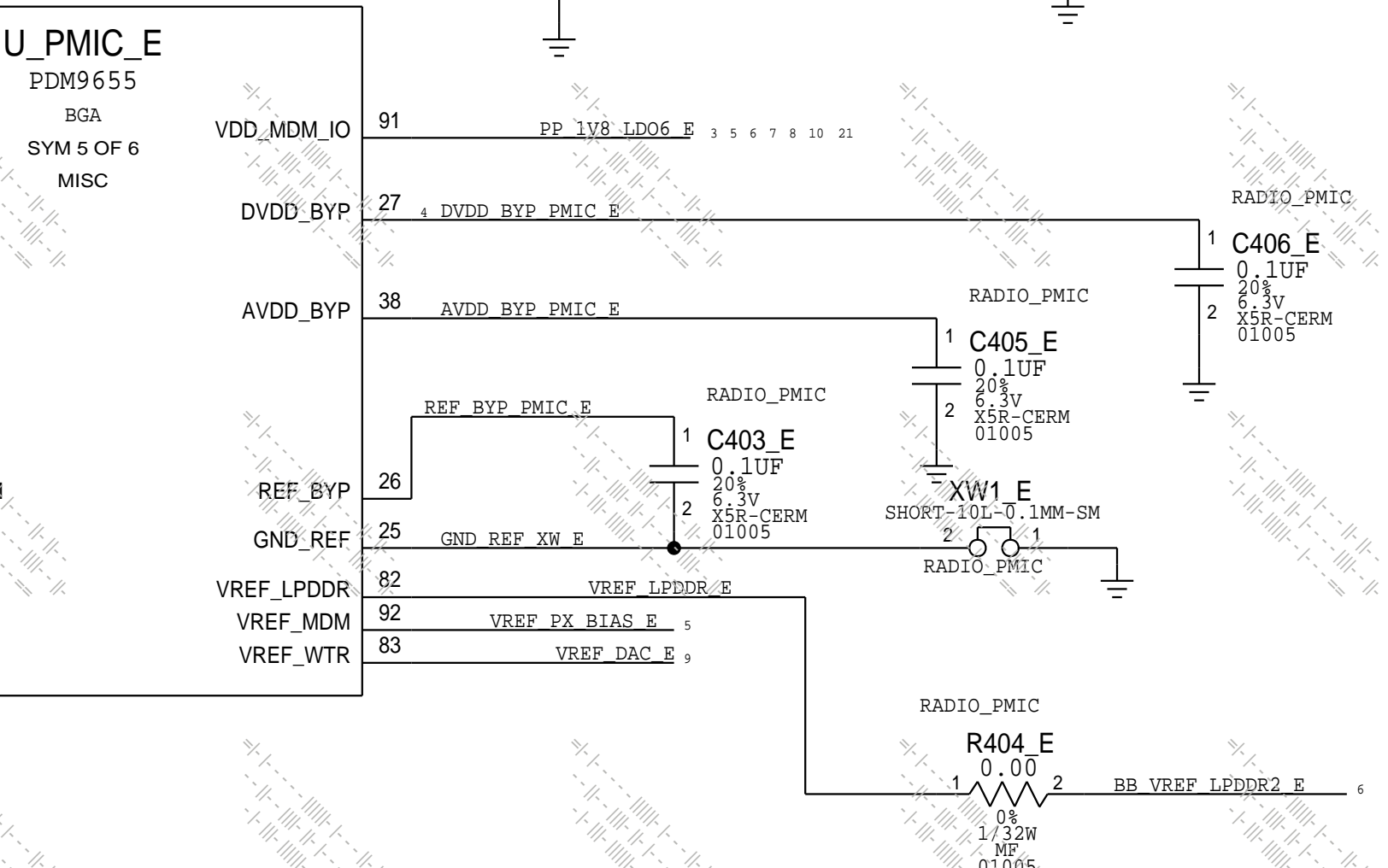
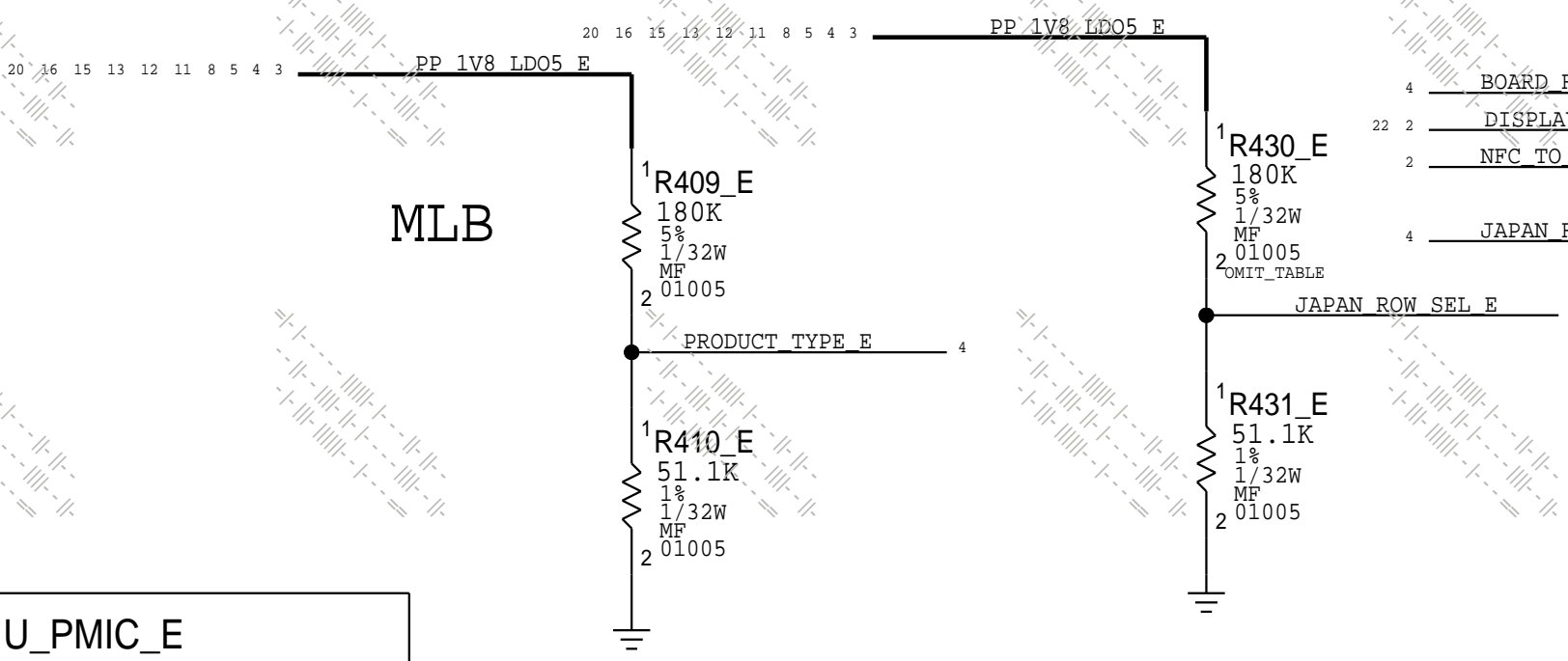
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0.15V-0.25V	422K	51.1K	PROTO1.5
0.35V-0.45V	180K	51.1K	PROTO2.5/DEV2
0.55V-0.65V	105K	51.1K	PROTO1/DEV3
0.75V-0.85V	66.5K	51.1K	PROTO2/DEV4
0.95V-1.05V	44.2K	51.1K	EVT
1.15V-1.25V	28K	51.1K	CARRIER/DEV5
1.35V-1.45V	16.5K	51.1K	DVT/DEV6
1.55V-1.65V	7.87K	51.1K	PVT/DEV7
1.75V-1.85V	10K	NOSTUFF	SPARE

NOTE XTAL SYMBOL MIRRORED COMPARED TO PREVIOUS SCH

PA_THERM2	R409	R410	PRODUCT TYPE	Y
0.00V-0.10V	NOSTUFF	51.1K	RADIO DEV	1
0.15V-0.25V	422K	51.1K	3RD TYPE	2
0.35V-0.45V	180K	51.1K	POR MLB (FF)	3
0.55V-0.65V	105K	51.1K	SPARE	4
0.75V-0.85V	66.5K	51.1K	SPARE	5
0.95V-1.05V	44.2K	51.1K	SPARE	6
1.15V-1.25V	28K	51.1K	SPARE	7
1.35V-1.45V	16.5K	51.1K	SPARE	8
1.55V-1.65V	7.87K	51.1K	SPARE	9
1.75V-1.85V	10K	NOSTUFF	SPARE	A

JPN_ROW_SEL	R430	R431	MAV PLATFORM	Y	SKU
<0.10V	NOSTUFF	51.1K	MAV17.0	0	ROW
0.15V-0.25V	422K	51.1K	MAV17.1	1	JPN
0.35V-0.45V	180K	51.1K	MAV17.2	2	ROW
0.55V-0.65V	105K	51.1K	MAV17.3	3	JPN
0.75V-0.85V	66.5K	51.1K	MAV17.4	4	ROW
0.95V-1.05V	44.2K	51.1K	MAV17.5	5	JPN
1.15V-1.25V	28K	51.1K	MAV17.6	6	ROW
1.35V-1.45V	16.5K	51.1K	MAV17.7	7	JPN
1.55V-1.65V	7.87K	51.1K	MAV17.8	8	ROW
1.75V-1.85V	10K	NOSTUFF	MAV17.9	9	JPN

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
118S0686	1	RESISTOR, 01005, 105K OHMS	R430_E	CRITICAL	JPN
117S0197	1	RESISTOR, 01005, 180K OHMS	R430_E	CRITICAL	ROW



PAGE TITLE: **PMIC: CLOCKS & CONTROL**

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REVISION: 10.0.0

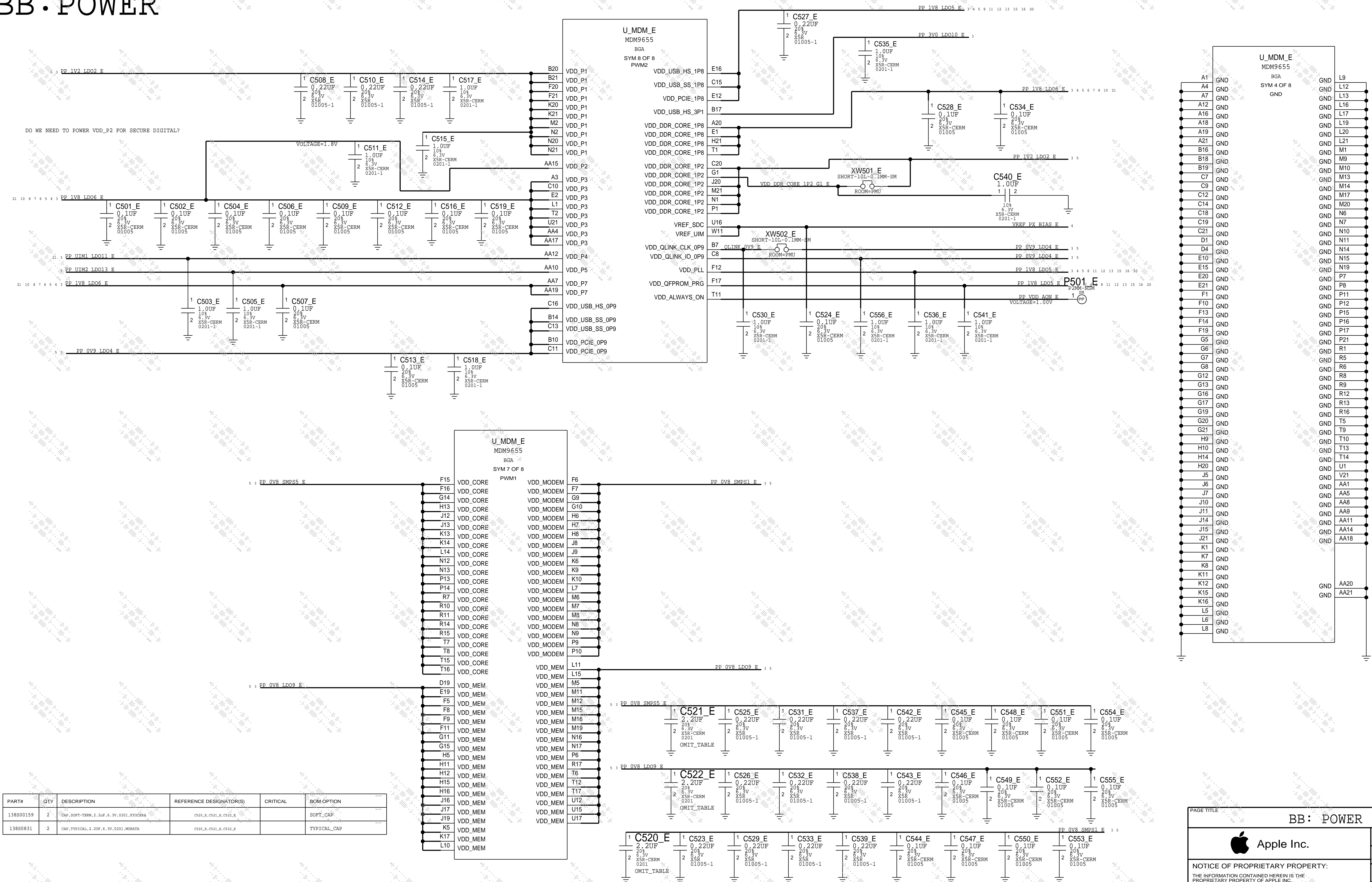
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PAGE: 4 OF 22

SHEET: 56 OF 81

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BB: POWER



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
138800159	2	CAP, SOFT-TERM, 2.2UF, 6.3V, 0201, KYOCERA	C520_E, C521_E, C522_E		SOFT_CAP
13880831	2	CAP, TYPICAL, 2.2UF, 6.3V, 0201, MURATA	C520_E, C521_E, C522_E		TYPICAL_CAP

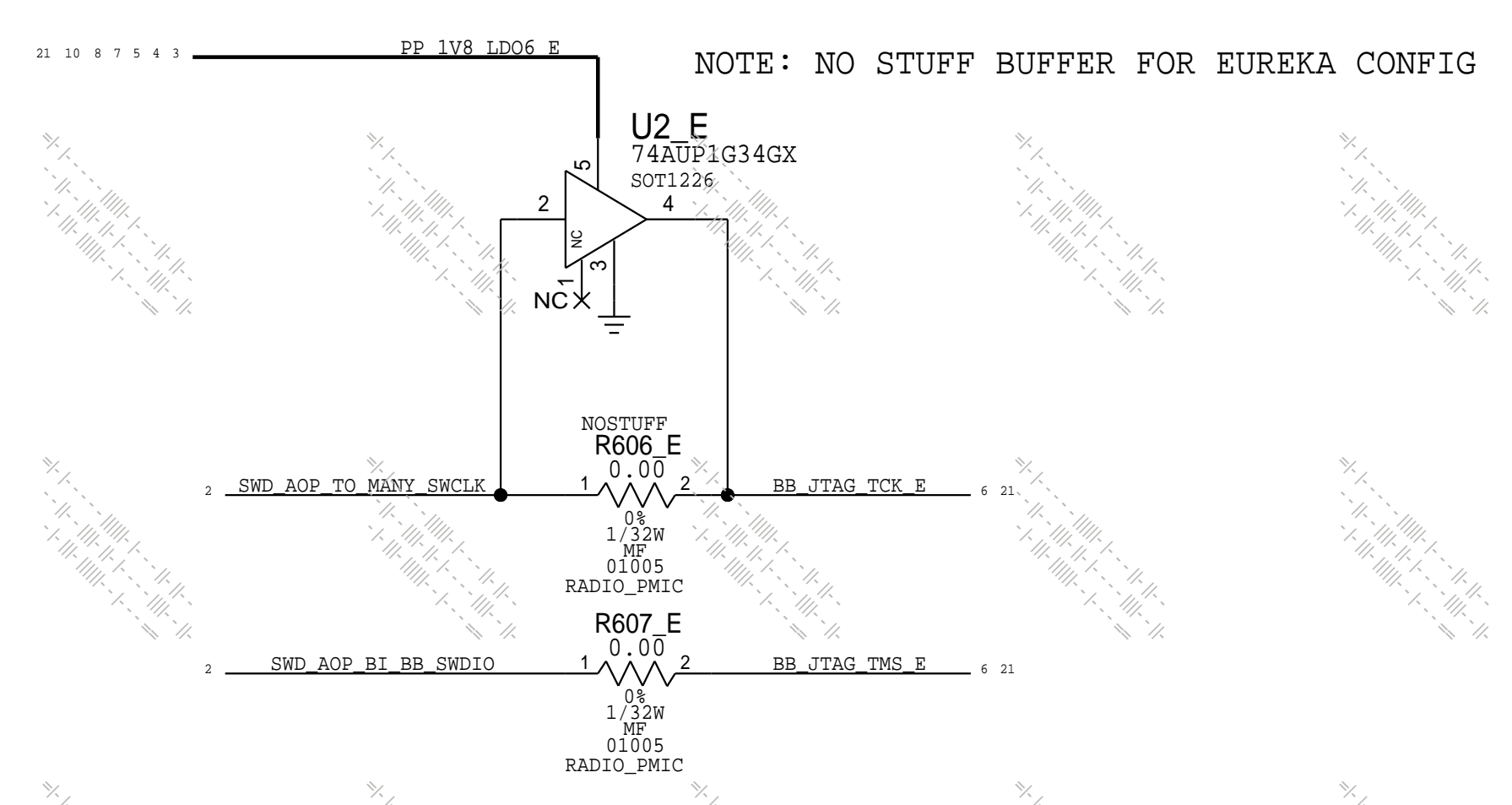
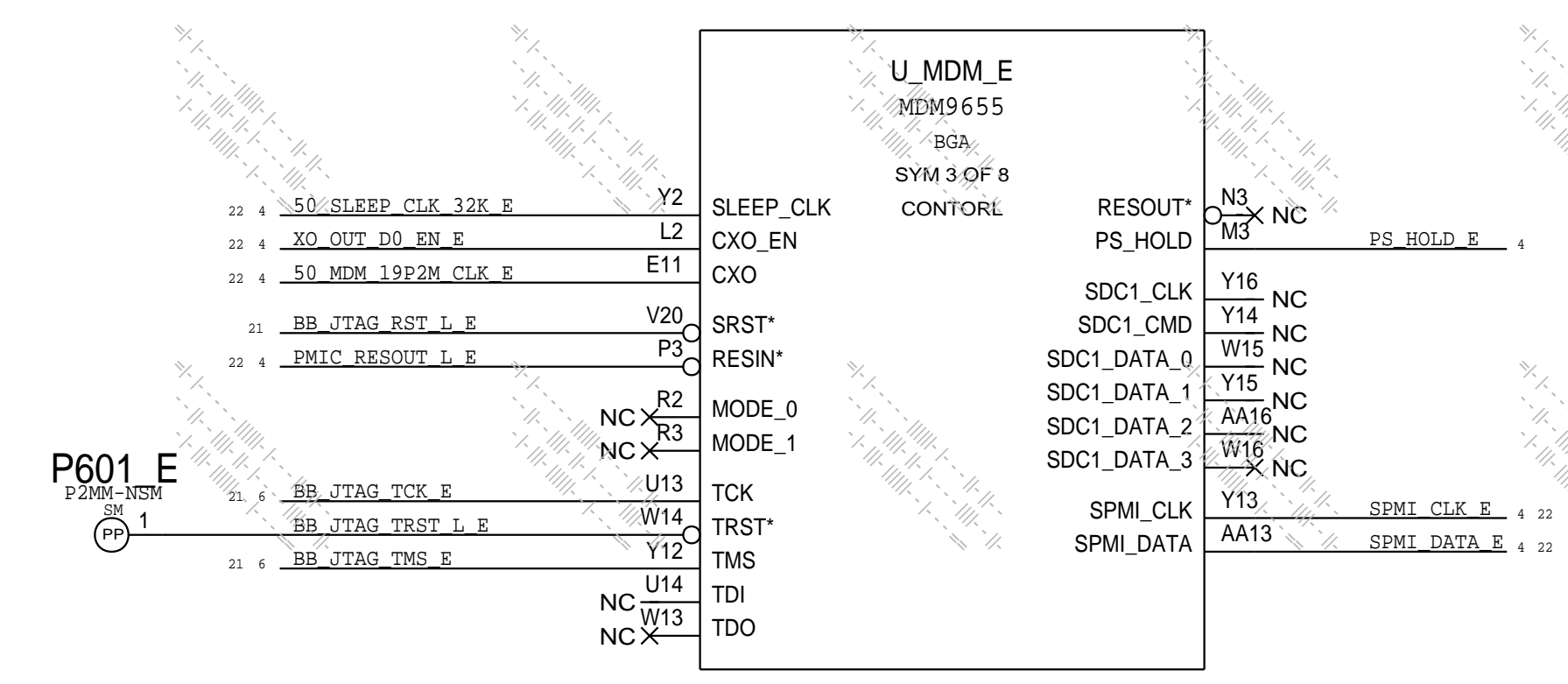
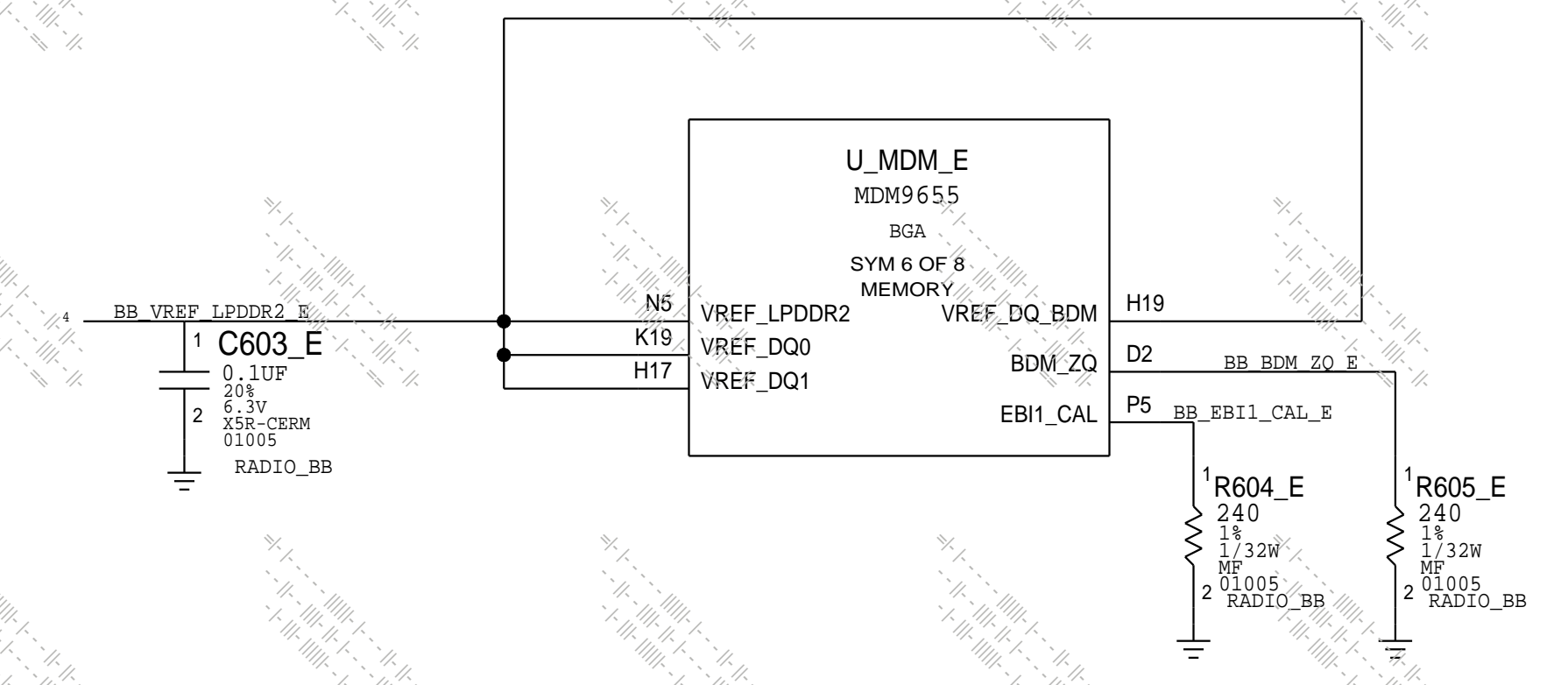
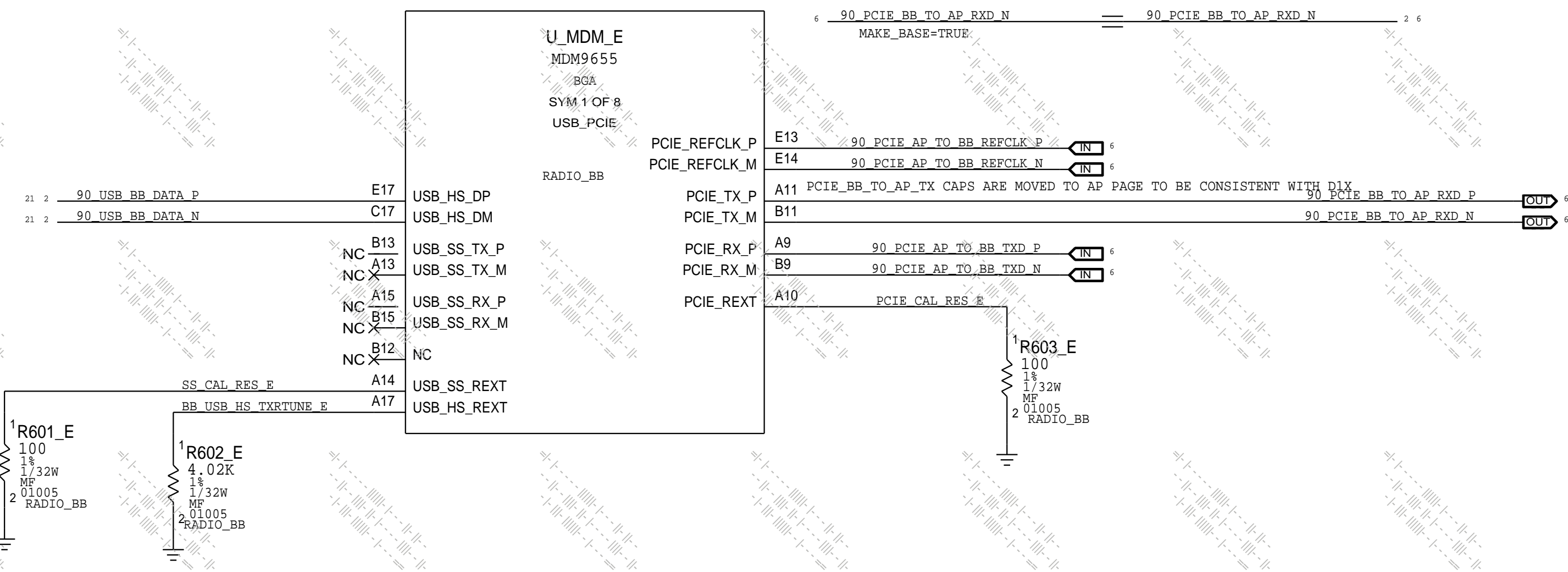
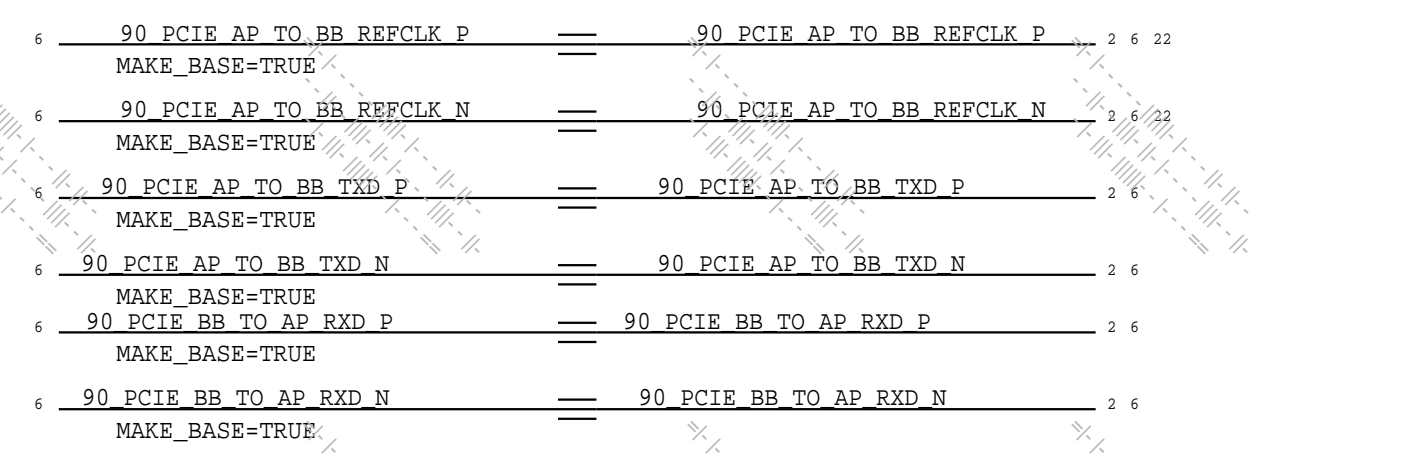
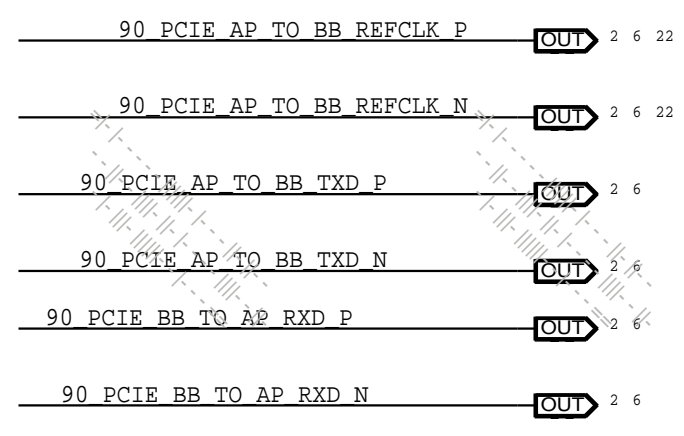
PAGE TITLE: **BB: POWER**

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BB: CONTROL & HS PERIPHERALS

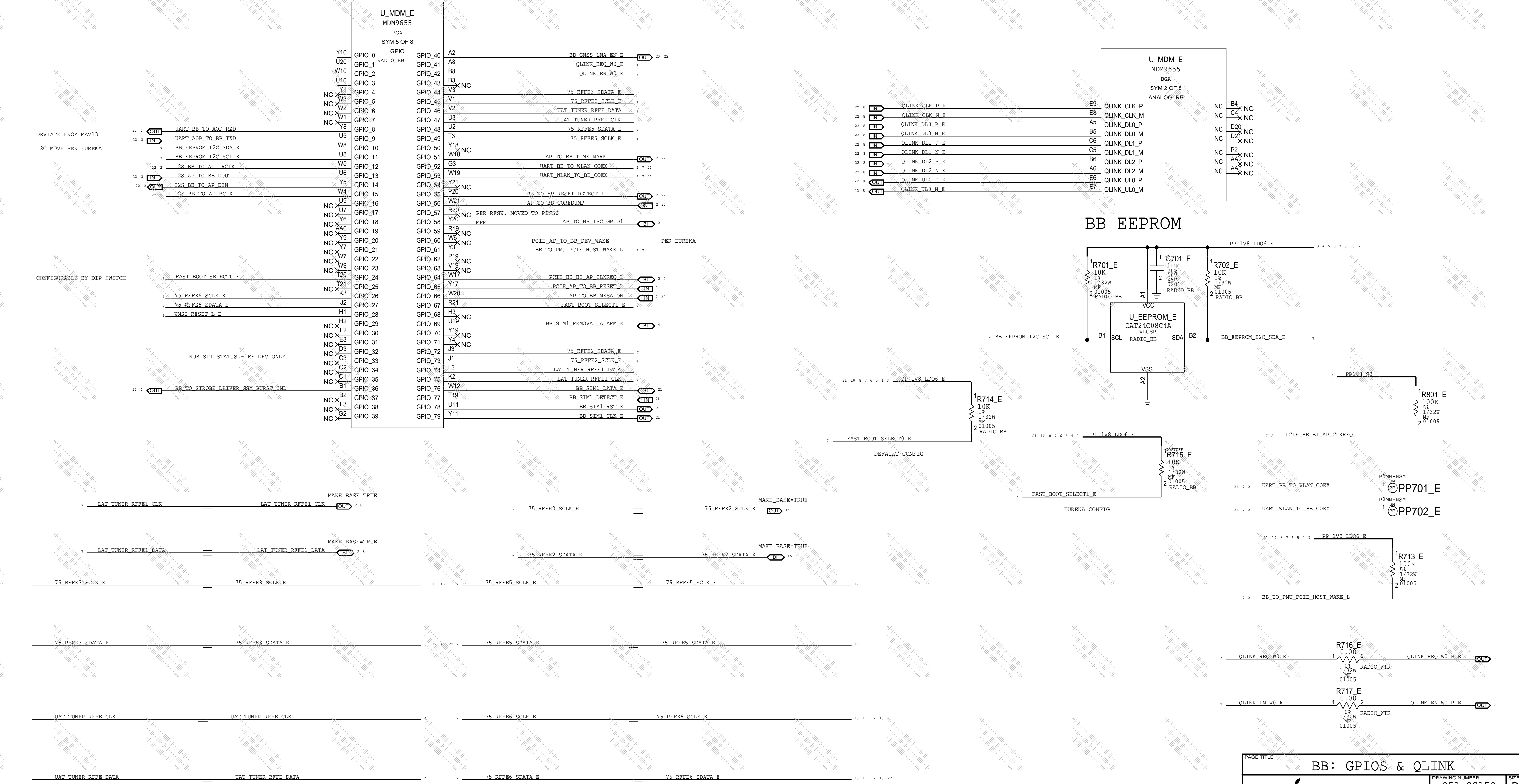


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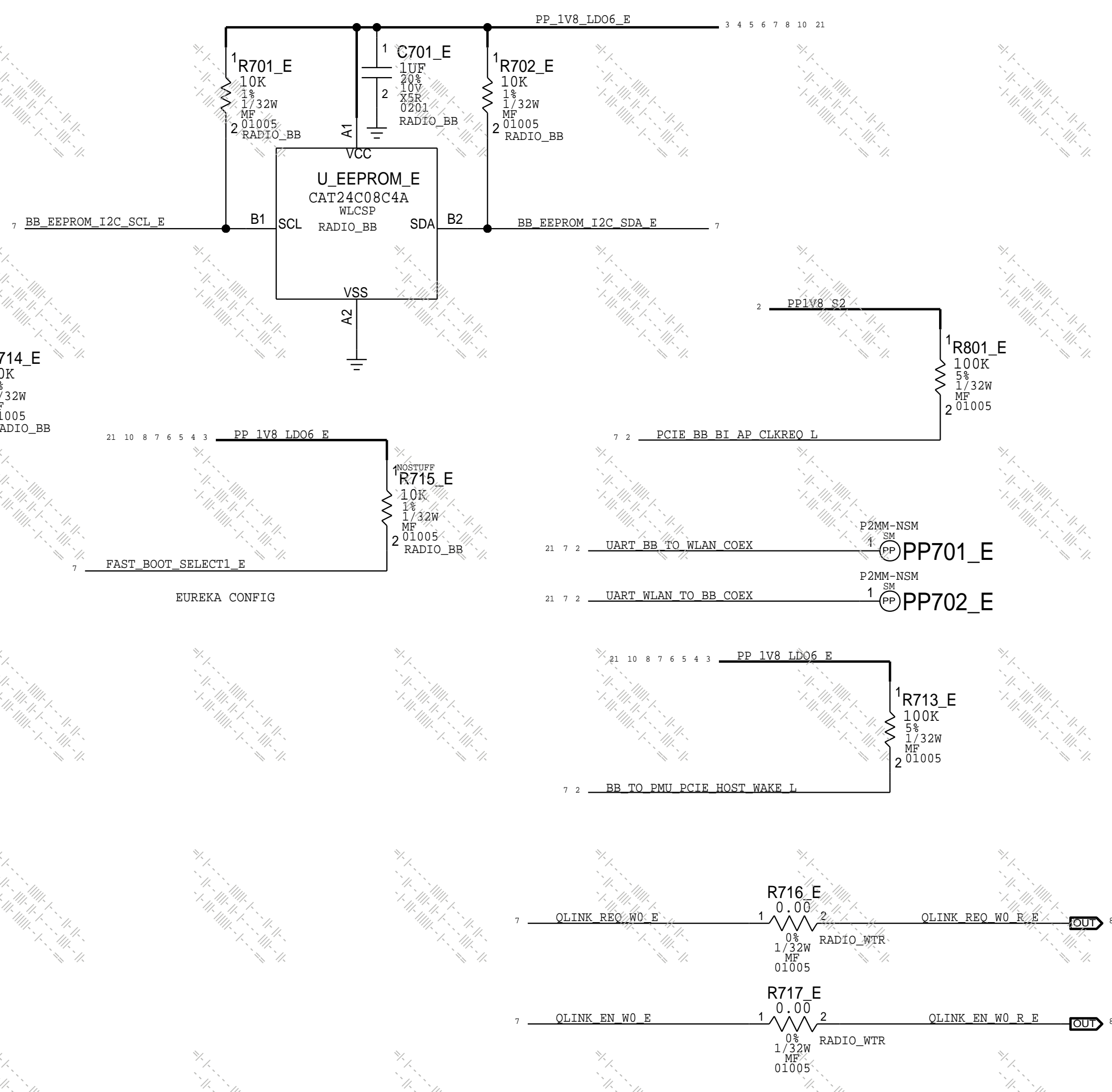
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BB: GPIOs & QLINK

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BB EEPROM



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TRANSCEIVER: QLINK & POWER

8 7 6 5 4 3 2 1

D

C

B

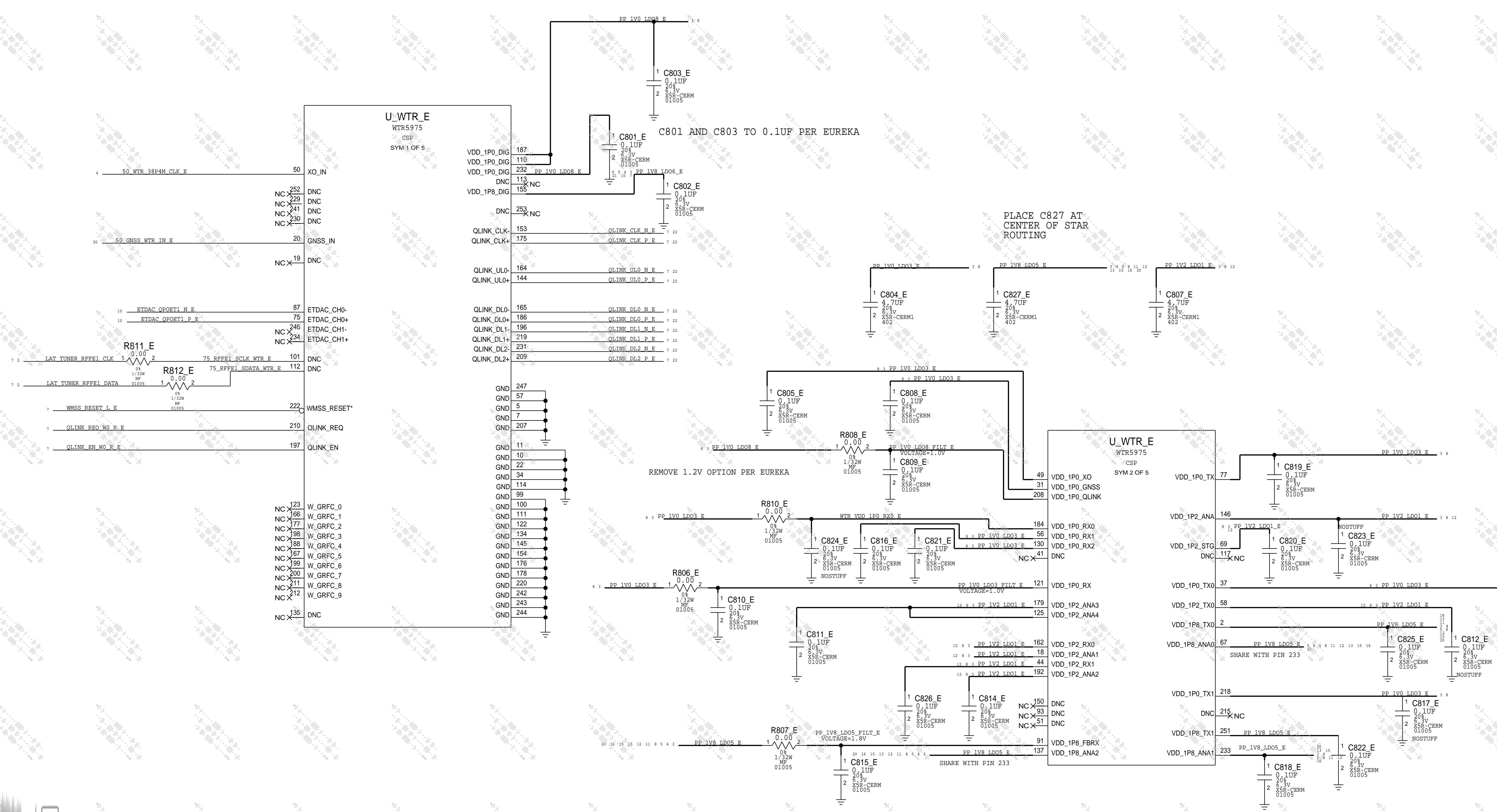
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D

C

B

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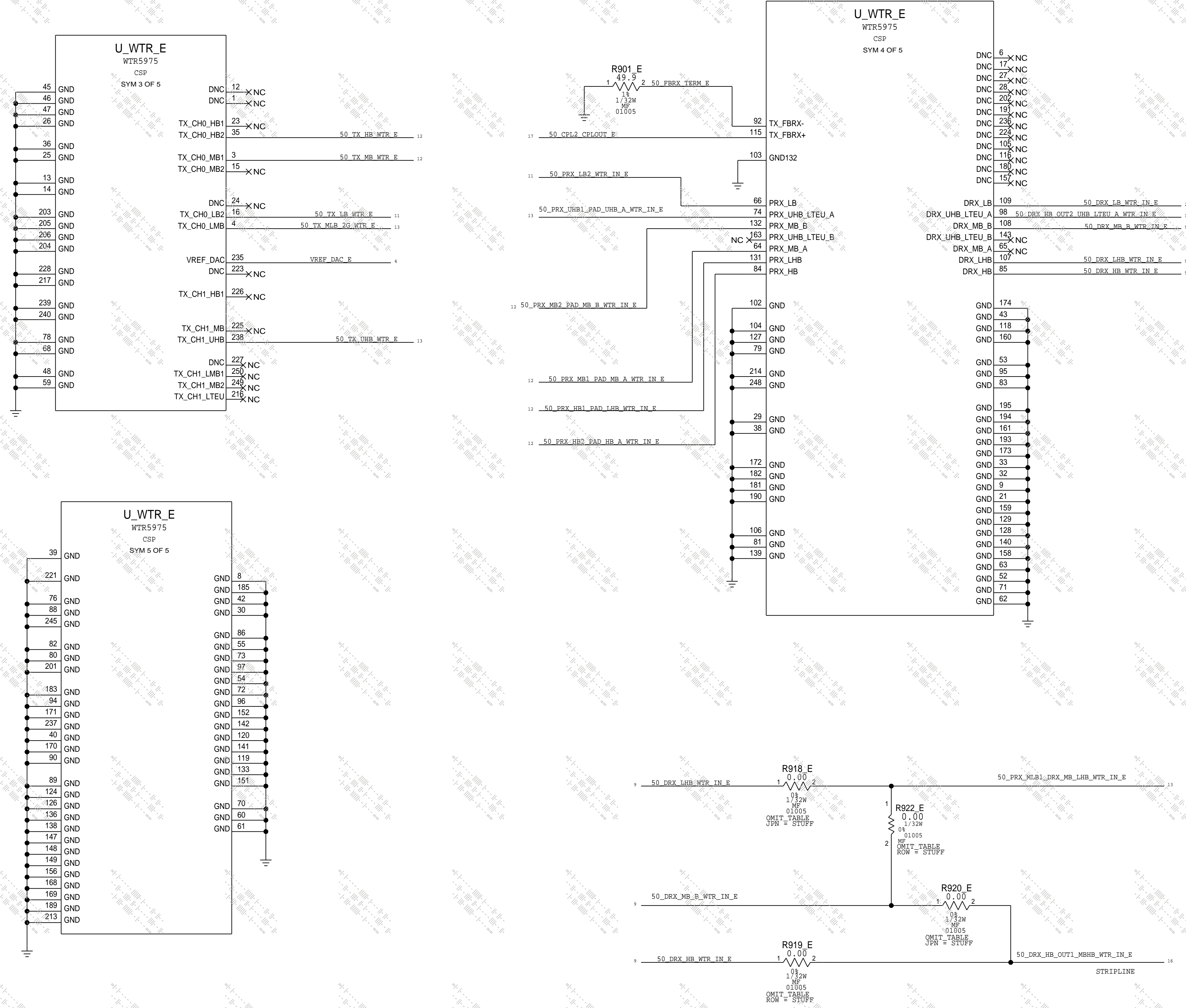
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TRANSCEIVER: TX & RX

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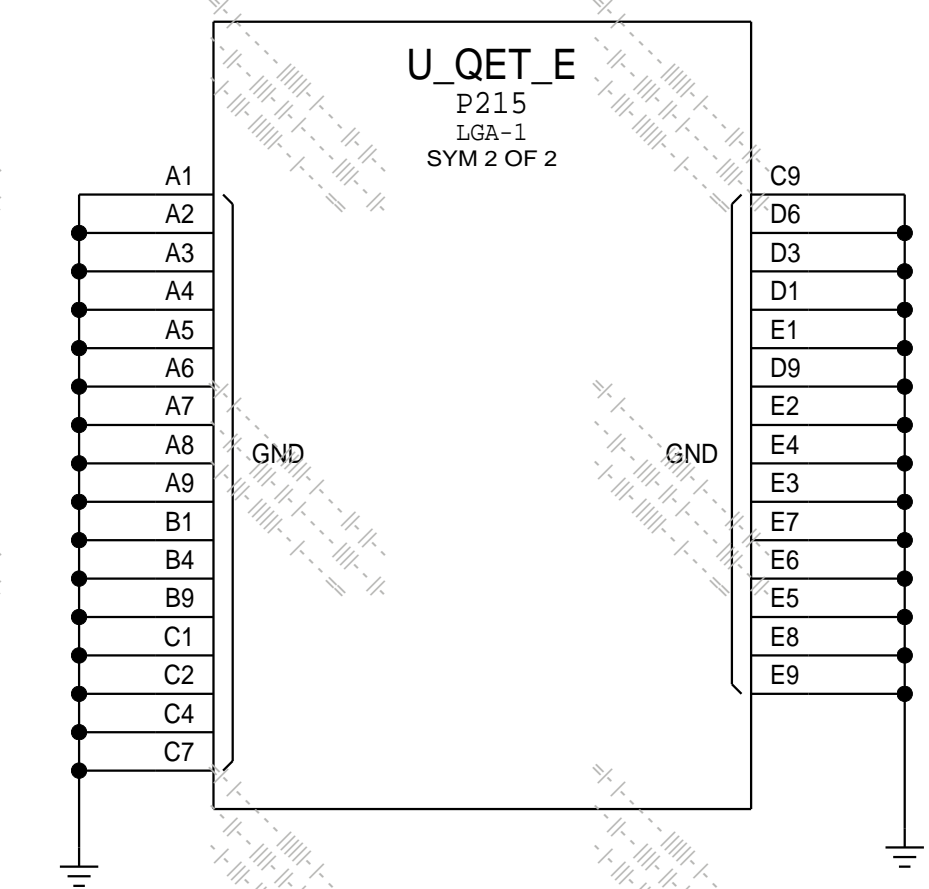
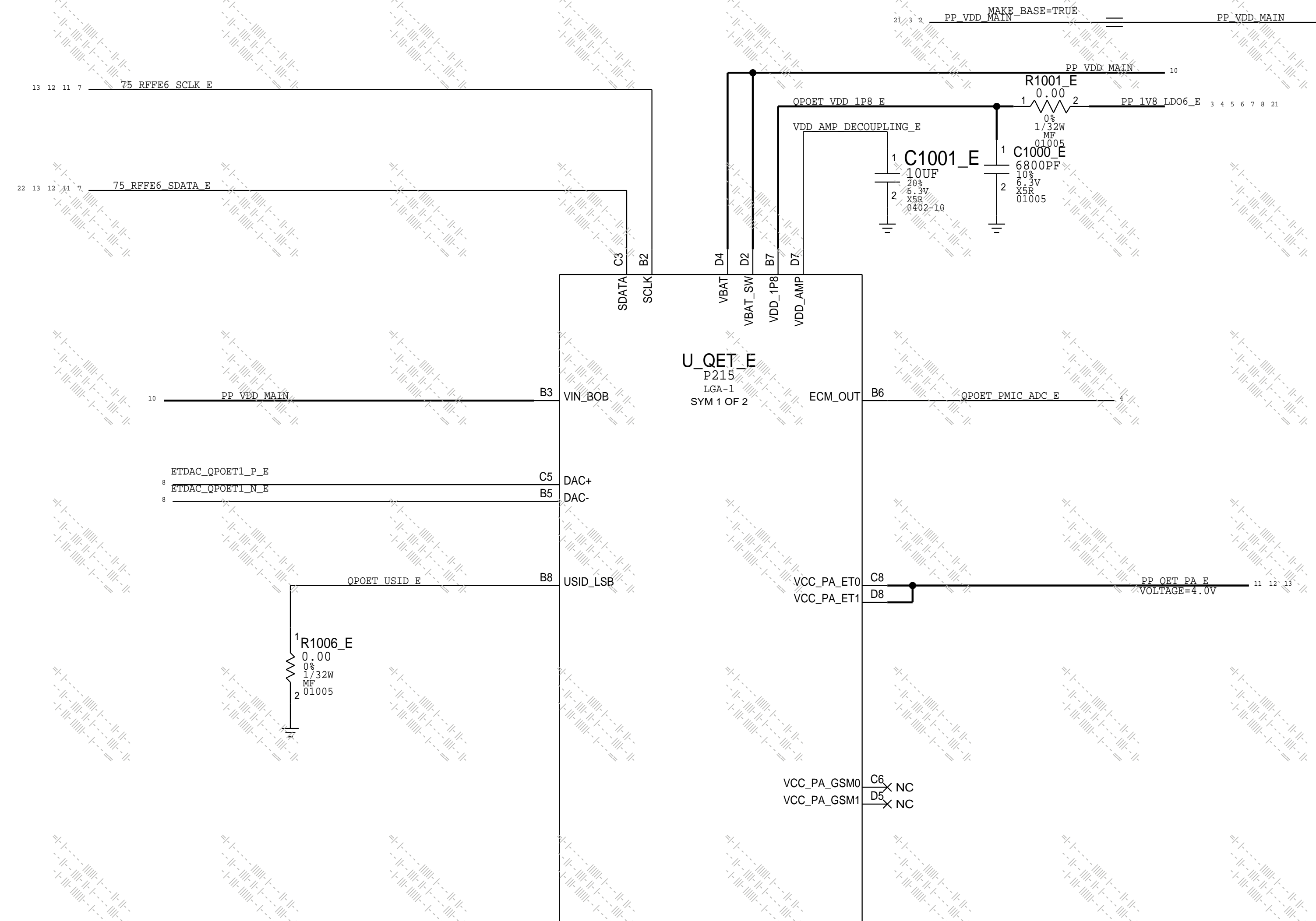
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		SHEET	61 OF 81		

QET:MODULE

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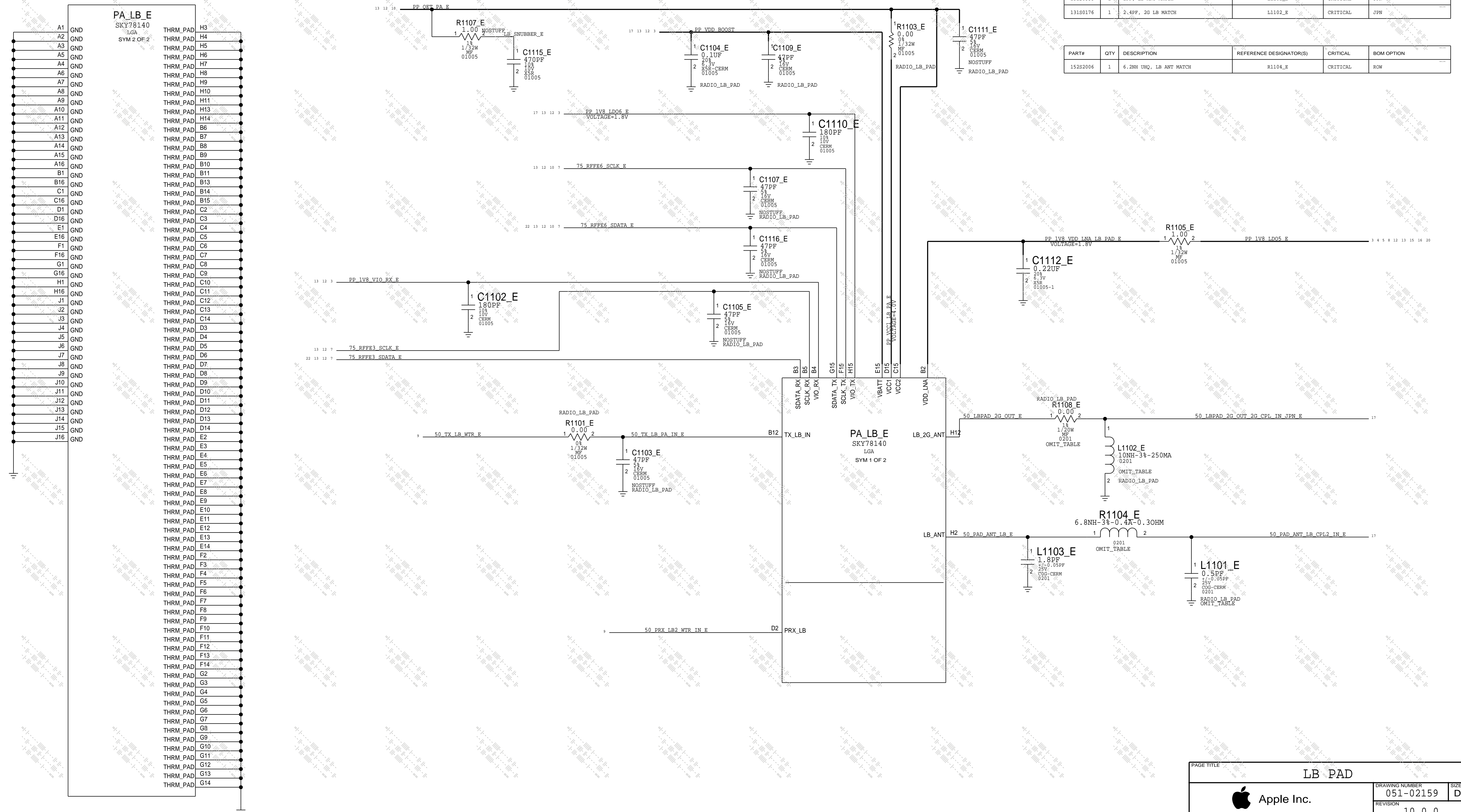
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LB PAD

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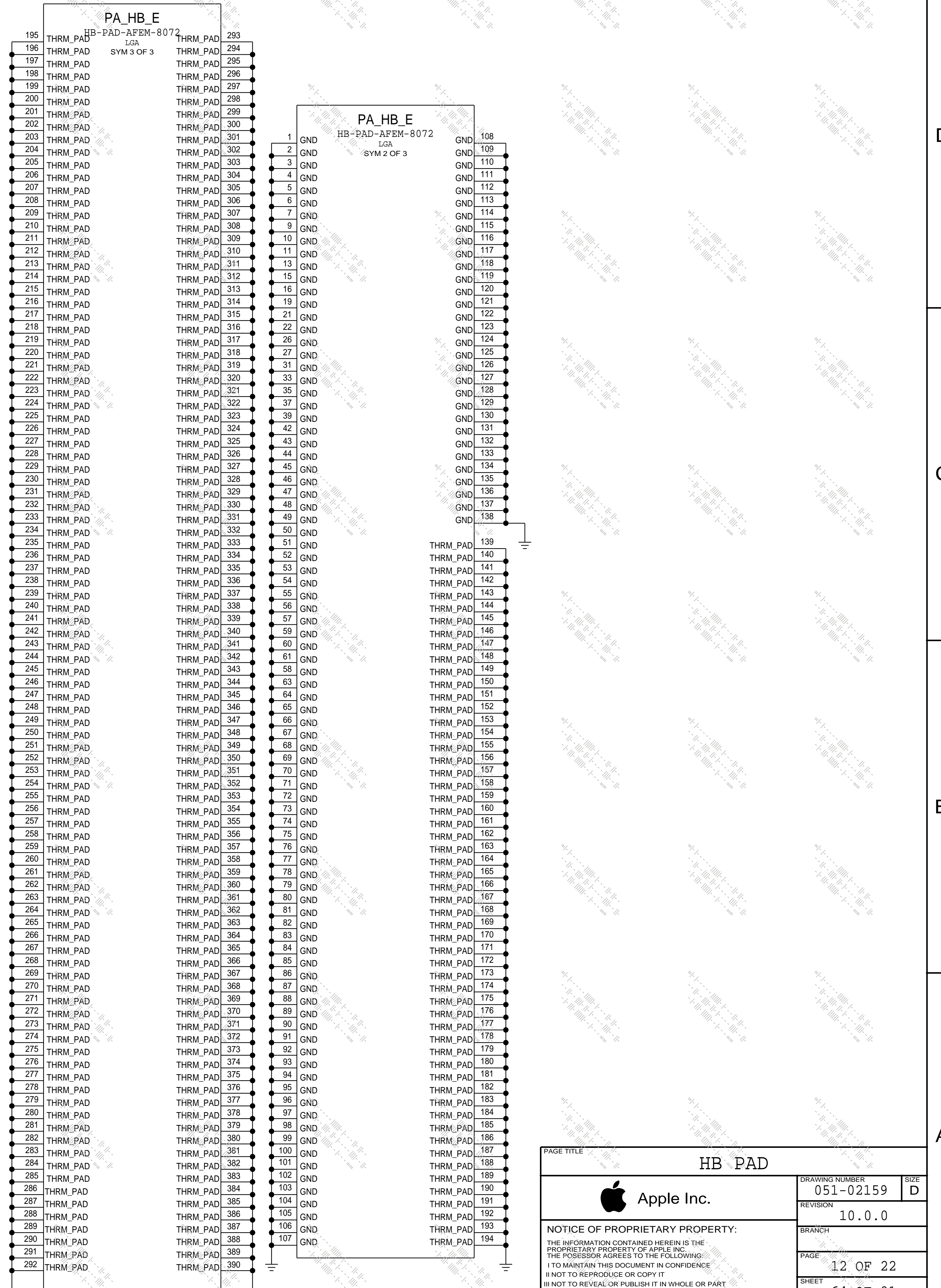
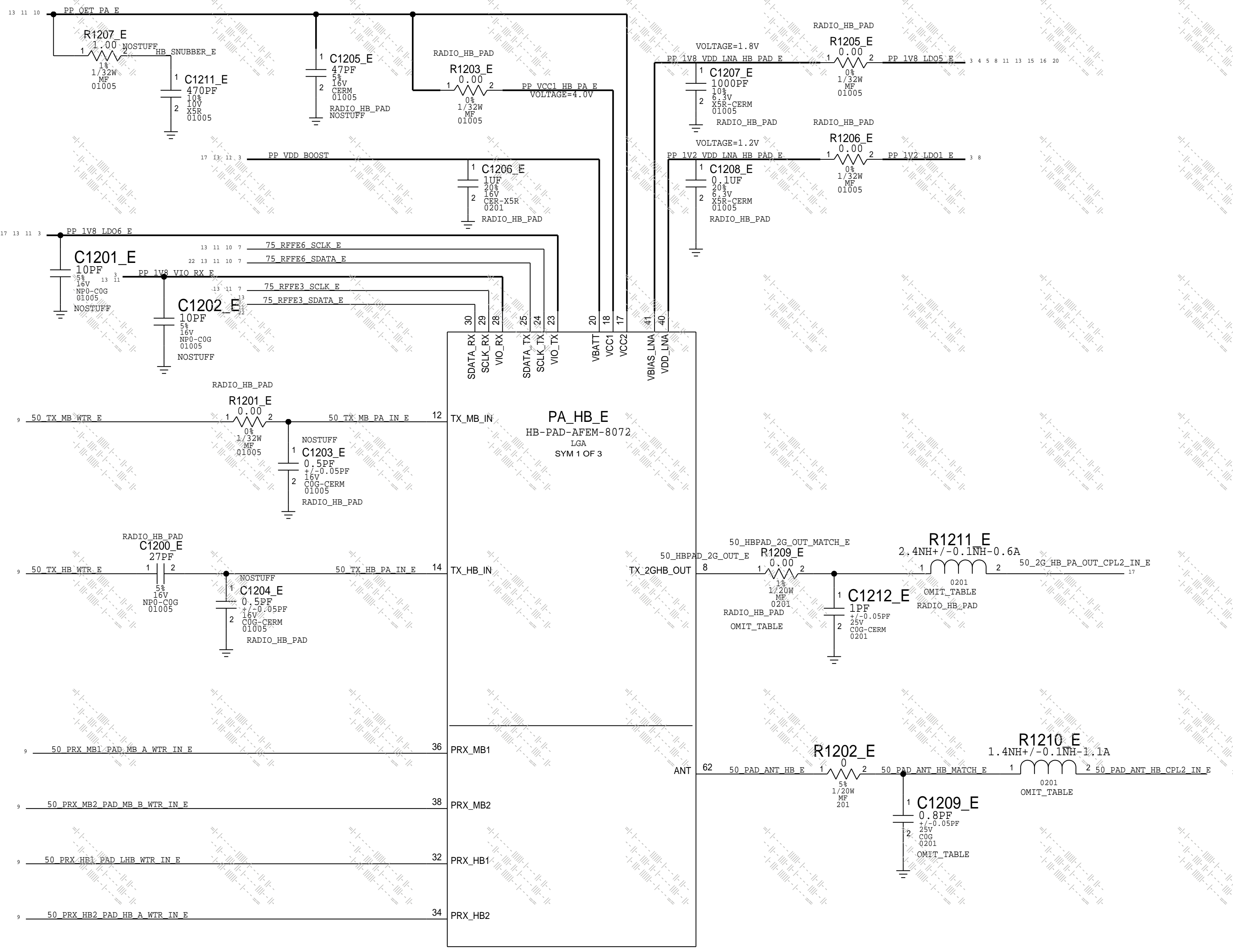
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118S0724	1	2G LB MATCH, 0 OHMS	R1108_E	CRITICAL	JPN
152S00021	1	6.8NH UHQ, LB ANT MATCH	R1104_E	CRITICAL	JPN
131S0555	1	1PF, LB ANT MATCH	L1101_E	CRITICAL	JPN
131S0176	1	2.4PF, 2G LB MATCH	L1102_E	CRITICAL	JPN

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
152S2006	1	6.2NH UHQ, LB ANT MATCH	R1104_E	CRITICAL	ROW



PAGE TITLE			LB PAD	
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HB PAD



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
15282023	1	3.2NH UHQ, 2G HB-PAD MATCH	R1209_E	CRITICAL	JFN
152800153	1	1NH UHQ, 2G HB-PAD MATCH	R1211_E	CRITICAL	JFN
13180425	1	0.5PF, HB ANT MATCH	C1209_E	CRITICAL	JFN
15282042	1	1.8NH UHQ, HB ANT MATCH	R1210_E	CRITICAL	JFN

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
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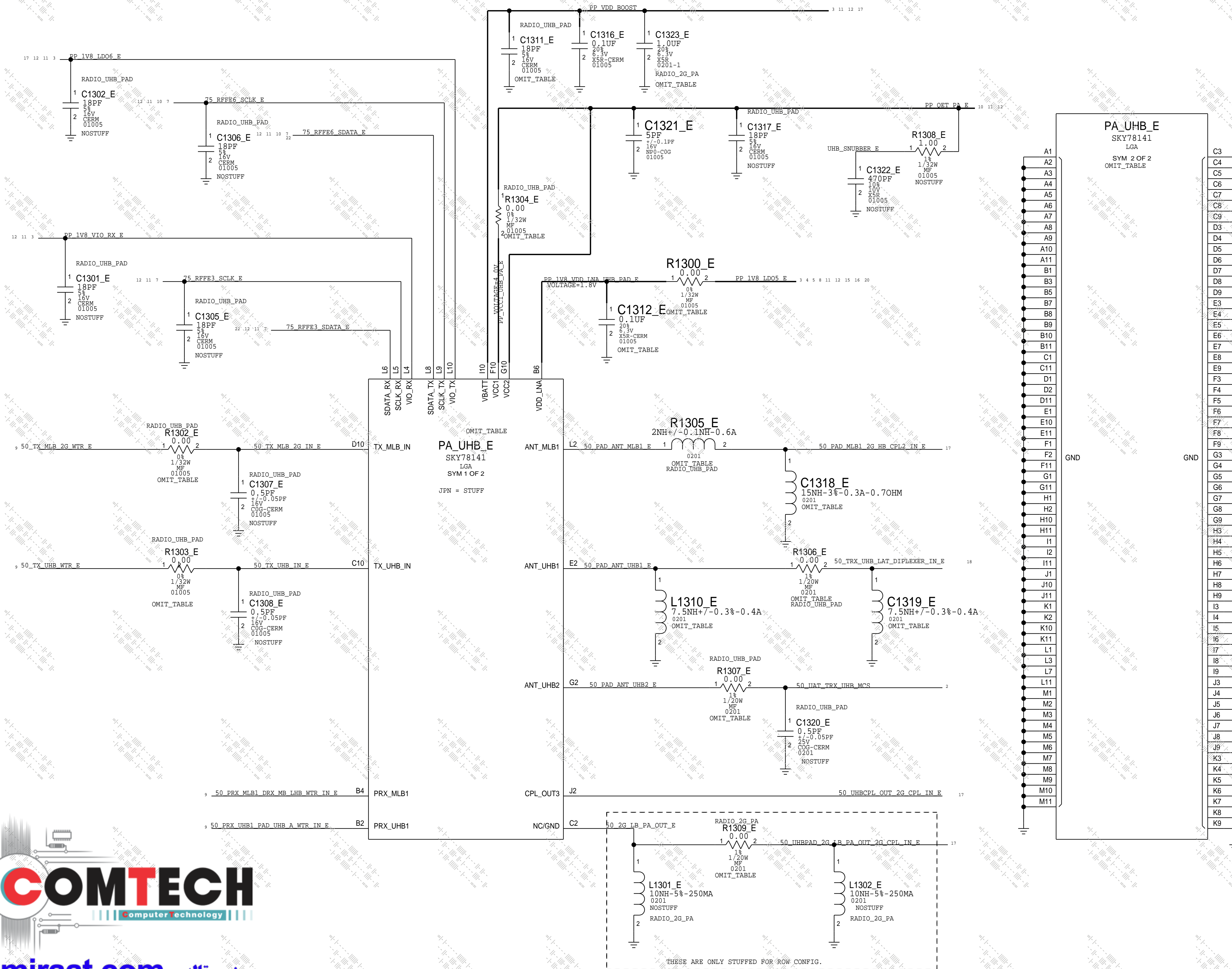
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UHB / 2G PAD - JPN

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
353801243	1	UHB PAD	PA_UHB_E	CRITICAL	JPN
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11780161	1	UHB INPVT MCH1, 0 OHMS	R1303_E	CRITICAL	JPN
11780002	1	MLB/2G MB OUT MCH1, 0 OHMS	R1305_E	CRITICAL	JPN
13180552	1	2.7PF UHQ, UHB1 ANT MATCH	R1306_E	CRITICAL	JPN
11780002	1	0 OHMS UHB2 OUT/DRX BP MCH1	R1307_E	CRITICAL	JPN
13280316	1	UHB LNA DECOUPLING, 0.1UF	C1312_E	CRITICAL	JPN
11780161	1	UHB LNA SUPPLY FILTER, 0OHMS	R1300_E	CRITICAL	JPN
13180214	1	VBAT DECOUPLING,18PF	C1311_E	CRITICAL	JPN
13880692	1	VBAT DECOUPLING, 1UF	C1323_E	CRITICAL	JPN
11780161	1	VCC2/VCC1 RESISTOR OPTION, 0 OHM	R1304_E	CRITICAL	JPN
15281999	1	22NH, MLB1 ANT MATCH	C1318_E	CRITICAL	JPN
15281698	1	3.5NH, UHB1 ANT MATCH	L1310_E	CRITICAL	JPN
13180431	1	0.2PF, UHB TO METROCIRC	C1320_E	CRITICAL	JPN



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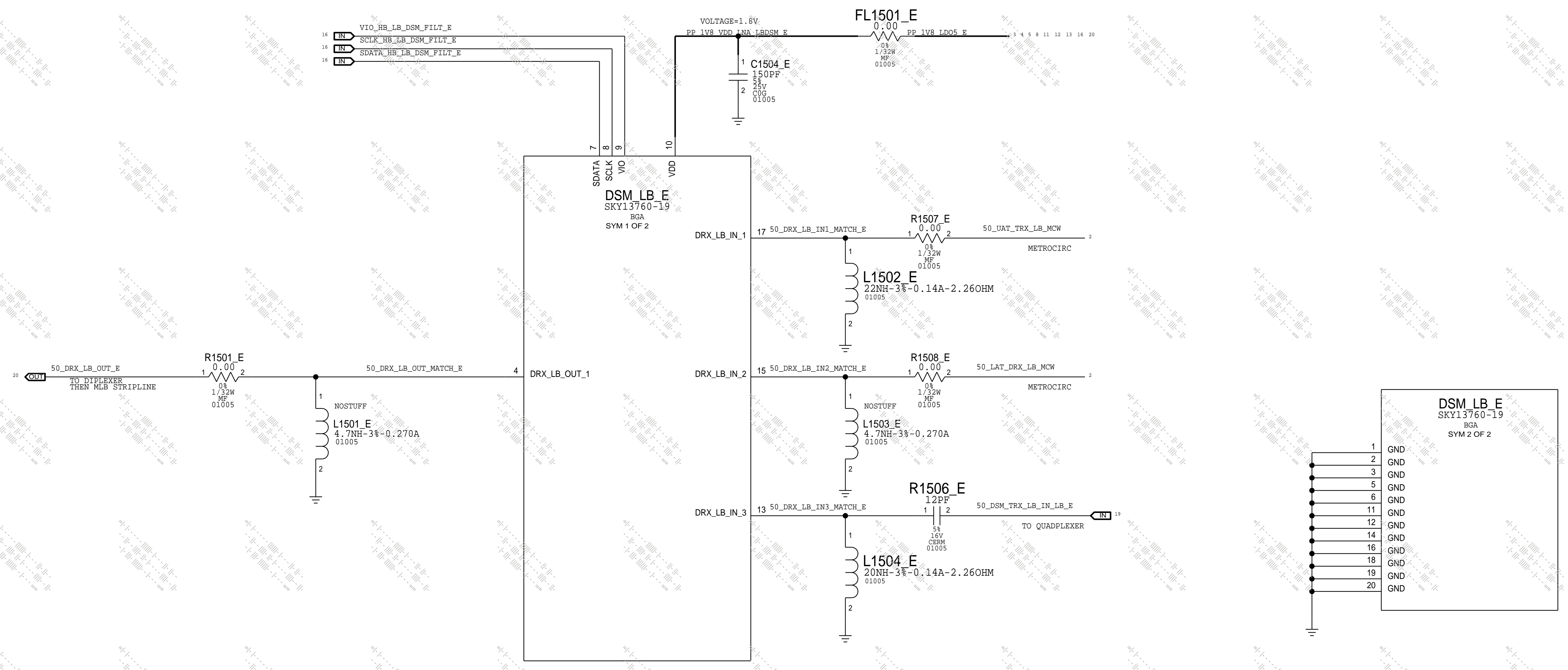
2G PA - ROW

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
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11780161	1	UHB INPUT MCH1, 0 OHMS	R1303_E	CRITICAL	ROW
11880724	1	MLB/2G MB OUT MCH1, 0 OHMS	R1305_E	CRITICAL	ROW
11880724	1	UHB2 OUT/DRX BP MCH1, 0 OHMS	R1307_E	CRITICAL	ROW
15282053	1	4.7NH UHQ, 2G LB OUTPUT MCH2	R1309_E	CRITICAL	ROW
13180214	1	VBAT DECOUPLING, 18PF	C1311_E	CRITICAL	ROW
13880692	1	VBAT DECOUPLING, 1UF	C1323_E	CRITICAL	ROW
11780161	1	VCC2/VCC1 RESISTOR OPTION, 0 OHM	R1304_E	CRITICAL	ROW
103800089	1	50 OHM TERMINATION FOR ROW ONLY	C1319_E	CRITICAL	ROW



PAGE TITLE		2G PA	
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LB DSM



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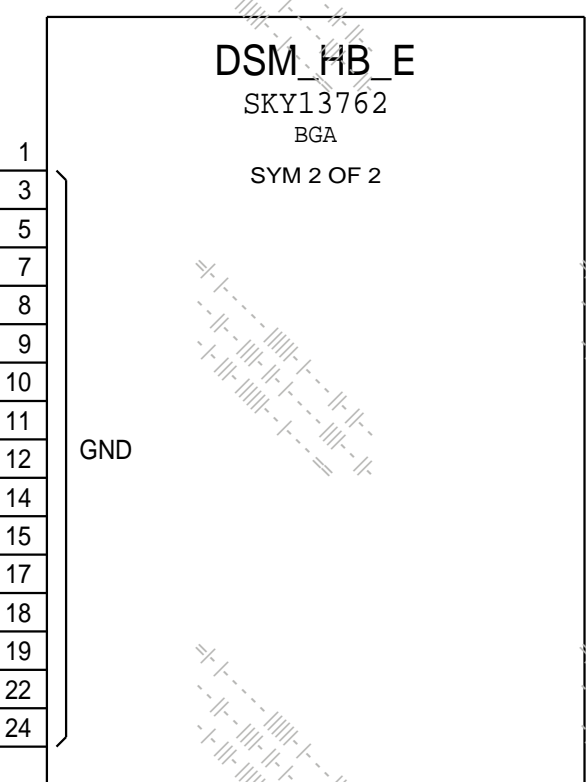
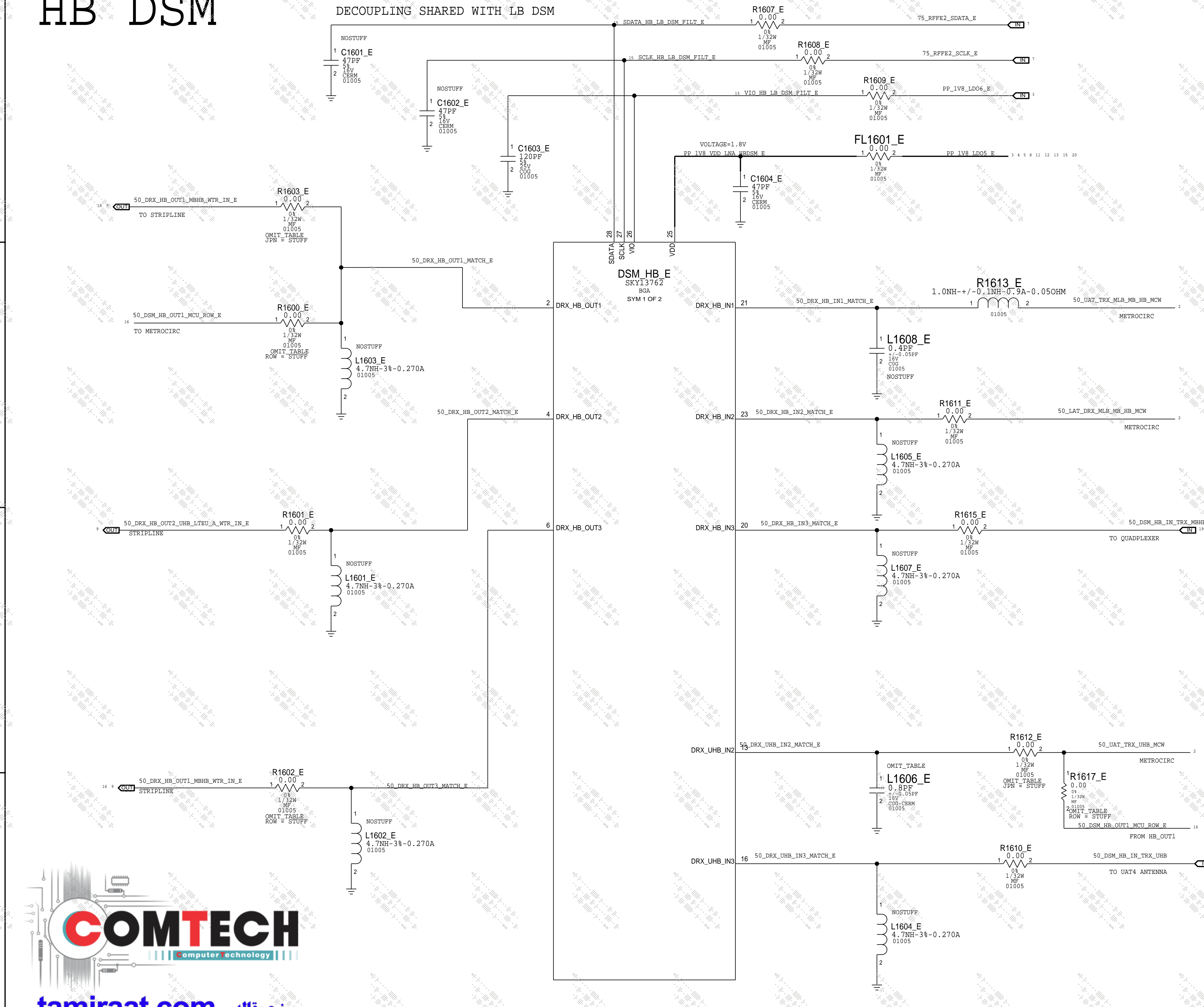
HB DSM

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DECOUPLING SHARED WITH LB DSM

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
117S0161	1	01005 0R	R1600_E	CRITICAL	ROW
117S0161	1	01005 0R	R1602_E	CRITICAL	ROW
117S0161	1	01005 0R	R1617_E	CRITICAL	ROW
131S0639	1	01005 0.8PF	L1606_E	CRITICAL	ROW

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
117S0161	1	01005 0R	R1603_E	CRITICAL	JFN
152S1985	1	01005 1.7NH SMD	R1612_E	CRITICAL	JFN
131S0616	1	01005 0.6PF	L1606_E	CRITICAL	JFN



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computer technology

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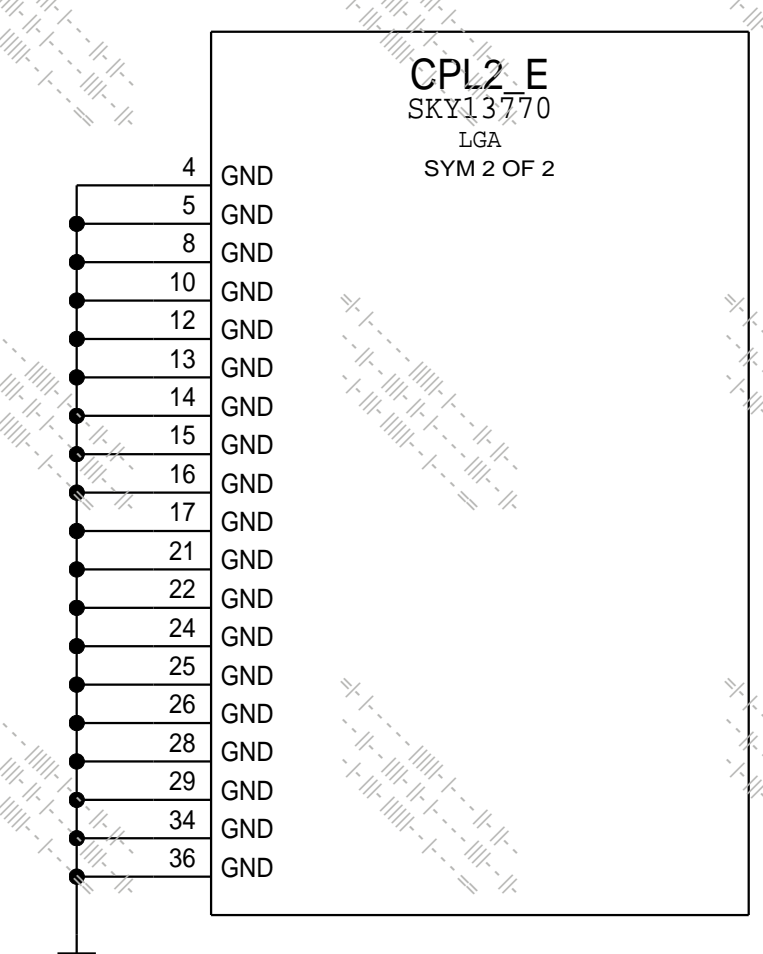
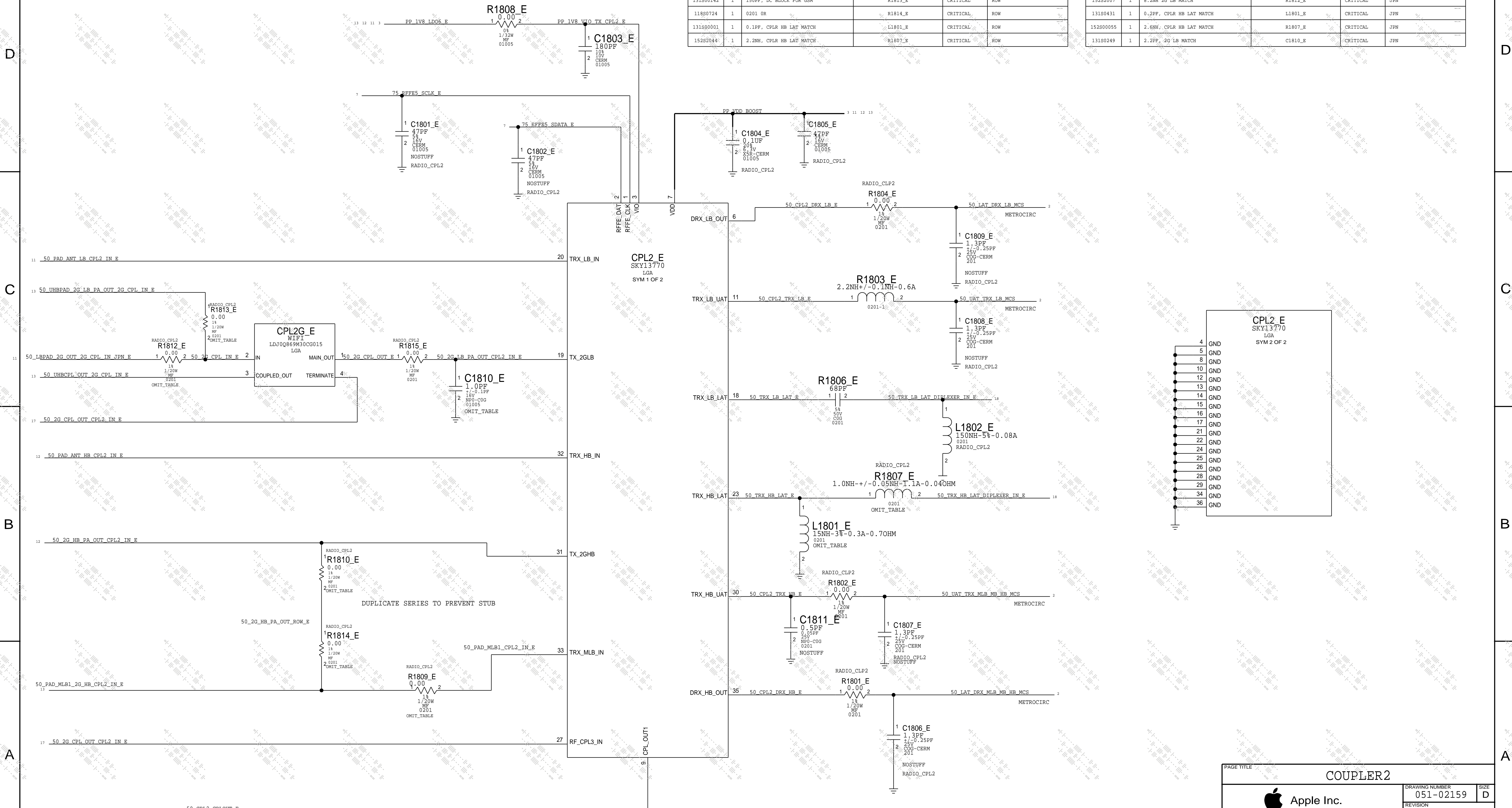
PAGE TITLE: HB DSM		
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COUPLER2

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PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
118S0724	1	0201 OR	R1810_E	CRITICAL	ROW
131S00142	1	150PF, DC BLOCK FOR GSM	R1813_E	CRITICAL	ROW
118S0724	1	0201 OR	R1814_E	CRITICAL	ROW
131S00001	1	0.1PF, CPLR HB LAT MATCH	L1801_E	CRITICAL	ROW
152S2044	1	2.2NH, CPLR HB LAT MATCH	R1807_E	CRITICAL	ROW

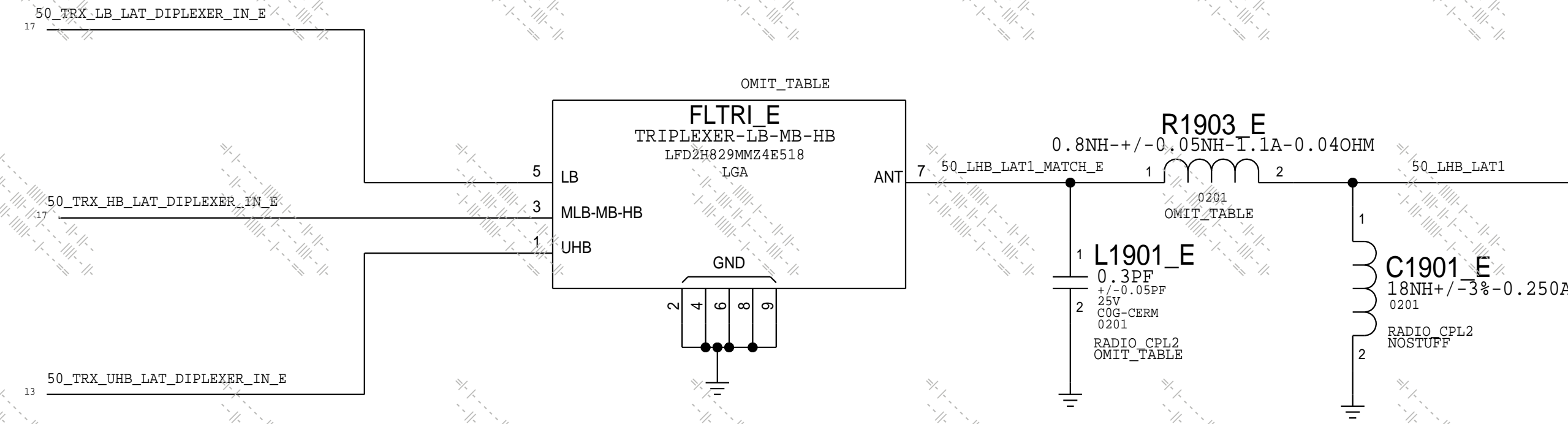
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118S0724	1	0201 OR	R1809_E	CRITICAL	JFN
152S2007	1	8.2NH 2G LB MATCH	R1812_E	CRITICAL	JFN
131S0431	1	0.2PF, CPLR HB LAT MATCH	L1801_E	CRITICAL	JFN
152S00055	1	2.6NH, CPLR HB LAT MATCH	R1807_E	CRITICAL	JFN
131S0249	1	2.2PF, 2G LB MATCH	C1810_E	CRITICAL	JFN



PAGE TITLE			COUPLER2		
		DRAWING NUMBER	051-02159	SIZE	D
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		PAGE	17 OF 22		
		SHEET	69 OF 81		

LOWER ANTENNA

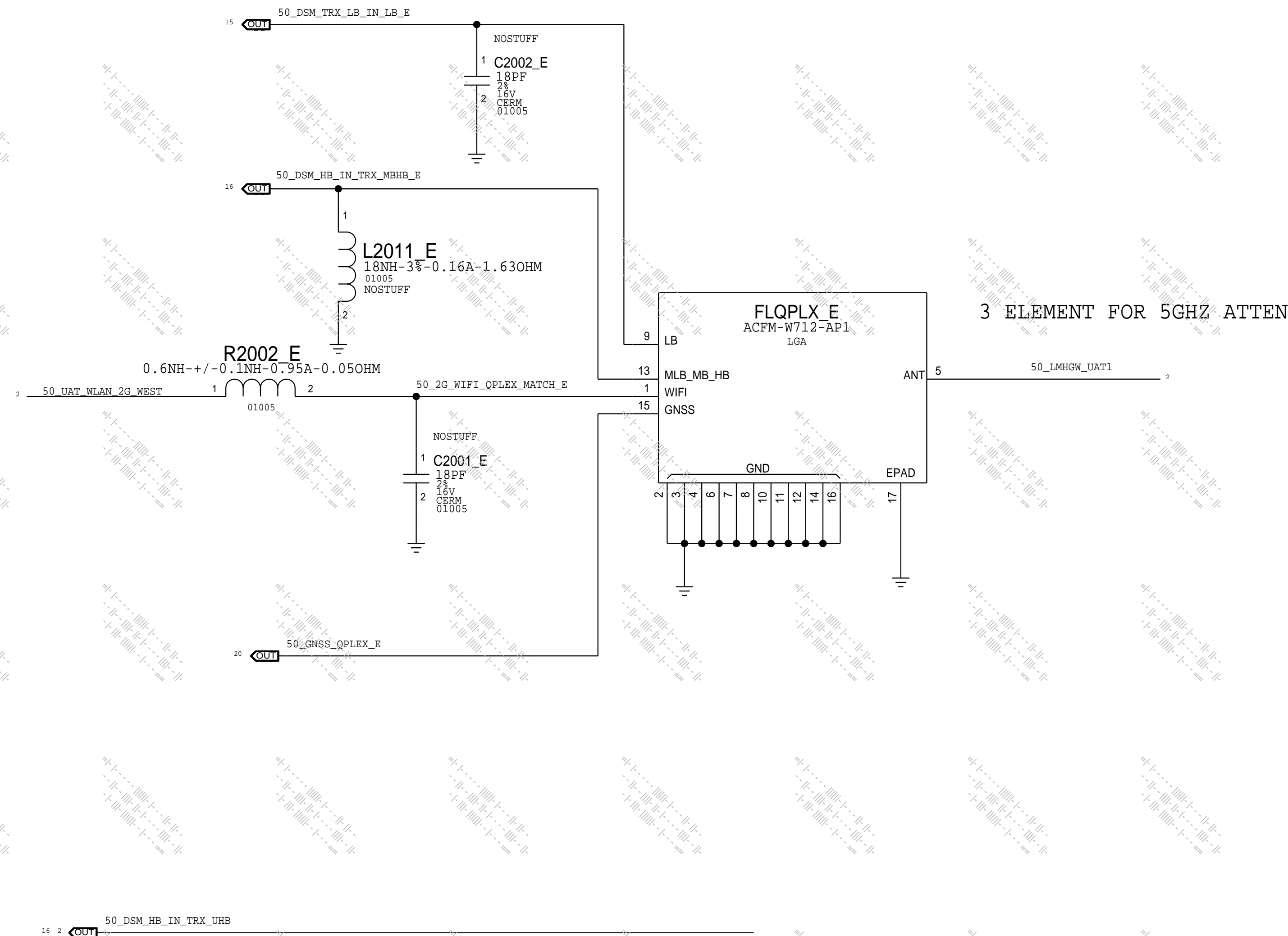
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PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
155S00298	1	TRIPLEXER, L+MLBMB+UHB	FLTRI_E	CRITICAL	JFN
155S00297	1	DIPLEXER, L+MLBMB	FLTRI_E	CRITICAL	ROW
152S00147	1	0.6NH UHQ, TRI ANT MATCH	R1903_E	CRITICAL	JFN
152S00151	1	0.8NH UHQ, TRI ANT MATCH	R1903_E	CRITICAL	ROW
131S00001	1	0.1PF, TRI ANT MATCH	L1901_E	CRITICAL	ROW

UAT & LB/UHB DIPLEXER

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GPS & GPS/LB DIPLEXER

8 7 6 5 4 3 2 1

D

C

B

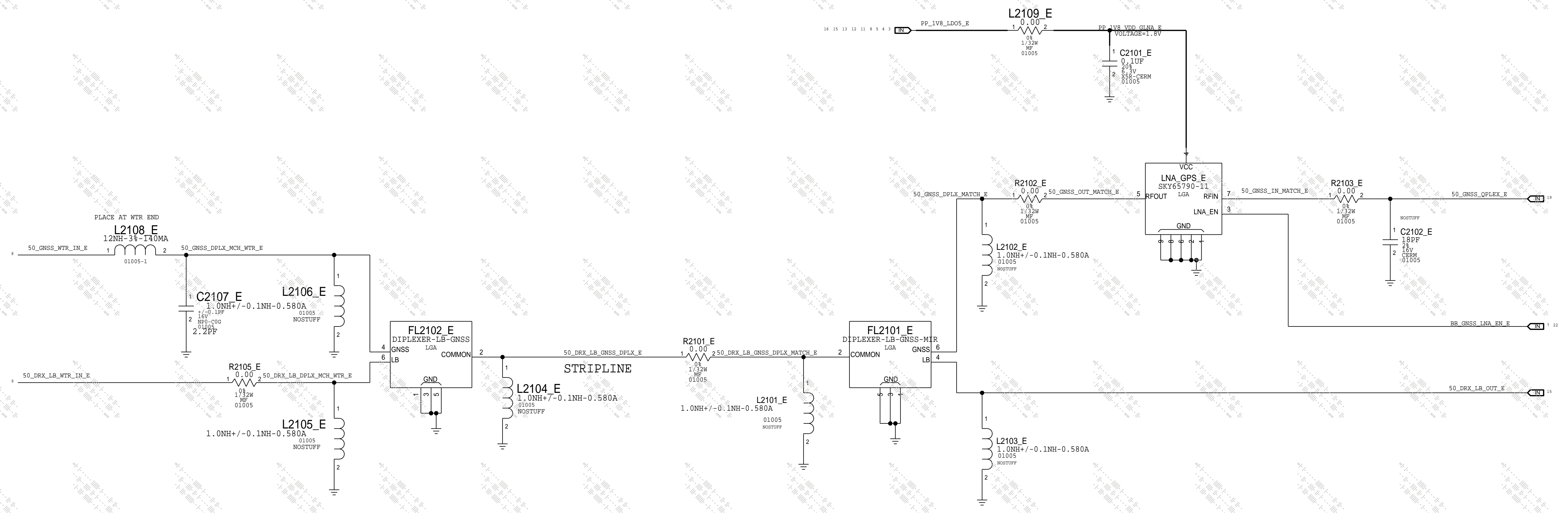
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tamiraat.com منبع مقاله

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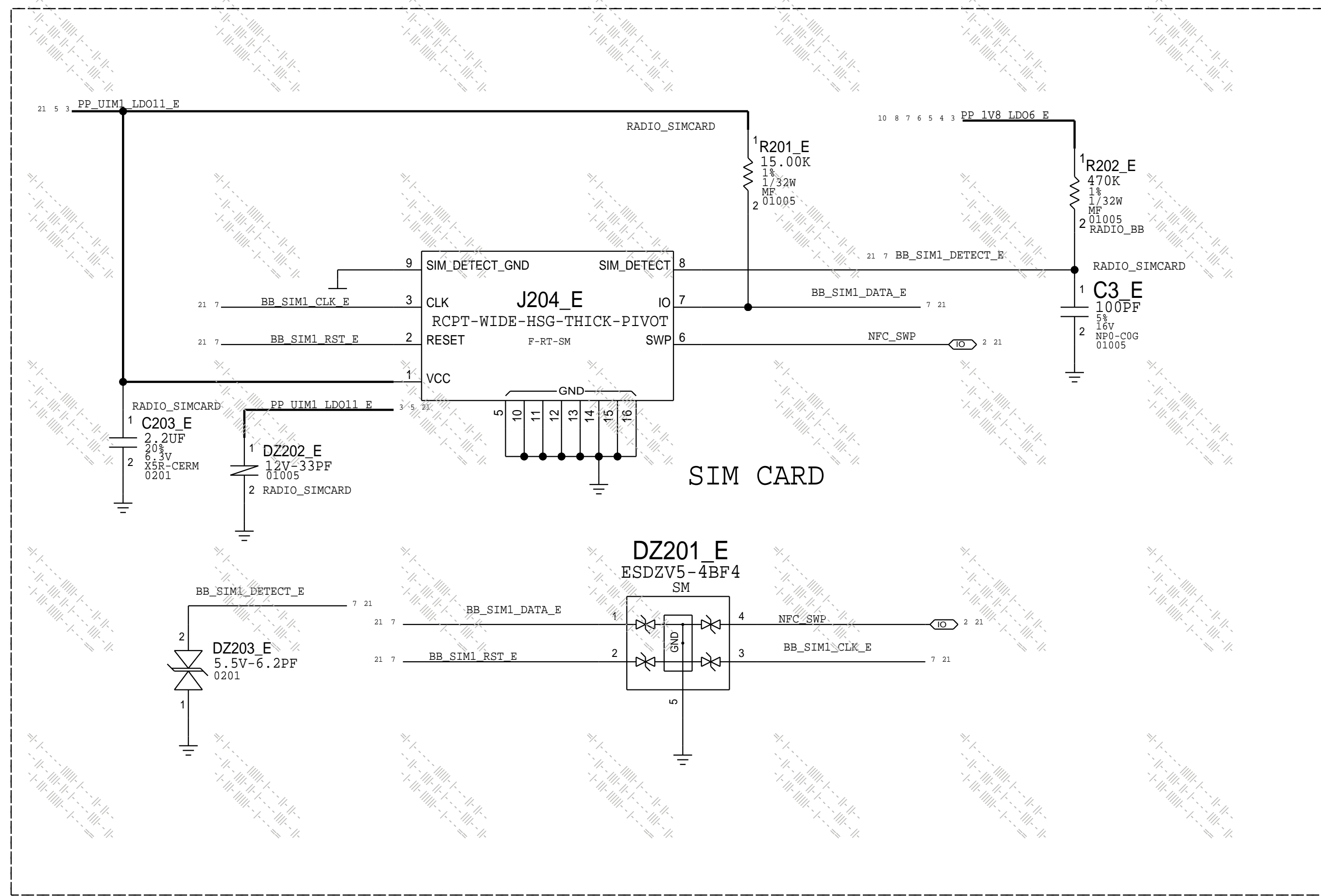
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			PAGE	20 OF 22
			SHEET	72 OF 81

8 7 6 5 4 3 2 1

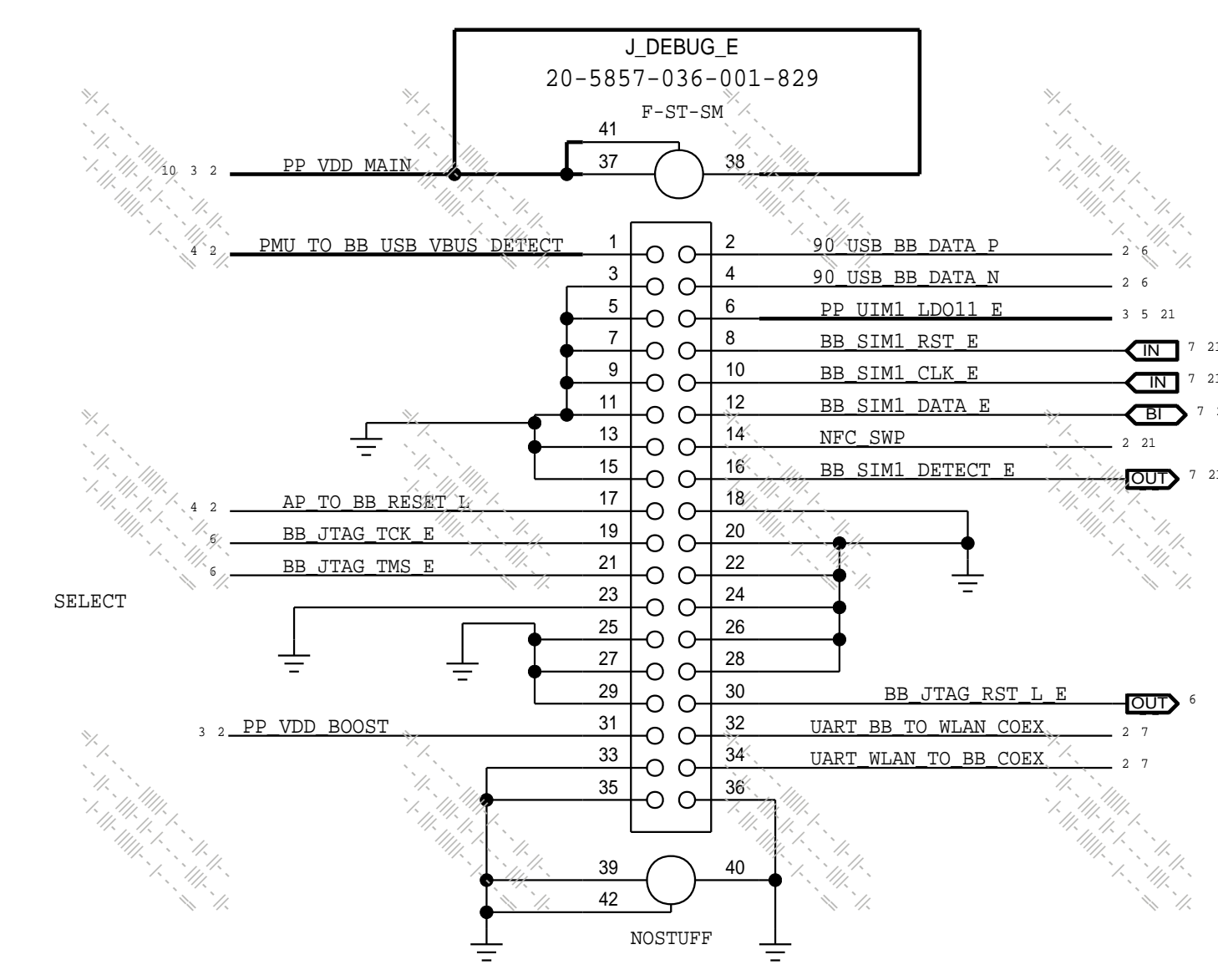
SIM CARD: CONNECTOR

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PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS
51280026	51280017	BOM_TABLE_ALTS	*2204_E	SIMCARD_KEYCERA



DEBUG CONNECTOR



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PAGE TITLE SIM, DEBUG CONN		
	DRAWING NUMBER 051-02159	SIZE D
	REVISION 10.0.0	
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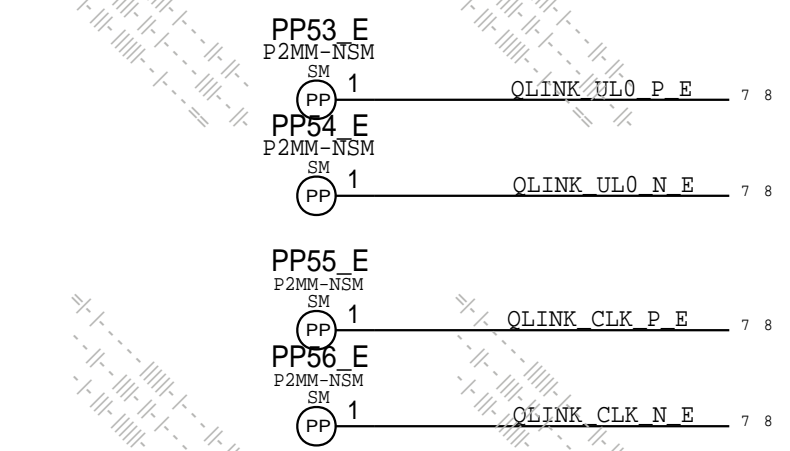
BB PROBE POINTS

QLINK

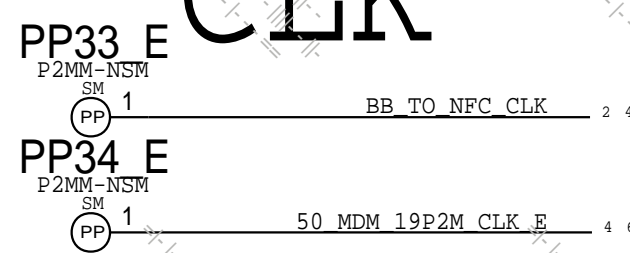
BASEBAND

LAYOUT: VIA STUB AT WTR PINS

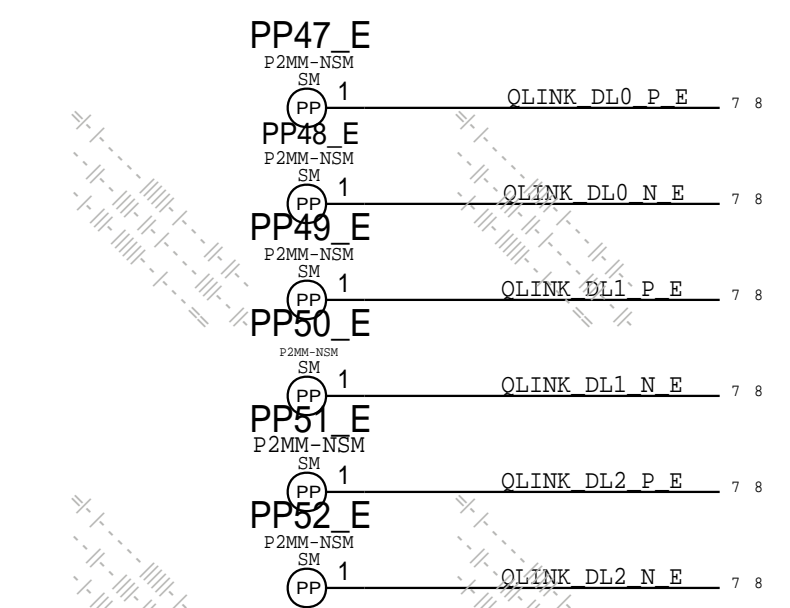
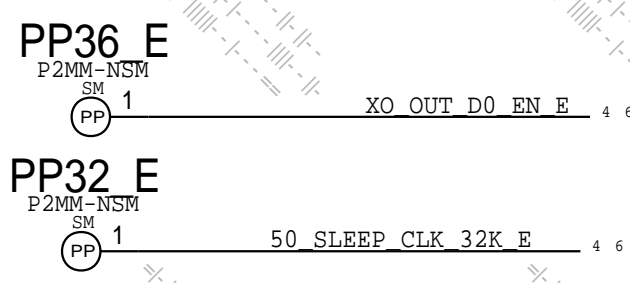
CLK



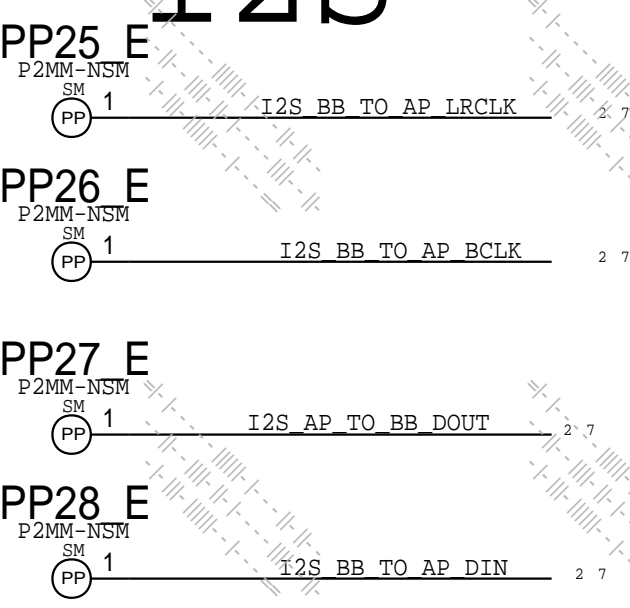
PWR SEQ



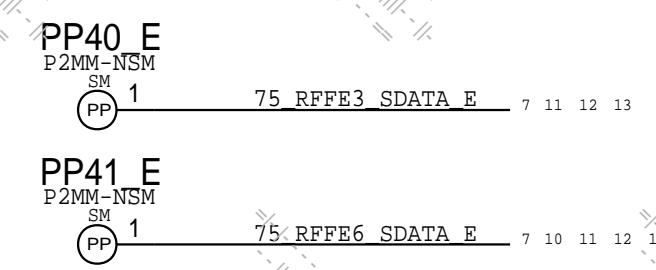
LAYOUT: VIA STUB AT BB PINS



I2S

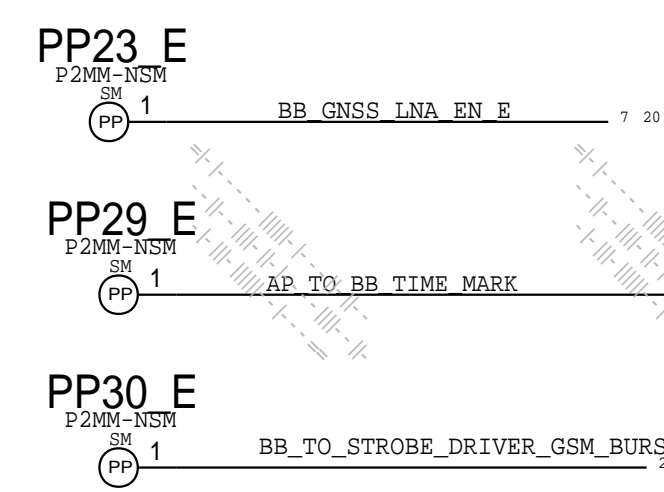
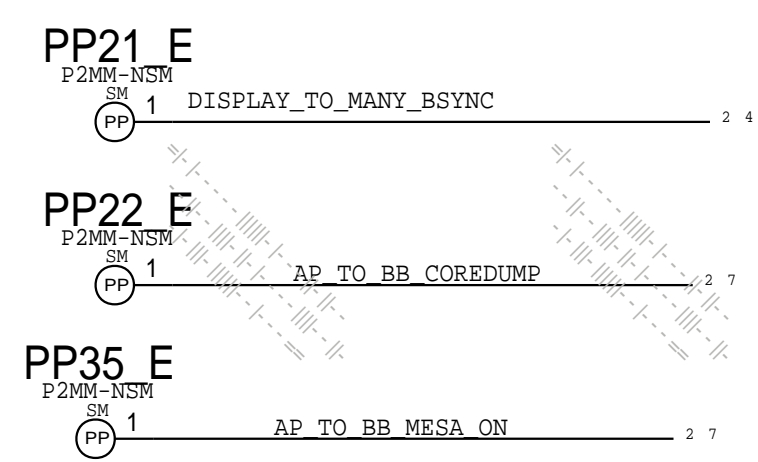


RFFE



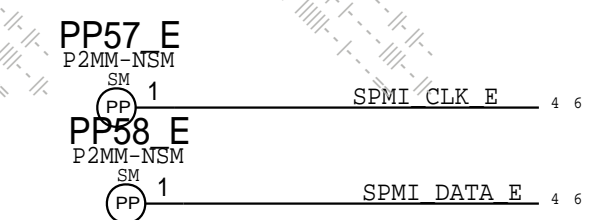
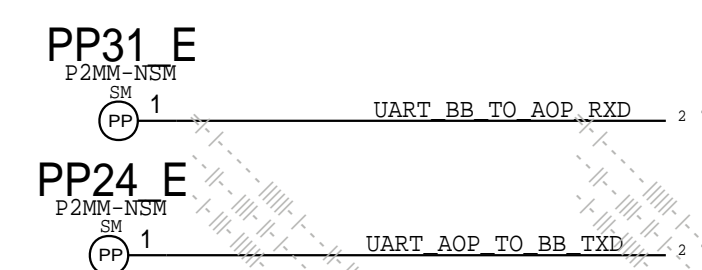
OTHERS

CTRL

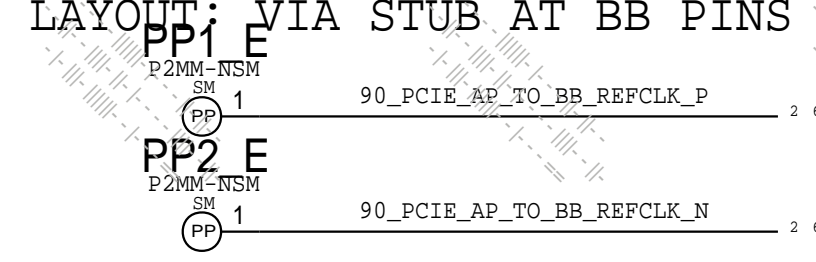


UART

SPMI



LAYOUT: VIA STUB AT BB PINS



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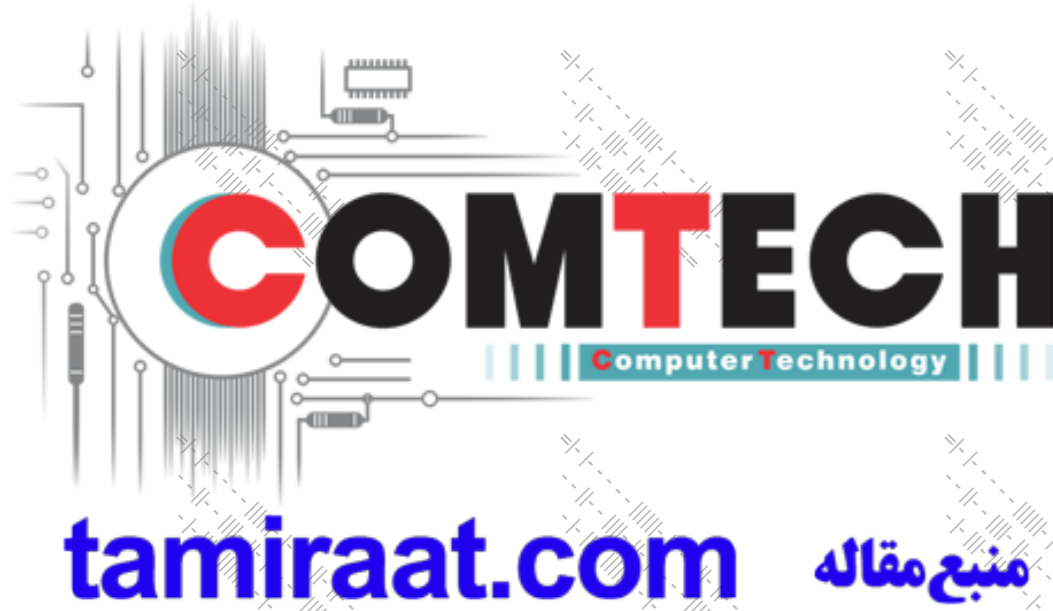
1. ALL RESISTANCE VALUES ARE IN OHMS, 0.1 WATT +/- 5%.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
3. ALL CRYSTALS & OSCILLATOR VALUES ARE IN HERTZ.

REV	ECN	DESCRIPTION OF REVISION	CK APPD	DATE
10	0008927012	ENGINEERING RELEASED		2017-06-06

D21 RADIO_MLB_FF

5/22/2017

76	50	IN	50 UAT TRX UHB MCS
76	50	IN	50 UAT TRX LB MCS
76	50	IN	50 UAT TRX MLB MB HB MCS
76	50	IN	50 LAT DRX MLB MB HB MCS
76	50	IN	50 LAT DRX LB MCS
76	50	IN	50 UAT TRX UHB MCW
76	50	IN	50 UAT TRX MLB MB HB MCW
76	50	IN	50 UAT TRX LB MCW
76	50	OUT	50 LAT DRX MLB MB HB MCW
76	50	OUT	50 LAT DRX LB MCW
76	50	IN	50 LHB LAT1
76	50	IN	50 LMHGW UAT1
76	50	IN	50 DSM HB IN TRX UHB
76	50	IN	50 LAT WLAN NORTH
76	50	IN	50 LAT WLAN SOUTH
76	50	IN	50 UAT WLAN 5G EAST
76	50	IN	50 UAT WLAN 2G EAST
76	50	IN	50 UAT WLAN 2G WEST
76	50	IN	50 LAT WLAN MLC
77	50	IN	LAT_TIMER_REFEE1_CLK
77	50	IN	LAT_TIMER_REFEE1_DATA
77	50	IN	UAT_TIMER_REFEE1_CLK
77	50	IN	UAT_TIMER_REFEE1_DATA
77	50	IN	PP1V8_S2
77	50	IN	PP3V0_S2
77	50	IN	PP1V8_S2
78	50	OUT	BB_TO_LAT_GPO1
78	50	OUT	BB_TO_LAT_GPO2
78	50	OUT	BB_TO_LAT_GPO3
78	50	OUT	BB_TO_LAT_GPO4



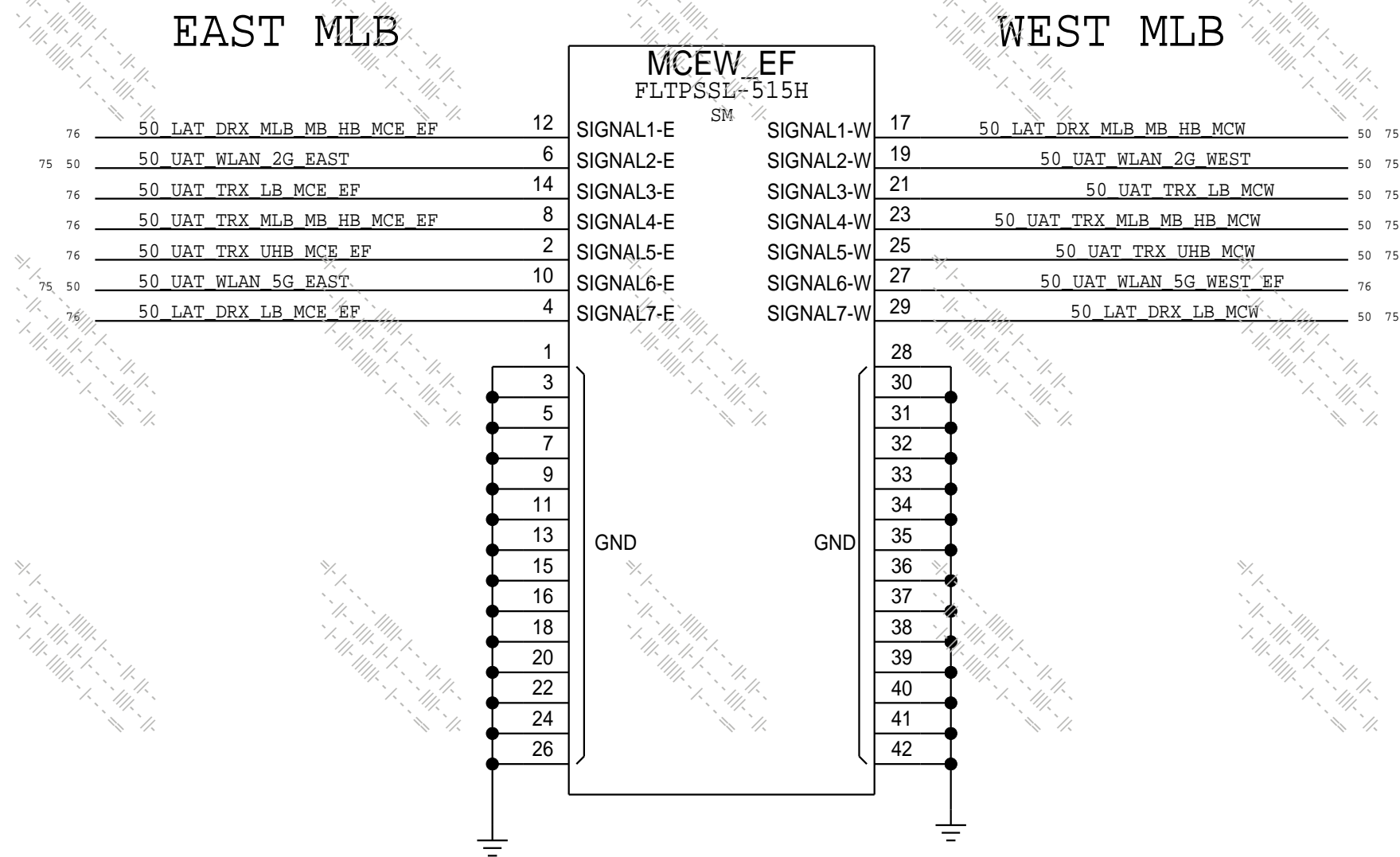
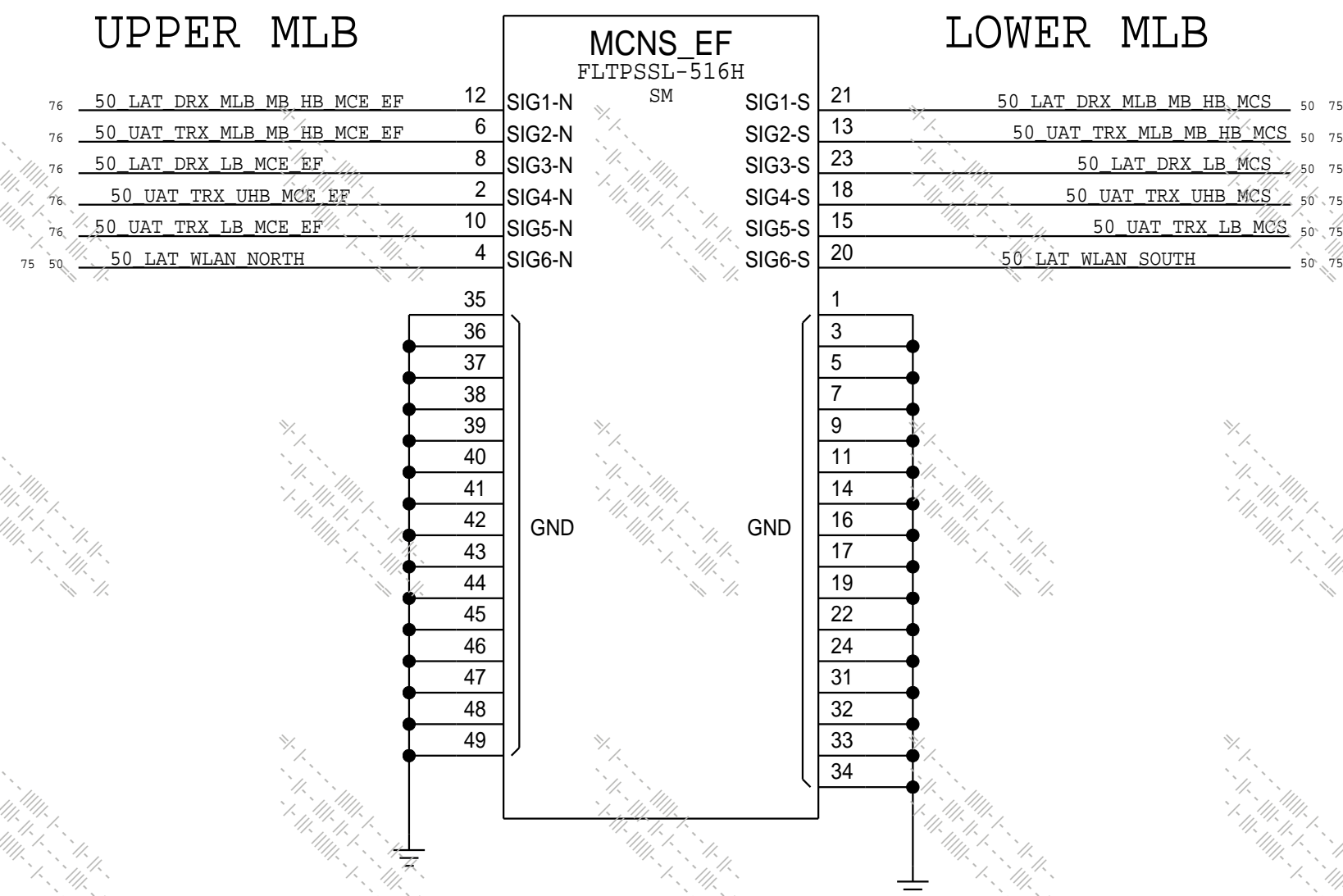
FRONT PAGE

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		REVISION	10.0.0
		BRANCH	
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		SHEET	75 OF 81

METROCIRC

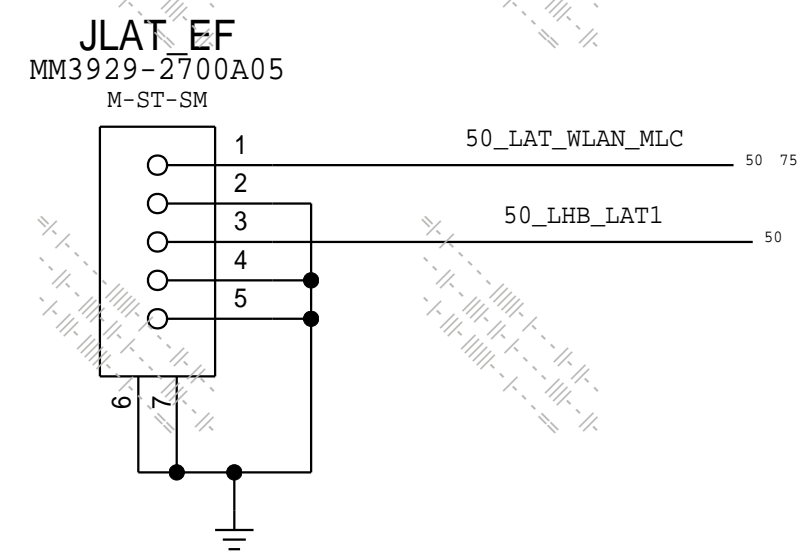
NORTH-SOUTH METROCIRC 339S00297

EAST-WEST METROCIRC 339S00296

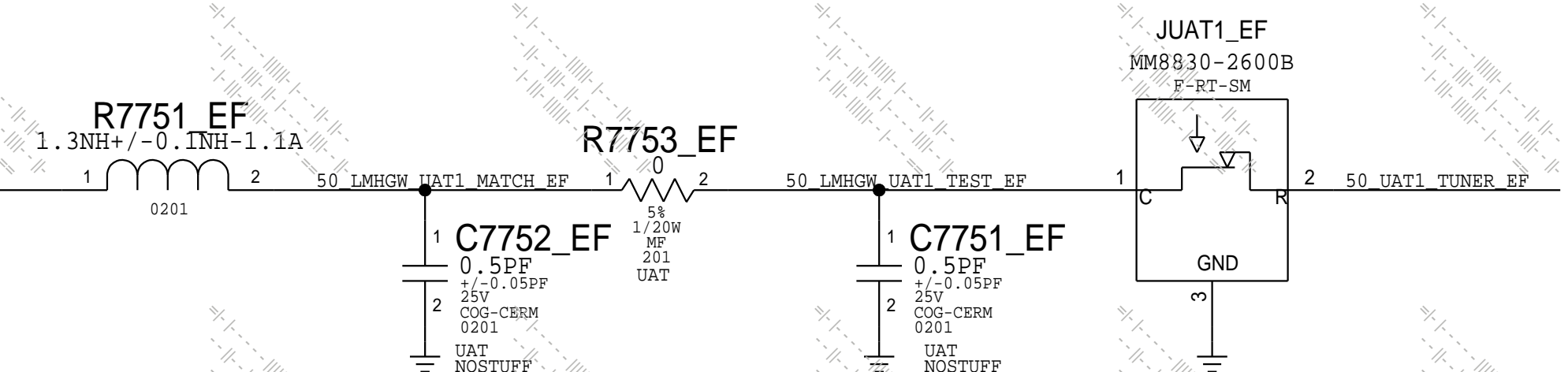


UHB/WIFI 5GHZ TEST

LAT MLC



LB/MLB/MB/HB WIFI 2.4GHZ TEST



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
155800274	1	B42/5G DIPLEXER	FL2002_EF	CRITICAL	JPN
155800275	1	5G PASSTHROUGH	FL2002_EF	CRITICAL	ROW
13180598	1	B42/5G DIPLEXER 5G_IN MATCH	L7751_EF	CRITICAL	JPN
13180385	1	5G PASSTHROUGH INPUT MATCH	L7751_EF	CRITICAL	ROW

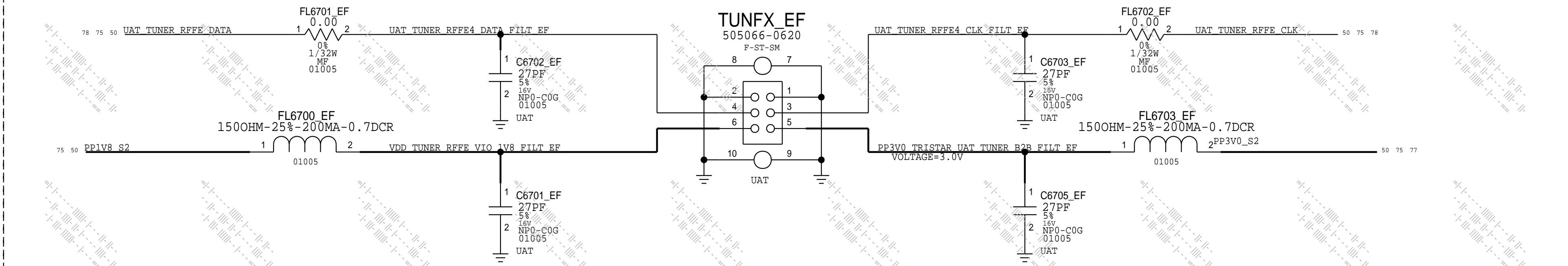


PAGE TITLE METROCIRC		
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UAT TUNER FLEX

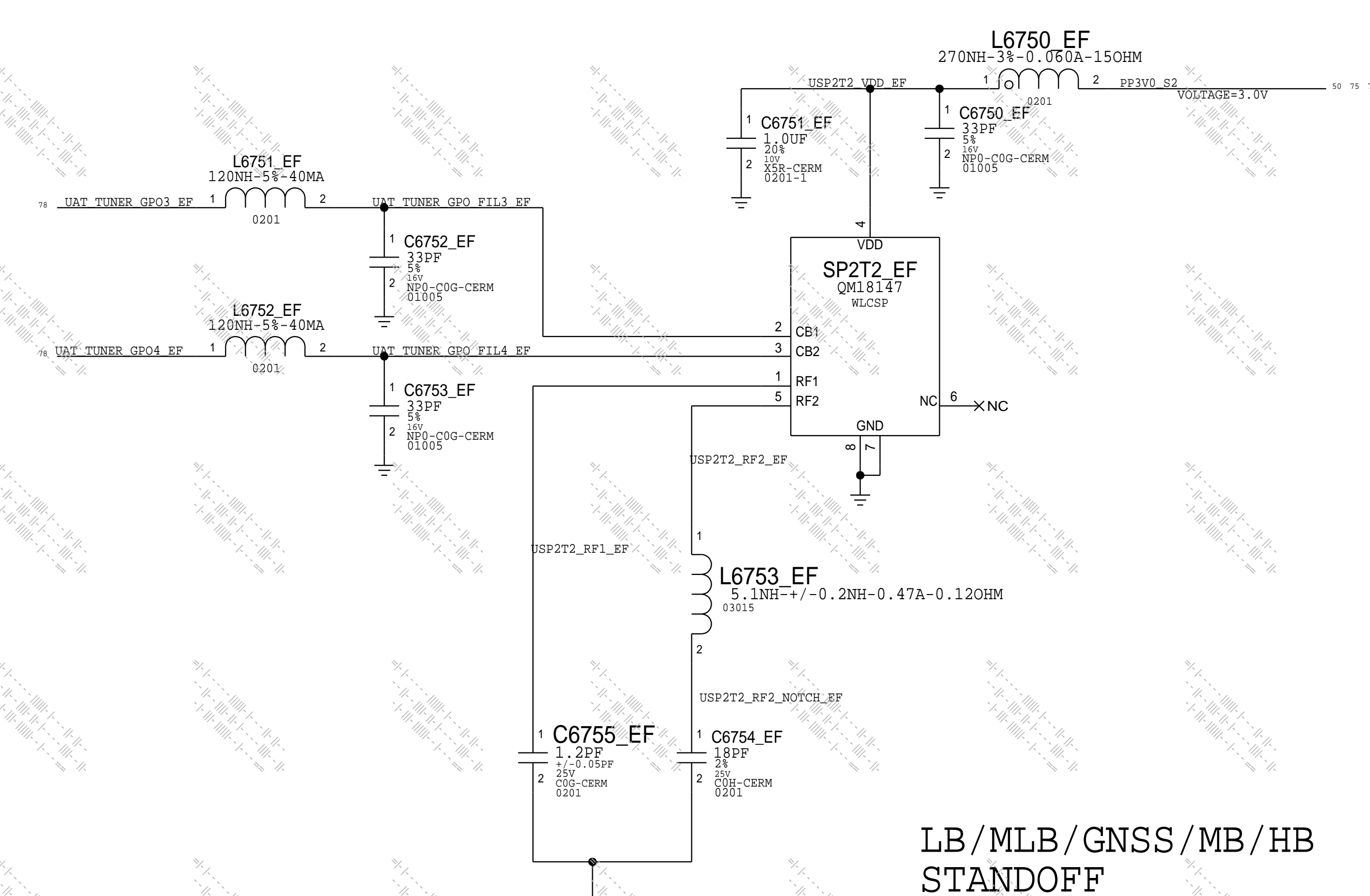
PLEASE CONTACT ANTENNA (MATT MOW)
FOR ANY COMPONENT CHANGE.

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
15281240	1	4.3NH 03015 WW INDUCTOR	L8005_EF	CRITICAL	JPN
152800749	1	3.6NH 03015 WW INDUCTOR	L8005_EF	CRITICAL	ROW



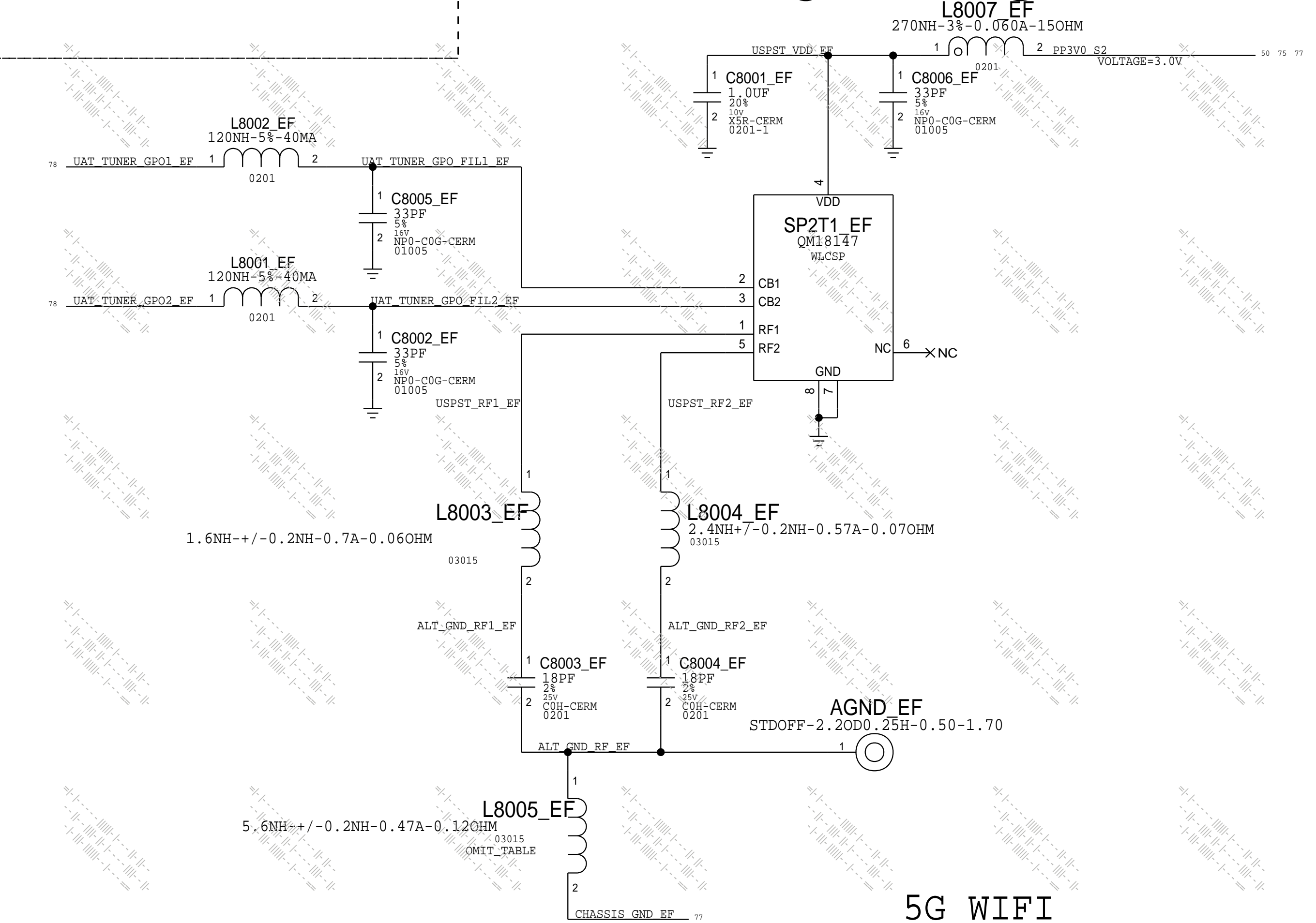
PINOUT IS ROTATED 180
COMPARED TO D20 & D201

UAT TUNER

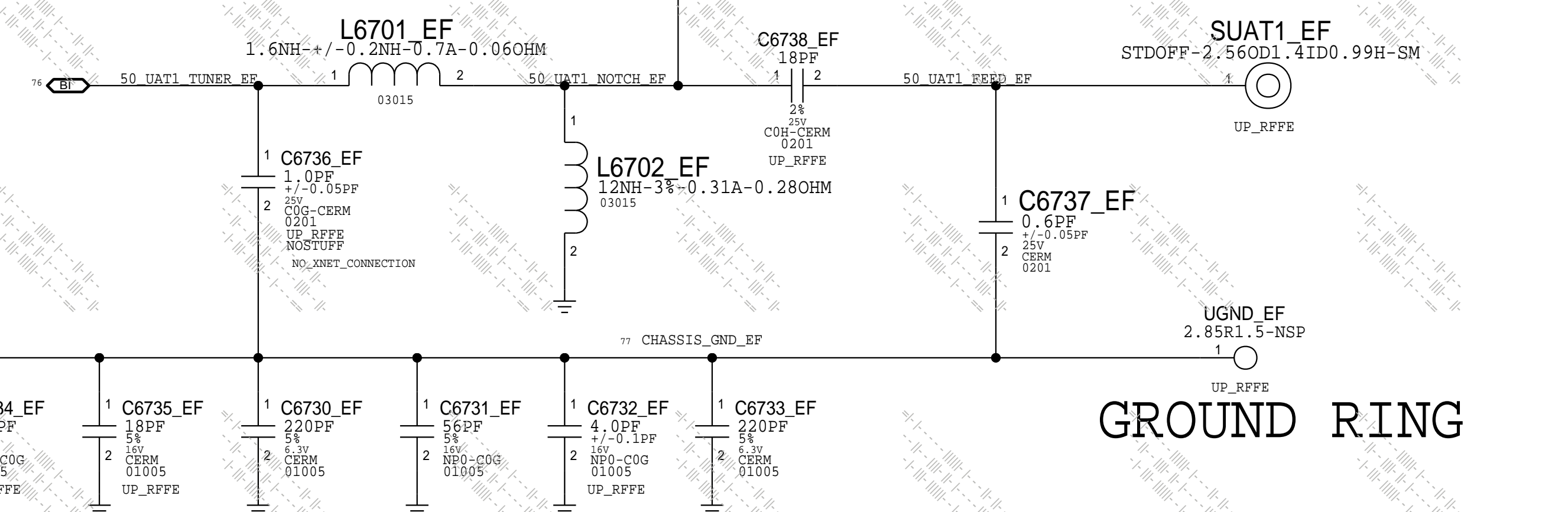


LB/MLB/GNSS/MB/HB
STANDOFF

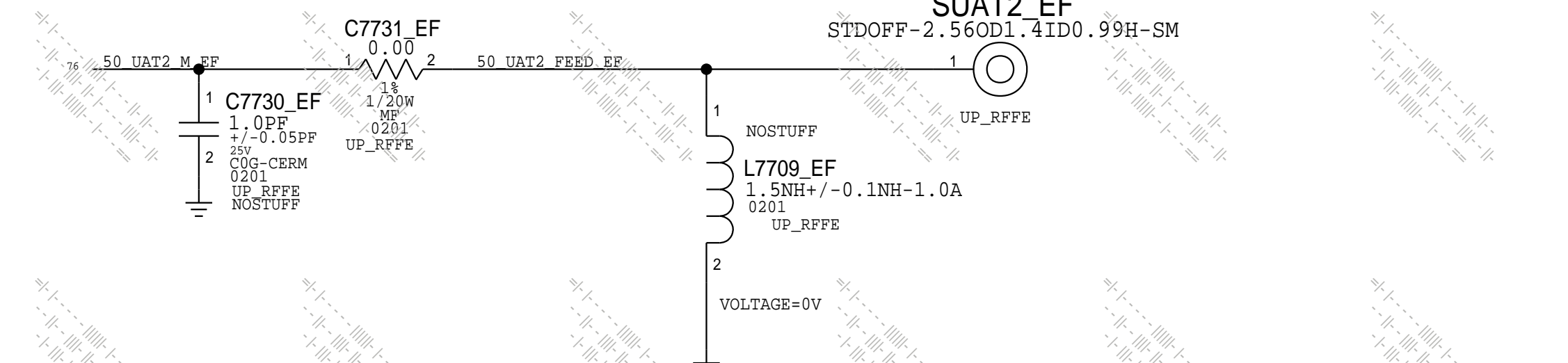
ALT UAT1 GND



5G WIFI
STANDOFF

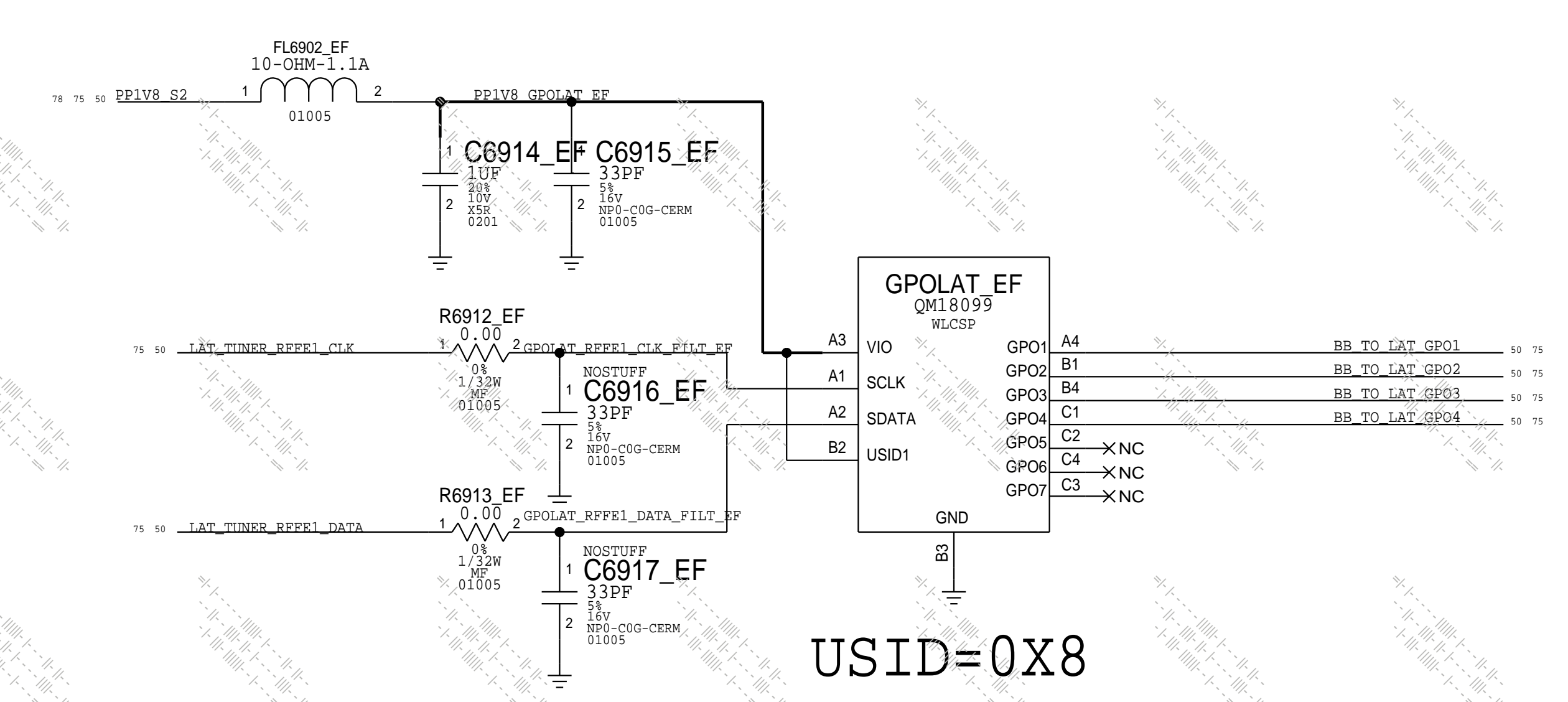
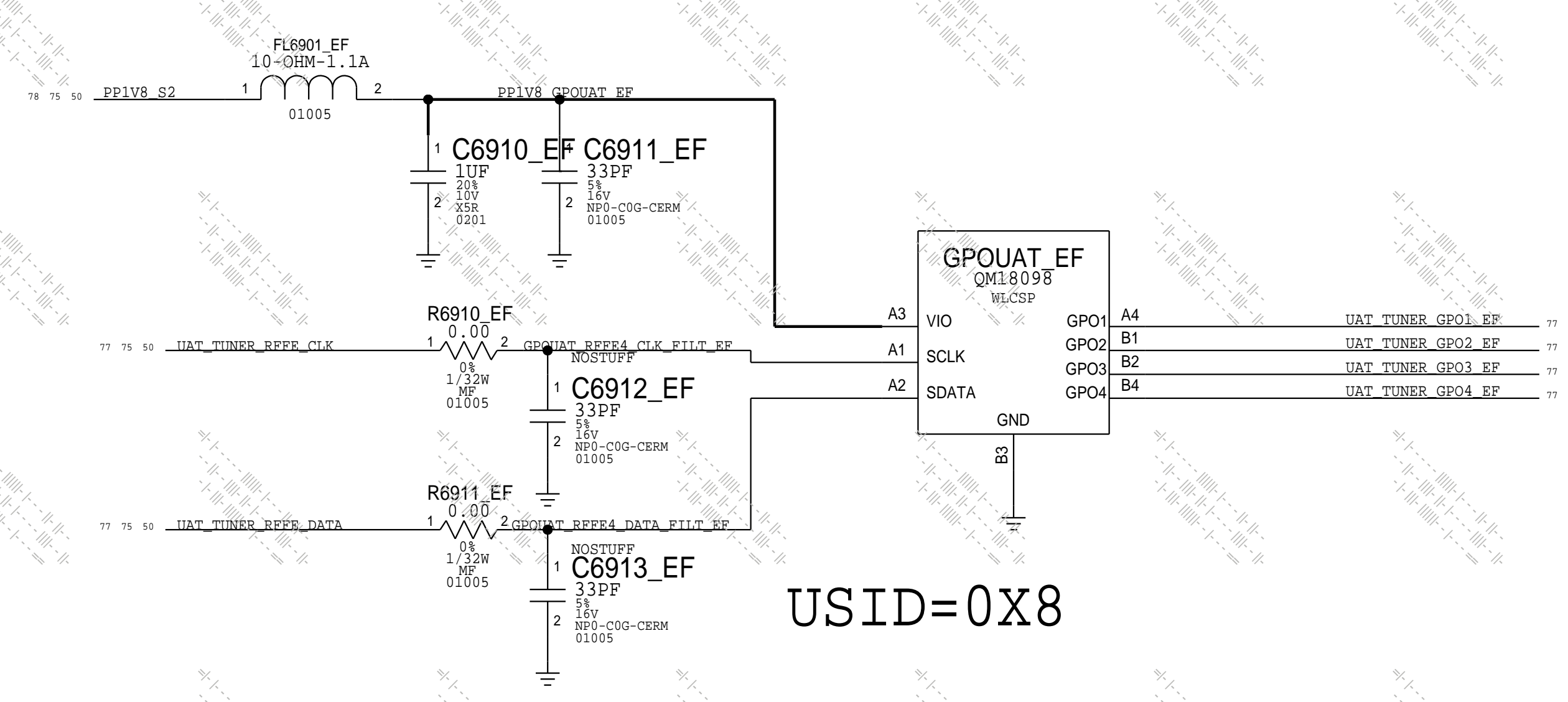


GROUND RING



PAGE TITLE		
UAT MATCH AND TUNER		
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- 2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
- 3. ALL CRYSTALS & OSCILLATOR VALUES ARE IN HERTZ.

REV	ECN	DESCRIPTION OF REVISION	CK APPD	DATE
10	0008927012	ENGINEERING RELEASED		2017-06-06

D21X WIFI_MLB (GUINNESS)

NOV 28, 2016

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2	76	GUINNESS
3	77	WIFI FRONT-END

POWER

- 50 IN PP_VDD_MAIN
- 50 IN PE1V8_S2

CLOCKS

- 50 IN PMU_TO_WLAN_CLK32K
- 50 OUT WLAN_TO_AP_TIME_SYNC

CONTROL

- 50 IN PMU_TO_WLAN_REG_ON
- 50 IN PMU_TO_BT_REG_ON
- 50 OUT BT_TO_PMU_HOST_WAKE
- 50 IN AP_TO_BT_WAKE

WLAN_PCIE

- 50 IN 90_PCIE_AP_TO_WLAN_SFCLK_P
- 50 IN 90_PCIE_AP_TO_WLAN_SFCLK_N
- 50 IN 90_PCIE_AP_TO_WLAN_TXD_P
- 50 IN 90_PCIE_AP_TO_WLAN_TXD_N
- 50 OUT 90_PCIE_WLAN_TO_AP_RXD_P
- 50 OUT 90_PCIE_WLAN_TO_AP_RXD_N
- 50 IN PCIE_AP_TO_WLAN_RESET_L
- 50 TO PCIE_WLAN_BI_AP_CLKREQ_L
- 50 OUT WLAN_TO_PMU_HOST_WAKE
- 50 IN AP_TO_WLAN_DEVICE_WAKE

WLAN_UART

- 50 OUT UART_WLAN_TO_AP_RXD
- 50 IN UART_AP_TO_WLAN_TXD
- 50 OUT UART_WLAN_TO_AP_CTS_L
- 50 IN UART_AP_TO_WLAN_RTS_L

BLUETOOTH_UART

- 50 IN UART_AP_TO_BT_TXD
- 50 OUT UART_BT_TO_AP_RXD
- 50 IN UART_AP_TO_BT_RTS_L
- 50 OUT UART_BT_TO_AP_CTS_L

AOP

- 50 IN AOP_TO_WLAN_CONTEXT_A
- 50 IN AOP_TO_WLAN_CONTEXT_B

COEX

- 50 IN UART_BB_TO_WLAN_COEX
- 50 OUT UART_WLAN_TO_BB_COEX

ANTENNA

- 50 TO 50_UAT_WLAN_2G_EAST
- 50 TO 50_UAT_WLAN_5G_EAST
- 50 TO 50_LAT_WLAN_NORTH
- 50 TO 50_LAT_WLAN_SOUTH
- 50 TO 50_LAT_WLAN_MLC

SymbolPorts



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WIFI/BT

D

C

B

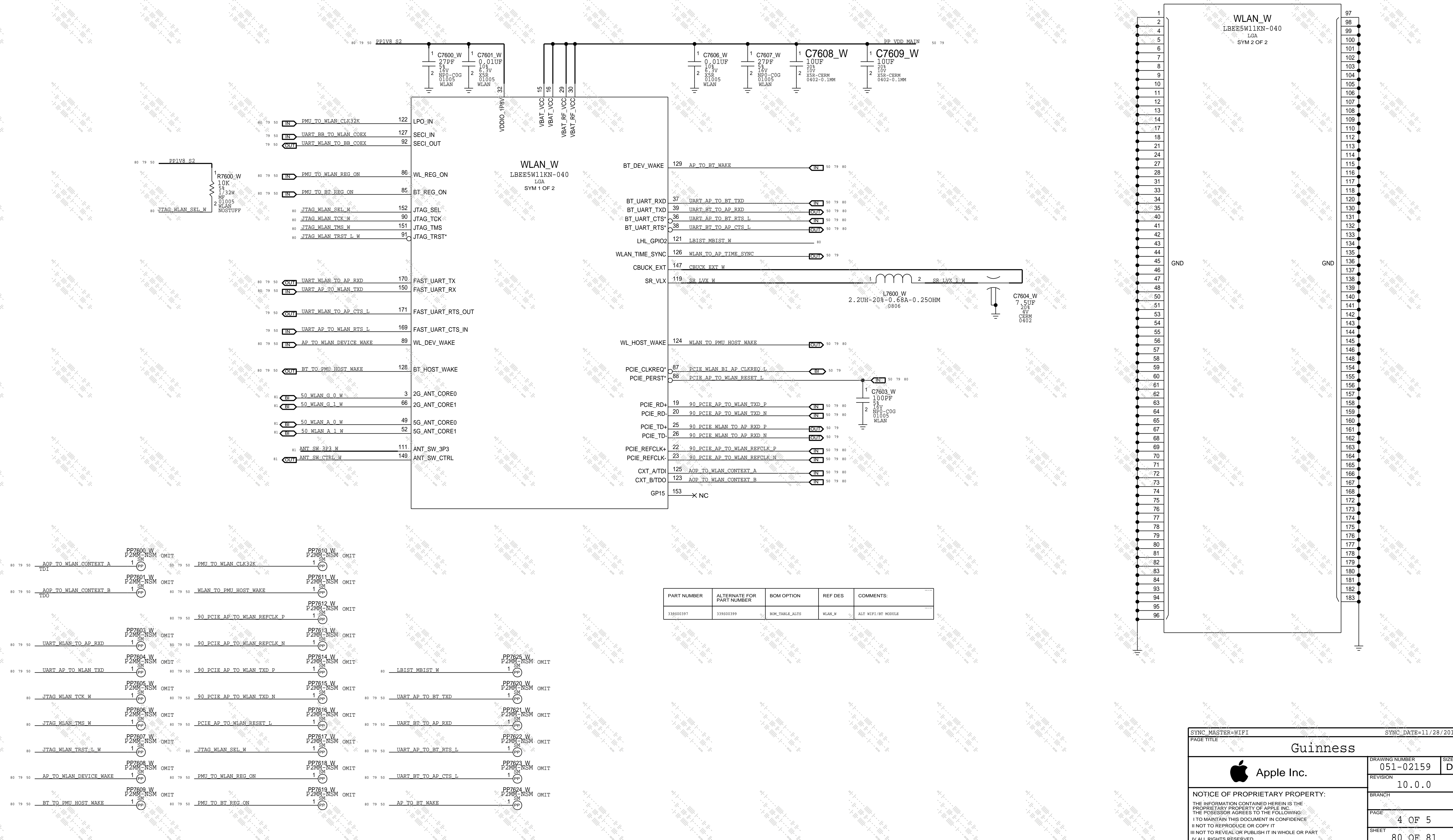
A

D

C

B

A



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
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SYNC_MASTER=WIFI SYNC_DATE=11/28/2016

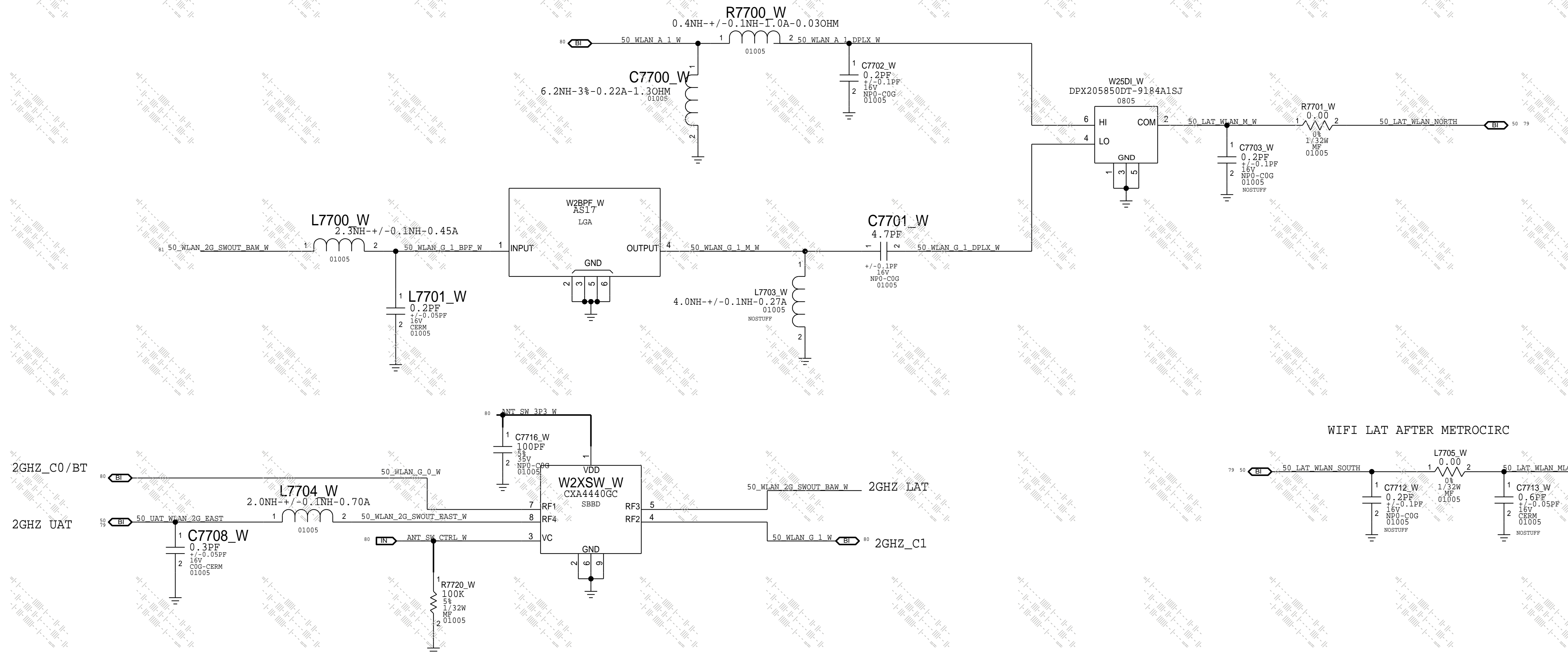
Guinness

Apple Inc.

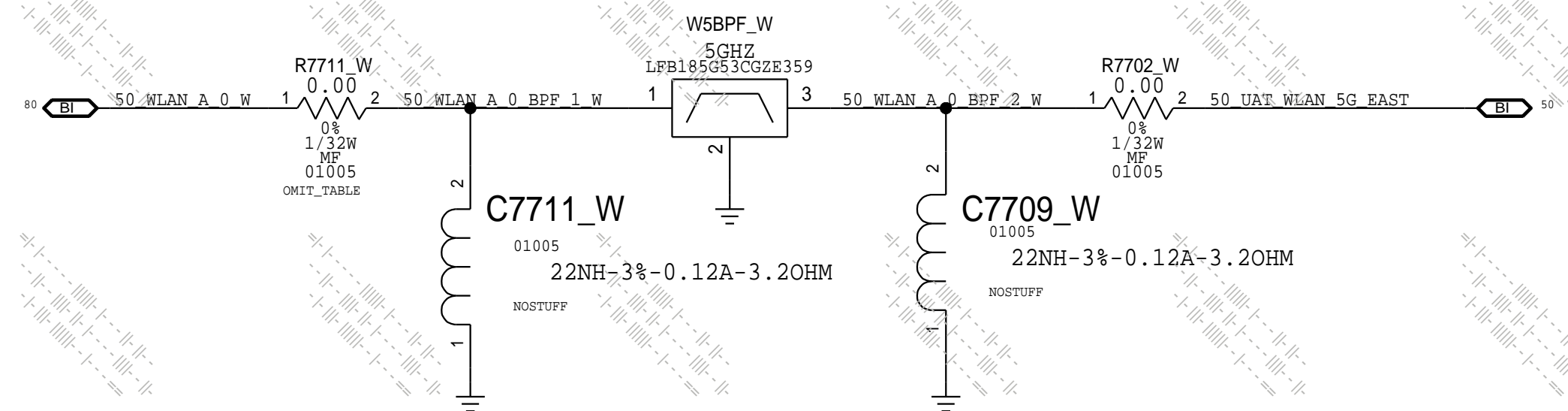
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WIFI LOWER ANTENNA FEED



WIFI UPPER ANTENNA FEED



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
152800498	1	5G CORED BPF MATCH	R7711_W	CRITICAL	D211
11780161	1	5G CORED BPF MATCH	R7711_W	CRITICAL	JPN
11780161	1	5G CORED BPF MATCH	R7711_W	CRITICAL	ROW