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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.

J71S

MLB_B

REV

ECN

DESCRIPTION OF REVISION

CK APPD
DATE

4

0006866897

ENGINEERING RELEASED

2016-08-19

SCH AND BOARD PART NUMBERS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
051-01799	1	SCHM_MLB_B_REV_J71S	SCH1	
820-00724	1	PCBP_MLB_B_REV_J71S	PCB1	

LAST_MODIFIED=Thu Aug 18 10:18:24 2016

PDF CSA CONTENTS

SYNC MASTER

DATE

1	1	TABLE OF CONTENTS	N/A	N/A
2	2	BLOCK DIAGRAM: SYSTEM	N/A	12/03/2012
3	4	BOM TABLES		
4	5	SOC: MISC & ALIASES		
5	6	SOC: MAIN		
6	7	SOC: IO		
7	8	SOC: CAMERA & DISPLAY		
8	9	SOC: PCIE		
9	10	SOC: AOP		
10	12	SOC: POWER (IO & DDR)		
11	13	SOC: POWER (CPU & GPU)		
12	14	SOC: POWER (SOC, SRAM, FIXED)		
13	15	SOC: GND		
14	16	NAND		
15	17	IO: TRISTAR		
16	18	AUDIO: HP/DMIC FLEX CONNS	N/A	N/A
17	19	AUDIO: L81 CODEC	KAVITHA	01/18/2012
18	20	AUDIO: SPEAKER AMPS LEFT	N/A	N/A
19	21	AUDIO: SPEAKER AMPS RIGHT	N/A	N/A
20	22	SENSOR: MESA SUPPORT	J85_MLB_C2	05/2012
21	23	SENSOR: MESA BOOST	MLB_A	06/23/2014
22	25	SENSOR: HALL, CARBON, COMPASS, PHOS		N/A
23	26	IO: BUTTON FLEX CONN	N/A	N/A
24	27	CAMERA: FF AND ALS CONN	N/A	N/A
25	29	CAMERA: REAR CONN & FILTERS	N/A	N/A
26	37	IO: FLEX HOTBAR & FILTERS	N/A	N/A
27	38	SENSOR-BTN: HALL, HOME & MESA	N/A	N/A
28	40	GRAPE: CUMULUS	N/A	N/A
29	41	DISPLAY: EDP CONN	N/A	N/A
30	49	RADIOS: ALIASES	N/A	04/11/2011
31	50	CELL: PROBE PTS & DEBUG CONN	RADIO_MLB_B	08/15/2016

PDF CSA CONTENTS

SYNC MASTER

DATE

32	51	CELL: BB PMU (1/2)	RADIO_MLB	08/15/2016
33	52	CELL: BB PMU (2/2)	RADIO_MLB	08/15/2016
34	53	CELL: BASEBAND (1/2)	RADIO_MLB	08/15/2016
35	54	CELL: BASEBAND (2/2)	RADIO_MLB	08/15/2016
36	55	CELL: BASEBAND (3/3)	RADIO_MLB	08/15/2016
37	56	CELL: RF TXCVR (1/3)	RADIO_MLB	08/15/2016
38	57	CELL: RF TXCVR (2/3)	RADIO_MLB	08/15/2016
39	58	CELL: RF TXCVR (3/3)	RADIO_MLB	08/15/2016
40	59	CELL: QFE DCDC	RADIO_MLB	08/15/2016
41	60	CELL: 2G PA	RADIO_MLB	08/15/2016
42	61	CELL: VLB PAD	RADIO_MLB	08/15/2016
43	62	CELL: LB PAD	RADIO_MLB	08/15/2016
44	63	CELL: MB PAD	RADIO_MLB	08/15/2016
45	64	CELL: HB PAD	RADIO_MLB	08/15/2016
46	65	CELL: ANTENNA SWITCH	RADIO_MLB	08/15/2016
47	66	CELL: HB SWITCH	RADIO_MLB	08/15/2016
48	67	CELL: RX DIV (1/2)	RADIO_MLB	08/15/2016
49	68	CELL: RX DIV (2/2)	RADIO_MLB	08/15/2016
50	69	CELL: GPS	RADIO_MLB	08/15/2016
51	72	CELL: ANT FEEDS & GPS	RADIO_MLB	08/15/2016
52	73	CELL: SIM FLEX CONN	N/A	N/A
53	74	STOCKHOLM	RADIO_MLB	08/15/2016
54	75	WIFI/BT: MODULE	J71S_WIFI_MLB	08/15/2016
55	77	WIFI/BT: J72S FRONT END	J71S_WIFI_MLB	08/15/2016
56	81	POWER: ANGEL (1/5)		
57	82	POWER: ANGEL (2/5)		
58	83	POWER: ANGEL (3/5)		
59	84	POWER: ANGEL (4/5)		
60	85	POWER: ANGEL (5/5)		
61	86	POWER: EXTERNAL SWITCHES & LDOS		
62	87	POWER: MAUI SPECIFIC		
63	88	BEACON2	J82	09/25/2013
64	89	POWER: BATTERY CONNECTOR	MLB_A	06/23/2014
65	93	TEST: TP/HOLES/FIDUCIALS	J85_MLB_C	12/03/12
66	94	TEST: EE TP/PP	J72_MLB_C	11/26/2012
67	121	POWER: ALIASES		
68	122	POWER: ALIASES (MAUI)		

CKPLUS RULE EXCEPTIONS

REQUIRED

SCHEMATIC DEFINED CONSTRAINTS (YES/NO)

NO

DRAWING

8

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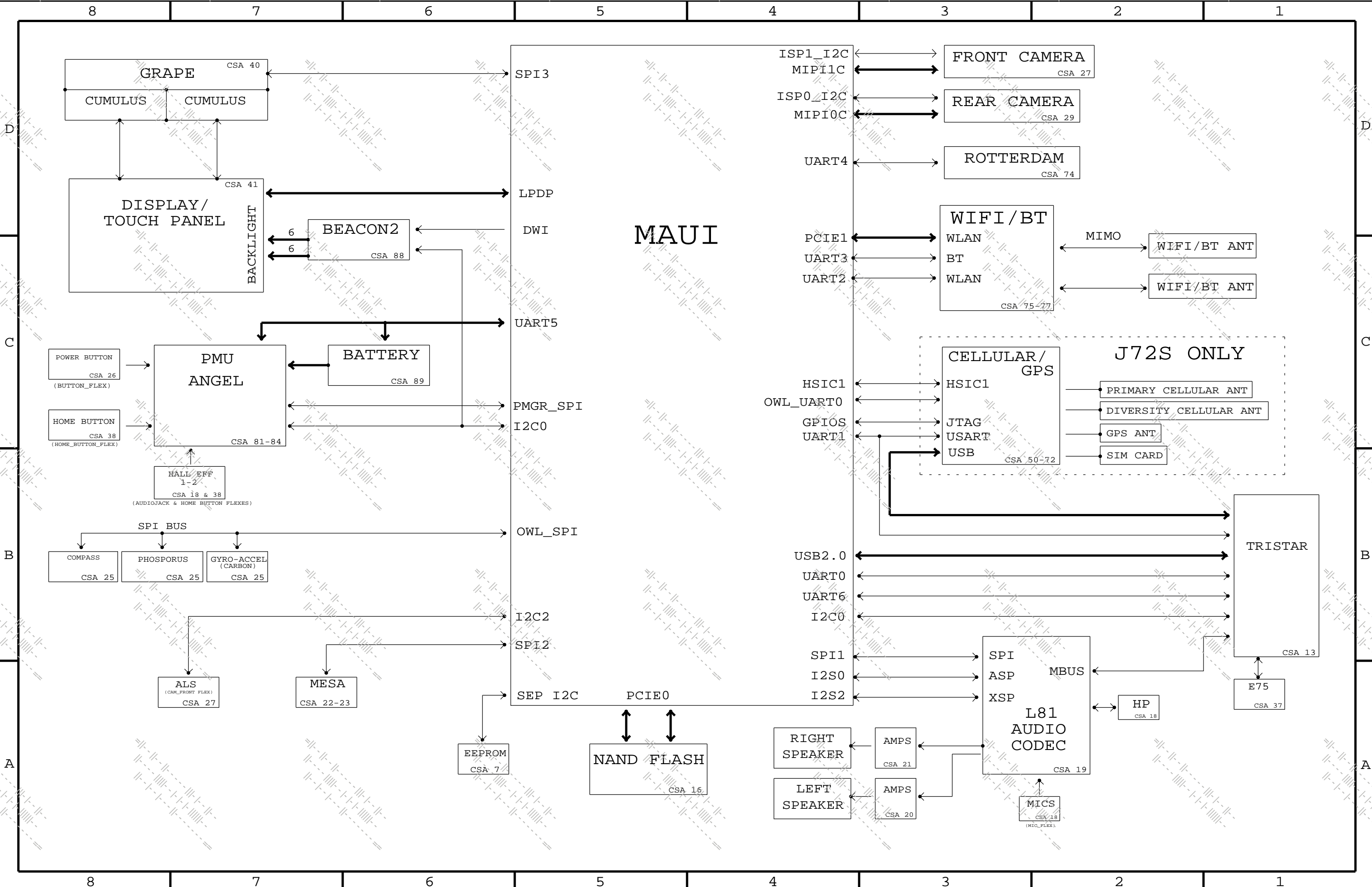
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Page Notes

Power aliases required by this page:
(NONE)

Signal aliases required by this page:
(NONE)

BOM options provided by this page:

SOC					
PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
MICRON 339S00097	1	POP, MAUI-2GB 25NM DDR, CO, H, DEV, FCMS128	U0600	CRITICAL	
PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:	
339S00096	339S00097		U0600	H DRAM - 25NM	
339S00236	339S00097		U0600	H DRAM - 21NM	
339S00098	339S00097		U0600	S DRAM	

FLASH CONFIGURATIONS					
PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
TOSHIBA 335S00235	1	NAAND, 1Z, 32GBM, S3E, 128GB, T, ULGA70	U1600	CRITICAL	32GB
TOSHIBA 335S00174	1	NAAND, 1Z, 128GBT, S3E, 128G, T, ULGA70	U1600	CRITICAL	128GB
PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:	
HYNIX 335S00160	335S00235		U1600	HYUNIX 32G	
HYNIX 335S00158	335S00174		U1600	HYNIX 128G	

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
155S00007	155S0667			L2710, L2711, L2910, L2911, L2912, L2913, L2920

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S00032	138S0831		D610, C0800, ...	2.20V 0201
138S00006	138S0835		D900, C0980, ...	4.30V
138S00005	138S00003		H140, C0161, ...	3.0V
138S00056	138S1100		L101, C1302, ...	1.8V
138S0945	138S0739		L1760, ...	5.0V
138S0706	138S0739		L1760, ...	1.0V
376S00072	376S00073		Q8504	
376S00072	376S2211		Q8505	
335S00066	335S0946		U0701	
376S0948	376S00076		Q8900	

128S00062	128S00069		C8100-C2	1500V	DESMOND EMAIL 3/17/16 5:05PM
132S0400	132S0436		C2522, C2525	0.200V	RDAR #23002122
131S0641	131S00011		H181, C0811, ...	5.00V	RDAR #23321717
197S0369	197S0392		V8300	32.768K XTAL2	RDAR #24177192
155S00057	155S0664		FL2780, ...	FILTER_2P	RDAR #23399925
155S00047	155S0755		FL4190	FERRITE BEAD	RDAR #23169091
155S00016	155S0686		L1800, ...	FILTER_2P	
155S0773	155S0453		FL2290-92, 93-94	FILTER_2P	
155S00200	155S0610		FL2580, ...	FILTER_2P	
138S0786	138S0847		C5905	100V	RDAR #24161406
138S0864	138S0709		C8547, ...	4.70V	RDAR #2320528
138S0875	138S0678		C8140, ...	100V	
132S00005	132S0316		C0630, ...	0.10V	
335S00013	335S0894		U5403	5.000V	

MECHANICAL PARTS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
806-09298	1	FENCE, AP, MLB, YY, J71S	PD_FENCE_AP	CRITICAL	
806-08921	1	FENCE, J72S	PD_FENCE_RF	CRITICAL	
806-09240	1	SHIELD, GRAPE, MLB, YY, J71S	PD_SHIELD_GRAPE	CRITICAL	

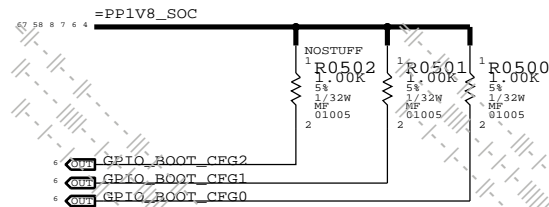
BARCODE LABEL/EEEE CODES

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
825-7639	1	EEEE FOR 639-02478 (GOOD)	H8H5	CRITICAL	EEEE_J72S_GD
825-7639	1	EEEE FOR 639-02479 (BETTER)	H8N6	CRITICAL	EEEE_J72S_BTR
825-7639	1	EEEE FOR 639-02480 (BEST)	H8N7	CRITICAL	EEEE_J72S_BST
825-7639	1	EEEE FOR 639-02481 (ULTIMATE)	H8N8	CRITICAL	EEEE_J72S_ULT

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
118S0631	1	RES, MF, 100 OHM, 1%, 1/32W, 01005	R0921	CRITICAL	MAUI
118S00009	1	RES, MF, 3.01 KOHM, 1%, 1/32W, 01005	R0921	CRITICAL	MALTA
118S0652	1	RES, MF, 49.9 OHM, 1/32W, 01005	R0621	CRITICAL	MAUI
118S0631	1	RES, MF, 100 OHM, 1%, 1/32W, 01005	R0921	CRITICAL	MALTA
117S0161	1	RES, MF, 0 OHM, 1/32W, 01005	R0651	CRITICAL	MAUI
118S00025	1	RES, MF, 330 OHM, 1%, 1/32W, 01005	R0651	CRITICAL	MALTA

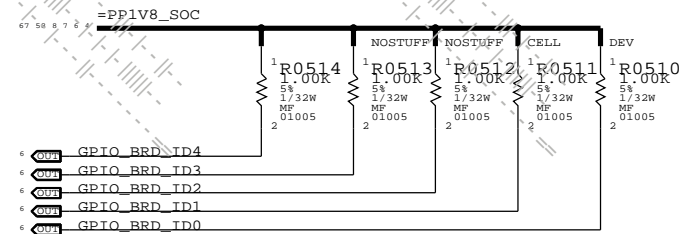
PHOSPHORUS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
338S00044	1	BMP282	U2580	CRITICAL	PHOS1_BMP282
338S00188	1	BMP284	U2580	CRITICAL	PHOS2_BMP284
PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:	
338S00013	338S00044		U2580	BOSCH BMP282UBC	



BOOT_CFG[2:0]		MODE	S/W READ FLOW
	000	SP10 TEST MODE	1. SET GPIO AS INPUT
	010	NVME0 X2 TEST MODE	2. DISABLE PU AND ENABLE PE
CURRENT SETTING --->	011	NVME0 X2 TEST MODE	3. READ
	100	NVME0 X1 MODE	
	101	NVME0 X1 TEST MODE	
	110	SP10 TEST MODE	
	111	SP10 TEST MODE	

BOARD ID

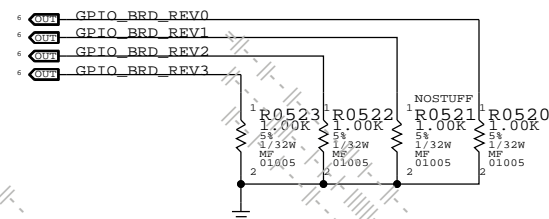


```

BRD_ID[4-0]
10000 J71S AP (WIFI)
10001 J71S DEV
10010 J72S AP (CELL)
10011 J72S DEV
RDAR//PROBLEM/25022353
S/W READ FLOW
1. SET GPIO AS INPUT
2. DISABLE PU AND ENABLE PD
3. READ

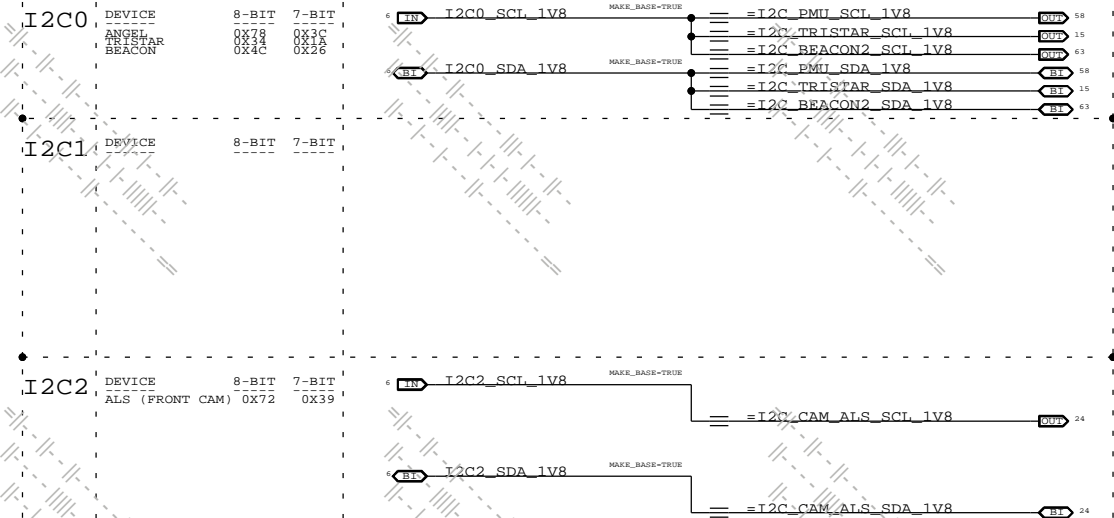
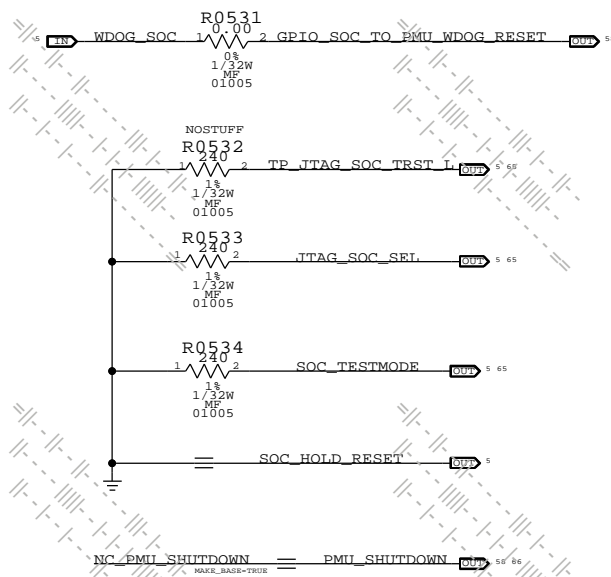
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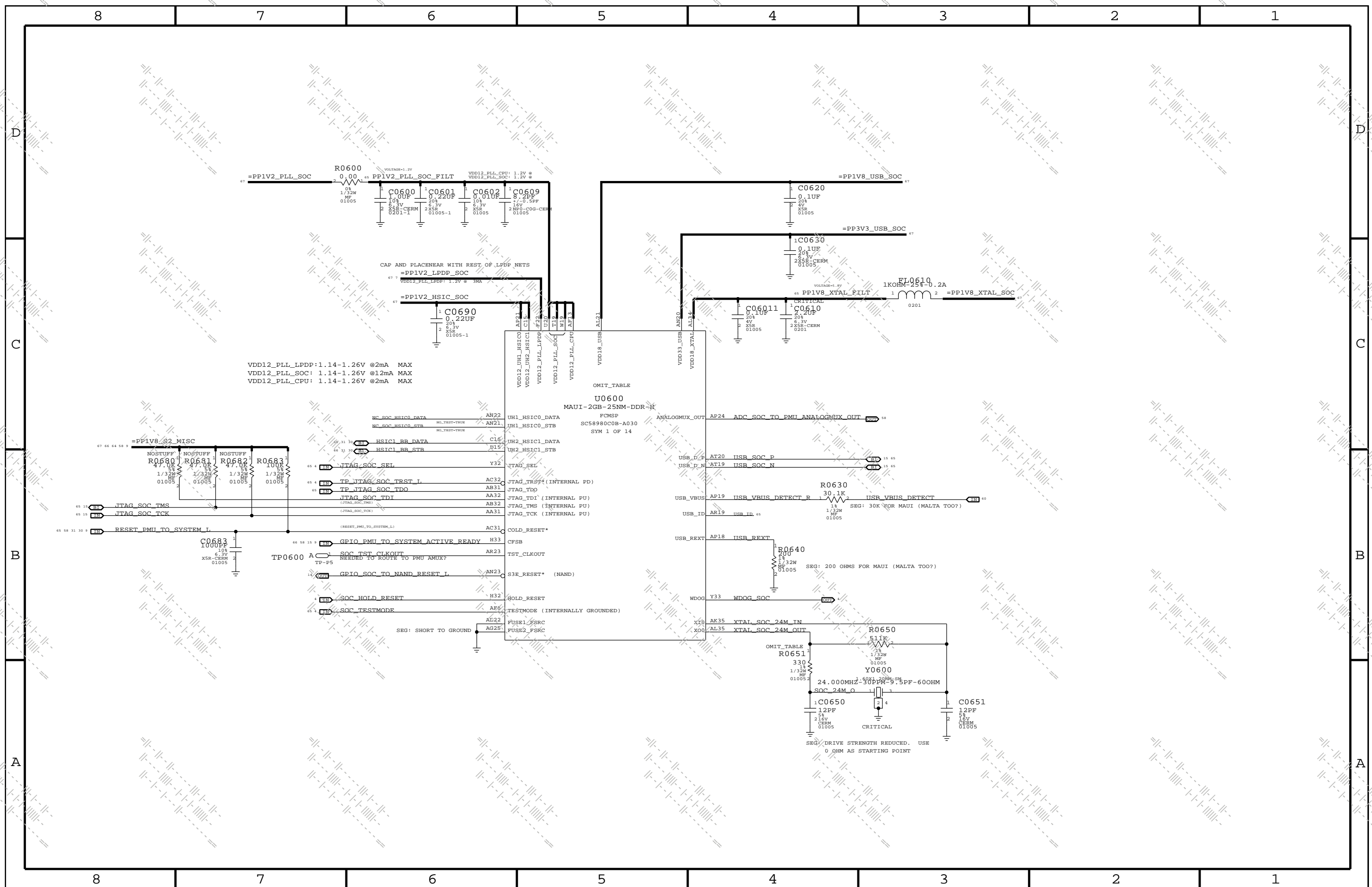
BOARD REVISION

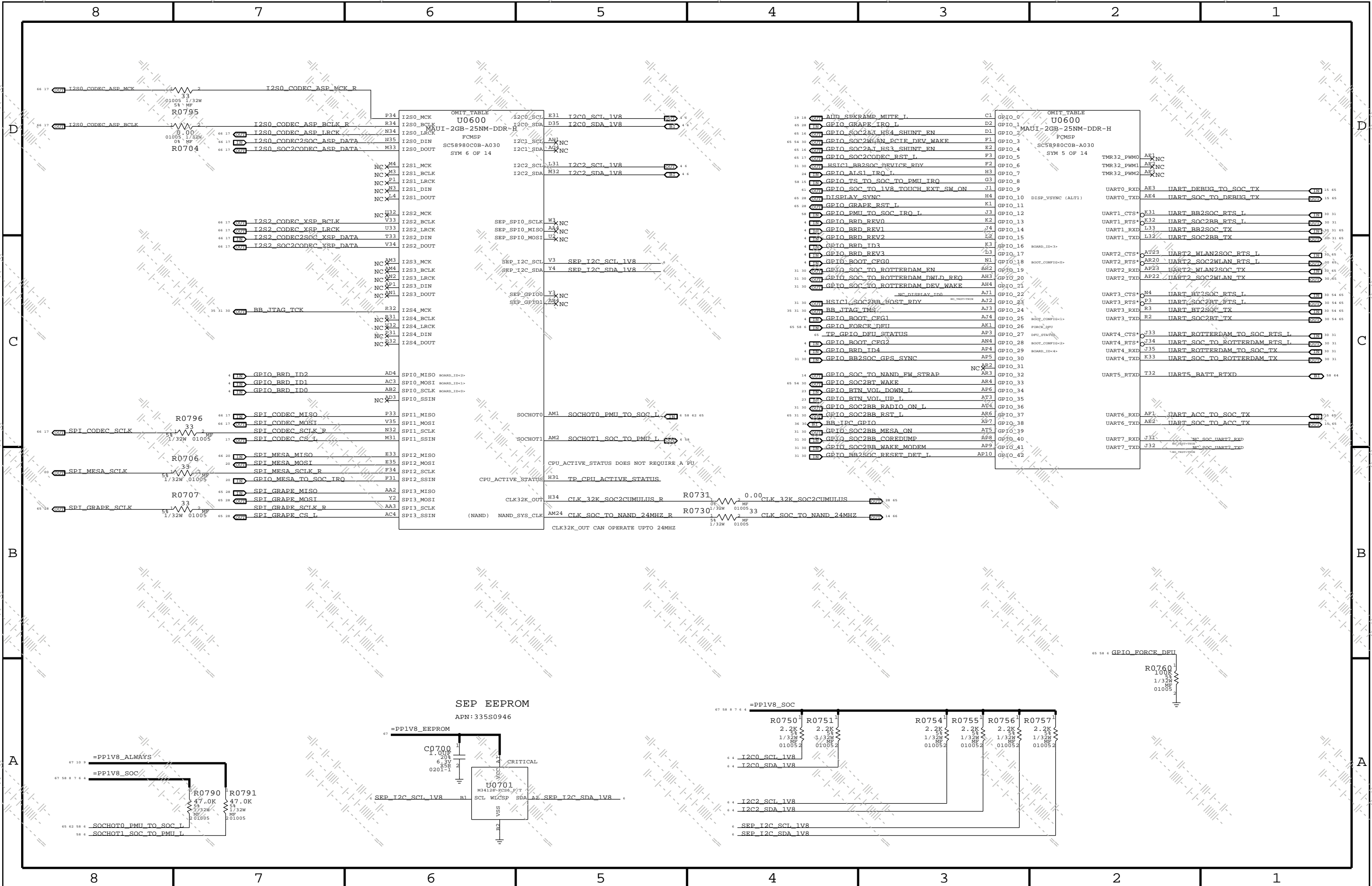


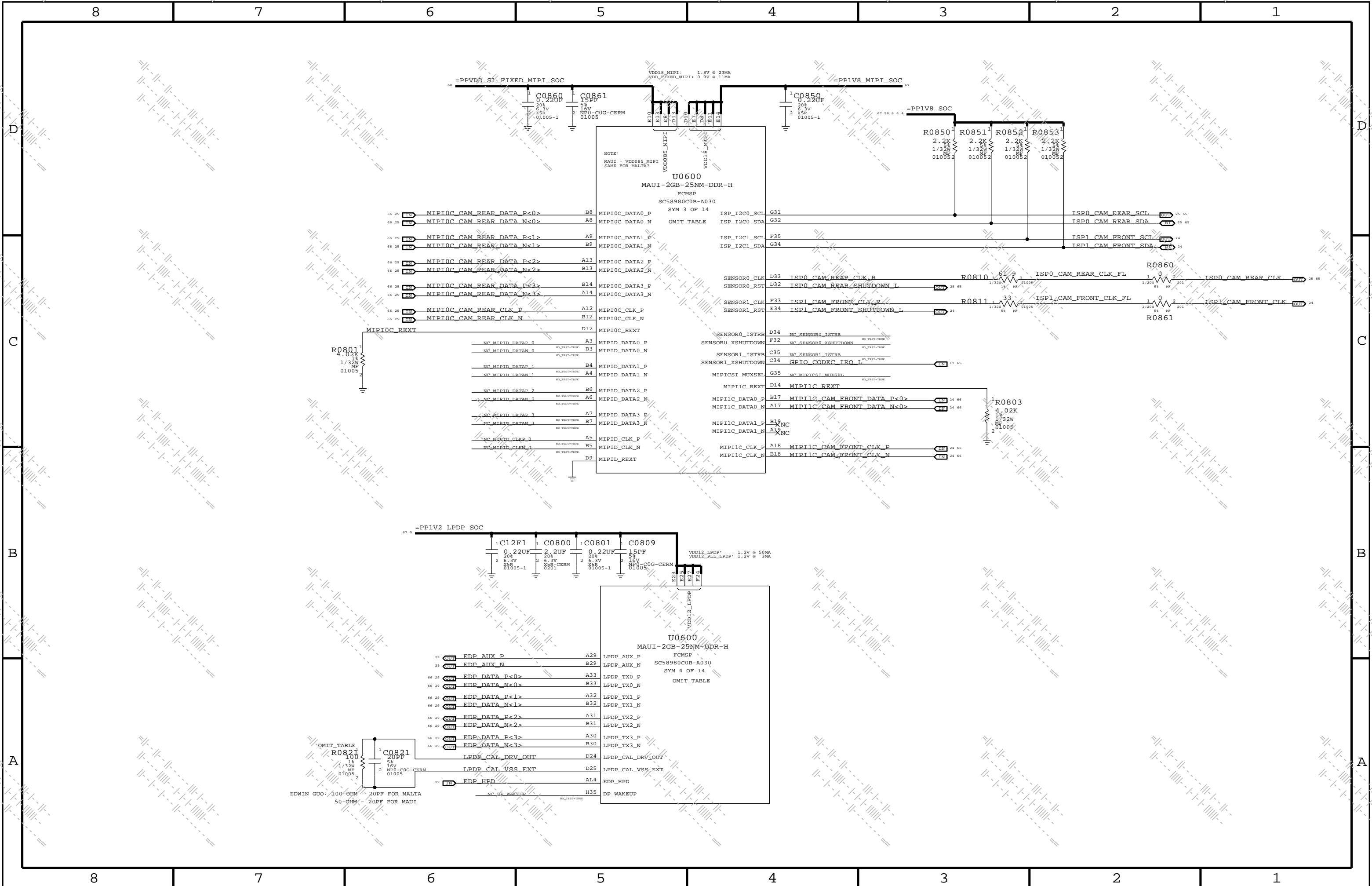
		BRD_REV[3-0]			
PHOSPHORUS 1	0000	PROTO	(DEV, LOCAL P0 MLB_B REV 1)		
PHOSPHORUS 2 W/O IRQ	0001	PROTO	(REWORKED DEV, MLB_B REV >1, MLB_A >=1)		
PHOSPHORUS 2 WITH IRQ	0010	EVT		S/W READ FLOW	
	0011	DVT		1. SET GPIO AS INPUT	
	0100	PVT		2. ENABLE PU AND DISABLE PD	
				3. READ	

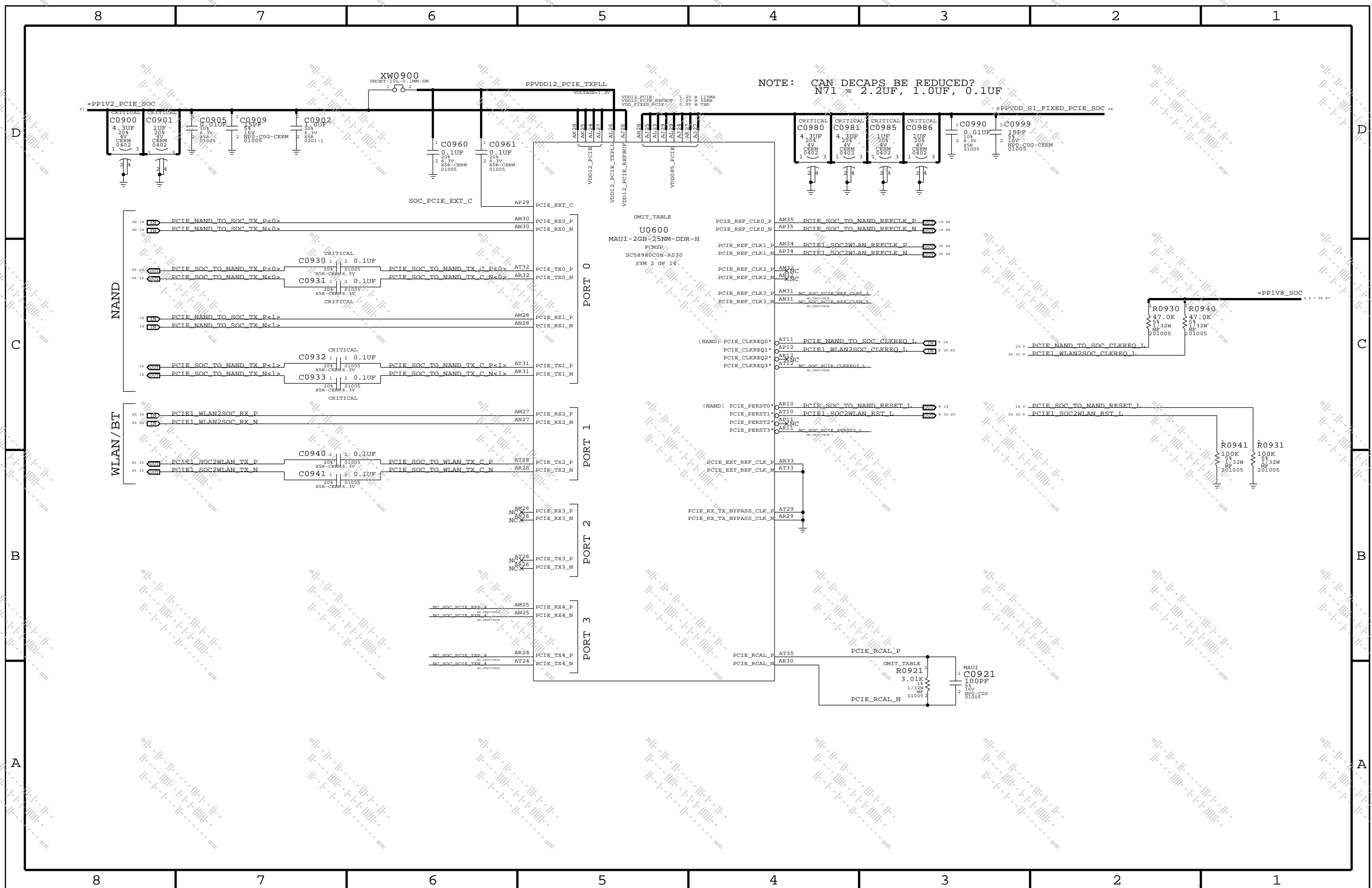
NOTE: CAN BE SHORTED ACROSS IF SPACE IS NEEDED

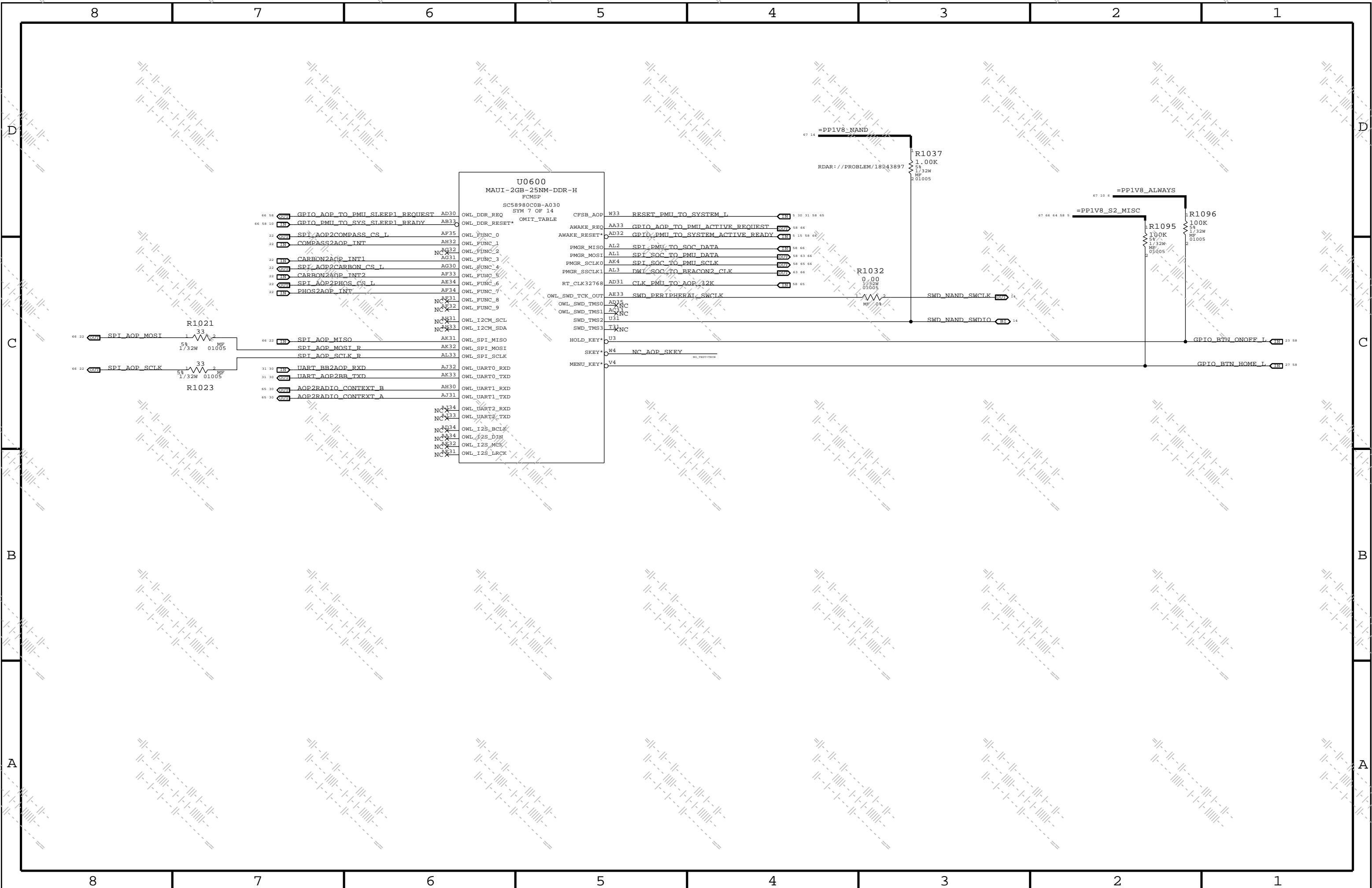


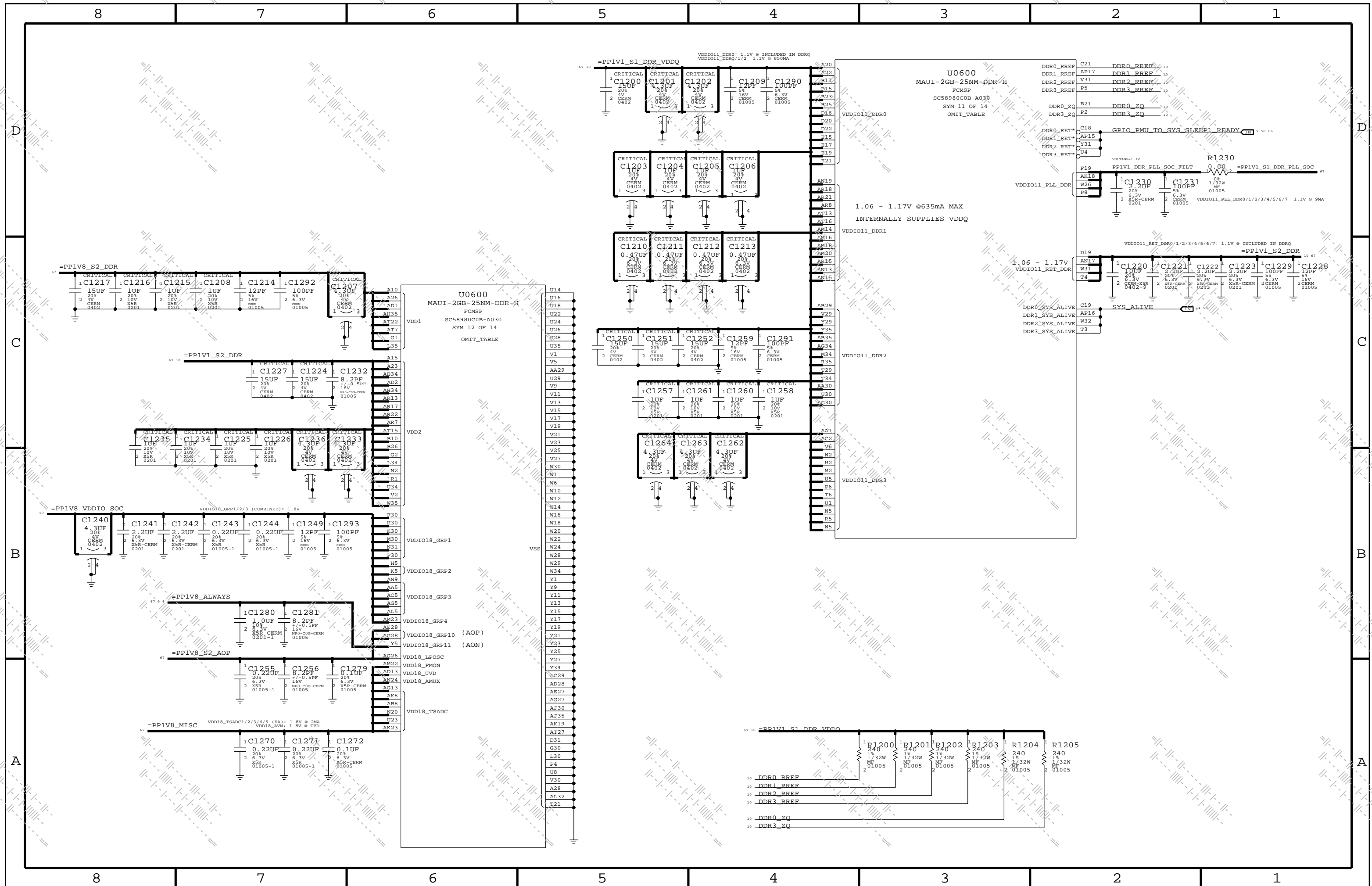












MALTA - POWER SUPPLIES

D

C

B

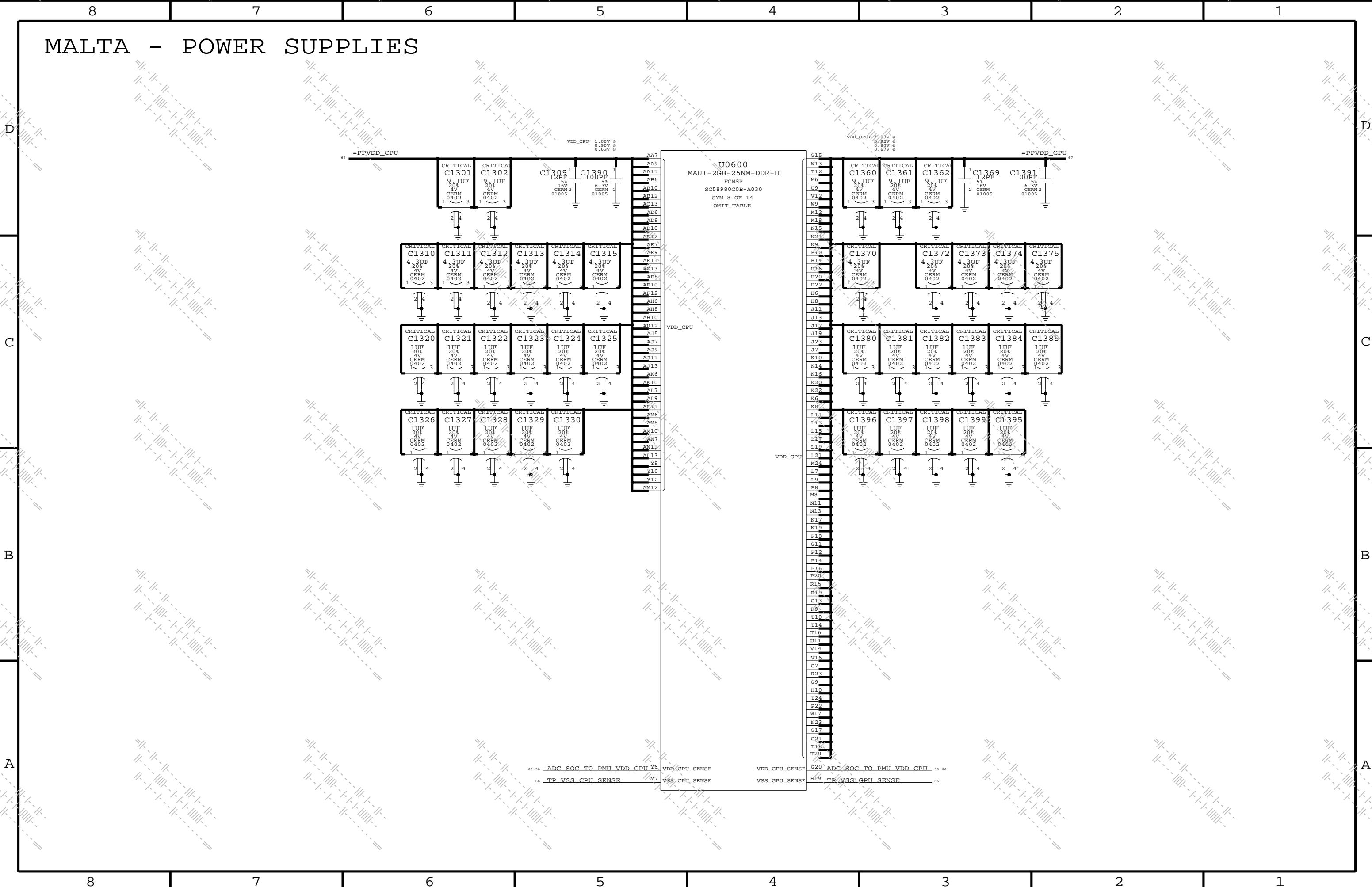
A

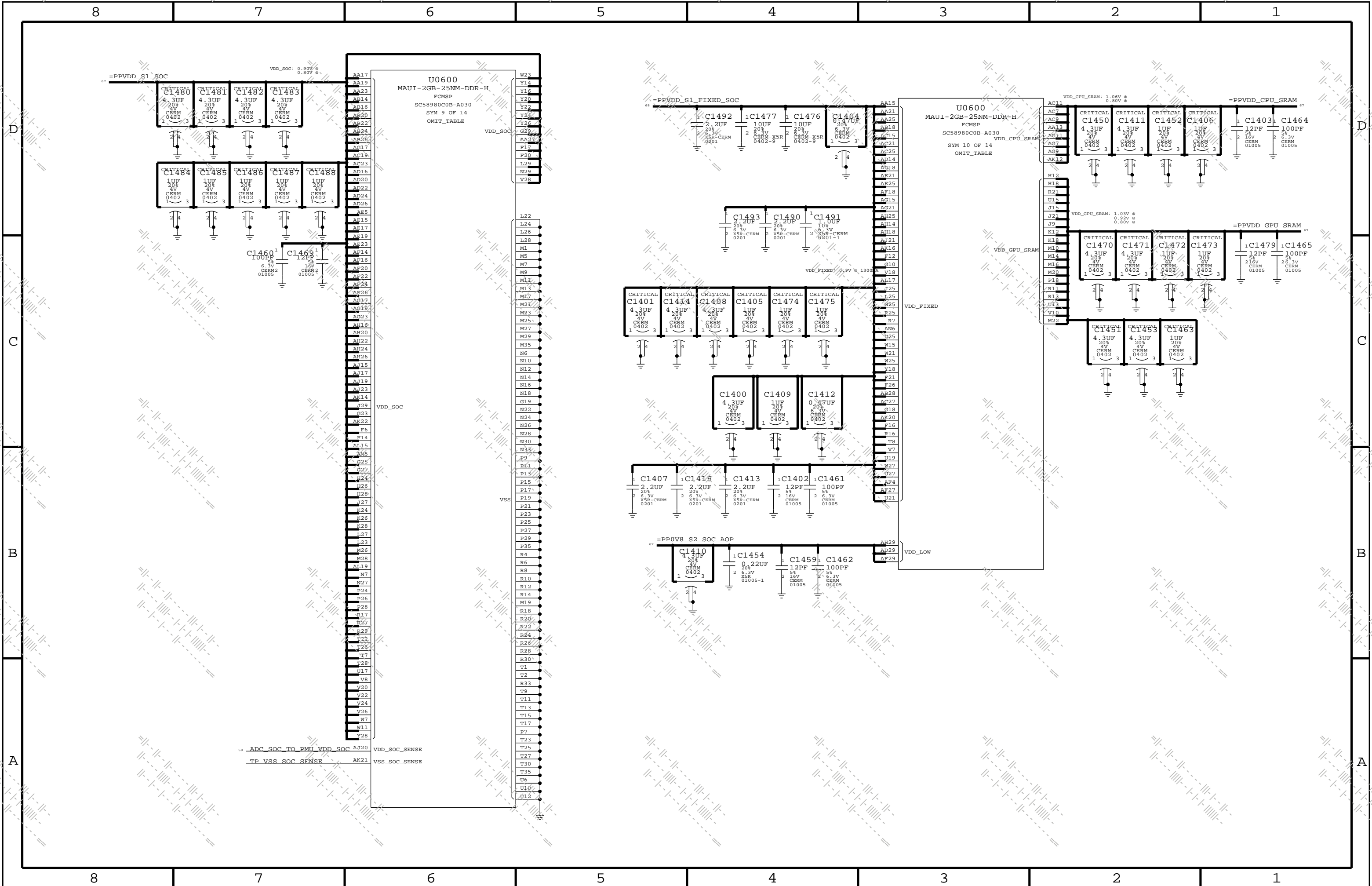
D

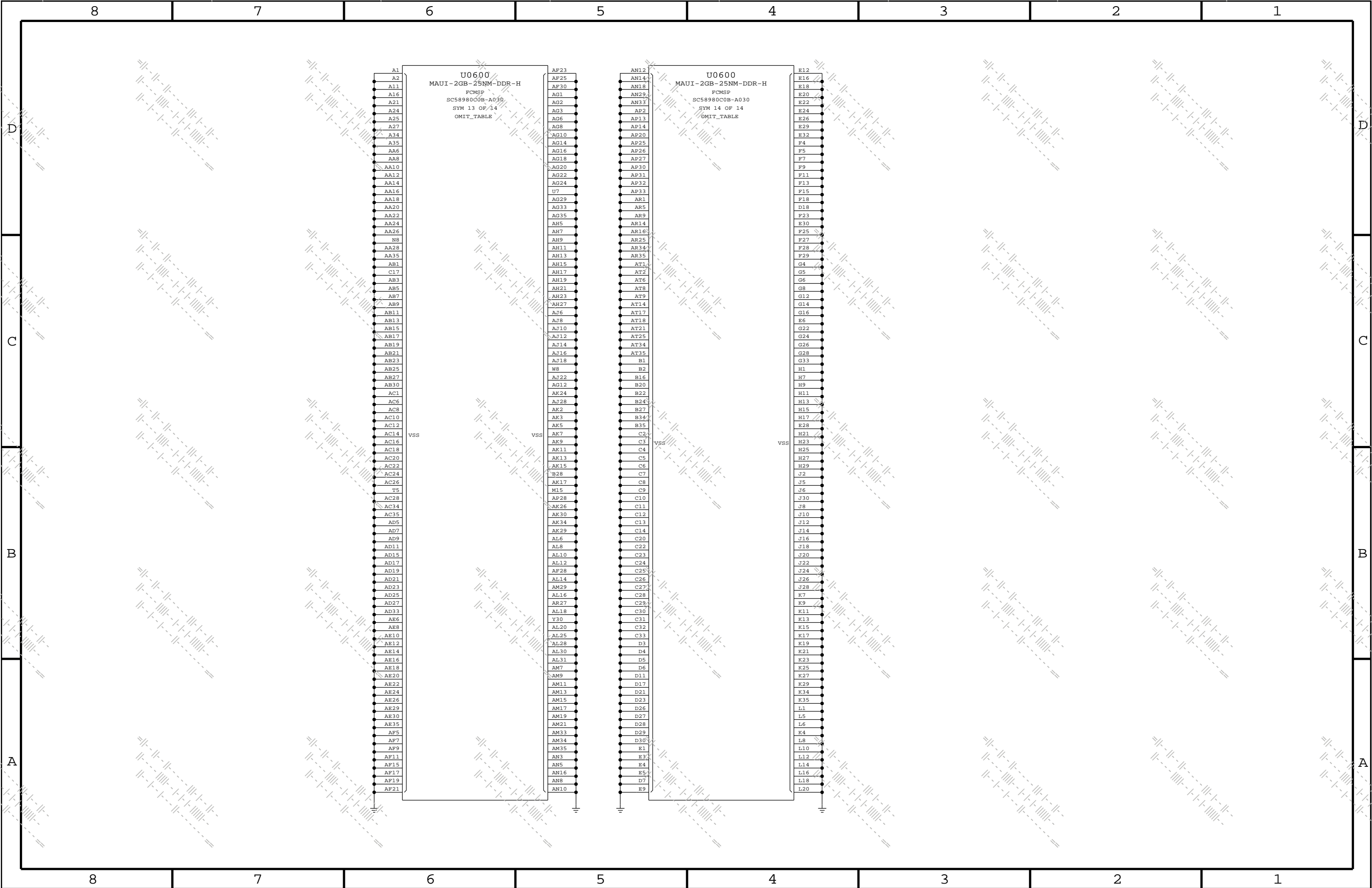
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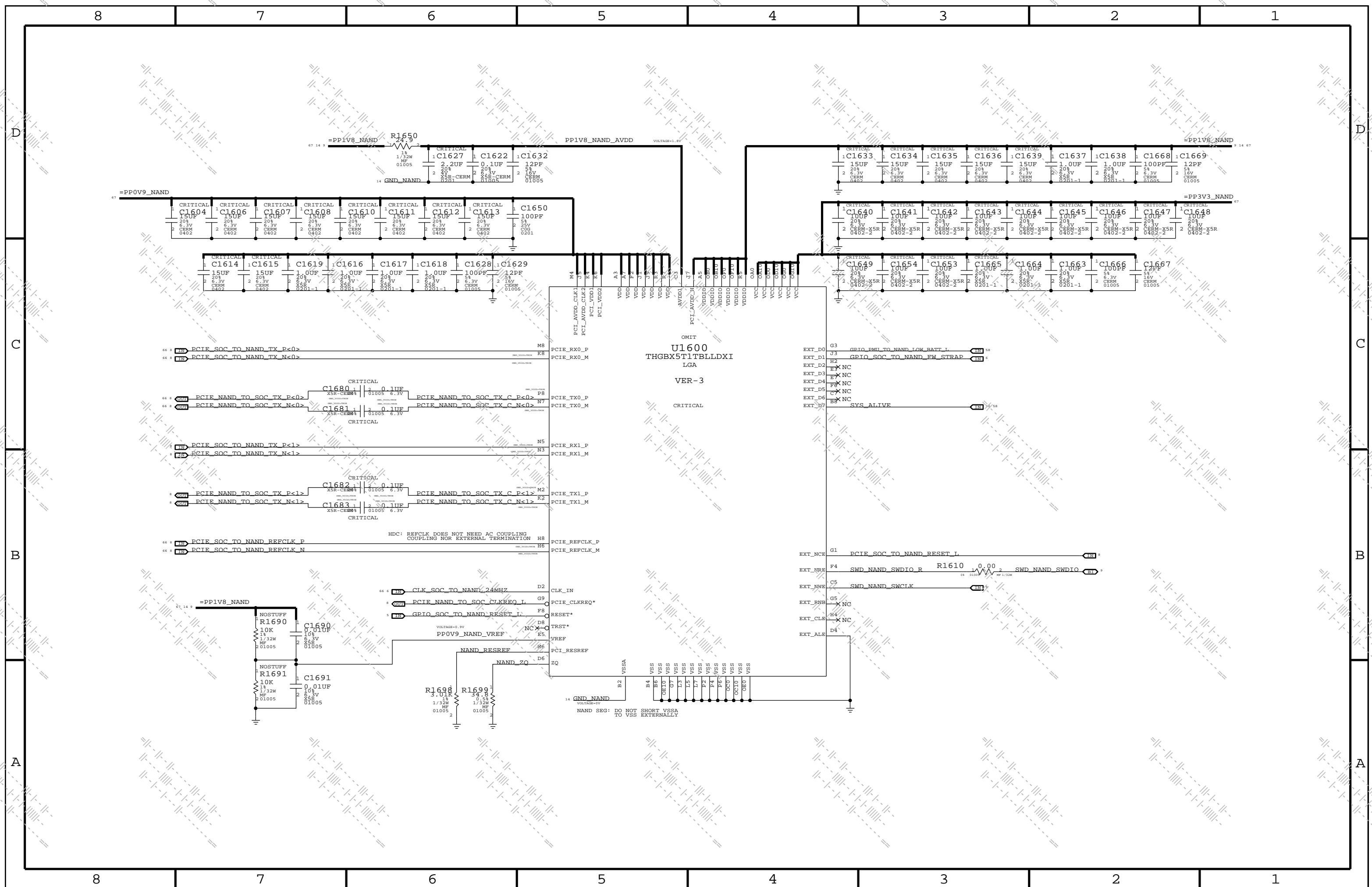
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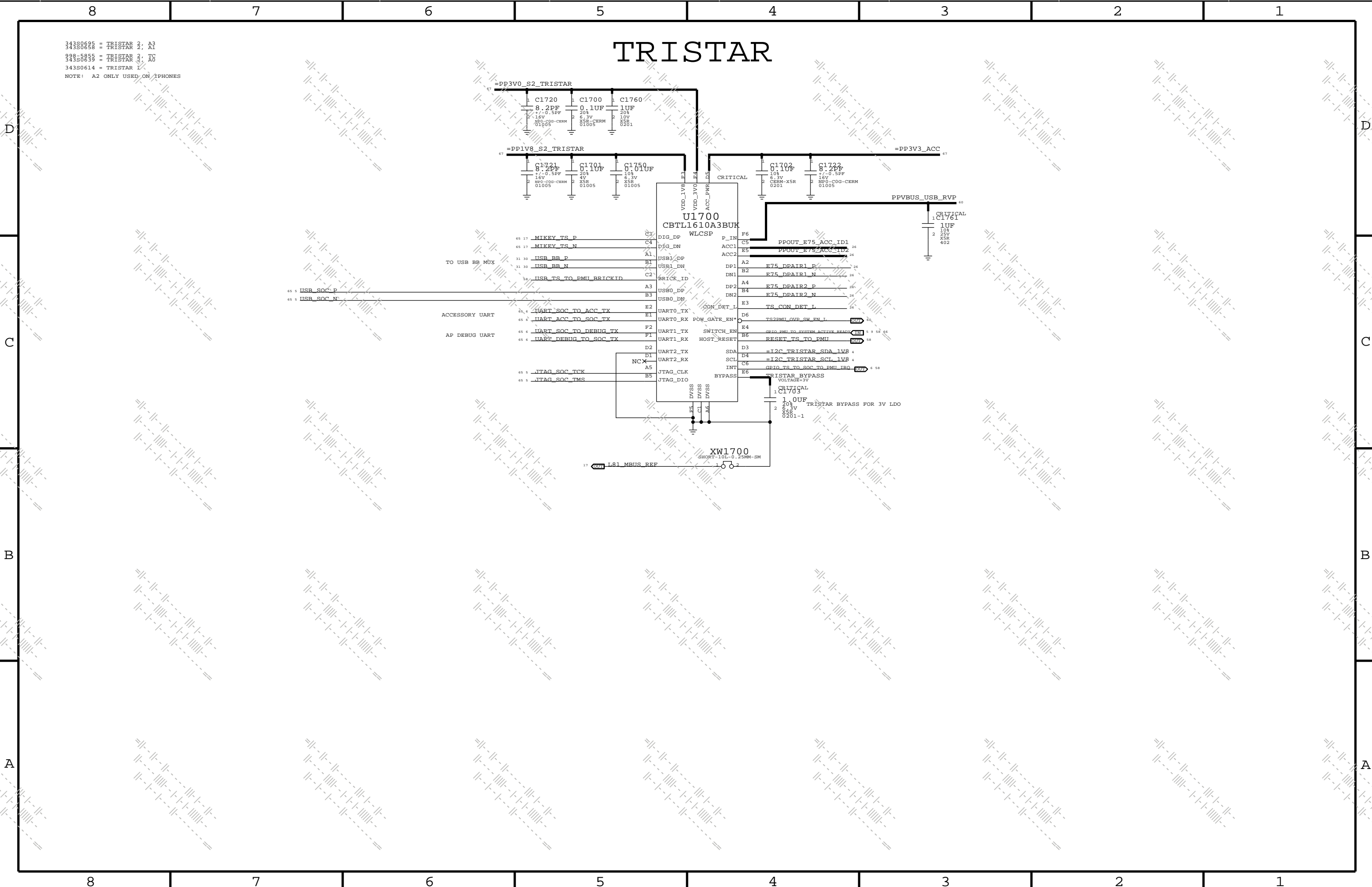
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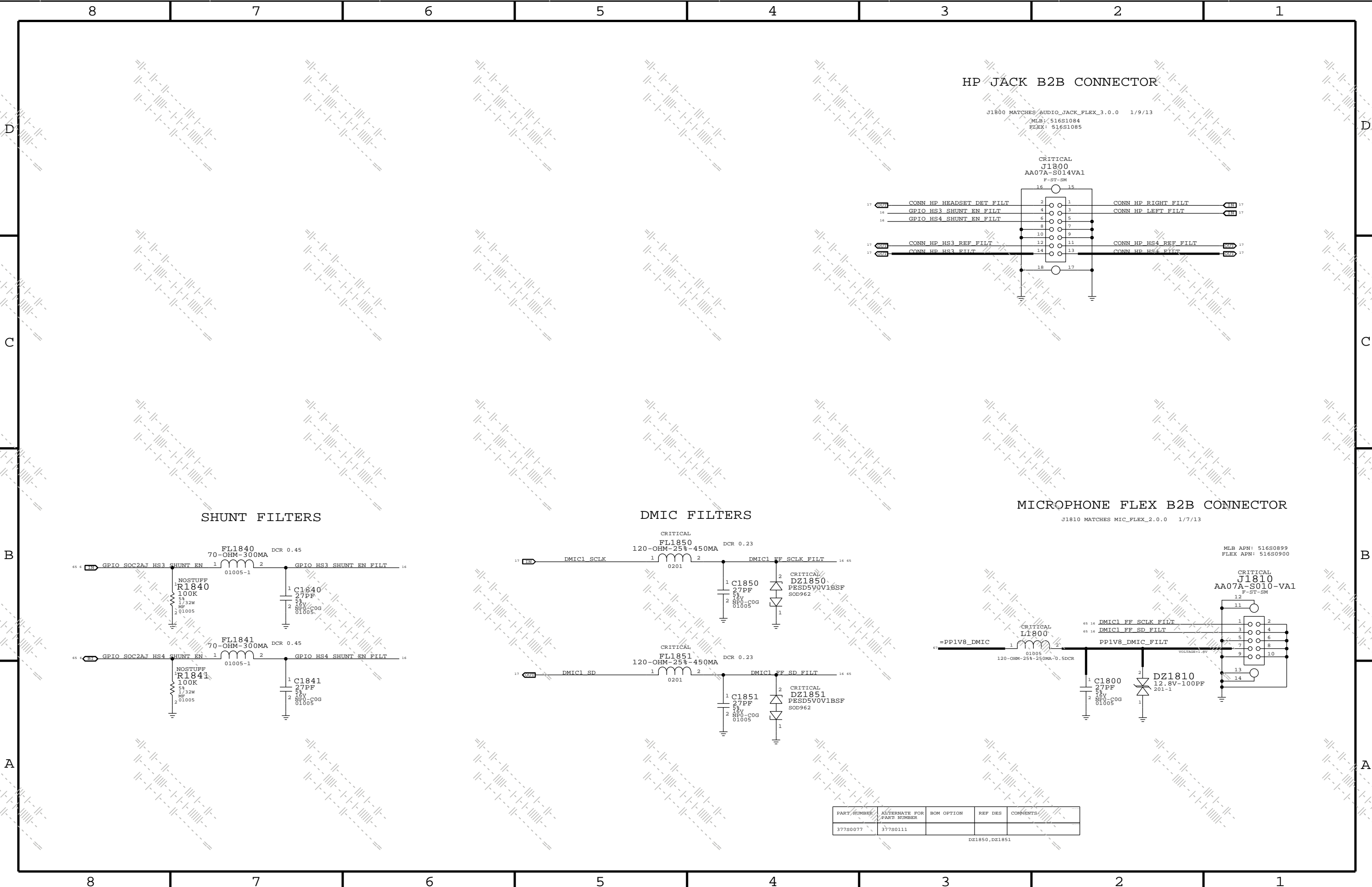






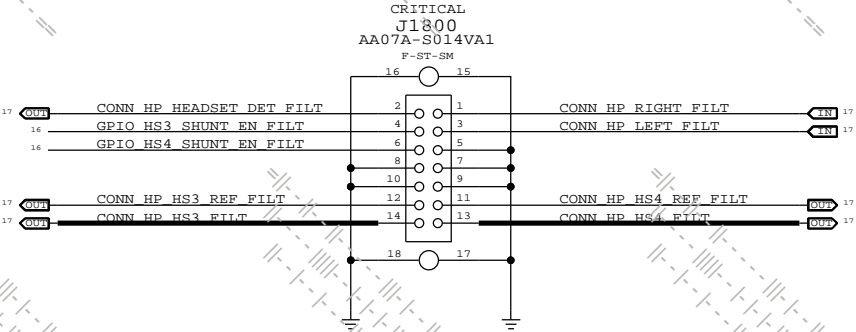




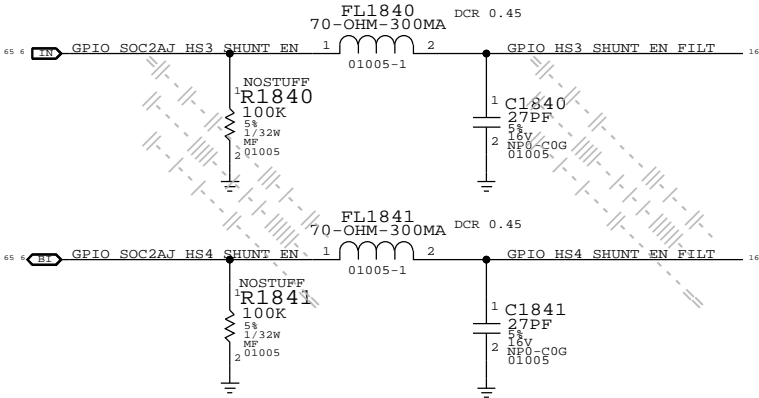


HP JACK B2B CONNECTOR

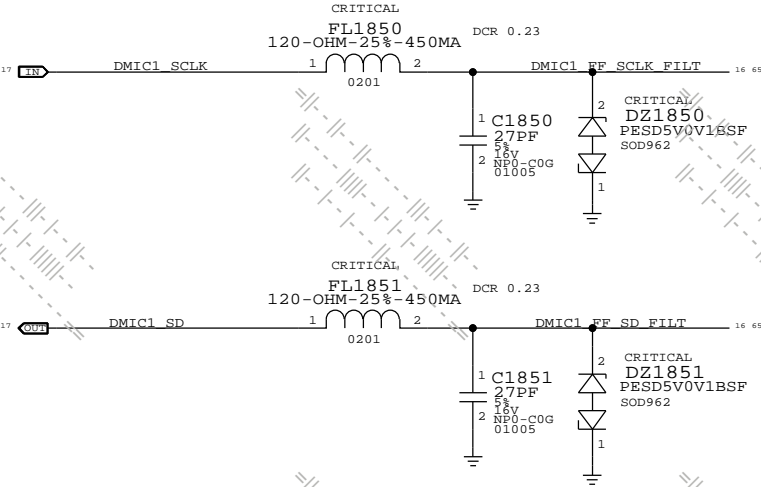
J1800 MATCHES AUDIO_JACK_FLEX_3.0.0 1/9/13
MLB: 516S1084
FLEX: 516S1085



SHUNT FILTERS



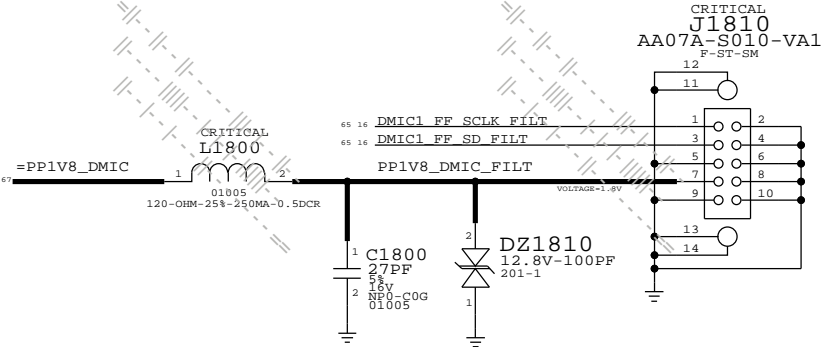
DMIC FILTERS



MICROPHONE FLEX B2B CONNECTOR

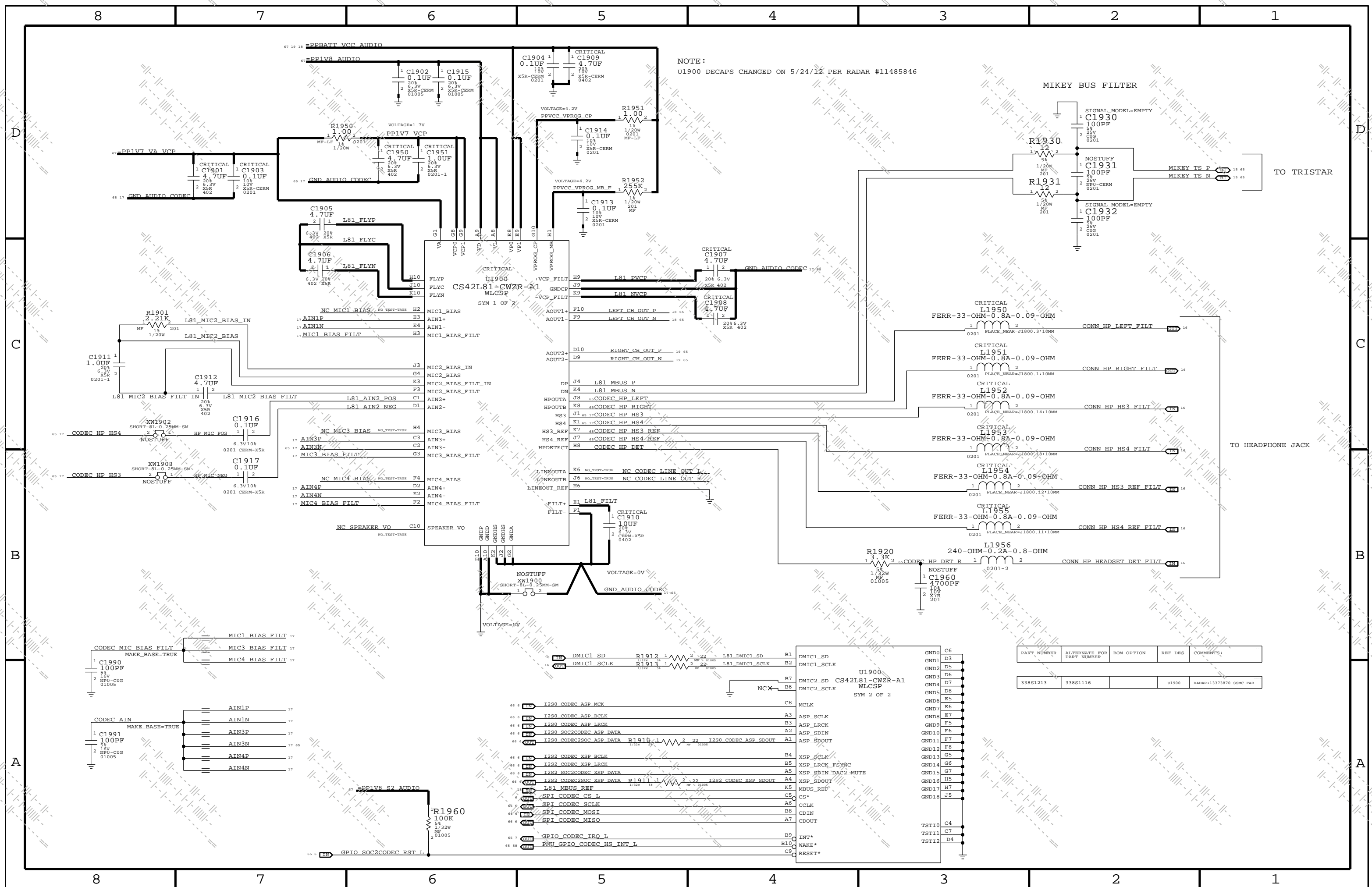
J1810 MATCHES MIC_FLEX_2.0.0 1/7/13

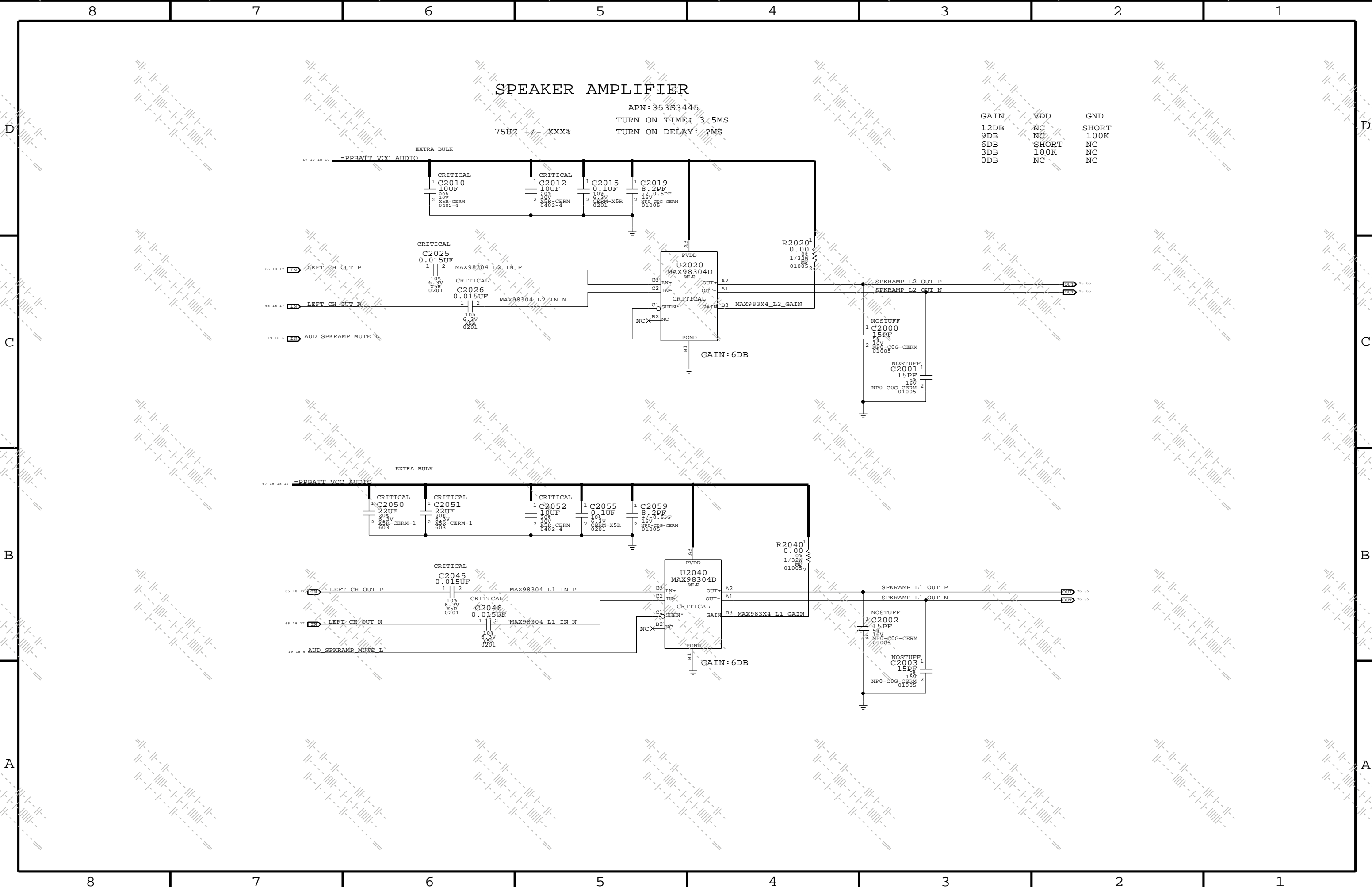
MLB APN: 516S0899
FLEX APN: 516S0900



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS
377S0077	377S0111			

DZ1850, DZ1851



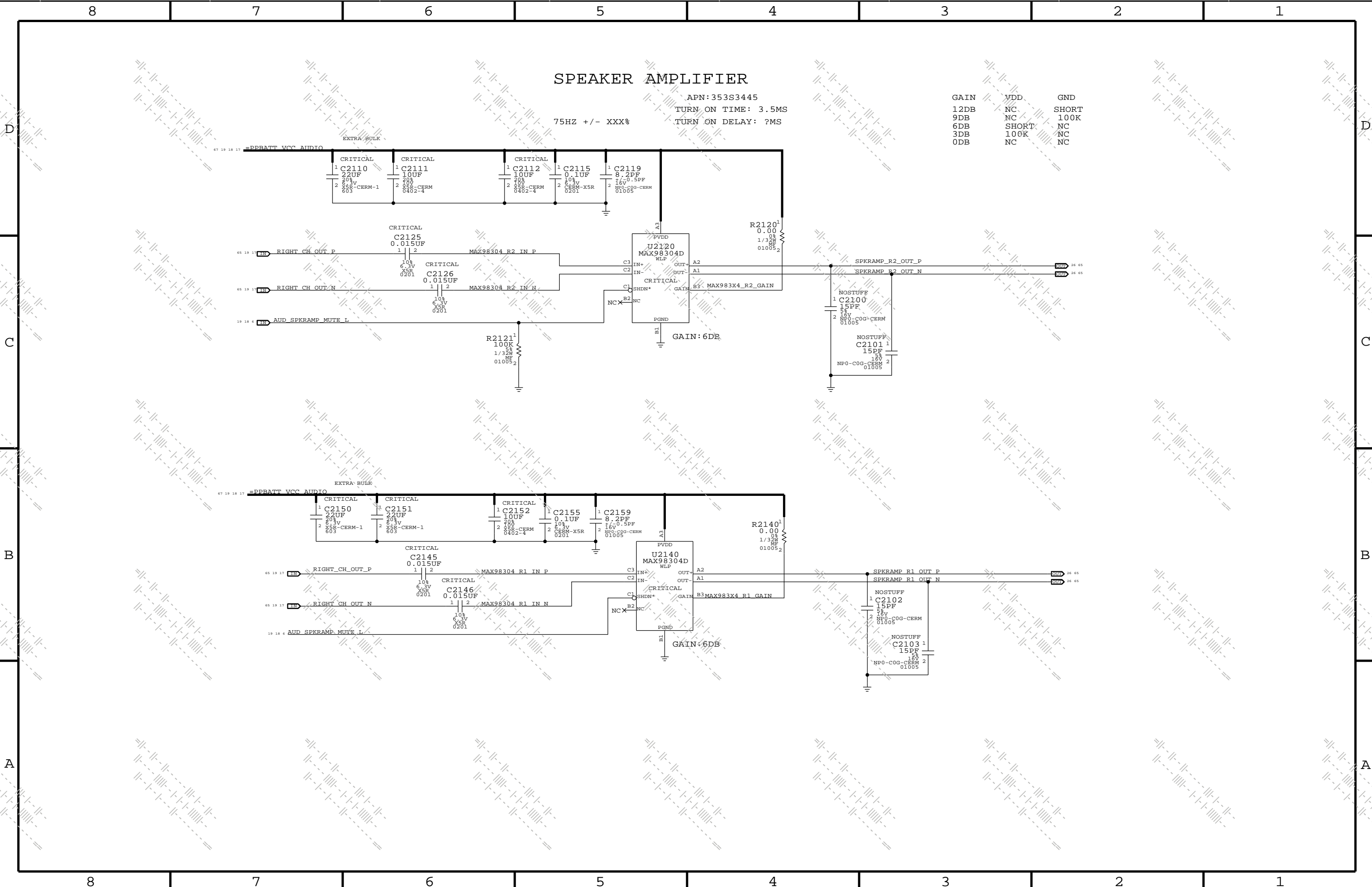


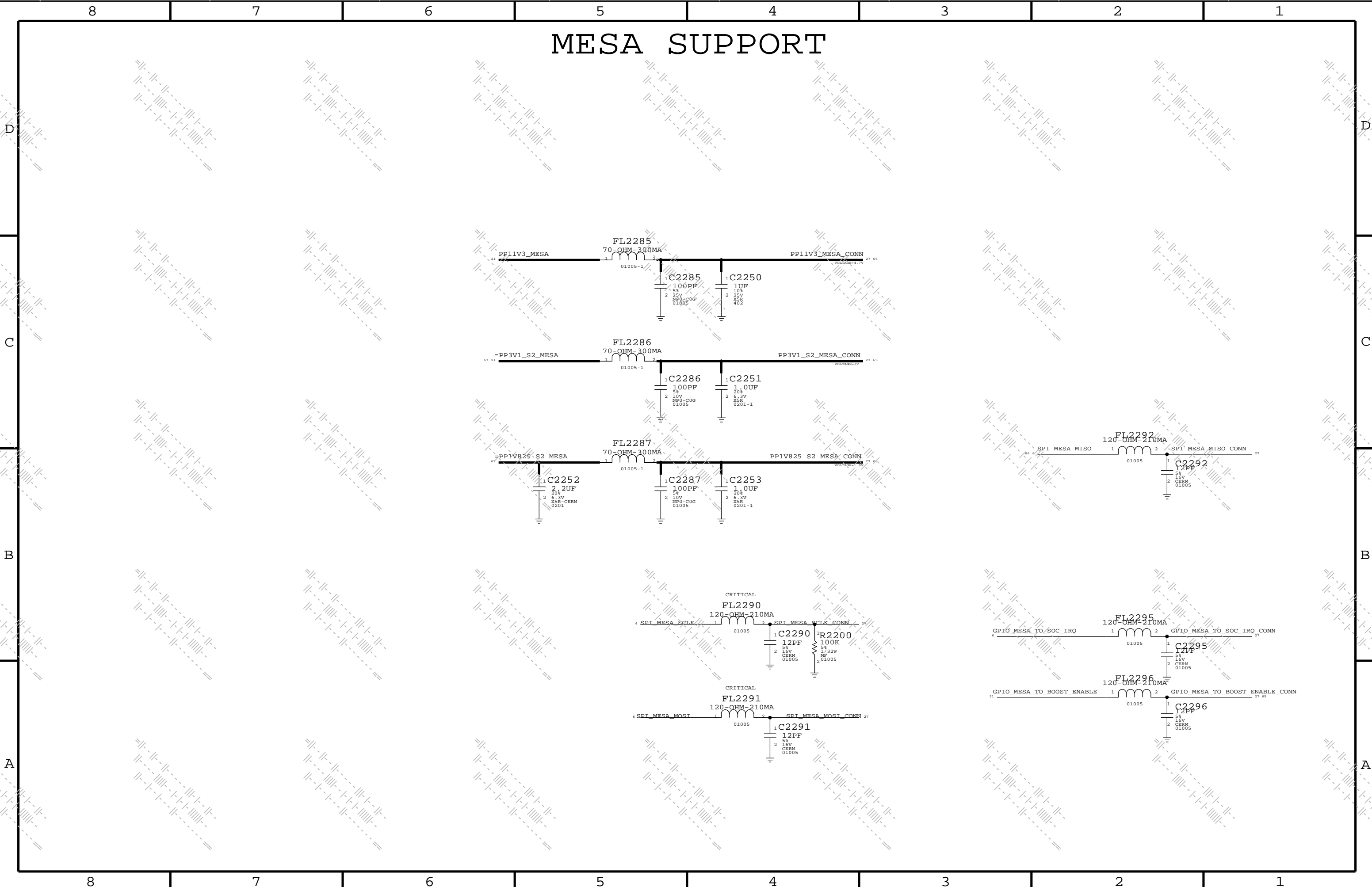
SPEAKER AMPLIFIER

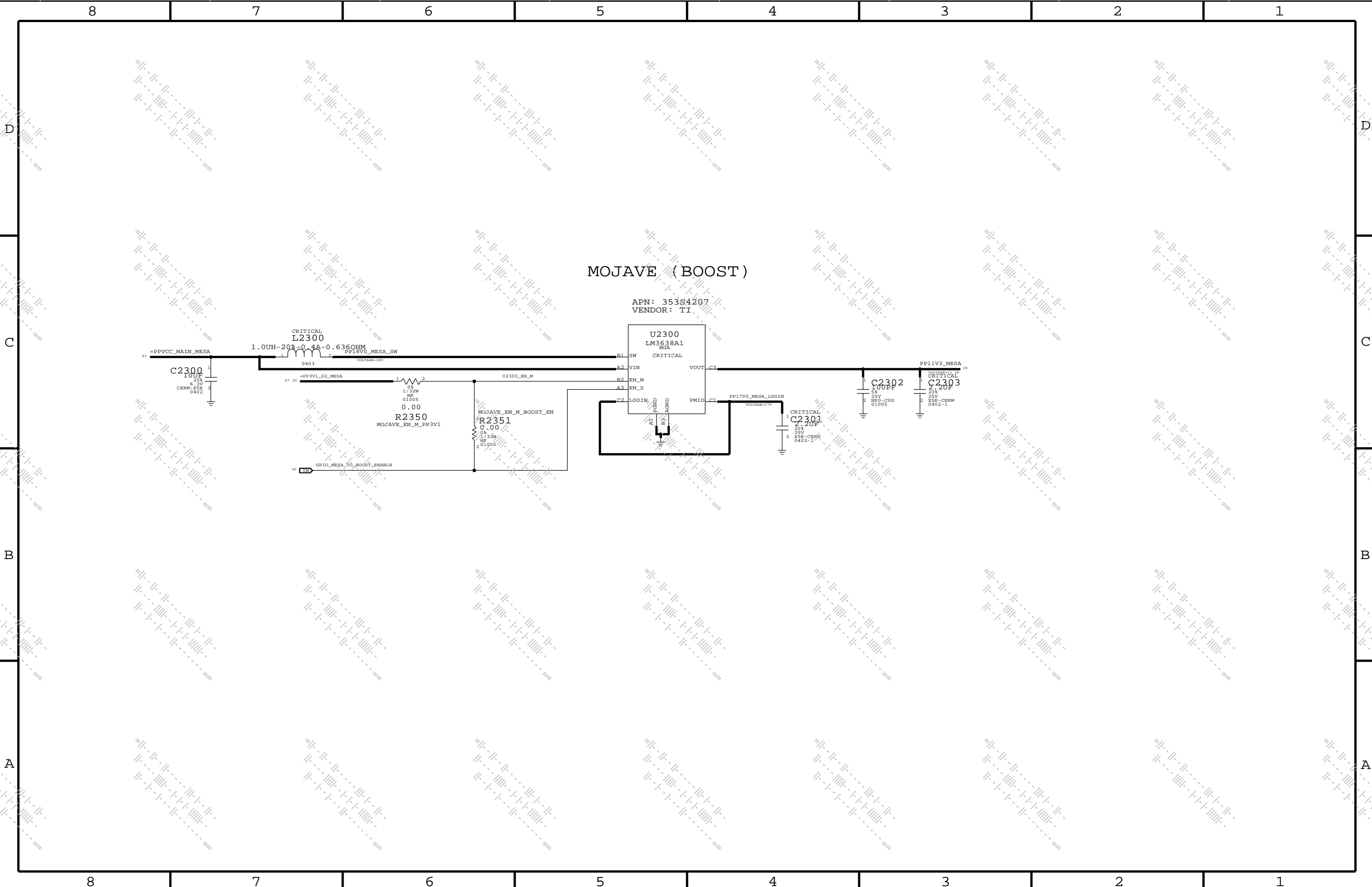
APN: 35383445
TURN ON TIME: 3.5MS
TURN ON DELAY: 2MS

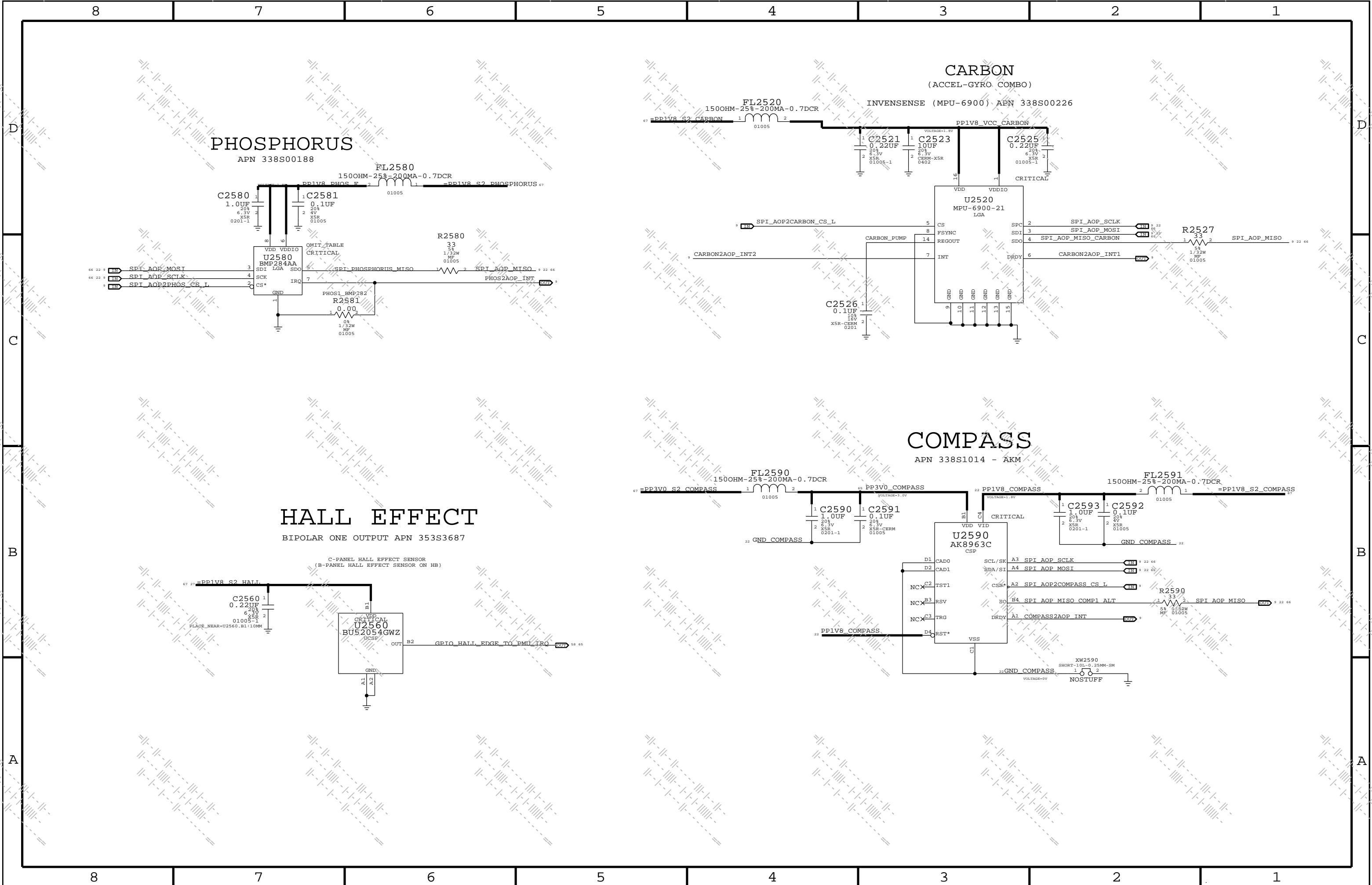
75Hz +/- XXX%

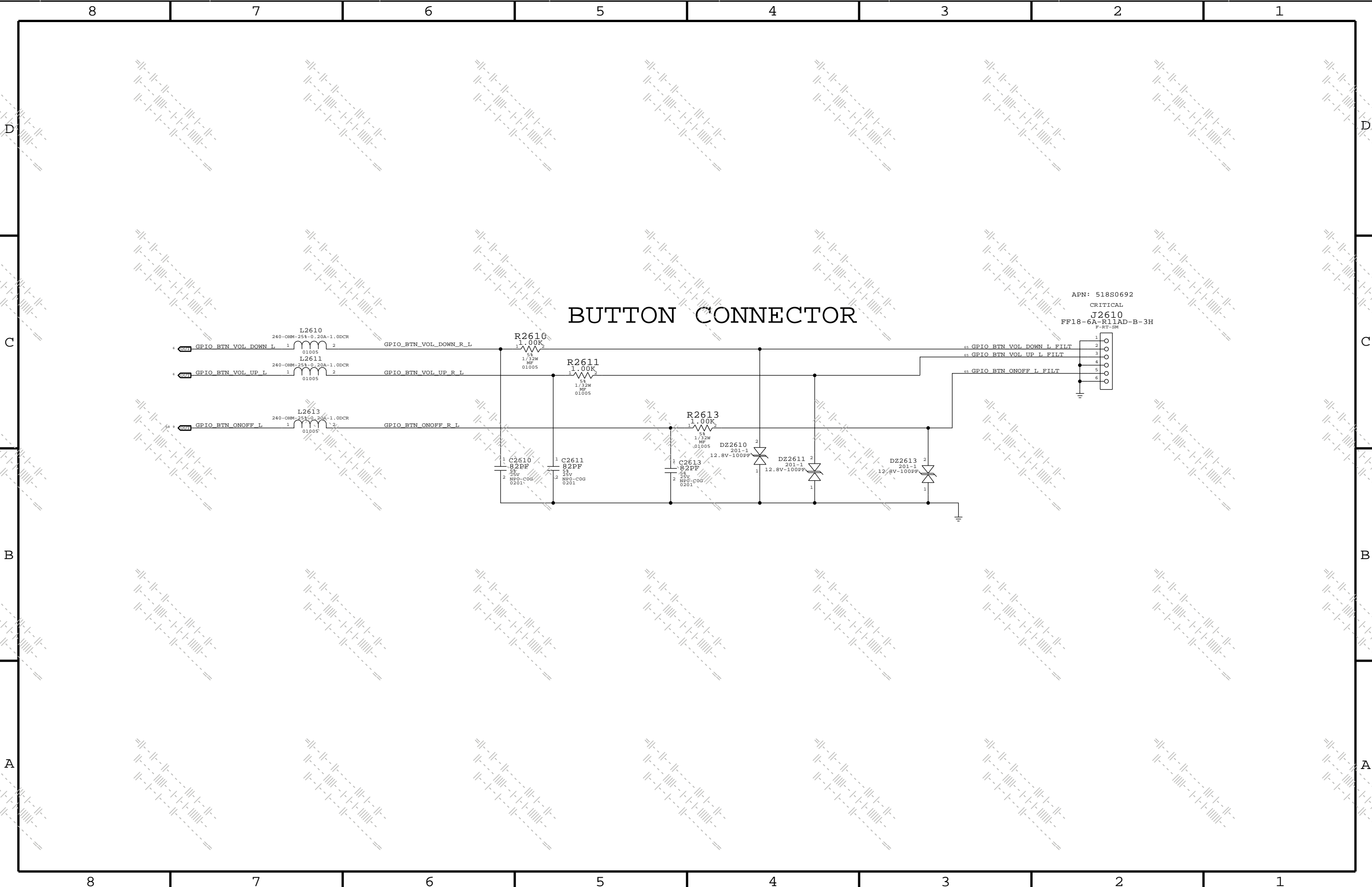
GAIN	VDD	GND
12DB	NC	SHORT
9DB	NC	100K
6DB	SHORT	NC
3DB	100K	NC
0DB	NC	NC









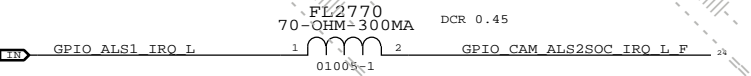
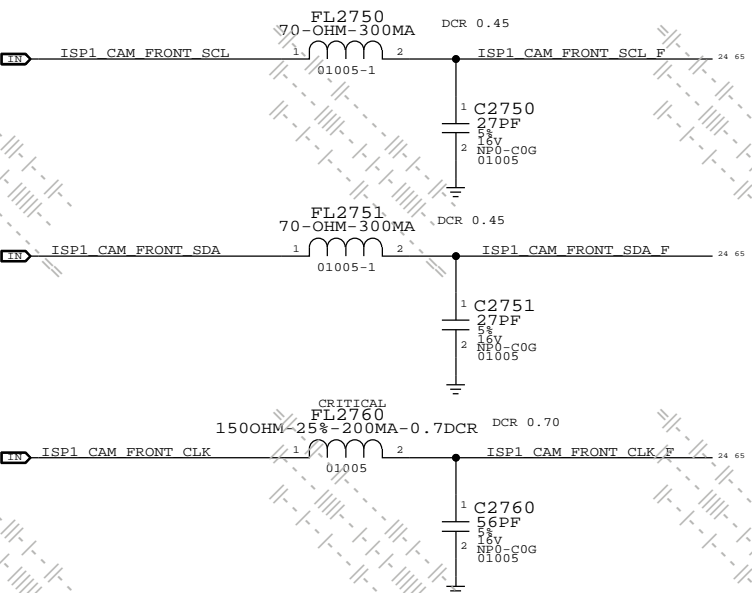
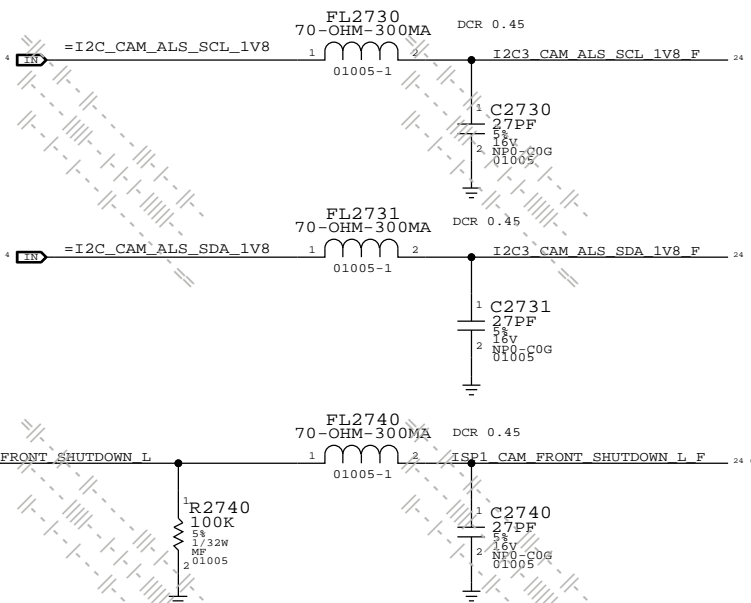
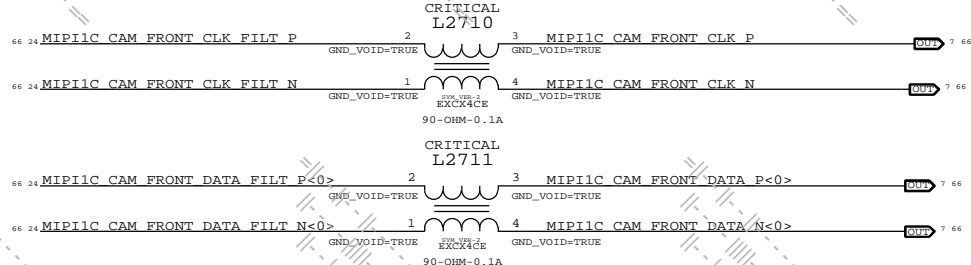
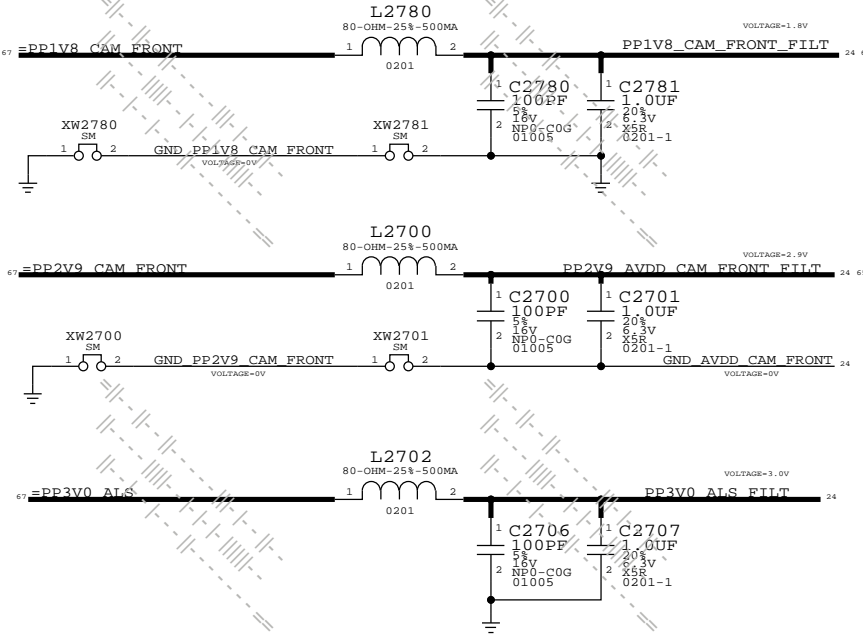
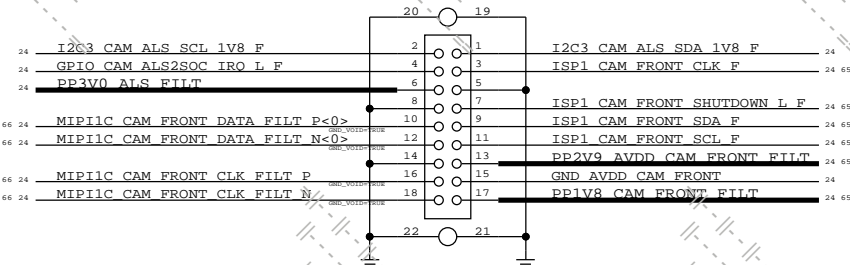


FRONT CAMERA CONNECTOR

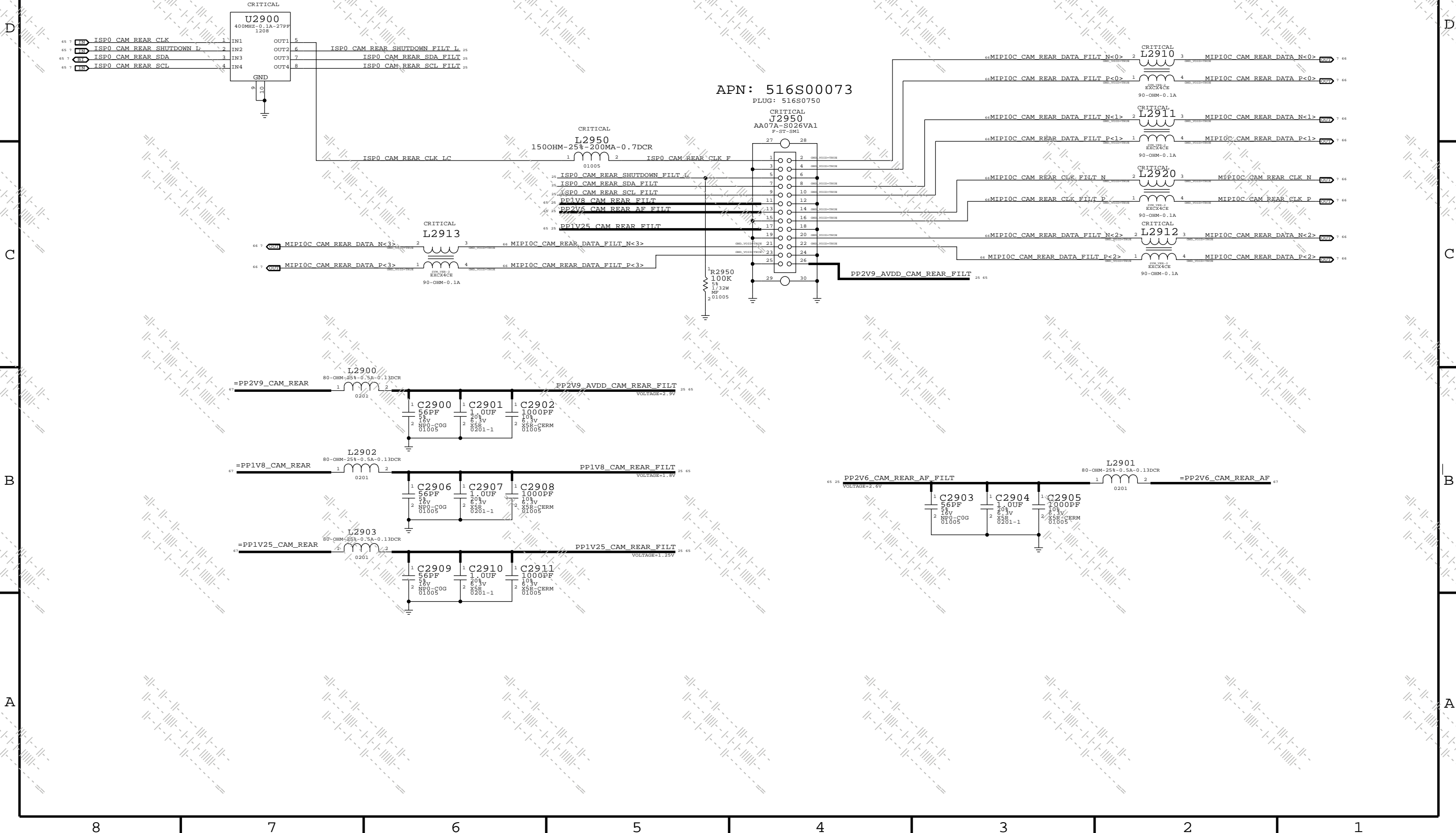
J65 CAMERA CONNECTOR

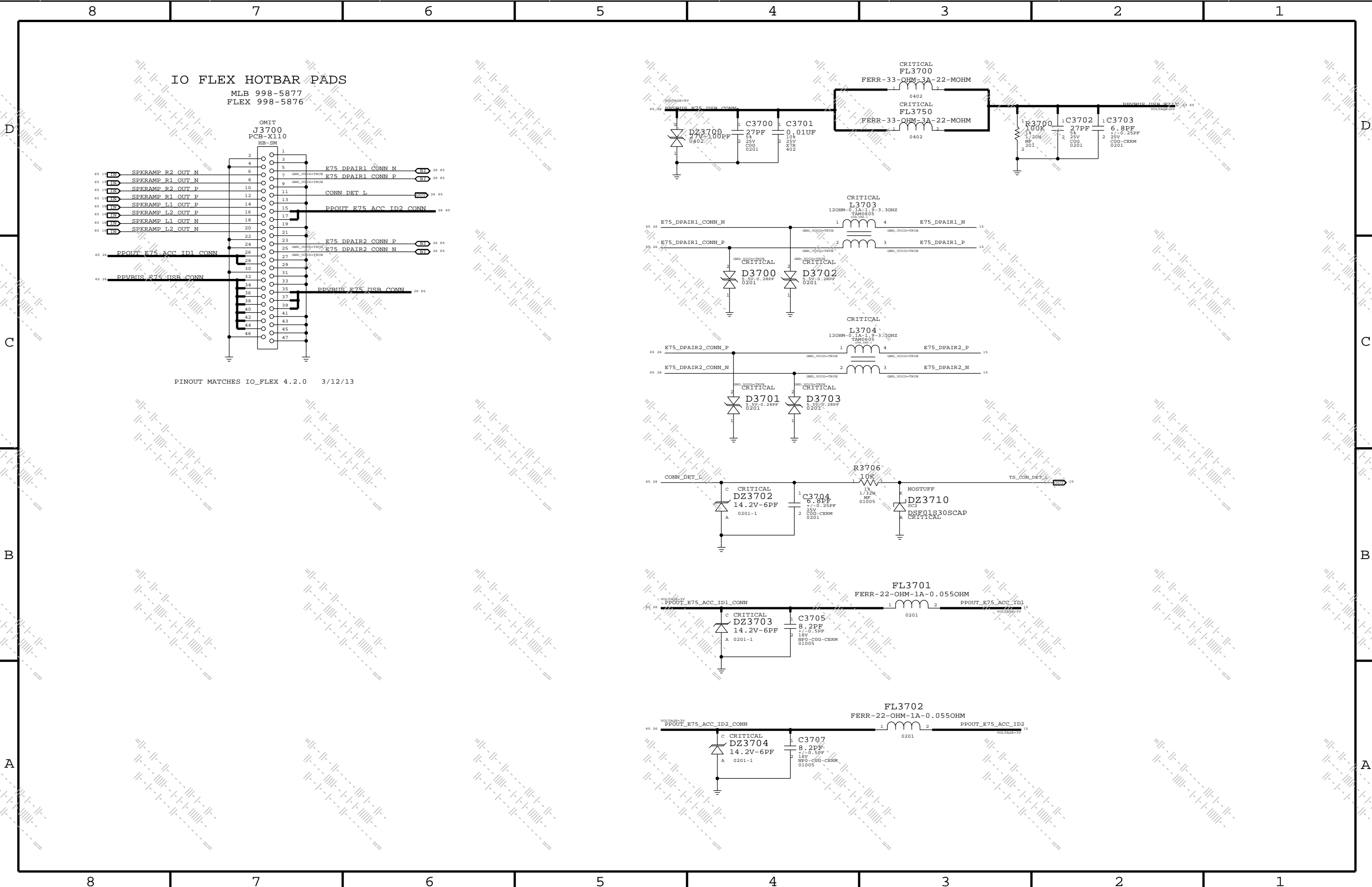
APN:MLB 516S0876
APN:FLX 516S0869

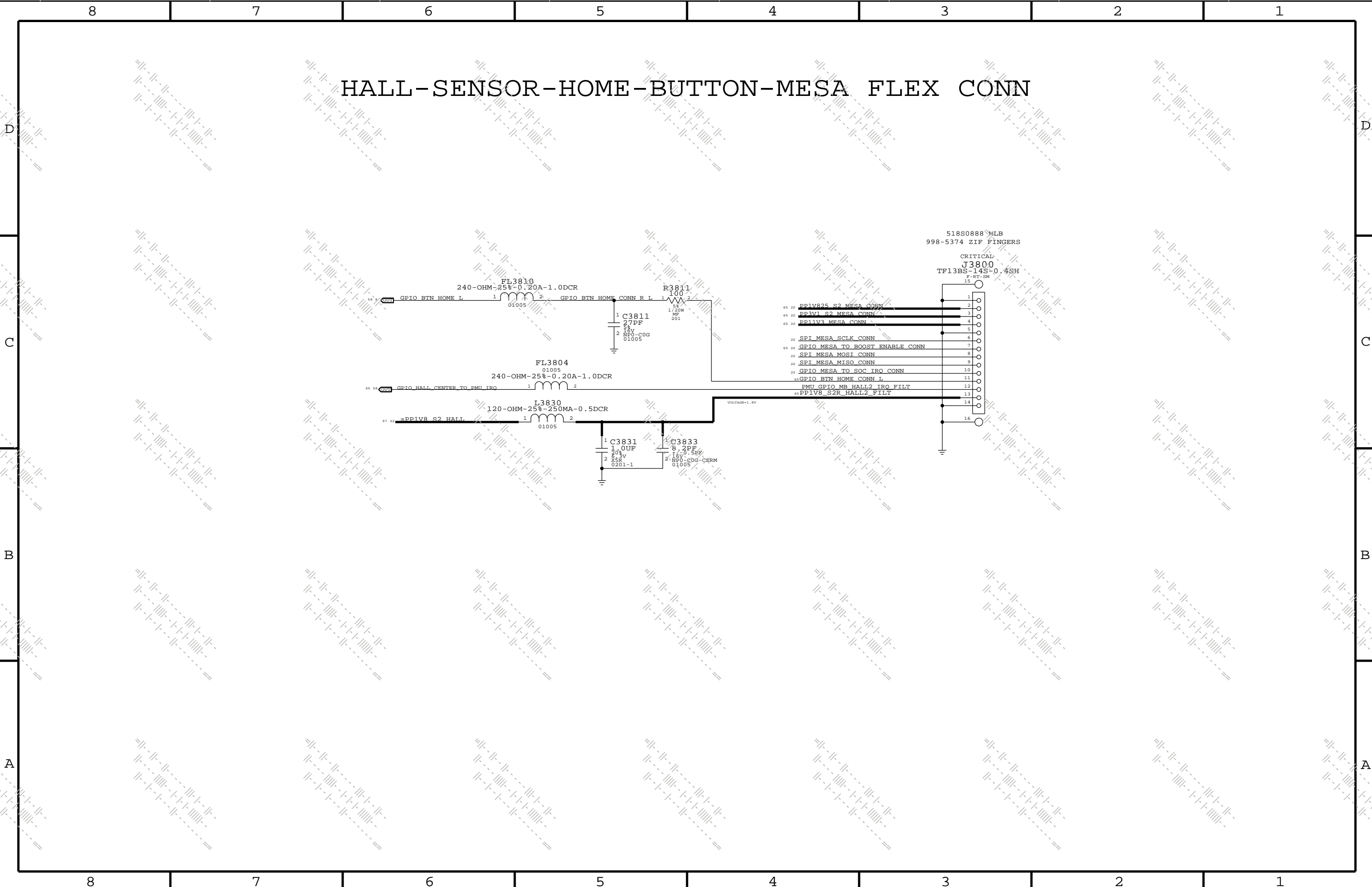
CRITICAL
J2700
503548-1820
F-37C-SM



REAR CAMERA CONNECTOR

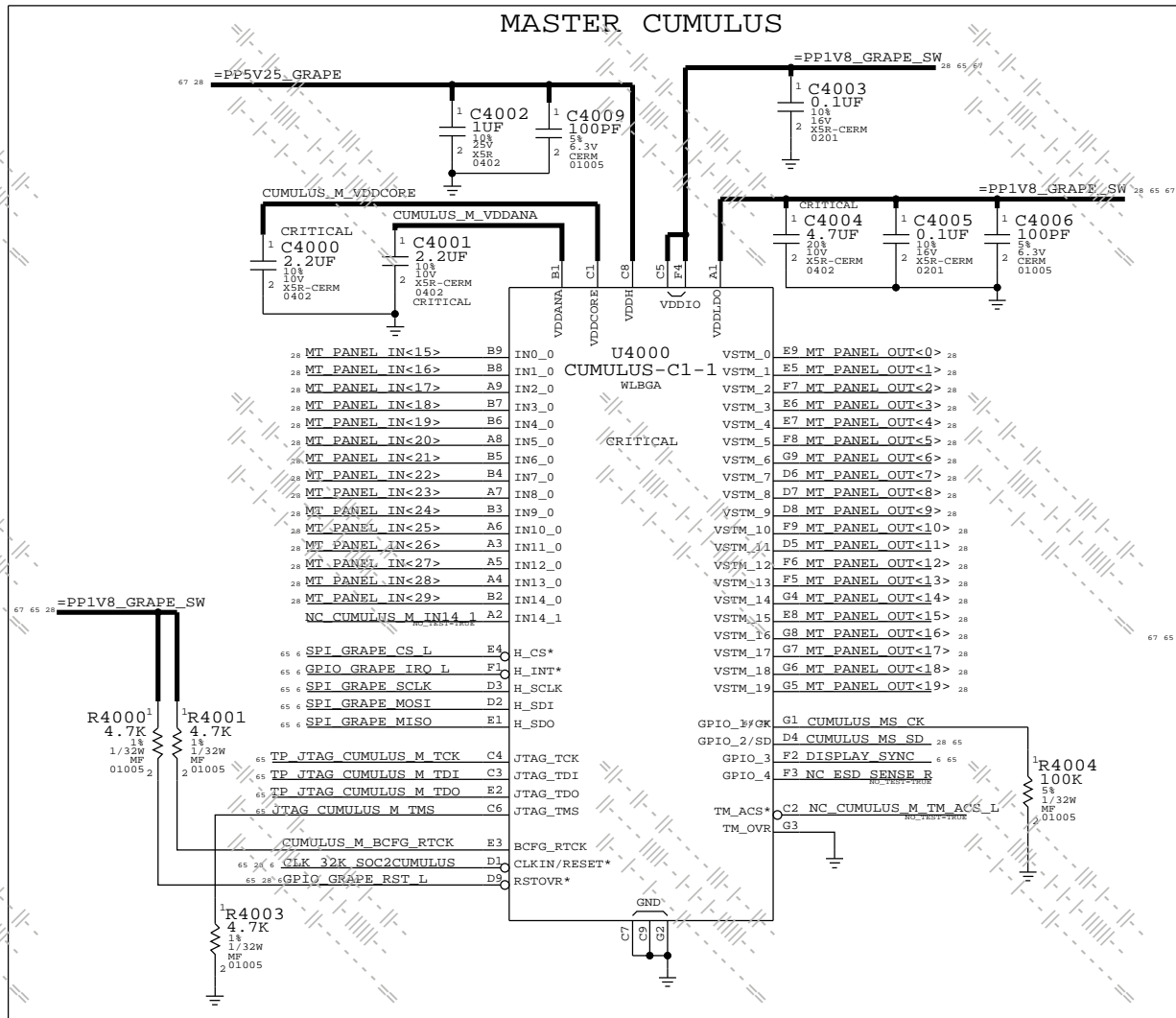




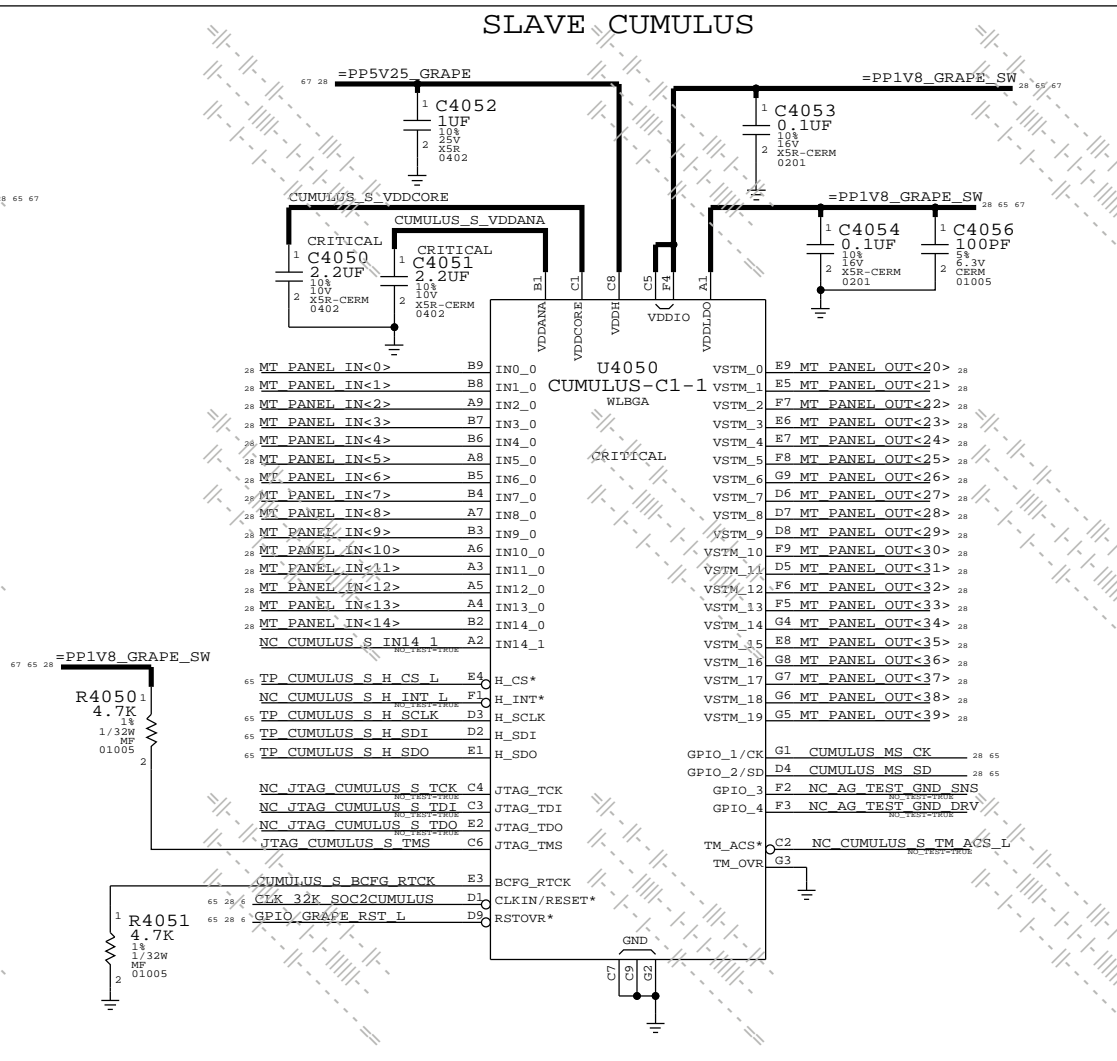


CUMULUS C1 (CSP) IN MASTER-SLAVE CONFIG

MASTER CUMULUS



SLAVE CUMULUS



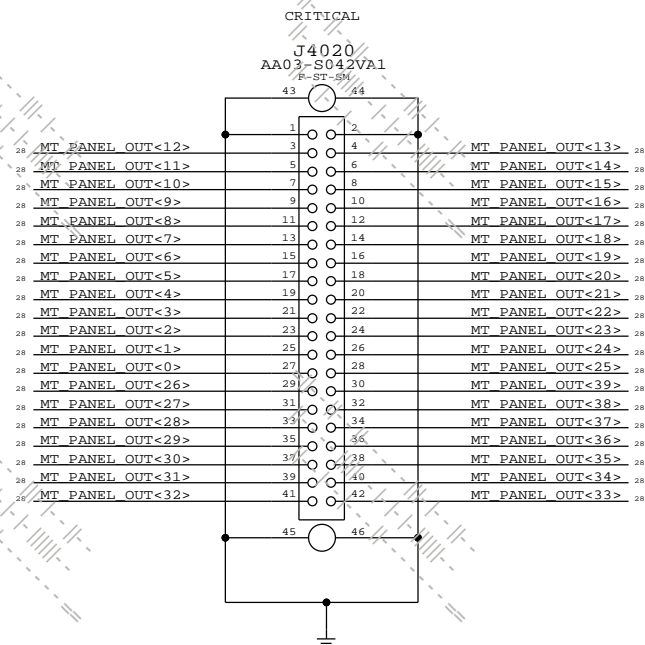
PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S0641	138S0700			RDAR: ///PROBLEM/13183483

C4000, C4001, C4050, C4051

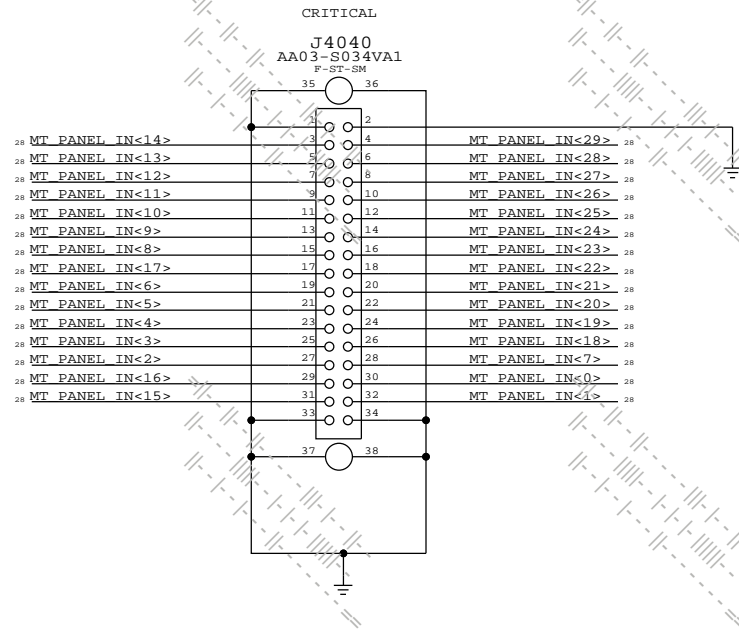
DIGITAL TESTPOINTS

GPIO_GRAPE_IRQ_L	TP_JTAG_CUMULUS_M_TCK
GPIO_GRAPE_RST_L	TP_JTAG_CUMULUS_M_TDI
CLK_32K_SOC2CUMULUS	JTAG_CUMULUS_M_TMS
SPI1_GRAPE_MOSI	TP_JTAG_CUMULUS_M_TDO
SPI1_GRAPE_MISO	DISPLAY_SYNC
SPI1_GRAPE_SCLK	CUMULUS_MS_CK
SPI1_GRAPE_CS_L	CUMULUS_MS_SD
TP_CUMULUS_S_H_CS_L	TP_CUMULUS_S_H_SDI
TP_CUMULUS_S_H_SCLK	TP_CUMULUS_S_H_SDO

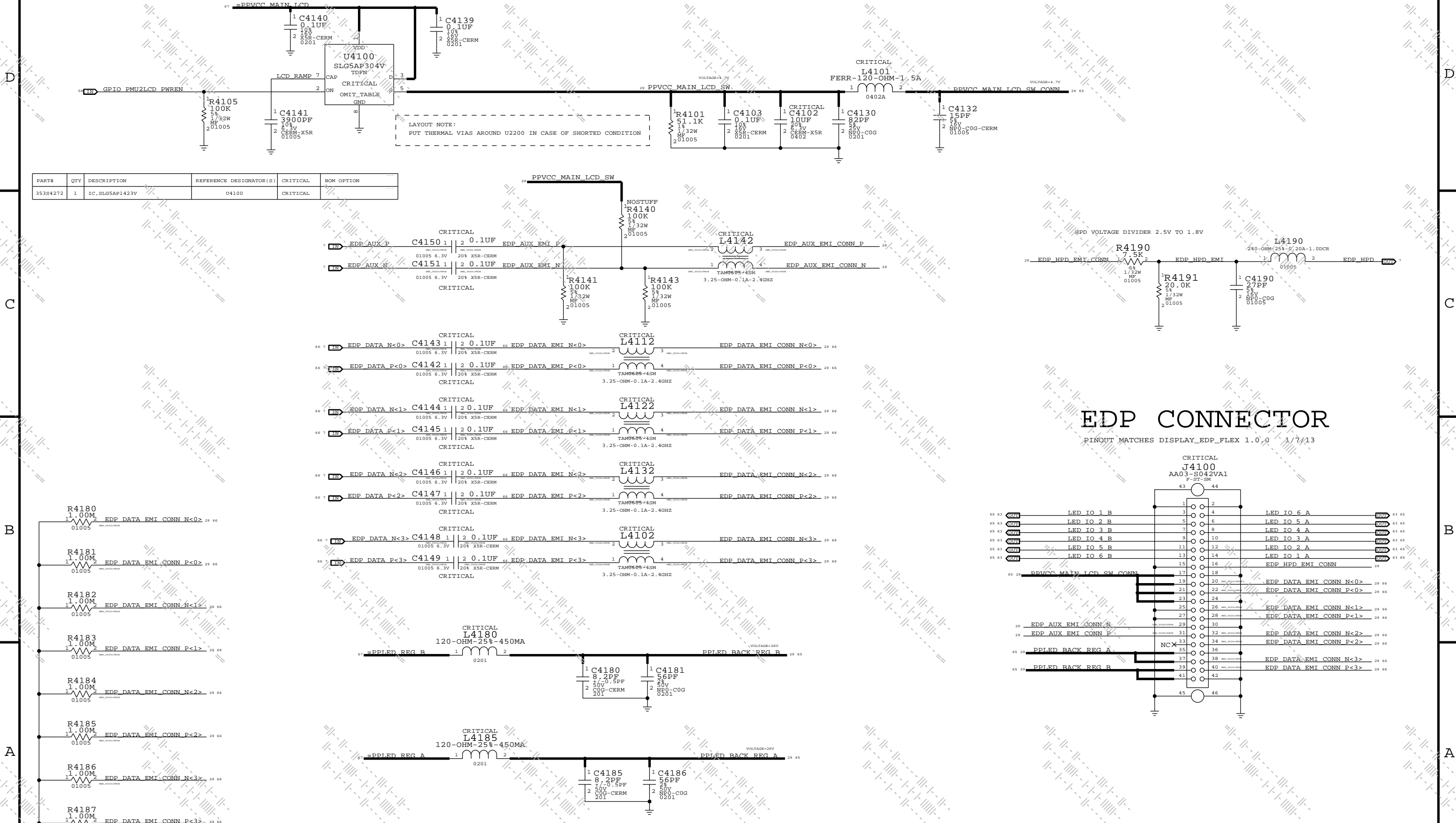
PINOUT MATCHES GRAPE_FLEX_DRIVE_ALT 0.1.0 1/8/13



PINOUT MATCHES GRAPE_FLEX_SENSE_ALT 0.1.0 1/8/13

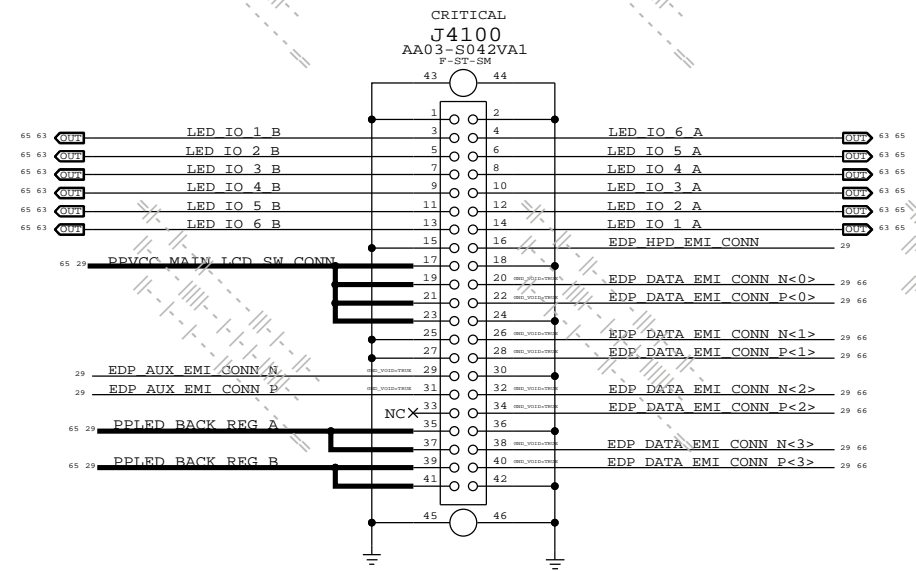


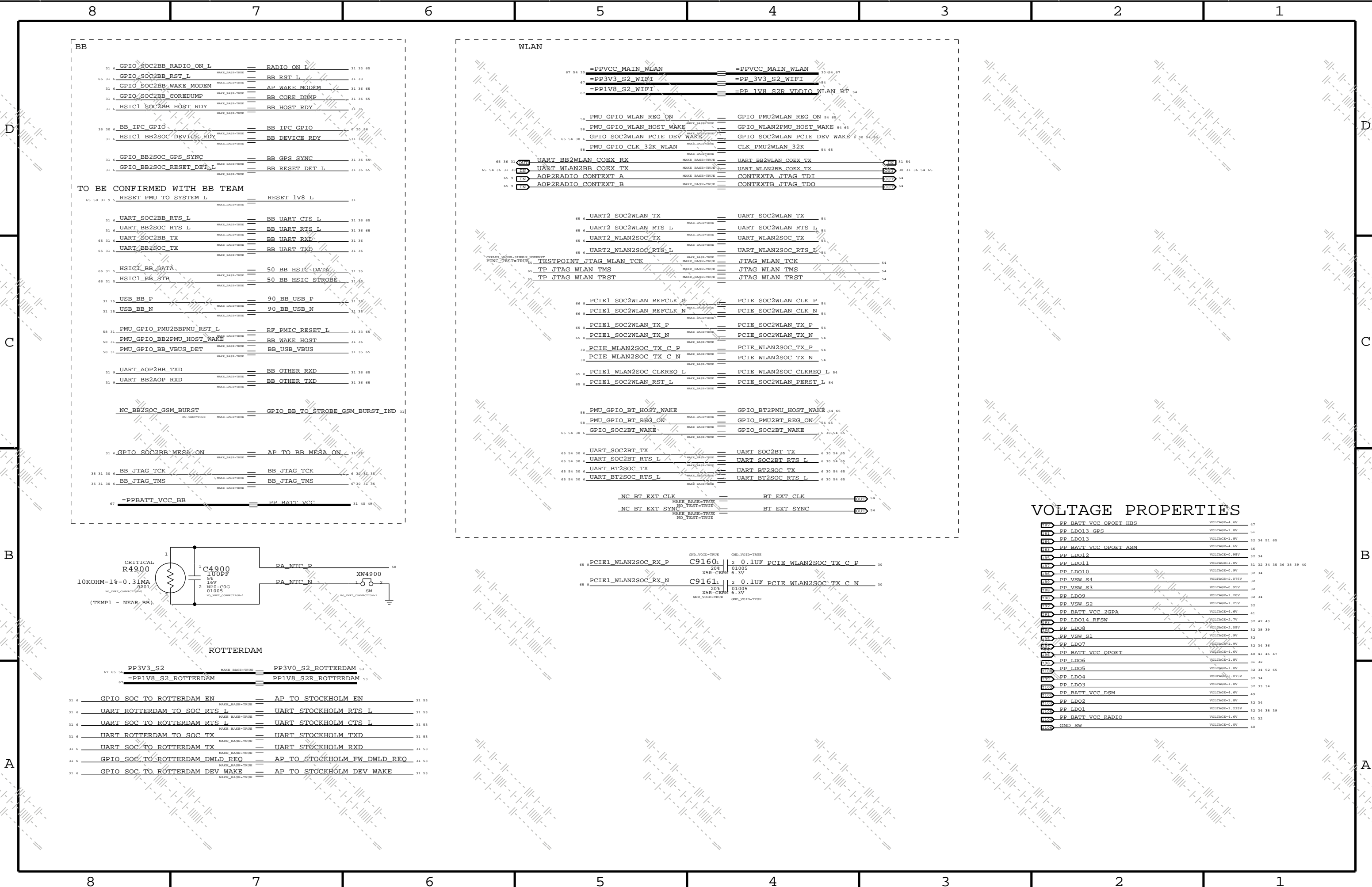
PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
353S4272	1	IC,SLG5AP1423V	U4100	CRITICAL	



EDP CONNECTOR

PINOUT MATCHES DISPLAY_EDP_FLEX 1.0.0 1/7/13

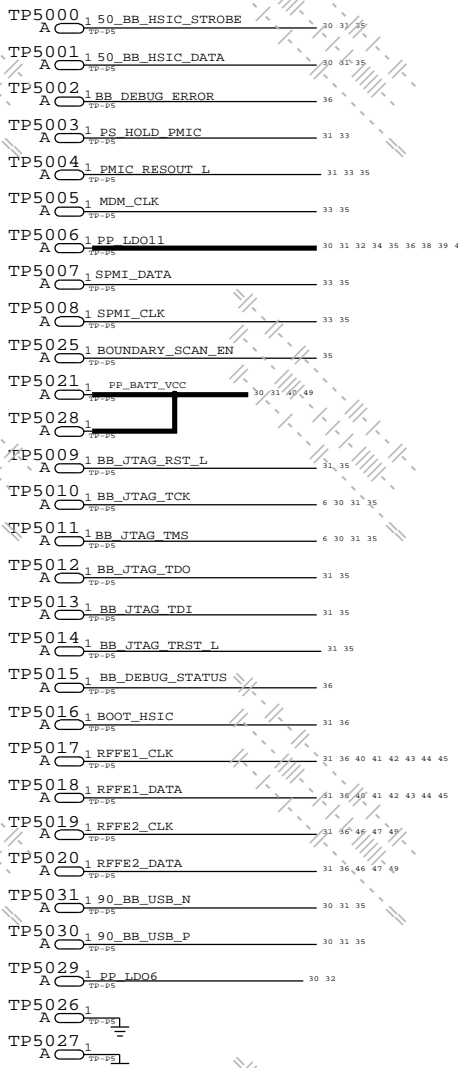




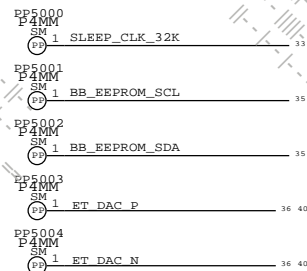
AP INTERFACE & DEBUG CONNECTOR

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

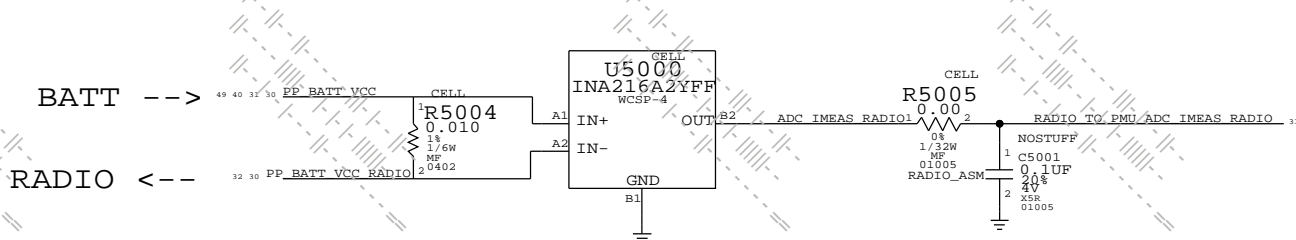
TEST POINTS



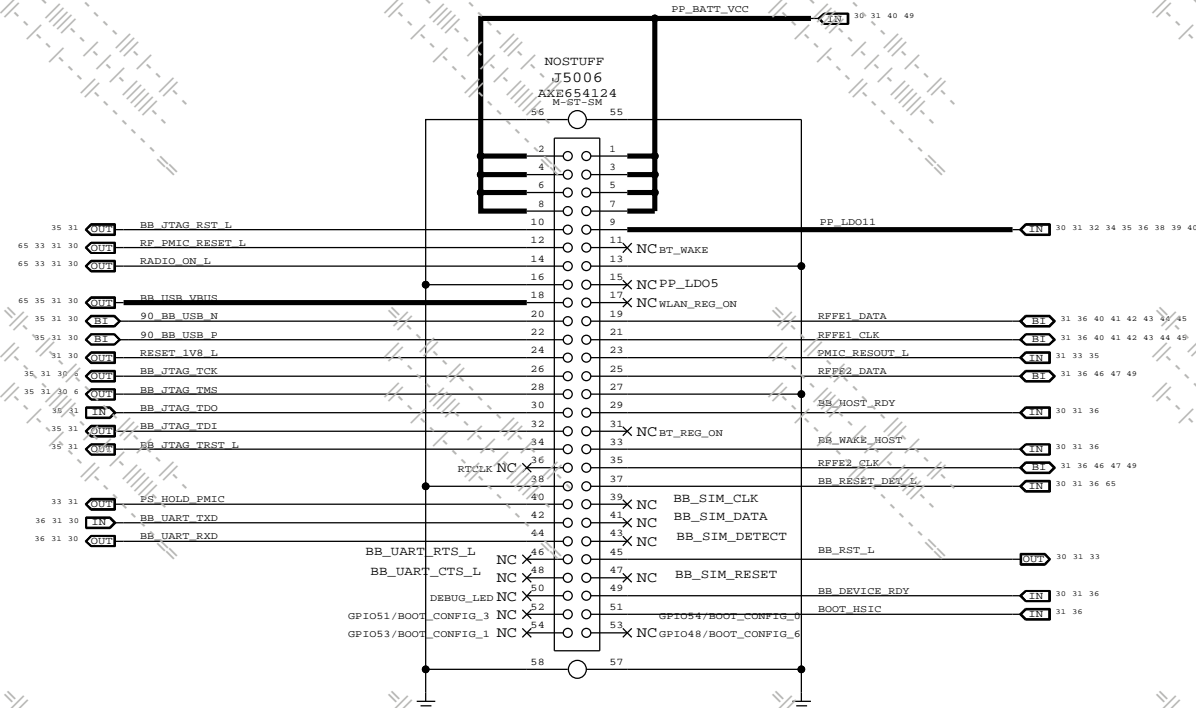
PROBE POINTS



PP_VCC_MAIN CURRENT SENSE



DEBUG CONNECTOR



CONFIG_RF BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
131S0273	1	0.8PF 0201	C6001	CRITICAL	X137_RF
131S0431	1	0.2PF 0201	C6013	CRITICAL	X190_RF
131S0273	1	0.8PF 0201	C6013	CRITICAL	X137_RF
131S0351	1	0.4PF 0201	C6013	CRITICAL	X202_RF
152S2020	1	3.6NH +/-0.1NH 400MA 0201	L6001	CRITICAL	X190_RF
152S2022	1	4.3NH 3% 500MA 0201	L6001	CRITICAL	X137_RF
152S2020	1	3.6NH +/-0.1NH 400MA 0201	L6001	CRITICAL	X202_RF
131S0323	1	1.1PF 0201	C6421	CRITICAL	X190_RF
152S1217	1	1.0NH +/-0.1NH 750MA 0201	L6402	CRITICAL	X190_RF
152S2042	1	1.8NH +/-0.1NH 800MA 0201	L6402	CRITICAL	X137_RF
152S2042	1	1.8NH +/-0.1NH 800MA 0201	L6402	CRITICAL	X202_RF
152S1994	1	6.8NH 3% 210MA 01005	C6202	CRITICAL	X190_RF
152S1977	1	10.0NH 3% 170MA 01005	C6202	CRITICAL	X137_RF
152S1994	1	6.8NH 3% 210MA 01005	C6202	CRITICAL	X202_RF
152S00028	1	22NH 3% 120MA 01005	L6720	CRITICAL	X190_RF
152S1979	1	18NH 1% 140MA 01005	L6720	CRITICAL	X137_RF
152S1979	1	18NH 1% 140MA 01005	L6720	CRITICAL	X202_RF
138S0831	5	MURATA 2.2UF CAPACITOR	C5001,C5121,C5122,C6010,C6011	CRITICAL	CELL
131S0317	1	1.5 PF 0201	C6014	CRITICAL	X190_RF
131S0319	1	2.0 PF 0201	C6014	CRITICAL	X137_RF
131S0317	1	1.5 PF 0201	C6014	CRITICAL	X202_RF

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0565	197S0598		V5201	KDS XTAL, 19.2MHZ
197S0593	197S0598		V5201	NDK XTAL, 19.2MHZ
197S0595	197S0598		V5201	TXC XTAL, 19.2MHZ

BOM ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S1850	152S1721		L5001,L5103,L5104	MURATA IN, 2.2UH, 2016
152S2050	152S1857		L5902	TAIYO IND, 2.2UH, 2012
138S00032	138S0831		C5138,C5139	TAIYO IND, 2.2UF, 0201
353S01007	353S01039		NPCSM_RF	ON SEMI, LOAD SW

REPLACES 138S0917 138S0917 CAN ONLY BE USED ON RAILS WITH 3V OR LESS

REVISION DATE: 8/15/2016

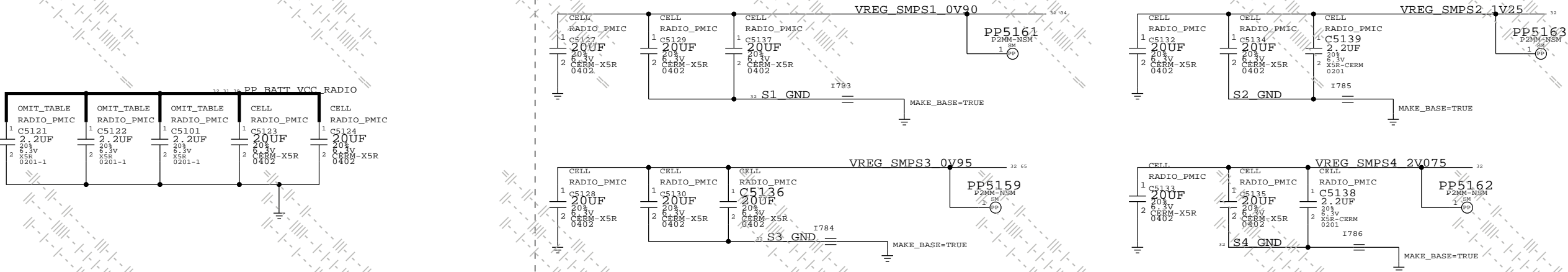
CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSE ONLY - NOT A CHANGE REQUEST

BASEBAND PMU (1 OF 2)

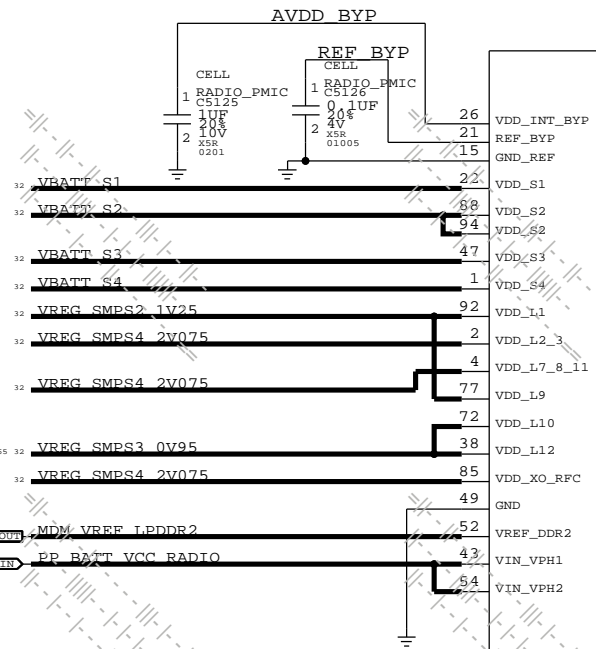
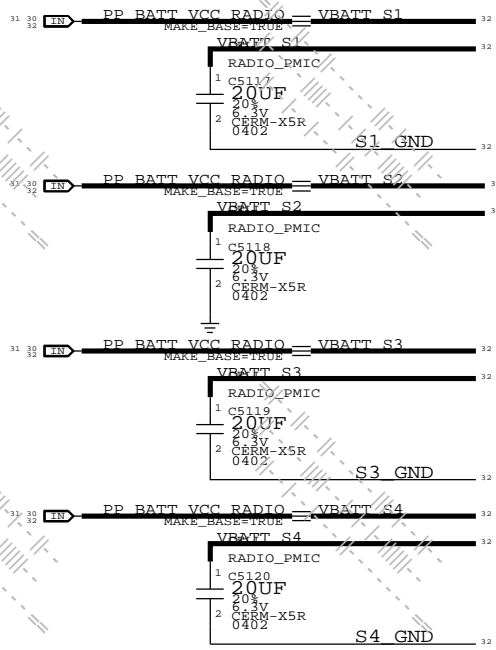
CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

C332
R302
L304
U301

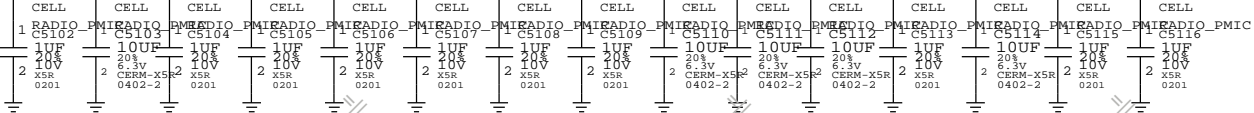
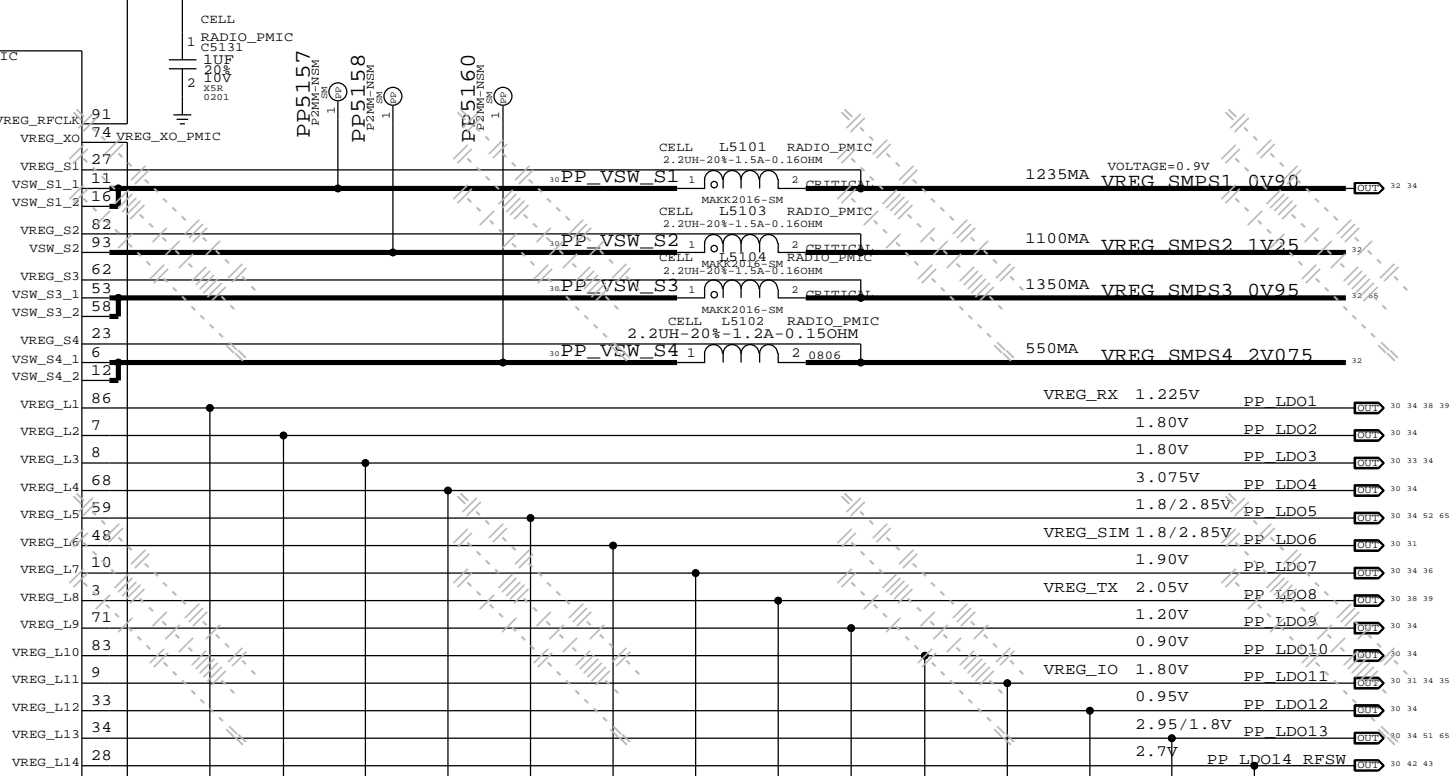
SWITCHERS OUTPUT CAPS



SWITCHERS BULK CAPS



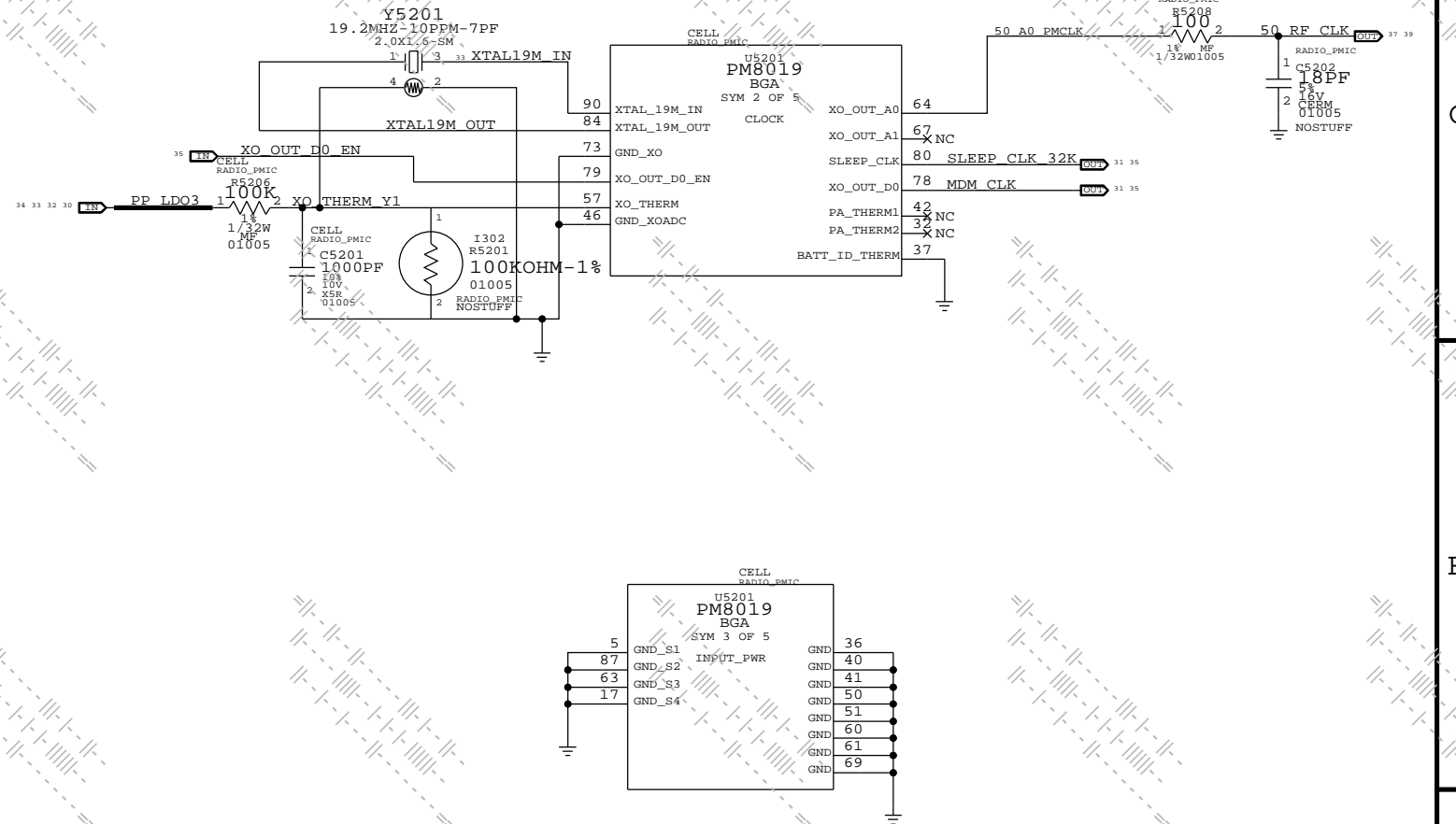
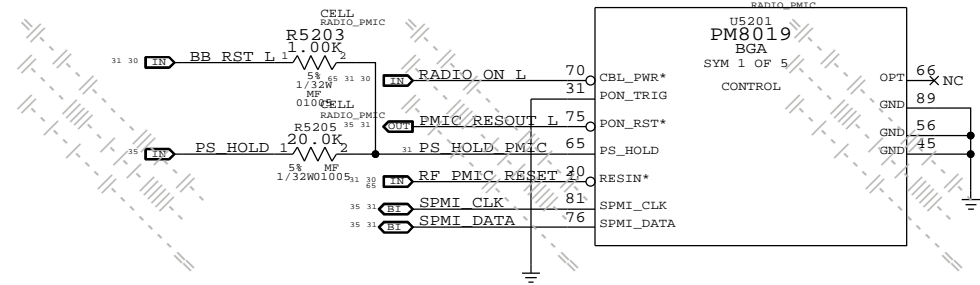
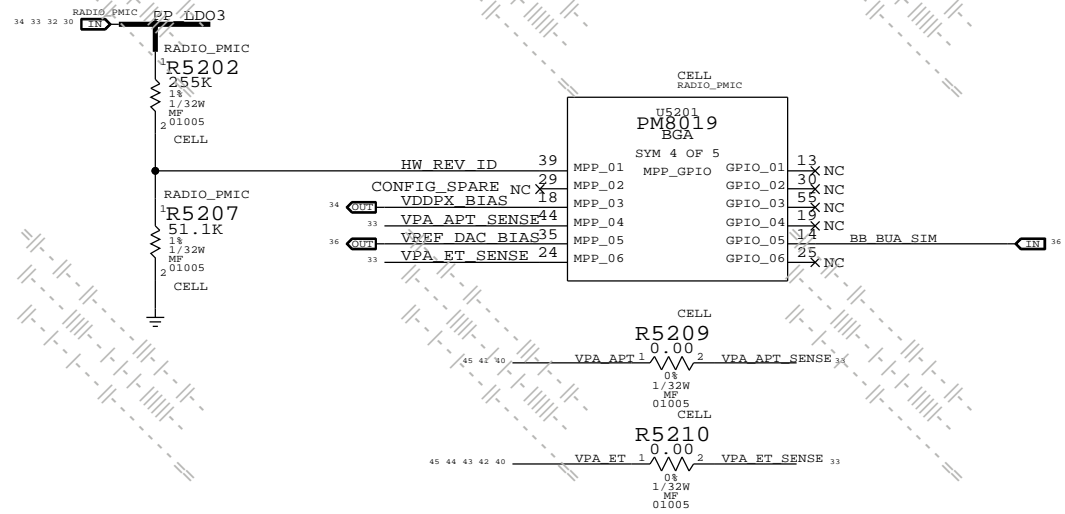
VREG_RF_CLK_BYP



CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

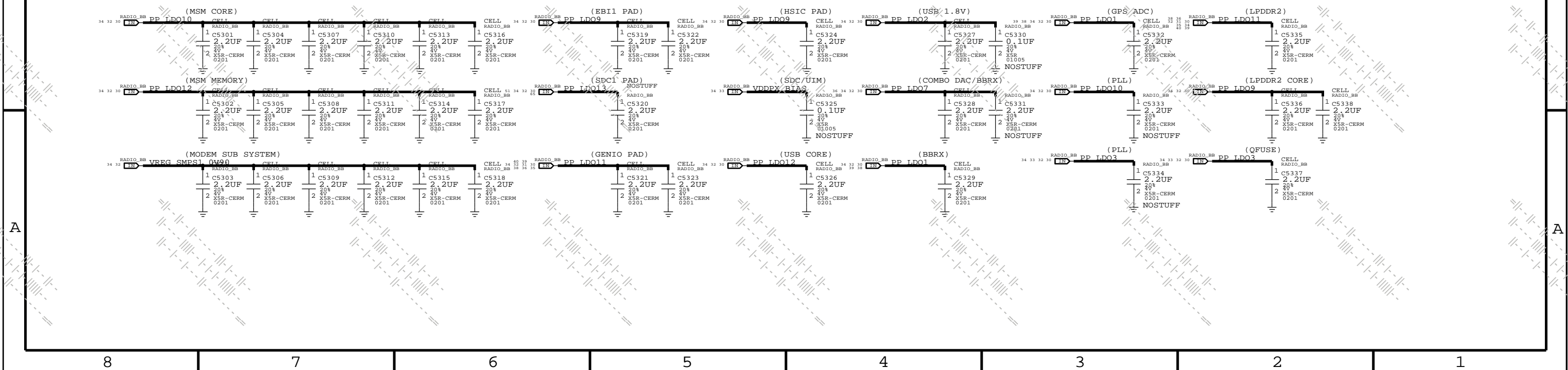
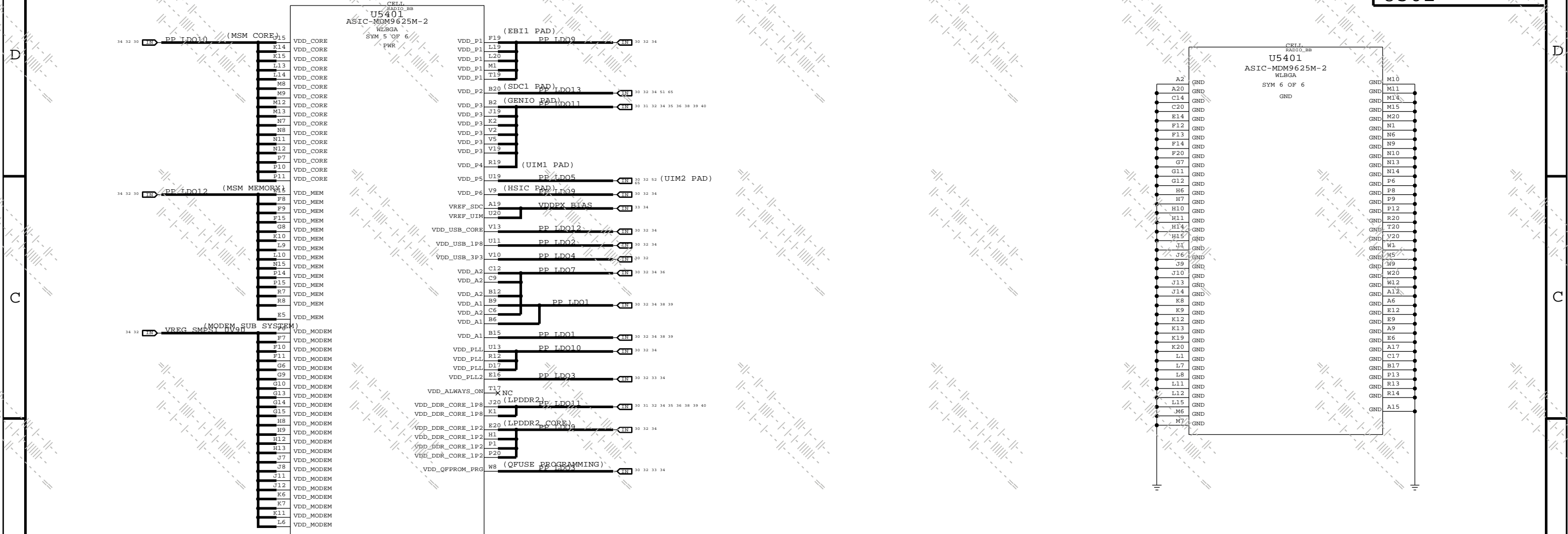
C401R411L400U404

HW_REV_ID	R5202	R5207	REV
0.10V	887K	51.1K	N/A
0.20V	422K	51.1K	PROTO0
0.30V	255K	51.1K	PROTO1
0.40V	178K	51.1K	PROTO2
0.50V	255K	100K	EVT
0.60V	102K	51.1K	DVT
0.70V	82.5K	51.1K	PVT



CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

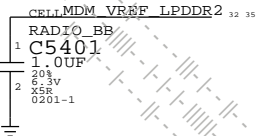
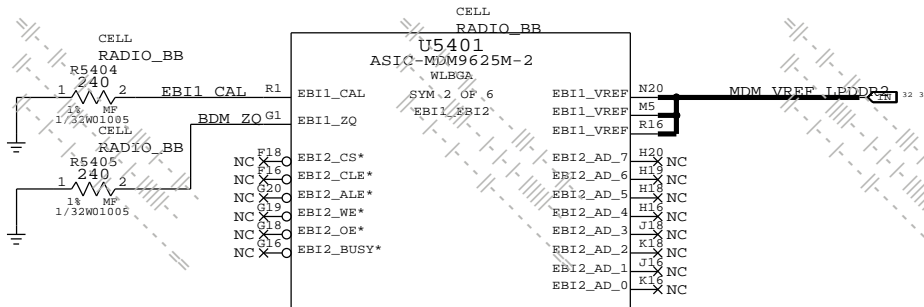
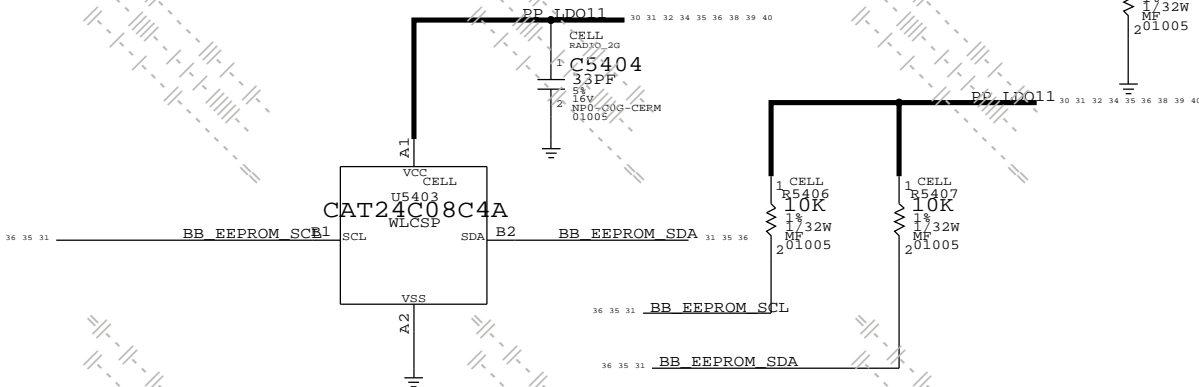
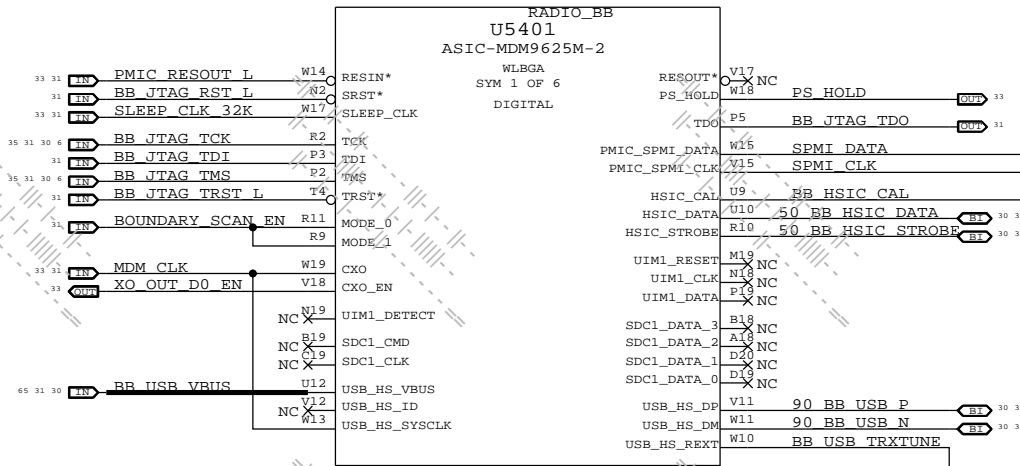
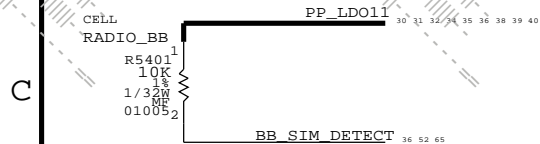
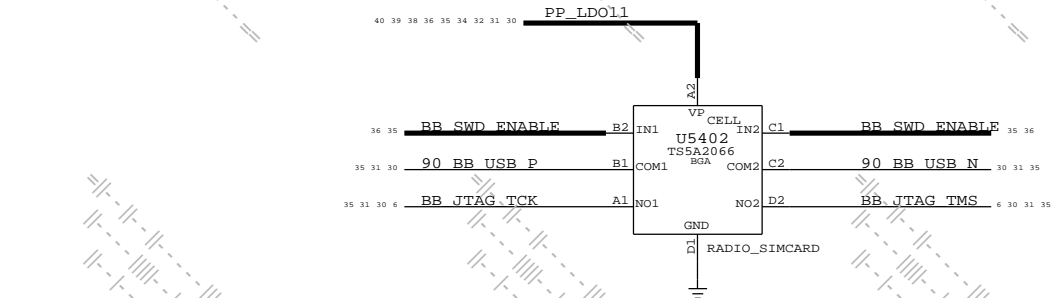
C538
R500
L500
U502



BASEBAND (2 OF 3)

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

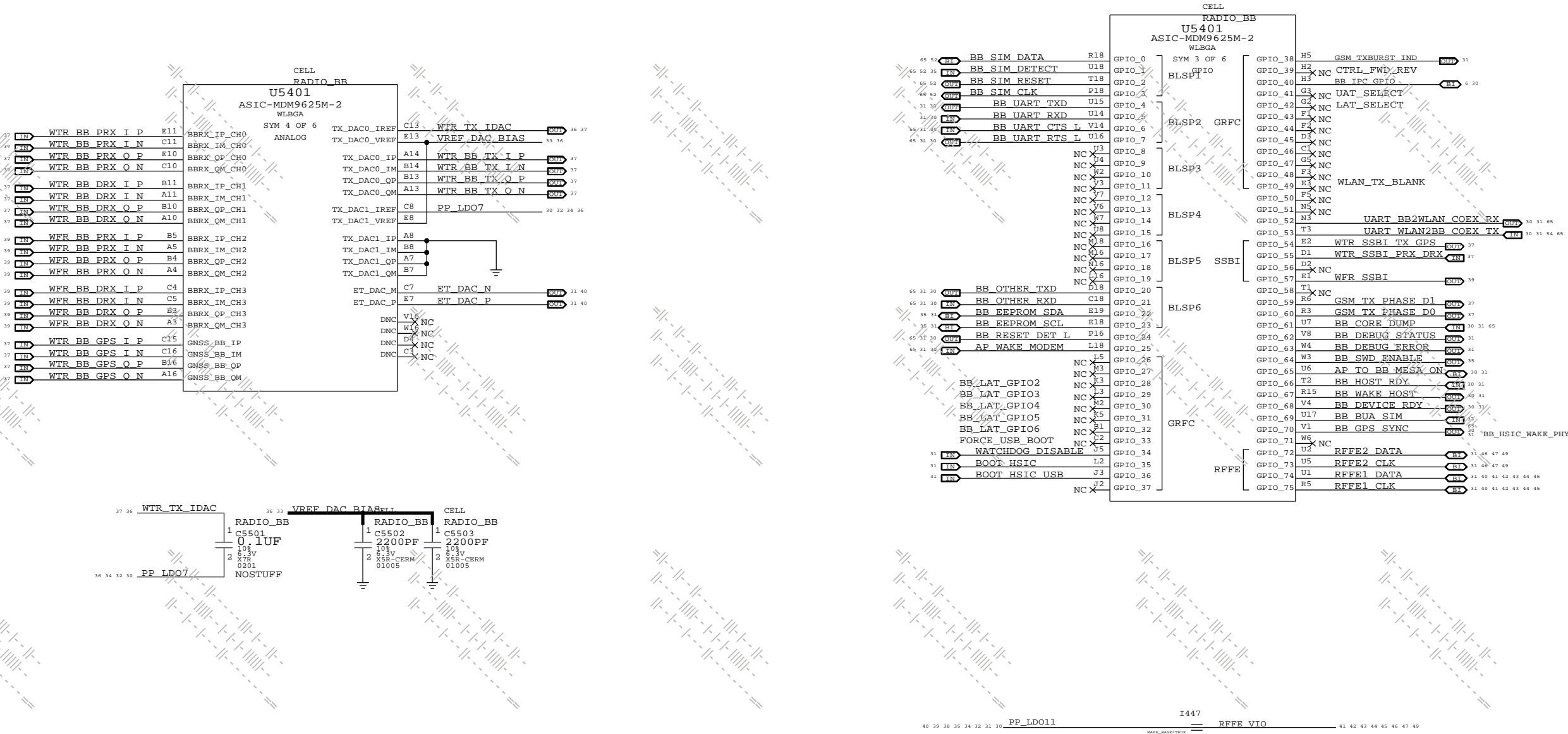
C600
R606
L600
U602



BASEBAND (3 OF 3)

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

C704
R700
L700
U702



WTR TRANSCEIVER (1 OF 2)

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

C802
R802
L800
U803

D

D

C

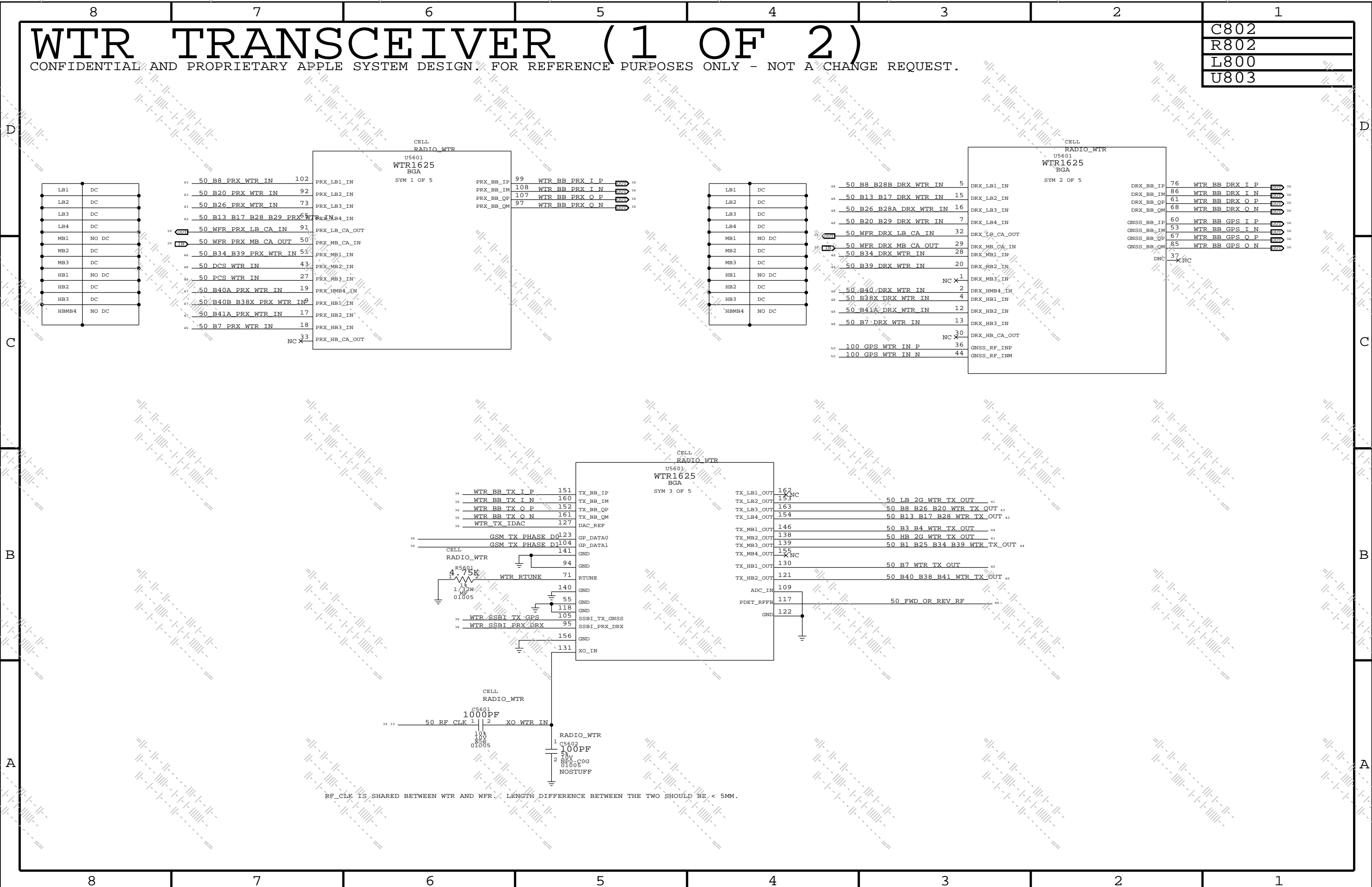
C

B

B

A

A



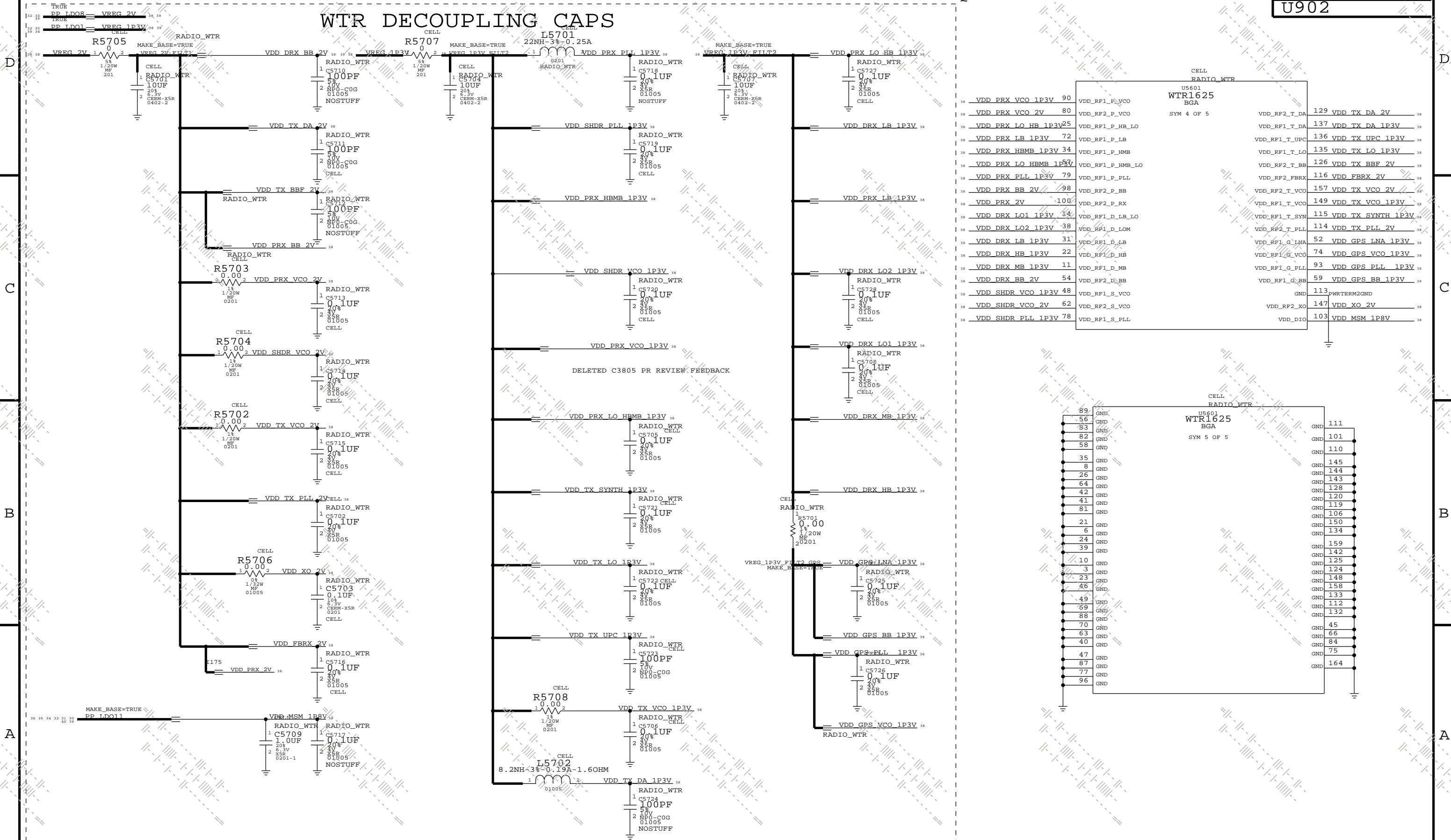
RF CLK IS SHARED BETWEEN WTR AND WFR. LENGTH DIFFERENCE BETWEEN THE TWO SHOULD BE < 5MM.

WTR TRANSCEIVER (2 OF 2)

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

C934
R926
L3802_RF
U902

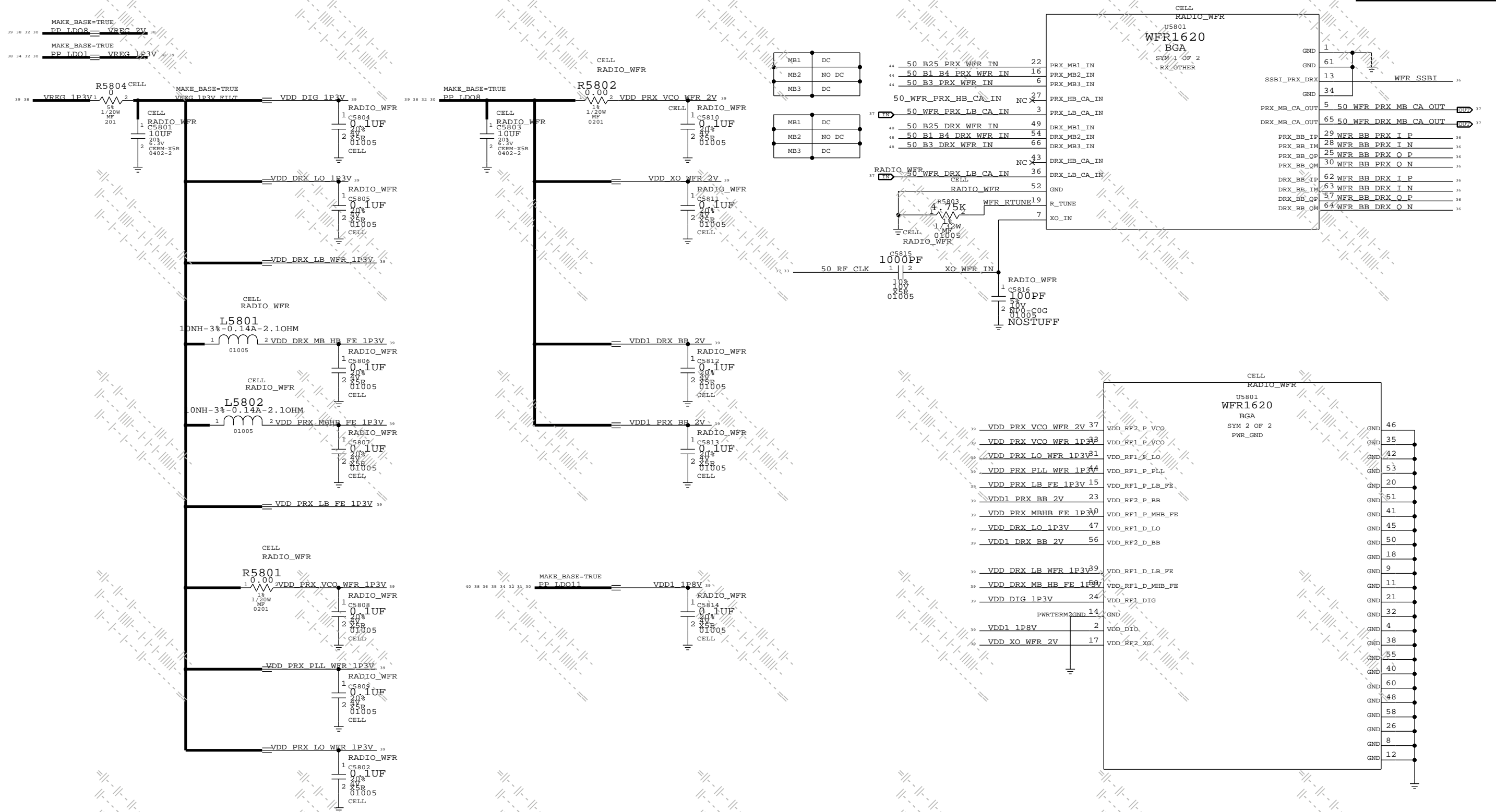
WTR DECOUPLING CAPS



WFR TRANSCEIVER

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

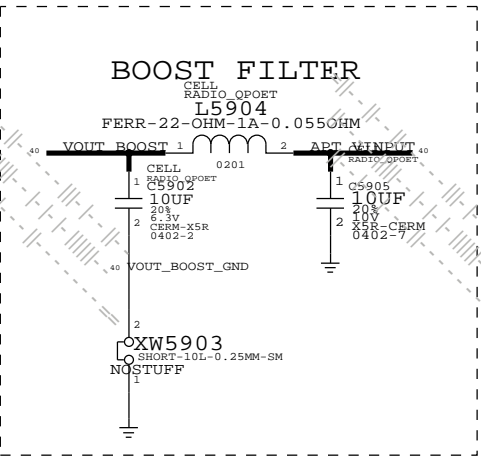
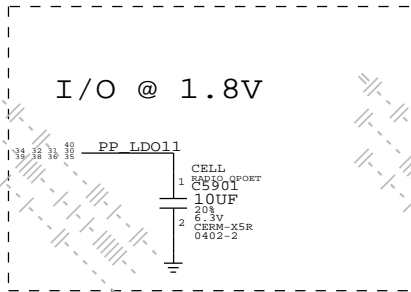
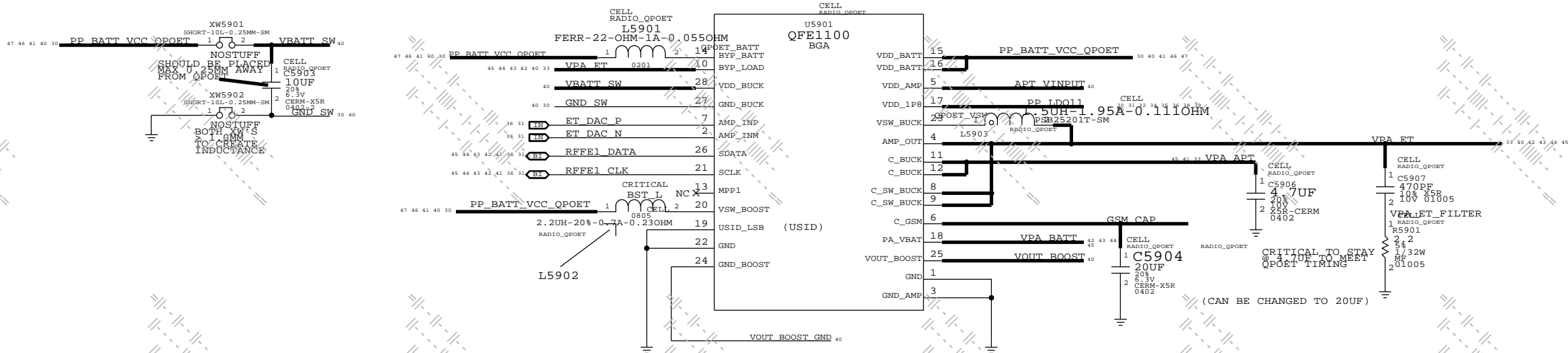
C1019
R1016
L1000
U1002



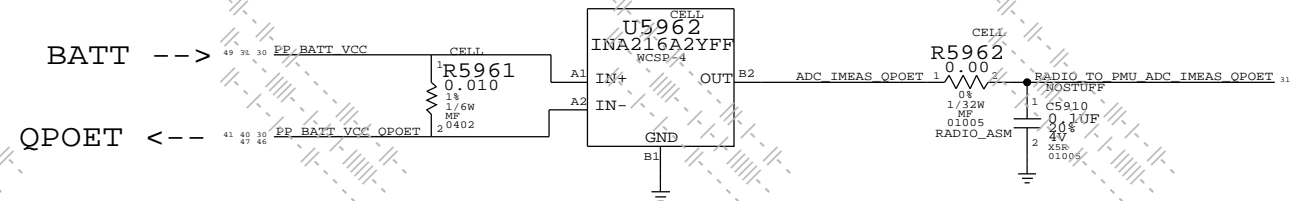
QFE DCDC

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

C1110
R1102
L1104
U1101



PP_VCC_MAIN CURRENT SENSE

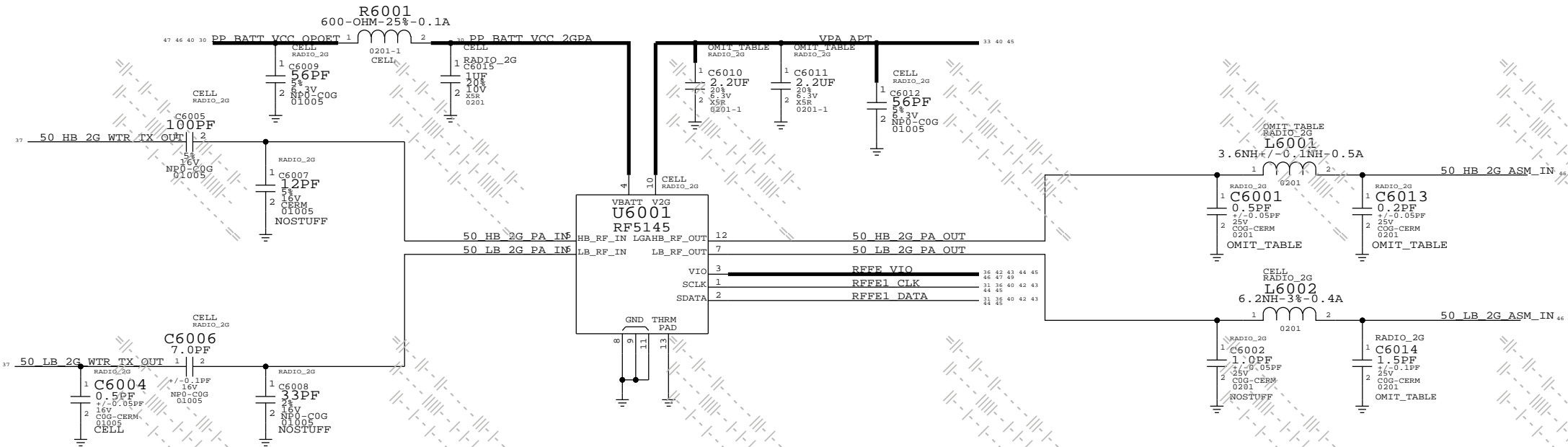


2G PA

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

C1208
R1200
L1204
U1201

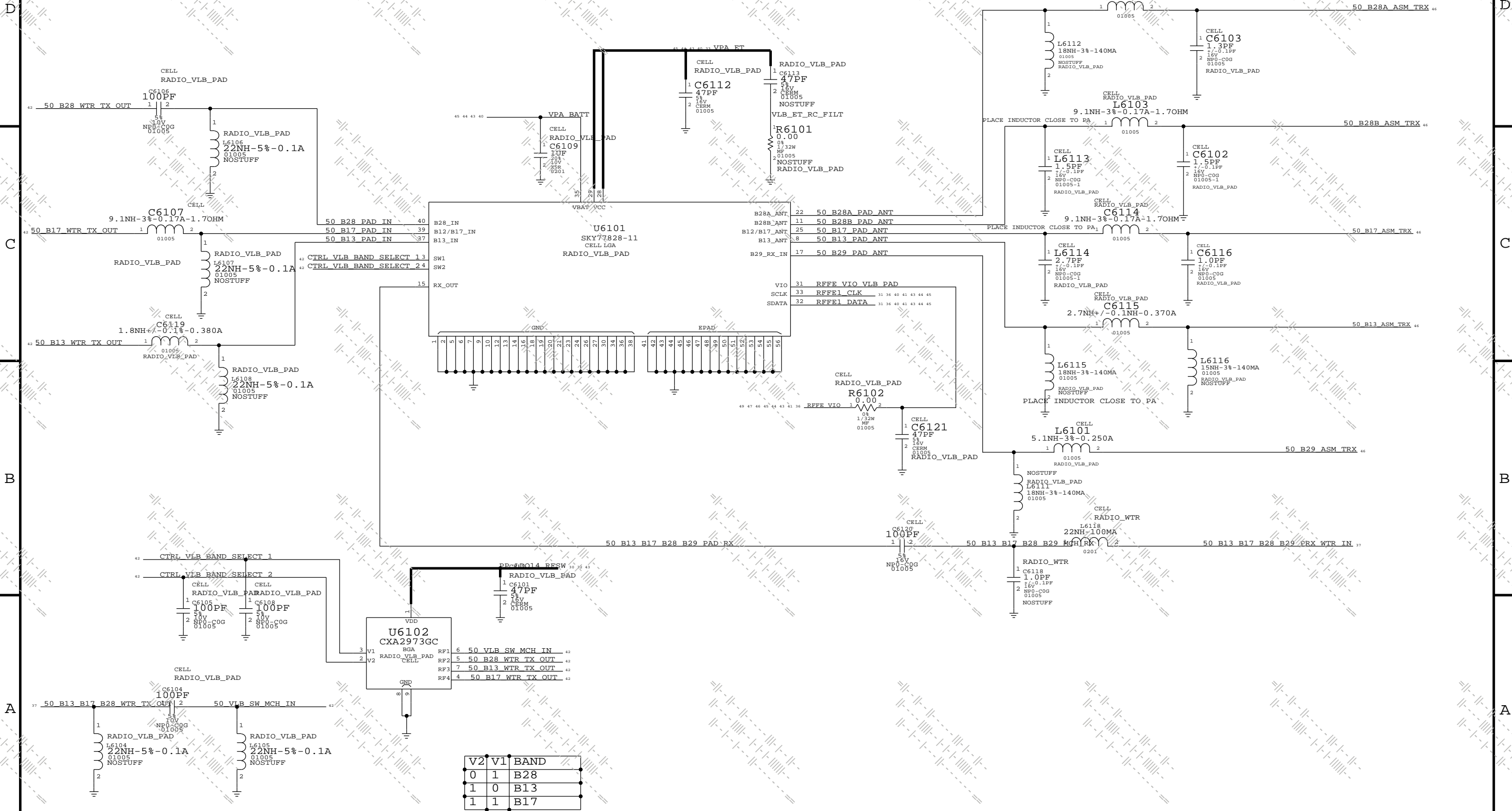
CHANGE TO VBATT!!!!



VERY LOW BAND PAD (B13, B17, B28)

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

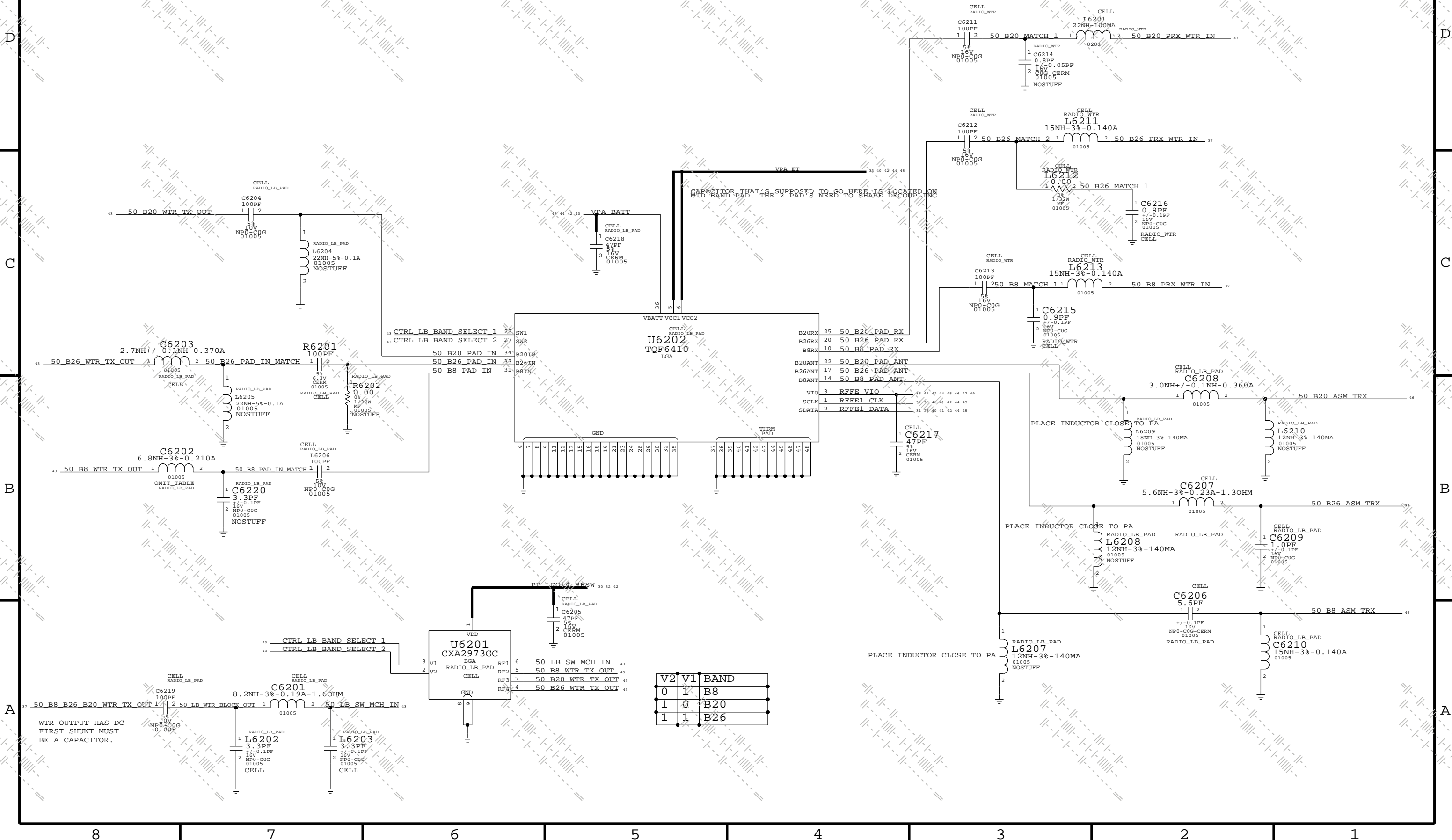
C1332
R1300
L4215_RF
U1304



LOW BAND PAD (B8, B26, B20)

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

C4317_RF
R1400
L4316_RF
U1402

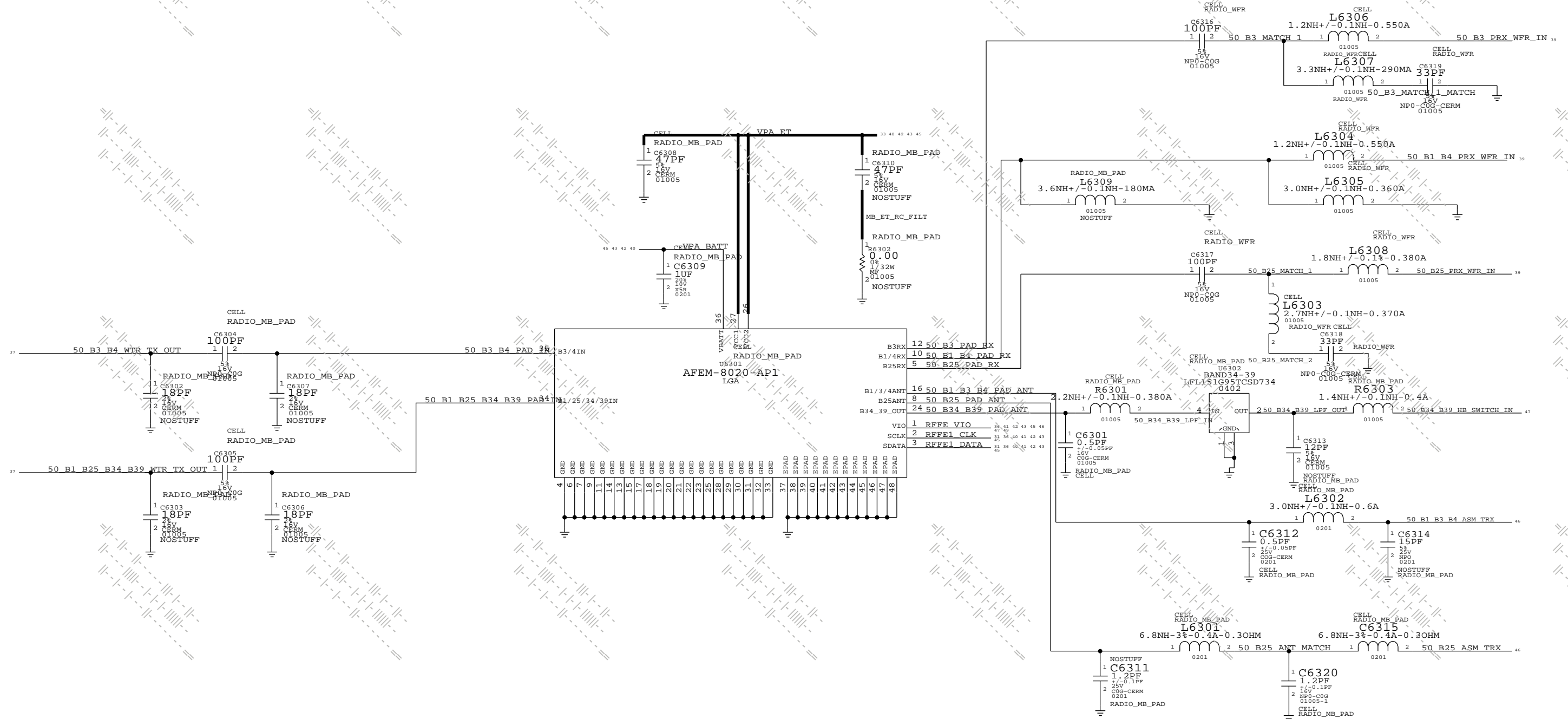


WTR OUTPUT HAS DC
FIRST SHUNT MUST
BE A CAPACITOR.

MID BAND PAD (B1, B25, B3, B4, B34, B39)

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

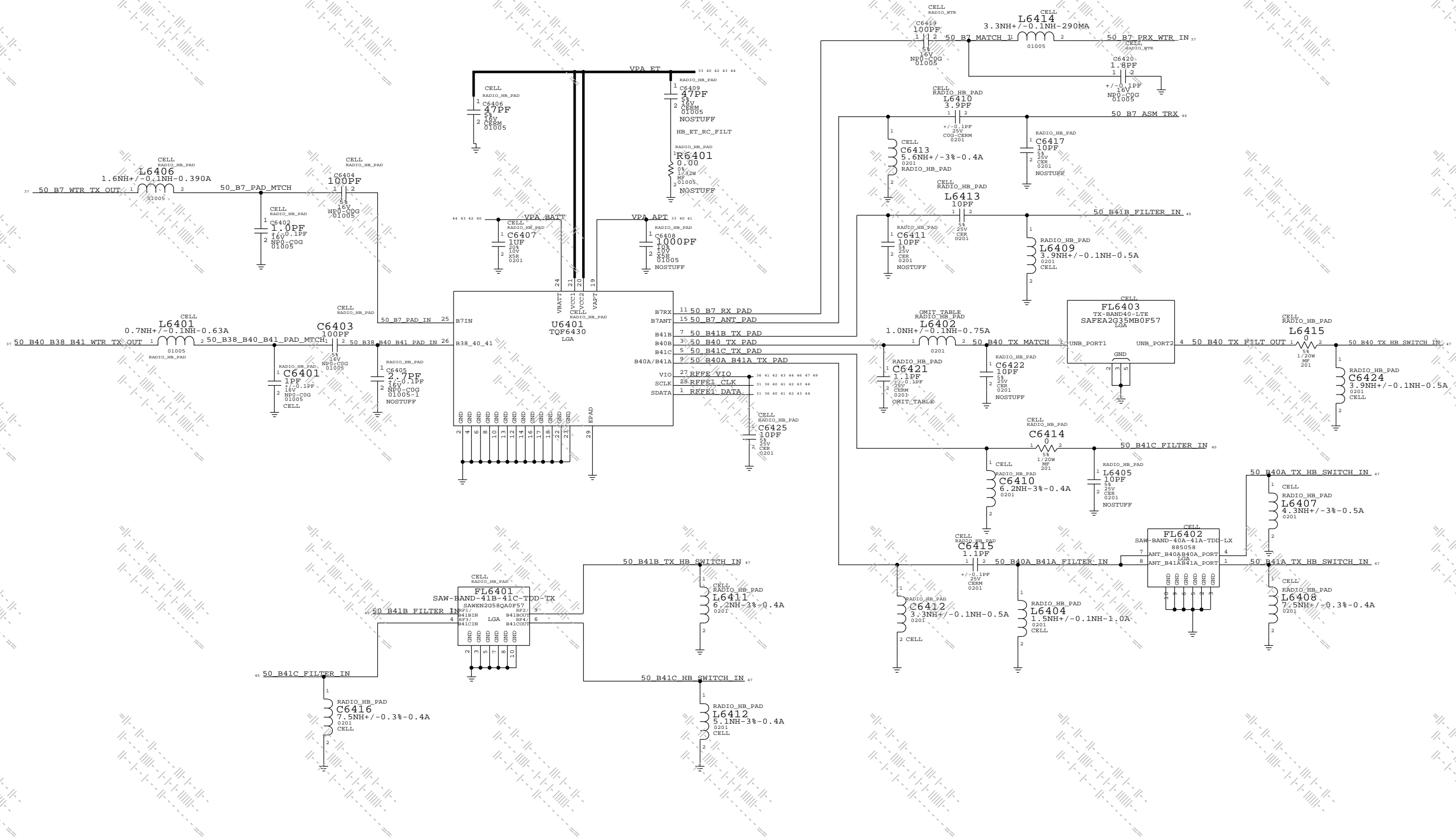
C1510
R1500
L4409_RF
U1501



HIGH BAND PAD (B7, B38, B40, B41, XGP)

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

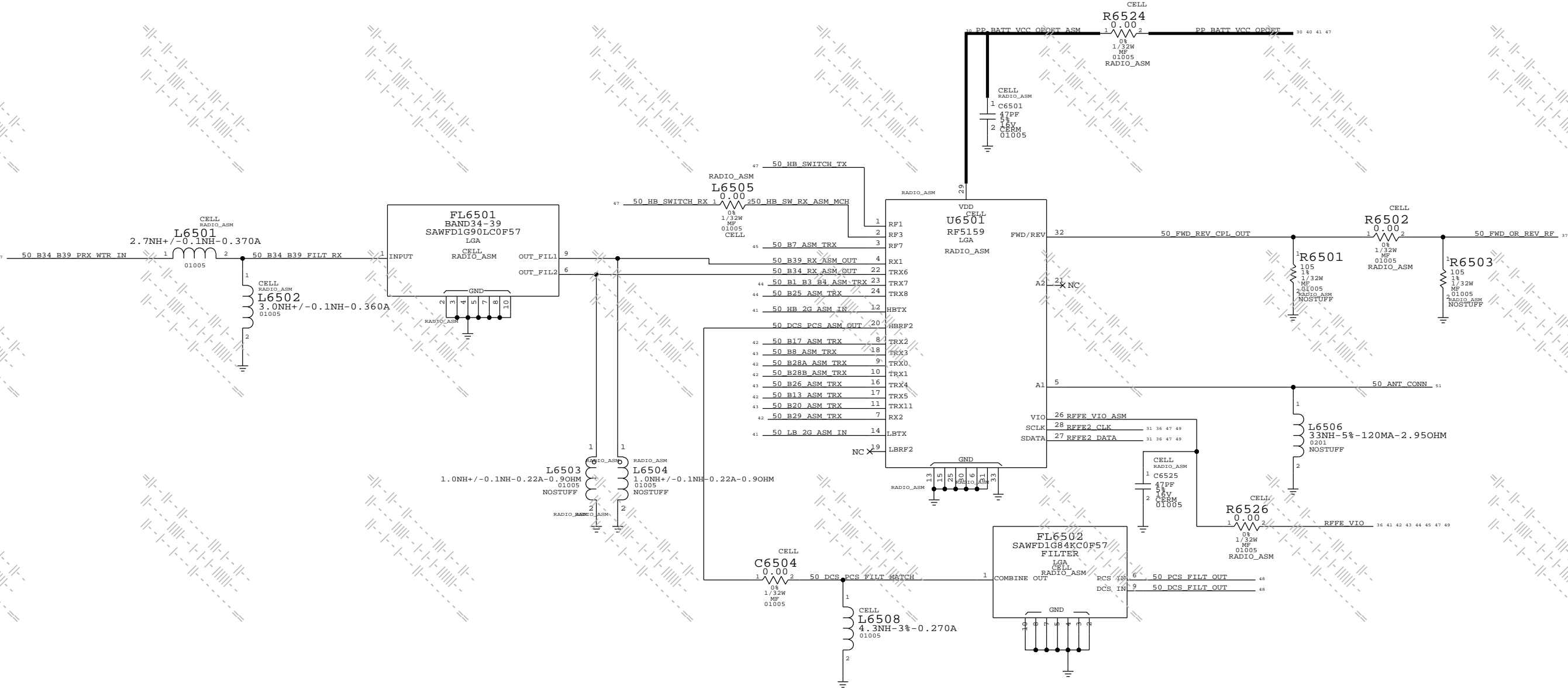
C1614
R1600
L1616
U1601



ANTENNA SWITCH

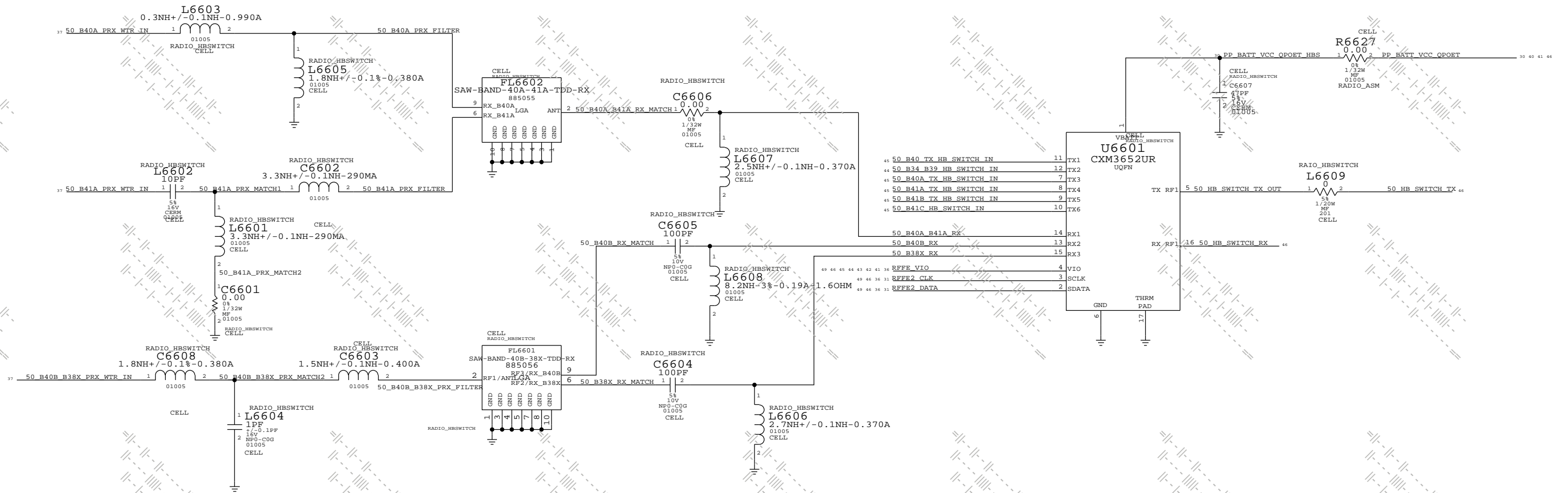
CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

C1702
R1700
L4608_RF
U1702



HIGH BAND SWITCH

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

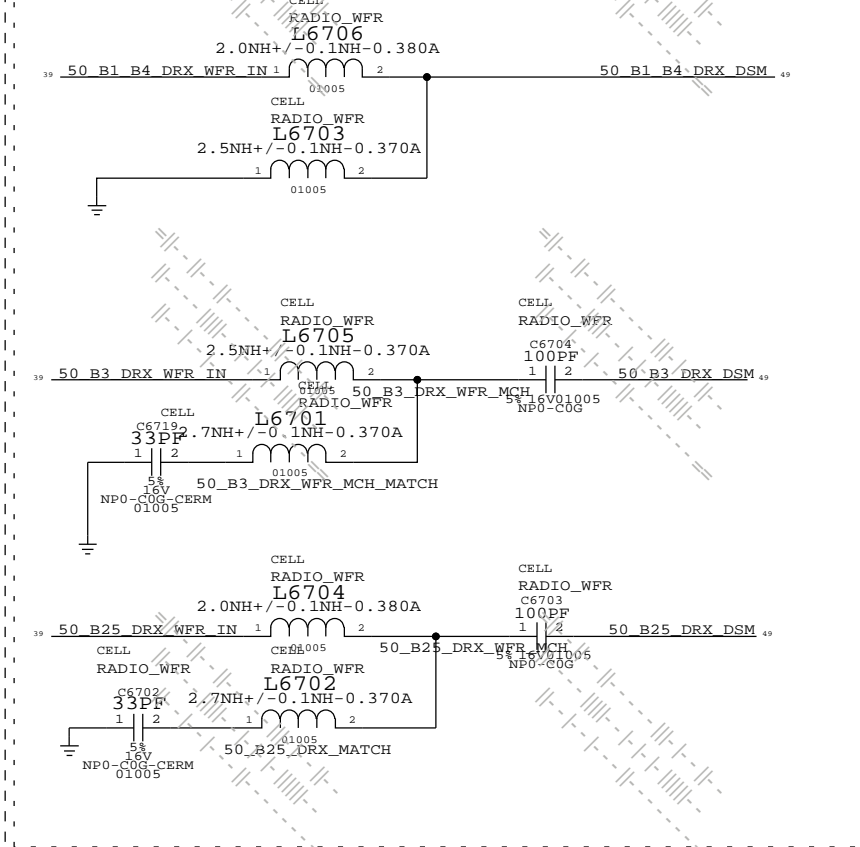


RX DIVERSITY (1 OF 2)

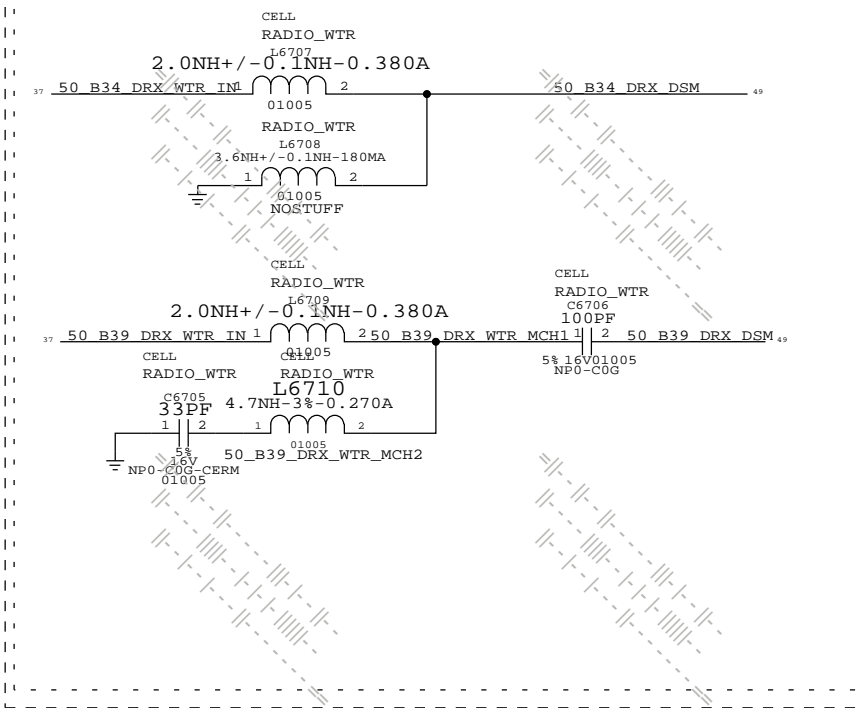
CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

C4826_RF
R1800
L1829
U1801

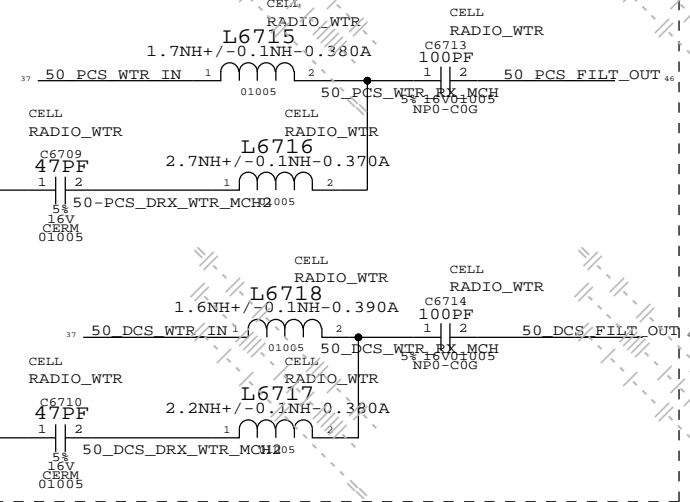
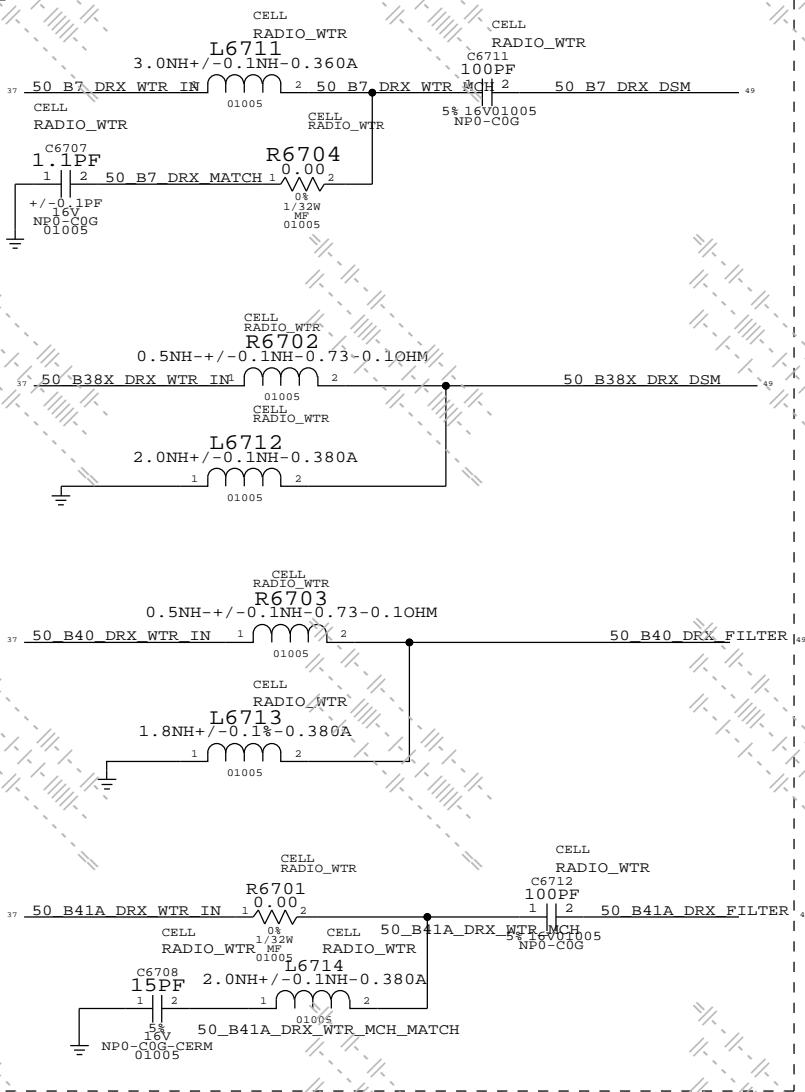
MIDBAND MIDBAND DIVERSITY - WFR



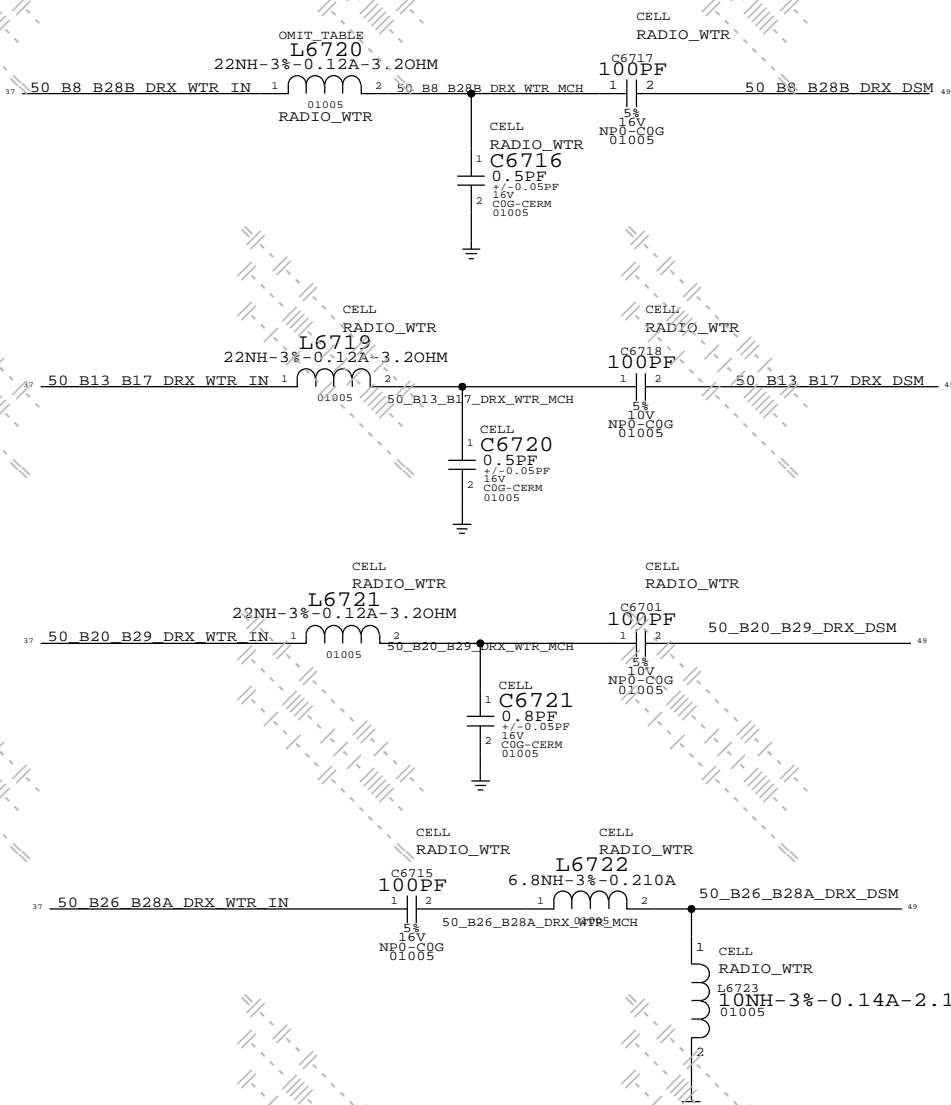
MIDBAND DIVERSITY - WTR



HIGHBAND DIVERSITY - WTR

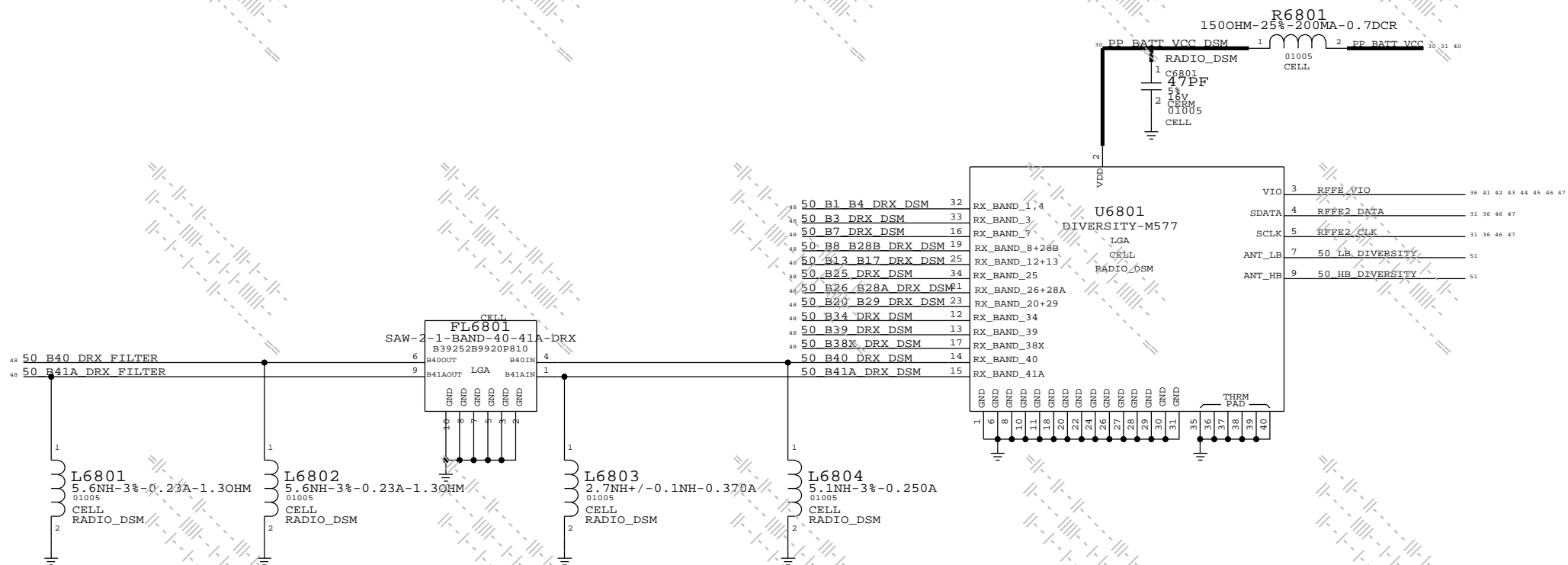


LOWBAND DIVERSITY - WTR



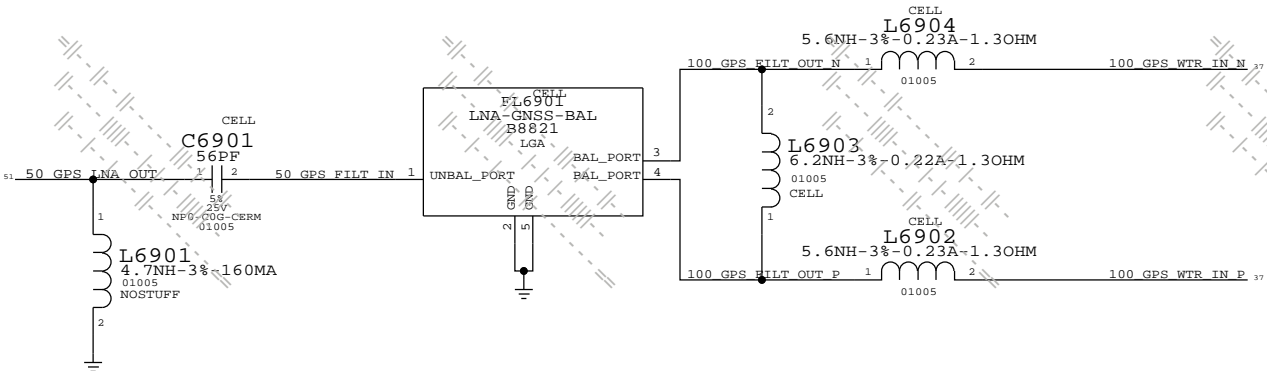
RX DIVERSITY (2 OF 2)

C1900	
R1900	
L1900	///
U1901	///



GPS

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.



ANTENNA FEEDS AND GPS

CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

PRI_ANT COAX

GPS_DRX_ANT

J7201
MM4829-2702B
F-ST-SW



50_ANT_CONN

46

R7203
1500HM-25%-200MA-0.7DCR

C7205
33PF
16V
NPO-COG-CERM
01005

OLD: LDO6
NEW: LDO13

U7201
LNA-CELL-GPS
ANT
TBD
LGA
CELL_OUT
EPAD

50_GPS_LNA_OUT

50_DRX_EXTRACTOR

50_DRX_DIPLEXER

CELL
DPX162690DT-8049C1SJ

FL6802
SM

50_LB_DIVERSITY

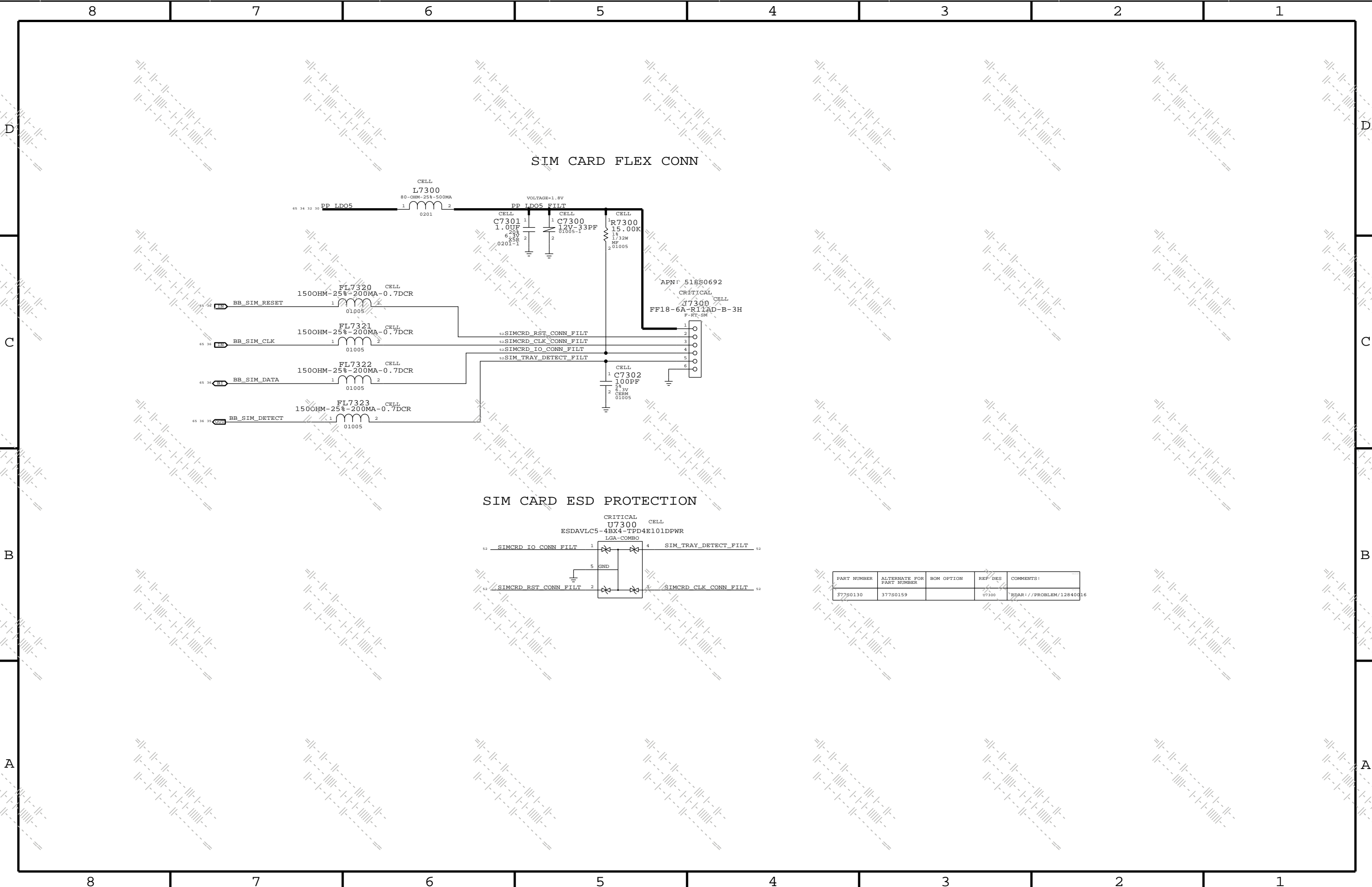
50_HB_DIVERSITY

LOW_BAND

HIGH_BAND

COMMON

GND



RTM/SECURE ELEMENT

SUPPORT PULLS

TEST POINTS

IMPORTANT DEBUG FEATURES

NFC LOAD SWITCH

The schematic diagram illustrates the internal components and connections of the RTM/SECURE ELEMENT. It includes a central U_RTM_RF IC (PN67VEU3-B001D003) connected to various power and signal lines. Key components include:

- Power Management:** RTM_VBAT, PP_VDD_MAIN_NEC, PP_STOCKHOLM_DVDD, PP_STOCKHOLM_ESE, PP_STOCKHOLM_ESE_R, PP_STOCKHOLM_SVDD_IN, PP_STOCKHOLM_VMID.
- Signal Lines:** PP3V0_S2_ROTTERDAM, PP1V8_S2B_ROTTERDAM, UART_STOCKHOLM_RXD, UART_STOCKHOLM_TXD, UART_STOCKHOLM_CTS_L, UART_STOCKHOLM_RTS_L, AP_TO_STOCKHOLM_EN, AP_TO_STOCKHOLM_FW_DWLD_REQ, AP_TO_STOCKHOLM_DEV_WAKE, SPIM_MOST, SPIM_MISO, SPIM_SCK, SPIM_NSS, SPIM_IRQ, SPIM_PRES/MAGNETIC_FIELD_COEX, STOCKHOLM_DC_BOOST, STOCKHOLM_RXP, STOCKHOLM_RXN, STOCKHOLM_TX1, STOCKHOLM_TX2, WKUP_REQ, SE2_ENABLE, SE2_PWR_REQ, SE2_SVDD_IN.
- Test Points:** PP7400_RF, PP7401_RF, PP7402_RF, PP7403_RF, PP7404_RF, PP7405_RF, PP7406_RF, PP7407_RF, PP7408_RF, PP7409_RF, PP7410_RF.
- Debug Features:** SWP_SPY_DBG, SWP_SPY_DBG_R, PP_STOCKHOLM_ESE, PP_STOCKHOLM_ESE_R.
- NFC Load Switch:** NFC_SW_RF, PP1204UCX, PP_VCC_MAIN_ROTTERDAM, PP_VDD_MAIN_NEC.

Sync Date: 06/15/2016

[illegible][illegible]

RTM/SECURE ELEMENT

SUPPORT PULLS

TEST POINTS

IMPORTANT DEBUG FEATURES

NFC LOAD SWITCH

The diagram illustrates the internal circuitry of the RTM/SECURE ELEMENT. It features a central microcontroller (U_RTM_RF, PN67VEU3-B001D003) connected to various peripheral components. Key sections include:

- Power Management:** Includes regulators for PP VDD MAIN NEC, PP STOCKHOLM DVDD, and PP STOCKHOLM SVDD IN, all set to 1.80V. It also shows decoupling capacitors like C7424, C7430, C7402, C7404, C7403, and C7417.
- Test Points:** A list of test points (PP7400_RF to PP7410_RF) mapped to specific signals and pins, such as UART_STOCKHOLM_RXD, STOCKHOLM_DEB, and AP_TO_STOCKHOLM_DEV_WAKE.
- Debug Features:** Includes a section for important debug features with components like R7411, R7412, and R7413, and signals like SWP_SPY_DBG and PP_STOCKHOLM_ESE.
- NFC Load Switch:** A section showing the NFCSW_RF (FPF1204UCX) and its connection to PP VDD MAIN NEC and PP VDD MAIN NEC, with a note for SYNC_MASTER=RADIO_MLB.
- Other Components:** Includes various resistors (R7415, R7414, R7410, R7401, R7405, R7520_RF), capacitors (C7424, C7430, C7402, C7404, C7403, C7417), and integrated circuits (U_RTM_RF, U_RTM_RF, U_RTM_RF).

RTM/SECURE ELEMENT

SUPPORT PULLS

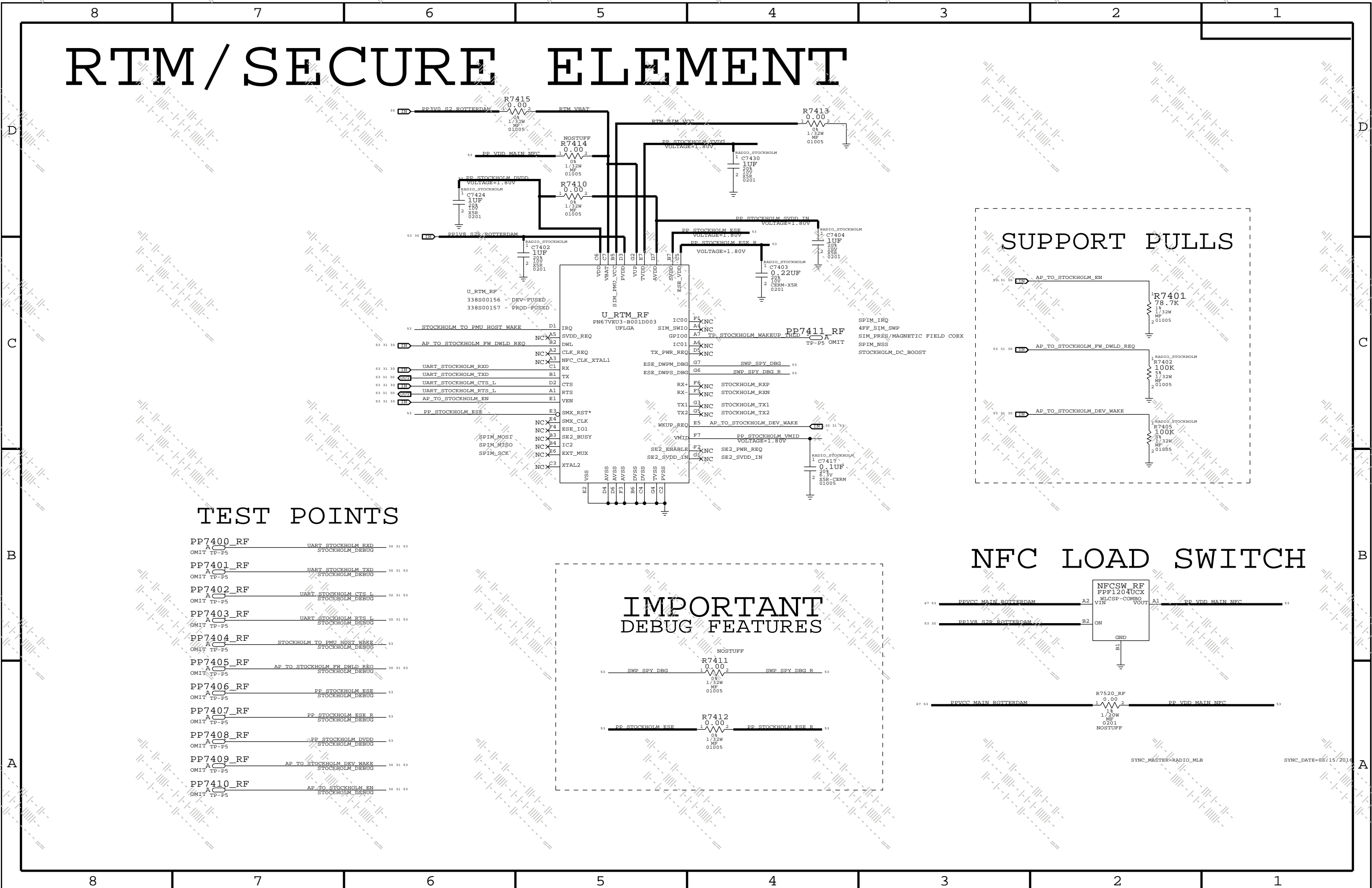
TEST POINTS

IMPORTANT DEBUG FEATURES

NFC LOAD SWITCH

The diagram illustrates the internal circuitry of the RTM/SECURE ELEMENT. It features a central microcontroller (U_RTM_RF, PN67VEU3-B001D003) connected to various peripheral components. Key sections include:

- Power Management:** Includes regulators for PP VDD MAIN NEC, PP STOCKHOLM DVDD, and PP STOCKHOLM SVDD IN, all set to 1.80V. It also shows decoupling capacitors like C7424, C7430, C7402, C7404, C7403, and C7417.
- Test Points:** A list of test points (PP7400_RF to PP7410_RF) mapped to specific signals and pins, such as UART_STOCKHOLM_RXD, STOCKHOLM_DEB, and AP_TO_STOCKHOLM_DEV_WAKE.
- Debug Features:** Includes a section for important debug features with components like R7411, R7412, and R7413, and signals like SWP_SPY_DBG and PP_STOCKHOLM_ESE.
- NFC Load Switch:** A section showing the NFCSW_RF (FPF1204UCX) and its connection to PP VDD MAIN NEC and PP VDD MAIN NEC, with a note for SYNC_MASTER=RADIO_MLB.
- Other Components:** Includes various resistors (R7415, R7414, R7410, R7401, R7405, R7520_RF), capacitors (C7424, C7430, C7402, C7404, C7403, C7417), and integrated circuits (U_RTM_RF, U_RTM_RF, U_RTM_RF).



RTM/SECURE ELEMENT

SUPPORT PULLS

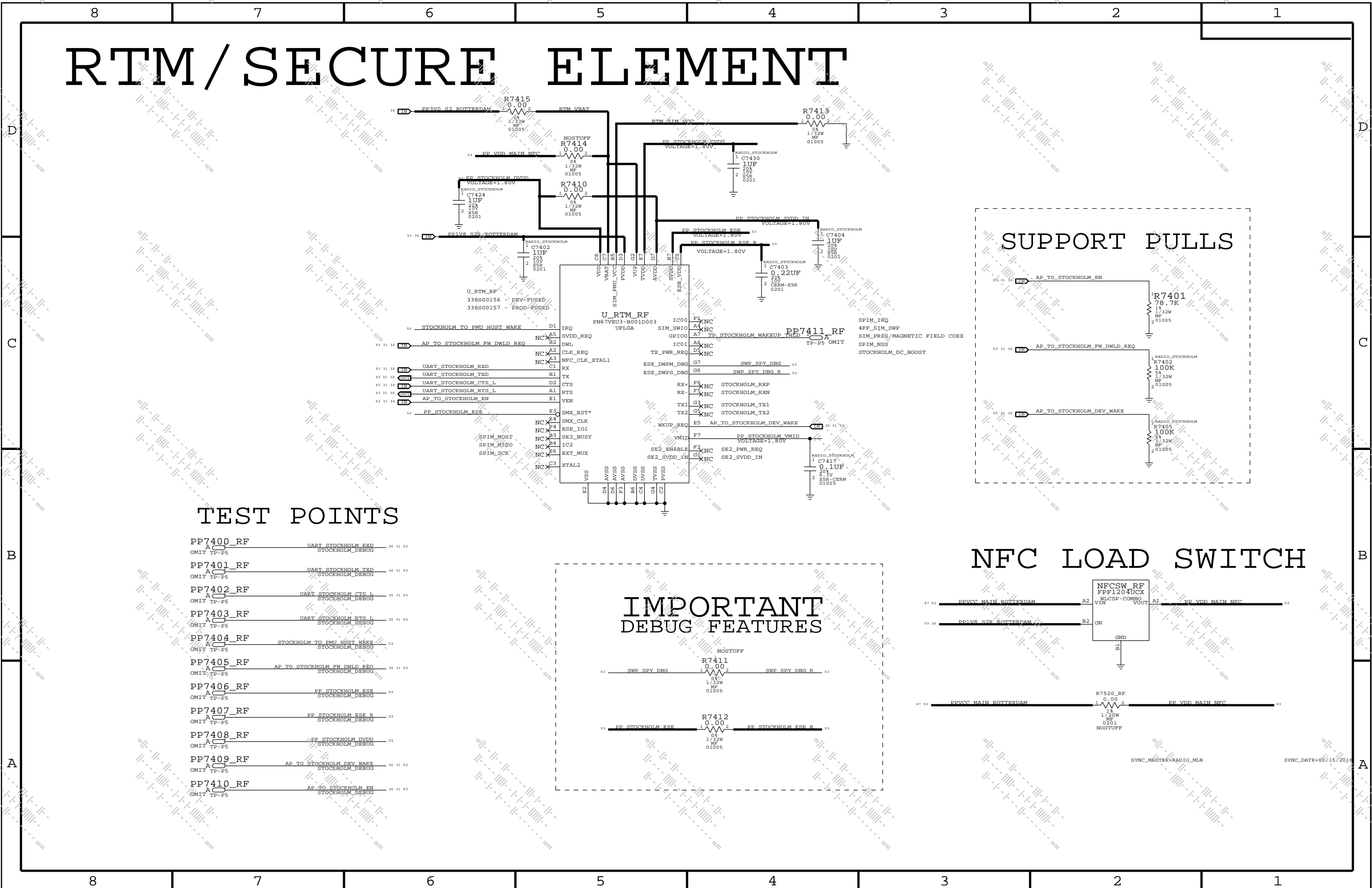
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RTM/SECURE ELEMENT

SUPPORT PULLS

TEST POINTS

IMPORTANT DEBUG FEATURES

NFC LOAD SWITCH

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- Power Management:** Includes regulators for PP_VDD_MAIN_NEC, PP_STOCKHOLM_DVDD, and PP_STOCKHOLM_ESE. It also shows decoupling capacitors (C7424, C7430, C7402, C7403, C7404, C7417) and resistors (R7415, R7414, R7410, R7413, R7401, R7402, R7403, R7404, R7405, R7411, R7412, R7520_RF).
- Communication:** Includes UART_STOCKHOLM_RXD, TXD, CTS_L, RTS_L, and AP_TO_STOCKHOLM_EN signals.
- Test Points:** A list of test points (PP7400_RF to PP7410_RF) and their corresponding signals and locations.
- Important Debug Features:** Includes SWP_SPY_DBG, SWP_SPY_DBG_R, and PP_STOCKHOLM_ESE.
- NFC Load Switch:** A section for the NFCSW_RF (FPF1204UCX) and its associated components.

RTM/SECURE ELEMENT

SUPPORT PULLS

TEST POINTS

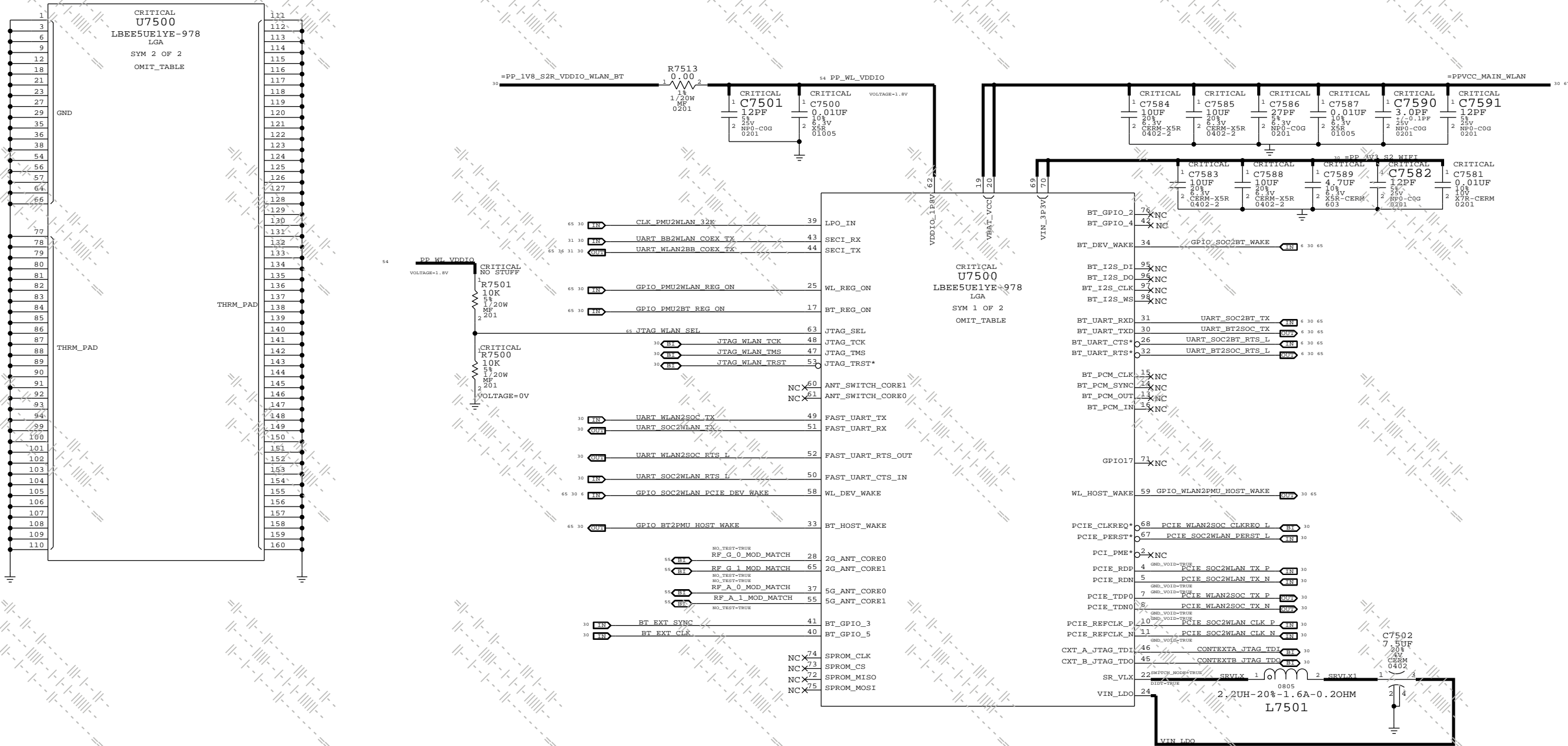
IMPORTANT DEBUG FEATURES

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- NFC Load Switch:** A section for the NFCSW_RF (FPF1204UCX) and its associated components.

WIFI/BT: J71S/72S: YEBISU MODULE, POWER, I/O



MODULE: USI ALTERNATES FOR MUR

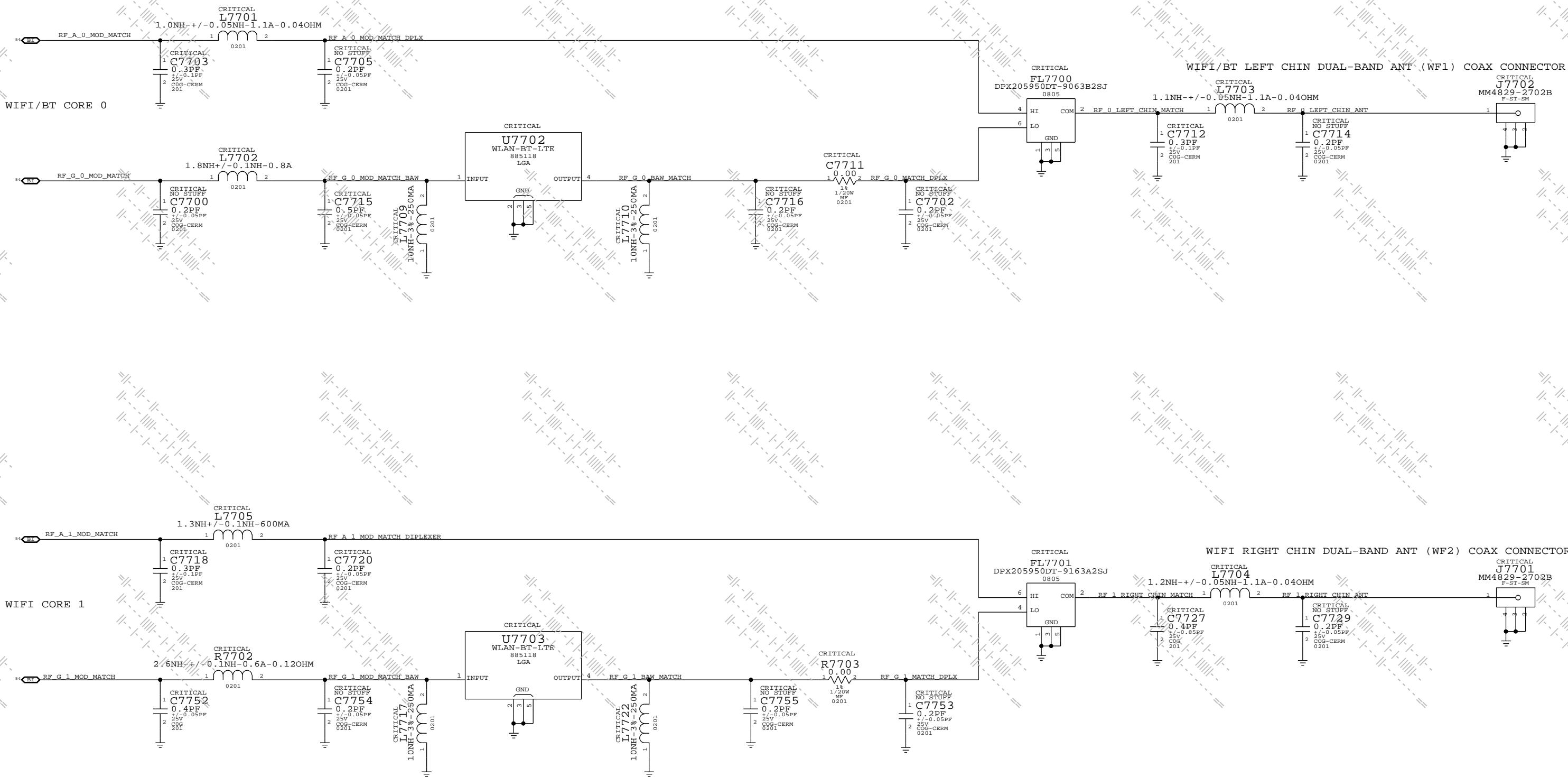
PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
339S00246	339S00248		U7500	USI ALT FOR MUR
339S00247	339S00249		U7500	CIDRE USI ALT FOR MUR

MODULE: BOM OPTION FOR CIDRE IN MLB_A, NOT IN MLB_B

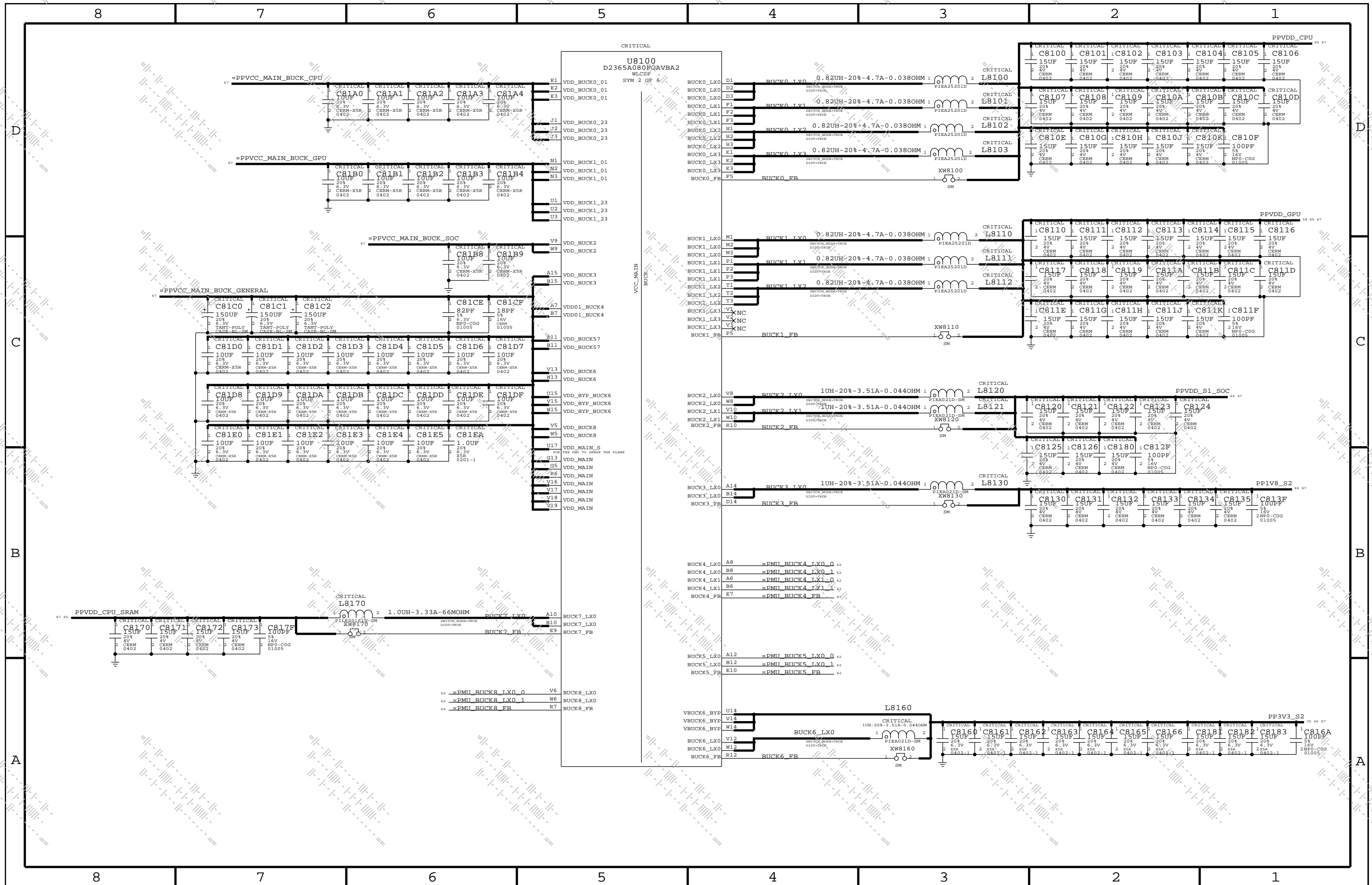
PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
339S00248	1	YEBISU MURATA ES2	U7500	CRITICAL	MLB_B
339S00249	1	YEBISU CIDRE MURATA ES2	U7500	CRITICAL	MLB_A

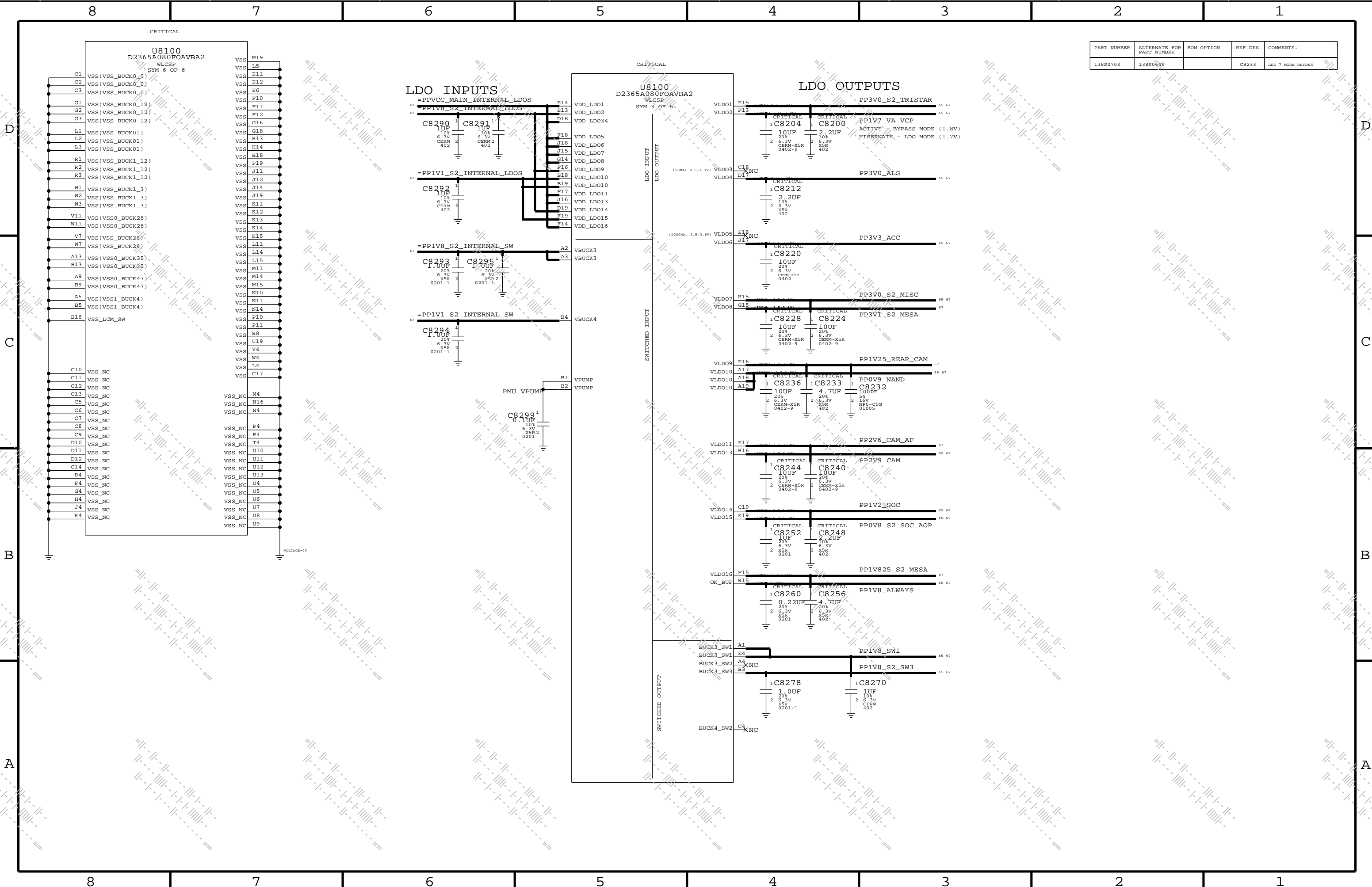
LAST UPDATED: 05/09/2016

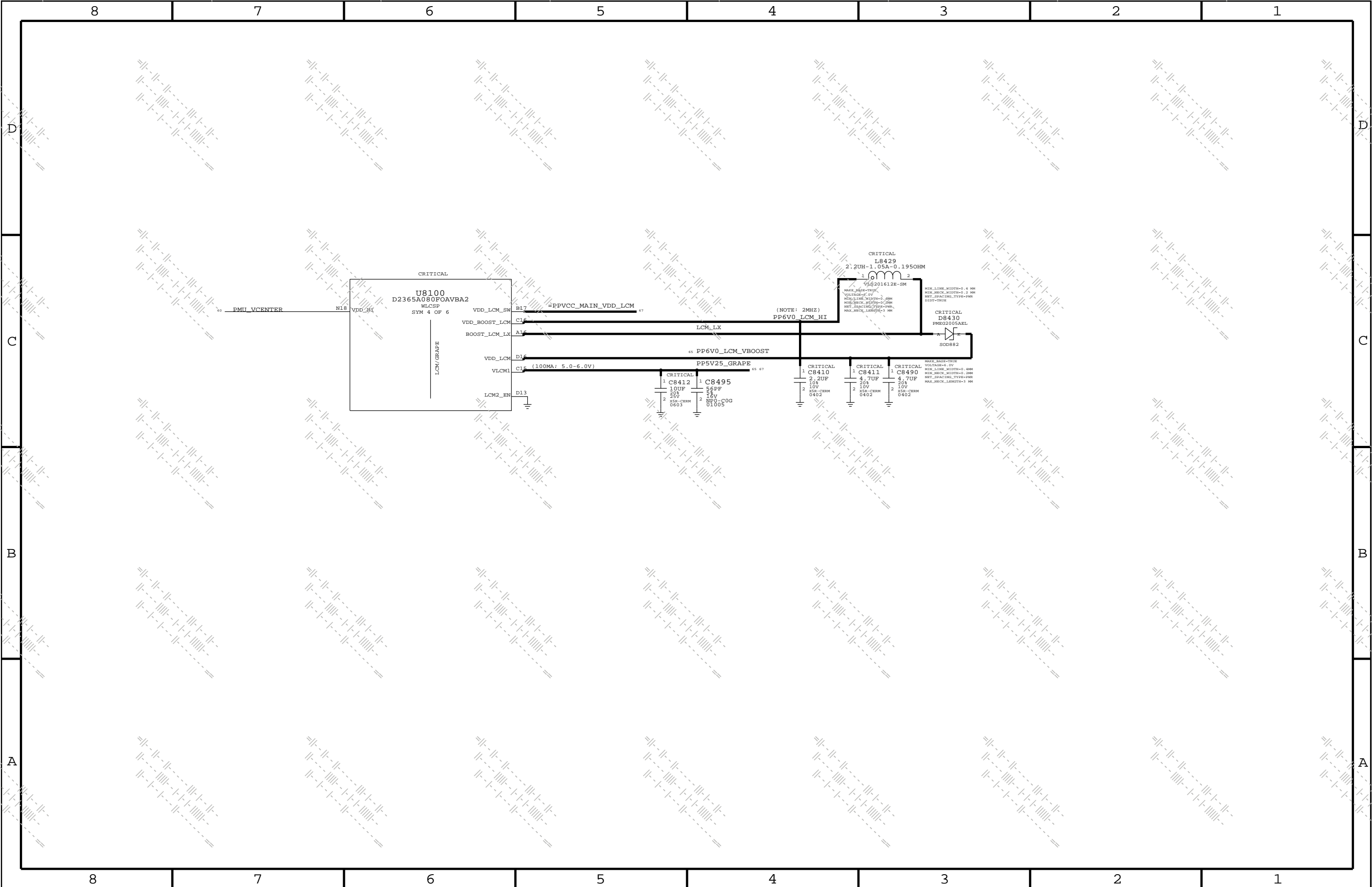
WIFI/BT: J72S (WIFI/BT + CELL) RF FRONT END

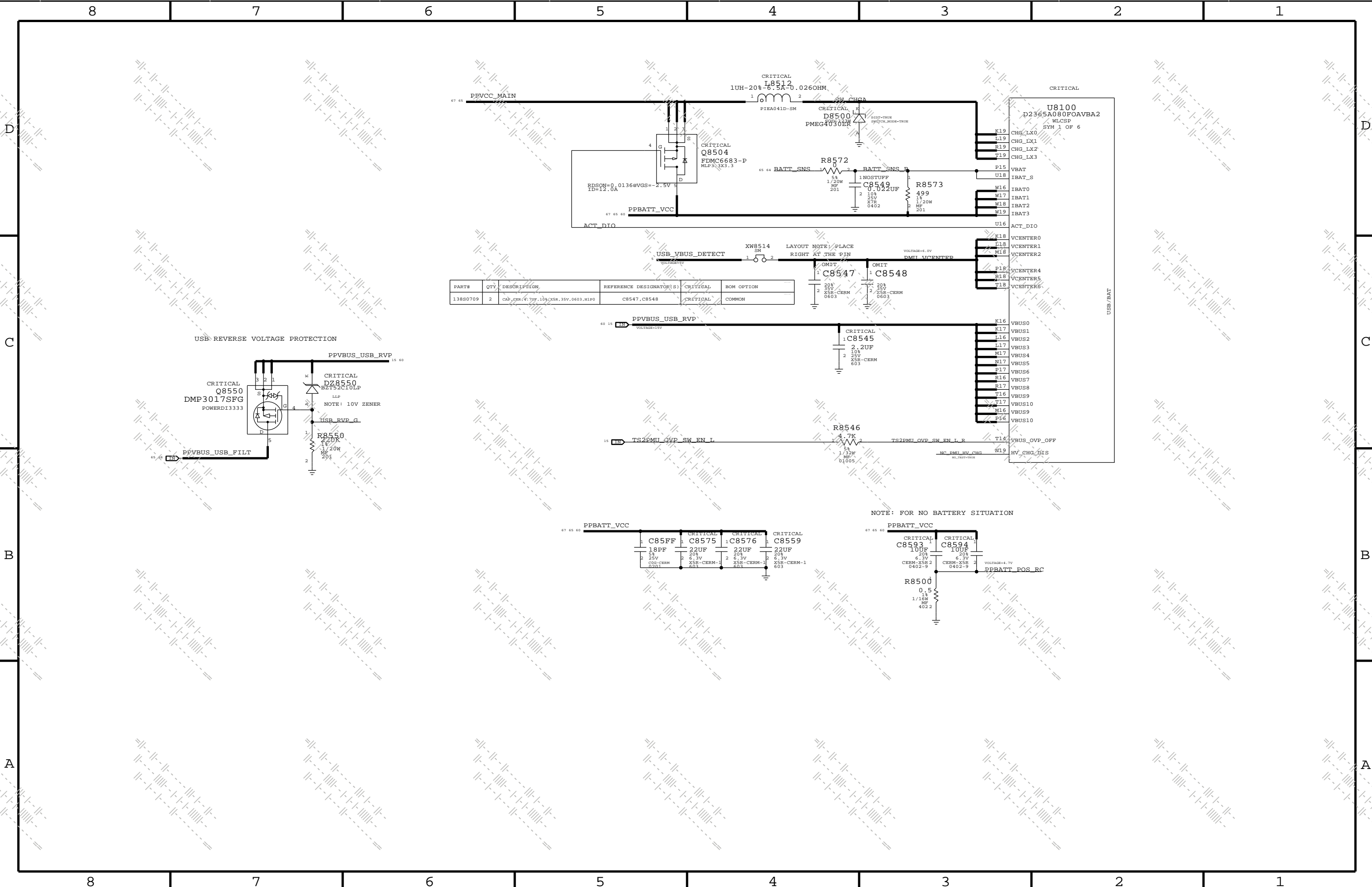


LAST UPDATED: 08/12/2016

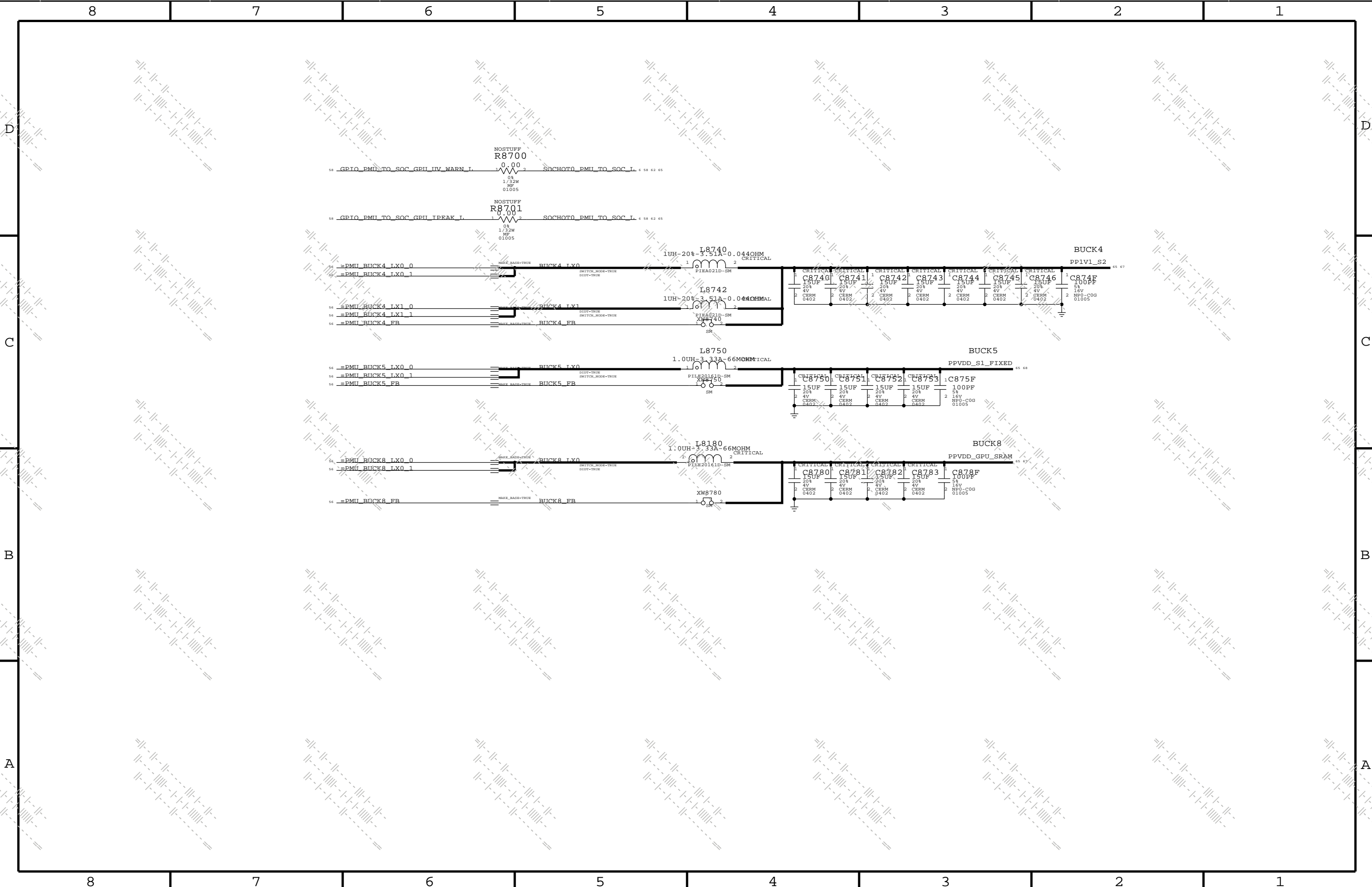




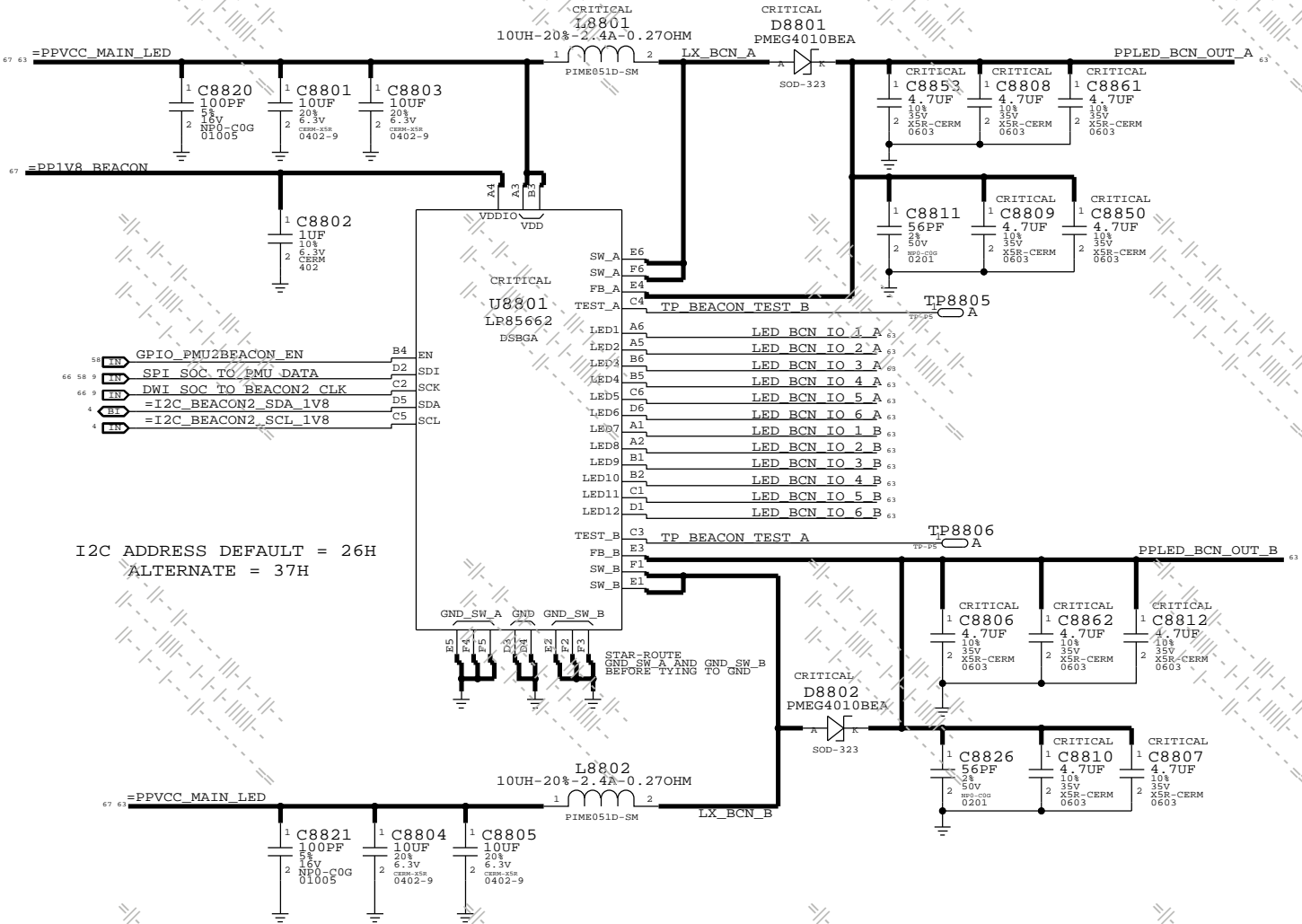




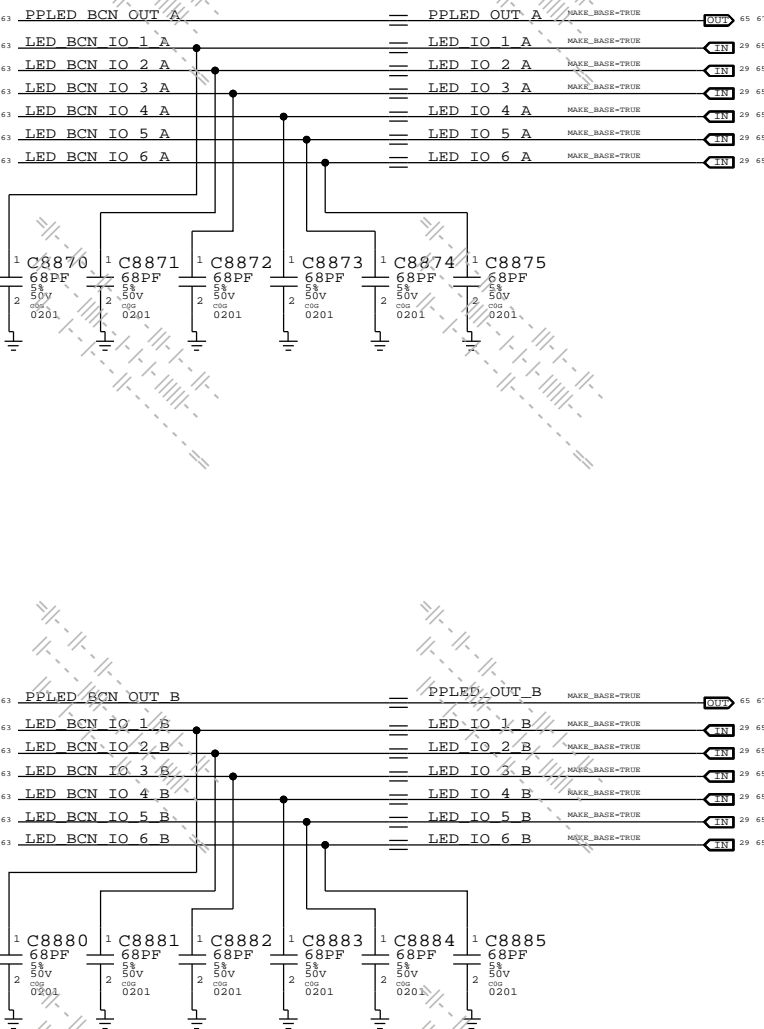




BEACON 2

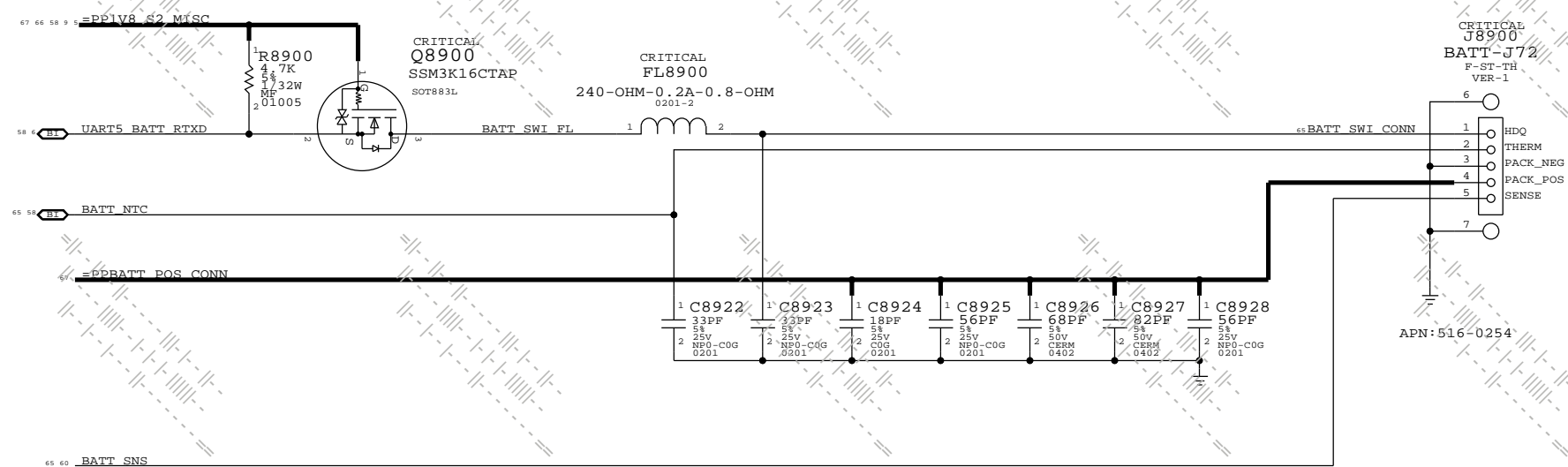


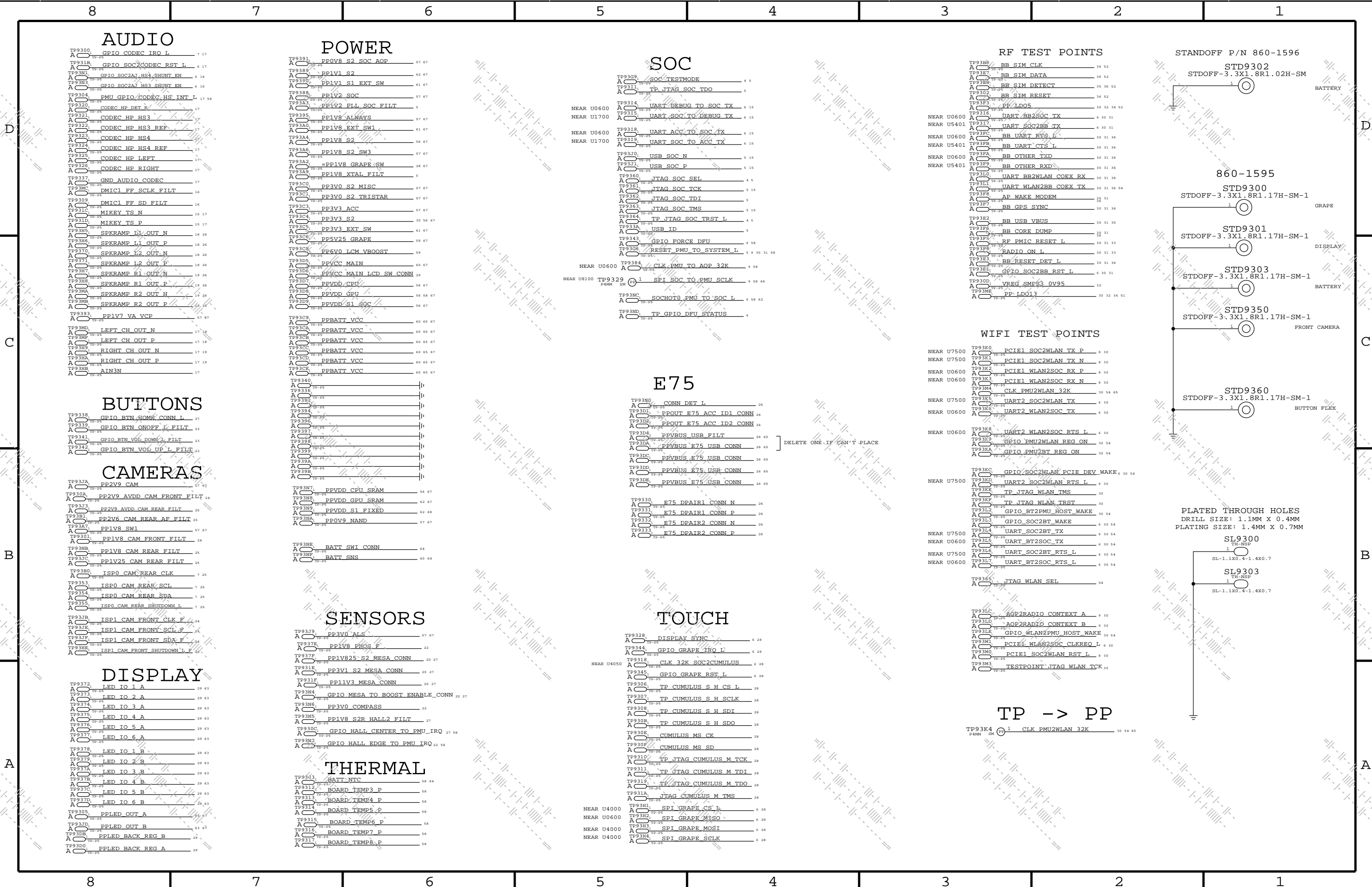
I2C ADDRESS DEFAULT = 26H
ALTERNATE = 37H



DIODE ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS
371S0730	371S0490			DIODES DIODE ALTERNATE





AUDIO

TP9300	A	GPIO CODEC IRO L	7 17
TP931B	A	GPIO SOC2CODEC RST L	6 17
TP93M1	A	GPIO SOC2AJ_HS4_SHUNT EN	6 16
TP93M3	A	GPIO SOC2AJ_HS3_SHUNT EN	6 16
TP9304	A	PMU GPIO CODEC_HS_INT L	17 58
TP9320	A	CODEC HP DET R	17
TP9321	A	CODEC HP HS3	17
TP9322	A	CODEC HP HS3 REF	17
TP9323	A	CODEC HP HS4	17
TP9324	A	CODEC HP HS4 REF	17
TP9325	A	CODEC HP LEFT	17
TP9326	A	CODEC HP RIGHT	17
TP933V	A	GND AUDIO CODEC	17
TP93MC	A	DMIC1_FF_SCLK_FILT	16
TP9309	A	DMIC1_FF_SD_FILT	16
TP931C	A	MIKEY_TS_N	15 17
TP931D	A	MIKEY_TS_P	15 17
TP93H5	A	SPKRAMP_L1_OUT_N	18 26
TP93H6	A	SPKRAMP_L1_OUT_P	18 26
TP937V	A	SPKRAMP_L2_OUT_N	18 26
TP9371	A	SPKRAMP_L2_OUT_P	18 26
TP93H7	A	SPKRAMP_R1_OUT_N	19 26
TP93H8	A	SPKRAMP_R1_OUT_P	19 26
TP93MA	A	SPKRAMP_R2_OUT_N	19 26
TP93MB	A	SPKRAMP_R2_OUT_P	19 26
TP9393	A	PPIV7_VA_VCP	57 87
TP93MD	A	LEFT_CH_OUT_N	17 18
TP93MP	A	LEFT_CH_OUT_P	17 18
TP93H9	A	RIGHT_CH_OUT_N	17 19
TP93HA	A	RIGHT_CH_OUT_P	17 19
TP93HB	A	AIN3N	17

BUTTONS

TP9338	A	GPIO_BTN_HOME_CONN L	27
TP9339	A	GPIO_BTN_ONOFF_L_FILT	23
TP9341	A	GPIO_BTN_VOL_DOWN_L_FILT	23
TP9342	A	GPIO_BTN_VOL_UP_L_FILT	23

CAMERAS

TP933A	A	PP2V9_CAM	57 67
TP930A	A	PP2V9_AVDD_CAM_FRONT_FILT	24
TP93J3	A	PP2V9_AVDD_CAM_REAR_FILT	25
TP93B1	A	PP2V6_CAM_REAR_AF_FILT	25
TP93AV	A	PPIV8_SW1	57 67
TP9301	A	PPIV8_CAM_FRONT_FILT	24
TP93MB	A	PPIV8_CAM_REAR_FILT	25
TP93JC	A	PPIV25_CAM_REAR_FILT	25
TP93B0	A	ISP0_CAM_REAR_CLK	7 25
TP9353	A	ISP0_CAM_REAR_SCL	7 25
TP9354	A	ISP0_CAM_REAR_SDA	7 25
TP9355	A	ISP0_CAM_REAR_SHUTDOWN_L	7 25
TP93JB	A	ISP1_CAM_FRONT_CLK_F	24
TP93JB	A	ISP1_CAM_FRONT_SCL_F	24
TP93JF	A	ISP1_CAM_FRONT_SDA_F	24
TP93HE	A	ISP1_CAM_FRONT_SHUTDOWN_L_F	24

DISPLAY

TP9372	A	LED IO 1 A	29 63
TP9373	A	LED IO 2 A	29 63
TP9374	A	LED IO 3 A	29 63
TP9375	A	LED IO 4 A	29 63
TP9376	A	LED IO 5 A	29 63
TP9377	A	LED IO 6 A	29 63
TP9378	A	LED IO 1 B	29 63
TP9379	A	LED IO 2 B	29 63
TP937A	A	LED IO 3 B	29 63
TP937B	A	LED IO 4 B	29 63
TP937C	A	LED IO 5 B	29 63
TP937D	A	LED IO 6 B	29 63
TP9305	A	PPLIED_OUT_A	63 67
TP93JD	A	PPLIED_OUT_B	63 67
TP93DB	A	PPLIED_BACK_REG_B	29
TP93D0	A	PPLIED_BACK_REG_A	29

POWER

TP9391	A	PP0V8_S2_SOC_AOP	57 67
TP9389	A	PP1V1_S2	62 67
TP9390	A	PP1V1_S1_EXT_SW	61 67
TP9388	A	PP1V2_SOC	57 67
TP93A1	A	PP1V2_PLL_SOC_FILT	5
TP9395	A	PP1V8_ALWAYS	57 67
TP93A0	A	PP1V8_EXT_SW1	61 67
TP93A4	A	PP1V8_S2	56 67
TP93A6	A	PP1V8_S2_SW3	57 67
TP93A3	A	PP1V8_GRAPE_SW	28 67
TP93A5	A	PP1V8_XTAL_FILT	5
TP93C0	A	PP3V0_S2_MISC	57 67
TP93C1	A	PP3V0_S2_TRISTAR	57 67
TP93C2	A	PP3V3_ACC	57 67
TP93C4	A	PP3V3_S2	30 56 67
TP93C5	A	PP3V3_EXT_SW	61 67
TP93AC	A	PP5V25_GRAPE	59 67
TP93C8	A	PP6V0_LCM_VBOOST	59
TP93D5	A	PPVCC_MAIN	60 67
TP93D6	A	PPVCC_MAIN_LCD_SW_CONN	29
TP93D7	A	PPVDD_CPU	56 67
TP93D8	A	PPVDD_GPU	56 58 67
TP93D9	A	PPVDD_S1_SOC	56 67
TP93C9	A	PPBATT_VCC	60 65 67
TP93CA	A	PPBATT_VCC	60 65 67
TP93CB	A	PPBATT_VCC	60 65 67
TP93CC	A	PPBATT_VCC	60 65 67
TP93CD	A	PPBATT_VCC	60 65 67
TP93CE	A	PPBATT_VCC	60 65 67
TP93CF	A	PPBATT_VCC	60 65 67
TP9340	A		
TP9336	A		
TP9356	A		
TP9394	A		
TP9396	A		
TP9397	A		
TP9398	A		
TP9399	A		
TP939A	A		
TP939B	A		
TP939C	A		
TP939D	A		
TP939E	A		
TP939F	A		
TP939G	A		
TP939H	A		
TP939I	A		
TP939J	A		
TP939K	A		
TP939L	A		
TP939M	A		
TP939N	A		
TP939O	A		
TP939P	A		
TP939Q	A		
TP939R	A		
TP939S	A		
TP939T	A		
TP939U	A		
TP939V	A		
TP939W	A		
TP939X	A		
TP939Y	A		
TP939Z	A		

SENSORS

TP9379	A	PP3V0_ALS	57 67
TP937E	A	PP1V8_PHOS_F	22
TP937F	A	PP1V825_S2_MESA_CONN	20 27
TP931E	A	PP3V1_S2_MESA_CONN	20 27
TP931F	A	PP11V3_MESA_CONN	20 27
TP93N4	A	GPIO_MESA_TO_BOOST_ENABLE_CONN	20 27
TP93N6	A	PP3V0_COMPASS	22
TP93N5	A	PP1V8_S2R_HALL2_FILT	27
TP930C	A	GPIO_HALL_CENTER_TO_PMU_IRQ	27 58
TP93N2	A	GPIO_HALL_EDGE_TO_PMU_IRQ	22 58

THERMAL

TP9403	A	BATT_NTC	58 64
TP9312	A	BOARD_TEMP3_P	58
TP9313	A	BOARD_TEMP4_P	58
TP9314	A	BOARD_TEMP5_P	58
TP9315	A	BOARD_TEMP6_P	58
TP9316	A	BOARD_TEMP7_P	58
TP9317	A	BOARD_TEMP8_P	58

SOC

TP93G9	A	SOC_TESTMODE	4 5
TP9317	A	TP_JTAG_SOC_TDO	5
TP9314	A	UART_DEBUG_TO_SOC_TX	6 15
TP9315	A	UART_SOC_TO_DEBUG_TX	6 15
TP9318	A	UART_ACC_TO_SOC_TX	6 15
TP9319	A	UART_SOC_TO_ACC_TX	6 15
TP9370	A	USB_SOC_N	5 15
TP9371	A	USB_SOC_P	5 15
TP9360	A	JTAG_SOC_SEL	4 5
TP9361	A	JTAG_SOC_TCK	5 15
TP9362	A	JTAG_SOC_TDI	5
TP9363	A	JTAG_SOC_TMS	5 15
TP9364	A	TP_JTAG_SOC_TRST_L	4 5
TP933A	A	USB_ID	5
TP9343	A	GPIO_FORCE_DFU	6 58
TP93G6	A	RESET_PMU_TO_SYSTEM_L	5 30 31 58
TP9384	A	CLK_PMU_TO_AOP_32K	9 58
TP9329	A	1_SPI_SOC_TO_PMU_SCLK	9 58 66
TP93NC	A	SOCHOTO_PMU_TO_SOC_L	6 58 62
TP93MD	A	TP_GPIO_DFU_STATUS	6

E75

TP93N0	A	CONN_DET_L	26
TP93D1	A	PPOUT_E75_ACC_ID1_CONN	26
TP93D2	A	PPOUT_E75_ACC_ID2_CONN	26
TP93D4	A	PPVBUS_USB_FILT	26 60
TP93D5	A	PPVBUS_E75_USB_CONN	26 65
TP93DC	A	PPVBUS_E75_USB_CONN	26 65
TP93DD	A	PPVBUS_E75_USB_CONN	26 65
TP93DE	A	PPVBUS_E75_USB_CONN	26 65
TP9330	A	E75_DPAIR1_CONN_N	26
TP9331	A	E75_DPAIR1_CONN_P	26
TP9332	A	E75_DPAIR2_CONN_N	26
TP9333	A	E75_DPAIR2_CONN_P	26

TOUCH

TP9328	A	DISPLAY_SYNC	6 28
TP9344	A	GPIO_GRAPE_IRQ_L	6 28
TP9318	A	CLK_32K_SOC2CUMULUS	6 28
TP9345	A	GPIO_GRAPE_RST_L	6 28
TP9306	A	TP_CUMULUS_S_H_CS_L	28
TP9307	A	TP_CUMULUS_S_H_SCLK	28
TP9308	A	TP_CUMULUS_S_H_SDI	28
TP930B	A	TP_CUMULUS_S_H_SDO	28
TP930E	A	CUMULUS_MS_CK	28
TP930F	A	CUMULUS_MS_SD	28
TP9310	A	TP_JTAG_CUMULUS_M_TCK	28
TP9311	A	TP_JTAG_CUMULUS_M_TDI	28
TP9319	A	TP_JTAG_CUMULUS_M_TDO	28
TP931A	A	JTAG_CUMULUS_M_TMS	28
TP93H1	A	SPI_GRAPE_CS_L	6 28
TP93H2	A	SPI_GRAPE_MISO	6 28
TP93H3	A	SPI_GRAPE_MOSI	6 28
TP93H4	A	SPI_GRAPE_SCLK	6 28

RF TEST POINTS

TP93B9	A	BB_SIM_CLK	36 52
TP93B7	A	BB_SIM_DATA	36 52
TP93B8	A	BB_SIM_DETECT	35 36 52
TP9302	A	BB_SIM_RESET	36 52
TP9305	A	PF_LDO5	30 32 34 52
TP9316	A	UART_BB2SOC_TX	6 30 31
TP9317	A	UART_SOC2BB_TX	6 30 31
TP93C6	A	BB_UART_RTS_L	30 31 36
TP93F8	A	BB_UART_CTS_L	30 31 36
TP93E9	A	BB_OTHER_TXD	30 31 36
TP93F9	A	BB_OTHER_RXD	30 31 36
TP93L0	A	UART_BB2WLAN_COEX_RX	30 31 36
TP93L1	A	UART_WLAN2BB_COEX_TX	30 31 36 54
TP93F8	A	AP_WAKE_MODEM	30 31
TP93F7	A	BB_GPS_SYNC	30 31 36
TP93E2	A	BB_USB_VBUS	30 31 35
TP93F5	A	BB_CORE_DUMP	30 31
TP93F5	A	RF_PMIC_RESET_L	30 31 33
TP93B4	A	RADIO_ON_L	30 31 33
TP93E4	A	BB_RESET_DET_L	30 31 36
TP93E4	A	GPIO_SOC2BB_RST_L	6 30 31
TP9300	A	VREG_SMP53_0V95	32
TP93M6	A	PP_LDO13	30 32 34 52

WIFI TEST POINTS

NEAR U7500	TP93K0	PCIE1_SOC2WLAN_TX_P	8 30
NEAR U7500	TP93K1	PCIE1_SOC2WLAN_TX_N	8 30
NEAR U0600	TP93K2	PCIE1_WLAN2SOC_RX_P	8 30
NEAR U0600	TP93K3	PCIE1_WLAN2SOC_RX_N	8 30
NEAR U7500	TP93M4	CLK_PMU2WLAN_32K	30 54 65
NEAR U7500	TP93K5	UART2_SOC2WLAN_TX	6 30
NEAR U0600	TP93K6	UART2_WLAN2SOC_TX	6 30
NEAR U0600	TP93K8	UART2_WLAN2SOC_RTS_L	6 30
NEAR U7500	TP93K9	GPIO_PMU2WLAN_REG_ON	30 54
NEAR U7500	TP93KA	GPIO_PMU2BT_REG_ON	30 54
NEAR U7500	TP93KC	GPIO_SOC2WLAN_PCIE_DEV_WAKE	6 30 54
NEAR U7500	TP93KD	UART2_SOC2WLAN_RTS_L	6 30
NEAR U7500	TP93KE	TP_JTAG_WLAN_TMS	30
NEAR U7500	TP93KF	TP_JTAG_WLAN_TRST	30
NEAR U7500	TP93L2	GPIO_BT2PMU_HOST_WAKE	30 54
NEAR U7500	TP93L3	GPIO_SOC2BT_WAKE	6 30 54
NEAR U7500	TP93L4	UART_SOC2BT_TX	6 30 54
NEAR U0600	TP93L5	UART_BT2SOC_TX	6 30 54
NEAR U7500	TP93L6	UART_SOC2BT_RTS_L	6 30 54
NEAR U0600	TP93L7	UART_BT2SOC_RTS_L	6 30 54
TP9365	A	JTAG_WLAN_SEL	54
TP93L8	A	AP2RADIO_CONTEXT_A	9 30
TP93L9	A	AP2RADIO_CONTEXT_B	9 30
TP93LE	A	GPIO_WLAN2PMU_HOST_WAKE	30 54
TP93M1	A	PCIE1_WLAN2SOC_CLKREQ_L	8 30
TP93M0	A	PCIE1_SOC2WLAN_RST_L	8 30
TP93M3	A	TESTPOINT_JTAG_WLAN_TCK	30

TP -> PP

TP93K4	PP	1_CLK_PMU2WLAN_32K	30 54 65
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STANDOFF P/N 860-1596

STD9302	STD9302	STD9302
STD9302	STD9302	STD9302

860-1595

STD9300	STD9300	STD9300
STD9300	STD9300	STD9300

STD9303

STD9303	STD9303	STD9303
STD9303	STD9303	STD9303

STD9350

STD9350	STD9350	STD9350
STD9350	STD9350	STD9350

STD9360

STD9360	STD9360	STD9360
STD9360	STD9360	STD9360

PLATED THROUGH HOLES
DRILL SIZE: 1.1MM X 0.4MM
PLATING SIZE: 1.4MM X 0.7MM

SL9300

SL9300	SL9300	SL9300
SL9300	SL9300	SL9300

SL9303

SL9303	SL9303	SL9303
SL9303	SL9303	SL9303

EE CHARACTERIZATION PP

DEBUG

NAND

PP9400	1	PCIE SOC TO NAND TX P<0>	8 14
PP9401	1	PCIE SOC TO NAND TX N<0>	8 14
PP9402	1	PCIE SOC TO NAND REFCLK P	8 14
PP9403	1	PCIE SOC TO NAND REFCLK N	8 14
PP9434	1	CLK SOC TO NAND 240MHz	8 14
PP9404	1	PCIE NAND TO SOC TX P<0>	8 14
PP9405	1	PCIE NAND TO SOC TX N<0>	8 14

PMU/BEACON2 SPI/DWI

PP9407	1	SPI SOC TO PMU DATA	9 58 63 66
PP9408	1	DWI SOC TO BEACON2 CLK	8 63
PP9409	1	SPI SOC TO PMU DATA	9 58 63 66
PP940A	1	SPI SOC TO PMU SCLK	9 58 65
PP940B	1	SPI PMU TO SOC DATA	9 58

PP9440	1	PMU SHUTDOWN	4 58
PP9441	1	GPIO AOP TO PMU SLEEP1 REQUEST	9 58
PP9442	1	GPIO PMU TO SYS SLEEP1 READY	9 10 58
PP9443	1	GPIO AOP TO PMU ACTIVE REQUEST	9 58
PP9444	1	GPIO PMU TO SYSTEM ACTIVE READY	9 9 15 58

AUDIO

PP9421	1	I2S0 CODEC ASP MCK	6 17
PP9422	1	I2S0 CODEC ASP BCLK	6 17
PP9423	1	I2S0 CODEC ASP LRCK	6 17
PP9424	1	I2S0 SOC2CODEC ASP DATA	6 17
PP9425	1	I2S0 CODEC2SOC ASP DATA	6 17
PP9426	1	SPI CODEC SCLK	6 17
PP9427	1	SPI CODEC MOSI	6 17
PP9428	1	SPI CODEC MISO	6 17
PP9460	1	I2S2 CODEC XSP BCLK	6 17
PP9461	1	I2S2 CODEC XSP LRCK	6 17
PP9462	1	I2S2 SOC2CODEC XSP DATA	6 17
PP9463	1	I2S2 CODEC2SOC XSP DATA	6 17

SENSORS

PP9429	1	SPI AOP SCLK	9 22 66
PP9430	1	SPI AOP MOSI	9 22 66
PP9431	1	SPI AOP SCLK	9 22 66
PP9432	1	SPI AOP MOSI	9 22 66
PP9433	1	SPI AOP MISO	9 22

MESA SPI

PP940C	1	SPI MESA MISO	6 20
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CAMERA - FRONT

PP940D	1	MIPI1C CAM FRONT CLK P	7 24 66
PP940E	1	MIPI1C CAM FRONT CLK N	7 24 66
PP940F	1	MIPI1C CAM FRONT DATA P<0>	7 24 66
PP9410	1	MIPI1C CAM FRONT DATA N<0>	7 24 66

CAMERA - REAR

PP9411	1	MIPI0C CAM REAR CLK P	7 25 66
PP9412	1	MIPI0C CAM REAR CLK N	7 25 66
PP9413	1	MIPI0C CAM REAR DATA P<0>	7 25 66
PP9414	1	MIPI0C CAM REAR DATA N<0>	7 25 66

WIFI

PP9417	1	PCIE1 SOC2WLAN REFCLK P	8 30
PP9418	1	PCIE1 SOC2WLAN REFCLK N	8 30

BB

PP9419	1	HSIC1 BB_STB	5 30 31
PP9420	1	HSIC1 BB_DATA	5 30 31

PP1V8_S2_MISC	67 64 58 9 5
TP9402	NEAR R0760 OR TP9343

SOC

PP9450	1	ADC SOC TO PMU VDD CPU	11 58
PP9451	1	TP_VSS_CPU_SENSE	11
PP9452	1	ADC SOC TO PMU VDD GPU	11 58
PP9453	1	TP_VSS_GPU_SENSE	11

HIGH SPEED, NO TEST

MIPI0C CAM REAR CLK P	NO_TEST=TRUE	7 25 66
MIPI0C CAM REAR CLK N	NO_TEST=TRUE	7 25 66
MIPI0C CAM REAR DATA P<0..3>	NO_TEST=TRUE	7 25 66
MIPI0C CAM REAR DATA N<0..3>	NO_TEST=TRUE	7 25 66
MIPI0C CAM REAR CLK_FILT_P	NO_TEST=TRUE	25
MIPI0C CAM REAR CLK_FILT_N	NO_TEST=TRUE	25
MIPI0C CAM REAR DATA_FILT_P<0..3>	NO_TEST=TRUE	25
MIPI0C CAM REAR DATA_FILT_N<0..3>	NO_TEST=TRUE	25
MIPI1C CAM FRONT CLK P	NO_TEST=TRUE	7 24 66
MIPI1C CAM FRONT CLK N	NO_TEST=TRUE	7 24 66
MIPI1C CAM FRONT DATA P<0>	NO_TEST=TRUE	7 24 66
MIPI1C CAM FRONT DATA N<0>	NO_TEST=TRUE	7 24 66
MIPI1C CAM FRONT CLK_FILT_P	NO_TEST=TRUE	24
MIPI1C CAM FRONT CLK_FILT_N	NO_TEST=TRUE	24
MIPI1C CAM FRONT DATA_FILT_P<0>	NO_TEST=TRUE	24
MIPI1C CAM FRONT DATA_FILT_N<0>	NO_TEST=TRUE	24
EDP DATA P<0..3>	NO_TEST=TRUE	7 29
EDP DATA N<0..3>	NO_TEST=TRUE	7 29
EDP DATA EMI P<0..3>	NO_TEST=TRUE	29
EDP DATA EMI N<0..3>	NO_TEST=TRUE	29
EDP DATA EMI_CONN P<0..3>	NO_TEST=TRUE	29
EDP DATA EMI_CONN N<0..3>	NO_TEST=TRUE	29

POWER CONNECTIONS

BUCK0 (ACTIVE)

PPVDD_CPU =PPVDD_CPU 12400MA
MAKE_BASE=TRUE
VOLTAGE=1.0V

BUCK1 (SW CONTROL)

PPVDD_GPU =PPVDD_GPU 8300MA
MAKE_BASE=TRUE
VOLTAGE=0.8V

BUCK2 (SLEEP1)

PPVDD_S1_SOC =PPVDD_S1_SOC 1524MA
MAKE_BASE=TRUE
VOLTAGE=0.9V

BUCK3 (SLEEP2)

PP1V8_S2 =PP1V8_S2_DDR 100MA
MAKE_BASE=TRUE
VOLTAGE=1.8V
=PP1V8_S2_TRISTAR 1MA
=PP1V8_S2_HALT 1MA
=PP1V8_S2_MISC 3MA
=PP1V8_S2_EXTERNAL_SW 36.4MA
=PP1V8_S2_INTERNAL_SW 430MA
=PP1V8_S2_INTERNAL_LDOS 60MA
=PP1V8_S2_ROTTERDAM 1MA
=PP1V8_S2_WIFI 20MA
=PP1V8_S2_AUDIO 25.5MA

BUCK3_SW1 (ACTIVE)

PP1V8_SW1 =PP1V8_AUDIO 3MA
MAKE_BASE=TRUE
VOLTAGE=1.8V
=PP1V8_SW1_EXT_SW_ON 0MA
=PP1V8_DMIC 1MA
=PP1V8_CAM_FRONT 1MA
=PP1V8_CAM_REAR 1MA

BUCK3_EXT_SW1 (ACTIVE)

PP1V8_EXT_SW1 =PP1V8_VDDIO_SOC 9MA
MAKE_BASE=TRUE
VOLTAGE=1.8V
=PP1V8_XTAL_SOC 2MA
=PP1V8_MIPI_SOC 8MA
=PP1V8_USB_SOC 20MA
=PP1V8_NAND 315MA
=PP1V8_EEPROM 5MA
=PP1V8_SOC 10MA
=PP1V8_MISC 4MA
=PP1V8_BEACON 10MA

BUCK3_SW3 (SLEEP2)

PP1V8_S2_SW3 =PP1V8_S2_CARBON 5MA
MAKE_BASE=TRUE
VOLTAGE=1.8V
=PP1V8_S2_PHOSPHORUS 1.2MA
=PP1V8_S2_COMPASS 16MA
=PP1V8_S2_AOP 0.2MA
=PP1V8_S2_AOP 9MA

BUCK3 EXT SW TOUCH

PP1V8_TOUCH_EXT_SW =PP1V8_GRAPE_SW
MAKE_BASE=TRUE
VOLTAGE=1.8V

BUCK4 (SLEEP2)

PP1V1_S2 =PP1V1_S2_EXTERNAL_SW 638MA
MAKE_BASE=TRUE
VOLTAGE=1.1V
=PP1V1_S2_INTERNAL_LDOS 1051MA
=PP1V1_S2_INTERNAL_SW 0MA
=PP1V1_S2_DDR 1300MA

BUCK4_EXT_SW (SLEEP1)

PP1V1_S1_EXT_SW =PP1V1_S1_DDR_VDDQ 635MA
MAKE_BASE=TRUE
VOLTAGE=1.1V
=PP1V1_S1_DDR_PLL_SOC 3MA

BUCK5

BUCK 5 ALIASES ON NEXT PAGE (IF USED)

BUCK6 (SLEEP2)

PP3V3_S2 =PP3V3_S2_WIFI 1160MA
MAKE_BASE=TRUE
VOLTAGE=3.3V
=PP3V3_S2_EXT_SW

EXT SW (ACTIVE)

PP3V3_EXT_SW =PP3V3_NAND 1100MA
MAKE_BASE=TRUE
VOLTAGE=3.3V
=PP3V3_USB_SOC 5MA

BUCK7 (ACTIVE)

PPVDD_CPU_SRAM =PPVDD_CPU_SRAM 354MA
MAKE_BASE=TRUE
VOLTAGE=1.06V

BUCK8 (SW CONTROL)

PPVDD_GPU_SRAM =PPVDD_GPU_SRAM 360MA
MAKE_BASE=TRUE
VOLTAGE=0.92V

LDO1 (SLEEP2)

PP3V0_S2_TRISTAR =PP3V0_S2_TRISTAR 3MA
MAKE_BASE=TRUE
VOLTAGE=3.3V

LDO2

PP1V7_VA_VCP =PP1V7_VA_VCP 10MA
MAKE_BASE=TRUE
VOLTAGE=1.7V

LDO3 (SPARE)

LDO4 (SW CONTROL)

PP3V0_ALS =PP3V0_ALS 1MA
MAKE_BASE=TRUE
VOLTAGE=3.3V

LDO5 (SPARE)

LDO6 (SW CONTROL)

PP3V3_ACC =PP3V3_ACC 1000MA
MAKE_BASE=TRUE
VOLTAGE=3.3V

LDO7 (SLEEP2)

PP3V0_S2_MISC =PP3V0_S2_COMPASS 15MA
MAKE_BASE=TRUE
VOLTAGE=3.0V

LDO8 (SLEEP2)

PP3V1_S2_MESA =PP3V1_S2_MESA 73MA
MAKE_BASE=TRUE
VOLTAGE=3.05V

LDO9 (SW CONTROL)

PP1V25_REAR_CAM =PP1V25_CAM_REAR 360MA
MAKE_BASE=TRUE
VOLTAGE=1.25V

LDO10 (ACTIVE)

PP0V9_NAND =PP0V9_NAND 1007MA
MAKE_BASE=TRUE
VOLTAGE=0.9V

LDO11 (ACTIVE)

PP2V6_CAM_AF =PP2V6_CAM_REAR_AF 80MA
MAKE_BASE=TRUE
VOLTAGE=2.6V

LDO13 (ACTIVE)

PP2V9_CAM =PP2V9_CAM_REAR 47MA
MAKE_BASE=TRUE
VOLTAGE=2.1V
=PP2V9_CAM_FRONT

LDO14 (ACTIVE)

PP1V2_SOC =PP1V2_LPDP_SOC 1MA
MAKE_BASE=TRUE
VOLTAGE=1.2V
=PP1V2_PLL_SOC 22MA
=PP1V2_PCTE_SOC 37MA
=PP1V2_HSTC_SOC

LDO15 (SLEEP2)

PP0V8_S2_SOC_AOP =PP0V8_S2_SOC_AOP 44MA
MAKE_BASE=TRUE
VOLTAGE=0.8V

LDO16 (SLEEP2)

PP1V825_S2_MESA =PP1V825_S2_MESA 1MA
MAKE_BASE=TRUE
VOLTAGE=1.9V

VLCM1

PP5V25_GRAPE =PP5V25_GRAPE 1MA
MAKE_BASE=TRUE
VOLTAGE=5.25V

CHARGER MAIN

PPVCC_MAIN =PPVCC_MAIN_BUCK_CPU 2930MA
MAKE_BASE=TRUE
VOLTAGE=4.5V
=PPVCC_MAIN_BUCK_GPU 2741MA
=PPVCC_MAIN_BUCK_SOC 449MA
=PPVCC_MAIN_BUCK_GENERAL 1264MA
=PPVCC_MAIN_INTERNAL_LDOS 237MA
=PPVCC_MAIN_LCD 1371MA
=PPVCC_MAIN_LED 5MA
=PPVCC_MAIN_MESA 300MA
=PPVCC_MAIN_VDD_LCM 1000MA
=PPVCC_MAIN_MISC 5MA
=PPVCC_MAIN_ROTTERDAM

BATTERY

PPBATT_VCC =PPBATT_POS_CONN 2890MA
MAKE_BASE=TRUE
VOLTAGE=4.7V
=PPBATT_VCC_B6 3000MA
=PPBATT_VCC_AUDIO

ON_BUF

PP1V8_ALWAYS =PP1V8_ALWAYS
MAKE_BASE=TRUE
VOLTAGE=1.8V

BACKLIGHT BOOST

PPLED_OUT_A =PPLED_REG_A 150MA
MAKE_BASE=TRUE
VOLTAGE=25V
PPLED_OUT_B =PPLED_REG_B
MAKE_BASE=TRUE
VOLTAGE=26V

