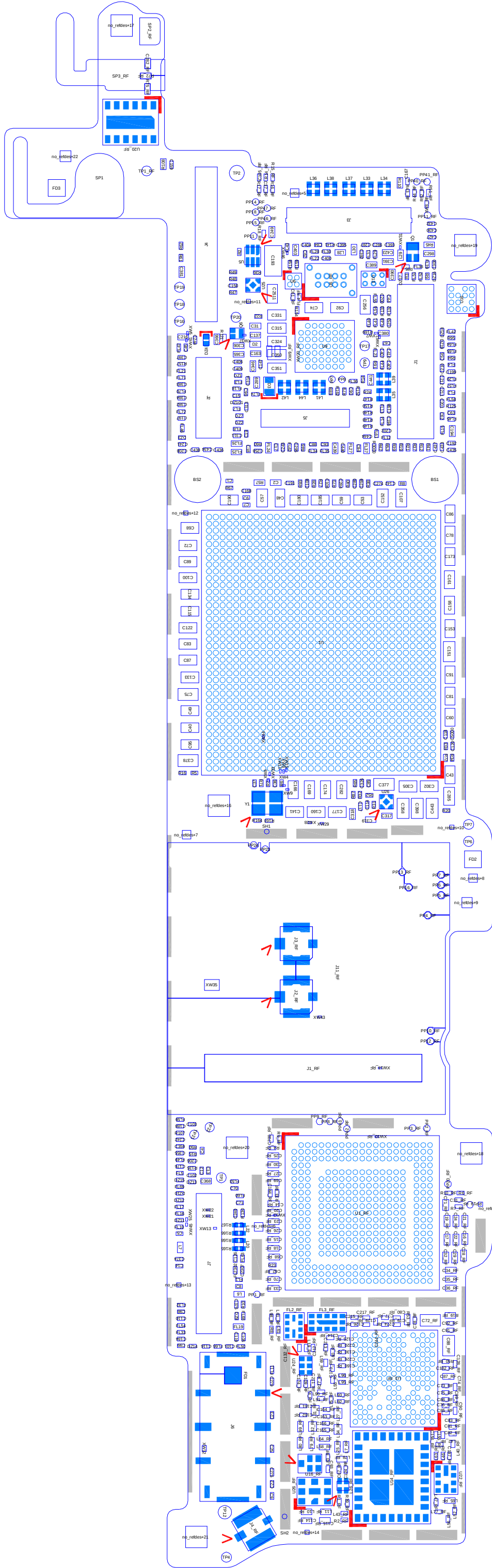
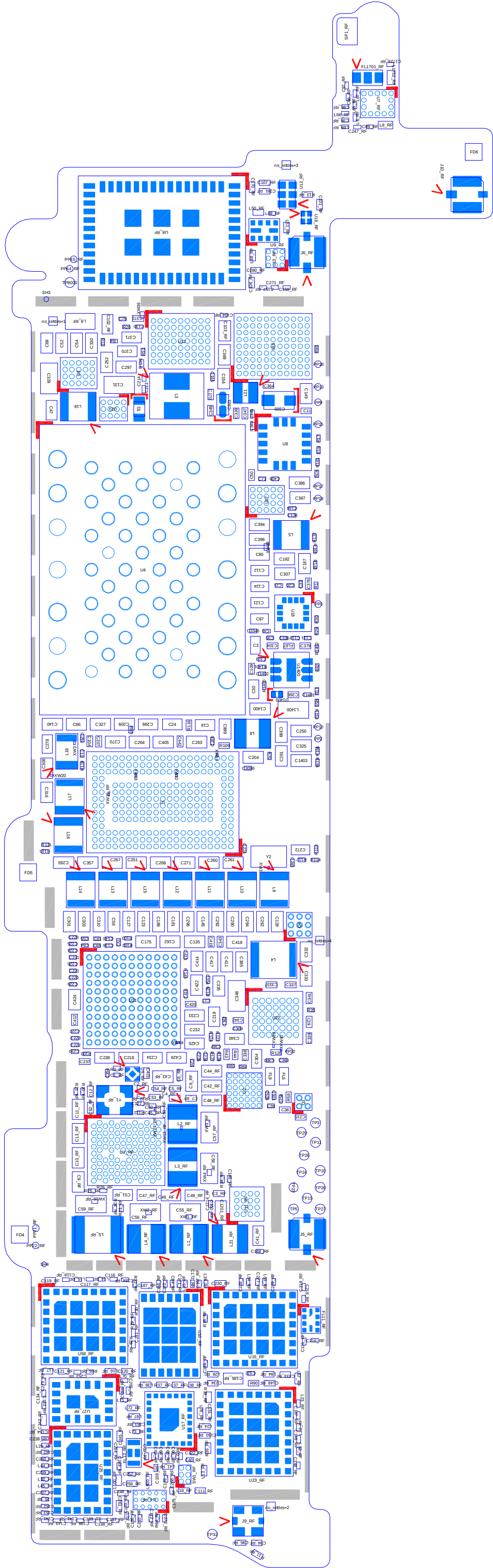




D

C

B

A

PDF	PAGE	CSA	PAGE	CONTENTS	SYNC	MASTER	DATE
2	2	H6P	JTAG, USB, PLL, HSIC, XTAL	N/A	N/A		
3	3	H6P	DIGITAL I/O, BOOTSTRAPPING	N/A	N/A		
4	4	H6P	VDDCA, VDD1/2, VDD, VDD_CPU, VDD_GPU	N/A	N/A		
5	5	H6P	GND, VDDIO18, VDDIOD, VDD_SRAM, VDD_SOC	N/A	N/A		
6	6	H6P	NAND, NAND 12X17	N/A	N/A		
7	7	H6P	HIGH SPEED DIG (CAM, LCM, DP)	N/A	N/A		
8	8		BUTTON FLEX B2B	N/A	N/A		
9	9	L67	AUDIO CODEC (1/2)	N/A	N/A		
10	10	L67	AUDIO CODEC (2/2)	N/A	N/A		
11	11		FRONT CAM FLEX B2B	N/A	N/A		
12	12	AMBER	PMU(1/2)	N/A	N/A		
13	13	AMBER	PMU(2/2)	N/A	N/A		
14	14		CHESTNUT, BACKLIGHT DRIVER, MESA BOOST	N/A	N/A		
15	15	SPKR	AMP + STROBE DRIVER	N/A	N/A		
16	16	TRISTAR	,EEPROM	N/A	N/A		
17	17		DOCKFLEX B2B	N/A	N/A		
18	18	D403	(TOUCH B2B, DRIVER ICS)	N/A	N/A		
19	19	LCM	B2B	N/A	N/A		
20	20	OSCAR	+ SENSORS	N/A	N/A		
21	21	REAR	CAM B2B	N/A	N/A		
22	22	BATT	B2B, TPS, PD FEATURES	N/A	N/A		
23	23		VOLTAGE PROPERTIES				
24	24	RADIO_MLB	HIERARCH. SYMBOL	N/A	N/A		
25	25		Cross Reference Page				
26	26		Cross Reference Page				
27	27		Cross Reference Page				

SCH 051-9681
BRD 820-3382
MCO 056-5179
BOM 639-4159
BOM 639-4160
BOM 639-3973

{ 16GB }
{ 32GB }
{ 64GB }

X152
X152
X152

COMPASS BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
639-4269	1	COMPASS INTERPOSER X152/X145	U16	Y	COMPASS_INTERPOSER

HORIZONTAL AND OTHER CAP BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
138S0801	5	HRZNTL CAPS_1: 10UF, 0402, 6.3V	C422, C399, C405, C417, C418	Y	HRZNTL_CAP_GRP1
138S0801	5	HRZNTL CAPS_2: 10UF, 0402, 6.3V	C250, C251, C325, C357, C358	Y	HRZNTL_CAP_GRP2
138S0801	5	HRZNTL CAPS_3: 10UF, 0402, 6.3V	C260, C263, C267, C270, C261	Y	HRZNTL_CAP_GRP3
138S0801	4	HRZNTL CAPS_4: 10UF, 0402, 6.3V	C264, C268, C271, C385	Y	HRZNTL_CAP_GRP4
138S0801	4	HRZNTL CAPS_5: 10UF, 0402, 6.3V	C398, C411, C252, C297	Y	HRZNTL_CAP_GRP5
138S0801	5	HRZNTL CAPS_6: 10UF, 0402, 6.3V	C386, C387, C333, C332, C335	Y	HRZNTL_CAP_GRP6
138S0801	3	HRZNTL CAPS_7: 10UF, 0402, 6.3V	C42_RF, C43_RF, C44_RF	Y	HRZNTL_CAP_GRP7
138S0801	1	HRZNTL CAPS_8: 10UF, 0402, 6.3V	C1281_RF	Y	HRZNTL_CAP_GRP8
138S0801	1	HRZNTL CAPS_9: 10UF, 0402, 6.3V	C103_RF	Y	HRZNTL_CAP_GRP9
138S0801	4	HRZNTL CAPS_10: 10UF, 0402, 6.3V	C182, C307, C209, C187	Y	HRZNTL_CAP_GRP10
138S0794	2	HRZNTL CAPS_11: 10UF, 0402, 10V	C52, C156	Y	HRZNTL_CAP_GRP11

INDUCTOR BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
152S1785	3	BUCK0 SLAVE IND: 0.47UH, TFA-A TDK	L10, L12, L14	Y	IND_BUCK0_SLV_P47UH_TFA-A_TDK
152S1834	3	BUCK0 SLAVE IND: 0.47UH, CYNTEC	L10, L12, L14	Y	IND_BUCK0_SLV_P47UH_CYNTEC
152S1839	3	BUCK0 SLAVE IND: 0.47UH, TAIYO	L10, L12, L14	Y	IND_BUCK0_SLV_P47UH_TAIYO
152S1807	6	AMBER BUCKXX IND: 1UH TFA-A TDK	L9, L11, L13, L15, L16, L17	Y	IND_BUCKXX_1UH_TFA-A_TDK
152S1801	6	AMBER BUCKXX IND: 1UH CYNTEC	L9, L11, L13, L15, L16, L17	Y	IND_BUCKXX_1UH_CYNTEC
152S1840	6	AMBER BUCKXX IND: 1UH TAIYO	L9, L11, L13, L15, L16, L17	Y	IND_BUCKXX_1UH_TAIYO
152S1807	1	STROBE IND: 1UH TFA-A TDK	L5	Y	IND_STROBE_1UH_TFA-A_TDK
152S1801	1	STROBE IND: 1UH CYNTEC	L5	Y	IND_STROBE_1UH_CYNTEC
152S1840	1	STROBE IND: 1UH TAIYO	L5	Y	IND_STROBE_1UH_TAIYO
152S1809	1	BUCK5 2012 IND: 1UH TFA-A TDK	L18	Y	IND_BUCK5_1UH_TFA-A_TDK
152S1835	1	BUCK5 2012 IND: 1UH CYNTEC	L18	Y	IND_BUCK5_1UH_CYNTEC
152S1843	1	BUCK5 2012 IND: 1UH TAIYO	L18	Y	IND_BUCK5_1UH_TAIYO
152S1836	1	SPKR AMP IND: 1.2UH CYNTEC	L4	Y	IND_SPKRAMP_1P2UH_CYNTEC
152S1844	1	SPKR AMP IND: 1.2UH TAIYO	L4	Y	IND_SPKAMP_1P2UH_TAIYO
152S1721	1	CHARGER IND: 2.2UH TAIYO	L8	Y	IND_CHGR_2P2UH_TAIYO

FOR CHESTNUT BOMTABLE - SEE PG 14
FOR RADIO BOMTABLE - SEE PG 24
FOR MISC R/L/C ALTS - SEE PG 2

I2C ADDRESS MAP

I2C0

DEVICE	BINARY	7-BIT HEX	8-BIT HEX
AMBER PMU:	110100X	0X74	0XE8
CS35L19B AMP:	1000000X	0X40	0X80
LM3534 BL DRIVER:	1100011X	0X63	0XC6
TRISTAR:	0011010X	0X1A	0X34
CHESTNUT:	0100111X	0X27	0X4E

I2C1

CT814 ALS: 0101001X 0X29 0X52

RCAM I2C

OPEL STROBE DRIVER:	1100011X	0X63	0XC6
REAR FACING CAM:	0010000X	0X10	0X20
ADI VCM AF DRIVER:	0001110X	0X0E	0X1C
ROHM VCM AF DRIVER:	0001100X	0X0C	0X18

FCAM I2C

FRONT FACING CAM: 0110110X 0X36 0X6C

NOTE: ACCEL, GYRO, COMPASS ALL USING SPI (VIA OSCAR) FOR AP COMMUNICATION.

X152 BOM CALLOUTS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
051-9681	1	SCH, SINGLE_BRD, X152	SCH	Y	?
820-3382	1	PCBF, SINGLE_BRD, X152	PCB	Y	?
825-6838	1	EEEE FOR 639-4159 16GB	EEEE_F7V1	Y	EEEE_16G
825-6838	1	EEEE FOR 639-4160 32GB	EEEE_F7V2	Y	EEEE_32G
825-6838	1	EEEE FOR 639-3973 64GB	EEEE_F4LR	Y	EEEE_64G
339S0206	1	H6P + 1GB SAMSUNG	U1	Y	H6P_1GB_SAMSUNG
339S0207	1	H6P + 1GB ELPIDA	U1	Y	H6P_1GB_ELPIDA
339S0208	1	H6P + 1GB HYNIX	U1	Y	H6P_1GB_HYNIX

OSCAR BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
337S4370	1	OSCAR CSP	U9	Y	OSCAR_CSP
337S4417	1	OSCAR FCLGA	U9	Y	OSCAR_FCLGA

OPEL BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
353S3899	1	TI OPEL	U17	Y	OPEL_TI

NAND BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
335S0930	1	NAND, 19NM, 16GX8, MLC, PPN1.5	U4	Y	NAND_16G_HYNIX
335S0931	1	NAND, 19NM, 32GX8, MLC, PPN1.5	U4	Y	NAND_32G_HYNIX
335S0932	1	NAND, 19NM, 64GX8, MLC, PPN1.5	U4	Y	NAND_64G_HYNIX

NAND BOM ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
335S0921	335S0930	NAND_16G_TOSH	U4	?
335S0933	335S0930	NAND_16G_SAND	U4	?
335S0922	335S0931	NAND_32G_TOSH	U4	?
335S0934	335S0931	NAND_32G_SAND	U4	?
335S0923	335S0932	NAND_64G_TOSH	U4	?
335S0935	335S0932	NAND_64G_SAND	U4	?

USB GOLDENEYE BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
155S0583	2	E75 COMMON MODE CHOKES	L20, L22	Y	CMC_E75_D1FFPAIRS
152S1737	2	USB TX 10UH SERIES INDUCTORS	R163, R164	Y	USB_TX_SERIES_IND

TRISTAR BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
343S0614	1	CBTL1608A1UK, WCSP, TRISTAR	U2	Y	TRISTAR
343S0639	1	CBTL1610A0UK, WCSP, TRISTAR2	U2	Y	TRISTAR2
117S0202	2	RES 200HM 01005 5%, TRISTAR2	R102, R103	Y	TRISTAR2
118S0671	2	RES 150HM 01005 5%, TRISTAR	R102, R103	Y	TRISTAR

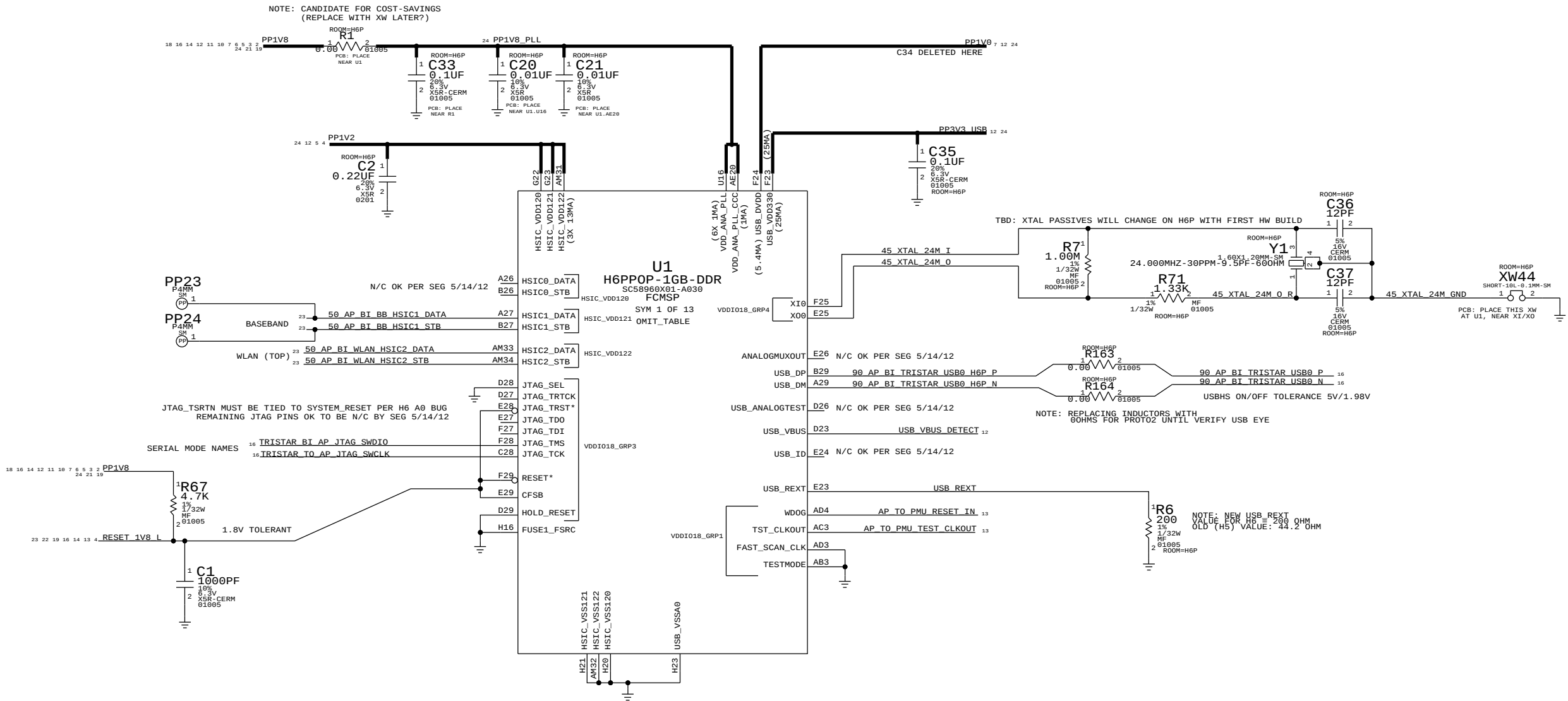
AUDIO BOM OPTION

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
155S0556	2	FERRITE 0402 P140HM 1A	FL6, FL9	Y	SPKAMP_FERRITE_REG
155S0731	2	FERRITE 0402 P060HM 1P8A	FL6, FL9	Y	SPKAMP_FERRITE_LOWDCR
116S0004	2	RESISTOR 0402 00HM 1A	FL6, FL9	Y	SPKAMP_FERRITE_00HM
132S0396	2	CAP 01005 10V 1000PF	C500, C501	Y	SPKAMP_CAPFILT_1000PF
132S0437	2	CAP 01005 10V 150PF	C500, C501	Y	SPKAMP_CAPFILT_150PF
131S0283	2	CAP 01005 10V 100PF	DZ13, DZ14	Y	SPKAMP_ESDFILT_100PF
338S1077	1	CLASSD AMP, L19	U22	Y	SPKAMP_IC_L19
338S1161	1	CLASSD AMP, L20	U22	Y	SPKAMP_IC_L20
117S0002	1	0201 60HM	R128	Y	SPKAMP_SENSE_R_L20
118S0583	1	0201 0.10HM	R128	Y	SPKAMP_SENSE_R_L19

H6P: JTAG, USB, PLL, HSIC, XTAL

MISC COMPONENTS ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
107S0146	107S0208			ALT FOR THERMISTOR
138S0702	138S0657			?
138S0697	138S0695			?
138S0746	138S0705			?
138S0739	138S0706			?
155S0773	155S0453			?
155S0667	155S0583			?
335S0895	335S0874			?
138S0703	138S0648			?



H6P: DIGITAL I/O, BOOTSTRAPPING

D

D

C

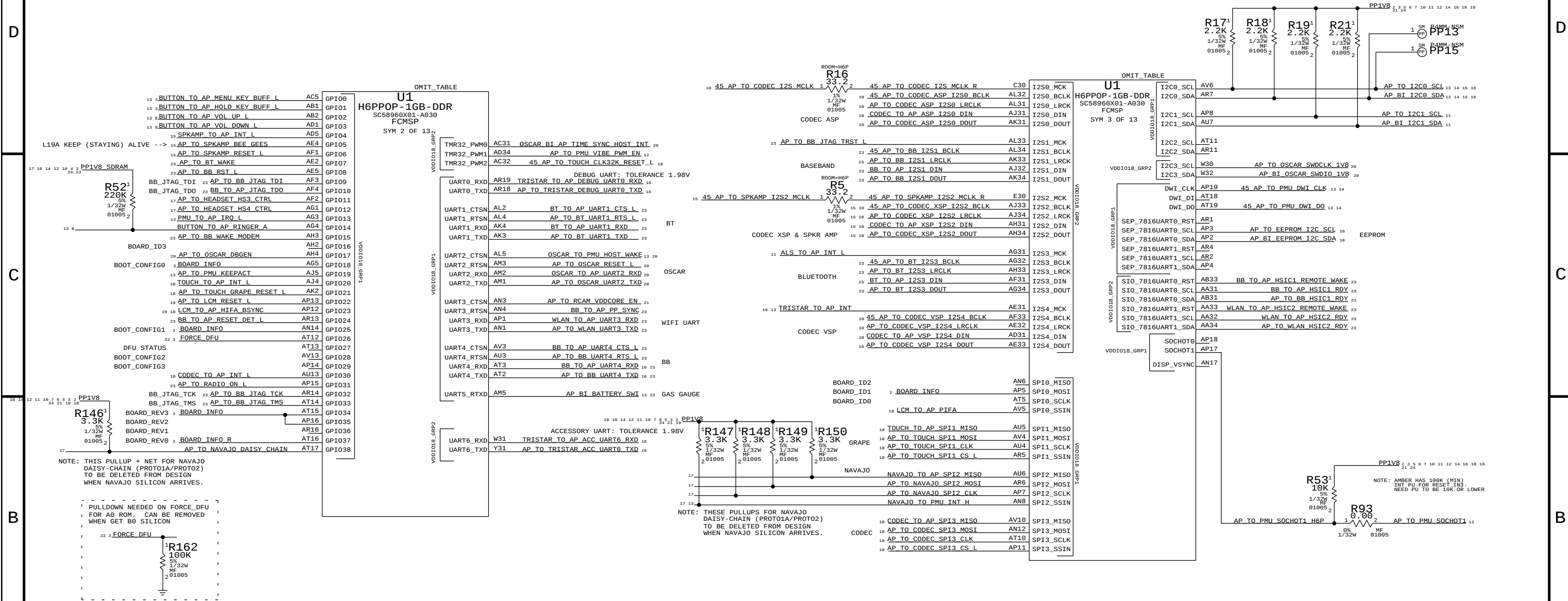
C

B

B

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A



BOOTSTRAPPING (BOARD_REV, BOARD_ID, BOOT_CFG)

BOARD_REV[3:0]={GPIO34, GPIO35, GPIO36, GPIO37}
FLOAT=LOW, PULLUP=HIGH

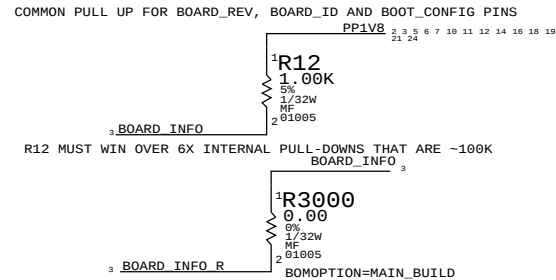
1111	PROTO2/2A, TRISAR/L19	<--- SELECTED
1110	PROTO2A, TRISTAR2/L20	
1101	EV11 MAIN BUILD	
1100	EV11 MESA BUILD	<--- DNP R3000 TO SELECT

BOARD_ID[3:0]={GPIO16, SPI0_MISO, SPI0_MOSI, SPI0_SCLK}
FLOAT=LOW, PULLUP=HIGH

0000	X145 MLB
0001	X145 DEV
0010	X152 MLB <--- SELECTED
0011	X152 DEV

BOOT_CONFIG[3:0]={GPIO29_CONFIG3, GPIO28_CONFIG2, GPIO25_CONFIG1, GPIO18_CONFIG0}
FLOAT=LOW, PULLUP=HIGH

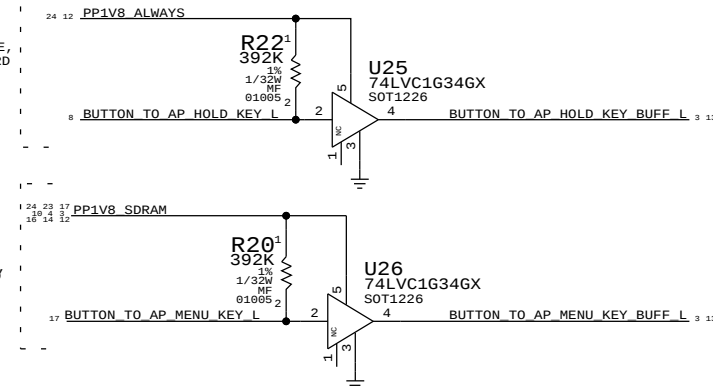
0000	SPI0
0001	SPI0 TEST MODE
0010	NAND
0011	NAND TEST MODE <--- SELECTED



PCB: PLACE THIS TOP SIDE, NORTH END OF SINGLE_BRD

PCB: PLACE THIS BOTTOM SIDE, SOUTH END OF SINGLE_BRD

MENU & POWER / HOLD KEY BUFFER

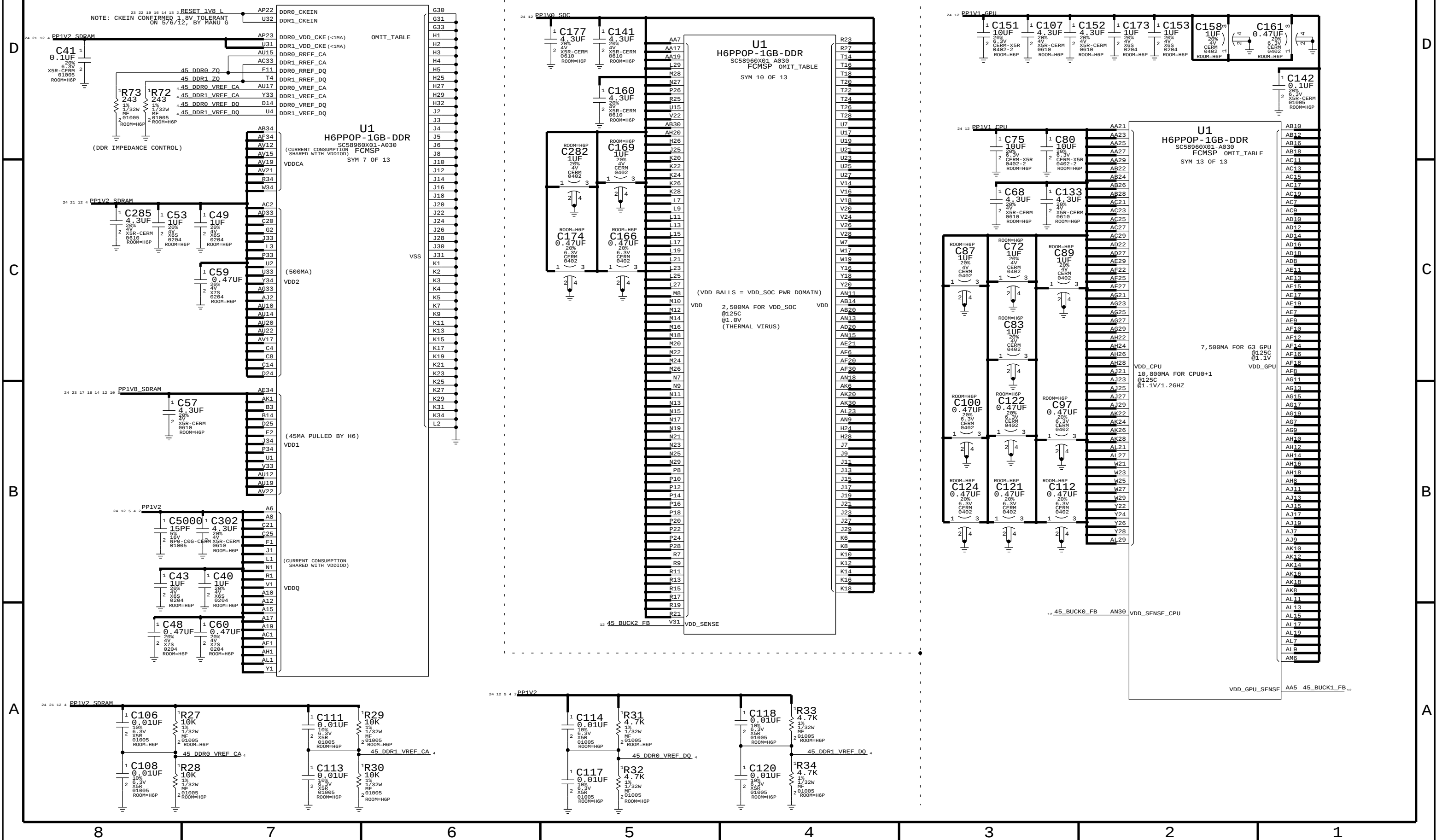


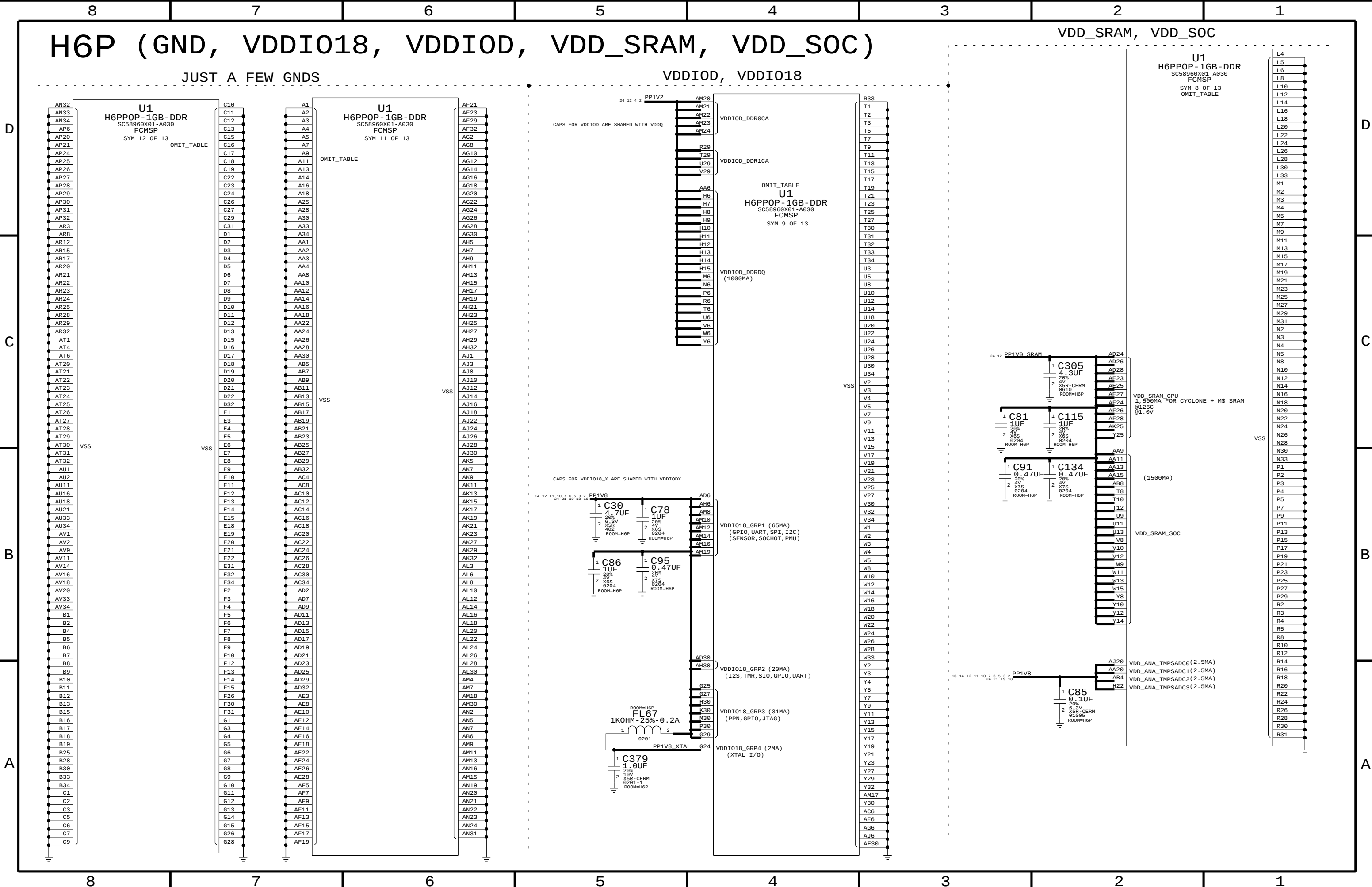
H6P: GND, VDDCA, VDD1/2, VDD, VDD_CPU, VDD_GPU

VDDCA, VDD1/2, VDDQ

VDD

VDD_CPU, VDD_GPU



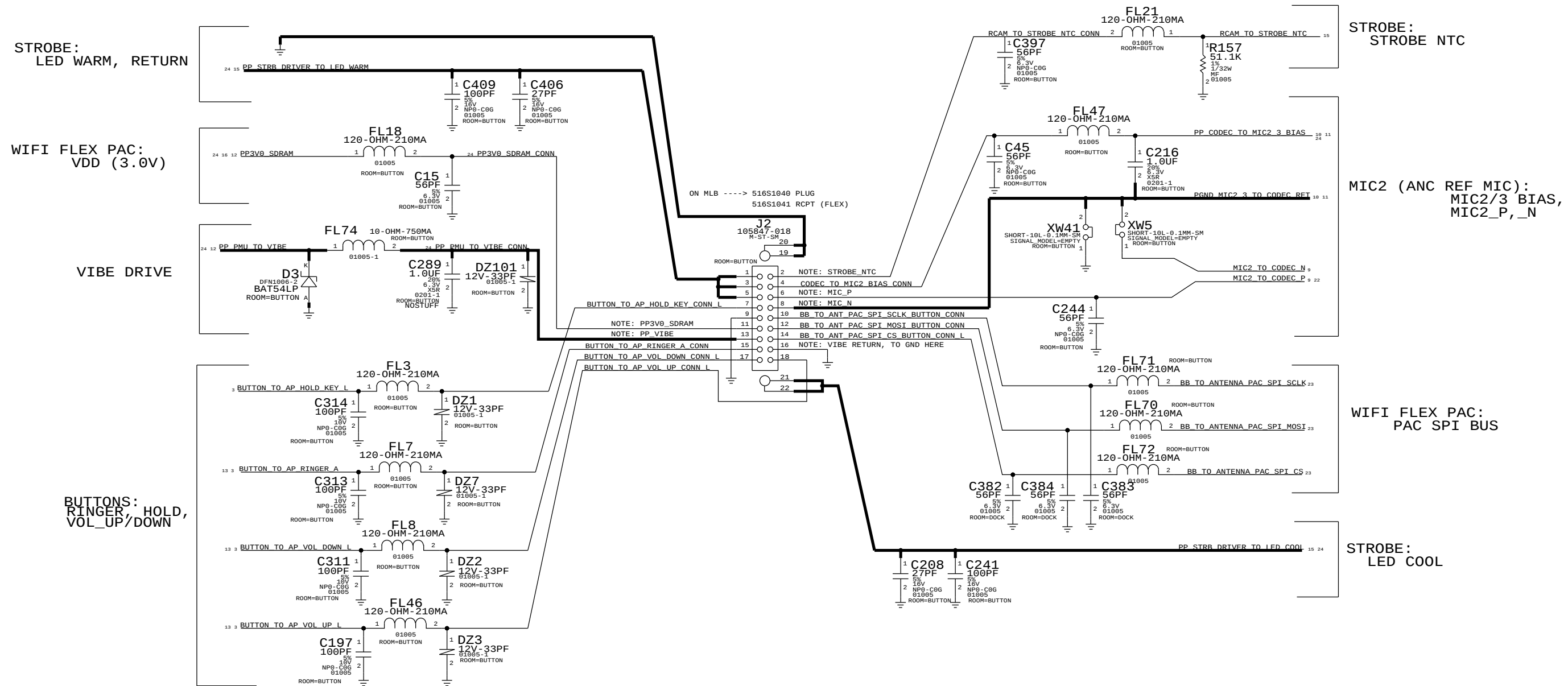


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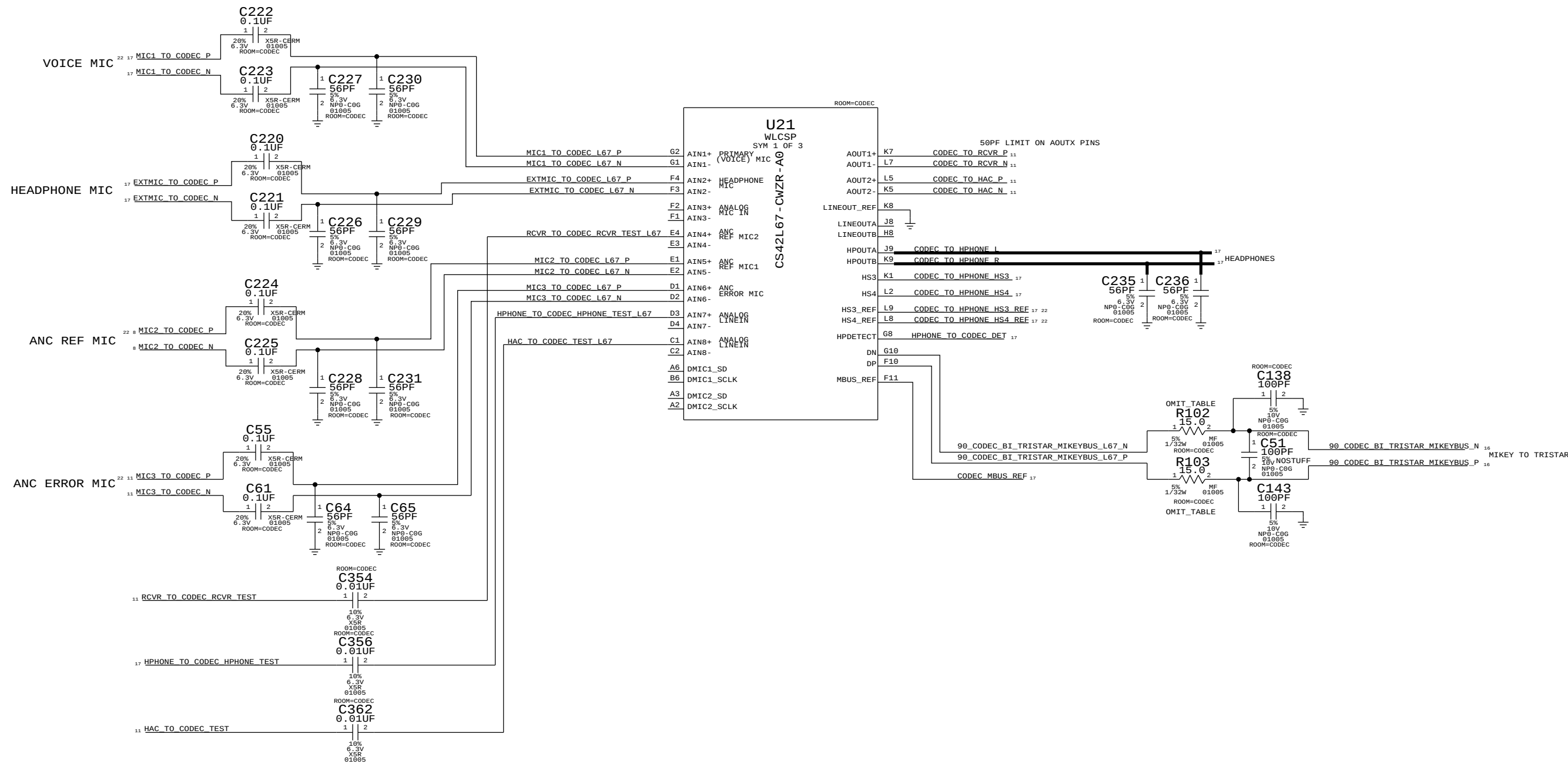
BUTTON FLEX (VIBE DRIVER, BUTTONS, ANC REF MIC, STROBE, STROBE_NTC)



L67 AUDIO CODEC

AUDIO I/O

(ANALOG MIC IN, DIG MIC IN, HPOUT, LINEOUT, RECEIVER OUT, MIKEYBUS)



This diagram illustrates the power, microphone bias, and digital system I/O connections for the L67 AUDIO CODEC. The layout is organized into three main sections: POWER, MICBIAS, and DIGITAL SYSTEM I/O.

POWER, MICBIAS

Power Section: The power section includes connections for the CODEC's power pins (VDD, VDDA, VDDM, VDDP, VDDN, VDDM, VDDP, VDDN). Key components include:

- PP1VR:** Power plane voltage regulator, connected to VDD, VDDA, VDDM, VDDP, VDDN.
- PP1VR SDRAM:** Power plane voltage regulator for SDRAM, connected to VDD, VDDA, VDDM, VDDP, VDDN.
- PP1VR VA L19 L67:** Power plane voltage regulator for VA, connected to VDD, VDDA, VDDM, VDDP, VDDN.
- U21 WLCSP:** CODEC component, connected to VDD, VDDA, VDDM, VDDP, VDDN.
- CS42L67-CWZR-A0:** CODEC component, connected to VDD, VDDA, VDDM, VDDP, VDDN.

MICBIAS Section: The microphone bias section includes connections for the CODEC's microphone bias pins (MIC1_BIAS, MIC2_BIAS, MIC3_BIAS, MIC4_BIAS). Key components include:

- MIC1_BIAS:** Microphone bias, connected to MIC1_BIAS.
- MIC2_BIAS:** Microphone bias, connected to MIC2_BIAS.
- MIC3_BIAS:** Microphone bias, connected to MIC3_BIAS.
- MIC4_BIAS:** Microphone bias, connected to MIC4_BIAS.

DIGITAL SYSTEM I/O

Digital Section: The digital section includes connections for the CODEC's digital pins (MCLK, ASP_SCLK, ASP_LRCLK, ASP_SDIN, ASP_SDOUT, VSP_SCLK, VSP_LRCLK, VSP_SDIN, VSP_SDOUT, XSP_SCLK, XSP_LRCLK, XSP_SDIN, XSP_SDOUT, CS*, CCLK, CDIN, CDOUT, INT*, WAKE*, RESET*, TSTO). Key components include:

- U21 WLCSP:** CODEC component, connected to MCLK, ASP_SCLK, ASP_LRCLK, ASP_SDIN, ASP_SDOUT, VSP_SCLK, VSP_LRCLK, VSP_SDIN, VSP_SDOUT, XSP_SCLK, XSP_LRCLK, XSP_SDIN, XSP_SDOUT, CS*, CCLK, CDIN, CDOUT, INT*, WAKE*, RESET*, TSTO.
- CS42L67-CWZR-A0:** CODEC component, connected to MCLK, ASP_SCLK, ASP_LRCLK, ASP_SDIN, ASP_SDOUT, VSP_SCLK, VSP_LRCLK, VSP_SDIN, VSP_SDOUT, XSP_SCLK, XSP_LRCLK, XSP_SDIN, XSP_SDOUT, CS*, CCLK, CDIN, CDOUT, INT*, WAKE*, RESET*, TSTO.

Notes:

- KEEP THESE CAPS AT CODEC PINS
- KEEP THIS CAP AT CODEC PINS
- TSTO MUST BE NC

This diagram illustrates the power, mic bias, and digital system I/O connections for the L67 AUDIO CODEC. The layout is organized into three main sections: POWER, MICBIAS, and DIGITAL SYSTEM I/O.

POWER, MICBIAS

Power Section: The power section includes connections for the CODEC's power pins (VDD, VDDA, VDDM, VDDP, VDDN, VDDM, VDDP, VDDN) and the CODEC's ground pins (GND, GNDP, GNDM, GNDN, GNDP, GNDM, GNDN). The power pins are connected to the CODEC's power pins (VDD, VDDA, VDDM, VDDP, VDDN, VDDM, VDDP, VDDN) and the CODEC's ground pins (GND, GNDP, GNDM, GNDN, GNDP, GNDM, GNDN). The ground pins are connected to the CODEC's ground pins (GND, GNDP, GNDM, GNDN, GNDP, GNDM, GNDN).

Mic Bias Section: The mic bias section includes connections for the CODEC's mic bias pins (MIC1_BIAS, MIC1_BIAS_FILT, MIC2_BIAS, MIC2_BIAS_FILT, MIC3_BIAS, MIC3_BIAS_FILT, MIC4_BIAS, MIC4_BIAS_FILT) and the CODEC's ground pins (GND, GNDP, GNDM, GNDN, GNDP, GNDM, GNDN). The mic bias pins are connected to the CODEC's mic bias pins (MIC1_BIAS, MIC1_BIAS_FILT, MIC2_BIAS, MIC2_BIAS_FILT, MIC3_BIAS, MIC3_BIAS_FILT, MIC4_BIAS, MIC4_BIAS_FILT) and the CODEC's ground pins (GND, GNDP, GNDM, GNDN, GNDP, GNDM, GNDN).

DIGITAL SYSTEM I/O

Digital Section: The digital section includes connections for the CODEC's digital pins (MCLK, ASP_SCLK, ASP_LRCLK, ASP_SDIN, ASP_SDOUT, VSP_SCLK, VSP_LRCLK, VSP_SDIN, VSP_SDOUT, XSP_SCLK, XSP_LRCLK, XSP_SDIN, XSP_SDOUT, CS*, CCLK, CDIN, CDOUT, INT*, WAKE*, RESET*, TSTO) and the CODEC's ground pins (GND, GNDP, GNDM, GNDN, GNDP, GNDM, GNDN). The digital pins are connected to the CODEC's digital pins (MCLK, ASP_SCLK, ASP_LRCLK, ASP_SDIN, ASP_SDOUT, VSP_SCLK, VSP_LRCLK, VSP_SDIN, VSP_SDOUT, XSP_SCLK, XSP_LRCLK, XSP_SDIN, XSP_SDOUT, CS*, CCLK, CDIN, CDOUT, INT*, WAKE*, RESET*, TSTO) and the CODEC's ground pins (GND, GNDP, GNDM, GNDN, GNDP, GNDM, GNDN).

Component Values: The component values are as follows: R100 = 2.21K, R145 = 1.00K, C237 = 1.00UF, C238 = 4.7UF, C218 = 4.7UF, C26 = 56PF, C219 = 4.7UF, C27 = 56PF, C422 = 10UF, C421 = 0.1UF, C420 = 0.1UF, C413 = 0.1UF, C414 = 10UF, C416 = 0.1UF, C412 = 1.0UF, C232 = 4.7UF, C233 = 4.7UF, C425 = 4.7UF, C429 = 4.7UF, C234 = 4.7UF, C424 = 10UF.

This diagram illustrates the power, mic bias, and digital system I/O connections for the L67 AUDIO CODEC. The layout is organized into three main sections: POWER, MICBIAS, and DIGITAL SYSTEM I/O.

POWER, MICBIAS

Power Section:

- PP_VCC_MATN:** Connected to XW43 (SHORT-10L-0.1MM-SM). Components include C422 (10UF), C421 (0.1UF), and C420 (0.1UF).
- PP1VR:** Connected to C413 (0.1UF).
- PP1VR_SDRAM:** Connected to C414 (10UF) and C416 (0.1UF).
- PP1VR_VA_L19_L67:** Connected to C412 (1.0UF).

Mic Bias Section:

- MIC1_BIAS:** Connected to J11, J10, and J9.
- MIC2_BIAS:** Connected to L4, L3, and K4.
- MIC3_BIAS:** Connected to H7, H6, and H5.
- MIC4_BIAS:** Connected to H6, H5, and H4.

Other Components:

- R100:** 2.21K resistor.
- C237:** 1.0UF capacitor.
- C238:** 4.7UF capacitor.
- C218:** 4.7UF capacitor.
- C26:** 56PF capacitor.
- C219:** 4.7UF capacitor.
- C27:** 56PF capacitor.
- C232:** 4.7UF capacitor.
- C233:** 4.7UF capacitor.
- C425:** 4.7UF capacitor.
- C429:** 4.7UF capacitor.
- C234:** 4.7UF capacitor.
- C424:** 10UF capacitor.

DIGITAL SYSTEM I/O

U21 WLCSP:

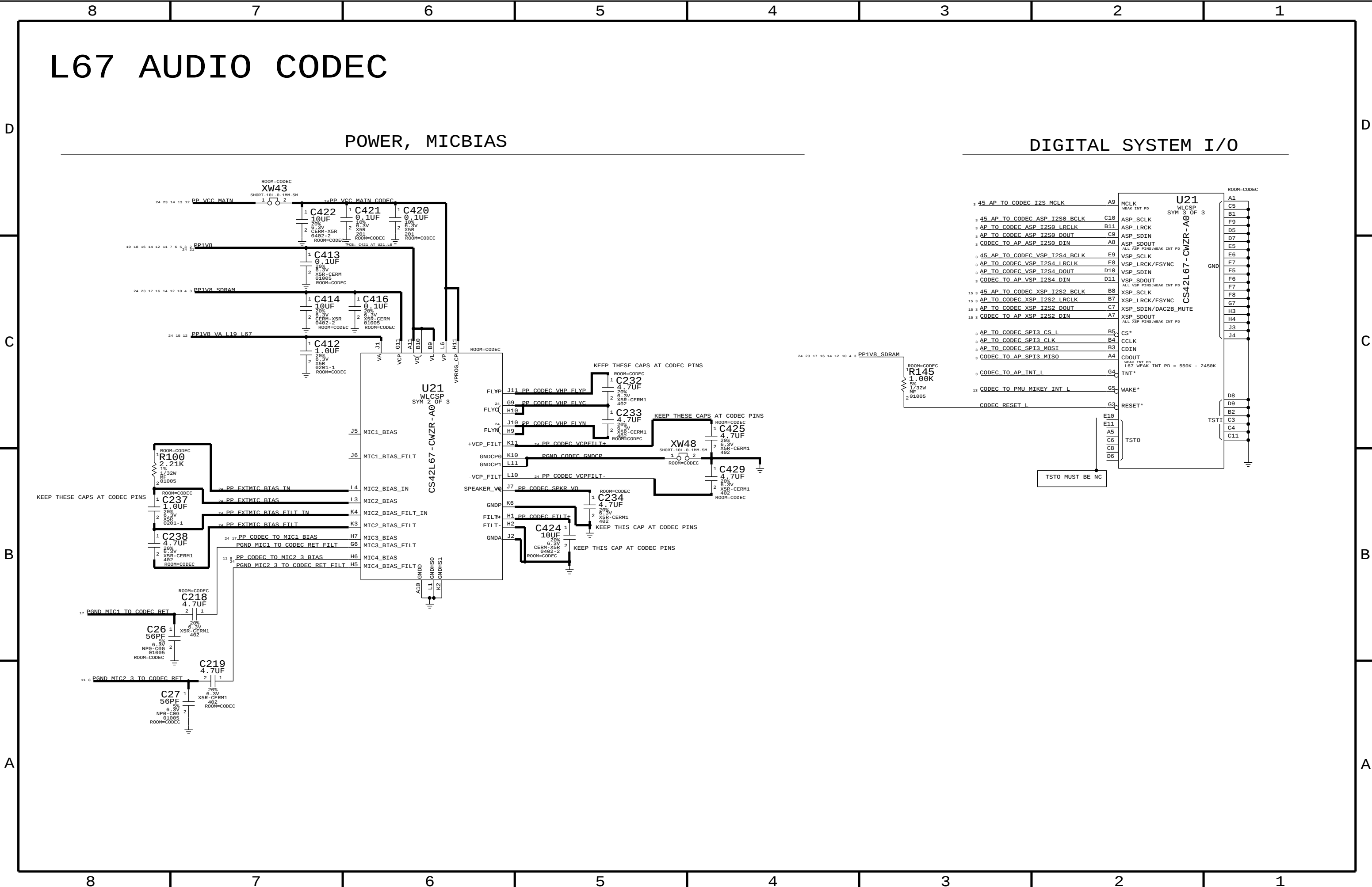
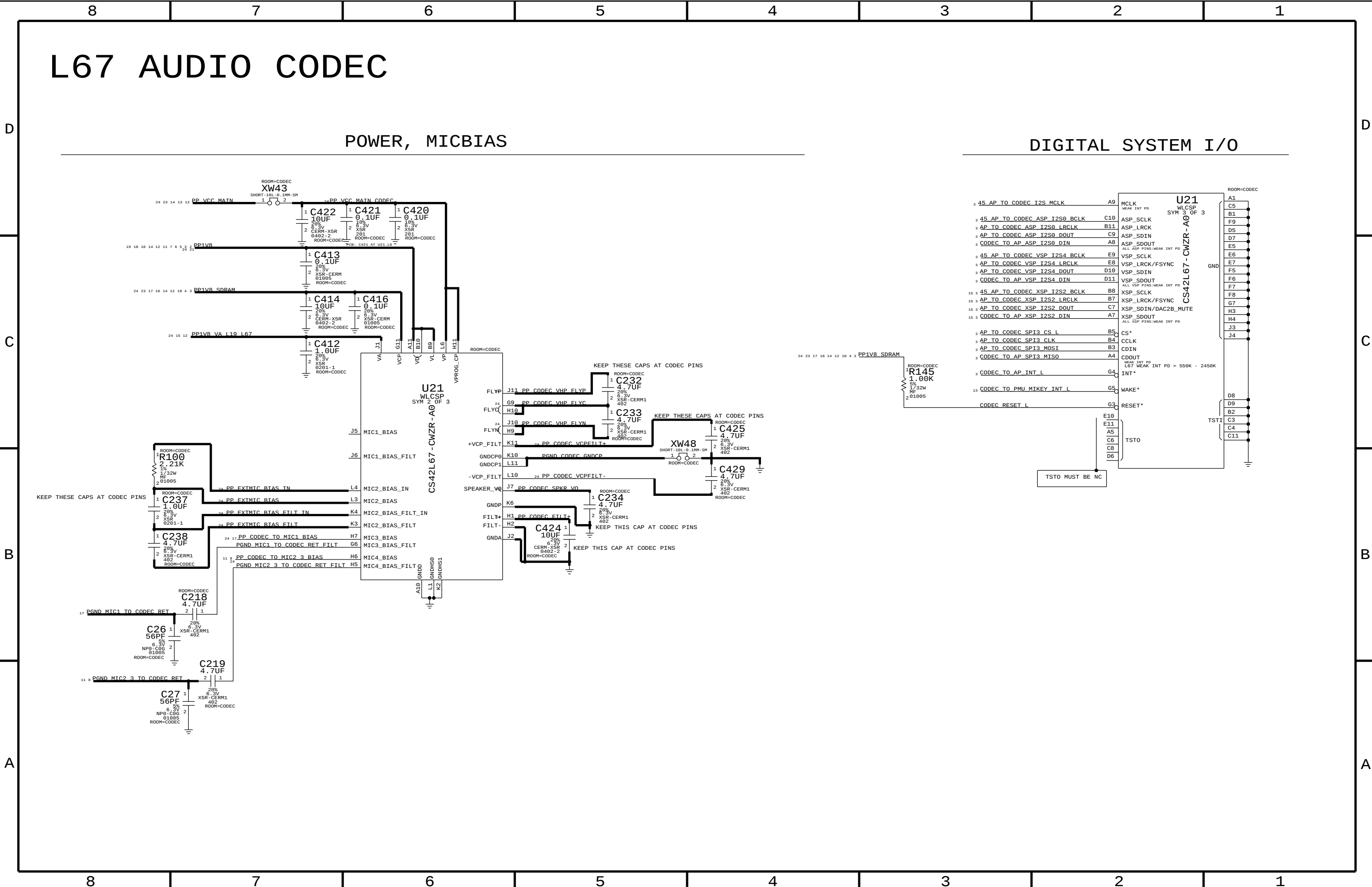
- 45 AP TO CODEC I2S MCLK:** A9
- 45 AP TO CODEC ASP I2S0 BCLK:** C10
- AP TO CODEC ASP I2S0 LRCLK:** B11
- AP TO CODEC ASP I2S0 DOUT:** C9
- CODEC TO AP ASP I2S0 DIN:** A8
- 45 AP TO CODEC VSP I2S4 BCLK:** E9
- AP TO CODEC VSP I2S4 LRCLK:** E8
- AP TO CODEC VSP I2S4 DOUT:** D10
- CODEC TO AP VSP I2S4 DIN:** D11
- 45 AP TO CODEC XSP I2S2 BCLK:** B8
- AP TO CODEC XSP I2S2 LRCLK:** B7
- AP TO CODEC XSP I2S2 DOUT:** C7
- CODEC TO AP XSP I2S2 DIN:** A7
- AP TO CODEC SPI3 CS_L:** B5
- AP TO CODEC SPI3 CLK:** B4
- AP TO CODEC SPI3 MOSI:** B3
- CODEC TO AP SPI3 MISO:** A4
- CODEC TO AP INT_L:** G4
- CODEC TO PMU MIKEY INT_L:** G5
- CODEC RESET_L:** G3

U21 WLCSP - CS42L67 - CWZR - A0:

- MCLK:** WEAK INT PD
- ASP_SCLK:** WEAK INT PD
- ASP_LRCLK:** WEAK INT PD
- ASP_SDIN:** WEAK INT PD
- ASP_SDOUT:** WEAK INT PD
- VSP_SCLK:** WEAK INT PD
- VSP_LRCLK/FSYNC:** WEAK INT PD
- VSP_SDIN:** WEAK INT PD
- VSP_SDOUT:** WEAK INT PD
- XSP_SCLK:** WEAK INT PD
- XSP_LRCLK/FSYNC:** WEAK INT PD
- XSP_SDIN/DAC2B_MUTE:** WEAK INT PD
- XSP_SDOUT:** WEAK INT PD
- CS*:** WEAK INT PD
- CCLK:** WEAK INT PD
- CDIN:** WEAK INT PD
- CDOUT:** WEAK INT PD
- INT*:** WEAK INT PD
- WAKE*:** WEAK INT PD
- RESET*:** WEAK INT PD
- TSTO:** WEAK INT PD

Other Components:

- R145:** 1.00K resistor.
- R100:** 2.21K resistor.
- C237:** 1.0UF capacitor.
- C238:** 4.7UF capacitor.
- C218:** 4.7UF capacitor.
- C26:** 56PF capacitor.
- C219:** 4.7UF capacitor.
- C27:** 56PF capacitor.
- C232:** 4.7UF capacitor.
- C233:** 4.7UF capacitor.
- C425:** 4.7UF capacitor.
- C429:** 4.7UF capacitor.
- C234:** 4.7UF capacitor.
- C424:** 10UF capacitor.



FRONT CAM FLEX B2B (FCAM, PROX, ALS, RECEIVER, ANC ERROR MIC)

D

FCAM:
CLK, I2C, SHDN

C

PROX: POWER,
RX, RX_EN

B

ALS: POWER,
I2C, INT

A

RECEIVER

HAC

NOTE: CONN GENDER SWAPPED AT PROTO2
THIS ON ONE MLB ---> 516S0986 RCPT
516S0987 PLUG (FLEX)

J1
AA22L-S034VA1
F-ST-SM

FCAM:
POWER AND MIPI

MIC3
(ANC ERROR MIC)

FCAM ALS INT

PROX: PWR, TX EN

D

C

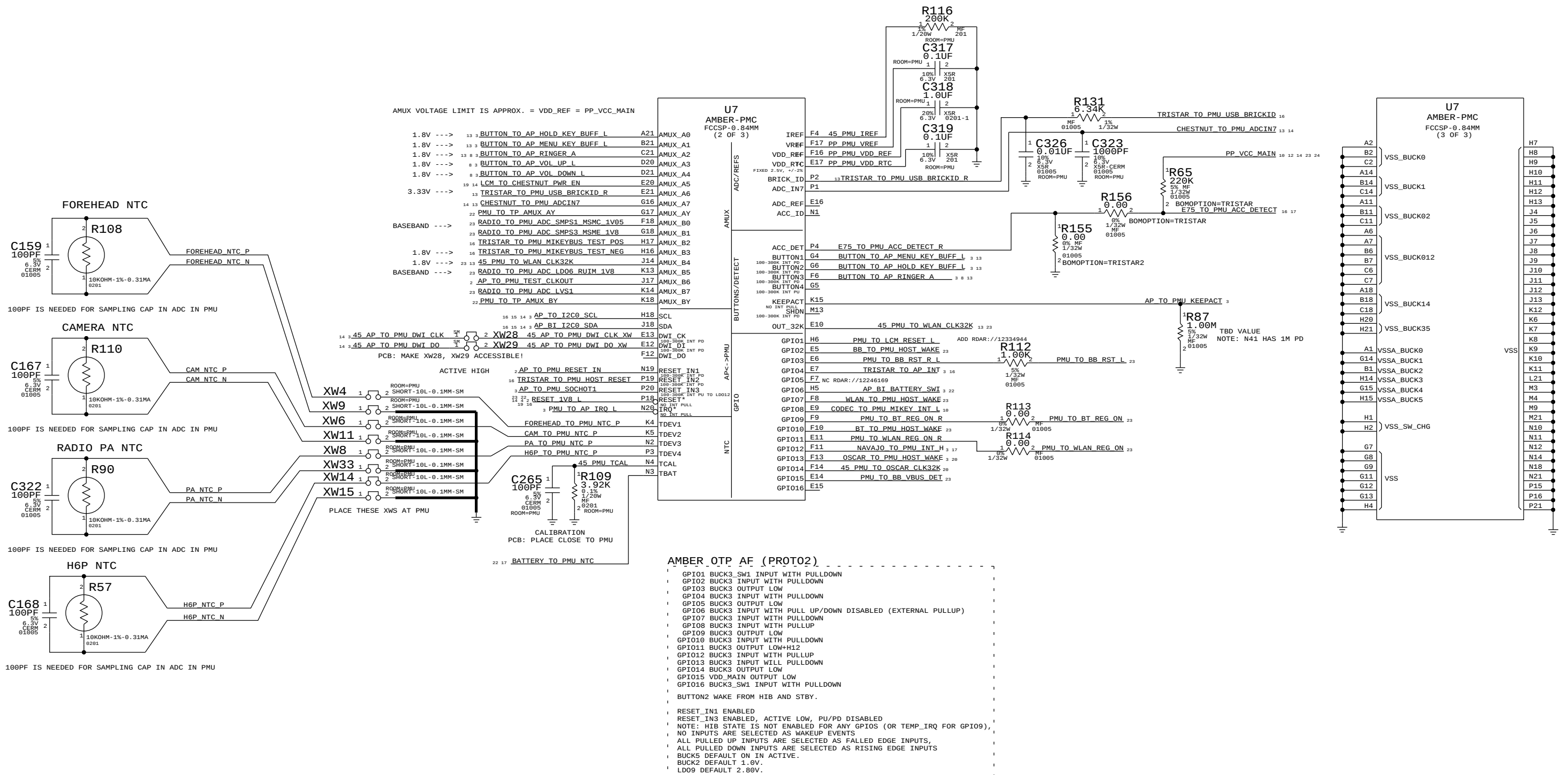
B

A

[illegible]

AMBER PMU

(AMUX, GPIO, BUTTONS, ADC, THERMISTORS, SYSTEM I/F, GND)

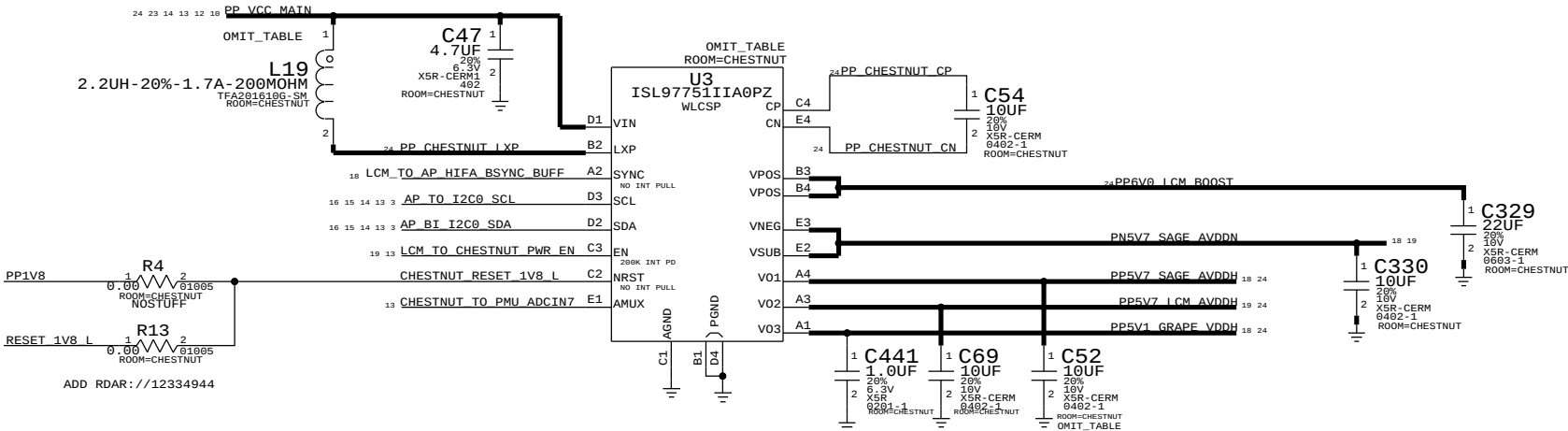


CHESTNUT, BACKLIGHT DRIVER, MESA BOOST

CHESTNUT BOM OPTIONS

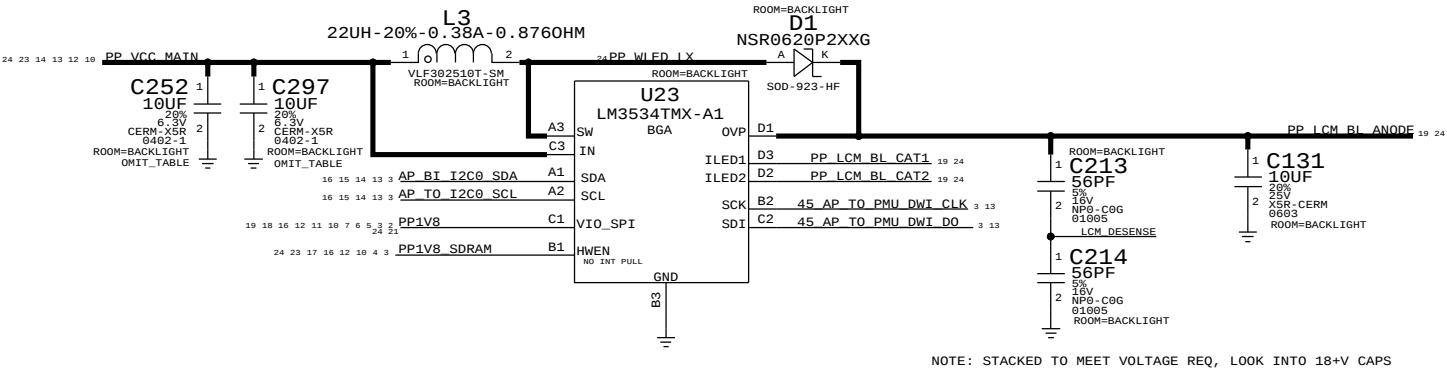
PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
338S1172	1	TI CHESTNUT	U3	Y	CHESTNUT_TI
152S1842	1	TI CHESTNUT IND - 1.5UH TAIYO	L19	Y	CHESTNUT_TI_TAIYO
152S1802	1	TI CHESTNUT IND - 1.5UH CYNTEC	L19	Y	CHESTNUT_TI_CYNTEC
338S1168	1	INTERSIL CHESTNUT	U3	Y	CHESTNUT_INTERSIL
152S1805	1	INTERSIL CHESTNUT IND - 2.2UH TFA-A	L19	Y	CHESTNUT_INTERSIL_TFA-A

D403 DISPLAY PMU (INTERSIL CHESTNUT, 338S1148)
(TI CHESTNUT, 338S1149)



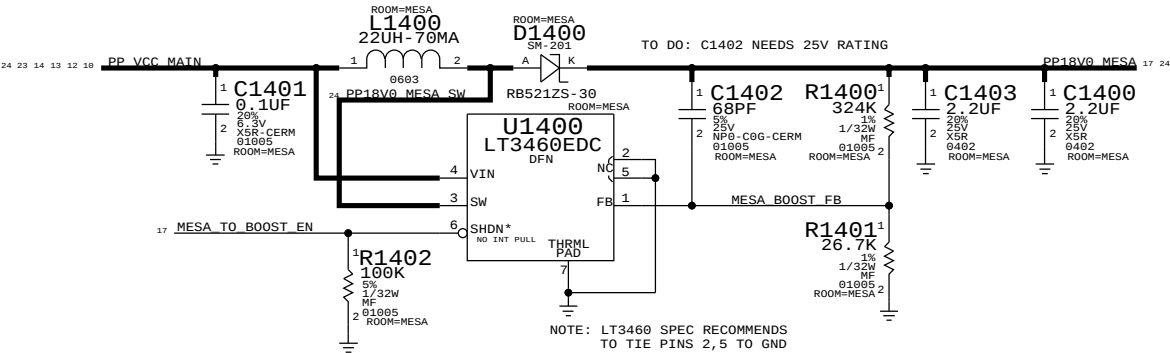
SAGE NEG BOOST TIMING INFO:
2 MS NOMIAL START UP DELAY FOR LCM POWER SEQUENCING
0 MS DELAY AT SHUTDOWN
ACTIVE DISCHARGE 2MS TO RAIL DOWN

D403 BACKLIGHT DRIVER



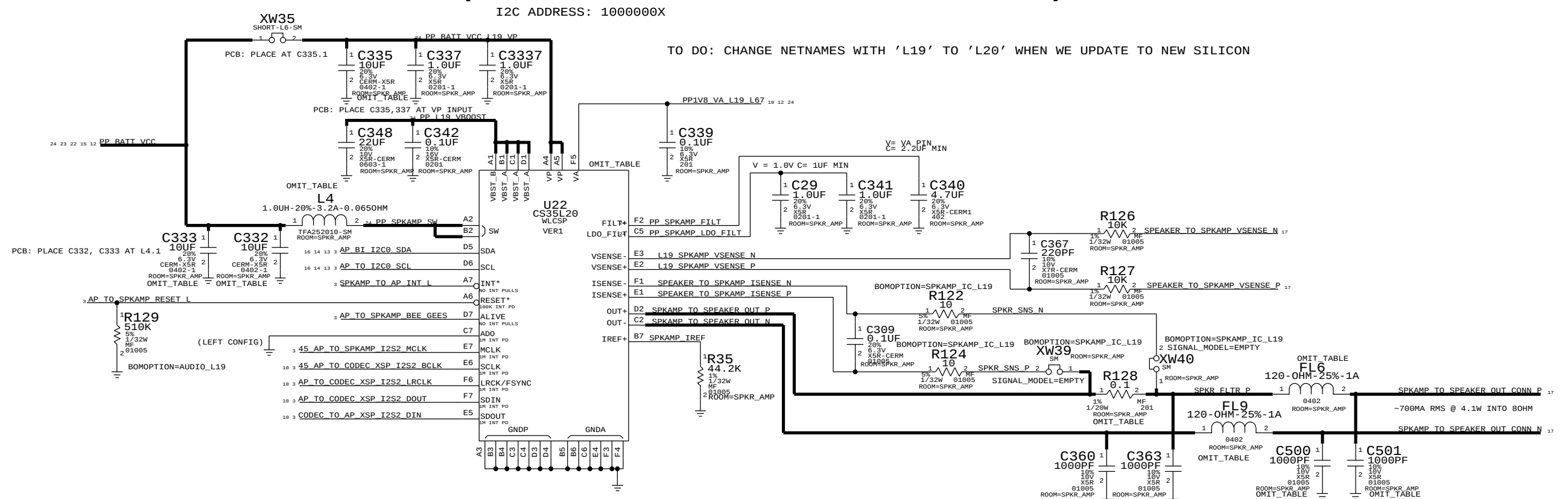
NOTE: STACKED TO MEET VOLTAGE REQ, LOOK INTO 18+V CAPS

MESA BOOST



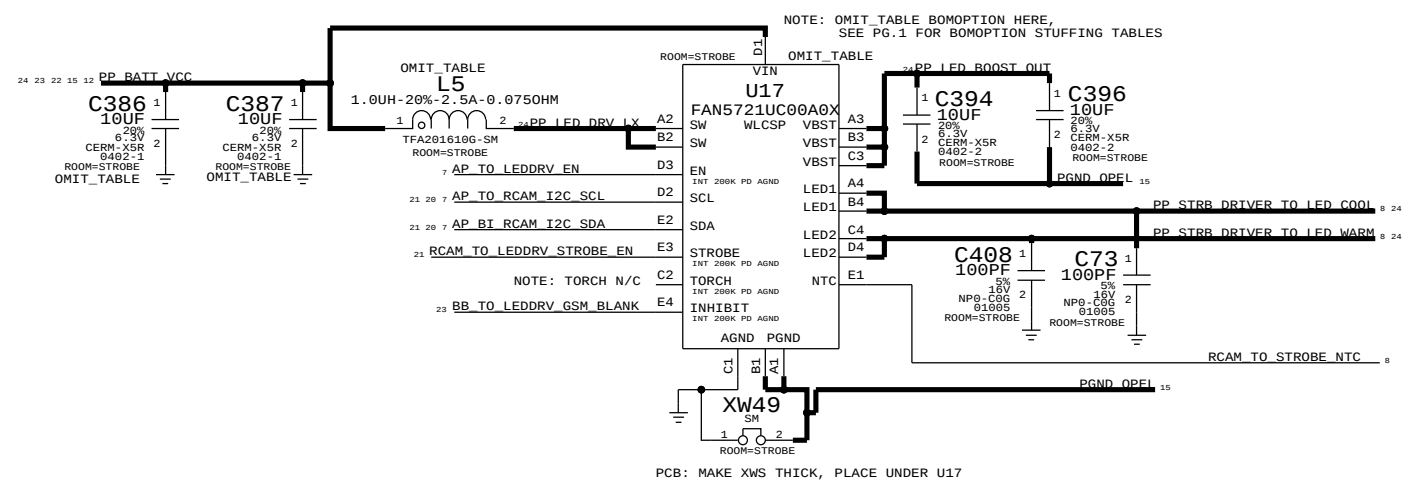
NOTE: LT3460 SPEC RECOMMENDS TO TIE PINS 2,5 TO GND

SPEAKER AMP (TO BE REPLACED WITH L20)



STROBE DRIVER (OPEL)

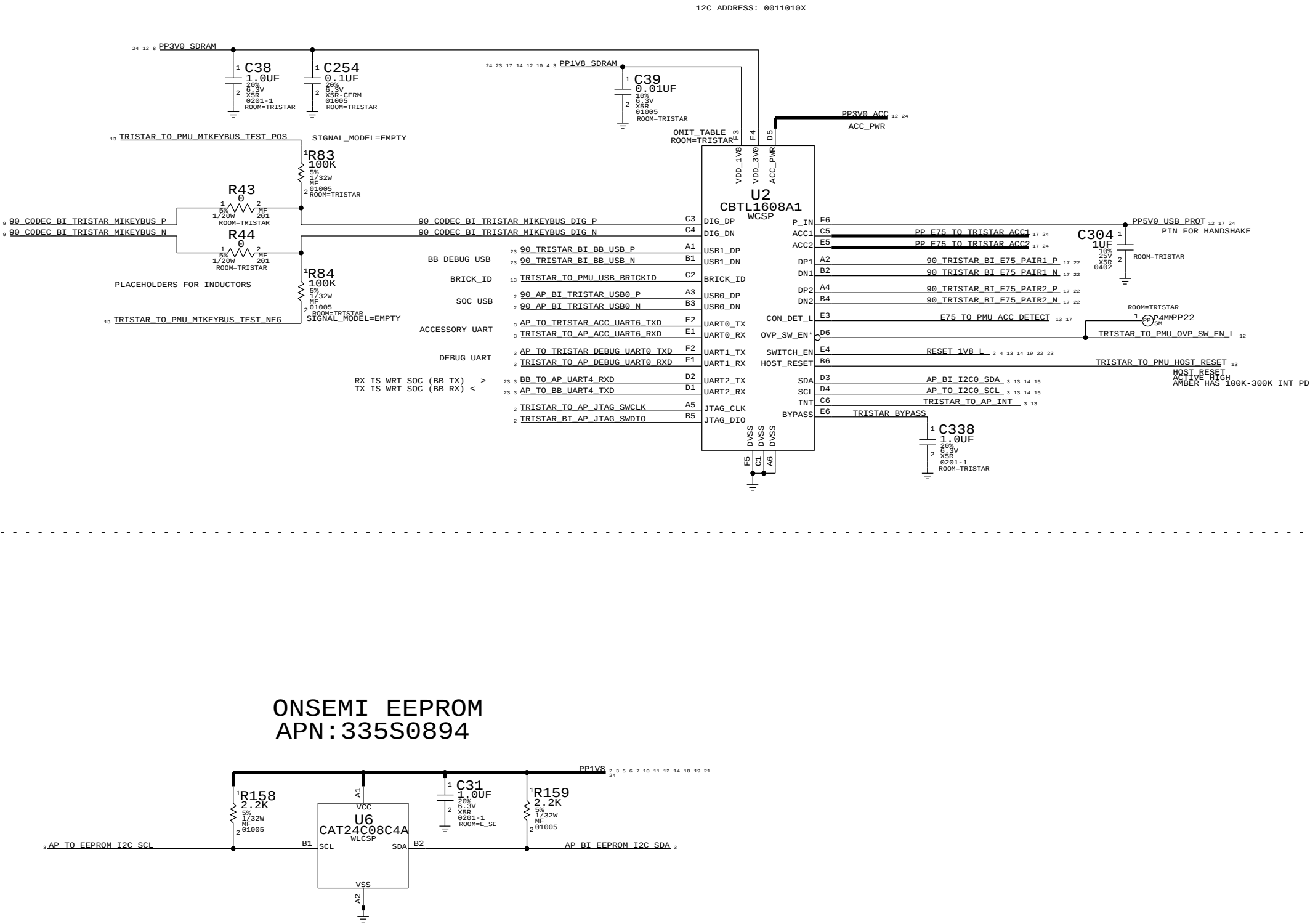
TI: APN 353S3899
FAIRCHILD: APN 353S3839

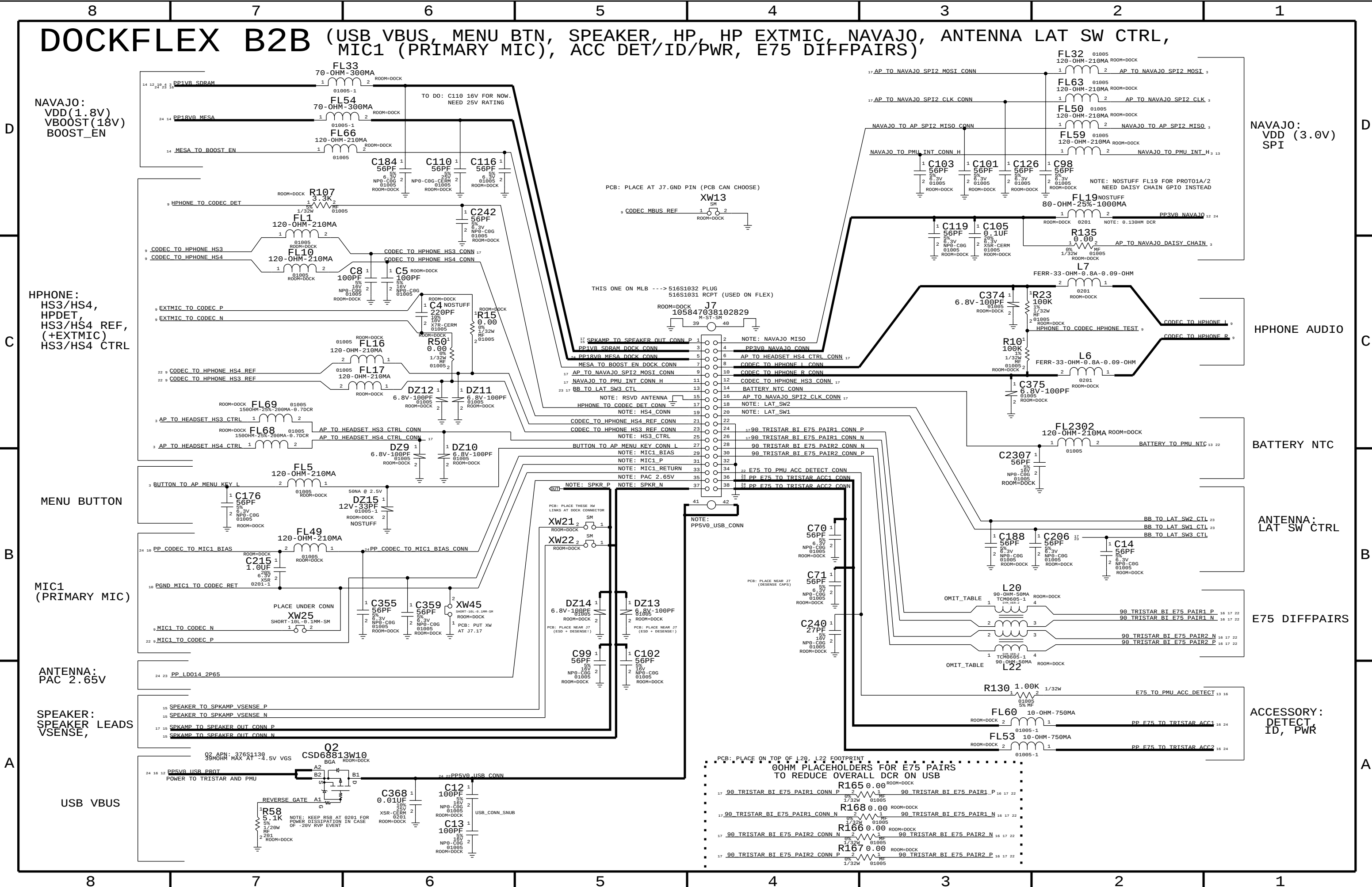


TRISTAR

EEPROM

ONSEMI EEPROM
APN:335S0894





LCM B2B

LCM:
2-LANE MIPI

LCM:
POWER
(1.8V DVDD)
(+5.7V AVDD)
(-5.7V AVDD)

LCM:
DIGITAL I/F
(PWR_EN, RESET
PIFA, BSYNC)

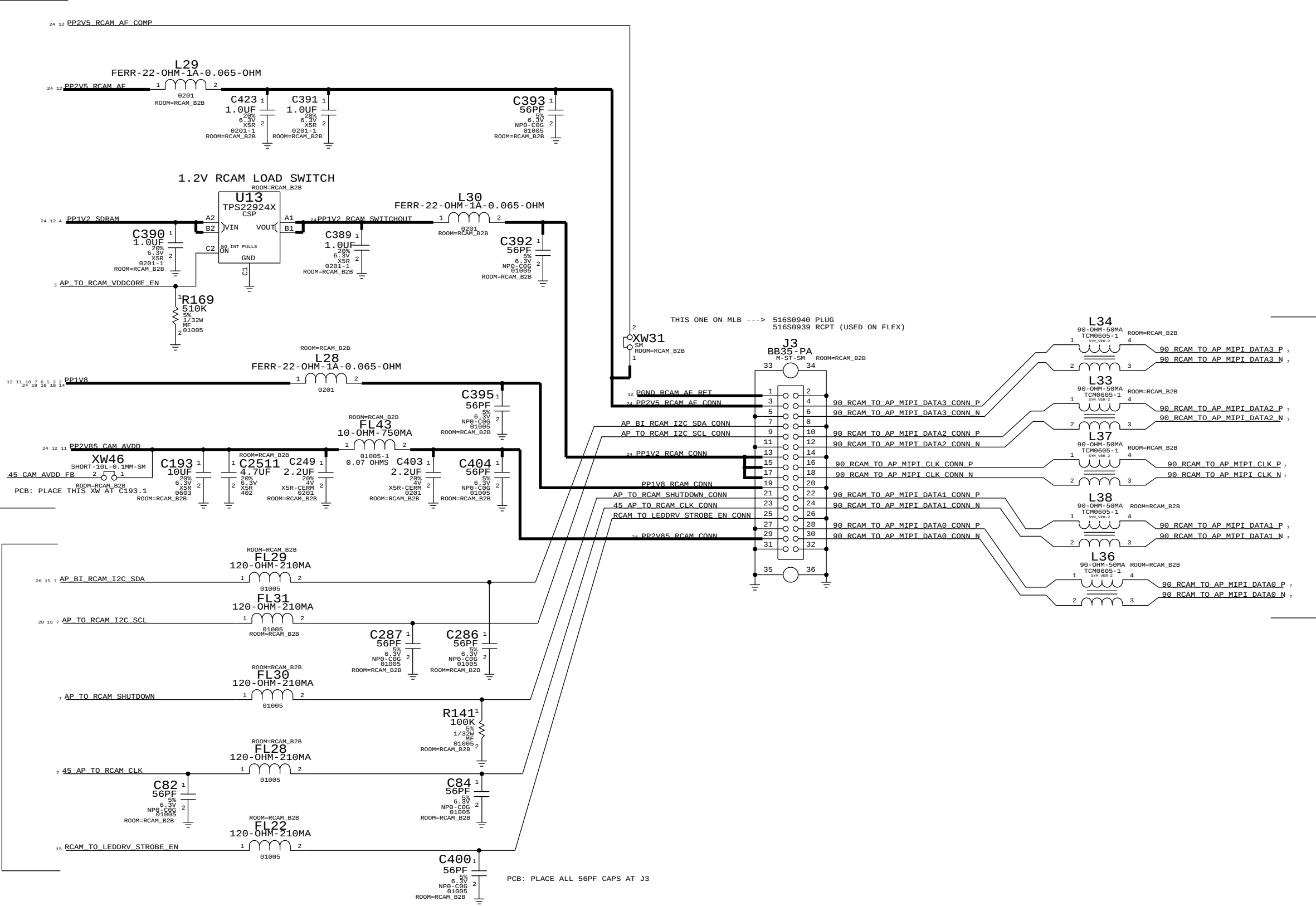
LCM:
BACKLIGHT

PCB: ALL 56PF CAPS GO AT CONN

RCAM B2B (REAR CAMERA CONNECTOR)

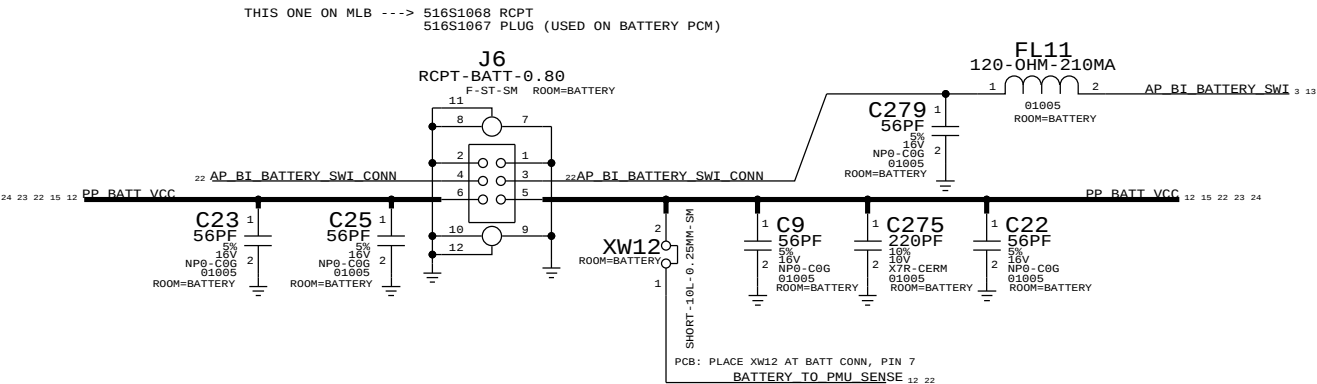
RCAM:
POWER:
(1.8V DVDD)
(2.8V AVDD)
(1.2V VCC)
(2.5V AF)

RCAM:
DIGITAL I/F
(I2C, CTRL, CLK)

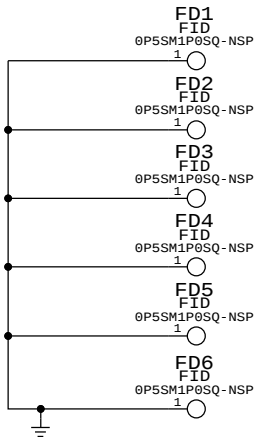


BATT CONN, TPS, STANDOFFS/SHIELDS/FIDUCIALS

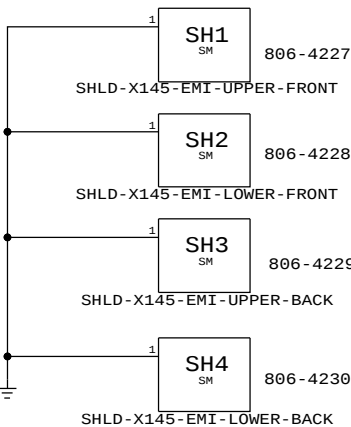
BATTERY CONN



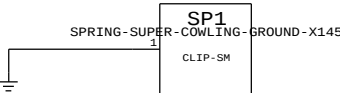
FIDUCIALS



SHIELDS

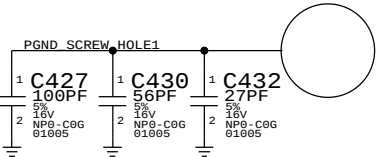


COWLING

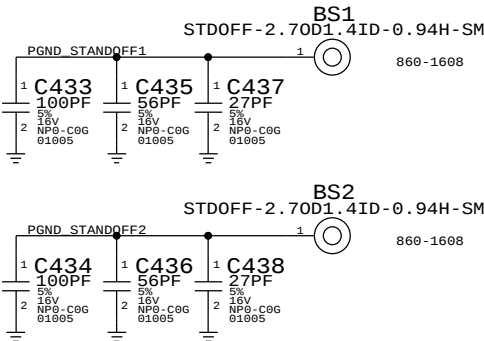


AC COUPLED SCREW HOLES + STANDOFFS (ON NORTH END OF SINGLE_BRD, TO MITIGATE COMPASS RETURN CURRENTS)

SCREW HOLES

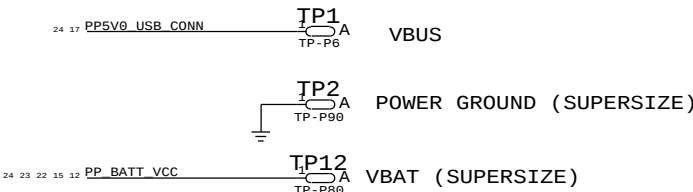


STANDOFFS



TESTPOINTS

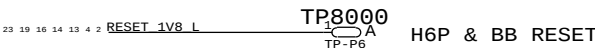
POWER TP



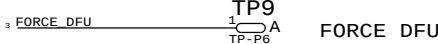
SUPER TP



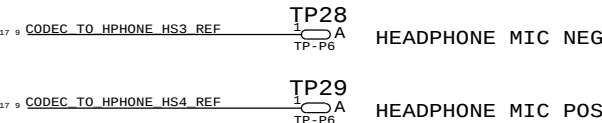
RESET



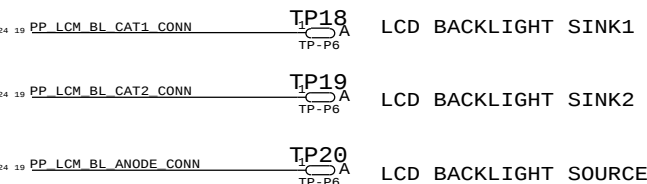
DFU



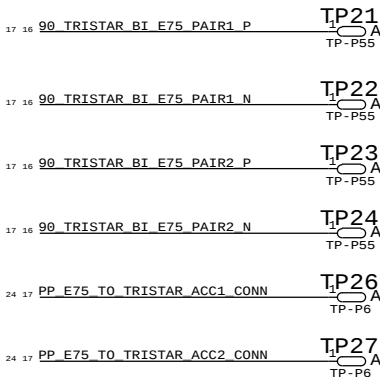
HEADPHONE MIC



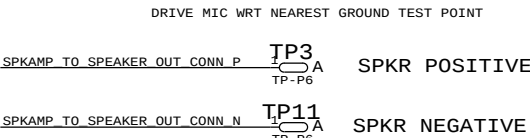
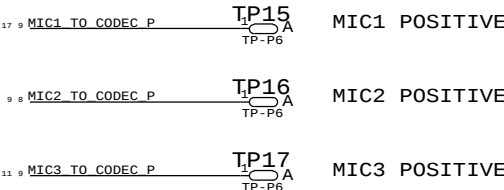
LCM BACKLIGHT



E75 - USB/UART/ID/POWER



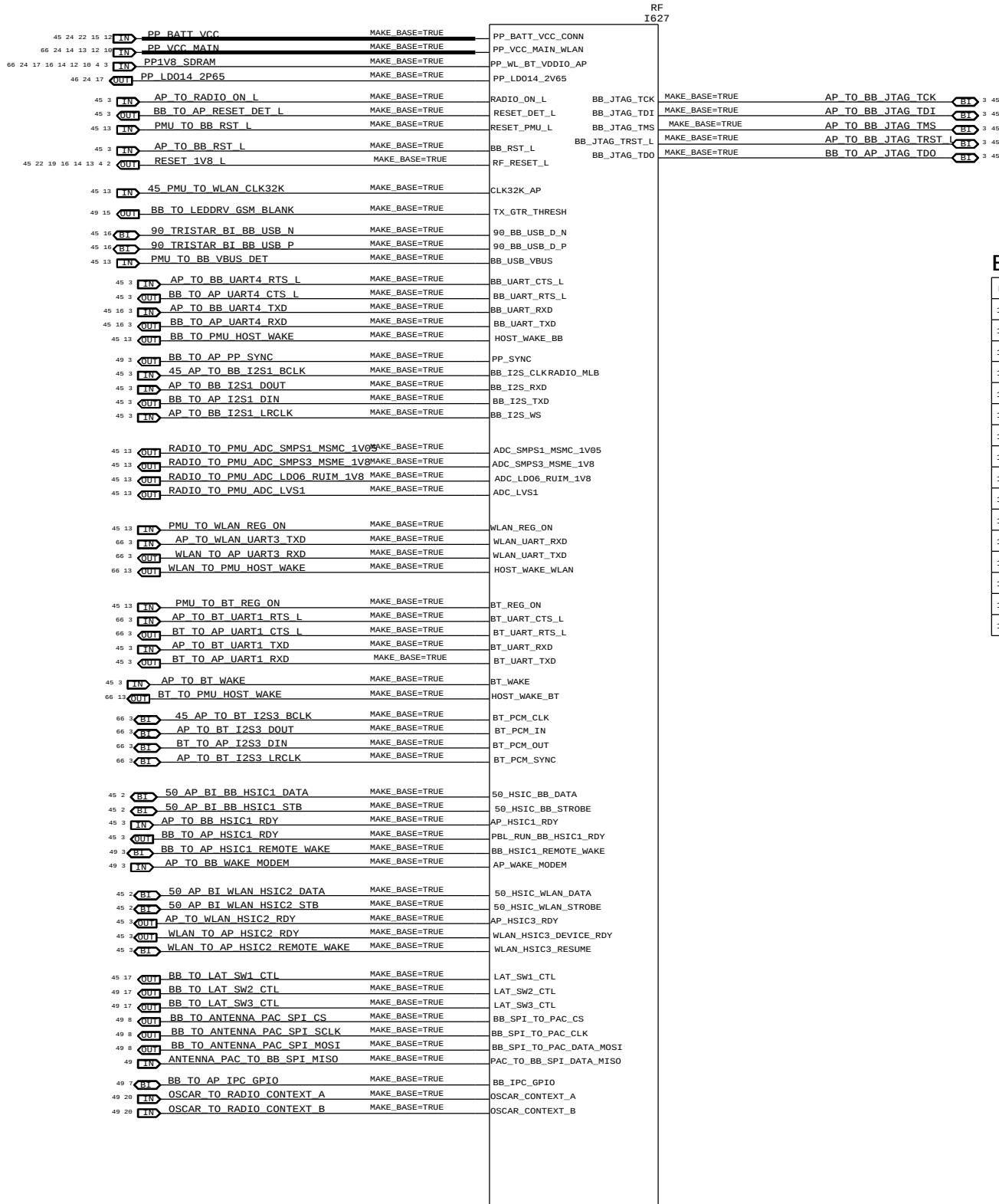
MIC AUDIO



ADDED PER
RDAR://12460740

RADIO_MLB HIERARCHICAL SYMBOL

AP/RADIO INTERFACE



BOARD_ID BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
118S0621	1	1.00M 1% 01005	R25_RF	Y	N51_CFG_A
118S0732	1	50K 1% 01005	R26_RF	Y	N51_CFG_A
117S0159	1	470K 5% 01005	R25_RF	Y	N51_CFG_B
118S0626	1	100K 1% 01005	R26_RF	Y	N51_CFG_B
118S0626	1	100K 1% 01005	R25_RF	Y	N53_CFG_A
118S0726	1	162K 1% 01005	R26_RF	Y	N53_CFG_A
118S0626	1	100K 1% 01005	R25_RF	Y	N53_CFG_B
118S0623	1	267K 1% 01005	R26_RF	Y	N53_CFG_B
118S0659	1	255K 1% 01005	R25_RF	Y	N48_CFG_A
118S0626	1	100K 1% 01005	R26_RF	Y	N48_CFG_A
118S0689	1	147K 1% 01005	R26_RF	Y	N48_CFG_B
118S0626	1	100K 1% 01005	R26_RF	Y	N48_CFG_B
118S0626	1	100K 1% 01005	R25_RF	Y	N49_CFG_A
118S0650	1	490K 1% 01005	R26_RF	Y	N49_CFG_A
118S0732	1	50K 1% 01005	R25_RF	Y	N49_CFG_B
118S0621	1	1.00M 1% 01005	R26_RF	Y	N49_CFG_B

D

C

B

A

PDF	PAGE	CSA	PAGE	CONTENTS
2		2		AP INTERFACE & DEBUG CONNECTORS
3		3		PMU (1 OF 2)
4		4		PMU (2 OF 2)
5		5		BASEBAND (1 OF 2)
6		6		BASEBAND (2 OF 2)
7		7		RF TRANSCEIVER (1 OF 2)
8		8		RF TRANSCEIVER (2 OF 2)
9		9		RX MATCHING
10		10		TX INTERSTAGE FILTERS
11		11		BAND 1/34/39/38/40 TX
12		12		BAND 2/3 PAD
13		13		BAND 7/20 PAD
14		14		BAND 5/8 PAD
15		15		2G PA
16		16		PA DCDC CONVERTER
17		17		PRIMARY ASM
18		18		RX DIVERSITY
19		19		GPS
20		20		ANTENNA FEEDS
21		21		SWITCH LOGIC
22		22		BLANK
23		23		WIFI/BT

SCH : 951-2770
BOM : 639-3973
BOARD : 820-3382

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
951-2445	1	X152_RADIO_MLB	SCH	Y	
825-2029	1	EEE FOR 939-0308	EEEE_???	Y	NA

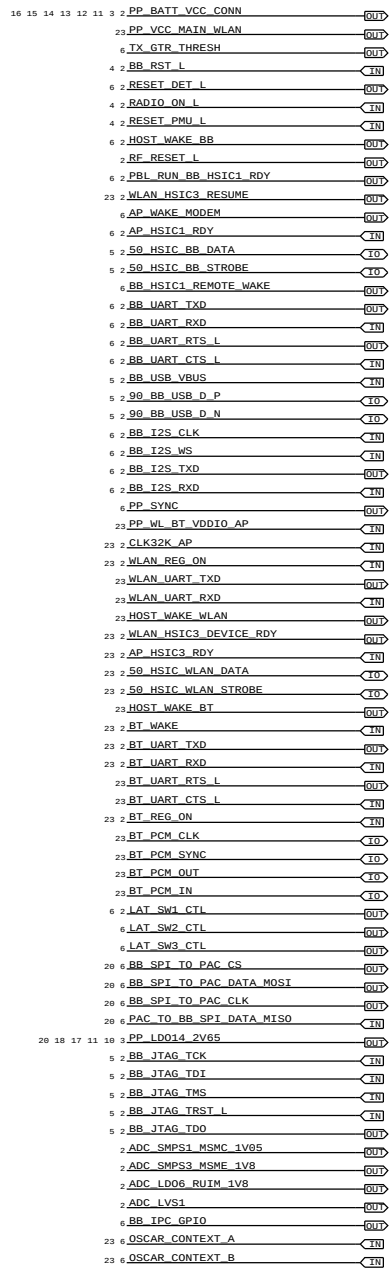
BOARD_ID BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
118S0621	1	1.00M 1% 01005	R25_RF	Y	N51_CFG_A
118S0732	1	50K 1% 01005	R26_RF	Y	N51_CFG_A
117S0159	1	470K 5% 01005	R25_RF	Y	N51_CFG_B
118S0626	1	100K 1% 01005	R26_RF	Y	N51_CFG_B
118S0626	1	100K 1% 01005	R25_RF	Y	N53_CFG_A
118S0726	1	162K 1% 01005	R26_RF	Y	N53_CFG_A
118S0626	1	100K 1% 01005	R25_RF	Y	N53_CFG_B
118S0623	1	267K 1% 01005	R26_RF	Y	N53_CFG_B
118S0659	1	255K 1% 01005	R25_RF	Y	N48_CFG_A
118S0626	1	100K 1% 01005	R26_RF	Y	N48_CFG_A
118S0689	1	147K 1% 01005	R26_RF	Y	N48_CFG_B
118S0626	1	100K 1% 01005	R26_RF	Y	N48_CFG_B
118S0626	1	100K 1% 01005	R25_RF	Y	N49_CFG_A
118S0659	1	499K 1% 01005	R26_RF	Y	N49_CFG_A
118S0732	1	50K 1% 01005	R25_RF	Y	N49_CFG_B
118S0621	1	1.00M 1% 01005	R26_RF	Y	N49_CFG_B

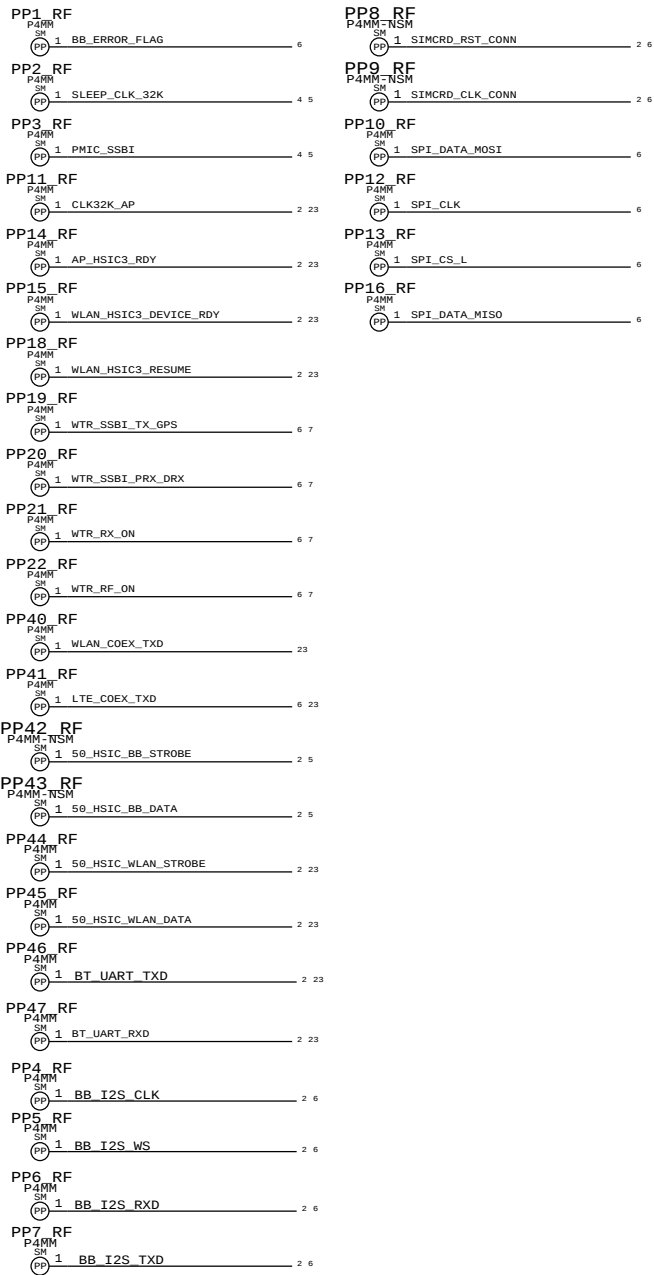
AP INTERFACE & DEBUG CONNECTORS

AP CONNECTIONS

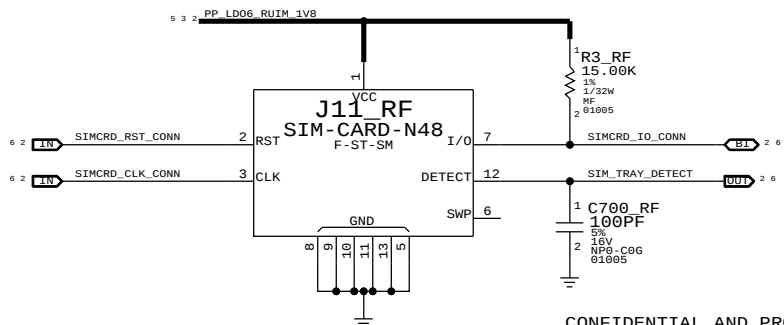
IN = FROM AP
OUT = TO AP



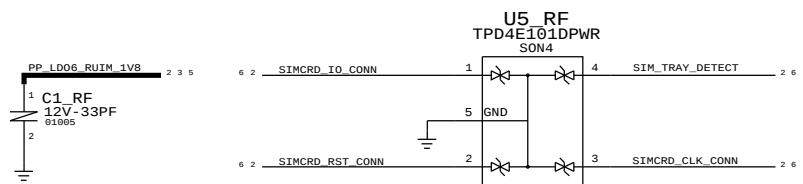
PROBE POINTS



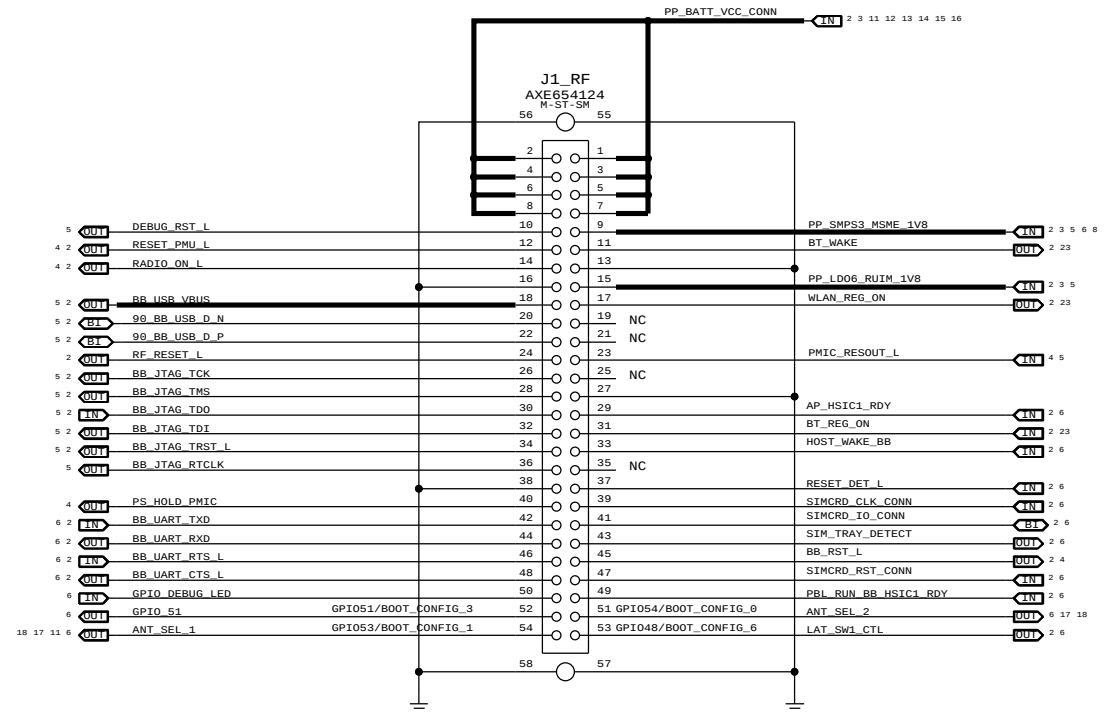
SIM CARD CONNECTOR



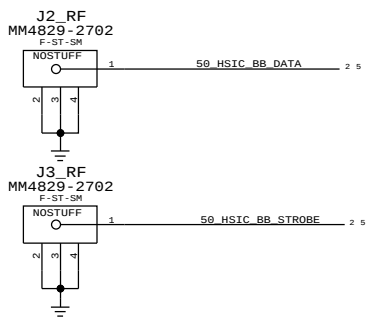
SIM CARD ESD PROTECTION



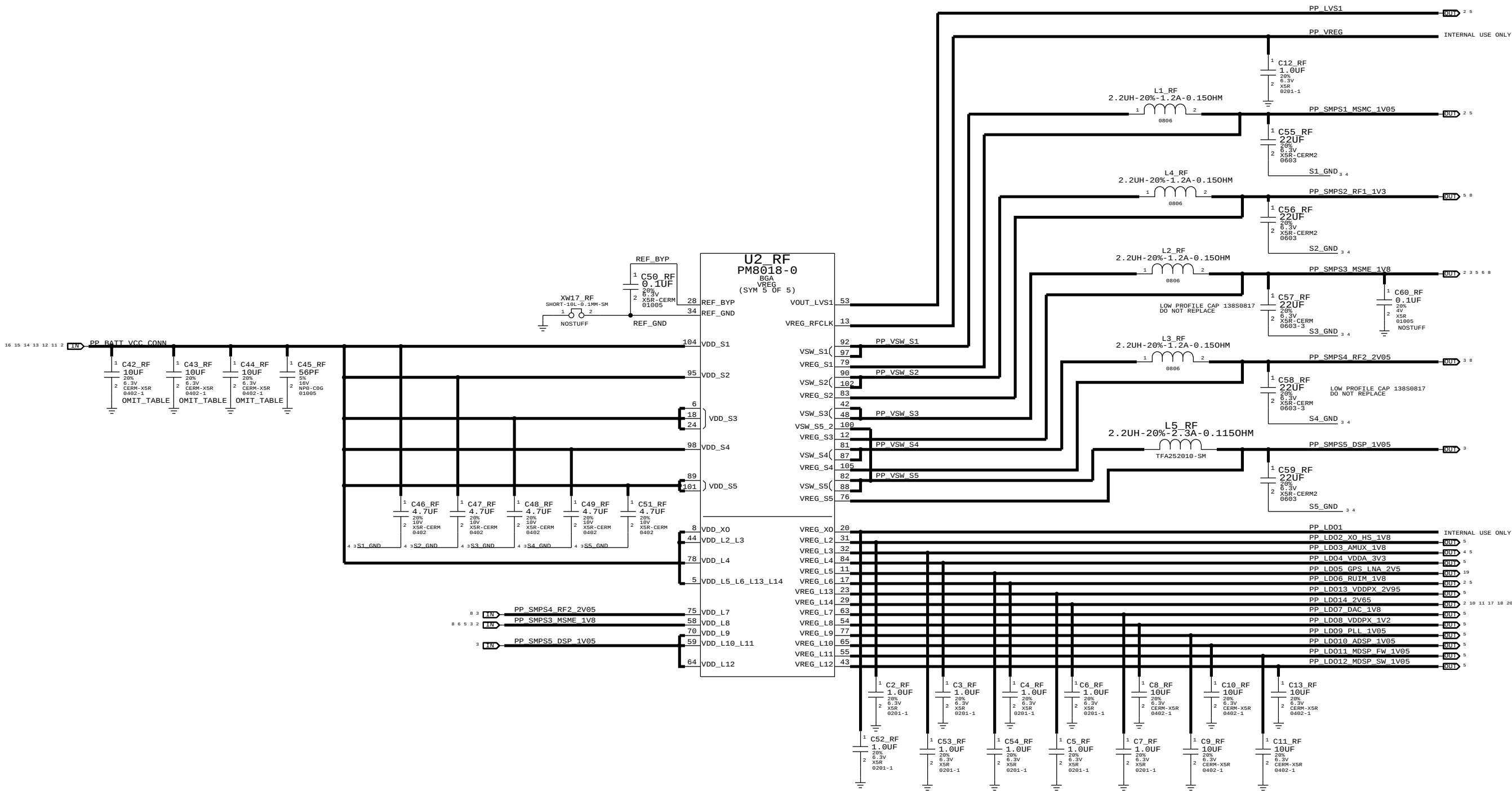
DEBUG CONNECTOR



BOOT OPTIONS	BOOT_CONFIG SW REGISTER VALUE	GPIO/BOOT_CONFIG CONFIGURATION							
		6	5	4	3	2	1	0	
BOOT_DEFAULT_OPTION	0x00	X	0	0	0	0	0	0	X
BOOT_NAND_OPTION	0x01	X	1	0	0	0	0	0	1
BOOT_HSIC_OPTION	0x02	X	1	0	0	0	0	1	0
BOOT_USB_OPTION	0x03	X	1	0	0	0	0	1	1
ENABLE_SAHARA_PROTOCOL	0x08	X	1	0	0	1	0	X	X



PMU (1 OF 2)



D



A

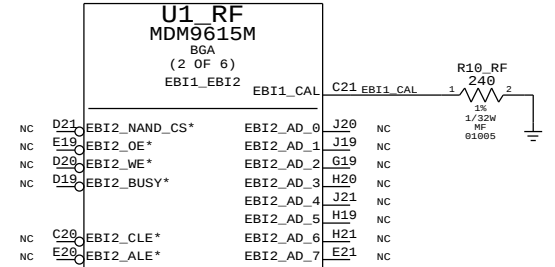
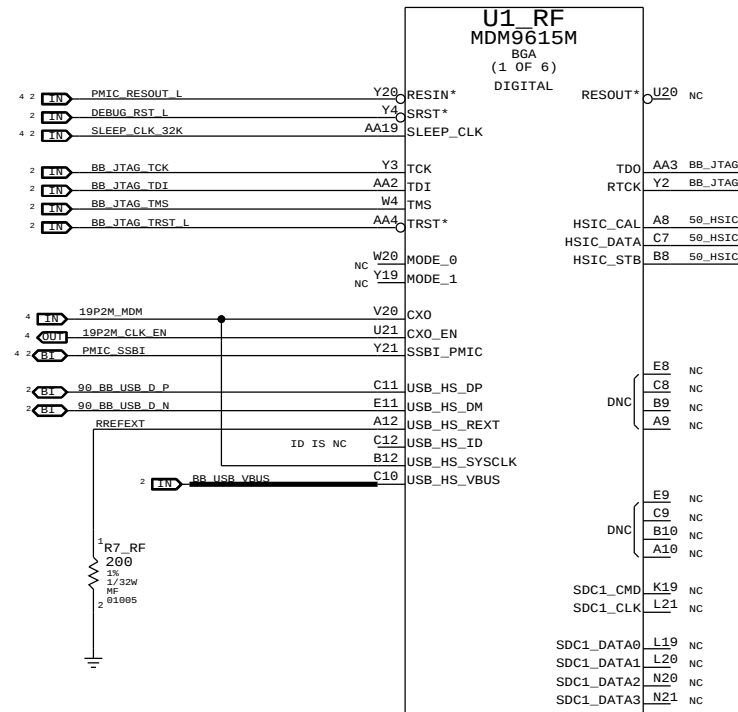
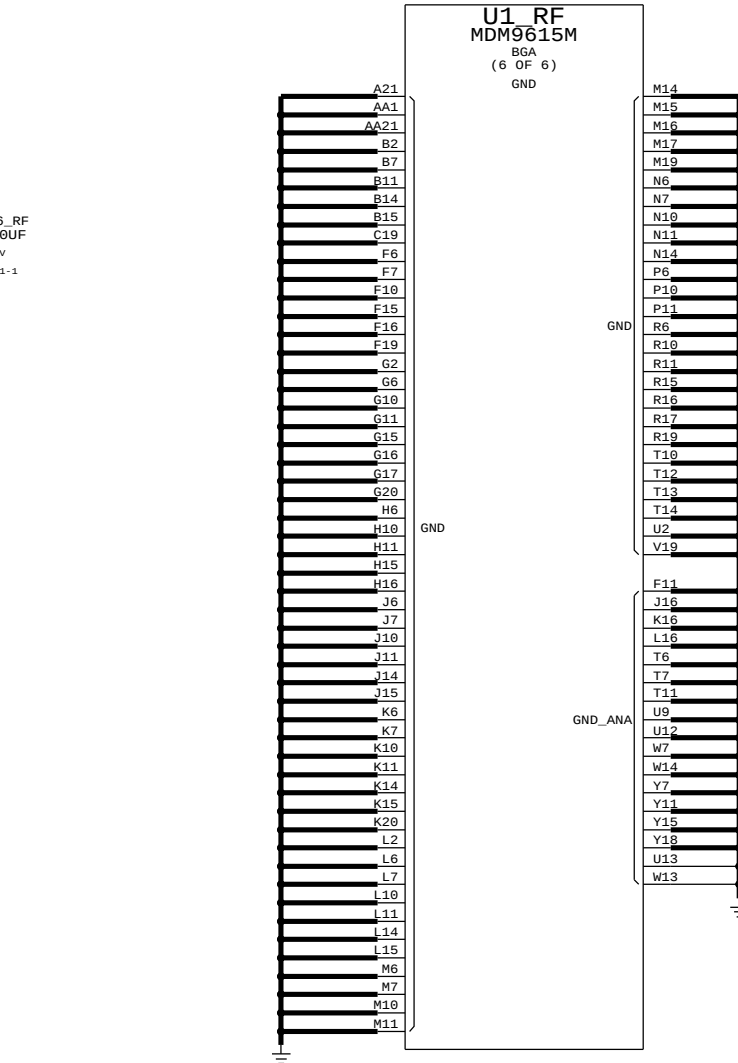
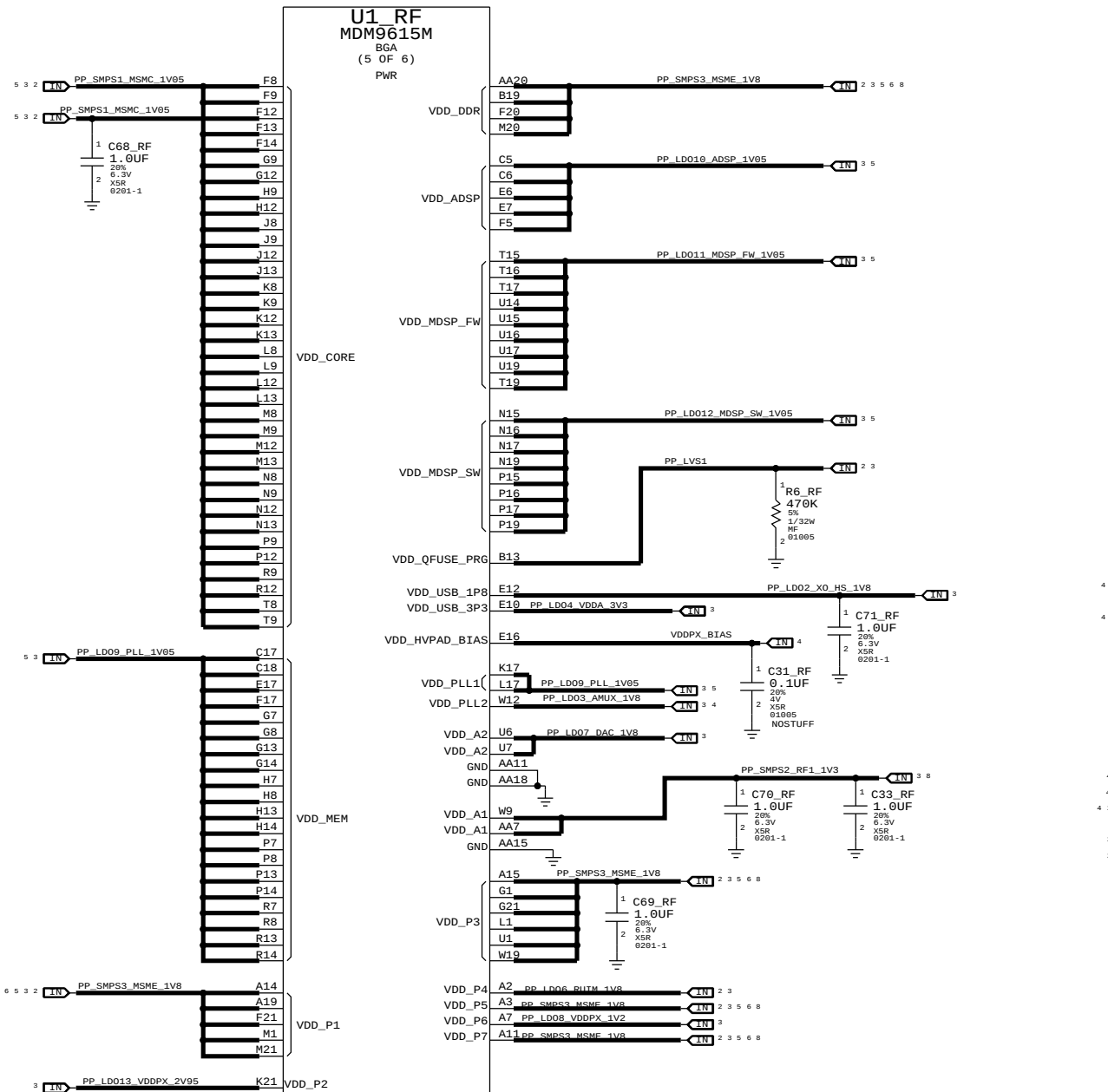
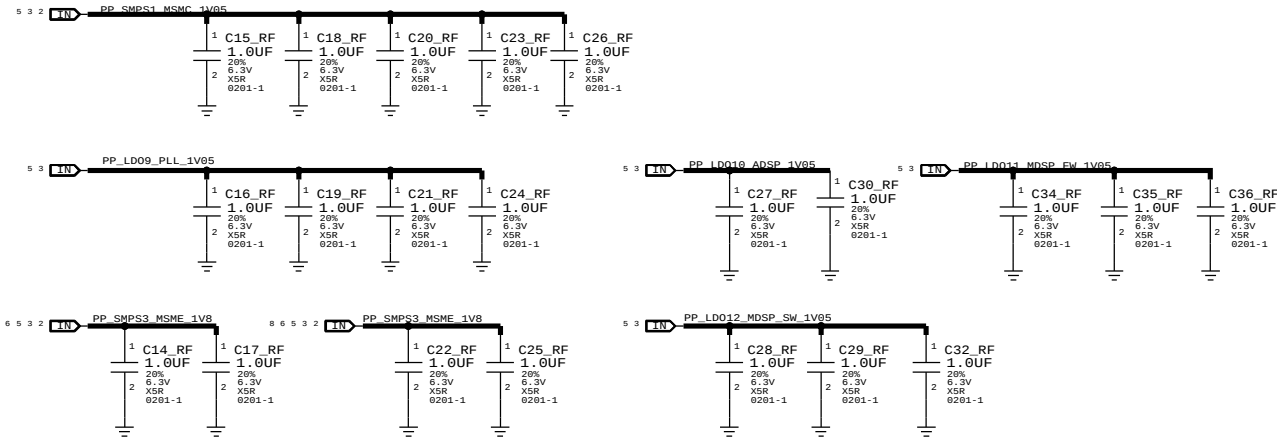
CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSE ONLY - NOT A CHANGE REQUEST



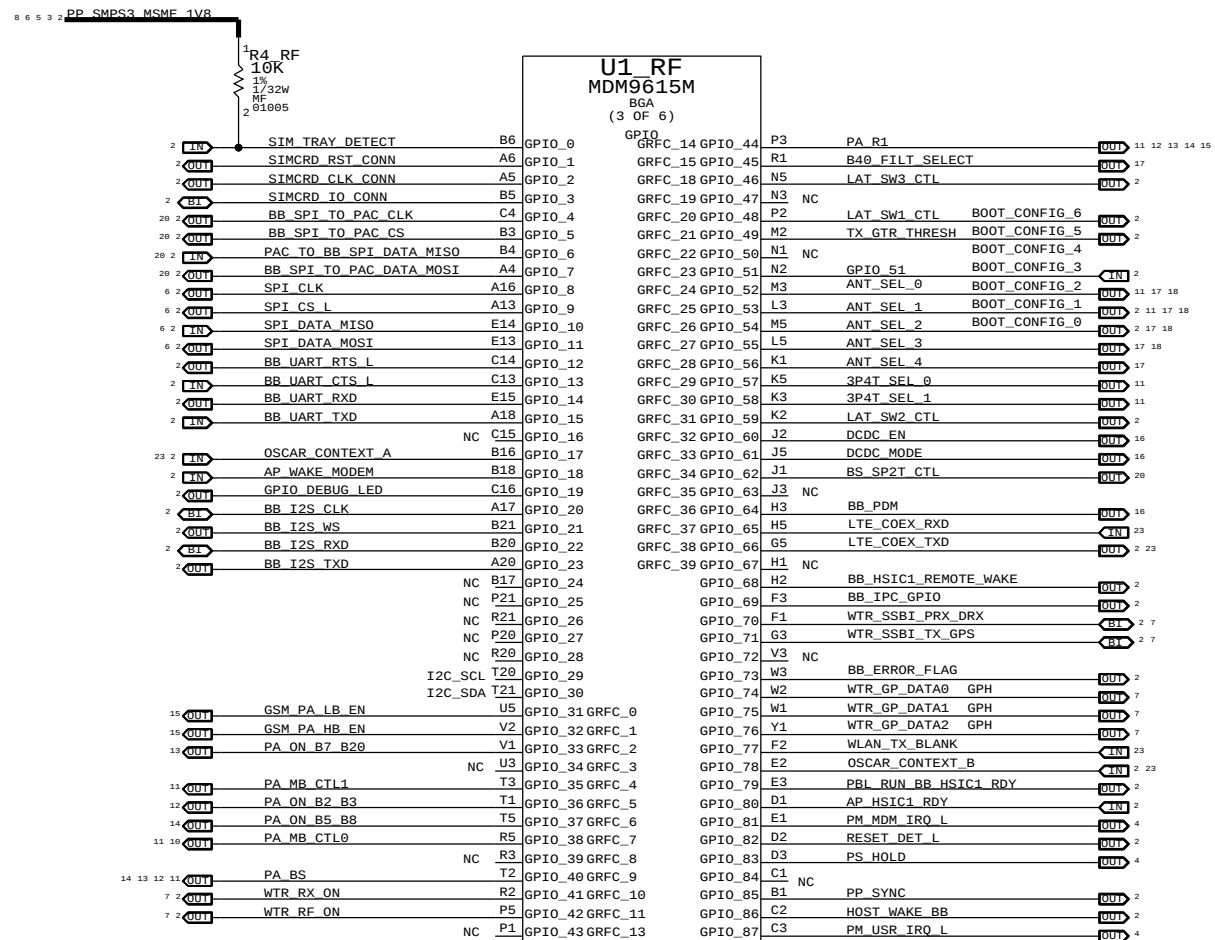
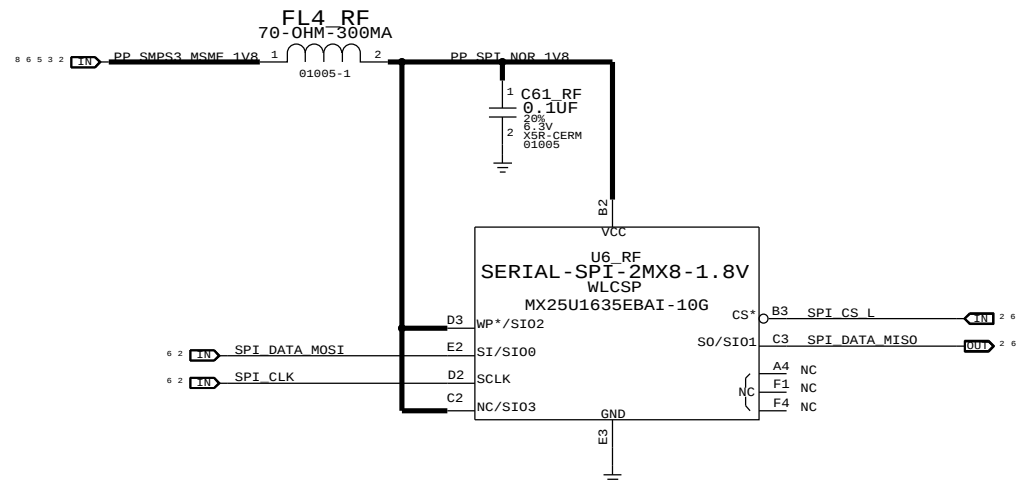
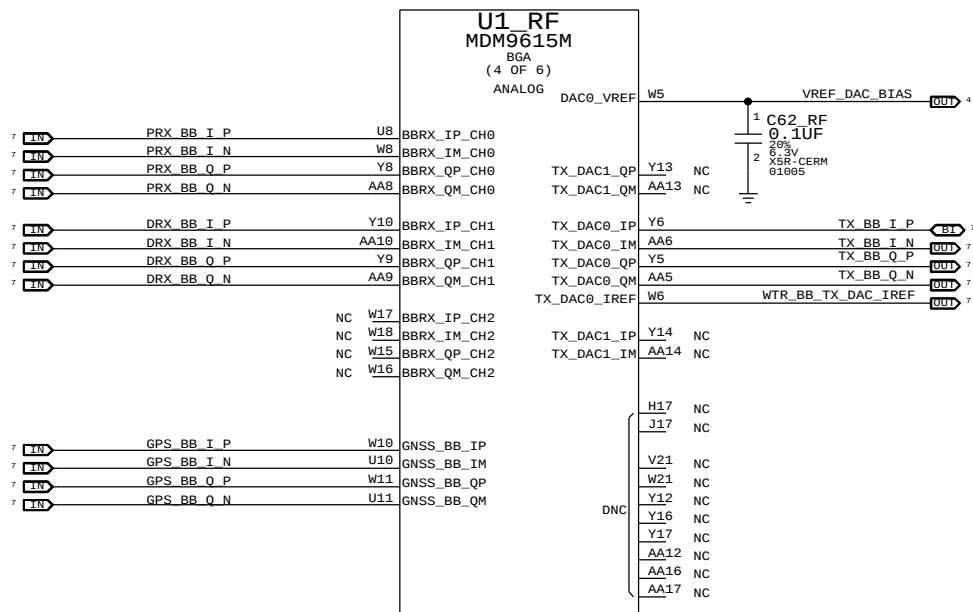
C



BASEBAND (1 OF 2)



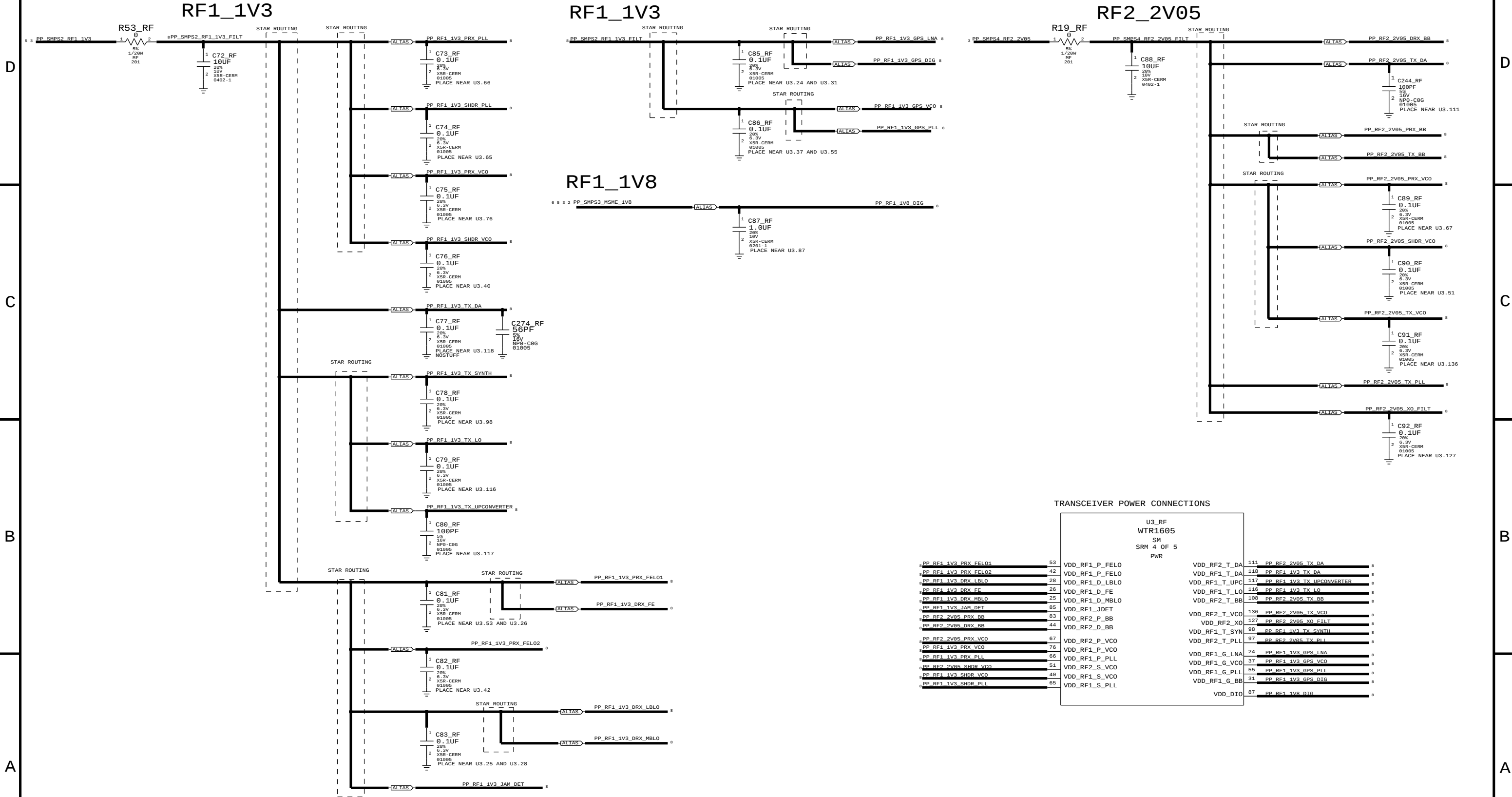
BASEBAND (2 OF 2)



A



RF TRANSCEIVER (2 OF 2)



RX MATCHING

D

D

C

L58_RF
1.3NH+/-0.1NH-600MA

L79_RF
4.7NH-3%-0.35A

L64_RF
1.3NH+/-0.1NH-600MA

C163_RF
0.6PF

L31_RF
12NH-5%-300MA-0.360HM

C164_RF
27PF

L27_RF
6.7NH-5%-0.46A-0.150HM

C161_RF
0.9PF

C165_RF
1.2PF

L32_RF
9.0NH-5%-300MA-0.350HM

C166_RF
27PF

L34_RF
4.8NH-5%-570MA-0.0960HM

C162_RF
1.2PF

L95_RF
12NH-3%-140MA

L55_RF
22NH-5%-0.1A

L96_RF
12NH-3%-140MA

L90_RF
10NH-3%-0.14A-2.10HM

L74_RF
18NH-3%-140MA

L91_RF
10NH-3%-0.14A-2.10HM

L92_RF
8.2NH-3%-140MA

L75_RF
22NH-5%-0.1A

L93_RF
8.2NH-3%-140MA

L900_RF
8.2NH+/-3%-0.25A-0.70HM

L26_RF
2.3-2.69GHZ
LLP

C67_RF
27PF

L7_RF
0.6NH+/-0.1NH-0.85A

L78_RF
3.0NH+/-0.1NH-0.45A

L25_RF
0.6NH+/-0.1NH-0.85A

L10_RF
1/20W MF 201

C114_RF
6.8NH-3%-0.3A

L11_RF
1/20W MF 201

C115_RF
6.8NH-3%-0.3A

L83_RF
0.00

C93_RF
4.3NH-3%-180MA

U26_RF
FIL_DIPLEXER_B38_B40
ACFM-2043-AP1
LGA

U16_RF
TX-BAND40-LTE
SAFEA2035MB0F57
LGA

L18_RF
1/20W MF 201

C111_RF
6.2NH-0.30A

L80_RF
2.0NH+/-0.1NH-0.6A

L99_RF
6.2NH-0.30A

B

B

A

A

8

7

6

5

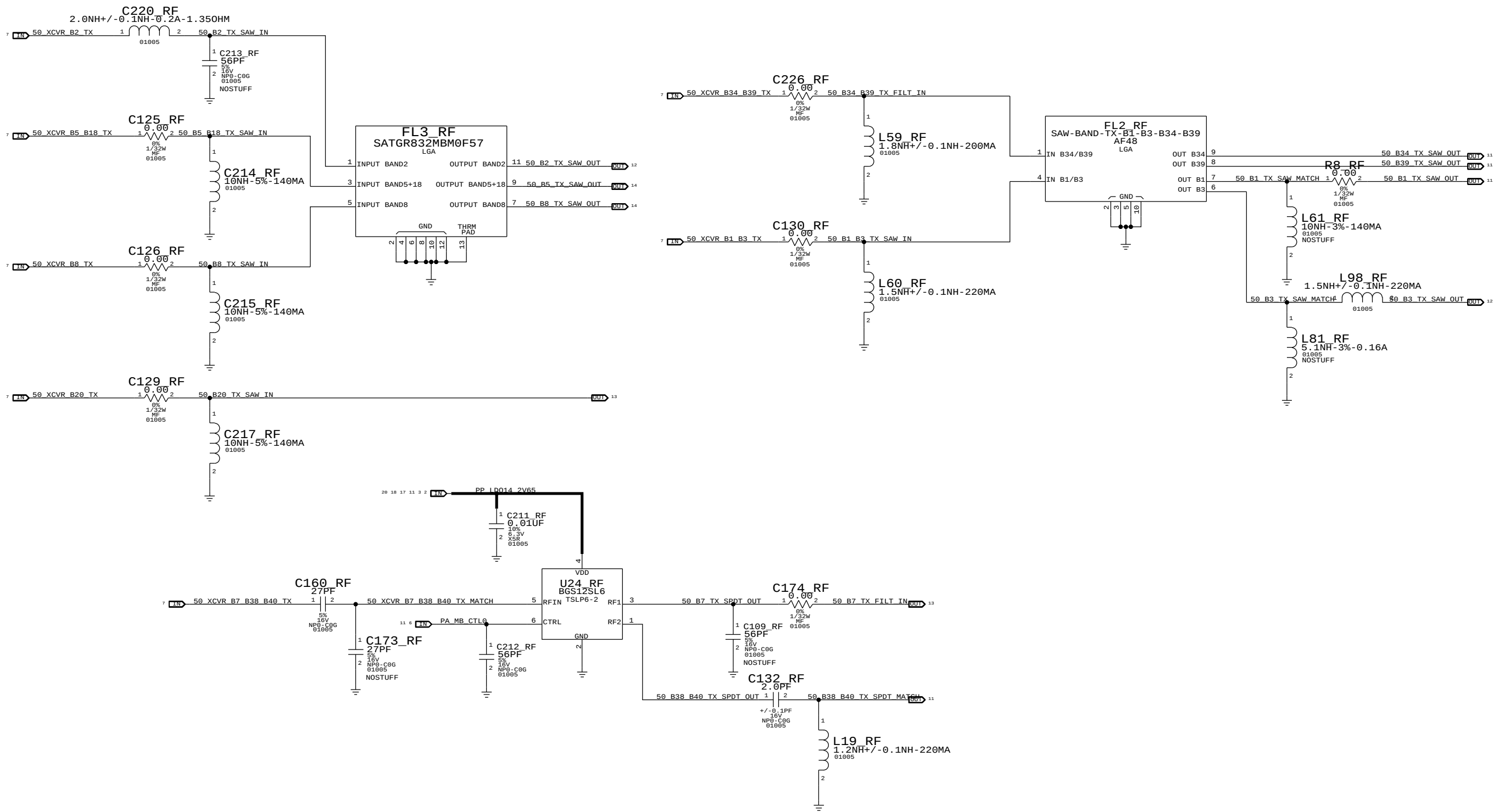
4

3

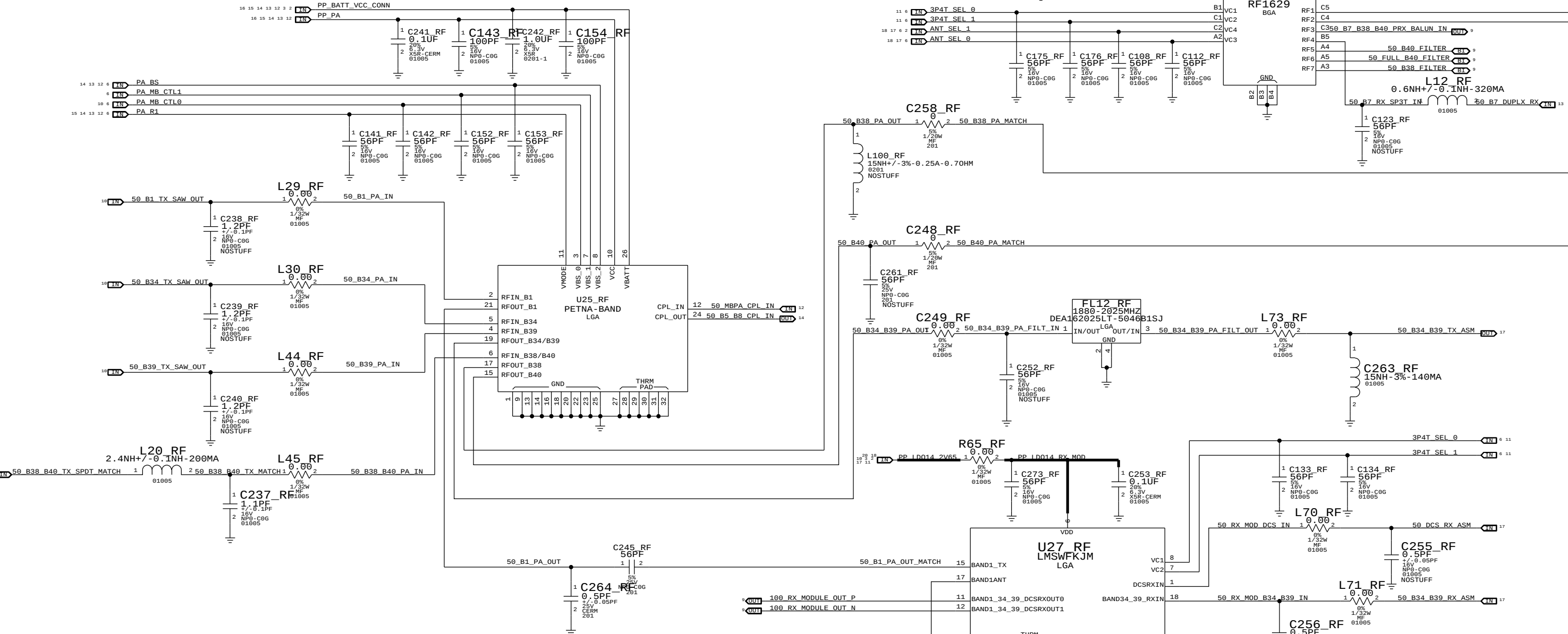
2

1

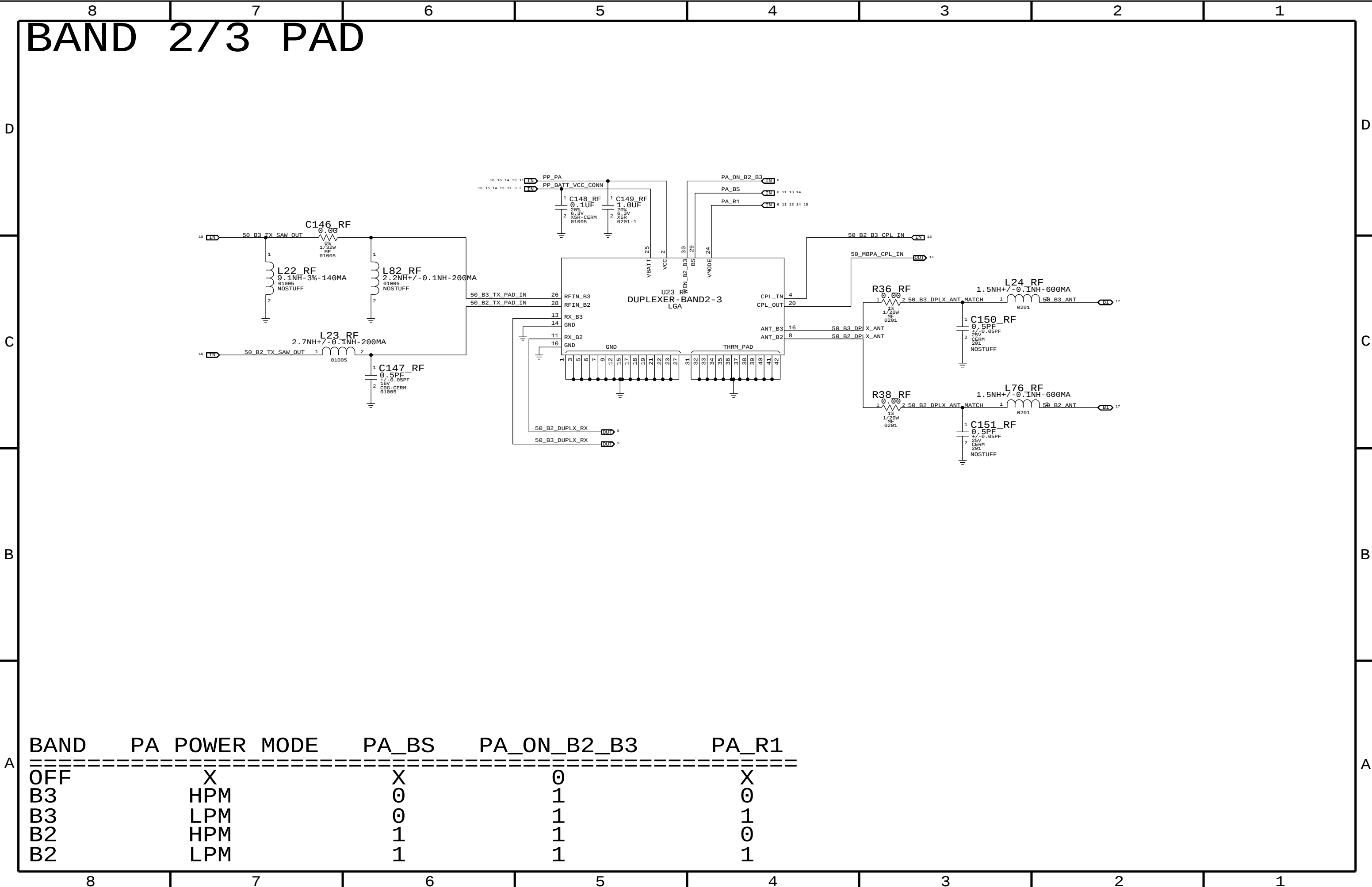
TX INTERSTAGE FILTERS



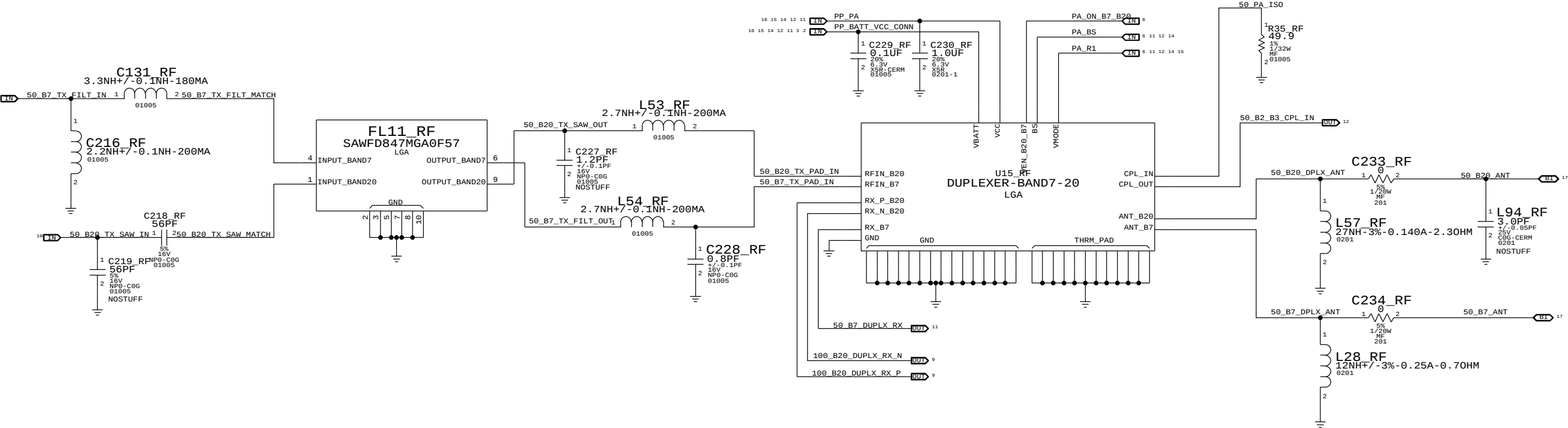
BAND 1/34/39/38/40 TX



BAND	PA	POWER	MODE	PA_BS	PA_CTL1	PA_CTL0	PA_R1
OFF		X		X	0	0	0
B1		HPM		X	1	0	0
B1		LPM		X	1	0	1
B34		HPM		1	0	1	0
B34		LPM		1	0	1	1
B39		HPM		0	0	1	0
B39		LPM		0	0	1	1
B38		HPM		1	1	1	0
B38		LPM		1	1	1	1
B40		HPM		0	1	1	0
B40		LPM		0	1	1	1

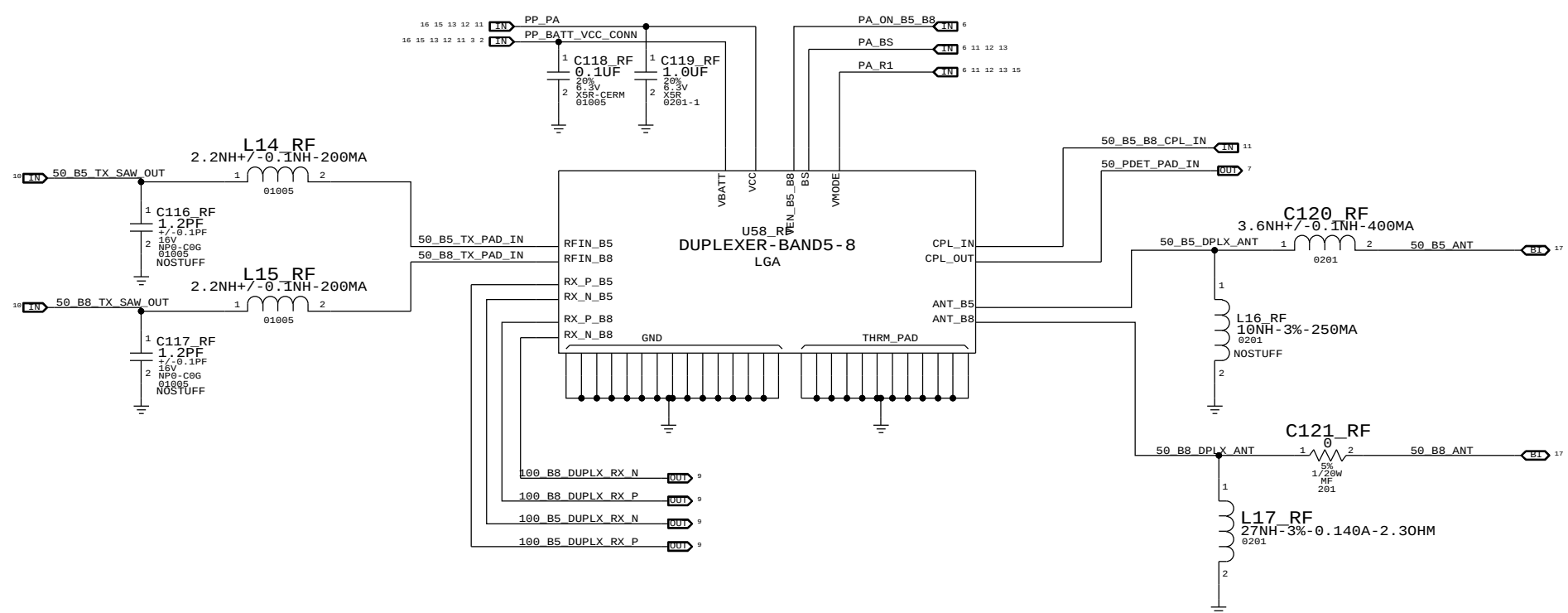


BAND 20/7 PAD



BAND	PA	POWER	MODE	PA_BS	PA_ON_B20_B7	PA_R1
OFF		X		X	0	X
B20		HPM		0	1	0
B20		LPM		0	1	1
B7		HPM		1	1	0
B7		LPM		1	1	1

BAND 5/8 PAD



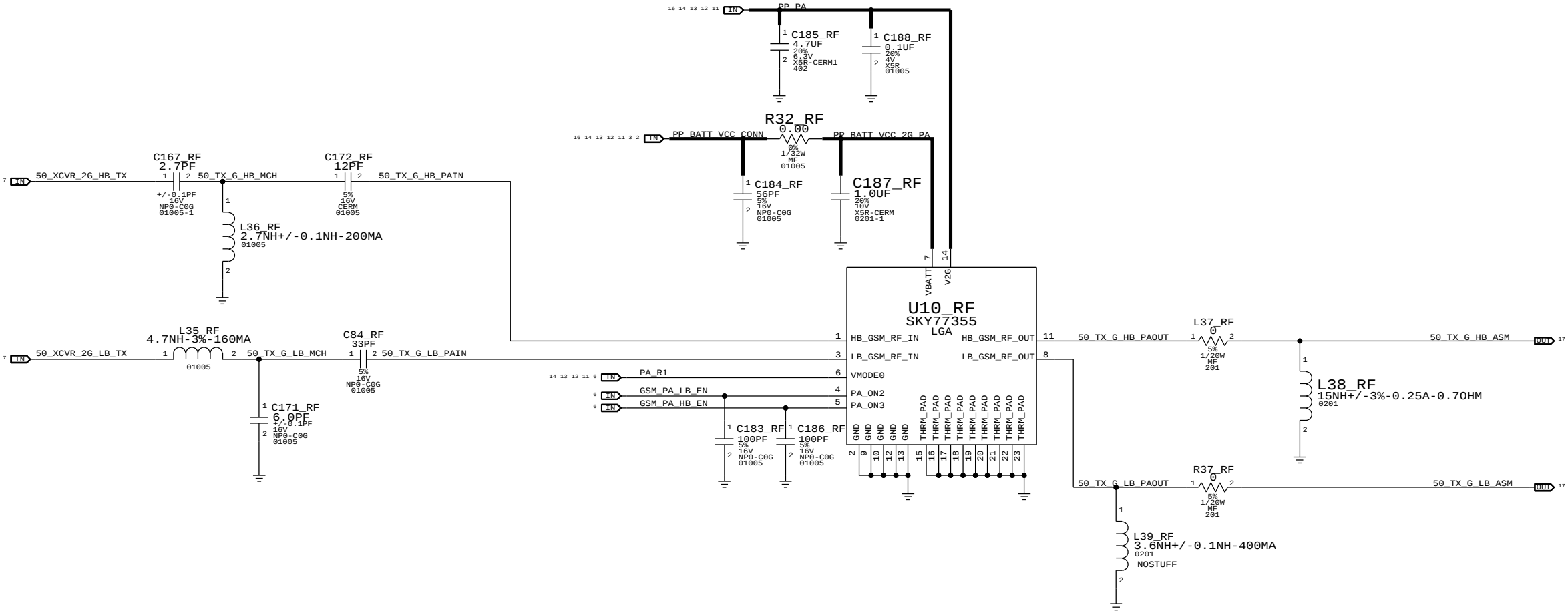
BAND	PA	POWER	MODE	PA_BS	PA_ON_B5_B8	PA_R1
OFF		X		X	0	X
B5		HPM		0	1	0
B5		LPM		0	1	1
B8		HPM		1	1	0
B8		LPM		1	1	1

2G PA

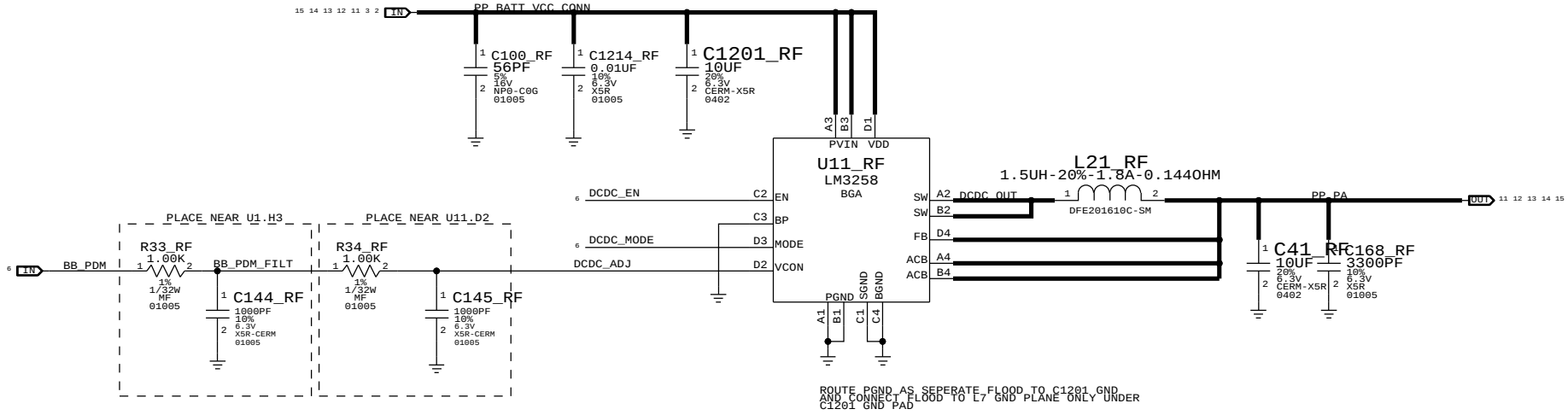
CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

2G PA GAIN MODES

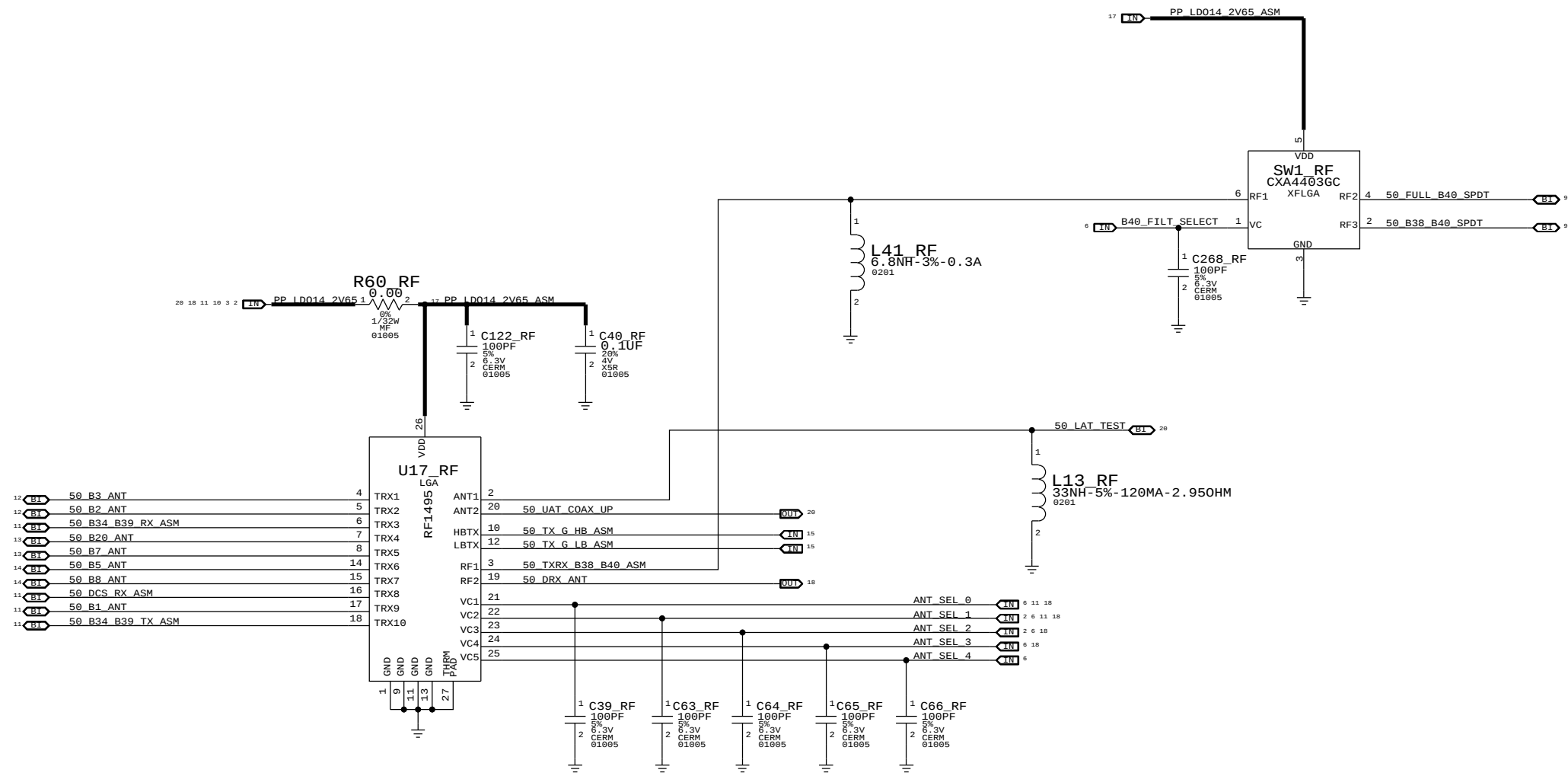
BAND	MODE	GAIN MODE	PA_R1	PCL RANGE
LOW BAND	GSM	ULTRA LOW	HIGH	16 TO 19
LOW BAND	GSM	LOW	HIGH	14 TO 15
LOW BAND	GSM	MEDIUM	LOW	7 TO 13
LOW BAND	GSM	HIGH	LOW	5 TO 6
HIGH BAND	GSM	ULTRA LOW	HIGH	10 TO 15
HIGH BAND	GSM	LOW	HIGH	7 TO 9
HIGH BAND	GSM	HIGH	LOW	0 TO 6
LOW BAND	EDGE	LOW	HIGH	15 TO 19
LOW BAND	EDGE	MEDIUM	LOW	10 TO 14
LOW BAND	EDGE	HIGH	LOW	8 TO 9
HIGH BAND	EDGE	LOW	HIGH	9 TO 15
HIGH BAND	EDGE	HIGH	LOW	2 TO 8



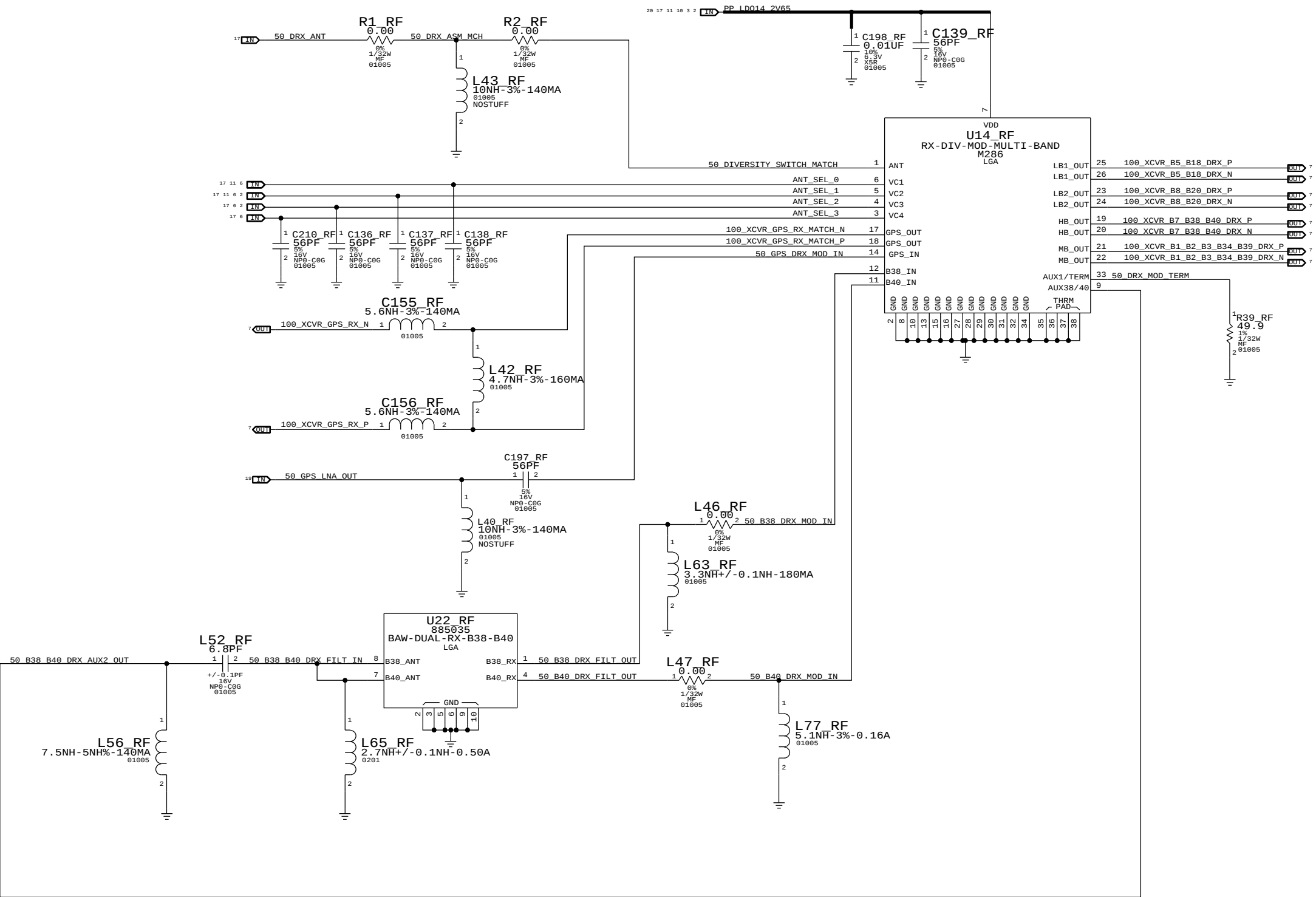
PA DC/DC CONVERTER

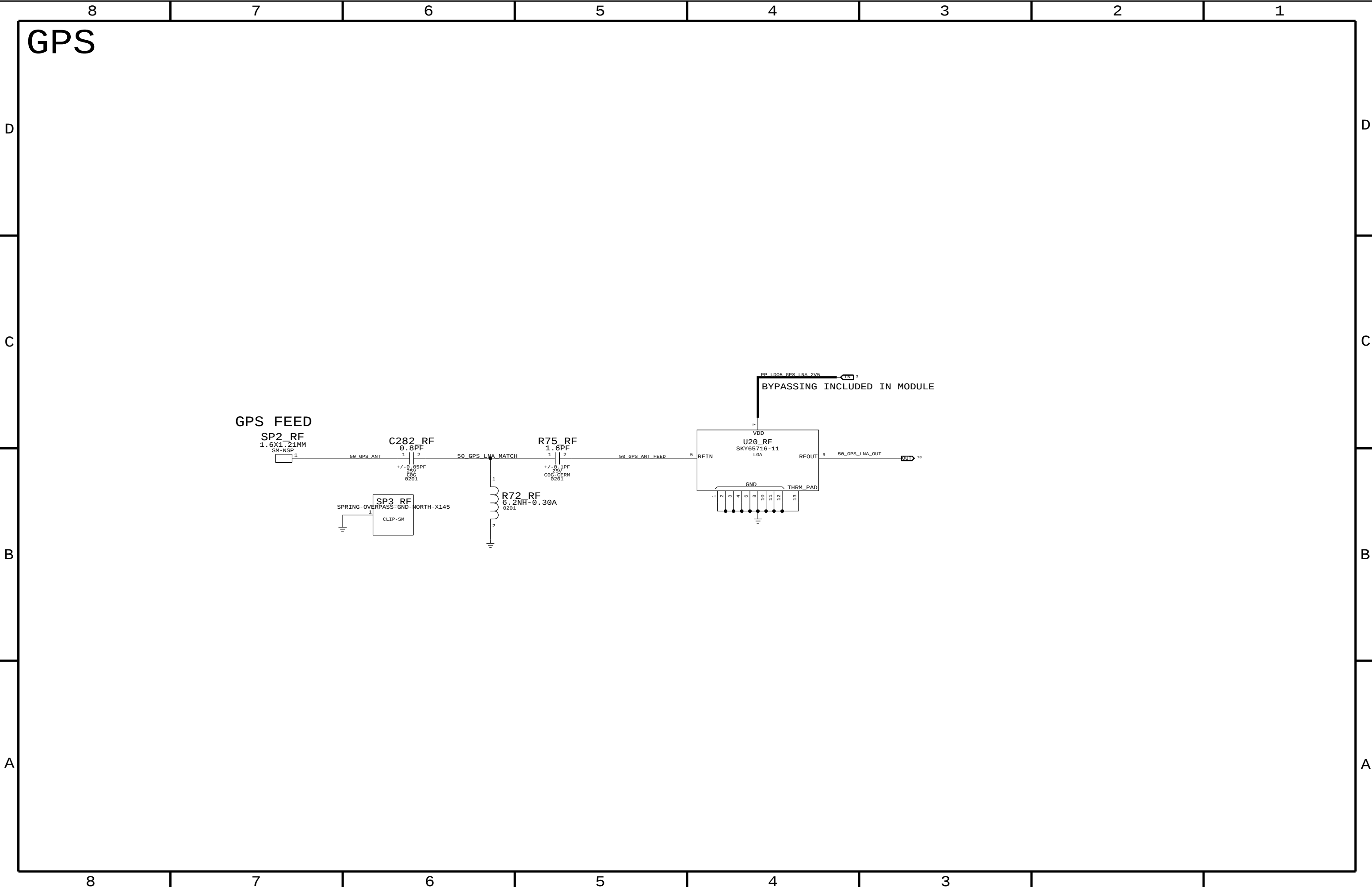


PRIMARY ASM



RX DIVERSITY





ANTENNA FEEDS

SP1_RF
1.6X1.21MM
SM-NSP

UAT1

UAT2

LAT

UAT1 COAX

J10_RF
MM5829-2700
F-ST-SM

J4_RF
MM5829-2700
F-ST-SM

J9_RF
MM8930-2600B
F-RT-SM

D



B

A

A