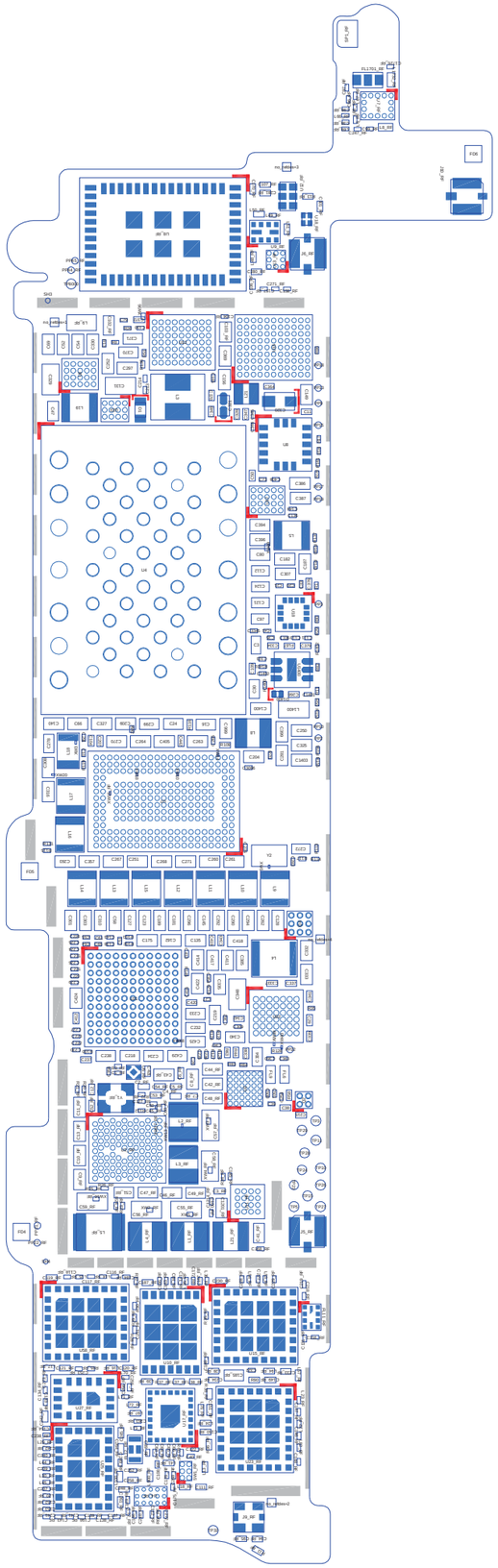
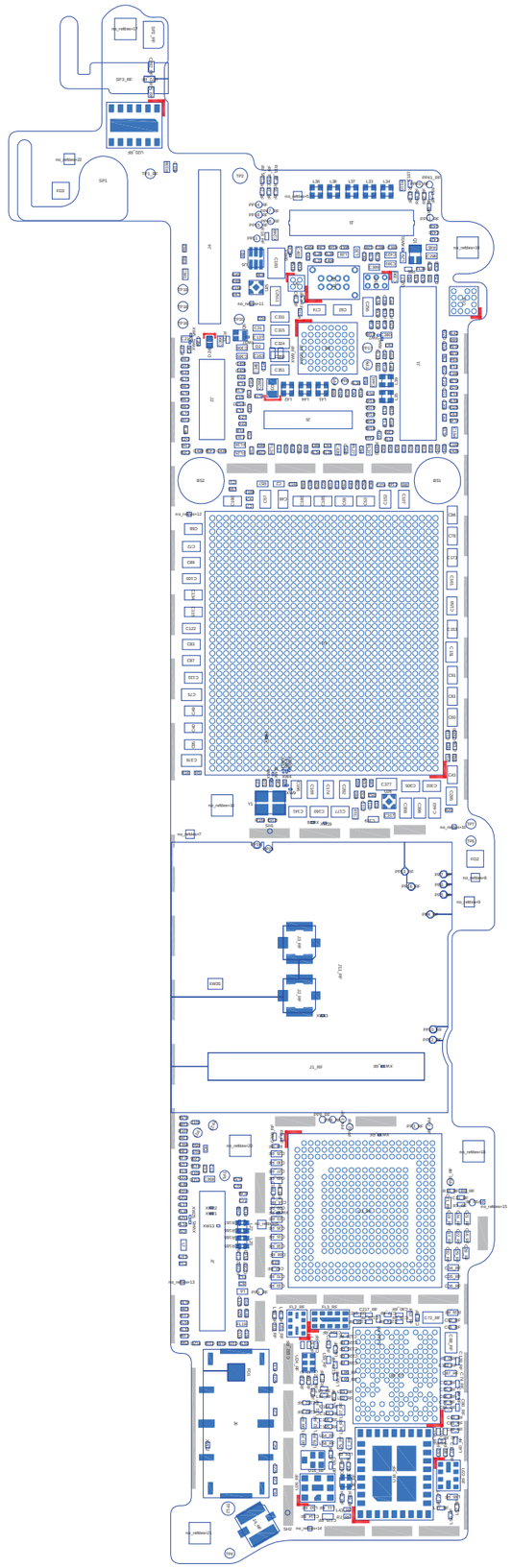
iPhone 5s (A1530)

Component Finder





SCH 051-9681
BRD 820-3382
MCO 056-5179
BOM 639-4159 (16GB) X152
BOM 639-4160 (32GB) X152
BOM 639-3973 (64GB) 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
PP_VCC_MAIN BULK CAP (AP)	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
PP_BATT_VCC BULK CAP (AP)	138S0801	5	HRZNTL CAPS_6: 10UF,0402,6.3V	C386,C387,C333,C332,C335	Y	HRZNTL_CAP_GRP6
PP_BATT_VCC BULK CAP (RF)	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	C1201_RF	Y	HRZNTL_CAP_GRP8
PP_VCC_MAIN BULK CAP (RF)	138S0801	1	HRZNTL CAPS_9: 10UF,0402,6.3V	C103_RF	Y	HRZNTL_CAP_GRP9
PP3V0_NAND BULK CAP	138S0801	4	HRZNTL CAPS_10: 10UF,0402,6.3V	C182,C307,C209,C187	Y	HRZNTL_CAP_GRP10
PP5V7_SAGE_AVDDH BULK CAP	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
BUCK0 SLAVE	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
BUCKXX MASTER	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
STROBE	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
BUCK5	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_TAYIO
SPKR AMP	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
CHARGER	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:	1110100X	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_DIFFPAIRS
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 20OHM 01005 5%, TRISTAR2	R102,R103	Y	TRISTAR2
118S0671	2	RES 15OHM 01005 5%, TRISTAR	R102,R103	Y	TRISTAR

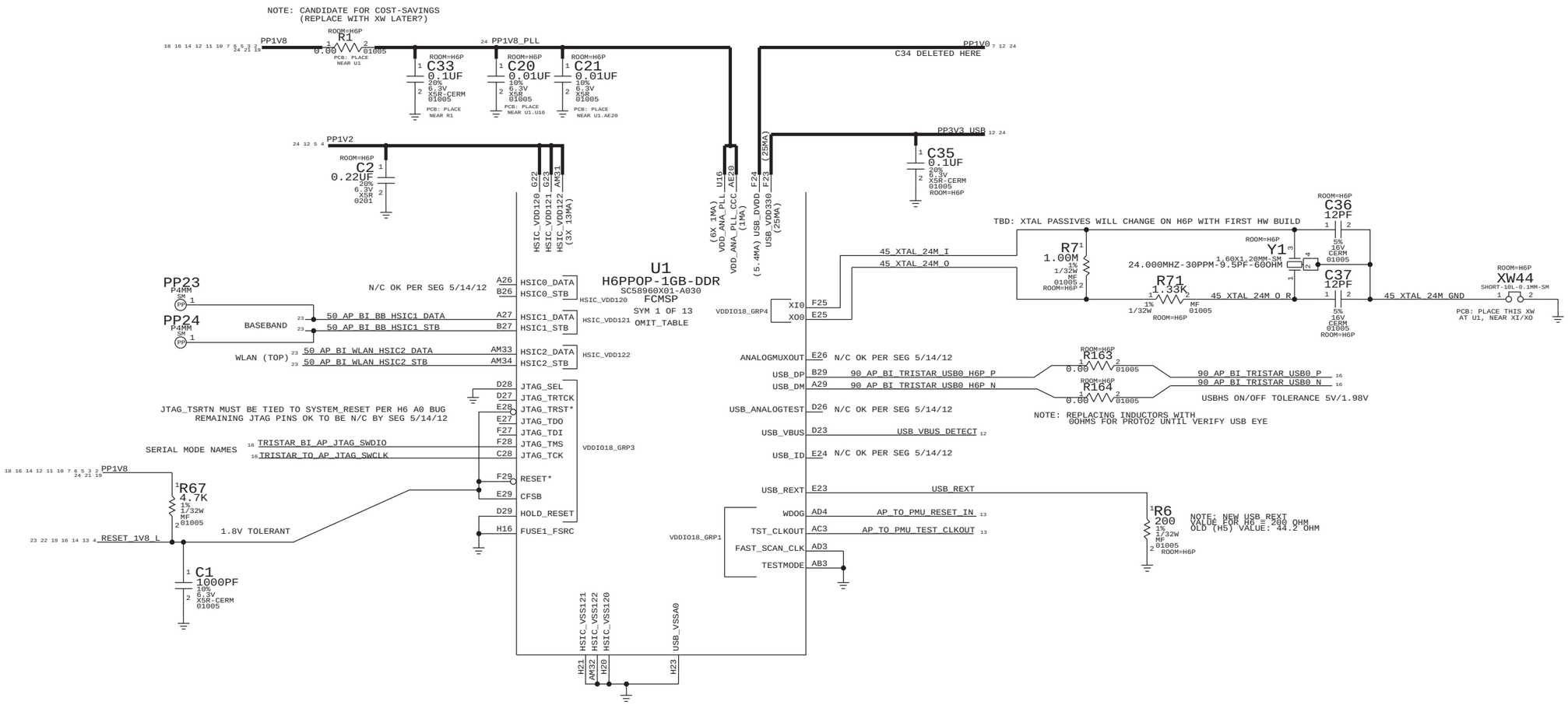
AUDIO BOM OPTION

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
155S0556	2	FERRITE 0402 P14OHM 1A	FL6, FL9	Y	SPKAMP_FERRITE_REG
155S0731	2	FERRITE 0402 P06OHM 1P8A	FL6, FL9	Y	SPKAMP_FERRITE_LOWDCR
116S0004	2	RESISTOR 0402 0OHM 1A	FL6, FL9	Y	SPKAMP_FERRITE_0OHM
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 0OHM	R128	Y	SPKAMP_SENSE_R_L20
118S0583	1	0201 0.1OHM	R128	Y	SPKAMP_SENSE_R_L19

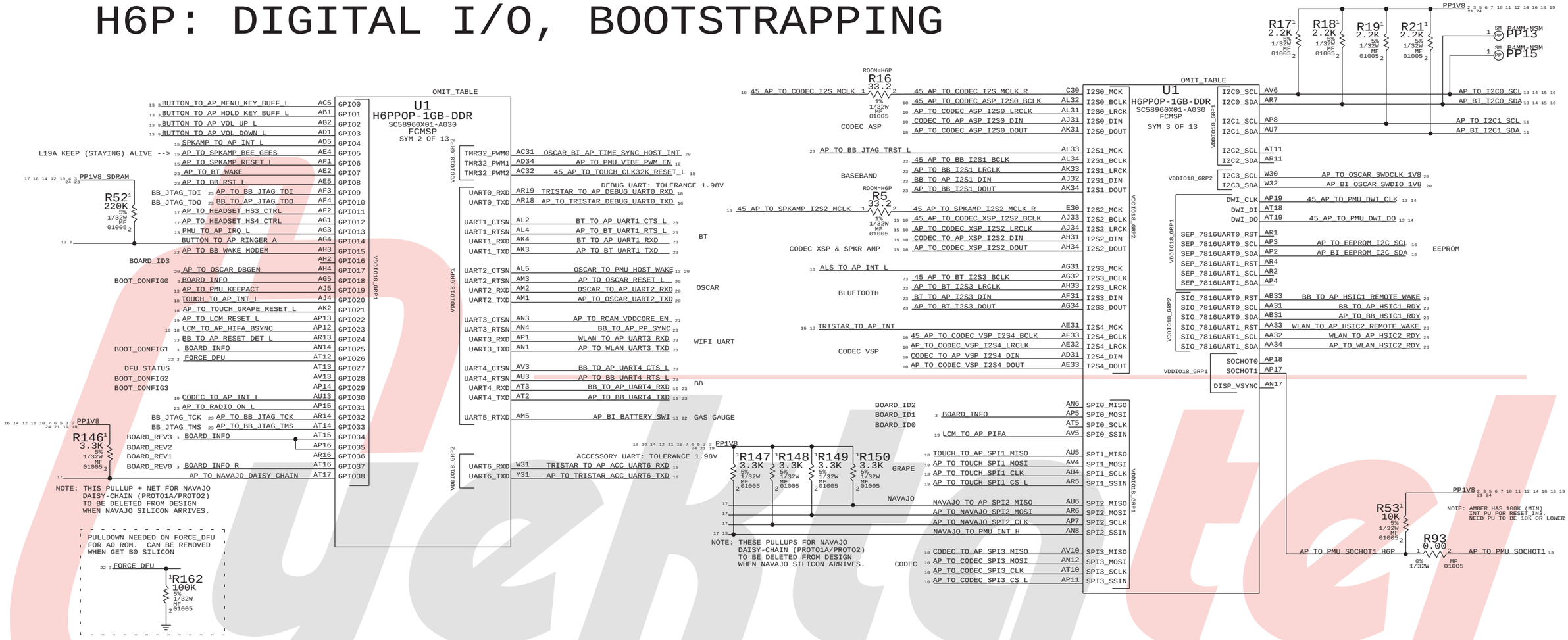
H6P: JTAG, USB, PLL, HSIC, XTAL

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



BOOTSTRAPPING (BOARD_REV, BOARD_ID, BOOT_CFG)

BOARD_REV[3:0]={GPIO34, GPIO35, GPIO36, GPIO37}

FLOAT=LOW, PULLUP=HIGH

1111	PROTO2/2A, TRISAR/L19	
1110	PROTO2A, TRISTAR2/L20	
1101	EVT1 MAIN BUILD	<--- SELECTED
1100	EVT1 MESA BUILD	<--- DNP R3000 TO SELECT

BOARD_ID[3:0]={GPIO16, SPIO0_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

COMMON PULL UP FOR BOARD_REV, BOARD_ID AND BOOT_CONFIG PINS

PP1V8

R12 1.00K 5% 1/32W MF 01005

BOARD_INFO

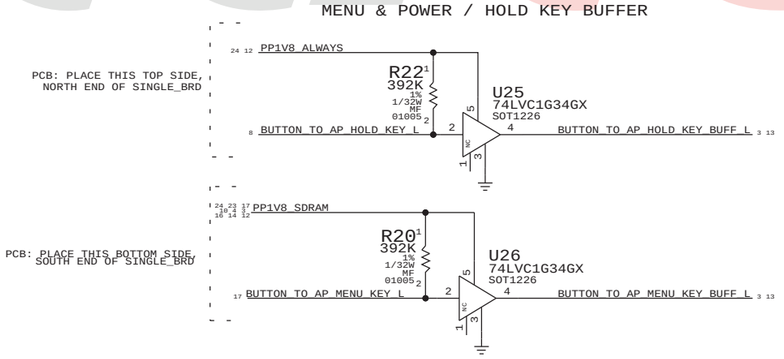
R12 MUST WIN OVER 6X INTERNAL PULL-DOWNS THAT ARE ~100K

R3000 0.00 0% 1/32W MF 01005

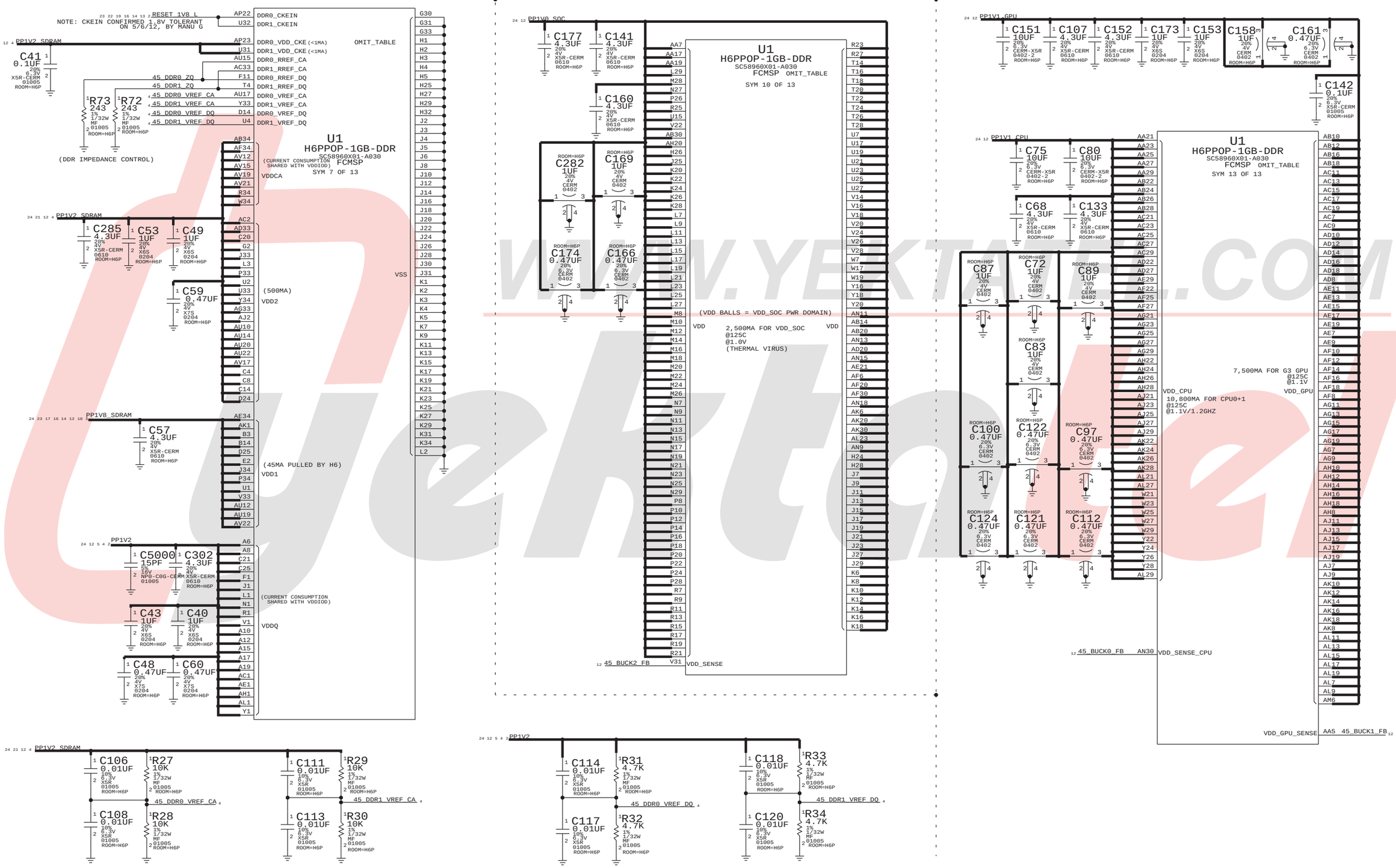
BOARD_INFO_R

BOMOPTION=MAIN_BUILD

MENU & POWER / HOLD KEY BUFFER



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



H6P

(GND, VDDIO18, VDDIOD, VDD_SRAM, VDD_SOC)

JUST A FEW GNDS

U1
H6PPOP-1GB-DDR
SC58960X01-A030
FCMSP
SYM 12 OF 13
OMIT_TABLE

AN32 AN33 AN34 AP6 AP20 AP21 AP24 AP25 AP26 AP27 AP28 AP29 AP30 AP31 AP32 AR3 AR8 AR12 AR15 AR17 AR20 AR21 AR22 AR23 AR24 AR25 AR28 AR29 AR32 AT1 AT4 AT6 AT20 AT21 AT22 AT23 AT24 AT25 AT26 AT27 AT28 AT29 AT30 AT31 AT32 AU1 AU2 AU11 AU16 AU18 AU21 AU33 AU34 AV1 AV2 AV9 AV11 AV14 AV16 AV18 AV20 AV33 AV34 B1 B2 B4 B5 B6 B7 B8 B9 B10 B11 B12 B13 B15 B16 B17 B18 B19 B25 B28 B30 B33 B34 C1 C2 C3 C5 C6 C7 C9 — VSS

C10 C11 C12 C13 C15 C16 C17 C18 C19 C22 C23 C24 C26 C27 C29 C31 D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D15 D16 D17 D18 D19 D20 D21 D22 D32 E1 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13 E14 E15 E18 E19 E20 E21 E22 E31 E32 E34 F2 F3 F4 F5 F6 F7 F8 F9 F10 F12 F13 F14 F15 F26 F30 F31 G1 G3 G4 G5 G6 G7 G8 G9 G10 G11 G12 G13 G14 G15 G26 G28 — VSS

U1
H6PPOP-1GB-DDR
SC58960X01-A030
FCMSP
SYM 11 OF 13
OMIT_TABLE

A1 A2 A3 A4 A5 A7 A9 A11 A13 A14 A16 A18 A25 A28 A30 A33 A34 AA1 AA2 AA3 AA4 AA8 AA10 AA12 AA14 AA16 AA18 AA22 AA24 AA26 AA28 AA30 AB5 AB7 AB9 AB11 AB13 AB15 AB17 AB19 AB21 AB23 AB25 AB27 AB29 AB32 AC4 AC8 AC10 AC12 AC14 AC16 AC18 AC20 AC22 AC24 AC26 AC28 AC30 AC34 AD2 AD7 AD9 AD11 AD13 AD15 AD17 AD19 AD21 AD23 AD25 AD29 AD32 AE3 AE8 AE10 AE12 AE14 AE16 AE18 AE22 AE24 AE26 AE28 AF5 AF7 AF9 AF11 AF13 AF15 AF17 AF19 — VSS

AF21 AF23 AF29 AF32 AG2 AG8 AG10 AG12 AG14 AG16 AG18 AG20 AG22 AG24 AG26 AG28 AG30 AH5 AH7 AH9 AH11 AH13 AH15 AH17 AH19 AH21 AH23 AH25 AH27 AH29 AH32 AJ1 AJ3 AJ8 AJ10 AJ12 AJ14 AJ16 AJ18 AJ22 AJ24 AJ26 AJ28 AJ30 AK5 AK7 AK9 AK11 AK13 AK15 AK17 AK19 AK21 AK23 AK27 AK29 AK32 AL3 AL6 AL8 AL10 AL12 AL14 AL16 AL18 AL20 AL22 AL24 AL26 AL28 AL30 AM4 AM7 AM18 AM30 AN2 AN5 AN7 AB6 AM9 AM11 AM13 AN16 AM15 AN19 AN20 AN21 AN22 AN23 AN24 AN31 — VSS

VDDIOD, VDDIO18

U1
H6PPOP-1GB-DDR
SC58960X01-A030
FCMSP
SYM 9 OF 13
OMIT_TABLE

24 12 4 2 PP1V2

CAPS FOR VDDIOD ARE SHARED WITH VDDQ

AM20 AM21 AM22 AM23 AM24 — VDDIOD_DDR0CA

R29 T29 U29 V29 — VDDIOD_DDR1CA

AA6 H6 H7 H8 H9 H10 H11 H12 H13 H14 H15 M6 N6 P6 R6 T6 U6 V6 W6 Y6 — VDDIOD_DDRDQ (1000MA)

R33 T1 T2 T3 T5 T7 T9 T11 T13 T15 T17 T19 T21 T23 T25 T27 T30 T31 T32 T33 T34 U3 U5 U8 U10 U12 U14 U18 U20 U22 U24 U26 U28 U30 U34 V2 V3 V4 V5 V7 V9 V11 V13 V15 V17 V19 V21 V23 V25 V27 V30 V32 V34 W1 W2 W3 W4 W5 W8 W10 W12 W14 W16 W18 W20 W22 W24 W26 W28 W33 Y2 Y3 Y4 Y5 Y7 Y9 Y11 Y13 Y15 Y17 Y19 Y21 Y23 Y27 Y29 Y32 AM17 Y30 AC6 AE6 AG6 AJ6 AE30 — VSS

CAPS FOR VDDIO18_X ARE SHARED WITH VDDIODX

14 12 11 10 7 6 5 3 2 24 21 19 18 16 PP1V8

C30 4.7UF 20% 6.3V X5R 402 ROOM=H6P
C78 1UF 20% 4V X6S 0204 ROOM=H6P
C86 1UF 20% 4V X6S 0204 ROOM=H6P
C95 0.47UF 20% 4V X7S 0204 ROOM=H6P

AD6 AH6 AM8 AM10 AM12 AM14 AM16 AM19 — VDDIO18_GRP1 (65MA) (GPIO,UART,SPI,I2C) (SENSOR,SOCHOT,PMU)

AD30 AH30 — VDDIO18_GRP2 (20MA) (I2S,TMR,SIO,GPIO,UART)

G25 G27 H30 K30 M30 P30 G29 — VDDIO18_GRP3 (31MA) (PPN,GPIO,JTAG)

ROOM=H6P
FL67
1KOHM-25%-0.2A
0201

PP1V8_XTAL G24 — VDDIO18_GRP4 (2MA) (XTAL I/O)

C379 1.0UF 20% 10V X5R-CERM 0201-1 ROOM=H6P

VDD_SRAM, VDD_SOC

U1
H6PPOP-1GB-DDR
SC58960X01-A030
FCMSP
SYM 8 OF 13
OMIT_TABLE

L4 L5 L6 L8 L10 L12 L14 L16 L18 L20 L22 L24 L26 L28 L30 L33 M1 M2 M3 M4 M5 M7 M9 M11 M13 M15 M17 M19 M21 M23 M25 M27 M29 M31 N2 N3 N4 N5 N8 N10 N12 N14 N16 N18 N20 N22 N24 N26 N28 N30 N33 P1 P2 P3 P4 P5 P7 P9 P11 P13 P15 P17 P19 P21 P23 P25 P27 P29 R2 R3 R4 R5 R8 R10 R12 R14 R16 R18 R20 R22 R24 R26 R28 R30 R31 — VSS

24 12 PP1V0_SRAM

C305 4.3UF 20% 4V X5R-CERM 0610 ROOM=H6P
C81 1UF 20% 4V X6S 0204 ROOM=H6P
C115 1UF 20% 4V X6S 0204 ROOM=H6P
C91 0.47UF 20% 4V X7S 0204 ROOM=H6P
C134 0.47UF 20% 4V X7S 0204 ROOM=H6P

AD24 AD26 AD28 AE23 AE25 AE27 AF24 AF26 AF28 AK25 Y25 — VDD_SRAM_CPU 1,500MA FOR CYCLONE + M$ SRAM @125C @1.0V

AA9 AA11 AA13 AA15 AB8 T8 T10 T12 U9 U11 U13 V8 V10 V12 W9 W11 W13 W15 Y8 Y10 Y12 Y14 — VDD_SRAM_SOC (1500MA)

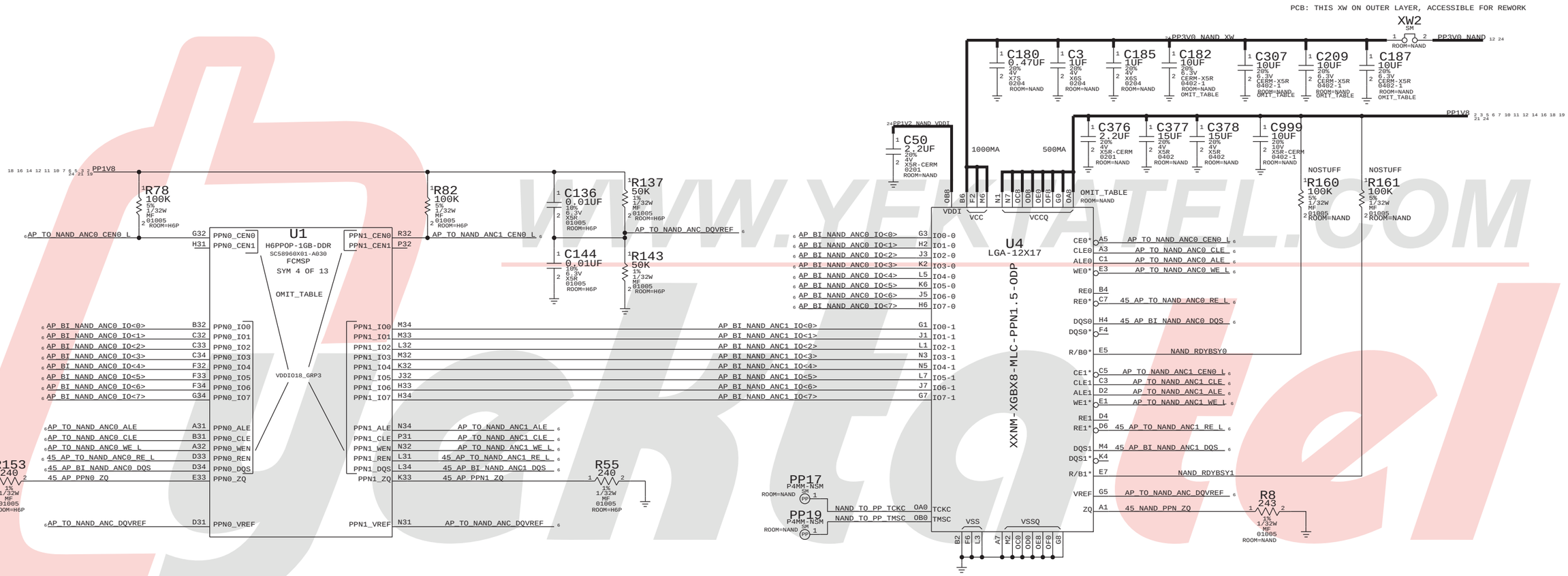
16 14 12 11 10 7 6 5 3 2 24 21 19 18 PP1V8

C85 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=H6P

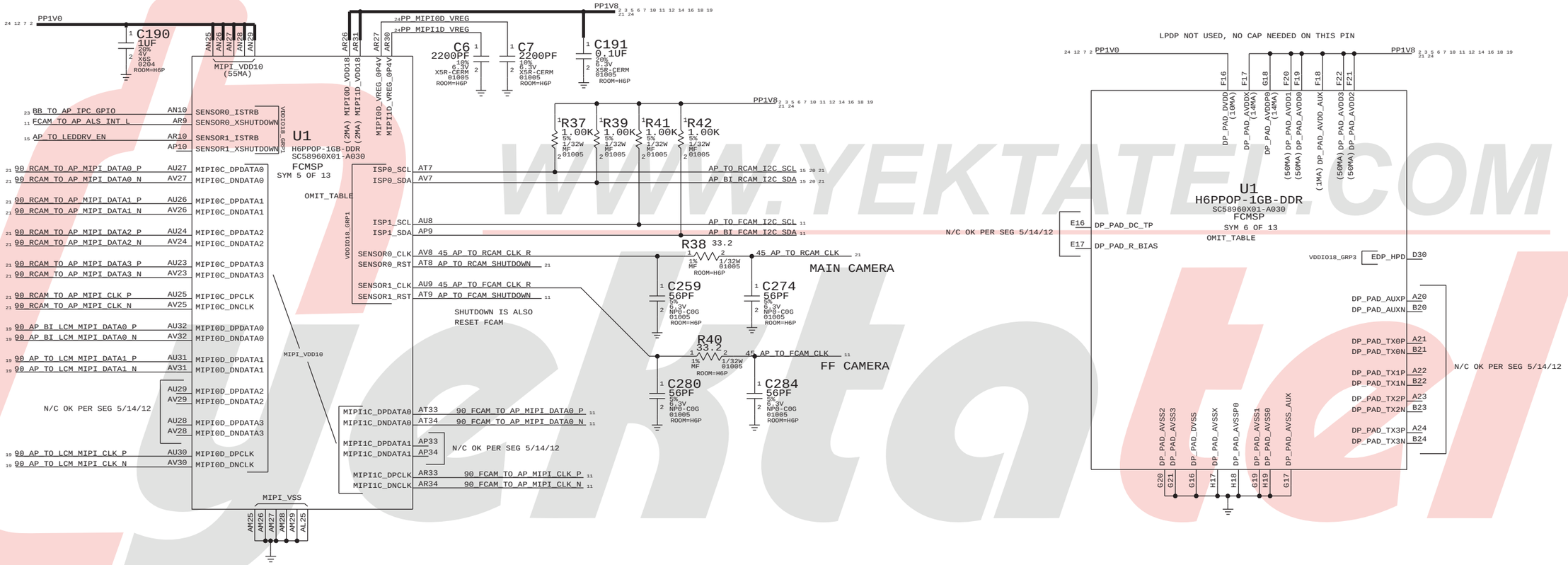
AJ20 — VDD_ANA_TMPSADC0(2.5MA)
AA20 — VDD_ANA_TMPSADC1(2.5MA)
AB4 — VDD_ANA_TMPSADC2(2.5MA)
H22 — VDD_ANA_TMPSADC3(2.5MA)

H6P NAND + 12X17 NAND PKG

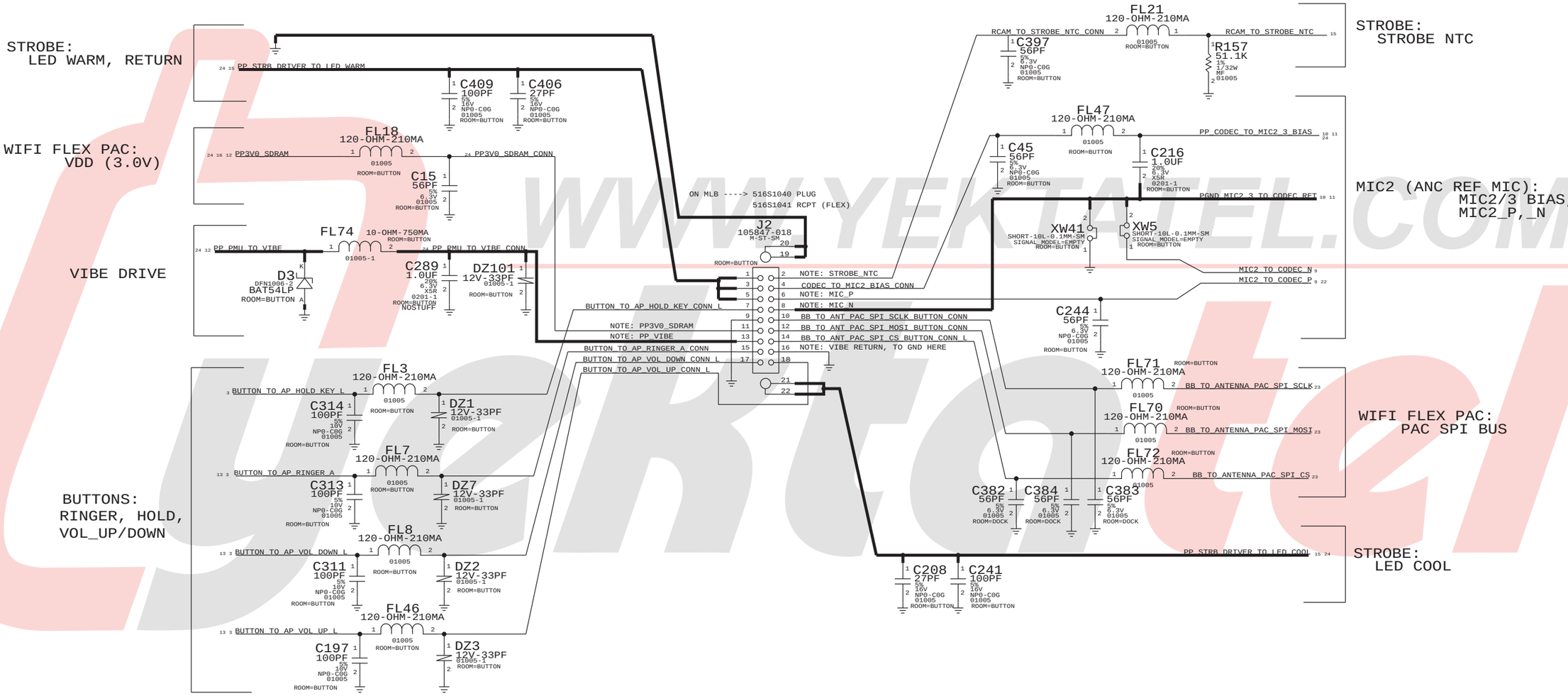
SUPPORT FOR PPN1.5 (1.8V IO) ONLY



H6P HIGH SPEED DIG (CAM, LCD, DP)



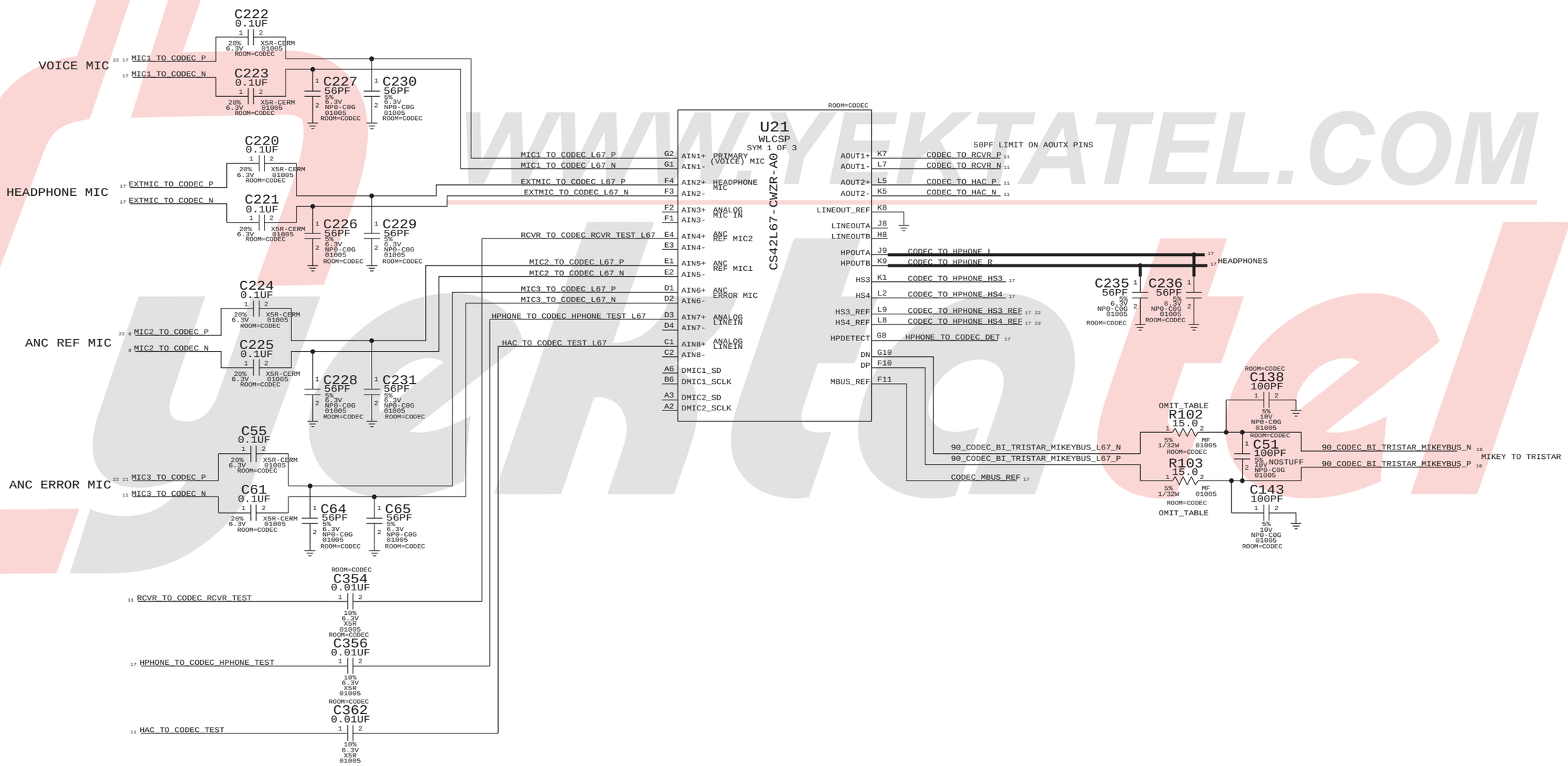
BUTTON FLEX (VIBE DRIVER, BUTTONS, ANC REF MIC, STROBE, STROBE_NTC)



L67 AUDIO CODEC

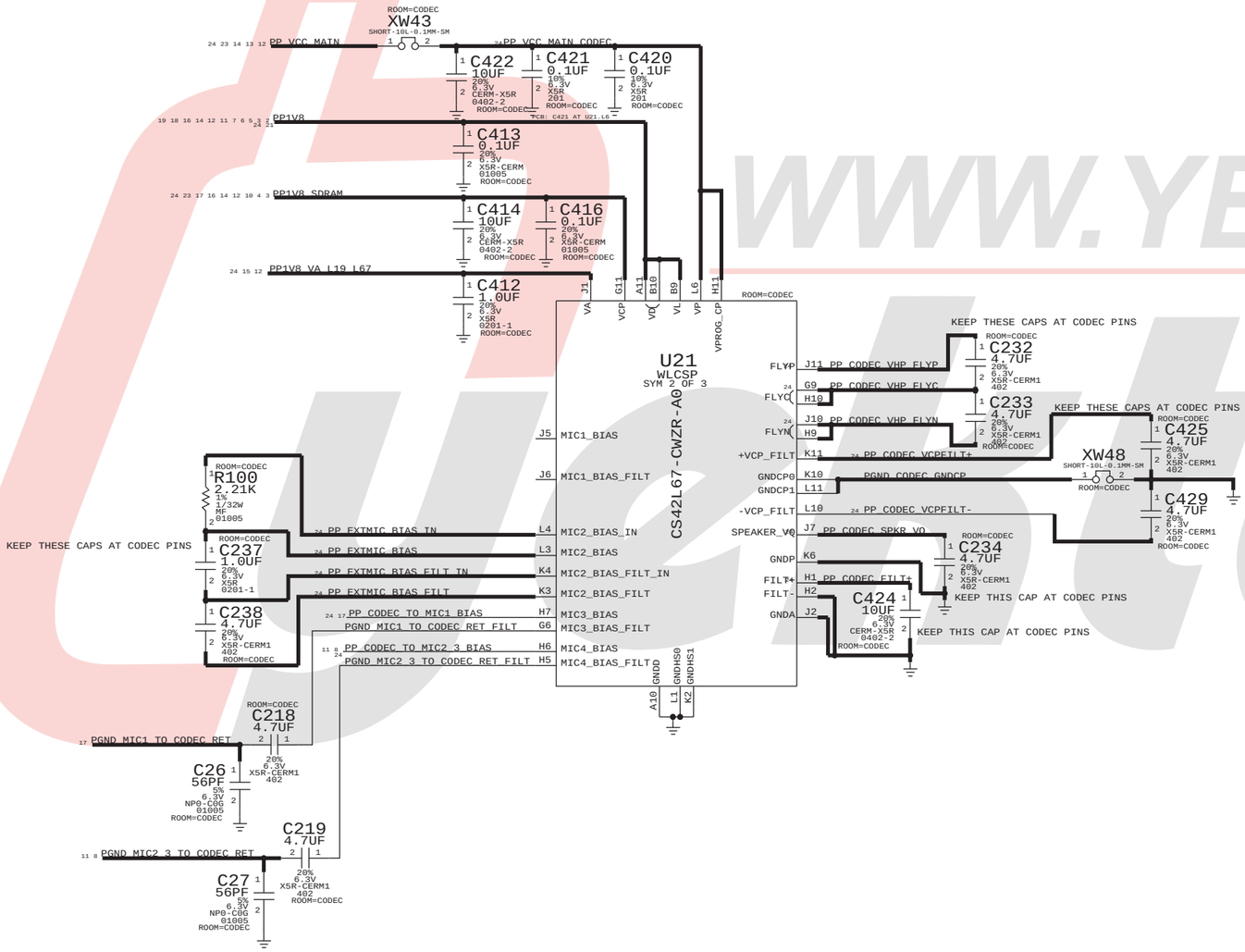
AUDIO I/O

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

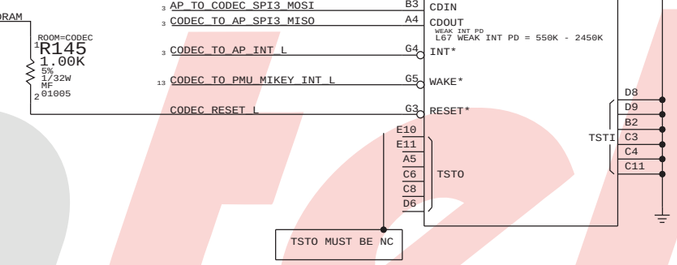


L67 AUDIO CODEC

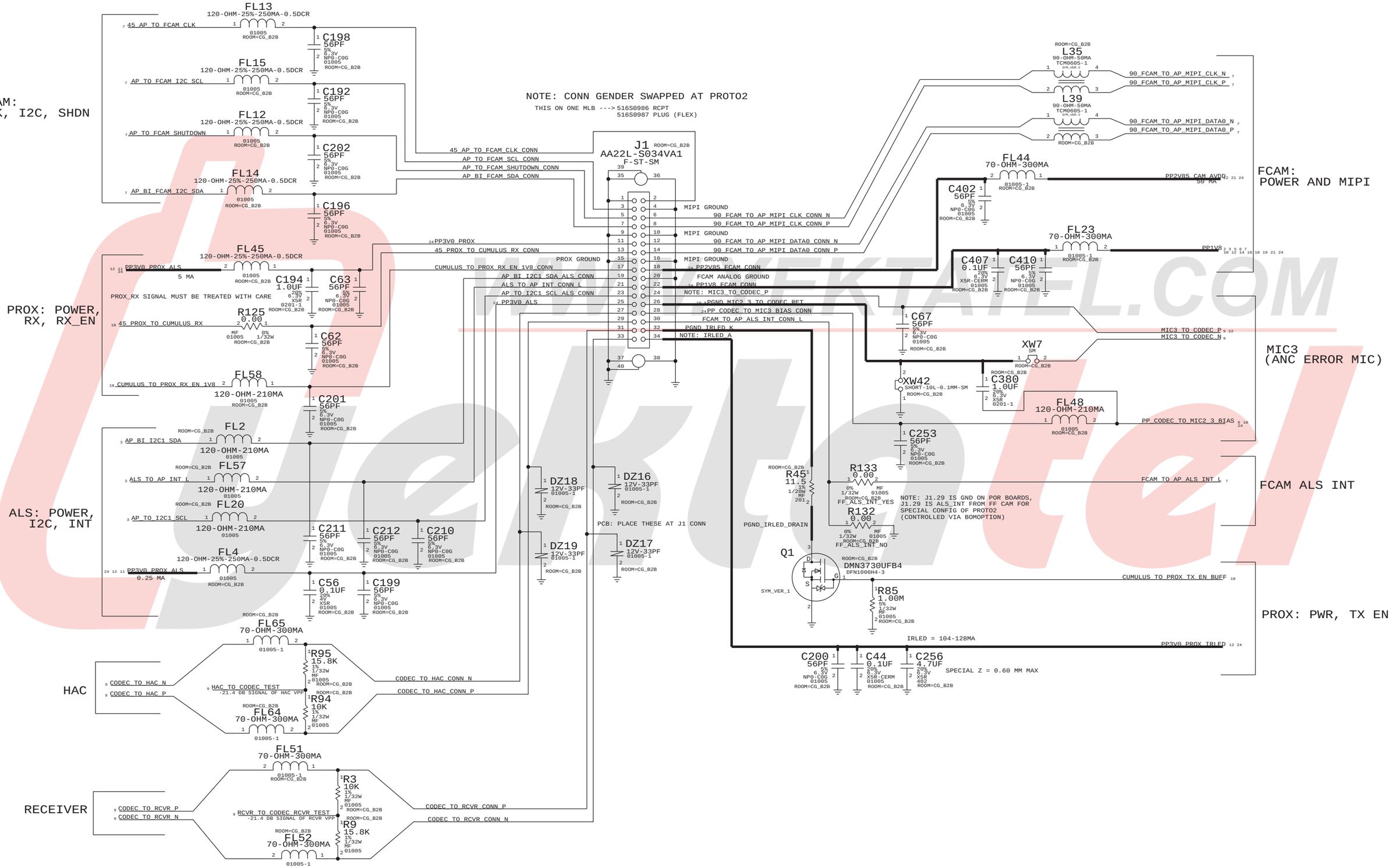
POWER, MICBIAS



DIGITAL SYSTEM I/O



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



AMBER PMU

(BUCK, LDO, VIBE DRIVER, 32K, CHARGER)

TO DO: GEERTJAN TO UPDATE VALUE
OF R70 WITH H6P (EXPECTED TO CHANGE)

R70 68.1K 1% 1/32W MF 01005 ROOM=PMU
USB_VBUS_DETECT
PP_PMU_VCENTER
C3096 56PF 5% 16V NP0-C0G 01005 ROOM=PMU
C204 10UF 20% 6.3V CERM-X5R 0402-2 ROOM=PMU
C281 10UF 20% 6.3V CERM-X5R 0402-2 ROOM=PMU
C272 1UF 10% 25V X5R 402 ROOM=PMU
PP5V0_USB_PROT
PP_BATT_VCC
Q4 APN: 376S1131
Q4 CSD68815W15 BGA ROOM=PMU
C1 C2 C3
A1 A2 B1 B2 B3
TRISTAR_TO_PMU_OVP_SW_EN_L
NOTE: THIS SIGNAL (ACT HI) WILL OPEN VBUS
BATTERY_TO_PMU_SENSE
PMU_ACT_DIO
L8 2.2UH-20%-1.7A-200MOHM TFA201610G-PSE20161T2R2 OMIT_TABLE
PP_PMU_VSW_CHG
PP_VCC_MAIN
C266 1.0UF 20% 6.3V X5R 0201-1 ROOM=PMU
C357 10UF 20% 6.3V CERM-X5R 0402-1 ROOM=PMU OMIT_TABLE
C358 10UF 20% 6.3V CERM-X5R 0402-1 ROOM=PMU OMIT_TABLE
C260 C263 C267 C270 10UF 20% 6.3V CERM-X5R 0402-1 ROOM=PMU OMIT_TABLE
C261 C264 C268 C271 10UF 20% 6.3V CERM-X5R 0402-1 ROOM=PMU OMIT_TABLE
C385 C398 C411 10UF 20% 6.3V CERM-X5R 0402-1 ROOM=PMU OMIT_TABLE
PP1V2_SDRAM
C278 1UF 10% 6.3V CERM 402 ROOM=PMU
PP_VCC_MAIN
PP_PMU_TO_VIBE
AP_TO_PMU_VIBE_PWM_EN
C96 56PF 5% 16V NP0-C0G 01005 ROOM=PMU
C343 1.0UF 20% 6.3V X5R 0201-1 ROOM=PMU
45_PMU_TO_XTAL_OSC32
45_XTAL_TO_PMU_OSC32
Y2 32.768K-20PPM-12.5PF 2012 ROOM=PMU
C276 18PF 5% 16V CERM 01005 ROOM=PMU
C283 18PF 5% 16V CERM 01005 ROOM=PMU
XW1 SHORT-10L-0.1MM-SM ROOM=PMU
PCB: PLACE THIS XW AT C276/C283
45_AMBER_VSS_RTC

U7
AMBER-PMC
FCCSP-0.84MM
(1 OF 3)

BAT/USB: F5 VBUS_OVP_OFF (100-300K INT PU TO VBUS); K1 K2 VCENTER; L1 L2 M1 M2 VBUS; F1 F2 IBAT; E2 VBAT; C1 ACT_DIO; J1 J2 CHG_LX; G1 G2 VCC_MAIN; D2 VCC_MAIN_S

BUCK INPUT: A16 B16 VDD_BUCK1; C4 VDD_BUCK001_2; A13 B13 C13 VDD_BUCK2; C16 VDD_BUCK1_2; F20 F21 VDD_BUCK3; A20 B20 C20 VDD_BUCK4; K20 K21 VDD_BUCK5; A4 B4 VDD_BUCK001; A9 B9 C9 VDD_BUCK023

LDO INPUT: M12 VDD_LDO6; N13 VDD_LDO2; M6 VDD_LDO1_3; M7 VDD_LDO4_7; M14 VDD_LDO5; M8 VDD_LDO8_9; M10 VDD_LDO10; M11 VDD_LDO11_13

VIBE: N5 VDD_VIB; P5 VIB; M5 VIB_PWM_EN (50-100K INT PD)

XTAL: D1 XTAL1; E1 XTAL2; G10 VSS_RTC

BUCK0_LX0 A3 B3 C3; BUCK0_LX1 A5 B5 C5; BUCK0_LX2 A8 B8 C8; BUCK0_LX3 A10 B10 C10; BUCK0_FB E4
PP_BUCK0_LX0 PP_BUCK0_LX1 PP_BUCK0_LX2 PP_BUCK0_LX3
45_BUCK0_FB

SAME POLARITY
OMIT_TABLE L9 1.0UH-20%-2.5A-0.075OHM TFA201610G-SM ROOM=PMU
OMIT_TABLE L10 1.0UH-20%-2.5A-0.075OHM TFA201610G-SM ROOM=PMU
OMIT_TABLE L11 1.0UH-20%-2.5A-0.075OHM TFA201610G-SM ROOM=PMU
OMIT_TABLE L12 1.0UH-20%-2.5A-0.075OHM TFA201610G-SM ROOM=PMU
R11 NOSTUFF 10 5% 1/32W MF 01005 ROOM=PMU
PCB: R11 LOCAL FEEDBACK FOR TESTING
PP1V1_CPU
C290 C292 C294 C135 15UF 20% 4V X5R 0402 ROOM=PMU
C296 C145 C162 15UF 20% 4V X5R 0402 ROOM=PMU
C128 C181 C262 15UF 20% 4V X5R 0402 ROOM=PMU
NOTE: L10, L12 BOMOPTIONS CONTROLLED ON PAGE1

H6 VDD_CPU 10.8A MAX

BUCK1_LX0 B15 C15; BUCK1_LX1 A17 B17 C17; BUCK1_FB F15
PP_BUCK1_LX0 PP_BUCK1_LX1
45_BUCK1_FB

SAME POLARITY
OMIT_TABLE L13 1.0UH-20%-2.5A-0.075OHM TFA201610G-SM ROOM=PMU
OMIT_TABLE L14 0.47UH-20%-3.2A-0.046OHM TFA201610G-SM ROOM=PMU
R115 10 NOSTUFF 5% 1/32W MF 01005 ROOM=PMU
PCB: THIS RESISTOR FOR LOCAL FEEDBACK
PP1V1_GPU
C303 C127 C310 15UF 20% 4V X5R 0402 ROOM=PMU
C301 C58 15UF 20% 4V X5R 0402 ROOM=PMU
45_BUCK1_FB

H6 VDD_GPU PMU: 5.0A MAX

BUCK2_LX A12 B12 C12; BUCK2_FB E8
PP_BUCK2_LX
45_BUCK2_FB

OMIT_TABLE L15 1.0UH-20%-2.5A-0.075OHM TFA201610G-SM ROOM=PMU
NOTE: PP1V0_SOC STATIC AT 1.0V. NO DVFM ON THIS RAIL PER SEG.
R117 10 NOSTUFF 5% 1/32W MF 01005 ROOM=PMU
PP1V0_SOC
C123 C175 C189 15UF 20% 4V X5R 0402 ROOM=PMU
45_BUCK2_FB

H6 VDD 2.5A MAX

BUCK3_LX G20 G21; BUCK3_FB J15; BUCK3_SW1 N1; BUCK3_SW2 N16; BUCK3_SW3 N15; VBUCK3_SW M15 M16
PP_BUCK3_LX
45_BUCK3_FB
PP1V8
PP1V8_GRAPE
PP1V8_OSCAR

OMIT_TABLE L16 1.0UH-20%-2.5A-0.075OHM TFA201610G-SM ROOM=PMU
XW18 SHORT-10L-0.1MM-SM ROOM=PMU
PP1V8_SDRAM
C293 C443 15UF 20% 4V X5R 0402 ROOM=PMU

BUCK4_LX A19 B19 C19; BUCK4_FB E18; VBUCK4_SW M18 M19; BUCK4_SW1 M20; BUCK4_SW2 K17
PP_BUCK4_LX
45_BUCK4_FB
PP1V2
PP1V2_OSCAR

OMIT_TABLE L17 1.0UH-20%-2.5A-0.075OHM TFA201610G-SM ROOM=PMU
XW20 SHORT-10L-0.1MM-SM ROOM=PMU
PP1V2_SDRAM
C308 C316 15UF 20% 4V X5R 0402 ROOM=PMU

H6 VDDCA,VDD2 (BUCK4)=0.500A MAX
BUCK4_SW1=1.000A MAX
BUCK4_SW2=0.100A MAX
TOTAL=1.600A MAX

BUCK5_LX J20 J21; BUCK5_FB J16
PP_BUCK5_LX
45_BUCK5_FB

OMIT_TABLE L18 1.0UH-20%-2.2A-0.170OHM TFA201210G-SM ROOM=PMU
XW3 SHORT-10L-0.1MM-SM ROOM=PMU
NOTE: PP1V0_SRAM STATIC AT 1.0V. NO DVFM ON THIS RAIL PER SEG.
PP1V0_SRAM
C140 C66 C327 15UF 20% 4V X5R 0402 ROOM=PMU

H6 VDD_SRAM, VDD_SRAM_SOC
1.5A MAX

LDO:
VLDO1 (50MA) N6 — 2.5V-3.3V, +/-77.5MV — PP3V3_USB — SOC USB PHY (25 MA)
VLDO2 (50MA) P13 — 1.2V-1.9V, +/-42.5MV — PP1V8_VA_L19_L67 — SPEAKER AMP, CODEC VA (2.5 MA L19, 3MA L67)
VLDO3 (50MA) P6 — 2.5V-3.3V, +/-75MV — PP3V0_SDRAM — TRISTAR VDH, WIFI_FLEX PAC (NOTE) 3V +/- 5% PER EUGENE
VLDO4 (50MA) P7 — 2.5V-3.6V, +/-75MV — PP3V0_TMU — GYRO, ACCEL, COMPASS (? MA)
VLDO5 (1000MA) P14 — 2.5V-3.6V, +/-75MV — PP3V0_NAND — NAND (? MA)
VLDO6 (150MA) P12 — 1.2V-3.6V, +/-82.5MV — PP3V0_ACC — ACCESSORY POWER (? MA)
VLDO7 (250MA) N7 — 2.5V-3.6V, +/-75MV — PP3V0_PROX_ALS — PROX/ALS VDD (PROX: 0.75/1.2 MA ALS: 0.175/0.25 MA [TYP/MAX])
VLDO8 (250MA) P8 — 2.5V-3.6V, +/-70MV — PP2V5_RCAM_AF — REAR CAM AUTO FOCUS (120MA PEAK, PROBABLY CAP AT 80MA)
VLDO9 (250MA) N9 — 2.5V-3.6V, +/-71.25MV — PP2V85_CAM_AVDD — REAR/FRONT CAM AVDD (? MA)
VLDO9_FB N8 — 45_CAM_AVDD_FB
VLDO10 (100MA) P9 — 0.6V-1.4V, +/-25MV — PP1V0 — SOC 1V0 MIPI, USB_DVDD, DP (71 MA TOTAL)
VLDO11 (250MA) P10 — 2.5V-3.6V, +/-82.5MV — PP3V0_PROX_IRLED — PROX LED (102 MA TYP)
VLDO12 (5MA) K16 — FIXED 1.8V, +/-5% — PP1V8_ALWAYS — ALWAYS ON 1V8 (? MA)
VLDO13 (250MA) P11 — 2.5V-3.6V, +/-71.25MV — PP3V0_NAVAJO

VPUMP P17 — 45_PMU_VPUMP
C10 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=PMU
VPUMP CAP: SPEC REQUIRES 10NF, 30% DERATED VPUMP RUNS AT 4.6V

C104 C109 C299 C207 1.0UF 20% 6.3V X5R-CERM1 0201-1 ROOM=PMU
C16 4.7UF 20% 6.3V X5R-CERM1 402 ROOM=PMU
CHANGED LDO8 CAP PER RDAR://12525301
REMOVED LDO9 CAPS PER RDAR://12552087

C442 C24 4.7UF 20% 6.3V X5R-CERM1 402 ROOM=PMU
C291 C419 1.0UF 20% 6.3V X5R-CERM 0201-1 ROOM=PMU
CHANGED LDO11 CAP PER RDAR://12518153

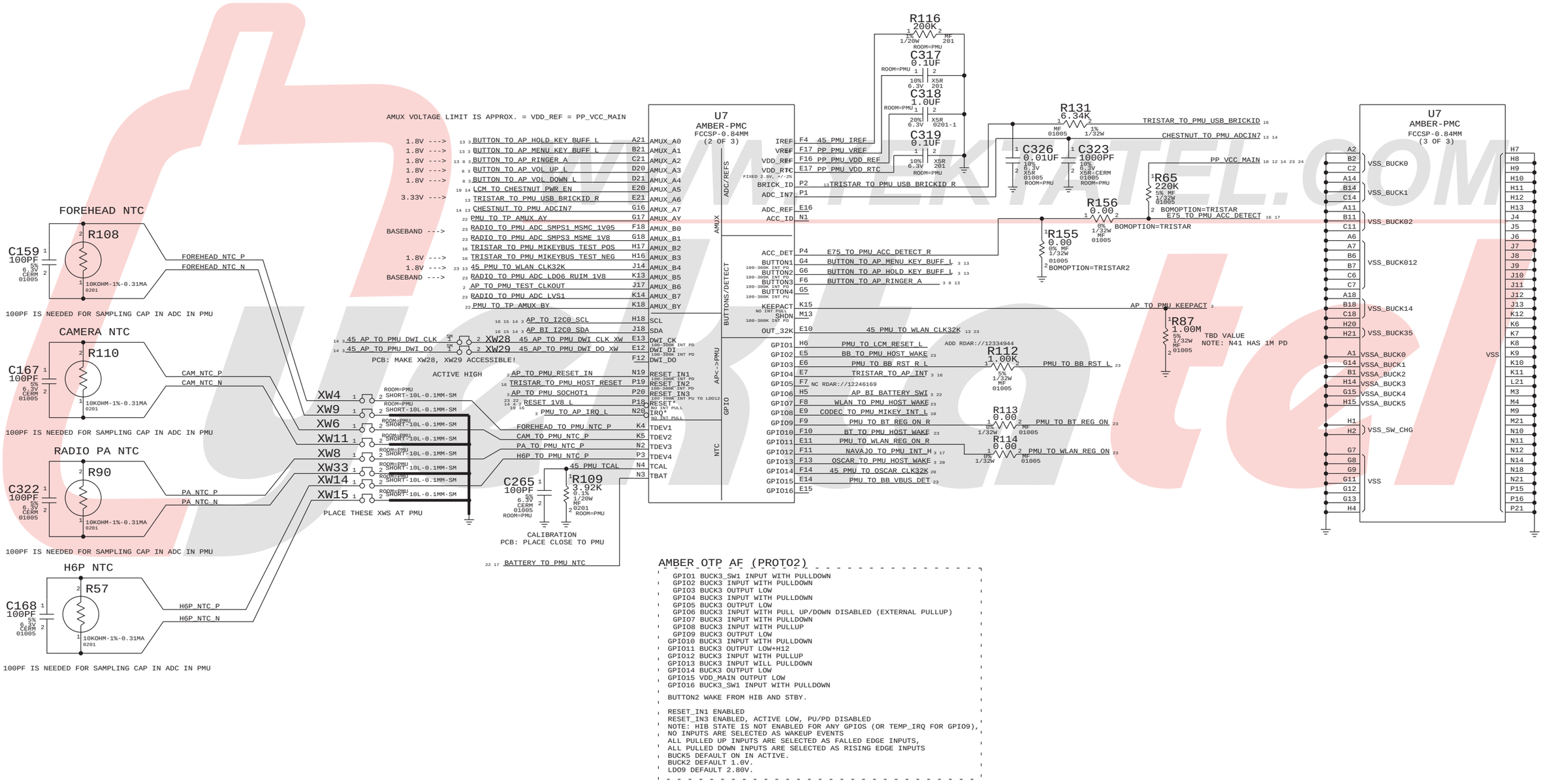
NOTE: 6 TURNS OF PP2V5_RCAM_AF_COMP WAS THE MAGIC NUMBER FOR N41.
PLACE AT PMU AREA
THIS VALUE NEEDS TUNING LATER
R119 10.2 1% 1/32W MF 01005 ROOM=PMU
PP2V5_RCAM_AF
PP2V5_RCAM_AF_COMP
XW10 SM ROOM=PMU
PGND_RCAM_AF_RET
THIS XW LINK AT PMU AREA

TO DO: REVIEW ALL LDO ASSIGNMENTS
(CHECK VDD LDO INPUT SOURCE)
CHECK CURRENT RATING FOR LDO OUT
VS. LOAD REQUIREMENT AT DESTINATION, ETC)

C399 C405 C417 C418 C250 C251 C325 10UF 20% 6.3V CERM-X5R 0402-1 ROOM=PMU OMIT_TABLE

AMBER PMU

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

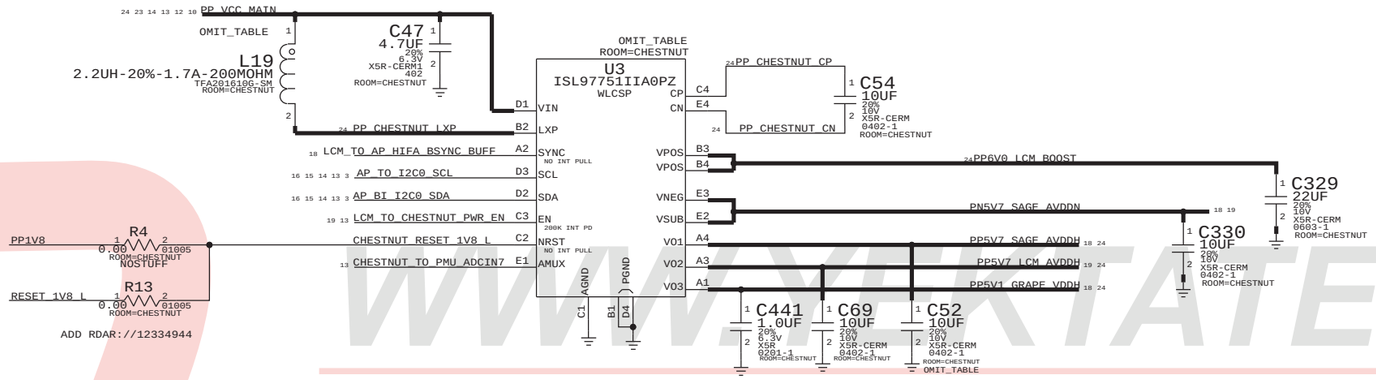


CHESTNUT, BACKLIGHT DRIVER, MESA BOOST

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

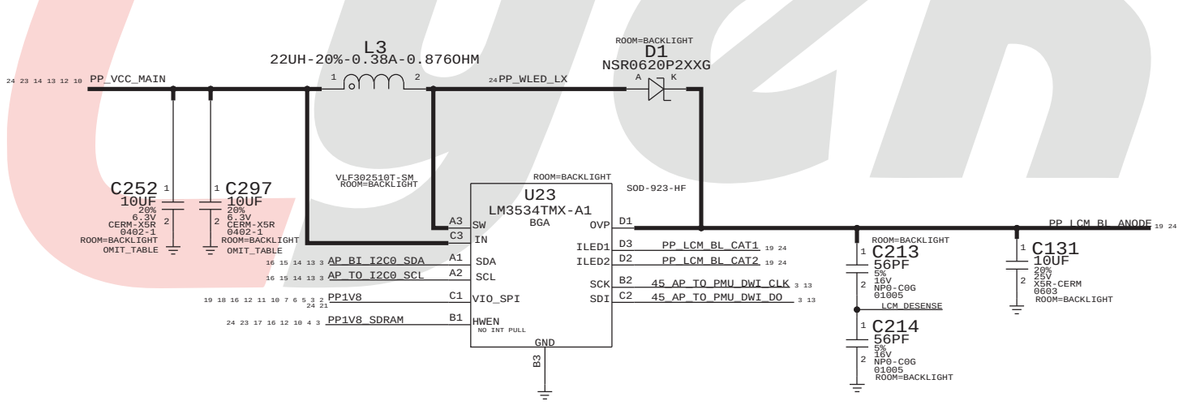
D403 DISPLAY PMU (INTERSIL CHESTNUT, 338S1148) (TI CHESTNUT, 338S1149)



SAGE NEG BOOST TIMING INFO:

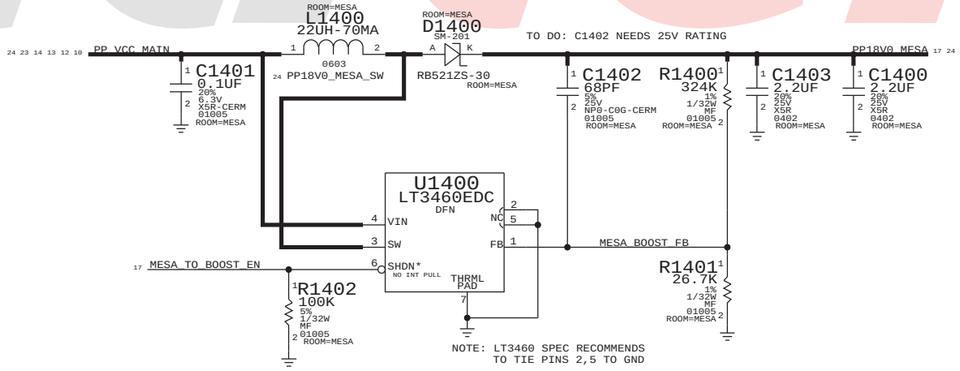
2 MS NOMIAL START UP DELAY FOR LCM POWER SEQUENCING
0 MS DELAY AT SHUTDOWN
ACTIVE DISCHARGE 2MS TO RAIL DOWN

D403 BACKLIGHT DRIVER



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

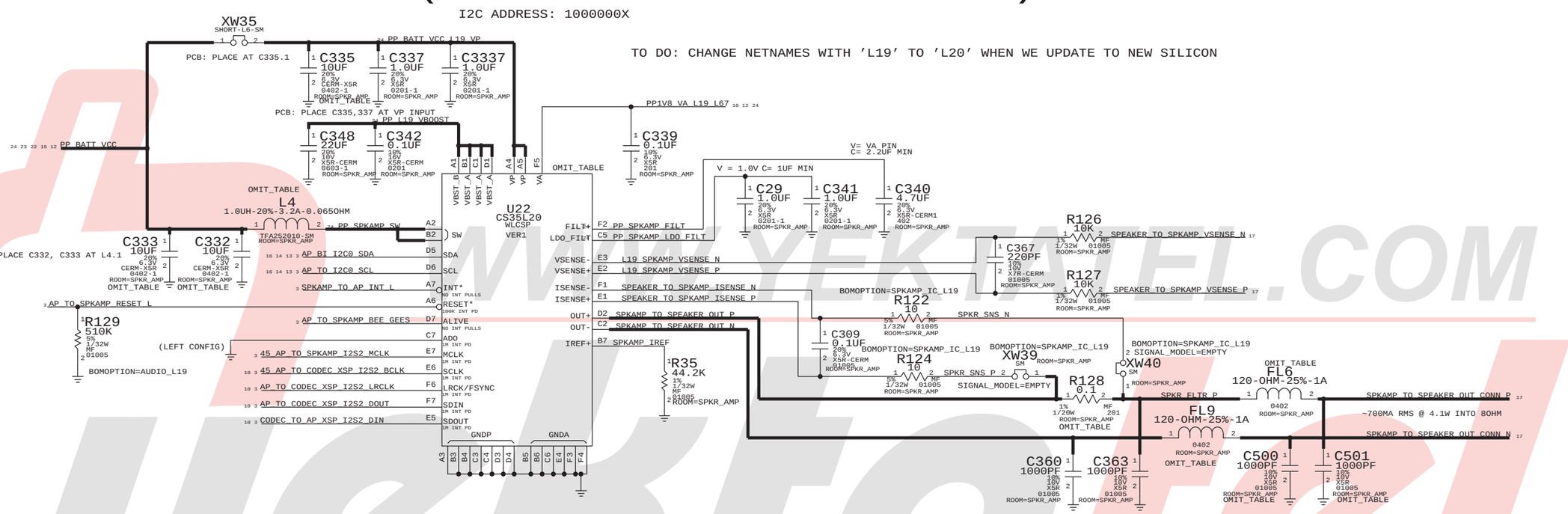
MESA BOOST



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

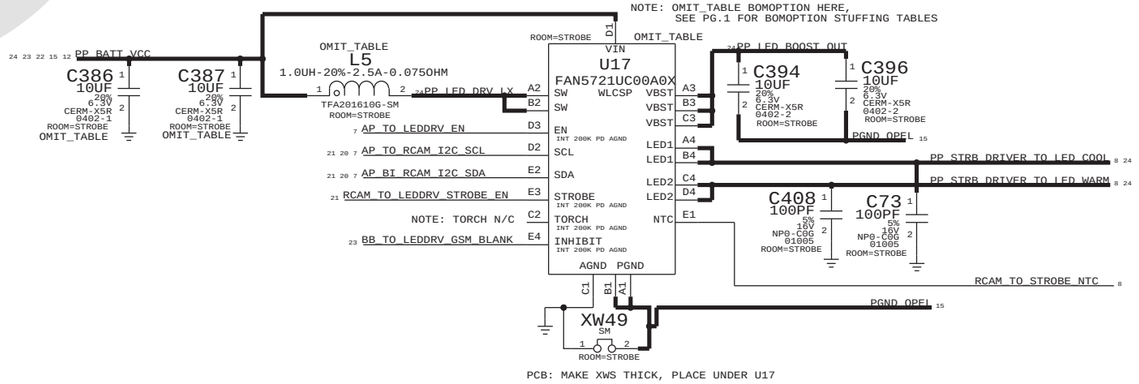
SPEAKER AMP, LED DRIVER

SPEAKER AMP (TO BE REPLACED WITH L20)

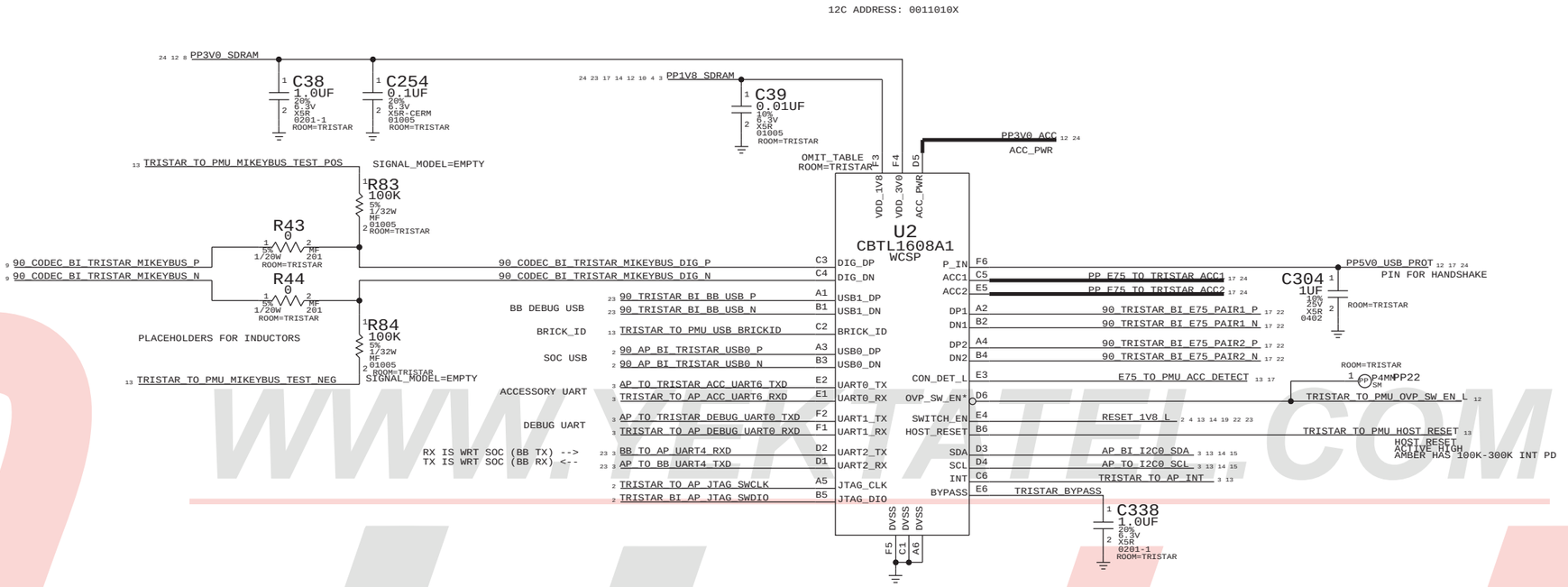


STROBE DRIVER (OPEL)

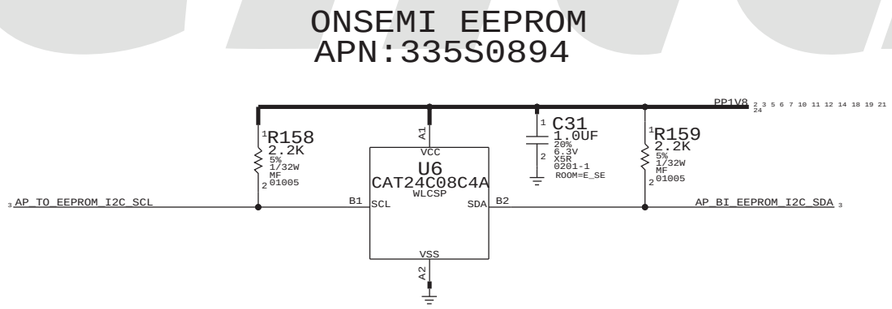
TI: APN 353S3899
FAIRCHILD: APN 353S3839



TRISTAR



EEPROM



DOCKFLEX B2B

(USB VBUS, MENU BTN, SPEAKER, HP, HP EXTMIC, NAVAJO, ANTENNA LAT SW CTRL, MIC1 (PRIMARY MIC), ACC DET/ID/PWR, E75 DIFFPAIRS)

NAVAJO:
VDD(1.8V)
VBOOST(18V)
BOOST_EN

HPHONE:
HS3/HS4,
HPDET,
HS3/HS4 REF,
(+EXTMIC)
HS3/HS4 CTRL

MENU BUTTON

MIC1
(PRIMARY MIC)

ANTENNA:
PAC 2.65V

SPEAKER:
SPEAKER LEADS
VSENSE,

USB VBUS

NAVAJO:
VDD (3.0V)
SPI

HPHONE AUDIO

BATTERY NTC

ANTENNA:
LAT SW CTRL

E75 DIFFPAIRS

ACCESSORY:
DETECT,
ID, PWR

TO DO: C110 16V FOR NOW.
NEED 25V RATING

PCB: PLACE AT J7.GND PIN (PCB CAN CHOOSE)

THIS ONE ON MLB ---> 516S1032 PLUG
516S1031 RCPT (USED ON FLEX)

NOTE: NOSTUFF FL19 FOR PROTO1A/2
NEED DAISY CHAIN GPIO INSTEAD

PCB: PLACE THESE XW LINKS AT DOCK CONNECTOR

PCB: PLACE NEAR J7 (DESENSE CAPS)

PCB: PLACE NEAR J7 (ESD + DESENSE!)

Q2 APN: 376S1130
39MOHM MAX AT -4.5V VGS

NOTE: KEEP R58 AT 0201 FOR POWER DISSIPATION IN CASE OF -20V RVP EVENT

PCB: PLACE ON TOP OF L20, L22 FOOTPRINT

0OHM PLACEHOLDERS FOR E75 PAIRS
TO REDUCE OVERALL DCR ON USB

D403 (B2B,DRIVER ICS)

SAGE2 B06

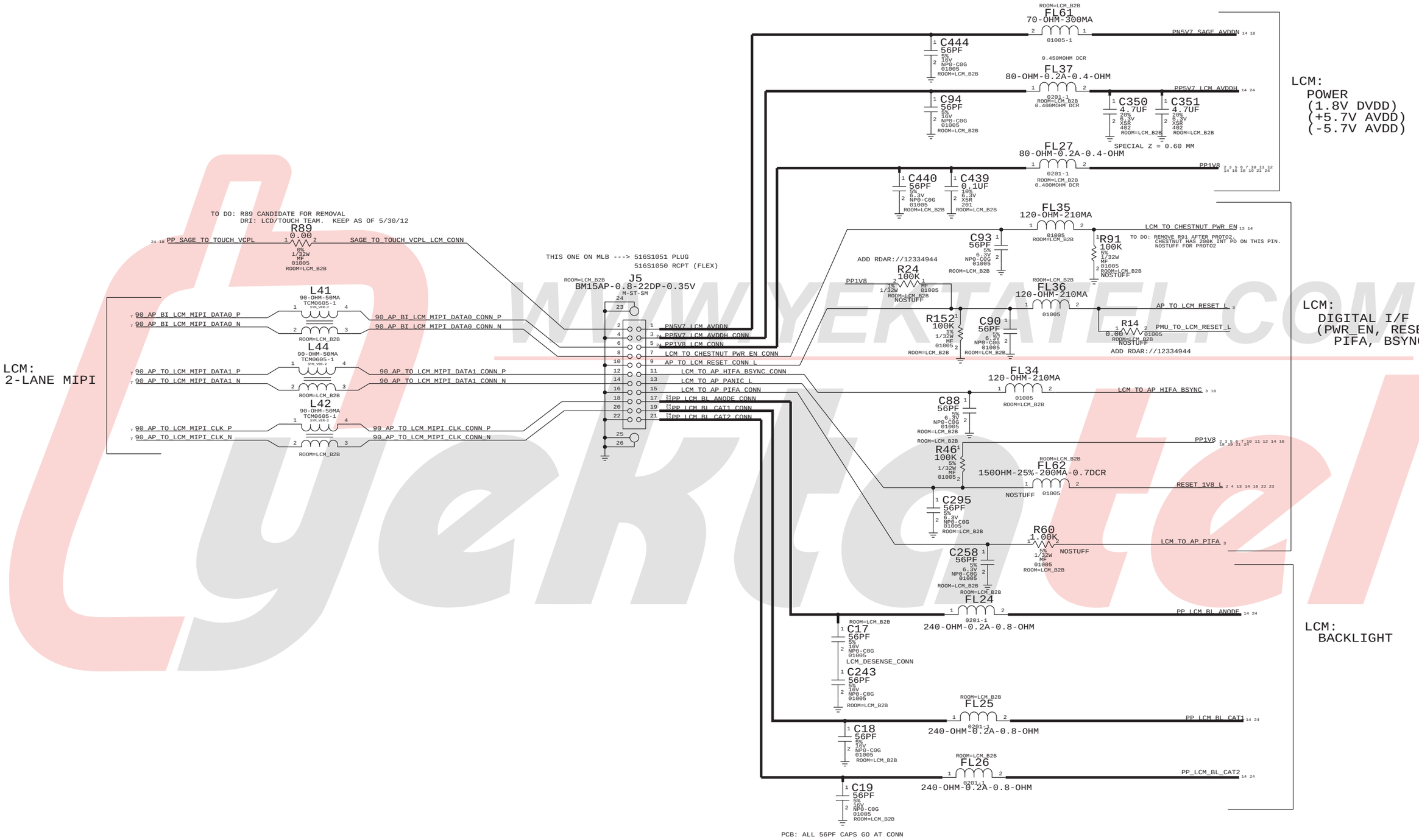
343S0628

CUMULUS C1

343S0638

TOUCH B2B

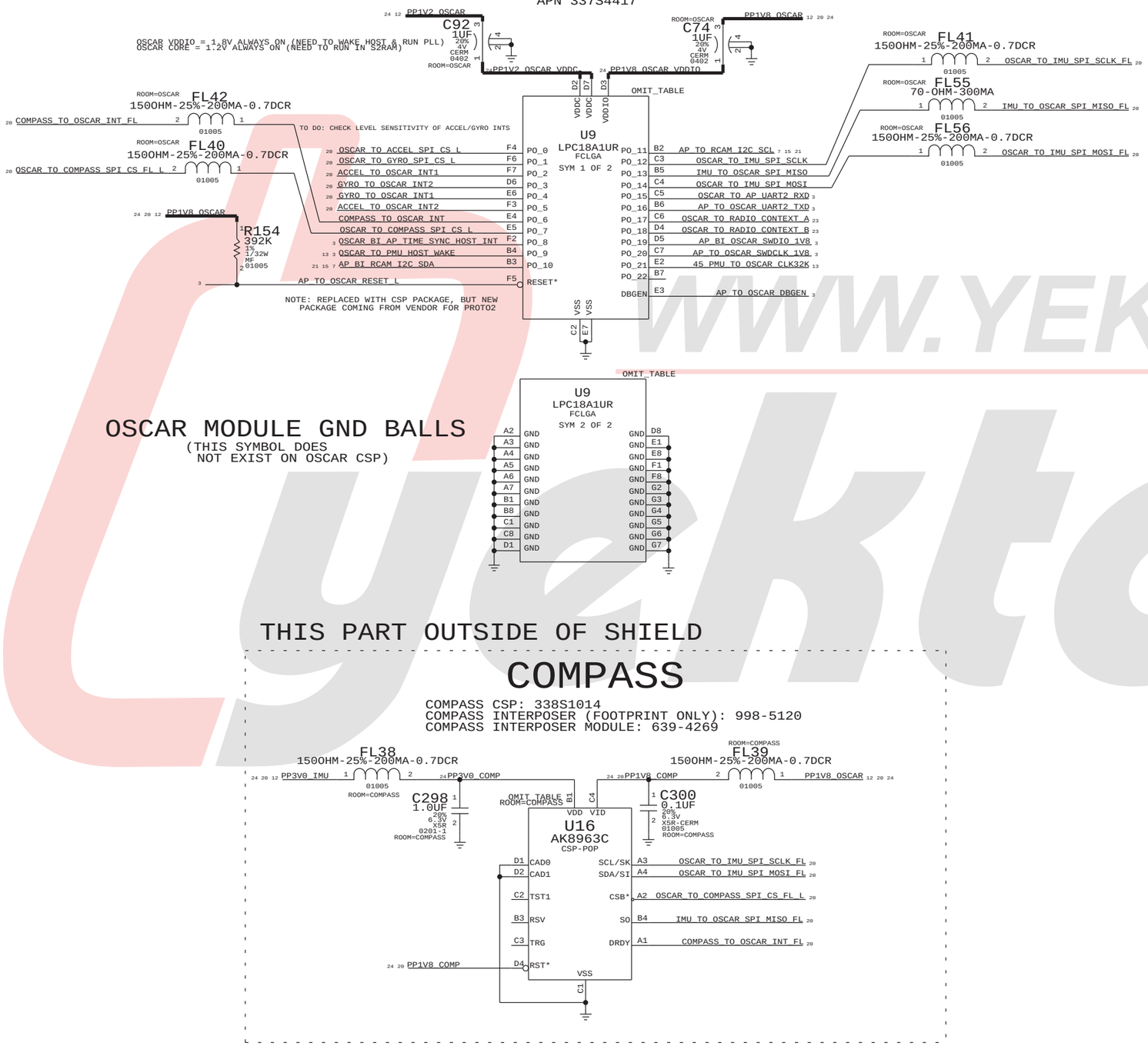
LCM B2B



OSCAR + SENSORS

OSCAR MODULE (CONFORMAL COATED)

APN 337S4417



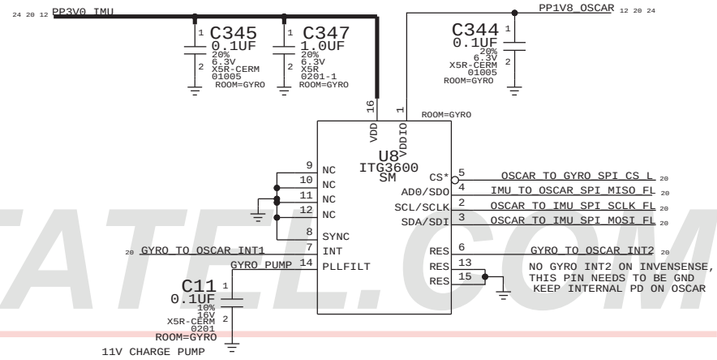
OSCAR MODULE GND BALLS

(THIS SYMBOL DOES NOT EXIST ON OSCAR CSP)

THESE PARTS INSIDE OF SHIELD

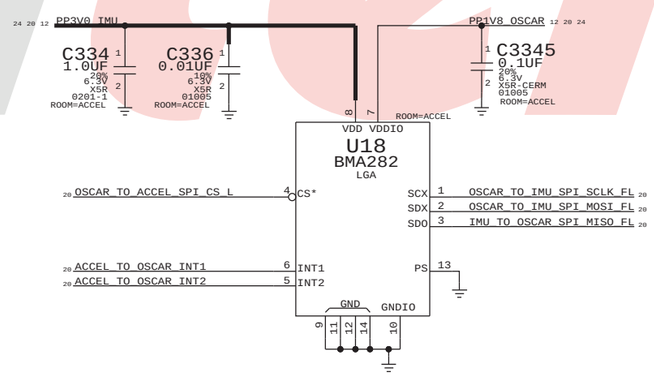
GYRO

X152: INVENSENSE ITG-3600, APN 338S1135



ACCELEROMETER

X152: BOSCH BMA282, APN 338S1163



THIS PART OUTSIDE OF SHIELD

COMPASS

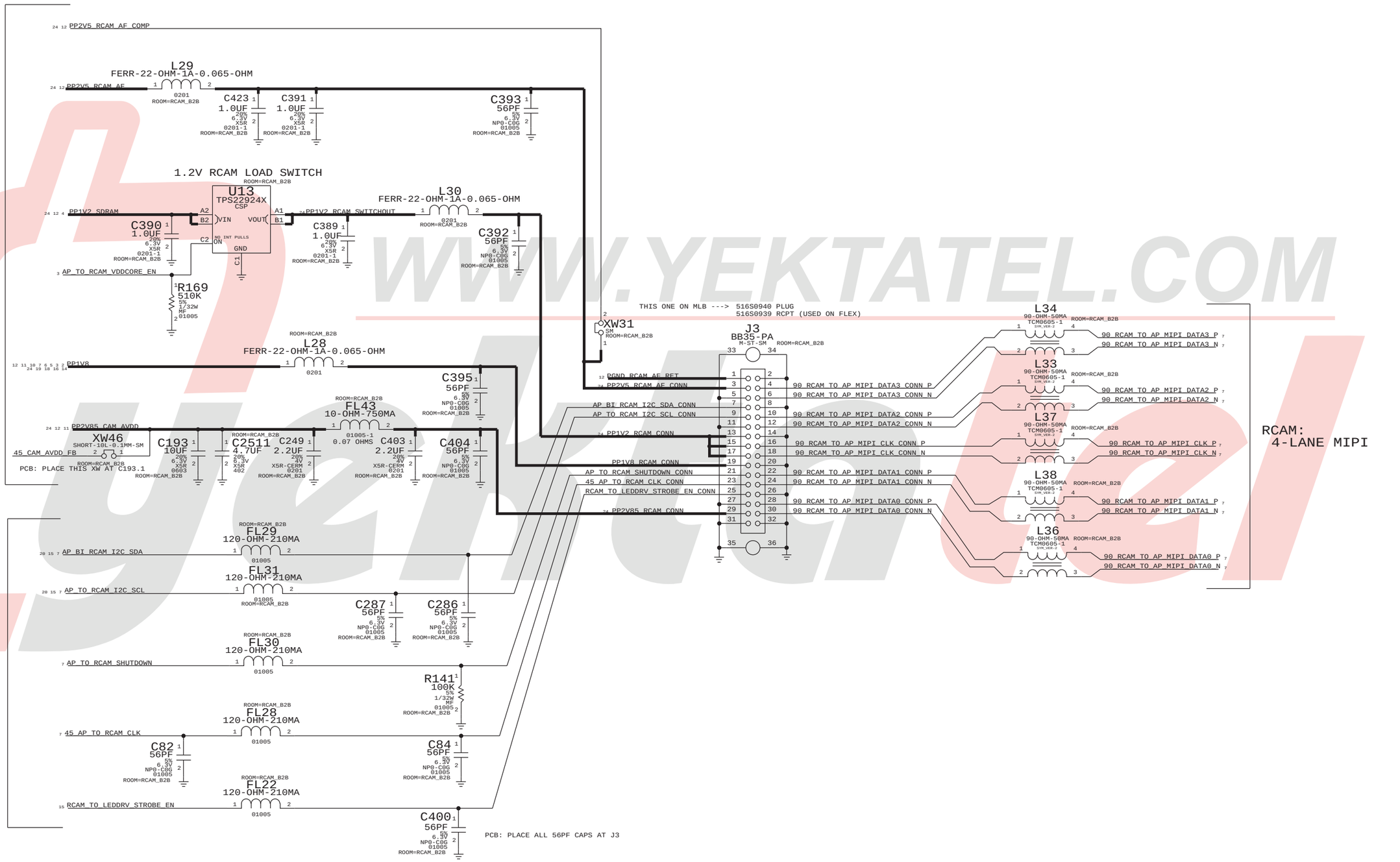
COMPASS CSP: 338S1014
COMPASS INTERPOSER (FOOTPRINT ONLY): 998-5120
COMPASS INTERPOSER MODULE: 639-4269

RCAM B2B (REAR CAMERA CONNECTOR)

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

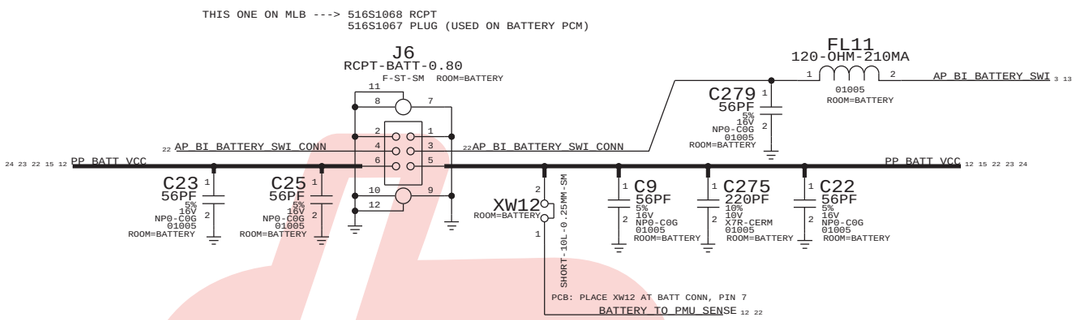
RCAM:
DIGITAL I/F
(I2C,CTRL,CLK)

RCAM:
4-LANE MIPI

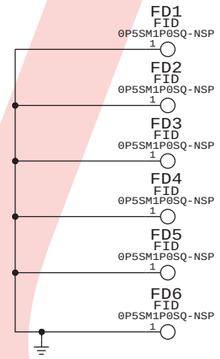


BATT CONN, TPS, STANDOFFS/SHIELDS/FIDUCIALS

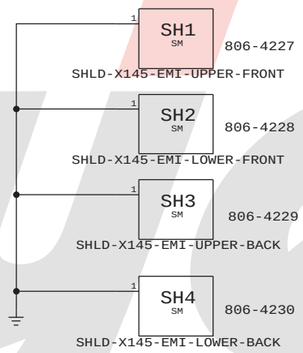
BATTERY CONN



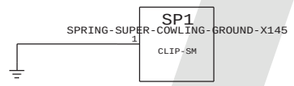
FIDUCIALS



SHIELDS



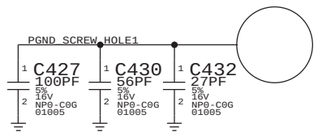
COWLING



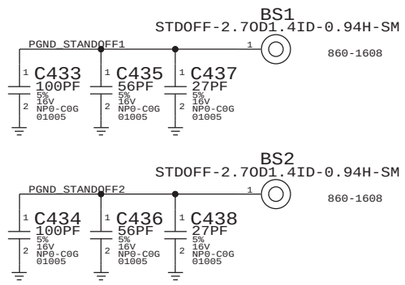
AC COUPLED SCREW HOLES + STANDOFFS

(ON NORTH END OF SINGLE_BRD, TO MITIGATE COMPASS RETURN CURRENTS)

SCREW HOLES



STANDOFFS



TESTPOINTS

POWER TP

- PP5V0_USB_CONN — TP1 (TP-P6) — VBUS
- TP2 (TP-P90) — POWER GROUND (SUPERSIZE)
- PP_BATT_VCC — TP12 (TP-P80) — VBAT (SUPERSIZE)
- BATTERY_TO_PMU_SENSE — TP4 (TP-P6) — BATTERY SNS
- BATTERY_TO_PMU_NTC — TP5 (TP-P6) — BATTERY NTC

SUPER TP

- PMU_TO_TP_AMUX_AY — TP6 (TP-P6) — ANALOG MUX A OUTPUT
- PMU_TO_TP_AMUX_BY — TP7 (TP-P6) — ANALOG MUX B OUTPUT

RESET

- RESET_1V8_L — TP8000 (TP-P6) — H6P & BB RESET

DFU

- FORCE_DFU — TP9 (TP-P6) — FORCE DFU

HEADPHONE MIC

- CODEC_TO_HPHONE_HS3_REF — TP28 (TP-P6) — HEADPHONE MIC NEG
- CODEC_TO_HPHONE_HS4_REF — TP29 (TP-P6) — HEADPHONE MIC POS

LCM BACKLIGHT

- PP_LCM_BL_CAT1_CONN — TP18 (TP-P6) — LCD BACKLIGHT SINK1
- PP_LCM_BL_CAT2_CONN — TP19 (TP-P6) — LCD BACKLIGHT SINK2
- PP_LCM_BL_ANODE_CONN — TP20 (TP-P6) — LCD BACKLIGHT SOURCE

E75 - USB/UART/ID/POWER

- 90_TRISTAR_BI_E75_PAIR1_P — TP21 (TP-P55)
- 90_TRISTAR_BI_E75_PAIR1_N — TP22 (TP-P55)
- 90_TRISTAR_BI_E75_PAIR2_P — TP23 (TP-P55)
- 90_TRISTAR_BI_E75_PAIR2_N — TP24 (TP-P55)
- PP_E75_TO_TRISTAR_ACC1_CONN — TP26 (TP-P6) — ACCESSORY ID AND POWER
- PP_E75_TO_TRISTAR_ACC2_CONN — TP27 (TP-P6)
- TP32 (TP-P6) — POWER GROUND
- E75_TO_PMU_ACC_DETECT_CONN — TP10 (TP-P6) — FOR DIAGS

MIC AUDIO

- MIC1_TO_CODEC_P — TP15 (TP-P6) — MIC1 POSITIVE
- MIC2_TO_CODEC_P — TP16 (TP-P6) — MIC2 POSITIVE
- MIC3_TO_CODEC_P — TP17 (TP-P6) — MIC3 POSITIVE

DRIVE MIC WRT NEAREST GROUND TEST POINT

- SPKAMP_TO_SPEAKER_OUT_CONN_P — TP3 (TP-P6) — SPKR POSITIVE — ADDED PER RDAR://12460740
- SPKAMP_TO_SPEAKER_OUT_CONN_N — TP11 (TP-P6) — SPKR NEGATIVE

IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<0>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<1>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<2>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<3>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<4>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<5>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<6>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<7>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<8>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<9>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<10>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<11>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<12>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<13>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<14>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<15>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<16>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<17>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<18>
IN	VOLTAGE=4.55V	CUMULUS_TO_SAGE_VSTM_OUT<19>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<0>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<1>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<2>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<3>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<4>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<5>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<6>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<7>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<8>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<9>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<10>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<11>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<12>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<13>
IN	VOLTAGE=4.55V	TOUCH_TO_SAGE_SENSE_IN<14>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<0>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<1>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<2>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<3>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<4>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<5>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<6>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<7>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<8>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<9>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<10>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<11>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<12>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<13>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<14>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<15>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<16>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<17>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<18>
IN	VOLTAGE=4.55V	SAGE_TO_TOUCH_VSTM_OUT<19>

IN	VOLTAGE=3.8V	CODEC_TO_RCVR_P
IN	VOLTAGE=3.8V	CODEC_TO_RCVR_N
IN	VOLTAGE=3.8V	CODEC_TO_RCVR_CONN_P
IN	VOLTAGE=3.8V	CODEC_TO_RCVR_CONN_N
IN	VOLTAGE=3.8V	CODEC_TO_HAC_P
IN	VOLTAGE=3.8V	CODEC_TO_HAC_N
IN	VOLTAGE=3.8V	CODEC_TO_HAC_CONN_P
IN	VOLTAGE=3.8V	CODEC_TO_HAC_CONN_N
IN	VOLTAGE=3.114V	CODEC_TO_HPHONE_L
IN	VOLTAGE=3.114V	CODEC_TO_HPHONE_R
IN	VOLTAGE=3.114V	CODEC_TO_HPHONE_L_CONN
IN	VOLTAGE=3.114V	CODEC_TO_HPHONE_R_CONN
IN	VOLTAGE=2.7V	CODEC_TO_HPHONE_HS3
IN	VOLTAGE=2.7V	CODEC_TO_HPHONE_HS4
IN	VOLTAGE=2.7V	CODEC_TO_HPHONE_HS3_REF
IN	VOLTAGE=2.7V	CODEC_TO_HPHONE_HS4_REF
IN	VOLTAGE=2.7V	CODEC_TO_HPHONE_HS3_CONN
IN	VOLTAGE=2.7V	CODEC_TO_HPHONE_HS4_CONN
IN	VOLTAGE=2.7V	CODEC_TO_HPHONE_HS3_REF_CONN
IN	VOLTAGE=2.7V	CODEC_TO_HPHONE_HS4_REF_CONN
IN	VOLTAGE=4.3V	HPHONE_TO_CODEC_DET
IN	VOLTAGE=4.3V	HPHONE_TO_CODEC_DET_CONN
IN	VOLTAGE=2.5V	90_CODEC_BI_TRISTAR_MIKEYBUS_L67_P
IN	VOLTAGE=2.5V	90_CODEC_BI_TRISTAR_MIKEYBUS_L67_N
IN	VOLTAGE=2.5V	90_CODEC_BI_TRISTAR_MIKEYBUS_P
IN	VOLTAGE=2.5V	90_CODEC_BI_TRISTAR_MIKEYBUS_N
IN	VOLTAGE=2.5V	90_CODEC_BI_TRISTAR_MIKEYBUS_DIG_P
IN	VOLTAGE=2.5V	90_CODEC_BI_TRISTAR_MIKEYBUS_DIG_N
IN	VOLTAGE=2.5V	TRISTAR_TO_PMU_MIKEYBUS_TEST_POS
IN	VOLTAGE=2.5V	TRISTAR_TO_PMU_MIKEYBUS_TEST_NEG
IN	VOLTAGE=1.8V	MIC1_TO_CODEC_L67_P
IN	VOLTAGE=1.8V	MIC1_TO_CODEC_L67_N
IN	VOLTAGE=1.8V	MIC1_TO_CODEC_P
IN	VOLTAGE=1.8V	MIC1_TO_CODEC_N
IN	VOLTAGE=1.8V	MIC2_TO_CODEC_L67_P
IN	VOLTAGE=1.8V	MIC2_TO_CODEC_L67_N
IN	VOLTAGE=1.8V	MIC2_TO_CODEC_P
IN	VOLTAGE=1.8V	MIC2_TO_CODEC_N
IN	VOLTAGE=1.8V	MIC3_TO_CODEC_L67_P
IN	VOLTAGE=1.8V	MIC3_TO_CODEC_L67_N
IN	VOLTAGE=1.8V	MIC3_TO_CODEC_P
IN	VOLTAGE=1.8V	MIC3_TO_CODEC_N
IN	VOLTAGE=3.8V	RCVR_TO_CODEC_RCVR_TEST
IN	VOLTAGE=3.8V	RCVR_TO_CODEC_RCVR_TEST_L67
IN	VOLTAGE=3.114V	HPHONE_TO_CODEC_HPHONE_TEST
IN	VOLTAGE=3.114V	HPHONE_TO_CODEC_HPHONE_TEST_L67
IN	VOLTAGE=3.8V	HAC_TO_CODEC_TEST
IN	VOLTAGE=3.8V	HAC_TO_CODEC_TEST_L67
IN	VOLTAGE=2.85V	45_CAM_AVDD_FB
IN	VOLTAGE=4.6V	45_PMU_VPUMP
IN	VOLTAGE=4.3V	PMU_ACT_DIO
IN	VOLTAGE=3.6V	TRISTAR_TO_PMU_OVP_SW_EN_L
IN	VOLTAGE=3.2V	USB_VBUS_DETECT
IN	VOLTAGE=5.25V	TRISTAR_TO_PMU_USB_BRICKID
IN	VOLTAGE=5.25V	TRISTAR_TO_PMU_USB_BRICKID_R

IN	VOLTAGE=2.5V	BATTERY_TO_PMU_NTC
IN	VOLTAGE=2.5V	BATTERY_NTC_CONN
IN	VOLTAGE=4.2V	BATTERY_TO_PMU_SENSE
IN	VOLTAGE=18V	MESA_BOOST_FB
IN	VOLTAGE=8V	SPEAKER_TO_SPKAMP_VSENSE_P
IN	VOLTAGE=8V	SPEAKER_TO_SPKAMP_VSENSE_N
IN	VOLTAGE=8V	L19_SPKAMP_VSENSE_P
IN	VOLTAGE=8V	L19_SPKAMP_VSENSE_N
IN	VOLTAGE=8V	SPEAKER_TO_SPKAMP_ISENSE_P
IN	VOLTAGE=8V	SPEAKER_TO_SPKAMP_ISENSE_N
IN	VOLTAGE=8V	SPKR_SNS_P
IN	VOLTAGE=8V	SPKR_SNS_N
IN	VOLTAGE=8V	SPKR_FLTR_P
IN	VOLTAGE=8V	SPKAMP_TO_SPEAKER_OUT_CONN_P
IN	VOLTAGE=8V	SPKAMP_TO_SPEAKER_OUT_CONN_N
IN	VOLTAGE=8V	SPKAMP_TO_SPEAKER_OUT_P
IN	VOLTAGE=8V	SPKAMP_TO_SPEAKER_OUT_N
IN	VOLTAGE=5.25V	90_TRISTAR_BI_E75_PAIR1_P
IN	VOLTAGE=5.25V	90_TRISTAR_BI_E75_PAIR1_N
IN	VOLTAGE=5.25V	90_TRISTAR_BI_E75_PAIR2_P
IN	VOLTAGE=5.25V	90_TRISTAR_BI_E75_PAIR2_N
IN	VOLTAGE=5.25V	90_TRISTAR_BI_E75_PAIR1_CONN_P
IN	VOLTAGE=5.25V	90_TRISTAR_BI_E75_PAIR1_CONN_N
IN	VOLTAGE=5.25V	90_TRISTAR_BI_E75_PAIR2_CONN_P
IN	VOLTAGE=5.25V	90_TRISTAR_BI_E75_PAIR2_CONN_N
IN	VOLTAGE=3.0V	TRISTAR_BYPASS
IN	VOLTAGE=-5.7V	PN5V7_SAGE_AVDDN
IN	VOLTAGE=-5.7V	PN5V7_LCM_AVDDN
IN	VOLTAGE=-5.7V	SAGE_DUMP_GATE
IN	VOLTAGE=2.5V	SAGE_VBIAS
IN	VOLTAGE=2.5V	SAGE_VBIAS_DRAIN
IN	VOLTAGE=-12V	SAGE_TO_TOUCH_VCPL_LCM_CONN
IN	VOLTAGE=11V	GYRO_PUMP
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<0>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<1>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<2>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<3>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<4>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<5>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<6>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<7>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<8>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<9>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<10>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<11>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<12>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<13>
IN	VOLTAGE=XV	SAGE_TO_CUMULUS_IN<14>
IN	VOLTAGE=18.0V	PP16V5_MESA
IN	VOLTAGE=18.0V	PP16V5_MESA_DOCK_CONN
IN	VOLTAGE=18.0V	PP16V5_MESA_SW
IN	VOLTAGE=1.0V	PP1V0
IN	VOLTAGE=1.0V	PP1V0_SOC
IN	VOLTAGE=1.0V	PP1V0_SRAM
IN	VOLTAGE=1.1V	PP1V1_CPU
IN	VOLTAGE=1.1V	PP1V1_GPU
IN	VOLTAGE=1.2V	PP1V2
IN	VOLTAGE=1.2V	PP1V2_NAND_VDDI
IN	VOLTAGE=1.2V	PP1V2_OSCAR
IN	VOLTAGE=1.2V	PP1V2_OSCAR_VDDC
IN	VOLTAGE=1.2V	PP1V2_RCAM_CONN
IN	VOLTAGE=1.2V	PP1V2_RCAM_SWITCHOUT
IN	VOLTAGE=1.2V	PP1V2_SDRAM

IN	VOLTAGE=1.8V	PP1V8
IN	VOLTAGE=1.8V	PP1V8_ALWAYS
IN	VOLTAGE=1.8V	PP1V8_COMP
IN	VOLTAGE=1.8V	PP1V8_CUMULUS_VDDLDO
IN	VOLTAGE=1.8V	PP1V8_FCAM_CONN
IN	VOLTAGE=1.8V	PP1V8_GRAPE
IN	VOLTAGE=1.8V	PP1V8_LCM_CONN
IN	VOLTAGE=1.8V	PP1V8_OSCAR
IN	VOLTAGE=1.8V	PP1V8_OSCAR_VDDIO
IN	VOLTAGE=1.8V	PP1V8_PLL
IN	VOLTAGE=1.8V	PP1V8_RCAM_CONN
IN	VOLTAGE=1.8V	PP1V8_SDRAM
IN	VOLTAGE=1.8V	PP1V8_SDRAM_DOCK_CONN
IN	VOLTAGE=1.8V	PP1V8_VA_L19_L67
IN	VOLTAGE=1.8V	PP1V8_XTAL
IN	VOLTAGE=2.5V	PP2V5_RCAM_AF
IN	VOLTAGE=2.5V	PP2V5_RCAM_AF_COMP
IN	VOLTAGE=2.5V	PP2V5_RCAM_AF_CONN
IN	VOLTAGE=2.8V	PP2V85_CAM_AVDD
IN	VOLTAGE=2.8V	PP2V85_FCAM_CONN
IN	VOLTAGE=2.8V	PP2V85_RCAM_CONN
IN	VOLTAGE=3.0V	PP3V0_ACC
IN	VOLTAGE=3.0V	PP3V0_ALS
IN	VOLTAGE=3.0V	PP3V0_COMP
IN	VOLTAGE=3.0V	PP3V0_IMU
IN	VOLTAGE=3.0V	PP3V0_NAND
IN	VOLTAGE=3.0V	PP3V0_NAND_XW
IN	VOLTAGE=3.0V	PP3V0_NAVAJO
IN	VOLTAGE=3.0V	PP3V0_NAVAJO_CONN
IN	VOLTAGE=3.0V	PP3V0_PROX
IN	VOLTAGE=3.0V	PP3V0_PROX_ALS
IN	VOLTAGE=3.0V	PP3V0_PROX_IRLED
IN	VOLTAGE=3.0V	PP3V0_SDRAM
IN	VOLTAGE=3.0V	PP3V0_SDRAM_CONN
IN	VOLTAGE=3.3V	PP3V3_USB
IN	VOLTAGE=5.0V	PP5V0_USB_CONN
IN	VOLTAGE=5.0V	PP5V0_USB_PROT
IN	VOLTAGE=5.1V	PP5V1_GRAPE_VDDH
IN	VOLTAGE=5.7V	PP5V7_LCM_AVDDH
IN	VOLTAGE=5.7V	PP5V7_LCM_AVDDH_CONN
IN	VOLTAGE=5.7V	PP5V7_SAGE_AVDDH
IN	VOLTAGE=6V	PP6V0_LCM_BOOST
IN	VOLTAGE=4.3V	PP_BATT_VCC
IN	VOLTAGE=4.3V	PP_BATT_VCC_L19_VP
IN	VOLTAGE=4.3V	PP_BUCK0_LX0
IN	VOLTAGE=4.3V	PP_BUCK0_LX1
IN	VOLTAGE=4.3V	PP_BUCK0_LX2
IN	VOLTAGE=4.3V	PP_BUCK0_LX3
IN	VOLTAGE=4.3V	PP_BUCK1_LX0
IN	VOLTAGE=4.3V	PP_BUCK1_LX1
IN	VOLTAGE=4.3V	PP_BUCK2_LX
IN	VOLTAGE=4.3V	PP_BUCK3_LX
IN	VOLTAGE=4.3V	PP_BUCK4_LX
IN	VOLTAGE=4.3V	PP_BUCK5_LX
IN	VOLTAGE=-6V	PP_CHESTNUT_CN
IN	VOLTAGE=6V	PP_CHESTNUT_CP
IN	VOLTAGE=6V	PP_CHESTNUT_LXP
IN	VOLTAGE=1.8V	PP_CODEC_FILT+
IN	VOLTAGE=2.2V	PP_CODEC_SPKR_VQ
IN	VOLTAGE=2.7V	PP_CODEC_TO_MIC1_BIAS
IN	VOLTAGE=2.7V	PP_CODEC_TO_MIC1_BIAS_CONN
IN	VOLTAGE=2.7V	PP_CODEC_TO_MIC2_3_BIAS
IN	VOLTAGE=2.7V	PP_CODEC_TO_MIC3_BIAS_CONN
IN	VOLTAGE=2.5V	PP_CODEC_VCPFILT+
IN	VOLTAGE=-2.5V	PP_CODEC_VCPFILT-

IN	VOLTAGE=0.2V	PP_CODEC_VHP_FLYC
IN	VOLTAGE=-2.5V	PP_CODEC_VHP_FLYN
IN	VOLTAGE=2.5V	PP_CODEC_VHP_FLYP
IN	VOLTAGE=1.6V	PP_CUMULUS_VDDANA
IN	VOLTAGE=1.6V	PP_CUMULUS_VDDCORE
IN	VOLTAGE=4.3V	PP_E75_TO_TRISTAR_ACC1
IN	VOLTAGE=4.3V	PP_E75_TO_TRISTAR_ACC1_CONN
IN	VOLTAGE=4.3V	PP_E75_TO_TRISTAR_ACC2
IN	VOLTAGE=4.3V	PP_E75_TO_TRISTAR_ACC2_CONN
IN	VOLTAGE=2.7V	PP_EXTMIC_BIAS
IN	VOLTAGE=2.7V	PP_EXTMIC_BIAS_FILT
IN	VOLTAGE=2.7V	PP_EXTMIC_BIAS_FILT_IN
IN	VOLTAGE=2.7V	PP_EXTMIC_BIAS_IN
IN	VOLTAGE=8V	PP_L19_VBOOST
IN	VOLTAGE=22V	PP_LCM_BL_ANODE
IN	VOLTAGE=22V	PP_LCM_BL_ANODE_CONN
IN	VOLTAGE=0.2V	PP_LCM_BL_CAT1
IN	VOLTAGE=0.2V	PP_LCM_BL_CAT1_CONN
IN	VOLTAGE=0.2V	PP_LCM_BL_CAT2
IN	VOLTAGE=0.2V	PP_LCM_BL_CAT2_CONN
IN	VOLTAGE=2.65V	PP_LDO14_2P65
IN	VOLTAGE=2.5V	CHESTNUT_TO_PMU_ADCIN7
IN	VOLTAGE=5V	E75_TO_PMU_ACC_DETECT
IN	VOLTAGE=5V	E75_TO_PMU_ACC_DETECT_R
IN	VOLTAGE=5V	PMU_TO_TP_AMUX_AY
IN	VOLTAGE=5V	PMU_TO_TP_AMUX_BY
IN	VOLTAGE=2.5V	FOREHEAD_TO_PMU_NTC_P
IN	VOLTAGE=2.5V	CAM_TO_PMU_NTC_P
IN	VOLTAGE=2.5V	PA_TO_PMU_NTC_P
IN	VOLTAGE=2.5V	H6P_TO_PMU_NTC_P
IN	VOLTAGE=2.5V	45_PMU_TCAL
IN	VOLTAGE=5V	PP_LED_BOOST_OUT
IN	VOLTAGE=5V	PP_LED_DRV_LX
IN	VOLTAGE=0.4V	PP_MIPI0D_VREG
IN	VOLTAGE=0.4V	PP_MIPI1D_VREG
IN	VOLTAGE=3.4V	PP_PMU_TO_VIBE
IN	VOLTAGE=3.4V	PP_PMU_TO_VIBE_CONN
IN	VOLTAGE=5.25V	PP_PMU_VCENTER
IN	VOLTAGE=4.3V	PP_PMU_VDD_REF
IN	VOLTAGE=2.5V	PP_PMU_VDD_RTC
IN	VOLTAGE=1.2V	PP_PMU_VREF
IN	VOLTAGE=5.25V	PP_PMU_VSW_CHG
IN	VOLTAGE=5.7V	PP_SAGE_LX
IN	VOLTAGE=17V	PP_SAGE_LY
IN	VOLTAGE=13.5V	PP_SAGE_TO_TOUCH_VCPH
IN	VOLTAGE=13.5V	PP_SAGE_TO_TOUCH_VCPH_CONN
IN	VOLTAGE=-12V	PP_SAGE_TO_TOUCH_VCPL
IN	VOLTAGE=-12V	PP_SAGE_TO_TOUCH_VCPL_CONN
IN	VOLTAGE=18V	PP_SAGE_VBST_OUTH
IN	VOLTAGE=-14V	PP_SAGE_VBST_OUTL
IN	VOLTAGE=-12V	PP_SAGE_VCPL_F
IN	VOLTAGE=1.8V	PP_SPKAMP_FILT
IN	VOLTAGE=1V	PP_SPKAMP_LDO_FILT
IN	VOLTAGE=8V	PP_SPKAMP_SW
IN	VOLTAGE=5V	PP_STRB_DRIVER_TO_LED_COOL
IN	VOLTAGE=5V	PP_STRB_DRIVER_TO_LED_WARM
IN	VOLTAGE=4.3V	PP_VCC_MAIN
IN	VOLTAGE=4.3V	PP_VCC_MAIN_CODEC
IN	VOLTAGE=22V	PP_WLED_LX

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	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

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6	6	BASEBAND (2 OF 2)
7	7	RF TRANSCEIVER (1 0F 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

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	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

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

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
951-2446	1	X152_RADIO_MLB	SCH	Y	
825-2029	1	EEE FOR 939-0308	EEEE_????	Y	NA

AP INTERFACE & DEBUG CONNECTORS

AP CONNECTIONS

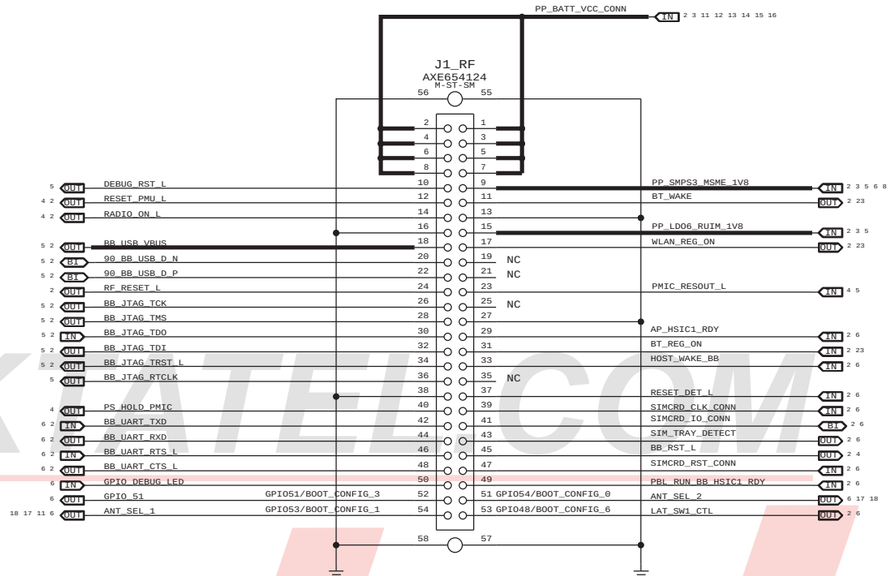
IN = FROM AP
OUT = TO AP

16 15 14 13 12 11 3 2	PP_BATT_VCC_CONN	OUT	
23	PP_VCC_MAIN_WLAN	OUT	
6	TX_GTR_THRESH	OUT	
4 2	BB_RST_L	IN	
6 2	RESET_DET_L	OUT	
4 2	RADIO_ON_L	IN	
4 2	RESET_PMU_L	IN	
6 2	HOST_WAKE_BB	OUT	
2	RF_RESET_L	OUT	
6 2	PBL_RUN_BB_HSIC1_RDY	OUT	
23 2	WLAN_HSIC3_RESUME	OUT	
6	AP_WAKE_MODEM	OUT	
6 2	AP_HSIC1_RDY	IN	
5 2	50_HSIC_BB_DATA	IO	
5 2	50_HSIC_BB_STROBE	IO	
6	BB_HSIC1_REMOTE_WAKE	OUT	
6 2	BB_UART_TXD	OUT	
6 2	BB_UART_RXD	IN	
6 2	BB_UART_RTS_L	OUT	
6 2	BB_UART_CTS_L	IN	
5 2	BB_USB_VBUS	IN	
5 2	90_BB_USB_D_P	IO	
5 2	90_BB_USB_D_N	IO	
6 2	BB_I2S_CLK	IN	
6 2	BB_I2S_WS	IN	
6 2	BB_I2S_TXD	OUT	
6 2	BB_I2S_RXD	IN	
6	PP_SYNC	OUT	
23	PP_WL_BT_VDDIO_AP	IN	
23 2	CLK32K_AP	IN	
23 2	WLAN_REG_ON	IN	
23	WLAN_UART_TXD	OUT	
23	WLAN_UART_RXD	IN	
23	HOST_WAKE_WLAN	OUT	
23 2	WLAN_HSIC3_DEVICE_RDY	OUT	
23 2	AP_HSIC3_RDY	IN	
23 2	50_HSIC_WLAN_DATA	IO	
23 2	50_HSIC_WLAN_STROBE	IO	
23	HOST_WAKE_BT	OUT	
23 2	BT_WAKE	IN	
23 2	BT_UART_TXD	OUT	
23 2	BT_UART_RXD	IN	
23	BT_UART_RTS_L	OUT	
23	BT_UART_CTS_L	IN	
23 2	BT_REG_ON	IN	
23	BT_PCM_CLK	IO	
23	BT_PCM_SYNC	IO	
23	BT_PCM_OUT	IO	
23	BT_PCM_IN	IO	
6 2	LAT_SW1_CTL	OUT	
6	LAT_SW2_CTL	OUT	
6	LAT_SW3_CTL	OUT	
20 6	BB_SPI_TO_PAC_CS	OUT	
20 6	BB_SPI_TO_PAC_DATA_MOSI	OUT	
20 6	BB_SPI_TO_PAC_CLK	OUT	
20 6	PAC_TO_BB_SPI_DATA_MISO	IN	
20 18 17 11 10 3	PP_LDO14_2V65	OUT	
5 2	BB_JTAG_TCK	IN	
5 2	BB_JTAG_TDI	IN	
5 2	BB_JTAG_TMS	IN	
5 2	BB_JTAG_TRST_L	IN	
5 2	BB_JTAG_TDO	OUT	
2	ADC_SMPS1_MSMC_1V05	OUT	
2	ADC_SMPS3_MSME_1V8	OUT	
2	ADC_LDO6_RUIM_1V8	OUT	
2	ADC_LVS1	OUT	
6	BB_IPC_GPIO	OUT	
23 6	OSCAR_CONTEXT_A	IN	
23 6	OSCAR_CONTEXT_B	IN	

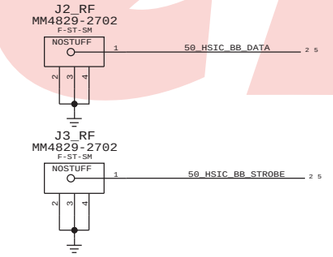
PROBE POINTS

PP1_RF	P4MM SM	1 BB_ERROR_FLAG 6
PP2_RF	P4MM SM	1 SLEEP_CLK_32K 4 5
PP3_RF	P4MM SM	1 PMIC_SSBI 4 5
PP11_RF	P4MM SM	1 CLK32K_AP 2 23
PP14_RF	P4MM SM	1 AP_HSIC3_RDY 2 23
PP15_RF	P4MM SM	1 WLAN_HSIC3_DEVICE_RDY 2 23
PP18_RF	P4MM SM	1 WLAN_HSIC3_RESUME 2 23
PP19_RF	P4MM SM	1 WTR_SSBI_TX_GPS 6 7
PP20_RF	P4MM SM	1 WTR_SSBI_PRX_DRX 6 7
PP21_RF	P4MM SM	1 WTR_RX_ON 6 7
PP22_RF	P4MM SM	1 WTR_RF_ON 6 7
PP40_RF	P4MM SM	1 WLAN_COEX_TXD 23
PP41_RF	P4MM SM	1 LTE_COEX_TXD 6 23
PP42_RF	P4MM-NSM SM	1 50_HSIC_BB_STROBE 2 5
PP43_RF	P4MM-NSM SM	1 50_HSIC_BB_DATA 2 5
PP44_RF	P4MM SM	1 50_HSIC_WLAN_STROBE 2 23
PP45_RF	P4MM SM	1 50_HSIC_WLAN_DATA 2 23
PP46_RF	P4MM SM	1 BT_UART_TXD 2 23
PP47_RF	P4MM SM	1 BT_UART_RXD 2 23
PP4_RF	P4MM SM	1 BB_I2S_CLK 2 6
PP5_RF	P4MM SM	1 BB_I2S_WS 2 6
PP6_RF	P4MM SM	1 BB_I2S_RXD 2 6
PP7_RF	P4MM SM	1 BB_I2S_TXD 2 6
PP8_RF	P4MM-NSM SM	1 SIMCRD_RST_CONN 2 6
PP9_RF	P4MM-NSM SM	1 SIMCRD_CLK_CONN 2 6
PP10_RF	P4MM SM	1 SPI_DATA_MOSI 6
PP12_RF	P4MM SM	1 SPI_CLK 6
PP13_RF	P4MM SM	1 SPI_CS_L 6
PP16_RF	P4MM SM	1 SPI_DATA_MISO 6

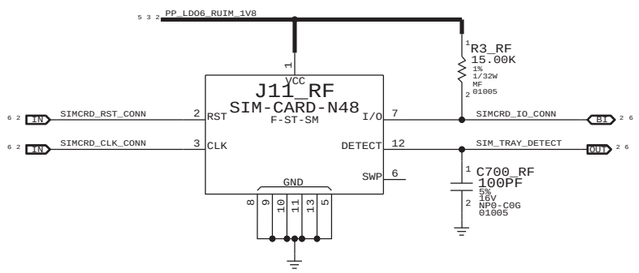
DEBUG CONNECTOR



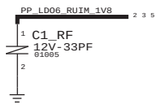
BOOT OPTIONS	BOOT_CONFIG SW REGISTER VALUE	GPIO/BOOT_CONFIG CONFIGURATION							
		6	5	4	3	2	1	0	
		47	48	49	50	51	52	53	54	55
BOOT_DEFAULT_OPTION	0X00	X	0	0	0	0	0	0	0	X
BOOT_NAND_OPTION	0X01	X	1	0	0	0	0	0	1	X
BOOT_HSIC_OPTION	0X02	X	1	0	0	0	0	1	0	X
BOOT_USB_OPTION	0X03	X	1	0	0	0	0	1	1	X
ENABLE SAHARA PROTOCOL	0X08	X	1	0	0	1	0	X	X	X

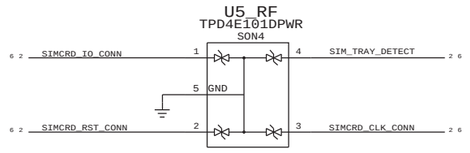


SIM CARD CONNECTOR

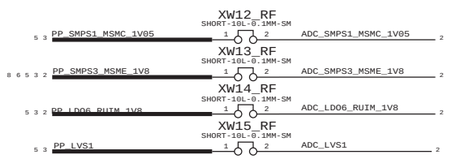


SIM CARD ESD PROTECTION

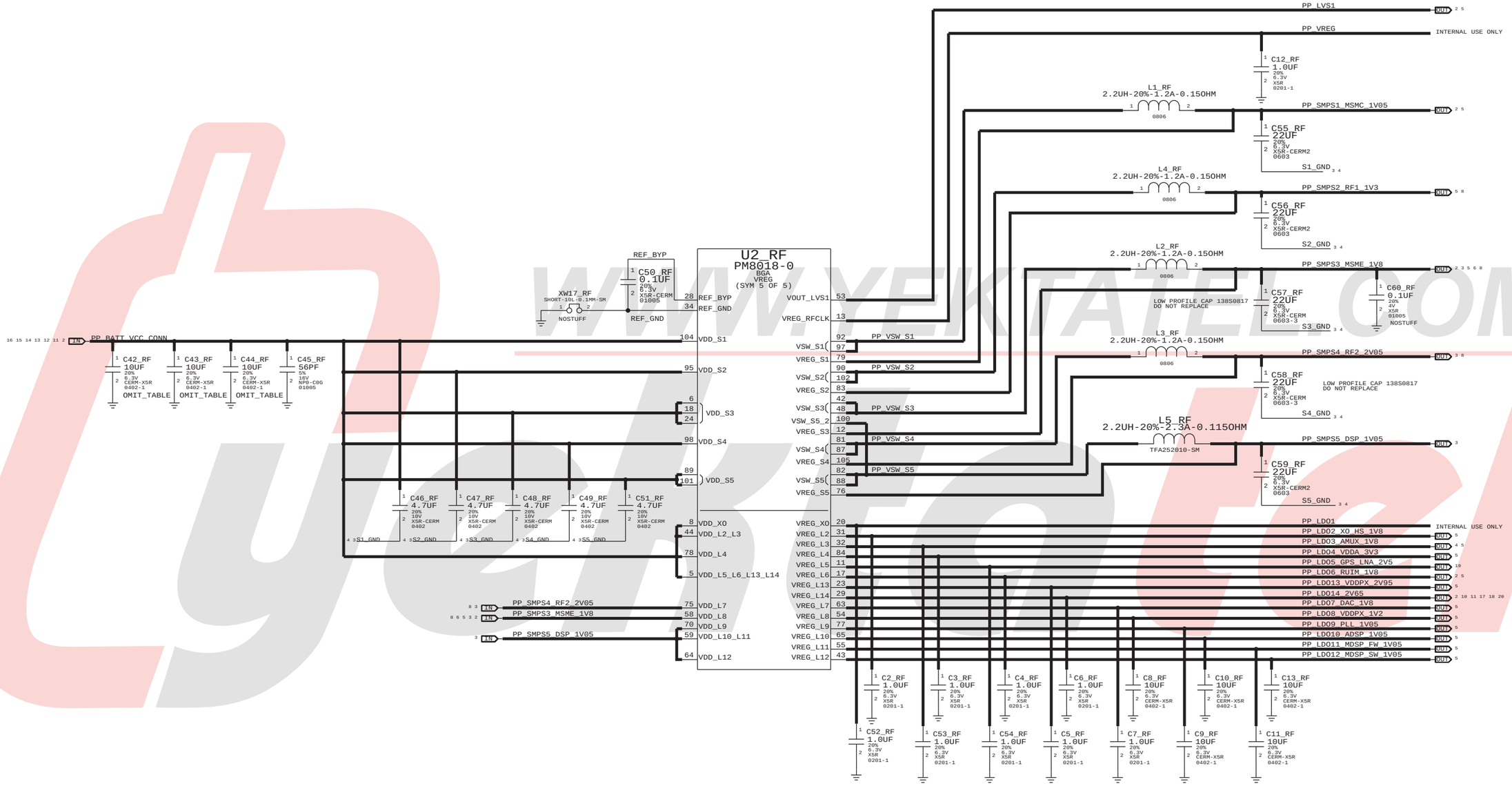




XW12_RF / XW13_RF / XW14_RF / XW15_RF



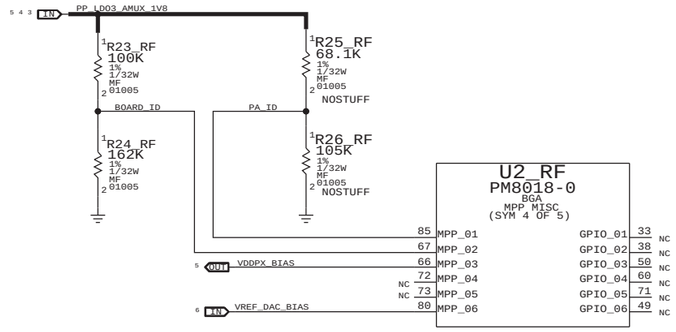
PMU (1 OF 2)



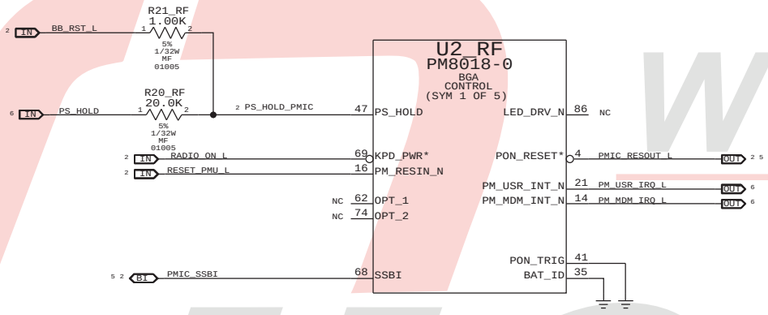
PMU (2 OF 2)

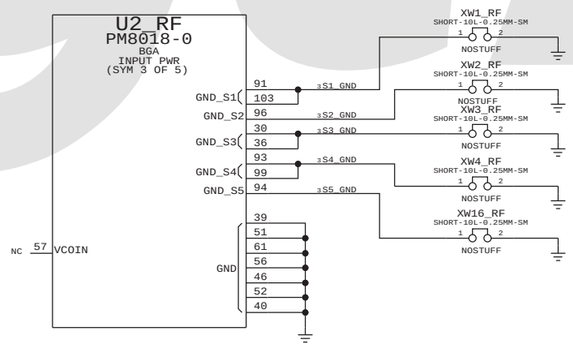
PA_ID	CONFIG
1.1V	CONFIG A
1.3V	CONFIG B
1.5V	CONFIG C
1.7V	CONFIG D

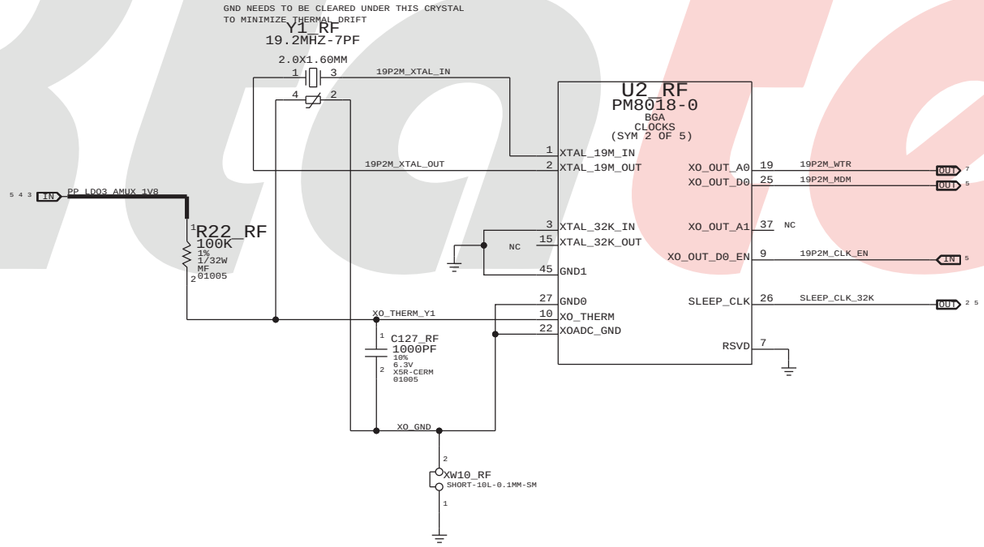
BOARD_ID	REVISION
0.7V	PROTO1
0.9V	PROTO2
1.1V	EVT1
1.3V	EVT2
1.5V	DVT
1.7V	PVT



AP SECTION NEEDS ITS OWN THERMISTOR PLACED NEAR THE PA'S.







BASEBAND (1 OF 2)

PP_SMPS1_MSMC_1V05
C15_RF 1.0UF 20% 6.3V X5R 0201-1
C18_RF 1.0UF 20% 6.3V X5R 0201-1
C20_RF 1.0UF 20% 6.3V X5R 0201-1
C23_RF 1.0UF 20% 6.3V X5R 0201-1
C26_RF 1.0UF 20% 6.3V X5R 0201-1

PP_LDO9_PLL_1V05
C16_RF 1.0UF 20% 6.3V X5R 0201-1
C19_RF 1.0UF 20% 6.3V X5R 0201-1
C21_RF 1.0UF 20% 6.3V X5R 0201-1
C24_RF 1.0UF 20% 6.3V X5R 0201-1

PP_LDO10_ADSP_1V05
C27_RF 1.0UF 20% 6.3V X5R 0201-1
C30_RF 1.0UF 20% 6.3V X5R 0201-1

PP_LDO11_MDSP_FW_1V05
C34_RF 1.0UF 20% 6.3V X5R 0201-1
C35_RF 1.0UF 20% 6.3V X5R 0201-1
C36_RF 1.0UF 20% 6.3V X5R 0201-1

PP_SMPS3_MSME_1V8
C14_RF 1.0UF 20% 6.3V X5R 0201-1
C17_RF 1.0UF 20% 6.3V X5R 0201-1

PP_SMPS3_MSME_1V8
C22_RF 1.0UF 20% 6.3V X5R 0201-1
C25_RF 1.0UF 20% 6.3V X5R 0201-1

PP_LDO12_MDSP_SW_1V05
C28_RF 1.0UF 20% 6.3V X5R 0201-1
C29_RF 1.0UF 20% 6.3V X5R 0201-1
C32_RF 1.0UF 20% 6.3V X5R 0201-1

U1_RF
MDM9615M
BGA
(5 OF 6)
PWR

PP_SMPS1_MSMC_1V05
PP_SMPS1_MSMC_1V05
C68_RF 1.0UF 20% 6.3V X5R 0201-1

VDD_CORE: F8 F9 F12 F13 F14 G9 G12 H9 H12 J8 J9 J12 J13 K8 K9 K12 K13 L8 L9 L12 L13 M8 M9 M12 M13 N8 N9 N12 N13 P9 P12 R9 R12 T8 T9

VDD_MEM: C17 C18 E17 F17 G7 G8 G13 G14 H7 H8 H13 H14 P7 P8 P13 P14 R7 R8 R13 R14

PP_SMPS3_MSME_1V8 → VDD_P1: A14 A19 F21 M1 M21

PP_LDO13_VDDPX_2V95 → VDD_P2: K21

VDD_DDR: AA20 B19 F20 M20 ← PP_SMPS3_MSME_1V8

VDD_ADSP: C5 C6 E6 E7 F5 ← PP_LDO10_ADSP_1V05

VDD_MDSP_FW: T15 T16 T17 U14 U15 U16 U17 U19 T19 ← PP_LDO11_MDSP_FW_1V05

VDD_MDSP_SW: N15 N16 N17 N19 P15 P16 P17 P19 ← PP_LDO12_MDSP_SW_1V05

VDD_QFUSE_PRG: B13 ← PP_LVS1
R6_RF 470K 5% 1/32W MF 01005

VDD_USB_1P8: E12 ← PP_LDO2_XO_HS_1V8
VDD_USB_3P3: E10 ← PP_LDO4_VDDA_3V3

VDD_HVPAD_BIAS: E16 ← VDDPX_BIAS
C71_RF 1.0UF 20% 6.3V X5R 0201-1
C31_RF 0.1UF 20% 4V X5R 01005 NOSTUFF

VDD_PLL1: K17 L17 ← PP_LDO9_PLL_1V05
VDD_PLL2: W12 ← PP_LDO3_AMUX_1V8

VDD_A2: U6 U7 ← PP_LDO7_DAC_1V8

GND: AA11 AA18

VDD_A1: W9 AA7 ← PP_SMPS2_RF1_1V3
C70_RF 1.0UF 20% 6.3V X5R 0201-1
C33_RF 1.0UF 20% 6.3V X5R 0201-1
GND: AA15

VDD_P3: A15 G1 G21 L1 U1 W19 ← PP_SMPS3_MSME_1V8
C69_RF 1.0UF 20% 6.3V X5R 0201-1

VDD_P4: A2 ← PP_LDO6_RUIM_1V8
VDD_P5: A3 ← PP_SMPS3_MSME_1V8
VDD_P6: A7 ← PP_LDO8_VDDPX_1V2
VDD_P7: A11 ← PP_SMPS3_MSME_1V8

U1_RF
MDM9615M
BGA
(6 OF 6)
GND

GND: A21 AA1 AA21 B2 B7 B11 B14 B15 C19 F6 F7 F10 F15 F16 F19 G2 G6 G10 G11 G15 G16 G17 G20 H6 H10 H11 H15 H16 J6 J7 J10 J11 J14 J15 K6 K7 K10 K11 K14 K15 K20 L2 L6 L7 L10 L11 L14 L15 M6 M7 M10 M11
GND: M14 M15 M16 M17 M19 N6 N7 N10 N11 N14 P6 P10 P11 R6 R10 R11 R15 R16 R17 R19 T10 T12 T13 T14 U2 V19
GND_ANA: F11 J16 K16 L16 T6 T7 T11 U9 U12 W7 W14 Y7 Y11 Y15 Y18 U13 W13

U1_RF
MDM9615M
BGA
(2 OF 6)
EBI1_EBI2

EBI1_CAL: C21 EBI1_CAL
R10_RF 240 1% 1/32W MF 01005

EBI2_NAND_CS*: D21 NC
EBI2_OE*: E19 NC
EBI2_WE*: D20 NC
EBI2_BUSY*: D19 NC
EBI2_CLE*: C20 NC
EBI2_ALE*: E20 NC

EBI2_AD_0: J20 NC
EBI2_AD_1: J19 NC
EBI2_AD_2: G19 NC
EBI2_AD_3: H20 NC
EBI2_AD_4: J21 NC
EBI2_AD_5: H19 NC
EBI2_AD_6: H21 NC
EBI2_AD_7: E21 NC

U1_RF
MDM9615M
BGA
(1 OF 6)
DIGITAL

PMIC_RESOUT_L → RESIN*
DEBUG_RST_L → SRST*
SLEEP_CLK_32K → SLEEP_CLK
RESOUT*: U20 NC

BB_JTAG_TCK → TCK
BB_JTAG_TDI → TDI
BB_JTAG_TMS → TMS
BB_JTAG_TRST_L → TRST*
TDO: AA3 BB_JTAG_TDO (OUT)
RTCK: Y2 BB_JTAG_RTCLK (OUT)

MODE_0: W20 NC
MODE_1: Y19 NC

19P2M_MDM → CXO
19P2M_CLK_EN → CXO_EN
PMIC_SSBI → SSBI_PMIC

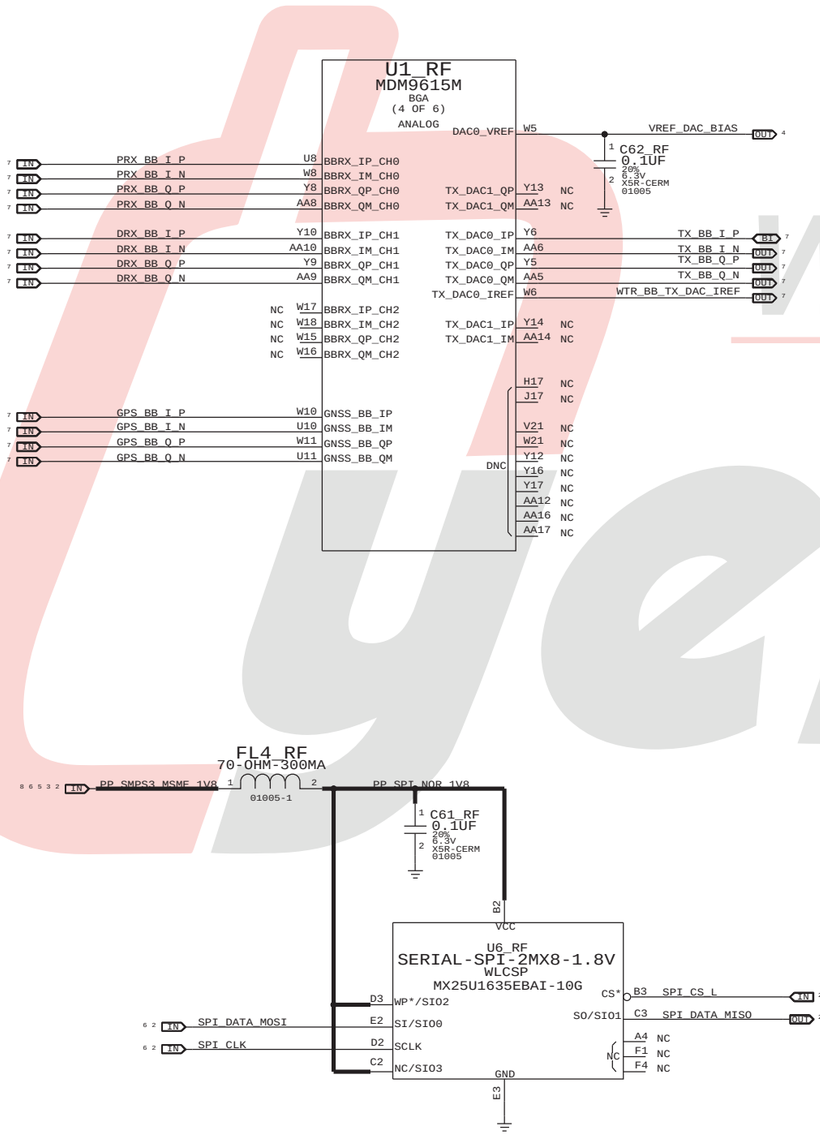
HSIC_CAL: A8 50_HSIC_CAL
HSIC_DATA: C7 50_HSIC_BB_DATA (BI)
HSIC_STB: B8 50_HSIC_BB_STROBE (BI)
R9_RF 240 1% 1/32W MF 01005

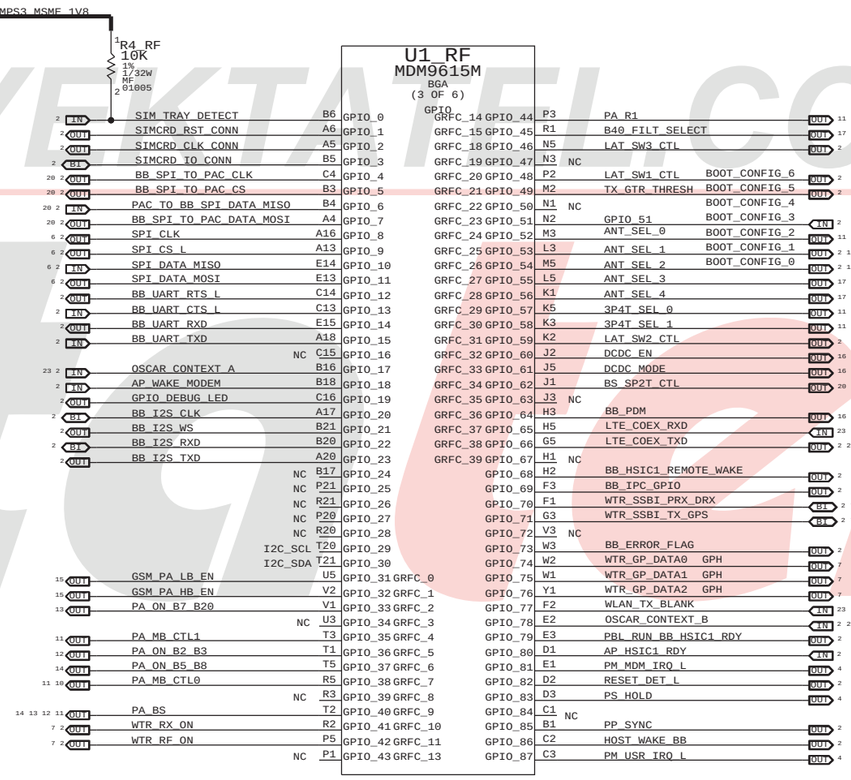
90_BB_USB_D_P → USB_HS_DP
90_BB_USB_D_N → USB_HS_DM
RREFEXT → USB_HS_REXT
ID IS NC → USB_HS_ID
USB_HS_SYSCLK
BB_USB_VBUS → USB_HS_VBUS
R7_RF 200 1% 1/32W MF 01005

DNC: E8 C8 B9 A9
DNC: E9 C9 B10 A10

SDC1_CMD: K19 NC
SDC1_CLK: L21 NC
SDC1_DATA0: L19 NC
SDC1_DATA1: L20 NC
SDC1_DATA2: N20 NC
SDC1_DATA3: N21 NC

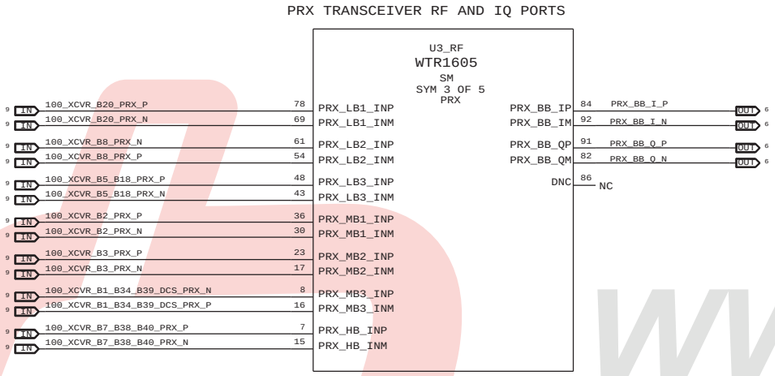
BASEBAND (2 OF 2)



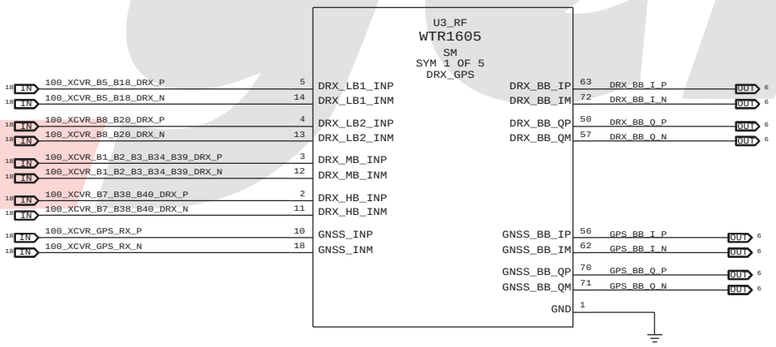


RF TRANSCEIVER (1 OF 2)

PRX TRANSCEIVER RF AND IQ PORTS

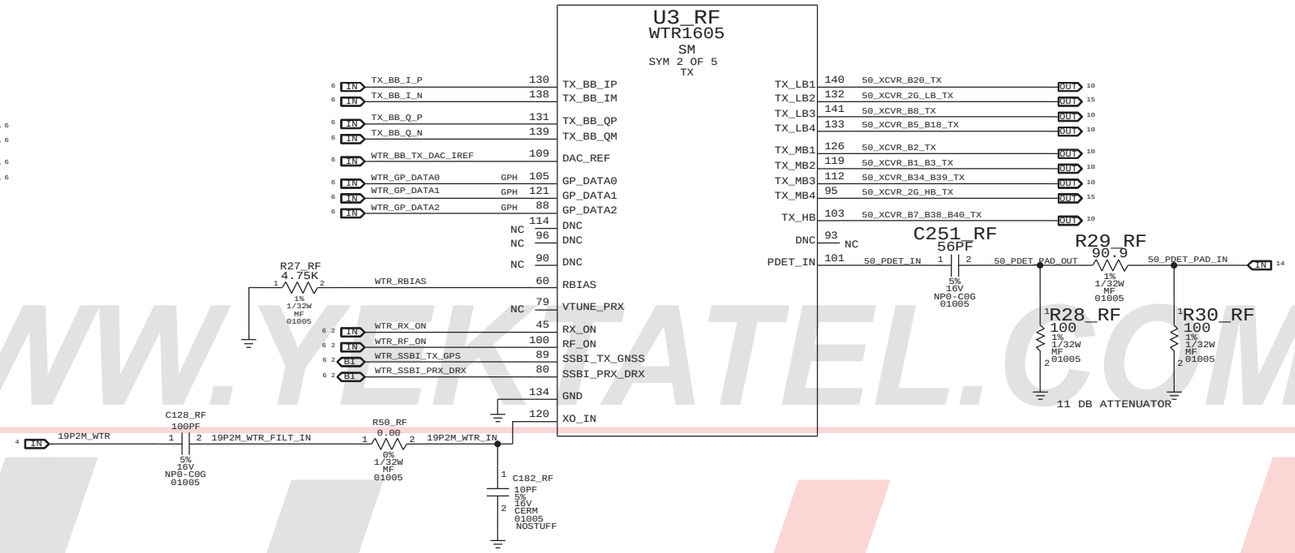


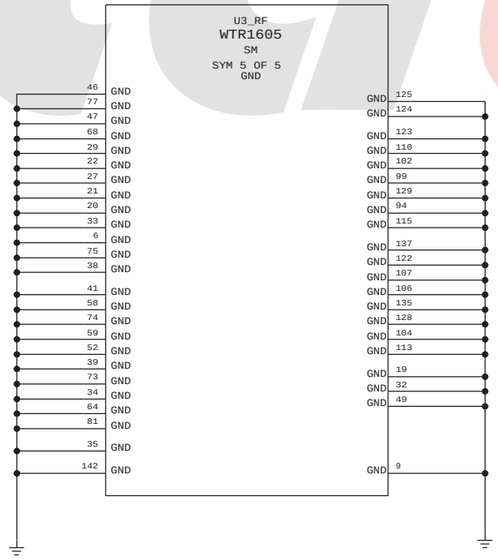
DRX TRANSCEIVER RF AND IQ PORTS



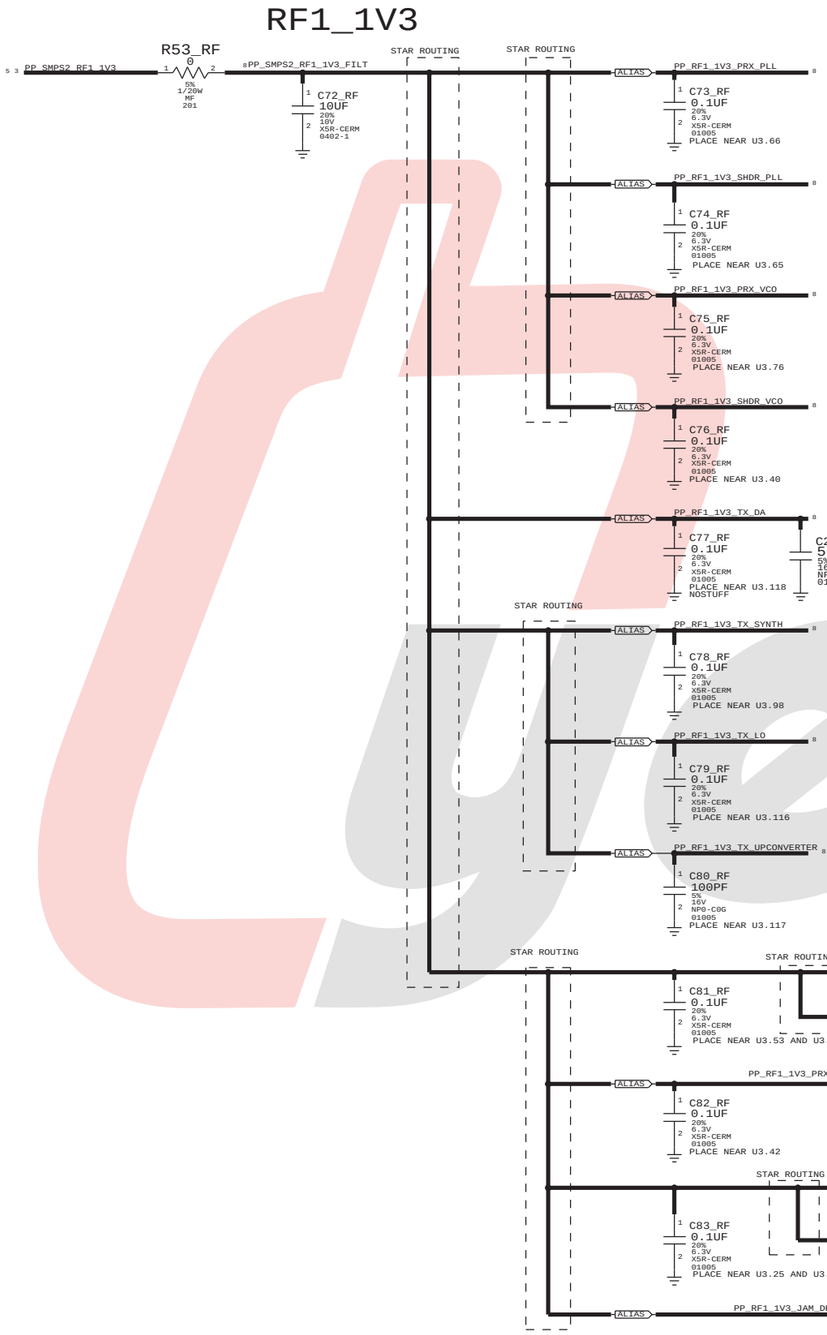
TRANSCEIVER GROUND CONNECTIONS

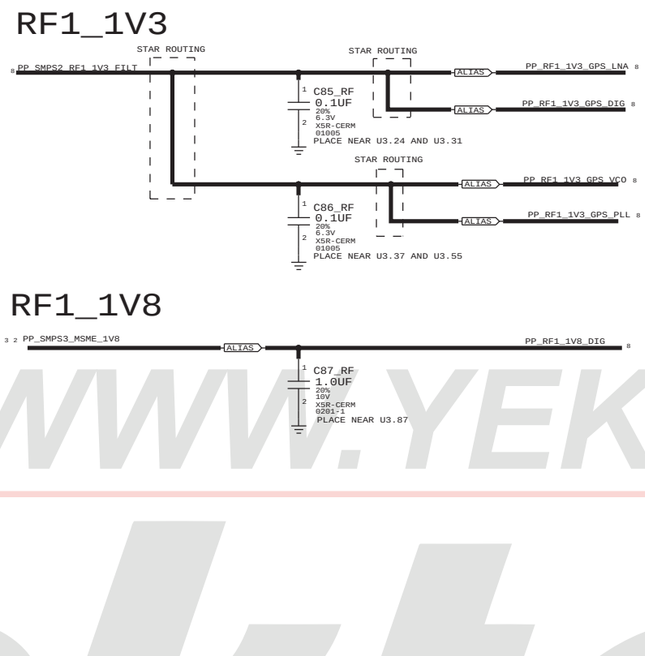
TRANSCEIVER PHASE CONTROL, TX RF & IQ PORTS

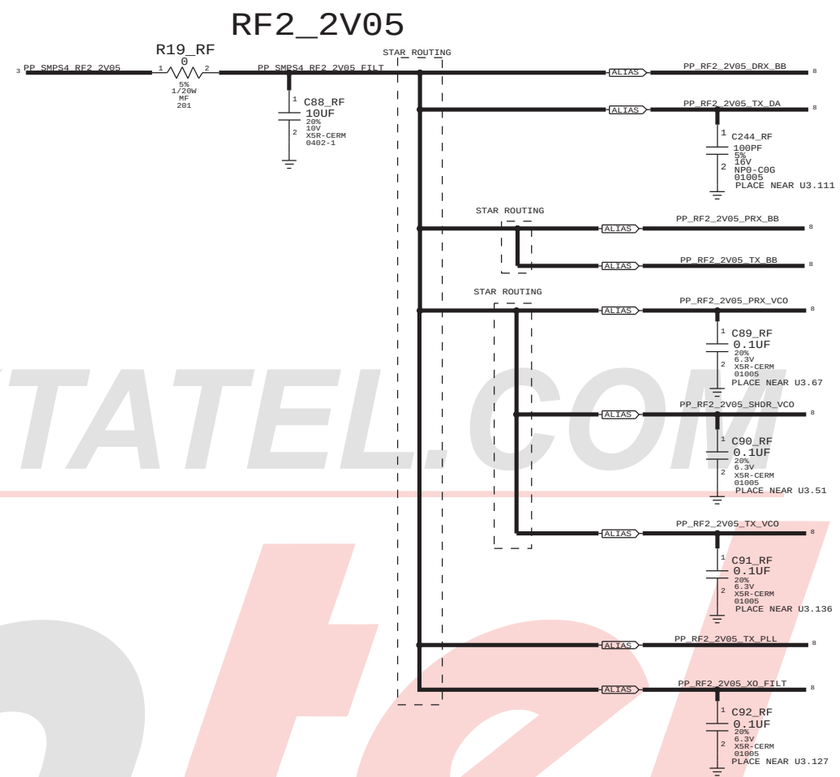


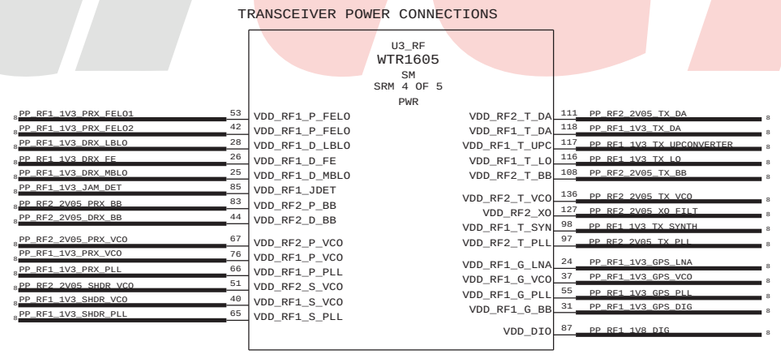


RF TRANSCEIVER (2 OF 2)

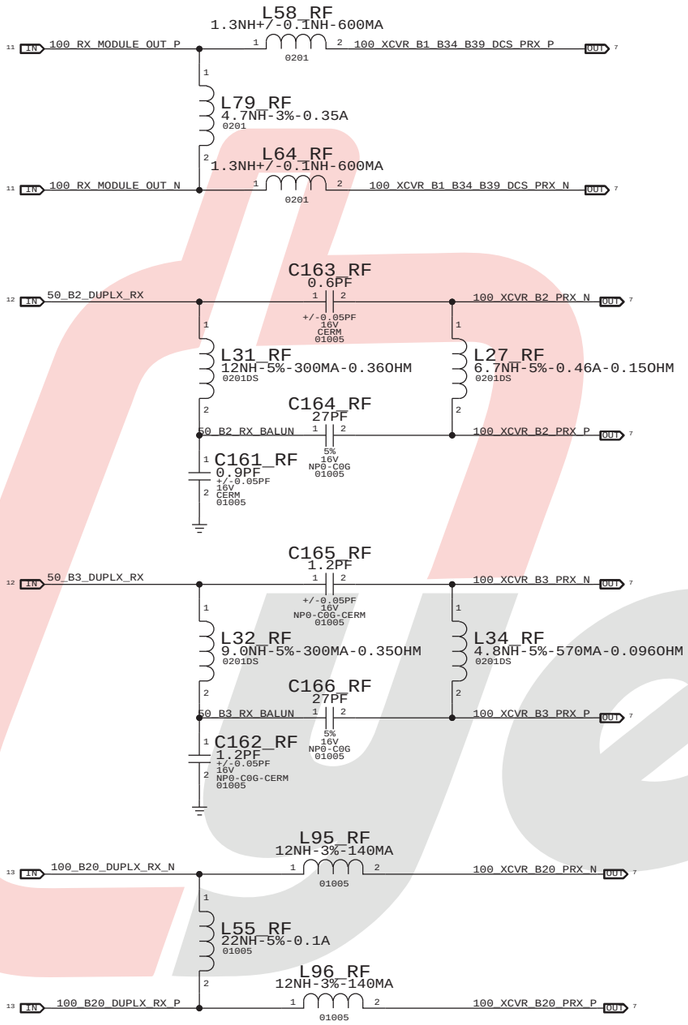


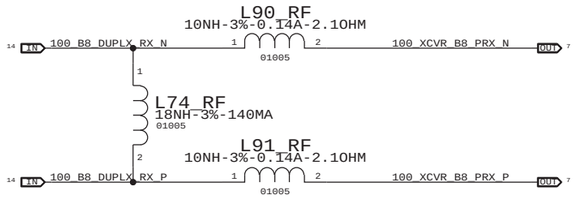


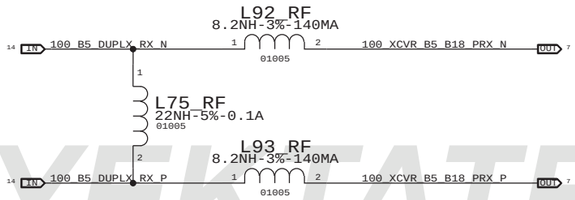


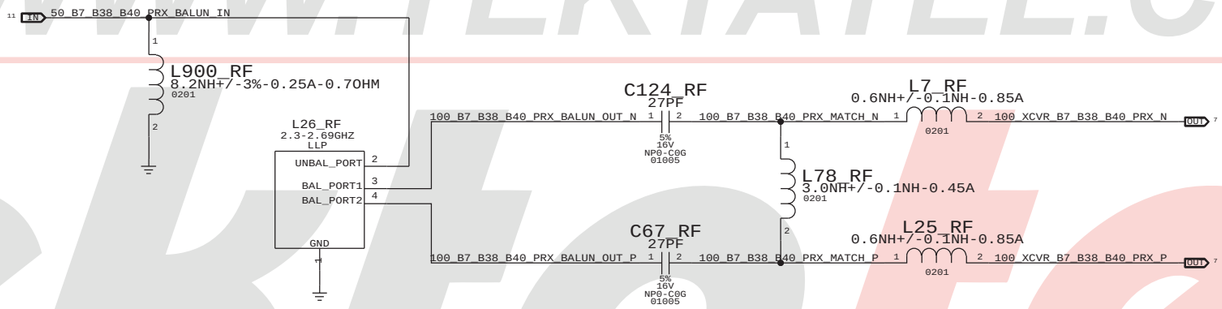


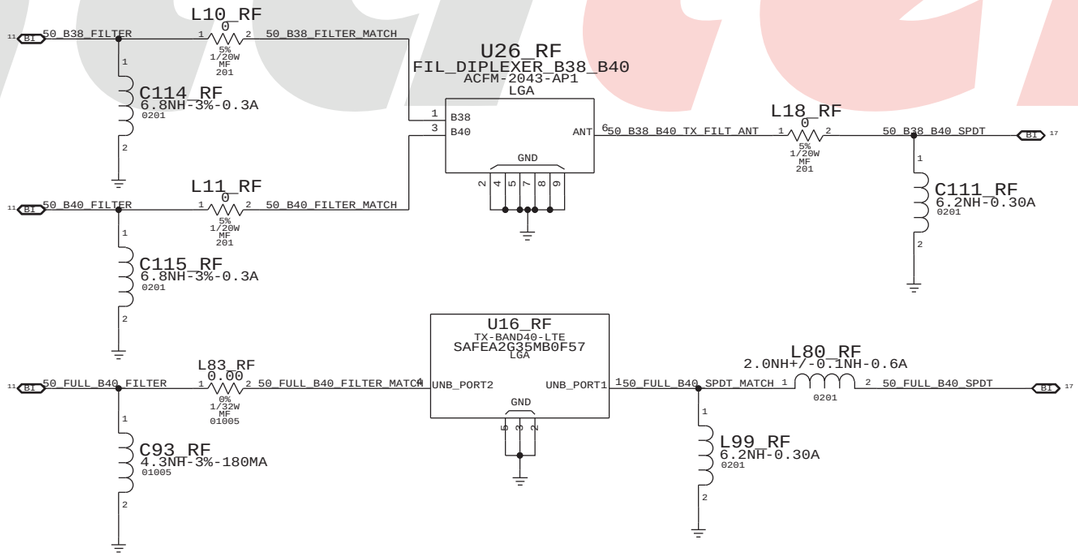
RX MATCHING



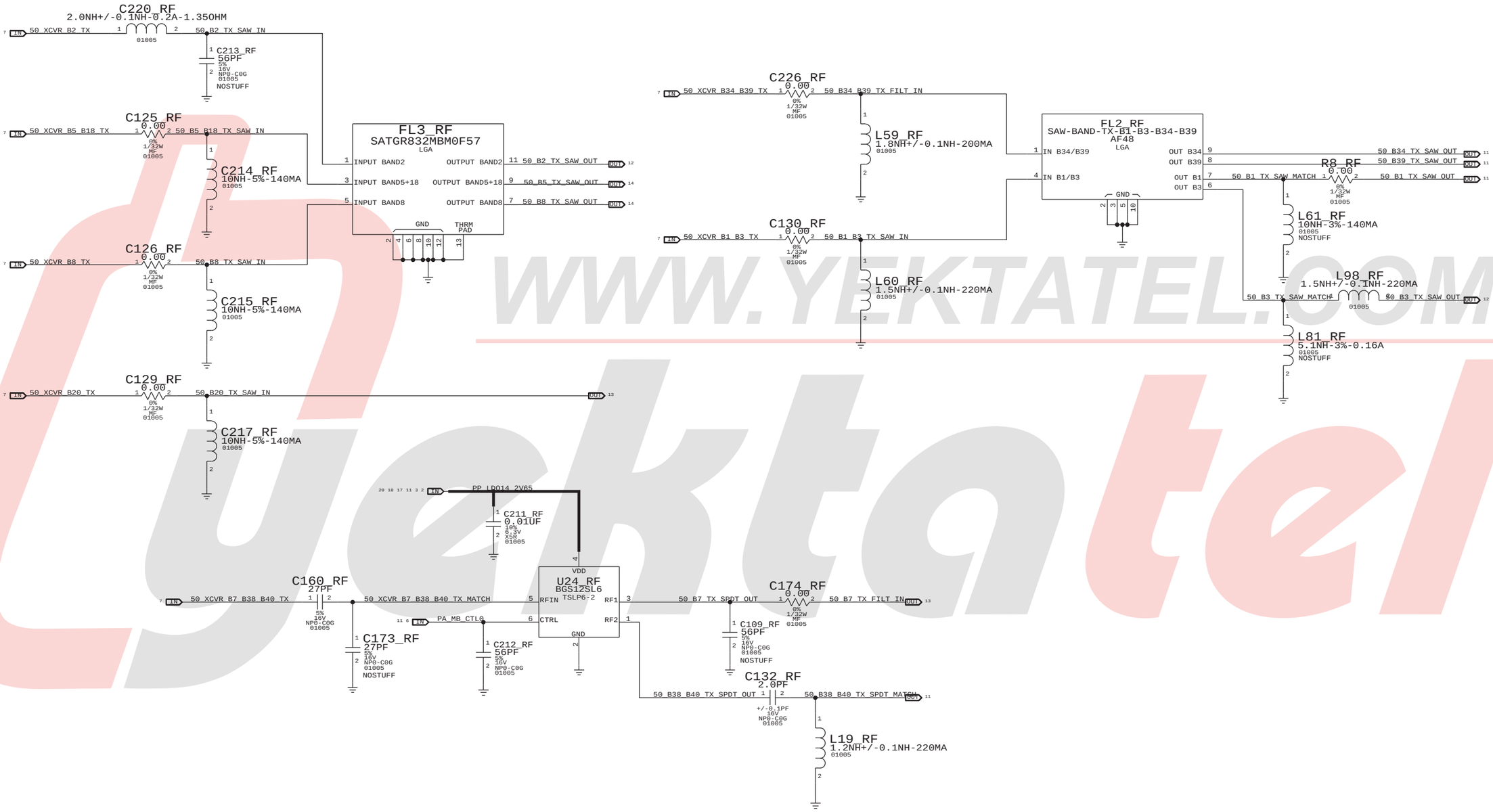




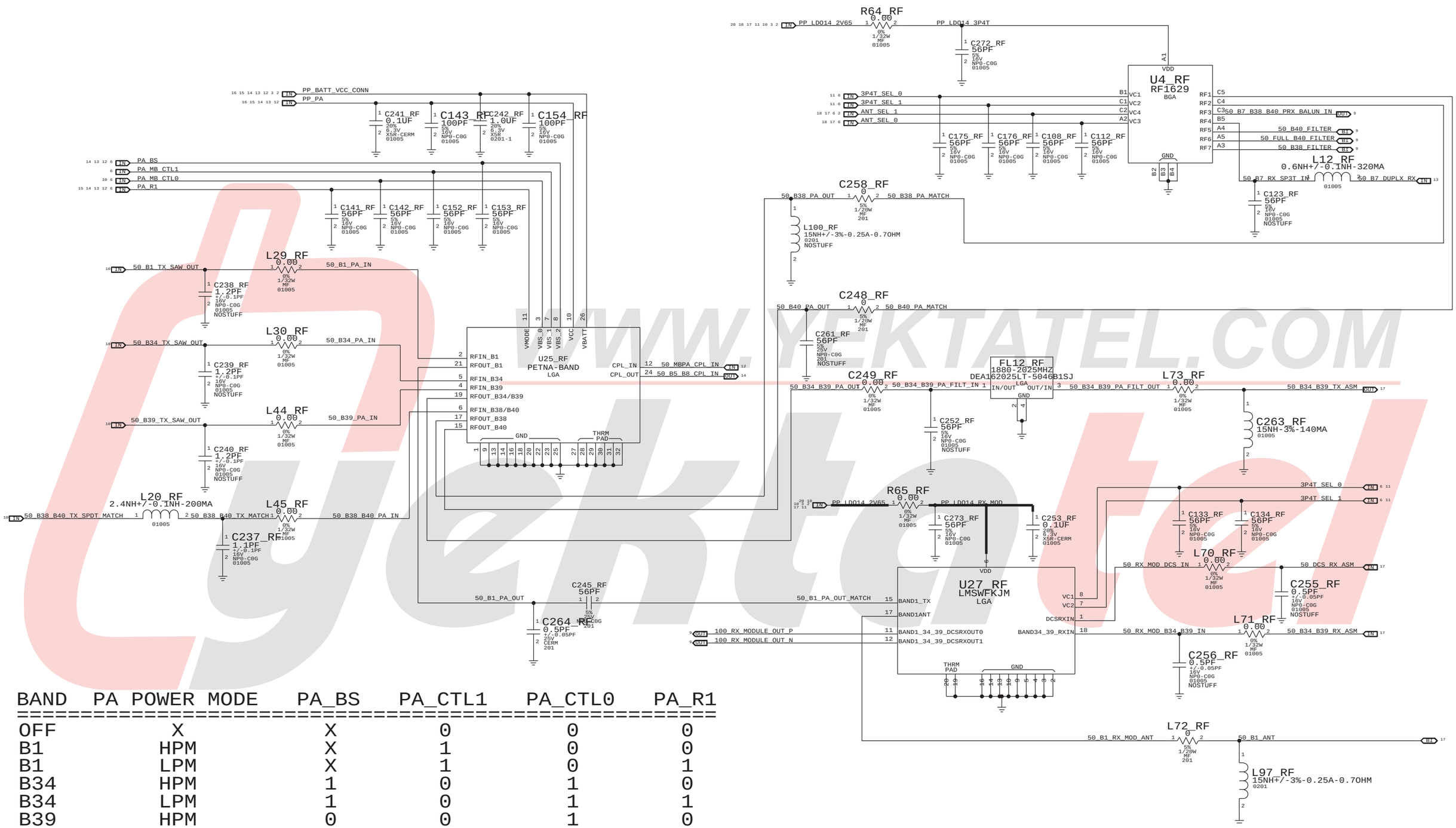




TX INTERSTAGE FILTERS

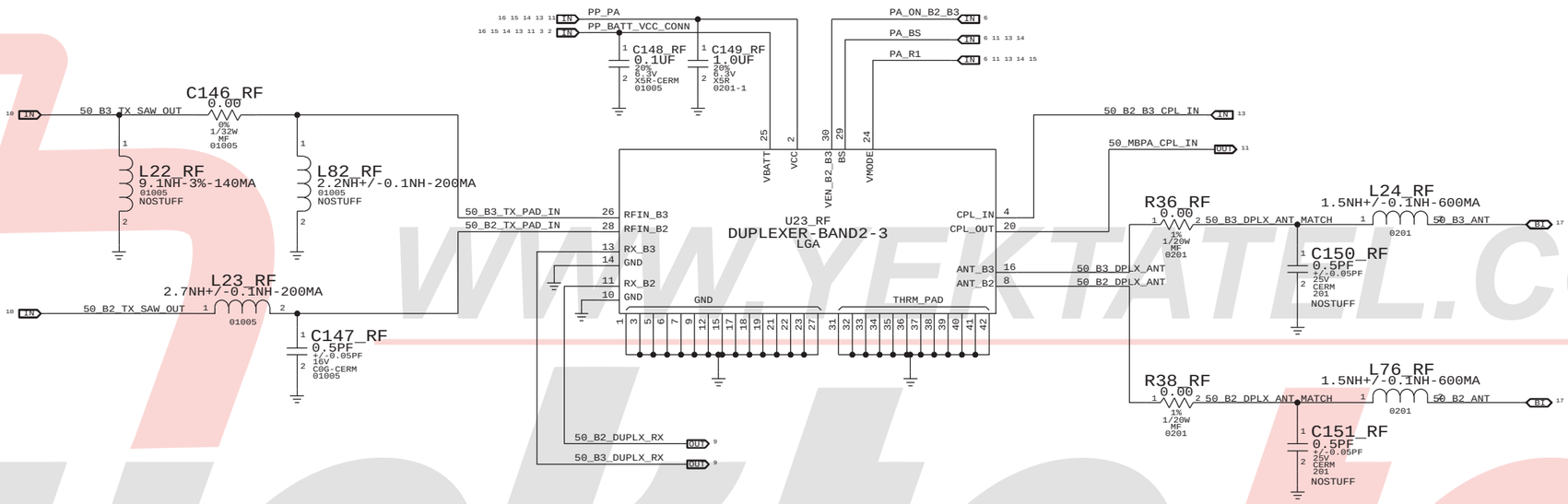


BAND 1/34/39/38/40 TX



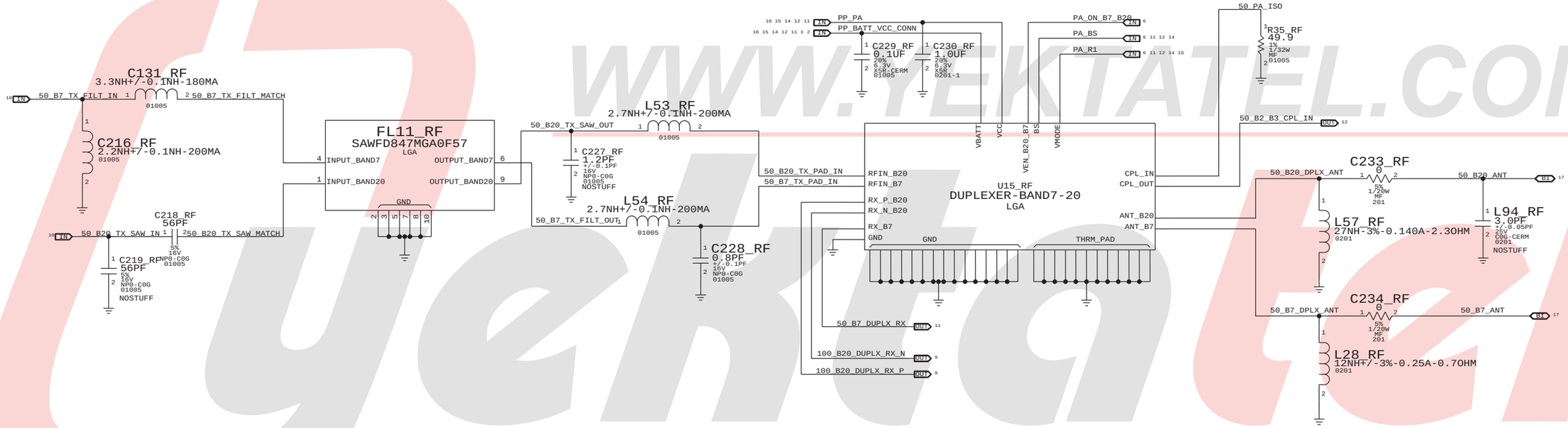
BAND	PA_POWER_MODE	PA_BS	PA_CTL1	PA_CTL0	PA_R1
OFF	X	X	0	0	0
B1	HPM	X	1	0	0
B1	LPM	X	1	0	1
B34	HPM	1	0	1	0
B34	LPM	1	0	1	1
B39	HPM	0	0	1	0
B39	LPM	0	0	1	1
B38	HPM	1	1	1	0
B38	LPM	1	1	1	1
B40	HPM	0	1	1	0
B40	LPM	0	1	1	1

BAND 2/3 PAD



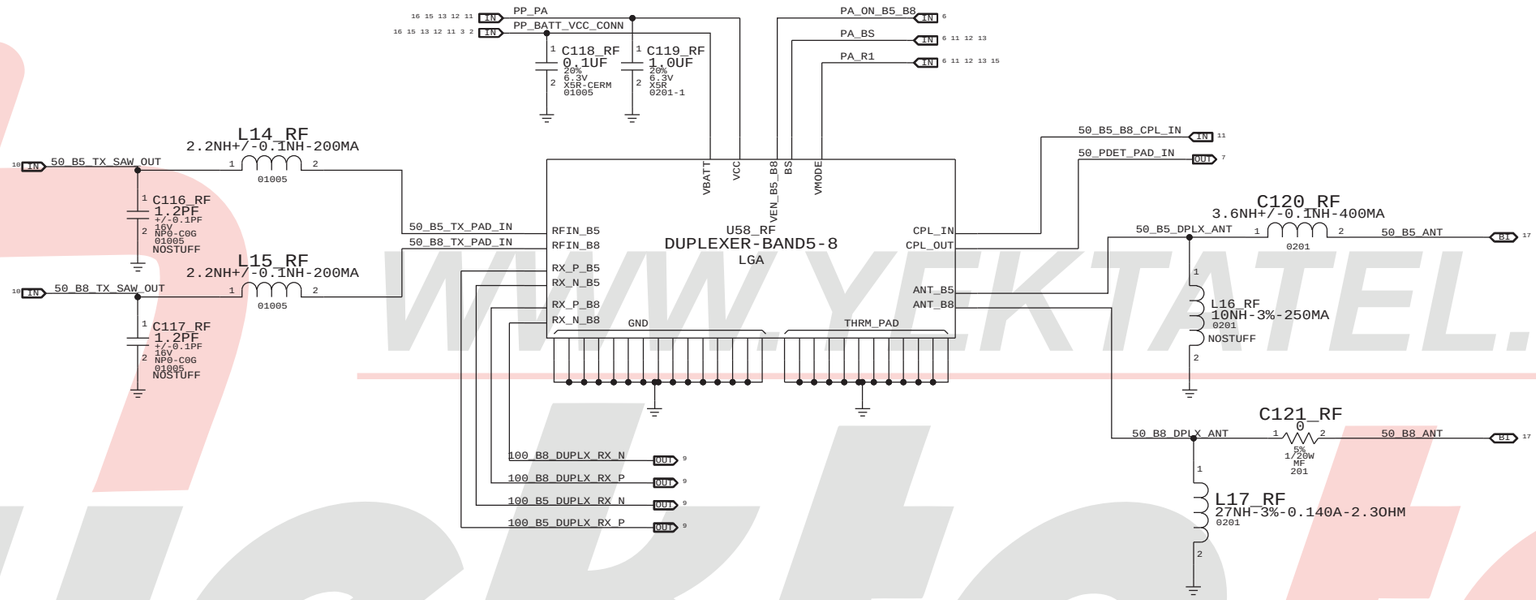
BAND	PA POWER MODE	PA_BS	PA_ON_B2_B3	PA_R1
OFF	X	X	0	X
B3	HPM	0	1	0
B3	LPM	0	1	1
B2	HPM	1	1	0
B2	LPM	1	1	1

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

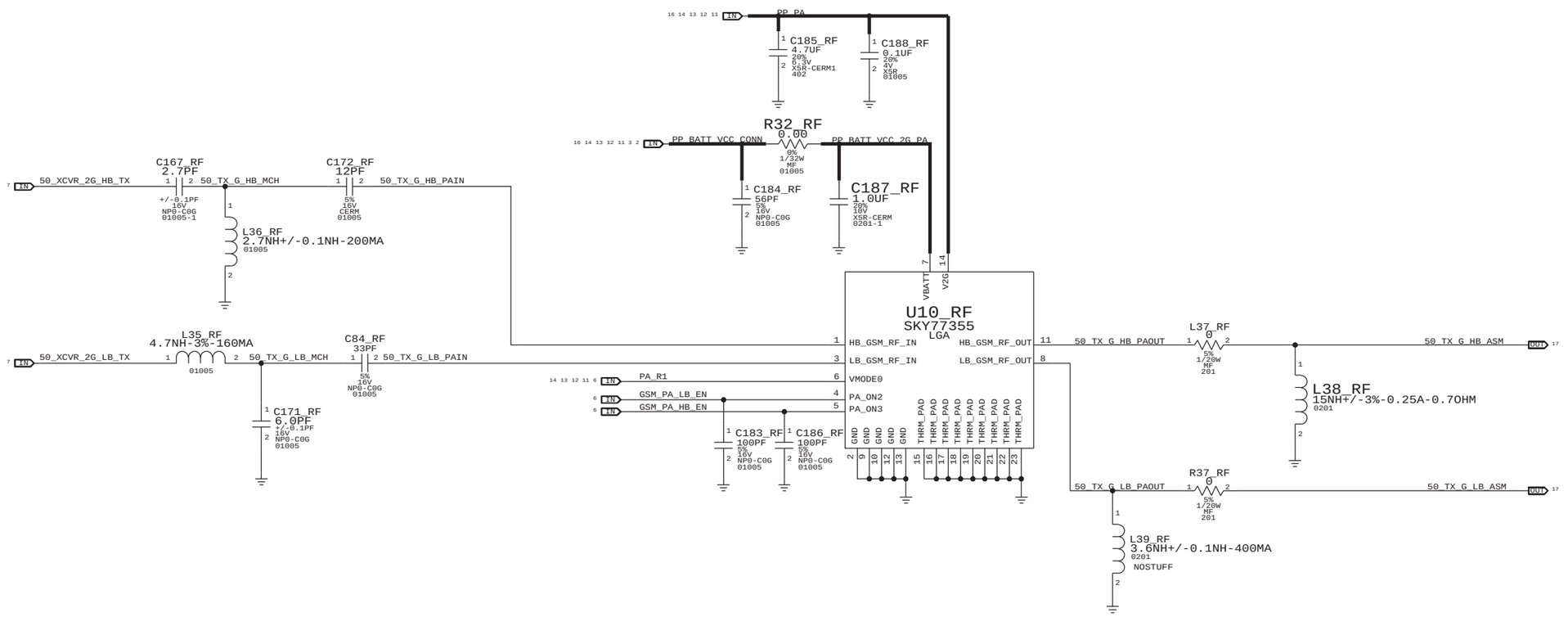


BAND	PA POWER MODE	PA_BS	PA_ON_B5_B8	PA_R1
OFF	X	X	0	X
B5	HPM	0	1	0
B5	LPM	0	1	1
B8	HPM	1	1	0
B8	LPM	1	1	1

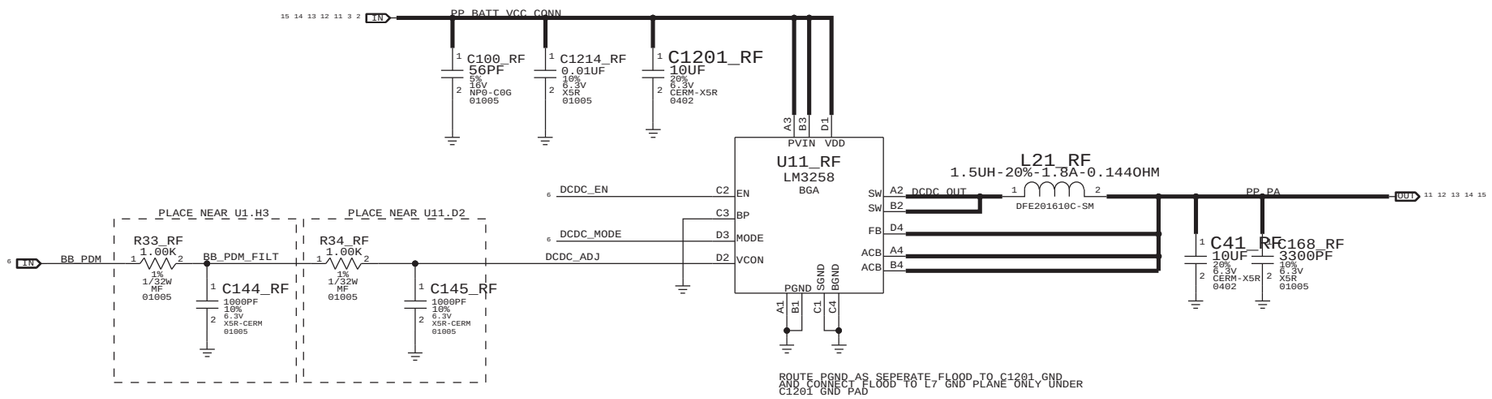
2G PA

2G PA GAIN MODES

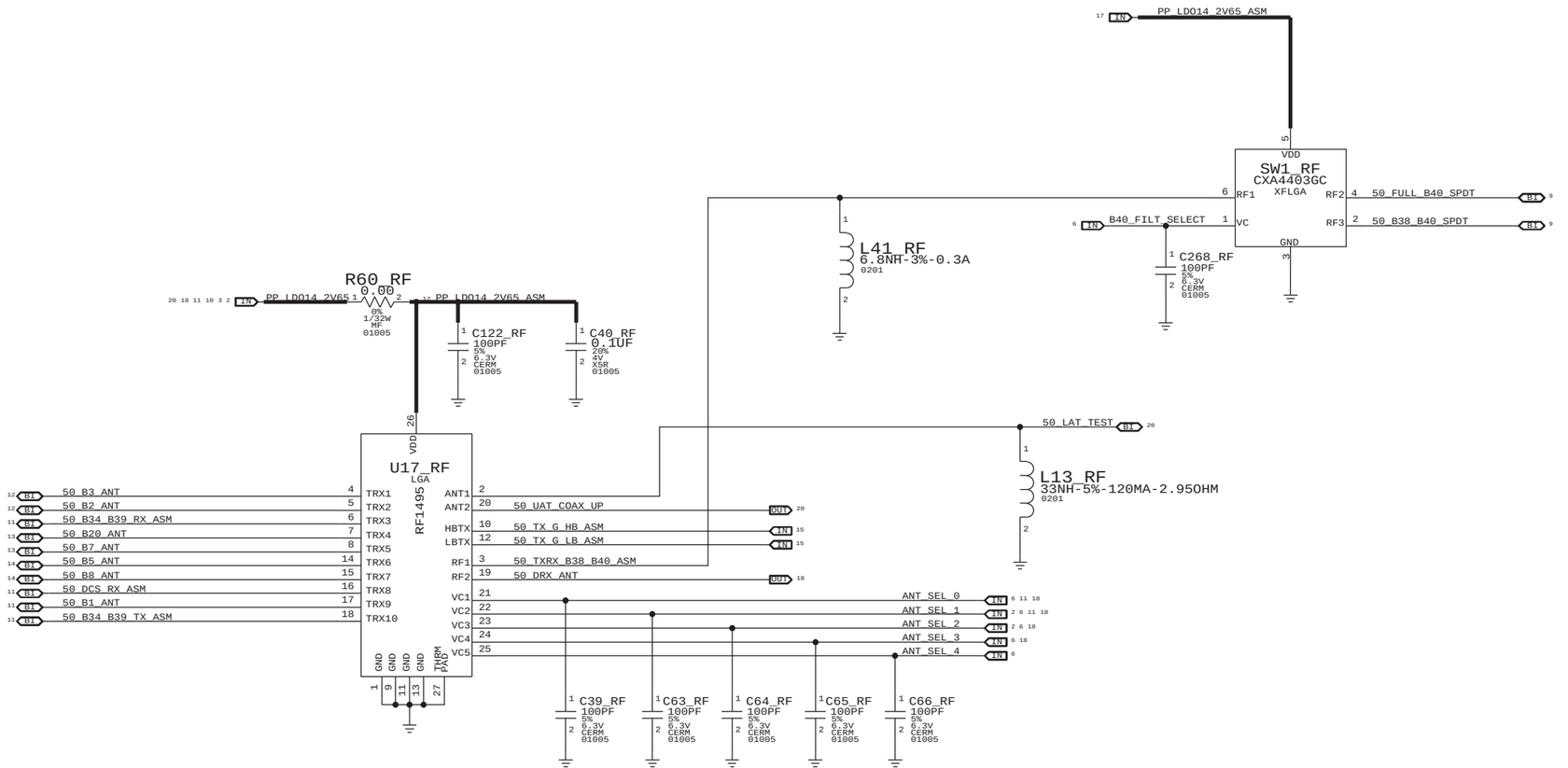
BAND	MODE	GAIN MODE	PA_R1	PCL RANGE
LOW BAND	GSM	ULTRA LOW	HIGH	16 TO 19
LOW BAND	GSM	LOW	HIGH	14 TO 15
LOW BAND	GSM	MEDIUM	LOW	7 TO 13
LOW BAND	GSM	HIGH	LOW	5 TO 6
HIGH BAND	GSM	ULTRA LOW	HIGH	10 TO 15
HIGH BAND	GSM	LOW	HIGH	7 TO 9
HIGH BAND	GSM	HIGH	LOW	0 TO 6
LOW BAND	EDGE	LOW	HIGH	15 TO 19
LOW BAND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



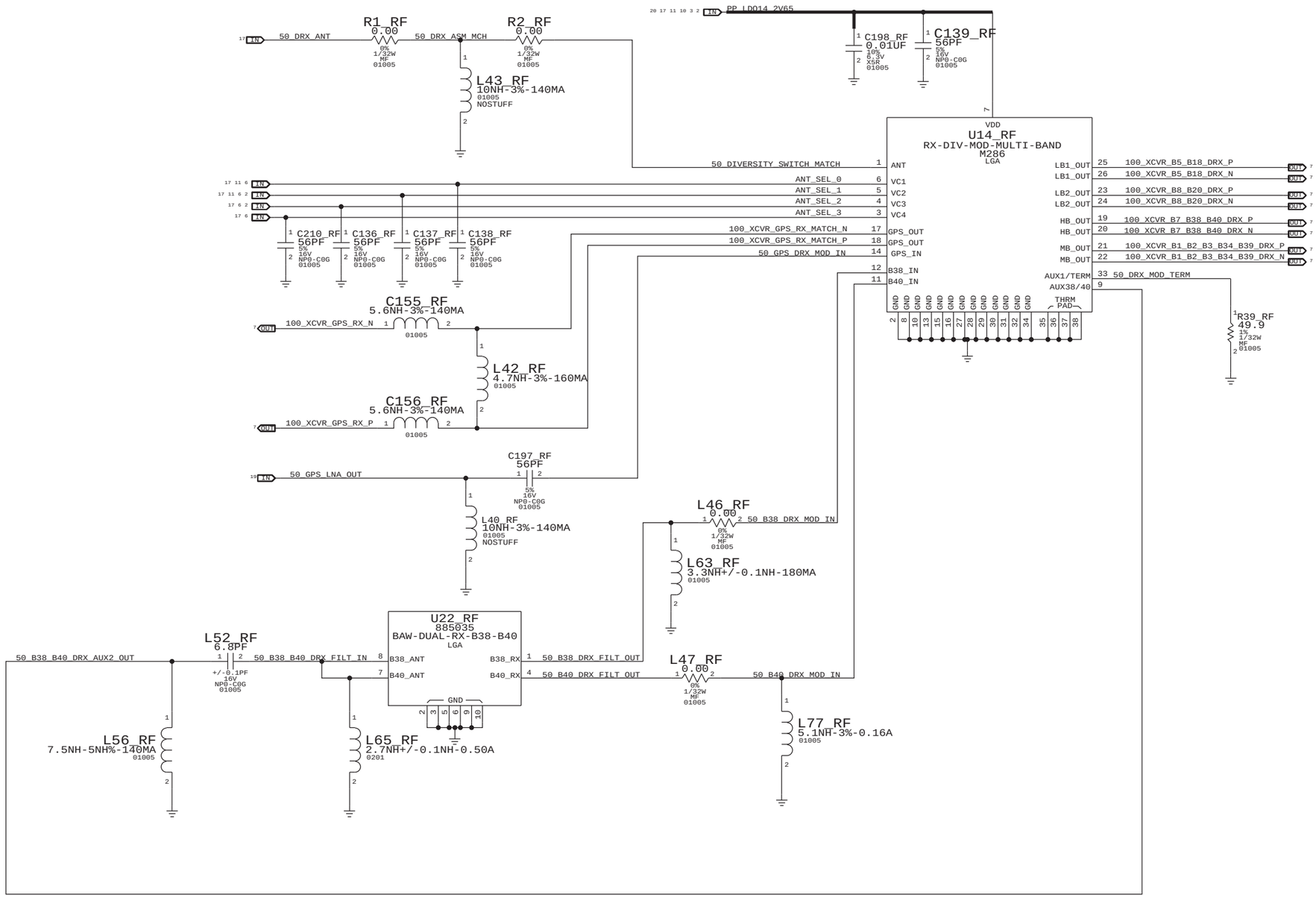
PA DC/DC CONVERTER



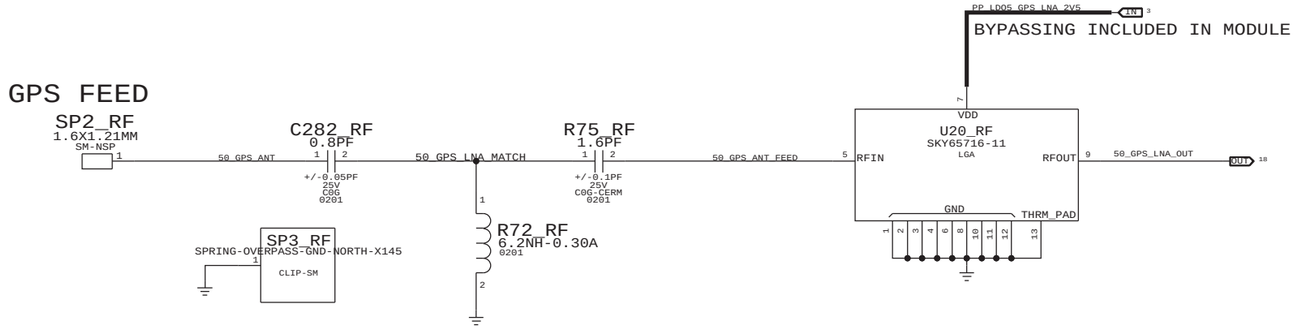
PRIMARY ASM


PP_LD014_2V65_ASM
SW1_RF
CXA4403GC
XFLGA
VDD
GND
RF1
RF2
RF3
VC
B40_FILT_SELECT
50_FULL_B40_SPDT
50_B38_B40_SPDT
L41_RF
6.8NH-3%-0.3A
0201
C268_RF
100PF
5%
6.3V
CERM
01005
R60_RF
0.00
0%
1/32W
MF
01005
PP_LD014_2V65
C122_RF
100PF
5%
6.3V
CERM
01005
C40_RF
0.1UF
20%
4V
X5R
01005
U17_RF
LGA
RF1495
VDD
GND
THRM PAD
TRX1
TRX2
TRX3
TRX4
TRX5
TRX6
TRX7
TRX8
TRX9
TRX10
ANT1
ANT2
HBTX
LBTX
RF1
RF2
VC1
VC2
VC3
VC4
VC5
50_B3_ANT
50_B2_ANT
50_B34_B39_RX_ASM
50_B20_ANT
50_B7_ANT
50_B5_ANT
50_B8_ANT
50_DCS_RX_ASM
50_B1_ANT
50_B34_B39_TX_ASM
50_UAT_COAX_UP
50_TX_G_HB_ASM
50_TX_G_LB_ASM
50_TXRX_B38_B40_ASM
50_DRX_ANT
50_LAT_TEST
L13_RF
33NH-5%-120MA-2.95OHM
0201
ANT_SEL_0
ANT_SEL_1
ANT_SEL_2
ANT_SEL_3
ANT_SEL_4
C39_RF
C63_RF
C64_RF
C65_RF
C66_RF
100PF
5%
6.3V
CERM
01005

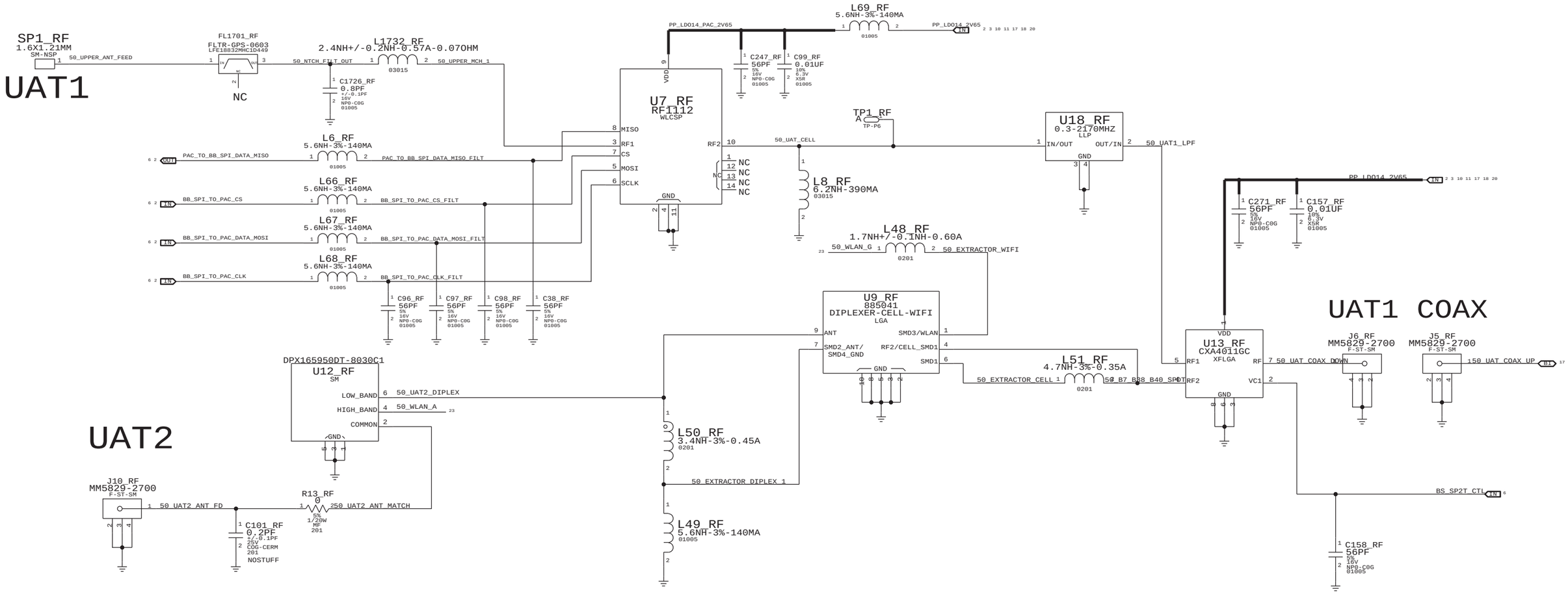
RX DIVERSITY

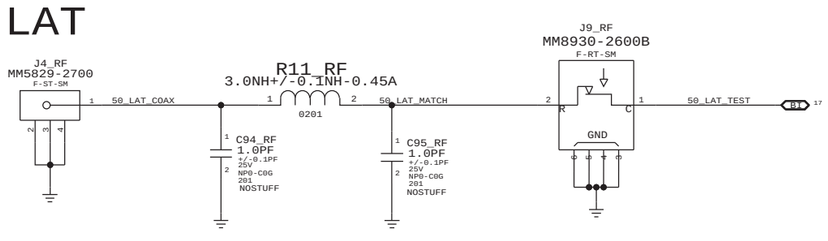


GPS

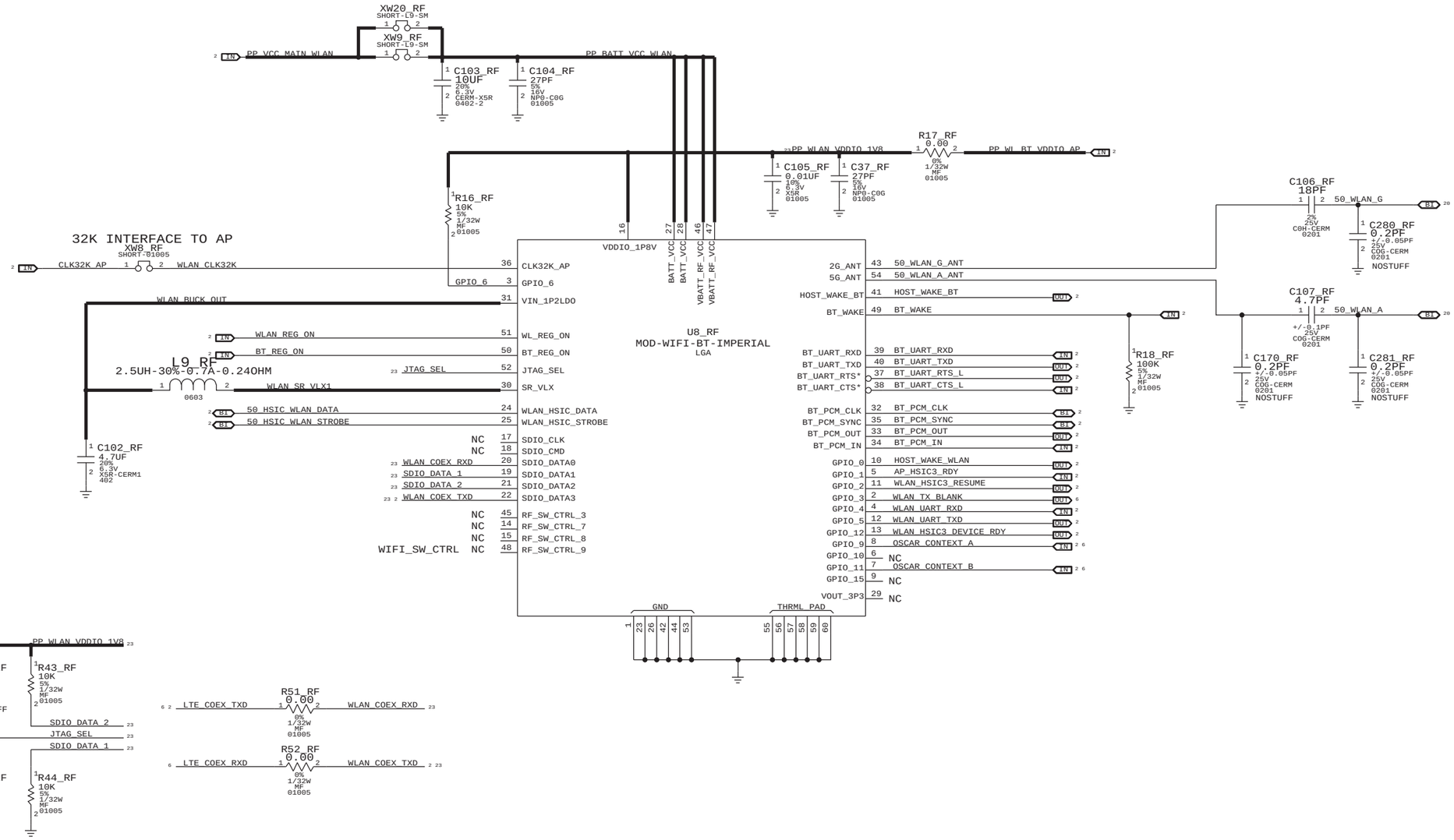

GPS FEED
SP2_RF
1.6X1.21MM
SM-NSP
50_GPS_ANT
C282_RF
0.8PF
+/-0.05PF
25V
C0G
0201
50_GPS_LNA_MATCH
R75_RF
1.6PF
+/-0.1PF
25V
C0G-CERM
0201
50_GPS_ANT_FEED
SP3_RF
SPRING-OVERPASS-GND-NORTH-X145
CLIP-SM
R72_RF
6.2NH-0.30A
0201
PP_LDO5_GPS_LNA_2V5
BYPASSING INCLUDED IN MODULE
U20_RF
SKY65716-11
LGA
VDD
RFIN
RFOUT
50_GPS_LNA_OUT
OUT
GND
THRM_PAD

ANTENNA FEEDS





WLAN/BT



PULL-UP ON GPIO6, SDIO_DATA_2 & PULL-DOWN ON SDIO_DATA_1 REQUIRED FOR HSIC BOOTSTRAPPING