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

REV	ECN	DESCRIPTION OF REVISION	CK APPD / DATE
4	0004752417	ENGINEERING RELEASED	2015-08-24

N69 MLB - EVT

LAST_MODIFICATION=Wed Aug 19 11:42:47 2015

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SCH 051-00648
BRD 820-00282
MCO 056-01352
BOM 639-00931 (N69 BETTER)
BOM 639-01012 (N69H BETTER)
BOM 639-01231 (N69 BEST)
BOM 639-01232 (N69H BEST)
BOM 639-01271 (N69 ULTRA)
BOM 639-01272 (N69H ULTRA)

SCHEMATIC & PCB BOM CALLOUTS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
051-00648	1	SCH,MLB,N69	SCH	CRITICAL	?
820-00282	1	PCBF,MLB,N69	PCB	CRITICAL	?
825-6838	1	EEEE CODE FOR 639-00931 16GB	EEEE_GH6K	CRITICAL	EEEE_16G
825-6838	1	EEEE CODE FOR 639-01012 16GB	EEEE_GJYD	CRITICAL	EEEE_16GH
825-6838	1	EEEE CODE FOR 639-01231 32GB	EEEE_GN7J	CRITICAL	EEEE_32G
825-6838	1	EEEE CODE FOR 639-01232 32GB	EEEE_GN7H	CRITICAL	EEEE_32GH
825-6838	1	EEEE CODE FOR 639-01271 64GB	EEEE_GP3V	CRITICAL	EEEE_64G
825-6838	1	EEEE CODE FOR 639-01272 64GB	EEEE_GP3W	CRITICAL	EEEE_64GH

S3E NAND BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
335S00054	1	NAND,1YNM,16GX8,S3E,64G,T,SLGA70	U1500	CRITICAL	NAND_16G
335S00072	1	NAND,1YNM,32GX8,S3E,64G,T,SLGA70	U1500	CRITICAL	NAND_32G
335S00076	1	NAND,1YNM,64GX8,S3E,TLC,128G,H,ULGA70	U1500	CRITICAL	NAND_64G

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
335S00071	335S00054	NAND_16G	U1500	HYNIX 16G SLGA70
335S00085	335S00072	NAND_32G	U1500	TOSHIBA 16G SLGA70

CARBON BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
338S00017	1	IC,CARBON,MPU-6700-12,LGA16	U3010	INVENSENSE_CARBON
338S1163	1	IC,ACCEL,3-AXIS,DIG,BMA282,LGA14	U3020	INVENSENSE_CARBON
1328O316	1	CAP,CER,X5R,0.1UF,20%,6.3V,01005	C3020	INVENSENSE_CARBON
1388O692	1	CAP,CER,X5R,1UF,20%,6.3V,0201	C3021	INVENSENSE_CARBON
1328O316	1	CAP,CER,X5R,0.1UF,20%,6.3V,01005	C3022	INVENSENSE_CARBON
1178O202	1	RES,MF,200HM,5%,1/32W,01005	R3020	INVENSENSE_CARBON
1178O202	1	RES,MF,200HM,5%,1/32W,01005	R3021	INVENSENSE_CARBON
1178O202	1	RES,MF,200HM,5%,1/32W,01005	R3022	INVENSENSE_CARBON
338S00087	1	IC,CARBON,MPU-6800-00,LGA16	U3010	INVENSENSE_CARBON_1_1

COMPASS PART NUMBER

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
338S00084	1	IC,COMPASS,MAGNESIUM,601A-19,FLGA14	U3000	COMMON

SHIELD PART NUMBERS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
806-03629	1	SHIELD,EMI,UPPER FRONT,N69	SH0500	COMMON
806-03630	1	SHIELD,EMI,LOWER FRONT,N69	SH0501	COMMON
806-03556	1	SHIELD,EMI,BACK,N69	SH0503	COMMON

POWER INDUCTOR ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S00117	152S00074	?	L2000	TAIYO 2016 1.0UH
152S00121	152S00081	?	L2001	TAIYO 2012 0.47UH
152S00120	152S00077	?	L2070	TAIYO 2016 1.0UH 0.65MM
152S00118	152S00075	?	L3700	TAIYO 2016 1.2UH
152S00123	15281936	?	L4020	TAIYO 3225 15UH

ALTERNATE BOM OPTIONS

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:	
138S00032	13880831	ALTERNATE	C0610	TY,2.2UF,0201	NOT ALL REFERENCE DESIGNATORS LISTED.
138S00049	13880831	ALTERNATE	C0610	KYOCERA,2.2UF,0201	USED 91 TIMES IN DESIGN.
155S0660	155S0513	ALTERNATE	FL3100	MURATA,FERR,22-OHM	USED 91 TIMES IN DESIGN.
138S00005	138S00003	ALTERNATE	C1500	TY,15UF,0402	USED 5 TIMES IN DESIGN.
138S00048	138S00003	ALTERNATE	C1500	KYOCERA,15UF,0402	USED 61 TIMES IN DESIGN.
118S0764	118S0717	ALTERNATE	R2250	PANASONIC,3.92K-OHM,0201	USED 61 TIMES IN DESIGN.
138S00006	13880835	ALTERNATE	C1106	TY,4.3UF,0402	USED 1 TIME IN DESIGN.
152S2052	15281929	ALTERNATE	L2060	CYNTEC,1UH,1608	USED 20 TIMES IN DESIGN.
155S0773	155S0453	ALTERNATE	FL3101	TY,FERR,120-OHM,01005	USED 1 TIME IN DESIGN.
377S0168	377S0140	ALTERNATE	DZ3150	TDK,VARISTOR,6.8V,100PF,01005	USED 35 TIMES IN DESIGN.
155S00067	155S0581	ALTERNATE	FL4200	TDK,FERR,240-OHM,0201	USED 9 TIMES IN DESIGN.
155S00012	155S00009	ALTERNATE	L3100	MURATA,CHOKE,65-OHM,0605	USED 5 TIMES IN DESIGN.
1388O706	13880739	ALTERNATE	C5302_RF	MURATA,CAP,CER,10P,25%,10V,X5R,0201	USED 10 TIMES IN DESIGN.
1388O945	13880739	ALTERNATE	C5302_RF	KYOCERA,CAP,CER,10P,25%,10V,X5R,0201	USED 4 TIMES IN DESIGN.
155S00095	155S00068	ALTERNATE	FL1280	FERR 80,100 OHM,25%,100MA,2 OHM,01005	USED 4 TIMES IN DESIGN.
1388O648	1388O652	ALTERNATE	C3650	TY,4.7UF,0402	USED 1 TIME IN DESIGN.
1328O400	13280436	ALTERNATE	C1280	TAY,CER,X5R,0.220F,25%,6.3V,01005	USED 9 TIMES IN DESIGN.
155S0960	155S0941	ALTERNATE	FL3151	FERR 80,70 OHM,25%,300MA,0.4 DCR,01005	USED 1 TIME IN DESIGN.
138S00024	13880986	ALTERNATE	C5201_RF	CAP,CER,3-TERM,7.50F,20%,4V,0402	USED 8 TIMES IN DESIGN.
335S00066	335S0946	ALTERNATE	U0900	IC,EEPROM,16KBX8,1.8V,I2C,WLCSP4	USED 1 TIME IN DESIGN.
376S00106	376S00047	ALTERNATE	Q2300	DIODES INC. ACT DIODE	USED 1 TIME IN DESIGN.
34380688	34380638	ALTERNATE	U4301	CUMULUS 2ND FLOW	USED 1 TIME IN DESIGN.
138S00022	13880867	ALTERNATE	C1100	TY,10UF,0402	USED 1 TIME IN DESIGN.
138S00020	13880867	ALTERNATE	C1100	MURATA,10UF,0402	USED 51 TIMES IN DESIGN.
					USED 51 TIMES IN DESIGN.

PMU/SOC BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
339S00121	1	POP,MALTA+2GB 25NM DDR,A1,M,DEV	U0600	MALTA
118S00009	1	RES,MF,3.01KOHM,1%,1/32W,01005	R0730	MALTA
131S0307	1	CAP,CER,NPO/COG,100PF,5%,16V,01005	C0730	NOSTUFF
118S00025	1	RES,MF,330OHM,1%,1/32W,01005	R0651	MALTA
1328O316	1	CAP,CER,X5R,0.1UF,20%,6.3V,01005	C0731	NOSTUFF
338S00170	1	IC,PMU,ANTIGUA,D2255A1,OTP-BG	U2000	MALTA

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
339S00096	1	POP,MAUI+2GB 25NM DDR,C0,M,DEV	U0600	MAUI
118S0631	1	RES,MF,100OHM,1%,1/32W,01005	R0730	MAUI
131S0307	1	CAP,CER,NPO/COG,100PF,5%,16V,01005	C0730	MAUI
117S0161	1	RES,MF,0OHM,1/32W,01005	R0651	MAUI
1328O316	1	CAP,CER,X5R,0.1UF,20%,6.3V,01005	C0731	MAUI
338S00171	1	IC,PMU,ANTIGUA,D2255A1,OTP-YG	U2000	MAUI

SOC ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
339S00122	339S00121	ALTERNATE	U0600	MALTA DEV, H DRAM
339S00123	339S00121	ALTERNATE	U0600	MALTA DEV, S DRAM

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
339S00097	339S00096	ALTERNATE	U0600	MAUI DEV, M DRAM
339S00098	339S00096	ALTERNATE	U0600	MAUI DEV, S DRAM

TESTPOINTS

POWER

TP00 — TP-P6 — ROOM=TEST — POWER GROUND

PP5V0_USB (31 30 17) → TP01 — TP-P6 — ROOM=TEST — VBUS

PP_BATT_VCC (33 18 17) → TP02 — TP-P6 — ROOM=TEST; TP03 — TP-P6 — ROOM=TEST — VBATT

TP05 — TP-P55 — ROOM=TEST

TP24 — TP-P55 — ROOM=TEST — TP 24 FOR USB FIXTURE SI

RESET

PMU_TO_SYSTEM_COLD_RESET_L (16 9 5) → TP06 — TP-P55 — ROOM=TEST — SOC & BB RESET

DFU

FORCE_DFU (8) → TP07 — TP-P55 — ROOM=TEST

FORCE DFU PROCEDURE:

1. FROM OFF MODE SHORT TP07 TO PP07
2. PLUG IN E75 CABLE TO FORCE DFU

PP1V8 (28 21 20 14 13 12 9 8 7 6 5 3 2F) → PP07 — P4MM-NSM — 2M — ROOM=TEST

DFU_STATUS (8) → PP08 — P4MM-NSM — 2M — ROOM=TEST

E75

90_TRISTAR_DP1_CONN_P (31 30) → TP08 — TP-P55 — ROOM=TEST

90_TRISTAR_DP1_CONN_N (31 30) → TP09 — TP-P55 — ROOM=TEST — TRISTAR USB

90_TRISTAR_DP2_CONN_P (31 30) → TP10 — TP-P55 — ROOM=TEST

90_TRISTAR_DP2_CONN_N (31 30) → TP11 — TP-P55 — ROOM=TEST — TRISTAR DEBUG UART

PP_TRISTAR_ACC1 (31 30) → TP12 — TP-P55 — ROOM=TEST

PP_TRISTAR_ACC2 (31 30) → TP13 — TP-P55 — ROOM=TEST — TRISTAR ACCESSORY ID ACCESSORY POWER

TP14 — TP-P55 — ROOM=TEST

TRISTAR_CON_DETECT_L (31 30) → TP15 — TP-P55 — ROOM=TEST

AMUX

PMU_AMUX_AY (16) → TP16 — TP-P55 — ROOM=TEST

PMU_AMUX_BY (16) → TP17 — TP-P55 — ROOM=TEST

MOJAVE

MESA_TO_BOOST_EN (27 26) → TP18 — TP-P55 — ROOM=TEST

PP11V3_MESA (27 26) → TP19 — TP-P55 — ROOM=TEST

LCM

PP_LCM_BL_CAT1_CONN (28) → TP20 — TP-P55 — ROOM=TEST

PP_LCM_BL_CAT2_CONN (28) → TP21 — TP-P55 — ROOM=TEST

PP_LCM_BL_ANODE_CONN (28) → TP22 — TP-P55 — ROOM=TEST

LCD_TO_AP_PIFA_CONN (28) → TP23 — TP-P55 — ROOM=TEST

N69 I2C DEVICE MAP

I2C BUS	DEVICE	BINARY	7-BIT HEX	8-BIT HEX
I2C0	ANTIGUA PMU	1110100X	0X74	0XE8
	CHESTNUT	0100111X	0X27	0X4E
	BACKLIGHT	1100010X	0X62	0XC4
I2C1	TIGRIS	1110101X	0X75	0XEA
	SPEAKER AMP	1000000X	0X40	0X80
	TRISTAR	0011010X	0X1A	0X34
I2C2	ALS	0101001X	0X29	0X52
OWL	UNUSED	N/A	N/A	N/A
ISP I2C0	REAR CAM	TBD	TBD	TBD
	LED DRIVER	1100011X	0X63	0XC6
ISP I2C1	FRONT CAM	0110110X	0X36	0X6C
TOUCH I2C	UNUSED	N/A	N/A	N/A
SEP I2C	SEP EEPROM	1010001X	0x51	0xA2

BOOTSTRAPPING:BOARD REV
BOARD ID
BOOT CONFIG

PP1V8 (1 5 6 7 8 9 12 13 14 20 21 28 29) → 1.00K 1/32W 5% 01005 MF

BOARD_REV3 (OUT)	R0400	ROOM=SOC	
BOARD_REV2 (OUT)	R0401	ROOM=SOC	
BOARD_REV1 (OUT)	R0402	NOSTUFF, ROOM=SOC	
BOARD_REV0 (OUT)	R0403	NOSTUFF, ROOM=SOC	
BOARD_ID4 (OUT)	R0404	NOSTUFF, ROOM=SOC	
BOARD_ID3 (OUT)	R0405	NOSTUFF, ROOM=SOC	
BOARD_ID2 (BI)	R0406	NOSTUFF, ROOM=SOC	
BOARD_ID1 (OUT)	R0407	ROOM=SOC	
BOARD_ID0 (OUT)	R0408	NOSTUFF, ROOM=SOC	
BOOT_CONFIG2 (OUT)	R0409	NOSTUFF, ROOM=SOC	
BOOT_CONFIG1 (OUT)	R0410	ROOM=SOC	
BOOT_CONFIG0 (OUT)	R0411	ROOM=SOC	

BOARD_REV[3:0]
FLOAT=LOW, PULLUP=HIGH

	1111	PROTO0 MLB
	1110	PROTO1
	1101	PROTO2
SELECTED -->	1100	EVT
	XXXX	CARRIER
	XXXX	DVT

BOARD_ID[4:0]
FLOAT=LOW, PULLUP=HIGH

SELECTED -->	00010	N69 MLB
	00011	N69 DEV

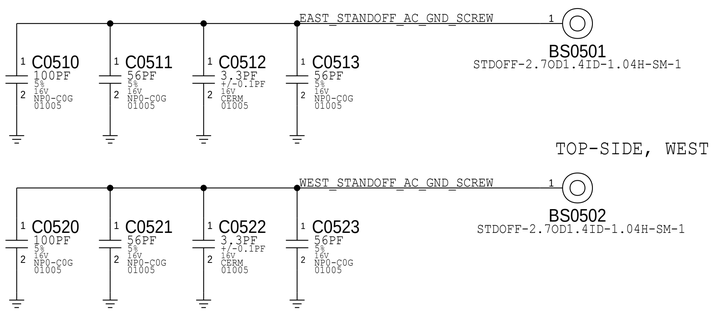
BOOT_CONFIG[2:0]
FLOAT=LOW, PULLUP=HIGH

	000	SPI0
	001	SPI0 TEST MODE
	010	NVME0 x2 MODE
SELECTED -->	011	NVME0 x2 TEST MODE
	100	NVME0 x1 MODE
	101	NVME0 x1 TEST MODE
	110	SLOW SPI0 TEST MODE
	111	FAST SPI0 TEST MODE

RESISTOR STUFF = HIGH '1'
RESISTOR NOSTUFF = LOW '0'

BOARD STANDOFFS AND AC COUPLING CAPS FOR COMPASS RETURN CURRENTS

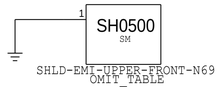
TOP-SIDE, EAST



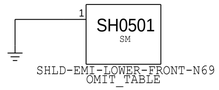
TOP-SIDE, WEST

SHIELDS

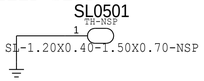
UPPER FRONT SHIELD



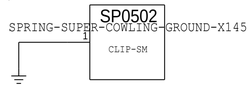
LOWER FRONT SHIELD



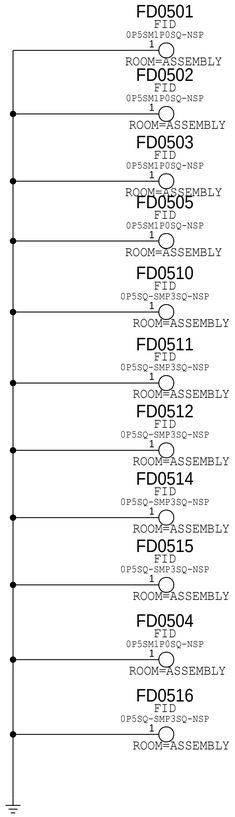
PLATED SHIELD SLOT



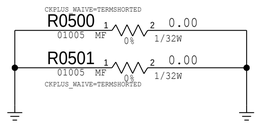
TOP-SIDE, GROUND SPRING



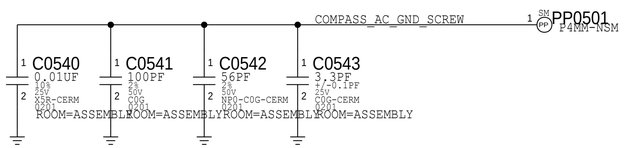
FIDUCIALS



NORTH WIFI UNDERFILL BLOCKING



COMPASS AC GROUNDING CAPS



SOC - USB, JTAG, XTAL

VDD12_PLL_LPDP:1.14-1.26V @2mA MAX
VDD12_PLL_SOC: 1.14-1.26V @12mA MAX
VDD12_PLL_CPU: 1.14-1.26V @2mA MAX

R0600 0.00 1/32W MF 01005 ROOM=SOC
PP1V2 — PP1V2_PLL

C0600 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=SOC
C0601 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=SOC
C0602 0.01UF 10% 6.3V X5R 01005 ROOM=SOC
C0603 0.01UF 10% 6.3V X5R 01005 ROOM=SOC
C0604 0.22UF 20% 6.3V X5R 0201 ROOM=PMU

VDD18_USB: 1.71-1.89V @20mA MAX
VDD18_XTAL:1.62-1.98V @2mA MAX

PP1V8
C0612 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=SOC
FL0610 1KOHM-25%-0.2A 0201 ROOM=SOC
PP1V8_XTAL
C0611 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=SOC
C0610 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC
PP3V3_USB
C0620 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=SOC
VDD33_USB:3.14-3.46V @5mA MAX

PP0620 P2MM-NSM SM ROOM=SOC
PP0621 P2MM-NSM SM ROOM=SOC
PP0610 P3MM-NSM SM ROOM=SOC

OMIT_TABLE
CRITICAL
U0600
MAUI-2GB-25NM-DDR-H
FCMSP
SC58980X0B-A040
SYM 1 OF 14
ROOM=SOC

AP21	VDD12_UH1_HSIC0		
C15	VDD12_UH2_HSIC1		
F22	VDD12_PLL_LPDP		
U20	VDD12_PLL_SOC		
T19	VDD12_PLL_SOC		
W19	VDD12_PLL_CPU		
AF13	VDD12_PLL_CPU		
AL21	VDD18_USB		
AN20	VDD33_USB		
AL34	VDD18_XTAL		
AN22	UH1_HSIC0_DATA	50_AP_BI_BB_HSIC0_DATA	BI
AN21	UH1_HSIC0_STB	50_AP_BI_BB_HSIC0_STB	BI
C16	UH2_HSIC1_DATA	NC	
D15	UH2_HSIC1_STB	NC	
Y32	JTAG_SEL		
AC32	JTAG_TRST*	NC	
AB31	JTAG_TDO	NC	
AA32	JTAG_TDI	NC	
AB32	JTAG_TMS	NC	
AA31	JTAG_TCK	NC	
AC31	COLD_RESET*	PMU_TO_SYSTEM_COLD_RESET_L	IN
H33	CFSB	PMU_TO_OWL_ACTIVE_READY	IN
AR23	TST_CLKOUT	AP_TO_PMU_TEST_CLKOUT	OUT
AN23	S3E_RESET*	AP_TO_NAND_RESET_L	OUT
H32	HOLD_RESET		
AF6	TESTMODE		
AL22	FUSE1_FSRC		
AG25	FUSE2_FSRC		
AP24	ANALOGMUX_OUT	AP_TO_PMU_AMUX_OUT	OUT
AT20	USB_D_P	90_USB_AP_DATA_AP_P	
AT19	USB_D_N	90_USB_AP_DATA_AP_N	
AP19	USB_VBUS	USB_VBUS_DETECT	IN
AR19	USB_ID	NC	
AP18	USB_REXT	USB_REXT	
Y33	WDOG	AP_TO_PMU_WDOG_RESET	OUT
AK35	XI0	45_XTAL_AP_24M_IN	
AL35	XO0	45_XTAL_AP_24M_OUT	

L0602 15NH-250MA 0201 ROOM=TRISTAR
L0601 15NH-250MA 0201 ROOM=TRISTAR
90_USB_AP_DATA_P — BI
90_USB_AP_DATA_N — BI

R0640 200 1/32W MF 01005 ROOM=SOC

R0650 511K 1/32W MF 01005 ROOM=SOC
R0651 0.00 1/32W MF 01005 ROOM=SOC OMIT_TABLE
CRITICAL
Y0600 1-60XI.20MM-SM 24.000MHZ-30PPM-9.5PF-600HM ROOM=SOC
C0650 12PF 5% 16V CERM 01005 ROOM=SOC
C0651 12PF 5% 16V CERM 01005 ROOM=SOC
45_SOC_24M_O
45_AP_XTAL_GND
XW0650 SHORT-.01L-0.0MM-SM ROOM=SOC

SOC - PCIE INTERFACES

VDD12_PCIE_REFBUF:1.08-1.26V @50mA MAX
VDD12_PCIE_TXPLL: 1.08-1.32V @10mA MAX
VDD12_PCIE: 1.14-1.26V @115mA MAX

PP1V2

XW0740 SHORT-10L-0.1MM-SM ROOM=SOC

PP1V2_PCIE_TXPLL

VDD085_PCIE:0.802-TBDV @TBDmA MAX

PP_FIXED

C0740 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC
C0741 1.0UF 20% 6.3V X5R 0201-1 ROOM=SOC
C0742 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=SOC
C0744 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=SOC
C0743 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=SOC
C0731 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=SOC OMIT_TABLE
C0752 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=SOC
C0751 1.0UF 20% 6.3V X5R 0201-1 ROOM=SOC
C0750 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC

AK28 AK25 AL24 AL27 — VDD12_PCIE
AL26 — VDD12_PCIE_TXPLL
AJ26 — VDD12_PCIE_REFBUF
AH28 AJ25 AL23 AJ29 AL29 AJ24 AK27 AJ27 — VDD085_PCIE

PCIE_EXT_C — AP29 PCIE_EXT_C

PCIE LINK 0

90_PCIE_NAND_TO_AP_RXD0_P → C0701 0.1UF → 90_PCIE_NAND_TO_AP_RXD0_C_P — AM30 PCIE_RX0_P
90_PCIE_NAND_TO_AP_RXD0_N → C0702 0.1UF → 90_PCIE_NAND_TO_AP_RXD0_C_N — AN30 PCIE_RX0_N
90_PCIE_AP_TO_NAND_TXD0_P → C0703 0.1UF → 90_PCIE_AP_TO_NAND_TXD0_C_P — AT32 PCIE_TX0_P
90_PCIE_AP_TO_NAND_TXD0_N → C0704 0.1UF → 90_PCIE_AP_TO_NAND_TXD0_C_N — AR32 PCIE_TX0_N
90_PCIE_NAND_TO_AP_RXD1_P → C0705 0.1UF → 90_PCIE_NAND_TO_AP_RXD1_C_P — AM28 PCIE_RX1_P
90_PCIE_NAND_TO_AP_RXD1_N → C0706 0.1UF → 90_PCIE_NAND_TO_AP_RXD1_C_N — AN28 PCIE_RX1_N
90_PCIE_AP_TO_NAND_TXD1_P → C0707 0.1UF → 90_PCIE_AP_TO_NAND_TXD1_C_P — AT31 PCIE_TX1_P
90_PCIE_AP_TO_NAND_TXD1_N → C0708 0.1UF → 90_PCIE_AP_TO_NAND_TXD1_C_N — AR31 PCIE_TX1_N

PCIE LINK 1

90_PCIE_WLAN_TO_AP_RXD_P → C0709 0.1UF → 90_PCIE_WLAN_TO_AP_RXD_C_P — AM27 PCIE_RX2_P
90_PCIE_WLAN_TO_AP_RXD_N → C0710 0.1UF → 90_PCIE_WLAN_TO_AP_RXD_C_N — AN27 PCIE_RX2_N
90_PCIE_AP_TO_WLAN_TXD_P → C0711 0.1UF → 90_PCIE_AP_TO_WLAN_TXD_C_P — AT28 PCIE_TX2_P
90_PCIE_AP_TO_WLAN_TXD_N → C0712 0.1UF → 90_PCIE_AP_TO_WLAN_TXD_C_N — AR28 PCIE_TX2_N

AM26 NC PCIE_RX3_P
AN26 NC PCIE_RX3_N
AT26 NC PCIE_TX3_P
AR26 NC PCIE_TX3_N
AM25 NC PCIE_RX4_P
AN25 NC PCIE_RX4_N
AR24 NC PCIE_TX4_P
AT24 NC PCIE_TX4_N

OMIT_TABLE
CRITICAL
U0600
MAUI-2GB-25NM-DDR-H
FCMSP
SC58980X0B-A040
SYM 2 OF 14
ROOM=SOC

PCIE_REF_CLK0_P AN35 — 90_PCIE_AP_TO_NAND_REFCLK_P OUT
PCIE_REF_CLK0_N AP35 — 90_PCIE_AP_TO_NAND_REFCLK_N OUT
PCIE_REF_CLK1_P AN34 — 90_PCIE_AP_TO_WLAN_REFCLK_P OUT
PCIE_REF_CLK1_N AP34 — 90_PCIE_AP_TO_WLAN_REFCLK_N OUT
PCIE_REF_CLK2_P AM32 NC
PCIE_REF_CLK2_N AN32 NC
PCIE_REF_CLK3_P AM31 NC
PCIE_REF_CLK3_N AN31 NC

P2MM-NSM 2K PP0700
P2MM-NSM 2K PP0701

PP1V8

R0720 100K 5% 1/32W MF 01005 ROOM=SOC
R0721 100K 5% 1/32W MF 01005 ROOM=SOC

PCIE_CLKREQ0* AT11 — PCIE_NAND_TO_AP_CLKREQ_L BI
PCIE_CLKREQ1* AP12 — PCIE_WLAN_TO_AP_CLKREQ_L BI
PCIE_CLKREQ2* AR12 NC
PCIE_CLKREQ3* AT12 NC

PCIE_PERST0* AR10 — PCIE_AP_TO_NAND_RESET_L OUT
PCIE_PERST1* AT10 — PCIE_AP_TO_WLAN_RESET_L OUT
PCIE_PERST2* AP11 NC
PCIE_PERST3* AR11 NC

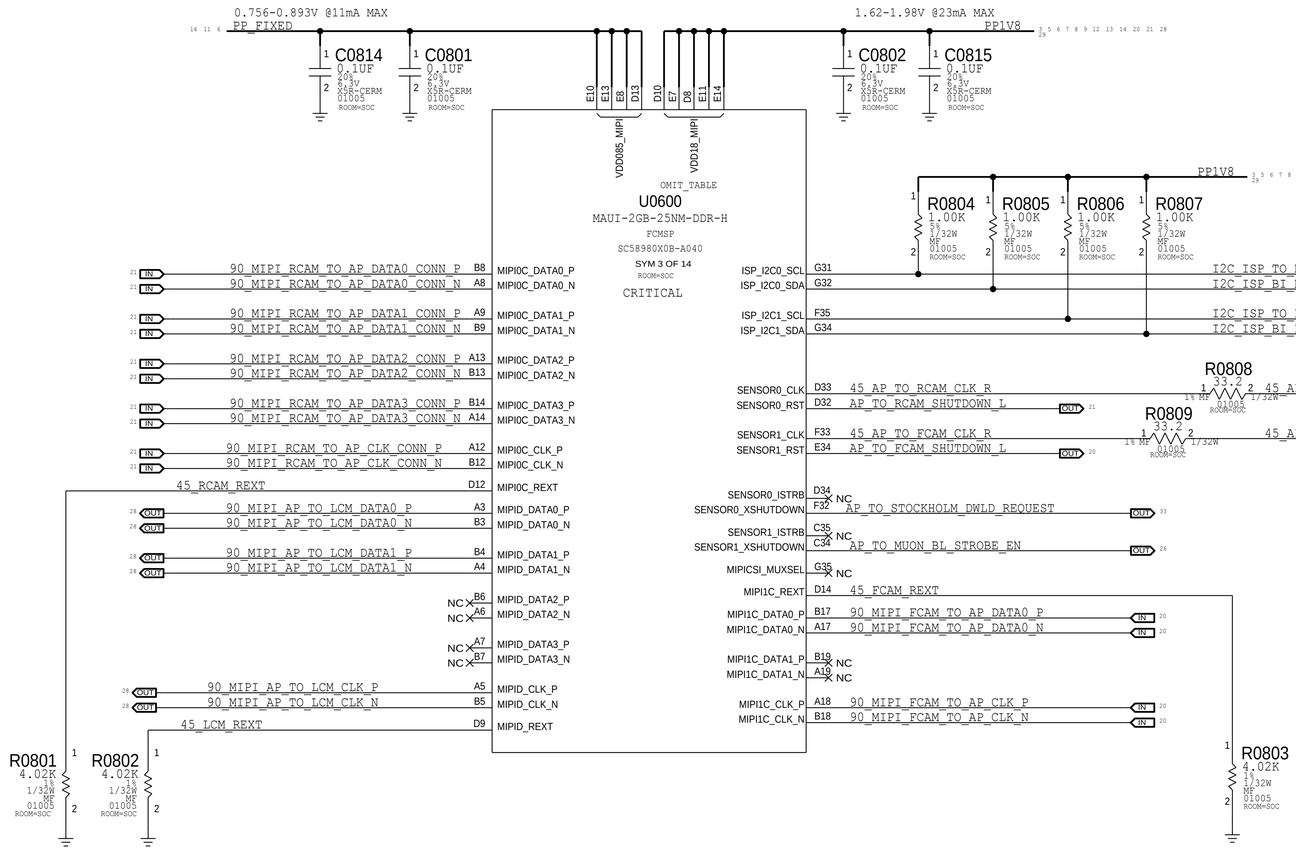
R0700 100K 5% 1/32W MF 01005 ROOM=SOC
R0701 100K 5% 1/32W MF 01005 ROOM=SOC

PCIE_EXT_REF_CLK_P AR33
PCIE_EXT_REF_CLK_N AT33

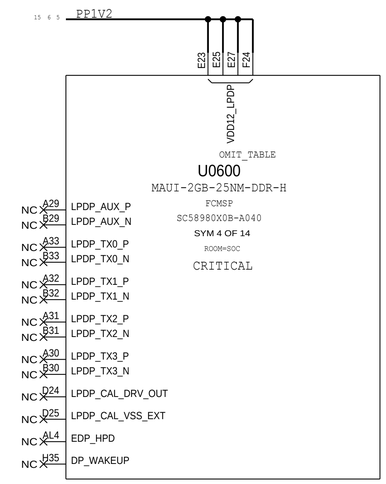
PCIE_RX_TX_BYPASS_CLK_P AT29
PCIE_RX_TX_BYPASS_CLK_N AR29

45_PCIE_RCAL_P
45_PCIE_RCAL_N
PCIE_RCAL_P AT30
PCIE_RCAL_N AR30
R0730 3.01K 1% 1/32W MF 01005 ROOM=SOC OMIT_TABLE
C0730 100PF 5% 16V NP0-C0G 01005 ROOM=SOC OMIT_TABLE

SOC - CAMERA & DISPLAY INTERFACES



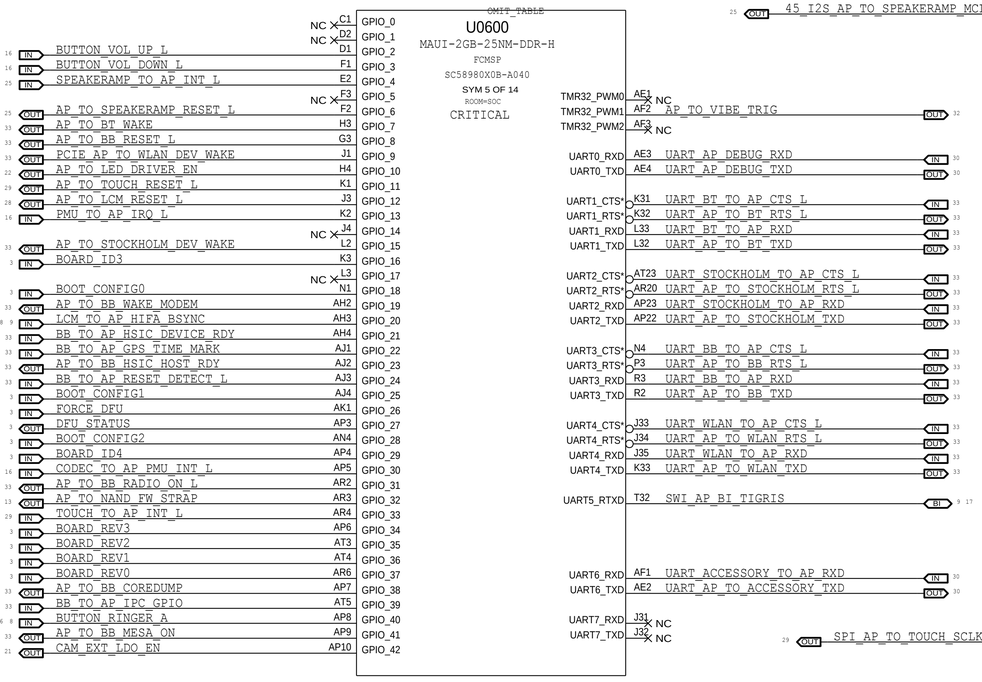
NOTE:VDD12_LPDP SHOULD BE POWERED EVEN WHEN LPDP IS NOT USED

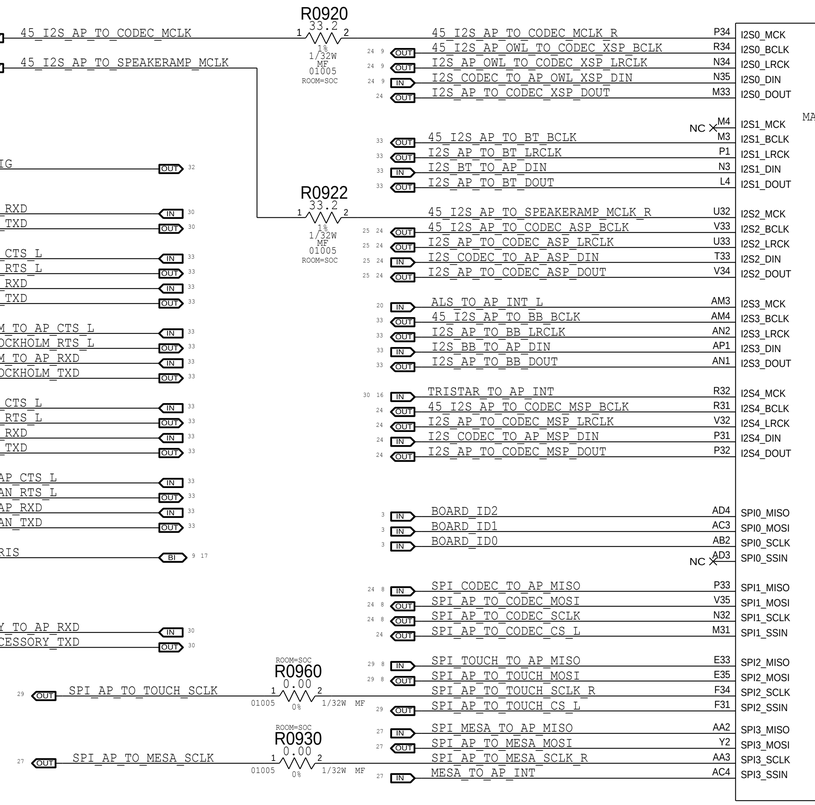


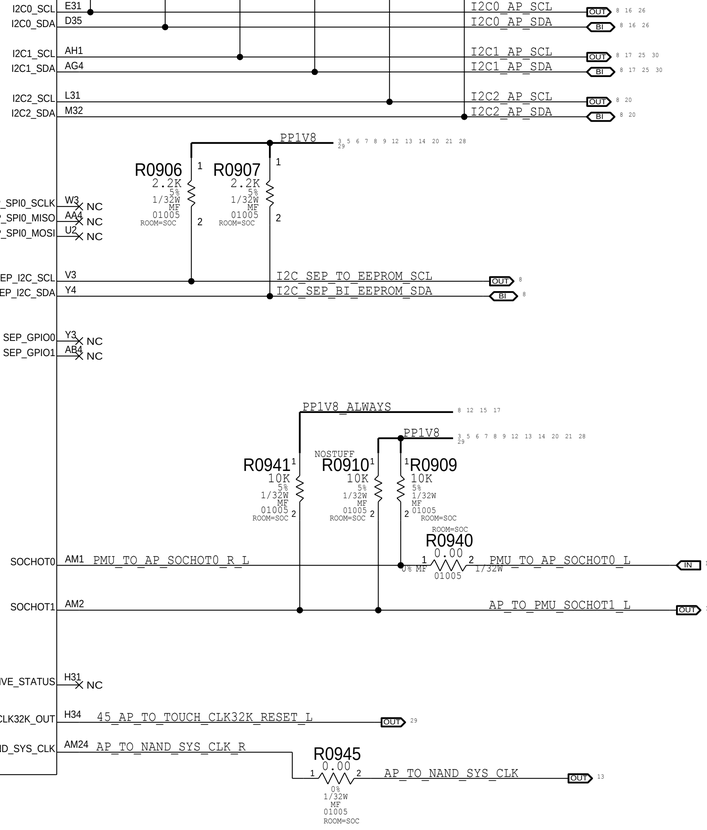
SOC - GPIO & SERIAL INTERFACES

通用输入输出以及串行接口

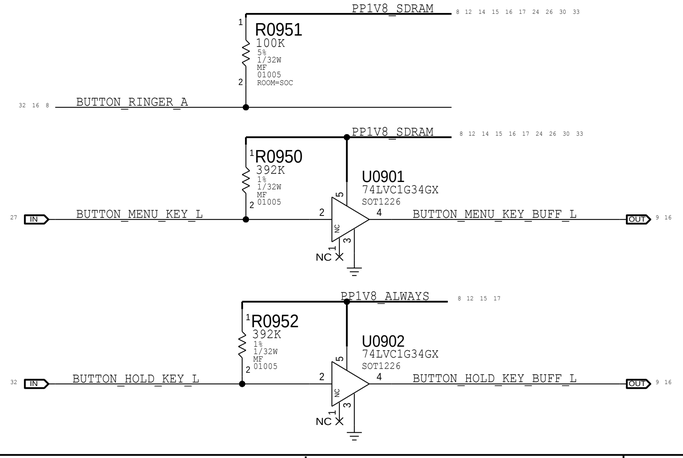
这些电阻虚焊或者损坏造成开机小电流 不联机







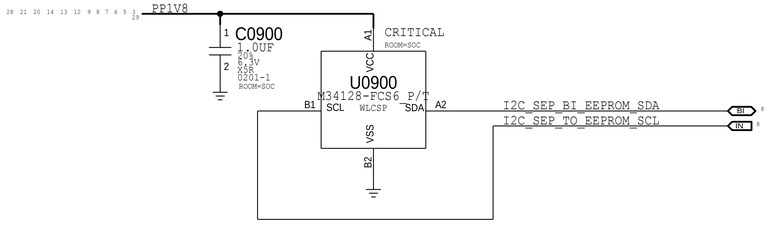
BUTTON PULL-UP RESISTORS AND BUFFERS



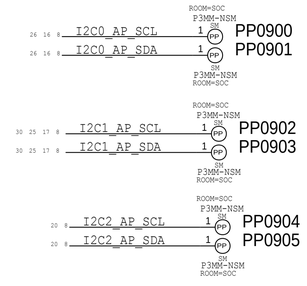
ANTI-ROLLBACK EEPROM

128kbit

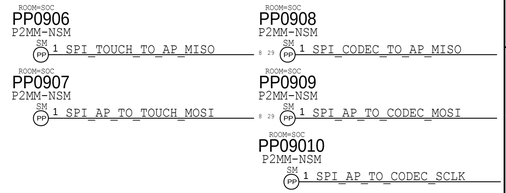
APN:335S0946



I2C PROBE POINTS



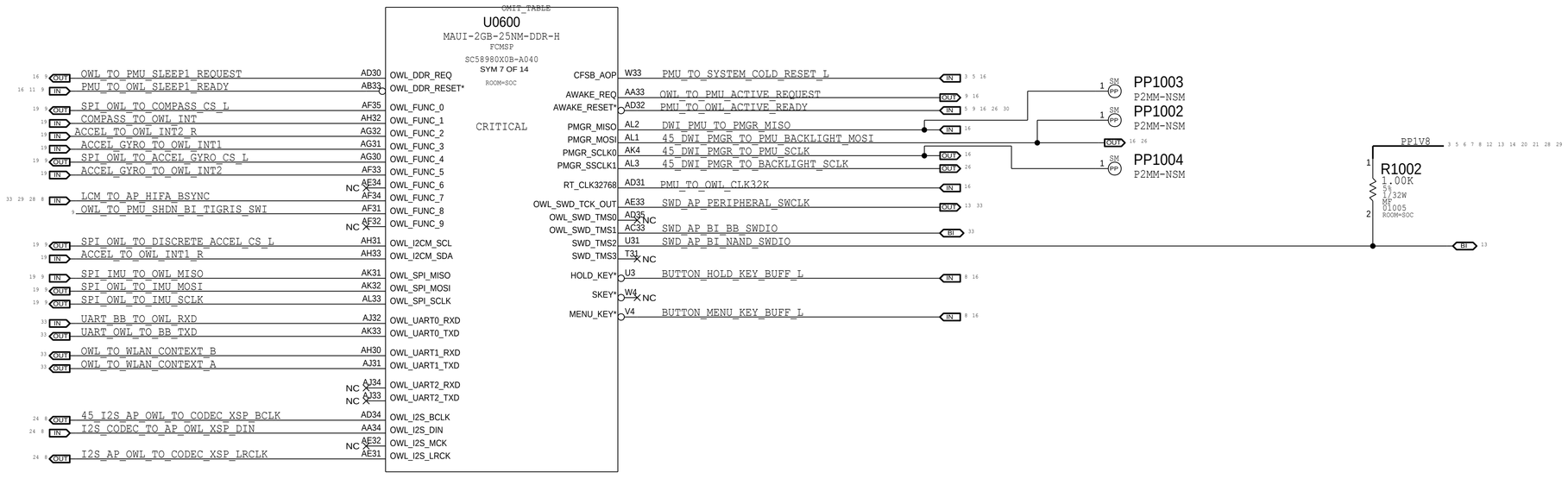
SPI PROBE POINTS



SOC - OWL

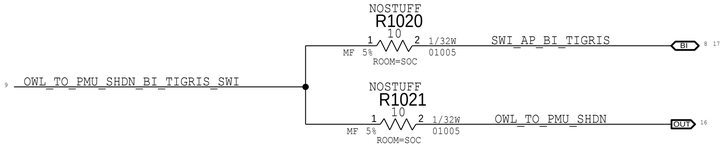
POWER STATE CONTROL PROBE POINTS

OWL_TO_PMU_ACTIVE_REQUEST — PP1020
PMU_TO_OWL_ACTIVE_READY — PP1021
OWL_TO_PMU_SLEEP1_REQUEST — PP1022
PMU_TO_OWL_SLEEP1_READY — PP1023



PP1005 SPI_OWL_TO_IMU_MOSI
PP1006 SPI_IMU_TO_OWL_MISO
PP1007 SPI_OWL_TO_IMU_SCLK
PP1008 SPI_OWL_TO_DISCRETE_ACCEL_CS_L
PP1009 SPI_OWL_TO_ACCEL_GYRO_CS_L
PP1010 SPI_OWL_TO_COMPASS_CS_L
(P2MM-NSM)

OWL SYSTEM SHUTDOWN OPTION



SOC - CPU, GPU & SOC RAILS

PP_GPU
0.8V @10.5A MAX

C1100 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC
C1101 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC
C1103 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC
C1104 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC
C1105 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC

XW1110
SHORT-10L-0.1MM-SM
1 2 45_BUCK1_PP_GPU_FB OUT 14 16
ROOM=SOC

TP1120
0.50MM
PP 1 PP_GPU 10 14

C1106 4.3UF 20% 4V CERM 0402
C1107 4.3UF 20% 4V CERM 0402
C1108 4.3UF 20% 4V CERM 0402
C1109 4.3UF 20% 4V CERM 0402
C1110 4.3UF 20% 4V CERM 0402
C1111 4.3UF 20% 4V CERM 0402
C1112 1UF 20% 4V CERM 0402
C1113 1UF 20% 4V CERM 0402
C1114 1UF 20% 4V CERM 0402
C1115 1UF 20% 4V CERM 0402
C1116 0.47UF 20% 6.3V CERM 0402
C1117 0.47UF 20% 6.3V CERM 0402
ROOM=SOC

PP_CPU
0.625V @TBDA MAX
0.9V @10.5A MAX
1.0V @12.5A MAX

C1120 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC
C1121 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC
C1122 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC
C1123 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC
C1125 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC

TP1100
0.50MM
PP 1 PP_CPU 10 14

C1126 4.3UF 20% 4V CERM 0402
C1127 4.3UF 20% 4V CERM 0402
C1128 4.3UF 20% 4V CERM 0402
C1129 4.3UF 20% 4V CERM 0402
C1130 4.3UF 20% 4V CERM 0402
C1131 4.3UF 20% 4V CERM 0402
C1132 4.3UF 20% 4V CERM 0402
C1133 4.3UF 20% 4V CERM 0402
C1134 1UF 20% 4V CERM 0402
C1135 1UF 20% 4V CERM 0402
C1136 1UF 20% 4V CERM 0402
C1137 1UF 20% 4V CERM 0402
C1138 0.47UF 20% 6.3V CERM 0402
C1139 0.47UF 20% 6.3V CERM 0402
C1140 0.47UF 20% 6.3V CERM 0402
C1141 0.47UF 20% 6.3V CERM 0402
ROOM=SOC

XW1100
SHORT-10L-0.1MM-SM
14 OUT 45_BUCK0_PP_CPU_FB 2 1
ROOM=SOC

OMIT_TABLE
U0600
MAUI-2GB-25NM-DDR-H
FCMSP
SC58980X0B-A040
SYM 8 OF 14
ROOM=SOC
CRITICAL

AA7	VDD_CPU	G15	VDD_GPU
AA9		W13	
AA11		T12	
AB6		M6	
AB10		U9	
AB12		V12	
AC13		W9	
AD6		M12	
AD8		M18	
AD10		N15	
AD12		N21	
AE7		N9	
AE9		F10	
AE11		H14	
AE13		H16	
AF8		H20	
AF10		H22	
AF12		H6	
AH6		H8	
AH8		J11	
AH10		J13	
AH12		J17	
AJ5		J19	
AJ7		J23	
AJ9		J7	
AJ11		K10	
AJ13		K14	
AK6		K16	
AK10		K20	
AL7		K22	
AL9		K6	
AL11		K8	
AM6		L11	
AM8		L13	
AM10		L15	
AN7		L17	
AN11		L19	
AL13		L21	
Y8		M24	
Y10		L7	
Y12		L9	
AM12		F8	
		M8	
		N11	
		N13	
		N17	
		N19	
		P10	
		G11	
		P12	
		P14	
		P16	
		P20	
		R15	
		R19	
		G13	
		R9	
		T10	
		T14	
		T16	
		U11	
		V14	
		V16	
		G7	
		R23	
		G9	
		H10	
		T24	
		P22	
		W17	
		N23	
		G17	
		G21	
		T18	
		T20	

PP1100 P2MM-NSM SM PP 1 ROOM=SOC AP_CPU_SENSE_P Y6 VDD_CPU_SENSE
PP1101 P2MM-NSM SM PP 1 ROOM=SOC AP_CPU_SENSE_N Y7 VSS_CPU_SENSE
PP1102 P2MM-NSM SM PP 1 ROOM=SOC AP_GPU_SENSE_N
PP1103 P2MM-NSM SM PP 1 ROOM=SOC AP_GPU_SENSE_P
VDD_GPU_SENSE G20
VSS_GPU_SENSE H19

OMIT_TABLE
U0600
MAUI-2GB-25NM-DDR-H
FCMSP
SC58980X0B-A040
SYM 9 OF 14
ROOM=SOC
CRITICAL

AA17	VDD_SOC	W23	VSS
AA19		Y14	
AA23		Y16	
AB14		Y20	
AB16		Y22	
AB20		Y24	
AB22		Y26	
AB24		G29	
AB26		AA27	
AC17		F17	
AC19		F20	
AC23		L29	
AD16		N29	
AD20		V28	
AD22			
AD24			
AD26			
AE5			
AE15		L22	
AE17		L24	
AE19		L26	
AE23		L28	
AF14		M1	
AF16		M5	
AF20		M7	
AF22		M9	
AF24		M11	
AF26		M13	
AG17		M17	
AG19		M21	
AG23		M23	
AH16		M25	
AH20		M27	
AH22		M29	
AH24		M35	
AH26		N6	
AJ15		N10	
AJ17		N12	
AJ19		N14	
AJ23		N16	
AK14		N18	
J29		G19	
G23		N22	
AK22		N24	
F6		N26	
F14		N28	
AL15		N30	
AM5		N33	
G25		P9	
G27		P11	
H24		P13	
H26		P15	
H28		P17	
J27		P19	
K24		P21	
K26		P23	
K28		P25	
L27		P27	
L23		P29	
M26		P35	
M28		R4	
AL19		R6	
N7		R8	
N27		R10	
P24		R12	
P26		R14	
P28		M19	
R17		R18	
R27		R20	
R29		R22	
T22		R24	
T26		R26	
T7		R28	
T28		R30	
U17		T1	
V8		T2	
V20		R33	
V22		T9	
V24		T11	
V26		T13	
W7		T15	
W11		T17	
Y28		P7	
		T23	
		T25	
		T27	
		T30	
		T35	
		U6	
		U10	
		U12	

AJ20 VDD_SOC_SENSE
AK21 VSS_SOC_SENSE
AP_SOC_SENSE_N 1 SM PP ROOM=SOC PP1104 P2MM-NSM
AP_SOC_SENSE_P 1 SM PP ROOM=SOC PP1105 P2MM-NSM

C1150 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC
C1151 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC

PP_SOC 14
0.825V @4.7A MAX
0.725V @TBDA MAX

XW1120
SHORT-10L-0.1MM-SM
1 2 45_BUCK2_PP_SOC_FB OUT 14
ROOM=SOC

C1153 4.3UF 20% 4V CERM 0402
C1154 1UF 20% 4V CERM 0402
C1155 1UF 20% 4V CERM 0402
C1156 1UF 20% 4V CERM 0402
C1157 0.47UF 20% 6.3V CERM 0402
ROOM=SOC

SOC - POWER SUPPLIES

1.06 - 1.17V @635mA MAX
INTERNALLY SUPPLIES VDDQ

PP1V1

C1240 10UF 20% 6.3V CERM-X5R 0402-3 ROOM=SOC
C1241 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC
C1242 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC
C1243 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC
C1244 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC
C1248 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC
C1245 4.3UF 20% 4V CERM 0402
C1246 1UF 20% 4V CERM 0402
C1247 1.0UF 20% 6.3V X5R 0201-1 ROOM=SOC
C1249 1.0UF 20% 6.3V X5R 0201-1 ROOM=SOC

0.802-TBDV @1.1A MAX
PP_FIXED

C1200 10UF 20% 6.3V CERM-X5R 0402-3 ROOM=SOC
C1201 4.3UF 20% 4V CERM 0402
C1202 1UF 20% 4V CERM 0402
C1203 0.47UF 20% 6.3V CERM 0402

OMIT_TABLE
U0600
MAUI-2GB-25NM-DDR-H
FCMSP
SC58980X0B-A040
SYM 10 OF 14
ROOM=SOC
CRITICAL

VDD_FIXED: AA15 AA21 AA25 AB18 AC15 AC21 AC25 AD14 AD18 AE21 AE25 AF18 AG15 AG21 AH25 AH14 AH18 AJ21 AK16 F12 G10 V18 AL17 J25 L25 N25 R25 R7 AN6 U25 W15 W21 W25 Y18 F21 F26 AB28 AC27 G18 AK20 F16 R16 T8 V7 U19 W27 U27 AF4 AF27 U21

VDD_CPU_SRAM: AC11 AC7 AC9 AA13 AG11 AG7 AG9 AK12

VDD_GPU_SRAM: H12 H18 R21 U15 J15 J21 J9 K12 K18 M10 M14 M16 M20 P18 R11 R13 U13 V10 M22

0.8V @TBDA MAX
0.9V @TBDA MAX
1.0V @1.0A MAX
PP_CPU_SRAM

C1220 0.47UF 20% 6.3V CERM 0402
C1221 1UF 20% 4V CERM 0402
C1222 4.3UF 20% 4V CERM 0402
C1223 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC

0.8V @0.5A MAX
PP_GPU_SRAM

C1224 0.47UF 20% 6.3V CERM 0402
C1225 1UF 20% 4V CERM 0402
C1226 4.3UF 20% 4V CERM 0402
C1227 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=SOC
C1228 4.3UF 20% 4V CERM 0402

0.756-TBDV @44mA MAX
PP0V8_OWL

C1250 1.0UF 20% 6.3V X5R 0201-1 ROOM=SOC

VDD_LOW: AH29 AD29 AF29

OMIT_TABLE
U0600
MAUI-2GB-25NM-DDR-H
FCMSP
SC58980X0B-A040
SYM 11 OF 14
ROOM=SOC
CRITICAL

VDDIO11_DDR0: A20 A22 B11 B15 B23 B25 D16 D20 D22 E15 E17 E19 E21
VDDIO11_DDR1: AN19 AR18 AR21 AR8 AT13 AT16 AM14 AM16 AM18 AM20 AR15 AN13 AN15
VDDIO11_DDR2: AB29 V29 Y29 Y35 AB35 AG34 M34 R35 T29 T34 AA30 U30 AC30
VDDIO11_DDR3: AA1 AC2 V6 W2 H2 M2 U5 P6 T6 U1 N5 R5 W5

DDR IMPEDANCE CONTROL

PP1V1

R1200 240 1% 1/32W MF 01005 ROOM=SOC
R1201 240 1% 1/32W MF 01005 ROOM=SOC
R1202 240 1% 1/32W MF 01005 ROOM=SOC
R1203 240 1% 1/32W MF 01005 ROOM=SOC
R1204 240 1% 1/32W MF 01005 ROOM=SOC
R1205 240 1% 1/32W MF 01005 ROOM=SOC

DDR0_RREF C21 45_DDR0_RREF
DDR1_RREF AP17 45_DDR1_RREF
DDR2_RREF V31 45_DDR2_RREF
DDR3_RREF P5 45_DDR3_RREF
DDR0_ZQ B21 45_DDR0_ZQ
DDR3_ZQ P2 45_DDR3_ZQ

DDR0_RET C18
DDR1_RET AP15
DDR2_RET V31
DDR3_RET U4

PMU_TO_OWL_SLEEP1_READY IN

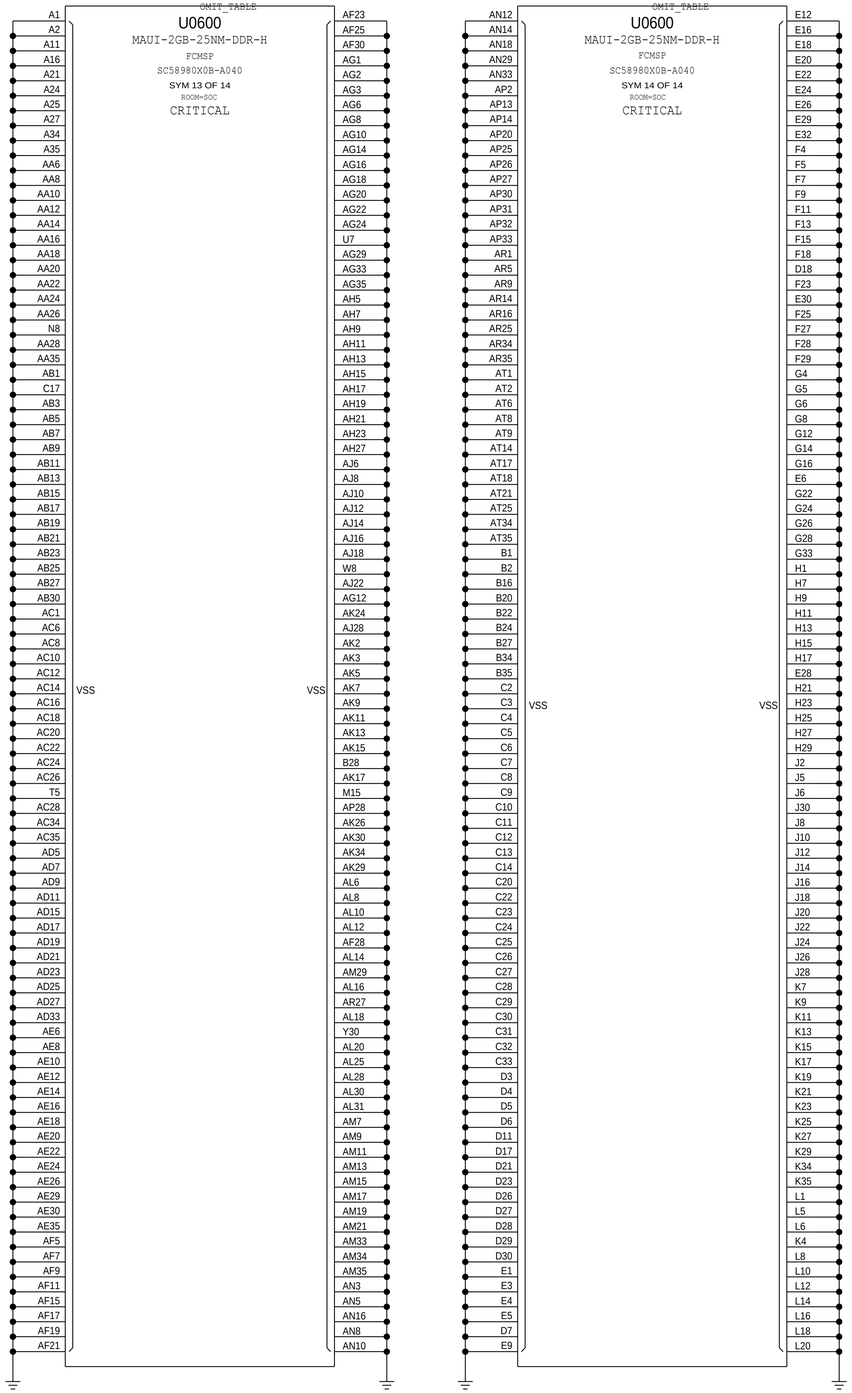
1.1V @7mA MAX
FL1280 1000HM-25%-0.12A 01005 ROOM=SOC
F19 45_PP1V1_DDR_PLL
PP1V1

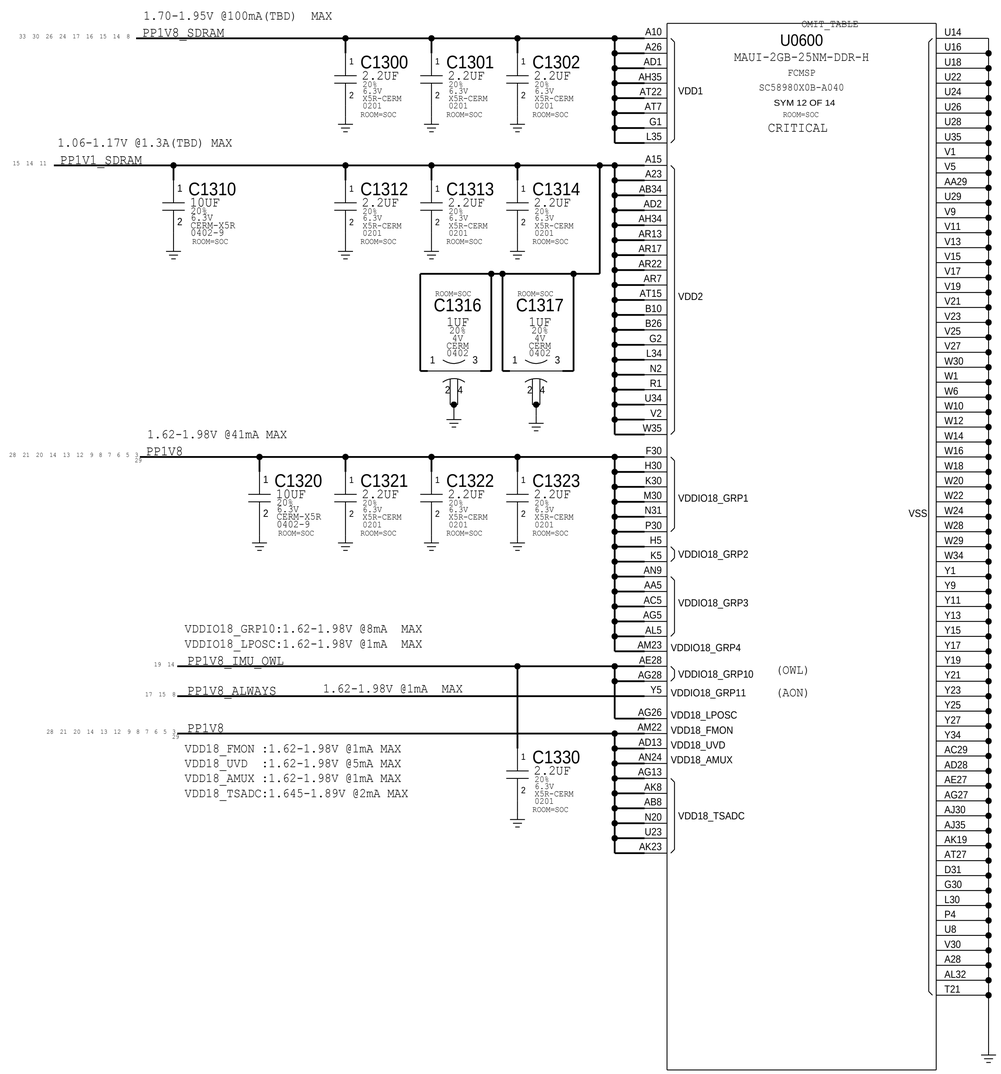
VDDIO11_PLL_DDR: AK18 W26 P8
C1280 0.22UF 20% 6.3V X5R 01005-1 ROOM=SOC

VDDIO11_RET_DDR: D19 AN17 W31 T4
PP1V1_SDRAM
1.06 - 1.17V

DDR0_SYS_ALIVE C19
DDR1_SYS_ALIVE AP16
DDR2_SYS_ALIVE W32
DDR3_SYS_ALIVE T3
SYSTEM_ALIVE IN

SOC - POWER SUPPLIES





S3E NAND

PP1V8
R1530 24.9 1% 1/32W MF 01005 ROOM=NAND
PP1V8_NAND_AVDD
C1530 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=NAND
C1531 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=NAND
NAND_AGND
C1520 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
C1521 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
C1522 10UF 20% 6.3V X5R-CERM-X5R 0402-3 ROOM=NAND
C1524 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=NAND
C1525 100PF 5% 16V NP0-C0G 01005 ROOM=NAND
C1526 100PF 5% 16V NP0-C0G 01005 ROOM=NAND
C1523 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
C1527 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=NAND
C1528 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=NAND
PP3V0_NAND
C1500 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
C1501 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
C1502 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
C1503 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
C1504 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
C1506 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
C1505 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
PP0V9_NAND
C1548 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
C1540 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
C1541 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
C1542 10UF 20% 6.3V X5R-CERM-X5R 0402-3 ROOM=NAND
C1543 10UF 20% 6.3V X5R-CERM-X5R 0402-3 ROOM=NAND
C1546 15UF 20% 6.3V X5R 0402-1 ROOM=NAND
C1550 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=NAND
C1551 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=NAND
C1554 1000PF 10% 6.3V X5R-CERM 01005 ROOM=NAND
C1509 100PF 5% 16V NP0-C0G 01005 ROOM=NAND
C1507 100PF 5% 16V NP0-C0G 01005 ROOM=NAND
C1508 100PF 5% 16V NP0-C0G 01005 ROOM=NAND
C1510 100PF 5% 16V NP0-C0G 01005 ROOM=NAND
PP1V8
C1560 0.01UF 10% 6.3V X5R 01005 ROOM=NAND
R1560 10K 1% 1/32W MF 01005 ROOM=NAND NOSTUFF
C1561 0.01UF 10% 6.3V X5R 01005 ROOM=NAND
R1561 10K 1% 1/32W MF 01005 ROOM=NAND NOSTUFF
NAND_VREF
R1501 3.01K 1% 1/20W MF 201 ROOM=NAND
R1500 34.8 0.5% 1/32W MF 01005 ROOM=NAND
45_NAND_ZQ

U1500
THGBX5G7D2KLFXG
WLGA
VER-1
BOMOPTION=OMIT_TABLE
ROOM=NAND
CRITICAL

AP_TO_NAND_SYS_CLK	D2	CLK_IN	
90_PCIE_AP_TO_NAND_REFCLK_P	H8	PCIE_REFCLK_P	
90_PCIE_AP_TO_NAND_REFCLK_N	H6	PCIE_REFCLK_M	
PCIE_NAND_TO_AP_CLKREQ_L	G9	PCIE_CLKREQ*	
45_PCIE_NAND_RESREF	M6	PCI_RESREF	
90_PCIE_AP_TO_NAND_TXD0_P	M8	PCIE_RX0_P	
90_PCIE_AP_TO_NAND_TXD0_N	K8	PCIE_RX0_M	
90_PCIE_AP_TO_NAND_TXD1_P	N5	PCIE_RX1_P	
90_PCIE_AP_TO_NAND_TXD1_N	N3	PCIE_RX1_M	
90_PCIE_NAND_TO_AP_RXD0_P	P8	PCIE_TX0_P	
90_PCIE_NAND_TO_AP_RXD0_N	N7	PCIE_TX0_M	
90_PCIE_NAND_TO_AP_RXD1_P	M2	PCIE_TX1_P	
90_PCIE_NAND_TO_AP_RXD1_N	K2	PCIE_TX1_M	
AP_TO_NAND_RESET_L	F8	RESET*	
	D8	TRST*	NC
	D6	ZQ	

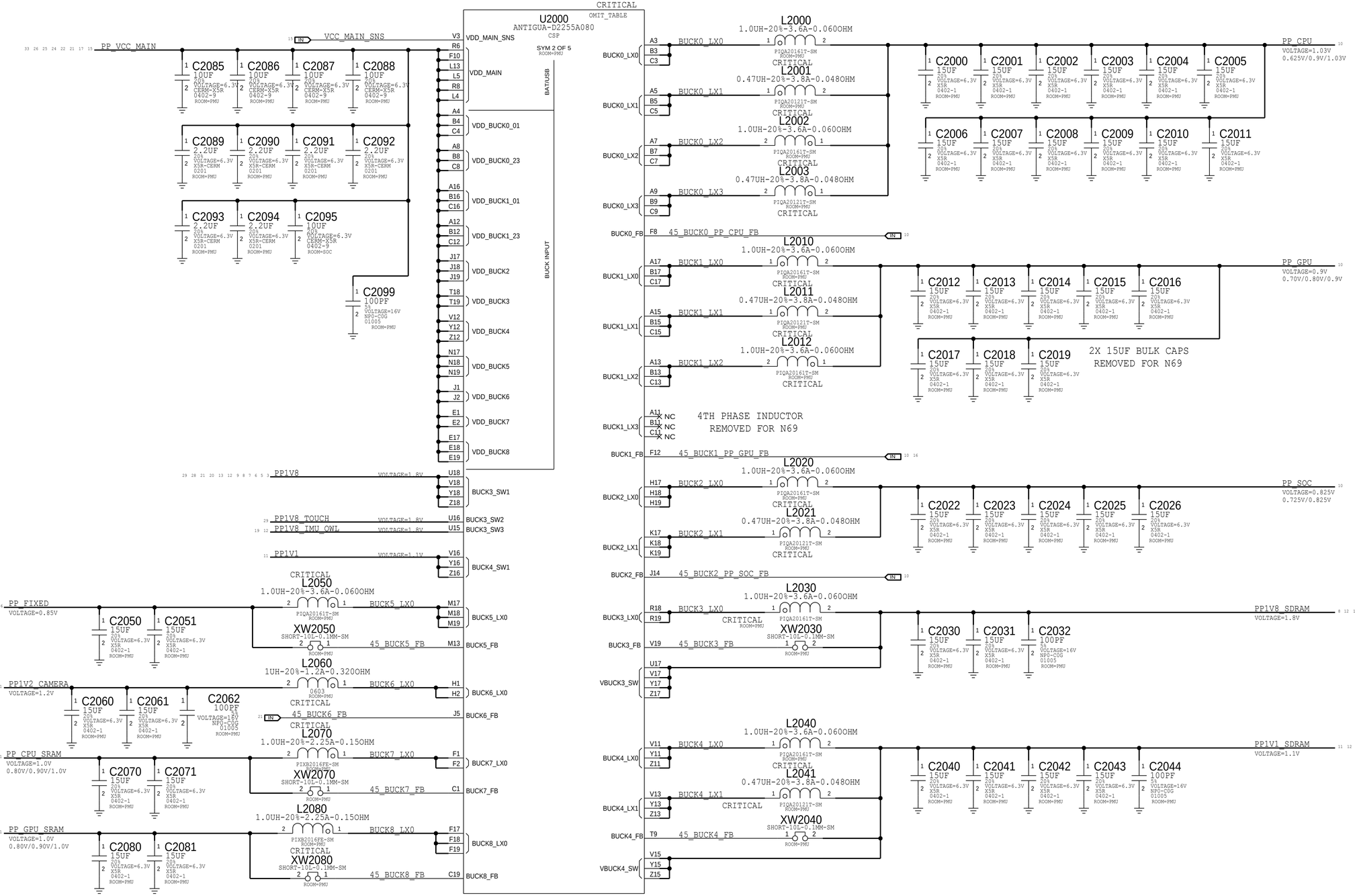
EXT_D0	G3	PMU_TO_NAND_LOW_BATT_BOOT_L
EXT_D1	J3	AP_TO_NAND_FW_STRAP
EXT_D2	H2	NC
EXT_D3	E3	NC
EXT_D4	E1	NC
EXT_D5	F6	NC
EXT_D6	C1	NC
EXT_D7	B8	SYSTEM_ALIVE
EXT_NCE	G1	PCIE_AP_TO_NAND_RESET_L
EXT_NRE	F4	SWD_AP_BI_NAND_SWDIO_R
EXT_NWE	C5	SWD_AP_NAND_SWCLK_R
EXT_RNB	G5	NC
EXT_CLE	H4	NC
EXT_ALE	D4	

R1520 0.00 0% MF 1/32W 01005 ROOM=NAND
SWD_AP_BI_NAND_SWDIO
R1521 0.00 0% MF 1/32W 01005 ROOM=NAND
SWD_AP_PERIPHERAL_SWCLK
PP1520 PP1521 P3MM-NSM ROOM=NAND

PCIE RECEIVE-SIDE PROBE POINTS

90_PCIE_AP_TO_NAND_REFCLK_P PP1500
90_PCIE_AP_TO_NAND_REFCLK_N PP1501
90_PCIE_AP_TO_NAND_TXD0_P PP1502
90_PCIE_AP_TO_NAND_TXD0_N PP1503
90_PCIE_AP_TO_NAND_TXD1_P PP1504
90_PCIE_AP_TO_NAND_TXD1_N PP1505
P3MM-NSM ROOM=NAND

ANTIGUA PMU - Buck Supplies



ANTIGUA PMU - LDOs

ANTIGUA LDO SPECS

LDO#	ADJ.RANGE	ACCURACY	MAX.CURRENT
LDO1 (A)	2.5-3.3V	+/-2.5%	50mA
LDO2 (B)	1.2-1.9V	+/-2.5%	50mA
LDO3 (A)	2.5-3.3V	+/-2.5%	50mA
LDO4 (D)	0.7-1.2V	+/-2.5%	50MA
LDO5 (F)	2.5-3.3V	+/-2.5%	1000mA
LDO6 (C1)	1.2-3.6V	+/-2.5%	150mA
LDO7 (C)	2.5-3.3V	+/-25MV	200MA
LDO8 (C)	2.5-3.3V	+/-25mV	200MA
LDO9 (C)	2.5-3.3V	+/-25mV	250mA
LDO10 (G)	0.7-1.2V	+/-2.5%	1335mA
LDO11 (C)	2.5-3.3V	+/-25mV	250mA
LDO12 (E)	1.8V	+/-5%	10mA
LDO13 (C)	2.5-3.3V	+/-25mV	250mA
LDO14 (H)	0.8-1.5V	+/-2.5%	250mA
LDO15 (B)	1.2-2.0V	+/-2.5%	50mA

PP_VCC_MAIN

C2120 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C2121 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C2122 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
XW2105 SHORT-10L-0.1MM-SM
VCC_MAIN_SNS
C2123 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C2124 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C2125 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C2126 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C2127 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU

PP1V1_SDRAM
C2130 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2131 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU

PP1V8_SDRAM
C2132 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU

U2000 ANTIGUA-D2255A080 CSP SYM 1 OF 5 ROOM=PMU
CRITICAL OMIT_TABLE

M3 VDD_LDO1_3
V2 VDD_LDO2
M2 VDD_LDO4
U1
U2 VDD_LDO5
L2 VDD_LDO6
Y6 VDD_LDO7
Y4 VDD_LDO8
Y3 VDD_LDO9
Y9
Z9 VDD_LDO10
R3 VDD_LDO11
Y5 VDD_LDO13
Y7 VDD_LDO14
N2 VDD_LDO15
K3 VDD_BYPASS
P12 VPP_OTP

LDO INPUT
LDO

VLDO1 M1
VLDO2 V1
VLDO3 L1
VLDO4 N1
T1
VLDO5 T2
VLDO6 K1
VBYPASS K2
VLDO7 Z6
VLDO8 Z4
VLDO9 Z3
VLDO9_FB Y2 RCAM_AF_FB
XW2100 SHORT-10L-0.1MM-SM ROOM=PMU
Y8
VLDO10 Z8
VLDO11 R2
VLDO12 K6
VLDO13 Z5
VLDO14 Z7
VLDO15 P2
VPUMP U19 45_PMU_VPUMP

VPUMP:10nF min. @ 4.6V

C2100 47NF 20% 6.3V X5R-CERM 01005 ROOM=PMU
C2101 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2102 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2103 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2104 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2106 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2107 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2108 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2109 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2110 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2111 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2112 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=SOC
C2113 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2114 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2115 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU
C2116 2.2UF 20% 6.3V X5R-CERM 0201 ROOM=PMU

VOLTAGE=3.3V PP3V3_USB
VOLTAGE=1.8V PP1V8_VA
VOLTAGE=3.0V PP3V0_TRISTAR
VOLTAGE=0.9V PP0V8_OWL
VOLTAGE=3.0V PP3V0_NAND
VOLTAGE=3.3V PP3V3_ACC
VOLTAGE=3.0V PP3V0_PROX_ALS
VOLTAGE=3.1V PP3V1_VIBE
VOLTAGE=2.5V PP2V5_RCAM_AF
VOLTAGE=0.9V PP0V9_NAND
VOLTAGE=3.0V PP3V0_PROX_IRLED
VOLTAGE=1.8V PP1V8_ALWAYS
VOLTAGE=3.1V PP3V1_MESA
VOLTAGE=1.2V PP1V2
VOLTAGE=1.9V PP1V9_MESA

LDO1
LDO2
LDO3
LDO4
LDO5
LDO6
LDO7
LDO8
LDO9
LDO10
LDO11
LDO12
LDO13
LDO14
LDO15

U2000 ANTIGUA-D2255A080 CSP SYM 5 OF 5 ROOM=PMU CRITICAL OMIT_TABLE

D10 D11 D12 D13 D14 D15 D16 D17 D18 D2 D5 D6 D7 D8 D9 D3 E10 E11 E12 E13 D4 E15 E16 E3 E4 E5 E7 E8 E9 F14 F15 F16 F3 F4 G14 G15 G16 G3 G4 H15 H16 H3 H4
NC
NC
J15 J16 J3 J4 K15 K16 L15 L16 M14 M15 M16 N14 N15 N16 P13 P14 P15 P16 P17 R13 R14 R15 R16 R17 T10 T11 T12 T13 T14 T15 T17 U10 U11 U12 U13 U14 U4 U5 U6 V4 V5 V6

U2000 ANTIGUA-D2255A080 CSP SYM 4 OF 5 ROOM=PMU CRITICAL OMIT_TABLE

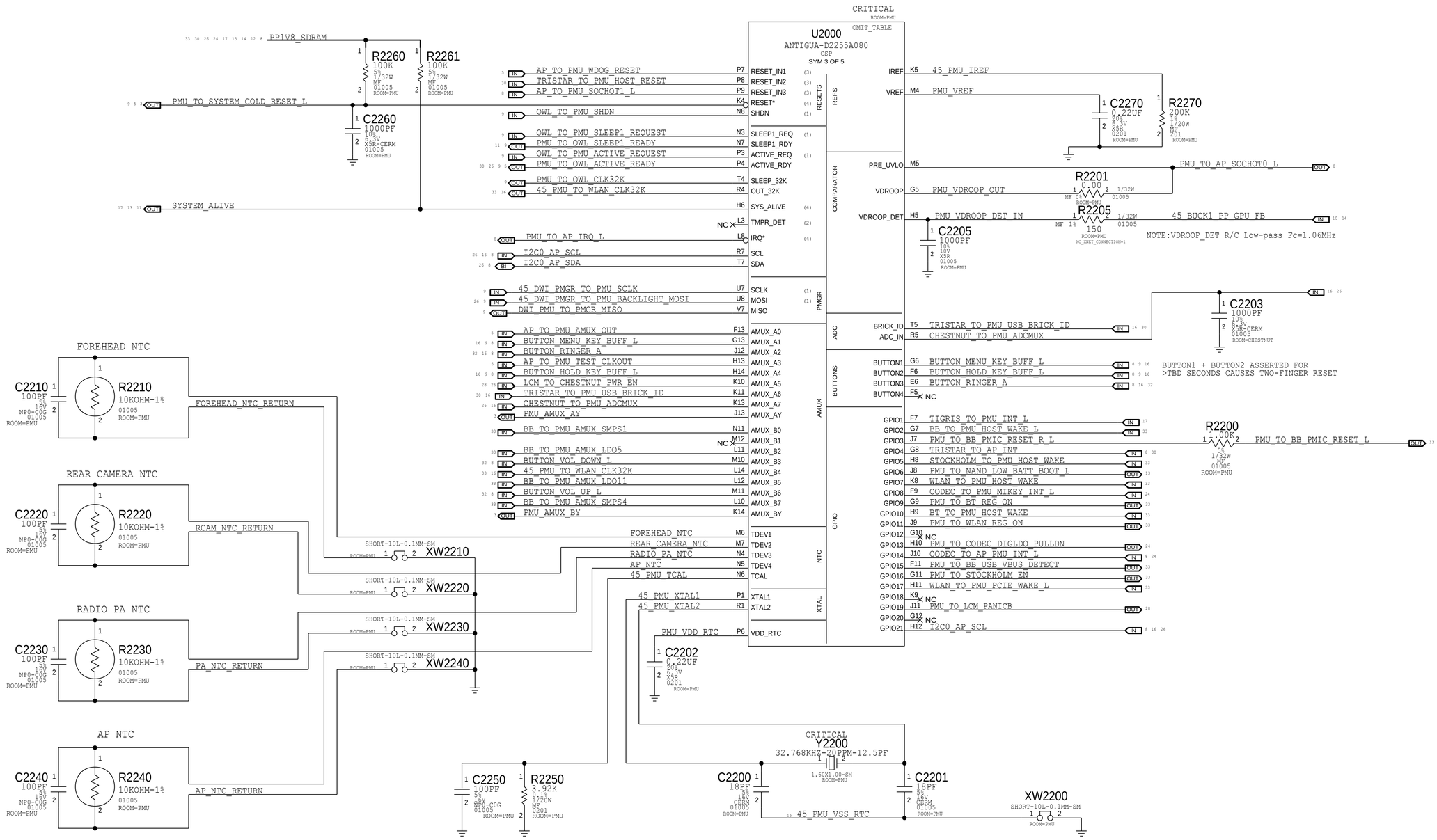
A1 A10 A14 A18 A19 A2 A6 B1 B10 B14 B18 B19 B2 B6 C10 C14 C18 C2 C6 D1 D19 E14 G1 G17 G18 G19 G2 H7 J6 K12 K7 L17 L18 L19 L6 L7
VSS
L9 M8 M9 N10 N12 N13 N9 P10 P11 P18 P19 P5 R10 R11 R12 R9 T16 T3 T6 T8 U3 U9 V10 V14 V8 V9 Y1 Y10 Y14 Y19 Z1 Z10 Z14 Z19 Z2

45_PMU_VSS_RTC
NOTE: T3 IS XTAL REF GND

ANTIGUA PMU - GPIOs, NTCs

CONTROL PIN NOTES:

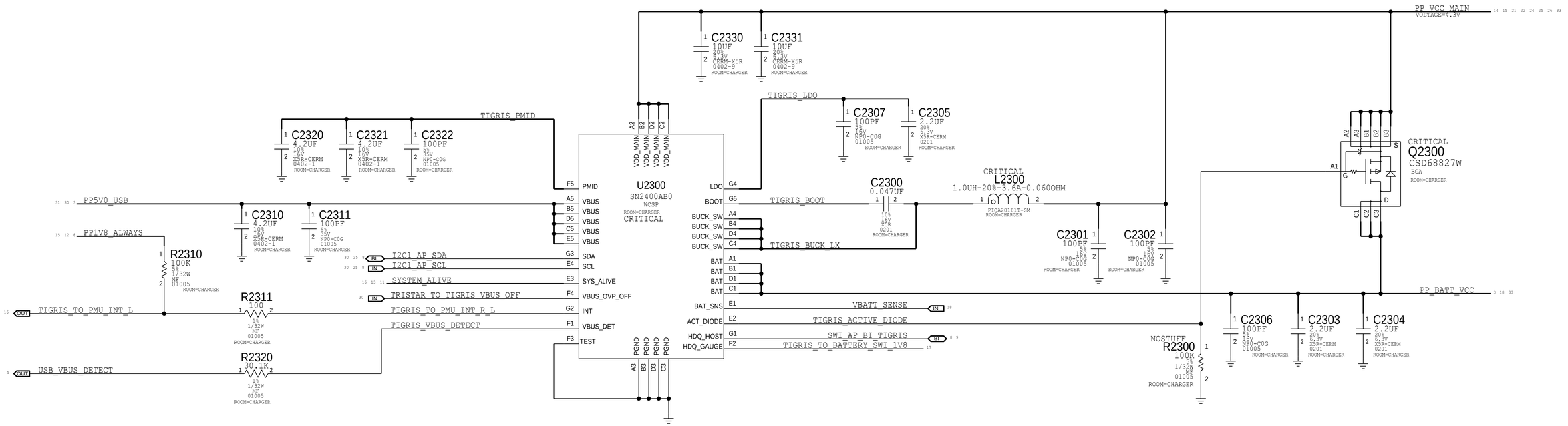
NOTE (1):INPUT PULL-DOWN 100-300k
NOTE (2):INPUT PULL-DOWN 1M
NOTE (3):INPUT PULL-UP OR DOWN 100k-300k
NOTE (4):OUTPUT OPEN-DRAIN, REQUIRES PULL-UP



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

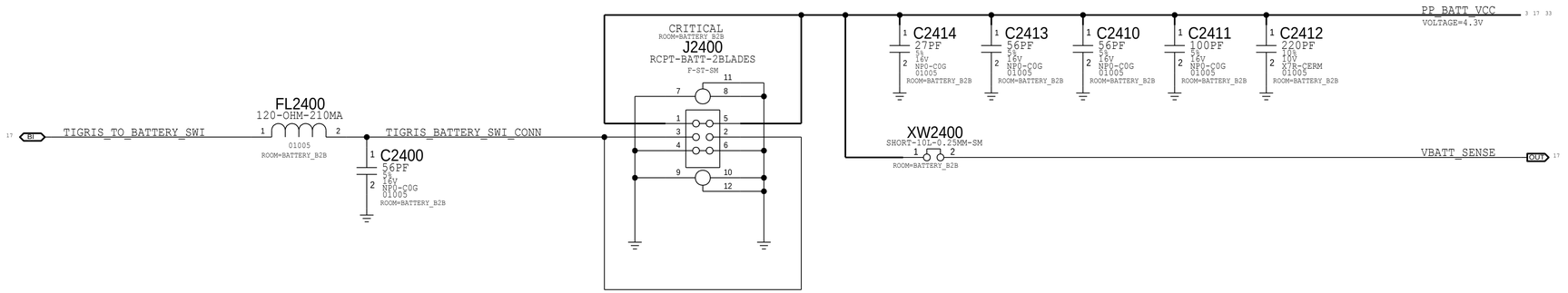
TIGRIS CHARGER

APN:343S00033



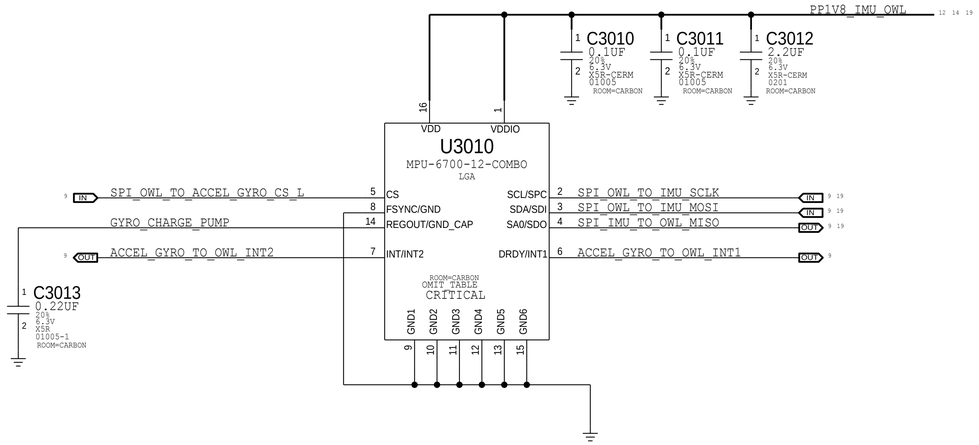
BATTERY CONNECTOR

THIS ONE ON MLB ---> 516S00104 (RCPT)
516S00105 (PLUG)



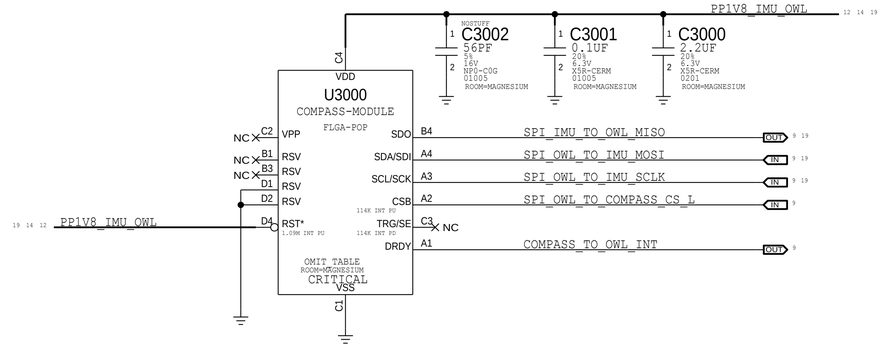
CARBON - ACCEL & GYRO

INVENSENSE (APN 338S00017): C3013=0.22UF
INVENSENSE 1.1 (APN 338S00087): C3013=0.22UF



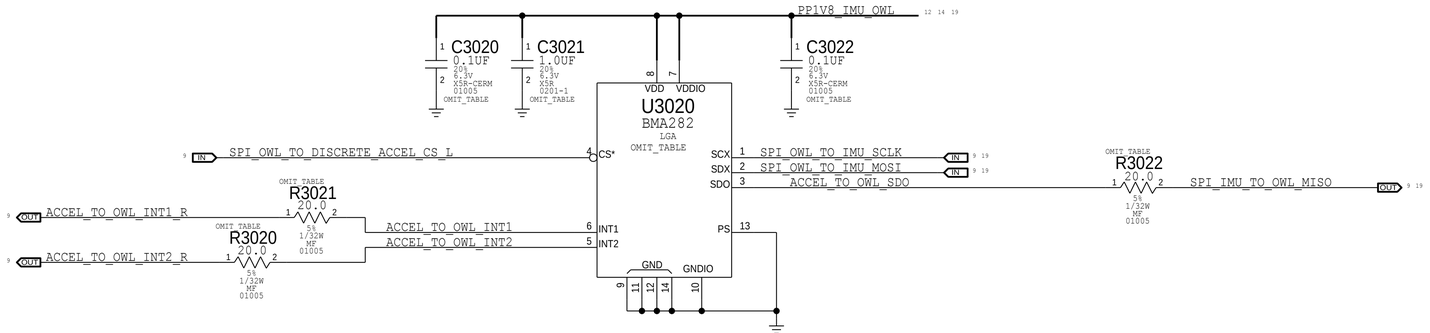
MAGNESIUM - COMPASS

ALPS (APN:338S00084)



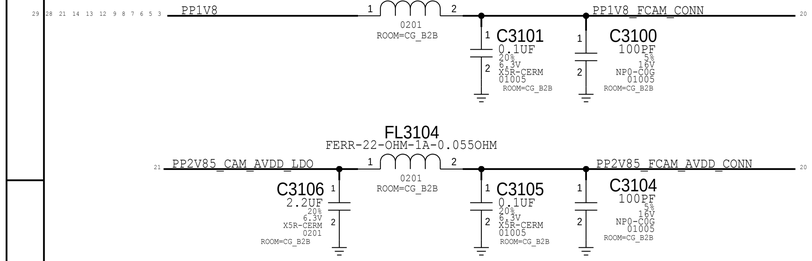
DISCRETE ACCEL

BOSCH (APN:338S1163)

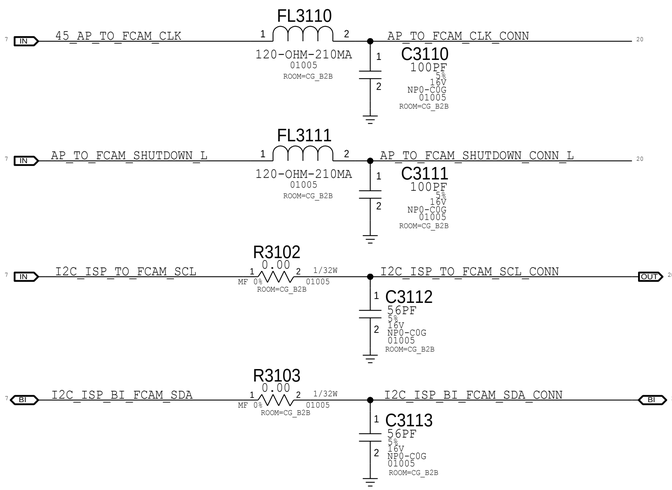


FOREHEAD FLEX (FCAM)

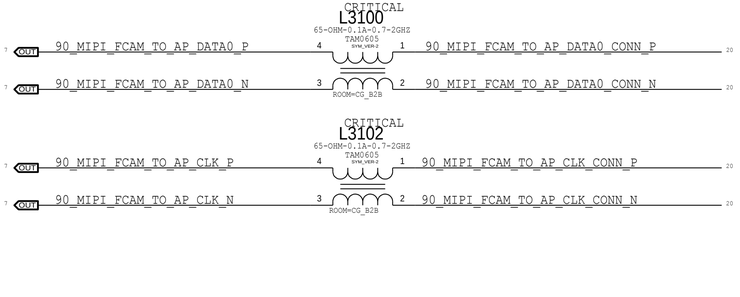
CAMERA POWER



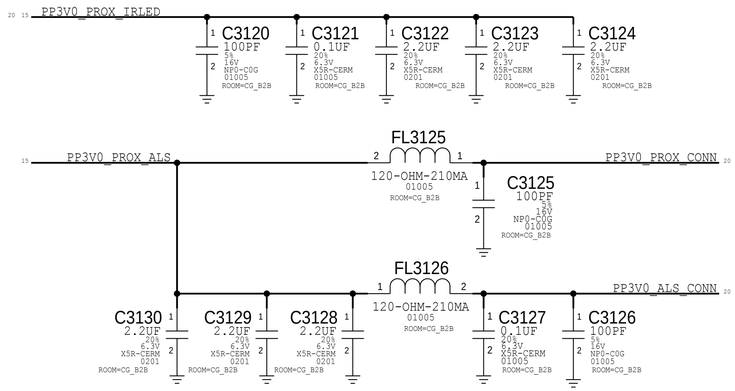
CAMERA I/O



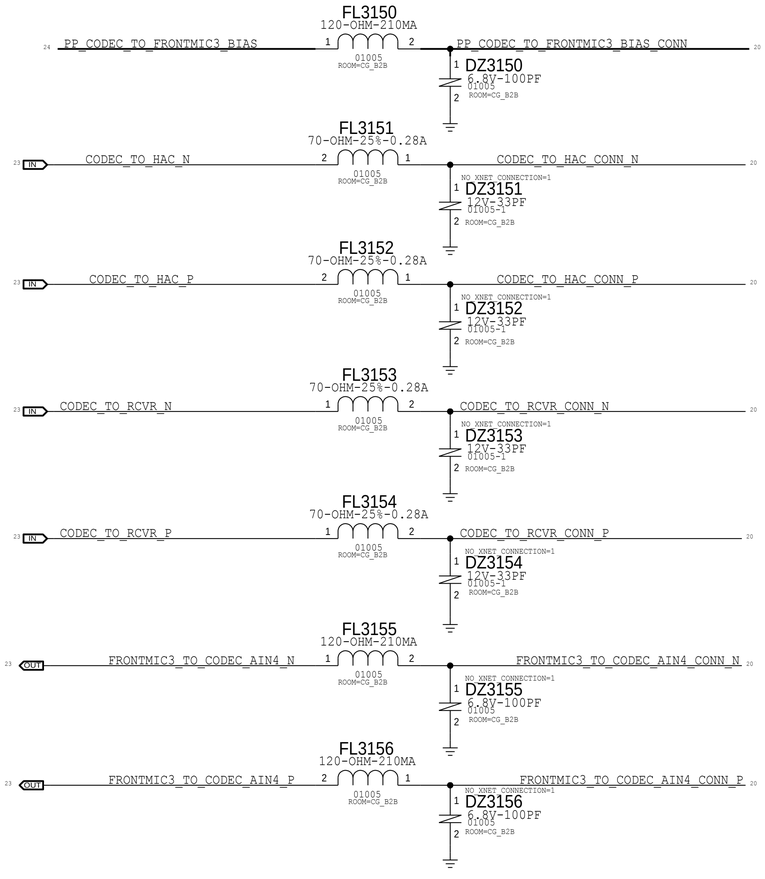
CAMERA MIPI



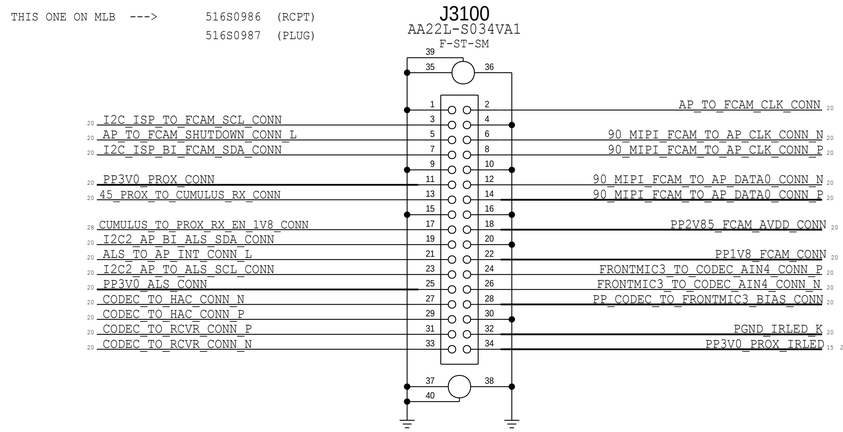
PROX & ALS POWER



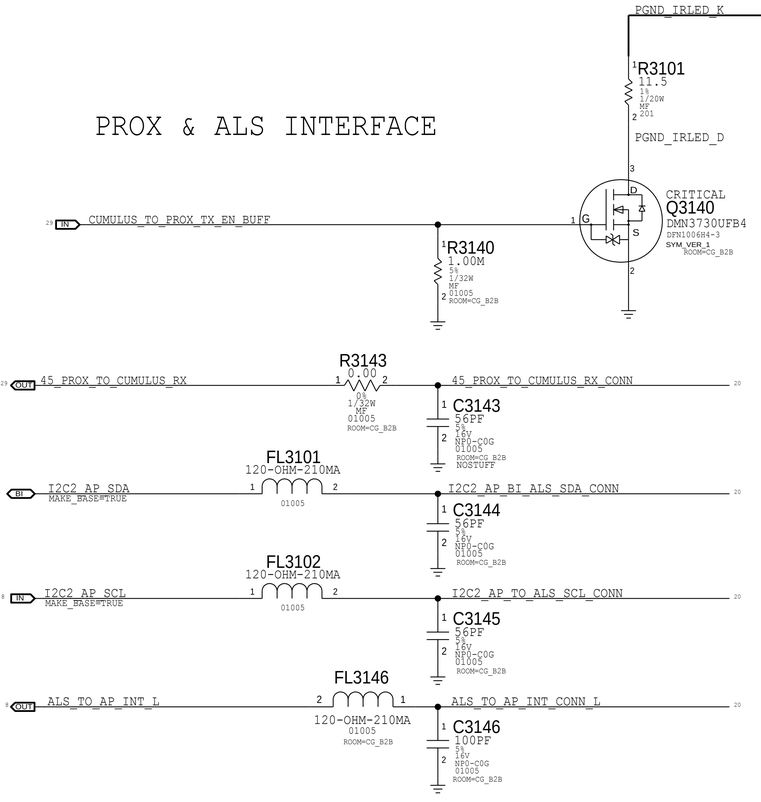
MIC3/HAC/RCVR INTERFACE



FOREHEAD CONNECTOR

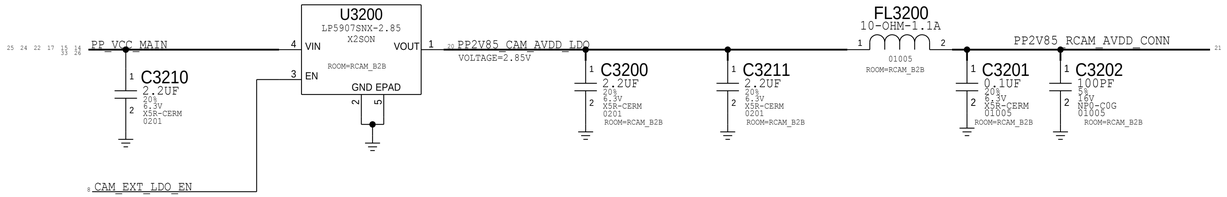


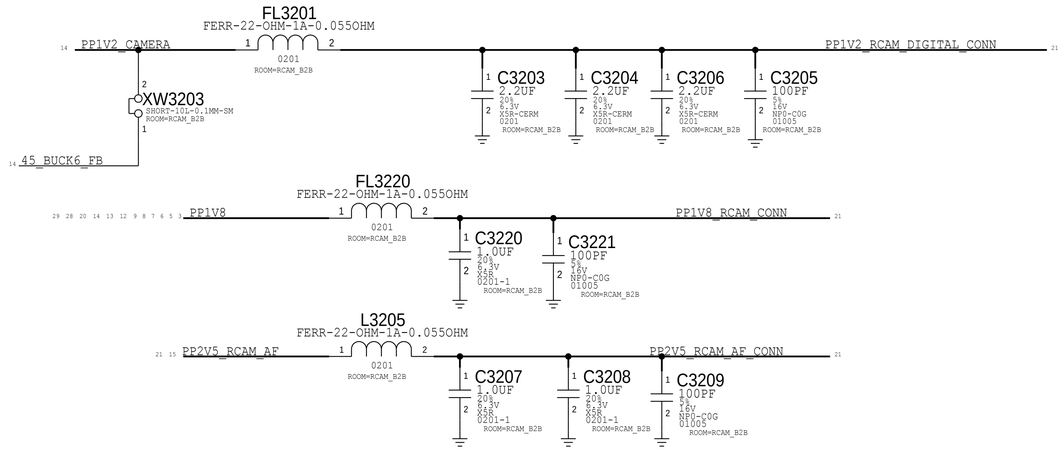
PROX & ALS INTERFACE



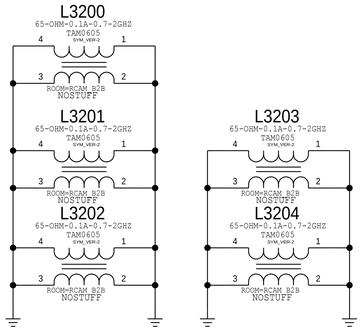
REAR CAMERA FLEX

CAMERA POWER



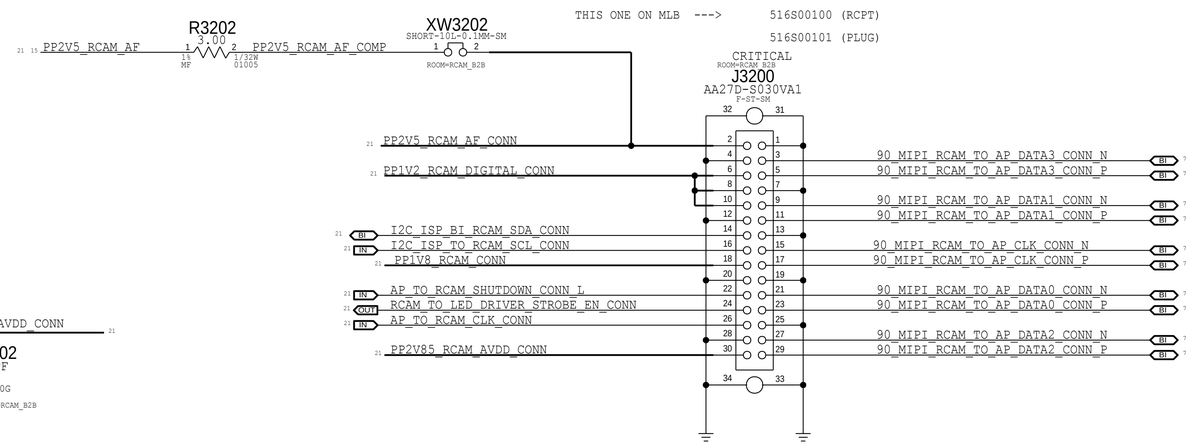


MIPI COMMON-MODE CHOKES

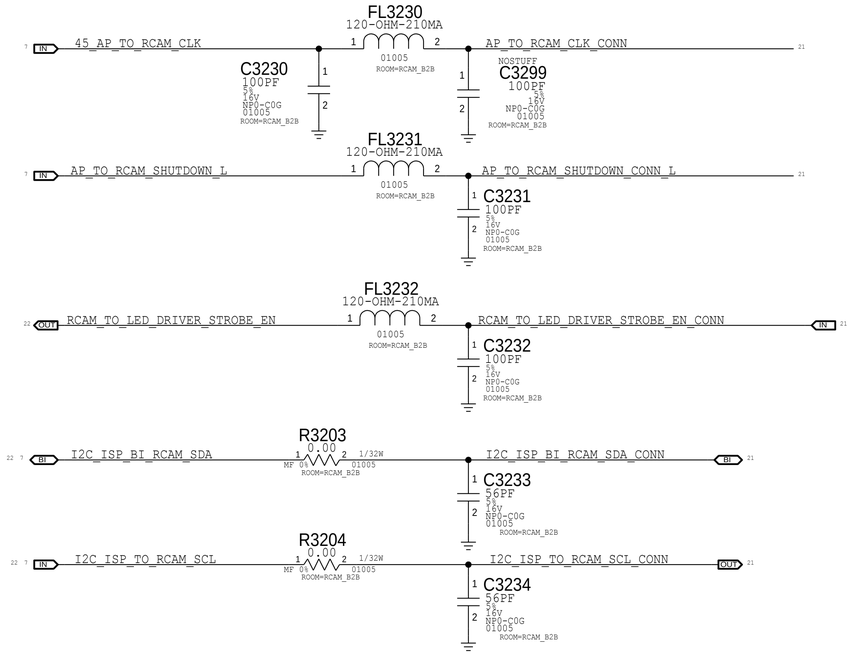


PLACEHOLDER FOOTPRINTS

RCAM CONNECTOR

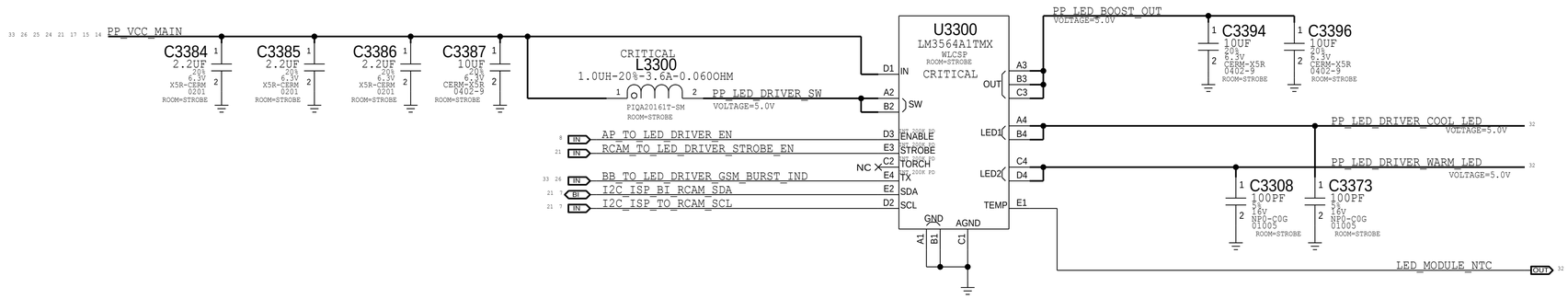


DIGITAL I/O

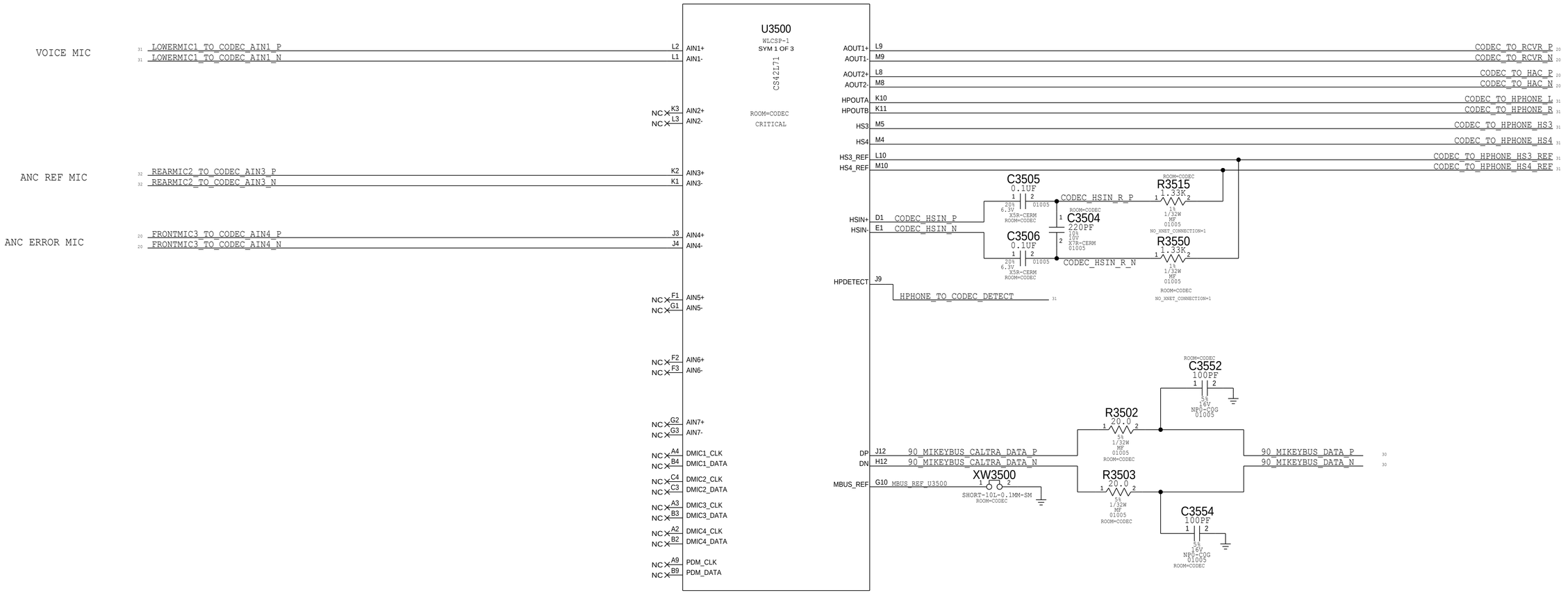


DUAL LED STROBE DRIVER

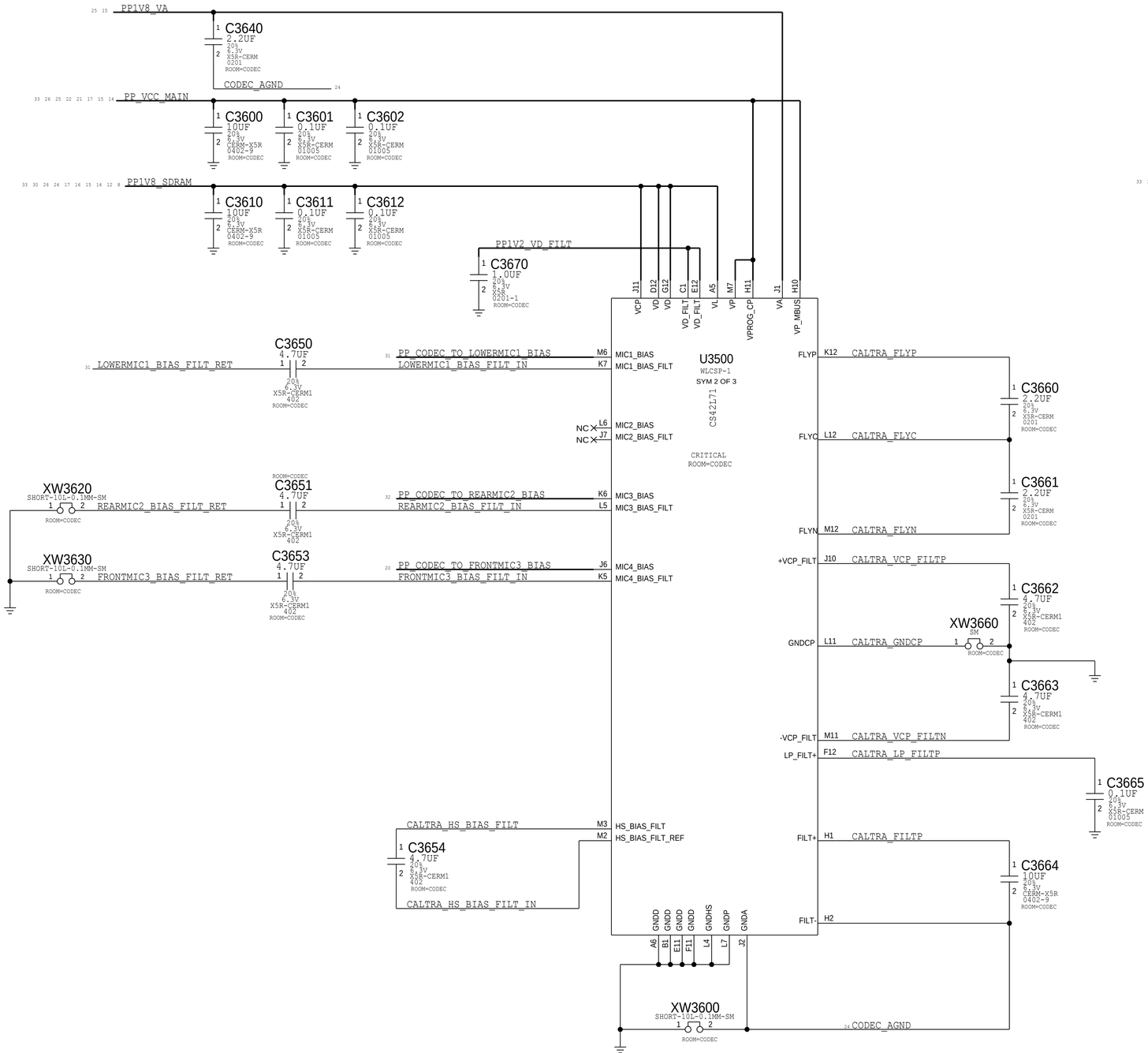
APN:353S3899



CALTRA AUDIO CODEC (ANALOG INPUTS & OUTPUTS)

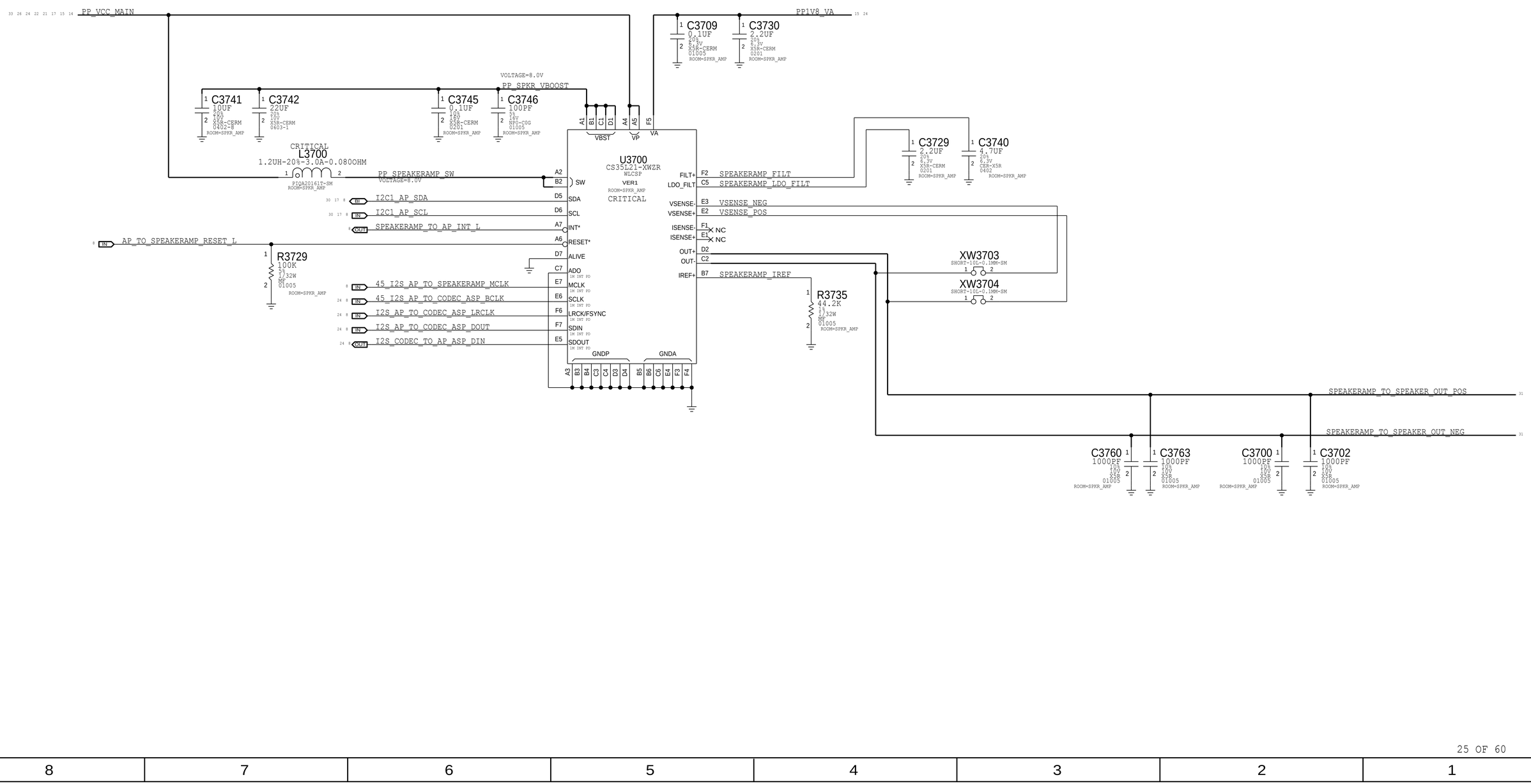


CALTRA AUDIO CODEC (POWER & I/O)



SPEAKER AMPLIFIER

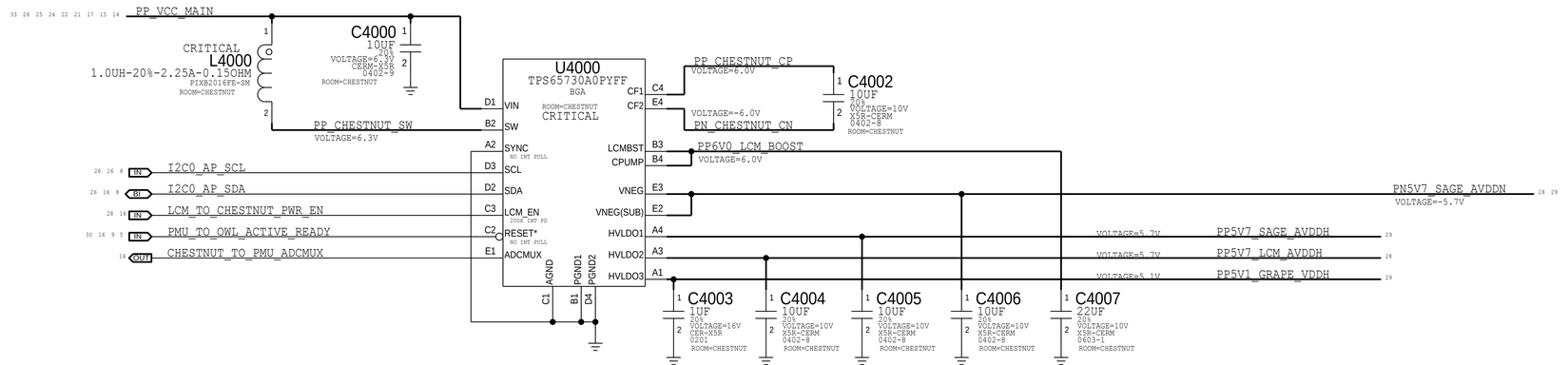
APN: 338S1285



DISPLAY & TOUCH - POWER SUPPLIES

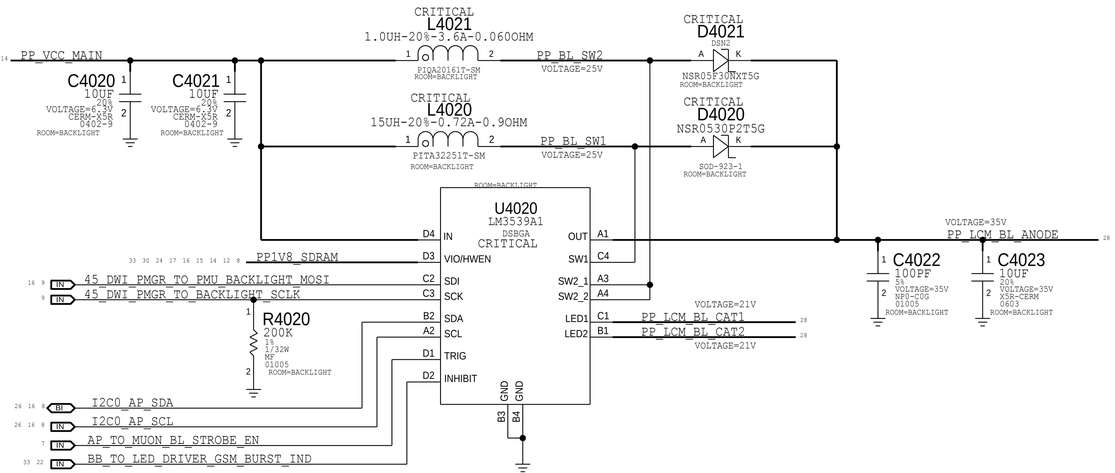
CHESTNUT DISPLAY PMU

APN:338S1172



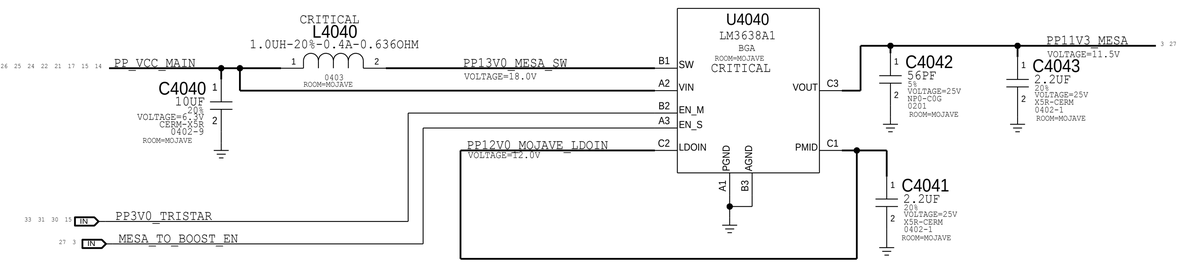
LED BACKLIGHT DRIVER

APN:353S00640



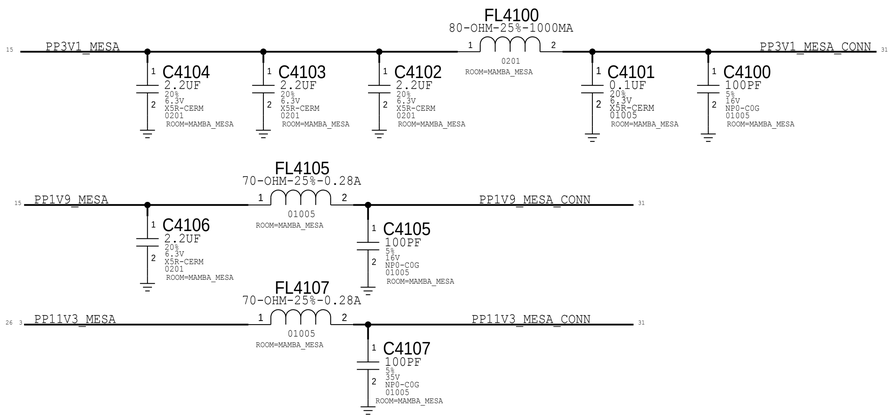
MOJAVE MESA BOOST

APN:353S4207 (A1)

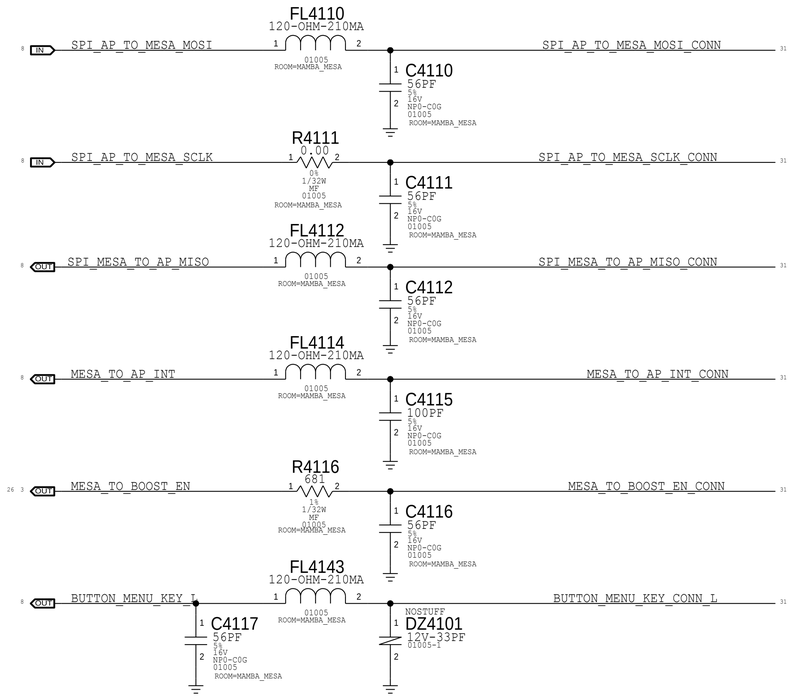


MESA POWER AND IO FILTERS

MESA POWER

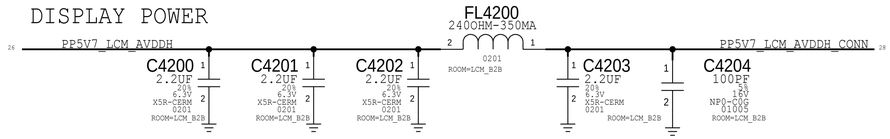


MESA DIGITAL I/O

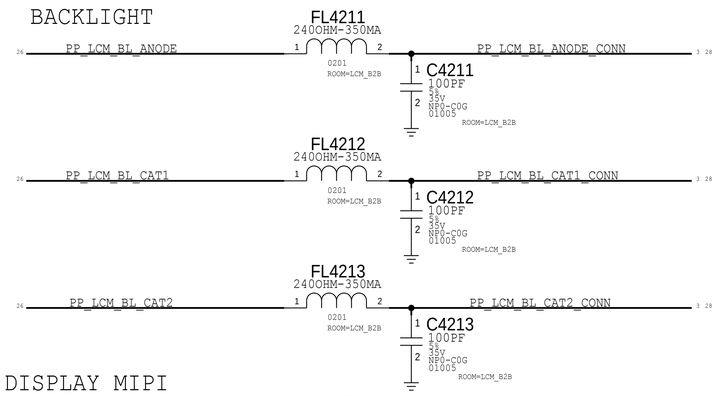


DISPLAY FLEX

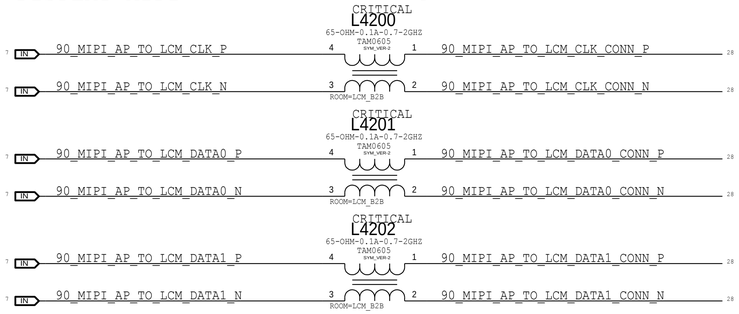
DISPLAY POWER



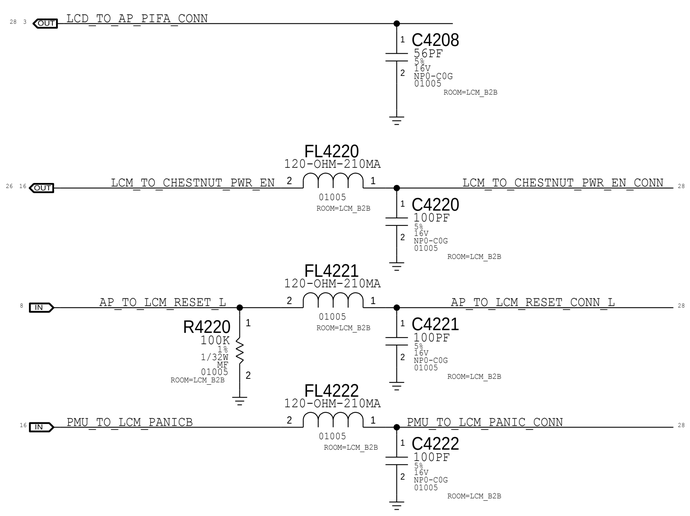
BACKLIGHT



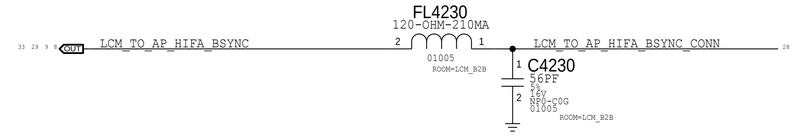
DISPLAY MIPI



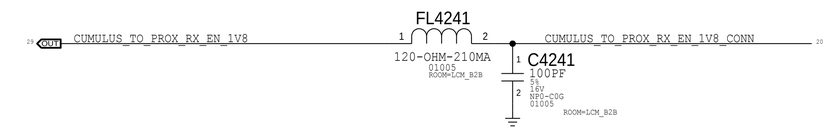
DISPLAY CONTROL SIGNALS



OWL TO TOUCH INTERFACE

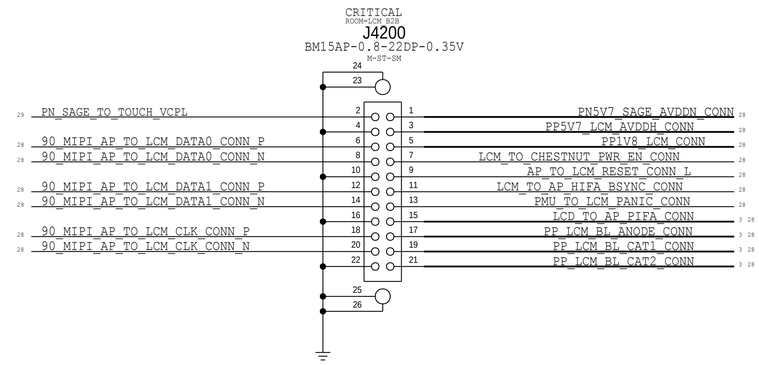


PROX TO TOUCH INTERFACE



DISPLAY CONNECTOR

THIS ONE ON MLB ---> 516S1051 (RCPT)
516S1050 (PLUG)



D403 (B2B,DRIVER ICS)

SAGE2 C0

APN: 343S0645 (CD3246C0, T6)

CUMULUS C1

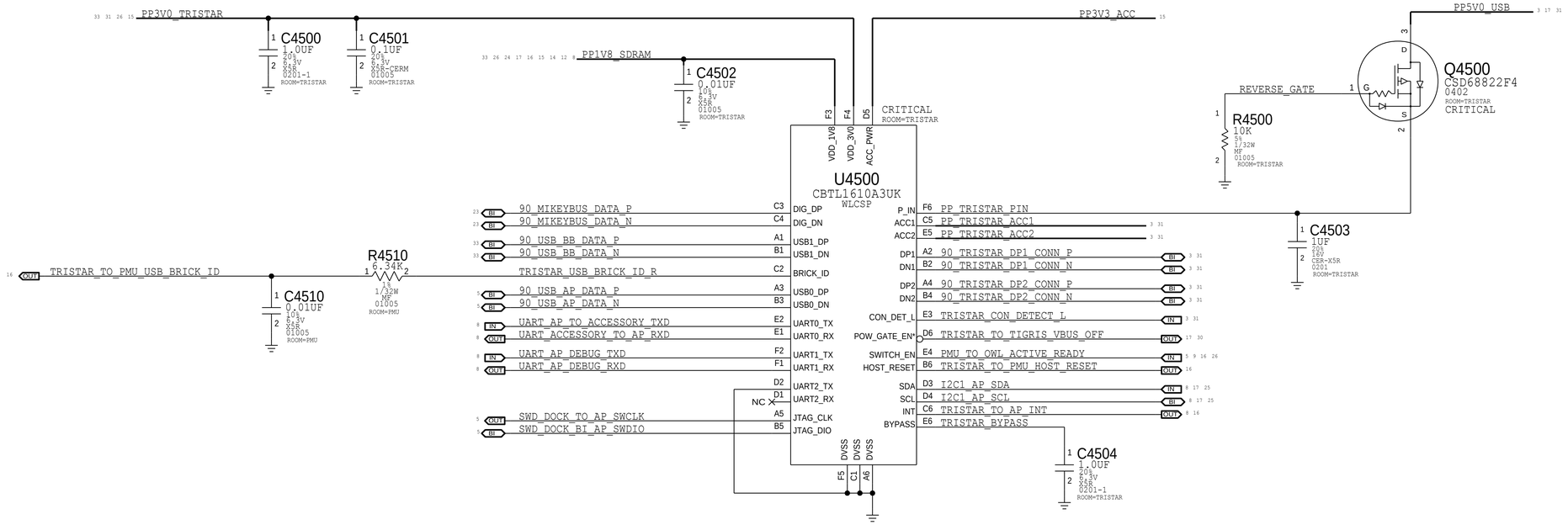
343S0638

TOUCH B2B

ON MLB -> 516S1071 PLUG
ON FLEX-> 516S1070 RCPT

TRISTAR 2 (A3)

APN:343S0695



TRISTAR_TO_TIGRIS_VBUS_OFF → PP4500 (ROOM=TRISTAR, P3MM-NSM)

DOCK FLEX CONNECTOR

AUDIO JACK

HPHONE_TO_CODEC_DETECT → R4600 3.3K 5% 1/32W MF 01005 ROOM=DOCK_B2B → HPHONE_TO_CODEC_DETECT_CONN
- C4600 56PF 5% 16V NP0-C0G 01005 ROOM=DOCK_B2B

CODEC_TO_HPHONE_HS3 → FL4600 FERR-33-OHM-0.8A-0.09-OHM 0201 ROOM=DOCK_B2B → CODEC_TO_HPHONE_HS3_CONN
- DZ4600 6.8V-100PF 01005 ROOM=DOCK_B2B NO_XNET_CONNECTION=1
- C4699 220PF 10% 16V X7R-CERM 01005 ROOM=DOCK_B2B

CODEC_TO_HPHONE_HS4 → FL4601 FERR-33-OHM-0.8A-0.09-OHM 0201 ROOM=DOCK_B2B → CODEC_TO_HPHONE_HS4_CONN
- DZ4601 6.8V-100PF 01005 ROOM=DOCK_B2B NO_XNET_CONNECTION=1
- C4698 220PF 10% 16V X7R-CERM 01005 ROOM=DOCK_B2B

CODEC_TO_HPHONE_HS4_REF → FL4602 600-OHM-25%-0.28A-0.75OHM 0201 ROOM=DOCK_B2B → CODEC_TO_HPHONE_HS4_REF_CONN
- DZ4602 6.8V-100PF 01005 ROOM=DOCK_B2B NO_XNET_CONNECTION=1

CODEC_TO_HPHONE_HS3_REF → FL4603 600-OHM-25%-0.28A-0.75OHM 0201 ROOM=DOCK_B2B → CODEC_TO_HPHONE_HS3_REF_CONN
- DZ4603 6.8V-100PF 01005 ROOM=DOCK_B2B NO_XNET_CONNECTION=1

CODEC_TO_HPHONE_L → FL4604 FERR-33-OHM-0.8A-0.09-OHM 0201 ROOM=DOCK_B2B → CODEC_TO_HPHONE_L_CONN
- DZ4604 6.8V-100PF 01005 ROOM=DOCK_B2B NO_XNET_CONNECTION=1
- C4697 220PF 10% 16V X7R-CERM 01005 ROOM=DOCK_B2B

CODEC_TO_HPHONE_R → FL4605 FERR-33-OHM-0.8A-0.09-OHM 0201 ROOM=DOCK_B2B → CODEC_TO_HPHONE_R_CONN
- DZ4610 6.8V-100PF 01005 ROOM=DOCK_B2B NO_XNET_CONNECTION=1
- C4696 220PF 10% 16V X7R-CERM 01005 ROOM=DOCK_B2B

LOWER MIC1

LOWERMIC1_TO_CODEC_AIN1_P → FL4610 120-OHM-210MA 01005 ROOM=DOCK_B2B → LOWERMIC1_TO_CODEC_AIN1_CONN_P
- C4610 56PF 5% 16V NP0-C0G 01005 ROOM=DOCK_B2B

LOWERMIC1_TO_CODEC_AIN1_N → FL4611 120-OHM-210MA 01005 ROOM=DOCK_B2B → LOWERMIC1_TO_CODEC_AIN1_CONN_N
- C4611 56PF 5% 16V NP0-C0G 01005 ROOM=DOCK_B2B

PP_CODEC_TO_LOWERMIC1_BIAS → FL4612 120-OHM-210MA 01005 ROOM=DOCK_B2B → PP_CODEC_TO_LOWERMIC1_BIAS_CONN
- C4612 100PF 5% 16V NP0-C0G 01005 ROOM=DOCK_B2B

ANTENNA

PP3V0_TRISTAR → FL4620 120-OHM-210MA 01005 ROOM=DOCK_B2B → PP3V0_LAT_CONN
- C4620 100PF 5% 16V NP0-C0G 01005 ROOM=DOCK_B2B

BB_LAT_GPIO2 → FL4608 120-OHM-210MA 01005 ROOM=DOCK_B2B → BB_LAT_GPIO2_CONN
- C4601 56PF 5% 16V NP0-C0G 01005 ROOM=DOCK_B2B

BB_LAT_GPIO1 → FL4624 120-OHM-210MA 01005 ROOM=DOCK_B2B → BB_LAT_GPIO1_CONN
- C4624 56PF 5% 16V NP0-C0G 01005 ROOM=DOCK_B2B

SPEAKER

SPEAKERAMP_TO_SPEAKER_OUT_POS
- C4634 100PF 5% 16V NP0-C0G 01005 ROOM=DOCK_B2B

SPEAKERAMP_TO_SPEAKER_OUT_NEG
- C4635 100PF 5% 16V NP0-C0G 01005 ROOM=DOCK_B2B

DOCK FLEX CONNECTOR

THIS ONE ON MLB ---> 516S00116 (RCPT)
516S00117 (PLUG)

CRITICAL ROOM=DOCK_B2B
J4600 AA27D-S038VA1 F-ST-SM

SPEAKERAMP_TO_SPEAKER_OUT_POS	2	1	PP3V1_MESA_CONN
	4	3	MESA_TO_BOOST_EN_CONN
NC	6	5	SPI_AP_TO_MESA_SCLK_CONN
SPEAKERAMP_TO_SPEAKER_OUT_NEG	8	7	BUTTON_MENU_KEY_CONN_L
PP1V3_MESA_CONN	10	9	SPI_AP_TO_MESA_MOSI_CONN
PP1V9_MESA_CONN	12	11	MESA_TO_AP_INT_CONN
SPI_MESA_TO_AP_MISO_CONN	14	13	HPHONE_TO_CODEC_DETECT_CONN
	16	15	PP3V0_LAT_CONN
	18	17	BB_LAT_GPIO2_CONN
CODEC_TO_HPHONE_L_CONN	20	19	BB_LAT_GPIO1_CONN
CODEC_TO_HPHONE_HS4_REF_CONN	22	21	
CODEC_TO_HPHONE_R_CONN	24	23	90_TRISTAR_DP1_CONN_P (BI)
CODEC_TO_HPHONE_HS3_CONN	26	25	90_TRISTAR_DP1_CONN_N (BI)
CODEC_TO_HPHONE_HS4_CONN	28	27	90_TRISTAR_DP2_CONN_N (BI)
CODEC_TO_HPHONE_HS3_REF_CONN	30	29	90_TRISTAR_DP2_CONN_P (BI)
LOWERMIC1_TO_CODEC_AIN1_CONN_P	32	31	
LOWERMIC1_TO_CODEC_AIN1_CONN_N	34	33	TRISTAR_CON_DETECT_CONN_L
PP_CODEC_TO_LOWERMIC1_BIAS_CONN	36	35	PP_TRISTAR_ACC1_CONN
LOWERMIC1_BIAS_FILT_RET	38	37	PP_TRISTAR_ACC2_CONN
	42	41	

VOLTAGE=5.0V
PP5V0_USB
- C4650 0.1UF 10% 25V X5R 0201 ROOM=DOCK_B2B
- C4651 0.1UF 10% 25V X5R 0201 ROOM=DOCK_B2B
- C4652 0.1UF 10% 25V X5R 0201 ROOM=DOCK_B2B
- C4653 56PF 5% 25V NP0-C0G-CERM 01005 ROOM=DOCK_B2B
- C4654 100PF 5% 25V NP0-C0G 01005 ROOM=DOCK_B2B
- C4655 220PF 10% 25V X7R-CERM 0201 ROOM=DOCK_B2B

TRISTAR

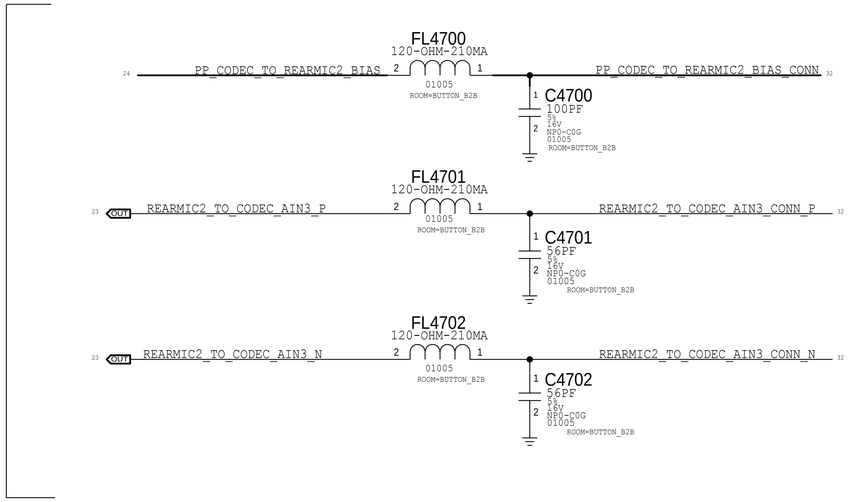
TRISTAR_CON_DETECT_L → R4640 1.00K 5% 1/32W MF 01005 ROOM=DOCK_B2B → TRISTAR_CON_DETECT_CONN_L
- C4640 27PF 5% 16V NP0-C0G 01005 ROOM=DOCK_B2B

PP_TRISTAR_ACC1 → FL4641 10-OHM-1.1A 01005 ROOM=DOCK_B2B → PP_TRISTAR_ACC1_CONN
- C4641 100PF 5% 16V NP0-C0G 01005 ROOM=DOCK_B2B

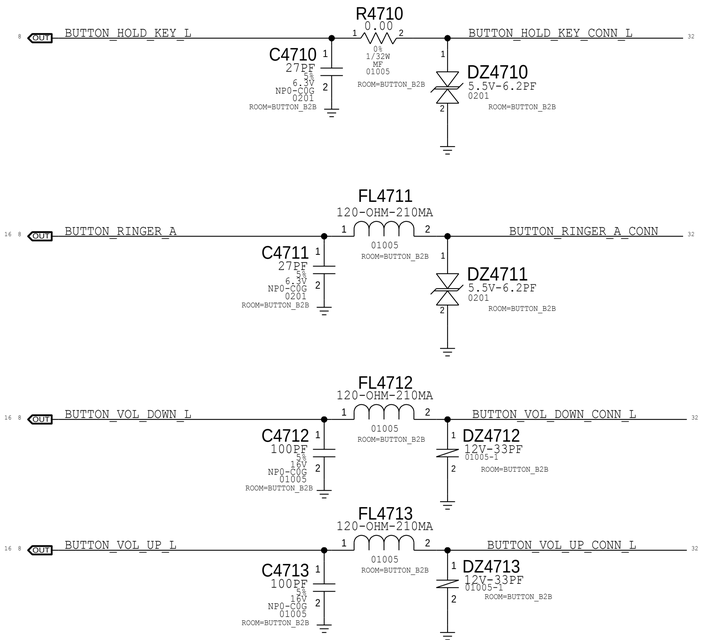
PP_TRISTAR_ACC2 → FL4642 10-OHM-1.1A 01005 ROOM=DOCK_B2B → PP_TRISTAR_ACC2_CONN
- C4642 100PF 5% 16V NP0-C0G 01005 ROOM=DOCK_B2B

BUTTON FLEX

MIC2
ANC REF MIC

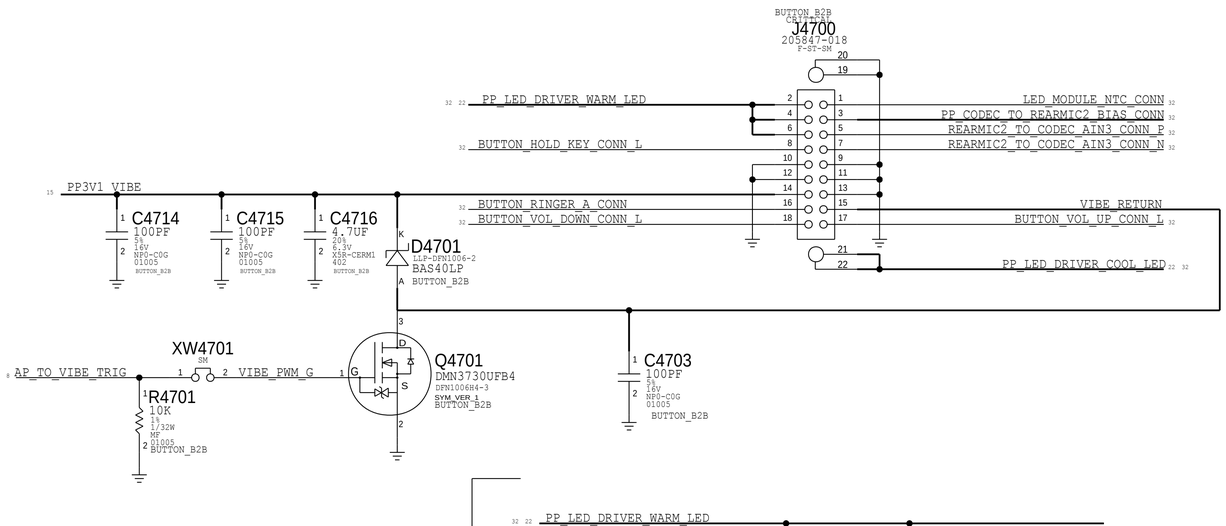


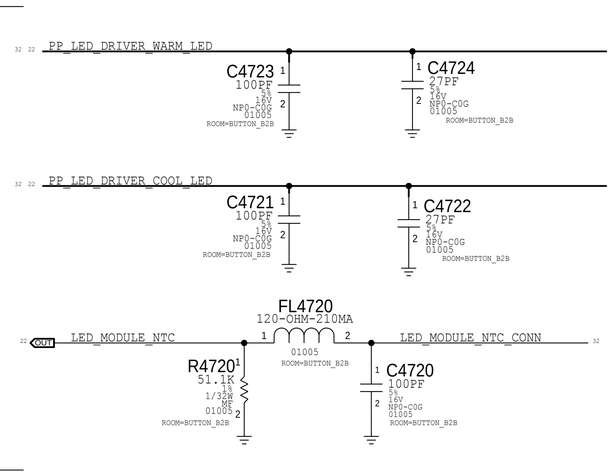
BUTTONS:
HOLD
RINGER
VOL UP/DOWN



BUTTON FLEX CONNECTOR

516S1040 (PLUG)
THIS ONE ON MLB ---> 516S1041 (RCPT)





STROBE:
WARM LED
COOL LED
MODULE NTC

BASEBAND, WLAN, BT & STOCKHOLM

RF
I566

N69 CELLULAR/WLAN/BT/STOCKHOLM SUBDESIGN SYMBOL

SHARED POWER

PP_BATT_VCC	IN	PP_BATT_VCC
PP_VCC_MAIN	IN	PP_VCC_MAIN
PP1V8_SDRAM	IN	PP_WL_BT_VDDIO_AP
		RFFE_VIO_S2R
PMU_TO_BB_USB_VBUS_DETECT	IN	BB_USB_VBUS
PP1V8_SDRAM	IN	PP_STOCKHOLM_1V8_S2R
PP3V0_TRISTAR	IN	PAC_VDD_3V0

ADC_PP_LDO5	OUT	BB_TO_PMU_AMUX_LDO5
ADC_PP_LDO11	OUT	BB_TO_PMU_AMUX_LDO11
ADC_SMPS1	OUT	BB_TO_PMU_AMUX_SMPS1
ADC_SMPS4	OUT	BB_TO_PMU_AMUX_SMPS4

BASEBAND

50_AP_BI_BB_HSIC0_DATA	BI	50_BB_HSIC_DATA
50_AP_BI_BB_HSIC0_STB	BI	50_BB_HSIC_STROBE
BB_TO_AP_HSIC_DEVICE_RDY	OUT	BB_DEVICE_RDY
AP_TO_BB_HSIC_HOST_RDY	IN	BB_HOST_RDY
BB_TO_PMU_HOST_WAKE_L	OUT	BB_WAKE_HOST_L
AP_TO_BB_WAKE_MODEM	IN	AP_WAKE_MODEM
90_USB_BB_DATA_N	BI	90_BB_USB_N
90_USB_BB_DATA_P	BI	90_BB_USB_P
AP_TO_BB_RADIO_ON_L	IN	RADIO_ON_L
BB_TO_AP_RESET_DETECT_L	OUT	BB_RESET_DET_L
AP_TO_BB_RESET_L	IN	BB_RST_L
PMU_TO_BB_PMIC_RESET_L	IN	RF_PMIC_RESET_L
I2S_BB_TO_AP_DIN	OUT	BB_I2S_TXD
45_I2S_AP_TO_BB_BCLK	IN	BB_I2S_CLK
I2S_AP_TO_BB_DOUT	IN	BB_I2S_RXD
I2S_AP_TO_BB_LRCLK	IN	BB_I2S_WS
UART_BB_TO_AP_RXD	OUT	BB_UART_TXD
UART_AP_TO_BB_TXD	IN	BB_UART_RXD
UART_AP_TO_BB_RTS_L	IN	BB_UART_CTS_L
UART_BB_TO_AP_CTS_L	OUT	BB_UART_RTS_L
LCM_TO_AP_HIFA_BSYNC	IN	BB_FORCE_PWM
UART_OWL_TO_BB_TXD	IN	BB_OTHER_RXD
UART_BB_TO_OWL_RXD	OUT	BB_OTHER_TXD
SWD_AP_BI_BB_SWDIO	BI	BB_JTAG_TMS
SWD_AP_PERIPHERAL_SWCLK	IN	BB_JTAG_TCK
BB_TO_AP_GPS_TIME_MARK	OUT	BB_GPS_SYNC
AP_TO_BB_COREDUMP	IN	BB_CORE_DUMP
BB_TO_AP_IPC_GPIO		BB_IPC_GPIO1
AP_TO_BB_MESA_ON	OUT	AP_TO_BB_MESA_ON
BB_TO_LED_DRIVER_GSM_BURST_IND	OUT	GSM_TXBURST_IND

WLAN

RADIO_MLB

HOST_WAKE_WLAN	WLAN_TO_PMU_HOST_WAKE	OUT
WLAN_REG_ON	PMU_TO_WLAN_REG_ON	IN
OSCAR_CONTEXT_A	OWL_TO_WLAN_CONTEXT_A	IN
OSCAR_CONTEXT_B	OWL_TO_WLAN_CONTEXT_B	IN
WLAN_UART_TXD	UART_WLAN_TO_AP_RXD	OUT
WLAN_UART_RXD	UART_AP_TO_WLAN_TXD	IN
WLAN_UART_CTS_L	UART_AP_TO_WLAN_RTS_L	IN
WLAN_UART_RTS_L	UART_WLAN_TO_AP_CTS_L	OUT
PCIE_DEV_WAKE	PCIE_AP_TO_WLAN_DEV_WAKE	OUT
WLAN_PCIE_WAKE_L	WLAN_TO_PMU_PCIE_WAKE_L	OUT
WLAN_PCIE_PERST_L	PCIE_AP_TO_WLAN_RESET_L	IN
WLAN_PCIE_CLKREQ_L	PCIE_WLAN_TO_AP_CLKREQ_L	BI
90_WLAN_PCIE_REFCLK_N	90_PCIE_AP_TO_WLAN_REFCLK_N	IN
90_WLAN_PCIE_REFCLK_P	90_PCIE_AP_TO_WLAN_REFCLK_P	IN
90_WLAN_PCIE_RDN	90_PCIE_AP_TO_WLAN_TXD_N	IN
90_WLAN_PCIE_RDP	90_PCIE_AP_TO_WLAN_TXD_P	IN
90_WLAN_PCIE_TDN	90_PCIE_WLAN_TO_AP_RXD_N	OUT
90_WLAN_PCIE_TDP	90_PCIE_WLAN_TO_AP_RXD_P	OUT

BLUETOOTH

BT_UART_RXD	UART_AP_TO_BT_TXD	IN
BT_UART_TXD	UART_BT_TO_AP_RXD	OUT
BT_UART_RTS_L	UART_BT_TO_AP_CTS_L	OUT
BT_UART_CTS_L	UART_AP_TO_BT_RTS_L	IN
BT_PCM_IN	I2S_AP_TO_BT_DOUT	IN
BT_PCM_OUT	I2S_BT_TO_AP_DIN	OUT
BT_PCM_CLK	45_I2S_AP_TO_BT_BCLK	BI
BT_PCM_SYNC	I2S_AP_TO_BT_LRCLK	IN
BT_REG_ON	PMU_TO_BT_REG_ON	IN
WAKE_BT	AP_TO_BT_WAKE	IN
HOST_WAKE_BT	BT_TO_PMU_HOST_WAKE	OUT
CLK32K_AP	45_PMU_TO_WLAN_CLK32K	IN

ANTENNA

BB_LAT_GPIO1	OUT	BB_LAT_GPIO1
BB_LAT_GPIO2	OUT	BB_LAT_GPIO2

STOCKHOLM

STOCKHOLM_UART_TXD	UART_STOCKHOLM_TO_AP_RXD	IN
STOCKHOLM_UART_RXD	UART_AP_TO_STOCKHOLM_TXD	OUT
STOCKHOLM_UART_RTS	UART_STOCKHOLM_TO_AP_CTS_L	OUT
STOCKHOLM_UART_CTS	UART_AP_TO_STOCKHOLM_RTS_L	IN
AP_TO_STOCKHOLM_EN	PMU_TO_STOCKHOLM_EN	IN
AP_TO_STOCKHOLM_FW_DWLD_REQ	AP_TO_STOCKHOLM_DWLD_REQUEST	IN
STOCKHOLM_TO_PMU_HOST_WAKE	STOCKHOLM_TO_PMU_HOST_WAKE	OUT
AP_TO_STOCKHOLM_DEV_WAKE	AP_TO_STOCKHOLM_DEV_WAKE	IN

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

REV	ECN	DESCRIPTION OF REVISION	CK APPD / DATE
4	0004752417	ENGINEERING RELEASED	2015-08-24

N69 RADIO MLB SUBDESIGN - EVT 8/19/2015

LAST_MODIFICATION=Wed Aug 19 10:34:24 2015

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AP INTERFACE & DEBUG CONNECTORS

NOT UNDER SIM

PP3105_RF P2MM-NSM SM 1 CLK32K_AP 24 27
PP3119_RF P2MM-NSM SM 1 BT_UART_TXD WIFI_BT 24 27
PP3120_RF P2MM-NSM SM 1 BT_UART_RXD WIFI_BT 24 27
PP3101_RF P2MM-NSM SM 1 BT_UART_CTS_L WIFI_BT 24 27
PP3102_RF P2MM-NSM SM 1 BT_UART_RTS_L WIFI_BT 24 27
PP3121_RF P2MM-NSM SM 1 BT_PCM_CLK STOCKHOLM
PP3122_RF P2MM-NSM SM 1 BT_PCM_SYNC STOCKHOLM
PP3127_RF P2MM-NSM SM 1 BT_PCM_IN WIFI_BT
PP3128_RF P2MM-NSM SM 1 BT_PCM_OUT WIFI_BT
PP3173_RF P2MM-NSM SM 1 HOST_WAKE_BT WIFI_BT
PP3152_RF P2MM-NSM SM 1 WAKE_BT WIFI_BT 24 27
PP3153_RF P2MM-NSM SM 1 WLAN_REG_ON WIFI_BT 24 27
PP3154_RF P2MM-NSM SM 1 BT_REG_ON WIFI_BT 24 27
PP3155_RF P2MM-NSM SM 1 HOST_WAKE_WLAN WIFI_BT 24 27
PP3157_RF P2MM-NSM SM 1 WLAN_UART_RTS_L WIFI_BT 24 27
PP3158_RF P2MM-NSM SM 1 WLAN_UART_CTS_L WIFI_BT 24 27
PP3162_RF P2MM-NSM SM 1 WLAN_UART_RXD WIFI_BT 24 27
PP3163_RF P2MM-NSM SM 1 WLAN_UART_TXD WIFI_BT 24 27
PP3170_RF P2MM-NSM SM 1 RFFE1_CLK 8 12 13 14 15 16 17
PP3171_RF P2MM-NSM SM 1 RFFE1_DATA 8 12 13 14 15 16 17
PP3172_RF P2MM-NSM SM 1 RFFE2_CLK 8 18 19 21

OPTIONAL

PP3123_RF P2MM-NSM SM 1 OSCAR_CONTEXT_A
PP3124_RF P2MM-NSM SM 1 OSCAR_CONTEXT_B STOCKHOLM

PP3174_RF P2MM-NSM SM 1 STOCKHOLM_TO_SIM_SWP STOCKHOLM 25
PP3129_RF P2MM-NSM SM 1 45_BBPMU_TO_STOCKHOLM_19P2M_CLK STOCKHOLM 5 25
PP3185_RF P2MM-NSM SM 1 WLAN_JTAG_SWDCLK WIFI_BT 24
PP3186_RF P2MM-NSM SM 1 WLAN_JTAG_SWDIO WIFI_BT 24

CORONA PCIE RX/TX TP

PP3192_RF P2MM-NSM SM 1 90_WLAN_PCIE_RDN WIFI_BT 24 27
PP3193_RF P2MM-NSM SM 1 90_WLAN_PCIE_RDP WIFI_BT 24 27
PP3194_RF P2MM-NSM SM 1 90_WLAN_PCIE_TDN WIFI_BT 24 27
PP3195_RF P2MM-NSM SM 1 90_WLAN_PCIE_TDP WIFI_BT 24 27

PP3196_RF P2MM-NSM SM 1 BB_UART_TXD 8 27
PP3197_RF P2MM-NSM SM 1 BB_UART_RXD 8 27
PP3198_RF P2MM-NSM SM 1 BB_UART_CTS_L 8 27
PP3199_RF P2MM-NSM SM 1 BB_UART_RTS_L 8 27

UNDER THE SIM

NOSTUFF
J3100_RF
AXE650124
M-ST-SM

PP3131_RF P4MM-NSM SM 1		2	1 BB_DEBUG_STATUS 8
PP3132_RF P4MM-NSM SM 1	27 7 BB_JTAG_TCK_IN	4	3 BB_CORE_DUMP
PP3138_RF P4MM-NSM SM 1	27 7 BB_JTAG_TMS	6	5 BB_USB_VBUS 1
PP3139_RF P4MM-NSM SM 1	BB_JTAG_TDO	8	7 90_BB_USB_N 7 8
PP3140_RF P4MM-NSM SM 1	BB_JTAG_TDI	10	9 90_BB_USB_P 1
	BB_JTAG_TRST_L	12	11
25 5 3	STOCKHOLM_TO_BBPMU_CLK_REQ	14	13
22	BB_T2S_CLK	16	15 BB_RST_L 5 27
	BB_HOST_RDY	18	17 BB_RESET_DET_L 8 27
8 3	BB_SIM_RESET	20	19
8 3	BB_SIM_CLK	22	21 BB_WAKE_HOST_L 8 27
8 3	BB_SIM_DATA	24	23 BB_GPS_SYNC 8 27
8 3	BB_SIM_DETECT	26	25
25 6 4 3	PP_LDO5	28	27 BB_DEVICE_RDY 8 27
12 11 10 8 7 6 4 3	PP_LDO11	30	29
27 3	RADIO_ON_L	32	31 BB_I2S_WS 8 27
3	BB_DEBUG_ERROR	34	33 BB_I2S_RXD 8 27
27 3	RF_PMIC_RESET_L	36	35 BB_I2S_TXD 8 27
3	PS_HOLD_PMIC	38	37
7 3	PMIC_RESOUT_L	40	39 AP_TO_STOCKHOLM_FW_DWLD_REQ
27 25 3	STOCKHOLM_UART_RXD	42	41 AP_TO_STOCKHOLM_EN 25 33
27 25 3	STOCKHOLM_UART_TXD	44	43 BB_OTHER_TXD 8 27
27 25 3	STOCKHOLM_UART_CTS	46	45 BB_OTHER_RXD 8 27
27 25 3	STOCKHOLM_UART_RTS	48	47 BB_COEX_UART_RXD 8 24
27 25 3	STOCKHOLM_TO_PMU_HOST_WAKE	50	49 BB_COEX_UART_TXD 8 24
		53 54	51 52

PP3190_RF P2MM-NSM SM 1 AP_TO_BB_MESA_ON 8 27
PP3191_RF P2MM-NSM SM 1 BB_FORCE_PWM 5 27
PP3115_RF P4MM-NSM SM 1 50_BB_HSIC_STROBE 7 27
PP3116_RF P4MM-NSM SM 1 50_BB_HSIC_DATA 7 27
PP3111_RF P4MM-NSM SM 1 SPMI_DATA 5 7
PP3112_RF P4MM-NSM SM 1 SPMI_CLK 5 7
PP3104_RF P4MM-NSM SM 1 MDM_CLK 5 7

SIM CARD ESD PROTECTION

DZ3102_RF 5.5V-6.2PF
8 3 BB_SIM_DETECT 1 2 0201
C3102_RF 100PF NP0-C0G 01005 5% 10V 1 2

VR3101_RF ESD5004 LGA-1
8 3 BB_SIM_DATA 1
8 3 BB_SIM_RESET 2
STOCKHOLM_TO_SIM_SWP 3
8 3 BB_SIM_CLK 4
5

SIM CARD CONNECTOR

25 6 4 3 PP_LDO5
R3101_RF 15.00K 1% 1/32W MF 01005
C3101_RF 2.2UF 20% 6.3V X5R-CERM 0201

J3101_RF SIM-CARD-N48 F-ST-SM

41 36 IN BB_SIM_RESET	2	RST	I/O 7 BB_SIM_DATA BI 36 41
41 36 IN BB_SIM_CLK	3	CLK	DETECT 12 BB_SIM_DETECT OUT 36 41
			SWP 6 STOCKHOLM_TO_SIM_SWP BI 36 58
	1	VCC	
	8 9 10 11 13 5	GND	

R3102_RF 10K 1% 1/32W MF 01005 RADIO_BB
R3103_RF 10K 1% 1/32W MF 01005 RADIO_BB
R3104_RF 10K 1% 1/32W MF 01005 RADIO_BB
12 11 10 8 7 6 4 3 PP_LDO11
8 BOOT_HSIC
8 BOOT_HSIC_USB
8 WATCHDOG_DISABLE

XW3101_RF SHORT-10L-0.1MM-SM
6 4 VREG_SMPS1_0V90 1 2 ADC_SMPS1 OUT 33 60
XW3102_RF SHORT-10L-0.1MM-SM
12 11 10 8 7 6 4 3 PP_LDO11 1 2 ADC_PP_LDO11 OUT 33 60
XW3103_RF SHORT-10L-0.1MM-SM
25 6 4 3 PP_LDO5 1 2 ADC_PP_LDO5 OUT 33 60
XW3104_RF SHORT-10L-0.1MM-SM
4 VREG_SMPS4_2V075 1 2 ADC_SMPS4 OUT 33 60

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
377S0163	371S00044	ALTERNATE	VR3101	ESD ALTERNATIVE

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BASEBAND PMU (1 OF 2)

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FOOTPRINT SAME AS 138S0716

PP_VCC_MAIN

RADIO_PMIC C3270_RF 100PF 5% 16V NP0-C0G 01005
RADIO_PMIC C3224_RF 2.2UF 20% 6.3V X5R-CERM 0201
RADIO_PMIC C3223_RF 2.2UF 20% 6.3V X5R-CERM 0201
RADIO_PMIC C3222_RF 2.2UF 20% 6.3V X5R-CERM 0201
C3216_RF 15UF 20% 6.3V X5R 0402-1
C3221_RF 15UF 20% 6.3V X5R 0402-1

SWITCHERS OUTPUT CAPS

VREG_SMPS1_0V90
RADIO_PMIC C3229_RF 20UF 20% 6.3V CERM-X5R 0402
RADIO_PMIC C3231_RF 20UF 20% 6.3V CERM-X5R 0402

VREG_SMPS2_1V25
RADIO_PMIC C3237_RF 20UF 20% 6.3V CERM-X5R 0402
RADIO_PMIC C3239_RF 20UF 20% 6.3V CERM-X5R 0402

VREG_SMPS3_0V95
RADIO_PMIC C3230_RF 20UF 20% 6.3V CERM-X5R 0402
RADIO_PMIC C3232_RF 20UF 20% 6.3V CERM-X5R 0402

VREG_SMPS4_2V075
RADIO_PMIC C3238_RF 20UF 20% 6.3V CERM-X5R 0402
RADIO_PMIC C3240_RF 20UF 20% 6.3V CERM-X5R 0402

SWITCHERS BULK CAPS

FOOTPRINT SAME AS 138S0716

PP_VCC_MAIN — VBATT_S1
C3217_RF 15UF 20% 6.3V X5R 0402-1

PP_VCC_MAIN — VBATT_S2
C3218_RF 15UF 20% 6.3V X5R 0402-1

PP_VCC_MAIN — VBATT_S3
C3219_RF 15UF 20% 6.3V X5R 0402-1

PP_VCC_MAIN — VBATT_S4
C3220_RF 15UF 20% 6.3V X5R 0402-1

AVDD_BYP
RADIO_PMIC C3226_RF 1.0UF 20% 10V X5R-CERM 0201-1

REF_BYP
RADIO_PMIC C3227_RF 0.1UF 20% 4V X5R 01005

VREG_RF_CLK_BYP
RADIO_PMIC C3228_RF 1.0UF 20% 10V X5R-CERM 0201-1

U_PMICRF_RF
PM8019
BGA
SYM 5 OF 5
REG

26	VDD_INT_BYP	
21	REF_BYP	
15	GND_REF	
22	VDD_S1	VBATT_S1
88	VDD_S2	VBATT_S2
94	VDD_S2	
47	VDD_S3	VBATT_S3
1	VDD_S4	VBATT_S4
92	VDD_L1	VREG_SMPS2_1V25
2	VDD_L2_3	VREG_SMPS4_2V075
4	VDD_L7_8_11	VREG_SMPS4_2V075
77	VDD_L9	
72	VDD_L10	
38	VDD_L12	VREG_SMPS3_0V95
85	VDD_XO_RFC	VREG_SMPS4_2V075
49	GND	
52	VREF_DDR2	MDM_VREF_LPDDR2
43	VIN_VPH1	PP_VCC_MAIN
54	VIN_VPH2	

91	VREG_RFCLK	VREG_RF_CLK_BYP
74	VREG_XO	VREG_XO_PMIC
27	VREG_S1	
11	VSW_S1_1	PP_VSW_S1
16	VSW_S1_2	
82	VREG_S2	
93	VSW_S2	PP_VSW_S2
62	VREG_S3	
53	VSW_S3_1	PP_VSW_S3
58	VSW_S3_2	
23	VREG_S4	
6	VSW_S4_1	PP_VSW_S4
12	VSW_S4_2	
86	VREG_L1	VREG_RX
7	VREG_L2	
8	VREG_L3	
68	VREG_L4	
59	VREG_L5	VREG_SIM
48	VREG_L6	NC
10	VREG_L7	
3	VREG_L8	VREG_TX
71	VREG_L9	
83	VREG_L10	
9	VREG_L11	VREG_IO
33	VREG_L12	
34	VREG_L13	
28	VREG_L14	

PP_VSW_S1: L3201_RF 2.2UH-20%-1.5A-0.160HM MAKK2016-SM — VOLTAGE=4.50V — 1235MA — VREG_SMPS1_0V90
PP_VSW_S2: L3203_RF 2.2UH-20%-1.5A-0.160HM MAKK2016-SM — VOLTAGE=4.50V — 1100MA — VREG_SMPS2_1V25
PP_VSW_S3: L3204_RF 2.2UH-20%-1.5A-0.160HM MAKK2016-SM — VOLTAGE=4.50V — 1350MA — VREG_SMPS3_0V95
PP_VSW_S4: L3202_RF 2.2UH-20%-1.2A-0.150HM RADIO_PMIC 0806 — VOLTAGE=4.50V — 550MA — VREG_SMPS4_2V075

VREG_RX	VOLTAGE=1.225V	PP_LDO1
	VOLTAGE=1.80V	PP_LDO2
	VOLTAGE=1.80V	PP_LDO3
	VOLTAGE=3.075V	PP_LDO4
VREG_SIM	VOLTAGE=1.80V	PP_LDO5
	VOLTAGE=1.90V	PP_LDO7
VREG_TX	VOLTAGE=2.05V	PP_LDO8
	VOLTAGE=1.20V	PP_LDO9
	VOLTAGE=0.90V	PP_LDO10
VREG_IO	VOLTAGE=1.80V	PP_LDO11
	VOLTAGE=0.95V	PP_LDO12
	VOLTAGE=2.95V	PP_LDO13
	VOLTAGE=5.0V	PP_LDO14_RFSW

RADIO_PMIC C3201_RF 1.0UF 20% 10V X5R-CERM 0201-1
RADIO_PMIC C3202_RF 10UF 20% 6.3V CERM-X5R 0402-9
RADIO_PMIC C3203_RF 1.0UF 20% 10V X5R-CERM 0201-1
RADIO_PMIC C3204_RF 1.0UF 20% 10V X5R-CERM 0201-1
RADIO_PMIC C3205_RF 1.0UF 20% 10V X5R-CERM 0201-1
RADIO_PMIC C3206_RF 1.0UF 20% 10V X5R-CERM 0201-1
RADIO_PMIC C3208_RF 1.0UF 20% 10V X5R-CERM 0201-1
RADIO_PMIC C3209_RF 10UF 20% 6.3V CERM-X5R 0402-9
RADIO_PMIC C3210_RF 10UF 20% 6.3V CERM-X5R 0402-9
RADIO_PMIC C3211_RF 10UF 20% 6.3V CERM-X5R 0402-9
RADIO_PMIC C3212_RF 1.0UF 20% 10V X5R-CERM 0201-1
RADIO_PMIC C3213_RF 10UF 20% 6.3V CERM-X5R 0402-9
RADIO_PMIC C3214_RF 1.0UF 20% 10V X5R-CERM 0201-1
RADIO_PMIC C3215_RF 1.0UF 20% 10V X5R-CERM 0201-1

BASEBAND PMU (2 OF 2)

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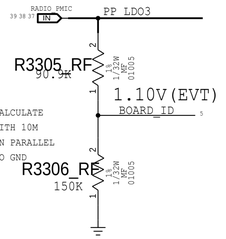
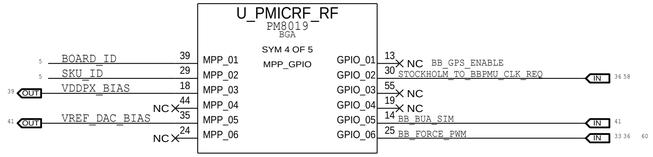
C401
R411
L400
U404

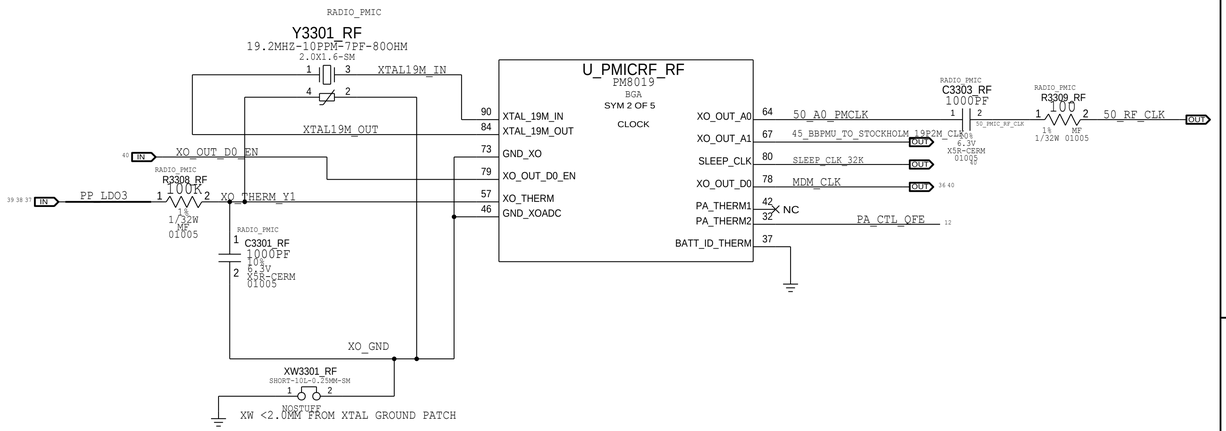
BOARD_ID	REVISION
0.00V	N69/69H PRE-PROTO
0.50V	SPARE
0.70V	N69/69H PROTO1
0.90V	N69/69H PROTO2
1.10V	N69/69H EVT1
1.30V	N69/69H EVT2
1.40V	SPARE
1.50V	N69/69H DVT
1.60V	SPARE
1.70V	N69/69H PVT

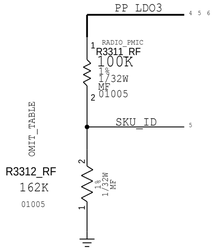
SKU_ID	REVISION
0.5V	N69
1.1V	N69H

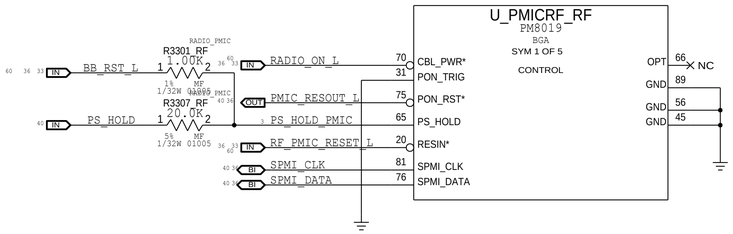
PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0565	197S0593	ALTERNATE	Y3301_RF	XTAL 19MHZ
197S0598	197S0593	ALTERNATE	Y3301_RF	XTAL 19MHZ

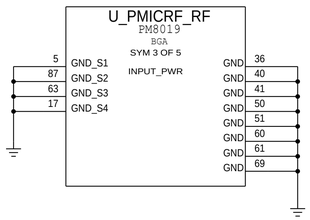












BASEBAND (1 OF 3)

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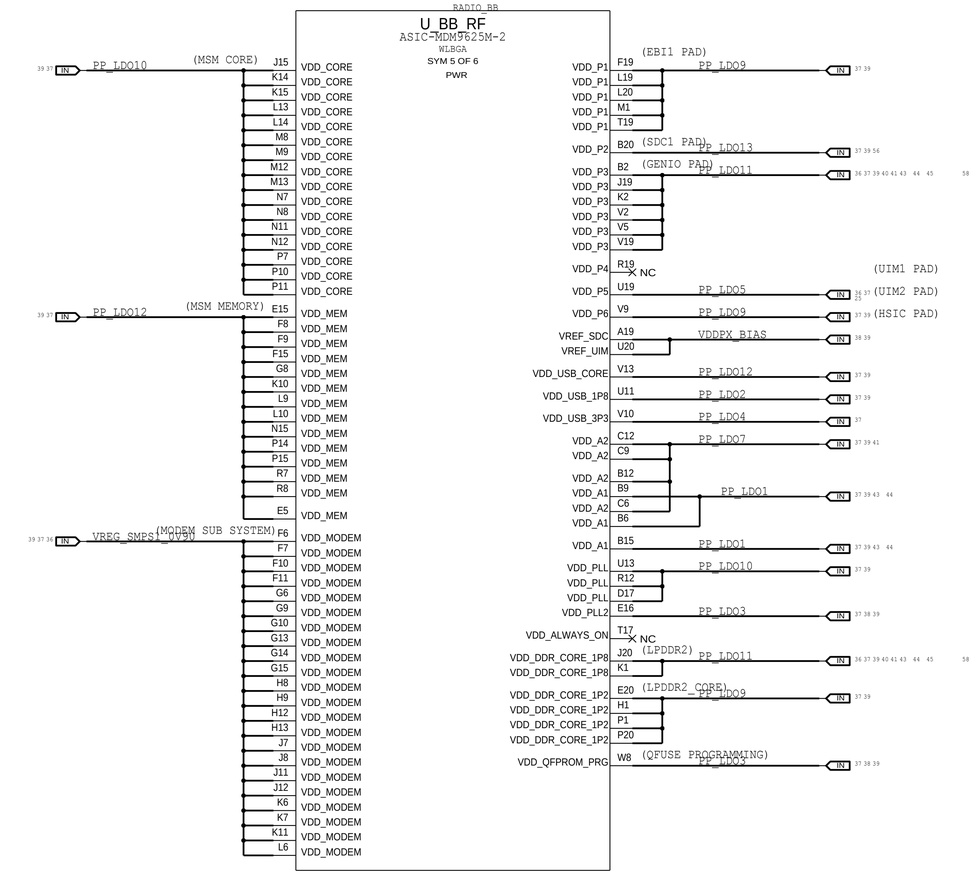
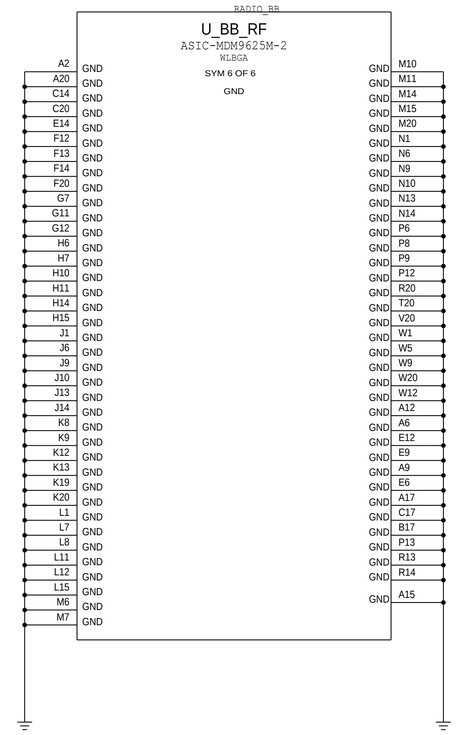
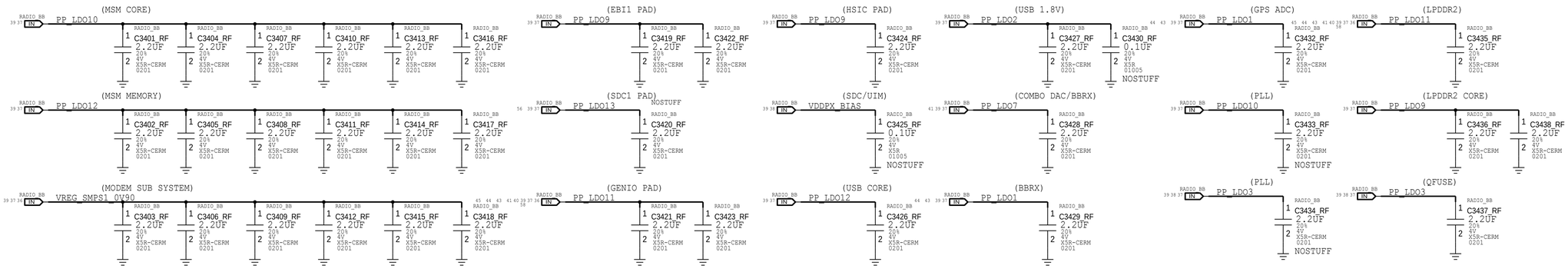
C538
R500
L500
U502







BASEBAND (2 OF 3)

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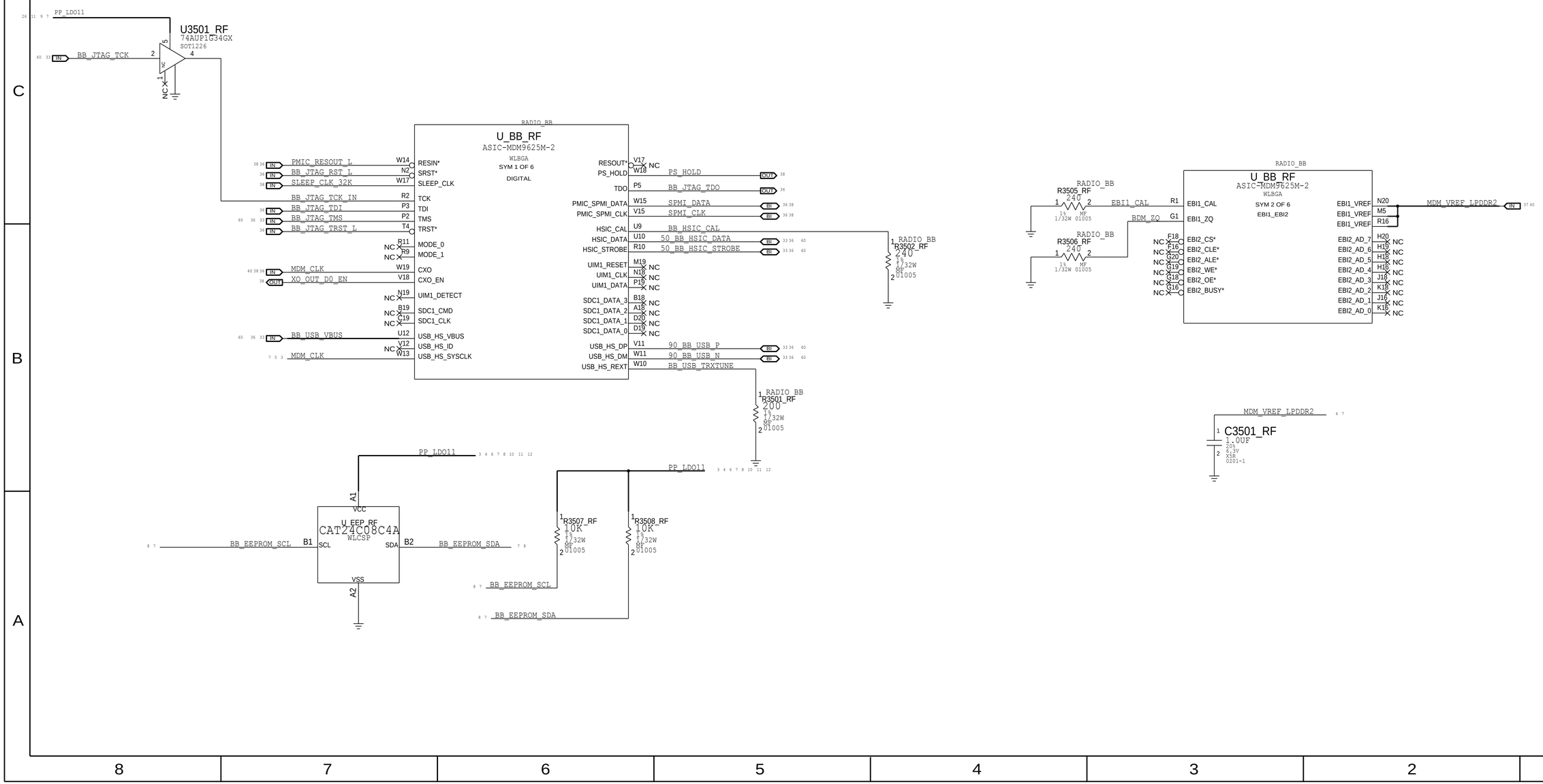
C600
R606
L600
U602



BASEBAND (3 OF 3)

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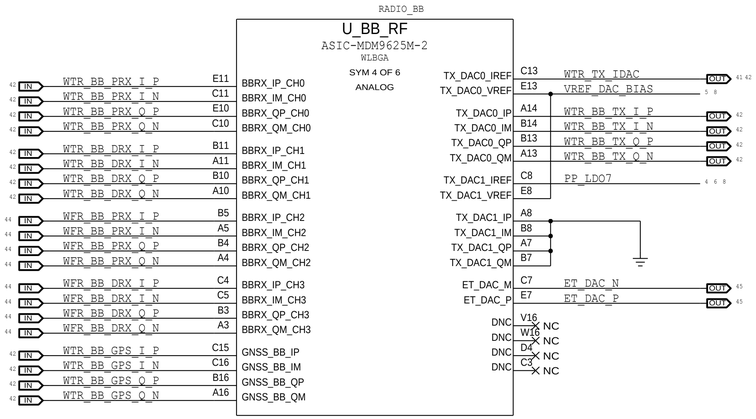
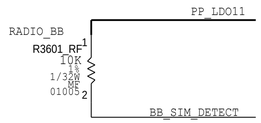
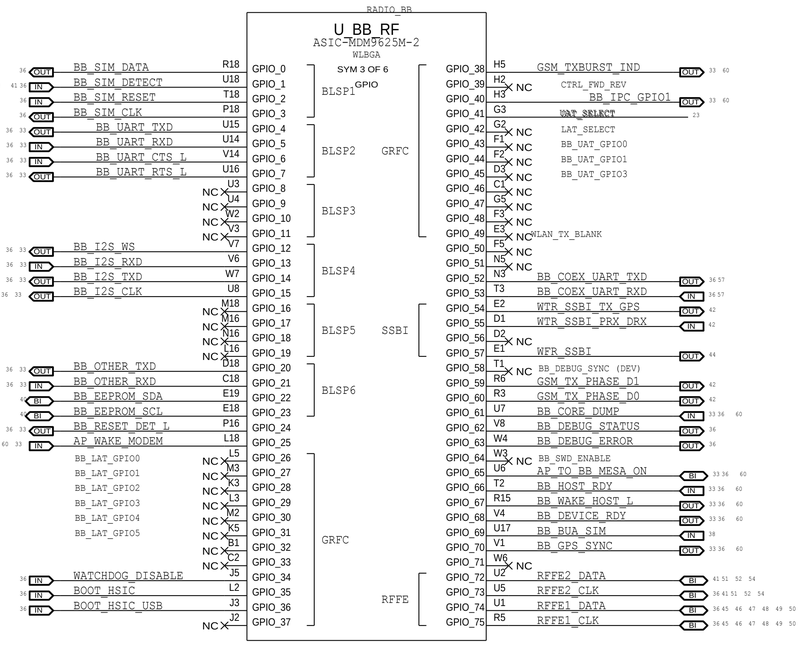
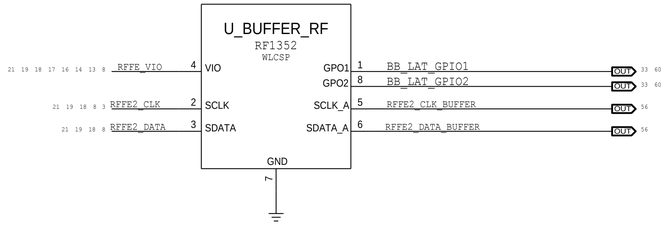
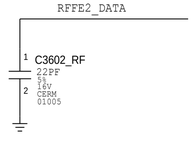
C704
R700
L700
U702







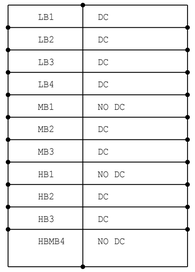


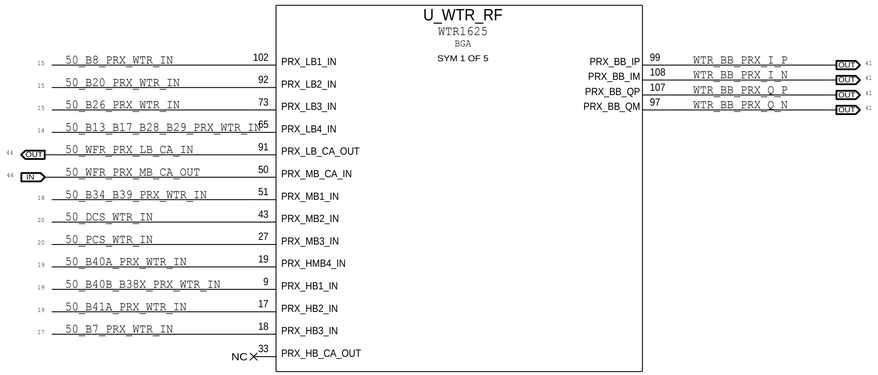


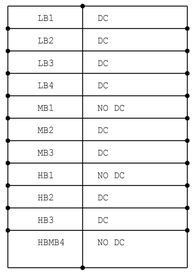
WTR TRANSCEIVER (1 OF 2)

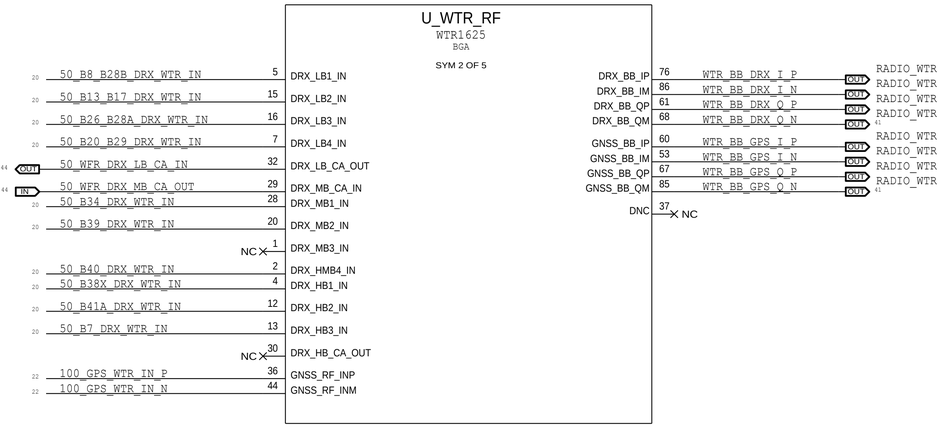
CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

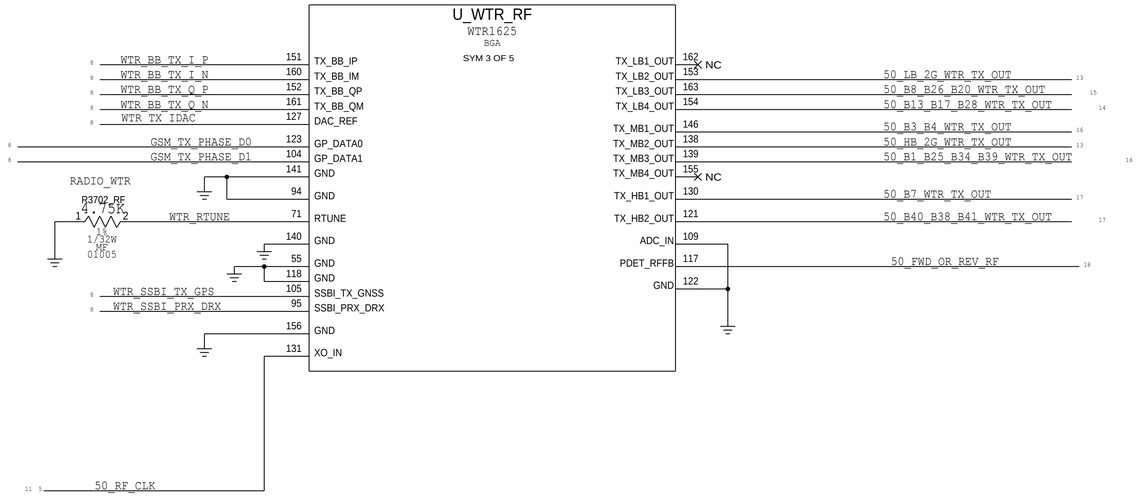
C802
R802
L800
U803











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

WTR TRANSCEIVER (2 OF 2)

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

C934
R926
L3802 RF
U902

WTR DECOUPLING CAPS

XW3801_RF
XW3802_RF
PP_LDO8 → VREG_2V_WTR
PP_LDO1 → VREG_1P3V_WTR
MAKE_BASE=TRUE

VREG_2V_WTR → C3801_RF 10UF 20% 6.3V CERM-X5R 0402-9 → RADIO_WTR
VREG_1P3V_WTR → C3808_RF 10UF 20% 6.3V CERM-X5R 0402-9 → RADIO_WTR

L3801_RF 22NH-3%-0.25A 0201 (VREG_1P3V_WTR → VDD_PRX_PLL_1P3V)
WTR DECOUPLING SHARED WITH C3808_RF

VDD_DRX_BB_2V → C3804_RF 0.1UF 20% 4V X5R 01005
VDD_TX_DA_2V → C3813_RF 100PF 5% 10V NP0-C0G 01005
VDD_PRX_BB_2V, VDD_TX_BBF_2V
VDD_PRX_VCO_2V (I188) → C3815_RF 0.1UF 20% 4V X5R 01005
VDD_SHDR_VCO_2V → C3816_RF 0.1UF 20% 4V X5R 01005
VDD_TX_VCO_2V → C3817_RF 0.1UF 20% 4V X5R 01005
VDD_TX_PLL_2V
VDD_XO_2V → C3803_RF 0.1UF 10% 10V X5R-CERM 0201
VDD_FBRX_2V → C3818_RF 0.1UF 20% 4V X5R 01005
VDD_PRX_2V (I175)

XW3803_RF
PP_LDO11 → VDD_MSM_1P8V → C3811_RF 1.0UF 10% 6.3V X5R-CERM 0201-1 → RADIO_WTR

VDD_SHDR_PLL_1P3V → C3821_RF 0.1UF 20% 4V X5R 01005
VDD_PRX_HBMB_1P3V
VDD_SHDR_VCO_1P3V → C3823_RF 0.1UF 20% 4V X5R 01005
VDD_PRX_VCO_1P3V
DELETED C3805 PR REVIEW FEEDBACK
VDD_PRX_LO_HBMB_1P3V → C3806_RF 0.1UF 20% 4V X5R 01005
VDD_TX_SYNTH_1P3V → C3824_RF 0.1UF 20% 4V X5R 01005
VDD_TX_LO_1P3V → C3825_RF 0.1UF 20% 4V X5R 01005
VDD_TX_UPC_1P3V → C3826_RF 100PF 5% 10V NP0-C0G 01005
VDD_TX_VCO_1P3V → C3807_RF 0.1UF 20% 4V X5R 01005

L3802_RF 8.2NH-3%-0.19A-1.6OHM 01005 (VDD_TX_DA_1P3V)

VDD_PRX_LO_HB_1P3V → C3830_RF 0.1UF 20% 4V X5R 01005 → RADIO_WTR
VDD_DRX_LB_1P3V
VDD_PRX_LB_1P3V
VDD_DRX_LO2_1P3V → C3833_RF 0.1UF 20% 4V X5R 01005 → RADIO_WTR
VDD_DRX_LO1_1P3V → C3809_RF 0.1UF 20% 4V X5R 01005 → RADIO_WTR
VDD_DRX_MB_1P3V
VDD_DRX_HB_1P3V
VDD_GPS_LNA_1P3V → C3828_RF 0.1UF 20% 4V X5R 01005 → RADIO_WTR (MAKE_BASE=TRUE)
VDD_GPS_BB_1P3V
VDD_GPS_PLL_1P3V → C3829_RF 0.1UF 20% 4V X5R 01005 → RADIO_WTR (MAKE_BASE=TRUE)
VDD_GPS_VCO_1P3V
VDD_GPS (MAKE_BASE=TRUE)

U_WTR_RF
WTR1625 BGA SYM 4 OF 5

VDD_PRX_VCO_1P3V	90	VDD_RF1_P_VCO	VDD_RF2_T_DA	129	VDD_TX_DA_2V
VDD_PRX_VCO_2V	80	VDD_RF2_P_VCO	VDD_RF1_T_DA	137	VDD_TX_DA_1P3V
VDD_PRX_LO_HB_1P3V	25	VDD_RF1_P_HB_LO	VDD_RF1_T_UPC	136	VDD_TX_UPC_1P3V
VDD_PRX_LB_1P3V	72	VDD_RF1_P_LB	VDD_RF1_T_LO	135	VDD_TX_LO_1P3V
VDD_PRX_HBMB_1P3V	34	VDD_RF1_P_HMB	VDD_RF2_T_BB	126	VDD_TX_BBF_2V
VDD_PRX_LO_HBMB_1P3V	57	VDD_RF1_P_HMB_LO	VDD_RF2_FBRX	116	VDD_FBRX_2V
VDD_PRX_PLL_1P3V	79	VDD_RF1_P_PLL	VDD_RF2_T_VCO	157	VDD_TX_VCO_2V
VDD_PRX_BB_2V	98	VDD_RF2_P_BB	VDD_RF1_T_VCO	149	VDD_TX_VCO_1P3V
VDD_PRX_2V	100	VDD_RF2_P_RX	VDD_RF1_T_SYN	115	VDD_TX_SYNTH_1P3V
VDD_DRX_LO1_1P3V	14	VDD_RF1_D_LB_LO	VDD_RF2_T_PLL	114	VDD_TX_PLL_2V
VDD_DRX_LO2_1P3V	38	VDD_RF1_D_LOM	VDD_RF1_G_LNA	52	VDD_GPS_LNA_1P3V
VDD_DRX_LB_1P3V	31	VDD_RF1_D_LB	VDD_RF1_G_VCO	74	VDD_GPS_VCO_1P3V
VDD_DRX_HB_1P3V	22	VDD_RF1_D_HB	VDD_RF1_G_PLL	93	VDD_GPS_PLL_1P3V
VDD_DRX_MB_1P3V	11	VDD_RF1_D_MB	VDD_RF1_G_BB	59	VDD_GPS_BB_1P3V
VDD_DRX_BB_2V	54	VDD_RF2_D_BB	GND	113	
VDD_SHDR_VCO_1P3V	48	VDD_RF1_S_VCO	VDD_RF2_XO	147	VDD_XO_2V
VDD_SHDR_VCO_2V	62	VDD_RF2_S_VCO	VDD_DIO	103	VDD_MSM_1P8V
VDD_SHDR_PLL_1P3V	78	VDD_RF1_S_PLL			

U_WTR_RF
WTR1625 BGA SYM 5 OF 5

89	GND	GND	111
56	GND	GND	101
83	GND	GND	110
82	GND	GND	145
58	GND	GND	144
35	GND	GND	143
8	GND	GND	128
26	GND	GND	120
64	GND	GND	119
42	GND	GND	106
41	GND	GND	150
81	GND	GND	134
21	GND	GND	159
6	GND	GND	142
24	GND	GND	125
39	GND	GND	124
10	GND	GND	148
3	GND	GND	158
23	GND	GND	133
46	GND	GND	112
49	GND	GND	132
69	GND	GND	45
88	GND	GND	66
70	GND	GND	84
63	GND	GND	75
40	GND	GND	164
47	GND		
87	GND		
77	GND		
96	GND		

WFR TRANSCEIVER

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C1019
R1016
L1000
U1002

XW3900_RF
PP_LDO8 — VREG_2V_WFR
MAKE_BASE=TRUE

XW3901_RF
PP_LDO1 — PPLDO1_WFR
MAKE_BASE=TRUE

PPLDO1_WFR — RADIO_WFR C3901_RF 1.0UF 20% 6.3V CERM-X5R 0402-9

MAKE_BASE=TRUE

VREG_2V_WFR — RADIO_WFR C3903_RF 10UF 20% 6.3V CERM-X5R 0402-9

VDD_DIG_1P3V — RADIO_WFR C3904_RF 0.1UF 20% 4V 35B 01005

VDD_DRX_LO_1P3V — RADIO_WFR C3905_RF 0.1UF 20% 4V 35B 01005

VDD_DRX_LB_WFR_1P3V

I113 VDD_DRX_MB_HB_FE_1P3V

I114 VDD_PRX_MBHB_FE_1P3V

VDD_PRX_LB_FE_1P3V

VDD_PRX_VCO_WFR_1P3V — RADIO_WFR C3910_RF 0.1UF 20% 4V 35B 01005

VDD_PRX_PLL_WFR_1P3V — RADIO_WFR C3911_RF 0.1UF 20% 4V 35B 01005

VDD_PRX_LO_WFR_1P3V — RADIO_WFR C3902_RF 0.1UF 20% 4V 35B 01005

VDD_PRX_VCO_WFR_2V — RADIO_WFR C3912_RF 0.1UF 20% 4V 35B 01005

VDD_XO_WFR_2V — RADIO_WFR C3913_RF 0.1UF 20% 4V 35B 01005

VDD1_DRX_BB_2V — RADIO_WFR C3915_RF 0.1UF 20% 4V 35B 01005

VDD1_PRX_BB_2V — RADIO_WFR C3916_RF 0.1UF 20% 4V 35B 01005

XW3902_RF
PP_LDO11 — VDD1_1P8V
MAKE_BASE=TRUE

VDD1_1P8V — RADIO_WFR C3917_RF 0.1UF 20% 4V 35B 01005

MB1	DC
MB2	NO DC
MB3	DC

MB1	DC
MB2	NO DC
MB3	DC

U_WFR_RF
WFR1620
BGA
SYM 1 OF 2
RX_OTHER

50_B3_PRX_WFR_IN	22	PRX_MB1_IN
50_B1_B4_PRX_WFR_IN	16	PRX_MB2_IN
50_B25_PRX_WFR_IN	6	PRX_MB3_IN
50_WFR_PRX_HB_CA_IN	NC	PRX_HB_CA_IN
50_WFR_PRX_LB_CA_IN (IN)	3	PRX_LB_CA_IN
50_B25_DRX_WFR_IN	49	DRX_MB1_IN
50_B1_B4_DRX_WFR_IN	54	DRX_MB2_IN
50_B3_DRX_WFR_IN	66	DRX_MB3_IN
	NC	DRX_HB_CA_IN
50_WFR_DRX_LB_CA_IN (IN)	36	DRX_LB_CA_IN
RADIO_WFR	52	GND
WFR_RTUNE	19	R_TUNE
	7	XO_IN

R3901_RF 4.75K 1% 1/32W MF 01005

50_RF_CLK

GND	1	
GND	61	
SSBI_PRX_DRX	13	WFR_SSBI
GND	34	
PRX_MB_CA_OUT	5	50_WFR_PRX_MB_CA_OUT (OUT)
DRX_MB_CA_OUT	65	50_WFR_DRX_MB_CA_OUT (OUT)
PRX_BB_IP	29	WFR_BB_PRX_I_P
PRX_BB_IM	28	WFR_BB_PRX_I_N
PRX_BB_QP	25	WFR_BB_PRX_Q_P
PRX_BB_QM	30	WFR_BB_PRX_Q_N
DRX_BB_IP	62	WFR_BB_DRX_I_P
DRX_BB_IM	63	WFR_BB_DRX_I_N
DRX_BB_QP	57	WFR_BB_DRX_Q_P
DRX_BB_QM	64	WFR_BB_DRX_Q_N

U_WFR_RF
WFR1620
BGA
SYM 2 OF 2
PWR_GND

VDD_PRX_VCO_WFR_2V	37	VDD_RF2_P_VCO
VDD_PRX_VCO_WFR_1P3V	33	VDD_RF1_P_VCO
VDD_PRX_LO_WFR_1P3V	31	VDD_RF1_P_LO
VDD_PRX_PLL_WFR_1P3V	44	VDD_RF1_P_PLL
VDD_PRX_LB_FE_1P3V	15	VDD_RF1_P_LB_FE
VDD1_PRX_BB_2V	23	VDD_RF2_P_BB
VDD_PRX_MBHB_FE_1P3V	10	VDD_RF1_P_MHB_FE
VDD_DRX_LO_1P3V	47	VDD_RF1_D_LO
VDD1_DRX_BB_2V	56	VDD_RF2_D_BB
VDD_DRX_LB_WFR_1P3V	39	VDD_RF1_D_LB_FE
VDD_DRX_MB_HB_FE_1P3V	59	VDD_RF1_D_MHB_FE
VDD_DIG_1P3V	24	VDD_RF1_DIG
	14	GND
VDD1_1P8V	2	VDD_DIO
VDD_XO_WFR_2V	17	VDD_RF2_XO

GND	46
GND	35
GND	42
GND	53
GND	20
GND	51
GND	41
GND	45
GND	50
GND	18
GND	9
GND	11
GND	21
GND	32
GND	4
GND	38
GND	55
GND	40
GND	60
GND	48
GND	58
GND	26
GND	8
GND	12

QFE DCDC

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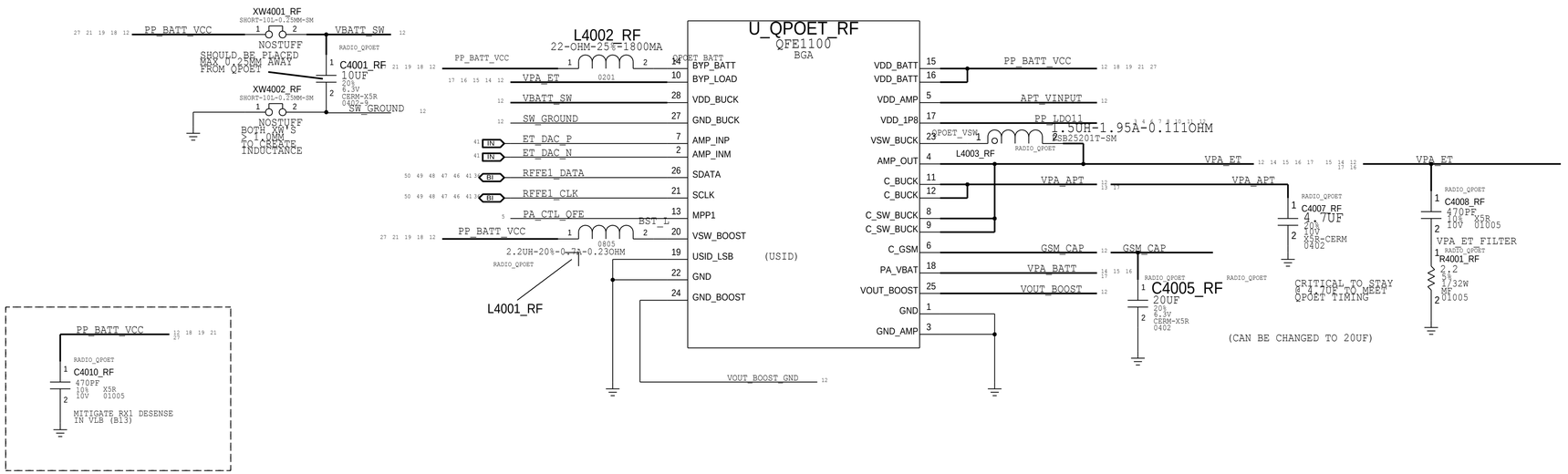
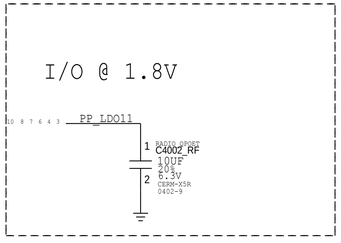
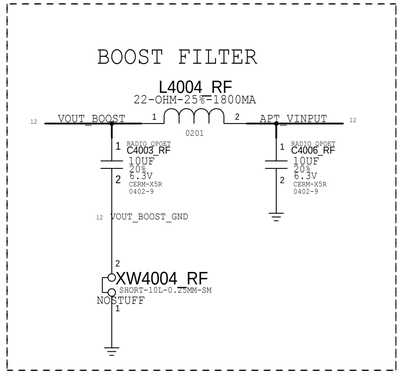
C1110
R1102
L1104
U1101







2G PA

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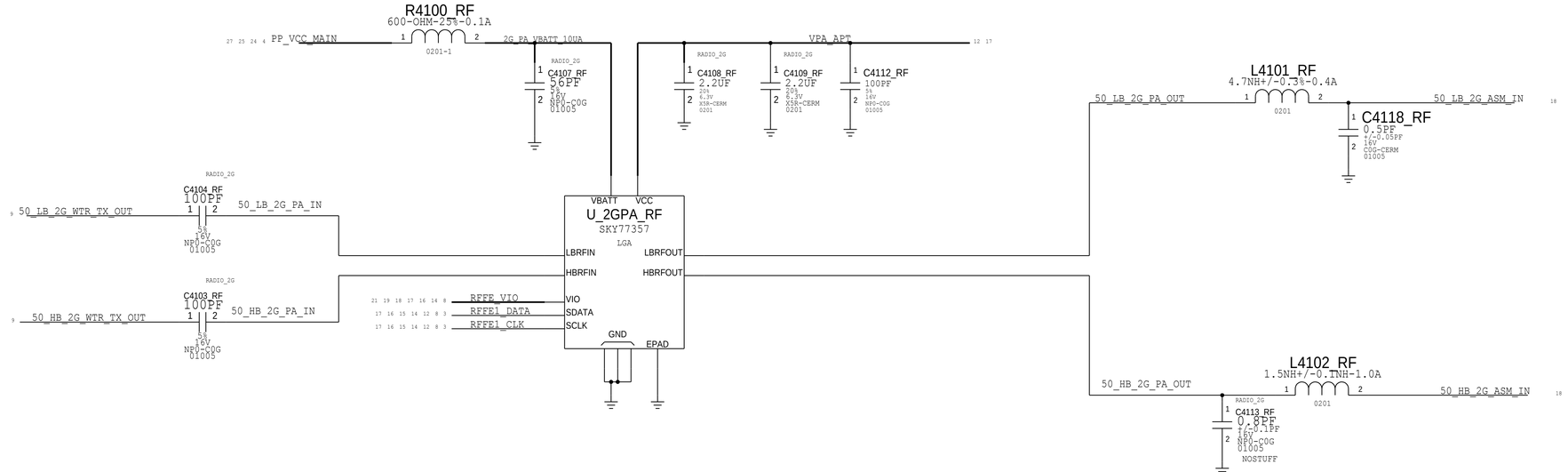
C1208
R1200
L1204
U1201



VERY LOW BAND PAD (B13, B17, B28)

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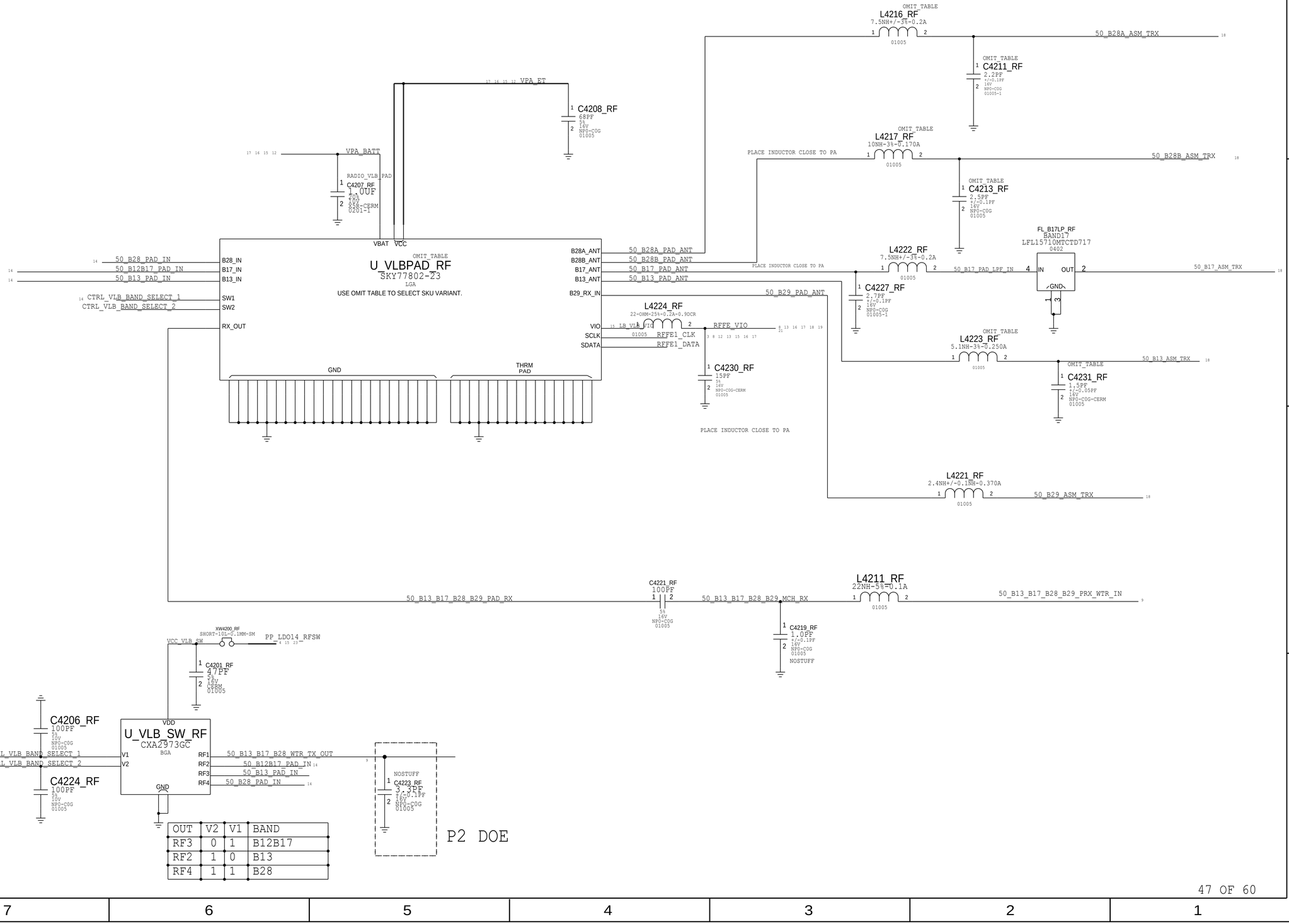
C1332
R1300
L4215 RF
U1304



OUT	V2	V1	BAND
RF3	0	1	B12B17
RF2	1	0	B13
RF4	1	1	B28

LOW BAND PAD (B8, B26, B20)

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

1
C4318 RF
R1400
L4322 RF
U1402

C4309_RF 100PF 5% 16V NPO-C0G 01005
L4322_RF 18NH-3%-0.140A 01005-1
50_B20_MATCH_1
50_B20_PRX_WTR_IN

L4312_RF 7.5NH+/-3%-0.2A 01005
C4314_RF 47PF 5% 16V CERM 01005
50_B26_MATCH
50_B26_PRX_WTR_IN
L4313_RF 8.2NH-3%-0.19A-1.6OHM 01005

VPA_ET
C4300_RF 47PF 5% 16V CERM 01005
VPA_BATT

C4304_RF 100PF 5% 10V NPO-C0G 01005
50_B20_WTR_TX_OUT
CAPACITOR THAT'S SUPPOSED TO GO HERE IS LOCATED ON VERY LOW BAND PAD. THE 2 PAD'S NEED TO SHARE DECOUPLING

C4311_RF 100PF 5% 16V NPO-C0G 01005
50_B8_MATCH_1
L4315_RF 15NH-3%-0.140A 01005
50_B8_PRX_WTR_IN
C4313_RF 0.9PF +/-0.05PF 16V CERM 01005

VBATT VCC1 VCC2

U_LBPAD_RF
TQF6410
LGA

CTRL_LB_BAND_SELECT_1 → SW1
CTRL_LB_BAND_SELECT_2 → SW2
50_B20_PAD_IN → B20IN
50_B26_PAD_IN → B26IN
50_B8_PAD_IN → B8IN

B20RX ← 50_B20_PAD_RX
B26RX ← 50_B26_PAD_RX
B8RX ← 50_B8_PAD_RX
B20ANT ↔ 50_B20_PAD_ANT
B26ANT ↔ 50_B26_PAD_ANT
B8ANT ↔ 50_B8_PAD_ANT
VIO ← LB_VLB_VIO
SCLK ← RFFE1_CLK
SDATA ↔ RFFE1_DATA

GND
THRM PAD

C4303_RF 18PF 5% 16V CERM 01005
50_B26_WTR_TX_OUT
C4321_RF 0.7PF +/-0.1PF 16V NPO-C0G 01005

L4316_RF 5.1NH-3%-0.250A 01005
50_B20_ASM_TRX
C4317_RF 1.0PF +/-0.1PF 16V NPO-C0G 01005

L4320_RF 5.6NH-3%-0.23A-1.3OHM 01005
50_B26_ASM_TRX
C4318_RF 1.5PF +/-0.1PF 16V NPO-C0G 01005

L4321_RF 3.3NH+/-0.1NH-290MA 01005
50_B8_ASM_TRX
L4306_RF 18NH-3%-140MA 01005 NOSTUFF

XW4300_RF SHORT-10L-0.1MM-SM
VCC_LB_SW
PP_LDO14_RFSW
C4305_RF 47PF 5% 16V CERM 01005

CTRL_LB_BAND_SELECT_1
CTRL_LB_BAND_SELECT_2
RADIO_LB_PAD
VDD
U_LB_SW_RF
CXA2973GC
BGA
V1
V2
RF1
RF2
RF3
RF4
50_LB_SW_MCH_IN
50_B8_PAD_IN
50_B26_WTR_TX_OUT
50_B20_WTR_TX_OUT
GND

C4301_RF 100PF 5% 10V NPO-C0G 01005
50_B8_B26_B20_WTR_TX_OUT
L4301_RF 6.8NH-140MA 01005
50_LB_SW_T_MCH
50_LB_SW_MCH_IN
C4320_RF 2.7PF +/-0.1PF 16V NPO-C0G 01005

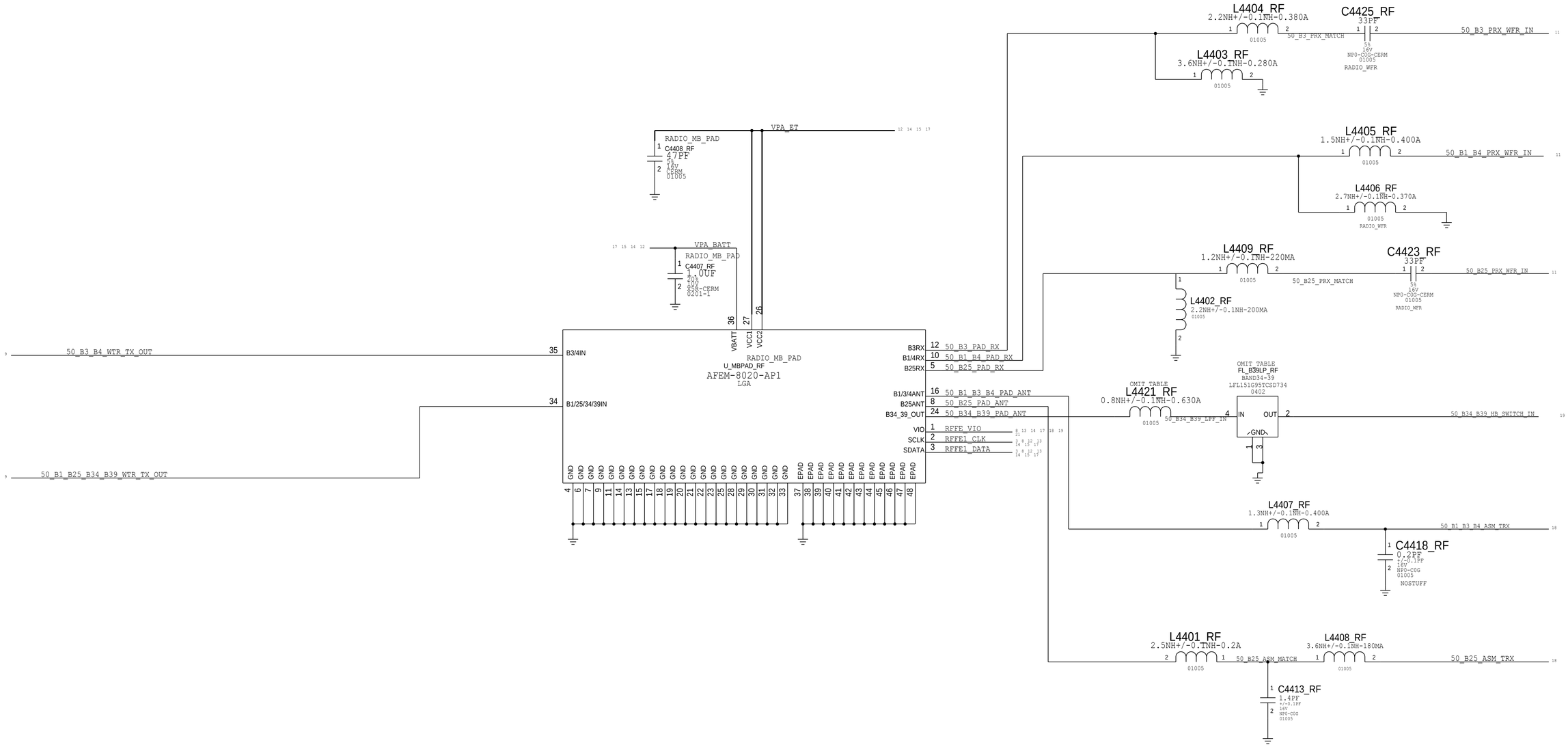
WTR OUTPUT HAS DC FIRST SHUNT MUST BE A CAPACITOR.

V2	V1	BAND
0	1	B8
1	0	B26
1	1	B20

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

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

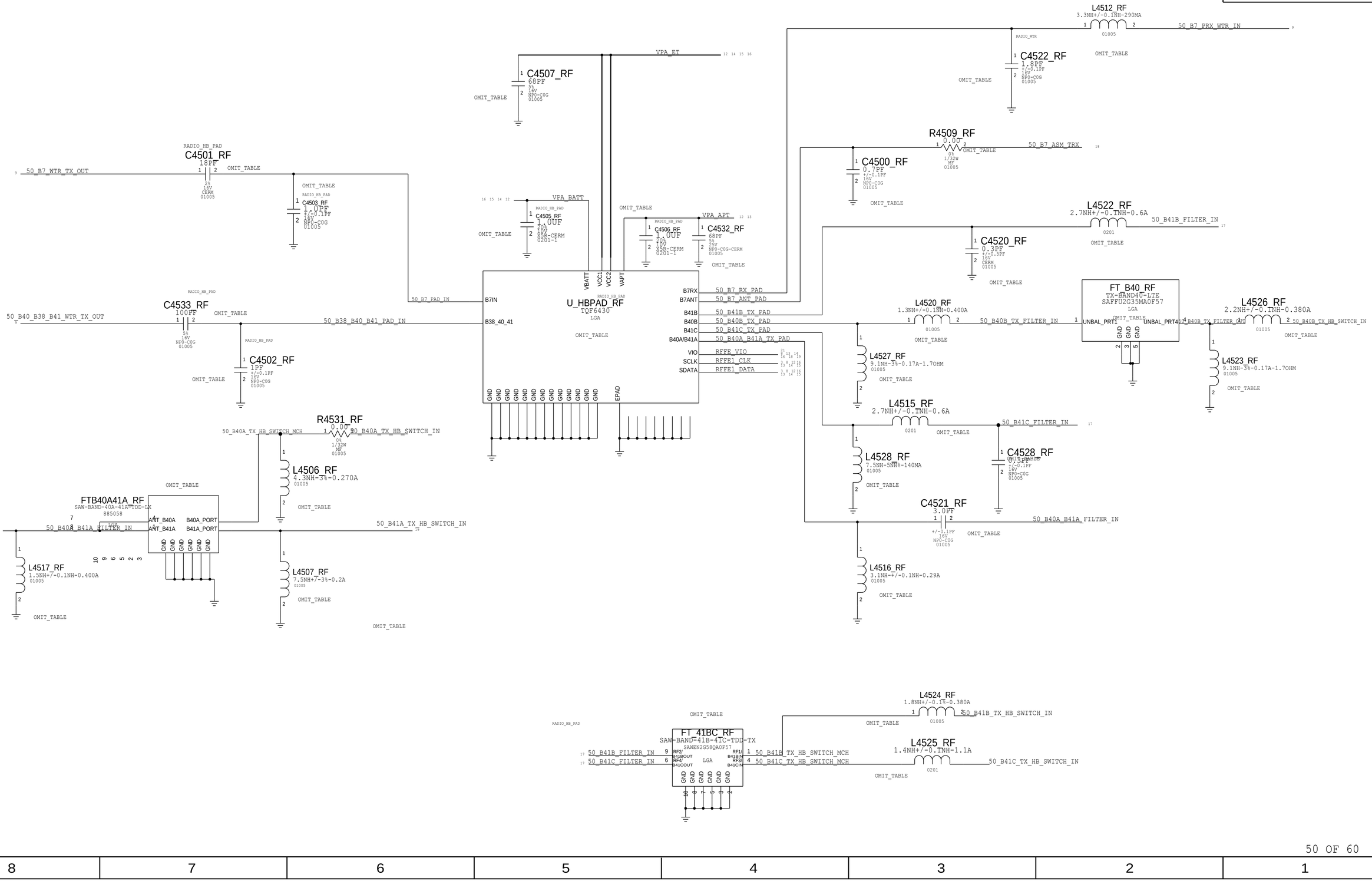
C4426 RF
R1500
L4409 RF
U1501



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

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

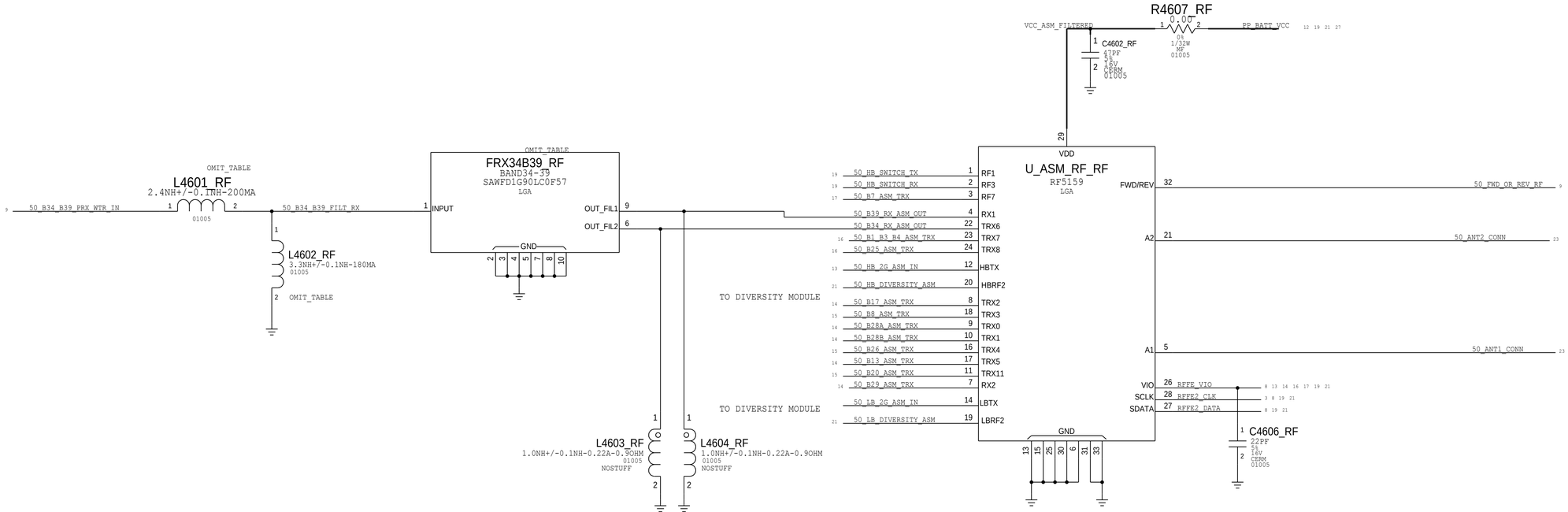
1
C4533 RF
R1600
L1616
U1601



ANTENNA SWITCH

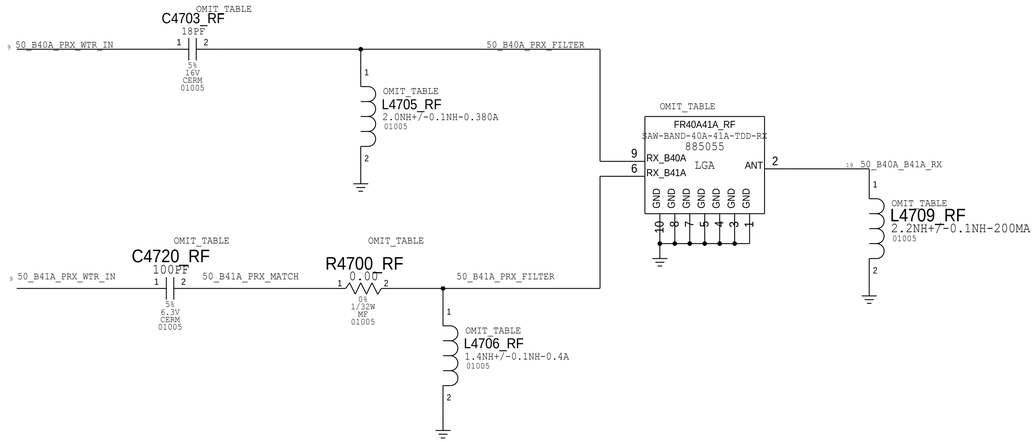
CONFIDENTIAL AND PROPRIETARY APPLE SYSTEM DESIGN. FOR REFERENCE PURPOSES ONLY - NOT A CHANGE REQUEST.

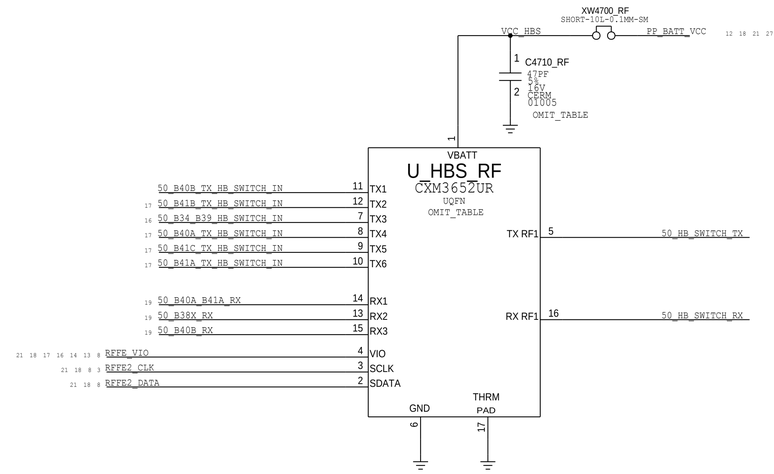
C1702
R1700
L4608 RF
U1702

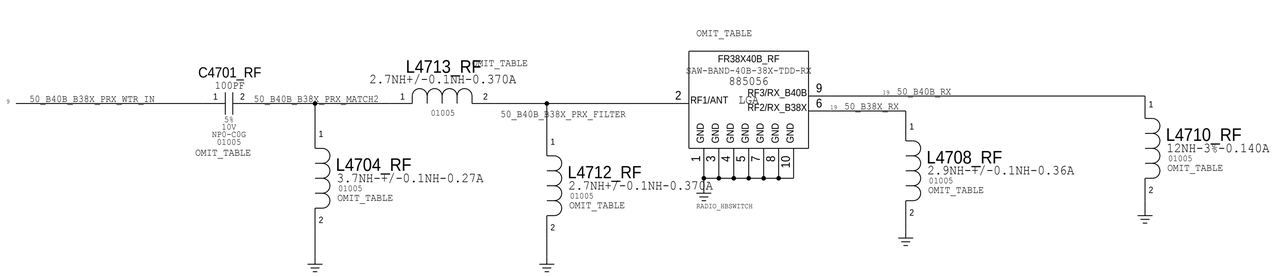


HIGH BAND SWITCH

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







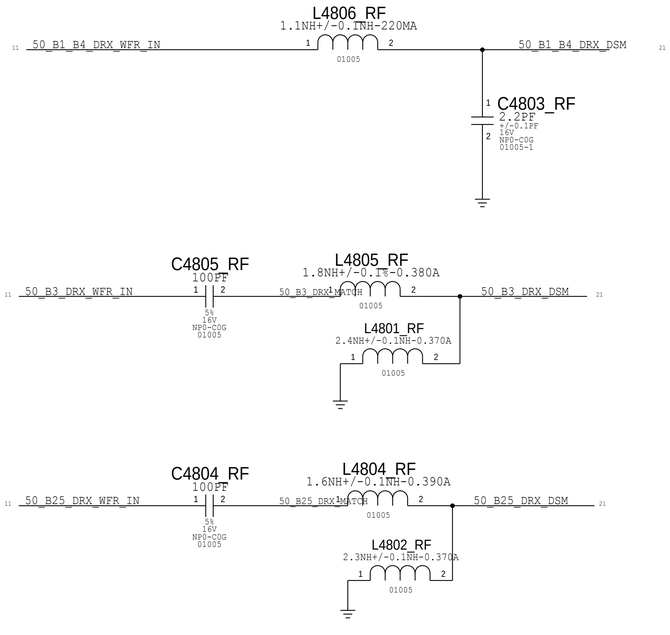
RX DIVERSITY (1)

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

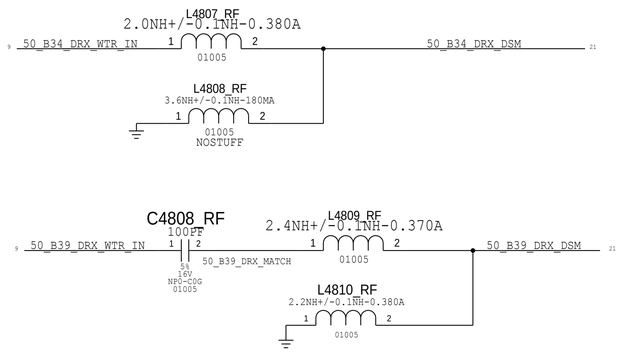
C4826 RF
R1800
L1829
U1801

MIDBAND

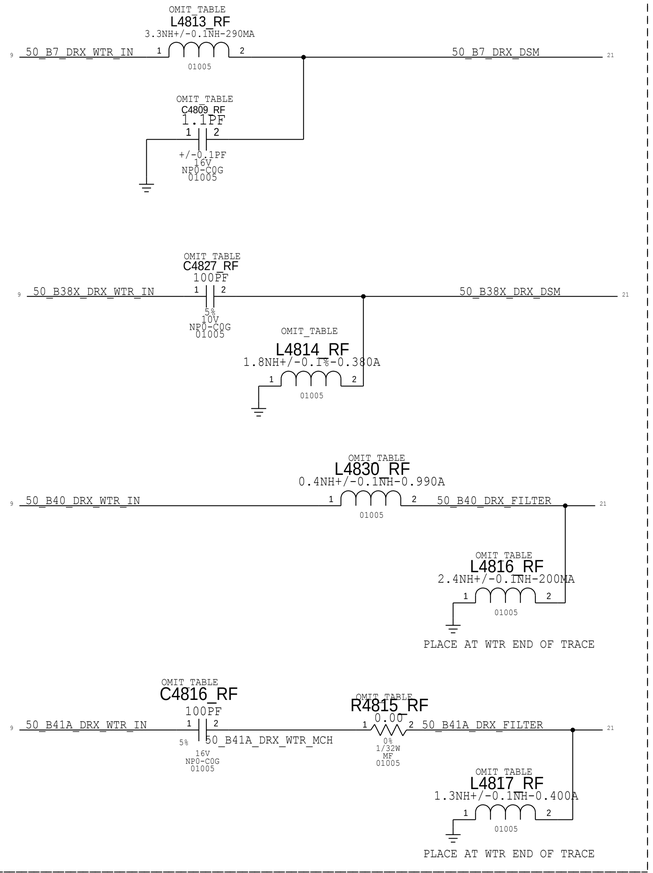
MIDBAND DIVERSITY - WFR

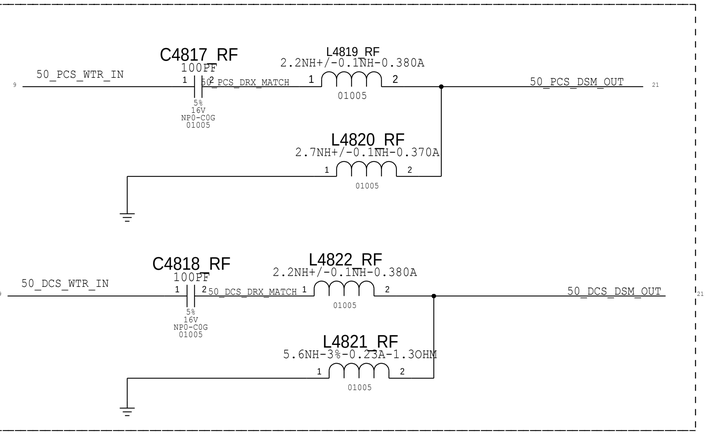


MIDBAND DIVERSITY - WTR

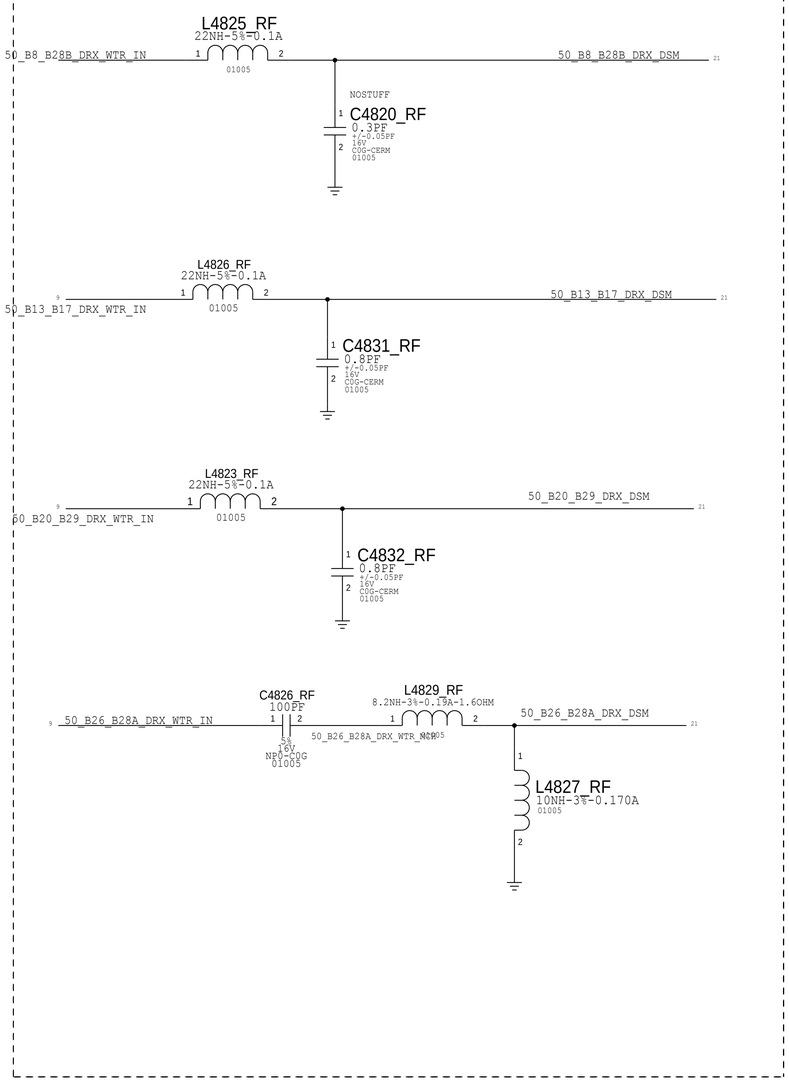


HIGHBAND DIVERSITY - WTR





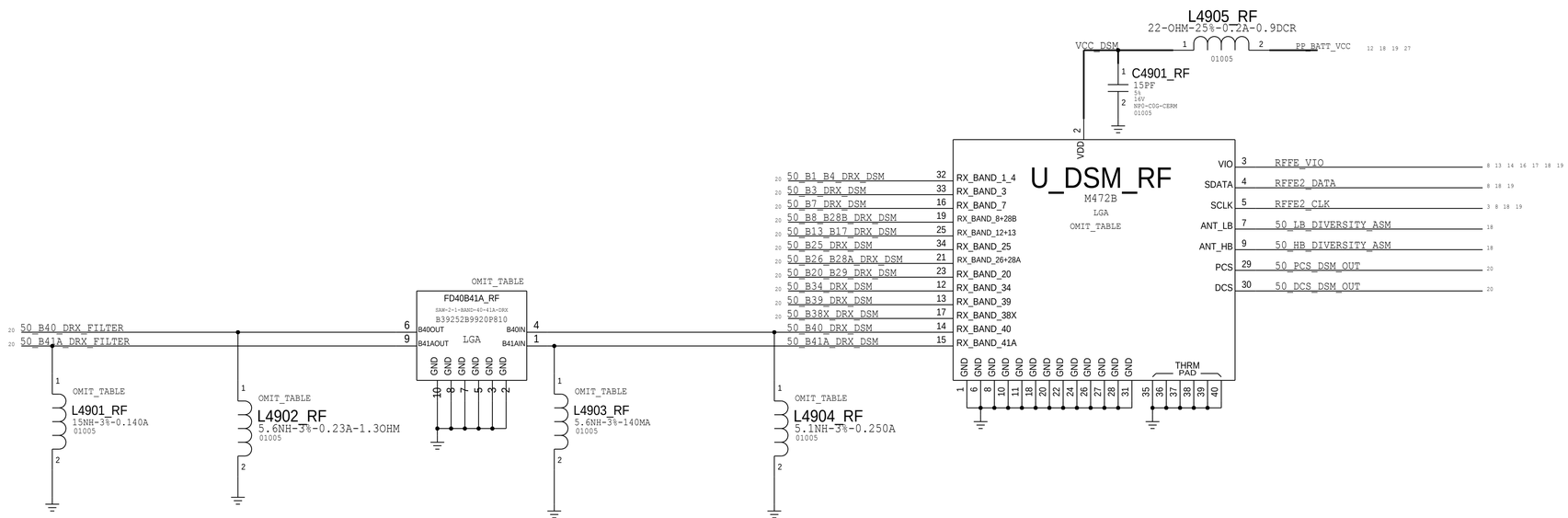
LOWBAND DIVERSITY - WTR



RX DIVERSITY (2)

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

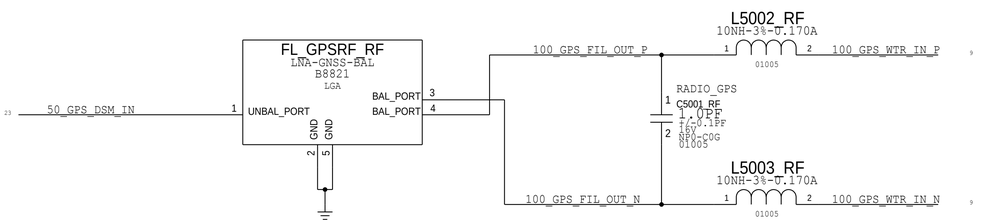
C1900
R1900
L1900
U1901



GPS

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

C1900
R1900
L1900
U1901



ANTENNA FEEDS

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

ANT & COAX CONNECTOR FOR LOWER & UPPER SECTION OF MLB

UPPER_LBMB_ANT_RF
1.6X1.21MM
SM-NSP
50_UPPER_LBMB
FL5146_RF
FLTR-GPS-0603
LFE18832MHC1D449
50_NTCH_FILT_OUT
L5101_RF
2.4NH+/-0.2NH-0.57A-0.07OHM
01005
50_UAT_PAC
50_UAT_CELL_F
C5105_RF
0.8PF
+/-0.05PF
16V
C0G-CERM
01005
U_ANTPAC_RF
RF1346
WLCSP
VBAT
RF1
RF2
VIO
SDATA
SCLK
GND
NC
VIO_FILT
RFFE2_PAC_DATA_FILT
RFFE2_PAC_CLK_FILT
PAC_VDD_3V0_IN
C5106_RF
33PF
5%
16V
NP0-C0G-CERM
01005
C5107_RF
0.01UF
10%
6.3V
X5R
01005
L5107_RF
20NH-3%-.14A-2.9OHM
01005
PAC_VDD_3V0

L5103_RF
20NH-3%-.14A-2.9OHM
01005
RFFE_VIO_S2R
VIO_FILT
C5103_RF
0.01UF
10%
6.3V
X5R
01005
C5104_RF
33PF
5%
16V
NP0-C0G-CERM
01005

R5104_RF
0.00
0%
1/32W
MF
01005
RFFE2_DATA_BUFFER
RFFE2_PAC_DATA_FILT
C5102_RF
120PF
10%
10V
CER-X7R
01005
R5105_RF
0.00
0%
1/32W
MF
01005
RFFE2_CLK_BUFFER
RFFE2_PAC_CLK_FILT
C5101_RF
120PF
10%
10V
CER-X7R
01005

RADIO_LOW_ANT
LOW_COAX_RF
MM5829-2700
F-ST-SM1
50_ANT2_CONN

BYPASS CAPS FOR ALTERNATE ANTENNA WITHOUT U_ASWNT
R5137_RF
0.00
OMIT_TABLE
1/20W
MF
0201
SHORT-10L-0.1MM-SM
XW5100_RF
PP_LDO14_RFSW
C5109_RF
47PF
5%
16V
CERM
01005
VCC_SWANT

UP_COAX_RF
MM5829-2700
F-ST-SM1
50_ANT2_UPPER_COAX_CONN
U_SWUANT_RF
CXA4011GC
OMIT_TABLE
XFLGA
VDD
RF
VC1
RF1
RF2
GND
UAT_SELECT
0=UPPER_LBMB_ANT
1=UPPER_HB_ANT
50_UAT_CELL
L5108_RF
2.5NH+/-0.1NH-500MA
0201
50_UAT_CELL_LPF
TO THE PAC FOR LBMB
L5109_RF
2.5NH+/-0.1NH-500MA
0201
50_UAT_CELL_F
C5110_RF
1.1PF
+/-0.05PF
25V
C0G-CERM
0201
L5111_RF
7.5NH-+/-0.2NH-440MA
03015

50_WIFI_2G_NOTCHPLEXER_IN
L5123_RF
1.7NH-+/-0.1NH-0.8A-0.07OHM
0201
L5122_RF
12NH-3%-0.140A
01005
NOSTUFF

RADIO_LOW_ANT
UPPER_HB_ANT_RF
MM5829-2700
F-ST-SM1
50_UPPER_HB_ANT_FEED
C5138_RF
0.2PF
+/-0.05PF
25V
C0G-CERM
0201
L5102_RF
1.2NH-+/-0.05NH-1.1A-0.040HM
0201
50_UPPER_HB_ANT_FEED2
50_UPPER_HB_ANT_FEED1
C5139_RF
0.2PF
+/-0.05PF
25V
C0G-CERM
0201
NOSTUFF

DPX165950DT-8030D1
FLWIFDIP_RF
SM
LOW_BAND
HIGH_BAND
COMMON
GND
50_WIFI_2G_DIPLEXER_IN2
50_WIFI_5G_IN_OUT
R5101_RF
0.00
1%
1/20W
MF
0201
50_WIFI_2G_DIPLEXER_IN
L5120_RF
3.0NH+/-0.1NH-0.6A
0201
50_WICE_ANT2_GND
L5121_RF
5.6NH-3%-0.23A-1.3OHM
01005

FLCELWIF_RF
DIPLEXER-CELL-WIFI
885072
LGA
RF1
SMD2_RF1/SMD4_GND
RF3
RF2
SMD1_RF2
GND
50_WIFI_2G_NOTCHPLEXER_IN2
50_WICE_CELL2_IN
L5106_RF
4.3NH+/-3%-0.5A
0201
50_UPPER_HB_CELL

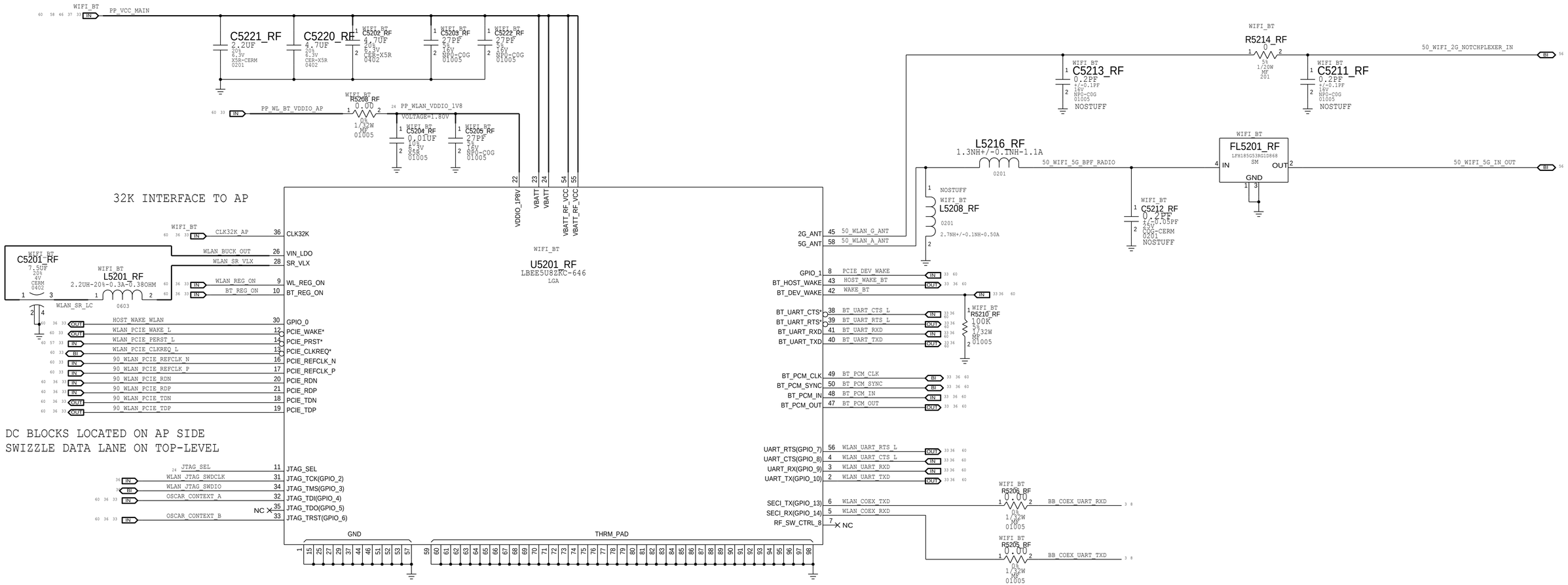
P2 DOE
R5102_RF
NOSTUFF
49.9

R5136_RF
0.00
1%
1/20W
MF
0201
PP_LDO13_GPS
VOLTAGE=2.95V
PP_LDO13
C5129_RF
22PF
5%
16V
CERM
01005
NOSTUFF
C5130_RF
2.2UF
20%
6.3V
X5R
0201-2
NOSTUFF

GPS FEED
GPS_SP1_RF
1.6X1.21MM
SM-NSP
50_GPS_ANT_FEED
C5136_RF
1.8PF
+/-0.05PF
25V
C0G-CERM
0201
50_GPS_ANT_MATCH
R5135_RF
0.00
1%
1/20W
MF
0201
50_GPS_ANT
Y248
NOSTUFF
L5135_RF
22NH-10%MA
0201
SP3_RF
SPRING-OVERPASS-GND-NORTH-X145
CLIP-SM
MODULE INCLUDES INTERNAL DECOUPLING
U_GPSLNA_RF
SKY65736
LGA
VCC
RFIN
RFOUT
GND
THRM_PAD
50_GPS_DSM_IN

RADIO_LOW_ANT
LOW_ANT_RF
MM5829-2700
F-ST-SM1
50_ANT1_CONN
L5129_RF
1.4NH+/-0.1NH-1.1A
0201
50_ANT1_CONN_R
C5128_RF
0.3PF
+/-0.05PF
25V
C0G-CERM
0201
NOSTUFF

WLAN/BT



MODULE BOOT-STRAPPED TO HSIC INTERFACE/SDIO2/SDIO1=110

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

STOCKHOLM

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

C2101
R2100
L2102
U2100

U5302_RF
WLCSP
FAN48614BUC50X
VIN A3
SW B1
SW B2
EN B3
PGND C1
PGND C2
AGND C3
VOUT A1
VOUT A2
PP_VCC_MAIN
C5321_RF 15UF 20% 6.3V X5R 0402-1
L5303_RF 1.8UH-0.7A 0603
STOCKHOLM_BOOST_SW
STOCKHOLM_5V
C5322_RF 15UF 20% 6.3V X5R 0402-1
C5323_RF 15UF 20% 6.3V X5R 0402-1

USE LDO11 TO MATCH IMPLEMENTATION OF N71/66
R5313_RF 0.0U 0% 1/32W MF 01005
PP_LDO11
R5309_RF 0.0U 5% 1/32W MF 01005
STOCKHOLM_DC_BOOST_EN

STOCKHOLM_5V
PP_VCC_MAIN
STOCKHOLM_TVDD
C5330_RF 1UF 20% 10V X5R 0201
R5310_RF 0.0U 0% 1/32W MF 01005
C5324_RF 1UF 20% 10V X5R 0201
PP_PN66_SIM_PMU
PP_STOCKHOLM_1V8_S2R
STOCKHOLM_DVDD
C5302_RF 1UF 20% 10V X5R 0201
STOCKHOLM_SVDD_IN
VOLTAGE=1.80V
PP_STOCKHOLM_ESE
C5303_RF 0.1UF 10% 10V X5R-CERM 0201
C5304_RF 1UF 20% 10V X5R 0201

U5301_RF
PN66VEU3-A101D003
UFLGA
VDD C6
VBAT C7
SIM_PMU_VCC B5
PVDD D3
VUP G2
TVDD E7
AVDD D7
SVDD B7
ESE_VDD C5
VSS E2
AVSS D4
AVSS D6
AVSS F3
DVSS B6
DVSS C4
TVSS G4
PVSS C2

IRQ D1 ← STOCKHOLM_TO_PMU_HOST_WAKE
SVDD_REQ A5 NC
DWL B2 ← AP_TO_STOCKHOLM_FW_DWLD_REQ
CLK_REQ A2 ← STOCKHOLM_TO_BBPMU_CLK_REQ
NFC_CLK_XTAL1 A3 ← 45_BBPMU_TO_STOCKHOLM_19P2M_CLK
RX C1 ← STOCKHOLM_UART_RXD
TX B1 → STOCKHOLM_UART_TXD
CTS D2 ← STOCKHOLM_UART_CTS
RTS A1 → STOCKHOLM_UART_RTS
VEN E1 ← AP_TO_STOCKHOLM_EN
SMX_RST* E3 ← PP_STOCKHOLM_ESE
SMX_CLK E4 NC
ESE_IO1 F4 NC
SPIM_MOSI B3 NC
SPIM_MISO B4 NC
SPIM_SCK E6 NC
XTAL2 C3 NC

SPIM_IRQ F1 NC
SIM_SWIO A4 ↔ STOCKHOLM_TO_SIM_SWP
GPIO0 A7 → STOCKHOLM_SIM_PRES
SPIM_NSS A6 NC
TX_PWR_REQ D5 → STOCKHOLM_DC_BOOST
ESE_DWPM_DBG G7 → SH_DWP_M
ESE_DWPS_DBG G6 → SH_DWP_S
RXP F6 ← STOCKHOLM_RXP
RXN F5 ← STOCKHOLM_RXN
TX1 G3 → STOCKHOLM_TX1
TX2 G5 → STOCKHOLM_TX2
WKUP_REQ E5 ← AP_TO_STOCKHOLM_DEV_WAKE
VMID F7 STOCKHOLM_VMID
SE2_PWR_REQ F2 → SE2_PWR_REQ
SE2_SVDD_IN G1 ← SE2_SVDD_IN

PP5302_RF P2MM-NSM SM STOCKHOLM
PP5303_RF P2MM-NSM SM STOCKHOLM
P2MM-NSM SM PP5304_RF STOCKHOLM
C5317_RF 0.1UF 10% 6.3V X5R-CERM 01005
NOSTUFF
R5316_RF 0.0U 0% 1/32W MF 01005
PP_STOCKHOLM_1V8_S2R

C5308_RF 1000PF 2% 25V C0G-NP0 0201
R5303_RF 560 5% 1/20W MF 201
STOCKHOLM_RXP_CAP

L5301_RF 160NH-10%-0.48A-0.33OHM 0402
C5310_RF 560PF 2% 25V NP0-C0G 0201
STOCKHOLM_BAL1
L5302_RF 160NH-10%-0.48A-0.33OHM 0402
C5311_RF 560PF 2% 25V NP0-C0G 0201
STOCKHOLM_BAL0

T5301_RF ATB2012P2-20011 0402
BAL1 3
UNBAL 4
BAL0 2
GND 1

STOCKHOLM_ANT_MATCH
NOSTUFF
C5312_RF 82PF 2% 50V NP0-C0G 0201
C5313_RF 560PF 2% 25V NP0-C0G 0201
C5314_RF 22PF 5% 50V C0G 0201 NOSTUFF
STOCKHOLM_ANT
C5315_RF 1000PF 2% 25V C0G-NP0 0201
C5316_RF 1000PF 2% 25V C0G-NP0 0201
C5318_RF 330PF 2% 25V NP0-C0G 0201
NOSTUFF
C5319_RF 100PF 2% 50V C0G 0201
TP5303_RF A TP-P55
USE FIDUCIAL FOR SH ANTENNA GND

C5309_RF 1000PF 2% 25V C0G-NP0 0201
R5304_RF 560 5% 1/20W MF 201
STOCKHOLM_RXN_CAP

TP5301_RF A TP-P55 STOCKHOLM_SIM_PRES

PP_STOCKHOLM_1V8_S2R
R5301_RF 100K 5% 1/32W MF 01005
AP_TO_STOCKHOLM_EN
R5302_RF 100K 5% 1/32W MF 01005
AP_TO_STOCKHOLM_FW_DWLD_REQ
R5305_RF 100K 5% 1/32W MF 01005
AP_TO_STOCKHOLM_DEV_WAKE

PU FOR MAUI IO WAKE GLITCH
PP_STOCKHOLM_1V8_S2R
R5306_RF 100K 5% 1/32W MF 01005
STOCKHOLM_UART_CTS
PP_STOCKHOLM_1V8_S2R
R5307_RF 100K 5% 1/32W MF 01005
STOCKHOLM_UART_RXD

N69 SKU BOM OPTION TABLE

N69H

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
353S4180	1	RADIO HIGH BAND PAD	U_HBPAD_RF	CRITICAL	N69H
131S0417	1	18PF 01005 16V	C4501_RF	CRITICAL	N69H
131S0375	1	1.0PF 01005 16V	C4503_RF	CRITICAL	N69H
131S0635	1	68PF 01005 16V	C4507_RF	CRITICAL	N69H
138S0706	1	1UF 0201 10V	C4505_RF	CRITICAL	N69H
152S1907	1	3.3NH 01005 +/-0.1NH	L4512_RF	CRITICAL	N69H
131S0247	1	1.8PF 01005 16V	C4522_RF	CRITICAL	N69H
353S00374	1	TDK MODULE M472A NO B12/B13/B17	U_DSM_RF	CRITICAL	N69H
152S1998	1	IND 0.8NH 630MA 01005	L4421_RF	CRITICAL	N69H
353S00390	1	SKY77827	U_VLBPAD_RF	CRITICAL	N69H
131S0387	1	2.2PF 0.1PF 01005 COG	C4211_RF	CRITICAL	N69H
152S1567	1	3.3NH 01005	L4813_RF	CRITICAL	N69H
131S0376	1	1.1PF 01005	C4809_RF	CRITICAL	N69H
152S1977	1	10NH 01005 170MA	L4217_RF	CRITICAL	N69H
131S0390	1	2.5PF 0.1PF 01005 COG	C4213_RF	CRITICAL	N69H
152S1853	1	7.5NH 3% 01005 200MA	L4216_RF	CRITICAL	N69H
118S0726	1	162K 1% 01005	R3312_RF	CRITICAL	N69H
353S3876	1	SWTICH SPDT 1.1X1.1	U_SWUANT_RF	CRITICAL	N69H
152S2045	1	3.0NH 0201	L5120_RF	CRITICAL	N69H
152S1851	1	5.6NH 01005	L5121_RF	CRITICAL	N69H
118S0652	1	01005 49.9R	C4231_RF	CRITICAL	N69H

N69H TDD

131S0307	1	100PF 01005	C4827_RF	CRITICAL	N69H
152S1720	1	1.8NH 01005	L4814_RF	CRITICAL	N69H
152S1544	1	0.4NH 01005	L4830_RF	CRITICAL	N69H
152S1564	1	2.4NH 01005	L4816_RF	CRITICAL	N69H
131S0307	1	100PF 01005	C4816_RF	CRITICAL	N69H
117S0161	1	0R 01005	R4815_RF	CRITICAL	N69H
152S1900	1	1.3NH 01005	L4817_RF	CRITICAL	N69H
152S1996	1	15NH 01005	L4901_RF	CRITICAL	N69H
152S1571	1	5.6NH 01005	L4902_RF	CRITICAL	N69H
152S1571	1	5.6NH 01005	L4903_RF	CRITICAL	N69H
152S1623	1	5.1NH 01005	L4904_RF	CRITICAL	N69H
155S0908	1	SAW DRX B40B41A	FD40B41A_RF	CRITICAL	N69H
117S0161	1	0R 01005	R4509_RF	CRITICAL	N69H
152S1907	1	3.3NH 01005 290MA	L4602_RF	CRITICAL	N69H
155S0981	1	FLTR SAW DUAL FILTER B34B39	FRX34B39_RF	CRITICAL	N69H
152S1988	1	2.4NH 01005 370MA	L4601_RF	CRITICAL	N69H
155S0906	1	SAW FILTER B40A B41A	FTB40A41A_RF	CRITICAL	N69H
152S1983	1	1.5NH 01005 +/-0.1NH	L4517_RF	CRITICAL	N69H
152S2061	1	7.5NH 01005 3%	L4507_RF	CRITICAL	N69H
117S0161	1	0R 01005	R4531_RF	CRITICAL	N69H
152S2040	1	4.3NH 01005 3%	L4506_RF	CRITICAL	N69H
131S00042	1	0.3PF +-0.05PF 01005 16V	C4528_RF	CRITICAL	N69H
131S0307	1	100PF 01005 16V	C4533_RF	CRITICAL	N69H
131S0244	1	1PF 01005 16V	C4502_RF	CRITICAL	N69H
138S0706	1	1UF 0201 10V	C4506_RF	CRITICAL	N69H
131S0644	1	68PF 01005 25V	C4532_RF	CRITICAL	N69H
131S00042	1	0.3PF 01005 16V	C4520_RF	CRITICAL	N69H
152S2002	1	2.7NH 0201 +/-0.1NH	L4522_RF	CRITICAL	N69H
152S1982	1	1.3NH 01005 +/-0.1NH	L4520_RF	CRITICAL	N69H
155S0982	1	FILTER B40	FT_B40_RF	CRITICAL	N69H
152S1986	1	2.2NH 01005 +/-0.1NH	L4526_RF	CRITICAL	N69H
152S1853	1	9.1NH 01005 3%	L4523_RF	CRITICAL	N69H
152S2002	1	2.7NH 0201 +/-0.1NH	L4515_RF	CRITICAL	N69H
152S1408	1	7.5NH 01005 5%	L4528_RF	CRITICAL	N69H
152S00035	1	3.1NH 01005 +/-0.1NH	L4516_RF	CRITICAL	N69H
131S0395	1	3.0PF 01005 +/-0.1PF	C4521_RF	CRITICAL	N69H
152S1853	1	9.1NH 01005 3%	L4527_RF	CRITICAL	N69H
155S0900	1	FILTER SAW BAND 41B 41C	FT_41BC_RF	CRITICAL	N69H
152S1965	1	1.8NH 01005 380MA	L4524_RF	CRITICAL	N69H
152S2024	1	1.4NH 0201 1.1A	L4525_RF	CRITICAL	N69H
353S4167	1	SWITCH IC LGA16	U_HBS_RF	CRITICAL	N69H
155S0903	1	FILTER SAW B40B 38X	FR38X40B_RF	CRITICAL	N69H
155S0881	1	FILTER LOW PASS B39	FL_B39LP_RF	CRITICAL	N69H
131S0214	1	18PF 01005	C4703_RF	CRITICAL	N69H
152S1917	1	2.0NH 01005 380MA	L4705_RF	CRITICAL	N69H
117S0161	1	0OHM 01005	R4700_RF	CRITICAL	N69H
131S0307	1	100PF 01005	C4720_RF	CRITICAL	N69H
155S0902	1	FILTER SAW BAND 40A B41A	FR40A41A_RF	CRITICAL	N69H
152S1619	1	2.2NH 01005 200MA	L4709_RF	CRITICAL	N69H
131S0214	1	18PF 01005	C4701_RF	CRITICAL	N69H
152S00036	1	3.7NH 01005 270MA	L4704_RF	CRITICAL	N69H
152S1989	1	2.7NH 01005 370MA	L4713_RF	CRITICAL	N69H
152S1989	1	2.7NH 01005 370MA	L4712_RF	CRITICAL	N69H
152S00034	1	2.9NH 01005 360MA	L4708_RF	CRITICAL	N69H
152S1576	1	12NH 01005 140MA	L4710_RF	CRITICAL	N69H
131S0216	1	47PF 01005	C4710_RF	CRITICAL	N69H
152S1946	1	1.4NH 01005 220MA	L4706_RF	CRITICAL	N69H

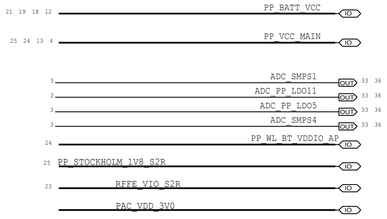
N69

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
353S00373	1	DSM M471A NO B7	U_DSM_RF	CRITICAL	N69
353S00331	1	SKY77826	U_VLBPAD_RF	CRITICAL	N69
118S0729	1	39K 1% 01005	R3312_RF	CRITICAL	N69
118S0724	1	0R 0201	R5137_RF	CRITICAL	N69
152S1993	1	5.1NH 0.1NH 01005 250MA	L4223_RF	CRITICAL	N69
131S0599	1	01005 1.5PF	C4231_RF	CRITICAL	N69
118S0652	1	01005 49.9R	C4211_RF	CRITICAL	N69
118S0652	1	01005 49.9R	C4213_RF	CRITICAL	N69
118S0652	1	01005 49.9R	C4500_RF	CRITICAL	N69
117S0161	1	0R 01005	R4509_RF	CRITICAL	N69

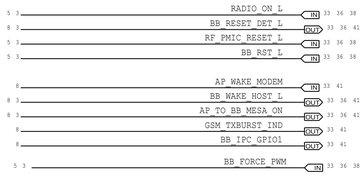
RADIO SYMBOL(HEIARCHY)

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

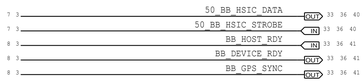
FCT TESTING



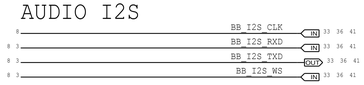
CELLULAR HOUSE KEEPING



HSIC IPC

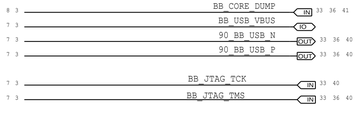


AUDIO I2S

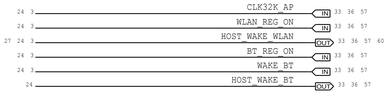


OSCAR UART

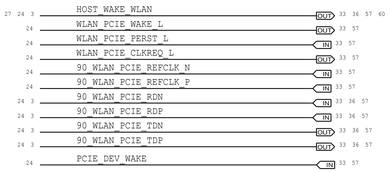
BB DEBUG INTERFACES



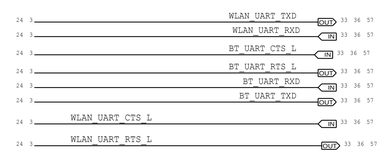
WLAN/BT HOUSE KEEPING



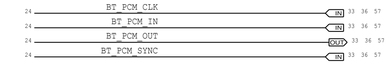
WLAN PCIE IPC



WLAN/BT UART



BT AUDIO PCM



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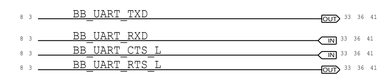
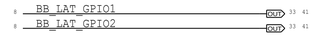
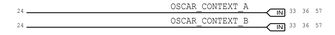
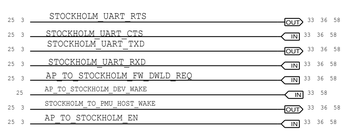


ANTENNA CONTROL



WLAN/OWL UART



STOCKHOLM INTERFACES