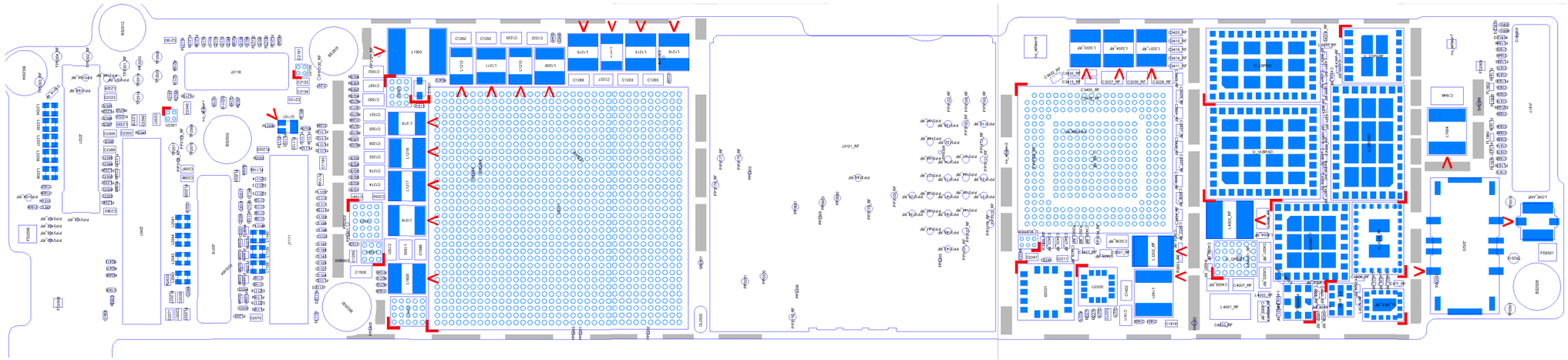
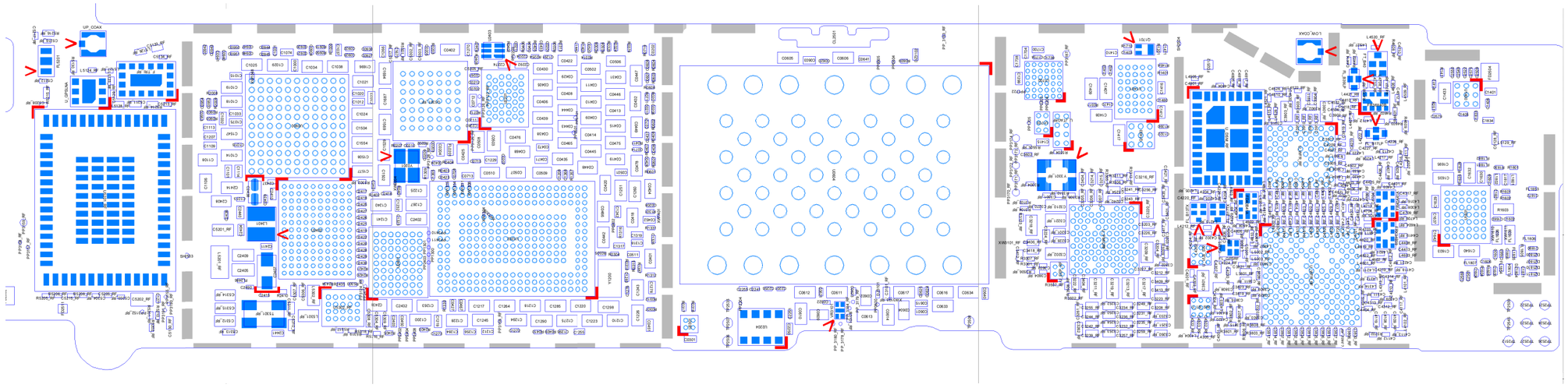
IPHONE 6 - 4.7"





BRD 820-3486

DRAWING TITLE: BOARD,BRD 820-3486

Apple Inc.

DRAWING NUMBER: 820-3486 | SIZE: D

REVISION: 7.0.0

BRANCH:

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

Thu Apr 17 17:11:44 2014

REV	ECN	DESCRIPTION OF REVISION	CK APPD / DATE
7	0002727241	ENGINEERING RELEASED	2014-04-18

N61 CARRIER BUILD

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23	23	CAMERA:REAR FLEX CONN	N61_MLB	08/26/2013
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29	30	CELL:ALIASES		
30	31	AP INTERFACE & DEBUG CONNECTORS	N61_RADIO_MLB	03/24/2014
31	32	BASEBAND PMU (1 OF 2)	N61_RADIO_MLB	03/24/2014
32	33	BASEBAND PMU (2 OF 2)	N61_RADIO_MLB	03/24/2014
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34	35	BASEBAND (1 OF 2)	N61_RADIO_MLB	03/24/2014
35	36	MOBILE DATA MODEM (2 OF 2)	N61_RADIO_MLB	03/24/2014
36	37	RF TRANSCEIVER (1 0F 3)	N61_RADIO_MLB	03/24/2014
37	38	RF TRANSCEIVER (2 OF 3)	N61_RADIO_MLB	03/24/2014
38	39	RF TRANSCEIVER (3 OF 3)	N61_RADIO_MLB	03/24/2014
39	40	QFE DCDC	N61_RADIO_MLB	03/24/2014
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51	52	WIFI/BT: MODULE AND FRONT END	N61_RADIO_MLB	03/24/2014
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NAND BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
335S0998	1	NAND,19NM,16GX8,MLC,PPN1.5	U0604	CRITICAL	NAND_16G
335S0993	1	NAND,19NM,32GX8,MLC,PPN1.5	U0604	CRITICAL	NAND_32G
335S0994	1	NAND,19NM,64GX8,MLC,PPN1.5	U0604	CRITICAL	NAND_64G
335S00010	1	NAND,19NM,128GX8,TLC,PPN1.5	U0604	CRITICAL	NAND_128G
138S0867	1	CAP,X5R,10UF,20%,6.3V,0.65MM,HRTZ,0402	C0610,C0611,C0614,C0634	CRITICAL	NAND_16G
138S0867	1	CAP,X5R,10UF,20%,6.3V,0.65MM,HRTZ,0402	C0613,C0633,C0610,C0611,C0614,C0634	CRITICAL	NAND_32G & NAND_64G
138S00003	1	CAP,X5R,15UF,20%,6.3V,0.65MM,HRTZ,0402	C0613,C0633,C0610,C0611,C0614,C0634	CRITICAL	NAND_128G

ALTERNATE NAND BOM OPTIONS

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
335S0992	335S0998	ALTERNATE	U0604	TOSHIBA,NAND,16GB
335S1038	335S0998	ALTERNATE	U0604	HYNIX,NAND,16GB
335S1040	335S0994	ALTERNATE	U0604	HYNIX,NAND,64GB
335S00014	335S0994	ALTERNATE	U0604	TOSHIBA,NAND,64GB
335S00015	335S00010	ALTERNATE	U0604	TOSHIBA,NAND128GB
335S00009	335S0994	ALTERNATE	U0604	SANDISK,NAND,64GB,TLC

SHIELD BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
604-00241	1	SUBASSY, SHIELD, UPPER FRONT, N61	SH2501	CRITICAL	COMMON
604-00242	1	SUBASSY, SHIELD, LOWER FRONT, N61	SH2502	CRITICAL	COMMON
604-00243	1	SUBASSY, SHIELD, LOWER BACK, N61	SH2504	CRITICAL	COMMON
604-00244	1	SUBASSY, SA SHIELD, N61	SH2506	CRITICAL	COMMON

N61 BOM CALLOUTS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
051-9903	1	SCH, MLB, N61	SCH	CRITICAL	?
820-3486	1	PCBF, MLB, N61	PCB	CRITICAL	?
825-6838	1	EEEE FOR 639-4237 16GB	EEEE_G16T	CRITICAL	EEEE_16G
825-6838	1	EEEE FOR 639-5838 32GB	EEEE_G16R	CRITICAL	EEEE_32G
825-6838	1	EEEE FOR 639-5839 64GB	EEEE_G16Q	CRITICAL	EEEE_64G
825-6838	1	EEEE FOR 639-00025 128GB	EEEE_G16N	CRITICAL	EEEE_128G
825-6838	1	EEEE FOR 639-00208 16GB	EEEE_F98F	CRITICAL	EEEE_16G_TDDLTE
825-6838	1	EEEE FOR 639-00209 32GB	EEEE_FQK0	CRITICAL	EEEE_32G_TDDLTE
825-6838	1	EEEE FOR 639-00210 64GB	EEEE_FQJY	CRITICAL	EEEE_64G_TDDLTE
825-6838	1	EEEE FOR 639-00212 128GB	EEEE_FY9W	CRITICAL	EEEE_128G_TLC_TDDLTE

ALTERNATE BOM OPTIONS

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S1844	152S1836	ALTERNATE	L1604	TY ALT INDUCTOR
152S1842	152S1849	ALTERNATE	L1519	TY ALT INDUCTOR
197S0392	197S0369	ALTERNATE	Y1200	ESPON ALT XTAL
197S0399	197S0369	ALTERNATE	Y1200	NDK ALT XTAL
338S1285	338S1202	ALTERNATE	U1601	L21 SPKAMP
152S2034	152S2033	ALTERNATE	L1209,L1211, L1213	1.2MM 1.0UH, CYNTEC
152S00004	152S2049	ALTERNATE	L1210,L1212, L1214	1.2MM 0.47UH, CYNTEC
339S00005	339S0246	ALTERNATE	U0201	FIJI, B0, SAMSUNG
339S0247	339S0246	ALTERNATE	U0201	FIJI, B0, HYNIX
339S00006	339S0246	ALTERNATE	U0201	FIJI, B1, E
339S00007	339S0246	ALTERNATE	U0201	FIJI, B1, H
339S00008	339S0246	ALTERNATE	U0201	FIJI, B1, S
155S0773	155S0453	ALTERNATE		TY 120OHM FERRITE
118S0764	118S0717	ALTERNATE	R1309	3.92KOHM, 01005
343S0688	343S0638	ALTERNATE	U2401	CUMULUS C1, FAB4
138S00005	138S00003	ALTERNATE	C1290	15UF,0402,HRTZL CAP
155S00011	155S00008	ALTERNATE	L1135	CMC,90OHM,MURATA
377S0168	377S0140	ALTERNATE	DZ1113	SUPPR,TRANS,VARISTOR,AMOTECH
155S0885	155S0610	ALTERNATE	FL1802,FL1803	FERR BD,150OHM,200MA,0100S
138S0648	138S0652	ALTERNATE	C1018	CAP,4.7UF,20%,6.3V,0402,H=0.65MM
138S0657	138S0702	ALTERNATE	C1106	CAP,4.3UF,20%,4V,0610
338S00028	338S00017	ALTERNATE	U2203	CARBON, BOSCH, BMI162BC
338S00029	338S00017	ALTERNATE	U2203	CARBON, ST, AP6DS2AA
335S00013	335S0894	ALTERNATE	U0301	ST 8K EEPROM

SCH 051-9903
BRD 820-3486
MCO 056-6825

BOM 639-4237 (16GB,BETTER)
BOM 639-5838 (32GB,BEST)
BOM 639-5839 (64GB,ULTRA)

BOM 639-00208 (16GB,BETTER,DTD)
BOM 639-00209 (32GB,BEST,DTD)
BOM 639-00210 (64GB,ULTRA,DTD)

BOM 639-00025(128GB,SUPREME,TLC)
BOM 639-00212(128GB,SUPREME,TLC,DTD)

DRAWING TITLE: SCHEM,MLB,N61

Apple Inc.

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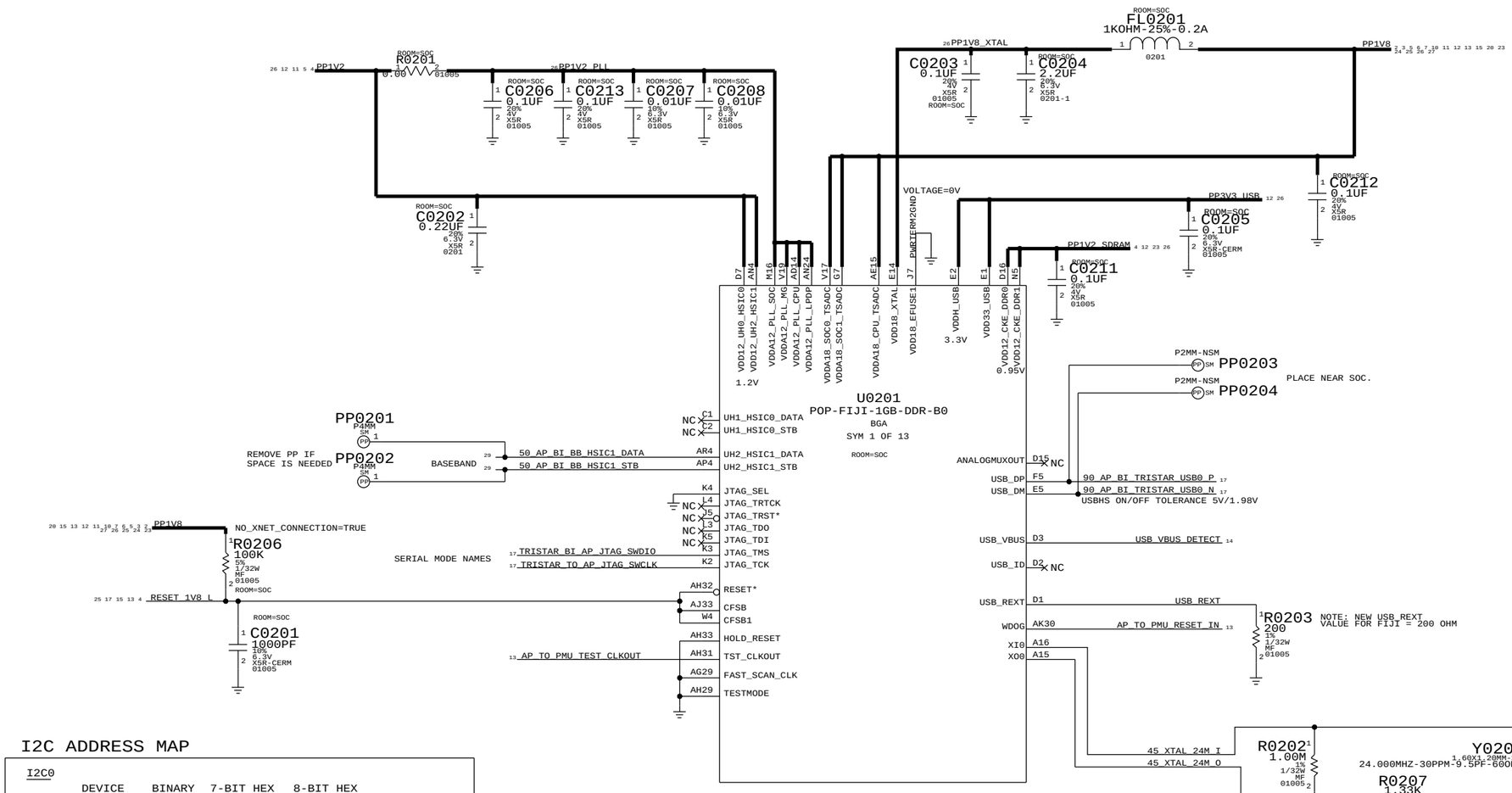
FIJI: JTAG,USB,HSIC,XTAL



I2C ADDRESS MAP

	DEVICE	BINARY	7-BIT HEX	8-BIT HEX
I2C0				
	ADI PMU:	1110100X	0X74	0XE8
	LM3534 BL DRIVER:	1100011X	0X63	0XC6
	TRISTAR:	0011010X	0X1A	0X34
	CHESTNUT:	0100111X	0X27	0X4E
I2C1				
	TIGRIS CHARGER:	1110101X	0X75	0XEA
	LINEAR VIBE:	1011010X	0X5A	0XB4
	CS35L19B AMP:	1000000X	0X40	0X80
	MESA EEPROM (MEMORY):	1010110X	0X56	0XAC
	MESA EEPROM (ID):	1011110X	0X5E	0XBC
I2C2				
	CT814 ALS:	0101001X	0X29	0X52
	DISPLAY EEPROM:	1010001X	0X51	0XA2
RCAM I2C				
	OPEL STROBE DRIVER:	1100011X	0X63	0XC6
	REAR FACING CAM:	0010000X	0X10	0X20
	VCM AF DRIVER:	0001100X	0X0C	0X18
FCAM I2C				
	FRONT FACING CAM:	0010000X	0X10	0X20

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

SYNC_MASTER=N56_MLB SYNC_DATE=08/29/2013

PAGE TITLE: SOC:MAIN

Apple Inc.

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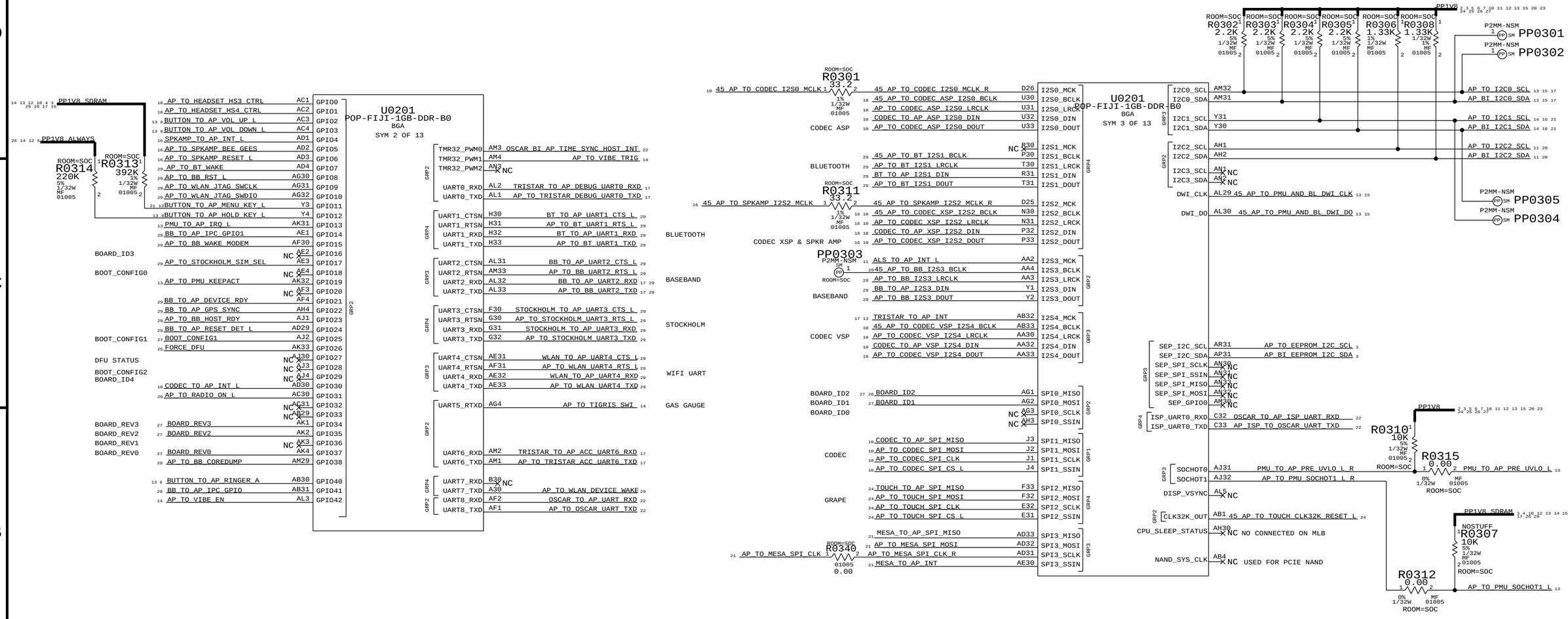
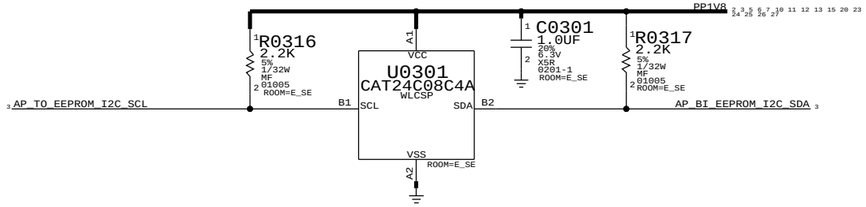
FIJI: DIGITAL I/O,BOOTSTRAPPING



ANTI-ROLLBACK EEPROM

ONSEMI EEPROM

APN:335S0894



REMOVED HOLD + MENU KEY
BUFFERS SINCE NOT NEEDED FOR FIJI

SYNC_MASTER=N56_MLB SYNC_DATE=08/29/2013

PAGE TITLE

SOC:I/OS

Apple Inc.

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FIJI: VDDCA,VDD1/2,VDDQ,VDD,VDD_FIXED,VDD_CPU,VDD_GPU

VDDCA, VDD1/2, VDDQ

RESET_1V8_L
NOTE: CKEIN CONFIRMED 1.8V TOLERANT
DDR0_CKEIN
DDR1_CKEIN
45_DDR0_ZQ_CA
45_DDR1_ZQ_CA
45_DDR0_ZQ_DQ
45_DDR1_ZQ_DQ
45_DDR0_VREF_CA
45_DDR1_VREF_CA
45_DDR0_VREF_DQ
45_DDR1_VREF_DQ
R0401 240 1% 1/32W MF 01005 ROOM=SOC
R0402 240 1% 1/32W MF 01005 ROOM=SOC
R0411 240 1% 1/32W MF 01005 ROOM=SOC
R0412 240 1% 1/32W MF 01005 ROOM=SOC
(DDR IMPEDANCE CONTROL)
U0201
POP-FIJI-1GB-DDR-B0
BGA
SYM 7 OF 13
VDDCA
PP1V2_SDRAM
VDD2
1.2V
VSS
C0402 1UF 20% 4V CERM 0402 ROOM=SOC
C0422 1UF 20% 4V CERM 0402 ROOM=SOC
C0401 1UF 20% 4V CERM 0402 ROOM=SOC
C0429 4.3UF 20% 4V CERM 0402 ROOM=SOC
PP1V8_SDRAM
VDD1
1.8V
C0450 2.2UF 20% 6.3V X5R 0201-1 ROOM=SOC
C0451 2.2UF 20% 6.3V X5R 0201-1 ROOM=SOC
C0452 2.2UF 20% 6.3V X5R 0201-1 ROOM=SOC
PP1V2
VDDQ
C0431 4.3UF 20% 4V CERM 0402 ROOM=SOC
C0467 1.0UF 20% 6.3V X5R 0201-1 ROOM=SOC
C0427 1.0UF 20% 6.3V X5R 0201-1 ROOM=SOC
C0432 1UF 20% 4V CERM 0402 ROOM=SOC
C0426 15PF 5% 16V NP0-C0G-CERM 01005 ROOM=SOC
C0425 0.47UF 20% 6.3V CERM 0402 ROOM=SOC
C0430 0.47UF 20% 6.3V CERM 0402 ROOM=SOC

VDD

PP0V95_FIXED_SOC
C0435 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC
C0438 4.3UF 20% 4V CERM 0402 ROOM=SOC
C0439 4.3UF 20% 4V CERM 0402 ROOM=SOC
C0404 1UF 20% 4V CERM 0402 ROOM=SOC
C0405 1UF 20% 4V CERM 0402 ROOM=SOC
C0476 4.3UF 20% 4V CERM 0402 ROOM=SOC
C0406 0.47UF 20% 6.3V CERM 0402 ROOM=SOC
C0478 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC
U0201
POP-FIJI-1GB-DDR-B0
BGA
SYM 10 OF 13
VDD_FIXED
0.95V
TBD: 3.3A? @ 105C
VDD_FIXED_SENSE
PP0403
P2MM-NSM
45_BUCK5_FB
ROOM=SOC

VDD_CPU, VDD_GPU

PP_GPU
C0442 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC
C0466 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC
C0445 4.3UF 20% 4V CERM 0402 ROOM=SOC
C0448 4.3UF 20% 4V CERM 0402 ROOM=SOC
C0418 1UF 20% 4V CERM 0402 ROOM=SOC
C0419 1UF 20% 4V CERM 0402 ROOM=SOC
C0420 0.47UF 20% 6.3V CERM 0402 ROOM=SOC
C0475 4.3UF 20% 4V CERM 0402 ROOM=SOC
PP_CPU
C0443 0.47UF 20% 6.3V CERM 0402 ROOM=SOC
C0446 0.47UF 20% 6.3V CERM 0402 ROOM=SOC
C0444 1UF 20% 4V CERM 0402 ROOM=SOC
C0409 4.3UF 20% 4V CERM 0402 ROOM=SOC
C0411 4.3UF 20% 4V CERM 0402 ROOM=SOC
C0414 4.3UF 20% 4V CERM 0402 ROOM=SOC
C0408 4.3UF 20% 4V CERM 0402 ROOM=SOC
C0410 4.3UF 20% 4V CERM 0402 ROOM=SOC
C0413 1UF 20% 4V CERM 0402 ROOM=SOC
U0201
POP-FIJI-1GB-DDR-B0
BGA
SYM 13 OF 13
VDD_CPU
0.775V - 1.0V
TBD: 7.6A? @ 105C
VDD_GPU
0.8V - 0.95V
TBD: 3.45A? @ 105C
C0447 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC
C0415 4.3UF 20% 4V CERM 0402 ROOM=SOC
C0465 1UF 20% 4V CERM 0402 ROOM=SOC
45_BUCK0_FB
VDD_CPU_SENSE
PP0401
P2MM-NSM
C0449 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC
C0472 2.2UF 20% 6.3V X5R 0201-1 ROOM=SOC
C0471 2.2UF 20% 6.3V X5R 0201-1
C0468 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC
VDD_GPU_SENSE
45_BUCK1_FB
PP0402
P2MM-NSM

A

PP1V2_SDRAM
C0423 0.01UF 10% 6.3V X5R 01005 ROOM=SOC
C0424 0.01UF 10% 6.3V X5R 01005 ROOM=SOC
R0403 10K 1% 1/32W MF 01005 ROOM=SOC
R0404 10K 1% 1/32W MF 01005 ROOM=SOC
45_DDR0_VREF_CA
C0433 0.01UF 10% 6.3V X5R 01005 ROOM=SOC
C0434 0.01UF 10% 6.3V X5R 01005 ROOM=SOC
R0405 10K 1% 1/32W MF 01005 ROOM=SOC
R0406 10K 1% 1/32W MF 01005 ROOM=SOC
45_DDR1_VREF_CA
NOTE: SOME VENDORS HAVE INTERNAL DIVIDER CIRCUITS
PP1V2
C0436 0.01UF 10% 6.3V X5R 01005 ROOM=SOC
C0437 0.01UF 10% 6.3V X5R 01005 ROOM=SOC
R0407 4.7K 1% 1/32W MF 01005 ROOM=SOC
R0408 4.7K 1% 1/32W MF 01005 ROOM=SOC
45_DDR0_VREF_DQ
C0440 0.01UF 10% 6.3V X5R 01005 ROOM=SOC
C0441 0.01UF 10% 6.3V X5R 01005 ROOM=SOC
R0409 4.7K 1% 1/32W MF 01005 ROOM=SOC
R0410 4.7K 1% 1/32W MF 01005 ROOM=SOC
45_DDR1_VREF_DQ

SYNC_MASTER=N56_MLB	SYNC_DATE=08/29/2013
PAGE TITLE: SOC:VDDCA,VDD1/2,VDD,VDD_CPU,VDD_GPU	
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FIJI: VDDIOD,VDDIO18,VDD_VAR_SOC

JUST A FEW GNDS

U0201
POP-FIJI-1GB-DDR-B0
BGA
SYM 11 OF 13

VSS

U0201
POP-FIJI-1GB-DDR-B0
BGA
SYM 12 OF 13

VSS

VSS

VDD_SRAM, VDD_SOC

U0201
POP-FIJI-1GB-DDR-B0
BGA
SYM 8 OF 13

VDD_VAR_SOC
0.90V - 0.95V
1.8A @ 105C

VSS

VSS_SENSE

VDD_VAR_SOC_SENSE

12 45_BUCK2_FB

PP_VAR_SOC

C0508 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=SOC

C0503 4.3UF 20% 4V CERM 0402 ROOM=SOC

C0507 1UF 20% 4V CERM 0402 ROOM=SOC

C0509 1UF 20% 4V CERM 0402 ROOM=SOC

C0510 0.47UF 20% 6.3V CERM 0402 ROOM=SOC

VDDIOD, VDDIO18

CAPS FOR VDDIOD ARE SHARED WITH VDDQ

PP1V2

U0201
POP-FIJI-1GB-DDR-B0
BGA
SYM 9 OF 13

VDDIOD_DDRCA
VDDIOD_DDR0DQ
VDDIOD_DDR1DQ

1.8V

1.2V

VDDIO18_GRP1
VDDIO18_GRP2
VDDIO18_GRP3
VDDIO18_GRP4
VDDIO18_GRP7
VDDIO18_PPN

PP1V8

C0501 2.2UF 20% 6.3V X5R 0201-1 ROOM=SOC

C0502 1UF 20% 4V CERM 0402 ROOM=SOC

C0511 1.0UF 20% 6.3V X5R 0201-1 ROOM=SOC

C0506 0.47UF 20% 6.3V CERM 0402 ROOM=SOC

GRP7 POWERS GPIO11,12 (BUTTONS)

PP1V8_ALWAYS

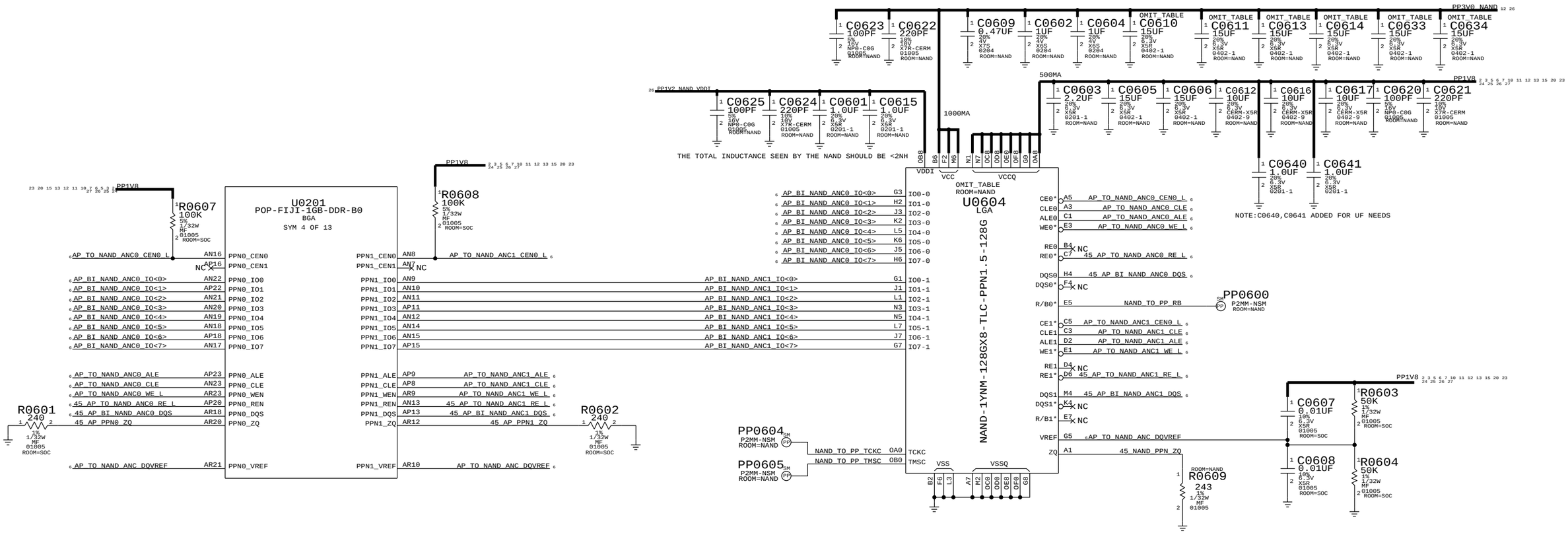
C0520 0.1UF 20% 4V X5R 01005 ROOM=SOC

PP0501
P2MM-NSM
SM
CPU_VSS_SENSE
ROOM=SOC

SYNC_MASTER=N56_MLB	SYNC_DATE=08/29/2013
PAGE TITLE: SOC:GND,VDDIO18,VDDIOD,VDD_VAR_SOC	
Apple Inc.	DRAWING NUMBER: 051-9903 SIZE: D
	REVISION: 7.0.0
	BRANCH:
	PAGE: 5 OF 55
	SHEET: 5 OF 54

FIJI: NAND + 12X17 NAND PKG

SUPPORT FOR PPN1.5 (1.8V IO) ONLY



SYNC_MASTER=N56_MLB SYNC_DATE=08/29/2013

PAGE TITLE: SOC:NAND

Apple Inc.

DRAWING NUMBER: 051-9903 SIZE: D

REVISION: 7.0.0

BRANCH:

PAGE: 6 OF 55

SHEET: 6 OF 54

FIJI: HIGH SPEED DIG (CAM,LCD,LPDP,PCIE)

NOTE: NEED TO EVALUATE PI FOR PP1V0.
CONCERN OVER SHARING IT WITH MIPI AND
PCIE REFCLK WITHOUT A FILTER.

NOTE: IS A FERRITE NEEDED? THERE ARE DCR CONCERNS.

NOTE: PLACE NEAR THE PCIE PINS, NOT LPDP.

U0201
POP-FIJI-1GB-DDR-B0
BGA
SYM 5 OF 13

U0201
POP-FIJI-1GB-DDR-B0
BGA
SYM 6 OF 13

SYNC_MASTER=N56_MLB	SYNC_DATE=08/29/2013
PAGE TITLE	SOC:CAM,LCD,LPDP,PCIE
Apple Inc.	DRAWING NUMBER 051-9903 SIZE D
	REVISION 7.0.0
	BRANCH
	PAGE 7 OF 55
	SHEET 7 OF 54

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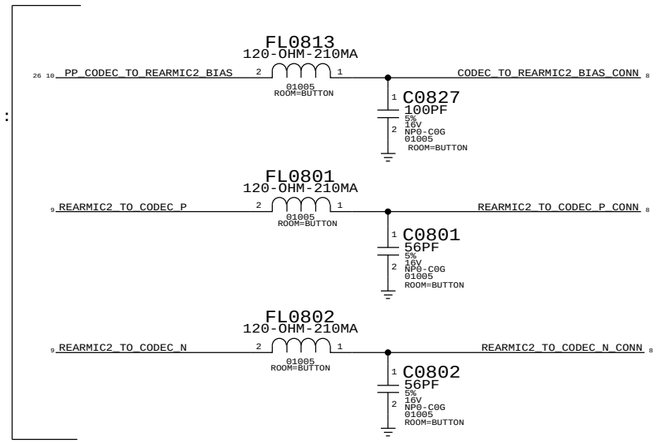
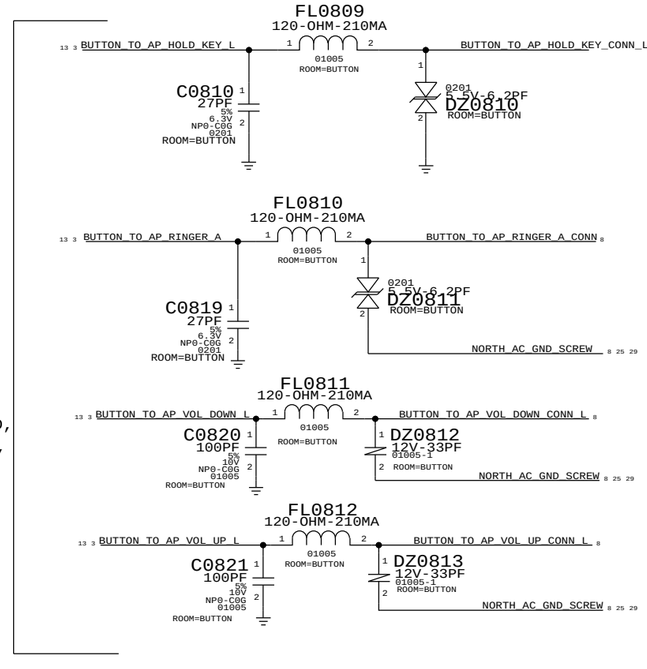
BUTTON FLEX (BUTTONS, ANC REF MIC, STROBE, STROBE_NTC, WIFI FLEX PAC)

MIC2 (ANC REF MIC):
MIC2/4 BIAS,
MIC2_P,_N

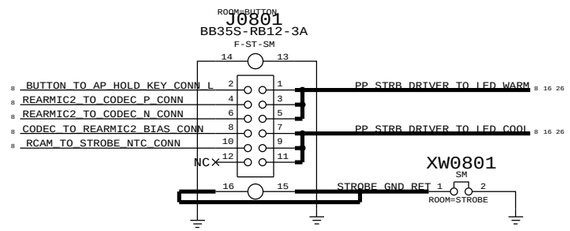


BUTTONS:
RINGER, HOLD,
VOL_UP/DOWN,



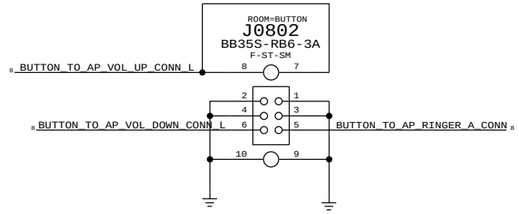
RIGHT BUTTON B2B

MLB: 516S1312

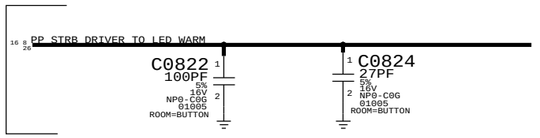


LEFT BUTTON B2B

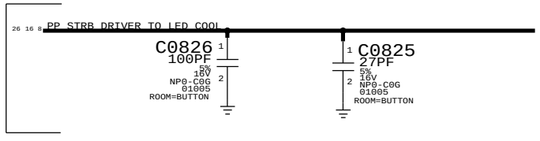
MLB: 516S1315



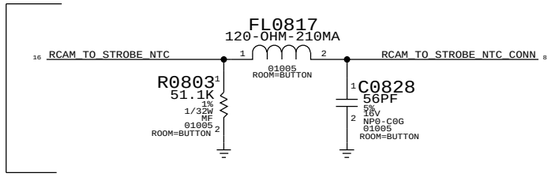
STROBE:
LED WARM



STROBE:
LED COOL



STROBE:
NTC



SYNC_MASTER=N61_MLB SYNC_DATE=08/26/2013

PAGE TITLE
IO:BUTTON FLEX CONN

Apple Inc.

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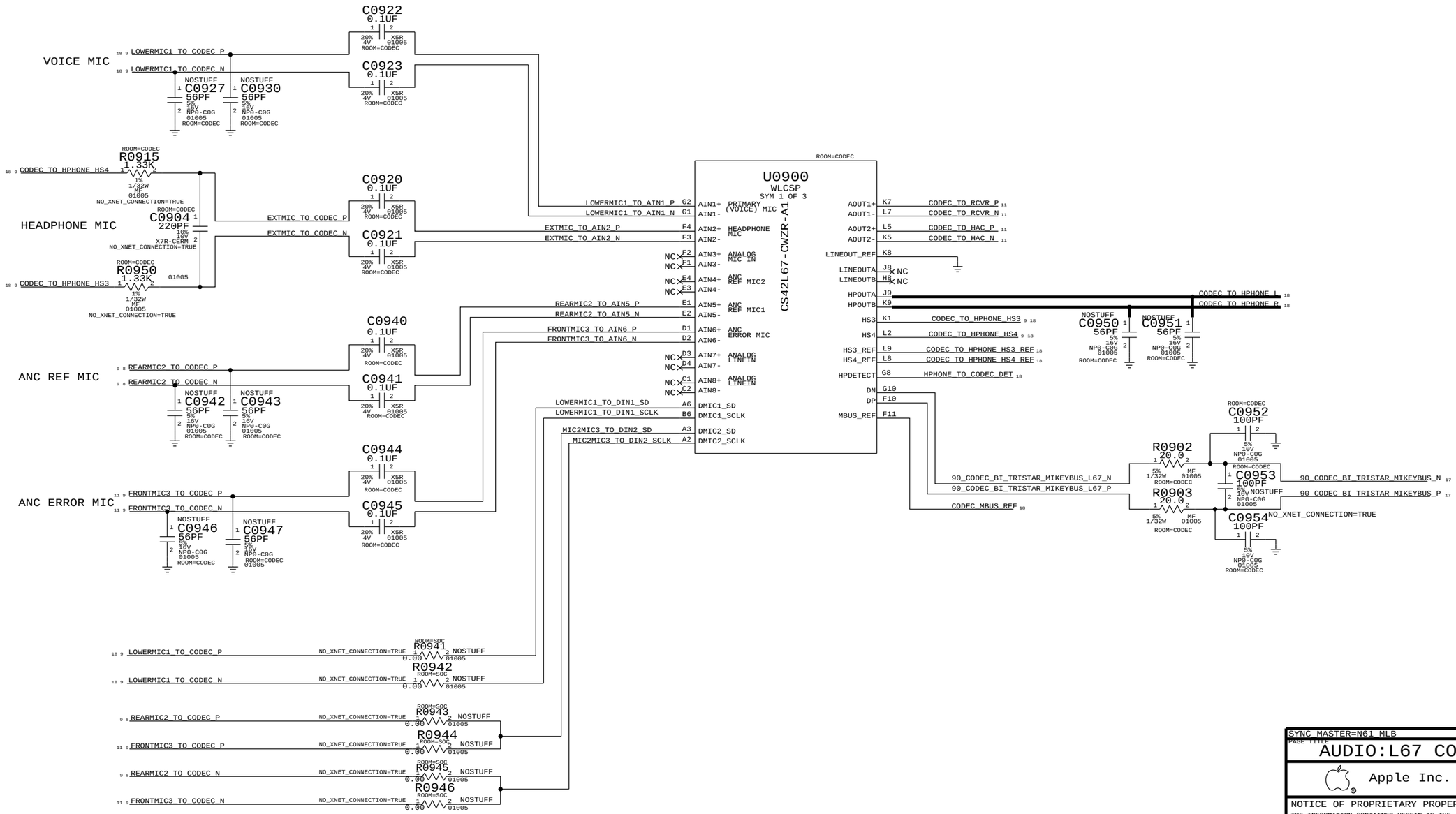
L67 AUDIO CODEC

AUDIO I/O

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



SYNC_MASTER=N61_MLB	SYNC_DATE=08/26/2013
PAGE TITLE	AUDIO:L67 CODEC (1/2)
Apple Inc.	DRAWING NUMBER 051-9903 SIZE D
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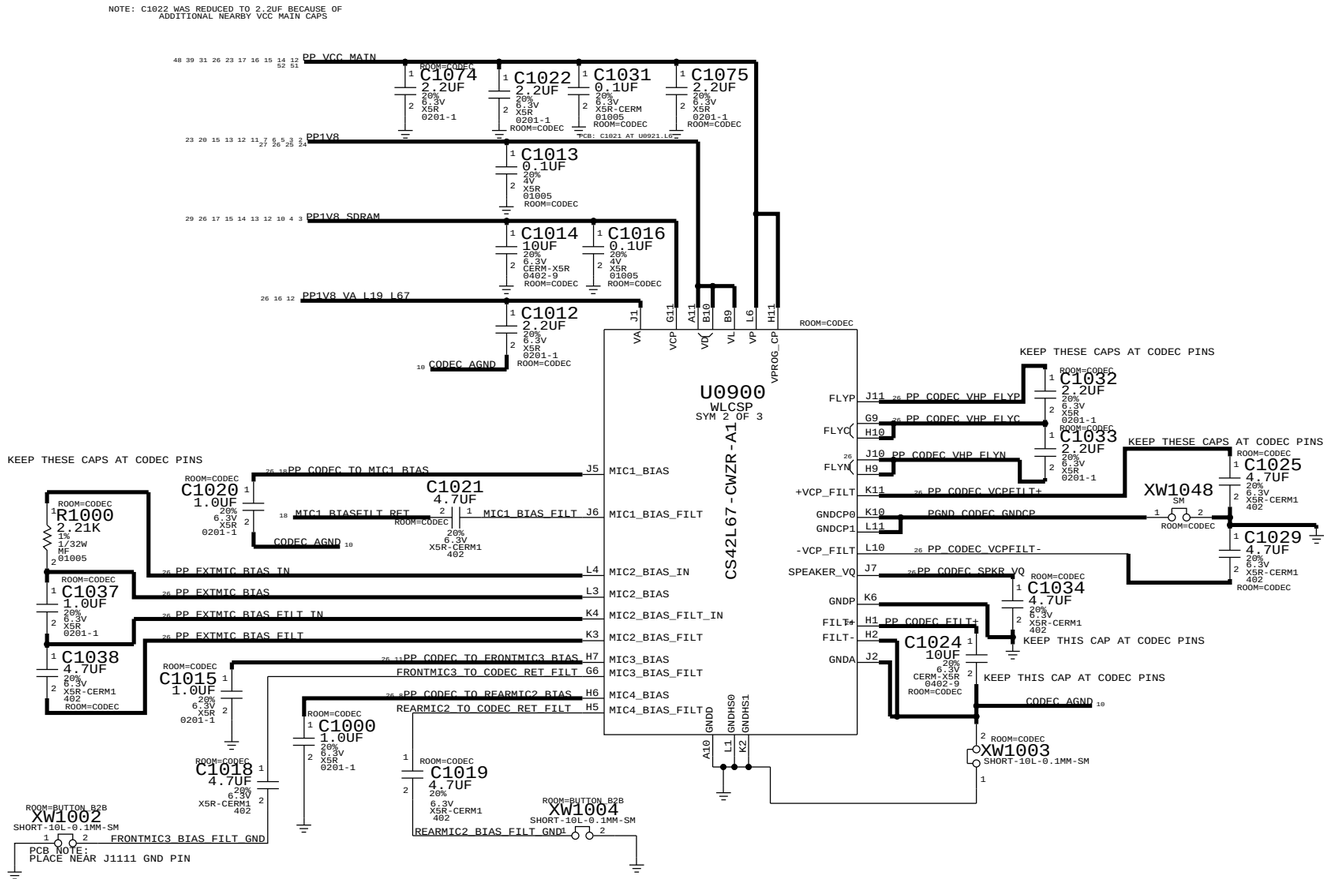
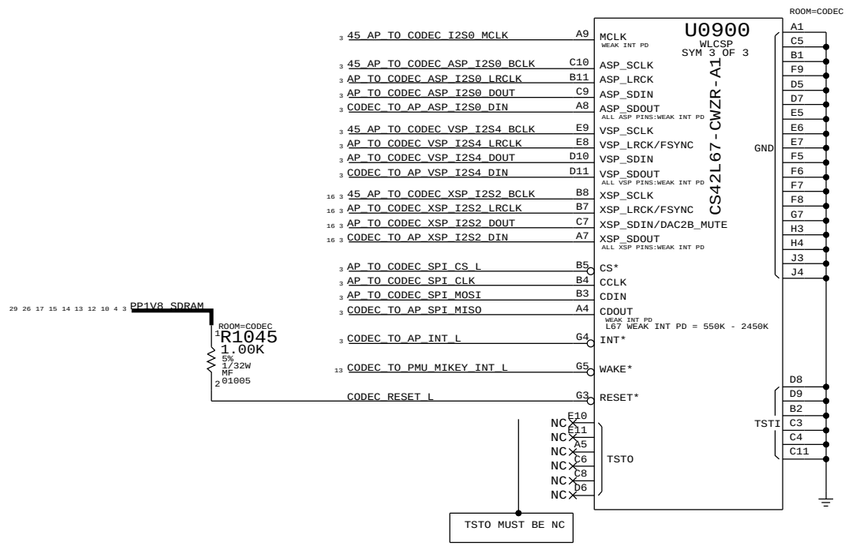
L67 AUDIO CODEC

POWER, MICBIAS



DIGITAL SYSTEM I/O



SYNC_MASTER=N61_MLB SYNC_DATE=08/26/2013

PAGE TITLE
AUDIO:L67 CODEC (2/2)

Apple Inc.

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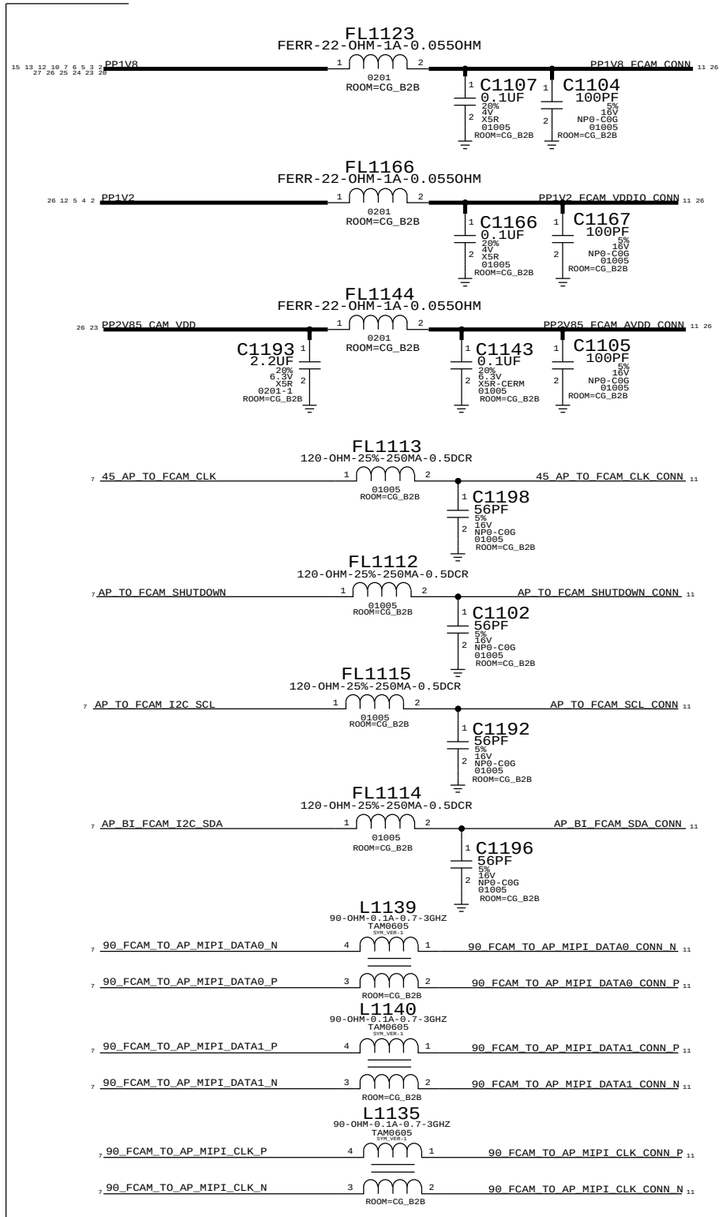
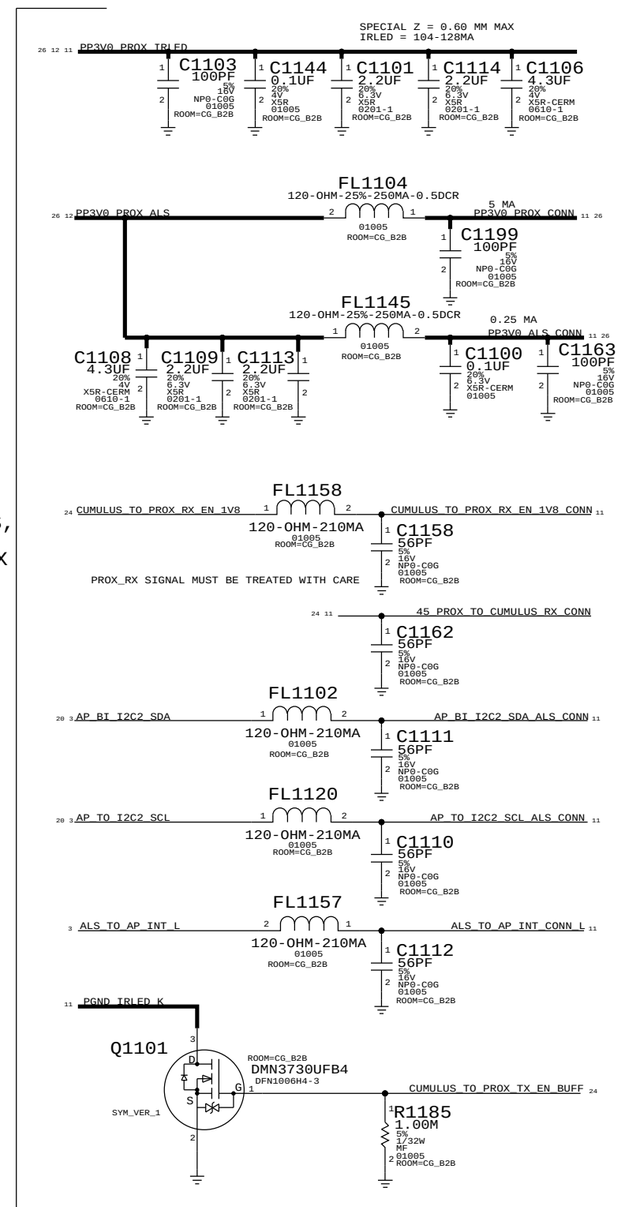
FRONT CAM FLEX B2B

(FCAM, PROX, ALS, RECEIVER, ANC ERROR MIC)

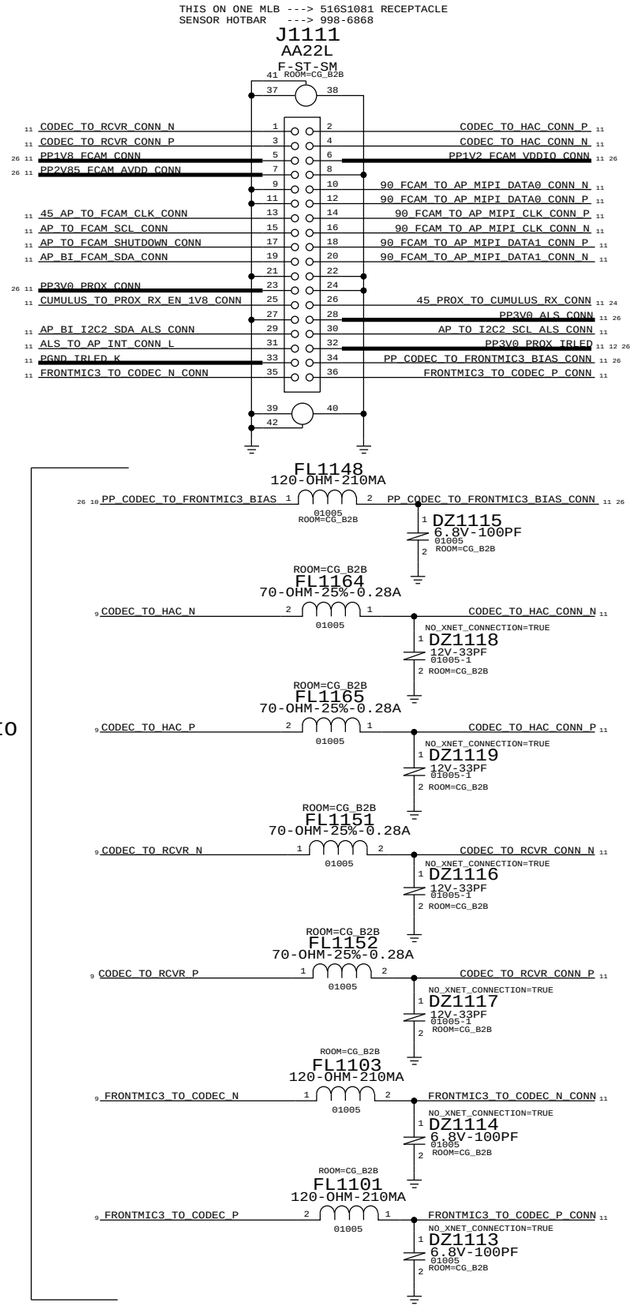
CAMERA



ALS, PROX



AUDIO



SYNC_MASTER=N61_MLB SYNC_DATE=08/26/2013

PAGE TITLE: CAMERA:FRONT FLEX CONN

Apple Inc.

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ADI PMU

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

NOTE: L1210, L1212 BOMOPTIONS CONTROLLED ON PAGE1

APN: 338S1251 (ADI AZ)

U1202
D2186AZE0FJAVAC
FCCSP-N56-N61 ROOM=PMU
SYM 1 OF 3

NOSTUFF
R1201 470 5% 1/32W MF-LF 01005 ROOM=PMU
PP5V0_USB → PP5V0_USB_TO_PMU

CHARGER_VBATT_SNS

PP_VCC_MAIN
C1220 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C1200 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C1217 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C1218 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C1250 2.2UF 20% 6.3V X5R 0201-1 ROOM=PMU
C1251 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C1225 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C1260 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C1263 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C1267 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C1285 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C1298 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C1264 10UF 20% 6.3V CERM-X5R 0402-9 ROOM=PMU
C1266 1.0UF 20% 6.3V X5R 0201-1 ROOM=PMU

DESENSE CAPS FOR VCCMAIN:
C1271: WIFI MODULE
C1272: AP PMU MODULE
BB PMU MODULE:RF SIDE
QPOET MODULE:RF SIDE

C1271 100PF 5% 16V NP0-C0G 01005 ROOM=WIFI
C1272 100PF 5% 16V NP0-C0G 01005 ROOM=PMU

PP1V2_SDRAM
C1278 2.2UF 20% 6.3V X5R 0201-1 ROOM=PMU

ROOM=PMU
Y1200 32.768K-20PPM-12.5PF 2.0X1.2X0.60-SM1
45_PMU_TO_XTAL_OSC32
45_XTAL_TO_PMU_OSC32
C1276 18PF 5% 16V CERM 01005 ROOM=PMU
C1283 18PF 5% 16V CERM 01005 ROOM=PMU

NC	N16	VBUS_OVP_OFF
NC	M20	
NC	M21	VCENTER
	N20	
	N21	
	P20	VBUS
	P21	
NC	H20	
NC	H21	IBAT
	K10	VBAT
NC	L16	ACT_DIO
NC	L20	
NC	L21	CHG_LX
	J20	
	J21	VCC_MAIN
	K7	VCC_MAIN_S
	A4	
	B4	VDD_BUCK1
	C4	
	F1	
	F2	VDD_BUCK2
	K1	
	K2	VDD_BUCK3
	E20	
	E21	VDD_BUCK4
	A17	
	B17	VDD_BUCK5
	C17	
	N9	VDD_BUCK6
	N8	VDD_BYP_BUCK6
	A8	
	B8	VDD_BUCK001
	C8	
	A13	
	B13	VDD_BUCK023
	C13	
	N13	VDD_LDO6
	P14	VDD_LDO2
	H17	VDD_LDO1_3
	J17	VDD_LDO4_13
	N15	VDD_LDO5
	L17	VDD_LDO7_8
	L2	VDD_LDO10
	N11	VDD_LDO9_11
NC	P12	VDD_VIB
NC	R12	VIB
	N12	VIB_PWM_EN
	C1	XTAL1
	D1	XTAL2
	G9	VSS_RTC

BAT/USB | BUCK INPUT | LDO INPUT | VIBE | XTAL

SAME POLARITY
L1209 ROOM=PMU 1UH-3.0A-0.059OHM PIFA20161B
L1210 ROOM=PMU 0.47UH-20%-3.3A-0.065OHM MCMK2017TR47M-SM
L1211 ROOM=PMU 1UH-3.0A-0.059OHM PIFA20161B
L1212 ROOM=PMU 0.47UH-20%-3.3A-0.065OHM MCMK2012TR47M-SM

0V775/0V95/1V0 → PP_CPU
C1290 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1292 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1294 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1235 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1222 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1245 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1262 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1228 15UF 20% 6.3V X5R 0402-1 ROOM=PMU

H7 VDD_CPU 7.6A MAX

SAME POLARITY
L1213 ROOM=PMU 1UH-3.0A-0.059OHM PIFA20161B
L1214 ROOM=PMU 0.47UH-20%-3.3A-0.065OHM MCMK2012TR47M-SM

0V9/0V95 → PP_GPU
C1203 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1227 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1210 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1226 15UF 20% 6.3V X5R 0402-1 ROOM=PMU

H7 VDD_GPU 3.45A MAX

L1215 ROOM=PMU 1.0UH-20%-2.4A-0.075HM PIFE20161T-SM

0V9/0V95 → PP_VAR_SOC
C1223 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1275 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1289 15UF 20% 6.3V X5R 0402-1 ROOM=PMU

H7 VAR 1.8A MAX

BUCK0_LX0	A7	PP_BUCK0_LX0 DIDT=TRUE
	B7	
	C7	
BUCK0_LX1	A9	PP_BUCK0_LX1 DIDT=TRUE
	B9	
	C9	
BUCK0_LX2	A12	PP_BUCK0_LX2 DIDT=TRUE
	B12	
	C12	
BUCK0_LX3	A14	PP_BUCK0_LX3 DIDT=TRUE
	B14	
	C14	
BUCK0_FB	E7	45_BUCK0_FB
BUCK1_LX0	A3	PP_BUCK1_LX0 DIDT=TRUE
	B3	
	C3	
BUCK1_LX1	A5	PP_BUCK1_LX1 DIDT=TRUE
	B5	
	C5	
BUCK1_FB	E4	45_BUCK1_FB
BUCK2_LX	G1	PP_BUCK2_LX DIDT=TRUE
	G2	
BUCK2_FB	F4	45_BUCK2_FB
BUCK3_LX	J1	PP_BUCK3_LX DIDT=TRUE
	J2	
BUCK3_FB	K6	45_BUCK3_FB
BUCK3_SW1	P5	PP1V8
BUCK3_SW2	P6	PP1V8_GRAPE
BUCK3_SW3	P7	PP1V8_OSCAR
VBUCK3_SW	R7	
	N6	
	N7	
BUCK4_LX	F20	PP_BUCK4_LX DIDT=TRUE
	F21	
BUCK4_FB	E18	45_BUCK4_FB
VBUCK4_SW	N3	
	N4	
BUCK4_SW1	M2	PP1V2
BUCK4_SW2	N2	
	L5	PP1V2_OSCAR
BUCK5_LX0	A16	PP_BUCK5_LX0 DIDT=TRUE
	B16	
	C16	
BUCK5_LX1	A18	PP_BUCK5_LX1 DIDT=TRUE
	B18	
	C18	
BUCK5_FB	C21	45_BUCK5_FB
BUCK6_LX	R8	NC
BUCK6_FB	L1	NC
BUCK6_BYP	R8	NC

(50MA) VLDO1	F18	2.5-3.3V +/-77.5MV
(50MA) VLDO2	R14	1.2-1.9V +/-42.5MV
(50MA) VLDO3	G18	2.5-3.3V +/-75MV
(50MA) VLDO4	H18	2.5-3.6V +/-75MV
(1000MA) VLDO5	R15	2.5-3.6V +/-75MV
(150MA) VLDO6	R13	1.2-3.6V +/-82.5MV
(250MA) VLDO7	K18	2.5-3.6V +/-75MV
(250MA) VLDO8	L18	NC
(250MA) VLDO9	R10	2.5-3.6V +/-71.25MV
VLDO9_FB	P10	PP2V9_LDO9
(100MA) VLDO10	L1	0.6-1.4V +/-25MV
(250MA) VLDO11	R11	2.5-3.6V +/-82.5MV
(5MA) VLDO12	L6	FIXED 1.8V, +/-5%
(250MA) VLDO13	J18	2.5-3.6V +/-71.25MV
VPUMP	R5	45_PMU_VPUMP

SPEC REQUIRES 10NF,
VPUMP RUNS AT 4.6V

VPUMP CAP:
30% DERATED.

C1208 0.1UF 20% 6.3V X5R-CERM 01005 ROOM=PMU
C1270 2.2UF 20% 6.3V X5R 0201-1 ROOM=PMU
C1229 2.2UF 20% 6.3V X5R 0201-1 ROOM=PMU
C1212 1.0UF 20% 6.3V X5R 0201-1 ROOM=PMU
C1284 1.0UF 20% 6.3V X5R 0201-1 ROOM=PMU
C1299 2.2UF 20% 6.3V X5R 0201-1 ROOM=PMU
C1207 2.2UF 20% 6.3V X5R 0201-1 ROOM=PMU

L1216 1.0UH-20%-2.4A-0.075HM PIFE20161T-SM
XW1218 SHORT-10L-0.1MM-SM
PCB:PLACE C1297 NEAR C1263
C1297 100PF 5% 16V NP0-C0G 01005 ROOM=PMU
C1296 100PF 5% 16V NP0-C0G 01005 ROOM=PMU
C1293 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1243 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
PCB:PLACE C1296 NEAR L1216
PP1V8_SDRAM

H7 VDD1(BUCK3)=0.945A MAX
BUCK3_SW1=0.7A MAX
BUCK3_SW2=0.7A MAX
BUCK3_SW3=0.7A MAX
TOTAL=0.545A MAX

L1217 1.0UH-20%-2.4A-0.075HM PIFE20161T-SM
XW1220 SHORT-10L-0.1MM-SM
PCB:PLACE C1270 NEAR L1217
C1214 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1216 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1288 100PF 5% 16V NP0-C0G 01005 ROOM=PMU
PP1V2_SDRAM

H7 VDDCA,VDD2 (BUCK4)=0.500A MAX
BUCK4_SW1=1.000A MAX
BUCK4_SW2=0.100A MAX
TOTAL=1.600A MAX

L1218 ROOM=PMU 1.0UH-20%-2.4A-0.075HM PIFE20161T-SM
L1219 ROOM=PMU 0.47UH-30%-2.7A-0.065OHM MCKK2012-SM
PP0V95_FIXED_SOC
C1240 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1202 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1209 15UF 20% 6.3V X5R 0402-1 ROOM=PMU
C1241 15UF 20% 6.3V X5R 0402-1 ROOM=PMU

H7 VDD_SRAM, VDD_SRAM_SOC 3.3A MAX

C1242 1.0UF 20% 6.3V X5R 0201-1 ROOM=PMU
C1232 2.2UF 20% 6.3V X5R 0201-1 ROOM=PMU
C1291 0.1UF 20% 4V X5R 01005 ROOM=PMU
C1219 2.2UF 20% 6.3V X5R 0201-1 ROOM=PMU

PP3V3_USB	2 26
PP1V8_VA_L19_L67	10 16 26
PP3V0_TRISTAR	15 17 26 29
PP3V0_IMU	19 26
PP3V0_NAND	6 26
PP3V3_ACC	17 26
PP3V0_PROX_ALS	11 26
PP1V0	7 26
PP3V0_PROX_IRLED	11 26
PP1V8_ALWAYS	3 5 14 26
PP3V0_MESA	21 26

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

SOC USB PHY (25 MA)
SPEAKER AMP, CODEC VA (2.5 MA L1419, 3MA L67)
TRISTAR VDH, WIFI_FLEX PAC (? MA)
GYRO, ACCEL, COMPASS (? MA)
NAND (? MA)
ACCESSORY POWER (? MA)
PROX/ALS VDD (PROX: 0.75/1.2 MA ALS: 0.175/0.25 MA [TYP/MAX])

NOTE: 3V +/- 5% PER EUGENE

REAR CAM AUTO FOCUS (120MA PEAK, PROBABLY CAP AT 80MA)
REAR/FRONT CAM AVDD (? MA)
SOC 1V0 MIPI, USB_DVDD, DP (71 MA TOTAL)
PROX LED (102 MA TYP)
ALWAYS ON 1V8 (? MA)

SYNC_MASTER=N56_MLB SYNC_DATE=08/29/2013

PAGE TITLE: POWER:ADI(1/2)

Apple Inc.

DRAWING NUMBER: 051-9903 SIZE: D
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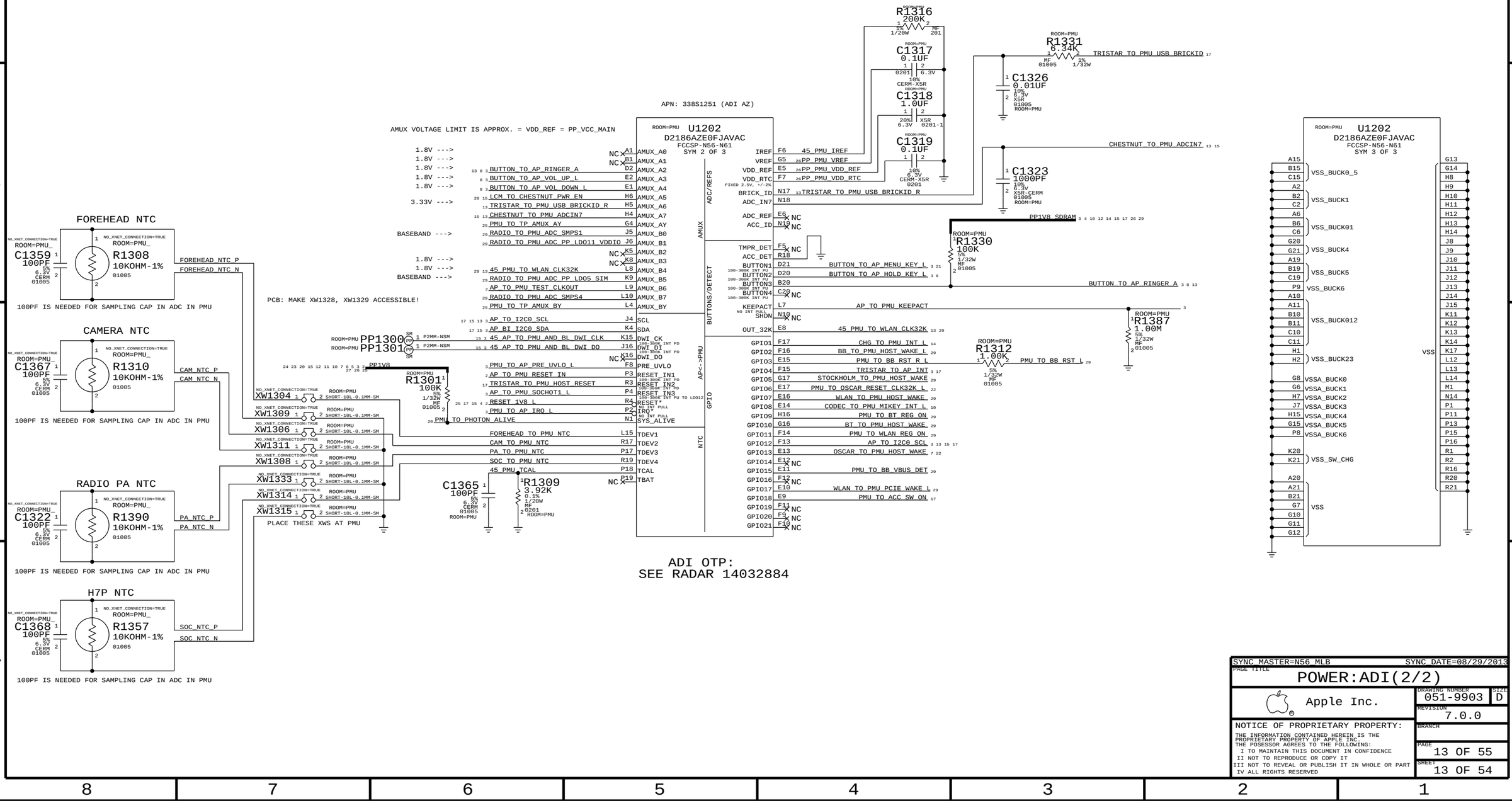
ADI PMU

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



SYNC_MASTER=N56_MLB	SYNC_DATE=08/29/2013
PAGE TITLE	POWER:ADI(2/2)
Apple Inc.	DRAWING NUMBER 051-9903 SIZE D
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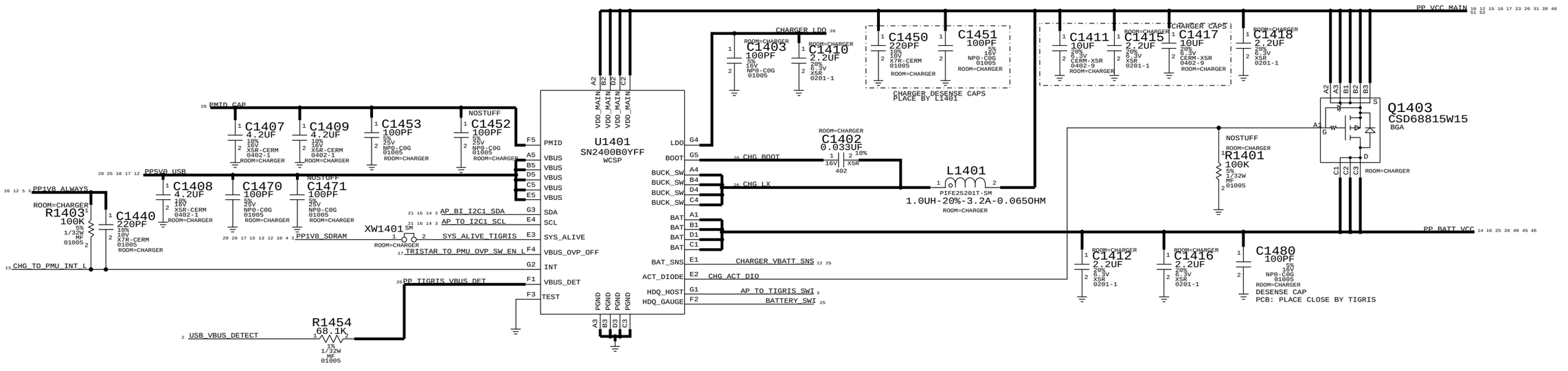
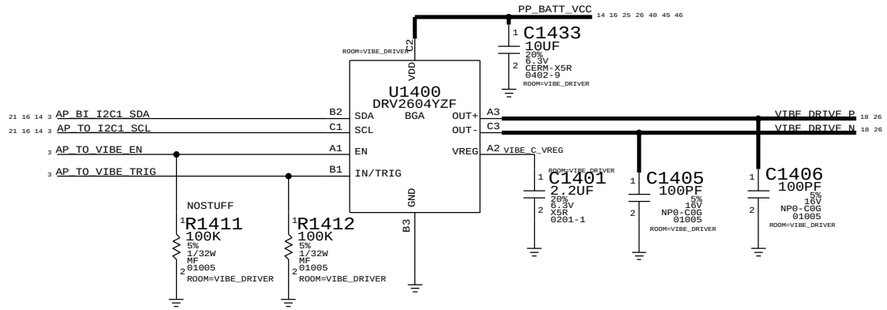
TIGRIS CHARGER & VIBE DRIVER





PAGE TITLE: POWER:TIGRISR,VIBE DRIVER

Apple Inc.

DRAWING NUMBER: 051-9903 | SIZE: D

REVISION: 7.0.0

BRANCH:

PAGE: 14 OF 55

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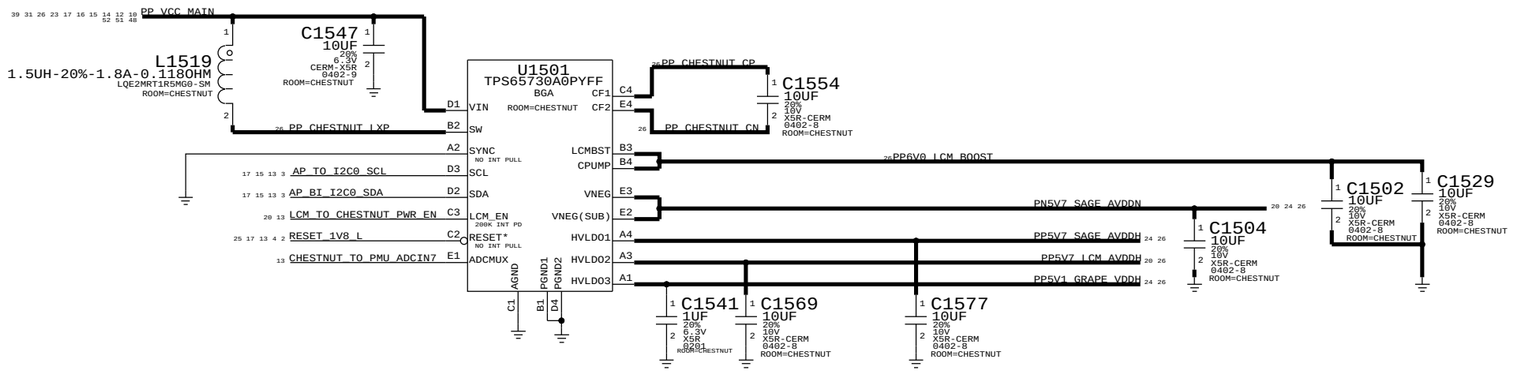
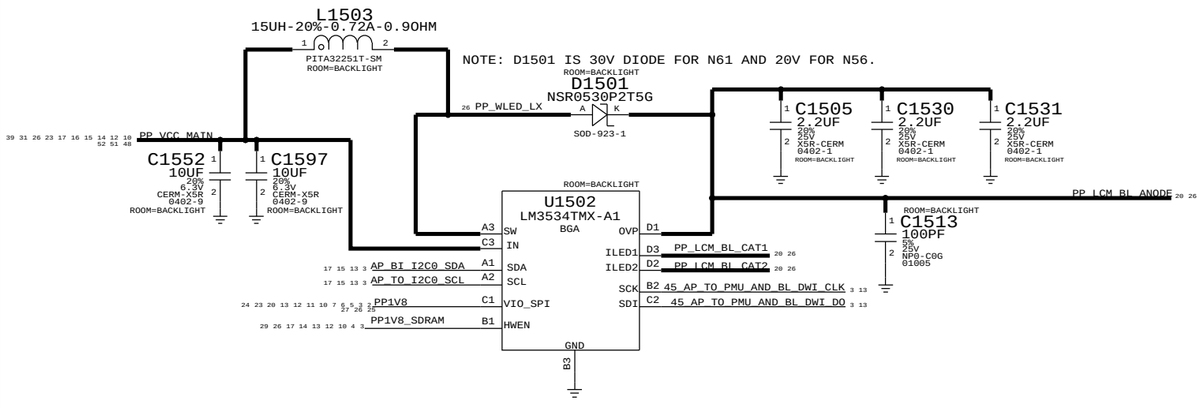
CHESTNUT, BACKLIGHT DRIVER, MESA BOOST

D500 DISPLAY PMU (TI CHESTNUT, 338S1149)

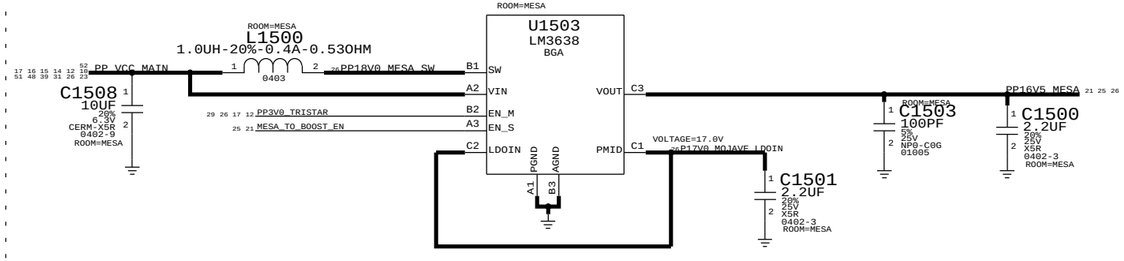


D500 BACKLIGHT DRIVER



MESA BOOST A0

APN: 353S3978



SYNC_MASTER=N61_MLB	SYNC_DATE=08/26/2013
PAGE TITLE: DISPLAY:CHESTNUT,BACKLIGHT DRIVER	
Apple Inc.	DRAWING NUMBER: 051-9903 SIZE: D
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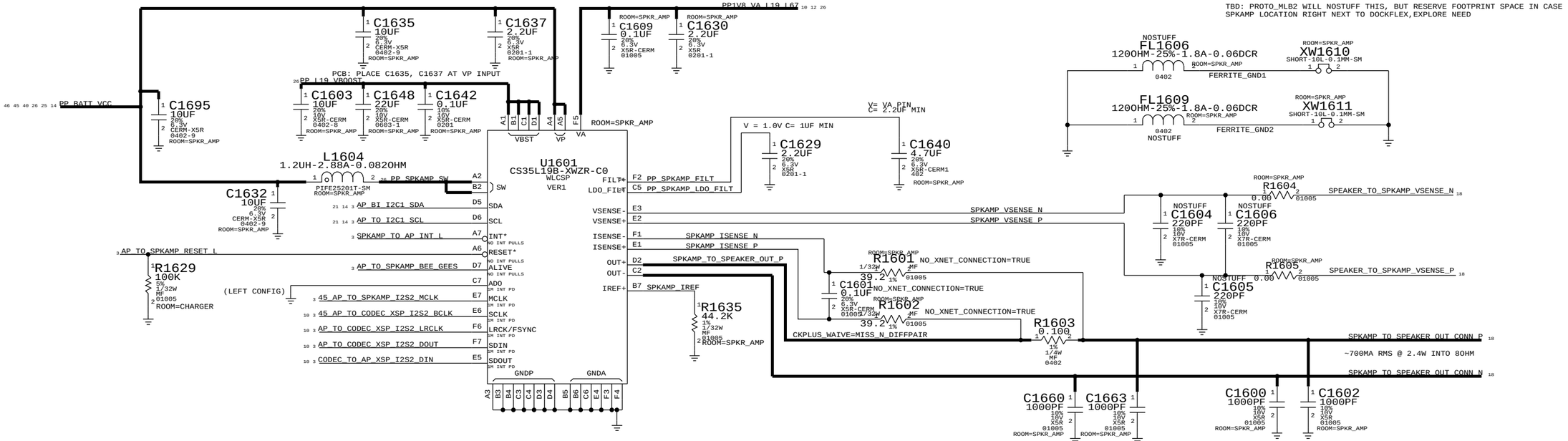
SPEAKER AMP, LED DRIVER

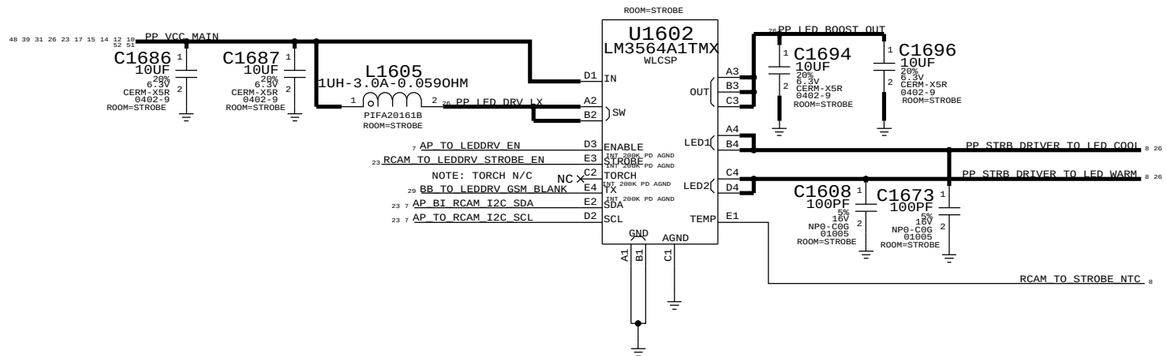
SPEAKER AMP

I2C ADDRESS: 1000000X



STROBE DRIVER

TI: APN 353S3899



SYNC_MASTER=N61_MLB	SYNC_DATE=08/26/2013
PAGE TITLE	AUDIO:SPKR AMP,STROBE
Apple Inc.	DRAWING NUMBER 051-9903 · SIZE D
	REVISION 7.0.0
	BRANCH
	PAGE 16 OF 55
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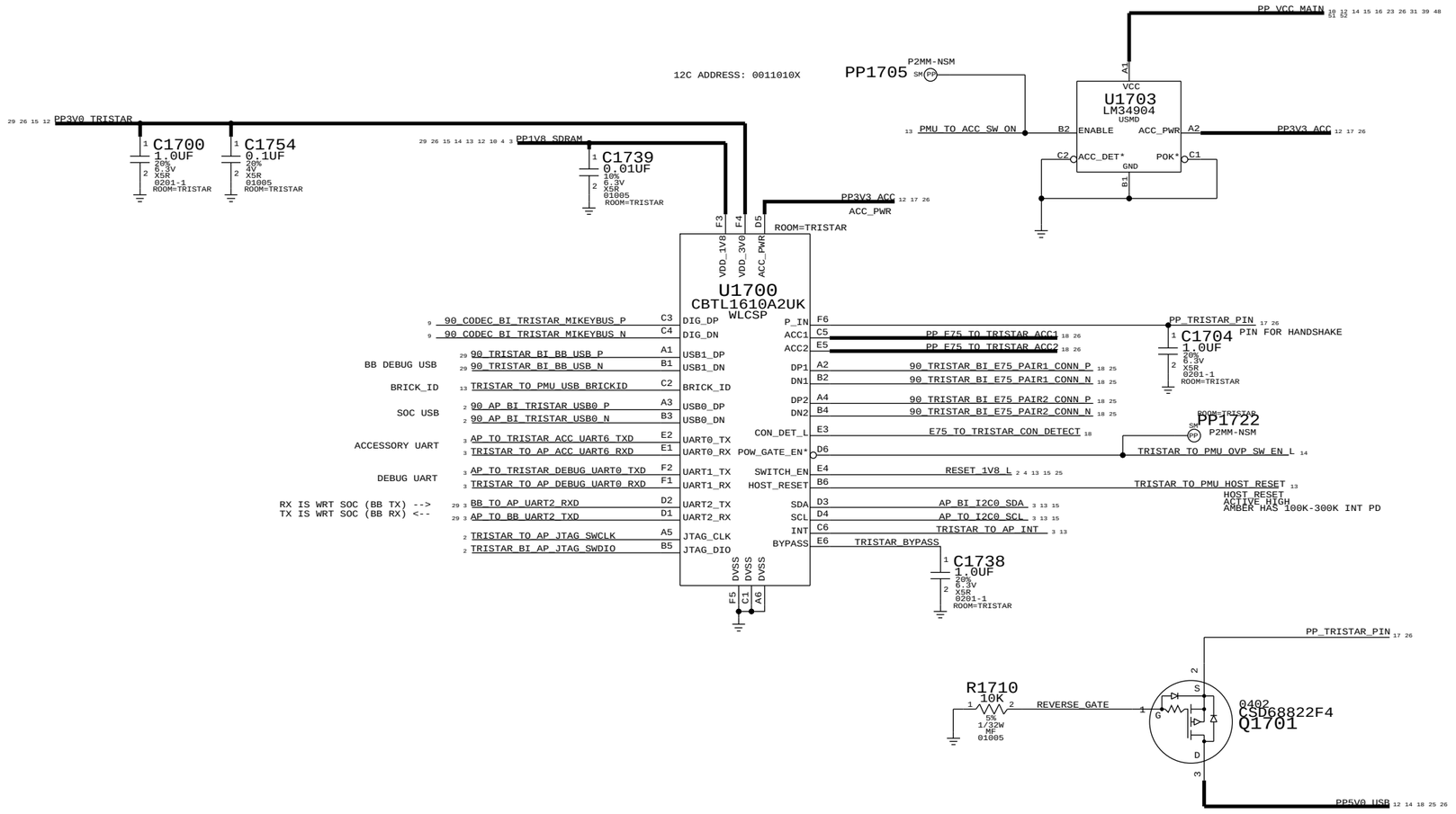
TRISTAR2



SYNC_MASTER=N61_MLB	SYNC_DATE=08/26/2013
PAGE TITLE	IO:TRISTAR2
Apple Inc.	DRAWING NUMBER 051-9903 SIZE D
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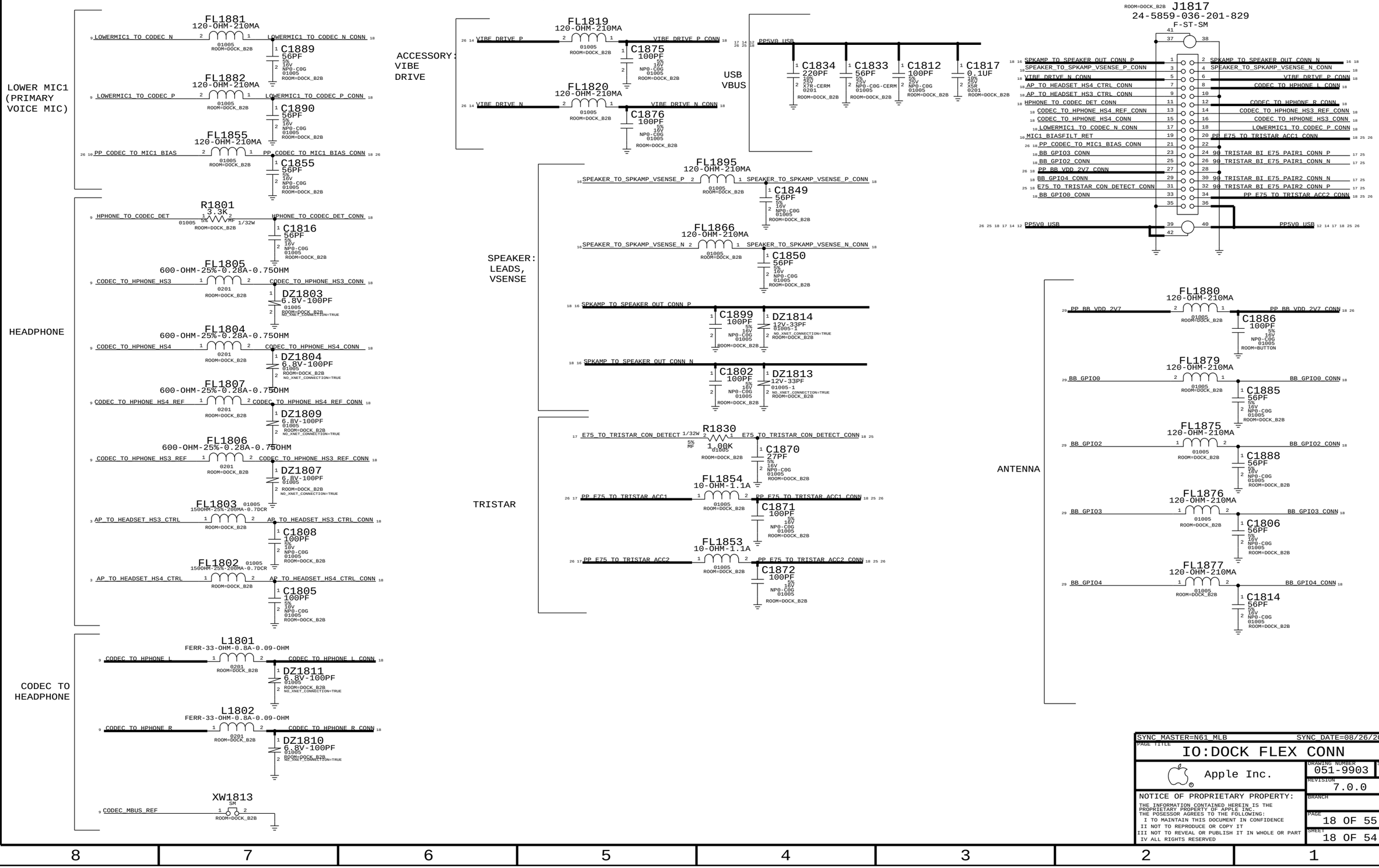
	SHEET 17 OF 54

DOCKFLEX B2B (USB VBUS, SPEAKER,ANTENNA LAT SW CTRL, MIC1 (PRIMARY MIC), ACC DET/ID/PWR, E75 DIFFPAIRS)



SYNC_MASTER=N61_MLB SYNC_DATE=08/26/2013

PAGE TITLE

IO:DOCK FLEX CONN

Apple Inc.

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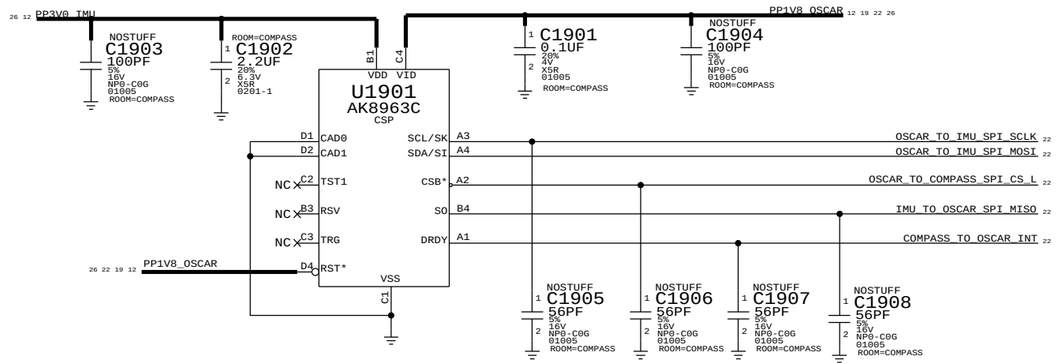
COMPASS - AKM COMPASS IN POR LOCATION

COMPASS CSP: 338S1014



SYNC_MASTER=N61_MLB SYNC_DATE=08/26/2013

PAGE TITLE
SENSORS:COMPASS

Apple Inc.

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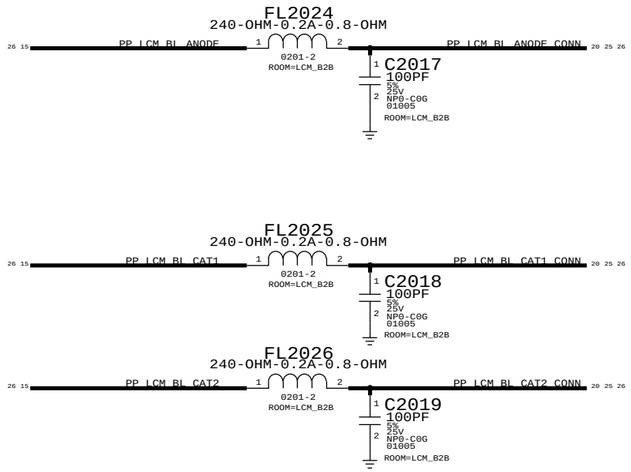
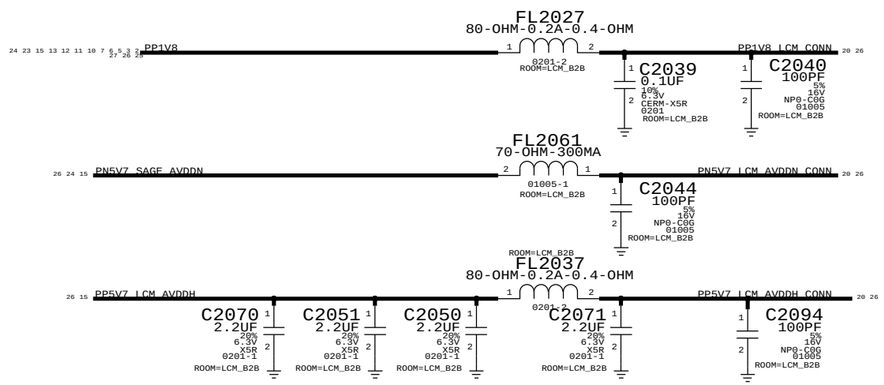
LCD B2B

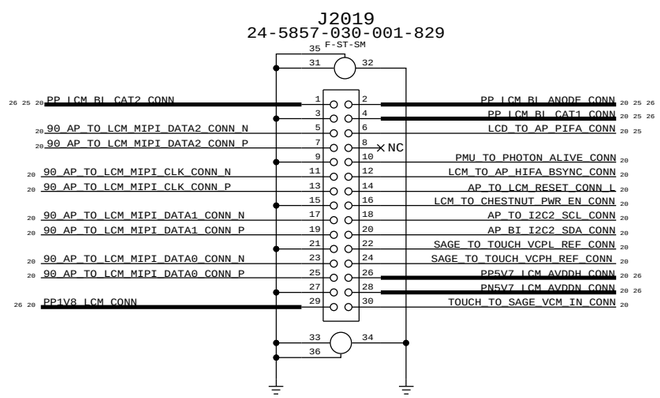
Backlight
(N56 HAS A 2ND SET OF BL SIGNALS ON P. 19).



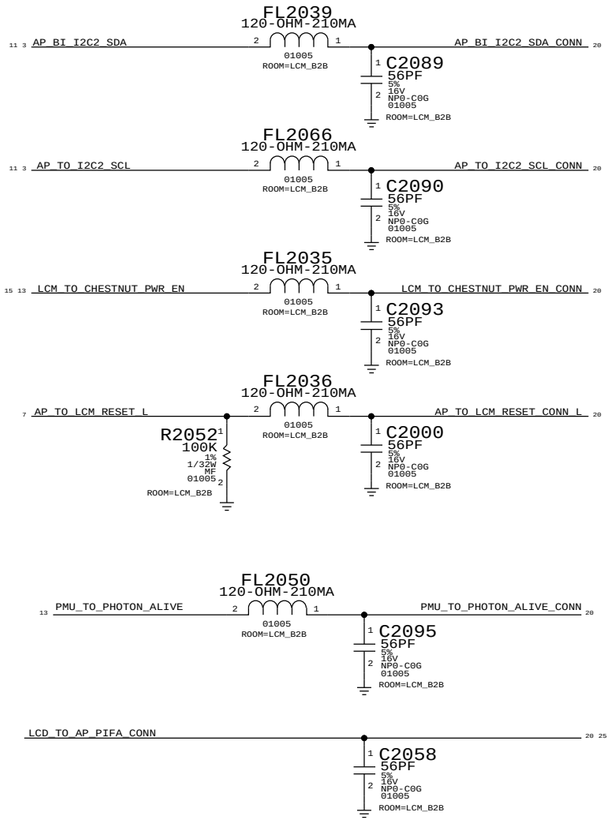
LCM Supplies



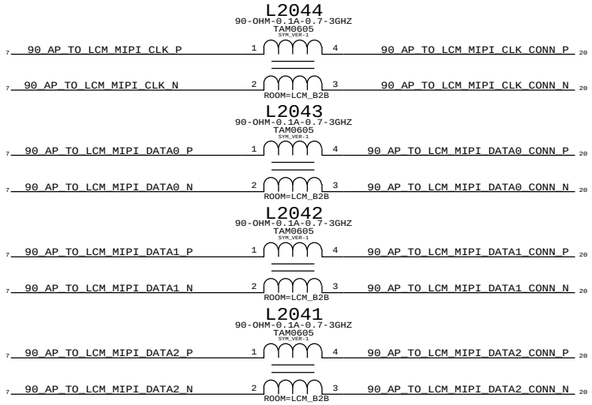
THIS ONE ON MLB ---> 516S1164



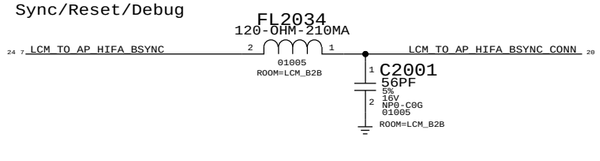
Digital Interfaces



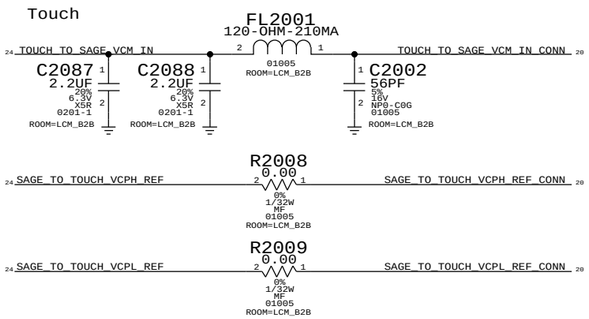
MIPI Common Mode Chokes
(N56 HAS A 4TH MIPI LANE ON P. 19).



Sync/Reset/Debug



Touch



SYNC_MASTER=N61_MLB SYNC_DATE=08/26/2013

PAGE TITLE

DISPLAY:FLEX CONN

Apple Inc.

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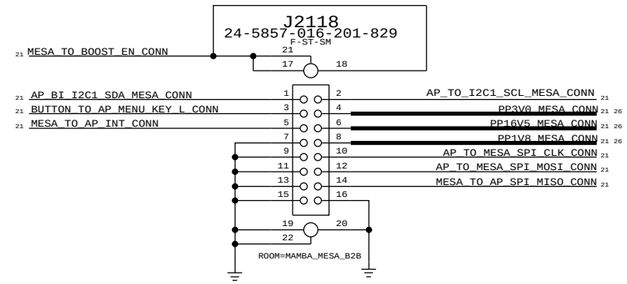
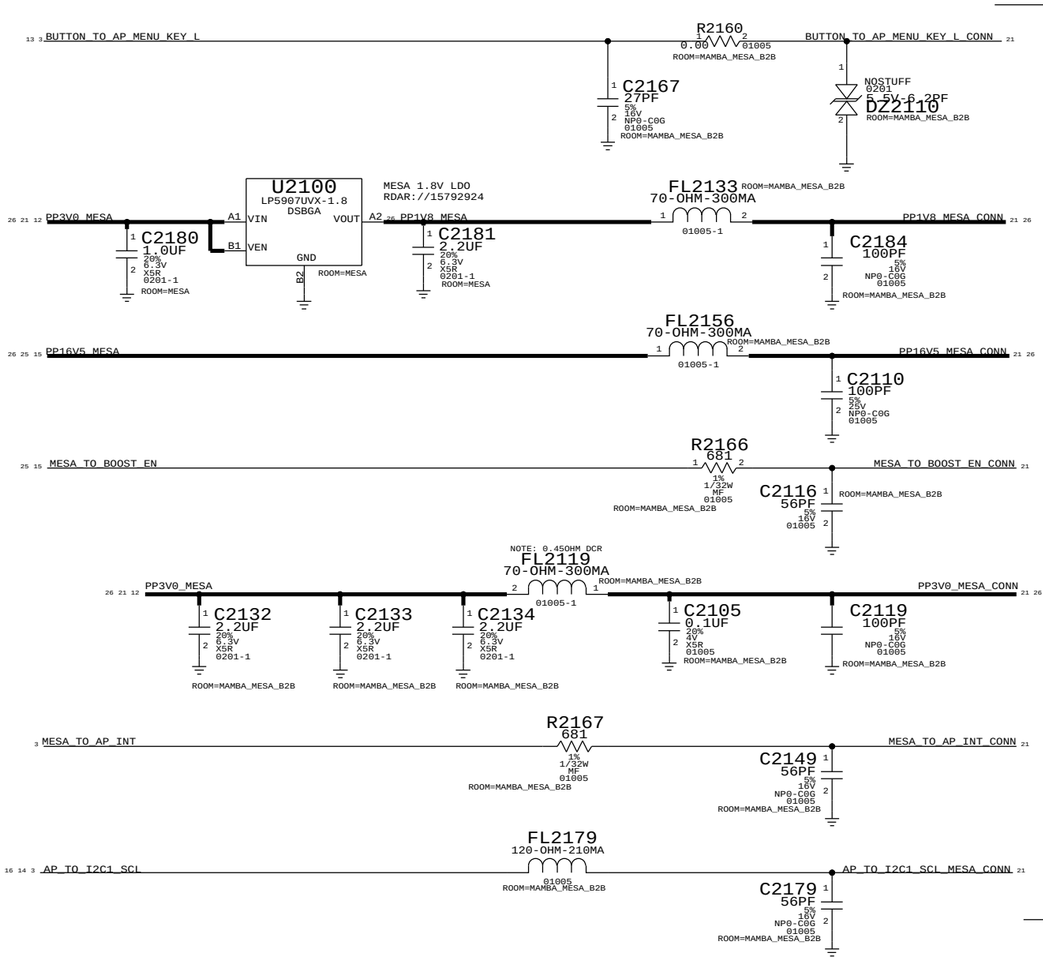
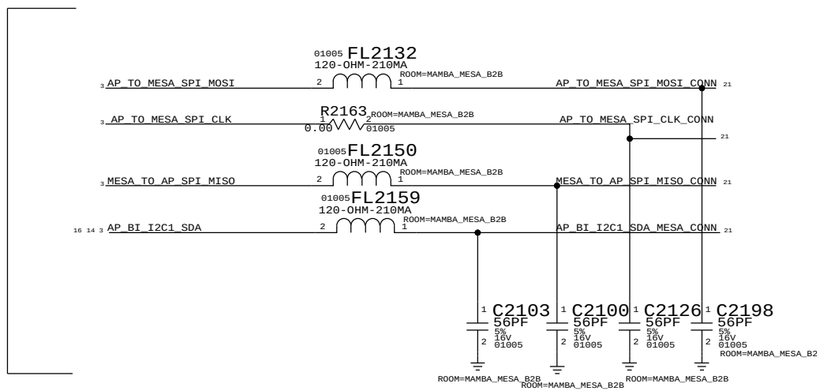
MESA CONNECTOR

MLB: 516S1278





MESA SENSOR:



PAGE TITLE
SENSORS:MESA FLEX CONN

Apple Inc.

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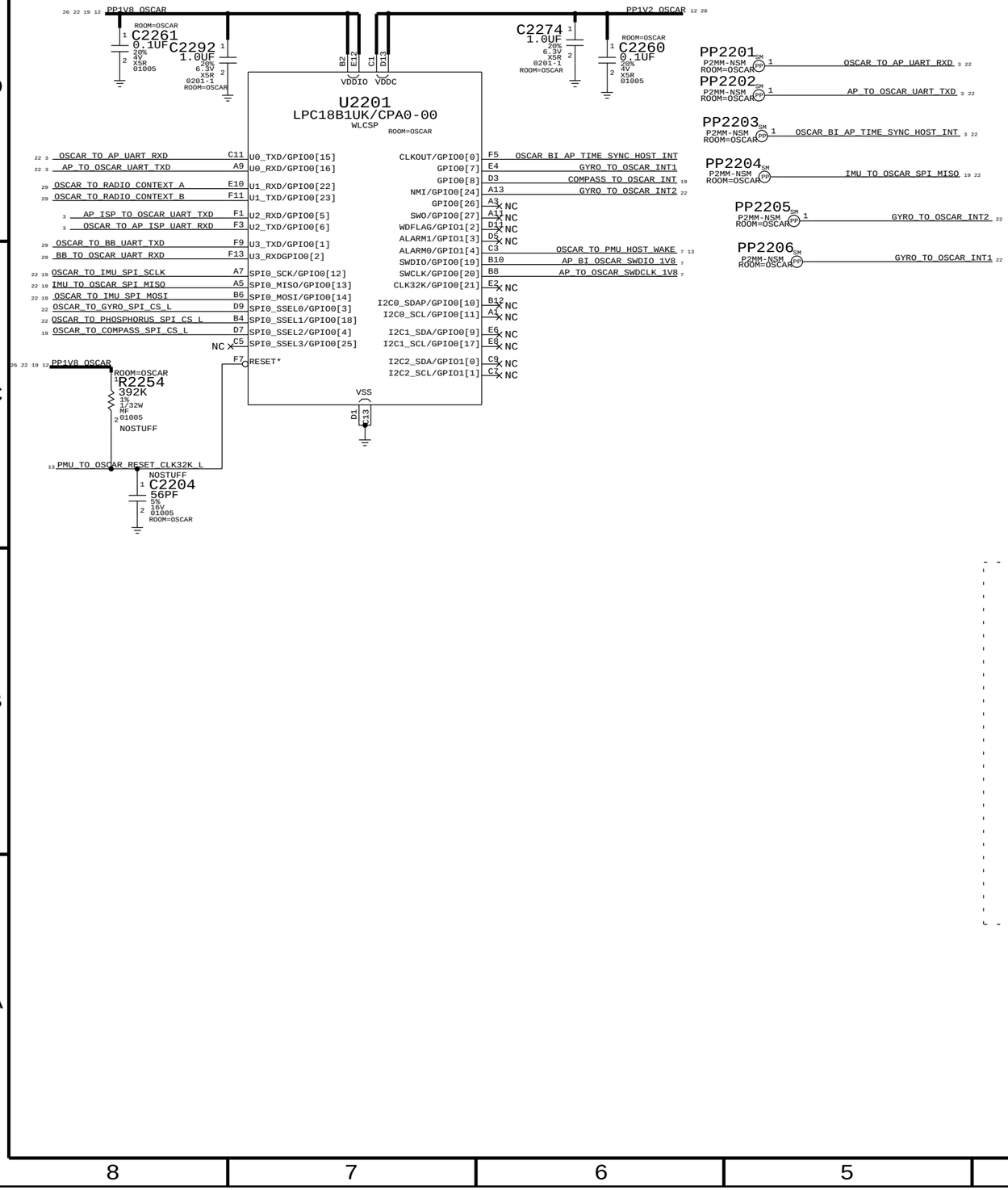
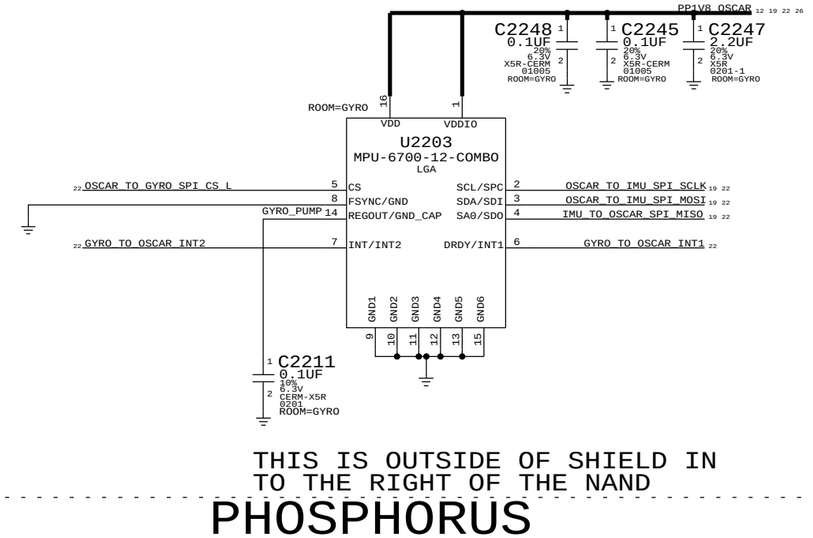
OSCAR + SENSORS

OSCAR VDDIO = 1.8V ALWAYS ON (NEED TO WAKE HOST & RUN PLL)
OSCAR CORE = 1.2V ALWAYS ON (NEED TO RUN IN S2RAM)



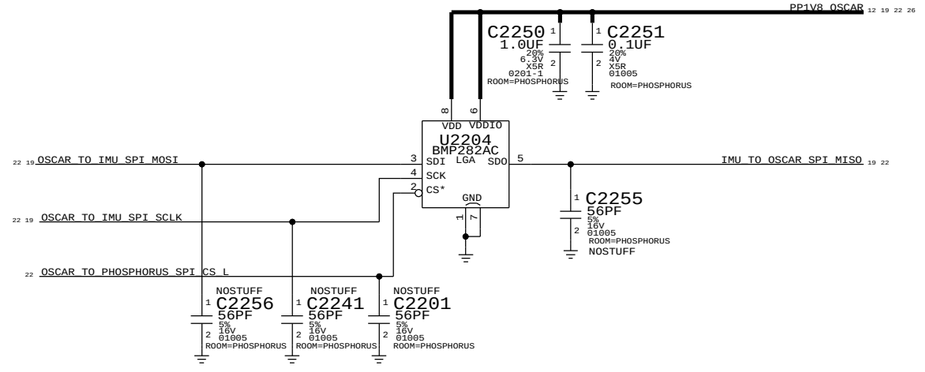
CARBON (ACCEL GYRO COMBO)

INVENSENSE, APN 338S00017, C2211=0.1UF
BOSCH, APN 338S00028, C2211=0.1UF
ST, APN 338S00029, C2211=0.01UF,25V



THIS IS OUTSIDE OF SHIELD IN
TO THE RIGHT OF THE NAND

PHOSPHORUS



SYNC_MASTER=N61_MLB SYNC_DATE=08/26/2013

PAGE TITLE
SENSORS:OSCAR,CARBON,PHOS,MAGNESIUM

Apple Inc.

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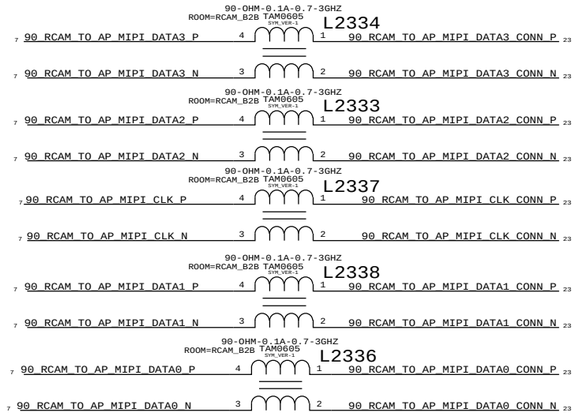
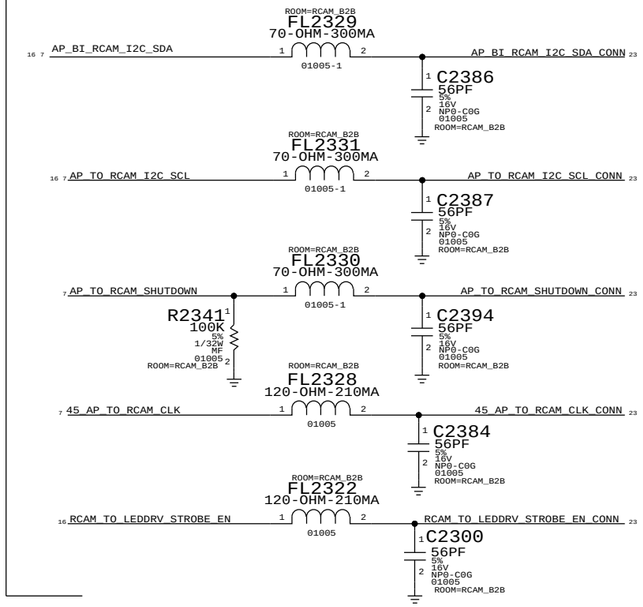
RCAM B2B (REAR CAMERA CONNECTOR)

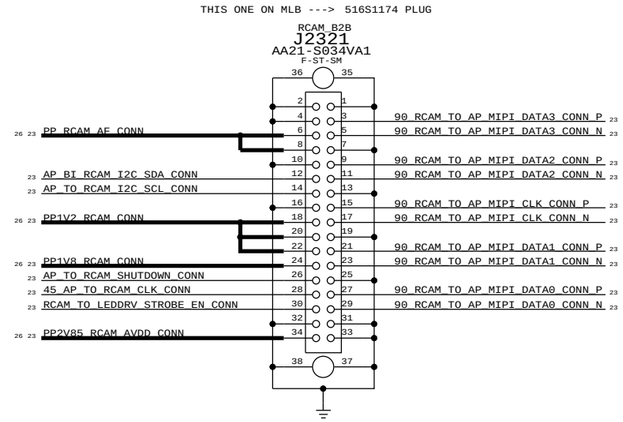
RCAM:
4-LANE MIPI



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

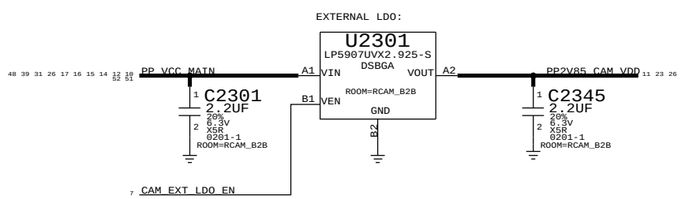


THIS ONE ON MLB ---> 516S1174 PLUG



RCAM:
POWER:
(1.8V DVDD)
(2.8V AVDD)
(1.2V VCC)
(1.8V/2V AF)

RCAM/FCAM AVDD RAIL EXT. LDO:



SYNC_MASTER=N61_MLB	SYNC_DATE=08/26/2013
PAGE TITLE: CAMERA:REAR FLEX CONN	
Apple Inc.	DRAWING NUMBER: 051-9903 SIZE: D
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Touch (B2B, Driver ICs)

Cumulus

APN: 343S0638

Turn on is later than PP1V8_GRAPE
Turn off is same time as PP1V8_GRAPE

PP5V1_GRAPE_VDDH
PP_CUMULUS_VDDCORE
PP_CUMULUS_VDDANA
PP1V8_GRAPE

C2402 10UF 20% 10V X5R-CERM 0402-8
C2432 4.7UF 20% 6.3V X5R-CERM1 402
C2433 4.7UF 20% 6.3V X5R-CERM1 402
C2403 1.0UF 20% 6.3V X5R 0201-1

Follow Touch routing guidelines
Cumulus sense nets are sensitive

SAGE_TO_CUMULUS_IN<11>	C2417 220PF 10V X7R-CERM	C2425 220PF 10% 01005	C_IN0	B9 IN0_0
SAGE_TO_CUMULUS_IN<4>	C2418 220PF 10V X7R-CERM	C2426 220PF 10% 01005	C_IN1	B8 IN1_0
SAGE_TO_CUMULUS_IN<5>	C2419 220PF 10V X7R-CERM	C2427 220PF 10% 01005	C_IN2	A9 IN2_0
SAGE_TO_CUMULUS_IN<3>	C2420 220PF 10V X7R-CERM	C2428 220PF 10% 01005	C_IN3	B7 IN3_0
SAGE_TO_CUMULUS_IN<1>	C2421 220PF 10V X7R-CERM	C2429 220PF 10% 01005	C_IN4	B6 IN4_0
SAGE_TO_CUMULUS_IN<2>	C2422 220PF 10V X7R-CERM	C2430 220PF 10% 01005	C_IN5	A8 IN5_0
SAGE_TO_CUMULUS_IN<0>			C_IN6	B5 IN6_0
SAGE_TO_CUMULUS_IN<9>			C_IN7	B4 IN7_0
SAGE_TO_CUMULUS_IN<8>			C_IN8	A7 IN8_0
SAGE_TO_CUMULUS_IN<6>			C_IN9	B3 IN9_0
SAGE_TO_CUMULUS_IN<10>			C_IN10	A6 IN10_0
SAGE_TO_CUMULUS_IN<7>			C_IN11	A3 IN11_0
				NC A5 IN12_0
				NC A4 IN13_0
				NC B2 IN14_0
45_PROX_TO_CUMULUS_RX_IN				A2 IN14_1

U2401 CUMULUS-C1 WLBGA

VDDANA B1, VDDCORE C1, VDDH C8, VDDIO C5 F4, VDDLDO A1

AP_TO_TOUCH_SPI_CS_L	R2403 10.2 1% 1/32W MF 01005	E4 H_CS*
TOUCH_TO_AP_INT_L		F1 H_INT*
AP_TO_TOUCH_SPI_CLK		D3 H_SCLK
AP_TO_TOUCH_SPI_MOSI		D2 H_SDI
TOUCH_TO_AP_SPI_MISO	TOUCH_TO_AP_SPI_MISO_R	E1 H_SDO
		C4 JTAG_TCK
		C3 JTAG_TDI
TOUCH_I2C_SDA		E2 JTAG_TDO
PP1V8_GRAPE		C6 JTAG_TMS
CUMULUS_TO_PROX_TX_EN_1V8_L		E3 BCFG_RTCK
45_AP_TO_TOUCH_CLK32K_RESET_L		D1 CLKIN/RESET*
AP_TO_TOUCH_RESET_L		D5 RSTOVR*

VSTM_0 E9 NC
VSTM_1 E8 NC
VSTM_2 F7 NC
VSTM_3 E6 NC
VSTM_4 E7 NC
VSTM_5 F8 CUMULUS_TO_MESON_VSTM_OUT_P
VSTM_6 G9 CUMULUS_TO_MESON_VSTM_OUT_N
VSTM_7 D6 NC
VSTM_8 D7 NC
VSTM_9 D8 NC
VSTM_10 F9 NC
VSTM_11 D5 NC
VSTM_12 F6 NC
VSTM_13 F5 NC
VSTM_14 G4 NC
VSTM_15 E5 NC
VSTM_16 G6 NC
VSTM_17 G7 NC
VSTM_18 G6 NC
VSTM_19 G5 NC

GPIO_1/CK G1 LCM_TO_AP_HIFA_BSYNC_BUFF
GPIO_2/SD D4 CUMULUS_TO_SAGE_BOOST_CLK_EN
GPIO_3 F2 NC
GPIO_4 F3 TP_CUMULUS_GPIO
TM_ACS* C2 CUMULUS_TO_PROX_RX_EN_1V8
TM_OVR G3 TOUCH_I2C_SCL

PP1V8_GRAPE — R2405 100K 5% 1/32W MF 01005 — TOUCH_I2C_SCL

GND: C7 C9 G2

Radars for XW
rdar://12773579
rdar://12611242

Touch B2B

MLB APN : 516S1086 (Receptacle)
Flex APN: 516S1087 (Plug)

J2401 AA21-S046VA1 F-ST-SM

TOUCH_TO_SAGE_SENSE_IN<7>	2	1	TOUCH_TO_SAGE_SENSE_IN<6>
TOUCH_TO_SAGE_SENSE_IN<10>	4	3	TOUCH_TO_SAGE_SENSE_IN<9>
TOUCH_TO_SAGE_SENSE_IN<11>	6	5	TOUCH_TO_SAGE_SENSE_IN<8>
	8	7	OIC_RIGHT_NET
SAGE_TO_TOUCH_VSTM_OUT<6>	10	9	
SAGE_TO_TOUCH_VSTM_OUT<7>	12	11	SAGE_TO_TOUCH_VSTM_OUT<3>
SAGE_TO_TOUCH_VSTM_OUT<8>	14	13	SAGE_TO_TOUCH_VSTM_OUT<2>
SAGE_TO_TOUCH_VSTM_OUT<9>	16	15	SAGE_TO_TOUCH_VSTM_OUT<4>
SAGE_TO_TOUCH_VSTM_OUT<10>	18	17	SAGE_TO_TOUCH_VSTM_OUT<5>
SAGE_TO_TOUCH_VSTM_OUT<11>	20	19	SAGE_TO_TOUCH_VSTM_OUT<0>
SAGE_TO_TOUCH_VSTM_OUT<13>	22	21	SAGE_TO_TOUCH_VSTM_OUT<1>
SAGE_TO_TOUCH_VSTM_OUT<15>	24	23	SAGE_TO_TOUCH_VSTM_OUT<12>
SAGE_TO_TOUCH_VSTM_OUT<17>	26	25	SAGE_TO_TOUCH_VSTM_OUT<14>
SAGE_TO_TOUCH_VSTM_OUT<19>	28	27	SAGE_TO_TOUCH_VSTM_OUT<16>
SAGE_TO_TOUCH_VSTM_OUT<20>	30	29	SAGE_TO_TOUCH_VSTM_OUT<18>
SAGE_TO_TOUCH_VSTM_OUT<21>	32	31	SAGE_TO_TOUCH_VSTM_OUT<22>
SAGE_TO_TOUCH_VSTM_OUT<6>	34	33	SAGE_TO_TOUCH_VSTM_OUT<23>
PP_SAGE_TO_TOUCH_VCPH_CONN	36	35	PP_SAGE_TO_TOUCH_VCPL_CONN
	38	37	OIC_LEFT_NET
TOUCH_TO_SAGE_SENSE_IN<6>	40	39	
TOUCH_TO_SAGE_SENSE_IN<3>	42	41	TOUCH_TO_SAGE_SENSE_IN<1>
TOUCH_TO_SAGE_SENSE_IN<5>	44	43	TOUCH_TO_SAGE_SENSE_IN<2>
MESON_TO_TOUCH_GUARD_CONN	46	45	TOUCH_TO_SAGE_SENSE_IN<4>
	48	47	
	50	49	

R2488 255K 1% 1/32W MF 01005
R2495 255K 1% 1/32W MF 01005

No decoupling on previous designs
PP1V8_GRAPE — R2407 100K 5% 1/32W MF 01005

U2403 74AUP2G34GN SOT1115

LCM_TO_AP_HIFA_BSYNC	1A	1Y	6	LCM_TO_AP_HIFA_BSYNC_BUFF
CUMULUS_TO_PROX_TX_EN_1V8_L	3 2A	2Y	4	CUMULUS_TO_PROX_TX_EN_BUFF
	GND		2	

R2406 100K 5% 1/32W MF 01005

PP_SAGE_TO_TOUCH_VCPH_CONN — R2412 0.00 5% 1/32W MF 01005 — PP_SAGE_TO_TOUCH_VCPH
PN_SAGE_TO_TOUCH_VCPL_CONN — R2411 0.00 5% 1/32W MF 01005 — PN_SAGE_TO_TOUCH_VCPL
MESON_TO_TOUCH_GUARD_CONN — R2433 0.00 1% 1/20W MF 0201 — MESON_TO_TOUCH_GUARD

Optical prox filter
45_PROX_TO_CUMULUS_RX_CONN — C2401 1000PF 10% 6.3V X5R-CERM 01005 — 45_PROX_TO_CUMULUS_RX_C — R2402 22.1K 1% 1/32W MF 01005 — 45_PROX_TO_CUMULUS_RX_IN — C2416 27PF 5% 16V NP0-C0G 01005

Touch probe points

PP2402	P2MM SM	CUMULUS_TO_SAGE_BOOST_CLK_EN
PP2403	P2MM SM	AP_TO_TOUCH_SPI_CS_L
PP2404	P2MM SM	AP_TO_TOUCH_SPI_CLK
PP2405	P2MM-NSM	LCM_TO_AP_HIFA_BSYNC
PP2408	P2MM SM	TP_CUMULUS_GPIO
PP2410	P2MM-NSM	CUMULUS_TO_MESON_VSTM_OUT_N
PP2411	P2MM-NSM	CUMULUS_TO_MESON_VSTM_OUT_P
PP2412	P2MM-NSM	45_AP_TO_TOUCH_CLK32K_RESET_L

Tantalums solved singing caps issue. Validate issue is resolved with Meson and replace with 0402 ceramics.

I2C pull-ups
PP1V8_GRAPE — R2420 1.8K 5% 1/32W MF 01005 — TOUCH_I2C_SDA; R2421 1.8K 5% 1/32W MF 01005 — TOUCH_I2C_SCL

PP5V7_SAGE_AVDDH
PP5V7_SAGE_AVDDH
C2414 10UF 20% 10V X5R-CERM 0402-8
C2409 10UF 20% 10V X5R-CERM 0402-8
PP1V8
C2415 0.1UF 20% 6.3V X5R-CERM 01005

MESON A1

APN: 343S0694

U2402 MESON-A1 CSP

AVDDH1 D2, AVDDH2 D4, AVDDH3 E3, AVDDH4 E6, AVDDH5 G3, AVDDL G2, VDDIO_OSC J1, VDDIO N3, VDDIO K1

TOUCH_TO_SAGE_SENSE_IN<7>	E5	SNS_IN0
TOUCH_TO_SAGE_SENSE_IN<9>	D5	SNS_IN1
TOUCH_TO_SAGE_SENSE_IN<10>	C5	SNS_IN2
TOUCH_TO_SAGE_SENSE_IN<8>	B5	SNS_IN3
TOUCH_TO_SAGE_SENSE_IN<11>	A5	SNS_IN4
TOUCH_TO_SAGE_SENSE_IN<2>	A7	SNS_IN5
TOUCH_TO_SAGE_SENSE_IN<4>	A9	SNS_IN6
TOUCH_TO_SAGE_SENSE_IN<3>	B7	SNS_IN7
TOUCH_TO_SAGE_SENSE_IN<1>	C7	SNS_IN8
TOUCH_TO_SAGE_SENSE_IN<0>	D7	SNS_IN9
TOUCH_TO_SAGE_SENSE_IN<6>	E7	SNS_IN10
TOUCH_TO_SAGE_SENSE_IN<5>	B9	SNS_IN11
	C9	NC SNS_IN12
	D9	NC SNS_IN13
	E9	NC SNS_IN14
SAGE_TO_CUMULUS_IN<7>	E6	SNS_OUT0
SAGE_TO_CUMULUS_IN<9>	D6	SNS_OUT1
SAGE_TO_CUMULUS_IN<10>	C6	SNS_OUT2
SAGE_TO_CUMULUS_IN<8>	B6	SNS_OUT3
SAGE_TO_CUMULUS_IN<11>	A4	SNS_OUT4
SAGE_TO_CUMULUS_IN<2>	A6	SNS_OUT5
SAGE_TO_CUMULUS_IN<4>	A8	SNS_OUT6
SAGE_TO_CUMULUS_IN<3>	B8	SNS_OUT7
SAGE_TO_CUMULUS_IN<1>	C8	SNS_OUT8
SAGE_TO_CUMULUS_IN<0>	D8	SNS_OUT9
SAGE_TO_CUMULUS_IN<6>	E8	SNS_OUT10
SAGE_TO_CUMULUS_IN<5>	B10	SNS_OUT11
	C10	NC SNS_OUT12
	D10	NC SNS_OUT13
	E10	NC SNS_OUT14
SAGE_VBIAS	D3	VBIAS
TOUCH_I2C_SDA	J2	I2C_SDA
TOUCH_I2C_SCL	J3	I2C_SCL
	G5	NC TEST_MUX0
	H5	NC TEST_MUX1
	L3	NC TEST_MUX2
	M3	NC TESTMODE
LCM_TO_AP_HIFA_BSYNC	M1	BSYNC/SCAN_RESET
	M2	NC SCAN CLK
	L2	NC SCANOUT
CUMULUS_TO_SAGE_BOOST_CLK_EN	L1	STEP_CLK/SCAN_IN
	K4	GCM
	L4	BOOST_EN/SCAN_EN
	A2	PLDO_SUP_IN
PP_SAGE_VBST_OUTH	B1	VBST_OUTH
PN_SAGE_VBST_OUTL	E1	VBST_OUTL
PP_SAGE_LX	C1	LX
PP_SAGE_LY	D1	LY
	F1	NLDO_SUP_IN
SAGE_TO_TOUCH_VCPH_REF	B2	VCPH_REF_EN
SAGE_TO_TOUCH_VCPL_REF	F2	VCPL_REF_EN
PN_SAGE_TO_TOUCH_VCPL_FILT	G1	VCPL
PP_SAGE_TO_TOUCH_VCPH	A3	VCPH
PN_SAGE_VCPL_F	E2	VCPL_F
	K3	I2C_SLV_ADDR0
	K2	I2C_SLV_ADDR1

AGND1 AGND2 AGND2 AGND3 AGND3 AGND4 AGND4 AGND4 AGND5 DGND DGND
C2 C4 F7 E3 L5 F9 H6 H6 G4 J4 M2

DRV_OUT0	G7	SAGE_TO_TOUCH_VSTM_OUT<22>
DRV_OUT1	H7	SAGE_TO_TOUCH_VSTM_OUT<16>
DRV_OUT2	J6	SAGE_TO_TOUCH_VSTM_OUT<15>
DRV_OUT3	J7	SAGE_TO_TOUCH_VSTM_OUT<17>
DRV_OUT4	K7	SAGE_TO_TOUCH_VSTM_OUT<12>
DRV_OUT5	L7	SAGE_TO_TOUCH_VSTM_OUT<14>
DRV_OUT6	M7	SAGE_TO_TOUCH_VSTM_OUT<8>
DRV_OUT7	N7	SAGE_TO_TOUCH_VSTM_OUT<2>
DRV_OUT8	G8	SAGE_TO_TOUCH_VSTM_OUT<21>
DRV_OUT9	H8	SAGE_TO_TOUCH_VSTM_OUT<0>
DRV_OUT10	J8	SAGE_TO_TOUCH_VSTM_OUT<13>
DRV_OUT11	K8	SAGE_TO_TOUCH_VSTM_OUT<1>
DRV_OUT12	L8	SAGE_TO_TOUCH_VSTM_OUT<5>
DRV_OUT13	M8	SAGE_TO_TOUCH_VSTM_OUT<4>
DRV_OUT14	N8	SAGE_TO_TOUCH_VSTM_OUT<6>
DRV_OUT15	K9	SAGE_TO_TOUCH_VSTM_OUT<10>
DRV_OUT16	G9	SAGE_TO_TOUCH_VSTM_OUT<23>
DRV_OUT17	H9	SAGE_TO_TOUCH_VSTM_OUT<18>
DRV_OUT18	J9	SAGE_TO_TOUCH_VSTM_OUT<20>
DRV_OUT19	G10	SAGE_TO_TOUCH_VSTM_OUT<19>
DRV_OUT20	L9	SAGE_TO_TOUCH_VSTM_OUT<9>
DRV_OUT21	M9	SAGE_TO_TOUCH_VSTM_OUT<7>
DRV_OUT22	N9	SAGE_TO_TOUCH_VSTM_OUT<3>
DRV_OUT23	K10	SAGE_TO_TOUCH_VSTM_OUT<11>
DRV_OUT24	H10	NC
DRV_OUT25	J10	NC
DRV_OUT26	L10	NC
DRV_OUT27	M10	NC
DRV_IN_P	L6	CUMULUS_TO_MESON_VSTM_OUT_P
DRV_IN_N	K6	CUMULUS_TO_MESON_VSTM_OUT_N

PBKG A1, B4, A10, B3, C3, F6, F10, H1, H2, H3, H4, N10, F4, N1, F5, K5, N6

C2439 0.1UF 20% 4V X5R 01005

R2410 220K 5% 1/32W MF 01005

R2434 0.00 0% 1/32W MF 01005 — R2435 0.00 0% 1/32W MF 01005 — TOUCH_TO_SAGE_VCM_IN

VCM_IN_0 E4 TOUCH_TO_MESON_VCM_IN0
VCM_IN_1 J5 TOUCH_TO_MESON_VCM_IN1
GO F8 MESON_TO_TOUCH_GUARD
AUX_BUF_IN M4
AUX_BUF_OUT M5 NC
AUX_PLDO_OUT N5 NC
AUX_NLDO_OUT N4 NC

Meson decoupling

C2438 0.33UF 20% 25V TANT 0402
C2410 1000PF 10% 25V X7R-CERM 0201
C2407 1UF-100HM 20% 25V TANT 0603-LLP2
C2411 1000PF 10% 25V X7R-CERM 0201
C2436 0.01UF 10% 6.3V X5R 01005
C2437 0.01UF 10% 6.3V X5R 01005
C2404 0.01UF 10% 25V X5R-CERM 0201
C2440 1.0UF 20% 10V X5R-CERM 0201

Meson VCPL rail:
Effective impedance of 3 Ohms, at 115 kHz with 12 V bias.

FL2486 10-OHM-750MA 0105-1
C2490 100PF 5% 25V NP0-C0G 01005
C2405 2.2UF 20% 25V X5R 0402-3
C2408 1UF 10% 16V X6S-CERM 0402
C2441 0.1UF 10% 16V X5R-CERM 0201

L2401 10UH-20%-0.23A-1.560HM PSB1614FE

SYNC_MASTER=N/A	SYNC_DATE=N/A
PAGE TITLE	TOUCH:CUMULUS,MESON
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BATT CONN, TPS, STANDOFFS/SHIELDS/FIDUCIALS

BATTERY CONN

THIS ONE ON MLB ---> 516S1239 RCPT

PP_BATT_VCC

C2560 100PF 5% 16V NP0-C0G 01005 ROOM=BATTERY_B2B

C2549 15PF 5% 16V NP0-C0G-CERM 01005 ROOM=BATTERY_B2B

C2550 33PF 5% 16V NP0-C0G-CERM 01005 ROOM=BATTERY_B2B

FL2511 120-OHM-210MA 01005 ROOM=BATTERY_B2B

BATTERY_SWI

C2579 56PF 5% 16V NP0-C0G 01005 ROOM=BATTERY_B2B

BATTERY_SWI_CONN

J2523 RCPT-BATT-2BLADES-0.90 F-SM-SM ROOM=BATTERY_B2B

BATTERY_SWI_CONN

C2509 100PF 5% 16V NP0-C0G 01005 ROOM=BATTERY_B2B

PCB: PLACE XW2512 AT BATT CONN, PIN 7

XW2512 SHORT-18L-0.25MM-SM ROOM=BATTERY_B2B

CHARGER_VBATT_SNS

PP_BATT_VCC

C2575 220PF 10% 16V X7R-CERM 01005 ROOM=BATTERY_B2B

C2522 56PF 5% 16V NP0-C0G 01005 ROOM=BATTERY_B2B

C2561 220PF 10% 16V X7R-CERM 01005 ROOM=BATTERY_B2B

FIDUCIALS

FD2501 FID 0P5SM1P0SQ-NSP

FD2502 FID 0P5SM1P0SQ-NSP

FD2503 FID 0P5SM1P0SQ-NSP

FD2504 FID 0P5SM1P0SQ-NSP

FD2505 FID 0P5SM1P0SQ-NSP

FD2506 FID 0P5SM1P0SQ-NSP

SHIELDS

SH2501 SM OMIT_TABLE 806-8537 SHLD-EMI-UPPER-FRONT-N61

SH2502 SM OMIT_TABLE 806-8538 SHLD-EMI-LOWER-FRONT-N61

SH2503 SM 806-00230 SHLD-EMI-UPPER-EXT-N61

SH2504 SM OMIT_TABLE 806-00424 SHLD-N61-EMI-LOWER-BACK-TALL

SH2506 SM OMIT_TABLE 806-8541 SHLD-EMI-SA-N61

SH2505 SM SHLD-SN0UT-1-N61

NORTH_AC_GND_SCREW

CKPLUS_WAIVE=TERMSHORTED 806-7014

COWLING

RETENTION-COAX-N61

CL2501 SM 806-8699

CL2502 TH-NSP SL-1.20X0.40-1.50X0.70-NSP

SCREW HOLES + STANDOFFS

BS2503 860-3948 STDOFF-MLB-UNPLATED-0.85-N61-SM

BS2512 860-7862 STDOFF-2.70OD1.84ID-0.88H-TH

BS2501 860-3948 STDOFF-MLB-UNPLATED-0.85-N61-SM

BS2502 860-3948 STDOFF-MLB-UNPLATED-0.85-N61-SM

BS2511 STDOFF-2.6OD0.5H-0.5-1.7-TH 50_AP_UAT_FEED 860-8396

BS2504 STDOFF-2.55OD1.4ID-0.99H-SM AP_TO_STOCKHOLM_ANT 860-7861

BS2510 STDOFF-2.2OD0.25H-0.50-1.70 50_AP_WIFI_5G_CONN_ANT 860-7846

BS2509 STDOFF-2.70OD1.84ID-0.88H-TH 860-7862

POWER TP

PP5V0_USB — TP2501 TP-P6 — VBUS

TP2512 TP-P6 — POWER GROUND

PP_BATT_VCC — TP2539 TP-P55 — VBAT

TP2513 TP-P6

TP2545 TP-P55

SUPER TP

PMU_TO_TP_AMUX_AY — TP2506 TP-P55 — ANALOG MUX A OUTPUT

PMU_TO_TP_AMUX_BY — TP2507 TP-P55 — ANALOG MUX B OUTPUT

RESET

RESET_1V8_L — TP2508 TP-P55 — H6P & BB RESET

DFU

FORCE_DFU — TP2509 TP-P55 — FORCE DFU

PP1V8 — PP2510 P4MM SM

TESTPOINTS

MOJAVE TP

MESA_TO_BOOST_EN — TP2569 TP-P55

PP1V65_MESA — TP2570 TP-P55

E75 - USB/UART/ID/POWER

90_TRISTAR_BI_E75_PAIR1_CONN_P — TP2521 TP-P55

90_TRISTAR_BI_E75_PAIR1_CONN_N — TP2522 TP-P55

90_TRISTAR_BI_E75_PAIR2_CONN_P — TP2523 TP-P55

90_TRISTAR_BI_E75_PAIR2_CONN_N — TP2524 TP-P55

PP_E75_TO_TRISTAR_ACC1_CONN — TP2526 TP-P55

PP_E75_TO_TRISTAR_ACC2_CONN — TP2527 TP-P55

TP2535 TP-P55 — TP IS TO HELP WITH USB SI IN THE FACTORY FIXTURE.

E75_TO_TRISTAR_CON_DETECT_CONN — TP2510 TP-P55 — FOR DIAGS

LCM BACKLIGHT

PP_LCM_BL_CAT1_CONN — TP2518 TP-P55 — LCD BACKLIGHT SINK1

PP_LCM_BL_CAT2_CONN — TP2519 TP-P55 — LCD BACKLIGHT SINK2

PP_LCM_BL_ANODE_CONN — TP2520 TP-P55 — LCD BACKLIGHT SOURCE

LCD_TO_AP_PIFA_CONN — TP2517 TP-P55 — LCD PIFA TEST POINT

NORTH_AC_GND_SCREW

C2510 220PF 10% 16V X7R-CERM 01005 ROOM=ASSEMBLY

C2511 56PF 5% 16V NP0-C0G 01005 ROOM=ASSEMBLY

C2501 4.7PF +/-0.1PF 16V NP0-C0G 01005 ROOM=ASSEMBLY

C2523 220PF 10% 16V X7R-CERM 01005 ROOM=ASSEMBLY

SYNC_MASTER=N61_MLB SYNC_DATE=08/26/2013

PAGE TITLE: POWER:BATT CONN,TPS,PD FEATURES

Apple Inc.

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VOLTAGE PROPERTIES

I65	VOLTAGE=3.3V	PP3V3_USB	2 12
I66	VOLTAGE=1.8V	PP1V8_VA_L19_L67	10 12 16
I67	VOLTAGE=3.0V	PP3V0_TRISTAR	12 15 17 29
I68	VOLTAGE=3.0V	PP3V0_IMU	12 19
I69	VOLTAGE=3.0V	PP3V0_NAND	6 12
I60	VOLTAGE=3.0V	PP3V3_ACC	12 17
I62	VOLTAGE=3.0V	PP3V0_PROX_ALS	11 12
I64	VOLTAGE=4.6V	PP_VCC_MAIN	10 12 14 15 16 17 23 31 39 40 51 52
I65	VOLTAGE=1.0V	PP1V0	7 12
I67	VOLTAGE=3.0V	PP3V0_PROX_TRLED	11 12
I66	VOLTAGE=1.8V	PP1V8_ALWAYS	3 5 12 14
I68	VOLTAGE=3.0V	PP3V0_MESA	12 21
I70	VOLTAGE=1.1V	PP_CPU	4 12
I69	VOLTAGE=1.1V	PP_GPU	4 12
I71	VOLTAGE=1.2V	PP1V2_SDRAM	2 4 12 23
I72	VOLTAGE=1.8V	PP1V8_SDRAM	3 4 10 12 13 14 15 17 29
I73	VOLTAGE=1.8V	PP1V8	2 3 5 6 7 10 11 12 13 15 20 23 24 26 27
I77	VOLTAGE=1.8V	PP1V8_GRAPE	12 24
I76	VOLTAGE=1.8V	PP1V8_OSCAR	12 19 22
I75	VOLTAGE=1.2V	PP1V2_NAND_VDDI	6
I74	VOLTAGE=1.8V	PP_EXTMIC_BIAS_FILT_IN	10
I78	VOLTAGE=1.8V	BOARD_ID2	3 27
I79	VOLTAGE=1.2V	PP1V2	2 4 5 11 12
I80	VOLTAGE=5.0V	PP_E75_TO_TRISTAR_ACC1_CONN	18 25
I81	VOLTAGE=5.0V	PP_E75_TO_TRISTAR_ACC1	17 18
I82	VOLTAGE=22.0V	PP_LCM_BL_ANODE	15 20
I83	VOLTAGE=0.2V	PP_LCM_BL_CAT2	15 20
I87	VOLTAGE=0.2V	PP_LCM_BL_CAT1	15 20
I86	VOLTAGE=0.2V	PP_LCM_BL_CAT2_CONN	20 25
I85	VOLTAGE=0.2V	PP_LCM_BL_CAT1_CONN	20 25
I88	VOLTAGE=-5.7V	PN5V7_SAGE_AVDDN	15 20 24
I89	VOLTAGE=1.2V	PP1V2_OSCAR	12 22
I90	VOLTAGE=3.0V	PP3V0_MESA_CONN	21
I91	VOLTAGE=6V	PP6V0_LCM_BOOST	15
I92	VOLTAGE=5.0V	PP_STRB_DRIVER_TO_LED_WARM	8 16
I96	VOLTAGE=5.0V	PP_STRB_DRIVER_TO_LED_COOL	8 16
I93	VOLTAGE=1.8V	PP_CODEC_TO_MIC1_BIAS	10 18
I97	VOLTAGE=1.8V	PP_EXTMIC_BIAS_IN	10
I98	VOLTAGE=1.8V	PP_EXTMIC_BIAS_FILT	10
I99	VOLTAGE=1.8V	PP_CODEC_TO_FRONTMIC3_BIAS	10 11
I100	VOLTAGE=1.8V	PP_CODEC_TO_REARMIC2_BIAS	8 10
I101	VOLTAGE=1.8V	PP_CODEC_FILT+	10
I102	VOLTAGE=2.2V	PP_CODEC_SPKR_VO	10
I104	VOLTAGE=2.5V	PP_CODEC_VCPFILT-	10
I105	VOLTAGE=2.5V	PP_CODEC_VCPFILT+	10
I106	VOLTAGE=2.5V	PP_CODEC_VHP_FLYN	10
I108	VOLTAGE=0.2V	PP_CODEC_VHP_FLYC	10
I107	VOLTAGE=2.5V	PP_CODEC_VHP_FLYP	10
I109	VOLTAGE=1.8V	PP1V8_ECAM_CONN	11
I110	VOLTAGE=3.0V	PP2V85_ECAM_AVDD_CONN	11
I111	VOLTAGE=1.8V	PP_CODEC_TO_FRONTMIC3_BIAS_CONN	11
I112	VOLTAGE=3.0V	PP3V0_ALS_CONN	11
I113	VOLTAGE=1.2V	PP1V2_ECAM_VDDIO_CONN	11
I115	VOLTAGE=5.0V	PP5V0_USB	12 14 17 18 25
I114	VOLTAGE=5.0V	PP5V0_USB_TO_PMU	12
I116	VOLTAGE=4.6V	PP_BUCK5_LX0	12
I118	VOLTAGE=4.6V	PP_BUCK3_LX	12
I117	VOLTAGE=4.6V	PP_BUCK4_LX	12
I119	VOLTAGE=4.6V	PP_BUCK2_LX	12
I120	VOLTAGE=4.6V	PP_BUCK1_LX1	12
I121	VOLTAGE=4.6V	PP_BUCK1_LX0	12
I123	VOLTAGE=4.6V	PP_BUCK0_LX3	12
I122	VOLTAGE=4.6V	PP_BUCK0_LX2	12
I125	VOLTAGE=4.6V	PP_BUCK0_LX1	12
I124	VOLTAGE=4.6V	PP_BUCK0_LX0	12
I126	VOLTAGE=6.0V	PP_CHESTNUT_LXP	15
I127	VOLTAGE=6.0V	PP_CHESTNUT_CP	15
I128	VOLTAGE=6.0V	PP_CHESTNUT_CN	15
I129	VOLTAGE=5.7V	PP5V7_SAGE_AVDDH	15 24
I130	VOLTAGE=5.7V	PP5V7_LCM_AVDDH	15 20
I131	VOLTAGE=5.1V	PP5V1_GRAPE_VDDH	15 24
I132	VOLTAGE=22.0V	PP_WLED_LX	15
I133	VOLTAGE=18.0V	PP18V0_MESA_SW	15
I134	VOLTAGE=17.0V	P17V0_MOJAVE_LDOIN	15
I135	VOLTAGE=16.5V	PP16V5_MESA	15 21 25
I136	VOLTAGE=8.0V	PP_SPKAMP_SW	16
I138	VOLTAGE=8.0V	PP_L19_VBOOST	16
I137	VOLTAGE=1.8V	PP_SPKAMP_FILT	16
I139	VOLTAGE=1.8V	PP_SPKAMP_LDO_FILT	16
I5	VOLTAGE=5.0V	PP_LED_DRV_LX	16
I2	VOLTAGE=5.0V	PP_LED_BOOST_OUT	16
I4	VOLTAGE=2.9V	PP2V9_LDO9	12
I5	VOLTAGE=1.8V	PP_CODEC_TO_MIC1_BIAS_CONN	18
I7	VOLTAGE=4.6V	PP_E75_TO_TRISTAR_ACC2	17 18
I8	VOLTAGE=4.6V	PP_E75_TO_TRISTAR_ACC2_CONN	18 25
I10	VOLTAGE=1.8V	PP1V8_LCM_CONN	20
I11	VOLTAGE=22.0V	PP_LCM_BL_ANODE_CONN	20 25
I12	VOLTAGE=-5.7V	PN5V7_LCM_AVDDN_CONN	20
I13	VOLTAGE=5.7V	PP5V7_LCM_AVDDH_CONN	20
I16	VOLTAGE=1.8V	PP1V8_MESA	21
I17	VOLTAGE=16.5V	PP16V5_MESA_CONN	21
I143	VOLTAGE=5.0V	PP_TRISTAR_PIN	17
I20	VOLTAGE=1.2V	PP1V2_RCAM_CONN	23
I21	VOLTAGE=1.8V	PP1V8_RCAM_CONN	23
I23	VOLTAGE=3.0V	PP2V85_CAM_VDD	11 23
I24	VOLTAGE=1.8V	PP2V85_RCAM_AVDD_CONN	23
I25	VOLTAGE=1.8V	PP_CUMULUS_VDDCORE	24
I26	VOLTAGE=1.2V	PP_CUMULUS_VDDANA	24
I27	VOLTAGE=13.5V	PP_SAGE_TO_TOUCH_VCPH_CONN	24
I28	VOLTAGE=-12V	PN_SAGE_TO_TOUCH_VCPL_CONN	24
I30	VOLTAGE=13.5V	PP_SAGE_TO_TOUCH_VCPH	24
I29	VOLTAGE=-12V	PN_SAGE_TO_TOUCH_VCPL	24
I33	VOLTAGE=-12V	PN_SAGE_VCPL_F	24
I35	VOLTAGE=5.7V	PP_SAGE_LX	24
I34	VOLTAGE=17.0V	PP_SAGE_LY	24
I38	VOLTAGE=1.8V	PP_PMU_VREF	13
I37	VOLTAGE=14V	PP_SAGE_VBST_OUTH	24
I40	VOLTAGE=5.0V	PP_TIGRIS_VBUS_DET	14
		PP1V8_PLL PP_MIPIOD_VREG BOARD_ID0	
I41	VOLTAGE=2.5V	PP_PMU_VDD_REF	13
I42	VOLTAGE=1.8V	PP_EXTMIC_BIAS	10
I43	VOLTAGE=1.8V	PP1V8_XTAL	2
I44	VOLTAGE=1.8V	PP_PMU_VDD_RTC	13
I46	VOLTAGE=4.6V	PP_BATT_VCC	14 16 25 40 45 46
I48	VOLTAGE=1.8V	PP1V8_MESA_CONN	21
I47	VOLTAGE=3.0V	PP3V0_PROX_CONN	11
I50	VOLTAGE=1.0V	PP0V95_FIXED_SOC	4 7 12
I51	VOLTAGE=1.0V	PP0V95_FIXED_SOC_PCIE	7
I52	VOLTAGE=1.2V	PP1V2_PLL	2
I53	VOLTAGE=1.0V	PP_BUCK5_LX1	12
I54	VOLTAGE=1.0V	PP_VAR_SOC	5 12
I145	VOLTAGE=5.0V	PMID_CAP	14
I147	VOLTAGE=5.0V	CHARGER_LDO	14
I148	VOLTAGE=4.6V	CHG_BOOT	14
I149	VOLTAGE=4.6V	CHG_LX	14
I146	VOLTAGE=3.0V	VIBE_DRIVE_P	14 18
I144	VOLTAGE=3.0V	VIBE_DRIVE_N	14 18
I152	VOLTAGE=1.8V	PP_RCAM_AF_CONN	23
I150	VOLTAGE=-14.0V	PN_SAGE_VRST_OUTL	24
I153	VOLTAGE=-12.0V	PN_SAGE_TO_TOUCH_VCPL_FILT	24
I155	VOLTAGE=2.7V	PP_BB_VDD_2V7_CONN	18

PAGE TITLE
SYSTEM:VOLTAGE PROPERTIES

Apple Inc.

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N61 SPECIFIC

BOOTSTRAPPING (BOARD_REV, BOARD_ID, BOOT_CFG)

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

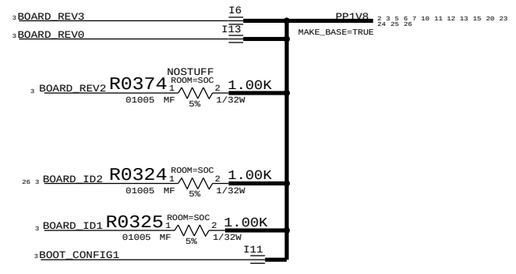
1111	PROTOMLB1
1110	PROTOMLB2
1101	PROTO1
1100	PROTO2
1011	EVT
1010	EVT SPLIT CARBON DOE
1001	CARRIER BUILD <--- SELECTED
1000	DVT

BOARD_ID[4:0]={GPIO29, GPIO16, SPI0_MISO, SPI0_MOSI, SPI0_SCLK}
FLOAT=LOW, PULLUP=HIGH

00100	N56, T133 MLB
00101	N56 DEV
00110	FIJI N61 MLB <--- SELECTED

BOOT_CONFIG[2:0]={GPIO28, GPIO25, GPIO18}
FLOAT=LOW, PULLUP=HIGH

000	SPI0
001	SPI0 TEST MODE
010	NAND <--- SELECTED
011	NAND TEST MODE
100	NVME
101	NVME TEST MODE
111	FAST SPI



PAGE TITLE: SYSTEM:N61 SPECIFIC

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RADIO_MLB HIERARCHICAL SYMBOL

POWER

VCC_MAIN, VBAT GOES TO RADIO_MLB DIRECTLY
CHECK ALL PAGES IN RF SIDE!

CELLULAR HOUSE KEEPING

3	AP_TO_RADIO_ON_L	MAKE_BASE=TRUE	I325		RADIO_ON_L	30 32
3	BB_TO_AP_RESET_DET_L	MAKE_BASE=TRUE	I324		BB_RESET_DET_L	30 35
13	PMU_TO_BB_RST_L	MAKE_BASE=TRUE	I326		RF_PMIC_RESET_L	30 32
3	AP_TO_BB_RST_L	MAKE_BASE=TRUE	I327		BB_RST_L	30 32
3	AP_TO_BB_WAKE_MODEM	MAKE_BASE=TRUE	I329		AP_WAKE_MODEM	35
13	BB_TO_PMU_HOST_WAKE_L	MAKE_BASE=TRUE	I328		BB_WAKE_HOST_L	30 35
3	BB_TO_AP_IPC_GPIO	MAKE_BASE=TRUE	I331		BB_IPC_GPIO	35
16	BB_TO_LEDDRV_GSM_BLANK	MAKE_BASE=TRUE	I330		GSM_TXBURST_IND	35
3	BB_TO_AP_GPS_SYNC	MAKE_BASE=TRUE	I332		BB_GPS_SYNC	30 35

HSIC IPC

2	50_AP_BI_BB_HSIC1_DATA	MAKE_BASE=TRUE	I368		50_BB_HSIC_DATA	30 34
2	50_AP_BI_BB_HSIC1_STB	MAKE_BASE=TRUE	I369		50_BB_HSIC_STROBE	30 34
3	AP_TO_BB_HOST_RDY	MAKE_BASE=TRUE	I371		BB_HOST_RDY	30 35
3	BB_TO_AP_DEVICE_RDY	MAKE_BASE=TRUE	I370		BB_DEVICE_RDY	30 35
3	BB_TO_AP_IPC_GPIO1	MAKE_BASE=TRUE	I372		BB_IPC_GPIO1	35

UART IPC

3	AP_TO_BB_UART2_RTS_L	MAKE_BASE=TRUE	I373		BB_UART_CTS_L	30 35
3	BB_TO_AP_UART2_CTS_L	MAKE_BASE=TRUE	I376		BB_UART_RTS_L	30 35
17 3	AP_TO_BB_UART2_TXD	MAKE_BASE=TRUE	I374		BB_UART_RXD	30 35
17 3	BB_TO_AP_UART2_RXD	MAKE_BASE=TRUE	I375		BB_UART_TXD	30 35

AUDIO I2S

3	45_AP_TO_BB_I2S3_BCLK	MAKE_BASE=TRUE	I377		BB_I2S_CLK	35
3	AP_TO_BB_I2S3_DOUT	MAKE_BASE=TRUE	I378		BB_I2S_RXD	30 35
3	BB_TO_AP_I2S3_DIN	MAKE_BASE=TRUE	I379		BB_I2S_TXD	30 35
3	AP_TO_BB_I2S3_LRCLK	MAKE_BASE=TRUE	I380		BB_I2S_WS	30 35

OSCAR UART

22	OSCAR_TO_BB_UART_TXD	MAKE_BASE=TRUE	I382		BB_OTHER_RXD	30 35
22	BB_TO_OSCAR_UART_RXD	MAKE_BASE=TRUE	I381		BB_OTHER_TXD	30 35

BB DEBUG INTERFACES

3	AP_TO_BB_COREDUMP	MAKE_BASE=TRUE	I384		BB_CORE_DUMP	30 35
13	PMU_TO_BB_VBUS_DET	MAKE_BASE=TRUE	I387		BB_USB_VBUS	30 34
17	90_TRISTAR_BI_BB_USB_N	MAKE_BASE=TRUE	I386		90_BB_USB_N	30 34
17	90_TRISTAR_BI_BB_USB_P	MAKE_BASE=TRUE	I388		90_BB_USB_P	30 34

RADIO ANTENNA CONTROL

18	PP_BB_VDD_2V7	MAKE_BASE=TRUE	I389		PP_LDO14_RFSW	31 41 42
18	BB_GPIO0	MAKE_BASE=TRUE	I390		BB_LAT_GPIO0	35
18	BB_GPIO2	MAKE_BASE=TRUE	I391		BB_LAT_GPIO2	35
18	BB_GPIO3	MAKE_BASE=TRUE	I392		BB_LAT_GPIO3	35
18	BB_GPIO4	MAKE_BASE=TRUE	I394		BB_LAT_GPIO4	35

FCT TESTING

13	RADIO_TO_PMU_ADC_SMPS1	MAKE_BASE=TRUE	I395		ADC_SMPS1	30
13	RADIO_TO_PMU_ADC_PP_LDO11_VDDIO	MAKE_BASE=TRUE	I396		ADC_PP_LDO11	30
13	RADIO_TO_PMU_ADC_PP_LDO5_SIM	MAKE_BASE=TRUE	I398		ADC_PP_LDO5	30
13	RADIO_TO_PMU_ADC_SMPS4	MAKE_BASE=TRUE	I397		ADC_SMPS4	30

UPPER RADIO ANTENNA CONTROL

25	50_AP_WIFI_5G_CONN_ANT	MAKE_BASE=TRUE	I410		50_WIFI_5G_CONN_ANT	50
29	50_AP_UAT_FEED	MAKE_BASE=TRUE	I409		50_UPPER_ANT_FEED	50
	UAT_ANT_GND	MAKE_BASE=TRUE	I411		ANT_GND	50
29 26 17 15 12	PP3V0_TRISTAR	MAKE_BASE=TRUE	I404		PAC_VDD_3V0	53
25 9	NORTH_AC_GND_SCREW	MAKE_BASE=TRUE	I412		NORTH_ANT_GND	50

POWER

26 17 15 14 13 12 10 4 3	PP1V8_SDRAM	MAKE_BASE=TRUE	I314		PP_WL_BT_VDDIO_AP	51
			I315		PP_STOCKHOLM_1V8_S2R	52 54
			I407		REFF_VIO_S2R	53

WLAN/BT HOUSE KEEPING

13	45_PMU_TO_WLAN_CLK32K	MAKE_BASE=TRUE	I316		CLK32K_AP	30 51
13	PMU_TO_WLAN_REG_ON	MAKE_BASE=TRUE	I317		WLAN_REG_ON	30 51
13	WLAN_TO_PMU_HOST_WAKE	MAKE_BASE=TRUE	I318		HOST_WAKE_WLAN	30 51
13	PMU_TO_BT_REG_ON	MAKE_BASE=TRUE	I319		BT_REG_ON	30 51
3	AP_TO_BT_WAKE	MAKE_BASE=TRUE	I320		WAKE_BT	30 51
13	BT_TO_PMU_HOST_WAKE	MAKE_BASE=TRUE	I321		HOST_WAKE_BT	51

3	AP_TO_WLAN_JTAG_SWCLK	MAKE_BASE=TRUE	I333		WLAN_JTAG_SWDCLK	30 51
3	AP_TO_WLAN_JTAG_SWDIO	MAKE_BASE=TRUE	I334		WLAN_JTAG_SWDIO	30 51
13	WLAN_TO_PMU_PCIE_WAKE_L	MAKE_BASE=TRUE	I335		WLAN_PCIE_WAKE_L	30 51
3	AP_TO_WLAN_DEVICE_WAKE	MAKE_BASE=TRUE	I336		PCIE_DEV_WAKE	30 51
7	90_WLAN_TO_AP_PCIE1_RXDP_P	MAKE_BASE=TRUE	I337		90_WLAN_PCIE_TDP	30 51
7	90_WLAN_TO_AP_PCIE1_RXDP_N	MAKE_BASE=TRUE	I340		90_WLAN_PCIE_TDN	30 51
7	90_AP_TO_WLAN_PCIE1_TXDP_P	MAKE_BASE=TRUE	I338		90_WLAN_PCIE_RDP	30 51
7	90_AP_TO_WLAN_PCIE1_TXDP_N	MAKE_BASE=TRUE	I339		90_WLAN_PCIE_RDN	30 51
7	90_AP_TO_WLAN_PCIE1_REFCLK1_P	MAKE_BASE=TRUE	I342		90_WLAN_PCIE_REFCLK_P	51
7	90_AP_TO_WLAN_PCIE1_REFCLK1_N	MAKE_BASE=TRUE	I341		90_WLAN_PCIE_REFCLK_N	51
7	WLAN_TO_AP_PCIE1_CLKREQ_L	MAKE_BASE=TRUE	I344		WLAN_PCIE_CLKREQ_L	30 51
7	AP_TO_WLAN_PCIE1_RST_L	MAKE_BASE=TRUE	I343		WLAN_PCIE_PERST_L	30 51

WLAN HSIC IPC

3	WLAN_TO_AP_UART4_RXD	MAKE_BASE=TRUE	I345		WLAN_UART_TXD	30 51
3	AP_TO_WLAN_UART4_TXD	MAKE_BASE=TRUE	I348		WLAN_UART_RXD	30 51
3	WLAN_TO_AP_UART4_CTS_L	MAKE_BASE=TRUE	I347		WLAN_UART_RTS_L	30 51
3	AP_TO_WLAN_UART4_RTS_L	MAKE_BASE=TRUE	I346		WLAN_UART_CTS_L	30 51

BT UART IPC

3	AP_TO_BT_UART1_RTS_L	MAKE_BASE=TRUE	I349		BT_UART_CTS_L	51
3	BT_TO_AP_UART1_CTS_L	MAKE_BASE=TRUE	I352		BT_UART_RTS_L	51
3	AP_TO_BT_UART1_TXD	MAKE_BASE=TRUE	I351		BT_UART_RXD	30 51
3	BT_TO_AP_UART1_RXD	MAKE_BASE=TRUE	I350		BT_UART_TXD	30 51

BT AUDIO PCM

3	45_AP_TO_BT_I2S1_BCLK	MAKE_BASE=TRUE	I354		BT_PCM_CLK	51
3	AP_TO_BT_I2S1_DOUT	MAKE_BASE=TRUE	I353		BT_PCM_IN	51
3	BT_TO_AP_I2S1_DIN	MAKE_BASE=TRUE	I355		BT_PCM_OUT	51
3	AP_TO_BT_I2S1_LRCLK	MAKE_BASE=TRUE	I356		BT_PCM_SYNC	51

OSCAR STATES

22	OSCAR_TO_RADIO_CONTEXT_A	MAKE_BASE=TRUE	I358		OSCAR_CONTEXT_A	51
22	OSCAR_TO_RADIO_CONTEXT_B	MAKE_BASE=TRUE	I357		OSCAR_CONTEXT_B	51

STOCKHOLM

3	STOCKHOLM_TO_AP_UART3_CTS_L	MAKE_BASE=TRUE	I359		STOCKHOLM_RTS_L	30 52
3	AP_TO_STOCKHOLM_UART3_RTS_L	MAKE_BASE=TRUE	I360		STOCKHOLM_CTS_L	30 52
3	STOCKHOLM_TO_AP_UART3_RXD	MAKE_BASE=TRUE	I361		STOCKHOLM_UART_TXD	30 52
3	AP_TO_STOCKHOLM_UART3_TXD	MAKE_BASE=TRUE	I363		STOCKHOLM_UART_RXD	30 52
7	AP_TO_STOCKHOLM_DWLD_REQ	MAKE_BASE=TRUE	I362		STOCKHOLM_FW_DWLD_REQ	52
13	STOCKHOLM_TO_PMU_HOST_WAKE	MAKE_BASE=TRUE	I364		STOCKHOLM_HOST_WAKE	30 52
7	AP_TO_STOCKHOLM_EN	MAKE_BASE=TRUE	I365		STOCKHOLM_ENABLE	52
29 26 17 15 12	PP3V0_TRISTAR	MAKE_BASE=TRUE	I366		STOCKHOLM_VDD_MUX_3V0	54
7	AP_TO_STOCKHOLM_SIM_SEL	MAKE_BASE=TRUE	I367		STOCKHOLM_SIM_SEL	54
25	AP_TO_STOCKHOLM_ANT	MAKE_BASE=TRUE	I486		STOCKHOLM_ANT	52

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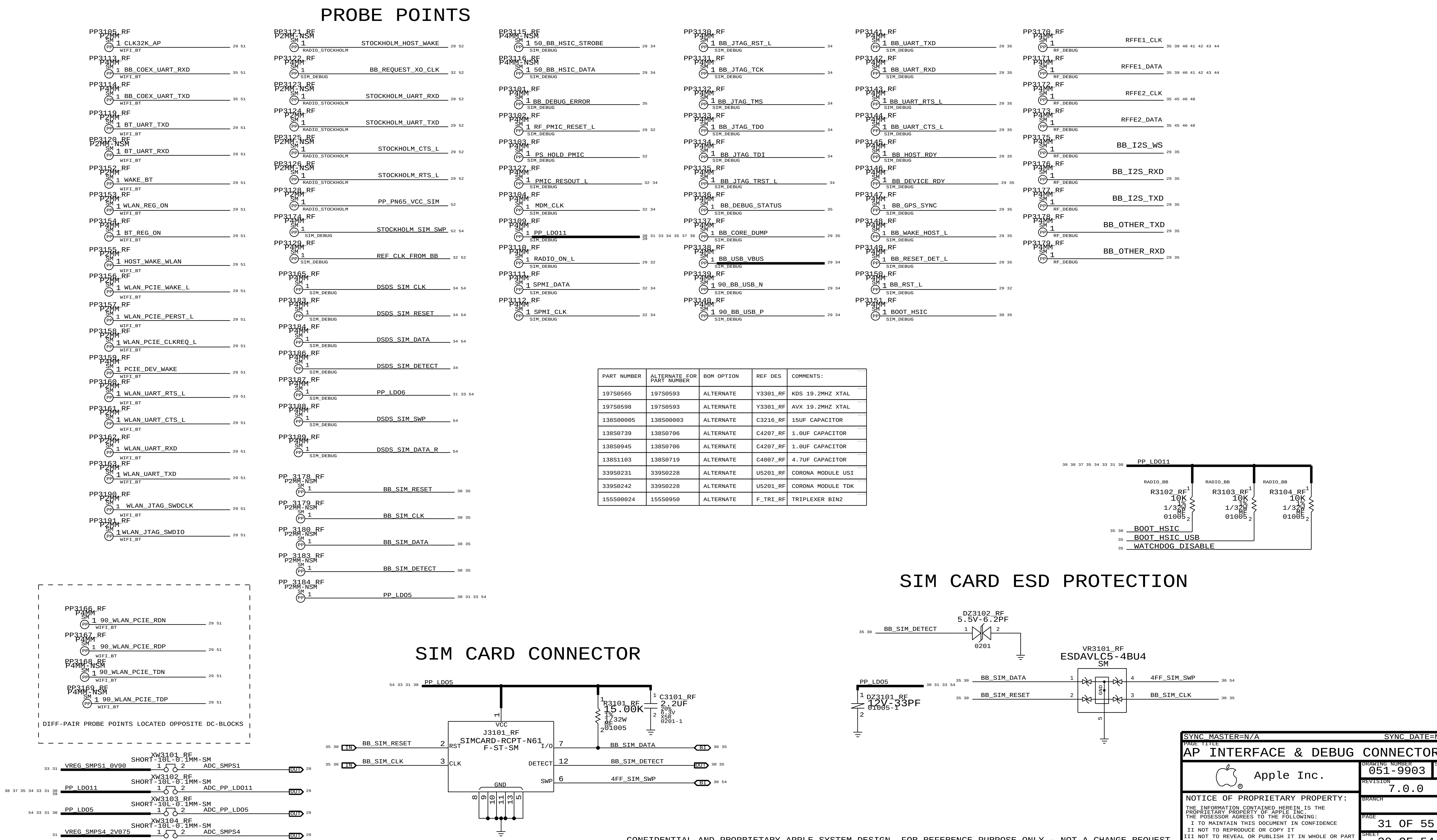
AP INTERFACE & DEBUG CONNECTORS



PROBE POINTS
PP3105_RF CLK32K_AP
PP3113_RF BB_COEX_UART_RXD
PP3114_RF BB_COEX_UART_TXD
PP3119_RF BT_UART_TXD
PP3120_RF BT_UART_RXD
PP3152_RF WAKE_BT
PP3153_RF WLAN_REG_ON
PP3154_RF BT_REG_ON
PP3155_RF HOST_WAKE_WLAN
PP3156_RF WLAN_PCIE_WAKE_L
PP3157_RF WLAN_PCIE_PERST_L
PP3158_RF WLAN_PCIE_CLKREQ_L
PP3159_RF PCIE_DEV_WAKE
PP3160_RF WLAN_UART_RTS_L
PP3161_RF WLAN_UART_CTS_L
PP3162_RF WLAN_UART_RXD
PP3163_RF WLAN_UART_TXD
PP3190_RF WLAN_JTAG_SWDCLK
PP3191_RF WLAN_JTAG_SWDIO
PP3121_RF STOCKHOLM_HOST_WAKE
PP3122_RF BB_REQUEST_XO_CLK
PP3123_RF STOCKHOLM_UART_RXD
PP3124_RF STOCKHOLM_UART_TXD
PP3125_RF STOCKHOLM_CTS_L
PP3126_RF STOCKHOLM_RTS_L
PP3128_RF PP_PN65_VCC_SIM
PP3174_RF STOCKHOLM_SIM_SWP
PP3129_RF REF_CLK_FROM_BB
PP3165_RF DSDS_SIM_CLK
PP3183_RF DSDS_SIM_RESET
PP3184_RF DSDS_SIM_DATA
PP3186_RF DSDS_SIM_DETECT
PP3187_RF PP_LDO6
PP3188_RF DSDS_SIM_SWP
PP3189_RF DSDS_SIM_DATA_R
PP_3178_RF BB_SIM_RESET
PP_3179_RF BB_SIM_CLK
PP_3180_RF BB_SIM_DATA
PP_3183_RF BB_SIM_DETECT
PP_3184_RF PP_LDO5
PP3115_RF 50_BB_HSIC_STROBE
PP3116_RF 50_BB_HSIC_DATA
PP3101_RF BB_DEBUG_ERROR
PP3102_RF RF_PMIC_RESET_L
PP3103_RF PS_HOLD_PMIC
PP3127_RF PMIC_RESOUT_L
PP3104_RF MDM_CLK
PP3109_RF PP_LDO11
PP3110_RF RADIO_ON_L
PP3111_RF SPMI_DATA
PP3112_RF SPMI_CLK
PP3130_RF BB_JTAG_RST_L
PP3131_RF BB_JTAG_TCK
PP3132_RF BB_JTAG_TMS
PP3133_RF BB_JTAG_TDO
PP3134_RF BB_JTAG_TDI
PP3135_RF BB_JTAG_TRST_L
PP3136_RF BB_DEBUG_STATUS
PP3137_RF BB_CORE_DUMP
PP3138_RF BB_USB_VBUS
PP3139_RF 90_BB_USB_N
PP3140_RF 90_BB_USB_P
PP3141_RF BB_UART_TXD
PP3142_RF BB_UART_RXD
PP3143_RF BB_UART_RTS_L
PP3144_RF BB_UART_CTS_L
PP3145_RF BB_HOST_RDY
PP3146_RF BB_DEVICE_RDY
PP3147_RF BB_GPS_SYNC
PP3148_RF BB_WAKE_HOST_L
PP3149_RF BB_RESET_DET_L
PP3150_RF BB_RST_L
PP3151_RF BOOT_HSIC
PP3170_RF RFFE1_CLK
PP3171_RF RFFE1_DATA
PP3172_RF RFFE2_CLK
PP3173_RF RFFE2_DATA
PP3175_RF BB_I2S_WS
PP3176_RF BB_I2S_RXD
PP3177_RF BB_I2S_TXD
PP3178_RF BB_OTHER_TXD
PP3179_RF BB_OTHER_RXD
PP3166_RF 90_WLAN_PCIE_RDN
PP3167_RF 90_WLAN_PCIE_RDP
PP3168_RF 90_WLAN_PCIE_TDN
PP3169_RF 90_WLAN_PCIE_TDP
DIFF-PAIR PROBE POINTS LOCATED OPPOSITE DC-BLOCKS
PP_LDO11
R3102_RF 10K 1% 1/32W MF 01005
R3103_RF 10K 1% 1/32W MF 01005
R3104_RF 10K 1% 1/32W MF 01005
BOOT_HSIC
BOOT_HSIC_USB
WATCHDOG_DISABLE
SIM CARD ESD PROTECTION
DZ3102_RF 5.5V-6.2PF 0201
BB_SIM_DETECT
VR3101_RF ESDAVLC5-4BU4 SM
BB_SIM_DATA
BB_SIM_RESET
4FF_SIM_SWP
BB_SIM_CLK
DZ3101_RF 12V-33PF 01005-1
PP_LDO5
SIM CARD CONNECTOR
J3101_RF SIMCARD-RCPT-N61 F-ST-SM
VCC
RST
CLK
I/O
DETECT
SWP
GND
R3101_RF 15.00K 1% 1/32W MF 01005
C3101_RF 2.2UF 20% 6.3V X5R 0201-1
XW3101_RF SHORT-10L-0.1MM-SM
VREG_SMPS1_0V90
ADC_SMPS1
XW3102_RF SHORT-10L-0.1MM-SM
PP_LDO11
ADC_PP_LDO11
XW3103_RF SHORT-10L-0.1MM-SM
PP_LDO5
ADC_PP_LDO5
XW3104_RF SHORT-10L-0.1MM-SM
VREG_SMPS4_2V075
ADC_SMPS4

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0565	197S0593	ALTERNATE	Y3301_RF	KDS 19.2MHZ XTAL
197S0598	197S0593	ALTERNATE	Y3301_RF	AVX 19.2MHZ XTAL
138S00005	138S00003	ALTERNATE	C3216_RF	15UF CAPACITOR
138S0739	138S0706	ALTERNATE	C4207_RF	1.0UF CAPACITOR
138S0945	138S0706	ALTERNATE	C4207_RF	1.0UF CAPACITOR
138S1103	138S0719	ALTERNATE	C4007_RF	4.7UF CAPACITOR
339S0231	339S0228	ALTERNATE	U5201_RF	CORONA MODULE USI
339S0242	339S0228	ALTERNATE	U5201_RF	CORONA MODULE TDK
155S00024	155S0950	ALTERNATE	F_TRI_RF	TRIPLEXER BIN2

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SYNC_MASTER=N/A SYNC_DATE=N/A

PAGE TITLE: AP INTERFACE & DEBUG CONNECTORS

Apple Inc.

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BASEBAND PMU (1 OF 2)

SWITCHERS OUTPUT CAPS

VREG_SMPS1_0V90

VREG_SMPS2_1V25

VREG_SMPS3_0V95

VREG_SMPS4_2V075

SWITCHERS BULK CAPS

PP_VCC_MAIN

VBATT_S1

VBATT_S2

VBATT_S3

VBATT_S4

U_PMICRF PM8019 BGA SYM 5 OF 5 REG

AVDD_BYP

REF_BYP

VREG_RF_CLK_BYP

VREG_XO_PMIC

VBATT_S1

VBATT_S2

VBATT_S3

VBATT_S4

VREG_SMPS2_1V25

VREG_SMPS4_2V075

VREG_SMPS3_0V95

VREG_SMPS4_2V075

MDM_VREF_LPDDR2

PP_VCC_MAIN

VDD_INT_BYP	VREG_RFCLK
REF_BYP	VREG_XO
GND_REF	VREG_S1
VDD_S1	VSW_S1_1
VDD_S2	VSW_S1_2
VDD_S3	VREG_S2
VDD_S4	VSW_S2
VDD_L1	VREG_S3
VDD_L2_3	VSW_S3_1
VDD_L7_8_11	VSW_S3_2
VDD_L9	VREG_S4
VDD_L10	VSW_S4_1
VDD_L12	VSW_S4_2
VDD_XO_RFC	VREG_L1
GND	VREG_L2
VREF_DDR2	VREG_L3
VIN_VPH1	VREG_L4
VIN_VPH2	VREG_L5
	VREG_L6
	VREG_L7
	VREG_L8
	VREG_L9
	VREG_L10
	VREG_L11
	VREG_L12
	VREG_L13
	VREG_L14

PP_VSW_S1	L3201_RF 2.2UH-20%-1.5A-0.160OHM	1235MA	VREG_SMPS1_0V90
PP_VSW_S2	L3203_RF 2.2UH-20%-1.5A-0.160OHM	1100MA	VREG_SMPS2_1V25
PP_VSW_S3	L3204_RF 2.2UH-20%-1.5A-0.160OHM	1350MA	VREG_SMPS3_0V95
PP_VSW_S4	L3202_RF 2.2UH-20%-1.2A-0.150HM	550MA	VREG_SMPS4_2V075

VREG_RX	VOLTAGE=1.225V	PP_LDO01
	VOLTAGE=1.80V	PP_LDO02
	VOLTAGE=1.80V	PP_LDO03
	VOLTAGE=3.075V	PP_LDO04
VREG_SIM	VOLTAGE=1.80V	PP_LDO05
	VOLTAGE=1.80V	PP_LDO06
	VOLTAGE=1.90V	PP_LDO07
VREG_TX	VOLTAGE=2.05V	PP_LDO08
	VOLTAGE=1.20V	PP_LDO09
	VOLTAGE=0.90V	PP_LDO010
VREG_IO	VOLTAGE=1.80V	PP_LDO011
	VOLTAGE=0.95V	PP_LDO012
	VOLTAGE=2.95V	PP_LDO013
	VOLTAGE=5.0V	PP_LDO014_RFSW

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BASEBAND PMU (1 OF 2)

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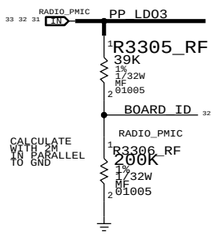
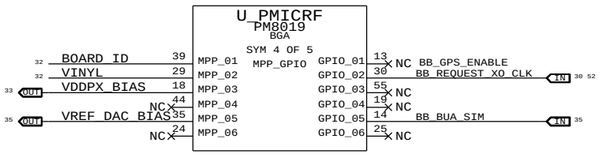
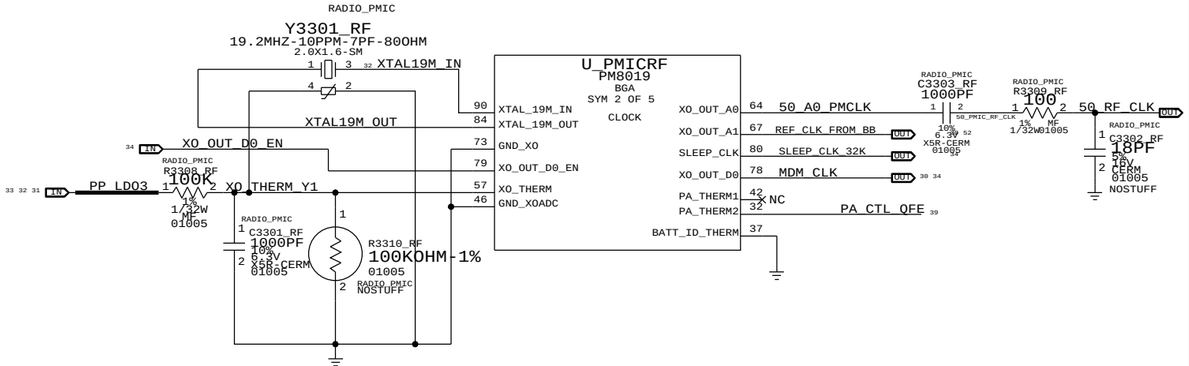
BASEBAND PMU (2 OF 2)

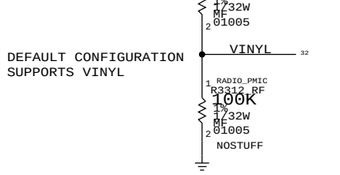
C401
R411
L400
U404

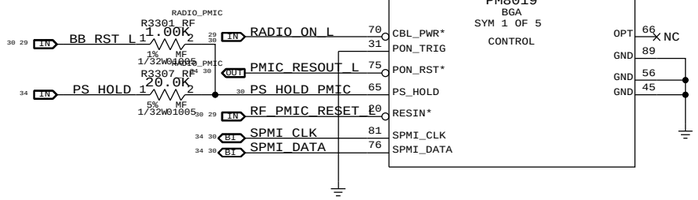
BOARD_ID	REVISION
0.00V	N61 PROTO_MLB1
0.50V	N61 DEV3
0.70V	N61 DEV4
0.90V	N61 PROTO_MLB2
1.10V	N61/N56 PROTO1
1.30V	N61/N56 PROTO2
1.40V	N61/N56 EVT1
1.50V	N61/N56 EVT2 (CARRIER)
1.60V	N61/N56 DVT
1.70V	N61/N56 PVT

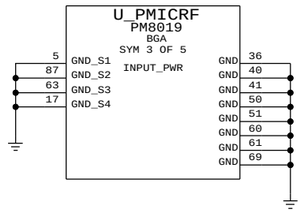












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BASEBAND PMU (2 OF 2)

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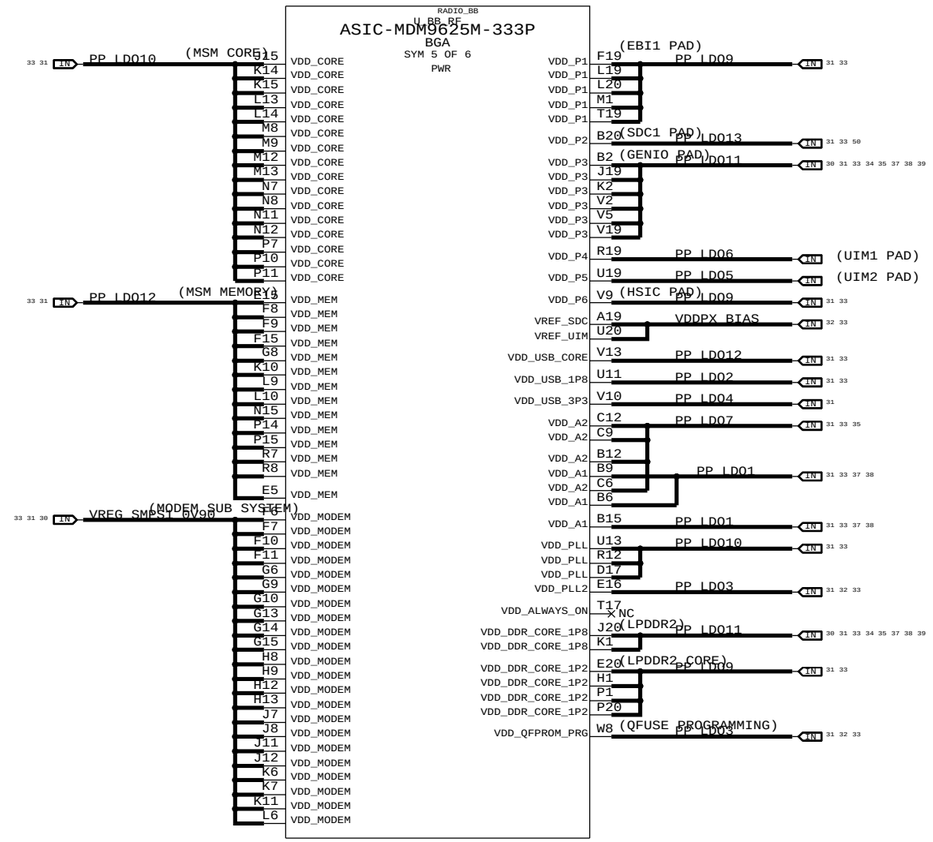
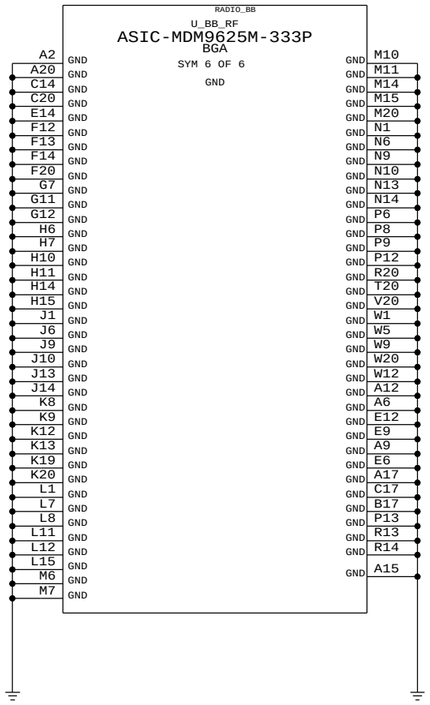
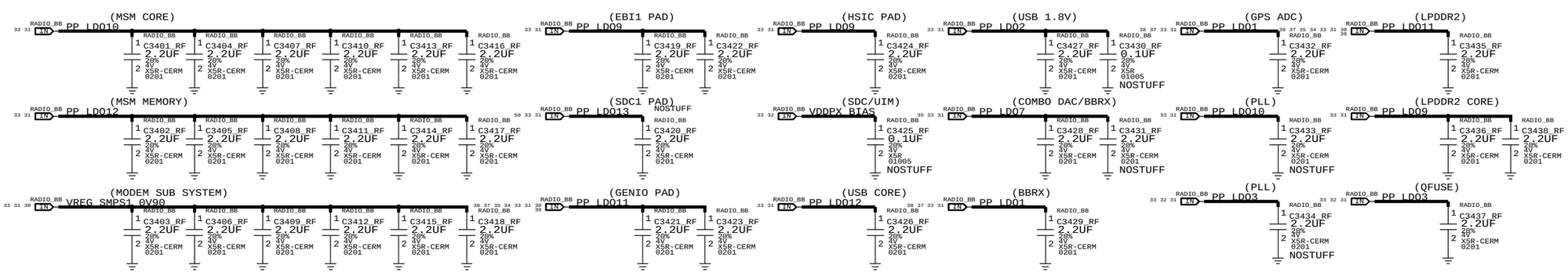
C538
R500
L500
U502







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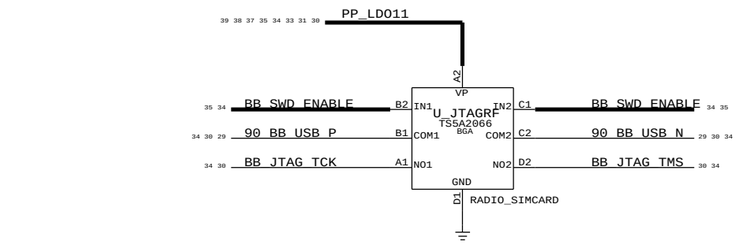
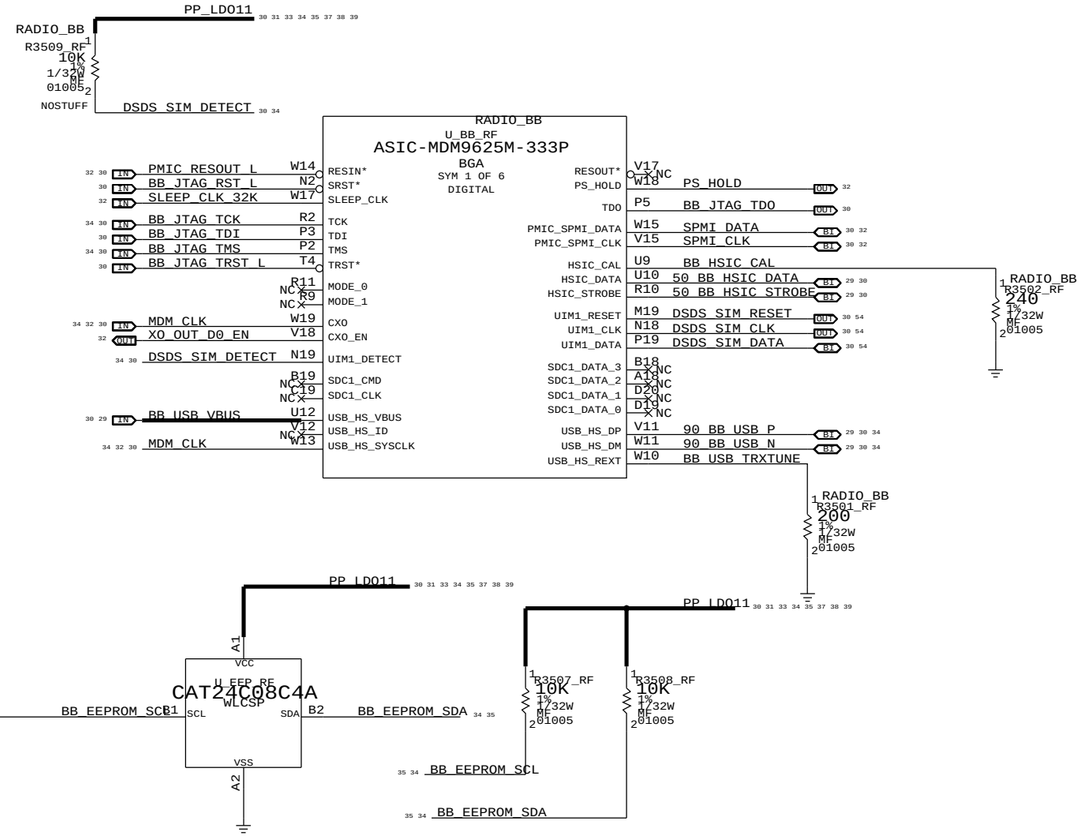
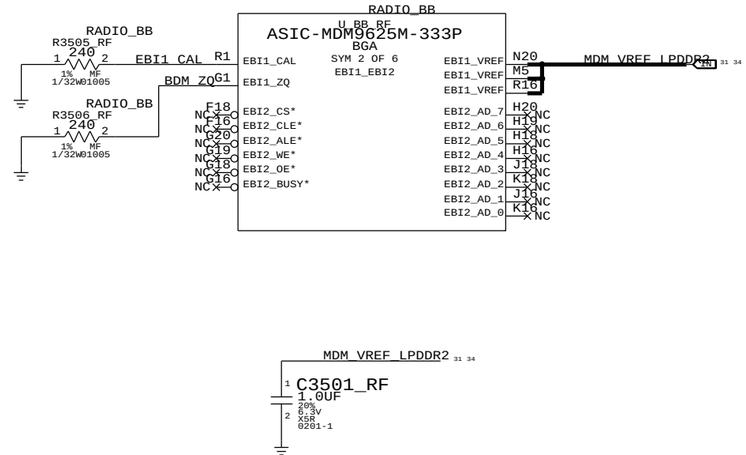
C600
R606
L600
U602







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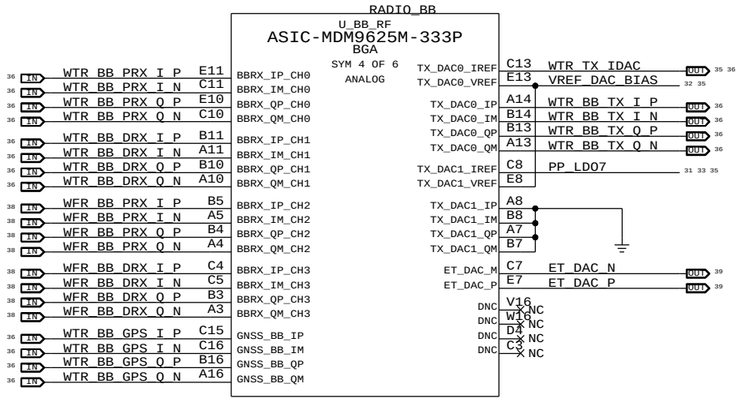
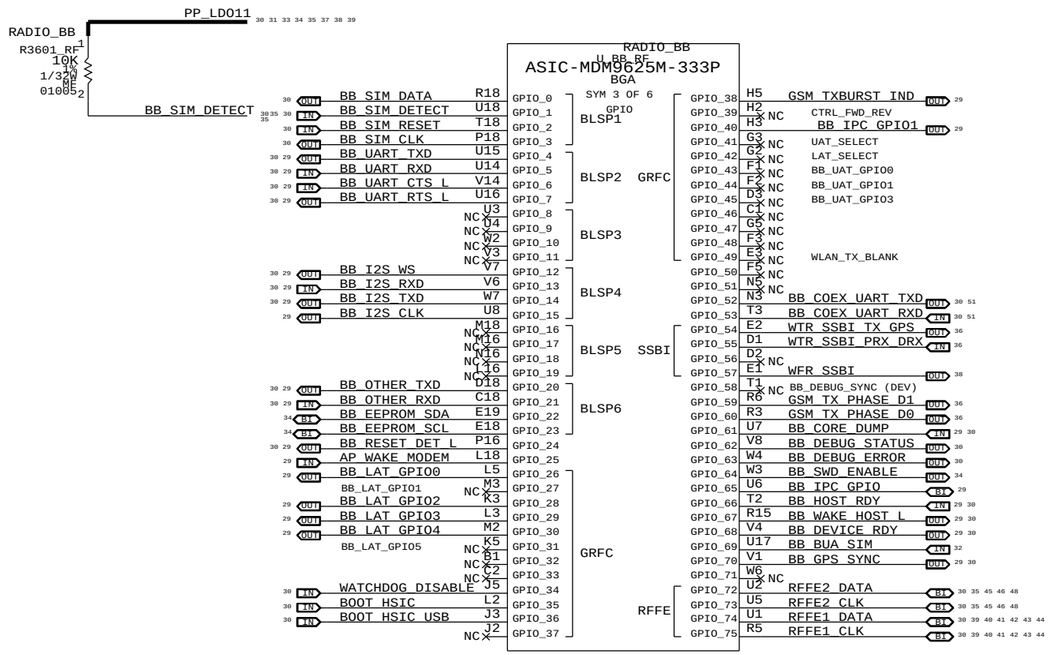
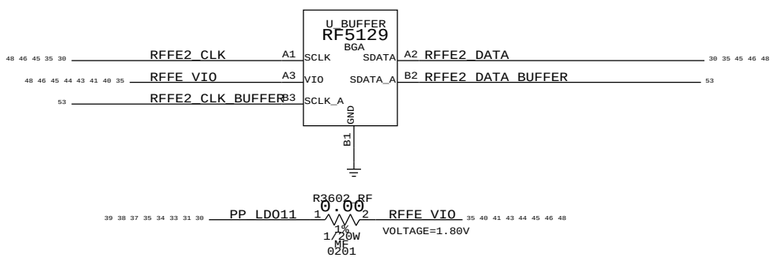
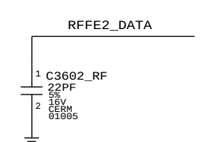
C704
R700
L700
U702









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MOBILE DATA MODEM (2 OF 2)

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WTR TRANSCEIVER (1 OF 2)

C802
R802
L800
U803

LB1	DC
LB2	DC
LB3	DC
LB4	DC
MB1	NO DC
MB2	DC
MB3	DC
HB1	NO DC
HB2	DC
HB3	DC
HBMB4	NO DC

U_WTR_RF
WTR1625
BGA
SYM 1 OF 5

50_B8_PRX_WTR_IN	102	PRX_LB1_IN	
50_B20_PRX_WTR_IN	92	PRX_LB2_IN	
50_B26_PRX_WTR_IN	73	PRX_LB3_IN	
50_B13_B17_B28_B29_PRX_WTR_IN	66	PRX_LB4_IN	
50_WFR_PRX_LB_CA_IN	91	PRX_LB_CA_OUT	OUT
50_WFR_PRX_MB_CA_OUT	50	PRX_MB_CA_IN	IN
50_B34_B39_PRX_WTR_IN	51	PRX_MB1_IN	
50_DCS_WTR_IN	43	PRX_MB2_IN	
50_PCS_WTR_IN	27	PRX_MB3_IN	
50_B40A_PRX_WTR_IN	19	PRX_HMB4_IN	
50_B40B_B38X_PRX_WTR_IN	9	PRX_HB1_IN	
50_B41A_PRX_WTR_IN	17	PRX_HB2_IN	
50_B7_PRX_WTR_IN	18	PRX_HB3_IN	
NC	33	PRX_HB_CA_OUT	

PRX_BB_IP	99	WTR_BB_PRX_I_P	OUT
PRX_BB_IM	108	WTR_BB_PRX_I_N	OUT
PRX_BB_QP	107	WTR_BB_PRX_Q_P	OUT
PRX_BB_QM	97	WTR_BB_PRX_Q_N	OUT

LB1	DC
LB2	DC
LB3	DC
LB4	DC
MB1	NO DC
MB2	DC
MB3	DC
HB1	NO DC
HB2	DC
HB3	DC
HBMB4	NO DC

U_WTR_RF
WTR1625
BGA
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50_B8_B28B_DRX_WTR_IN	5	DRX_LB1_IN	
50_B13_B17_DRX_WTR_IN	15	DRX_LB2_IN	
50_B26_B28A_DRX_WTR_IN	16	DRX_LB3_IN	
50_B20_B29_DRX_WTR_IN	7	DRX_LB4_IN	
50_WFR_DRX_LB_CA_IN	32	DRX_LB_CA_OUT	OUT
50_WFR_DRX_MB_CA_OUT	29	DRX_MB_CA_IN	IN
50_B34_DRX_WTR_IN	28	DRX_MB1_IN	
50_B39_DRX_WTR_IN	20	DRX_MB2_IN	
NC	1	DRX_MB3_IN	
50_B40_DRX_WTR_IN	2	DRX_HMB4_IN	
50_B38X_DRX_WTR_IN	4	DRX_HB1_IN	
50_B41A_DRX_WTR_IN	12	DRX_HB2_IN	
50_B7_DRX_WTR_IN	13	DRX_HB3_IN	
NC	30	DRX_HB_CA_OUT	
100_GPS_WTR_IN_P	36	GNSS_RF_INP	
100_GPS_WTR_IN_N	44	GNSS_RF_INM	

DRX_BB_IP	76	WTR_BB_DRX_I_P	RADIO_WTR
DRX_BB_IM	86	WTR_BB_DRX_I_N	RADIO_WTR
DRX_BB_QP	61	WTR_BB_DRX_Q_P	RADIO_WTR
DRX_BB_QM	68	WTR_BB_DRX_Q_N	RADIO_WTR
GNSS_BB_IP	60	WTR_BB_GPS_I_P	RADIO_WTR
GNSS_BB_IM	53	WTR_BB_GPS_I_N	RADIO_WTR
GNSS_BB_QP	67	WTR_BB_GPS_Q_P	RADIO_WTR
GNSS_BB_QM	85	WTR_BB_GPS_Q_N	RADIO_WTR
DNC	37	NC	

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WTR_BB_TX_I_P	151	TX_BB_IP	
WTR_BB_TX_I_N	160	TX_BB_IM	
WTR_BB_TX_Q_P	152	TX_BB_QP	
WTR_BB_TX_Q_N	161	TX_BB_QM	
WTR_TX_IDAC	127	DAC_REF	
GSM_TX_PHASE_D0	123	GP_DATA0	
GSM_TX_PHASE_D1	104	GP_DATA1	
	141	GND	
	94	GND	
WTR_RTUNE	71	RTUNE	
	140	GND	
	55	GND	
	118	GND	
WTR_SSBI_TX_GPS	105	SSBI_TX_GNSS	
WTR_SSBI_PRX_DRX	95	SSBI_PRX_DRX	
	156	GND	
	131	XO_IN	

TX_LB1_OUT	162	NC	
TX_LB2_OUT	153	50_LB_2G_WTR_TX_OUT	40
TX_LB3_OUT	163	50_B8_B26_B20_WTR_TX_OUT	42
TX_LB4_OUT	154	50_B13_B17_B28_WTR_TX_OUT	41
TX_MB1_OUT	146	50_B3_B4_WTR_TX_OUT	43
TX_MB2_OUT	138	50_HB_2G_WTR_TX_OUT	40
TX_MB3_OUT	139	50_B1_B25_B34_B39_WTR_TX_OUT	43
TX_MB4_OUT	155	NC	
TX_HB1_OUT	130	50_B7_WTR_TX_OUT	44
TX_HB2_OUT	121	50_B40_B38_B41_WTR_TX_OUT	44
ADC_IN	109		
PDET_RFFB	117	50_FWD_OR_REV_RF	45
GND	122		

RADIO_WTR
R3702_RF
4.75K
1%
1/32W
MF
01005

50_RF_CLK

RADIO_WTR
C3702_RF
100PF
5%
10V
NP0-C0G
01005
NOSTUFF

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

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WTR TRANSCEIVER (2 OF 2)

C934
R926
L3802_RF
U902

WTR DECOUPLING CAPS

PP_LDO8 VREG_2V (MAKE_BASE=TRUE)
PP_LDO1 VREG_1P3V (MAKE_BASE=TRUE)

VREG_2V → C3801_RF 10UF 20% 6.3V CERM-XSR 0402
VDD_DRX_BB_2V → C3812_RF 100PF 5% 16V NP0-C0G 01005 NOSTUFF
VDD_TX_DA_2V → C3813_RF 100PF 5% 16V NP0-C0G 01005
VDD_PRX_BB_2V / VDD_TX_BBF_2V → C3814_RF 100PF 5% 16V NP0-C0G 01005 NOSTUFF
R3801_RF 0.00 1% 1/20W MF 0201 → VDD_PRX_VCO_2V → C3815_RF 0.1UF 20% 4V X5R 01005
R3802_RF 0.00 1% 1/20W MF 0201 → VDD_SHDR_VCO_2V → C3816_RF 0.1UF 20% 4V X5R 01005
R3803_RF 0.00 1% 1/20W MF 0201 → VDD_TX_VCO_2V → C3817_RF 0.1UF 20% 4V X5R 01005
VDD_TX_PLL_2V → C3802_RF 0.1UF 20% 4V X5R 01005 NOSTUFF
R3808_RF 0.00 0% 1/32W MF 01005 → VDD_XO_2V → C3803_RF 0.1UF 10% 10V X5R-CERM 0201
VDD_FBRX_2V → C3818_RF 0.1UF 20% 4V X5R 01005
I175 VDD_PRX_2V
PP_LDO11 (MAKE_BASE=TRUE) → VDD_MSM_1P8V → C3814_RF 1.0UF 10% 6.3V X5R-CERM 0201-1; C3819_RF 0.1UF 20% 4V X5R 01005 NOSTUFF

L3801_RF 22NH-3%-0.25A 0201 (RADIO_WTR ↔ VDD_PRX_PLL_1P3V)
VREG_1P3V (MAKE_BASE=TRUE) → C3808_RF 10UF 20% 6.3V CERM-XSR 0402
WTR DECOUPLING SHARED WITH C3808_RF
VDD_PRX_PLL_1P3V → C3820_RF 0.1UF 20% 4V X5R 01005 NOSTUFF
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% 16V NP0-C0G 01005
R3806_RF 0.00 1% 1/20W MF 0201 → 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 → C3827_RF 100PF 5% 16V NP0-C0G 01005 NOSTUFF

VREG_1P3V (MAKE_BASE=TRUE) → C3808_RF 10UF 20% 6.3V CERM-XSR 0402
VDD_PRX_LO_HB_1P3V → C3830_RF 0.1UF 20% 4V X5R 01005
VDD_DRX_LB_1P3V
VDD_PRX_LB_1P3V
VDD_DRX_LO2_1P3V → C3833_RF 0.1UF 20% 4V X5R 01005
VDD_DRX_LO1_1P3V → C3809_RF 0.1UF 20% 4V X5R 01005
VDD_DRX_MB_1P3V
VDD_DRX_HB_1P3V
R3807_RF 0.00 1% 1/20W MF 0201
VDD_GPS_LNA_1P3V → C3828_RF 0.1UF 20% 4V X5R 01005 (MAKE_BASE=TRUE) → VDD_GPS_BB_1P3V
VDD_GPS (MAKE_BASE=TRUE)
VDD_GPS_PLL_1P3V → C3829_RF 0.1UF 20% 4V X5R 01005 (MAKE_BASE=TRUE) → VDD_GPS_VCO_1P3V

U_WTR_RF
WTR1625
BGA
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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	37 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		

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WTR1625
BGA
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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		

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WFR TRANSCEIVER

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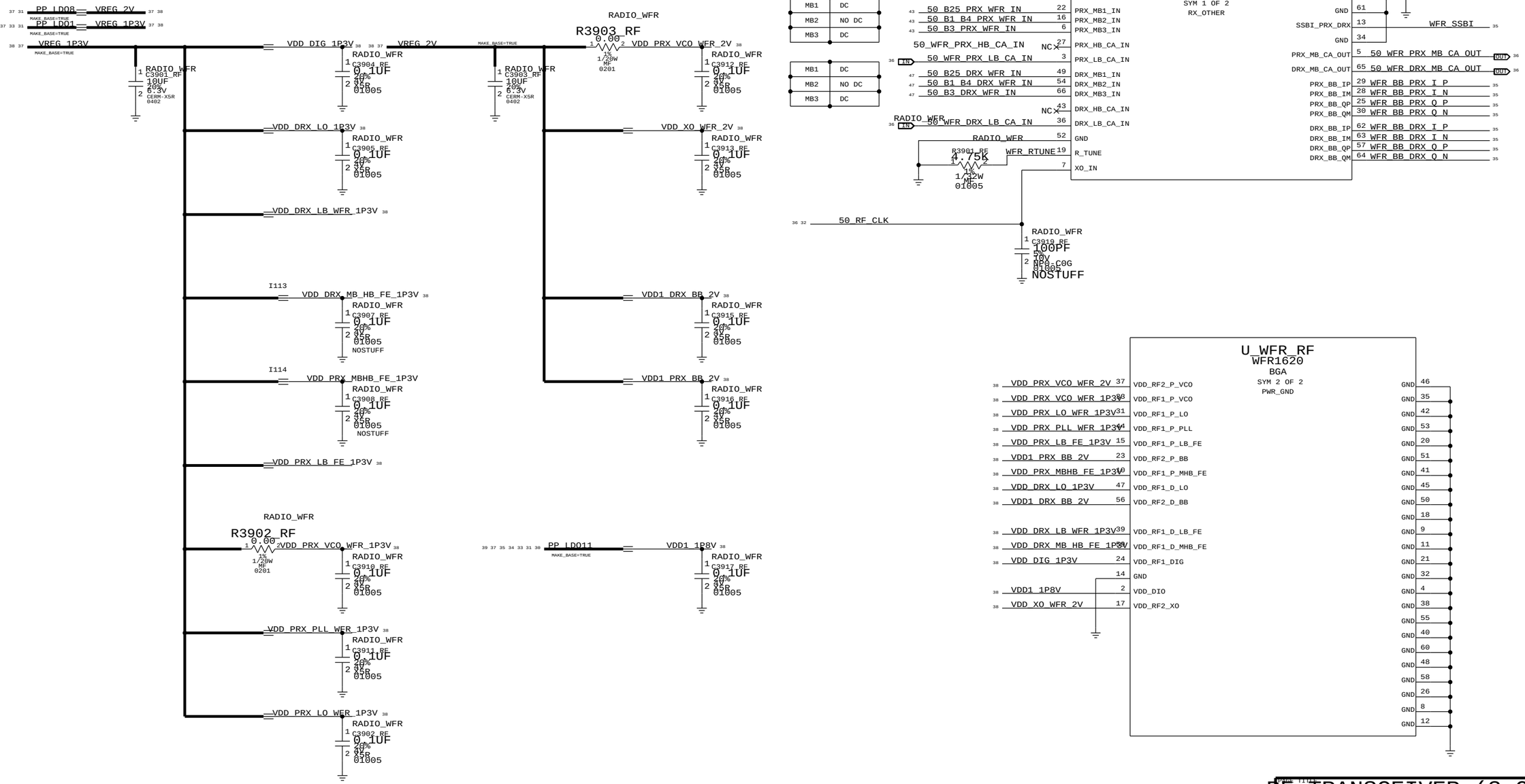
C1019
R1016
L1000
U1002



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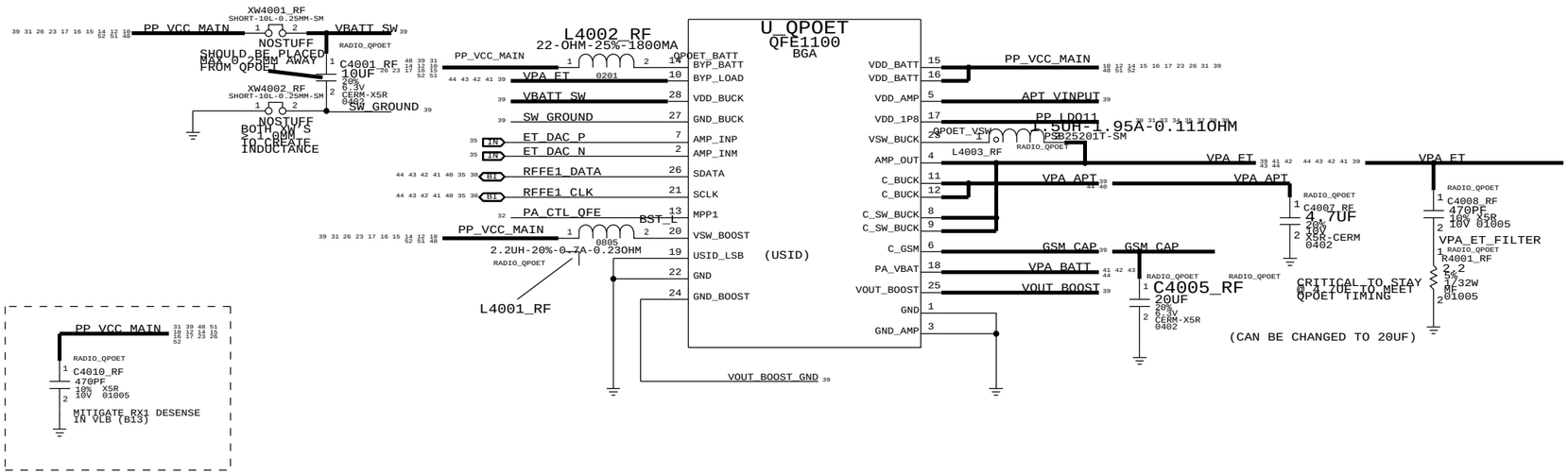
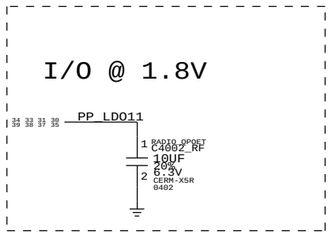
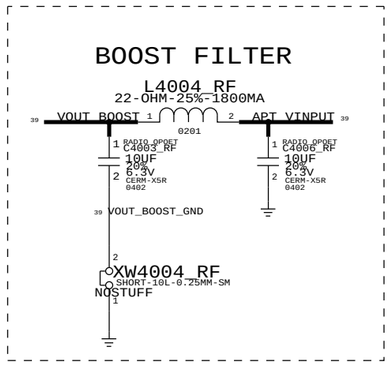
QFE DCDC

C1110
R1102
L1104
U1101







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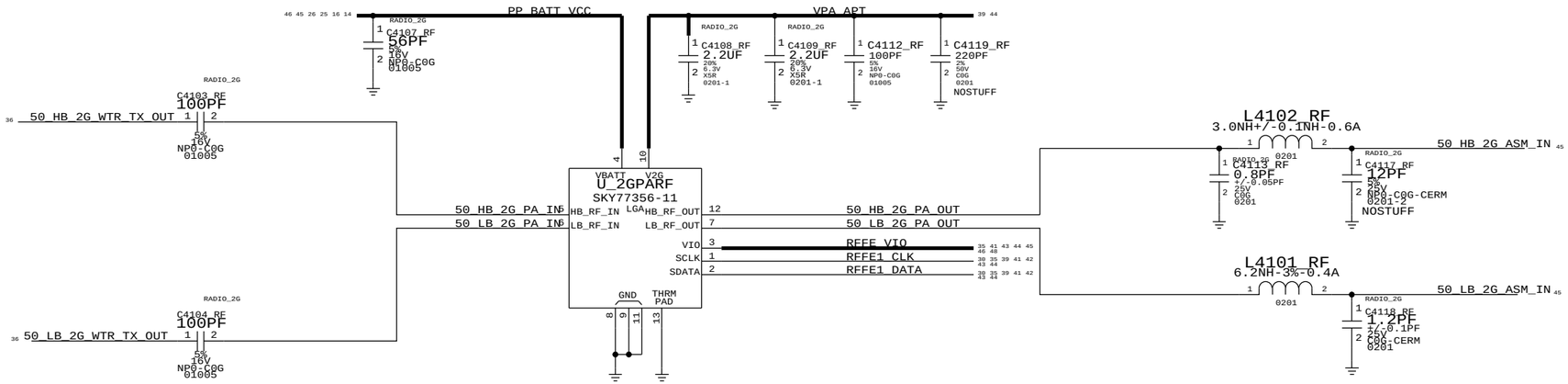
2G PA

C1208
R1200
L1204
U1201



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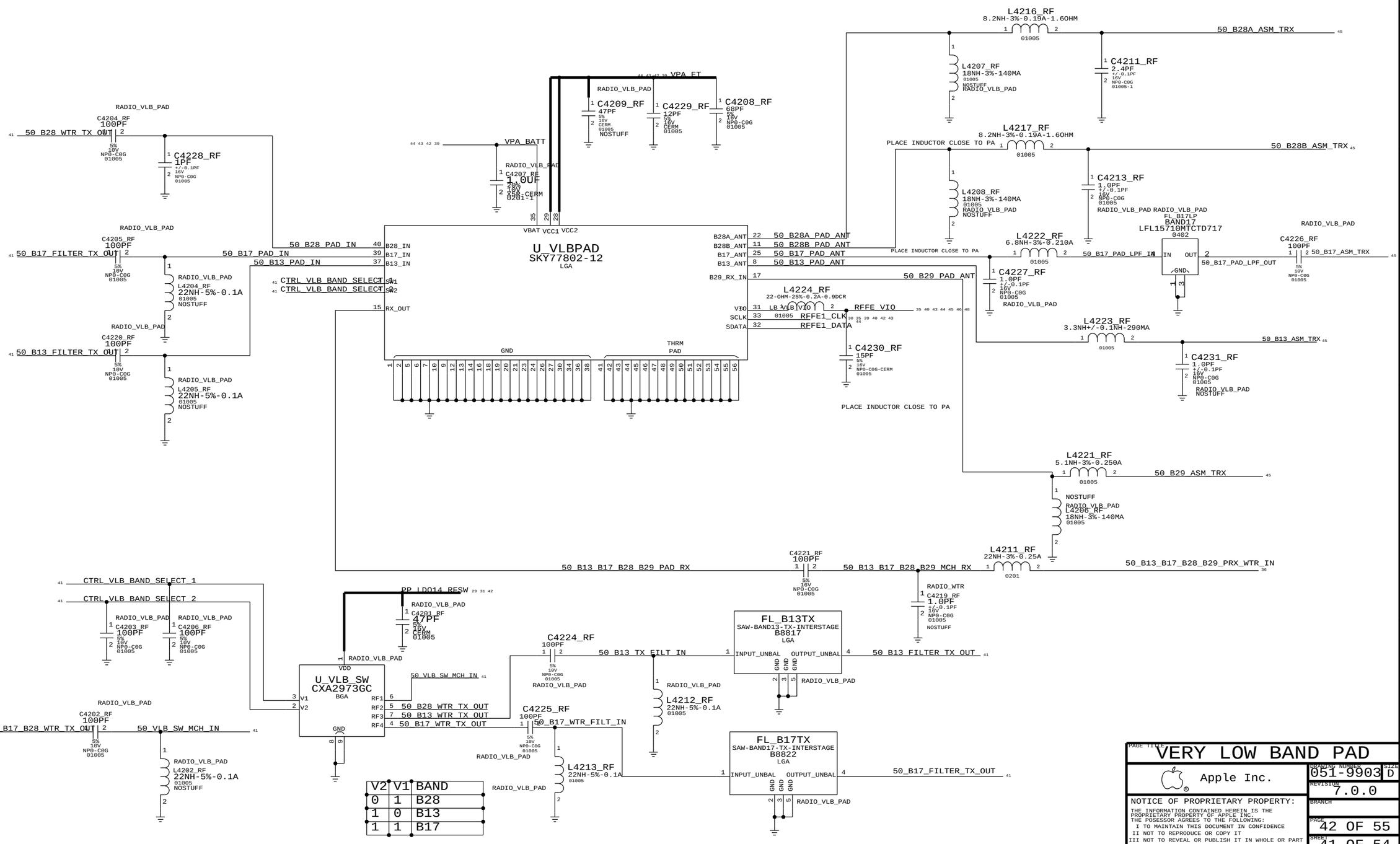
VERY LOW BAND PAD (B13, B17, B28)

C1332
R1300
L4215_RF
U1304



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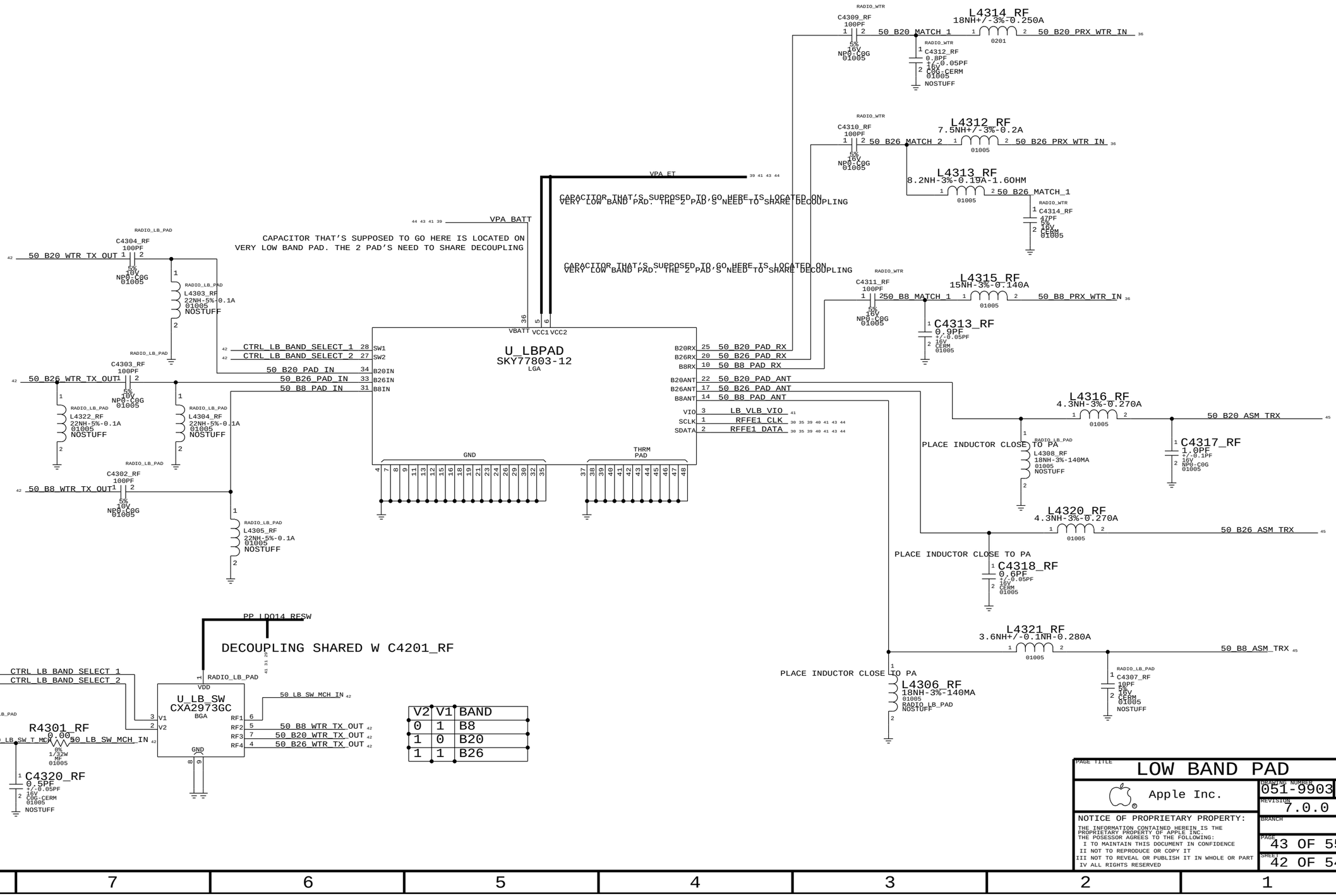
LOW BAND PAD (B8, B26, B20)

C4318_RF
R1400
L4322_RF
U1402



PAGE TITLE: LOW BAND PAD

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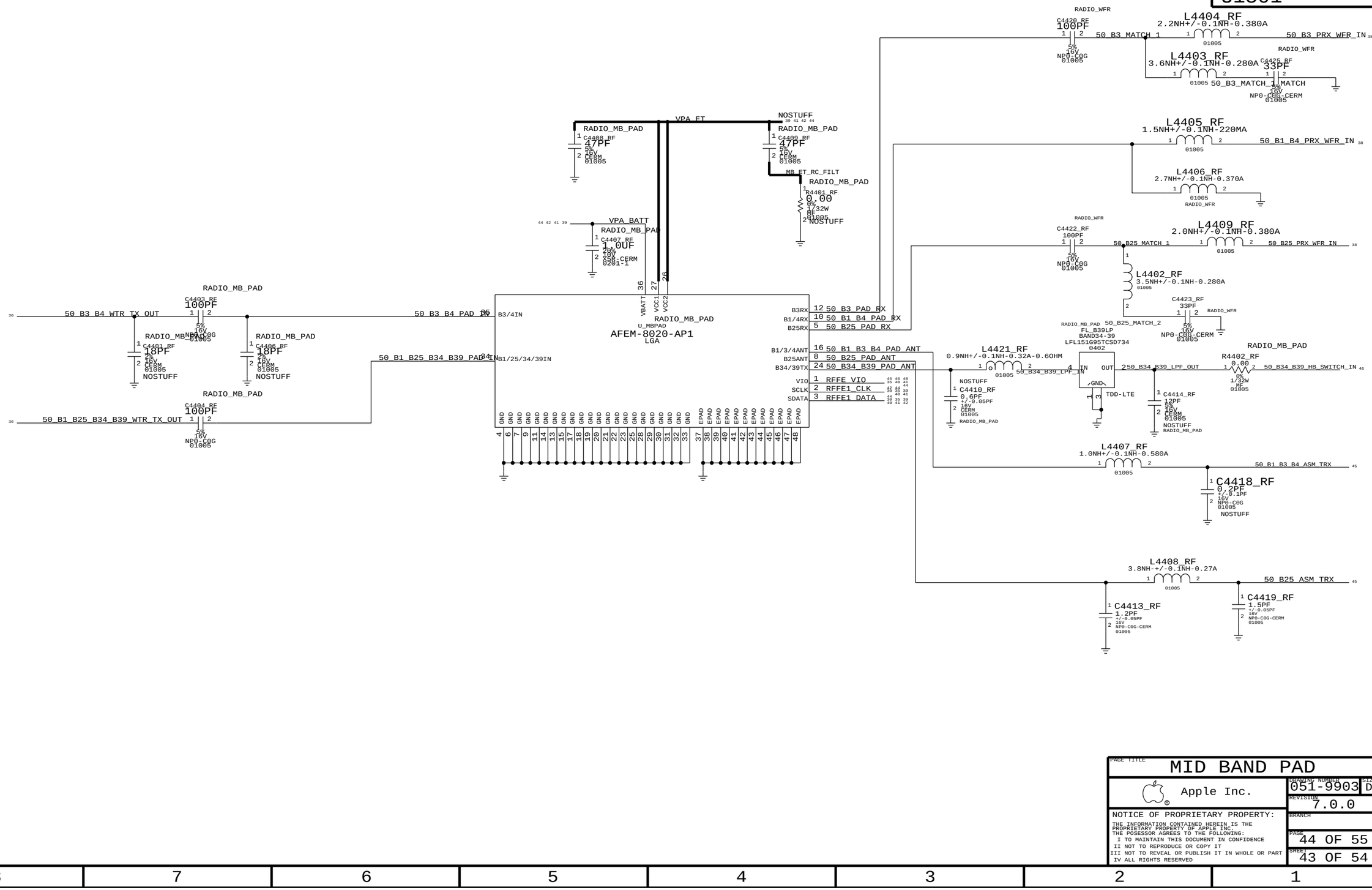
MID BAND PAD (B1, B25, B3, B4, B34, B39)

C4426_RF
R1500
L4409_RF
U1501



PAGE TITLE	MID BAND PAD
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HIGH BAND PAD (B7, B38, B40, B41, XGP)

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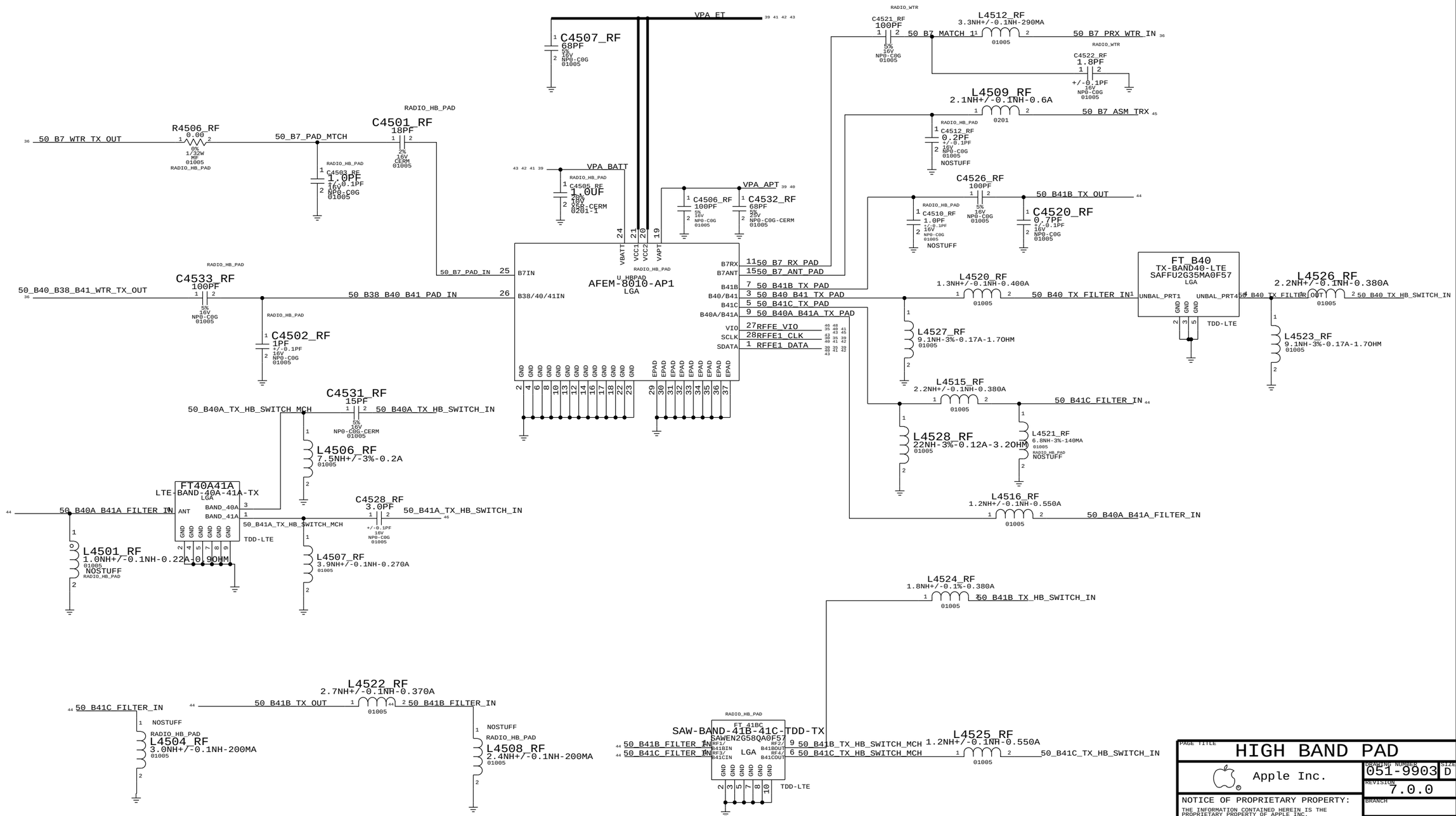
C4533_RF
R1600
L1616
U1601



PAGE TITLE: HIGH BAND PAD

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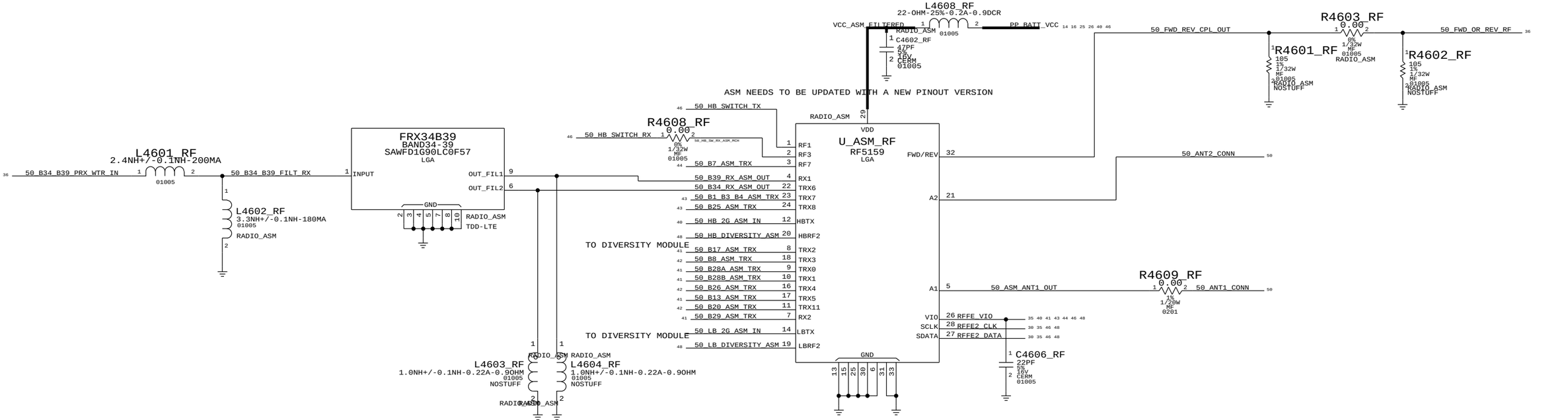
ANTENNA SWITCH

C1702
R1700
L4608_RF
U1702



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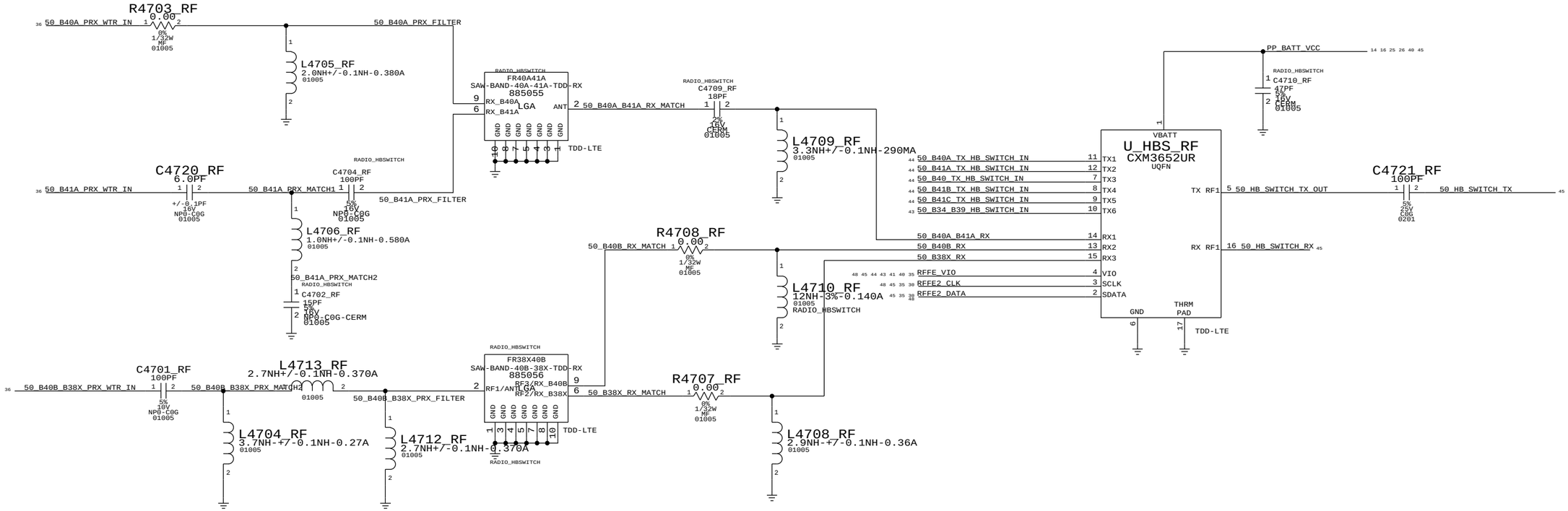
HIGH BAND SWITCH



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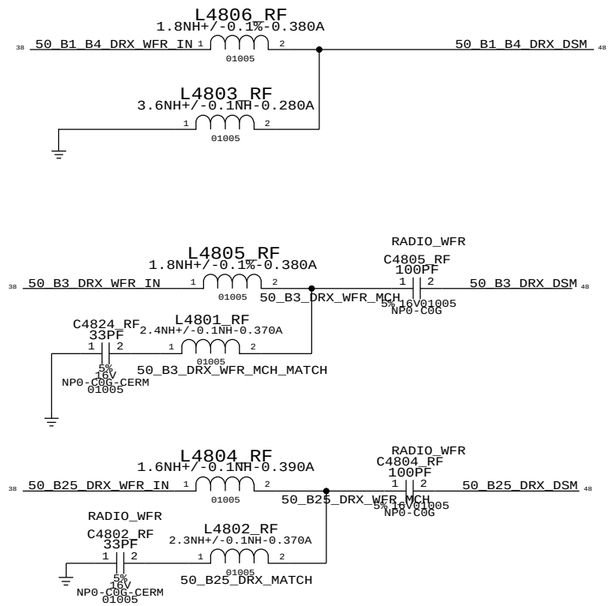
RX DIVERSITY (1)

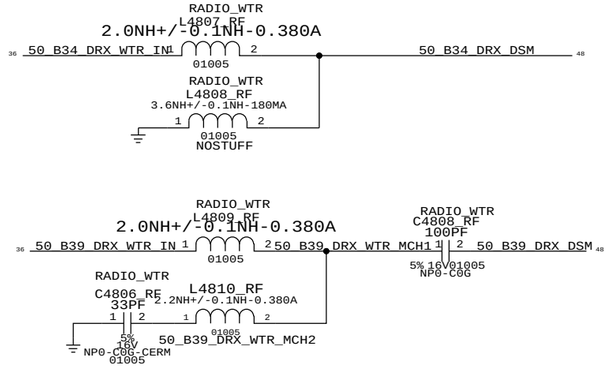
C4826_RF
R1800
L1829
U1801

MIDBAND

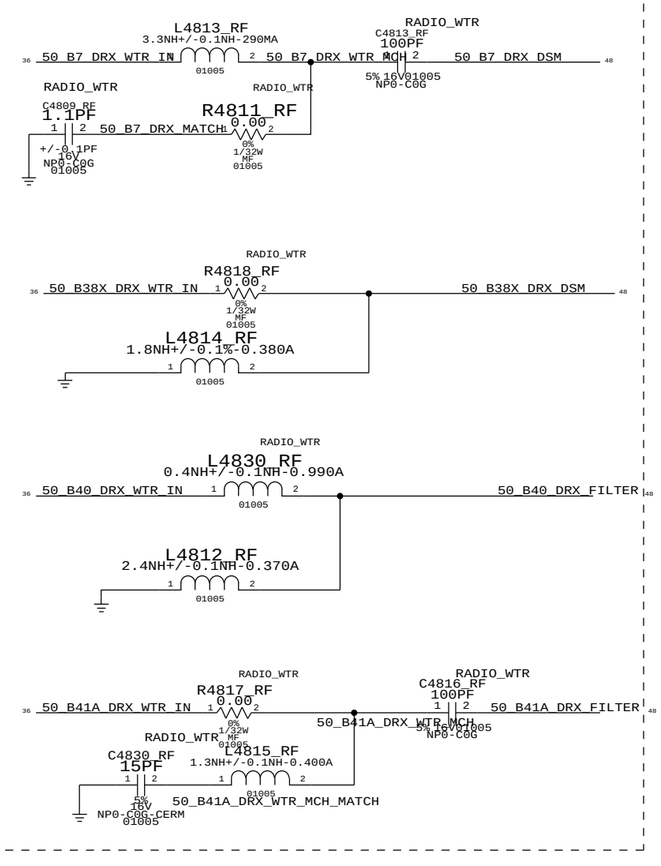
MIDBAND DIVERSITY - WFR

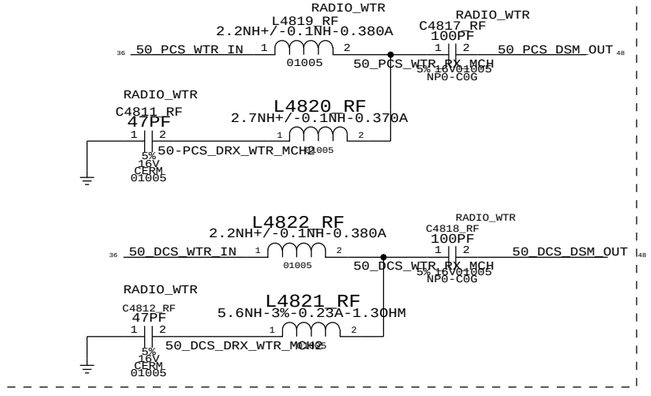


MIDBAND DIVERSITY - WTR

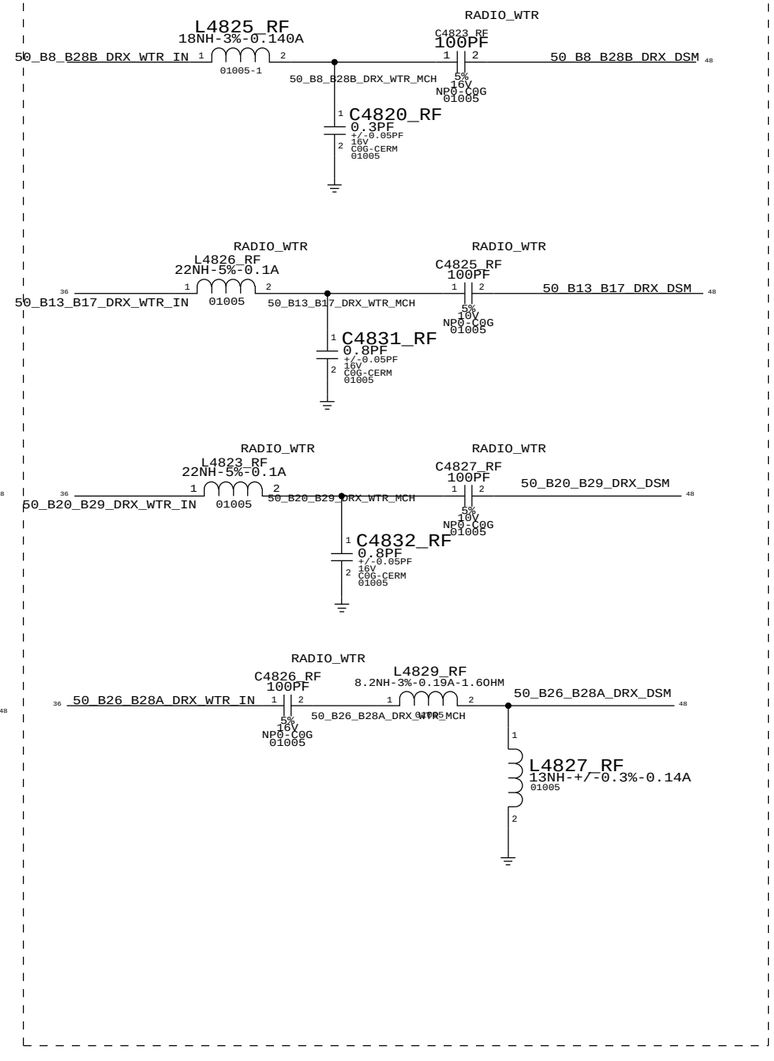


HIGHBAND DIVERSITY - WTR





LOWBAND DIVERSITY - WTR



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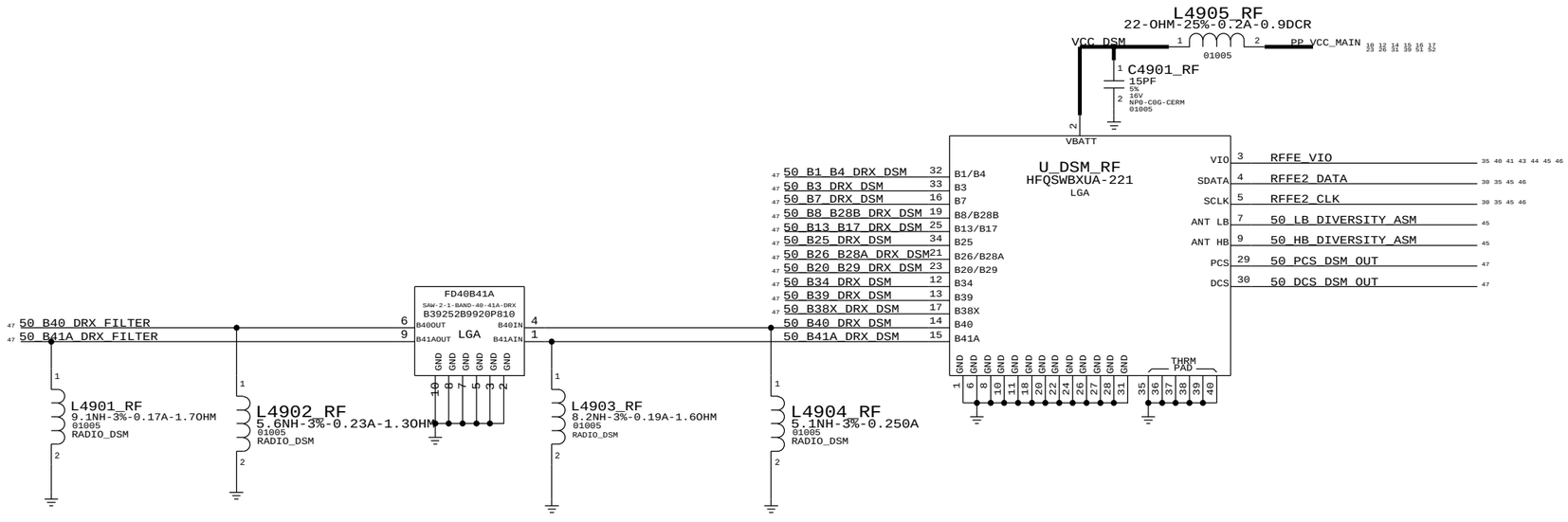
RX DIVERSITY (2)

C1900
R1900
L1900
U1901



PAGE TITLE
GPS

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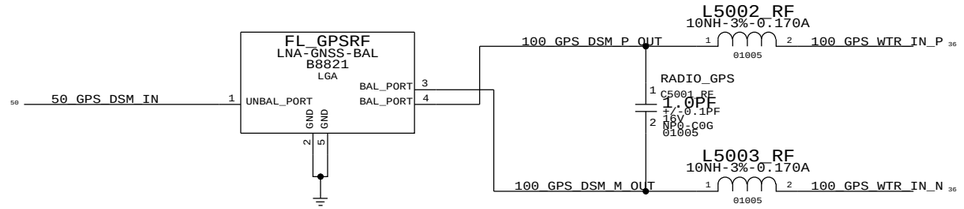
GPS

C1900
R1900
L1900
U1901



PAGE TITLE: GPS

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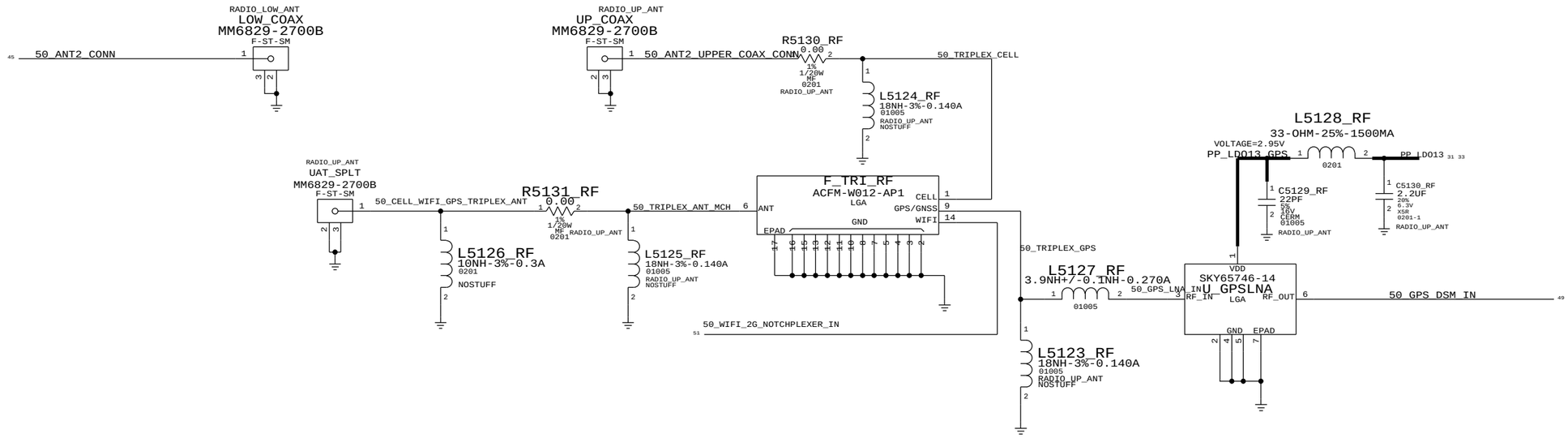
ANTENNA FEED'S

TEST & COAX CONNECTOR FOR LOWER SECTION OF MLB



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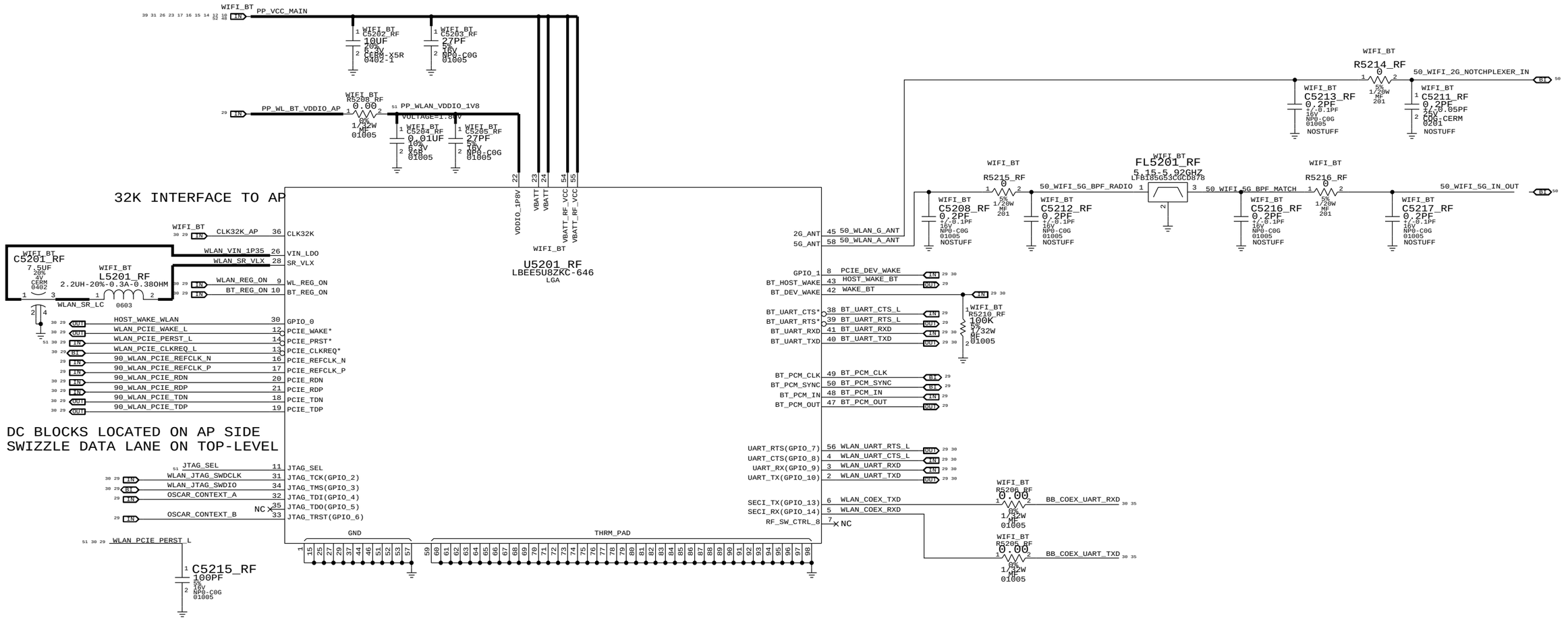
WLAN/BT



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PAGE TITLE
WIFI/BT: MODULE AND FRONT END

Apple Inc.

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STOCKHOLM

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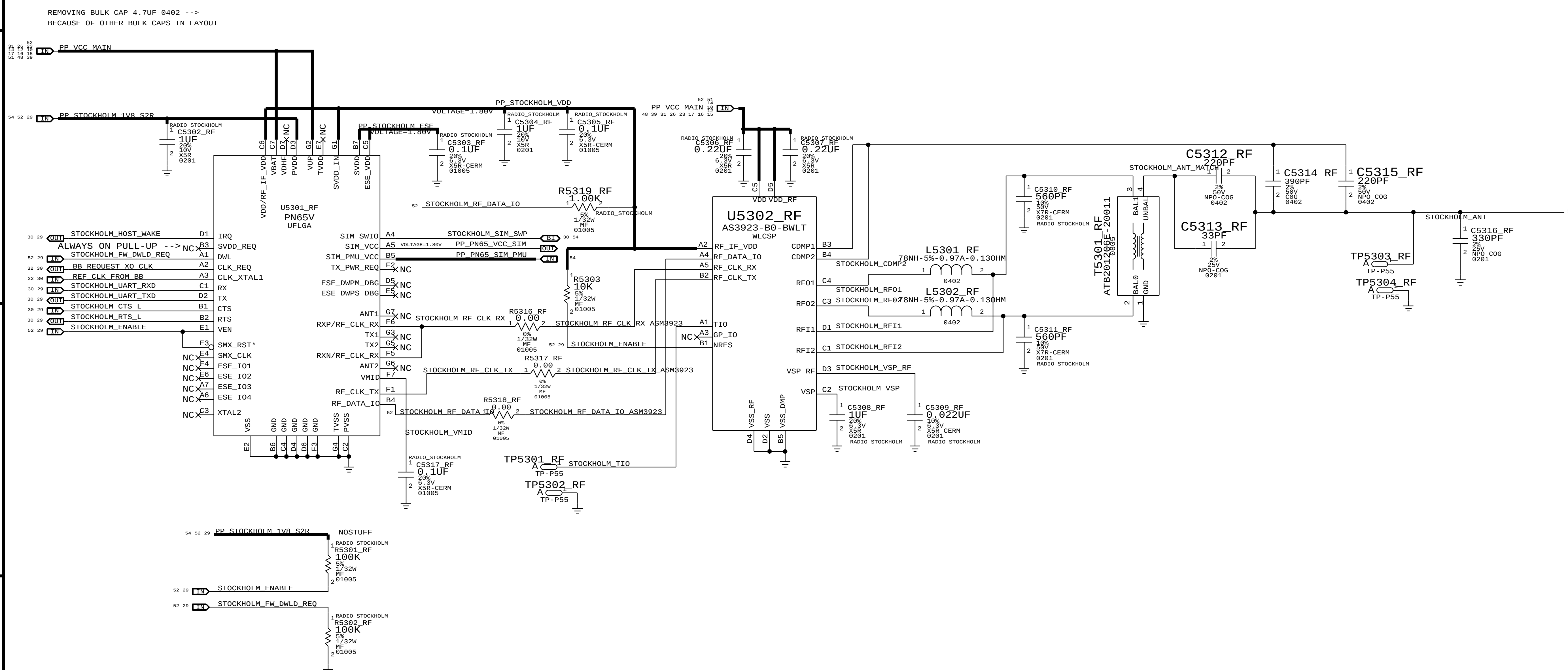
C2101
R2100
L2102
U2100



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PAGE TITLE

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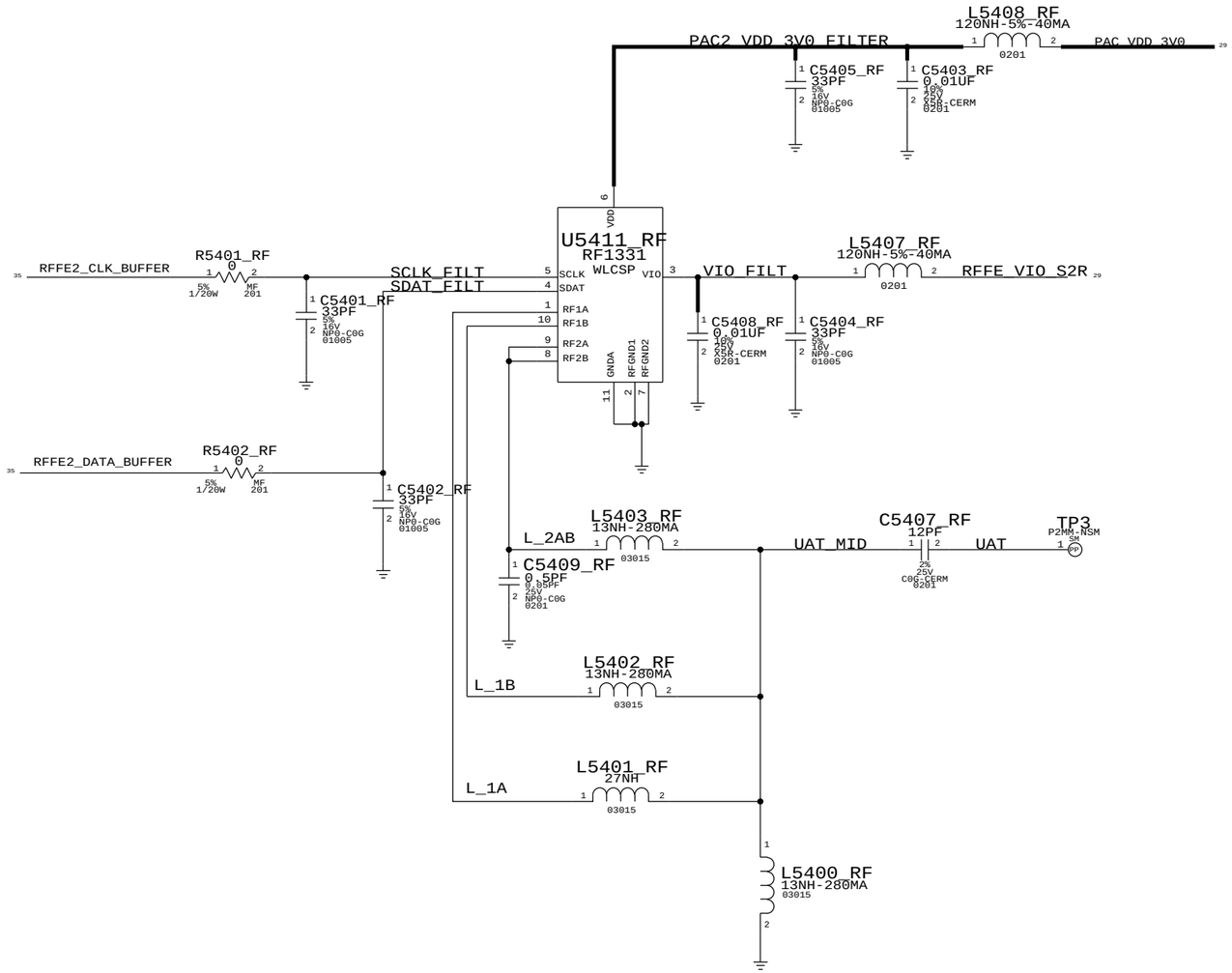

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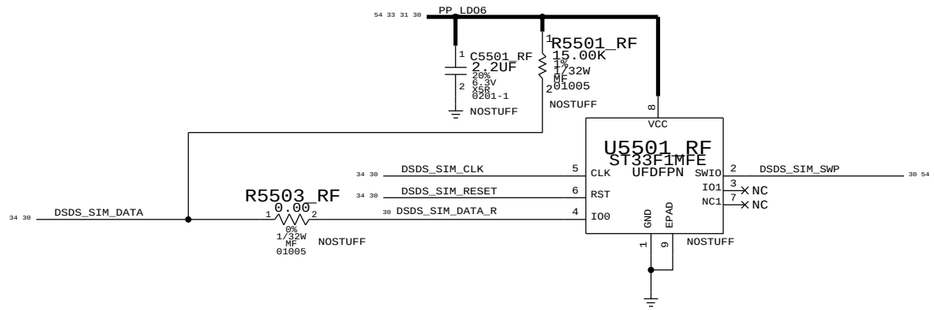
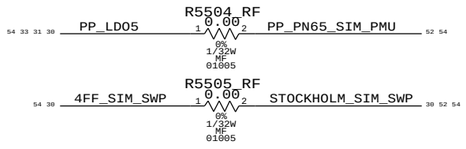
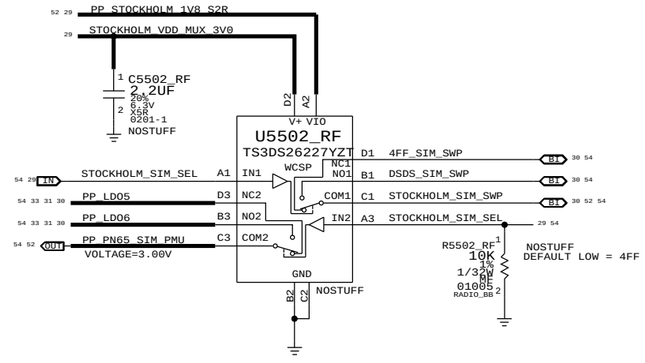
DSDS







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