



Special Thanks!

130877
TRALOL
weaver
wins200786
QueenSoft
Mihail_tm
abraziff



Special Thanks!

...:Neo:...
~AhmedLeO~
Gecko UK
Mobileinfo
Hobson
Noobfix
DataRus
Kostelectronics
diesel57

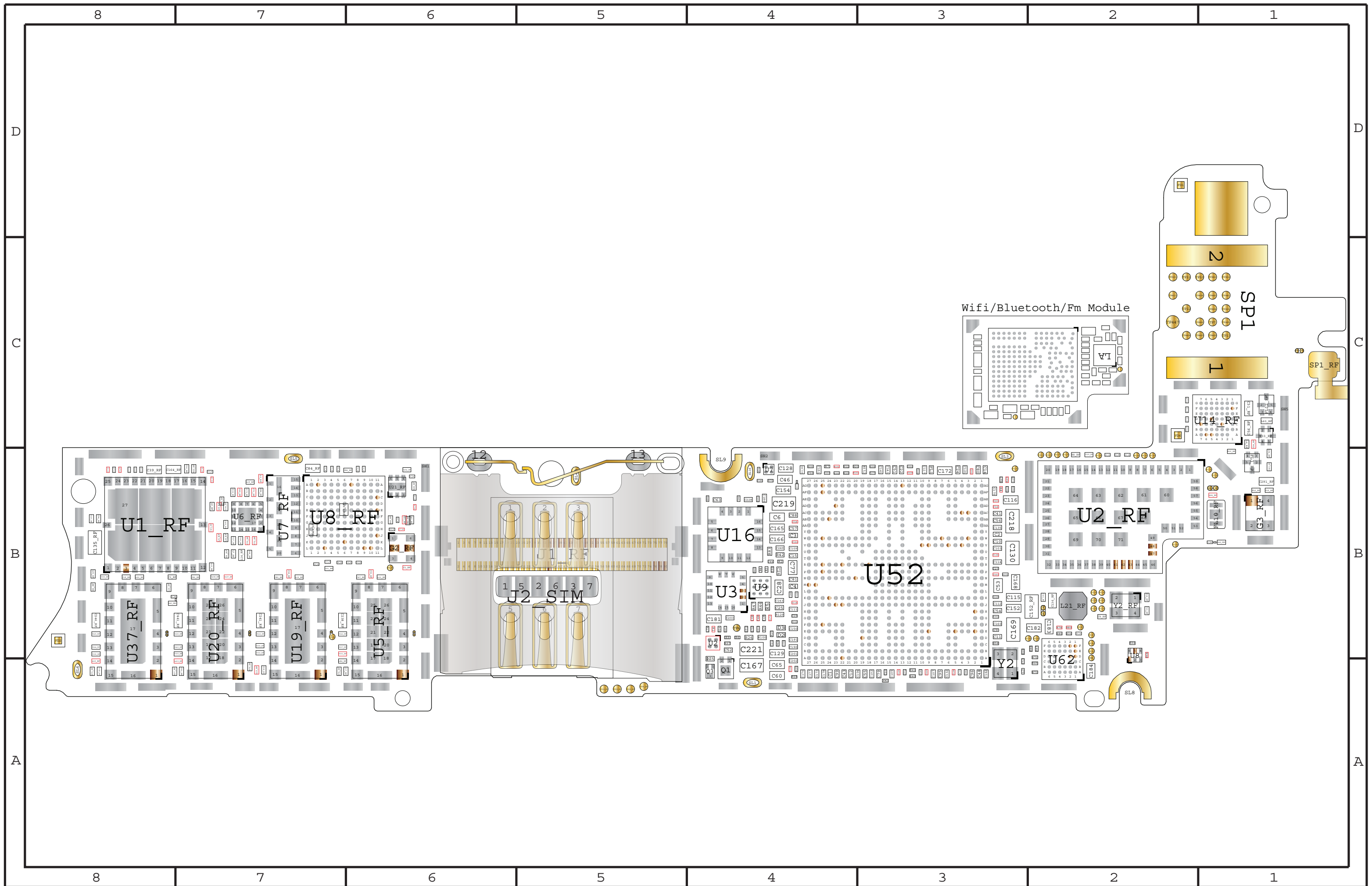
iPhone 4

A1332 n90ap

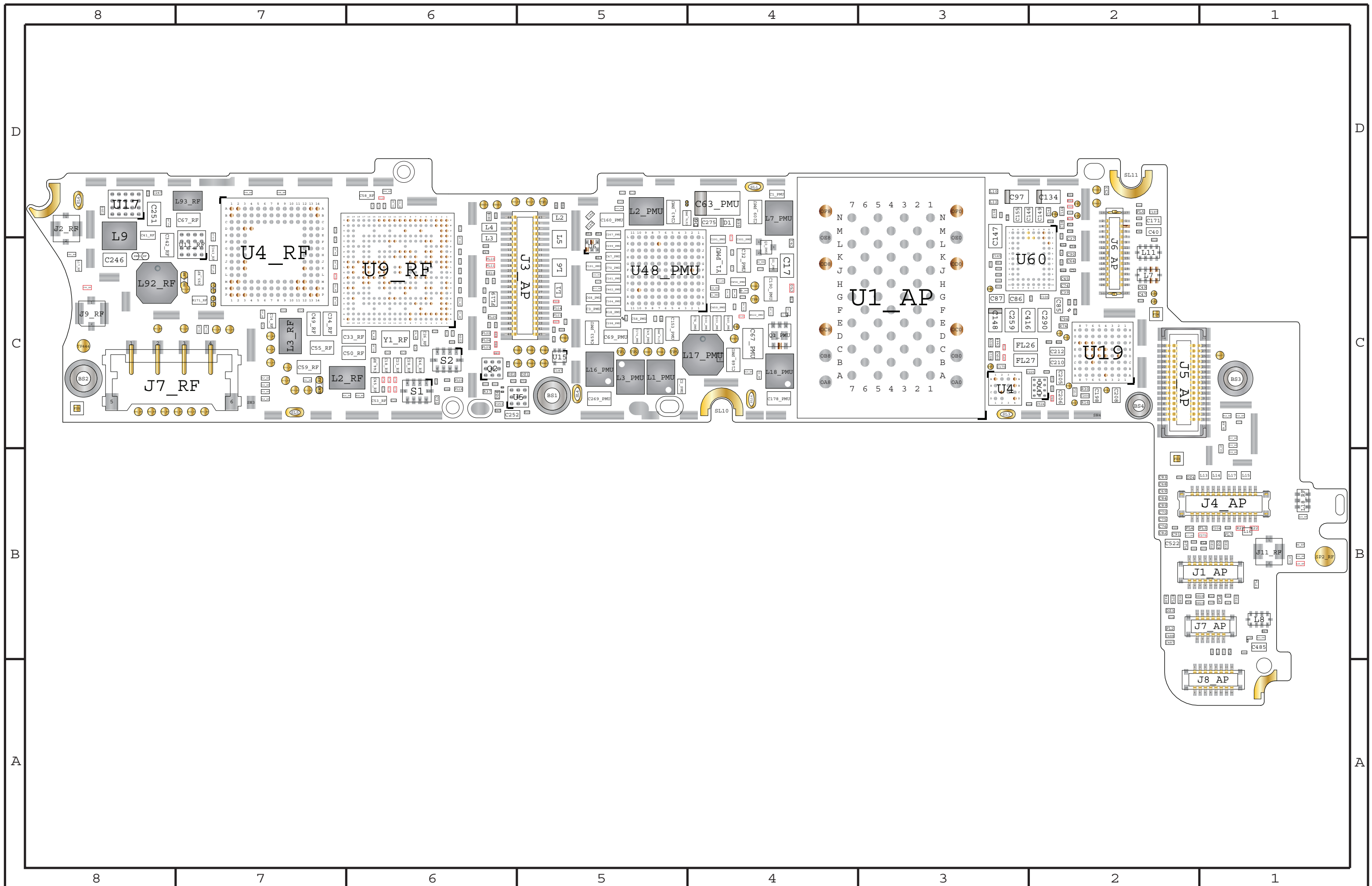
Professional Schematic

www.witesomtesla.com





820-2548-10/820-2803-02 Top Side.



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
A	000080153	PRODUCTION RELEASED		2010-03-23

iPhone 4 N90 SINGLE BRD PVT

Fri Apr 16 15:07:25 2010

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MCO 056-3008
 BRD 820-2548
 SCH 051-7921
 BOM 639-0648 (16GB, USI)
 BOM 630-9941 (16GB, MURATA)
 BOM 639-0437 (32GB, USI)
 BOM 639-0609 (32GB, MURATA)
 BOM 639-0608 (64GB, USI)
 BOM 639-0607 (64GB, MURATA)

H3P ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
339S0123	339S0108	?	U52	H3P + ELFIDA 512MB
339S0126	339S0108	?	U52	H3P + HYNIX 512MB

L9 (STROBE) ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S1173	152S0979	?	L9	

VIDEO BUFFER ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
353S2684	353S2493	?	U9	INTERSIL BUFFER

G3 RF ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0371	197S0349	?	G3_RF	
197S0364	197S0349	?	G3_RF	

FL1 RF ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
155S0452	155S0435	?	FL1_RF	

G2 RF ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0334	197S0292	?	G2_RF	

Y1 RF ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0329	197S0299	?	Y1_RF	
197S0369	197S0299	?	Y1_RF	

Y2 RF ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0342	197S0297	?	Y2_PMU	

L2 PMU ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S1172	152S0928	?	L2_PMU	

L7 PMU ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S1051	152S0927	?	L7_PMU	

LCD BL DRIVER ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
376S0769	376S0768	?	Q1_PMU	LCD BL FET DRIVER

Y1 PMU ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0329	197S0299	?	Y1_PMU	
197S0369	197S0299	?	Y1_PMU	

PMU POWER IND ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
607-6810	607-6809	?	L1_L3_L16_L18_PMU	CYNTEC INDUCTORS
197S0369	197S0299	?	Y1_PMU	

SCH & PCB BOM CALLOUT

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
051-7921	1	N90_SCHEMATIC_TOP	SCH	Y	?
820-2548	1	N90_SINGLE_BOARD	PCB	Y	?

H3P BOM CALLOUT

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
339S0108	1	H3P WITH 512MB SAMSUNG DDR	U52	Y	?

BB MEMORY BOM CALLOUT

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
341S2509	1	BB_MEM_PROGRAMMED	U4_RF	Y	BB_MEM

N90 EEE BOM LABELS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
825-2029	1	EEE FOR 630-9941 (16G)	EEE_6LU	Y	GOOD_MURATA
825-2029	1	EEE FOR 639-0609 (32G)	EEE_D7F	Y	BETTER_MURATA
825-2029	1	EEE FOR 639-0607 (64G)	EEE_D7D	Y	BEST_MURATA
825-2029	1	EEE FOR 639-0648 (16G)	EEE_DPM	Y	GOOD_USI
825-2029	1	EEE FOR 639-0437 (32G)	EEE_BA0	Y	BETTER_USI
825-2029	1	EEE FOR 639-0608 (64G)	EEE_D7E	Y	BEST_USI

NAND BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
335S0682	1	16GB SAMSUNG 35NM FLASH WLG52	U1	Y	GOOD_MURATA
335S0665	1	32GB SAMSUNG 35NM FLASH TLGA52	U1	Y	BETTER_MURATA
335S0707	1	64GB SAMSUNG 35NM FLASH LGA52	U1	Y	BEST_MURATA
117S0161	2	64GB NAND CE7 CE8 JUMPERS	R101, R102	Y	BEST_MURATA
335S0682	1	16GB SAMSUNG 35NM FLASH WLG52	U1	Y	GOOD_USI
335S0665	1	32GB SAMSUNG 35NM FLASH TLGA52	U1	Y	BETTER_USI
335S0707	1	64GB SAMSUNG 35NM FLASH LGA52	U1	Y	BEST_USI
117S0161	2	64GB NAND CE7 CE8 JUMPERS	R101, R102	Y	BEST_USI

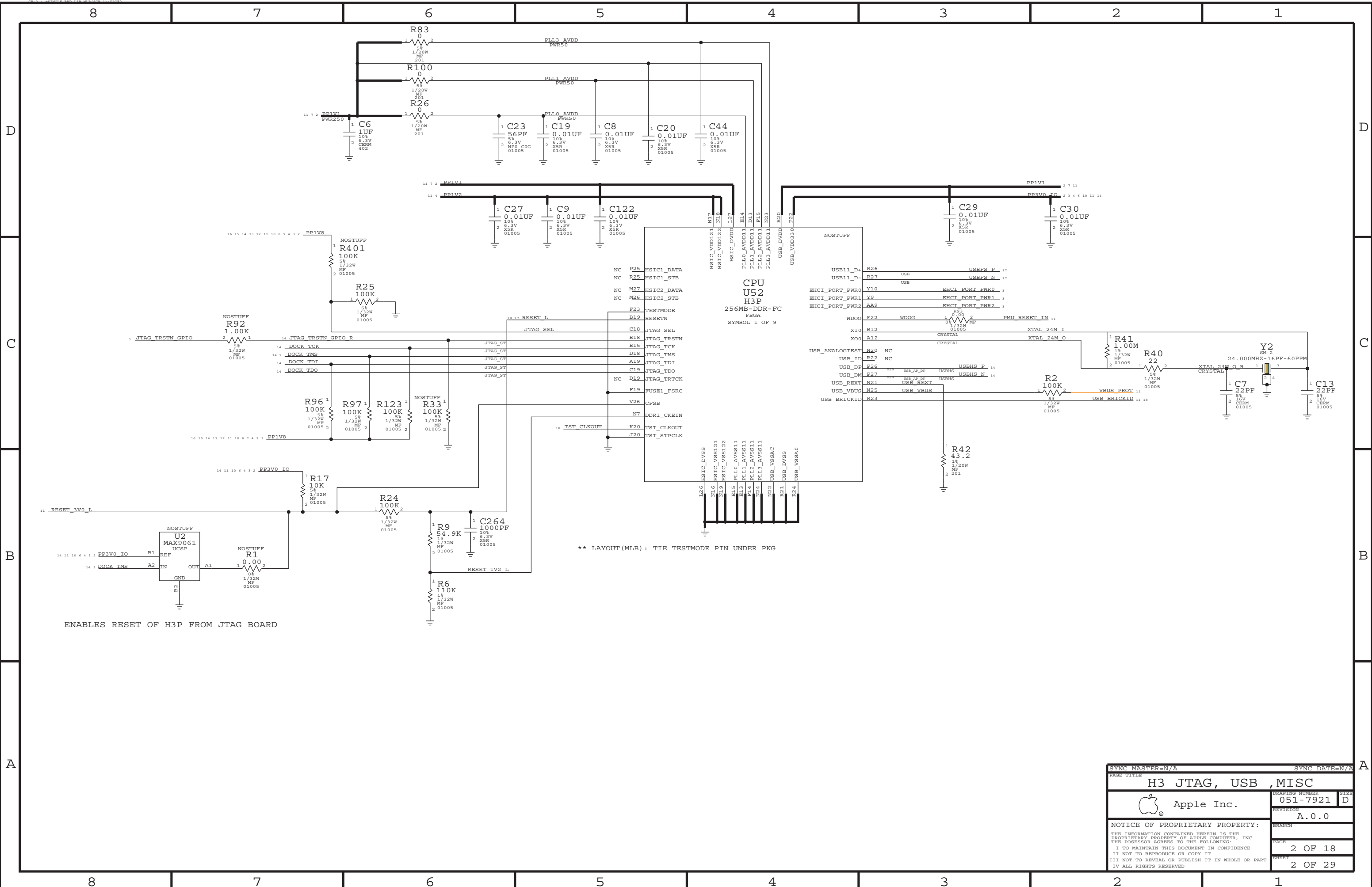
WIFI/BT BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
339S0092	1	MURATA WIFI_BT MODULE	U2_RF	Y	GOOD_MURATA
117S0161	1	MURATA ID RESISTOR	R47_RF	Y	GOOD_MURATA
339S0092	1	MURATA WIFI_BT MODULE	U2_RF	Y	BETTER_MURATA
117S0161	1	MURATA ID RESISTOR	R47_RF	Y	BETTER_MURATA
339S0091	1	USI WIFI_BT MODULE	U2_RF	Y	GOOD_USI
117S0161	1	USI ID RESISTOR	R46_RF	Y	GOOD_USI
339S0091	1	USI WIFI_BT MODULE	U2_RF	Y	BETTER_USI
117S0161	1	USI ID RESISTOR	R46_RF	Y	BETTER_USI
339S0091	1	USI WIFI_BT MODULE	U2_RF	Y	BEST_USI
117S0161	1	USI ID RESISTOR	R46_RF	Y	BEST_USI

PMU POWER IND CALLOUT

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
607-6809	1	POWER INDUCTORS	L1_L3_L16_L18_PMU	Y	?

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** LAYOUT (MLB) : TIE TESTMODE PIN UNDER PKG

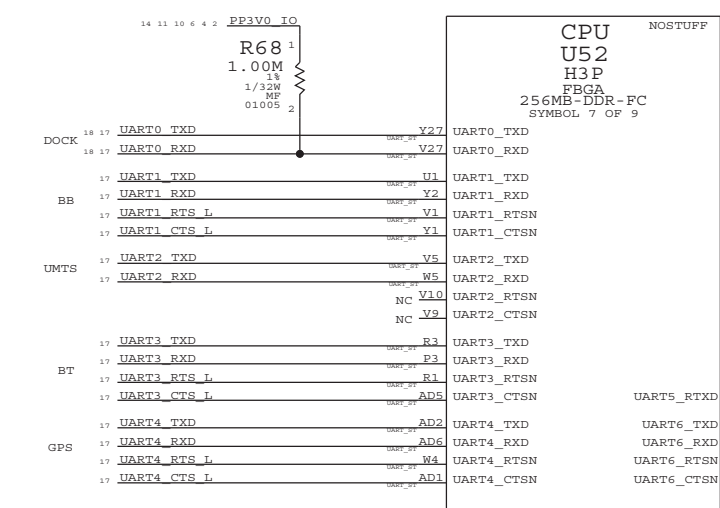
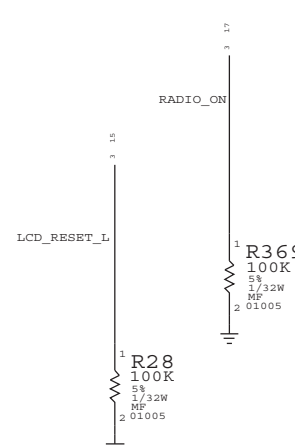
ENABLES RESET OF H3P FROM JTAG BOARD

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H3 JTAG, USB, MISC			
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Pin	Signal	IO	GPIO
11	MENU_KEY_BUFF_L	F6	GPIO0
14	HOLD_KEY_L	B6	GPIO1
18	VOL_UP_L	B7	GPIO2
18	VOL_DWN_L	D9	GPIO3
18	RINGER_A	D5	GPIO4
12	GYRO_INT2	A6	GPIO5
17	WLAN_RESET_L	A7	GPIO6
17	BT_WAKE	B9	GPIO7
17	BT_RESET_L	E6	GPIO8
17	RADIO_ON	A9	GPIO9
17	BB_RESET_L	C5	GPIO10
17	BB_RESET_DET_L	C9	GPIO11
17	IPC_SRDY	C6	GPIO12
17	PMU_IRQ_L	D6	GPIO13
6	CODEC_RESET_L	F5	GPIO14
	NC - DIF_MIC_SEL	E5	GPIO15
13	AUDIENCE_RESET_L	F9	GPIO16
3	JTAG_TRSTN_GPIO	F3	GPIO17
8	CODEC_INT_L	F4	GPIO18
11	KEEPACT	C10	GPIO19
15	GRAPE_RESET_L	F10	GPIO20
18	NIMBUS_INT_L	E10	GPIO21
15	LCD_RESET_L	A4	GPIO22
15	LCD_HFPA	B4	GPIO23
10	COMPASS_BRD_INT	E4	GPIO24
	NC - GPIO25_CONFIG1	E2	GPIO25
18	FORCE_DFU	D10	GPIO26
	NC - DFU_STATUS	E9	GPIO27
3	GPIO28_CONFIG2	L2	GPIO28
3	GPIO29_CONFIG3	G1	GPIO29
17	GPS_RESET_AP_L	G2	GPIO30
17	GPS_STANDBY_AP_L	E3	GPIO31
17	GPS_INTR_L	R3	GPIO32
12	GYRO_INT1	A3	GPIO33
14	CAM_VGA_SHUTDOWN_L	B2	GPIO34
		H2	GPIO35
12	ACCEL_INT1_L	L1	GPIO36
14	ALS_INT_L	H1	GPIO37
12	ACCEL_INT2_L	E1	GPIO38
6	VIDEOAMP_EN_3V0	W24	GPIO_3V0
	NC - SEL_SECURE_BOOT_3V0	W25	GPIO_3V1

Signal	IO	GPIO
SENSOR_CLK	W20	GPIO14
SENSOR_RST	V21	GPIO14
SPDIF	R18	NC
TMR32_PWM0	AB25	GPIO13
TMR32_PWM1	AB27	GPIO11
TMR32_PWM2	AB26	GPIO14
SMII_CLKSEL0	K18	GPIO17
SMII_CLKSEL1	K19	GPIO17
SMII_TXD	G18	GPIO4
SMII_RXD	J18	GPIO4
SMII_SYNC	G19	GPIO14
SMII_CLK	K21	GPIO4
SMII_RDY	K21	GPIO17
SMII_SRDY	K22	GPIO13
SMII_WAKE	J19	GPIO4
SMII_PWR	H19	GPIO3
CAM_CLK		GPIO14
CAM_5MP_SHUTDOWN		GPIO14
L61HP_CLK_PWM		GPIO13
VIB_PWM_EN		GPIO11
CAM_STROBE_EN		GPIO14
AP_PMU_EXTON		GPIO17
GPS_SYNC		GPIO17
A1_GND		GPIO4
A27_GND		GPIO4
SPKRAMP_EN		GPIO14
AG1_GND		GPIO4
HP_GPIO_A		GPIO17
IPC_GPIO		GPIO13
AG27_GND		GPIO4
SMII_PWR		GPIO3

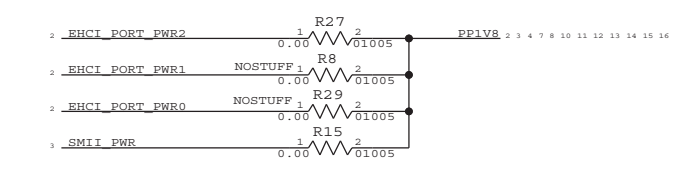
TODO: DO WE NEED A SERIES R HERE (THERE IS ONE ON DEV2)



```

BOARD_REV[3:0] = {EHCI_PORT_PWR2, EHCI_PORT_PWR1, EHCI_PORT_PWR0, SMII_PWR}
1111  PROTO0
1110  PROTO1
1101  PROTO2
1100  EVT1
1011  EVT2
1010  EVT2_COMPBUTTON
1001  DVT <---SELECTED

```



```

BOARD_ID[0:2] = {SPI0_SCLK, SPI0_MOSI, SPI0_MISO}
000  N90_MLB <---SELECTED
100  N90_DEV
010  XXX_AP
110  XXX_DEV
001  XXX_AP
101  XXX_DEV

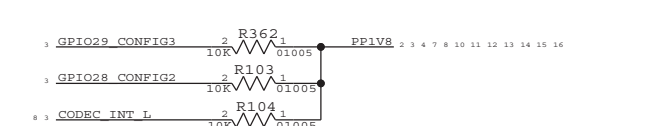
```

NOTE: NO COMPONENTS REQUIRED!

```

FLOAT=LOW, PULLUP=HIGH
BOOT_CONFIG[3:0] = {GPIO29_CONFIG3, GPIO28_CONFIG2, GPIO25_CONFIG1, CODEC_INT_L}
0000  SPI0
0001  SPI3
0010  SPI0_W/TEST
0011  SPI3_W/TEST
0100  FMIO_2CS
0101  FMIO_4CS
0110  FMIO_4CS_W/TEST
0111  RESERVED
1000  FMIO_2_CS
1001  FMIO_4_CS
1010  FMIO_4CS_W/TEST
1100  FMIO/1_2/2_CS
1101  FMIO/1_4/4_CS <---SELECTED
1110  FMIO/1_4/4_CS_W/TEST
1111  RESERVED

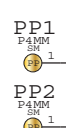
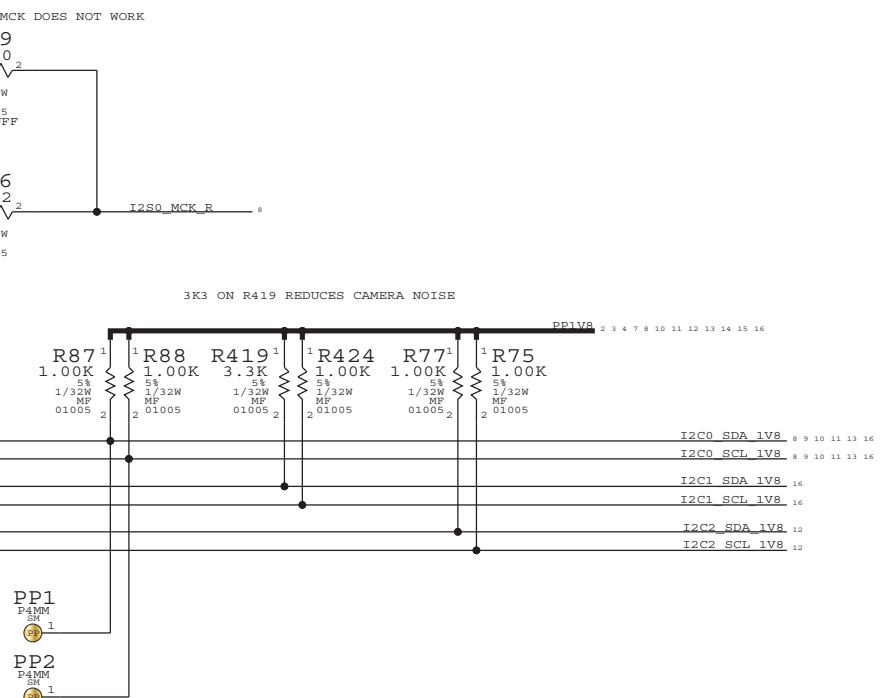
```



Pin	Signal	IO	GPIO
17	WLAN_SDIO_DATA<3:0>	J24	SDIO0_DATA0
17	WLAN_SDIO_DATA1	J25	SDIO0_DATA1
17	WLAN_SDIO_DATA2	J26	SDIO0_DATA2
17	WLAN_SDIO_DATA3	J27	SDIO0_DATA3
17	WLAN_SDIO_CMD	K25	SDIO0_CMD
17	WLAN_SDIO_CLK	J21	SDIO0_CLK
		V4	SPI0_SCLK
		W7	SPI0_MOSI
		V6	SPI0_MISO
		W3	SPI0_SSIN
18	SPI1_SCLK	V3	SPI1_SCLK
18	SPI1_MOSI	W8	SPI1_MOSI
18	SPI1_MISO	U2	SPI1_MISO
15	SPI1_CS_L	V2	SPI1_SSIN
17	SPI2_SCLK	AA2	SPI2_SCLK
17	SPI2_MOSI	AA1	SPI2_MOSI
17	SPI2_MISO	V7	SPI2_MISO
17	SPI2_MRDY	W6	SPI2_SSIN

Signal	IO	GPIO
I2S0_DIN	W21	GPIO8
I2S0_DOUT	W22	GPIO8
I2S0_BCLK	V23	GPIO8
I2S0_LRCLK	V18	GPIO8
I2S0_MCK	V20	GPIO8
I2S1_DIN	V24	GPIO13
I2S1_DOUT	W19	GPIO13
I2S1_BCLK	V25	GPIO13
I2S1_LRCLK	V15	GPIO13
I2S1_MCK	AB22	GPIO8
I2S2_DIN	R17	GPIO13
I2S2_DOUT	R16	GPIO13
I2S2_BCLK	V26	GPIO13
I2S2_LRCLK	AB23	GPIO13
I2S2_MCK	W23	GPIO13
I2C0_SDA	AB6	GPIO17
I2C0_SCL	AB5	GPIO17
I2C1_SDA	AB4	GPIO17
I2C1_SCL	AB3	GPIO17
I2C2_SDA	AD15	GPIO17
I2C2_SCL	AC15	GPIO17
L61HP_CLK_PWM		GPIO13
I2S0_MCK_R		GPIO8

** BACKUP IN CASE I2S0_MCK DOES NOT WORK



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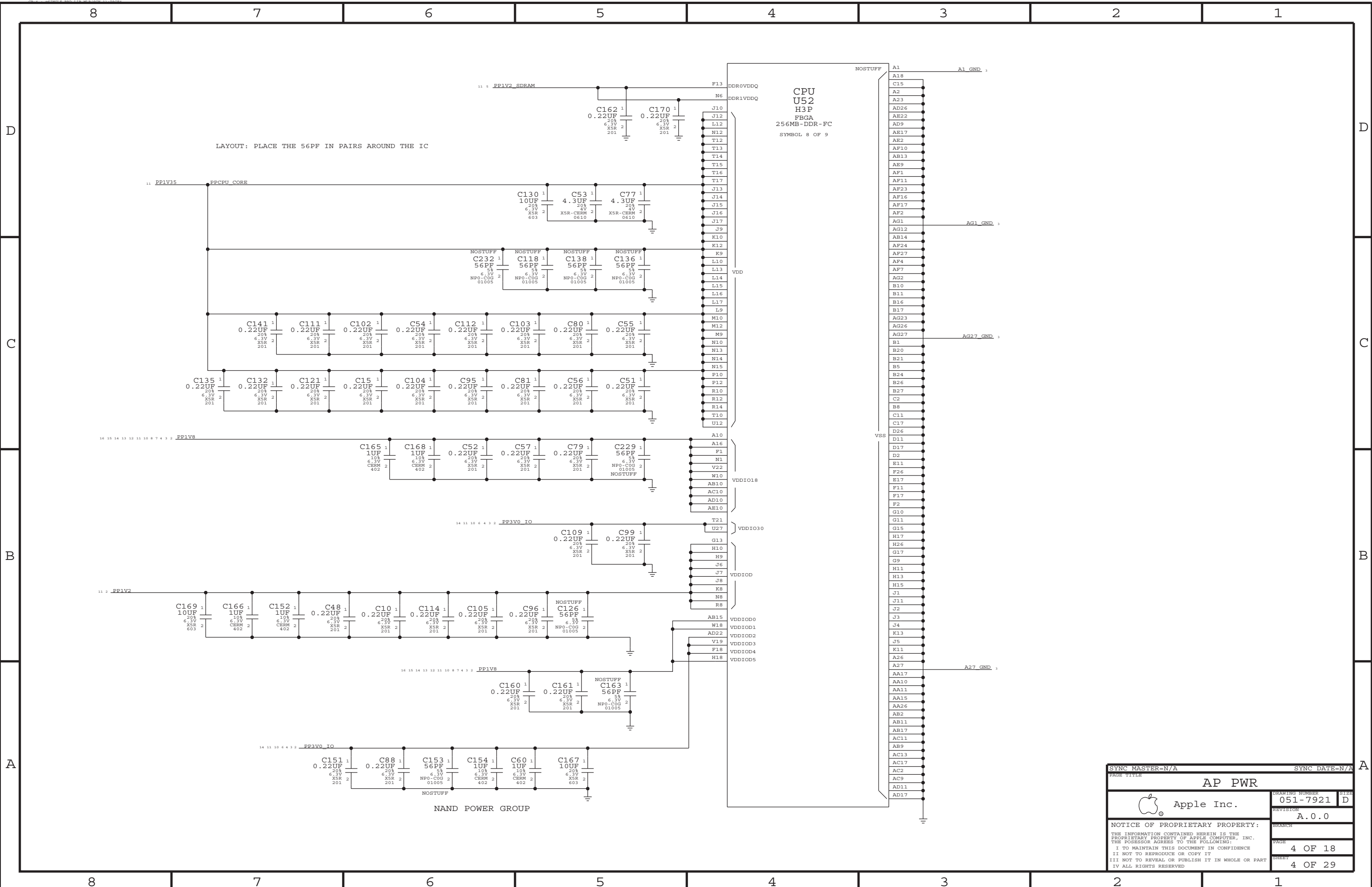
H3 GPIO, UART, SPI, I2S, I2C, SDIO

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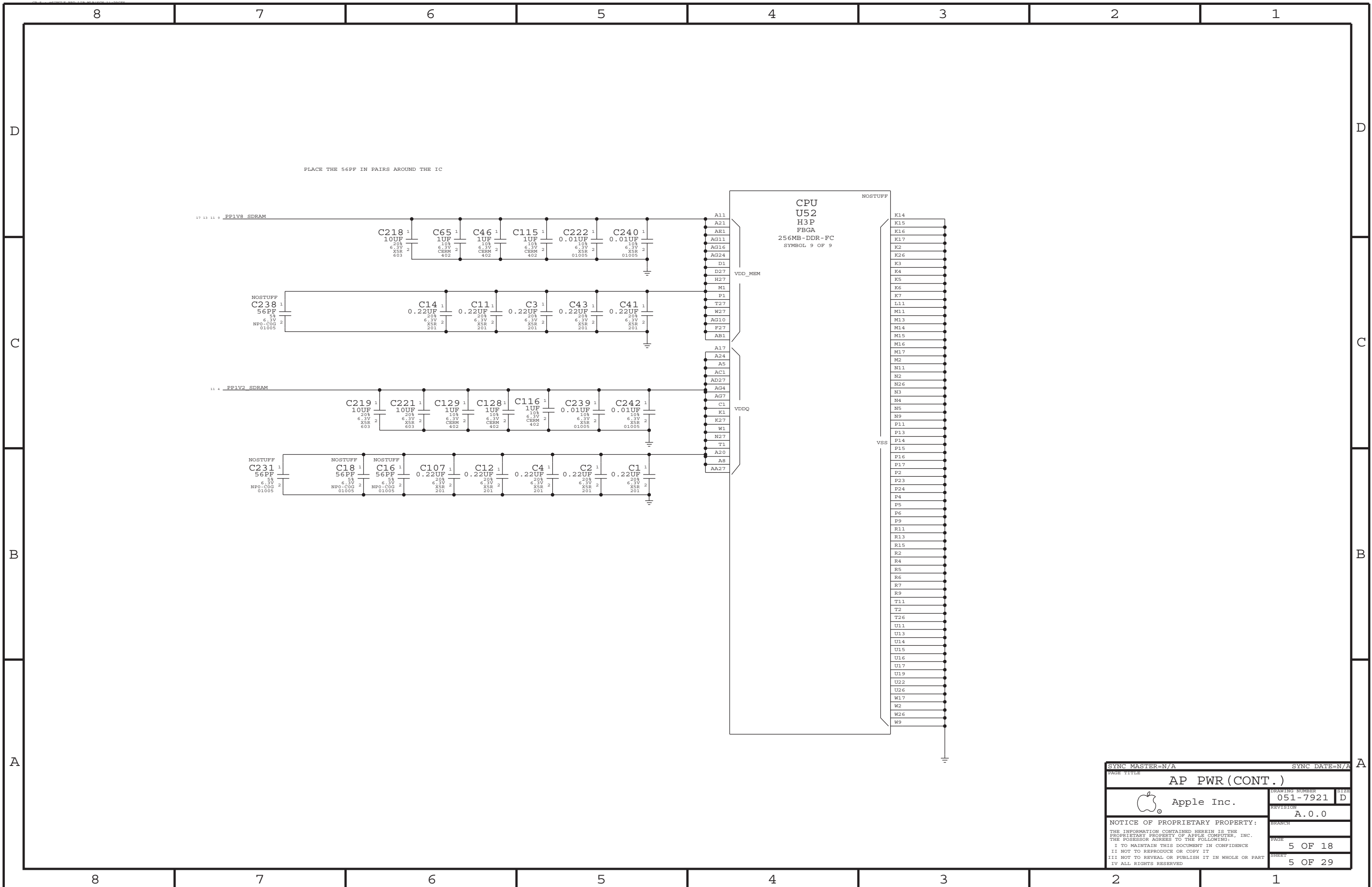


LAYOUT: PLACE THE 56PF IN PAIRS AROUND THE IC

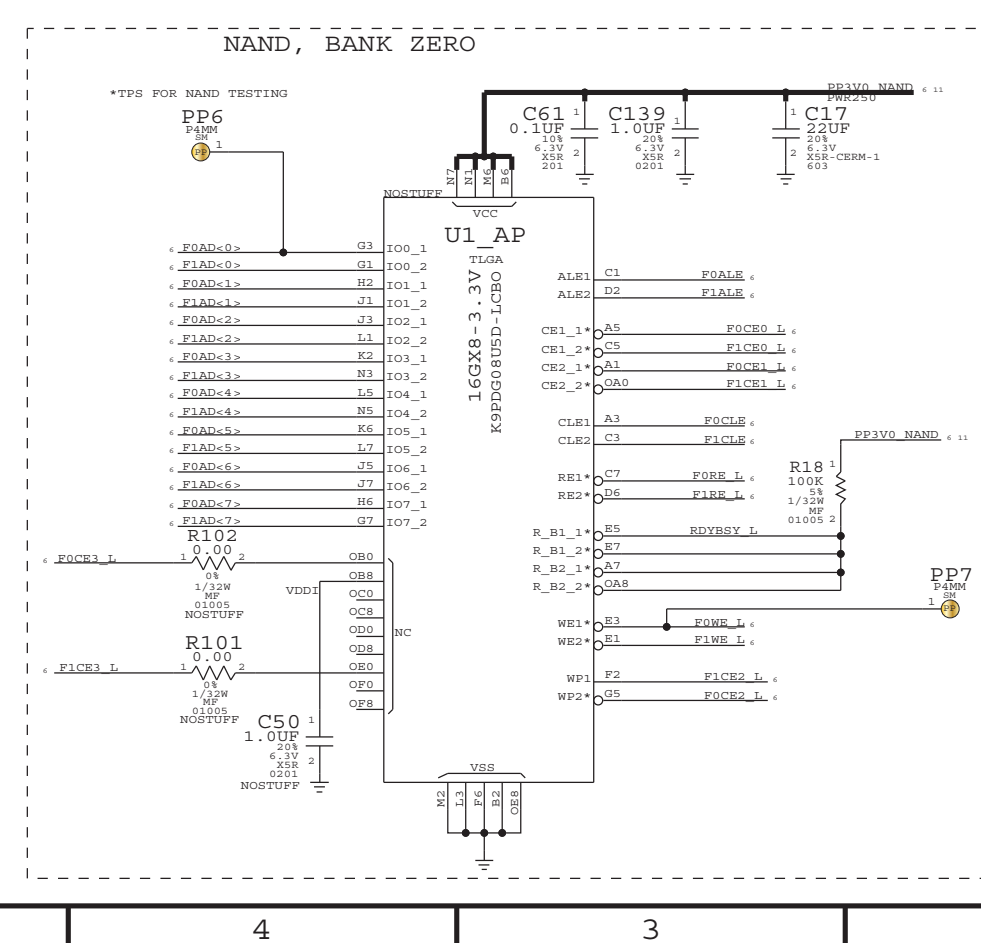
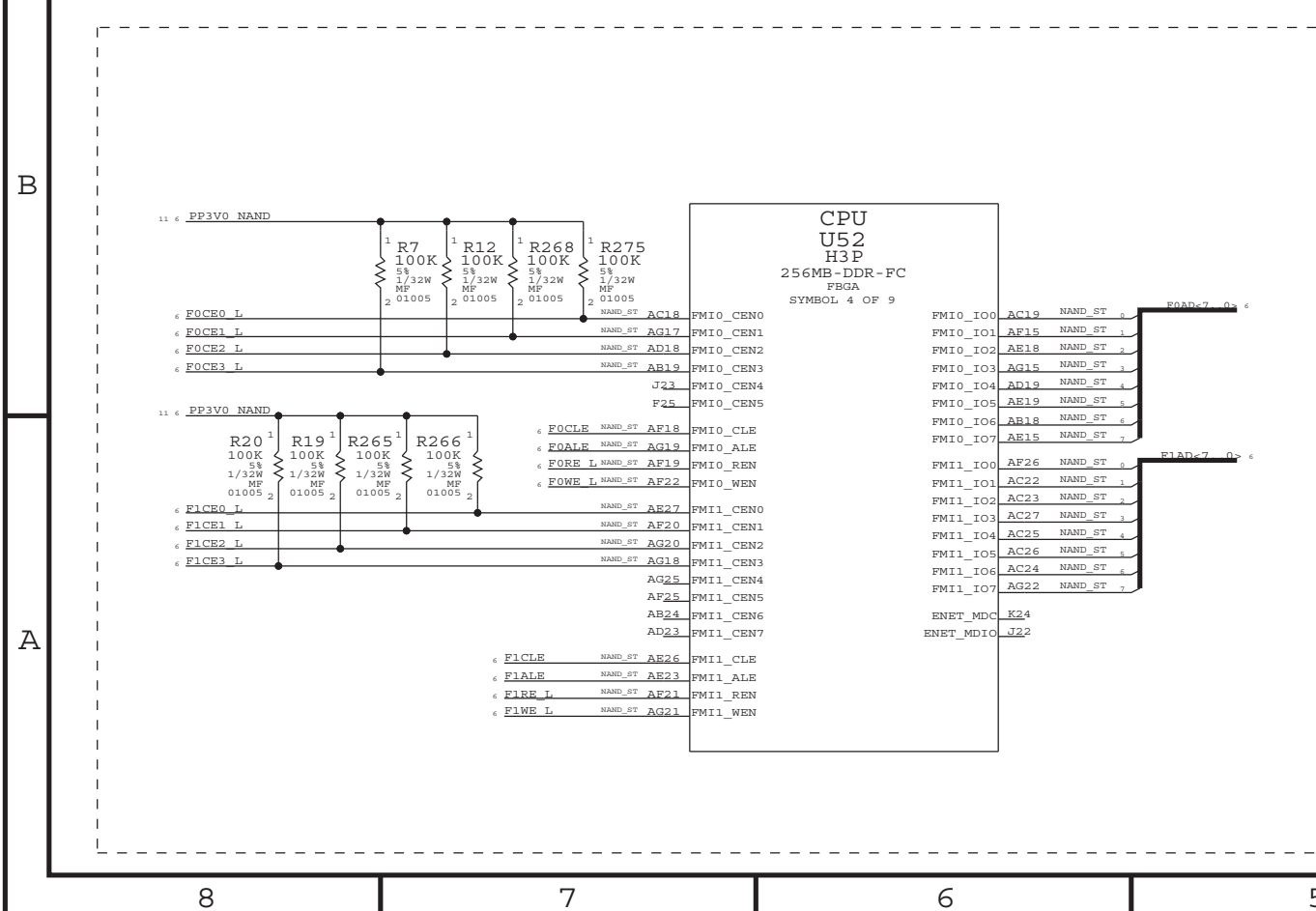
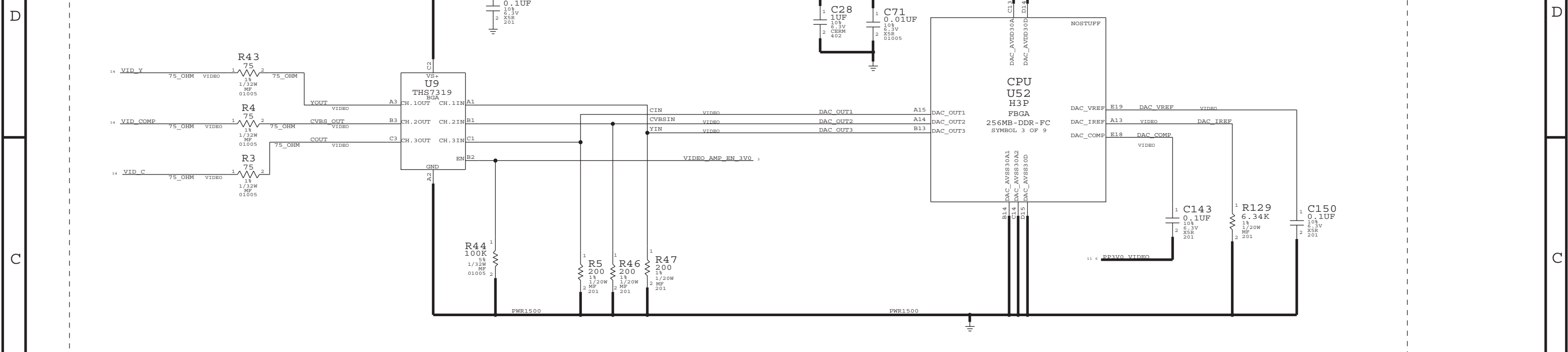
CPU
U52
H3P
FPGA
256MB-DDR-FC
SYMBOL 8 OF 9

NAND POWER GROUP

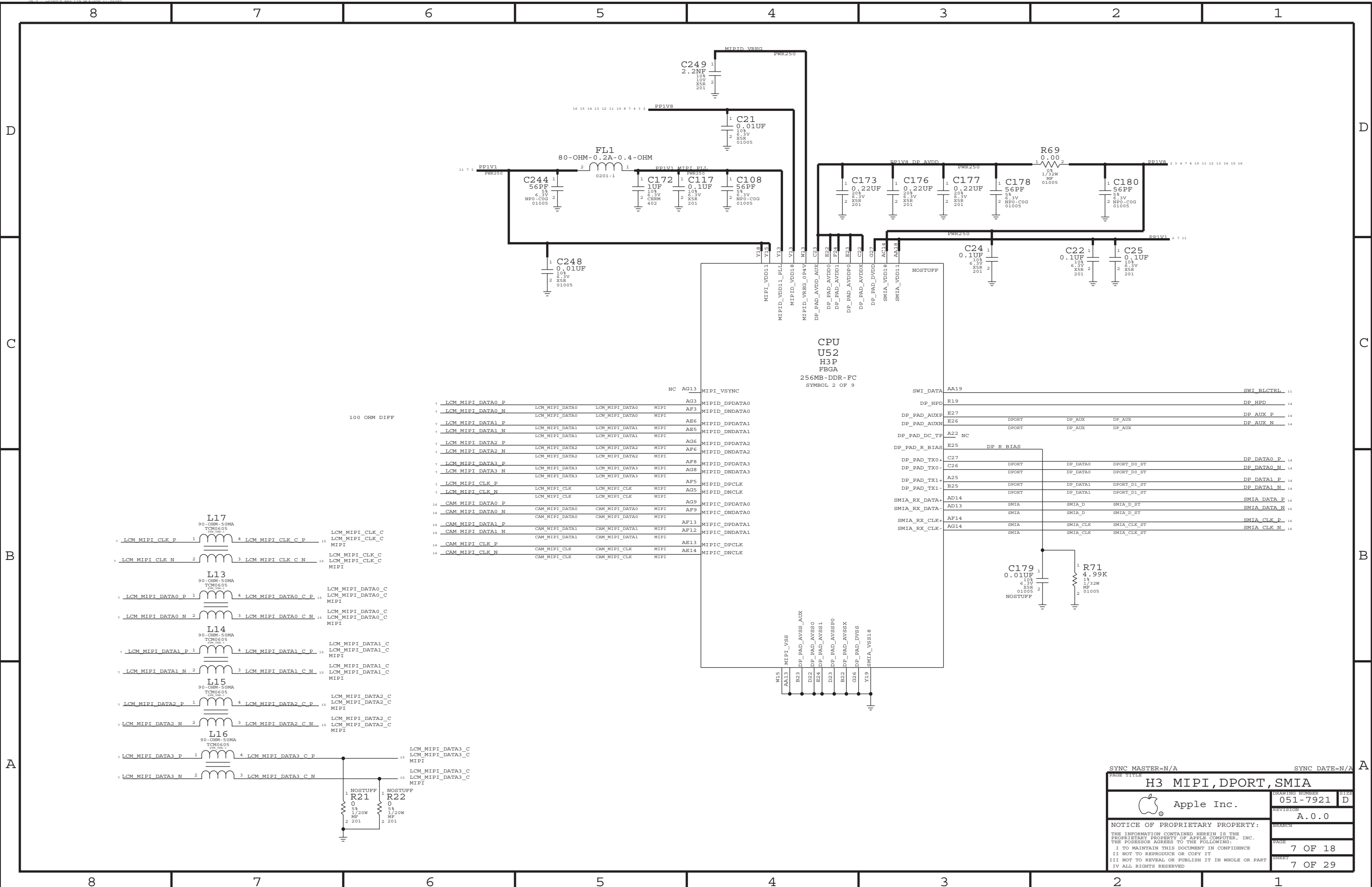
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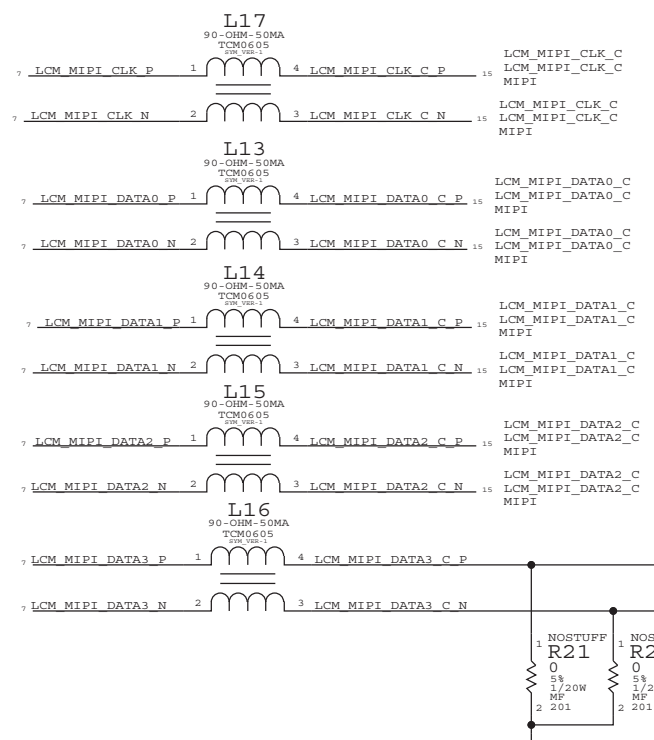


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NC	AG13	MIPI_VSYNC	SWI_DATA	AA19	SWI_BLCCTRL	
7	LCM_MIPI_DATA0_P	LCM_MIPI_DATA0	LCM_MIPI_DATA0	MIPI	AG3	MIPI_DPDATA0
7	LCM_MIPI_DATA0_N	LCM_MIPI_DATA0	LCM_MIPI_DATA0	MIPI	AF3	MIPI_DNDATA0
7	LCM_MIPI_DATA1_P	LCM_MIPI_DATA1	LCM_MIPI_DATA1	MIPI	AE6	MIPI_DPDATA1
7	LCM_MIPI_DATA1_N	LCM_MIPI_DATA1	LCM_MIPI_DATA1	MIPI	AE5	MIPI_DNDATA1
7	LCM_MIPI_DATA2_P	LCM_MIPI_DATA2	LCM_MIPI_DATA2	MIPI	AG6	MIPI_DPDATA2
7	LCM_MIPI_DATA2_N	LCM_MIPI_DATA2	LCM_MIPI_DATA2	MIPI	AF6	MIPI_DNDATA2
7	LCM_MIPI_DATA3_P	LCM_MIPI_DATA3	LCM_MIPI_DATA3	MIPI	AF8	MIPI_DPDATA3
7	LCM_MIPI_DATA3_N	LCM_MIPI_DATA3	LCM_MIPI_DATA3	MIPI	AG8	MIPI_DNDATA3
7	LCM_MIPI_CLK_P	LCM_MIPI_CLK	LCM_MIPI_CLK	MIPI	AF5	MIPI_DPCLK
7	LCM_MIPI_CLK_N	LCM_MIPI_CLK	LCM_MIPI_CLK	MIPI	AG5	MIPI_DNCLK
16	CAM_MIPI_DATA0_P	CAM_MIPI_DATA0	CAM_MIPI_DATA0	MIPI	AG9	MIPI_DPDATA0
16	CAM_MIPI_DATA0_N	CAM_MIPI_DATA0	CAM_MIPI_DATA0	MIPI	AF9	MIPI_DNDATA0
16	CAM_MIPI_DATA1_P	CAM_MIPI_DATA1	CAM_MIPI_DATA1	MIPI	AF13	MIPI_DPDATA1
16	CAM_MIPI_DATA1_N	CAM_MIPI_DATA1	CAM_MIPI_DATA1	MIPI	AF12	MIPI_DNDATA1
16	CAM_MIPI_CLK_P	CAM_MIPI_CLK	CAM_MIPI_CLK	MIPI	AE13	MIPI_DPCLK
16	CAM_MIPI_CLK_N	CAM_MIPI_CLK	CAM_MIPI_CLK	MIPI	AE14	MIPI_DNCLK

DP_PAD_AUXP	E27	DPORT	DP_AUX	DP_AUX	DP_AUX_P
DP_PAD_AUXN	E26	DPORT	DP_AUX	DP_AUX	DP_AUX_N
DP_PAD_DC_TP	A22	NC			
DP_PAD_R_BIAS	E25	DP_R_BIAS			
DP_PAD_TX0+	C27	DPORT	DP_DATA0	DPORT_D0_ST	DP_DATA0_P
DP_PAD_TX0-	C26	DPORT	DP_DATA0	DPORT_D0_ST	DP_DATA0_N
DP_PAD_TX1+	A25	DPORT	DP_DATA1	DPORT_D1_ST	DP_DATA1_P
DP_PAD_TX1-	B25	DPORT	DP_DATA1	DPORT_D1_ST	DP_DATA1_N
SMIA_RX_DATA+	AD14	SMIA	SMIA_D	SMIA_D_ST	SMIA_DATA_P
SMIA_RX_DATA-	AD13	SMIA	SMIA_D	SMIA_D_ST	SMIA_DATA_N
SMIA_RX_CLK+	AF14	SMIA	SMIA_CLK	SMIA_CLK_ST	SMIA_CLK_P
SMIA_RX_CLK-	AG14	SMIA	SMIA_CLK	SMIA_CLK_ST	SMIA_CLK_N

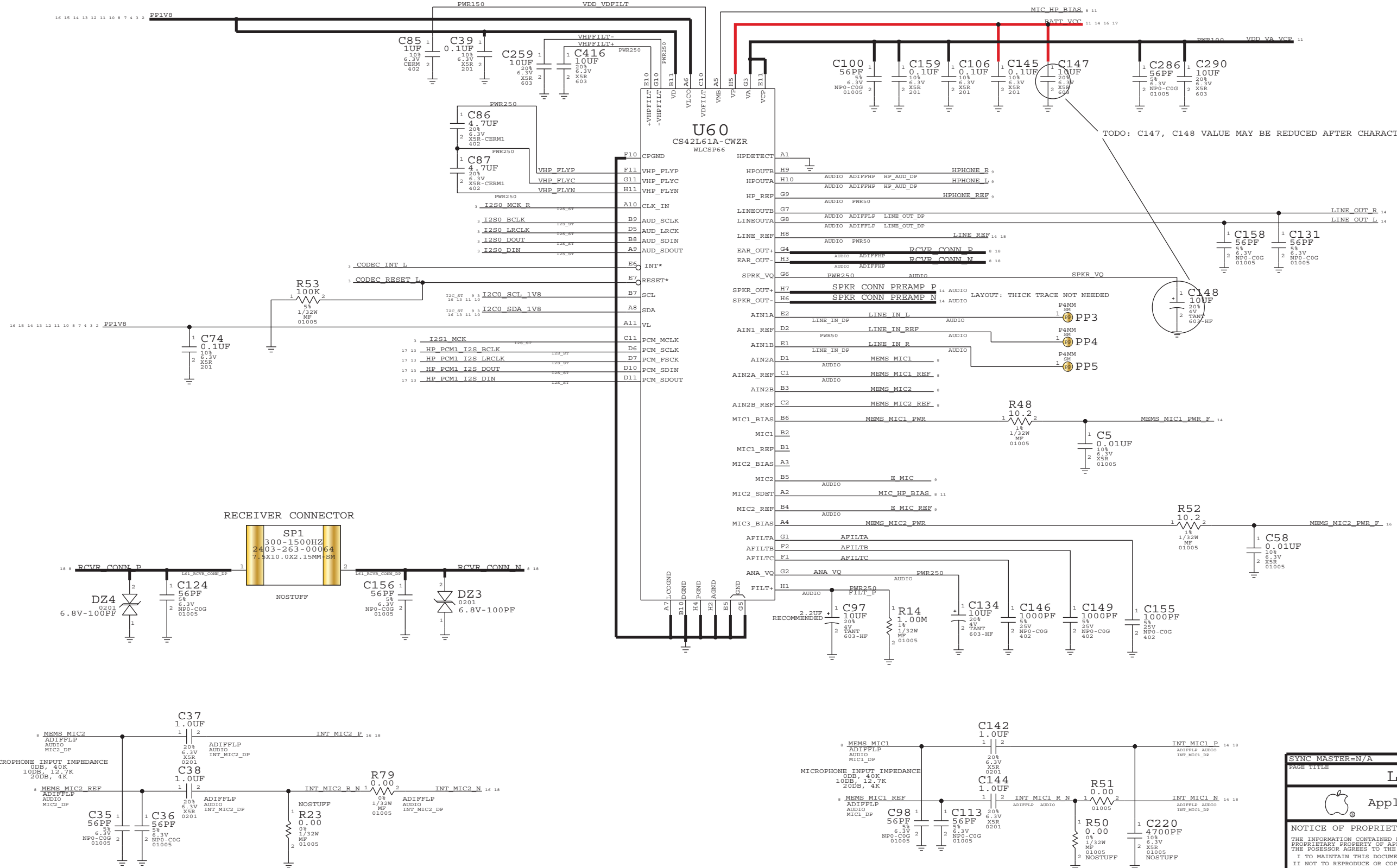


DRAWING NUMBER		051-7921	SIZE	D
REVISION		A.0.0		
PAGE		7 OF 18		
SHEET		7 OF 29		

SYNC MASTER=N/A SYNC DATE=N/A
H3 MIPI, DPORT, SMIA
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L61 AUDIO IC INTERFACE

I2C ADDRESS: 1001010X

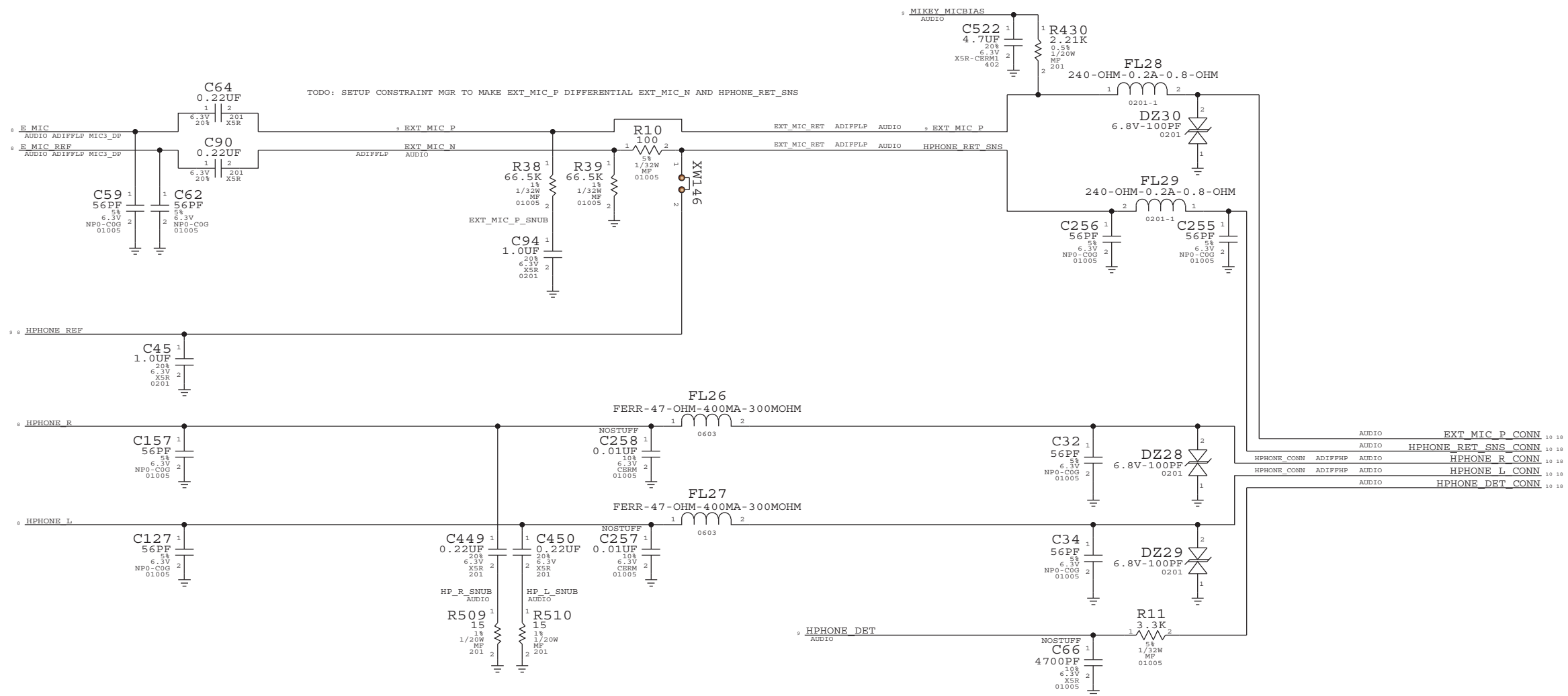


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L61 CODEC	
Apple Inc.	DRAWING NUMBER: 051-7921
REVISION: A.0.0	SIZE: D
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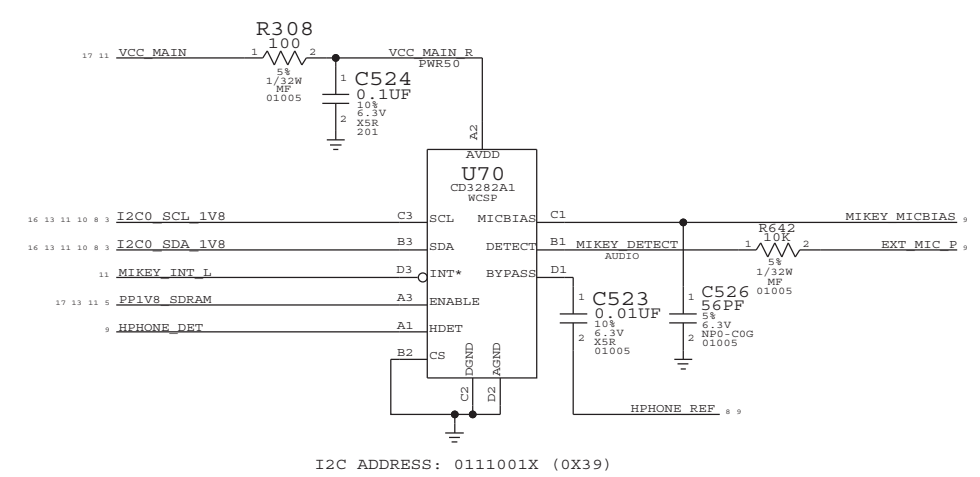
PLACED AT CODEC

PLACED IN CODEC AREA

PLACED BY B2B



EXTERIOR MIC/HP DETECT IC



SYNC MASTER=N/A		SYNC DATE=N/A	
HPHONE FILTERS, MIKEY			
DRAWING NUMBER	051-7921	SIZE	D
REVISION	A.0.0		
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PAGE	9 OF 18		
SHEET	9 OF 29		

D

C

B

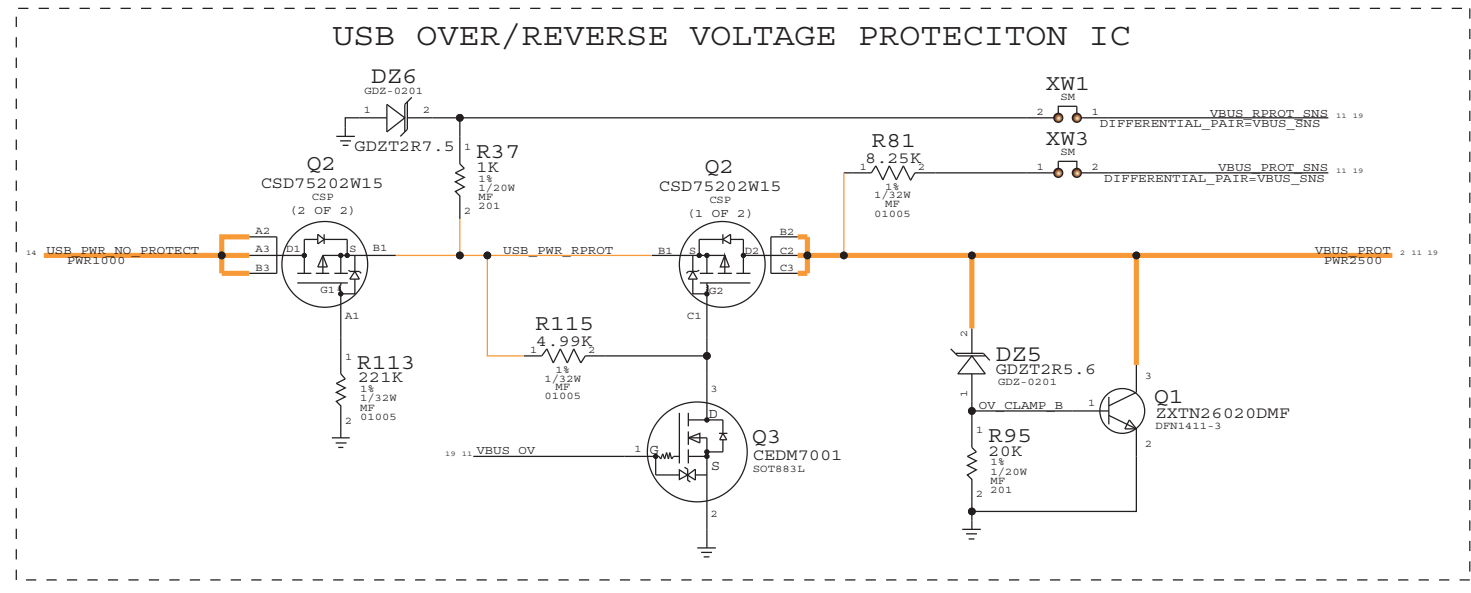
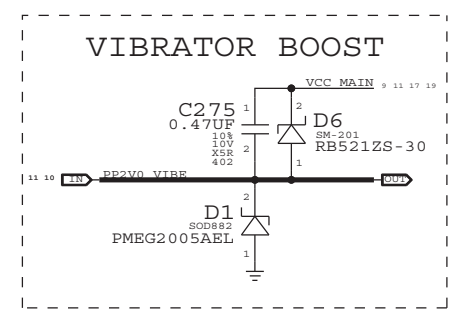
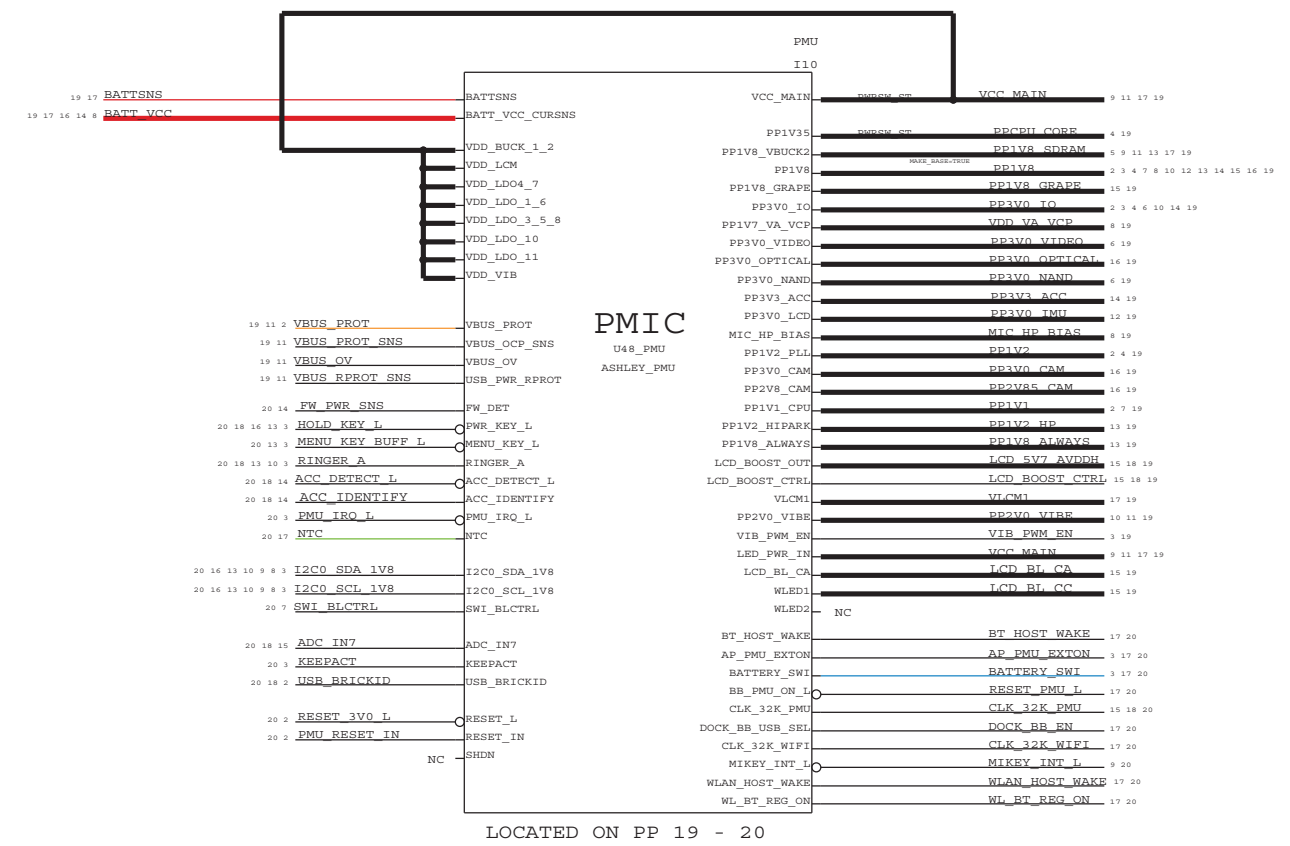
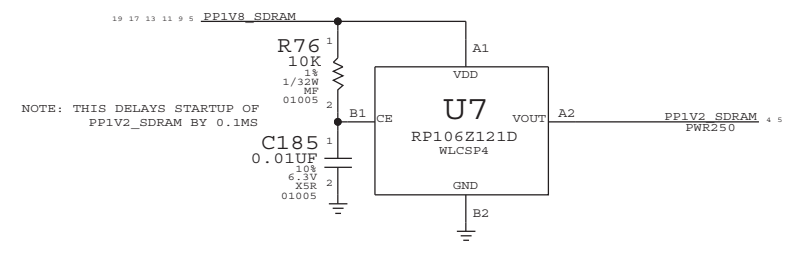
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D

C

B

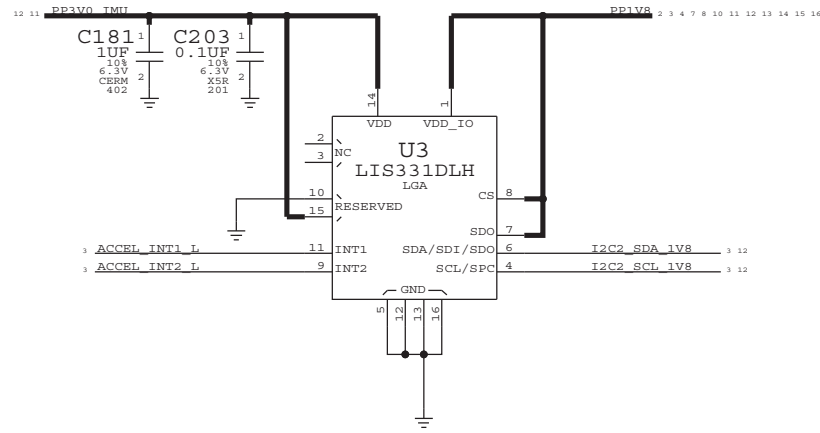
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SYNC MASTER=N/A		SYNC DATE=N/A	
ASHLEY PMU			
DRAWING NUMBER		051-7921	SIZE
REVISION		A.0.0	
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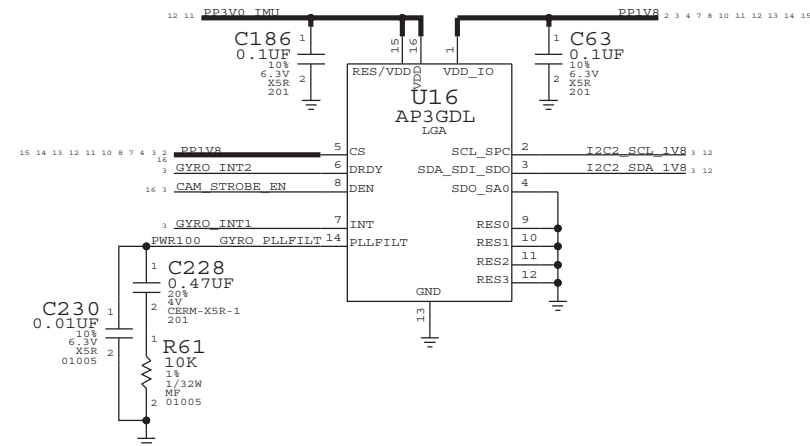
ACCELEROMETER IC

I2C ADDRESS: 0011101X (0X1D)



apple motion
move your graphics

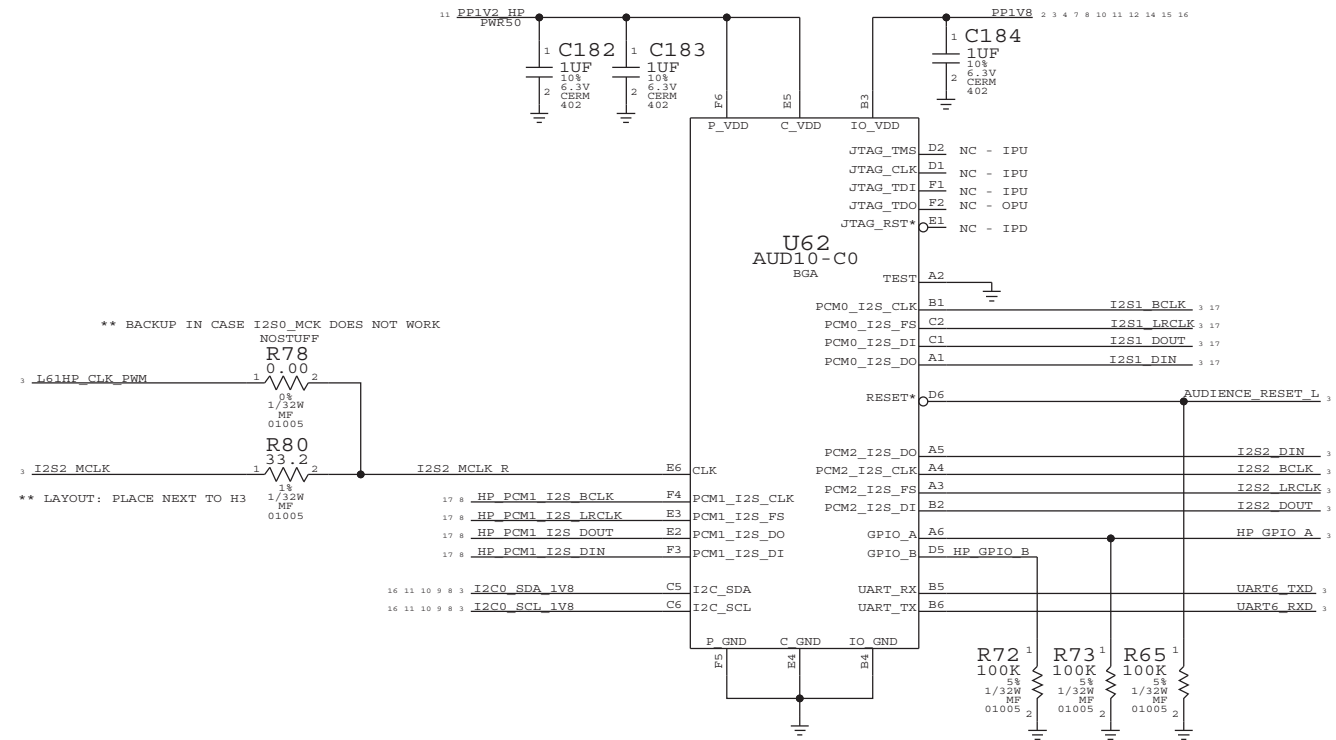
GYROSCOPE IC



SYNC MASTER=N/A	SYNC DATE=N/A
PAGE TITLE	
ACCEL, GYRO	
DRAWING NUMBER	051-7921
REVISION	A.0.0
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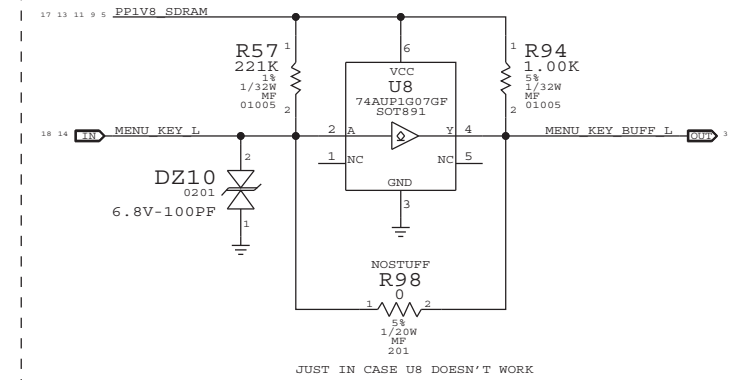
AUDIENCE IC HIGHLAND PARK

I2C ADDRESS: 0111110X (0X3E)

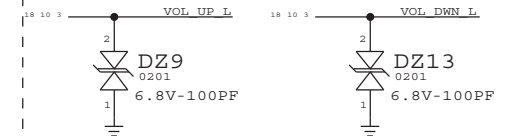


MENU KEY PU,ESD AND BUFFER IC

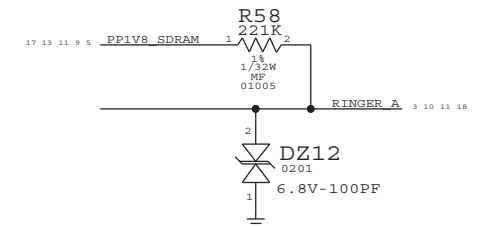
BUFFER IS NEEDED BECAUSE OF IT'S LOW V_{IH} AND LEAKAGE IT MUST BE OPEN DRAIN SO THAT WHEN PPIV8_SDRAM IS DOWN, MENU_KEY_BUFF_L IS PULLED LOW THROUGH R94 AND INTERNAL PULLDOWN IN ASHLEY.



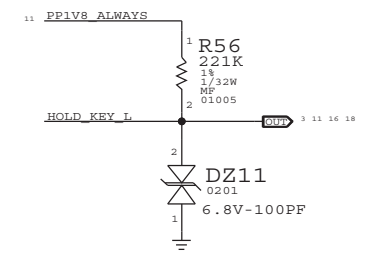
VOLUME SWITCH ESD



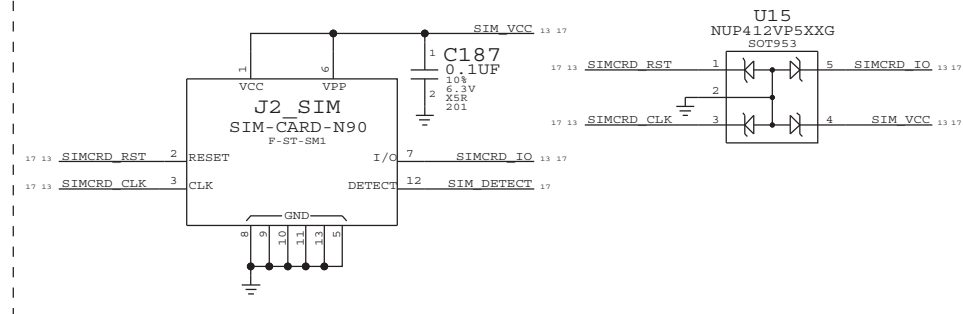
RINGER A/B SWITCH PU AND ESD



POWER/HOLD KEY PU AND ESD



SIM CARD SLOT AND ESD IC



SYNC MASTER=N/A	SYNC DATE=N/A
DRAWING NUMBER: 051-7921	
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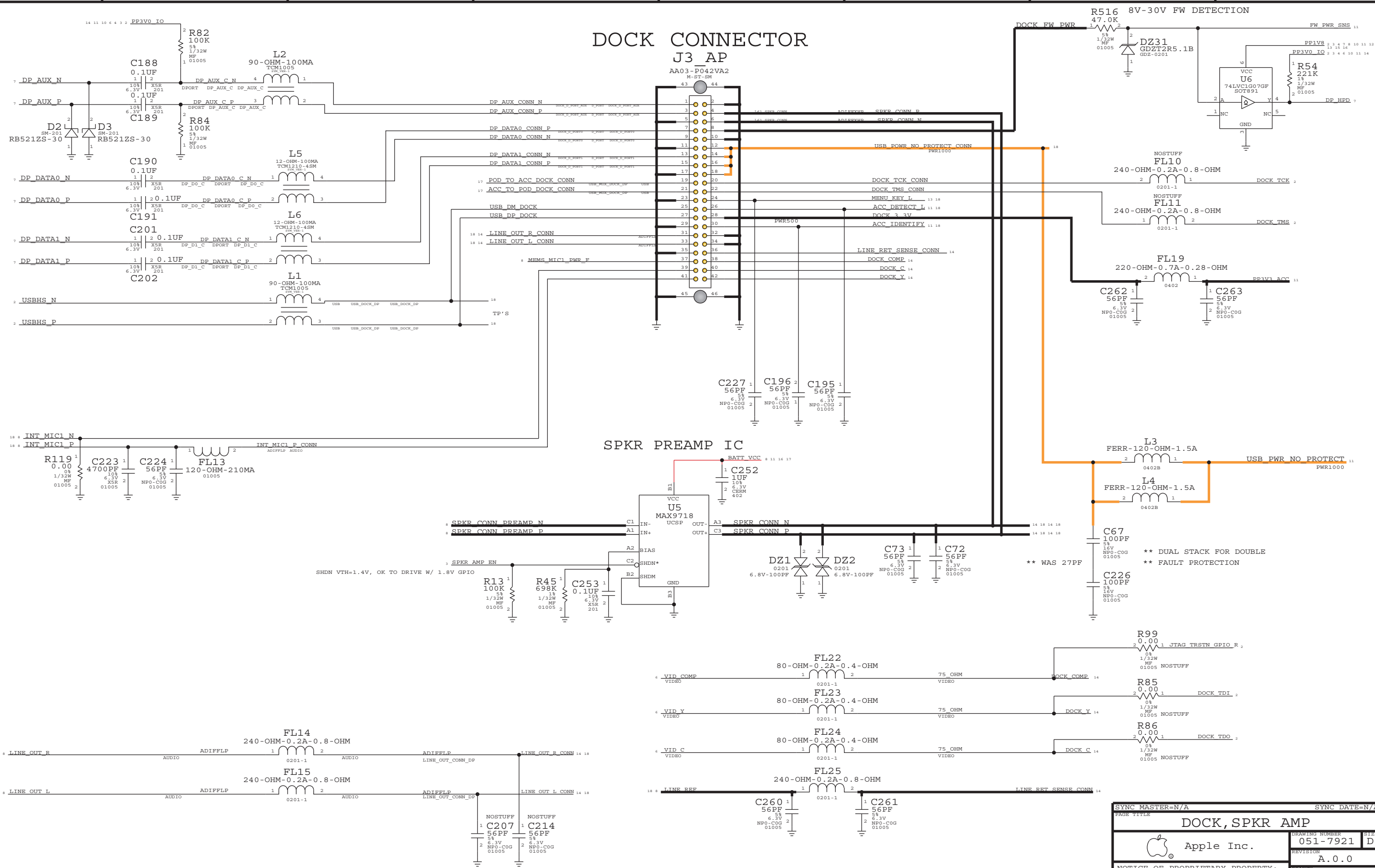
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DOCK CONNECTOR

J3_AP

AA03-P042VA2

M-ST-SM

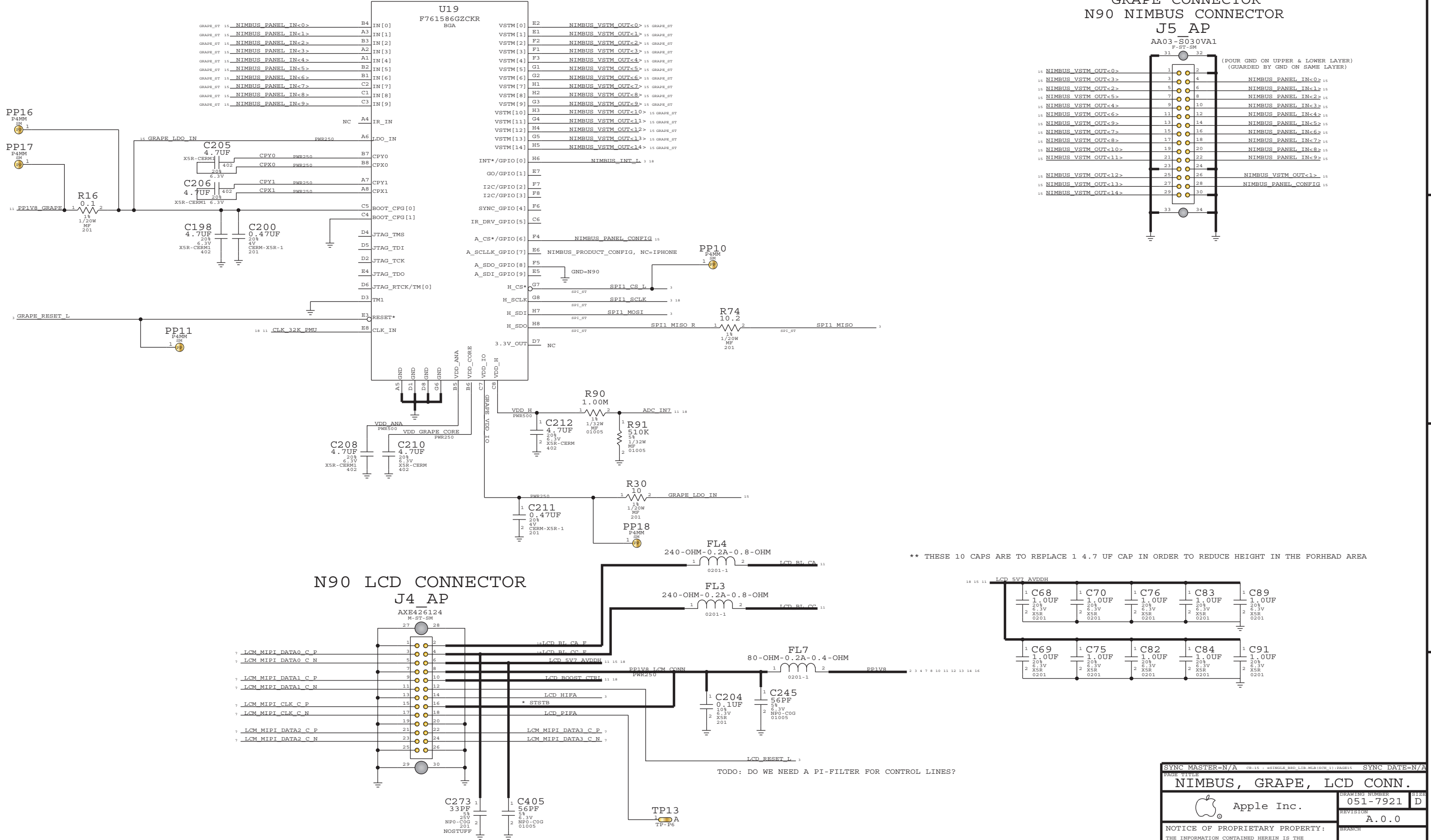


PAGE TITLE		SYNC DATE=N/A	
DOCK, SPKR AMP			
Apple Inc.		DRAWING NUMBER	051-7921
		REVISION	A.0.0
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NIMBUS TOUCH SCREEN IC

TOUCH SCREEN GRAPE CONNECTOR N90 NIMBUS CONNECTOR J5 AP

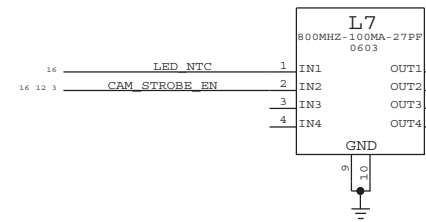
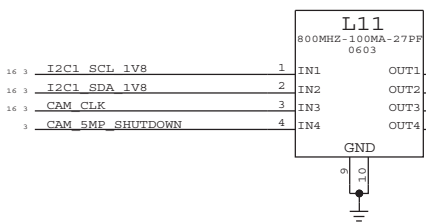
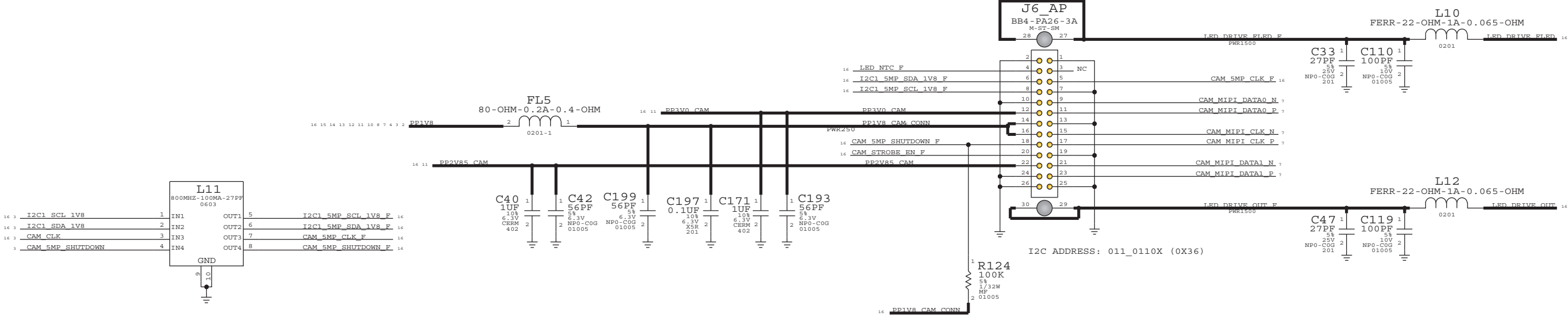


** THESE 10 CAPS ARE TO REPLACE 1 4.7 UF CAP IN ORDER TO REDUCE HEIGHT IN THE FORHEAD AREA

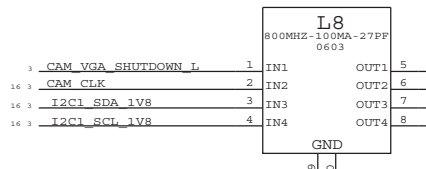
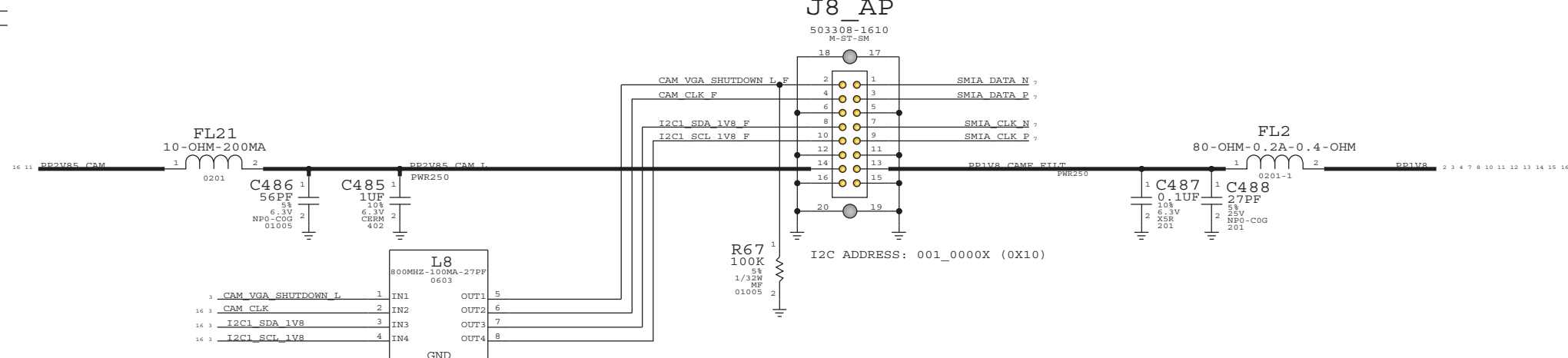
TODO: DO WE NEED A PI-FILTER FOR CONTROL LINES?

SYNC MASTER=N/A		CS-15 - SINGLE_BSD_L16_MIA(CKN_1).PAGE15		SYNC DATE=N/A	
PAGE TITLE					
NIMBUS, GRAPE, LCD CONN.					
DRAWING NUMBER		051-7921		SIZE	
REVISION		A.0.0		D	
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BRANCH		PAGE		SHEET	
		15 OF 18		15 OF 29	

REAR 5MP CAMERA CONNECTOR

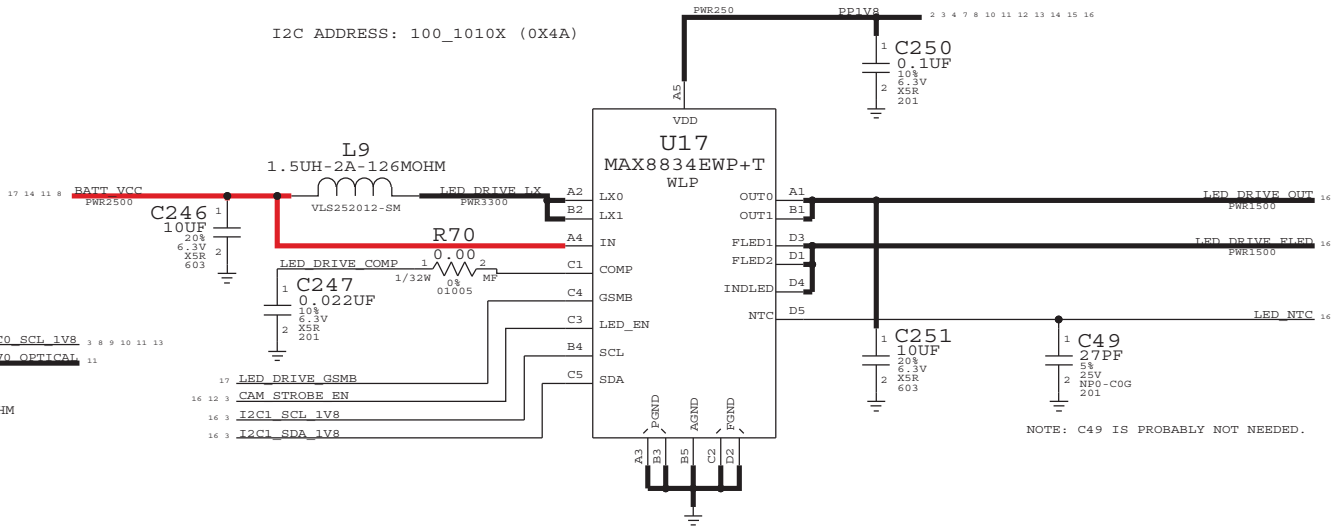


FRONT VGA CAMERA CONNECTOR



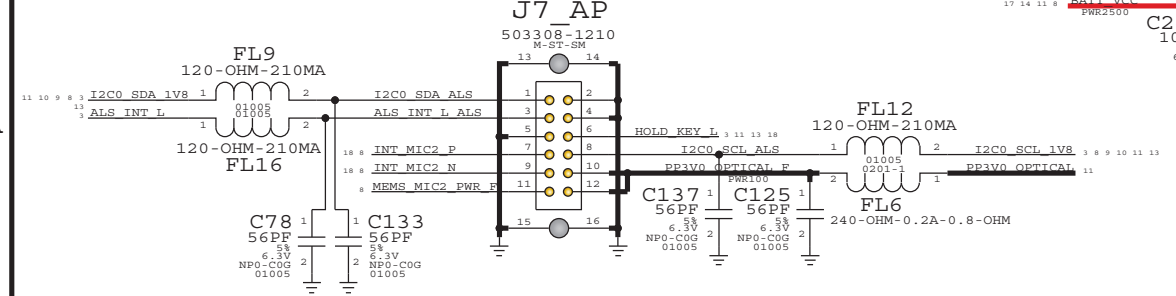
CAMERA LED DRIVER IC

* PLACE CLOSE TO BATTERY *

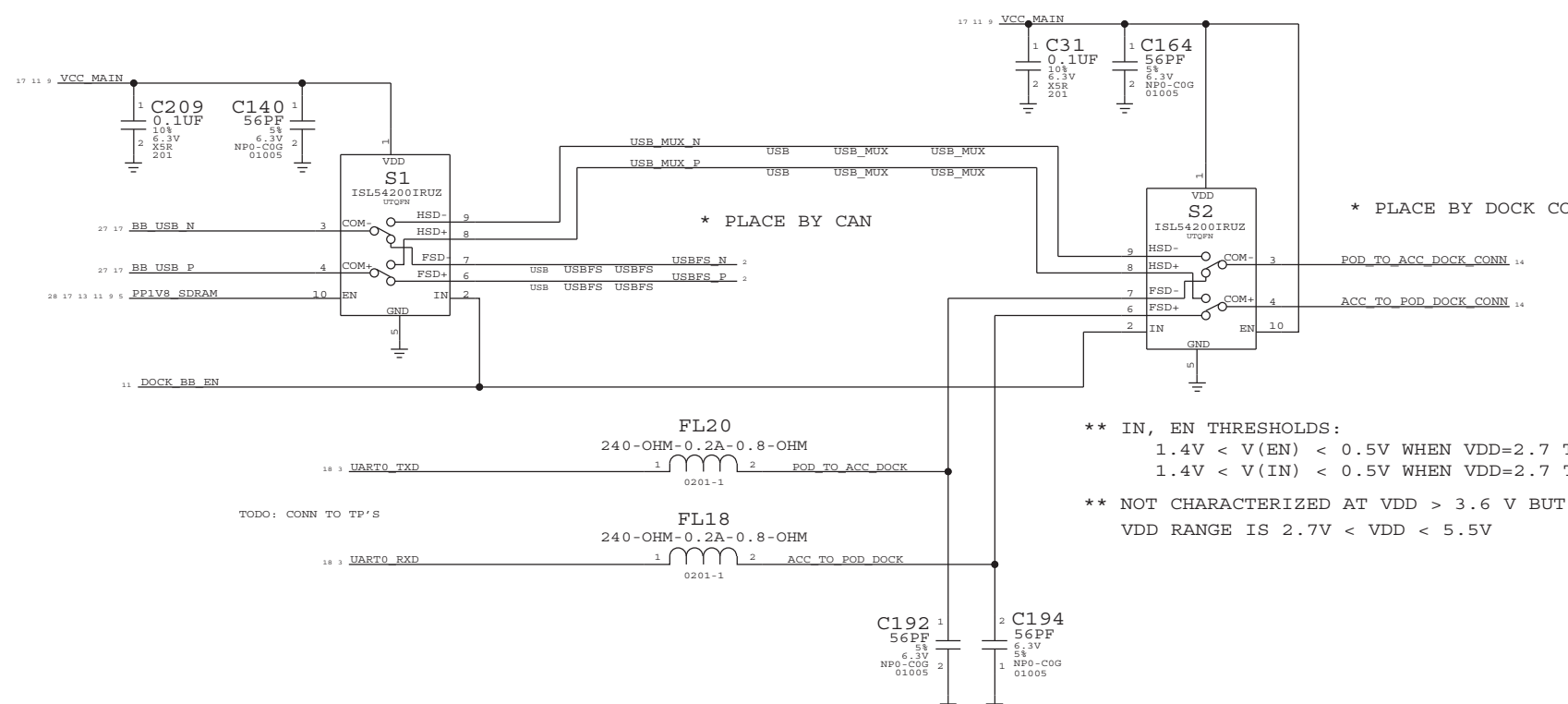


ALS/PROX CONNECTOR

I2C ADDRESS: 011_1001X (0X39)



SYNC MASTER=N/A		SYNC DATE=N/A	
CAMERA, STROBE, SENSOR B2B			
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		051-7921	D
		REVISION	
		A.0.0	
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		16 OF 29	



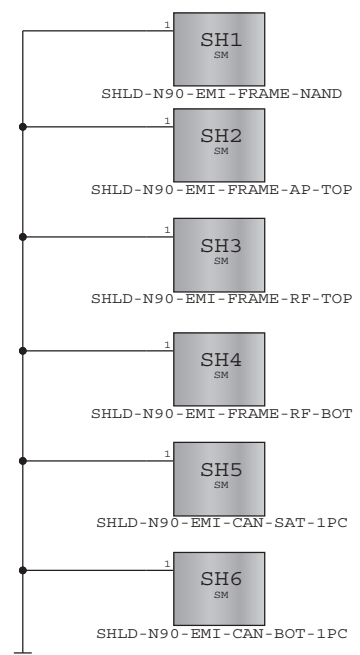
**** IN, EN THRESHOLDS:**
 1.4V < V(EN) < 0.5V WHEN VDD=2.7 TO 3.6V
 1.4V < V(IN) < 0.5V WHEN VDD=2.7 TO 3.6V

**** NOT CHARACTERIZED AT VDD > 3.6 V BUT
 VDD RANGE IS 2.7V < VDD < 5.5V**

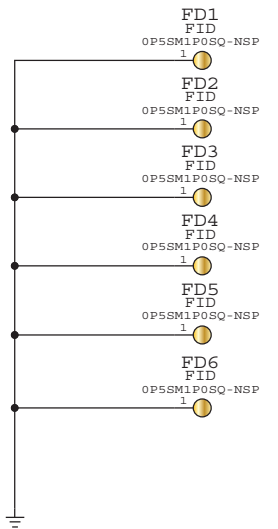
AP/RADIO INTERFACE

RF I373	
27 16 14 11 8	BATT_VCC
24 11	BATTSENS
24 11	NTC
24 11 3	BATTERY_SWI
27 18 2	RESET_L
27 3	RADIO_ON
27 11	RESET_PMU_L
22 16	LED_DRIVE_GSM
27 3	BB_RESET_L
22 3	BB_RESET_DET_L
22 3	SPI2_MRDY
22 3	IPC_SRDY
22 3	SPI2_SCLK
22 3	SPI2_MOSI
22 3	SPI2_MISO
22 3	IPC_GPIO
22 11 3	AP_PMU_EXTON
27 11	WLCM1
27 17	BB_USB_P
27 17	BB_USB_N
27 3	UART1_RXD
27 3	UART1_TXD
27 3	UART1_CTS_L
27 3	UART1_RTS_L
27 3	UART2_RXD
27 3	UART2_TXD
27 13 3	I2S1_BCLK
27 13 3	I2S1_LRCLK
27 13 3	I2S1_DOUT
27 13 3	I2S1_DIN
22 13 3	I2S2_BCLK
22 13 3	I2S2_LRCLK
22 13 3	I2S2_DIN
22 13 3	I2S2_DOUT
27 13	SIM_VCC
27 13	SIM_DETECT
27 13	SIMCRD_RST
27 13	SIMCRD_CLK
27 13	SIMCRD_IO
28 17 13 11 9 5	PPIV8_SDRAM
27 11	WL_BT_REG_ON
29 11	CLK_32K_WIFI
27 3	WLAN_RESET_L
27 3	WLAN_SDIO_CLK
27 3	WLAN_SDIO_CMD
27 3	WLAN_SDIO_DATA<3..0>
29 11	WLAN_HOST_WAKE
29 11	BT_HOST_WAKE
27 3	BT_RESET_L
29 3	BT_WAKE
27 3	UART3_RXD
27 3	UART3_TXD
27 3	UART3_CTS_L
27 3	UART3_RTS_L
29 13 8	HP_PCM1_I2S_BCLK
29 13 8	HP_PCM1_I2S_LRCLK
29 13 8	HP_PCM1_I2S_DIN
29 13 8	HP_PCM1_I2S_DOUT
27 3	GPS_RESET_AP_L
27 3	GPS_STANDBY_AP_L
27 3	UART4_RXD
27 3	UART4_TXD
27 3	UART4_CTS_L
27 3	UART4_RTS_L
28 3	GPS_INTR_L
28 3	GPS_SYNC

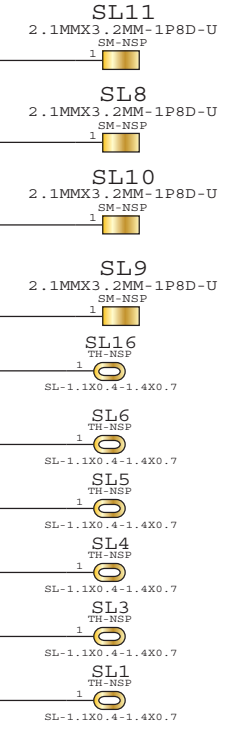
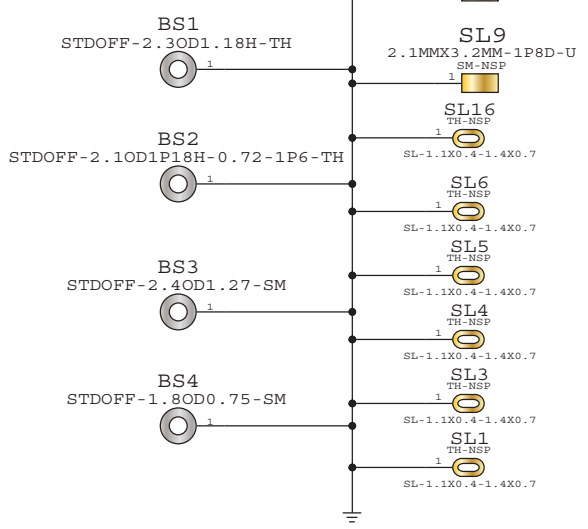
SHIELDS



FIDUCIALS



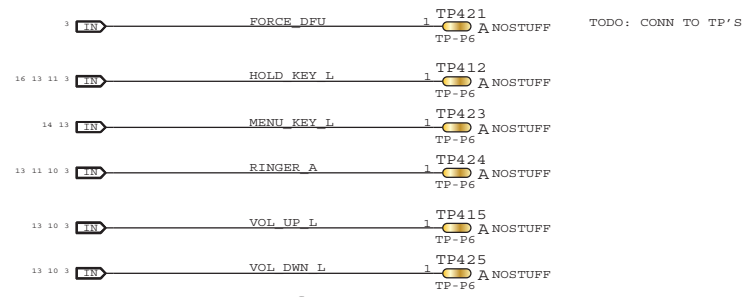
STANDOFFS



SYNC MASTER=N/A		SYNC DATE=N/A	
RADIO, USB MUX, EM PARTS			
Apple Inc.		DRAWING NUMBER	051-7921
		REVISION	A.0.0
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TEST POINTS

GPIO

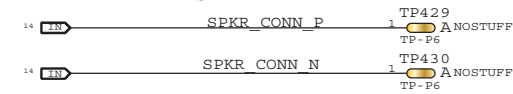


TEST

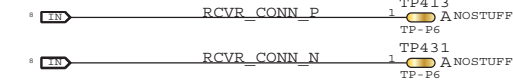


AUDIO

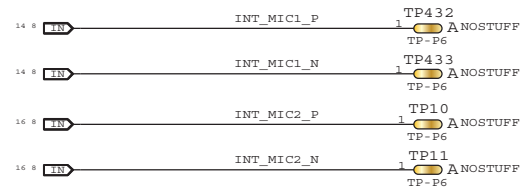
SPEAKER



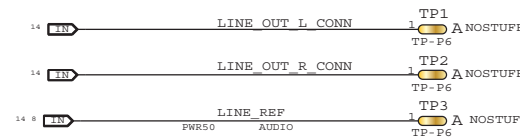
RECEIVER



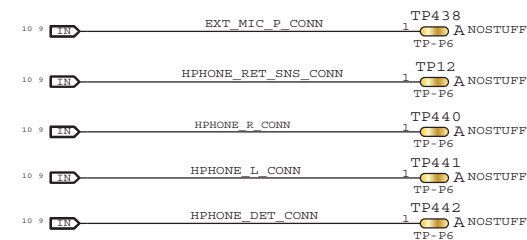
MIC



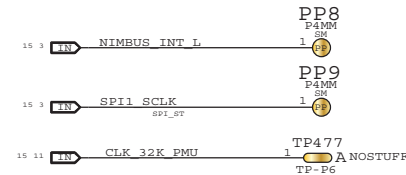
LINE OUT



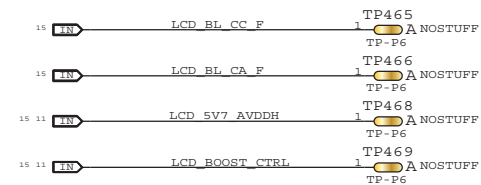
HEADPHONE



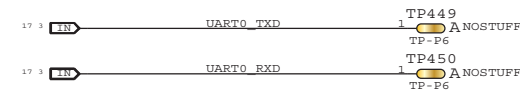
GRAPE



LCM



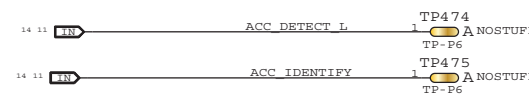
UART



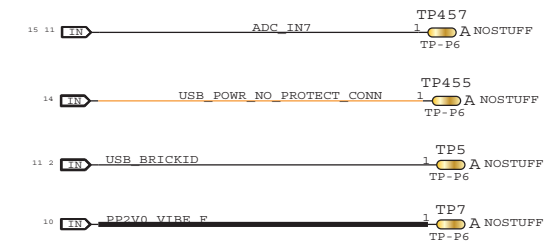
USB



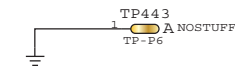
ACCESSORY DETECT



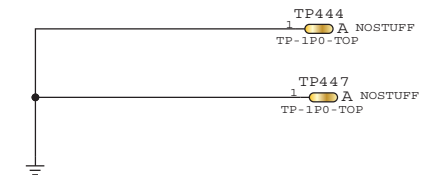
POWER



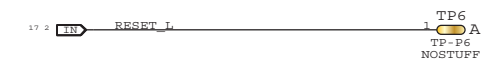
SIGNAL GND (SENSE)



POWER GND



RESET



SYNC MASTER=N/A		SYNC DATE=N/A	
PAGE TITLE			
TEST POINTS			
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		051-7921	D
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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.

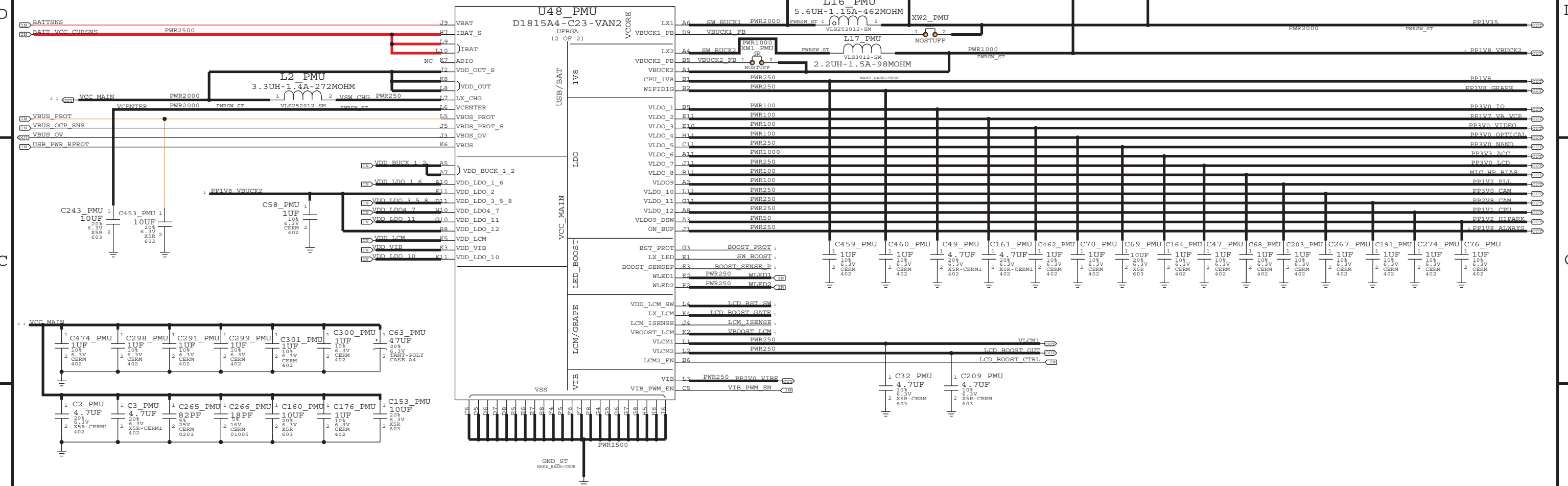
N90 ASHLEY_PMU SUB-DESIGN

Thu Mar 18 14:15:23 2010

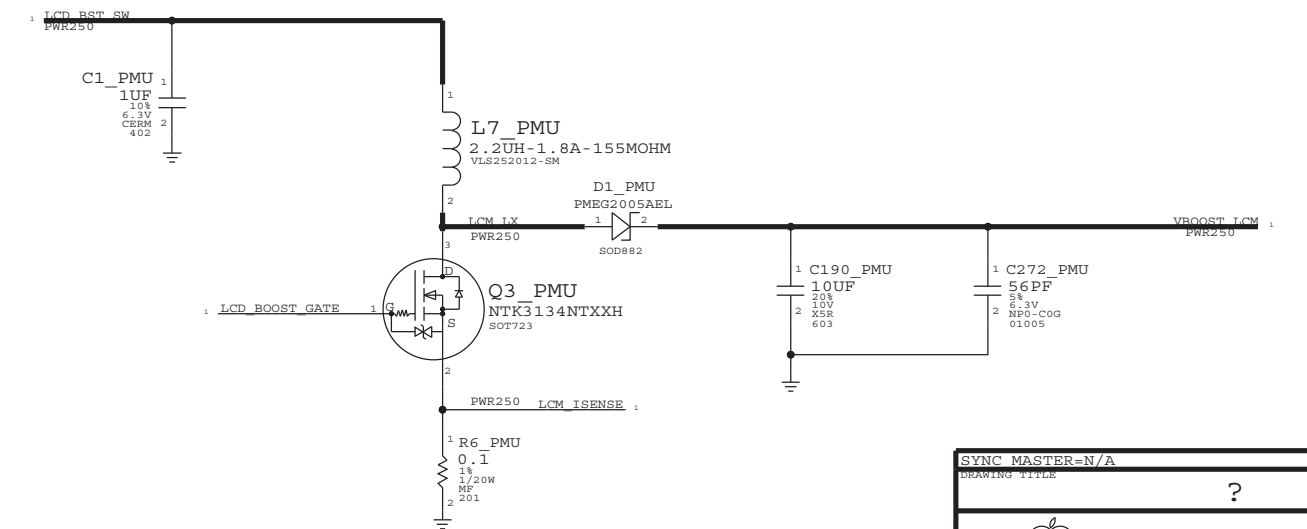
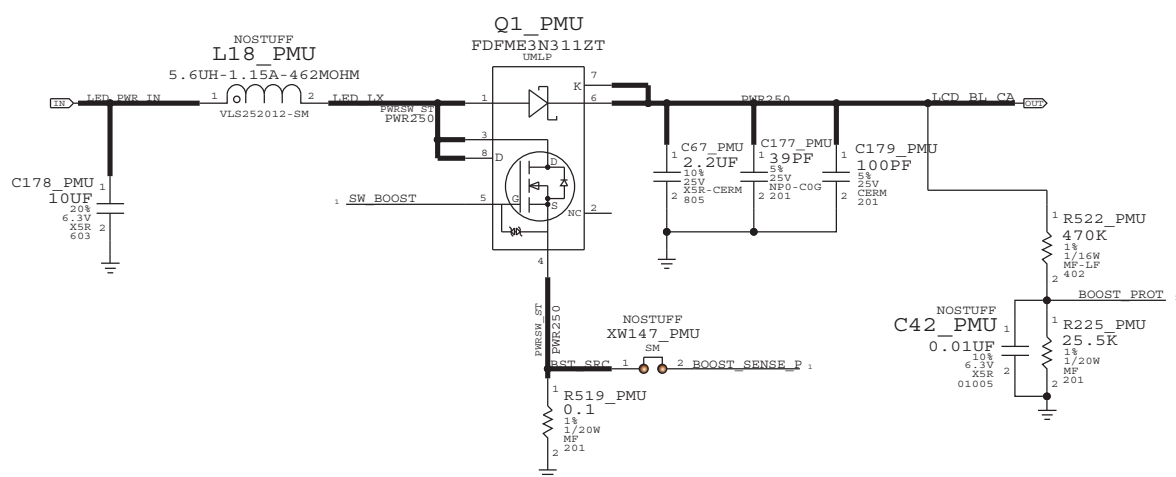
REV	ECN	DESCRIPTION OF REVISION	CK APPD	DATE
A	0000880153	PRODUCTION RELEASED		2010-03-23

PMIC

LAYOUT: PLACE XW1 AND XW2 REMOTELY BY AP



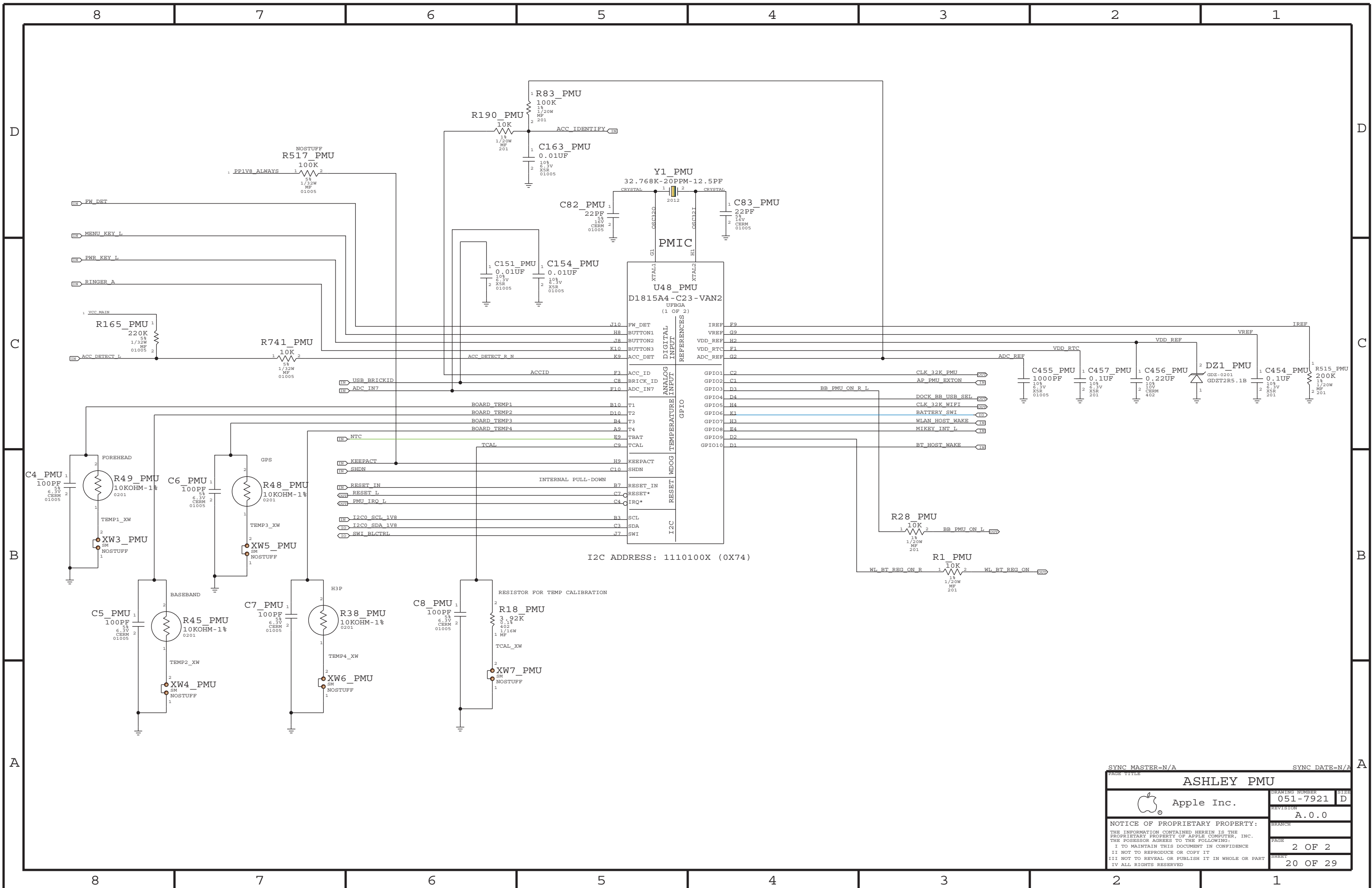
BACKLIGHT IC




SCH # : 051-8351

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
607-6809	1	TDK POWER INDUCTORS	L1_PMU, L3_PMU, L16_PMU, L18_PMU	Y	?

SYNC MASTER=N/A		SYNC DATE=N/A	
?			
Apple Inc.		DRAWING NUMBER	SIZE
		051-7921	D
		REVISION	
		A.0.0	
		BRANCH	
		PAGE	1 OF 2
		SHEET	19 OF 29
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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.


REV	ECN	DESCRIPTION OF REVISION	CK APPD
A	0000880153	PRODUCTION RELEASED	DATE 2010-03-23

iPhone 4 N90 (ICE3) HSPA RADIO

PVT - 04/15/10:BRD REV9

THIS PAGE	CONTENTS
02	BASEBAND I/O
03	BASEBAND + MEMORY
04	BASEBAND POWER SUPPLY
05	GSM & UMTS TRANSCEIVER
06	POWER AMPS AND RF FRONT END
07	SYSTEM CONNECTORS
08	A-GPS
09	WLAN/BLEETOOTH RADIO

BOARD - 920-XXXX
 SCHEMATIC - 951-XXXX
 BOM - 630-XXXX

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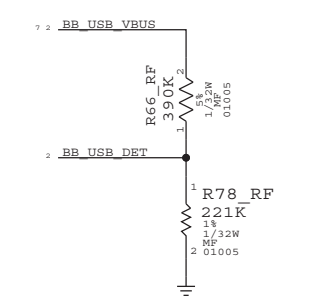
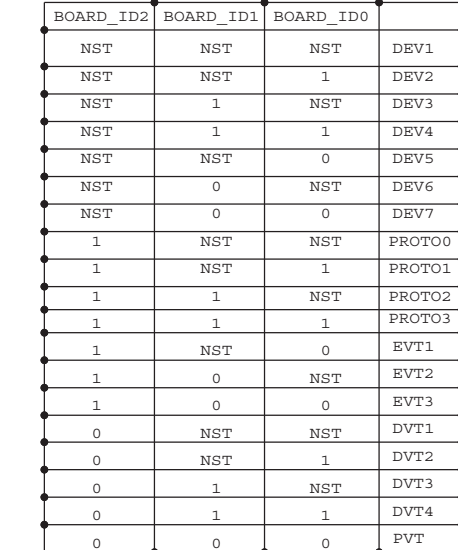
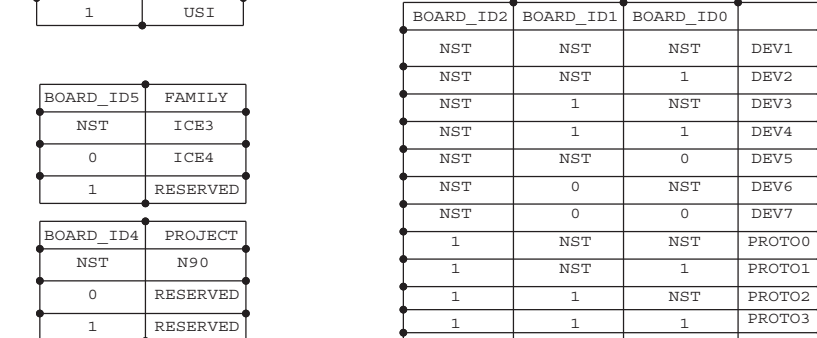
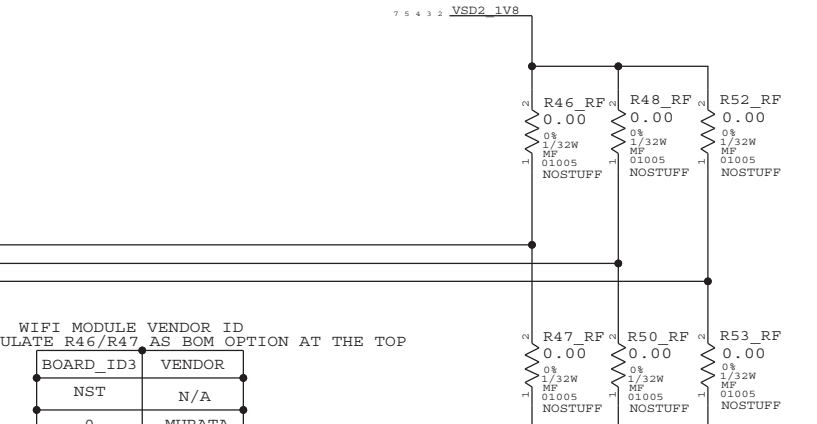
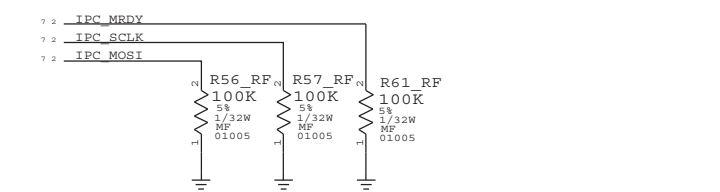
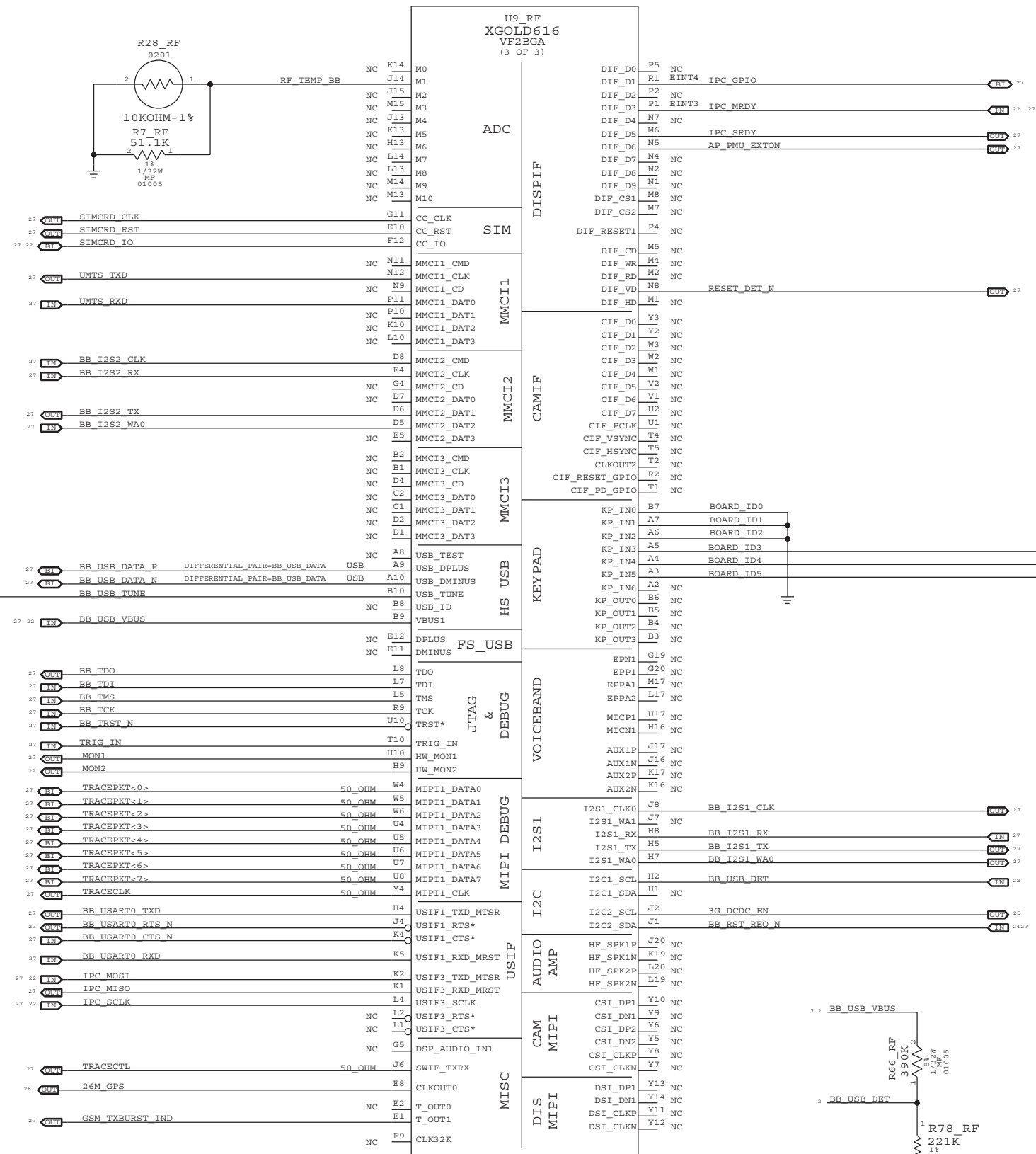
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1

BASEBAND I/O

BB CPU



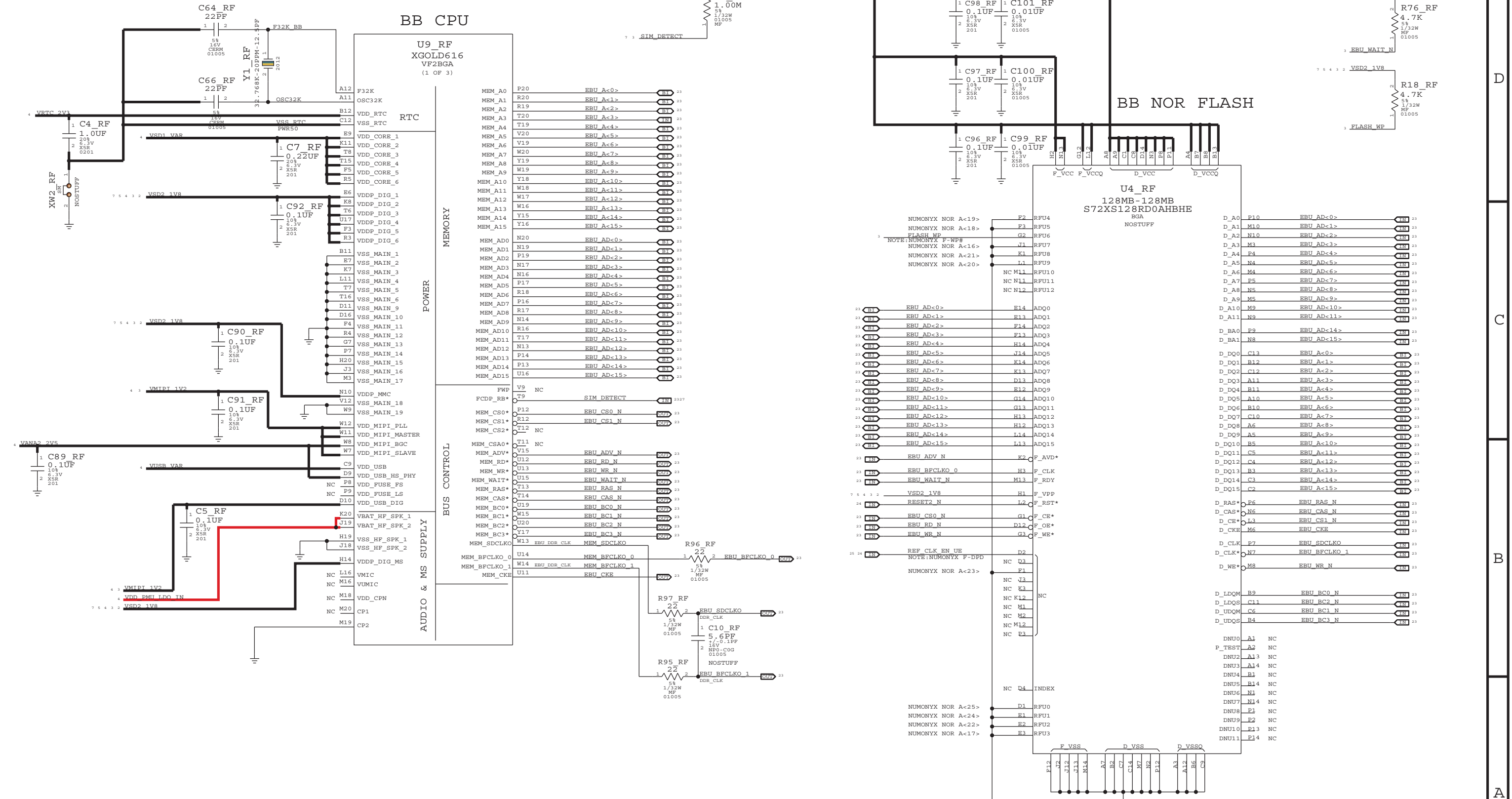
BOOT CONFIG DESCRIPTION

DSP_AUDIO_IN1, MON1 AND MON2 ARE ONLY ON TP AVAILABLE

DSP_AUDIO_IN1 HWCFG[3]	MON1 HWCFG[2]	MON2 HWCFG[1]	TRIG_IN HWCFG[0]	BOOT CONFIG DESCRIPTION
0	0	0	0	EXTERNAL BOOT VIA USB
0	0	0	1	NOR FLASH - EBU CONFIG: 16-BIT AD MUXED
0	0	1	0	NOR FLASH - EBU CONFIG: 16-BIT AAD MUXED

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BASEBAND MEMORY



BASEBAND MEMORY

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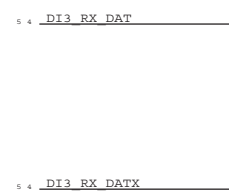
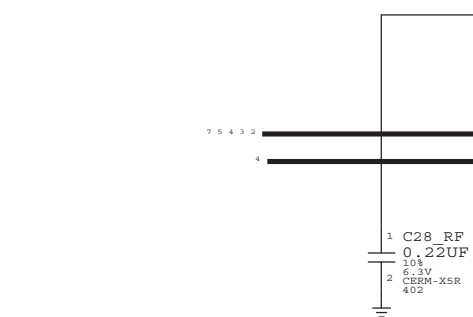
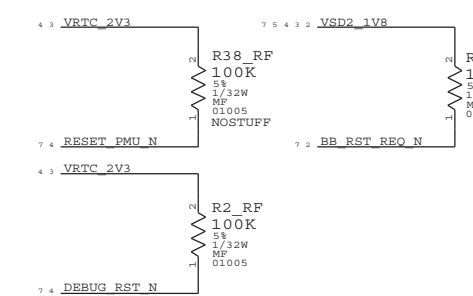
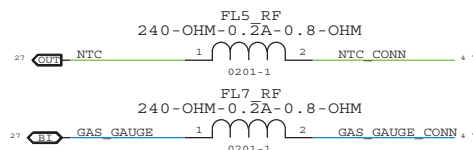
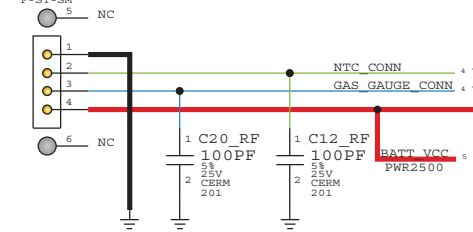
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BASEBAND POWER SUPPLY

BATTERY CONNECTOR

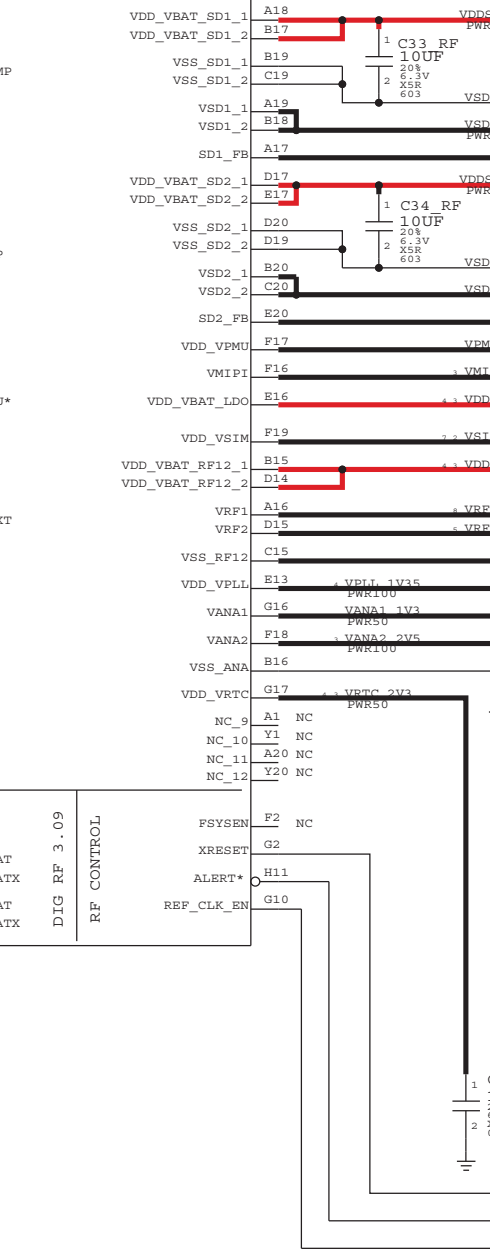
J7_RF
WB22453-1401-7F



BB CPU

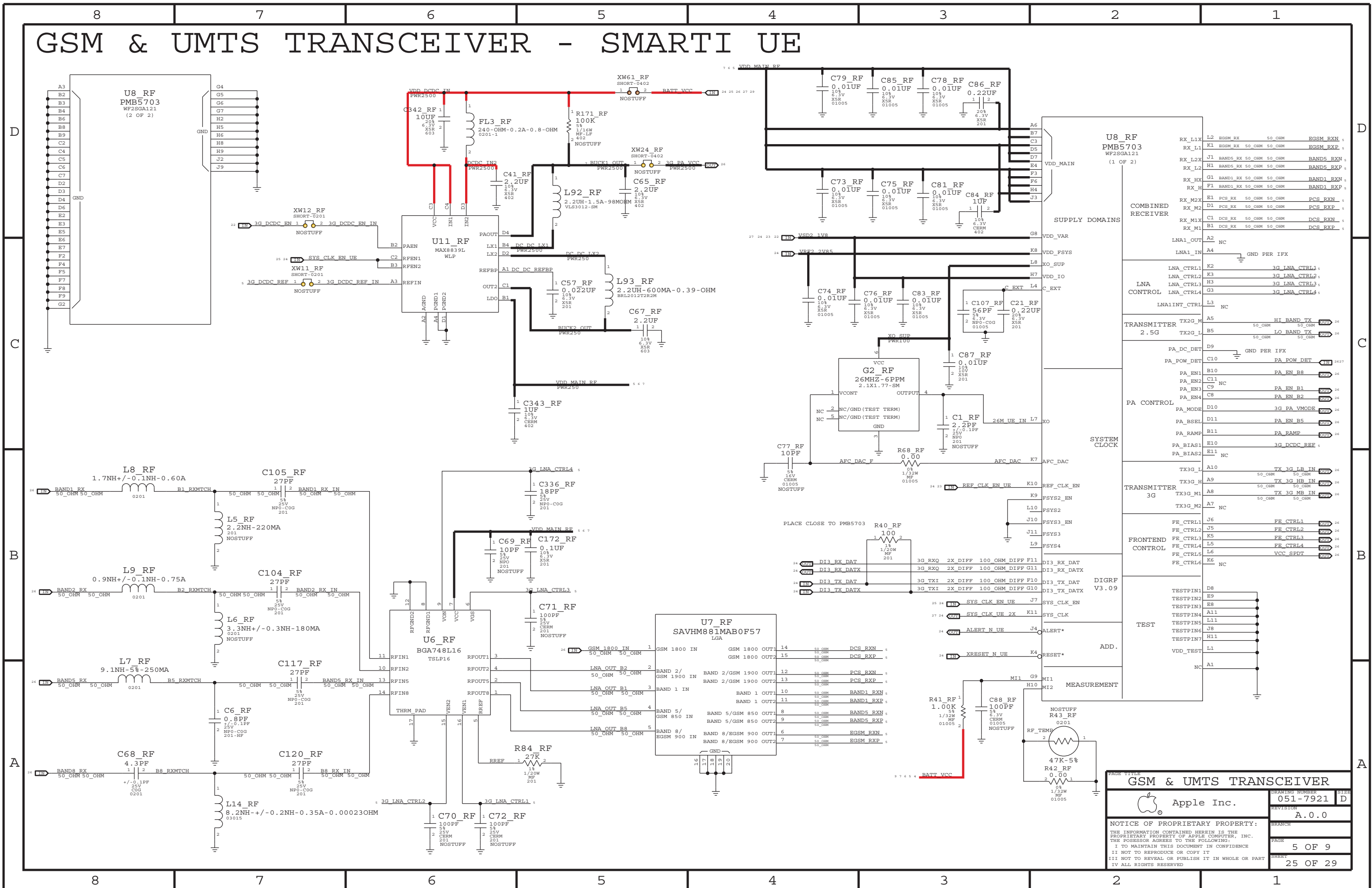
U9_RF
XGOLD616
VF2BGA
(2 OF 3)

NC	G8	CMP_EN
NC	J5	CHRG_EN
NC	H12	PWR_ON_CMP
NC	E19	PMUMEAS
NC	G9	RESET_CMP
NC	U9	RESET2*
NC	G12	RESET1*
NC	G1	I2C_INT
NC	G14	ON_OFF1
NC	G13	ON_OFF2
NC	F20	RESET_PMU*
NC	A15	VREF
NC	E15	VDD_VUSB
NC	W10	MIPI_R_EXT
NC	E14	VDD_OSD2
NC	D12	VDD_LVDS
NC	C6	NC_13
NC	V6	NC_14
NC	D13	F26M
NC	F1	SYSCLKEN
NC	F2	FSYSEN
NC	G2	XRESET
NC	H11	ALERT*
NC	G10	REF_CLK_EN



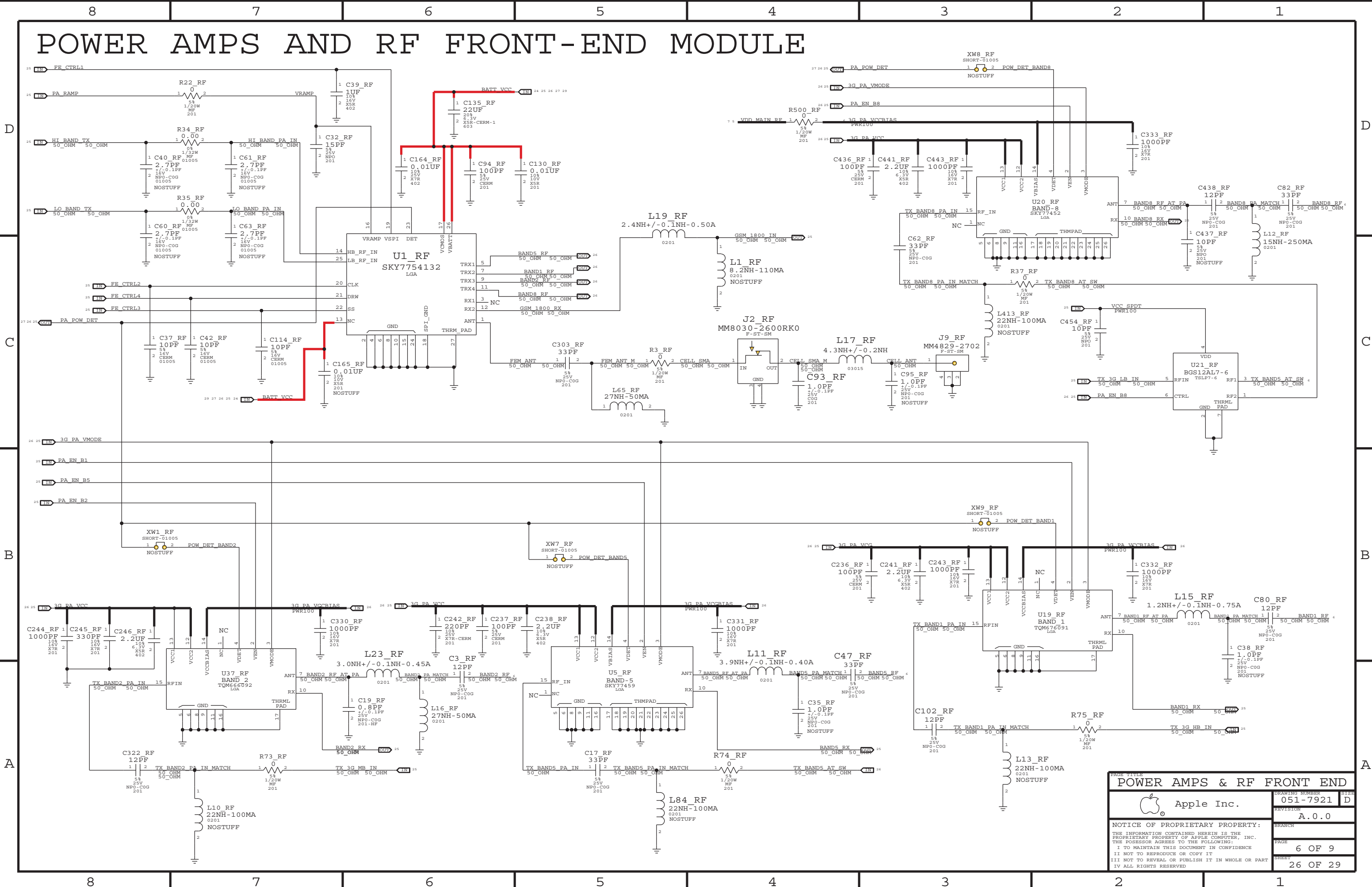
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BASEBAND POWER SUPPLY		
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GSM & UMTS TRANSCEIVER - SMARTI UE



GSM & UMTS TRANSCEIVER	
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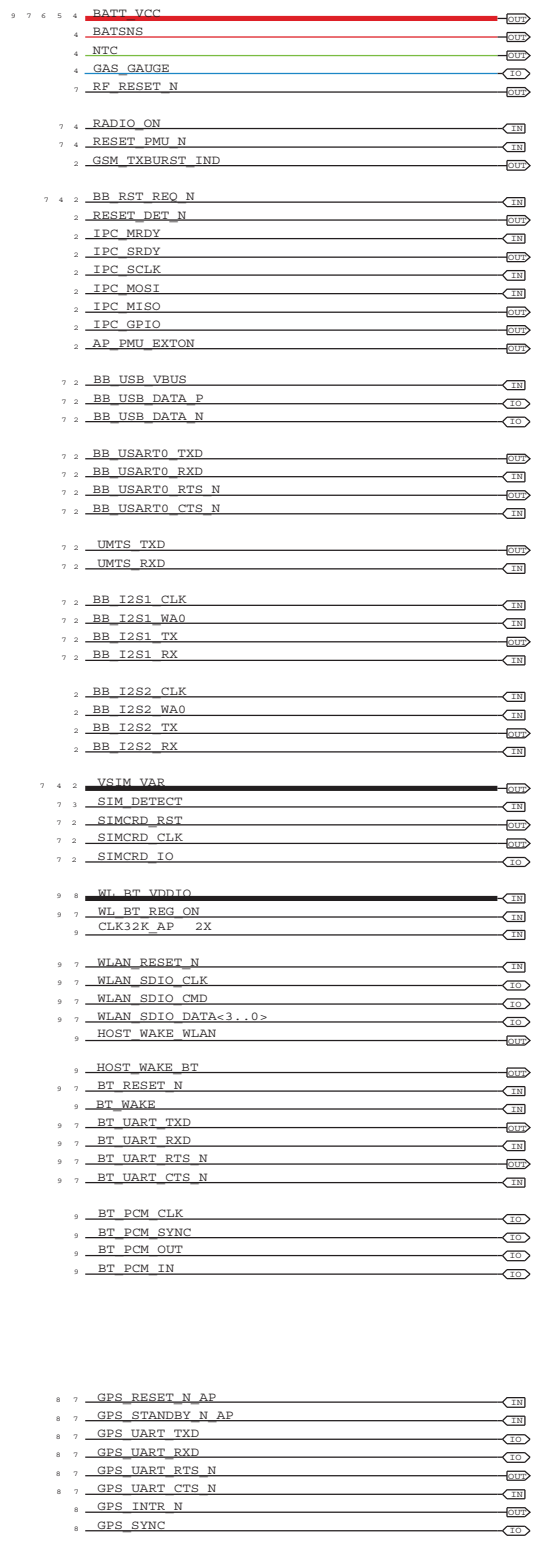
POWER AMPS AND RF FRONT-END MODULE



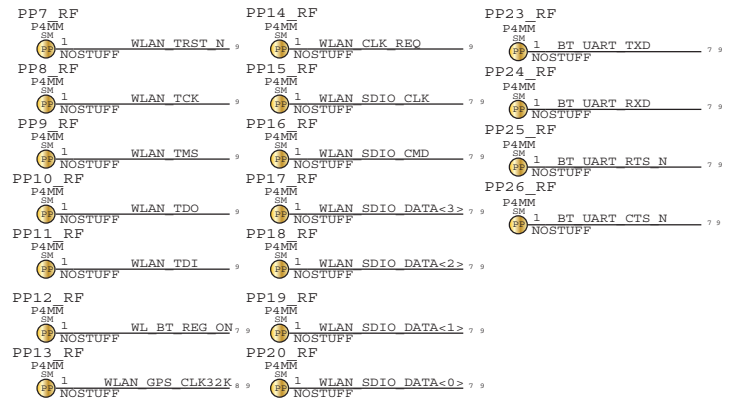
POWER AMPS & RF FRONT END		DRAWING NUMBER	051-7921	SIZE	D
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SYSTEM CONNECTORS

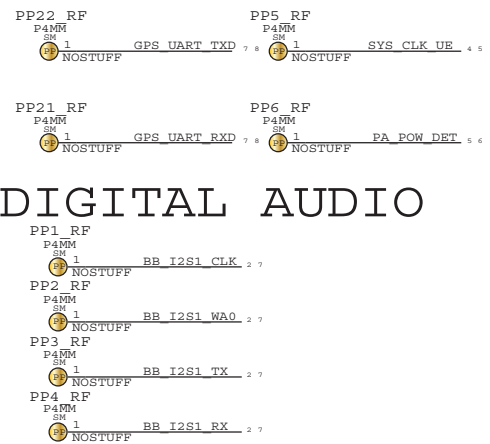
AP CONNECTIONS



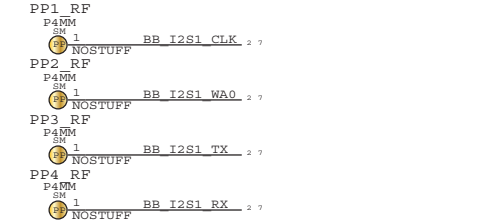
WLAN/BT



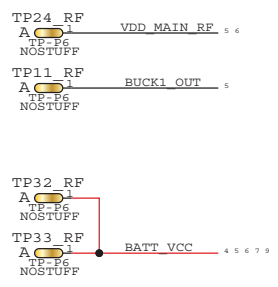
GPS TRX



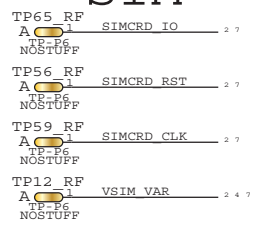
DIGITAL AUDIO



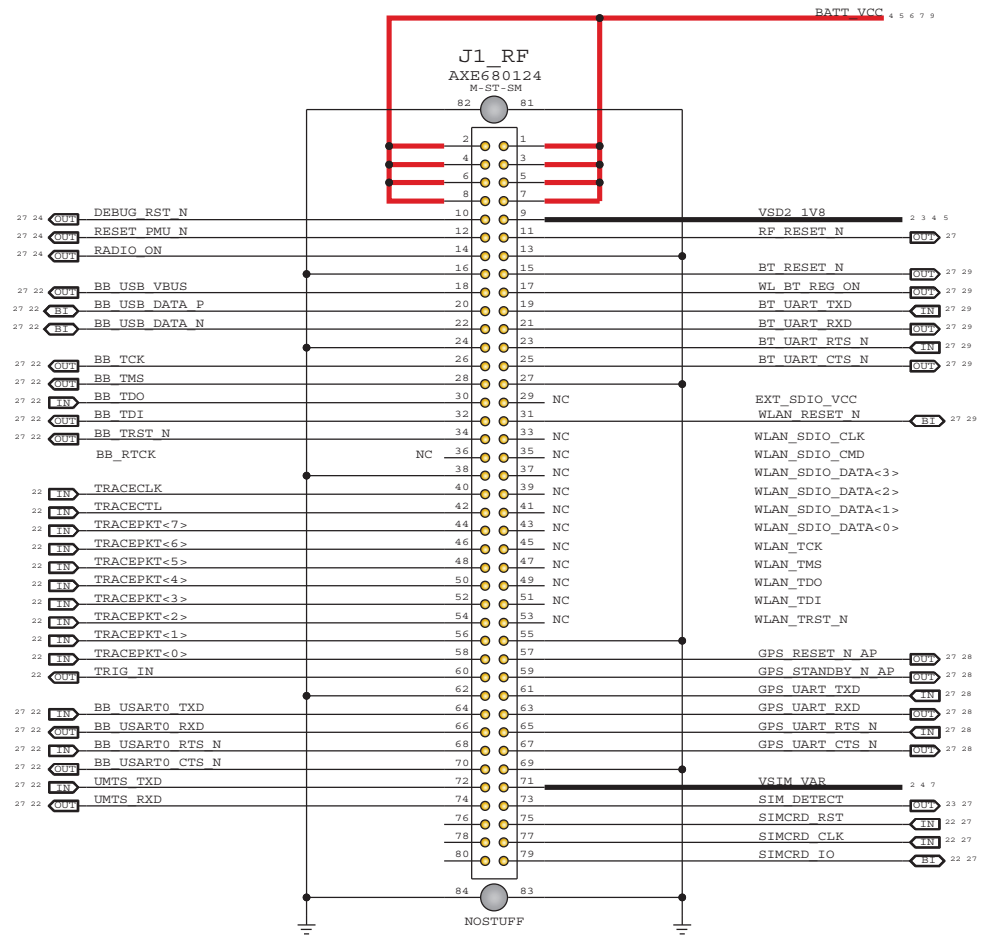
POWER DOMAINS



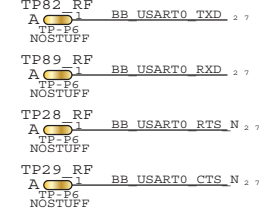
SIM



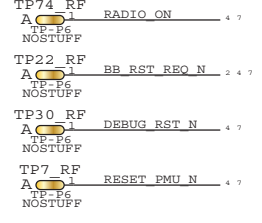
DEBUG CONNECTOR



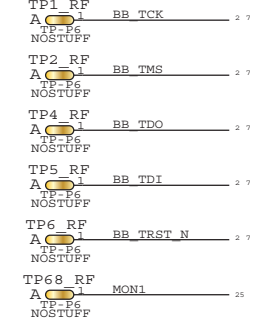
USART0



CONTROL



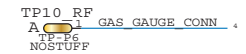
JTAG



NTC

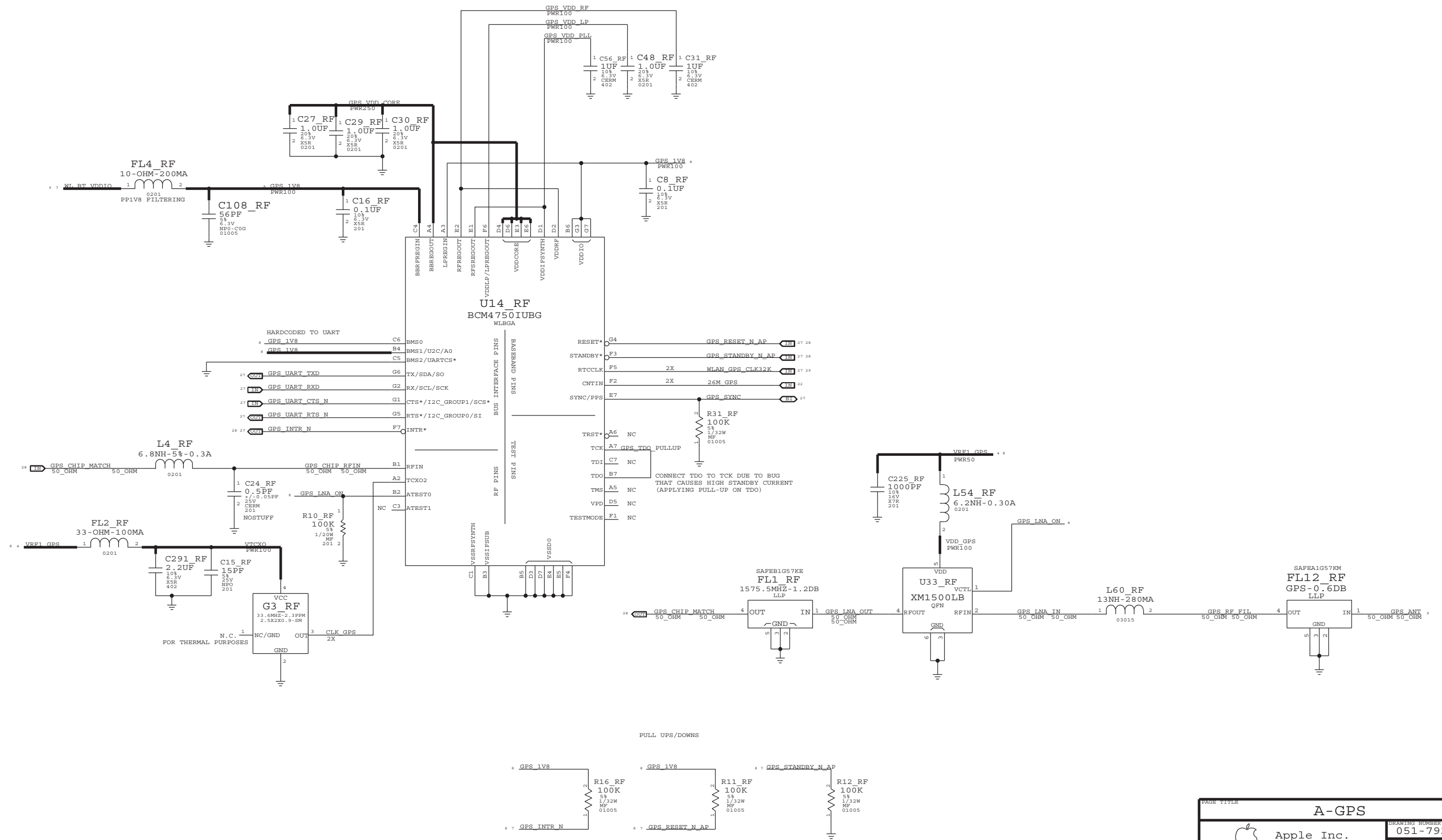


GAS GAUGE



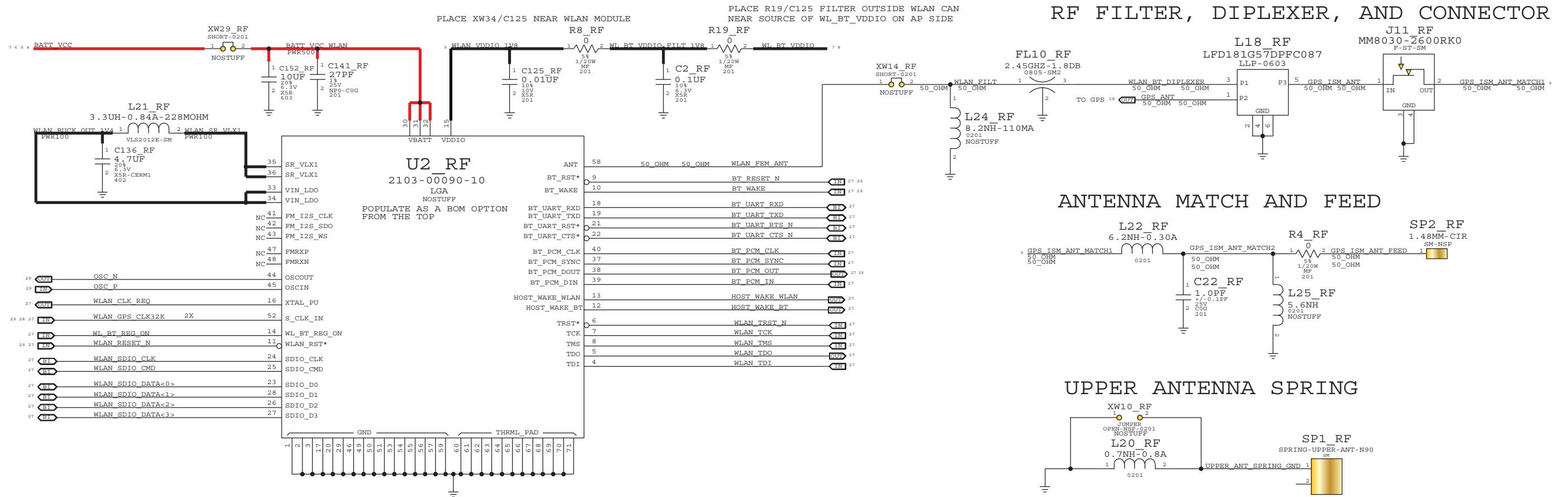
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A-GPS

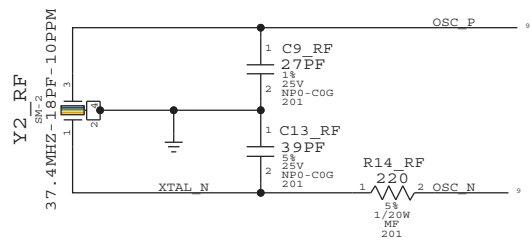


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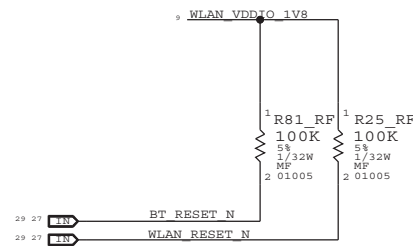
WLAN/BLUETOOTH/FM RADIO MODULE



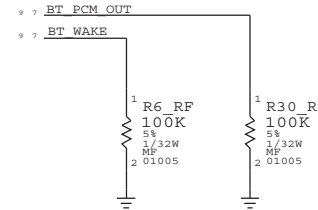
REFERENCE OSCILLATOR CRYSTAL



PULL UP RESISTORS



PULL DOWN RESISTORS



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