



Special Thanks!

130877  
TRALOL  
weaver  
wins200786  
QueenSoft  
Mihail\_tm  
abraziff



Special Thanks!

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

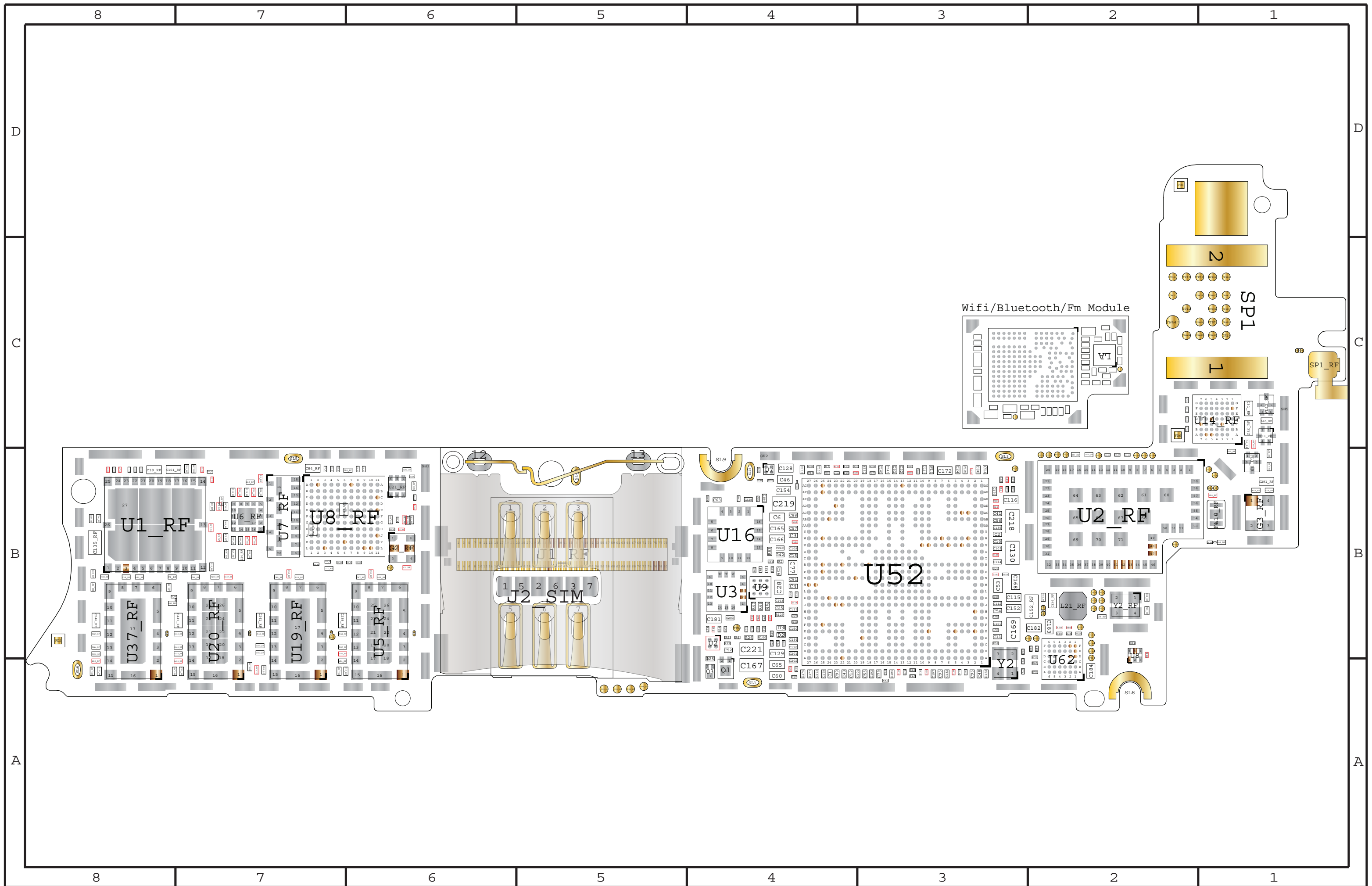
# iPhone 4

## A1332 n90ap

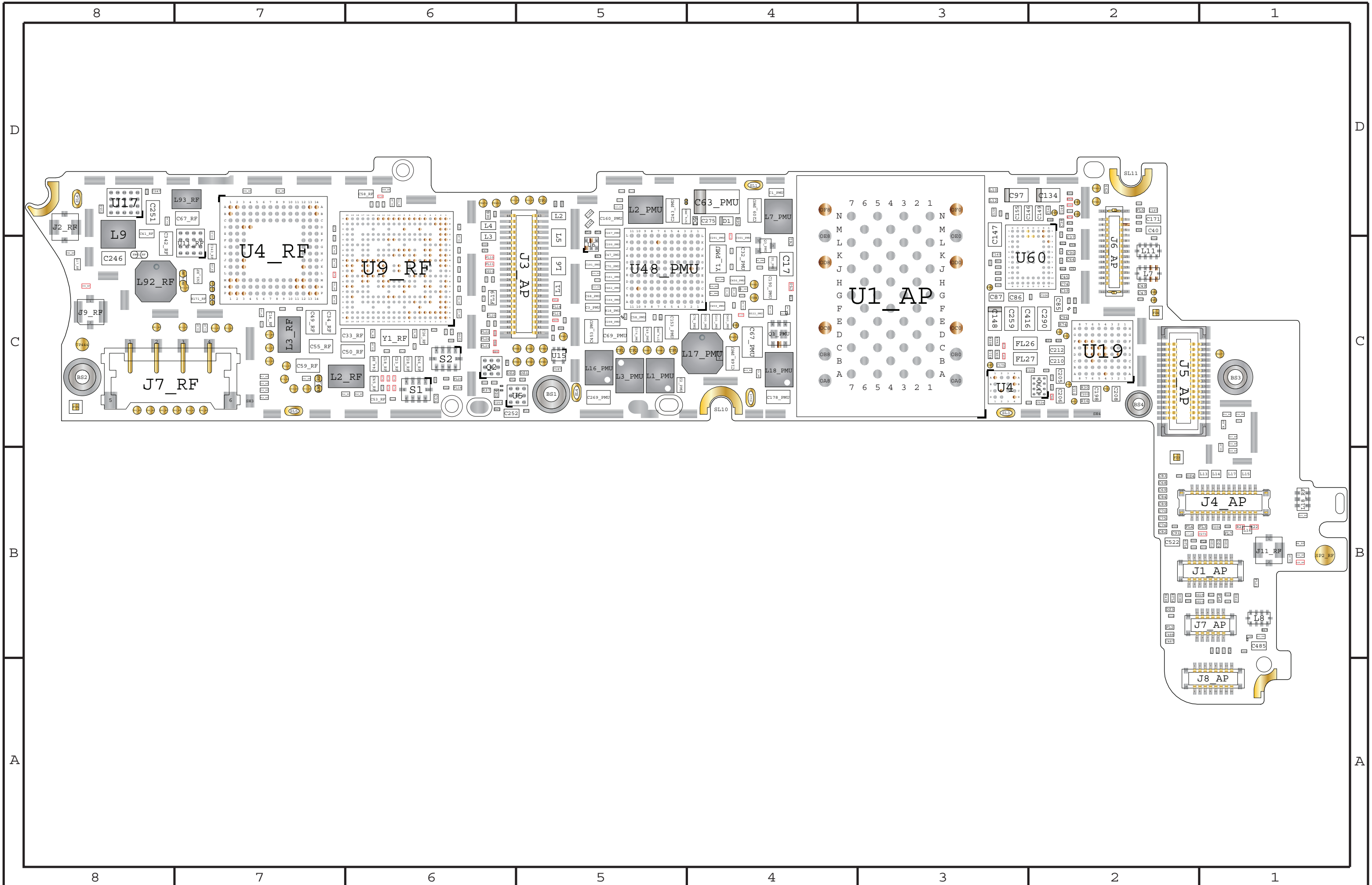
### Professional Schematic

[www.witesomtesla.com](http://www.witesomtesla.com)





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



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

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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	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_DFM	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 TLG52	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 TLG52	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
339S0092	1	MURATA WIFI_BT MODULE	U2_RF	Y	BEST_MURATA
117S0161	1	MURATA ID RESISTOR	R47_RF	Y	BEST_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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DRAWING TITLE			
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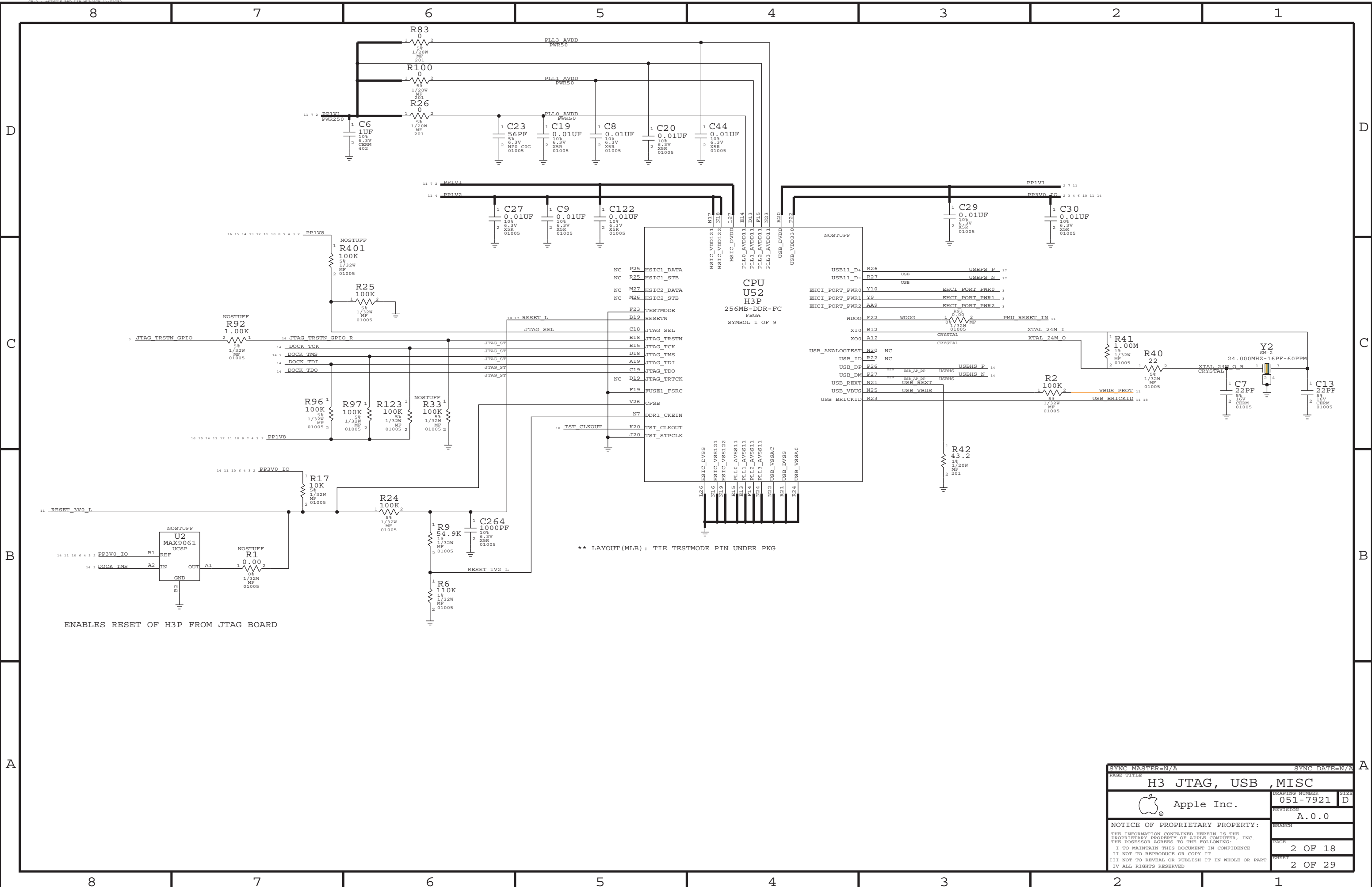
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ENABLES RESET OF H3P FROM JTAG BOARD

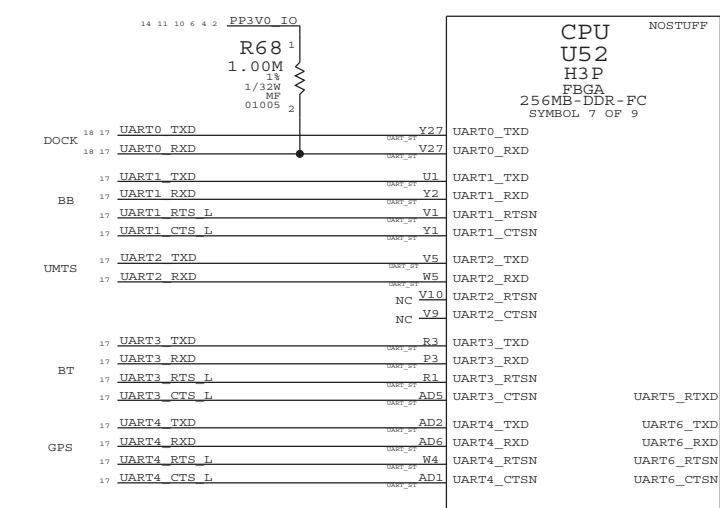
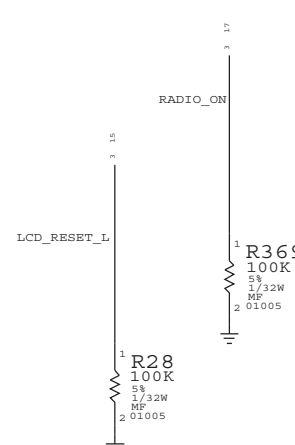
\*\* LAYOUT (MLB) : TIE TESTMODE PIN UNDER PKG

SYNC MASTER=N/A		SYNC DATE=N/A	
H3 JTAG, USB, MISC			
Apple Inc.		DRAWING NUMBER	051-7921
		REVISION	A.0.0
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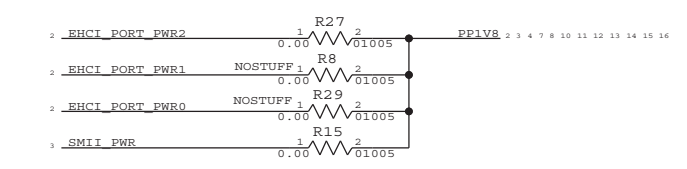
CPU U52 H3P 256MB-DDR-FC FBGA SYMBOL 6 OF 9	
13 11	MENU_KEY_BUFF_L F6 GPIO0
18 14 13 11	HOLD_KEY_L B6 GPIO1
18 13 10	VOL_UP_L B7 GPIO2
18 13 10	VOL_DWN_L D9 GPIO3
18 13 11 10	RINGER_A D5 GPIO4
15	GYRO_INT2 A6 GPIO5
17	WLAN_RESET_L A7 GPIO6
17	BT_WAKE B9 GPIO7
17	BT_RESET_L E6 GPIO8
17 3	RADIO_ON A9 GPIO9
17	BB_RESET_L C5 GPIO10
17	BB_RESET_DET_L C9 GPIO11
17	IPC_SRDY C6 GPIO12
17	PMU_IRO_L D6 GPIO13
8	CODEC_RESET_L F5 GPIO14
NC - DIF_MIC_SEL E5 GPIO15	
13	AUDIENCE_RESET_L F9 GPIO16
3	JTAG_TRSTN_GPIO F3 GPIO17
8 3	CODEC_INT_L F4 GPIO18
11	KEEPACT C10 GPIO19
15	GRAPE_RESET_L F10 GPIO20
18 15	NIMBUS_INT_L E10 GPIO21
15 13	LCD_RESET_L A4 GPIO22
15 13	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
17	GYRO_INT1 A3 GPIO33
14	CAM_VGA_SHUTDOWN_L B2 GPIO34
H2 GPIO35	
13	ACCEL_INT1_L L1 GPIO36
14	ALS_INT_L H1 GPIO37
13	ACCEL_INT2_L E1 GPIO38
6	VIDEO_AMP_EN_3V0 W24 GPIO_3V0
NC - SEL_SECURE_BOOT_3V0 W25 GPIO_3V1	

CPU U52 H3P 256MB-DDR-FC FBGA SYMBOL 6 OF 9	
SENSOR_CLK	W20 CAM_CLK 14
SENSOR_RST	V21 CAM_5MP_SHUTDOWN 14
SPDIF R18 NC	
TMR32_PWM0	AB25 L61HP_CLK_PWM 3 13
TMR32_PWM1	AB27 VIB_PWM_EN 11
TMR32_PWM2	AB26 CAM_STROBE_EN 12 14
SMII_CLKSEL0 K18 AP_PMU_EXTON 11 17	
SMII_CLKSEL1	K19 GPS_SYNC 17
SMII_TXD	G18 A1_GND 4
SMII_RXD	J18 A27_GND 4
SMII_SYNC	G19 SPKR_AMP_EN 14
SMII_CLK	K21 AG1_GND 4
SMII_RDY	K21 HP_GPIO_A 13
SMII_SRDY	K22 IPC_GPIO 17
SMII_WAKE	J19 AG27_GND 4
SMII_PWR	H19 SMII_PWR 3

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
```

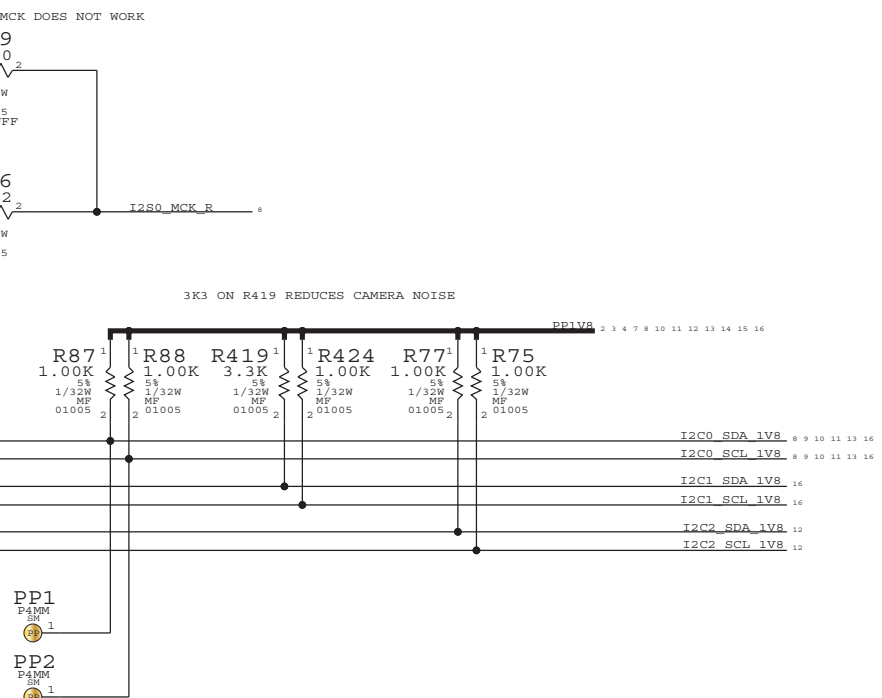
NOTE: NO COMPONENTS REQUIRED!

```
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 FM11_2CS
1001 FM11_4CS
1010 FM11_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
```

CPU U52 H3P 256MB-DDR-FC FBGA SYMBOL 5 OF 9	
17	WLAN_SDIO_DATA<3:0> J24 SDIO0_DATA0
1	J25 SDIO0_DATA1
2	J26 SDIO0_DATA2
1	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 15	SPI1_SCLK SPI1_SCLK
15	SPI1_MOSI SPI1_MOSI
15	SPI1_MISO SPI1_MISO
15	SPI1_CS_L SPI1_SSIN
17	SPI2_SCLK SPI2_SCLK
17	SPI2_MOSI SPI2_MOSI
17	SPI2_MISO SPI2_MISO
17	SPI2_MRDY SPI2_SSIN

CPU U52 H3P 256MB-DDR-FC FBGA SYMBOL 5 OF 9	
I2S0_DIN	W21 I2S0_DIN 8
I2S0_DOUT	W22 I2S0_DOUT 8
I2S0_BCLK	V23 I2S0_BCLK 8
I2S0_LRCK	V18 I2S0_LRCLK 8
I2S0_MCK	V20 I2S0_MCK 8
I2S1_DIN	V24 I2S1_DIN 13 17
I2S1_DOUT	W19 I2S1_DOUT 13 17
I2S1_BCLK	V25 I2S1_BCLK 13 17
I2S1_LRCK	V15 I2S1_LRCLK 13 17
I2S1_MCK	AB22 I2S1_MCK 8
I2S2_DIN	R17 I2S2_DIN 13 17
I2S2_DOUT	R16 I2S2_DOUT 13 17
I2S2_BCLK	Y26 I2S2_BCLK 13 17
I2S2_LRCK	AB23 I2S2_LRCLK 13 17
I2S2_MCK	W23 I2S2_MCLK 13
I2C0_SDA	AB6 I2C0_SDA 1V8 8 9 10 11 13 16
I2C0_SCL	AB5 I2C0_SCL 1V8 8 9 10 11 13 16
I2C1_SDA	AB4 I2C1_SDA 1V8 16
I2C1_SCL	AB3 I2C1_SCL 1V8 16
I2C2_SDA	AD15 I2C2_SDA 1V8 16
I2C2_SCL	AC15 I2C2_SCL 1V8 16

\*\* BACKUP IN CASE I2S0\_MCK DOES NOT WORK



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

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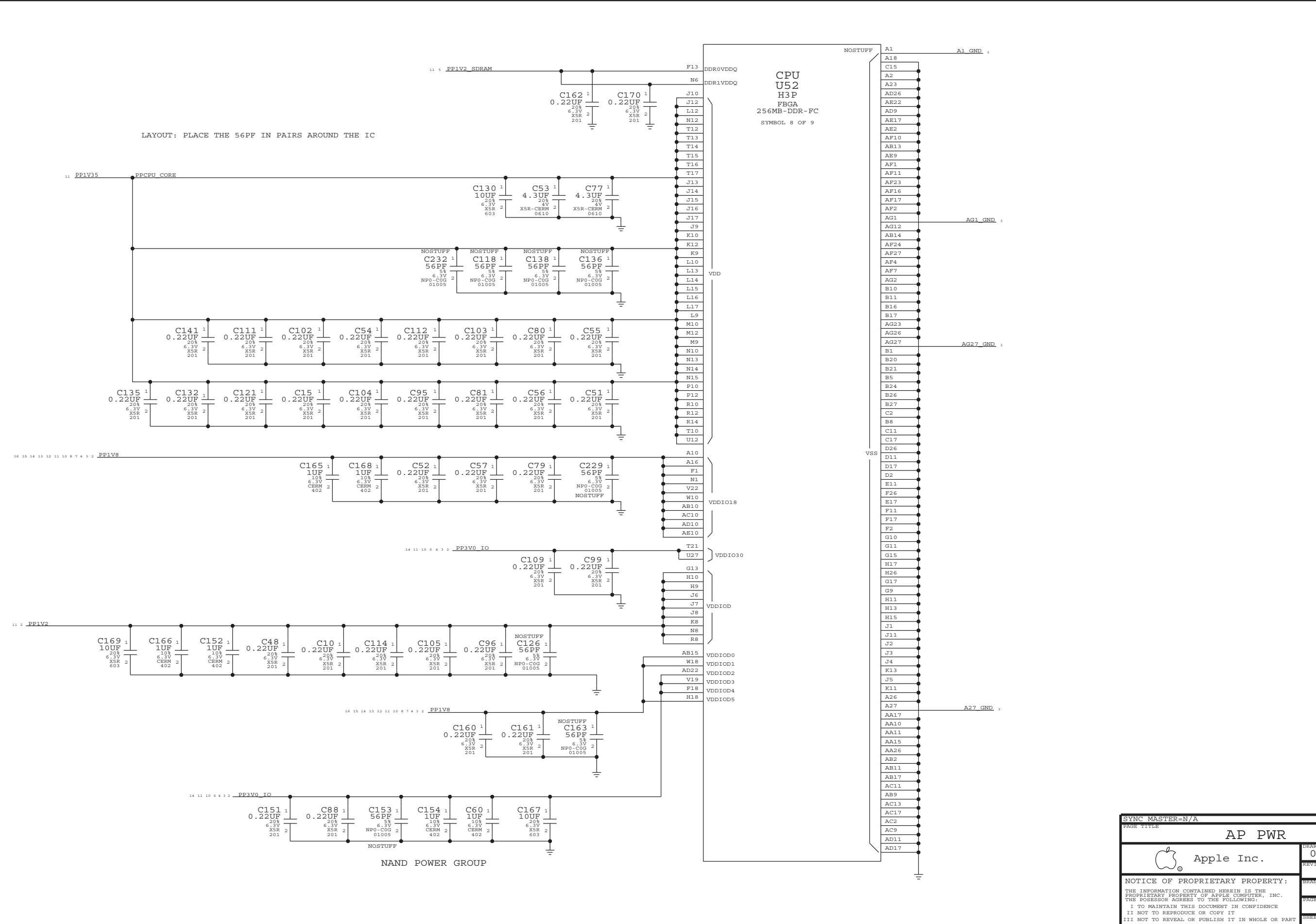
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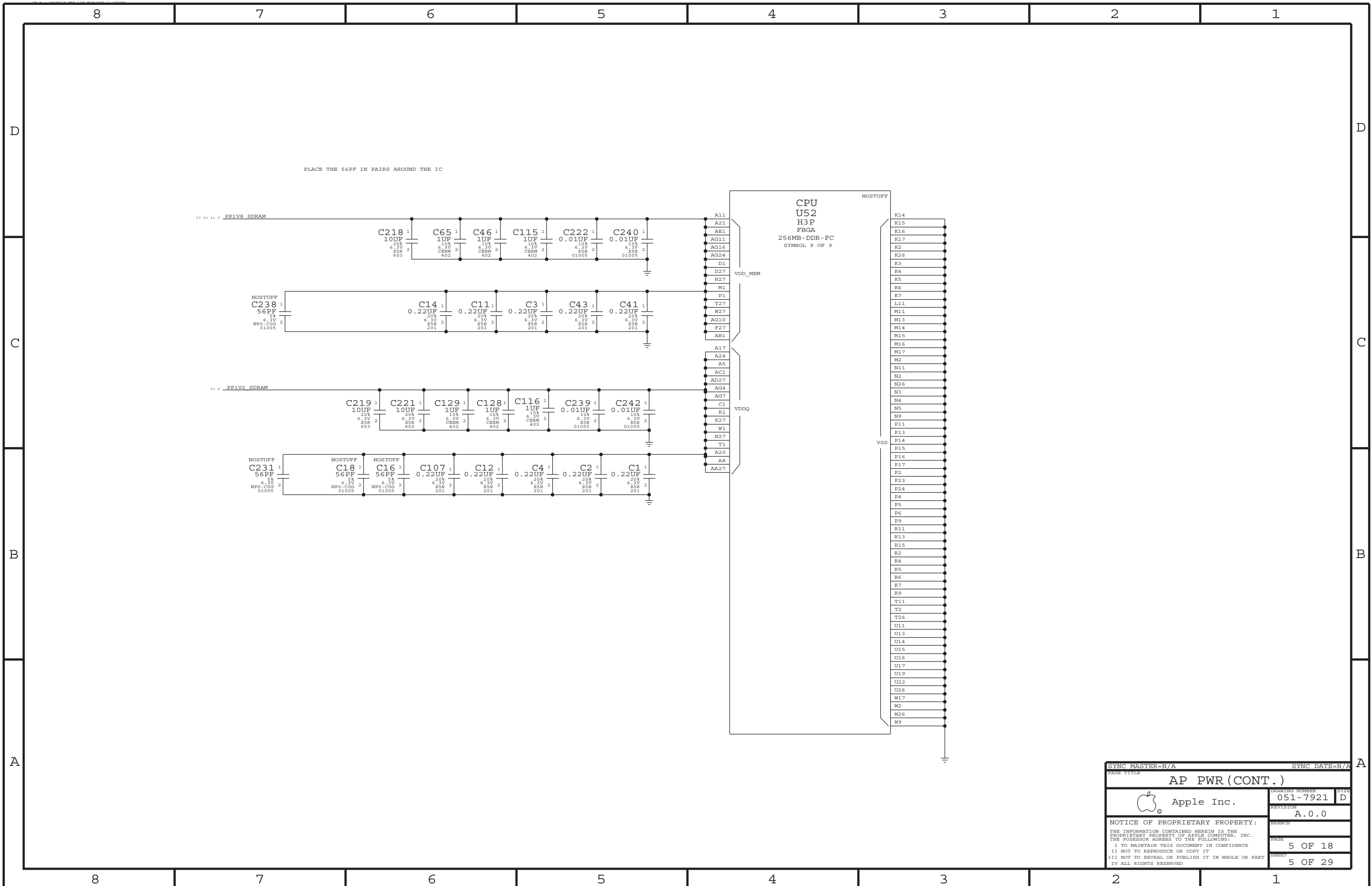
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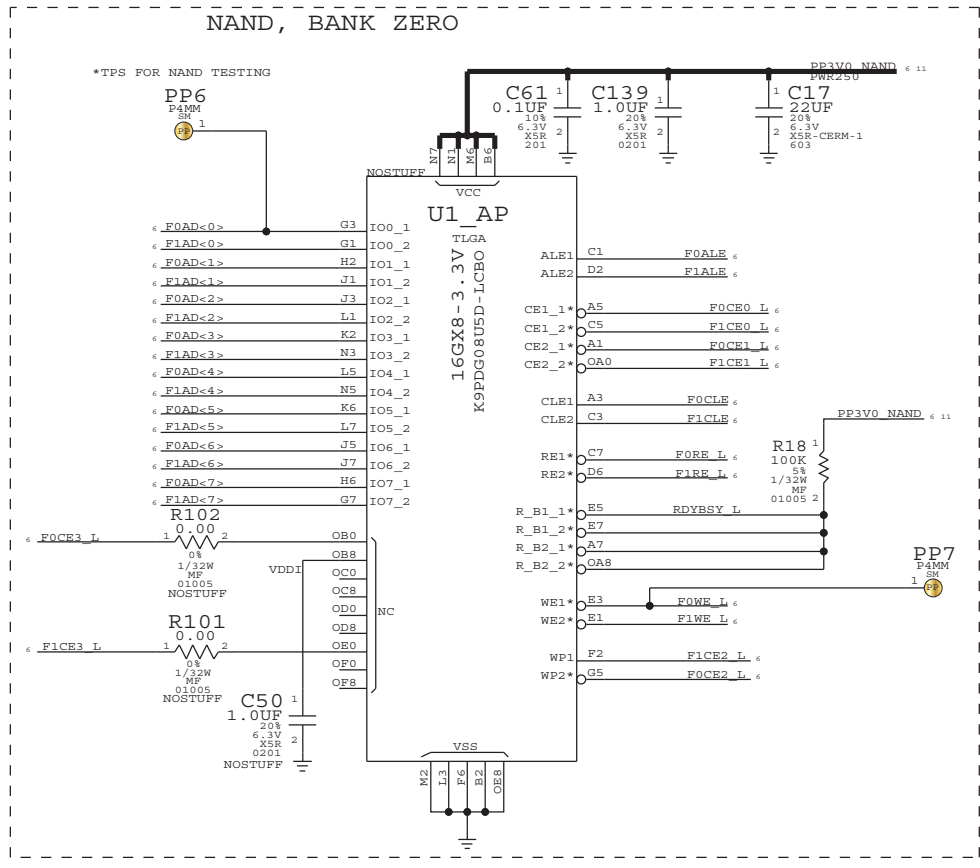
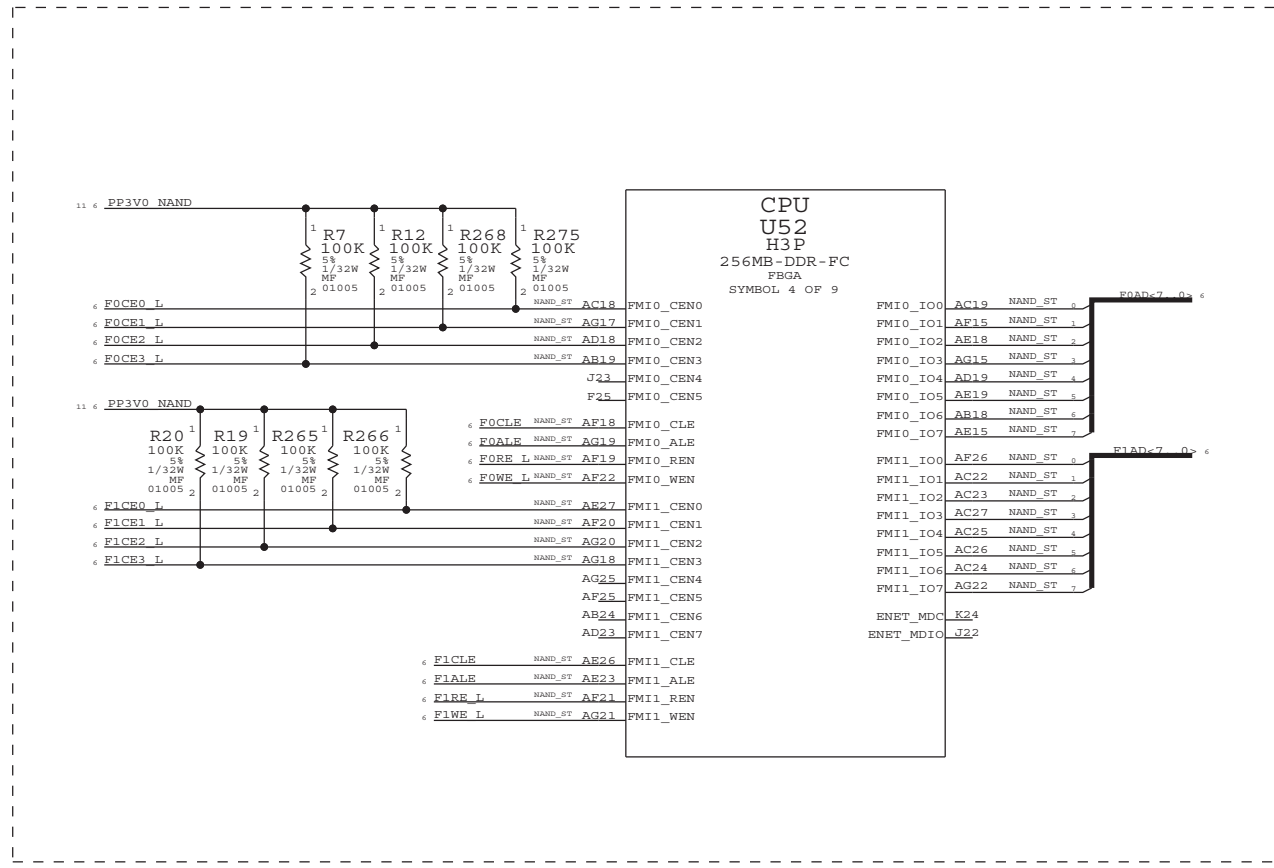
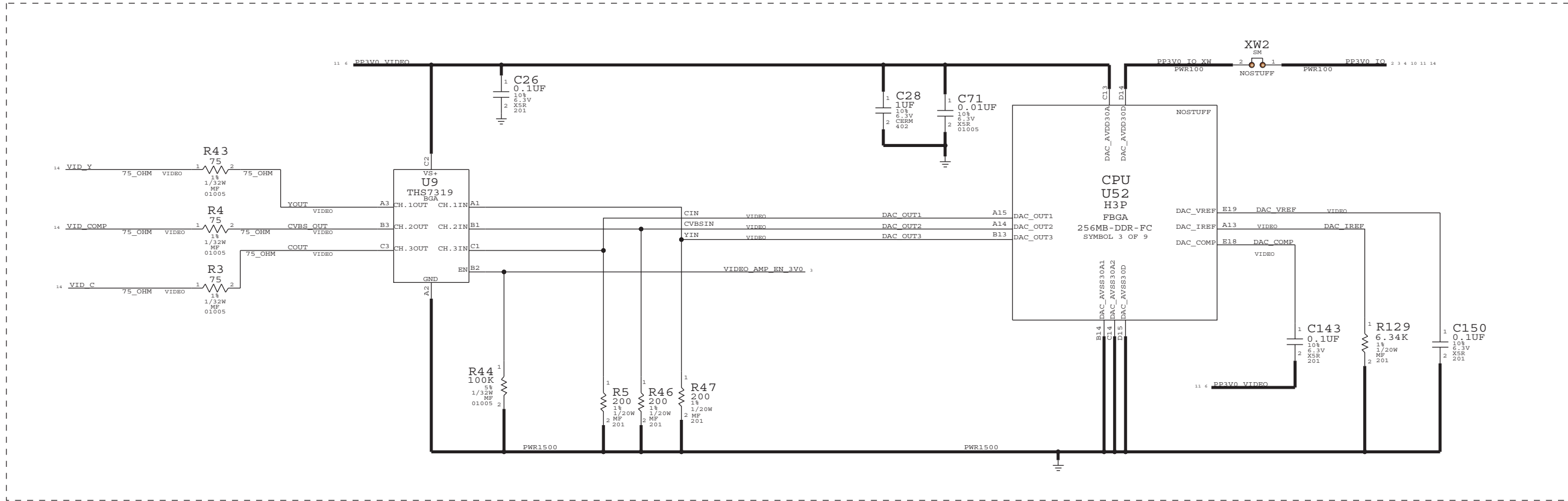


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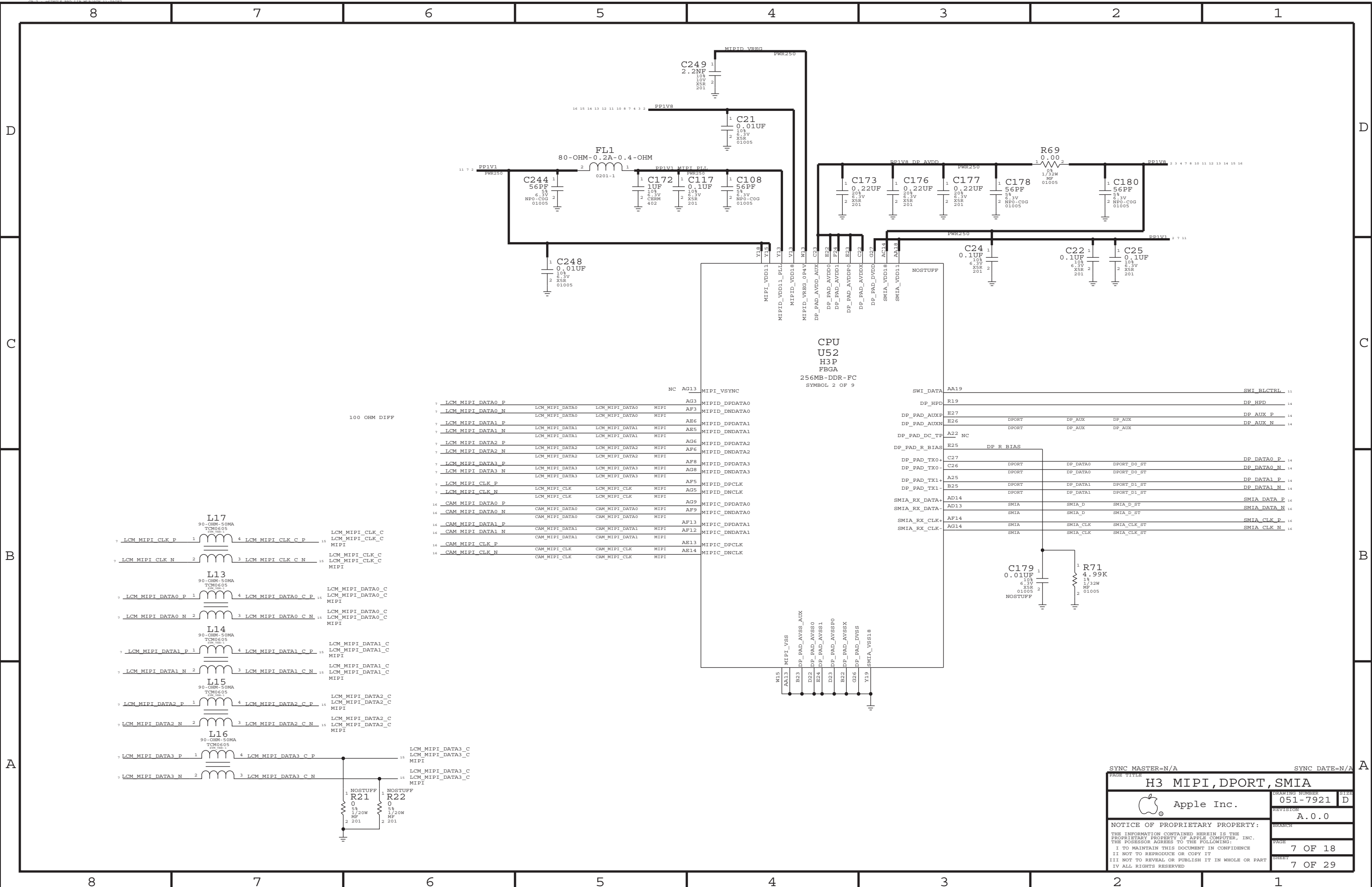


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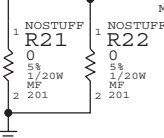
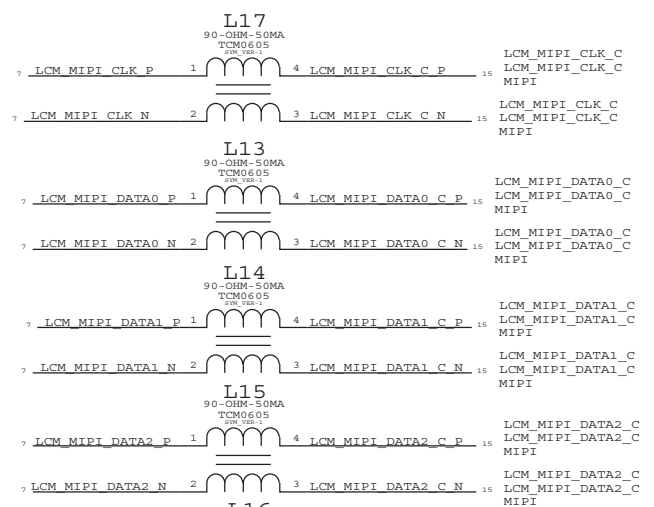


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ANALOG VIDEO,H3 NAND, NAND	
Apple Inc.	DRAWING NUMBER 051-7921
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NC	AG13	MIPI_VSYNC	SWI_DATA	AA19	SWI_BLCCTRL	
7	LCM_MIPI_DATA0_P	LCM_MIPI_DATA0	LCM_MIPI_DATA0	MIPI	AG3	MIPI_DPDATA0
7	LCM_MIPI_DATA0_N	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

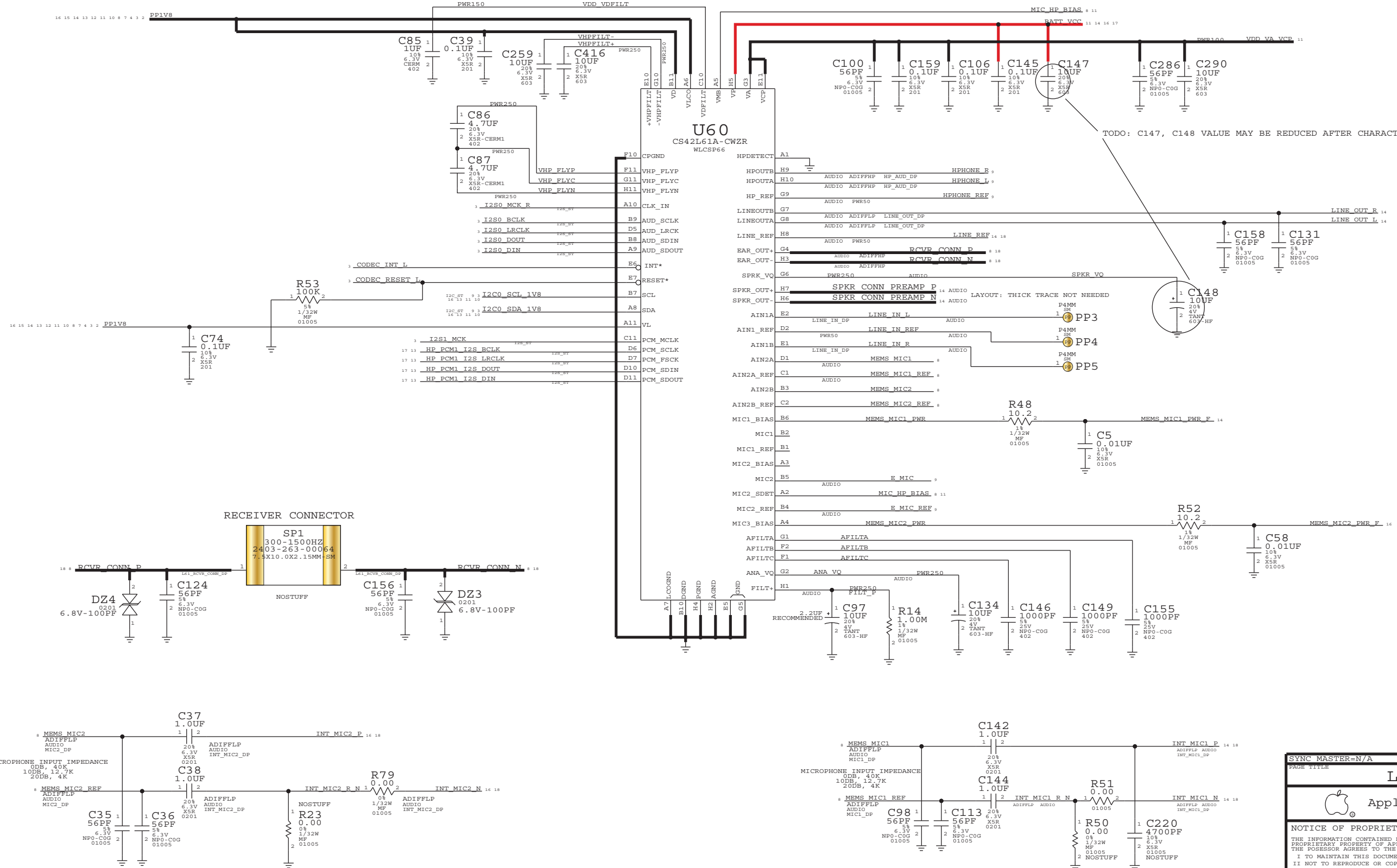
DP_PAD_AUXP	E27	DPORT	DP_AUX	DP_AUX	DP_AUX_P
DP_PAD_AUXN <td>E26 <td>DPORT <td>DP_AUX <td>DP_AUX <td>DP_AUX_N</td> </td></td></td></td>	E26 <td>DPORT <td>DP_AUX <td>DP_AUX <td>DP_AUX_N</td> </td></td></td>	DPORT <td>DP_AUX <td>DP_AUX <td>DP_AUX_N</td> </td></td>	DP_AUX <td>DP_AUX <td>DP_AUX_N</td> </td>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



PAGE TITLE		SYNC DATE=N/A	
<b>H3 MIPI, DPORT, SMIA</b>			
Apple Inc.		DRAWING NUMBER	051-7921
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		PAGE	7 OF 18
		SHEET	7 OF 29

# L61 AUDIO IC INTERFACE

I2C ADDRESS: 1001010X

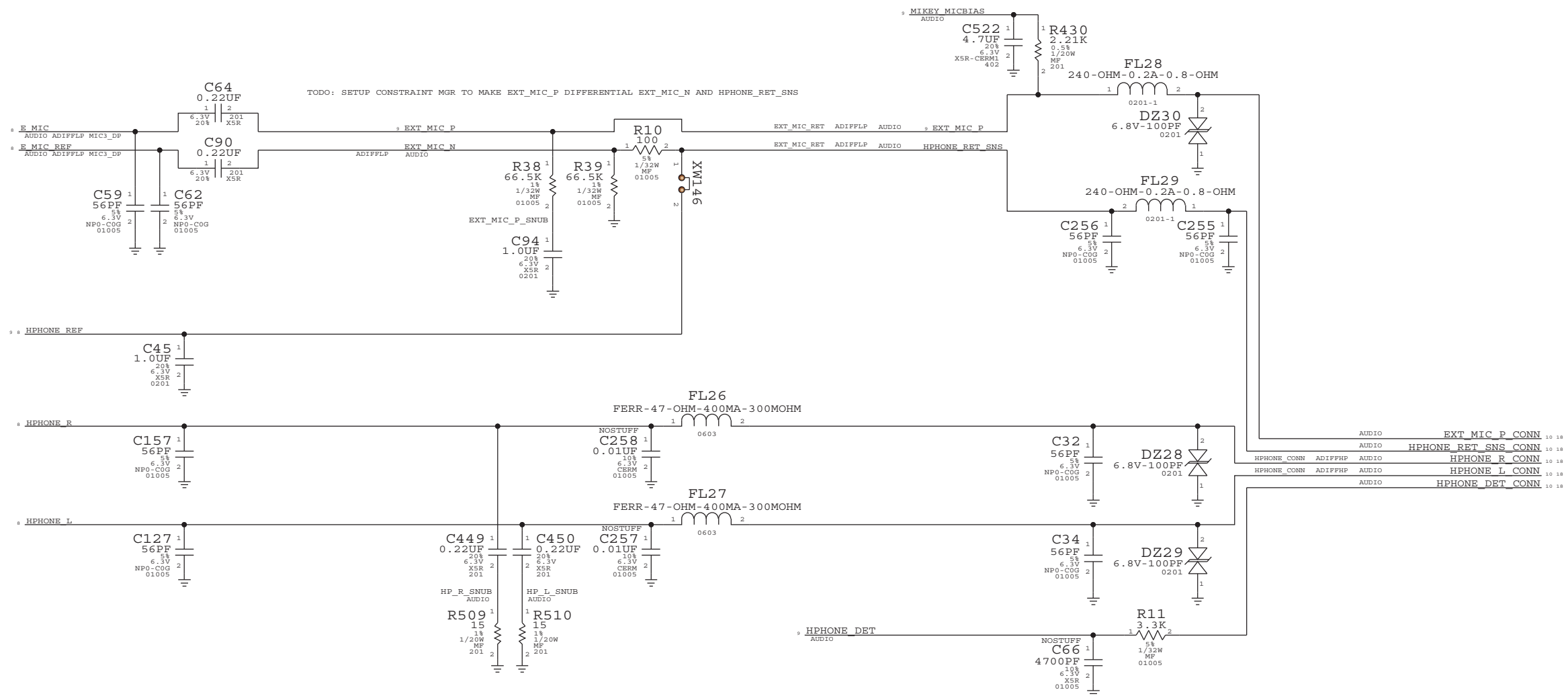


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<b>L61 CODEC</b>	
Apple Inc.	DRAWING NUMBER: 051-7921
	REVISION: A.0.0
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PAGE: 8 OF 18	SHEET: 8 OF 29

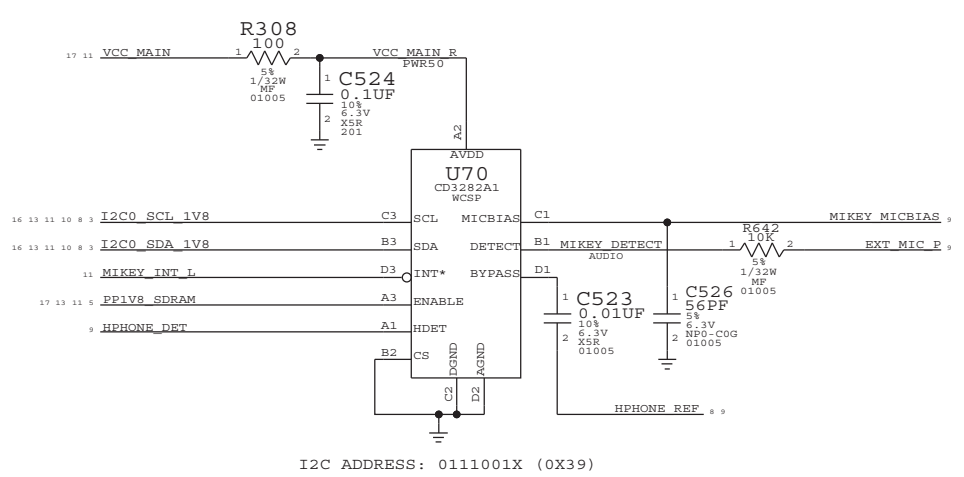
PLACED AT CODEC

PLACED IN CODEC AREA

PLACED BY B2B

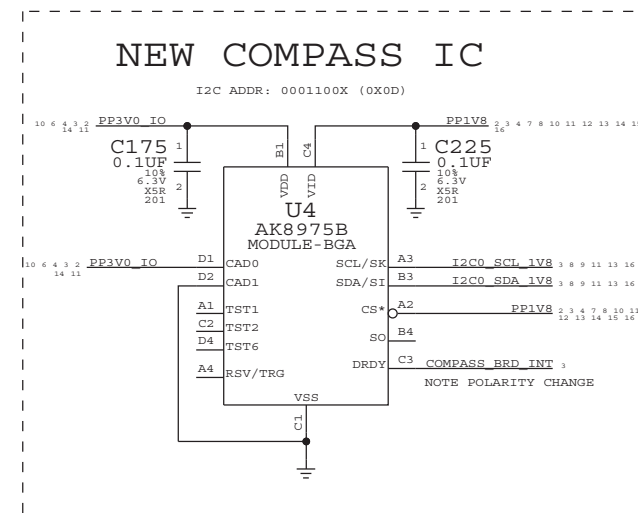
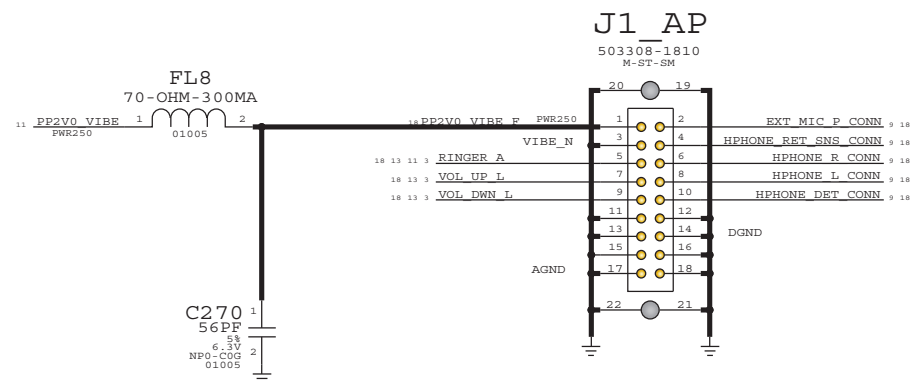


EXTERIOR MIC/HP DETECT IC



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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BUTTON FLEX CONNECTOR



SYNC MASTER=N/A		SYNC DATE=N/A	
PAGE TITLE <b>BUTTON B2B, COMPASS</b>			
DRAWING NUMBER 051-7921		SIZE D	
REVISION A.0.0		BRANCH	
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PAGE 10 OF 18		SHEET 10 OF 29	

D

C

B

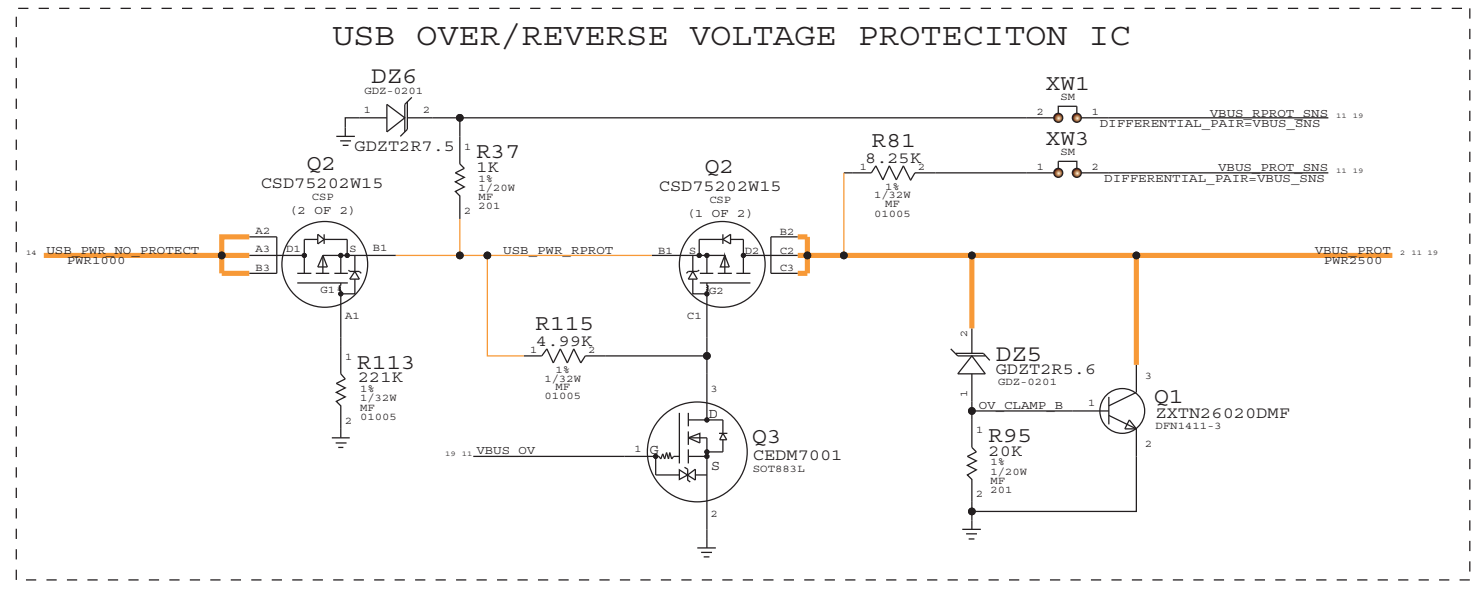
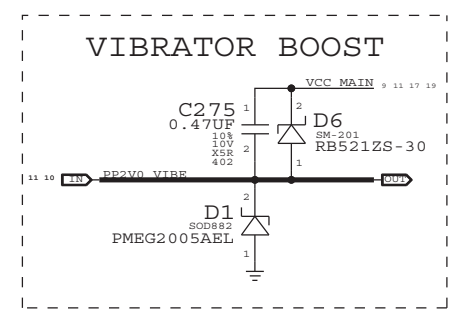
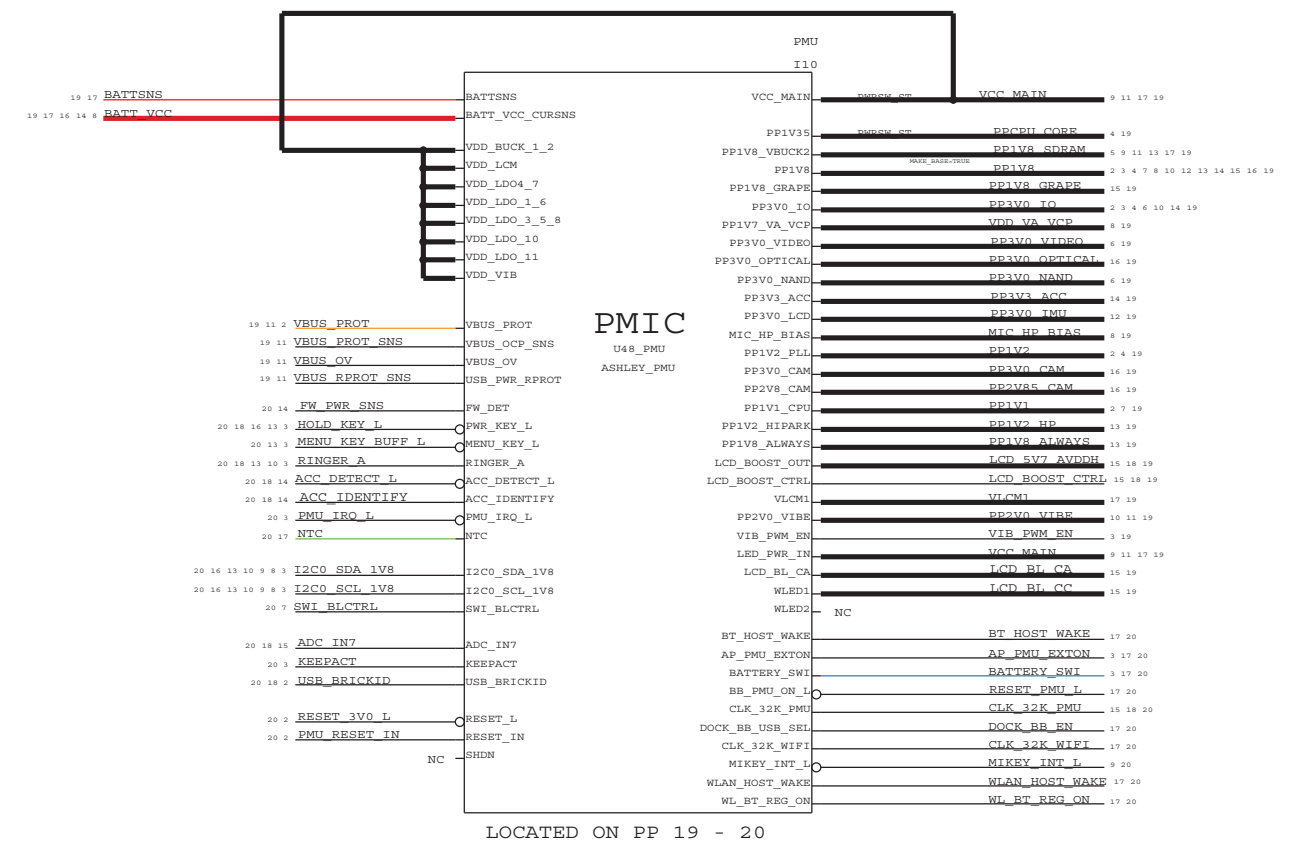
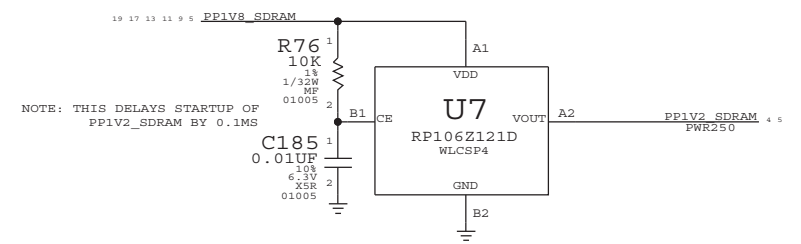
A

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C

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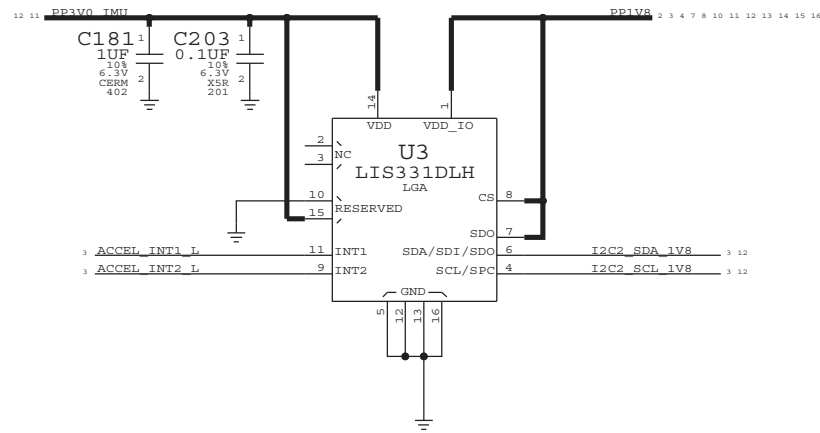
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SYNC MASTER=N/A		SYNC DATE=N/A	
<b>ASHLEY PMU</b>			
DRAWING NUMBER		051-7921	SIZE
REVISION		A.0.0	
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PAGE		11 OF 18	
SHEET		11 OF 29	

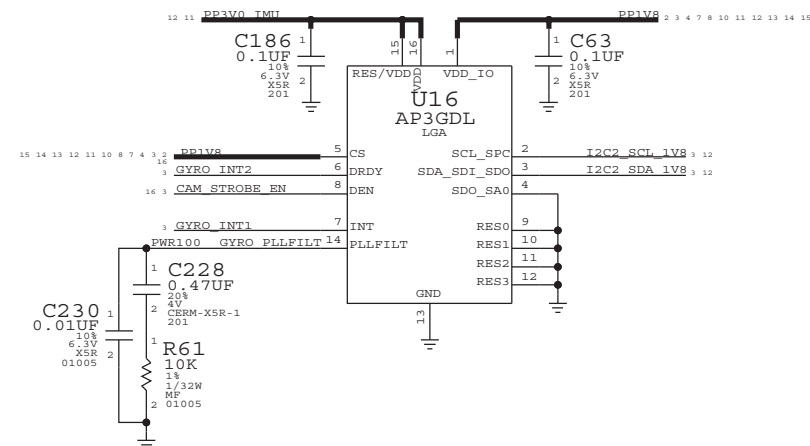
# ACCELEROMETER IC

I2C ADDRESS: 0011101X (0X1D)



apple motion  
move your graphics

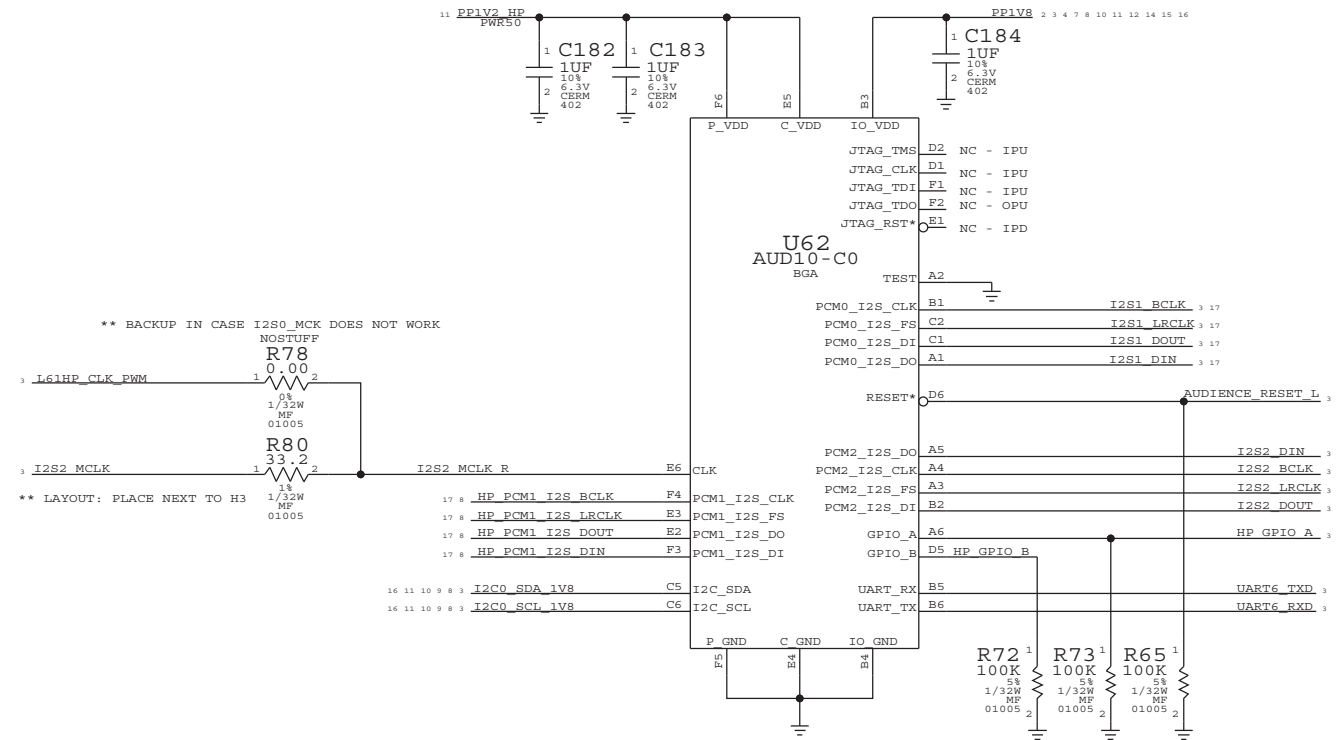
# GYROSCOPE IC



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PAGE TITLE <b>ACCEL, GYRO</b>	
DRAWING NUMBER 051-7921	SIZE D
REVISION A.0.0	BRANCH
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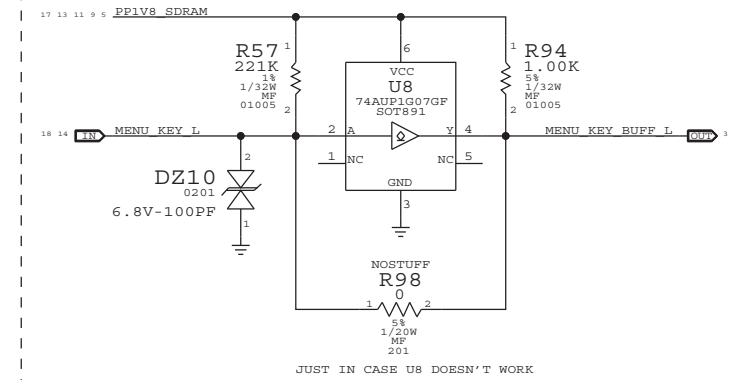
# AUDIENCE IC HIGHLAND PARK

I2C ADDRESS: 0111110X (0X3E)

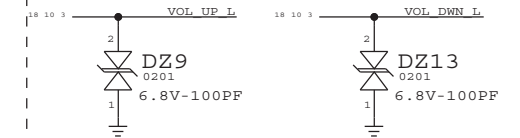


# MENU KEY PU,ESD AND BUFFER IC

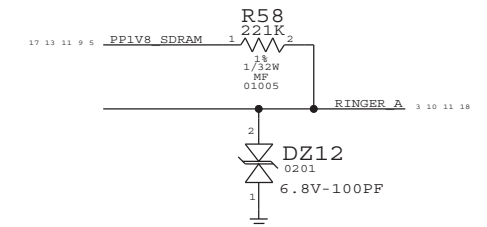
BUFFER IS NEEDED BECAUSE OF IT'S LOW V<sub>IH</sub> AND LEAKAGE  
IT MUST BE OPEN DRAIN SO THAT WHEN PPIV8\_SDRAM IS DOWN,  
MENU\_KEY\_BUFF\_L IS PULLED LOW THROUGH R94 AND INTERNAL  
PULLDOWN IN ASHLEY.



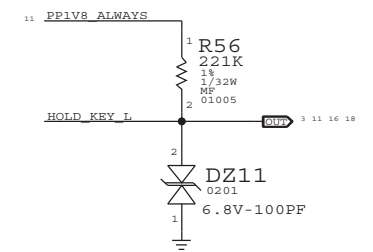
# VOLUME SWITCH ESD



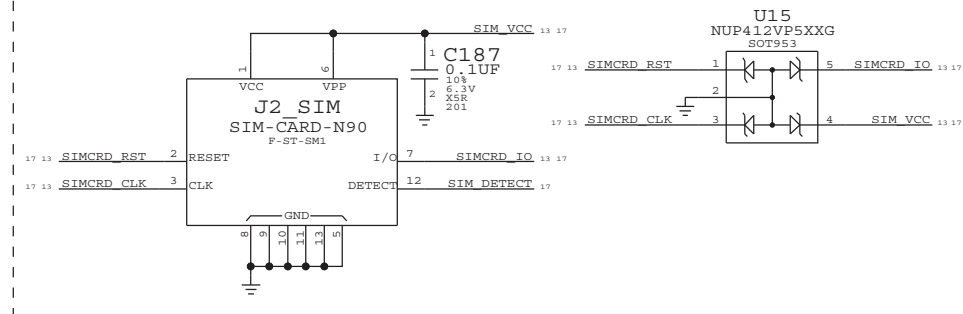
# RINGER A/B SWITCH PU AND ESD



# POWER/HOLD KEY PU AND ESD



# SIM CARD SLOT AND ESD IC



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PAGE: 13 OF 18	SHEET: 13 OF 29

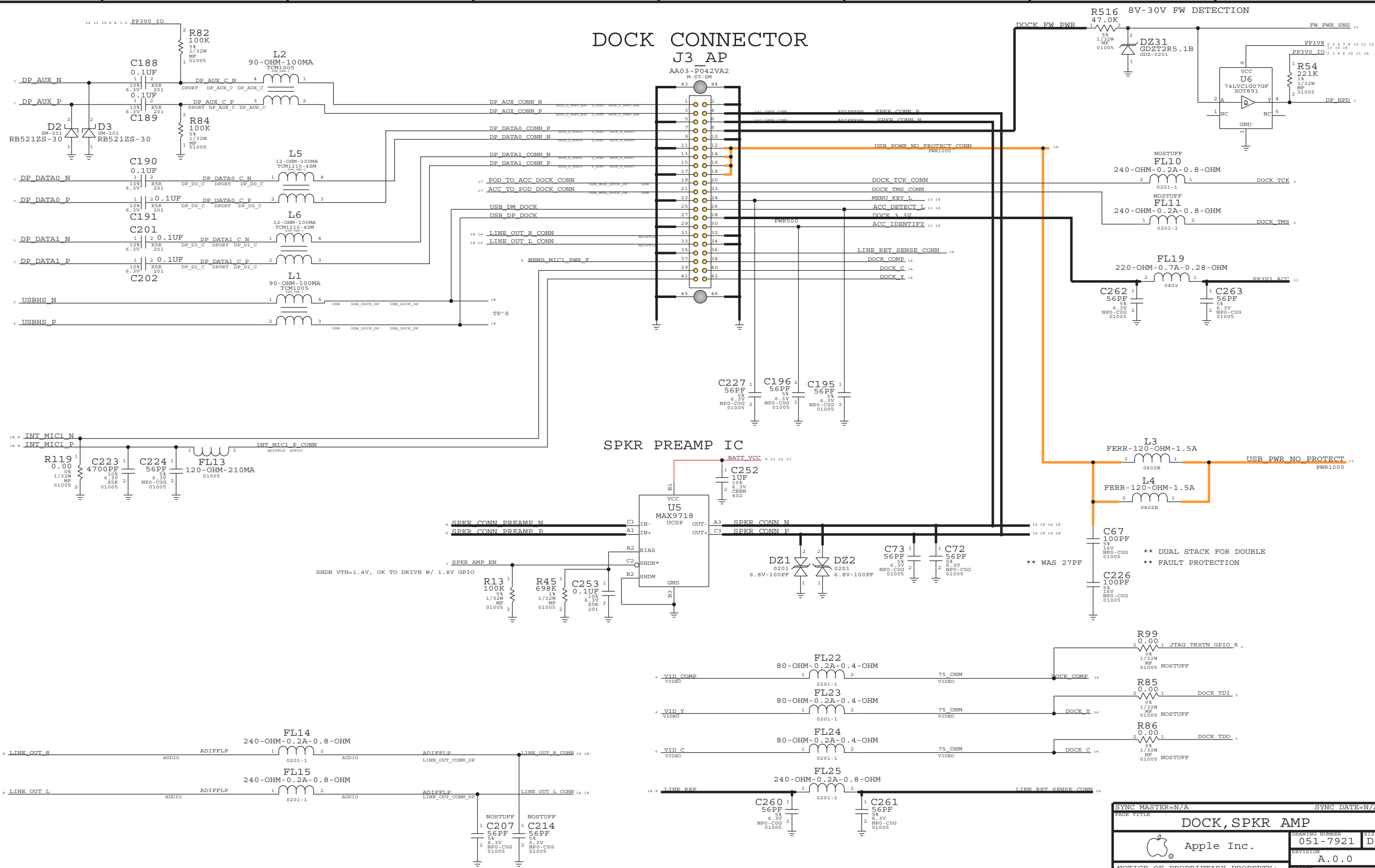


# DOCK CONNECTOR

J3\_AP

AA03-P042VA2

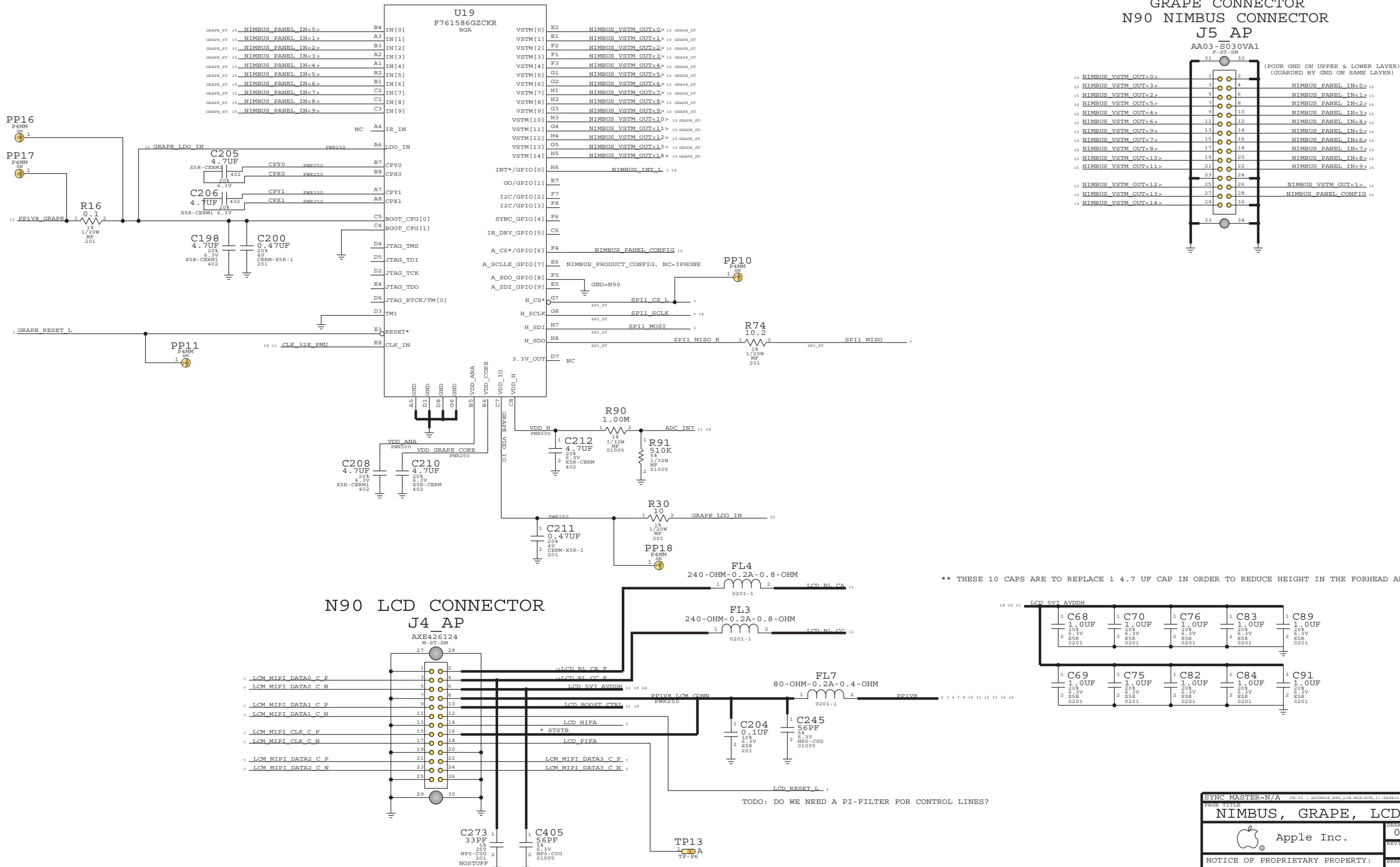
M-ST-SM



PAGE TITLE		SYNC DATE=N/A	
<b>DOCK, SPKR AMP</b>			
Apple Inc.		DRAWING NUMBER	051-7921
		REVISION	A.0.0
		BRANCH	
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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

SYNC MASTER=N/A		CS-15 - SINGLE_BSD_L16_MIA(2021.17).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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DRAWING NUMBER		051-7921		SIZE	
REVISION		A.0.0		D	
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DRAWING NUMBER		051-7921		SIZE	
REVISION		A.0.0		D	

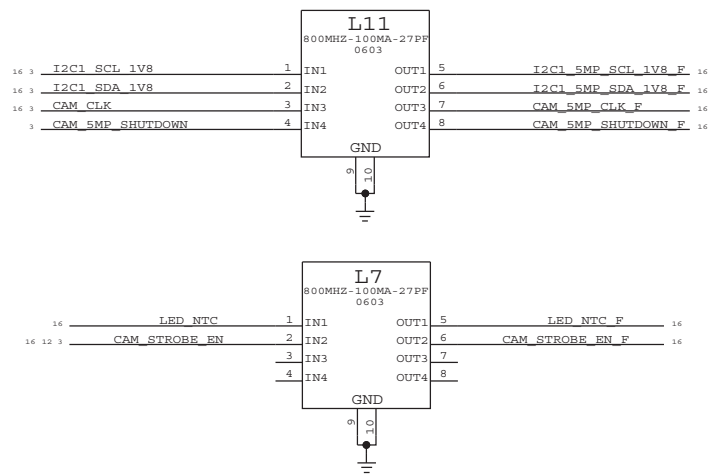
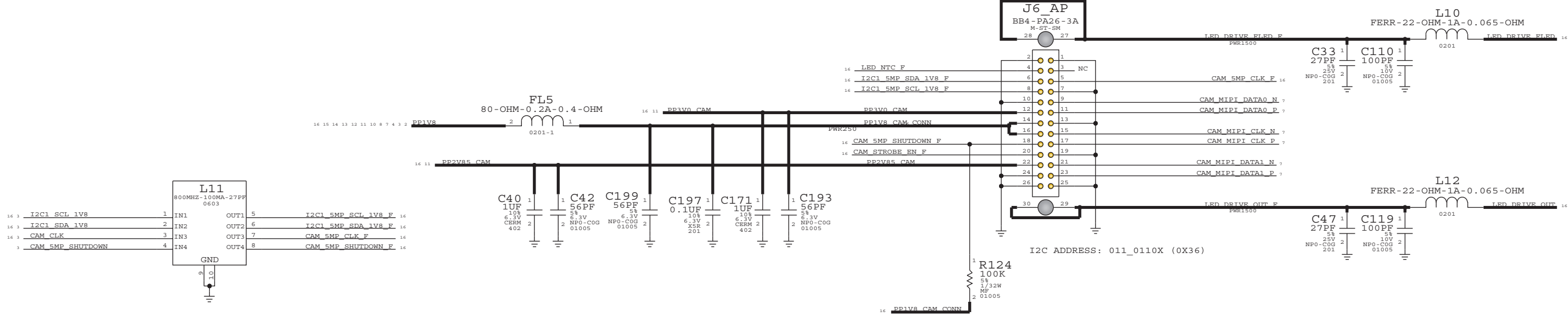
D  
C  
B  
A

D  
C  
B  
A

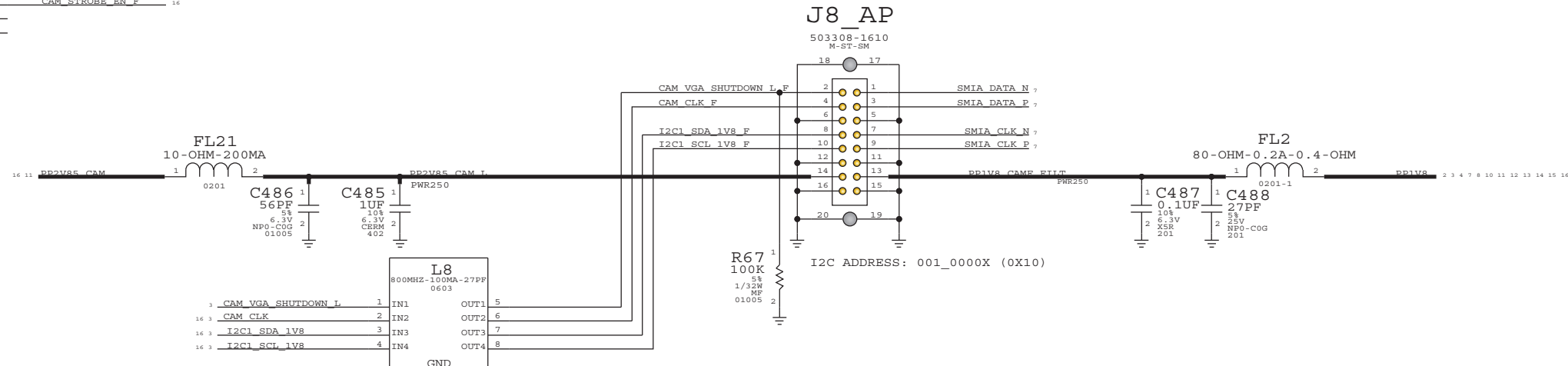
8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1

# REAR 5MP CAMERA CONNECTOR

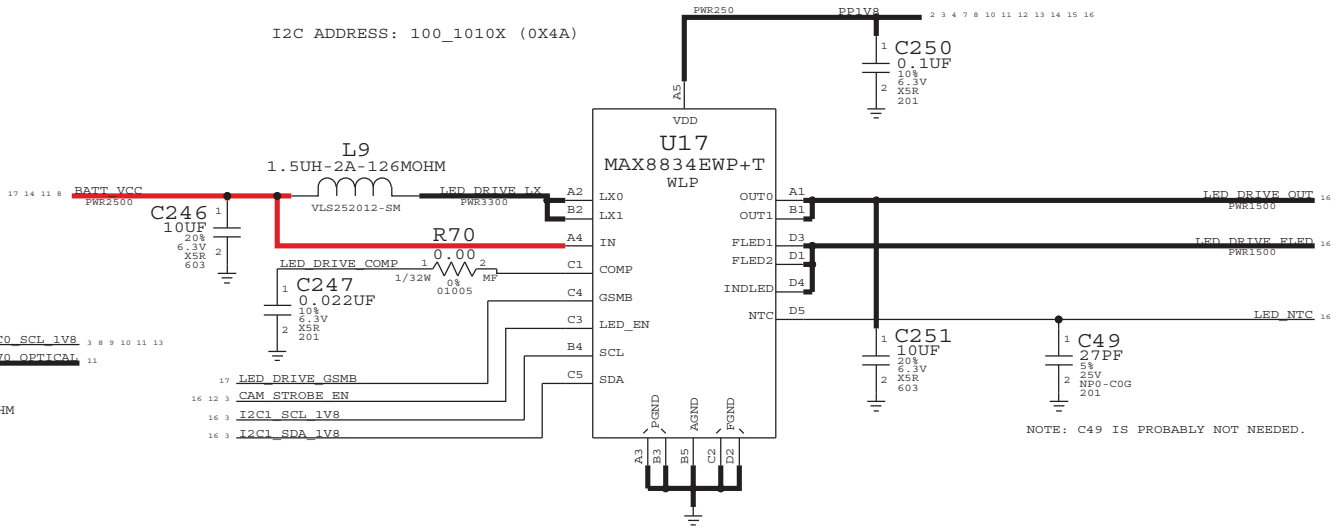


# FRONT VGA CAMERA CONNECTOR



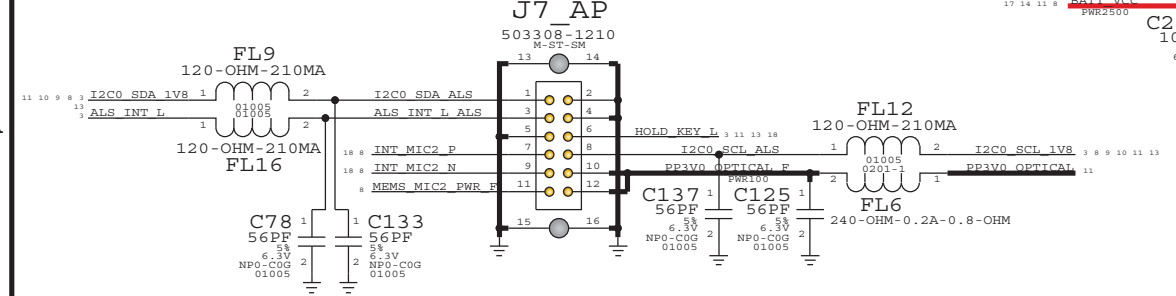
# CAMERA LED DRIVER IC

\* PLACE CLOSE TO BATTERY \*

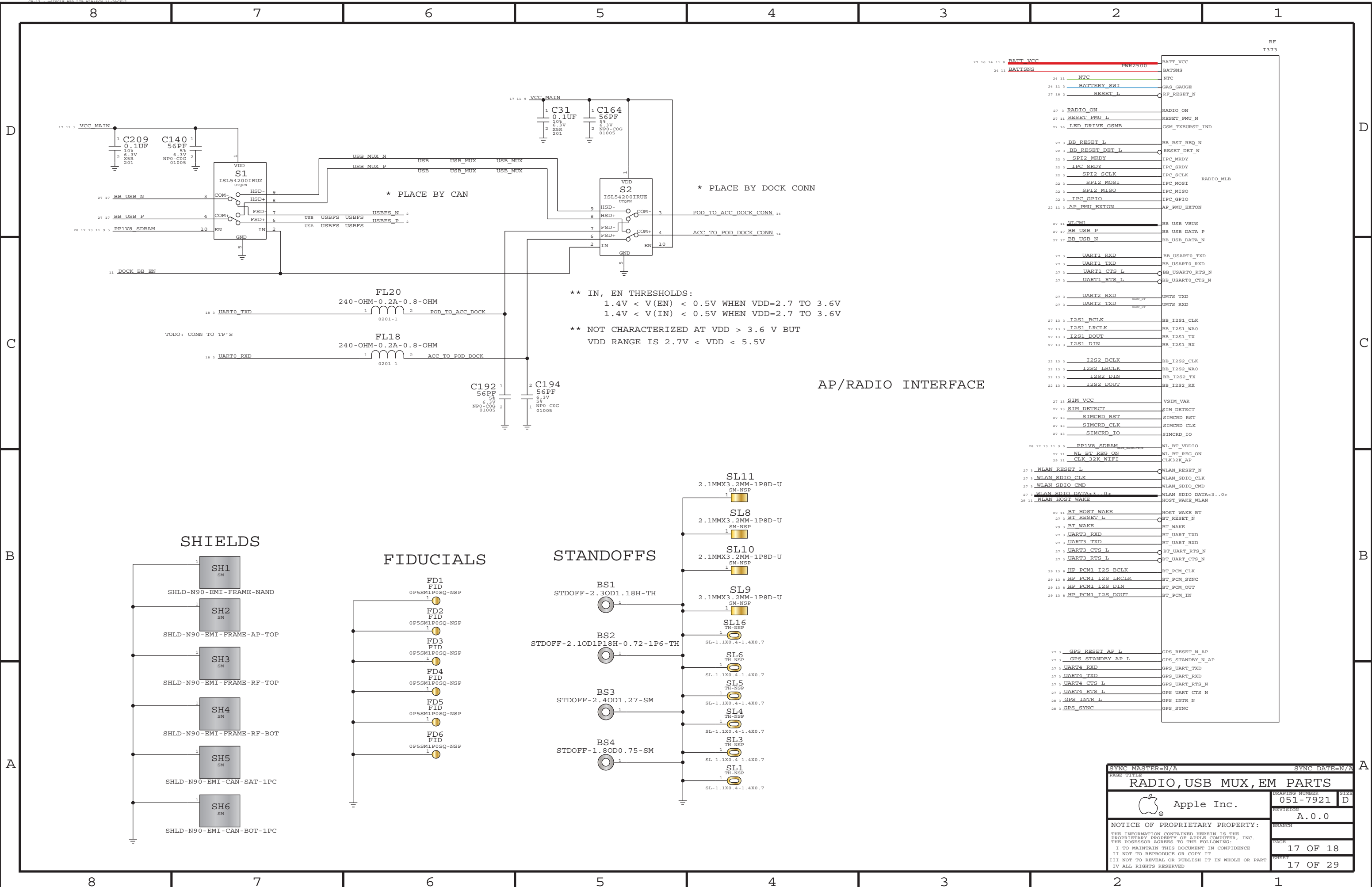


# ALS/PROX CONNECTOR

I2C ADDRESS: 011\_1001X (0X39)



SYNC MASTER=N/A	SYNC DATE=N/A
CAMERA, STROBE, SENSOR B2B	
Apple Inc.	DRAWING NUMBER: 051-7921
REVISION: A.0.0	SIZE: D
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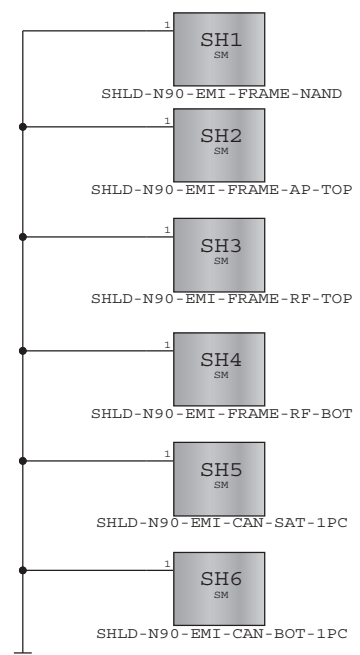
Signal	Connection
BATT_VCC	BATT_VCC
BATTSNS	BATSNS
NTC	NTC
BATTERY_SWI	GAS_GAUGE
RESET_L	RF_RESET_N
RADIO_ON	RADIO_ON
RESET_PMU_L	RESET_PMU_N
LED_DRIVE_GSM	GSM_TXBURST_IND
BB_RESET_L	BB_RST_REQ_N
BB_RESET_DET_L	RESET_DET_N
SPI2_MRDY	IPC_MRDY
IPC_SRDY	IPC_SRDY
SPI2_SCLK	IPC_SCLK
SPI2_MOSI	IPC_MOSI
SPI2_MISO	IPC_MISO
IPC_GPIO	IPC_GPIO
AP_PMU_EXTN	AP_PMU_EXTN
WL_CM1	BB_USB_VBUS
BB_USB_P	BB_USB_DATA_P
BB_USB_N	BB_USB_DATA_N
UART1_RXD	BB_USARTO_TXD
UART1_TXD	BB_USARTO_RXD
UART1_CTS_L	BB_USARTO_RTS_N
UART1_RTS_L	BB_USARTO_CTS_N
UART2_RXD	UMTS_TXD
UART2_TXD	UMTS_RXD
I2S1_BCLK	BB_I2S1_CLK
I2S1_LRCLK	BB_I2S1_MAO
I2S1_DOUT	BB_I2S1_TX
I2S1_DIN	BB_I2S1_RX
I2S2_BCLK	BB_I2S2_CLK
I2S2_LRCLK	BB_I2S2_MAO
I2S2_DIN	BB_I2S2_TX
I2S2_DOUT	BB_I2S2_RX
SIM_VCC	VSIM_VAR
SIM_DETECT	SIM_DETECT
SIMCRD_RST	SIMCRD_RST
SIMCRD_CLK	SIMCRD_CLK
SIMCRD_IO	SIMCRD_IO
PPIV8_SDRAM	WL_BT_VDDIO
WL_BT_REG_ON	WL_BT_REG_ON
CLK_32K_WIFI	CLK32K_AP
WLAN_RESET_L	WLAN_RESET_N
WLAN_SDIO_CLK	WLAN_SDIO_CLK
WLAN_SDIO_CMD	WLAN_SDIO_CMD
WLAN_SDIO_DATA<3..0>	WLAN_SDIO_DATA<3..0>
WLAN_HOST_WAKE	HOST_WAKE_WLAN
BT_HOST_WAKE	HOST_WAKE_BT
BT_RESET_L	BT_RESET_N
BT_WAKE	BT_WAKE
UART3_RXD	BT_UART_TXD
UART3_TXD	BT_UART_RXD
UART3_CTS_L	BT_UART_RTS_N
UART3_RTS_L	BT_UART_CTS_N
HP_PCM1_I2S_BCLK	BT_PCM_CLK
HP_PCM1_I2S_LRCLK	BT_PCM_SYNC
HP_PCM1_I2S_DIN	BT_PCM_OUT
HP_PCM1_I2S_DOUT	BT_PCM_IN
GPS_RESET_AP_L	GPS_RESET_N_AP
GPS_STANDBY_AP_L	GPS_STANDBY_N_AP
UART4_RXD	GPS_UART_TXD
UART4_TXD	GPS_UART_RXD
UART4_CTS_L	GPS_UART_RTS_N
UART4_RTS_L	GPS_UART_CTS_N
GPS_INTR_L	GPS_INTR_N
GPS_SYNC	GPS_SYNC

AP/RADIO INTERFACE

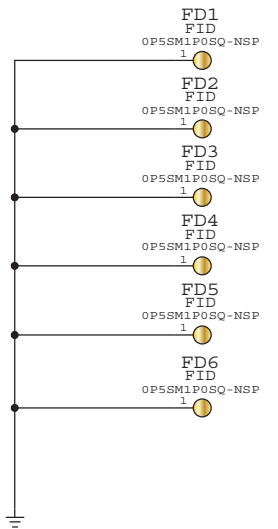
\*\* IN, EN THRESHOLDS:  
 1.4V < V(EN) < 0.5V WHEN VDD=2.7 TO 3.6V  
 1.4V < V(IN) < 0.5V WHEN VDD=2.7 TO 3.6V

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

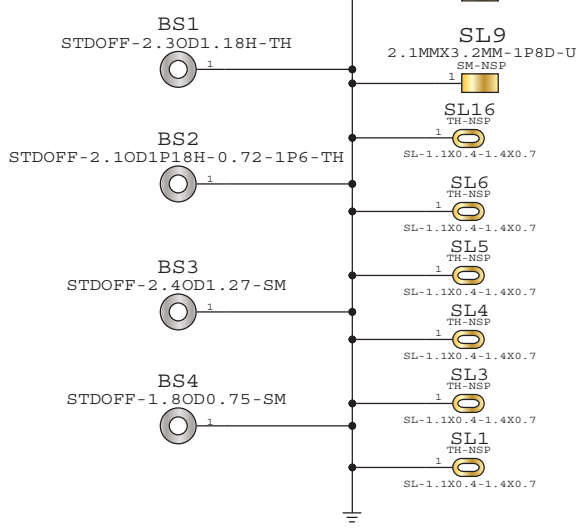
SHIELDS



FIDUCIALS



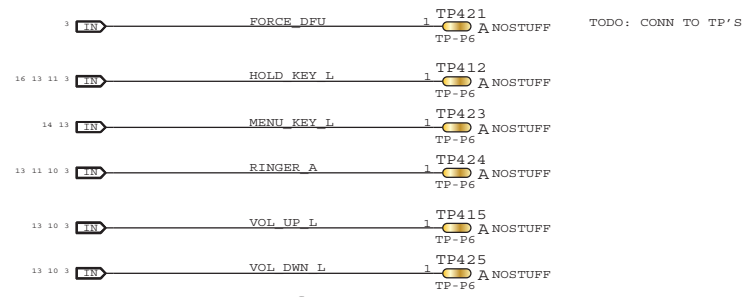
STANDOFFS



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

## GPIO

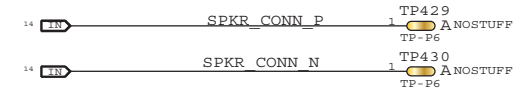


## TEST

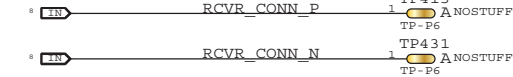


## AUDIO

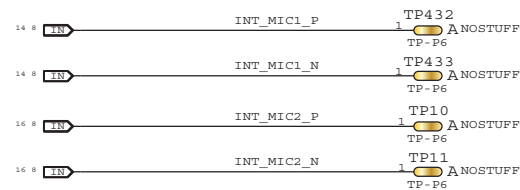
### SPEAKER



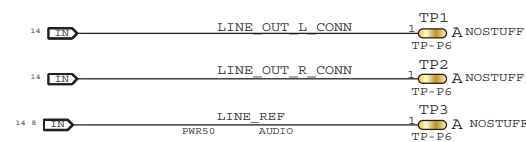
### RECEIVER



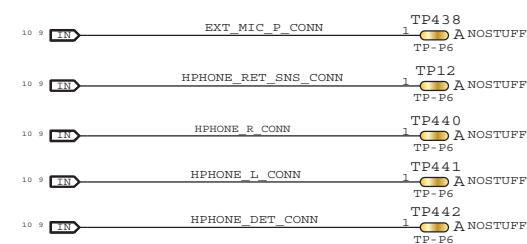
### MIC



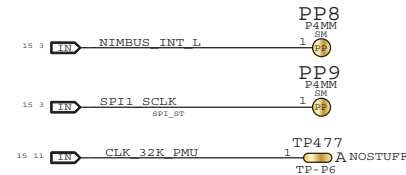
### LINE OUT



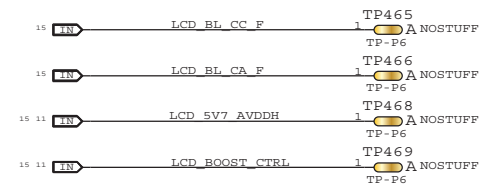
### HEADPHONE



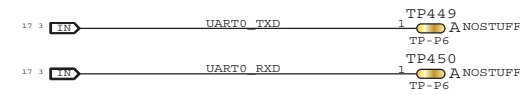
## GRAPE



## LCM



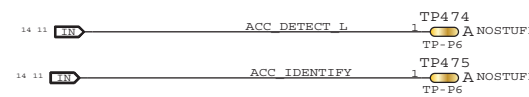
## UART



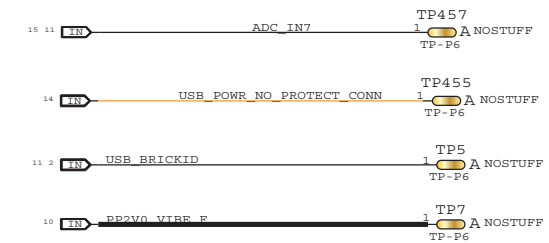
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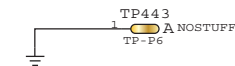
## ACCESSORY DETECT



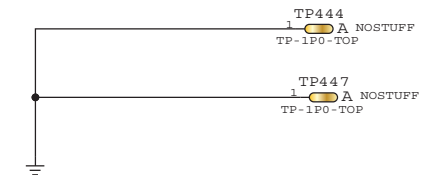
## POWER



## SIGNAL GND (SENSE)



## POWER GND



## RESET



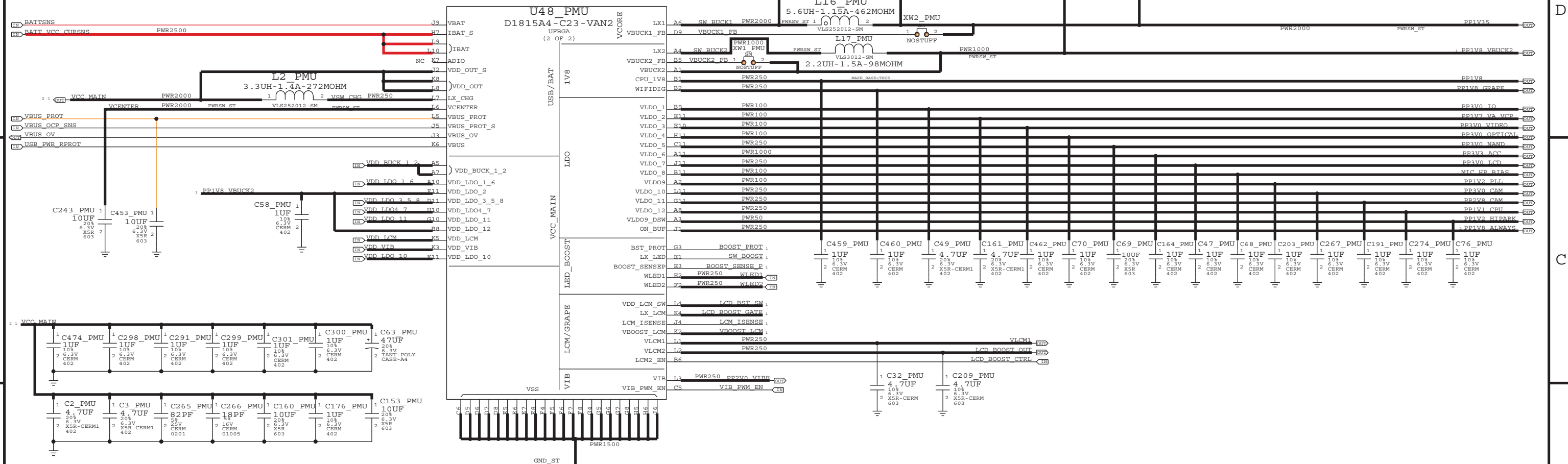
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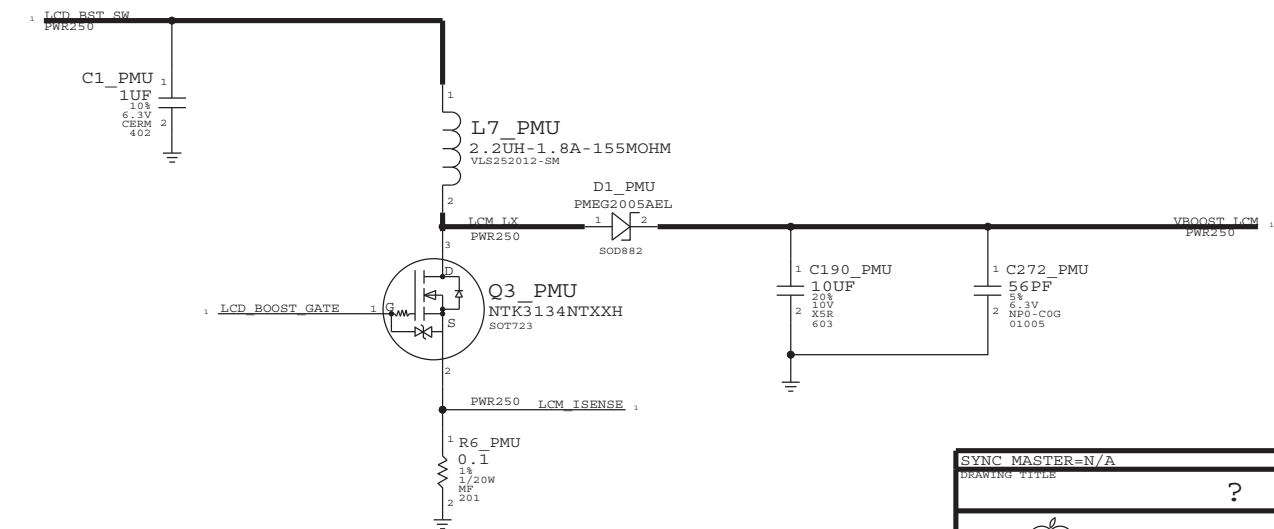
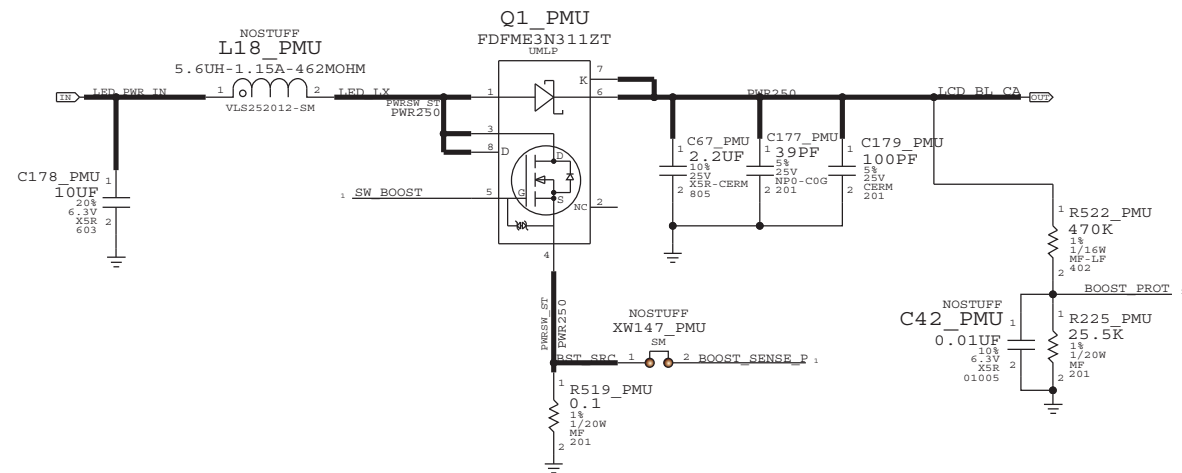
# N90 ASHLEY\_PMU SUB-DESIGN

Thu Mar 18 14:15:23 2010

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A	0000880153	PRODUCTION RELEASED		2010-03-23



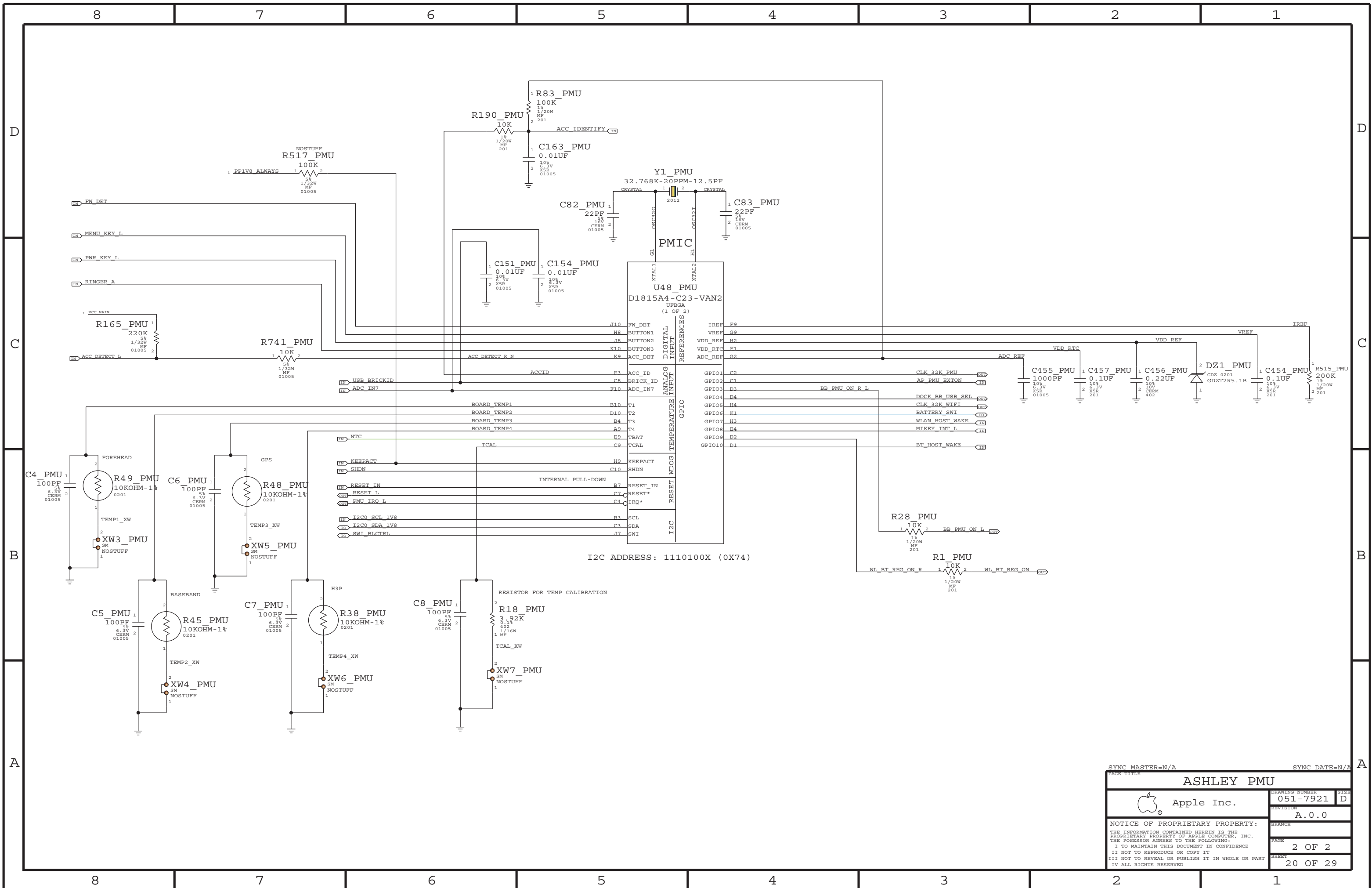
## BACKLIGHT IC




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	?

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 3. ALL CRYSTALS & OSCILLATOR VALUES ARE IN HERTZ.

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A	0000880153	PRODUCTION RELEASED	DATE 2010-03-23

# iPhone 4 N90 (ICE3) HSPA RADIO

## PVT - 04/15/10:BRD REV9

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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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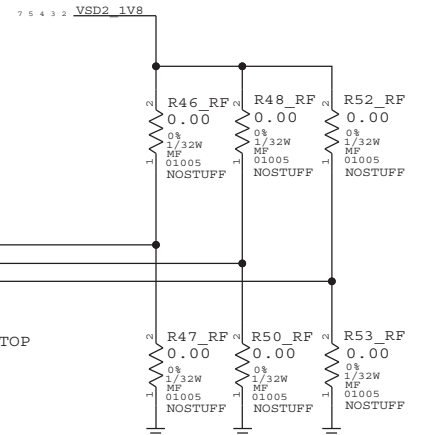
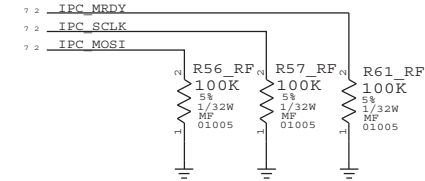
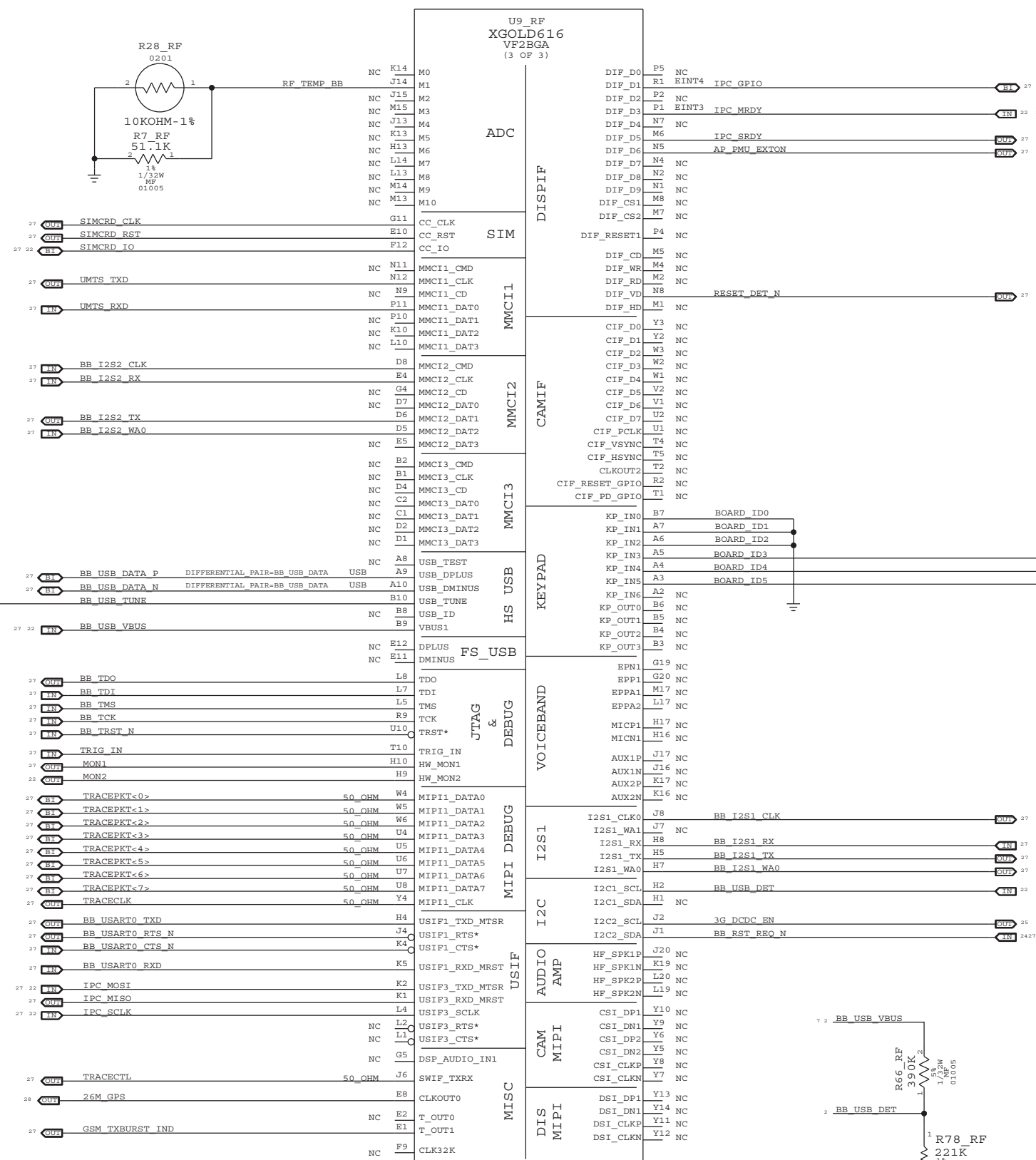
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1



# BASEBAND I/O

## BB CPU



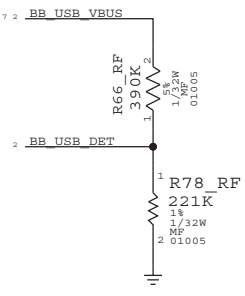
WIFI MODULE VENDOR ID  
POPULATE R46/R47 AS BOM OPTION AT THE TOP

BOARD_ID3	VENDOR
NST	N/A
0	MURATA
1	USI

BOARD_ID5	FAMILY
NST	ICE3
0	ICE4
1	RESERVED

BOARD_ID4	PROJECT
NST	N90
0	RESERVED
1	RESERVED

BOARD_ID2	BOARD_ID1	BOARD_ID0	DEV
NST	NST	NST	DEV1
NST	NST	1	DEV2
NST	1	NST	DEV3
NST	1	1	DEV4
NST	NST	0	DEV5
NST	0	NST	DEV6
NST	0	0	DEV7
1	NST	NST	PROTO0
1	NST	1	PROTO1
1	1	NST	PROTO2
1	1	1	PROTO3
1	NST	0	EVT1
1	0	NST	EVT2
1	0	0	EVT3
0	NST	NST	DVT1
0	NST	1	DVT2
0	1	NST	DVT3
0	1	1	DVT4
0	0	0	PVT



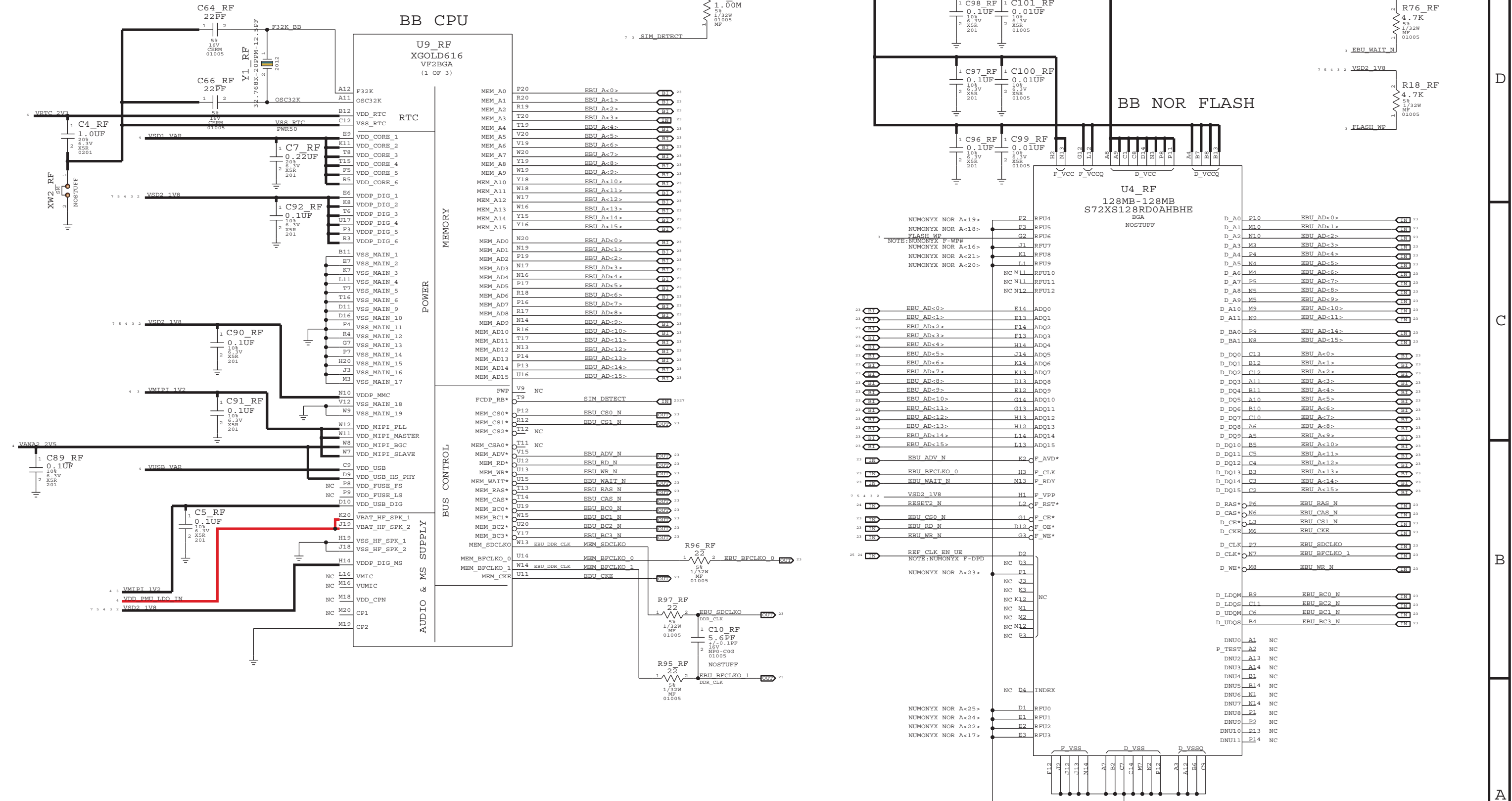
### BOOT CONFIG DESCRIPTION

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

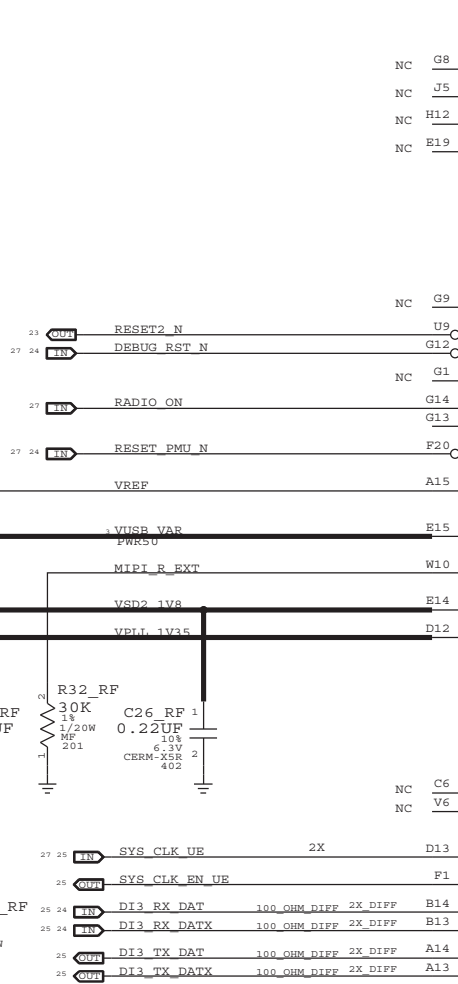
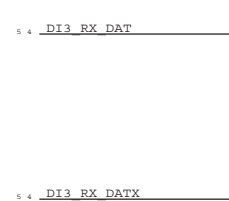
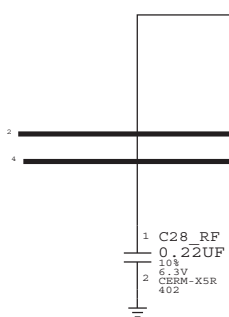
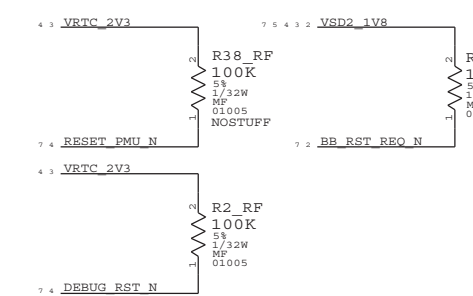
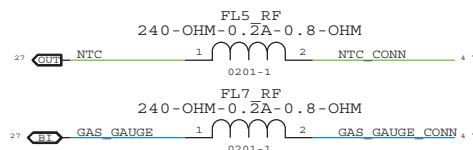
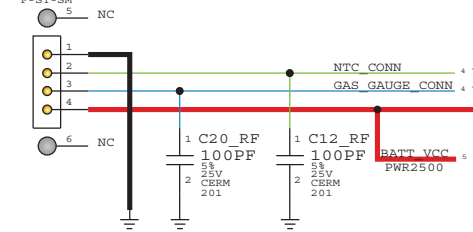


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# BASEBAND POWER SUPPLY

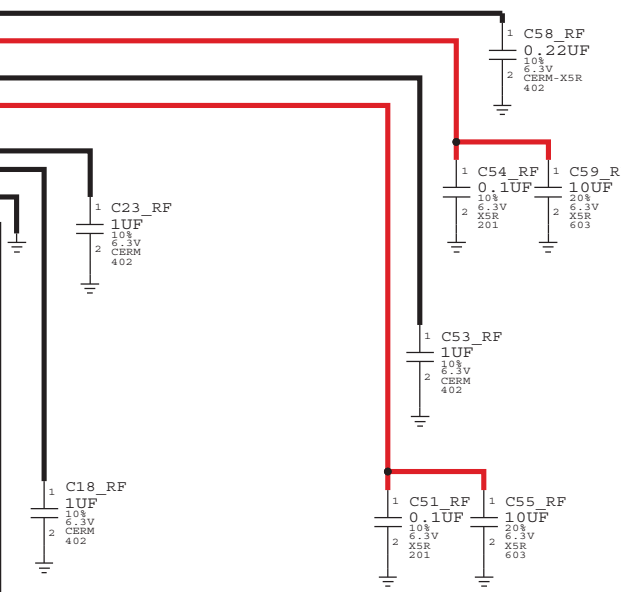
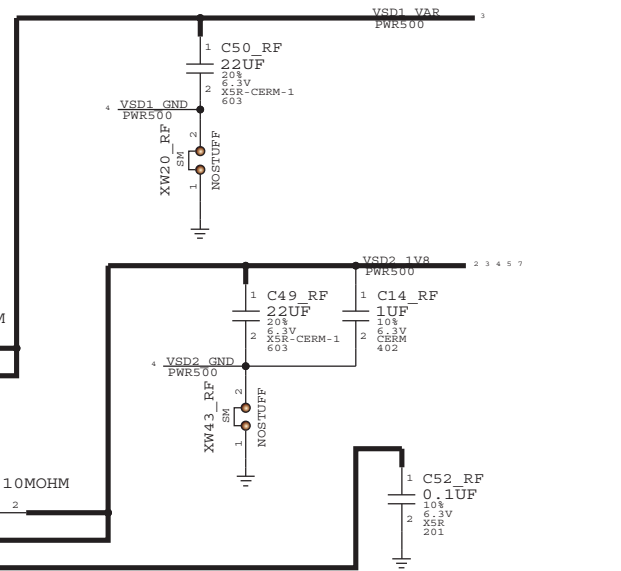
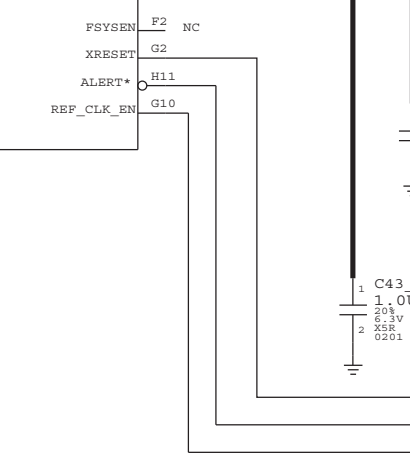
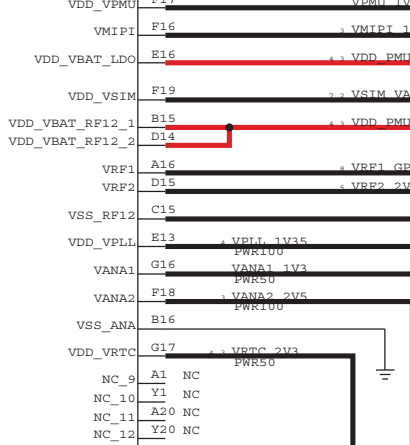
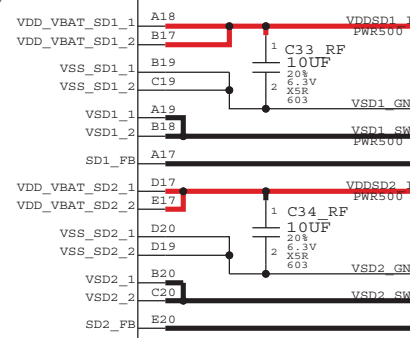
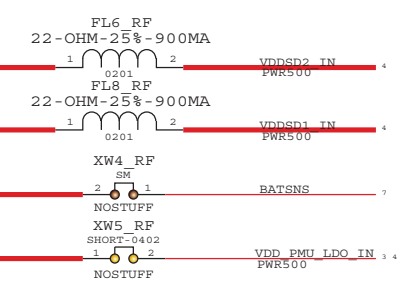
## BATTERY CONNECTOR

J7\_RF  
WB22453-1401-7F  
F-ST-SM



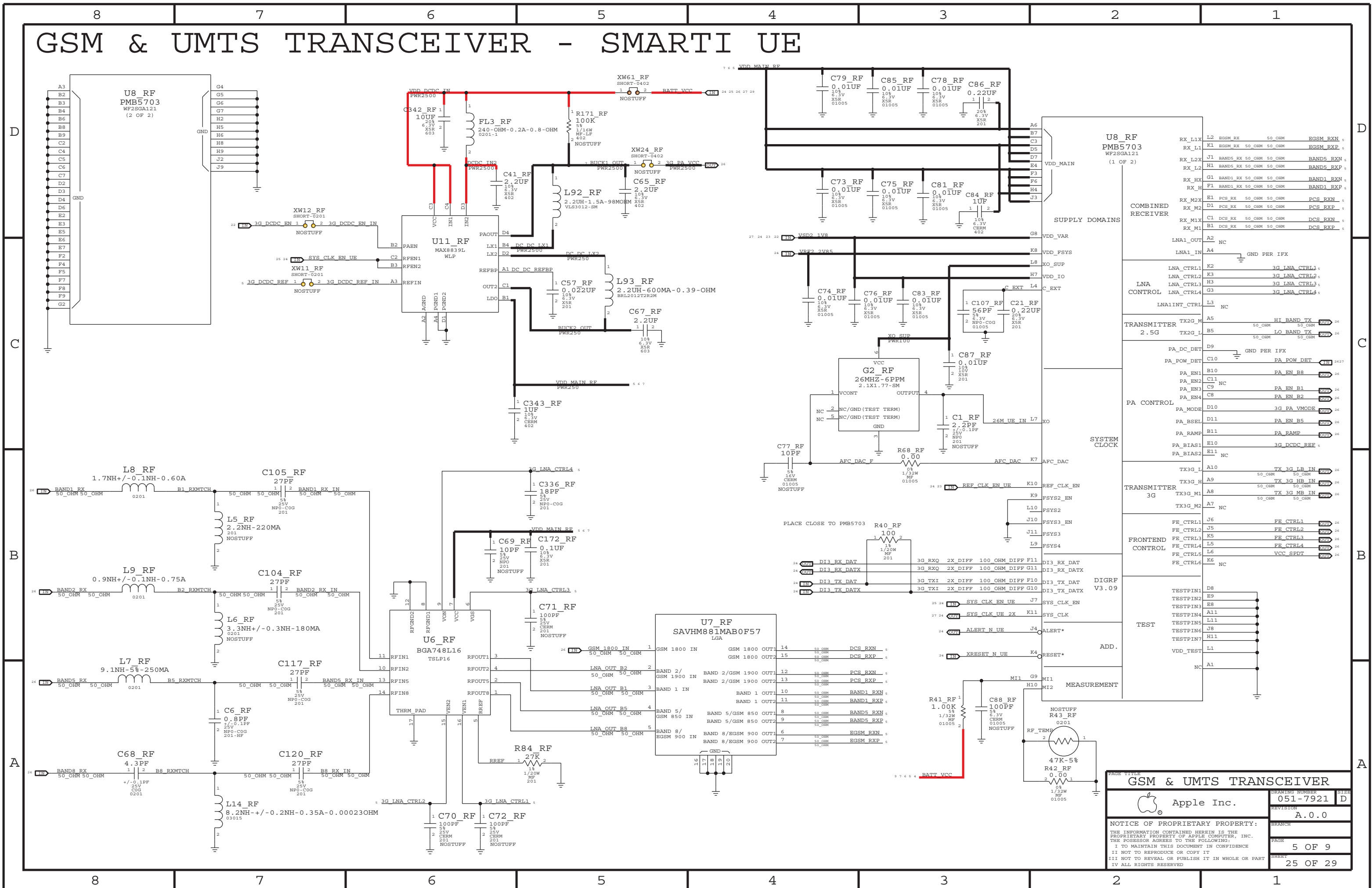
## BB CPU

U9\_RF  
XGOLD616  
VF2BGA  
(2 OF 3)



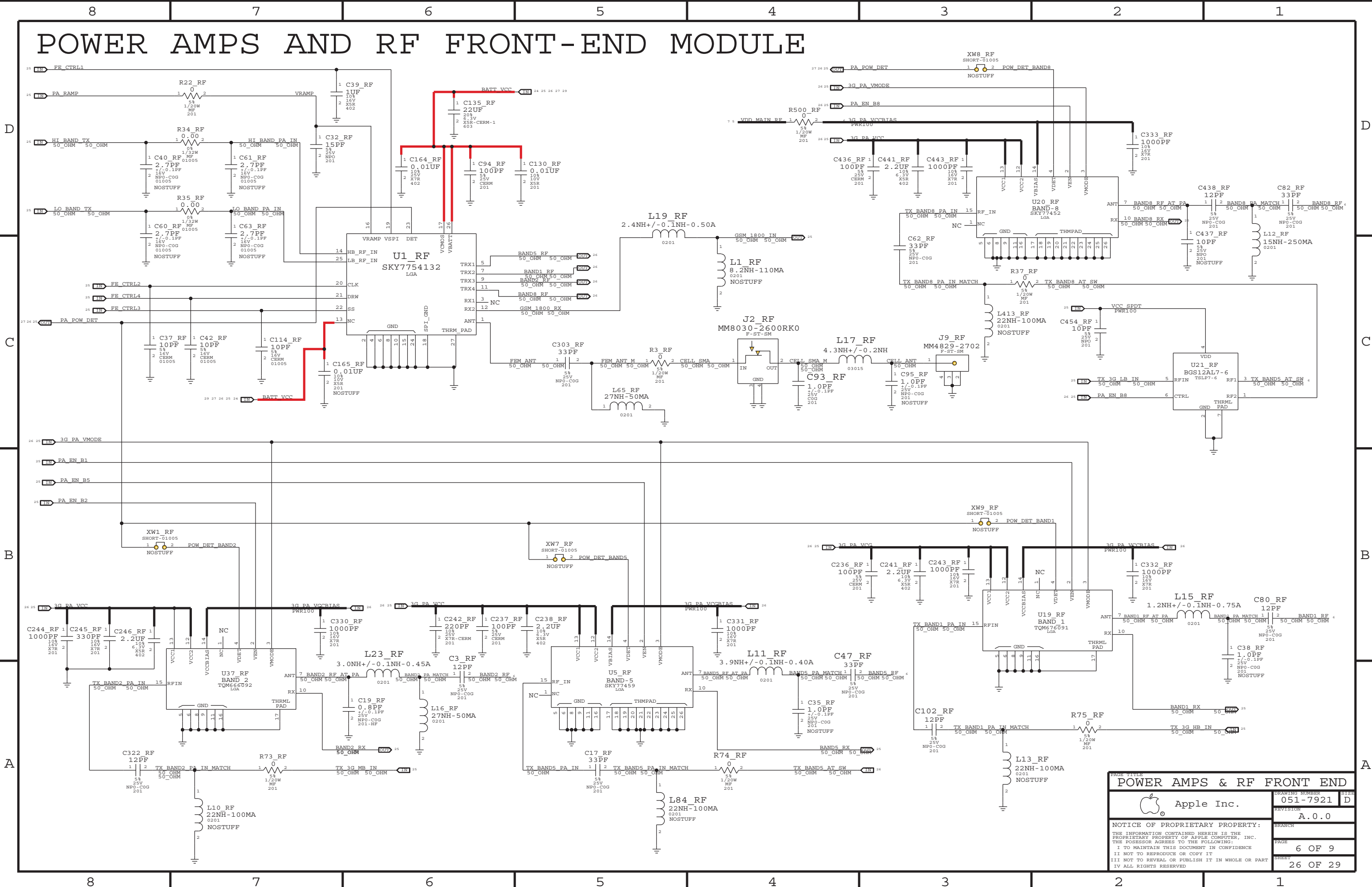
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# GSM & UMTS TRANSCEIVER - SMARTI UE



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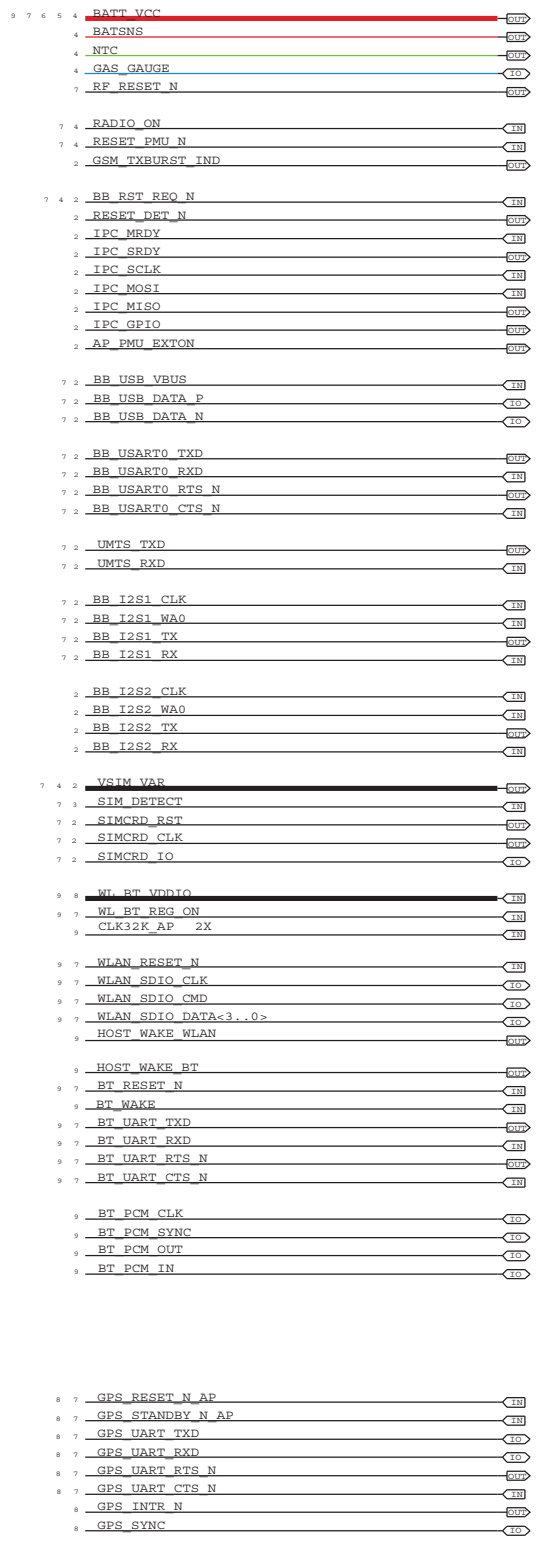
# POWER AMPS AND RF FRONT-END MODULE



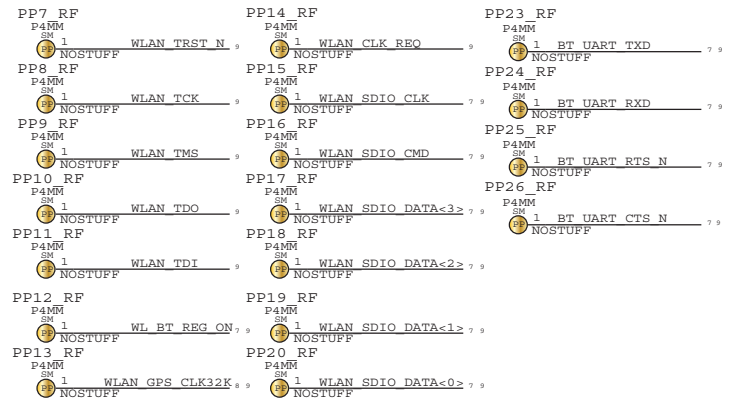
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# SYSTEM CONNECTORS

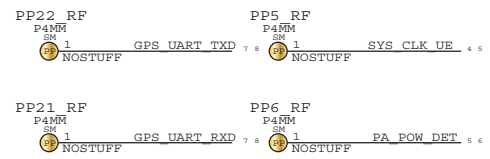
## AP CONNECTIONS



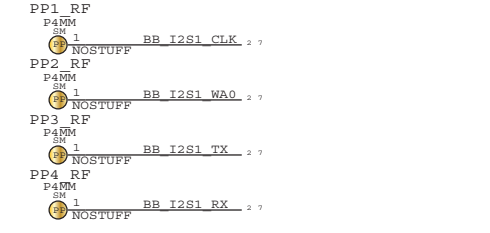
## WLAN/BT



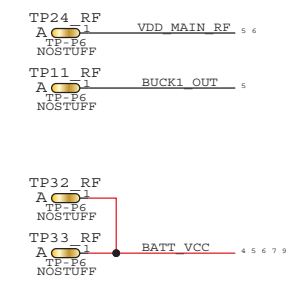
## GPS TRX



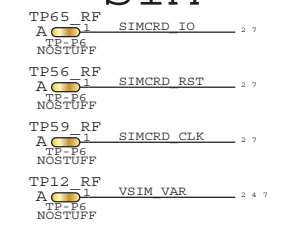
## DIGITAL AUDIO



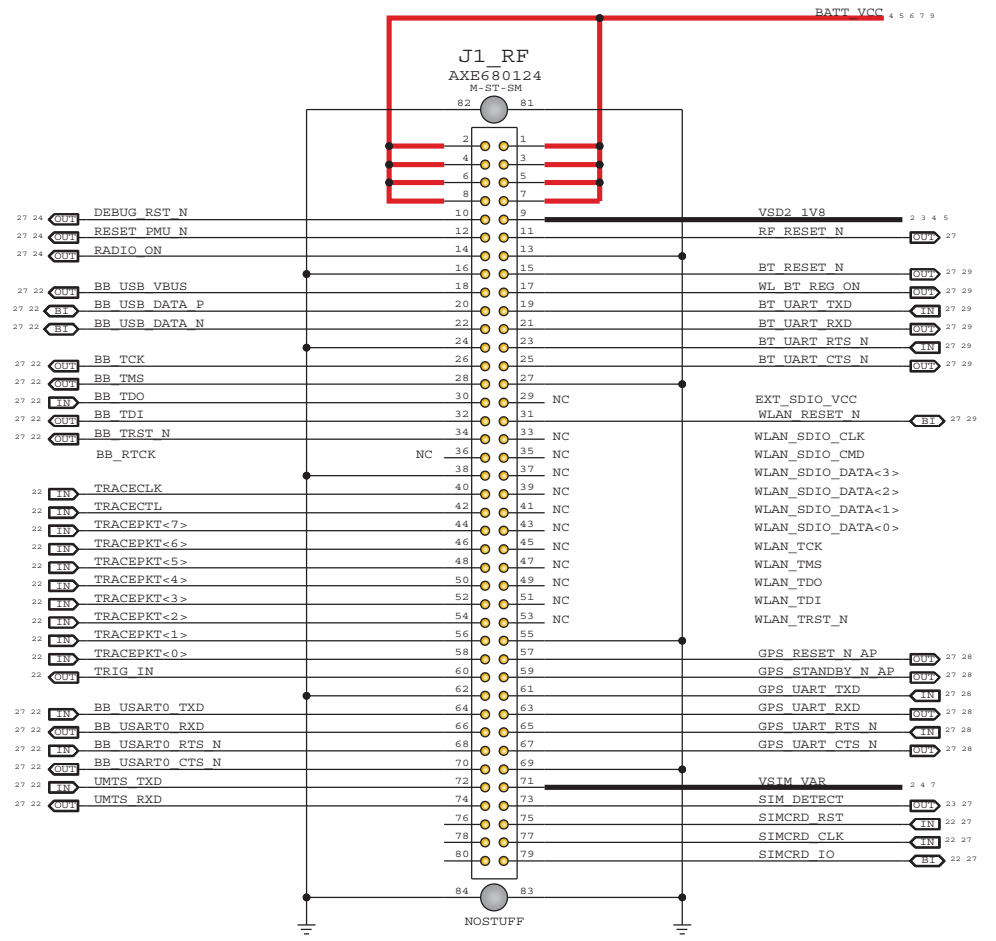
## POWER DOMAINS



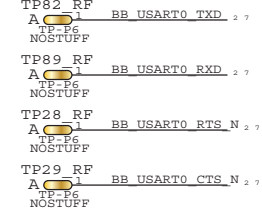
## SIM



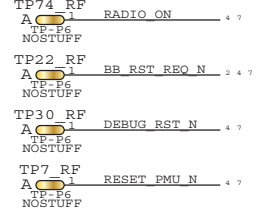
# DEBUG CONNECTOR



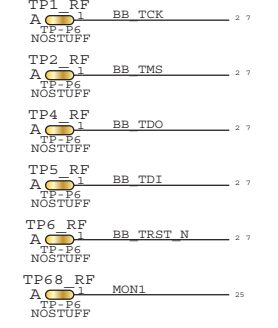
## USART0



## CONTROL



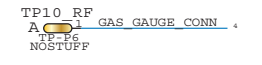
## JTAG



## NTC

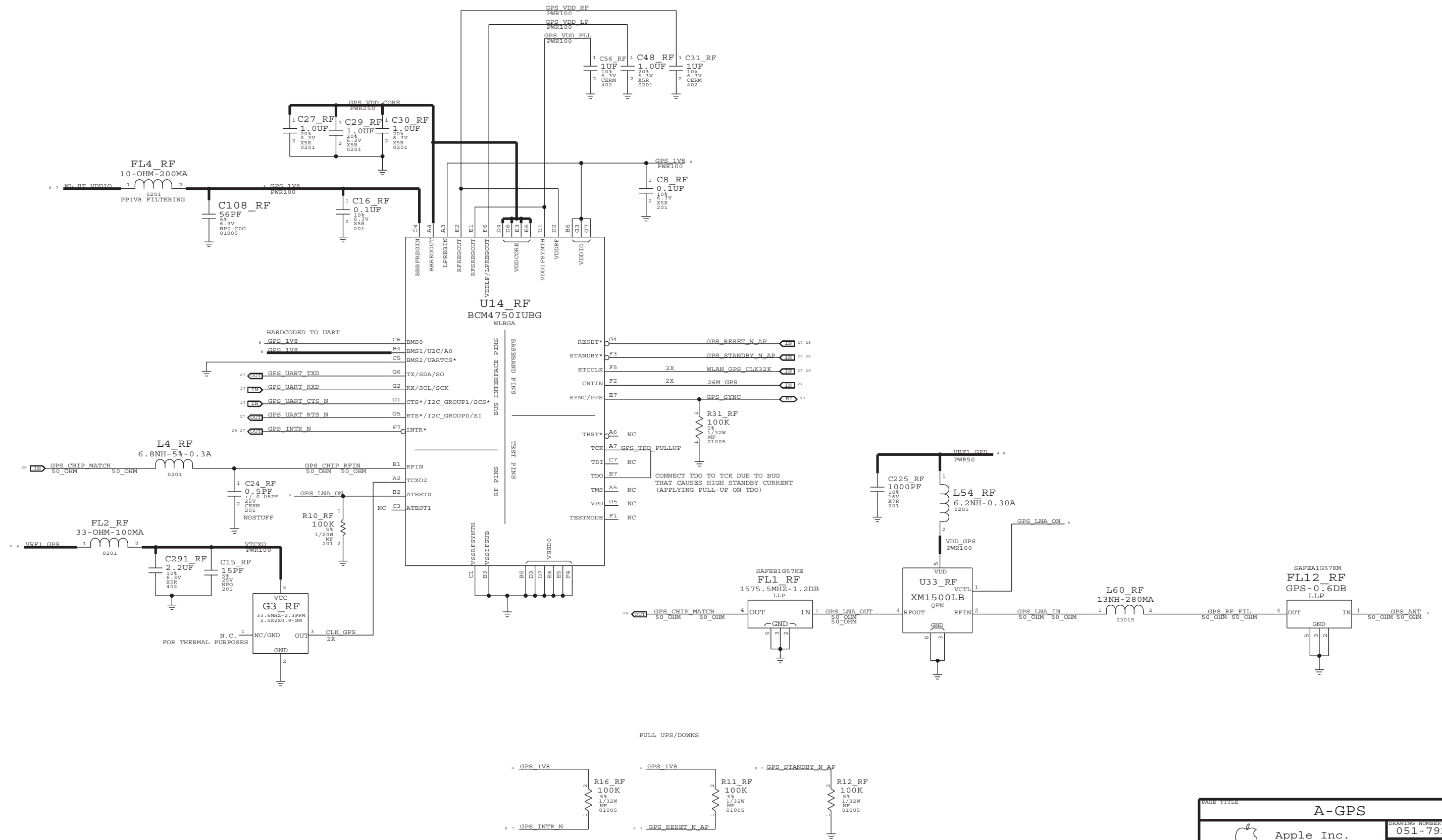


## GAS GAUGE



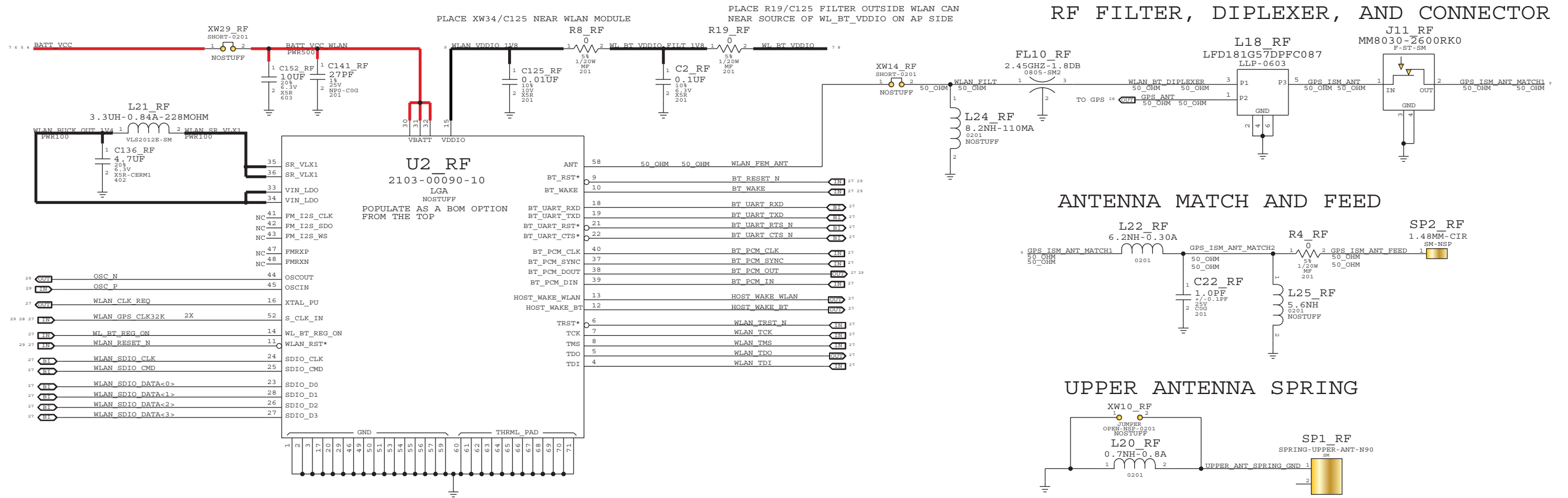
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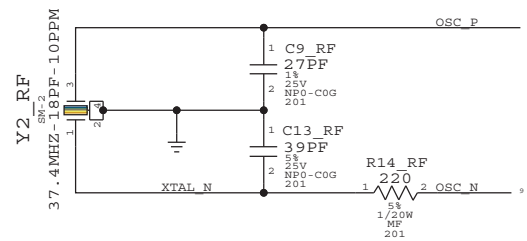
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# WLAN/BLUETOOTH/FM RADIO MODULE

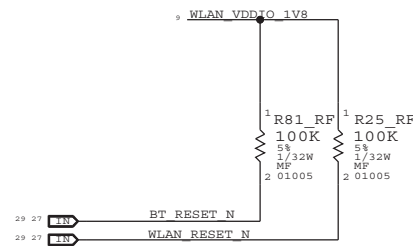


32K INTERFACE TO AP

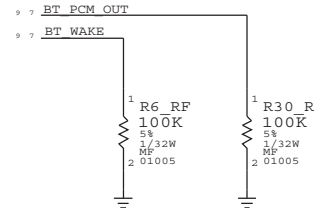
REFERENCE OSCILLATOR CRYSTAL



PULL UP RESISTORS



PULL DOWN RESISTORS



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