

VICE MLB

2/4/2010 PVT K48-DRI


REV	ECN	DESCRIPTION OF REVISION	CK APPD	DATE
B	0000854735	PRODUCTION RELEASED		2010-02-04

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.

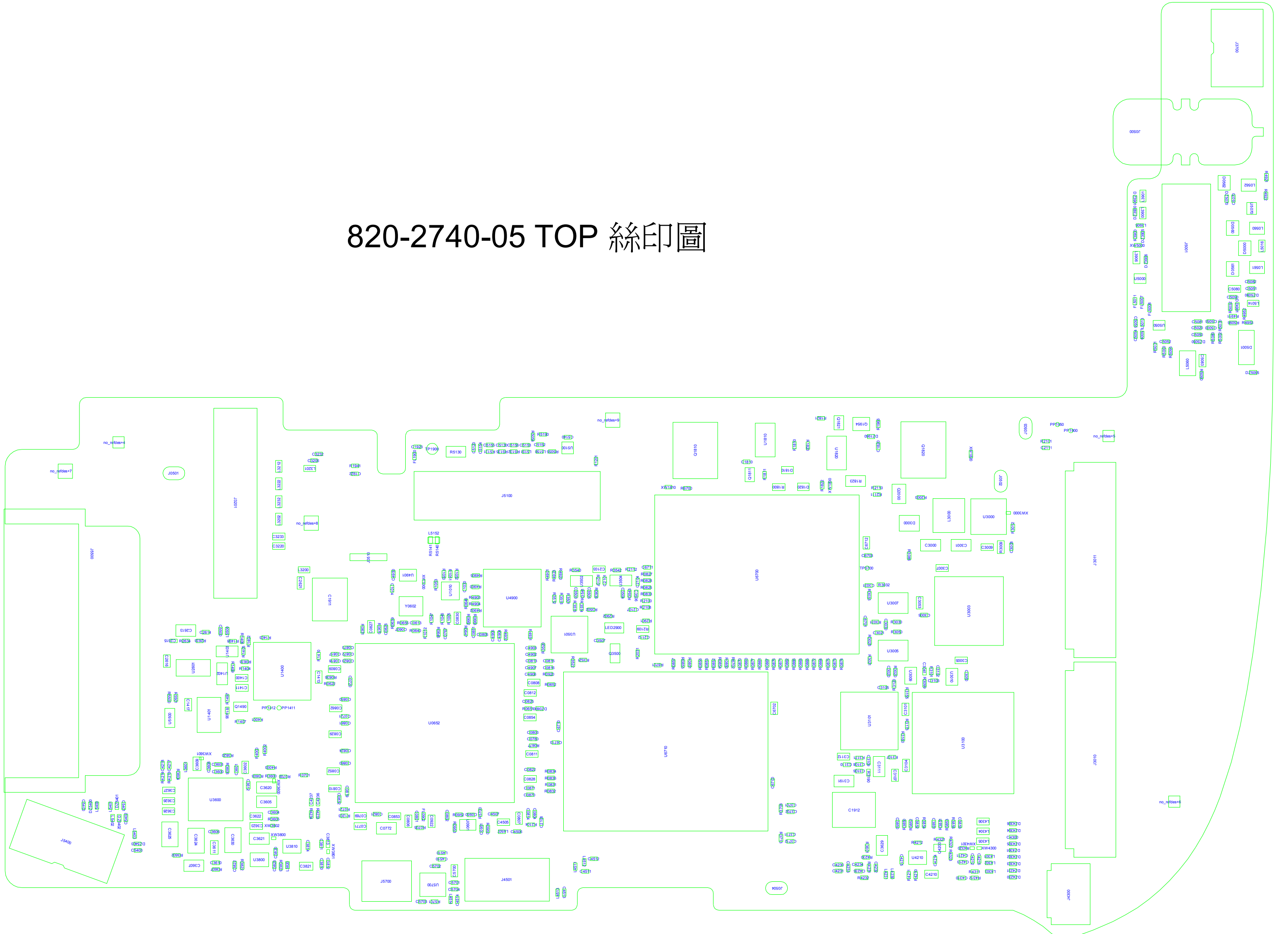
D
C
B
A

D
C
B
A

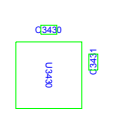
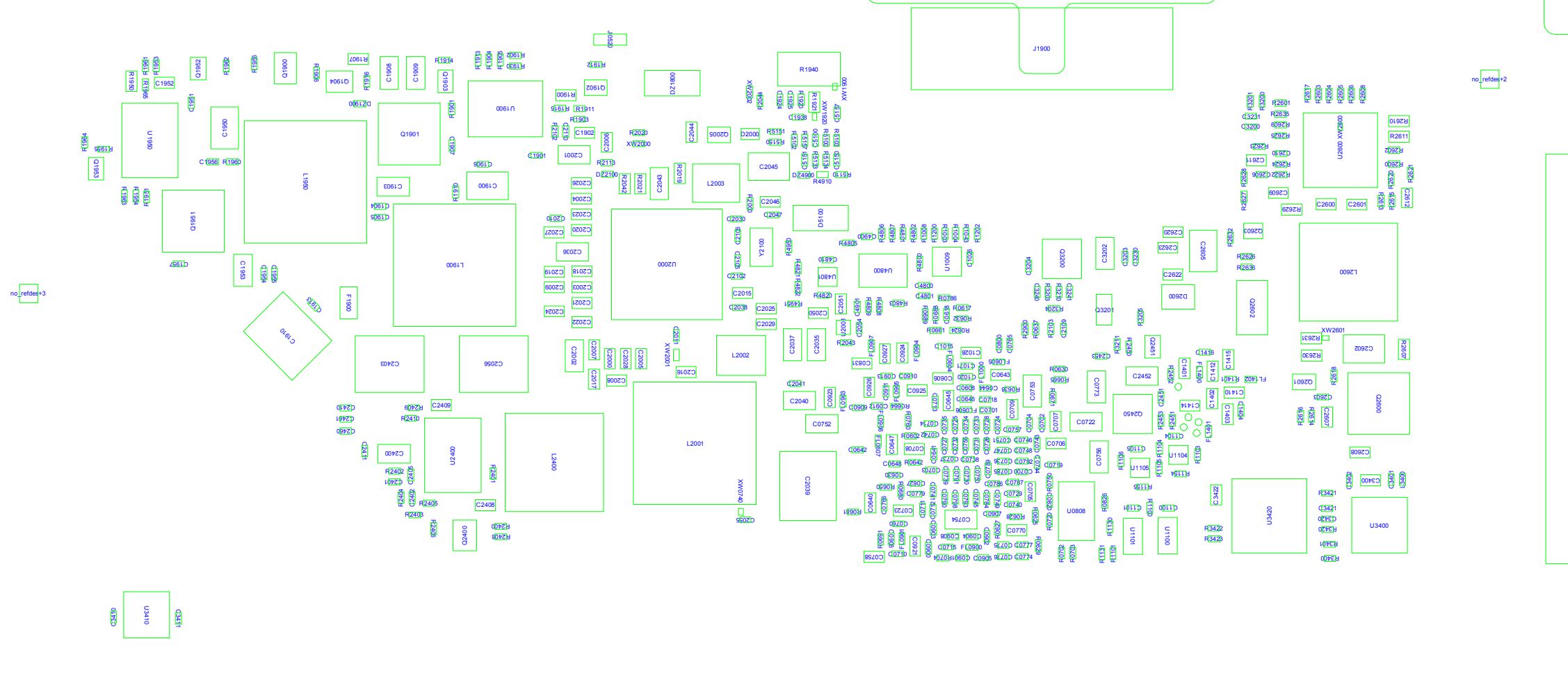
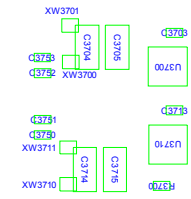
PDF	CSA	CONTENTS	SYNC MASTER	DATE	PDF	CSA	CONTENTS	SYNC MASTER	DATE
1	1	TABLE OF CONTENTS			32	40	AUDIO: AUDIENCE	AUDIO	12/04/2009
2	2	SYSTEM BLOCK DIAGRAM	ALEX	05/02/2009	33	42	AUDIO: DETECT/MIC BIAS	AUDIO	12/04/2009
3	3	POWER BLOCK DIAGRAM	MARK	12/04/2009	34	43	AUDIO: HP CONN	AUDIO	12/04/2009
4	4	CONFIGURATION OPTIONS	MIAMI	08/06/2009	35	45	ALS CONNECTOR	MIAMI	09/16/2009
5	5	FUNC/ICT TEST/BRACKETS	MIAMI	09/16/2009	36	48	I/O EXPANDER	JAMES	12/21/2009
6	6	AP MAIN	JAMES	12/21/2009	37	49	DISPLAY PORT SWITCH	JAMES	12/21/2009
7	7	AP PWR, AP BB&WIFI	JAMES	12/21/2009	38	50	44-PIN LANDSCAPE DOCK CONN	JAMES	12/21/2009
8	8	AP NAND & GPIO, NOR	JAMES	12/21/2009	39	51	60-PIN PORTRAIT DOCK CONN	JAMES	12/21/2009
9	9	AP RGB/CLCD, CAMERA	JAMES	12/21/2009	40	54	BUTTONS CONNECTOR	MIAMI	09/16/2009
10	10	AP TVOUT	JAMES	12/21/2009	41	55	3G CONNECTOR	MIAMI	09/16/2009
11	11	3G AND DEBUG MUXES	JAMES	12/21/2009	42	57	PROX SENSOR	MARKSIN	10/14/2009
12	12	AP MISC & ALIASES	JAMES	12/21/2009	43	67	FLASH	MIAMI	09/16/2009
13	14	MLC	MIAMI	09/16/2009	44	100	CONSTRAINTS	MIAMI	09/16/2009
14	15	MLC ALIASES	MIAMI	09/16/2009	45	101	MORE CONSTRAINTS	MIAMI	09/16/2009
15	17	Power Conn / Alias	MARK	12/04/2009	46	106	PHYSICAL/SPACING RULES	MIAMI	09/16/2009
16	18	DCIN POWER PATH	MARK	12/04/2009	47	113	Cross Reference Page		
17	19	CHARGER	MARK	12/04/2009	48	114	Cross Reference Page		
18	20	PMU	MARK	12/04/2009	49	115	Cross Reference Page		
19	21	PMU	MARK	12/04/2009	50	116	Cross Reference Page		
20	24	3.3V SUPPLY	MARK	12/04/2009	51	117	Cross Reference Page		
21	26	LED BACKLIGHT CONTROLLER	MARK	12/04/2009	52	118	Cross Reference Page		
22	29	DEBUG RESET ACCESS	MIAMI	09/16/2009	53	119	Cross Reference Page		
23	30	GRAPE 1 OF 2	JAMES	12/21/2009					
24	31	GRAPE 2 OF 2	JAMES	12/21/2009					
25	32	LVDS CONNECTOR	MIAMI	09/16/2009					
26	34	MOTION, GYRO, COMPASS/THERM	MIAMI	09/16/2009					
27	35	USB MUX/BRK DET	MIAMI	09/16/2009					
28	36	L61 AUDIO INTERFACE	AUDIO	12/04/2009					
29	37	AUDIO: SPEAKER AMP	AUDIO	12/04/2009					
30	38	AUDIO: HEADPHONE OUT	AUDIO	12/04/2009					
31	39	AUDIO: LINE OUT DOCK ESD CIRCUIT	AUDIO	12/04/2009					

DRAWING TITLE		VICE MLB	
 Apple Inc.	DRAWING NUMBER	051-8245	SIZE
	REVISION	B.0.0	D
NOTICE OF PROPRIETARY PROPERTY:		BRANCH	
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		PAGE	1 OF 119
		SHEET	1 OF 53

820-2740-05 TOP 絲印圖



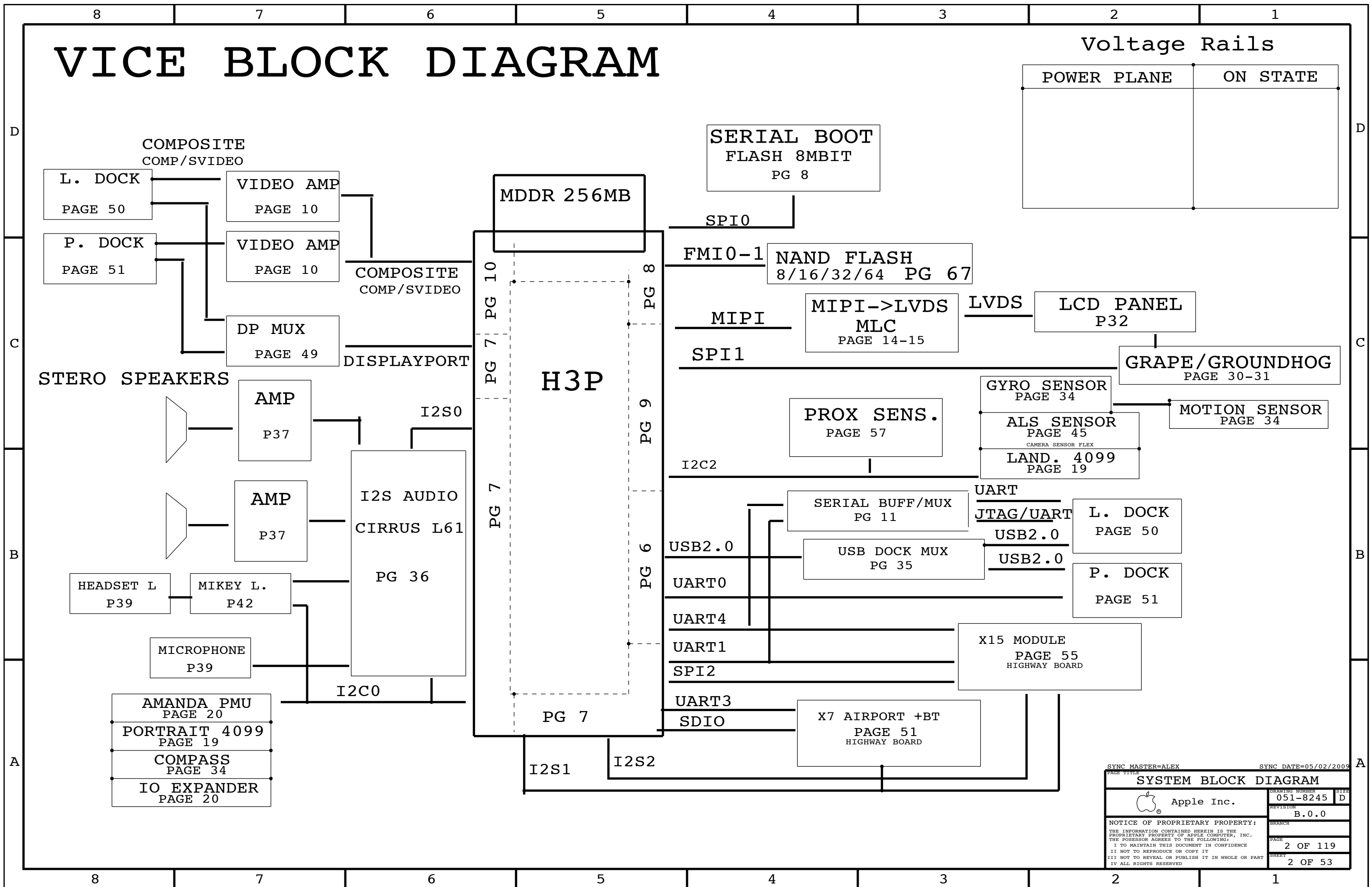
820-2740-05 BOTTOM 絲印圖



VICE BLOCK DIAGRAM

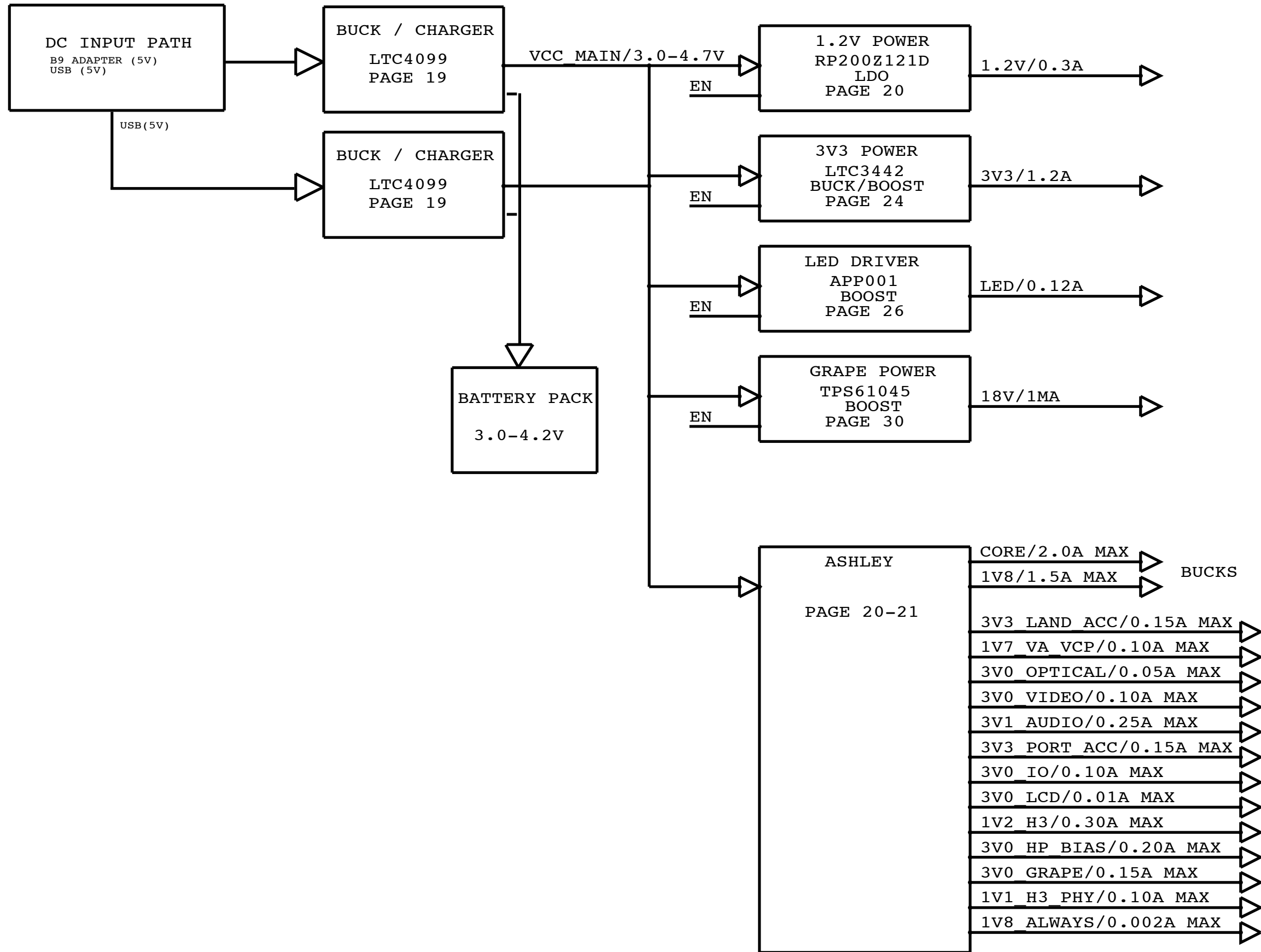
Voltage Rails

POWER PLANE	ON STATE



PAGE TITLE		SYNC DATE=05/02/2009	
SYSTEM BLOCK DIAGRAM			
Apple Inc.	DRAWING NUMBER	051-8245	SIZE
	REVISION	B.0.0	D
NOTICE OF PROPRIETARY PROPERTY:		BRANCH	
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:		PAGE	
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		2 OF 119	
II NOT TO REPRODUCE OR COPY IT		SHEET	
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		2 OF 53	
IV ALL RIGHTS RESERVED			

POWER BLOCK DIAGRAM



SYNC MASTER=MARK SYNC DATE=12/04/2009

POWER BLOCK DIAGRAM

Apple Inc.

DRAWING NUMBER: 051-8245 SIZE: D

REVISION: B.0.0

BRANCH:

PAGE: 3 OF 119

SHEET: 3 OF 53

NOTICE OF PROPRIETARY PROPERTY:
 THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:
 I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE
 II NOT TO REPRODUCE OR COPY IT
 III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART
 IV ALL RIGHTS RESERVED

Page Notes

Power aliases required by this page:
(NONE)

Signal aliases required by this page:
(NONE)

BOM options provided by this page:

ALL AVAIL BOM OPTIONS

COMMON
ALTERNATE
DEMUX
32GB_FLASH_SAM
32GB_FLASH
12GB_FLASH
16GB_FLASH
16GB_FLASH_TOSH
8GB_FLASH
8GB_FLASH_SAM
BUILT_PLL
CAMERA
JTAG_2_WIRE
JTAG_1_WIRE
PRODUCTION
DEVELOPMENT
ADD19
MIKEY
INTERNAL_MIC
LANDSCAPE_DOCK
LEFT_HS
LINE_OUT_1
LINE_OUT_2
PORTRAIT_DOCK

SPEAKER

ADD DEVELOPMENT AND OTHER BOMS ONCE YOU GET BOM NUMBERS

BOM GROUP	BOM OPTIONS
BASIC	COMMON, ALTERNATE
AUDIO	LEFT_HS, SPEAKER, INTERNAL_MIC

USE SCHUTIL BOMCONFIG TO GENERATE CONFIG FILE.
PUT CONFIG FILE AT SAME LEVEL AS .CPM FILE
USE "READ BOM-CONFIG" BUTTON ON DMS TO READ IN BOMS

BOM OPTIONS

PROGRAMMABLE PARTS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
-------	-----	-------------	-------------------------	------------

SCH AND BOARD P/N

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
051-8245	1	SCHEM, VICE, MLB, K48	SCH1	
820-2740	1	PCBA, VICE, MLB, K48	PCB1	

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
085-1028	1	DEV, VICE, MLB, K48	DEV1	K48_DEV
085-1133	1	DEV, VICE, MLB, K48H	DEV1	K48M_DEV

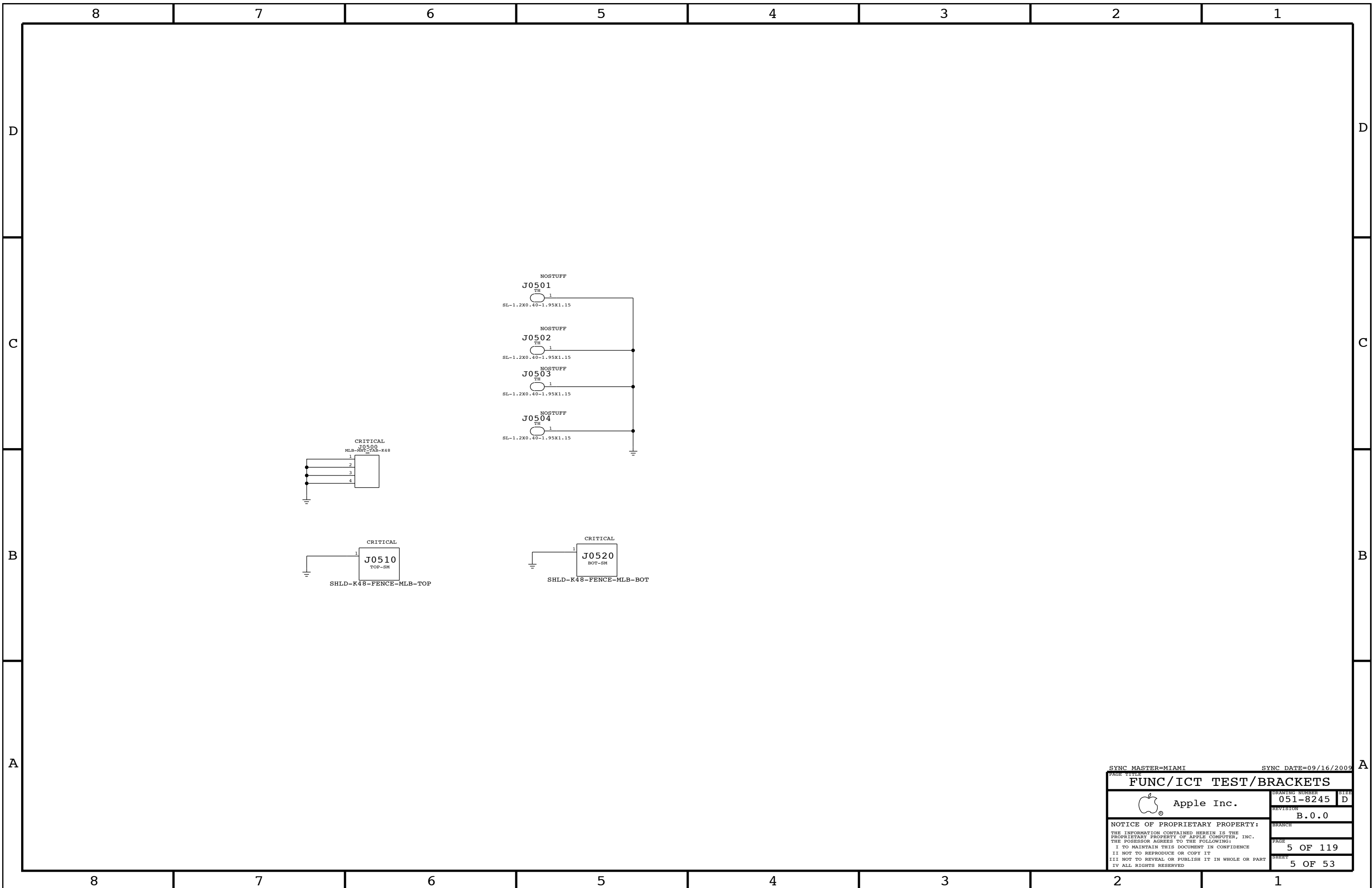
VICE BOM OPTIONS

USE 825-6447
NEED MORE LINE ITEMS FOR OTHER CONFIGURATIONS
BARCODE LABEL/EEE CODES

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
825-7456	1	EEE FOR 639-0455 (16G)	EEE_BWY	CRITICAL	EEE_16G
825-7456	1	EEE FOR 639-0601 (32G)	EEE_D66	CRITICAL	EEE_32G
825-7456	1	EEE FOR 639-0598 (64G)	EEE_D61	CRITICAL	EEE_64G
825-7456	1	EEE FOR 639-0602 (16G)M	EEE_D67	CRITICAL	EEE_16G_M
825-7456	1	EEE FOR 639-0599 (32G)M	EEE_D62	CRITICAL	EEE_32G_M
825-7456	1	EEE FOR 639-0600 (64G)M	EEE_D63	CRITICAL	EEE_64G_M

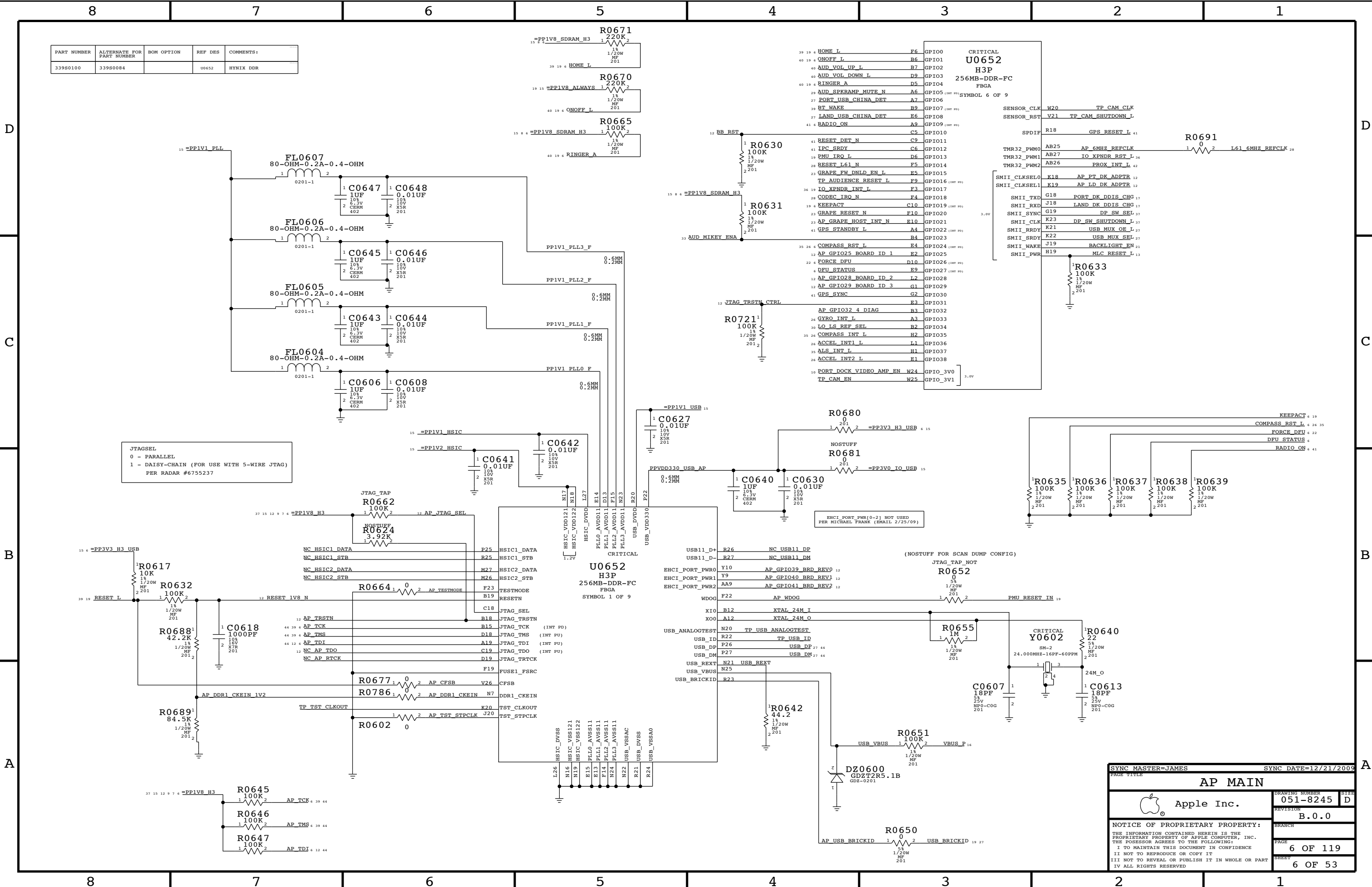
SYNC MASTER=MIAMI SYNC DATE=08/06/2009

PAGE TITLE		DRAWING NUMBER	
CONFIGURATION OPTIONS		051-8245	
Apple Inc.		REVISION	
		B.0.0	
NOTICE OF PROPRIETARY PROPERTY:		BRANCH	
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:		PAGE	
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		4 OF 119	
II NOT TO REPRODUCE OR COPY IT		SHEETS	
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		4 OF 53	
IV ALL RIGHTS RESERVED			



SYNC MASTER=MIAMI		SYNC DATE=09/16/2009	
PAGE TITLE FUNC/ICT TEST/BRACKETS			
Apple Inc.		DRAWING NUMBER	051-8245
		REVISION	B.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		BRANCH	
		PAGE	5 OF 119
		SHEET	5 OF 53

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
339S0100	339S0084		U0652	HYNIX DDR

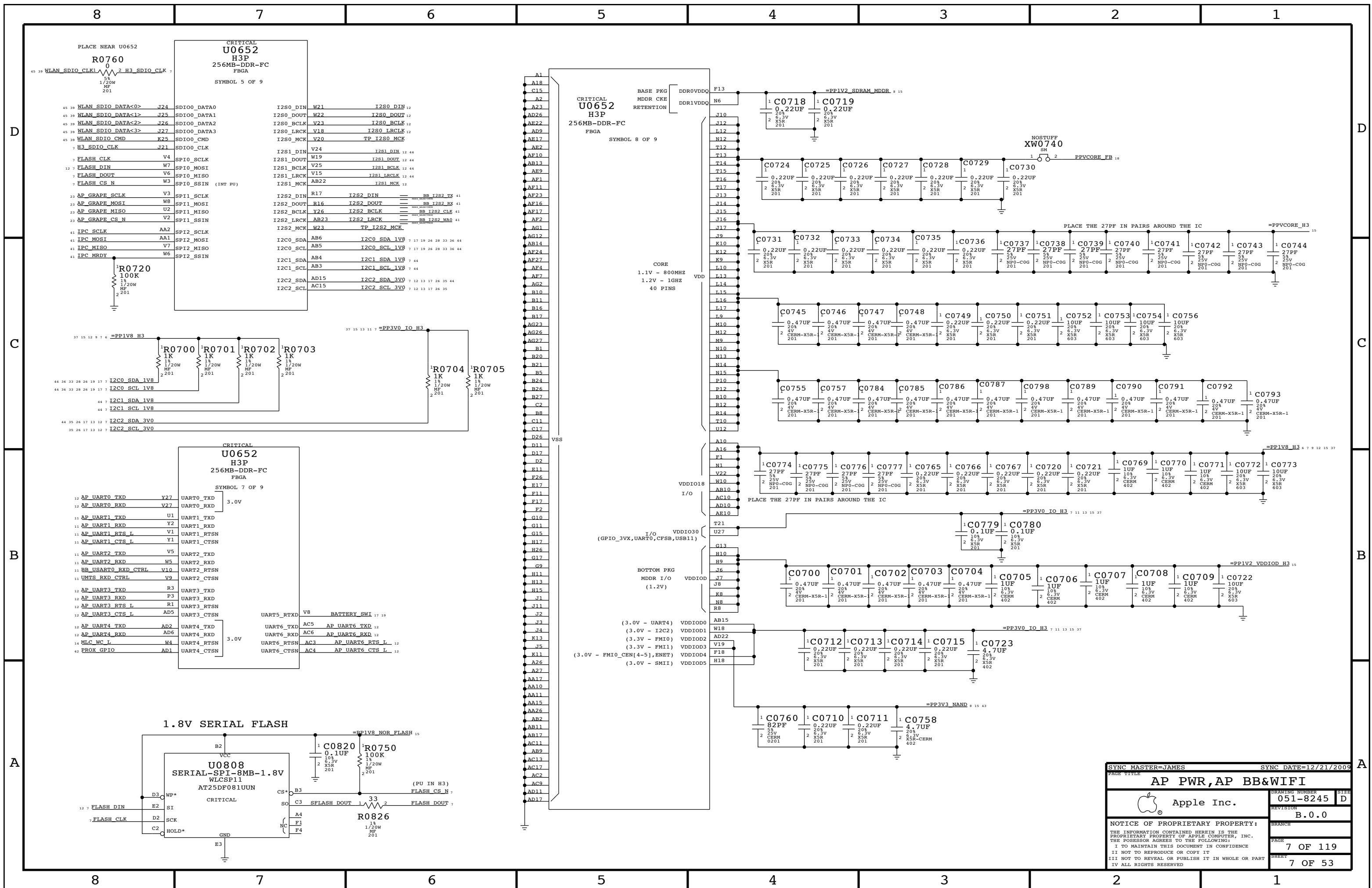


JTAGSEL
 0 - PARALLEL
 1 - DAISY-CHAIN (FOR USE WITH 5-WIRE JTAG)
 PER RADAR #6755237

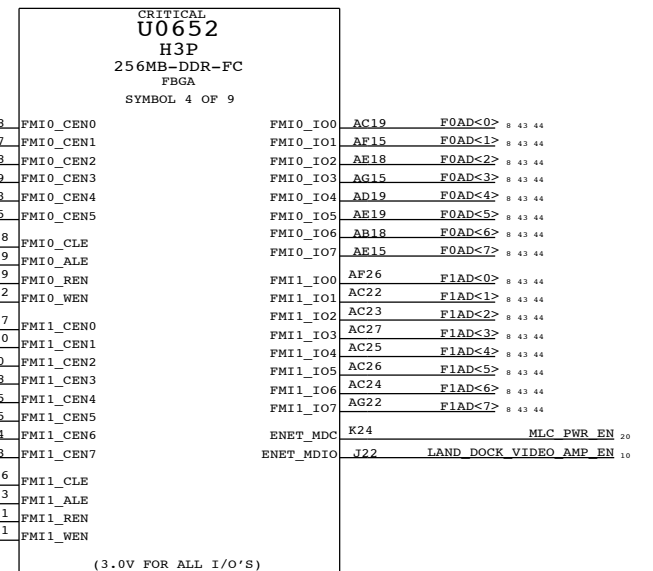
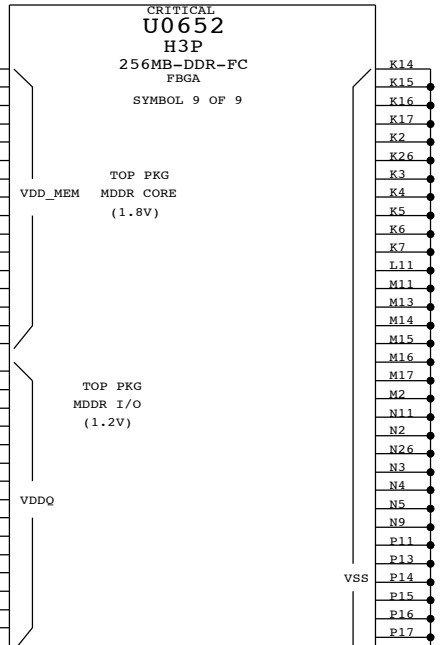
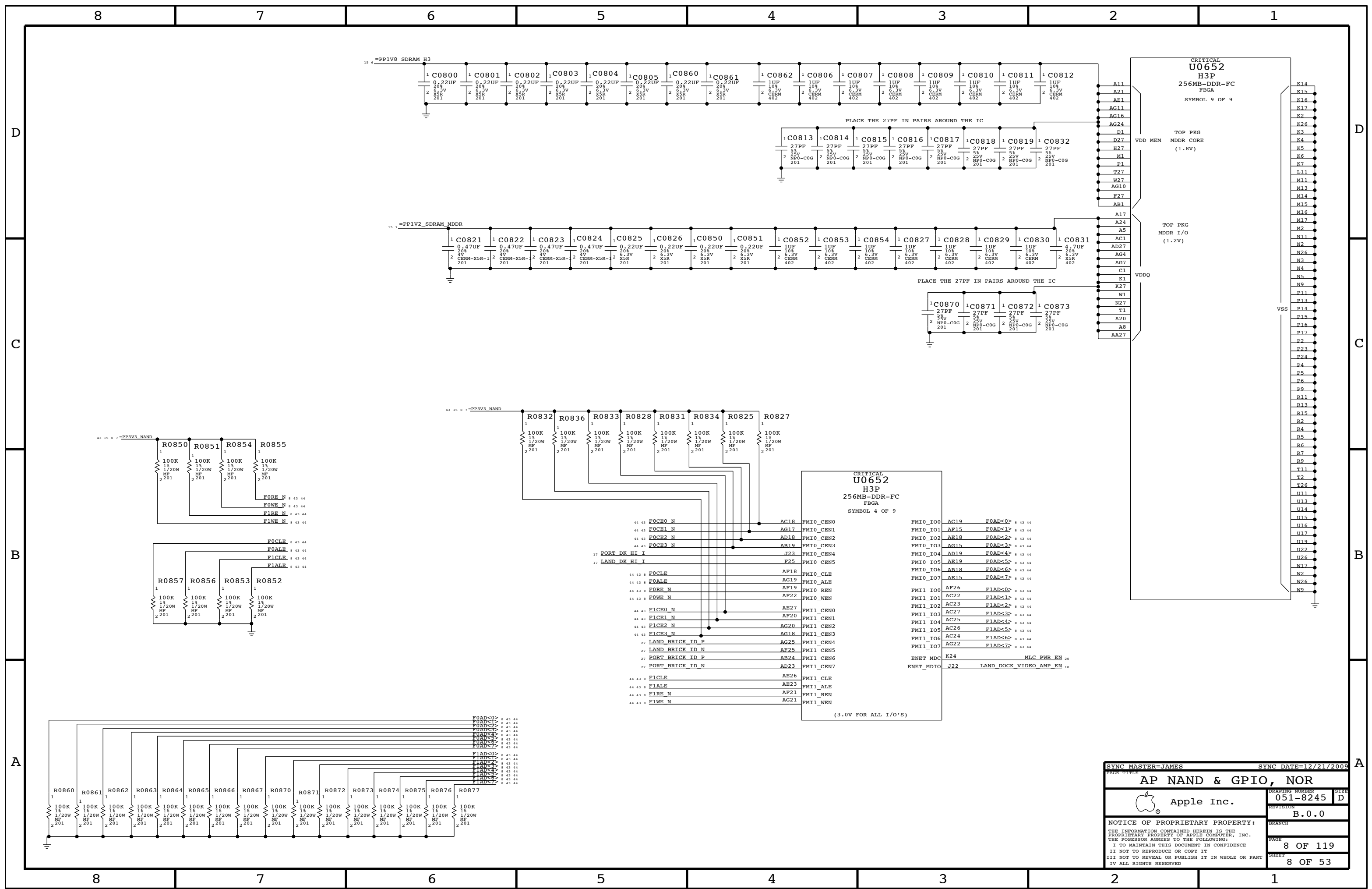
EHCI PORT PWR(0-2) NOT USED
 PER MICHAEL FRANK (EMAIL 2/25/09)

(NOSTUFF FOR SCAN DUMP CONFIG)

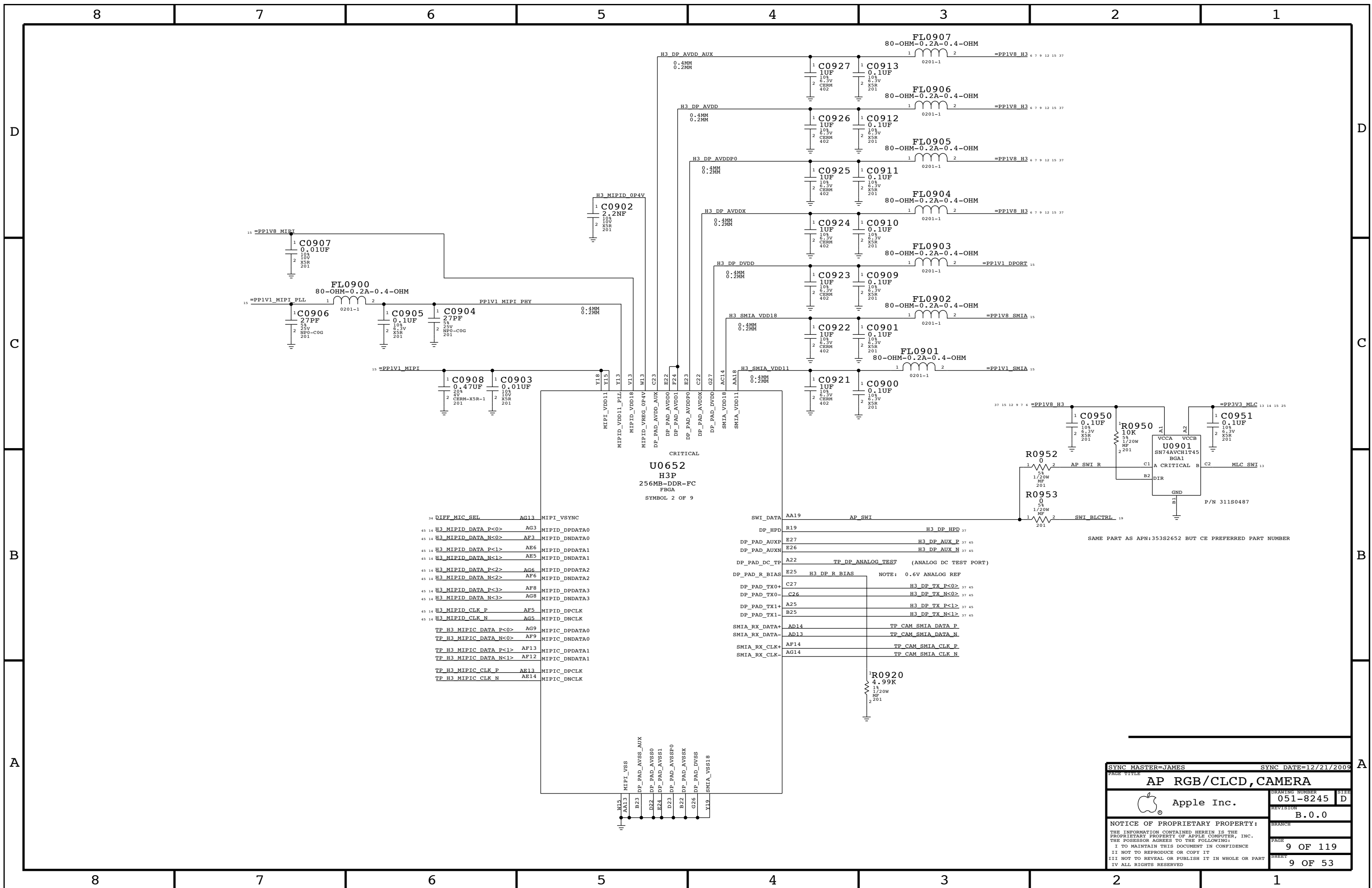
PAGE TITLE		SYNC DATE=12/21/2009	
AP MAIN			
Apple Inc.		DRAWING NUMBER	SIZE
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		REVISION	
		BRANCH	
		PAGE	6 OF 119
		SHEET	6 OF 53



SYNC MASTER=JAMES		SYNC DATE=12/21/2009	
PAGE TITLE			
AP PWR, AP BB&WiFi		DRAWING NUMBER	SIZE
Apple Inc.		051-8245	D
NOTICE OF PROPRIETARY PROPERTY:		REVISION	
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:		B.0.0	
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		BRANCH	
II NOT TO REPRODUCE OR COPY IT		PAGE	
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		7 OF 119	
IV ALL RIGHTS RESERVED		SHEET	
		7 OF 53	

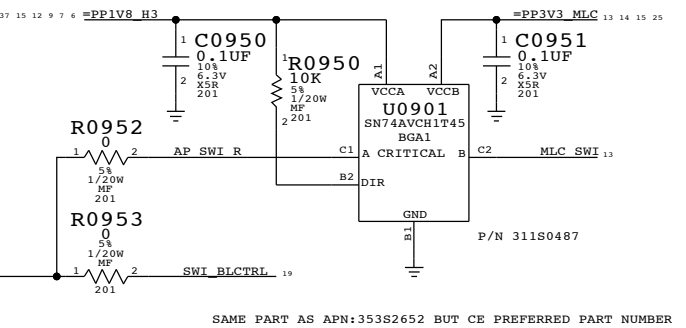


SYNC MASTER=JAMES		SYNC DATE=12/21/2009	
PAGE TITLE		DRAWING NUMBER	
AP NAND & GPIO, NOR		051-8245	
Apple Inc.		SIZE D	
NOTICE OF PROPRIETARY PROPERTY:		REVISION	
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:		B.0.0	
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		BRANCH	
II NOT TO REPRODUCE OR COPY IT		PAGE	
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		8 OF 119	
IV ALL RIGHTS RESERVED		SHEET	
		8 OF 53	



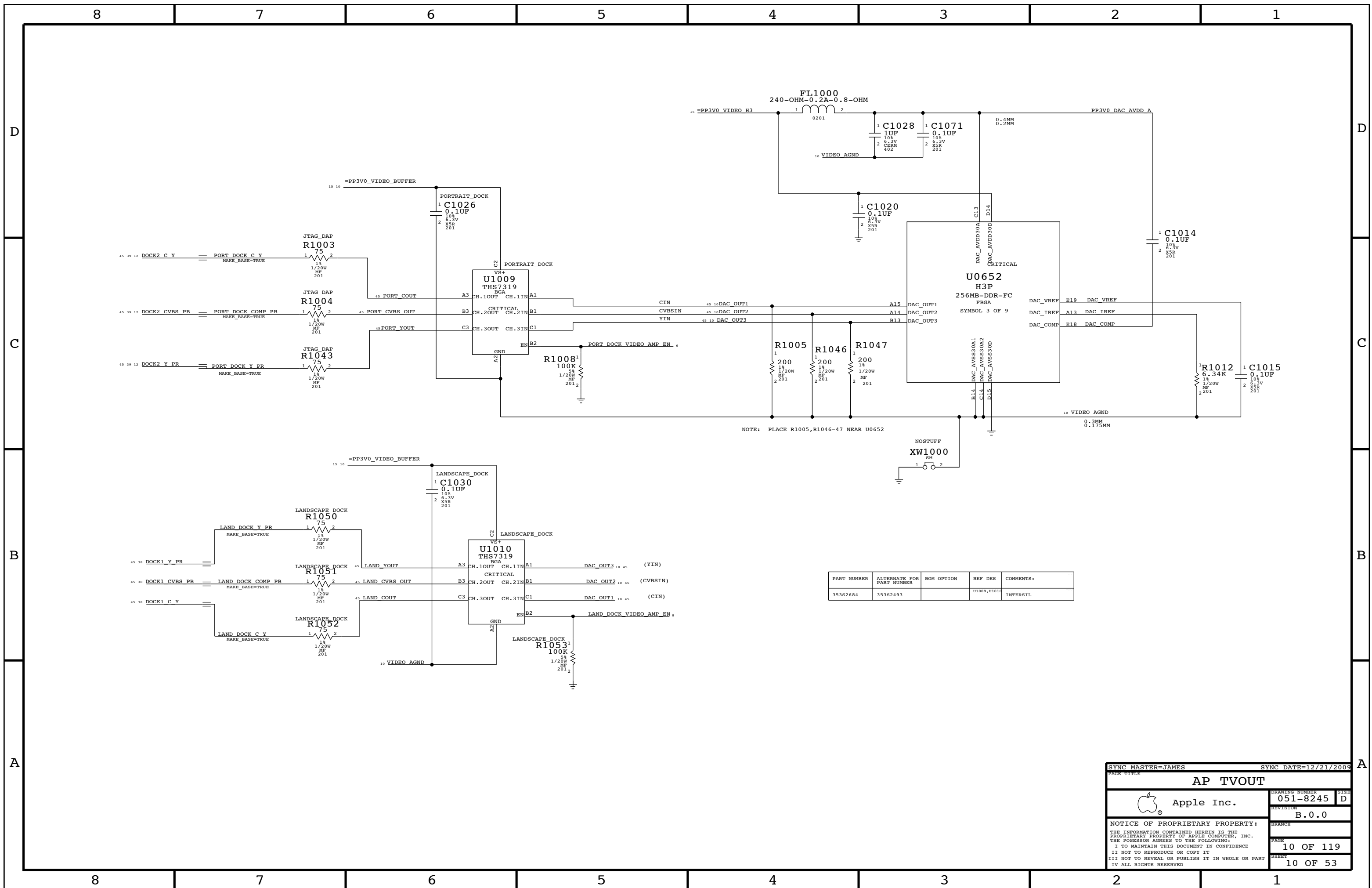
34 DIFF MIC SEL	AG13	MIPI_VSYNC
45 H3 MIPI DATA P<0>	AG3	MIPI_DPDATA0
45 H3 MIPI DATA N<0>	AF3	MIPI_DNDATA0
45 H3 MIPI DATA P<1>	AE6	MIPI_DPDATA1
45 H3 MIPI DATA N<1>	AE5	MIPI_DNDATA1
45 H3 MIPI DATA P<2>	AG6	MIPI_DPDATA2
45 H3 MIPI DATA N<2>	AF6	MIPI_DNDATA2
45 H3 MIPI DATA P<3>	AF8	MIPI_DPDATA3
45 H3 MIPI DATA N<3>	AG8	MIPI_DNDATA3
45 H3 MIPI CLK P	AF5	MIPI_DPCLK
45 H3 MIPI CLK N	AG5	MIPI_DNCLK
TP H3 MIPIC DATA P<0>	AG9	MIPIC_DPDATA0
TP H3 MIPIC DATA N<0>	AF9	MIPIC_DNDATA0
TP H3 MIPIC DATA P<1>	AF13	MIPIC_DPDATA1
TP H3 MIPIC DATA N<1>	AF12	MIPIC_DNDATA1
TP H3 MIPIC CLK P	AE13	MIPIC_DPCLK
TP H3 MIPIC CLK N	AE14	MIPIC_DNCLK

CRITICAL
U0652
H3P
256MB-DDR-FC
FBGA
 SYMBOL 2 OF 9



SAME PART AS APN:353S2652 BUT CE PREFERRED PART NUMBER

SYNC MASTER=JAMES		SYNC DATE=12/21/2009	
PAGE TITLE AP RGB/CLCD, CAMERA			
DRAWING NUMBER 051-8245		SIZE D	
REVISION B.0.0		BRANCH	
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED			
PAGE 9 OF 119		SHEET 9 OF 53	



NOTE: PLACE R1005, R1046-47 NEAR U0652

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
35382684	35382493		U1009, U1010	INTERSIL

SYNC MASTER=JAMES SYNC DATE=12/21/2009

AP TVOUT

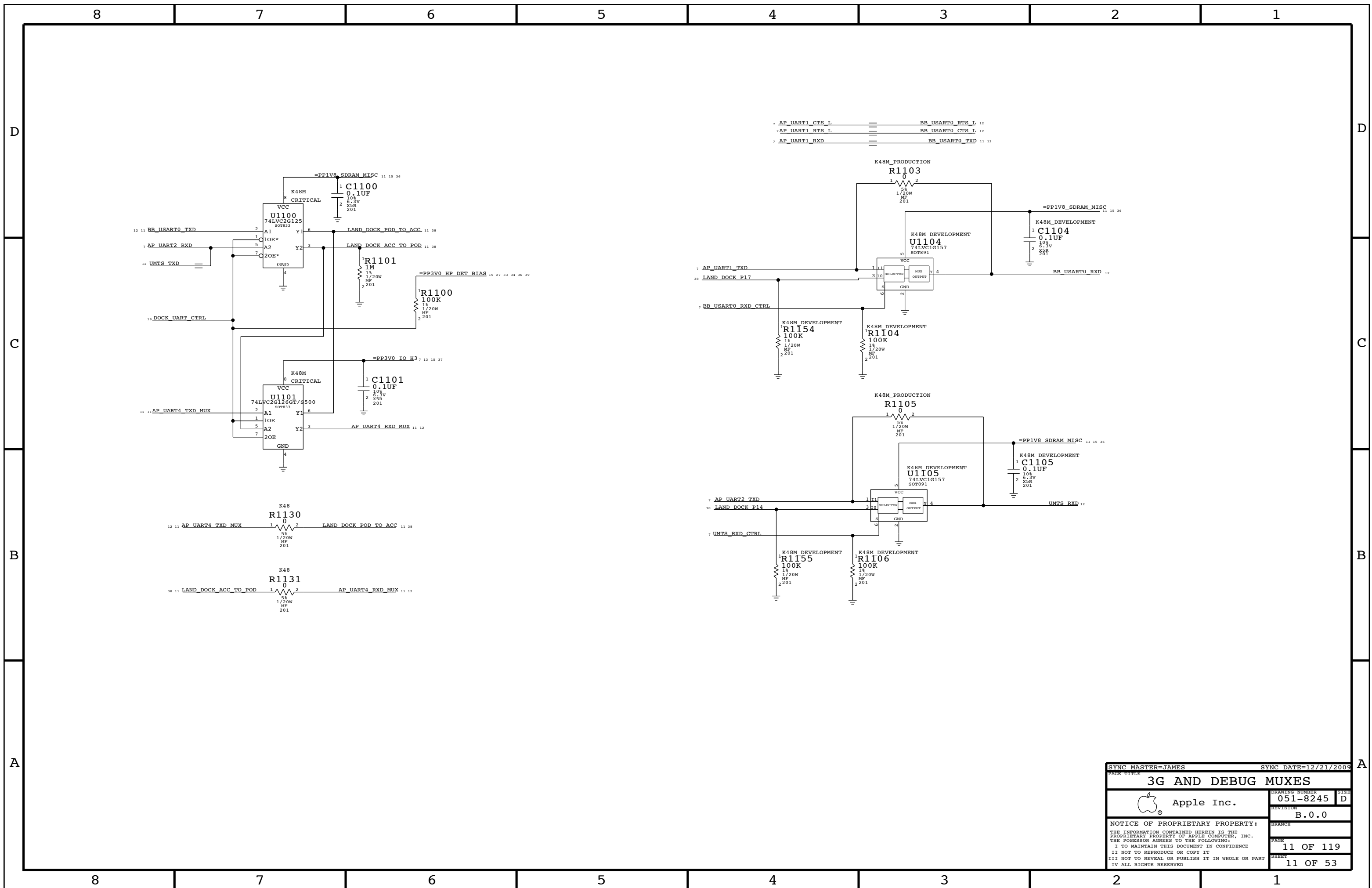
Apple Inc.

DRAWING NUMBER: 051-8245 SIZE: D

REVISION: B.0.0

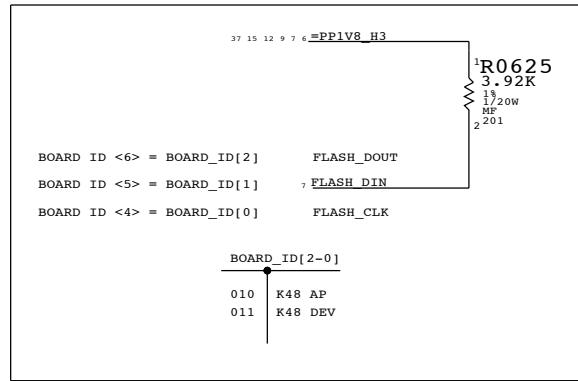
NOTICE OF PROPRIETARY PROPERTY:
 THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:
 I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE
 II NOT TO REPRODUCE OR COPY IT
 III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART
 IV ALL RIGHTS RESERVED

PAGE: 10 OF 119
 SHEET: 10 OF 53

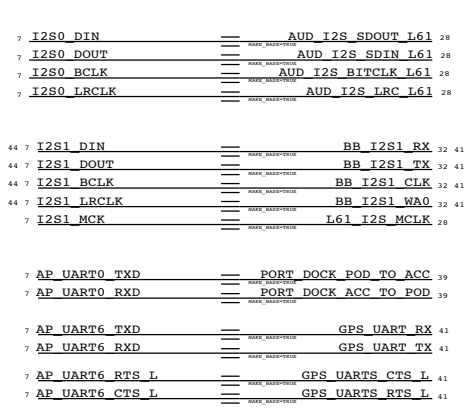


SYNC MASTER=JAMES		SYNC DATE=12/21/2009	
PAGE TITLE 3G AND DEBUG MUXES			
		DRAWING NUMBER 051-8245	SIZE D
		REVISION B.0.0	
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		BRANCH	
		PAGE	11 OF 119
		SHEET	11 OF 53

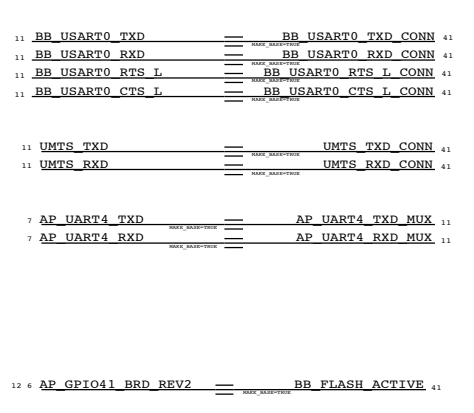
BOARD ID



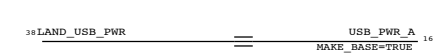
ALIASES FROM PAGE 7



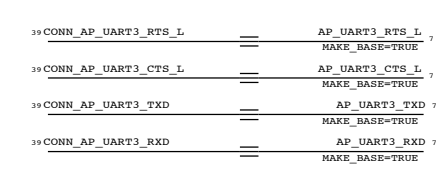
ALIASES FROM PAGE 11



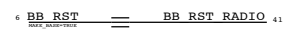
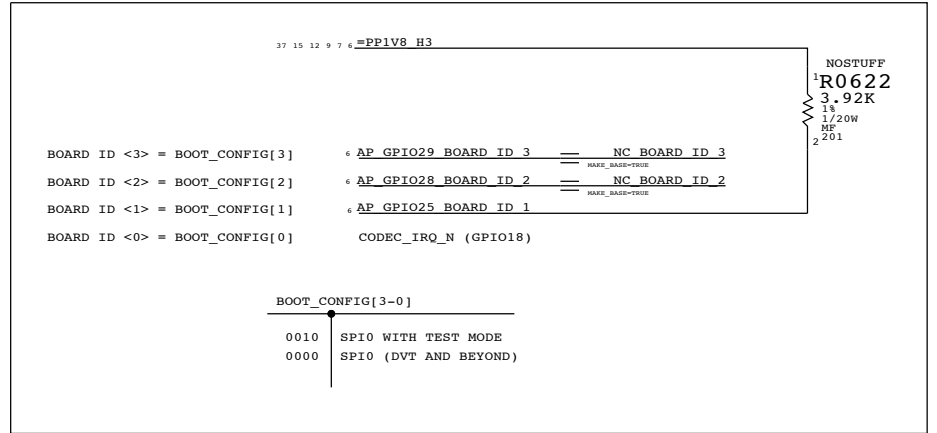
ALIASES FROM PAGE 50



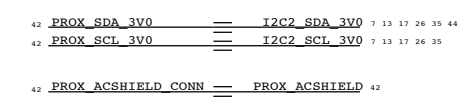
ALIASES FROM PAGE 51



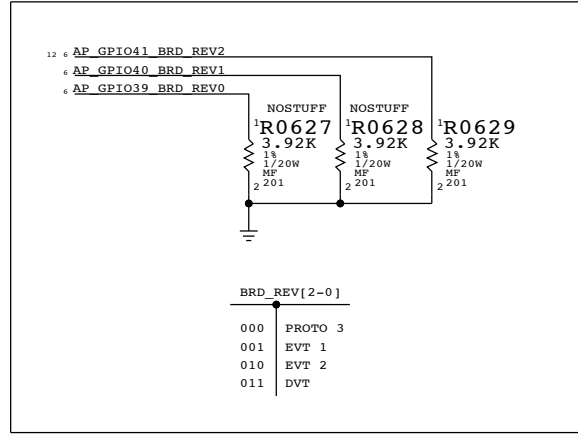
BOOT CONFIG ID



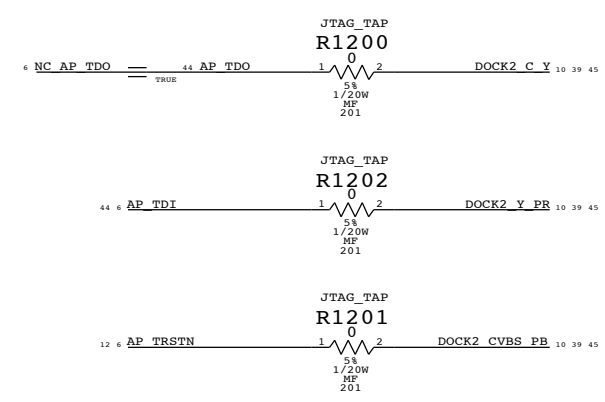
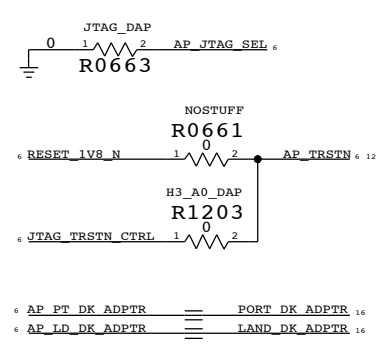
ALIASES FOR PAGE 57



BOARD REVISION



NOTE: JTAG SCAN DUMP



FOR REFERENCE

0000 SPI0	BOARD_ID[2:0]
0001 SPI1	010 K48AP
0010 SPI0 W/TEST	011 K48 DEV
0011 SPI1 W/TEST	
0100 FMIO 2CS	BOARD_REV[2:0]
0101 FMIO 4CS	000 PROTO3
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	
1110 FMIO/1 4/4 CS W/TEST	
1111 RESERVED	

SYNC MASTER=JAMES SYNC DATE=12/21/2009

AP MISC & ALIASES

Apple Inc.

DRAWING NUMBER: 051-8245 SIZE: D

REVISION: B.0.0

NOTICE OF PROPRIETARY PROPERTY:

THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:

I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE

II NOT TO REPRODUCE OR COPY IT

III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART

IV ALL RIGHTS RESERVED

PAGE: 12 OF 119

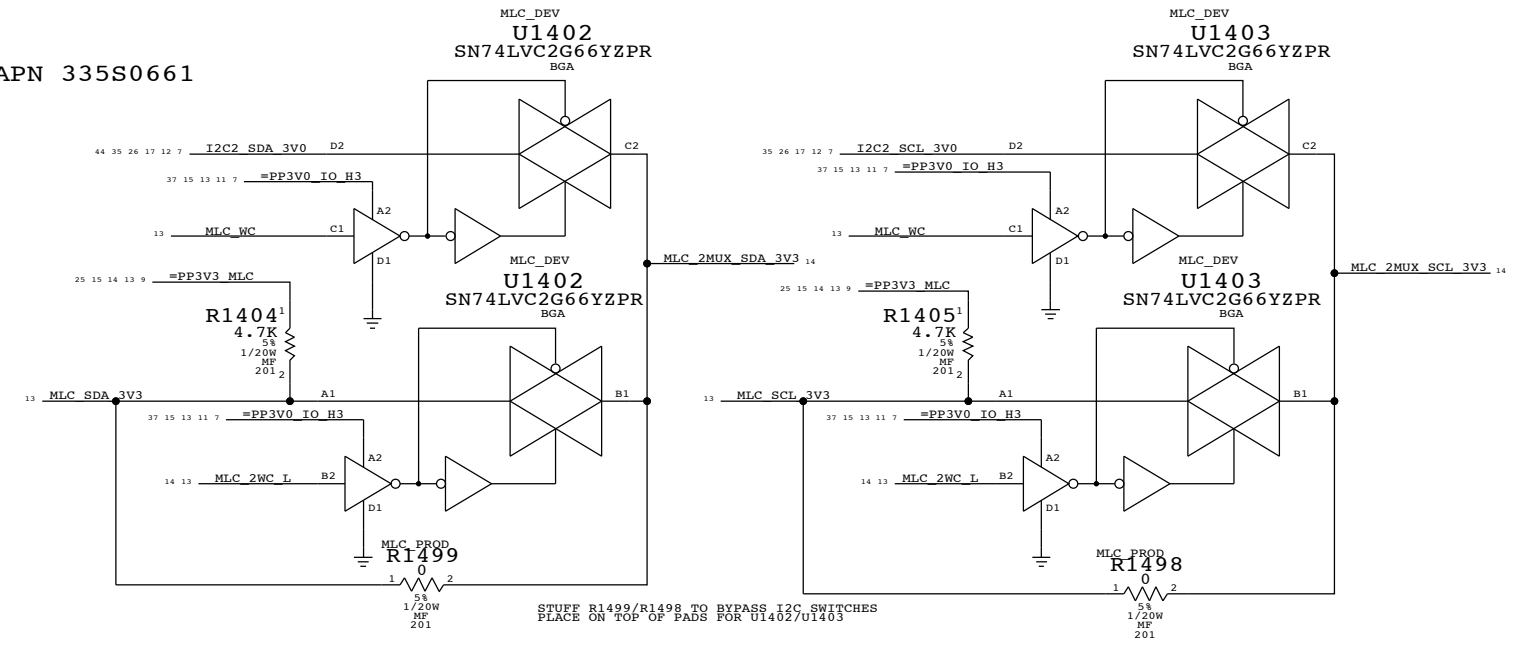
SHEET: 12 OF 53

MLC

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
34182604	1	MLC EEPROM 54MHZ LVDS,2MHZ SW	U1401	CRITICAL	54MHZ_PANEL
34182606	1	MLC EEPROM 100MHZ LVDS,2MHZ SW	U1401	CRITICAL	100MHZ_PANEL

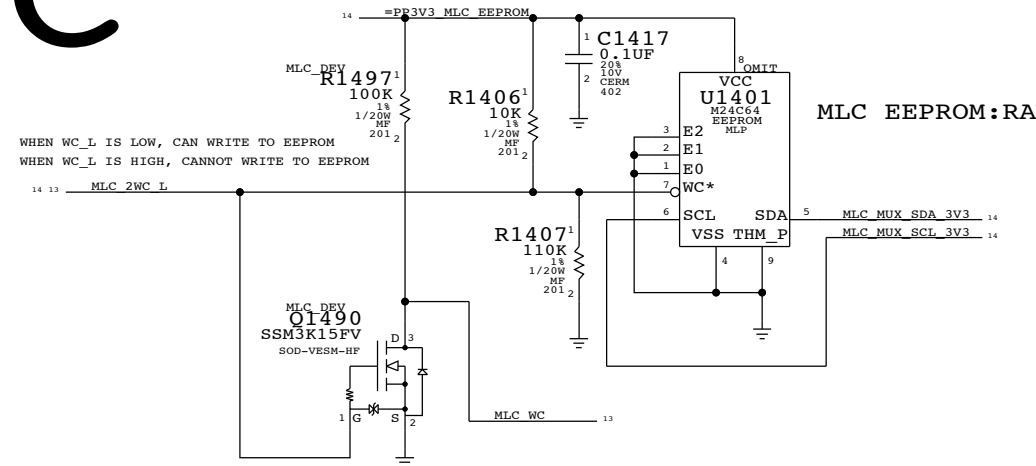
MLC EEPROM:RAW APN 335S0661

I2C MUXING CIRCUITRY

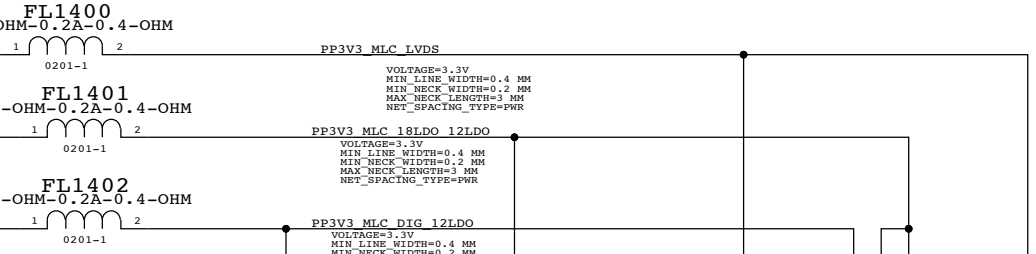


WC_L	SELECTED I2C
0	H3P CAN WRITE
1	MLC CAN READ

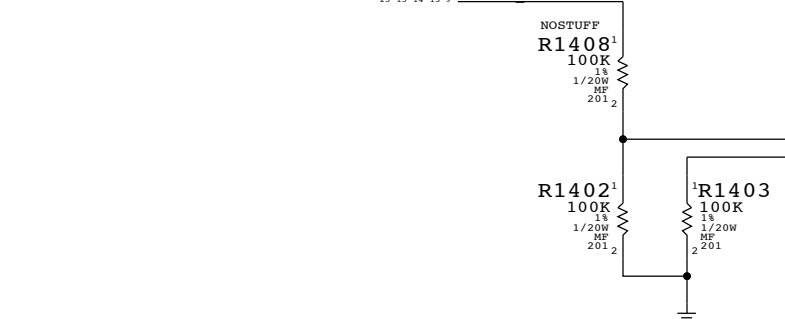
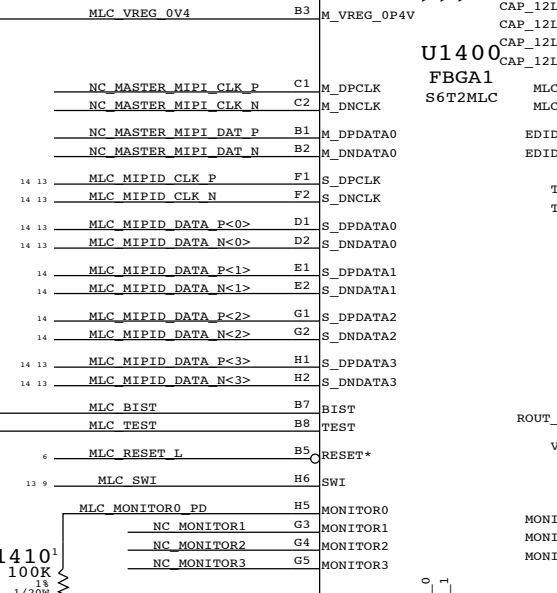
STUFF R1499/R1498 TO BYPASS I2C SWITCHES
PLACE ON TOP OF PADS FOR U1402/U1403



WHEN WC_L IS LOW, CAN WRITE TO EEPROM
WHEN WC_L IS HIGH, CANNOT WRITE TO EEPROM



- NOSTUFF PP1400 P4MM MLC MIPID_CLK_P
- NOSTUFF PP1401 P4MM MLC MIPID_CLK_N
- NOSTUFF PP1408 P4MM MLC MIPID_DATA_P<3>
- NOSTUFF PP1409 P4MM MLC MIPID_DATA_N<3>
- NOSTUFF PP1410 P4MM MLC_SWI
- NOSTUFF PP1411 P4MM MLC MIPID_DATA_P<0>
- NOSTUFF PP1412 P4MM MLC MIPID_DATA_N<0>



SYNC MASTER=MIAMI		SYNC DATE=09/16/2009	
MLC			
Apple Inc.		DRAWING NUMBER	SIZE
		051-8245	D
		REVISION	
		B.0.0	
NOTICE OF PROPRIETARY PROPERTY:			
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:			
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE			
II NOT TO REPRODUCE OR COPY IT			
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART			
IV ALL RIGHTS RESERVED			
		PAGE	
		14 OF 119	
		SHEET	
		13 OF 53	


MLC ALIASES

```

45 9 H3 MIPID_CLK_P == MLC MIPID_CLK_P 13
45 9 H3 MIPID_CLK_N MAKE_BASE=TRUE == MLC MIPID_CLK_N 13
45 9 H3 MIPID_DATA_P<0> MAKE_BASE=TRUE == MLC MIPID_DATA_P<0> 13
45 9 H3 MIPID_DATA_N<0> MAKE_BASE=TRUE == MLC MIPID_DATA_N<0> 13
45 9 H3 MIPID_DATA_P<1> MAKE_BASE=TRUE == MLC MIPID_DATA_P<1> 13
45 9 H3 MIPID_DATA_N<1> MAKE_BASE=TRUE == MLC MIPID_DATA_N<1> 13
45 9 H3 MIPID_DATA_P<2> MAKE_BASE=TRUE == MLC MIPID_DATA_P<2> 13
45 9 H3 MIPID_DATA_N<2> MAKE_BASE=TRUE == MLC MIPID_DATA_N<2> 13
45 9 H3 MIPID_DATA_P<3> MAKE_BASE=TRUE == MLC MIPID_DATA_P<3> 13
45 9 H3 MIPID_DATA_N<3> MAKE_BASE=TRUE == MLC MIPID_DATA_N<3> 13

13 MLC_MUX_SDA_3V3 == MLC_2MUX_SDA_3V3 13
13 MLC_MUX_SCL_3V3 MAKE_BASE=TRUE == MLC_2MUX_SCL_3V3 13
13 MLC_2WC_L MAKE_BASE=TRUE == MLC_WC_L 7
13 =PP3V3_MLC_EEPROM MAKE_BASE=TRUE ==PP3V3_MLC 9 13 15 25

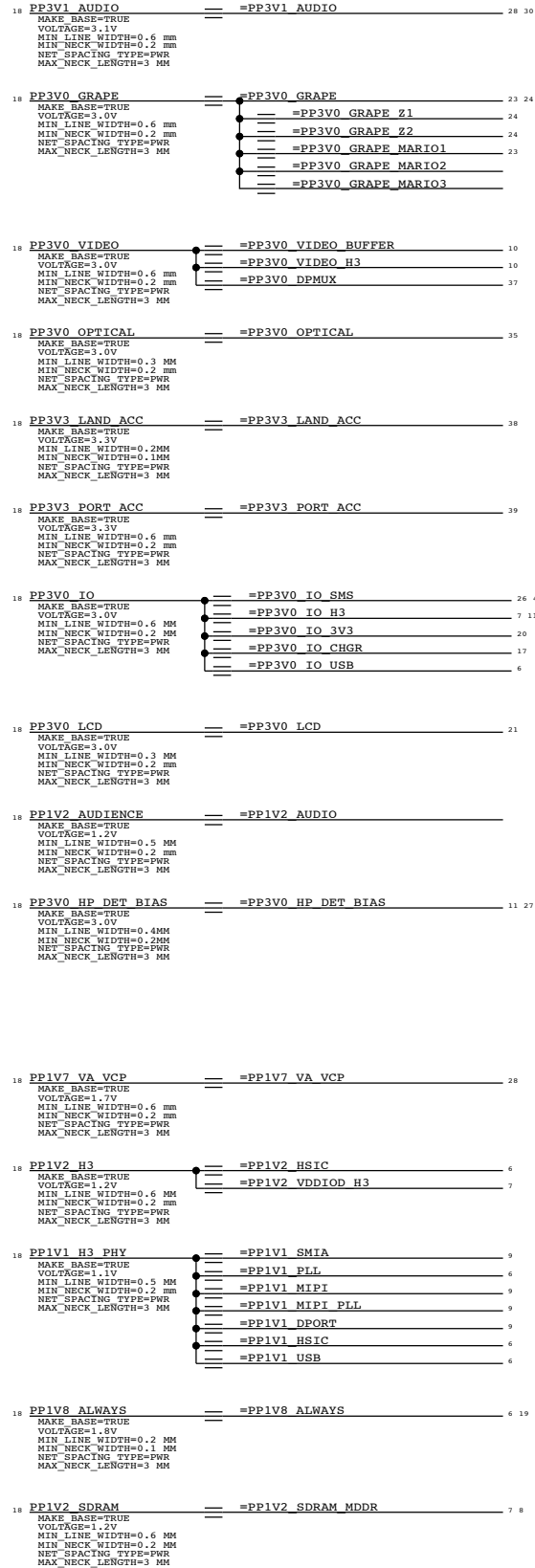
```

SYNC MASTER=MIAMI		SYNC DATE=09/16/2009	
PAGE TITLE			
MLC ALIASES			
 Apple Inc.		DRAWING NUMBER	051-8245
		REVISION	B.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		BRANCH	
		PAGE	15 OF 119
		SHEET	14 OF 53
		SIZE	D

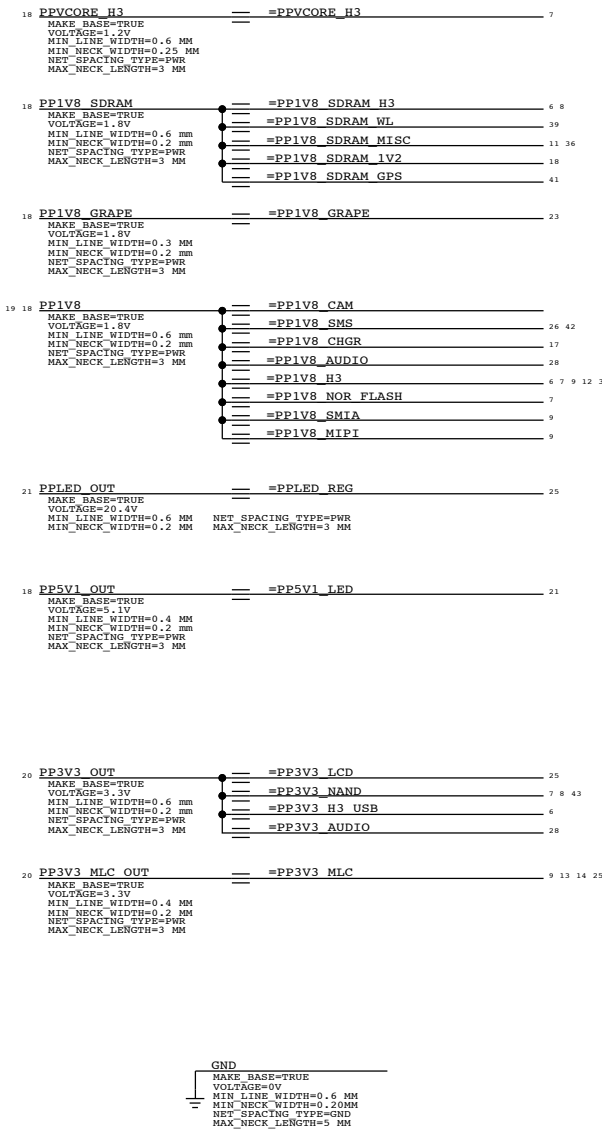
POWER CONN / ALIAS

LDO RAILS

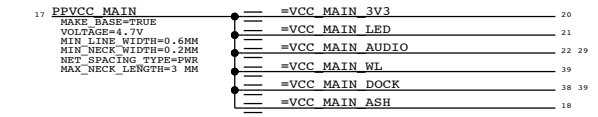
PROGRAMMABLE ON/OFF



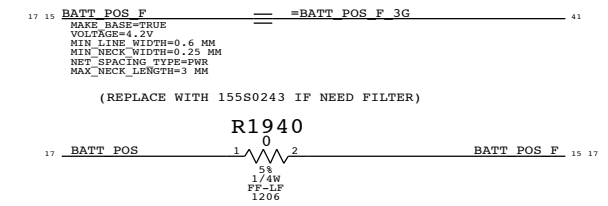
BUCK RAILS



CHARGER MAIN



BATTERY



SYNC MASTER=MARK		SYNC DATE=12/04/2009	
Power Conn / Alias			
DRAWING NUMBER		051-8245	
REVISION		B.0.0	
NOTICE OF PROPRIETARY PROPERTY:			
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:			
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE			
II NOT TO REPRODUCE OR COPY IT			
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART			
IV ALL RIGHTS RESERVED			
PAGE		17 OF 119	
SHEET		15 OF 53	

DCIN POWER PATH

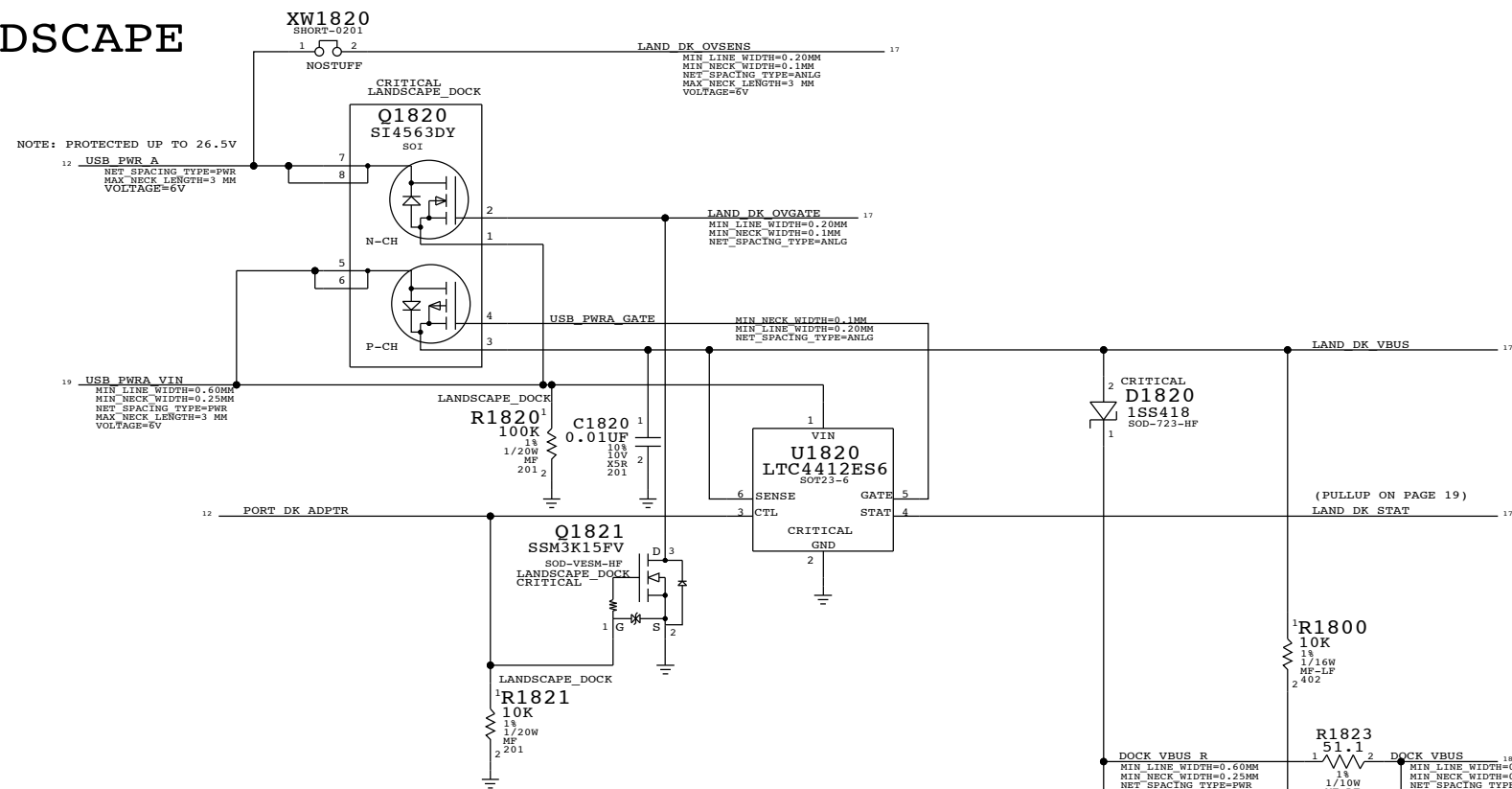
SO-8 DUAL P/N FETS

MOSFET	SI4563DY
CHANNEL	N-TYPE
RDS (ON)	15 MOHM @4.5V
IMAX	8 A
VGS MAX	+/- 16V

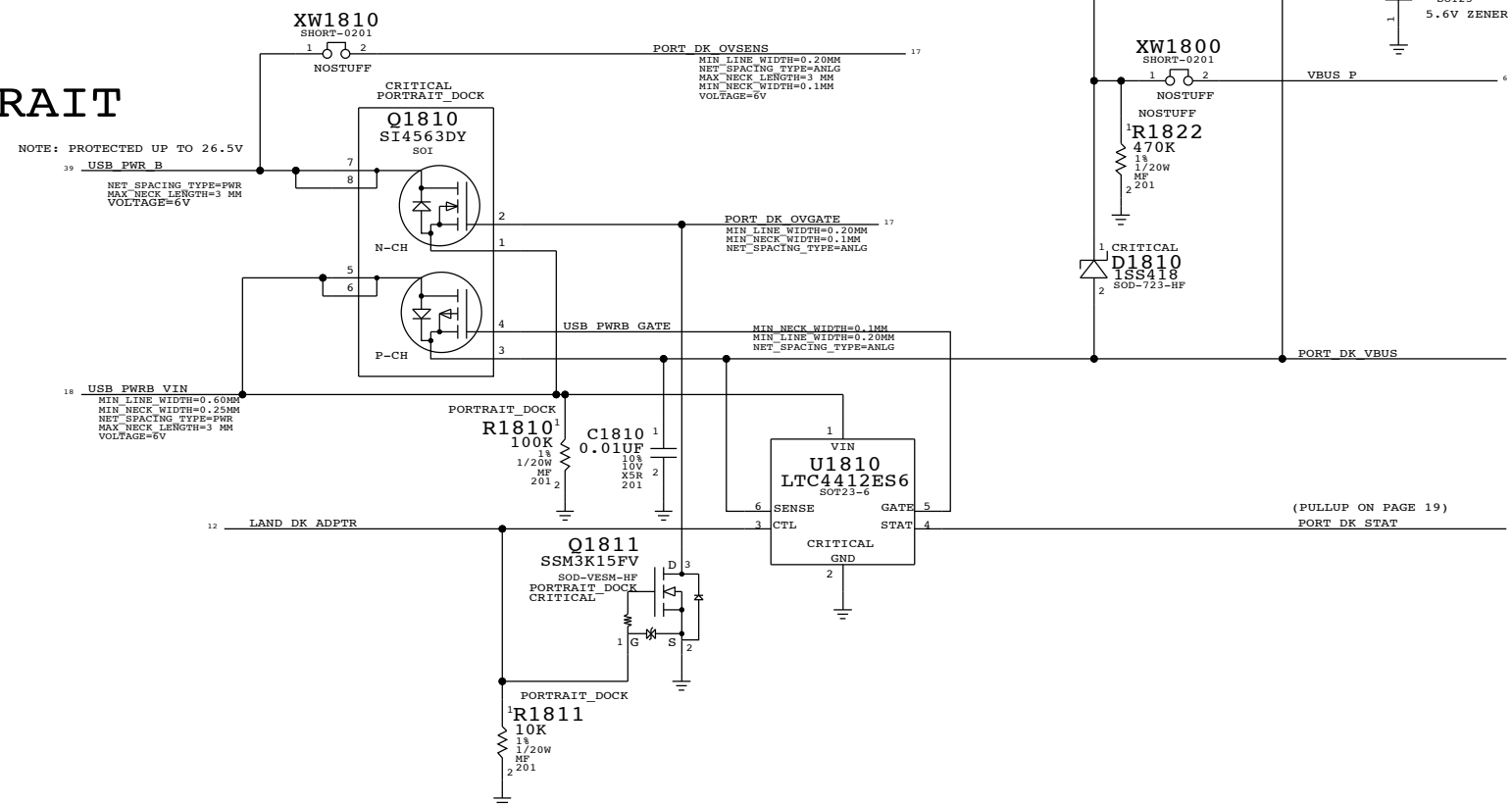
SO-8 DUAL P/N FETS

MOSFET	SI4563DY
CHANNEL	P-TYPE
RDS (ON)	25 MOHM @-4.5V
IMAX	8 A
VGS MAX	+/- 16V

LANDSCAPE



PORTRAIT

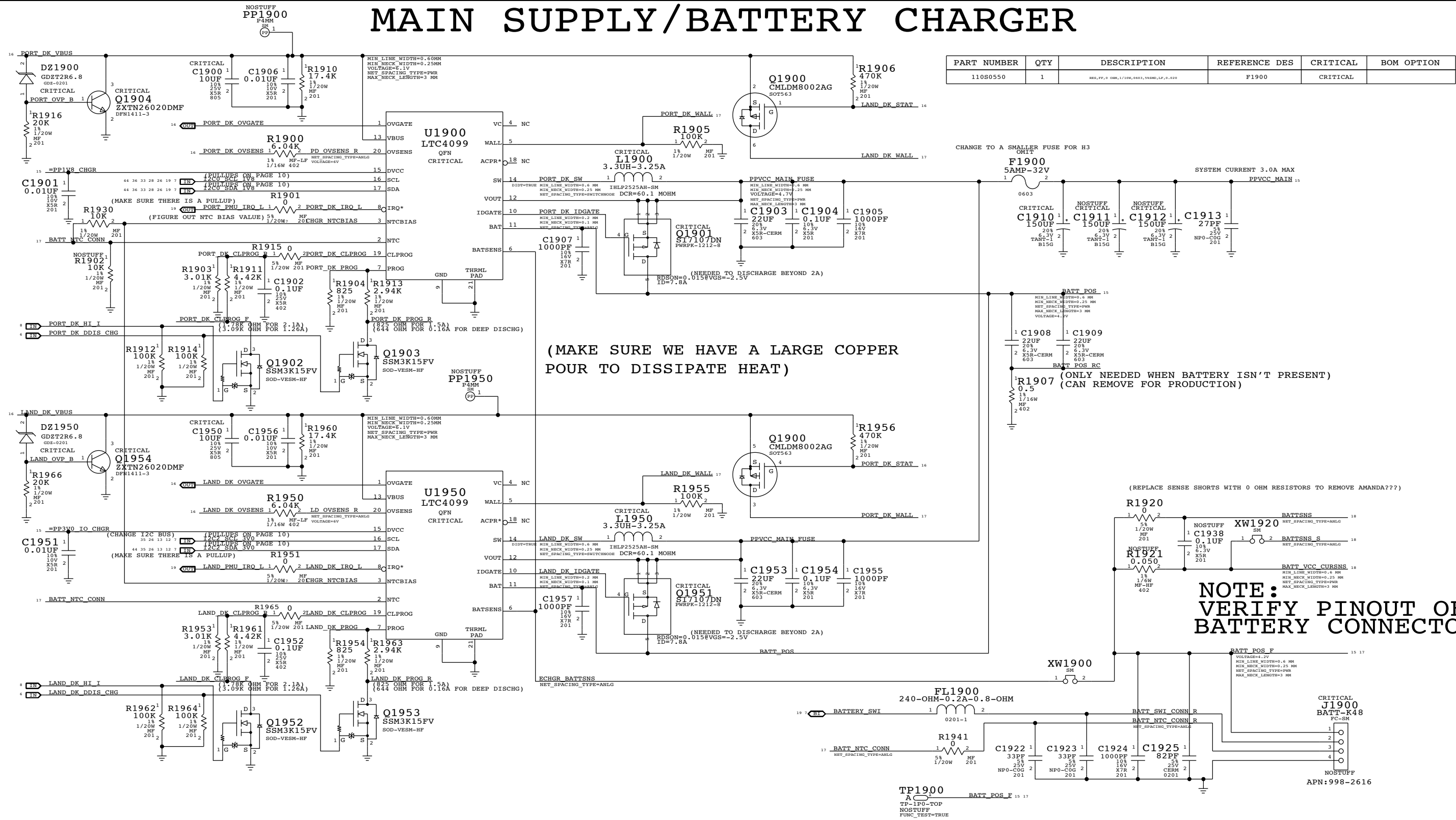


DRAWING NUMBER		051-8245	SIZE	D
REVISION		B.0.0	BRANCH	
PAGE		18 OF 119	SHEET	
NOTICE OF PROPRIETARY PROPERTY:		16 OF 53		

THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:
 I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE
 II NOT TO REPRODUCE OR COPY IT
 III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART
 IV ALL RIGHTS RESERVED

MAIN SUPPLY/BATTERY CHARGER

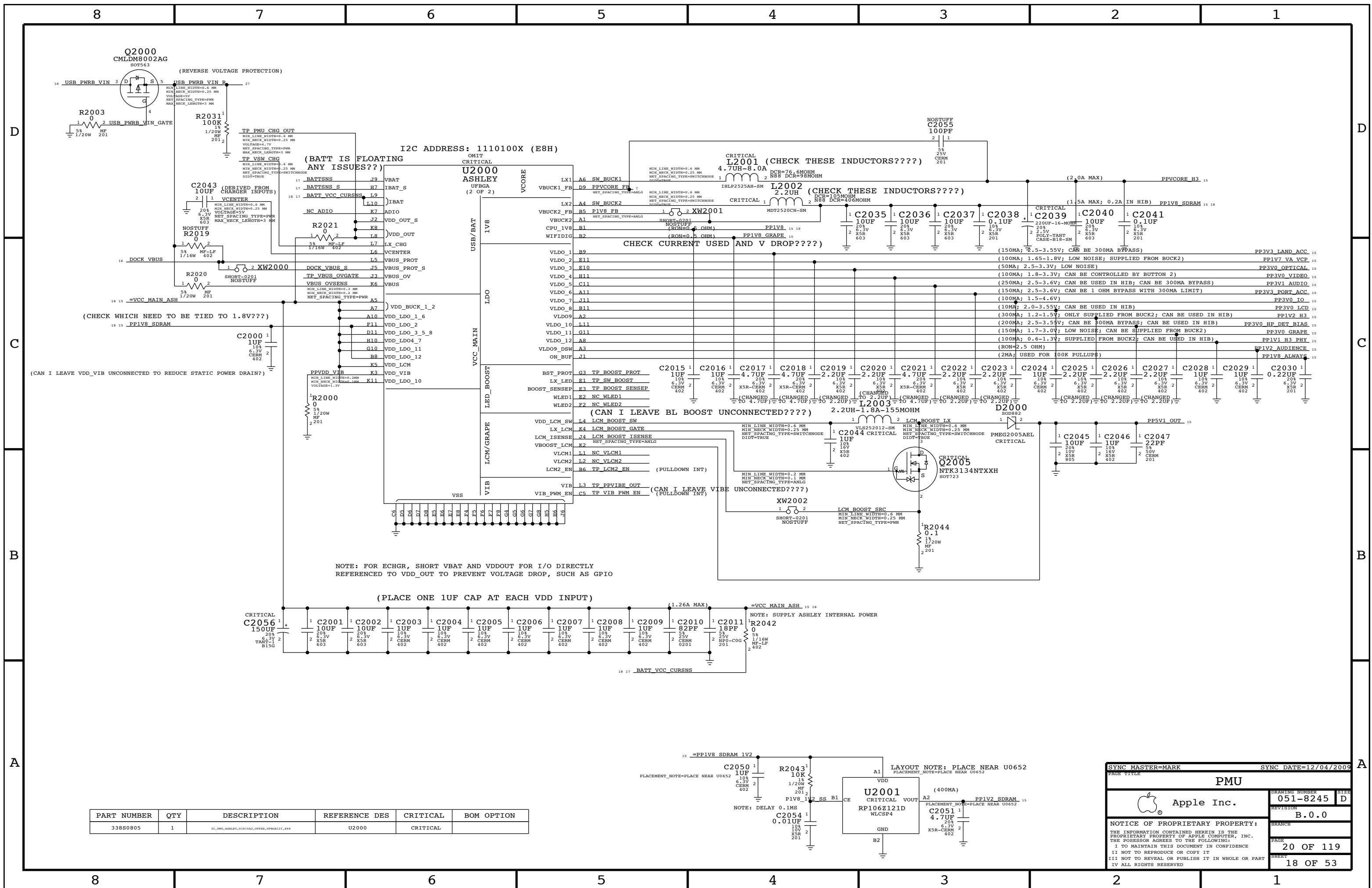
PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
11080550	1	REG.PP.0 00M,1/100,003,1938M,LP.0.020	F1900	CRITICAL	



(MAKE SURE WE HAVE A LARGE COPPER POUR TO DISSIPATE HEAT)

NOTE: VERIFY PINOUT OF BATTERY CONNECTOR

SYNC MASTER=MARK		SYNC DATE=12/04/2009	
CHARGER			
Apple Inc.		DRAWING NUMBER	SIZE
Apple Logo		051-8245	D
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		REVISION	BRANCH
		B.0.0	
		PAGE	SHEET
		19 OF 119	17 OF 53



PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
33880805	1	IC, PMU, ASHLEY, D1815A1, 079X, UFBGA121, 848	U2000	CRITICAL	

SYNC MASTER=MARK SYNC DATE=12/04/2009

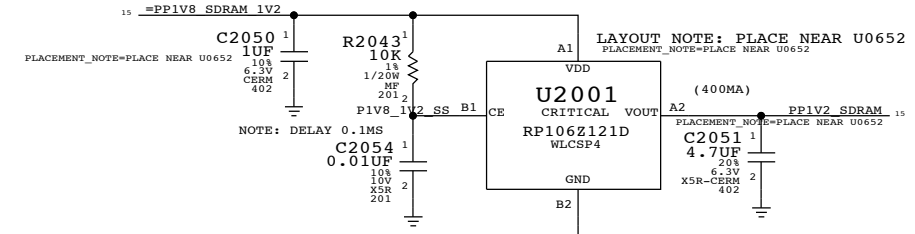
PMU

Apple Inc.

DRAWING NUMBER: 051-8245
REVISION: B.0.0

NOTICE OF PROPRIETARY PROPERTY:
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE
II NOT TO REPRODUCE OR COPY IT
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART
IV ALL RIGHTS RESERVED

PAGE: 20 OF 119
SHEET: 18 OF 53



NOTE: FOR ECHGR, SHORT VBAT AND VDDOUT FOR I/O DIRECTLY REFERENCED TO VDD_OUT TO PREVENT VOLTAGE DROP, SUCH AS GPIO

(PLACE ONE 1UF CAP AT EACH VDD INPUT)

(CAN I LEAVE VDD_VIB UNCONNECTED TO REDUCE STATIC POWER DRAIN?)

(CHECK WHICH NEED TO BE TIED TO 1.8V???)

CHECK CURRENT USED AND V DROP???)

(BATT IS FLOATING ANY ISSUES???)

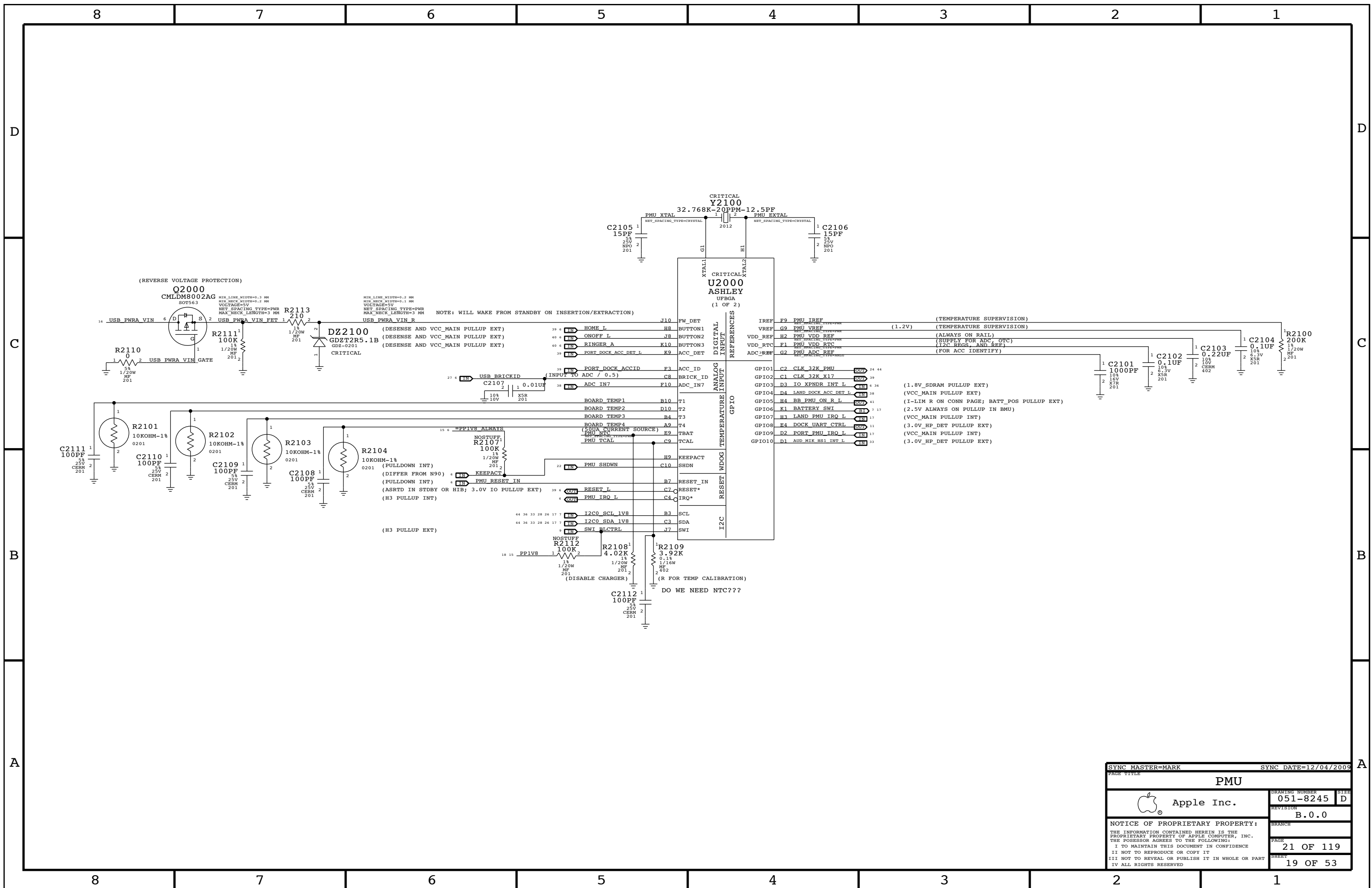
CRITICAL L2001 (CHECK THESE INDUCTORS???)

CRITICAL L2002 (CHECK THESE INDUCTORS???)

(CAN I LEAVE BL BOOST UNCONNECTED???)

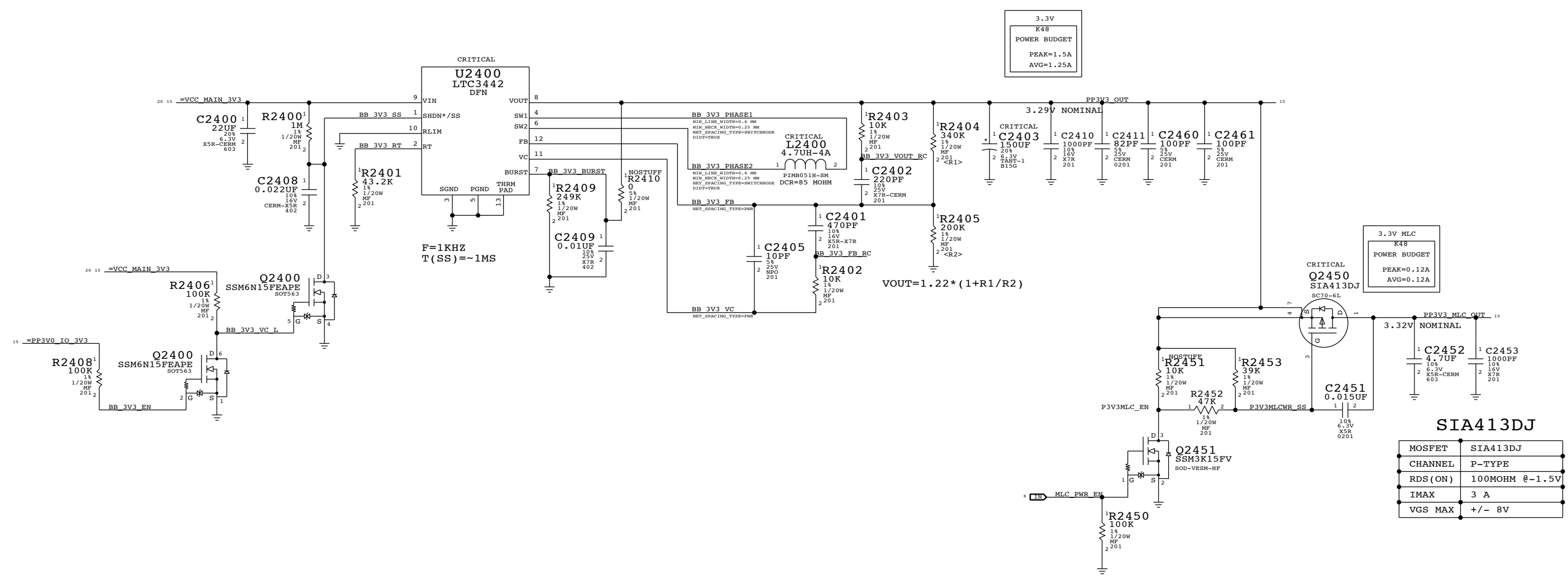
(CAN I LEAVE VIB UNCONNECTED???)

NOTE: SUPPLY ASHLEY INTERNAL POWER



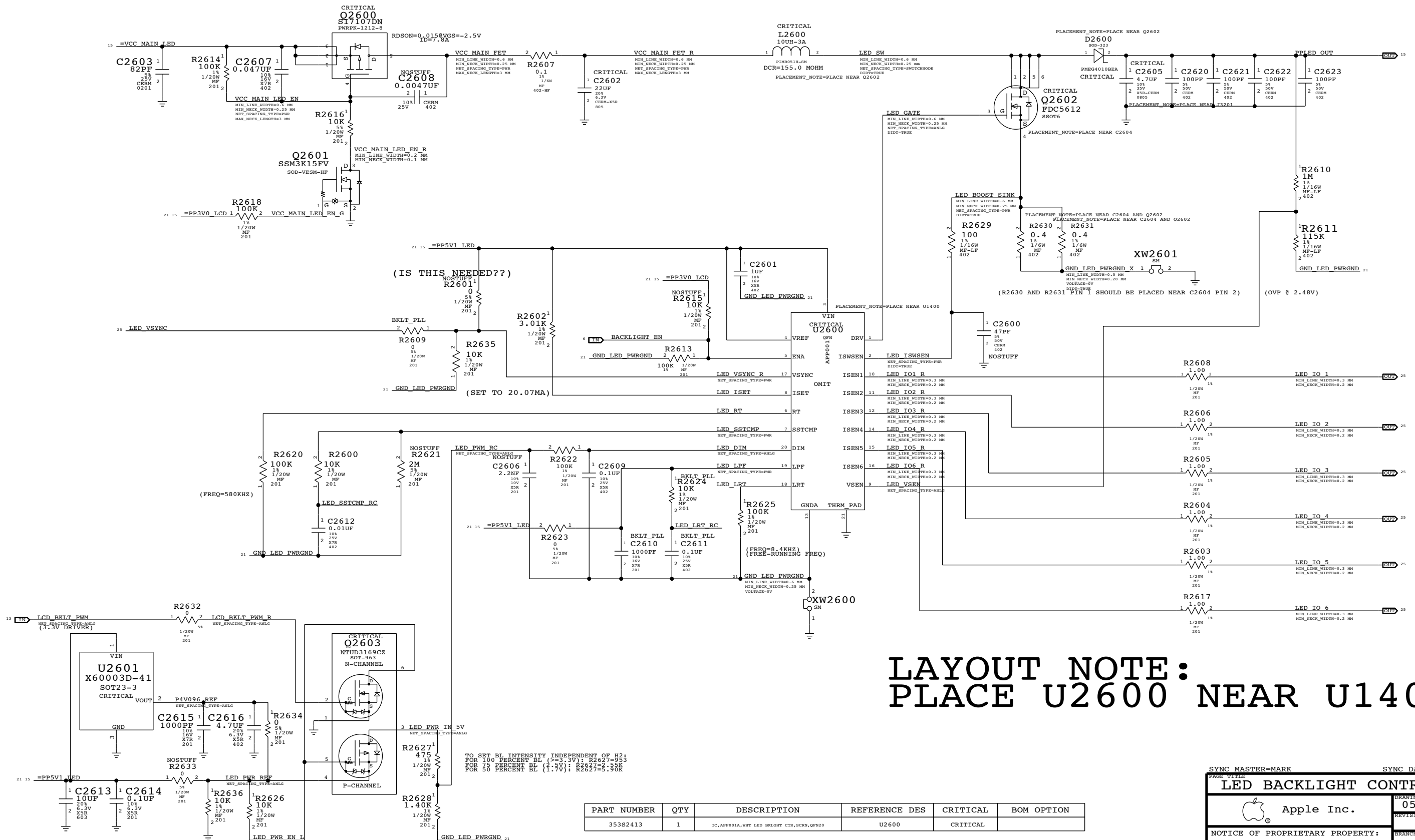
SYNC MASTER=MARK		SYNC DATE=12/04/2009	
PMU			
Apple Inc.		DRAWING NUMBER	SIZE
		051-8245	D
		REVISION	
		B.0.0	
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		BRANCH	
		PAGE	21 OF 119
		SHEET	19 OF 53

3.3V SUPPLY



PAGE TITLE		SYNC DATE=12/04/2009	
3.3V SUPPLY			
Apple Inc.	DRAWING NUMBER	051-8245	SIZE D
	REVISION	B.0.0	
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		BRANCH	
		PAGE	24 OF 119
		SHEET	20 OF 53

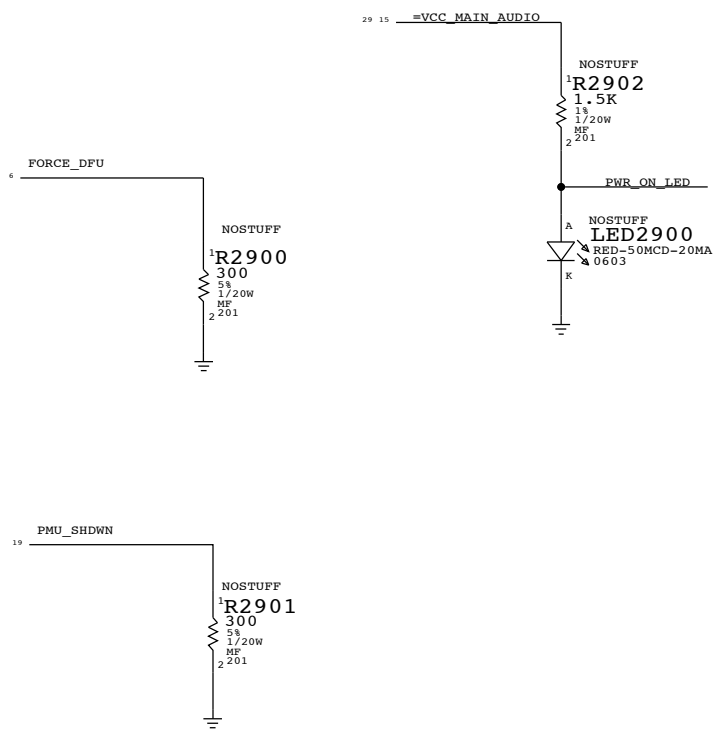
LED BOOST/BACKLIGHT CONTROLLER




LAYOUT NOTE:
PLACE U2600 NEAR U1400

PAGE TITLE		SYNC DATE=12/04/2009	
LED BACKLIGHT CONTROLLER		DRAWING NUMBER	051-8245
Apple Inc.		REVISION	B.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		BRANCH	
		PAGE	26 OF 119
		SHEET	21 OF 53

DEBUG RESET ACCESS



SYNC MASTER=MIAMI		SYNC DATE=09/16/2009	
DEBUG RESET ACCESS			
 Apple Inc.		DRAWING NUMBER	051-8245
		REVISION	B.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		BRANCH	
		PAGE	29 OF 119
		SHEET	22 OF 53
		SIZE	D

D

D

C

C

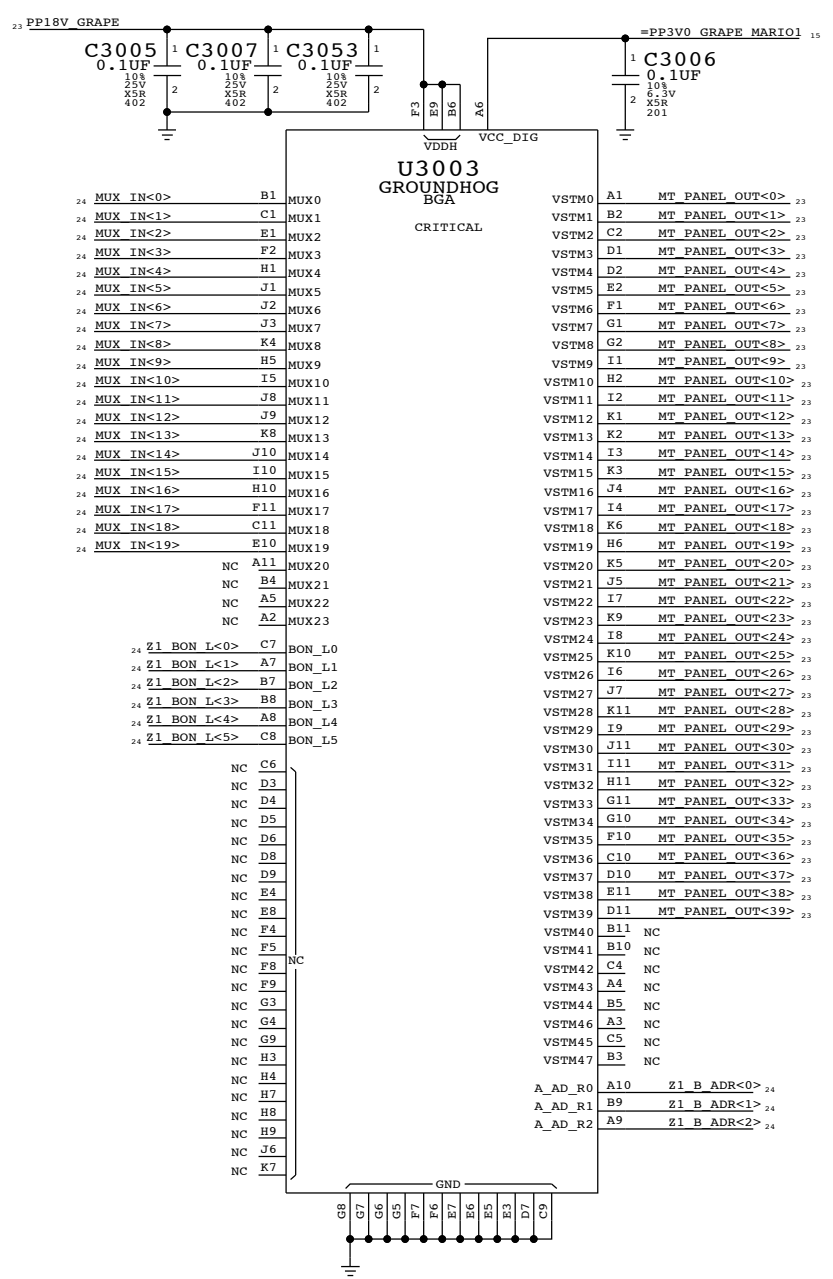
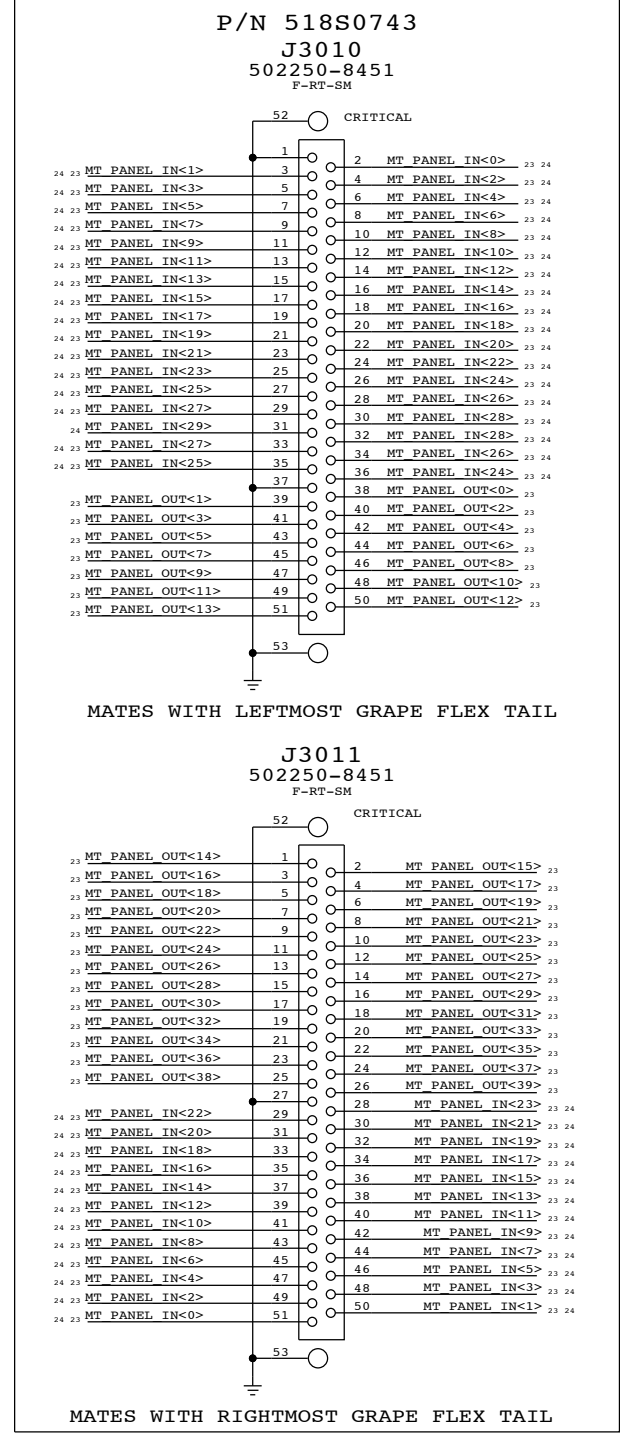
B

B

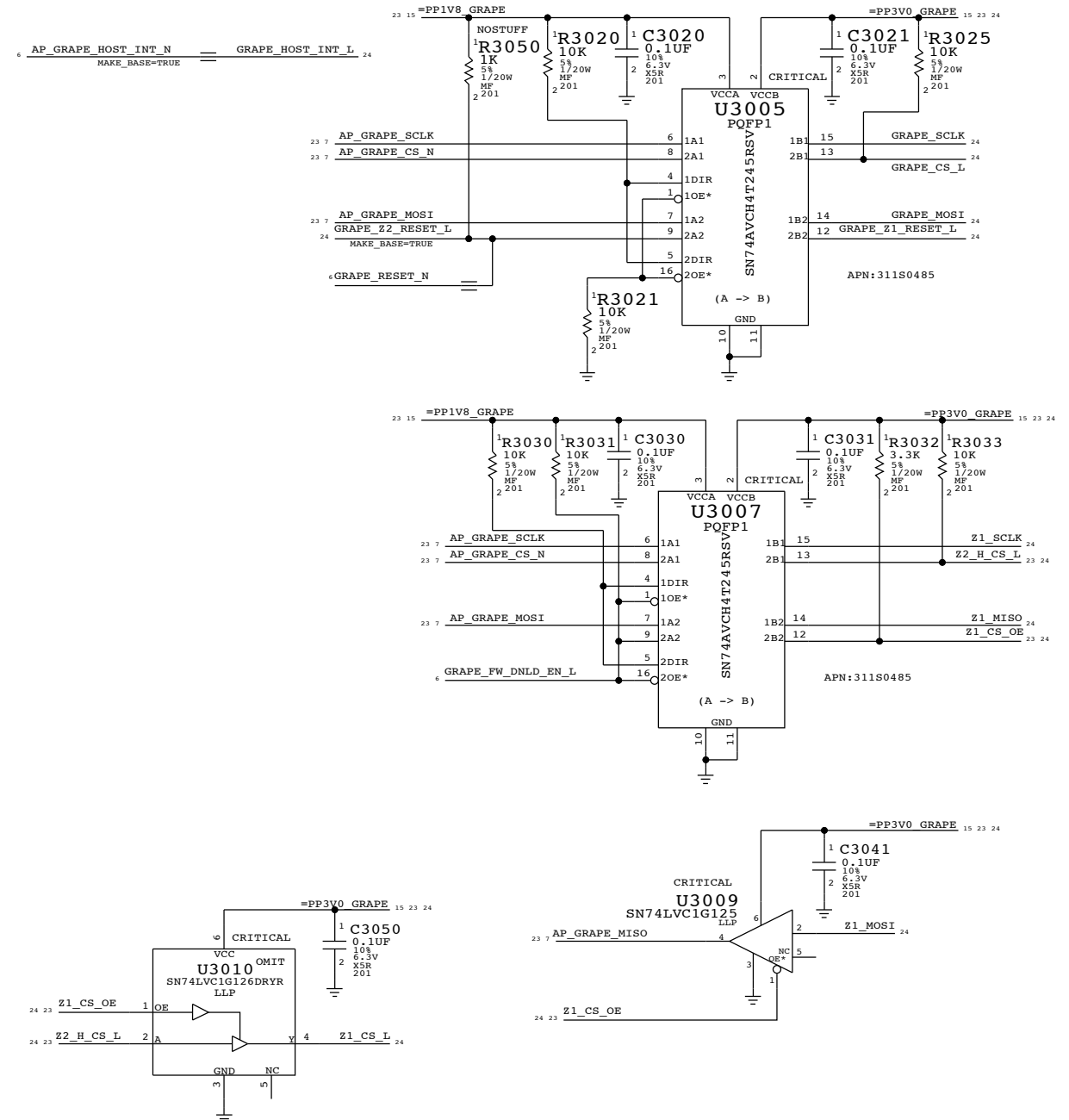
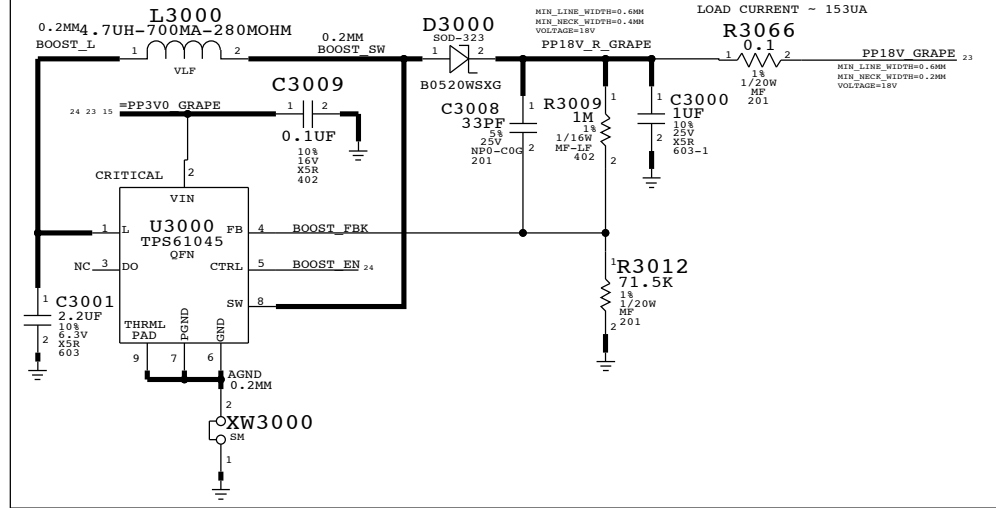
A

A

CONNECTORS TO GRAPE FLEX



BOOST CONVERTOR



PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
311S0506	1	IC, SNGL 3-STATE BUFFER, 5-PIN, DRY	U3010	CRITICAL	

SYNC MASTER=JAMES SYNC DATE=12/21/2009

GRAPE 1 OF 2

Apple Inc.

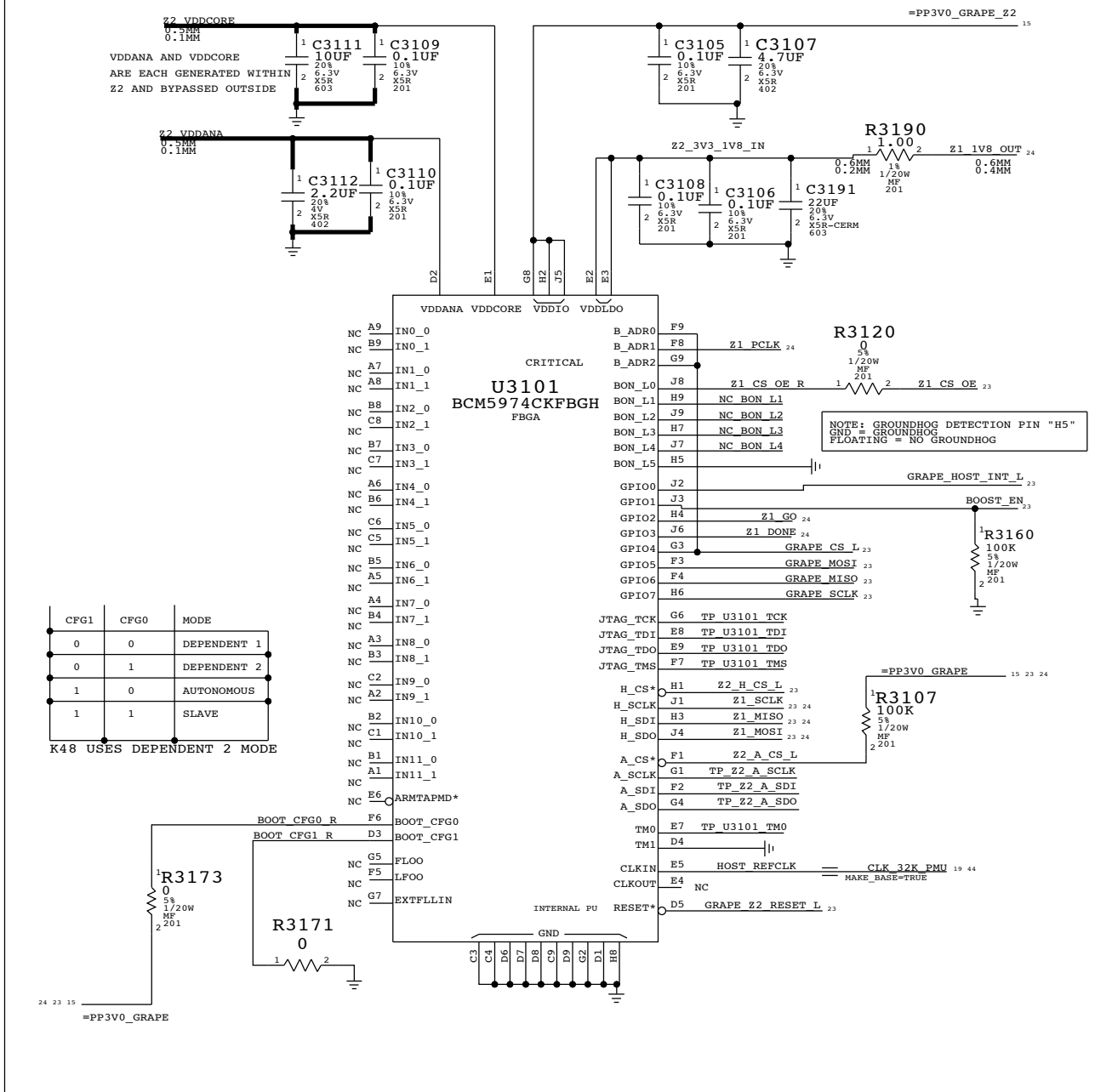
051-8245

REVISION B.0.0

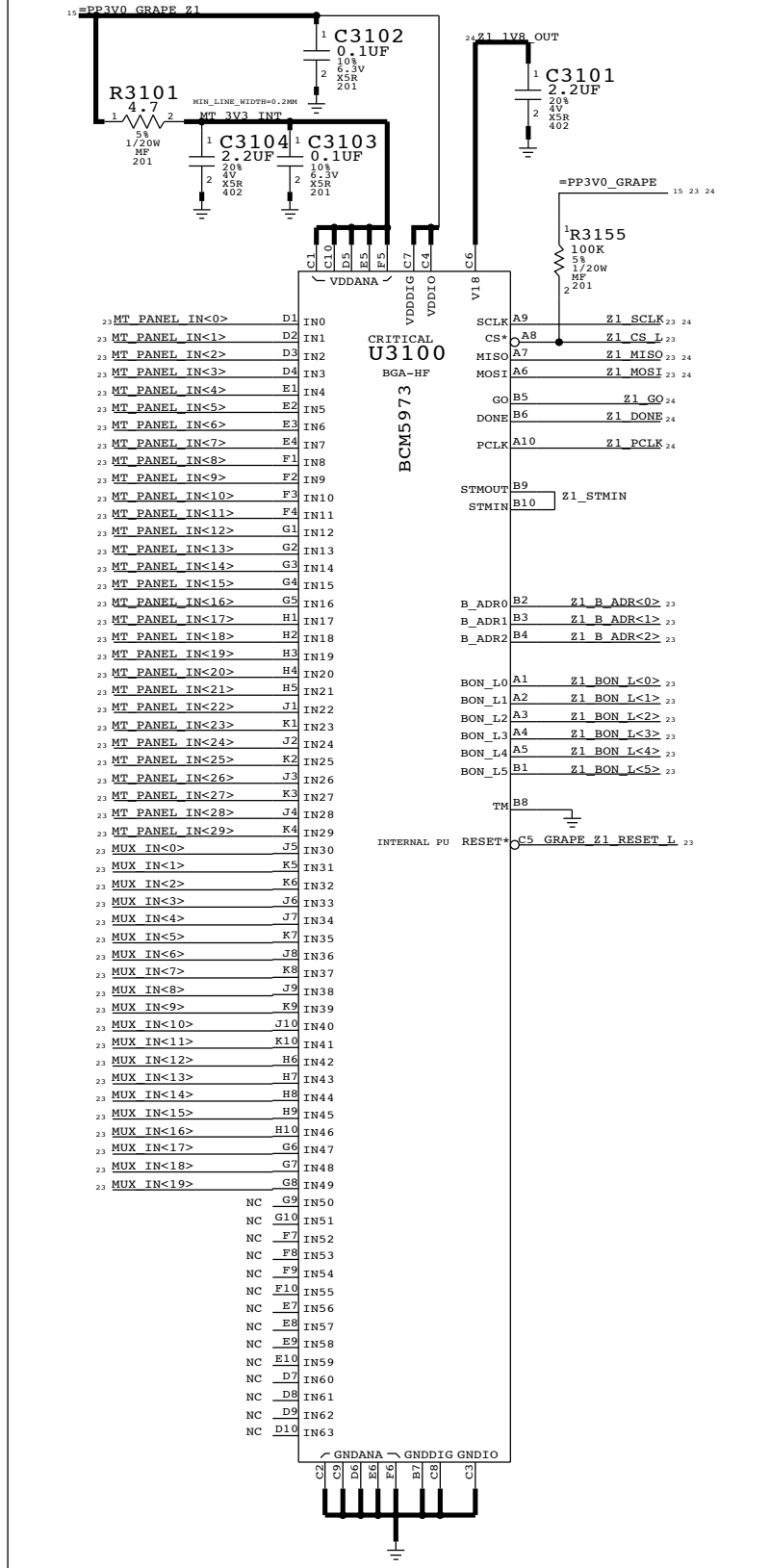
30 OF 119

23 OF 53

ARM9 MCU (Z2 BASED)



ZEPHYR 1+ ASIC



SYNC MASTER=JAMES SYNC DATE=12/21/2009

GRAPE 2 OF 2

Apple Inc.

DRAWING NUMBER: 051-8245 SIZE: D

REVISION: B.0.0

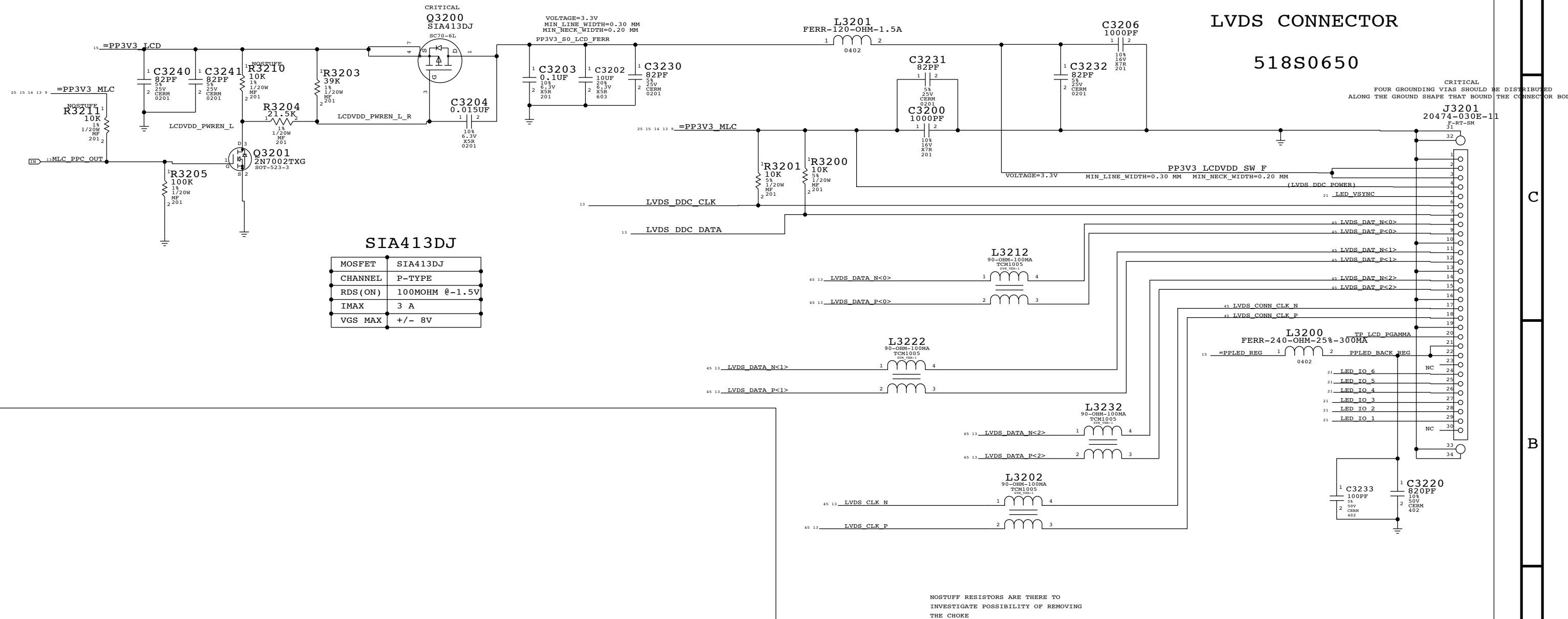
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED

PAGE: 31 OF 119 SHEET: 24 OF 53

LVDS CONNECTOR

SIMILAR TO M97

LVDS CONNECTOR
518S0650



SIA413DJ

MOSFET	SIA413DJ
CHANNEL	P-TYPE
RDS (ON)	100MOHM @-1.5V
IMAX	3 A
VGS MAX	+/- 8V

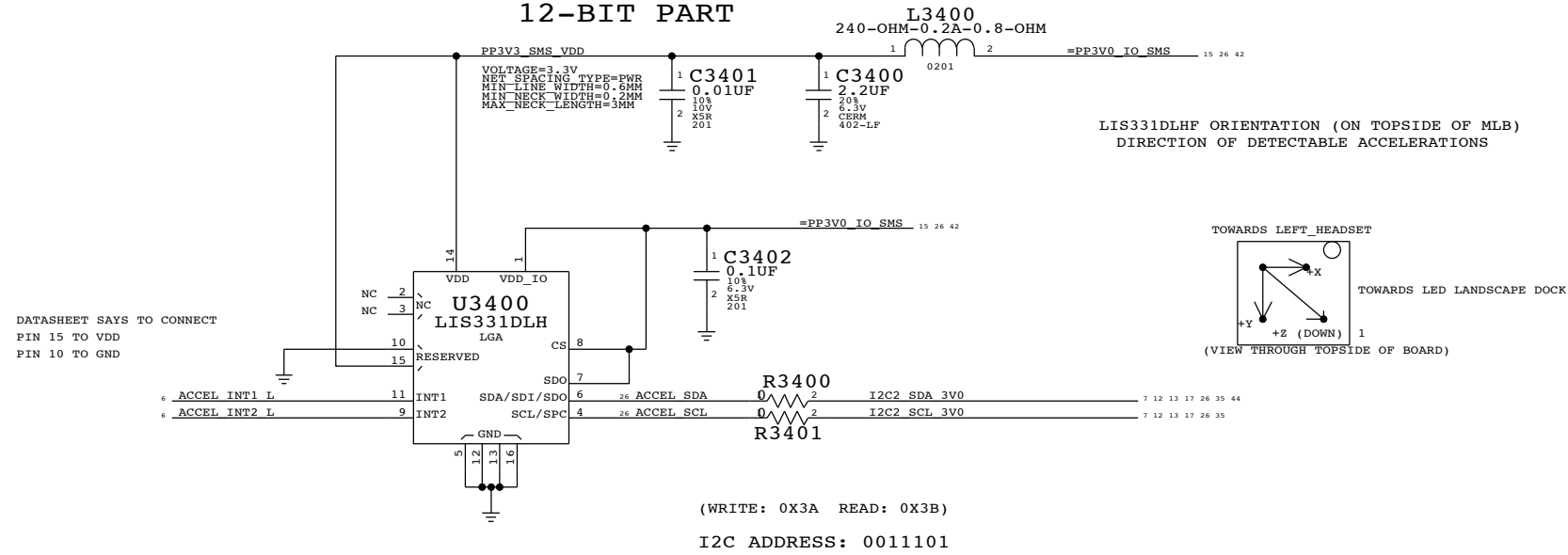
SYNC MASTER=MIAMI SYNC DATE=09/16/2009

LVDS CONNECTOR	
Apple Inc.	051-8245 D
REVISION	B.0.0
BRANCH	
PAGE	32 OF 119
SHEET	25 OF 53

NOTICE OF PROPRIETARY PROPERTY:
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE
II NOT TO REPRODUCE OR COPY IT
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART
IV ALL RIGHTS RESERVED

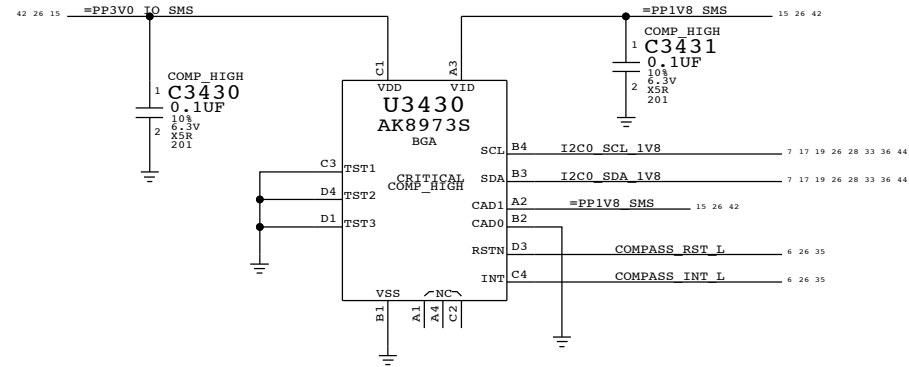
MOTION/GYRO/COMPASS SENSORS

ST MICRO LIS331DLHF MOTION SENSOR 12-BIT PART



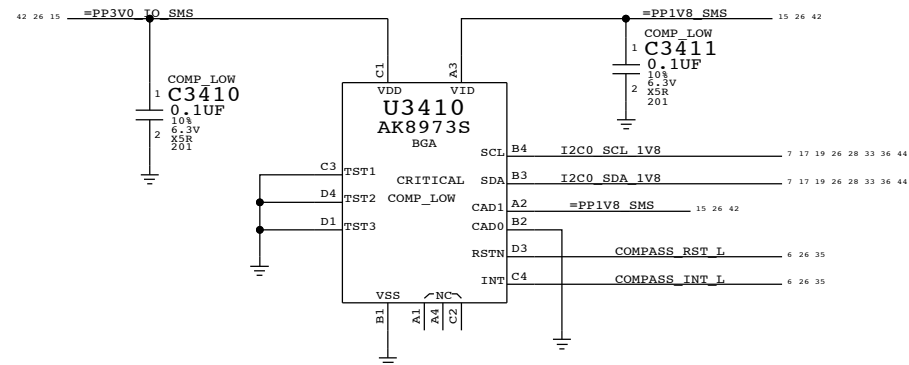
COMPASS HIGH

(HAS THERMAL SENSOR IN IT)
I2C ADDR: 0011110
WRITE: 0X3C READ: 0X3D



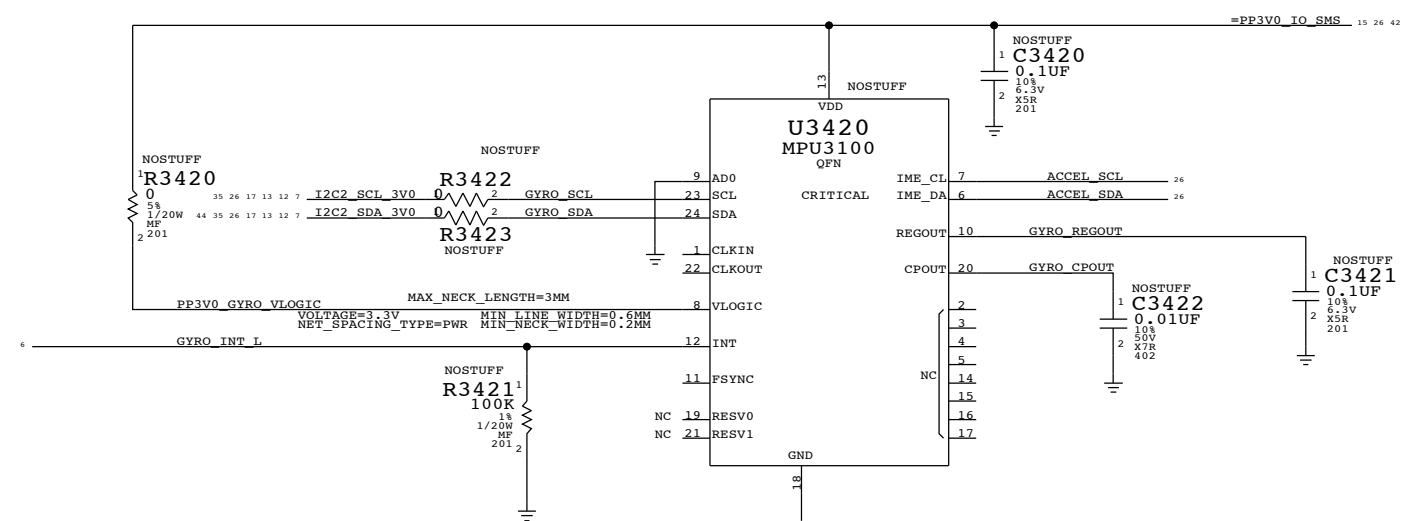
COMPASS LOW

(HAS THERMAL SENSOR IN IT)
I2C ADDR: 0011110
WRITE: 0X3C READ: 0X3D



GYRO

(WRITE: 0XD0 READ: 0XD1)
I2C ADDRESS: 1101000

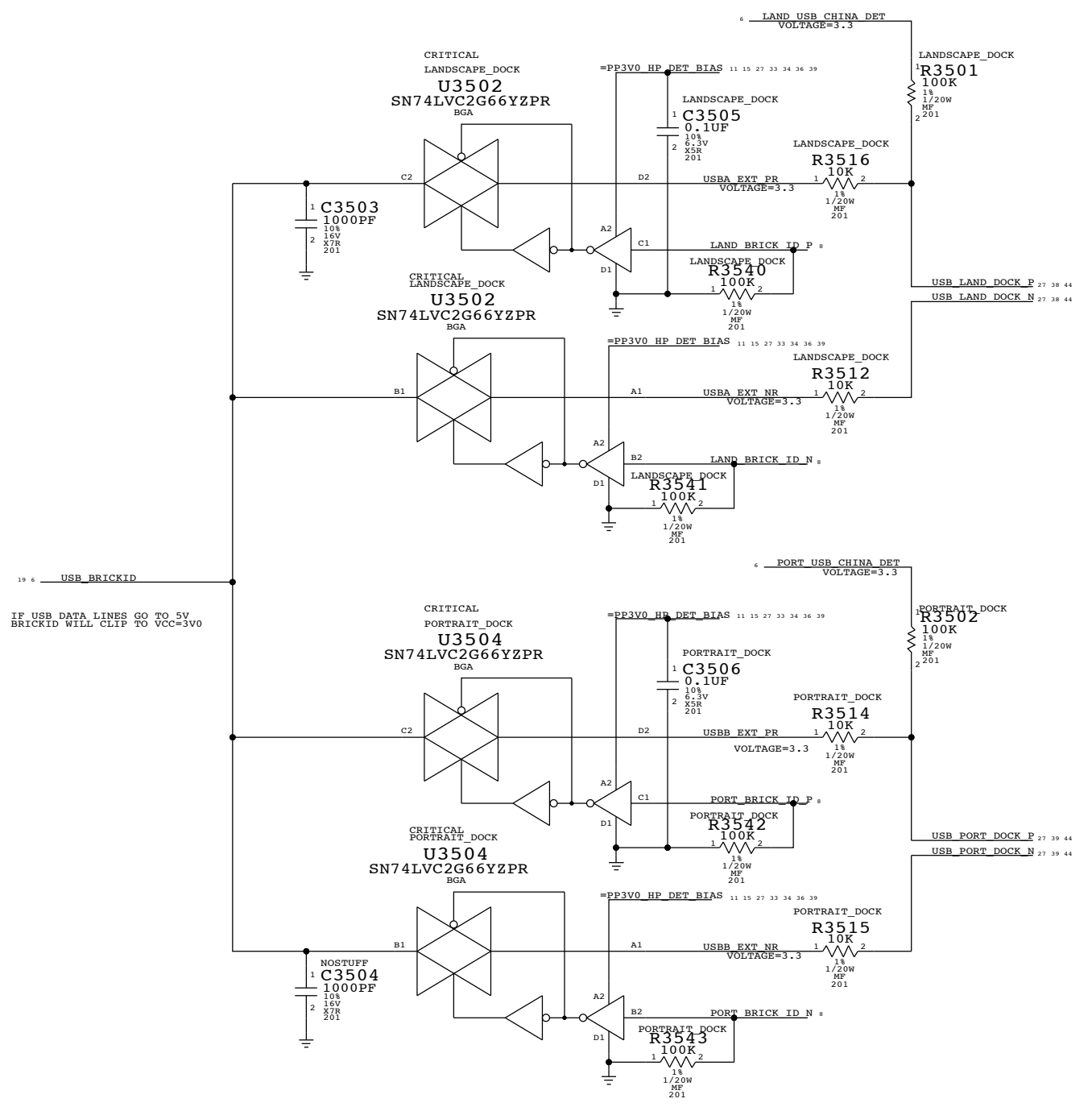


SYNC MASTER=MIAMI SYNC DATE=09/16/2009

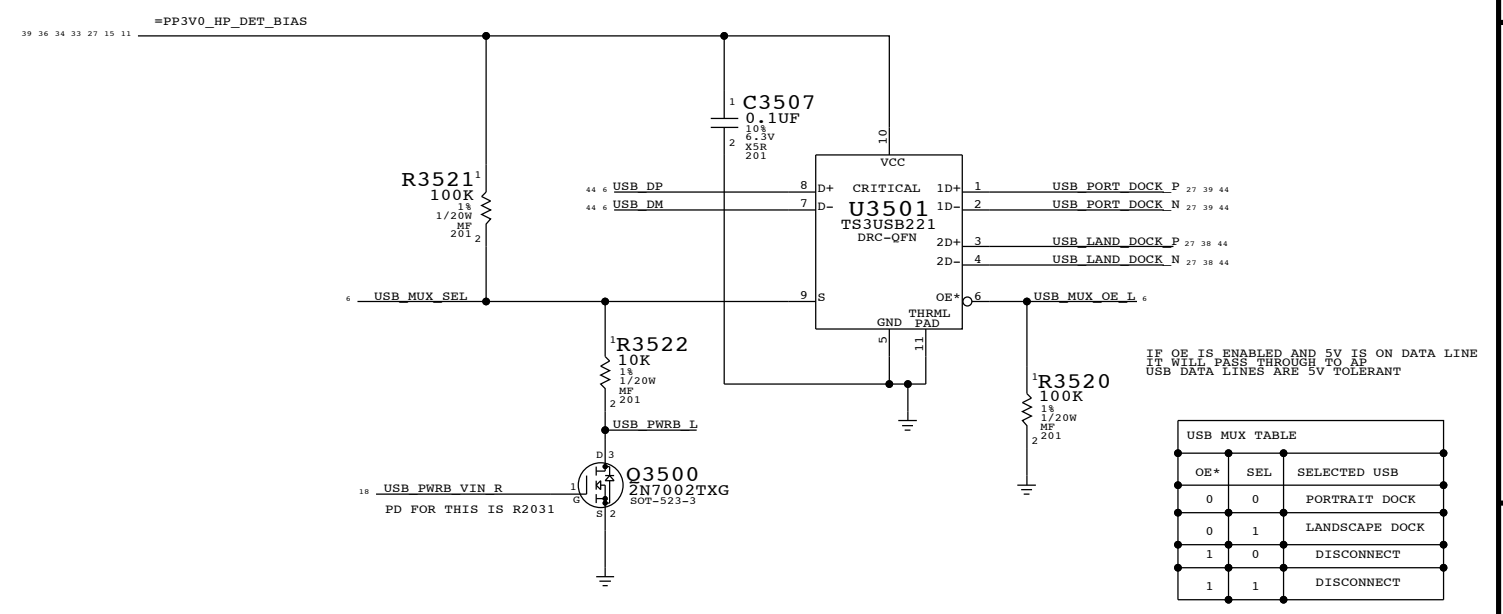
PAGE TITLE MOTION, GYRO, COMPASS/THERM		DRAWING NUMBER 051-8245	SIZE D
Apple Inc.		REVISION B.0.0	BRANCH
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		PAGE 34 OF 119	SHEET 26 OF 53

USB MUX/BRICK DETECTION

MAKE SURE RESISTORS ARE ON TOP OF TRACE TO REDUCE STUB



USB MUX FOR DOCK USB



OE*	SEL	SELECTED USB
0	0	PORTRAIT DOCK
0	1	LANDSCAPE DOCK
1	0	DISCONNECT
1	1	DISCONNECT

SYNC MASTER=MIAMI SYNC DATE=09/16/2009

USB MUX/BRK DET

Apple Inc.

DRAWING NUMBER: 051-8245 SIZE: D

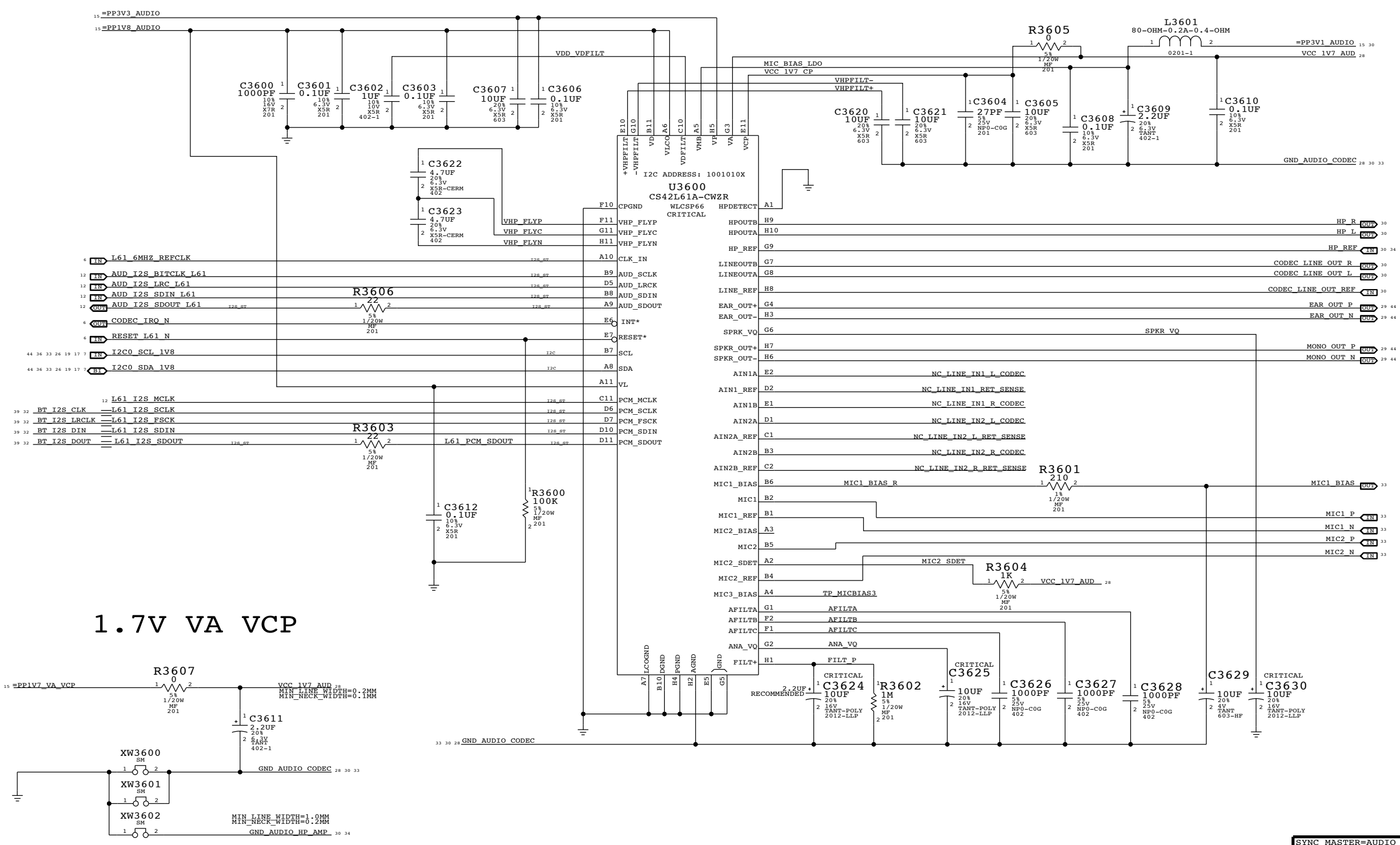
REVISION: B.0.0

NOTICE OF PROPRIETARY PROPERTY:
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE
II NOT TO REPRODUCE OR COPY IT
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART
IV ALL RIGHTS RESERVED

PAGE: 35 OF 119
SHEET: 27 OF 53

L61 AUDIO CODEC

APN:338S0589



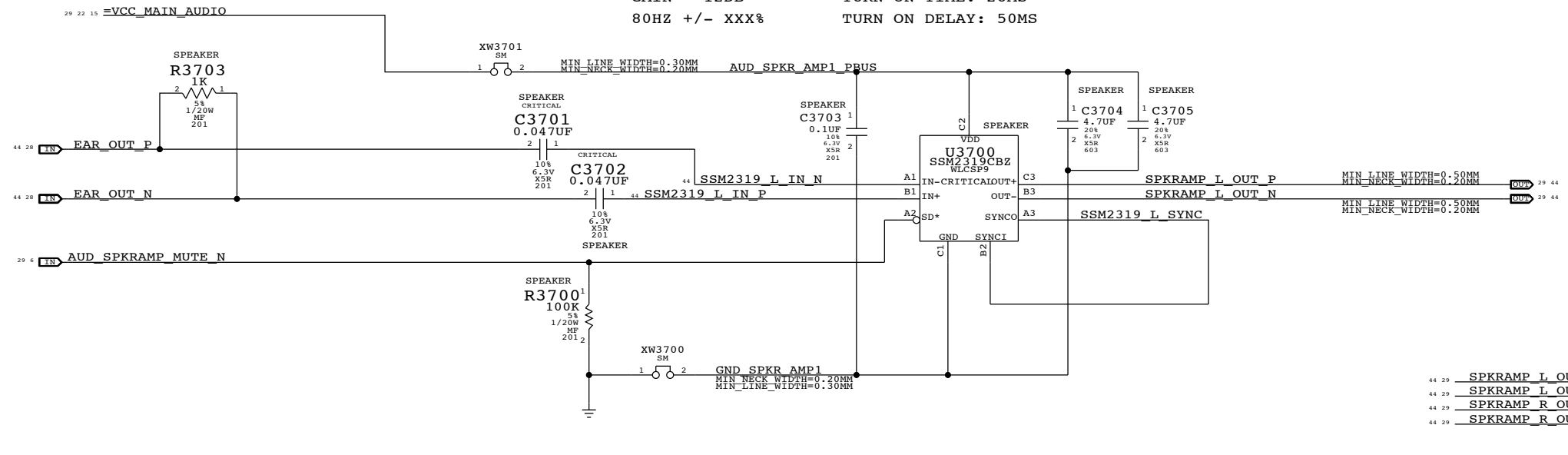
1.7V VA VCP

SYNC MASTER=AUDIO		SYNC DATE=12/04/2009	
PAGE TITLE			
L61 AUDIO INTERFACE			
DRAWING NUMBER		051-8245	SIZE
REVISION		B.0.0	
NOTICE OF PROPRIETARY PROPERTY:			
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:			
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE			
II NOT TO REPRODUCE OR COPY IT			
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART			
IV ALL RIGHTS RESERVED			

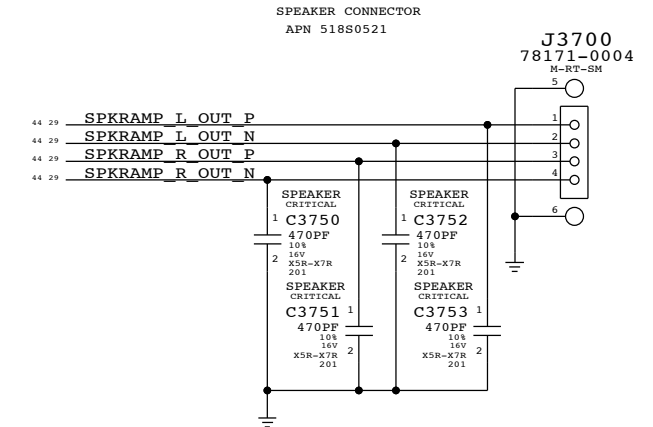
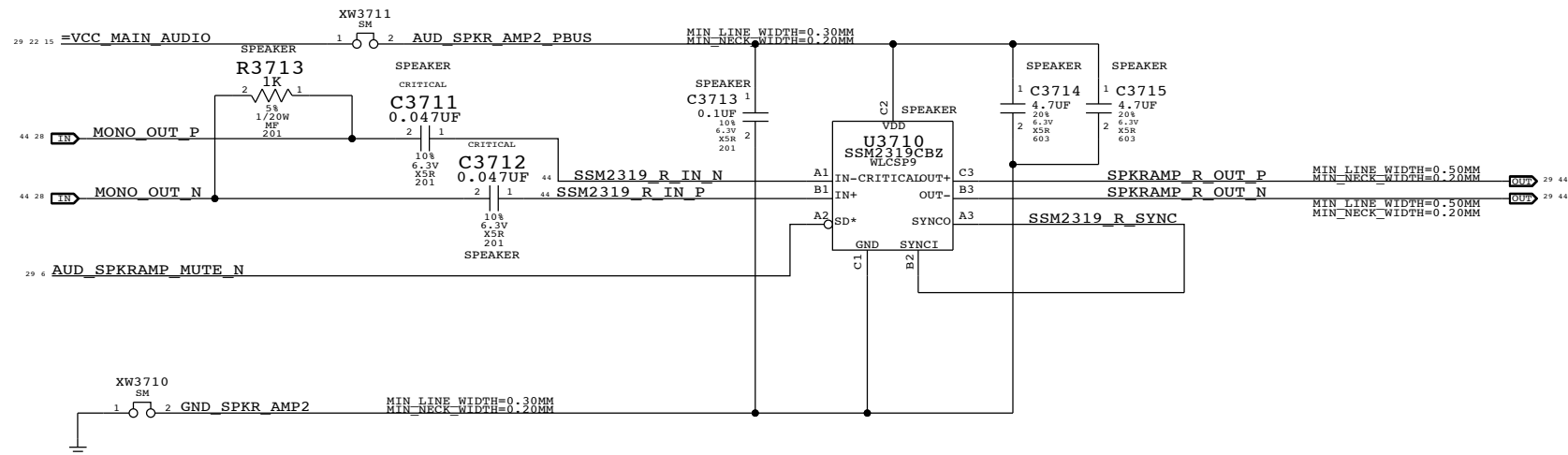
SPEAKER AMPLIFIER

SSM2319 APN:353S2136

GAIN = 12DB TURN ON TIME: 28MS
 80HZ +/- XXX% TURN ON DELAY: 50MS

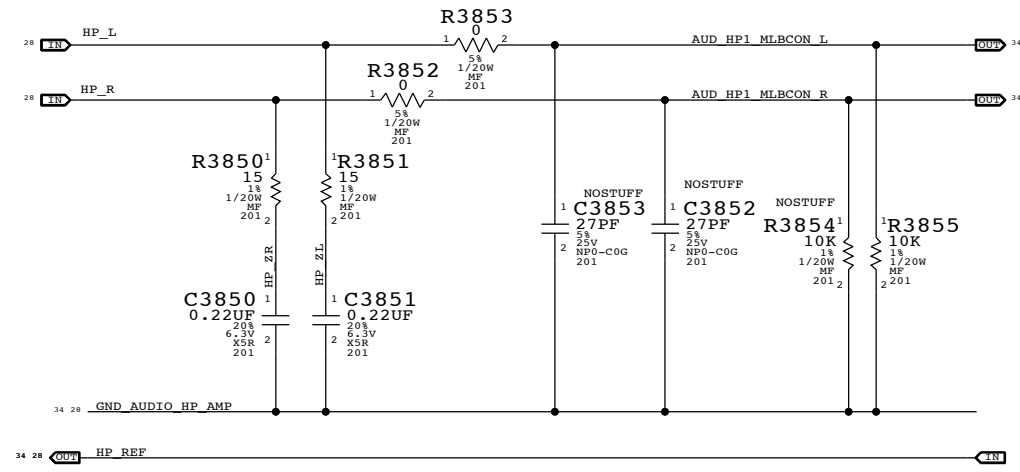


L61 RECEIVER OUTPUT IS CONNECTED TO U3700
 L61 SPEAKER OUTPUT IS CONNECTED TO U3710

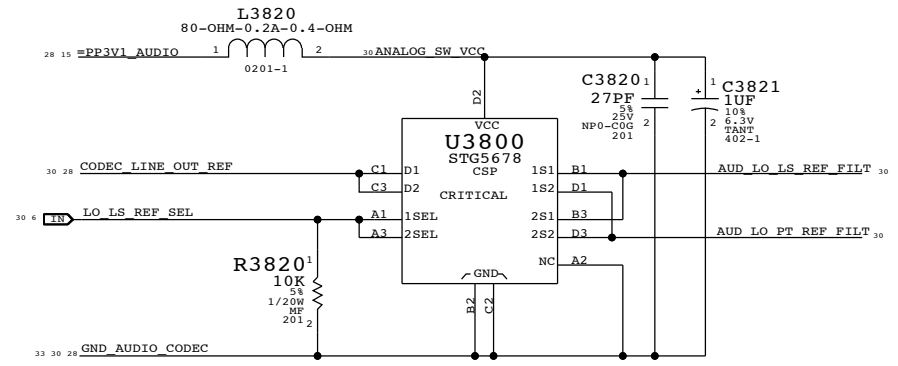


PAGE TITLE		SYNC DATE=12/04/2009	
AUDIO: SPEAKER AMP			
		DRAWING NUMBER	051-8245
		REVISION	B.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		BRANCH	
		PAGE	37 OF 119
		SHEET	29 OF 53

HEADPHONE OUTPUT ZOBEL NETWORK



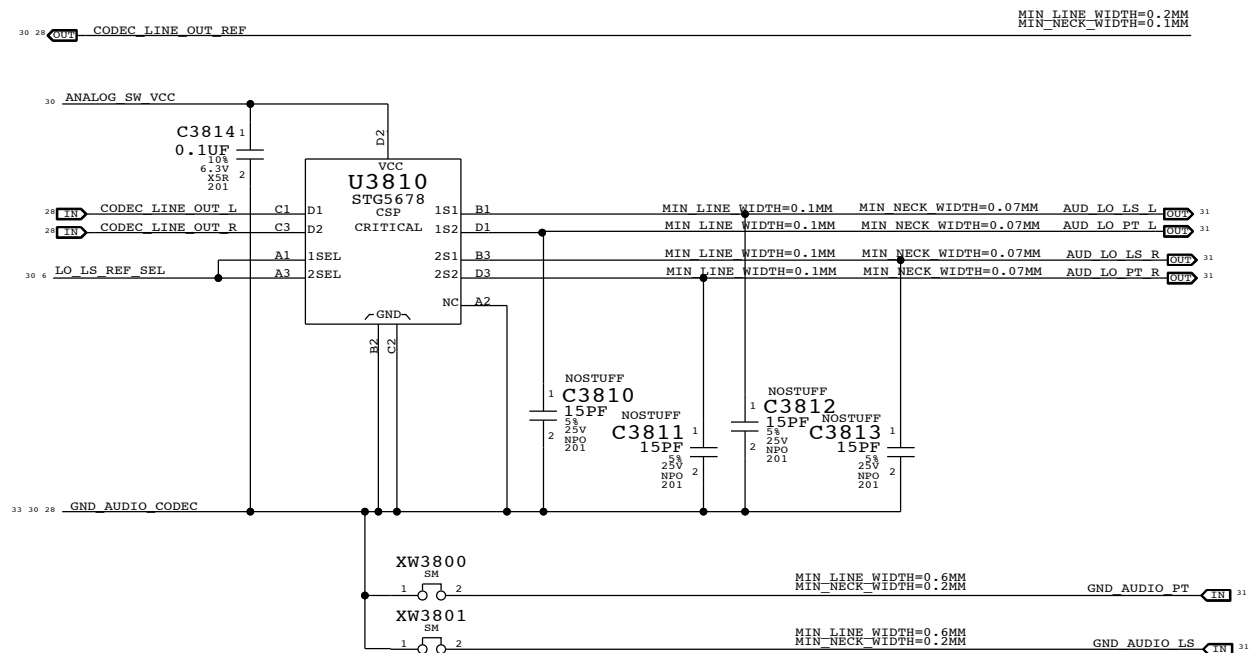
LINE OUTPUT REF SENSE DOCK SELECTOR



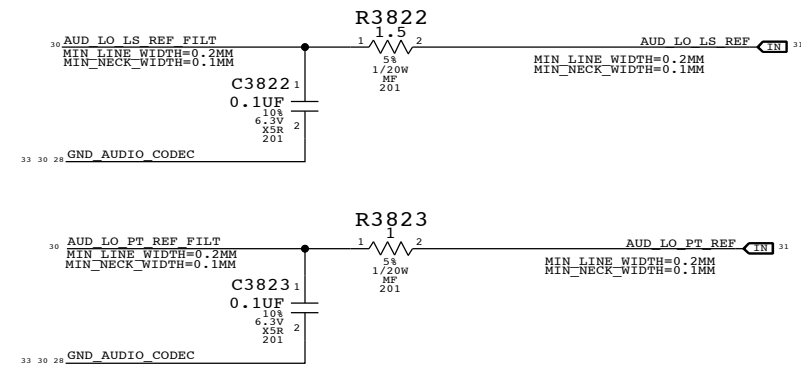
OUTPUT REF SENSE LINE SHOULD BE SWITCHED TO ACTIVE PORT
 LO_LS_REF_SEL = 0: PORTRAIT DOCK SELECTED
 LO_LS_REF_SEL = 1: LANDSCAPE DOCK SELECTED

LINE OUTPUT DOCK SELECTOR

LO_LS_REF_SEL = 0: DAC OUTPUT CONNECTED TO PORTRAIT DOCK
 LO_LS_REF_SEL = 1: DAC OUTPUT CONNECTED TO LANDSCAPE DOCK



LINE OUTPUT REF SENSE FILTER



PAGE TITLE		SYNC DATE=12/04/2009	
AUDIO: HEADPHONE OUT			
Apple Inc.		DRAWING NUMBER	051-8245
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		REVISION	B.0.0
		PAGE	38 OF 119
		SHEET	30 OF 53

8

7

6

5

4

3

2

1

D

D

C

C

B

B

A

A

8

7

6

5

4

3

2

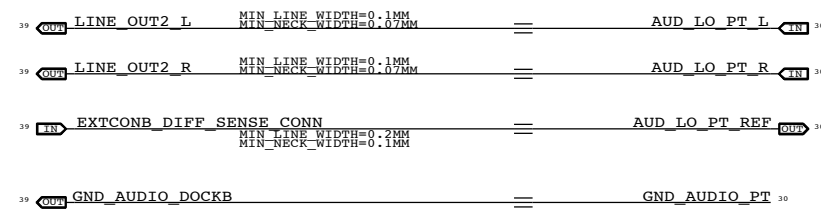
1

DOCKS OUTPUTS

NOTE: PORTRAIT DOCK IS PRIMARY DOCK

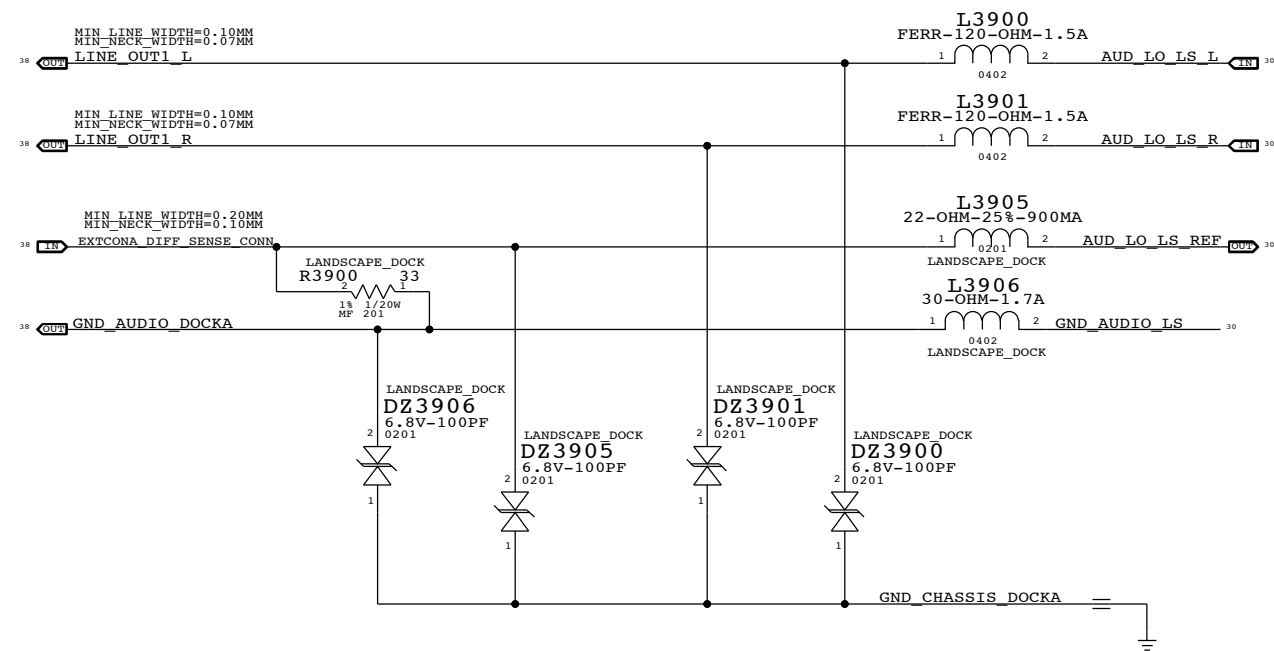
PORTRAIT DOCK LINE OUTPUT

TO PORTRAIT DOCK MLB CONNECTOR



LANDSCAPE DOCK LINE OUTPUT ESD CIRCUIT

TO LANDSCAPE DOCK MLB CONNECTOR



SYNC MASTER=AUDIO SYNC DATE=12/04/2009
AUDIO: LINE OUT DOCK ESD CIRCUIT
 Apple Inc.
 DRAWING NUMBER 051-8245 SIZE D
 REVISION B.0.0
 NOTICE OF PROPRIETARY PROPERTY:
 THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:
 I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE
 II NOT TO REPRODUCE OR COPY IT
 III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART
 IV ALL RIGHTS RESERVED
 PAGE 39 OF 119
 SHEET 31 OF 53

8

7

6

5

4

3

2

1

D

D

C

C

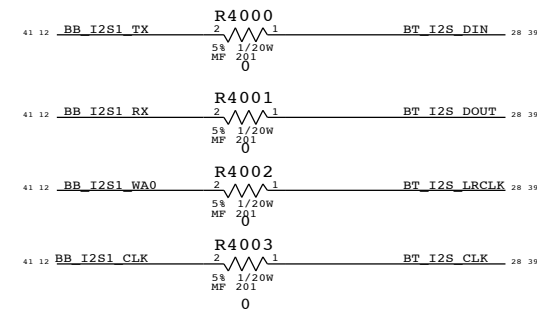
B

B

A

A

AUDIENCE BYPASS SHUNTS



PAGE TITLE		DRAWING NUMBER		SIZE
AUDIO: AUDIENCE		051-8245		D
Apple Inc.		REVISION		B.0.0
NOTICE OF PROPRIETARY PROPERTY:		BRANCH		
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:		PAGE		40 OF 119
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		SHEET		32 OF 53
II NOT TO REPRODUCE OR COPY IT				
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART				
IV ALL RIGHTS RESERVED				

8

7

6

5

4

3

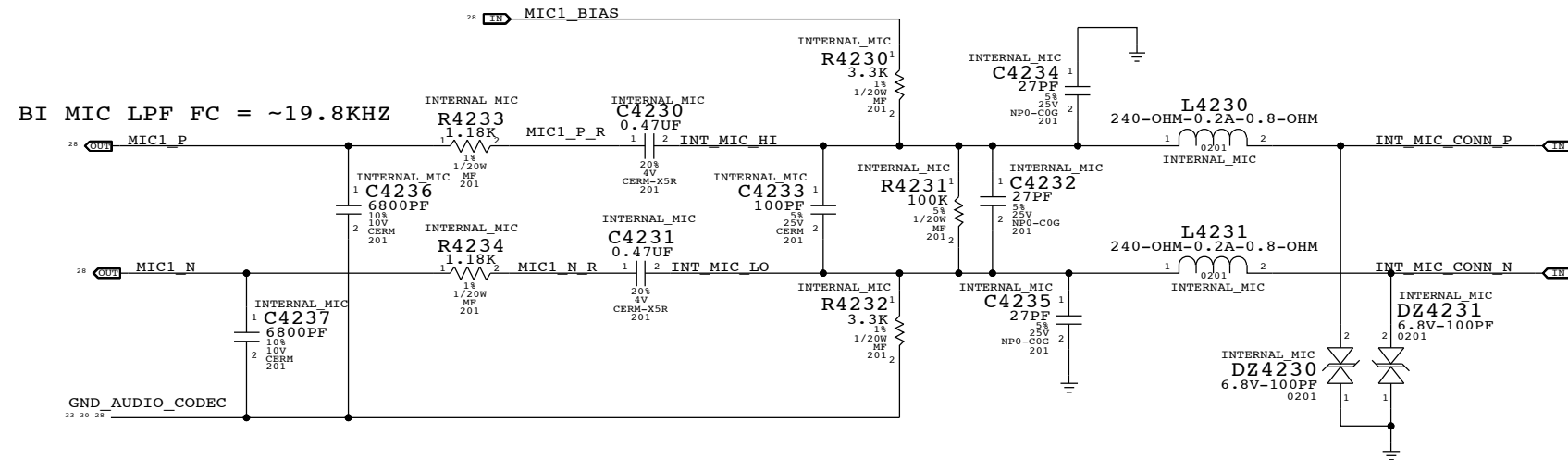
2

1

D

D

INTERNAL (BUILT-IN) ANALOG MIC BIAS & FILTER



C

C

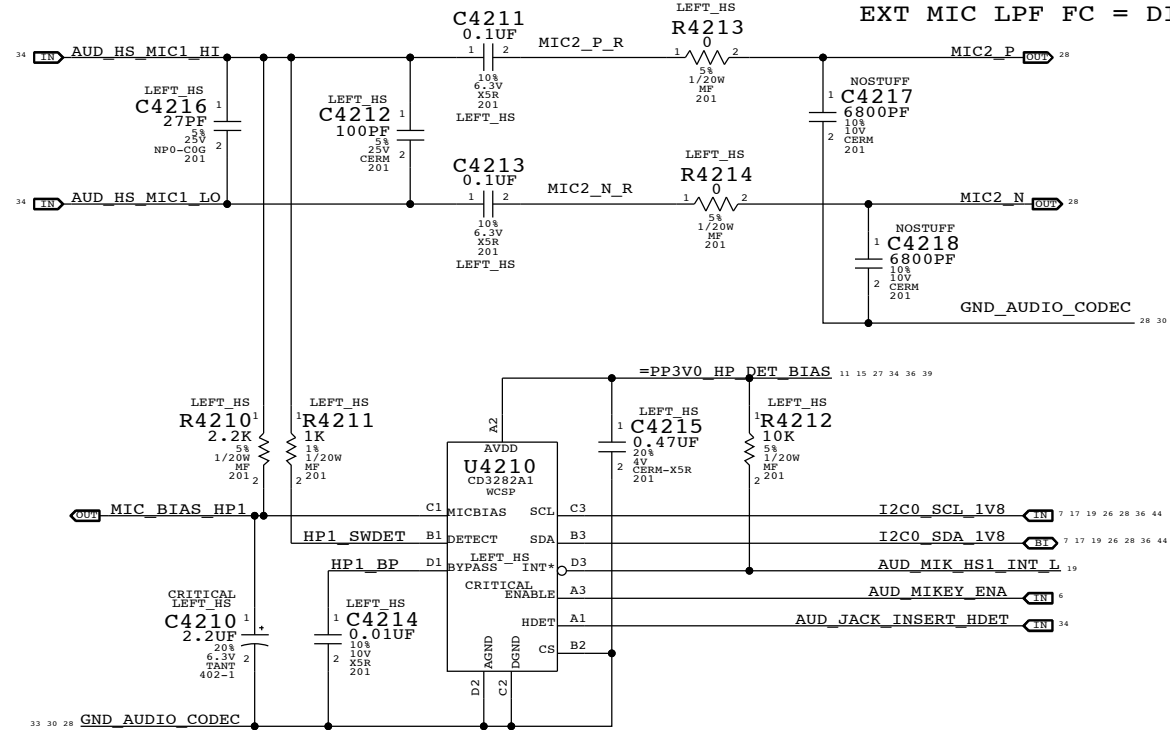
EXTERNAL MIC INPUT CIRCUITRY

APN:353S2640

I2C ADD: READ=72H, WRITE=73H

NOTE: INT IS OPEN DRAIN, PULL UP ON MIKEY SIDE

EXT MIC LPF FC = DISABLED



B

B

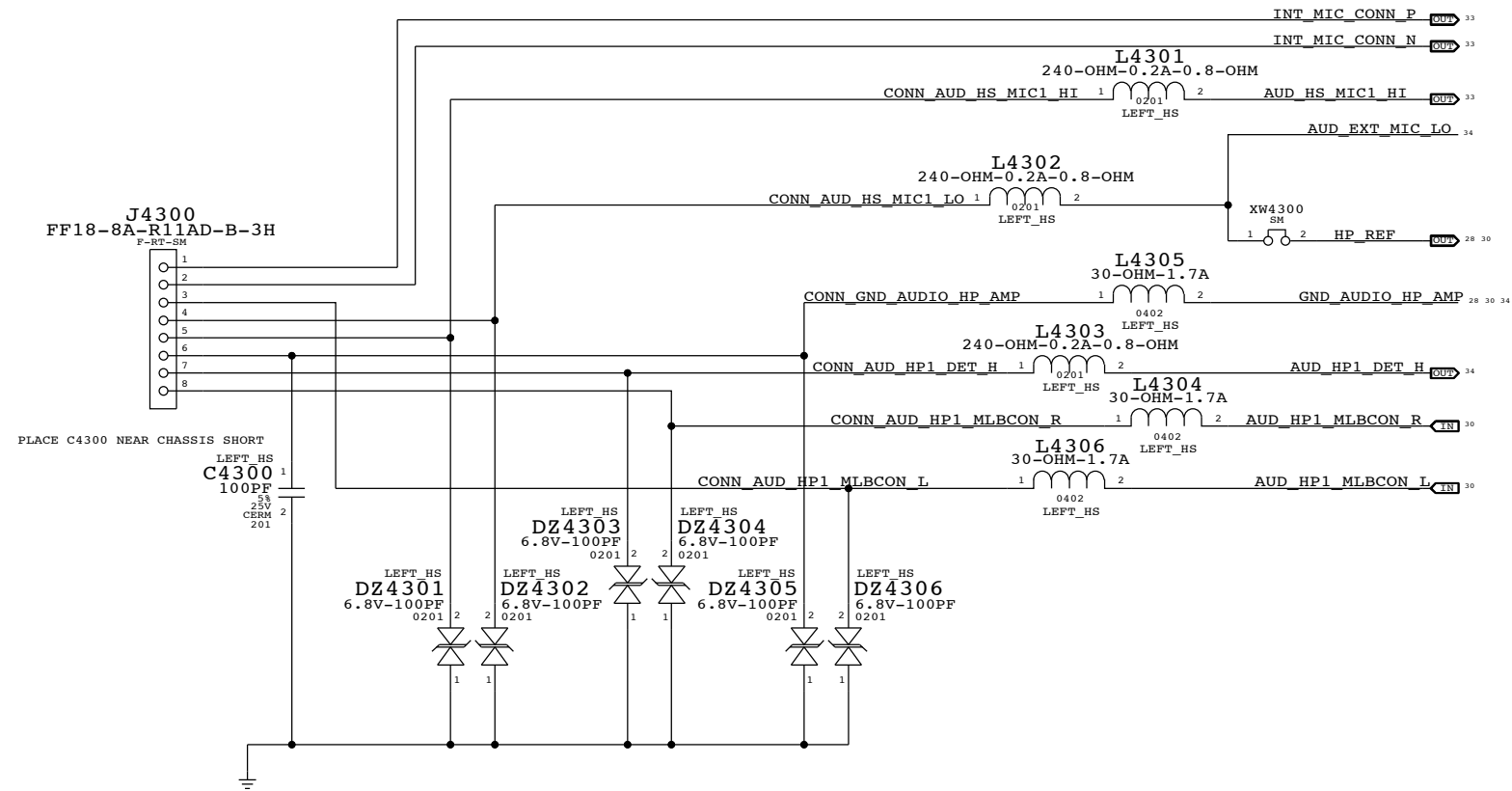
A

A

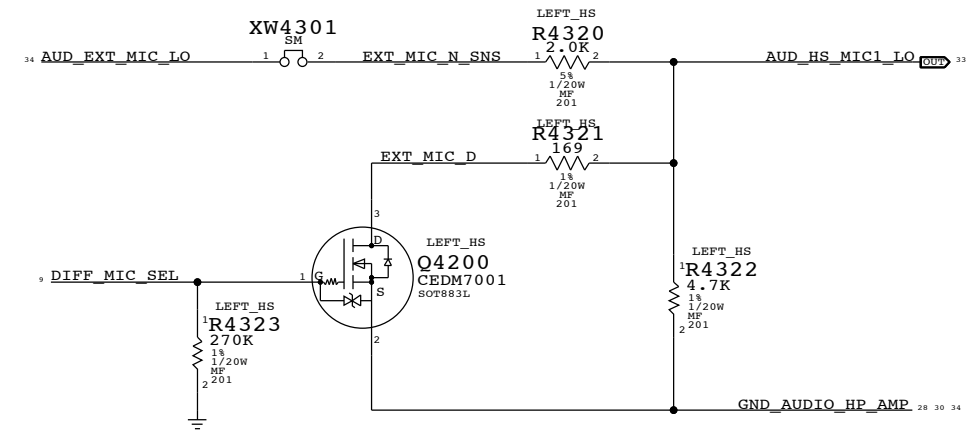
SYNC MASTER=AUDIO SYNC DATE=12/04/2009

PAGE TITLE		
AUDIO: DETECT/MIC BIAS		
DRAWING NUMBER	051-8245	SIZE D
REVISION	B.0.0	
NOTICE OF PROPRIETARY PROPERTY:		
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:		
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		
II NOT TO REPRODUCE OR COPY IT		
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		
IV ALL RIGHTS RESERVED		
BRANCH		
PAGE	42 OF 119	
SHEET	33 OF 53	

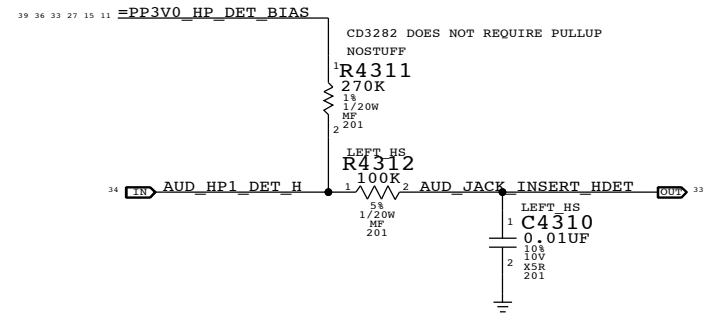
JACK 1 MLB CONNECTOR: HEADPHONE/HS_MIC/INT_MIC
 APN: 518S0693



HEADSET HP/MIC CROSSTALK MITIGATION (NOT USED)



HEADSET JACK INSERTION DETECT

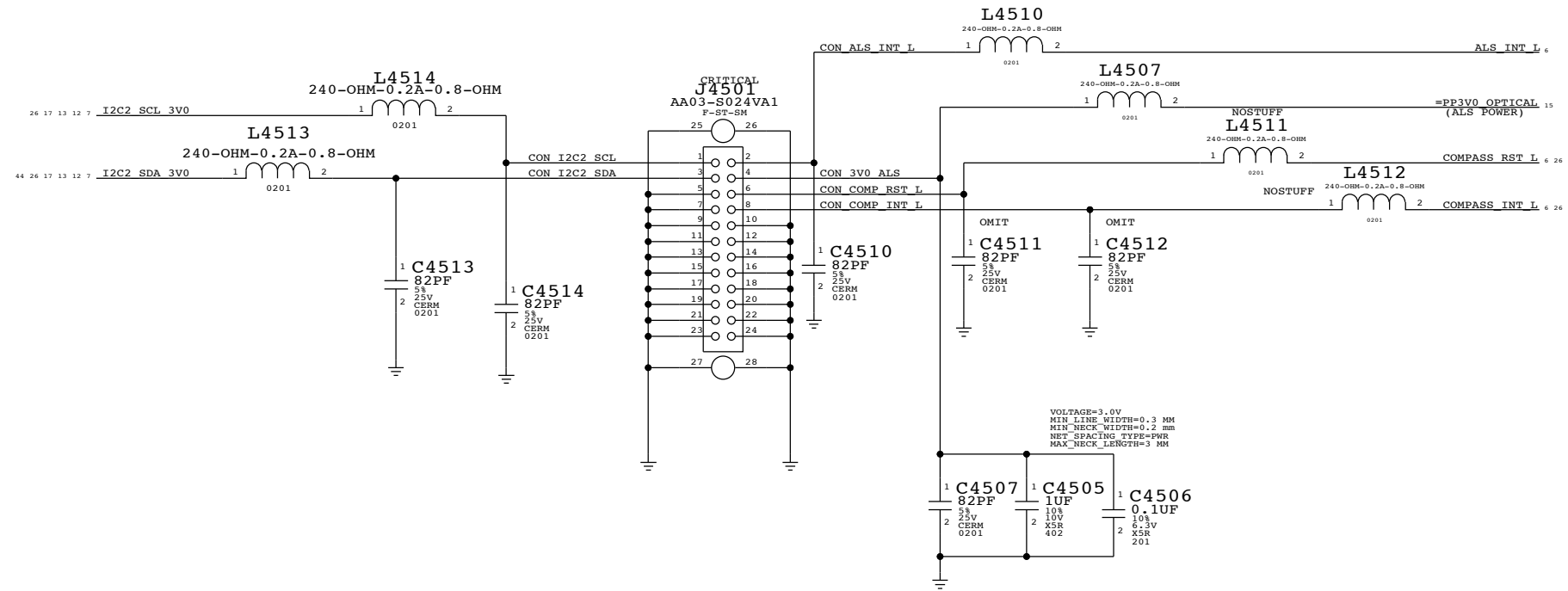


PAGE TITLE		SYNC DATE=12/04/2009	
AUDIO: HP CONN			
	Apple Inc.		DRAWING NUMBER 051-8245
			REVISION B.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED			BRANCH
			PAGE 43 OF 119
			SHEET 34 OF 53

ALS CONN.

FPC CONNECTOR

APN: 516S0498



VOLTAGE=3.0V
 MIN LINE WIDTH=0.3 MM
 MIN NECK WIDTH=0.2 MM
 NET SPACING TYP=0.5MM
 MAX NECK LENGTH=3 MM

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
11780002	2	0-OHM, 5%, 1/20W, MF, 0201	C4511, C4512	

SYNC MASTER=MIAMI SYNC DATE=09/16/2009

ALS CONNECTOR

Apple Inc.

DRAWING NUMBER: 051-8245 SIZE: D

REVISION: B.0.0

NOTICE OF PROPRIETARY PROPERTY:
 THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:
 I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE
 II NOT TO REPRODUCE OR COPY IT
 III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART
 IV ALL RIGHTS RESERVED

PAGE: 45 OF 119
 SHEET: 35 OF 53

D

D

C

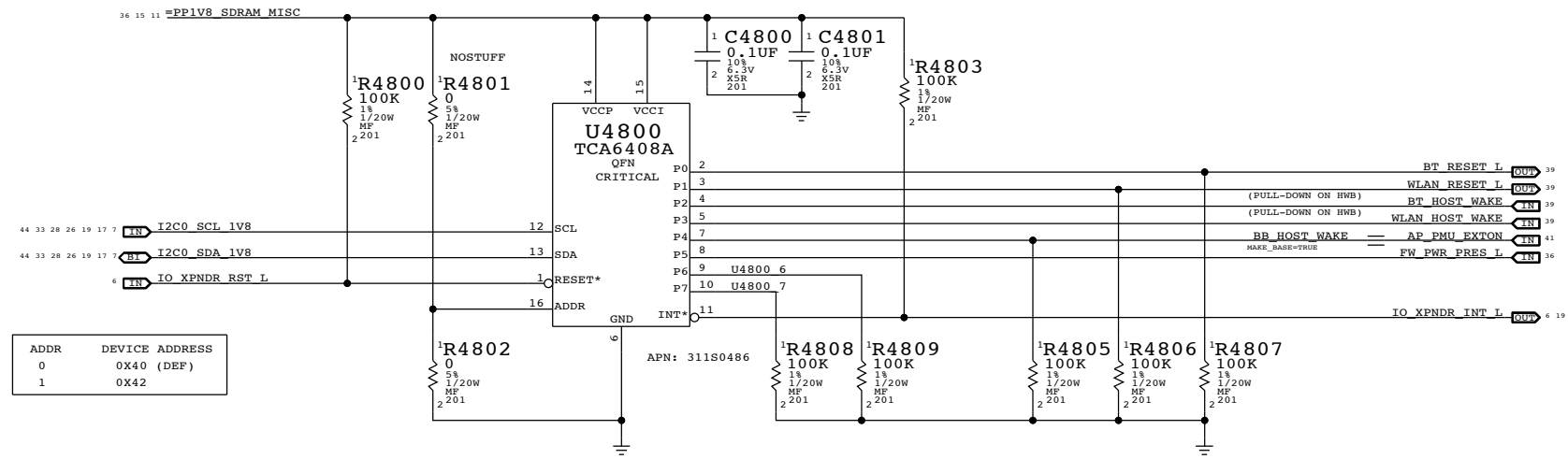
C

B

B

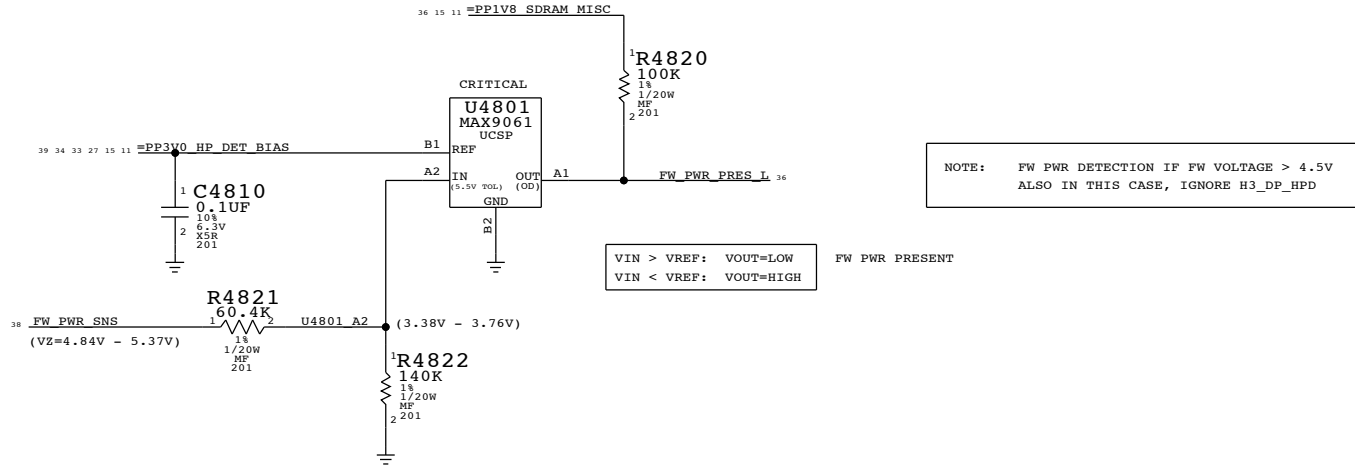
A

A



THIS IS SAME AS PREVIOUS, BUT CE APPROVED APN NUMBER (SAME PART)

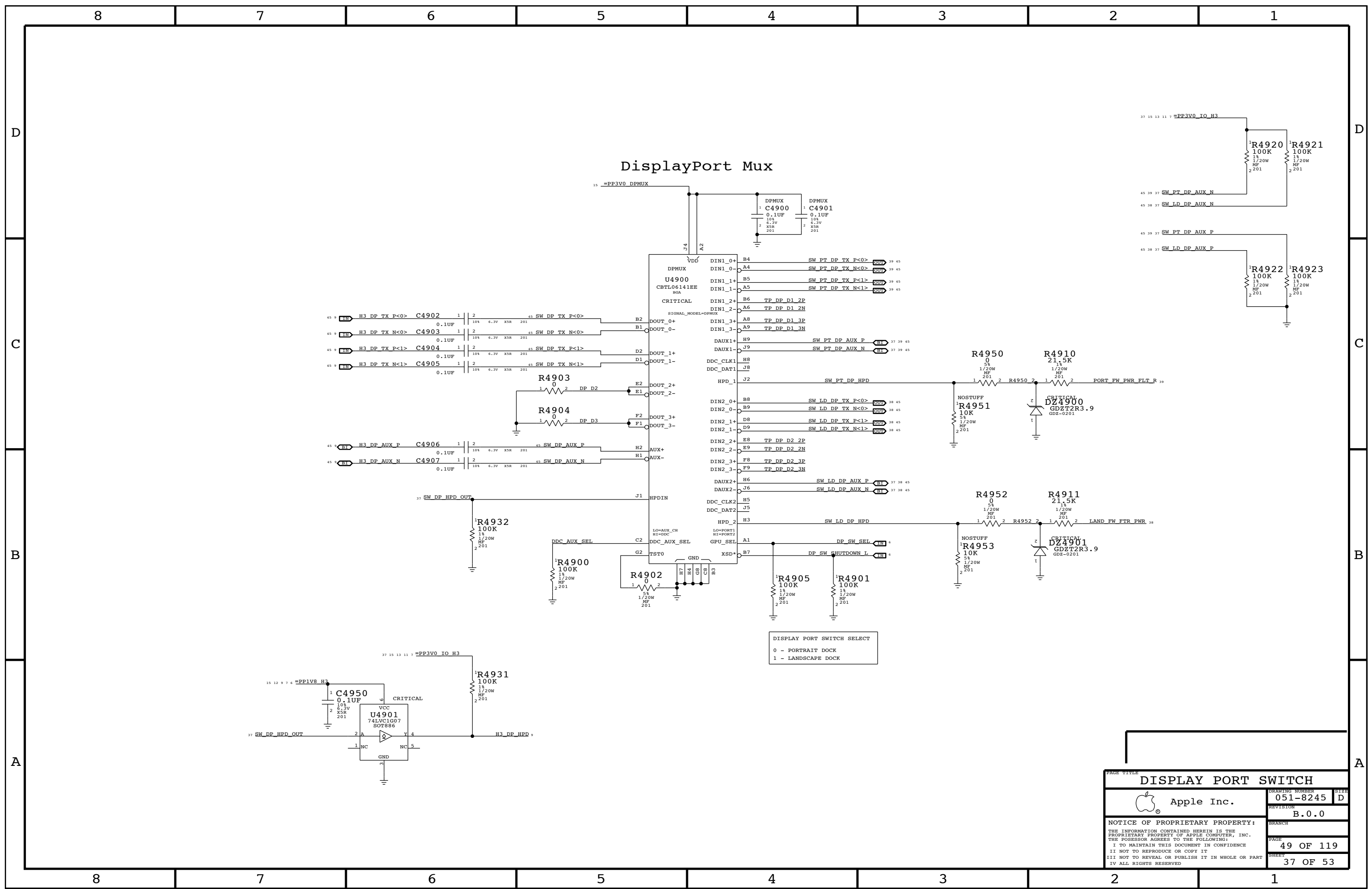
ADDR	DEVICE ADDRESS
0	0X40 (DEF)
1	0X42




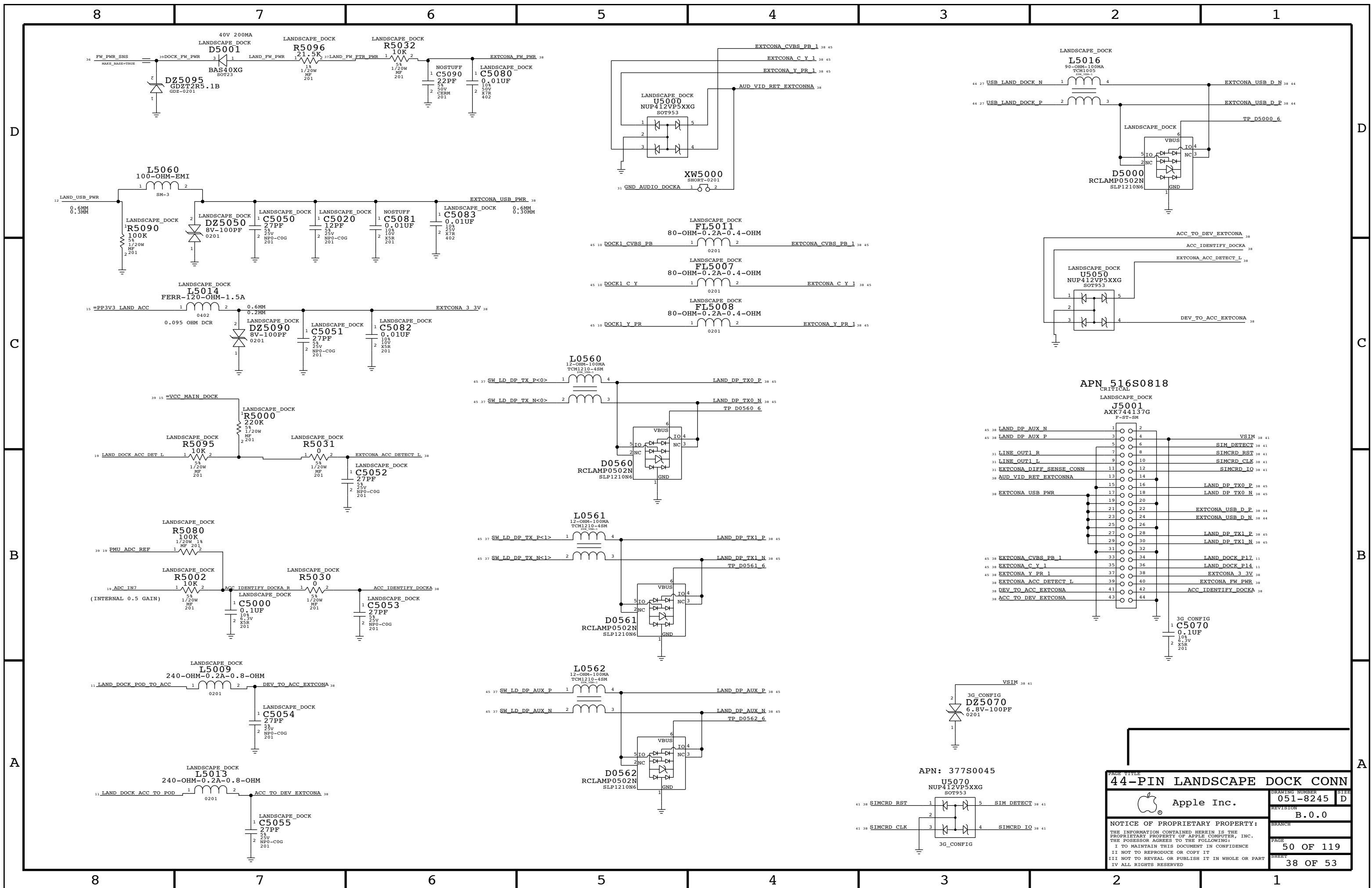
NOTE: FW_PWR DETECTION IF FW VOLTAGE > 4.5V
ALSO IN THIS CASE, IGNORE H3_DP_HPD

VIN > VREF: VOUT=LOW FW_PWR_PRESENT
VIN < VREF: VOUT=HIGH

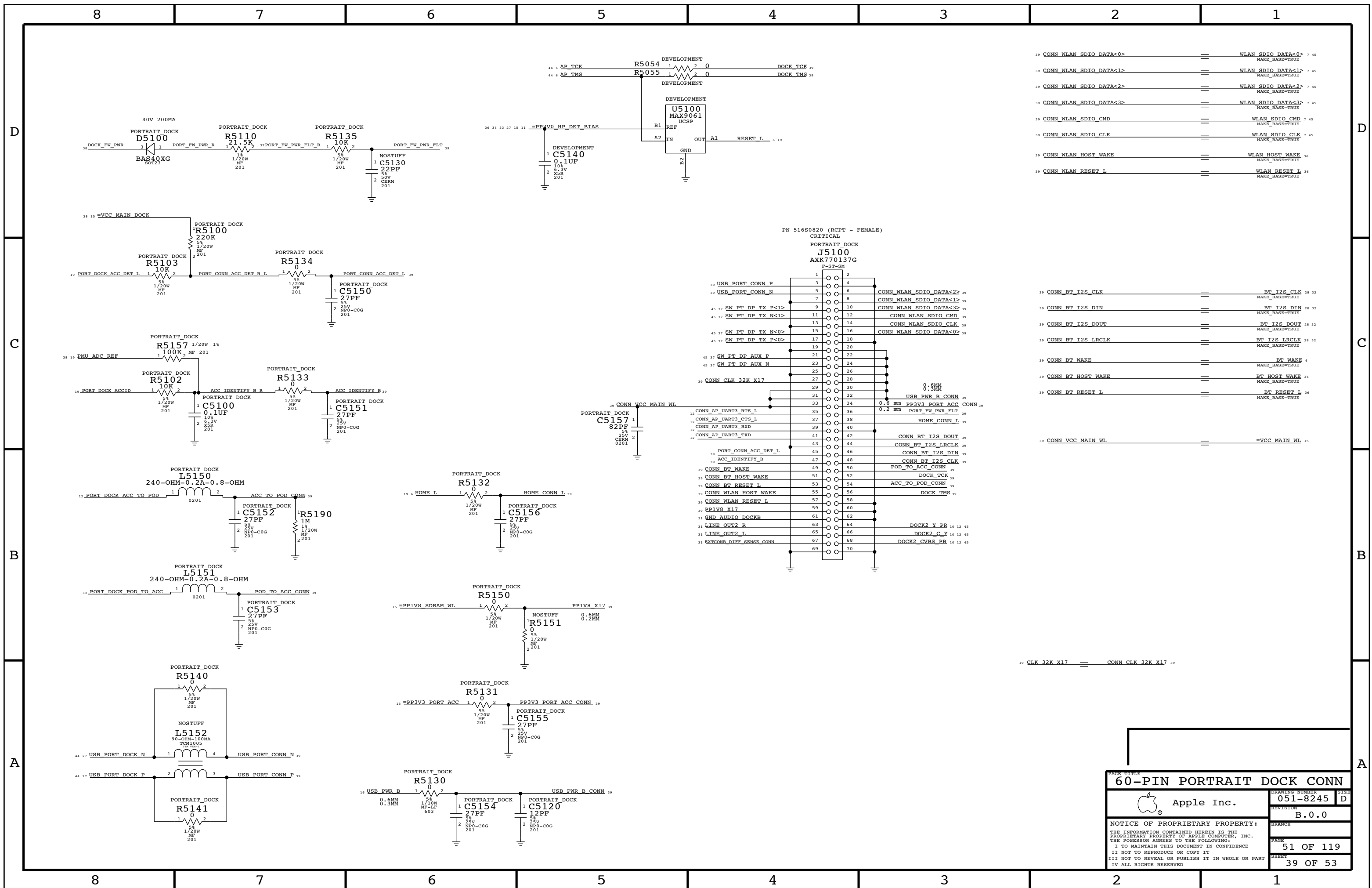
PAGE TITLE		
I/O EXPANDER		
Apple Inc.	DRAWING NUMBER	051-8245
	REVISION	B.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	BRANCH	
	PAGE	48 OF 119
	SHEET	36 OF 53



PAGE TITLE		
DISPLAY PORT SWITCH		
 Apple Inc.	DRAWING NUMBER	051-8245
	REVISION	B.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED	BRANCH	
	PAGE	49 OF 119
	SHEET	37 OF 53



PAGE TITLE		DRAWING NUMBER	SIZE
44-PIN LANDSCAPE DOCK CONN		051-8245	D
Apple Inc.		REVISION	B.0.0
NOTICE OF PROPRIETARY PROPERTY:		BRANCH	
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:		PAGE	50 OF 119
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		SHEET	38 OF 53
II NOT TO REPRODUCE OR COPY IT			
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART			
IV ALL RIGHTS RESERVED			




39	CONN WLAN SDIO DATA<0>	==	WLAN SDIO DATA<0>	7 45
			MAKE_BASE=TRUE	
39	CONN WLAN SDIO DATA<1>	==	WLAN SDIO DATA<1>	7 45
			MAKE_BASE=TRUE	
39	CONN WLAN SDIO DATA<2>	==	WLAN SDIO DATA<2>	7 45
			MAKE_BASE=TRUE	
39	CONN WLAN SDIO DATA<3>	==	WLAN SDIO DATA<3>	7 45
			MAKE_BASE=TRUE	
39	CONN WLAN SDIO CMD	==	WLAN SDIO CMD	7 45
			MAKE_BASE=TRUE	
39	CONN WLAN SDIO CLK	==	WLAN SDIO CLK	7 45
			MAKE_BASE=TRUE	
39	CONN WLAN HOST WAKE	==	WLAN HOST WAKE	36
			MAKE_BASE=TRUE	
39	CONN WLAN RESET L	==	WLAN RESET L	36
			MAKE_BASE=TRUE	

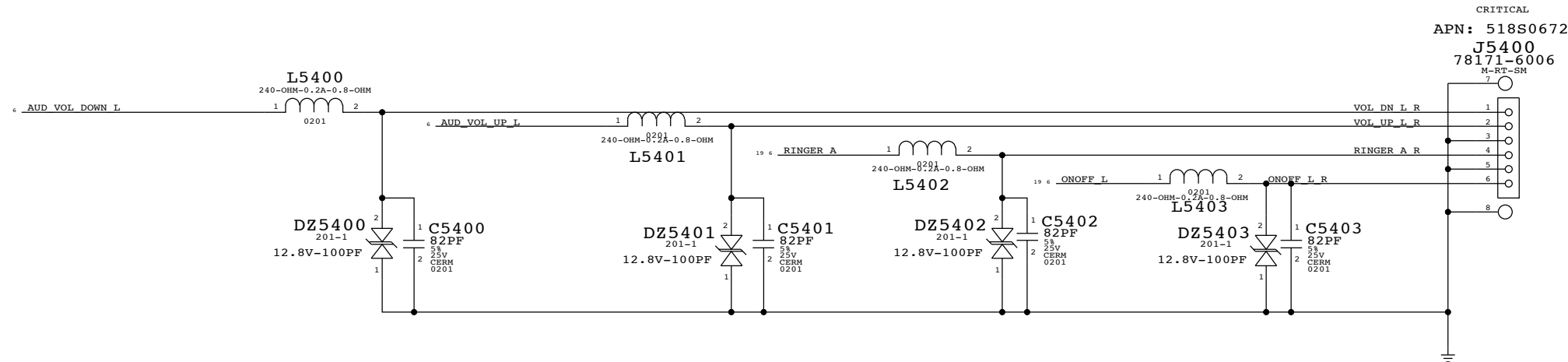
39	CONN BT I2S CLK	==	BT I2S CLK	28 32
			MAKE_BASE=TRUE	
39	CONN BT I2S DIN	==	BT I2S DIN	28 32
			MAKE_BASE=TRUE	
39	CONN BT I2S DOUT	==	BT I2S DOUT	28 32
			MAKE_BASE=TRUE	
39	CONN BT I2S LRCLK	==	BT I2S LRCLK	28 32
			MAKE_BASE=TRUE	
39	CONN BT WAKE	==	BT WAKE	6
			MAKE_BASE=TRUE	
39	CONN BT_HOST WAKE	==	BT_HOST WAKE	36
			MAKE_BASE=TRUE	
39	CONN BT RESET L	==	BT RESET L	36
			MAKE_BASE=TRUE	

39	CONN VCC MAIN WL	==	=VCC MAIN WL	15
----	------------------	----	--------------	----

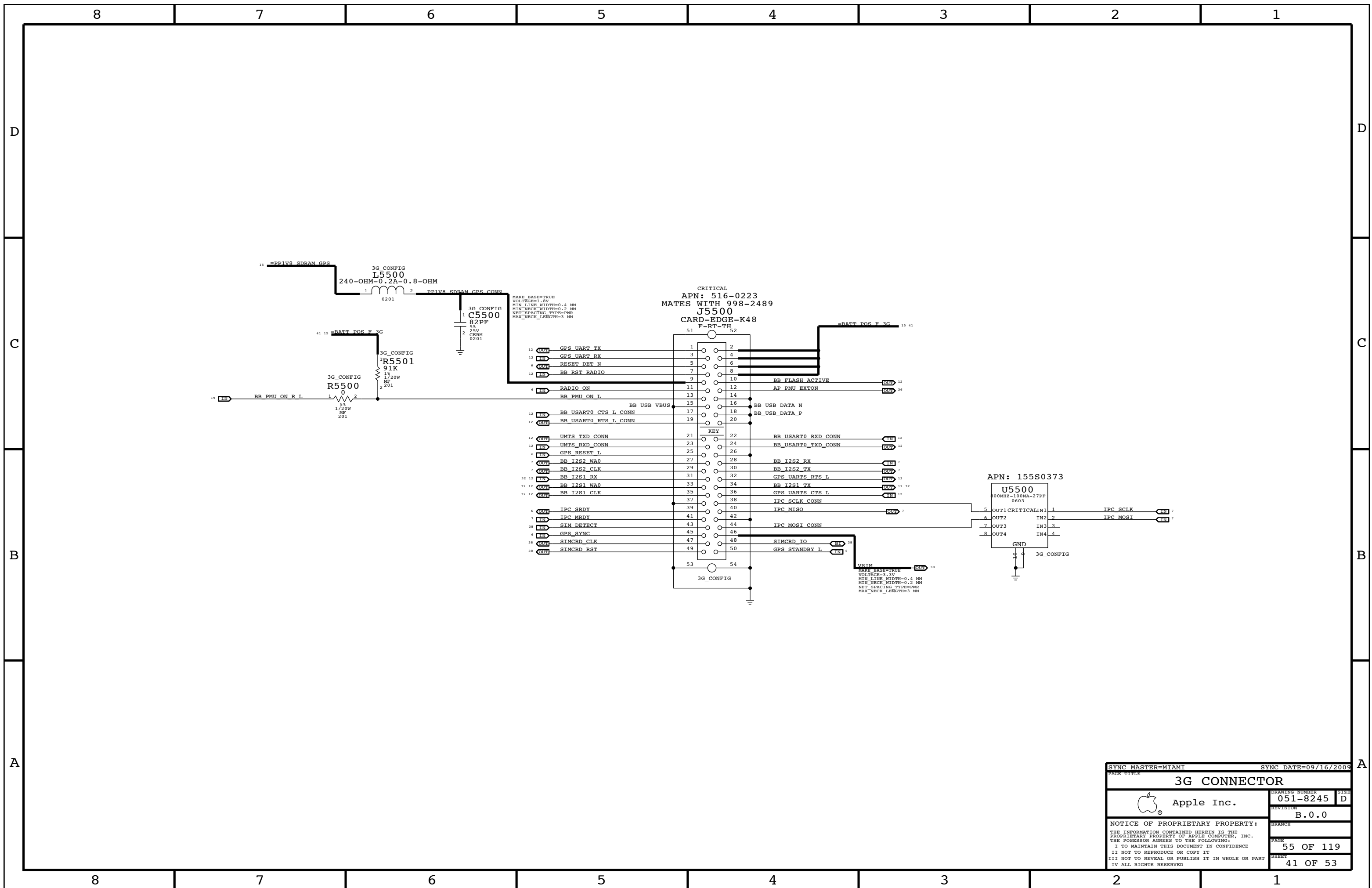
19 CLK 32K X17 == CONN_CLK 32K X17 39

PAGE TITLE		
60-PIN PORTRAIT DOCK CONN		
 Apple Inc.	DRAWING NUMBER	051-8245
	REVISION	B.0.0
NOTICE OF PROPRIETARY PROPERTY:		
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:		
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		
II NOT TO REPRODUCE OR COPY IT		
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		
IV ALL RIGHTS RESERVED		
	PAGE	51 OF 119
	SHEET	39 OF 53

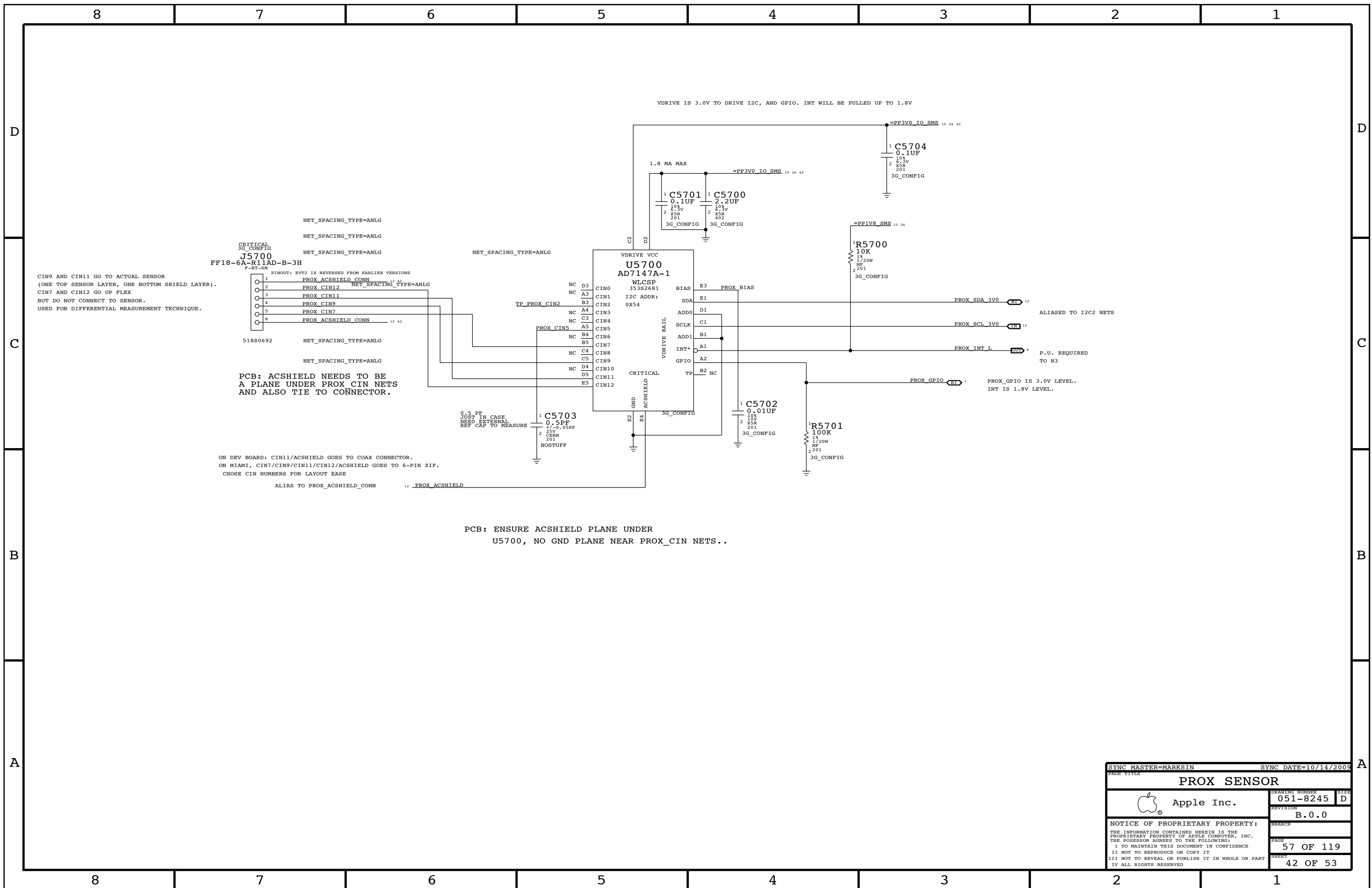
BUTTON CONNECTOR



SYNC MASTER=MIAMI		SYNC DATE=09/16/2009	
BUTTONS CONNECTOR			
Apple Inc.		DRAWING NUMBER	SIZE
		051-8245	D
		REVISION	
		B.0.0	
NOTICE OF PROPRIETARY PROPERTY:		BRANCH	
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:		PAGE	
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		54 OF 119	
II NOT TO REPRODUCE OR COPY IT		SHEET	
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		40 OF 53	
IV ALL RIGHTS RESERVED			



SYNC MASTER=MIAMI		SYNC DATE=09/16/2009	
3G CONNECTOR			
Apple Inc.		DRAWING NUMBER	SIZE
		051-8245	D
		REVISION	
		B.0.0	
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		BRANCH	
		PAGE	55 OF 119
		SHEET	41 OF 53



SYNC MASTER=MARKSIN		SYNC DATE=10/14/2009	
PROX SENSOR			
Apple Inc.		DRAWING NUMBER	SIZE
		051-8245	D
		REVISION	
		B.0.0	
NOTICE OF PROPRIETARY PROPERTY:		BRANCH	
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:		PAGE	
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE		57 OF 119	
II NOT TO REPRODUCE OR COPY IT		SHEET	
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART		42 OF 53	
IV ALL RIGHTS RESERVED			

16GB FLASH CONFIGURATIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
335S0648	2	TOSHIBA 43NM 8GB	U6700,U6710	16GB_PROD

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
335S0683	335S0648	16GB_PROD	U6700,U6710	SAMSUNG 35NM 8GB

32GB FLASH CONFIGURATIONS

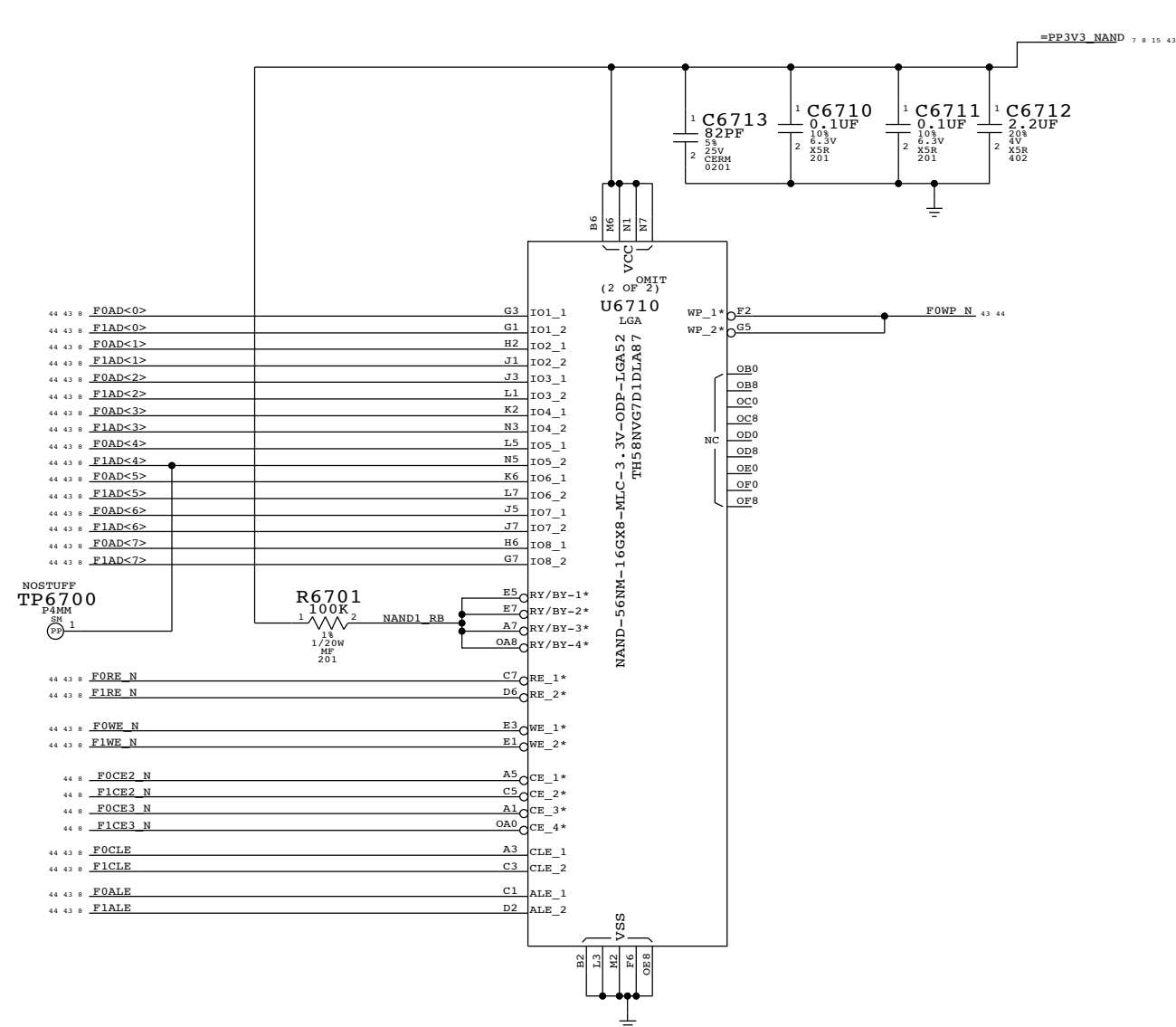
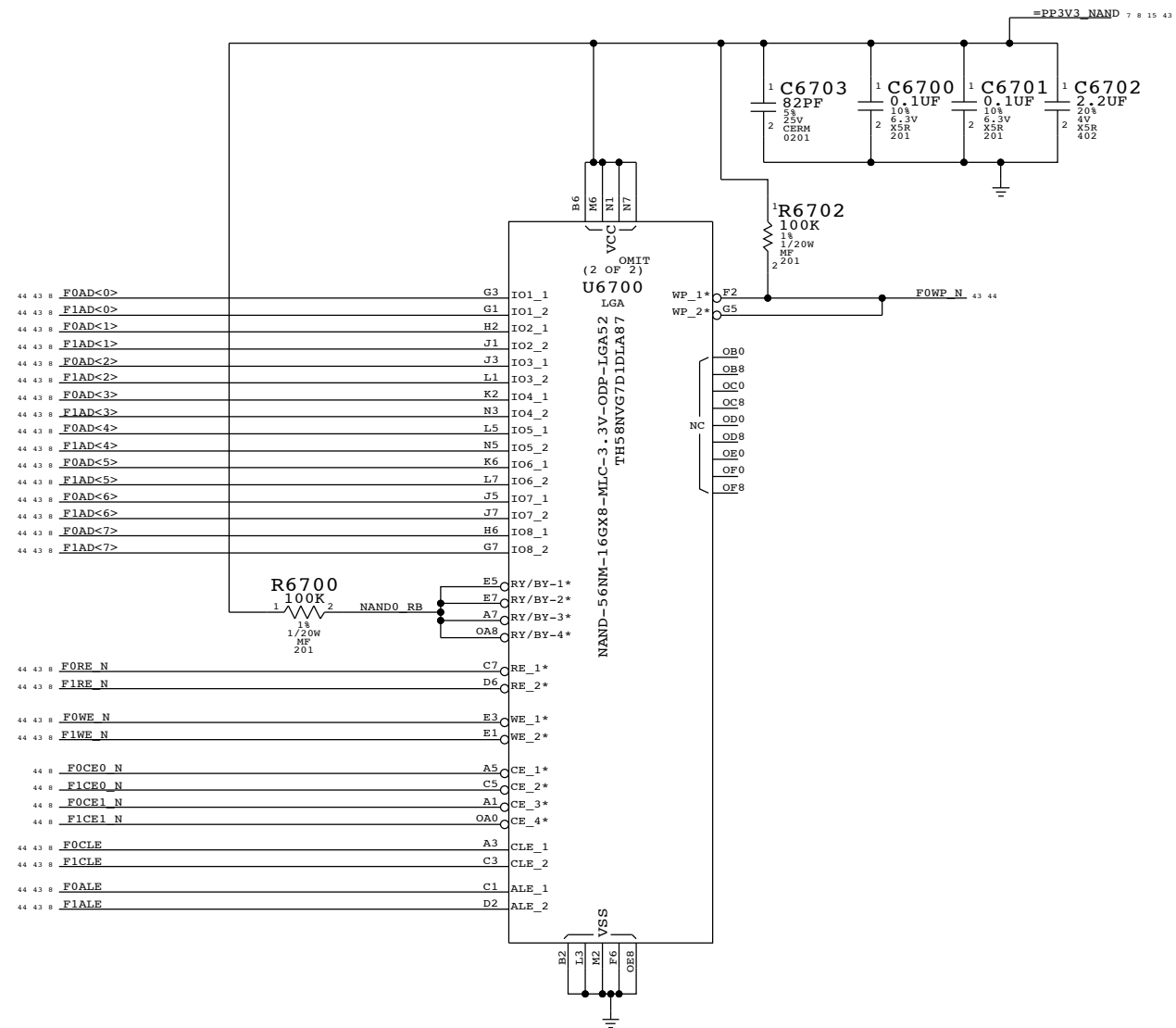
PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
335S0649	2	TOSHIBA 43NM 16GB	U6700,U6710	32GB_PROD

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
335S0682	335S0649	32GB_PROD	U6700,U6710	SAMSUNG 35NM 16GB

64GB FLASH CONFIGURATIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
335S0650	2	TOSHIBA 43NM 32GB	U6700,U6710	64GB_PROD

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
335S0665	335S0650	64GB_PROD	U6700,U6710	SAMSUNG 35NM 32GB



SYNC MASTER=MIAMI		SYNC DATE=09/16/2009	
FLASH			
Apple Inc.		DRAWING NUMBER	SIZE
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		051-8245	D
		REVISION	
		67 OF 119	
		43 OF 53	

Clock Signal Constraints

NET_PHYSICAL_TYPE	AREA_TYPE	PHYSICAL_RULE_SET
CLK_50S	*	50_OHM_SE

NET_SPACING_TYPE1	NET_SPACING_TYPE2	AREA_TYPE	SPACING_RULE_SET
CLK	*	*	0P5MM_SPACING

USB 2.0 Interface Constraints

NET_PHYSICAL_TYPE	AREA_TYPE	PHYSICAL_RULE_SET
USB_90D	*	90_OHM_DIFF

NET_SPACING_TYPE1	NET_SPACING_TYPE2	AREA_TYPE	SPACING_RULE_SET
USB	*	*	0P5MM_SPACING

OTHER CONSTRAINTS


NET_PHYSICAL_TYPE	AREA_TYPE	PHYSICAL_RULE_SET
I2C_50S	*	50_OHM_SE
NAND_50S	*	50_OHM_SE
AUDIO	*	1:1_DIFFPAIR
SPEAKER	*	SPEAKER

NET_SPACING_TYPE1	NET_SPACING_TYPE2	AREA_TYPE	SPACING_RULE_SET
NAND	*	*	1.5:1_SPACING
I2C	*	*	1.5:1_SPACING
AUDIO	*	*	3:1_SPACING

ELECTRICAL_CONSTRAINT_SET	NET_TYPE				
	PHYSICAL	SPACING			
E115		JTAG	AP_TCK	6 39	
E116		JTAG	AP_TMS	6 39	
E117		JTAG	AP_TDI	6 12	
E118		JTAG	AP_TDO	12	
E120		JTAG	AP_RTCK		
E18	USB	USB_90D	USB_LAND DOCK_P	27 38	
E19	USB	USB_90D	USB_LAND DOCK_N	27 38	
E20	USB	USB_90D	USB_PORT DOCK_P	27 39	
E21	USB	USB_90D	USB_PORT DOCK_N	27 39	
E22		USB_90D	EXTCONA USB D_P	38	
E23		USB_90D	EXTCONA USB D_N	38	
E24	USB	USB_90D	USB_DP	6 27	
E25	USB	USB_90D	USB_DM	6 27	
E222			I2S1_DOUT	7 12	
E223			I2S1_DIN	7 12	
E224			I2S1_BCLK	7 12	
E225			I2S1_LRCLK	7 12	
E226			I2S1_MCLK		
E23		CLK_50S	CLK	CLK_32K_PMU	19 24
E39		NAND_50S	NAND	F1AD<7..0>	8 43
E40		NAND_50S	NAND	F0AD<7..0>	8 43
E41		NAND_50S	NAND	F0CE0_N	8 43
E42		NAND_50S	NAND	F0CE1_N	8 43
E43		NAND_50S	NAND	F0CE2_N	8 43
E44		NAND_50S	NAND	F0CE3_N	8 43
E45		NAND_50S	NAND	F0CLE	8 43
E46		NAND_50S	NAND	F0ALE	8 43
E47		NAND_50S	NAND	F0RE_N	8 43
E48		NAND_50S	NAND	F0WE_N	8 43
E49		NAND_50S	NAND	F0WP_N	43
E51		NAND_50S	NAND	F1CE0_N	8 43
E52		NAND_50S	NAND	F1CE1_N	8 43
E53		NAND_50S	NAND	F1CE2_N	8 43
E54		NAND_50S	NAND	F1CE3_N	8 43
E55		NAND_50S	NAND	F1CLE	8 43
E56		NAND_50S	NAND	F1ALE	8 43
E57		NAND_50S	NAND	F1RE_N	8 43
E58		NAND_50S	NAND	F1WE_N	8 43
E59		NAND_50S	NAND	F1WP_N	
E68		SPEAKER	AUDIO	SPKRAMP_L_OUT_P	29
E69		SPEAKER	AUDIO	SPKRAMP_L_OUT_N	29
E70		SPEAKER	AUDIO	SPKRAMP_R_OUT_P	29
E71		SPEAKER	AUDIO	SPKRAMP_R_OUT_N	29
E72		SPEAKER_ECS	AUDIO	EAR_OUT_P	28 29
E73		AUDIO	AUDIO	EAR_OUT_N	28 29
E22		AUDIO	AUDIO	SSM2319_L_IN_P	29
E23		AUDIO	AUDIO	SSM2319_L_IN_N	29
E24		SPEAKER_ECS	AUDIO	MONO_OUT_P	28 29
E25		AUDIO	AUDIO	MONO_OUT_N	28 29
E26		AUDIO	AUDIO	SSM2319_R_IN_P	29
E27		AUDIO	AUDIO	SSM2319_R_IN_N	29

I2C BUS NET PROPERTIES

ELECTRICAL_CONSTRAINT_SET	NET_TYPE				
	PHYSICAL	SPACING			
E11	I2C1_ECS	I2C_50S	I2C	I2C1_SDA_1V8	7
E12	I2C1_ECS	I2C_50S	I2C	I2C1_SCL_1V8	7
E13	I2C0_ECS	I2C_50S	I2C	I2C0_SDA_1V8	7 17 19 26 28 33 36
E14	I2C0_ECS	I2C_50S	I2C	I2C0_SCL_1V8	7 17 19 26 28 33 36
E15	I2C2_ECS	I2C_50S	I2C	I2C2_SDA_3V0	7 12 13 17 26 35 44
E16	I2C2_ECS	I2C_50S	I2C	I2C2_SCL_3V0	7 12 13 17 26 35 44

SYNC MASTER=MIAMI		SYNC DATE=09/16/2009	
CONSTRAINTS			
 Apple Inc.		DRAWING NUMBER	051-8245
		REVISION	B.0.0
NOTICE OF PROPRIETARY PROPERTY:			
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:			
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE			
II NOT TO REPRODUCE OR COPY IT			
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART			
IV ALL RIGHTS RESERVED			
		PAGE	100 OF 119
		SHEET	44 OF 53

Video Signal Constraints

PHYSICAL_RULE_SET	LAYER	ALLOW ROUTE ON LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP
VID_50S	*	Y	=50_OHM_SE	=50_OHM_SE	=50_OHM_SE	=STANDARD	=STANDARD

NET_PHYSICAL_TYPE	AREA_TYPE	PHYSICAL_RULE_SET
LVDS_100D	*	90_OHM_DIFF
MIPI_100D	*	90_OHM_DIFF
SMIA_100D	*	90_OHM_DIFF
DP_100D	*	90_OHM_DIFF

NET_SPACING_TYPE1	NET_SPACING_TYPE2	AREA_TYPE	SPACING_RULE_SET
ANALOG_VIDEO	*	*	2.5:1_SPACING
LVDS	*	*	4:1_SPACING
MIPI	*	*	4:1_SPACING
SMIA	*	*	4:1_SPACING
DP	*	*	4:1_SPACING

SDIO SIGNAL CONSTRAINTS

NET_PHYSICAL_TYPE	AREA_TYPE	PHYSICAL_RULE_SET
SDIO_50S	*	50_OHM_SE

NET_SPACING_TYPE1	NET_SPACING_TYPE2	AREA_TYPE	SPACING_RULE_SET
SDIO	*	*	1.5:1_SPACING

ANALOG VIDEO CONSTRAINTS

ELECTRICAL_CONSTRAINT_SET	NET_TYPE			
	PHYSICAL	SPACING		
F210	VID_50S	ANALOG_VIDEO	DAC_OUT1	10
F211	VID_50S	ANALOG_VIDEO	DAC_OUT2	10
F212	VID_50S	ANALOG_VIDEO	DAC_OUT3	10
F213	VID_50S	ANALOG_VIDEO	LAND_YOUT	10
F214	VID_50S	ANALOG_VIDEO	LAND_CVBS_OUT	10
F215	VID_50S	ANALOG_VIDEO	LAND_COUT	10
F216	VID_50S	ANALOG_VIDEO	PORT_YOUT	10
F217	VID_50S	ANALOG_VIDEO	PORT_CVBS_OUT	10
F218	VID_50S	ANALOG_VIDEO	PORT_COUT	10
F219	VID_50S	ANALOG_VIDEO	DOCK1_CVBS_PB	10 38
F220	VID_50S	ANALOG_VIDEO	DOCK1_C_Y	10 38
F221	VID_50S	ANALOG_VIDEO	DOCK1_Y_PR	10 38
F222	VID_50S	ANALOG_VIDEO	EXTCONA_CVBS_PB_1	38
F223	VID_50S	ANALOG_VIDEO	EXTCONA_C_Y_1	38
F224	VID_50S	ANALOG_VIDEO	EXTCONA_Y_PR_1	38
F225	VID_50S	ANALOG_VIDEO	DOCK2_CVBS_PB	10 12 39
F226	VID_50S	ANALOG_VIDEO	DOCK2_C_Y	10 12 39
F227	VID_50S	ANALOG_VIDEO	DOCK2_Y_PR	10 12 39

MIPI, SMIA AND DISPLAYPORT BUS CONSTRAINTS


ELECTRICAL_CONSTRAINT_SET	NET_TYPE				
	PHYSICAL	SPACING			
F228	MIPI_ECS	MIPI_100D	MIPI	H3 MIPID DATA P<0>	9 14
F229	MIPI_ECS	MIPI_100D	MIPI	H3 MIPID DATA N<0>	9 14
F230	MIPI_ECS	MIPI_100D	MIPI	H3 MIPID DATA P<1>	9 14
F231	MIPI_ECS	MIPI_100D	MIPI	H3 MIPID DATA N<1>	9 14
F232	MIPI_ECS	MIPI_100D	MIPI	H3 MIPID DATA P<2>	9 14
F233	MIPI_ECS	MIPI_100D	MIPI	H3 MIPID DATA N<2>	9 14
F234	MIPI_ECS	MIPI_100D	MIPI	H3 MIPID DATA P<3>	9 14
F235	MIPI_ECS	MIPI_100D	MIPI	H3 MIPID DATA N<3>	9 14
F236	MIPI_ECS	MIPI_100D	MIPI	H3 MIPID CLK P	9 14
F237	MIPI_ECS	MIPI_100D	MIPI	H3 MIPID CLK N	9 14
F238	SMIA_ECS	SMIA_100D	SMIA	CAM SMIA DATA P	
F239	SMIA_ECS	SMIA_100D	SMIA	CAM SMIA DATA N	
F240	SMIA_ECS	SMIA_100D	SMIA	CAM SMIA CLK P	
F241	SMIA_ECS	SMIA_100D	SMIA	CAM SMIA CLK N	
F242	SMIA_ECS	SMIA_100D	SMIA	CONN SMIA CLK P	
F243	SMIA_ECS	SMIA_100D	SMIA	CONN SMIA CLK N	
F244	DP_H3_ECS	DP_100D	DP	H3 DP TX P<0>	9 37
F245	DP_H3_ECS	DP_100D	DP	H3 DP TX N<0>	9 37
F246	DP_H3_ECS	DP_100D	DP	H3 DP TX P<1>	9 37
F247	DP_H3_ECS	DP_100D	DP	H3 DP TX N<1>	9 37
F248	DP_H3_ECS	DP_100D	DP	H3 DP AUX P	9 37
F249	DP_H3_ECS	DP_100D	DP	H3 DP AUX N	9 37
F250	DP_H3_ECS	DP_100D	DP	SW DP TX P<0>	37
F251	DP_H3_ECS	DP_100D	DP	SW DP TX N<0>	37
F252	DP_H3_ECS	DP_100D	DP	SW DP TX P<1>	37
F253	DP_H3_ECS	DP_100D	DP	SW DP TX N<1>	37
F254	DP_H3_ECS	DP_100D	DP	SW DP AUX P	37
F255	DP_H3_ECS	DP_100D	DP	SW DP AUX N	37
F256	DP_PORT_ECS	DP_100D	DP	SW_PT DP TX P<0>	37 39
F257	DP_PORT_ECS	DP_100D	DP	SW_PT DP TX N<0>	37 39
F258	DP_PORT_ECS	DP_100D	DP	SW_PT DP TX P<1>	37 39
F259	DP_PORT_ECS	DP_100D	DP	SW_PT DP TX N<1>	37 39
F260	DP_PORT_ECS	DP_100D	DP	SW_PT DP AUX P	37 39
F261	DP_PORT_ECS	DP_100D	DP	SW_PT DP AUX N	37 39
F262	DP_LAND_ECS	DP_100D	DP	SW_LD DP TX P<0>	37 38
F263	DP_LAND_ECS	DP_100D	DP	SW_LD DP TX N<0>	37 38
F264	DP_LAND_ECS	DP_100D	DP	SW_LD DP TX P<1>	37 38
F265	DP_LAND_ECS	DP_100D	DP	SW_LD DP TX N<1>	37 38
F266	DP_LAND_ECS	DP_100D	DP	SW_LD DP AUX P	37 38
F267	DP_LAND_ECS	DP_100D	DP	SW_LD DP AUX N	37 38
F268	DP_LAND_ECS	DP_100D	DP	LAND DP TX0 P	38
F269	DP_LAND_ECS	DP_100D	DP	LAND DP TX0 N	38
F270	DP_LAND_ECS	DP_100D	DP	LAND DP TX1 P	38
F271	DP_LAND_ECS	DP_100D	DP	LAND DP TX1 N	38
F272	DP_LAND_ECS	DP_100D	DP	LAND DP AUX P	38
F273	DP_LAND_ECS	DP_100D	DP	LAND DP AUX N	38

LVDS CONSTRAINTS

ELECTRICAL_CONSTRAINT_SET	NET_TYPE				
	PHYSICAL	SPACING			
F274	LVDS_ECS	LVDS_100D	LVDS	LVDS DATA P<2..0>	13 25
F275	LVDS_ECS	LVDS_100D	LVDS	LVDS DATA N<2..0>	13 25
F276	LVDS_ECS	LVDS_100D	LVDS	LVDS CLK P	13 25
F277	LVDS_ECS	LVDS_100D	LVDS	LVDS CLK N	13 25
F278	LVDS_ECS	LVDS_100D	LVDS	LVDS CONN CLK P	25
F279	LVDS_ECS	LVDS_100D	LVDS	LVDS CONN CLK N	25
F280	LVDS_ECS	LVDS_100D	LVDS	LVDS DAT P<2..0>	25
F281	LVDS_ECS	LVDS_100D	LVDS	LVDS DAT N<2..0>	25

HX SDIO CONSTRAINTS

ELECTRICAL_CONSTRAINT_SET	NET_TYPE				
	PHYSICAL	SPACING			
F282	WLAN_SDIO_ECS	SDIO_50S	SDIO	WLAN SDIO CLK	7 39
F283	WLAN_SDIO_CMD_ECS	SDIO_50S	SDIO	WLAN SDIO CMD	7 39
F284	WLAN_SDIO_ECS	SDIO_50S	SDIO	WLAN SDIO DATA<3..0>	7 39

SYNC MASTER=MIAMI		SYNC DATE=09/16/2009	
MORE CONSTRAINTS			
 Apple Inc.		DRAWING NUMBER	051-8245
		REVISION	B.0.0
NOTICE OF PROPRIETARY PROPERTY: THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART IV ALL RIGHTS RESERVED		BRANCH	
		PAGE	101 OF 119
		SHEET	45 OF 53

MIAMI BOARD-SPECIFIC SPACING & PHYSICAL CONSTRAINTS (10-LAYER)

BOARD LAYERS		BOARD AREAS		BOARD UNITS (MIL OR MM)	ALLEGRO VERSION
TOP, ISL2, ISL3, ISL4, ISL5, ISL6, ISL7, ISL8, ISL9, BOTTOM		NO_TYPE, BGA		MM	15.2

PHYSICAL_RULE_SET	LAYER	ALLOW ROUTE ON LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP
DEFAULT	*	Y	=50_OHM_SE	=50_OHM_SE	30 MM	0 MM	0 MM
STANDARD	*	Y	=DEFAULT	=DEFAULT	12.7 MM	=DEFAULT	=DEFAULT

PHYSICAL_RULE_SET	LAYER	ALLOW ROUTE ON LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP
50_OHM_SE	TOP, BOTTOM	Y	0.230 MM	0.070 MM	3.0 MM		
50_OHM_SE	ISL2, ISL9	Y	0.076 MM	0.070 MM	3.0 MM		
50_OHM_SE	ISL4, ISL7	Y	0.076 MM	0.070 MM	3.0 MM		
50_OHM_SE	*	N	0.070 MM	0.070 MM	3.0 MM		

PHYSICAL_RULE_SET	LAYER	ALLOW ROUTE ON LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP
BGA	*	Y	0.075 MM	0.075 MM	=STANDARD	0.076 MM	0.075 MM

PHYSICAL_RULE_SET	LAYER	ALLOW ROUTE ON LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP
90_OHM_DIFF	*	Y	=STANDARD	=STANDARD	=STANDARD	=STANDARD	=STANDARD
90_OHM_DIFF	ISL4, ISL7	Y	0.070 MM	0.070 MM		0.200 MM	0.100 MM
90_OHM_DIFF	TOP, BOTTOM	Y	0.070 MM	0.070 MM		0.200 MM	0.200 MM

PHYSICAL_RULE_SET	LAYER	ALLOW ROUTE ON LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP
1:1_DIFFPAIR	*	Y	=STANDARD	=STANDARD	=STANDARD	0.075 MM	0.075 MM
SPEAKER	*	Y	0.3 MM	0.19MM	10 MM	0.075 MM	0.075 MM

SPACING_RULE_SET	LAYER	LINE-TO-LINE SPACING	WEIGHT
DEFAULT	*	0.08 MM	?
STANDARD	*	=DEFAULT	?
BGA	*	=DEFAULT	?

NET_SPACING_TYPE1	NET_SPACING_TYPE2	AREA_TYPE	SPACING_RULE_SET
*	*	BGA	BGA
CLK	*	BGA	BGA
PWR	*	*	PWR_P1SPACING
GND	*	*	GND_P1SPACING
SWITCHNODE	*	*	SWITCHNODE
PWR	*	*	PWR_P1SPACING
ANLG	*	*	3:1_SPACING
CRYSTAL	*	*	3:1_SPACING
JTAG	*	*	2:1_SPACING
I2S_ST	*	*	2:1_SPACING
I2S_ST	I2S_ST	*	1.5:1_SPACING

NET_PHYSICAL_TYPE	AREA_TYPE	PHYSICAL_RULE_SET
*	BGA	BGA

NOTES:

- 0.075 MM ~ 3 MIL
- 0.089 MM ~ 3.5 MIL
- 0.102 MM ~ 4 MIL
- 0.114 MM ~ 4.5 MIL
- 0.125 MM ~ 5 MIL
- 0.140 MM ~ 5.5 MIL
- 0.15 MM ~ 6 MIL
- 0.18 MM ~ 7 MIL
- 0.2 MM ~ 8 MIL
- 0.25 MM ~ 10 MIL
- 0.3 MM ~ 12 MIL
- 0.33 MM ~ 13 MIL
- 0.4 MM ~ 16 MIL
- 1.0 MM = 39.37 MIL

SPACING_RULE_SET	LAYER	LINE-TO-LINE SPACING	WEIGHT
1:1_SPACING	*	0.075 MM	?
1.5:1_SPACING	*	0.114 MM	?
1.8:1_SPACING	*	0.136 MM	?
2:1_SPACING	*	0.152 MM	?
2.5:1_SPACING	*	0.190 MM	?
3:1_SPACING	*	0.228 MM	?
4:1_SPACING	*	0.304 MM	?
0P64MM_SPACING	*	0.64 MM	?
0P5MM_SPACING	*	0.5 MM	?
PWR_P1SPACING	*	0.1 MM	900
GND_P1SPACING	*	0.1 MM	950
SWITCHNODE	*	0.5 MM	1000
SWITCHNODE	TOP, BOTTOM	0.2 MM	1000


SYNC MASTER=MIAMI		SYNC DATE=09/16/2009	
PHYSICAL/SPACING RULES			
 Apple Inc.		DRAWING NUMBER	051-8245
		REVISION	B.0.0
NOTICE OF PROPRIETARY PROPERTY:			
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING:			
I TO MAINTAIN THIS DOCUMENT IN CONFIDENCE			
II NOT TO REPRODUCE OR COPY IT			
III NOT TO REVEAL OR PUBLISH IT IN WHOLE OR PART			
IV ALL RIGHTS RESERVED			
		PAGE	106 OF 119
		SHEET	46 OF 53

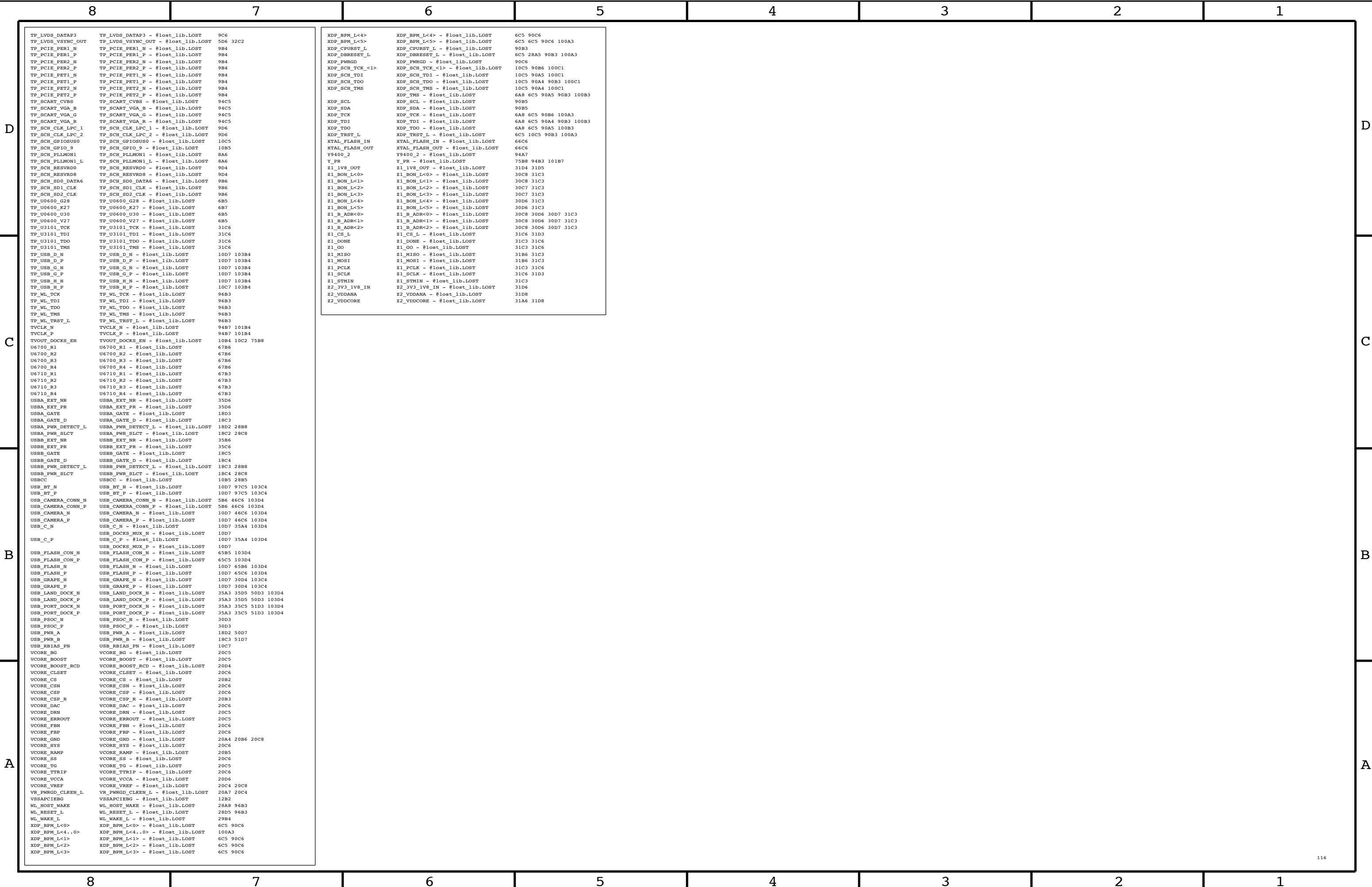
Table with columns for component names (e.g., MT_PANEL_IN<1>, NC_ISENSE_CAL_EN), values, and locations (A, B, C, D).

Table with columns for component names (e.g., PM_THRMTRIP_L, PP3V3_S0_SMS), values, and locations (A, B, C, D).

Table with columns for component names (e.g., RTC_X1, RTC_X2, S0_P0WRGD_V15_DIV), values, and locations (A, B, C, D).

Table with columns for component names (e.g., SMC_ACCA_DET_L, SMC_ACCA_SW_EN), values, and locations (A, B, C, D).

Table with columns for component names (e.g., AUD_I2C_DATA_HS1, SMC_LINDA_EN_L), values, and locations (A, B, C, D).



D

C

B

A

D

C

B

A

TP_LVDS_DATAP3 TP_LVDS_DATAP3 - @lost_lib.LOST 9C6
 TP_LVDS_VSYNC_OUT TP_LVDS_VSYNC_OUT - @lost_lib.LOST 5D6 32C2
 TP_PCIE_PERI_N TP_PCIE_PERI_N - @lost_lib.LOST 9B4
 TP_PCIE_PERI_P TP_PCIE_PERI_P - @lost_lib.LOST 9B4
 TP_PCIE_PER2_N TP_PCIE_PER2_N - @lost_lib.LOST 9B4
 TP_PCIE_PER2_P TP_PCIE_PER2_P - @lost_lib.LOST 9B4
 TP_PCIE_PETI_N TP_PCIE_PETI_N - @lost_lib.LOST 9B4
 TP_PCIE_PETI_P TP_PCIE_PETI_P - @lost_lib.LOST 9B4
 TP_PCIE_PET2_N TP_PCIE_PET2_N - @lost_lib.LOST 9B4
 TP_PCIE_PET2_P TP_PCIE_PET2_P - @lost_lib.LOST 9B4
 TP_SCART_CVBS TP_SCART_CVBS - @lost_lib.LOST 94C5
 TP_SCART_VGA_B TP_SCART_VGA_B - @lost_lib.LOST 94C5
 TP_SCART_VGA_G TP_SCART_VGA_G - @lost_lib.LOST 94C5
 TP_SCART_VGA_R TP_SCART_VGA_R - @lost_lib.LOST 94C5
 TP_SCH_CLK_LPC_1 TP_SCH_CLK_LPC_1 - @lost_lib.LOST 9D6
 TP_SCH_CLK_LPC_2 TP_SCH_CLK_LPC_2 - @lost_lib.LOST 9D6
 TP_SCH_GPIOSUB0 TP_SCH_GPIOSUB0 - @lost_lib.LOST 10C5
 TP_SCH_GPIO_9 TP_SCH_GPIO_9 - @lost_lib.LOST 10B5
 TP_SCH_PILMON1 TP_SCH_PILMON1 - @lost_lib.LOST 8A6
 TP_SCH_PILMON1_L TP_SCH_PILMON1_L - @lost_lib.LOST 8A6
 TP_SCH_RESVRD0 TP_SCH_RESVRD0 - @lost_lib.LOST 9D4
 TP_SCH_RESVRD8 TP_SCH_RESVRD8 - @lost_lib.LOST 9D4
 TP_SCH_SD0_DATA6 TP_SCH_SD0_DATA6 - @lost_lib.LOST 9B6
 TP_SCH_SD1_CLK TP_SCH_SD1_CLK - @lost_lib.LOST 9B6
 TP_SCH_SD2_CLK TP_SCH_SD2_CLK - @lost_lib.LOST 9B6
 TP_U0600_G28 TP_U0600_G28 - @lost_lib.LOST 6B5
 TP_U0600_R27 TP_U0600_R27 - @lost_lib.LOST 6B7
 TP_U0600_U30 TP_U0600_U30 - @lost_lib.LOST 6B5
 TP_U0600_V27 TP_U0600_V27 - @lost_lib.LOST 6B5
 TP_U3101_TCK TP_U3101_TCK - @lost_lib.LOST 31C6
 TP_U3101_TDI TP_U3101_TDI - @lost_lib.LOST 31C6
 TP_U3101_TDO TP_U3101_TDO - @lost_lib.LOST 31C6
 TP_U3101_TMS TP_U3101_TMS - @lost_lib.LOST 31C6
 TP_USB_D_N TP_USB_D_N - @lost_lib.LOST 10D7 103B4
 TP_USB_D_P TP_USB_D_P - @lost_lib.LOST 10D7 103B4
 TP_USB_G_N TP_USB_G_N - @lost_lib.LOST 10D7 103B4
 TP_USB_G_P TP_USB_G_P - @lost_lib.LOST 10D7 103B4
 TP_USB_H_N TP_USB_H_N - @lost_lib.LOST 10D7 103B4
 TP_USB_H_P TP_USB_H_P - @lost_lib.LOST 10D7 103B4
 TP_WL_TCK TP_WL_TCK - @lost_lib.LOST 96B3
 TP_WL_TDI TP_WL_TDI - @lost_lib.LOST 96B3
 TP_WL_TDO TP_WL_TDO - @lost_lib.LOST 96B3
 TP_WL_TMS TP_WL_TMS - @lost_lib.LOST 96B3
 TP_WL_TRST_L TP_WL_TRST_L - @lost_lib.LOST 96B3
 TVCLK_N TVCLK_N - @lost_lib.LOST 94B7 101B4
 TVCLK_P TVCLK_P - @lost_lib.LOST 94B7 101B4
 TVOUT_DOCKS_EN TVOUT_DOCKS_EN - @lost_lib.LOST 10B4 10C2 75B8
 U6700_R1 U6700_R1 - @lost_lib.LOST 67B6
 U6700_R2 U6700_R2 - @lost_lib.LOST 67B6
 U6700_R3 U6700_R3 - @lost_lib.LOST 67B6
 U6700_R4 U6700_R4 - @lost_lib.LOST 67B6
 U6710_R1 U6710_R1 - @lost_lib.LOST 67B3
 U6710_R2 U6710_R2 - @lost_lib.LOST 67B3
 U6710_R3 U6710_R3 - @lost_lib.LOST 67B3
 U6710_R4 U6710_R4 - @lost_lib.LOST 67B3
 USBA_EXT_NR USBA_EXT_NR - @lost_lib.LOST 35D6
 USBA_EXT_PR USBA_EXT_PR - @lost_lib.LOST 35D6
 USBA_GATE USBA_GATE - @lost_lib.LOST 18D3
 USBA_GATE_D USBA_GATE_D - @lost_lib.LOST 18C3
 USBA_PWR_DETECT_L USBA_PWR_DETECT_L - @lost_lib.LOST 18D2 28B8
 USBA_PWR_SLCT USBA_PWR_SLCT - @lost_lib.LOST 18C2 28C8
 USBB_EXT_NR USBB_EXT_NR - @lost_lib.LOST 35B6
 USBB_EXT_PR USBB_EXT_PR - @lost_lib.LOST 35C6
 USBB_GATE USBB_GATE - @lost_lib.LOST 18C5
 USBB_GATE_D USBB_GATE_D - @lost_lib.LOST 18C4
 USBB_PWR_DETECT_L USBB_PWR_DETECT_L - @lost_lib.LOST 18C3 28B8
 USBB_PWR_SLCT USBB_PWR_SLCT - @lost_lib.LOST 18C4 28C8
 USBCC USBCC - @lost_lib.LOST 10B5 28B5
 USB_BT_N USB_BT_N - @lost_lib.LOST 10D7 97C5 103C4
 USB_BT_P USB_BT_P - @lost_lib.LOST 10D7 97C5 103C4
 USB_CAMERA_CONN_N USB_CAMERA_CONN_N - @lost_lib.LOST 5B6 46C6 103D4
 USB_CAMERA_CONN_P USB_CAMERA_CONN_P - @lost_lib.LOST 5B6 46C6 103D4
 USB_CAMERA_N USB_CAMERA_N - @lost_lib.LOST 10D7 46C6 103D4
 USB_CAMERA_P USB_CAMERA_P - @lost_lib.LOST 10D7 46C6 103D4
 USB_C_N USB_C_N - @lost_lib.LOST 10D7 35A4 103D4
 USB_C_P USB_C_P - @lost_lib.LOST 10D7 35A4 103D4
 USB_DOCKS_MUX_P USB_DOCKS_MUX_P - @lost_lib.LOST 10D7
 USB_FLASH_CON_N USB_FLASH_CON_N - @lost_lib.LOST 65B5 103D4
 USB_FLASH_CON_P USB_FLASH_CON_P - @lost_lib.LOST 65C5 103D4
 USB_FLASH_N USB_FLASH_N - @lost_lib.LOST 10D7 65B6 103D4
 USB_FLASH_P USB_FLASH_P - @lost_lib.LOST 10D7 65C6 103D4
 USB_GRAPE_N USB_GRAPE_N - @lost_lib.LOST 10D7 30D4 103C4
 USB_GRAPE_P USB_GRAPE_P - @lost_lib.LOST 10D7 30D4 103C4
 USB_LAND_DOCK_N USB_LAND_DOCK_N - @lost_lib.LOST 35A3 35D5 50D3 103D4
 USB_LAND_DOCK_P USB_LAND_DOCK_P - @lost_lib.LOST 35A3 35D5 50D3 103D4
 USB_PORT_DOCK_N USB_PORT_DOCK_N - @lost_lib.LOST 35A3 35C5 51D3 103D4
 USB_PORT_DOCK_P USB_PORT_DOCK_P - @lost_lib.LOST 35A3 35C5 51D3 103D4
 USB_PSOC_N USB_PSOC_N - @lost_lib.LOST 30D3
 USB_PSOC_P USB_PSOC_P - @lost_lib.LOST 30D3
 USB_PWR_A USB_PWR_A - @lost_lib.LOST 18D2 50D7
 USB_PWR_B USB_PWR_B - @lost_lib.LOST 18C3 51D7
 USB_RBIAS_PN USB_RBIAS_PN - @lost_lib.LOST 10C7
 VCORE_BG VCORE_BG - @lost_lib.LOST 20C5
 VCORE_BOOST VCORE_BOOST - @lost_lib.LOST 20C5
 VCORE_BOOST_RCD VCORE_BOOST_RCD - @lost_lib.LOST 20D4
 VCORE_CLSET VCORE_CLSET - @lost_lib.LOST 20C6
 VCORE_CS VCORE_CS - @lost_lib.LOST 20B2
 VCORE_CSN VCORE_CSN - @lost_lib.LOST 20C6
 VCORE_CSP VCORE_CSP - @lost_lib.LOST 20C6
 VCORE_CSP_R VCORE_CSP_R - @lost_lib.LOST 20B3
 VCORE_DAC VCORE_DAC - @lost_lib.LOST 20C6
 VCORE_DRN VCORE_DRN - @lost_lib.LOST 20C5
 VCORE_ERRROUT VCORE_ERRROUT - @lost_lib.LOST 20C5
 VCORE_FBN VCORE_FBN - @lost_lib.LOST 20C6
 VCORE_FBP VCORE_FBP - @lost_lib.LOST 20C6
 VCORE_GND VCORE_GND - @lost_lib.LOST 20A4 20B6 20C8
 VCORE_HYS VCORE_HYS - @lost_lib.LOST 20C6
 VCORE_RAMP VCORE_RAMP - @lost_lib.LOST 20B5
 VCORE_SS VCORE_SS - @lost_lib.LOST 20C6
 VCORE_TG VCORE_TG - @lost_lib.LOST 20C5
 VCORE_TTRIP VCORE_TTRIP - @lost_lib.LOST 20C6
 VCORE_VCCA VCORE_VCCA - @lost_lib.LOST 20D6
 VCORE_VREF VCORE_VREF - @lost_lib.LOST 20C4 20C8
 VR_FMRGD_CLKEN_L VR_FMRGD_CLKEN_L - @lost_lib.LOST 20A7 20C4
 VSSAPCIEBG VSSAPCIEBG - @lost_lib.LOST 12B2
 WL_HOST_WAKE WL_HOST_WAKE - @lost_lib.LOST 28A8 96B3
 WL_RESET_L WL_RESET_L - @lost_lib.LOST 28D5 96B3
 WL_WAKE_L WL_WAKE_L - @lost_lib.LOST 29B4
 XDP_BPM_L<0> XDP_BPM_L<0> - @lost_lib.LOST 6C5 90C6
 XDP_BPM_L<4..0> XDP_BPM_L<4..0> - @lost_lib.LOST 100A3
 XDP_BPM_L<1> XDP_BPM_L<1> - @lost_lib.LOST 6C5 90C6
 XDP_BPM_L<2> XDP_BPM_L<2> - @lost_lib.LOST 6C5 90C6
 XDP_BPM_L<3> XDP_BPM_L<3> - @lost_lib.LOST 6C5 90C6

XDP_BPM_L<4> XDP_BPM_L<4> - @lost_lib.LOST 6C5 90C6
 XDP_BPM_L<5> XDP_BPM_L<5> - @lost_lib.LOST 6C5 6C5 90C6 100A3
 XDP_CPURST_L XDP_CPURST_L - @lost_lib.LOST 90B3
 XDP_DBRESET_L XDP_DBRESET_L - @lost_lib.LOST 6C5 28A5 90B3 100A3
 XDP_FMRGD XDP_FMRGD - @lost_lib.LOST 90C6
 XDP_SCH_TCK<1> XDP_SCH_TCK<1> - @lost_lib.LOST 10C5 90B6 100C1
 XDP_SCH_TDI XDP_SCH_TDI - @lost_lib.LOST 10C5 90A5 100C1
 XDP_SCH_TDO XDP_SCH_TDO - @lost_lib.LOST 10C5 90A4 90B3 100C1
 XDP_SCH_TMS XDP_SCH_TMS - @lost_lib.LOST 10C5 90A4 100C1
 XDP_TMS XDP_TMS - @lost_lib.LOST 6A8 6C5 90A5 90B3 100B3
 XDP_SCL XDP_SCL - @lost_lib.LOST 90B5
 XDP_SDA XDP_SDA - @lost_lib.LOST 90B5
 XDP_TCK XDP_TCK - @lost_lib.LOST 6A8 6C5 90B6 100A3
 XDP_TDI XDP_TDI - @lost_lib.LOST 6A8 6C5 90A4 90B3 100B3
 XDP_TDO XDP_TDO - @lost_lib.LOST 6A8 6C5 90A5 100B3
 XDP_TRST_L XDP_TRST_L - @lost_lib.LOST 6C5 10C5 90B3 100A3
 XTAL_FLASH_IN XTAL_FLASH_IN - @lost_lib.LOST 66C6
 XTAL_FLASH_OUT XTAL_FLASH_OUT - @lost_lib.LOST 66C6
 Y9400_2 Y9400_2 - @lost_lib.LOST 94A7
 Y_PR Y_PR - @lost_lib.LOST 75B8 94B3 101B7
 Z1_I1V8_OUT Z1_I1V8_OUT - @lost_lib.LOST 31D4 31D5
 Z1_BON_L<0> Z1_BON_L<0> - @lost_lib.LOST 30C8 31C3
 Z1_BON_L<1> Z1_BON_L<1> - @lost_lib.LOST 30C8 31C3
 Z1_BON_L<2> Z1_BON_L<2> - @lost_lib.LOST 30C7 31C3
 Z1_BON_L<3> Z1_BON_L<3> - @lost_lib.LOST 30C7 31C3
 Z1_BON_L<4> Z1_BON_L<4> - @lost_lib.LOST 30D6 31C3
 Z1_BON_L<5> Z1_BON_L<5> - @lost_lib.LOST 30D6 31C3
 Z1_B_ADDR<0> Z1_B_ADDR<0> - @lost_lib.LOST 30C8 30D6 30D7 31C3
 Z1_B_ADDR<1> Z1_B_ADDR<1> - @lost_lib.LOST 30C8 30D6 30D7 31C3
 Z1_B_ADDR<2> Z1_B_ADDR<2> - @lost_lib.LOST 30C8 30D6 30D7 31C3
 Z1_CS_L Z1_CS_L - @lost_lib.LOST 31C6 31D3
 Z1_DONE Z1_DONE - @lost_lib.LOST 31C3 31C6
 Z1_GO Z1_GO - @lost_lib.LOST 31C3 31C6
 Z1_MISO Z1_MISO - @lost_lib.LOST 31B6 31C3
 Z1_MOSI Z1_MOSI - @lost_lib.LOST 31B6 31C3
 Z1_PCLK Z1_PCLK - @lost_lib.LOST 31C3 31C6
 Z1_SCLK Z1_SCLK - @lost_lib.LOST 31C6 31D3
 Z1_STWIM Z1_STWIM - @lost_lib.LOST 31C3
 Z2_3V3_I1V8_IN Z2_3V3_I1V8_IN - @lost_lib.LOST 31D6
 Z2_VDDANA Z2_VDDANA - @lost_lib.LOST 31D8
 Z2_VDDCORE Z2_VDDCORE - @lost_lib.LOST 31A6 31D8

