

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.

M42B MLB NO_LDO SCHEMATIC
3/22/2007

REV	ZONE	ECN	DESCRIPTION OF CHANGE	CK APPD DATE	ENG APPD DATE
07		355269	ENGINEERING RELEASED	12/10/04	?

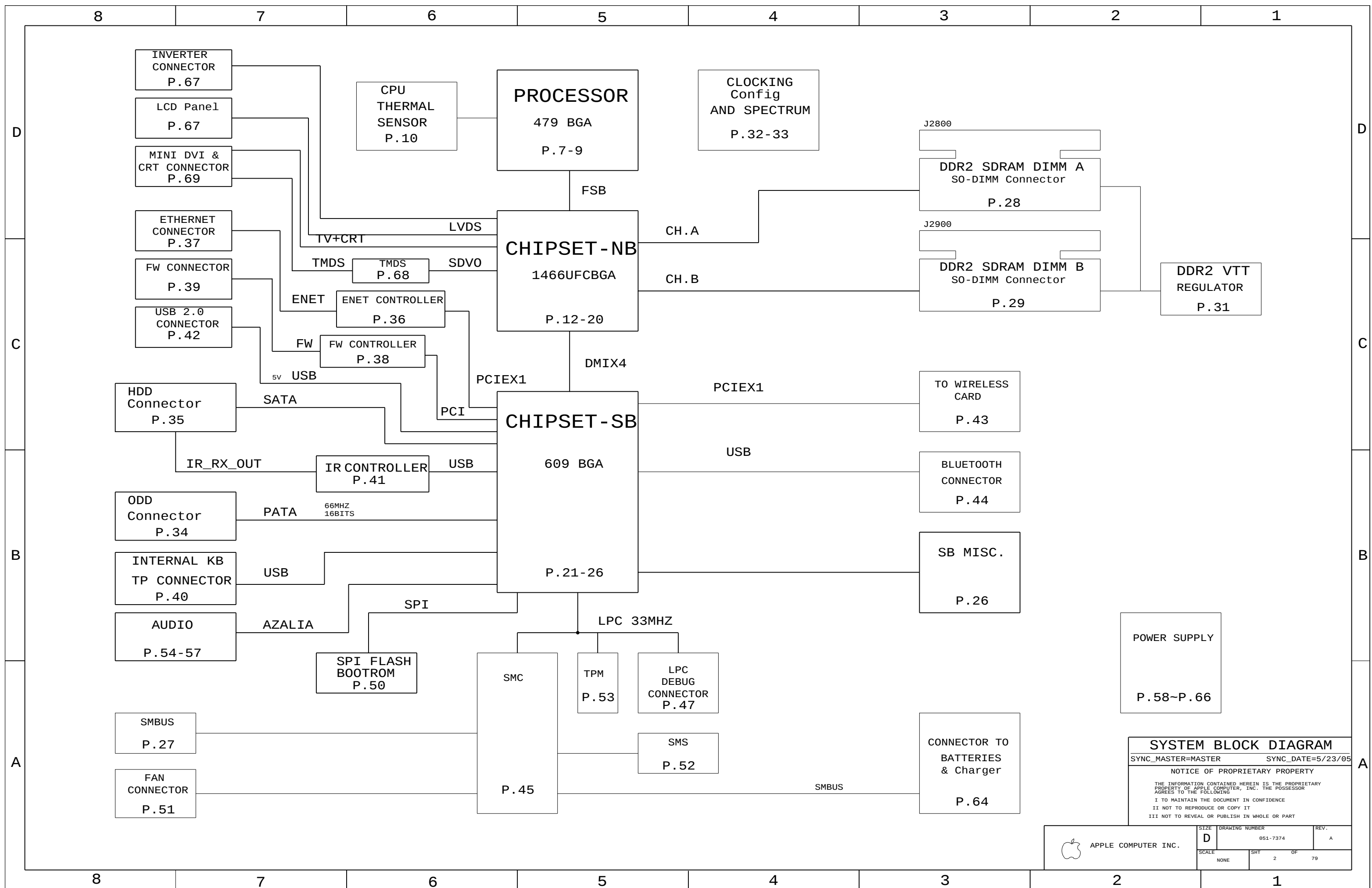
Page	Contents	DRI	Sync	Date
1	Table of Contents	RX	N/A	N/A
2	SYSTEM BLOCK DIAGRAM	RX	MASTER	5/23/05
3	Power Block Diagram	MK	POWER	06/30/2005
4	CONFIGURATION OPTIONS	RX	SMC	07/18/2005
5	FUNC TEST 1 OF 2	RX	TP	07/25/2005
6	SIGNAL ALIAS /RESET	RX	ENET	08/19/2005
7	CPU 1 OF 2-FSB	RX	MASTER	05/03/2005
8	CPU 2 OF 2-PWR/GND	MK	MASTER	05/03/2005
9	CPU DECAPS & VID<>	MK	SMC	08/19/2005
10	CPU MISC1-TEMP SENSOR	ES	ENET	08/19/2005
11	CPU ITP700FLEX DEBUG	RX	MASTER	5/23/05
12	NB CPU Interface	MK	NB	07/25/2005
13	NB PEG / Video Interfaces	DK	NB	07/25/2005
14	NB Misc Interfaces	RX	NB	08/15/2005
15	NB DDR2 Interfaces	LT	NB	07/25/2005
16	NB Power 1	DK	NB	07/25/2005
17	NB Power 2	DK	NB	07/25/2005
18	NB Grounds	DK	NB	07/25/2005
19	NB (GM) Decoupling	DK	NB	06/22/2005
20	NB Config Straps	DK	NB	06/28/2005
21		RX	SB	08/05/2005
22		RX	ENET	11/16/2005
23		RX	ENET	11/28/2005
24		RX	SB	08/05/2005
25		RX	SB	06/28/2005
26	SB Misc	RX	NB	07/26/2005
27	M42 SMBUS CONNECTIONS	ES	ENET	08/30/2005
28	DDR2 SO-DIMM Connector A	LT	MEMORY	06/20/2005
29	DDR2 SO-DIMM Connector B	LT	MEMORY	06/20/2005
30	Memory Active Termination	LT	MEMORY	06/20/2005
31	Memory Vtt Supply	LT	(MASTER)	(MASTER)
32	CLOCKS	DK	CLOCK	06/03/2005
33	CLOCK TERMINATION	DK	CLOCK	06/06/2005
34	PATA CONNECTOR	ES	ENET	11/01/2005
35	SATA CONNECTOR	ES	ENET	11/14/2005
36	ETHERNET CONTROLLER	ES	ENET	12/06/2005
37	ETHERNET CONNECTOR	ES	ENET	11/14/2005
38	FIREWIRE CONTROLLER	ES	ENET	08/30/2005
39	FIREWIRE PORT	ES	ENET	11/16/2005
40	CONNECTOR MISC	ES	ENET	11/16/2005
41	IR CONTROLLER	ES	ENET	11/09/2005
42		ES	ENET	11/01/2005
43		ES	ENET	08/19/2005
44	BLUETOOTH INTERFACE	MK	ENET	08/29/2005
45	SMC	MK	SMC	08/18/2005
46	SMC SUPPORT	LD	SMC	08/23/2005
47	LPC+ Debug Connector	MK	NB	06/30/2005
48	CPU Current & Voltage Sense	ES	ENET	08/30/2005

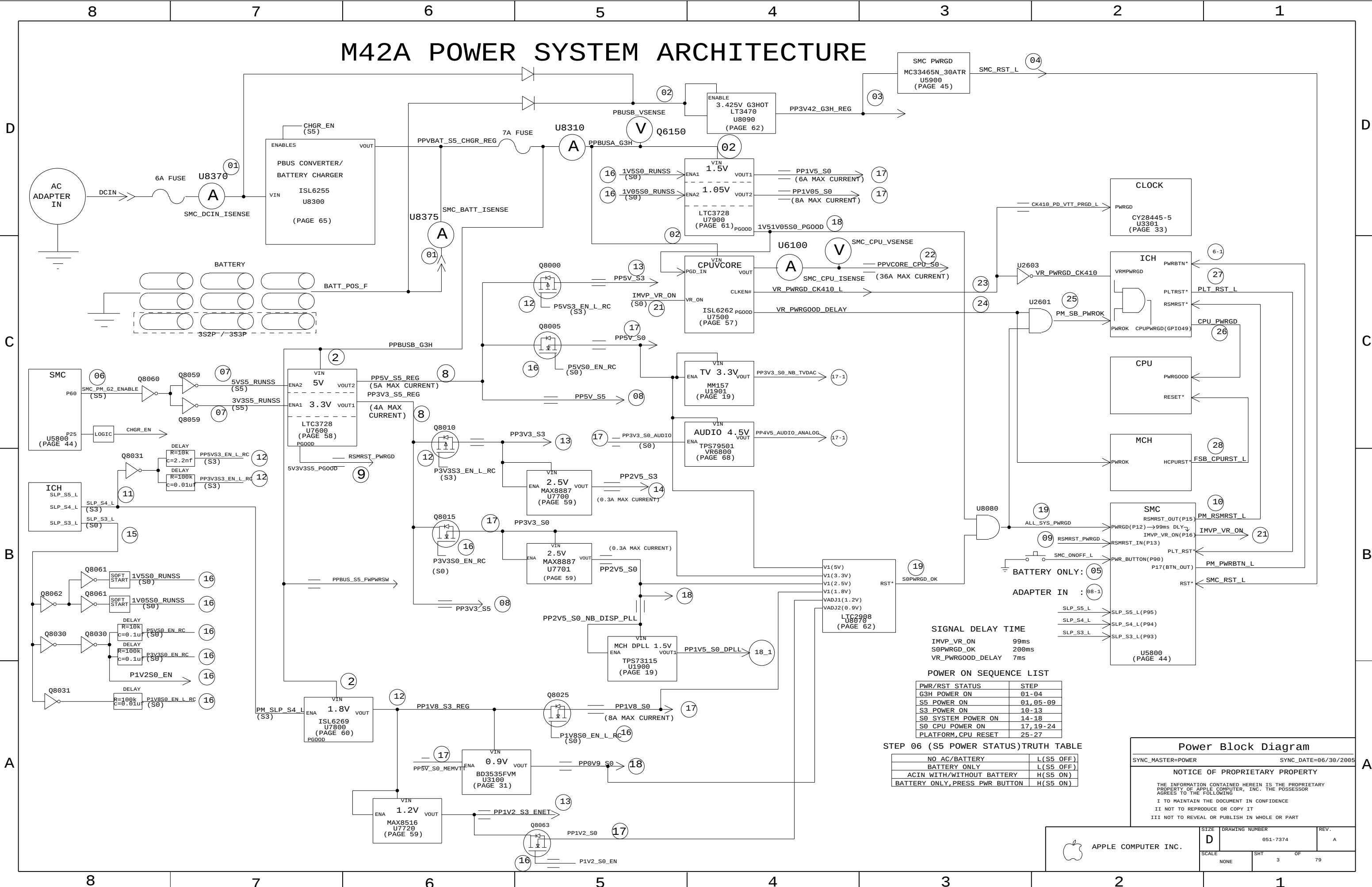
Page	Contents	DRI	Sync	Date
49	TEMPERATURE SENSE	RX	ENET	11/09/2005
50	SPI BOOTROM	ES	MASTER	5/23/05
51	Fan	MK	ENET	11/10/2005
52	SMS	RX	SMC	08/23/2005
53	TPM	DK	SMC	07/18/2005
54	AUDIO0: CODEC	DK	M42AUDIO	08/05/2006
55	AUDIO0: SPEAKER AMP	DK	M42AUDIO	08/05/2006
56	AUDIO0: JACK	DK	M42AUDIO	08/05/2006
57	AUDIO0: JACK TRANSLATORS	MK	M42AUDIO	08/05/2006
58	IMVP6 CPU VCore Regulator	MK	POWER	07/13/2005
59	5V / 3.3V Power Supply	MK	POWER	07/13/2005
60	2.5V/1.2V Regulator	MK	ENET	12/06/2005
61	1.8V Supply	MK	POWER	07/13/2005
62	1.5V / 1.05V Power Supply	MK	POWER	07/13/2005
63	S3/S0 FETS, G3H SUPPLY	MK	ENET	08/30/2005
64	Power Conn / Alias	MK	ENET	11/16/2005
65	DC-In & Battery Connectors	MK	POWER	07/13/2005
66	PBUS Supply/Battery Charger	ES	SMC	08/19/2005
67	INVERTER, LVDS, TMDS	DK	GRAPHIC	06/06/2005
68	EXTERNAL TMDS	DK	GRAPHIC	06/06/2005
69	MINI-DVI CONNECTOR		EUGENE	05/21/05
70	Cross Reference Page			
71	Cross Reference Page			
72	Cross Reference Page			
73	Cross Reference Page			
74	Cross Reference Page			
75	Cross Reference Page			
76	Cross Reference Page			
77	Cross Reference Page			
78	Cross Reference Page			
79	Cross Reference Page			

EE DRIS:

RX-RAYMOND XU
DK-DINESH KUMAR
RC-RAY CHANG
MK-MARC KLINGELHOFFER
LT-LAWRENCE TAN
LD-LINDA DUNN

DIMENSIONS ARE IN MILLIMETERS XX ± _____ X.XX ± _____ X.XXX ± _____ ANGLES ± _____ DO NOT SCALE DRAWING	METRIC				 Apple Computer Inc.			
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	DRAFTER		DESIGN CK		TITLE SCHEM, MLB NO_LDO, M42B			
	ENG APPD		MFG APPD					
QA APPD		DESIGNER						
 THIRD ANGLE PROJECTION	RELEASE		SCALE NONE		DRAWING NUMBER 051-7374			REV. A
	MATERIAL/FINISH NOTED AS APPLICABLE		SIZE D	SHT 1			OF 79	





SIGNAL DELAY TIME

IMVP_VR_ON	99ms
S0PWRGD_OK	200ms
VR_PWRGOOD_DELAY	7ms

POWER ON SEQUENCE LIST

PWR/RST STATUS	STEP
G3H_POWER_ON	01-04
S5_POWER_ON	01,05-09
S3_POWER_ON	10-13
S0_SYSTEM_POWER_ON	14-18
S0_CPU_POWER_ON	17,19-24
PLATFORM,CPU_RESET	25-27

STEP 06 (S5 POWER STATUS) TRUTH TABLE

NO AC/BATTERY	L(S5 OFF)
BATTERY ONLY	L(S5 OFF)
ACIN WITH/WITHOUT BATTERY	H(S5 ON)
BATTERY ONLY,PRESS PWR BUTTON	H(S5 ON)

Power Block Diagram

SYNC_MASTER=POWER SYNC_DATE=06/30/2005

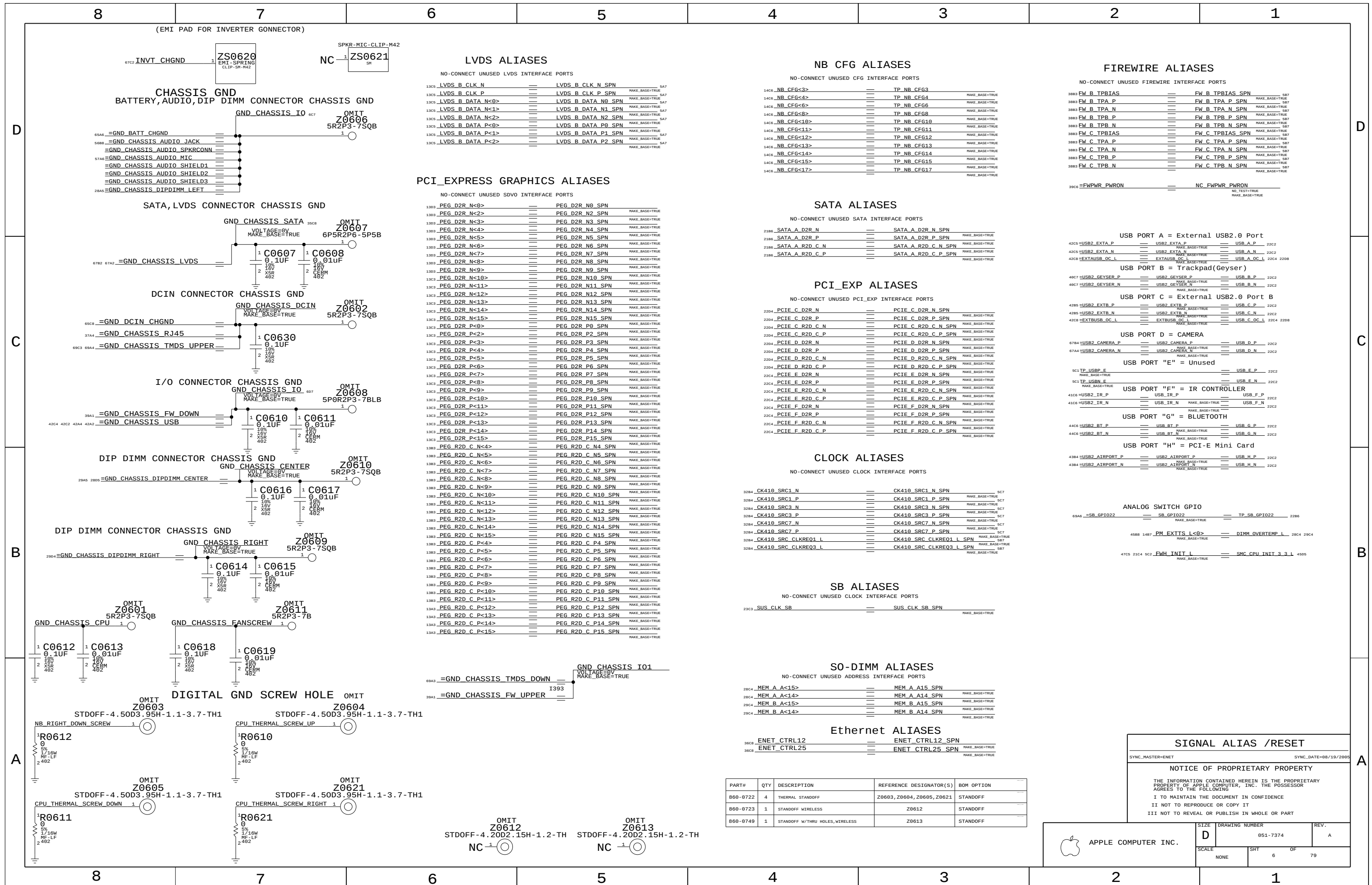
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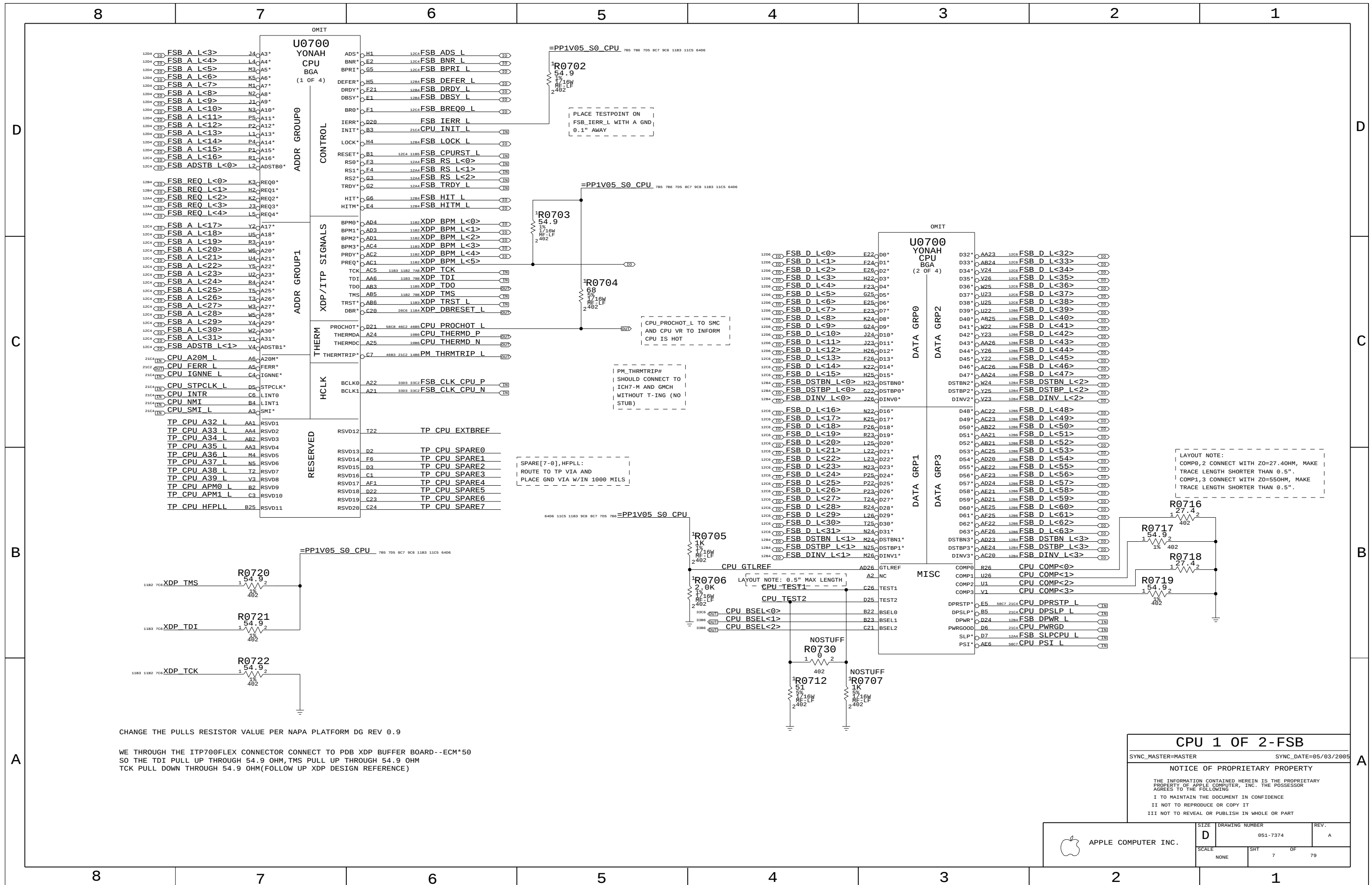
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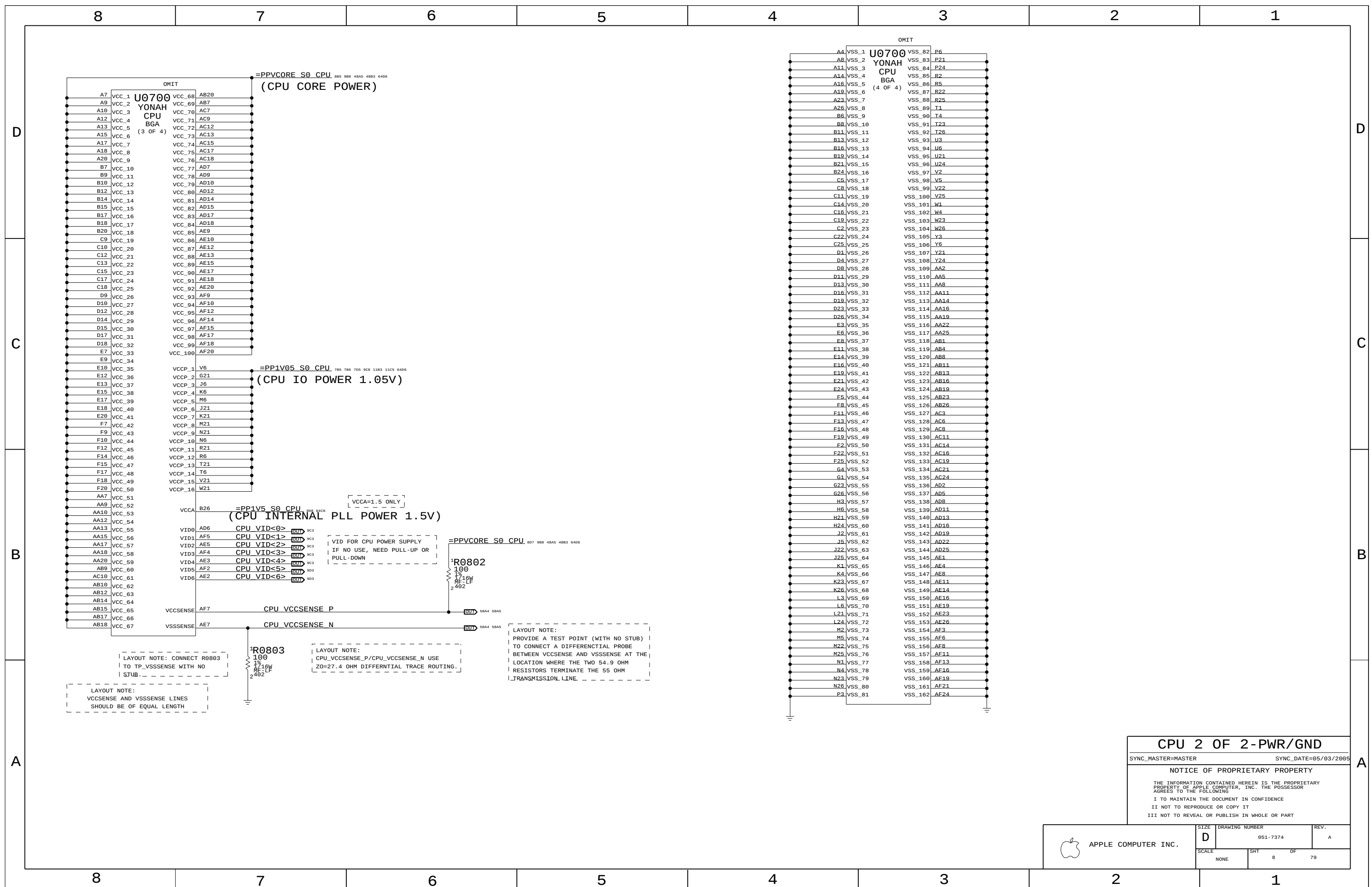


APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-7374	A
SCALE	SHT	OF
NONE	3	79







D



B

A



APPLE COMPUTER INC.

SIZE D	DRAWING NUMBER 051-7374	REV. A
SCALE NONE	SHT OF 9 79	

LAYOUT NOTE:
ADD GND GUARD TRACE
FOR CPU_THERMD_P AND
CPU_THERMD_N

LAYOUT NOTE:
ROUTE CPU_THERMD_P AND
CPU_THERMD_N ON SAME
LAYER.
10 MIL TRACE
10 MIL SPACING

PLACEHOLDER ADT7461A

CRITICAL

U1001
ADT7461
MSOP

VDD
GND

ALERT*/THM2*
THM*
SCLK
SDATA

THRM_ALERT L
THRM_ALERT

THRM_CPU_DX_P
THRM_CPU_DX_N

R1001
499
1%
1/16W
MF-LF
402

R1002
499
1%
1/16W
MF-LF
402

C1001
0.001uF
10%
18V
CERM
402

C1002
0.1uF
10%
18V
XSR
402

R1005
10K
5%
1/16W
MF-LF
402

R1006
10K
5%
1/16W
MF-LF
402

7C6 CPU_THERMD_P
7C6 CPU_THERMD_N

27C3 SMB_THRM_CLK
27B3 SMB_THRM_DATA

PLACE U1001 NEAR THE U1200

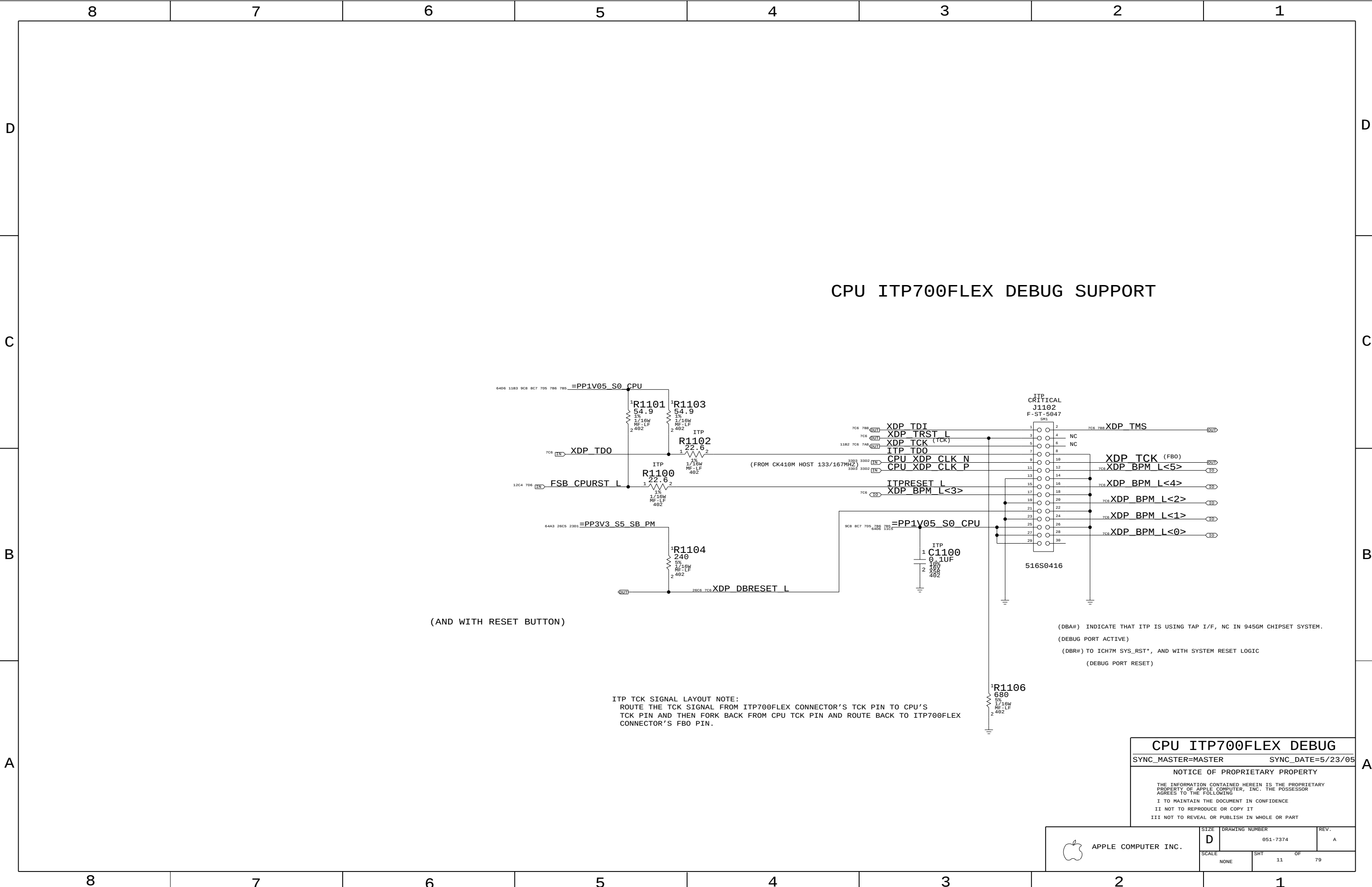
PLACE U1001 NEAR THE U1200

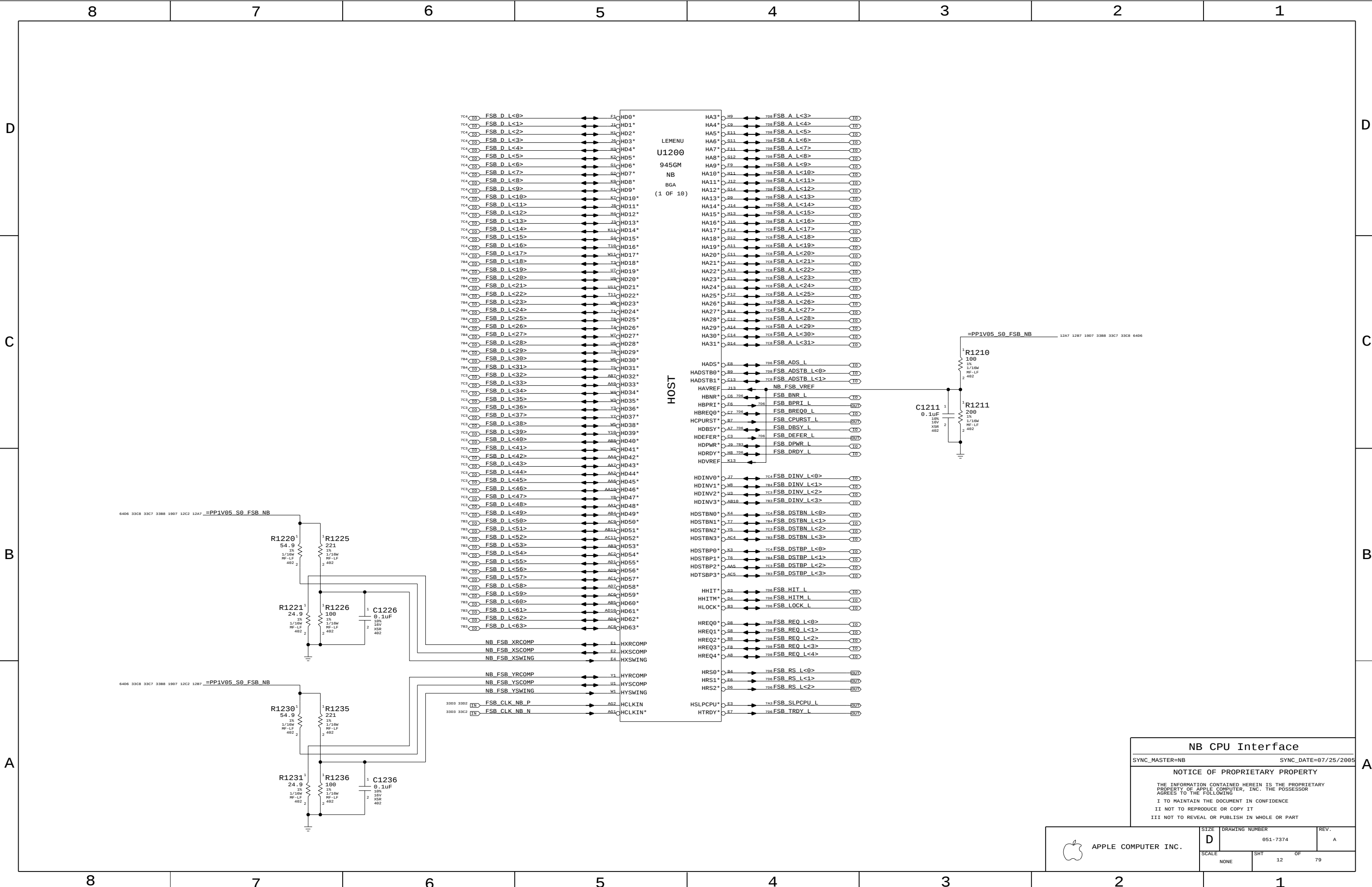
CPU MISC1-TEMP SENSOR	
SYNC_MASTER=ENET	SYNC_DATE=08/19/2005
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SCALE NONE	SHT 10	OF 79





NB CPU Interface

SYNC_MASTER=NB

SYNC_DATE=07/25/2005

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APPLE COMPUTER INC.

SIZE D

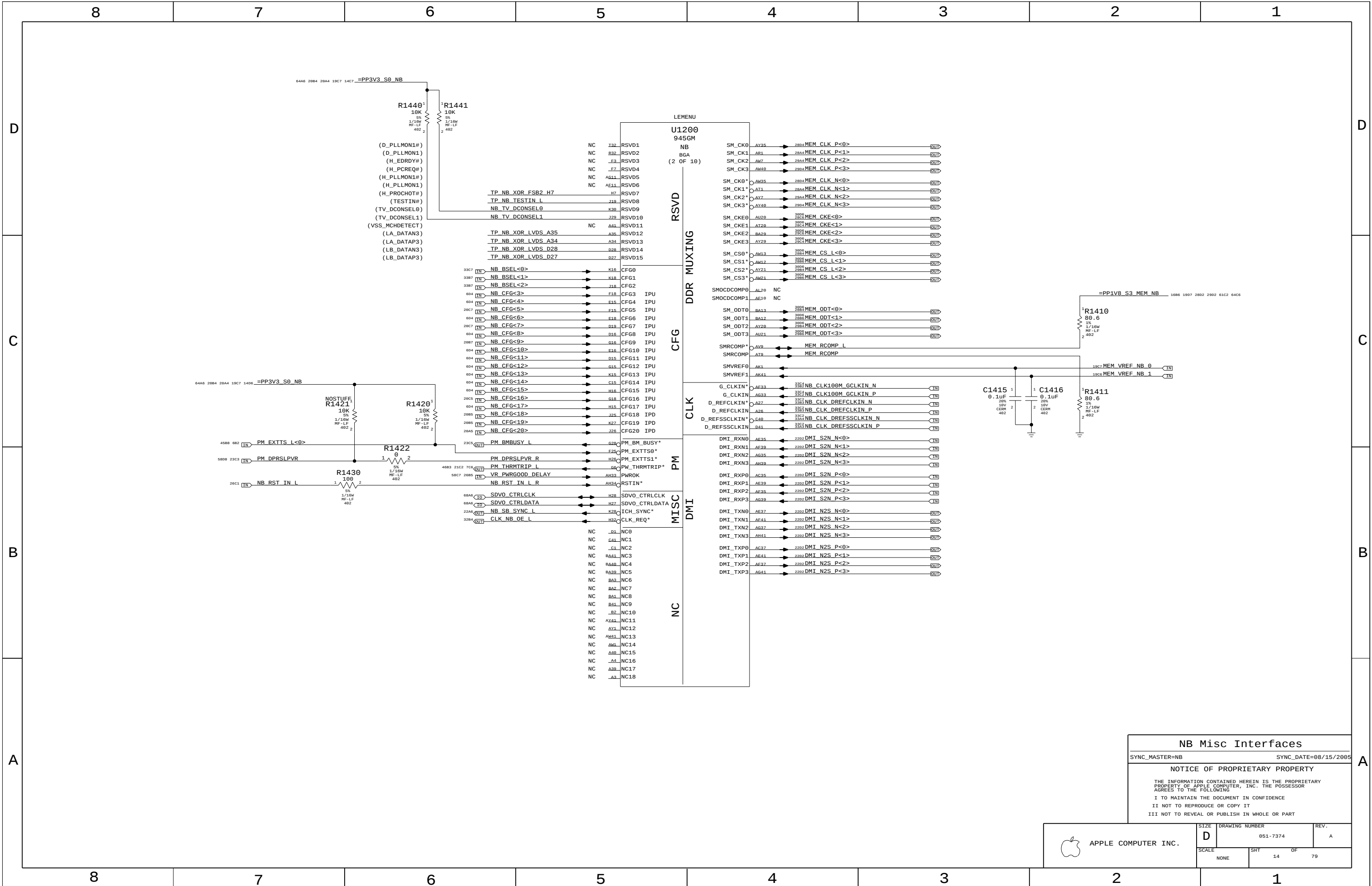
DRAWING NUMBER 051-7374

REV. A

SCALE NONE

SHT 12 OF 79





NB Misc Interfaces

SYNC_MASTER=NB SYNC_DATE=08/15/2005

NOTICE OF PROPRIETARY PROPERTY

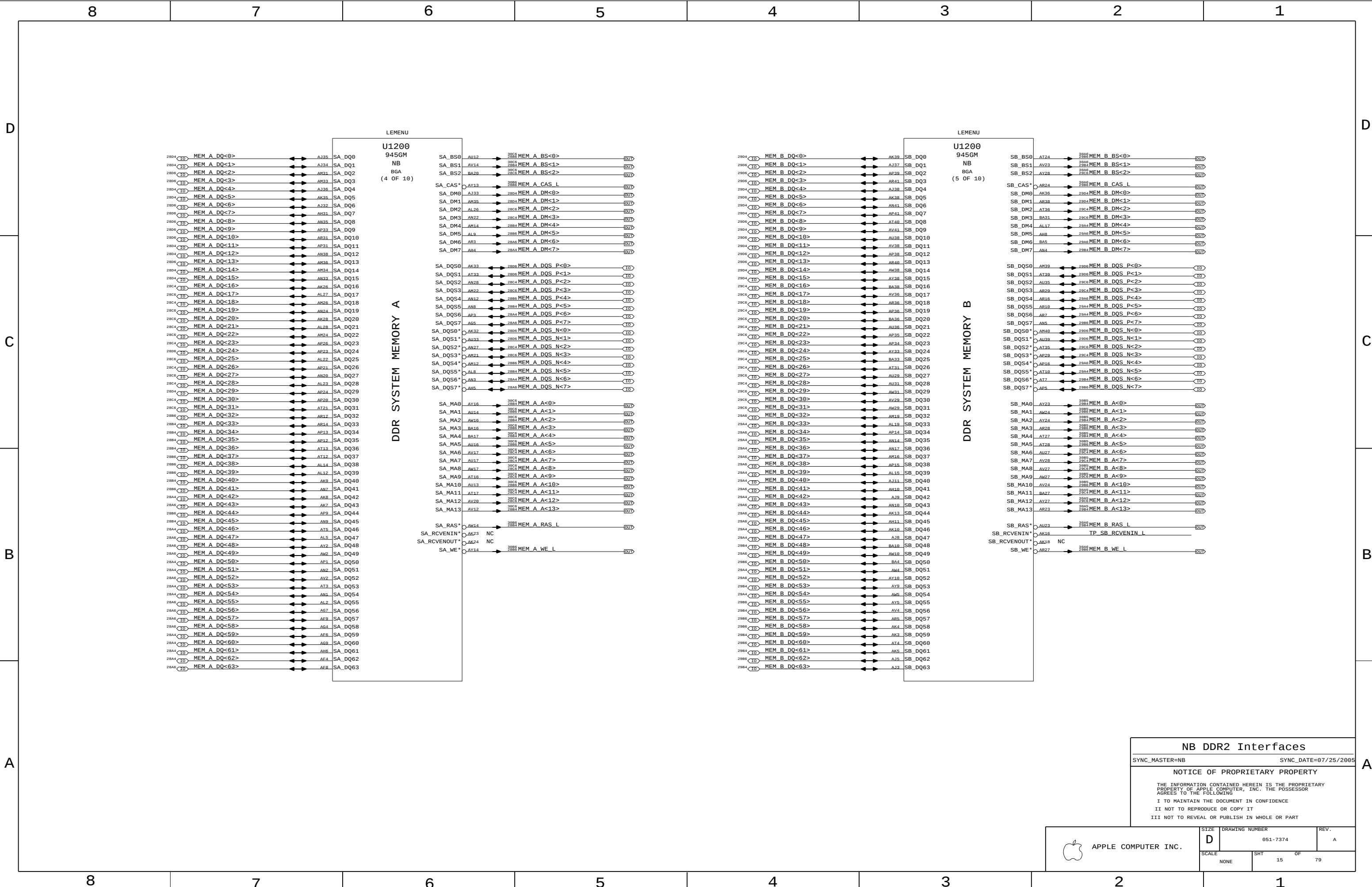
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	SCALE NONE	SHT 14	OF 79



NB DDR2 Interfaces

SYNC_MASTER=NB

SYNC_DATE=07/25/2005

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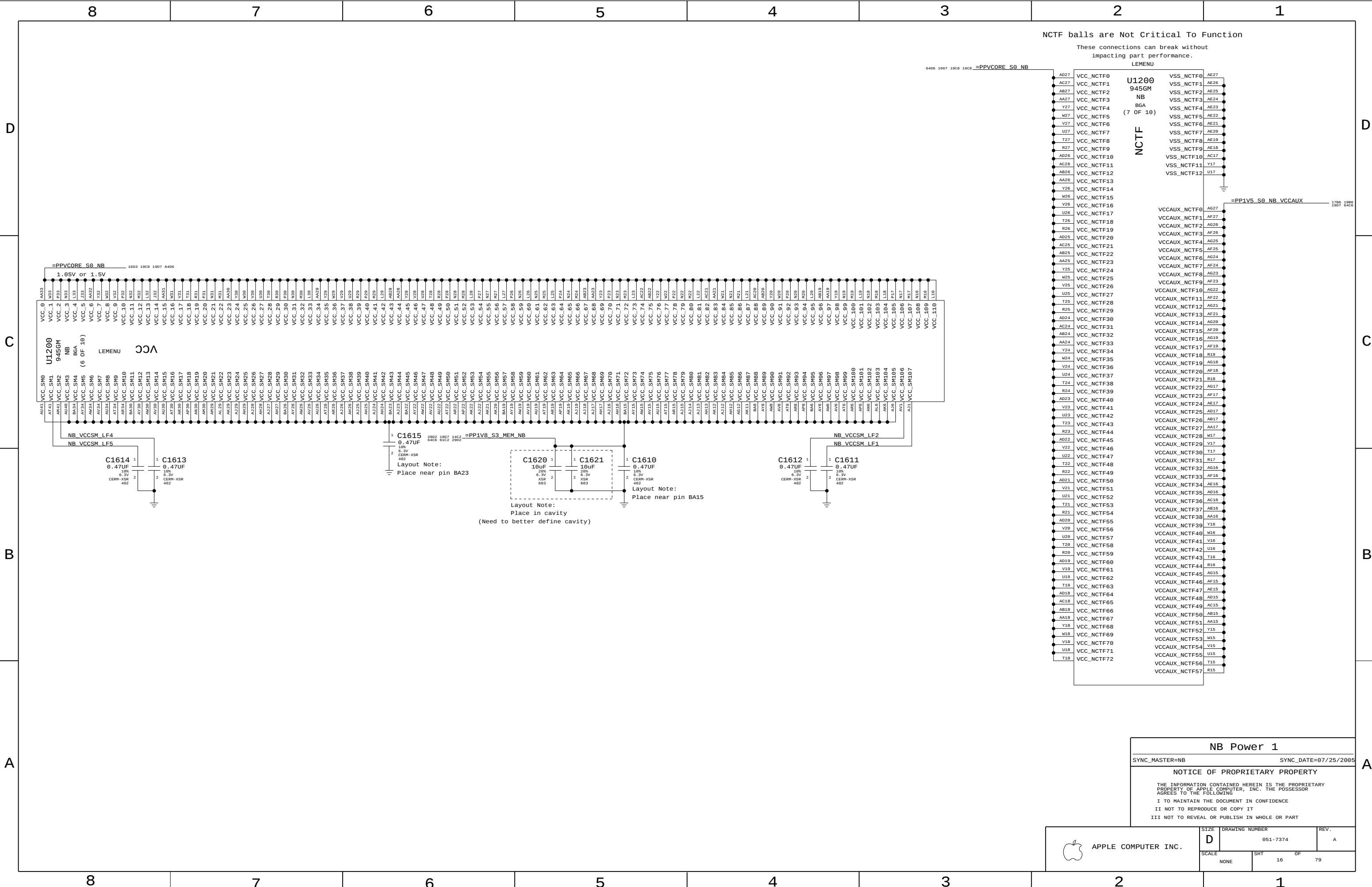
SCALE
NONE

D
DRAWING NUMBER
051-7374

SHT
15

REV.
A

OF
79



NB Power 1

SYNC_MASTER=NB

SYNC_DATE=07/25/2005

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SCALE: NONE

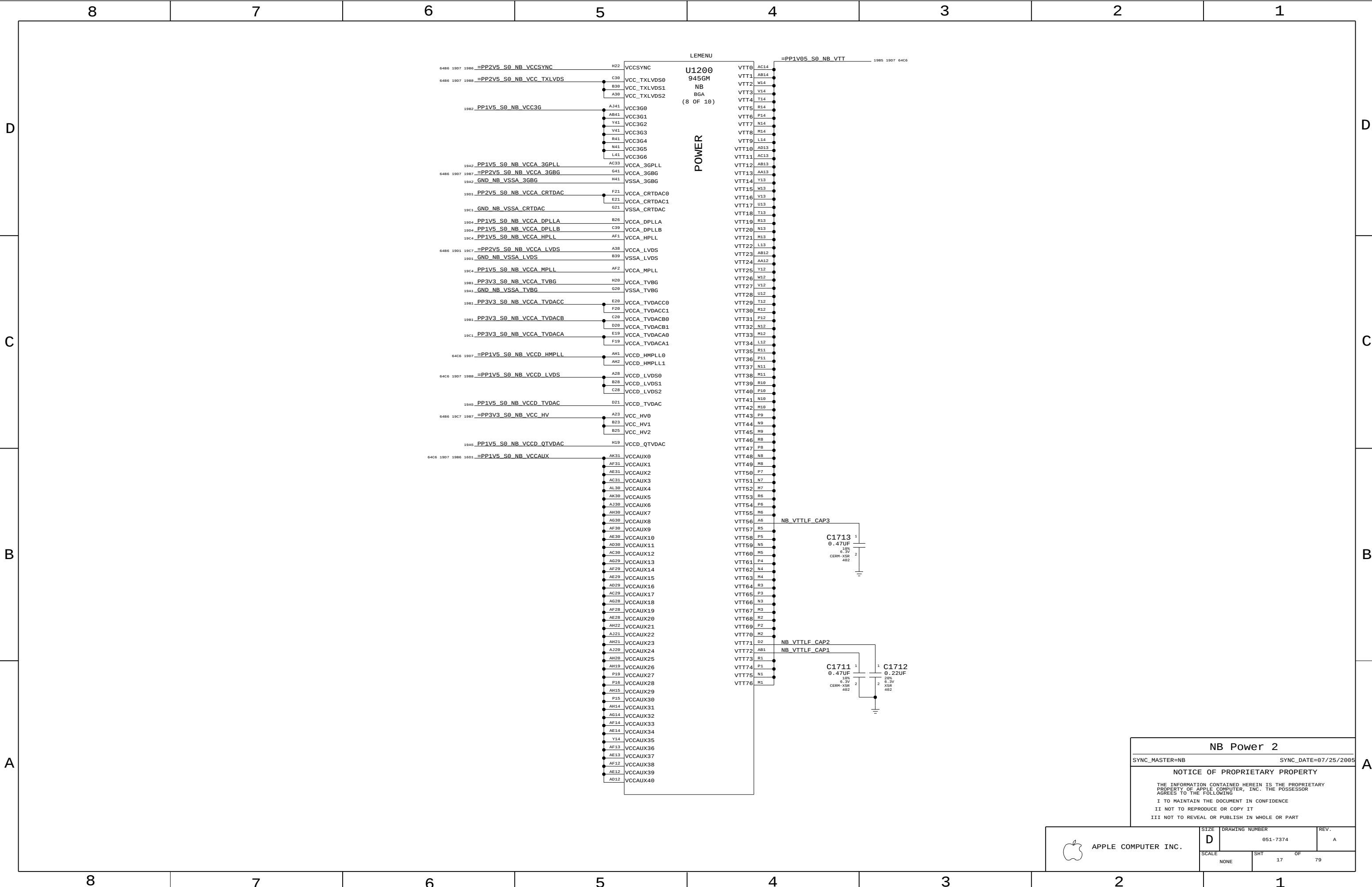
SIZE: D

DRAWING NUMBER: 051-7374

REV.: A

SHEET: 16

OF: 79



NB Power 2

SYNC_MASTER=NB

SYNC_DATE=07/25/2005

NOTICE OF PROPRIETARY PROPERTY

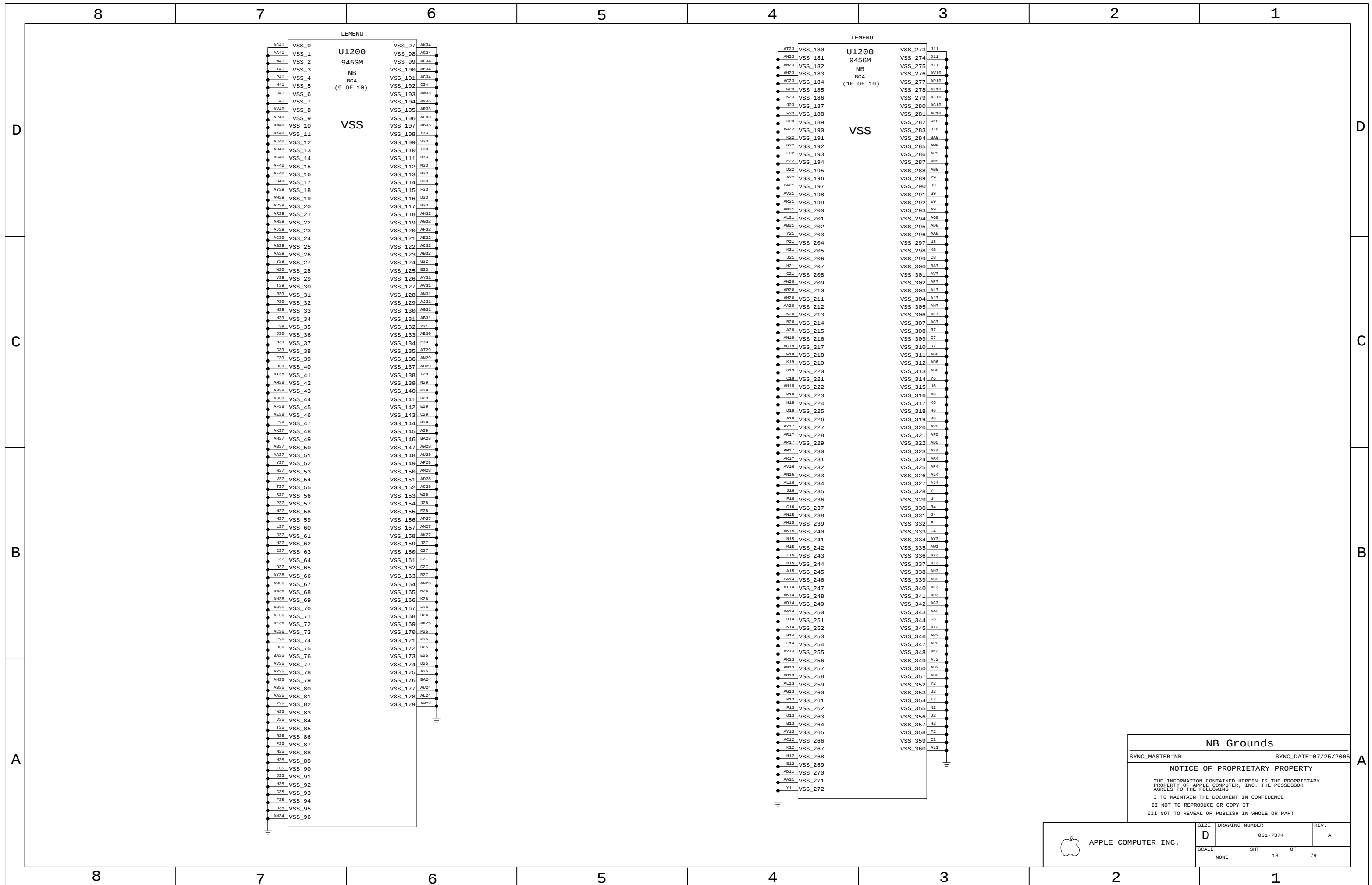
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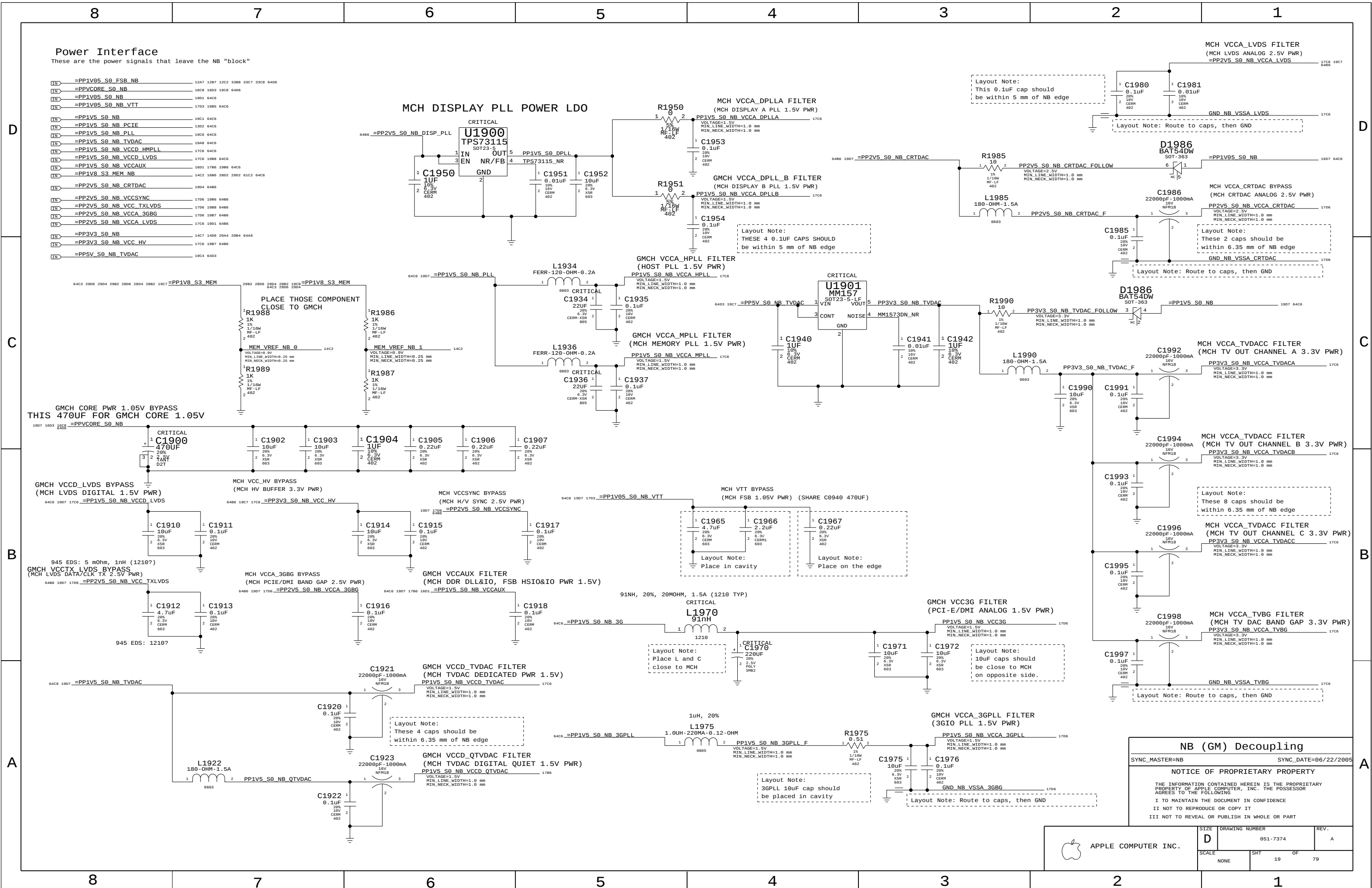
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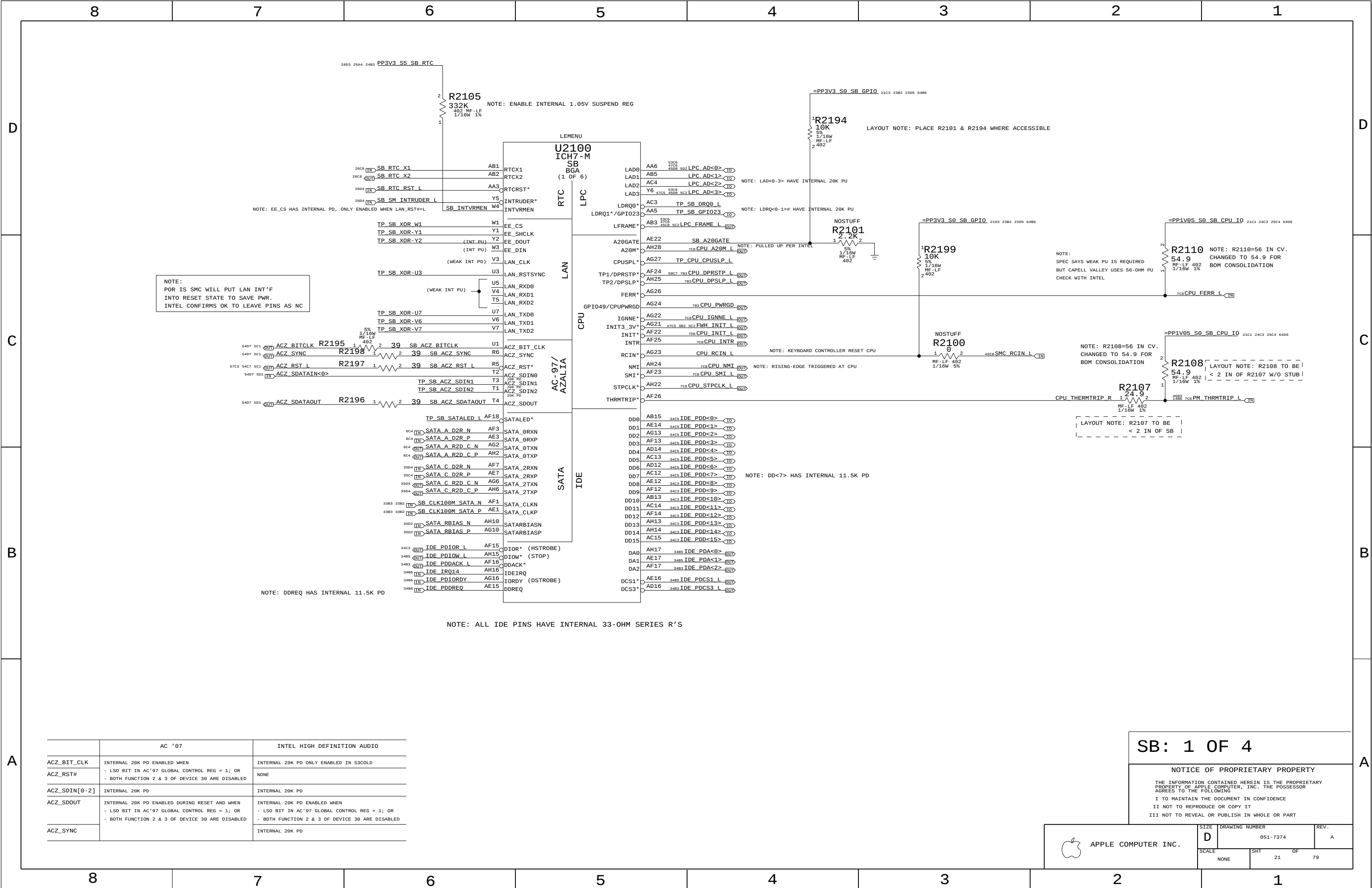
III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART

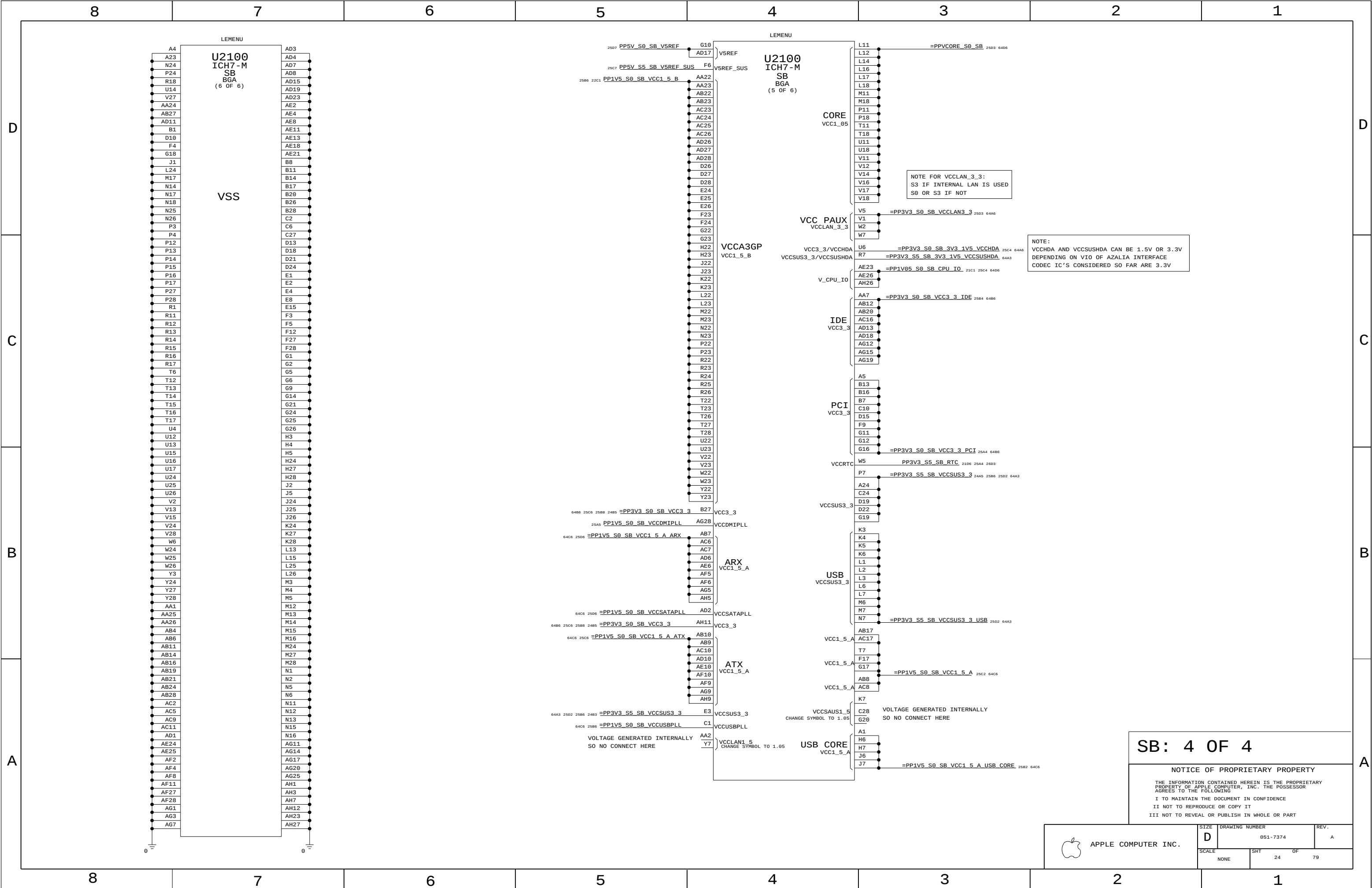
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SCALE		SHT	OF
NONE		17	79

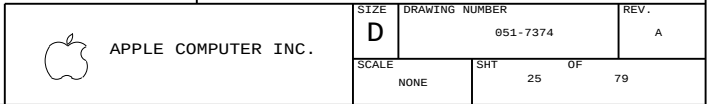


These are the power signals that leave the NB "block"









D

C

B

A

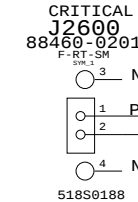
D

C

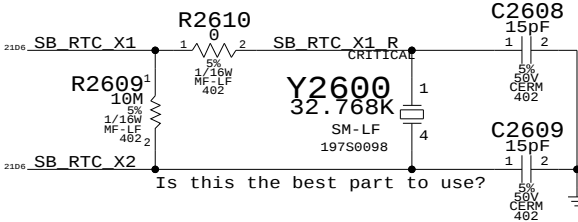
B

A

RTC Battery Connector



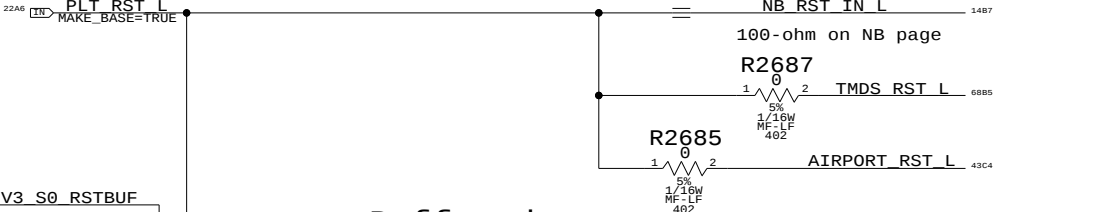
SB RTC Crystal Circuit



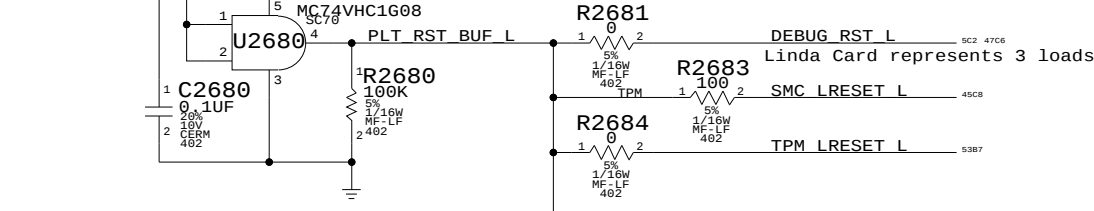
This part is never stuffed, it provides a set of pads on the board to short or to solder a reset button.

Silk: "SYS RST"

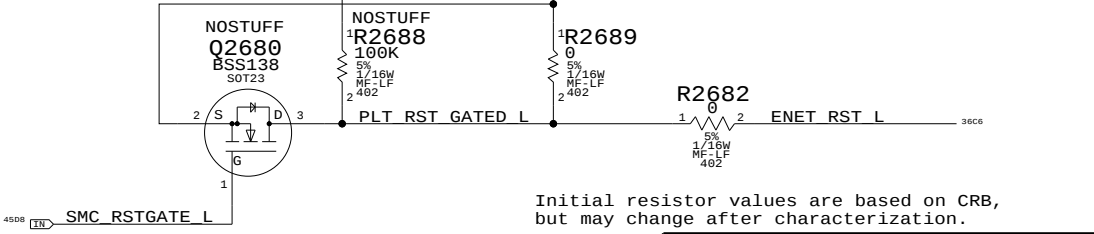
Platform Reset Connections
Unbuffered



Buffered

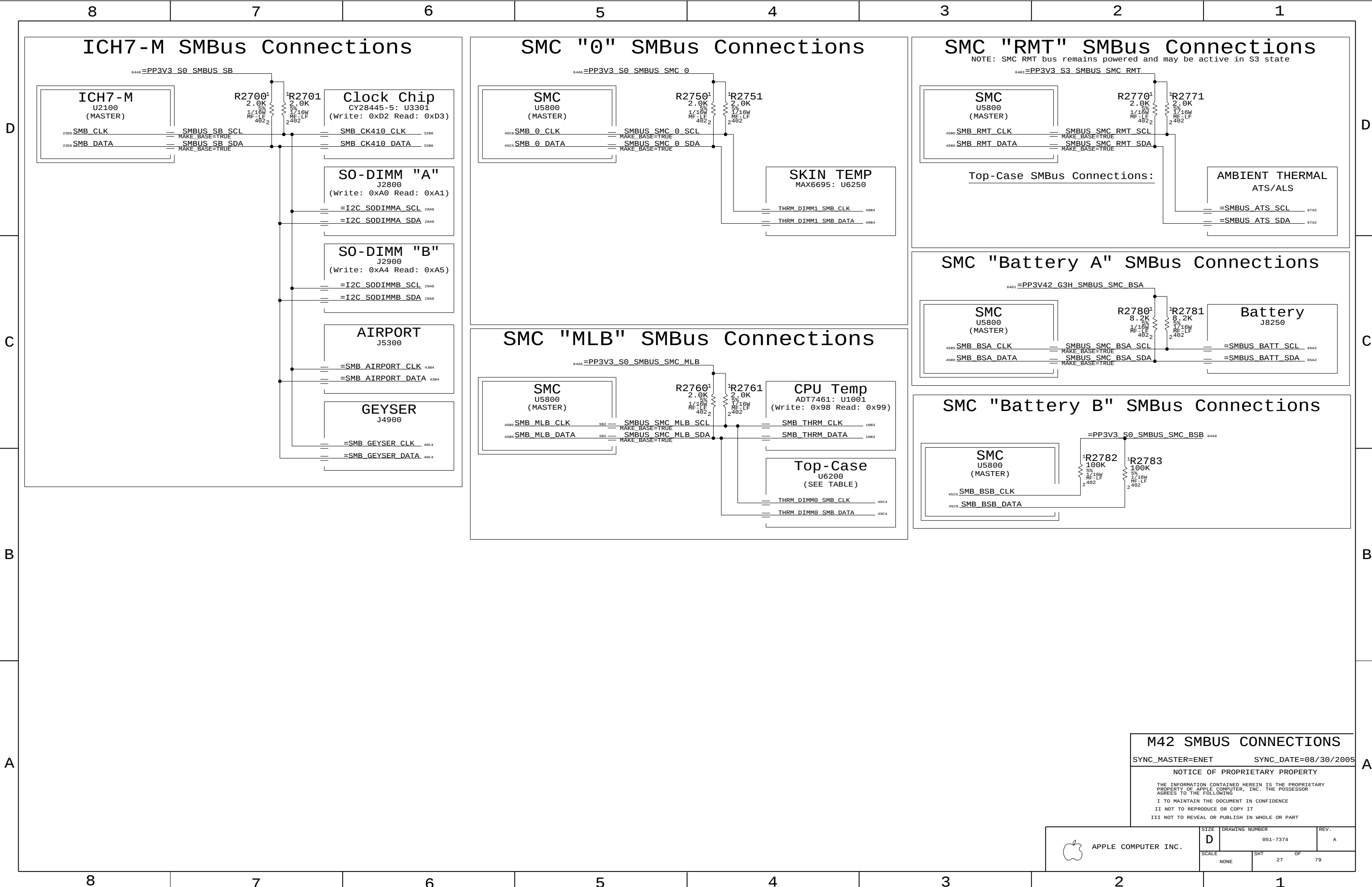


Gated



SB Misc		
SYNC_MASTER=NB		SYNC_DATE=07/26/2005
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	SCALE NONE	SHT 26	OF 79



M42 SMBUS CONNECTIONS

SYNC_MASTER=ENET SYNC_DATE=08/30/2005

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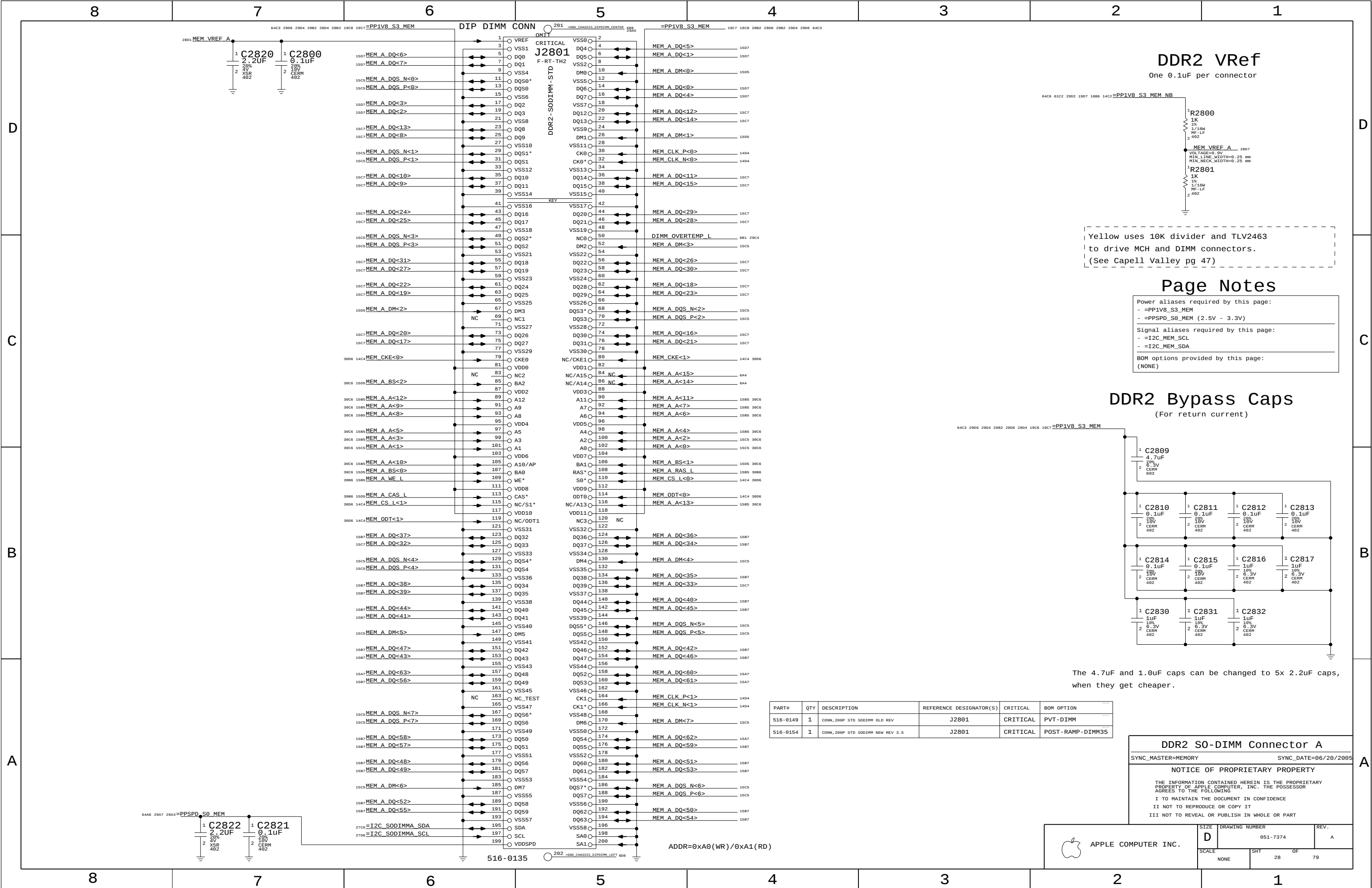
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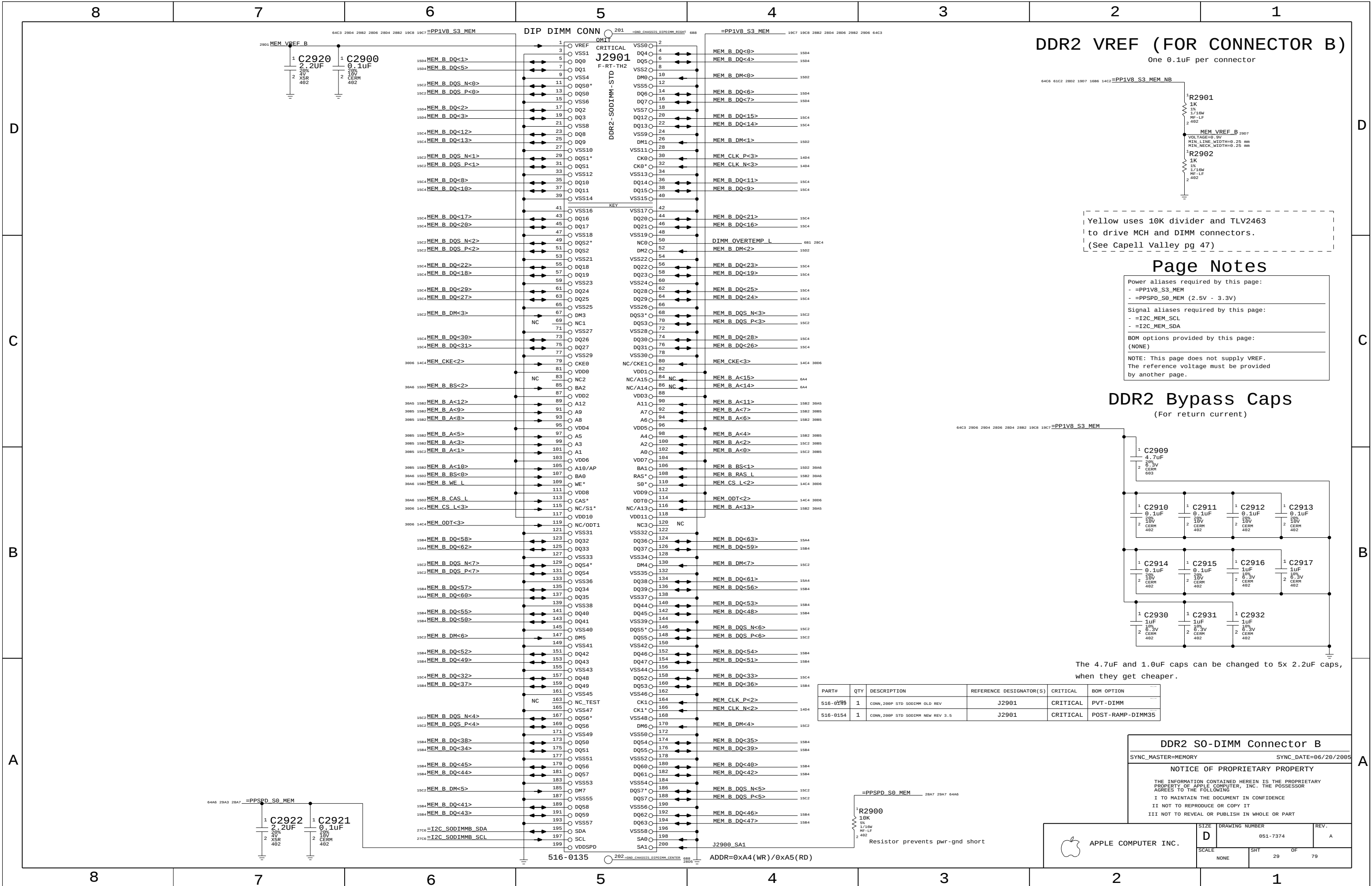
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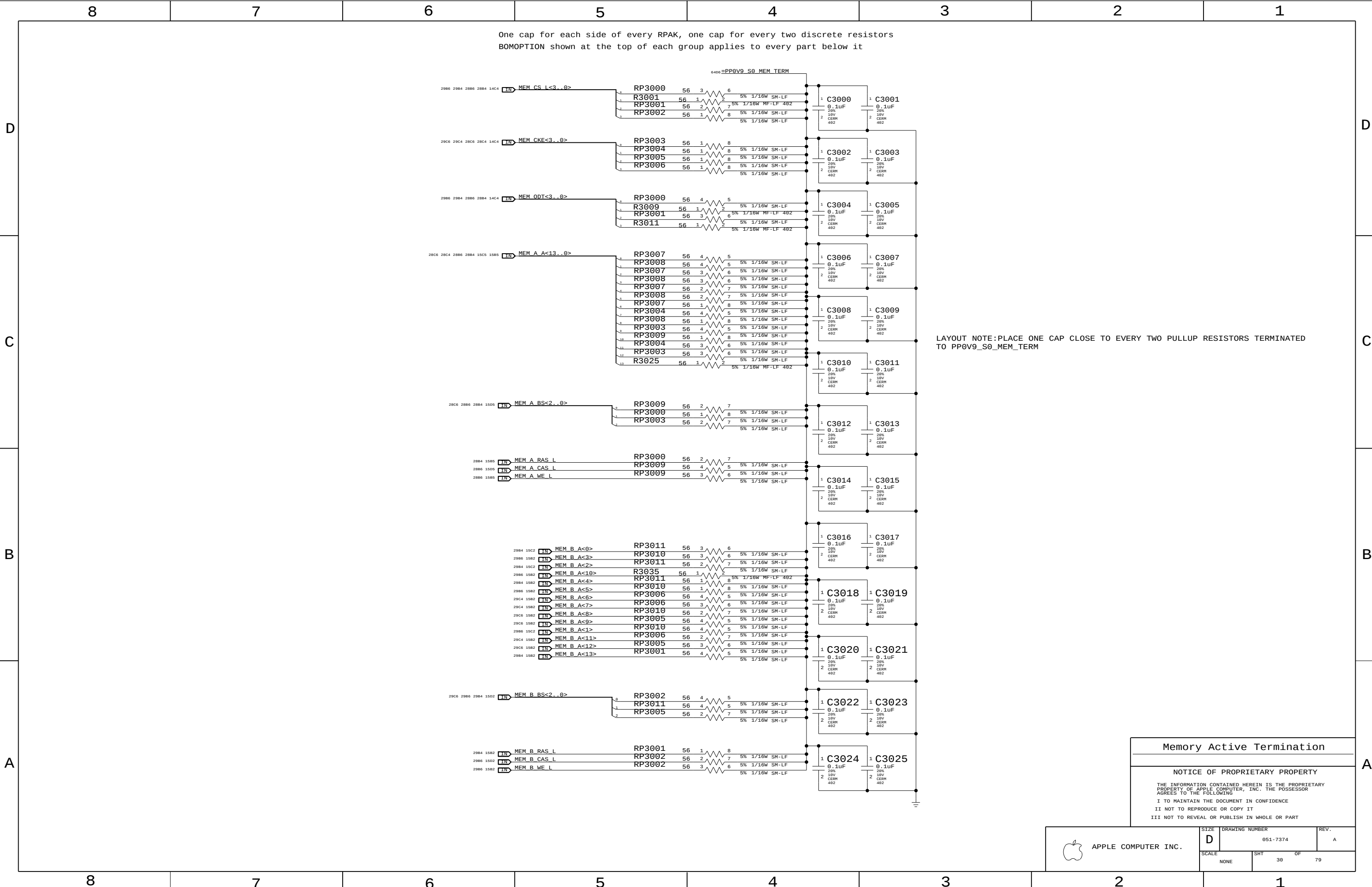
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LAYOUT NOTE:PLACE ONE CAP CLOSE TO EVERY TWO PULLUP RESISTORS TERMINATED TO PP0V9_S0_MEM_TERM

Memory Active Termination

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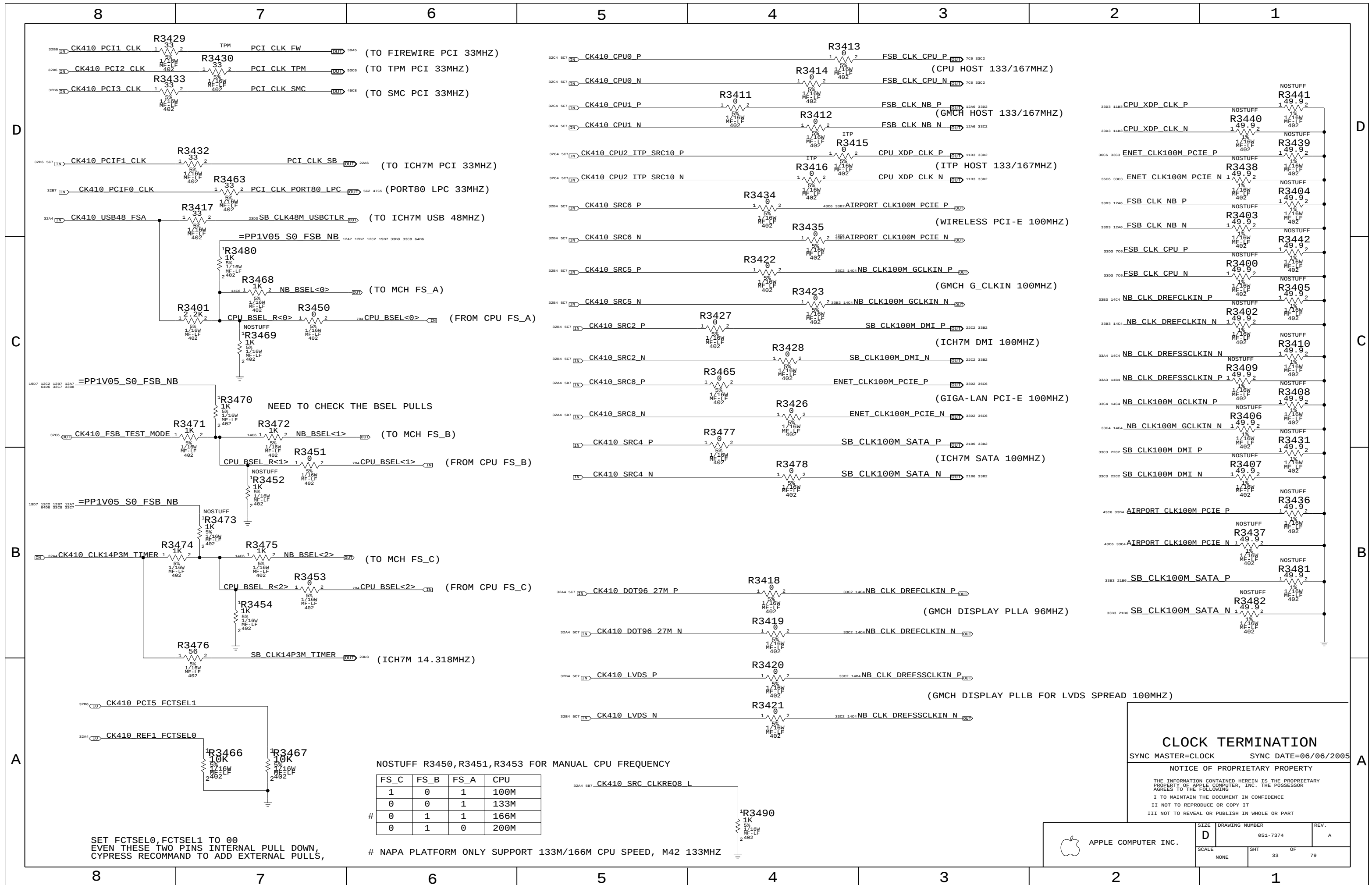
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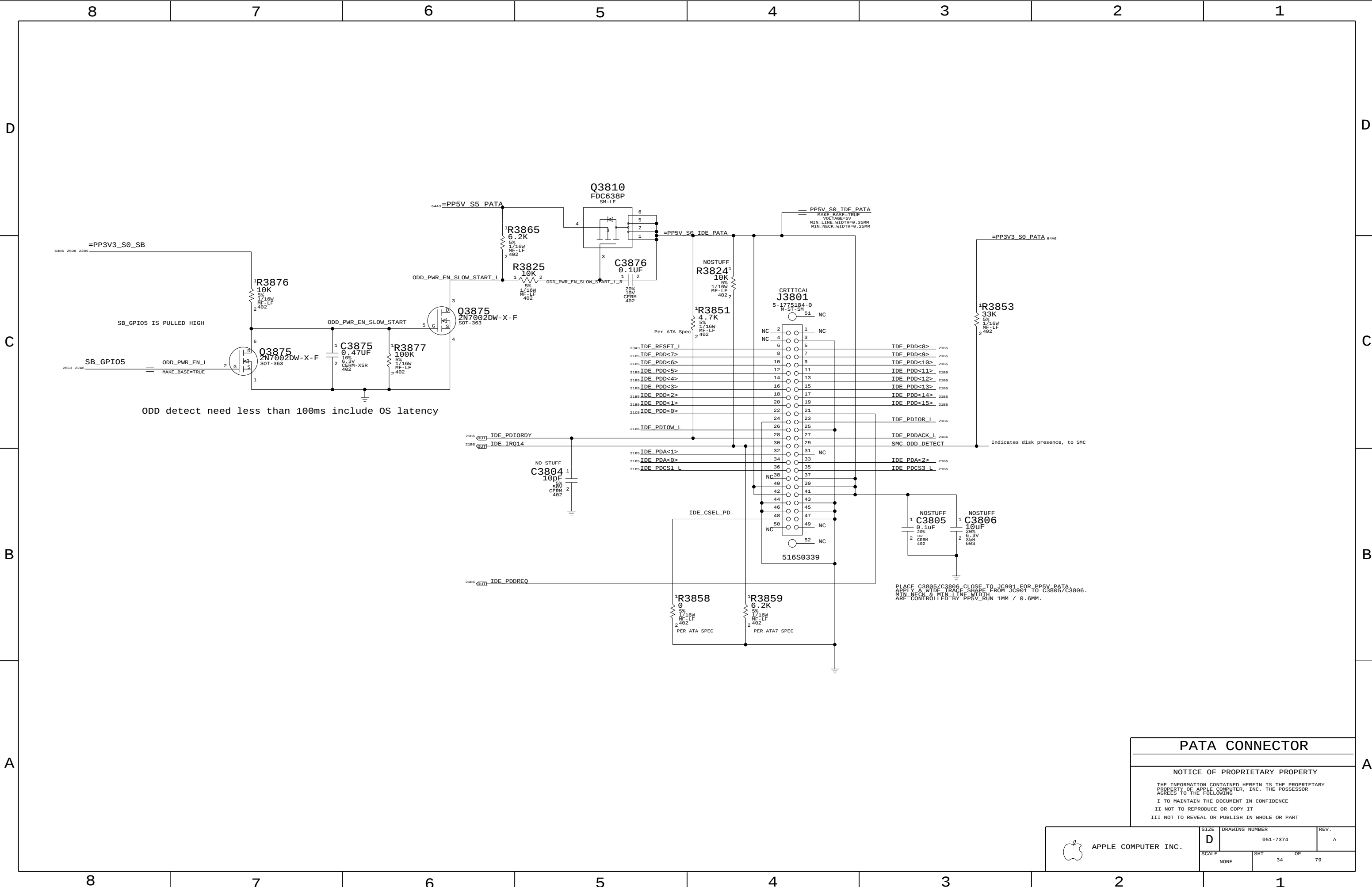
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	D	051-7374	A
SCALE	SHT		
	NONE	30	OF 79





PATA CONNECTOR

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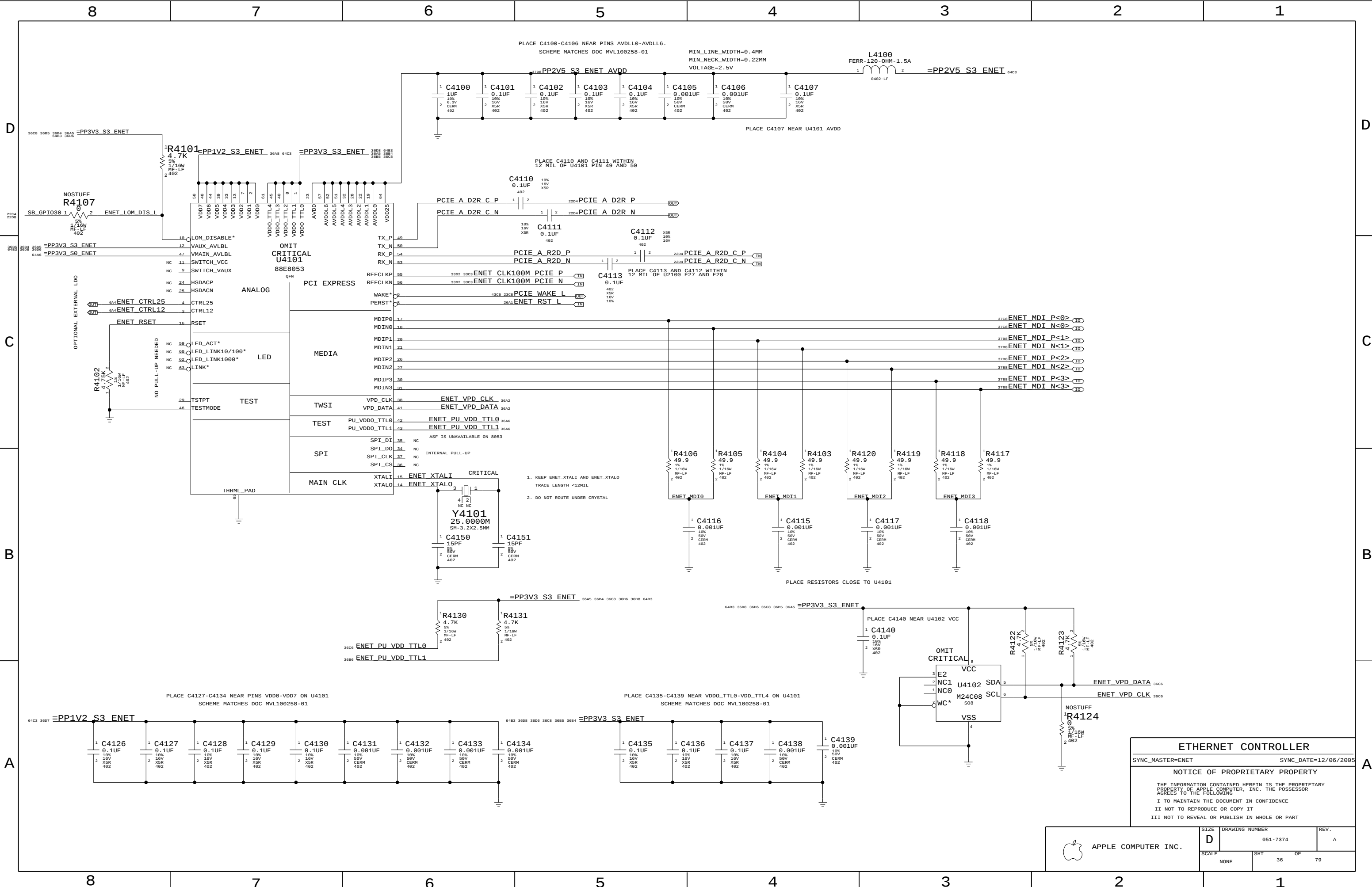
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	SCALE NONE	SHT 34	OF 79



ETHERNET CONTROLLER

SYNC_MASTER=ENET

SYNC_DATE=12/06/2005

NOTICE OF PROPRIETARY PROPERTY

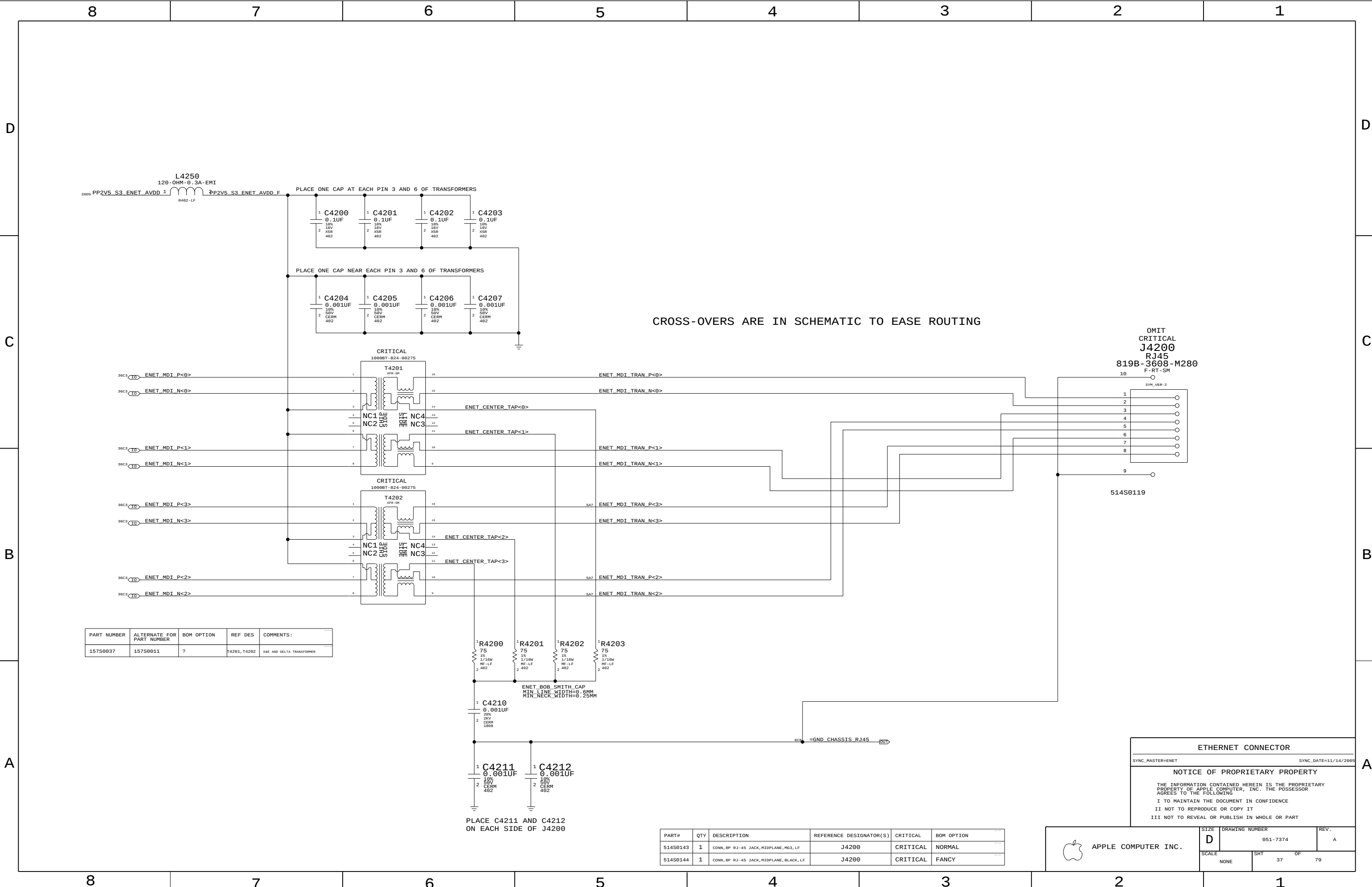
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SCALE		SHT	OF
NONE		36	79



L4250
120-OHM-0.3A-EMI
3605 PP2V5_S3_ENET_AVDD 1 6482-LF PP2V5_S3_ENET_AVDD_F

PLACE ONE CAP AT EACH PIN 3 AND 6 OF TRANSFORMERS

1 C4200 0.1UF 10% 35V XSR 482
2 1 C4201 0.1UF 10% 35V XSR 482
2 1 C4202 0.1UF 10% 35V XSR 482
2 1 C4203 0.1UF 10% 35V XSR 482

PLACE ONE CAP NEAR EACH PIN 3 AND 6 OF TRANSFORMERS

1 C4204 0.001UF 10% 50V CERM 482
2 1 C4205 0.001UF 10% 50V CERM 482
2 1 C4206 0.001UF 10% 50V CERM 482
2 1 C4207 0.001UF 10% 50V CERM 482

CROSS-OVERS ARE IN SCHEMATIC TO EASE ROUTING

OMIT
CRITICAL
J4200
RJ45
819B-3608-M280
F-RT-SM
10
O
STR_VER-2

514S0119

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
157S0037	157S0011	?	T4201, T4202	SEE AND DELTA TRANSFORMER

1 R4200 75 1% 1/10W RF-LF 482
2 1 R4201 75 1% 1/10W RF-LF 482
2 1 R4202 75 1% 1/10W RF-LF 482
2 1 R4203 75 1% 1/10W RF-LF 482

ENET_BOB_SMITH_CAP
MIN_LINE_WIDTH=0.6MM
MIN_NECK_WIDTH=0.25MM

1 C4210 0.001UF 20% 20V CERM 1808
2

1 C4211 0.001UF 10% 50V CERM 482
2

1 C4212 0.001UF 10% 50V CERM 482
2

PLACE C4211 AND C4212
ON EACH SIDE OF J4200

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
514S0143	1	CONN, BP RJ-45 JACK, MIDPLANE, M03, LF	J4200	CRITICAL	NORMAL
514S0144	1	CONN, BP RJ-45 JACK, MIDPLANE, BLACK, LF	J4200	CRITICAL	FANCY

ETHERNET CONNECTOR		
SYNC_MASTER=ENET		SYNC_DATE=11/14/2005
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	SCALE NONE	SHT 37	OF 79

PAGE NOTES

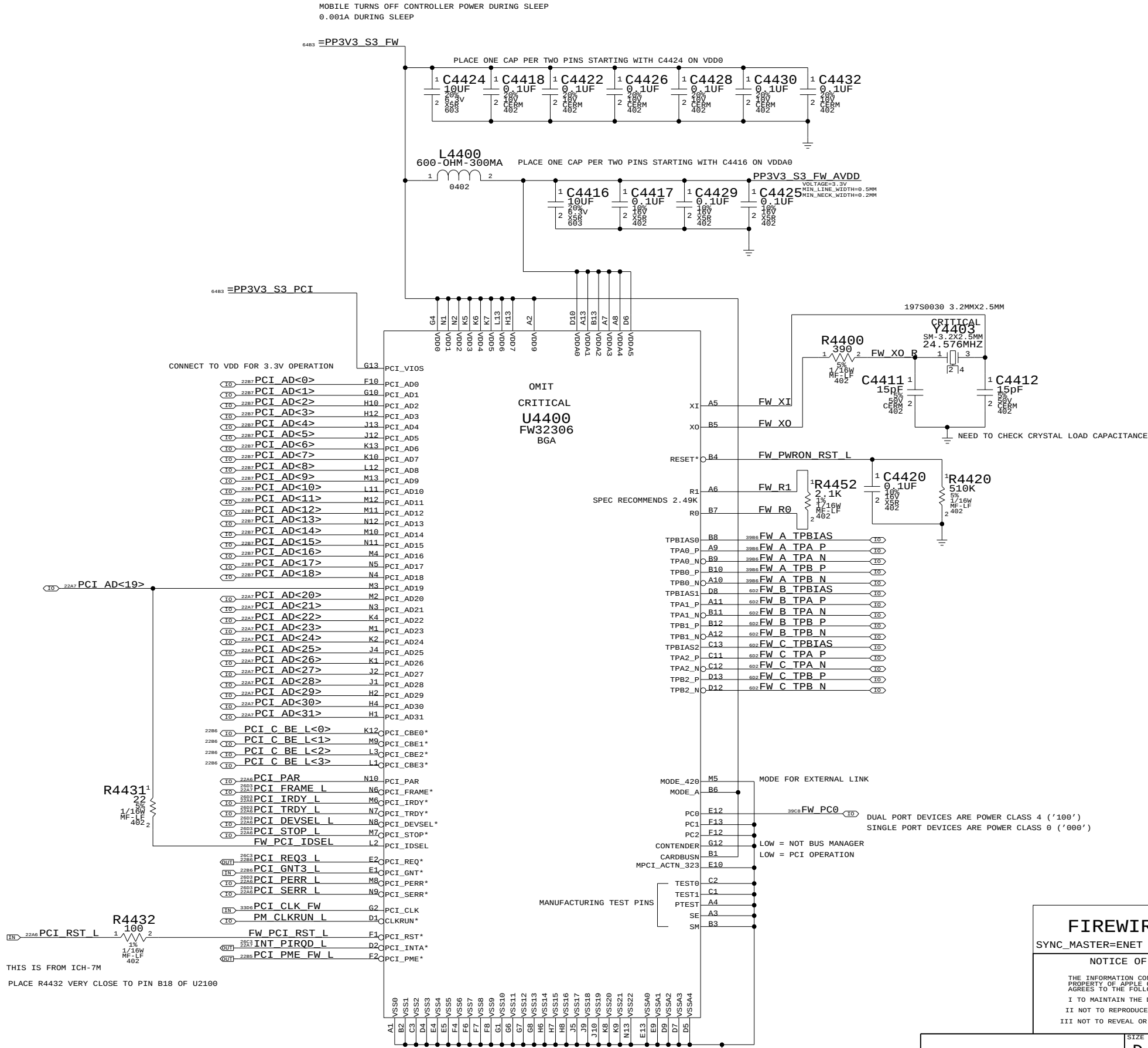
INPUT
=PP3V3_S0_FW - 3.3V POWER FOR FIREWIRE (MOBILE: OFF DURING SLEEP)
=PP3V3_S0_PCI - 3.3V POWER FOR PCI FIREWIRE (MOBILE: OFF DURING SLEEP)
PCI_GNT3_L - PCI GRANT FROM SB
PCI_CLK_FW - NEED TO REFERENCE TO ALIAS PAGE
PCI_RST_L - PCI RESET FROM SB
FW_PC0 - FIREWIRE POWER CLASS IDENTIFIER

INPUT/OUTPUT
PCI_AD<0..31>, PCI_C_BE_L<0..3>, PCI_FRAME_L, PCI_IRDY_L, PCI_TRDY_L,
PCI_DEVSEL_L, PCI_STOP_L, PCI_PAR, PCI_PERR_L, PCI_SERR_L
FW_A_TPA_P/N, FW_A_TPB_P/N, FW_A_TPBIAS - PORT 0 FIREWIRE DIFF PAIRS
FW_B_TPA_P/N, FW_B_TPB_P/N, FW_B_TPBIAS - PORT 1 FIREWIRE DIFF PAIRS
FW_C_TPA_P/N, FW_C_TPB_P/N, FW_C_TPBIAS - PORT 2 FIREWIRE DIFF PAIRS

OUTPUT
PCI_REQ3_L - PCI REQUEST TO SB
PM_CLKRUN_L - CLOCK-RUN PCI PROTOCOL
INT_PIRQD_L - INTERRUPT TO SB
PCI_PME_FW_L - DEDICATED PME FOR FIREWIRE (SB GPIO1)

PAGE HISTORY

5/19/2005 - FIRST REVISION OF PAGE
6/26/2005 - BGA VERSION OF FW323-96 ADDED
6/21/2005 - CHANGED INT TO INT_PIRQD (PER ARCHITECTURAL DEFINITION)
6/21/2005 - CHANGED PCI_STOP_L TO REQ3 (PER ARCHITECTURAL DEFINITION)
6/21/2005 - CHANGED PCI_DEVSEL_L TO REQ3 (PER ARCHITECTURAL DEFINITION)
6/21/2005 - ADDED 510K PULL-DOWN ON RST AND REMOVED CONNECTION TO PLT_RST_L
6/21/2005 - CHANGED FW_A_TPB_P/N TO FW_A_TPB_P/N AND REMOVED CONNECTION TO PLT_RST_L
6/21/2005 - REMOVED CONSTRAINT SETS AS THEY WILL BE MANAGED ON BOARD SIDE
6/21/2005 - REMOVED C4421 - REDUNDANT
6/26/2005 - BRING OUT PCB CONNECTION TO BE CONNECTED ON PORT PAGE
7/26/2005 - CONNECTED PIN E10 TO GND



FIREWIRE CONTROLLER

SYNC_MASTER=ENET SYNC_DATE=08/30/2005

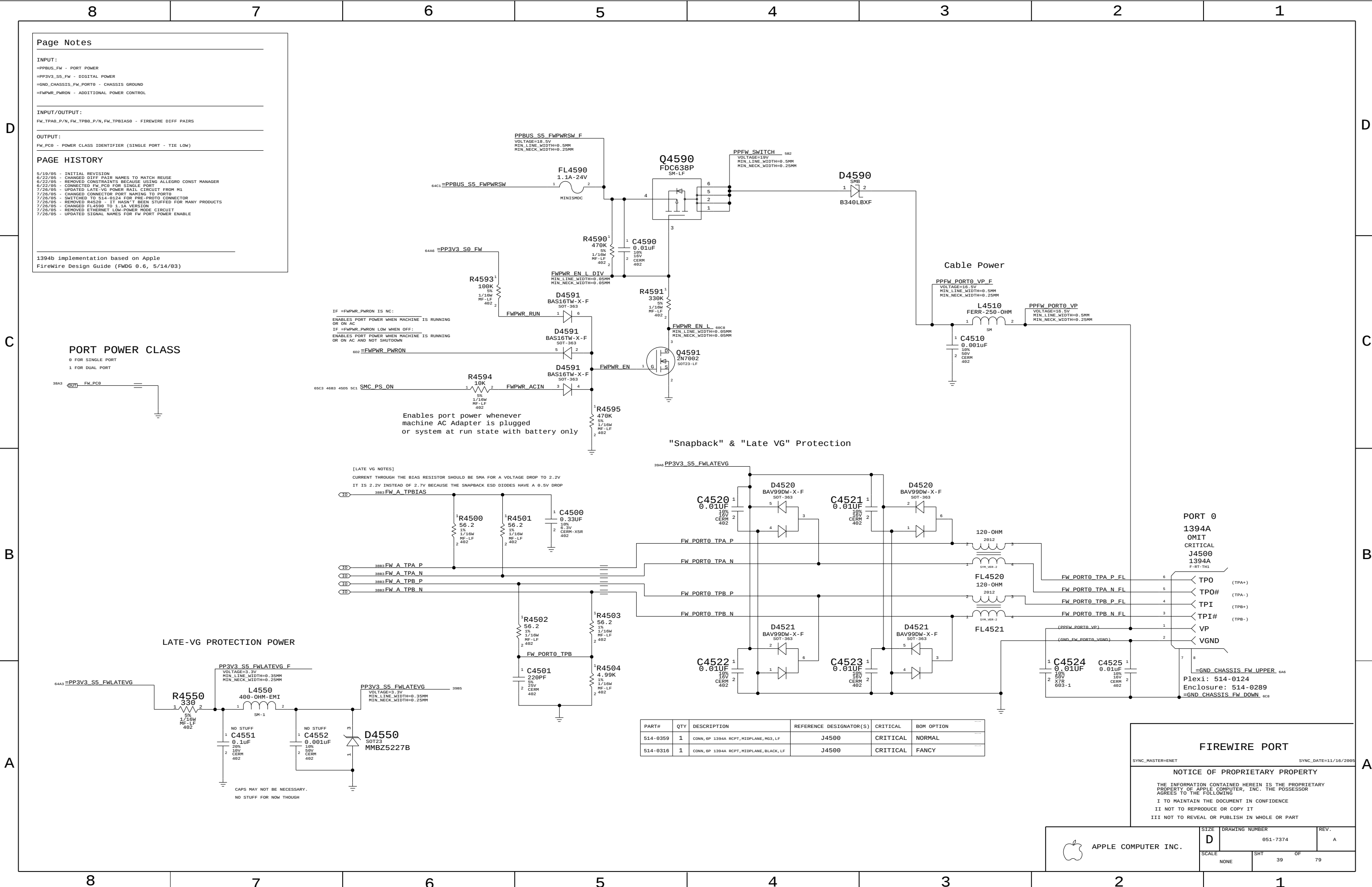
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SIZE	DRAWING NUMBER	REV.
D	051-7374	A
SCALE	SHT	OF
NONE	38	79



Page Notes

INPUT:
=PPBUS_FW - PORT POWER
=PP3V3_S5_FW - DIGITAL POWER
=GND_CHASSIS_FW_PORT0 - CHASSIS GROUND
=FWPWR_PWRON - ADDITIONAL POWER CONTROL

INPUT/OUTPUT:
FW_TPA0_P/N, FW_TPB0_P/N, FW_TPBIA0 - FIREWIRE DIFF PAIRS

OUTPUT:
FW_PC0 - POWER CLASS IDENTIFIER (SINGLE PORT - TIE LOW)

PAGE HISTORY

5/19/05	- INITIAL REVISION
6/22/05	- CHANGED DIFF PAIR NAMES TO MATCH REUSE
6/22/05	- REMOVED CONSTRAINTS BECAUSE USING ALLEGRO CONST MANAGER
6/22/05	- CONNECTED FW_PC0 FOR SINGLE PORT
7/26/05	- UPDATED LATE-VG POWER RAIL CIRCUIT FROM M1
7/26/05	- CHANGED CONNECTOR PORT NAMING TO PORT0
7/26/05	- SWITCHED TO 514-0124 FOR PRE-PROTO CONNECTOR
7/26/05	- REMOVED R4520 - IT HASN'T BEEN STUFFED FOR MANY PRODUCTS
7/26/05	- CHANGED FL4500 TO 1.1A VERSION
7/26/05	- REMOVED ETHERNET LOW-POWER MODE CIRCUIT
7/26/05	- UPDATED SIGNAL NAMES FOR FW PORT POWER ENABLE

1394b implementation based on Apple
FireWire Design Guide (FWDG 0.6, 5/14/03)

PORT POWER CLASS

0 FOR SINGLE PORT
1 FOR DUAL PORT

IF =FWPWR_PWRON IS NC:
ENABLES PORT POWER WHEN MACHINE IS RUNNING
OR ON AC
IF =FWPWR_PWRON LOW WHEN OFF:
ENABLES PORT POWER WHEN MACHINE IS RUNNING
OR ON AC AND NOT SHUTDOWN

Enables port power whenever
machine AC Adapter is plugged
or system at run state with battery only

"Snapback" & "Late VG" Protection

[LATE VG NOTES]
CURRENT THROUGH THE BIAS RESISTOR SHOULD BE 5MA FOR A VOLTAGE DROP TO 2.2V
IT IS 2.2V INSTEAD OF 2.7V BECAUSE THE SNAPBACK ESD DIODES HAVE A 0.5V DROP

LATE-VG PROTECTION POWER

PORT 0

1394A
OMIT
CRITICAL
J4500
1394A
F-RT-TH1

TP0 (TPA+)
TP0# (TPA-)
TPI (TPB+)
TPI# (TPB-)

=GND_CHASSIS_FW_UPPER_6A6
Plexi: 514-0124
Enclosure: 514-0289
=GND_CHASSIS_FW_DOWN_6C8

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
514-0359	1	CONN, 6P 1394A RCPT, MIDPLANE, MG3, LF	J4500	CRITICAL	NORMAL
514-0316	1	CONN, 6P 1394A RCPT, MIDPLANE, BLACK, LF	J4500	CRITICAL	FANCY

FIREWIRE PORT

SYNC_MASTER=ENET
SYNC_DATE=11/16/2005

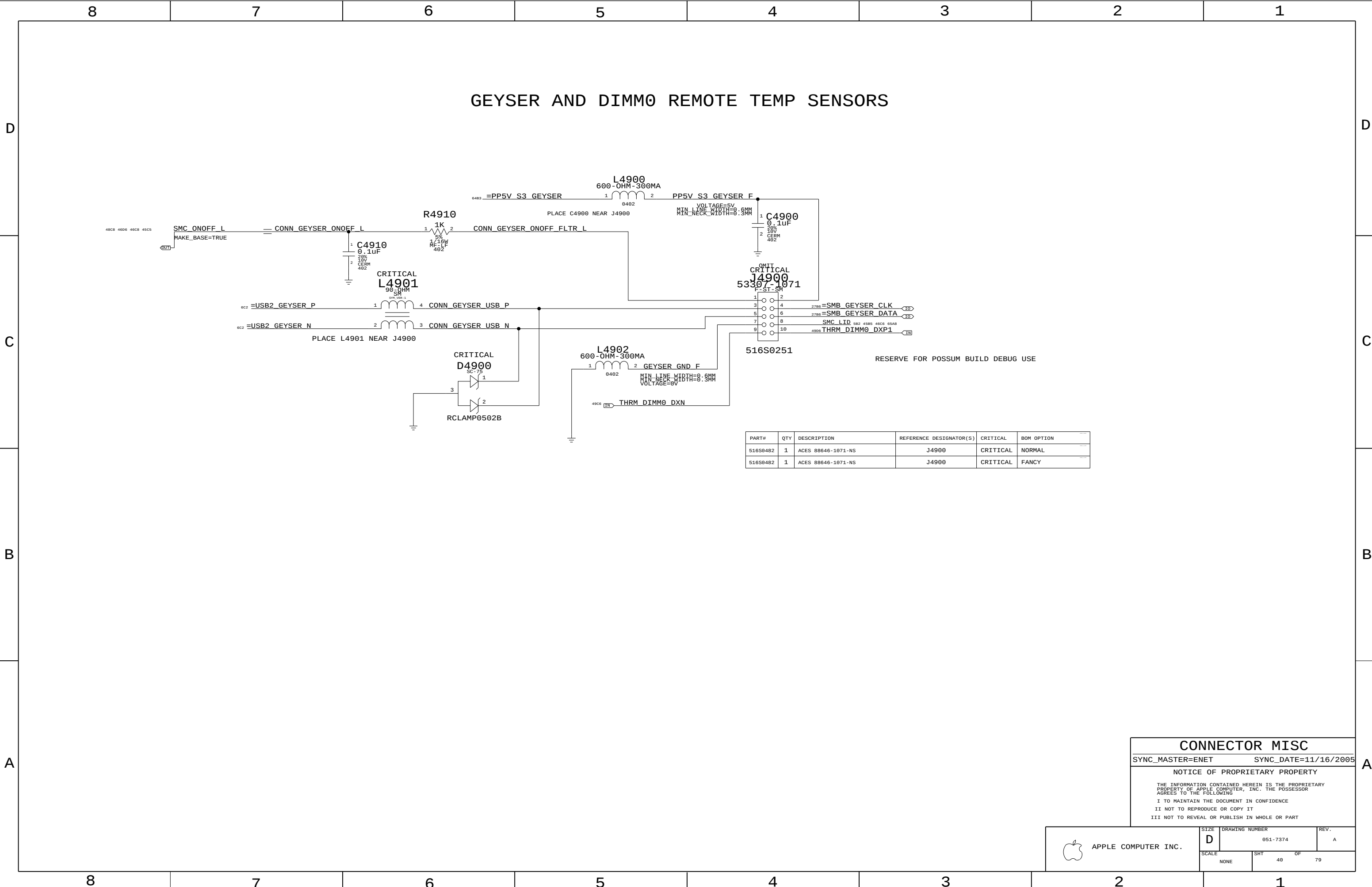
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CONNECTOR MISC

SYNC_MASTER=ENET

SYNC_DATE=11/16/2005

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DRAWING NUMBER

051-7374

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A

SCALE

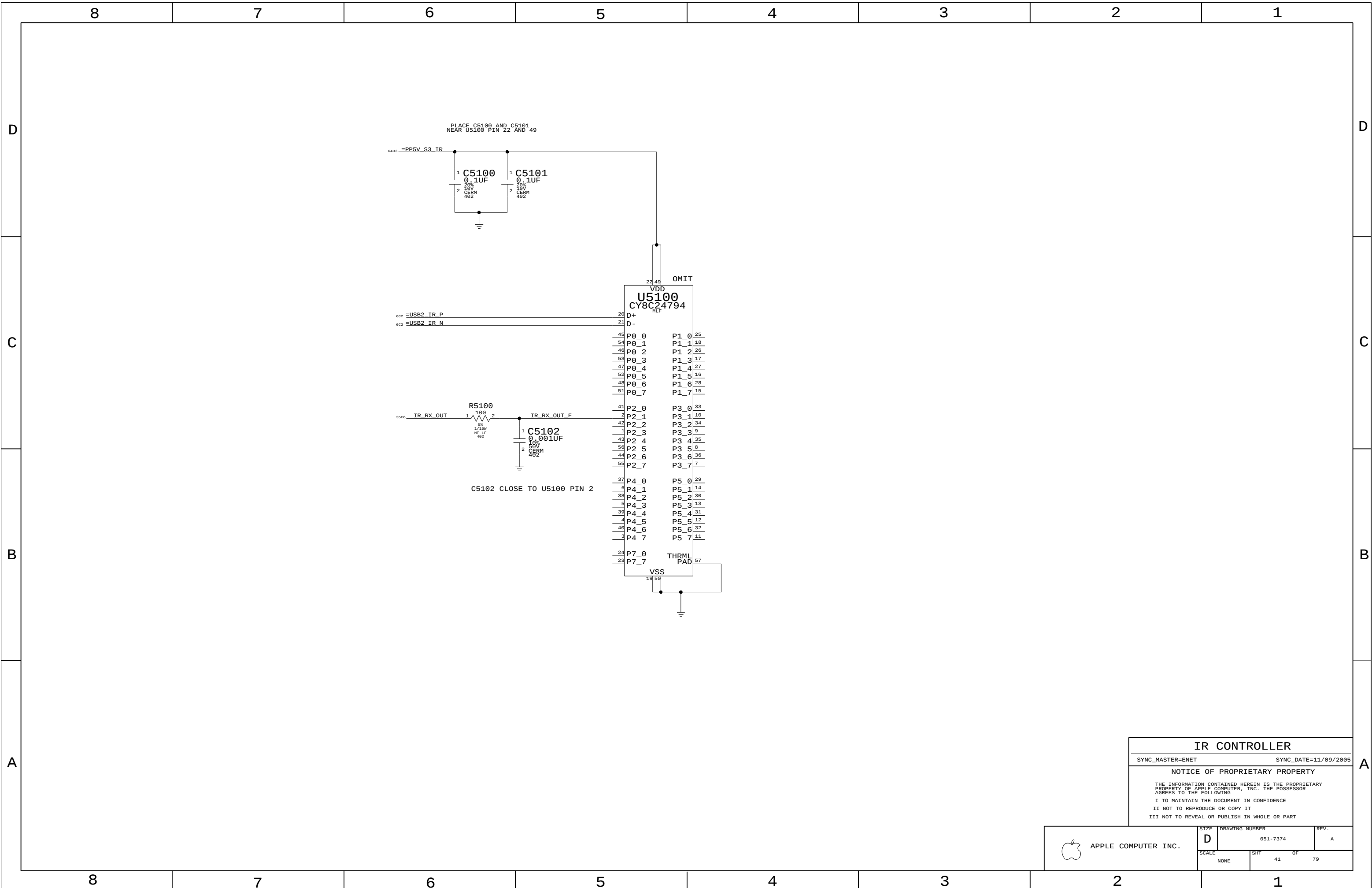
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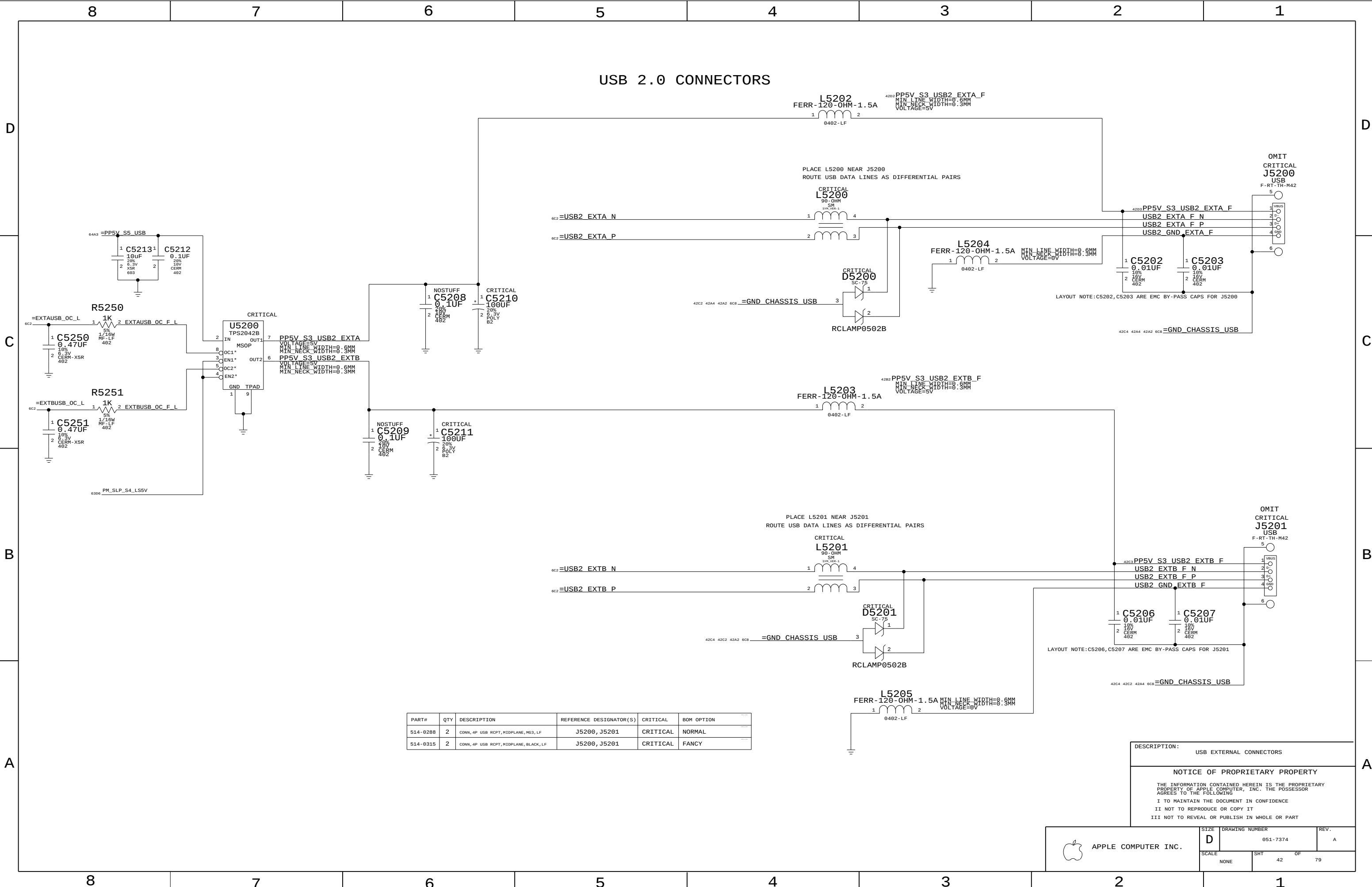
SHT

40

OF

79





PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
514-0288	2	CONN, 4P USB RCPT, MIDPLANE, W3, LF	J5200, J5201	CRITICAL	NORMAL
514-0315	2	CONN, 4P USB RCPT, MIDPLANE, BLACK, LF	J5200, J5201	CRITICAL	FANCY

DESCRIPTION:
USB EXTERNAL CONNECTORS

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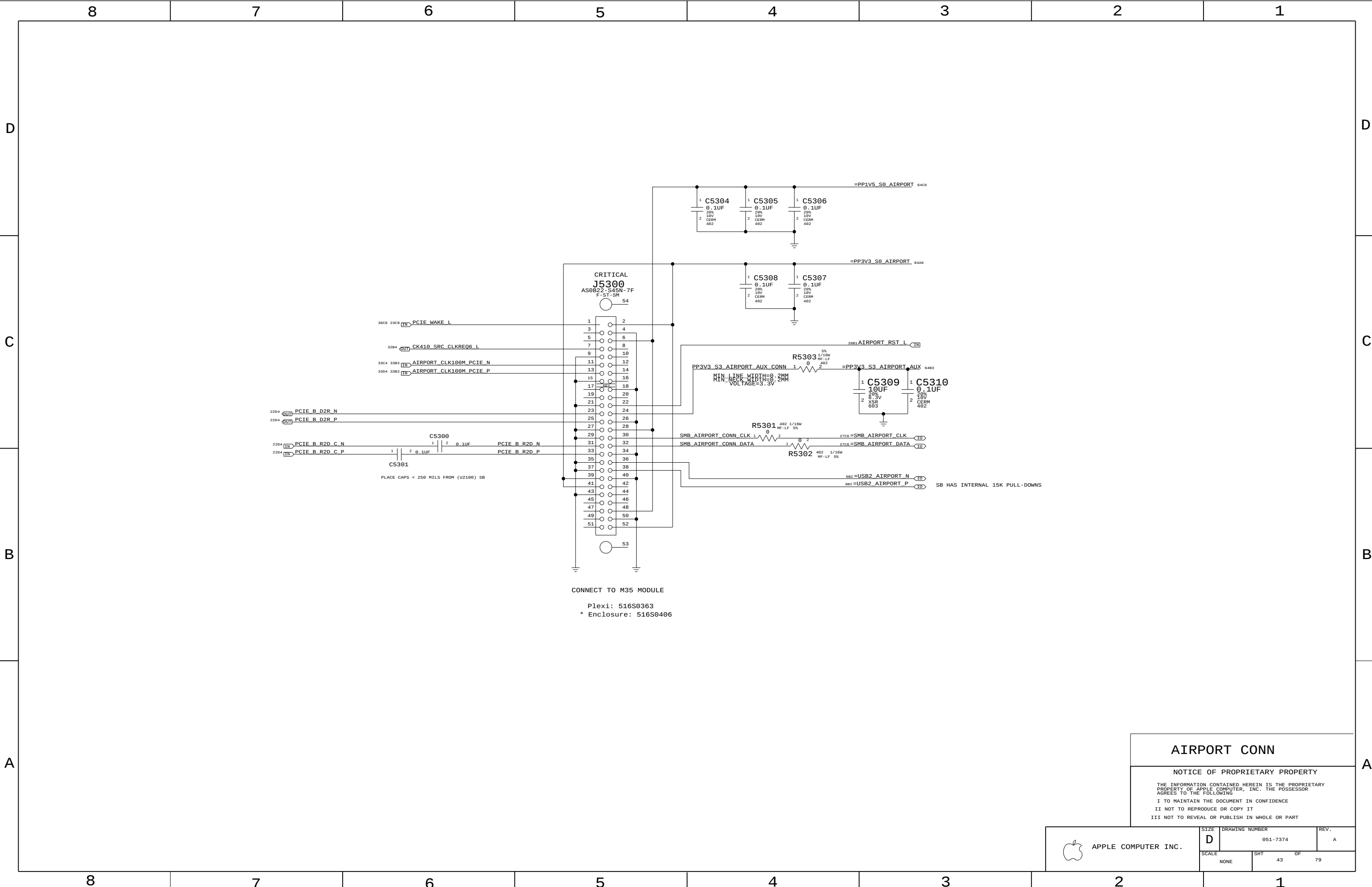
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	SCALE NONE	SHT 42	OF 79



AIRPORT CONN

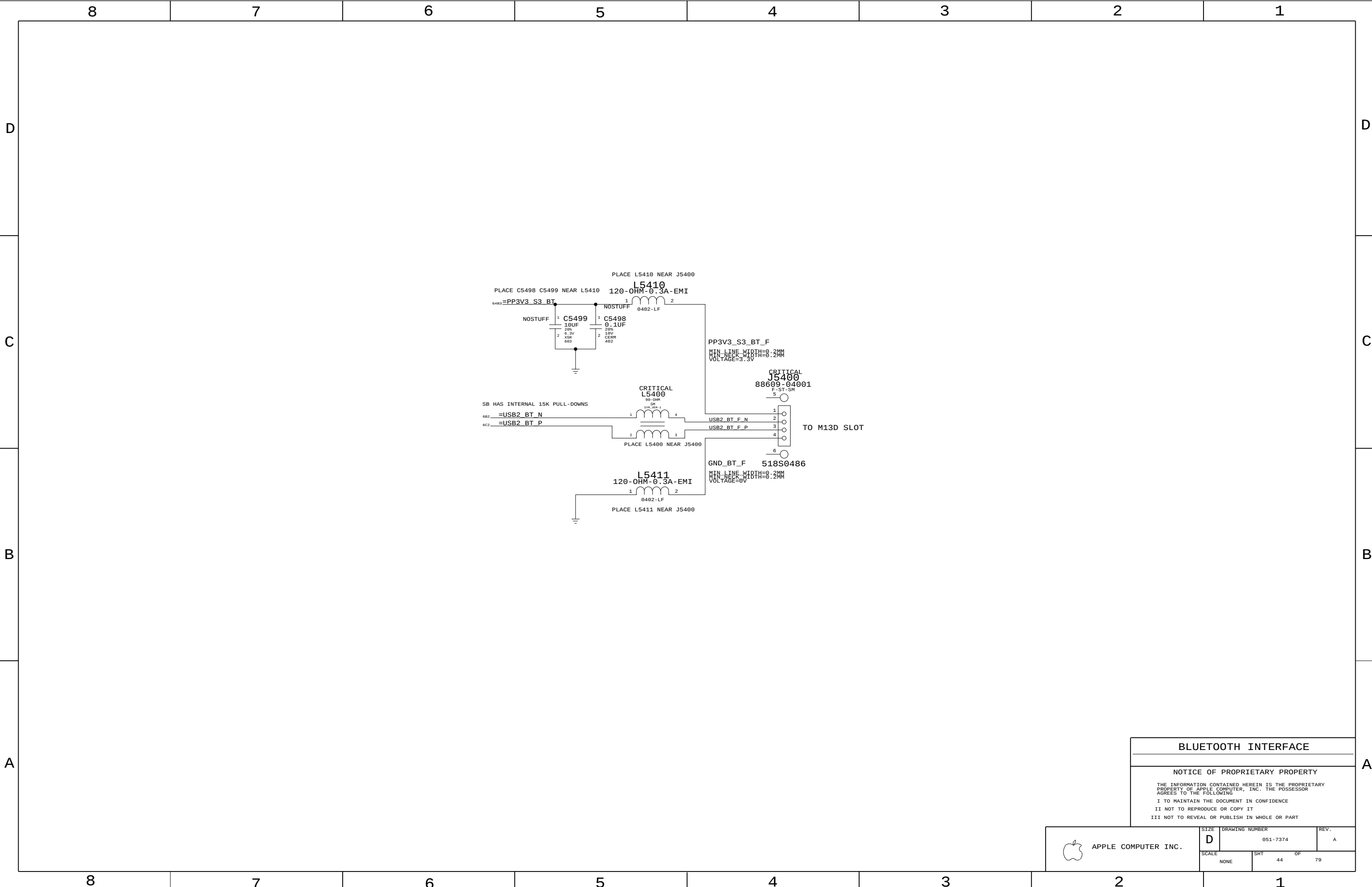
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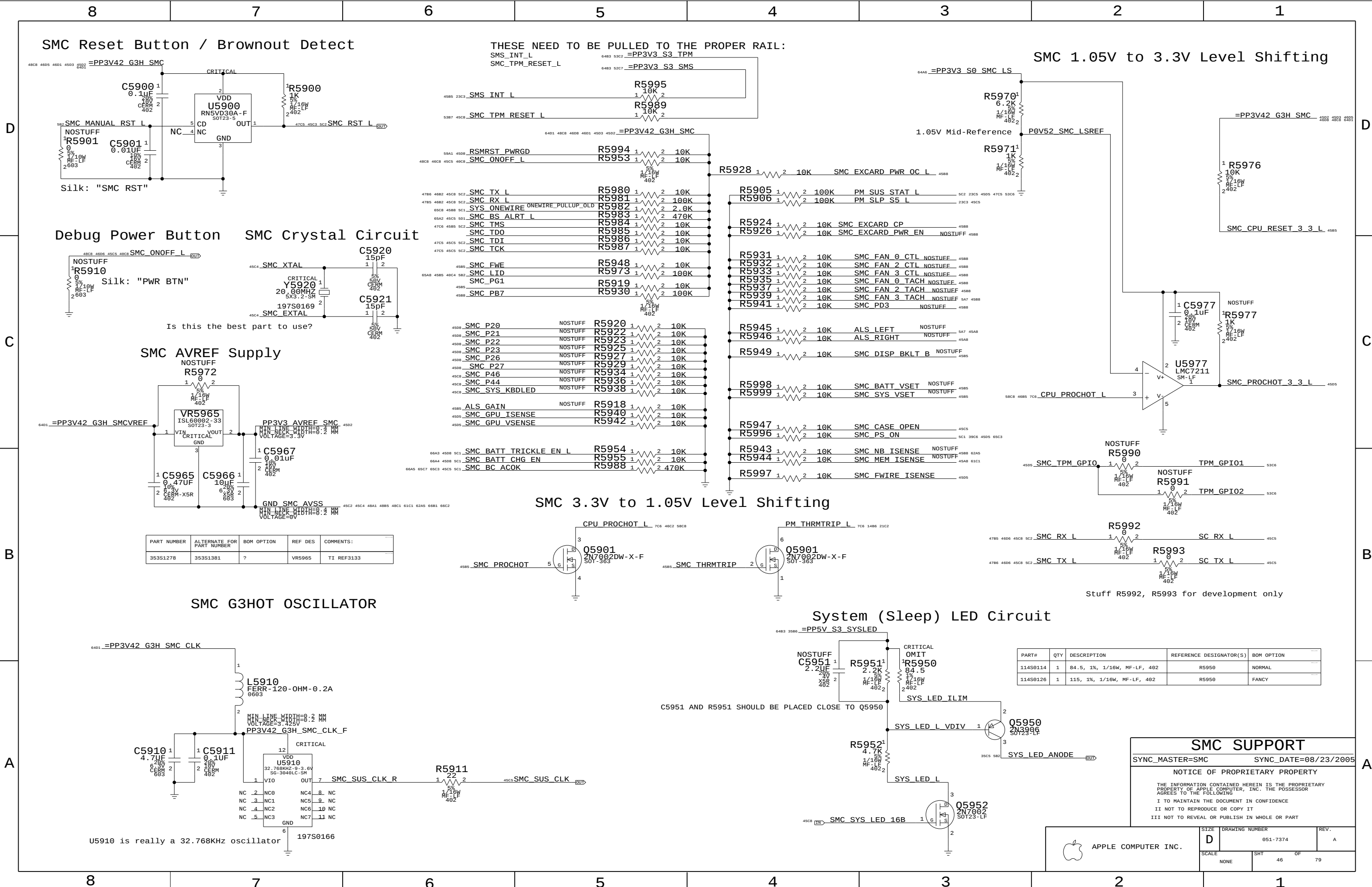


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BLUETOOTH INTERFACE		
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SCALE NONE	SHT 44	OF 79

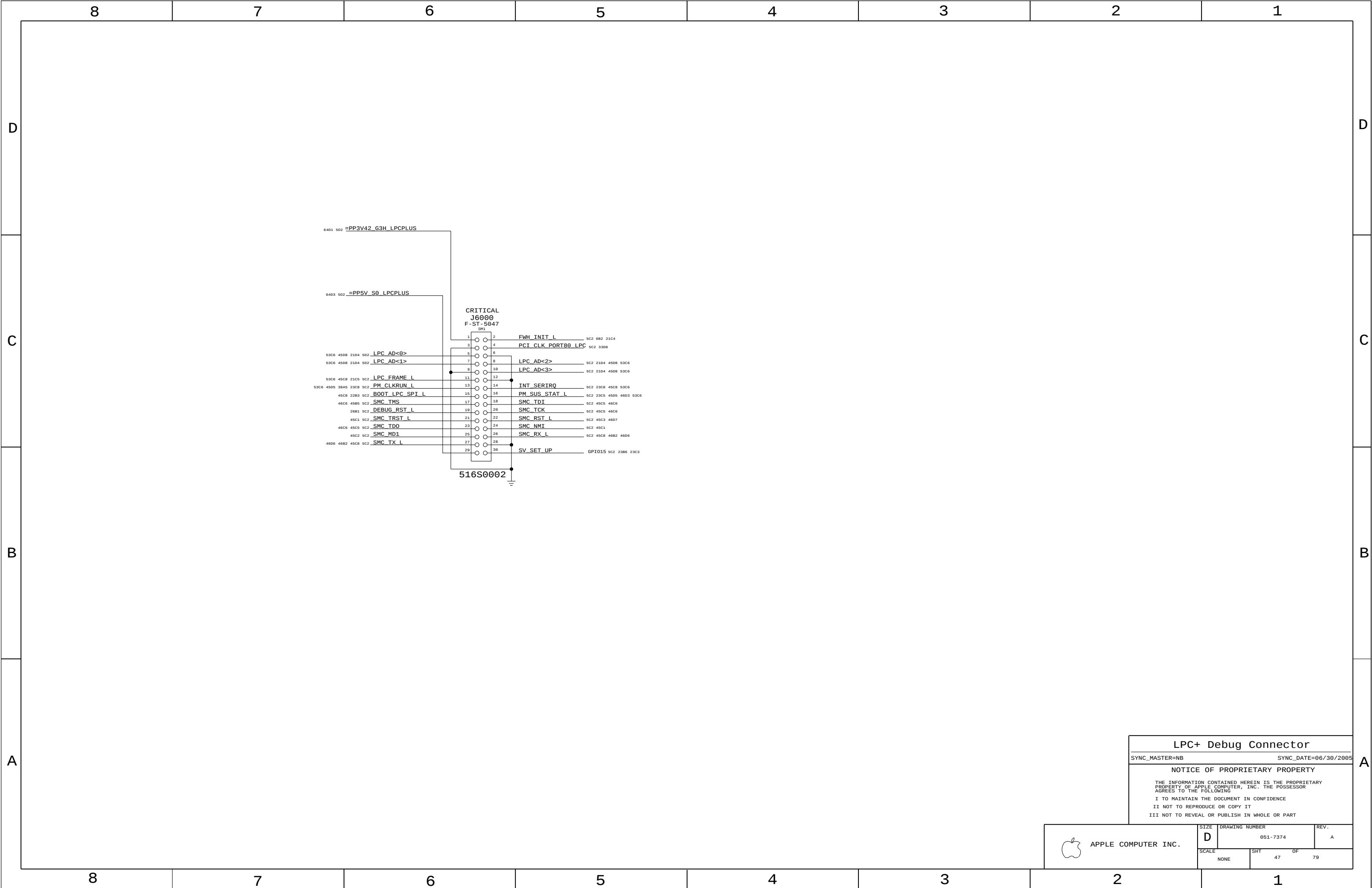


PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
353S1278	353S1381	?	VR5965	TI REF3133

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
114S0114	1	84.5, 1%, 1/16W, MF-LF, 402	R5950	NORMAL
114S0126	1	115, 1%, 1/16W, MF-LF, 402	R5950	FANCY

SMC SUPPORT	
SYNC_MASTER=SMC	SYNC_DATE=08/23/2005
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	SCALE NONE	SHT 46	OF 79



LPC+ Debug Connector

SYNC_MASTER=NB

SYNC_DATE=06/30/2005

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SCALE
NONE

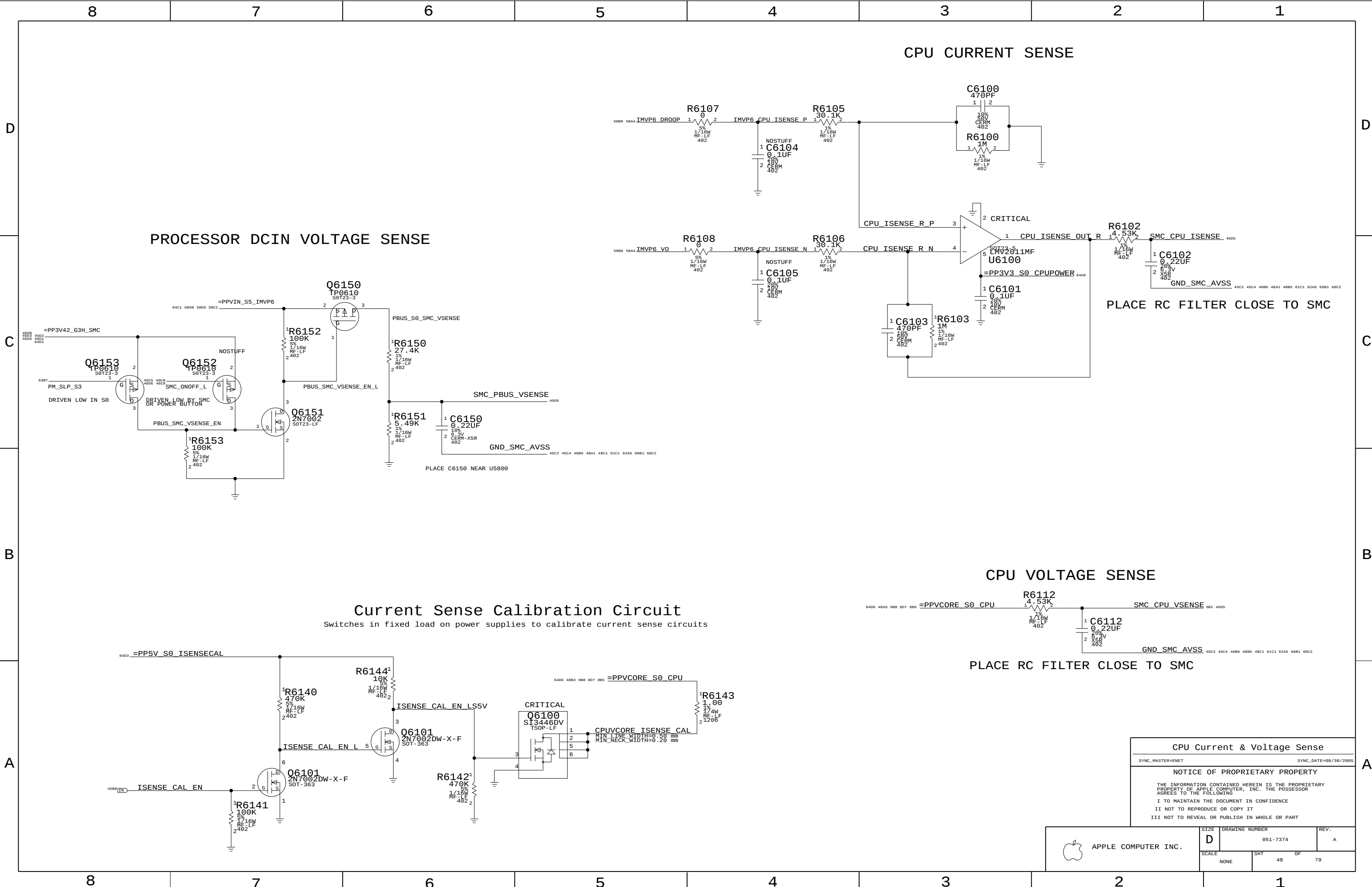
SIZE
D

DRAWING NUMBER
051-7374

SHT
47

REV.
A

OF
79



PROCESSOR DCIN VOLTAGE SENSE

CPU CURRENT SENSE

CPU VOLTAGE SENSE

Current Sense Calibration Circuit

Switches in fixed load on power supplies to calibrate current sense circuits

CPU Current & Voltage Sense

SYNC_MASTER=ENET SYNC_DATE=08/30/2005

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SIZE D DRAWING NUMBER 051-7374 REV. A

SCALE NONE SHT 48 OF 79

ADDITIONAL NOISE FILTERING

R6203

THRM_DIMM0 3V3 UNFILTERED

1 47 2 =PP3V3_S0_THRM_SNR 10C4 49B3 64A6

1 1% 1/16W NF-LF 462

1 C6202 0.1UF

100V 180V 2 XSR 402

PLACE NEXT TO C6202 U6200 PIN 1

CRITICAL

VCC U6200 MAX6695AUB UMAX1

2 DXP1

3 D2N

4 DXP2

9 SMBDATA 27B3 THRM_DIMM0_SMB_DATA TO

7 SMBCLK 27B3 THRM_DIMM0_SMB_CLK TO

8 ALERT* NC

5 OT1* NC

10 OT2* NC

GND

PLACE U6200 NEAR U1200

PLACE C6200 AND C6201 NEXT TO DXP AND DXN

48C4 OUT THRM_DIMM0_DXP1

IF A SENSOR INPUT IS UNUSED STUFF THE CORRESPONDING RESISTOR

1 R6200 5% 1/16W NF-LF 462

1 C6200 0.0022UF

50V 180V 2 CERM 402

48C5 OUT THRM_DIMM0_D2N

IF B SENSOR INPUT IS UNUSED STUFF THE CORRESPONDING RESISTOR

1 R6201 5% 1/16W NF-LF 462

1 C6201 0.0022UF

50V 180V 2 CERM 402

CRITICAL J6250

BM02B-ACHKS-GAN-TF-LF-SN-M

M-RT-SM

3

1

2

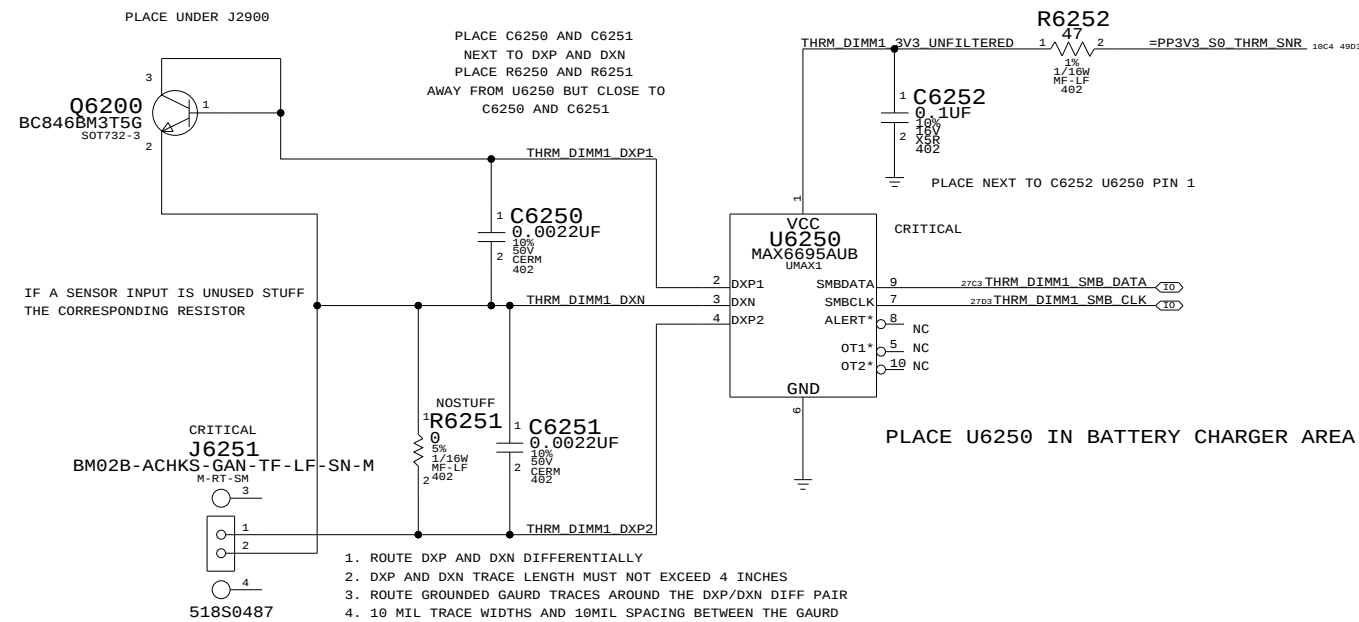
4

THRM_DIMM0_DXP2

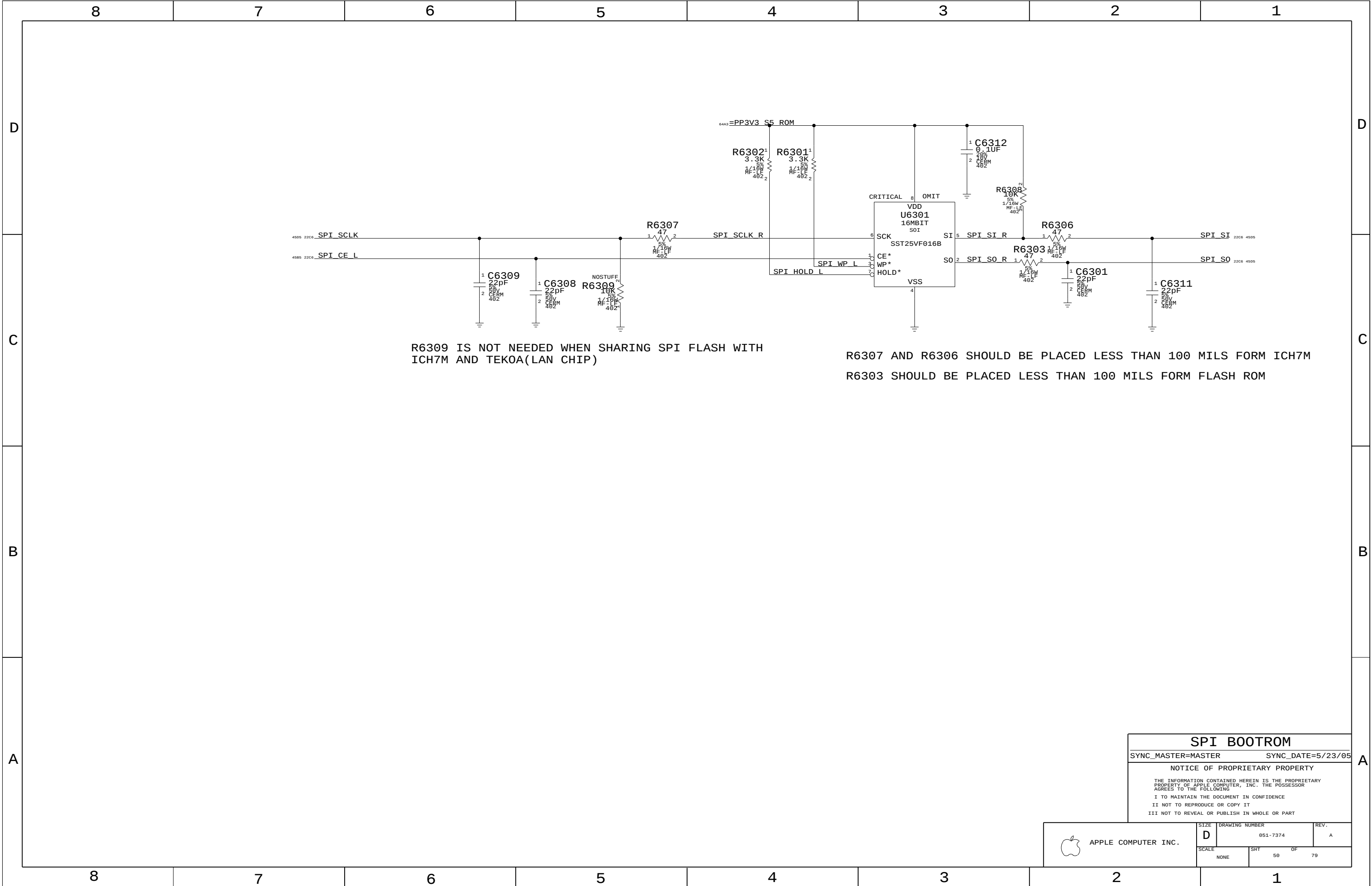
1. ROUTE DXP AND DXN DIFFERENTIALLY
2. DXP AND DXN TRACE LENGTH MUST NOT EXCEED 4 INCHES
3. ROUTE GROUNDED GAURD TRACES AROUND THE DXP/DXN DIFF PAIR
4. 10 MIL TRACE WIDTHS AND 10MIL SPACING BETWEEN THE GAURD

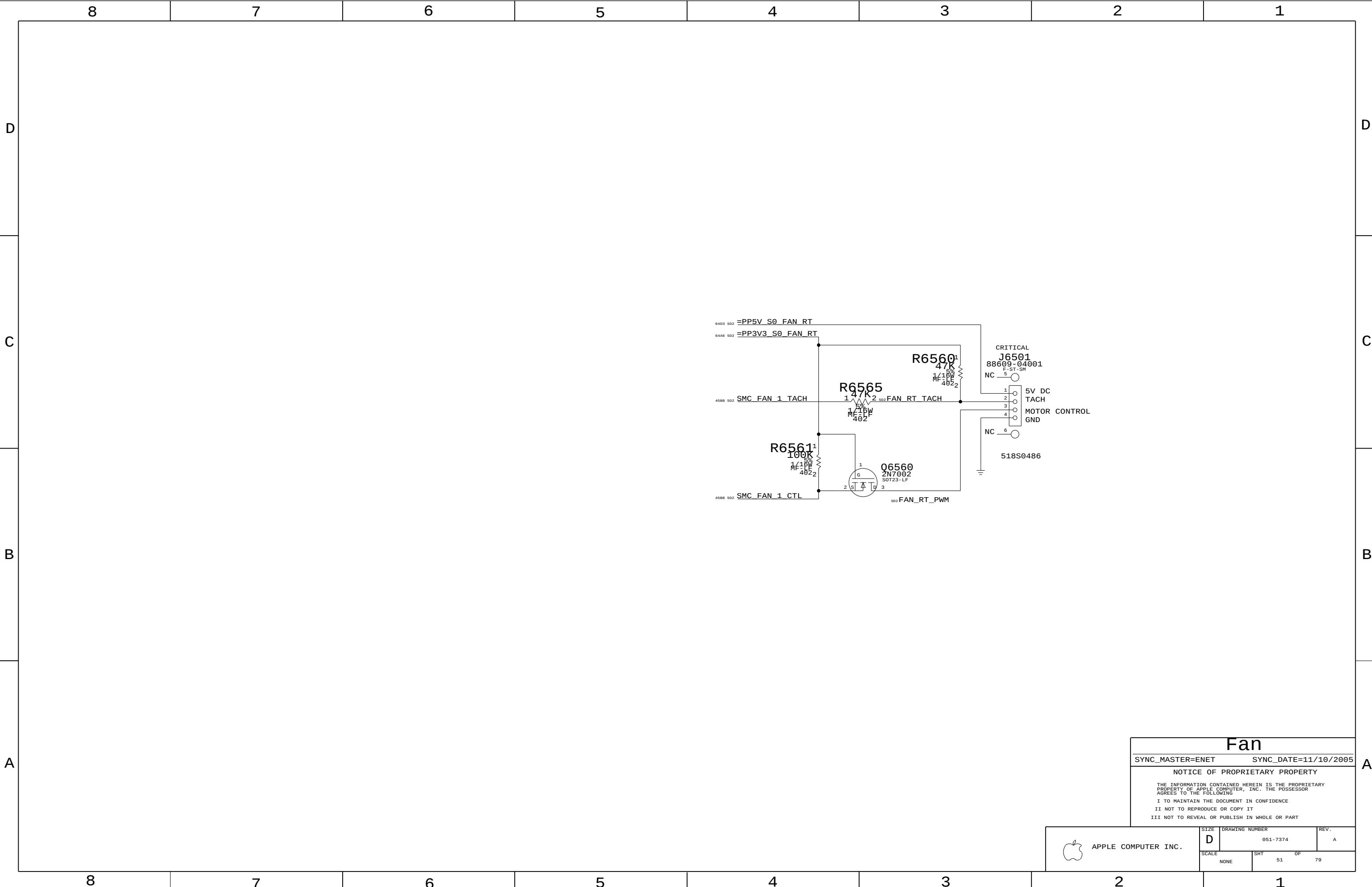
518S0487

DIMM1 TEMPERATURE ZONE



TEMPERATURE SENSE	
SYNC_MASTER=ENET	SYNC_DATE=11/09/2005
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Fan

SYNC_MASTER=ENET SYNC_DATE=11/10/2005

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A

SCALE

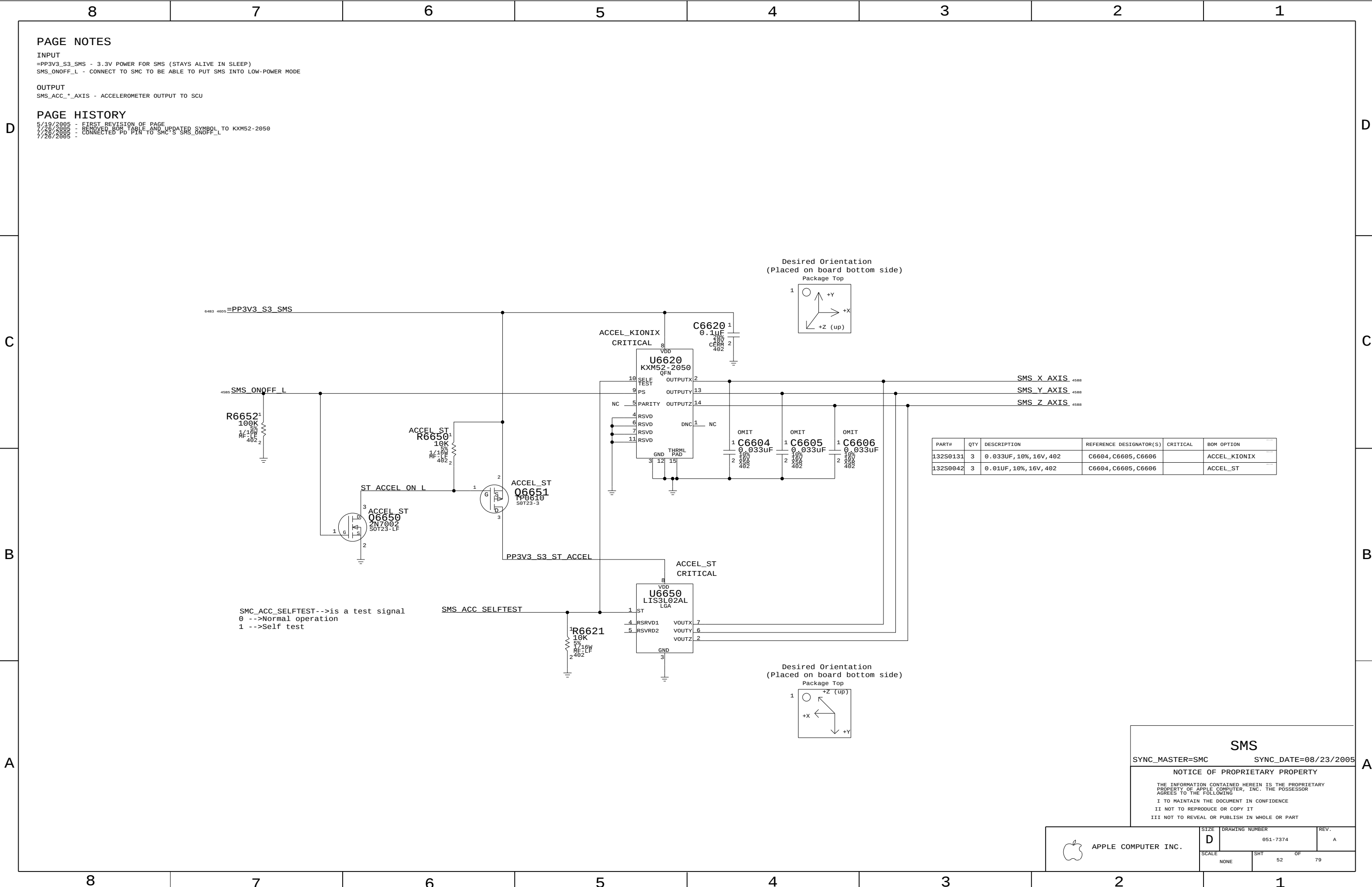
NONE

SHT

51

OF

79



PAGE NOTES

INPUT
=PP3V3_S3_SMS - 3.3V POWER FOR SMS (STAYS ALIVE IN SLEEP)
SMS_ONOFF_L - CONNECT TO SMC TO BE ABLE TO PUT SMS INTO LOW-POWER MODE

OUTPUT
SMS_ACC_*_AXIS - ACCELEROMETER OUTPUT TO SCU

PAGE HISTORY

5/19/2005 - FIRST REVISION OF PAGE
7/26/2005 - REMOVED BOM TABLE AND UPDATED SYMBOL TO KXM52-2050
7/26/2005 - CONNECTED PD PIN TO SMC'S SMS_ONOFF_L

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
132S0131	3	0.033UF, 10%, 16V, 402	C6604, C6605, C6606		ACCEL_KIONIX
132S0042	3	0.01UF, 10%, 16V, 402	C6604, C6605, C6606		ACCEL_ST

SMS

SYNC_MASTER=SMC SYNC_DATE=08/23/2005

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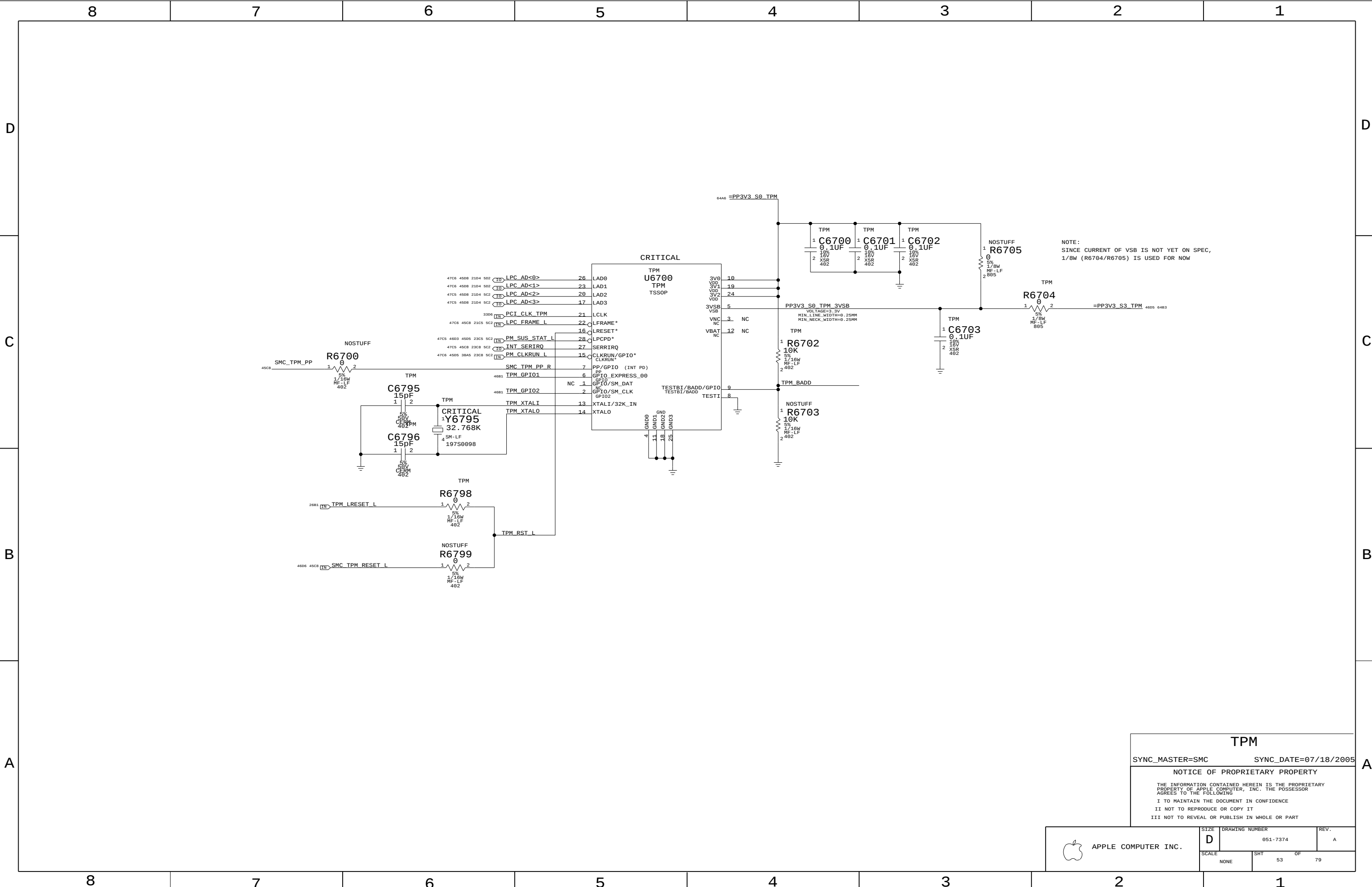
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APPLE COMPUTER INC.

SIZE D DRAWING NUMBER 051-7374 REV. A

SCALE NONE SHT 52 OF 79



TPM

SYNC_MASTER=SMC SYNC_DATE=07/18/2005

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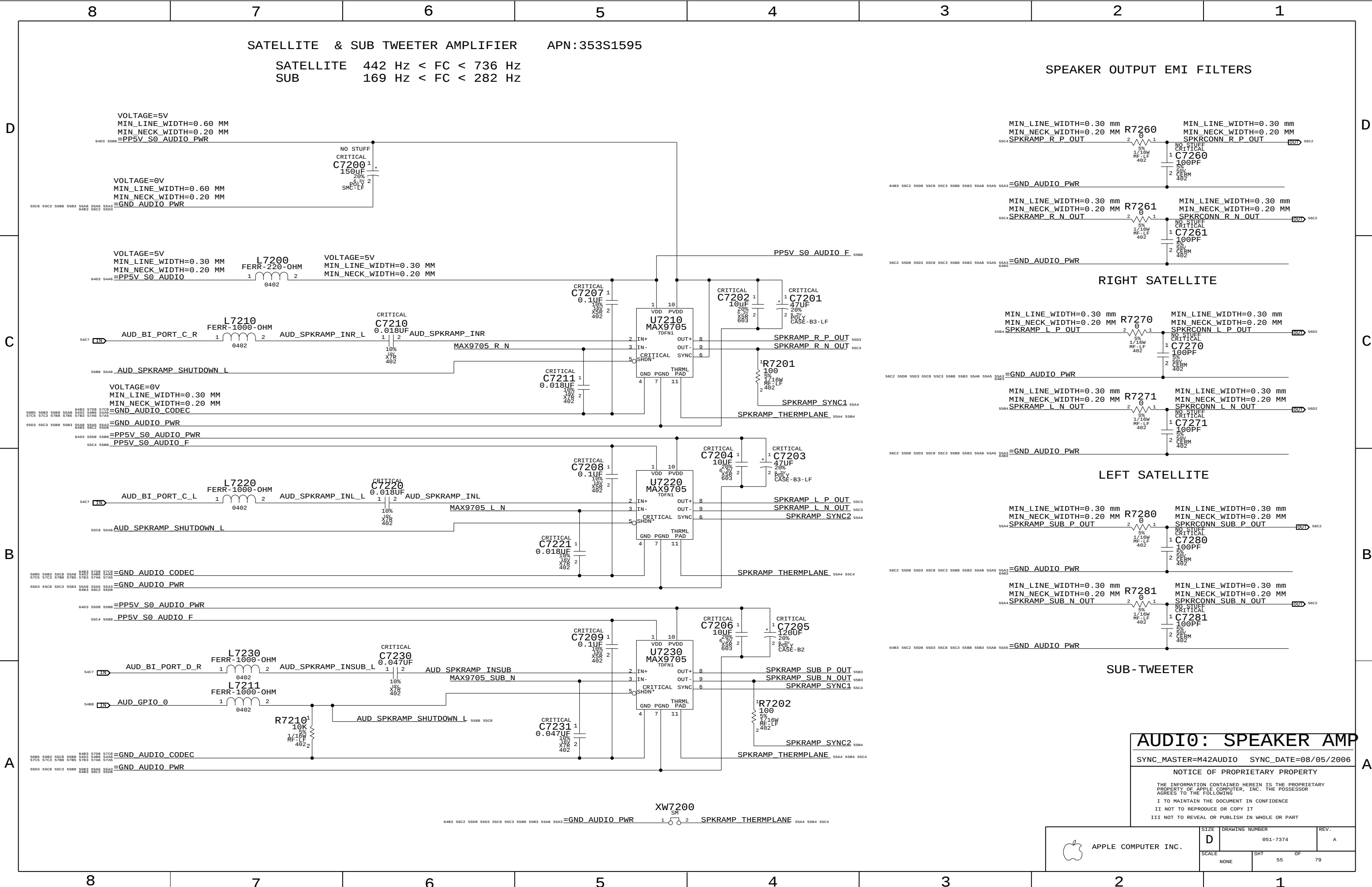
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	SCALE NONE	SHT 53	OF 79



AUDIO: SPEAKER AMP

SYNC_MASTER=M42AUDIO SYNC_DATE=08/05/2006

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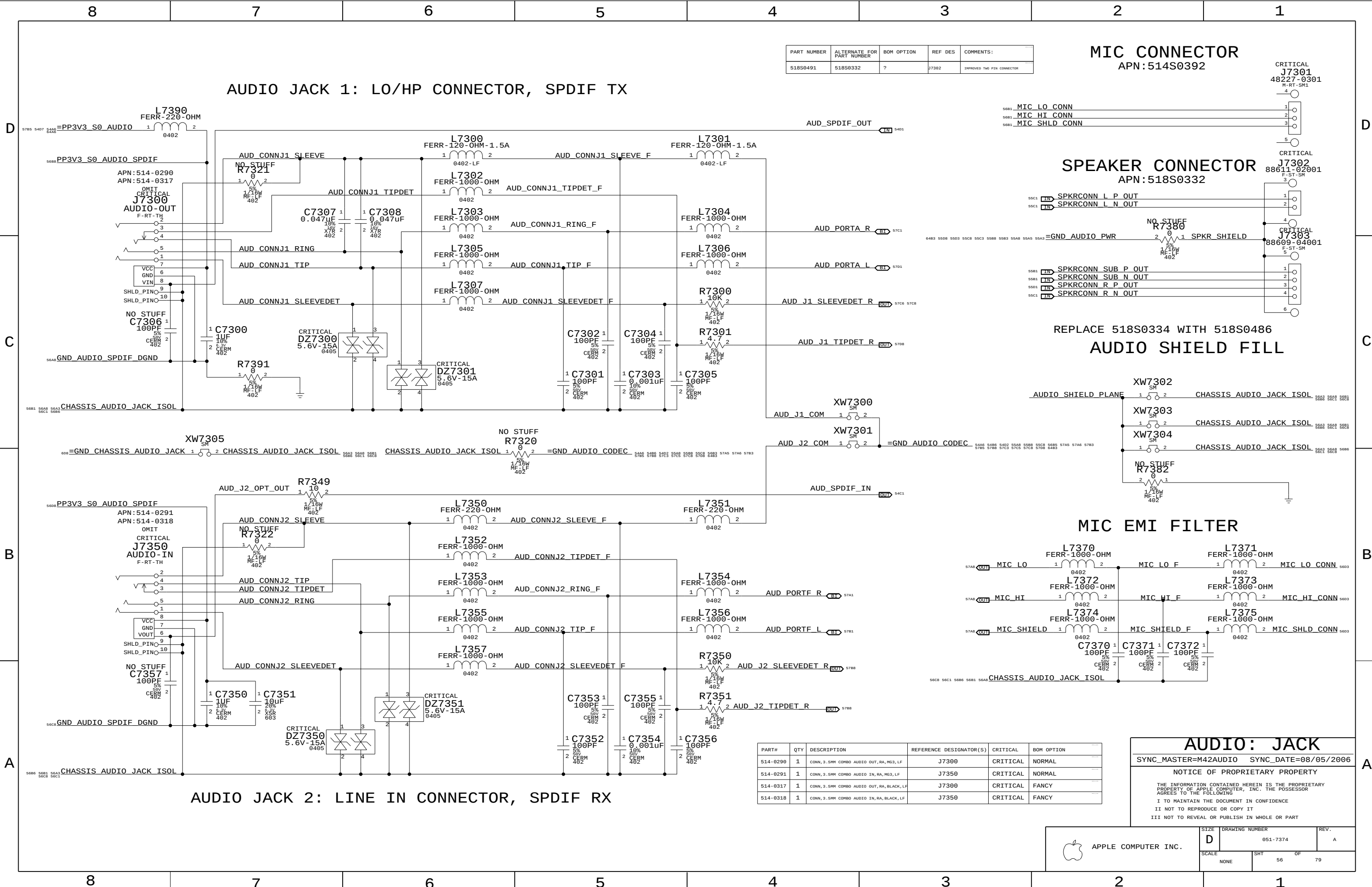
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	D	051-7374	A
SCALE		SHT	OF
NONE		55	79



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
518S0491	518S0332	?	J7302	IMPROVED TWO PIN CONNECTOR

MIC CONNECTOR
APN:514S0392

CRITICAL
J7301
48227-0301
M-RT-SM1
4

56B1 MIC LO CONN
56B1 MIC HI CONN
56B1 MIC SHLD CONN

SPEAKER CONNECTOR
APN:518S0332

CRITICAL
J7302
88611-02001
F-ST-SM
3

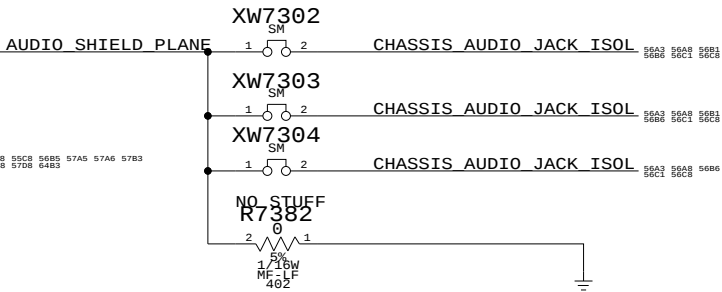
55C1 SPKRCONN L P OUT
55C1 SPKRCONN L N OUT

NO STUFF
R7380
1/16W
MF-LF
402

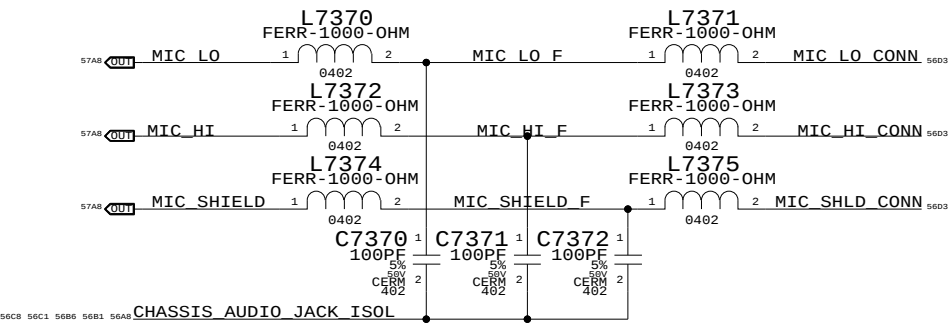
CRITICAL
J7303
88609-04001
F-ST-SM
5

55B1 SPKRCONN SUB P OUT
55B1 SPKRCONN SUB N OUT
55D1 SPKRCONN R P OUT
55C1 SPKRCONN R N OUT

REPLACE 518S0334 WITH 518S0486
AUDIO SHIELD FILL



MIC EMI FILTER



AUDIO JACK 2: LINE IN CONNECTOR, SPDIF RX

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
514-0290	1	CONN, 3.5MM COMBO AUDIO OUT, RA, MG3, LF	J7300	CRITICAL	NORMAL
514-0291	1	CONN, 3.5MM COMBO AUDIO IN, RA, MG3, LF	J7350	CRITICAL	NORMAL
514-0317	1	CONN, 3.5MM COMBO AUDIO OUT, RA, BLACK, LF	J7300	CRITICAL	FANCY
514-0318	1	CONN, 3.5MM COMBO AUDIO IN, RA, BLACK, LF	J7350	CRITICAL	FANCY

AUDIO: JACK

SYNC_MASTER=M42AUDIO SYNC_DATE=08/05/2006

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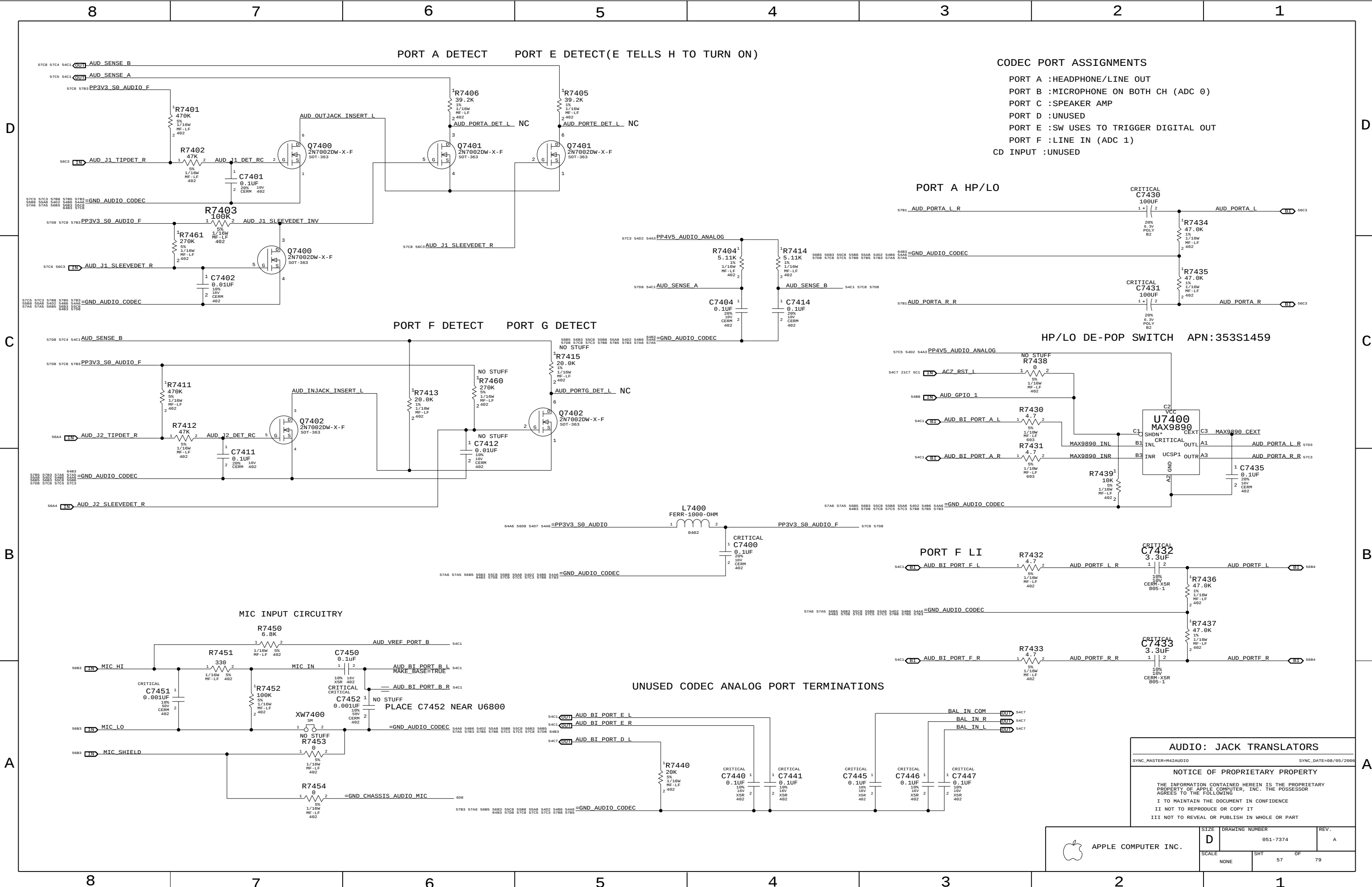
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CODEC PORT ASSIGNMENTS

PORT A :HEADPHONE/LINE OUT

PORT B :MICROPHONE ON BOTH CH (ADC 0)

PORT C :SPEAKER AMP

PORT D :UNUSED

PORT E :SW USES TO TRIGGER DIGITAL OUT

PORT F :LINE IN (ADC 1)

CD INPUT :UNUSED

HP/LO DE-POP SWITCH APN:353S1459

AUDIO: JACK TRANSLATORS

SYNC_MASTER=M42AUDIO SYNC_DATE=08/05/2006

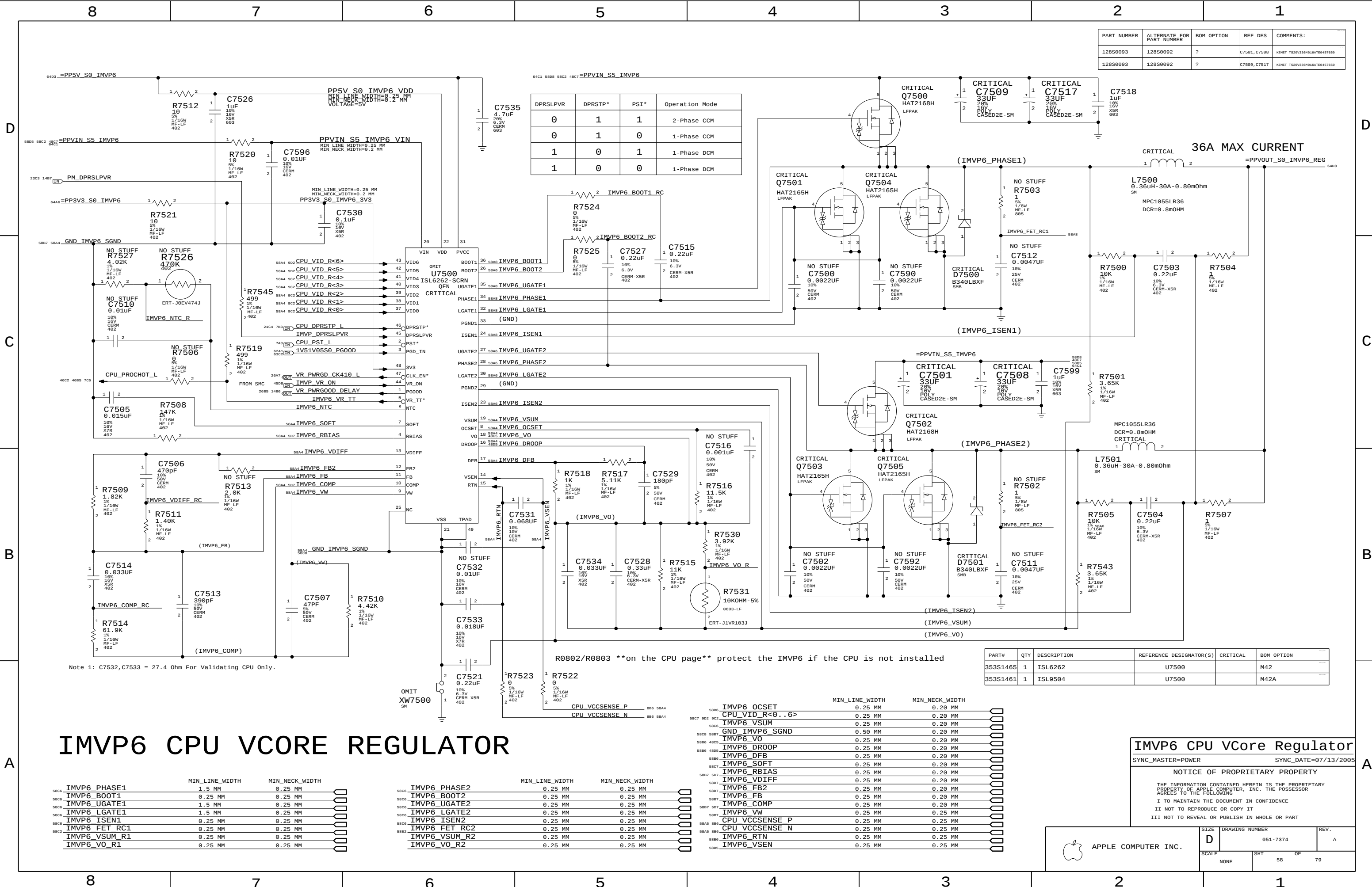
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PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
128S0093	128S0092	?	C7501, C7508	KEKET 128S0093S0092S0091S0090
128S0093	128S0092	?	C7509, C7517	KEKET 128S0093S0092S0091S0090

DPRSLPVR	DPRSTP*	PSI*	Operation Mode
0	1	1	2-Phase CCM
0	1	0	1-Phase CCM
1	0	1	1-Phase DCM
1	0	0	1-Phase DCM

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
353S1465	1	ISL6262	U7500		M42
353S1461	1	ISL9504	U7500		M42A

IMVP6 CPU VCore Regulator

	MIN_LINE_WIDTH	MIN_NECK_WIDTH
IMVP6_PHASE1	1.5 MM	0.25 MM
IMVP6_BOOT1	0.25 MM	0.25 MM
IMVP6_UGATE1	1.5 MM	0.25 MM
IMVP6_LGATE1	1.5 MM	0.25 MM
IMVP6_ISEN1	0.25 MM	0.25 MM
IMVP6_FET_RC1	0.25 MM	0.25 MM
IMVP6_VSUM_R1	0.25 MM	0.25 MM
IMVP6_V0_R1	0.25 MM	0.25 MM

	MIN_LINE_WIDTH	MIN_NECK_WIDTH
IMVP6_PHASE2	0.25 MM	0.25 MM
IMVP6_BOOT2	0.25 MM	0.25 MM
IMVP6_UGATE2	0.25 MM	0.25 MM
IMVP6_LGATE2	0.25 MM	0.25 MM
IMVP6_ISEN2	0.25 MM	0.25 MM
IMVP6_FET_RC2	0.25 MM	0.25 MM
IMVP6_VSUM_R2	0.25 MM	0.25 MM
IMVP6_V0_R2	0.25 MM	0.25 MM

	MIN_LINE_WIDTH	MIN_NECK_WIDTH
IMVP6_OCSET	0.25 MM	0.20 MM
CPU_VID_R<0..6>	0.25 MM	0.20 MM
IMVP6_VSUM	0.25 MM	0.20 MM
GND_IMVP6_SGND	0.50 MM	0.20 MM
IMVP6_V0	0.25 MM	0.20 MM
IMVP6_DR00P	0.25 MM	0.20 MM
IMVP6_DFB	0.25 MM	0.20 MM
IMVP6_SOFT	0.25 MM	0.20 MM
IMVP6_RBIA5	0.25 MM	0.20 MM
IMVP6_VDIFF	0.25 MM	0.20 MM
IMVP6_FB2	0.25 MM	0.20 MM
IMVP6_FB	0.25 MM	0.20 MM
IMVP6_COMP	0.25 MM	0.20 MM
IMVP6_VW	0.25 MM	0.25 MM
CPU_VCCSENSE_P	0.25 MM	0.25 MM
CPU_VCCSENSE_N	0.25 MM	0.25 MM
IMVP6_RTIN	0.25 MM	0.25 MM
IMVP6_VSEN	0.25 MM	0.25 MM

IMVP6 CPU VCore Regulator

SYNC_MASTER=POWER SYNC_DATE=07/13/2005

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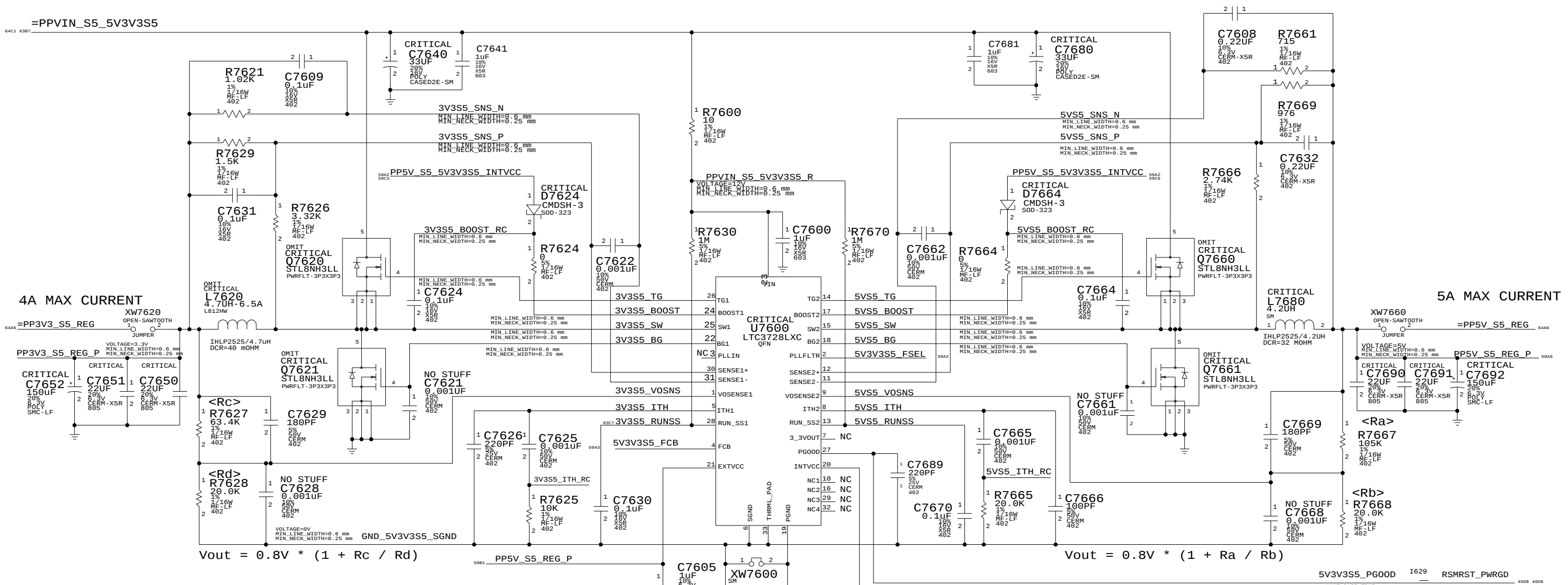
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APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-7374	A
SCALE	SHT	OF
NONE	58	79

5V/3.3V POWER SUPPLY



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
152S9133	1	4.7UH, +/-20%, 40mOHM, 3mm	L7620	3V3_IND_3MM
152S9365	1	4.7UH, +/-20%, 40mOHM, 2.8mm	L7620	3V3_IND_2MM8
376S9445	4	FAIRCHILD FDM6296	Q7620, Q7621, Q7660, Q7661	FET_FDM6296

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
128S9893	128S9892	?	Q7680, Q7640	KEHET TS20V330B016ATE0457650
376S9448	376S9445	?	Q7620, Q7621	VISHAY SI7806ADN
376S9448	376S9445	?	Q7660, Q7661	VISHAY SI7806ADN

5V / 3.3V Power Supply

SYNC_MASTER=POWER SYNC_DATE=07/13/2005

NOTICE OF PROPRIETARY PROPERTY

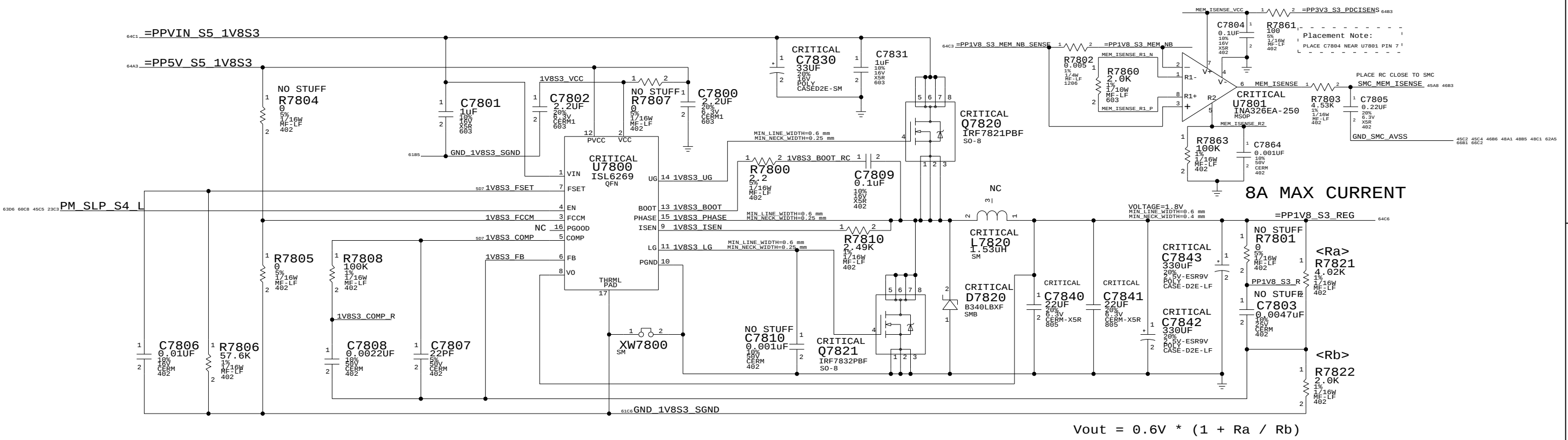
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APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-7374	A
SCALE	SHT	OF
NONE	59	79

1.8V POWER SUPPLY



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
128S0093	128S0092	?	C7830	KEWET T520V330M01GATE0457850

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
128S0094	128S0060	?	C7842, C7843	PANASONIC EEF5X00331ER
128S0095	128S0060	?	C7842, C7843	PANASONIC EEF5X00331XE

1.8V Supply

SYNC_MASTER=POWER SYNC_DATE=07/13/2005

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APPLE COMPUTER INC.

SIZE D DRAWING NUMBER 051-7374 REV. A

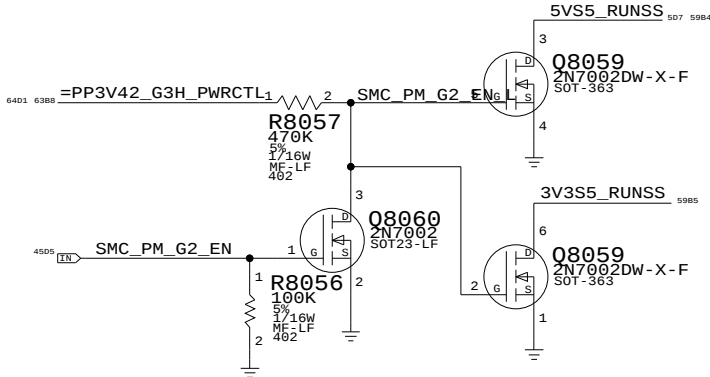
SCALE NONE SHT 61 OF 79

POWER CONTROL SIGNALS

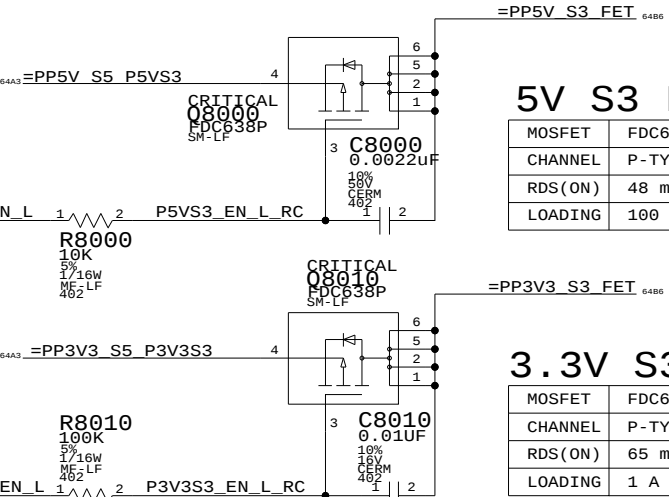
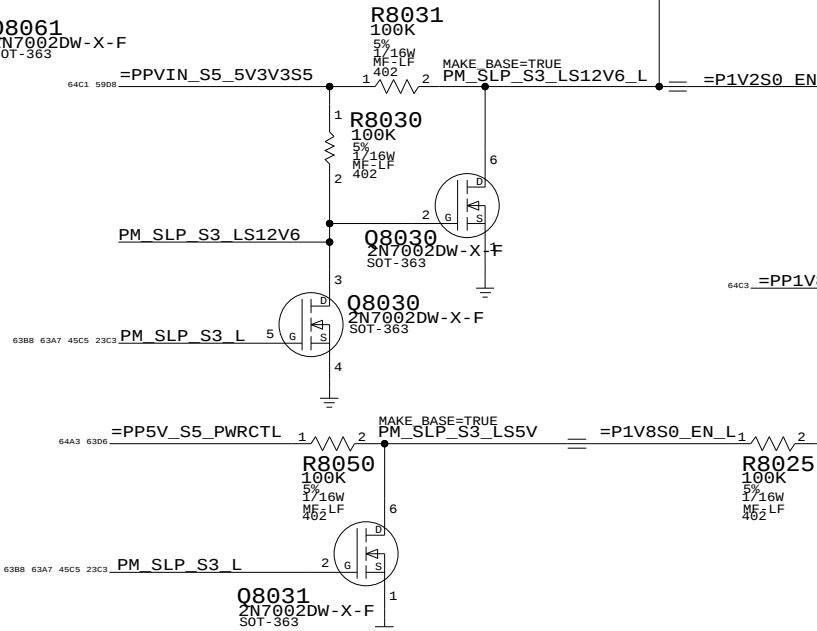
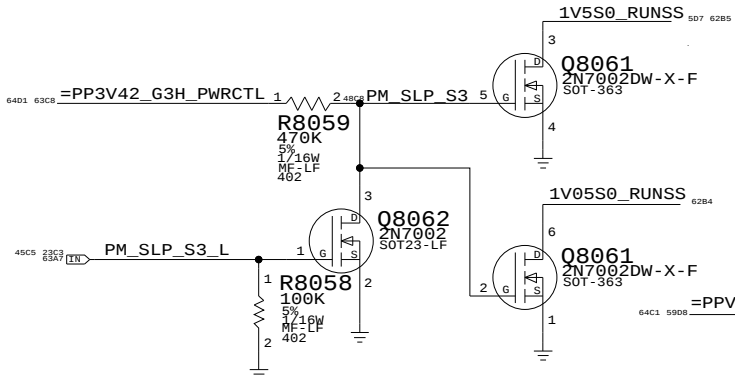
These rails are monitored by LTC2908

State	SMC_PM_G2_ENABLE	PM_SLP_S4_L	PM_SLP_S3_L
Run (S0)	1	1	1
Sleep (S3)	1	1	0
Soft-Off (S5)	1	0	0
Battery Off (G3Hot)	0	0	0

5V/3.3V S5 RUN/SS CONTROL

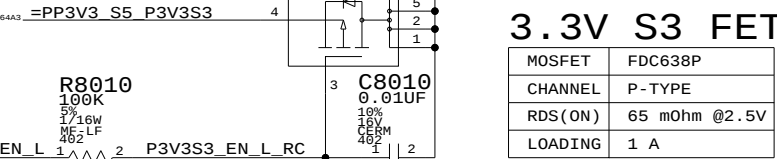


1.5V/1.05V S0 RUN/SS CONTROL



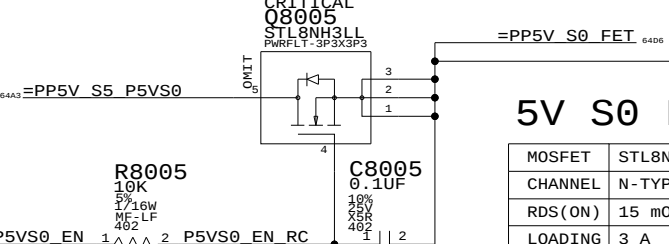
5V S3 FET

MOSFET	FDC638P
CHANNEL	P-TYPE
RDS(ON)	48 mOhm @4.5V
LOADING	100 mA



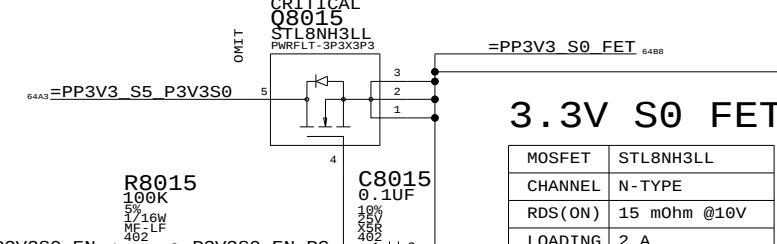
3.3V S3 FET

MOSFET	FDC638P
CHANNEL	P-TYPE
RDS(ON)	65 mOhm @2.5V
LOADING	1 A



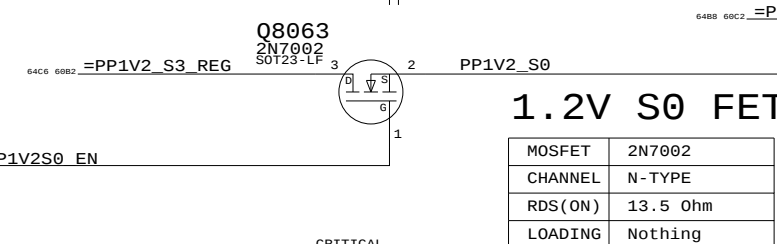
5V S0 FET

MOSFET	STL8NH3LL
CHANNEL	N-TYPE
RDS(ON)	15 mOhm @10V
LOADING	3 A



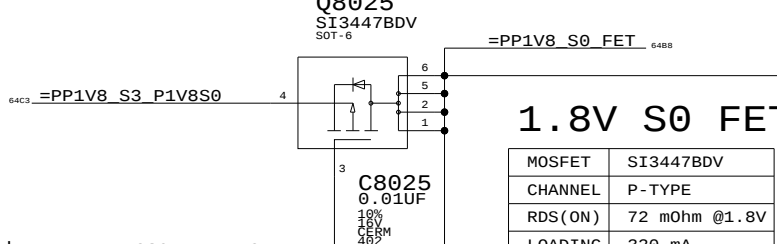
3.3V S0 FET

MOSFET	STL8NH3LL
CHANNEL	N-TYPE
RDS(ON)	15 mOhm @10V
LOADING	2 A



1.2V S0 FET

MOSFET	2N7002
CHANNEL	N-TYPE
RDS(ON)	13.5 Ohm
LOADING	Nothing

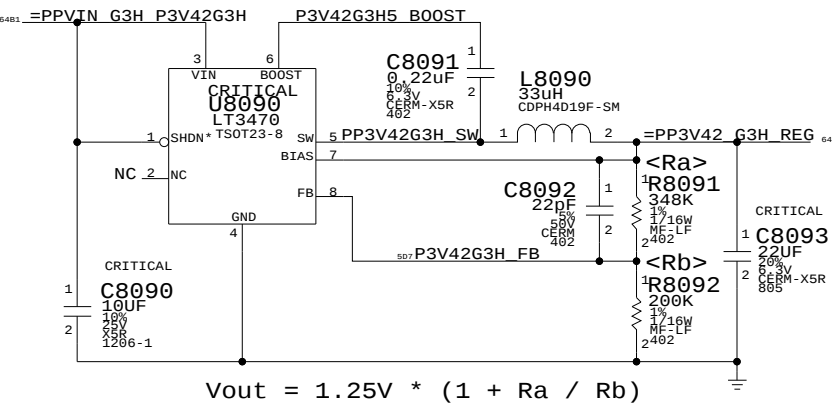


1.8V S0 FET

MOSFET	SI3447BDV
CHANNEL	P-TYPE
RDS(ON)	72 mOhm @1.8V
LOADING	320 mA

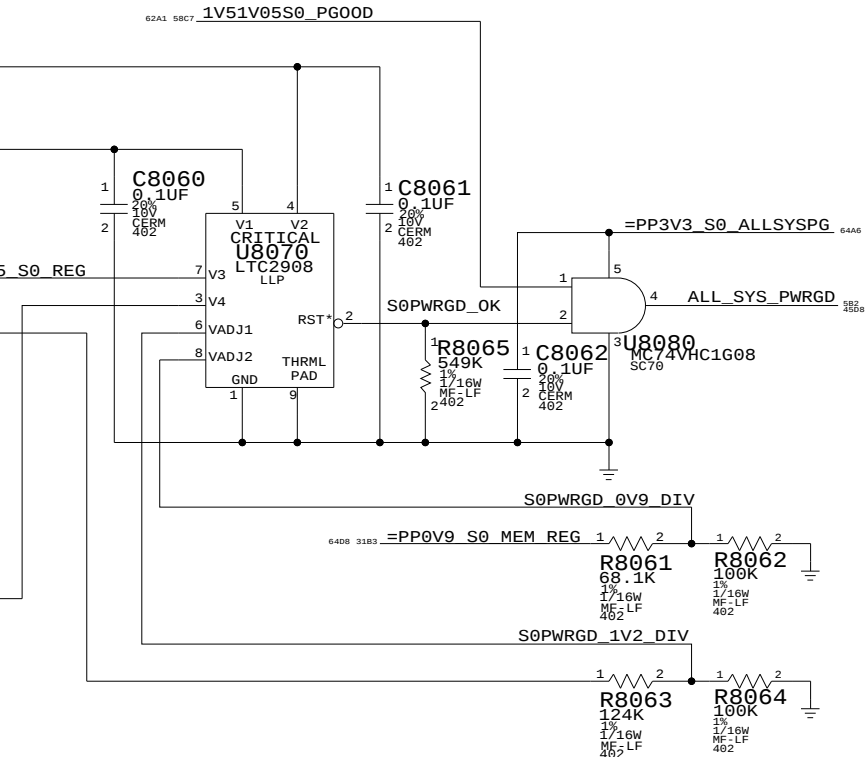
3.425V "G3Hot" SUPPLY

Supply needs to guarantee 3.31V delivered to SMC VRef generator



$$V_{out} = 1.25V * (1 + R_a / R_b)$$

ALL SYSTEM PWRGD CIRCUIT



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
376S0445	2	FAIRCHILD FDM6296	Q8005, Q8015	FET_FDM6296

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
376S0448	376S0445	?	Q8005, Q8015	VISHAY SI7806ADN

S3/S0 FETS, G3H SUPPLY

SYNC_MASTER=ENET SYNC_DATE=08/30/2005

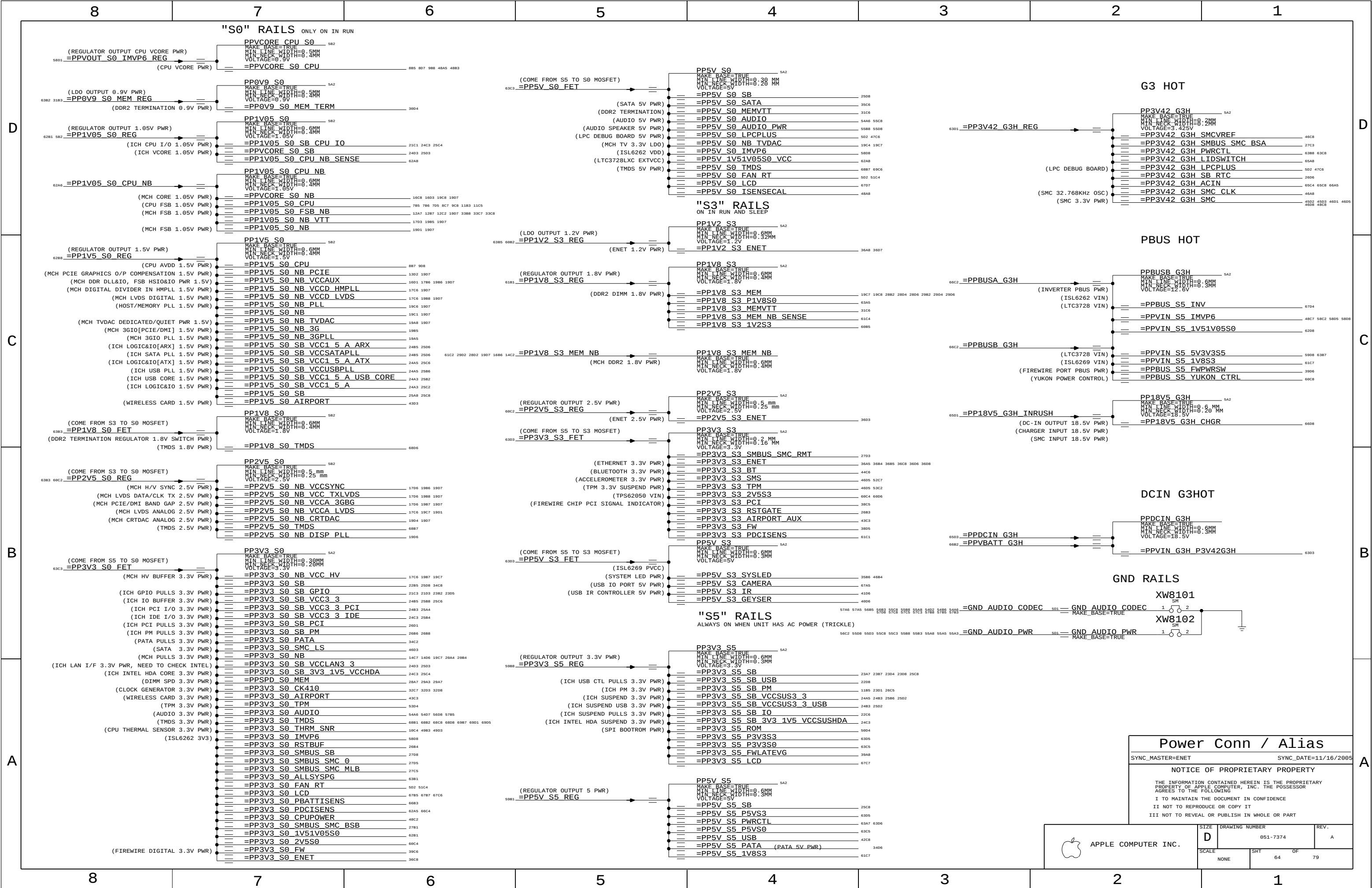
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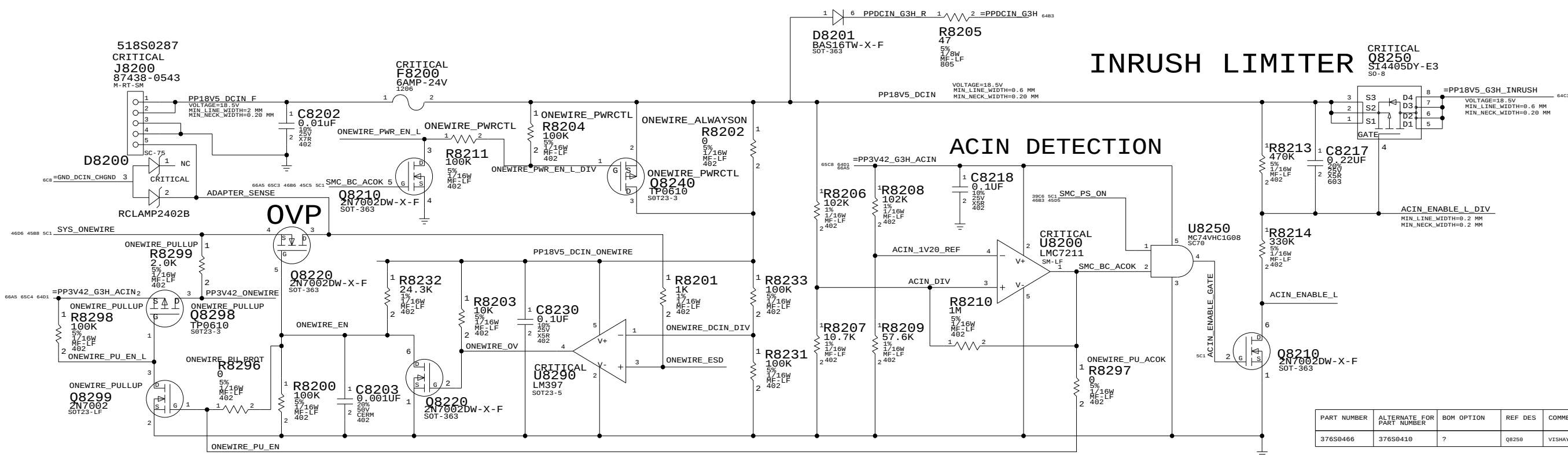


APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-7374	A
SCALE	SHT	OF
NONE	63	79

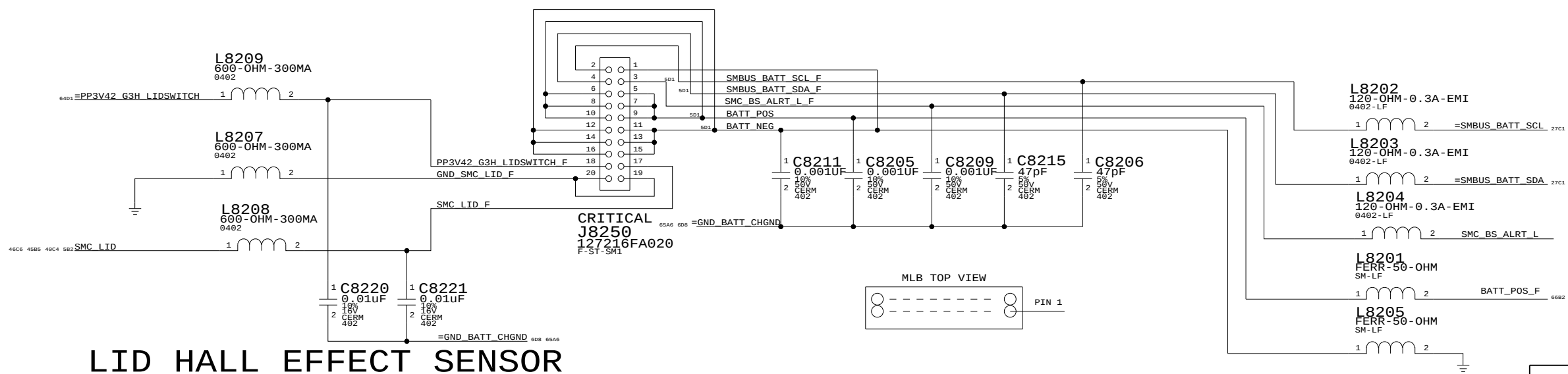


DC - JACK INTERFACE



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
376S9466	376S9410	?	Q8250	VISHAY SI4413ADY

BATTERY INTERFACE



DC-In & Battery Connectors

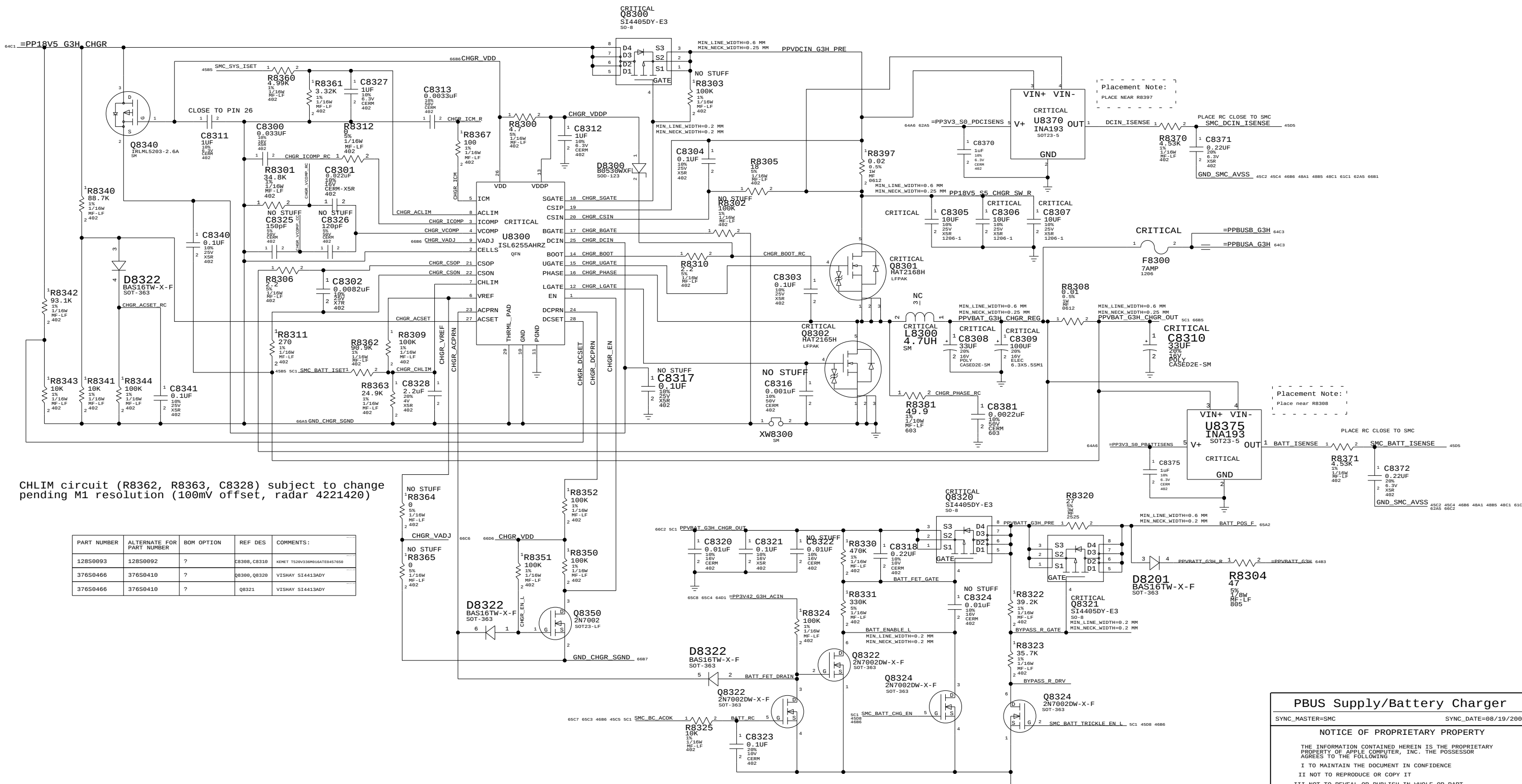
SYNC_MASTER=POWER SYNC_DATE=07/13/2005

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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. A
	SCALE NONE	SHT 65	OF 79

PBUS SUPPLY / BATTERY CHARGER



CHLIM circuit (R8362, R8363, C8328) subject to change pending M1 resolution (100mV offset, radar 4221420)

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
128S0093	128S0092	?	C8308, C8310	KEMET TS20V33M0518ATE0457650
376S0466	376S0410	?	Q8300, Q8320	VISHAY SI4413ADY
376S0466	376S0410	?	Q8321	VISHAY SI4413ADY

PBUS Supply/Battery Charger

SYNC_MASTER=SMC

SYNC_DATE=08/19/2005

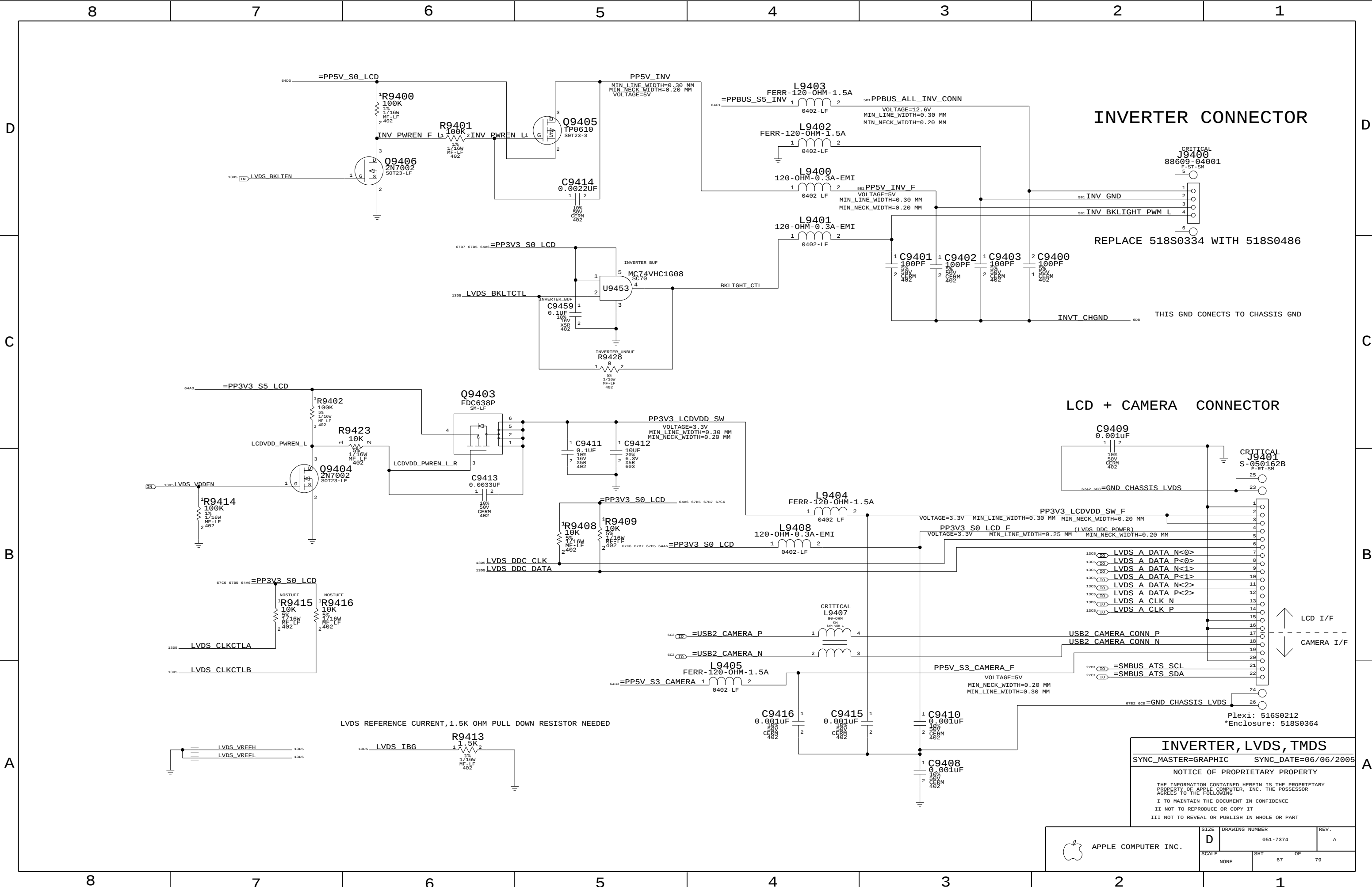
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INVERTER CONNECTOR

REPLACE 518S0334 WITH 518S0486

THIS GND CONNECTS TO CHASSIS GND

LCD + CAMERA CONNECTOR

13CS	LVDS A DATA N<0>	7
13CS	LVDS A DATA P<0>	8
13CS	LVDS A DATA N<1>	9
13CS	LVDS A DATA P<1>	10
13CS	LVDS A DATA N<2>	11
13CS	LVDS A DATA P<2>	12
13CS	LVDS A CLK N	13
13CS	LVDS A CLK P	14
13CS	LVDS A DATA N<3>	15
13CS	LVDS A DATA P<3>	16
13CS	LVDS A DATA N<4>	17
13CS	LVDS A DATA P<4>	18
13CS	LVDS A DATA N<5>	19
13CS	LVDS A DATA P<5>	20
13CS	LVDS A DATA N<6>	21
13CS	LVDS A DATA P<6>	22
13CS	LVDS A DATA N<7>	23
13CS	LVDS A DATA P<7>	24
13CS	LVDS A DATA N<8>	25
13CS	LVDS A DATA P<8>	26

Plexi: 518S0212
*Enclosure: 518S0364

INVERTER, LVDS, TMDS

SYNC_MASTER=GRAPHIC SYNC_DATE=06/06/2005

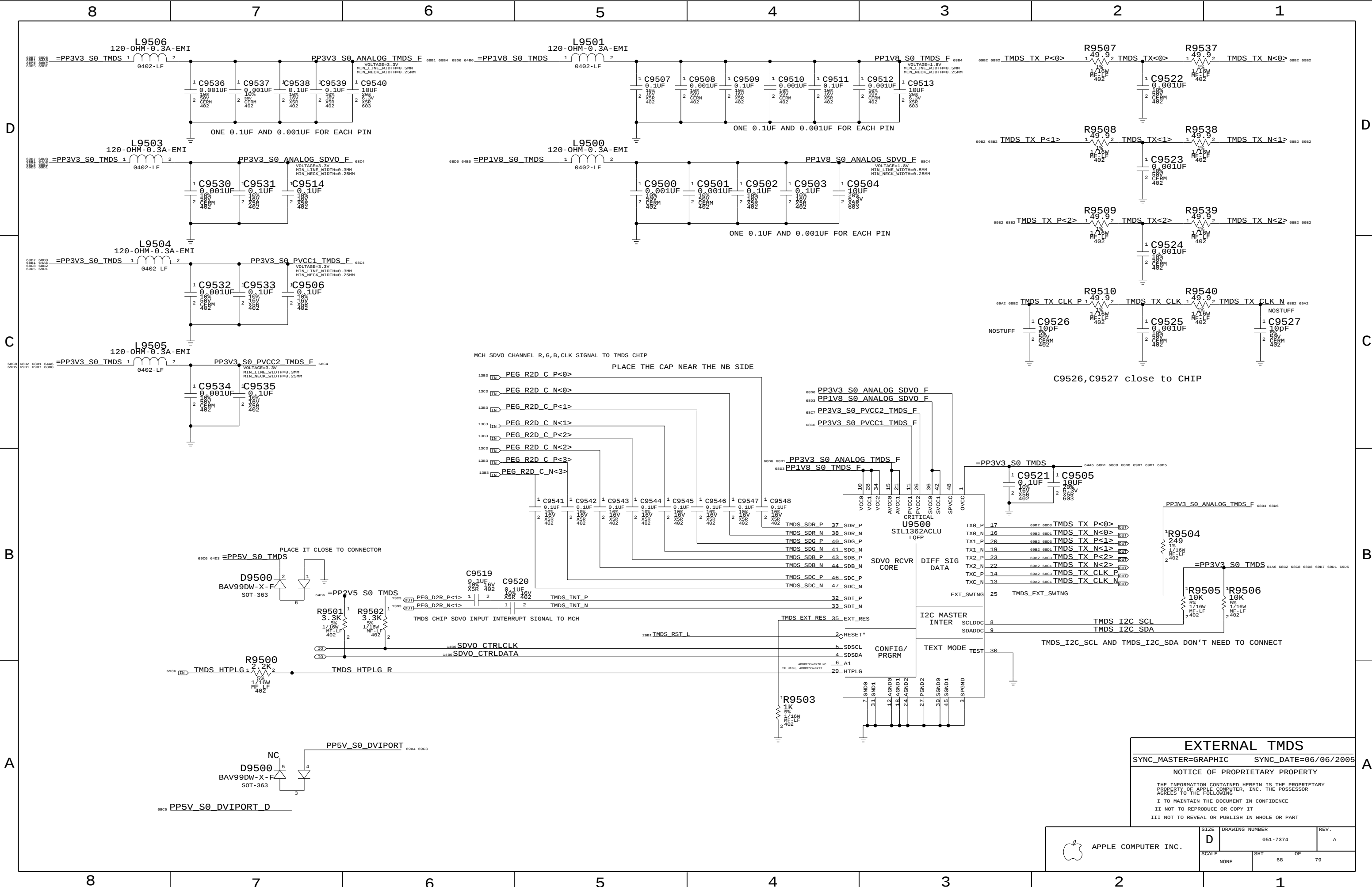
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SIZE	D	DRAWING NUMBER	051-7374	REV.	A
SCALE	NONE	SHT	67	OF	79



EXTERNAL TMDs

SYNC_MASTER=GRAPHIC

SYNC_DATE=06/06/2005

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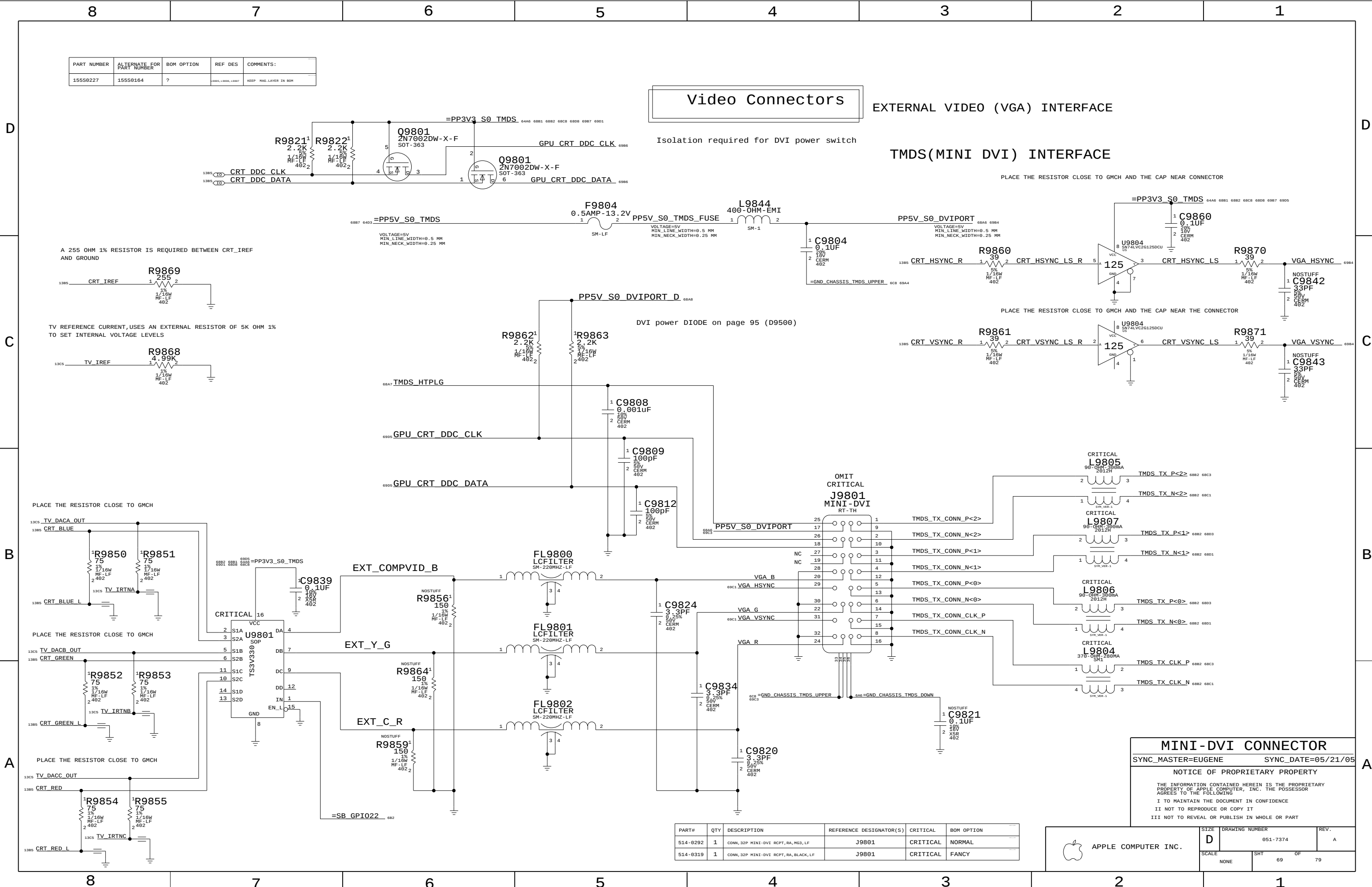
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 APPLE COMPUTER INC.	SIZE	DRAWING NUMBER		REV.
	D	051-7374		A
	SCALE	SHT	OF	
	NONE	68	79	

APPLE COMPUTER INC.



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
155S0227	155S0164	?	9801, 9802, 9803	KEEP MAG LAYER IN BOM

Video Connectors

EXTERNAL VIDEO (VGA) INTERFACE

TMD5(MINI DVI) INTERFACE

PLACE THE RESISTOR CLOSE TO GMCH AND THE CAP NEAR CONNECTOR

PLACE THE RESISTOR CLOSE TO GMCH AND THE CAP NEAR THE CONNECTOR

MINI-DVI CONNECTOR

SYNC_MASTER=EUGENE SYNC_DATE=05/21/05

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APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-7374	A
SCALE	SHT	OF
NONE	69	79

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
514-0292	1	CONN, 32P MINI-DVI RCPT, RA, MG3, LF	J9801	CRITICAL	NORMAL
514-0319	1	CONN, 32P MINI-DVI RCPT, RA, BLACK, LF	J9801	CRITICAL	FANCY

[illegible]

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[illegible]

[illegible]

