


[illegible]

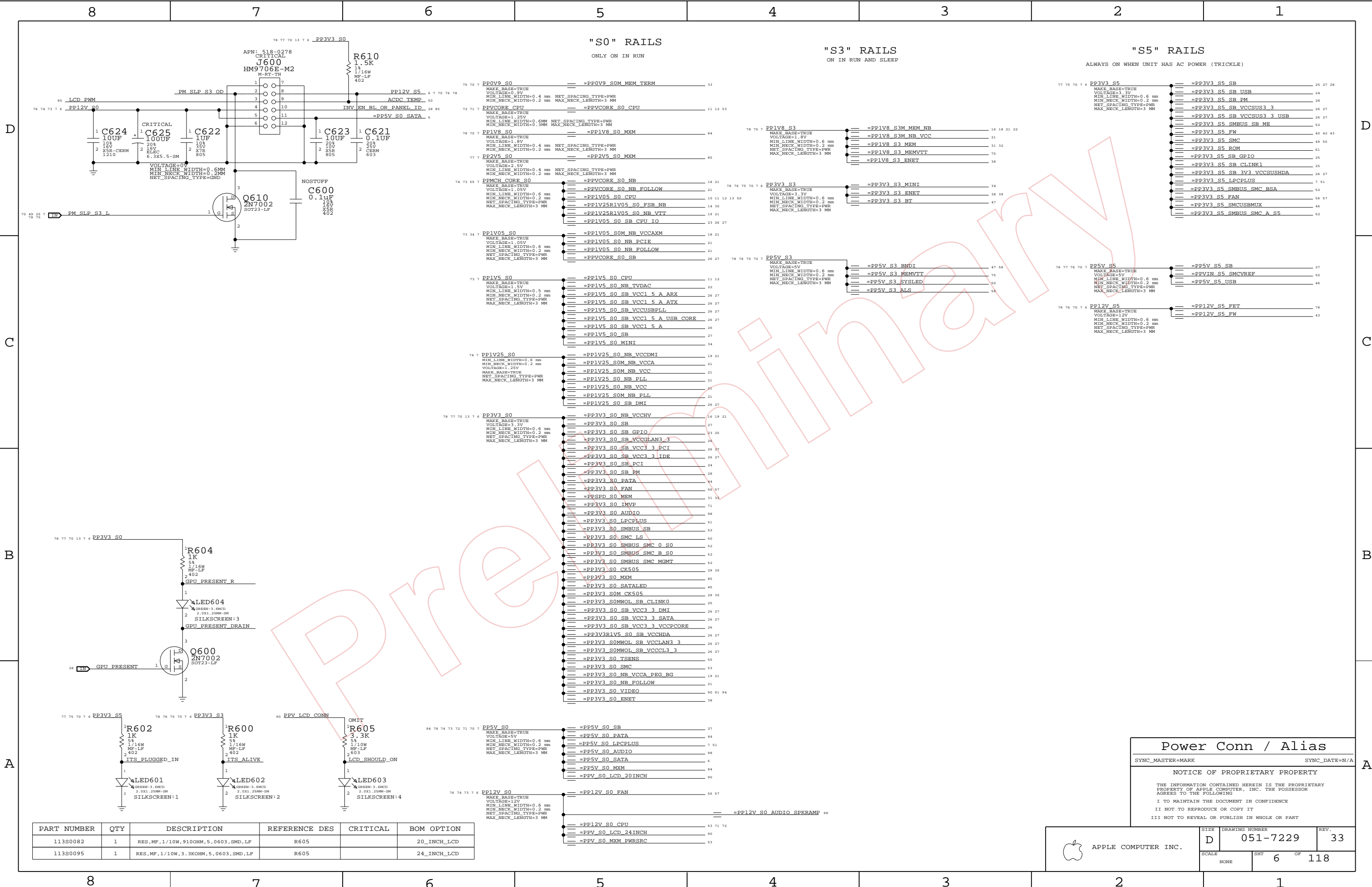
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D							D
C							C
B							B
A							A
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PROTO REVIEW - 11/09/06

Preliminary

NOTE: All page numbers are .csa, not PDF. See page 1 for .csa -> PDF mapping.

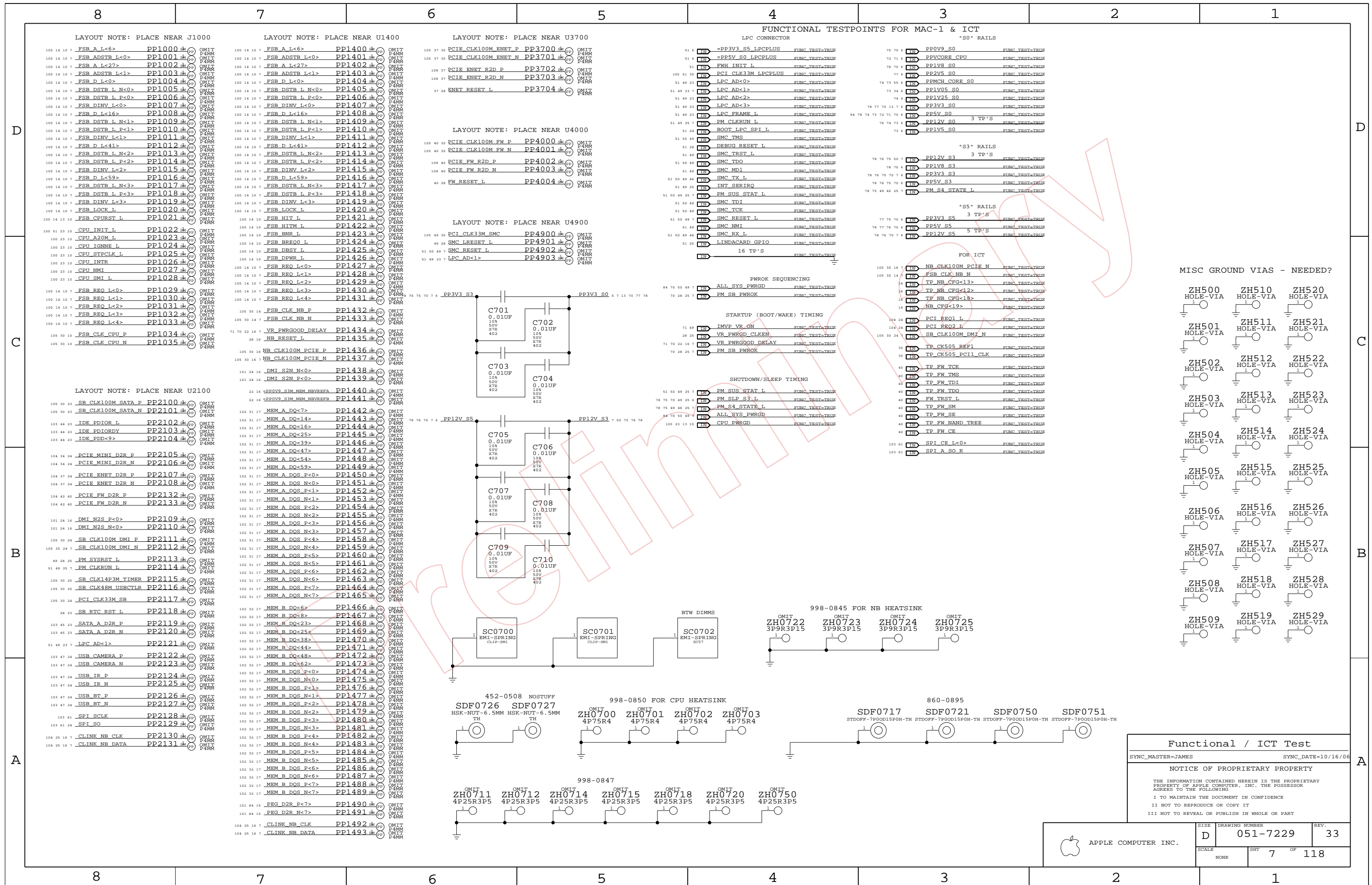
33		
SYNC_MASTER=JAMES		SYNC_DATE=10/16/06
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 APPLE COMPUTER INC.	SIZE	D
	DRAWING NUMBER	051-7229
	REV.	33
SCALE	NONE	SHT 5 OF 118

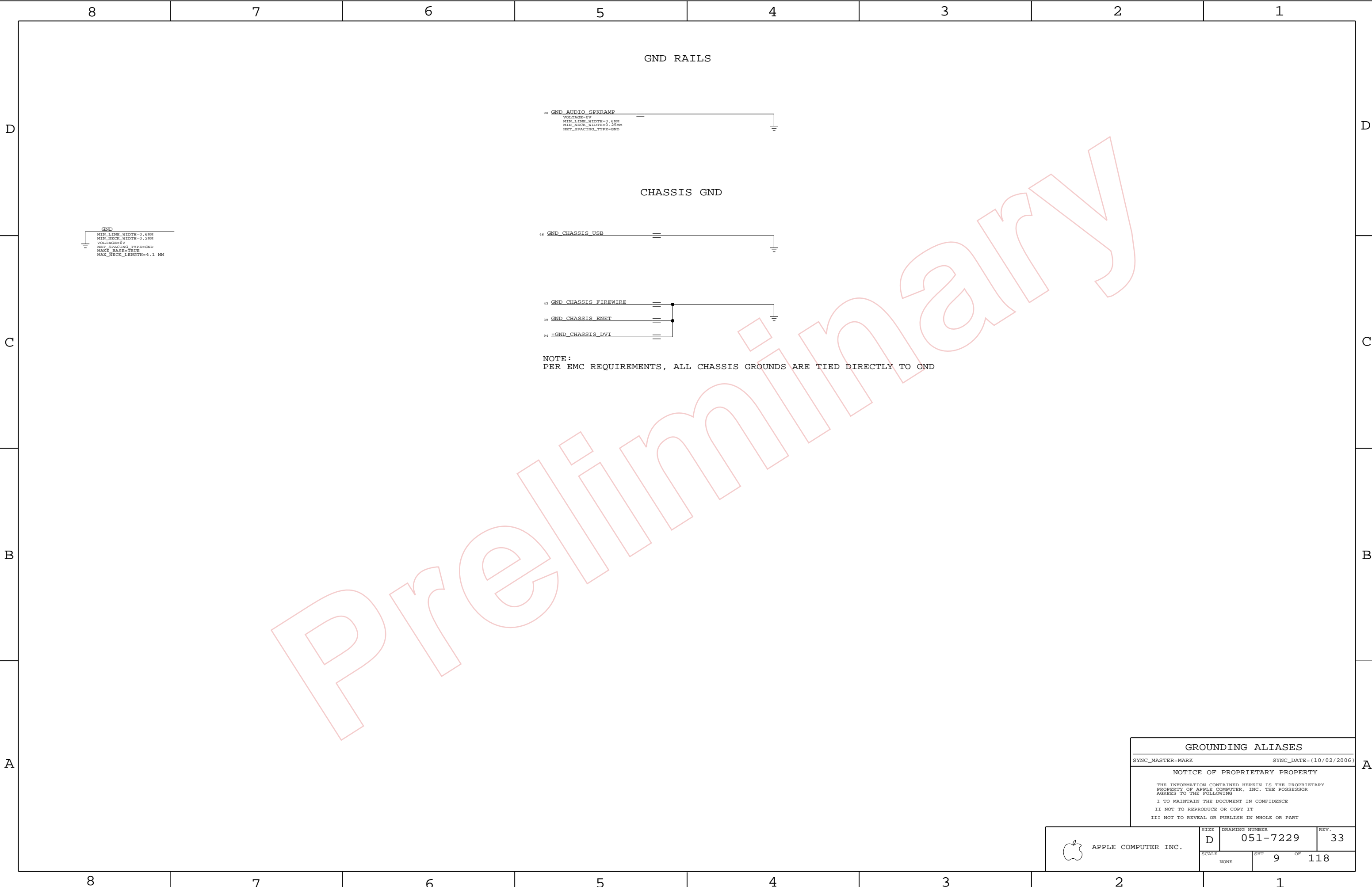


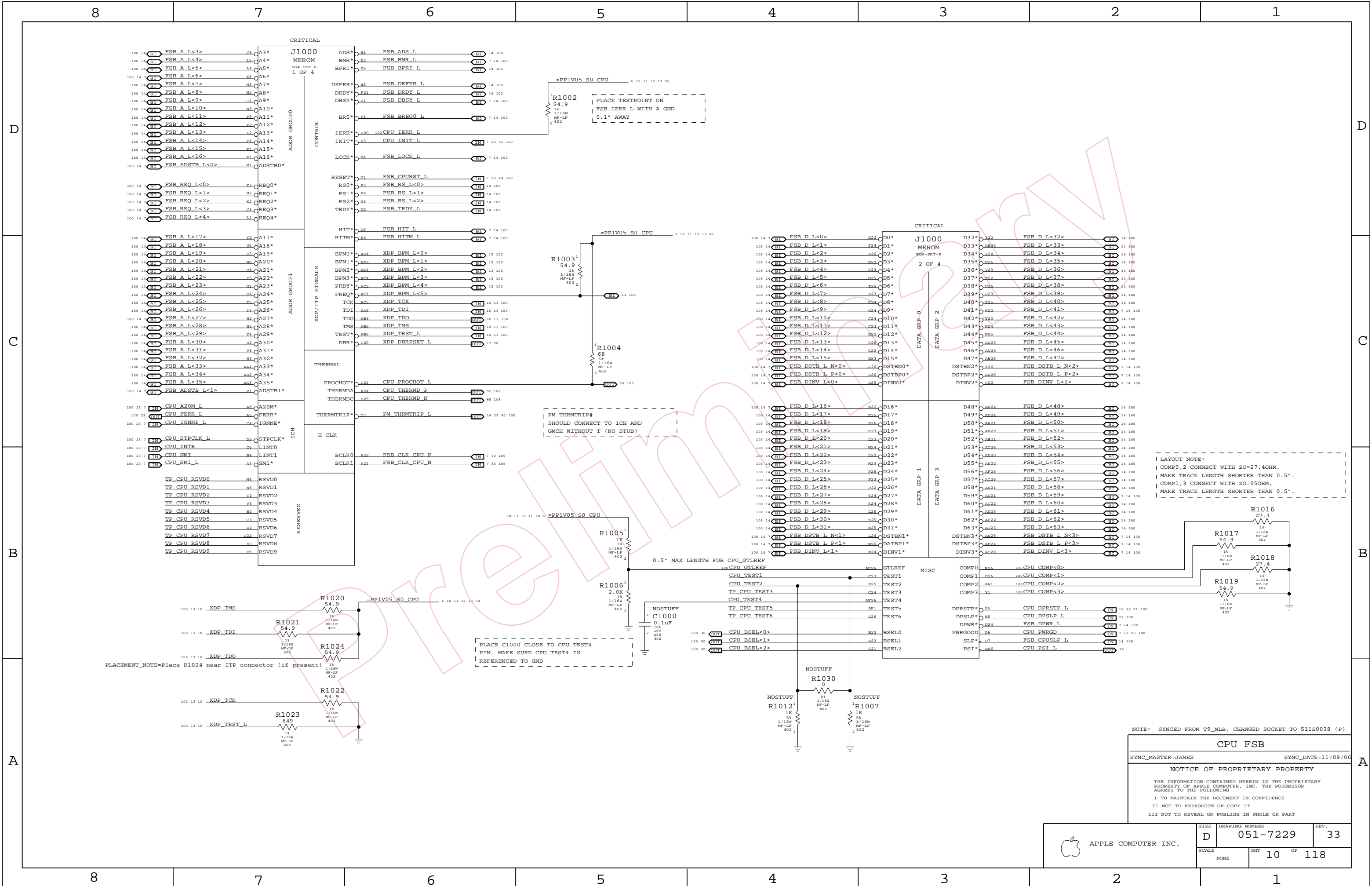
PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
113S0082	1	RES, MF, 1/10W, 9100HM, 5, 0603, SMD, LF	R605		20_INCH_LCD
113S0095	1	RES, MF, 1/10W, 3, 3KOHM, 5, 0603, SMD, LF	R605		24_INCH_LCD

Power Conn / Alias	
SYNC_MASTER=MARK	SYNC_DATE=N/A
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	SCALE	D	DRAWING NUMBER	051-7229	REV.	33
	NONE	SHT	6	OF	118	







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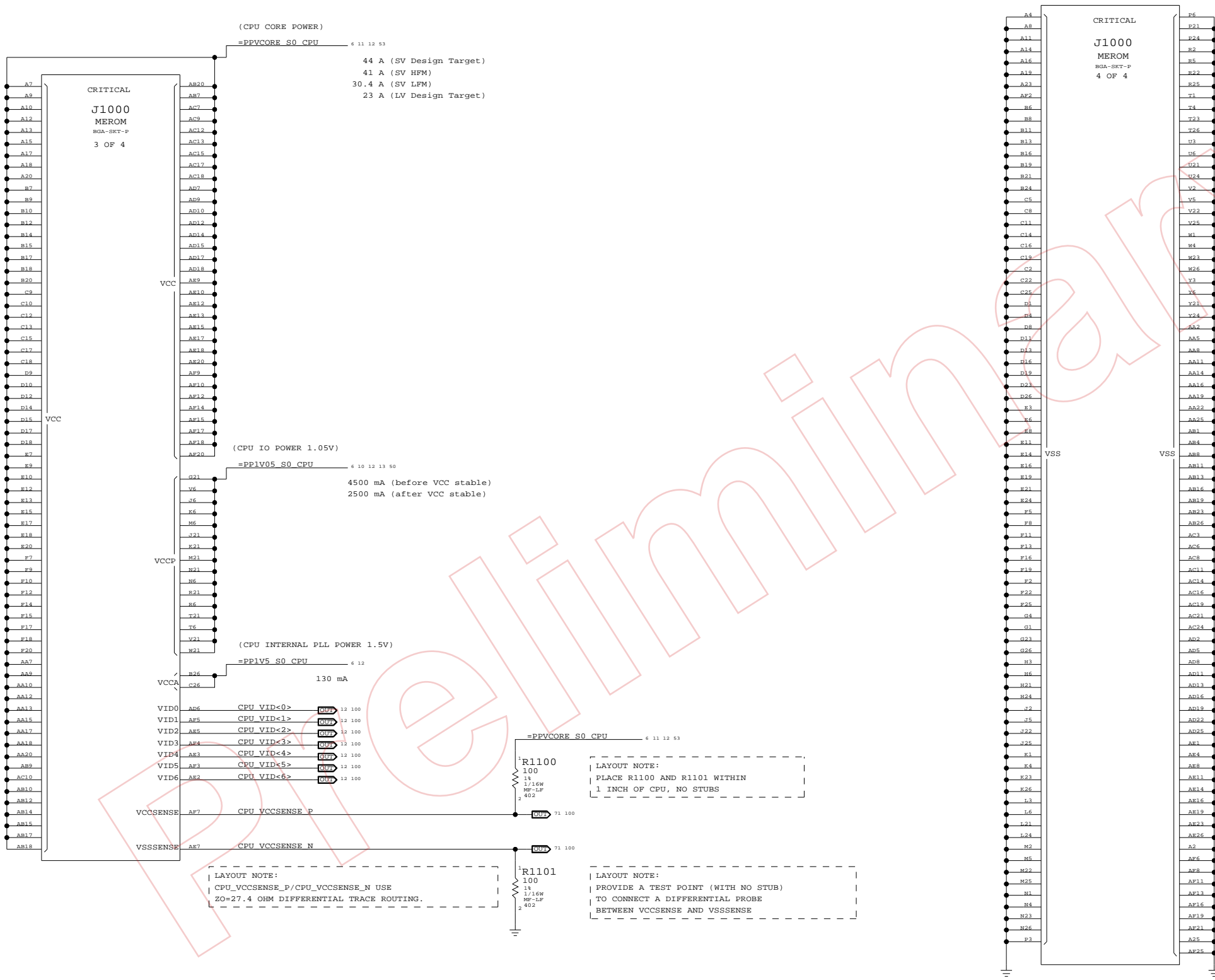
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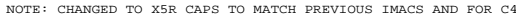


NOTE: SYNCED FROM T9_MLB, CHANGED SOCKET TO 511S0038 (P)

CPU Power & Ground		
SYNC_MASTER=JAMES	SYNC_DATE=11/09/06	
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7229	33
SCALE		SHT	OF
NONE		11	118

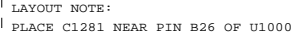
6X 220UF. 32X 22UF 0805



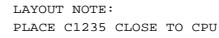
~~Resistors to allow for override of CPU VID
Will probably be removed before production~~




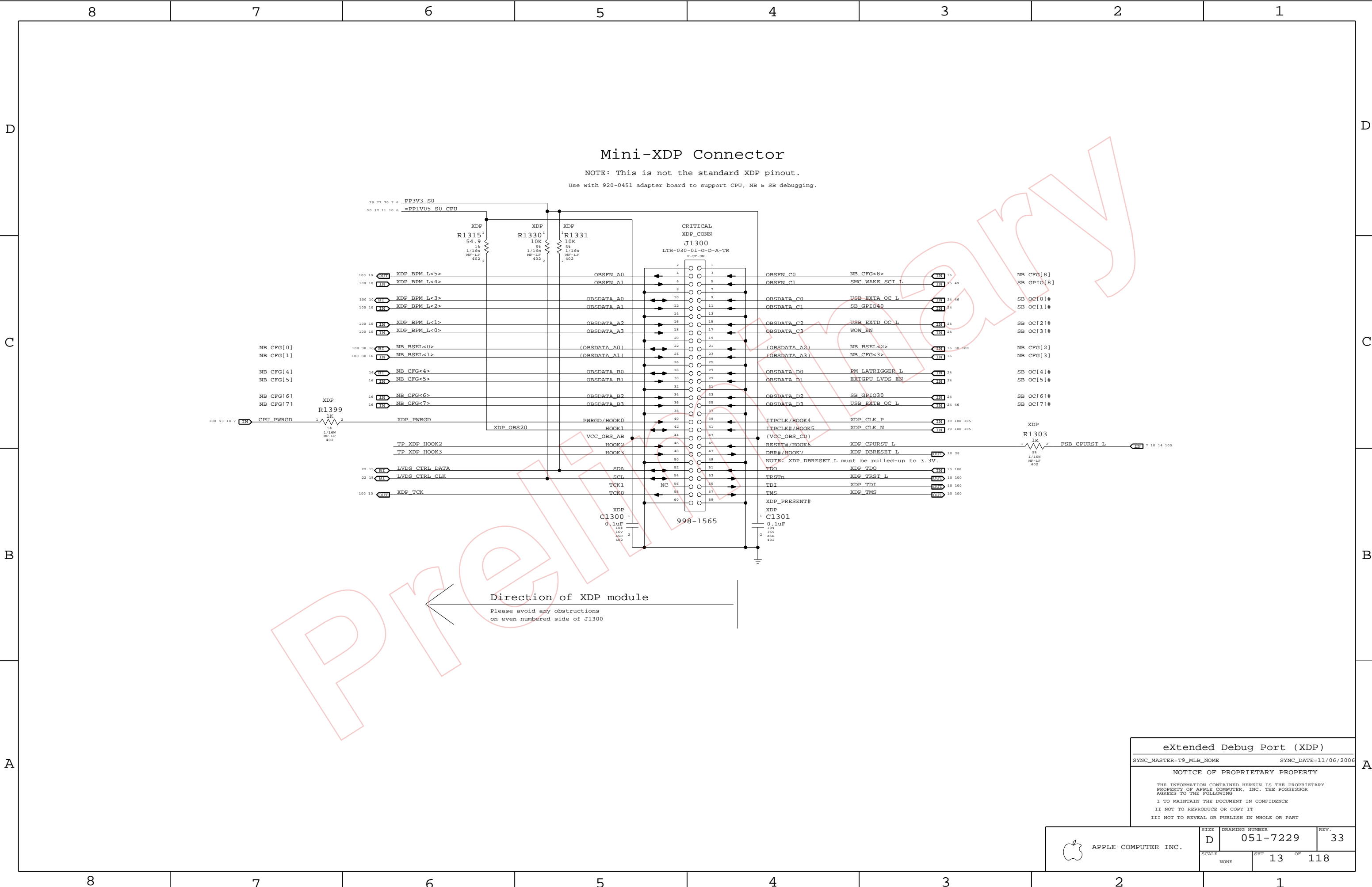
VCCA (CPU AVdd) DECOUPLING



VCCP (CPU I/O) DECOUPLING



 APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7229	33
	SCALE	SHT	OF
	NONE	12	118



eXtended Debug Port (XDP)

SYNC_MASTER=T9_MLB_NAME SYNC_DATE=11/06/2006

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	D	051-7229	33
SCALE		SHT	OF
NONE		13	118

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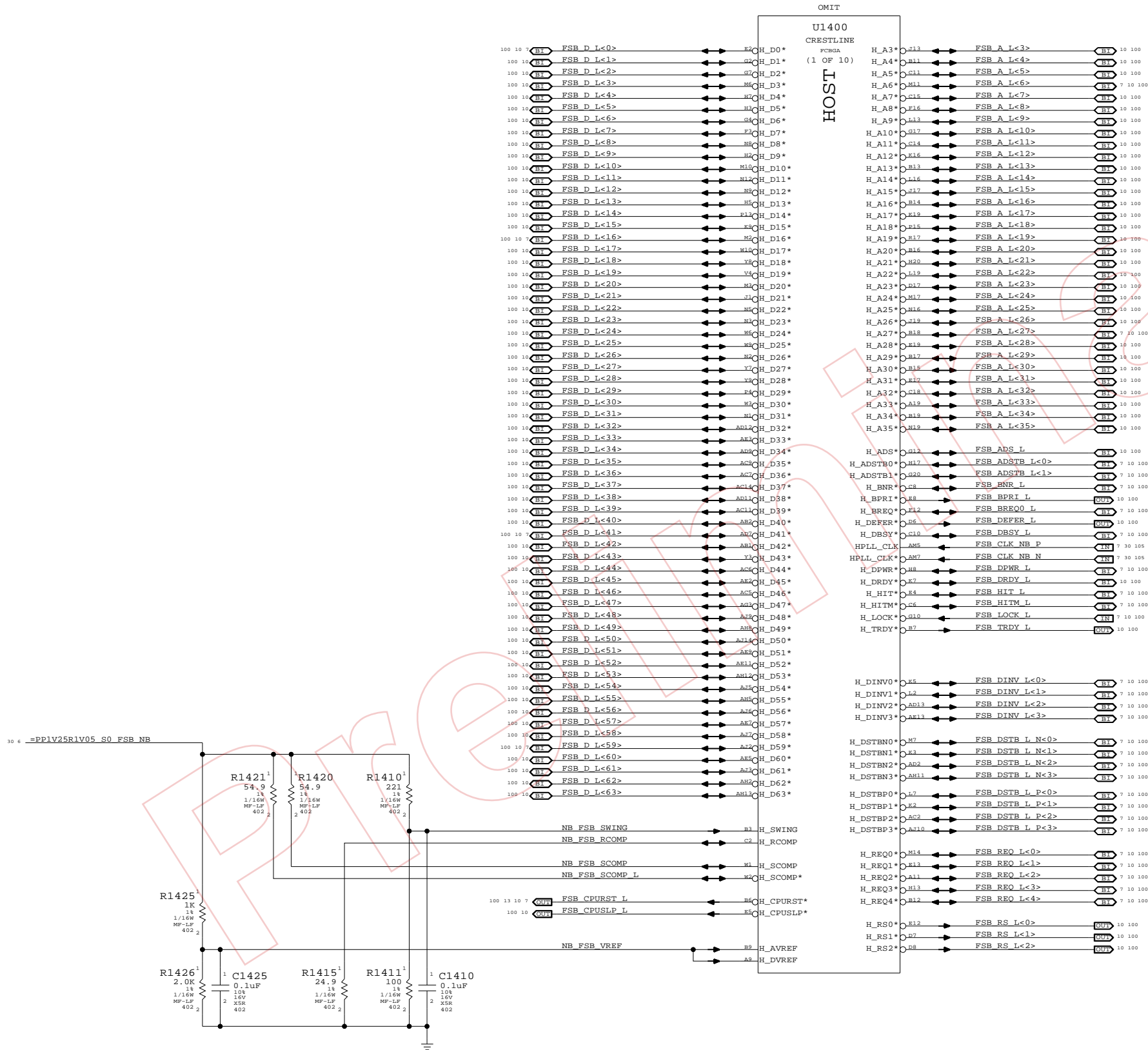
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NB CPU Interface

SYNC_MASTER=T9_MLB SYNC_DATE=10/30/2006

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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7229	33
SCALE	NONE		
	SHT	14	OF 118

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LVDS Disable

Can leave all signals NC if LVDS is not implemented.
Tie VCC_TX_LVDS and VCCA_LVDS to GND.

If SDVO is used, VCCD_LVDS must remain powered with proper decoupling. Otherwise, tie VCCD_LVDS to GND also.

TV-Out Signal Usage:

Composite: DACA only
S-Video: DACB & DACC only
Component: DACA, DACB & DACC

Unused DAC outputs must remain powered, but can omit filtering components. Unused DAC outputs should connect to GND through 75-ohm resistors.

TV-Out Disable / CRT Enable

Tie TVx_DAC and TVx_RTN to GND. Must power all TVDAC rails. VCCA_TVx_DAC and VCCA_DAC_BG can share filtering with VCCA_CRT_DAC.

CRT Disable / TV-Out Enable

Tie R/R#/G/G#/B/B#, HSYNC and VSYNC to GND. All CRT/TVDAC rails must be powered. All rails must be filtered except for VCCA_CRT.

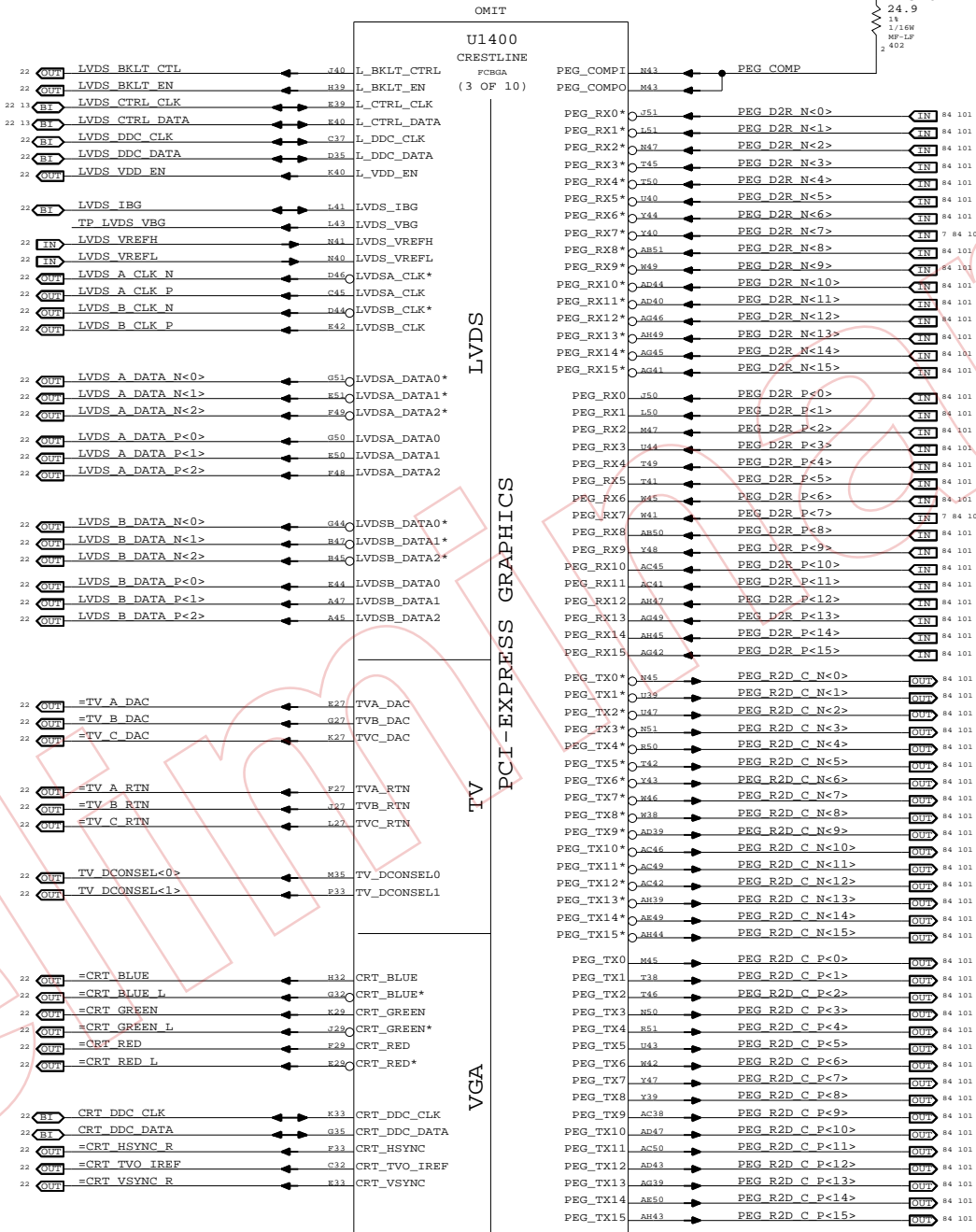
CRT & TV-Out Disable

Tie TVx_DAC, TVx_RTN, R/R#/G/G#/B/B#, HSYNC, VSYNC and CRT_TVO_IREF to GND.
Can tie the following rails to GND:
VCCA_CRT_DAC, VCCA_DAC_BG, VCCA_TVx_DAC, VCCD_CRT, VCCD_QDAC and VCC_SYNC.

NOTE: Must keep VDDC_TVDAC powered and filtered at all times!

Internal Graphics Disable

Follow instructions for LVDS and CRT & TV-Out Disable above.
Can also tie CRT_DDC_*, L_CTRL_*, L_DDC_*, SDVO_CTRL_* and TV_DCONSELx to GND.
Tie DPLL_REF_CLK and DPLL_REF_SSCLK to GND.
Tie DPLL_REF_CLK* and DPLL_REF_SSCLK* to VCC (VCore).
Tie VCCA_DPLL and VCCA_DPLLB to VCC (VCore).
Tie VCC_AXG and VCC_AXG_NCTF to GND.
Leave GFX_VID<3..0> and GFX_VR_EN as NC.



SDVO Alternate Function

SDVO_TVCLKIN#
SDVO_INT#
SDVO_FLDSTALL#

SDVO_TVCLKIN
SDVO_INT
SDVO_FLDSTALL

SDVOB_RED#
SDVOB_GREEN#
SDVOB_BLUE#
SDVOB_CLKN
SDVOC_RED#
SDVOC_GREEN#
SDVOC_BLUE#
SDVOC_CLKN

SDVOB_RED
SDVOB_GREEN
SDVOB_BLUE
SDVOB_CLKP
SDVOC_RED
SDVOC_GREEN
SDVOC_BLUE
SDVOC_CLKP

NB PEG / Video Interfaces

SYNC_MASTER=TS_MLB

SYNC_DATE=10/30/2006

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APPLE COMPUTER INC.

SIZE

D

DRAWING NUMBER

051-7229

REV.

33

SCALE

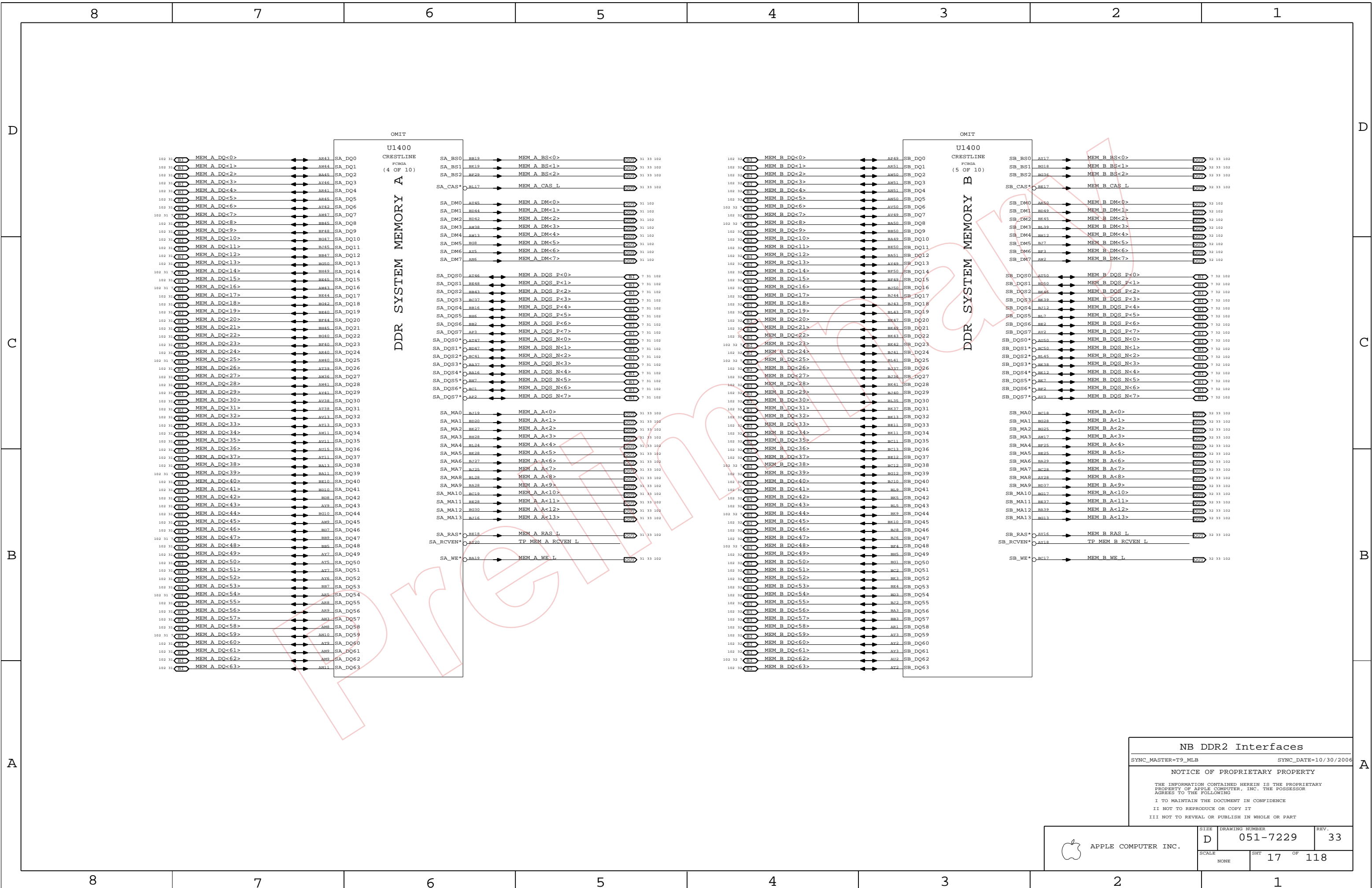
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SHT

15

OF

118



NB DDR2 Interfaces

SYNC_MASTER=TS_MLB SYNC_DATE=10/30/2006

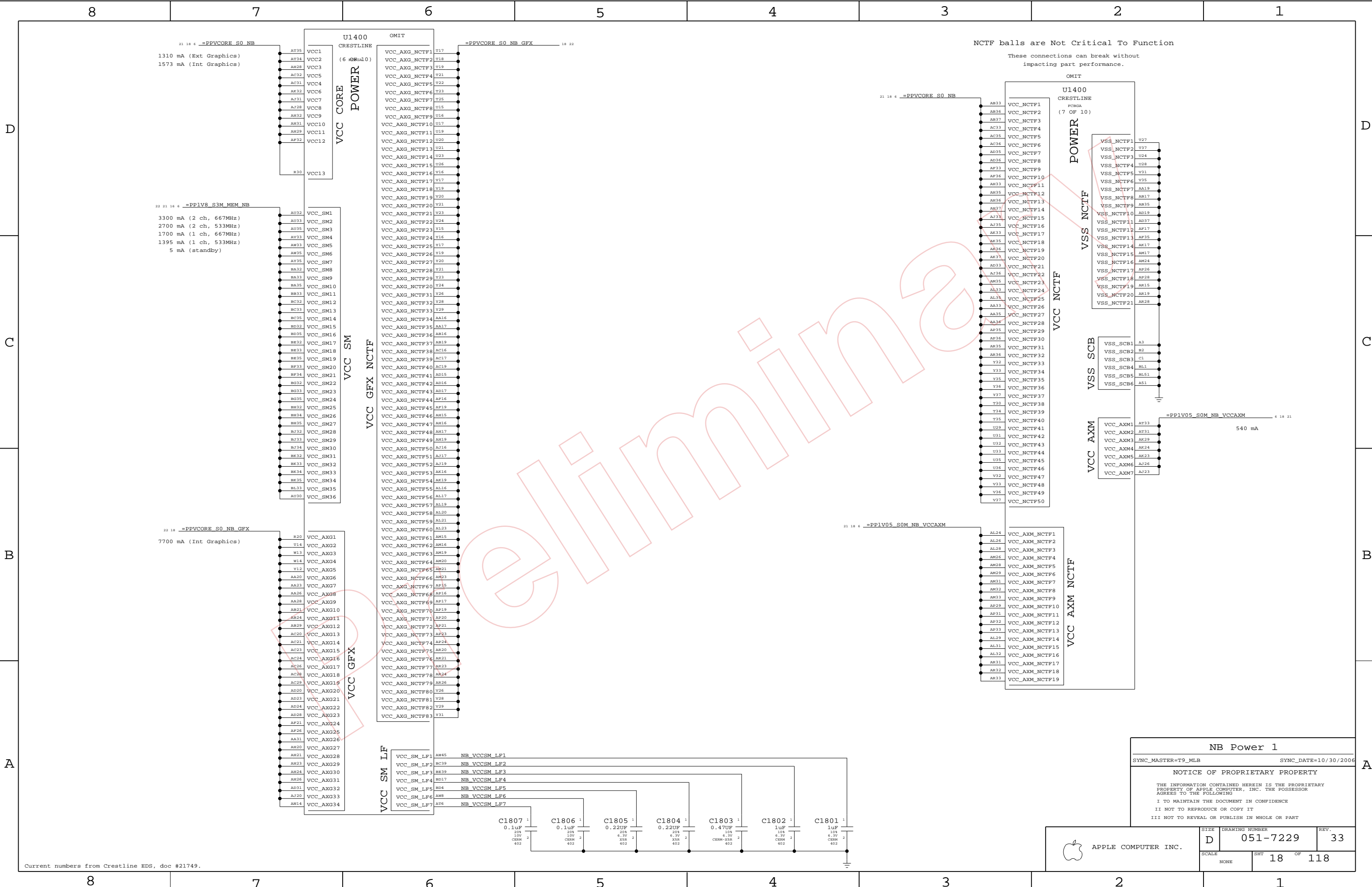
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Current numbers from Crestline EDS, doc #21749.

NB Power 1

SYNC_MASTER=T9_MLB

SYNC_DATE=10/30/2006

NOTICE OF PROPRIETARY PROPERTY

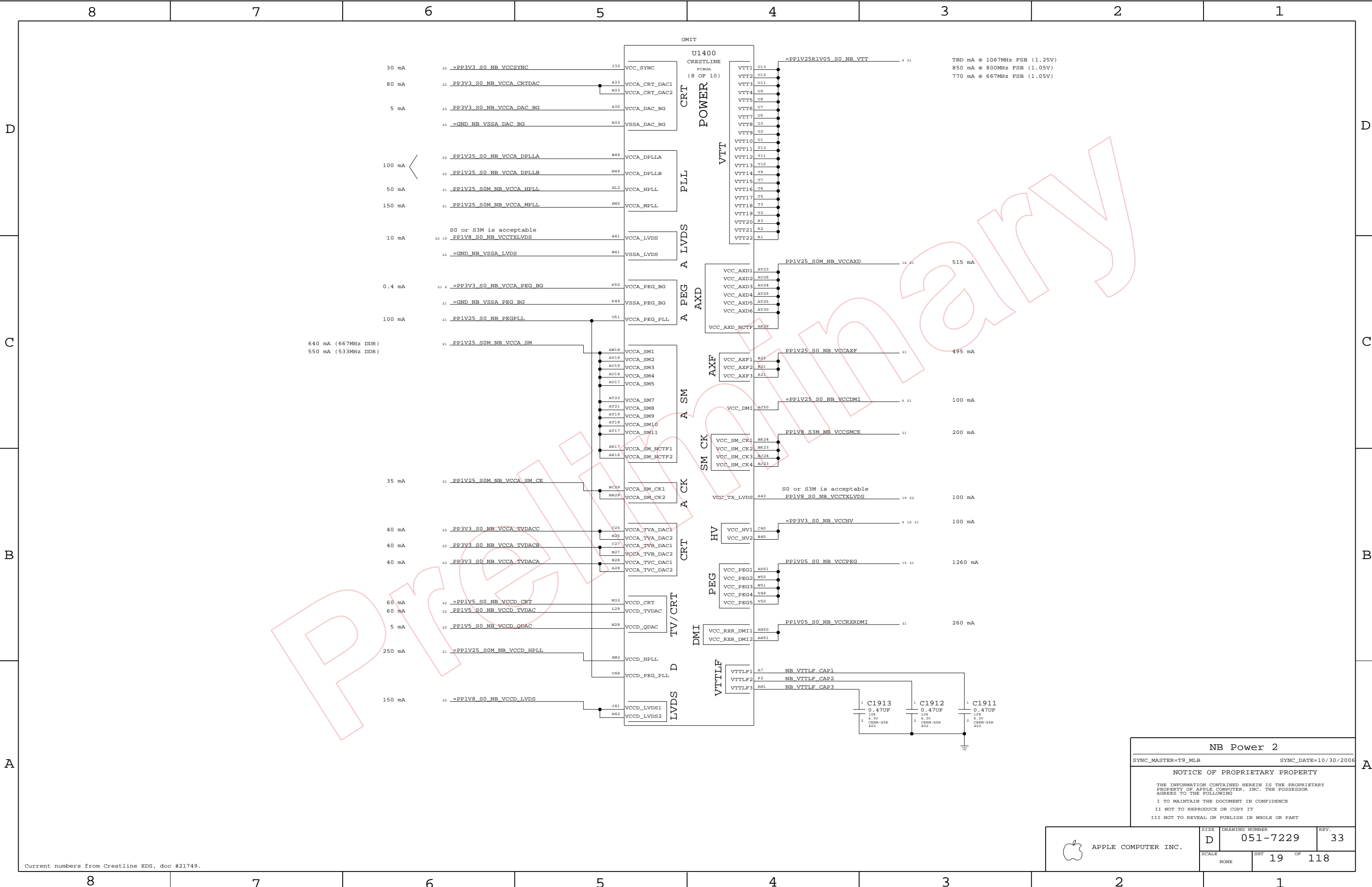
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	D	051-7229	33
SCALE		SHT	OF
NONE		18	118



Current numbers from Crestline EDS, doc #21749.

NB Power 2

SYNC_MASTER=T9_MLB

SYNC_DATE=10/30/2006

NOTICE OF PROPRIETARY PROPERTY

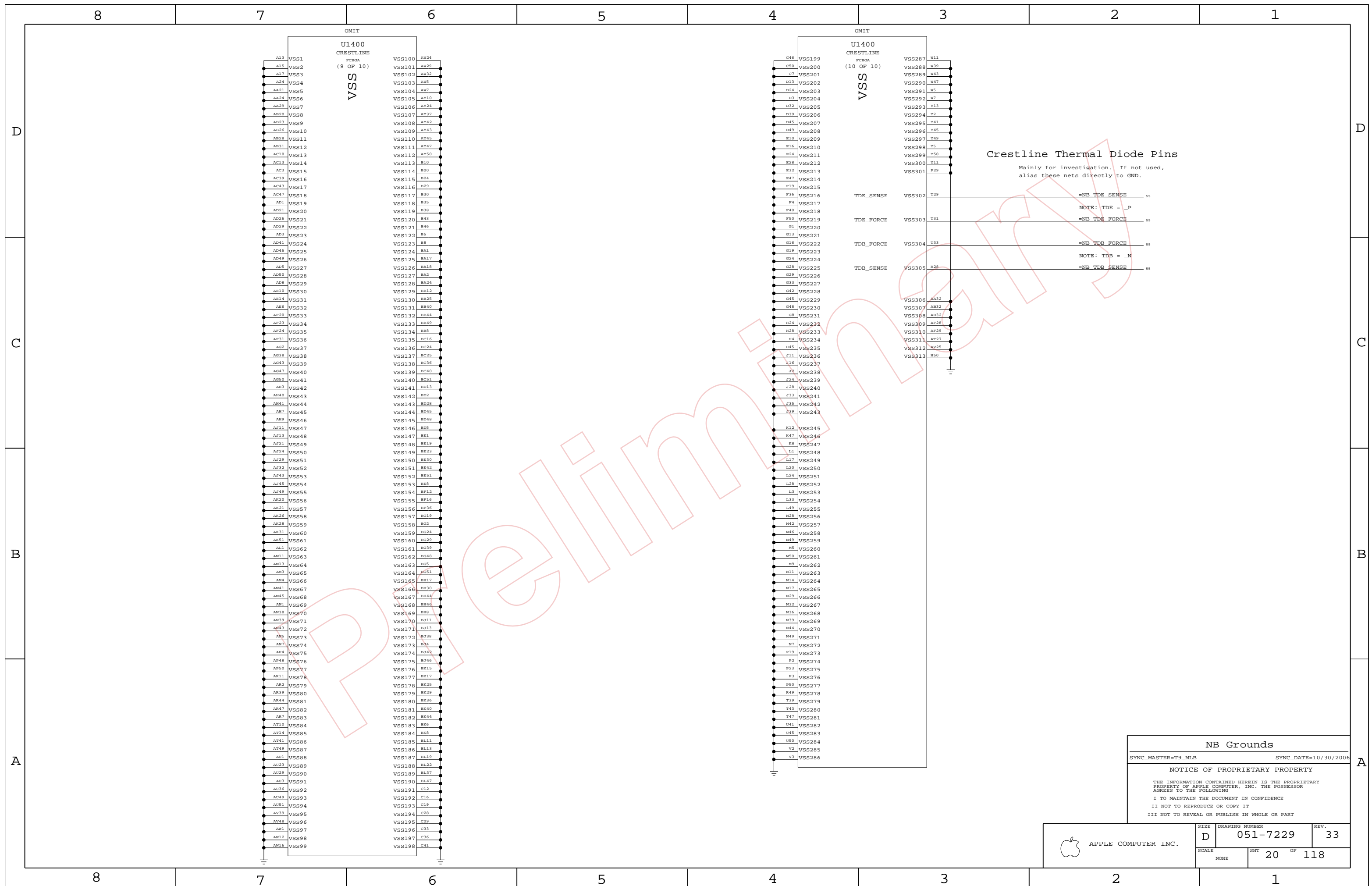
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING

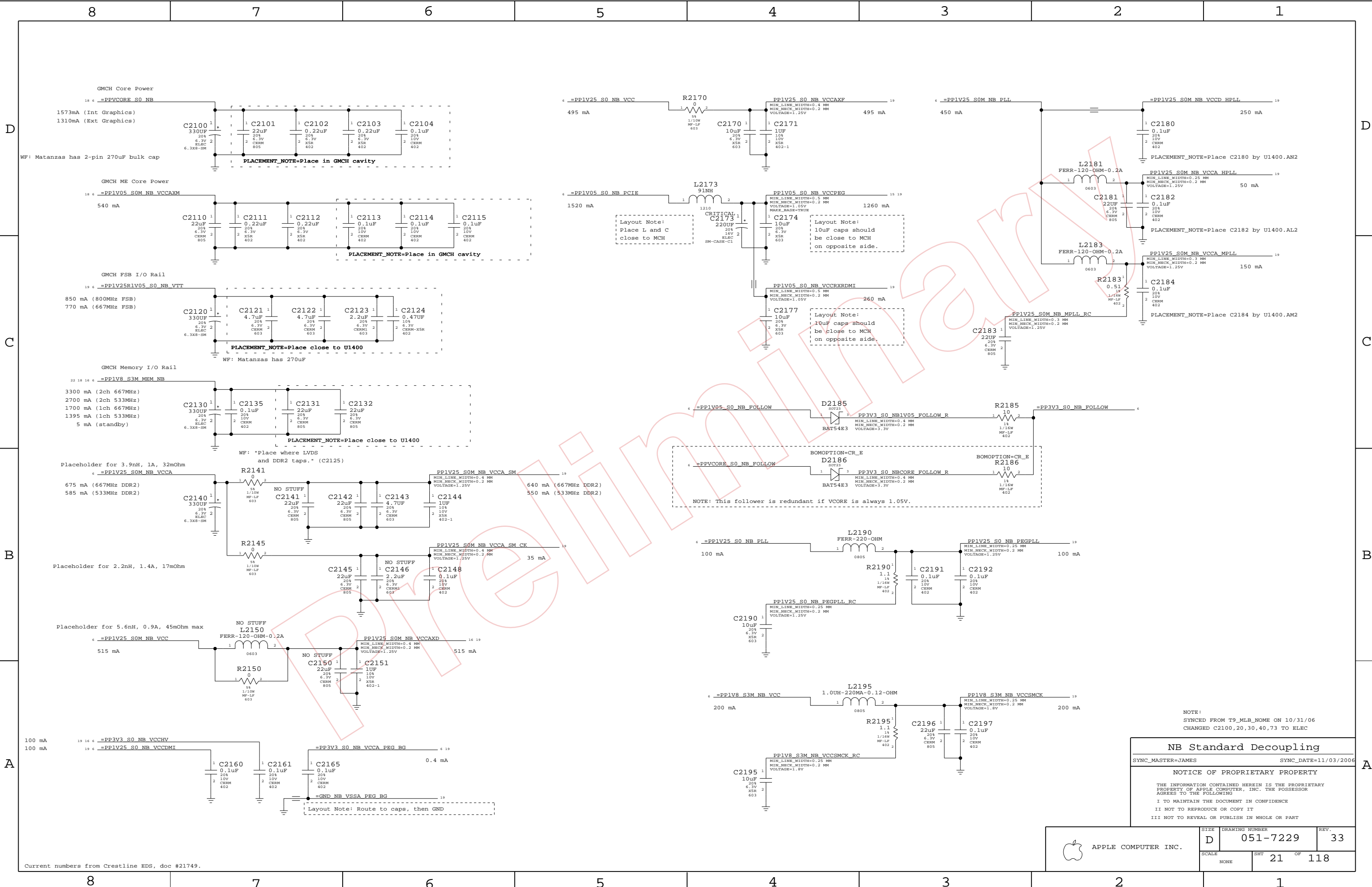
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7229	33
SCALE		SHT	OF
NONE		19	118

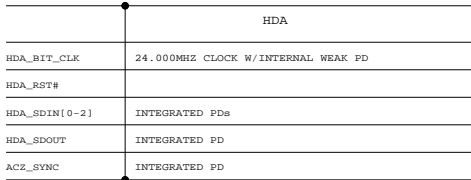




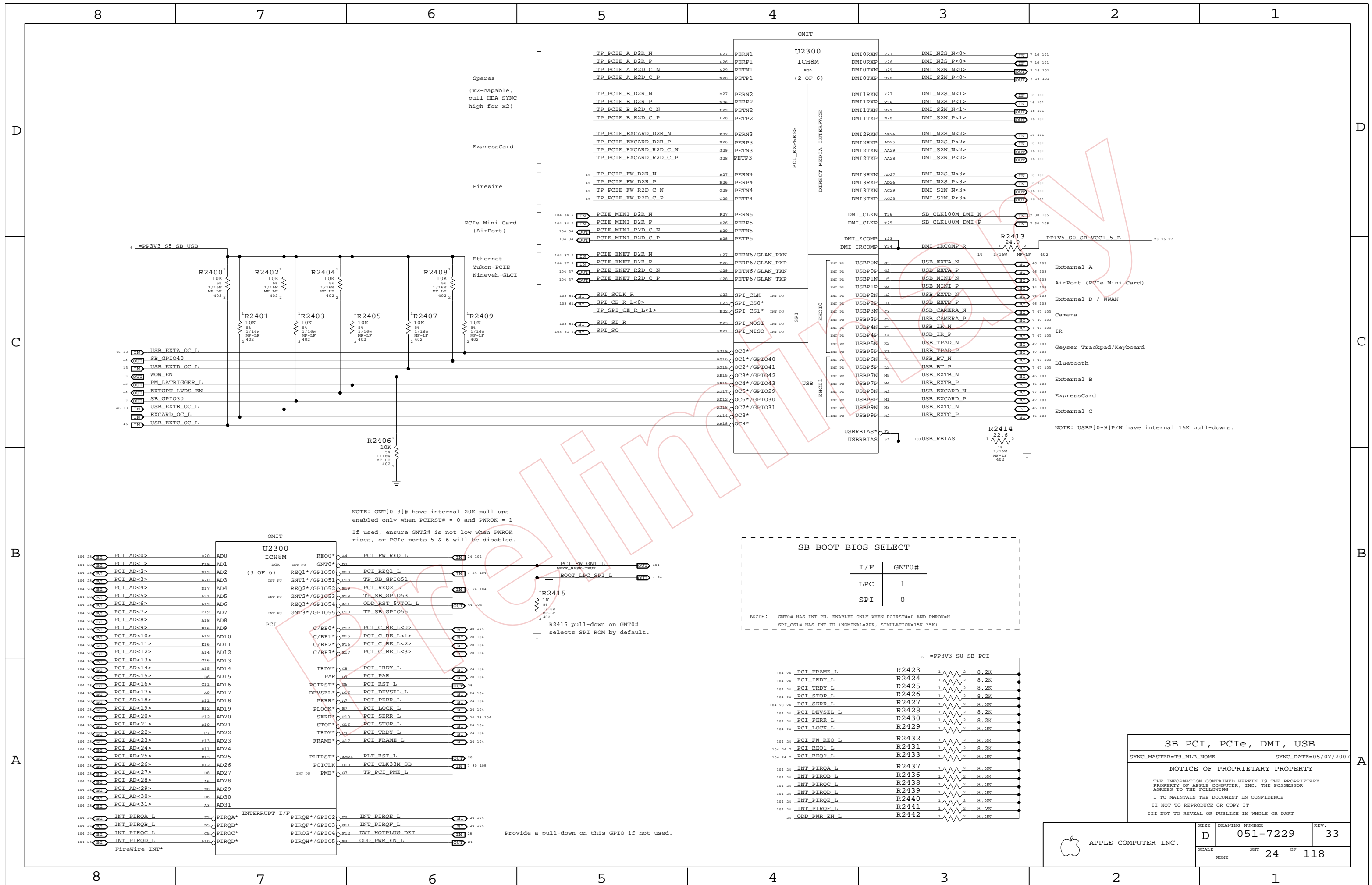
NB Standard Decoupling	
SYNC_MASTER=JAMES	SYNC_DATE=11/03/2006
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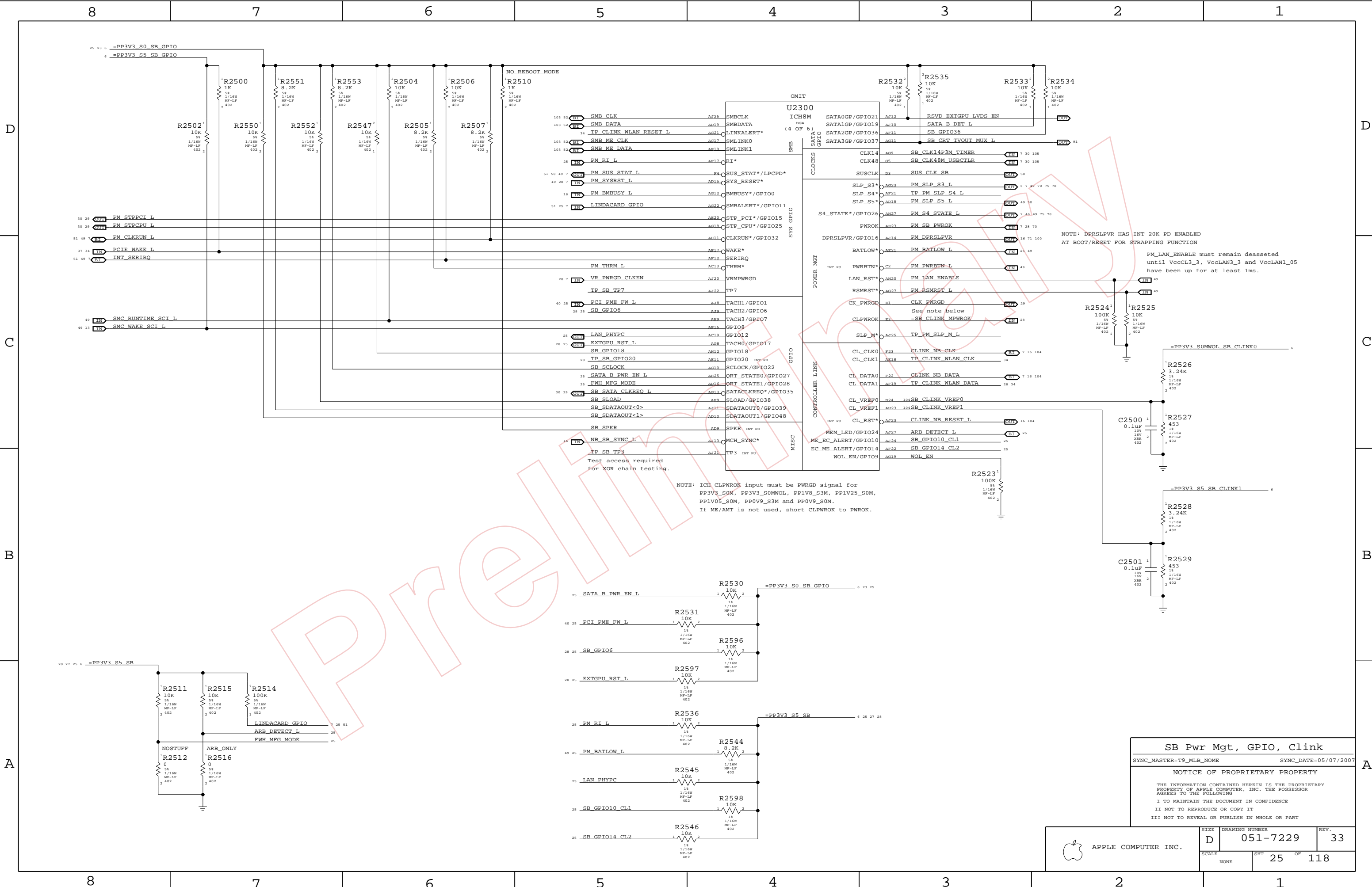
 APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7229	33
SCALE	SHT	21	OF 118
NONE			

Current numbers from Crestline EDS, doc #21749.



SB Enet, Disk, FSB, LPC	
SYNC_MASTER=T9_MLB_NAME	SYNC_DATE=05/07/2007
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SB Pwr Mgt, GPIO, Clink

SYNC_MASTER=TS_MLB_NOME SYNC_DATE=05/07/2007

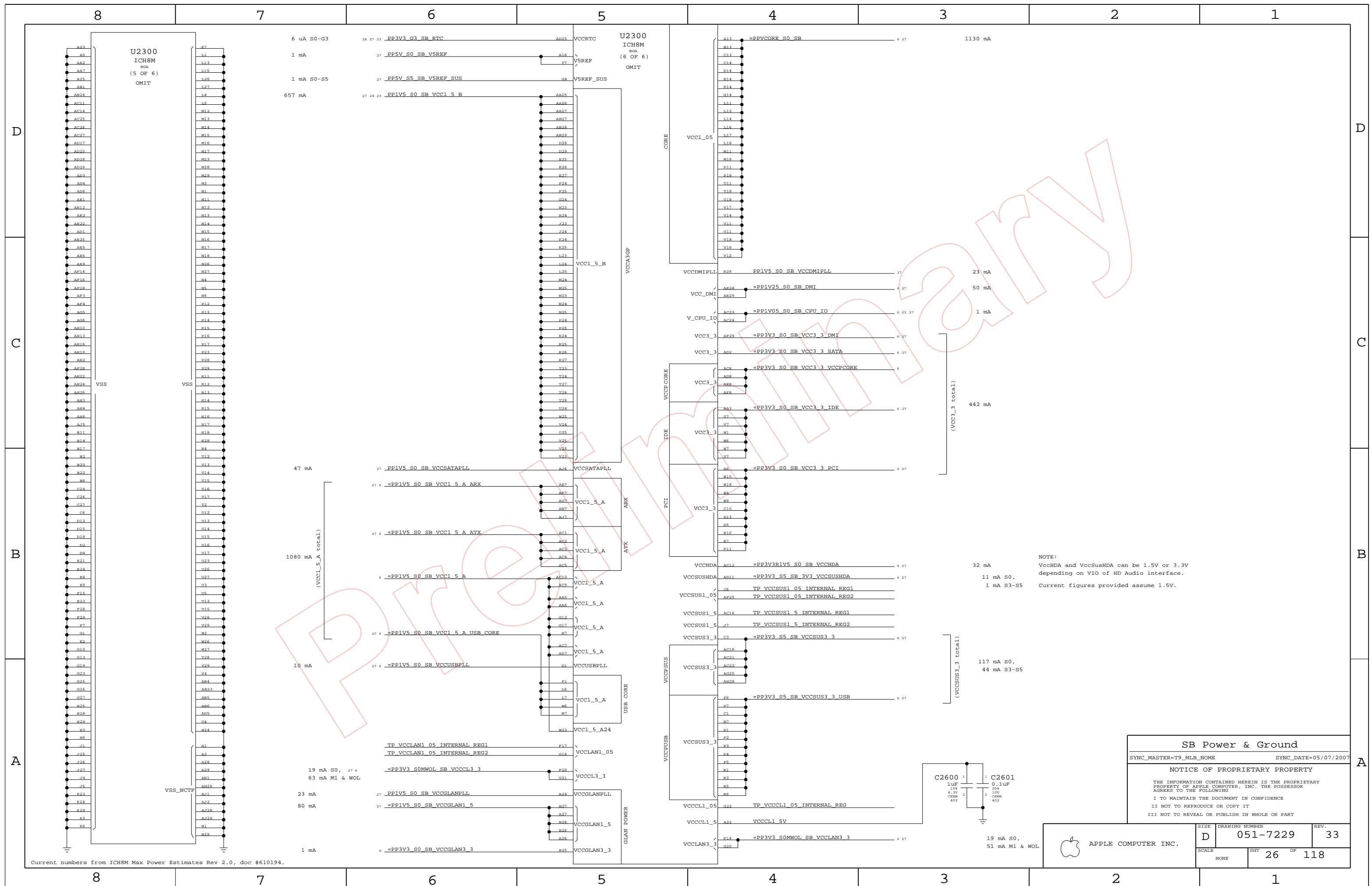
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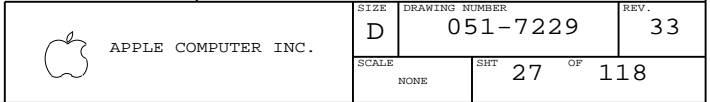
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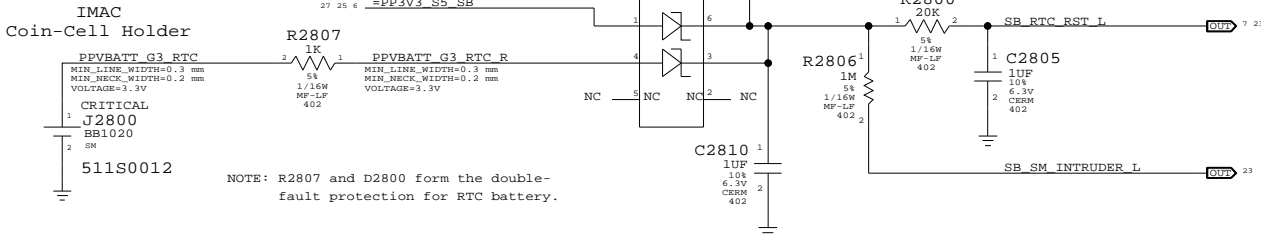
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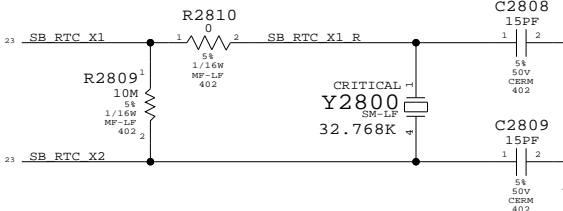




RTC Power Sources



SB RTC Crystal



UNUSED PCI BUS

```

1004 24  PCI AD<0> == MAKE_BASE=TRUE TP PCI AD 0
1004 24  PCI AD<1> == MAKE_BASE=TRUE TP PCI AD 1
1004 24  PCI AD<2> == MAKE_BASE=TRUE TP PCI AD 2
1004 24  PCI AD<3> == MAKE_BASE=TRUE TP PCI AD 3
1004 24  PCI AD<4> == MAKE_BASE=TRUE TP PCI AD 4 NO_TEST=TRUE
1004 24  PCI AD<5> == MAKE_BASE=TRUE TP PCI AD 5
1004 24  PCI AD<6> == MAKE_BASE=TRUE TP PCI AD 6
1004 24  PCI AD<7> == MAKE_BASE=TRUE TP PCI AD 7
1004 24  PCI AD<8> == MAKE_BASE=TRUE TP PCI AD 8
1004 24  PCI AD<9> == MAKE_BASE=TRUE TP PCI AD 9
1004 24  PCI AD<10> == MAKE_BASE=TRUE TP PCI AD 10
1004 24  PCI AD<11> == MAKE_BASE=TRUE TP PCI AD 11
1004 24  PCI AD<12> == MAKE_BASE=TRUE TP PCI AD 12
1004 24  PCI AD<13> == MAKE_BASE=TRUE TP PCI AD 13
1004 24  PCI AD<14> == MAKE_BASE=TRUE TP PCI AD 14
1004 24  PCI AD<15> == MAKE_BASE=TRUE TP PCI AD 15
1004 24  PCI AD<16> == MAKE_BASE=TRUE TP PCI AD 16
1004 24  PCI AD<17> == MAKE_BASE=TRUE TP PCI AD 17
1004 24  PCI AD<18> == MAKE_BASE=TRUE TP PCI AD 18
1004 24  PCI AD<19> == MAKE_BASE=TRUE TP PCI AD 19
1004 24  PCI AD<20> == MAKE_BASE=TRUE TP PCI AD 20
1004 24  PCI AD<21> == MAKE_BASE=TRUE TP PCI AD 21
1004 24  PCI AD<22> == MAKE_BASE=TRUE TP PCI AD 22
1004 24  PCI AD<23> == MAKE_BASE=TRUE TP PCI AD 23
1004 24  PCI AD<24> == MAKE_BASE=TRUE TP PCI AD 24
1004 24  PCI AD<25> == MAKE_BASE=TRUE TP PCI AD 25
1004 24  PCI AD<26> == MAKE_BASE=TRUE TP PCI AD 26
1004 24  PCI AD<27> == MAKE_BASE=TRUE TP PCI AD 27
1004 24  PCI AD<28> == MAKE_BASE=TRUE TP PCI AD 28
1004 24  PCI AD<29> == MAKE_BASE=TRUE TP PCI AD 29
1004 24  PCI AD<30> == MAKE_BASE=TRUE TP PCI AD 30
1004 24  PCI AD<31> == MAKE_BASE=TRUE TP PCI AD 31

1004 24  PCI C BE L<0> == MAKE_BASE=TRUE TP PCI C BE L 0
1004 24  PCI C BE L<1> == MAKE_BASE=TRUE TP PCI C BE L 1
1004 24  PCI C BE L<2> == MAKE_BASE=TRUE TP PCI C BE L 2
1004 24  PCI C BE L<3> == MAKE_BASE=TRUE TP PCI C BE L 3
1004 24  PCI RST L == MAKE_BASE=TRUE TP PCI RST L
1004 24  PCI PAR == MAKE_BASE=TRUE TP PCI PAR

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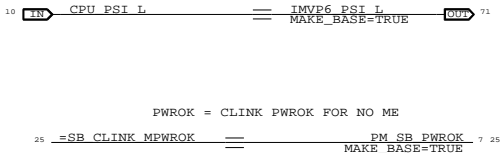
NO TEST DUE TO ROUTING

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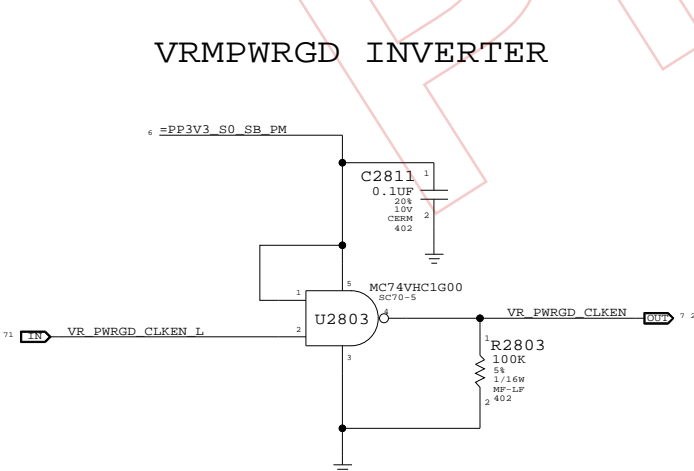
23  IN TP LAN D2R<2> NO_TEST=TRU
34 25 IN TP CLINK WLAN DATA NO_TEST=TRU
104 24 IN PCI SERR L NO_TEST=TRU

```

CPU VCORE FORCEPSI UNUSED

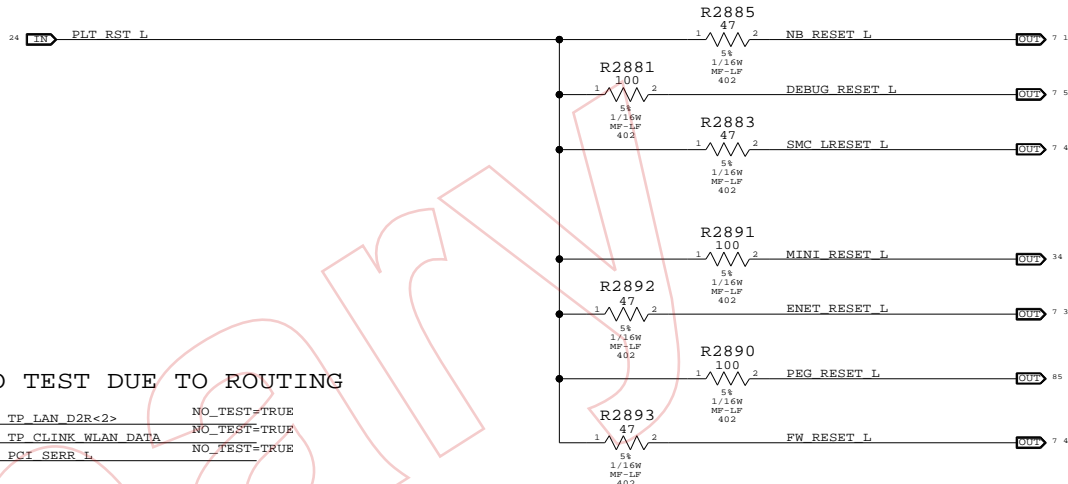


~~VRMPWRGD INVERTER~~

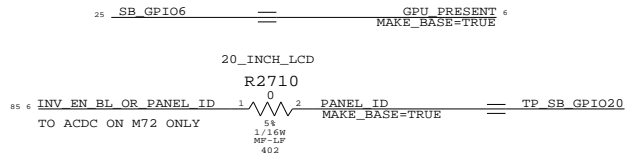


Platform Reset Connection

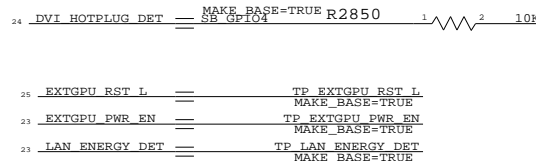
Unbuffere



RE-PURPOSED GPIO



UNUSED GPIO



SB Misc

SYNC_MASTER=DAVE_MASTER	SYNC_DATE=N
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APPLE COMPUTER IN

SIZE	DRAWING NUMBER	R
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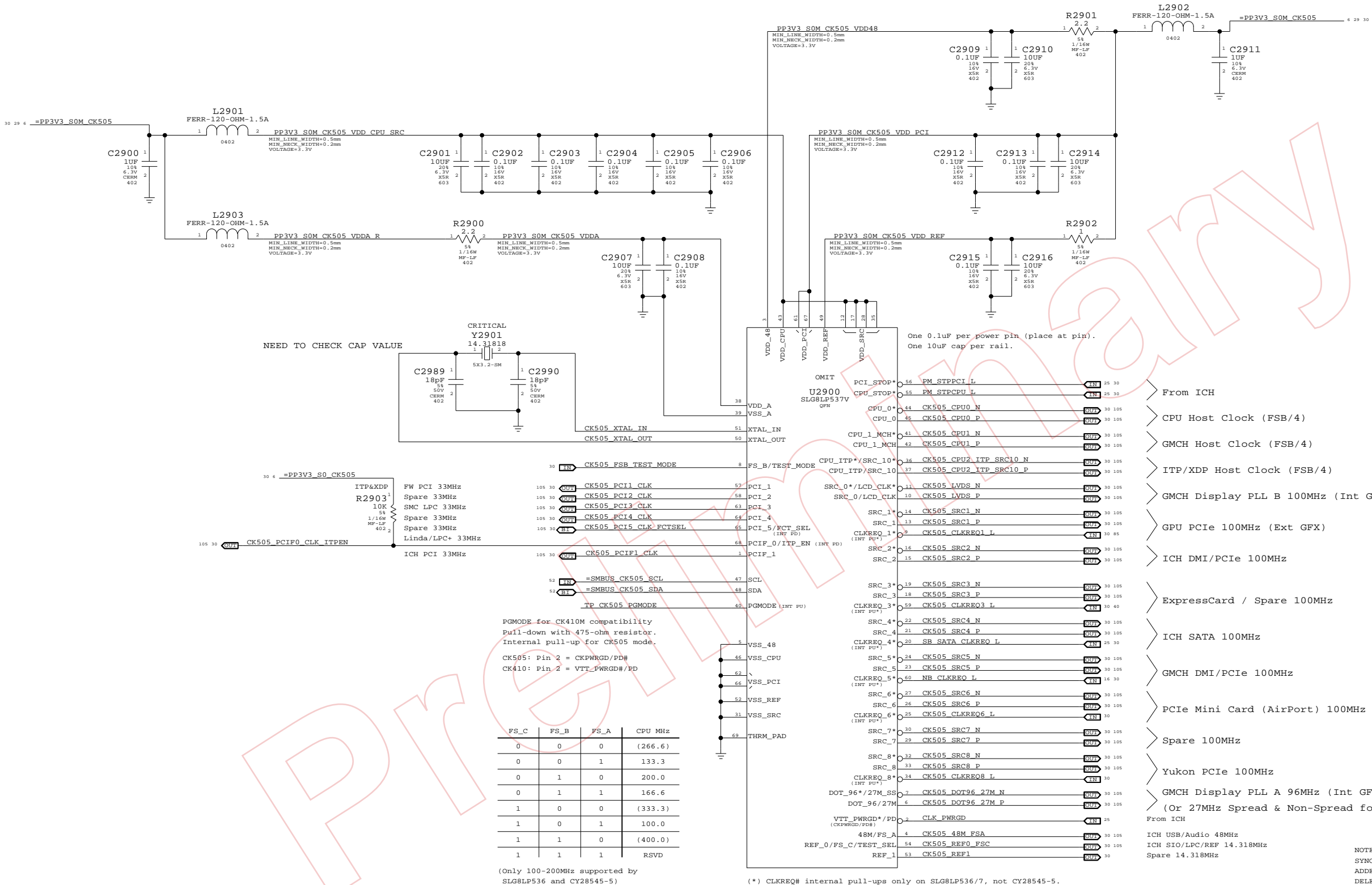
5

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1



FCT_SEL	PIN 6	PIN 7	PIN 10	PIN 11
0	DOT_96+	DOT_96-	LCD_CLK+	LCD_CLK-
1	27M	27M w/SS	SRC_0+	SRC_0-

(For Internal Graphics)
(For External Graphics)

Clock (CK505)

SYNC_MASTER=JAMES SYNC_DATE=11/27/2006

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APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-7229	33
SCALE	SHT	OF
NONE	29	118

Power aliases required by this page:

- =PP1V8_S3_MEM
- =PP0V9_S3_MEM_VREF
- =PPSPD_S0_MEM (2.5V - 3.3V)

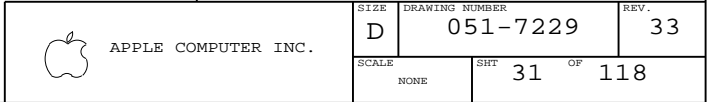
Signal aliases required by this page:

- =I2C_MEM_SCL
- =I2C_MEM_SDA

BOM options provided by this page:

(NONE)

NOTE: This page does not supply VREF.
The reference voltage must be provided
by another page.



Power aliases required by this page:

- =PP1V8_S3_MEM
- =PP0V9_S3_MEM_VREF
- =PPSPD_S0_MEM (2.5V - 3.3V)

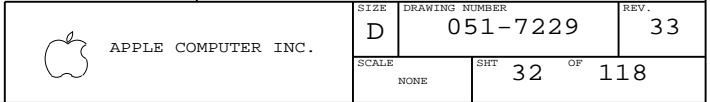
Signal aliases required by this page:

- =I2C_MEM_SCL
- =I2C_MEM_SDA

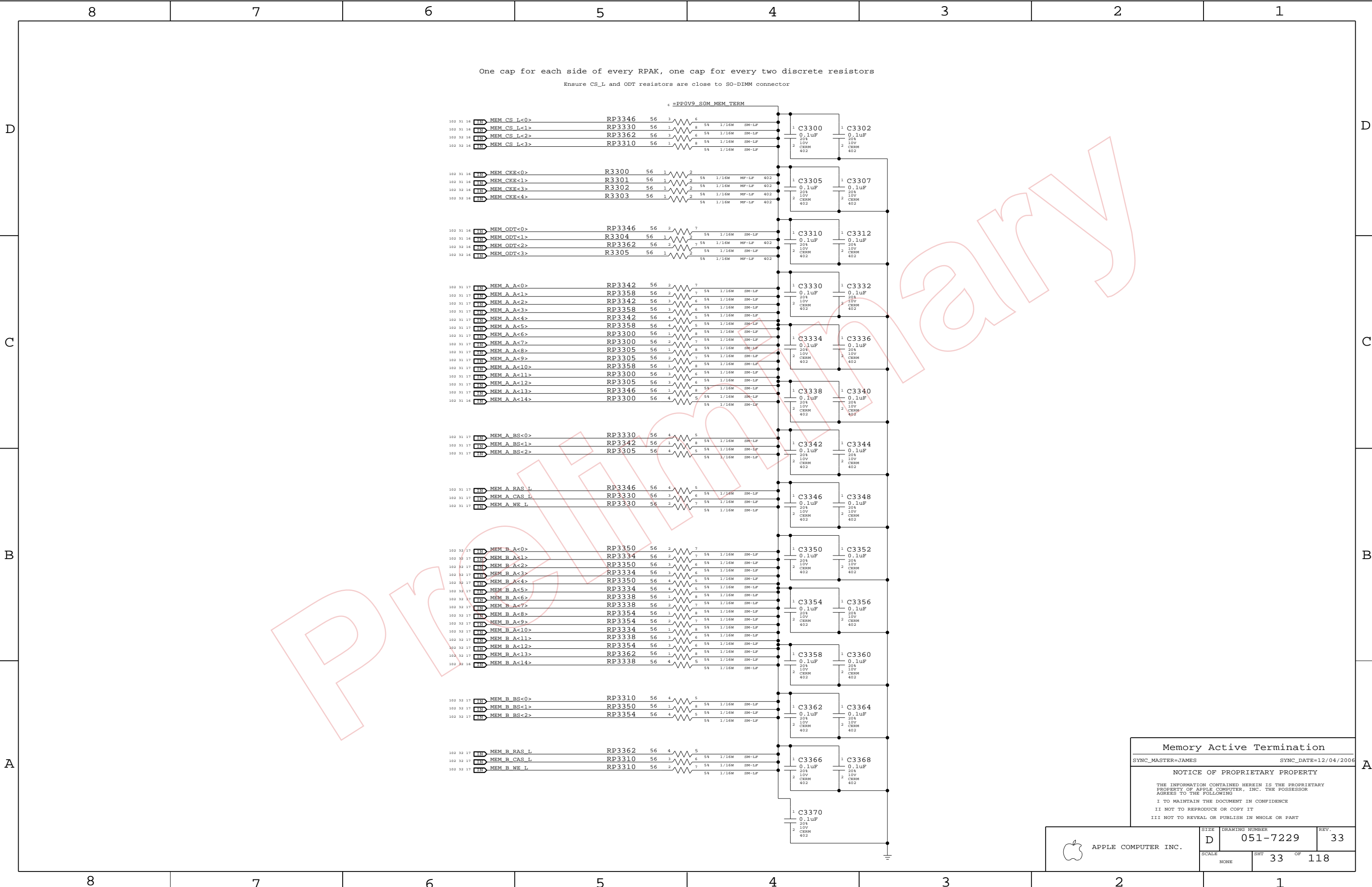
BOM options provided by this page:

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NOTE: This page does not supply VREF.
The reference voltage must be provided
by another page.



DDR2 SO-DIMM Connector B	
SYNC_MASTER=JAMES	SYNC_DATE=10/17/06
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Memory Active Termination

SYNC_MASTER=JAMES SYNC_DATE=12/04/2006

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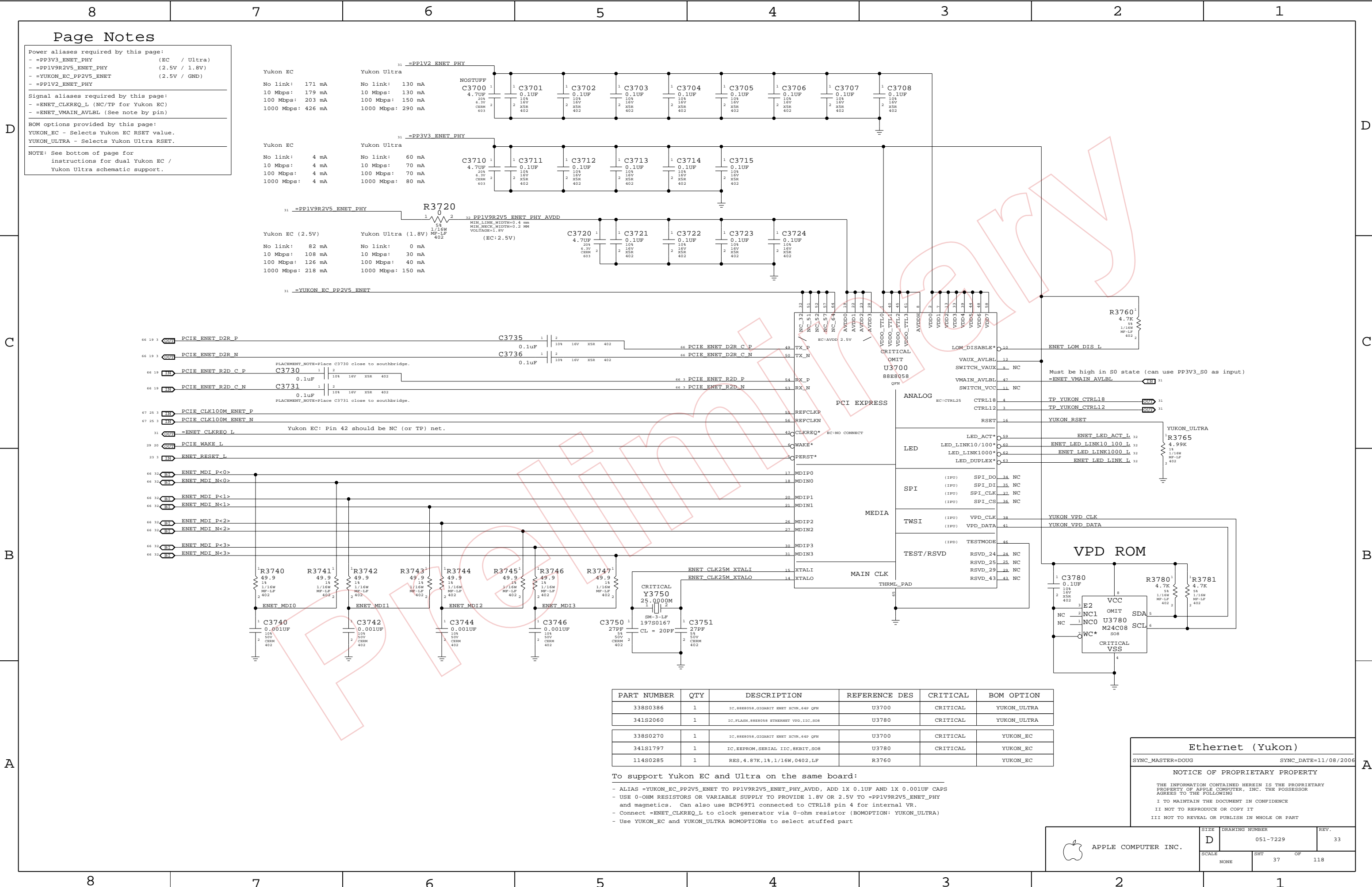
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APPLE COMPUTER INC.

SIZE D DRAWING NUMBER 051-7229 REV. 33

SCALE NONE SHT 33 OF 118



PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
338S0386	1	IC,88E8058,GIGABIT ENET XCVR,64P QFN	U3700	CRITICAL	YUKON_ULTRA
341S2060	1	IC,FLASH,88E8058 ETHERNET VPD,IIC,S08	U3780	CRITICAL	YUKON_ULTRA
338S0270	1	IC,88E8058,GIGABIT ENET XCVR,64P QFN	U3700	CRITICAL	YUKON_EC
341S1797	1	IC,EEPROM,SERIAL IIC,8KBIT,S08	U3780	CRITICAL	YUKON_EC
114S0285	1	RES,4.87K,1%,1/16W,0402,LF	R3760		YUKON_EC

To support Yukon EC and Ultra on the same board:

- ALIAS =YUKON_EC_PP2V5_ENET TO PP1V9R2V5_ENET_PHY_AVDD, ADD 1X 0.1uF AND 1X 0.001uF CAPS
- USE 0-OHM RESISTORS OR VARIABLE SUPPLY TO PROVIDE 1.8V OR 2.5V TO =PP1V9R2V5_ENET_PHY and magnetics. Can also use BCP69T1 connected to CTRL18 pin 4 for internal VR.
- Connect =ENET_CLKREQ_L to clock generator via 0-ohm resistor (BOMOPTION: YUKON_ULTRA)
- Use YUKON_EC and YUKON_ULTRA BOMOPTIONS to select stuffed part

Ethernet (Yukon)

SYNC_MASTER=DOUG SYNC_DATE=11/08/2006

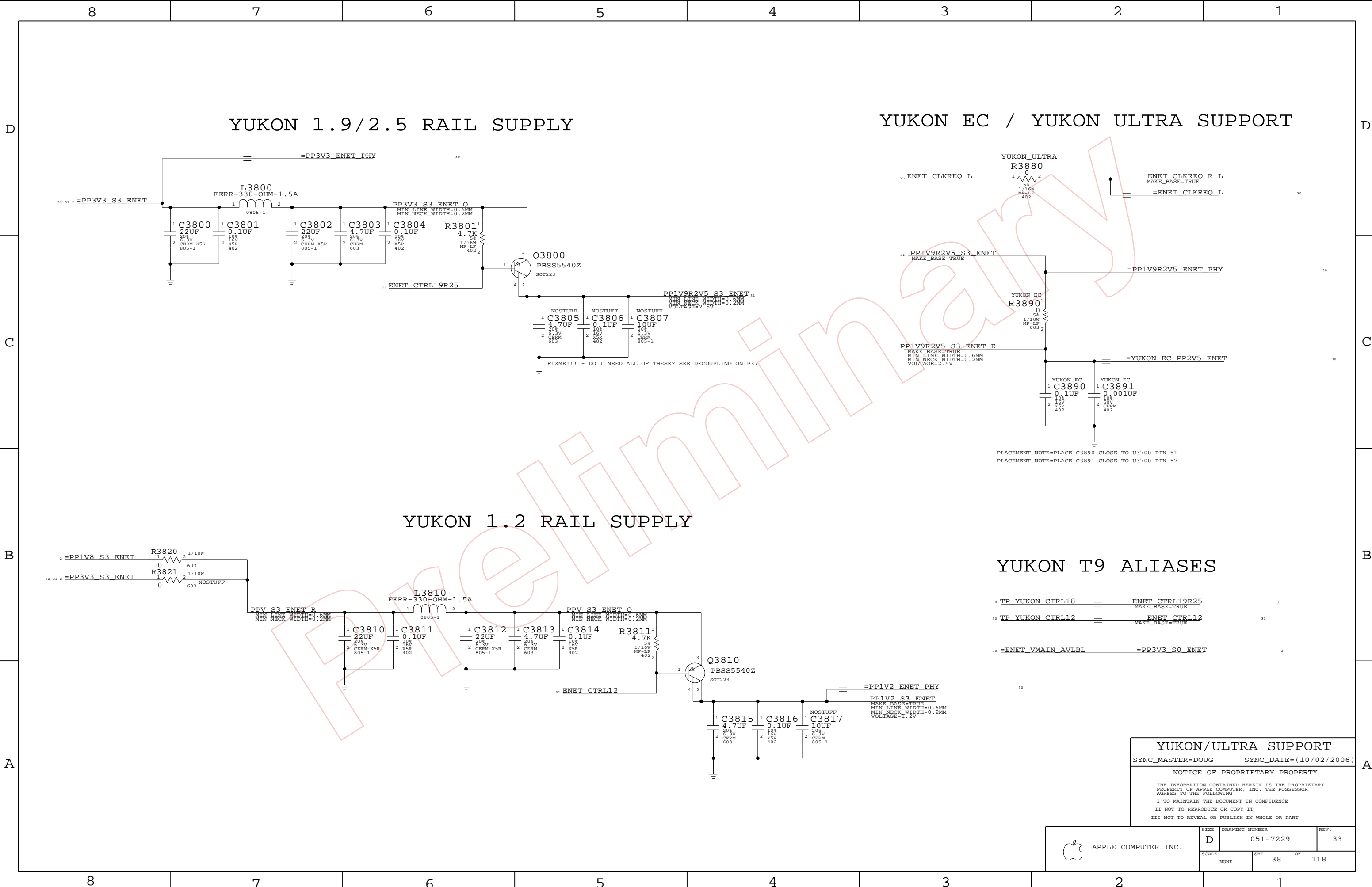
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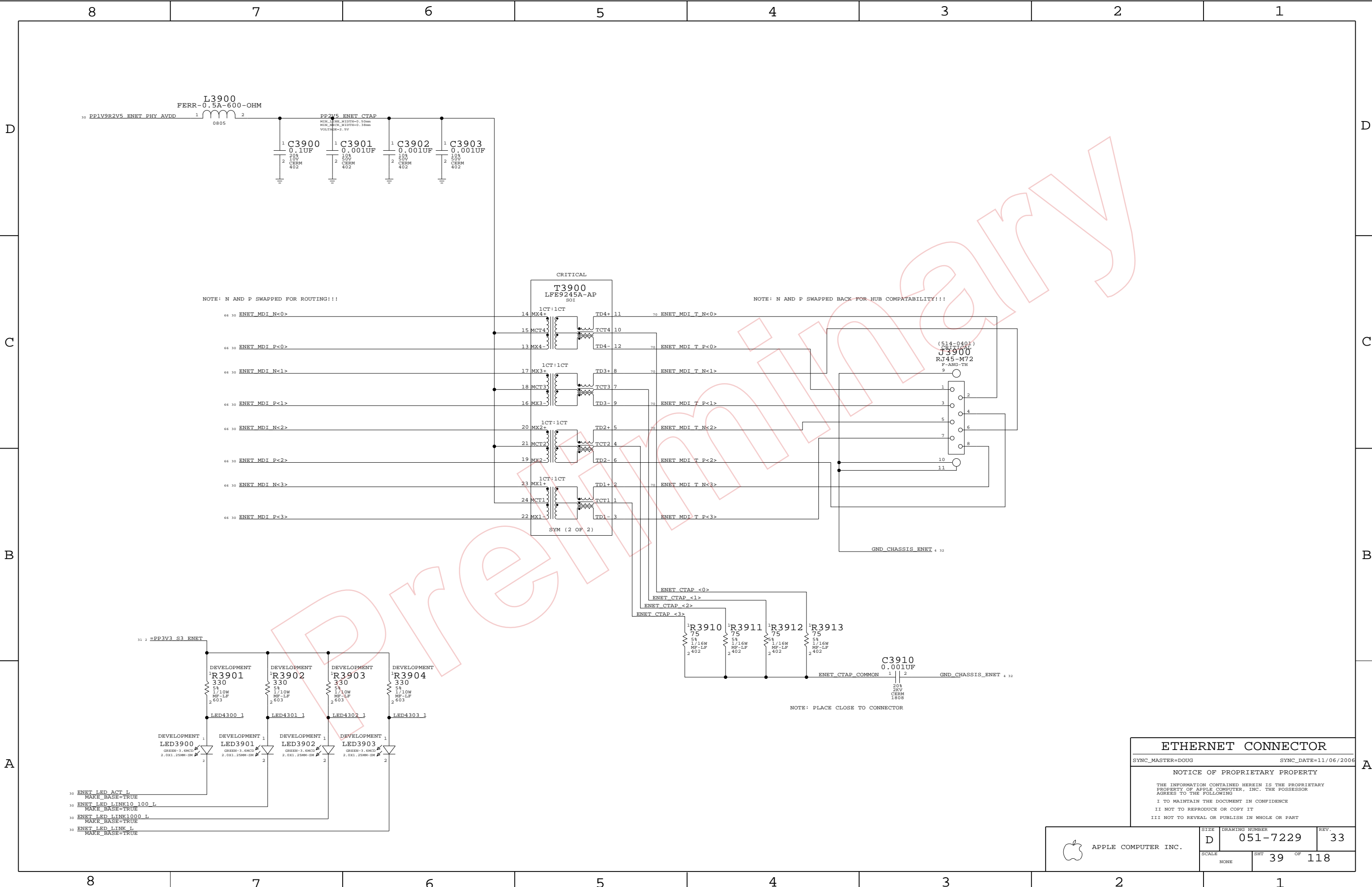


YUKON T9 ALIASES

TP YUKON_CTRL18 = ENET_CTRL19R25
TP YUKON_CTRL12 = ENET_CTRL12
=ENET_VMAIN_AVLBL = =PP3V3_S0_ENET

YUKON/ULTRA SUPPORT
SYNC_MASTER=DOUG SYNC_DATE=(10/02/2006)
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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7229	REV. 33
	SCALE NONE	SHT 38	OF 118



ETHERNET CONNECTOR

SYNC_MASTER=DOUG

SYNC_DATE=11/06/2006

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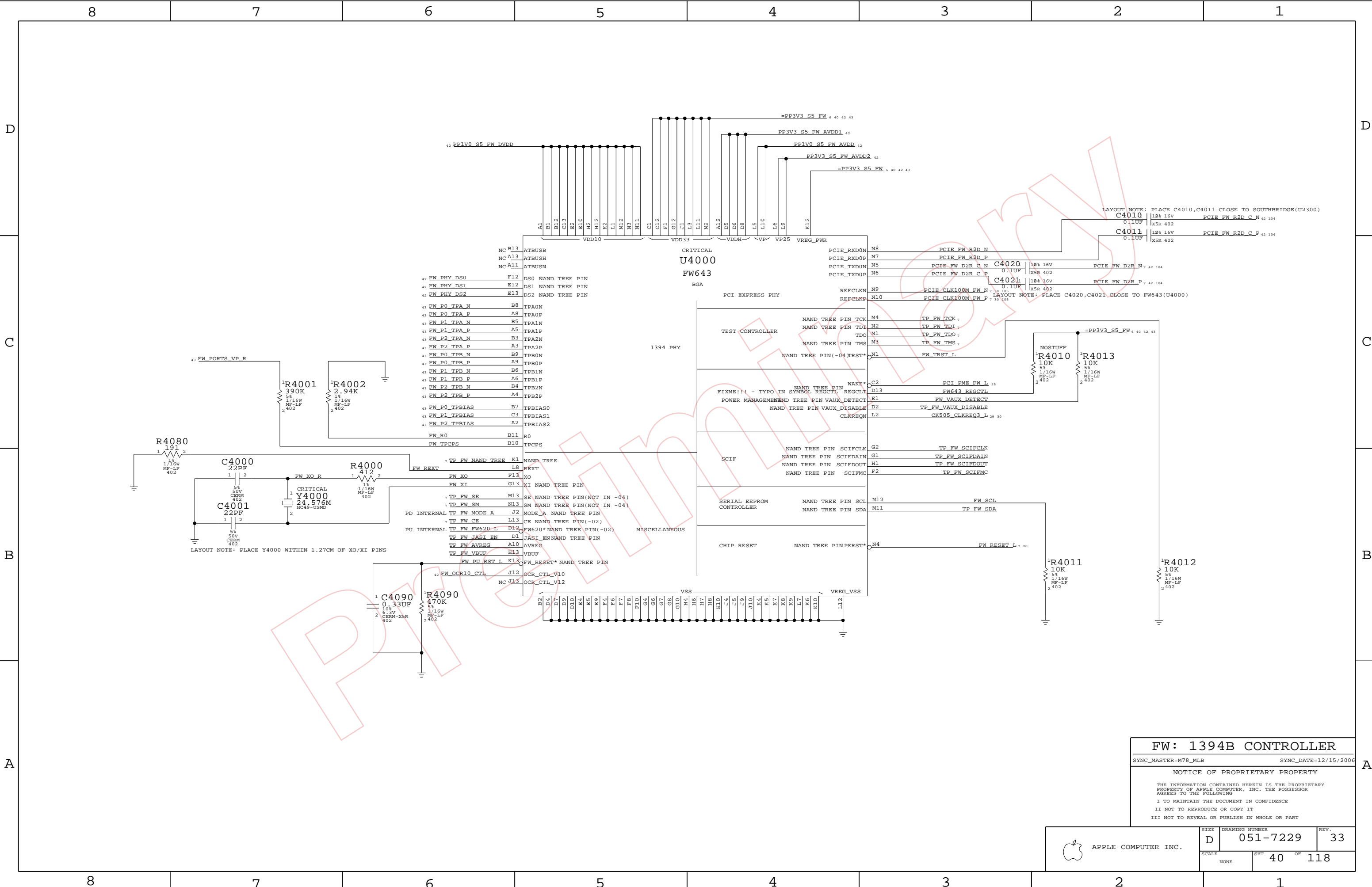
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	D	051-7229	33
SCALE		SHT	OF
NONE		39	118



FW: 1394B CONTROLLER

SYNC_MASTER=M78_MLB SYNC_DATE=12/15/2006

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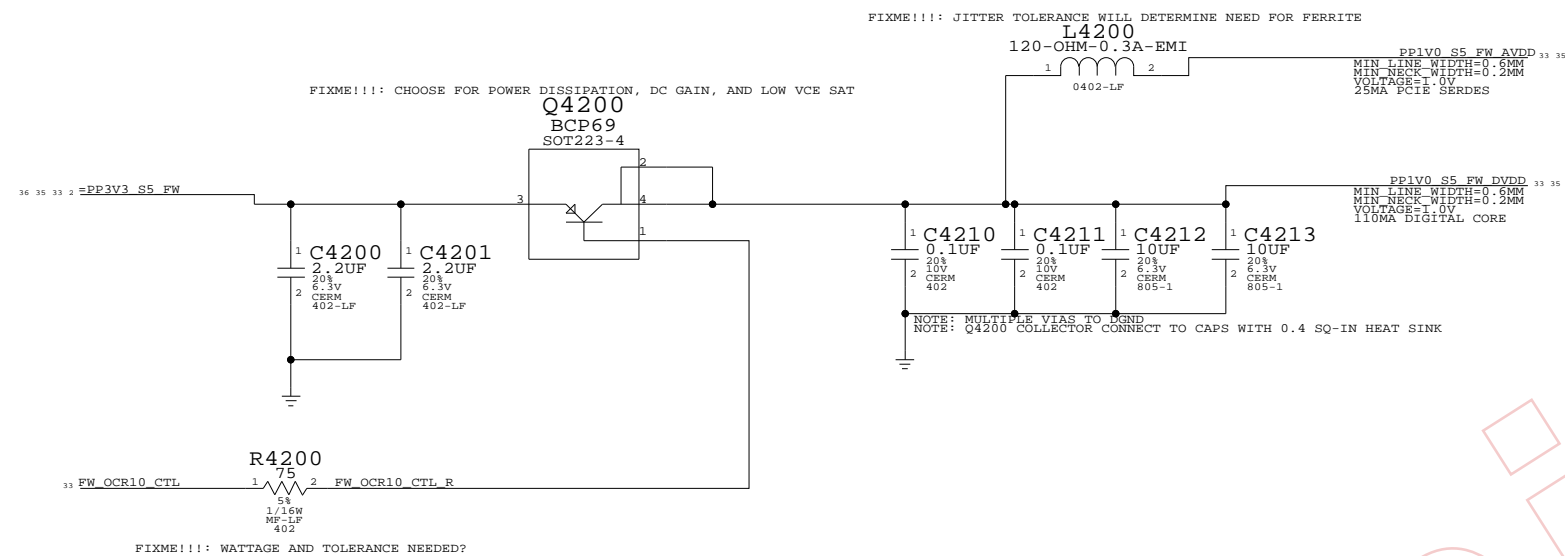
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7229	33
SCALE		SHT	OF
NONE		40	118

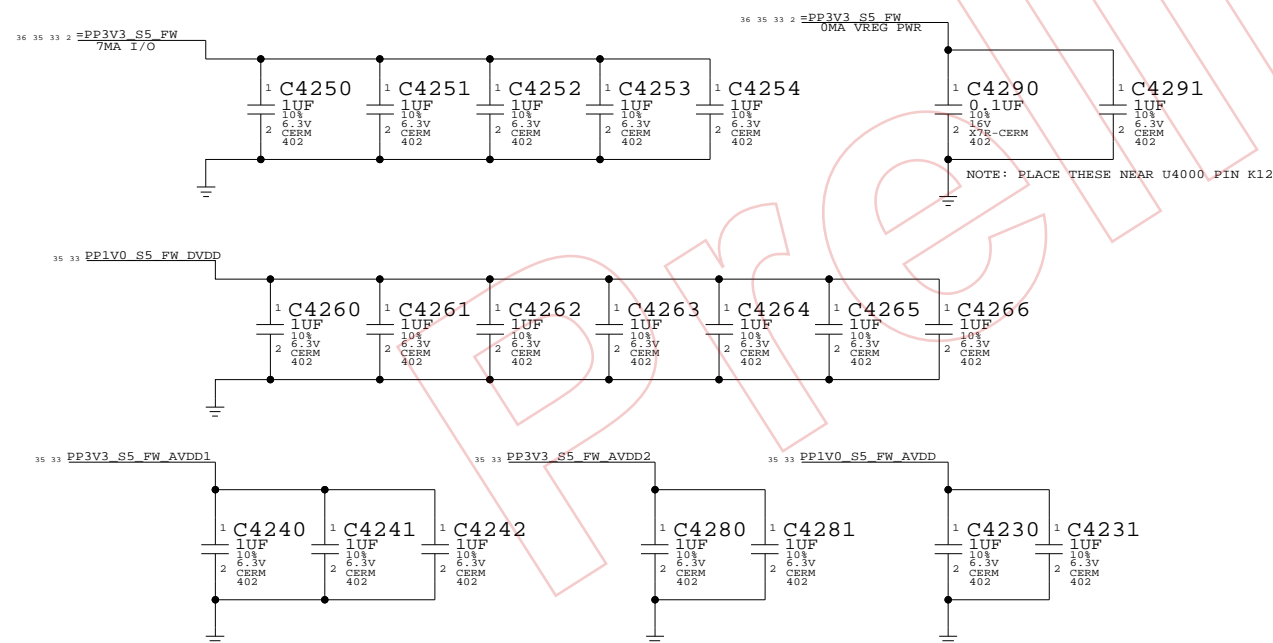


FW643 1.0V GENERATION

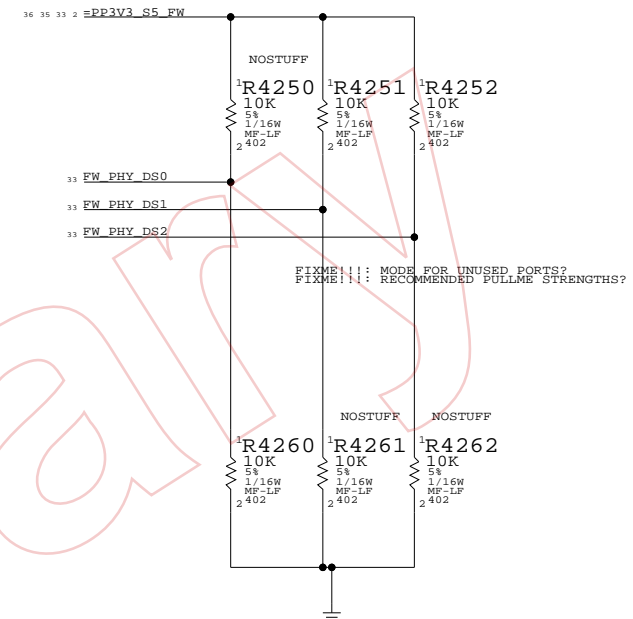


FW643 DECOUPLING

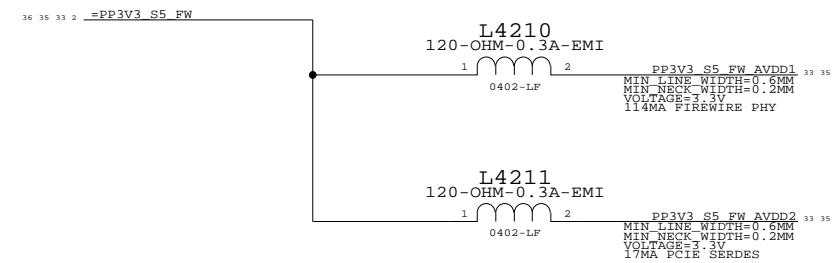
NOTE: PLACE 1 CAP CLOSE TO EACH POWER PIN ON U4000



1394 PHY DATA/STROBE OPTIONS



FW 3.3V FILTERING



FW PCIE ALIASES

	19	TP_PCIE_FW_R2D_C_N	==	PCIE_FW_R2D_C_N MAKE_BASE=TRUE	33
	19	TP_PCIE_FW_R2D_C_P	==	PCIE_FW_R2D_C_P MAKE_BASE=TRUE	33
33	3	PCIE_FW_D2R_N MAKE_BASE=TRUE	==	TP_PCIE_FW_D2R_N	1
33	3	PCIE_FW_D2R_P MAKE_BASE=TRUE	==	TP_PCIE_FW_D2R_P	1

FW: 1394B MISC

```

SYNC_MASTER=DOUG

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S	SYNCHRONIZATION DATE	10/10/2006
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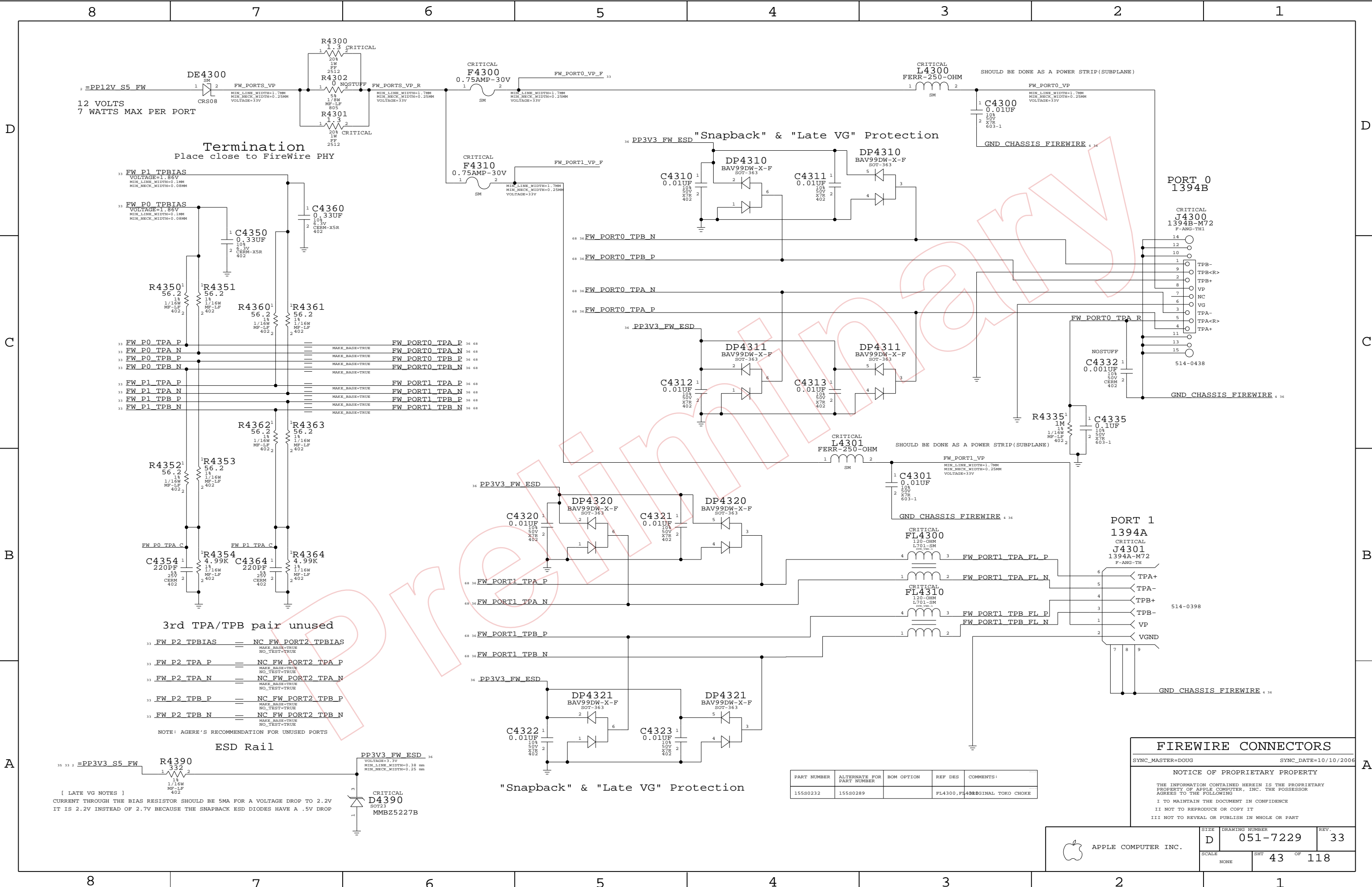
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II NOT TO REPRODUCE OR COPY IT



APPLE COMPUTER INC.

SIZE D	DRAWING NUMBER 051-7229	REV. 33
SCALE NONE	SHT 42	OF 118



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS
155S0232	155S0289		FL4300, FL4310	49REGINAL TOKO CHOKE

FIREWIRE CONNECTORS

SYNC_MASTER=DOUG SYNC_DATE=10/10/2006

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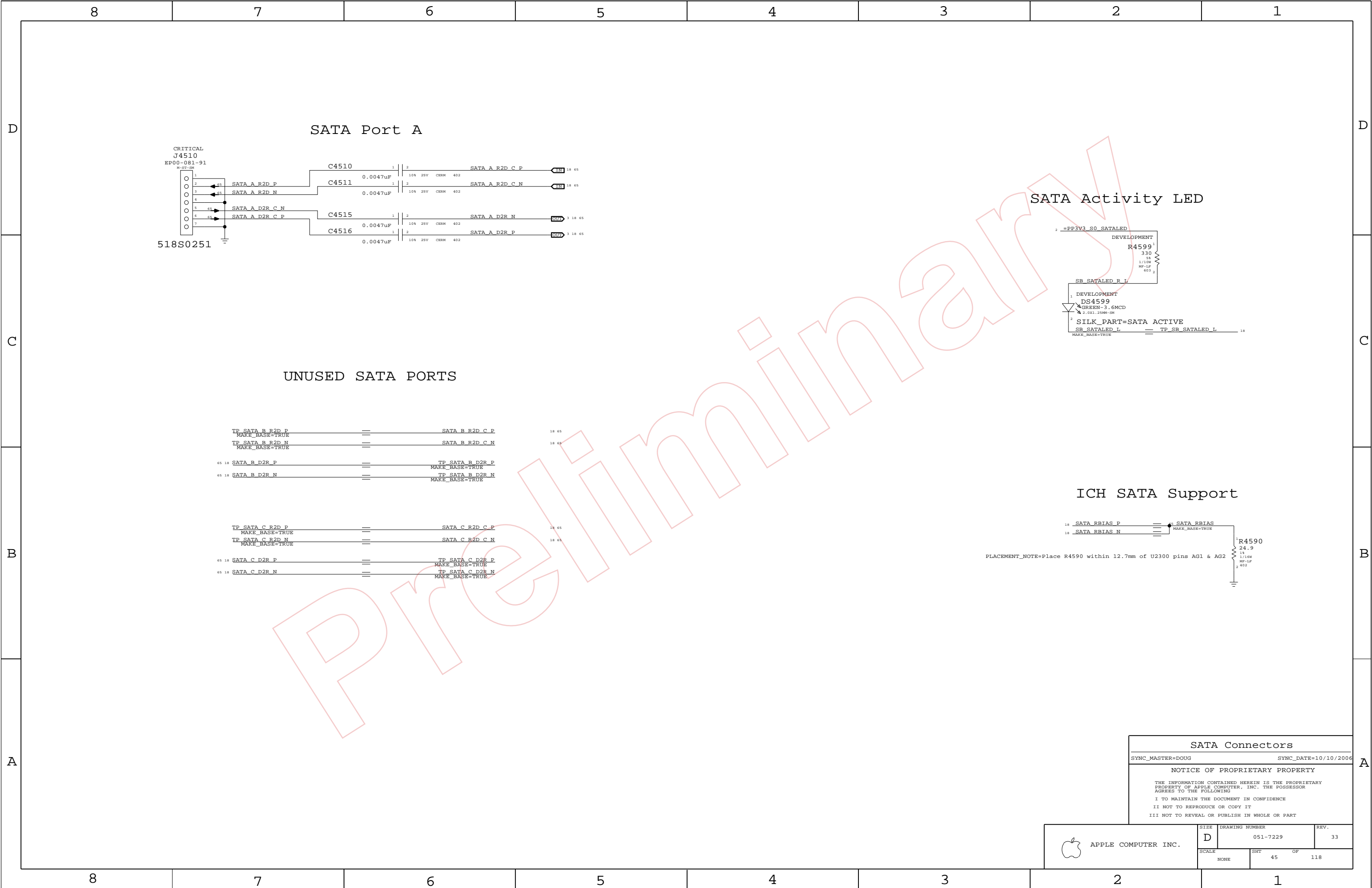
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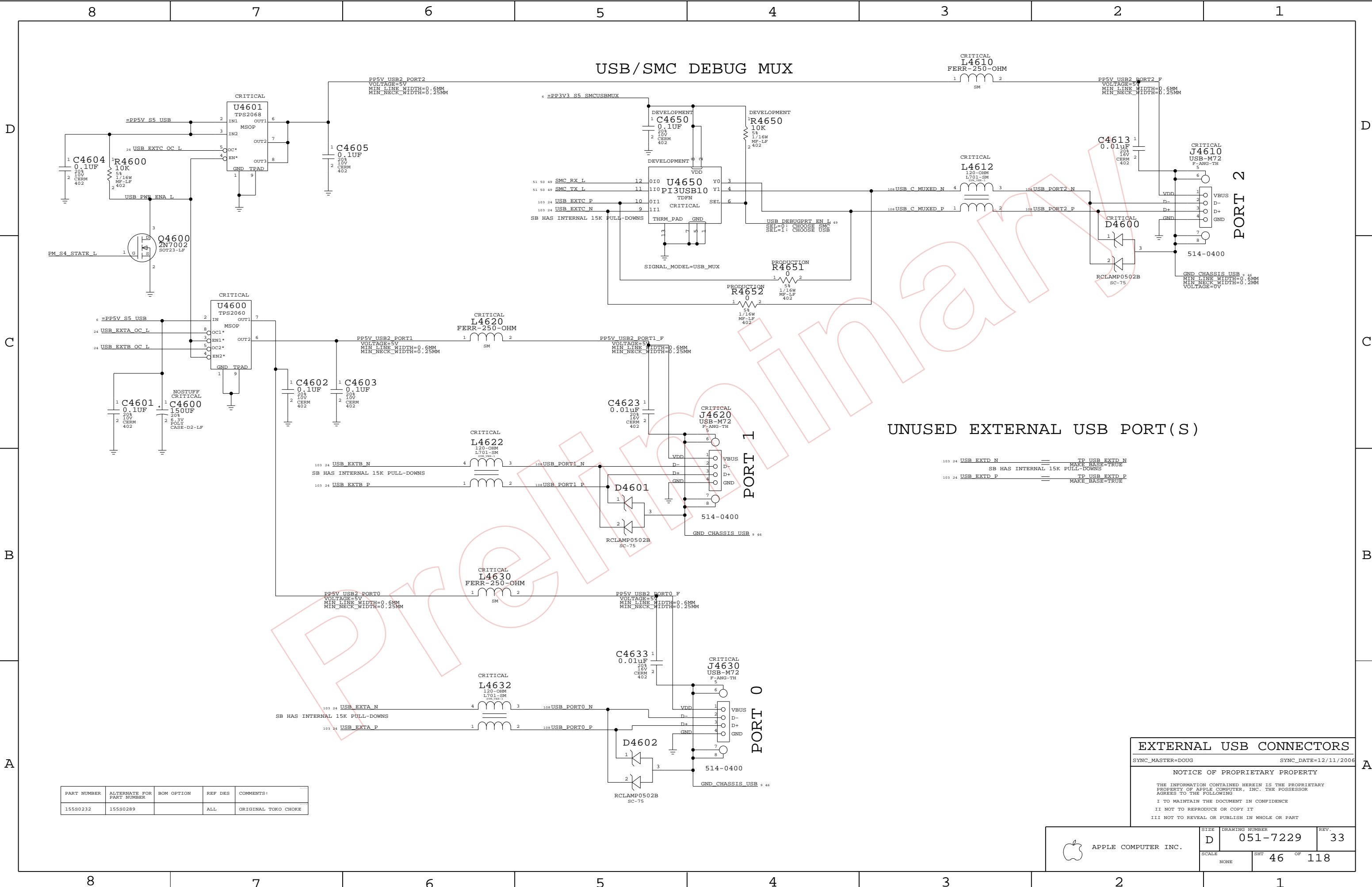
III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART

APPLE COMPUTER INC.

SIZE D DRAWING NUMBER 051-7229 REV. 33

SCALE NONE SHT 43 OF 118





PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
155S0232	155S0289		ALL	ORIGINAL TORO CHOKE

EXTERNAL USB CONNECTORS

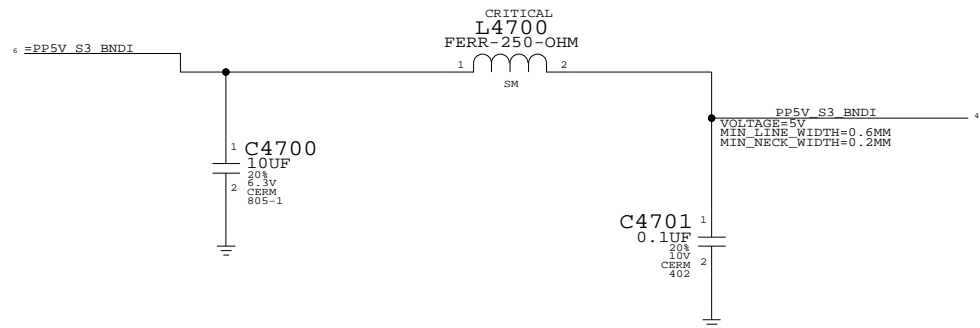
SYNC_MASTER=DOUG SYNC_DATE=12/11/2006

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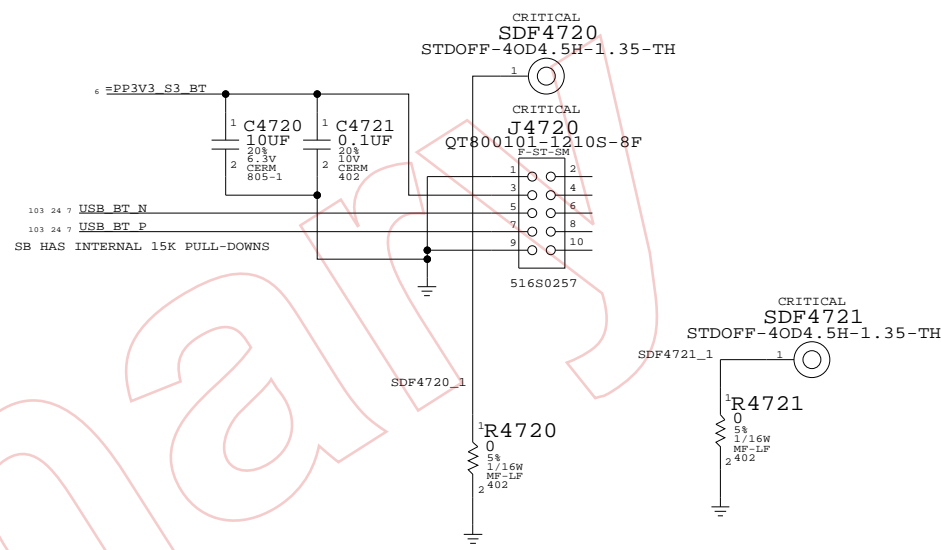
APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7229	REV. 33
	SCALE NONE	SHT 46 OF 118	

CAMERA POWER FILTERING

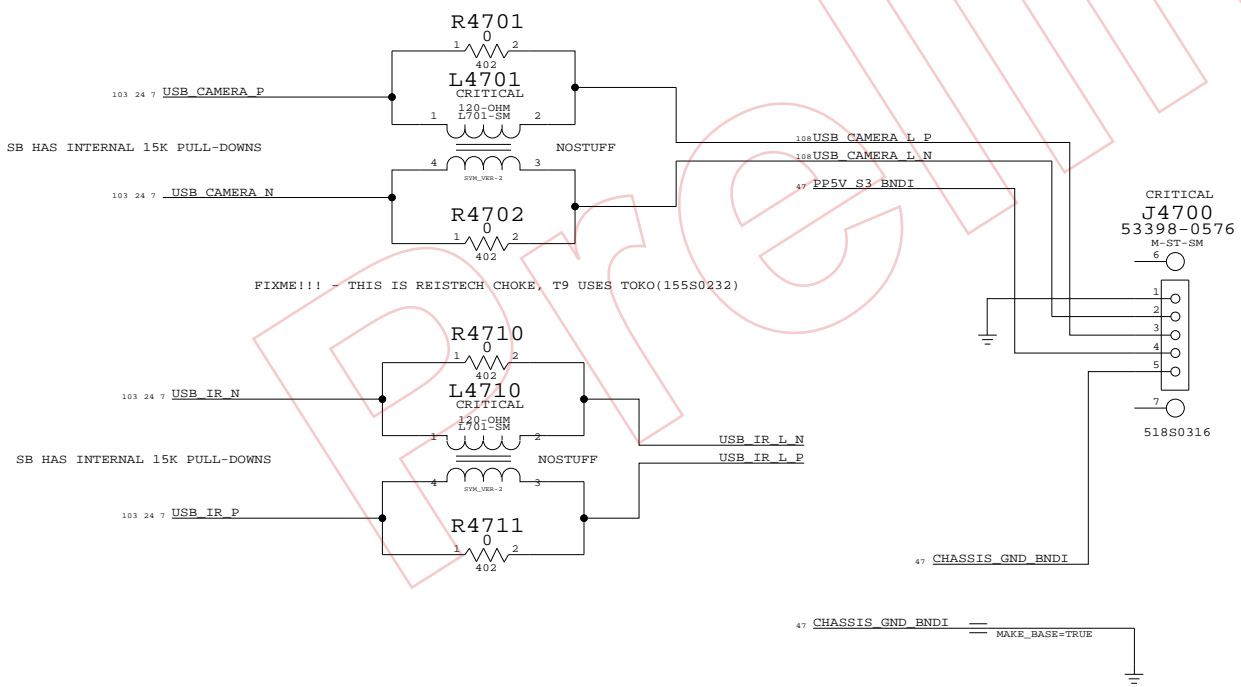


LAYOUT NOTE:
PLACE C4700, C4701 & L4700
NEAR J4700 PINS 4 AND 5 IN THE
ORDER LISTED, AND NOT ON
BOTH SIDES OF THE PIN.

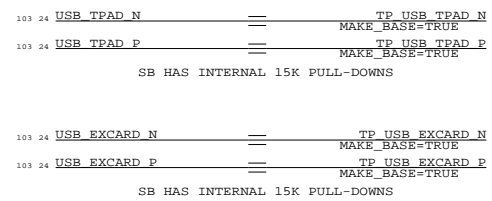
M13D (Bluetooth) Connector



CAMERA CONNECTOR

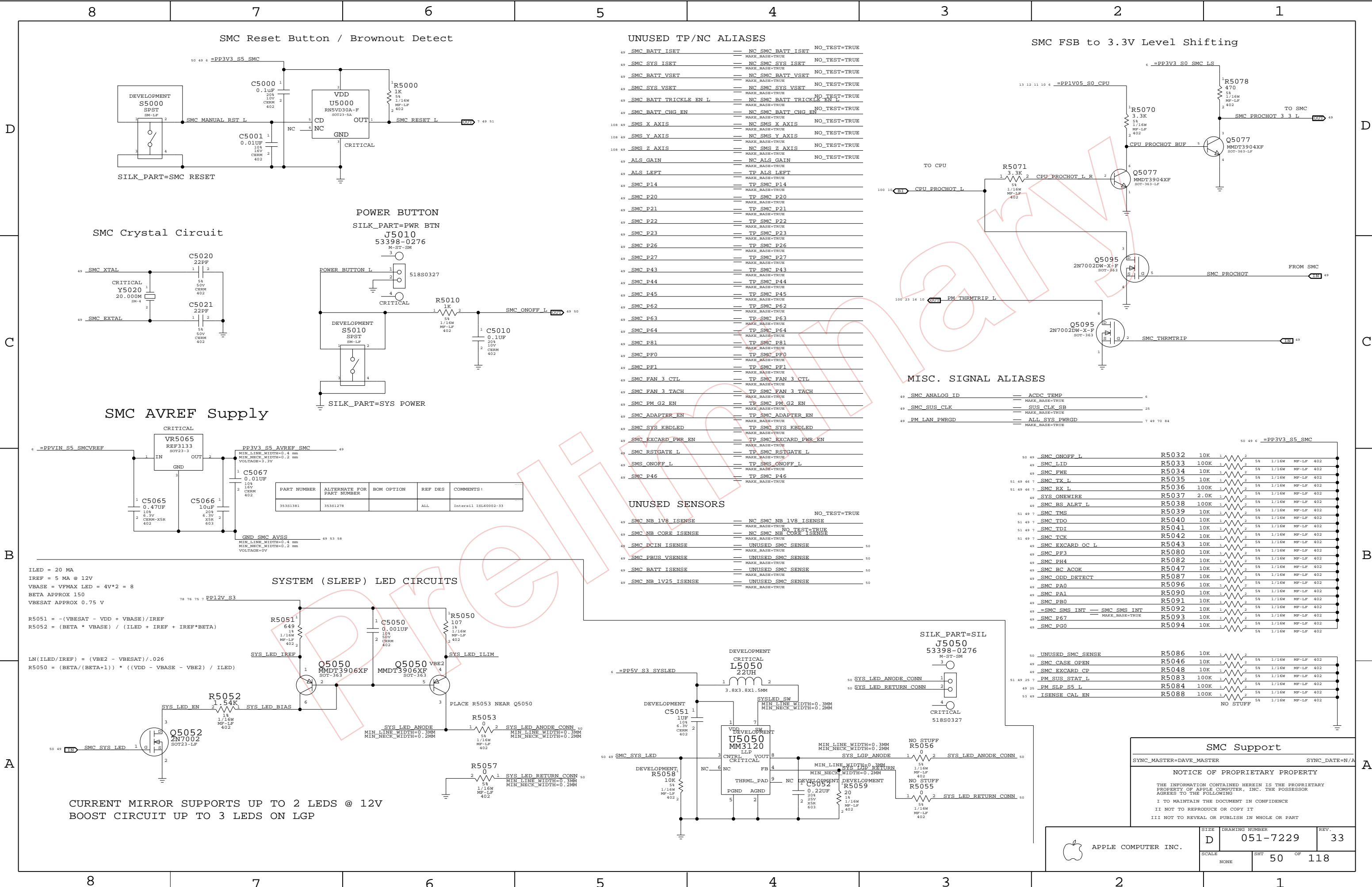


UNUSED INTERNAL USB PORTS



Internal USB Connections		
SYNC_MASTER=M78_MLB		SYNC_DATE=12/15/2006
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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7229	REV. 33
	SCALE NONE	SHT 47	OF 118



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C

B

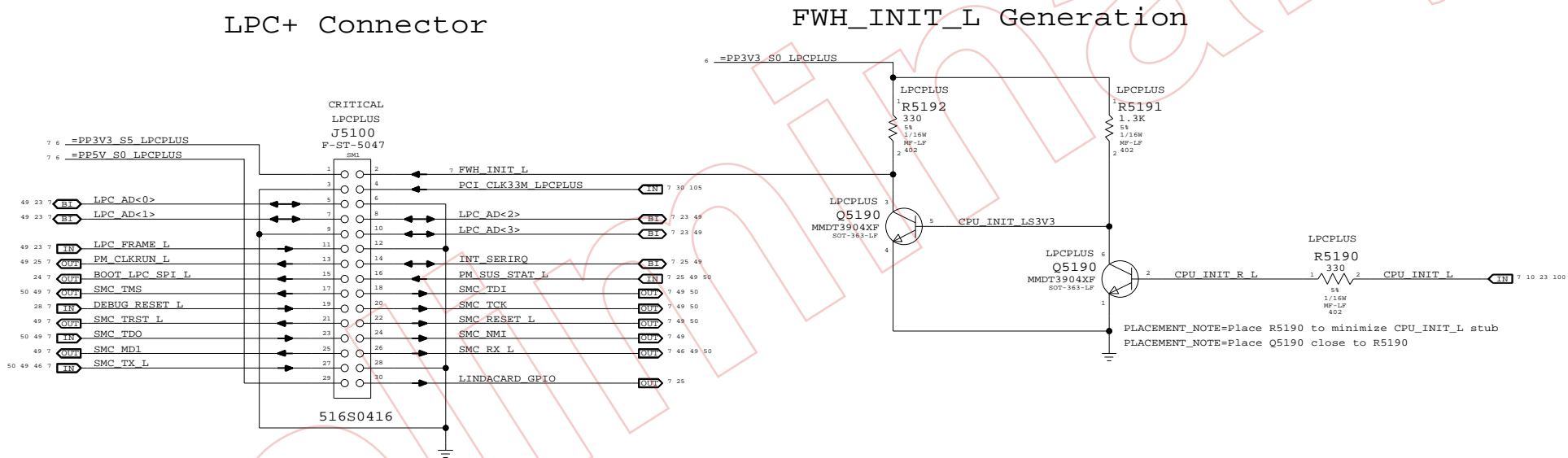
A

D

C

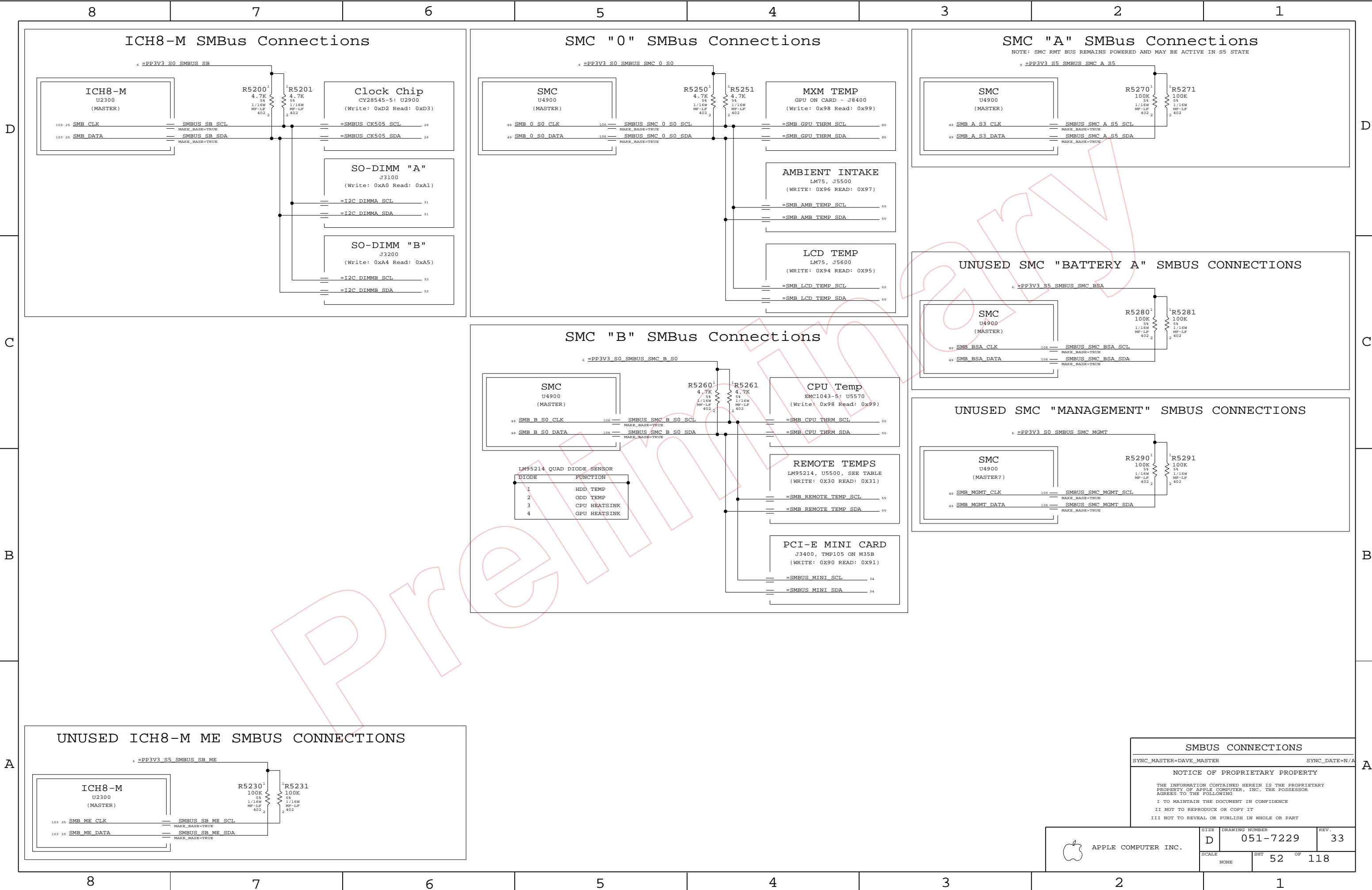
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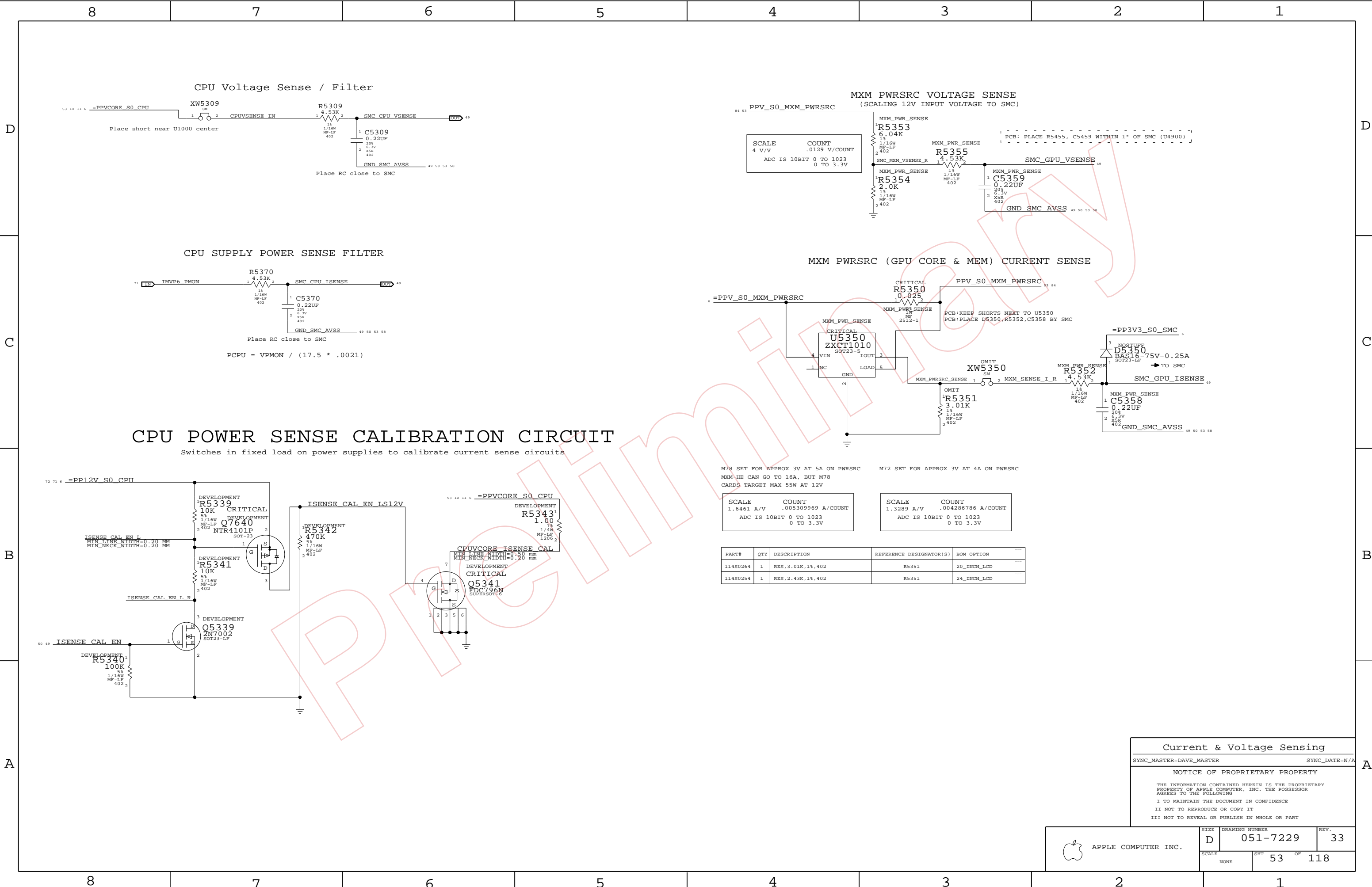
A



LPC+ Debug Connector	
SYNC_MASTER=T9_MLB_NONE	SYNC_DATE=05/07/2007
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	D	051-7229	33
SCALE		SHT	OF
NONE		51	118





CPU POWER SENSE CALIBRATION CIRCUIT

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

M78 SET FOR APPROX 3V AT 5A ON PWRSRC
MXM-HE CAN GO TO 16A, BUT M78
CARDS TARGET MAX 55W AT 12V

SCALE	COUNT
1.6461 A/V	.005309969 A/COUNT
ADC IS 10BIT 0 TO 1023	0 TO 3.3V

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BCM OPTION
114S0264	1	RES,3.01K,1%,402	R5351	20_INCH_LCD
114S0254	1	RES,2.43K,1%,402	R5351	24_INCH_LCD

Current & Voltage Sensing

SYNC_MASTER=DAVE_MASTER SYNC_DATE=N/A

NOTICE OF PROPRIETARY PROPERTY

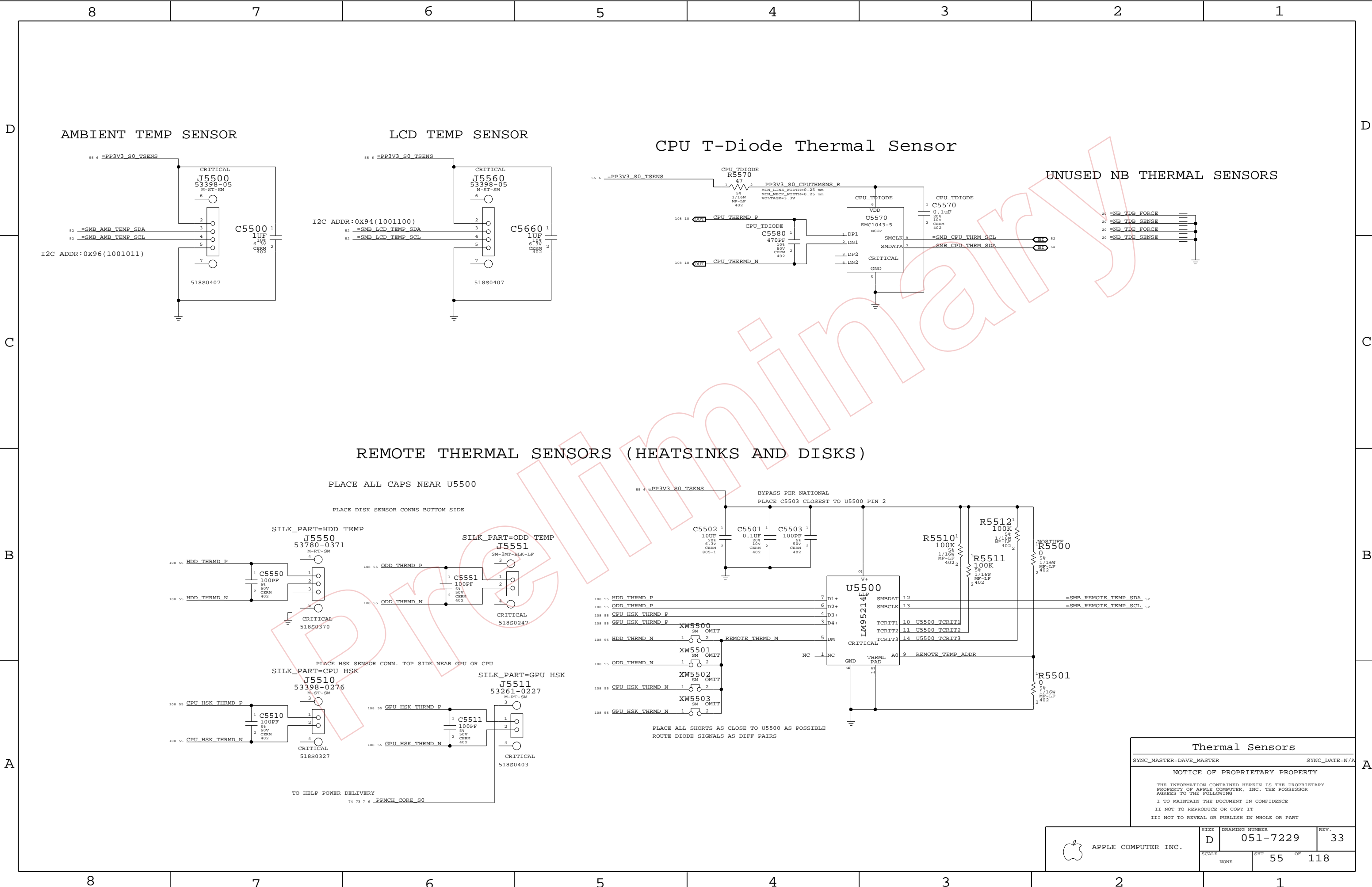
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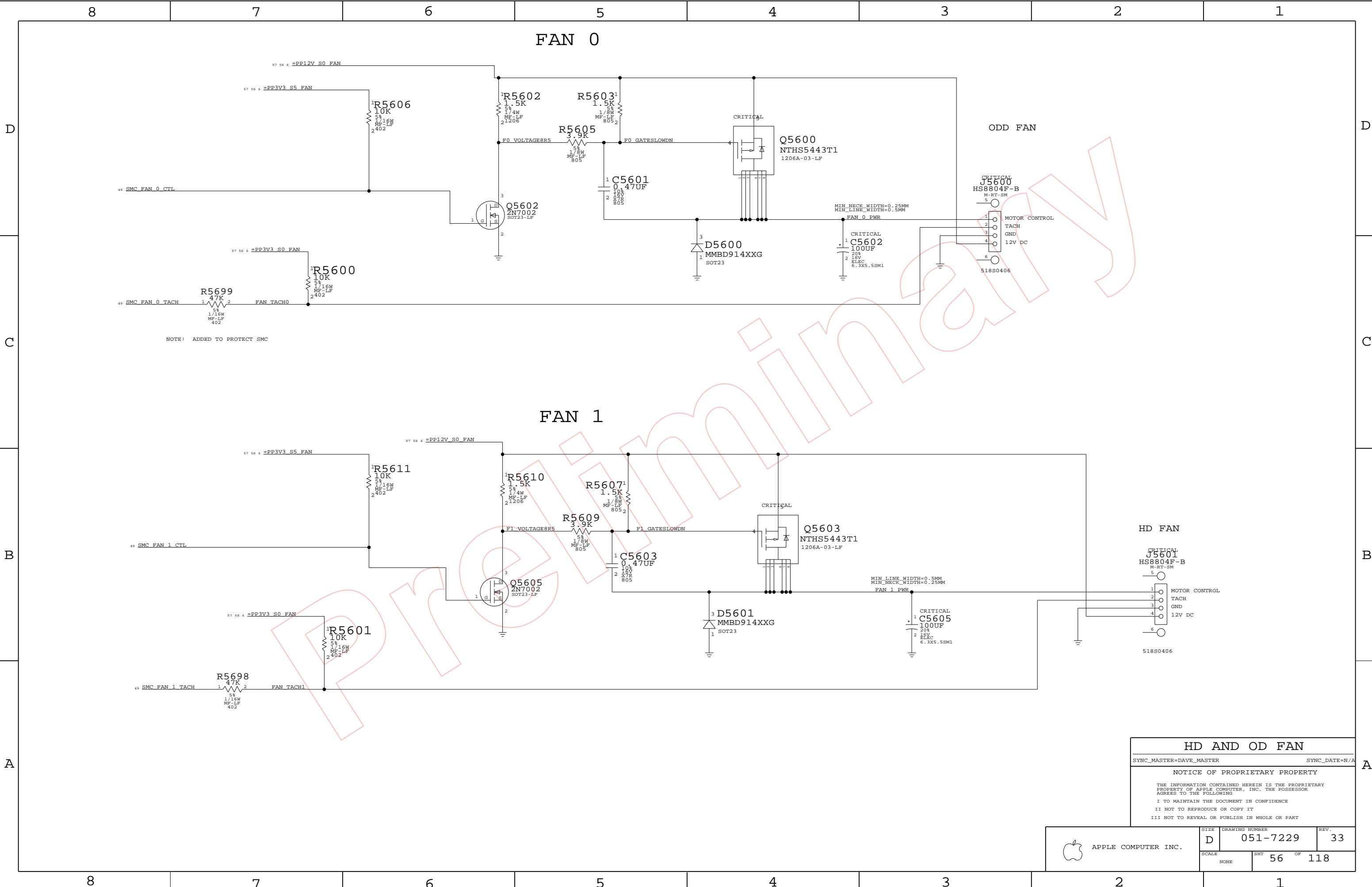
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7229	33
SCALE	NONE	SHT	53 OF 118



Thermal Sensors		
SYNC_MASTER=DAVE_MASTER		SYNC_DATE=N/A
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	D	051-7229	33
SCALE		SHT	OF
NONE		55	118



HD AND OD FAN

SYNC_MASTER=DAVE_MASTER SYNC_DATE=N/A

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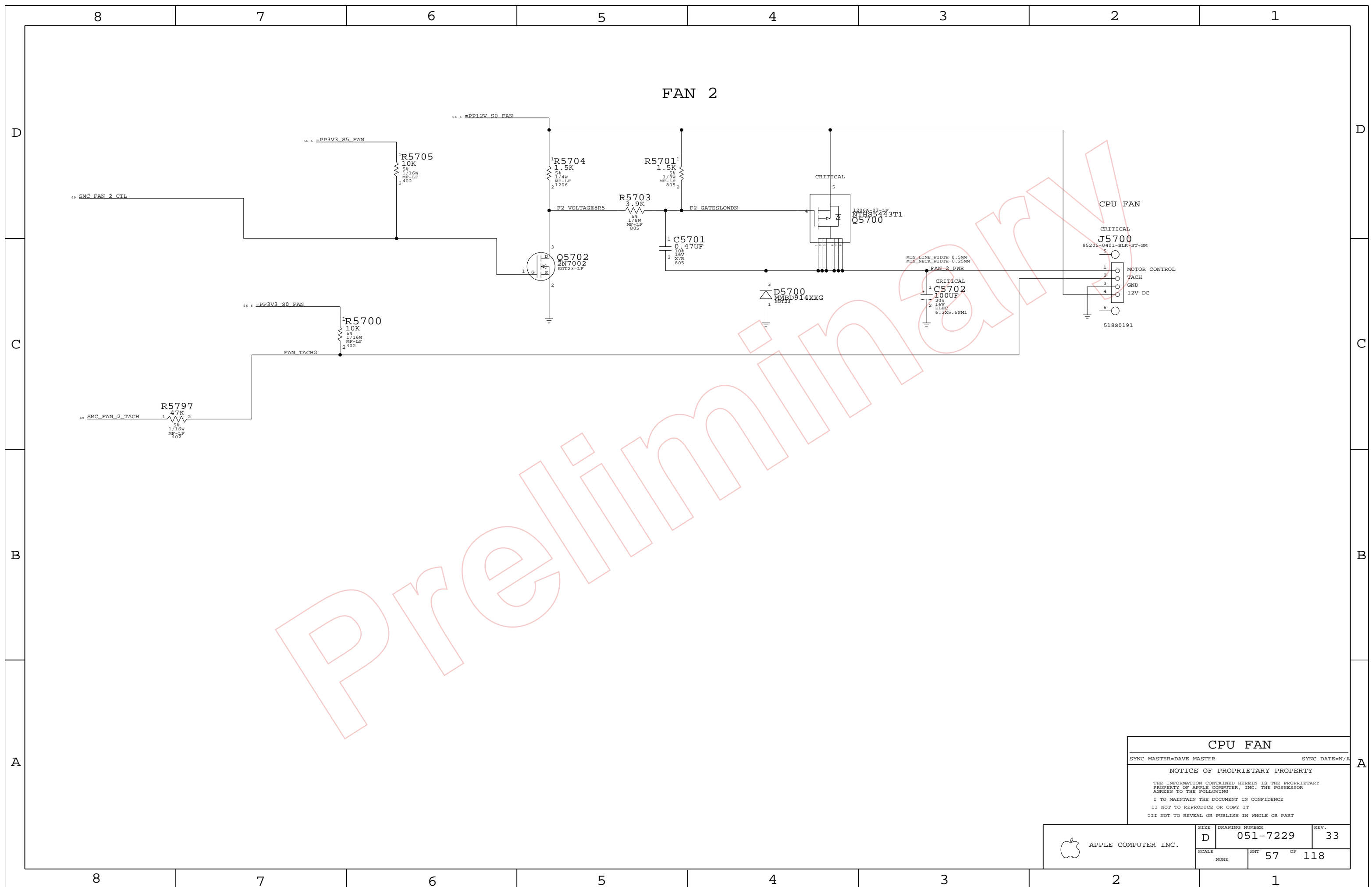
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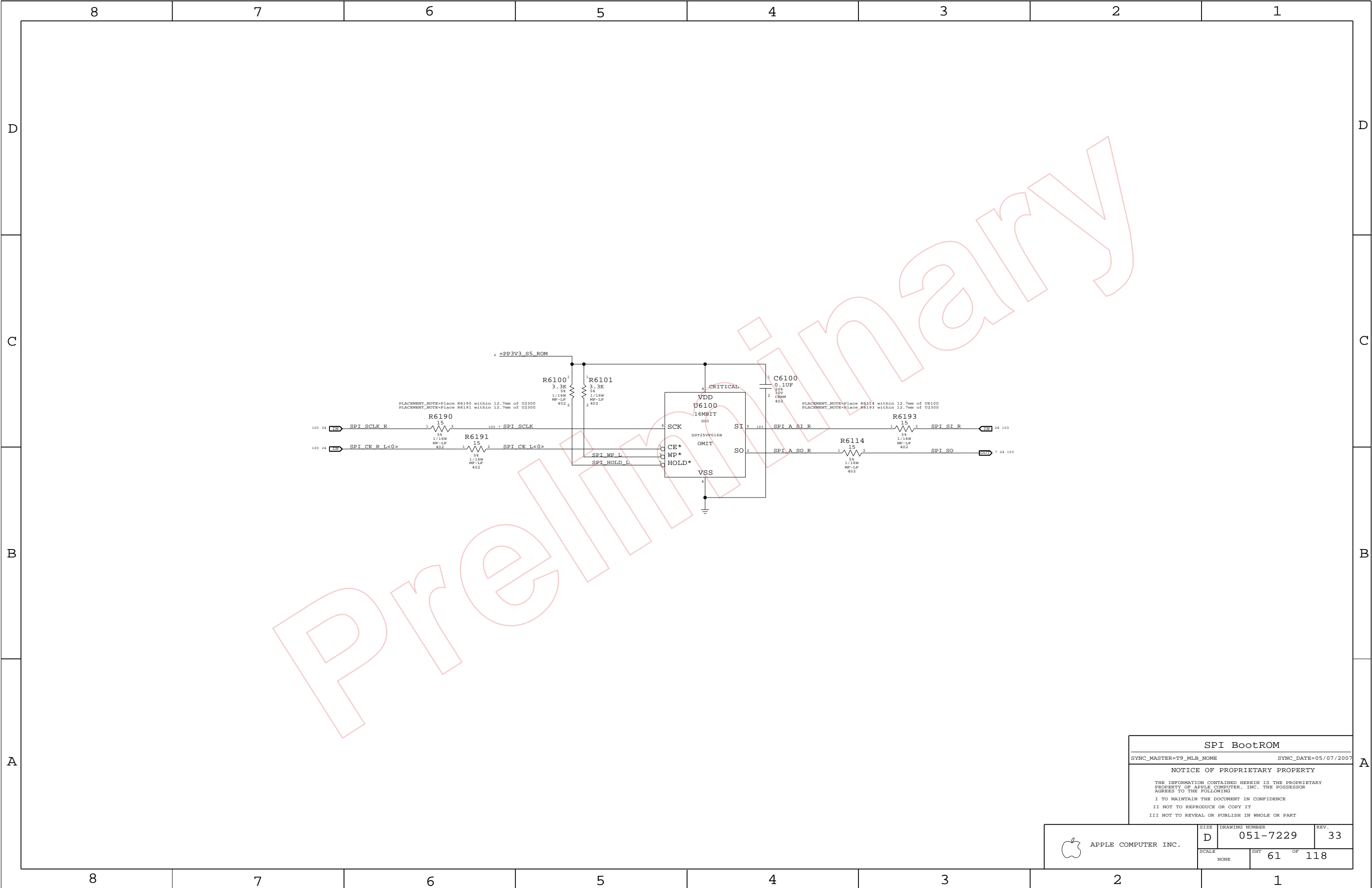
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7229	33
SCALE		SHT	OF
NONE		56	118





SPI BootROM

SYNC_MASTER=T9_MLB_NAME SYNC_DATE=05/07/2007


NOTICE OF PROPRIETARY PROPERTY

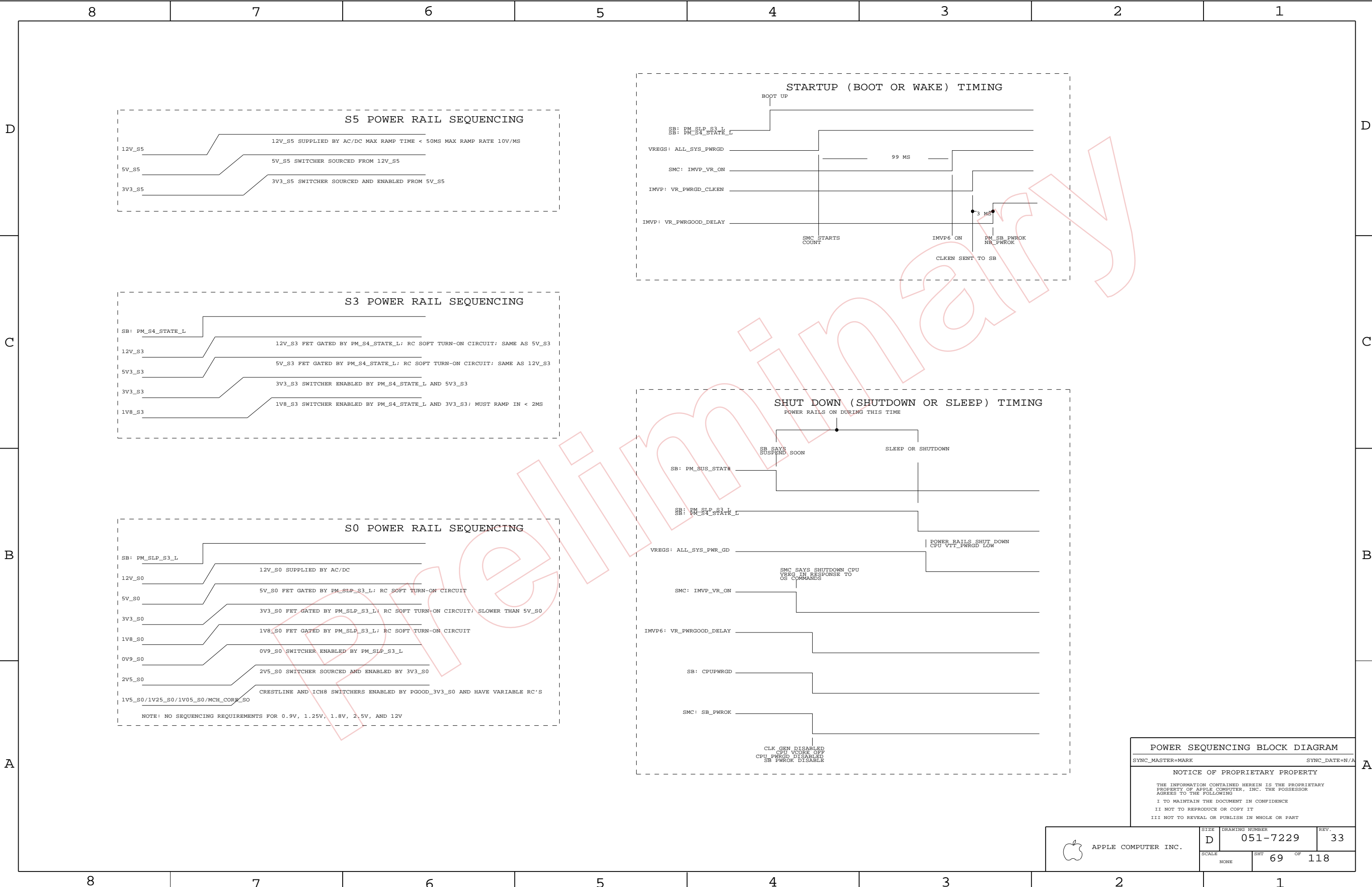
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	D	051-7229	33
SCALE		SHT	OF
NONE		61	118



POWER SEQUENCING BLOCK DIAGRAM

SYNC_MASTER=MARK SYNC_DATE=N/A

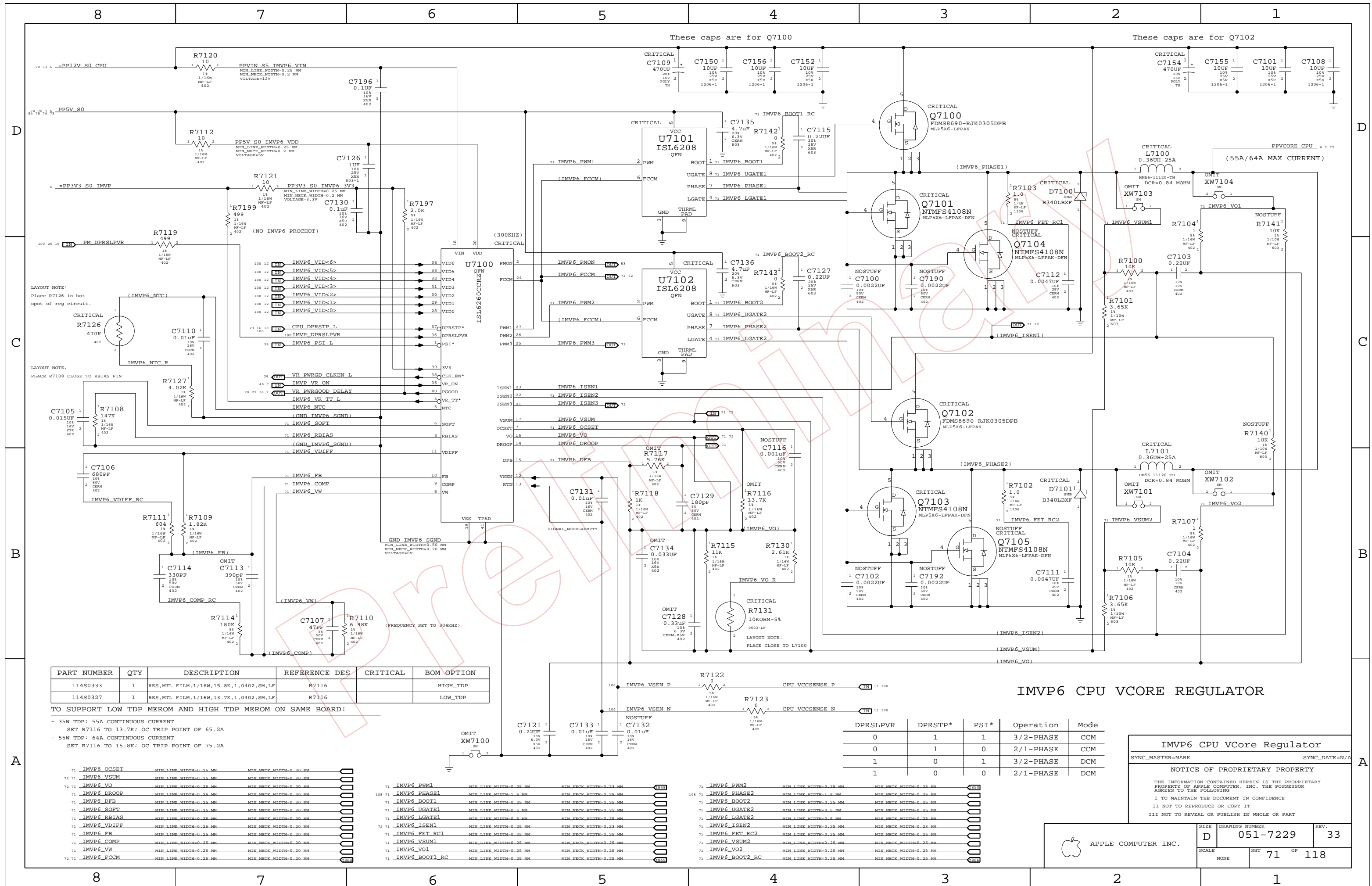
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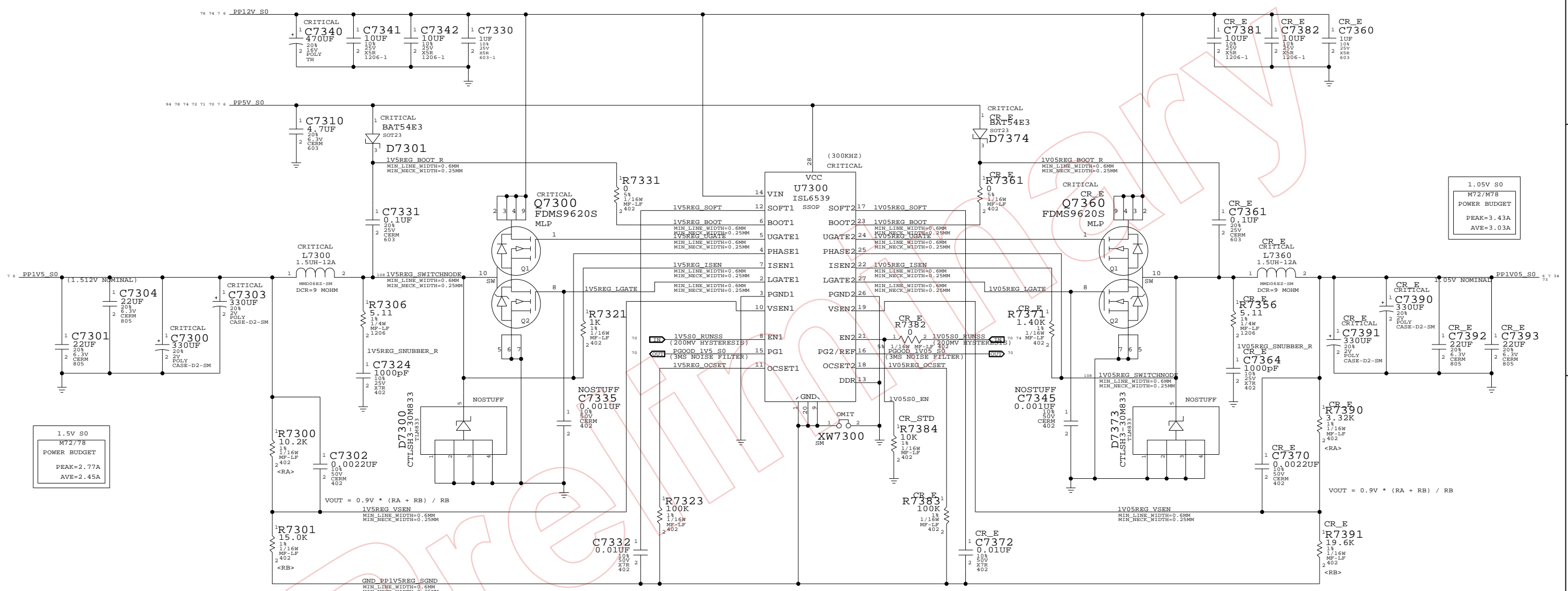
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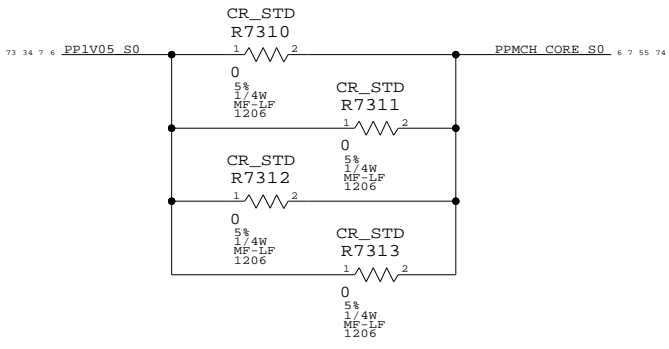
1.5V S0 & 1.05V S0 RAILS



1.5V S0
M72/78
POWER BUDGET
PEAK=2.77A
AVE=2.45A

1.05V S0
M72/M78
POWER BUDGET
PEAK=3.43A
AVE=3.03A

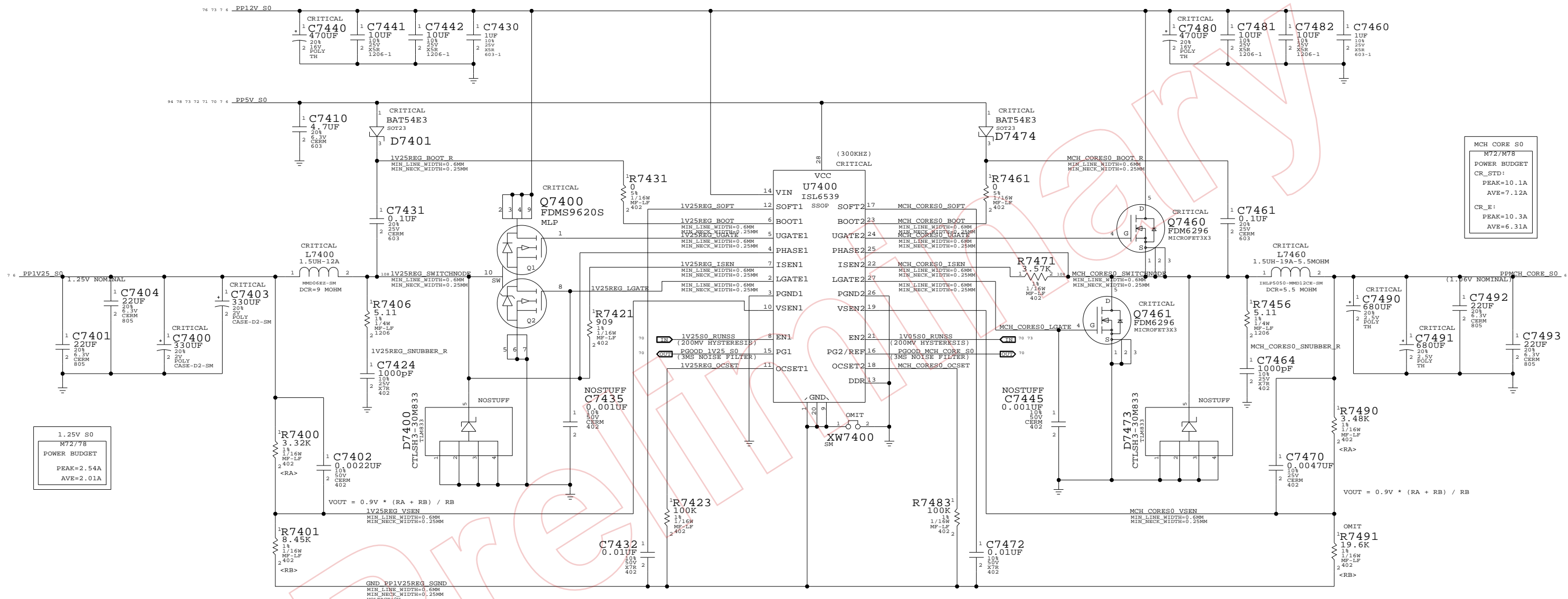
PLANE SHORTING RESISTORS



1.5V / 1.05V SUPPLIES
SYNC_MASTER=MARK SYNC_DATE=N/A
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	D	051-7229	33
SCALE		SHT	OF
NONE		73	118

1.25V S0 & MCH CORE RAILS



PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
114S0342	1	RES,MTL FILM,1/16W,19.6K,1,0402,SMD,LF	R7491		CR_STD
114S0309	1	RES,MTL FILM,1/16W,8.66K,1,0402,SMD,LF	R7491		CR_E

1.25V / MCH CORE SUPPLIES

SYNC_MASTER=MARK SYNC_DATE=N/A

NOTICE OF PROPRIETARY PROPERTY

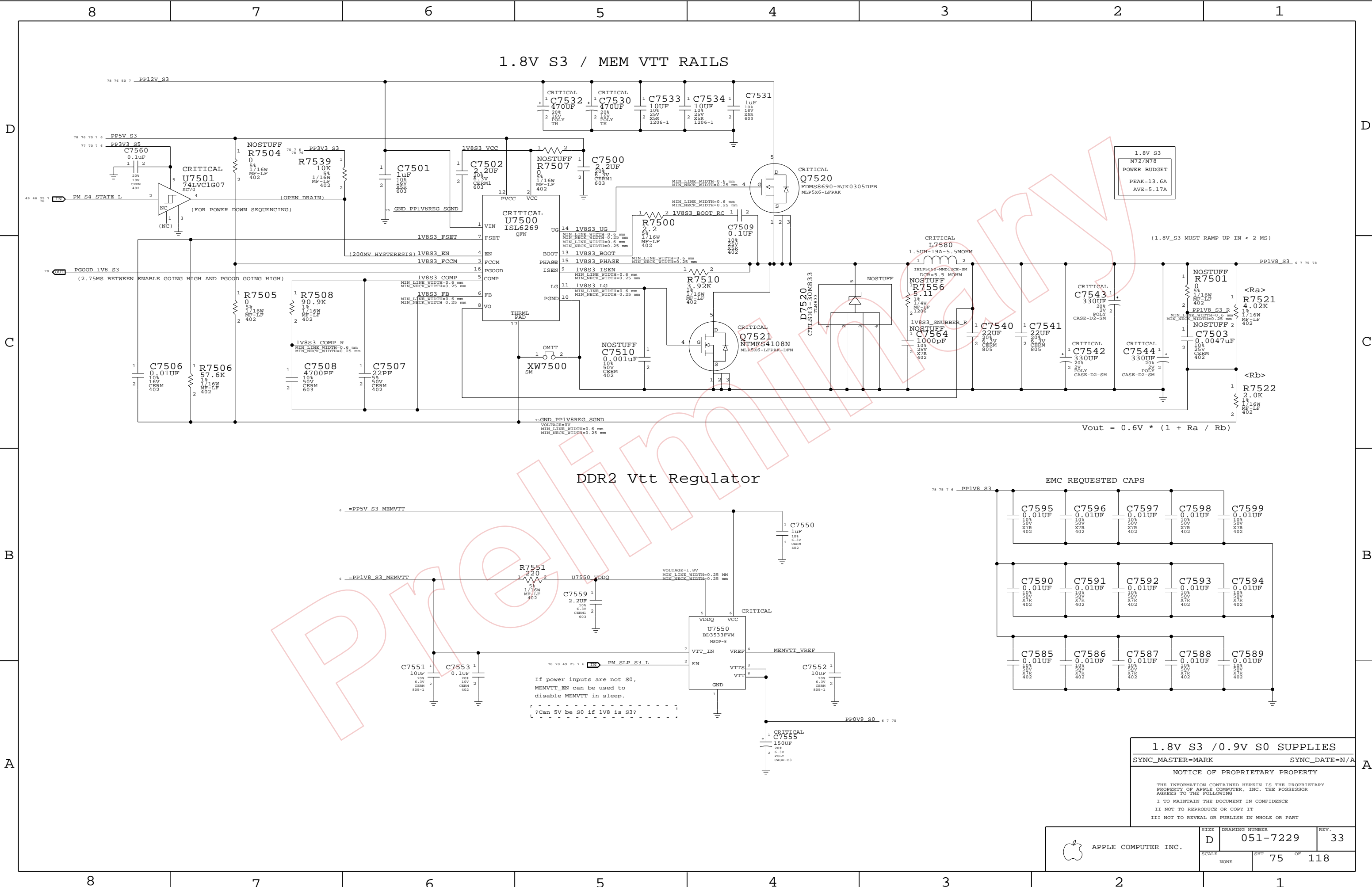
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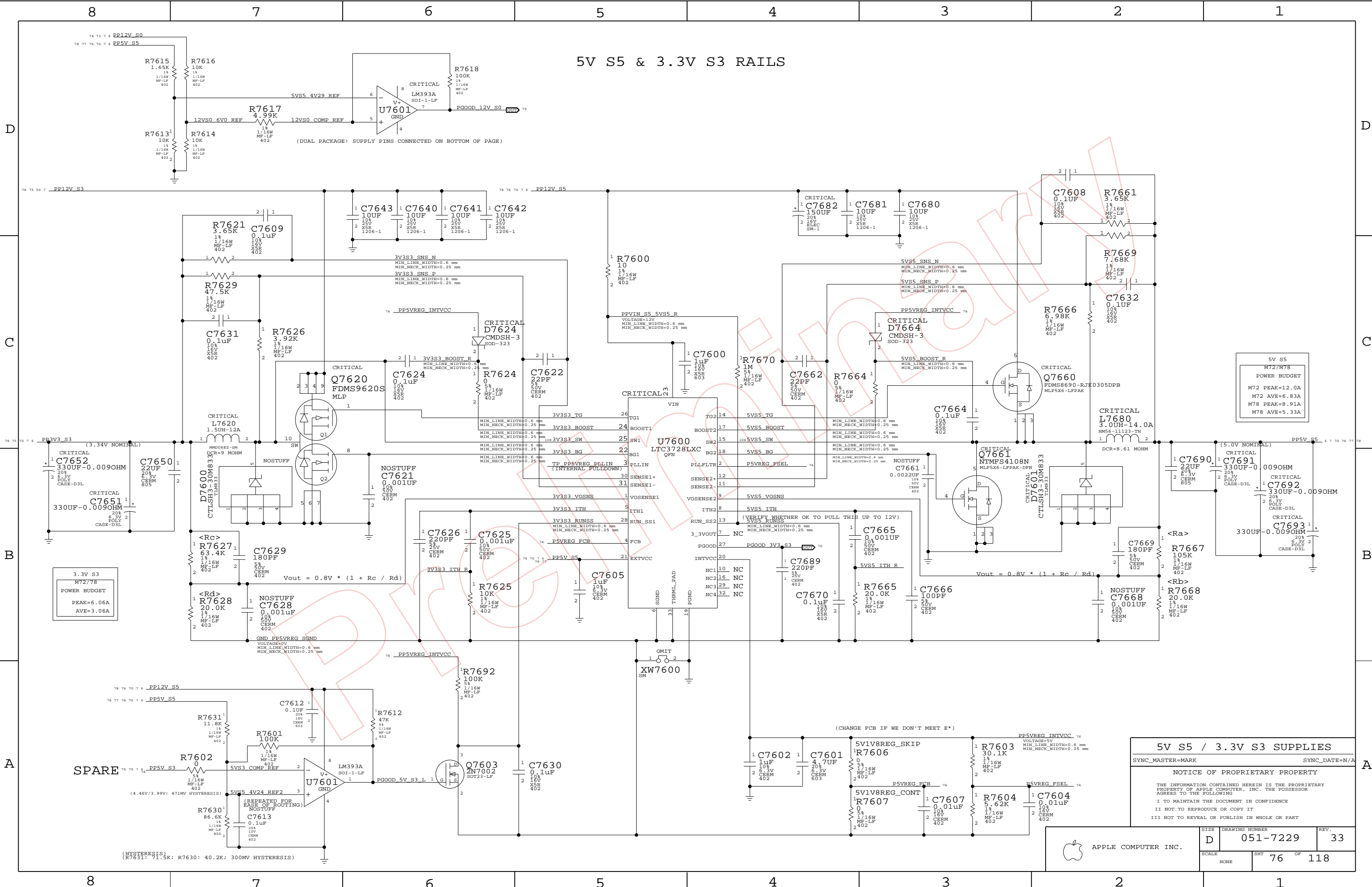
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	D	051-7229	33
SCALE	NONE	SHT	74 OF 118





5V S5 & 3.3V S3 RAILS

5V S5
M72/M78
POWER BUDGET

M72	PEAK=12.0A
M72	AVE=6.83A
M78	PEAK=8.91A
M78	AVE=5.33A

3.3V S3
M72/M78
POWER BUDGET

PEAK	=6.06A
AVE	=3.06A

5V S5 / 3.3V S3 SUPPLIES	
SYNC_MASTER=MARK	SYNC_DATE=N/A
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	D	051-7229	33
SCALE		SHT	76 OF 118
NONE			

D

C

B

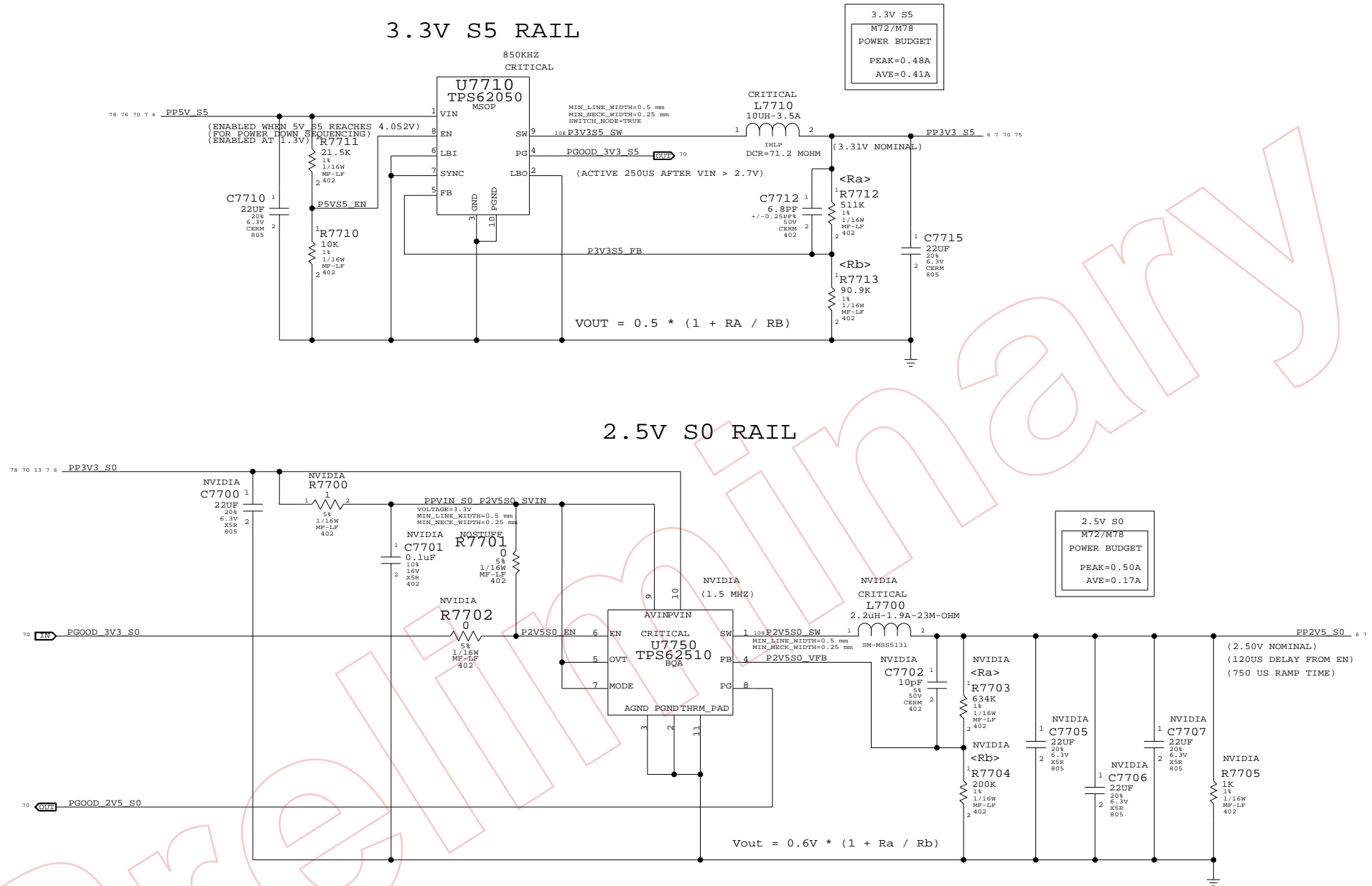
A

D

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B

A



State	Manageability	SMC_PM_G2_ENABLE	PM_S4_STATE_L	PM_SLP_S3_L	PM_SLP_S4_L	PM_SLP_M_L
Run (S0/M0)	N/A	1	1	1	1	1
Sleep (S3/M1)	On	1	1	0	1	1
Soft-Off (S5/M1)	On	1	0	0	1	1
Sleep (S3/M-Off)	Off	1	1	0	1	0
Soft-Off (S5/M-Off)	Off	1	0	0	0	0
Battery Off (G3Hot)	N/A	0	0	0	0	0

3.3V / 2.5V POWER SUPPLIES

SYNC_MASTER=MARK

SYNC_DATE=N/A

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APPLE COMPUTER INC.

SIZE
D

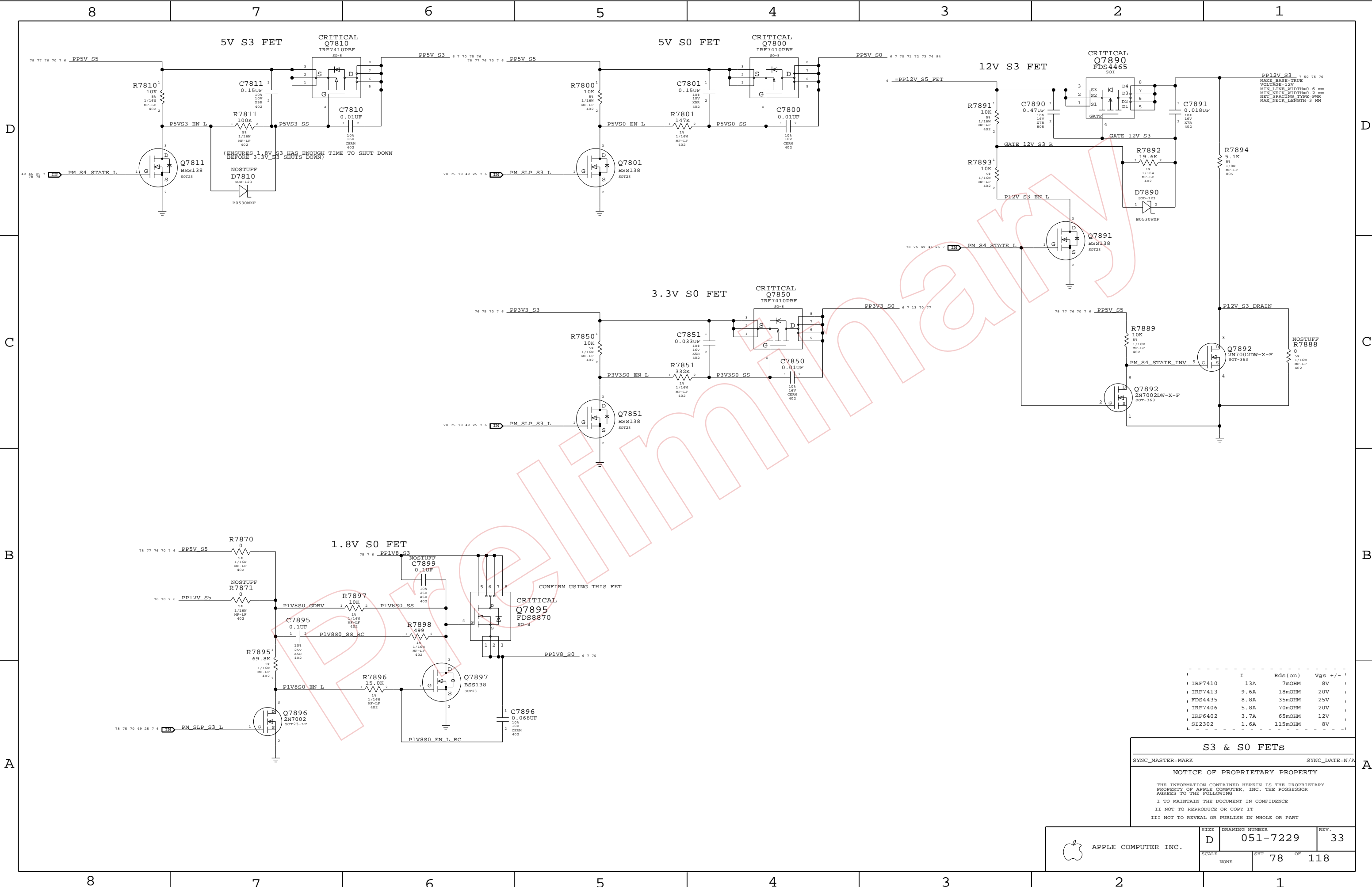
DRAWING NUMBER
051-7229

REV.
33

SCALE
NONE

SHT
77

OF
118




	I	Rds (on)	Vgs +/-
IRF7410	13A	7mOHM	8V
IRF7413	9.6A	18mOHM	20V
FDS4435	8.8A	35mOHM	25V
IRF7406	5.8A	70mOHM	20V
IRF6402	3.7A	65mOHM	12V
SI2302	1.6A	115mOHM	8V

S3 & S0 FETs

SYNC_MASTER=MARK SYNC_DATE=N/A

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 APPLE COMPUTER INC.

SIZE D	DRAWING NUMBER 051-7229	REV. 33
SCALE NONE	SHT 78	OF 118

8

7

6

5

4

3

2

1

Page Notes

Power aliases required by this page:

- =PP12V_S0_MXM

- =PP5V_S0_MXM

- =PP1V8_S0_MXM

Signal aliases required by this page:

(NONE)

BOM options provided by this page:

(NONE)

MXM SPEC POWER REQUIREMENTS

(NOT NECESSARILY THE SAME FOR EVERY MODULE)

VOLTAGE

CURRENT

POWER

3V3

1.5 A

4.95 W

5V

0.5 A

2.5 W

2V5

0.5 A

1.25 W

1V8

3.5 A

6.3 W

PWR (12V)

UP TO 4 A

PLATFORM DEPENDENT

Note: PCI-E Lanes are reversed to untangle routes

Need to stuff config strap using BOM option NBCFG_PEG_REVERSE

Polarity is also inverted (Tx+ goes to Rx-) to untangle routes

APPLE P/N: 516S0562

J8400

AS0B52X-S43E-XF

F-RT-SM

(1 OF 2)

CRITICAL

1V8RUN0

1V8RUN1

1V8RUN2

1V8RUN3

1V8RUN4

1V8RUN5

1V8RUN6

RUNPWROK

SVRUN

GND20

GND21

GND22

PWR_SRC0

PWR_SRC1

PWR_SRC2

PWR_SRC3

PWR_SRC4

PWR_SRC5

PWR_SRC6

PWR_SRC7

GND0

GND1

GND2

GND3

PPV_S0_MXM_PWRSRC

VOLTAGE=12V

MIN_LINE_WIDTH=0.150MM

MIN_SPACING=0.250MM

C8401

22UF

20V

5.3V

805

C8400

22UF

20V

35V

ELEC

SM-LF

70

50

49

7

ALL_SYS_PWRGD

PRCNT2_L: RESERVED FOR FUTURE USE

KEY

PLACE CAPS NEAR NB

101 15

PEG_R2D_C_P<0>

C8420

0.1uF

1

2

101 PEG_R2D_P<15>

40

PEX_TX15_L

37

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15

101

101 15

PEG_R2D_C_N<0>

C8421

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1

2

101 PEG_R2D_N<15>

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PEX_TX15

39

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101

101 15

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C8422

0.1uF

1

2

101 PEG_R2D_P<14>

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PEX_TX14_L

43

PEG_D2R_N<1>

15

101

101 15

PEG_R2D_C_N<1>

C8423

0.1uF

1

2

101 PEG_R2D_N<14>

46

PEX_TX14

45

PEG_D2R_P<1>

15

101

101 15

PEG_R2D_C_P<2>

C8424

0.1uF

1

2

101 PEG_R2D_P<13>

48

PEX_TX13_L

47

PEG_D2R_N<2>

15

101

101 15

PEG_R2D_C_N<2>

C8425

0.1uF

1

2

101 PEG_R2D_N<13>

50

PEX_TX13

49

PEG_D2R_P<2>

15

101

101 15

PEG_R2D_C_P<3>

C8426

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2

101 PEG_R2D_P<12>

52

PEX_TX12_L

51

PEG_D2R_N<3>

15

101

101 15

PEG_R2D_C_N<3>

C8427

0.1uF

1

2

101 PEG_R2D_N<12>

54

PEX_TX12

53

PEG_D2R_P<3>

15

101

101 15

PEG_R2D_C_P<4>

C8428

0.1uF

1

2

101 PEG_R2D_P<11>

56

PEX_TX11_L

55

PEG_D2R_N<4>

15

101

101 15

PEG_R2D_C_N<4>

C8429

0.1uF

1

2

101 PEG_R2D_N<11>

58

PEX_TX11

57

PEG_D2R_P<4>

15

101

101 15

PEG_R2D_C_P<5>

C8430

0.1uF

1

2

101 PEG_R2D_P<10>

60

PEX_TX10_L

59

PEG_D2R_N<5>

15

101

101 15

PEG_R2D_C_N<5>

C8431

0.1uF

1

2

101 PEG_R2D_N<10>

62

PEX_TX10

61

PEG_D2R_P<5>

15

101

101 15

PEG_R2D_C_P<6>

C8432

0.1uF

1

2

101 PEG_R2D_P<9>

64

PEX_TX9_L

63

PEG_D2R_N<6>

15

101

101 15

PEG_R2D_C_N<6>

C8433

0.1uF

1

2

101 PEG_R2D_N<9>

66

PEX_TX9

65

PEG_D2R_P<6>

15

101

101 15

PEG_R2D_C_P<7>

C8434

0.1uF

1

2

101 PEG_R2D_P<8>

68

PEX_TX8_L

67

PEG_D2R_N<7>

15

101

101 15

PEG_R2D_C_N<7>

C8435

0.1uF

1

2

101 PEG_R2D_N<8>

70

PEX_TX8

69

PEG_D2R_P<7>

15

101

101 15

PEG_R2D_C_P<8>

C8436

0.1uF

1

2

101 PEG_R2D_P<7>

72

PEX_TX7_L

71

PEG_D2R_N<8>

15

101

101 15

PEG_R2D_C_N<8>

C8437

0.1uF

1

2

101 PEG_R2D_N<7>

74

PEX_TX7

73

PEG_D2R_P<8>

15

101

101 15

PEG_R2D_C_P<9>

C8438

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1

2

101 PEG_R2D_P<6>

76

PEX_TX6_L

75

PEG_D2R_N<9>

15

101

101 15

PEG_R2D_C_N<9>

C8439

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1

2

101 PEG_R2D_N<6>

78

PEX_TX6

77

PEG_D2R_P<9>

15

101

101 15

PEG_R2D_C_P<10>

C8440

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2

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80

PEX_TX5_L

79

PEG_D2R_N<10>

15

101

101 15

PEG_R2D_C_N<10>

C8441

0.1uF

1

2

101 PEG_R2D_N<5>

82

PEX_TX5

81

PEG_D2R_P<10>

15

101

101 15

PEG_R2D_C_P<11>

C8442

0.1uF

1

2

101 PEG_R2D_P<4>

84

PEX_TX4_L

83

PEG_D2R_N<11>

15

101

101 15

PEG_R2D_C_N<11>

C8443

0.1uF

1

2

101 PEG_R2D_N<4>

86

PEX_TX4

85

PEG_D2R_P<11>

15

101

101 15

PEG_R2D_C_P<12>

```
- =PP12V_S0_MXM
- =PP5V_S0_MXM
- =PP1V8_S0_MXM
```

BOM options provided by this page:
(NONE)

8

7

6

5

4

3

2

1

Page Notes

Power aliases required by this page:

- =PP12V_S0_MXM

- =PP5V_S0_MXM

- =PP1V8_S0_MXM

Signal aliases required by this page:

(NONE)

BOM options provided by this page:

(NONE)

MXM SPEC POWER REQUIREMENTS

(NOT NECESSARILY THE SAME FOR EVERY MODULE)

VOLTAGE	CURRENT	POWER
3V3	1.5 A	4.95 W
5V	0.5 A	2.5 W
2V5	0.5 A	1.25 W
1V8	3.5 A	6.3 W
PWR (12V)	UP TO 4 A	PLATFORM DEPENDENT

Note: PCI-E Lanes are reversed to untangle routes

Need to stuff config strap using BOM option NBCFG_PEG_REVERSE

Polarity is also inverted (Tx+ goes to Rx-) to untangle routes

APPLE P/N: 516S0562

J8400

AS0B52X-S43E-XF

F-RT-SM

(1 OF 2)

CRITICAL

PPV_S0_MXM_PWRSRC

53

VOLTAGE=12V

MIN_LINE_WIDTH=0.150MM

MIN_SPACING=0.150MM

C8401

22UF

20V

5.3V

805

C8400

22UF

20V

35V

ELEC

SM-LF

70 50 49 7

ALL_SYS_PWRGD

PRCNT2_L: RESERVED FOR FUTURE USE

KEY

PLACE CAPS NEAR NB

101 15

PEG_R2D_C_P<0>

C8420

0.1uF

1

101 15

PEG_R2D_C_N<0>

C8421

0.1uF

1

101 15

PEG_R2D_C_P<1>

C8422

0.1uF

1

101 15

PEG_R2D_C_N<1>

C8423

0.1uF

1

101 15

PEG_R2D_C_P<2>

C8424

0.1uF

1

101 15

PEG_R2D_C_N<2>

C8425

0.1uF

1

101 15

PEG_R2D_C_P<3>

C8426

0.1uF

1

101 15

PEG_R2D_C_N<3>

C8427

0.1uF

1

101 15

PEG_R2D_C_P<4>

C8428

0.1uF

1

101 15

PEG_R2D_C_N<4>

C8429

0.1uF

1

101 15

PEG_R2D_C_P<5>

C8430

0.1uF

1

101 15

PEG_R2D_C_N<5>

C8431

0.1uF

1

101 15

PEG_R2D_C_P<6>

C8432

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101 15

PEG_R2D_C_N<6>

C8433

0.1uF

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101 15

PEG_R2D_C_P<7>

C8434

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101 15

PEG_R2D_C_N<7>

C8435

0.1uF

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101 15

PEG_R2D_C_P<8>

C8436

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101 15

PEG_R2D_C_N<8>

C8437

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101 15

PEG_R2D_C_P<9>

C8438

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PEG_R2D_C_N<9>

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C8440

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C8441

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101 15

PEG_R2D_C_P<11>

C8442

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PEG_R2D_C_N<11>

C8443

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101 15

PEG_R2D_C_P<12>

C8444

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101 15

PEG_R2D_C_N<12>

C8445

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101 15

PEG_R2D_C_P<13>

C8446

0.1uF

1

101 15

PEG_R2D_C_N<13>

C8447

0.1uF

1

101 15

PEG_R2D_C_P<14>

C8448

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101 15

PEG_R2D_C_N<14>

C8449

0.1uF

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101 15

PEG_R2D_C_P<15>

C8450

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PEG_R2D_C_N<15>

C8451

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101 15

PEG_R2D_C_P<0>

C8451

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PEG_R2D_C_N<0>

C8451

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PEG_R2D_C_P<1>

C8451

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1

101 15

PEG_R2D_C_N<1>

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101 15

PEG_R2D_C_P<2>

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0.1uF

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101 15

PEG_R2D_C_N<2>

C8451

0.1uF

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101 15

PEG_R2D_C_P<3>

C8451

0.1uF

1

101 15

PEG_R2D_C_N<3>

C8451

0.1uF

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101 15

PEG_R2D_C_P<4>

C8451

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101 15

PEG_R2D_C_N<4>

C8451

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101 15

PEG_R2D_C_P<5>

C8451

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101 15

PEG_R2D_C_N<5>

C8451

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101 15

PEG_R2D_C_P<6>

C8451

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1

101 15

PEG_R2D_C_N<6>

C8451

0.1uF

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101 15

PEG_R2D_C_P<7>

C8451

0.1uF

1

101 15

PEG_R2D_C_N<7>

C8451

0.1uF

1

101 15

PEG_R2D_C_P<8>

C8451

0.1uF

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101 15

PEG_R2D_C_N<8>

C8451

0.1uF

1

101 15

PEG_R2D_C_P<9>

C8451

0.1uF

1

101 15

PEG_R2D_C_N<9>

C8451

0.1uF

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101 15

PEG_R2D_C_P<10>

C8451

0.1uF

1

101 15

PEG_R2D_C_N<10>

C8451

0.1uF

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101 15

PEG_R2D_C_P<11>

C8451

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1

101 15

PEG_R2D_C_N<11>

C8451

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101 15

PEG_R2D_C_P<12>

C8451

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101 15

PEG_R2D_C_N<12>

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101 15

PEG_R2D_C_P<13>

C8451

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101 15

PEG_R2D_C_N<13>

C8451

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101 15

PEG_R2D_C_P<14>

C8451

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101 15

PEG_R2D_C_N<14>

C8451

0.1uF

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101 15

PEG_R2D_C_P<15>

C8451

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101 15

PEG_R2D_C_N<15>

C8451

0.1uF

1

101 15

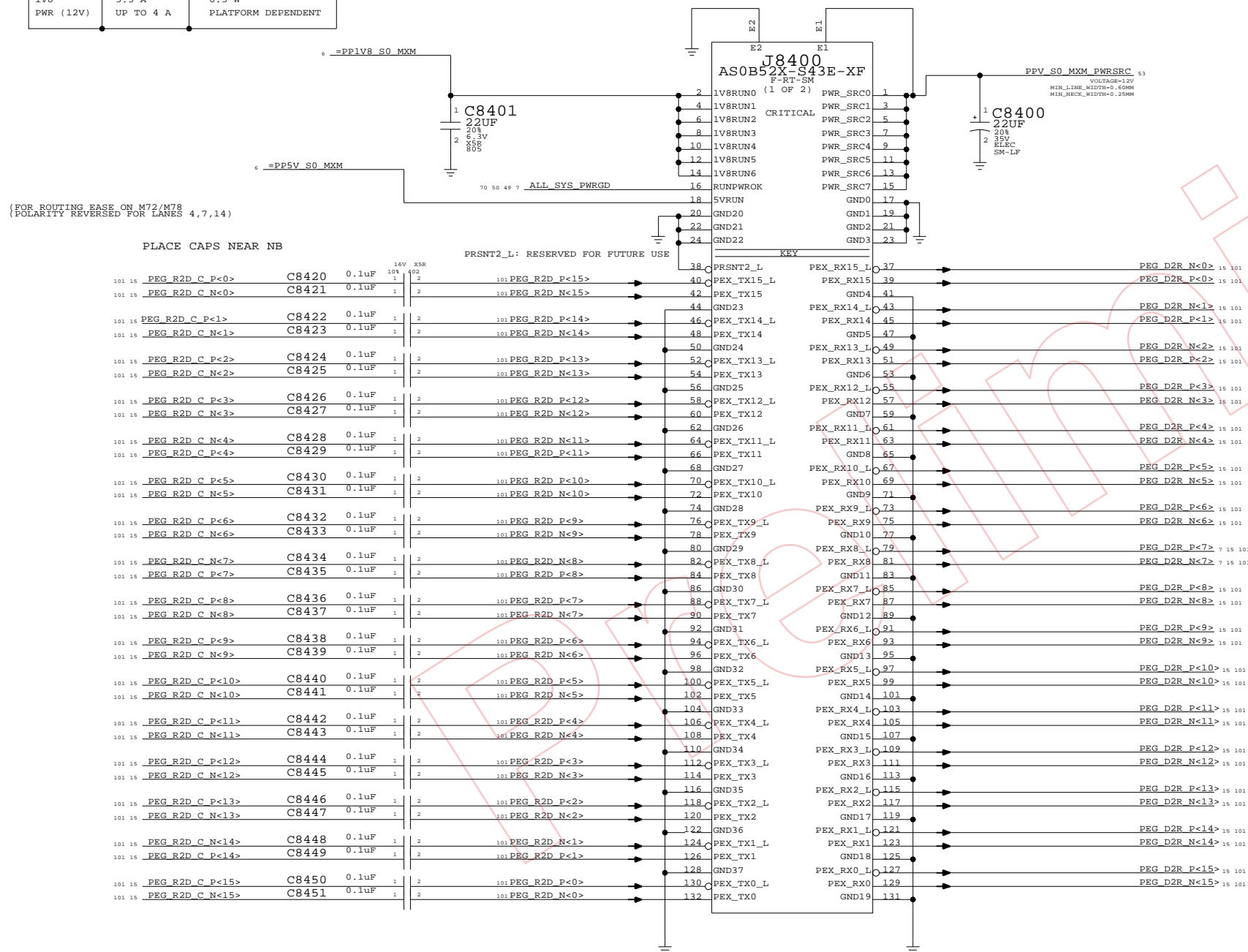
PEG_R2D_C_P<0>

C8

(NOT NECESSARILY THE SAME FOR EVERY MODULE)

VOLTAGE	CURRENT	POWER
3V3	1.5 A	4.95 W
5V	0.5 A	2.5 W
2V5	0.5 A	1.25 W
1V8	3.5 A	6.3 W
PWR (12V)	UP TO 4 A	PLATFORM DEPENDENT

APPLE P/N: 516S0562



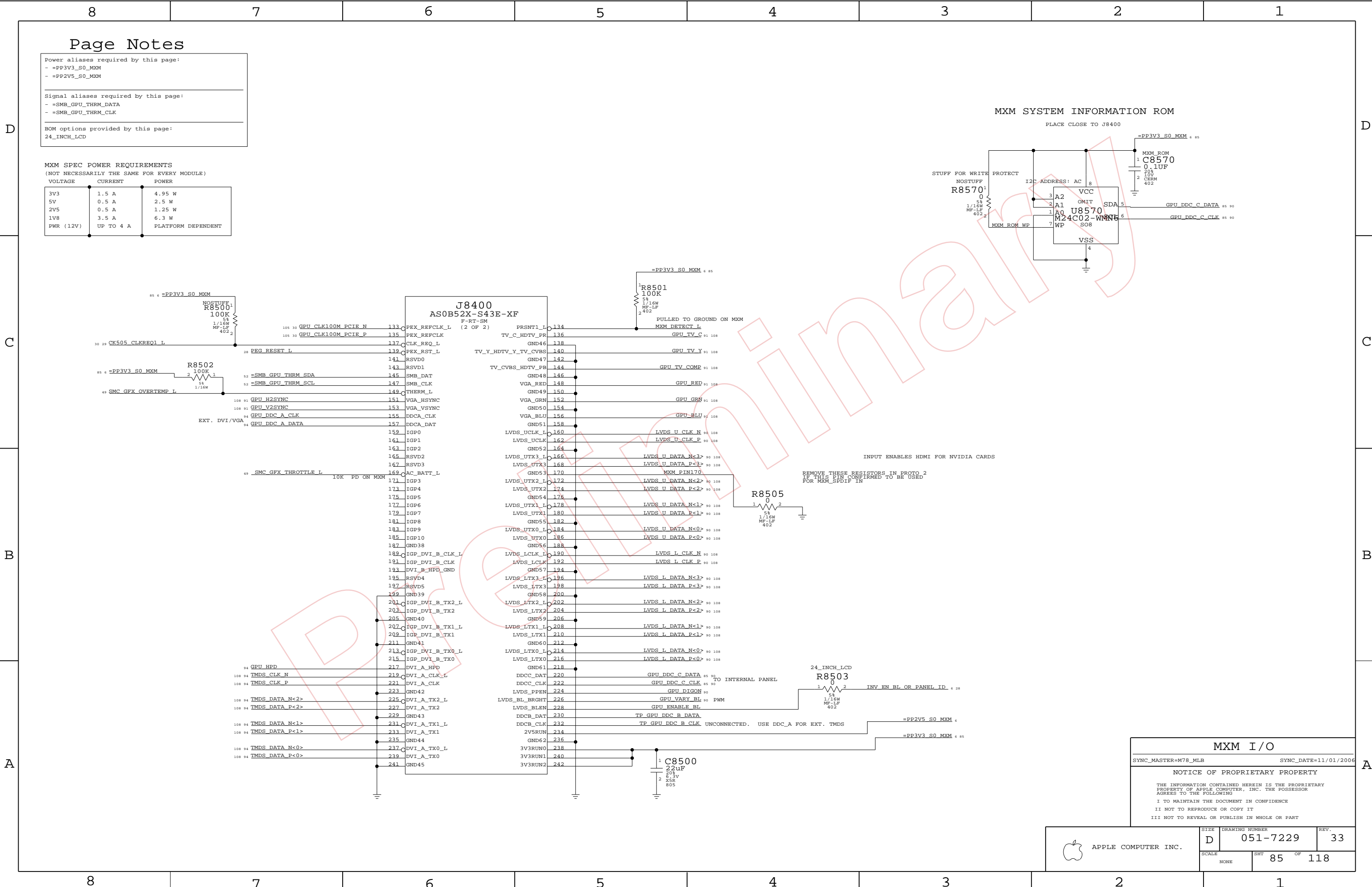
(FOR ROUTING EASE ON M72/M78
(POLARITY REVERSED FOR LANES 0-2)

MXM PCI-E & PWR	
SYNC_MASTER=M78_MLB	SYNC_DATE=11/01/2006
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APPLE COMPUTER INC.

SIZE D	DRAWING NUMBER 051-7229	REV. 33
SCALE NONE	SHT 84	OF 118



Page Notes

Power aliases required by this page:
- =PP3V3_S0_MXM
- =PP2V5_S0_MXM

Signal aliases required by this page:
- =SMB_GPU_THRM_DATA
- =SMB_GPU_THRM_CLK

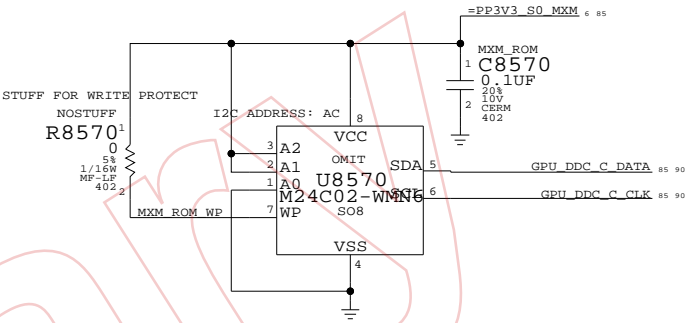
BOM options provided by this page:
24_INCH_LCD

MXM SPEC POWER REQUIREMENTS
(NOT NECESSARILY THE SAME FOR EVERY MODULE)

VOLTAGE	CURRENT	POWER
3V3	1.5 A	4.95 W
5V	0.5 A	2.5 W
2V5	0.5 A	1.25 W
1V8	3.5 A	6.3 W
PWR (12V)	UP TO 4 A	PLATFORM DEPENDENT

MXM SYSTEM INFORMATION ROM

PLACE CLOSE TO J8400

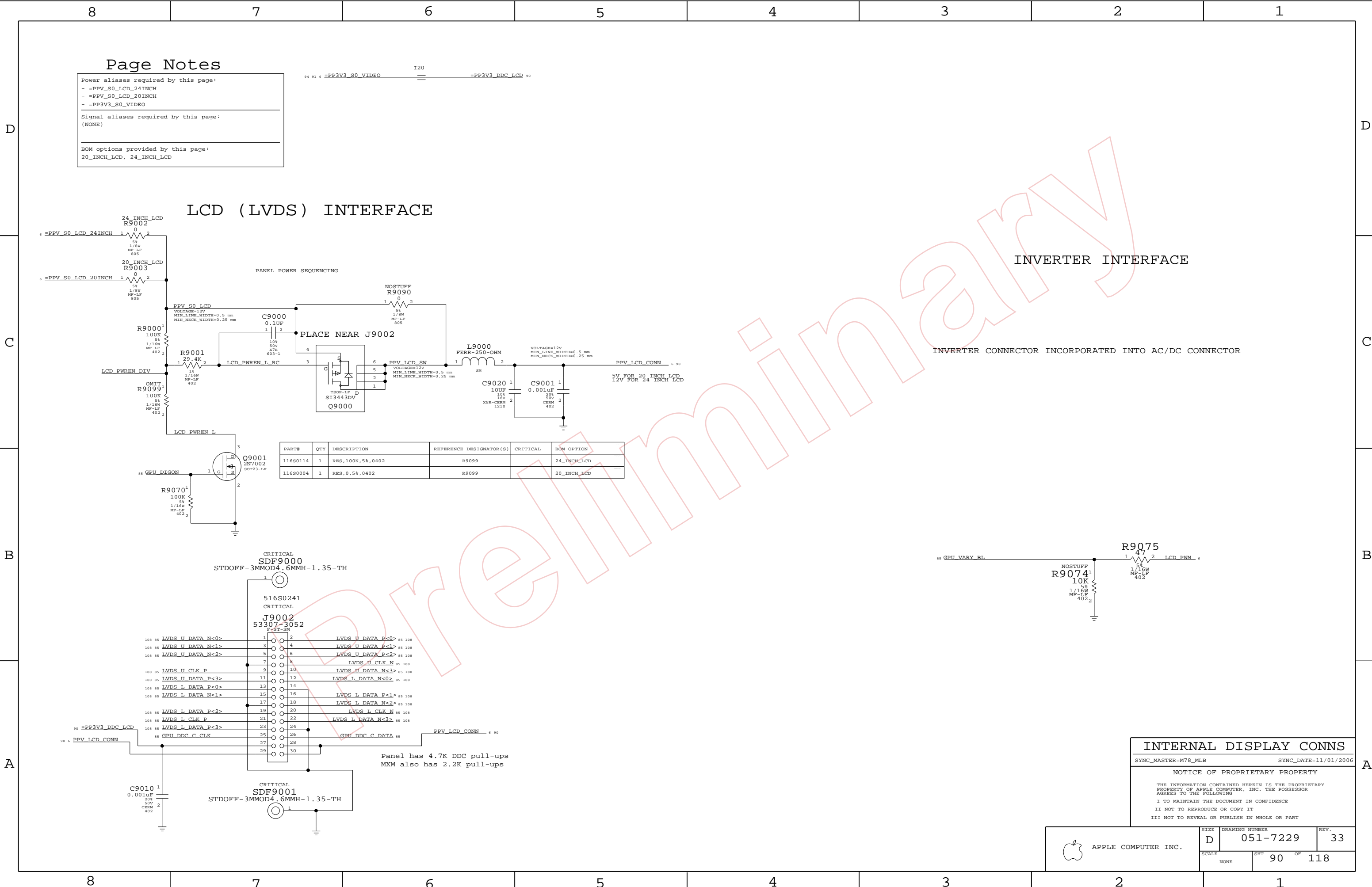


J8400
AS0B52X-S43E-XF

133	PEX_REFCLK_L (2 OF 2)	134	PRSTNT1_I
135	CLK_REQ_L	136	TV_C_HDTV_PR
137	PEX_RST_L	138	GND46
141	RSVD0	140	TV_Y_HDTV_Y_TV_CVBS
143	RSVD1	142	GND47
145	SMB_DAT	144	TV_CVBS_HDTV_PB
147	SMB_CLK	146	GND48
149	THERM_L	148	VGA_RED
151	VGA_HSYNC	150	GND49
153	VGA_VSYNC	152	VGA_GRN
155	DDCA_CLK	154	GND50
157	DDCA_DAT	156	VGA_BLU
159	IGP0	158	GND51
161	IGP1	160	LVDS_U_CLK_N
163	IGP2	162	LVDS_U_CLK_P
165	RSVD2	164	GND52
167	RSVD3	166	LVDS_UTX3_I
169	AC_BATT_L	168	LVDS_UTX3_P
171	IGP3	170	GND53
173	IGP4	172	LVDS_UTX2_I
175	IGP5	174	LVDS_UTX2_P
177	IGP6	176	GND54
179	IGP7	178	LVDS_UTX1_I
181	IGP8	180	LVDS_UTX1_P
183	IGP9	182	GND55
185	IGP10	184	LVDS_UTX0_I
187	GND38	186	LVDS_UTX0_P
189	IGP_DVI_B_CLK_L	188	GND56
191	IGP_DVI_B_CLK	190	LVDS_L_CLK_N
193	DVI_B_HPD_GND	192	LVDS_L_CLK_P
195	RSVD4	194	GND57
197	RSVD5	196	LVDS_L_TX3_I
199	GND39	198	LVDS_L_TX3_P
201	IGP_DVI_B_TX2_L	200	GND58
203	IGP_DVI_B_TX2	202	LVDS_L_TX2_I
205	GND40	204	LVDS_L_TX2_P
207	IGP_DVI_B_TX1_L	206	GND59
209	IGP_DVI_B_TX1	208	LVDS_L_TX1_I
211	GND41	210	LVDS_L_TX1_P
213	IGP_DVI_B_TX0_L	212	GND60
215	IGP_DVI_B_TX0	214	LVDS_L_TX0_I
217	DVI_A_HPD	216	LVDS_L_TX0_P
219	DVI_A_CLK_L	218	GND61
221	DVI_A_CLK	220	DDCC_DAT
223	GND42	222	DDCC_CLK
225	DVI_A_TX2_L	224	LVDS_PPEN
227	DVI_A_TX2	226	LVDS_BL_BRGHT
229	GND43	228	LVDS_BLEN
231	DVI_A_TX1_L	230	DDCB_DAT
233	DVI_A_TX1	232	DDCB_CLK
235	GND44	234	2V5RUN
237	DVI_A_TX0_L	236	GND62
239	DVI_A_TX0	238	3V3RUN0
241	GND45	240	3V3RUN1
		242	3V3RUN2

MXM I/O	
SYNC_MASTER=M78_MLB	SYNC_DATE=11/01/2006
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7229	33
SCALE		SHT	85 OF 118
NONE			



Page Notes

Power aliases required by this page:
- =PPV_S0_LCD_24INCH
- =PPV_S0_LCD_20INCH
- =PP3V3_S0_VIDEO

Signal aliases required by this page:
(NONE)

BOM options provided by this page:
20_INCH_LCD, 24_INCH_LCD

LCD (LVDS) INTERFACE

INVERTER INTERFACE

INVERTER CONNECTOR INCORPORATED INTO AC/DC CONNECTOR

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
116S0114	1	RES,100K,5%,0402	R9099		24_INCH_LCD
116S0004	1	RES,0,5%,0402	R9099		20_INCH_LCD

INTERNAL DISPLAY CONNS

SYNC_MASTER=M78_MLB SYNC_DATE=11/01/2006

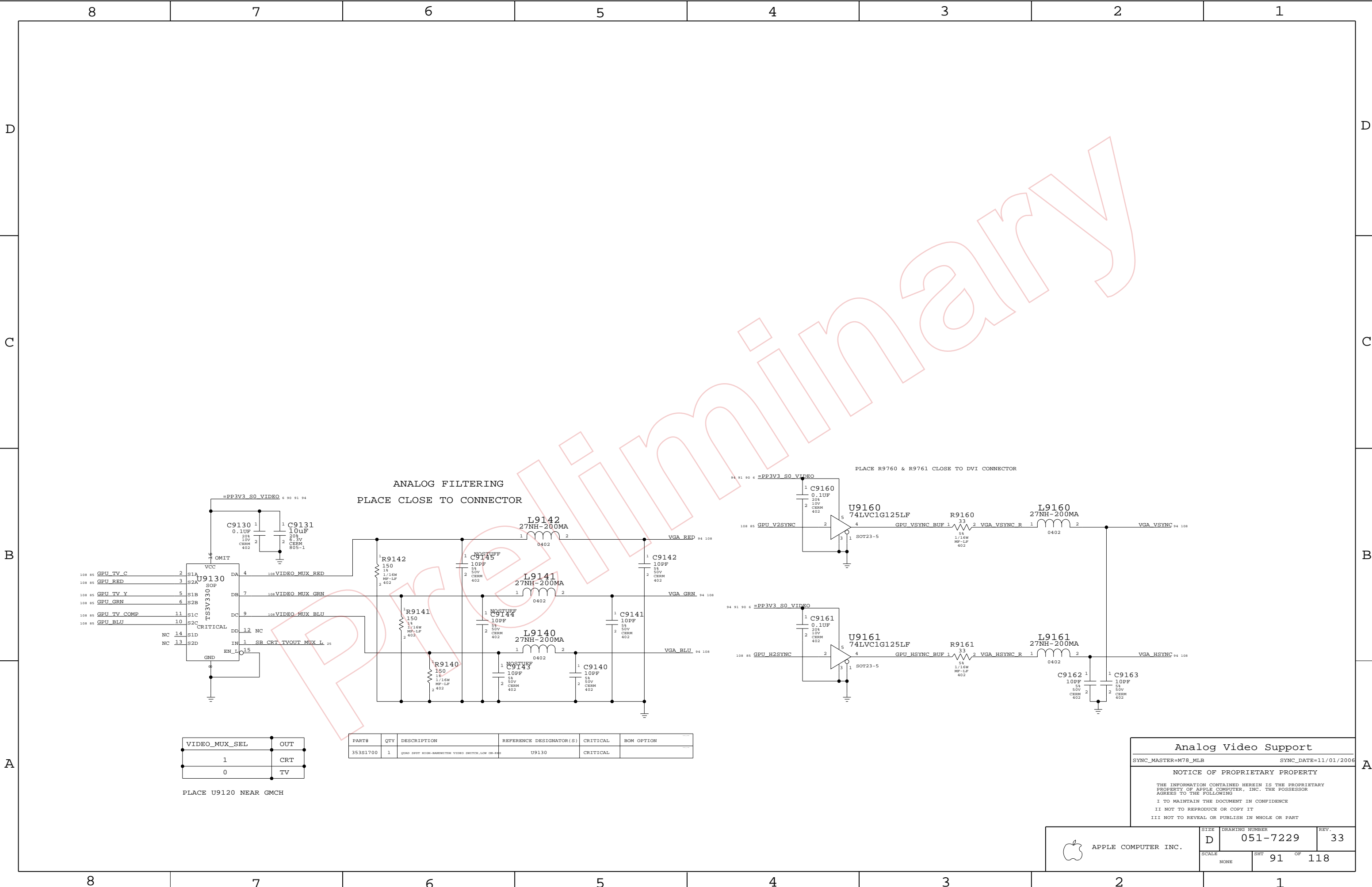
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APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-7229	33
SCALE	SHT	OF
NONE	90	118



ANALOG FILTERING
PLACE CLOSE TO CONNECTOR

PLACE R9760 & R9761 CLOSE TO DVI CONNECTOR

VIDEO_MUX_SEL	OUT
1	CRT
0	TV

PLACE U9120 NEAR GMCH

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
353S1700	1	QUAD SPOT HIGH-BANDWIDTH VIDEO SWITCH, LOW ON-RES	U9130	CRITICAL	

Analogue Video Support

SYNC_MASTER=M78_MLB SYNC_DATE=11/01/2006

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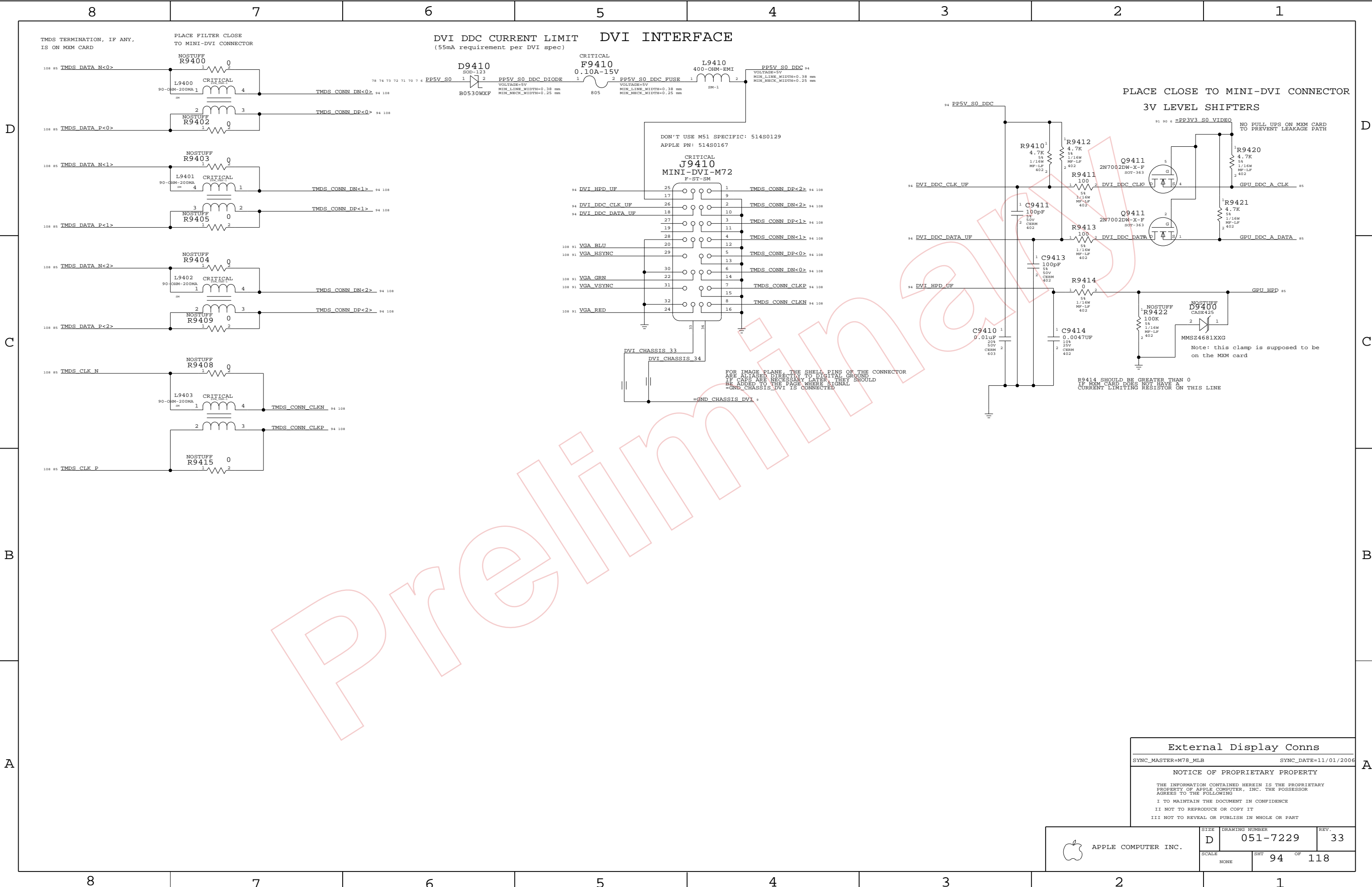
II NOT TO REPRODUCE OR COPY IT

III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART

APPLE COMPUTER INC.

SIZE D DRAWING NUMBER 051-7229 REV. 33

SCALE NONE SHT 91 OF 118



External Display Conns

SYNC_MASTER=M78_MLB SYNC_DATE=11/01/2006

NOTICE OF PROPRIETARY PROPERTY

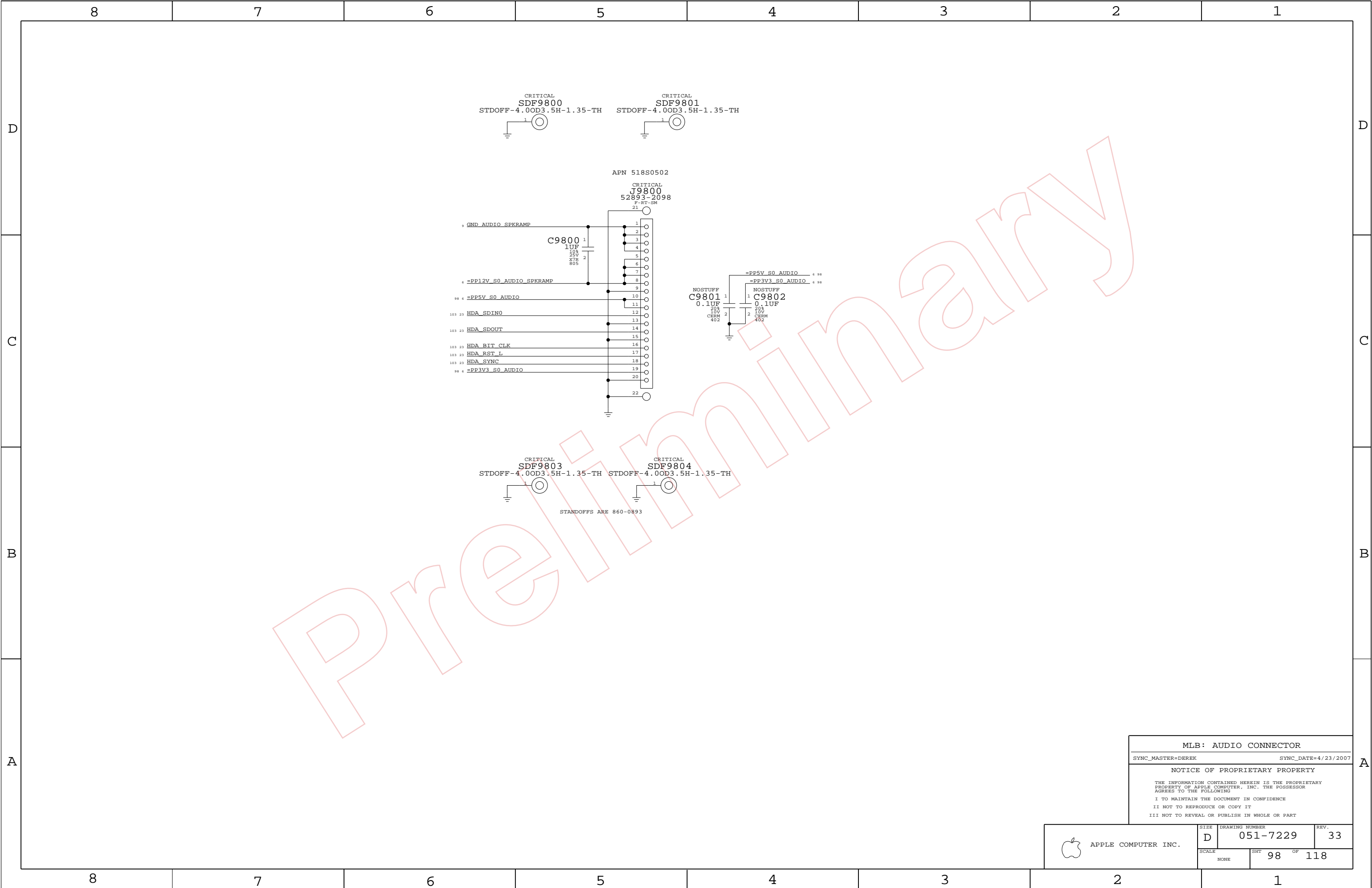
THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING

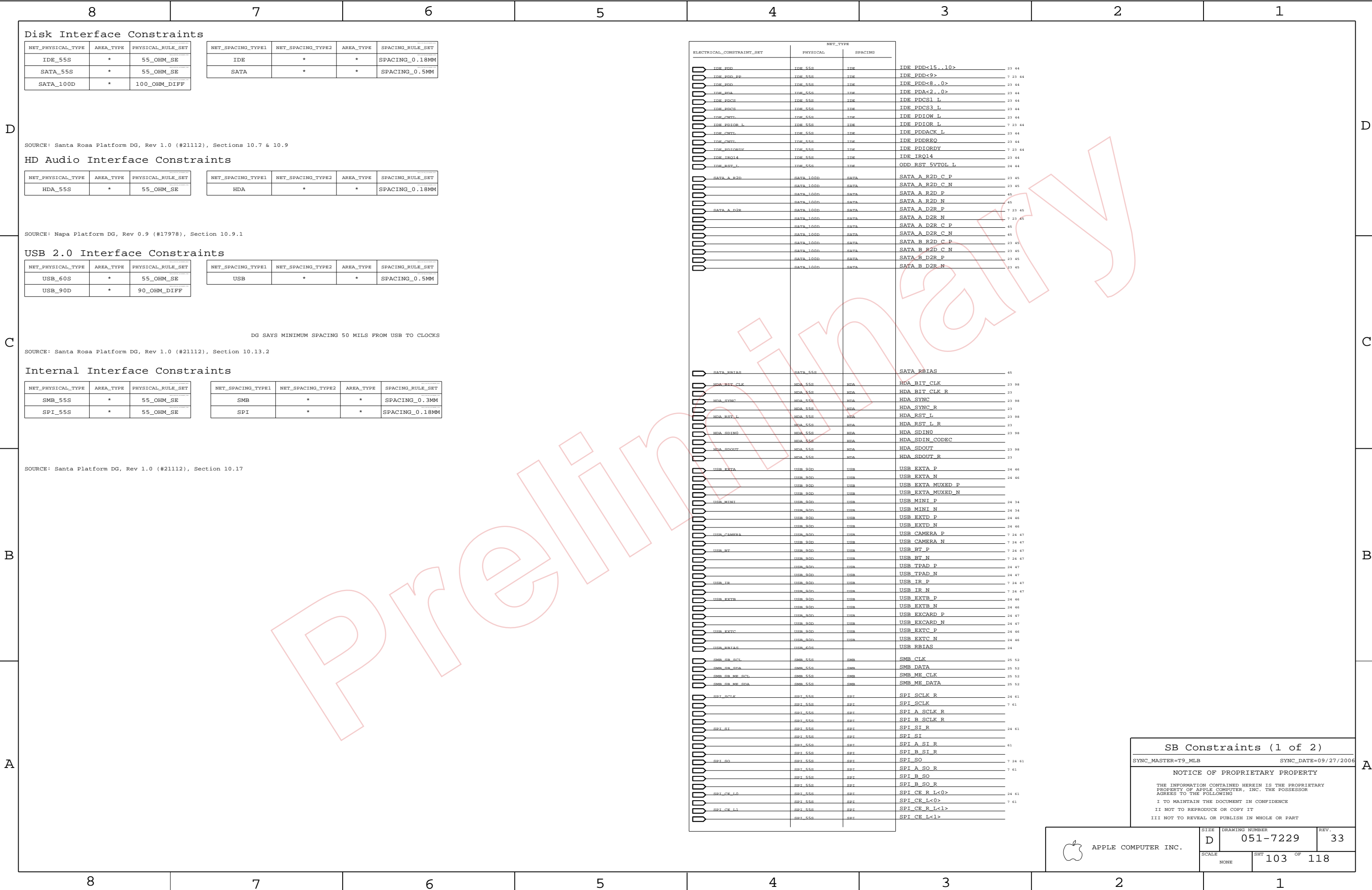
I TO MAINTAIN THE DOCUMENT IN CONFIDENCE

II NOT TO REPRODUCE OR COPY IT

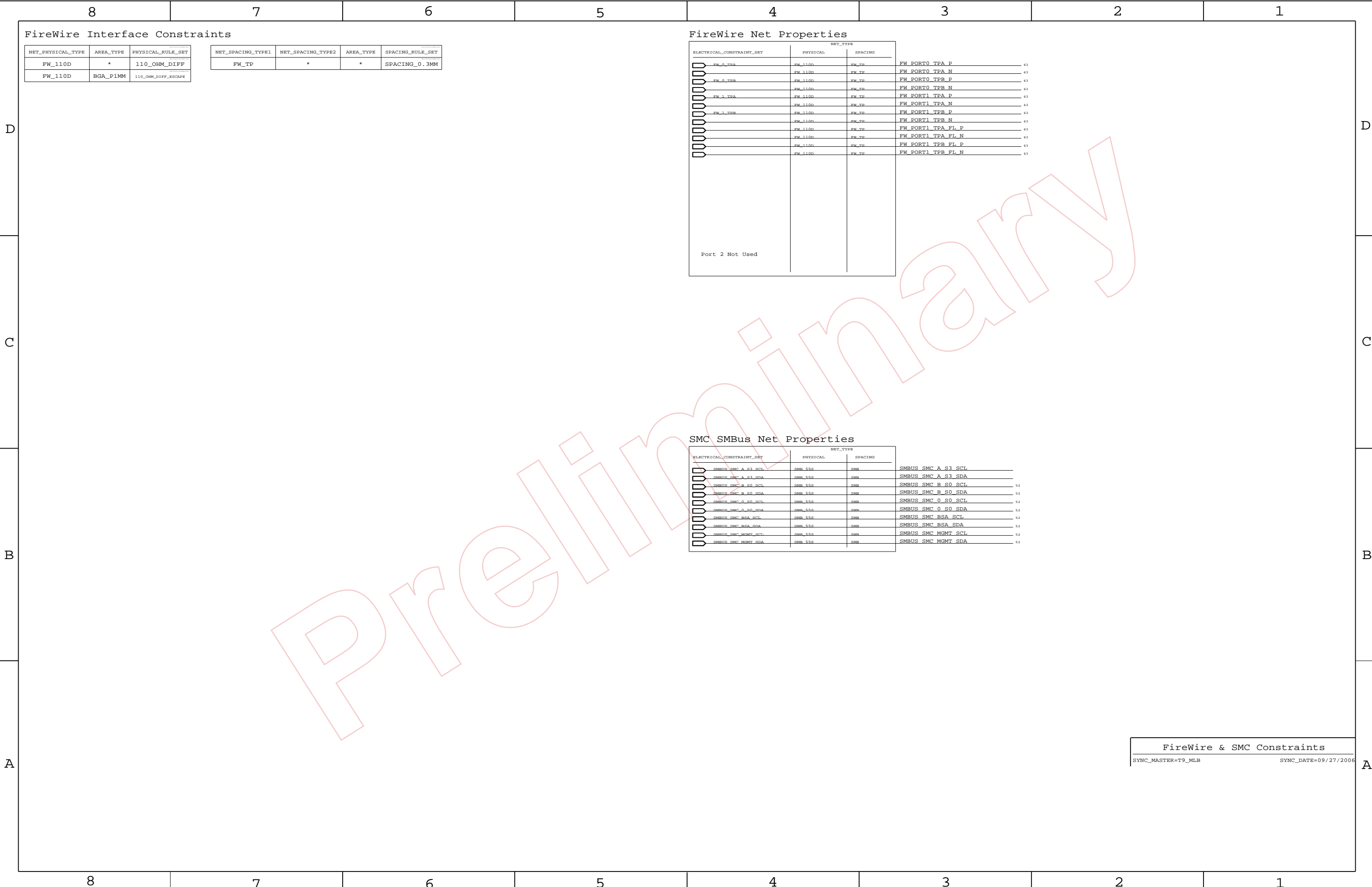
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7229	33
SCALE		SHT	OF
NONE		94	118





8			7			6			5			4			3			2			1					
Clock Signal Constraints																										
NET_PHYSICAL_TYPE			AREA_TYPE			PHYSICAL_RULE_SET			NET_SPACING_TYPE1			NET_SPACING_TYPE2			AREA_TYPE			SPACING_RULE_SET								
CLK_FSB_100D			*			100_OHM_DIFF			CLK_FSB			*			*			CLK_SPACING_0.6MM								
CLK_PCIE_100D			*			100_OHM_DIFF			CLK_PCIE			*			*			CLK_SPACING_0.5MM								
CLK_MED_55S			*			55_OHM_SE			CLK_MED			*			*			CLK_SPACING_0.5MM								
SOURCE: Santa Rosa Platform DG, Rev 1.0 (#21112), Sections 14.1 - 14.6																										
Clock Net Properties																										
ELECTRICAL_CONSTRAINT_SET																										
NET_TYPE																										
PHYSICAL																										
SPACING																										
CK505_CPU																										
CK505_CPU																										
CK505_NB																										
CK505_NB																										
CK505_ITP																										
CK505_ITP																										
CK505_PCIF0																										
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PCIE	GND	*	GND_P2MM																																																
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CLK_PCIE	PWR	*	PWR_P2MM																																																

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M72/M78 BOARD-SPECIFIC SPACING & PHYSICAL CONSTRAINTS															
BOARD LAYERS						BOARD AREAS			BOARD UNITS (MIL OR MM)		ALLEGRO VERSION				
TOP, ISL2, ISL3, ISL4, ISL5, ISL6, ISL7, BOTTOM						NO_TYPE, BGA_P1MM			MM		15.5.1				
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	=55_OHM_SE	=55_OHM_SE	4 MM	0 MM	0 MM							
STANDARD		*	Y	=DEFAULT	=DEFAULT	12.7 MM	=DEFAULT	=DEFAULT							
DEFAULT		TOP, BOTTOM	Y	=55_OHM_SE	0.100 MM	3 MM	0 MM	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							
55_OHM_SE		TOP, BOTTOM	Y	0.125 MM	0.125 MM										
55_OHM_SE		*	Y	0.100 MM	0.100 MM	=STANDARD	=STANDARD	=STANDARD							
PHYSICAL_RULE_SET		LAYER	ALLOW_ROUTE ON_LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP							
40_OHM_SE		TOP, BOTTOM	Y	0.225 MM	0.225 MM										
40_OHM_SE		*	Y	0.185 MM	0.185 MM	=STANDARD	=STANDARD	=STANDARD							
PHYSICAL_RULE_SET		LAYER	ALLOW_ROUTE ON_LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP							
45_OHM_SE		TOP, BOTTOM	Y	0.185 MM	0.185 MM										
45_OHM_SE		*	Y	0.150 MM	0.150 MM	=STANDARD	=STANDARD	=STANDARD							
PHYSICAL_RULE_SET		LAYER	ALLOW_ROUTE ON_LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP							
27P4_OHM_SE		TOP, BOTTOM	Y	0.340 MM	0.340 MM										
27P4_OHM_SE		*	Y	0.265 MM	0.265 MM	=STANDARD	=STANDARD	=STANDARD							
PHYSICAL_RULE_SET		LAYER	ALLOW_ROUTE ON_LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP							
70_OHM_DIFF		*	N	=STANDARD	=STANDARD	=STANDARD	=STANDARD	=STANDARD							
70_OHM_DIFF		ISL3, ISL6	Y	0.180 MM	0.180 MM		0.120 MM	0.120 MM							
70_OHM_DIFF		TOP, BOTTOM	Y	0.215 MM	0.215 MM		0.125 MM	0.125 MM							
PHYSICAL_RULE_SET		LAYER	ALLOW_ROUTE ON_LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP							
85_OHM_DIFF		*	N	=STANDARD	=STANDARD	=STANDARD	=STANDARD	=STANDARD							
85_OHM_DIFF		ISL3, ISL6	Y	0.120 MM	0.120 MM		0.130 MM	0.130 MM							
85_OHM_DIFF		TOP, BOTTOM	Y	0.145 MM	0.145 MM		0.125 MM	0.125 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		*	N	=STANDARD	=STANDARD	=STANDARD	=STANDARD	=STANDARD							
90_OHM_DIFF		ISL3, ISL6	Y	0.125 MM	0.125 MM		0.200 MM	0.200 MM							
90_OHM_DIFF		TOP, BOTTOM	Y	0.145 MM	0.145 MM		0.175 MM	0.175 MM							
PHYSICAL_RULE_SET		LAYER	ALLOW_ROUTE ON_LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP							
100_OHM_DIFF		*	N	=STANDARD	=STANDARD	=STANDARD	=STANDARD	=STANDARD							
100_OHM_DIFF		ISL3, ISL6	Y	0.095 MM	0.095 MM		0.205 MM	0.205 MM							
100_OHM_DIFF		TOP, BOTTOM	Y	0.115 MM	0.115 MM		0.180 MM	0.180 MM							
PHYSICAL_RULE_SET		LAYER	ALLOW_ROUTE ON_LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP							
110_OHM_DIFF		*	N	=STANDARD	=STANDARD	=STANDARD	=STANDARD	=STANDARD							
110_OHM_DIFF		ISL3, ISL6	Y	0.085 MM	0.085 MM		0.330 MM	0.330 MM							
110_OHM_DIFF		TOP, BOTTOM	Y	0.105 MM	0.100 MM		0.280 MM	0.280 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	0.1 MM	0.1 MM							
SPACING_RULE_SET		LAYER	LINE-TO-LINE SPACING	WEIGHT	NET_SPACING_TYPE1		NET_SPACING_TYPE2		AREA_TYPE	SPACING_RULE_SET					
DEFAULT		*	0.1 MM	?	*		*		BGA_P1MM	BGA_P1MM					
STANDARD		*	=DEFAULT	?	MEM_CLK		*		BGA_P1MM	BGA_P2MM					
BGA_P1MM		*	=DEFAULT	?	CLK_FSB		*		BGA_P1MM	BGA_P2MM					
BGA_P2MM		*	=DEFAULT	?	CLK_PCIE		*		BGA_P1MM	BGA_P2MM					
BGA_P3MM		*	=DEFAULT	?	CLK_MED		*		BGA_P1MM	BGA_P2MM					
SPACING_RULE_SET		LAYER	LINE-TO-LINE SPACING	WEIGHT	FSB_DSTB		FSB_DSTB		BGA_P1MM	BGA_P3MM					
SPACING_0.15MM		*	0.15 MM	?											
SPACING_0.18MM		*	0.18 MM	?											
SPACING_0.2MM		*	0.2 MM	?											
SPACING_0.25MM		*	0.25 MM	?	CLK_SPACING_0.5MM		*		0.5 MM	?					
SPACING_0.3MM		*	0.3 MM	?	CLK_SPACING_0.6MM		*		0.6 MM	?					
SPACING_0.4MM		*	0.4 MM	?	CLK_SPACING_0.5MM		TOP, BOTTOM		0.2 MM	?					
SPACING_0.5MM		*	0.5 MM	?	CLK_SPACING_0.6MM		TOP, BOTTOM		0.2 MM	?					
SPACING_0.6MM		*	0.6 MM	?											
SWITCHNODE		*	0.6 MM	1000											
SWITCHNODE		TOP, BOTTOM	0.2 MM	1000											
PHYSICAL_RULE_SET		LAYER	ALLOW_ROUTE ON_LAYER?	MINIMUM LINE WIDTH	MINIMUM NECK WIDTH	MAXIMUM NECK LENGTH	DIFFPAIR PRIMARY GAP	DIFFPAIR NECK GAP							
110_OHM_DIFF_ESCAPE		*	N	=STANDARD	=STANDARD	=STANDARD	=STANDARD	=STANDARD							
110_OHM_DIFF_ESCAPE		TOP, BOTTOM	Y	0.105 MM	0.100 MM		0.250 MM	0.250 MM							
110_OHM_DIFF_ESCAPE		ISL3, ISL6	Y	0.085 MM	0.085 MM		0.330 MM	0.330 MM							
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	0.15 MM	0.15 MM										
50_OHM_SE		*	Y	0.120 MM	0.120 MM	=STANDARD	=STANDARD	=STANDARD							
M72/M78 RULE DEFINITIONS															
SYNC_MASTER=T9_MLB SYNC_DATE=09/27/2006															
NOTICE OF PROPRIETARY PROPERTY															
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APPLE COMPUTER INC.										SIZE D		DRAWING NUMBER 051-7229		REV. 33	
										SCALE NONE		SHT 109		OF 118	
8		7		6		5		4		3		2		1	

[illegible]

	8	7	6	5	4	3	2	1
D	CK505_LVDS_P CK505_LVDS_P - @m78_lib.M78 CK505_PCI1_CLK TP_CK505_PCI1_CLK - @m78_lib.M78 CK505_PCI2_CLK TP_CK505_PCI2_CLK - @m78_lib.M78 CK505_PCI3_CLK CK505_PCI4_CLK TP_CK505_PCI4_CLK - @m78_lib.M78 CK505_PCI5_CLK_PCTSE CK505_PCI5_CLK_PCTSEL - @m78_lib.M78 CK505_PCI5_CLK_ITFE CK505_PCI5_CLK_ITPEN - @m78_lib.M78							

[illegible]

[illegible]

8			7			6			5			4			3			2			1			
D	Title: Cref Part Report Design: m78 Date: May 7 18:11:37 2007																							
	C600	CAP_402	m78[6D7]				C2171	CAP_402-1	m78[21D4]				C3305	CAP_402	m78[33D4]				C4312	CAP_402	m78[43C4]			
	C621	CAP_603	m78[6D6]				C2173	CAP_P_SM-CASE-C1	m78[21C4]				C3307	CAP_402	m78[33D4]				C4313	CAP_402	m78[43C4]			
	C622	CAP_805	m78[6D7]				C2174	CAP_603	m78[21C4]				C3310	CAP_402	m78[33C4]				C4320	CAP_402	m78[43B5]			
	C623	CAP_805	m78[6D7]				C2177	CAP_603	m78[21C4]				C3312	CAP_402	m78[33C4]				C4321	CAP_402	m78[43B5]			
	C624	CAP_1210	m78[6D8]				C2180	CAP_402	m78[21D2]				C3330	CAP_402	m78[33C4]				C4322	CAP_402	m78[43A5]			
	C625	CAP_P_6_3X5.5-SM	m78[6D8]				C2181	CAP_805	m78[21D2]				C3332	CAP_402	m78[33C4]				C4323	CAP_402	m78[43A5]			
	C701	CAP_402	m78[7C6]				C2182	CAP_402	m78[21D2]				C3334	CAP_402	m78[33C4]				C4332	CAP_402	m78[43C2]			
	C702	CAP_402	m78[7C5]				C2183	CAP_805	m78[21C3]				C3336	CAP_402	m78[33C4]				C4335	CAP_402	m78[43C2]			
	C703	CAP_402	m78[7C6]				C2184	CAP_402	m78[21C2]				C3338	CAP_402	m78[33C4]				C4350	CAP_402	m78[43C7]			
C	C704	CAP_402	m78[7C5]				C2190	CAP_603	m78[21B4]				C3340	CAP_402	m78[33C4]				C4354	CAP_402	m78[43B7]			
	C705	CAP_402	m78[7C6]				C2191	CAP_402	m78[21B3]				C3342	CAP_402	m78[33B4]				C4360	CAP_402	m78[43D7]			
	C706	CAP_402	m78[7B5]				C2192	CAP_402	m78[21B3]				C3344	CAP_402	m78[33B4]				C4364	CAP_402	m78[43B7]			
	C707	CAP_402	m78[7B6]				C2195	CAP_603	m78[21A4]				C3346	CAP_402	m78[33B4]				C4404	CAP_402	m78[44B6]			
	C708	CAP_402	m78[7B5]				C2196	CAP_805	m78[21A3]				C3348	CAP_402	m78[33B4]				C4405	CAP_402	m78[44B4]			
	C709	CAP_402	m78[7B6]				C2197	CAP_402	m78[21A3]				C3350	CAP_402	m78[33B4]				C4406	CAP_805	m78[44B4]			
	C710	CAP_402	m78[7B5]				C2200	CAP_402	m78[22B2]				C3352	CAP_402	m78[33B4]				C4510	CAP_402	m78[45D6]			
	C1000	CAP_402	m78[10B5]				C2201	FILTER_3P_A_NFM18	m78[22B2]				C3354	CAP_402	m78[33B4]				C4511	CAP_402	m78[45D6]			
	C1200	CAP_805	m78[12D7]				C2213	CAP_603	m78[22B2]				C3356	CAP_402	m78[33B4]				C4515	CAP_402	m78[45C6]			
	C1201	CAP_805	m78[12D6]				C2500	CAP_402	m78[25C2]				C3358	CAP_402	m78[33A4]				C4516	CAP_402	m78[45C6]			
B	C1202	CAP_805	m78[12D6]				C2501	CAP_402	m78[25B2]				C3360	CAP_402	m78[33A4]				C4600	CAP_P_CASE-D2-LF	m78[46C8]			
	C1203	CAP_805	m78[12D6]				C2600	CAP_402	m78[26A3]				C3362	CAP_402	m78[33A4]				C4601	CAP_402	m78[46C8]			
	C1204	CAP_805	m78[12D6]				C2601	CAP_402	m78[26A3]				C3364	CAP_402	m78[33A4]				C4602	CAP_402	m78[46C7]			
	C1205	CAP_805	m78[12D5]				C2700	CAP_P_SM-CASE-C1	m78[27C7]				C3366	CAP_402	m78[33A4]				C4603	CAP_402	m78[46C7]			
	C1206	CAP_805	m78[12D5]				C2701	CAP_402	m78[27A6]				C3368	CAP_402	m78[33A4]				C4604	CAP_402	m78[46D8]			
	C1207	CAP_805	m78[12D5]				C2702	CAP_402	m78[27B1]				C3370	CAP_402	m78[33A4]				C4605	CAP_402	m78[46D7]			
	C1208	CAP_805	m78[12D4]				C2703	CAP_402	m78[27C8]				C3400	CAP_402	m78[34C3]				C4613	CAP_402	m78[46D2]			
	C1209	CAP_805	m78[12D4]				C2704	CAP_402	m78[27D8]				C3401	CAP_603	m78[34C3]				C4623	CAP_402	m78[46C5]			
	C1210	CAP_805	m78[12C7]				C2705	CAP_805	m78[27C7]				C3410	CAP_402	m78[34C3]				C4633	CAP_402	m78[46A5]			
	C1211	CAP_805	m78[12C6]				C2706	CAP_805	m78[27C7]				C3420	CAP_402	m78[34C3]				C4650	CAP_402	m78[46D5]			
A	C1212	CAP_805	m78[12C6]				C2707	CAP_603	m78[27C7]				C3421	CAP_603	m78[34C3]				C4700	CAP_805-1	m78[47D7]			
	C1213	CAP_805	m78[12C6]				C2708	CAP_603	m78[27A6]				C3430	CAP_402	m78[34B7]				C4701	CAP_402	m78[47D6]			
	C1214	CAP_805	m78[12C6]				C2711	CAP_402	m78[27D1]				C3431	CAP_402	m78[34B7]				C4720	CAP_805-1	m78[47D3]			
	C1215	CAP_805	m78[12C5]				C2712	CAP_402	m78[27C1]				C3700	CAP_603	m78[37D6]				C4721	CAP_402	m78[47D3]			
	C1216	CAP_805	m78[12C5]				C2714	CAP_402	m78[27D1]				C3701	CAP_402	m78[37D6]				C4902	CAP_805	m78[49D4]			
	C1217	CAP_805	m78[12C5]				C2715	CAP_402	m78[27C1]				C3702	CAP_402	m78[37D5]				C4903	CAP_402	m78[49D4]			
	C1218	CAP_805	m78[12C4]				C2717	CAP_402	m78[27A6]				C3703	CAP_402	m78[37D5]				C4904	CAP_402	m78[49D3]			
	C1219	CAP_805	m78[12C4]				C2718	CAP_402	m78[27B1]				C3704	CAP_402	m78[37D5]				C4905	CAP_402	m78[49D3]			
	C1220	CAP_805	m78[12C7]				C2719	CAP_402	m78[27D3]				C3705	CAP_402	m78[37D4]				C4906	CAP_402	m78[49D3]			
	C1221	CAP_805	m78[12C6]				C2721	CAP_402	m78[27B3]				C3706	CAP_402	m78[37D4]				C4907	CAP_402	m78[49D2]			

8				7				6				5				4				3				2				1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
D	C7201	CAP_1206-1	m78[72D2]	C7203	CAP_402	m78[72C2]	C7208	CAP_1206-1	m78[72D2]	C7212	CAP_402	m78[72C3]	C7215	CAP_603	m78[72C5]	C7235	CAP_603	m78[72D6]	C7254	CAP_P_TH	m78[72D2]	C7255	CAP_1206-1	m78[72D2]	C7290	CAP_402	m78[72C4]	C7300	CAP_P_CASE-D2-SM	m78[73C8]	C7301	CAP_805	m78[73C8]	C7302	CAP_402	m78[73B7]	C7303	CAP_P_CASE-D2-SM	m78[73C7]	C7304	CAP_805	m78[73C8]	C7310	CAP_603	m78[73C7]	C7324	CAP_402	m78[73B7]	C7330	CAP_603-1	m78[73D6]	C7331	CAP_603	m78[73C6]	C7332	CAP_402	m78[73B5]	C7335	CAP_402	m78[73B6]	C7340	CAP_P_TH	m78[73D7]	C7341	CAP_1206-1	m78[73D7]	C7342	CAP_1206-1	m78[73D6]	C7345	CAP_402	m78[73B3]	C7360	CAP_603	m78[73D2]	C7361	CAP_603	m78[73C2]	C7364	CAP_402	m78[73B2]	C7370	CAP_402	m78[73B2]	C7372	CAP_402	m78[73B4]	C7381	CAP_1206-1	m78[73D2]	C7382	CAP_1206-1	m78[73D2]	C7390	CAP_P_CASE-D2-SM	m78[73C1]	C7391	CAP_P_CASE-D2-SM	m78[73C2]	C7392	CAP_805	m78[73C1]	C7393	CAP_805	m78[73C1]	C7400	CAP_P_CASE-D2-SM	m78[74C8]	C7401	CAP_805	m78[74C8]	C7402	CAP_402	m78[74B7]	C7403	CAP_P_CASE-D2-SM	m78[74C7]	C7404	CAP_805	m78[74C8]	C7410	CAP_603	m78[74C7]	C7424	CAP_402	m78[74B7]	C7430	CAP_603-1	m78[74D6]	C7431	CAP_603	m78[74C6]	C7432	CAP_402	m78[74B5]	C7435	CAP_402	m78[74B6]	C7440	CAP_P_TH	m78[74D7]	C7441	CAP_1206-1	m78[74D7]	C7442	CAP_1206-1	m78[74D6]	C7445	CAP_402	m78[74B3]	C7460	CAP_603-1	m78[74D2]	C7461	CAP_603	m78[74C2]	C7464	CAP_402	m78[74B2]	C7470	CAP_402	m78[74B2]	C7472	CAP_402	m78[74B4]	C7480	CAP_P_TH	m78[74D3]	C7481	CAP_1206-1	m78[74D2]	C7482	CAP_1206-1	m78[74D2]	C7490	CAP_P_TH	m78[74C2]	C7491	CAP_P_TH	m78[74C1]	C7492	CAP_805	m78[74C1]	C7493	CAP_805	m78[74C1]	C7500	CAP_603	m78[75D5]	C7501	CAP_603	m78[75D6]	C7502	CAP_603	m78[75D6]	C7503	CAP_402	m78[75C2]	C7506	CAP_402	m78[75C8]	C7507	CAP_402	m78[75C6]	C7508	CAP_603	m78[75C7]	C7509	CAP_402	m78[75D4]	C7510	CAP_402	m78[75C5]	C7530	CAP_P_TH	m78[75D5]	C7531	CAP_603	m78[75D4]	C7532	CAP_P_TH	m78[75D5]	C7533	CAP_1206-1	m78[75D5]	C7534	CAP_1206-1	m78[75D4]	C7540	CAP_805	m78[75C3]	C7541	CAP_805	m78[75C3]	C7542	CAP_P_CASE-D2-SM	m78[75C2]	C7543	CAP_P_CASE-D2-SM	m78[75C2]	C7544	CAP_P_CASE-D2-SM	m78[75C2]	C7550	CAP_402	m78[75B4]	C7551	CAP_805-1	m78[75A6]	C7552	CAP_805-1	m78[75A4]	C7553	CAP_402	m78[75A6]	C7555	CAP_P_CASE-C3	m78[75A4]	C7559	CAP_603	m78[75B5]	C7560	CAP_402	m78[75D8]	C7564	CAP_402	m78[75C3]	C7585	CAP_402	m78[75A3]	C7586	CAP_402	m78[75A2]	C7587	CAP_402	m78[75A2]	C7588	CAP_402	m78[75A2]	C7589	CAP_402	m78[75A1]	C7590	CAP_402	m78[75B3]	C7591	CAP_402	m78[75B2]	C7592	CAP_402	m78[75B2]	C7593	CAP_402	m78[75B2]	C7594	CAP_402	m78[75B1]	C7595	CAP_402	m78[75B3]	C7596	CAP_402	m78[75B2]	C7597	CAP_402	m78[75B2]	C7598	CAP_402	m78[75B2]	C7599	CAP_402	m78[75B1]	C7600	CAP_603	m78[76C4]	C7601	CAP_603	m78[76A4]	C7602	CAP_402	m78[76A4]	C7604	CAP_402	m78[76A3]	C7605	CAP_402	m78[76B5]	C7607	CAP_402	m78[76A3]	C7608	CAP_402	m78[76D2]	C7609	CAP_402	m78[76D7]	C7612	CAP_603	m78[76A7]	C7613	CAP_402	m78[76A7]	C7621	CAP_402	m78[76B6]	C7622	CAP_402	m78[76C5]	C7624	CAP_402	m78[76C6]	C7625	CAP_402	m78[76B6]	C7626	CAP_402	m78[76B6]	C7628	CAP_402	m78[76B7]	C7629	CAP_402	m78[76B7]	C7630	CAP_402	m78[76A5]	C7631	CAP_402	m78[76C7]	C7632	CAP_402	m78[76C2]	C7640	CAP_1206-1	m78[76D6]	C7641	CAP_1206-1	m78[76D6]	C7642	CAP_1206-1	m78[76D6]	C7643	CAP_1206-1	m78[76D6]	C7650	CAP_805	m78[76B7]	C7651	CAP_P_CASE-D3L	m78[76B8]	C7652	CAP_P_CASE-D3L	m78[76B8]	C7661	CAP_402	m78[76B3]	C7662	CAP_402	m78[76C4]	C7664	CAP_402	m78[76C3]	C7665	CAP_402	m78[76B4]	C7666	CAP_402	m78[76B3]	C7668	CAP_402	m78[76B2]	C7669	CAP_402	m78[76B2]	C7670	CAP_402	m78[76B4]	C7680	CAP_1206-1	m78[76D3]	C7681	CAP_1206-1	m78[76D4]	C7682	CAP_P_SM-1	m78[76D4]	C7689	CAP_402	m78[76B4]	C7690	CAP_805	m78[76B2]	C7691	CAP_P_CASE-D3L	m78[76B1]	C7692	CAP_P_CASE-D3L	m78[76B1]	C7693	CAP_P_CASE-D3L	m78[76B1]	C7700	CAP_805	m78[77C6]	C7701	CAP_402	m78[77C5]	C7702	CAP_402	m78[77B3]	C7705	CAP_805	m78[77B3]	C7706	CAP_805	m78[77B3]	C7707	CAP_805	m78[77B3]	C7710	CAP_805	m78[77D6]	C7712	CAP_402	m78[77D4]	C7715	CAP_805	m78[77D3]	C7800	CAP_402	m78[78D4]	C7801	CAP_402	m78[78D4]	C7810	CAP_402	m78[78D6]	C7811	CAP_402	m78[78D7]	C7850	CAP_402	m78[78C4]	C7851	CAP_402	m78[78C4]	C7890	CAP_805	m78[78D2]	C7891	CAP_402	m78[78D2]	C7895	CAP_402	m78[78B7]	C7896	CAP_402	m78[78A6]	C7899	CAP_402	m78[78B6]	C8400	CAP_P_SM-LF	m78[84C5]	C8401	CAP_805	m78[84C7]	C8420	CAP_402	m78[84C7]	C8421	CAP_402	m78[84C7]	C8422	CAP_402	m78[84C7]	C8423	CAP_402	m78[84C7]	C8424	CAP_402	m78[84B7]	C8425	CAP_402	m78[84B7]	C8426	CAP_402	m78[84B7]	C8427	CAP_402	m78[84B7]	C8428	CAP_402	m78[84B7]	C8429	CAP_402	m78[84B7]	C8430	CAP_402	m78[84B7]	C8431	CAP_402	m78[84B7]	C8432	CAP_402	m78[84B7]	C8433	CAP_402	m78[84B7]	C8434	CAP_402	m78[84B7]	C8435	CAP_402	m78[84B7]	C8436	CAP_402	m78[84B7]	C8437	CAP_402	m78[84B7]	C8438	CAP_402	m78[84B7]	C8439	CAP_402	m78[84B7]	C8440	CAP_402	m78[84B7]	C8441	CAP_402	m78[84A7]	C8442	CAP_402	m78[84A7]	C8443	CAP_402	m78[84A7]	C8444	CAP_402	m78[84A7]	C8445	CAP_402	m78[84A7]	C8446	CAP_402	m78[84A7]	C8447	CAP_402	m78[84A7]	C8448	CAP_402	m78[84A7]	C8449	CAP_402	m78[84A7]	C8450	CAP_402	m78[84A7]	C8451	CAP_402	m78[84A7]	C8500	CAP_805	m78[85A5]	C8570	CAP_402	m78[85D2]	C9000	CAP_603-1	m78[90C7]	C9001	CAP_402	m78[90C5]	C9010	CAP_402	m78[90A8]	C9020	CAP_1210	m78[90C5]	C9130	CAP_805	m78[91B7]	C9131	CAP_805-1	m78[91B7]	C9140	CAP_402	m78[91A5]	C9141	CAP_402	m78[91B5]	C9142	CAP_402	m78[91B5]	C9143	CAP_402	m78[91A6]	C9144	CAP_402	m78[91B6]	C9145	CAP_402	m78[91B6]	C9160	CAP_402	m78[91B4]	C9161	CAP_402	m78[91B4]	C9162	CAP_402	m78[91A2]	C9163	CAP_402	m78[91A2]	C9410	CAP_603	m78[94C9]	C9411	CAP_402	m78[94D3]	C9413	CAP_402	m78[94C2]	C9414	CAP_402	m78[94C2]	C9800	CAP_805	m78[98C5]	C9801	CAP_402	m78[98C4]	C9802	CAP_402	m78[98C4]	D2185	DIODE_SCHOT_SOT23	m78[21C4]	D2186	DIODE_SCHOT_SOT23	m78[21B4]	D2702	DIODE_SCHOT_6PB_SOT-363	m78[27D8 27D8]	D2800	DIODE_SCHOT_6PB_SOT-363	m78[28D6]	D4390	ZENER_SOT23	m78[43A6]	D4600	DIODE_SCHOT_3P_A_SC-	m78[46C2]	D4601	DIODE_SCHOT_3P_A_SC-	m78[46B5]	D4602	DIODE_SCHOT_3P_A_SC-	m78[46A5]	D5350	DIODE_3P_2NC_SOT23-L	m78[53C2]	D5600	DIODE_SOT23	m78[56C4]	D5601	DIODE_SOT23	m78[56B4]	D5700	DIODE_SOT23	m78[57C4]	D7100	DIODE_SCHOT_SMB	m78[71D2]	D7101	DIODE_SCHOT_SMB	m78[71B2]	D7200	DIODE_SCHOT_SMB	m78[72C3]	D7300	DIODE_SCHOT_5P_TLM83	m78[73B6]	D7301	DIODE_SCHOT_SOT23	m78[73C6]	D7373	DIODE_SCHOT_5P_TLM83	m78[73B3]	D7374	DIODE_SCHOT_SOT23	m78[73C3]	D7400	DIODE_SCHOT_5P_TLM83	m78[74B6]	D7401	DIODE_SCHOT_SOT23	m78[74C6]	D7473	DIODE_SCHOT_5P_TLM83	m78[74B3]	D7474	DIODE_SCHOT_SOT23	m78[74C4]	D7520	DIODE_SCHOT_5P_TLM83	m78[75C4]	D7600	DIODE_SCHOT_5P_TLM83	m78[76B7]	D7601	DIODE_SCHOT_5P_TLM83	m78[76B2]	D7624	DIODE_SCHOT_SOD-323	m78[76C6]	D7664	DIODE_SCHOT_SOD-323	m78[76C3]	D7810	DIODE_SCHOT_SOD-123	m78[78D7]	D7890	DIODE_SCHOT_SOD-123	m78[78D2]	D9400	ZENER_CASE425	m78[94C1]	D9410	DIODE_SCHOT_SOD-123	m78[94D6]	DE4300	DIODE_SCHOT_SOT	m78[43D7]	DP4310	DIODE_DUAL_6P_SOT-36	m78[43D4 43D3]	DP4311	DIODE_DUAL_6P_SOT-36	m78[43C4 43C3]	DP4320	DIODE_DUAL_6P_SOT-36	m78[43B5 43B4]	DP4321	DIODE_DUAL_6P_SOT-36	m78[43A5 43A4]	DS4599	LED_2_0X1.25MM-SM	m78[45C2]	F4300	FUSE_SM	m78[43D6]	F4310	FUSE_SM	m78[43D6]	F9410	FUSE_805	m78[94D5]	FL4300	FILTER_4P_L701-SM	m78[43B3]	FL4310	FILTER_4P_L701-SM	m78[43B3]	J600	CON_M12RT_D_THB_M-RT	m78[6D7]	J1000	MEROM_BGA-SKT-P	m78[10C3 10D7]	J1000	MEROM_BGA-SKT-P	m78[11D3 11D7]	J1300	CON_F60ST_D_SML_F-ST	m78[13C4]	J2800	BATTERY_2P_SM	m78[28D8]	J3100	CON_F200RT_DDR2DIMM	m78[31D5]	J3200	SMT_SM_F-RT-SM	m78[32D5]	J3400	CON_F52RT_D2MT_SM_F-	m78[34C5]	J3900	RT-SM	m78[39C3]	J4300	CON_F9ANG_1394B_D6MT	m78[43C2]	J4301	CON_F6ANG_S3MT_1394A	m78[43B2]	J4401	CON_M50ST_D2MT_SM1_M	m78[44C4]	J4510	CON_M7ST_SATA_SM_M-S	m78[45D7]	J4610	CON_F4ANG_S4MT_USB_T	m78[46D1]	J4620	CON_F4ANG_S4MT_USB_T	m78[46B4]	J4630	CON_F4ANG_S4MT_USB_T	m78[46A4]	J4700	CON_M5ST_S2MT_SM_M-S	m78[47B5]	J4720	CON_F10ST_D_SMA_F-ST	m78[47D2]	J5010	CON_M2ST_S2MT_SM_M-S	m78[50C6]	J5050	CON_M2ST_S2MT_SM_M-S	m78[50A3]	J5100	CON_F30STSM_S047_SM1	m78[51B5]	J5500	CON_M5ST_S2MT_SM_PN1	m78[55D7]	J5510	VD_M-ST-SM	m78[55A7]	J5511	CON_M2RT_S2MT_SM_M-R	m78[55A5]	J5550	CON_M3RT_S2MT_SM_M-R	m78[55B7]	J5551	CON_2RTSM_125_SM-2MT	m78[55B6]	J5560	CON_M5ST_S2MT_SM_PN1	m78[55D6]	J5600	CON_M4RT_S2MT_SM_M-R	m78[56D3]	J5601	CON_M4RT_S2MT_SM_M-R	m78[56B2]	J5700	CON_4SM_WRTB_85205-0	m78[57C2]	J5880	CON_M7ST_S2MT_SM_M-S	m78[58C6]	J8400	CON_F232RT_MXM_SM1_F	m78[85C6]	J9002	CON_F30ST_D_SM_F-ST-	m78[90B7]	J9410	CON_DVI_F32ST_Q2MT_S	m78[94D5]	J9800	M.F-ST-SM	m78[98C5]	L2150	IND_0603	m78[21A7]	L2173	IND_1210	m78[21D4]	L2181	IND_0603	m78[21D2]	L2183	IND_0603	m78[21C2]	L2190	IND_0805	m78[21B3]	L2195	IND_0805	m78[21A3]	L2700	IND_0805-1	m78[27C8]	L2702	IND_0805	m78[27A7]	L2703	IND_1210	m78[27A7]	L2901	IND_0402	m78[29D7]	L2902	IND_0402	m78[29D3]	L2903	IND_0402	m78[29C7]	L3800	IND_0805-1	m78[38D7]	L3810	IND_0805-1	m78[38B6]	L3900	IND_0805	m78[39D7]	L4200	IND_0402-LF	m78[42D5]	L4210	IND_0402-LF	m78[42B2]	L4211	IND_0402-LF	m78[42B2]	L4300	IND_SM	m78[43D3]	L4301	IND_SM	m78[43B4]	L4610	IND_SM	m78[46D3]	L4612	FILTER_4P_L701-SM	m78[46D3]	L4620	IND_SM	m78[46C6]	L4622	FILTER_4P_L701-SM	m78[46B6]	L4630	IND_SM	m78[46B6]	L4632	FILTER_4P_L701-SM	m78[46A6]	L4700	IND_SM	m78[47D6]	L4701	FILTER_4P_L701-SM	m78[47B6]	L4710	FILTER_4P_L701-SM	m78[47A6]	L5050	IND_3_8X3.8X1.5MM	m78[50A4]	L7100	IND_HM56-11120-TH	m78[71D2]	L7101	IND_HM56-11120-TH	m78[71B2]	L7200	IND_HM56-11120-TH	m78[72C3]	L7300	IND_MM06EZ-SM	m78[73C7]	L7360	IND_MM06EZ-SM	m78[73C2]	L7400	IND_MM06EZ-SM	m78[74C7]	L7460	IND_IHLP5050-MMD12CE	m78[74C2]	L7580	IND_IHLP5050-MMD12CE	m78[75C3]	L7620	IND_MM06EZ-SM	m78[76B7]	L7680	IND_HM56-11123-TH	m78[76B2]	L7700	IND_SM-MSS5131	m78[77B4]	L7710	IND_IHLP	m78[77D4]	L9000	IND_SM	m78[90C6]	L9140	IND_0402	m78[91A5]	L9141	IND_0402	m78[91B5]	L9142	IND_0402	m78[91B5]	L9160	IND_0402	m78[91B2]	L9161	IND_0402	m78[91A2]	L9400	FILTER_4P_SM	m78[94D7]	L9401	FILTER_4P_SM	m78[94D7]	L9402	FILTER_4P_SM	m78[94C7]	L9403	FILTER_4P_SM	m78[94B7]	L9410	IND_SM-1	m78[94B4]	LED601	LED_2_0X1.25MM-SM	m78[6A8]	LED602	LED_2_0X1.25MM-SM	m78[6A7]	LED603	LED_2_0X1.25MM-SM	m78[6A6]	LED604	LED_2_0X1.25MM-SM	m78[6B7]	LED3900	LED_2_0X1.25MM-SM	m78[39A7]	LED3901	LED_2_0X1.25MM-SM	m78[39A7]	LED3902	LED_2_0X1.25MM-SM	m78[39A7]	LED3903	LED_2_0X1.25MM-SM	m78[39A6]	LED4400	LED_2_0X1.25MM-SM	m78[44B5]	PP1000	PROBEPOINT_SM

[illegible]

8			7			6			5			4			3			2			1																						
D	R4950	RES_402	m78[49C4]	R7032	RES_402	m78[70C3]	R7630	RES_402	m78[76A7]	U2300	SB_ICH8M_BGA	m78[23D5]	C	B	A	R4951	RES_402	m78[49C4]	R7033	RES_402	m78[70C3]	R7631	RES_402	m78[76A7]	U2300	SB_ICH8M_BGA	m78[24B7 24D4]	A															
	R4998	RES_402	m78[49C2]	R7034	RES_402	m78[70D3]	R7661	RES_402	m78[76C2]	U2300	SB_ICH8M_BGA	m78[25D4]				R4999	RES_402	m78[49D4]	R7035	RES_402	m78[70B3]	R7664	RES_402	m78[76C3]	U2300	SB_ICH8M_BGA	m78[26D5 26D8]																
	R5000	RES_402	m78[50D6]	R7036	RES_402	m78[70B3]	R7665	RES_402	m78[76B4]	U2803	MC74VHC1G00_SCT0-5	m78[28A7]				R5001	RES_402	m78[50D6]	R7037	RES_402	m78[70B3]	R7666	RES_402	m78[76C2]	U2900	CLK_SYN_SLG8LP537_QF	m78[29C5]																
	R5032	RES_402	m78[50B1]	R7038	RES_402	m78[70B3]	R7667	RES_402	m78[76B2]	U3700	88E8058_QFN	m78[37C4]				R5033	RES_402	m78[50B1]	R7039	RES_402	m78[70C3]	R7668	RES_402	m78[76B2]	U3780	EEPROM_M24C08_S08	m78[37B2]																
	R5034	RES_402	m78[50B1]	R7040	RES_402	m78[70C7]	R7669	RES_402	m78[76C2]	U4000	FW643_BGA	m78[40C5]				R5035	RES_402	m78[50B1]	R7041	RES_402	m78[70B7]	R7670	RES_402	m78[76C4]	U4600	SW1_TPS2060_MSOP	m78[46C7]																
	R5036	RES_402	m78[50B1]	R7060	RES_402	m78[70A7]	R7692	RES_402	m78[76A6]	U4601	SW1_TPS2068_MSOP	m78[46D7]				R5037	RES_402	m78[50B1]	R7061	RES_402	m78[70A6]	R7700	RES_402	m78[77C6]	U4650	PI3USB10_TDFN	m78[46D4]																
	R5038	RES_402	m78[50B1]	R7062	RES_402	m78[70A6]	R7701	RES_402	m78[77C5]	U4900	SMC_H8S2116_BGA	m78[49A3 49C3 49B7 49D7]				R5039	RES_402	m78[50B1]	R7063	RES_402	m78[70B6]	R7702	RES_402	m78[77B5]	U5000	VDET_RN5VD_SOT23-5A	m78[50D7]																
	R5040	RES_402	m78[50B1]	R7064	RES_402	m78[70B6]	R7703	RES_402	m78[77B3]	U5050	MM3120_LLP	m78[50A4]				R5041	RES_402	m78[50B1]	R7065	RES_402	m78[70C6]	R7704	RES_402	m78[77B3]	U5350	ZXCT1010_SOT23-5	m78[53C4]																
	R5042	RES_402	m78[50B1]	R7066	RES_402	m78[70C6]	R7705	RES_402	m78[77B2]	U5500	LM95214_LLP	m78[55B4]				R5043	RES_402	m78[50B1]	R7067	RES_402	m78[70C7]	R7710	RES_402	m78[77D6]	U5570	EMC1043_MSOP	m78[55D4]																
	R5046	RES_402	m78[50A1]	R7080	RES_402	m78[70D3]	R7711	RES_402	m78[77D6]	U6100	FLASH_SST25VF016B_SO	m78[61C5]				R5047	RES_402	m78[50B1]	R7081	RES_402	m78[70D3]	R7712	RES_402	m78[77D4]	U7010	COMPARATOR_LM339A_SO	m78[70D6]																
C	R5048	RES_402	m78[50A1]	R7092	RES_402	m78[70B3]	R7713	RES_402	m78[77C4]	U7052	MC74VHC1G08_SOT23-5-	m78[70C2]	B	A		R5050	RES_402	m78[50B6]	R7100	RES_402	m78[71C2]	R7800	RES_402	m78[78D5]	U7100	ISL6260C_QFN	m78[71C6]					A											
	R5051	RES_402	m78[50B7]	R7101	RES_603	m78[71C2]	R7801	RES_402	m78[78D5]	U7101	ISL6208_QFN	m78[71D5]				R5052	RES_402	m78[50A7]	R7102	RES_1206	m78[71B3]	R7810	RES_402	m78[78D8]	U7201	ISL6208_QFN	m78[72C7]																
	R5052	RES_402	m78[50A7]	R7102	RES_1206	m78[71B3]	R7811	RES_402	m78[78D7]	U7300	ISL6539_SSOP	m78[73C5]				R5053	RES_402	m78[50A6]	R7103	RES_1206	m78[71D3]	R7811	RES_402	m78[78D7]	U7400	ISL6539_SSOP	m78[74C5]																
	R5055	RES_402	m78[50A3]	R7103	RES_1206	m78[71D3]	R7811	RES_402	m78[78D7]	U7500	ISL6269_QFN	m78[75D6]				R5056	RES_402	m78[50A3]	R7104	RES_402	m78[71C1]	R7850	RES_402	m78[78C5]	U7501	SN74LVC1G07_SCT0	m78[75D8]																
	R5056	RES_402	m78[50A3]	R7105	RES_402	m78[71B2]	R7851	RES_402	m78[78C5]	U7550	LREQ_BD3533FVM_MSOP-	m78[75B4]				R5057	RES_402	m78[50A6]	R7106	RES_402	m78[71B2]	R7851	RES_402	m78[78C5]	U7600	LTC3728L_QFN	m78[76C5]																
	R5058	RES_402	m78[50A5]	R7107	RES_402	m78[71B1]	R7870	RES_402	m78[78B7]	U7601	COMPARATOR_LM393_SOI	m78[76D6 76A7]				R5070	RES_402	m78[50D2]	R7108	RES_402	m78[71C8]	R7871	RES_402	m78[78B7]	U7710	TPS62050_MSOP	m78[77D5]																
	R5059	RES_402	m78[50A4]	R7108	RES_402	m78[71C8]	R7888	RES_402	m78[78C1]	U7750	TPS62510_BQA	m78[77B4]				R5078	RES_402	m78[50D1]	R7109	RES_402	m78[71B7]	R7889	RES_402	m78[78C2]	U7750	TPS62510_BQA	m78[77B4]																
	R5070	RES_402	m78[50D2]	R7109	RES_402	m78[71B7]	R7891	RES_402	m78[78D3]	U8500	RES_402	m78[85C7]				R5080	RES_402	m78[50D1]	R7110	RES_402	m78[71B7]	R7892	RES_402	m78[78D2]	U8501	TPS62050_MSOP	m78[77D5]																
	R5071	RES_402	m78[50D3]	R7111	RES_402	m78[71B8]	R7892	RES_402	m78[78D2]	U8503	RES_402	m78[85A4]				R5087	RES_402	m78[50B1]	R7112	RES_402	m78[71D7]	R7893	RES_402	m78[78D3]	U8503	TPS62050_MSOP	m78[77D5]																
	R5078	RES_402	m78[50D1]	R7112	RES_402	m78[71D7]	R7894	RES_805	m78[78D1]	U8505	RES_402	m78[85B4]				R5088	RES_402	m78[50A1]	R7113	RES_402	m78[71D7]	R7895	RES_805	m78[78D1]	U9130	VIDBO_TS3V330_SOP	m78[91B7]																
B	R5080	RES_402	m78[50B1]	R7114	RES_402	m78[71B7]	R7895	RES_402	m78[78B6]	U9160	74LVC1G125LF_SOT23-5	m78[91B4]	A			R5082	RES_402	m78[50B1]	R7115	RES_402	m78[71B4]	R7896	RES_402	m78[78B6]	U9161	74LVC1G125LF_SOT23-5	m78[91A4]									A							
	R5083	RES_402	m78[50A1]	R7116	RES_402	m78[71B4]	R8500	RES_402	m78[85C7]	U9501	VR5400	m78[95C2]				R5084	RES_402	m78[50A1]	R7117	RES_402	m78[71B5]	R8501	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]																
	R5086	RES_402	m78[50A1]	R7117	RES_402	m78[71B5]	R8503	RES_402	m78[85A4]	U9503	SHORT_SM	m78[95C3]				R5089	RES_402	m78[50A1]	R7118	RES_402	m78[71B5]	R8505	RES_402	m78[85C7]	U9503	SHORT_SM	m78[95C3]																
	R5087	RES_402	m78[50B1]	R7118	RES_402	m78[71B5]	R8507	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]				R5090	RES_402	m78[50B1]	R7119	RES_402	m78[71C8]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]																
	R5088	RES_402	m78[50A1]	R7119	RES_402	m78[71C8]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]				R5092	RES_402	m78[50B1]	R7120	RES_402	m78[71D7]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]																
	R5090	RES_402	m78[50B1]	R7120	RES_402	m78[71D7]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]				R5091	RES_402	m78[50B1]	R7121	RES_402	m78[71D7]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]																
	R5091	RES_402	m78[50B1]	R7121	RES_402	m78[71D7]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]				R5092	RES_402	m78[50B1]	R7122	RES_402	m78[71A4]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]																
	R5092	RES_402	m78[50B1]	R7122	RES_402	m78[71A4]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]				R5093	RES_402	m78[50B1]	R7123	RES_402	m78[71A4]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]																
	R5093	RES_402	m78[50B1]	R7123	RES_402	m78[71A4]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]				R5094	RES_402	m78[50B1]	R7124	RES_402	m78[71C8]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]																
	R5094	RES_402	m78[50B1]	R7124	RES_402	m78[71C8]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]				R5096	RES_402	m78[50B1]	R7125	RES_402	m78[71C7]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]																
A	R5190	RES_402	m78[51B2]	R7130	RES_402	m78[71B4]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]	A			R5191	RES_402	m78[51C3]	R7131	RES_402	m78[71B4]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]													A			
	R5192	RES_402	m78[51C4]	R7140	RES_402	m78[71B1]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]				R5192	RES_402	m78[51C4]	R7141	RES_402	m78[71C1]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]																
	R5200	RES_402	m78[52D7]	R7141	RES_402	m78[71C1]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]				R5200	RES_402	m78[52D7]	R7142	RES_402	m78[71D4]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]																
	R5201	RES_402	m78[52D7]	R7142	RES_402	m78[71D4]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[95C3]				R5201	RES_402	m78[52D7]	R7143	RES_402	m78[71C4]	R8509	RES_402	m78[85C5]	U9503	SHORT_SM	m78[