

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

REV	ZONE	ECN	DESCRIPTION OF CHANGE	CK APPD	ENG APPD
				DATE	DATE
C		511257	PRODUCTION RELEASED	06/13/07	?

6/13/2007

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75	75	Cross Reference Page			
76	76	Cross Reference Page			
77	77	Cross Reference Page			
78	78	Cross Reference Page			
79	79	Cross Reference Page			

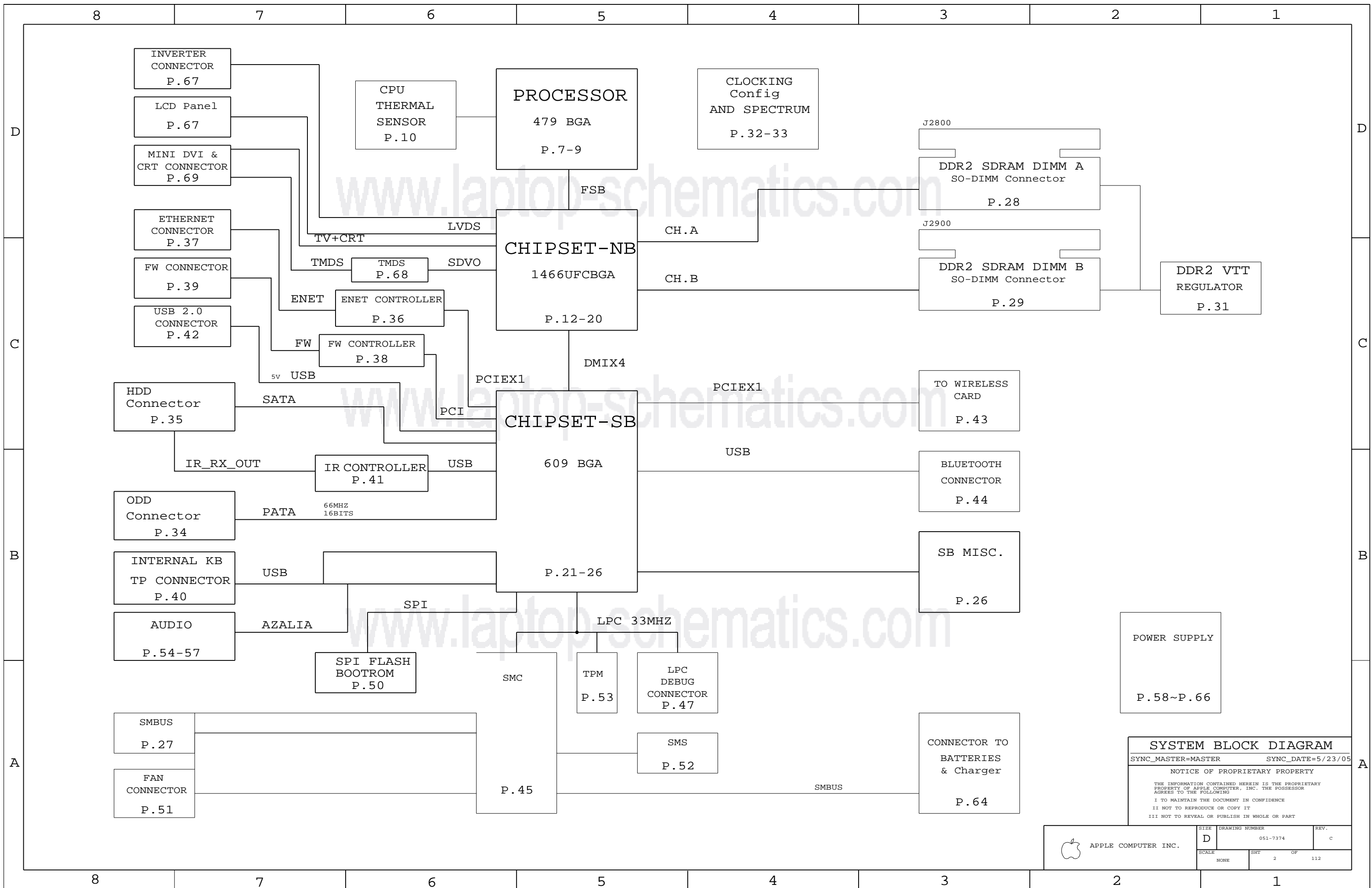
POST-PVT RJ45 EB W/ LOCKED BOOTROM

EE DRIS:
 RX-RAYMOND XU
 DK-DINESH KUMAR
 RC-RAY CHANG
 MK-MARC KLINGELHOFER
 LT-LAWRENCE TAN
 LD-LINDA DUNN

Schematic / PCB #'s

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
051-7374	1	SCHEM, M42B, MLB NO_LDO	SCH	
820-1889	1	PCBF, M42, MLB NO_LDO	PCB	

DIMENSIONS ARE IN MILLIMETERS		METRIC		Apple Computer Inc.	
XX :	_____	DRAPTER	/	DESIGN CK	/
X.XX :	_____	ENG APPD	/	MFG APPD	/
X.XXX :	_____	QA APPD	/	DESIGNER	/
ANGLES :	_____	RELEASE	/	SCALE	NONE
DO NOT SCALE DRAWING		MATERIAL/FINISH NOTED AS APPLICABLE		SIZE	D
THIRD ANGLE PROJECTION		DRAWING NUMBER		051-7374	REV. C
		SHEET		1	OF 112



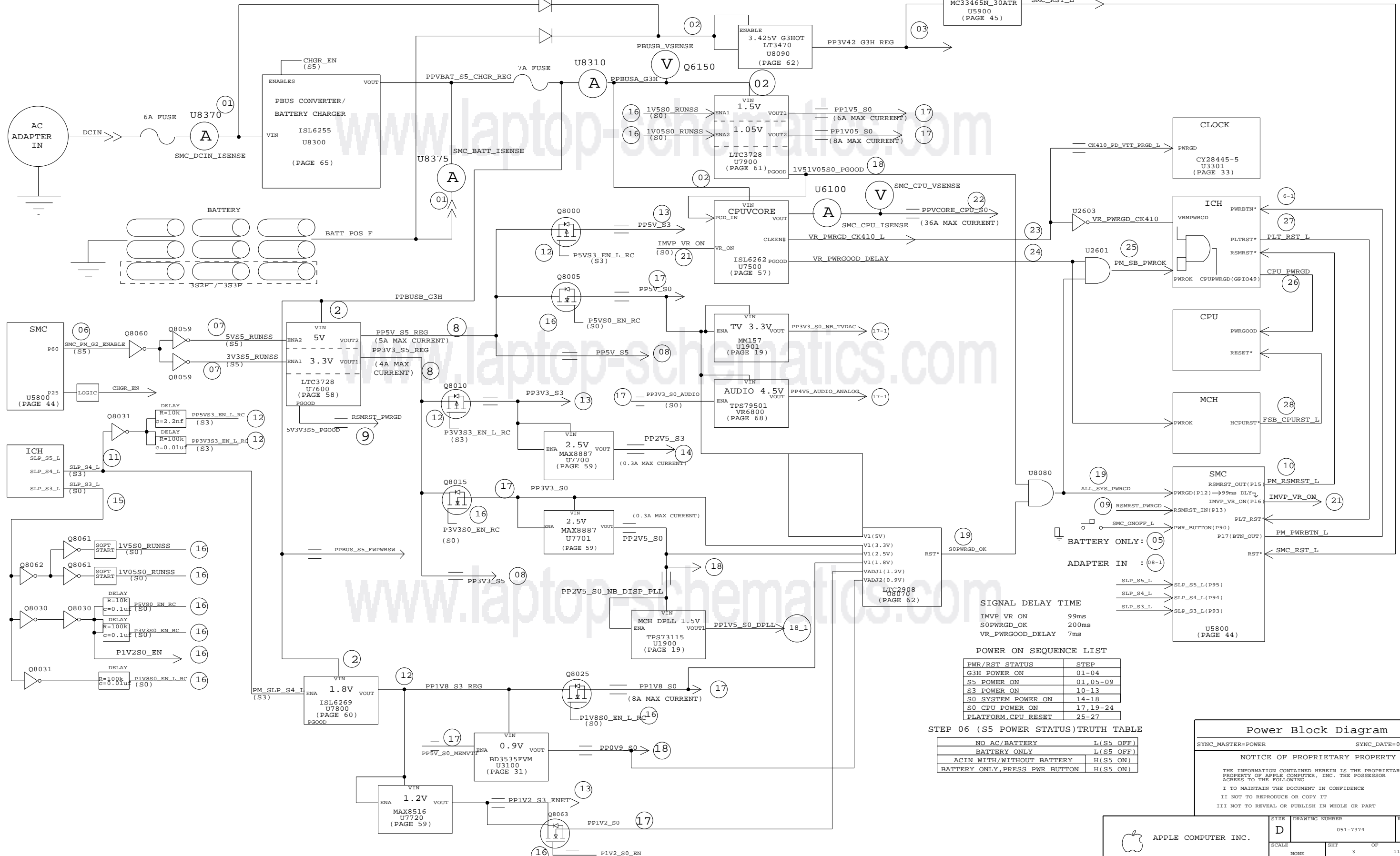
SYSTEM BLOCK DIAGRAM
 SYNC_MASTER=MASTER SYNC_DATE=5/23/05
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	c
SCALE	SHT	OF	112
NONE	2		

M42B POWER SYSTEM ARCHITECTURE

D
C
B
A

D
C
B
A



SIGNAL DELAY TIME

IMVP_VR_ON	99ms
SOPWRGD_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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BOARD STACK-UP AND CONSTRUCTION

Top	SIGNAL	MLB	STACKUP
2	GROUND	LAYER	THICKNESS (MM) TRACE WIDTH (MM)
3	SIGNAL(High Speed)	CONFORMAL_COAT	0.018
4	SIGNAL(High Speed)	L1 SIGNAL(TOP)	0.047 0.1
5	GROUND	L1-L2	0.07
6	POWER	L2 GROUND	0.014 ---
7	POWER	L2-L3	0.076
8	GROUND	L3 SIGNAL	0.014 0.079
9	SIGNAL(High Speed)	L3-L4	0.156
10	SIGNAL(High Speed)	L4 SIGNAL	0.014 0.079
11	GROUND	L4-L5	0.076
BOTTOM	SIGNAL	L5 GND	0.014 ---
		L5-L6	0.07
		L6 POWER	0.031 ---
		L6-L7	0.076
		L7 POWER	0.031 ---
		L7-L8	0.07
		L8 GROUND	0.014 ---
		L8-L9	0.076
		L9 SIGNAL	0.014 0.1
		L9-L10	0.156
		L10 SIGNAL	0.014 0.1
		L10-L11	0.076
		L11 GROUND	0.014 0.1
		L11-L12	0.07
		L12 SIGNAL(BOTTOM)	0.047 0.1
		CONFORMAL_COAT	0.018
		TOTAL	1.276 ---

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
337S3389	1	IC, MEMROM, CPU 2.0GHZ, 479 PGA	U0700	GOOD
337S3391	1	IC, MEMROM, CPU 2.16GHZ, 479 PGA	U0700	BETTER
337S3391	1	IC, MEMROM, CPU 2.16GHZ, 479 PGA	U0700	BEST

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
338S0268	1	IC, FW32306, 1394A LINK, BGA, 129P	U4400	LEMENU
338S0270	1	IC, 88E8053, GIGABIT ENET XCVR, 64P QFN, NO	U4101	LEMENU
359S0109	1	IC, SLAGELP436, CLOCK GEN, 68PIN QFN	U3301	LEMENU

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
341S2132	1	IC, 16MBIT 8-PIN SPI SERIAL FLASH, 802CB	U6301	M42A_PGM
341S1797	1	IC, EEPROM, SERIAL, 1IC, 8KBIT, 808	U4102	M42A_PGM
341S2133	1	IC, SMC, 176P BGA, MS8/2116	U5800	M42A_PGM
341S1890	1	IC, PSOC-W/USB, 56P, MLF, CY8C24794	U5100	M42A_PGM

341S2132 FOR M42B LOCKED BOOTROM, 341S2131 FOR UNLOCKED

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
826-4393	1	LBL, P/N LABEL, PCB, 28MMX6MM	EEE:YNV	CRITICAL	BEST-KIONIX
826-4393	1	LBL, P/N LABEL, PCB, 28MMX6MM	EEE:YNU	CRITICAL	BETTER-KIONIX
826-4393	1	LBL, P/N LABEL, PCB, 28MMX6MM	EEE:YNT	CRITICAL	GOOD-KIONIX

CONFIGURATION OPTIONS

SYNC_MASTER=SMC SYNC_DATE=07/18/2005

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	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	4	112	

Functional Test Points

Power Supply NO_TESTs

NO_TEST	TEST	VALUE	LOC
	IMVP6 RBIAS		58A4 58B7
	IMVP6 COMP		58A4 58B7
	5VS5_RUNSS		5984 6307
	1V5S0_RUNSS		6285 6387
	1V8S3_COMP		6186
	1V8S3_FSET		6106
	TRUE 3V3S5_COMP		
	TRUE 3V3S5_FSET		
	TRUE 1V05S0_COMP		
	TRUE 1V05S0_FSET		
	TRUE P3V42G3H_FB		6302

CLOCK NO_TESTS

NO_TEST	TEST	VALUE	LOC
	TRUE CK410_CPU0_N		3204 3305
	TRUE CK410_CPU0_P		3204 3305
	TRUE CK410_CPU1_N		3204 3305
	TRUE CK410_CPU1_P		3204 3305
	TRUE CK410_CPU2_ITP_SRC10_N		3204 3305
	TRUE CK410_CPU2_ITP_SRC10_P		3204 3305
	TRUE CK410_DOT96_27M_N		3204 3305
	TRUE CK410_DOT96_27M_P		3204 3305
	TRUE CK410_LVDS_N		3204 3305
	TRUE CK410_LVDS_P		3204 3305
	TRUE CK410_PCI4_CLK_SPN		
	TRUE CK410_PCIF1_CLK		3206 3306
	TRUE CK410_SRC1_N_SPN		683
	TRUE CK410_SRC1_P_SPN		683
	TRUE CK410_SRC2_N		3204 3305
	TRUE CK410_SRC2_P		3204 3305
	TRUE CK410_SRC3_N_SPN		683
	TRUE CK410_SRC3_P_SPN		683
	TRUE CK410_SRC4_N		3204 3305
	TRUE CK410_SRC4_P		3204 3305
	TRUE CK410_SRC5_N		3204 3305
	TRUE CK410_SRC5_P		3204 3305
	TRUE CK410_SRC6_N		3204 3305
	TRUE CK410_SRC6_P		3204 3305
	TRUE CK410_SRC7_N_SPN		683
	TRUE CK410_SRC7_P_SPN		683
	TRUE CK410_SRC8_N		3204 3305
	TRUE CK410_SRC8_P		3204 3305
	TRUE CK410_SRC_CLKREQ01_L_SPN		683
	TRUE CK410_SRC_CLKREQ03_L_SPN		683
	TRUE CK410_SRC_CLKREQ08_L		3204 3305

FIREWARE NO_TESTS

NO_TEST	TEST	VALUE	LOC
	TRUE FW_B_TPA_N_SPN		601
	TRUE FW_B_TPA_P_SPN		601
	TRUE FW_B_TPBIAS_SPN		601
	TRUE FW_B_TPB_N_SPN		601
	TRUE FW_B_TPB_P_SPN		601
	TRUE FW_C_TPA_N_SPN		601
	TRUE FW_C_TPA_P_SPN		601
	TRUE FW_C_TPBIAS_SPN		601
	TRUE FW_C_TPB_N_SPN		601
	TRUE FW_C_TPB_P_SPN		601

LVDS NO_TESTS

NO_TEST	TEST	VALUE	LOC
	TRUE LVDS_B_CLK_N_SPN		605
	TRUE LVDS_B_CLK_P_SPN		605
	TRUE LVDS_B_DATA_N0_SPN		605
	TRUE LVDS_B_DATA_N1_SPN		605
	TRUE LVDS_B_DATA_N2_SPN		605
	TRUE LVDS_B_DATA_P1_SPN		605
	TRUE LVDS_B_DATA_P2_SPN		605

ETHERNET NO_TESTS

NO_TEST	TEST	VALUE	LOC
	TRUE ENET_MDI_TRAN_P<2>		3785
	TRUE ENET_MDI_TRAN_N<2>		3785
	TRUE ENET_MDI_TRAN_P<3>		3785

NO_TEST	TEST	VALUE	LOC
	TRUE SMC_FAN_3_TACH		4588 4603
	TRUE ALS_LEFT		4548 4603

Fan Connectors

FUNC_TEST	TEST	VALUE	LOC
	TRUE =PP5V_S0_FAN_RT		5104 6403
	TRUE FAN_RT_PWM		5183
	TRUE FAN_RT_TACH		5103
	TRUE =PP3V3_S0_FAN_RT		5104 6404
	TRUE SMC_FAN_1_CTL		4588 5184
	TRUE SMC_FAN_1_TACH		4588 5104

LPC+ Debug Connector

FUNC_TEST	TEST	VALUE	LOC
	TRUE =PP3V42_G3H_LPCPLUS		4706 6401
	TRUE =PP5V_S0_LPCPLUS		4706 6403
	TRUE LPC_AD<0>		3104 4508 4706 5306
	TRUE LPC_AD<1>		3104 4508 4706 5306
	TRUE LPC_FRAME_L		3105 4508 4706 5306
	TRUE PM_CLKRUN_L		2308 38A5 4506 4706
	TRUE BOOT_LPC_SPI_L		3104
	TRUE SMC_TMS		4585 4606 4706
	TRUE DEBUG_RST_L		3081 4706
	TRUE SMC_TRST_L		4501 4706
	TRUE SMC_TDO		4505 4606 4786
	TRUE SMC_MD1		4502 4786
	TRUE SMC_TX_L		4508 4682 4606 4786
	TRUE FWH_INIT_L		682 2104 4705
	TRUE PCI_CLK_PORT80_LPC		3306 4705
	TRUE LPC_AD<2>		3104 4508 4706 5306
	TRUE LPC_AD<3>		3104 4508 4706 5306
	TRUE INT_SERIRO		3308 4508 4706 5306
	TRUE PM_SUS_STAT_L		2308 4505 4603 4705
	TRUE SMC_TDI		4505 4606 4705
	TRUE SMC_TCK		4505 4606 4705
	TRUE SMC_RST_L		4503 4607 4705
	TRUE SMC_NMI		4501 4785
	TRUE SMC_RX_L		4508 4682 4606 4785
	TRUE SV_SET_UP		2386 2303 4785

Other Func Test Points

FUNC_TEST	TEST	VALUE	LOC
	TRUE =PP1V05_S0_REG		6281 6408
	SMBus FUNC_TEST		
	TRUE SMBUS_SMC_MLB_SCL		3705
	TRUE SMBUS_SMC_MLB_SDA		3785

FIREWIRE FUNC_TEST

	TRUE PPFW_SWITCH		3904
	SLEEP_LED_FUNC_TEST		
	TRUE SYS_LED_ANODE		3505 46A3

SMC FUNC_TEST

	TRUE SMC_LID		4004 4585 4606 65A8
	TRUE SMC_MANUAL_RST_L		4608
	TRUE SMC_CPU_VSENSE		4505 4881

Power Supply FUNC_TEST

	TRUE ALL_SYS_PWRGD		26A5 45D8 6381
	TRUE PPVCORE_CPU_S0		6407
	TRUE PP1V05_S0		6407
	TRUE PP1V5_S0		6407
	TRUE PP1V8_S0		6407
	TRUE PP2V5_S0		6487
	TRUE PP3V3_S0		6487
	TRUE PP5V_S0		6404
	TRUE PP1V2_S3		6404
	TRUE PP1V8_S3		6404
	TRUE PP2V5_S3		6404
	TRUE PP3V3_S3		6484
	TRUE PP5V_S3		6484
	TRUE PP3V3_S5		64A4
	TRUE PP5V_S5		64A4
	TRUE PP3V42_G3H		6403
	TRUE PPBUS_A_G3H		
	TRUE PPBUS_B_G3H		
	TRUE PP18V5_G3H		64C1
	TRUE PP0V9_S0		6407

Battery Digital Connector

FUNC_TEST	TEST	VALUE	LOC
	TRUE SMC_BS_ALRT_L		4505 4606 65A2
	TRUE SMBUS_BATT_SCL_F		6586
	TRUE SMBUS_BATT_SDA_F		65A6
	TRUE BATT_IN		
	TRUE BATT_POS		65A6
	TRUE BATT_NEG		65A6

Audio FUNC_TEST

	TRUE PP5V_S0_AUDIO_PWR		
	TRUE PP5V_S0_AUDIO		
	TRUE GND_AUDIO_PWR		6482
	TRUE GND_AUDIO_CODEC		6482
	TRUE ACZ_SDATIN<0>		2107 5407
	TRUE ACZ_SDATOUT		2107 5407
	TRUE ACZ_BITCLK		2107 5407
	TRUE ACZ_RST_L		2107 5407 5703
	TRUE ACZ_SYNC		2107 5407

Battery FUNC_TEST

	TRUE SMC_BATT_ISET		4585 6687
	TRUE SMC_BATT_CHG_EN		4508 4686 66A4
	TRUE SMC_BC_ACOK		4505 4686 65C3
	TRUE SMC_PS_ON		3905 4505 46A3
	TRUE SMC_BATT_TRICKLE_EN_L		4508 4686 66A3
	TRUE SYS_ONEWIRE		4588 4606 6508

USB FUNC_TEST

	TRUE TP_USBP_E		602
	TRUE TP_USBN_E		602
	TRUE TP_USBP_F		
	TRUE TP_USBN_F		

DC-JACK FUNC_TEST

	TRUE ACIN_ENABLE_GATE		6503
--	-----------------------	--	------

Battery charger FUNC_TEST

	TRUE PPVBAT_G3H_CHGR_OUT		6685 6602
--	--------------------------	--	-----------

INVERTER CONNECTOR FUNC_TEST

	TRUE PPBUS_ALL_INV_CONN		6703
	TRUE INV_GND		6703
	TRUE PP5V_INV_F		6703
	TRUE INV_BKLIGHT_PWM_L		6702

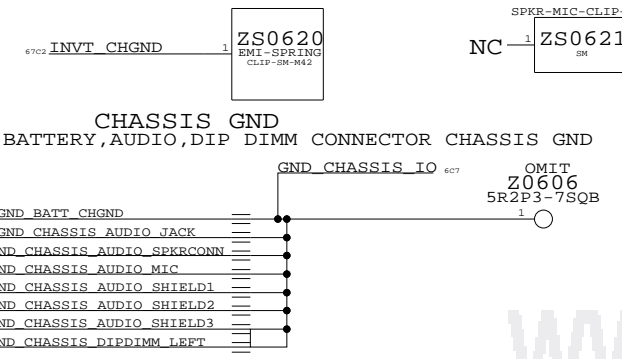
FUNC TEST 1 OF 2

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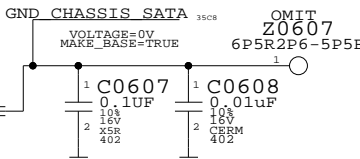
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	112
NONE	5		

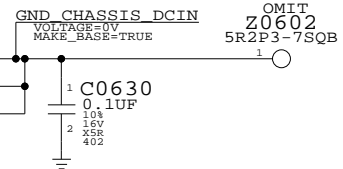
(EMI PAD FOR INVERTER CONNECTOR)



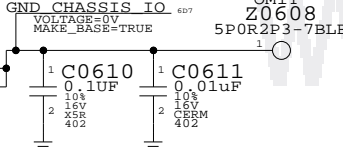
SATA, LVDS CONNECTOR CHASSIS GND



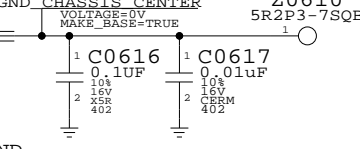
DCIN CONNECTOR CHASSIS GND



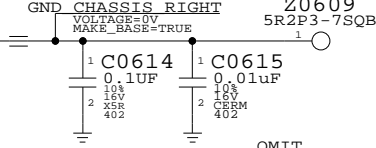
I/O CONNECTOR CHASSIS GND



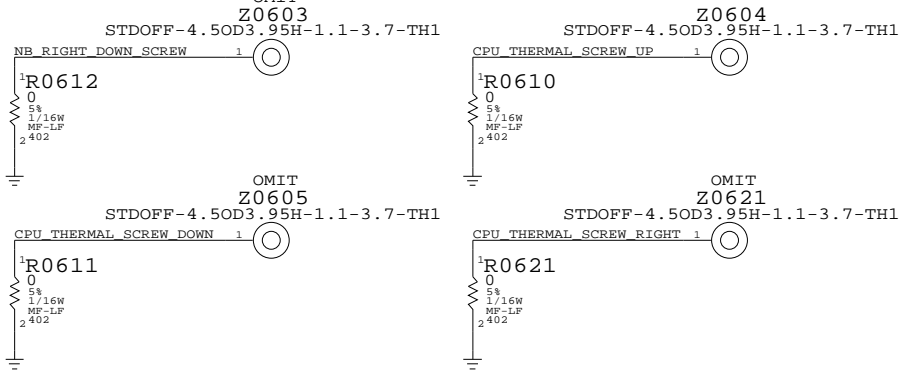
DIP DIMM CONNECTOR CHASSIS GND



DIP DIMM CONNECTOR CHASSIS GND



DIGITAL GND SCREW HOLE



LVDS ALIASES

Table listing LVDS aliases such as LVDS_B_CLK_N, LVDS_B_CLK_P, LVDS_B_DATA_N<0>, etc., with their corresponding SPIN and MAKE_BASE=TRUE values.

PCI EXPRESS GRAPHICS ALIASES

Table listing PCI Express graphics aliases including PEG_D2R_N<0>, PEG_D2R_N<1>, PEG_D2R_N<2>, etc., with their corresponding SPIN and MAKE_BASE=TRUE values.

NB CFG ALIASES

Table listing NB CFG aliases such as NB_CFG<3>, NB_CFG<4>, NB_CFG<6>, etc., with their corresponding TP_NB_CFG and MAKE_BASE=TRUE values.

FIREWIRE ALIASES

Table listing FireWire aliases such as FW_B_TPBias, FW_B_TPA_P, FW_B_TPA_N, etc., with their corresponding SPIN and MAKE_BASE=TRUE values.

SATA ALIASES

Table listing SATA aliases such as SATA_A_D2R_N, SATA_A_D2R_P, SATA_A_R2D_C_N, etc., with their corresponding SPIN and MAKE_BASE=TRUE values.

PCI_EXP ALIASES

Table listing PCI Express aliases including PCIE_C_D2R_N, PCIE_C_D2R_P, PCIE_C_R2D_C_N, etc., with their corresponding SPIN and MAKE_BASE=TRUE values.

CLOCK ALIASES

Table listing clock aliases such as CK410_SRC1_N, CK410_SRC1_P, CK410_SRC3_N, etc., with their corresponding SPIN and MAKE_BASE=TRUE values.

SB ALIASES

Table listing SB aliases such as SUS_CLK_SB, with their corresponding SPIN and MAKE_BASE=TRUE values.

SO-DIMM ALIASES

Table listing SO-DIMM aliases such as MEM_A_A<15>, MEM_A_A<14>, MEM_B_A<15>, etc., with their corresponding SPIN and MAKE_BASE=TRUE values.

Ethernet ALIASES

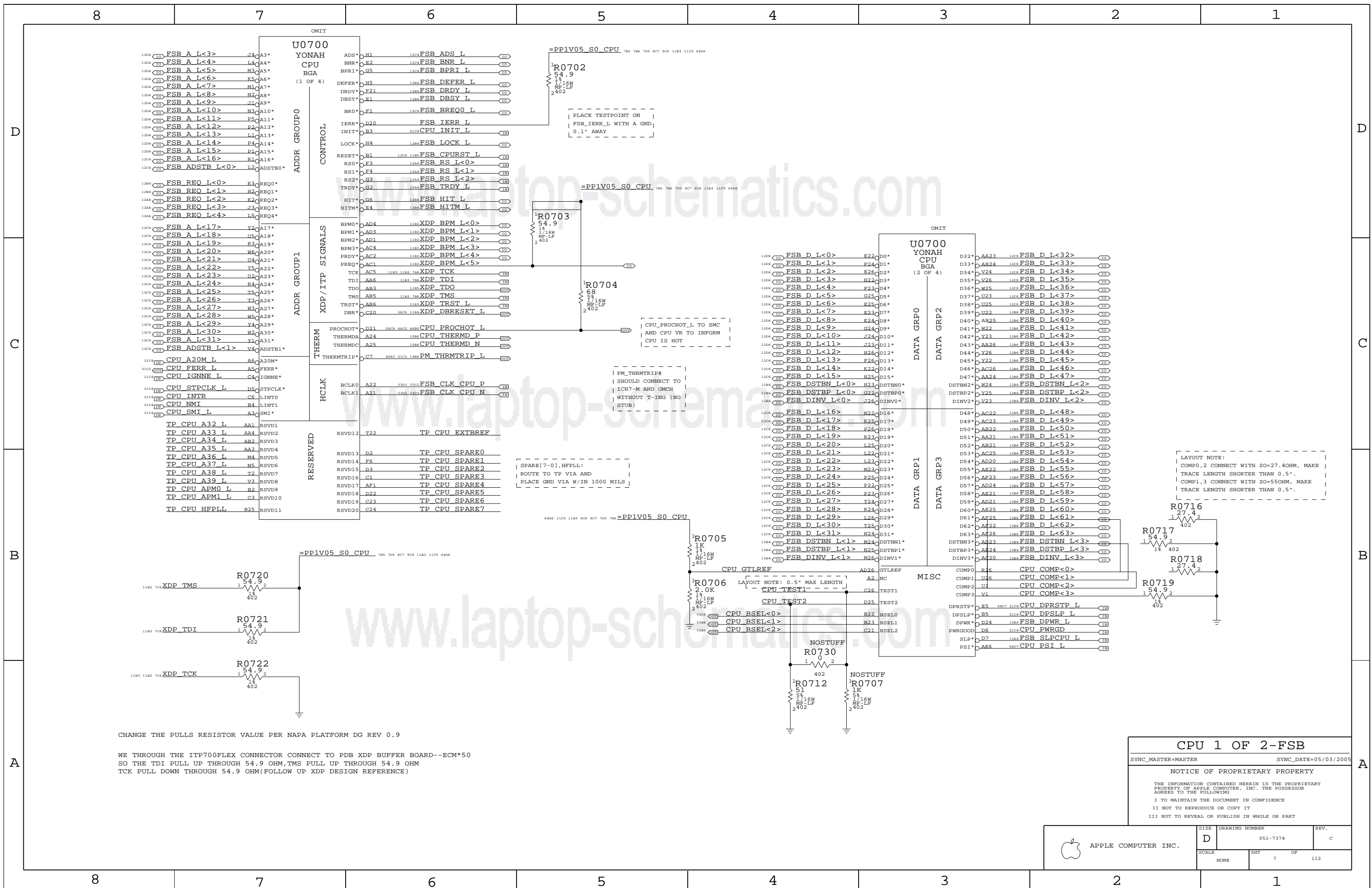
Table listing Ethernet aliases such as ENET_CTRL12, ENET_CTRL25, with their corresponding SPIN and MAKE_BASE=TRUE values.

Table with columns: PART#, QTY, DESCRIPTION, REFERENCE DESIGNATOR(S), BOM OPTION. Lists thermal standoffs Z0603, Z0604, Z0605, Z0621, Z0612, Z0613.

SIGNAL ALIAS /RESET

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Apple Computer Inc. logo and drawing information: DRAWING NUMBER 051-7374, SCALE NONE, SHEET 6 OF 112, REV. C.



CHANGE THE PULLS RESISTOR VALUE PER NAPA PLATFORM DG REV 0.9

WE THROUGH THE ITP700FLEX CONNECTOR CONNECT TO PDB XDP BUFFER BOARD--ECM*50 SO THE TDI PULL UP THROUGH 54.9 OHM, TMS PULL UP THROUGH 54.9 OHM TCK PULL DOWN THROUGH 54.9 OHM(FOLLOW UP XDP DESIGN REFERENCE)

CPU 1 OF 2-FSB

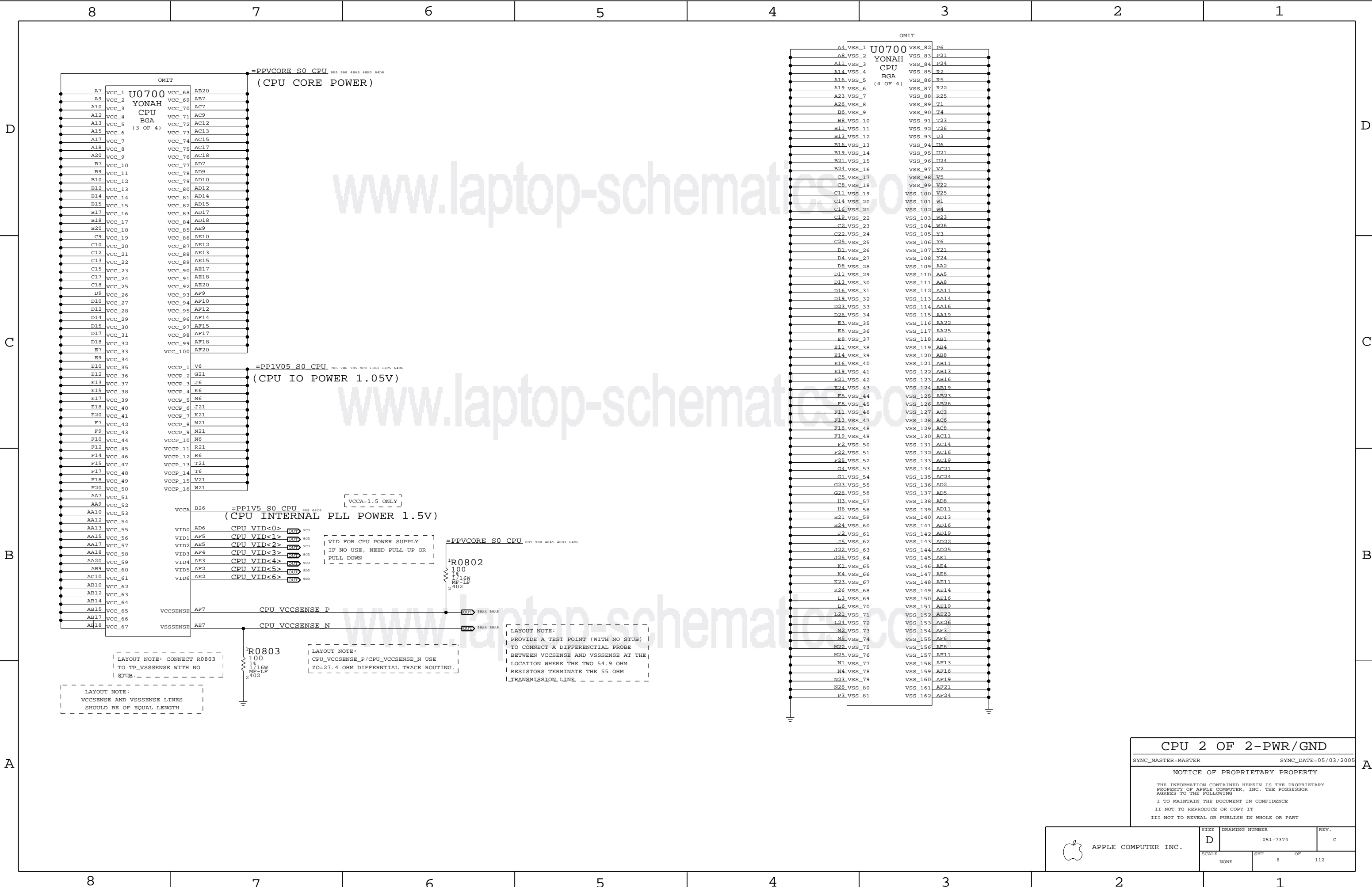
SYNC_MASTER=MASTER SYNC_DATE=05/03/2005

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	SCALE NONE	SHEET 7	OF 112



CPU 2 OF 2-PWR/GND

SYNC_MASTER=MASTER SYNC_DATE=05/03/2005

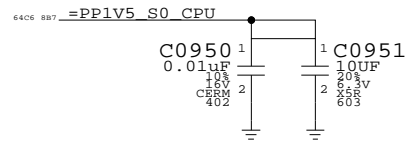
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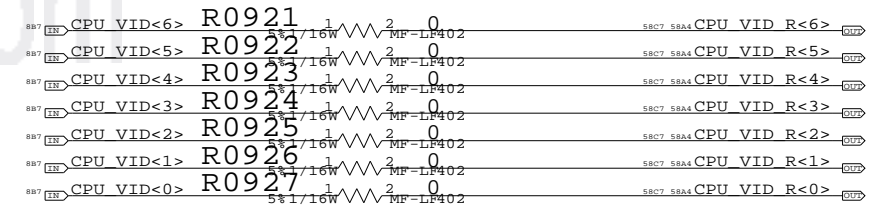
APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT		OF
NONE	8		112

VCCA DECOUPLING
(CPU INTERNAL PLL POWER 1.5V)



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CPU CORE VID<> SETTINGS

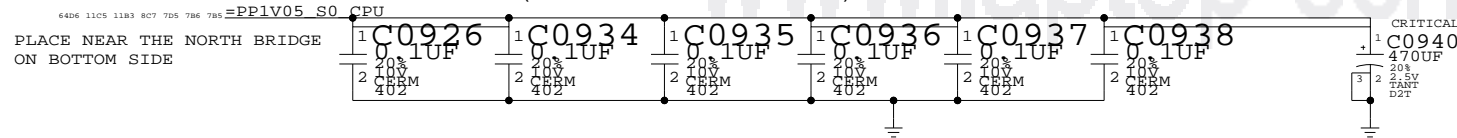


R0921~R0927 FOR CPU VOLTAGE MANUAL SETTING

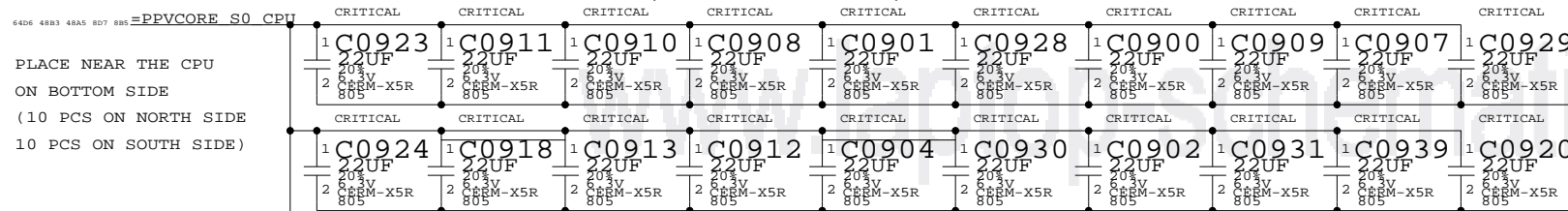
PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S0603	138S0602	?	ALL	USE SAMSUNG AND MURATA ONLY
138S0606	138S0602	?	ALL	USE TAIYO

VCCP CORE DECOUPLING
(CPU IO POWER 1.05V)

THIS 470UF FOR CPU, GMCH FSB BUS 1.05V



VCC CORE DECOUPLING
(CPU CORE POWER)



IF WE USE LOW ESL CAP, THEN WE CAN USE 20 PCS 22UF CAP

	MIN	TYP	MAX
DUAL CORE SV CPU	VCCHFM	1.1625	1.30
	VCCLFM	TBD	TBD
SINGLE CORE SV CPU	VCCHFM	1.1625	1.30
	VCCLFM		TBD
DUAL CORE LV CPU	VCCHFM	1.0	1.1625
	VCCLFM		TBD
ULV CPU	VCCHFM	TBD	TBD
	VCCLFM		TBD

UNIT: V

- # ALL PROCESSOR DEFAULT VCORE FOR INITIAL POWER UP IS 1.2V
- # TWO PROCESSORS AT THE SAME FREQUENCY MAY HAVE DIFFERENT SETTING WITH THE VID RANGE (VCORE VOLTAGE)!
- # REFER TO YONAH PROCESSOR EMTS REV 1.0
- # VCCHFM: VCORE AT HIGHEST FREQUENCY MODE
- # VCCLFM: VCORE AT LOWEST FREQUENCY MODE

CPU DECAPS & VID<>

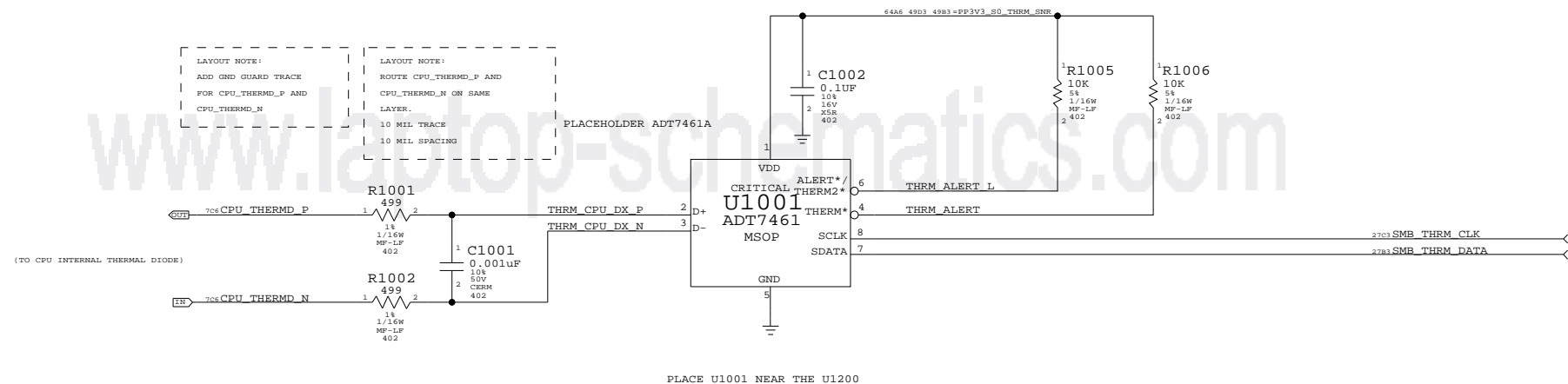
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SCALE	SHT	OF	REV.
NONE	9	112	

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CPU ZONE THERMAL SENSOR



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CPU MISC1-TEMP SENSOR
SYNC_MASTER=ENET SYNC_DATE=08/19/2005
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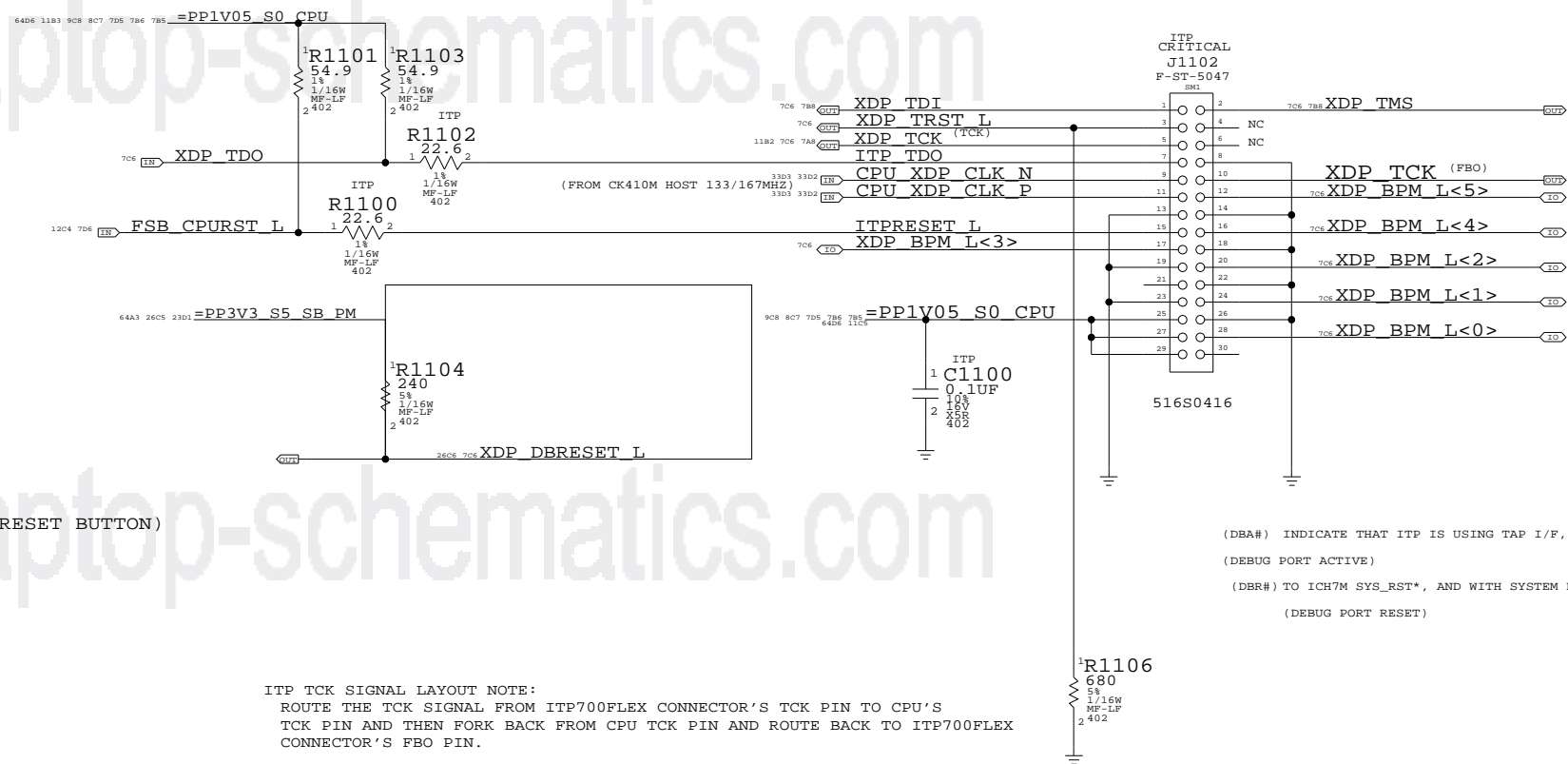
APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	c
SCALE	SHT	OF	REV.
NONE	10	112	

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CPU ITP700FLEX DEBUG SUPPORT

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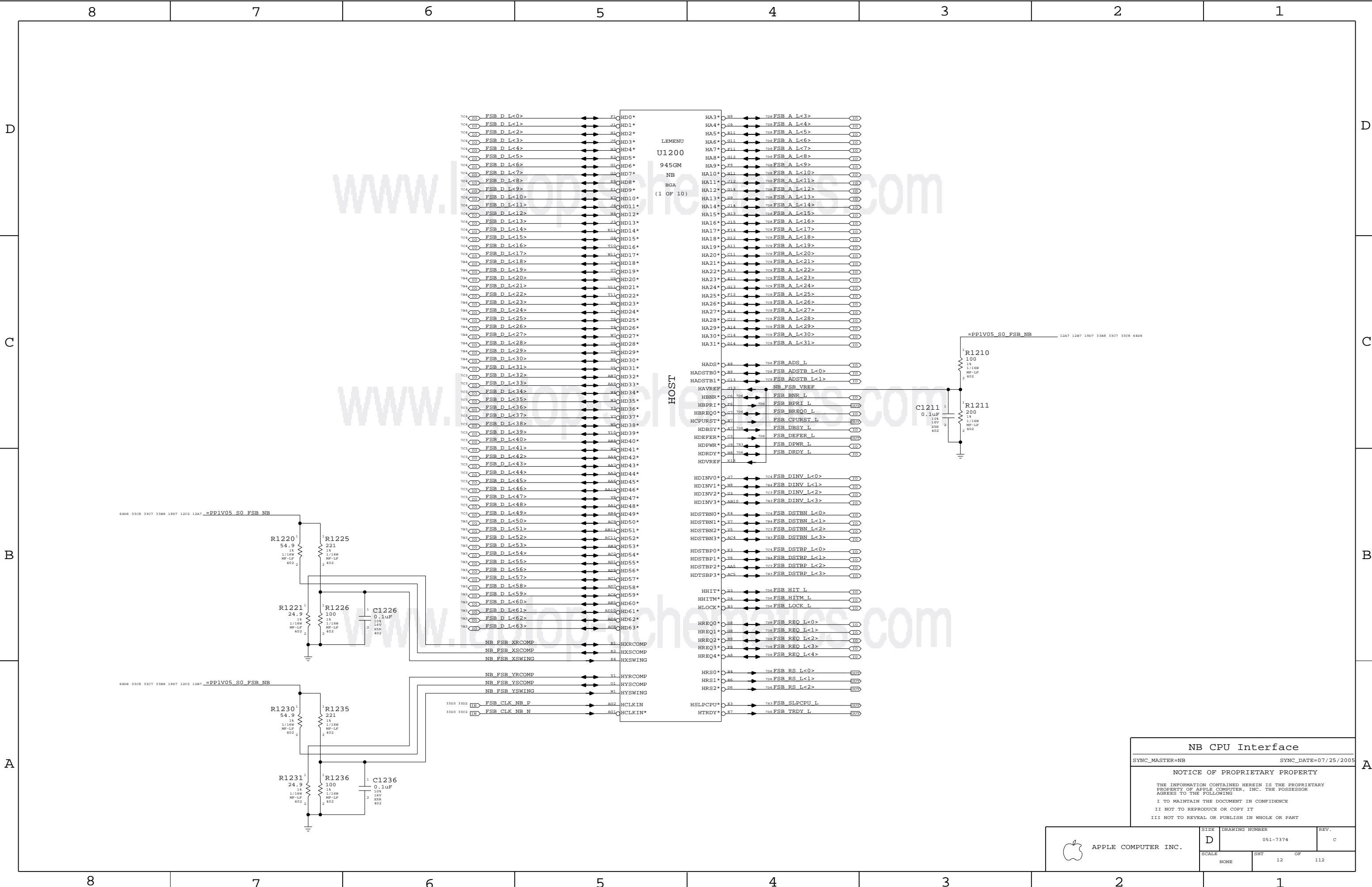
(AND WITH RESET BUTTON)

(DBA#) INDICATE THAT ITP IS USING TAP I/F, NC IN 945GM CHIPSET SYSTEM.
(DEBUG PORT ACTIVE)
(DBR#) TO ICH7M SYS_RST*, AND WITH SYSTEM RESET LOGIC
(DEBUG PORT RESET)

ITP TCK SIGNAL LAYOUT NOTE:
ROUTE THE TCK SIGNAL FROM ITP700FLEX CONNECTOR'S TCK PIN TO CPU'S
TCK PIN AND THEN FORK BACK FROM CPU TCK PIN AND ROUTE BACK TO ITP700FLEX
CONNECTOR'S FBO PIN.

CPU ITP700FLEX DEBUG		
SYNC_MASTER=MASTER	SYNC_DATE=5/23/05	
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	c
SCALE	SHT	OF	REV.
NONE	11	112	



NB CPU Interface

SYNC_MASTER=NB SYNC_DATE=07/25/2005

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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	c
SCALE	SHT	OF	REV.
NONE	12	112	

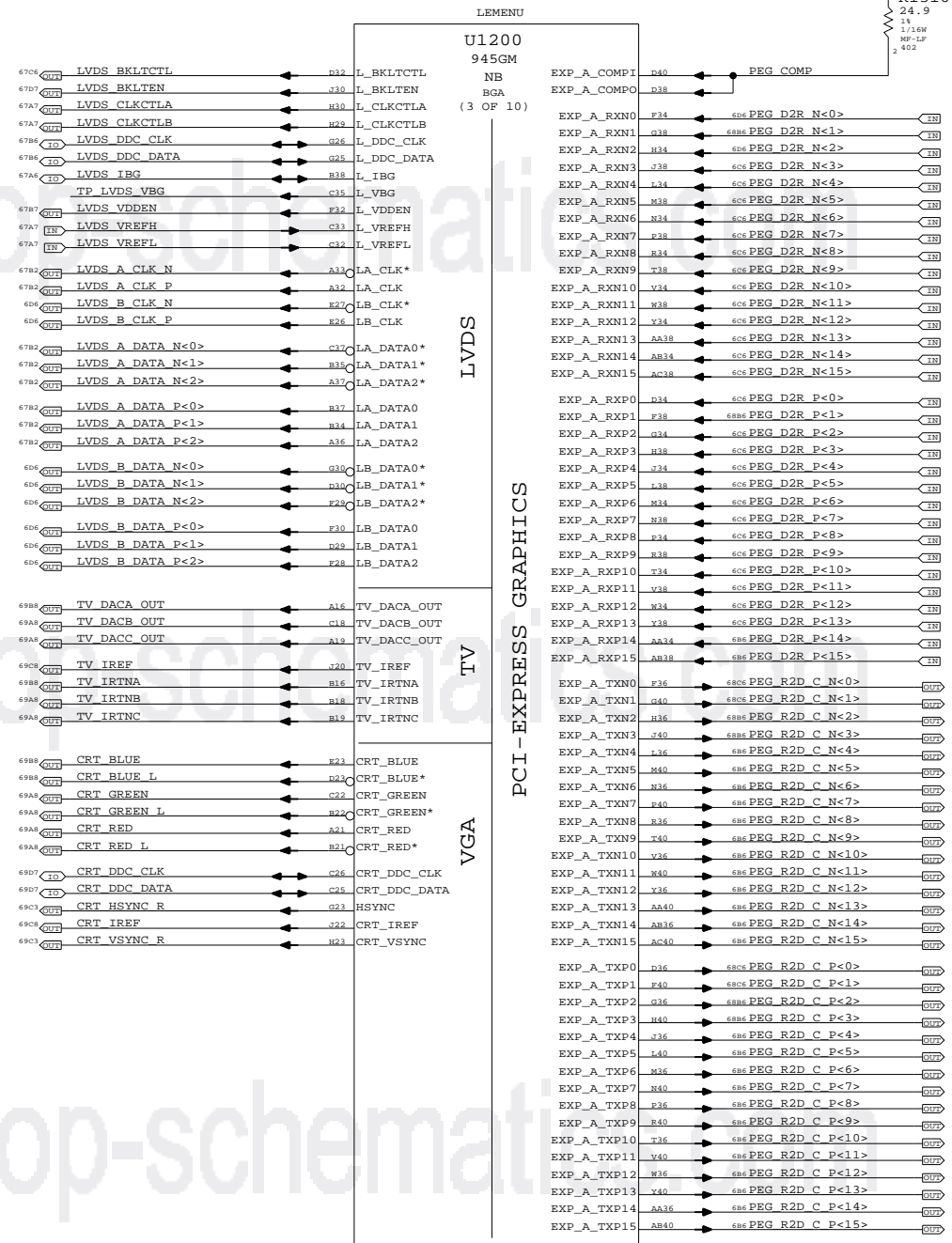
LVDS Disable
 Can leave all signals NC if LVDS is not implemented
 Tie VCC_TXLVDS and VCCA_LVDS to GND. If SDVO is used
 VCCD_LVDS must remain powered with proper decoupling.
 Otherwise, tie VCCD_LVDS to GND also.

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
 Tie DACx_OUT, IRTNx, and IREF to 1.5V power rail.
 Tie VCCD_TVDAC, VCCD_QTVDAC, VCCA_TVDACx, and
 VCCA_TVVBG to 1.5V power rail. Tie VSSA_TVVBG to GND.

CRT Disable
 Tie R/R#/G/G#/B/B# and IREF to VCC Core rail, tie
 HSYNC and VSYNC to GND. Tie VCCA_CRTDAC to VCC Core
 rail, and tie VSSA_CRTDAC and VCC_SYNC to GND.



SDVO Alternate Function

SDVO_TVCLKIN#
 SDVO_INT#
 SDVO_FLDSTALL#

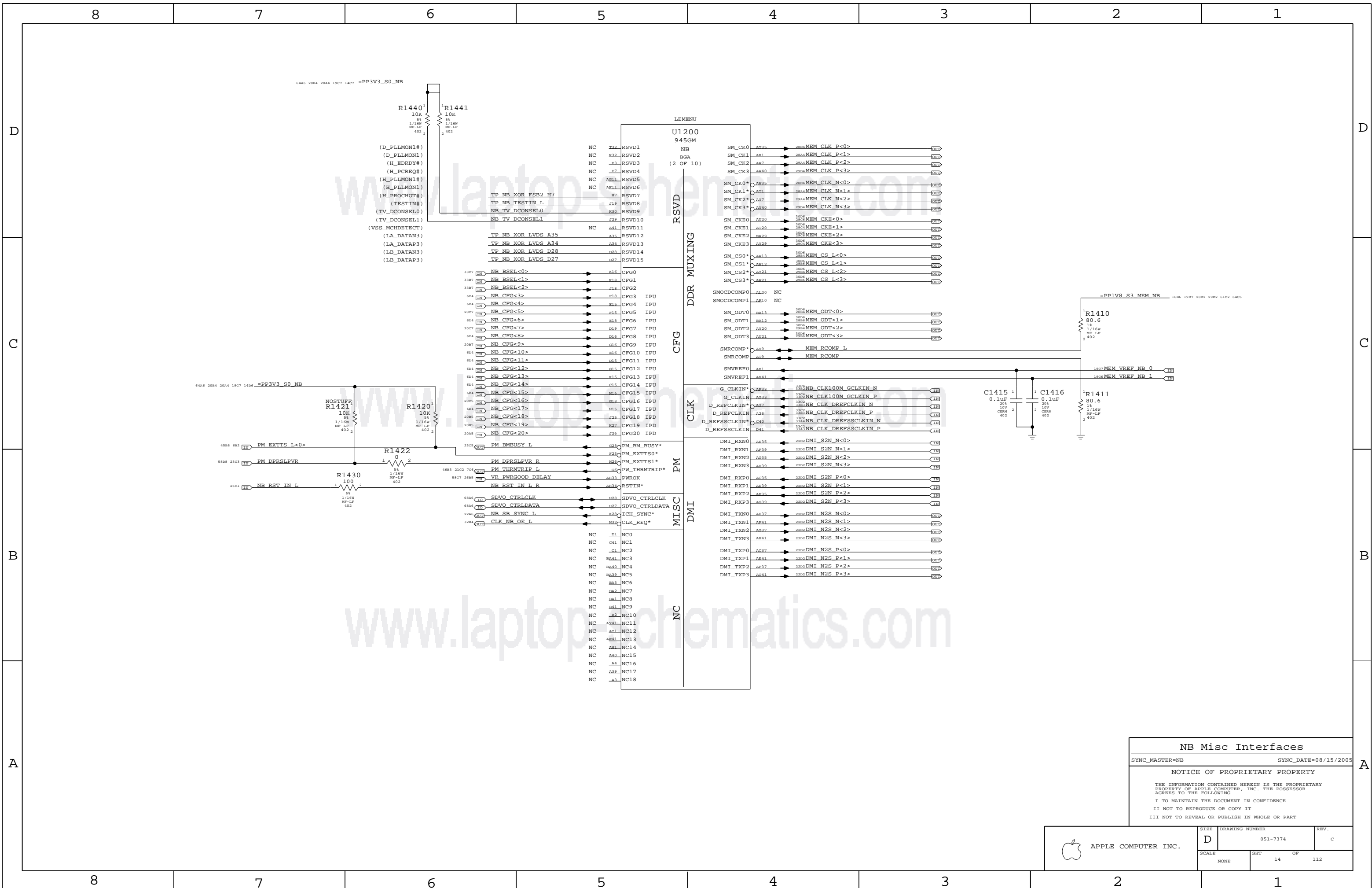
SDVO_TVCLKIN
 SDVO_INT
 SDVO_FLDSTALL

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=NB SYNC_DATE=07/25/2005
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	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	13	112	



NB Misc Interfaces

SYNC_MASTER=NB SYNC_DATE=08/15/2005

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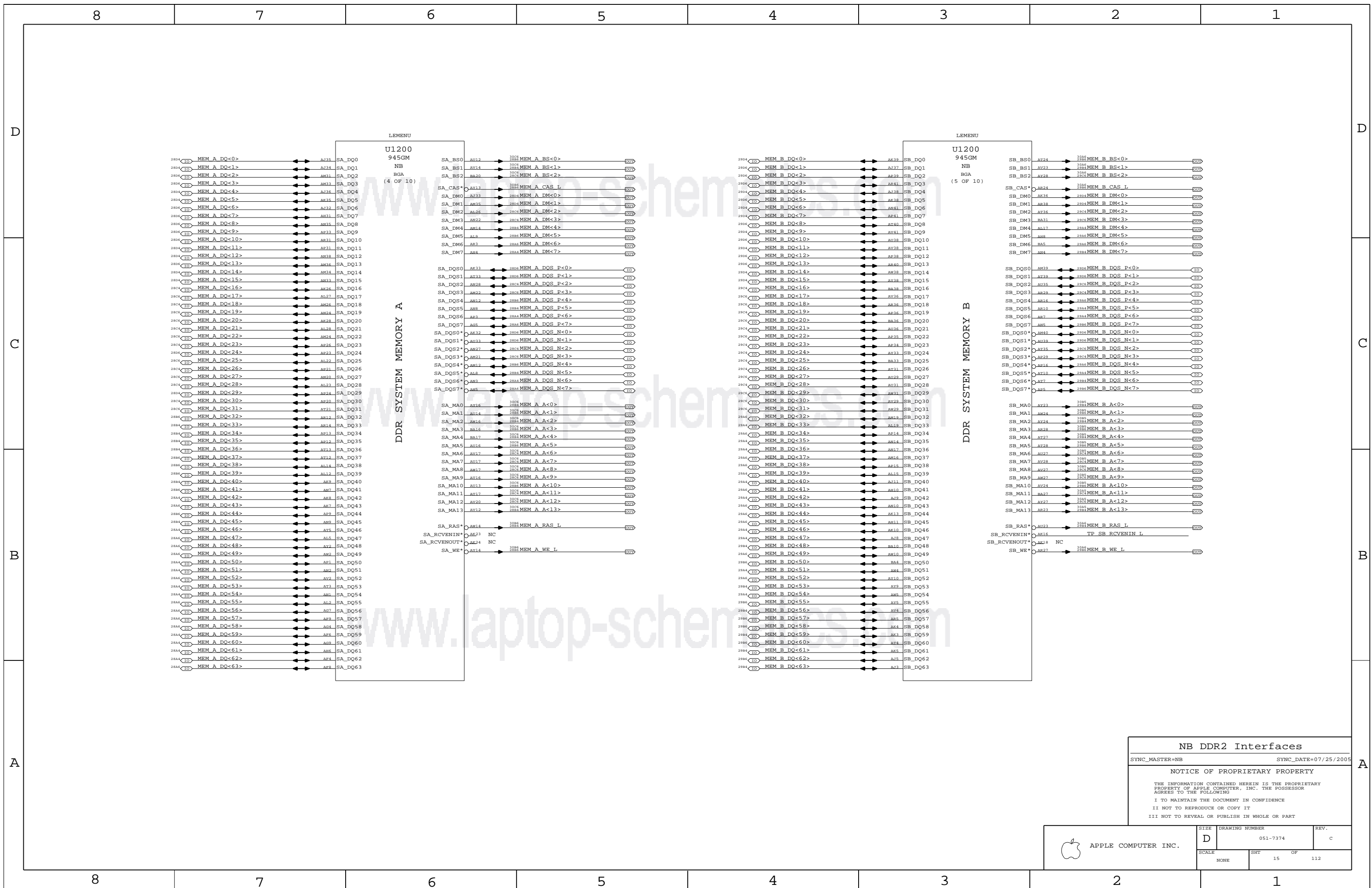
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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. C
	SCALE NONE	SHEETS 14	OF 112



NB DDR2 Interfaces

SYNC_MASTER=NB SYNC_DATE=07/25/2005

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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. c
	SCALE NONE	SHEET 15	OF 112

NCTF balls are Not Critical To Function

These connections can break without impacting part performance.

D

D

C

C

B

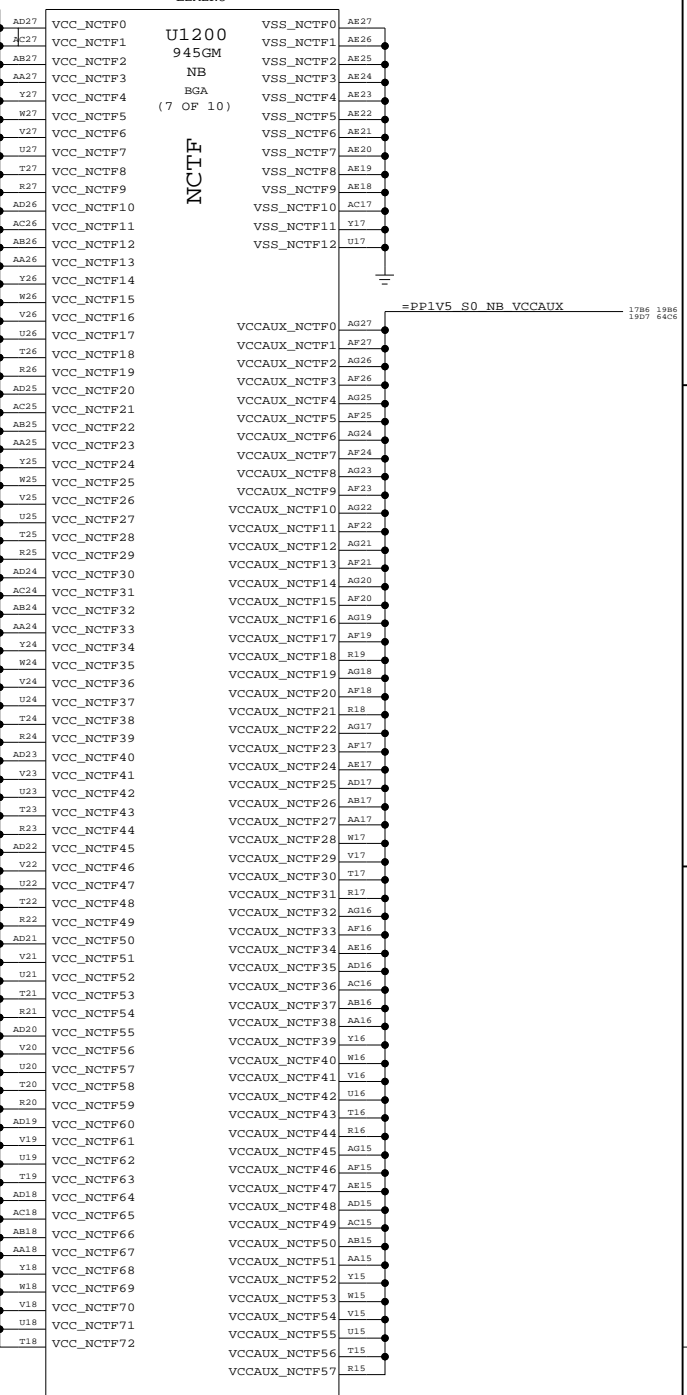
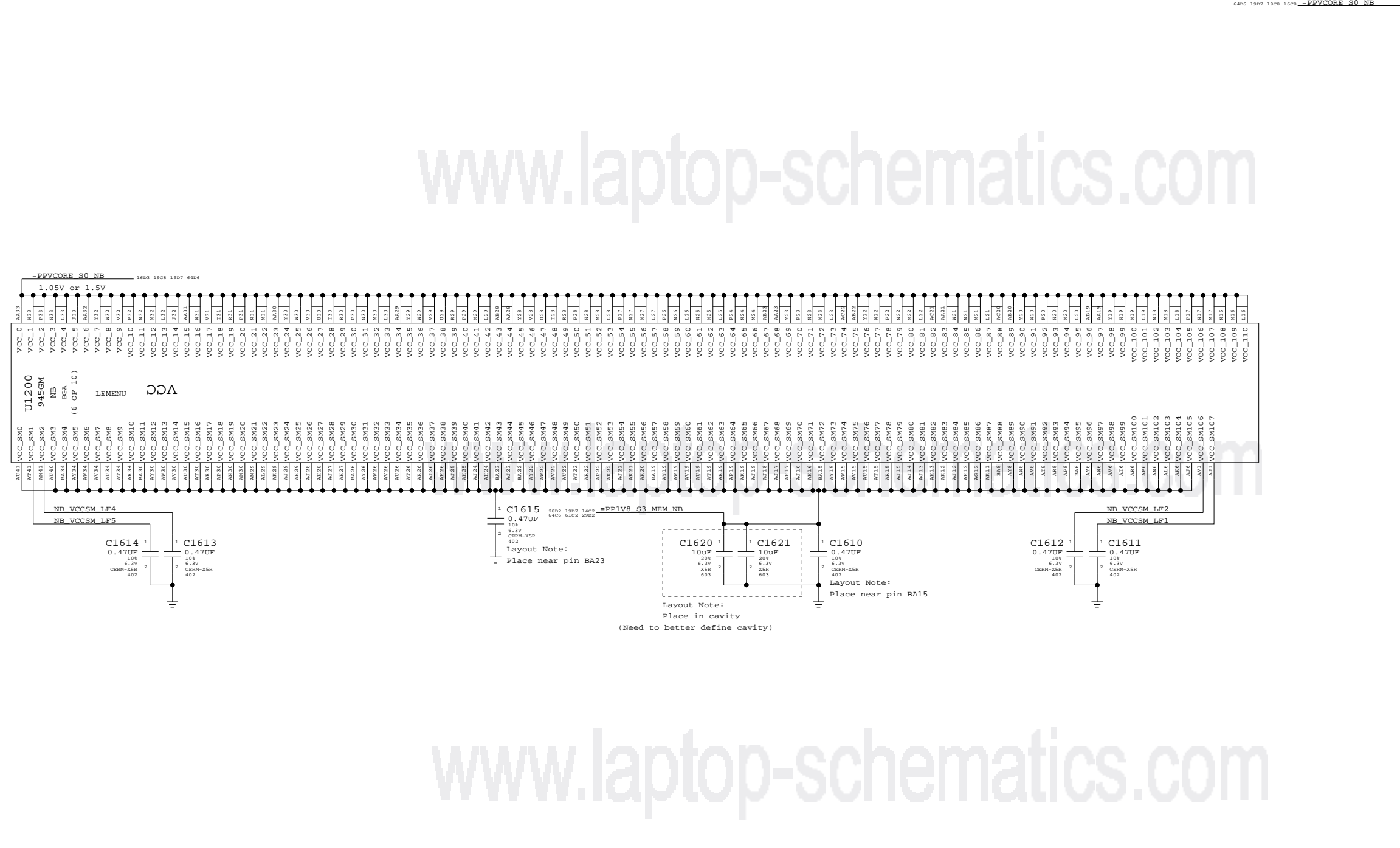
B

A

A

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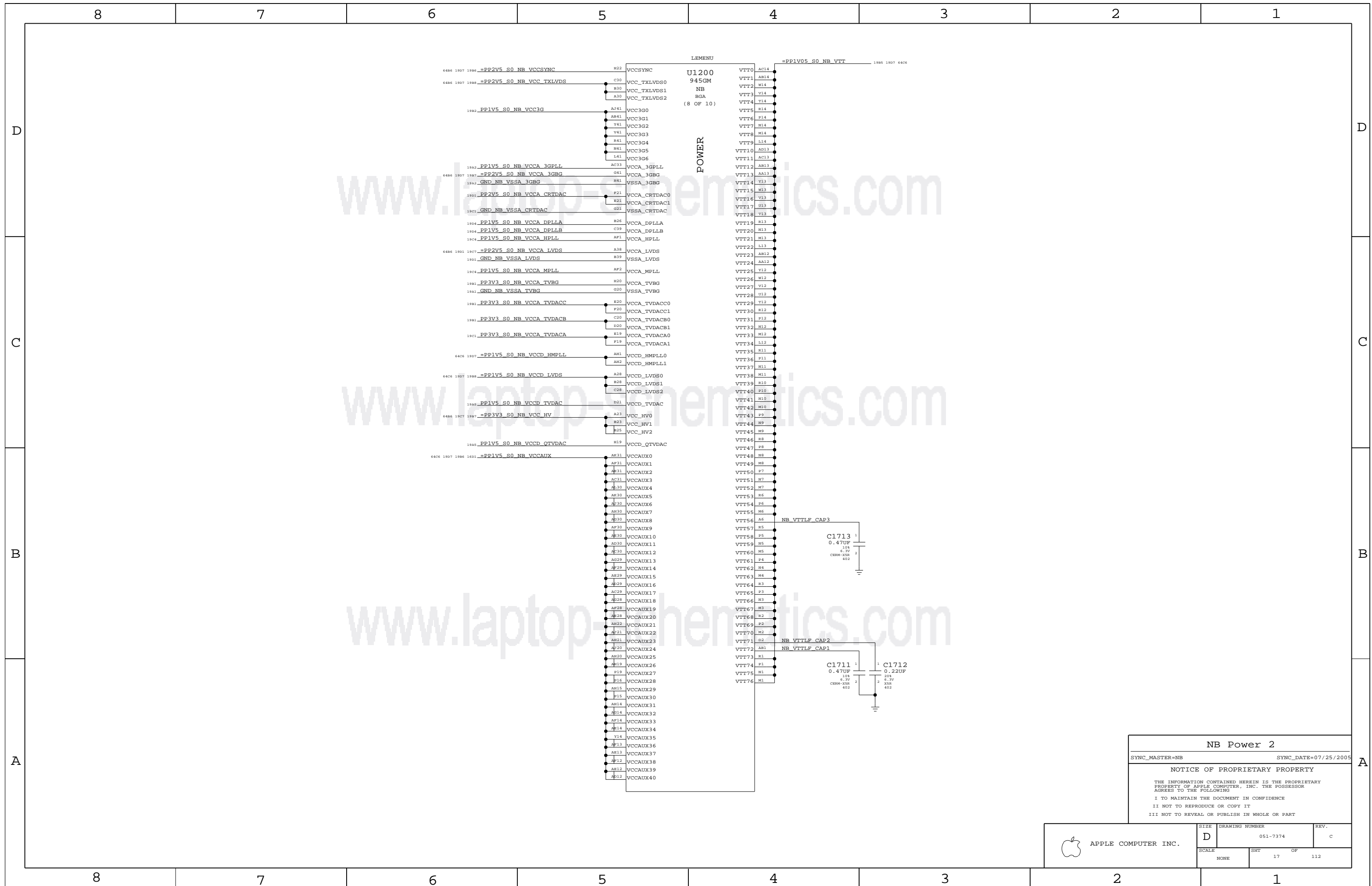
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NB Power 1
 SYNC_MASTER=NB SYNC_DATE=07/25/2005

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	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	16	112	



NB Power 2

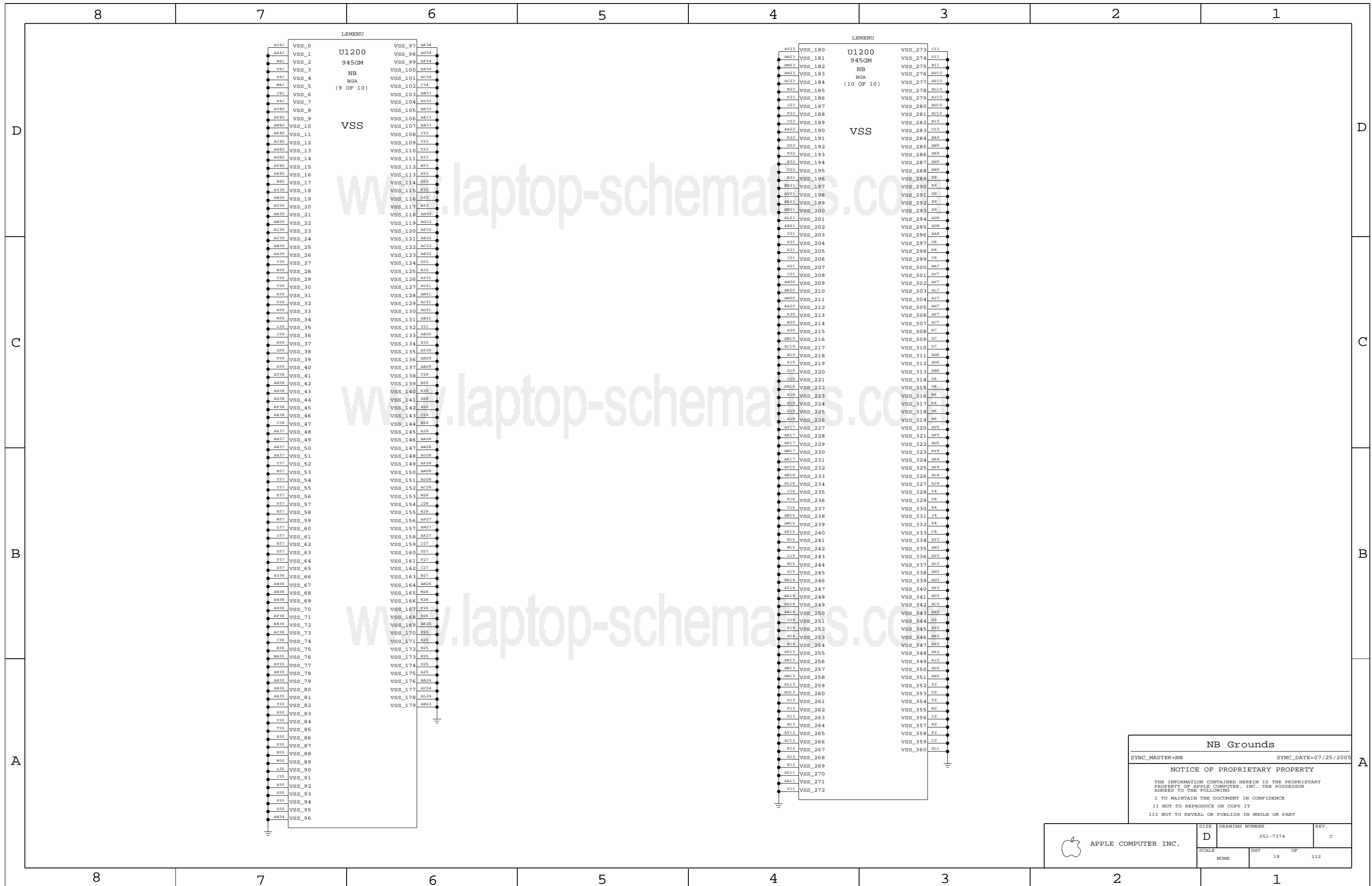
SYNC_MASTER=NB SYNC_DATE=07/25/2005

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	SCALE NONE	SHEET 17	OF 112



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NB Grounds

SYNC_MASTER=NB SYNC_DATE=07/25/2005

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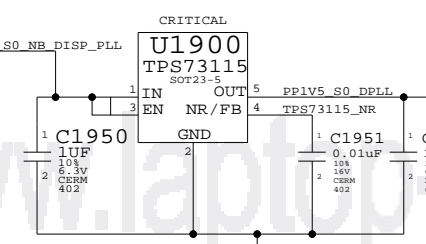
APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	c
SCALE	SHT	OF	REV.
NONE	18	112	

Power Interface

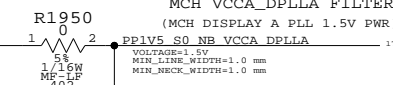
These are the power signals that leave the NB "block"

PP1V05_S0_FSB_NB	1287	1287	1202	3388	3307	3308	6406
PPVCORE_S0_NB	1608	1603	1808	6406			
PP1V05_S0_NB	1901	6406					
PP1V05_S0_NB_VTT	1703	1985	6406				
PP1V5_S0_NB	1901	6406					
PP1V5_S0_NB_PCIE	1302	6406					
PP1V5_S0_NB_PLL	1908	6406					
PP1V5_S0_NB_TV DAC	1988	6406					
PP1V5_S0_NB_VCCD_HMPLL	1706	6406					
PP1V5_S0_NB_VCCD_LVDS	1706	1988	6406				
PP1V5_S0_NB_VCCAUX	1601	1786	1986	6406			
PP1V8_S3_MEM_NB	1402	1686	2802	2902	6102	6406	
PP2V5_S0_NB_CRTDAC	1904	6486					
PP2V5_S0_NB_VCCSYNC	1706	1986	6486				
PP2V5_S0_NB_VCC_TXLVDS	1706	1988	6486				
PP2V5_S0_NB_VCCA_3GBG	1706	1987	6486				
PP2V5_S0_NB_VCCA_LVDS	1706	1901	6486				
PP3V3_S0_NB	1407	1406	20A4	2084	6486		
PP3V3_S0_NB_VCC_HV	1706	1987	6486				
PP5V_S0_NB_TV DAC	1904	6403					

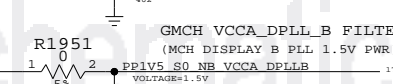
MCH DISPLAY PLL POWER LDO



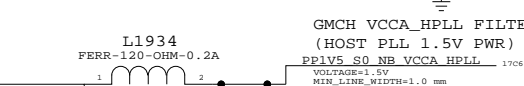
MCH VCCA_DPLLA FILTER
(MCH DISPLAY A PLL 1.5V PWR)



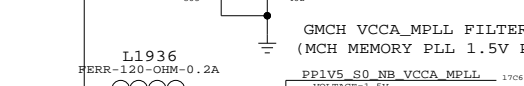
GMCH VCCA_DPLL_B FILTER
(MCH DISPLAY B PLL 1.5V PWR)



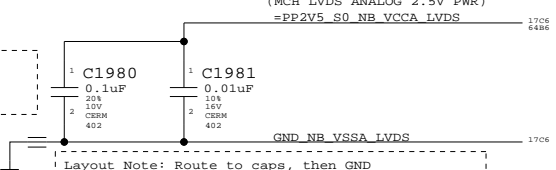
GMCH VCCA_HPLL FILTER
(HOST PLL 1.5V PWR)



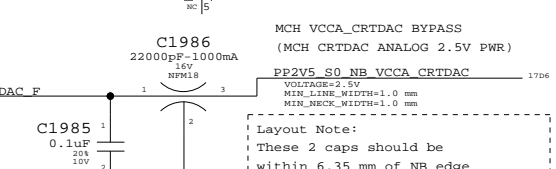
GMCH VCCA_MPLL FILTER
(MCH MEMORY PLL 1.5V PWR)



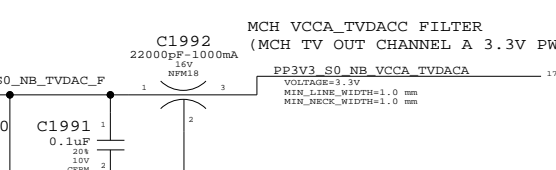
MCH VCCA_LVDS FILTER
(MCH LVDS ANALOG 2.5V PWR)



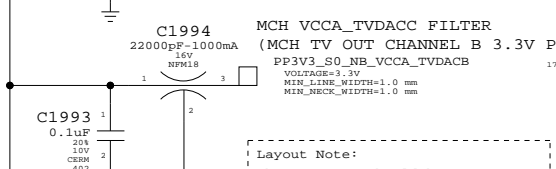
MCH VCCA_CRTDAC BYPASS
(MCH CRTDAC ANALOG 2.5V PWR)



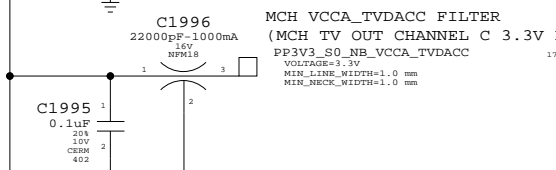
MCH VCCA_TV DAC FILTER
(MCH TV OUT CHANNEL A 3.3V PWR)



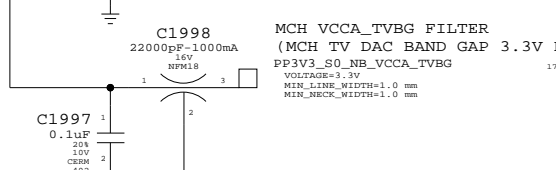
MCH VCCA_TV DAC FILTER
(MCH TV OUT CHANNEL B 3.3V PWR)



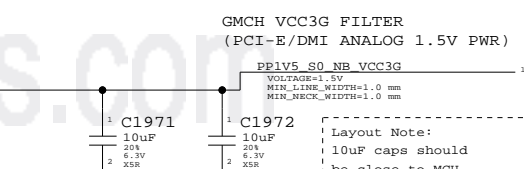
MCH VCCA_TV DAC FILTER
(MCH TV OUT CHANNEL C 3.3V PWR)



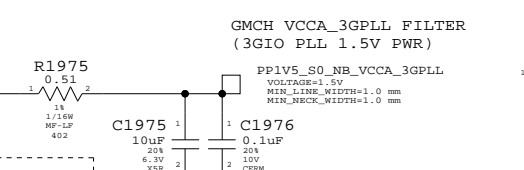
MCH VCCA_TV B FILTER
(MCH TV DAC BAND GAP 3.3V PWR)



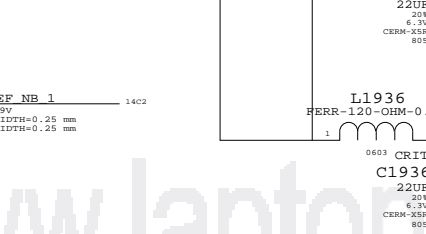
GMCH VCC3G FILTER
(PCI-E/DMI ANALOG 1.5V PWR)



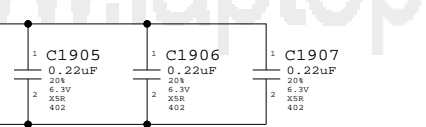
GMCH VCCA_3GPLL FILTER
(3GIO PLL 1.5V PWR)



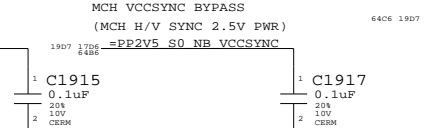
PLACE THOSE COMPONENT CLOSE TO GMCH



GMCH CORE PWR 1.05V BYPASS
THIS 470UF FOR GMCH CORE 1.05V



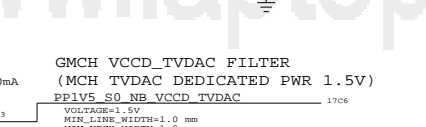
GMCH VCCD_LVDS BYPASS
(MCH LVDS DIGITAL 1.5V PWR)



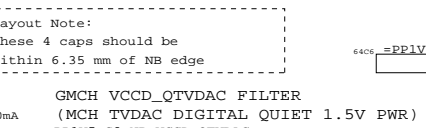
GMCH VCCA_3GBG BYPASS
(MCH PCIE/DMI BAND GAP 2.5V PWR)



GMCH VCCAUX FILTER
(MCH DDR DLL&IO, FSB HSI0&IO PWR 1.5V)



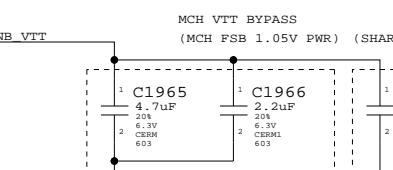
GMCH VCCD_TV DAC FILTER
(MCH TV DAC DEDICATED PWR 1.5V)



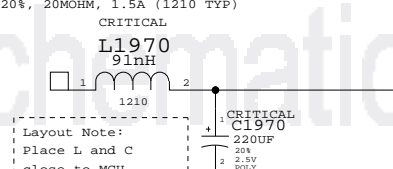
GMCH VCCD_QTV DAC FILTER
(MCH TV DAC DIGITAL QUIET 1.5V PWR)



MCH VTT BYPASS
(MCH FSB 1.05V PWR) (SHARE C0940 470UF)



GMCH VCCD_TV DAC FILTER
(MCH TV DAC DEDICATED PWR 1.5V)



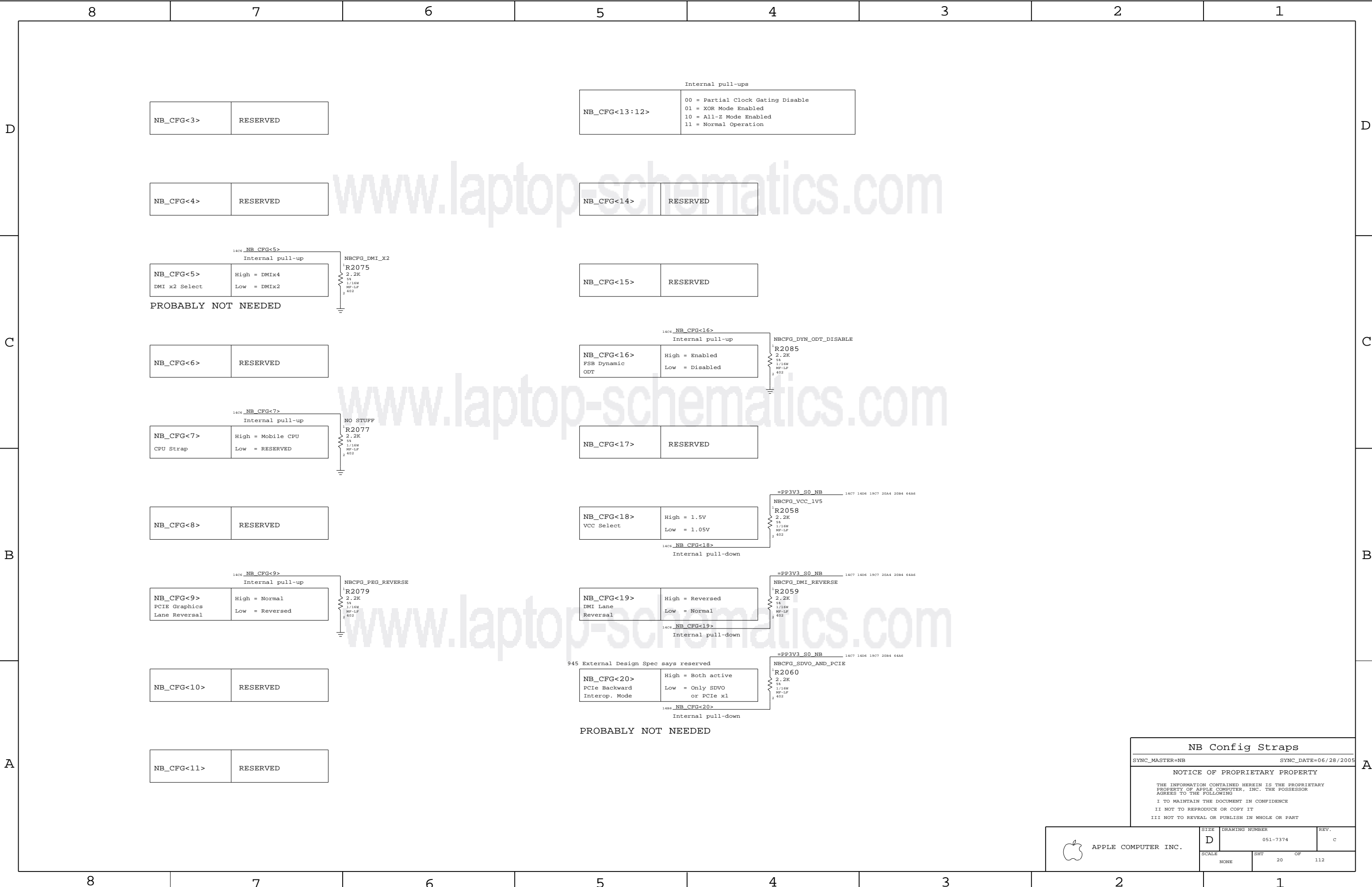
NB (GM) Decoupling

SYNC_MASTER=NB	SYNC_DATE=06/22/2005
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SIZE	DRAWING NUMBER	REV.
D	051-7374	C
SCALE	SHT	OF
NONE	19	112



APPLE COMPUTER INC.



NB_CFG<3>	RESERVED
-----------	----------

Internal pull-ups	
NB_CFG<13:12>	00 = Partial Clock Gating Disable 01 = XOR Mode Enabled 10 = All-Z Mode Enabled 11 = Normal Operation

NB_CFG<4>	RESERVED
-----------	----------

NB_CFG<14>	RESERVED
------------	----------

1406 NB_CFG<5> Internal pull-up	
NB_CFG<5>	High = DMiX4 DMI x2 Select Low = DMiX2
PROBABLY NOT NEEDED	

NB_CFG<15>	RESERVED
------------	----------

NB_CFG<6>	RESERVED
-----------	----------

1406 NB_CFG<16> Internal pull-up	
NB_CFG<16>	High = Enabled FSB Dynamic ODT Low = Disabled

1406 NB_CFG<7> Internal pull-up	
NB_CFG<7>	High = Mobile CPU CPU Strap Low = RESERVED

NB_CFG<17>	RESERVED
------------	----------

NB_CFG<8>	RESERVED
-----------	----------

1406 NB_CFG<18> Internal pull-down	
NB_CFG<18>	High = 1.5V VCC Select Low = 1.05V

1406 NB_CFG<9> Internal pull-up	
NB_CFG<9>	High = Normal PCIe Graphics Lane Reversal Low = Reversed

1406 NB_CFG<19> Internal pull-down	
NB_CFG<19>	High = Reversed DMI Lane Reversal Low = Normal

NB_CFG<10>	RESERVED
------------	----------

945 External Design Spec says reserved	
1406 NB_CFG<20> Internal pull-down	
NB_CFG<20>	High = Both active PCIe Backward Interop. Mode Low = Only SDVO or PCIe x1
PROBABLY NOT NEEDED	

NB_CFG<11>	RESERVED
------------	----------

NB Config Straps

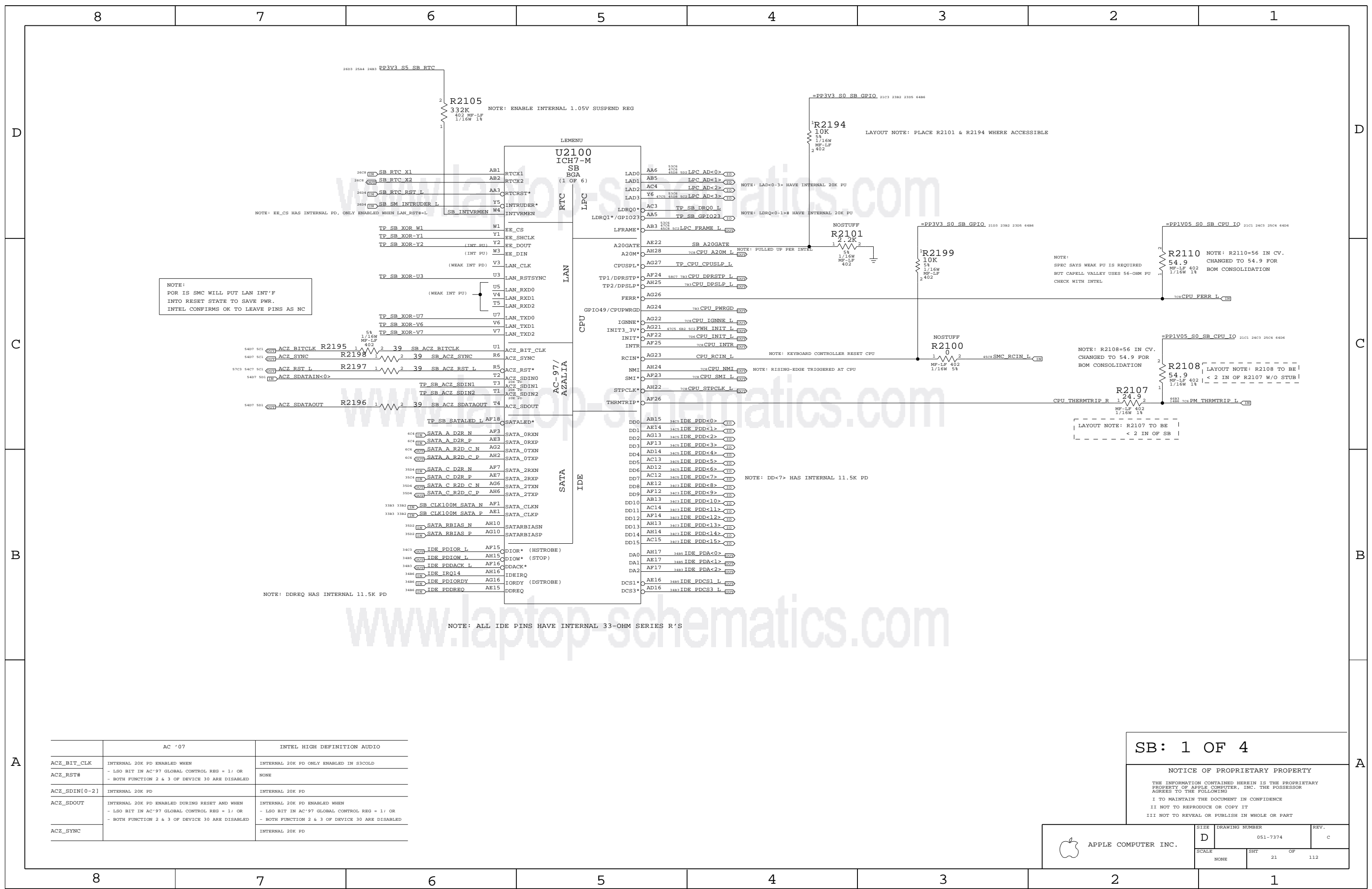
SYNC_MASTER=NB SYNC_DATE=06/28/2005

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	D	051-7374	c
SCALE	SHT	OF	REV.
NONE	20	112	



NOTE:
POR IS SMC WILL PUT LAN INTI'F
INTO RESET STATE TO SAVE PWR.
INTEL CONFIRMS OK TO LEAVE PINS AS NC

NOTE: ENABLE INTERNAL 1.05V SUSPEND REG

LAYOUT NOTE: PLACE R2101 & R2194 WHERE ACCESSIBLE

NOTE:
SPEC SAYS WEAK PU IS REQUIRED
BUT CAPELL VALLEY USES 56-OHM PU
CHECK WITH INTEL

NOTE: R2108=56 IN CV.
CHANGED TO 54.9 FOR
BOM CONSOLIDATION

LAYOUT NOTE: R2107 TO BE
< 2 IN OF SB

NOTE: DD<7> HAS INTERNAL 11.5K PD

NOTE: DDREQ HAS INTERNAL 11.5K PD

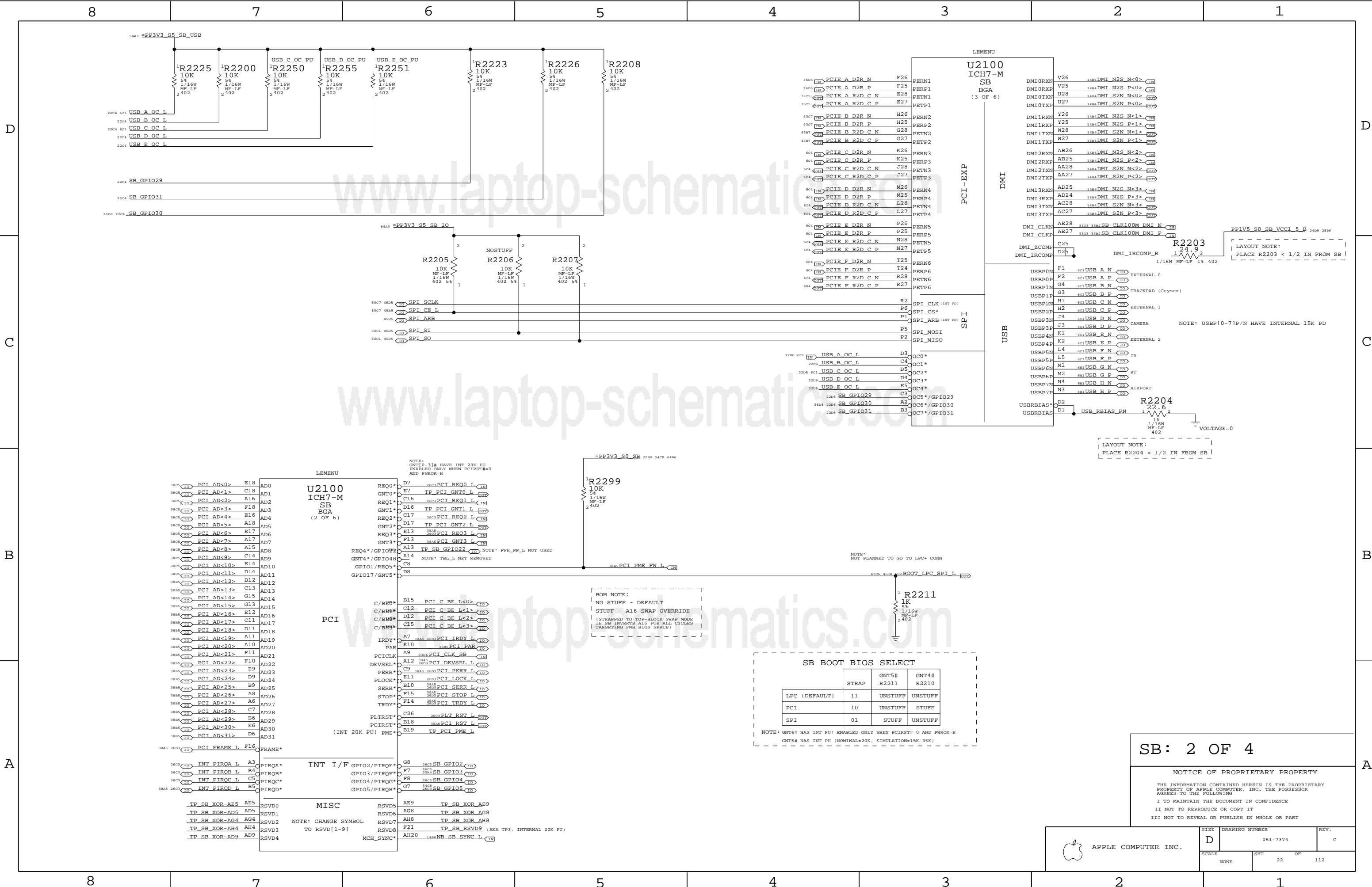
NOTE: ALL IDE PINS HAVE INTERNAL 33-OHM SERIES R'S

	AC '07	INTEL HIGH DEFINITION AUDIO
ACZ_BIT_CLK	INTERNAL 20K PD ENABLED WHEN - LSO BIT IN AC'97 GLOBAL CONTROL REG = 1; OR	INTERNAL 20K PD ONLY ENABLED IN S3COLD
ACZ_RST#	NONE	NONE
ACZ_SDIN[0-2]	INTERNAL 20K PD	INTERNAL 20K PD
ACZ_SDOUT	INTERNAL 20K PD ENABLED DURING RESET AND WHEN - LSO BIT IN AC'97 GLOBAL CONTROL REG = 1; OR - BOTH FUNCTION 2 & 3 OF DEVICE 30 ARE DISABLED	INTERNAL 20K PD ENABLED WHEN - LSO BIT IN AC'97 GLOBAL CONTROL REG = 1; OR - BOTH FUNCTION 2 & 3 OF DEVICE 30 ARE DISABLED
ACZ_SYNC	INTERNAL 20K PD	INTERNAL 20K PD

SB: 1 OF 4

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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	NONE	SHT	21 OF 112



D

C

B

A

D

C

B

A

SB: 2 OF 4

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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. C
	SCALE NONE	SHEET 22	OF 112

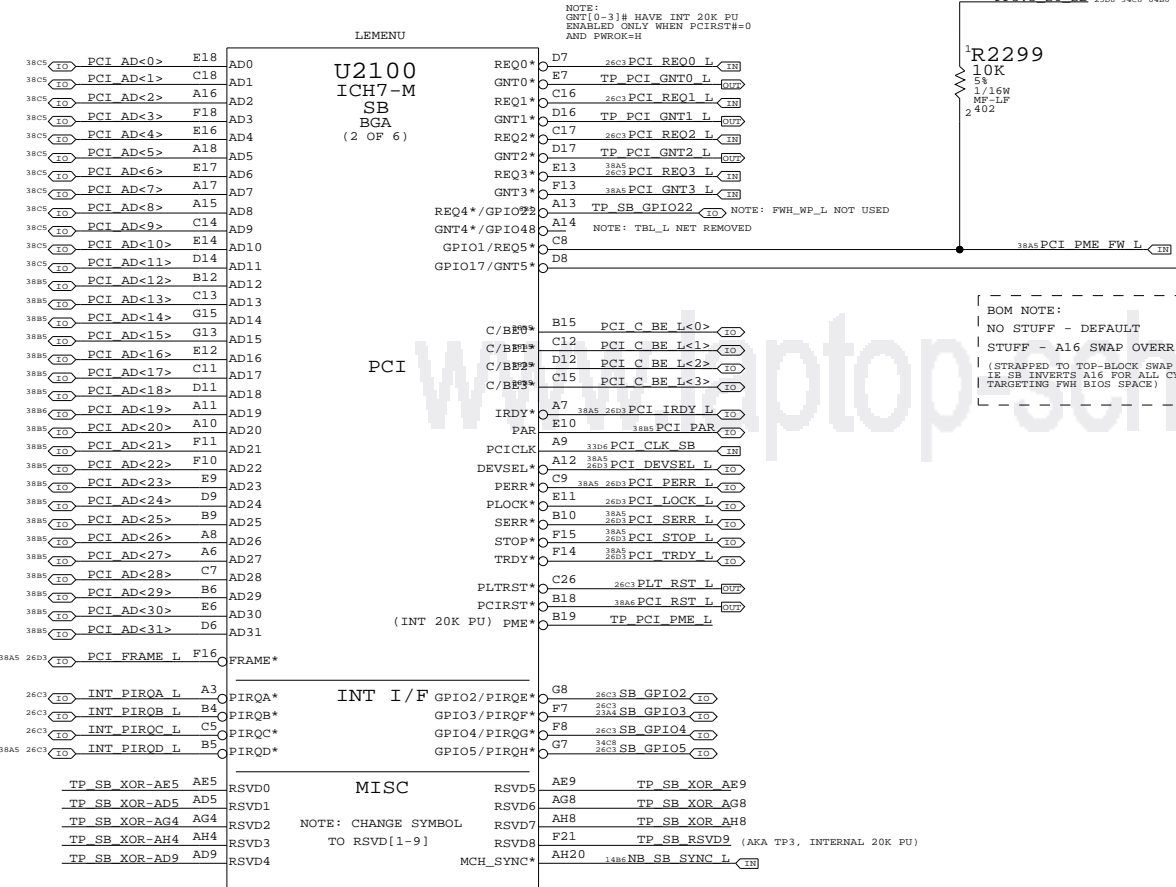
SB BOOT BIOS SELECT

	STRAP	GNT5# R2211	GNT4# R2210
LPC (DEFAULT)	11	UNSTUFF	UNSTUFF
PCI	10	UNSTUFF	STUFF
SPI	01	STUFF	UNSTUFF

NOTE: GNT4# HAS INT PU; ENABLED ONLY WHEN PCIRST# = 0 AND FWROK = H
 GNT5# HAS INT PU (NOMINAL = 20K, SIMULATION = 15K - 35K)

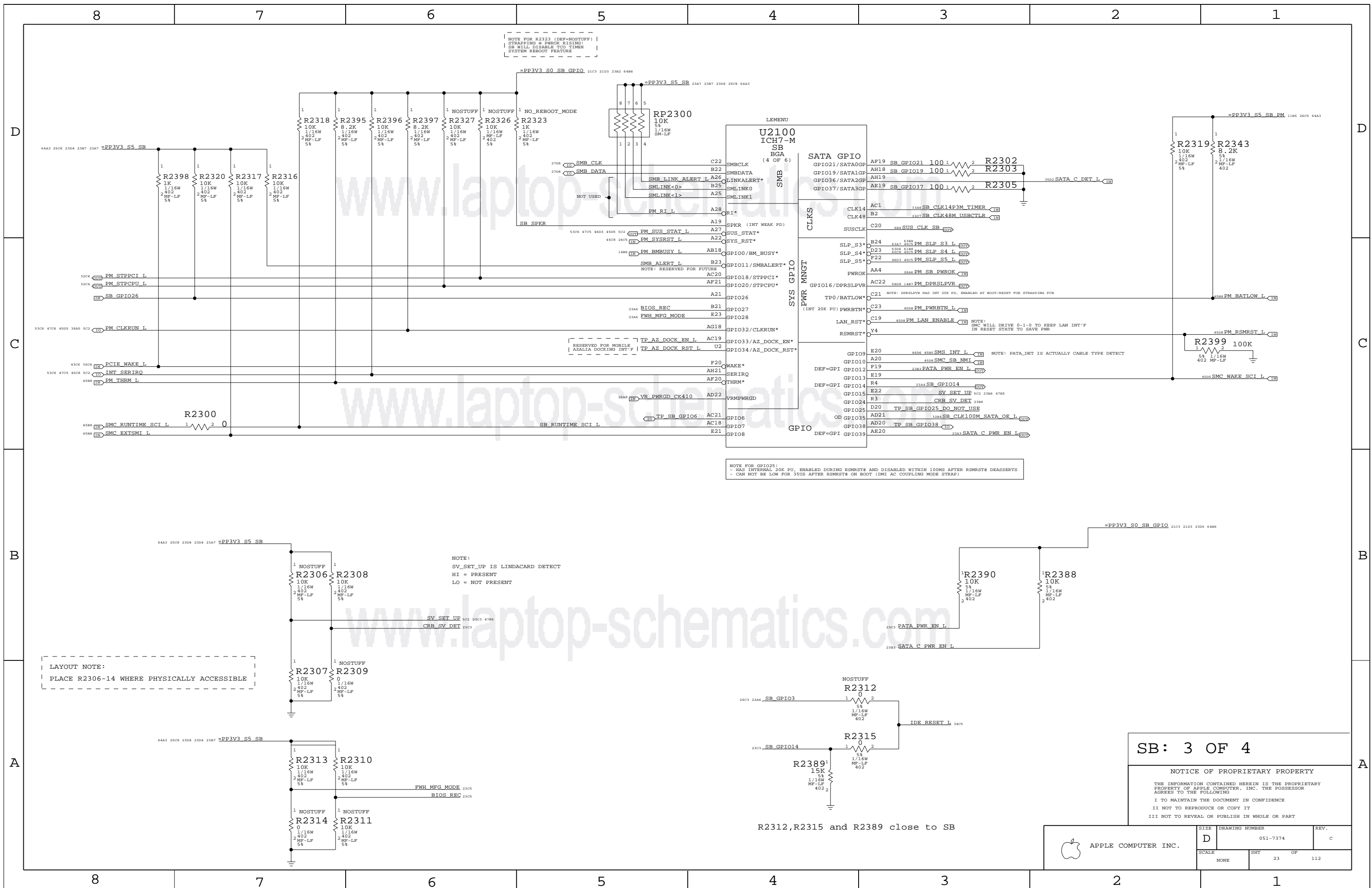
BOM NOTE:
 NO STUFF - DEFAULT
 STUFF - A16 SWAP OVERRIDE
 (STRAPPED TO TOP-BLOCK SWAP MODE
 IE SB INVERTS A16 FOR ALL CYCLES
 (TARGETING FWB BIOS SPACE))

NOTE: CHANGE SYMBOL TO RSV[1-9]
 MCH_SYNC*



8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1



NOTE FOR R2323 (DEF-NOSTUFF) | STRAPPING & PWROK RISING: SB WILL DISABLE TOO TIMER SYSTEM REBOOT FEATURE

NOTE FOR GPIO25:
 - HAS INTERNAL 20K PU, ENABLED DURING RSMRST# AND DISABLED WITHIN 100MS AFTER RSMRST# DEASSERTS
 - CAN NOT BE LOW FOR 35US AFTER RSMRST# ON BOOT (EMI AC COUPLING MODE STRAP)

NOTE:
 SV_SET_UP IS LINDACARD DETECT
 HI = PRESENT
 LO = NOT PRESENT

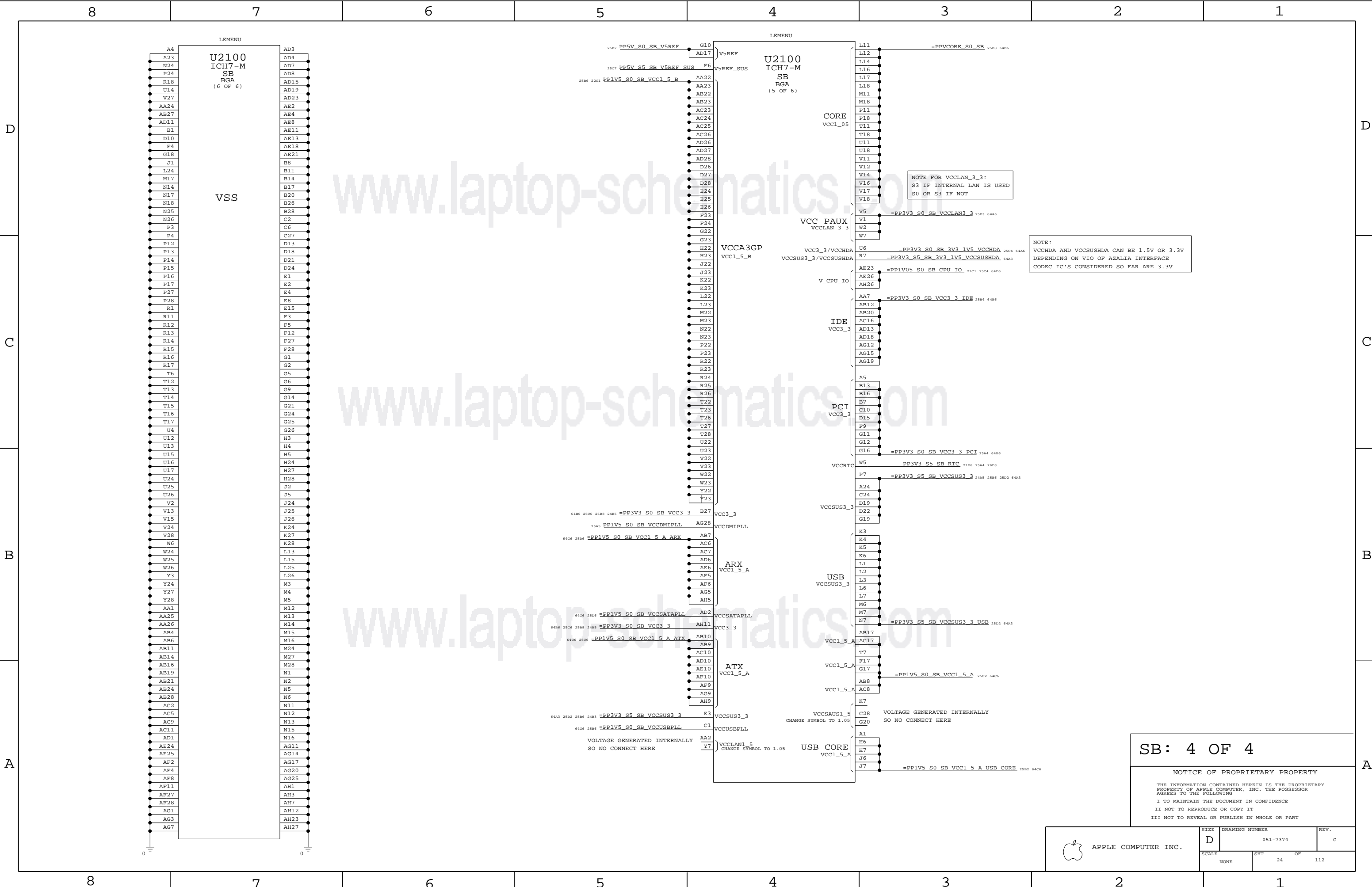
LAYOUT NOTE:
 PLACE R2306-14 WHERE PHYSICALLY ACCESSIBLE

SB: 3 OF 4

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	D	051-7374	C
SCALE	SHT	OF	112
NONE	23		

R2312, R2315 and R2389 close to SB



NOTE FOR VCCLAN_3_3:
S3 IF INTERNAL LAN IS USED
S0 OR S3 IF NOT

NOTE:
VCC3_3 AND VCCSUS3_3 CAN BE 1.5V OR 3.3V
DEPENDING ON VIO OF AZALIA INTERFACE
CODEC IC'S CONSIDERED SO FAR ARE 3.3V

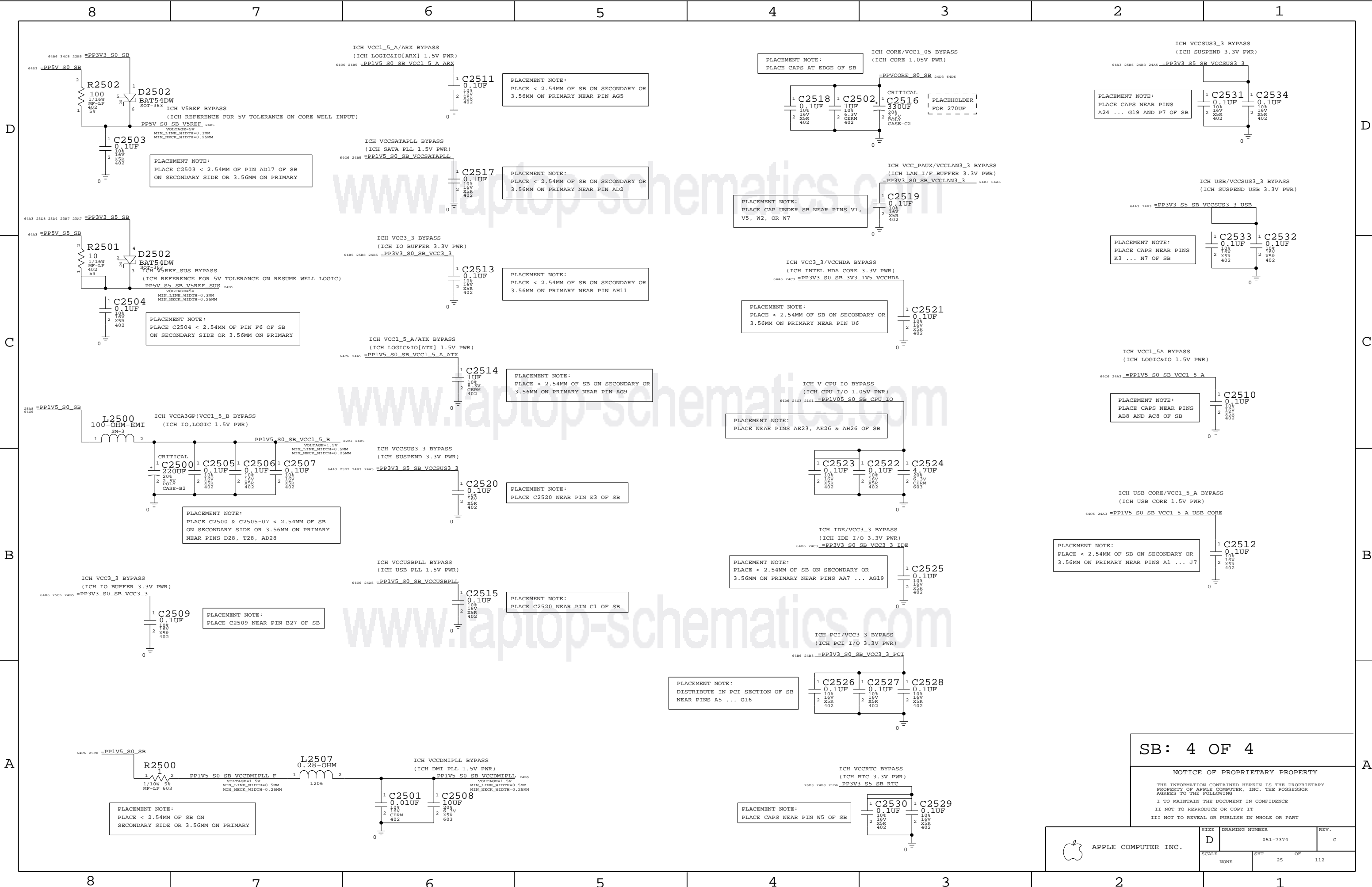
SB: 4 OF 4

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	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	24	112	



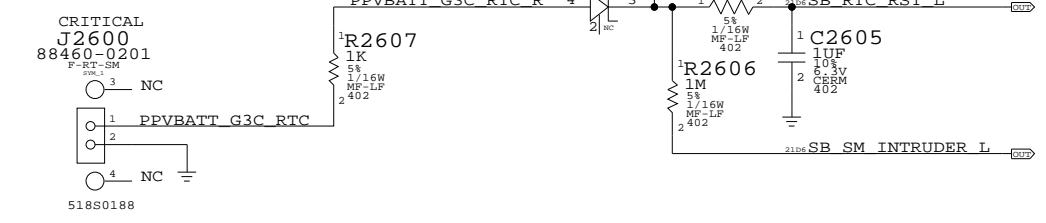
SB: 4 OF 4

NOTICE OF PROPRIETARY PROPERTY

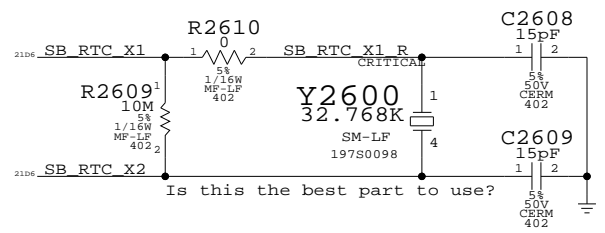
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	112
NONE	25		

RTC Battery Connector



SB RTC Crystal Circuit

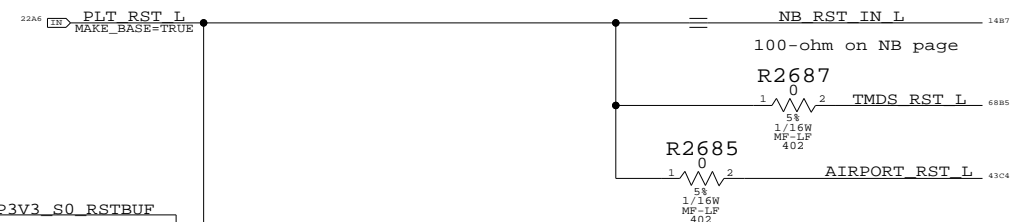


This part is never stuffed, it provides a set of pads on the board to short or to solder a reset button.

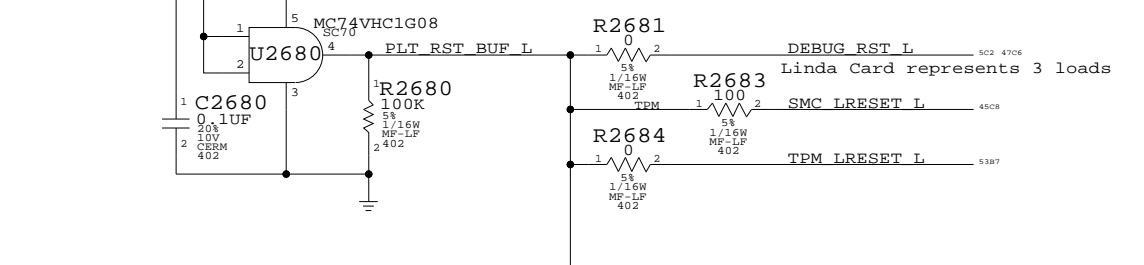
Silk: "SYS RST"

Platform Reset Connections

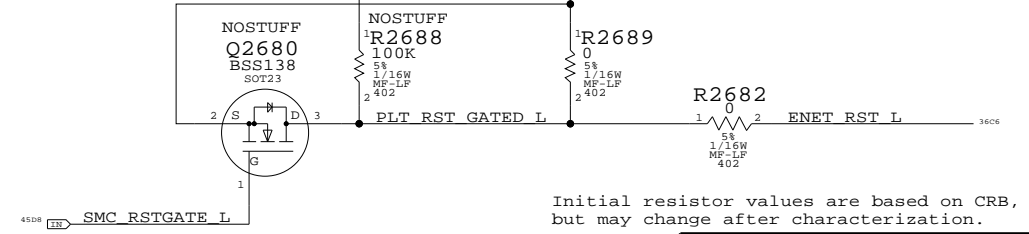
Unbuffered



Buffered



Gated

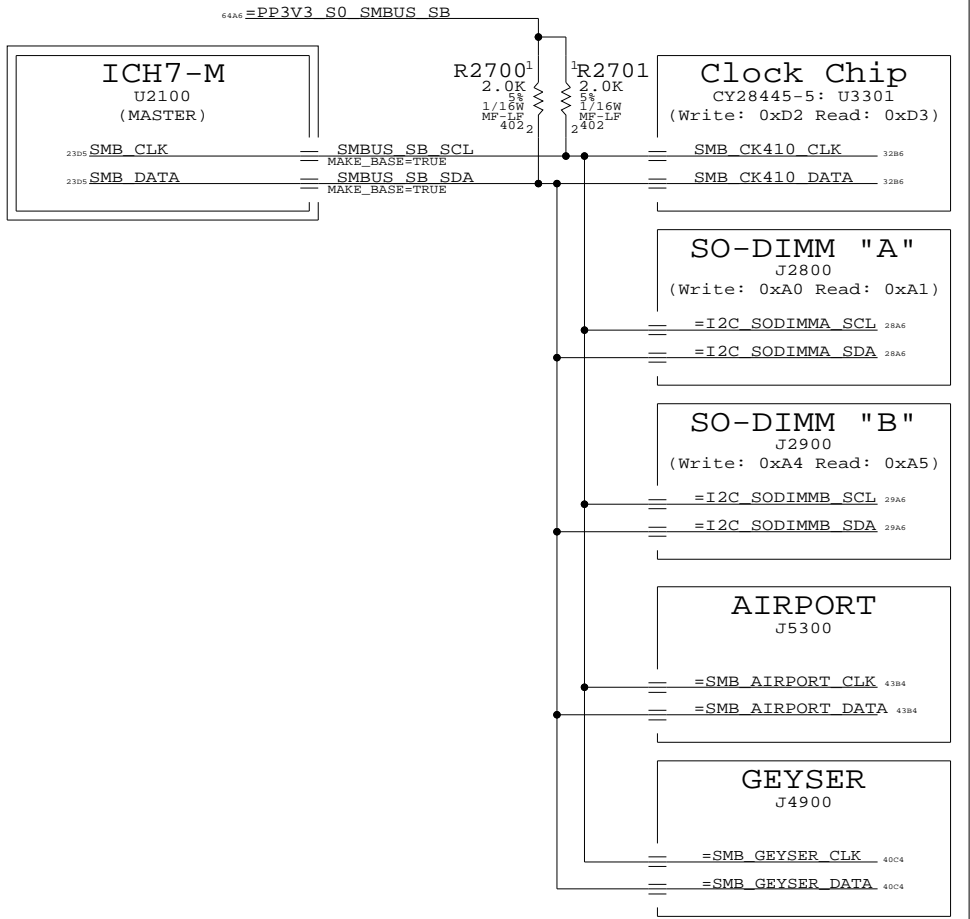


Initial resistor values are based on CRB, but may change after characterization.

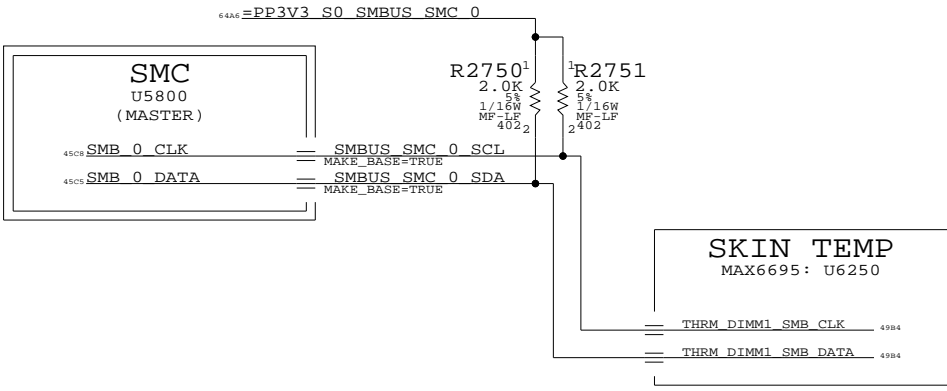
SB Misc		
SYNC_MASTER=NB	SYNC_DATE=07/26/2005	
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	112
NONE	26		

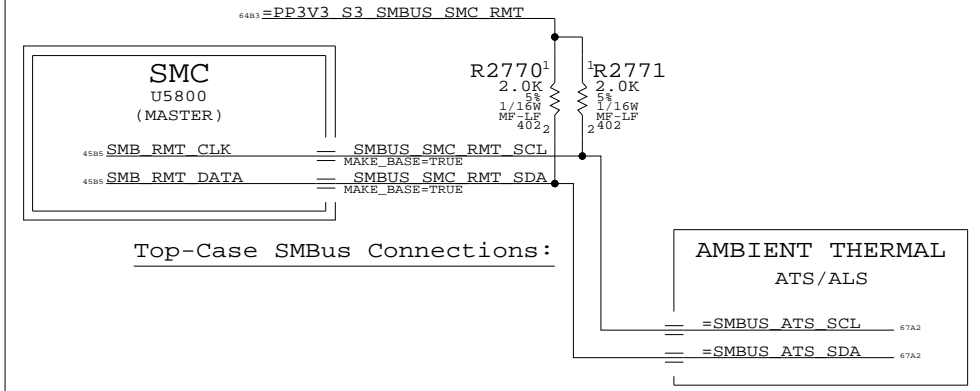
ICH7-M SMBus Connections



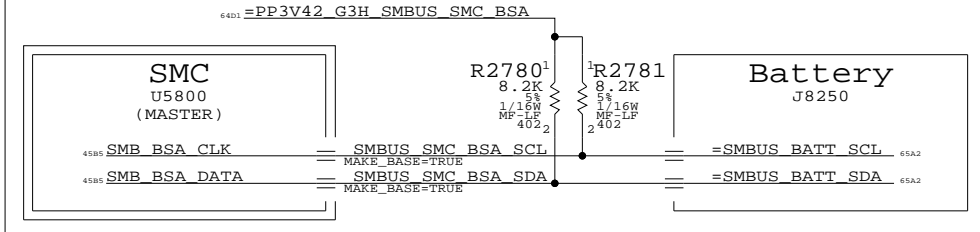
SMC "0" SMBus Connections



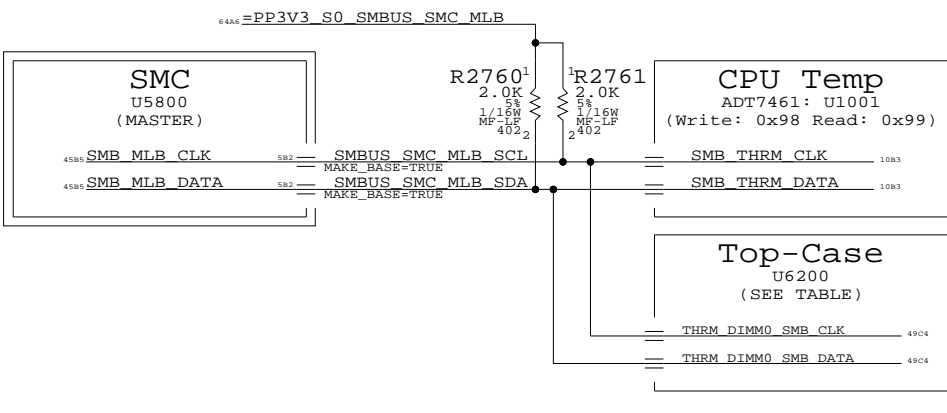
SMC "RMT" SMBus Connections



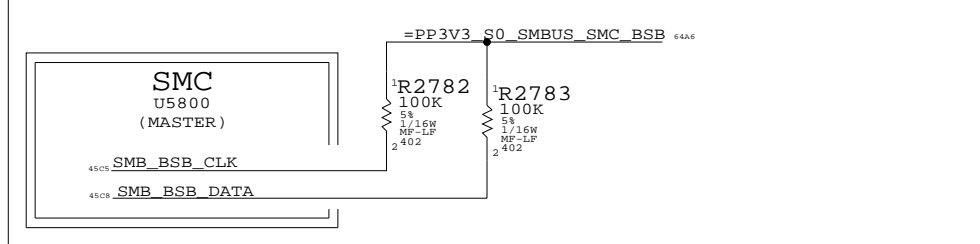
SMC "Battery A" SMBus Connections



SMC "MLB" SMBus Connections



SMC "Battery B" SMBus Connections



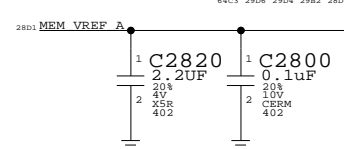
M42 SMBUS CONNECTIONS

SYNC_MASTER=ENET SYNC_DATE=08/30/2005

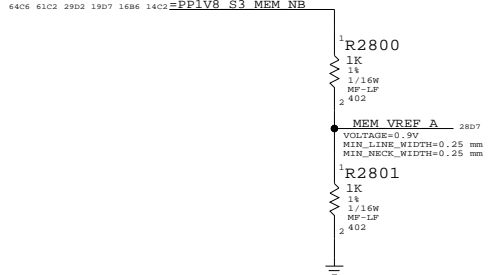
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	D	051-7374	c
SCALE	SHT	OF	REV.
NONE	27	112	



DDR2 VRef
One 0.1uF per connector



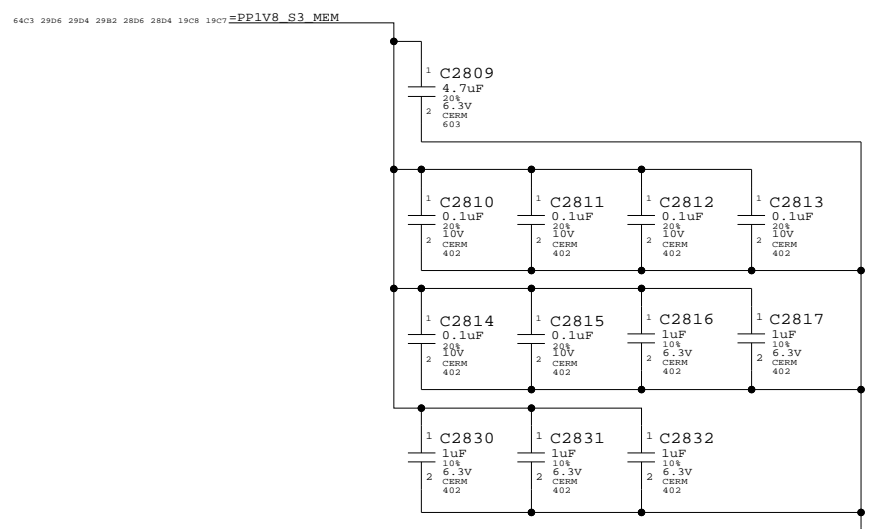
Yellow uses 10K divider and TLV2463 to drive MCH and DIMM connectors. (See Capell Valley pg 47)

Page Notes

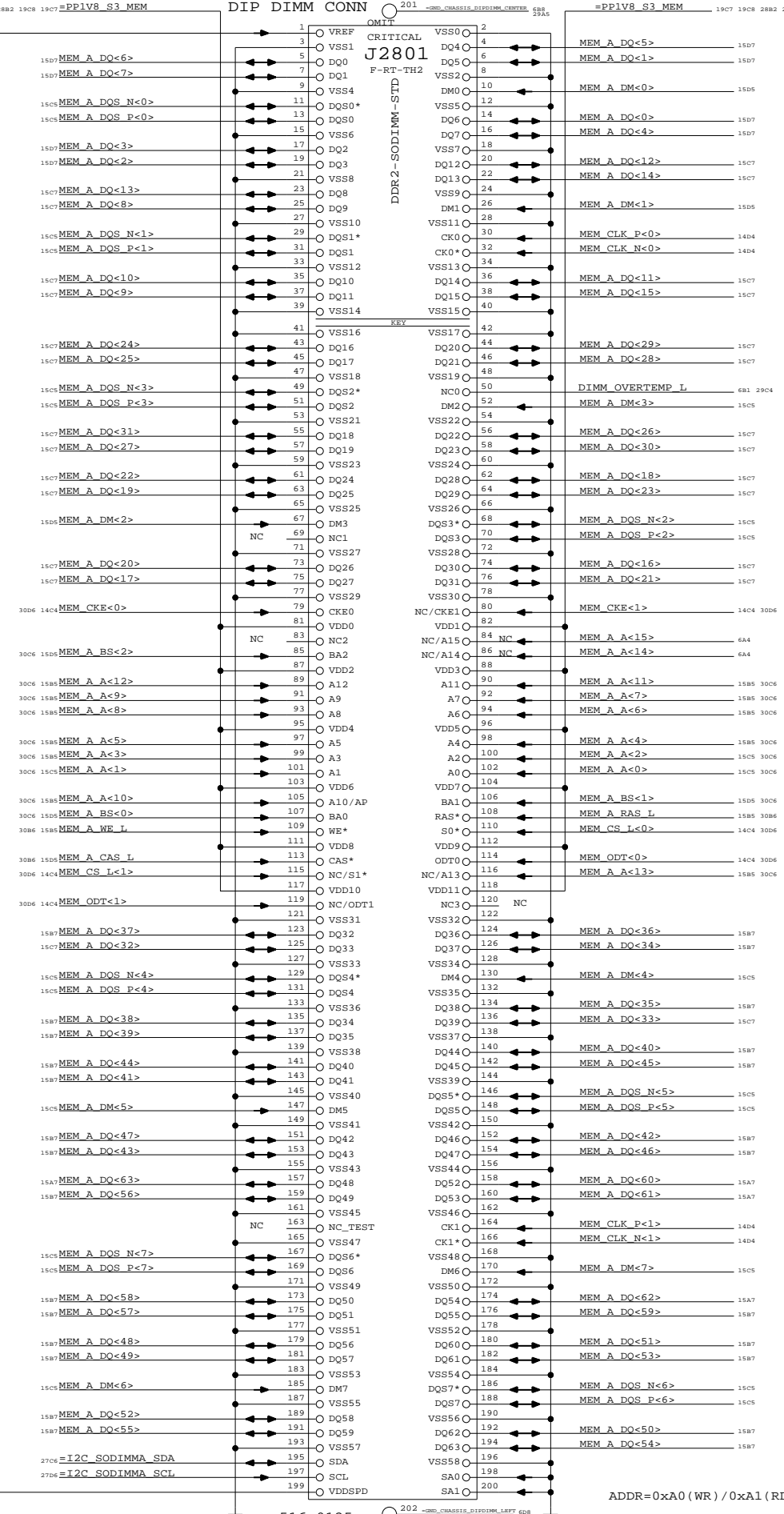
- Power aliases required by this page:
 - =PP1V8_S3_MEM
 - =PPSPD_S0_MEM (2.5V - 3.3V)
- Signal aliases required by this page:
 - =I2C_MEM_SCL
 - =I2C_MEM_SDA
- BOM options provided by this page:
 (NONE)

DDR2 Bypass Caps

(For return current)



The 4.7uF and 1.0uF caps can be changed to 5x 2.2uF caps, when they get cheaper.



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
516-0149	1	CONN_200P STD SODIMM OLD REV	J2801	CRITICAL	PVT-DIMM
516-0154	1	CONN_200P STD SODIMM NEW REV 3.5	J2801	CRITICAL	POST-RAMP-DIMM35

DDR2 SO-DIMM Connector A

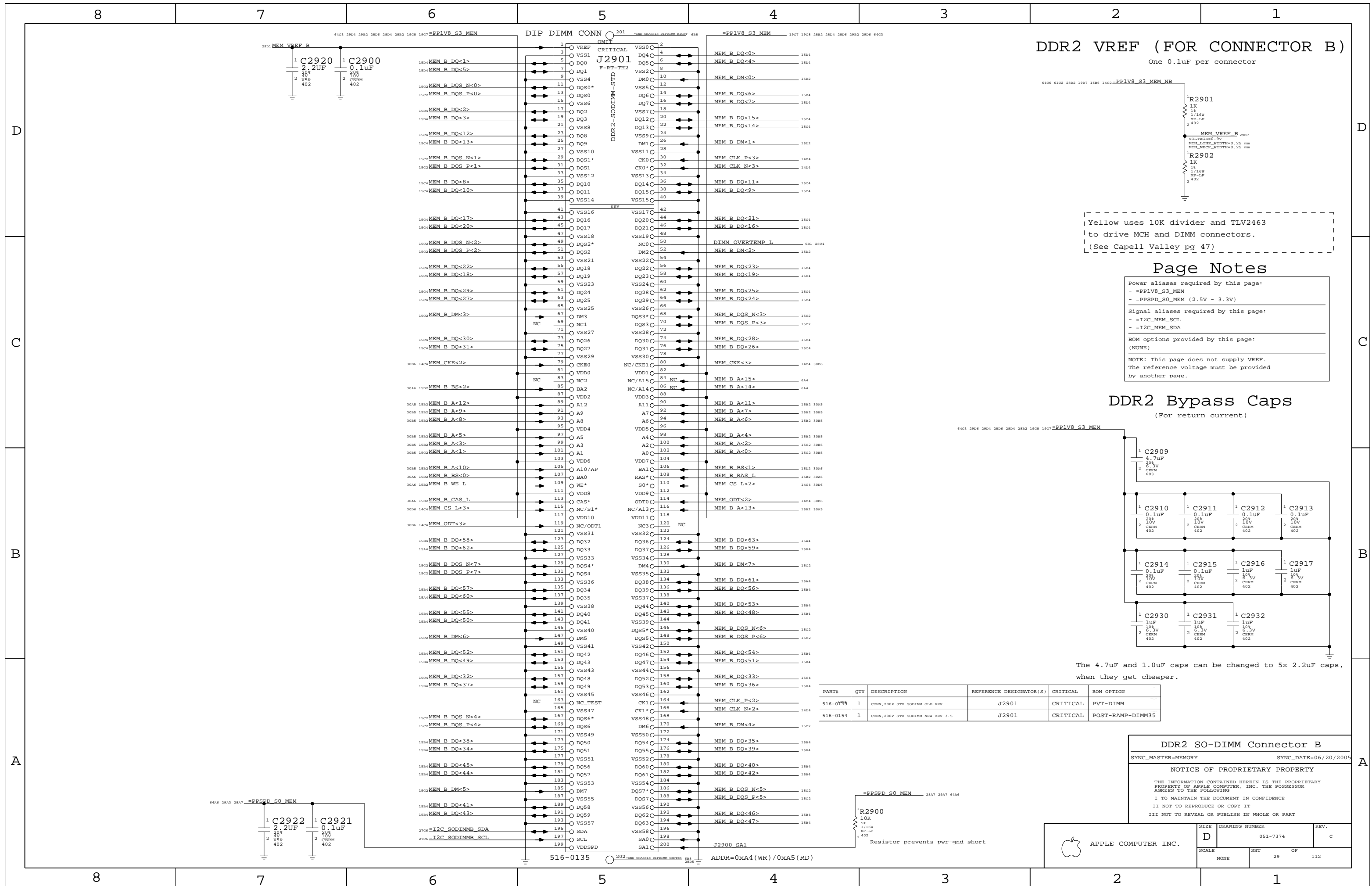
SYNC_MASTER=MEMORY SYNC_DATE=06/20/2005

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	D	051-7374	C
SCALE	SHT	OF	112
NONE	28		



DDR2 VREF (FOR CONNECTOR B)

One 0.1uF per connector

Yellow uses 10K divider and TLV2463 to drive MCH and DIMM connectors. (See Capell Valley pg 47)

Page Notes

Power aliases required by this page:
 - =PP1V8_S3_MEM
 - =PPSPD_S0_MEM (2.5V - 3.3V)

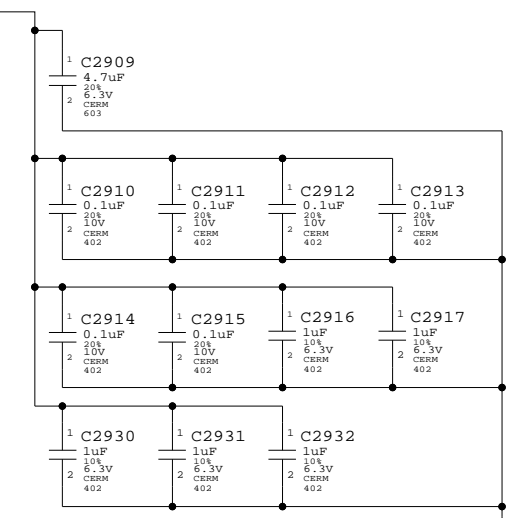
Signal aliases required by this page:
 - =I2C_MEM_SCL
 - =I2C_MEM_SDA

BOM options provided by this page:
 (NONE)

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

DDR2 Bypass Caps

(For return current)



The 4.7uF and 1.0uF caps can be changed to 5x 2.2uF caps, when they get cheaper.

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
516-0145	1	CONN,200P STD SODIMM OLD REV	J2901	CRITICAL	PVT-DIMM
516-0154	1	CONN,200P STD SODIMM NEW REV 3.5	J2901	CRITICAL	POST-RAMP-DIMM35

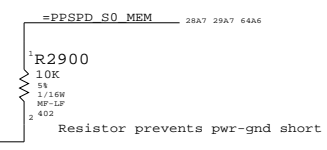
DDR2 SO-DIMM Connector B

SYNC_MASTER=MEMORY SYNC_DATE=06/20/2005

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	SCALE	SHT	OF	REV.
	NONE	29	112	C



516-0135 ADDR=0xA4 (WR) / 0xA5 (RD)

8

7

6

5

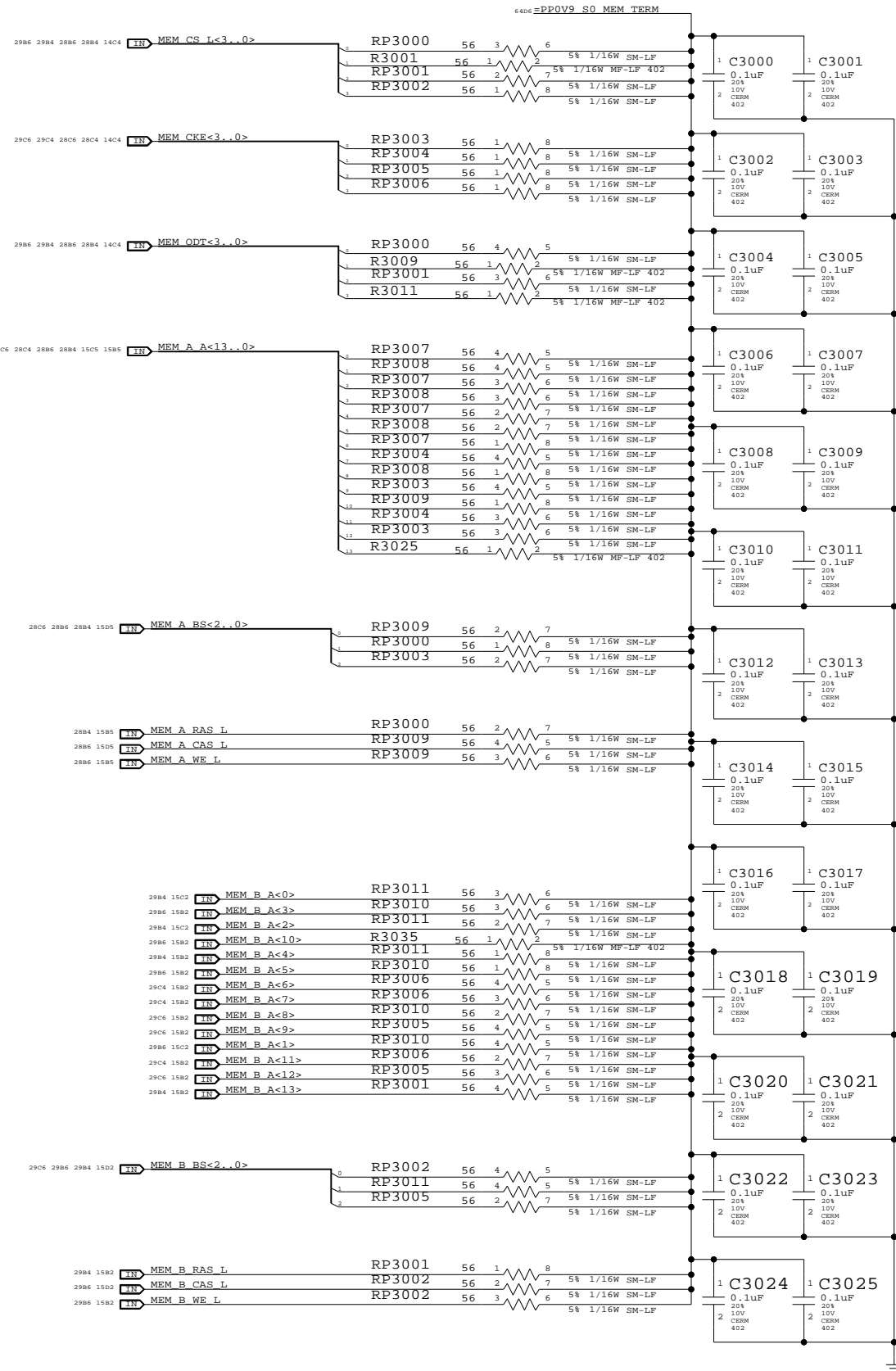
4

3

2

1

One cap for each side of every RPAK, one cap for every two discrete resistors
BOMOPTION shown at the top of each group applies to every part below it



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

Memory Active Termination

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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	30	112	

8

7

6

5

4

3

2

1

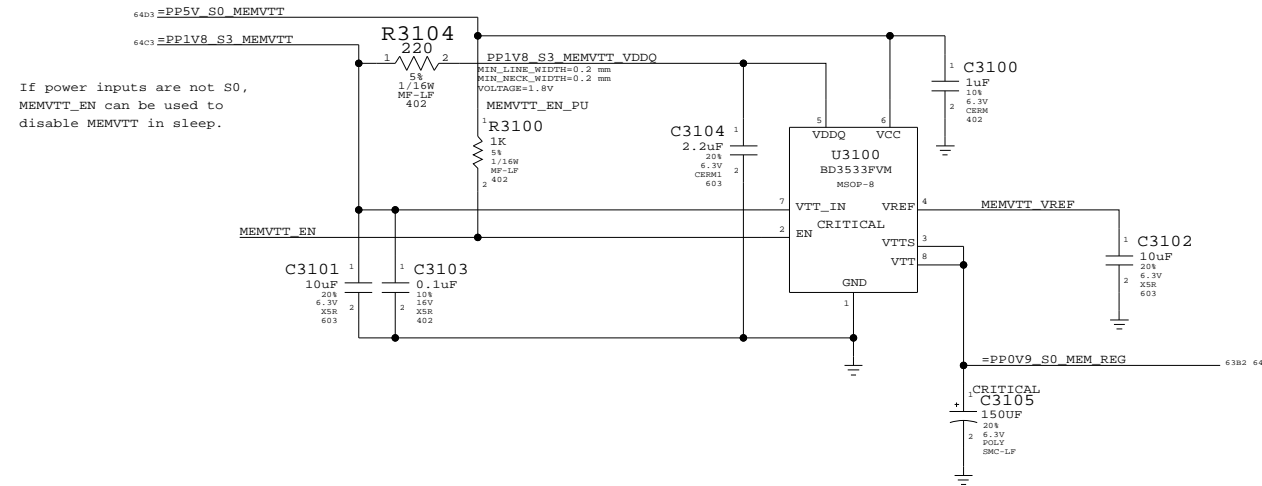
Page Notes

Power aliases required by this page:
 - =PP5V_S0_MEMVTT
 - =PP1V8_S0_MEMVTT
 - =PP0V9_S0_MEMVTT_LDO

Signal aliases required by this page:
 (NONE)

BOM options provided by this page:
 (NONE)

DDR2 Vtt Regulator



Memory Vtt Supply

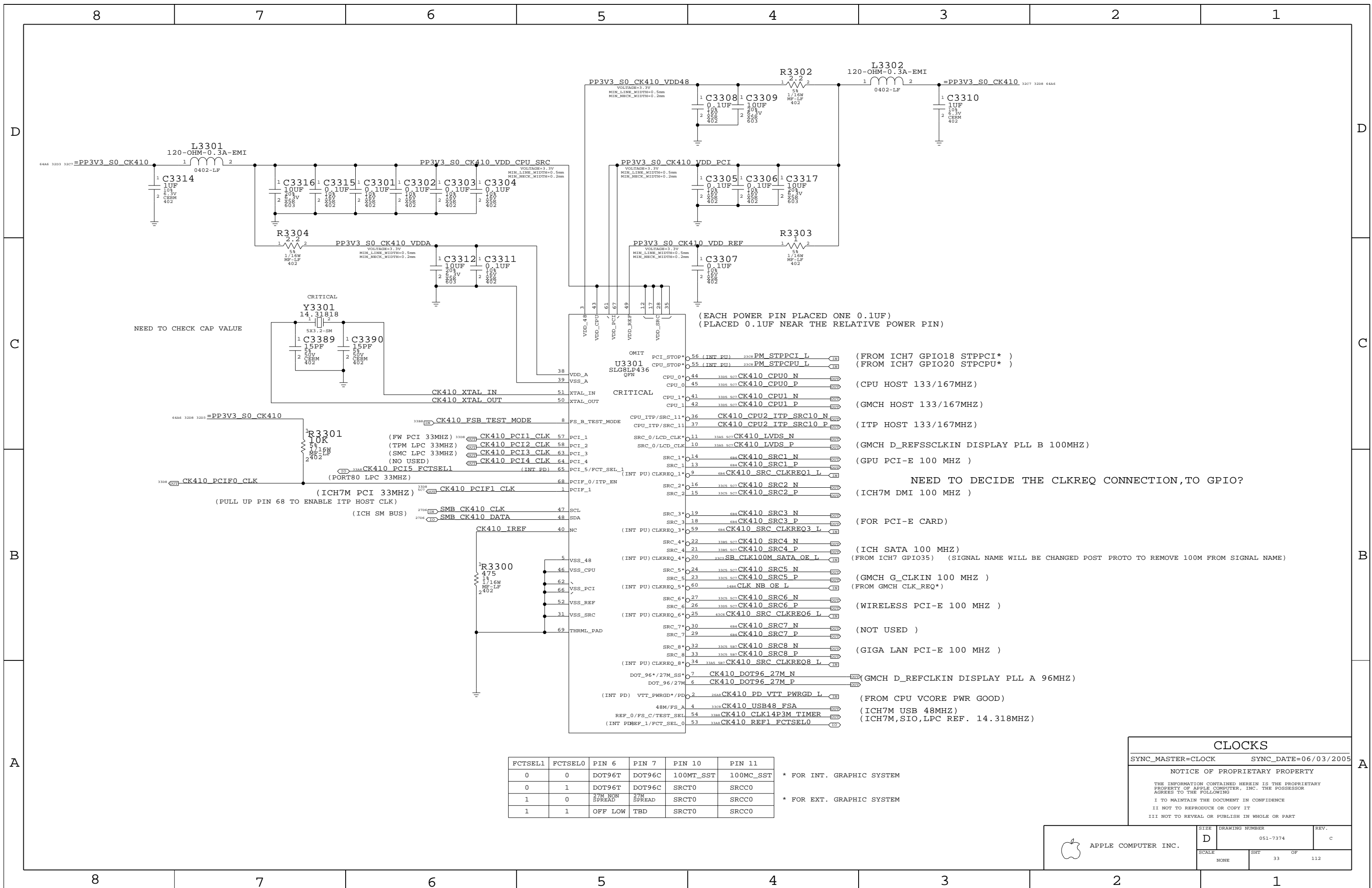
SYNC_MASTER=(MASTER) SYNC_DATE=(MASTER)

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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	31	112	



NEED TO CHECK CAP VALUE

(EACH POWER PIN PLACED ONE 0.1UF)
(PLACED 0.1UF NEAR THE RELATIVE POWER PIN)

(FROM ICH7 GPIO18 STPPPCI*)
(FROM ICH7 GPIO20 STPCPU*)

(CPU HOST 133/167MHZ)

(GMCH HOST 133/167MHZ)

(ITP HOST 133/167MHZ)

(GMCH D_REFSSCLKIN DISPLAY PLL B 100MHZ)

(GPU PCI-E 100 MHZ)

NEED TO DECIDE THE CLKREQ CONNECTION, TO GPIO?
(ICH7M DMI 100 MHZ)

(FOR PCI-E CARD)

(ICH SATA 100 MHZ)
(FROM ICH7 GPIO35) (SIGNAL NAME WILL BE CHANGED POST PROTO TO REMOVE 100M FROM SIGNAL NAME)

(GMCH G_CLKIN 100 MHZ)
(FROM GMCH CLK_REQ*)

(WIRELESS PCI-E 100 MHZ)

(NOT USED)

(GIGA LAN PCI-E 100 MHZ)

(GMCH D_REFCLKIN DISPLAY PLL A 96MHZ)

(FROM CPU VCORE PWR GOOD)

(ICH7M USB 48MHZ)
(ICH7M, SIO, LPC REF. 14.318MHZ)

FCTSEL1	FCTSEL0	PIN 6	PIN 7	PIN 10	PIN 11
0	0	DOT96T	DOT96C	100MT_SST	100MC_SST
0	1	DOT96T	DOT96C	SRCT0	SRCC0
1	0	27M NON SPREAD	27M SPREAD	SRCT0	SRCC0
1	1	OFF LOW	TBD	SRCT0	SRCC0

* FOR INT. GRAPHIC SYSTEM

* FOR EXT. GRAPHIC SYSTEM

CLOCKS

SYNC_MASTER=CLOCK SYNC_DATE=06/03/2005

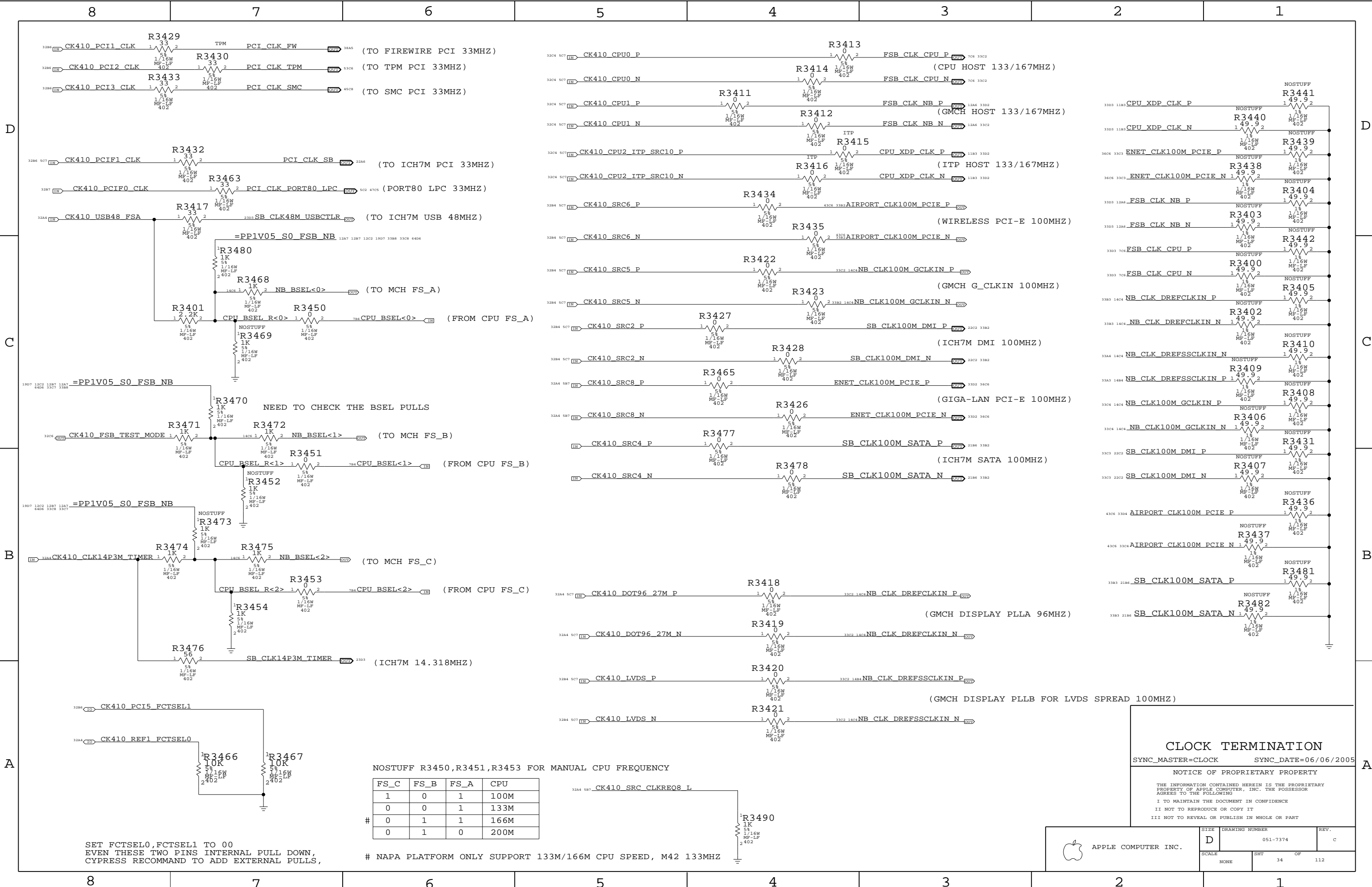
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APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-7374	C
SCALE	SHT	OF
NONE	33	112



NOSTUFF R3450, R3451, R3453 FOR MANUAL CPU FREQUENCY

FS_C	FS_B	FS_A	CPU
1	0	1	100M
0	0	1	133M
0	1	1	166M
0	1	0	200M

NAPA PLATFORM ONLY SUPPORT 133M/166M CPU SPEED, M42 133MHZ

SET FCTSEL0, FCTSEL1 TO 00
EVEN THESE TWO PINS INTERNAL PULL DOWN,
CYPRESS RECOMMAND TO ADD EXTERNAL PULLS,

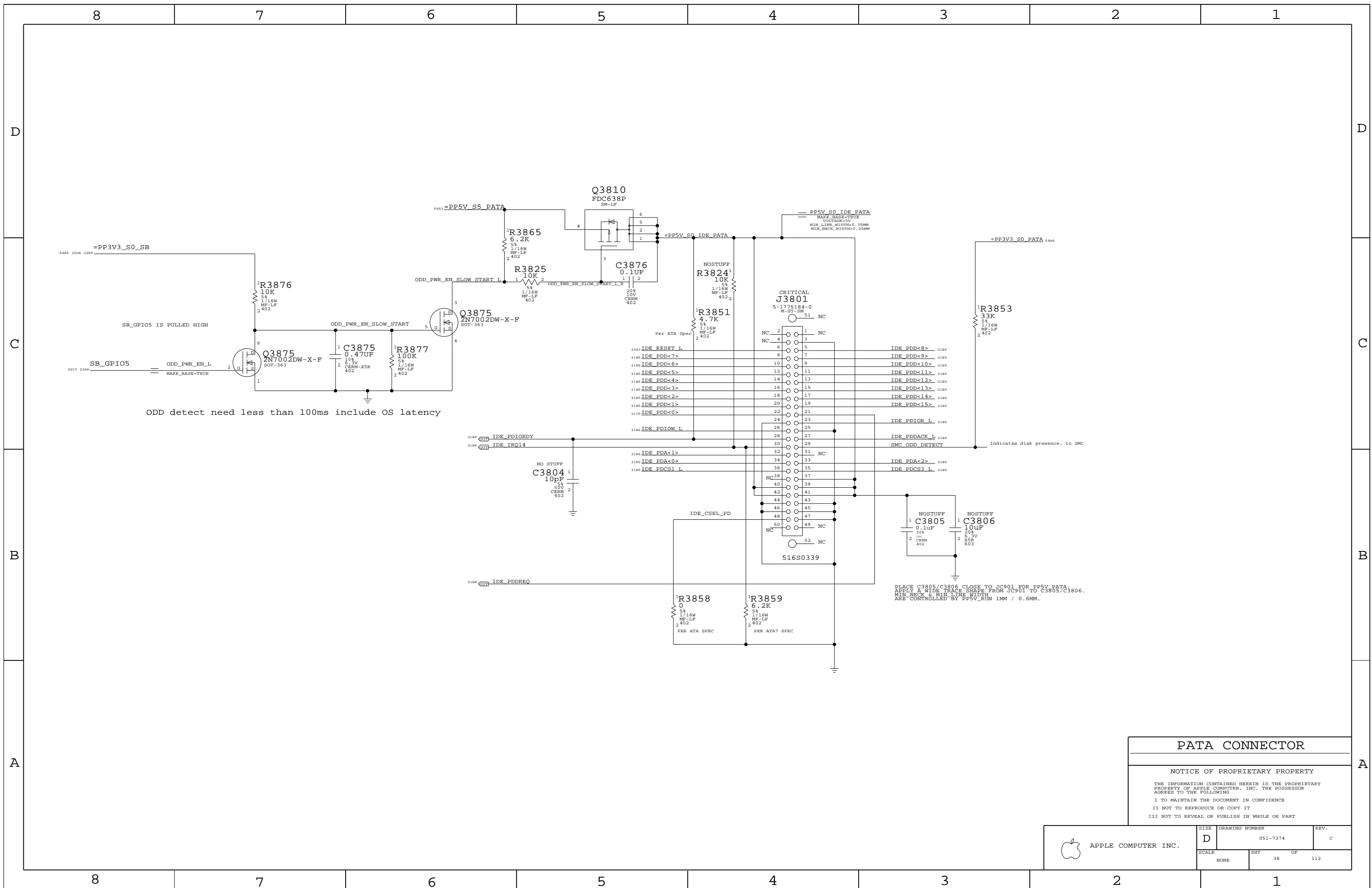
CLOCK TERMINATION

SYNC_MASTER=CLOCK SYNC_DATE=06/06/2005

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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	112
NONE	34		



PATA CONNECTOR

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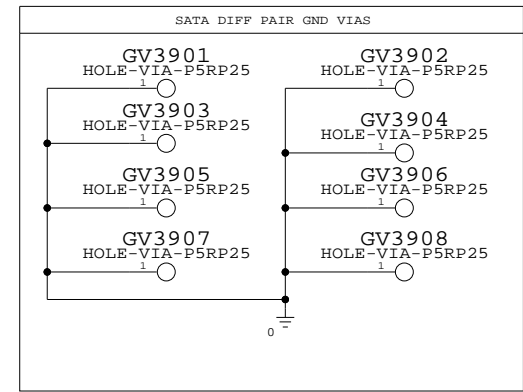
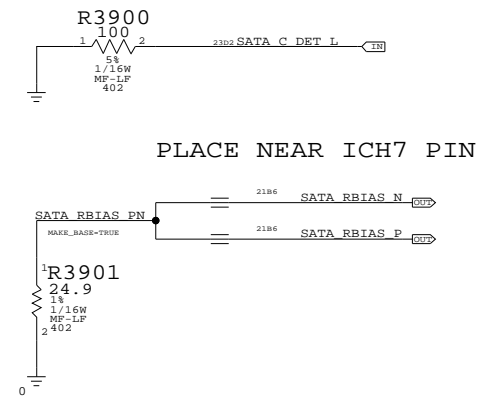
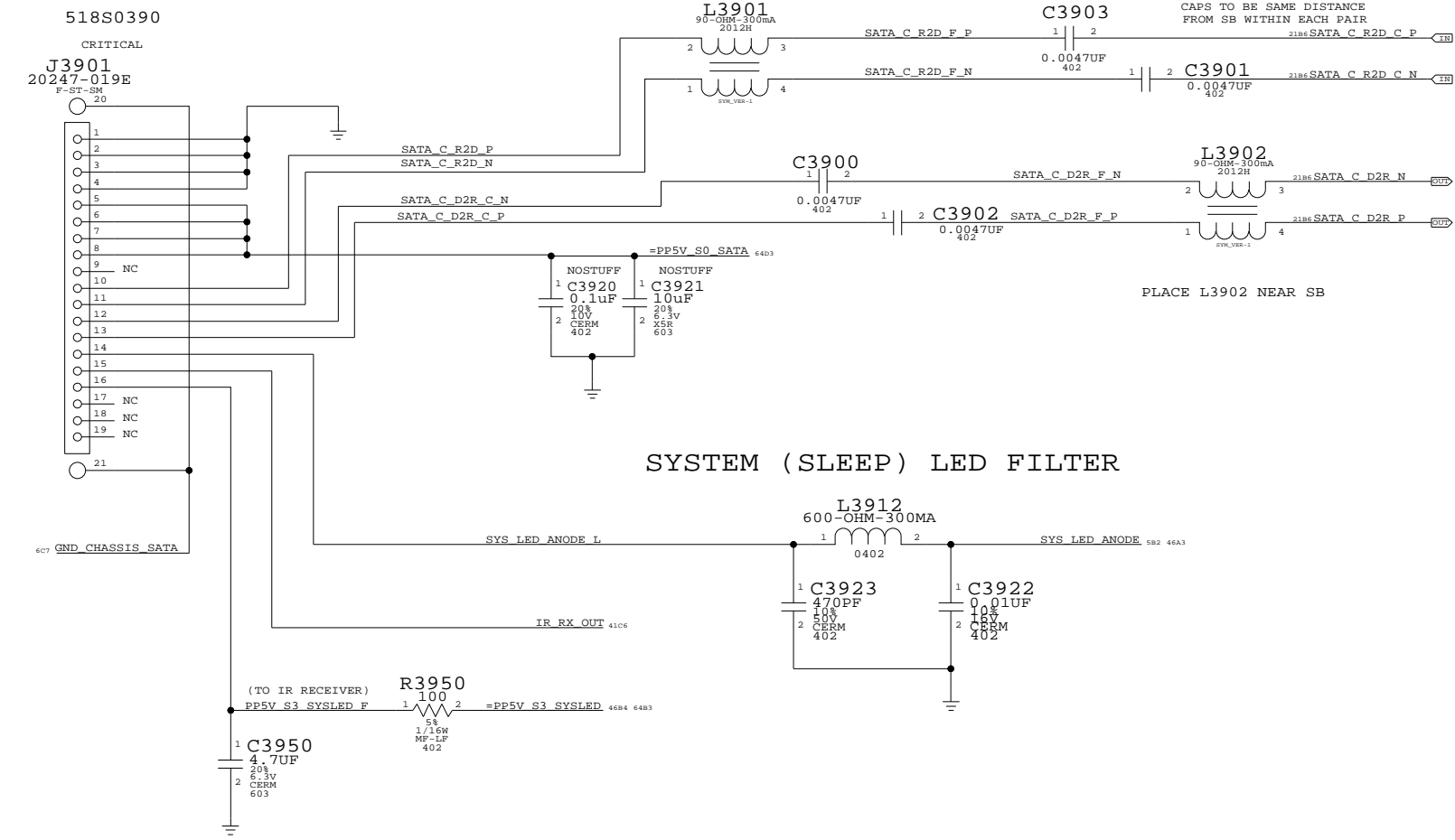
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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. C
	SCALE NONE	SHEET 38	OF 112

SATA CONNECTOR



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS
155S0227	155S0164	?	L3901, L3902	KEEP MAG. LAYER IN BOM

SATA CONNECTOR

NOTICE OF PROPRIETARY PROPERTY

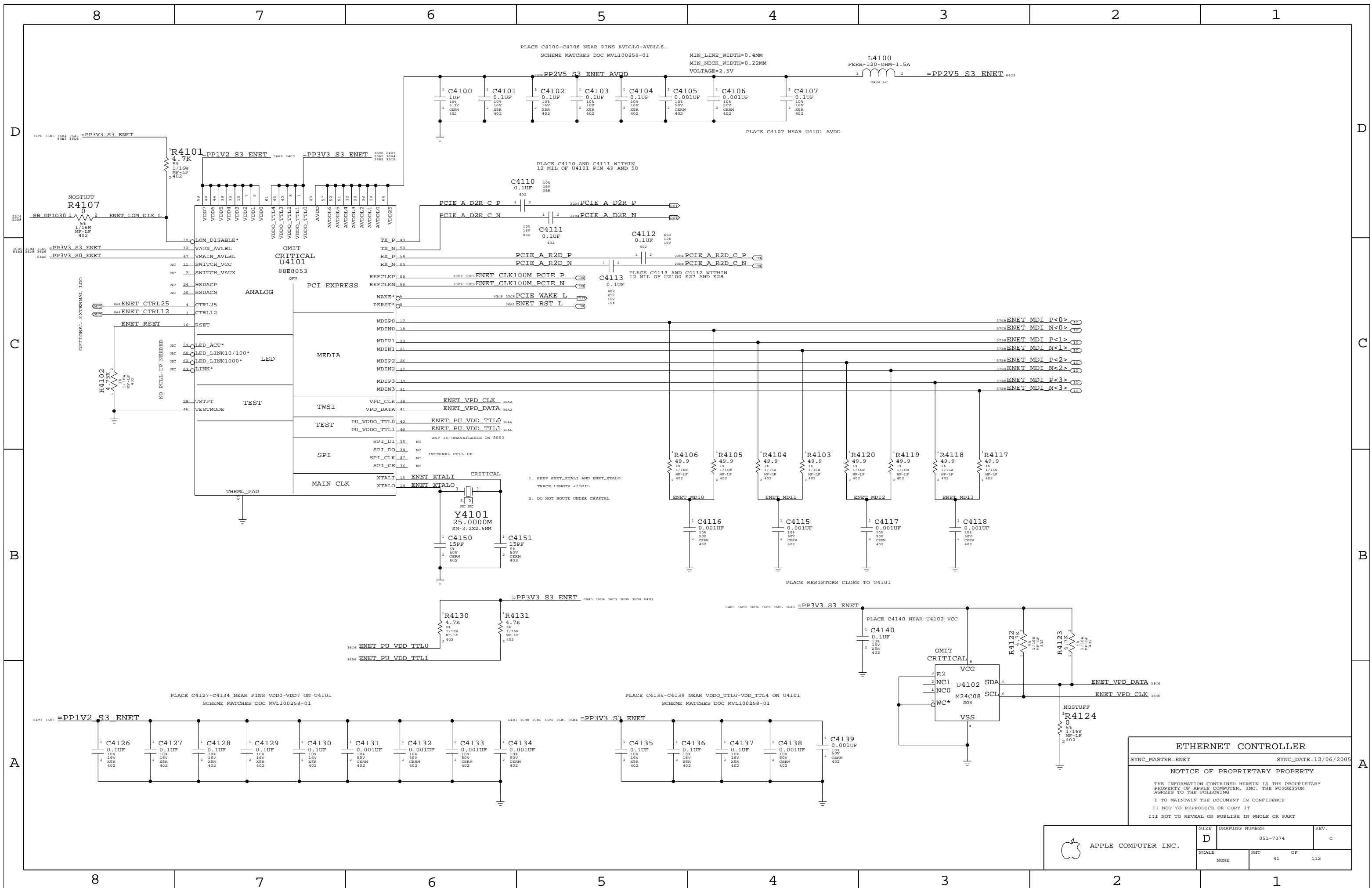
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	112
NONE	39		



PLACE C4100-C4106 NEAR PINS AVDDL0-AVDLL6.
SCHEME MATCHES DOC MVL100258-01

MIN_LINE_WIDTH=0.4MM
MIN_NECK_WIDTH=0.22MM
VOLTAGE=2.5V

L4100
FERR-120-OHM-1.5A

PLACE C4110 AND C4111 WITHIN
12 MIL OF U4101 PIN 49 AND 50

PLACE C4113 AND C4112 WITHIN
12 MIL OF U2100 E27 AND E28

- KEEP ENET_XTALI AND ENET_XTALO TRACE LENGTH <12MIL
- DO NOT ROUTE UNDER CRYSTAL

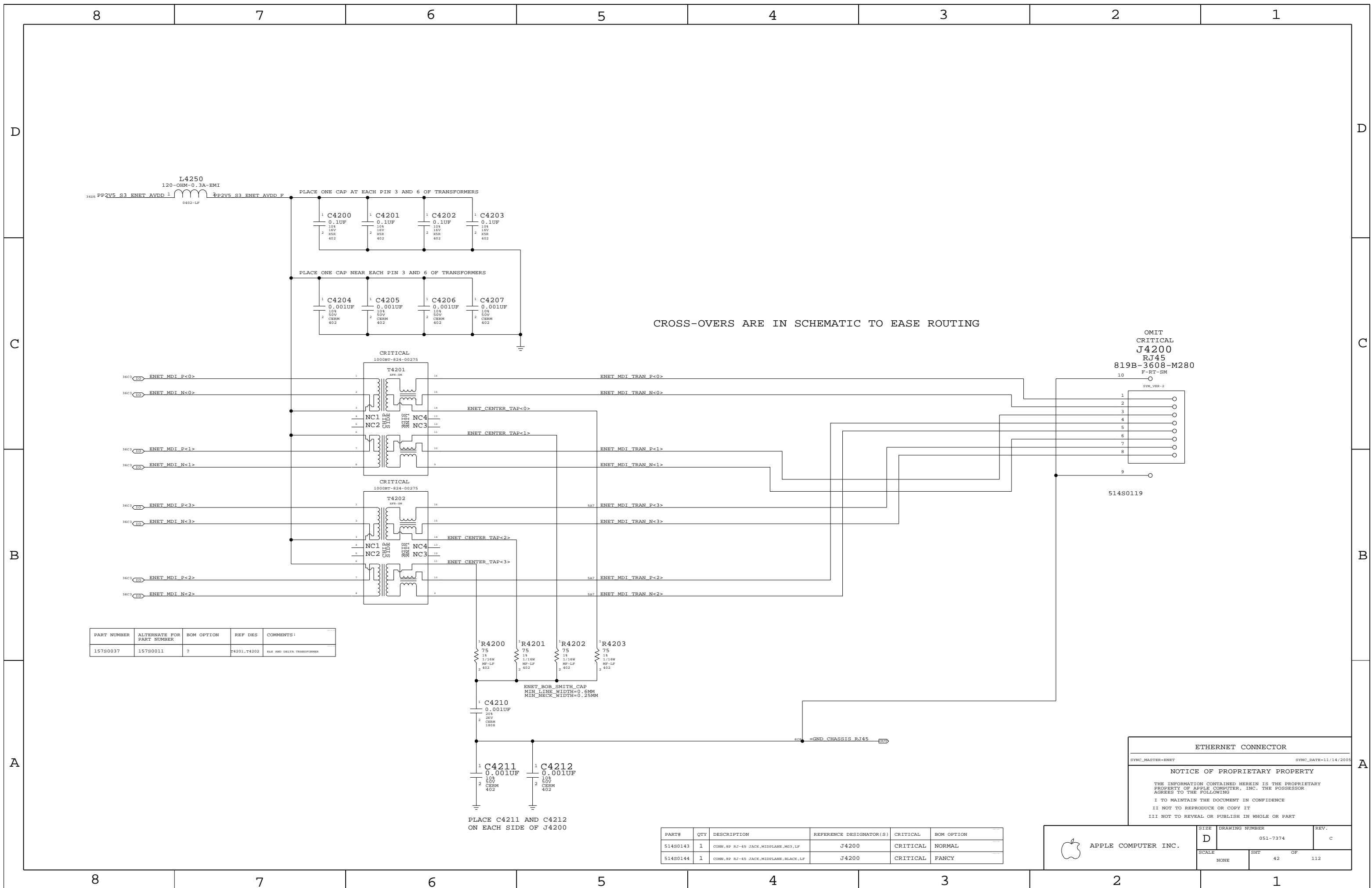
PLACE RESISTORS CLOSE TO U4101

PLACE C4127-C4134 NEAR PINS VDD0-VDD7 ON U4101
SCHEME MATCHES DOC MVL100258-01

PLACE C4135-C4139 NEAR VDD0_TTL0-VDD_TTL4 ON U4101
SCHEME MATCHES DOC MVL100258-01

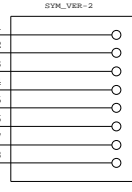
ETHERNET CONTROLLER		
SYNC_MASTER=ENET	SYNC_DATE=12/06/2005	
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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. C
	SCALE NONE	SHEET 41	OF 112



CROSS-OVERS ARE IN SCHEMATIC TO EASE ROUTING

OMIT
CRITICAL
J4200
RJ45
819B-3608-M280
F-RT-SM



514S0119

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS
157S0037	157S0011	?	R4201, T4202	SEE AND DELTA TRANSFORMER

ENET_BOB_SMITH_CAP
MIN_LINE_WIDTH=0.6MM
MIN_NECK_WIDTH=0.25MM

PLACE C4211 AND C4212
ON EACH SIDE OF J4200

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
514S0143	1	CONN, SP RJ-45 JACK, MIDDLEPLANE, M33, LF	J4200	CRITICAL	NORMAL
514S0144	1	CONN, SP RJ-45 JACK, MIDDLEPLANE, BLACK, LF	J4200	CRITICAL	FANCY

ETHERNET CONNECTOR
SYNC_MASTER=ENET SYNC_DATE=11/14/2005
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	42	112	

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_PCO - FIREWIRE POWER CLASS IDENTIFIER

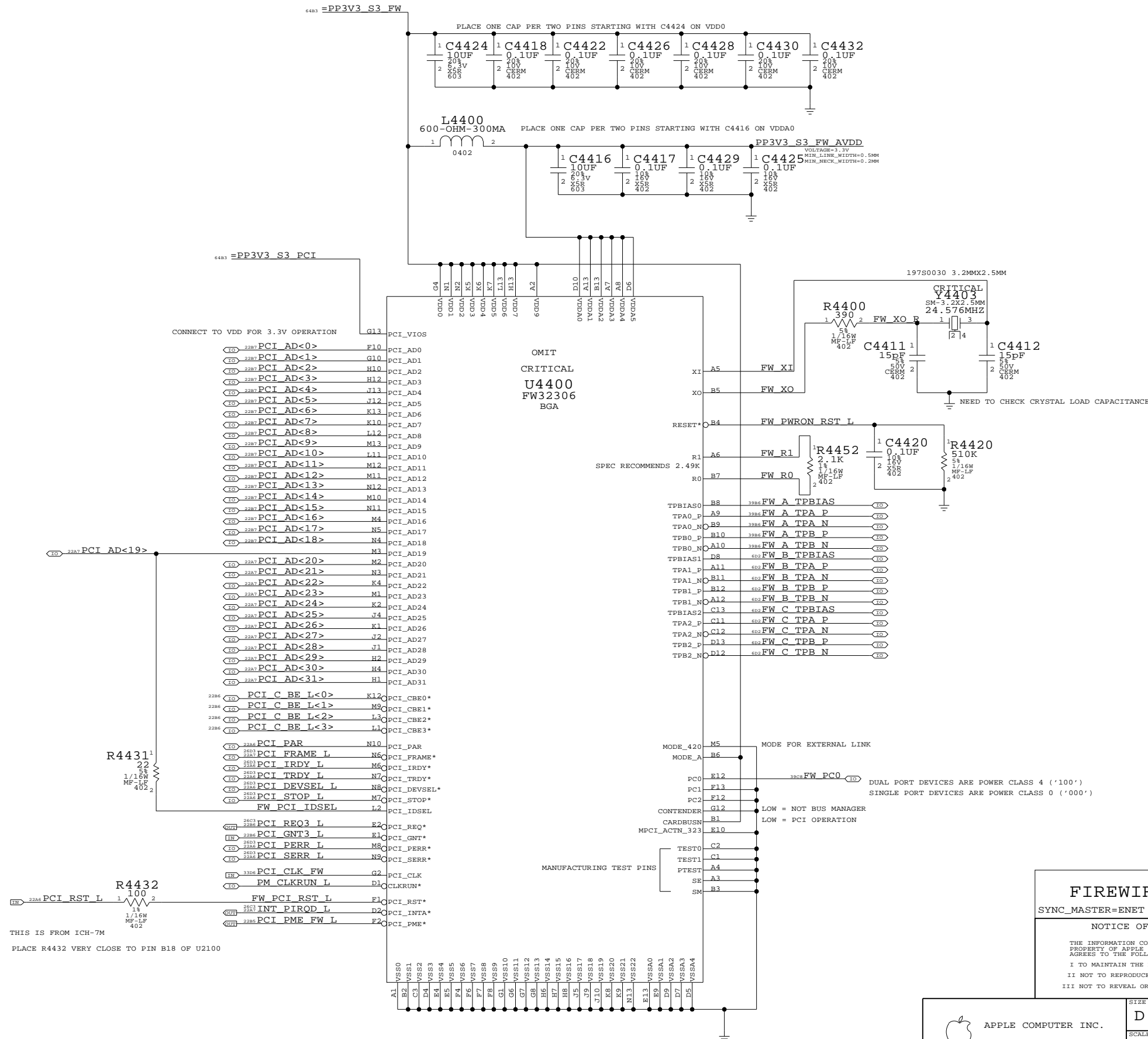
INPUT/OUTPUT
 PCI_AD<0..31>, PCI_C_BE_L<0..3>, PCI_FRAME_L, PCI_IRDY_L, PCI_TRDY_L,
 PCI_DEVSEL_L, PCI_STOP_L, PCI_PAR, PCI_PERR_L, PCI_SERR_L
 FW_A_TPA_P/N, FW_A_TPB_P/N, FW_A_TPBIAS - PORT 0 FIREWIRE DIFF PAIRS
 FW_B_TPA_P/N, FW_B_TPB_P/N, FW_B_TPBIAS - PORT 1 FIREWIRE DIFF PAIRS
 FW_C_TPA_P/N, FW_C_TPB_P/N, 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
 6/20/2005 - BGA VERSION OF FW323-06 ADDED
 6/21/2005 - CHANGED INT* TO INT_PIRQD (PER ARCHITECTURAL DEFINITION)
 6/21/2005 - CHANGED PCI_ID TO AD19 (PER ARCHITECTURAL DEFINITION)
 6/21/2005 - CHANGED REQ3/GNT TO REQ3/GNT3 (PER ARCHITECTURAL DEFINITION)
 6/22/2005 - ADDED 510K PULL-DOWN ON RST* AND REMOVED CONNECTION TO PLT_RST_L
 6/22/2005 - CHANGED CLK_PME DIFF PAIR NAMES TO BE RE-USE COMPLIANT
 6/22/2005 - REMOVED CONSTRAINT SETS AS THEY WILL BE MANAGED ON BOARD SIDE
 6/22/2005 - CHANGED CLK_PME DIFF PAIR NAMES TO BE RE-USE COMPLIANT
 6/22/2005 - REMOVED C4421 - REDUNDANT
 6/22/2005 - BRING OUT PCO CONNECTION TO BE CONNECTED ON PORT PAGE
 7/26/2005 - CONNECTED PIN E10 TO GND

MOBILE TURNS OFF CONTROLLER POWER DURING SLEEP
 0.001A DURING SLEEP



THIS IS FROM ICH-7M
 PLACE R4432 VERY CLOSE TO PIN B18 OF U2100

FIREWIRE CONTROLLER
 SYNC_MASTER=ENET SYNC_DATE=08/30/2005

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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	112
NONE	44		

Page Notes

INPUT:
 =PPBUS_S5_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_TPB1A0 - FIREWIRE DIFF PAIRS

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

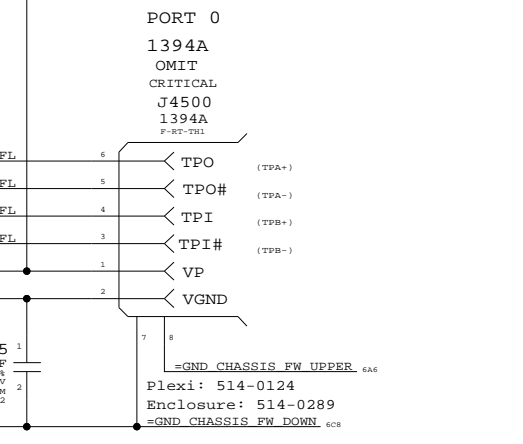
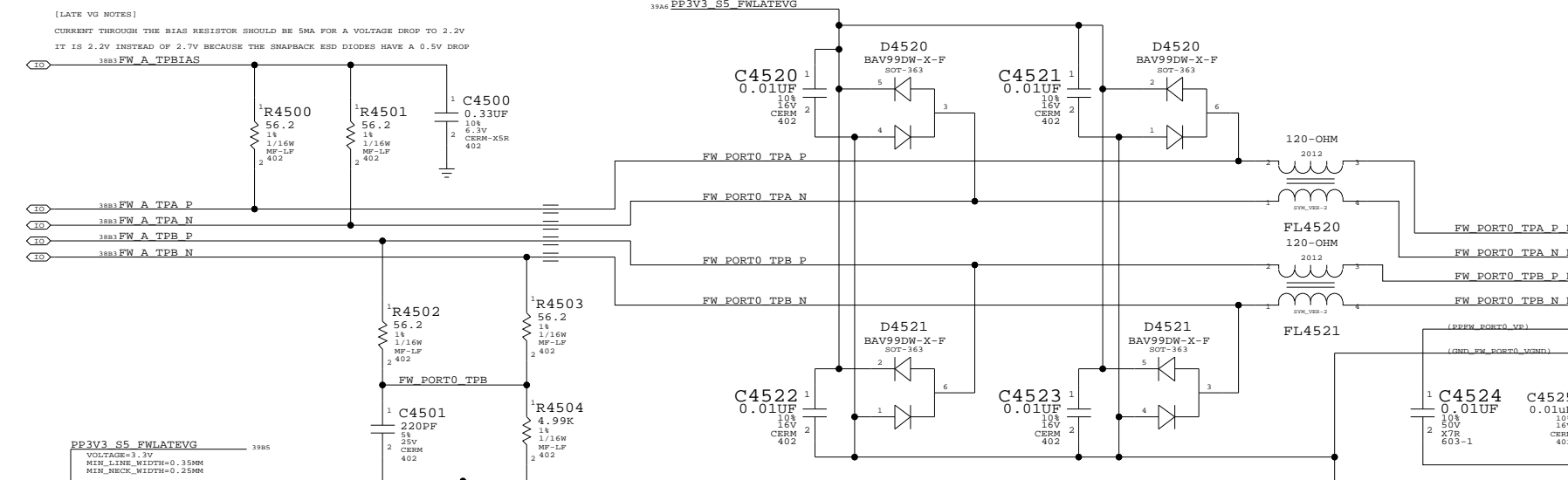
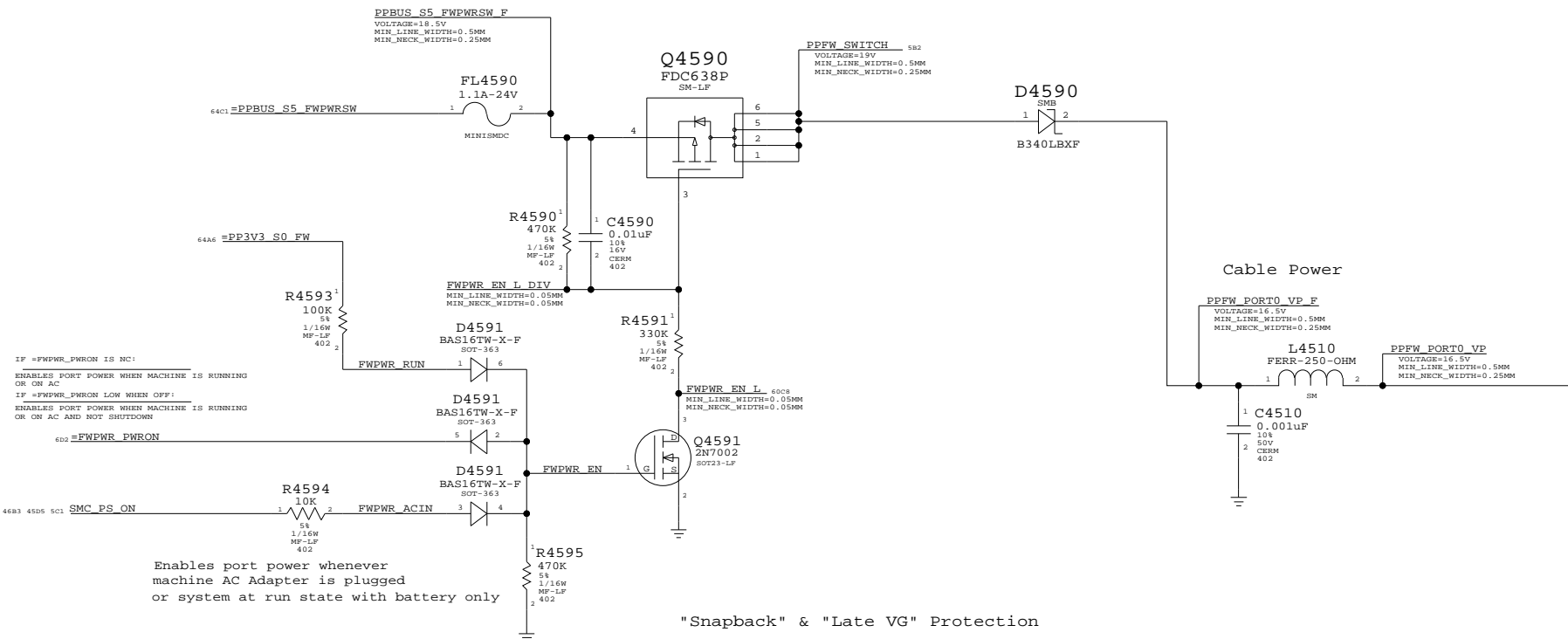
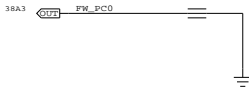
PAGE HISTORY

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_PCO 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 FIREWIRE CONNECTOR
 7/26/05 - REMOVED R4520 - IT HASN'T BEEN STUFFED FOR MANY PRODUCTS
 7/26/05 - CHANGED FL4590 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



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
514-0359	1	CONN,6P 1394A RCPT,MIDPLANE,MQ3_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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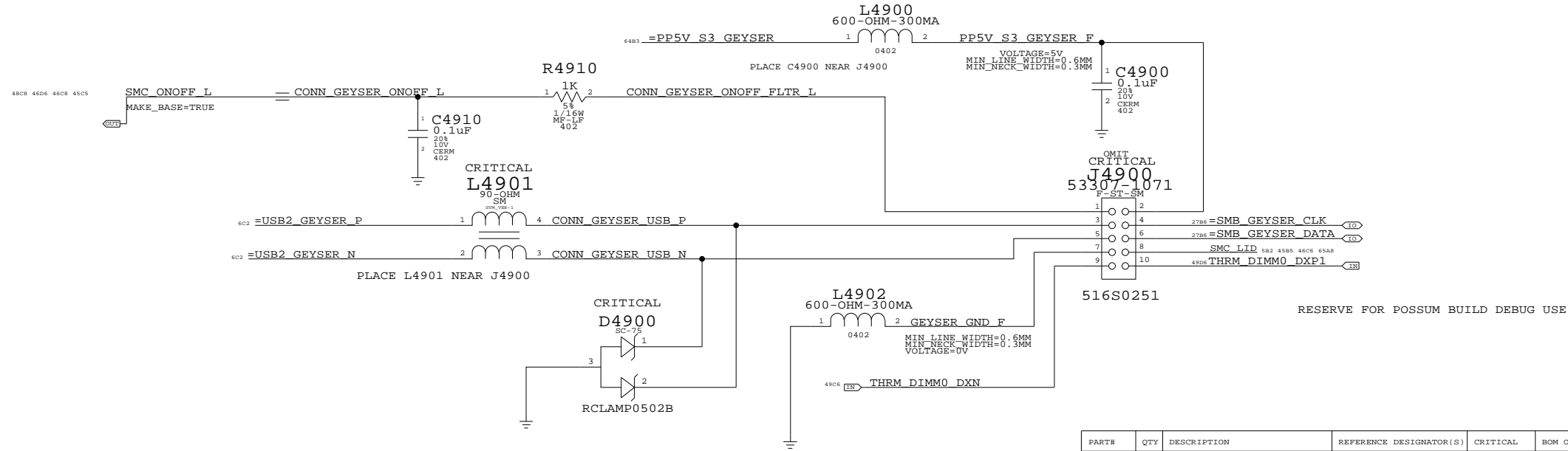
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APPLE COMPUTER INC.

SCALE: NONE SHEET: 45 OF 112

SIZE: D DRAWING NUMBER: 051-7374 REV: C

GEYSER AND DIMMO REMOTE TEMP SENSORS

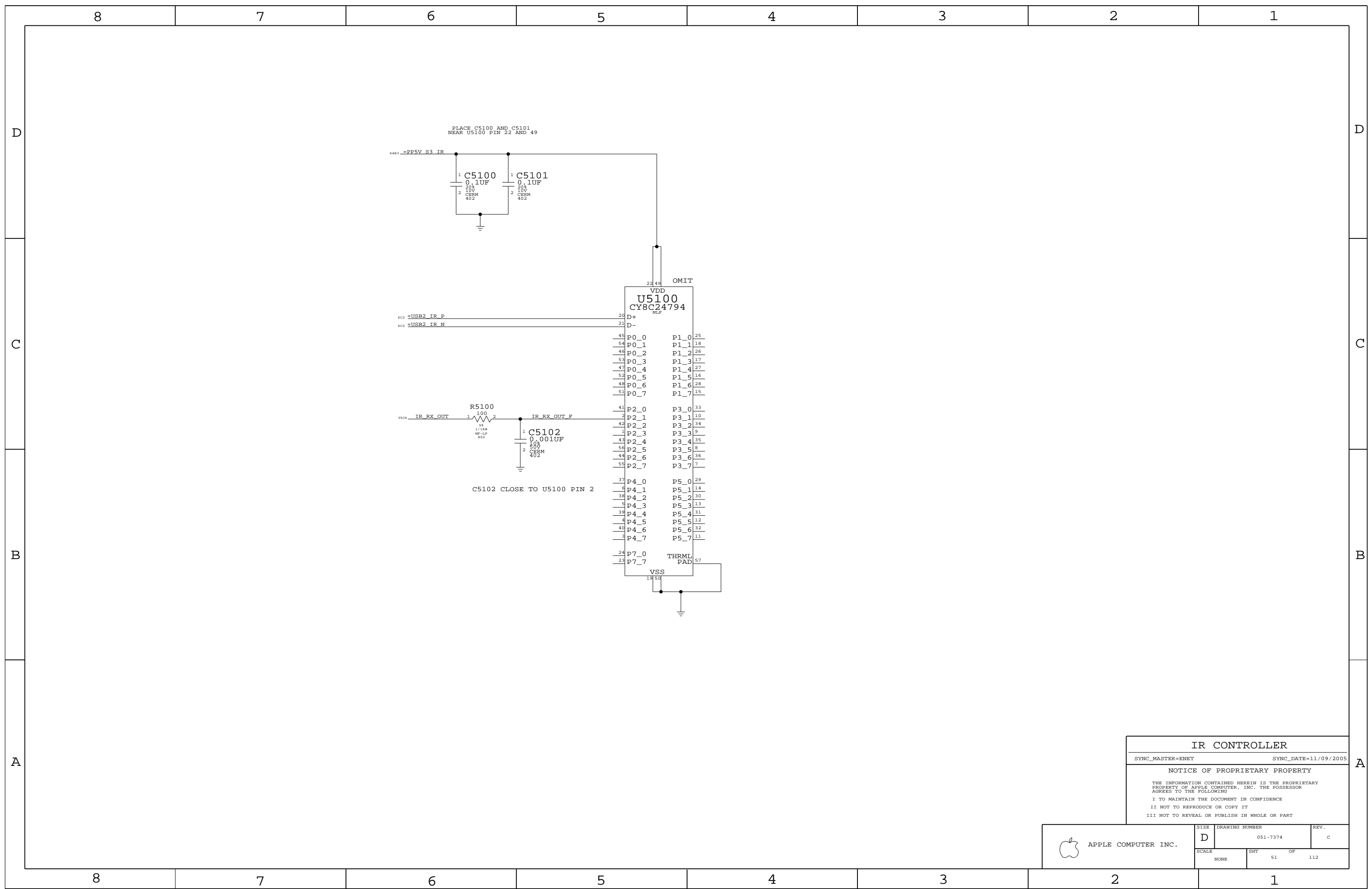


PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
516S0482	1	ACES 88646-1071-NS	J4900	CRITICAL	NORMAL
516S0482	1	ACES 88646-1071-NS	J4900	CRITICAL	FANCY

CONNECTOR MISC
 SYNC_MASTER=ENET SYNC_DATE=11/16/2005

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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. c
	SCALE NONE	SHEET 49	OF 112



PLACE C5100 AND C5101
NEAR U5100 PIN 22 AND 49

C5102 CLOSE TO U5100 PIN 2

IR CONTROLLER

SYNC_MASTER=ENET SYNC_DATE=11/09/2005

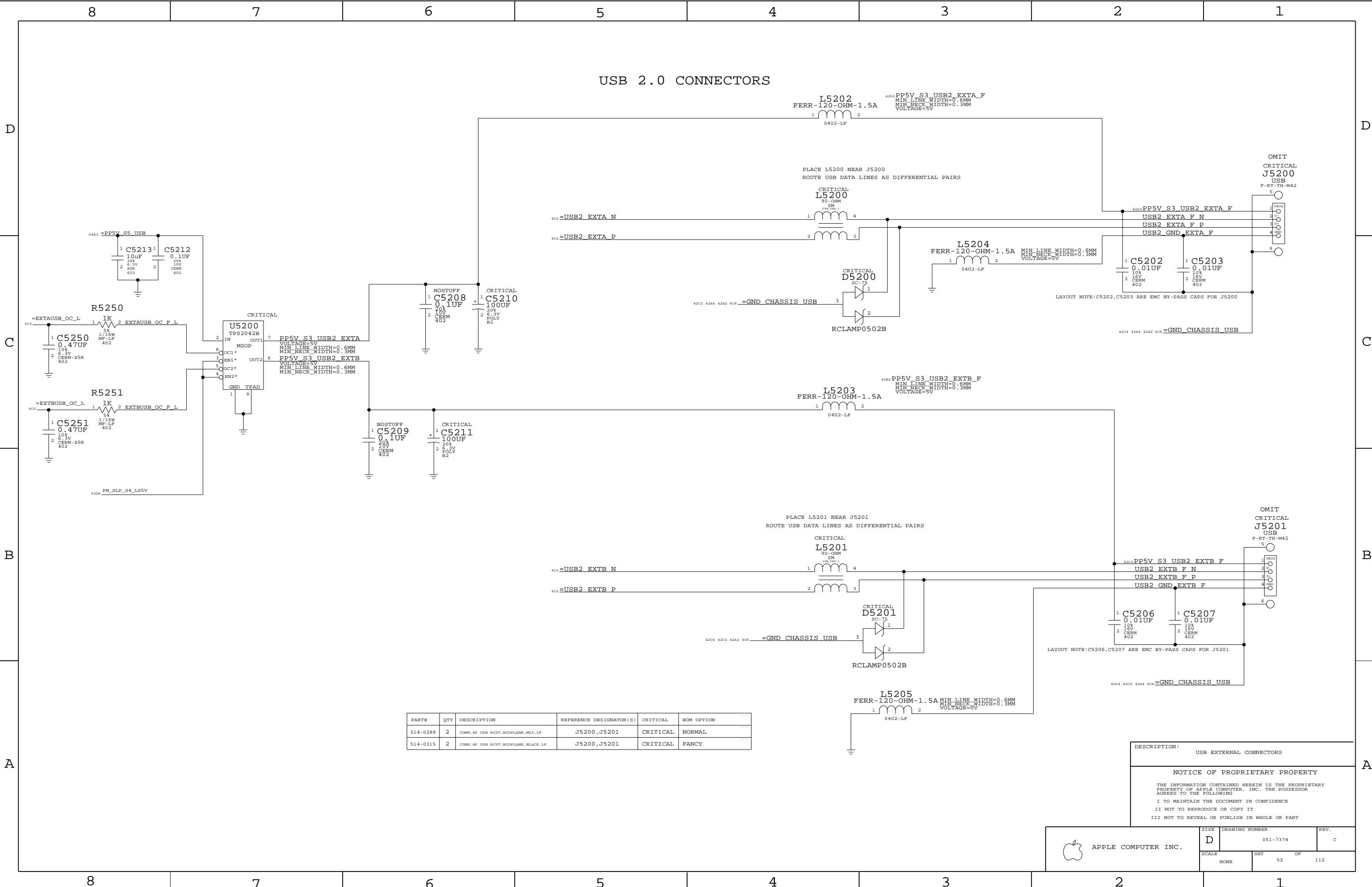
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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. C
	SCALE NONE	SHEET 51	OF 112

USB 2.0 CONNECTORS



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

NOTICE OF PROPRIETARY PROPERTY

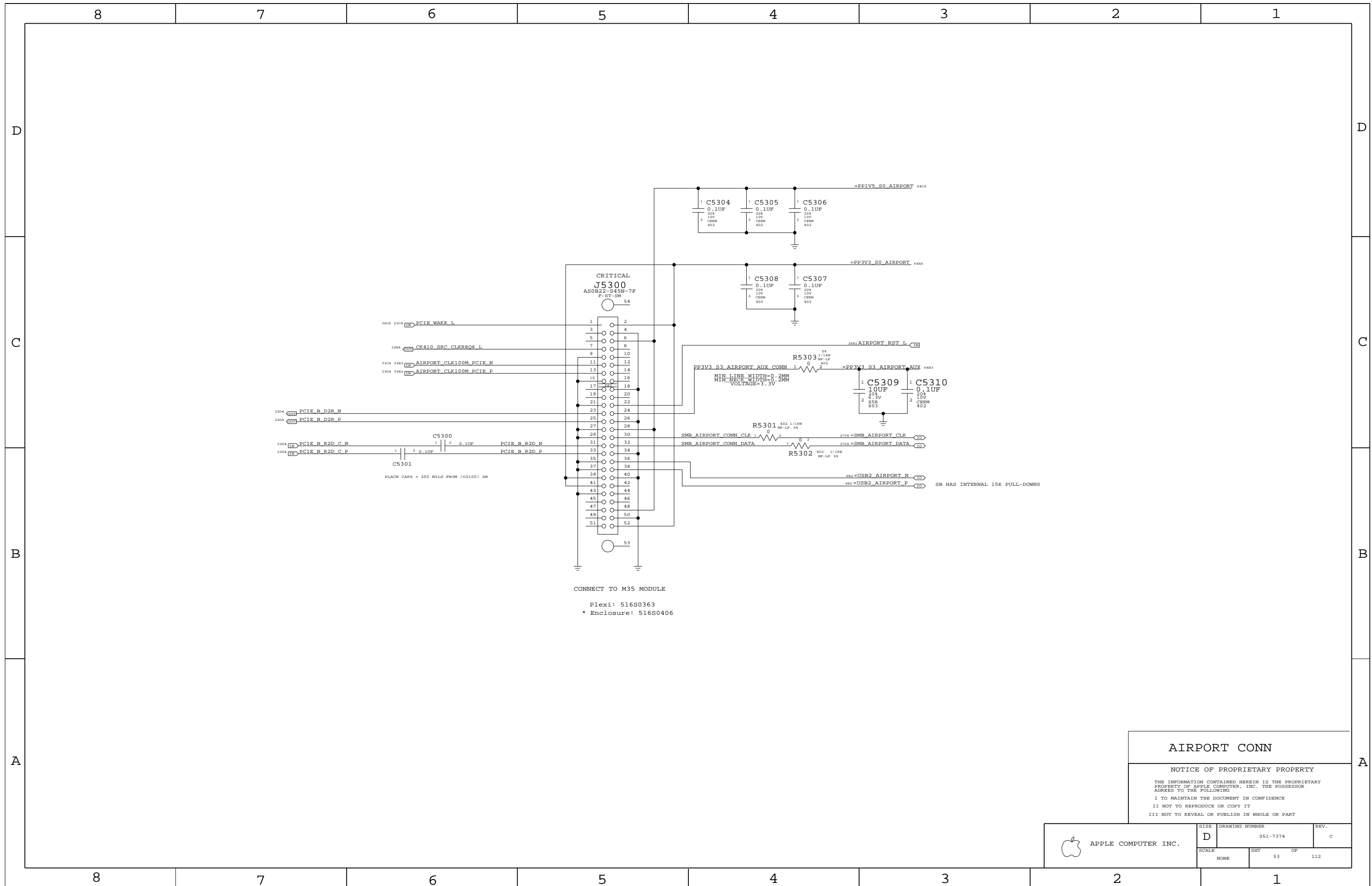
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	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	52	112	




CONNECT TO M35 MODULE

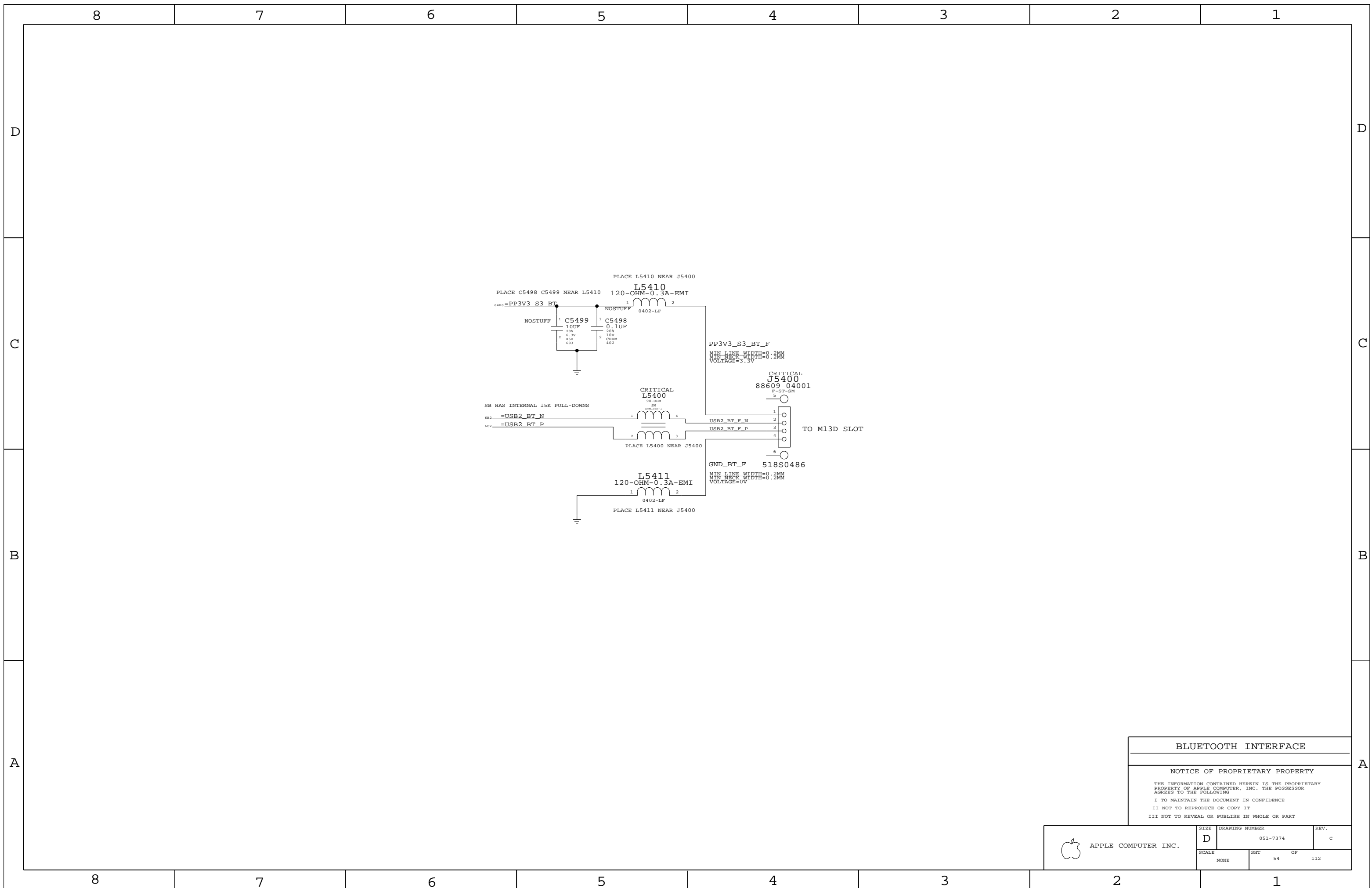
Plexi: 516S0363
 * Enclosure: 516S0406

AIRPORT CONN

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 APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. C
	SCALE NONE	SHT 53	OF 112



BLUETOOTH INTERFACE

NOTICE OF PROPRIETARY PROPERTY

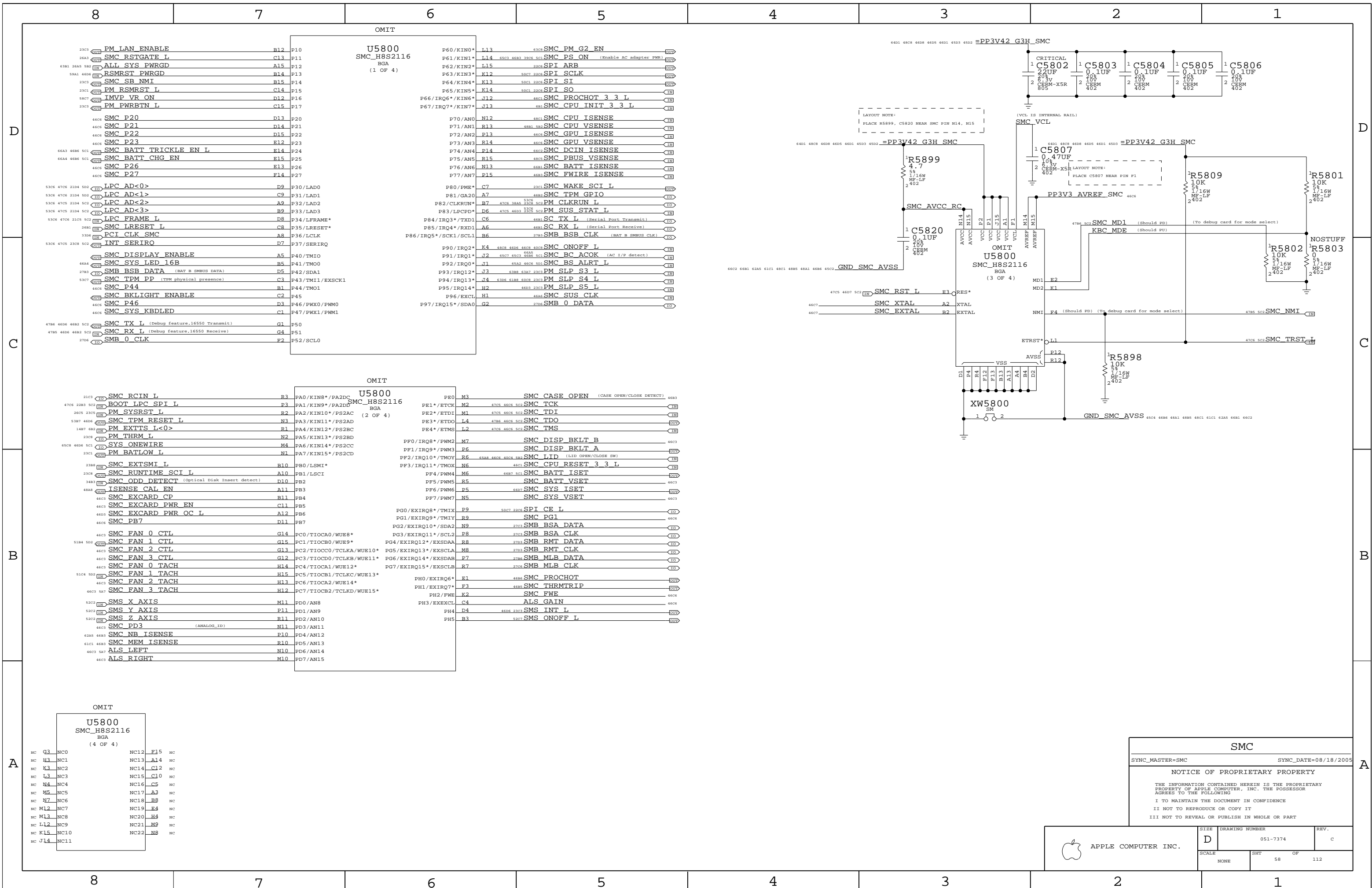
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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. c
	SCALE NONE	SHT 54	OF 112



SMC

SYNC_MASTER=SMC SYNC_DATE=08/18/2005

NOTICE OF PROPRIETARY PROPERTY

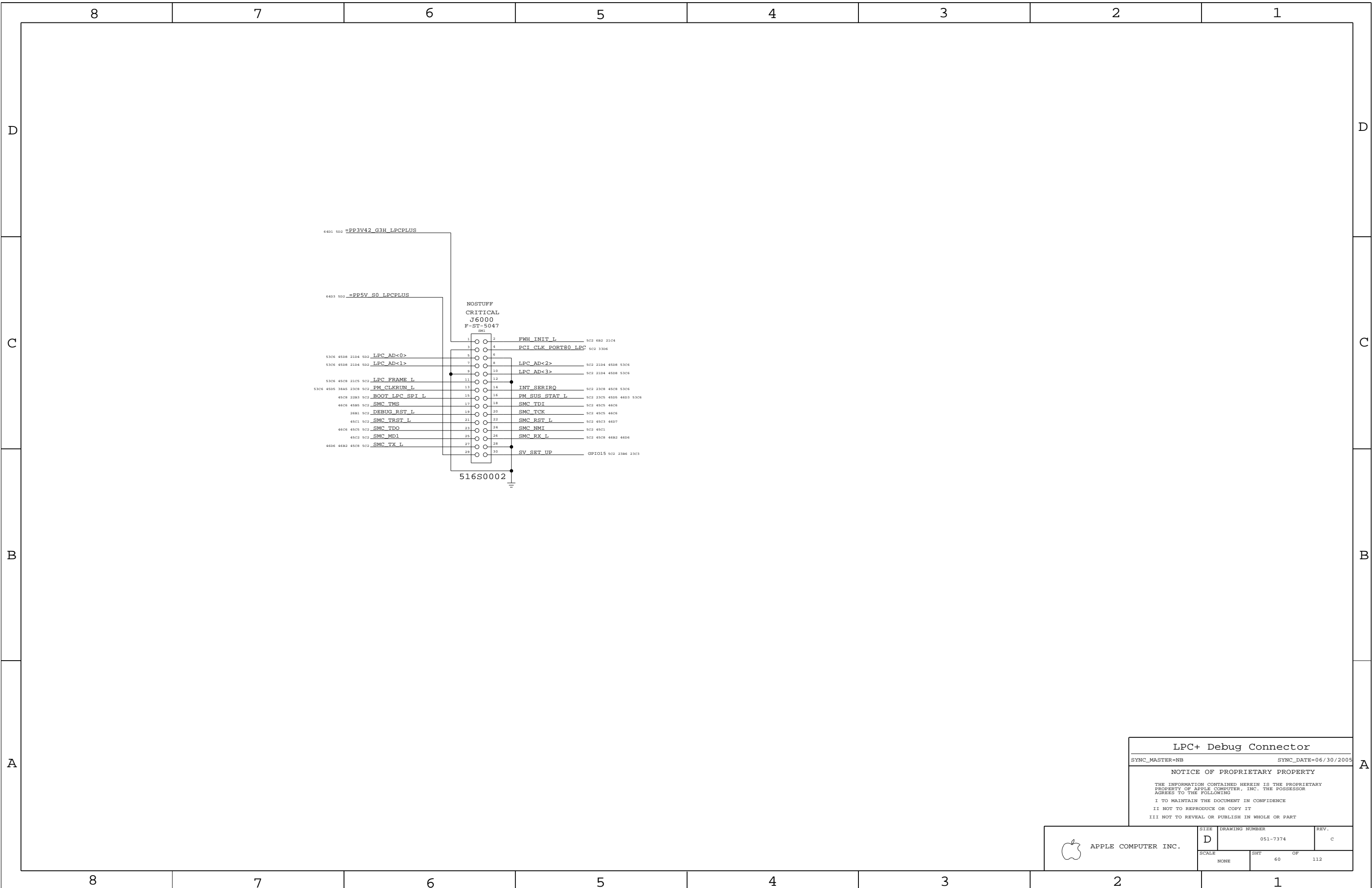
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	SCALE NONE	SHEET 58	OF 112



LPC+ Debug Connector

SYNC_MASTER=NB SYNC_DATE=06/30/2005

NOTICE OF PROPRIETARY PROPERTY

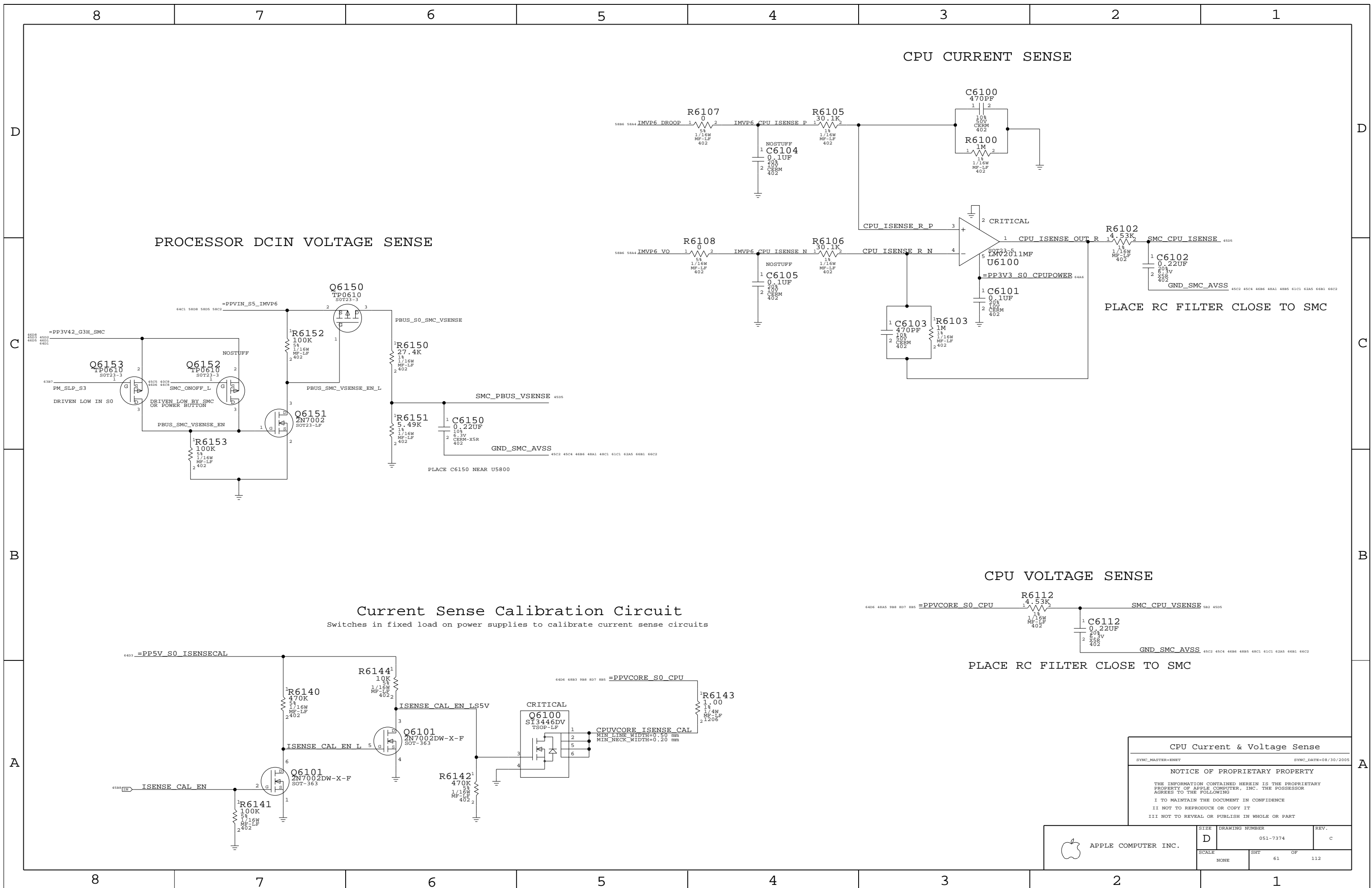
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	SCALE NONE	SHEETS 60	OF 112



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

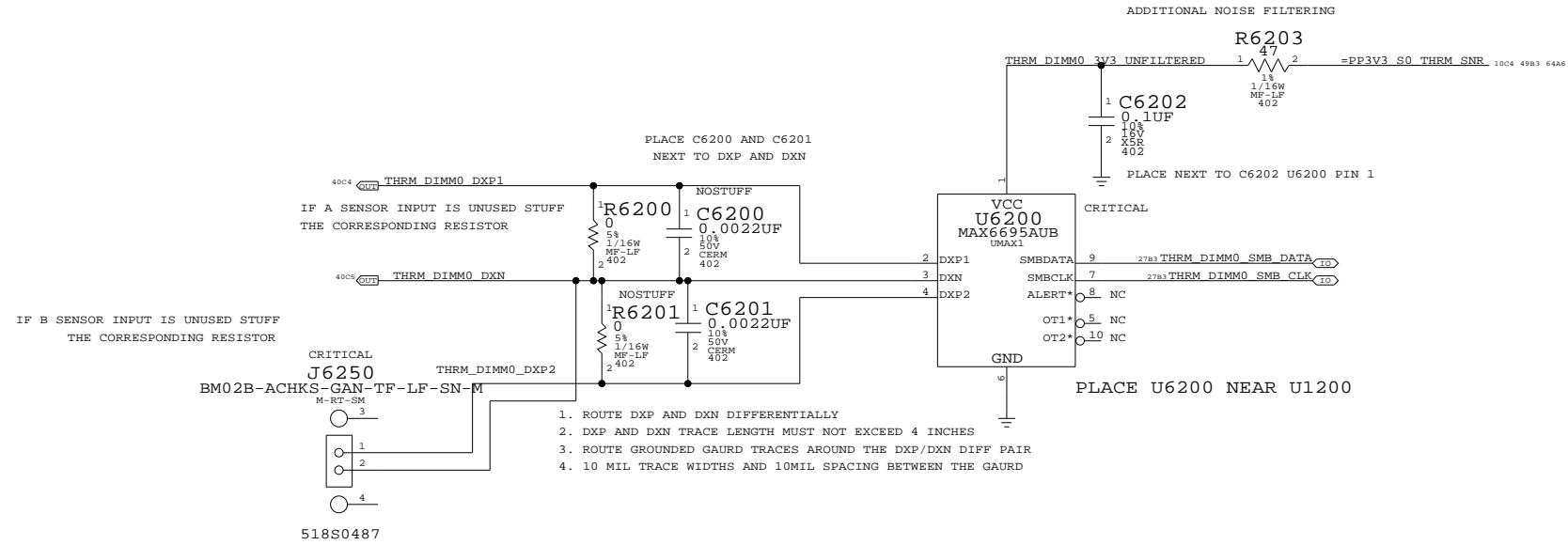
PLACE RC FILTER CLOSE TO SMC

PLACE RC FILTER CLOSE TO SMC

CPU Current & Voltage Sense		
SYNC_MASTER=EMBT	SYNC_DATE=08/30/2005	
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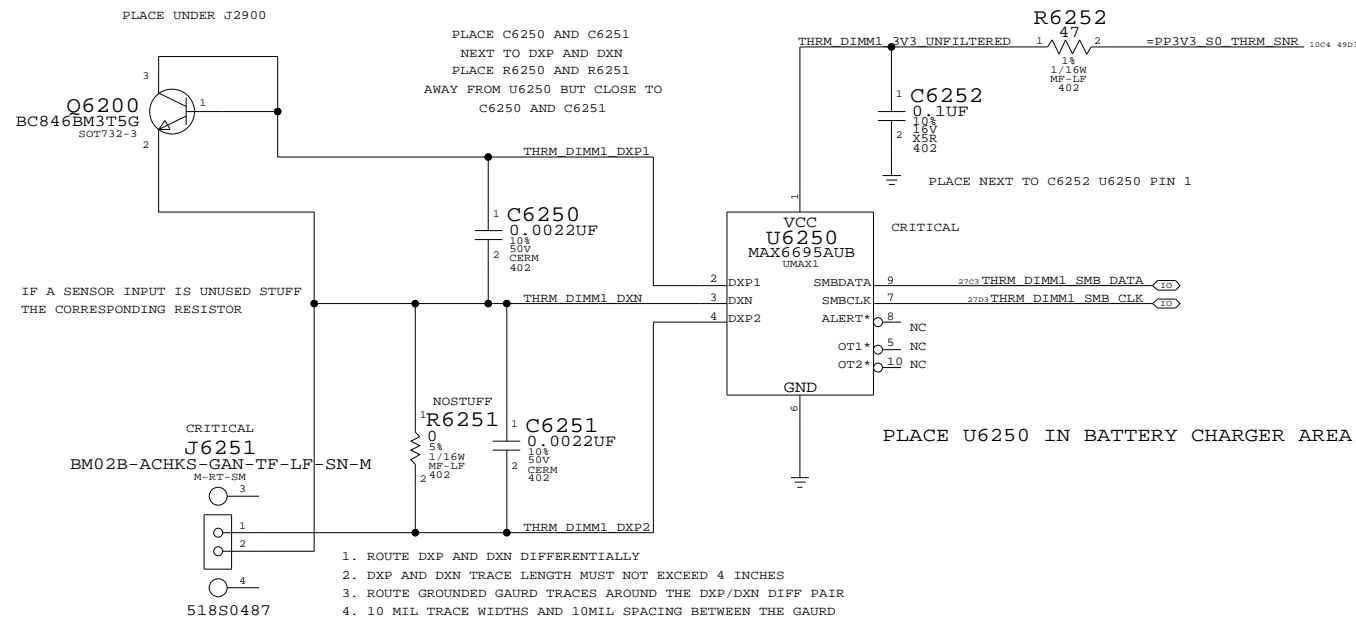
APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. C
	SCALE NONE	SHEET 61	OF 112

DIMM0 TEMPERATURE ZONE



NOTE: REPLACE J6250 AND J6251 FROM 518S0332 TO 518S0452 AND THEN 518S0487 AFTER THIS CHANGE, THE SCHEAMTIC DOES NOT MATCH THE PCB ON THESE TWO LOCATIONS.

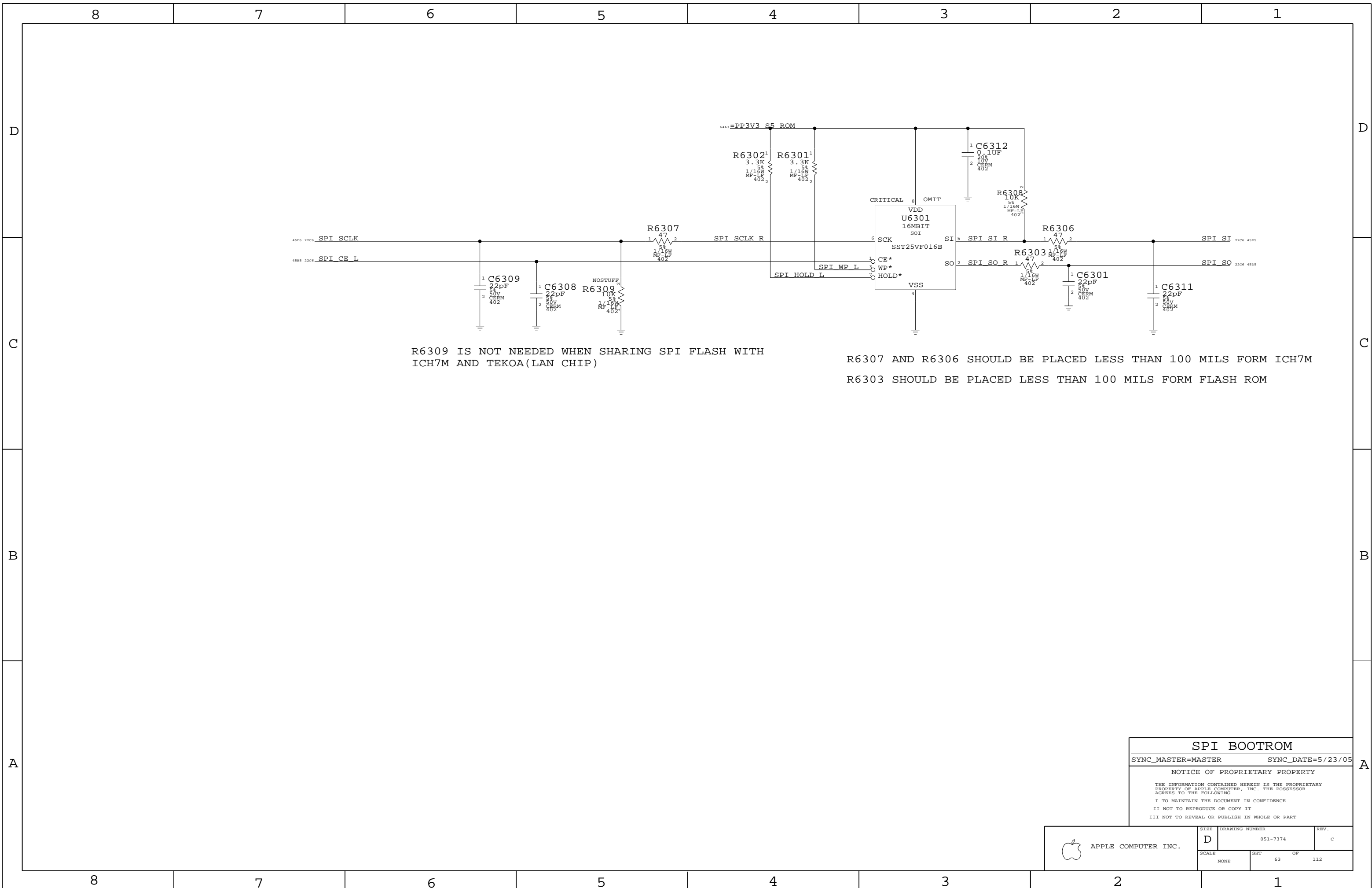
DIMM1 TEMPERATURE ZONE



NOTE: REPLACE J6250 AND J6251 FROM 518S0332 TO 518S0452 AND 518S0487 AFTER THIS CHANGE, THE SCHEAMTIC DOES NOT MATCH THE PCB ON THESE TWO LOCATIONS.

TEMPERATURE SENSE	
SYNC_MASTER=ENET	SYNC_DATE=11/09/2005
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	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	62	112	



R6309 IS NOT NEEDED WHEN SHARING SPI FLASH WITH ICH7M AND TEKOA(LAN CHIP)

R6307 AND R6306 SHOULD BE PLACED LESS THAN 100 MILS FORM ICH7M
 R6303 SHOULD BE PLACED LESS THAN 100 MILS FORM FLASH ROM

SPI BOOTROM
 SYNC_MASTER=MASTER SYNC_DATE=5/23/05

NOTICE OF PROPRIETARY PROPERTY

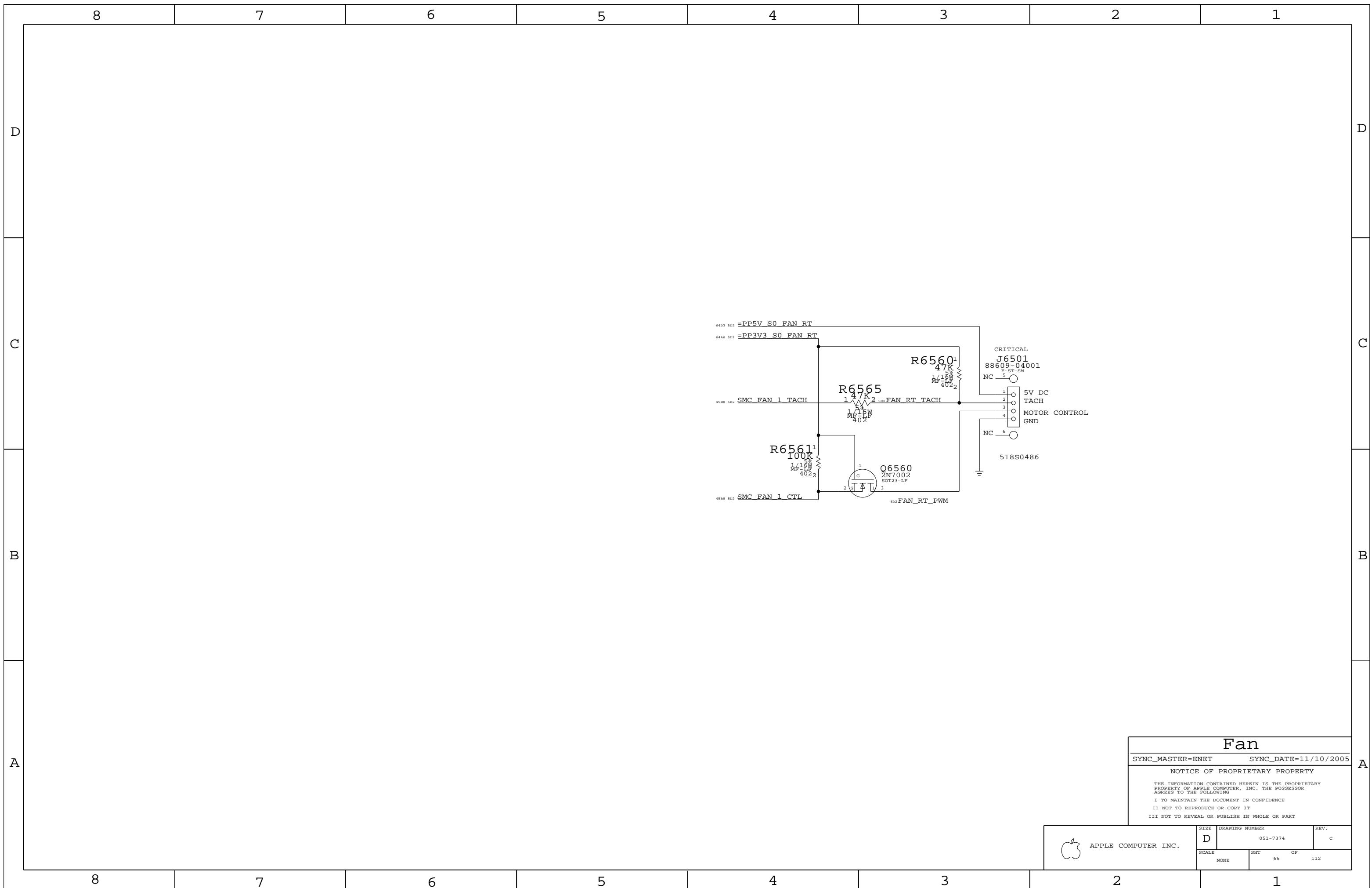
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	D	051-7374	c
SCALE	SHT	OF	REV.
NONE	63	112	



Fan

SYNC_MASTER=ENET SYNC_DATE=11/10/2005


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	D	051-7374	c
SCALE	SHT	OF	REV.
NONE	65	112	

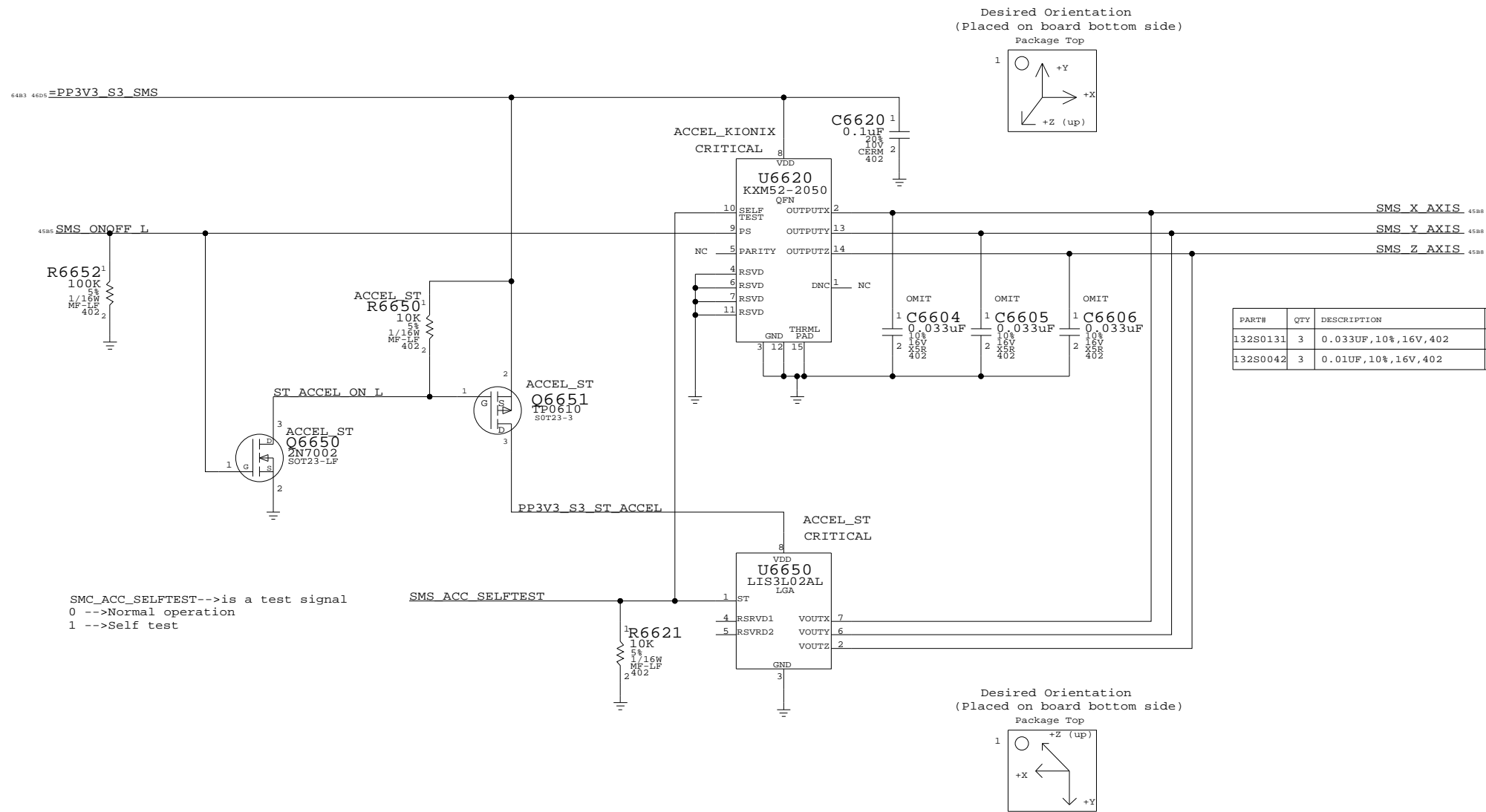
PAGE NOTES

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
 7/26/2005 -



R6652
 100K
 5%
 1/16W
 MF-LF
 402

ACCEL_ST
 R6650
 10K
 5%
 1/16W
 MF-LF
 402

ACCEL_ST
 Q6650
 2N7002
 SOT23-LF

ACCEL_ST
 Q6651
 TP0610
 SOT23-3

R6621
 10K
 5%
 1/16W
 MF-LF
 402

C6620
 0.1uF
 10%
 CERM
 402

C6604
 0.033uF
 10%
 16V
 402

C6605
 0.033uF
 10%
 16V
 402

C6606
 0.033uF
 10%
 16V
 402

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

SMC_ACC_SELFTEST-->is a test signal
 0 -->Normal operation
 1 -->Self test

SMS

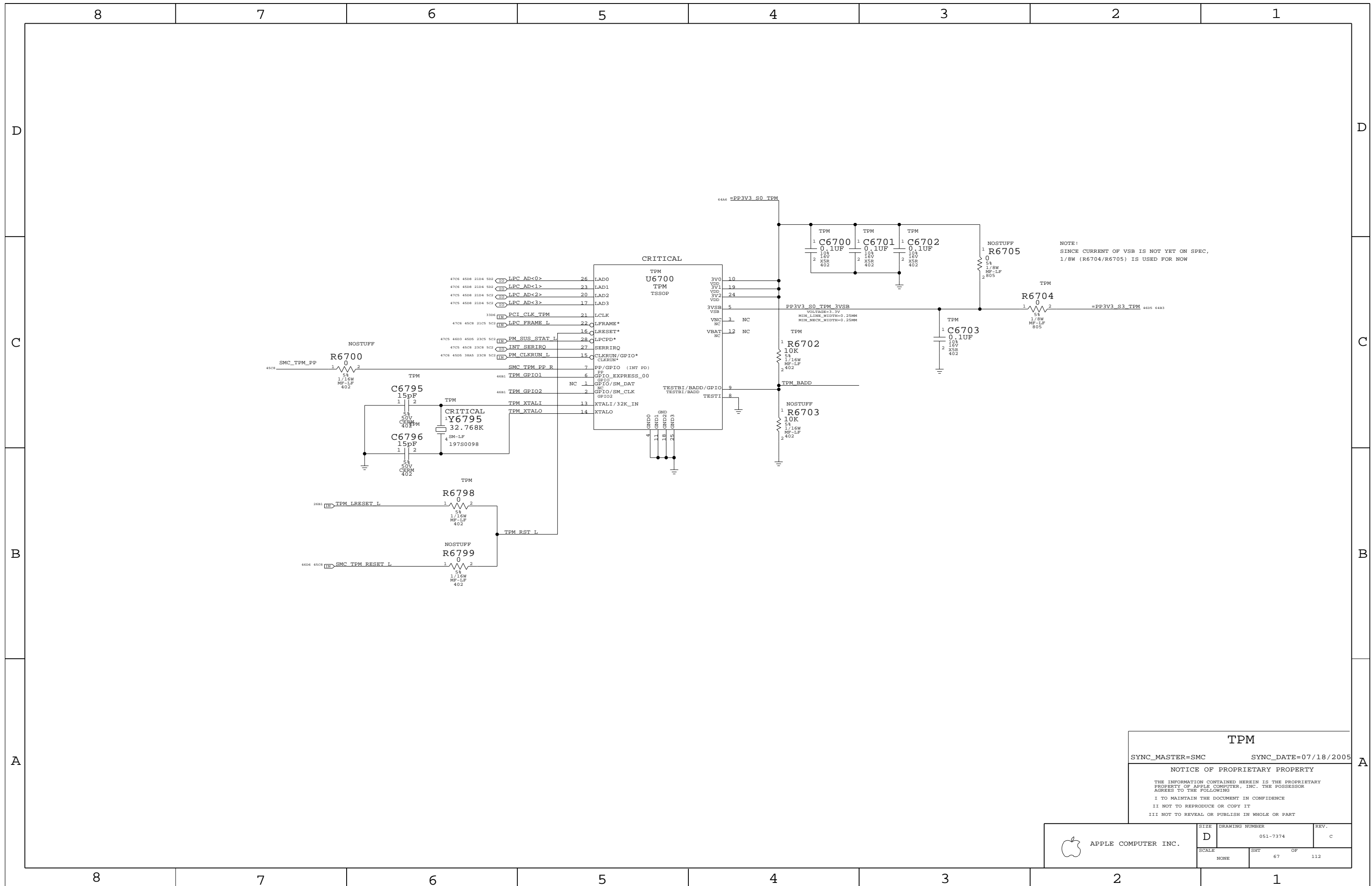
SYNC_MASTER=SMC SYNC_DATE=08/23/2005

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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	c
SCALE	SHT	OF	REV.
NONE	66	112	



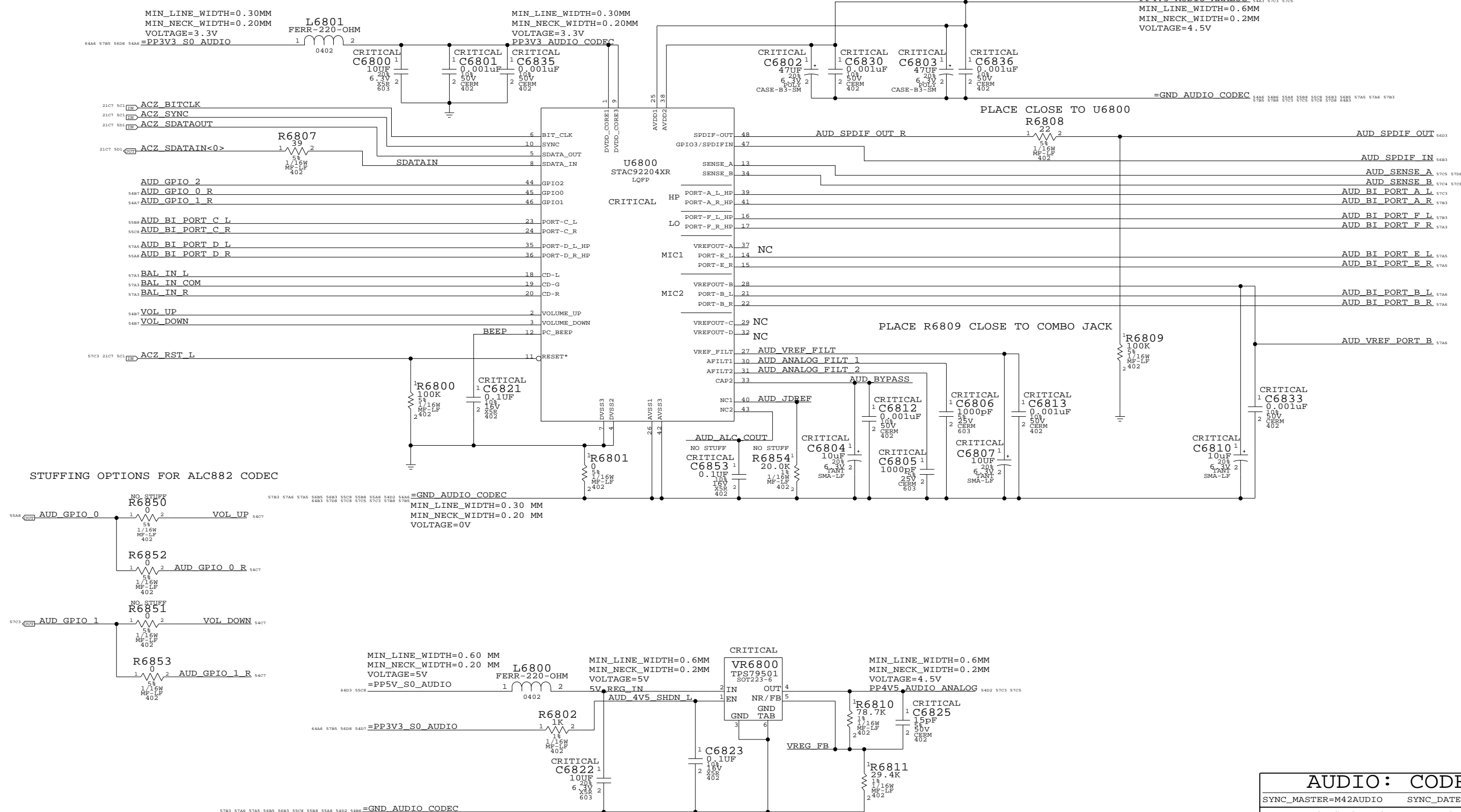
TPM
 SYNC_MASTER=SMC SYNC_DATE=07/18/2005

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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. c
	SCALE NONE	SHT 67	OF 112

AUDIO CODEC

APPLE P/N 353S1458



AUDIO: CODEC

SYNC_MASTER=M42AUDIO SYNC_DATE=08/05/2006

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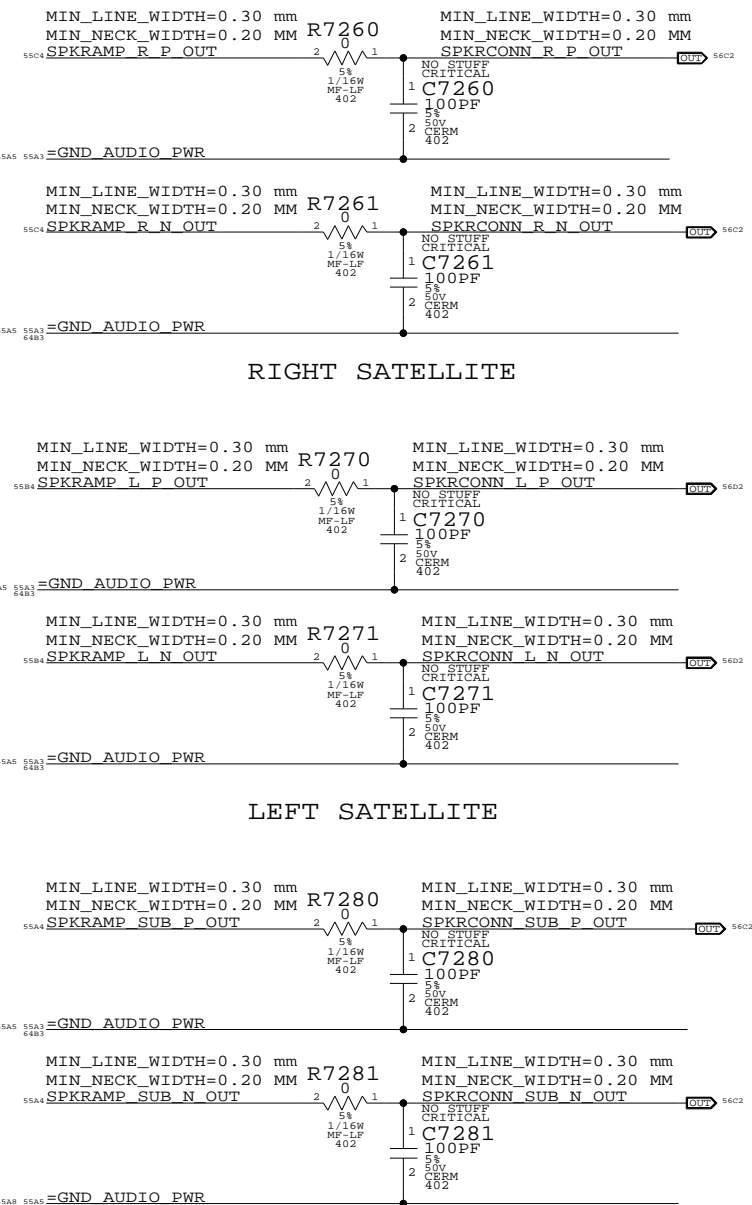
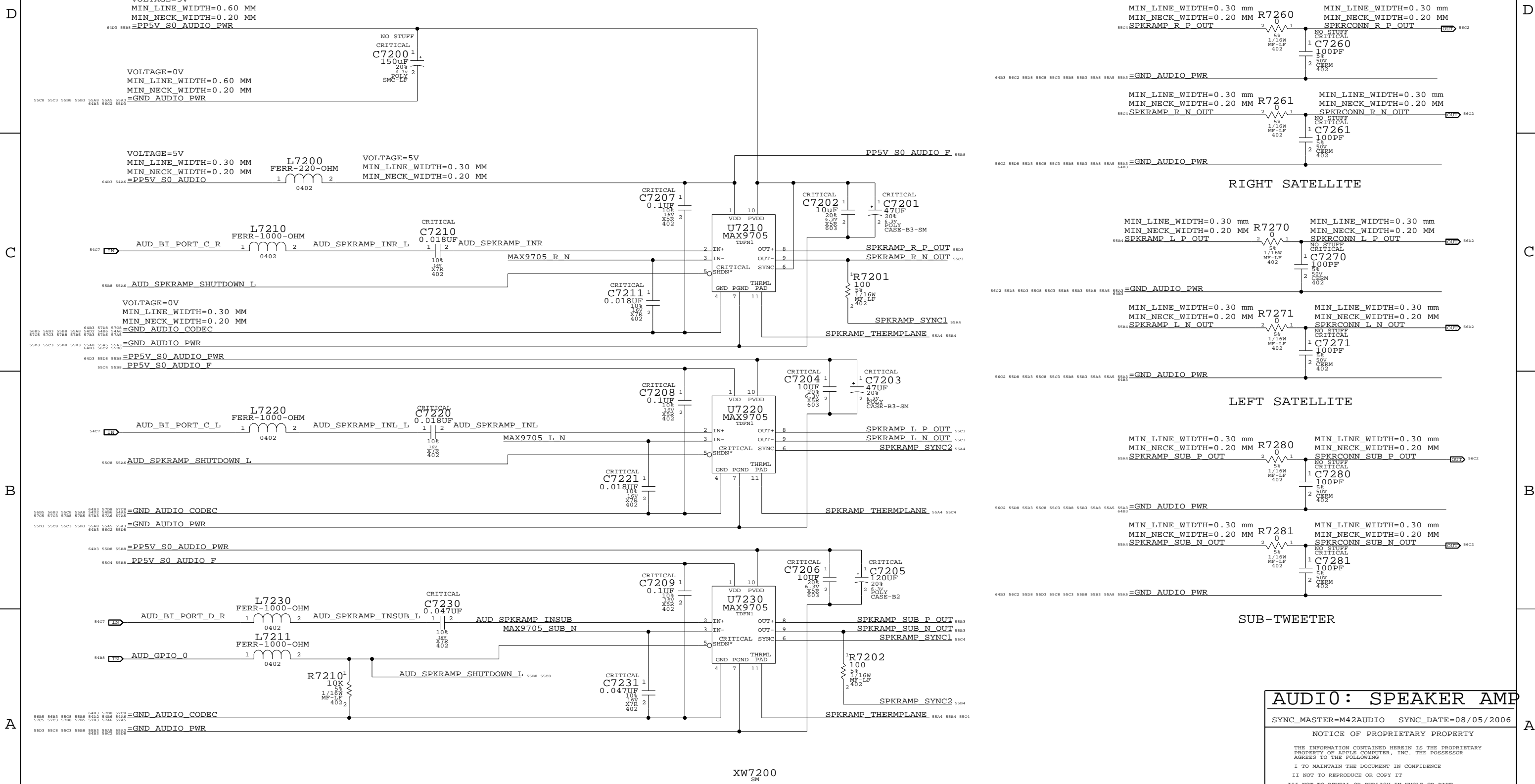
APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. C
	SCALE NONE	SHEET 68	OF 112

4.5V POWER SUPPLY FOR CODEC

SATELLITE & SUB TWEETER AMPLIFIER APN:353S1595

SATELLITE 442 Hz < FC < 736 Hz
 SUB 169 Hz < FC < 282 Hz

SPEAKER OUTPUT EMI FILTERS



AUDIO: SPEAKER AMP
 SYNC_MASTER=M42AUDIO SYNC_DATE=08/05/2006

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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	72	112	

A

A

D

D

C

C

B

B

8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1

8

7

6

5

4

3

2

1

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

MIC CONNECTOR
APN:514S0392

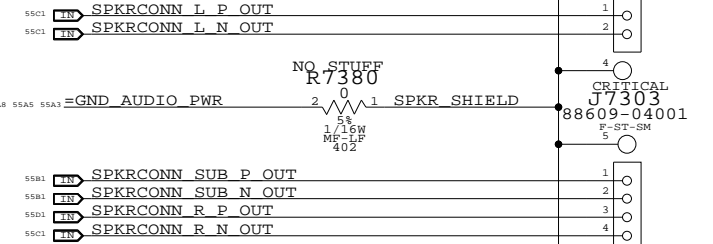
CRITICAL
J7301
48227-0301
M-RT-SM1
4

AUDIO JACK 1: LO/HP CONNECTOR, SPDIF TX

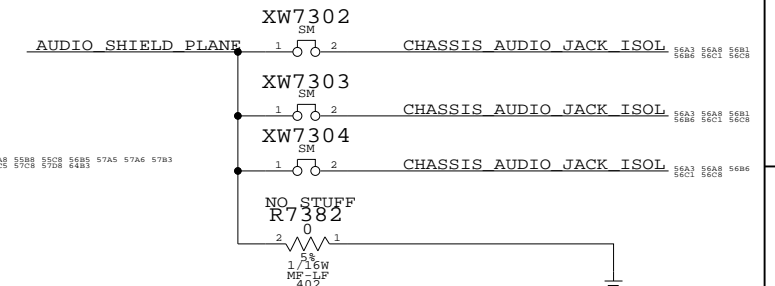
5681 MIC LO CONN
5682 MIC HI CONN
5683 MIC SHLD CONN

SPEAKER CONNECTOR
APN:518S0332

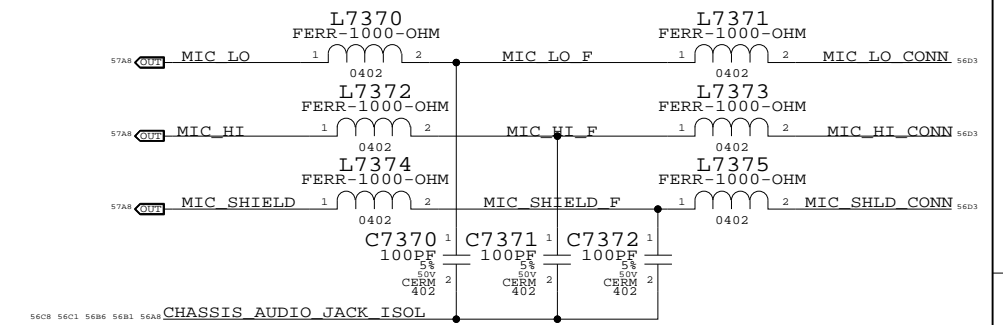
CRITICAL
J7302
88611-02001
F-ST-SM
3



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
514-0409	1	CONN, 3.5MM COMBO AUDIO OUT, RA, M23, LF	J7300	CRITICAL	NORMAL
514-0408	1	CONN, 3.5MM COMBO AUDIO IN, RA, M23, LF	J7350	CRITICAL	NORMAL
514-0411	1	CONN, 3.5MM COMBO AUDIO OUT, RA, BLACK, LF	J7300	CRITICAL	FANCY
514-0410	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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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	73	112	

8

7

6

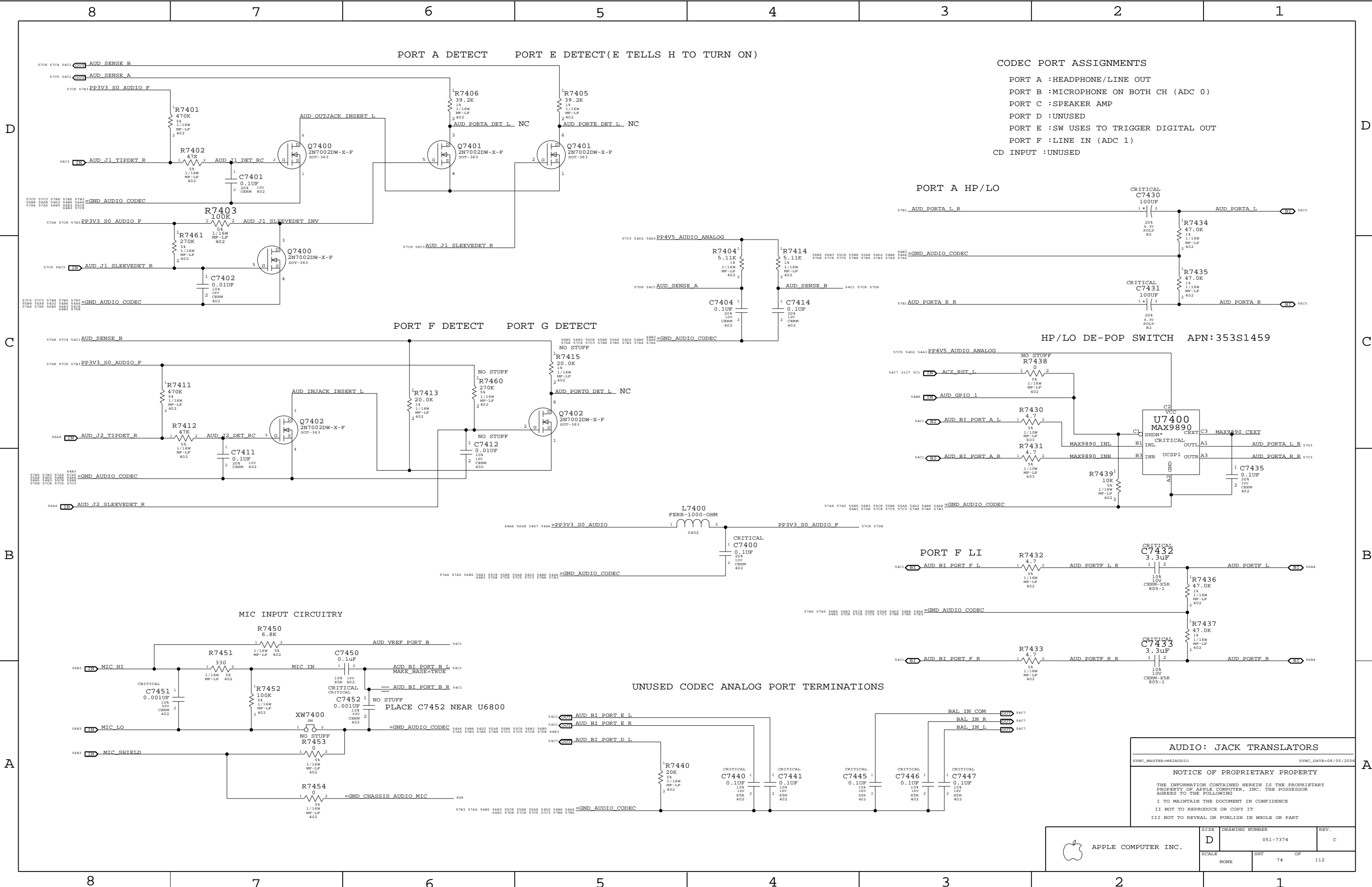
5

4

3

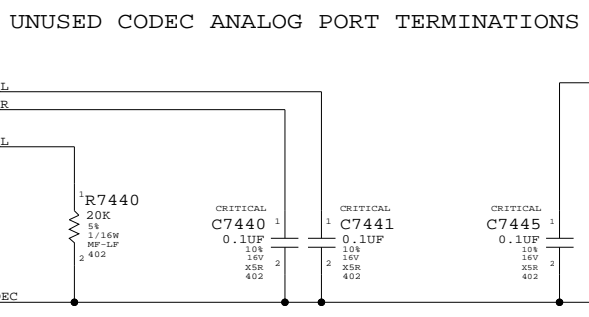
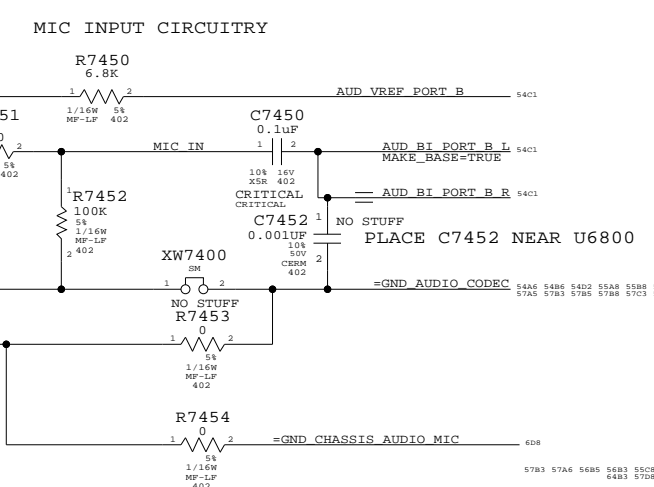
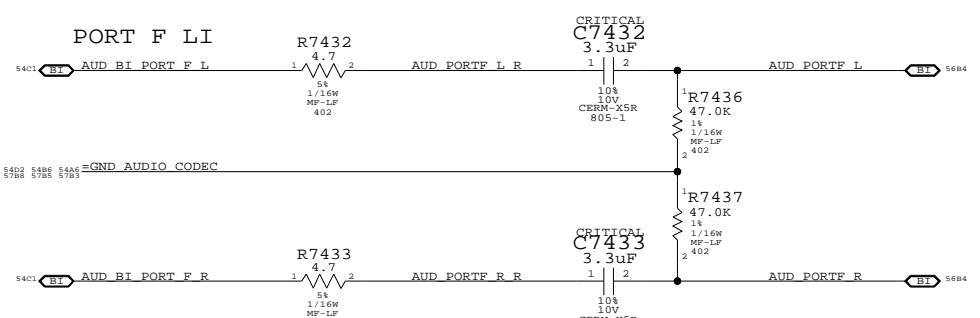
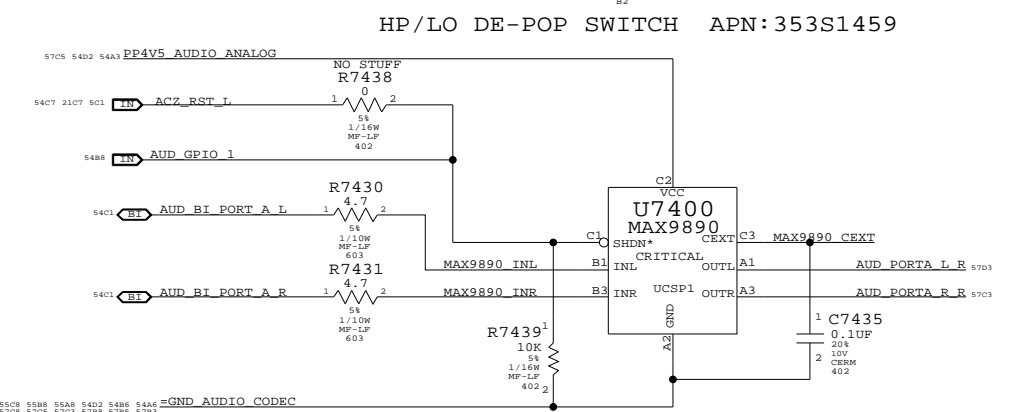
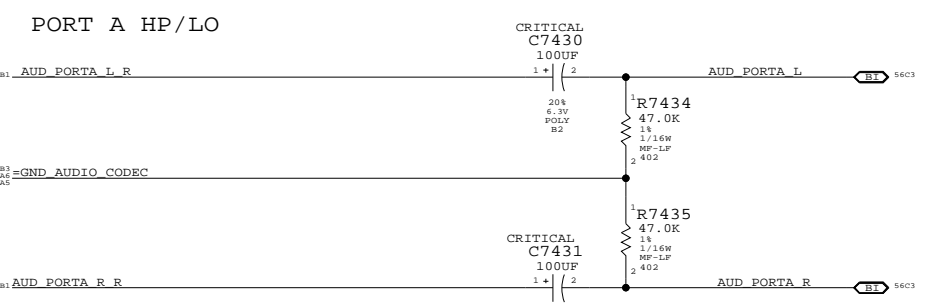
2

1



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



AUDIO: JACK TRANSLATORS

SYNC_MASTER=M42AUDIO SYNC_DATE=08/05/2006

NOTICE OF PROPRIETARY PROPERTY

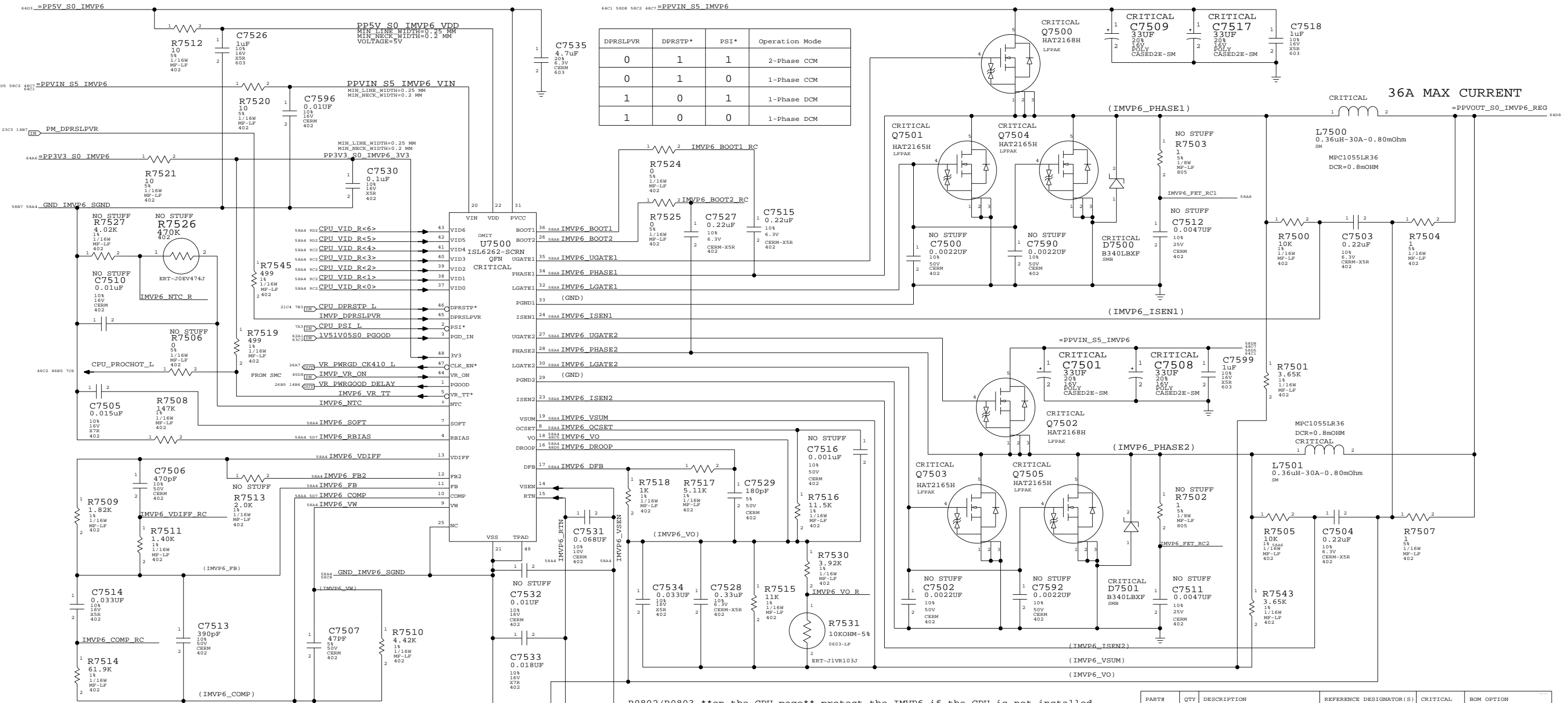
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	112
NONE	74		

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS
128S0093	128S0092	?	C7501_C7508	RENET T520V3300016AT0457650
128S0093	128S0092	?	C7509_C7517	RENET T520V3300016AT0457650

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



Note 1: C7532, C7533 = 27.4 Ohm For Validating CPU Only.

R0802/R0803 **on the CPU page** protect the IMVP6 if the CPU is not installed

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
1.5 MM	0.25 MM
0.25 MM	0.25 MM
1.5 MM	0.25 MM
1.5 MM	0.25 MM
1.5 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM

MIN_LINE_WIDTH	MIN_NECK_WIDTH
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
0.25 MM	0.25 MM
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_VO	0.25 MM	0.20 MM
IMVP6_DROOP	0.25 MM	0.20 MM
IMVP6_DFB	0.25 MM	0.20 MM
IMVP6_SOFT	0.25 MM	0.20 MM
IMVP6_RBIAS	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

NOTICE OF PROPRIETARY PROPERTY

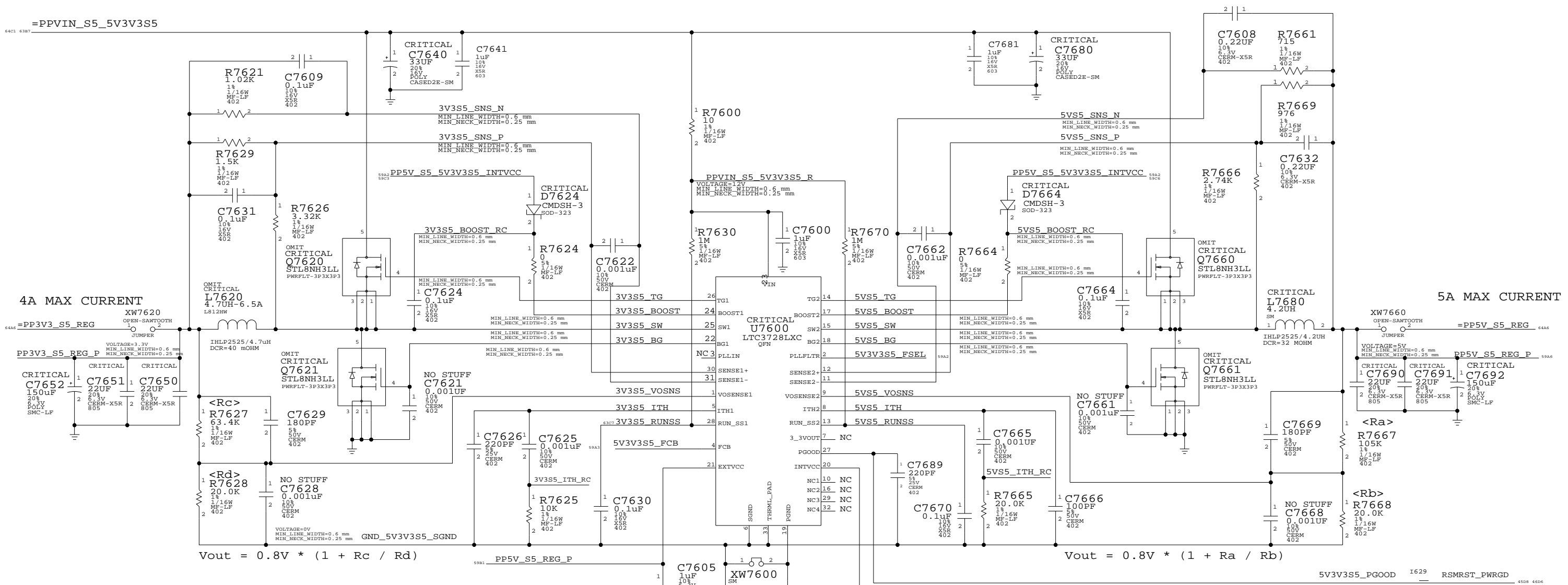
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SCALE NONE	SIZE D	DRAWING NUMBER 051-7374	REV. C
	SHEET 75	OF 112	



APPLE COMPUTER INC.

5V / 3.3V POWER SUPPLY



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
15280133	1	4.7UH, +/-20%, 40mOHM, 3mm	L7620	3V3_IND_3MM
15280365	1	4.7UH, +/-20%, 40mOHM, 2.8mm	L7620	3V3_IND_2MM8
37680445	4	FAIRCHILD FDM6296	Q7620, Q7621, Q7660, Q7661	FET_FDM6296

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
12880093	12880092	?	C7680, C7640	RENET VS20V330M16ATE0487650
37680448	37680445	?	Q7620, Q7621	VISHAY SI17806ADN
37680448	37680445	?	Q7660, Q7661	VISHAY SI17806ADN

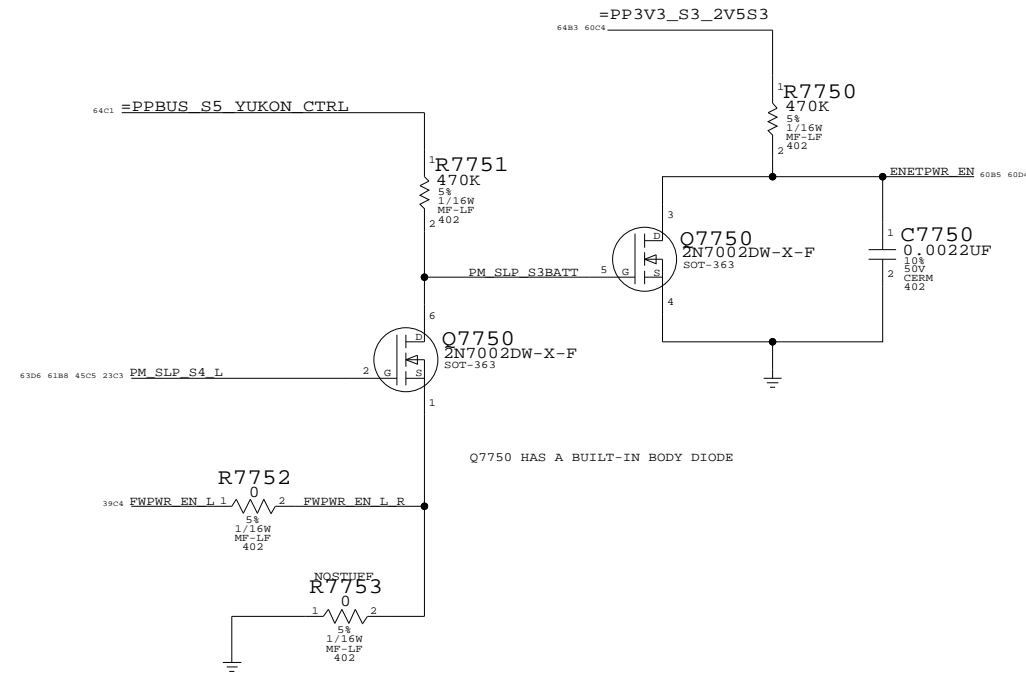
5V / 3.3V Power Supply
 SYNC_MASTER=POWER SYNC_DATE=07/13/2005

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APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-7374	C
SCALE	SHT	OF
NONE	76	112

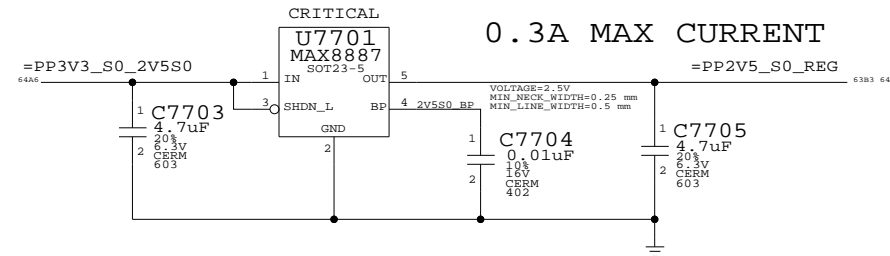
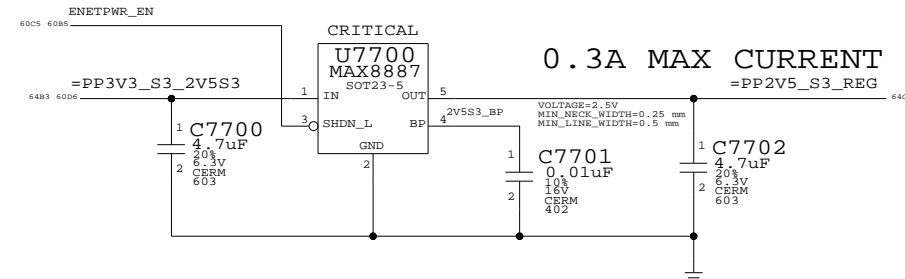
YUKON POWER CONTROL



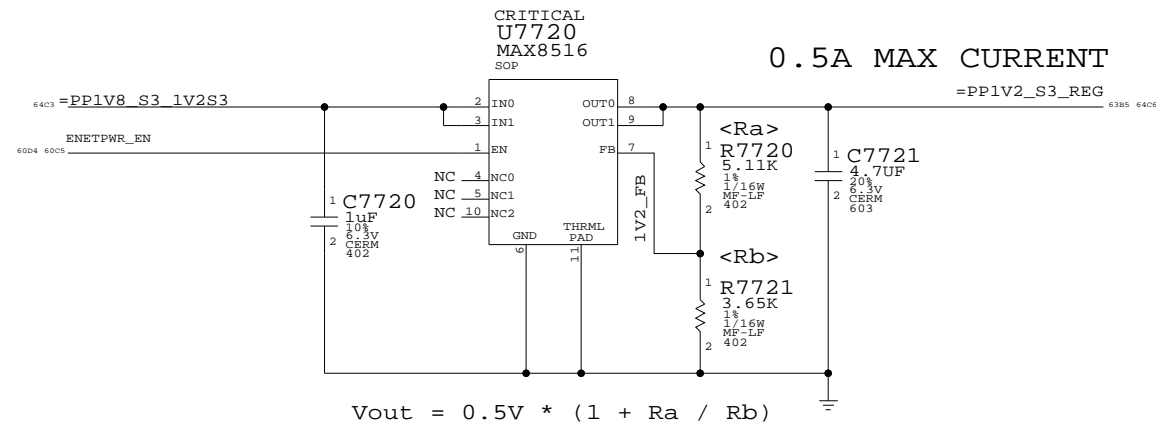
NAME	PM_SLP_S4_L	FWPWR_EN_L	PM_SLP_S3BATT	ENETPWR_EN
LOGIC	S3 S0	~S0 ~SMC_PS_ON		POWER YUKON
S3 ON BATTERY	TRUE (3.3V)	TRUE (PBUS 12.6V)	TRUE (PBUS 12.6V)	FALSE (0V)
S0 OR S3 ON AC	TRUE (3.3V)	FALSE (0V)	FALSE (0V)	TRUE (3.3V)
S5 ON AC	FALSE (0V)	TRUE (PBUS 12.6V)	TRUE (PBUS 12.6V)	FALSE (0V)
S5 ON BATT	FALSE (0V)	FALSE (0V)	TRUE (PBUS 12.6V)	FALSE (0V)

NOTE: IF CHANGE TO STUFFING R7753 THEN ENETPWR_EN IS BUFFERED PM_SLP_S4_L

2.5V REGULATORS



1.2V REGULATOR



2.5V/1.2V Regulator

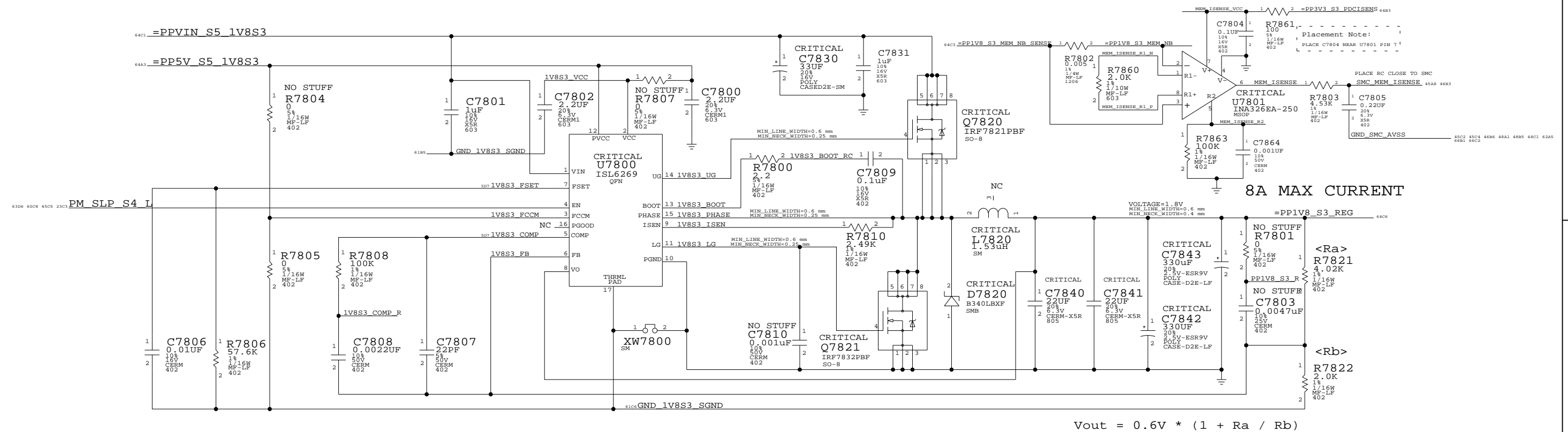
SYNC_MASTER=ENET SYNC_DATE=12/06/2005

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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	c
SCALE	SHT	OF	REV.
NONE	77	112	

1.8V POWER SUPPLY



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
128S0093	128S0092	?	C7830	ERRY 7520V330M16AT00457450

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
128S0094	128S0060	?	C7842, C7843	PANASONIC KEPSX0D3311R
128S0095	128S0060	?	C7842, C7843	PANASONIC KEPSX0D3311E

1.8V Supply

SYNC_MASTER=POWER SYNC_DATE=07/13/2005

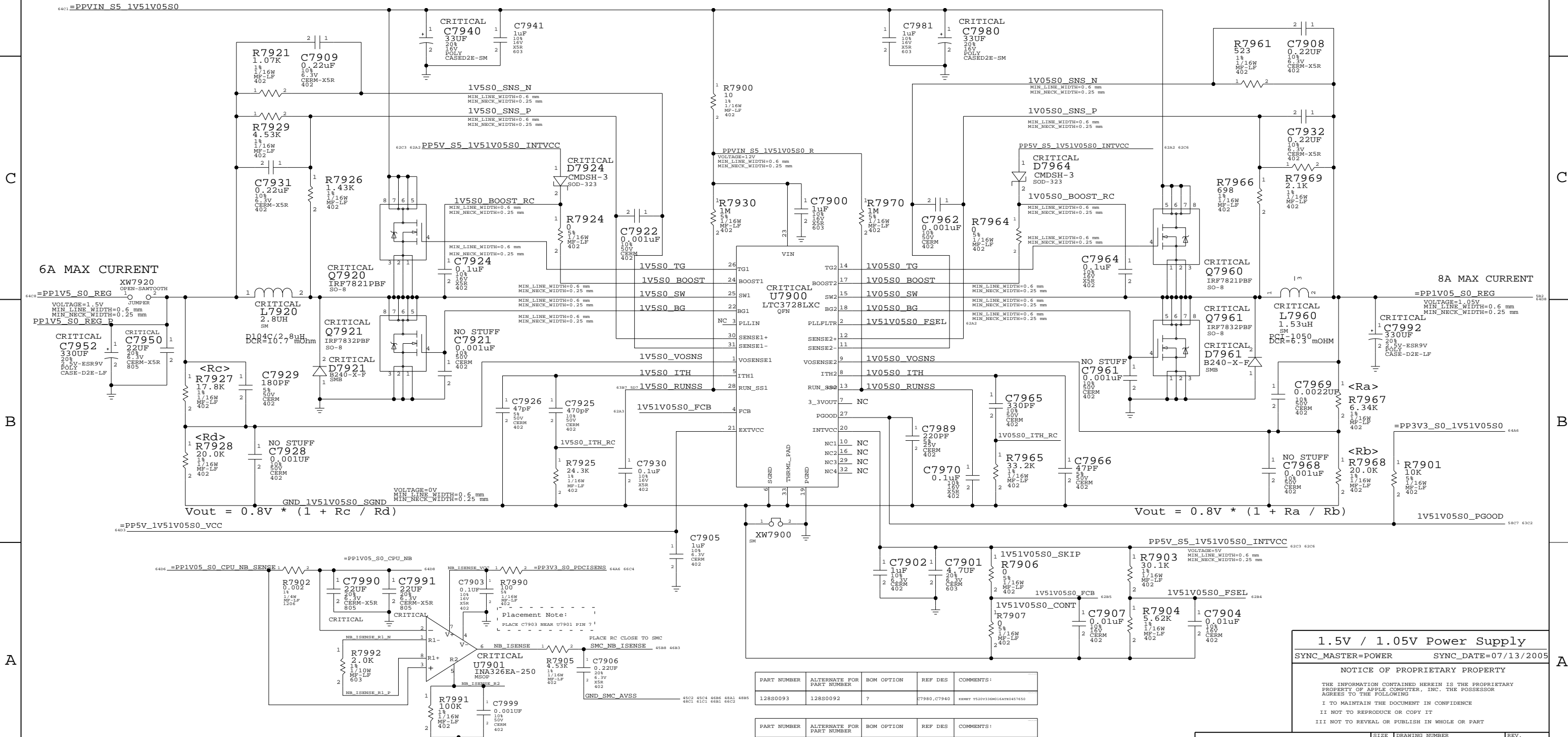
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	78	112	

1.5V/1.05V POWER SUPPLY



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
128S0093	128S0092	?	C7980, C7940	RENT 7520V3H001A480457450
128S0094	128S0060	?	C7952, C7992	PANASONIC EEPX003311E
128S0095	128S0060	?	C7952, C7992	PANASONIC EEPX003311E

1.5V / 1.05V Power Supply
 SYNC_MASTER=POWER SYNC_DATE=07/13/2005
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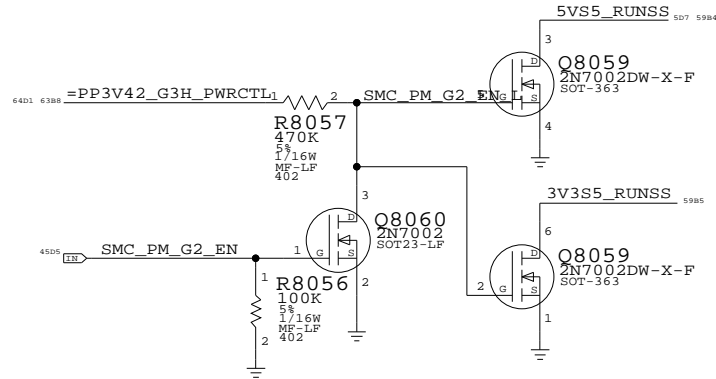
APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	112
NONE	79		

POWER CONTROL SIGNALS

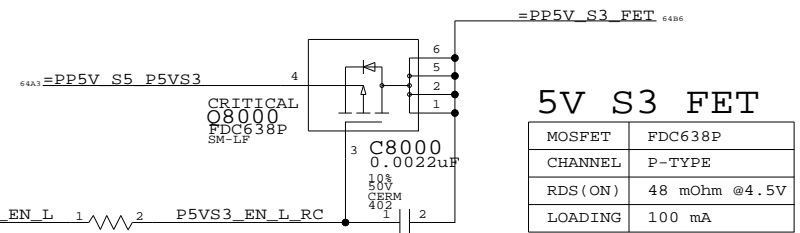
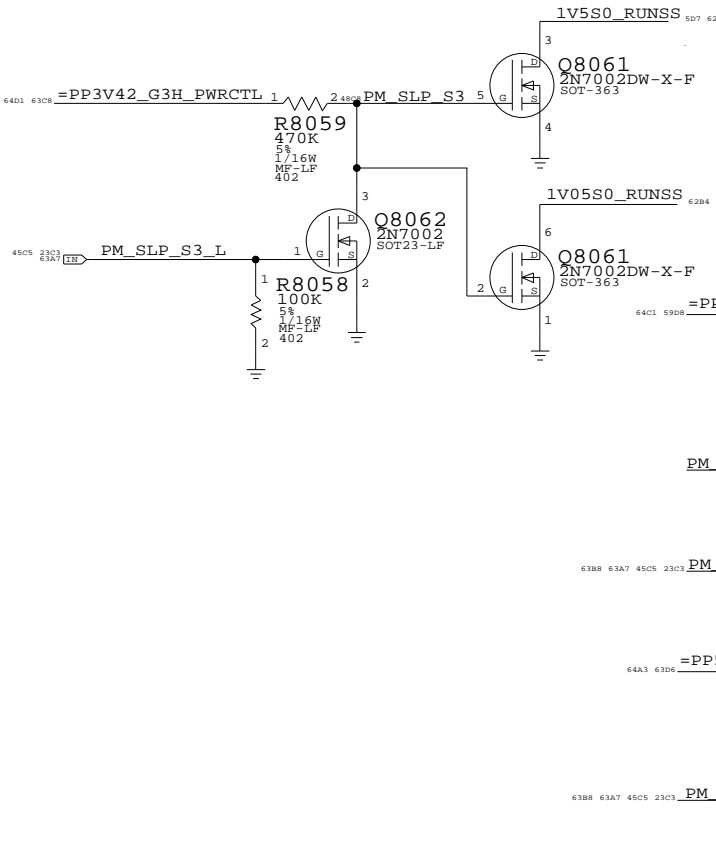
These rails are monitored by LTC2908

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

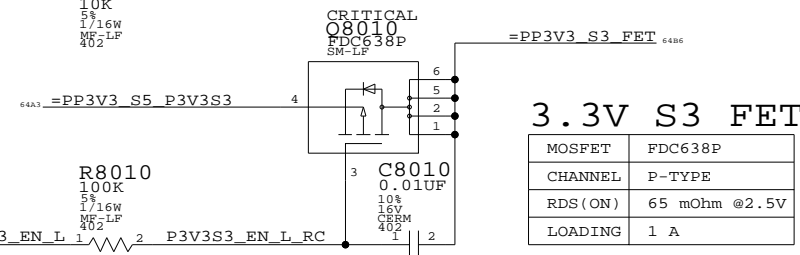
5V/3.3V S5 RUN/SS CONTROL



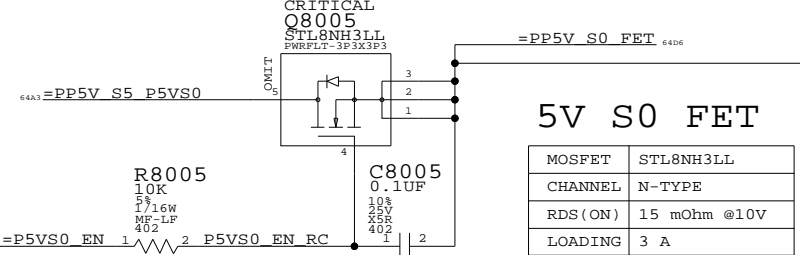
1.5V/1.05V S0 RUN/SS CONTROL



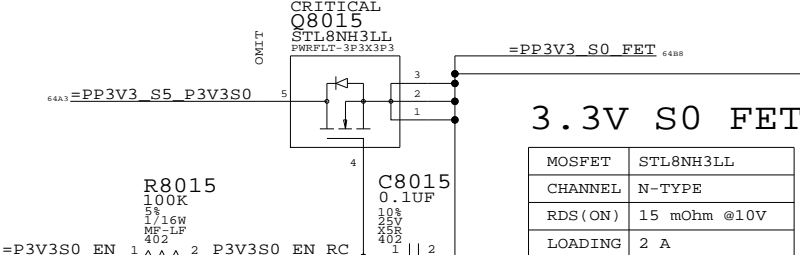
Parameter	Value
MOSFET	FDC638P
CHANNEL	P-TYPE
RDS(ON)	48 mOhm @4.5V
LOADING	100 mA



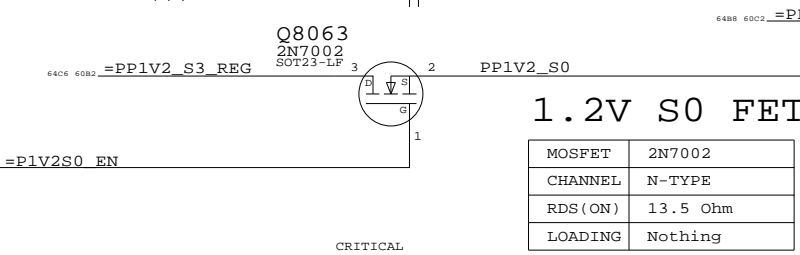
Parameter	Value
MOSFET	FDC638P
CHANNEL	P-TYPE
RDS(ON)	65 mOhm @2.5V
LOADING	1 A



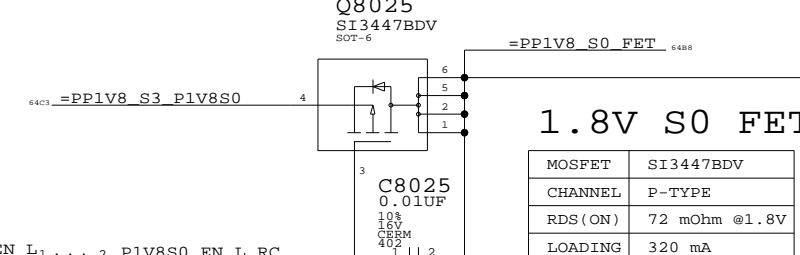
Parameter	Value
MOSFET	STL8NH3LL
CHANNEL	N-TYPE
RDS(ON)	15 mOhm @10V
LOADING	3 A



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



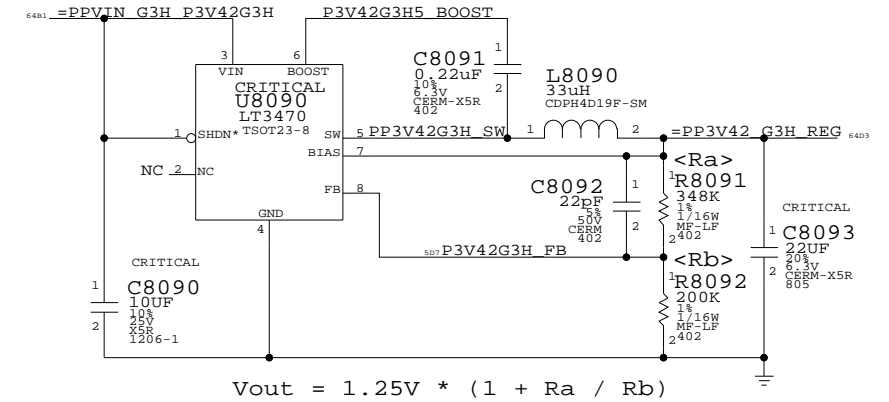
Parameter	Value
MOSFET	2N7002
CHANNEL	N-TYPE
RDS(ON)	13.5 Ohm
LOADING	Nothing



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

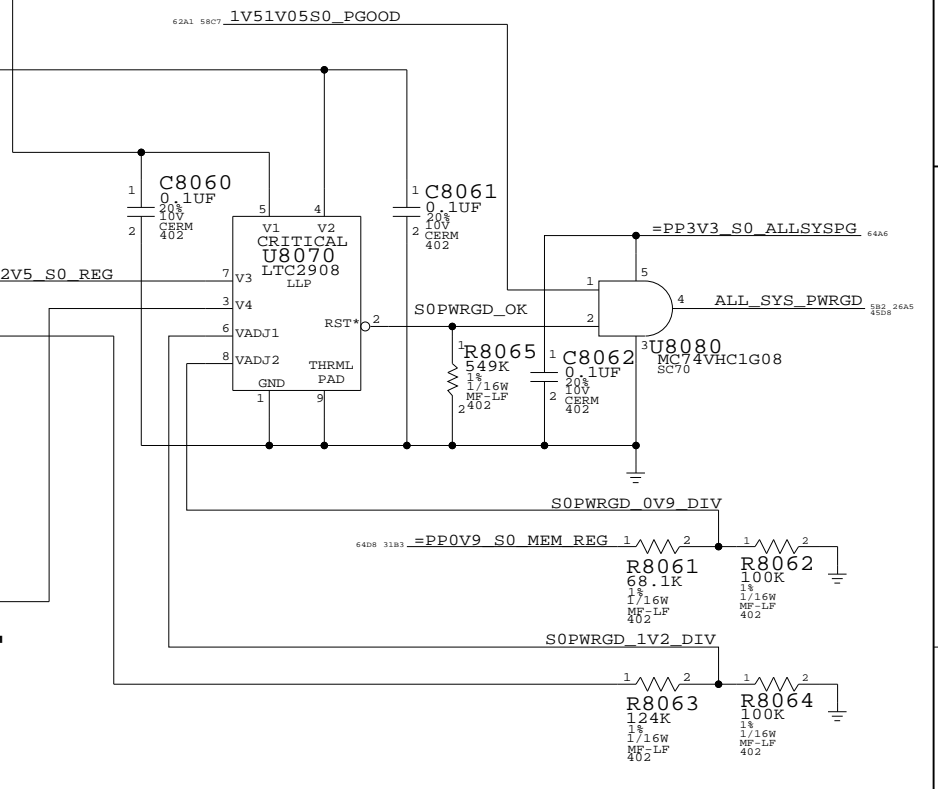
3.425V "G3Hot" SUPPLY

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

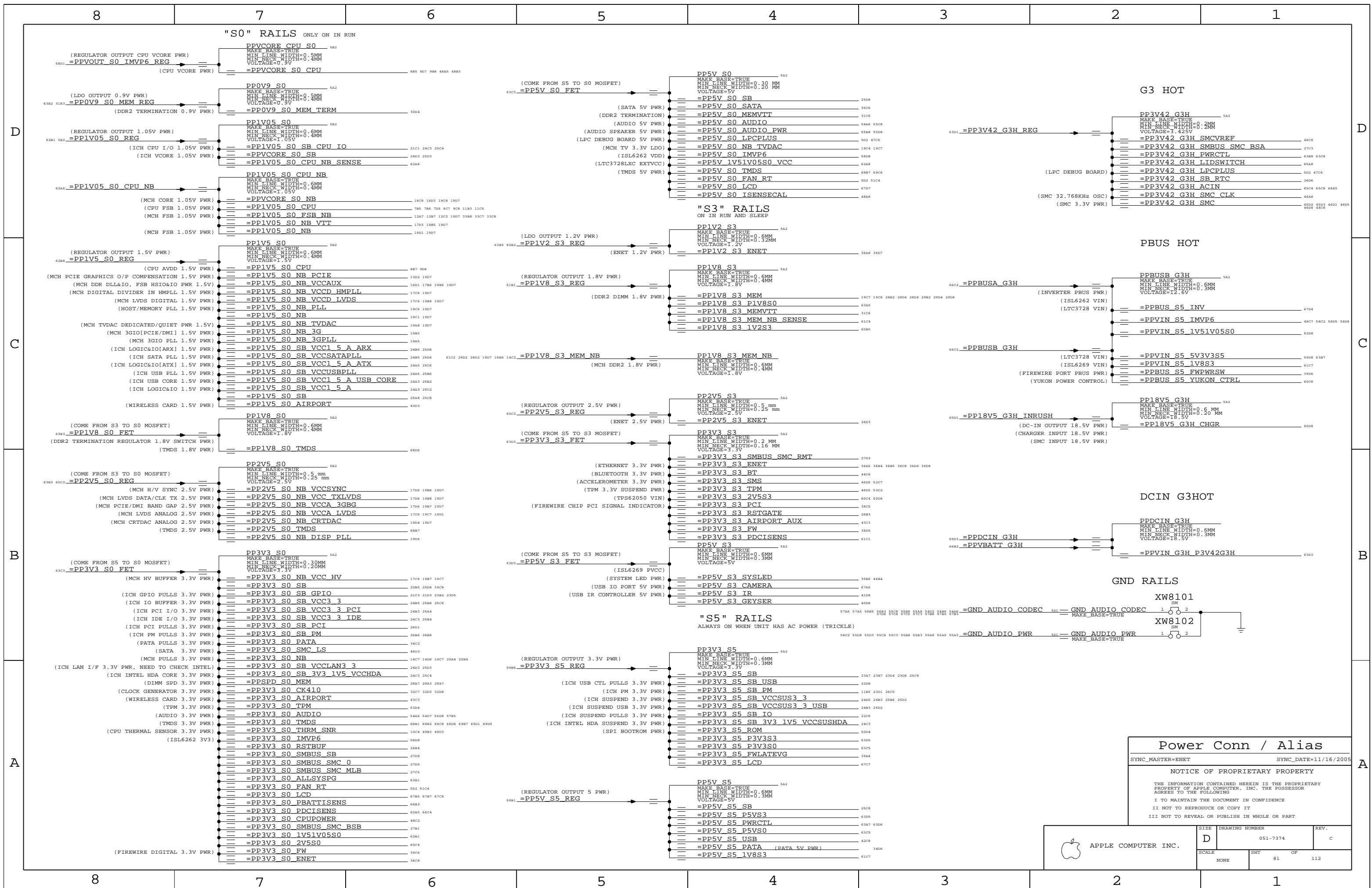
S3/S0 FETS, G3H SUPPLY

SYNC_MASTER=ENET SYNC_DATE=08/30/2005

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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	80	112	



Power Conn / Alias

SYNC_MASTER=ENET SYNC_DATE=11/16/2005

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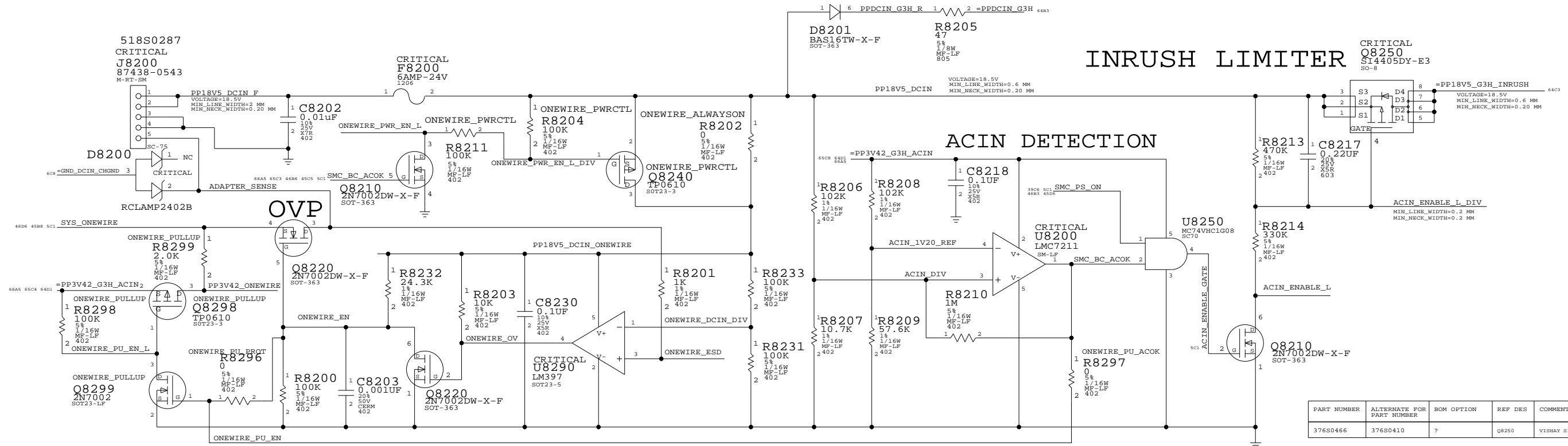
III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART

APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. C
	SCALE NONE	SHEET 81	OF 112

DC-JACK INTERFACE

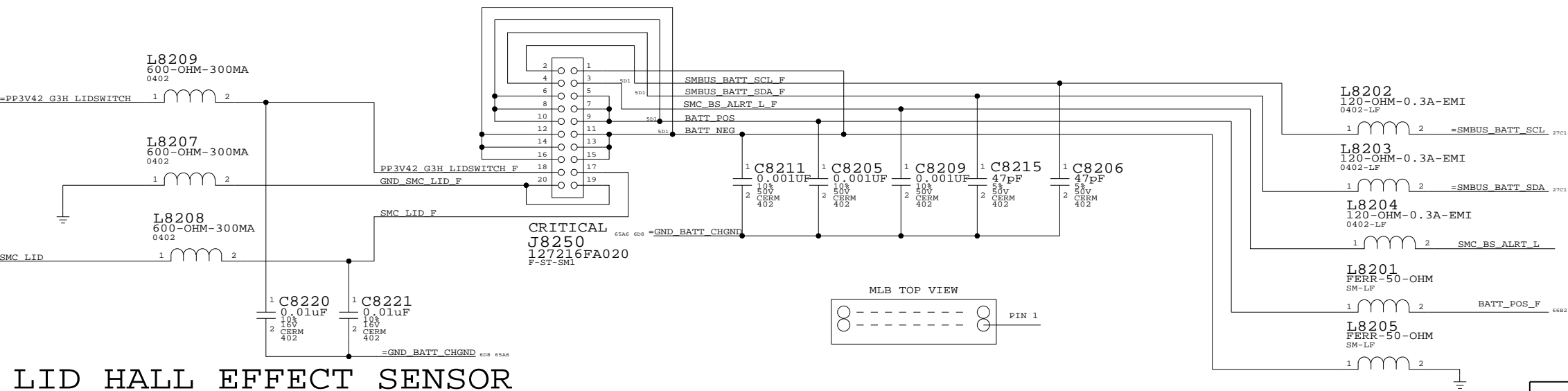
INRUSH LIMITER

ACIN DETECTION



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS
376S0466	376S0410	?	Q8250	VISHAY S14413ADY

BATTERY INTERFACE



LID HALL EFFECT SENSOR

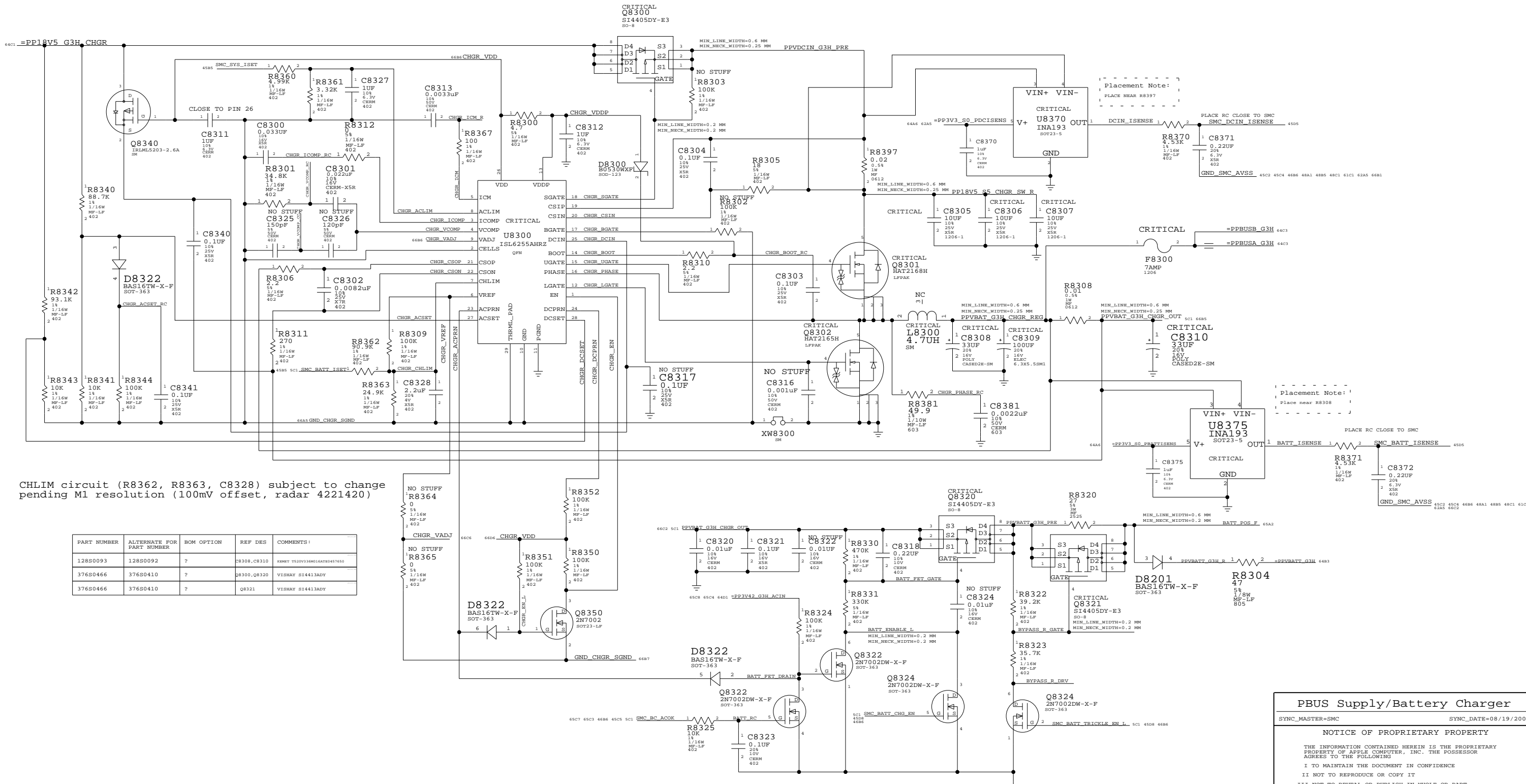
DC-In & Battery Connectors
 SYNC_MASTER=POWER SYNC_DATE=07/13/2005

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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	REV.
NONE	82	112	

PBUS SUPPLY / BATTERY CHARGER

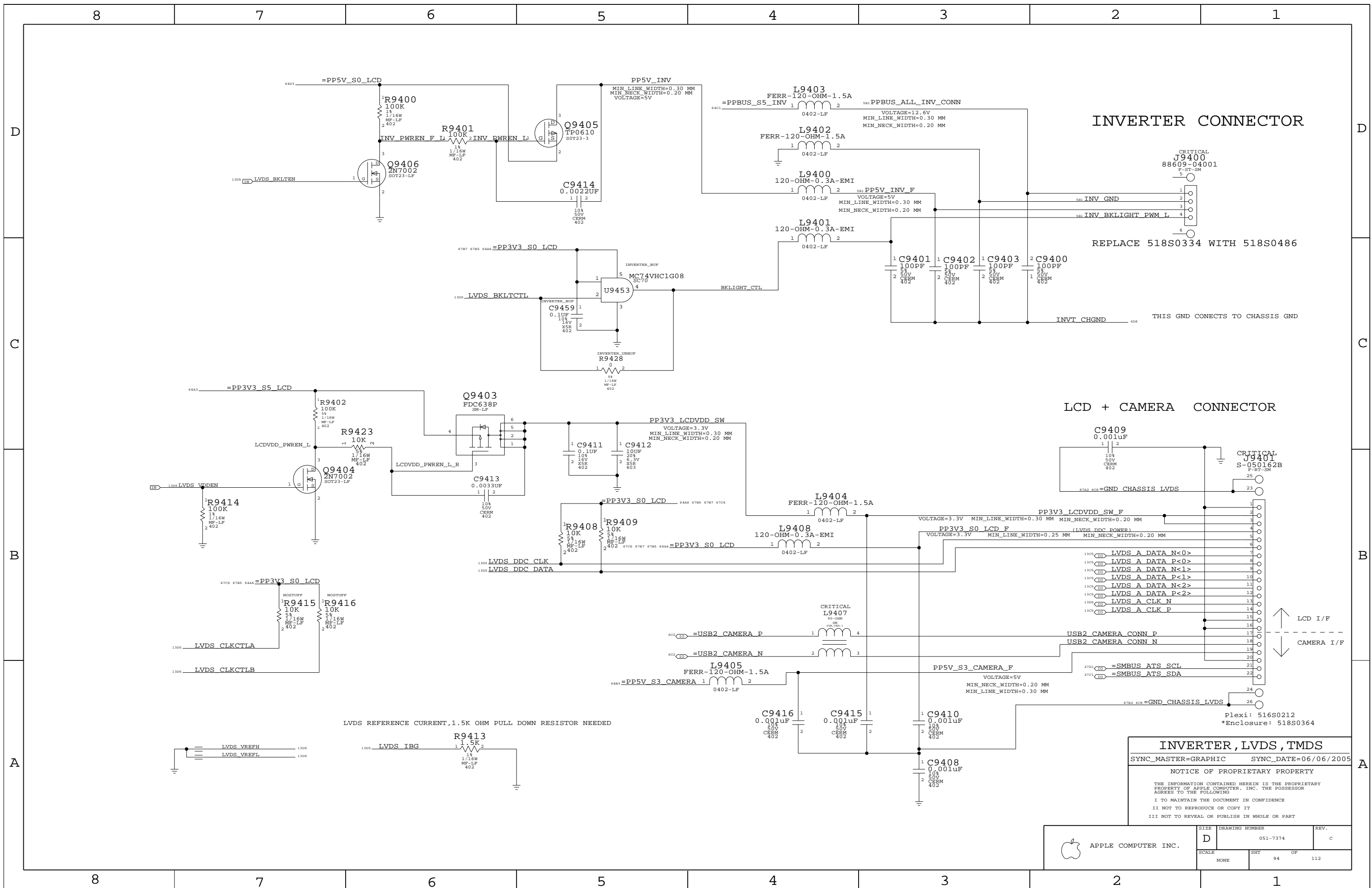


CHLIM circuit (R8362, R8363, C8328) subject to change pending M1 resolution (100mV offset, radar 4221420)

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
128S0093	128S0092	?	C8308, C8310	KEMET T520V33M018AT050457650
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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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. C
	SCALE NONE	SHEET 83	OF 112



INVERTER CONNECTOR

CRITICAL
J9400
88609-04001
F-ST-SM

REPLACE 518S0334 WITH 518S0486

THIS GND CONNECTS TO CHASSIS GND

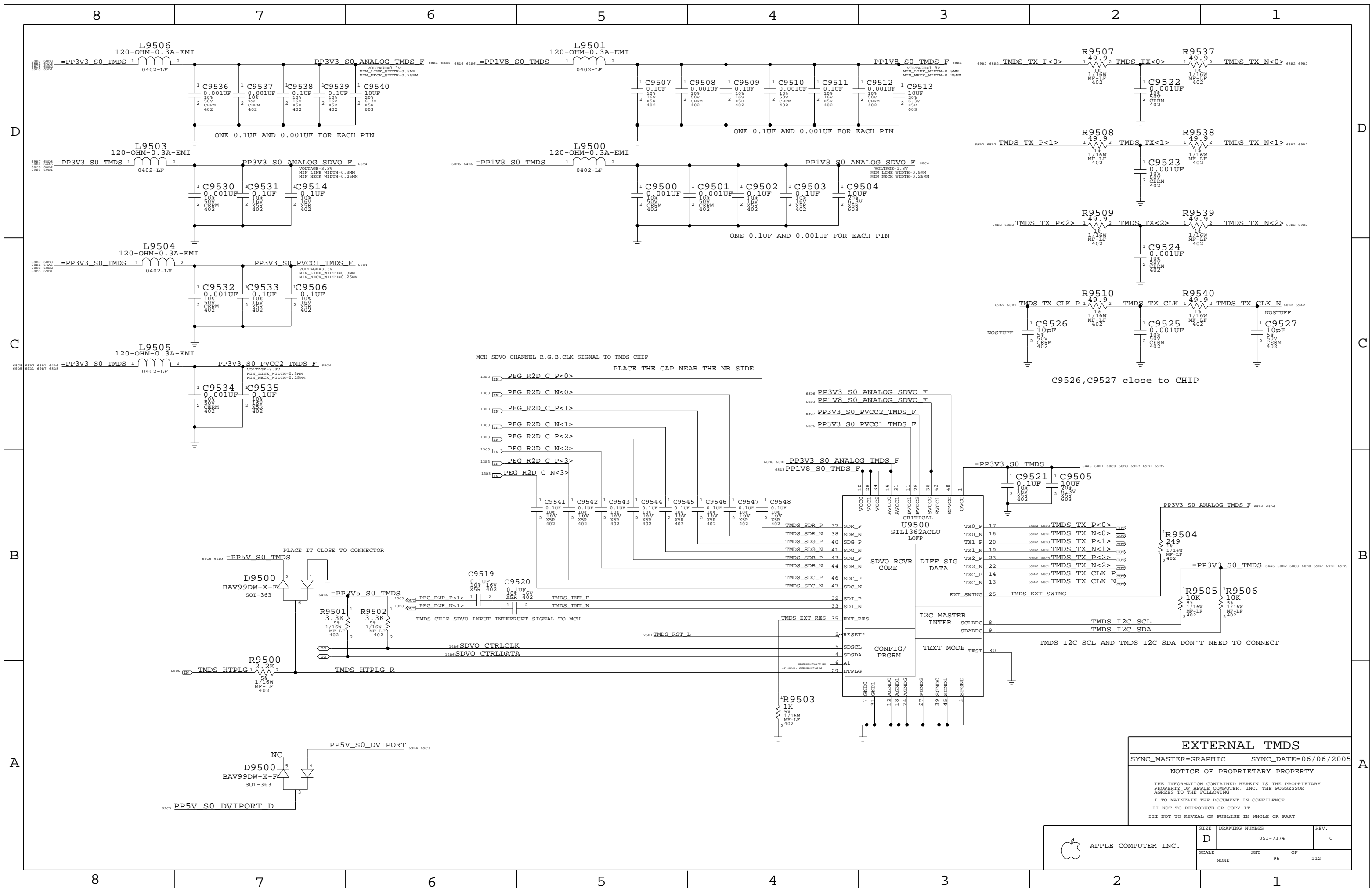
LCD + CAMERA CONNECTOR

CRITICAL
J9401
S-050162B
F-RT-SM

Plexi: 516S0212
*Enclosure: 518S0364

INVERTER, LVDS, TMDS
 SYNC_MASTER=GRAPHIC SYNC_DATE=06/06/2005
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APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	112
NONE	94		



EXTERNAL TMDs
 SYNC_MASTER=GRAPHIC SYNC_DATE=06/06/2005

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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-7374	REV. C
	SCALE NONE	SHEET 95	OF 112

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS
15580227	15580164	?	REF: 15580164	KEEP MAG. LAYER IN BOX

Video Connectors

EXTERNAL VIDEO (VGA) INTERFACE

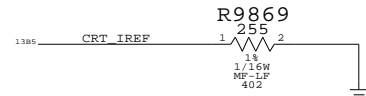
TMDS(MINI DVI) INTERFACE

Isolation required for DVI power switch

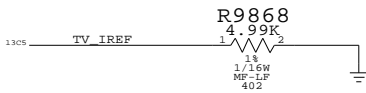
PLACE THE RESISTOR CLOSE TO GMCH AND THE CAP NEAR CONNECTOR

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

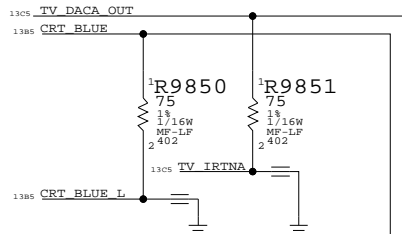
A 255 OHM 1% RESISTOR IS REQUIRED BETWEEN CRT_IREF AND GROUND



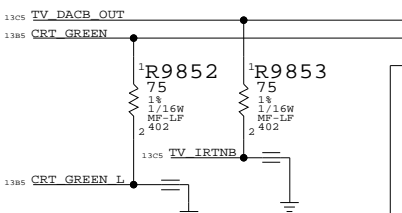
TV REFERENCE CURRENT, USES AN EXTERNAL RESISTOR OF 5K OHM 1% TO SET INTERNAL VOLTAGE LEVELS



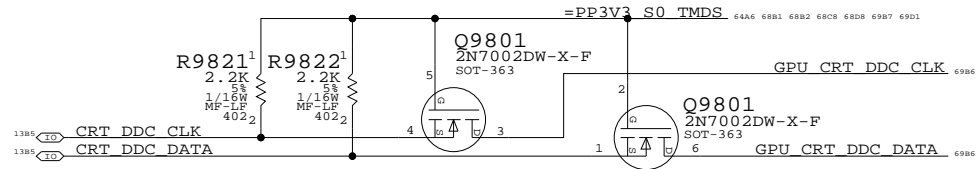
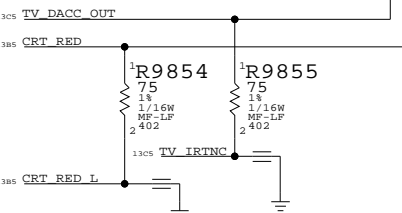
PLACE THE RESISTOR CLOSE TO GMCH



PLACE THE RESISTOR CLOSE TO GMCH



PLACE THE RESISTOR CLOSE TO GMCH



PP5V_S0_TMDS

VOLTAGE=5V
MIN_LINE_WIDTH=0.5 MM
MIN_NECK_WIDTH=0.25 MM

F9804 0.5AMP-13.2V

SM-LF

PP5V_S0_TMDS_FUSE

VOLTAGE=5V
MIN_LINE_WIDTH=0.5 MM
MIN_NECK_WIDTH=0.25 MM

L9844 400-OHM-EMI

SM-1

PP5V_S0_DVIPORT

VOLTAGE=5V
MIN_LINE_WIDTH=0.5 MM
MIN_NECK_WIDTH=0.25 MM

C9804 0.1UF

20% 10V 5% CERM 402

SGND_CHASSIS_TMDS_UPPER

CRT_HSYNC_R

5% 1/16W MF-LF 402

CRT_HSYNC_LS_R

5% 1/16W MF-LF 402

CRT_HSYNC_LS

5% 1/16W MF-LF 402

VGA_HSYNC

5% 1/16W MF-LF 402

NOSTUFF

33PF 50V CERM 402

C9842

5% 1/16W MF-LF 402

CRT_VSYNC_R

5% 1/16W MF-LF 402

CRT_VSYNC_LS_R

5% 1/16W MF-LF 402

CRT_VSYNC_LS

5% 1/16W MF-LF 402

VGA_VSYNC

5% 1/16W MF-LF 402

NOSTUFF

33PF 50V CERM 402

C9843

5% 1/16W MF-LF 402

TMDS_HTPLG

GPU CRT DDC CLK

GPU CRT DDC DATA

DVI power DIODE on page 95 (D9500)

R9862 2.2K

5% 1/16W MF-LF 402

R9863 2.2K

5% 1/16W MF-LF 402

C9808 0.001uF

5% 50V 5% CERM 402

C9809 100pF

5% 50V 5% CERM 402

C9812 100pF

5% 50V 5% CERM 402

OMIT CRITICAL

J9801 MINI-DVI RT-TH

PP5V_S0_DVIPORT

25 17

16 18

17 19

18 20

19 21

20 22

21 23

22 24

23 25

24 26

25 27

26 28

27 29

28 30

29 31

30 32

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40 42

41 43

42 44

43 45

44 46

45 47

46 48

47 49

48 50

49 51

50 52

51 53

52 54

53 55

54 56

CRITICAL

L9805 90-OHM-300MA

2012H

TMDS_TX_P<2>

90-OHM-300MA

2012H

TMDS_TX_N<2>

90-OHM-300MA

2012H

TMDS_TX_P<1>

90-OHM-300MA

2012H

TMDS_TX_N<1>

90-OHM-300MA

2012H

TMDS_TX_P<0>

90-OHM-300MA

2012H

TMDS_TX_N<0>

90-OHM-300MA

2012H

TMDS_TX_CLK_P

370-OHM-280MA

SM1

TMDS_TX_CLK_N

370-OHM-280MA

SM1

CRITICAL

L9804 370-OHM-280MA

SM1

CRITICAL

L9806 90-OHM-300MA

2012H

TMDS_TX_P<0>

90-OHM-300MA

2012H

TMDS_TX_N<0>

90-OHM-300MA

2012H

TMDS_TX_CLK_P

370-OHM-280MA

SM1

TMDS_TX_CLK_N

370-OHM-280MA

SM1

SGND_CHASSIS_TMDS_UPPER

SGND_CHASSIS_TMDS_DOWN

C9824 3.3PF

5% 0.25% 50V CERM 402

C9834 3.3PF

5% 0.25% 50V CERM 402

C9820 3.3PF

5% 0.25% 50V CERM 402

C9821 0.1UF

20% 10V 5% CERM 402

C9822 3.3PF

5% 0.25% 50V CERM 402

C9823 3.3PF

5% 0.25% 50V CERM 402

C9824 3.3PF

5% 0.25% 50V CERM 402

C9825 3.3PF

5% 0.25% 50V CERM 402

MINI-DVI CONNECTOR

SYNC_MASTER=EUGENE SYNC_DATE=05/21/05

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PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
514-0292	1	CONN, 32P MINI-DVI RCP7, RA, M3, LF	J9801	CRITICAL	NORMAL
514-0319	1	CONN, 32P MINI-DVI RCP7, RA, BLACK, LF	J9801	CRITICAL	FANCY

APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7374	C
SCALE	SHT	OF	112
NONE	98		

8		7		6		5		4		3		2		1		
D	Title:	Basenet Report	5V55_SW - @mlb_noido_lib.MLB_NOLDO	5984	5V55_SW											
	Design:	mlb_noido	5V55_TG	5984	5V55_TG - @mlb_noido_lib.MLB_NOLDO	5984										
	Date:	May 3 15:31:14 2007	5V55_VOSSNS		5V55_VOSSNS											
	Base nets and synonyms for		5V_REG_IN		5V_REG_IN											
	mlb_noido_lib.MLB_NOLDO@mlb_noido_lib.mlb_noido(sch_1)		=EXTBUSB_OC_L		=EXTBUSB_OC_L											
	Base Signal	Synonyms	Location([Zone][dir])		=EXTBUSB_OC_L											
	LV2_FB	LV2_FB - @mlb_noido_lib.MLB_NOLDO	60A3													
	LV0550_BG	LV0550_BG - @mlb_noido_lib.MLB_NOLDO	62B4													
	LV0550_BOOST	LV0550_BOOST - @mlb_noido_lib.MLB_NOLDO	62B4													
	LV0550_BOOST_RC	LV0550_BOOST_RC - @mlb_noido_lib.MLB_NOLDO	62C3													
	LV0550_COMP	LV0550_COMP - @mlb_noido_lib.MLB_NOLDO	5D7													
	C	LV0550_FSET	LV0550_FSET - @mlb_noido_lib.MLB_NOLDO	5D7												
LV0550_ITH		LV0550_ITH - @mlb_noido_lib.MLB_NOLDO	62B4													
LV0550_ITH_RC		LV0550_ITH_RC - @mlb_noido_lib.MLB_NOLDO	62B3													
LV0550_RUNSS		LV0550_RUNSS - @mlb_noido_lib.MLB_NOLDO	62B4 63B7													
LV0550_SNS_N		LV0550_SNS_N - @mlb_noido_lib.MLB_NOLDO	62C3													
LV0550_SNS_P		LV0550_SNS_P - @mlb_noido_lib.MLB_NOLDO	62C3													
LV0550_SW		LV0550_SW - @mlb_noido_lib.MLB_NOLDO	62B4													
LV0550_TG		LV0550_TG - @mlb_noido_lib.MLB_NOLDO	62C4													
LV0550_VOSSNS		LV0550_VOSSNS - @mlb_noido_lib.MLB_NOLDO	62B4													
LV550_BG		LV550_BG - @mlb_noido_lib.MLB_NOLDO	62B5													
LV550_BOOST		LV550_BOOST - @mlb_noido_lib.MLB_NOLDO	62B5													
LV550_BOOST_RC		LV550_BOOST_RC - @mlb_noido_lib.MLB_NOLDO	62C6													
B	LV550_ITH	LV550_ITH - @mlb_noido_lib.MLB_NOLDO	62B5													
	LV550_ITH_RC	LV550_ITH_RC - @mlb_noido_lib.MLB_NOLDO	62B5													
	LV550_RUNSS	LV550_RUNSS - @mlb_noido_lib.MLB_NOLDO	5D7 62B5 63B7													
	LV550_SNS_N	LV550_SNS_N - @mlb_noido_lib.MLB_NOLDO	62C6													
	LV550_SNS_P	LV550_SNS_P - @mlb_noido_lib.MLB_NOLDO	62C6													
	LV550_SW	LV550_SW - @mlb_noido_lib.MLB_NOLDO	62B5													
	LV550_TG	LV550_TG - @mlb_noido_lib.MLB_NOLDO	62C5													
	LV550_VOSSNS	LV550_VOSSNS - @mlb_noido_lib.MLB_NOLDO	62B5													
	LV8S3_BOOT	LV8S3_BOOT - @mlb_noido_lib.MLB_NOLDO	61B5													
	LV8S3_BOOT_RC	LV8S3_BOOT_RC - @mlb_noido_lib.MLB_NOLDO	61C4													
	LV8S3_COMP	LV8S3_COMP - @mlb_noido_lib.MLB_NOLDO	5D7 61B6													
	LV8S3_COMP_R	LV8S3_COMP_R - @mlb_noido_lib.MLB_NOLDO	61B6													
A	LV8S3_FB	LV8S3_FB - @mlb_noido_lib.MLB_NOLDO	61B6													
	LV8S3_FCCM	LV8S3_FCCM - @mlb_noido_lib.MLB_NOLDO	61B6													
	LV8S3_FSET	LV8S3_FSET - @mlb_noido_lib.MLB_NOLDO	5D7 61C6													
	LV8S3_ISEN	LV8S3_ISEN - @mlb_noido_lib.MLB_NOLDO	61B5													
	LV8S3_LG	LV8S3_LG - @mlb_noido_lib.MLB_NOLDO	61B5													
	LV8S3_PHASE	LV8S3_PHASE - @mlb_noido_lib.MLB_NOLDO	61B5													
	LV8S3_UG	LV8S3_UG - @mlb_noido_lib.MLB_NOLDO	61C5													
	LV8S3_VCC	LV8S3_VCC - @mlb_noido_lib.MLB_NOLDO	61C6													
	LV51V0550_FCB	LV51V0550_FCB - @mlb_noido_lib.MLB_NOLDO	62A3 62B5													
	LV51V0550_FSEL	LV51V0550_FSEL - @mlb_noido_lib.MLB_NOLDO	62A2 62B4													
	LV51V0550_PGOOD	LV51V0550_PGOOD - @mlb_noido_lib.MLB_NOLDO	58C7 62A1 63C2													
	2V550_BP	2V550_BP - @mlb_noido_lib.MLB_NOLDO	60C3													
2V5S3_BP	2V5S3_BP - @mlb_noido_lib.MLB_NOLDO	60C3														
3V3S5_BP	3V3S5_BP - @mlb_noido_lib.MLB_NOLDO	59B5														
3V3S5_BOOST	3V3S5_BOOST - @mlb_noido_lib.MLB_NOLDO	59B5														
3V3S5_BOOST_RC	3V3S5_BOOST_RC - @mlb_noido_lib.MLB_NOLDO	59C6														
3V3S5_COMP	3V3S5_COMP - @mlb_noido_lib.MLB_NOLDO	5D7														
3V3S5_FSET	3V3S5_FSET - @mlb_noido_lib.MLB_NOLDO	5D7														
3V3S5_ITH	3V3S5_ITH - @mlb_noido_lib.MLB_NOLDO	59B5														
3V3S5_ITH_RC	3V3S5_ITH_RC - @mlb_noido_lib.MLB_NOLDO	59B5														
3V3S5_RUNSS	3V3S5_RUNSS - @mlb_noido_lib.MLB_NOLDO	59B5 63C7														
3V3S5_SNS_N	3V3S5_SNS_N - @mlb_noido_lib.MLB_NOLDO	59C6														
3V3S5_SNS_P	3V3S5_SNS_P - @mlb_noido_lib.MLB_NOLDO	59C6														
3V3S5_SW	3V3S5_SW - @mlb_noido_lib.MLB_NOLDO	59B5														
3V3S5_TG	3V3S5_TG - @mlb_noido_lib.MLB_NOLDO	59C5														
3V3S5_VOSSNS	3V3S5_VOSSNS - @mlb_noido_lib.MLB_NOLDO	59B5														
5V3V3S5_FCB	5V3V3S5_FCB - @mlb_noido_lib.MLB_NOLDO	59A3 59B5														
5V3V3S5_FSEL	5V3V3S5_FSEL - @mlb_noido_lib.MLB_NOLDO	59A2 59B4														
5V55_BG	5V55_BG - @mlb_noido_lib.MLB_NOLDO	59B4														
5V55_BOOST	5V55_BOOST - @mlb_noido_lib.MLB_NOLDO	59B4														
5V55_BOOST_RC	5V55_BOOST_RC - @mlb_noido_lib.MLB_NOLDO	59C3														
5V55_ITH	5V55_ITH - @mlb_noido_lib.MLB_NOLDO	59B4														
5V55_ITH_RC	5V55_ITH_RC - @mlb_noido_lib.MLB_NOLDO	59B3														
5V55_RUNSS	5V55_RUNSS - @mlb_noido_lib.MLB_NOLDO	5D7 59B4 63C7														
5V55_SNS_N	5V55_SNS_N - @mlb_noido_lib.MLB_NOLDO	59C3														
5V55_SNS_P	5V55_SNS_P - @mlb_noido_lib.MLB_NOLDO	59C3														

	8	7	6	5	4	3	2	1
D								
C								
B								
A								

	8	7	6	5	4	3	2	1	
D		-USB2_EXTA_N - @mlb_noldo_lib.MLB_NOLDO	6C2 42C5						
	USB_A_OC_L	USB2_EXTA_N - @mlb_noldo_lib.MLB_NOLDO	6C2 42C5						
	C		USB_A_OC_L - @mlb_noldo_lib.MLB_NOLDO	6C1 22C4 22D8					
			=EXTAUSB_OC_L - @mlb_noldo_lib.MLB_NOLDO	6C2 42C8					
			EXTAUSB_OC_L - @mlb_noldo_lib.MLB_NOLDO	6C2					
			=EXTAUSB_OC_L - @mlb_noldo_lib.MLB_NOLDO	6C2 42C8					
	B		USB_A_P - @mlb_noldo_lib.MLB_NOLDO	6C1 22C2					
			=USB2_EXTA_P - @mlb_noldo_lib.MLB_NOLDO	6C2 42C5					
			USB2_EXTA_P - @mlb_noldo_lib.MLB_NOLDO	6C2					
			=USB2_EXTA_P - @mlb_noldo_lib.MLB_NOLDO	6C2 42C5					
	A		USB_B_N - @mlb_noldo_lib.MLB_NOLDO	6C1 22C2					
			=USB2_GEYSER_N - @mlb_noldo_lib.MLB_NOLDO	6C2 40C7					
			USB2_GEYSER_N - @mlb_noldo_lib.MLB_NOLDO	6C2					
			=USB2_GEYSER_N - @mlb_noldo_lib.MLB_NOLDO	6C2 40C7					
	D		USB_B_OC_L	22C4 22D8					
			USB_B_P - @mlb_noldo_lib.MLB_NOLDO	6C1 22C2					
			=USB2_GEYSER_P - @mlb_noldo_lib.MLB_NOLDO	6C2 40C7					
			USB2_GEYSER_P - @mlb_noldo_lib.MLB_NOLDO	6C2					
	C		=USB2_GEYSER_P - @mlb_noldo_lib.MLB_NOLDO	6C2 40C7					
			USB_C_N - @mlb_noldo_lib.MLB_NOLDO	6C1 22C2					
		=USB2_EXTB_N - @mlb_noldo_lib.MLB_NOLDO	6C2 42B5						
		USB2_EXTB_N - @mlb_noldo_lib.MLB_NOLDO	6C2						
B		=USB2_EXTB_N - @mlb_noldo_lib.MLB_NOLDO	6C2 42B5						
		USB_C_P - @mlb_noldo_lib.MLB_NOLDO	6C1 22C2						
		=USB2_EXTB_P - @mlb_noldo_lib.MLB_NOLDO	6C2 42B5						
		USB2_EXTB_P - @mlb_noldo_lib.MLB_NOLDO	6C2						
A		=USB2_EXTB_P - @mlb_noldo_lib.MLB_NOLDO	6C2 42B5						
		USB_D_OC_L	22C4 22D8						
		USB_E_N - @mlb_noldo_lib.MLB_NOLDO	6C1 22C2						
		TP_USBN_E - @mlb_noldo_lib.MLB_NOLDO	5C1 6C2						
D		USB_E_OC_L	22C4 22D8						
		USB_E_P - @mlb_noldo_lib.MLB_NOLDO	6C1 22C2						
		TP_USBP_E - @mlb_noldo_lib.MLB_NOLDO	5C1 6C2						
		USB_F_N - @mlb_noldo_lib.MLB_NOLDO	6C1 22C2						
C		=USB2_IR_N - @mlb_noldo_lib.MLB_NOLDO	6C2 41C6						
		USB_IR_N - @mlb_noldo_lib.MLB_NOLDO	6C2						
		=USB2_IR_N - @mlb_noldo_lib.MLB_NOLDO	6C2 41C6						
		USB_F_P - @mlb_noldo_lib.MLB_NOLDO	6C1 22C2						
B		=USB2_IR_P - @mlb_noldo_lib.MLB_NOLDO	6C2 41C6						
		USB_IR_P - @mlb_noldo_lib.MLB_NOLDO	6C2						
		=USB2_IR_P - @mlb_noldo_lib.MLB_NOLDO	6C2 41C6						
		USB_G_N - @mlb_noldo_lib.MLB_NOLDO	6B1 22C2						
A		=USB2_BT_N - @mlb_noldo_lib.MLB_NOLDO	6B2 44C6						
		USB_BT_N - @mlb_noldo_lib.MLB_NOLDO	6B2						
		=USB2_BT_N - @mlb_noldo_lib.MLB_NOLDO	6B2 44C6						
		USB_G_P - @mlb_noldo_lib.MLB_NOLDO	6B1 22C2						
D		=USB2_BT_P - @mlb_noldo_lib.MLB_NOLDO	6C2 44C6						
		USB_BT_P - @mlb_noldo_lib.MLB_NOLDO	6C2						
		=USB2_BT_P - @mlb_noldo_lib.MLB_NOLDO	6C2 44C6						
		USB_RBIAS_PN	22C2						
C		VGA_B - @mlb_noldo_lib.MLB_NOLDO	69B4						
		VGA_G - @mlb_noldo_lib.MLB_NOLDO	69B4						
		VGA_HSYNC - @mlb_noldo_lib.MLB_NOLDO	69B4 69C1						
		VGA_R - @mlb_noldo_lib.MLB_NOLDO	69A4						
B		VGA_VSYNC - @mlb_noldo_lib.MLB_NOLDO	69B4 69C1						
		VOL_DOWN - @mlb_noldo_lib.MLB_NOLDO	54B7 54C7						
		VOL_UP - @mlb_noldo_lib.MLB_NOLDO	54B7 54C7						
		VREG_FB - @mlb_noldo_lib.MLB_NOLDO	54A4						
A		VR_PWRGD_CK410	23C5 26A8						
		VR_PWRGOOD_DELAY	14B6 26B5 58C7						
		XDP_BPM_L<0>	7C6 11B2						
		XDP_BPM_L<1>	7C6 11B2						
D		XDP_BPM_L<2>	7C6 11B2						
		XDP_BPM_L<3>	7C6 11B3						
		XDP_BPM_L<4>	7C6 11B2						
		XDP_BPM_L<5>	7C6 11B2						
C		XDP_DBRESET_L	7C6 11B4 26C6						
		XDP_TCK - @mlb_noldo_lib.MLB_NOLDO	7A8 7C6 11B2 11B3						
		XDP_TDI - @mlb_noldo_lib.MLB_NOLDO	7B8 7C6 11B3						
		XDP_TDO - @mlb_noldo_lib.MLB_NOLDO	7C6 11B5						
B		XDP_TMS - @mlb_noldo_lib.MLB_NOLDO	7B8 7C6 11B2						
		XDP_TRST_L - @mlb_noldo_lib.MLB_NOLDO	7C6 11B3						

