1. ALL RESISTANCE VALUES ARE IN OHMS, 0.1 WATT +/- 5%.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
3. ALL CRYSTALS & OSCILLATOR VALUES ARE IN HERTZ.

REV	ZONE	ECN	DESCRIPTION OF CHANGE	CK APPD DATE	ENG APPD DATE
01		279015	ENGINEERING RELEASED	06/06/03	?

Nov 11 09:03:17 2003

Q59 MLB CONFIG "B"

TABLE OF CONTENTS

POWER RAIL DEFINITIONS

	RUN	SLEEP	SHUTDOWN
+2_5V_MAIN	ON	ON	OFF
+3V_MAIN	ON	ON	OFF
+5V_MAIN	ON	ON	OFF
+5V_SLEEP	ON	OFF	OFF
+12V_MAIN	ON	ON	ON
+12V_SLEEP	ON	OFF	OFF
FW_PWR	ON	ON	OFF
+1.8V_SLEEP	ON	OFF	OFF
+MAXBUS_SLEEP	ON	OFF	OFF

SCHEMATIC AND PCB SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
051-6569	1	SCHEM,MLB,Q59	SCH1	CRITICAL	
820-1599	1	PCB,MLB,IMACG4.A,B,C	PCB1	CRITICAL	
825-2029	1	LBL,SER #,BARCODE	PCB1		
056-1158	1	DESIGN GUIDE,MCO,IMACG4	PCB1	CRITICAL	
057-0085	1	DFM,PNLZN DWG,MLB,Q59	PCB1	CRITICAL	
630-XXXX	1	630-XXXX,PCBA,H,Q59,EEE XXX HYNIX			OMIT
630-XXXX	1	630-XXXX,PCBA,S,Q59,EEE XXX SAMSUNG			OMIT

PCB,UL RECOGNIZED, MIN.130 DEG. C TEMP. RATING AND V-0 FLAME RATING PER UL 796 & UL 94. PCB TO BE SILK-SCREENED WITH UL/CUL RECOGNITION MARK, MANUFACTURER'S UL FILE NUMBER, UL PCB MATERIAL DESIGNATION, TEMPERATURE RATING AND FLAME RATING.

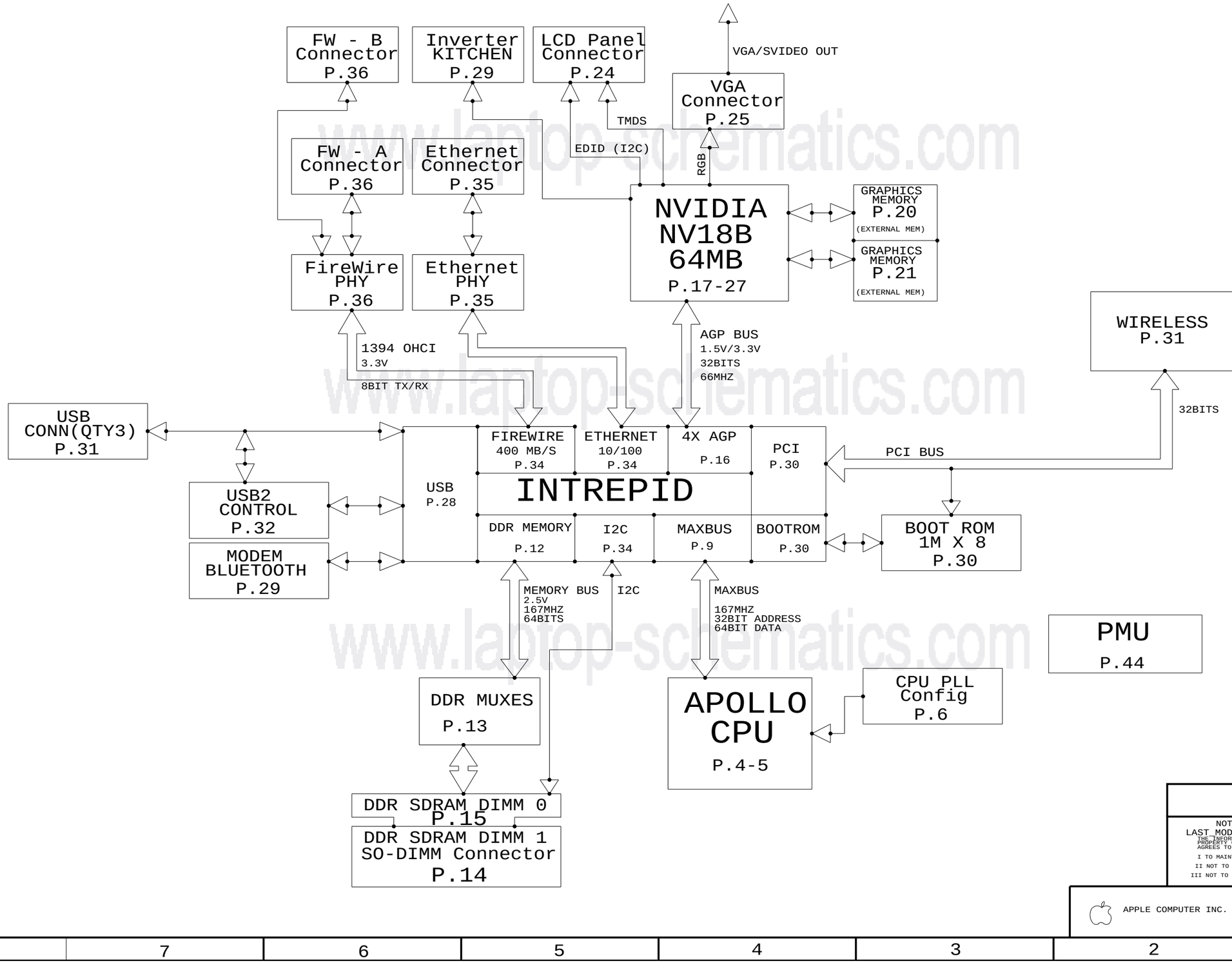
DIMENSIONS ARE IN MILLIMETERS
XX ±
X.XX ±
X.XXX ±
ANGLES ±
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

METRIC

DRAFTER | DESIGN CK
ENG APPD | MFG APPD
QA APPD | DESIGNER
RELEASE | SCALE NONE
MATERIAL/FINISH NOTED AS APPLICABLE | SIZE D

Apple Computer Inc.

TITLE: SCHEMATIC,MLB,Q59B
DRAWING NUMBER 051-6569 REV. A
SHT 1 OF 69
DRAWING



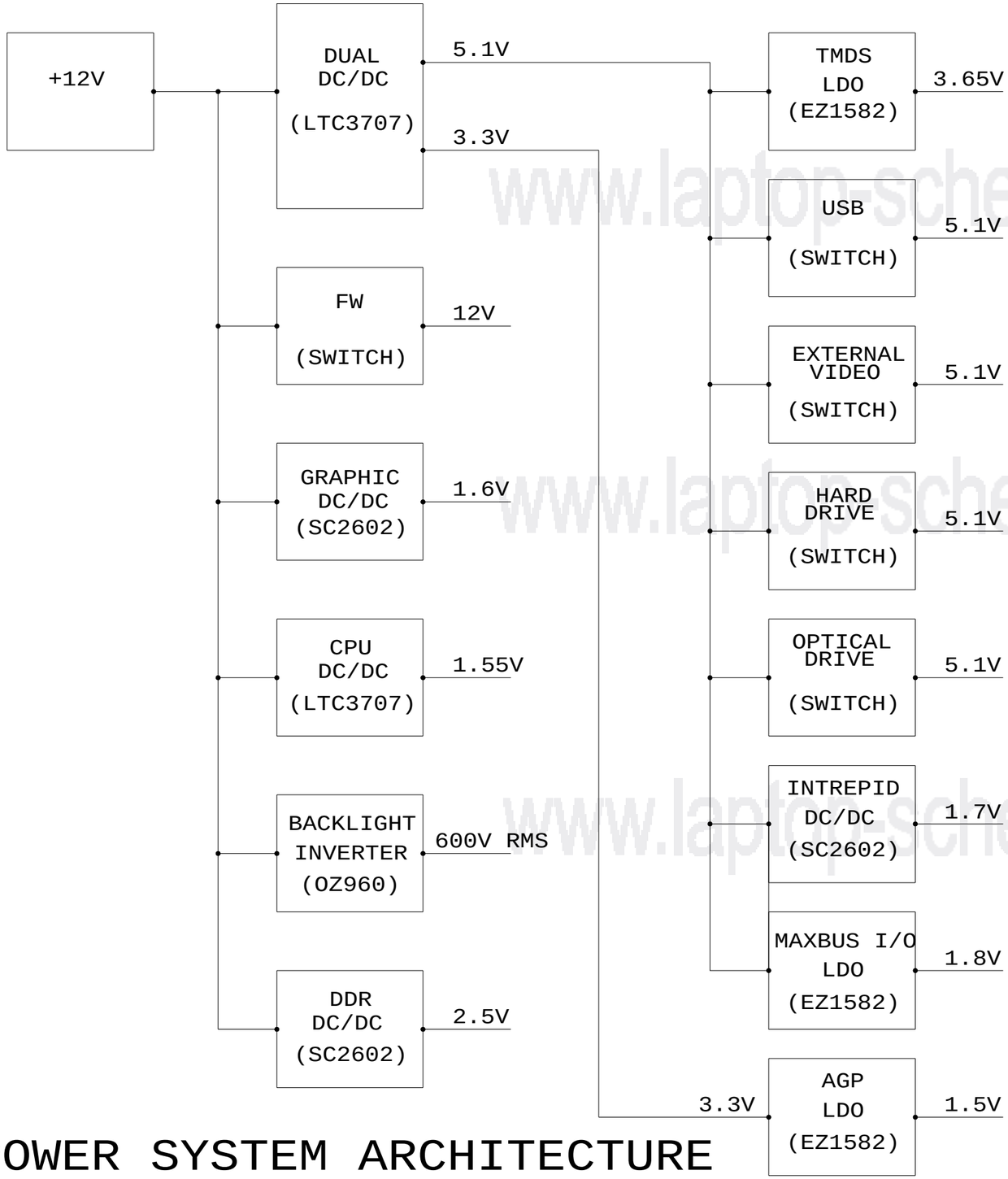
SYSTEM BLOCK

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE	SHT	OF
NONE	2	69

DRAWING



LAYER	THICKNESS (MILS)	COPPER (OZ)	TRACE WIDTH (MILS)
1 - SIGNAL-TOP	0.7	0.5	4
PREPREG	3	---	
2 - GROUND1	1.4	1	---
PREPREG	3	---	
3 - SIGNAL	0.7	0.5	4
FILLER	17.4	---	
4 - POWER	2.8	2	---
PREPREG	4	---	
5 - POWER	2.8	2	---
FILLER	17.4	---	
6 - SIGNAL	0.7	0.5	4
PREPREG	3	---	
7 - GROUND2	1.4	1	---
PREPREG	3	---	
8 - SIGNAL-BOTTOM	0.7	0.5	4
TOTAL	62.0	---	---

OMIT ZT39 HOLE-VIA-20R10
OMIT ZT46 HOLE-VIA-20R10
OMIT ZT53 HOLE-VIA-20R10
OMIT ZT59 HOLE-VIA-20R10
OMIT ZT64 HOLE-VIA-20R10
OMIT ZT40 HOLE-VIA-20R10
OMIT ZT47 HOLE-VIA-20R10
OMIT ZT54 HOLE-VIA-20R10
OMIT ZT60 HOLE-VIA-20R10
OMIT ZT65 HOLE-VIA-20R10
OMIT ZT41 HOLE-VIA-20R10
OMIT ZT48 HOLE-VIA-20R10
OMIT ZT55 HOLE-VIA-20R10
OMIT ZT61 HOLE-VIA-20R10
OMIT ZT66 HOLE-VIA-20R10
OMIT ZT42 HOLE-VIA-20R10
OMIT ZT49 HOLE-VIA-20R10
OMIT ZT56 HOLE-VIA-20R10
OMIT ZT62 HOLE-VIA-20R10
OMIT ZT67 HOLE-VIA-20R10
OMIT ZT43 HOLE-VIA-20R10
OMIT ZT50 HOLE-VIA-20R10
OMIT ZT57 HOLE-VIA-20R10
OMIT ZT63 HOLE-VIA-20R10
OMIT ZT68 HOLE-VIA-20R10
OMIT ZT44 HOLE-VIA-20R10
OMIT ZT51 HOLE-VIA-20R10
OMIT ZT58 HOLE-VIA-20R10
OMIT ZT45 HOLE-VIA-20R10
OMIT ZT52 HOLE-VIA-20R10

POWER SYSTEM ARCHITECTURE

PWR BLOCK,PCB INFO

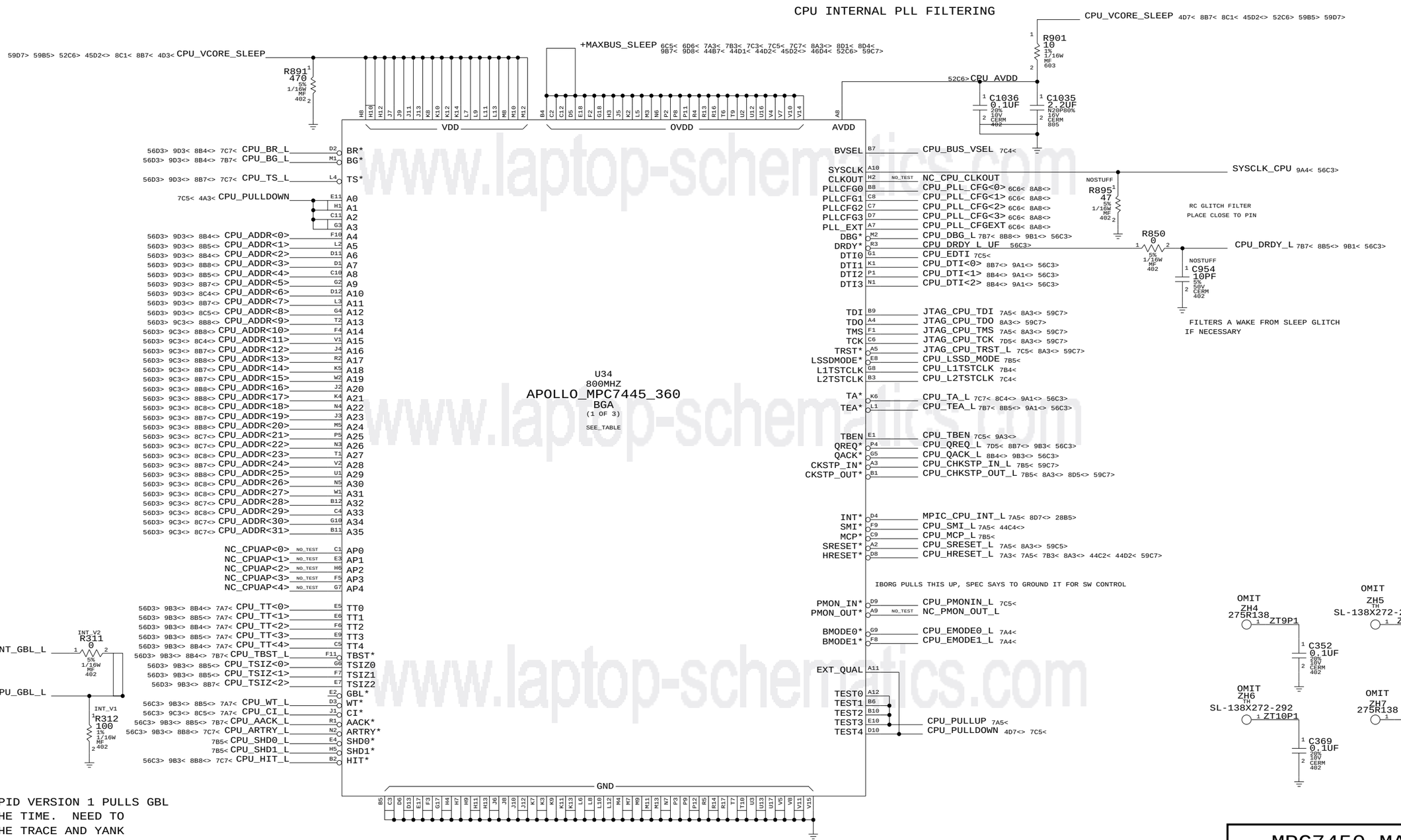
APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE: NONE | SHT 3 OF 69

DRAWING

CPU INTERNAL PLL FILTERING



INTREPID VERSION 1 PULLS GBL
ALL THE TIME. NEED TO
CUT THE TRACE AND YANK
DOWN HARD FOR SNOOPING.
FIXED IN INTREPID VERSION 2.

CPU MECHANICAL PARTS SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
875-1475	1	PAD,THERMAL,CPU,U34	U341	?	
870-1113	1	HEAT SINK,CPU,Q26,U34	U342	?	DEV
870-1114	1	CLIP,HEAT SINK,CPU,Q26.U34	U343	?	DEV
412-0042	1	SCREW,MACH,3MM W,8MM L,U34	U344	?	DEV
835-0251	1	NUT,3MM,U34	U345	?	DEV

MPC7450 MAXBUS

LAST MODIFIED=Mon Oct 27 12:29:22 2003

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 4 OF 69	

APOLLO_MPC7445_360

U34
800MHZ
BGA
(3 OF 3)

NC_CPUCRUD<0>	NO_TEST	F18	NC_F18
NC_CPUCRUD<1>	NO_TEST	F17	NC_F17
NC_CPUCRUD<2>	NO_TEST	F19	NC_F19
NC_CPUCRUD<3>	NO_TEST	H19	NC_H19
NC_CPUCRUD<4>	NO_TEST	H18	NC_H18
NC_CPUCRUD<5>	NO_TEST	H17	NC_H17
NC_CPUCRUD<6>	NO_TEST	H16	NC_H16
NC_CPUCRUD<7>	NO_TEST	E19	NC_E19
NC_CPUCRUD<8>	NO_TEST	D18	NC_D18
NC_CPUCRUD<9>	NO_TEST	F16	NC_F16
NC_CPUCRUD<10>	NO_TEST	G16	NC_G16
NC_CPUCRUD<11>	NO_TEST	D19	NC_D19
NC_CPUCRUD<12>	NO_TEST	F15	NC_F15
NC_CPUCRUD<13>	NO_TEST	G19	NC_G19
NC_CPUCRUD<14>	NO_TEST	E16	NC_E16
NC_CPUCRUD<15>	NO_TEST	D17	NC_D17
NC_CPUCRUD<16>	NO_TEST	D16	NC_D16
NC_CPUCRUD<17>	NO_TEST	P15	NC_P15
NC_CPUCRUD<18>	NO_TEST	L15	NC_L15
NC_CPUCRUD<19>	NO_TEST	N15	NC_N15
NC_CPUCRUD<20>	NO_TEST	P18	NC_P18
NC_CPUCRUD<21>	NO_TEST	N14	NC_N14
NC_CPUCRUD<22>	NO_TEST	M14	NC_M14
NC_CPUCRUD<23>	NO_TEST	M17	NC_M17
NC_CPUCRUD<24>	NO_TEST	N13	NC_N13
NC_CPUCRUD<25>	NO_TEST	N16	NC_N16
NC_CPUCRUD<26>	NO_TEST	M19	NC_M19
NC_CPUCRUD<27>	NO_TEST	M16	NC_M16
NC_CPUCRUD<28>	NO_TEST	P19	NC_P19
NC_CPUCRUD<29>	NO_TEST	N17	NC_N17
NC_CPUCRUD<30>	NO_TEST	M15	NC_M15
NC_CPUCRUD<31>	NO_TEST	L17	NC_L17
NC_CPUCRUD<32>	NO_TEST	L14	NC_L14
NC_CPUCRUD<33>	NO_TEST	K15	NC_K15
NC_CPUCRUD<34>	NO_TEST	J14	NC_J14
NC_CPUCRUD<35>	NO_TEST	J18	NC_J18
NC_CPUCRUD<36>	NO_TEST	J19	NC_J19
NC_CPUCRUD<37>	NO_TEST	J15	NC_J15
NC_CPUCRUD<38>	NO_TEST	K19	NC_K19
NC_CPUCRUD<39>	NO_TEST	J16	NC_J16
NC_CPUCRUD<40>	NO_TEST	H15	NC_H15
NC_CPUCRUD<41>	NO_TEST	L16	NC_L16
NC_CPUCRUD<42>	NO_TEST	P16	NC_P16
NC_CPUCRUD<43>	NO_TEST	M18	NC_M18
NC_CPUCRUD<44>	NO_TEST	L19	NC_L19
NC_CPUCRUD<45>	NO_TEST	L18	NC_L18
NC_CPUCRUD<46>	NO_TEST	K18	NC_K18
NC_CPUCRUD<47>	NO_TEST	J17	NC_J17
NC_CPUCRUD<48>	NO_TEST	K16	NC_K16
NC_CPUCRUD<49>	NO_TEST	C19	NC_C19
NC_CPUCRUD<50>	NO_TEST	D15	NC_D15
NC_CPUCRUD<51>	NO_TEST	G15	NC_G15
NC_CPUCRUD<52>	NO_TEST	C18	NC_C18
NC_CPUCRUD<53>	NO_TEST	A16	NC_A16
NC_CPUCRUD<54>	NO_TEST	B19	NC_B19
NC_CPUCRUD<55>	NO_TEST	A19	NC_A19
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NC_CPUCRUD<57>	NO_TEST	E15	NC_E15
NC_CPUCRUD<58>	NO_TEST	B15	NC_B15
NC_CPUCRUD<59>	NO_TEST	B17	NC_B17
NC_CPUCRUD<60>	NO_TEST	C17	NC_C17
NC_CPUCRUD<61>	NO_TEST	C16	NC_C16
NC_CPUCRUD<62>	NO_TEST	G13	NC_G13
NC_CPUCRUD<63>	NO_TEST	E14	NC_E14
NC_CPUCRUD<64>	NO_TEST	H14	NC_H14
NC_CPUCRUD<65>	NO_TEST	G14	NC_G14
NC_CPUCRUD<66>	NO_TEST	C15	NC_C15
NC_CPUCRUD<67>	NO_TEST	A17	NC_A17
NC_CPUCRUD<68>	NO_TEST	G12	NC_G12
NC_CPUCRUD<69>	NO_TEST	F14	NC_F14
NC_CPUCRUD<70>	NO_TEST	F13	NC_F13
NC_CPUCRUD<71>	NO_TEST	E13	NC_E13
NC_CPUCRUD<72>	NO_TEST	B16	NC_B16
NC_CPUCRUD<73>	NO_TEST	A15	NC_A15
NC_CPUCRUD<74>	NO_TEST	C14	NC_C14
NC_CPUCRUD<75>	NO_TEST	A18	NC_A18
NC_CPUCRUD<76>	NO_TEST	A13	NC_A13
NC_CPUCRUD<77>	NO_TEST	F12	NC_F12
NC_CPUCRUD<78>	NO_TEST	A14	NC_A14
NC_CPUCRUD<79>	NO_TEST	G11	NC_G11
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NC_CPUCRUD<82>	NO_TEST	N18	NC_N18
NC_CPUCRUD<83>	NO_TEST	K17	NC_K17
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NC_CPUCRUD<85>	NO_TEST	B18	NC_B18
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NC_CPUCRUD<88>	NO_TEST	B14	NC_B14
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APOLLO_MPC7445_360

U34
800MHZ
BGA
(2 OF 3)

56D3> 9D1<> 8C4<>	CPU_DATA<0>	R15	D0
56D3> 9D1<> 8C7<>	CPU_DATA<1>	W15	D1
56D3> 9D1<> 8C8<>	CPU_DATA<2>	T14	D2
56D3> 9D1<> 8C5<>	CPU_DATA<3>	V16	D3
56D3> 9D1<> 8C7<>	CPU_DATA<4>	W16	D4
56D3> 9D1<> 8C8<>	CPU_DATA<5>	T15	D5
56D3> 9D1<> 8C4<>	CPU_DATA<6>	U15	D6
56D3> 9D1<> 8C8<>	CPU_DATA<7>	P14	D7
56D3> 9D1<> 8C5<>	CPU_DATA<8>	V13	D8
56D3> 9D1<> 8C4<>	CPU_DATA<9>	W13	D9
56D3> 9D1<> 8C7<>	CPU_DATA<10>	T13	D10
56D3> 9D1<> 8C5<>	CPU_DATA<11>	P13	D11
56D3> 9D1<> 8C5<>	CPU_DATA<12>	U14	D12
56D3> 9D1<> 8C7<>	CPU_DATA<13>	W14	D13
56D3> 9D1<> 8C8<>	CPU_DATA<14>	R12	D14
56D3> 9D1<> 8C5<>	CPU_DATA<15>	T12	D15
56D3> 9C1<> 8C4<>	CPU_DATA<16>	W12	D16
56D3> 9C1<> 8C7<>	CPU_DATA<17>	V12	D17
56D3> 9C1<> 8C4<>	CPU_DATA<18>	N11	D18
56D3> 9C1<> 8C4<>	CPU_DATA<19>	N10	D19
56D3> 9C1<> 8C4<>	CPU_DATA<20>	R11	D20
56D3> 9C1<> 8C8<>	CPU_DATA<21>	U11	D21
56D3> 9C1<> 8C7<>	CPU_DATA<22>	W11	D22
56D3> 9C1<> 8C8<>	CPU_DATA<23>	T11	D23
56D3> 9C1<> 8D4<>	CPU_DATA<24>	R10	D24
56D3> 9C1<> 8D7<>	CPU_DATA<25>	N9	D25
56D3> 9C1<> 8C5<>	CPU_DATA<26>	P10	D26
56D3> 9C1<> 8C7<>	CPU_DATA<27>	U10	D27
56D3> 9C1<> 8D8<>	CPU_DATA<28>	R9	D28
56D3> 9C1<> 8C8<>	CPU_DATA<29>	W10	D29
56D3> 9C1<> 8C5<>	CPU_DATA<30>	U9	D30
56D3> 9C1<> 8D7<>	CPU_DATA<31>	V9	D31
56D3> 9C1<> 9B7<	8D7<> CPU_DATA<32>	W5	D32
56D3> 9C1<> 9B7<	8D8<> CPU_DATA<33>	U6	D33
56D3> 9C1<> 9B7<	8D8<> CPU_DATA<34>	T5	D34
56D3> 9C1<> 9B7<	8D7<> CPU_DATA<35>	U5	D35
56D3> 9C1<> 9A7<	8D4<> CPU_DATA<36>	W7	D36
56D3> 9C1<> 8D5<>	CPU_DATA<37>	R6	D37
56D3> 9C1<> 8D5<>	CPU_DATA<38>	P7	D38
56D3> 9C1<> 8D5<>	CPU_DATA<39>	V6	D39
56D3> 9C1<> 8D7<>	6C4< CPU_DATA<40>	P17	D40
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56D3> 9B1<> 8C5<>	6C4< CPU_DATA<42>	V18	D42
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56D3> 9B1<> 8C7<>	6C4< CPU_DATA<45>	T19	D45
56D3> 9B1<> 8C4<>	6C4< CPU_DATA<46>	U19	D46
56D3> 9B1<> 8C7<	6C4< CPU_DATA<47>	W19	D47
56D3> 9D8< 9B1<>	8C5<> CPU_DATA<48>	U18	D48
56D3> 9D8< 9B1<>	8C4<> CPU_DATA<49>	W17	D49
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56D3> 9C8< 9B1<>	8C7<> CPU_DATA<53>	T17	D53
56D3> 9C8< 9B1<>	8D7<> CPU_DATA<54>	W3	D54
56D3> 9C8< 9B1<>	8C5<> CPU_DATA<55>	V17	D55
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56D3> 9D5< 9B1<>	8D5<> CPU_DATA<57>	U8	D57
56D3> 9D5< 9B1<>	8D4<> CPU_DATA<58>	U7	D58
56D3> 9D5< 9B1<>	8D8<> CPU_DATA<59>	R7	D59
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56D3> 9C5< 9B1<>	8D4<> CPU_DATA<61>	R8	D61
56D3> 9C5< 9B1<>	8D4<> CPU_DATA<62>	W8	D62
56D3> 9C5< 9B1<>	8D5<> CPU_DATA<63>	T8	D63

NC_CPUDP<0>	NO_TEST	T3	DP0
NC_CPUDP<1>	NO_TEST	W4	DP1
NC_CPUDP<2>	NO_TEST	T4	DP2
NC_CPUDP<3>	NO_TEST	W9	DP3
NC_CPUDP<4>	NO_TEST	M6	DP4
NC_CPUDP<5>	NO_TEST	V3	DP5
NC_CPUDP<6>	NO_TEST	N8	DP6
NC_CPUDP<7>	NO_TEST	W6	DP7

MPC7450 - 2

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 5 OF 69	

DRAWING

BOMOPTIONS FOR UPPER-SET OF RESISTORS

1200@133&1500@167&1333@133&1667@167&1467@133&1833@167&1600@133&2000@167&1733@133&2167@167&1867@133&2333@167&2000@133&2500@167&2133@133&2667@167

667@133&833@167&733@133&917@167&800@133&1000@167&1067@133&1333@167&1333@133&1667@167&1467@133&1833@167&1600@133&2000@167&1867@133&2333@167&2133@133&2667@167

800@133&1000@167&867@133&1083@167&1067@133&1333@167&1200@133&1500@167&1733@133&2167@167&1867@133&2333@167&2133@133&2667@167

667@133&833@167&933@133&1167@167&1200@133&1500@167&1333@133&1667@167&1600@133&2000@167

667@133&833@167&733@133&917@167&800@133&1000@167&867@133&1083@167&1000@133&1250@167&1200@133&1500@167&1467@133&1833@167&1600@133&2000@167&1733@133&2167@167&2000@133&2500@167&2133@133&2667@167

+MAXBUS_SLEEP 4D5< 6C5< 7A3< 7B3< 7C3< 7C5< 7C7< 8A3<> 8D1< 8D4< 9B7< 9D8< 44B7< 44D1< 44D2< 45D2<> 46D4< 52C6> 59C7>

SPECIAL CONFIG
R382 10K 1% 1/16W MF 402
R379 10K 1% 1/16W MF 402
R378 10K 1% 1/16W MF 402
R376 10K 1% 1/16W MF 402
R374 10K 1% 1/16W MF 402

CPU_PLL_CFGEXT 4C3< 8A8<>
CPU_PLL_CFG<3> 4C3< 8A8<>
CPU_PLL_CFG<2> 4D3< 8A8<>
CPU_PLL_CFG<1> 4D3< 8A8<>
CPU_PLL_CFG<0> 4D3< 8A8<>

SPECIAL CONFIG
R383 1K 1% 1/16W MF 402
R381 1K 1% 1/16W MF 402
R380 1K 1% 1/16W MF 402
R377 1K 1% 1/16W MF 402
R375 1K 1% 1/16W MF 402

CPU_PLL_STOP 44B8<

NOSTUFF
R879 10K 1% 1/16W MF 402
R878 10K 1% 1/16W MF 402
R889 10K 1% 1/16W MF 402
R866 10K 1% 1/16W MF 402
R874 10K 1% 1/16W MF 402
R877 10K 1% 1/16W MF 402
R875 10K 1% 1/16W MF 402
R867 10K 1% 1/16W MF 402

8D1< 8A3<> 7C7< 7C5< 7C3< 7B3< 7A3< 6D6< 4D5< 45D2<> 44D2< 44D1< 44B7< 9D8< 9B7< 8D4< 59C7> 52C6> +MAXBUS_SLEEP

NOSTUFF

667@133&733@133&800@133&867@133&933@133&1000@133&1067@133&1200@133&1333@133&1467@133&1600@133&1733@133&1867@133&2000@133&2133@133

NOSTUFF

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CPU_DATA<42> 5B4<> 8C5<> 9B1<> 56D3>
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CPU_DATA<44> 5B4<> 8C8<> 9B1<> 56D3>
CPU_DATA<45> 5B4<> 8C7<> 9B1<> 56D3>
CPU_DATA<46> 5B4<> 8C4<> 9B1<> 56D3>
CPU_DATA<47> 5B4<> 8C7< 9B1<> 56D3>

R363 4.7K 5% 1/16W MF 402
R364 4.7K 5% 1/16W MF 402
R887 4.7K 5% 1/16W MF 402
R357 4.7K 5% 1/16W MF 402
R368 4.7K 5% 1/16W MF 402
R365 4.7K 5% 1/16W MF 402
R367 4.7K 5% 1/16W MF 402
R356 4.7K 5% 1/16W MF 402

INTREPID BOOT STRAPS
BITS 40 - 47

SPARE
SPARE
PLL4MODESEL_NXT[2:0]
000: 166.4 MHZ
001: 149.76 MHZ
010: 133.12 MHZ
011: 99.84 MHZ
100: 83.20 MHZ
INTERNALSPREADEN 1:: INTERNAL SPREAD ACTIVE
PCI1 SOURCE CLOCK 0:: PLL4 1:: PLL5 (NO SPREAD)
PCI0 SOURCE CLOCK 0:: PLL4 1:: PLL5 (NO SPREAD)

(STUFF FOR 133 AND 167)

833@167&917@167&1000@167&1083@167&1167@167&1250@167&1333@167&1500@167&1667@167&1833@167&2000@167&2167@167&2333@167&2500@167&2667@167

(STUFF FOR 133 AND 167)

933@133&1167@167&1067@133&1333@167&1333@133&1667@167&1867@133&2333@167

733@133&917@167&800@133&1000@167&867@133&1083@167&1000@133&1250@167&1067@133&1333@167&1467@133&1833@167&1733@133&2167@167&1867@133&2333@167&2000@133&2500@167&2133@133&2667@167

667@133&833@167&733@133&917@167&933@133&1167@167&1000@133&1250@167&1333@133&1667@167&1467@133&1833@167&1600@133&2000@167&2000@133&2500@167

867@133&1083@167&933@133&1167@167&1000@133&1250@167&1200@133&1500@167&1733@133&2167@167&2000@133&2500@167

667@133&833@167&733@133&917@167&800@133&1000@167&867@133&1083@167&933@133&1167@167&1000@133&1250@167&1067@133&1333@167

CPU FREQUENCY CONFIGURATION
(SUPPORTED CPU & BUS SPEEDS)

MULTIPLIER	CORE FREQUENCY (AT BUS FREQUENCY) 167MHZ	133MHZ	CPU_PLL_CFG E	0123 HEX
(BUS-TO-CORE)	(MHZ)			
5.0X	833	667	0	1011 0B
5.5X	917	733	0	1001 09
6.0X	1000	800	0	1101 0D
6.5X	1083	867	0	0101 05
7.0X	1167	933	0	0010 02
7.5X	1250	1000	0	0001 01
8.0X	1333	1067	0	1100 0C
9.0X	1500	1200	1	0111 17
10.0X	1667	1333	1	1010 1A
11.0X	1833	1467	1	1001 19
12.0X	2000	1600	1	1011 1B
13.0X	2167	1733	1	0101 15
14.0X	2333	1867	1	1100 1C
15.0X	2500	2000	1	0001 11
16.0X	2667	2133	1	1101 1D

CPU SPEED & BUS RATIO SUPPORT

THE CONFIGURATION RESISTORS BELOW ARE SELF CONFIGURING WHEN THE ENGINEER SELECTS THE APPROPRIATE CPU AND BUS SPEED BOM OPTION, THE APPROPRIATE RESISTORS ARE ARE AUTOMATICALLY SELECTED

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
337S2799	1	IC,APOLLO6,SICOH,1.0GHZ,1.5V+30/-130MV,28W,85C	U34	CRITICAL	1000@167
337S2801	1	IC,APOLLO6,SICOH,1.25GHZ,1.57V+70/-70MV,35W,85C	U34	CRITICAL	1250@167

CPU BUS RATIO BITS

APPLE COMPUTER INC.
SIZE D | DRAWING NUMBER 051-6569 | REV. A
SCALE NONE | SHT 6 OF 69
DRAWING

BMODE <0>	BMODE <1>	MSSCR0 <16:17>	Sys Bus	Vger ID	Addr Drve
L	L	1 1	???	01	yes unavail
L	!hr	1 0	Max	01	yes unavail
L	hr	1 1	???	00	yes unavail
L	H	1 0	Max	00	yes unavail
!hr	L	0 1	MB+	01	yes unavail
!hr	!hr	0 0	60x	01	yes unavail
!hr	hr	0 1	MB+	00	yes unavail
!hr	H	0 0	60x	00	yes unavail
hr	L	1 1	???	01	norm unavail
hr	!hr	1 0	Max	01	norm
hr	hr	1 1	???	00	norm unavail
HR	H	1 0	MAX	00	NORM <- DEFAULT
H	L	0 1	MB+	01	norm unavail
H	!hr	0 0	60x	01	norm
H	hr	0 1	MB+	00	norm unavail
H	H	0 0	60x	00	norm

SIGNAL	TIED	APPLICATION
CPU_EMODE0_L	HIGH	60X BUS MODE
	CPU_HRESET_L	MAX BUS MODE
CPU_BUS_VSEL	CPU_HRESET_L	2.5V INTERFACE
	LOW	1.8V INTERFACE
	CPU_HRESET_H	1.5V INTERFACE
CPU_L3_VSEL	CPU_HRESET_L or L3_OVDD	2.5V INTERFACE
	LOW	1.8V INTERFACE
	CPU_HRESET_H	1.5V INTERFACE

MAXBUS PULL-UPS

59C7> 52C6> 8D1< 8A3<> 7C5< 7C3< 7B3< 7A3< 6D6< 6C5< 4D5< 46D4< 45D2<> 44D2< 44D1< 44B7< 9D8< 9B7< 8D4< +MAXBUS_SLEEP

- 56D3> 9D3<> 8B7<> 4D7<> CPU_TS_L — R347 10K 1% 1/16W MF 402
- 56C3> 9A1<> 8C4<> 4C3< CPU_TA_L — R348 10K 1% 1/16W MF 402
- 56C3> 9B3<> 8B8<> 4A7<> CPU_ARTRY_L — R346 10K 1% 1/16W MF 402
- 56D3> 9D3< 8B4<> 4D7> CPU_BR_L — R841 10K 1% 1/16W MF 402
- 56C3> 9B3< 8B8<> 4A7> CPU_HIT_L — R840 10K 1% 1/16W MF 402
- 56C3> 9B1< 8B5<> 4C2< CPU_DRDY_L — R851 10K 1% 1/16W MF 402
- 56C3> 9A1<> 8B5<> 4C3< CPU_TEA_L — R845 10K 1% 1/16W MF 402
- 56C3> 9B3<> 8B5<> 4A7< CPU_AACK_L — R849 10K 1% 1/16W MF 402
- 56C3> 9B1<> 8B8<> 4C3< CPU_DBG_L — R847 10K 1% 1/16W MF 402
- 56D3> 9D3<> 8B4<> 4D7< CPU_BG_L — R846 10K 1% 1/16W MF 402
- 56D3> 9B3<> 8B4<> 4B7> CPU_TBST_L — R349 10K 1% 1/16W MF 402
- 56C3> 9C3<> 4B8< CPU_INT_GBL_L — R842 10K 1% 1/16W MF 402
- 56C3> 9C3<> 8C5<> 4A7> CPU_CI_L — R844 10K 1% 1/16W MF 402
- 56C3> 9B3<> 8B5<> 4B7> CPU_WT_L — RP78 10K 5% 1/16W SM1 (2-7)
- 56D3> 9B3<> 8B4<> 4B7<> CPU_TT<0> — RP78 10K 5% 1/16W SM1 (1-8)
- 56D3> 9B3<> 8B5<> 4B7<> CPU_TT<1> — RP78 10K 5% 1/16W SM1 (3-6)
- 56D3> 9B3<> 8B4<> 4B7<> CPU_TT<2> — R843 10K 1% 1/16W MF 402
- 56D3> 9B3<> 8B5<> 4B7<> CPU_TT<3> — RP78 10K 5% 1/16W SM1 (4-5)
- 56D3> 9B3<> 8B4<> 4B7<> CPU_TT<4> — R350 10K 1% 1/16W MF 402

- 56C3> 9B3< 8B7<> 4C3> CPU_QREQ_L — R848 10K 1% 1/16W MF 402
- 59C7> 8A3<> 4C3< JTAG_CPU_TCK — R924 10K 1% 1/16W MF 402
- 59C7> 8A3<> 4C3< JTAG_CPU_TRST_L — R925 200 5% 1/16W MF 402
- 4B3< CPU_PMONIN_L — RP79 10K 5% 1/16W SM1 (4-5)
- 4C3< CPU_EDTI — R858 10K 1% 1/16W MF 402
- 4D7<> 4A3< CPU_PULLDOWN — R859 470 5% 1/16W MF 402

MPC7450 PULL-UPS

59C7> 8D4< 8D1< 8A3<> 7C7< 7C3< 7B3< 7A3< 6D6< 6C5< 4D5< 52C6> 46D4< 45D2<> 44D2< 44D1< 44B7< 9D8< 9B7< +MAXBUS_SLEEP

- 9A3<> 4C3< CPU_TBEN — R856 10K 1% 1/16W MF 402
- 4A7<> CPU_SHD0_L — R857 10K 1% 1/16W MF 402
- 4A7<> CPU_SHD1_L — R860 10K 1% 1/16W MF 402
- 4B3< CPU_MCP_L — R910 10K 1% 1/16W MF 402
- 4C3< CPU_LSSD_MODE — R911 10K 1% 1/16W MF 402
- 59C7> 8D5<> 8A3<> 4B3> CPU_CHKSTP_OUT_L — NOSTUFF R921 1K 1% 1/16W MF 402
- 59C7> 4B3< CPU_CHKSTP_IN_L — R882 1K 1% 1/16W MF 402
- 4A3< CPU_PULLUP — R909 1K 1% 1/16W MF 402
- 59C7> 44D2< 44C2< 8A3<> 7B3< 7A3< 4B3< CPU_HRESET_L — R922 10K 1% 1/16W MF 402
- 59C5> 8A3<> 4B3< CPU_SRESET_L — RP79 10K 5% 1/16W SM1 (2-7)
- 28B5> 8D7<> 4B3< MPIC_CPU_INT_L — RP79 10K 5% 1/16W SM1 (3-6)
- 44C4<> 4B3< CPU_SMI_L — R912 10K 1% 1/16W MF 402
- 59C7> 8A3<> 4C3< JTAG_CPU_TDI — RP79 10K 5% 1/16W SM1 (1-8)
- 59C7> 8A3<> 4C3< JTAG_CPU_TMS — R923 10K 1% 1/16W MF 402

NOSTUFF R915 0 5% 1/16W MF 402 — VGER_INV_HRESET 7A3< 7B3< 44D1>

NOSTUFF R913 10K 5% 1/16W MF 402 — +MAXBUS_SLEEP 59C7> 4D5< 6C5< 6D6< 7A3< 7B3< 7C3< 7C5< 7C7< 8A3<> 8D1< 8D4< 9B7< 9D8< 44B7< 44D1< 44D2< 45D2<> 46D4< 52C6>

4D3< CPU_BUS_VSEL — R914 200 5% 1/16W MF 402

BUS MODE

0V	1.8V BUS MODE
INV_HRESET	1.5V BUS MODE
OVDD	2.5V BUS MODE

4C3< CPU_L2TSTCLK — R918 10K 1% 1/16W MF 402 — +MAXBUS_SLEEP 59C7> 4D5< 6C5< 6D6< 7A3< 7B3< 7C3< 7C5< 7C7< 8A3<> 8D1< 8D4< 9B7< 9D8< 44B7< 44D1< 44D2< 45D2<> 46D4< 52C6>

NOSTUFF R926 0 5% 1/16W MF 402 — CPU_HRESET_L 4B3< 7A3< 7A5< 7B3< 8A3<> 44C2< 44D2< 59C7>

NOSTUFF R919 0 5% 1/16W MF 402 — VGER_INV_HRESET 7A3< 7B3< 7C3< 44D1>

NOSTUFF R920 200 5% 1/16W MF 402

DO NOT USE UNLESS FIX INVERTER BUFFER

NOSTUFF R907 10K 5% 1/16W MF 402 — +MAXBUS_SLEEP 4D5< 6C5< 6D6< 7A3< 7C3< 7C5< 7C7< 8A3<> 8D1< 8D4< 9B7< 9D8< 44B7< 44D1< 44D2< 45D2<> 46D4< 52C6> 59C7>

NOSTUFF R906 0 5% 1/16W MF 402 — CPU_HRESET_L 4B3< 7A3< 7A5< 7B3< 8A3<> 44C2< 44D2< 59C7>

NOSTUFF R916 0 5% 1/16W MF 402 — VGER_INV_HRESET 7A3< 7B3< 7C3< 44D1>

4C3< CPU_L1TSTCLK — R917 200 5% 1/16W MF 402

CPUBUS_60X R904 1K 5% 1/16W MF 402 — +MAXBUS_SLEEP 59C7> 4D5< 6C5< 6D6< 7A3< 7B3< 7C3< 7C5< 7C7< 8A3<> 8D1< 8D4< 9B7< 9D8< 44B7< 44D1< 44D2< 45D2<> 46D4< 52C6>

4B3< CPU_EMODE0_L — CPUBUS_MAX R905 200 5% 1/16W MF 402 — CPU_HRESET_L 4B3< 7A5< 7B3< 8A3<> 44C2< 44D2< 59C7>

R903 1K 1% 1/16W MF 402 — +MAXBUS_SLEEP 7C5< 7C7< 8A3<> 8D1< 8D4< 9B7< 9D8< 4D5< 6C5< 6D6< 7A3< 7B3< 7C3< 44B7< 44D1< 44D2< 45D2<> 46D4< 52C6> 59C7>

4B3< CPU_EMODE1_L — NOSTUFF R902 200 5% 1/16W MF 402 — VGER_INV_HRESET 7B3< 7C3< 44D1>

CPU CONFIG OPTIONS

APPLE COMPUTER INC.
SIZE D | DRAWING NUMBER 051-6569 | REV. A
SCALE NONE | SHT 7 OF 69
DRAWING

<XR_PAGE_TITLE>

MAXBUS LOGIC ANALYZER SUPPORT

NOTE: INTREPID MAXBUS CONFIG STRAPS MUST DROP
TO 1K OR LOGIC ANALYZER MAY AFFECT STRAP VALUES

J20
CON_38SM_MICTOR
SM
OMIT
EPROBE SYM_VER3

	GND	1	2	GND	
	GND	2	1	GND	
56B3> 8A2< SYSCLK_LA	CLK3	3	36	Q1	MPIC_CPU_INT_L 4B3< 7A5< 28B5>
56D3> 9C1< 9B7< 5C4< CPU_DATA<34>	C3_7	4	35	C1_7	CPU_DATA<35> 5C4<> 9B7< 9C1<> 56D3>
56D3> 9B1<> 5B4<> CPU_DATA<56>	C3_6	5	34	C1_6	CPU_DATA<54> 5B4<> 9B1<> 9C8< 56D3>
56D3> 9D5< 9B1<> 5B4<> CPU_DATA<59>	C3_5	6	33	C1_5	CPU_DATA<32> 5C4<> 9B7< 9C1<> 56D3>
56D3> 9C1<> 9B7< 5C4<> CPU_DATA<33>	C3_4	7	32	C1_4	CPU_DATA<40> 5B4<> 6C4< 9C1<> 56D3>
56D3> 9D5< 9B1<> 5B4<> CPU_DATA<60>	C3_3	8	31	C1_3	CPU_DATA<31> 5C4<> 9C1<> 56D3>
56D3> 9C1<> 5C4<> CPU_DATA<28>	C3_2	9	30	C1_2	CPU_DATA<25> 5C4<> 9C1<> 56D3>
56D3> 9C1<> 5C4<> CPU_DATA<29>	C3_1	10	29	C1_1	CPU_DATA<27> 5C4<> 9C1<> 56D3>
56D3> 9C1<> 5C4<> CPU_DATA<23>	C3_0	11	28	C1_0	CPU_DATA<22> 5C4<> 9C1<> 56D3>
56D3> 9C1<> 5C4<> CPU_DATA<21>	C2_7	12	27	C0_7	CPU_DATA<17> 5C4<> 9C1<> 56D3>
56D3> 9D1<> 5C4<> CPU_DATA<14>	C2_6	13	26	C0_6	CPU_DATA<10> 5D4<> 9D1<> 56D3>
56D3> 9D8< 9B1<> 5B4<> CPU_DATA<50>	C2_5	14	25	C0_5	CPU_DATA<13> 5C4<> 9D1<> 56D3>
56D3> 9D1<> 5C4<> CPU_DATA<2>	C2_4	15	24	C0_4	CPU_DATA<1> 5D4<> 9D1<> 56D3>
56D3> 9D1<> 5D4<> CPU_DATA<5>	C2_3	16	23	C0_3	CPU_DATA<4> 5D4<> 9D1<> 56D3>
56D3> 9D8< 9B1<> 5B4<> CPU_DATA<51>	C2_2	17	22	C0_2	CPU_DATA<53> 5B4<> 9B1<> 9C8< 56D3>
56D3> 9D1<> 5D4<> CPU_DATA<7>	C2_1	18	21	C0_1	CPU_DATA<47> 5B4<> 6C4< 9B1<> 56D3>
56D3> 9B1<> 6C4< 5B4<> CPU_DATA<44>	C2_0	19	20	C0_0	CPU_DATA<45> 5B4<> 6C4< 9B1<> 56D3>
	GND			GND	
		39	40 41 42 43 44 45		

J31
CON_38SM_MICTOR
SM
OMIT
APROBE SYM_VER3

	GND	1	2	GND	
	GND	2	1	GND	
	CLK0	3	36	CLK1	
56D3> 9C3<> 4B7<> CPU_ADDR<26>	A3_7	4	35	A1_7	CPU_ADDR<30> 4B7<> 9C3<> 56D3>
56D3> 9C3<> 4B7<> CPU_ADDR<29>	A3_6	5	34	A1_6	CPU_ADDR<31> 4B7<> 9C3<> 56D3>
56D3> 9C3<> 4B7<> CPU_ADDR<27>	A3_5	6	33	A1_5	CPU_ADDR<28> 4B7<> 9C3<> 56D3>
56D3> 9C3<> 4C7<> CPU_ADDR<18>	A3_4	7	32	A1_4	CPU_ADDR<22> 4C7<> 9C3<> 56D3>
56D3> 9C3<> 4C7<> CPU_ADDR<23>	A3_3	8	31	A1_3	CPU_ADDR<21> 4C7<> 9C3<> 56D3>
56D3> 9C3<> 4B7<> CPU_ADDR<25>	A3_2	9	30	A1_2	CPU_ADDR<24> 4B7<> 9C3<> 56D3>
56C3> 9B1<> 7B7< 4C3< CPU_DBG_L	A3_1	10	29	A1_1	CPU_TS_L 4D7<> 7C7< 9D3<> 56D3>
56D3> 9C3<> 4C7<> CPU_ADDR<17>	A3_0	11	28	A1_0	CPU_ADDR<15> 4C7<> 9C3<> 56D3>
56D3> 9C3<> 4C7<> CPU_ADDR<20>	A2_7	12	27	A0_7	CPU_ADDR<19> 4C7<> 9C3<> 56D3>
56D3> 9C3<> 4C7<> CPU_ADDR<16>	A2_6	13	26	A0_6	CPU_ADDR<14> 4C7<> 9C3<> 56D3>
56C3> 9B3<> 7C7< 4A7> CPU_ARTRY_L	A2_5	14	25	A0_5	CPU_DTI<0> 4C3< 9A1<> 56C3>
56D3> 9C3<> 4C7<> CPU_ADDR<10>	A2_4	15	24	A0_4	CPU_ADDR<7> 4C7<> 9D3<> 56D3>
56D3> 9C3<> 4C7<> CPU_ADDR<13>	A2_3	16	23	A0_3	CPU_ADDR<12> 4C7<> 9C3<> 56D3>
56C3> 9B3< 7C7< 4A7> CPU_HIT_L	A2_2	17	22	A0_2	CPU_QREQ_L 4C3> 7D5< 9B3< 56C3>
56D3> 9D3<> 4C7<> CPU_ADDR<3>	A2_1	18	21	A0_1	CPU_TSIZ<2> 4B7> 9B3<> 56D3>
56D3> 9C3<> 4C7<> CPU_ADDR<9>	A2_0	19	20	A0_0	CPU_ADDR<5> 4C7<> 9D3<> 56D3>
	GND			GND	
		39	40 41 42 43 44 45		

(519-0698)

J30
CON_38SM_MICTOR
SM
OMIT
EPROBE SYM_VER3

	GND	1	2	GND	
	GND	2	1	GND	
59C7> 8A3<> 7B5< 4B3> CPU_CHKSTP_OUT_L	Q3	3	36	Q2	
56D3> 9C1<> 5B4<> CPU_DATA<37>	E3_7	4	35	E1_7	CPU_DATA<58> 5B4<> 9B1<> 9D5< 56D3>
56D3> 9C1<> 5B4<> CPU_DATA<39>	E3_6	5	34	E1_6	CPU_DATA<36> 5C4<> 9A7< 9C1<> 56D3>
56D3> 9C1<> 5B4<> CPU_DATA<38>	E3_5	6	33	E1_5	CPU_DATA<62> 5B4<> 9B1<> 9C5< 56D3>
56D3> 9C5< 9B1<> 5A4<> CPU_DATA<63>	E3_4	7	32	E1_4	CPU_DATA<61> 5B4<> 9B1<> 9C5< 56D3>
56D3> 9D5< 9B1<> 5B4<> CPU_DATA<57>	E3_3	8	31	E1_3	CPU_DATA<24> 5C4<> 9C1<> 56D3>
56D3> 9C1<> 5C4<> CPU_DATA<30>	E3_2	9	30	E1_2	CPU_DATA<41> 5B4<> 6C4< 9C1<> 56D3>
56D3> 9C1<> 5C4<> CPU_DATA<26>	E3_1	10	29	E1_1	CPU_DATA<9> 5D4<> 9D1<> 56D3>
56D3> 9D1<> 5D4<> CPU_DATA<8>	E3_0	11	28	E1_0	CPU_DATA<19> 5C4<> 9C1<> 56D3>
56D3> 9D1<> 5C4<> CPU_DATA<15>	E2_7	12	27	E0_7	CPU_DATA<20> 5C4<> 9C1<> 56D3>
56D3> 9C8< 9B1<> 5B4<> CPU_DATA<55>	E2_6	13	26	E0_6	CPU_DATA<16> 5C4<> 9C1<> 56D3>
56D3> 9D1<> 5C4<> CPU_DATA<11>	E2_5	14	25	E0_5	CPU_DATA<18> 5C4<> 9C1<> 56D3>
56D3> 9D1<> 5D4<> CPU_DATA<3>	E2_4	15	24	E0_4	CPU_DATA<49> 5B4<> 9B1<> 9D8< 56D3>
56D3> 9D1<> 5C4<> CPU_DATA<12>	E2_3	16	23	E0_3	CPU_DATA<6> 5D4<> 9D1<> 56D3>
56D3> 9C8< 9B1<> 5B4<> CPU_DATA<52>	E2_2	17	22	E0_2	CPU_DATA<0> 5D4<> 9D1<> 56D3>
56D3> 9B1<> 6C4< 5B4<> CPU_DATA<42>	E2_1	18	21	E0_1	CPU_DATA<43> 5B4<> 6C4< 9B1<> 56D3>
56D3> 9D8< 9B1<> 5B4<> CPU_DATA<48>	E2_0	19	20	E0_0	CPU_DATA<46> 5B4<> 6C4< 9B1<> 56D3>
	GND			GND	
		39	40 41 42 43 44 45		

J19
CON_37SM_MICTOR
F-ST-SM
OMIT
DPROBE SYM_VER3

	GND	1	2	GND	
	GND	2	1	GND	
	Q0	3	36	CLK2	
	D3_7	4	35	D1_7	CPU_ADDR<11> 4C7<> 9C3<> 56D3>
	D3_6	5	34	D1_6	CPU_ADDR<6> 4C7<> 9D3<> 56D3>
	D3_5	6	33	D1_5	CPU_TA_L 4C3< 7C7< 9A1<> 56C3>
	D3_4	7	32	D1_4	CPU_TT<0> 4B7<> 7A7< 9B3<> 56D3>
	D3_3	8	31	D1_3	CPU_ADDR<2> 4C7<> 9D3<> 56D3>
	D3_2	9	30	D1_2	CPU_BR_L 4D7> 7C7< 9D3< 56D3>
	D3_1	10	29	D1_1	CPU_TT<4> 4B7<> 7A7< 9B3<> 56D3>
	D3_0	11	28	D1_0	CPU_ADDR<0> 4C7<> 9D3<> 56D3>
	D2_7	12	27	D0_7	CPU_TBST_L 4B7> 7B7< 9B3<> 56D3>
	D2_6	13	26	D0_6	CPU_DTI<1> 4C3< 9A1<> 56C3>
	D2_5	14	25	D0_5	CPU_TT<2> 4B7<> 7A7< 9B3<> 56D3>
	D2_4	15	24	D0_4	CPU_BG_L 4D7< 7B7< 9D3<> 56D3>
	D2_3	16	23	D0_3	CPU_QACK_L 4C3< 9B3<> 56C3>
	D2_2	17	22	D0_2	CPU_DTI<2> 4C3< 9A1<> 56C3>
	D2_1	18	21	D0_1	
	D2_0	19	20	D0_0	
	GND			GND	
		39	40 41 42 43 44 45		

56D3> 9D3<> 4C7<> CPU_ADDR<8>
56C3> 9C3<> 7A7< 4A7> CPU_CI_L
56D3> 9B3<> 4B7> CPU_TSIZ<1>
56D3> 9D3<> 4C7<> CPU_ADDR<4>
56C3> 9A1<> 7B7< 4C3< CPU_TEA_L
56D3> 9B3<> 7A7< 4B7<> CPU_TT<1>
56D3> 9D3<> 4C7<> CPU_ADDR<1>
56D3> 9B3<> 4B7> CPU_TSIZ<0>
56C3> 9B3<> 7A7< 4B7> CPU_WT_L
56D3> 9B3<> 7A7< 4B7<> CPU_TT<3>
56C3> 9B1< 7B7< 4C2< CPU_DRDY_L
56C3> 4B8<> CPU_GBL_L
56C3> 9B3<> 7B7< 4A7< CPU_AACK_L

+MAXBUS_SLEEP

8D1< 8A3<> 7C7< 7C5< 7C3< 7B3< 7A3< 6D6< 59C7> 6C5< 4D5<
52C6> 46D4< 45D2<> 44D2< 44D1< 44B7< 9D8< 9B7<

C350 10UF N20P80% 10V Y5V 805
C958 10UF N20P80% 10V Y5V 805
C983 10UF N20P80% 10V Y5V 805
C992 10UF N20P80% 10V Y5V 805
C969 2.2UF N20P80% 10V CERM 805
C353 2.2UF N20P80% 10V CERM 805

C988 0.1UF 20% 10V CERM 402
C1026 0.1UF 20% 10V CERM 402
C1043 0.1UF 20% 10V CERM 402
C982 0.1UF 20% 10V CERM 402
C1013 0.1UF 20% 10V CERM 402
C999 0.1UF 20% 10V CERM 402
C974 0.1UF 20% 10V CERM 402
C1003 0.1UF 20% 10V CERM 402
C1041 0.1UF 20% 10V CERM 402
C1014 0.1UF 20% 10V CERM 402
C987 0.1UF 20% 10V CERM 402
C998 0.1UF 20% 10V CERM 402
C995 0.1UF 20% 10V CERM 402
C991 0.1UF 20% 10V CERM 402
C977 0.1UF 20% 10V CERM 402

+MAXBUS_SLEEP

8D4< 8A3<> 7C7< 7C5< 7C3< 7B3< 7A3< 6D6< 59C7> 6C5< 4D5<
52C6> 46D4< 45D2<> 44D2< 44D1< 44B7< 9D8< 9B7<

C972 0.1UF 20% 10V CERM 402
C981 0.1UF 20% 10V CERM 402
C980 0.1UF 20% 10V CERM 402
C973 0.1UF 20% 10V CERM 402
C993 0.1UF 20% 10V CERM 402
C990 0.1UF 20% 10V CERM 402
C994 0.1UF 20% 10V CERM 402
C1007 0.1UF 20% 10V CERM 402
C961 0.1UF 20% 10V CERM 402
C1020 0.1UF 20% 10V CERM 402
C1021 0.1UF 20% 10V CERM 402
C967 0.1UF 20% 10V CERM 402

CPU_VCORE_SLEEP

59D7> 59B5> 52C6> 45D2<> 8B7< 4D7< 4D3<

C1040 10UF N20P80% 10V Y5V 805
C976 10UF N20P80% 10V Y5V 805
C1037 10UF N20P80% 10V Y5V 805
C1033 10UF N20P80% 10V Y5V 805
C1032 10UF N20P80% 10V Y5V 805
C1042 10UF N20P80% 10V Y5V 805
C1016 10UF N20P80% 10V Y5V 805
C364 10UF N20P80% 10V Y5V 805
C1911 10UF N20P80% 10V Y5V 805
C1912 10UF N20P80% 10V Y5V 805
C1913 10UF N20P80% 10V Y5V 805
C1914 10UF N20P80% 10V Y5V 805
C598 10UF N20P80% 10V Y5V 805
C1054 10UF N20P80% 10V Y5V 805
C1055 10UF N20P80% 10V Y5V 805
C1056 10UF N20P80% 10V Y5V 805
C1057 10UF N20P80% 10V Y5V 805
C1058 10UF N20P80% 10V Y5V 805

INTREPID CLOCK OUTPUT

NOSTUFF J27 U.FL-R_SMT F-ST-SM
NOSTUFF R314 0 5% 1/16W MF 402
56B3> INT_CLOCK_OUT
NOSTUFF R308 47 5% 1/16W MF 402
PLACE BOTH RESISTORS CLOSE TO INTREPID
NOSTUFF R313 22 5% 1/16W MF 402
59A7> 56B3> 54A7< 16C7< 9B4< INT_ANALYZER_CLK
SYSCLK_LA 8D8<> 56B3>

(518S0104)

CPU CORE DECOUPLING

59D7> 59B5> 52C6> 45D2<> 8C1< 4D7< 4D3< CPU_VCORE_SLEEP

C1022 1UF 10% 6.3V CERM 402
C1027 1UF 10% 6.3V CERM 402
C1011 1UF 10% 6.3V CERM 402
C1008 1UF 10% 6.3V CERM 402
C1010 1UF 10% 6.3V CERM 402
C1025 1UF 10% 6.3V CERM 402
C1098 1UF 10% 6.3V CERM 402
C1009 1UF 10% 6.3V CERM 402
C1002 1UF 10% 6.3V CERM 402
C1023 1UF 10% 6.3V CERM 402
C1017 1UF 10% 6.3V CERM 402
C1031 1UF 10% 6.3V CERM 402
C997 1UF 10% 6.3V CERM 402
C996 1UF 10% 6.3V CERM 402
C1012 1UF 10% 6.3V CERM 402
C1024 1UF 10% 6.3V CERM 402
C1001 1UF 10% 6.3V CERM 402
C1028 1UF 10% 6.3V CERM 402
C1018 1UF 10% 6.3V CERM 402
C1096 1UF 10% 6.3V CERM 402
C1097 1UF 10% 6.3V CERM 402
C1901 0.1UF 20% 10V CERM 402
C1902 0.1UF 20% 10V CERM 402
C1903 0.1UF 20% 10V CERM 402
C1904 0.1UF 20% 10V CERM 402
C1910 0.1UF 20% 10V CERM 402

CPU CORE DECOUPLING

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
132S0013	21	CAP,CER,.22UF,20%,6.3V,0402,X5R		1GHZ_DECOUP
		C1022,C1027,C1011,C1008,C1010,C1025,C1009,C1002,C1023,C1017,C1031,C997,C996,C1012,C1024,C1001,C1028,C1018,C1096,C1097,C1098		
138S0541	21	CAP,CER,1UF,10%,6.3V,0402,X5R		1_25GHZ_DECOUP
		C1022,C1027,C1011,C1008,C1010,C1025,C1009,C1002,C1023,C1017,C1031,C997,C996,C1012,C1024,C1001,C1028,C1018,C1096,C1097,C1098		

PULLDOWN ON TRST* STRONGER TO OVERCOME POSSIBLE LEAKAGE

FMAX DEBUG CONNECTOR

NOSTUFF J32 SM12B-SRSS-TB F-RT-SM

	14		
1			CPU_PLL_CFG<0> 4D3< 6C6<
2			CPU_PLL_CFG<1> 4D3< 6C6<
3			CPU_PLL_CFG<2> 4D3< 6C6<
4			CPU_PLL_CFG<3> 4C3< 6C6<
5			CPU_PLL_CFGEXT 4C3< 6C6<
6			
7	NO_TEST		NC_FMAX7
8	NO_TEST		NC_FMAX8
9			PWR_SWITCH* 44B1< 44C5<> 59D5>
10			PMU_RST* 29B3<> 44A5<> 44B5<> 59D5>
11	NO_TEST		NC_RESET_BUTTON_L
12			
	13		

(518S0105)

+3V_MAIN

R937 10K 1% 1/16W MF 402

NOSTUFF J22 SM-1

		1	2	+MAXBUS_SLEEP 52C6> 59C7> 4D5< 6C5< 6D6< 7A3< 7B3< 7C3< 7C5< 7C7< 8D1< 8D4< 9B7< 9D8< 44B7< 44D1< 44D2< 45D2< 46D4<
NC_TESTMODE	NO_TEST	3	4	CPU_CHKSTP_OUT_L 4B3> 7B5< 8D5<> 59C7>
NC_LCENABLE	NO_TEST	5	6	CPU_HRESET_L 4B3< 7A3< 7A5< 7B3< 44C2< 44D2< 59C7>
NC_JTAG7	NO_TEST	7	8	CPU_SRESET_L 4B3< 7A5< 59C5>
		9	10	NO_TEST NC_JTAG10
JTAG_ASIC_TMS 59D7> 35B4<> 35A2< 34B7<		11	12	JTAG_CPU_TMS 4C3< 7A5< 59C7>
JTAG_ASIC_TDI 59D7> 34B7< 28C6<		13	14	JTAG_CPU_TDI 4C3< 7A5< 59C7>
JTAG_ASIC_TDO 59D7> 35B4<>		15	16	JTAG_CPU_TDO 4C3> 59C7>
JTAG_ASIC_TCK 59D7> 35C4< 34B7<		17	18	JTAG_CPU_TCK 4C3< 7D5< 59C7>
JTAG_ASIC_TRST_L 59C7> 34B7<		19	20	JTAG_CPU_TRST_L 4C3< 7C5< 59C7>

R939 10K 1% 1/16W MF 402
R940 1K 1% 1/16W MF 402

(511S0018)

LA CONS & ESP

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 8 OF 69	

DRAWING

INTREPID BOOT STRAPS

BITS 48 - 63

52C6> 46D4< 45D2<> 8D4< 8D1< 8A3<> 7A3< 6D6< 6C5< 4D5< +MAXBUS_SLEEP 7C7< 7B3< 7A3< 8D4< 6C5< 4D5< 7C7< 7C5< 7B3< 44D2< 44D1< 44B7< 9B7< 59C7>

R890 10K	R868 10K	R892 10K	R832 10K	R863 10K	R339 10K	R340 10K	R864 10K	R876 10K	R865 10K	R885 10K	R855 10K	R869 10K	R894 4.7K	R355 4.7K	R893 4.7K	R343 4.7K
R360 4.7K	R352 4.7K	R338 4.7K	R341 4.7K	R359 4.7K	R366 4.7K	R358 4.7K	R886 4.7K	R354 4.7K	R351 4.7K	R870 4.7K						

56D3> 9B1<> 8C5<> 5B4<> CPU_DATA<48>
56D3> 9B1<> 8C4<> 5B4<> CPU_DATA<49>
56D3> 9B1<> 8C8<> 5B4<> CPU_DATA<50>
56D3> 9B1<> 8D8<> 5B4<> CPU_DATA<51>
56D3> 9B1<> 8C5<> 5B4<> CPU_DATA<52>
56D3> 9B1<> 8C7<> 5B4<> CPU_DATA<53>
56D3> 9B1<> 8D7<> 5B4<> CPU_DATA<54>
56D3> 9B1<> 8C5<> 5B4<> CPU_DATA<55>
CPU_DATA<57> 5B4<> 8D5<> 9B1<>
CPU_DATA<58> 5B4<> 8D4<> 9B1<>
CPU_DATA<59> 5B4<> 8D8<> 9B1<>
CPU_DATA<60> 5B4<> 8D8<> 9B1<>
CPU_DATA<61> 5B4<> 8D4<> 9B1<>
CPU_DATA<62> 5B4<> 8D4<> 9B1<>
CPU_DATA<63> 5A4<> 8D5<> 9B1<> 56D3>

0:: BUF_REF_CLK_OUTENABLE_H ACTIVE
1:: INACTIVE

1:: SEL_PLL_4EXTSRC EXTERNAL SOURCE

0:: EN_PCI_ROM_P BOOTROM ON PCI1
1:: BOOTROM ON IDE/CARDSLOT

0:: TI 1394B WORKAROUND NORMAL 1394B
1:: TI PHY WORKAROUND

MAXBUS OUTPUT IMPEDANCE
111: 28.6 OHM
011: 33.3 OHM
101: 40 OHM
001: 50 OHM
110: 66.6 OHM
010: 100 OHM
100: 200 OHM
000: 200 OHM

SPARE
SPARE

0:: 0-1 IDE / 2-3 PCI1
1:: ROM_Ovrly_Rng

0:: REQ/GNT GPIOS
1:: PCI1_REQ2_L / PCI1_GNT2_L GPIOS

0:: REQ/GNT GPIOS
1:: PCI1_REQ1_L / PCI1_GNT1_L GPIOS

0:: REQ/GNT GPIOS
1:: PCI1_REQ0_L / PCI1_GNT0_L GPIOS

0:: LEGACY INTERFACE
1:: B-MODE INTERFACE
FIREWIRE PHY INTERFACE

0:: MAX BUS (G4)
1:: 60X BUS (G3)
PROCESSOR BUS MODE

BITS 32 - 39

45D2<> 44D2< 44D1< 44B7< 7C5< 7B3< 7A3< 8D4< 6C5< 4D5< +MAXBUS_SLEEP 9D8< 8D4< 8D1< 8A3<> 7C7< 7C5< 59C7> 52C6> 46D4<

R833 10K	R852 10K	R862 10K	R854 10K	R853 10K	R342 4.7K	R345 4.7K	R861 4.7K	R353 4.7K	R344 4.7K

56D3> 9C1<> 8D7<> 5C4<> CPU_DATA<32>
56D3> 9C1<> 8D8<> 5C4<> CPU_DATA<33>
56D3> 9C1<> 8D8<> 5C4<> CPU_DATA<34>
56D3> 9C1<> 8D7<> 5C4<> CPU_DATA<35>
56D3> 9C1<> 8D4<> 5C4<> CPU_DATA<36>

0:: TDI OUTPUT(JTAG)
1:: TDI OUTPUT

0:: ACTIVE
1:: ANALYZERCLK_EN_H ACTIVE

0:: DDR_TPDEN_POL ACTIVE HIGH
1:: DDR_TPDEN_POL ACTIVE LOW

0:: ACTIVE HIGH
1:: EXTPLL_SDWN_POL ACTIVE LOW

SPARE

DDR_TPDMODEENABLE_H

INTREPID V1.1 IS 133MHZ ONLY

52D3> 30D5< 28D6<> 16D6< +1_5V_INTREPID_PLL — R720 4.7 5% 1/16W MF 402 — +1_5V_INTREPID_PLL7 52D3>

C854 0.1UF 20% 10V CERM 402 (1 to 2)
C1101 0.1UF 20% 10V CERM 402 (1 to 2)

9A2<> INT_PLL6_GND

H26 VDD15A_7 (PLL6)

U25 INTREPID BGA SEE_TABLE (ON PAGE 12) (1 OF 9)

56D3> 8B4<> 7C7< 4D7> CPU_BR_L	E29	BR
56D3> 8B4<> 7B7< 4D7< CPU_BG_L	E26	BG
56D3> 8B7<> 7C7< 4D7<> CPU_TS_L	B27	TS
56D3> 8B4<> 4C7<> CPU_ADDR<0>	D24	A_0
56D3> 8B5<> 4C7<> CPU_ADDR<1>	D25	A_1
56D3> 8B4<> 4C7<> CPU_ADDR<2>	A27	A_2
56D3> 8B8<> 4C7<> CPU_ADDR<3>	E24	A_3
56D3> 8B5<> 4C7<> CPU_ADDR<4>	G23	A_4
56D3> 8B7<> 4C7<> CPU_ADDR<5>	B26	A_5
56D3> 8C4<> 4C7<> CPU_ADDR<6>	A26	A_6
56D3> 8B7<> 4C7<> CPU_ADDR<7>	D23	A_7
56D3> 8C5<> 4C7<> CPU_ADDR<8>	A25	A_8
56D3> 8B8<> 4C7<> CPU_ADDR<9>	E23	A_9
56D3> 8B8<> 4C7<> CPU_ADDR<10>	J22	A_10
56D3> 8C4<> 4C7<> CPU_ADDR<11>	B25	A_11
56D3> 8B7<> 4C7<> CPU_ADDR<12>	H22	A_12
56D3> 8B8<> 4C7<> CPU_ADDR<13>	G22	A_13
56D3> 8B7<> 4C7<> CPU_ADDR<14>	D22	A_14
56D3> 8B7<> 4C7<> CPU_ADDR<15>	B24	A_15
56D3> 8B8<> 4C7<> CPU_ADDR<16>	B23	A_16
56D3> 8B8<> 4C7<> CPU_ADDR<17>	E22	A_17
56D3> 8C8<> 4C7<> CPU_ADDR<18>	J21	A_18
56D3> 8B7<> 4C7<> CPU_ADDR<19>	G21	A_19
56D3> 8B8<> 4C7<> CPU_ADDR<20>	E21	A_20
56D3> 8C7<> 4C7<> CPU_ADDR<21>	A24	A_21
56D3> 8C7<> 4C7<> CPU_ADDR<22>	D21	A_22
56D3> 8C8<> 4C7<> CPU_ADDR<23>	A23	A_23
56D3> 8B7<> 4B7<> CPU_ADDR<24>	H20	A_24
56D3> 8B8<> 4B7<> CPU_ADDR<25>	B22	A_25
56D3> 8C8<> 4B7<> CPU_ADDR<26>	H21	A_26
56D3> 8C8<> 4B7<> CPU_ADDR<27>	A22	A_27
56D3> 8C7<> 4B7<> CPU_ADDR<28>	E20	A_28
56D3> 8C8<> 4B7<> CPU_ADDR<29>	B21	A_29
56D3> 8C7<> 4B7<> CPU_ADDR<30>	D20	A_30
56D3> 8C7<> 4B7<> CPU_ADDR<31>	A21	A_31
56C3> 8C5<> 7A7< 4A7> CPU_CI_L	G26	CI
56C3> 7B7< 4B8< CPU_INT_GBL_L	A29	GBL
56D3> 8B4<> 7B7< 4B7> CPU_TBST_L	A28	TBST
56D3> 8B5<> 4B7> CPU_TSIZ<0>	G24	TSIZ_0
56D3> 8B5<> 4B7> CPU_TSIZ<1>	H24	TSIZ_1
56D3> 8B7< 4B7> CPU_TSIZ<2>	D26	TSIZ_2
56D3> 8B4<> 7A7< 4B7<> CPU_TT<0>	E25	TT_0
56D3> 8B5<> 7A7< 4B7<> CPU_TT<1>	G25	TT_1
56D3> 8B4<> 7A7< 4B7<> CPU_TT<2>	B28	TT_2
56D3> 8B5<> 7A7< 4B7<> CPU_TT<3>	D27	TT_3
56D3> 8B4<> 7A7< 4B7<> CPU_TT<4>	J25	TT_4
56C3> 8B5<> 7A7< 4B7> CPU_WT_L	D28	WT
56C3> 8B5<> 7B7< 4A7< CPU_AACK_L	B29	AACK
56C3> 8B8<> 7C7< 4A7<> CPU_ARTRY_L	H23	ARTRY
56C3> 8B8<> 7C7< 4A7> CPU_HIT_L	B31	HIT
56C3> 8B7<> 7D5< 4C3> CPU_QREQ_L	A32	QREQ
56C3> 8B4<> 4C3< CPU_QACK_L	G27	QACK
44B8<> INT_SUSPEND_REQ_L	AK9	SUSPENDREQ
44B5<> INT_SUSPEND_ACK_L	AM8	SUSPENDACK
56C3> INT_CPU_FB_IN	J24	CPU_FB_IN
56C3> INT_CPU_FB_OUT	H16	CPU_FB_OUT
INT_ANALYZER_CLKA	G8	ANALYZER_CLK
44C4<> CPU_CLK_EN	AH9	STOPCPUCLK
INTREPID_ACS_REF	H13	ACS_REF
56C3> SYSCLK_CPU_UF	J15	CPU_CLK
7C5< 4C3<> CPU_TBEN	A31	TBEN

MAXBUS INTERFACE

D_0	D10	CPU_DATA<0> 5D4<> 8C4<> 56D3>
D_1	G12	CPU_DATA<1> 5D4<> 8C7<> 56D3>
D_2	E11	CPU_DATA<2> 5D4<> 8C8<> 56D3>
D_3	H11	CPU_DATA<3> 5D4<> 8C5<> 56D3>
D_4	B9	CPU_DATA<4> 5D4<> 8C7<> 56D3>
D_5	B8	CPU_DATA<5> 5D4<> 8C8<> 56D3>
D_6	A9	CPU_DATA<6> 5D4<> 8C4<> 56D3>
D_7	A8	CPU_DATA<7> 5D4<> 8C8<> 56D3>
D_8	E12	CPU_DATA<8> 5D4<> 8C5<> 56D3>
D_9	D11	CPU_DATA<9> 5D4<> 8C4<> 56D3>
D_10	B10	CPU_DATA<10> 5D4<> 8C7<> 56D3>
D_11	J13	CPU_DATA<11> 5C4<> 8C5<> 56D3>
D_12	A10	CPU_DATA<12> 5C4<> 8C5<> 56D3>
D_13	D12	CPU_DATA<13> 5C4<> 8C7<> 56D3>
D_14	E13	CPU_DATA<14> 5C4<> 8C8<> 56D3>
D_15	G13	CPU_DATA<15> 5C4<> 8C5<> 56D3>
D_16	B11	CPU_DATA<16> 5C4<> 8C4<> 56D3>
D_17	D13	CPU_DATA<17> 5C4<> 8C7<> 56D3>
D_18	A11	CPU_DATA<18> 5C4<> 8C4<> 56D3>
D_19	G14	CPU_DATA<19> 5C4<> 8C4<> 56D3>
D_20	H14	CPU_DATA<20> 5C4<> 8C4<> 56D3>
D_21	E14	CPU_DATA<21> 5C4<> 8C8<> 56D3>
D_22	B12	CPU_DATA<22> 5C4<> 8C7<> 56D3>
D_23	G15	CPU_DATA<23> 5C4<> 8C8<> 56D3>
D_24	B13	CPU_DATA<24> 5C4<> 8D4<> 56D3>
D_25	H15	CPU_DATA<25> 5C4<> 8D7<> 56D3>
D_26	D14	CPU_DATA<26> 5C4<> 8C5<> 56D3>
D_27	B14	CPU_DATA<27> 5C4<> 8C7<> 56D3>
D_28	A12	CPU_DATA<28> 5C4<> 8D8<> 56D3>
D_29	G16	CPU_DATA<29> 5C4<> 8C8<> 56D3>
D_30	E15	CPU_DATA<30> 5C4<> 8C5<> 56D3>
D_31	J16	CPU_DATA<31> 5C4<> 8D7<> 56D3>
D_32	D15	CPU_DATA<32> 5C4<> 8D7<> 9B7< 56D3>
D_33	A14	CPU_DATA<33> 5C4<> 8D8<> 9B7< 56D3>
D_34	A13	CPU_DATA<34> 5C4<> 8D8<> 9B7< 56D3>
D_35	D16	CPU_DATA<35> 5C4<> 8D7<> 9B7< 56D3>
D_36	E16	CPU_DATA<36> 5C4<> 8D4<> 9A7< 56D3>
D_37	G17	CPU_DATA<37> 5B4<> 8D5<> 56D3>
D_38	B15	CPU_DATA<38> 5B4<> 8D5<> 56D3>
D_39	H17	CPU_DATA<39> 5B4<> 8D5<> 56D3>
D_40	A15	CPU_DATA<40> 5B4<> 6C4< 8D7<> 56D3>
D_41	B16	CPU_DATA<41> 5B4<> 6C4< 8C4<> 56D3>
D_42	E17	CPU_DATA<42> 5B4<> 6C4< 8C5<> 56D3>
D_43	A16	CPU_DATA<43> 5B4<> 6C4< 8C4< 56D3>
D_44	J18	CPU_DATA<44> 5B4<> 6C4< 8C8<> 56D3>
D_45	H18	CPU_DATA<45> 5B4<> 6C4< 8C7<> 56D3>
D_46	D17	CPU_DATA<46> 5B4<> 6C4< 8C4<> 56D3>
D_47	G18	CPU_DATA<47> 5B4<> 6C4< 8C7< 56D3>
D_48	A17	CPU_DATA<48> 5B4<> 8C5<> 9D8< 56D3>
D_49	B17	CPU_DATA<49> 5B4<> 8C4<> 9D8< 56D3>
D_50	E18	CPU_DATA<50> 5B4<> 8C8<> 9D8< 56D3>
D_51	B18	CPU_DATA<51> 5B4<> 8C8<> 9D8< 56D3>
D_52	D18	CPU_DATA<52> 5B4<> 8C5<> 9C8< 56D3>
D_53	A18	CPU_DATA<53> 5B4<> 8C7<> 9C8< 56D3>
D_54	A19	CPU_DATA<54> 5B4<> 8D7<> 9C8< 56D3>
D_55	H19	CPU_DATA<55> 5B4<> 8C5<> 9C8< 56D3>
D_56	B19	CPU_DATA<56> 5B4<> 8D8<> 56D3>
D_57	J19	CPU_DATA<57> 5B4<> 8D5<> 9D5< 56D3>
D_58	A20	CPU_DATA<58> 5B4<> 8D4<> 9D5< 56D3>
D_59	D19	CPU_DATA<59> 5B4<> 8D8<> 9D5< 56D3>
D_60	E19	CPU_DATA<60> 5B4<> 8D8<> 9D5< 56D3>
D_61	G19	CPU_DATA<61> 5B4<> 8D4<> 9C5< 56D3>
D_62	B20	CPU_DATA<62> 5B4<> 8D4<> 9C5< 56D3>
D_63	G20	CPU_DATA<63> 5A4<> 8D5<> 9C5< 56D3>
DBG	A30	CPU_DBG_L 4C3< 7B7< 8B8<> 56C3>
DRDY	G28	CPU_DRDY_L 4C2< 7B7< 8B5<> 56C3>
DTI_0	K25	CPU_DTI<0> 4C3< 8B7<> 56C3>
DTI_1	D29	CPU_DTI<1> 4C3< 8B4<> 56C3>
DTI_2	B30	CPU_DTI<2> 4C3< 8B4<> 56C3>
TA	E27	CPU_TA_L 4C3< 7C7< 8C4<> 56C3>
TEA	E28	CPU_TEA_L 4C3< 7B7< 8B5<> 56C3>

VIN = INTREPID VCORE (1.7V)
VOUT = MAXBUS RAIL (1.8V)

56C3> 4D2< SYSCLK_CPU — R713 0 5% 1/16W MF 402 — 56C3> SYSCLK_CPU_UF

56B3> CPU_FB_PLUS3

ADDS 2" (0.35 NS) ADDS 1" (0.17 NS) ADDS 3" (0.5 NS)

56C3> CPU_FBI_PLUS1

R772 0 NOSTUFF — R766 0 NOSTUFF — R321 0 NOSTUFF — R777 0 — R310 0 — R752 470

56C3> CPU_FB_MINUS3

R776 0 — R757 0 NOSTUFF — R319 0 NOSTUFF — R765 0

56C3> CPU_FB_PLUS2

56C3> CPU_FBO_PLUS1

MAIN LOOP IS 3" (0.5 NS) SHORTER THAN MAXBUS CLOCK

ALLOWS ADJUSTING FB CLOCK FROM -3" (0.5 NS) TO +2" (0.35 NS) IN 1" (0.17 NS) INCREMENTS
PLACE ALL SERPENTINES ON INTERNAL LAYER

59A7> 56B3> 54A7< 16C7< 8A2< INT_ANALYZER_CLK — R764 10 5% 1/16W MF 402 — INT_V1

R712 1K 1% 1/16W MF 402 (9D3< INT_PLL6_GND)

XW47 SM (NO_TEST) — VSSA_7 (PLL6) H25

INTREPID MAX

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APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 9 OF 69	

DRAWING

INTREPID 1.1 SHOULD ALLOW MAXBUS
RAIL TO TURN OFF IN SLEEP

52C3> 46B4<> 17D5< 17A4< 17A3< 16D7< 16C2< 16A8< 11A6< 59C7> +1_5V_AGP

59C7> 47B2<> 46B3< 11D3< +INTREPID_CORE_MAIN

+1_8V_MAIN

+2_5V_MAIN

+3V_MAIN

U25
INTREPID
BGA
(8 OF 9)
SEE_TABLE

VDD1.8/CPUVIO

VDD2.5

POWER/GROUND

VSS

VSS

U25
INTREPID
BGA
(9 OF 9)
SEE_TABLE

POWER

VDD1.5

VDD3.3

GROUND

VSS

VSS

AGP_IO_VDD

VDD3.3

AGP_IO_VSS

SP1 CLIP-SM EMI-SPRING SEE_TABLE

SP2 CLIP-SM EMI-SPRING SEE_TABLE

SP3 CLIP-SM EMI-SPRING SEE_TABLE

SP4 CLIP-SM EMI-SPRING SEE_TABLE

CLIPS TO ATTACH INTREPID
HEATSINK TO GND AT THE
FOUR CORNERS

INTREPID EMI CLIP SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
870-1125	4	INTREPID EMI CLIP	SP1,SP2,SP3,SP4	?	

INTREPID VERSION SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
343S0198	1	IC,ASIC,INTREPID,V1.X	U25		INT_V1
343S0211	1	IC,ASIC,INTREPID,V2.1	U25	CRITICAL	INT_V2

INTREPID POWER

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE: NONE

SHT 10 OF 69

DRAWING

+1_8V_MAIN — INTREPID MAXBUS DECOUPLING

24 Balls
4 X 10UF (0805)
36 X 0.1UF (0402)

C289 10UF N20P80% 10V Y5V 805
C291 10UF N20P80% 10V Y5V 805
C288 10UF N20P80% 10V Y5V 805
C290 10UF N20P80% 10V Y5V 805
C890 0.1UF 20% 10V CERM 402
C832 0.1UF 20% 10V CERM 402
C900 0.1UF 20% 10V CERM 402
C888 0.1UF 20% 10V CERM 402
C891 0.1UF 20% 10V CERM 402
C844 0.1UF 20% 10V CERM 402
C824 0.1UF 20% 10V CERM 402
C872 0.1UF 20% 10V CERM 402
C874 0.1UF 20% 10V CERM 402
C899 0.1UF 20% 10V CERM 402
C901 0.1UF 20% 10V CERM 402
C823 0.1UF 20% 10V CERM 402
C845 0.1UF 20% 10V CERM 402
C871 0.1UF 20% 10V CERM 402
C834 0.1UF 20% 10V CERM 402
C884 0.1UF 20% 10V CERM 402
C896 0.1UF 20% 10V CERM 402
C898 0.1UF 20% 10V CERM 402
C886 0.1UF 20% 10V CERM 402
C846 0.1UF 20% 10V CERM 402
C885 0.1UF 20% 10V CERM 402
C887 0.1UF 20% 10V CERM 402
C870 0.1UF 20% 10V CERM 402
C897 0.1UF 20% 10V CERM 402
C889 0.1UF 20% 10V CERM 402
C842 0.1UF 20% 10V CERM 402
C895 0.1UF 20% 10V CERM 402
C869 0.1UF 20% 10V CERM 402
C873 0.1UF 20% 10V CERM 402
C902 0.1UF 20% 10V CERM 402
C843 0.1UF 20% 10V CERM 402
C278 0.1UF 20% 10V CERM 402
C849 0.1UF 20% 10V CERM 402
C281 0.1UF 20% 10V CERM 402
C280 0.1UF 20% 10V CERM 402
C279 0.1UF 20% 10V CERM 402

INTREPID CORE DECOUPLING

59C7> 47B2<> 46B3< 10D6< +INTREPID_CORE_MAIN

30 Balls
4 X 10UF (0805)
29 X 0.1UF (0402)

C702 10UF N20P80% 10V Y5V 805
C727 10UF N20P80% 10V Y5V 805
C292 10UF N20P80% 10V Y5V 805
C841 10UF N20P80% 10V Y5V 805
C787 0.1UF 20% 10V CERM 402
C789 0.1UF 20% 10V CERM 402
C749 0.1UF 20% 10V CERM 402
C797 0.1UF 20% 10V CERM 402
C719 0.1UF 20% 10V CERM 402
C800 0.1UF 20% 10V CERM 402
C810 0.1UF 20% 10V CERM 402
C766 0.1UF 20% 10V CERM 402
C731 0.1UF 20% 10V CERM 402
C732 0.1UF 20% 10V CERM 402
C764 0.1UF 20% 10V CERM 402
C831 0.1UF 20% 10V CERM 402
C833 0.1UF 20% 10V CERM 402
C765 0.1UF 20% 10V CERM 402
C808 0.1UF 20% 10V CERM 402
C763 0.1UF 20% 10V CERM 402
C780 0.1UF 20% 10V CERM 402
C798 0.1UF 20% 10V CERM 402
C779 0.1UF 20% 10V CERM 402
C790 0.1UF 20% 10V CERM 402
C746 0.1UF 20% 10V CERM 402
C730 0.1UF 20% 10V CERM 402
C721 0.1UF 20% 10V CERM 402
C788 0.1UF 20% 10V CERM 402
C734 0.1UF 20% 10V CERM 402
C748 0.1UF 20% 10V CERM 402
C811 0.1UF 20% 10V CERM 402
C747 0.1UF 20% 10V CERM 402
C799 0.1UF 20% 10V CERM 402

+2_5V_MAIN — INTREPID DDR DECOUPLING

44 Balls
4 X 10UF (0805)
51 X 0.1UF (0402)

C277 10UF N20P80% 10V Y5V 805
C271 10UF N20P80% 10V Y5V 805
C240 10UF N20P80% 10V Y5V 805
C641 10UF N20P80% 10V Y5V 805
C700 0.1UF 20% 10V CERM 402
C878 0.1UF 20% 10V CERM 402
C725 0.1UF 20% 10V CERM 402
C836 0.1UF 20% 10V CERM 402
C817 0.1UF 20% 10V CERM 402
C839 0.1UF 20% 10V CERM 402
C857 0.1UF 20% 10V CERM 402
C794 0.1UF 20% 10V CERM 402
C855 0.1UF 20% 10V CERM 402
C880 0.1UF 20% 10V CERM 402
C837 0.1UF 20% 10V CERM 402
C877 0.1UF 20% 10V CERM 402
C688 0.1UF 20% 10V CERM 402
C767 0.1UF 20% 10V CERM 402
C793 0.1UF 20% 10V CERM 402
C815 0.1UF 20% 10V CERM 402
C904 0.1UF 20% 10V CERM 402
C827 0.1UF 20% 10V CERM 402
C876 0.1UF 20% 10V CERM 402
C698 0.1UF 20% 10V CERM 402
C856 0.1UF 20% 10V CERM 402
C735 0.1UF 20% 10V CERM 402
C722 0.1UF 20% 10V CERM 402
C750 0.1UF 20% 10V CERM 402
C753 0.1UF 20% 10V CERM 402
C687 0.1UF 20% 10V CERM 402
C792 0.1UF 20% 10V CERM 402
C668 0.1UF 20% 10V CERM 402
C714 0.1UF 20% 10V CERM 402
C736 0.1UF 20% 10V CERM 402
C801 0.1UF 20% 10V CERM 402
C825 0.1UF 20% 10V CERM 402
C838 0.1UF 20% 10V CERM 402
C723 0.1UF 20% 10V CERM 402
C803 0.1UF 20% 10V CERM 402
C791 0.1UF 20% 10V CERM 402
C755 0.1UF 20% 10V CERM 402
C818 0.1UF 20% 10V CERM 402
C802 0.1UF 20% 10V CERM 402
C813 0.1UF 20% 10V CERM 402
C699 0.1UF 20% 10V CERM 402
C751 0.1UF 20% 10V CERM 402
C826 0.1UF 20% 10V CERM 402
C752 0.1UF 20% 10V CERM 402
C768 0.1UF 20% 10V CERM 402
C816 0.1UF 20% 10V CERM 402
C814 0.1UF 20% 10V CERM 402
C754 0.1UF 20% 10V CERM 402
C724 0.1UF 20% 10V CERM 402
C781 0.1UF 20% 10V CERM 402
C782 0.1UF 20% 10V CERM 402

+3V_MAIN — INTREPID 3.3V DECOUPLING

57 Balls
4 X 10UF (0805)
66 X 0.1UF (0402)

C655 10UF N20P80% 10V Y5V 805
C264 10UF N20P80% 10V Y5V 805
C892 10UF N20P80% 10V Y5V 805
C637 10UF N20P80% 10V Y5V 805
C745 0.1UF 20% 10V CERM 402
C830 0.1UF 20% 10V CERM 402
C775 0.1UF 20% 10V CERM 402
C717 0.1UF 20% 10V CERM 402
C829 0.1UF 20% 10V CERM 402
C806 0.1UF 20% 10V CERM 402
C691 0.1UF 20% 10V CERM 402
C762 0.1UF 20% 10V CERM 402
C777 0.1UF 20% 10V CERM 402
C796 0.1UF 20% 10V CERM 402
C867 0.1UF 20% 10V CERM 402
C866 0.1UF 20% 10V CERM 402
C863 0.1UF 20% 10V CERM 402
C868 0.1UF 20% 10V CERM 402
C812 0.1UF 20% 10V CERM 402
C821 0.1UF 20% 10V CERM 402
C822 0.1UF 20% 10V CERM 402
C893 0.1UF 20% 10V CERM 402
C720 0.1UF 20% 10V CERM 402
C728 0.1UF 20% 10V CERM 402
C809 0.1UF 20% 10V CERM 402
C680 0.1UF 20% 10V CERM 402
C894 0.1UF 20% 10V CERM 402
C643 0.1UF 20% 10V CERM 402
C656 0.1UF 20% 10V CERM 402
C689 0.1UF 20% 10V CERM 402
C774 0.1UF 20% 10V CERM 402
C828 0.1UF 20% 10V CERM 402
C850 0.1UF 20% 10V CERM 402
C743 0.1UF 20% 10V CERM 402
C761 0.1UF 20% 10V CERM 402
C707 0.1UF 20% 10V CERM 402
C883 0.1UF 20% 10V CERM 402
C807 0.1UF 20% 10V CERM 402
C776 0.1UF 20% 10V CERM 402
C744 0.1UF 20% 10V CERM 402
C718 0.1UF 20% 10V CERM 402
C712 0.1UF 20% 10V CERM 402
C835 0.1UF 20% 10V CERM 402
C729 0.1UF 20% 10V CERM 402
C881 0.1UF 20% 10V CERM 402
C676 0.1UF 20% 10V CERM 402
C716 0.1UF 20% 10V CERM 402
C805 0.1UF 20% 10V CERM 402
C644 0.1UF 20% 10V CERM 402
C645 0.1UF 20% 10V CERM 402
C865 0.1UF 20% 10V CERM 402
C882 0.1UF 20% 10V CERM 402
C708 0.1UF 20% 10V CERM 402
C681 0.1UF 20% 10V CERM 402
C678 0.1UF 20% 10V CERM 402
C682 0.1UF 20% 10V CERM 402
C879 0.1UF 20% 10V CERM 402
C903 0.1UF 20% 10V CERM 402
C673 0.1UF 20% 10V CERM 402
C679 0.1UF 20% 10V CERM 402
C677 0.1UF 20% 10V CERM 402
C660 0.1UF 20% 10V CERM 402
C657 0.1UF 20% 10V CERM 402
C851 0.1UF 20% 10V CERM 402
C875 0.1UF 20% 10V CERM 402
C659 0.1UF 20% 10V CERM 402
C690 0.1UF 20% 10V CERM 402
C658 0.1UF 20% 10V CERM 402
C852 0.1UF 20% 10V CERM 402
C646 0.1UF 20% 10V CERM 402

+1_5V_AGP — INTREPID AGP I/O DECOUPLING

52C3> 46B4<> 17D5< 17A4< 17A3< 16D7< 16C2< 16A8< 10D6< 59C7>

21 Balls
4 X 10UF (0805)
24 X 0.1UF (0402)

C231 10UF N20P80% 10V Y5V 805
C232 10UF N20P80% 10V Y5V 805
C638 10UF N20P80% 10V Y5V 805
C628 10UF N20P80% 10V Y5V 805
C697 0.1UF 20% 10V CERM 402
C693 0.1UF 20% 10V CERM 402
C684 0.1UF 20% 10V CERM 402
C686 0.1UF 20% 10V CERM 402
C709 0.1UF 20% 10V CERM 402
C649 0.1UF 20% 10V CERM 402
C667 0.1UF 20% 10V CERM 402
C694 0.1UF 20% 10V CERM 402
C695 0.1UF 20% 10V CERM 402
C664 0.1UF 20% 10V CERM 402
C733 0.1UF 20% 10V CERM 402
C650 0.1UF 20% 10V CERM 402
C647 0.1UF 20% 10V CERM 402
C710 0.1UF 20% 10V CERM 402
C685 0.1UF 20% 10V CERM 402
C683 0.1UF 20% 10V CERM 402
C665 0.1UF 20% 10V CERM 402
C696 0.1UF 20% 10V CERM 402
C666 0.1UF 20% 10V CERM 402
C651 0.1UF 20% 10V CERM 402
C662 0.1UF 20% 10V CERM 402
C661 0.1UF 20% 10V CERM 402
C648 0.1UF 20% 10V CERM 402
C674 0.1UF 20% 10V CERM 402
C711 0.1UF 20% 10V CERM 402
C663 0.1UF 20% 10V CERM 402

INTREPID BYPASS

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 11 OF 69	

DRAWING

DDR MUX CONNECTIONS

0-ohm resistors to allow rewiring if necessary

SERIES RESISTORS FOR CONTROL SIGNALS

U25 INTREPID BGA (2 OF 9) SEE_TABLE (ON PAGE 12)

DDR MEMORY INTERFACE

'0'S ARE SAME POLARITY (ACTIVE LO)
'1'S ARE SAME POLARITY (ACTIVE HI)
SEL = 0; HOST=B PORT, A PORT = 100 OHMGND
SEL = 1; HOST=A PORT, B PORT = 100 OHMGND

LOCATE 2 DECOUPLING CAPS DIRECTLY AT DDR_VREF_X BALLS (U25-Y22 & T22)

LOCATE THESE RESISTORS NEAR INTREPID

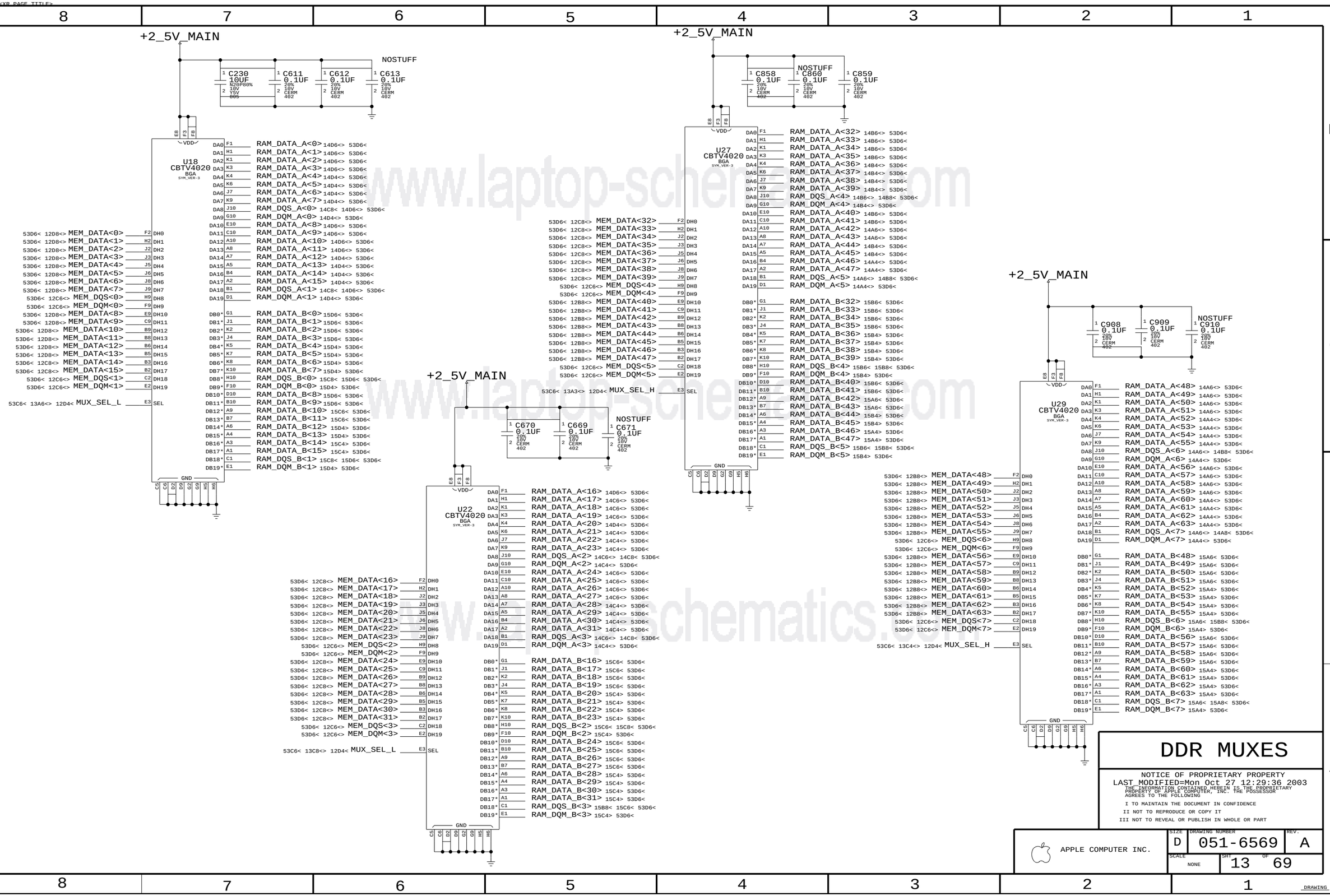
INTREPID DDR CNTRL

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE: NONE | SHT 12 OF 69

DRAWING


+2_5V_MAIN
C230 10UF N20P80% 10V 10V 805
C611 0.1UF 20% 10V CERM 402
C612 0.1UF 20% 10V CERM 402
C613 0.1UF 20% 10V CERM 402
NOSTUFF
U18 CBTV4020 BGA SYM_VER-3
RAM_DATA_A<0> 14D6<> 53D6<
RAM_DATA_A<1> 14D6<> 53D6<
RAM_DATA_A<2> 14D6<> 53D6<
RAM_DATA_A<3> 14D6<> 53D6<
RAM_DATA_A<4> 14D4<> 53D6<
RAM_DATA_A<5> 14D4<> 53D6<
RAM_DATA_A<6> 14D4<> 53D6<
RAM_DATA_A<7> 14D4<> 53D6<
RAM_DQS_A<0> 14C8< 14D6<> 53D6<
RAM_DQM_A<0> 14D4<> 53D6<
RAM_DATA_A<8> 14D6<> 53D6<
RAM_DATA_A<9> 14D6<> 53D6<
RAM_DATA_A<10> 14D6<> 53D6<
RAM_DATA_A<11> 14D6<> 53D6<
RAM_DATA_A<12> 14D4<> 53D6<
RAM_DATA_A<13> 14D4<> 53D6<
RAM_DATA_A<14> 14D4<> 53D6<
RAM_DATA_A<15> 14D4<> 53D6<
RAM_DQS_A<1> 14C8< 14D6<> 53D6<
RAM_DQM_A<1> 14D4<> 53D6<
MEM_DATA<0> MEM_DATA<1> MEM_DATA<2> MEM_DATA<3> MEM_DATA<4> MEM_DATA<5> MEM_DATA<6> MEM_DATA<7>
MEM_DQS<0> MEM_DQM<0> MEM_DATA<8> MEM_DATA<9> MEM_DATA<10> MEM_DATA<11> MEM_DATA<12> MEM_DATA<13> MEM_DATA<14> MEM_DATA<15>
MEM_DQS<1> MEM_DQM<1> MUX_SEL_L
RAM_DATA_B<0> 15D6< 53D6<
RAM_DATA_B<1> 15D6< 53D6<
RAM_DATA_B<2> 15D6< 53D6<
RAM_DATA_B<3> 15D6< 53D6<
RAM_DATA_B<4> 15D4> 53D6<
RAM_DATA_B<5> 15D4> 53D6<
RAM_DATA_B<6> 15D4> 53D6<
RAM_DATA_B<7> 15D4> 53D6<
RAM_DQS_B<0> 15C8< 15D6< 53D6<
RAM_DQM_B<0> 15D4> 53D6<
RAM_DATA_B<8> 15D6< 53D6<
RAM_DATA_B<9> 15D6< 53D6<
RAM_DATA_B<10> 15C6< 53D6<
RAM_DATA_B<11> 15C6< 53D6<
RAM_DATA_B<12> 15D4> 53D6<
RAM_DATA_B<13> 15D4> 53D6<
RAM_DATA_B<14> 15C4> 53D6<
RAM_DATA_B<15> 15C4> 53D6<
RAM_DQS_B<1> 15C8< 15D6< 53D6<
RAM_DQM_B<1> 15D4> 53D6<
GND
+2_5V_MAIN
C858 0.1UF 20% 10V CERM 402
C860 0.1UF 20% 10V CERM 402
C859 0.1UF 20% 10V CERM 402
NOSTUFF
U27 CBTV4020 BGA SYM_VER-3
RAM_DATA_A<32> 14B6<> 53D6<
RAM_DATA_A<33> 14B6<> 53D6<
RAM_DATA_A<34> 14B6<> 53D6<
RAM_DATA_A<35> 14B6<> 53D6<
RAM_DATA_A<36> 14B4<> 53D6<
RAM_DATA_A<37> 14B4<> 53D6<
RAM_DATA_A<38> 14B4<> 53D6<
RAM_DATA_A<39> 14B4<> 53D6<
RAM_DQS_A<4> 14B6<> 14B8< 53D6<
RAM_DQM_A<4> 14B4<> 53D6<
RAM_DATA_A<40> 14B6<> 53D6<
RAM_DATA_A<41> 14B6<> 53D6<
RAM_DATA_A<42> 14A6<> 53D6<
RAM_DATA_A<43> 14A6<> 53D6<
RAM_DATA_A<44> 14B4<> 53D6<
RAM_DATA_A<45> 14B4<> 53D6<
RAM_DATA_A<46> 14A4<> 53D6<
RAM_DATA_A<47> 14A4<> 53D6<
RAM_DQS_A<5> 14A6<> 14B8< 53D6<
RAM_DQM_A<5> 14A4<> 53D6<
MEM_DATA<32> MEM_DATA<33> MEM_DATA<34> MEM_DATA<35> MEM_DATA<36> MEM_DATA<37> MEM_DATA<38> MEM_DATA<39>
MEM_DQS<4> MEM_DQM<4> MEM_DATA<40> MEM_DATA<41> MEM_DATA<42> MEM_DATA<43> MEM_DATA<44> MEM_DATA<45> MEM_DATA<46> MEM_DATA<47>
MEM_DQS<5> MEM_DQM<5> MUX_SEL_H
RAM_DATA_B<32> 15B6< 53D6<
RAM_DATA_B<33> 15B6< 53D6<
RAM_DATA_B<34> 15B6< 53D6<
RAM_DATA_B<35> 15B6< 53D6<
RAM_DATA_B<36> 15B4> 53D6<
RAM_DATA_B<37> 15B4> 53D6<
RAM_DATA_B<38> 15B4> 53D6<
RAM_DATA_B<39> 15B4> 53D6<
RAM_DQS_B<4> 15B6< 15B8< 53D6<
RAM_DQM_B<4> 15B4> 53D6<
RAM_DATA_B<40> 15B6< 53D6<
RAM_DATA_B<41> 15B6< 53D6<
RAM_DATA_B<42> 15A6< 53D6<
RAM_DATA_B<43> 15A6< 53D6<
RAM_DATA_B<44> 15B4> 53D6<
RAM_DATA_B<45> 15B4> 53D6<
RAM_DATA_B<46> 15A4> 53D6<
RAM_DATA_B<47> 15A4> 53D6<
RAM_DQS_B<5> 15B6< 15B8< 53D6<
RAM_DQM_B<5> 15B4> 53D6<
MEM_DATA<48> MEM_DATA<49> MEM_DATA<50> MEM_DATA<51> MEM_DATA<52> MEM_DATA<53> MEM_DATA<54> MEM_DATA<55> MEM_DATA<56> MEM_DATA<57> MEM_DATA<58> MEM_DATA<59> MEM_DATA<60> MEM_DATA<61> MEM_DATA<62> MEM_DATA<63>
MEM_DQS<6> MEM_DQM<6> MEM_DQS<7> MEM_DQM<7> MUX_SEL_H
+2_5V_MAIN
C908 0.1UF 20% 10V CERM 402
C909 0.1UF 20% 10V CERM 402
C910 0.1UF 20% 10V CERM 402
NOSTUFF
U29 CBTV4020 BGA SYM_VER-3
RAM_DATA_A<48> 14A6<> 53D6<
RAM_DATA_A<49> 14A6<> 53D6<
RAM_DATA_A<50> 14A6<> 53D6<
RAM_DATA_A<51> 14A6<> 53D6<
RAM_DATA_A<52> 14A4<> 53D6<
RAM_DATA_A<53> 14A4<> 53D6<
RAM_DATA_A<54> 14A4<> 53D6<
RAM_DATA_A<55> 14A4<> 53D6<
RAM_DQS_A<6> 14A6<> 14B8< 53D6<
RAM_DQM_A<6> 14A4<> 53D6<
RAM_DATA_A<56> 14A6<> 53D6<
RAM_DATA_A<57> 14A6<> 53D6<
RAM_DATA_A<58> 14A6<> 53D6<
RAM_DATA_A<59> 14A6<> 53D6<
RAM_DATA_A<60> 14A4<> 53D6<
RAM_DATA_A<61> 14A4<> 53D6<
RAM_DATA_A<62> 14A4<> 53D6<
RAM_DATA_A<63> 14A4<> 53D6<
RAM_DQS_A<7> 14A6<> 14A8< 53D6<
RAM_DQM_A<7> 14A4<> 53D6<
RAM_DATA_B<48> 15A6< 53D6<
RAM_DATA_B<49> 15A6< 53D6<
RAM_DATA_B<50> 15A6< 53D6<
RAM_DATA_B<51> 15A6< 53D6<
RAM_DATA_B<52> 15A4> 53D6<
RAM_DATA_B<53> 15A4> 53D6<
RAM_DATA_B<54> 15A4> 53D6<
RAM_DATA_B<55> 15A4> 53D6<
RAM_DQS_B<6> 15A6< 15B8< 53D6<
RAM_DQM_B<6> 15A4> 53D6<
RAM_DATA_B<56> 15A6< 53D6<
RAM_DATA_B<57> 15A6< 53D6<
RAM_DATA_B<58> 15A6< 53D6<
RAM_DATA_B<59> 15A6< 53D6<
RAM_DATA_B<60> 15A4> 53D6<
RAM_DATA_B<61> 15A4> 53D6<
RAM_DATA_B<62> 15A4> 53D6<
RAM_DATA_B<63> 15A4> 53D6<
RAM_DQS_B<7> 15A6< 15A8< 53D6<
RAM_DQM_B<7> 15A4> 53D6<
+2_5V_MAIN
C670 0.1UF 20% 10V CERM 402
C669 0.1UF 20% 10V CERM 402
C671 0.1UF 20% 10V CERM 402
NOSTUFF
U22 CBTV4020 BGA SYM_VER-3
RAM_DATA_A<16> 14C6<> 53D6<
RAM_DATA_A<17> 14C6<> 53D6<
RAM_DATA_A<18> 14C6<> 53D6<
RAM_DATA_A<19> 14C6<> 53D6<
RAM_DATA_A<20> 14D4<> 53D6<
RAM_DATA_A<21> 14C4<> 53D6<
RAM_DATA_A<22> 14C4<> 53D6<
RAM_DATA_A<23> 14C4<> 53D6<
RAM_DQS_A<2> 14C6<> 14C8< 53D6<
RAM_DQM_A<2> 14C4<> 53D6<
RAM_DATA_A<24> 14C6<> 53D6<
RAM_DATA_A<25> 14C6<> 53D6<
RAM_DATA_A<26> 14C6<> 53D6<
RAM_DATA_A<27> 14C6<> 53D6<
RAM_DATA_A<28> 14C4<> 53D6<
RAM_DATA_A<29> 14C4<> 53D6<
RAM_DATA_A<30> 14C4<> 53D6<
RAM_DATA_A<31> 14C4<> 53D6<
RAM_DQS_A<3> 14C6<> 14C8< 53D6<
RAM_DQM_A<3> 14C4<> 53D6<
MEM_DATA<16> MEM_DATA<17> MEM_DATA<18> MEM_DATA<19> MEM_DATA<20> MEM_DATA<21> MEM_DATA<22> MEM_DATA<23>
MEM_DQS<2> MEM_DQM<2> MEM_DATA<24> MEM_DATA<25> MEM_DATA<26> MEM_DATA<27> MEM_DATA<28> MEM_DATA<29> MEM_DATA<30> MEM_DATA<31>
MEM_DQS<3> MEM_DQM<3> MUX_SEL_L
RAM_DATA_B<16> 15C6< 53D6<
RAM_DATA_B<17> 15C6< 53D6<
RAM_DATA_B<18> 15C6< 53D6<
RAM_DATA_B<19> 15C6< 53D6<
RAM_DATA_B<20> 15C4> 53D6<
RAM_DATA_B<21> 15C4> 53D6<
RAM_DATA_B<22> 15C4> 53D6<
RAM_DATA_B<23> 15C4> 53D6<
RAM_DQS_B<2> 15C6< 15C8< 53D6<
RAM_DQM_B<2> 15C4> 53D6<
RAM_DATA_B<24> 15C6< 53D6<
RAM_DATA_B<25> 15C6< 53D6<
RAM_DATA_B<26> 15C6< 53D6<
RAM_DATA_B<27> 15C6< 53D6<
RAM_DATA_B<28> 15C4> 53D6<
RAM_DATA_B<29> 15C4> 53D6<
RAM_DATA_B<30> 15C4> 53D6<
RAM_DATA_B<31> 15C4> 53D6<
RAM_DQS_B<3> 15B8< 15C6< 53D6<
RAM_DQM_B<3> 15C4> 53D6<
DDR MUXES
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SIZE D
DRAWING NUMBER 051-6569
REV. A
SCALE NONE
SHT 13 OF 69
DRAWING

+2_5V_MAIN

DISTRIBUTE THESE TWO CAPS
ALONG VREF TRACE

LOCATE C1601 AND C1401
DIRECTLY ON PIN AT J26-1

15D8< 12A7< 14D2<> 52A6> DDR_VREF

C1401 0.1UF 20% 10V CERM 402

C46 0.1UF 20% 10V CERM 402 NOSTUFF

C47 0.1UF 20% 10V CERM 402 NOSTUFF

C1601 0.1UF 20% 10V CERM 402

+2_5V_MAIN

NOSTUFF R1403 470 5% 1/16W MF 402
53D6< 14D6<> 13D7<> RAM_DQS_A<0>

NOSTUFF R1404 470 5% 1/16W MF 402

NOSTUFF R1405 470 5% 1/16W MF 402
53D6< 14D6<> 13C7<> RAM_DQS_A<1>

NOSTUFF R1406 470 5% 1/16W MF 402

NOSTUFF R1407 470 5% 1/16W MF 402
53D6< 14C6<> 13B5<> RAM_DQS_A<2>

NOSTUFF R1408 470 5% 1/16W MF 402

NOSTUFF R1409 470 5% 1/16W MF 402
53D6< 14C6<> 13B5<> RAM_DQS_A<3>

NOSTUFF R1410 470 5% 1/16W MF 402

NOSTUFF R1411 470 5% 1/16W MF 402
53D6< 14B6<> 13D4<> RAM_DQS_A<4>

NOSTUFF R1412 470 5% 1/16W MF 402

NOSTUFF R1413 470 5% 1/16W MF 402
53D6< 14A6<> 13C4<> RAM_DQS_A<5>

NOSTUFF R1414 470 5% 1/16W MF 402

NOSTUFF R1415 470 5% 1/16W MF 402
53D6< 14A6<> 13B2<> RAM_DQS_A<6>

NOSTUFF R1416 470 5% 1/16W MF 402

NOSTUFF R1417 470 5% 1/16W MF 402
53D6< 14A6<> 13B2<> RAM_DQS_A<7>

NOSTUFF R1418 470 5% 1/16W MF 402

+3V_MAIN

C319 10UF N20P80% 10V Y5V 805

C929 0.1UF 20% 10V CERM 402

+2_5V_MAIN

NC_SODIMM201 NO_TEST

J26 AS0A42-D2R F-RT-SM

MIN_LINE_WIDTH=20

53D6< 13D7<>	RAM_DATA_A<0>	53D6< 13D7<>	RAM_DATA_A<4>
53D6< 13D7<>	RAM_DATA_A<1>	53D6< 13D7<>	RAM_DATA_A<5>
53D6< 14C8< 13D7<>	RAM_DQS_A<0>	53D6< 13D7<>	RAM_DQM_A<0>
53D6< 13D7<>	RAM_DATA_A<2>	53D6< 13D7<>	RAM_DATA_A<6>
53D6< 13D7<>	RAM_DATA_A<3>	53D6< 13C7<>	RAM_DATA_A<7>
53D6< 13C7<>	RAM_DATA_A<8>	53D6< 13C7<>	RAM_DATA_A<12>
53D6< 13C7<>	RAM_DATA_A<9>	53D6< 13C7<>	RAM_DATA_A<13>
53D6< 14C8< 13C7<>	RAM_DQS_A<1>	53D6< 13C7<>	RAM_DQM_A<1>
53D6< 13C7<>	RAM_DATA_A<10>	53D6< 13C7<>	RAM_DATA_A<14>
53D6< 13C7<>	RAM_DATA_A<11>	53D6< 13C7<>	RAM_DATA_A<15>
53C6< 12C4<	SYSCLK_DDRCLK_A0		
53C6< 12C4<	SYSCLK_DDRCLK_A0_L		
53D6< 13B5<>	RAM_DATA_A<16>	53D6< 13B5<>	RAM_DATA_A<20>
53D6< 13B5<>	RAM_DATA_A<17>	53D6< 13B5<>	RAM_DATA_A<21>
53D6< 14C8< 13B5<>	RAM_DQS_A<2>	53D6< 13B5<>	RAM_DQM_A<2>
53D6< 13B5<>	RAM_DATA_A<18>	53D6< 13B5<>	RAM_DATA_A<22>
53D6< 13B5<>	RAM_DATA_A<19>	53D6< 13B5<>	RAM_DATA_A<23>
53D6< 13B5<>	RAM_DATA_A<24>	53D6< 13B5<>	RAM_DATA_A<28>
53D6< 13B5<>	RAM_DATA_A<25>	53D6< 13B5<>	RAM_DATA_A<29>
53D6< 14C8< 13B5<>	RAM_DQS_A<3>	53D6< 13A5<>	RAM_DQM_A<3>
53D6< 13B5<>	RAM_DATA_A<26>	53D6< 13B5<>	RAM_DATA_A<30>
53D6< 13B5<>	RAM_DATA_A<27>	53D6< 13B5<>	RAM_DATA_A<31>
NC_SODIMM71	NO_TEST	NC_SODIMM72	NO_TEST
NC_SODIMM73	NO_TEST	NC_SODIMM74	NO_TEST
NC_SODIMM77	NO_TEST	NC_SODIMM78	NO_TEST
NC_SODIMM79	NO_TEST	NC_SODIMM80	NO_TEST
NC_SODIMM83	NO_TEST	NC_SODIMM84	NO_TEST
NC_SODIMM85	NO_TEST	NC_SODIMM86	NO_TEST
NC_SODIMM89	NO_TEST		
NC_SODIMM91	NO_TEST		
53C6< 15C1< 12B1<	RAM_CKE<1>	RAM_CKE<0>	12C1< 15C1< 53C6>
NC_SODIMM97	NO_TEST	NC_SODIMM98	NO_TEST
53D6< 15C4> 12D1<	RAM_ADDR<12>	RAM_ADDR<11>	12B3< 15C4> 53D6>
53D6< 15C6< 12C3<	RAM_ADDR<9>	RAM_ADDR<8>	12D1< 15C4> 53D6>
53D6< 15C6< 12D3<	RAM_ADDR<7>	RAM_ADDR<6>	12D1< 15C4> 53D6>
53D6< 15C6< 12C1<	RAM_ADDR<5>	RAM_ADDR<4>	12D3< 15C6< 53D6>
53D6< 15C4< 12D3<	RAM_ADDR<3>	RAM_ADDR<2>	12C3< 15C6< 53D6>
53D6< 15B6< 12C3<	RAM_ADDR<1>	RAM_ADDR<0>	12C3< 15B6< 53D6>
53D6< 15B4> 12C3<	RAM_ADDR<10>	RAM_BA<1>	12B3< 15B6< 53D6>
53D6< 15B6< 12B3<	RAM_BA<0>	RAM_RAS_L	12A2< 15B4> 53C6>
53C6< 15B6< 12B3<	RAM_WE_L	RAM_CAS_L	12A2< 15B6< 53C6>
53C6< 12C1<	RAM_CS_L<0>	RAM_CS_L<1>	12C1< 53C6>
NC_SODIMM123	NO_TEST	NC_SODIMM124	NO_TEST
53D6< 13D4<>	RAM_DATA_A<32>	53D6< 13D4<>	RAM_DATA_A<36>
53D6< 13D4<>	RAM_DATA_A<33>	53D6< 13D4<>	RAM_DATA_A<37>
53D6< 14B8< 13D4<>	RAM_DQS_A<4>	53D6< 13D4<>	RAM_DQM_A<4>
53D6< 13D4<>	RAM_DATA_A<34>	53D6< 13D4<>	RAM_DATA_A<38>
53D6< 13D4<>	RAM_DATA_A<35>	53D6< 13D4<>	RAM_DATA_A<39>
53D6< 13D4<>	RAM_DATA_A<40>	53D6< 13C4<>	RAM_DATA_A<44>
53D6< 13C4<>	RAM_DATA_A<41>	53D6< 13C4<>	RAM_DATA_A<45>
53D6< 14B8< 13C4<>	RAM_DQS_A<5>	53D6< 13C4<>	RAM_DQM_A<5>
53D6< 13C4<>	RAM_DATA_A<42>	53D6< 13C4<>	RAM_DATA_A<46>
53D6< 13C4<>	RAM_DATA_A<43>	53D6< 13C4<>	RAM_DATA_A<47>
		SYSCLK_DDRCLK_A1_L	12B4< 53C6<
		SYSCLK_DDRCLK_A1	12C4< 53C6<
53D6< 13C2<>	RAM_DATA_A<48>	53D6< 13C2<>	RAM_DATA_A<52>
53D6< 13C2<>	RAM_DATA_A<49>	53D6< 13C2<>	RAM_DATA_A<53>
53D6< 14B8< 13B2<>	RAM_DQS_A<6>	53D6< 13B2<>	RAM_DQM_A<6>
53D6< 13C2<>	RAM_DATA_A<50>	53D6< 13B2<>	RAM_DATA_A<54>
53D6< 13C2<>	RAM_DATA_A<51>	53D6< 13B2<>	RAM_DATA_A<55>
53D6< 13B2<>	RAM_DATA_A<56>	53D6< 13B2<>	RAM_DATA_A<60>
53D6< 13B2<>	RAM_DATA_A<57>	53D6< 13B2<>	RAM_DATA_A<61>
53D6< 14A8< 13B2<>	RAM_DQS_A<7>	53D6< 13B2<>	RAM_DQM_A<7>
53D6< 13B2<>	RAM_DATA_A<58>	53D6< 13B2<>	RAM_DATA_A<62>
53D6< 13B2<>	RAM_DATA_A<59>	53D6< 13B2<>	RAM_DATA_A<63>
34B3< 15A6<	INT_I2C_DATA0		
34B3< 15A6<	INT_I2C_CLK0		
NC_SODIMM199	NO_TEST		
NC_SODIMM202	NO_TEST		

ADDR=0 (0xA0)

(516S0029)

+2_5V_MAIN

C1602 0.1UF 20% 10V CERM 402

C1402 0.1UF 20% 10V CERM 402

DDR_VREF 12A7< 14D8<> 15D8< 52A6>

LOCATE C1602 AND C1402
DIRECTLY ON PIN AT J26-2

DDR DECOUPLING
SLOT "A"

+2_5V_MAIN

1 - 10UF
24 - 0.1UF

C244 0.1UF 20% 10V CERM 402
C263 0.1UF 20% 10V CERM 402
C320 0.1UF 20% 10V CERM 402
C243 0.1UF 20% 10V CERM 402
C255 0.1UF 20% 10V CERM 402
C256 0.1UF 20% 10V CERM 402
C1403 0.1UF 20% 10V CERM 402
C1404 0.1UF 20% 10V CERM 402

C313 0.1UF 20% 10V CERM 402
C242 0.1UF 20% 10V CERM 402
C275 0.1UF 20% 10V CERM 402
C276 0.1UF 20% 10V CERM 402
C304 0.1UF 20% 10V CERM 402
C261 0.1UF 20% 10V CERM 402
C311 0.1UF 20% 10V CERM 402
C1405 0.1UF 20% 10V CERM 402

C1406 0.1UF 20% 10V CERM 402
C1407 0.1UF 20% 10V CERM 402
C1408 0.1UF 20% 10V CERM 402
C1409 0.1UF 20% 10V CERM 402
C1410 0.1UF 20% 10V CERM 402
C1411 0.1UF 20% 10V CERM 402
C1412 0.1UF 20% 10V CERM 402
C1413 0.1UF 20% 10V CERM 402

C1415 0.1UF 20% 10V CERM 402
C1416 0.1UF 20% 10V CERM 402
C1417 0.1UF 20% 10V CERM 402
C1418 0.1UF 20% 10V CERM 402
C1419 0.1UF 20% 10V CERM 402
C1420 0.1UF 20% 10V CERM 402
C1421 0.1UF 20% 10V CERM 402

+2_5V_MAIN

C1414 10UF N20P80% 10V Y5V 805

+2_5V_MAIN

R1401 100 1% 1/16W MF 402

MIN_LINE_WIDTH=25

INT_MEM_VREF 12A8<>

LOCATE THESE RESISTORS BETWEEN DIMMS

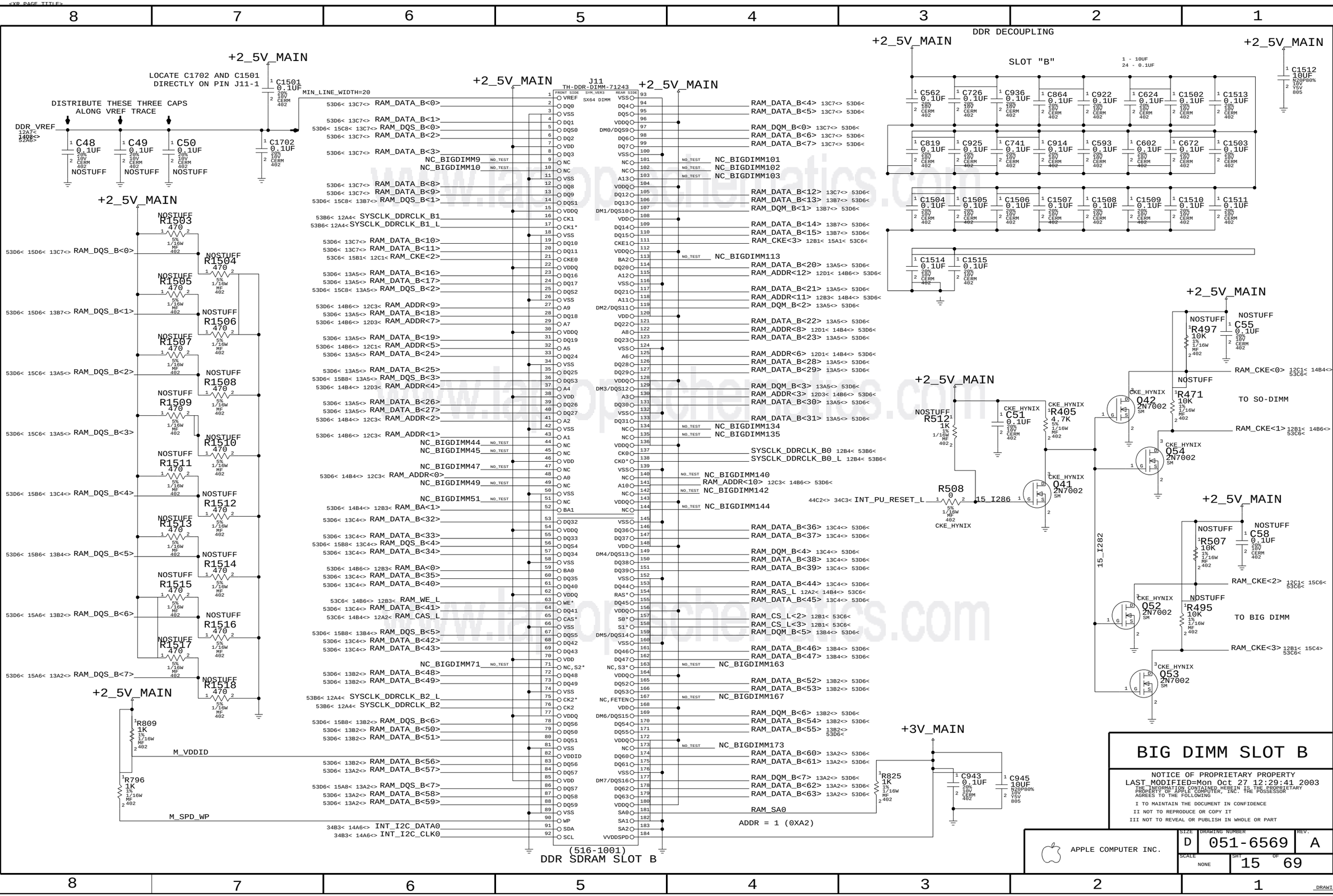
R1402 100 1% 1/16W MF 402

SO-DIMM SLOT A

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 14 OF 69	

DRAWING



INTREPID AGP CLK IS 1.5V OUT
NEED 3.3V SWING FOR VIDEO CHIPS
VERSION 1 WORKAROUND IS LA CLOCK
VERSION 2 WORKAROUND IS UNUSED PIN

52D3> 30D5< 28D6<> 9D4< +1_5V_INTREPID_PLL
R667 4.7 5% 1/16W MF 402
+1_5V_INTREPID_PLL5 52D3>
C760 0.1UF 20% 10V CERM 402
C1801 0.1UF 20% 10V CERM 402
INT_PLL5_GND 16A5<>

52C3> 46B4<> 17D5< 17A4< 17A3< 16C2< 16A8< 11A6< 10D6< 59C7> +1_5V_AGP
R619 60.4 1% 1/16W MF 402
54A7< 30C5<> 30A7< INT_ROM_OVERLAY_PU
54A7< 17C6< CLK66M_GPU_AGP
R225 22 5% 1/16W MF 402 (INT_V2)
R226 0 5% 1/16W MF 402 (INT_V1)
THESE RESISTORS SHARE THE SAME PAD
R224 22 5% 1/16W MF 402 NOSTUFF
54B7< 17A8< 16D3< STOP_AGP_L
INT_AGPPVT
52C3> 16A7< INT_AGP_VREF
INT_ANALYZER_CLK 8A2< 9B4< 54A7< 56B3> 59A7>
54B7< 17A8< 16D3< 16D1< AGP_BUSY_L
54A7< CLK66M_GPU_UF
54A7< INT_AGP_FB_IN
54A7< INT_AGP_FB_OUT

V14 VDD15A_5 (PLL5)

U25 INTREPID BGA (3 OF 9) SEE_TABLE (ON PAGE 12)

AN19	STP_AGP	
AJ24	AGPPVT	
AB20	AGPVREF0	
AB21	AGPVREF1	
AT19	AGP_BUSY	
AK28	AGP_CLK	
AK27	AGP_FB_IN	
AK25	AGP_FB_OUT	

2" LONGER (0.5NS SLOWER) AGP (ZERO DELAY) 2" SHORTER (0.5NS FASTER)

AGP_FBI_EQUAL 54A7<
R203 0 NOSTUFF
R215 0 NOSTUFF
R211 0 NOSTUFF
R220 0 NOSTUFF
R622 0 NOSTUFF
54A7< AGP_FB_PLUS2
R204 0 NOSTUFF
R216 0 NOSTUFF
AGP_FBO_EQUAL 54A7<
PLACE ALL SERPENTINES ON INTERNAL LAYER

AGP INTERFACES

VOUT = AGPIO (1.5V)
VIN = VCORE (1.5V)

AT33	AGPREQ	AGP_REQ_L 16C3< 17B6<> 54B7<
AM29	AGPGNT	AGP_GNT_L 16C3< 17B6< 54B7<
AR19	AGPAD0	AGP_AD<0> 17D8< 54C7<
AM19	AGPAD1	AGP_AD<1> 17D8< 54C7<
AT20	AGPAD2	AGP_AD<2> 17D8< 54C7<
AR20	AGPAD3	AGP_AD<3> 17D8< 54C7<
AT21	AGPAD4	AGP_AD<4> 17D8< 54C7<
AN20	AGPAD5	AGP_AD<5> 17D8< 54C7<
AR21	AGPAD6	AGP_AD<6> 17D8< 54C7<
AN21	AGPAD7	AGP_AD<7> 17D8< 54C7<
AM21	AGPAD8	AGP_AD<8> 17D8< 54C7<
AT22	AGPAD9	AGP_AD<9> 17D8< 54C7<
AR22	AGPAD10	AGP_AD<10> 17D8< 54C7<
AN22	AGPAD11	AGP_AD<11> 17D8< 54C7<
AM22	AGPAD12	AGP_AD<12> 17D8< 54C7<
AN23	AGPAD13	AGP_AD<13> 17D8< 54C7<
AR23	AGPAD14	AGP_AD<14> 17D8< 54C7<
AT24	AGPAD15	AGP_AD<15> 17C8< 54C7<
AM23	AGPAD16	AGP_AD<16> 17C8< 54C7<
AR24	AGPAD17	AGP_AD<17> 17C8< 54C7<
AT25	AGPAD18	AGP_AD<18> 17C8< 54C7<
AR25	AGPAD19	AGP_AD<19> 17C8< 54C7<
AM24	AGPAD20	AGP_AD<20> 17C8< 54C7<
AN25	AGPAD21	AGP_AD<21> 17C8< 54C7<
AL24	AGPAD22	AGP_AD<22> 17C8< 54C7<
AR26	AGPAD23	AGP_AD<23> 17C8< 54C7<
AT26	AGPAD24	AGP_AD<24> 17C8< 54C7<
AM25	AGPAD25	AGP_AD<25> 17C8< 54C7<
AN26	AGPAD26	AGP_AD<26> 17C8< 54C7<
AM26	AGPAD27	AGP_AD<27> 17C8< 54C7<
AR27	AGPAD28	AGP_AD<28> 17C8< 54C7<
AT27	AGPAD29	AGP_AD<29> 17C8< 54C7<
AR28	AGPAD30	AGP_AD<30> 17C8< 54C7<
AN27	AGPAD31	AGP_AD<31> 17C8< 54C7<
AM20	AGPCBE_0	AGP_CBE<0> 17C8< 54C7<
AT23	AGPCBE_1	AGP_CBE<1> 17C8< 54C7<
AN24	AGPCBE_2	AGP_CBE<2> 17C8< 54C7<
AL25	AGPCBE_3	AGP_CBE<3> 17C8< 54C7<
AT29	AGPPAR	AGP_PAR 17B8< 54B7<
AN28	AGPFRAME	AGP_FRAME_L 16C3< 17B8< 54C7<
AR29	AGPTRDY	AGP_TRDY_L 16B3< 17B8< 54C7<
AT28	AGPIRDY	AGP_IRDY_L 16C3< 17B8< 54C7< 54C7< 17B8< 16A4<> AGP_AD_STB<0>
AM28	AGPSTOP	AGP_STOP_L 16B3< 17B8< 54C7<
AM27	AGPDEVSEL	AGP_DEVSEL_L 16C3< 17B8< 54C7<
AT32	AGP_SBA0	AGP_SBA<0> 16C1< 17A8< 54B7< 54C7< 17B8< 16A4<> AGP_AD_STB<1>
AR32	AGP_SBA1	AGP_SBA<1> 16C1< 17A8< 54B7<
AM31	AGP_SBA2	AGP_SBA<2> 16B1< 17A8< 54B7<
AN31	AGP_SBA3	AGP_SBA<3> 16C1< 17A8< 54B7<
AR31	AGP_SBA4	AGP_SBA<4> 16C1< 17A8< 54B7<
AT31	AGP_SBA5	AGP_SBA<5> 16C1< 17A8< 54B7<
AM30	AGP_SBA6	AGP_SBA<6> 16B1< 17A8< 54B7<
AN30	AGP_SBA7	AGP_SBA<7> 16B1< 17A8< 54B7<
AH25	AGP_SB_STB_P	AGP_SB_STB 16B3< 17B8< 54B7<
AG25	AGP_SB_STB_N	AGP_SB_STB_L 16D1< 17A8< 54B7<
AN29	AGP_ST0	AGP_ST<0> 16B1< 17B6< 54B7<
AT30	AGP_ST1	AGP_ST<1> 16B1< 17B6< 54B7<
AR30	AGP_ST2	AGP_ST<2> 16B1< 17B6< 54B7<
AK20	AGP_AD_STB0_P	AGP_AD_STB<0> 16B3< 17B8< 54C7<
AK19	AGP_AD_STB0_N	AGP_AD_STB_L<0> 16D1< 17B8< 54C7<
AK21	AGP_AD_STB1_P	AGP_AD_STB<1> 16B3< 17B8< 54C7<
AK22	AGP_AD_STB1_N	AGP_AD_STB_L<1> 16D1< 17B8< 54C7<
AJ29	AGPPIPE	AGP_PIPE_L 16B3< 17B8< 54B7<
AK24	AGPRBF	AGP_RBF_L 16B3< 17B8< 54B7<

54B7< 17B8< 16B1< AGP_WBF_L — AK30 — AGP_WBF

VSSA_5 (PLL5) V13
NO_TEST INT_PLL5_GND 16D5<
OMIT XW48 SM

AGP PULL-UPS/PULL DOWNS

+3V_MAIN
54B7< 17A8< 16D1< 16C6<> AGP_BUSY_L
R222 10K 1% 1/16W MF 402
54B7< 17A8< 16C6<> STOP_AGP_L
R217 10K 1% 1/16W MF 402

52C3> 46B4<> 17D5< 17A4< 17A3< 16D7< 16A8< 11A6< 10D6< 59C7> +1_5V_AGP

54B7< 17B6<> 16C4<>	AGP_REQ_L	RP37 10K
54B7< 17B6< 16C4<>	AGP_GNT_L	RP37 10K
54C7< 17B8< 16B4<>	AGP_FRAME_L	RP37 10K
54C7< 17B8< 16B4<>	AGP_DEVSEL_L	RP98 10K
54C7< 17B8< 16B4<>	AGP_IRDY_L	RP98 10K
54C7< 17B8< 16B4<>	AGP_TRDY_L	RP98 10K
54C7< 17B8< 16B4<>	AGP_STOP_L	RP98 10K
54B7< 17B8< 16A4<>	AGP_RBF_L	RP37 10K
NC_RP1PIN4		RP48 10K NO_TEST
54B7< 17B8< 16A4<>	AGP_PIPE_L	RP48 10K
54B7< 17B8< 16A4<>	AGP_AD_STB<0>	R580 10K 1% 1/16W MF 402
54C7< 17B8< 16A4<>	AGP_AD_STB<1>	R587 10K 1% 1/16W MF 402
54B7< 17B8< 16A4<>	AGP_SB_STB	R233 10K 1% 1/16W MF 402

54C7< 17B8< 16A4<>	AGP_AD_STB_L<0>	R223 10K
54C7< 17B8< 16A4<>	AGP_AD_STB_L<1>	R234 10K
54B7< 17A8< 16A4<>	AGP_SB_STB_L	R221 10K
54B7< 17A8< 16D3< 16C6<>	AGP_BUSY_L	R161 10K NOSTUFF

54B7< 17A8< 16B4<>	AGP_SBA<5>	RP99 10K
54B7< 17A8< 16B4<>	AGP_SBA<1>	RP99 10K
54B7< 17A8< 16B4<>	AGP_SBA<4>	RP99 10K
54B7< 17A8< 16B4<	AGP_SBA<0>	RP99 10K
54B7< 17A8< 16B4<	AGP_SBA<3>	RP49 10K
54B7< 17A8< 16A4<>	AGP_SBA<7>	RP49 10K
54B7< 17B6< 16A4<>	AGP_ST<1>	RP49 10K
54B7< 17B6< 16A4<>	AGP_ST<2>	RP49 10K
54B7< 17A8< 16B4<>	AGP_SBA<2>	RP50 10K
54B7< 17A8< 16A4<>	AGP_SBA<6>	RP50 10K
54B7< 17B8< 16A6<	AGP_WBF_L	RP50 10K
54B7< 17B6< 16A4<>	AGP_ST<0>	RP50 10K

GPU AGP I/O REFERENCE
(PLACE CLOSE TO GPU AGP BALLS)

59C7> 52C3> 46B4<> 16D7< 16C2< 11A6< 10D6< 17D5< 17A4< 17A3< +1_5V_AGP
C603 470PF 10% 50V CERM 402
GPU_AGP_VREF_H
R549 4.99K 1% 1/16W MF 402
R545 82.5 1% 1/16W MF 402
INT_AGP_VREF 16C6<> 52C3>
R205 4.99K 1% 1/16W MF 402
R197 82.5 1% 1/16W MF 402
C1802 0.1UF 20% 10V CERM 402
C222 470PF 10% 50V CERM 402
GPU_AGP_VREF_L

INTREPID AGP

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 16 OF 69	

DRAWING

U39
NV18B
BGA
(1 OF 5)

+1_5V_AGP

AGP_AD<0> AGP_AD<1> AGP_AD<2> AGP_AD<3> AGP_AD<7> AGP_AD<5> AGP_AD<6> AGP_AD<4> AGP_AD<8> AGP_AD<9> AGP_AD<10> AGP_AD<11> AGP_AD<12> AGP_AD<13> AGP_AD<14> AGP_AD<15> AGP_AD<16> AGP_AD<18> AGP_AD<17> AGP_AD<19> AGP_AD<20> AGP_AD<21> AGP_AD<22> AGP_AD<23> AGP_AD<24> AGP_AD<25> AGP_AD<26> AGP_AD<27> AGP_AD<28> AGP_AD<29> AGP_AD<30> AGP_AD<31>

RP40 RP30 RP32 RP42 RP31 RP41 RP44 RP34 22 5% 1/16W SM1

GPU_AGP_AD<0> AJ28 … GPU_AGP_AD<31> AE18

PCIAD0 … PCIAD31

AGP_CBE<0> AGP_CBE<3> AGP_CBE<2> AGP_CBE<1>

RP43 22 5% 1/16W SM1

GPU_AGP_CBE<0> AJ24 … GPU_AGP_CBE<3> AB22

PCIC0/BE0* : C0*/BE0
PCIC1/BE1* : C1*/BE1
PCIC2/BE2* : C2*/BE2
PCIC3/BE3* : C3*/BE3

MAIN_RESET_L — R1026 0 402 5%

AGP_RESET_L — R1027 0 402 5% TMDS_XMIT_SI_P

CLK66M_GPU_AGP — AG12
NV_PCI_RST_L — AF15

PCICLK : CLK
PCIRST* : RST*

AGP_GNT_L — AE15
AGP_REQ_L — AF13

PCIGNT* : GNT
PCIREQ* : REQ

AGP_TRDY_L AGP_FRAME_L AGP_IRDY_L AGP_PAR AGP_STOP_L AGP_DEVSEL_L

RP45 RP35 22 5% 1/16W SM1

GPU_AGP_FRAME_L AK16 … GPU_AGP_DEVSEL_L AJ16

PCIFRAME* : FRAME
PCIIRDY* : IRDY
PCITRDY* : TRDY
PCIDEVSEL* : DEVSEL
PCISTOP* : STOP
PCIPAR : PAR

AGP_INT_L — AG15
NC_GPU_INTB_L — AE10

PCIINTA* : INTA
NC_PCIINTB* : INTB

AGP_WBF_L AGP_PIPE_L AGP_RBF_L

RP46 22 5% 1/16W SM1

GPU_AGP_RBF_L AG14 … NC_GPU_DBI_LO AJ19

AGPRBF* : RBF
AGPWBF* : WBF
AGPPIPE* : DBI_HI
<RESRVD> : DBI_LO

AGP_ST<0> AGP_ST<1> AGP_ST<2>

AGPST0 : ST0
AGPST1 : ST1
AGPST2 : ST2

AGP_AD_STB<0> AGP_AD_STB_L<0> AGP_AD_STB_L<1> AGP_AD_STB<1>

RP33 22 5% 1/16W SM1

GPU_AGP_AD_STB_GPUUF<0> AK24 … GPU_AGP_AD_STB_GPUUF<1> AF21

AGPADSTBF0 : ADSTBF0
AGPADSTBS0* : ADSTBS0
AGPADSTBF1 : ADSTBF1
AGPADSTBS1* : ADSTBS1

AGP_SB_STB — R210 22 — R558 22 — GPU_AGP_SB_STB AK13
AGP_SB_STB_L — GPU_AGP_SB_STB_L AJ13

AGPSBSTBF : SBSTBF
AGPSBSTBS* : SBSTBS

AGP_SBA<3> AGP_SBA<2> AGP_SBA<1> AGP_SBA<0> AGP_SBA<7> AGP_SBA<6> AGP_SBA<4> AGP_SBA<5>

RP47 RP36 22 5% 1/16W SM1

GPU_AGP_SBA<0> AJ11 … GPU_AGP_SBA<7> AH15

AGPSBA0 : SBA0*
AGPSBA1 : SBA1*
AGPSBA2 : SBA2*
AGPSBA3 : SBA3*
AGPSBA4 : SBA4*
AGPSBA5 : SBA5*
AGPSBA6 : SBA6*
AGPSBA7 : SBA7*

GPU_MBDET_L — AF16

<RESRVD> : MBDET*

AGP_BUSY_L — AF12
STOP_AGP_L — AG11

AGPBUSY* : BUSY*
AGPSTOP* : STOP*

GPU_AGP_VREF — AK29

AGPVREF : AGPVREF

AGP VERSION SELECT
(LOW = AGP V3.X)
(HIGH = AGP V2.X)

+3V_MAIN — R168 10K 1% 1/16W MF 402

NC_GPU<0> NC_GPU<1> NC_GPU<2> NC_GPU<3> NC_GPU<4> — ALL ARE NO_TEST

AGPVDDQ: AE14 AE11 AE17 AE20 AE23 AD11 AD14 AD23 AD20 AD17

VDD: AA17 AA18 L20 Y20 L13 Y13 N20 P20 U20 V20 L11 N11 P11 U11 V11 Y11 L14 Y14 L17 Y17 L18 Y18

VDD33: H6 AC6 U7 G14 U6 AD15 H7 AD16 AD19 AD22 AC7 AD12 P24

VD50CLAMP0 N4
VD50CLAMP1 AE9
AGP_PLLVDD AE12

50 OHM TO VDDQ — AGPCALPD AA13
50 OHM TO GND — AGPCALPU AA14

10K OHM TO GND — TESTMODE AE5 — GPU_TMODE 52A8>

R177 10K 1% 1/16W MF 402
R160 49.9 1% 1/16W MF 402
R169 49.9 1% 1/16W MF 402

+1_5V_AGP 10D6< 11A6< 16A8< 16C2< 16D7< 17A3< 17D5< 46B4<> 52C3> 59C7>

+5V_MAIN
C193 0.1UF 20% 10V CERM 402
C186 0.1UF 20% 10V CERM 402

GPU_50PULLUP 52A8>
GPU_50PULLDWN 52A8>

46B4<> 17D5< 17A4< 16D7< 16C2< 16A8< 11A6< 10D6< 59C7> 52C3>

TCLK TMS TDI TDO TRST*

NVAGP_TRST_L — R72 10K
NC_NVAGP_TDO
NVAGP_TDI
NVAGP_TMS
NVAGP_TCLK — R80 10K

+3V_MAIN
R1024 10K 1% 1/16W MF 402 — NV34
R1025 10K 1% 1/16W MF 402 — NV34

OUTPUT DRIVER BYPASS

MIN_LINE_WIDTH=20

C192 0.01UF, C200 0.01UF, C178 0.1UF, C201 0.1UF, C202 0.1UF, C180 0.1UF, C185 0.1UF, C203 0.1UF, C183 0.1UF, C176 0.1UF
10% 16V CERM 402

CORE BYPASS

52A6> 48C2<> 23C7<> GRAPH_CORE

MIN_LINE_WIDTH=20

C104 0.01UF, C134 0.01UF, C117 0.1UF, C109 0.1UF, C100 0.1UF, C101 0.1UF, C103 0.1UF, C110 0.1UF, C139 0.1UF, C99 0.1UF, C146 0.1UF
10% 16V CERM 402

MIN_LINE_WIDTH=20

C148 0.01UF, C149 0.01UF, C150 0.1UF, C147 0.1UF, C118 0.1UF, C135 0.1UF, C169 0.1UF, C140 0.1UF
10% 16V CERM 402

MIN_LINE_WIDTH=20

C161 10UF, C93 10UF, C168 10UF, C94 10UF
N20P80% 10V Y5V 805

C120 0.1UF, C102 0.1UF, C151 0.1UF
20% 10V CERM 402

+3V_MAIN
R198 10 1% 1/16W MF 402

AGP_PLLVDD

C223 4.7UF N20P80% 10V CERM 805
C219 0.1UF 20% 10V CERM 402
C217 0.001UF 10% 50V CERM 402

I/O BYPASS

+3V_MAIN

C177 0.01UF, C111 0.01UF, C129 0.1UF, C136 0.1UF, C116 0.1UF, C87 0.1UF, C184 0.1UF
10% 16V CERM 402

C137 10UF N20P80% 10V Y5V 805

C91 0.01UF, C97 0.01UF, C187 0.1UF, C179 0.1UF, C105 0.1UF, C112 0.1UF, C181 0.1UF, C182 0.1UF, C188 0.1UF
10% 16V CERM 402

GPU AGP I/O REFERENCE
(PLACE CLOSE TO INTREPID AGP BALLS)

+1_5V_AGP — C214 470PF 10% 50V CERM 402 — GPU_AGP_VREF_X

R195 4.99K 1% 1/16W MF 402 — R192 82.5 1% 1/16W MF 402
GPU_AGP_VREF 17A8< 52A6>
R196 4.99K 1% 1/16W MF 402 — R193 82.5 1% 1/16W MF 402

C215 470PF 10% 50V CERM 402 — GPU_AGP_VREF_Y

NVIDIA AGP

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 17 OF 69	

DRAWING

+2_5V_MAIN

EVENLY DISTRIBUTE 0.01UF & 0.1 UF CAPS AMONGST FBVDDQ PINS ON NV ASIC

C86 0.01UF 10% 16V CERM 402
C84 0.1UF 10% 16V CERM 402
C73 0.1UF 10% 16V CERM 402
C81 0.1UF 10% 16V CERM 402
C90 0.01UF 10% 16V CERM 402
C72 0.1UF 10% 16V CERM 402
C78 0.01UF 10% 16V CERM 402
C98 0.1UF 10% 16V CERM 402
C133 0.1UF 10% 16V CERM 402
C167 0.1UF 10% 16V CERM 402
C159 0.1UF 10% 16V CERM 402
C95 10UF 20% 16V TANT 3528
C75 0.1UF 10% 16V CERM 402
C82 0.1UF 10% 16V CERM 402
C79 0.1UF 10% 16V CERM 402
C115 0.01UF 10% 16V CERM 402
C175 0.1UF 10% 16V CERM 402
C199 0.1UF 10% 16V CERM 402
C83 0.01UF 10% 16V CERM 402
C80 0.1UF 10% 16V CERM 402
C89 0.01UF 10% 16V CERM 402
C96 0.1UF 10% 16V CERM 402
C145 0.1UF 10% 16V CERM 402
C124 10UF 20% 6.3V TANT 805

+2_5V_MAIN

U39 NV18B BGA (3 OF 5)

55D3> 19D8< FBD<0> … FBD<63>
FBADQ0 … FBADQ63
FBVDDQ
NC_VTT
GND
NC_TEST
NC_VTT<0> … NC_VTT<11>
GPU_FB_VREF
FBVREF
ROMA14 ROMA15 ROMCS*

55D3> 18D3< FBDQM<0> … FBDQM<7>
FBADQM0 … FBADQM7

55D3> 18F3< FBA<0> … FBA<12>
FBAA0 … FBAA12

55D3> 18E3< FBABA<0> FBABA<1>
FBABA0 FBABA1

55D3> 18G3< FBARAS_L FBACAS_L FBAWE_L FBACS0_L
NC_FBACS1_L
FBARAS* FBACAS* FBAWE* FBACS0* FBACS1*

FCAL_PD_VDDQ FCAL_PU_GND FCAL_TERM_GND FCAL_CLK_GND FB_DLLVDD
18A5< 18A5< 18A5< 18C6<

R71 49.9 1% 1/16W MF 402
C62 0.1UF 10% 16V CERM 402

FBACKE 18D3< 55D3>
FBACLK0 19C3< 55C3>
FBACLK0_L 19C3< 55C3>
FBACLK1 19D3< 55C3>
FBACLK1_L 19D3< 55C3>
FBDQS0 … FBDQS7 19A5< 55C3>
NC_FBDQS0 … NC_FBDQS7

+2_5V_MAIN

U39 NV18B BGA (4 OF 5)

55C3> 19C8< FBD<64> … FBD<127>
FBDCD0 … FBDCD63

55C3> 18D3< FBDQM<8> … FBDQM<15>
FBDCDQM0 … FBDCDQM7

55C3> 18C3< FBA<0> … FBA<8>
FBA0 … FBA8

55C3> 18B3< FBA<9> … FBA<12>
FBA9 FBA10 FBA11 FBA12

55C3> 18A3< FBABA<0> FBABA<1>
FBCBA0 FBCBA1

55B3> 19B3< FBBCLK0 FBBCLK0_L FBBCLK1 FBBCLK1_L
FBBCLK0 FBBCLK0* FBBCLK1 FBBCLK1*

FBCDQS0 … FBCDQS7
FBDQS<8> … FBDQS<15> 19A5< 55B3>
NC_FBCDQS0 … NC_FBCDQS7
NC_FBDQS_L<8> … NC_FBDQS_L<15>

FBCRAS* FBCCAS* FBCWE* FBCCS0* FBCCS1* FBCCKE
FBBRAS_L FBBCAS_L FBBWE_L FBBCS0_L NC_FBBCS1_L FBBCKE
1BC3< 55C3>
1BC3< 55C3>
1BC3< 55C3>
1BC3< 55C3>
1BA3< 55B3>

THERMAL GND

+3V_MAIN

R52 10 1% 1/16W MF 402
18D7< FB_DLLVDD
C61 4.7UF 20% 6.3V TANT 3528
C70 0.1UF 10% 16V CERM 402
C69 0.001UF 10% 50V CERM 402

18D7< FBCAL_CLK_GND
18D7< FBCAL_TERM_GND
18D7< FBCAL_PU_GND
R95 49.9 1% 1/16W MF 402
R83 0 1% 1/16W MF 402
R88 549 1% 1/16W MF 402

+2_5V_MAIN

NVIDIA VREF

R36 0 1% 1/16W MF 402
MEMREFN1
U7 TLV431A SOT
R41 1K 1% 1/16W MF 402
C54 0.1UF 10% 16V CERM 402
MEMREFN2
R50 0 1% 1/16W MF 402
R49 0 1% 1/16W MF 402
NOSTUFF
C510 100PF 5% 25V CERM 402
R463 1K 1% 1/16W MF 402
C509 0.1UF 10% 16V CERM 402

DQM R'S CLOSE TO GPU

OTHER R'S BETWEEN GPU & MEMORY

55D3> 18D8> FBDQM<0> … FBDQM<7>
R117 0 R111 0 R90 0 R84 0 R164 0 R155 0 R154 0 R143 0
1/16W 5% MF 402
RFBDQM<0> … RFBDQM<7> 20C6< 55D3>

55D3> 18C8> FBACAS_L FBARAS_L FBACS0_L FBAWE_L
RP22 22 1/16W 5% SM1
ZT29 ZT20 ZT30 ZT31
RFBACAS_L RFBARAS_L RFBACS0_L RFBAWE_L 20B2< 20B6< 55D3>
NO_TEST

55D3> 18D8> FBA<0> … FBA<12>
RP94 22 RP95 22 RP23 22 RP93 22 RP84 22 RP83 22 RP8 22 1/16W 5% SM1
ZT22 … ZT32
RFBA<0> … RFBA<11> 20D2< 20D6< 55D3>
NO_TEST
NC_RFBA<12>

55D3> 18C8> FBABA<0> FBABA<1>
RP93 22 1/16W 5% SM1
ZT21 ZT32
RFBABA<0> RFBABA<1> 20C2< 20C6< 55D3>

WEAK PULL-DOWN
RECOMMENDED BY NVIDIA
55D3> 18D7<> FBACKE
R130 22 1/16W 5% SM1
ZT28
RFBACKE 20C2< 20C6< 55C3>
R131 10K 1% 1/16W MF 402

55C3> 18D5> FBDQM<8> … FBDQM<15>
R64 0 R66 0 R70 0 R67 0 R54 0 R56 0 R58 0 R59 0
NV34
1/16W 5% MF 402
RFBDQM<8> … RFBDQM<15> 21C6< 55C3>

55C3> 18C4<> FBBCS0_L FBBWE_L FBBCAS_L FBBRAS_L
RP9 22 1/16W 5% SM1
ZT2 ZT5 ZT1 ZT3
RFBBCS0_L RFBBWE_L RFBBCAS_L RFBBRAS_L 21B2< 21B6< 55B3>
NO_TEST

55C3> 18D5<> FBBA<0> … FBBA<12>
RP85 22 RP84 22 RP83 22 RP8 22 1/16W 5% SM1
ZT6 … ZT32
RFBBA<0> … RFBBA<11> 21D2< 21D6< 55C3>
NO_TEST
NC_RFBBA<12>

55B3> 18C4<> FBBCKE
WEAK PULL-DOWN
RECOMMENDED BY NVIDIA
R132 22 1/16W 5% SM1
ZT19
RFBBCKE 21C2< 21C6< 55B3>
R61 10K 1% 1/16W MF 402

NVIDIA FRAME BUFFER

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
E	051-6569	A
SCALE	SHT	OF
NONE	18	69

DRAWING

PLACE R'S BETWEEN GPU & MEMORY

55D3> 18G8<>	FBD<0>		15	RP20	RFBD<0>	20C5<> 55D3>	55D3> 18F8<>	FBD<32>	15	RP29	RFBD<32>	20C1<> 55D3>
55D3> 18G8<>	FBD<1>	NO_TEST	15	RP20	RFBD<1>	20C5<> 55D3>	55D3> 18F8<>	FBD<33>	NO_TEST 15	RP29	RFBD<33>	20C1<> 55D3>
55D3> 18G8<>	FBD<2>	NO_TEST	15	RP20	RFBD<2>	20C5<> 55D3>	55D3> 18F8<>	FBD<34>	NO_TEST 15	RP29	RFBD<34>	20C1<> 55D3>
55D3> 18G8<>	FBD<3>	NO_TEST	15	RP20	RFBD<3>	20C5<> 55D3>	55D3> 18F8<>	FBD<35>	NO_TEST 15	RP29	RFBD<35>	20C1<> 55D3>
55D3> 18G8<>	FBD<4>	NO_TEST	15	RP19	RFBD<4>	20C5<> 55D3>	55D3> 18F8<>	FBD<36>	15	RP27	RFBD<36>	20C1<> 55D3>
55D3> 18G8<>	FBD<5>		15	RP19	RFBD<5>	20C5<> 55D3>	55D3> 18F8<>	FBD<37>	NO_TEST 15	RP27	RFBD<37>	20C1<> 55D3>
55D3> 18G8<>	FBD<6>	NO_TEST	15	RP19	RFBD<6>	20C5<> 55D3>	55D3> 18F8<>	FBD<38>	15	RP27	RFBD<38>	20C1<> 55D3>
55D3> 18G8<>	FBD<7>	NO_TEST	15	RP19	RFBD<7>	20C5<> 55D3>	55D3> 18F8<>	FBD<39>	NO_TEST 15	RP27	RFBD<39>	20C1<> 55D3>
55D3> 18G8<>	FBD<8>	NO_TEST	15	RP21	RFBD<8>	20C5<> 55D3>	55D3> 18F8<>	FBD<40>	NO_TEST 15	RP28	RFBD<40>	20C1<> 55D3>
55D3> 18G8<>	FBD<9>		15	RP21	RFBD<9>	20C5<> 55D3>	55D3> 18F8<>	FBD<41>	15	RP28	RFBD<41>	20C1<> 55D3>
55D3> 18G8<>	FBD<10>	NO_TEST	15	RP21	RFBD<10>	20C5<> 55D3>	55D3> 18F8<>	FBD<42>	NO_TEST 15	RP28	RFBD<42>	20C1<> 55D3>
55D3> 18G8<>	FBD<11>	NO_TEST	15	RP21	RFBD<11>	20C5<> 55D3>	55D3> 18F8<>	FBD<43>	NO_TEST 15	RP28	RFBD<43>	20C1<> 55D3>
55D3> 18G8<>	FBD<12>	NO_TEST	15	RP18	RFBD<12>	20C5<> 55D3>	55D3> 18F8<>	FBD<44>	15	RP97	RFBD<44>	20C1<> 55D3>
55D3> 18G8<>	FBD<13>		15	RP18	RFBD<13>	20C5<> 55D3>	55D3> 18E8<>	FBD<45>	NO_TEST 15	RP97	RFBD<45>	20C1<> 55D3>
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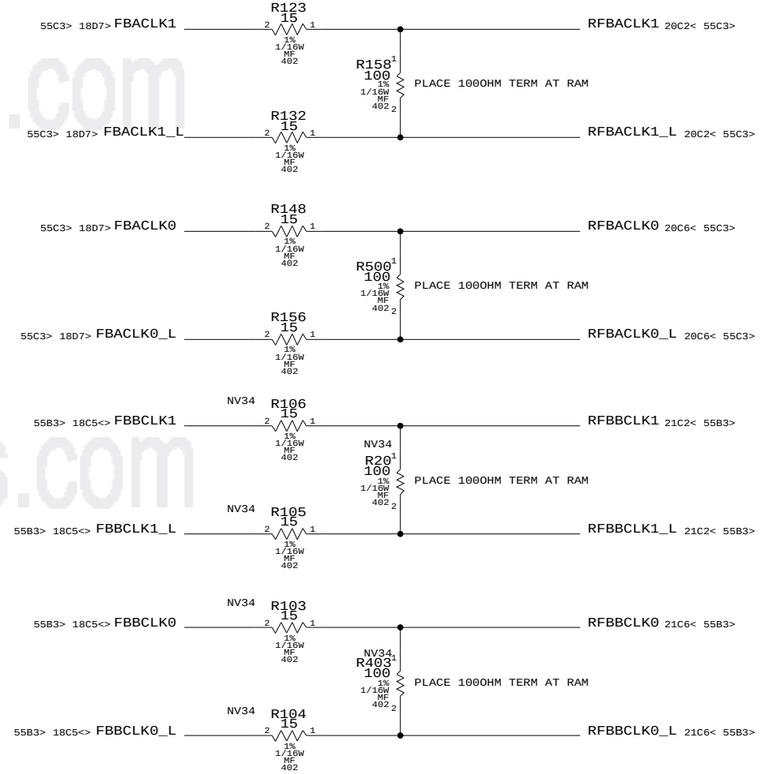
PLACE R'S CLOSE TO GPU



PLACE THESE R CLOSE TO GPU — PLACE THESE R CLOSE TO SGRAM

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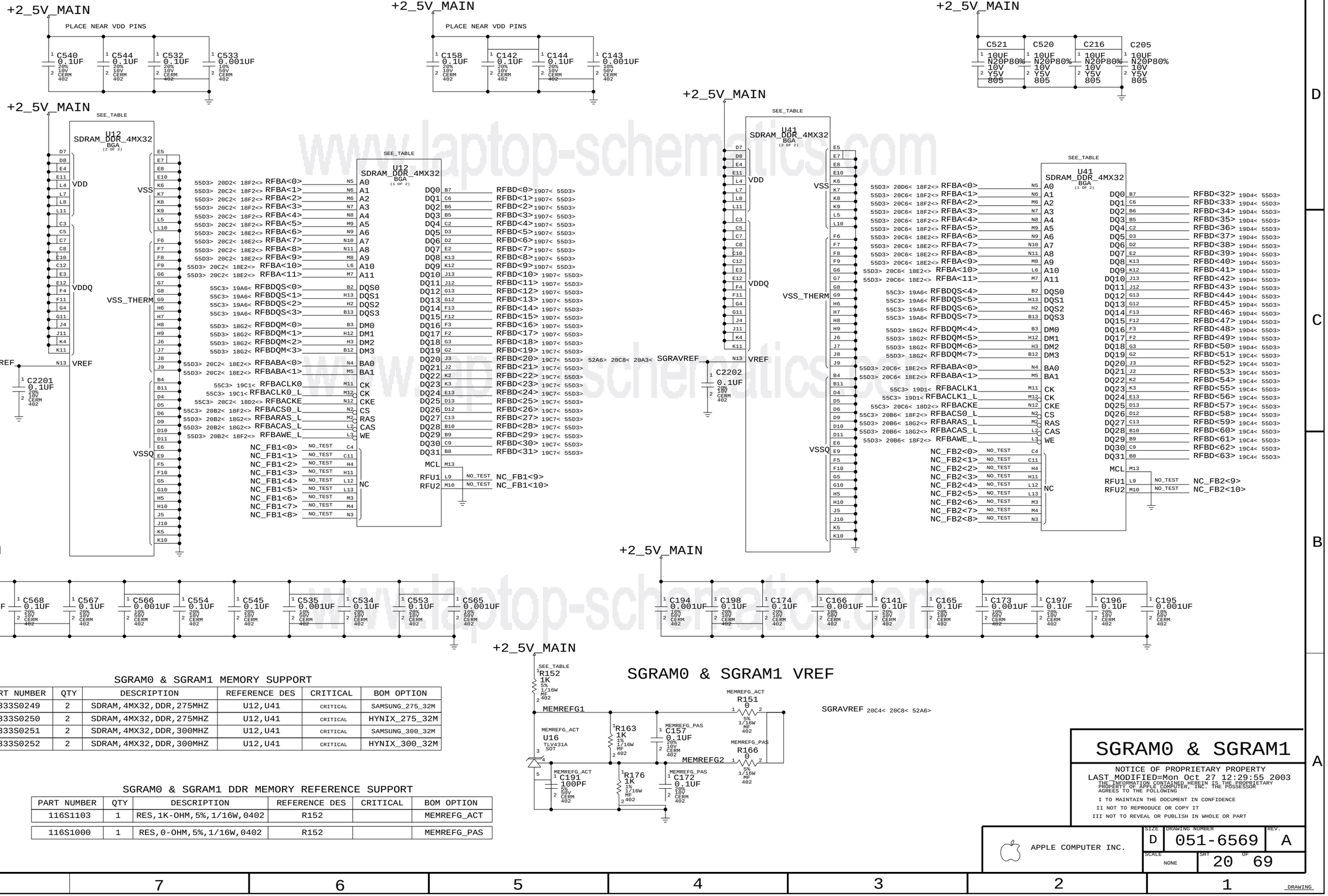
FB TERMINATION

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE	SHT	OF
NONE	19	69

DRAWING



SGRAM0 & SGRAM1 VREF

SGRAM0 & SGRAM1 MEMORY SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
333S0249	2	SDRAM,4MX32,DDR,275MHZ	U12,U41	CRITICAL	SAMSUNG_275_32M
333S0250	2	SDRAM,4MX32,DDR,275MHZ	U12,U41	CRITICAL	HYNIX_275_32M
333S0251	2	SDRAM,4MX32,DDR,300MHZ	U12,U41	CRITICAL	SAMSUNG_300_32M
333S0252	2	SDRAM,4MX32,DDR,300MHZ	U12,U41	CRITICAL	HYNIX_300_32M

SGRAM0 & SGRAM1 DDR MEMORY REFERENCE SUPPORT

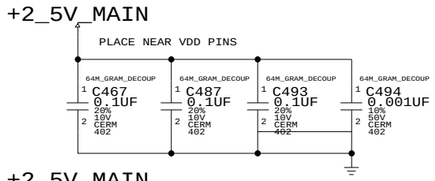
PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
116S1103	1	RES,1K-OHM,5%,1/16W,0402	R152		MEMREFG_ACT
116S1000	1	RES,0-OHM,5%,1/16W,0402	R152		MEMREFG_PAS

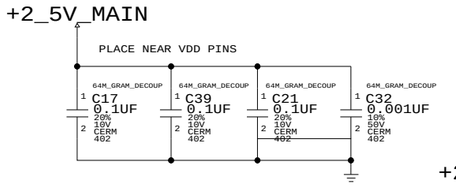
SGRAM0 & SGRAM1

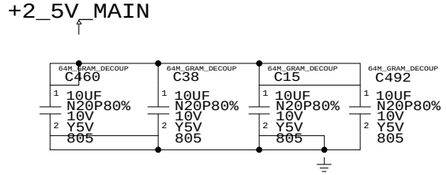
APPLE COMPUTER INC.

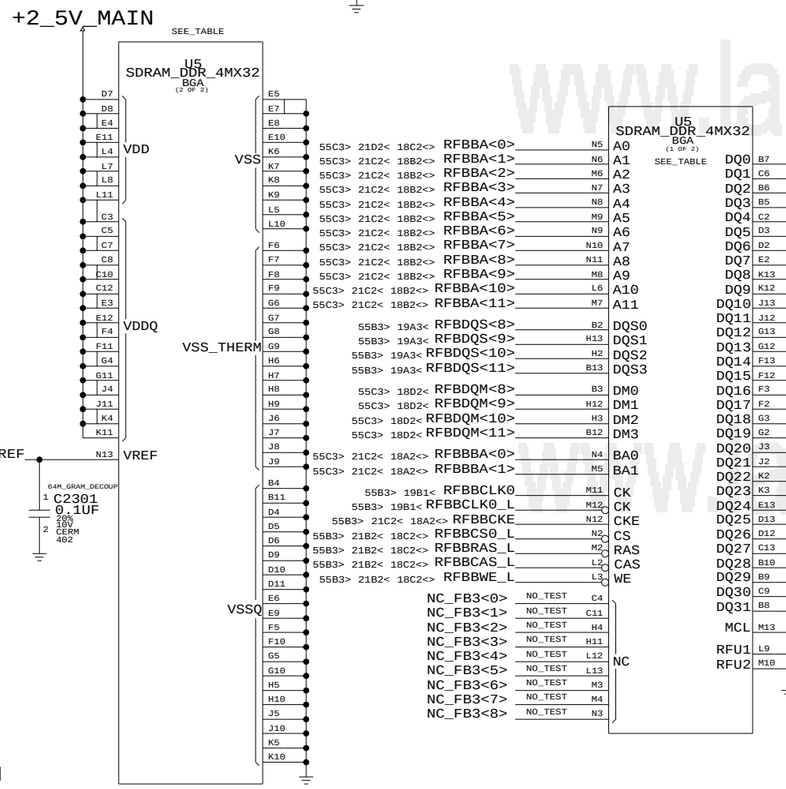
SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE	SHT	OF
NONE	20	69

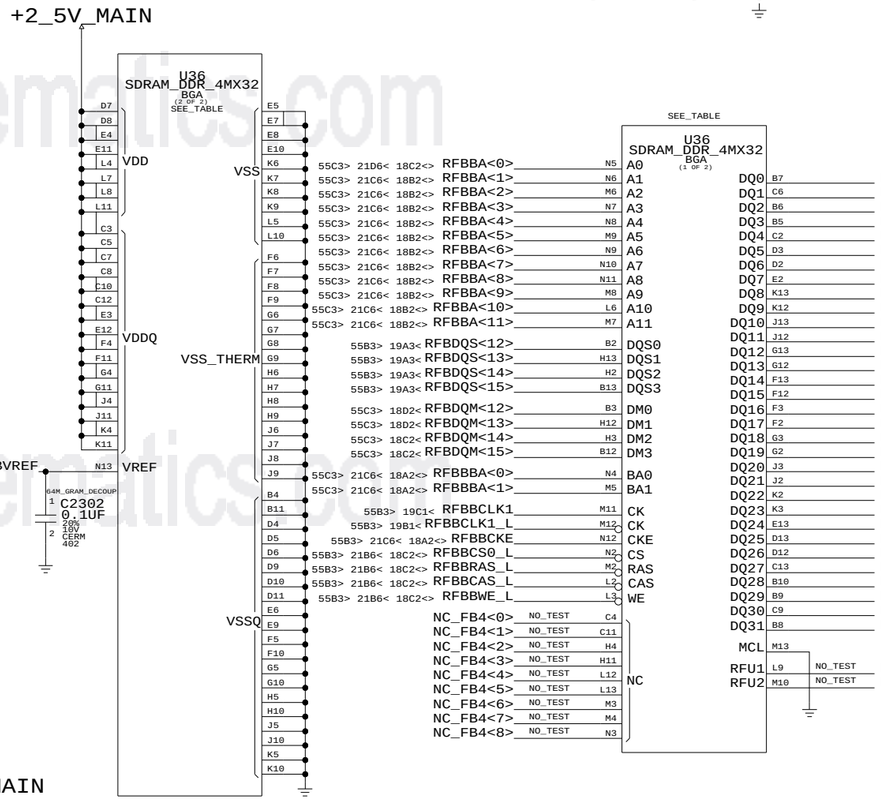
DRAWING

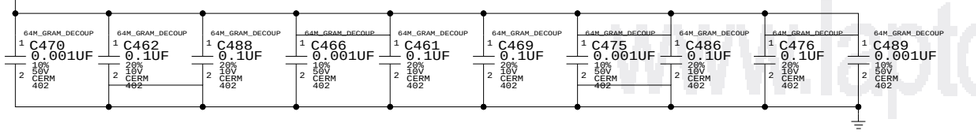


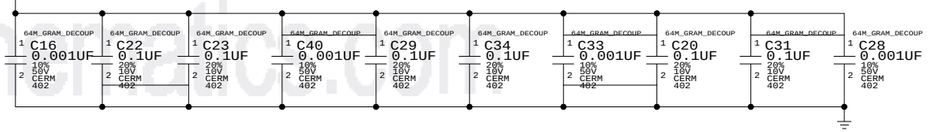










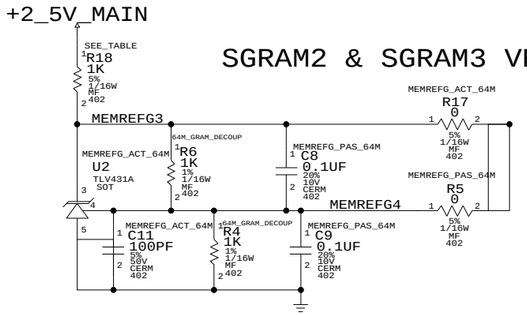


SGRAM0 & SGRAM1 MEMORY SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
333S0249	2	SDRAM,4MX32,DDR,275MHZ	U5,U36	CRITICAL	SAMSUNG_275_64M
333S0250	2	SDRAM,4MX32,DDR,275MHZ	U5,U36	CRITICAL	HYNIX_275_64M
333S0251	2	SDRAM,4MX32,DDR,300MHZ	U5,U36	CRITICAL	SAMSUNG_300_64M
333S0252	2	SDRAM,4MX32,DDR,300MHZ	U5,U36	CRITICAL	HYNIX_300_64M

SGRAM2 & SGRAM3 DDR MEMORY REFERENCE SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
116S1103	1	RES,1K-OHM,5%,1/16W,0402	R18		MEMREFG_ACT_64M
116S1000	1	RES,0-OHM,5%,1/16W,0402	R18		MEMREFG_PAS_64M



SGRAM2 & SGRAM3 VREF

SGRBVREF 21C4< 21C8< 52A6>

SGRAM2 & SGRAM3

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
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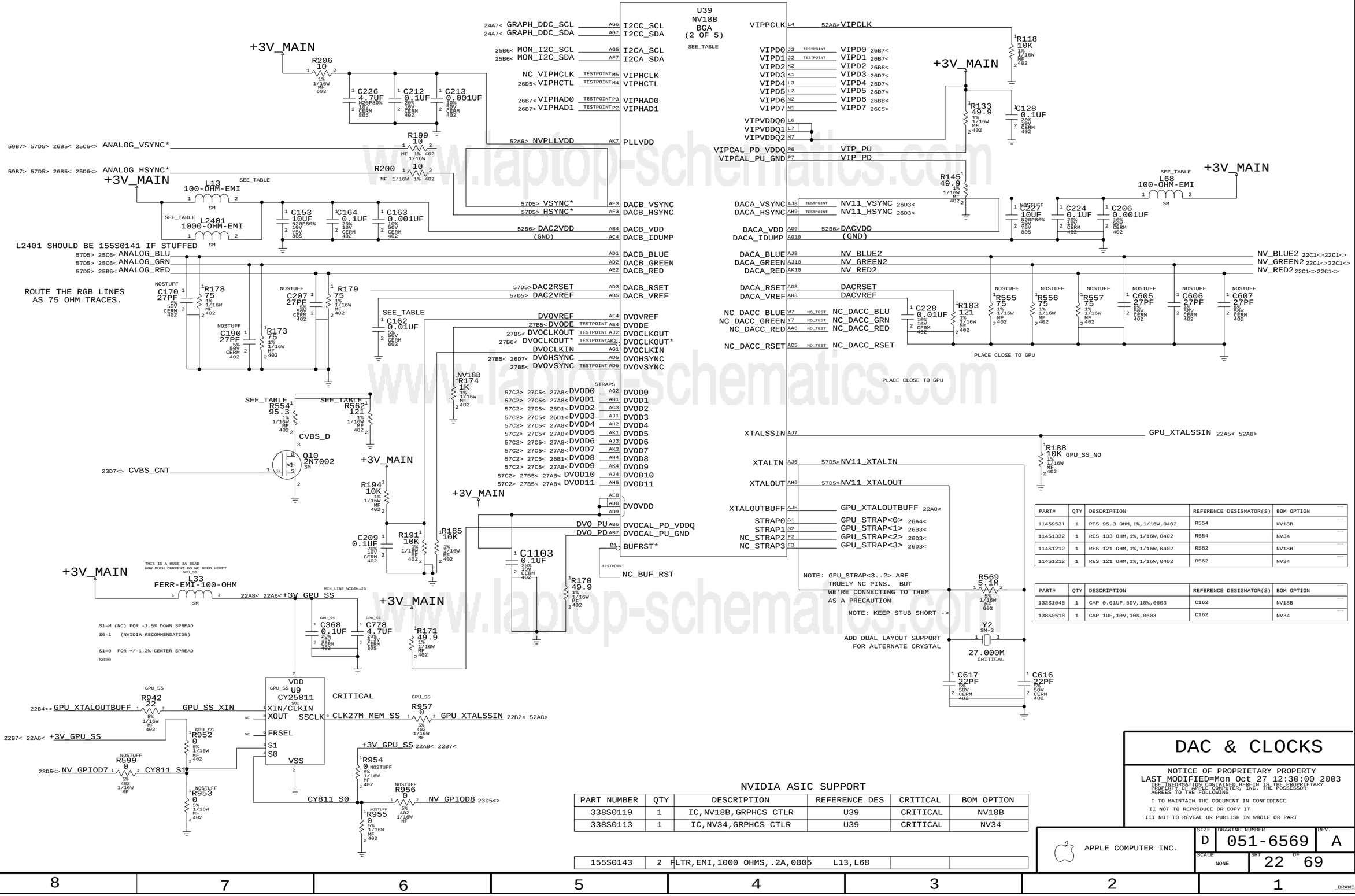
SCALE: NONE	SHT 21 OF 69	

DRAWING



NVIDIA ASIC SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
338S0119	1	IC,NV18B,GRPHCS CTLR	U39	CRITICAL	NV18B
338S0113	1	IC,NV34,GRPHCS CTLR	U39	CRITICAL	NV34

155S0143	2	FLTR,EMI,1000 OHMS,.2A,0805	L13,L68		

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
114S9531	1	RES 95.3 OHM,1%,1/16W,0402	R554	NV18B
114S1332	1	RES 133 OHM,1%,1/16W,0402	R554	NV34
114S1212	1	RES 121 OHM,1%,1/16W,0402	R562	NV18B
114S1212	1	RES 121 OHM,1%,1/16W,0402	R562	NV34

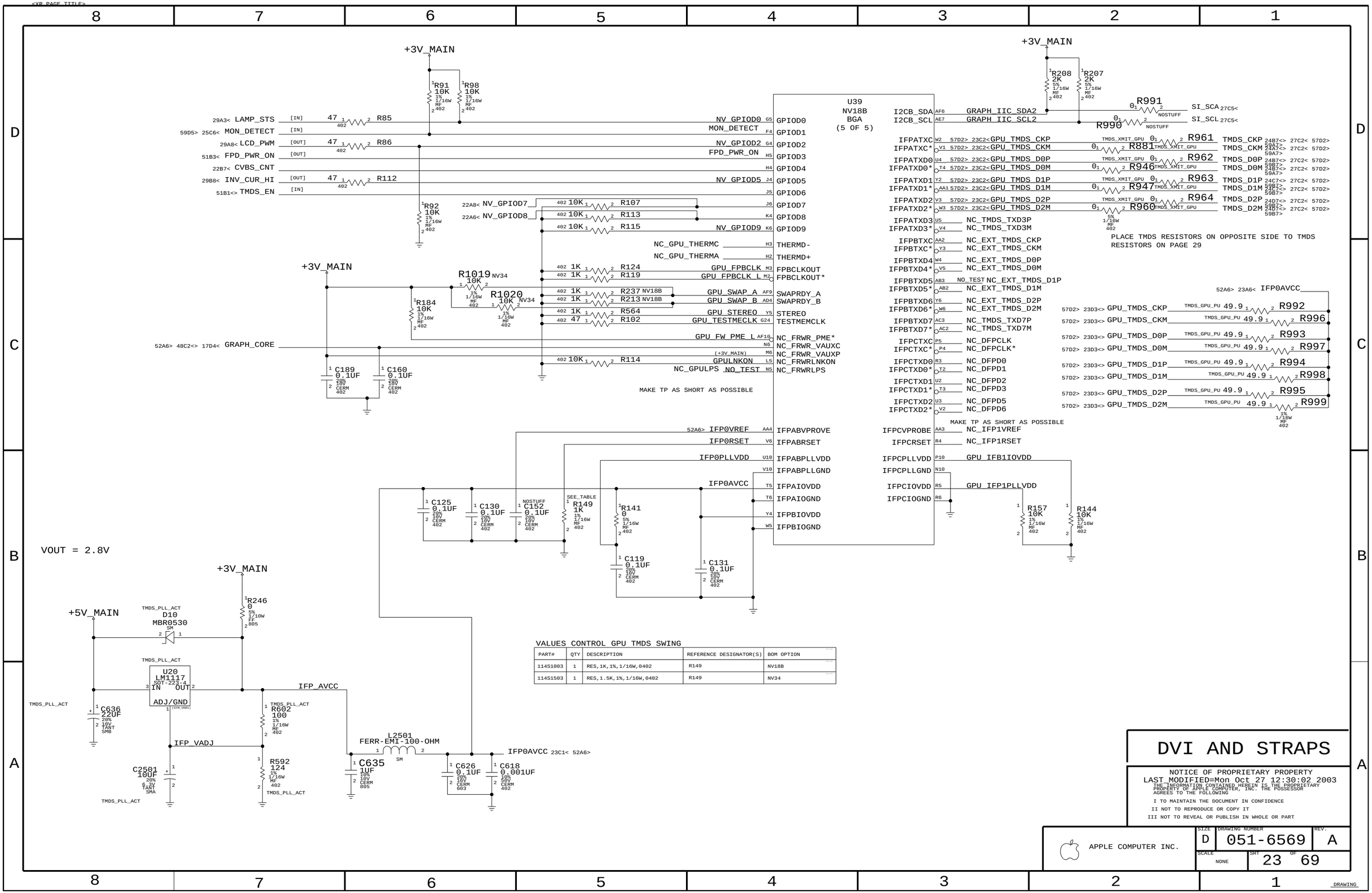
PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
132S1045	1	CAP 0.01UF,50V,10%,0603	C162	NV18B
138S0518	1	CAP 1UF,10V,10%,0603	C162	NV34

DAC & CLOCKS

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE: NONE | SHT 22 OF 69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R98 10K 1% 1/16W MF 402
29A3< LAMP_STS [IN] 47 R85
59D5> 25C6< MON_DETECT [IN]
29A8< LCD_PWM [OUT] 47 R86
51B3< FPD_PWR_ON [OUT]
22B7< CVBS_CNT
29B8< INV_CUR_HI [OUT] 47 R112
51B1<> TMDS_EN [IN]
R92 10K 1% 1/16W MF 402
22A8< NV_GPIOD7 10K R107
22A6< NV_GPIOD8 10K R113
10K R115
NV_GPIOD0 G5
MON_DETECT F4
NV_GPIOD2 G4
FPD_PWR_ON H5
H4
NV_GPIOD5 J4
J5
J6
K4
NV_GPIOD9 K6
NC_GPU_THERMC H3
NC_GPU_THERMA H2
U39
NV18B
BGA
(5 OF 5)
GPIOD0
GPIOD1
GPIOD2
GPIOD3
GPIOD4
GPIOD5
GPIOD6
GPIOD7
GPIOD8
GPIOD9
THERMD-
THERMD+
+3V_MAIN
R1019 10K NV34
R1020 10K NV34
R184 10K 1% 1/16W MF 402
1K R124
1K R119
1K R237 NV18B
1K R213 NV18B
1K R564
47 R102
GPU_FPBCLK M3
GPU_FPBCLK_L M2
GPU_SWAP_A AF9
GPU_SWAP_B AD4
GPU_STEREO Y5
GPU_TESTMECLK G24
FPBCLKOUT
FPBCLKOUT*
SWAPRDY_A
SWAPRDY_B
STEREO
TESTMEMCLK
GPU_FW_PME_L AF10
NC_FRWR_PME*
NC_FRWR_VAUXC
NC_FRWR_VAUXP
NC_FRWRLNKON
NC_FRWRLPS
52A6> 48C2<> 17D4< GRAPH_CORE
C189 0.1UF 20% 10V CERM 402
C160 0.1UF 20% 10V CERM 402
(+3V_MAIN) M6
GPULNKON L5
10K R114
NC_GPULPS NO_TEST N5
N6
MAKE TP AS SHORT AS POSSIBLE
52A6> IFP0VREF AA4
IFP0RSET V6
IFP0PLLVDD U10
V10
IFP0AVCC T5
T6
Y4
W5
IFPABVPROVE
IFPABRSET
IFPABPLLVDD
IFPABPLLGND
IFPAIOVDD
IFPAIOGND
IFPBIOVDD
IFPBIOGND
C125 0.1UF 20% 10V CERM 402
C130 0.1UF 20% 10V CERM 402
NOSTUFF C152 0.1UF 20% 10V CERM 402
SEE_TABLE R149 1K 1% 1/16W MF 402
R141 0 5% 1/16W MF 402
C119 0.1UF 20% 10V CERM 402
C131 0.1UF 20% 10V CERM 402
+3V_MAIN
R208 2K 5% 1/16W MF 402
R207 2K 5% 1/16W MF 402
I2CB_SDA AF6 GRAPH_IIC_SDA2
I2CB_SCL AE7 GRAPH_IIC_SCL2
R991 NOSTUFF SI_SCA 27C5<
R990 NOSTUFF SI_SCL 27C5<
IFPATXC W2 57D2> 23C2< GPU_TMDS_CKP R961 TMDS_CKP 24B7<> 27C2< 57D2>
IFPATXC* V1 57D2> 23C2< GPU_TMDS_CKM R881 TMDS_CKM 24A7<> 27C2< 57D2>
IFPATXD0 U4 57D2> 23C2< GPU_TMDS_D0P R962 TMDS_D0P 24B7<> 27C2< 57D2>
IFPATXD0* T4 57D2> 23C2< GPU_TMDS_D0M R946 TMDS_D0M 24B7<> 27C2< 57D2>
IFPATXD1 Y2 57D2> 23C2< GPU_TMDS_D1P R963 TMDS_D1P 24C7<> 27C2< 57D2>
IFPATXD1* AA1 57D2> 23C2< GPU_TMDS_D1M R947 TMDS_D1M 24C7<> 27C2< 57D2>
IFPATXD2 V3 57D2> 23C2< GPU_TMDS_D2P R964 TMDS_D2P 24D7<> 27C2< 57D2>
IFPATXD2* W3 57D2> 23C2< GPU_TMDS_D2M R960 TMDS_D2M 24D7<> 27C2< 57D2>
IFPATXD3 U5 NC_TMDS_TXD3P
IFPATXD3* V4 NC_TMDS_TXD3M
IFPBTXC AA2 NC_EXT_TMDS_CKP
IFPBTXC* Y3 NC_EXT_TMDS_CKM
IFPBTXD4 W4 NC_EXT_TMDS_D0P
IFPBTXD4* V5 NC_EXT_TMDS_D0M
IFPBTXD5 AB3 NO_TEST NC_EXT_TMDS_D1P
IFPBTXD5* AB2 NC_EXT_TMDS_D1M
IFPBTXD6 Y6 NC_EXT_TMDS_D2P
IFPBTXD6* W6 NC_EXT_TMDS_D2M
IFPBTXD7 AC3 NC_TMDS_TXD7P
IFPBTXD7* AC2 NC_TMDS_TXD7M
IFPCTXC P5 NC_DFPCLK
IFPCTXC* P4 NC_DFPCLK*
IFPCTXD0 R3 NC_DFPD0
IFPCTXD0* T2 NC_DFPD1
IFPCTXD1 U2 NC_DFPD2
IFPCTXD1* T3 NC_DFPD3
IFPCTXD2 U3 NC_DFPD5
IFPCTXD2* V2 NC_DFPD6
IFPCVPROBE AA3 NC_IFP1VREF
IFPCRSET R4 NC_IFP1RSET
IFPCPLLVDD P10 GPU_IFB1IOVDD
IFPCPLLGND N10
IFPCIOVDD R5 GPU_IFP1PLLVDD
IFPCIOGND R6
MAKE TP AS SHORT AS POSSIBLE
R157 10K 1% 1/16W MF 402
R144 10K 1% 1/16W MF 402
PLACE TMDS RESISTORS ON OPPOSITE SIDE TO TMDS RESISTORS ON PAGE 29
52A6> 23A6< IFP0AVCC
57D2> 23D3<> GPU_TMDS_CKP TMDS_GPU_PU 49.9 R992
57D2> 23D3<> GPU_TMDS_CKM TMDS_GPU_PU 49.9 R996
57D2> 23D3<> GPU_TMDS_D0P TMDS_GPU_PU 49.9 R993
57D2> 23D3<> GPU_TMDS_D0M TMDS_GPU_PU 49.9 R997
57D2> 23D3<> GPU_TMDS_D1P TMDS_GPU_PU 49.9 R994
57D2> 23D3<> GPU_TMDS_D1M TMDS_GPU_PU 49.9 R998
57D2> 23D3<> GPU_TMDS_D2P TMDS_GPU_PU 49.9 R995
57D2> 23D3<> GPU_TMDS_D2M TMDS_GPU_PU 49.9 R999
VOUT = 2.8V
+3V_MAIN
+5V_MAIN
TMDS_PLL_ACT D10 MBR0530 SM
R246 0 5% 1/10W FF 805
U20 LM1117 SOT-223-4 IN OUT ADJ/GND (SYM_VER1)
IFP_AVCC
C636 2.2UF 20% 10V TANT SMB
IFP_VADJ
C2501 10UF 20% 6.3V TANT SMA
R602 100 1% 1/16W MF 402
R592 124 1% 1/16W MF 402
L2501 FERR-EMI-100-OHM SM
C635 1UF 10% 10V CERM 805
C626 0.1UF 10% 50V CERM 603
C618 0.001UF 10% 50V CERM 402
IFP0AVCC 23C1< 52A6>
VALUES CONTROL GPU TMDS SWING
PART# | QTY | DESCRIPTION | REFERENCE DESIGNATOR(S) | BOM OPTION
114S1003 | 1 | RES,1K,1%,1/16W,0402 | R149 | NV18B
114S1503 | 1 | RES,1.5K,1%,1/16W,0402 | R149 | NV34
DVI AND STRAPS
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SIZE D
DRAWING NUMBER 051-6569
REV: A
SCALE NONE
SHT 23 OF 69
DRAWING

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
114S3012	4	RES,301 OHMS,1%,1/16W,0402	R559,R570,R591,R600	FPD_3V3
116S1202	4	RES,200 OHMS,5%,1/16W,0402	R559,R570,R591,R600	FPD_12VM

52B6> 51C1<> +3.3VFPD
L82 FERR-250-OHM SM
INT_TMDS_3V

59B7> 57D2> 27C2< 23D1< TMDS_D2P
XMIT_RES R603 0
TD2P
R600 301 1% 1/16W MF 402 SEE_TABLE
L76 90-OHM SM XMIT_CHOKE
59B7> 57D2> 27C2< 23D1< TMDS_D2M
R594 0 XMIT_RES
TD2M

59B7> 57D2> 27C2< 23D1< TMDS_D1P
XMIT_RES R593 0
TD1P
R591 301 1% 1/16W MF 402 SEE_TABLE
L74 90-OHM SM XMIT_CHOKE
59B7> 57D2> 27C2< 23D1< TMDS_D1M
R582 0 XMIT_RES
TD1M

(518S0039)
J12
FI-TWE21P-VF
F-ST-SM

INT_TMDS_3V
59C7> 52A6> INT_TMDS_3V
57C5> TD2P
57C5> TD2M
57C5> TD1P
57C5> TD1M
57C5> TD0M
57C5> TD0P
57C5> TCKP
57C5> TCKM
59B7> 52B6> DDC_VCC_3
59C5> TMDS_DDC_CLK
59C5> TMDS_DDC_DAT
INT_TMDS_3V
43B7<
29A3<
43A7<
52C4

C652 0.01UF 10% 16V CERM 402
C107 10UF 10% 16V CERM 1210

59B7> 57D2> 27C2< 23D1< TMDS_D0P
XMIT_RES R581 0
TD0P
R570 301 1% 1/16W MF 402 SEE_TABLE
L71 90-OHM SM XMIT_CHOKE
59A7> 57D2> 27C2< 23D1< TMDS_D0M
R568 0 XMIT_RES
TD0M

INTERNAL TMDS CONNECTOR

59A7> 57D2> 27C2< 23D1< TMDS_CKP
XMIT_RES R567 0
TCKP
R559 301 1% 1/16W MF 402 SEE_TABLE
L67 90-OHM SM XMIT_CHOKE
59A7> 57D2> 27C2< 23D1< TMDS_CKM
R550 0 XMIT_RES
TCKM

22D5<> GRAPH_DDC_SDA
R546 33 5% 1/16W MF 402
TMDS_DDC_DAT
+3V_MAIN
R540 2K 5% 1/16W MF 402
L64 FERR-250-OHM SM
DDC_VCC_3
R547 2K 5% 1/16W MF 402
22D5<> GRAPH_DDC_SCL
R551 33 5% 1/16W MF 402
TMDS_DDC_CLK

C610 0.01UF 10% 16V CERM 402

TMDS/LVDS

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52A3> 33A6<> 25C2< 25B5<> USB_PWR

D6
BAV99DW
SOT-363
NOSTUFF

D7
BAV99DW
SOT-363
NOSTUFF

59B7> 57D5> 26B5< 22D7< ANALOG_HSYNC*

C421
22PF
5%
50V
CERM
402

PLACE 75 OHM TERMINATIONS
NEAR GRAPHICS CHIP RGB PINS

THE RGB TRACES MUST BE GUARDBANDED
BY DACGND FROM THE GRAPHICS CHIP

59B7> 57D5> 26B5< 22D7< ANALOG_VSYNC*

C422
22PF
5%
50V
CERM
402

ALT
CHASSIS

59D5> 23D7<> MON_DETECT

FL3
LCFILTER
SM-220MHZ

57D5> 22C7<> ANALOG_BLU

FL2
LCFILTER
SM-220MHZ

57D5> 22C7<> ANALOG_GRN

FL4
LCFILTER
SM-220MHZ

57D5> 22C7<> ANALOG_RED

J9
F-RT-TCX3160-110200
TH-4MT

(514-0021)
ALT
CHASSIS

MON_DETECT

59B7>
57D5> FILT_ANALOG_BLU

59B7> 57D5> FILT_ANALOG_GRN

59B7> 57D5> FILT_ANALOG_RED

59B5> VGA_IIC_CLK
59B7> 52A6> DDC_VCC_5
ANALOG_VSYNC*
(BLU_RTN)
ANALOG_HSYNC*
(GRN_RTN)
59B5> VGA_IIC_DAT
(RED_RTN)

J9
FERR-250-OHM
SM

USB_PWR 25B5<> 25D3<> 33A6<> 52A3>

C423
0.01UF
10%
16V
CERM
402

ALT
CHASSIS

C414
0.01UF
10%
16V
CERM
402

C432
0.01UF
10%
16V
CERM
402

C409
0.01UF
10%
16V
CERM
402

52A3> 33A6<> 25D3<> 25C2< USB_PWR

ROUTE THE ANALOG RGB TRACES AT 75 OHMS.
SEE THE EXTERNAL DESIGN GUIDE FOR LAYOUT DETAILS.

22D5<> MON_I2C_SDA

22D5<> MON_I2C_SCL

R7
2K
5%
1/16W
MF
402

R19
2K
5%
1/16W
MF
402

R3
33
5%
1/16W
MF
402

R2
33
5%
1/16W
MF
402

D28
BAV99DW
SOT-363
NOSTUFF

D27
BAV99DW
SOT-363
NOSTUFF

ALT
CHASSIS

C415
47PF
5%
50V
CERM
402

C416
47PF
5%
50V
CERM
402

EXTERNAL VGA CONNECTOR

EXTERNAL VGA

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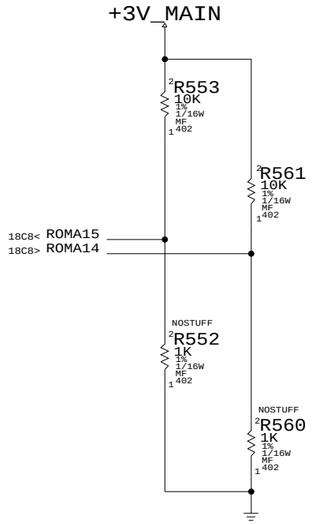
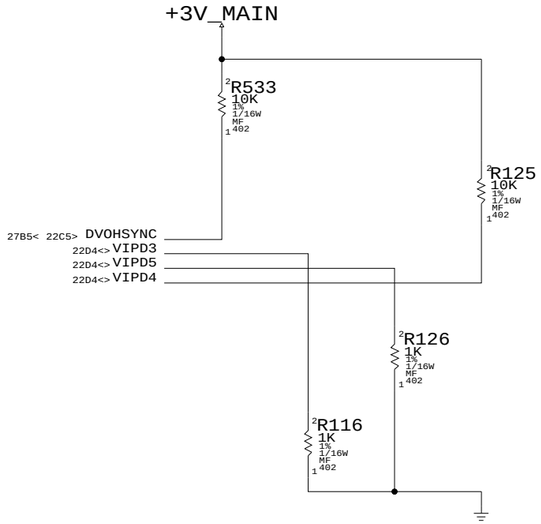
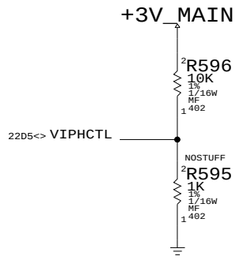
DRAWING



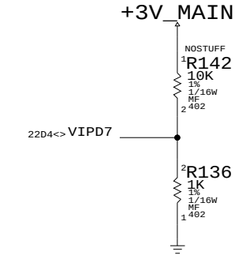
(1) ROM TYPE (OVERRIDDEN IF STRAP1 = 0)
[1..0] = [ROMA15,ROMA14]
00 = PARALLEL
01 = SERIAL AT25F
10 = SERIAL SST45VF
* 11 = SERIAL FUTURE



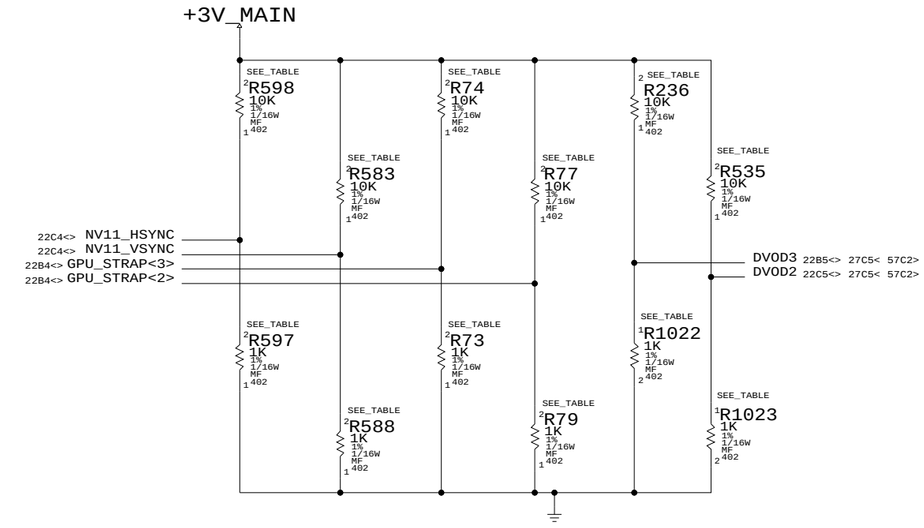
(3) PCI DEVICE ID
[3..0] = [DVOHSYNC,VIPD3,VIPD5,VIPD4]
0010 = 0X112 GEFORCE2 GO
0011 = 0X113 QUADRO2 GO
0100 = 0X114 NV17M
0000 = 0X110 GEFORCE2GO MX (NV11B)
* 1001 = NV18B,NV31,NV34



(5) HOST MODE
[0] = [VIPHCTL]
0 = PCI MODE
* 1 = AGP MODE



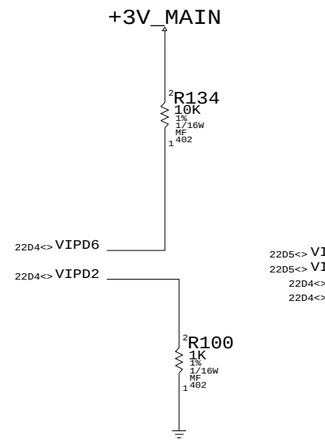
(6) AGP SIDEBAND
[0] = [VIPD7]
* 0 = ENABLE AGP SIDEBAND
1 = DISABLE AGP SIDEBAND



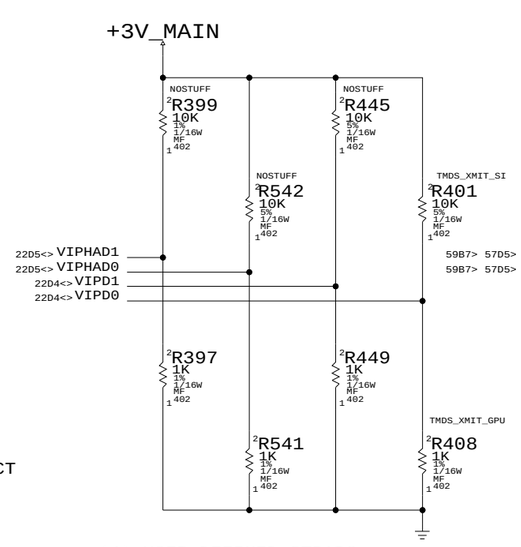
(8) FRAME BUFFER MEMORY TYPE
[3..0] = [NV11_HSYNC,NV11_VSYNC,GPU_STRAP<3>,GPU_STRAP<2>]
1111 = 222MHZ
1101 = 275MHZ SAMSUNG
1100 = 275MHZ HYNIX

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
114S1004	5	RES,10KOHM,1%,0402	R598,R583,R77,R236,R535		SAMSUNG_NV18B_270
114S1003	1	RES,1KOHM,1%,0402	R73		SAMSUNG_NV18B_270
114S1004	4	RES,10KOHM,1%,0402	R598,R583,R236,R535		HYNIX_NV18B_270
114S1003	2	RES,1KOHM,1%,0402	R73,R79		HYNIX_NV18B_270

114S1004	5	RES,10KOHM,1%,0402	R598,R583,R535,R74,R77		SAMSUNG_NV34_270
114S1003	1	RES,1KOHM,1%,0402	R1022		SAMSUNG_NV34_270
114S1004	4	RES,10KOHM,1%,0402	R583,R74,R77,R535		HYNIX_NV34_270
114S1003	2	RES,1KOHM,1%,0402	R597,R1022		HYNIX_NV34_270

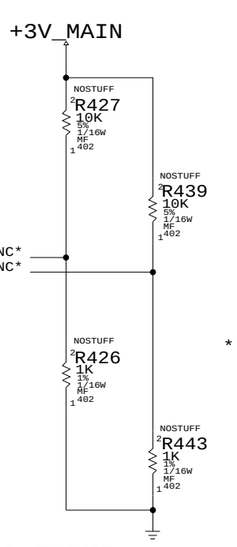


(2) CRYSTAL FREQUENCY SELECT
[1..0] = [VIPD6,VIPD2]
00 = 13.5MHZ
01 = 14.38MHZ
* 10 = 27MHZ
11 = {UNDEFINED}



(4) USER DEFINED STRAPS
[3..0] = [VIPHAD1,VIPHAD0,VIPD1,VIPD0]

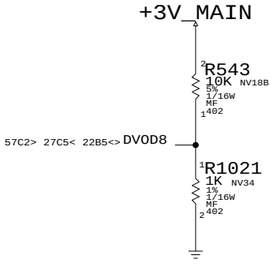
THESE BITS ARE UNDEFINED BUT THEY
MUST BE KEPT LOW DURING RESET



(7) TV MODE
[1..0] = [ANALOG_HSYNC*,ANALOG_VSYNC*]
00 = SECAM
01 = NTSC
10 = PAL
* 11 = DISABLED
(THESE RESISTORS ARE ALL NOSTUFF)

(9) SUB-VENDOR
[0] = [GPU_STRAP<1>]
0 = SYSTEM BIOS (VENDOR & SUBSYSTEM ID=0X0000)
1 = ADAPTER CARD VGA BIOS (VENDOR & SUBSYSTEM ID=0X54-0X57)

(10) PCI ADDRESS BUS
[0] = [GPU_STRAP<0>]
0 = REVERSED
* 1 = NORMAL



FASTWR
0 = ENABLE
1 = DISABLE

NVIDIA STRAPS 1

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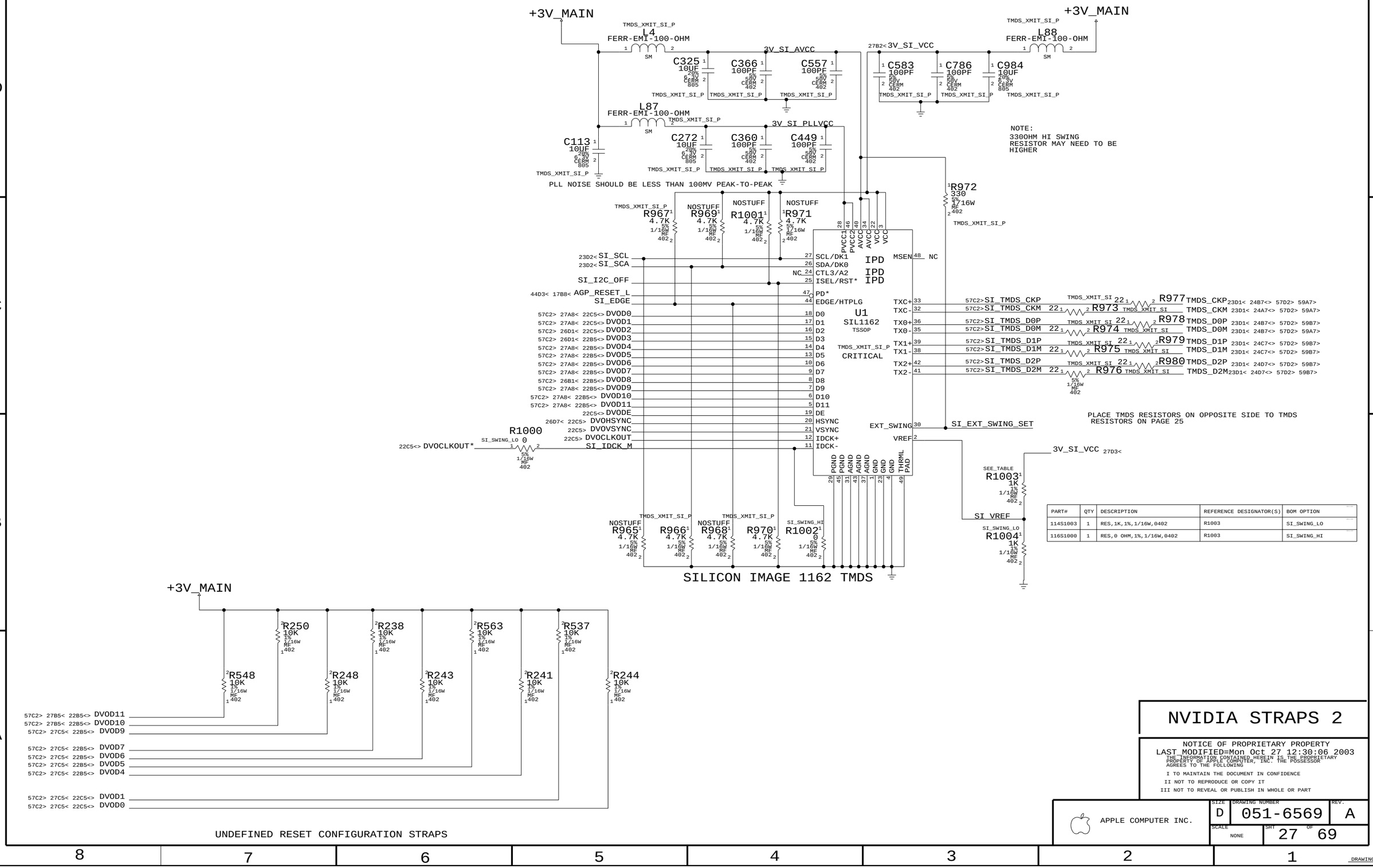

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
114S1003	1	RES,1K,1%,1/16W,0402	R1003	SI_SWING_LO
116S1000	1	RES,0 OHM,1%,1/16W,0402	R1003	SI_SWING_HI

NVIDIA STRAPS 2

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
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DRAWING

+2_5V_MAIN
+1_8V_MAIN
R571 0 1/16W MF 603
R572 0 1/16W MF 603
LT1962_INT_VIN
NC_UT6P7
NC_UT6P6
C234 1UF 10% 10V X5R 603
U19 LT1962-ADJ MSOP
IN OUT ADJ BYP GND SHDN
LT1962_INT_ADJ
LT1962_INT_BYP
C623 0.01UF 10% 16V CERM 402
R586 15.8K 1% 1/16W MF 402
C233 10UF 20% 6.3V CERM 805
52D3> 30D5< 16D6< 9D4< +1_5V_INTREPID_PLL

INTREPID DEBUG HOOKS
PLL TEST FUNCTION
HWPLL_TESTMUXSEL[0:5]
+3V_MAIN
R231 R678 R289 R292 R291 R274 R228 R232 1K 1% 1/16W MF 402
R574 R276 R708 R735 R727 R661 R577 R573 1K 1% 1/16W MF 402 NOSTUFF
INT_MOD_BITCLK 28A3<> 28A8<
INT_MOD_CLKOUT 28A3> 28A8<
INT_MOD_DTO 28A3> 28A8<
INT_MOD_SYNC 28A3<> 28A8< (INTREPID JTAG TDO)
INT_MOD_DTI 28A3< 28A8<
JTAG_INTRP_TDO 34B7> 35B3<
JTAG_ASIC_TDI 8A4<> 34B7< 59D7>
INT_TST_PLLEN_PD 34B7<

TOO MANY MODS TO LIST, SEE INTREPID ERS
CONFIGURED FOR INTREPID VERSION 1
VIEW AGP CLOCK OUT LA CLOCK PIN

+3V_MAIN
GPIO & INTERRUPT PULL-UPS
R746 10K 1% 1/16W MF 402 AGP_INT_L 17B6<> 28B5<>
R749 10K 1% 1/16W MF 402 33SLOTB_INT_L
R750 10K 1% 1/16W MF 402 28B5<> UNUSED_EXTINT7 SPARE
R306 10K 1% 1/16W MF 402 28B5<> UNUSED_EXTINT8 SPARE
RP113 10K 5% 1/16W SM1
INT_GPIO9_PU 28B5<>
INT_EXTINT12_PU 28B5<>
INT_EXTINT17_PU 28B5<> 32B6>
INT_EXTINT3_PU 28B5<>
RP74 10K 5% 1/16W SM1 NO_TEST
COMM_RING_DET_L 28B5<> 29C5<>
INT_EXTINT13_PU 44C5<> 59D5>
NC_RPT77P6
PMU_INT_L 28B5<> 44B5<>
RP100 10K 5% 1/16W SM1 NO_TEST
NC_CBUS_INT_L
PMU_INT_NMI 28B5<> 44C4<>
PMU_REQ_L 28C3> 44C2<
EXTINT14 28B5<>
RP110 10K 5% 1/16W SM1 NO_TEST
NC_RP2848
INT_GPIO12_PU 28B5<>
INT_GPIO1_PD 28C5<>
SND_HW_RESET_L 28B5<> 39B4<
R589 10K 1% 1/16W MF 402 USB2_CRUN_L_INT 28B5<> 32A8<
R680 10K 1% 1/16W MF 402 INT_MOD_DTI 28A3< 28C6<
RP66 10K 5% 1/16W SM1 NOSTUFF
INT_MOD_CLKOUT 28A3> 28C6<
INT_MOD_DTO 28A3> 28C6<
INT_MOD_BITCLK 28A3<> 28C6<
INT_MOD_SYNC 28A3<> 28C6<

(518S0104)
J23 U.FL-R_SMT F-ST-SM
CLK18M_INT_EXT
R666 0 5% 1/16W MF 402 NOSTUFF
R611 51 5% 1/16W MF 402 NOSTUFF
CLK18M_INT_XO
R672 10M 5% 1/16W MF 402 NOSTUFF
Y5 18.432M CRITICAL 8X4.5MM-SM
C784 27pF 5% 50V CERM 402
C840 27pF 5% 50V CERM 402
R711 0 5% 1/16W MF 402
R710 10K 1% 1/16W MF 402
CLK18M_INT_XIN
CLK18M_INT_XOUT
44C4> SYSTEM_CLK_EN
44C5> INT_WATCHDOG_L
NC_BRCLKO
INT_REF_CLK_IN_PD 53A6<

C713 C704 C703 C692 C229 0.1UF 20% 10V CERM 402
R630 R629 R628 R620 R565 4.7 5% 1/16W MF 402
C3005 C3004 C3003 C3002 C3001 0.1UF 20% 10V CERM 402
+1_5V_INTREPID_PLL8 52D3>
INT_PLL9_GND 28A4<>
+1_5V_INTREPID_PLL4 52D3>
INT_PLL7_GND 28A4<>
+1_5V_INTREPID_PLL3 52D3>
INT_PLL3_GND 28A4<>
+1_5V_INTREPID_PLL2 52D3>
INT_PLL2_GND 28A5<>
+1_5V_INTREPID_PLL1 52D3>
INT_PLL1_GND 28A5<>

U25 INTREPID BGA (6 OF 9) SEE_TABLE (ON PAGE 12)
PCI VDD15A_1 (PLL1) AA16
PCI VDD15A_2 (PLL2) AJ12
PCI VDD15A_3 (PLL3) AJ17
PCI VDD15A_7 (PLL7) AJ18
PCI VDD15A_8 (PLL9) AG29
VDDUI33_1 T8
VDDUI33_2 U8
+3V_INTREPID_USB 52A3>
L16 FERR-EMI-100-OHM SM
C785 0.01UF 20% 10V CERM 402
C795 0.1UF 20% 10V CERM 402
C820 4.7UF N20P80% 10V CERM 805
+3V_MAIN

GENERAL PURPOSE I/O'S
28D3< SNF_FSEL G5 GPIO0
28A8< INT_GPIO1_PD E1 GPIO1
59D5> 29D7<> 28D1< COMM_SHUTDOWN J7 GPIO2
59A7> 29D5<> COMM_RESET_L F2 GPIO3
36C8< FWPHYRST J8 GPIO4
41A7< SND_HP_MUTE_L H5 GPIO5
43C8< SND_AMP_MUTE_L L9 GPIO6
28B8< INT_GPIO9_PU H4 GPIO9
39B4< 28A8< SND_HW_RESET_L J5 GPIO11
28A8< INT_GPIO12_PU K8 GPIO12
59A5> 28C1< UNUSED_GPIO15 F1 GPIO15
35B8< 28D1< INT_ENET_RST_L K7 GPIO16

INTERRUPTS
59D5> 44C5> 29C5> 28B8< COMM_RING_DET_L F33 EXTINT0
44B5> 28B8< PMU_INT_L E34 EXTINT1
28B8< 17B6<> AGP_INT_L C33 EXTINT2
28B8< INT_EXTINT3_PU D34 EXTINT3
59B5> 40D4< SND_LIN_SENSE_L B33 EXTINT4
35B4> 28C1< ENET_ENERGY_DET A33 EXTINT5
33SLOTB_INT_L E31 EXTINT6
28B8<> UNUSED_EXTINT7 G30 EXTINT7
28B8<> UNUSED_EXTINT8 D31 EXTINT8
44C4<> 28A8< PMU_INT_NMI C32 EXTINT9
28D3< VCORE_VGATE B32 EXTINT10
32A8< 28A8< USB2_CRUN_L_INT E30 EXTINT11
28B8< INT_EXTINT12_PU J9 EXTINT12
28B8< INT_EXTINT13_PU F4 EXTINT13
28A8< EXTINT14 D1 EXTINT14
59B7> 41A5< SND_HP_SENSE_L E2 EXTINT15
42B8< SND_SPKR_ID H7 EXTINT16
32B6> 28B8< INT_EXTINT17_PU G4 EXTINT17
8D7<> 7A5< 4B3< MPIC_CPU_INT_L D38 CPU_INT
(USB2.0 IRQ)

PCIPME AN7
PROCSLEEPREQ AT6
PENDPROCINT AN8
59A5> 44B2<> 32A8< 31C2< PMU_PME_L
44B4<> INT_PROC_SLEEP_REQ_L
44B4<> INT_PEND_PROC_INT

CLOCKS
XTAL_IN U4
XTAL_OUT V15
STOPXTAL AN7
WATCHDOG AT7
BUF_REF_CLK_OUT U15
SS_REF_CLK_IN K9

USB
SCCTXDA AF9 COMM_TXD_L 29C7<> 59C5>
SCCRTSA AN3 COMM_RTS_L 29D5<> 59C5>
SCCDTRA AF10 COMM_DTR_L 29C7<> 59C5>
SCCRXDA AG11 COMM_RXD 29C5<> 59C5>
SCCGPIOA AG9 COMM_GPIO_L 28D3< 29C5<> 59C5>
VIA SCCTRXCA AT4 COMM_TRXC 28D3< 29C7<> 59C5>
MISO SCCTXDB AR4 PMU_FROM_INT 44C4<>
REQ* SCCTRSB AL5 PMU_REQ_L 28A8< 44C2<
MOSI SCCRXDB AG10 PMU_TO_INT 44C4<>
ACK* SCCGPIOB AP4 PMU_ACK_L 44C4<>
SCK SCCTRXCB AM5 PMU_CLK 44C4<>

USB_VD0_P L8 58B5> 28A3< USB_DAP 402 24 R724 USB1 USB_DAP_F 33B7< 58B5>
USB_VD0_N L7 58B5> 28A3< USB_DAN 402 24 R718 USB1 USB_DAN_F 33B7< 58B5>
USB_VD1_P G2 58B5> 28A3< USB_DBP 402 24 R736 USB1 USB_DBP_F 33C7< 58B5>
USB_VD1_N G1 58B5> 28A3< USB_DBN 402 24 R742 USB1 USB_DBN_F 33C7< 58B5>
USB_PRTPWR0 J4 USB_PWREN_AB_L 28C2<
USB_PWRFLT0 K4 USB_PWR_FLT* 28C1< 32B1< 33A7>
USB_VD2_P H2 58B5> 28A3< USB_DCP 402 24 R723 USB1 USB_DCP_F 33D7< 58B5>
USB_VD2_N H1 58B5> 28A3< USB_DCN 402 24 R728 USB1 USB_DCN_F 33D7< 58B5>
USB_VD3_P M7 USB_DDP 402 24 R694 USB_DDP_F_TERM
USB_VD3_N M8 USB_DDN 402 24 R691 USB_DDN_F_TERM
USB_PRTPWR1 J2 USB_PWREN_CD_L 28C2<
USB_PWRFLT1 J1
USB_VD4_P K5 58B5> USB_DEP 402 22 R762 BT_USB_DP 29D3<> 58B5> 59B5>
USB_VD4_N L5 58B5> USB_DEN 402 22 R763 BT_USB_DM 29D3<> 58A5> 59B5>
USB_VD5_P P8 58A5> USB_DFP 402 22 R271 MODEM_USB_DP 29C5<> 58A5> 59B5>
USB_VD5_N N8 58A5> USB_DFN 402 22 R272 MODEM_USB_DM 29C5<> 58A5> 59B5>
USB_PRTPWR2 M5 USB_PWREN_EF_L 28C2<
USB_PWRFLT2 N7 USB_OC_EF_L 28C2<

AUDIO/I2S
AUD_DTO R4 INT_SND_TO_AUDIO 47 4 RP108 SND_TO_AUDIO 39C4<
AUD_DTI R7 AUDIO_TO_SND RP108 AUDIO_TO_SND 39C1<
AUD_SYNC T5 INT_SND_SYNC 47 2 RP108 SND_SYNC 39C1<>
AUD_BITCLK P2 INT_SND_SCLK 47 3 RP108 SND_SCLK 39B1<>
AUD_CLKOUT R5 INT_SND_CLKOUT 47 1 RP108 SND_CLKOUT 39B4<
MOD_DTO R2 INT_MOD_DTO 28A8< 28C6<
MOD_DTI T4 INT_MOD_DTI 28A8< 28C6<
MOD_SYNC R1 INT_MOD_SYNC 28A8< 28C6<
MOD_BITCLK V8 INT_MOD_BITCLK 28A8< 28C6<
MOD_CLKOUT P1 INT_MOD_CLKOUT 28A8< 28C6<
R3001 R3002 R650 R651 R660 15K 5% 1/16W MF 402
R683 10K 1% 1/16W MF 402

IIC
IICCLK_2 AL4 INT_I2C_CLK2 28D1< 29C7<> 34B5< 39B1<> 59A7>
IICDATA_2 AH8 INT_I2C_DATA2 28D1< 29C7<> 34B5< 39B1<> 59A7>

58B5> 28B3<> USB_DAP 402 15K R305 USB2
58B5> 28B3<> USB_DAN 402 15K R396 USB2
58B5> 28B3<> USB_DBP 402 15K R247 USB2
58B5> 28B3<> USB_DBN 402 15K R398 USB2
58B5> 28B3<> USB_DCP 402 15K R333 USB2
58B5> 28B3<> USB_DCN 402 15K R493 USB2

VSSA1 (PLL1) AA15
VSSA2 (PLL2) AJ13
VSSA3 (PLL3) AJ16
VSSA4 (PLL7) AK18
VSSA_8 (PLL9) AH20
VSSU_1 R9
VSSU_2 R8
XW42 XW43 XW44 XW45 XW46 SM
28C4< INT_PLL1_GND NO_TEST
28D4< INT_PLL2_GND NO_TEST
NO_TEST INT_PLL9_GND 28D4<
NO_TEST INT_PLL7_GND 28D4<
NO_TEST INT_PLL3_GND 28D4<

I2C 2 PULL-UPS
+3V_MAIN
RP39 10K 5% 1/16W SM1
NC_RPT48P1 NO_TEST
59C5> 29C5<> 28C3<> COMM_GPIO_L
NC_RP3319 NO_TEST
59C5> 29C7<> 28C3<> COMM_TRXC
28C5<> SNF_FSEL
28B5<> VCORE_VGATE
R755 1K 1% 1/16W MF 402
R756 10K 1% 1/16W MF 402
59A7> 39B1<> 34B5< 29C7<> 28A3<> INT_I2C_CLK2
39B1<> 34B5< 29C7<> 28A3<> 59A7> INT_I2C_DATA2
R264 R641 4.7K 5% 1/16W MF 402
RP117 10K 5% 1/16W SM1
59D5> 29D7<> 28C5<> COMM_SHUTDOWN
35B8< 28B5<> INT_ENET_RST_L
35B4> 28B5<> ENET_ENERGY_DET
NC_RP3324_2 NO_TEST
33A7> 32B1< 28B3< USB_PWR_FLT*
R1005 10K 1% 1/16W MF 402

USB PULL-UPS
+3V_MAIN
RP60 10K 5% 1/16W SM1
28B3< USB_OC_EF_L
28B3<> USB_PWREN_CD_L
28B3<> USB_PWREN_AB_L
28B3<> USB_PWREN_EF_L

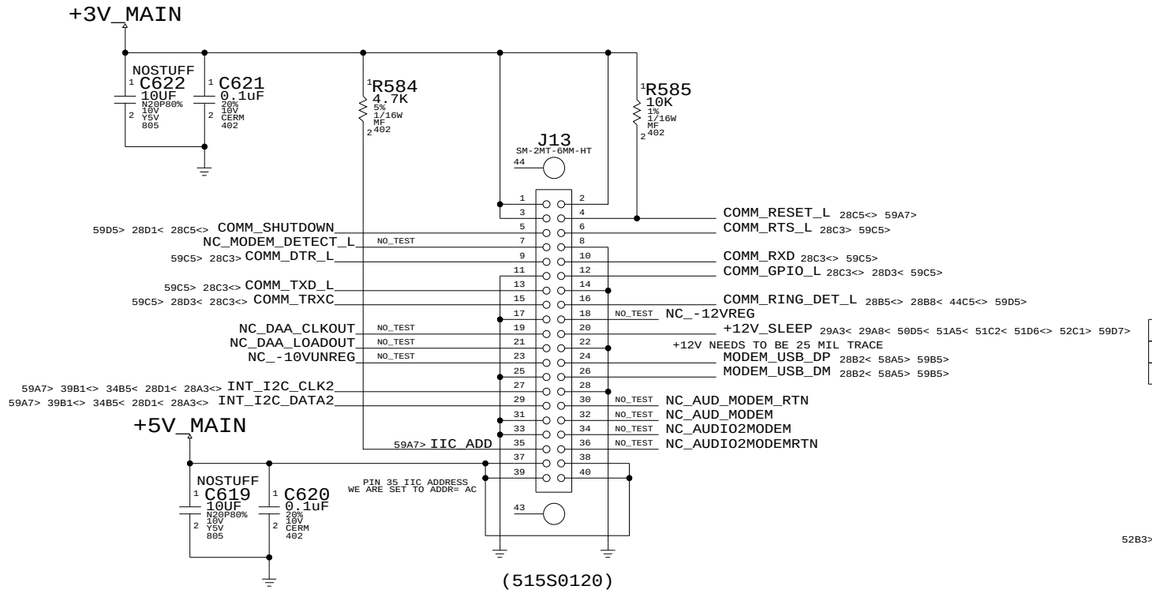
+3V_MAIN
R294 10K 1% 1/16W MF 402
59A5> 28B5<> UNUSED_GPIO15
R267 10K 1% 1/16W MF 402 NOSTUFF

INTREPID GPIO/ SCC/USB/I2S

APPLE COMPUTER INC.
SIZE D | DRAWING NUMBER 051-6569 | REV. A
SCALE NONE | SHT 28 OF 69
DRAWING

MODEM BOARD CONNECTOR

(DASH II)



(515S0120)

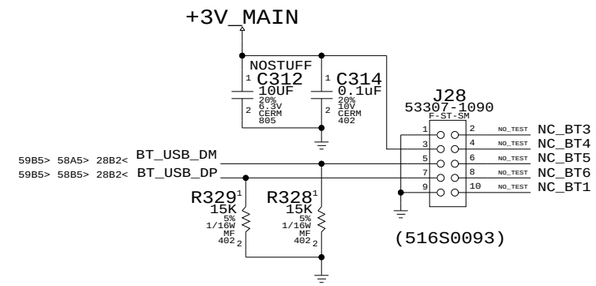
BS2 STDOFF-1970D-236H-TH NC_BS1 NO_TEST

BS1 STDOFF-1970D-236H-TH NC_BS2 NO_TEST

MODEM STANDOFF SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
860-1034	2	STDOFF-19709-236H-TH	BS1,BS2		

BLUETOOTH CONNECTOR



BS3 STDOFF-1970D-236H-TH NC_BS3 NO_TEST

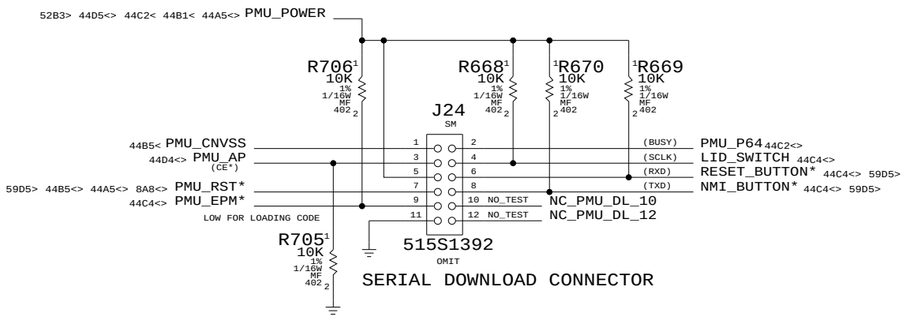
BS4 STDOFF-1970D-236H-TH NC_BS4 NO_TEST

BS4 SHORTEST STANDOFF FURTHEST FROM J28

BLUETOOTH CARD MOUNTING HARDWARE SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
860-0170	1	STDOFF,BLUETOOTH,SHORT	BS4		
860-0171	1	STDOFF,BLUETOOTH,LONG	BS3		

SERIAL DOWNLOAD INTERFACE

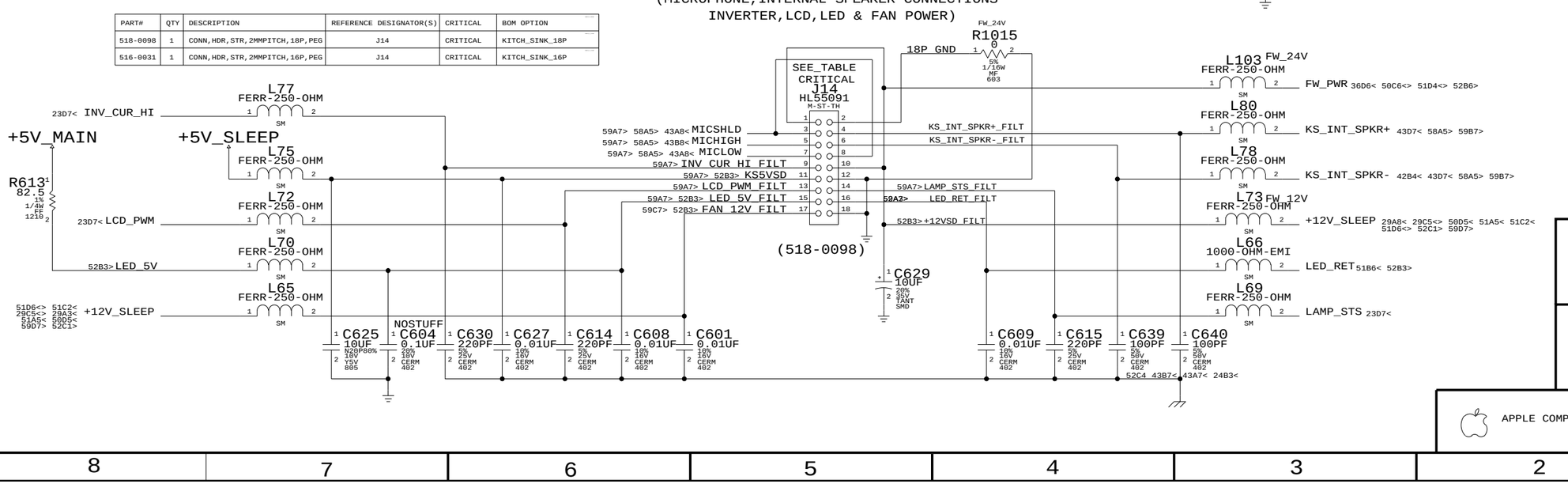


SERIAL DOWNLOAD CONNECTOR

'KITCHEN SINK' CONNECTOR

(MICROPHONE,INTERNAL SPEAKER CONNECTIONS
INVERTER,LCD,LED & FAN POWER)

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
518-0098	1	CONN,HDR,STR,2MMPITCH,18P,PEG	J14	CRITICAL	KITCH_SINK_18P
516-0031	1	CONN,HDR,STR,2MMPITCH,16P,PEG	J14	CRITICAL	KITCH_SINK_16P



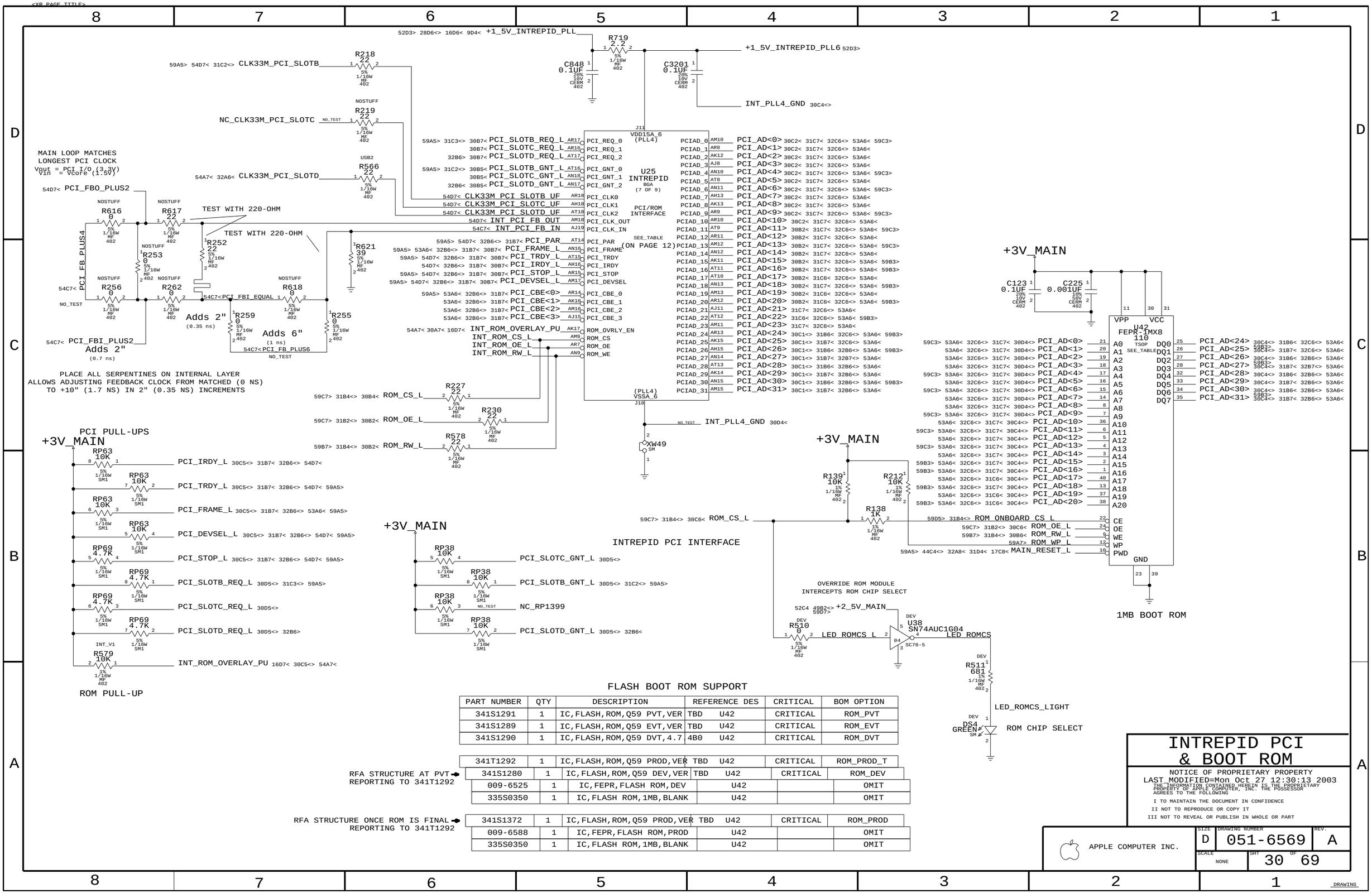
MODEM, BLUETOOTH, KITCHEN SINK & SERIAL DOWNLOAD

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 29 OF 69	

DRAWING

<XR_PAGE_TITLE>



FLASH BOOT ROM SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
341S1291	1	IC,FLASH,ROM,Q59 PVT,VER	TBD U42	CRITICAL	ROM_PVT
341S1289	1	IC,FLASH,ROM,Q59 EVT,VER	TBD U42	CRITICAL	ROM_EVT
341S1290	1	IC,FLASH,ROM,Q59 DVT,4.7	4B0 U42	CRITICAL	ROM_DVT
341T1292	1	IC,FLASH,ROM,Q59 PROD,VER	TBD U42	CRITICAL	ROM_PROD_T
341S1280	1	IC,FLASH,ROM,Q59 DEV,VER	TBD U42	CRITICAL	ROM_DEV
009-6525	1	IC,FEPR,FLASH ROM,DEV	U42		OMIT
335S0350	1	IC,FLASH ROM,1MB,BLANK	U42		OMIT

RFA STRUCTURE AT PVT
REPORTING TO 341T1292

341S1372	1	IC,FLASH,ROM,Q59 PROD,VER	TBD U42	CRITICAL	ROM_PROD
009-6588	1	IC,FEPR,FLASH ROM,PROD	U42		OMIT
335S0350	1	IC,FLASH ROM,1MB,BLANK	U42		OMIT

RFA STRUCTURE ONCE ROM IS FINAL
REPORTING TO 341T1292

INTREPID PCI & BOOT ROM

LAST_MODIFIED=Mon Oct 27 12:30:13 2003

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE	SHT OF
NONE	30 69

DRAWING

PLACE RP'S NEAR WIRELESS CONNECTOR

RP77 33 5% 1/16W SM1

59C3> 53A6< 32C6<> 30D4<> 30C2<	PCI_AD<0>	1	8		PCIT_AD<0> 31B2<> 54C7<
53A6< 32C6<> 30D4<> 30C2<	PCI_AD<1>	2	7	NO_TEST	PCIT_AD<1> 31B3<> 54C7< 59C3>
53A6< 32C6<> 30D4<> 30C2<	PCI_AD<2>	3	6	NO_TEST	PCIT_AD<2> 31B2<> 54C7< 59C3>
53A6< 32C6<> 30D4<> 30C2<	PCI_AD<3>	4	5	NO_TEST	PCIT_AD<3> 31B3<> 54C7< 59C3>

RP75 33 5% 1/16W SM1

59C3> 53A6< 32C6<> 30D4<> 30C2<	PCI_AD<4>	1	8		PCIT_AD<4> 31B2<> 54C7<
53A6< 32C6<> 30D4<> 30C2<	PCI_AD<5>	2	7	NO_TEST	PCIT_AD<5> 31B3<> 54C7< 59C3>
59C3> 53A6< 32C6<> 30D4<> 30C2<	PCI_AD<6>	3	6	NO_TEST	PCIT_AD<6> 31B2<> 54C7<
53A6< 32C6<> 30D4<> 30C2<	PCI_AD<7>	4	5		PCIT_AD<7> 31B3<> 54C7< 59C3>

RP73 33 5% 1/16W SM1

53A6< 32C6<> 30D4<> 30C2<	PCI_AD<8>	1	8		PCIT_AD<8> 31B3<> 54C7< 59C3>
59C3> 53A6< 32C6<> 30D4<> 30C2<	PCI_AD<9>	2	7	NO_TEST	PCIT_AD<9> 31B2<> 54C7<
53A6< 32C6<> 30C4<> 30C2<	PCI_AD<10>	3	6	NO_TEST	PCIT_AD<10> 31B3<> 54C7< 59C3>
59C3> 53A6< 32C6<> 30C4<> 30B2<	PCI_AD<11>	4	5	NO_TEST	PCIT_AD<11> 31B2<> 54C7<

RP72 33 5% 1/16W SM1

53A6< 32C6<> 30C4<> 30B2<	PCI_AD<12>	1	8		PCIT_AD<12> 31B3<> 54C7< 59C3>
59C3> 53A6< 32C6<> 30C4<> 30B2<	PCI_AD<13>	2	7	NO_TEST	PCIT_AD<13> 31B2<> 54C7<
53A6< 32C6<> 30C4<> 30B2<	PCI_AD<14>	3	6	NO_TEST	PCIT_AD<14> 31C3<> 54C7< 59B3>
59B3> 53A6< 32C6<> 30C4<> 30B2<	PCI_AD<15>	4	5	NO_TEST	PCIT_AD<15> 31C2<> 54C7<

RP59 33 5% 1/16W SM1

59B3> 53A6< 32C6<> 30C4<> 30B2<	PCI_AD<16>	1	8		PCIT_AD<16> 31C2<> 54C7<
59B3> 54C7< 31C3<>	PCIT_AD<17>	2	7		PCI_AD<17> 30B2< 30C4<> 32C6<> 53A6<
59B3> 53A6< 32C6<> 30C4<> 30B2<	PCI_AD<18>	3	6		PCIT_AD<18> 31C2<> 54C7<
59B3> 54C7< 31C3<>	PCIT_AD<19>	4	5		PCI_AD<19> 30B2< 30C4<> 32C6<> 53A6<

RP58 33 5% 1/16W SM1

53A6< 32C6<> 30C4<>	PCI_AD<23>	1	8		PCIT_AD<23> 31C3<> 54C7< 59B3>
53A6< 32C6<> 30C4<>	PCI_AD<21>	2	7		PCIT_AD<21> 31C3<> 54C7< 59B3>
54C7< 31C2<>	PCIT_AD<22>	3	6		PCI_AD<22> 30C4<> 32C6<> 53A6< 59B3>
54C7< 31C2<>	PCIT_AD<20>	4	5		PCI_AD<20> 30B2< 30C4<> 32C6<> 53A6< 59B3>

RP56 33 5% 1/16W SM1

53A6< 32B7<> 30C4<> 30C1<>	PCI_AD<27>	1	8		PCIT_AD<27> 31C3<> 54C7< 59B3>
53A6< 32C6<> 30C4<> 30C1<>	PCI_AD<25>	2	7		PCIT_AD<25> 31C3<> 54C7< 59B3>
54C7< 31C2<>	PCIT_AD<26>	3	6		PCI_AD<26> 30C1<> 30C4<> 32B6<> 53A6< 59B3>
54C7< 31C2<>	PCIT_AD<24>	4	5		PCI_AD<24> 30C1<> 30C4<> 32C6<> 53A6< 59B3>

RP54 33 5% 1/16W SM1

59B3> 54C7< 31C2<>	PCIT_AD<28>	1	8		PCI_AD<28> 30C1<> 30C4<> 32B6<> 53A6<
54C7< 31C2<>	PCIT_AD<30>	2	7		PCI_AD<30> 30C1<> 30C4<> 32B6<> 53A6< 59B3>
53A6< 32B6<> 30C4<> 30C1<>	PCI_AD<31>	3	6	NO_TEST	PCIT_AD<31> 31C3<> 54C7< 59B3>
53A6< 32B6<> 30C4<> 30C1<>	PCI_AD<29>	4	5	NO_TEST	PCIT_AD<29> 31C3<> 54C7< 59B3>

RP61 33 5% 1/16W SM1

59A5> 54D7< 32B6<> 30C5<>	PCI_PAR	1	8		PCIT_PAR 31C2<> 54C7<
59A5> 53A6< 32B6<> 30C5<> 30B7<	PCI_FRAME_L	2	7	NO_TEST	PCIT_FRAME_L 31C2<> 54C7<
59A5> 54D7< 32B6<> 30C5<> 30B7<	PCI_TRDY_L	3	6	NO_TEST	PCIT_TRDY_L 31C2<> 54C7<
54D7< 32B6<> 30C5<> 30B7<	PCI_IRDY_L	4	5	NO_TEST	PCIT_IRDY_L 31C3<> 54C7< 59B5>

RP67 33 5% 1/16W SM1

59A5> 54D7< 32B6<> 30C5<> 30B7<	PCI_STOP_L	1	8		PCIT_STOP_L 31C2<> 54C7<
59A5> 54D7< 32B6<> 30C5<> 30B7<	PCI_DEVSEL_L	2	7	NO_TEST	PCIT_DEVSEL_L 31C2<> 54C7<
53A6< 32B6<> 30C5<>	PCI_CBE<1>	3	6	NO_TEST	PCIT_CBE<1> 31C3<> 54C7< 59A5>
59A5> 53A6< 32B6<> 30C5<>	PCI_CBE<0>	4	5	NO_TEST	PCIT_CBE<0> 31B2<> 54C7<

RP64 33 5% 1/16W SM1

53A6< 32B6<> 30C5<>	PCI_CBE<2>	1	8		PCIT_CBE<2> 31C3<> 54C7< 59A5>
53A6< 32B6<> 30C5<>	PCI_CBE<3>	2	7	NO_TEST	PCIT_CBE<3> 31C3<> 54C7< 59A5>
	NC_PCIR0	NO_TEST 3	6	NO_TEST	NC_PCITR0
	NC_PCIR1	NO_TEST 4	5	NO_TEST	NC_PCITR1

+3V_MAIN

C250 10UF N20P80% 10V Y5V 805

NOSTUFF C260 10UF N20P80% 10V Y5V 805

C259 0.01UF 10% 16V CERM 402

C249 0.1UF 20% 10V CERM 402

+3V_MAIN

NOSTUFF R949 10K 1% 1/16W MF 402

NOSTUFF R950 10K 1% 1/16W MF 402

+3V_MAIN

59A5> 44C4<> 32A8< 30B2< 17C8< MAIN_RESET_L — R948 0 5% 1/16W MF 402 — MAIN_RESET_L_PU

RF_DISABLE_L

59A5> 30D5<> 30B7< PCI_SLOTB_REQ_L

J25 EDGE-SOCKET-UP F-RT-SM-4MM

TOP_CONTACTS		BOT_CONTACTS	
	1	2	CLK33M_PCI_SLOTB 30D7< 54D7< 59A5>
	3	4	PCI_SLOTB_GNT_L 30B5< 30D5<> 59A5>
	5	6	
	7	8	R951 0 NOSTUFF 5% 1/16W 2 MF 402
59B3> 54C7< 31B6< PCIT_AD<31>	9	10	PMU_PME_LL PMU_PME_L 28B5<> 32A8< 44B2<> 59A5>
	11	12	
59B3> 54C7< 31B6< PCIT_AD<29>	13	14	33SLOTB_INT_L 28B7<> 59A5>
59B3> 54C7< 31B6< PCIT_AD<27>	15	16	PCIT_AD<30> 31B7< 54C7<
59B3> 54C7< 31B6< PCIT_AD<25>	17	18	PCIT_AD<28> 31B7< 54C7< 59B3>
	19	20	PCIT_AD<26> 31B7< 54C7<
59A5> 54C7< 31B6< PCIT_CBE<3>	21	22	PCIT_AD<24> 31B7< 54C7<
	23	24	WL_PCI_IDSEL 59A5>
59B3> 54C7< 31C6< PCIT_AD<23>	25	26	
59B3> 54C7< 31C6< PCIT_AD<21>	27	28	PCIT_AD<22> 31C7< 54C7<
59B3> 54C7< 31C7< PCIT_AD<19>	29	30	PCIT_AD<20> 31C7< 54C7<
	31	32	PCIT_PAR 31B6< 54C7<
59B3> 54C7< 31C7< PCIT_AD<17>	33	34	PCIT_AD<18> 31C6< 54C7<
	35	36	PCIT_AD<16> 31C6< 54C7<
59A5> 54C7< 31B6< PCIT_CBE<2>	37	38	
59B5> 54C7< 31B6< PCIT_IRDY_L	39	40	PCIT_FRAME_L 31B6< 54C7<
	41	42	PCIT_TRDY_L 31B6< 54C7<
59B5> RF_CLKRUN_L	43	44	PCIT_STOP_L 31B6< 54C7<
	45	46	PCIT_DEVSEL_L 31B6< 54C7<
59A5> 54C7< 31B6< PCIT_CBE<1>	47	48	
59B3> 54C7< 31C6< PCIT_AD<14>	49	50	PCIT_AD<15> 31C6< 54C7<
	51	52	PCIT_AD<13> 31C6< 54C7<
59C3> 54C7< 31C6< PCIT_AD<12>	53	54	PCIT_AD<11> 31C6< 54C7<
59C3> 54C7< 31C6< PCIT_AD<10>	55	56	
	57	58	PCIT_AD<9> 31C6< 54C7<
59C3> 54C7< 31C6< PCIT_AD<8>	59	60	PCIT_CBE<0> 31B6< 54C7<
59C3> 54C7< 31C6< PCIT_AD<7>	61	62	ROM_OE_L 30B2< 30C6< 59C7>
	63	64	PCIT_AD<6> 31C6< 54C7<
59C3> 54C7< 31C6< PCIT_AD<5>	65	66	
	67	68	PCIT_AD<4> 31C6< 54C7<
59C3> 54C7< 31C6< PCIT_AD<3>	69	70	PCIT_AD<2> 31C6< 54C7< 59C3>
	71	72	PCIT_AD<0> 31C6< 54C7<
59C3> 54C7< 31C6< PCIT_AD<1>	73	74	
	75	76 NO_TEST	NC_USB_M
NC_WL<1> NO_TEST	77	78 NO_TEST	NC_USB_P
NC_WL<3> NO_TEST	79	80	
NC_WL<5> NO_TEST	81	82 NO_TEST	NC_WL<2>
NC_WL<7> NO_TEST	83	84 NO_TEST	NC_WL<4>
NC_WL<9> NO_TEST	85	86 NO_TEST	NC_WL<6>
NC_WL<11> NO_TEST	87	88 NO_TEST	NC_WL<8>
NC_WL<13> NO_TEST	89	90 NO_TEST	NC_WL<10>
NC_WL<15> NO_TEST	91	92 NO_TEST	NC_WL<12>
NC_WL<17> NO_TEST	93	94 NO_TEST	NC_WL<14>
NC_WL<19> NO_TEST	95	96 NO_TEST	NC_WL<16>
NC_WL<21> NO_TEST	97	98 NO_TEST	NC_WL<18>
NC_WL<23> NO_TEST	99	100 NO_TEST	NC_WL<20>

R285 22 5% 1/16W MF 402

R293 10K 1% 1/16W MF 402

59B7> 30B6< 30B2< ROM_RW_L

59D5> 30B2< ROM_ONBOARD_CS_L

59C7> 30C6< 30B4< ROM_CS_L

(516S0046)

WIRELESS CARD MOUNTING HARDWARE SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
815-7245	1	WIRELESS CARD GUIDE,J25	J251		
452-0411	2	NUT,HEX,M2 X 1.5H, J25	J252,J253		
452-0412	2	SCREW,M2 X 0.4 X 6.0 L,J25	J254,J255		

WIRELESS PCI

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 31 OF 69	

DRAWING

+3V_MAIN

USB2 C519 0.1UF 20% 10V CERM 402
USB2 C522 0.1UF 20% 10V CERM 402
USB2 C527 0.1UF 20% 10V CERM 402
USB2 C547 0.1UF 20% 10V CERM 402
USB2 C523 0.1UF 20% 10V CERM 402
USB2 C541 0.1UF 20% 10V CERM 402
USB2 C548 0.1UF 20% 10V CERM 402
USB2 C555 0.1UF 20% 10V CERM 402
USB2 C559 0.1UF 20% 10V CERM 402
USB2 C546 0.1UF 20% 10V CERM 402
USB2 C516 0.1UF 20% 10V CERM 402
USB2 C537 0.1UF 20% 10V CERM 402
USB2 C536 0.1UF 20% 10V CERM 402
USB2 C515 0.1UF 20% 10V CERM 402
USB2 C570 0.1UF 20% 10V CERM 402
USB2 C530 0.1UF 20% 10V CERM 402
NOSTUFF C517 10UF N20P80% 10V Y5V 805
USB2 C573 10UF N20P80% 10V Y5V 805
NOSTUFF C574 10UF N20P80% 10V Y5V 805
USB2 C531 10UF N20P80% 10V Y5V 805

+3V_MAIN

USB2 L58 100-OHM-EMI SM

52A3> NEC_AVDD

USB2 C526 0.1UF 20% 10V CERM 402
USB2 C529 0.1UF 20% 10V CERM 402
USB2 C511 10UF N20P80% 10V Y5V 805

NOSTUFF R89 100K 1% 1/16W MF 402

NEC_XT2_B

Y7 30.0000M CRITICAL 8X4.5MM-SM USB2

USB2 C77 10PF 5% 50V CERM 402
USB2 C114 10PF 5% 50V CERM 402
USB2 R129 100 1% 1/16W MF 402

59C3> 53A6< 31C7< 30D4<> 30C2<	PCI_AD<0>	M5	AD0		
53A6< 31C7< 30D4<> 30C2<	PCI_AD<1>	P5	AD1		
53A6< 31C7< 30D4<> 30C2<	PCI_AD<2>	N5	AD2		
53A6< 31C7< 30D4<> 30C2<	PCI_AD<3>	P4	AD3		
59C3> 53A6< 31C7< 30D4<> 30C2<	PCI_AD<4>	N4	AD4		
53A6< 31C7< 30D4<> 30C2<	PCI_AD<5>	M3	AD5		
59C3> 53A6< 31C7< 30D4<> 30C2<	PCI_AD<6>	N3	AD6		
53A6< 31C7< 30D4<> 30C2<	PCI_AD<7>	M1	AD7		
53A6< 31C7< 30D4<> 30C2<	PCI_AD<8>	L2	AD8		
59C3> 53A6< 31C7< 30D4<> 30C2<	PCI_AD<9>	L1	AD9		
53A6< 31C7< 30C4<> 30C2<	PCI_AD<10>	K2	AD10		
59C3> 53A6< 31C7< 30C4<> 30B2<	PCI_AD<11>	L3	AD11		
53A6< 31C7< 30C4<> 30B2<	PCI_AD<12>	K1	AD12		
59C3> 53A6< 31C7< 30C4<> 30B2<	PCI_AD<13>	K3	AD13		
53A6< 31C7< 30C4<> 30B2<	PCI_AD<14>	J2	AD14		
59B3> 53A6< 31C7< 30C4<> 30B2<	PCI_AD<15>	J1	AD15		
59B3> 53A6< 31C7< 30C4<> 30B2<	PCI_AD<16>	F2	AD16		
53A6< 31C6< 30C4<> 30B2<	PCI_AD<17>	E3	AD17		
59B3> 53A6< 31C7< 30C4<> 30B2<	PCI_AD<18>	E1	AD18		
53A6< 31C6< 30C4<> 30B2<	PCI_AD<19>	D3	AD19		
59B3> 53A6< 31C6< 30C4<> 30B2<	PCI_AD<20>	D1	AD20		
53A6< 31C7< 30C4<>	PCI_AD<21>	D2	AD21		
59B3> 53A6< 31C6< 30C4<>	PCI_AD<22>	C2	AD22		
53A6< 31C7< 30C4<>	PCI_AD<23>	C1	AD23		
59B3> 53A6< 31B6< 30C4<> 30C1<>	PCI_AD<24>	B4	AD24		
53A6< 31B7< 30C4<> 30C1<>	PCI_AD<25>	A4	AD25		
59B3> 53A6< 31B6< 30C4<> 30C1<>	PCI_AD<26>	B5	AD26		
53A6< 31B7< 30C4<> 30C1<> PCI_AD<27>		C4	AD27		
53A6< 31B6< 30C4<> 30C1<>	PCI_AD<28>	A5	AD28		
53A6< 31B7< 30C4<> 30C1<>	PCI_AD<29>	C5	AD29		
59B3> 53A6< 31B6< 30C4<> 30C1<>	PCI_AD<30>	B6	AD30		
53A6< 31B7< 30C4<> 30C1<>	PCI_AD<31>	A6	AD31		
59A5> 53A6< 31B7< 30C5<>	PCI_CBE<0>	M2	CBE0		
53A6< 31B7< 30C5<>	PCI_CBE<1>	J3	CBE1		
53A6< 31B7< 30C5<>	PCI_CBE<2>	F1	CBE2		
53A6< 31B7< 30C5<>	PCI_CBE<3>	C3	CBE3		
59A5> 54D7< 31B7< 30C5<>	PCI_PAR	J4	PAR		
59A5> 53A6< 31B7< 30C5<> 30B7<	PCI_FRAME_L	F3	FRAME		
54D7< 31B7< 30C5<> 30B7<	PCI_IRDY_L	F4	IRDY		
59A5> 54D7< 31B7< 30C5<> 30B7<	PCI_TRDY_L	G1	TRDY		
59A5> 54D7< 31B7< 30C5<> 30B7<	PCI_STOP_L	G3	STOP		
	USB2_IDSEL	B3	IDSEL		
59A5> 54D7< 31B7< 30C5<> 30B7<	PCI_DEVSEL_L	G2	DEVSEL		
30D5<> 30B7<	PCI_SLOTD_REQ_L	C6	REQ		
30D5<> 30B5<	PCI_SLOTD_GNT_L	D6	GNT		
	PCI_SLOTD_PERR_L	H2	PERR		
	33PCI_SLOTD_SERR_L	H1	SERR	OD	
28B8< 28B5<>	INT_EXTINT17_PU	C7	INTA	OD	
		B7	INTB	OD	
		A7	INTC	OD	
54A7< 30D7<	CLK33M_PCI_SLOTD	A8	PCLK		
59A7> 44D3< 44B8<> 35B8<	IO_RESET_L	B8	VBBRST		STARTUP & RESTARTS
	USB2_CRUN_L	N6	CRUN		
	USB2_PME_L	D9	PME	OD	
		C9	VCCRST		STARTUP, RESTARTS, WAKEUP
	NC_USB2_SMI_L	L6	SMI	OD	
		L7	LEGC		

H3 M4 C8 P2 P3 P12 A13 A12 A3 E2 N8 L13 J13 H13 F13 D13 G12 H4 D7 — VDD — VDD_PCI

N10 N12 — AVDD

USB2

U11
NEC_UPD720101_USB2
FBGA

CRITICAL

VSS: B1 N1 P10 N14 H14 B14 A2 B2 N2 M13 B13 M11 L12 H12 D12 G4 J11 F11 D8

XT1/SCLK	L9	56B3>	USB2_XT1
XT2	P8	56B3>	USB2_XT2
RSDM1	M14	56B3>	USB2_RSDAM
DM1	M13		USB2_DAN_F
DP1	L14		USB2_DAP_F
RSDP1	K13	56B3>	USB2_RSDAP
RSDM2	K14	56B3>	USB2_RSDBM
DM2	K12		USB2_DBN_F
DP2	J14		USB2_DBP_F
RSDP2	J12	56B3>	USB2_RSDBP
RSDM3	H11	56B3>	USB2_RSDCM
DM3	G11		USB2_DCN_F
DP3	G13		USB2_DCP_F
RSDP3	G14	56B3>	USB2_RSDCP
RSDM4	F12		NC_USB2_RSDEM
DM4	F14		
DP4	E12		
RSDP4	E14		NC_USB2_RSDEP
RSDM5	E13		NC_USB2_RSDFM
DM5	D14		
DP5	C13		
RSDP5	C14		NC_USB2_RSDFP
56B3> RREF	P11		USB2_RREF
OCI1	B12		USB_PWR_FLT*
OCI2	B11		
OCI3	B10		
OCI4	A10		U_USB_PWR_FLT*
OCI5	B9		
PPON1	C12		NC_USB2_PPON1
PPON2	A11		NC_USB2_PPON2
PPON3	C11		NC_USB2_PPON3
PPON4	C10		NC_USB2_PPON4
PPON5	A9		NC_USB2_PPON5
NC1	P6		USB2_NC1
NC2	M6		USB2_NC2
NTEST1	M8		NC_USB2_NTEST1
SMC	M7		NC_USB2_SMC
TEB	N7		NC_USB2_TEB
AMC	P7		NC_USB2_AMC
TEST	L8		NC_USB2_TEST
NANDTEST	M10		NC_USB2_NANDTEST
SRCLK	M9		NC_USB2_SRCLK
SRDTA	N9		NC_USB2_SRDTA
SRMOD	P9		NC_USB2_SRMOD
AVSS			

AVSS(R): N11 P13 M12

USB2 R464 35.7 1% 1/16W MF 402 — USB2_DAN_F 33B7< 56B3>
USB2 R465 35.7 — USB2_DAP_F 33B7< 56B3>
USB2 R466 35.7 — USB2_DBN_F 33C7< 56B3>
USB2 R467 35.7 — USB2_DBP_F 33C7< 56B3>
USB2 R468 35.7 — USB2_DCN_F 33D7< 56B3>
R469 35.7 — USB2_DCP_F 33D7< 56B3>

OVERLAP STUFFING OF 35.7OHMS HERE WITH 0OHMS ON SH31 TO MINIMIZE STUBS

USB2 R476 9.09K 1% 1/16W MF 402 — TIED TO BALL N11

+3V_MAIN

USB2 R480 4.7K 5% 1/16W MF 402

USB_PWR_FLT* 28B3< 28C1< 33A7>

+3V_MAIN

USB2 R470 2.2K 5% 1/16W MF 402
USB2 R490 2.2K 5% 1/16W MF 402

+3V_MAIN

USB2 R127 4.7K 5% 1/16W MF 402
USB2 R128 4.7K 5% 1/16W MF 402
USB2 R494 22 5% 1/16W MF 402

USB2 R484 0 5% 1/16W 402

44B2<> 31C2< 28B5<> 59A5> PMU_PME_L

NOSTUFF R373 0 5% 1/16W 402

28B5<> 28A8< USB2_CRUN_L_INT

R78 1K 1% 1/16W MF 402

+3V_MAIN

R1029 4.7K 5% 1/16W MF 402 D3_HOT

D3_COLD R1028 0 5% 1/16W MF 402

44C4<> 31D4< 30B2< 17C8< 59A5> MAIN_RESET_L

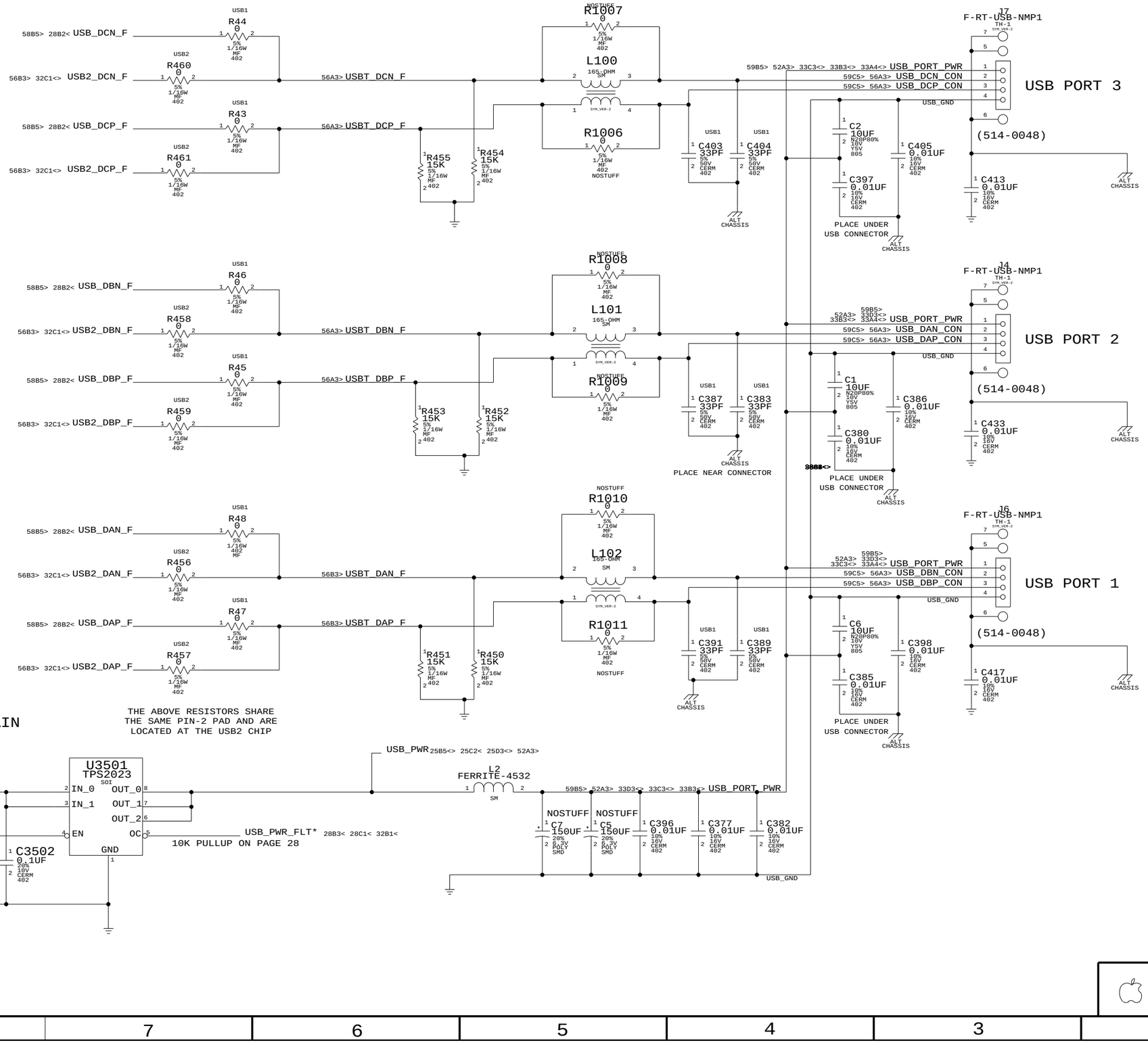
USB2_VCCRST

USB2 CONTROLLER

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 32 OF 69	

DRAWING



USB CONNS & PWR

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 33 OF 69	

DRAWING

CLKENET_LINK_TX 35C8< 57C5>

R307 33 5% 1/16W MF 402
57C5> 35C6< ENET_PHY_TX_EN — 57C5> ENET_LINK_TX_EN

R303 33 5% 1/16W MF 402
57C5> 35C6< ENET_PHY_TX_ER — 57C5> ENET_LINK_TX_ER

RP70 33 1/16W 5% SM1
57C5> 35C6<> ENET_PHY_TXD<0> — 57C5> ENET_LINK_TXD<0>
57C5> 35C6<> ENET_PHY_TXD<1> — 57C5> ENET_LINK_TXD<1>
57C5> 35C6<> ENET_PHY_TXD<2> — 57C5> ENET_LINK_TXD<2>
57C5> 35C6<> ENET_PHY_TXD<3> — 57C5> ENET_LINK_TXD<3>

RP76 33 1/16W 5% SM1
ENET_LINK_RXD<4>
ENET_LINK_RXD<5>
ENET_LINK_RXD<6>
ENET_LINK_RXD<7>

R714 1K 1% 1/16W MF 402

C92 47PF 5% 50V CERM 402 NOSTUFF

U25 INTREPID BGA (4 OF 9) — SEE_TABLE (ON PAGE 12)

TX_CLK	H9		
TX_EN	A7		
TX_ER	A5		
TXD_0	H10		
TXD_1	E9		
TXD_2	D8		
TXD_3	A6		
TXD_4	B7	NC_ENET_LINK_TXD<4>	
TXD_5	G10	NC_ENET_LINK_TXD<5>	
TXD_6	D9	NC_ENET_LINK_TXD<6>	
TXD_7	E10	NC_ENET_LINK_TXD<7>	
RX_CLK	J12	57C5> 35C8< CLKENET_LINK_RX	
RX_DV	C4	57B5> 35B8< ENET_RX_DV	
RX_ER	D2	57B5> 35B8< ENET_RX_ER	
RXD_0	D3	57B5> 35C8< ENET_LINK_RXD<0>	
RXD_1	E7	57B5> 35C8< ENET_LINK_RXD<1>	
RXD_2	D6	57B5> 35C8< ENET_LINK_RXD<2>	
RXD_3	B4	57B5> 35B8< ENET_LINK_RXD<3>	
RXD_4	A4	ENET_LINK_RXD<4>	
RXD_5	D7	ENET_LINK_RXD<5>	
RXD_6	G9	ENET_LINK_RXD<6>	
RXD_7	E8	ENET_LINK_RXD<7>	
GBE_REFCLK	L13	CLKENET_LINK_GBE_REF	
GTX_CLK	H12	NC_CLKENET_LINK_GTX	
CRS	E6	57B5> 35B8< ENET_CRS	
COL	C5	57B5> 35B8< ENET_COL	
MDIO	B5	35A8<> ENET_MDIO	
MDC	B6	35B6< ENET_MDC	
TDI	AK8	59D7> 28C6< 8A4<> JTAG_ASIC_TDI	
TDO	AT5	35B3< 28C6< JTAG_INTRP_TDO	
TCK	AP5	59D7> 35C4< 8A4<> JTAG_ASIC_TCK	
TMS	AR5	59D7> 35B4<> 35A2< 8A4<> JTAG_ASIC_TMS	
TRSTN	AN6	59C7> 8A4<> JTAG_ASIC_TRST_L	
TEI	AH10	34C1< INT_JTAG_TEI	
TST_MONIN	AM7	34C1< INT_TST_MONIN_PD	
TST_MONOUT	AK10	NO_TEST NC_INT_TST_MONOUT_TP	
TST_PLLEN	AR6	28C6< INT_TST_PLLEN_PD	

GB ETHERNET | FIREWIRE | MISC | TEST

RESET	U5	RINT_RESET_L	
PURESET	T2	RINT_PU_RESET_L	
PHY_DATA0	L4	57A5> FW_LINK_DATA<0>	
PHY_DATA1	M4	57A5> FW_LINK_DATA<1>	
PHY_DATA2	P7	57A5> FW_LINK_DATA<2>	
PHY_DATA3	N5	57A5> FW_LINK_DATA<3>	
PHY_DATA4	K1	57A5> FW_LINK_DATA<4>	
PHY_DATA5	K2	57A5> FW_LINK_DATA<5>	
PHY_DATA6	L2	57A5> FW_LINK_DATA<6>	
PHY_DATA7	N4	57A5> FW_LINK_DATA<7>	
PHY_LPS	M1	FW_LPS 36C8<	
PHY_CTL0	P5	57A5> FW_LINK_CNTL<0>	
PHY_CTL1	L1	57A5> FW_LINK_CNTL<1>	
PHY_LREQ	M2	57A5> FW_LINK_LREQ	
FWR_PCLK	T7	FW_SCLK 36C8< 57A5>	
FWR_LCLK	U14	CLKFW_LINK_LCLK	
FW_LINKON	N2	FW_C_LKON 28B6< 36B5<>	
FW_PINT	N1	FW_PINT 34C1<	

R673 1K 1% 1/16W MF 402

R707 47 5% 1/16W MF 402 — INT_RESET_L 35B8< 41A7< 43C7< 44D2<>
R275 47 5% 1/16W MF 402 — INT_PU_RESET_L 15B3< 44C2<>

RP112 22 5% 1/16W SM1
RP65 22 5% 1/16W SM1
FW_D<0> 36C8< 57A5>
FW_D<1> 36C8< 57A5>
FW_D<2> 36B8< 57A5>
FW_D<3> 36B8< 57A5>
FW_D<4> 36B8< 57A5>
FW_D<5> 36B8< 57A5>
FW_D<6> 36B8< 57A5>
FW_D<7> 36B8< 57A5>
NO_TEST

R269 22 5% 1/16W MF 402 — FW_CNTL0 36C8< 57A5>
R709 22 5% 1/16W MF 402 — FW_CNTL1 36C8< 57A5>
R702 22 5% 1/16W MF 402 — FW_LREQ 36C8< 57A5>

INT_V2 R257 0 MF 5% 1/16W 402 — INT_I2C_CLK0 14A6<> 15A6<
INT_V2 R254 0 MF 5% 1/16W 402 — INT_I2C_DATA0 14A6<> 15A6<
INT_V1 R637 0 MF 5% 1/16W 402 — 59A7> 39B1<> 29C7<> 28D1< 28A3<> INT_I2C_CLK2
INT_V1 R647 0 MF 5% 1/16W 402 — 59A7> 39B1<> 29C7<> 28D1< 28A3<> INT_I2C_DATA2

+3V_MAIN

NOSTUFF J18 M-ST-LK TH
INT_I2C_CLK1
INT_I2C_DATA1
(515-1560)
I2C DEBUG HEADER

INTREPID VERSION 1 HAS AN I2C BUS PROBLEM
USE KEY LARGO'S I2C INSTEAD.
FIXED IN INTREPID VERSION 2

INT_I2C_CLK1 34B1<
INT_I2C_DATA1 34B1<

TEST PULL-DOWNS

R575 1K 1% 1/16W MF 402 — 34B7< INT_JTAG_TEI
R576 1K 1% 1/16W MF 402 — 34B7< INT_TST_MONIN_PD
R684 10K 1% 1/16W MF 402 — 34B5<> FW_PINT

I2C 3.3V PULL-UPS

+3V_MAIN

RP119 4.7K 5% 1/16W SM1 — 34B5<> INT_I2C_CLK0R
RP119 4.7K 5% 1/16W SM1 — 34B5<> INT_I2C_DATA0R
RP101 4.7K 5% 1/16W SM1 — 34A3<> INT_I2C_CLK1
RP101 4.7K 5% 1/16W SM1 — 34A3<> INT_I2C_DATA1

INTREPID ENET & FW

LAST_MODIFIED=Mon Oct 27 12:30:17 2003

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE: NONE — SHT 34 OF 69

DRAWING

+3V_MAIN

PLACE NEAR PIN 20

PIN 3 PIN 46 PIN 8 MIN_LINE_WIDTH=20

RE-PLACE NEAR PIN 1>

C41 0.1UF 20% 10V CERM 402
C66 0.1UF 20% 10V CERM 402
C37 0.1UF 20% 10V CERM 402
C65 0.1UF 20% 10V CERM 402
C3501 0.1UF 20% 10V CERM 402
C68 10UF N20P80% 10V Y5V 805

ENET_DVDD PIN 12 PIN 55

C57 10UF N20P80% 10V Y5V 805
C67 0.01UF 10% 16V CERM 402
C53 0.1UF 20% 10V CERM 402

PLACE CLOSER TO PIN 22

PIN 27, 28 MIN_LINE_WIDTH=20 ENET_AVDD 35D2<> 52C6>

C56 0.01UF 10% 16V CERM 402
C44 0.1UF 20% 10V CERM 402
C52 10UF N20P80% 10V Y5V 805

ENET_AVDD 35D4<> 52C6>

C438 0.1UF 20% 10V CERM 402
C434 0.1UF 20% 10V CERM 402

NC_UB3P4 NO_TEST

MIN_LINE_WIDTH=20

R37 49.9 1% 1/16W MF 402
R40 49.9 1% 1/16W MF 402
R33 49.9 1% 1/16W MF 402
R30 49.9 1% 1/16W MF 402

NOTE: 1.5MM SPACE FROM TRACE TO GND

C401 0.1UF 20% 10V CERM 402

J1 TH-NMP-1 SYM_VER-2

C400 0.1UF 20% 10V CERM 402

T1 XFR-100BT MDIX SM

57B5> ENET_TDP
ENET_AVDD
57B5> ENET_TDN
NC_TX1_1 NO_TEST
NC_TX1_2 NO_TEST
57B5> ENET_RDP
ENET_AVDD
57B5> ENET_RDN

TX RX NC1 NC2 NC3 NC4

57B5> RJ45_TREF
57B5> RJ45_RREF
NC_TX1_3 NO_TEST
NC_TX1_4 NO_TEST

57B5> RJ45_TXP
57B5> RJ45_TXN
57B5> RJ45_RXP
57B5> RJ45_4_5
57B5> RJ45_RXN
57B5> RJ45_7_8

R394 75 1% 1/16W MF 402
R393 75 1% 1/16W MF 402
R391 75 1% 1/16W MF 402
R390 75 1% 1/16W MF 402

57B5> RJ45_F_TREF

C3 0.001UF 5% 2KV CERM 1808

(514-0030)

REGVDD REGAVDD DVDD1 DVDD2 AVDD1 AVDD2 OVDD1 OVDD2 REFCLK BIASVDD OVDD/NC

U37
FLAS-1
TRANSC_BCM5221
CRITICAL
SEE_TABLE

TD+ TD- RD+ RD- SD+ SD-

+3V_MAIN

R27 10K 1% 1/16W MF 402
R165 10K 1% 1/16W MF 402

FDX 35A5<
F100/JTAG_TCK JTAG_ASIC_TCK 8A4<> 34B7< 59D7> ANEN
ANEN/JTAG_TRST
TESTEN TESTEN 35A5<
MII_EN MII EN
LOW_PWR LOW_PWR 35A5<

ENERGY_DET ENET_ENERGY_DET 28B5<> 28C1<
RDAC ENET_RDAC_PD MIN_LINE_WIDTH=20

R326 0 5% 1/16W MF 402
JTAG_INTRP_TDO 28C6< 34B7>

LNKLED/JTAG_TDI* JTAG_ENET_TDI 35A2<
SPDLED/JTAG_TMS* JTAG_ASIC_TMS 8A4<> 34B7< 35A2< 59D7>
XMTLED* XMIT_LED 35A2<
RCVLED/JTAG_TDO* JTAG_ASIC_TDO 8A4<> 59D7>

R26 10K 1% 1/16W MF 402
R42 1.27K 1% 1/16W MF 402

OGND1 OGND2 OGND3/JTAG_EN DGND1 DGND2 AGND1 AGND2 PLLGND BIASGND

PHY ADDRESS 00000

R38 33 5% 1/16W MF 402
R34 33 1% 1/16W MF 402
RP1 33 5% SM1
R29 33 5% 1/16W MF 402
RP15 33 5% 1/16W
RP15 33 5% 1/16W
RP15 33 5% 1/16W

57C5> 34D7< CLKENET_LINK_TX
57C5> 34C7< CLKENET_LINK_RX
57B5> 34C7< ENET_LINK_RXD<0>
57B5> 34C7< ENET_LINK_RXD<1>
57B5> 34C7< ENET_LINK_RXD<2>
57B5> 34C7< ENET_LINK_RXD<3>
57B5> 34C7< ENET_RX_DV
34C7< ENET_RX_ER
57B5> 34C7< ENET_CRS
57B5> 34B7< ENET_COL

NO_TEST 57C5> CLKENET_PHY_TX
57C5> 34C7< ENET_PHY_TXD<0>
57C5> 34C7< ENET_PHY_TXD<1>
57C5> 34C7< ENET_PHY_TXD<2>
57C5> 34C7< ENET_PHY_TXD<3>
57C5> 34D7< ENET_PHY_TX_EN
57C5> 34D7< ENET_PHY_TX_ER
57C5> CLKENET_PHY_RX
57B5> ENET_PHY_RXD<0>
57B5> ENET_PHY_RXD<1>
57B5> ENET_PHY_RXD<2>
57B5> ENET_PHY_RXD<3>
57B5> ENET_PHY_RX_DV
57B5> ENET_PHY_RX_ER
57B5> ENET_PHY_CRS
57B5> ENET_PHY_COL
ETHPHYRESET_L
34B7> ENET_MDC
57B5> CLK25M_ENET_XIN
57B5> CLK25M_ENET_XOUT

TXC TXD0 TXD1 TXD2 TXD3 TXEN TXER RXC RXD0 RXD1 RXD2 RXD3 RXDV RXER CRS COL RESET* MDC MDIO XTALI XTAL0

NC NC NC NC NC
PHYAD0 PHYAD1 PHYAD2 PHYAD3 PHYAD4

NOSTUFF
R75 1K 5% 1/16W MF 402
43C7< 34C3< 41A7< 44D2<> INT_RESET_L

R76 1K 1% 1/16W MF 402
INT_ENET_RST_L 28B5<> 28D1<

D9 1N914 SOT23
44D3< 32A6< 44B8<> 59A7> IO_RESET_L

CRITICAL
Y6
25.0000M
8X4.5MM-SM

C74 27PF 5% 50V CERM 402
C76 27PF 5% 50V CERM 402

ADD DUAL LAYOUT SUPPORT
FOR ALTERNATE CRYSTAL

+3V_MAIN

R28 1.5K 1% 1/16W MF 402

34B7<> ENET_MDIO

RP16 10K 5% 1/16W SM1

35C4< FDX
35C4< TESTEN
35B4< LOW_PWR
OGND3 JTAG_EN

+3V_MAIN

R485 4.7K 5% 1/16W MF 402
R486 330 5% 1/16W MF 402 DEV
R491 330 5% 1/16W MF 402 DEV
R492 330 5% 1/16W MF 402 DEV
R96 4.7K 5% 1/16W MF 402

DS3P1 DS1 GREEN SM DEV 10/100
DS1P1 DS3 GREEN SM DEV XMIT
DS2P1 DS2 GREEN SM DEV LINK

59D7> 35B4<> 34B7< 8A4<> JTAG_ASIC_TMS
35B4<> XMIT_LED
35B5<> JTAG_ENET_TDI

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
338S0127	1	IC,BCM5231,FAST ENET XCVR,64P,TQFP	U37	CRITICAL	ENET_BCM5231

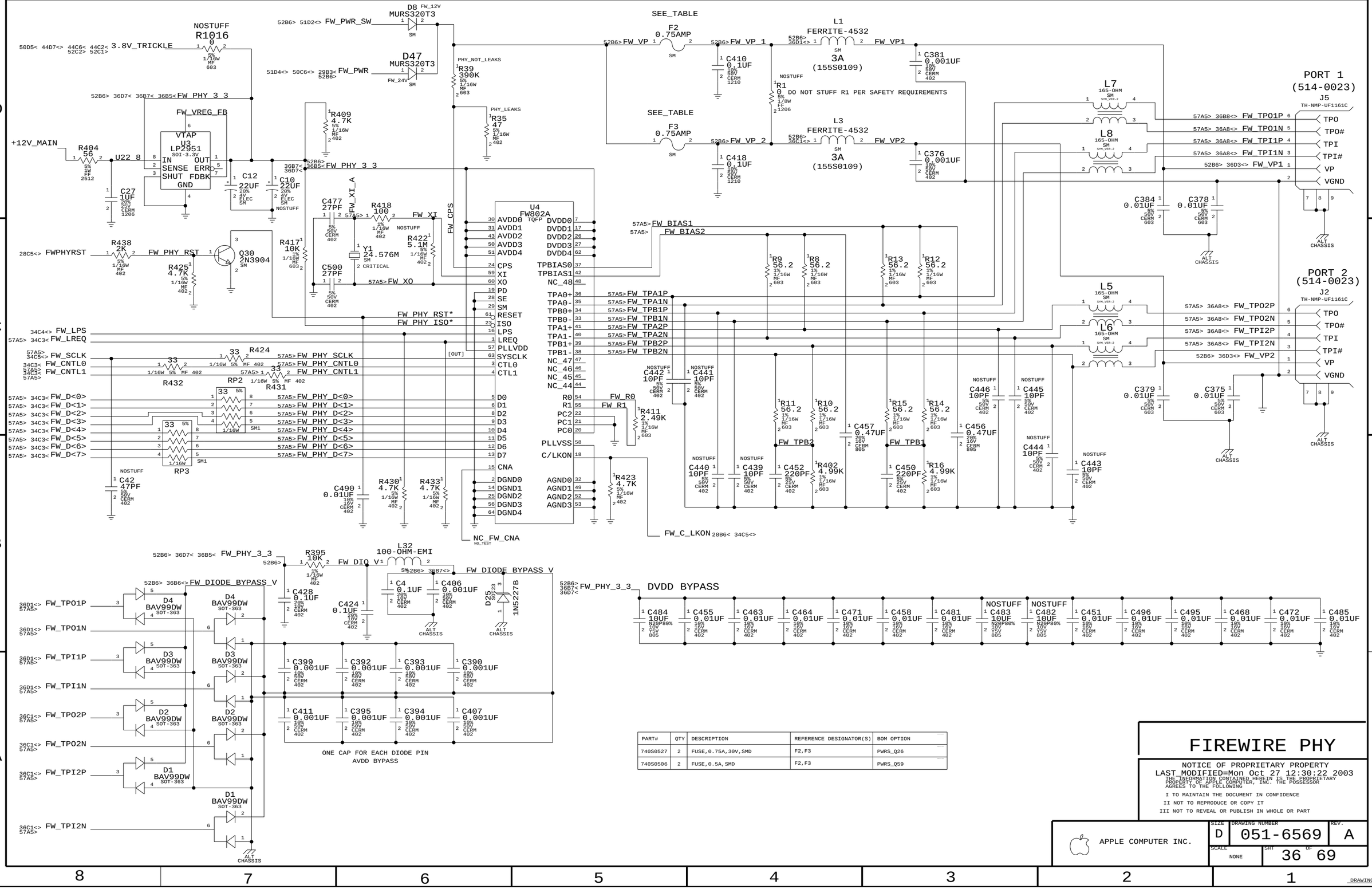
ETHERNET PHY

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 35 OF 69	

DRAWING

<XR_PAGE_TITLE>



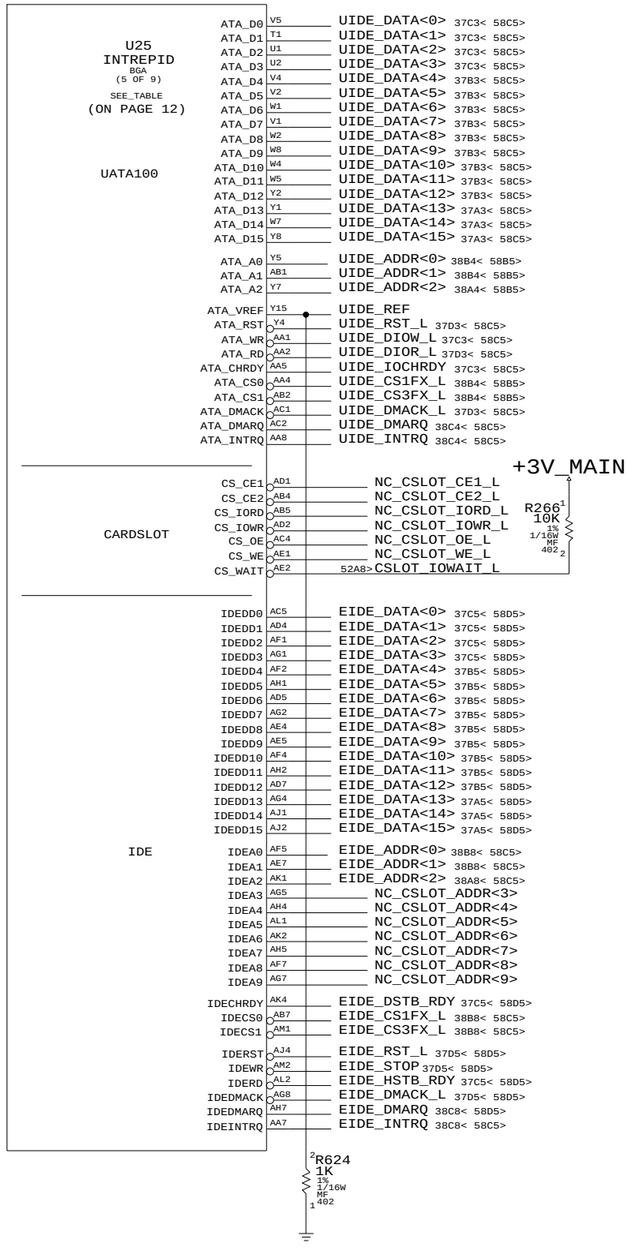
PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
740S0527	2	FUSE,0.75A,30V,SMD	F2,F3	PWRS_Q26
740S0506	2	FUSE,0.5A,SMD	F2,F3	PWRS_Q59

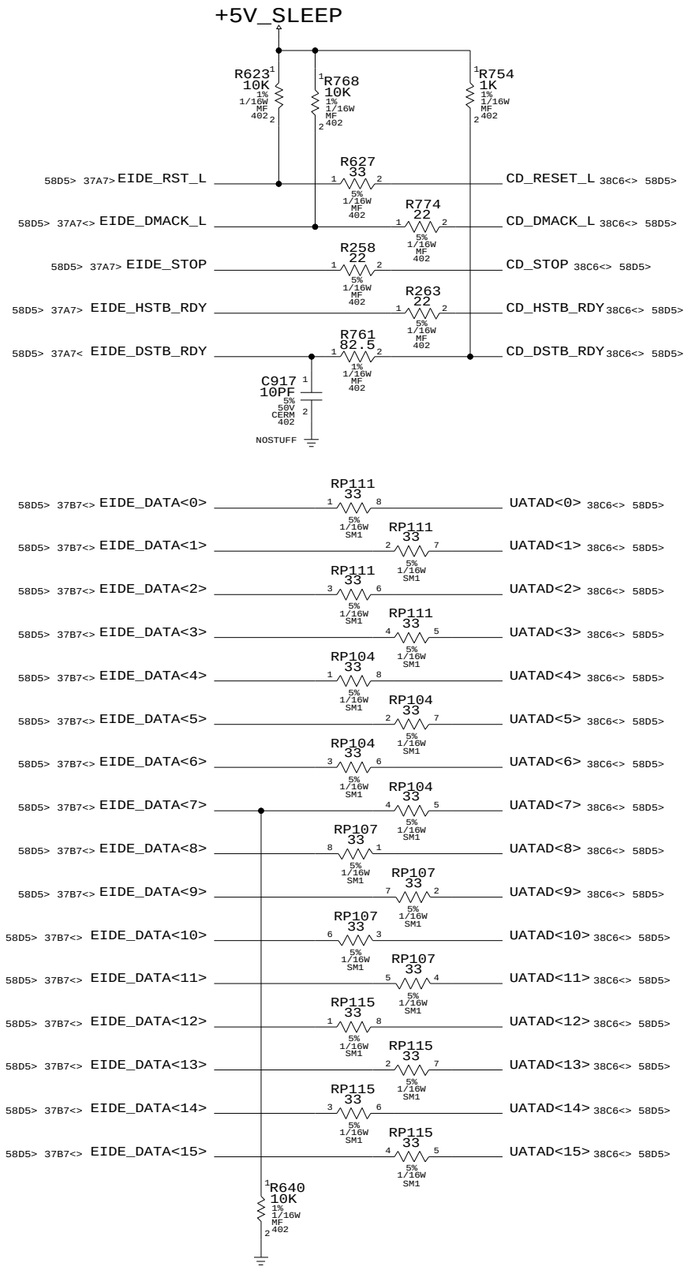
FIREWIRE PHY

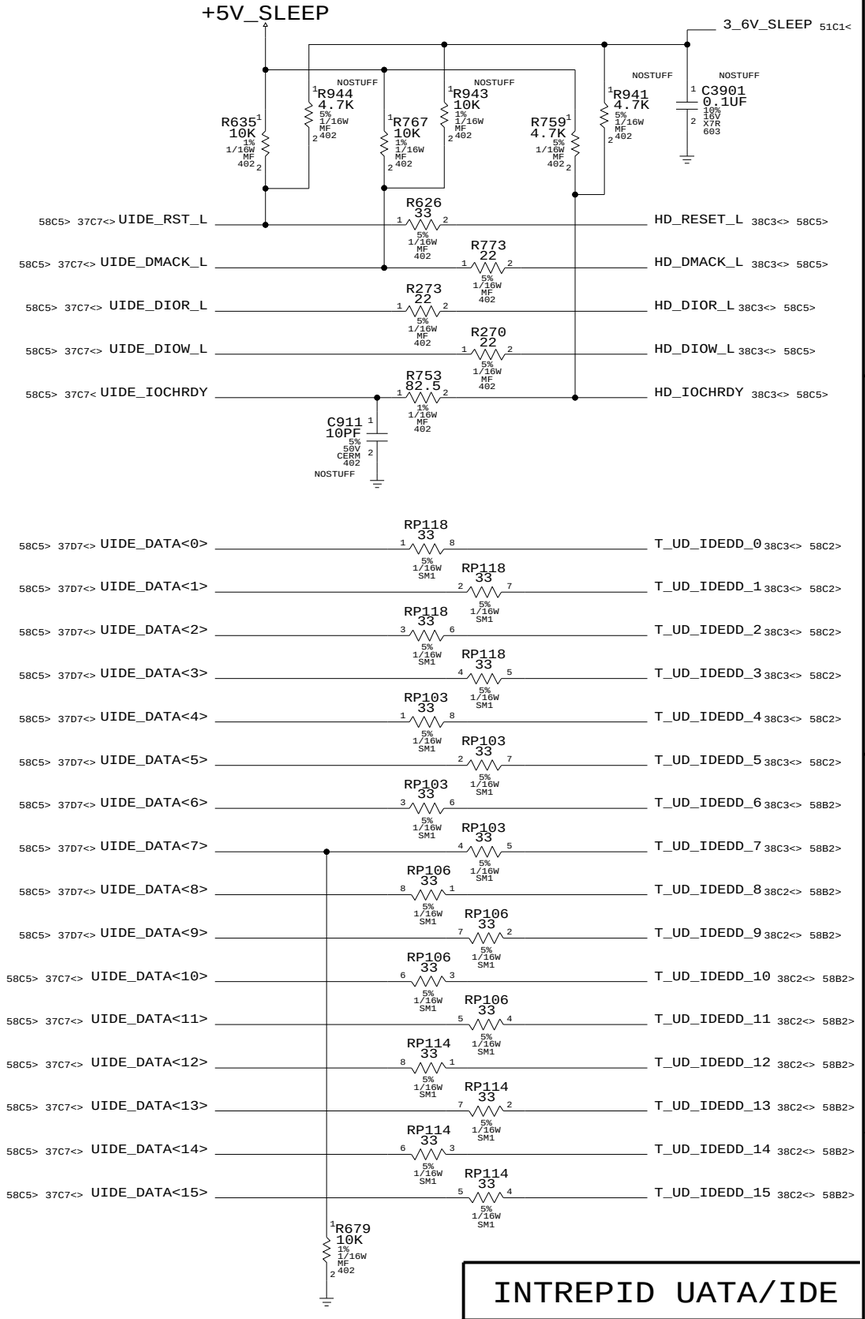
APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 36 OF 69	

DRAWING







INTREPID UATA/IDE

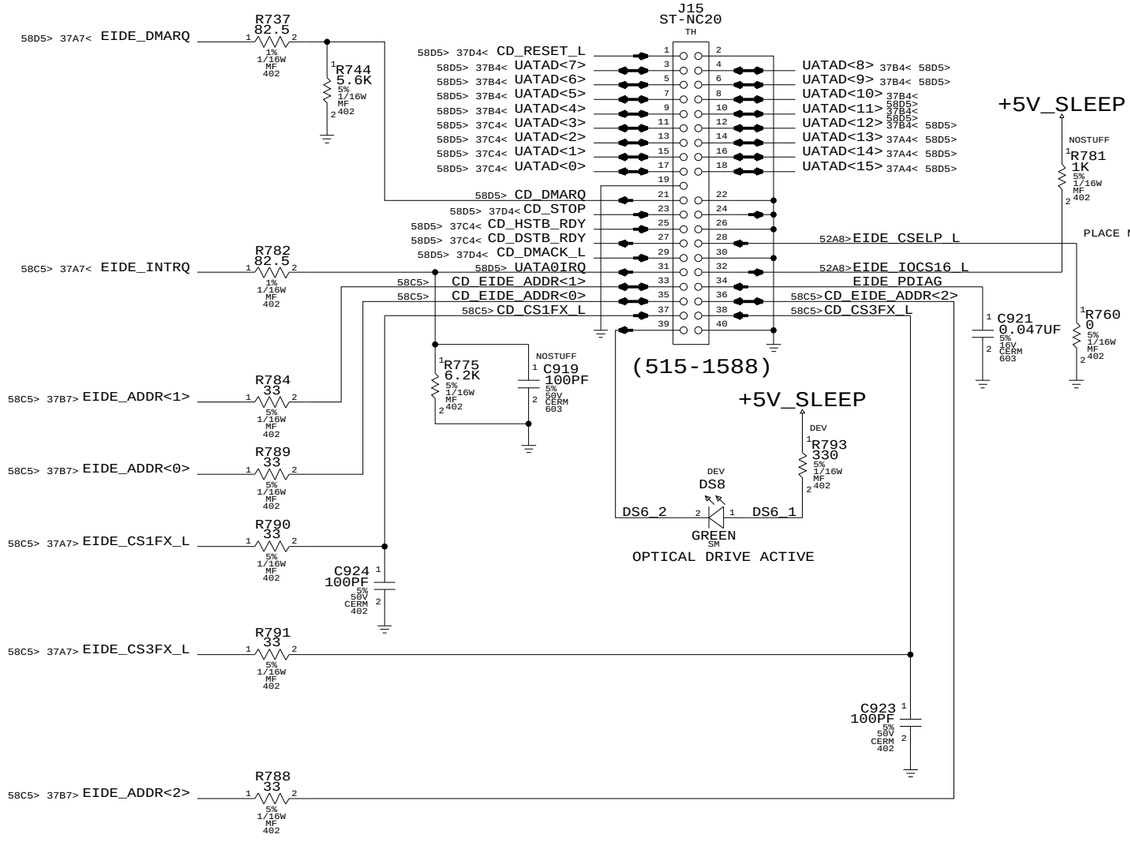
APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 37 OF 69	

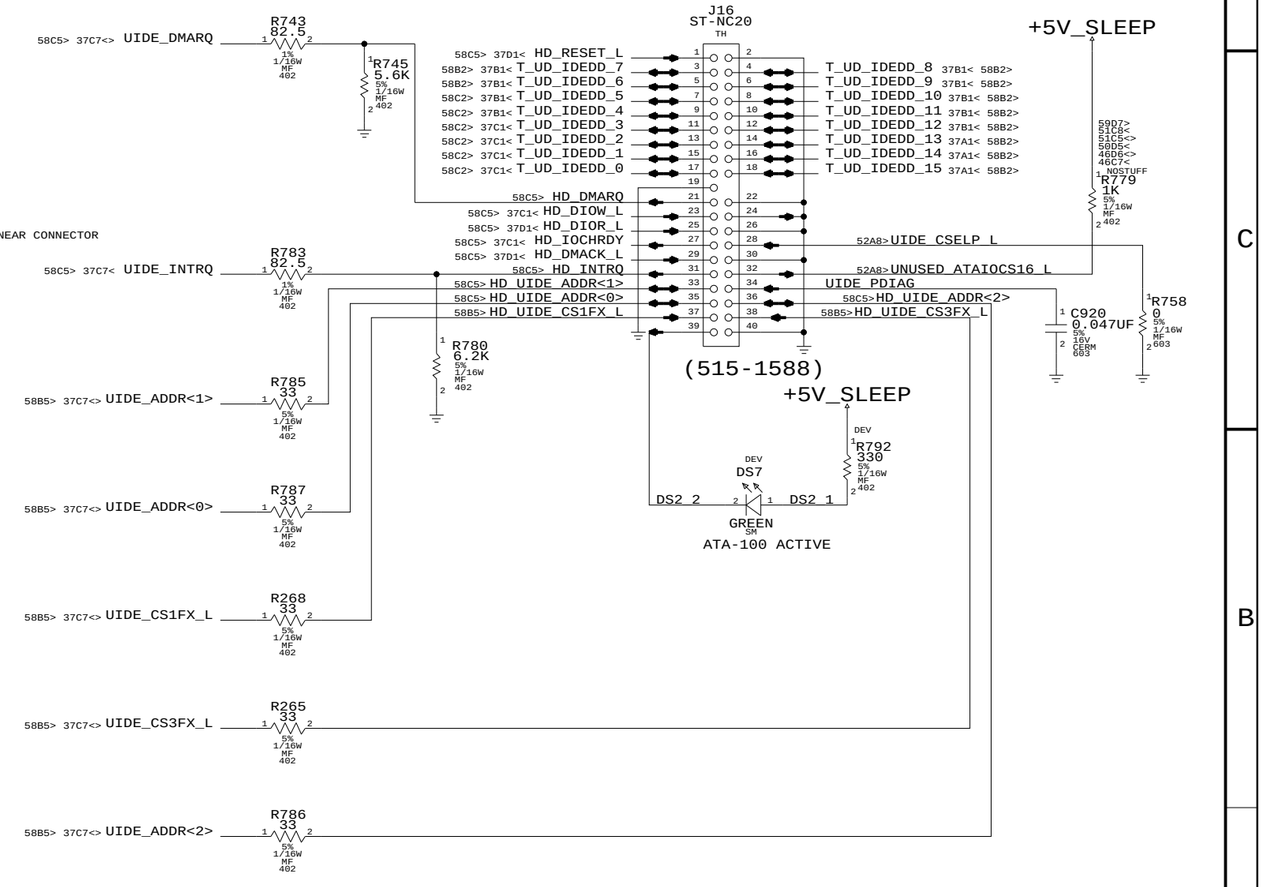
DRAWING

<XR_PAGE_TITLE>

OPTICAL DRIVE INTERFACE



ATA-100 INTERFACE

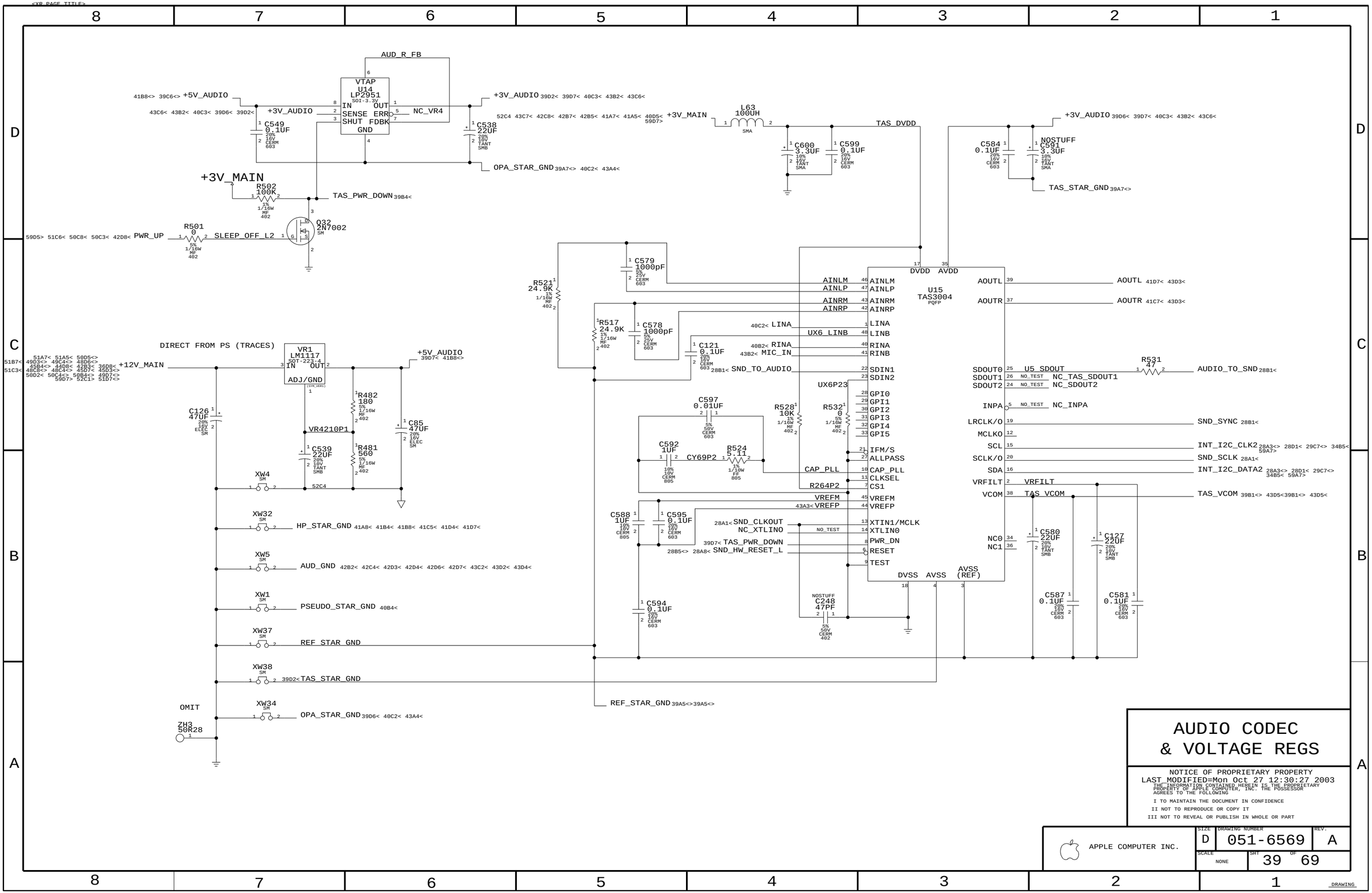


CD/HD CONS

APPLE COMPUTER INC.

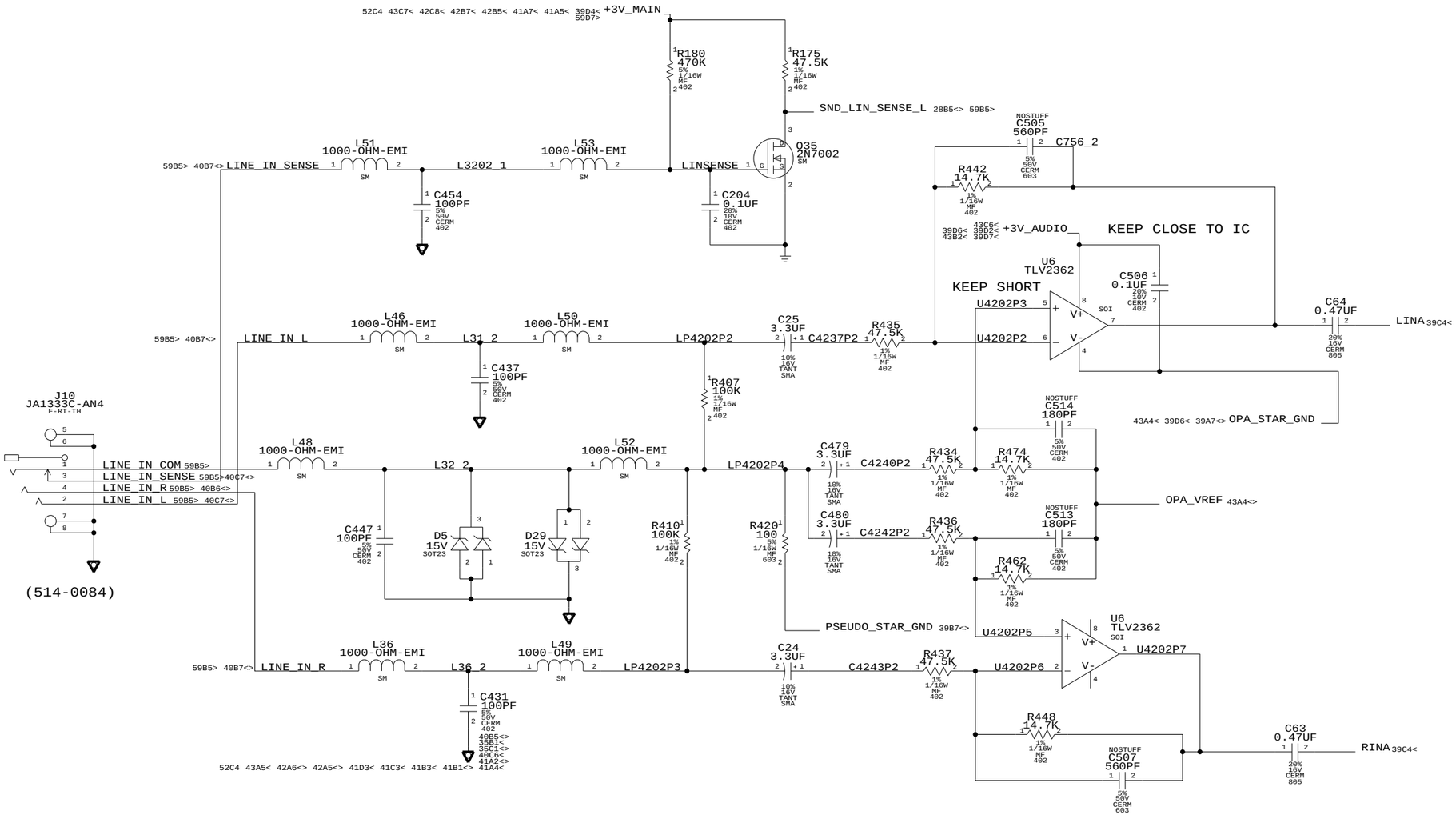
SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 38 OF 69	

DRAWING



AUDIO CODEC & VOLTAGE REGS

APPLE COMPUTER INC.
SIZE D | DRAWING NUMBER 051-6569 | REV. A
SCALE NONE | SHT 39 OF 69
DRAWING



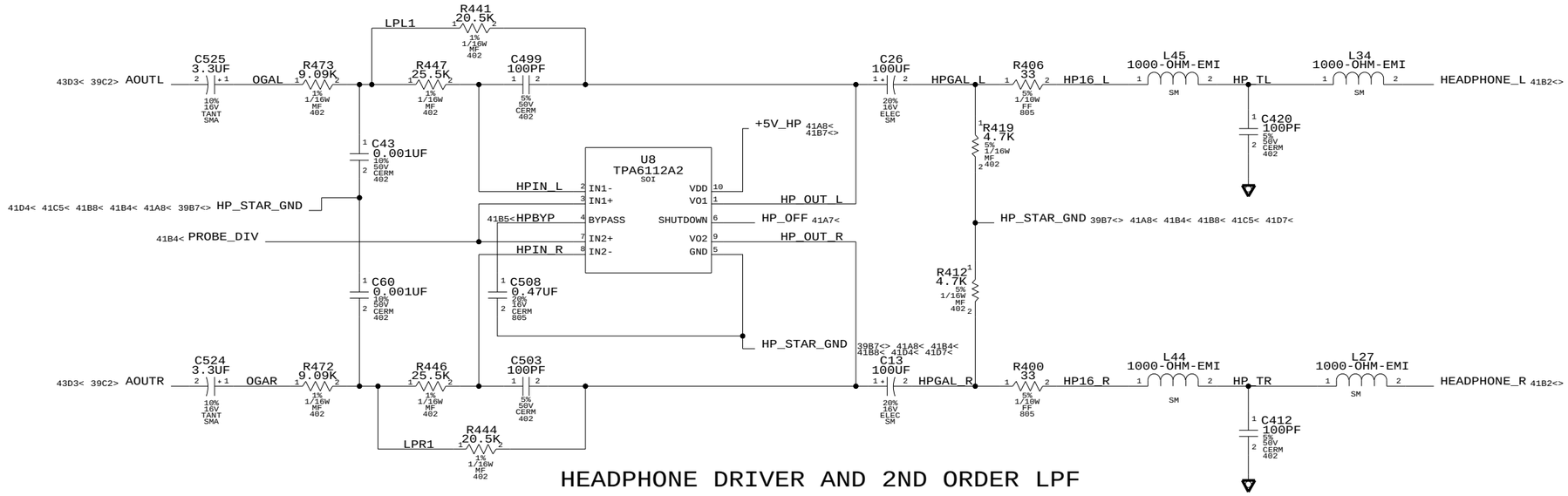
LINE IN BUFFER

APPLE COMPUTER INC.

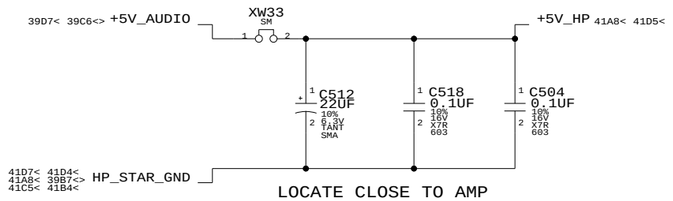
SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE	SHT	OF
NONE	40	69

DRAWING

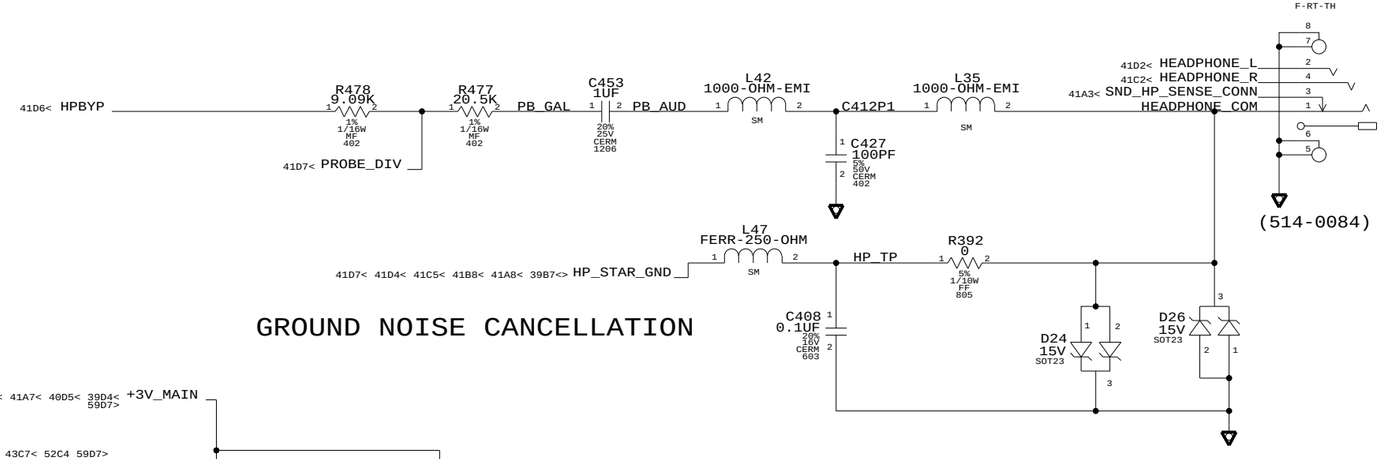


HEADPHONE DRIVER AND 2ND ORDER LPF

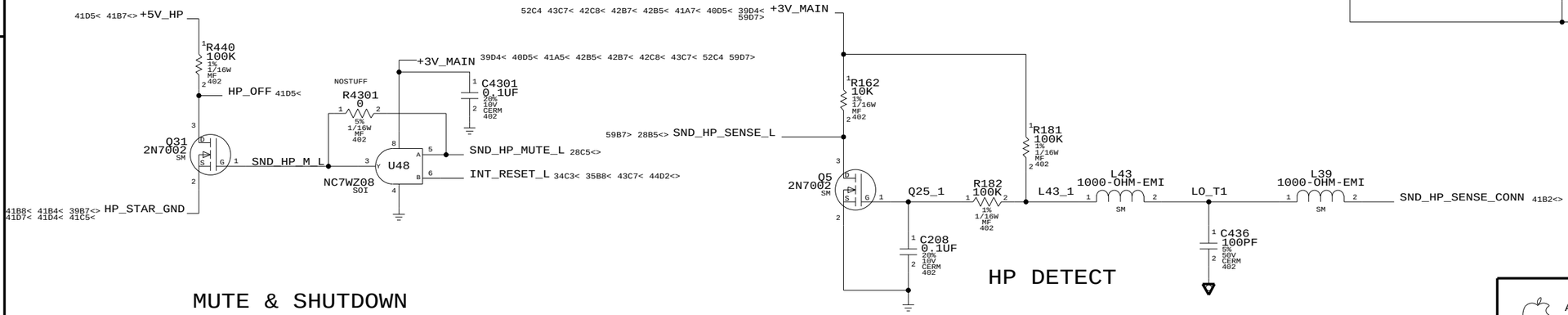


LOCATE CLOSE TO AMP

POWER SOURCE



GROUND NOISE CANCELLATION



MUTE & SHUTDOWN

HP DETECT

HEADPHONE OUT AMP

LAST MODIFIED=Mon Oct 27 12:30:29 2003

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE	SHT	OF
NONE	41	69

DRAWING

<XR_PAGE_TITLE>

TPA_5V IS NOT USED IN THIS SCHEMATIC

U49 SN0210045A PQFP CRITICAL

J3 HSJ1724-REV-E-NMP TH-2MT

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
101S8000	4	0 OHM,5%,1/8W,RES-1206	L90,L91,L93,L96	

PREVIOUS PART NUMBER FOR L90,L91,L93,L96 IS 155S0148

C1061 AND C4261 SHARE PAD 1
C1062 AND C4262 SHARE PAD 1
C1065 AND C4265 SHARE PAD 1
C1067 AND C4267 SHARE PAD 1

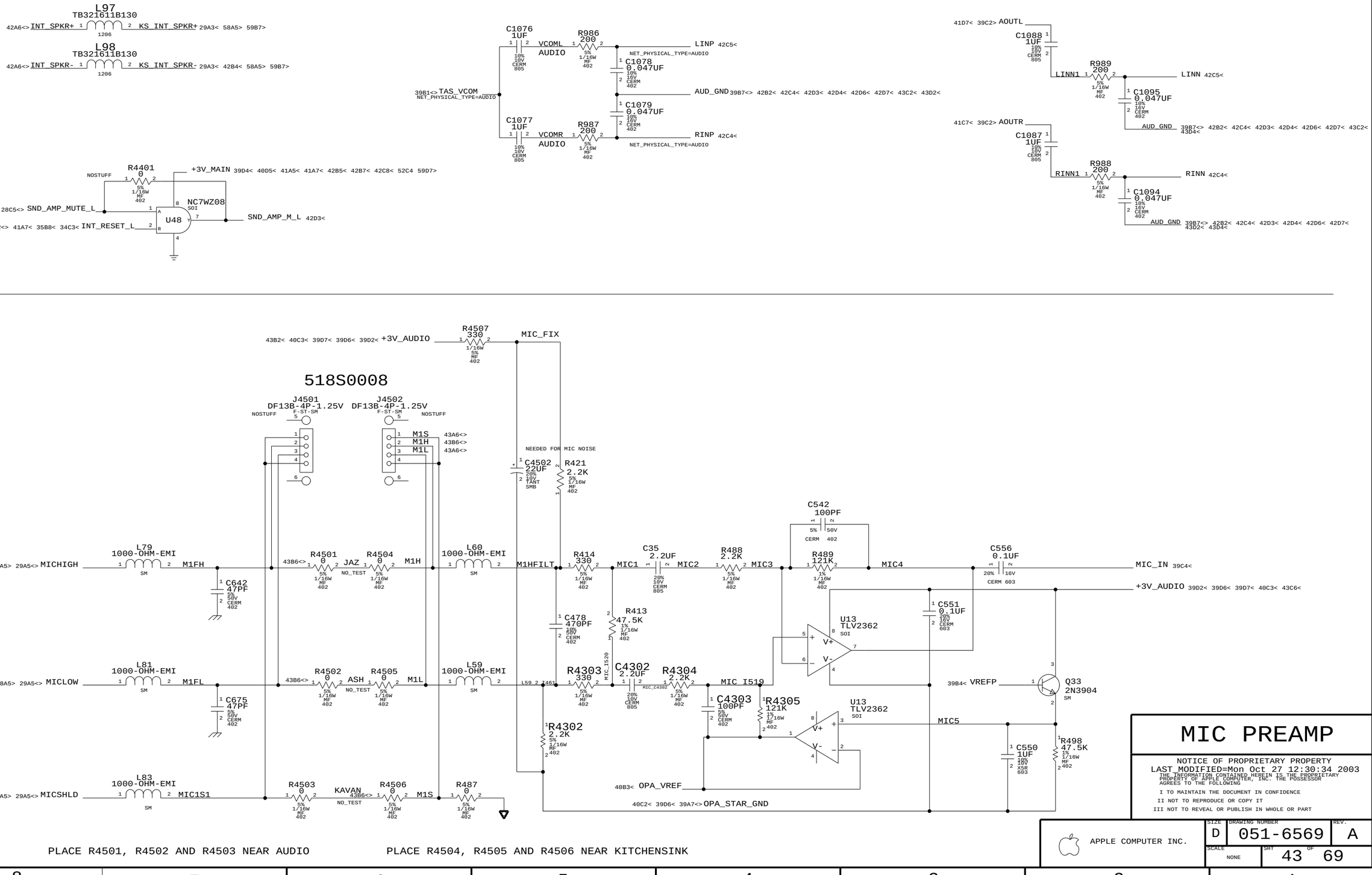
SPEAKER AMP

LAST_MODIFIED=Mon Oct 27 12:30:33 2003

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE: NONE SHT 42 OF 69



MIC PREAMP

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 43 OF 69	

DRAWING

<XR_PAGE_TITLE>

PMU SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
341S1008	1	PMU,M16C62,64KB,PRMGD	U26		
525-0057	1	CONN,BATTERY HOLDER	BT1		

AGP_RESET_L IS USED AS MAIN_RESET_L FOR SIL1162
THROUGH R1027 AND IS NOT USED IN ANY OTHER DEVICE

IIC BUS PULLUPS

PMU NOT RATED STRONG ENOUGH FOR 1K
MAIN RAIL, TO PREVENT LEAKAGE INTO UNPOWERED DEVICES

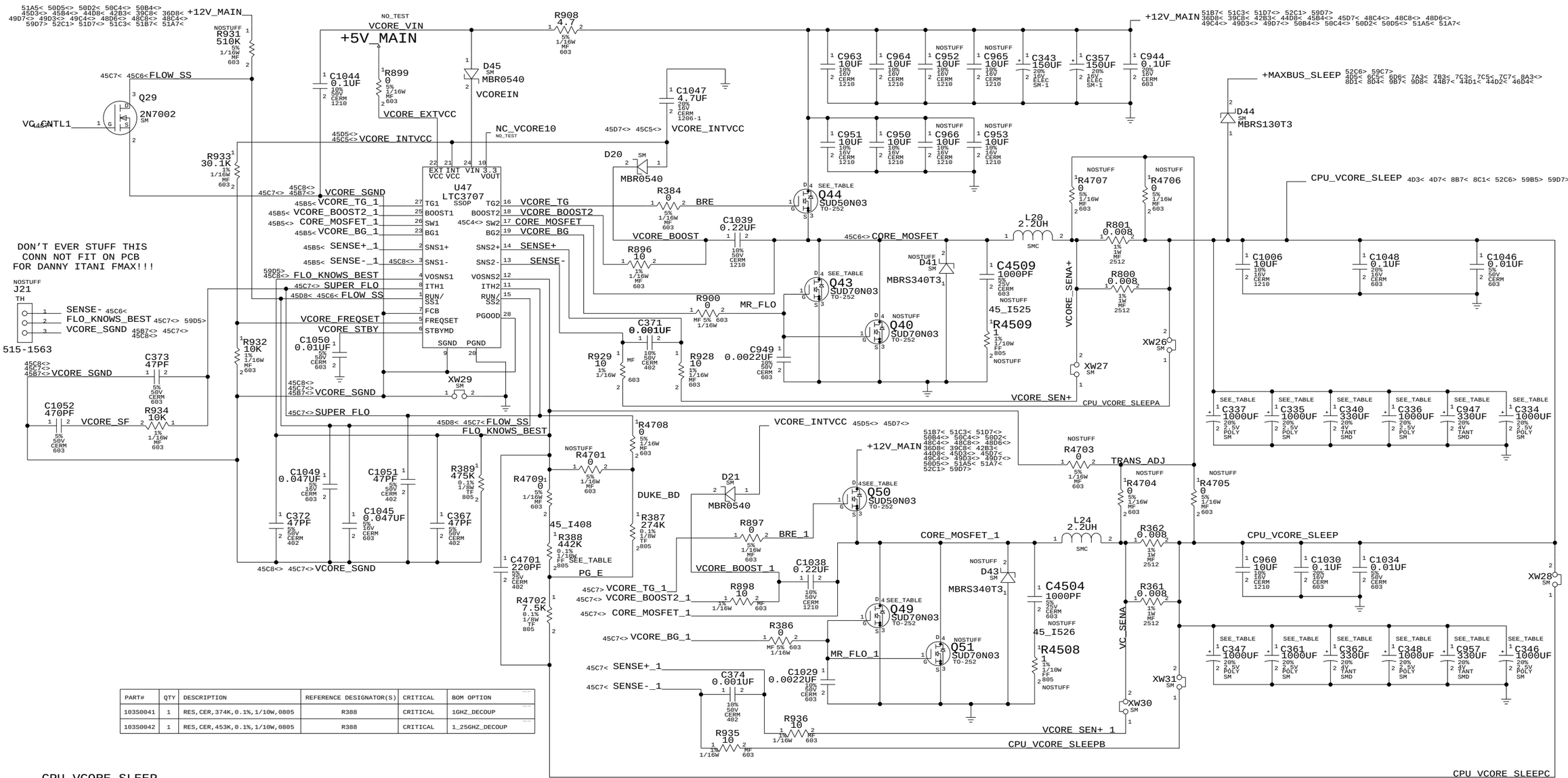
LOCATE NEAR TO PMU

PMU POWER MGR

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 44 OF 69	

DRAWING



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
103S0041	1	RES,CER,374K,0.1%,1/10W,0805	R388	CRITICAL	1GHZ_DECOUP
103S0042	1	RES,CER,453K,0.1%,1/10W,0805	R388	CRITICAL	1_25GHZ_DECOUP

CPU_VCORE_SLEEP
1.0GHZ,1.5V+30/-130MV,35W
1.25GHZ,1.57V+70/-70MV,35W

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
376S0204	2	MOSFET,N-CH,30V,63A,V30284,TO-252	Q44,Q50	
376S0207	2	MOSFET,N-CH,30V,70A,V30289,TO-252	Q43,Q49	

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
128S0012	4	CAP,TANT,POLY,330UF,4.0V,D4	C340,C947,C362,C957	1_25GHZ_DECOUP
128S0410	8	CAP,TANT,POLY,1000UF,2.5V,D4	C337,C335,C336,C334,C347,C361,C348,C346	1_25GHZ_DECOUP
128S0022	12	CAP,EL,POLY,220UF,20%,2V	C337,C335,C336,C334,C347,C361,C348,C346,C340,C947,C362,C957	1GHZ_DECOUP

CPU & AGP VREGS

LAST_MODIFIED=Mon Oct 27 12:30:39 2003

APPLE COMPUTER INC.

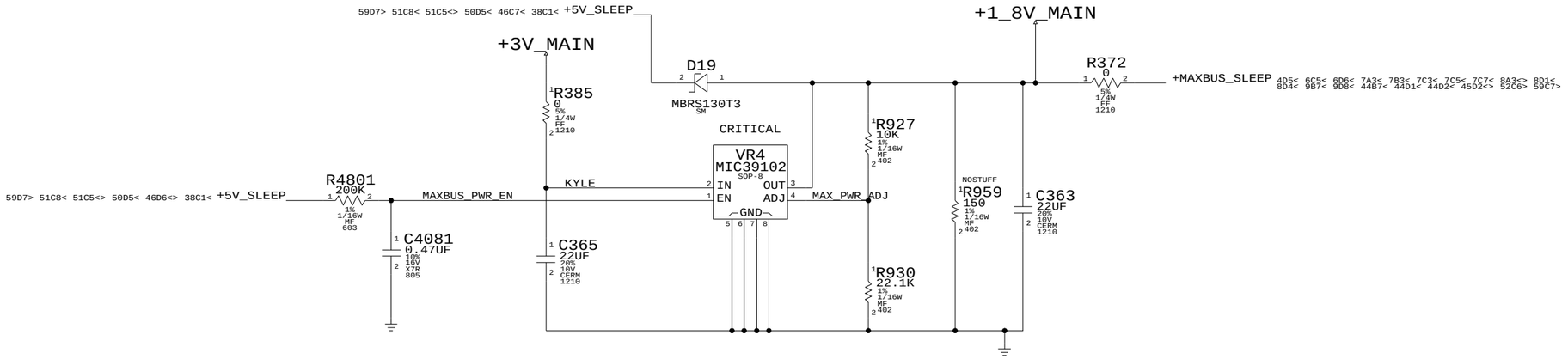
SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 45 OF 69	

DRAWING

INTREPID MAXBUS & CPU OVDD POWER CONVERTER

(OFF DURING SLEEP)

+MAXBUS_SLEEP 1.8V,+/-2%,.606W

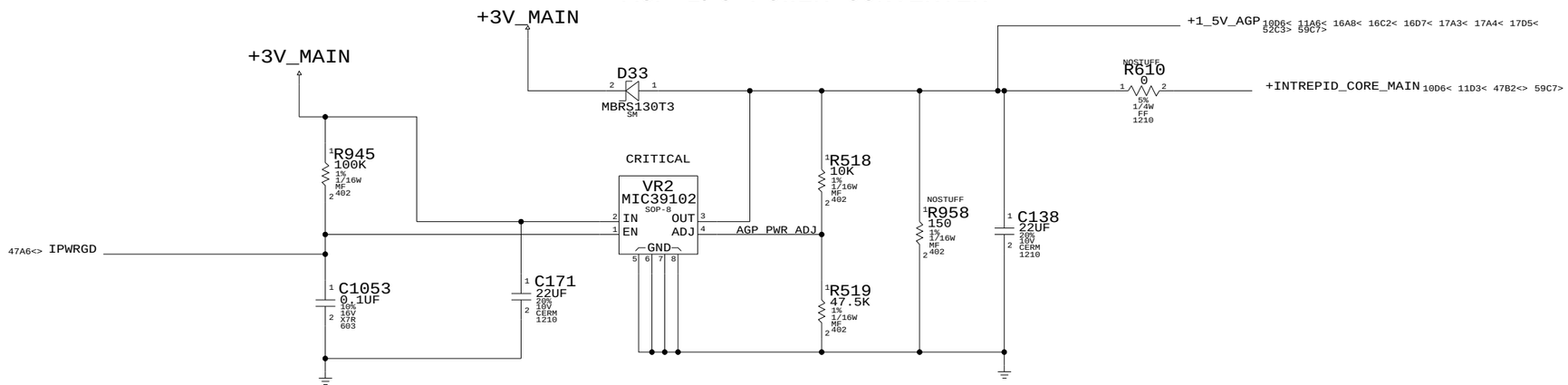


MAXBUS I/O SUPPLY SUPPORT

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
114S4754	1	RES,FF,47.5K-OHM,1%	R930		MAXIO_1'50V
114S3014	1	RES,FF,30.1K-OHM,1%	R930		MAXIO_1'65V
114S2674	1	RES,FF,26.7K-OHM,1%	R930		MAXIO_1'70V
114S2214	1	RES,FF,22.1K-OHM,1%	R930		MAXIO_1'80V *

+1_5V_AGP 1.5V,+/-5%,.6W

AGP I/O POWER CONVERTER



AGP I/O SUPPLY SUPPORT

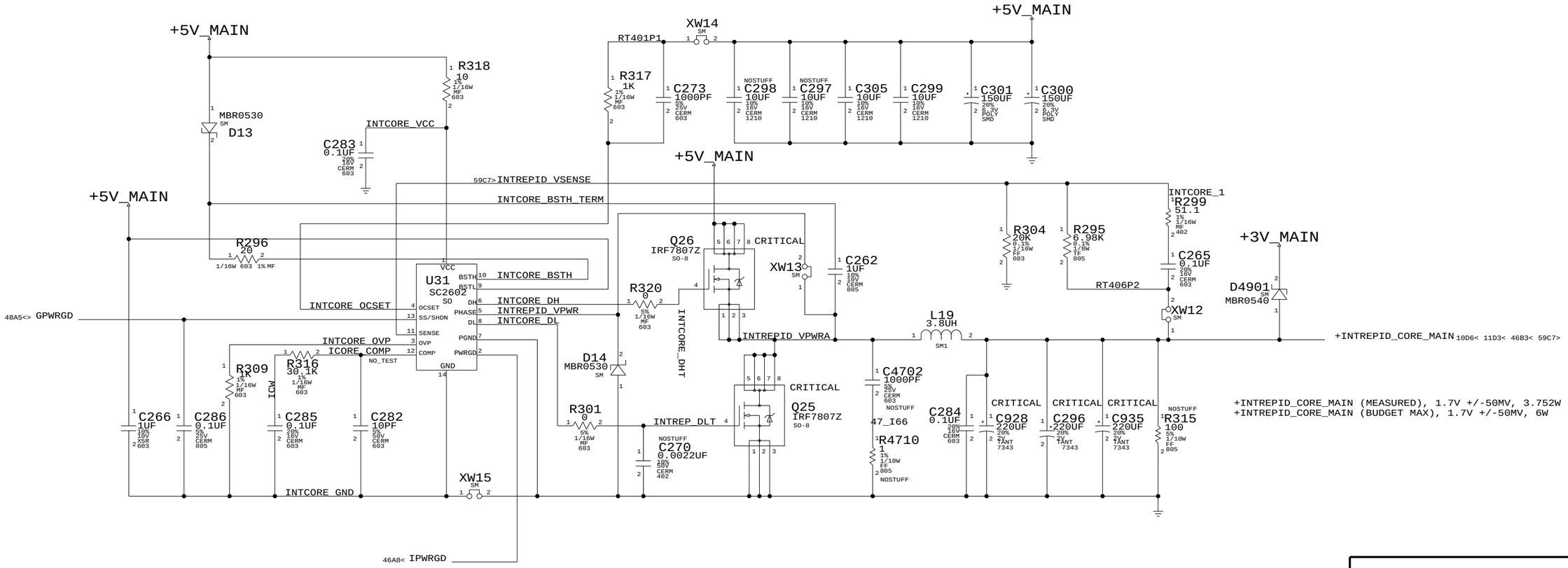
PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
114S4754	1	RES,FF,47.5K-OHM,1%	R519		AGPIO_1'50V *
114S3014	1	RES,FF,30.1K-OHM,1%	R519		AGPIO_1'65V
114S2674	1	RES,FF,26.7K-OHM,1%	R519		AGPIO_1'70V
114S2214	1	RES,FF,22.1K-OHM,1%	R519		AGPIO_1'80V

CPU & AGP VREGS

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 46 OF 69	

DRAWING



TABLES FOR INTREPID CORE RESISTOR VALUES TO VOLTAGES ARE LOCATED AT
KUMA SERVER(1):HARDWARE:KUMA DESIGNS;KUMA POWER SUPPLIES;ICORE R TOLERANCE

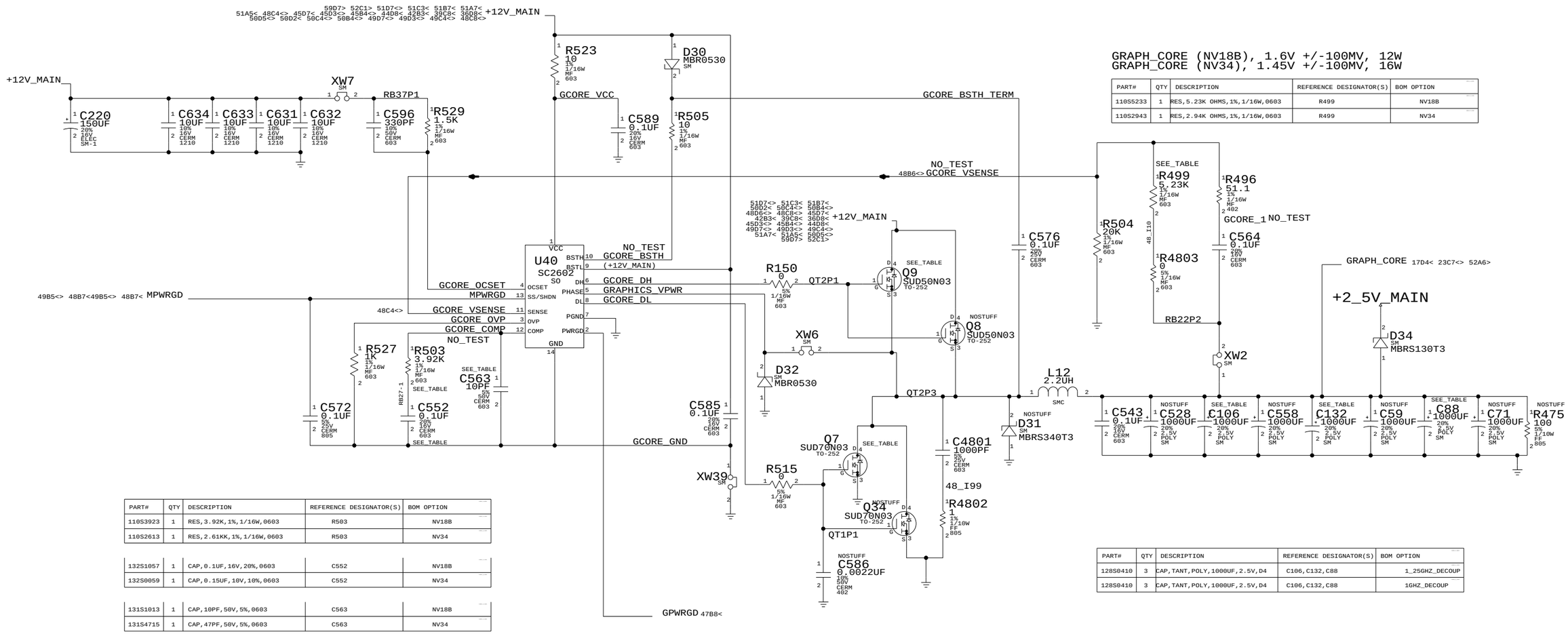
INTREPID CORE

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE	SHT	OF
NONE	47	69

DRAWING



GRAPH_CORE (NV18B), 1.6V +/-100MV, 12W
GRAPH_CORE (NV34), 1.45V +/-100MV, 16W

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
110S5233	1	RES,5.23K OHMS,1%,1/16W,0603	R499	NV18B
110S2943	1	RES,2.94K OHMS,1%,1/16W,0603	R499	NV34

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
110S3923	1	RES,3.92K,1%,1/16W,0603	R503	NV18B
110S2613	1	RES,2.61KK,1%,1/16W,0603	R503	NV34
132S1057	1	CAP,0.1UF,16V,20%,0603	C552	NV18B
132S0059	1	CAP,0.15UF,10V,10%,0603	C552	NV34
131S1013	1	CAP,10PF,50V,5%,0603	C563	NV18B
131S4715	1	CAP,47PF,50V,5%,0603	C563	NV34

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
128S0410	3	CAP,TANT,POLY,1000UF,2.5V,D4	C106,C132,C88	1_25GHZ_DECOUP
128S0410	3	CAP,TANT,POLY,1000UF,2.5V,D4	C106,C132,C88	1GHZ_DECOUP

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
376S0204	1	MOSFET,N-CH,30V,63A,V30284,TO-252	Q9	
376S0207	1	MOSFET,N-CH,30V,70A,V30289,TO-252	Q7	

GRAPHICS CORE

LAST_MODIFIED=Mon Oct 27 12:30:43 2003

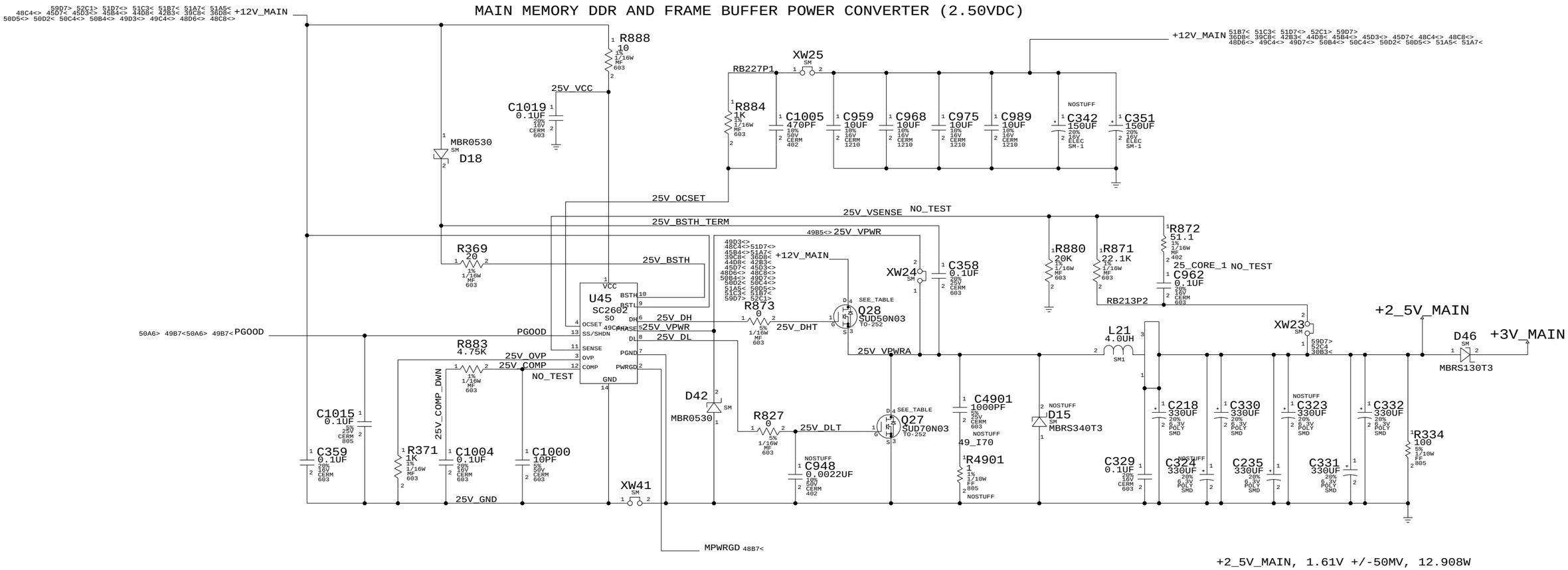
APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE	SHT	OF
NONE	48	69

DRAWING

MAIN MEMORY DDR AND FRAME BUFFER POWER CONVERTER (2.50VDC)



+2_5V_MAIN, 1.61V +/-50MV, 12.908W

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
376S0204	1	MOSFET,N-CH,30V,63A,V30284,TO-252	Q28	
376S0207	1	MOSFET,N-CH,30V,70A,V30289,TO-252	Q27	

MEMORY PS

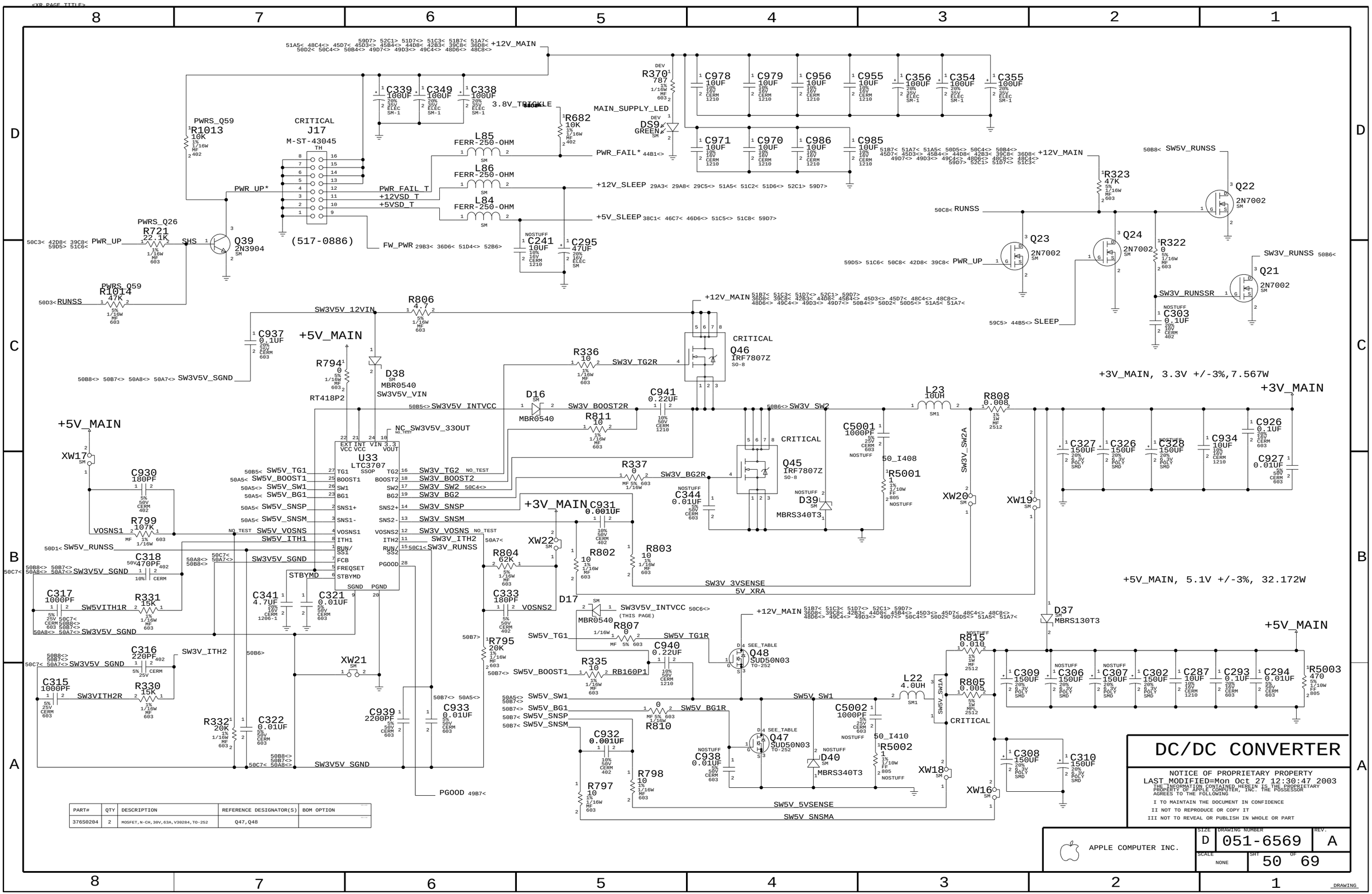
APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE: NONE | SHT 49 OF 69

DRAWING

<XR_PAGE_TITLE>



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
376S0204	2	MOSFET,N-CH,30V,63A,V30284,TO-252	Q47,Q48	

DC/DC CONVERTER

LAST_MODIFIED=Mon Oct 27 12:30:47 2003

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A

SCALE	SHT	OF
NONE	50	69

DRAWING

+12V MAIN POWER SWITCH
(OFF DURING SLEEP)

50B4<> 49D7<> 49D3<> 49C4<> 51B7< 45B4<> 44D8< 42B3< 39C8< 36D8< 48D6<> 48C8<> 48C4<> 45D7< 45D3<> 51A7< 51A5< 50D5<> 50D2<> 50C4<> 59D7> 52C1> 51C3< +12V_MAIN

R769 470K 5% 1/16W MF 402

Q020 FDC602P SOT-6

+12V_SLEEP 29A3< 29A8< 29C5<> 50D5< 51A5< 51C2< 52C1> 59D7>

C269 47UF 20% 16V ELEC SM

C915 0.01UF CERM 10% 16V 402

C918 0.0022UF 10% 50V CERM 402

SW12V_SLEEP

R770 100K 1% 1/16W MF 402

SW12V_SL

Q014 2N7002 SM

51B6< SLEEP_OFF_L

R739 0 5% 1/16W MF 402

PWR_UP 39C8< 42D8< 50C3< 50C8< 59D5>

FIREWIRE POWER SWITCH
EVALUATE CIRCUIT FOR SURGE PROTECTION FOR Q59C

52B6> 50C6<> 36D6< 29B3< FW_PWR

FW_12V U35 SI4435DY SOI

FW_PWR_SW 36D6< 52B6>

C19 47UF 20% 25V ELEC SM

FW_12V C18 0.01UF CERM 5% 50V 603

C473 0.0022UF 10% 50V CERM 402 FW_12V

Q42P4

+5V_MAIN

FW_12V R23 470K 5% 1/16W MF 603

FW_12V R21 100K 5% 1/16W MF 603

Q1P3

FW_12V R22 10K 1% 1/16W MF 603

Q1 2N7002 SM

Q1P1 FW_12V

+5V POWER SWITCH
(OFF DURING SLEEP)

46D6<> 46C7< 38C1< 59D7> 51C5<> 50D5< +5V_SLEEP

R300 330 5% 1/16W MF 402

RUNLED1

DS5 GREEN SM

+5V POWER LED

+5V_MAIN

Q037 FDC602P SOT-6

+5V_SLEEP 38C1< 46C7< 46D6<> 50D5< 51C8< 59D7>

C742 0.01UF CERM 10% 16V 402

C773 0.0022UF 10% 50V CERM 402

C238 150UF 20% 6.3V POLY SMD

SWITCH5V_4

R645 470K 5% 1/16W MF 402

R664 100K 1% 1/16W MF 402

SWITCH5V_3

R685 0 5% 1/16W MF 402

51C7< SLEEP_OFF_L

Q38 2N7002 SM

TMDS POWER CONVERTER & SWITCH
(OFF DURING SLEEP)

VOLTAGE TO SUPPORT 3.3V AT PANEL
VOLTAGE HERE WILL EXCEED 3.3V

+3.3VFPD (3_6V_SLEEP), 3.6V +/-50MV, 3.32W

+12V_SLEEP 29A3< 29A8< 29C5<> 50D5< 51A5< 51D6<> 52C1> 59D7>

FPD_12VS R1018 0 5% 1/8W FF 1206

59D7> 52C1> 51D7<> 51B7< 51A7< 51A5< 48C8<> 48C4<> 45D7< 45D3<> 45B4<> 44D8< 42B3< 39C8< 36D8< +12V_MAIN 50D5<> 50D2< 50C4<> 50B4<> 49D7<> 49D3<> 49C4<> 48D6<>

FPD_12VM R1017 0 5% 1/8W FF 1206

FPD_3V3&FPD_12VM Q11 FDC602P SOT-6

+3.3VFPD 24D7< 52B6>

R5301 0 5% 1/16W MF 402 NOSTUFF 3_6V_SLEEP 37D1<

C254 10UF 10% 16V CERM 1210

+5V_MAIN

3_5 HONKER

+5V_MAIN

FPD_3V3 SENSE VR3 EZ1582 SM VPWR VOUT VCTRL VOUT ADJ TAB

52C4 51B4<> 59D7>

HONK_ADJ

FPD_3V3 R251 102 1% 1/16W MF 402

FPD_3V3 R601 182 1% 1/16W MF 402

FPD_3V3 C246 150UF 20% 6.3V POLY SMD

FPD_3V3 C654 10UF 10% 16V CERM 1210

FPD_3V3 C653 10UF 10% 16V CERM 1210

FPD_3V3 C236 0.022UF 10% 50V CERM 805

FPD_3V3&FPD_12VM C257 0.01UF 402 10% 16V CERM

FPD_3V3&FPD_12VM C252 0.0022UF 10% 50V CERM 402

SWITCH5V_6

R278 100K 1% FPD_3V3&FPD_12VM 1/16W MF 402

R277 10K 1% 1/16W MF 402 FPD_3V3&FPD_12VM

R279 10K 1% 1/16W MF 402

SWITCH5V_5

TMDS_EN 23D7<>

NOSTUFF C258 0.01UF 20% 16V CERM 402

FPD_12VS&FPD_12VM DZ1 1N5227B SOT23

R1012 100K 1% 1/16W MF 402 SEE_TABLE

CHOC_BROWNIE

FPD_3V3&FPD_12VM R283 0 5% 1/16W MF 402

FPD_PWR_ON 23D7<> FPD_PWR_ON_T

Q013 2N7002 SM

R284 100K 1% 1/16W MF 402

FPD_3V3&FPD_12VM

+5V POWER, SLEEP & TESTPOINT LEDS
(TESTPOINT LED IS USED TO FOR SERVICE AND
IF NOT ILLUMINATED, TELLS USER ITS OK TO ADD MEMORY)

50C4<> 50B4<> 49D7<> 49D3<> 52C1> 45D3<> 45B4<> 44D8< 42B3< 39C8< 36D8< 49C4<> 48D6<> 48C8<> 48C4<> 45D7< 51D7<> 51C3< 51B7< 51A5< 50D5<> 50D2< 59D7> +12V_MAIN

R740 10K 1% 1/16W MF 402

SLEEP2

CPU_STATE_LED* 44C4<>

R751 0 5% 1/16W MF 402 SLEEP1

Q018 2N7002 SM

51C3< 51A7< 51A5< 50D5<> 49D3<> 49C4<> 48D6<> 45B4<> 44D8< 42B3< 39C8< 36D8< 45B4<> 44D8< 42B3< 39C8< 36D8< 48D6<> 48C8<> 48C4<> 45D7< 45D3<> 50D2< 50C4<> 50B4<> 49D7<> 59D7> 52C1> 51D7<> +12V_MAIN

R738 4.7K 5% 1/16W MF 402

Q016 2N7002 SM

59D5> 44C7<> POWER_UP*

NOSTUFF R5101 0 5% 1/16W MF 402

CPU_SLEEPIN

LED_RET 29A3< 52B3>

Q017 2N7002 SM

Q15 2N7002 SM

R741 47.5K 1% 1/16W MF 402

+3V_MAIN

DEV R302 330 5% 1/16W MF 402

SLEEPLED_TERM

DS6 GREEN SM DEV

SLEEP_LED_BD

Q019 2N7002 SM

SLEEP LED

44D6<> BT1

+5V_MAIN

+12V_MAIN

+12V_SLEEP

51B7< 51C3< 51D7<> 52C1> 59D7> 36D8< 39C8< 42B3< 44D8< 45B4<> 45D3<> 45D7< 48C4<> 48C8<> 48D6<> 49C4<> 49D3<> 49D7<> 50B4<> 50C4<> 50D2< 50D5<> 51A7<

TESTPOINT

NOSTUFF R615 0 5% 1/16W MF 402

NOSTUFF R607 0 5% 1/16W MF 402

NOSTUFF R609 0 5% 1/16W MF 402

NOSTUFF R608 0 5% 1/16W MF 402

RT373P1

R612 787 1% 1/16W MF 603

PWR_LED

BT1_LED

NOSTUFF R614 470 5% 1/16W MF 402

DS10 RED SM

JAZ1 A TH-TP50

GENERAL POWER LED
(NOT ILLUMINATED = OK TO ADD MEMORY)

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
114S1005	1	RES,100K OHM,1%,1/16W,0402,SMD	R1012	FPD_12VM
116S1000	1	RES,0 OHM,5%,1/16W,0402,SMD	R1012	FPD_3V3

+5V/+12V, AUDIO FW & TMDS PWR

LAST MODIFIED=Mon Oct 27 12:34:44 2003

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 51 OF 69	

CPU POWER CONSTRAINT TABLE

SIG_NAME	MIN_NECK_WIDTH	VOLTAGE	MIN_LINE_WIDTH
+MAXBUS_SLEEP	10	1.8	20
CPU_AVDD	10	1.85	20
CPU_VCORE_SLEEP	10	1.85	20

4D5< 6C5< 6D6< 7A3< 7B3< 7C3< 7C5< 7C7< 8A3<> 8D1< 8D4< 9B7< 9D8< 44B7<
44D1< 44D2< 45D2<> 46D4< 59C7>
4D3<
4D3< 4D7< 8B7< 8C1< 45D2<> 59B5> 59D7>

ETHERNET POWER CONSTRAINT TABLE

SIG_NAME	MIN_NECK_WIDTH	VOLTAGE	MIN_LINE_WIDTH
ENET_AVDD	10	2.5	20

35D2<> 35D4<>

FIREWIRE POWER CONSTRAINT TABLE

SIG_NAME	MIN_NECK_WIDTH	VOLTAGE	MIN_LINE_WIDTH
FW_DIO_V	10	3.3	20
FW_DIODE_BYPASS_V	10	3.3	20
FW_PWR	10	24	20
FW_PWR_SW	10	24	20
FW_PHY_3_3	10	3.3	20
FW_VGND	10	0	20
FW_VP	10	12	20
FW_VP1	10	12	20
FW_VP2	10	12	20
FW_VP_1	10	12	20
FW_VP_2	10	12	20

36B6<
36B6<> 36B7<>
29B3< 36D6< 50C6<> 51D4<>
36D6< 51D2<>
36B5< 36B7< 36D7<

36D5<
36D1<> 36D3<>
36C1<> 36D3<>
36D4<
36D4<

GRAPHICS POWER CONSTRAINT TABLE

SIG_NAME	MIN_NECK_WIDTH	VOLTAGE	MIN_LINE_WIDTH
+3.3VFPD	10	3.6	20
DAC2VDD	10	3.3	20
DACVDD	10	3.3	20
DDC_VCC_3	10	3.3	20
DDC_VCC_5	10	5	20
DDR_VREF	10	1.25	20
IFP0AVCC	10	3.8	20
IFP0VREF	10	3.8	20
INT_TMDS_3V	10	3.6	20
GPU_AGP_VREF	10	0.75	20
GPU_FB_VREF	10	1.25	20
GRAPH_CORE	10	1.6	20
NVPLLVDD	10	3.3	20
SGRAVREF	10	1.25	20
SGRBVREF	10	1.25	20

24D7< 51C1<>
22C5<
22C4<
24B3<> 59B7>
25C4< 59B7>
12A7< 14D2<> 14D8<> 15D8<
23A6< 23C1<
23B4<>
24C3<> 59C7>
17A2< 17A8<
18C8<
17D4< 23C7<> 48C2<>
22D5<
20A3< 20C4< 20C8<
21A3< 21C4< 21C8<

17B5<>	GPU_50PULLUP	1.5	OUT
17A5<>	GPU_50PULLDWN	0	OUT
17A5<	GPU_TMODE	0	OUT
22B2< 22A5<	GPU_XTALSSIN	0	OUT
22D4<	VIPCLK	0	OUT
37B7<	CSLOT_IOWAIT_L	3.3	OUT
38C6<>	EIDE_CSELP_L	0	OUT
38C6<>	EIDE_IOCS16_L	5	OUT
38C2<>	UIDE_CSELP_L	0	OUT
38C2<>	UNUSED_ATAIOCS16_L	5	OUT

INTREPID POWER CONSTRAINT TABLE

SIG_NAME	MIN_NECK_WIDTH	VOLTAGE	MIN_LINE_WIDTH
+1_5V_INTREPID_PLL	10	1.5	20
+1_5V_INTREPID_PLL1	10	1.5	20
+1_5V_INTREPID_PLL2	10	1.5	20
+1_5V_INTREPID_PLL3	10	1.5	20
+1_5V_INTREPID_PLL4	10	1.5	20
+1_5V_INTREPID_PLL5	10	1.5	20
+1_5V_INTREPID_PLL6	10	1.5	20
+1_5V_INTREPID_PLL7	10	1.5	20
+1_5V_INTREPID_PLL8	10	1.5	20
+1_5V_AGP	10	1.5	20
INT_AGP_VREF	10	0.75	20

9D4< 16D6< 28D6<> 30D5<
28C4<
28D4<
28D4<
28D4<
16D5<
30D4<
9D2<
28D4<
10D6< 11A6< 16A8< 16C2< 16D7< 17A3< 17A4< 17D5< 46B4<> 59C7>
16A7< 16C6<>

MAIN POWER CONSTRAINT TABLE

SIG_NAME	MIN_NECK_WIDTH	VOLTAGE	MIN_LINE_WIDTH
+1_8V_MAIN	10	1.8	20
+2_5V_MAIN	10	2.5	20
+3V_MAIN	10	3.3	20
3.8V_TRICKLE	10	3.8	20
+5V_MAIN	10	5	20
+12V_MAIN	10	12	20
+12V_SLEEP	10	12	20
GND	10	0	20
AGND	10	0	20
ANALOGGND	10	0	20
ALTCHGND	10	0	20
CHGND	10	0	20

59D7>
59D7> 49B2<> 30B3<
43C7< 42C8< 42B7< 42B5< 41A7< 41A5< 40D5< 39D4<
59D7>
59D7> 51B4<>

39B7<>
41B3< 41B1<> 41A4< 41A2<> 40C6< 40B6< 40B5<> 35C1<> 35B1<
43A5< 42A6<> 42A5<> 41D3< 41C3<
36B6<> 36B2< 36A7<> 33D4< 33C4< 33C2< 33B4< 25C3< 25B3<>
36C1< 36C1<> 36B6<
43B7< 43A7< 29A3< 24B3<

+1_8V_MAIN
+2_5V_MAIN
+3V_MAIN
3.8V_TRICKLE
+5V_MAIN
+12V_MAIN
+12V_SLEEP

ALT CHASSIS

PMU POWER CONSTRAINT TABLE

SIG_NAME	MIN_NECK_WIDTH	VOLTAGE	MIN_LINE_WIDTH
3.8VH_TRICKLE	10	3.8	20
PMU_AVCC	10	3.5	20
PMU_POWER	10	3.5	20

44C1< 44D7<>
44B5< 44D4<> 59C5>
29C3<> 44A5<> 44B1< 44C2< 44D5<>

SYSTEM POWER CONSTRAINT TABLE

SIG_NAME	MIN_NECK_WIDTH	VOLTAGE	MIN_LINE_WIDTH
+12VSD_FILT	10	12	20
FAN_12V_FILT	10	12	20
KS5VSD	10	5	20
LED_5V	10	5	20
LED_5V_FILT	10	5	20
LED_RET	10	0	20
LED_RET_FILT	10	0	20

29A5<>
29A5<> 59C7>
29A5<> 59A7>
29A8<
29A5<> 59A7>
29A3< 51B6<
29A5<> 59A7>

USB POWER CONSTRAINT TABLE

SIG_NAME	MIN_NECK_WIDTH	VOLTAGE	MIN_LINE_WIDTH
+3V_INTREPID_USB	10	3.3	20
NEC_AVDD	10	3.3	20
USB_GND	10	0	20
USB_PORT_PWR	10	5	20
USB_PWR	10	5	20

28C4<
32D5<
33A4<> 33B3<> 33C3<>
33D3<> 59B5>
25B5<> 25C2< 25D3<> 33A6<>

POWER CONSTRAINTS

APPLE COMPUTER INC.
SIZE D | DRAWING NUMBER 051-6569 | REV. A
SCALE NONE | SHT 52 OF 69
DRAWING

SIG_NAME	RATSNEST_SCHEDULE RELATIVE_PROPAGATION_DELAY	MAX_VIAS	PROPAGATION_DELAY	STUB_LENGTH	MIN_NECK_WIDTH NET_SPACING_TYPE	MAX_EXPOSED_LENGTH	NO_TEST	FUNC_TEST	PULSE_PARAM
13C4<> 13B6<> 13B3<> 13A6<> 12D8<> 12C8<> 12B8< MEM_DATA<0..63>	MEM_GROUP0:G:L:S:0:150	8	L:S::1300		3				167 MHZ
13C8<> 14D6<> 14D4<> 14C6<> 13D4<> 13C7<> 13C4<> 13C2<> 13B5<> 13B2<> RAM_DATA_A<0..63>	RAM_GROUP0_A:G:L:S:0:180	8	L:S::1800		3				167 MHZ
14C4<> 14B6<> 14B4<> 14A6<> 14A4<> 13D7<> 13B2<> 13A5<> 15D6< 13A2<> 15A6< 15B4< 15B6< 15C4> 15C6< 15D4> RAM_DATA_B<0..63>	RAM_GROUP0_B:G:L:S:0:180	2	L:S::2400		3				167 MHZ
13C8<> 13C4<> 13B3<> 13A6<> 12C6<> MEM_DQS<0..7>	MEM_GROUP0:G:L:S:0:180	3	L:S::1300		3				167 MHZ
14A6<> 13D7<> 13D4<> 13C7<> 13C4<> 13B5<> 13B2<> RAM_DQS_A<0..7>	RAM_GROUP0_A:G:L:S:0:180	3	L:S::1700		3				167 MHZ
14D6<> 14C6< 14C4<> 14B2<> 14B5<> 14A2<> 13C7<> 13C4<> 13B7<> 13B4<> 13B2<> 13A5<> RAM_DQS_B<0..7>	RAM_GROUP0_B:G:L:S:0:180	2	L:S::2400		3				167 MHZ
15D6< 15C8< 15C6< 15B8< 15B6< 15A6< 15A4> 13C8<> 13C4<> 13B5<> 13A6<> 12C6<> MEM_DQM<0..7>	MEM_GROUP0:G:L:S:0:180	3	L:S::1300		3				167 MHZ
13D7<> 13D4<> 13C7<> 13C4<> 13B5<> 13B2<> 13A5<> RAM_DQM_A<0..7>	RAM_GROUP0_A:G:L:S:0:180	3	L:S::1800		3				167 MHZ
13C7<> 13C4<> 13B7<> 13B4<> 13B2<> 13A5<> 14D4<> 14C4<> 14B4<> 14A4<> 15D4> 15C4> 15B4> 15A4> RAM_DQM_B<0..7>	RAM_GROUP0_B:G:L:S:0:180	2	L:S::2400		3				167 MHZ
12D6<> 12D3< 12D2< 12C3< 12C2< 12B3< MEM_ADDR<0..12>	MEM_ADDR:G:L:S:0:200	3	L:S::600						
15B4> 14B6<> 14B4<> 12D3< 12D1< 12C3< 12C1< 12B3< RAM_ADDR<0..12>	RAM_ADDR:G:L:S:0:1300	4	L:S::3500	200					
15C6< 15C4> 15B6< 12D6<> 12B3< MEM_BA<0..1>	MEM_ADDR:G:L:S:0:1300	3	L:S::600						
15B6< 14B6<> 14B4<> 12B3< RAM_BA<0..1>	RAM_ADDR:G:L:S:0:1300	4	L:S::4000	200					
12C6<> 12C2< 12B2< MEM_CS_L<0..3>	MEM_ADDR:G:L:S:0:200	3	L:S::600		10 MIL SPACING				
14B6<> 14B4<> 12C1< RAM_CS_L<0..1>	RAM_CS_GROUP0:G:L:S:0:400	3	L:S:2000:3500		10 MIL SPACING				
15B4> 12B1< RAM_CS_L<2..3>	RAM_CS_GROUP1:G:L:S:0:350	2	L:S:2000:3500		10 MIL SPACING				
12C6<> 12A3< MEM_RAS_L	MEM_ADDR:G:L:S:0 MIL:200 MIL	3	L:S::600 MIL						
12C6<> 12A3< MEM_CAS_L	MEM_ADDR:G:L:S:0 MIL:200 MIL	3	L:S::600 MIL						
12C6<> 12B3< MEM_WE_L	MEM_ADDR:G:L:S:0 MIL:280 MIL	3	L:S::600 MIL						
15B6< 14B4<> 12A2< RAM_CAS_L	RAM_ADDR:G:L:S:0 MIL:2000 MIL	4	L:S::4000 MIL	200					
15B4> 14B4<> 12A2< RAM_RAS_L	RAM_ADDR:G:L:S:0 MIL:2000 MIL	4	L:S::4000 MIL	200					
15B6< 14B6<> 12B3< RAM_WE_L	RAM_ADDR:G:L:S:0 MIL:2000 MIL	4	L:S::4000 MIL	200					
12C6<> 12C2< 12B6<> 12B2< MEM_CKE<0..3>	MEM_ADDR:G:L:S:0:200	3	L:S::600		10 MIL SPACING				
15C1< 14B6<> 14B4<> 12C1< 12B1< RAM_CKE<0..1>	RAM_CS_GROUP0:G:L:S:0:400	3	L:S::2500		10 MIL SPACING				
15C6< 15C4> 15B1< 15A1< 12C1< 12B1< RAM_CKE<2..3>	RAM_CS_GROUP1:G:L:S:0:350	2	L:S::2500		10 MIL SPACING				
12B6<> MEM_MUXSEL_H<0..1>		3	L:S::1000						
12B6<> MEM_MUXSEL_L<0..1>		3	L:S::1000						167 MHZ
13C4<> 13A3<> 12D4< MUX_SEL_H		4	L:S::2000 MIL	200					167 MHZ
13C8<> 13A6<> 12D4< MUX_SEL_L		4	L:S::2000 MIL	200					167 MHZ
12B6<> SYSCLK_DDRCLK_A0_UF		L3	S:500 MIL:850 MIL		8 MIL SPACING	270			167 MHZ
12B6<> SYSCLK_DDRCLK_A0_L_UF		L3	S:500 MIL:850 MIL		8 MIL SPACING	270			167 MHZ
14D6<> 12C4< SYSCLK_DDRCLK_A0	SYSCLK_DDRCLKA0:G:L:S:0 MIL:100 MIL	3	L:S::2600 MIL	200	8 MIL SPACING	270			167 MHZ
14D6<> 12C4< SYSCLK_DDRCLK_A0_L	SYSCLK_DDRCLKA0:G:L:S:0 MIL:100 MIL	3	L:S::2600 MIL	200	8 MIL SPACING	270			167 MHZ
12B6<> SYSCLK_DDRCLK_A1_UF		L3	S:500 MIL:850 MIL		8 MIL SPACING	270			167 MHZ
12B6<> SYSCLK_DDRCLK_A1_L_UF		L3	S:500 MIL:850 MIL		8 MIL SPACING	270			167 MHZ
14A4<> 12C4< SYSCLK_DDRCLK_A1	SYSCLK_DDRCLKA1:G:L:S:0 MIL:100 MIL	3	L:S::2600 MIL	200	8 MIL SPACING	270			167 MHZ
14A4<> 12B4< SYSCLK_DDRCLK_A1_L	SYSCLK_DDRCLKA1:G:L:S:0 MIL:100 MIL	3	L:S::2600 MIL	200	8 MIL SPACING	270			167 MHZ
12B6<> SYSCLK_DDRCLK_A2_UF		L3	S:500 MIL:850 MIL		8 MIL SPACING	270			167 MHZ
12B6<> SYSCLK_DDRCLK_A2_L_UF		L3	S:500 MIL:850 MIL		8 MIL SPACING	270			167 MHZ
SYSCLK_DDRCLK_A2_L		3	L:S::750 MIL		8 MIL SPACING	270			167 MHZ
12B6<> SYSCLK_DDRCLK_B0_UF		L3	S:500 MIL:850 MIL		8 MIL SPACING	270			167 MHZ
12B6<> SYSCLK_DDRCLK_B0_L_UF		L3	S:500 MIL:850 MIL		8 MIL SPACING	270			167 MHZ
15B4> 12B4< SYSCLK_DDRCLK_B0	SYSCLK_DDRCLKB0:G:L:S:0 MIL:100 MIL	3	L:S::3500 MIL	200	8 MIL SPACING	270			167 MHZ
12B4< 15B3> SYSCLK_DDRCLK_B0_L	SYSCLK_DDRCLKB0:G:L:S:0 MIL:100 MIL	3	L:S::3500 MIL	200	8 MIL SPACING	270			167 MHZ
12B6<> SYSCLK_DDRCLK_B1_UF		L3	S:500 MIL:850 MIL		8 MIL SPACING	270			167 MHZ
12B6<> SYSCLK_DDRCLK_B1_L_UF		L3	S:500 MIL:850 MIL		8 MIL SPACING	270			167 MHZ
15D6< 12A4< SYSCLK_DDRCLK_B1	SYSCLK_DDRCLKB1:G:L:S:0 MIL:100 MIL	3	L:S::3500 MIL	200	8 MIL SPACING	270			167 MHZ
15C6< 12A4< SYSCLK_DDRCLK_B1_L	SYSCLK_DDRCLKB1:G:L:S:0 MIL:100 MIL	3	L:S::3200 MIL	200	8 MIL SPACING	270			167 MHZ
12B6<> SYSCLK_DDRCLK_B2_UF		L3	S:500 MIL:850 MIL		8 MIL SPACING	270			167 MHZ
12B6<> SYSCLK_DDRCLK_B2_L_UF		L3	S:500 MIL:850 MIL		8 MIL SPACING	270			167 MHZ
15A6< 12A4< SYSCLK_DDRCLK_B2	SYSCLK_DDRCLKB2:G:L:S:0 MIL:100 MIL	3	L:S::3500 MIL	200	8 MIL SPACING	270			167 MHZ
15A6< 12A4< SYSCLK_DDRCLK_B2_L	SYSCLK_DDRCLKB2:G:L:S:0 MIL:100 MIL	3	L:S::3500 MIL	200	8 MIL SPACING	270			167 MHZ
28A6< INT_REF_CLK_IN_PD		8	L:S::2500 MIL		10 MIL SPACING	270			66.56 MHZ
31C6< 31B7< 31B6< 30D4<> 30C4<> 30C2< 30C1<> 30B2< PCI_AD<31..0>	MIN_DAISY_CHAIN	6	L:S:6000:8000	500					33 MHZ
59C3> 59B3> 32C6<> 32B7<> 32B6<> 31C7< 59A5> 32B6<> 31B7< 30C5<> PCI_CBE<3..0>	MIN_DAISY_CHAIN	6	L:S:6000:8000	500					33 MHZ
59A5> 32B6<> 31B7< 30C5<> 30B7< PCI_FRAME_L	MIN_DAISY_CHAIN	L7	S:6000 MIL:8000 MIL	500					33 MHZ

DIGITAL SIGNAL CONSTRAINTS

SIGNAL CONSTRAINTS

APPLE COMPUTER INC.
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SIG_NAME	RATSNEST_SCHEDULE / RELATIVE_PROPAGATION_DELAY	MAX_VIAS	PROPAGATION_DELAY	STUB_LENGTH	NET_SPACING_TYPE	DIFFERENTIAL_PAIR / MAX_EXPOSED_LENGTH	DIFFERENTIAL_PAIR / FUNC_TEST	PULSE_PARAM
32B6<> 31B7< 30C5<> 30B7< PCI_IRDY_L	MIN_DAISY_CHAIN	6	S:6000 MIL:8000 MIL	500				33 MHZ
59A5> 32B6<> 31B7< 30C5<> 30B7< PCI_TRDY_L	MIN_DAISY_CHAIN	6	S:6000 MIL:8000 MIL	500				33 MHZ
59A5> 32B6<> 31B7< 30C5<> 30B7< PCI_DEVSEL_L	MIN_DAISY_CHAIN	6	S:6000 MIL:8000 MIL	500				33 MHZ
59A5> 32B6<> 31B7< 30C5<> 30B7< PCI_STOP_L	MIN_DAISY_CHAIN	6	S:6000 MIL:8000 MIL	500				33 MHZ
59A5> 32B6<> 31B7< 30C5<> PCI_PAR	MIN_DAISY_CHAIN	6	S:6000 MIL:8000 MIL	500				33 MHZ
30D5<> CLK33M_PCI_SLOTB_UF		8	S:600 MIL:1000 MIL	200		450		33 MHZ
30D5<> CLK33M_PCI_SLOTC_UF		8	S:600 MIL:1200 MIL	200		450		33 MHZ
30D5<> CLK33M_PCI_SLOTD_UF		8	S:600 MIL:1000 MIL	200		450		33 MHZ
59A5> 31C2<> 30D7< CLK33M_PCI_SLOTB		5	S:3000 MIL:4000 MIL	200	10 MIL SPACING	450		33 MHZ
30C5<> INT_PCI_FB_OUT		4	L:S::1000 MIL	200		450		33 MHZ
30D8< PCI_FBO_PLUS2		4	L:S::200 MIL	200		450		33 MHZ
30C8< PCI_FB_PLUS4		4	S:1900 MIL:2000 MIL			450		33 MHZ
30C8< PCI_FBI_PLUS2		4	S:1900 MIL:2000 MIL	200		450		33 MHZ
30C7< PCI_FBI_EQUAL		4	S:2000 MIL:3000 MIL	200		450		33 MHZ
30C7< PCI_FB_PLUS6		4	S:5900 MIL:6000 MIL			450		33 MHZ
30C5< INT_PCI_FB_IN		4	L:S::1080 MIL	200		450		33 MHZ
31C6< 31C3<> 31C2<> 31B7< 31B6< 31B3<> 31B2<> PCIT_AD<31..0>		3	L:S::1000					33 MHZ
59C3> 59B3> 31C7< 59A5> 31C3<> 31B6< 31B2<> PCIT_CBE<31..0>		3	L:S::1000					33 MHZ
31C2<> 31B6< PCIT_FRAME_L		3	L:S::1000 MIL					33 MHZ
59B5> 31C3<> 31B6< PCIT_IRDY_L		3	L:S::1000 MIL					33 MHZ
31C2<> 31B6< PCIT_TRDY_L		3	L:S::1000 MIL					33 MHZ
31C2<> 31B6< PCIT_DEVSEL_L		3	L:S::1000 MIL					33 MHZ
31C2<> 31B6< PCIT_STOP_L		3	L:S::1000 MIL					33 MHZ
31C2<> 31B6< PCIT_PAR		3	L:S::1000 MIL					33 MHZ
17D8< 17C8< 16C4<> AGP_AD<0..15>	AGP_GROUP0:G:L:S:0:280	5	L:S::4500					266 MHZ
17C8< 16B4<> AGP_CBE<0..1>	AGP_GROUP0:G:L:S:0:330	5	L:S::4500					266 MHZ
17B8< 16B3< 16A4<> AGP_AD_STB<0>	AGP_GROUP0:G:L:S:0 MIL:330 MIL	4	L:S::4400 MIL	200	8 MIL SPACING	500	AGP_ADSTBDP0	133 MHZ
17B8< 16D1< 16A4<> AGP_AD_STB_L<0>	AGP_GROUP0:G:L:S:0 MIL:330 MIL	4	L:S::4400 MIL	200	8 MIL SPACING	500	AGP_ADSTBDP0	133 MHZ
17C8< 16C4<> 16B4<> AGP_AD<16..31>	AGP_GROUP0:G:L:S:0:280	5	L:S::4500					266 MHZ
17C8< 16B4<> AGP_CBE<2..3>	AGP_GROUP0:G:L:S:0:280	5	L:S::4500					266 MHZ
17B8< 16B3< 16A4<> AGP_AD_STB<1>	AGP_GROUP0:G:L:S:0 MIL:280 MIL	4	L:S::4400 MIL	200	8 MIL SPACING	500	AGP_ADSTBDP1	133 MHZ
17B8< 16D1< 16A4<> AGP_AD_STB_L<1>	AGP_GROUP0:G:L:S:0 MIL:330 MIL	4	L:S::4400 MIL	200	8 MIL SPACING	500	AGP_ADSTBDP1	133 MHZ
17B8< 16C3< 16B4<> AGP_FRAME_L		5	S:4000 MIL:4500 MIL					66 MHZ
17B8< 16C3< 16B4<> AGP_IRDY_L		5	S:4000 MIL:4500 MIL					66 MHZ
17B8< 16B4<> 16B3< AGP_TRDY_L		5	S:4000 MIL:4500 MIL					66 MHZ
17B8< 16C3< 16B4<> AGP_DEVSEL_L		5	S:4000 MIL:4500 MIL					66 MHZ
17B8< 16B4<> 16B3< AGP_STOP_L		5	S:4000 MIL:4500 MIL					66 MHZ
17B8< 16B4<> AGP_PAR		5	S:4000 MIL:4500 MIL					66 MHZ
17A8< 16C1< 16B4< 16B4<> 16B1< 16A4<> AGP_SBA<0..7>		5	L:S:4000:4500					
17B8< 16B3< 16A4<> AGP_SB_STB	AGP_GROUP99:G:L:S:0 MIL:200 MIL	5	L:S::4500 MIL				AGP_SBSTBB	
17A8< 16D1< 16A4<> AGP_SB_STB_L	AGP_GROUP99:G:L:S:0 MIL:200 MIL	5	L:S::4500 MIL				AGP_SBSTBB	
17B6< 16B1< 16A4<> AGP_ST<0..2>		5	L:S:4500:5000					
17B8< 16B3< 16A4<> AGP_PIPE_L		5	S:4000 MIL:4500 MIL					
17B8< 16B3< 16A4<> AGP_RBF_L		5	S:4000 MIL:4500 MIL					
17B6<> 16C4<> 16C3< AGP_REQ_L		5	S:4500 MIL:5000 MIL					
17B6< 16C4<> 16C3< AGP_GNT_L		5	S:4500 MIL:5000 MIL					
17B8< 16B1< 16A6<> AGP_WBF_L		5	S:4000 MIL:4500 MIL					
17A8> 16D3< 16D1< 16C6<> AGP_BUSY_L		5	S:4500 MIL:5000 MIL					
17A8< 16D3< 16C6<> STOP_AGP_L		5	S:4500 MIL:5000 MIL					
17D7<> 17D6<> 17C6<> GPU_AGP_AD<0..15>	GPU_AGP_GROUP0:G:L:S:0:100	3	L:S::600					266 MHZ
17C6<> GPU_AGP_CBE<0..1>	GPU_AGP_GROUP0:G:L:S:0:100	3	L:S::600					266 MHZ
AGP_AD_STB_GPU_UF<0>	GPU_AGP_STB0:G:L:S:0 MIL:50 MIL	3	L:S::450 MIL		8 MIL SPACING	500	GPU_ADSTBDP0	133 MHZ
AGP_AD_STB_L_GPU_UF<0>	GPU_AGP_STB0:G:L:S:0 MIL:50 MIL	3	L:S::800 MIL		8 MIL SPACING	500	GPU_ADSTBDP0	133 MHZ
17C6<> GPU_AGP_AD<16..31>	GPU_AGP_GROUP1:G:L:S:0:100	3	L:S::600					266 MHZ
17C6<> GPU_AGP_CBE<2..3>	GPU_AGP_GROUP1:G:L:S:0:100	3	L:S::600					266 MHZ
AGP_AD_STB_GPU_UF<1>	GPU_AGP_STB1:G:L:S:0 MIL:50 MIL	3	L:S::800 MIL		8 MIL SPACING	500	GPU_ADSTBDP1	133 MHZ
AGP_AD_STB_L_GPU_UF<1>	GPU_AGP_STB1:G:L:S:0 MIL:50 MIL	3	L:S::800 MIL		8 MIL SPACING	500	GPU_ADSTBDP1	133 MHZ
17B6<> GPU_AGP_FRAME_L		3	S:300 MIL:600 MIL					66 MHZ
17B6<> GPU_AGP_IRDY_L		3	S:300 MIL:600 MIL					66 MHZ
17B6<> GPU_AGP_TRDY_L		3	S:300 MIL:600 MIL					66 MHZ
17B6<> GPU_AGP_DEVSEL_L		3	S:300 MIL:600 MIL					66 MHZ
17B6<> GPU_AGP_STOP_L		3	S:300 MIL:600 MIL					66 MHZ
17B6<> GPU_AGP_PAR		3	S:300 MIL:600 MIL					66 MHZ
17A6<> GPU_AGP_SBA<0..7>		3	L:S:300:600					
17B6<> GPU_AGP_SB_STB	GPU_AGP_SBSTB:G:L:S:0 MIL:50 MIL	3	L:S:300 MIL:600 MIL				GPU_SBSTBB	
17A6<> GPU_AGP_SB_STB_L	GPU_AGP_SBSTB:G:L:S:0 MIL:50 MIL	3	L:S:300 MIL:600 MIL				GPU_SBSTBB	
17B6<> GPU_AGP_PIPE_L		3	L:S:300 MIL:600 MIL					
17B6<> GPU_AGP_RBF_L		3	L:S:300 MIL:600 MIL					
16C6<> CLK66M_GPU_UF		3	S:1000 MIL:1100 MIL		10 MIL SPACING	250		66 MHZ
17C6< 16D8< CLK66M_GPU_AGP		4	S:3700 MIL:3900 MIL	200	10 MIL SPACING	250		66 MHZ
16C6<> INT_AGP_FB_OUT		4	S:1400 MIL:1500 MIL	200		250		66 MHZ
16B7< AGP_FBO_EQUAL		4	S:900 MIL:1080 MIL	200		250		66 MHZ
16B8< AGP_FB_PLUS2		4	S:1900 MIL:2000 MIL			250		66 MHZ
16C7< AGP_FBI_EQUAL		4	L:S::200 MIL	200		250		66 MHZ
16C6< INT_AGP_FB_IN		4	L:S::1200 MIL	200		250		66 MHZ
30C5<> 30A7< 16D7< INT_ROM_OVERLAY_PU		3	S:600 MIL:800 MIL		10 MIL SPACING	250		66 MHZ
59A7> 56B3> 16C7> 9B4< 8A2< INT_ANALYZER_CLK		3	L:S::2800 MIL		8 MIL SPACING	250		166 MHZ
32A6< 30D7< CLK33M_PCI_SLOTD		4	S:3000 MIL:3500 MIL	200	8 MIL SPACING	250		33 MHZ

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APPLE COMPUTER INC.
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DIGITAL SIGNALS

RATSNEST_SCHEDULE

GROUP	SIG_NAME	RELATIVE_PROPAGATION_DELAY	MAX VIAS	PROPAGATION_DELAY	STUB_LENGTH	NET_SPACING_TYPE	MAX EXPOSED LENGTH	PULSE PARAM	
	FBD<0..63>	GPU_FBDATA_A:G:L:S:0:225	2	L:S::800				300 MHZ	18E8<> 18F8<> 18G8<> 19C5< 19C8< 19D5< 19D8<
	RFBD<0..63>	RAM_FBDATA_A:G:L:S:0:300	2	L:S::1000				300 MHZ	19C4< 19C7< 19D4< 19D7< 20B1<> 20B5<> 20C1<> 20C5<>
	FBDQM<0..7>	GPU_FBDQM_A:G:L:S:0:200	2	L:S::800				300 MHZ	18D8> 18G3<
	RFBDQM<0..7>	RAM_FBDQM_A:G:L:S:0:200	2	L:S::1000				300 MHZ	18G2< 20C2< 20C6<
	FBA<0..12>	GPU_FBADDR_A:G:L:S:0:200	2	L:S::700				300 MHZ	18C8> 18D8> 18E3< 18F3<
	RFBA<0..11>	RAM_FBADDR_A:G:L:S:0:330	2	L:S::2400	2350			300 MHZ	18E2<> 18F2<> 20C2< 20C6< 20D2< 20D6<
	FBABA<0..1>	GPU_FBADDR_A:G:L:S:0:200	2	L:S::600				300 MHZ	18C8<> 18E3<
	RFBABA<0..1>	RAM_FBADDR_A:G:L:S:0:330	2	L:S::2400	50			300 MHZ	18E2<> 20C2< 20C6<
	FBARAS_L	GPU_FBCNTL_A:G:L:S:0:MIL:200 MIL	2	L:S::400 MIL				300 MHZ	18C8> 18G3<
	FBACAS_L	GPU_FBCNTL_A:G:L:S:0:MIL:200 MIL	2	L:S::400 MIL				300 MHZ	18C8> 18G3<
	FBAWE_L	GPU_FBCNTL_A:G:L:S:0:MIL:200 MIL	2	L:S::400 MIL				300 MHZ	18C8> 18F3<
	FBACS0_L	GPU_FBCNTL_A:G:L:S:0:MIL:200 MIL	2	L:S::400 MIL				300 MHZ	18C8> 18F3<
	FBACKE	GPU_FBCNTL_A:G:L:S:0:MIL:200 MIL	2	L:S::400 MIL	100			300 MHZ	18D3< 18D7<>
	RFBARAS_L	RAM_FBCNTL_A:G:L:S:0:MIL:350 MIL	2	L:S::2700 MIL	50			300 MHZ	18G2<> 20B2< 20B6<
	RFBACAS_L	RAM_FBCNTL_A:G:L:S:0:MIL:500 MIL	2	L:S::2700 MIL	50			300 MHZ	18G2<> 20B2< 20B6<
	RFBAWE_L	RAM_FBCNTL_A:G:L:S:0:MIL:500 MIL	2	L:S::2700 MIL	50			300 MHZ	18F2<> 20B2< 20B6<
	RFBACS0_L	RAM_FBCNTL_A:G:L:S:0:MIL:350 MIL	2	L:S::2700 MIL	50			300 MHZ	18F2<> 20B2< 20B6<
	RFBACKE	RAM_FBCNTL_A:G:L:S:0:MIL:500 MIL	2	L:S::2700 MIL	50			300 MHZ	18D2<> 20C2< 20C6<
	FBDQS<0..7>	GPU_FBDQS_A:G:L:S:0:100	2	L:S::350				300 MHZ	18C7<> 19A8<
	FBDQSTERM<0..7>	FB_DQSTERM_A:G:L:S:0:80	0	L:S::1500		10 MIL SPACING		300 MHZ	19A7<
	RFBDQS<0..7>	RAM_FBDQS_A:G:L:S:0:55	0	L:S::150		10 MIL SPACING		300 MHZ	19A6< 20C2<> 20C6<>
	FBACLK0	GPU_FBCLK_A:G:L:S:0 MIL:50 MIL	2	L:S::150 MIL			200	300 MHZ	18D7> 19C3<
	FBACLK0_L	GPU_FBCLK_A:G:L:S:0 MIL:50 MIL	2	L:S::150 MIL			200	300 MHZ	18D7> 19C3<
	FBACLK1	GPU_FBCLK_A:G:L:S:0 MIL:50 MIL	2	L:S::150 MIL			200	300 MHZ	18D7> 19D3<
	FBACLK1_L	GPU_FBCLK_A:G:L:S:0 MIL:50 MIL	2	L:S::150 MIL			200	300 MHZ	18D7> 19D3<
	RFBACLK1	RAM_FBCLK_A:G:L:S:0 MIL:80 MIL	2	L:S::2500 MIL			200	300 MHZ	19D1< 20C2<
	RFBACLK1_L	RAM_FBCLK_A:G:L:S:0 MIL:80 MIL	2	L:S::2500 MIL			200	300 MHZ	19D1< 20C2<
	RFBACLK0	RAM_FBCLK_A:G:L:S:0 MIL:70 MIL	2	L:S::2500 MIL			200	300 MHZ	19C1< 20C6<
	RFBACLK0_L	RAM_FBCLK_A:G:L:S:0 MIL:70 MIL	2	L:S::2500 MIL			200	300 MHZ	19C1< 20C6<
	FBD<64..127>	GPU_FBDATA_B:G:L:S:0:225	2	L:S::800				300 MHZ	18E5<> 18F5<> 18G5<> 19B5< 19B8< 19C5< 19C8<
	RFBD<64..127>	RAM_FBDATA_B:G:L:S:0:325	2	L:S::1000				300 MHZ	19B4< 19B7< 19C4< 19C7< 21B1<> 21B5<> 21C1<> 21C5<>
	FBDQM<8..15>	GPU_FBDQM_B:G:L:S:0:120	2	L:S::800				300 MHZ	18C3< 18D3< 18D5>
	RFBDQM<8..15>	RAM_FBDQM_B:G:L:S:0:120	2	L:S::1000				300 MHZ	18C2< 18D2< 21C2< 21C6<
	FBBA<0..12>	GPU_FBADDR_B:G:L:S:0:120	2	L:S::600				300 MHZ	18A3< 18B3< 18C3< 18C5<> 18D5<>
	RFBBA<0..11>	RAM_FBADDR_B:G:L:S:0:370	2	L:S::2400	50			300 MHZ	18B2<> 18C2<> 21C2< 21C6< 21D2< 21D6<
	FBBBA<0..1>	GPU_FBADDR_B:G:L:S:0:120	2	L:S::600				300 MHZ	18A3< 18C5<>
	RFBBBA<0..1>	RAM_FBADDR_B:G:L:S:0:370	2	L:S::2400	50			300 MHZ	18A2<> 21C2< 21C6<
	FBBRAS_L	GPU_FBCNTL_B:G:L:S:0 MIL:120 MIL	2	L:S::400 MIL				300 MHZ	18C3< 18D4<>
	FBBCAS_L	GPU_FBCNTL_B:G:L:S:0 MIL:120 MIL	2	L:S::400 MIL				300 MHZ	18C3< 18D4<>
	FBBWE_L	GPU_FBCNTL_B:G:L:S:0 MIL:120 MIL	2	L:S::400 MIL				300 MHZ	18C3< 18D4<>
	FBBCS0_L	GPU_FBCNTL_B:G:L:S:0 MIL:120 MIL	2	L:S::400 MIL				300 MHZ	18C3< 18C4<>
	FBBCKE	GPU_FBCNTL_B:G:L:S:0 MIL:120 MIL	2	L:S::400 MIL	100			300 MHZ	18A3< 18C4<>
	RFBBRAS_L	RAM_FBCNTL_B:G:L:S:0 MIL:2000 MIL	2	L:S::3500 MIL	3550			300 MHZ	18C2<> 21B2< 21B6<
	RFBBCAS_L	RAM_FBCNTL_B:G:L:S:0 MIL:2000 MIL	2	L:S::3500 MIL	3550			300 MHZ	18C2<> 21B2< 21B6<
	RFBBWE_L	RAM_FBCNTL_B:G:L:S:0 MIL:2000 MIL	2	L:S::3500 MIL	3550			300 MHZ	18C2<> 21B2< 21B6<
	RFBBCS0_L	RAM_FBCNTL_B:G:L:S:0 MIL:2000 MIL	2	L:S::3500 MIL	3550			300 MHZ	18C2<> 21B2< 21B6<
	RFBBCKE	RAM_FBCNTL_B:G:L:S:0 MIL:2000 MIL	2	L:S::3500 MIL	3550			300 MHZ	18A2<> 21C2< 21C6<
	FBDQS<8..15>	GPU_FBDQS_B:G:L:S:0:100	2	L:S::350		10 MIL SPACING		300 MHZ	18D4<> 19A5<
	FBDQSTERM<8..15>	FB_FBDQSTERM_B:G:L:S:0:60	0	L:S::1500		10 MIL SPACING		300 MHZ	19A4<
	RFBDQS<8..15>	RAM_FBDQS_B:G:L:S:0:50	0	L:S::150		10 MIL SPACING		300 MHZ	19A3< 21C2<> 21C6<>
	FBBCLK0	GPU_FBCLK_B:G:L:S:0 MIL:50 MIL	2	L:S::150 MIL			200	300 MHZ	18C5<> 19B3<
	FBBCLK0_L	GPU_FBCLK_B:G:L:S:0 MIL:50 MIL	2	L:S::150 MIL			200	300 MHZ	18C5> 19B3<
	FBBCLK1	GPU_FBCLK_B:G:L:S:0 MIL:50 MIL	2	L:S::150 MIL			200	300 MHZ	18C5> 19C3<
	FBBCLK1_L	GPU_FBCLK_B:G:L:S:0 MIL:50 MIL	2	L:S::150 MIL			200	300 MHZ	18C5> 19B3<
	RFBBCLK1	RAM_FBCLK_B:G:L:S:0 MIL:90 MIL	2	L:S::2500 MIL			200	300 MHZ	19C1< 21C2<
	RFBBCLK1_L	RAM_FBCLK_B:G:L:S:0 MIL:90 MIL	2	L:S::2500 MIL			200	300 MHZ	19B1< 21C2<
	RFBBCLK0	RAM_FBCLK_B:G:L:S:0 MIL:90 MIL	2	L:S::2500 MIL			200	300 MHZ	19B1< 21C6<
	RFBBCLK0_L	RAM_FBCLK_B:G:L:S:0 MIL:90 MIL	2	L:S::2500 MIL			200	300 MHZ	19B1< 21C6<

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DIGITAL SIGNALS

GROUP	SIG_NAME	RELATIVE_PROPAGATION_DELAY	VIAS	PROPAGATION_DELAY	STUB_LENGTH	NET_SPACING_TYPE	NO_TEST	PULSE_PARAM	MAX_EXPOSED_LENGTH	
MAXBUS	CPU_ADDR<0..31>	CPU_ADDR_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250			166 MHZ		4B7<> 4C7<> 8B4<> 8B5<> 8B7<> 8B8<> 8C4<> 8C5<> 8C7<> 8C8<>
	CPU_DATA<0..63>	CPU_DATA_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	1550			166 MHZ		9C3<> 9D3<> 9D5<> 9D8<>
	CPU_BR_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		9A3<> 9B4<> 9C4<> 9D4<> 6C4< 8C4<> 8C4< 8C5<> 8C7<> 8C7< 8C8<>
	CPU_BG_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		9D4<> 8D5<> 8D7<> 8D8<> 9A7< 9B1<> 9B7< 9C1<> 9C5< 9C8< 9D1<>
	CPU_TS_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4D7> 7C7< 8B4<> 9D3<>
	CPU_TT<0..4>	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4D7< 7B7< 8B4<> 9D3<>
	CPU_TBST_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4D7<> 7C7< 8B7<> 9D3<>
	CPU_TSIZ<0..2>	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4B7<> 7A7< 8B4<> 8B5<> 9B3<>
	CPU_ARTRY_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4B7> 7B7< 8B4<> 9B3<>
	CPU_AACK_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4B7> 8B5<> 8B7< 9B3<>
	CPU_GBL_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4A7<> 7C7< 8B8<> 9B3<>
	CPU_INT_GBL_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4A7< 7B7< 8B5<> 9B3<>
	CPU_CI_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4B8<> 8B5<>
	CPU_HIT_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4B8< 7B7< 9C3<>
	CPU_DBG_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4A7> 7A7< 8C5<> 9C3<>
	CPU_DRDY_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4A7> 7C7< 8B8<> 9B3<
	CPU_WT_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4C3< 7B7< 8B8<> 9B1<>
	CPU_DRDY_L_UF		2	:::5000	250	10 MIL SPACING		166 MHZ		4C2< 7B7< 8B5<> 9B1<
	CPU_DTI<0..2>	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4B7> 7A7< 8B5<> 9B3<>
	CPU_TA_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4C3>
	CPU_TEA_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4C3< 8B4<> 8B7<> 9A1<>
	CPU_QREQ_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4C3< 7C7< 8C4<> 9A1<>
	CPU_QACK_L	CPU_CNTL_GROUP:G:L:S:0 MIL:60 MIL	7	:::5000	250	10 MIL SPACING		166 MHZ		4C3< 7B7< 8B5<> 9A1<>
	SYSCLK_CPU_UF		2	:::150		10 MIL SPACING		166 MHZ	315	4C3> 7D5< 8B7<> 9B3<
	SYSCLK_CPU		4	::2200:2400	200	10 MIL SPACING		166 MHZ	315	4C3< 8B4<> 9B3<>
	INT_CPU_FB_OUT		3	:::1000	200			166 MHZ	315	9A3<>
	CPU_FBO_PLUS1		3	:::200	200			166 MHZ	315	4D2< 9A4<
	CPU_FBI_PLUS1		3	::1400:1500	200			166 MHZ	315	9B3<>
	CPU_FB_MINUS3		4	::900:1000	200			166 MHZ	315	9A5<
	INT_CPU_FB_IN		4	:::1000	200			166 MHZ	315	9A5<
	CPU_FB_PLUS2		3	::900:1000				166 MHZ	315	9A4<
	CPU_FB_PLUS3		3	::2900:3000				166 MHZ	315	9B3<
	INT_ANALYZER_CLK		3	:::300				166 MHZ		9A5<
	SYSCLK_LA		2	:::2000				166 MHZ		9A4<
	INT_CLOCK_OUT		3	:::3000				166 MHZ		8A2< 9B4< 16C7< 54A7< 59A7>
										8A2< 8D8<>
										8B2<>

GROUP	SIG_NAME	RELATIVE_PROPAGATION_DELAY	VIAS	PROPAGATION_DELAY	STUB_LENGTH	MIN_LINE_WIDTH	NET_SPACING_TYPE	PULSE_PARAM	DIFFERENTIAL_PAIR		
	USB2_XT1		3	:::1000	100	10 MIL SPACING		30 MHZ			32C4<
	USB2_XT2_B		3	:::1000	100	10 MIL SPACING		30 MHZ			
	USB2_XT2		3	:::100	100	10 MIL SPACING		30 MHZ			32C4<>
	USB2_RREF		2	:::100							32B4<>
	USB2_RSDAM	USB2_RSDA:G:L:S:02MIL:20 MIL	6	:::600		8 MIL SPACING	3.5	480 MHZ			32C4<>
	USB2_RSDAP	USB2_RSDA:G:L:S:02MIL:20 MIL	6	:::600		8 MIL SPACING	3.5	480 MHZ			32C4<>
	USB2_RSDBM	USB2_RSDB:G:L:S:02MIL:20 MIL	6	:::600		8 MIL SPACING	3.5	480 MHZ			32C4<>
	USB2_RSDBP	USB2_RSDB:G:L:S:02MIL:20 MIL	6	:::600		8 MIL SPACING	3.5	480 MHZ			32C4<>
	USB2_RSDCM	USB2_RSDC:G:L:S:02MIL:20 MIL	6	:::600		8 MIL SPACING	3.5	480 MHZ			32C4<> RATSNEST_SCEDULE
	USB2_RSDCP	USB2_RSDC:G:L:S:02MIL:20 MIL	6	:::600		8 MIL SPACING	3.5	480 MHZ			32C4<>
	USB2_DAN_F	USB2_DMA:G:L:S:0 MIL:30 MIL	5	:::500	50	8 MIL SPACING	3.5	480 MHZ	USB2_DMA_DP	MIN_DAISY_CHAIN	32C1<> 33B7<
	USB2_DAP_F	USB2_DMA:G:L:S:0 MIL:30 MIL	5	:::500	50	8 MIL SPACING	3.5	480 MHZ	USB2_DMA_DP	MIN_DAISY_CHAIN	32C1<> 33B7<
	USB2_DBN_F	USB2_DMB:G:L:S:0 MIL:20 MIL	5	:::500	50	8 MIL SPACING	3.5	480 MHZ	USB2_DMB_DP	MIN_DAISY_CHAIN	32C1<> 33C7<
	USB2_DBP_F	USB2_DMB:G:L:S:0 MIL:20 MIL	5	:::500	50	8 MIL SPACING	3.5	480 MHZ	USB2_DMB_DP	MIN_DAISY_CHAIN	32C1<> 33C7<
	USB2_DCN_F	USB2_DMC:G:L:S:0 MIL:20 MIL	5	:::500	50	8 MIL SPACING	3.5	480 MHZ	USB2_DMC_DP	MIN_DAISY_CHAIN	32C1<> 33D7<
	USB2_DCP_F	USB2_DMC:G:L:S:0 MIL:20 MIL	5	:::500	50	8 MIL SPACING	3.5	480 MHZ	USB2_DMC_DP	MIN_DAISY_CHAIN	32C1<> 33D7<
	USBT_DAN_F	USB2_DMAT:G:L:S:04MIL:60 MIL	6	:::2000	2000	8 MIL SPACING	3.5	480 MHZ	USB2_DMAT_DP	MIN_DAISY_CHAIN	33B6<>
	USBT_DAP_F	USB2_DMAT:G:L:S:04MIL:60 MIL	6	:::2000	2000	8 MIL SPACING	3.5	480 MHZ	USB2_DMAT_DP	MIN_DAISY_CHAIN	33B6<>
	USBT_DBN_F	USB2_DMBT:G:L:S:04MIL:60 MIL	6	:::2000	2000	8 MIL SPACING	3.5	480 MHZ	USB2_DMBT_DP	MIN_DAISY_CHAIN	33C6<>
	USBT_DBP_F	USB2_DMBT:G:L:S:04MIL:60 MIL	6	:::2000	2000	8 MIL SPACING	3.5	480 MHZ	USB2_DMBT_DP	MIN_DAISY_CHAIN	33C6<>
	USBT_DCN_F	USB2_DMCT:G:L:S:04MIL:60 MIL	6	:::2000	2000	8 MIL SPACING	3.5	480 MHZ	USB2_DMCT_DP	MIN_DAISY_CHAIN	33D6<>
	USBT_DCP_F	USB2_DMCT:G:L:S:04MIL:60 MIL	6	:::2000	2000	8 MIL SPACING	3.5	480 MHZ	USB2_DMCT_DP	MIN_DAISY_CHAIN	33D6<>
	USB_DAN_CON	USB2_CONA:G:L:S:02MIL:30 MIL	5	:::500	50	8 MIL SPACING	3.5	480 MHZ	USB2_CONA_DP	MIN_DAISY_CHAIN	33C3<> 59C5>
	USB_DAP_CON	USB2_CONA:G:L:S:02MIL:30 MIL	5	:::500	50	8 MIL SPACING	3.5	480 MHZ	USB2_CONA_DP	MIN_DAISY_CHAIN	33C3<> 59C5>
	USB_DBN_CON	USB2_CONB:G:L:S:02MIL:30 MIL	5	:::500	50	8 MIL SPACING	3.5	480 MHZ	USB2_CONB_DP	MIN_DAISY_CHAIN	33B3<> 59C5>
	USB_DBP_CON	USB2_CONB:G:L:S:02MIL:30 MIL	5	:::500	50	8 MIL SPACING	3.5	480 MHZ	USB2_CONB_DP	MIN_DAISY_CHAIN	33B3<> 59C5>
	USB_DCN_CON	USB2_CONC:G:L:S:02MIL:30 MIL	5	:::500	50	8 MIL SPACING	3.5	480 MHZ	USB2_CONC_DP	MIN_DAISY_CHAIN	33D3<> 59C5>
	USB_DCP_CON	USB2_CONC:G:L:S:0 MIL:30 MIL	5	:::750	50	8 MIL SPACING	3.5	480 MHZ	USB2_CONC_DP	MIN_DAISY_CHAIN	33D3<> 59C5>

SIGNAL CONSTRAINTS

LAST_MODIFIED=Mon Oct 27 12:26:16 2003

APPLE COMPUTER INC.

SIZE D | DRAWING NUMBER 051-6569 | REV. A

SCALE NONE | SHT 56 OF 69

DRAWING

DIGITAL SIGNALS

GROUP	SIG_NAME	RELATIVE_PROPAGATION_DELAY	MAX_VIAS	PROPAGATION_DELAY	STUB_LENGTH	NET_SPACING_TYPE	MIN_LINE_WIDTH MAX_EXPOSED_LENGTH	PULSE_PARAM	
NEW STUFF HERE	VSYNC*		3	L:S::1000 MIL					22C5<>
	ANALOG_VSYNC*		4	L:S::3500 MIL					22D7< 25C6<> 26B5< 59B7>
	HSYNC*		3	L:S::1000 MIL					22C5<>
	ANALOG_HSYNC*		5	L:S::3500 MIL					22D7< 25D6<> 26B5< 59B7>
	ANALOG_BLU		4	L:S::4000 MIL	2200	10 MIL SPACING	5.8		22C7<> 25C6<
	ANALOG_GRN		4	L:S::4000 MIL	2200	10 MIL SPACING	5.8		22C7<> 25C6<
	ANALOG_RED		4	L:S::4000 MIL	2200	10 MIL SPACING	5.8		22C7<> 25B6<
	FILT_ANALOG_RED		2	L:S::500 MIL		10 MIL SPACING	5.8		25C5< 59B7>
	FILT_ANALOG_GRN		2	L:S::500 MIL		10 MIL SPACING	5.8		25C5< 59B7>
	FILT_ANALOG_BLU		2	L:S::500 MIL		10 MIL SPACING	5.8		25C5< 59B7>
	DAC2RSET			L:S::1000 MIL		10 MIL SPACING			22C5<>
	DAC2VREF			L:S::1000 MIL		10 MIL SPACING			22C5<>
	NV11_XTALIN		4	L:S::1000 MIL	100	8 MIL SPACING		27 MHZ	22B4<>
	NV11_XTALOUT		4	L:S::1000 MIL	100	8 MIL SPACING		27 MHZ	22B4<>
	TCKP	TMDSFILT:G:L:S:0 MIL:110 MIL			110	8 MIL SPACING	TMDSFILT_CLK		24C4<>
	TCKM	TMDSFILT:G:L:S:0 MIL:110 MIL			110	8 MIL SPACING	TMDSFILT_CLK		24C3<>
	TD0P	TMDSFILT:G:L:S:0 MIL:110 MIL			110	8 MIL SPACING	TMDSFILT_D0		24C3<>
	TD0M	TMDSFILT:G:L:S:0 MIL:110 MIL			110	8 MIL SPACING	TMDSFILT_D0		24C4<>
	TD1P	TMDSFILT:G:L:S:0 MIL:110 MIL			110	8 MIL SPACING	TMDSFILT_D1		24C4<>
	TD1M	TMDSFILT:G:L:S:0 MIL:110 MIL			110	8 MIL SPACING	TMDSFILT_D1		24C3<>
	TD2P	TMDSFILT:G:L:S:0 MIL:110 MIL			110	8 MIL SPACING	TMDSFILT_D2		24C3<>
	TD2M	TMDSFILT:G:L:S:0 MIL:110 MIL			110	8 MIL SPACING	TMDSFILT_D2		24C4<>
	ENET_LINK_TX_EN		4	L:S::1000 MIL				25 MHZ	34D6<>
	ENET_LINK_TX_ER		4	L:S::1000 MIL				25 MHZ	34D6<>
	ENET_LINK_TXD<0..3>		4	L:S::1000				25 MHZ	34C6<>
	ENET_PHY_TX_EN		4	L:S::5600 MIL				25 MHZ	34D7< 35C6<
	ENET_PHY_TX_ER		4	L:S::5600 MIL				25 MHZ	34D7< 35C6<
	ENET_PHY_TXD<0..3>		4	L:S:4600:5600				25 MHZ	34C7< 35C6<>
	CLKENET_LINK_TX		4	L:S:4600 MIL:5600 MIL				25 MHZ	34D7< 35C8<
	CLKENET_PHY_TX		4	L:S::1000 MIL				25 MHZ	35C6<>
	CLKENET_LINK_RX		4	L:S:4600 MIL:5600 MIL				25 MHZ	34C7< 35C8<
	CLKENET_PHY_RX		4	L:S::1000 MIL				25 MHZ	35C6<>
	ENET_PHY_RXD<0..3>		4	L:S::1000				25 MHZ	35B6<> 35C6<>
	ENET_PHY_RX_DV		4	L:S::1000 MIL				25 MHZ	35B6<>
	ENET_PHY_RX_ER		4	L:S::1000 MIL				25 MHZ	35B6<>
	ENET_PHY_CRS		4	L:S::1000 MIL				25 MHZ	35B6<>
	ENET_PHY_COL		4	L:S::1000 MIL				25 MHZ	35B6<>
	ENET_LINK_RXD<0..3>		4	L:S:4600:5600				25 MHZ	34C7< 35B8< 35C8<
	ENET_CRS		4	L:S:4600 MIL:5600 MIL				25 MHZ	34C7< 35B8<
	ENET_COL		4	L:S:4600 MIL:5600 MIL				25 MHZ	34B7< 35B8<
	ENET_RX_DV		4	L:S:4600 MIL:5600 MIL				25 MHZ	34C7< 35B8<
	ENET_RX_ER		4	L:S:4600 MIL:5600 MIL				25 MHZ	34C7< 35B8<
	CLK25M_ENET_XIN		3	L:S::1000 MIL	400	8 MIL SPACING		25 MHZ	35B6<
	CLK25M_ENET_XOUT		3	L:S::1000 MIL	400	8 MIL SPACING		25 MHZ	35B6<>
	ENET_TDP	ETHTD:G:L:S:0 MIL:70 MIL		L:S::4000 MIL	3150	10 MIL SPACING	ETH_TXD	100 MHZ	35C3<>
	ENET_TDN	ETHTD:G:L:S:0 MIL:70 MIL		L:S::4000 MIL	3150	10 MIL SPACING	ETH_TXD	100 MHZ	35C3<>
	ENET_RDP	ETHRD:G:L:S:0 MIL:70 MIL		L:S::4000 MIL	3150	10 MIL SPACING	ETH_RXD	100 MHZ	35C3<>
	ENET_RDN	ETHRD:G:L:S:0 MIL:70 MIL		L:S::4000 MIL	3150	10 MIL SPACING	ETH_RXD	100 MHZ	35C3<>
	RJ45_TXP	RJTXD:G:L:S:0 MIL:70 MIL		L:S::750 MIL		2KV_ISO	RJ45_TXD	100 MHZ	35C1<>
	RJ45_TXN	RJTXD:G:L:S:0 MIL:70 MIL		L:S::750 MIL		2KV_ISO	RJ45_TXD	100 MHZ	35C1<>
	RJ45_RXP	RJRXD:G:L:S:0 MIL:70 MIL		L:S::750 MIL		2KV_ISO	RJ45_RXD	100 MHZ	35C1<>
	RJ45_RXN	RJRXD:G:L:S:0 MIL:70 MIL		L:S::750 MIL		2KV_ISO	RJ45_RXD	100 MHZ	35C1<>
	RJ45_TREF					2KV_ISO			35C2<>
	RJ45_RREF					2KV_ISO			35C2<>
	RJ45_4_5					2KV_ISO			35C1<>
	RJ45_7_8					2KV_ISO			35C1<>
	RJ45_F_TREF					2KV_ISO			35B2<
	FW_LINK_DATA<0..7>		4	L:S::1000					34C4<>
	FW_LINK_CNTL<0..1>		4	L:S::1000				49.152 MHZ	34C4<>
	FW_LINK_LREQ		4	L:S::1000 MIL				49.152 MHZ	34C4<>
	FW_SCLK		4	L:S:3500 MIL:4500 MIL				49.152 MHZ	34C5<> 36C8<
	FW_D<0..7>		4	L:S:3700:4700				49.152 MHZ	34C3< 36B8< 36C8<
	FW_CNTL0		4	L:S:3700 MIL:4700 MIL				49.152 MHZ	34C3< 36C8<
	FW_CNTL1		4	L:S:3700 MIL:4700 MIL				49.152 MHZ	34C3< 36C8<
	FW_LREQ		4	L:S:3700 MIL:4700 MIL				49.152 MHZ	34C3< 36C8<
	FW_PHY_SCLK		4	L:S::500 MIL				49.152 MHZ	36C7<>
	FW_PHY_CNTL0		4	L:S::1000 MIL				49.152 MHZ	36C7<>
	FW_PHY_CNTL1		4	L:S::1000 MIL				49.152 MHZ	36C7<>
	FW_PHY_D<0..7>		4	L:S::1000				49.152 MHZ	36B7<> 36C7<>
	FW_XI		3	L:S::1000 MIL	100	8 MIL SPACING		24.576 MHZ	36C6<
	FW_XO		3	L:S::1000 MIL	100	8 MIL SPACING		24.576 MHZ	36C6<>
	FW_BIAS1								36C5<>
	FW_BIAS2								36C5<>
	FW_TPA1P	FWTPA1:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPA1	400 MHZ	36C5<>
	FW_TPA1N	FWTPA1:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPA1	400 MHZ	36C5<>
	FW_TPB1P	FWTPB1:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPB1	400 MHZ	36C5<>
	FW_TPB1N	FWTPB1:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPB1	400 MHZ	36C5<>
	FW_TPA2P	FWTPA2:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPA2	400 MHZ	36C5<>
	FW_TPA2N	FWTPA2:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPA2	400 MHZ	36C5<>
	FW_TPB2P	FWTPB2:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPB2	400 MHZ	36C5<>
	FW_TPB2N	FWTPB2:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPB2	400 MHZ	36C5<>
	FW_TPO1P	FWTPO1:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPO1	400 MHZ	36B8<> 36D1<>
	FW_TPO1N	FWTPO1:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPO1	400 MHZ	36A8<> 36D1<>
	FW_TPI1P	FWTPL1:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPL1	400 MHZ	36A8<> 36D1<>
	FW_TPI1N	FWTPL1:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPL1	400 MHZ	36A8<> 36D1<>
	FW_TPO2P	FWTPO2:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPO2	400 MHZ	36A8<> 36C1<>
	FW_TPO2N	FWTPO2:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPO2	400 MHZ	36A8<> 36C1<>
	FW_TPI2P	FWTPL2:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPL2	400 MHZ	36A8<> 36C1<>
	FW_TPI2N	FWTPL2:G:L:S:0 MIL:50 MIL		L:S::1220 MIL	5000		FW_TPL2	400 MHZ	36A8<> 36C1<>

DIGITAL SIGNALS

GROUP	SIG_NAME	RELATIVE_PROPAGATION_DELAY	MAX_VIAS	STUB_LENGTH	NET_SPACING_TYPE	MIN_LINE_WIDTH MAX_EXPOSED_LENGTH	PULSE_PARAM	
NEW STUFF HERE	TMDS_CKP	TMDS:G:L:S:0 MIL:120 MIL	3	70	8 MIL SPACING	TMDS_CLK		23D1< 24B7<> 27C2< 59A7>
	TMDS_CKM	TMDS:G:L:S:0 MIL:120 MIL	3	70	8 MIL SPACING	TMDS_CLK		23D1< 24A7<> 27C2< 59A7>
	TMDS_D0P	TMDS:G:L:S:0 MIL:120 MIL	3	70	8 MIL SPACING	TMDS_D0		23D1< 24B7<> 27C2< 59B7>
	TMDS_D0M	TMDS:G:L:S:0 MIL:120 MIL	3	70	8 MIL SPACING	TMDS_D0		23D1< 24B7<> 27C2< 59A7>
	TMDS_D1P	TMDS:G:L:S:0 MIL:120 MIL	3	70	8 MIL SPACING	TMDS_D1		23D1< 24C7<> 27C2< 59B7>
	TMDS_D1M	TMDS:G:L:S:0 MIL:120 MIL	3	70	8 MIL SPACING	TMDS_D1		23D1< 24C7<> 27C2< 59B7>
	TMDS_D2P	TMDS:G:L:S:0 MIL:120 MIL	3	70	8 MIL SPACING	TMDS_D2		23D1< 24D7<> 27C2< 59B7>
	TMDS_D2M	TMDS:G:L:S:0 MIL:120 MIL	3	70	8 MIL SPACING	TMDS_D2		23D1< 24D7<> 27C2< 59B7>
	GPU_TMDS_CKP	GTMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	G_TMDS_CLK		23C2< 23D3<>
	GPU_TMDS_CKM	GTMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	G_TMDS_CLK		23C2< 23D3<>
	GPU_TMDS_D0P	GTMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	G_TMDS_D0		23C2< 23D3<>
	GPU_TMDS_D0M	GTMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	G_TMDS_D0		23C2< 23D3<>
	GPU_TMDS_D1P	GTMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	G_TMDS_D1		23C2< 23D3<>
	GPU_TMDS_D1M	GTMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	G_TMDS_D1		23C2< 23D3<>
	GPU_TMDS_D2P	GTMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	G_TMDS_D2		23C2< 23D3<>
	GPU_TMDS_D2M	GTMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	G_TMDS_D2		23C2< 23D3<>
	SI_TMDS_CKP	STMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	S_TMDS_CLK		27C3<>
	SI_TMDS_CKM	STMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	S_TMDS_CLK		27C3<>
	SI_TMDS_D0P	STMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	S_TMDS_D0		27C3<>
	SI_TMDS_D0M	STMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	S_TMDS_D0		27C3<>
	SI_TMDS_D1P	STMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	S_TMDS_D1		27C3<>
	SI_TMDS_D1M	STMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	S_TMDS_D1		27C3<>
	SI_TMDS_D2P	STMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	S_TMDS_D2		27C3<>
	SI_TMDS_D2M	STMDS:G:L:S:0 MIL:120 MIL	3	50	8 MIL SPACING	S_TMDS_D2		27C3<>
	DVOD0	TMDS_XMIT:G:L:S:0 MIL:400 MIL		200			165MHZ	22C5<> 27A8< 27C5<
	DVOD1	TMDS_XMIT:G:L:S:0 MIL:400 MIL		200			165MHZ	22C5<> 27A8< 27C5<
	DVOD2	TMDS_XMIT:G:L:S:0 MIL:400 MIL		200			165MHZ	22C5<> 26D1< 27C5<
	DVOD3	TMDS_XMIT:G:L:S:0 MIL:400 MIL		200			165MHZ	22B5<> 26D1< 27C5<
	DVOD4	TMDS_XMIT:G:L:S:0 MIL:400 MIL		200			165MHZ	22B5<> 27A8< 27C5<
	DVOD5	TMDS_XMIT:G:L:S:0 MIL:400 MIL		200			165MHZ	22B5<> 27A8< 27C5<
	DVOD6	TMDS_XMIT:G:L:S:0 MIL:400 MIL		200			165MHZ	22B5<> 27A8< 27C5<
	DVOD7	TMDS_XMIT:G:L:S:0 MIL:400 MIL		200			165MHZ	22B5<> 27A8< 27C5<
	DVOD8	TMDS_XMIT:G:L:S:0 MIL:400 MIL		200			165MHZ	22B5<> 26B1< 27C5<
	DVOD9	TMDS_XMIT:G:L:S:0 MIL:400 MIL		200			165MHZ	22B5<> 27A8< 27C5<
	DVOD10	TMDS_XMIT:G:L:S:0 MIL:400 MIL		200			165MHZ	22B5<> 27A8< 27B5<
	DVOD11	TMDS_XMIT:G:L:S:0 MIL:400 MIL		200			165MHZ	22B5<> 27A8< 27B5<

SIGNAL CONSTRAINTS

NOTICE OF PROPRIETARY PROPERTY

LAST_MODIFIED=Mon Oct 27 12:26:17 2003

DIGITAL SIGNALS (CONT'D)

	GROUP	SIG_NAME	RELATIVE_PROPAGATION	MAX_VIAS	PROPAGATION_DELAY	STUB_LENGTH	NET_SPACING_TYPE	MAX_EXPOSED_LENGTH	PULSE_PARAM	
	CD DRIVE BUS	EIDE_RST_L			L:S:3500 MIL:5500 MIL				33 MHZ	37A7> 37D5<
		EIDE_DMACK_L			L:S:3500 MIL:5500 MIL				33 MHZ	37A7<> 37D5<
		EIDE_STOP			L:S::5500 MIL				33 MHZ	37A7> 37D5<
		EIDE_HSTB_RDY			L:S::5500 MIL				33 MHZ	37A7> 37C5<
		EIDE_DSTB_RDY			L:S:3500 MIL:5500 MIL				33 MHZ	37A7< 37C5<
		EIDE_DATA<0..15>			L:S:3500:5500				33 MHZ	37A5< 37B5< 37B7<> 37C5<
		CD_RESET_L			L:S::1000 MIL				33 MHZ	37D4< 38C6<>
		CD_DMACK_L			L:S::4000 MIL				33 MHZ	37D4< 38C6<>
		CD_STOP			L:S::5000 MIL				33 MHZ	37D4< 38C6<>
		CD_HSTB_RDY			L:S::5000 MIL				33 MHZ	37C4< 38C6<>
		CD_DSTB_RDY			L:S::1000 MIL				33 MHZ	37C4< 38C6<>
		UATAD<0..15>			L:S::1000				33 MHZ	37A4< 37B4< 37C4< 38C6<>
		CD_DMARQ			L:S::1000 MIL				33 MHZ	38C6<>
		EIDE_DMARQ			L:S:3500 MIL:5500 MIL				33 MHZ	37A7< 38C8<
		UATA0IRQ			L:S::1000 MIL				33 MHZ	38C6<>
		EIDE_INTRQ			L:S:3500 MIL:5500 MIL				33 MHZ	37A7< 38C8<
		CD_EIDE_ADDR<0..2>			L:S::1000				33 MHZ	38C6<>
		EIDE_ADDR<0..2>			L:S:3500:5500				33 MHZ	37B7> 38A8< 38B8<
		CD_CS1FX_L			L:S::1000 MIL				33 MHZ	38C6<>
		EIDE_CS1FX_L			L:S:3500 MIL:5500 MIL				33 MHZ	37A7> 38B8<
		CD_CS3FX_L			L:S::1000 MIL				33 MHZ	38C6<>
		EIDE_CS3FX_L			L:S:3500 MIL:5500 MIL				33 MHZ	37A7> 38B8<
	HD DRIVE BUS									
		UIDE_RST_L	HD_DATA:G:L:S:0 MIL:5500 MIL		L:S:100 MIL:6000 MIL				100 MHZ	37C7<> 37D3<
		UIDE_DMACK_L	HD_DATA:G:L:S:0 MIL:5500 MIL		L:S:100 MIL:6000 MIL				100 MHZ	37C7<> 37D3<
		UIDE_DIOR_L	HD_DATA:G:L:S:0 MIL:5500 MIL		L:S:100 MIL:6000 MIL				100 MHZ	37C7<> 37D3<
		UIDE_DIOW_L	HD_DATA:G:L:S:0 MIL:5500 MIL		L:S::55000 MIL				100 MHZ	37C3< 37C7<>
		UIDE_IOCHRDY	HD_DATA:G:L:S:0 MIL:5500 MIL		L:S:100 MIL:6000 MIL				100 MHZ	37C3< 37C7<
		UIDE_DATA<0..15>	HD_DATA:G:L:S:0:5500		L:S:100:6000				100 MHZ	37A3< 37B3< 37C3< 37C7<> 37D7<>
		HD_RESET_L			L:S::1000 MIL				100 MHZ	37D1< 38C3<>
		HD_DMACK_L			L:S::1000 MIL				100 MHZ	37D1< 38C3<>
		HD_DIOR_L			L:S::5500 MIL				100 MHZ	37D1< 38C3<>
		HD_DIOW_L			L:S::55000 MIL				100 MHZ	37C1< 38C3<>
		HD_IOCHRDY			L:S::1000 MIL				100 MHZ	37C1< 38C3<>
		HD_DMARQ			L:S::1000 MIL				100 MHZ	38C3<>
		UIDE_DMARQ	HD_DATA:G:L:S:0 MIL:5500 MIL		L:S:100 MIL:6000 MIL				100 MHZ	37C7<> 38C4<
		HD_INTRQ			L:S::1000 MIL				100 MHZ	38C3<>
		UIDE_INTRQ	HD_DATA:G:L:S:0 MIL:5500 MIL		L:S:100 MIL:6000 MIL				100 MHZ	37C7< 38C4<
		HD_UIDE_ADDR<0..2>			L:S::1000				100 MHZ	38C2<> 38C3<>
		UIDE_ADDR<0..2>	HD_DATA:G:L:S:0:5500		L:S:100:6000				100 MHZ	37C7<> 38A4< 38B4<
		HD_UIDE_CS1FX_L			L:S::6000 MIL				100 MHZ	38C3<>
		UIDE_CS1FX_L	HD_DATA:G:L:S:0 MIL:5500 MIL		L:S:100 MIL:6000 MIL				100 MHZ	37C7<> 38B4<
		HD_UIDE_CS3FX_L			L:S::6000 MIL				100 MHZ	38C2<>
		UIDE_CS3FX_L	HD_DATA:G:L:S:0 MIL:5500 MIL		L:S:100 MIL:6000 MIL				100 MHZ	37C7<> 38B4<
		CLK_18M_INT_XOUT	3		L:S::1000	100	8 MIL SPACING		18.432 MHZ	58B5>
		CLK_18M_INT_XOUT	3		L:S::1000	100	8 MIL SPACING		18.432 MHZ	58B5>
		CLK_18M_INT_XOUT	3		L:S::200	50	8 MIL SPACING		18.432 MHZ	58B5>
		USB_DAP	USBA:G:L:S:0 MIL:500 MIL							28A3< 28B3<>
		USB_DAN	USBA:G:L:S:0 MIL:500 MIL							28A3< 28B3<>
		USB_DAP_F	USBA_F:G:L:S:0 MIL:500 MIL			100				28B2< 33B7<
		USB_DAN_F	USBA_F:G:L:S:0 MIL:500 MIL			100				28B2< 33B7<
		USB_DBP	USBB:G:L:S:0 MIL:500 MIL							28A3< 28B3<>
		USB_DBN	USBB:G:L:S:0 MIL:500 MIL							28A3< 28B3<>
		USB_DBP_F	USBB_F:G:L:S:0 MIL:500 MIL			100				28B2< 33C7<
		USB_DBN_F	USBB_F:G:L:S:0 MIL:500 MIL			100				28B2< 33C7<
		USB_DCP	USBC:G:L:S:0 MIL:500 MIL							28A3< 28B3<>
		USB_DCN	USBC:G:L:S:0 MIL:500 MIL							28A3< 28B3<>
		USB_DCP_F	USBC_F:G:L:S:0 MIL:500 MIL			100				28B2< 33D7<
		USB_DCN_F	USBC_F:G:L:S:0 MIL:500 MIL			100				28B2< 33D7<
		USB_DEP	USBE:G:L:S:0 MIL:500 MIL							28B3<>
		USB_DEN	USBE:G:L:S:0 MIL:500 MIL							28B3<>
		BT_USB_DP	USBE_F:G:L:S:0 MIL:500 MIL			100				28B2< 29D3<> 59B5>
		BT_USB_DM	USBE_F:G:L:S:0 MIL:500 MIL			100				28B2< 29D3<> 59B5>
		USB_DFP	USBF:G:L:S:0 MIL:500 MIL							28B3<>
		USB_DFN	USBF:G:L:S:0 MIL:500 MIL							28B3<>
		MODEM_USB_DP	USBF_F:G:L:S:0 MIL:500 MIL			100				28B2< 29C5<> 59B5>
		MODEM_USB_DM	USFE_F:G:L:S:0 MIL:500 MIL			100				28B2< 29C5<> 59B5>
		PMU_XO		3	L:S::1000 MIL	100	8 MIL SPACING		10 MHZ	44B5<
		PMU_XI		3	L:S::1000 MIL	100	8 MIL SPACING		10 MHZ	44B5<
		PMU_XT		3	L:S::300 MIL	50	8 MIL SPACING		10 MHZ	44A6<
		PMU_CLKOUT		3	L:S::1000 MIL	100	8 MIL SPACING		32.768 MHZ	44B4<>
		PMU_CLKIN		3	L:S::1000 MIL	100	8 MIL SPACING		32.768 MHZ	44B4<>
		PMU_CLKT		3	L:S::300 MIL	50	8 MIL SPACING		32.768 MHZ	44B2<>
		MICSHLD					10 MIL SPACING			29A5<> 43A8< 59A7>
		MICHIGH					10 MIL SPACING			29A5<> 43B8< 59A7>
		MICLOW					10 MIL SPACING			29A5<> 43A8< 59A7>
		KS_INT_SPKR+					10 MIL SPACING			29A3< 43D7< 59B7>
		KS_INT_SPKR-					10 MIL SPACING			29A3< 42B4< 43D7< 59B7>

	SIG_NAME	PROPAGATION_DELAY	PULSE_PARAM	
	T_UD_IDEDD_0	L:S::1000 MIL	100 MHZ	37C1< 38C3<>
	T_UD_IDEDD_1	L:S::1000 MIL	100 MHZ	37C1< 38C3<>
	T_UD_IDEDD_2	L:S::1000 MIL	100 MHZ	37C1< 38C3<>
	T_UD_IDEDD_3	L:S::1000 MIL	100 MHZ	37C1< 38C3<>
	T_UD_IDEDD_4	L:S::1000 MIL	100 MHZ	37B1< 38C3<>
	T_UD_IDEDD_5	L:S::1000 MIL	100 MHZ	37B1< 38C3<>
	T_UD_IDEDD_6	L:S::1000 MIL	100 MHZ	37B1< 38C3<>
	T_UD_IDEDD_7	L:S::1000 MIL	100 MHZ	37B1< 38C3<>
	T_UD_IDEDD_8	L:S::1000 MIL	100 MHZ	37B1< 38C2<>
	T_UD_IDEDD_9	L:S::1000 MIL	100 MHZ	37B1< 38C2<>
	T_UD_IDEDD_10	L:S::1000 MIL	100 MHZ	37B1< 38C2<>
	T_UD_IDEDD_11	L:S::1000 MIL	100 MHZ	37B1< 38C2<>
	T_UD_IDEDD_12	L:S::1000 MIL	100 MHZ	37B1< 38C2<>
	T_UD_IDEDD_13	L:S::1000 MIL	100 MHZ	37A1< 38C2<>
	T_UD_IDEDD_14	L:S::1000 MIL	100 MHZ	37A1< 38C2<>
	T_UD_IDEDD_15	L:S::1000 MIL	100 MHZ	37A1< 38C2<>

SIGNAL CONSTRAINTS

APPLE COMPUTER INC.
SIZE D | DRAWING NUMBER 051-6569 | REV. A
SCALE NONE | SHT 58 OF 69
DRAWING

FUNC_TEST

52C4	+1_8V_MAIN	OUT
51B7< 51A7< 51A5< 50D5<> 50D2< 50C4<> 50B4<> 52C1< 52C3<	+12V_MAIN	OUT
45D7< 45D3<> 45B4<> 44D8< 42B3< 39C8< 36D8< 49D7<> 49D3<> 49C4<> 48D6<> 48C8< 48C4<>	+12V_SLEEP	OUT
51D6<> 51C2< 51A5< 50D5< 29C5<> 29A8< 29A3< 52C1>	+12V_SLEEPA	OUT
52C4 51B4<>	+5V_MAIN	OUT
51C8< 51C5<> 50D5< 46D6<> 46C7< 38C1<	+5V_SLEEP	OUT
52C4 49B2<> 30B3<	+2_5V_MAIN	OUT
42C8< 42B7< 42B5< 41A7< 41A5< 40D5< 39D4<	+3V_MAIN	OUT
52C4 43C7<	CPU_VCORE_SLEEP	OUT
59B5> 52C6> 45D2<> 8C1< 8B7< 4D7< 4D3<	JTAG_ASIC_TCK	OUT
35C4< 34B7< 8A4<>	JTAG_ASIC_TDI	OUT
34B7< 28C6< 8A4<>	JTAG_ASIC_TDO	OUT
35B4<> 8A4<>	JTAG_ASIC_TMS	OUT
35B4<> 35A2< 34B7< 8A4<>	JTAG_ASIC_TRST_L	OUT
34B7< 8A4<>	INT_TMDS_3V	OUT
52A6> 24C3<>	+1_5V_AGP	OUT
17A4< 17A3< 16D7< 16C2< 16A8< 11A8< 10D6< 52C3>	FAN_12V_FILT	OUT
46B4<> 17D5< 52B3> 29A5<>	+INTREPID_CORE_MAIN	OUT
47B2<> 46B3< 11D3< 10D6<	INTREPID_VSENSE	OUT
47C6<>	OVDD_ADJ FUNC_TEST	OUT
	CPU_CHKSTP_OUT_L	OUT
8D5<> 8A3<> 7B5< 4B3>	CPU_CHKSTP_IN_L	OUT
7B5< 4B3<	CPU_HRESET_L	OUT
44D2< 44C2< 8A3<> 7B3< 7A5< 7A3< 4B3<	JTAG_CPU_TCK	OUT
8A3<> 7D5< 4C3<	JTAG_CPU_TDI	OUT
8A3<> 7A5< 4C3<	JTAG_CPU_TDO	OUT
8A3<> 4C3>	JTAG_CPU_TMS	OUT
8A3<> 7A5< 4C3<	JTAG_CPU_TRST_L	OUT
8A3<> 7C5< 4C3<	+MAXBUS_SLEEP	OUT
8D1< 8A3<> 7C7< 7C5< 7C3< 7B3< 7A3< 6D6< 6C5< 4D5< 52C6> 46D4< 45D2<> 44D2< 44D1< 44B7< 9D8< 9B7< 8D4<	ROM_CS_L	OUT
31B4<> 30C6< 30B4<	ROM_OE_L	OUT
31B2<> 30C6< 30B2<	ROM_RW_L	OUT
31B4<> 30B6< 30B2<	DDC_VCC_3	OUT
52B6> 24B3<>	DDC_VCC_5	OUT
52A6> 25C4<	SND_HP_SENSE_L	OUT
41A5< 28B5<>	ANALOG_HSYNC*	OUT
57D5> 26B5< 25D6<> 22D7<	ANALOG_VSYNC*	OUT
57D5> 26B5< 25C6<> 22D7<	FILT_ANALOG_BLU	OUT
57D5> 25C5<	FILT_ANALOG_RED	OUT
57D5> 25C5<	FILT_ANALOG_GRN	OUT
57D5> 25C5<	GND	OUT
	KS_INT_SPKR+	OUT
58A5> 43D7< 29A3<	KS_INT_SPKR-	OUT
58A5> 43D7< 42B4< 29A3<	TMDS_D2P	OUT
57D2> 27C2< 24D7<> 23D1<	TMDS_D2M	OUT
57D2> 27C2< 24D7<> 23D1<	TMDS_D1P	OUT
57D2> 27C2< 24C7<> 23D1<	TMDS_D1M	OUT
57D2> 27C2< 24C7<> 23D1<	TMDS_D0P	OUT
57D2> 27C2< 24B7<> 23D1<	TMDS_D0M	OUT
57D2> 27C2< 24B7<> 23D1<	TMDS_CKP	OUT
57D2> 27C2< 24B7<> 23D1<	TMDS_CKM	OUT
57D2> 27C2< 24A7<> 23D1<	INV_CUR_HI_FILT	OUT
29A5<>	IO_RESET_L	OUT
44D3< 44B8<> 35B8< 32A6<	KS5VSD	OUT
52B3> 29A5<>	INT_I2C_CLK2	OUT
39B1<> 34B5< 29C7<> 28D1< 28A3<>	INT_I2C_DATA2	OUT
39B1<> 34B5< 29C7<> 28D1< 28A3<>	INT_ANALYZER_CLK	OUT
56B3> 54A7< 16C7< 9B4< 8A2<	LAMP_STS_FILT	OUT
29A5<>	LCD_PWM_FILT	OUT
29A5<>	LED_5V_FILT	OUT
52B3> 29A5<>	LED_RET_FILT	OUT
52A3> 29A5<>	MICSHLD	OUT
58A5> 43A8< 29A5<>	MICHIGH	OUT
58A5> 43B8< 29A5<>	MICLOW	OUT
58A5> 43A8< 29A5<>	COMM_RESET_L	OUT
29D5<> 28C5<>	IIC_ADD	OUT
29C6<>	ROM_WP_L	OUT
30B2<		OUT

FUNC_TEST

29D7<> 28D1< 28C5<>	COMM_SHUTDOWN	OUT
25C6< 23D7<>	MON_DETECT	OUT
45C8< 45C7<>	FLO_KNOWS_BEST	OUT
44C4<> 29B2<>	NMI_BUTTON*	OUT
59D5> 44C5<> 44B1< 8A8<>	PWR_SWITCH*	OUT
44B5<> 44A5<> 29B3<> 8A8<>	PMU_RST*	OUT
44A4<	PMURESETBUTTON*	OUT
59D5> 44C5<> 44B1< 8A8<>	PWR_SWITCH*	OUT
51C6< 50C8< 50C3< 42D8< 39C8<	PWR_UP	OUT
51A8< 44C7<>	POWER_UP*	OUT
44C4<> 29B2<>	RESET_BUTTON*	OUT
44C5<> 29C5<> 28B8< 28B5<>	COMM_RING_DET_L	OUT
31B4<> 30B2<	ROM_ONBOARD_CS_L	OUT
29C7<> 28C3>	COMM_DTR_L	OUT
29C7<> 28C3<>	COMM_TXD_L	OUT
29C7<> 28D3< 28C3<>	COMM_TRXC	OUT
29D5<> 28C3>	COMM_RTS_L	OUT
29C5<> 28C3<>	COMM_RXD	OUT
29C5<> 28D3< 28C3<>	COMM_GPIO_L	OUT
50C2< 44B5<>	SLEEP	OUT
8A3<> 7A5< 4B3<	CPU_SRESET_L	OUT
52B3> 44D4<> 44B5<	PMU_AVCC	OUT
24B3<>	TMDS_DDC_CLK	OUT
24B4<>	TMDS_DDC_DAT	OUT
56A3> 33D3<>	USB_DCN_CON	OUT
56A3> 33D3<>	USB_DCP_CON	OUT
56A3> 33B3<>	USB_DBN_CON	OUT
56A3> 33B3<>	USB_DBP_CON	OUT
56A3> 33B3<>	USB_DAN_CON	OUT
56A3> 33C3<>	USB_DAP_CON	OUT
56A3> 33C3<>	BT_USB_DP	OUT
58B5> 29D3<> 28B2<	BT_USB_DM	OUT
58A5> 29D3<> 28B2<	MODEM_USB_DP	OUT
58A5> 29C5<> 28B2<	MODEM_USB_DM	OUT
58A5> 29C5<> 28B2<	USB_PORT_PWR	OUT
52A3> 33D3<> 33C3<> 33B3<> 33A4<>	VGA_IIC_CLK	OUT
25C4<>	VGA_IIC_DAT	OUT
25C4<>	CPU_VCORE_SLEEP	OUT
59D7> 52C6> 45D2<> 8C1< 8B7< 4D7< 4D3<	LINE_IN_COM	OUT
40B7<>	LINE_IN_R	OUT
40B7<> 40B6<>	LINE_IN_SENSE	OUT
40C7<> 40B7<>	LINE_IN_L	OUT
40C7<> 40B7<>	SND_LIN_SENSE_L	OUT
40D4< 28B5<>	OUT_R FUNC_TEST	OUT
	LINEOUT_COMM2 FUNC_TEST	OUT
	LINE_OUT_L FUNC_TEST	OUT
	PCIT_IRDY_L	OUT
54C7< 31C3<> 31B6<	RF_CLKRUN_L	OUT
31C3<>	NC_RF_DISABLE_L FUNC_TEST	OUT
	PCI_DEVSEL_L	OUT
54D7< 32B6<> 31B7< 30C5<> 30B7<	PCI_STOP_L	OUT
54D7< 32B6<> 31B7< 30C5<> 30B7<	PCI_TRDY_L	OUT
54D7< 32B6<> 31B7< 30C5<> 30B7<	PCI_FRAME_L	OUT
53A6< 32B6<> 31B7< 30C5<> 30B7<	PCI_PAR	OUT
54D7< 32B6<> 31B7< 30C5<>	WL_PCI_IDSEL	OUT
31C2<>	33SLOTB_INT_L	OUT
31C2<> 28B7<>	PMU_PME_L	OUT
44B2<> 32A8< 31C2< 28B5<>	PCI_SLOTB_GNT_L	OUT
31C2<> 30D5<> 30B5<	CLK33M_PCI_SLOTB	OUT
54D7< 31C2<> 30D7<	PCI_SLOTB_REQ_L	OUT
31C3<> 30D5<> 30B7<	MAIN_RESET_L	OUT
44C4<> 32A8< 31D4< 30B2< 17C8<	PCI_CBE<0>	OUT
53A6< 32B6<> 31B7< 30C5<>	PCIT_CBE<1>	OUT
54C7< 31C3<> 31B6<	PCIT_CBE<2>	OUT
54C7< 31C3<> 31B6<	PCIT_CBE<3>	OUT
54C7< 31C3<> 31B6<	UNUSED_GPIO15	OUT
28C1< 28B5<>		OUT

FUNC_TEST

53A6< 32C6<> 31C7< 30D4<> 30C2<	PCI_AD<0>	OUT
54C7< 31C6< 31B3<>	PCIT_AD<1>	OUT
54C7< 31C6< 31B2<>	PCIT_AD<2>	OUT
54C7< 31C6< 31B3<>	PCIT_AD<3>	OUT
53A6< 32C6<> 31C7< 30D4<> 30C2<	PCI_AD<4>	OUT
54C7< 31C6< 31B3<>	PCIT_AD<5>	OUT
53A6< 32C6<> 31C7< 30D4<> 30C2<	PCI_AD<6>	OUT
54C7< 31C6< 31B3<>	PCIT_AD<7>	OUT
54C7< 31C6< 31B3<>	PCIT_AD<8>	OUT
53A6< 32C6<> 31C7< 30D4<> 30C2<	PCI_AD<9>	OUT
54C7< 31C6< 31B3<>	PCIT_AD<10>	OUT
53A6< 32C6<> 31C7< 30C4<> 30B2<	PCI_AD<11>	OUT
54C7< 31C6< 31B3<>	PCIT_AD<12>	OUT
53A6< 32C6<> 31C7< 30C4<> 30B2<	PCI_AD<13>	OUT
54C7< 31C6< 31C3<>	PCIT_AD<14>	OUT
53A6< 32C6<> 31C7< 30C4<> 30B2<	PCI_AD<15>	OUT
53A6< 32C6<> 31C7< 30C4<> 30B2<	PCI_AD<16>	OUT
54C7< 31C7< 31C3<>	PCIT_AD<17>	OUT
53A6< 32C6<> 31C7< 30C4<> 30B2<	PCI_AD<18>	OUT
54C7< 31C7< 31C3<>	PCIT_AD<19>	OUT
53A6< 32C6<> 31C6< 30C4<> 30B2<	PCI_AD<20>	OUT
54C7< 31C6< 31C3<>	PCIT_AD<21>	OUT
53A6< 32C6<> 31C6< 30C4<>	PCI_AD<22>	OUT
54C7< 31C6< 31C3<>	PCIT_AD<23>	OUT
53A6< 32C6<> 31B6< 30C4<> 30C1<>	PCI_AD<24>	OUT
54C7< 31C3<> 31B6<	PCIT_AD<25>	OUT
53A6< 32B6<> 31B6< 30C4<> 30C1<>	PCI_AD<26>	OUT
54C7< 31C3<> 31B6<	PCIT_AD<27>	OUT
54C7< 31C2<> 31B7<	PCIT_AD<28>	OUT
54C7< 31C3<> 31B6<	PCIT_AD<29>	OUT
53A6< 32B6<> 31B6< 30C4<> 30C1<>	PCI_AD<30>	OUT
54C7< 31C3<> 31B6<	PCIT_AD<31>	OUT

CONSTRINT TABLES

APPLE COMPUTER INC.
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DRAWING

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*** Signal Cross-Reference for the entire design ***

+1_5V_AGP        10D6< 11A6< 16A8< 16C2< 16D7<
                 17A3< 17A4< 17D5< 46B4<> 52C3> 59C7>

+1_5V_INTREPID_PLL  9D4< 16D6< 28D6<> 30D5< 52D3>
+1_5V_INTREPID_PLL1  28C4< 52D3>
+1_5V_INTREPID_PLL2  28D4< 52D3>
+1_5V_INTREPID_PLL3  28D4< 52D3>
+1_5V_INTREPID_PLL4  28D4< 52D3>
+1_5V_INTREPID_PLL5  16D5< 52D3>
+1_5V_INTREPID_PLL6  30D4< 52D3>
+1_5V_INTREPID_PLL7  9D2< 52D3>
+1_5V_INTREPID_PLL8  28D4< 52D3>
+1_8V_MAIN        52C4 59D7>
+2_5V_MAIN        30B3< 49B2<> 52C4 59D7>
+3.3VFPD          24D7< 51C1<> 52B6>
+3V_AUDIO         39D2< 39D6< 39D7< 40C3< 43B2<
                 43C6<
+3V_GPU_SS        22A6< 22A8< 22B7<
+3V_INTREPID_USB  28C4< 52A3>
+3V_MAIN          39D4< 40D5< 41A5< 41A7< 42B5<
                 42B7< 42C8< 43C7< 52C4 59D7>
+5VSD_T           50D6<>
+5V_AUDIO         39C6<> 39D7< 41B6<>
+5V_HP            41A8< 41B7<> 41D5<
+5V_MAIN          51B4<> 51B4<> 52C4 59D7>
+5V_SLEEP         38C1< 46C7< 46D6<> 50D5< 51C5<>
                 51C8< 59D7>
+12VSD_FILT       29A5<> 52B3>
+12VSD_T          50D6<>
+12V_DROPPED      44D8<
+12V_MAIN         36D8< 39C8< 42B3< 44D8< 45B4<>
                 45D3<> 45D7< 48C4<> 48C8<> 48D6<>
                 49C4<> 49D3<> 49D7<> 50B4<> 50C4<>
                 50D2< 50D5<> 51A5< 51A7< 51B7< 51C3<
                 51D7<> 52C1> 52C1> 59D7>
+12V_SLEEP        29A3< 29A8< 29C5<> 50D5< 51A5<
                 51C2< 51D6<> 52C1> 52C1> 59D7>
+12V_SLEEPA      59D7>
+12V_TPA         42B2< 42B7< 42C4< 42C5< 42D5<
+INTREPID_CORE_MAIN  10D6< 11D3< 46B3< 47B2<> 59C7>

+MAXBUS_SLEEP    4D5< 6C5< 6D6< 7A3< 7A3< 7B3< 7C3<
                 7C3< 7C5< 7C7< 8A3<> 8D1< 8D4< 9B7<
                 9D8< 44B7< 44D1< 44D2< 45D2<> 46D4<
                 52C6> 59C7>
3.8VH_TRICKLE    44C1< 44D7<> 52B3>
3.8V_TRICKLE     36D8< 44C2< 44C6< 44D7<> 50D5<
                 52C1> 52C2>
3V_SI_AVCC       27D4<
3V_SI_PLLVCC     27D4<
3V_SI_VCC        27B2< 27D3<
3_5_HONKER       51C4<>
3_6V_SLEEP       37D1< 51C1<
5V_XRA           50B4<>
15_I282          15B2<
15_I286          15B3<
18P_GND          29B5<>
25V_BSTH         49C5<>
25V_BSTH_TERM    49C5<>
25V_COMP         49B6<
25V_COMP_DWN     49B6<
25V_DH           49B5<>
25V_DHT          49B5<>
25V_DL           49B5<>
25V_DLT          49B4<>
25V_GND          49B6<>
25V_OCSET        49C5<>
25V_OVP          49B6<>
25V_VCC          49C6<
25V_VPWR         49B5<> 49C4<>
25V_VPWRA        49B4<>
25V_VSENSE       49C4<>
25_CORE_1        49C3<
33PCI_SLOTD_SERR_L  32B6<>
33SLOTB_INT_L    28B7<> 28B7<> 28B7<> 31C2<> 59A5>
42_I291          42B6<
42_I295          42B5<
45_I408          45B6<
45_I525          45C4<
45_I526          45B3<
47_I66           47B4<
48_I10           48C3<
48_I99           48B4<
49_I70           49B4<
50_I408          50B3<
50_I410          50A3<
AGND             39B7<> 52C4
AGP_AD<0>        16C4<> 17D8<
AGP_AD<0..15>    54C7<
AGP_AD<1>        16C4<> 17D8<
AGP_AD<2>        16C4<> 17D8<
AGP_AD<3>        16C4<> 17D8<
AGP_AD<4>        16C4<> 17D8<
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AGP_AD<9>        16C4<> 17D8<
AGP_AD<10>       16C4<> 17D8<
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AGP_AD<12>       16C4<> 17D8<
AGP_AD<13>       16C4<> 17D8<
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AGP_AD<15>       16C4<> 17C8<
AGP_AD<16>       16C4<> 17C8<
AGP_AD<16..31>   54C7<
AGP_AD<17>       16C4<> 17C8<
AGP_AD<18>       16C4<> 17C8<

AGP_AD<19>       16C4<> 17C8<
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AGP_AD<22>       16C4<> 17C8<
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AGP_AD<28>       16B4<> 17C8<
AGP_AD<29>       16B4<> 17C8<
AGP_AD<30>       16B4<> 17C8<
AGP_AD<31>       16B4<> 17C8<
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AGP_AD_STB<1>    16A4<> 16B3< 17B8< 54C7<
AGP_AD_STB_GPUUF<0>  17B6< 54B7<
AGP_AD_STB_GPUUF<1>  17B6< 54B7<
AGP_AD_STB_L<0>  16A4<> 16D1< 17B8< 54C7<
AGP_AD_STB_L<1>  16A4<> 16D1< 17B8< 54C7<
AGP_AD_STB_L_GPUUF<0>  17B6< 54B7<
AGP_AD_STB_L_GPUUF<1>  17B6< 54B7<
AGP_BUSY_L       16C6<> 16D1< 16D3< 17A8> 54B7<
AGP_CBE<0>       16B4<> 17C8<
AGP_CBE<0..1>    54C7<
AGP_CBE<1>       16B4<> 17C8<
AGP_CBE<2>       16B4<> 17C8<
AGP_CBE<2..3>    54C7<
AGP_CBE<3>       16B4<> 17C8<
AGP_DEVSEL_L     16B4<> 16C3< 17B8< 54C7<
AGP_FBI_EQUAL    16C7< 54A7<
AGP_FBO_EQUAL    16B7< 54A7<
AGP_FB_PLUS2     16B8< 54A7<
AGP_FRAME_L      16B4<> 16C3< 17B8< 54C7<
AGP_GNT_L        16C3< 16C4<> 17B6< 54B7<
AGP_INT_L        17B6<> 28B5<> 28B8<
AGP_IRDY_L       16B4<> 16C3< 17B8< 54C7<
AGP_PAR          16B4<> 17B8< 54B7<
AGP_PIPE_L       16A4<> 16B3< 17B8< 54B7<
AGP_PLLVDD       17C5<
AGP_PWR_ADJ      46A5<>
AGP_RBF_L        16A4<> 16B3< 17B8< 54B7<
AGP_REQ_L        16C3< 16C4<> 17B6<> 54B7<
AGP_RESET_L      17B8< 27C5< 44D3<
AGP_SBA<0>       16B4< 16C1< 17A8<
AGP_SBA<0..7>    54B7<
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AGP_SBA<2>       16B1< 16B4<> 17A8<
AGP_SBA<3>       16B4<> 16C1< 17A8<
AGP_SBA<4>       16B4<> 16C1< 17A8<
AGP_SBA<5>       16B4<> 16C1< 17A8<
AGP_SBA<6>       16A4<> 16B1< 17A8<
AGP_SBA<7>       16A4<> 16B1< 17A8<
AGP_SB_STB       16A4<> 16B3< 17B8< 54B7<
AGP_SB_STB_L     16A4<> 16D1< 17A8< 54B7<
AGP_ST<0>        16A4<> 16B1< 17B6<
AGP_ST<0..2>     54B7<
AGP_ST<1>        16A4<> 16B1< 17B6<
AGP_ST<2>        16A4<> 16B1< 17B6<
AGP_STOP_L       16B3< 16B4<> 17B8< 54C7<
AGP_TRDY_L       16B3< 16B4<> 17B8< 54C7<
AGP_WBF_L        16A6<> 16B1< 17B8< 54B7<
AINLM            39C4<
AINLP            39C4<
AINRM            39C4<
AINRP            39C4<
ALTCHGND         25B3<> 25C3< 33B4< 33C2< 33C4<
                33C4< 33D4< 36A7<> 36B2< 36B6<>
                36B6< 36C1< 36C1<> 36C1<> 52C4
ANALOGGND        35B1< 35C1<> 40B5<> 40B6< 40C6<
                40C6< 41A2<> 41A4< 41B1<> 41B3<
                41C3< 41D3< 42A5<> 42A6<> 43A5< 52C4

ANALOG_BLU       22C7<> 25C6< 57D5>
ANALOG_GRN       22C7<> 25C6< 57D5>
ANALOG_HSYNC*    22D7< 25D6<> 26B5< 57D5> 59B7>
ANALOG_RED       22C7<> 25B6< 57D5>
ANALOG_VSYNC*    22D7< 25C6<> 26B5< 57D5> 59B7>
ANEN             35C4<
AOUTL            39C2> 41D7< 43D3<
AOUTR            39C2> 41C7< 43D3<
ASH              43A6<
AUDIO_TO_SND     28B1< 39C1<
AUD_GND          39B7<> 42B2< 42C4< 42D3< 42D4<
                42D6< 42D7< 43C2< 43D2< 43D4<
AUD_R_FB         39D6<
BRE              45C5<>
BRE_1            45B5<>
BT1              44D6<> 51A6<
BT1_LED          51A6<
BT_USB_DM        28B2< 29D3<> 58A5> 59B5>
BT_USB_DP        28B2< 29D3<> 58B5> 59B5>
C412P1           41B3<
C756_2           40B3<
C4237P2          40C4<
C4240P2          40C4<
C4242P2          40B4<
C4243P2          40B4<
CAP_PLL          39B4<
CD_CS1FX_L       38C6<> 58C5>
CD_CS3FX_L       38C6<> 58C5>
CD_DMACK_L       37D4< 38C6<> 58D5>
CD_DMARQ         38C6<> 58D5>
CD_DSTB_RDY      37C4< 38C6<> 58D5>
CD_EIDE_ADDR<0>  38C6<>
CD_EIDE_ADDR<0..2>  58C5>
CD_EIDE_ADDR<1>  38C6<>
CD_EIDE_ADDR<2>  38C6<>
CD_HSTB_RDY      37C4< 38C6<> 58D5>
CD_RESET_L       37D4< 38C6<> 58D5>
CD_STOP          37D4< 38C6<> 58D5>

CHGND            24B3< 29A3< 43A7< 43B7< 52C4
CHOC_BROWNIE     51B2<
CLK18M_INT_EXT   28B6<>
CLK18M_INT_XIN   28A5<
CLK18M_INT_XO    28A6<
CLK18M_INT_XOUT  28A5<>
CLK25M_ENET_XIN  35B6< 57B5>
CLK25M_ENET_XOUT  35B6<> 57B5>
CLK27M_MEM_SS    22A6<>
CLK33M_PCI_SLOTB  30D7< 31C2<> 54D7< 59A5>
CLK33M_PCI_SLOTB_UF  30D5<> 54D7<
CLK33M_PCI_SLOTC_UF  30D5<> 54D7<
CLK33M_PCI_SLOTD  30D7< 32A6< 54A7<
CLK33M_PCI_SLOTD_UF  30D5<> 54D7<
CLK66M_GPU_AGP   16D8< 17C6< 54A7<
CLK66M_GPU_UF    16C6<> 54A7<
CLKENET_LINK_GBE_REF  34C6<
CLKENET_LINK_RX  34C7< 35C8< 57C5>
CLKENET_LINK_TX  34D7< 35C8< 57C5>
CLKENET_PHY_RX   35C6<> 57C5>
CLKENET_PHY_TX   35C6<> 57C5>
CLKFW_LINK_LCLK  34C5<>
CLK_18M_INT_XOUT  58B5> 58B5> 58B5>
COMM_DTR_L       28C3> 29C7<> 59C5>
COMM_GPIO_L      28C3<> 28D3< 29C5<> 59C5>
COMM_RESET_L     28C5<> 29D5<> 59A7>
COMM_RING_DET_L  28B5<> 28B8< 29C5<> 44C5<> 59D5>
COMM_RTS_L       28C3> 29D5<> 59C5>
COMM_RXD         28C3<> 29C5<> 59C5>
COMM_SHUTDOWN    28C5<> 28D1< 29D7<> 59D5>
COMM_TRXC        28C3<> 28D3< 29C7<> 59C5>
COMM_TXD_L       28C3<> 29C7<> 59C5>
CORE_MOSFET      45C4<> 45C6<>
CORE_MOSFET_1    45B5<> 45C7<>
CPU_AACK_L       4A7< 7B7< 8B5<> 9B3<> 56C3>
CPU_ADDR<0>      4C7<> 8B4<> 9D3<>
CPU_ADDR<0..31>  56D3>
CPU_ADDR<1>      4C7<> 8B5<> 9D3<>
CPU_ADDR<2>      4C7<> 8B4<> 9D3<>
CPU_ADDR<3>      4C7<> 8B8<> 9D3<>
CPU_ADDR<4>      4C7<> 8B5<> 9D3<>
CPU_ADDR<5>      4C7<> 8B7<> 9D3<>
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CPU_ADDR<8>      4C7<> 8C5<> 9D3<>
CPU_ADDR<9>      4C7<> 8B8<> 9C3<>
CPU_ADDR<10>     4C7<> 8B8<> 9C3<>
CPU_ADDR<11>     4C7<> 8C4<> 9C3<>
CPU_ADDR<12>     4C7<> 8B7<> 9C3<>
CPU_ADDR<13>     4C7<> 8B8<> 9C3<>
CPU_ADDR<14>     4C7<> 8B7<> 9C3<>
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CPU_ADDR<16>     4C7<> 8B8<> 9C3<>
CPU_ADDR<17>     4C7<> 8B8<> 9C3<>
CPU_ADDR<18>     4C7<> 8C8<> 9C3<>
CPU_ADDR<19>     4C7<> 8B7<> 9C3<>
CPU_ADDR<20>     4C7<> 8B8<> 9C3<>
CPU_ADDR<21>     4C7<> 8C7<> 9C3<>
CPU_ADDR<22>     4C7<> 8C7<> 9C3<>
CPU_ADDR<23>     4C7<> 8C8<> 9C3<>
CPU_ADDR<24>     4B7<> 8B7<> 9C3<>
CPU_ADDR<25>     4B7<> 8B8<> 9C3<>
CPU_ADDR<26>     4B7<> 8C8<> 9C3<>
CPU_ADDR<27>     4B7<> 8C8<> 9C3<>
CPU_ADDR<28>     4B7<> 8C7<> 9C3<>
CPU_ADDR<29>     4B7<> 8C8<> 9C3<>
CPU_ADDR<30>     4B7<> 8C7<> 9C3<>
CPU_ADDR<31>     4B7<> 8C7<> 9C3<>
CPU_ARTRY_L      4A7<> 7C7< 8B8<> 9B3<> 56C3>
CPU_AVDD         4D3< 52C6>
CPU_BG_L         4D7< 7B7< 8B4<> 9D3<> 56D3>
CPU_BR_L         4D7> 7C7< 8B4<> 9D3< 56D3>
CPU_BUS_VSEL     4D3< 7C4<
CPU_CHKSTP_IN_L  4B3< 7B5< 59C7>
CPU_CHKSTP_OUT_L  4B3> 7B5< 8A3<> 8D5<> 59C7>
CPU_CI_L         4A7> 7A7< 8C5<> 9C3<> 56C3>
CPU_CLK_EN       9A3< 44C4<>
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CPU_DATA<0..63>  56D3>
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CPU_DATA<2>      5D4<> 8C8<> 9D1<>
CPU_DATA<3>      5D4<> 8C5<> 9D1<>
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CPU_DATA<5>      5D4<> 8C8<> 9D1<>
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CPU_DATA<7>      5D4<> 8C8<> 9D1<>
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CPU_DATA<9>      5D4<> 8C4<> 9D1<>
CPU_DATA<10>     5D4<> 8C7<> 9D1<>
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CPU_DATA<19>     5C4<> 8C4<> 9C1<>
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CPU_DATA<24>     5C4<> 8D4<> 9C1<>
CPU_DATA<25>     5C4<> 8D7<> 9C1<>
CPU_DATA<26>     5C4<> 8C5<> 9C1<>
CPU_DATA<27>     5C4<> 8C7<> 9C1<>
CPU_DATA<28>     5C4<> 8D8<> 9C1<>
CPU_DATA<29>     5C4<> 8C8<> 9C1<>
CPU_DATA<30>     5C4<> 8C5<> 9C1<>
CPU_DATA<31>     5C4<> 8D7<> 9C1<>

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CPU_DATA<34>     5C4<> 8D8<> 9B7< 9C1<>
CPU_DATA<35>     5C4<> 8D7<> 9B7< 9C1<>
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CPU_DATA<52>     5B4<> 8C5<> 9B1<> 9C8<
CPU_DATA<53>     5B4<> 8C7<> 9B1<> 9C8<
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CPU_DATA<57>     5B4<> 8D5<> 9B1<> 9D5<
CPU_DATA<58>     5B4<> 8D4<> 9B1<> 9D5<
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CPU_DATA<62>     5B4<> 8D4<> 9B1<> 9C5<
CPU_DATA<63>     5A4<> 8D5<> 9B1<> 9C5<
CPU_DBG_L        4C3< 7B7< 8B8<> 9B1<> 56C3>
CPU_DRDY_L       4C2< 7B7< 8B5<> 9B1< 56C3>
CPU_DRDY_L_UF    4C3< 56C3>
CPU_DTI<0>       4C3< 8B7<> 9A1<>
CPU_DTI<0..2>    56C3>
CPU_DTI<1>       4C3< 8B4<> 9A1<>
CPU_DTI<2>       4C3< 8B4<> 9A1<>
CPU_EDTI         4C3< 7C5<
CPU_EMODE0_L     4B3< 7A4<
CPU_EMODE1_L     4B3< 7A4<
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CPU_FBO_PLUS1    9A5< 56C3>
CPU_FB_MINUS3    9A4< 56C3>
CPU_FB_PLUS2     9A5< 56C3>
CPU_FB_PLUS3     9A4< 56B3>
CPU_GBL_L        4B8<> 8B5<> 56C3>
CPU_HDRST_L      44C4<>
CPU_HIT_L        4A7> 7C7< 8B8<> 9B3< 56C3>
CPU_HRESET_L     4B3< 7A3< 7A5< 7B3< 7B3< 8A3<>
                44C2< 44D2< 59C7>
CPU_INT_GBL_L    4B8< 7B7< 9C3<> 56C3>
CPU_L1TSTCLK     4C3< 7B4<
CPU_L2TSTCLK     4C3< 7C4<
CPU_LSSD_MODE    4C3< 7B5<
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CPU_PLL_CFGEXT   4C3< 6C6< 8A8<>
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CPU_PMONIN_L     4B3< 7C5<
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EIDE_DATA<15>    37A5< 37B7<>
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EIDE_PDIAG       38C6<>
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ENET_CRS         34C7< 35B8< 57B5>
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FILT_ANALOG_RED  25C5< 57D5> 59B7>
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FW_TPA1P         36C5<> 57A5>
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FW_TPA2P         36C5<> 57A5>
FW_TPB1          36B3<
FW_TPB1N         36C5<> 57A5>
FW_TPB1P         36C5<> 57A5>
FW_TPB2          36B4<
FW_TPB2N         36C5<> 57A5>
FW_TPB2P         36C5<> 57A5>
FW_TPI1N         36A8<> 36D1<> 57A5>
FW_TPI1P         36A8<> 36D1<> 57A5>
FW_TPI2N         36A8<> 36C1<> 57A5>
FW_TPI2P         36A8<> 36C1<> 57A5>
FW_TPO1N         36A8<> 36D1<> 57A5>
FW_TPO1P         36B8<> 36D1<> 57A5>
FW_TPO2N         36A8<> 36C1<> 57A5>
FW_TPO2P         36A8<> 36C1<> 57A5>
FW_VGND          52B6>
FW_VP            36D5< 52B6>
FW_VP1           36D1<> 36D3<> 52B6>
FW_VP2           36C1<> 36D3<> 52B6>
FW_VP_1          36D4< 52B6>
FW_VP_2          36D4< 52B6>
FW_VREG_FB       36D7<
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```
FW_XI            36C6< 57A5>
FW_XI_A          36C6<
FW_XO            36C6<> 57A5>
GCORE_1          48C2<
GCORE_BSTH       48C5<>
GCORE_BSTH_TERM  48C3<>
GCORE_COMP       48B6<
GCORE_DH         48B5<>
GCORE_DL         48B5<>
GCORE_GND        48B5<>
GCORE_OCSET      48B6<>
GCORE_OVP        48B6<>
GCORE_VCC        48C6<
GCORE_VSENSE     48B6<> 48C4<>
GPULNKON         23C4<>
GPU_50PULLDWN    17A5<> 52A8>
GPU_50PULLUP     17B5<> 52A8>
GPU_AGP_AD<0>    17D6<>
GPU_AGP_AD<0..15>  54B7<
GPU_AGP_AD<1>    17D6<>
GPU_AGP_AD<2>    17D6<>
GPU_AGP_AD<3>    17D6<>
GPU_AGP_AD<4>    17D7<>
GPU_AGP_AD<5>    17D7<>
GPU_AGP_AD<6>    17D7<>
GPU_AGP_AD<7>    17D7<>
GPU_AGP_AD<8>    17D6<>
GPU_AGP_AD<9>    17D6<>
GPU_AGP_AD<10>   17D6<>
GPU_AGP_AD<11>   17D6<>
GPU_AGP_AD<12>   17D6<>
GPU_AGP_AD<13>   17D6<>
GPU_AGP_AD<14>   17D6<>
GPU_AGP_AD<15>   17C6<>
GPU_AGP_AD<16>   17C6<>
GPU_AGP_AD<16..31>  54B7<
GPU_AGP_AD<17>   17C6<>
GPU_AGP_AD<18>   17C6<>
GPU_AGP_AD<19>   17C6<>
GPU_AGP_AD<20>   17C6<>
GPU_AGP_AD<21>   17C6<>
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GPU_AGP_AD<23>   17C6<>
GPU_AGP_AD<24>   17C6<>
GPU_AGP_AD<25>   17C6<>
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GPU_AGP_AD<27>   17C6<>
GPU_AGP_AD<28>   17C6<>
GPU_AGP_AD<29>   17C6<>
GPU_AGP_AD<30>   17C6<>
GPU_AGP_AD<31>   17C6<>
GPU_AGP_CBE<0>   17C6<>
GPU_AGP_CBE<0..1>  54B7<
GPU_AGP_CBE<1>   17C6<>
GPU_AGP_CBE<2>   17C6<>
GPU_AGP_CBE<2..3>  54B7<
GPU_AGP_CBE<3>   17C6<>
GPU_AGP_DEVSEL_L  17B6<> 54B7<
GPU_AGP_FRAME_L  17B6<> 54B7<
GPU_AGP_IRDY_L   17B6<> 54B7<
GPU_AGP_PAR      17B6<> 54B7<
GPU_AGP_PIPE_L   17B6<> 54A7<
GPU_AGP_RBF_L    17B6<> 54A7<
GPU_AGP_SBA<0>   17A6<>
GPU_AGP_SBA<0..7>  54A7<
GPU_AGP_SBA<1>   17A6<>
GPU_AGP_SBA<2>   17A6<>
GPU_AGP_SBA<3>   17A6<>
GPU_AGP_SBA<4>   17A6<>
GPU_AGP_SBA<5>   17A6<>
GPU_AGP_SBA<6>   17A6<>
GPU_AGP_SBA<7>   17A6<>
GPU_AGP_SB_STB   17B6<> 54A7<
GPU_AGP_SB_STB_L  17A6<> 54A7<
GPU_AGP_STOP_L   17B6<> 54B7<
GPU_AGP_TRDY_L   17B6<> 54B7<
GPU_AGP_VREF     17A2< 17A8< 52A6>
GPU_AGP_VREF_H   16A7<
GPU_AGP_VREF_L   16A7<
GPU_AGP_VREF_X   17A2<
GPU_AGP_VREF_Y   17A2<
GPU_AGP_WBF_L    17B6<>
GPU_FB_VREF      18C8< 52A6>
GPU_FPBCLK       23C4<>
GPU_FPBCLK_L     23C4<>
GPU_FW_PME_L     23C4<>
GPU_IFB1IOVDD    23B3<
GPU_IFP1PLLVDD   23B3<
GPU_MBDET_L      17A6<>
GPU_SS_XIN       22A7<
GPU_STEREO       23C4<>
GPU_STRAP<0>     22B4<> 26A4<
GPU_STRAP<1>     22B4<> 26B3<
GPU_STRAP<2>     22B4<> 26D3<
GPU_STRAP<3>     22B4<> 26D3<
GPU_SWAP_A       23C4<>
GPU_SWAP_B       23C4<>
GPU_TESTMECLK    23C4<>
GPU_TMDS_CKM     23C2< 23D3<> 57D2>
GPU_TMDS_CKP     23C2< 23D3<> 57D2>
GPU_TMDS_D0M     23C2< 23D3<> 57D2>
GPU_TMDS_D0P     23C2< 23D3<> 57D2>
GPU_TMDS_D1M     23C2< 23D3<> 57D2>
GPU_TMDS_D1P     23C2< 23D3<> 57D2>
GPU_TMDS_D2M     23C2< 23D3<> 57D2>
GPU_TMDS_D2P     23C2< 23D3<> 57D2>
GPU_TMODE        17A5< 52A8>
GPU_XTALOUTBUFF  22A8< 22B4<>
GPU_XTALSSIN     22A5< 22B2< 52A8>
GPWRGD           47B8< 48A5<>
```

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GRAPHICS_VPWR    48B5<>
GRAPH_CORE       17D4< 23C7<> 48C2<> 52A6>
GRAPH_DDC_SCL    22D5<> 24A7<
GRAPH_DDC_SDA    22D5<> 24A7<
GRAPH_IIC_SCL2   23D3<>
GRAPH_IIC_SDA2   23D3<>
HD_DIOR_L        37D1< 38C3<> 58C5>
HD_DIOW_L        37C1< 38C3<> 58C5>
HD_DMACK_L       37D1< 38C3<> 58C5>
HD_DMARQ         38C3<> 58C5>
HD_INTRQ         38C3<> 58C5>
HD_IOCHRDY       37C1< 38C3<> 58C5>
HD_RESET_L       37D1< 38C3<> 58C5>
HD_UIDE_ADDR<0>  38C3<>
HD_UIDE_ADDR<0..2>  58C5>
HD_UIDE_ADDR<1>  38C3<>
HD_UIDE_ADDR<2>  38C2<>
HD_UIDE_CS1FX_L  38C3<> 58B5>
HD_UIDE_CS3FX_L  38C2<> 58B5>
HEADPHONE_COM    41B2<>
HEADPHONE_L      41B2<> 41D2<
HEADPHONE_R      41B2<> 41C2<
HONK_ADJ         51B4<>
HP16_L           41D4<
HP16_R           41C4<
HP8YP            41B5< 41D6<
HPGAL_L          41D4<
HPGAL_R          41C4<
HPIN_L           41D6<
HPIN_R           41D6<
HP_OFF           41A7< 41D5<
HP_OUT_L         41D5<>
HP_OUT_R         41D5<>
HP_STAR_GND      39B7<> 41A8< 41B4< 41B8< 41C5<
                 41D4< 41D7<
HP_TL            41D3<
HP_TP            41B3<
HP_TR            41C3<
HSYNC*           22C5<> 57D5>
ICORE_COMP       47B6<
ICW              47B7<
IFP0AVCC         23A6< 23C1< 52A6>
IFP0PLLVDD       23B4<
IFP0RSET         23B4<>
IFP0VREF         23B4<> 52A6>
IFP_AVCC         23A7<>
IFP_VADJ         23A8<
IIC_ADD          29C6<> 59A7>
INTCORE_1        47B3<
INTCORE_BSTH     47B6<>
INTCORE_BSTH_TERM  47B6<>
INTCORE_DH       47B6<>
INTCORE_DHT      47B5<>
INTCORE_DL       47B6<>
INTCORE_GND      47A7<>
INTCORE_OCSET    47B6<>
INTCORE_OVP      47B6<>
INTCORE_VCC      47C7<
INTREPID_ACS_REF  9A3<
INTREPID_VPWR    47B6<>
INTREPID_VPWRA   47B4<>
INTREPID_VSENSE  47C6<> 59C7>
INTREP_DLT       47B5<>
INT_AGPPVT       16C6<>
INT_AGP_FB_IN    16C6< 54A7<
INT_AGP_FB_OUT   16C6<> 54A7<
INT_AGP_VREF     16A7< 16C6<> 52C3>
INT_ANALYZER_CLK  8A2< 9B4< 16C7< 54A7< 56B3> 59A7>

INT_ANALYZER_CLKA  9B3<>
INT_CLOCK_OUT    8B2<> 56B3>
INT_CPU_FB_IN    9B3< 56C3>
INT_CPU_FB_OUT   9B3<> 56C3>
INT_ENET_RST_L   28B5<> 28D1< 35B8<
INT_EXTINT3_PU   28B5<> 28B8<
INT_EXTINT12_PU  28B5<> 28B8<
INT_EXTINT13_PU  28B5<> 28B8<
INT_EXTINT17_PU  28B5<> 28B8< 32B6>
INT_GPIO1_PD     28A8< 28C5<>
INT_GPIO9_PU     28B5<> 28B8<
INT_GPIO12_PU    28A8< 28B5<>
INT_I2C_CLK0     14A6<> 15A6< 34B3<
INT_I2C_CLK0R    34B5<> 34C1<
INT_I2C_CLK1     34A3<> 34B1<
INT_I2C_CLK2     28A3<> 28D1< 29C7<> 34B5< 39B1<>
                 59A7>
INT_I2C_DATA0    14A6<> 15A6< 34B3<
INT_I2C_DATA0R   34B5<> 34C1<
INT_I2C_DATA1    34A3<> 34B1<
INT_I2C_DATA2    28A3<> 28D1< 29C7<> 34B5< 39B1<>
                 59A7>
INT_JTAG_TEI     34B7< 34C1<
INT_MEM_REF      12B6<
INT_MEM_VREF     12A8<> 14A1<
INT_MOD_BITCLK   28A3<> 28A8< 28C6<
INT_MOD_CLKOUT   28A3> 28A8< 28C6<
INT_MOD_DTI      28A3< 28A8< 28C6<
INT_MOD_DTO      28A3> 28A8< 28C6<
INT_MOD_SYNC     28A3<> 28A8< 28C6<
INT_PCI_FB_IN    30C5< 54C7<
INT_PCI_FB_OUT   30C5<> 54D7<
INT_PEND_PROC_INT  28A5> 44B4<>
INT_PLL1_GND     28A5<> 28C4<
INT_PLL2_GND     28A5<> 28D4<
INT_PLL3_GND     28A4<> 28D4<
INT_PLL4_GND     30C4<> 30D4<
INT_PLL5_GND     16A5<> 16D5<
INT_PLL6_GND     9A2<> 9D3<
INT_PLL7_GND     28A4<> 28D4<
INT_PLL9_GND     28A4<> 28D4<
```

```
INT_PROC_SLEEP_REQ_L  28A5< 44B4<>
INT_PU_RESET_L   15B3< 34C3< 44C2<> 44C2<>
INT_REF_CLK_IN_PD  28A6< 53A6<
INT_RESET_L      34C3< 35B8< 41A7< 43C7< 44D2<>
INT_ROM_CS_L     30C5<>
INT_ROM_OE_L     30C5<>
INT_ROM_OVERLAY_PU  16D7< 30A7< 30C5<> 54A7<
INT_ROM_RW_L     30C5<>
INT_SND_CLKOUT   28A3<>
INT_SND_SCLK     28A3<>
INT_SND_SYNC     28B3<>
INT_SND_TO_AUDIO  28B3<>
INT_SPKR+        42A6<> 43D8<
INT_SPKR-        42A6<> 43D8<
INT_SUSPEND_ACK_L  9B3> 44B5<>
INT_SUSPEND_REQ_L  9B3< 44B8<>
INT_TMDS_3V      24C3<> 52A6> 59C7>
INT_TST_MONIN_PD  34B7< 34C1<
INT_TST_PLLEN_PD  28C6< 34B7<
INT_WATCHDOG_L   28A5> 44C5<>
INV_CUR_HI       23D7< 29B8<
INV_CUR_HI_FILT  29A5<> 59A7>
IO_RESET_L       32A6< 35B8< 44B8<> 44D3< 59A7>
IPWRGD           46A8< 47A6<>
JAZ              43B6<
JTAG_ASIC_TCK    8A4<> 34B7< 35C4< 59D7>
JTAG_ASIC_TDI    8A4<> 28C6< 34B7< 59D7>
JTAG_ASIC_TDO    8A4<> 35B4<> 59D7>
JTAG_ASIC_TMS    8A4<> 34B7< 35A2< 35B4<> 59D7>
JTAG_ASIC_TRST_L  8A4<> 34B7< 59C7>
JTAG_CPU_TCK     4C3< 7D5< 8A3<> 59C7>
JTAG_CPU_TDI     4C3< 7A5< 8A3<> 59C7>
JTAG_CPU_TDO     4C3> 8A3<> 59C7>
JTAG_CPU_TMS     4C3< 7A5< 8A3<> 59C7>
JTAG_CPU_TRST_L  4C3< 7C5< 8A3<> 59C7>
JTAG_ENET_TDI    35A2< 35B5<>
JTAG_INTRP_TDO   28C6< 34B7> 35B3<
KAVAN            43A6<
KSSVSD           29A5<> 52B3> 59A7>
KS_INT_SPKR+     29A3< 43D7< 58A5> 59B7>
KS_INT_SPKR+_FILT  29A5<>
KS_INT_SPKR-     29A3< 42B4< 43D7< 58A5> 59B7>
KS_INT_SPKR-_FILT  29A5<>
KYLE             46C6<
L31_2            40C6<
L32_2            40B6<>
L36_2            40B6<
L41_FILT         42B7<>
L43_1            41A4<
L59_2_I461       43A5<
L3202_1          40C6<
LAMP_STS         23D7< 29A3<
LAMP_STS_FILT    29A5<> 59A7>
LCD_PWM          23D7< 29A8<
LCD_PWM_FILT     29A5<> 59A7>
LED_5V           29A8< 52B3>
LED_5V_FILT      29A5<> 52B3> 59A7>
LED_RET          29A3< 51B6< 52B3>
LED_RET_FILT     29A5<> 52A3> 59A7>
LED_ROMCS        30B3<>
LED_ROMCS_L      30B4<
LED_ROMCS_LIGHT  30A3<
LID_SWITCH       29B2<> 44C4<>
LINA             39C4< 40C2<
LINEOUT_COMM2    59B5>
LINE_IN_COM      40B7<> 59B5>
LINE_IN_L        40B7<> 40C7<> 59B5>
LINE_IN_R        40B6<> 40B7<> 59B5>
LINE_IN_SENSE    40B7<> 40C7<> 59B5>
LINE_OUT_L       59B5>
LINN             42C5< 43D2<
LINN1            43D2<
LINP             42C5< 43D4<
LINSENSE         40C5<
LOW_PWR          35A5< 35B4<
LO_T1            41A4<
LP4202P2         40C5<
LP4202P3         40B5<
LP4202P4         40B5<
LPL1             41D6<
LPR1             41C6<
LT1962_INT_ADJ   28D7<
LT1962_INT_BYP   28D7<>
LT1962_INT_VIN   28D7<>
M1FH             43B7<>
M1FL             43A7<>
M1H              43B6<> 43B6<>
M1HFILT          43B5<
M1L              43A6<> 43B6<>
M1S              43A6<> 43B6<>
MAIN_RESET_L     17C8< 30B2< 31D4< 32A8< 44C4<>
                 59A5>
MAIN_RESET_L_PU  31D3<>
MAIN_SUPPLY_LED  50D5<
MAXBUS_PWR_EN    46C7<
MAX_PWR_ADJ      46C5<>
MEMREFG1         20A5<>
MEMREFG2         20A4<>
MEMREFG3         21A4<>
MEMREFG4         21A4<>
MEMREFN1         18B8<>
MEMREFN2         18B7<>
MEM_ADDR<0>      12C3< 12D6<>
MEM_ADDR<0..12>  53D6<
MEM_ADDR<1>      12C3< 12D6<>
MEM_ADDR<2>      12C3< 12D6<>
MEM_ADDR<3>      12D3< 12D6<>
MEM_ADDR<4>      12D3< 12D6<>
MEM_ADDR<5>      12C2< 12D6<>
MEM_ADDR<6>      12D2< 12D6<>
```

```
MEM_ADDR<7>      12D3< 12D6<>
MEM_ADDR<8>      12D2< 12D6<>
MEM_ADDR<9>      12C3< 12D6<>
MEM_ADDR<10>     12C3< 12D6<>
MEM_ADDR<11>     12B3< 12D6<>
MEM_ADDR<12>     12D2< 12D6<>
MEM_BA<0>        12B3< 12D6<>
MEM_BA<0..1>     53D6<
MEM_BA<1>        12B3< 12D6<>
MEM_CAS_L        12A3< 12C6<> 53C6<
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MEM_CKE<0..3>    53C6<
MEM_CKE<1>       12B2< 12B6<>
MEM_CKE<2>       12B6<> 12C2<
MEM_CKE<3>       12B2< 12B6<>
MEM_CS_L<0>      12C2< 12C6<>
MEM_CS_L<0..3>   53C6<
MEM_CS_L<1>      12C2< 12C6<>
MEM_CS_L<2>      12B2< 12B6<>
MEM_CS_L<3>      12B2< 12B6<>
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MEM_DATA<0..63>  53D6<
MEM_DATA<1>      12D8> 13C8<>
MEM_DATA<2>      12D8> 13C8<>
MEM_DATA<3>      12D8> 13C8<>
MEM_DATA<4>      12D8> 13C8<>
MEM_DATA<5>      12D8> 13C8<>
MEM_DATA<6>      12D8> 13C8<>
MEM_DATA<7>      12D8> 13C8<>
MEM_DATA<8>      12D8> 13C8<>
MEM_DATA<9>      12D8> 13C8<>
MEM_DATA<10>     12D8> 13C8<>
MEM_DATA<11>     12D8> 13C8<>
MEM_DATA<12>     12D8> 13C8<>
MEM_DATA<13>     12D8> 13C8<>
MEM_DATA<14>     12C8> 13C8<>
MEM_DATA<15>     12C8> 13C8<>
MEM_DATA<16>     12C8> 13B6<>
MEM_DATA<17>     12C8> 13B6<>
MEM_DATA<18>     12C8> 13B6<>
MEM_DATA<19>     12C8> 13B6<>
MEM_DATA<20>     12C8> 13B6<>
MEM_DATA<21>     12C8> 13B6<>
MEM_DATA<22>     12C8> 13B6<>
MEM_DATA<23>     12C8> 13B6<>
MEM_DATA<24>     12C8> 13A6<>
MEM_DATA<25>     12C8> 13A6<>
MEM_DATA<26>     12C8> 13A6<>
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MEM_DATA<28>     12C8> 13A6<>
MEM_DATA<29>     12C8> 13A6<>
MEM_DATA<30>     12C8> 13A6<>
MEM_DATA<31>     12C8> 13A6<>
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MEM_DATA<39>     12C8> 13C4<>
MEM_DATA<40>     12B8> 13C4<>
MEM_DATA<41>     12B8> 13C4<>
MEM_DATA<42>     12B8> 13C4<>
MEM_DATA<43>     12B8> 13C4<>
MEM_DATA<44>     12B8> 13C4<>
MEM_DATA<45>     12B8> 13C4<>
MEM_DATA<46>     12B8> 13C4<>
MEM_DATA<47>     12B8> 13C4<>
MEM_DATA<48>     12B8> 13B3<>
MEM_DATA<49>     12B8> 13B3<>
MEM_DATA<50>     12B8> 13B3<>
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MEM_DATA<52>     12B8> 13B3<>
MEM_DATA<53>     12B8> 13B3<>
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MEM_DATA<55>     12B8> 13B3<>
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MEM_DATA<57>     12B8> 13B3<>
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MEM_DATA<59>     12B8> 13B3<>
MEM_DATA<60>     12B8> 13B3<>
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MEM_DATA<62>     12B8> 13B3<>
MEM_DATA<63>     12B8> 13B3<>
MEM_DQM<0>       12C6> 13C8<>
MEM_DQM<0..7>    53D6<
MEM_DQM<1>       12C6> 13C8<>
MEM_DQM<2>       12C6> 13A6<>
MEM_DQM<3>       12C6> 13A6<>
MEM_DQM<4>       12C6> 13C4<>
MEM_DQM<5>       12C6> 13C4<>
MEM_DQM<6>       12C6> 13B3<>
MEM_DQM<7>       12C6> 13B3<>
MEM_DQS<0>       12C6> 13C8<>
MEM_DQS<0..7>    53D6<
MEM_DQS<1>       12C6> 13C8<>
MEM_DQS<2>       12C6> 13A6<>
MEM_DQS<3>       12C6> 13A6<>
MEM_DQS<4>       12C6> 13C4<>
MEM_DQS<5>       12C6> 13C4<>
MEM_DQS<6>       12C6> 13B3<>
MEM_DQS<7>       12C6> 13B3<>
MEM_MUXSEL_H<0..1>  53C6<
MEM_MUXSEL_H<1>  12B6<>
MEM_MUXSEL_L<0..1>  53C6<
MEM_MUXSEL_L<1>  12B6<>
MEM_RAS_L        12A3< 12C6<> 53C6<
MEM_WE_L         12B3< 12C6<> 53C6<
MIC1             43B5<
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15B6< RAM_ADDR<0..12> 53D6< RAM_ADDR<1> 12C3< 14B6<> 15B6< RAM_ADDR<2> 12C3< 14B4<> 15C6<	D
C								C
B								B
A								A
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RAM_ADDR<7>	12D3< 14B6<> 15C6<
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RAM_ADDR<12>	12D1< 14B6<> 15C4>
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RAM_BA<0..1>	53D6<
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RAM_CKE<0>	12C1< 14B4<> 15C1<
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RB37P1	48C6<>
RB160P1	50A5<>
RB213P2	49C3<>
RB227P1	49C5<>
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RFBDQS<4>	19A6< 20C2<>
RFBDQS<5>	19A6< 20C2<>
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RFBDQS<7>	19A6< 20C2<>
RFBDQS<8>	19A3< 21C6<>
RFBDQS<8..15>	55B3>
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RFBDQS<10>	19A3< 21C6<>
RFBDQS<11>	19A3< 21C6<>
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RFBDQS<14>	19A3< 21C2<>
RFBDQS<15>	19A3< 21C2<>
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RF_DISABLE_L	31C3<>
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RINN1	43C2<
RINP	42C4< 43D4<
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RINT_RESET_L	34C5<
RJ45_4_5	35C1<> 57B5>
RJ45_7_8	35C1<> 57B5>
RJ45_F_TREF	35B2< 57B5>
RJ45_RREF	35C2<> 57B5>
RJ45_RXN	35C1<> 57B5>
RJ45_RXP	35C1<> 57B5>
RJ45_TREF	35C2<> 57B5>
RJ45_TXN	35C1<> 57B5>
RJ45_TXP	35C1<> 57B5>
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ROMA15	18C8< 26D8<
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ROM_OE_L	30B2< 30C6< 31B2<> 59C7>
ROM_ONBOARD_CS_L	30B2< 31B4<> 59D5>
ROM_RW_L	30B2< 30B6< 31B4<> 59B7>
ROM_WP_L	30B2< 59A7>
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RT401P1	47C5<>
RT406P2	47B3<>
RT418P2	50C7<
RUNLED1	51C8<
RUNSS	50C8< 50D3<
S3700P1	44A1<>
S3700P2	44A1<>
SB1P1	44A3<
SENSE+	45C6<
SENSE+_1	45B5< 45C7<
SENSE-	45C6< 45C8<>
SENSE-_1	45B5< 45C7<
SGRAVREF	20A3< 20C4< 20C8< 52A6>
SGRBVREF	21A3< 21C4< 21C8< 52A6>
SHS	50C7<
SI_EDGE	27C5<
SI_EXT_SWING_SET	27B3<>
SI_I2C_OFF	27C5<
SI_IDCK_M	27B5<
SI_SCA	23D2< 27C5<
SI_SCL	23D2< 27C5<
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SI_TMDS_CKP	27C3<> 57C2>
SI_TMDS_D0M	27C3<> 57C2>
SI_TMDS_D0P	27C3<> 57C2>
SI_TMDS_D1M	27C3<> 57C2>
SI_TMDS_D1P	27C3<> 57C2>
SI_TMDS_D2M	27C3<> 57C2>
SI_TMDS_D2P	27C3<> 57C2>
SI_VREF	27B3<
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SLEEP2	51A7<
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SLEEP_LED_BD	51A6<
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SLEEP_OFF_L2	39C7<
SND_AMP_MUTE_L	28C5<> 43C8<
SND_AMP_M_L	42D3< 43C7<>
SND_CLKOUT	28A1< 39B4<
SND_HP_MUTE_L	28C5<> 41A7<
SND_HP_M_L	41A7<>
SND_HP_SENSE_CONN	41A3< 41B2<>
SND_HP_SENSE_L	28B5<> 41A5< 59B7>
SND_HW_RESET_L	28A8< 28B5<> 39B4<
SND_LIN_SENSE_L	28B5<> 40D4< 59B5>
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SND_SPKR_ID	28B5<> 42B8<
SND_SPKR_ID_U10	42B8<
SND_SYNC	28B1< 39C1<>
SND_TO_AUDIO	28B1< 39C4<
SNF_FSEL	28C5<> 28D3<
SPDA	42B7<
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SPKROUT_L_P	42A8< 42C8<
SPKROUT_R_N	42A8< 42C1<
SPKROUT_R_P	42A8< 42C1<
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SPKR_LM	42A5<>
SPKR_LP	42A5<>
SPKR_RM	42A5<>
SPKR_RMS	42C8<
SPKR_RP	42A5<>
STBYMD	50B7<>
STOP_AGP_L	16C6<> 16D3< 17A8< 54B7<
SUPER_FLO	45C7<> 45C7<>
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SW3V5V_INTVCC	50B5<> 50C6<>
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SW3VITH2R	50A8<
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SW3V_BG2	50B6<>
SW3V_BG2R	50B5<>
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SW3V_TG2R	50C5<>
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SW5V_TG1R	50B4<>
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SW12V_SL	51C7<
SW12V_SLEEP	51D7<>
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SWITCH5V_4	51B6<>
SWITCH5V_5	51B3<
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SYSCLK_CPU_UF	9A3<> 56C3>
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SYSCLK_DDRCLK_A0_L_UF	12B6<> 53C6<
SYSCLK_DDRCLK_A0_UF	12B6<> 53C6<
SYSCLK_DDRCLK_A1	12C4< 14A4<> 53C6<
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SYSCLK_DDRCLK_A1_L_UF	12B6<> 53C6<
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SYSCLK_DDRCLK_A2_L	53B6<
SYSCLK_DDRCLK_A2_L_UF	12B6<> 53B6<
SYSCLK_DDRCLK_A2_UF	12B6<> 53C6<
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SYSCLK_DDRCLK_B0_L	12B4< 15B3> 53B6<
SYSCLK_DDRCLK_B0_L_UF	12B6<> 53B6<
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SYSCLK_DDRCLK_B1_L	12A4< 15C6< 53B6<
SYSCLK_DDRCLK_B1_L_UF	12B6<> 53B6<
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SYSCLK_DDRCLK_B2	12A4< 15A6< 53B6<
SYSCLK_DDRCLK_B2_L	12A4< 15A6< 53B6<
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SYSCLK_DDRCLK_B2_UF	12B6<> 53B6<
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TCKP	24C4<> 57C5>
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TD0P	24C3<> 57C5>
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TD2M	24C4<> 57C5>
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TMDS_D1P	23D1< 24C7<> 27C2< 57D2> 59B7>
TMDS_D2M	23D1< 24D7<> 27C2< 57D2> 59B7>
TMDS_D2P	23D1< 24D7<> 27C2< 57D2> 59B7>
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TMDS_DDC_DAT	24B4<> 59C5>
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TPA_LOUTN	42C5<>
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TPA_ROSC	42C4<>
TPA_ROUTN	42C4<>
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T_UD_IDEDD_5	37B1< 38C3<> 58C2>
T_UD_IDEDD_6	37B1< 38C3<> 58B2>
T_UD_IDEDD_7	37B1< 38C3<> 58B2>
T_UD_IDEDD_8	37B1< 38C2<> 58B2>
T_UD_IDEDD_9	37B1< 38C2<> 58B2>
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T_UD_IDEDD_11	37B1< 38C2<> 58B2>
T_UD_IDEDD_12	37B1< 38C2<> 58B2>
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T_UD_IDEDD_14	37A1< 38C2<> 58B2>
T_UD_IDEDD_15	37A1< 38C2<> 58B2>
U5_SDOUT	39C3<>
U10_A	42C7<
U10_OUT	42C7> 42D8<
U22_8	36D8<
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UIDE_DATA<14>     37A3< 37C7<>
UIDE_DATA<15>     37A3< 37C7<>
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UIDE_DIOW_L       37C3< 37C7<> 58C5>
UIDE_DMACK_L      37C7<> 37D3< 58C5>
UIDE_DMARQ        37C7<> 38C4< 58C5>
UIDE_INTRQ        37C7< 38C4< 58C5>
UIDE_IOCHRDY      37C3< 37C7< 58C5>
UIDE_PDIAG        38C2<>
UIDE_REF          37C7<>
UIDE_RST_L        37C7<> 37D3< 58C5>
UNUSED_ATAIOCS16_L  38C2<> 52A8>
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UNUSED_EXTINT8    28B5<> 28B8<>
UNUSED_GPIO15     28B5<> 28C1< 59A5>
USB2_CRUN_L       32A6<>
USB2_CRUN_L_INT   28A8< 28B5<> 32A8<
USB2_DAN_F        32C1<> 33B7< 56B3>
USB2_DAP_F        32C1<> 33B7< 56B3>
USB2_DBN_F        32C1<> 33C7< 56B3>
USB2_DBP_F        32C1<> 33C7< 56B3>
USB2_DCN_F        32C1<> 33D7< 56B3>
USB2_DCP_F        32C1<> 33D7< 56B3>
USB2_IDSEL        32B6<
USB2_NC1          32B4<>
USB2_NC2          32B4<>
USB2_PME_L        32A6<>
USB2_RREF         32B4<> 56B3>
USB2_RSDAM        32C4<> 56B3>
USB2_RSDAP        32C4<> 56B3>
USB2_RSDBM        32C4<> 56B3>
USB2_RSDBP        32C4<> 56B3>
USB2_RSDCM        32C4<> 56B3>
USB2_RSDCP        32C4<> 56B3>
USB2_VCCRST       32A6<
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USB2_XT2          32C4<> 56B3>
USB2_XT2_B        56B3>
USBT_DAN_F        33B6<> 56B3>
USBT_DAP_F        33B6<> 56B3>
USBT_DBN_F        33C6<> 56A3>
USBT_DBP_F        33C6<> 56A3>
USBT_DCN_F        33D6<> 56A3>
USBT_DCP_F        33D6<> 56A3>
USB_DAN           28A3< 28B3<> 58B5>
USB_DAN_CON       33C3<> 56A3> 59C5>
USB_DAN_F         28B2< 33B7< 58B5>
USB_DAP           28A3< 28B3<> 58B5>
USB_DAP_CON       33C3<> 56A3> 59C5>
USB_DAP_F         28B2< 33B7< 58B5>
USB_DBN           28A3< 28B3<> 58B5>
USB_DBN_CON       33B3<> 56A3> 59C5>
USB_DBN_F         28B2< 33C7< 58B5>
USB_DBP           28A3< 28B3<> 58B5>
USB_DBP_CON       33B3<> 56A3> 59C5>
USB_DBP_F         28B2< 33C7< 58B5>
USB_DCN           28A3< 28B3<> 58B5>
USB_DCN_CON       33D3<> 56A3> 59C5>
USB_DCN_F         28B2< 33D7< 58B5>
USB_DCP           28A3< 28B3<> 58B5>
USB_DCP_CON       33D3<> 56A3> 59C5>
USB_DCP_F         28B2< 33D7< 58B5>
USB_DDN           28B3<>
USB_DDN_F_TERM    28B2<
USB_DDP           28B3<>
USB_DDP_F_TERM    28B2<
USB_DEN           28B3<> 58B5>
USB_DEP           28B3<> 58B5>
USB_DFN           28B3<> 58A5>
USB_DFP           28B3<> 58A5>
USB_GND           52A3>
USB_OC_EF_L       28B3< 28C2<
USB_PORT_PWR      33A4<> 33B3<> 33C3<> 33D3<> 52A3>
                  59B5>
USB_PWR           25B5<> 25C2< 25D3<> 33A6<> 52A3>
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USB_PWREN_CD_L    28B3<> 28C2<
USB_PWREN_EF_L    28B3<> 28C2<
USB_PWR_EN        33A8<>
USB_PWR_FLT*      28B3< 28C1< 32B1< 33A7>
UX6P23            39C4<
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U_USB_PWR_FLT*    32B4<
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VCOMR             43D5<
VCOREIN           45D6<>
VCORE_BG          45C6<>
VCORE_BG_1        45B5< 45C7<>
VCORE_BOOST       45C5<>
VCORE_BOOST2      45C6<>
VCORE_BOOST2_1    45B5< 45C7<>
VCORE_BOOST_1     45B5<>
VCORE_EXTVCC      45D7<
VCORE_FREQSET     45C7<
VCORE_INTVCC      45C5<> 45D5<> 45D7<>
VCORE_SEN+        45C3<>
VCORE_SEN+_1      45A3<>
VCORE_SENA+       45C3<>
VCORE_SF          45C8<
VCORE_SGND        45B7<> 45C7<> 45C7<> 45C8<> 45C8<>

VCORE_STBY        45C7<>
VCORE_TG          45C6<>
VCORE_TG_1        45B5< 45C7>
VCORE_VGATE       28B5<> 28D3<
VCORE_VIN         45D7<>
VC_CNTL1          44C7< 45D8<
VC_SENA           45B3<>
VGA_IIC_CLK       25C4<> 59B5>
VGA_IIC_DAT       25C4<> 59B5>
VGER_INV_HRESET   7A3< 7B3< 7B3< 7C3< 44D1>
VIPCLK            22D4< 52A8>
VIPD0             22D4<> 26B7<
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VIPHAD1           22D5<> 26B7<
VIPHCTL           22D5<> 26D5<
VIP_PD            22D4<
VIP_PU            22D4<
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VOSNS2            50B5<>
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VREFM             39B4<
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VRFILT            39B3<>
VSYNC*            22C5<> 57D5>
WL_PCI_IDSEL      31C2<> 59A5>
XMIT_LED          35A2< 35B4<>
ZT8P1             4A1<>
ZT9P1             4B2<>
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ZT11P1            4B1<>
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APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6569	A
SCALE: NONE	SHT 64 OF 69	

*** Part Cross-Reference for the entire design ***

BS1	PCB_STANDOFF	29B5
BS2	PCB_STANDOFF	29B6
BS3	PCB_STANDOFF	29D1
BS4	PCB_STANDOFF	29D1
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C2	CAP	33D4
C3	CAP	35B1
C4	CAP	36B6
C5	CAP_P	33A5
C6	CAP	33B4
C7	CAP_P	33A5
C8	CAP	21A4
C9	CAP	21A4
C10	CAP_P	36D7
C11	CAP	21A4
C12	CAP_P	36D7
C13	CAP_P	41C4
C14	CAP	12A7
C15	CAP	21D2
C16	CAP	21B4
C17	CAP	21D5
C18	CAP	51D3
C19	CAP_P	51D4
C20	CAP	21B2
C21	CAP	21D5
C22	CAP	21B4
C23	CAP	21B4
C24	CAP_P	40B4
C25	CAP_P	40C4
C26	CAP_P	41D4
C27	CAP	36D8
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C29	CAP	21B3
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C31	CAP	21B2
C32	CAP	21D4
C33	CAP	21B2
C34	CAP	21B3
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C37	CAP	35D7
C38	CAP	21D2
C39	CAP	21D5
C40	CAP	21B3
C41	CAP	35D8
C42	CAP	36B8
C43	CAP	41D6
C44	CAP	35D4
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C46	CAP	14D8
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C51	CAP	15C3
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C54	CAP	18B8
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C56	CAP	35D4
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C94	CAP	17C3
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C1044	CAP	45D7	
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C1046	CAP	45C1	
C1047	CAP	45D5	
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C1072	CAP	42C3	
C1073	CAP	42C3	
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C1094	CAP	43C2	
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C1102	CAP_P	42B3	
C1103	CAP	22B5	
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C1914	CAP	8C1	
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C2202	CAP	20C4	
C2301	CAP	21C8	
C2302	CAP	21C4	
C2501	CAP_P	23A8	
C3001	CAP	28C5	
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C3201	CAP	30D4	
C3501	CAP	35D6	
C3502	CAP	33A8	
C3901	CAP	37D1	
C4081	CAP	46C7	
C4201	CAP	42B6	
C4261	CAP	42A7	
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C4265	CAP	42A7	
C4267	CAP	42A6	
C4301	CAP	41A6	
C4302	CAP	43A5	
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C4502	CAP_P	43B5	
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C4509	CAP	45C4	
C4701	CAP	45B6	
C4702	CAP	47B4	
C4801	CAP	48B4	
C4901	CAP	49B4	
C5001	CAP	50C3	
C5002	CAP	50A3	
D1	DIODE_DUAL_6P	36A7	
D2	DIODE_DUAL_6P	36A7	
D3	DIODE_DUAL_6P	36A7	
D4	DIODE_DUAL_6P	36B7	
D5	ZENER_MMBZ15VDLT1	40B6	
D6	DIODE_DUAL_6P	25D4	
D7	DIODE_DUAL_6P	25D4	
D8	DIODE	36D6	
D9	DIODE	35B8	
D10	DIODE_SCHOT	23B8	
D11	DIODE_SCHOT	44D7	
D12	DIODE_SCHOT	44D7	
D13	DIODE_SCHOT	47C7	
D14	DIODE_SCHOT	47B5	
D15	DIODE_SCHOT	49B3	
D16	DIODE_SCHOT	50C5	
D17	DIODE_SCHOT	50B5	
D18	DIODE_SCHOT	49C6	
D19	DIODE_SCHOT	46D6	
D20	DIODE_SCHOT	45D5	
D21	DIODE_SCHOT	45B5	
D23	DIODE_SCHOT_3P	42A6	
D24	ZENER_MMBZ15VDLT1	41B2	
D25	ZENER	36B6	
D26	ZENER_MMBZ15VDLT1	41B2	
D27	DIODE_DUAL_6P	25B4	
D28	DIODE_DUAL_6P	25B4	
D29	ZENER_MMBZ15VDLT1	40B5	
D30	DIODE_SCHOT	48C5	
D31	DIODE_SCHOT	48B3	
D32	DIODE_SCHOT	48B5	
D33	DIODE_SCHOT	46B6	
D34	DIODE_SCHOT	48B2	
D35	DIODE_SCHOT	44D6	
D36	DIODE_SCHOT	44D6	
D37	DIODE_SCHOT	50B2	
D38	DIODE_SCHOT	50C6	
D39	DIODE_SCHOT	50B4	
D40	DIODE_SCHOT	50A4	
D41	DIODE_SCHOT	45C4	
D42	DIODE_SCHOT	49B5	
D43	DIODE_SCHOT	45B4	
D44	DIODE_SCHOT	45D2	
D45	DIODE_SCHOT	45D6	
D46	DIODE_SCHOT	49B1	
D47	DIODE	36D6	
D48	DIODE_DUAL_SWI	42B6	
D4901	DIODE_SCHOT	47B2	
DS1	LED	35A2	
DS2	LED	35A1	
DS3	LED	35A1	
DS4	LED	30A3	
DS5	LED	51C8	
DS6	LED	51A6	
DS7	LED	38B2	
DS8	LED	38B6	
DS9	LED	50D5	
DS10	LED	51A4	
DZ1	ZENER	51B1	
F2	FUSE	36D5	
F3	FUSE	36D5	
FL2	FILTER_LC	25C6	
FL3	FILTER_LC	25C6	
FL4	FILTER_LC	25B6	
J1	CON_RJ45	35C1	
J2	CON_FWVERT_SKT	36C1	
J3	CON_F8RT_S_TH1	42B5	
J4	CON_F4RT_USB_UPRIGHT	33C3	
J5	CON_FWVERT_SKT	36D1	
J6	CON_F4RT_USB_UPRIGHT	33B3	
J7	CON_F4RT_USB_UPRIGHT	33D3	

J8	CON_F4RT_S4MT_TH1	41C1	
J9	CON_F14RT_D4MT_TH1	25C5	
J10	CON_F4RT_S4MT_TH1	40C7	
J11	CON_F184ST_DDRDIMM	15D5	
J12	CON_F21ST_D2MT_SM	24C4	
J13	CON_M40SM_635	29D6	
J14	CON_M18ST_D_TH	29B5	
J15	CON_M40ST_NC20	38D6	
J16	CON_M40ST_NC20	38D2	
J17	CON_M16ST_MICROFIT	50D7	
J18	CON_M4ST_LCK	34B4	
J19	CON_37SM_MTOR	8C4	
J20	CON_38SM_MTOR	8D7	
J21	CON_M3ST_LCK	45C8	
J22	CON_F20SM_KX	8A4	
J23	CON_F1ST_S2MT_SM	28B7	
J24	CON_M12ST_SM	29B3	
J25	CON_F100RT_LP_SM	31D3	
J26	CON_F200RT_DDRDIMM_SM2	14D5	
J27	CON_F1ST_S2MT_SM	8B1	
J28	CON_F10ST_D_SMA	29D2	
J30	CON_38SM_MTOR	8D4	
J31	CON_38SM_MTOR	8C7	
J32	CON_F12RT_S2MT_SM	8A8	
J4501	CON_F4ST_S2MT_SM	43B6	
J4502	CON_F4ST_S2MT_SM	43B6	
JAZ1	TP	51A5	
L1	IND	36D4	
L2	IND	33A5	
L3	IND	36D4	
L4	IND	27D5	
L5	FILTER_4P	36C2	
L6	FILTER_4P	36C2	
L7	FILTER_4P	36D2	
L8	FILTER_4P	36D2	
L9	IND	25C2	
L12	IND	48B3	
L13	IND	22D7	
L16	IND	28C3	
L19	IND	47B4	
L20	IND	45C3	
L21	IND_3P	49B3	
L22	IND_3P	50A3	
L23	IND	50C3	
L24	IND	45B3	
L26	IND	42A6	
L27	IND	41C3	
L32	IND	36B6	
L33	IND	22B7	
L34	IND	41D3	
L35	IND	41B3	
L36	IND	40B6	
L39	IND	41A3	
L40	IND	42A5	
L41	IND	42B7	
L42	IND	41B3	
L43	IND	41A4	
L44	IND	41C3	
L45	IND	41D3	
L46	IND	40C6	
L47	IND	41B3	
L48	IND	40C6	
L49	IND	40B5	
L50	IND	40C5	
L51	IND	40D6	
L52	IND	40C5	
L53	IND	40D5	
L56	IND	44A1	
L57	IND	44A1	
L58	IND	32D6	
L59	IND	43A5	
L60	IND	43B5	
L63	IND	39D4	
L64	IND	24A5	
L65	IND	29A7	
L66	IND	29A3	
L67	FILTER_4P	24B5	
L68	IND	22D2	
L69	IND	29A3	
L70	IND	29A7	
L71	FILTER_4P	24B5	
L72	IND	29A7	
L73	IND	29A3	
L74	FILTER_4P	24C5	
L75	IND	29A7	
L76	FILTER_4P	24D5	
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L78	IND	29A3	
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L82	IND	24D5	
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L88	IND	27D2	
L89	IND	42D7	
L90	IND	42C6	
L91	IND	42C6	
L92	IND	42C7	
L93	IND	42C3	
L94	IND	42C2	
L95	IND	42D2	
L96	IND	42C3	
L97	IND	43D7	
L98	IND	43D7	
L99	IND	42B3	
L100	FILTER_4P	33D5	

L101	FILTER_4P	33C5	
L102	FILTER_4P	33B5	
L103	IND	29B3	
L2401	IND	22C7	
L2501	IND	23A6	
LP1	LPAK4P	42A8	
Q1	TRA_2N7002	51C3	
Q2	TRA_2N7002	42D7	
Q3	TRA_2N7002	42C7	
Q4	TRA_2N7002	42B8	
Q5	TRA_2N7002	41A5	
Q6	TRA_2N7002	42B6	
Q7	TRA_SUD70N03	48B4	
Q8	TRA_SUD50N03	48B4	
Q9	TRA_SUD50N03	48C4	
Q10	TRA_2N7002	22B7	
Q11	TRA_FDC602P	51C2	
Q12	TRA_2N3904	44D7	
Q13	TRA_2N7002	51B2	
Q14	TRA_2N7002	51C7	
Q15	TRA_2N7002	51A7	
Q16	TRA_2N7002	51A7	
Q17	TRA_2N7002	51B6	
Q18	TRA_2N7002	51A7	
Q19	TRA_2N7002	51A6	
Q20	TRA_FDC602P	51D7	
Q21	TRA_2N7002	50C1	
Q22	TRA_2N7002	50D1	
Q23	TRA_2N7002	50C2	
Q24	TRA_2N7002	50C2	
Q25	TRA_IRF7807Z	47B5	
Q26	TRA_IRF7807Z	47B5	
Q27	TRA_SUD70N03	49B4	
Q28	TRA_SUD50N03	49B4	
Q29	TRA_2N7002	45D8	
Q30	TRA_2N3904	36C7	
Q31	TRA_2N7002	41A8	
Q32	TRA_2N7002	39C7	
Q33	TRA_2N3904	43A2	
Q34	TRA_SUD70N03	48B4	
Q35	TRA_2N7002	40D4	
Q36	TRA_2N7002	42D3	
Q37	TRA_FDC602P	51C6	
Q38	TRA_2N7002	51B6	
Q39	TRA_2N3904	50C7	
Q40	TRA_SUD70N03	45C4	
Q41	TRA_2N7002	15B2	
Q42	TRA_2N7002	15C2	
Q43	TRA_SUD70N03	45C4	
Q44	TRA_SUD50N03	45C4	
Q45	TRA_IRF7807Z	50B4	
Q46	TRA_IRF7807Z	50C4	
Q47	TRA_SUD50N03	50A4	
Q48	TRA_SUD50N03	50A4	
Q49	TRA_SUD70N03	45B4	
Q50	TRA_SUD50N03	45B4	
Q51	TRA_SUD50N03	45B4	
Q52	TRA_SUD70N03	45B4	
Q53	TRA_2N7002	15B2	
Q54	TRA_2N7002	15A2	
Q54	TRA_2N7002	15B2	
R1	RES	36D4	
R2	RES	25B4	
R3	RES	25B4	
R4	RES	21A4	
R5	RES	21A3	
R6	RES	21A4	
R7	RES	25B5	
R8	RES	36C4	
R9	RES	36C4	
R10	RES	36C4	
R11	RES	36C4	
R12	RES	36C3	
R13	RES	36C3	
R14	RES	36C3	
R15	RES	36C3	
R16	RES	36B3	
R17	RES	21A3	
R18	RES	21A4	
R19	RES	25B5	
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R841	RES	7C7
R842	RES	7B7
R843	RES	7A7
R844	RES	7A7
R845	RES	7B7
R846	RES	7B7
R847	RES	7B7
R848	RES	7D5
R849	RES	7B7
R850	RES	4C2
R851	RES	7B7
R852	RES	9B7
R853	RES	9B7
R854	RES	9B7
R855	RES	9D6
R856	RES	7C5
R857	RES	7B5
R858	RES	7C5
R859	RES	7C5
R860	RES	7B5
R861	RES	9A7
R862	RES	9B7
R863	RES	9D6
R864	RES	9D7
R865	RES	9D6
R866	RES	6C4
R867	RES	6C4
R868	RES	9D7
R869	RES	9D5
R870	RES	9C5
R871	RES	49C3
R872	RES	49C3
R873	RES	49C5
R874	RES	6C4
R875	RES	6C4
R876	RES	9D7
R877	RES	6C4
R878	RES	6C5
R879	RES	6C5
R880	RES	49C3
R881	RES	23D2
R882	RES	7B5
R883	RES	49B6
R884	RES	49C5
R885	RES	9D6

R886	RES	9C6
R887	RES	6C5
R888	RES	49D5
R889	RES	6C5
R890	RES	9D7
R891	RES	4D6
R892	RES	9D7
R893	RES	9C7
R894	RES	9C7
R895	RES	4D2
R896	RES	45C5
R897	RES	45B5
R898	RES	45B5
R899	RES	45D6
R900	RES	45C5
R901	RES	4D3
R902	RES	7A3
R903	RES	7A3
R904	RES	7A3
R905	RES	7A3
R906	RES	7B3
R907	RES	7B3
R908	RES	45D6
R909	RES	7B5
R910	RES	7B5
R911	RES	7B5
R912	RES	7A5
R913	RES	7C3
R914	RES	7C3
R915	RES	7C3
R916	RES	7B3
R917	RES	7B3
R918	RES	7C3
R919	RES	7B3
R920	RES	7B3
R921	RES	7B5
R922	RES	7A5
R923	RES	7A5
R924	RES	7D5
R925	RES	7C5
R926	RES	7C3
R927	RES	46C5
R928	RES	45C5
R929	RES	45C5
R930	RES	46C5
R931	RES	45D7
R932	RES	45C7
R933	RES	45D7
R934	RES	45C8
R935	RES	45A5
R936	RES	45A5
R937	RES	8A4
R939	RES	8A4
R940	RES	8A4
R941	RES	37D1
R942	RES	22A7
R943	RES	37D2
R944	RES	37D2
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R946	RES	23D2
R947	RES	23D2
R948	RES	31D4
R949	RES	31D4
R950	RES	31D3
R951	RES	31C2
R952	RES	22A7
R953	RES	22A7
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R955	RES	22A6
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R960	RES	23D2
R961	RES	23D1
R962	RES	23D1
R963	RES	23D1
R964	RES	23D1
R965	RES	27B5
R966	RES	27B4
R967	RES	27C5
R968	RES	27B4
R969	RES	27C4
R970	RES	27B4
R971	RES	27C4
R972	RES	27C3
R973	RES	27C2
R974	RES	27C2
R975	RES	27C2
R976	RES	27C2
R977	RES	27C2
R978	RES	27C2
R979	RES	27C2
R980	RES	27C2
R981	RES	42D6
R982	RES	42D6
R983	RES	42C4
R984	RES	42D4
R985	RES	42D3
R986	RES	43D5
R987	RES	43D5
R988	RES	43C2
R989	RES	43D2
R990	RES	23D2
R991	RES	23D2
R992	RES	23C1
R993	RES	23C1
R994	RES	23C1
R995	RES	23C1
R996	RES	23C1

R997	RES	23C1
R998	RES	23C1
R999	RES	23C1
R1000	RES	27B5
R1001	RES	27C4
R1002	RES	27B4
R1003	RES	27B3
R1004	RES	27B3
R1005	RES	28C1
R1006	RES	33D5
R1007	RES	33D5
R1008	RES	33C5
R1009	RES	33C5
R1010	RES	33B5
R1011	RES	33B5
R1012	RES	51B2
R1013	RES	50D7
R1014	RES	50C8
R1015	RES	29B4
R1016	RES	36D7
R1017	RES	51C3
R1018	RES	51C2
R1019	RES	23C6
R1020	RES	23C6
R1021	RES	26A1
R1022	RES	26C2
R1023	RES	26C1
R1024	RES	17A4
R1025	RES	17A4
R1026	RES	17C7
R1027	RES	17C7
R1028	RES	32A7
R1029	RES	32A7
R1401	RES	14B2
R1402	RES	14A2
R1403	RES	14D7
R1404	RES	14C7
R1405	RES	14C7
R1406	RES	14C7
R1407	RES	14C7
R1408	RES	14C7
R1409	RES	14C7
R1410	RES	14C7
R1411	RES	14B7
R1412	RES	14B7
R1413	RES	14B7
R1414	RES	14B7
R1415	RES	14B7
R1416	RES	14B7
R1417	RES	14B7
R1418	RES	14A7
R1503	RES	15C7
R1504	RES	15C7
R1505	RES	15C7
R1506	RES	15C7
R1507	RES	15C7
R1508	RES	15C7
R1509	RES	15C7
R1510	RES	15B7
R1511	RES	15B7
R1512	RES	15B7
R1513	RES	15B7
R1514	RES	15B7
R1515	RES	15B7
R1516	RES	15B7
R1517	RES	15A7
R1518	RES	15A7
R3001	RES	28A2
R3002	RES	28A2
R3501	RES	33A8
R4201	RES	42B6
R4202	RES	42C5
R4203	RES	42B5
R4301	RES	41A7
R4302	RES	43A5
R4303	RES	43A5
R4304	RES	43A4
R4305	RES	43A4
R4401	RES	43C7
R4501	RES	43B6
R4502	RES	43A6
R4503	RES	43A6
R4504	RES	43B6
R4505	RES	43A6
R4506	RES	43A6
R4507	RES	43C5
R4508	RES	45B3
R4509	RES	45C4
R4701	RES	45B6
R4702	RES	45B6
R4703	RES	45B3
R4704	RES	45B3
R4705	RES	45B3
R4706	RES	45D3
R4707	RES	45D3
R4708	RES	45C5
R4709	RES	45B6
R4710	RES	47B4
R4801	RES	46C7
R4802	RES	48B4
R4803	RES	48C3
R4901	RES	49B4
R5001	RES	50B3
R5002	RES	50A3
R5003	RES	50A1
R5101	RES	51B7
R5301	RES	51C1
RP1	RPAK4P	35C7
RP2	RPAK4P	36C7
RP3	RPAK4P	36B7

RP4	RPAK4P	19B5 19C5
RP5	RPAK4P	19B5
RP6	RPAK4P	19B5
RP7	RPAK4P	19B5
RP8	RPAK4P	18A2 18A3 18B2
RP9	RPAK4P	18C2 18C2 18C3 18C3
RP10	RPAK4P	19C7
RP11	RPAK4P	19B7
RP12	RPAK4P	19B7
RP13	RPAK4P	19B7
RP14	RPAK4P	19C7
RP15	RPAK4P	35B7 35B8
RP16	RPAK4P	35A4
RP17	RPAK4P	19C7
RP18	RPAK4P	19D7
RP19	RPAK4P	19D7
RP20	RPAK4P	19D7
RP21	RPAK4P	19D7
RP22	RPAK4P	18F2 18F3 18G2 18G3
RP23	RPAK4P	18E2 18E3
RP24	RPAK4P	19C5
RP25	RPAK4P	19C5 19D5
RP26	RPAK4P	19C5
RP27	RPAK4P	19D5
RP28	RPAK4P	19D5
RP29	RPAK4P	19D5
RP30	RPAK4P	17D7
RP31	RPAK4P	17C7
RP32	RPAK4P	17D7
RP33	RPAK4P	17B7
RP34	RPAK4P	17C7
RP35	RPAK4P	17B7
RP36	RPAK4P	17A7
RP37	RPAK4P	16B3 16C3 16C3
RP38	RPAK4P	30B6
RP39	RPAK4P	28D2
RP40	RPAK4P	17D7
RP41	RPAK4P	17C7
RP42	RPAK4P	17D7
RP43	RPAK4P	17C7
RP44	RPAK4P	17C7
RP45	RPAK4P	17B7
RP46	RPAK4P	17B7
RP47	RPAK4P	17A7
RP48	RPAK4P	16B3
RP49	RPAK4P	16B1 16B1 16C1
RP50	RPAK4P	16B1
RP51	RPAK4P	12C2
RP52	RPAK4P	12B2
RP54	RPAK4P	31B7
RP56	RPAK4P	31B7
RP58	RPAK4P	31C7
RP59	RPAK4P	31C7
RP60	RPAK4P	28C2
RP61	RPAK4P	31B7
RP62	RPAK4P	12C3
RP63	RPAK4P	30B8
RP64	RPAK4P	31B7
RP65	RPAK4P	34C4
RP66	RPAK4P	28A8
RP67	RPAK4P	31B7
RP68	RPAK4P	12D3
RP69	RPAK4P	30B8
RP70	RPAK4P	34C7
RP71	RPAK4P	12C2 12D2
RP72	RPAK4P	31C7
RP73	RPAK4P	31C7
RP74	RPAK4P	28A8
RP75	RPAK4P	31C7
RP76	RPAK4P	34C7
RP77	RPAK4P	31C7
RP78	RPAK4P	7A7
RP79	RPAK4P	7A5 7C5
RP80	RPAK4P	19B7
RP81	RPAK4P	19B7
RP82	RPAK4P	19B7 19C7 19C7
RP83	RPAK4P	18B2 18B3 18B3
RP84	RPAK4P	18B2 18B2 18B3
RP85	RPAK4P	18B3 18C2 18C3
RP86	RPAK4P	19B5
RP87	RPAK4P	19B5
RP88	RPAK4P	19C5
RP89	RPAK4P	19C5
RP90	RPAK4P	19C7
RP91	RPAK4P	19C7 19D7
RP92	RPAK4P	19C7
RP93	RPAK4P	18E2 18E3
RP94	RPAK4P	18F2 18F3
RP95	RPAK4P	18F2 18F2 18F3
RP96	RPAK4P	19C5
RP97	RPAK4P	19D5
RP98	RPAK4P	16B3 16C3 16C3
RP99	RPAK4P	16C1
RP100	RPAK4P	28A8
RP101	RPAK4P	34B1
RP102	RPAK4P	12C5
RP103	RPAK4P	37B2 37C2
RP104	RPAK4P	37B4 37B5 37C5
RP105	RPAK4P	12B5
RP106	RPAK4P	37B2
RP107	RPAK4P	37B4 37B4 37B5
RP108	RPAK4P	28A3 28B3
RP109	RPAK4P	12A5
RP110	RPAK4P	28A8
RP111	RPAK4P	37C4 37C4 37C5 37C5
RP112	RPAK4P	34C4
RP113	RPAK4P	28B8
RP114	RPAK4P	37A2 37B2
RP115	RPAK4P	37A4 37A5 37B4 37B5
RP116	RPAK4P	12B3

RP117	RPAK4P	28C1 28C1 28D1 28D1
RP118	RPAK4P	37C2
RP119	RPAK4P	34C1
S1	SWI_TACT_2P1	44B2
S2	SWI_TACT	44A3
SP1	SPRING_CLIP_1P_EMI	10D2
SP2	SPRING_CLIP_1P_EMI	10D2
SP3	SPRING_CLIP_1P_EMI	10D1
SP4	SPRING_CLIP_1P_EMI	10D1
T1	XFR_100BT_MDIX	35C3
U1	SIL1162	27C3
U2	SHNTREG_TLV431A	21A4
U3	VREG_LP2951	36D7
U4	FW802A	36C5
U5	SDRAM_DDR_4MX32	21D6 21D7
U6	OPAMP_TLV2362	40B3 40C3
U7	SHNTREG_TLV431A	18B8
U8	AMP_TPA6112A2	41D5
U9	CLK_GEN_CY25811	22A7
U10	NC7WZ08	42C7
U11	UPD720101_FBGA	32C5
U12	SDRAM_DDR_4MX32	20D6 20D7
U13	OPAMP_TLV2362	43A3
U14	VREG_LP2951	39D6
U15	TAS3004	39C3
U16	SHNTREG_TLV431A	20A5
U18	CBTV4020	13D7
U19	VREG_LT1962	28D7
U20	VREG_LM1117	23A8
U21	VDET_MC33465N_22ATR	44A4
U22	CBTV4020	13B6
U23	MAX6328	44A5
U25	INTREPID	9D2 10D5 10D7 12D7 16D5 28C4 30D5 34C5 37D8
U26	M16C62	44C5
U27	CBTV4020	13D4
U28	VREG_TL431	44D8
U29	CBTV4020	13C2
U31	DCDC_SC2602	47B6
U33	LTC3707	50B6
U34	APOLLO_MPC7445_360	4C5 5D3 5D6
U35	TRA_SI4435DY	51D3
U36	SDRAM_DDR_4MX32	21D2 21D3
U37	TRANSCEIVER_BCM5221	35C5
U38	SN74AUC1G04	30B3
U39	NV18B	17D6 18G5 18G7 22D4 23D4
U40	DCDC_SC2602	48C6
U41	SDRAM_DDR_4MX32	20D2 20D3
U42	FEPR_1MX8	30C2
U45	DCDC_SC2602	49C5
U46	SN74LVC1G04	44D1
U47	LTC3707	45C6
U48	NC7WZ08	41A7 43C7
U49	AMP_SN02100045A	42D5
U3501	SWI_TPS2023	33A7
VR1	VREG_LM1117	39C7
VR2	VREG_MIC39102	46B6
VR3	VREG_EZ1582	51B4
VR4	VREG_MIC39102	46C5
XW1	SHORT	39B7
XW2	SHORT8L25_WITH_ALTS	48B2
XW4	SHORT	39B7
XW5	SHORT	39B7
XW6	SHORT8L25_WITH_ALTS	48B4
XW7	SHORT8L25_WITH_ALTS	48C7
XW12	SHORT8L25_WITH_ALTS	47B3
XW13	SHORT8L25_WITH_ALTS	47B4
XW14	SHORT8L25_WITH_ALTS	47C5
XW15	SHORT8L25_WITH_ALTS	47A6
XW16	SHORT8L25_WITH_ALTS	50A3
XW17	SHORT8L25_WITH_ALTS	50B8
XW18	SHORT8L25_WITH_ALTS	50A3
XW19	SHORT8L25_WITH_ALTS	50B2
XW20	SHORT8L25_WITH_ALTS	50B3
XW21	SHORT8L25_WITH_ALTS	50A6
XW22	SHORT8L25_WITH_ALTS	50B5
XW23	SHORT8L25_WITH_ALTS	49B2
XW24	SHORT8L25_WITH_ALTS	49C4
XW25	SHORT8L25_WITH_ALTS	49C4
XW26	SHORT8L25_WITH_ALTS	45C3
XW27	SHORT8L25_WITH_ALTS	45C3
XW28	SHORT8L25_WITH_ALTS	45B1
XW29	SHORT8L25_WITH_ALTS	45C6
XW30	SHORT8L25_WITH_ALTS	45A3
XW31	SHORT8L25_WITH_ALTS	45B3
XW32	SHORT	39B7
XW33	SHORT	41B7
XW34	SHORT	39A7
XW37	SHORT	39B7
XW38	SHORT	39A7
XW39	SHORT8L25_WITH_ALTS	48B5
XW41	SHORT8L25_WITH_ALTS	49B5
XW42	SHORT	28A5
XW43	SHORT	28A5
XW44	SHORT	28A5
XW45	SHORT	28A4
XW46	SHORT	28A4
XW47	SHORT	9A2
XW48	SHORT	16A5
XW49	SHORT	30B5
Y1	CRYSTAL	36C6
Y2	CRYSTAL_4PIN	22B3
Y3	CRYSTAL	44A6
Y4	CRYSTAL_4PIN	44B2
Y5	CRYSTAL	28A6
Y6	CRYSTAL	35B7
Y7	CRYSTAL	32D3
ZH3	MTGHOLE	39A7
ZH4	MTGHOLE	4B2
ZH5	SLOT	4B1

ZH6	SLOT	4B2
ZH7	MTGHOLE	4B1
ZT1	HOLE_VIA	18C2
ZT2	HOLE_VIA	18C2
ZT3	HOLE_VIA	18C2
ZT4	HOLE_VIA	18A2
ZT5	HOLE_VIA	18C2
ZT6	HOLE_VIA	18C2
ZT7	HOLE_VIA	18A2
ZT8	HOLE_VIA	18C2
ZT9	HOLE_VIA	18B2
ZT10	HOLE_VIA	18B2
ZT11	HOLE_VIA	18B2
ZT12	HOLE_VIA	18B2
ZT13	HOLE_VIA	18B2
ZT14	HOLE_VIA	18B2
ZT15	HOLE_VIA	18B2
ZT16	HOLE_VIA	18B2
ZT17	HOLE_VIA	18B2
ZT18	HOLE_VIA	18B2
ZT19	HOLE_VIA	18A2
ZT20	HOLE_VIA	18G2
ZT21	HOLE_VIA	18E2
ZT22	HOLE_VIA	18F2
ZT23	HOLE_VIA	18F2
ZT24	HOLE_VIA	18F2
ZT25	HOLE_VIA	18F2
ZT26	HOLE_VIA	18F2
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ZT28	HOLE_VIA	18D2
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ZT30	HOLE_VIA	18F2
ZT31	HOLE_VIA	18F2
ZT32	HOLE_VIA	18E2
ZT33	HOLE_VIA	18E2
ZT34	HOLE_VIA	18F2
ZT35	HOLE_VIA	18E2
ZT36	HOLE_VIA	18E2
ZT37	HOLE_VIA	18F2
ZT38	HOLE_VIA	18E2
ZT39	HOLE_VIA	3B3
ZT40	HOLE_VIA	3B3
ZT41	HOLE_VIA	3B3
ZT42	HOLE_VIA	3B3
ZT43	HOLE_VIA	3A3
ZT44	HOLE_VIA	3A3
ZT45	HOLE_VIA	3A3
ZT46	HOLE_VIA	3B3
ZT47	HOLE_VIA	3B3
ZT48	HOLE_VIA	3B3
ZT49	HOLE_VIA	3B3
ZT50	HOLE_VIA	3A3
ZT51	HOLE_VIA	3A3
ZT52	HOLE_VIA	3A3
ZT53	HOLE_VIA	3B2
ZT54	HOLE_VIA	3B2
ZT55	HOLE_VIA	3B2
ZT56	HOLE_VIA	3B2
ZT57	HOLE_VIA	3A2
ZT58	HOLE_VIA	3A2
ZT59	HOLE_VIA	3B2
ZT60	HOLE_VIA	3B2
ZT61	HOLE_VIA	3B2
ZT62	HOLE_VIA	3B2
ZT63	HOLE_VIA	3A2
ZT64	HOLE_VIA	3B1
ZT65	HOLE_VIA	3B1
ZT66	HOLE_VIA	3B1
ZT67	HOLE_VIA	3B1
ZT68	HOLE_VIA	3A1

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