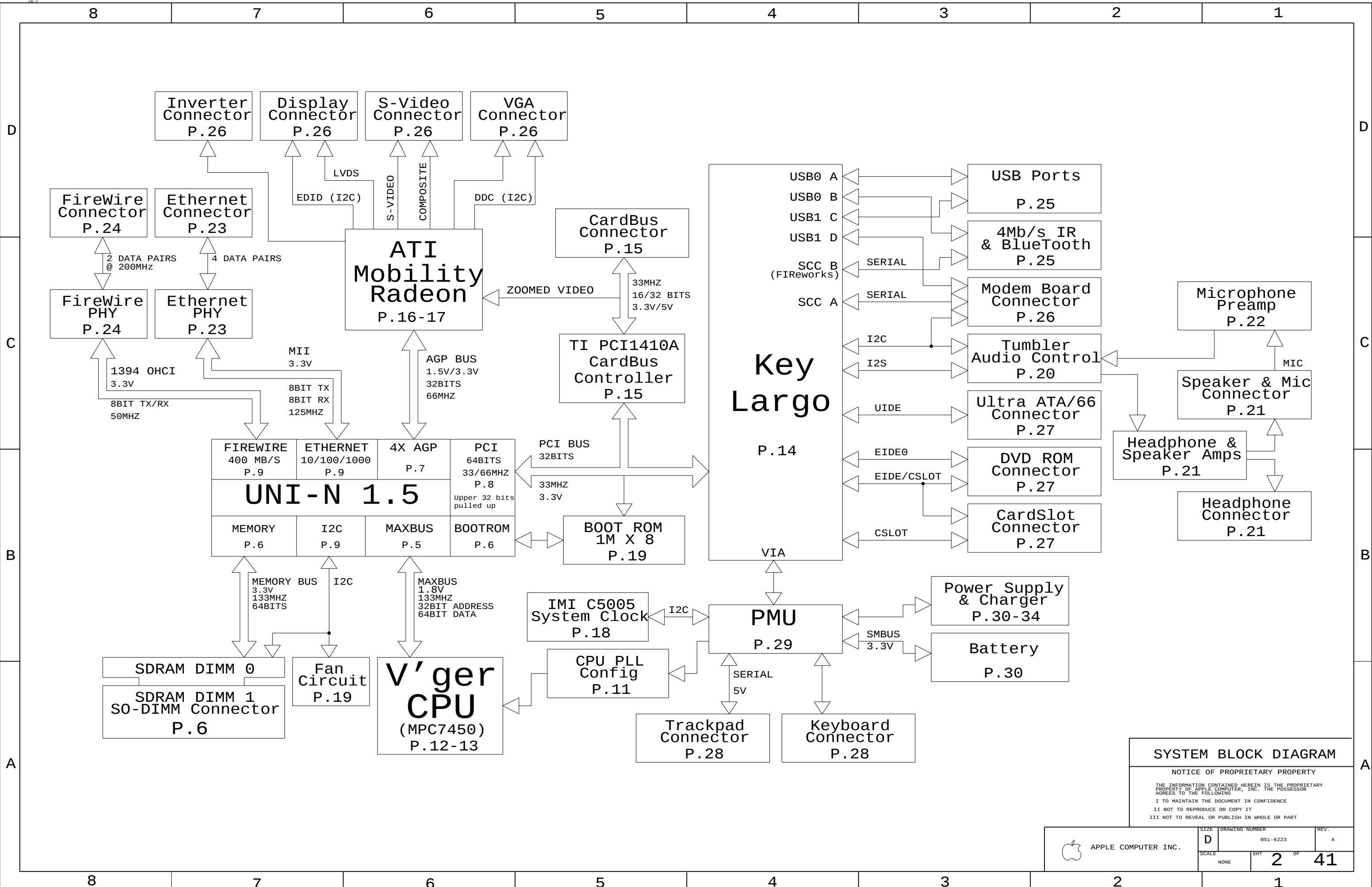




SYSTEM BLOCK DIAGRAM

NOTICE OF PROPRIETARY PROPERTY

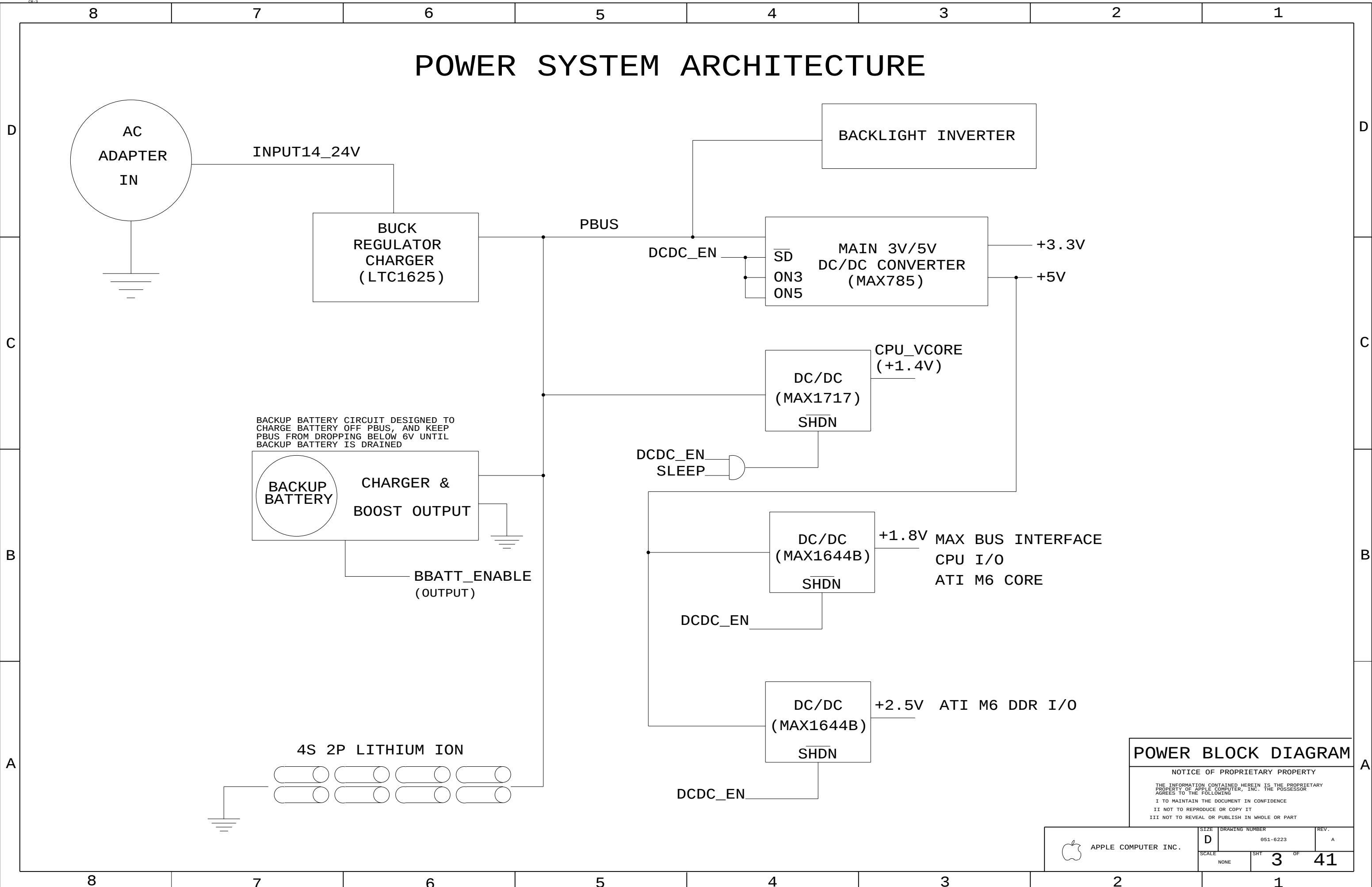
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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-6223	REV. A
	SCALE NONE	SHT 2	OF 41



POWER BLOCK DIAGRAM

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	SCALE NONE	SHT 3	OF 41

PCB SPECS

THICKNESS : 1.2 MM / 0.047 IN
1/2 OZ CU THICKNESS: 0.7 MILS
1.0 OZ CU THICKNESS: 1.4 MILS

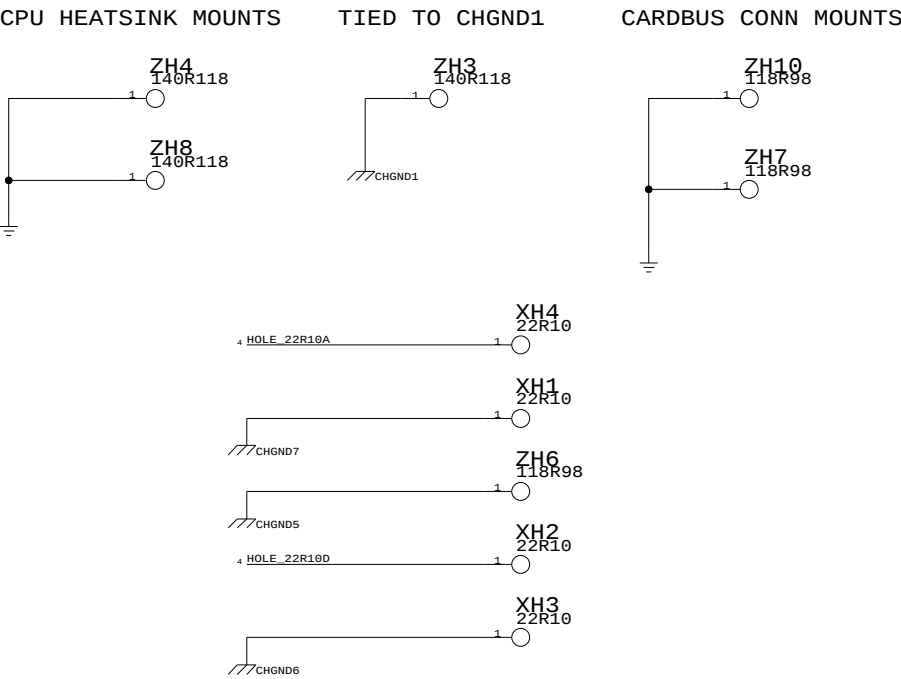
IMPEDANCE : 50 OHMS +/- 10%
DIELECTRIC: FR-4
LAYER COUNT: 10
SIGNAL TRACE WIDTH: 4 MILS
PREPREG THICKNESS: 3 - 6 MILS

SEE PCB CAD FILES FOR MORE SPECIFIC INFO.

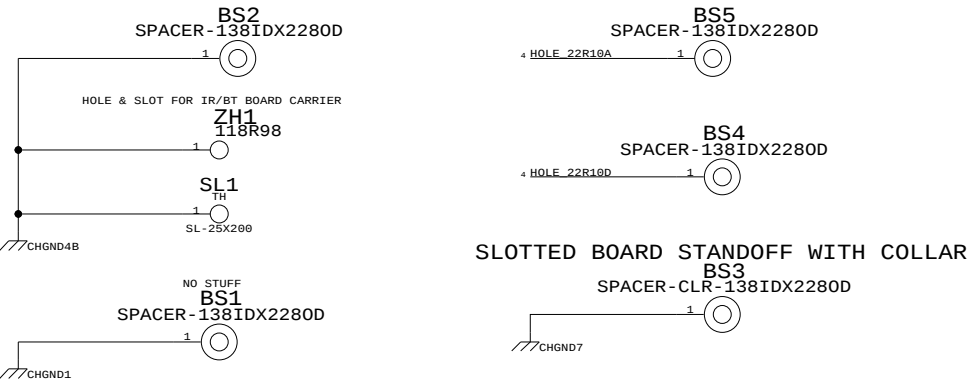
BOARD STACK-UP AND CONSTRUCTION

1	SIGNAL (1/2 OZ)	
2	GROUND (1/2 OZ)	
3	SIGNAL (1/2 OZ)	
4	SIGNAL (1 OZ)	
5	GROUND (1 OZ)	
6	CUT POWER PLANE(DEFAULT 5V)	POWER/SIGNAL (1 OZ)
7	CUT POWER PLANE(DEFAULT 3V)	POWER (1 OZ)
8	SIGNAL (1/2 OZ)	
9	GROUND (1/2 OZ)	
10	SIGNAL (1/2 OZ)	

BOARD HOLES



PCB BOARD STANDOFFS



MISC. INFORMATION

NOTICE OF PROPRIETARY PROPERTY

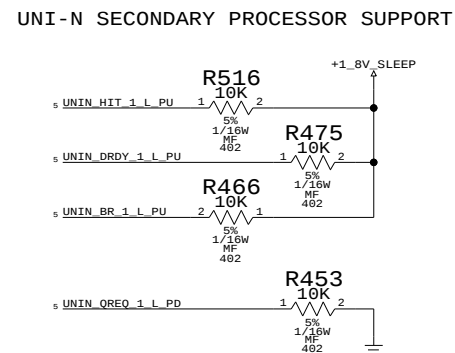
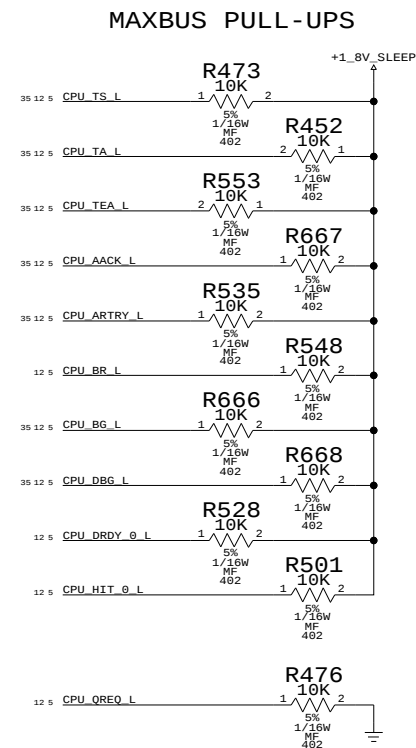
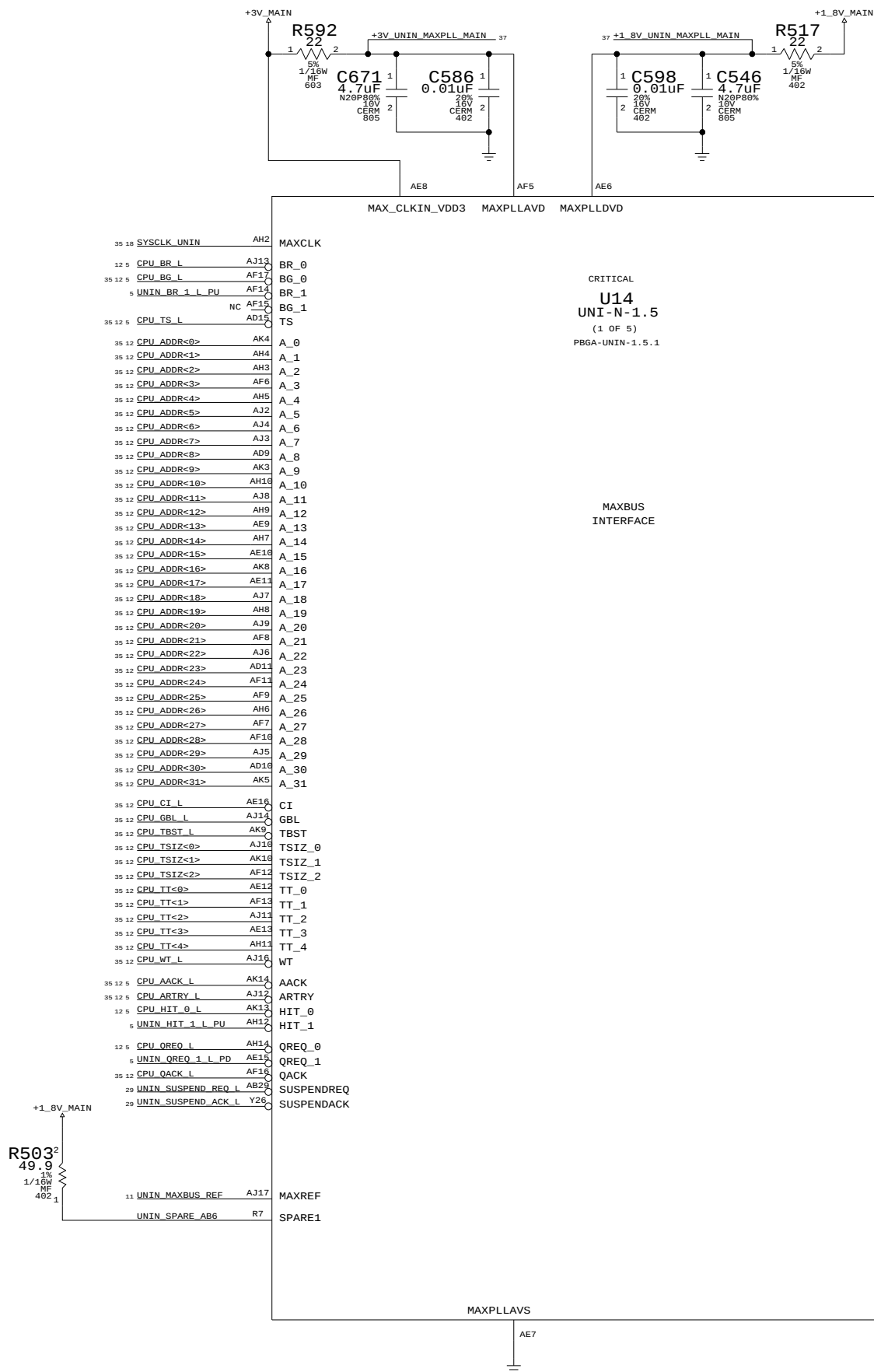
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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-6223	REV. A
	SCALE NONE	SHT 4	OF 41



UNI - N MAXBUS

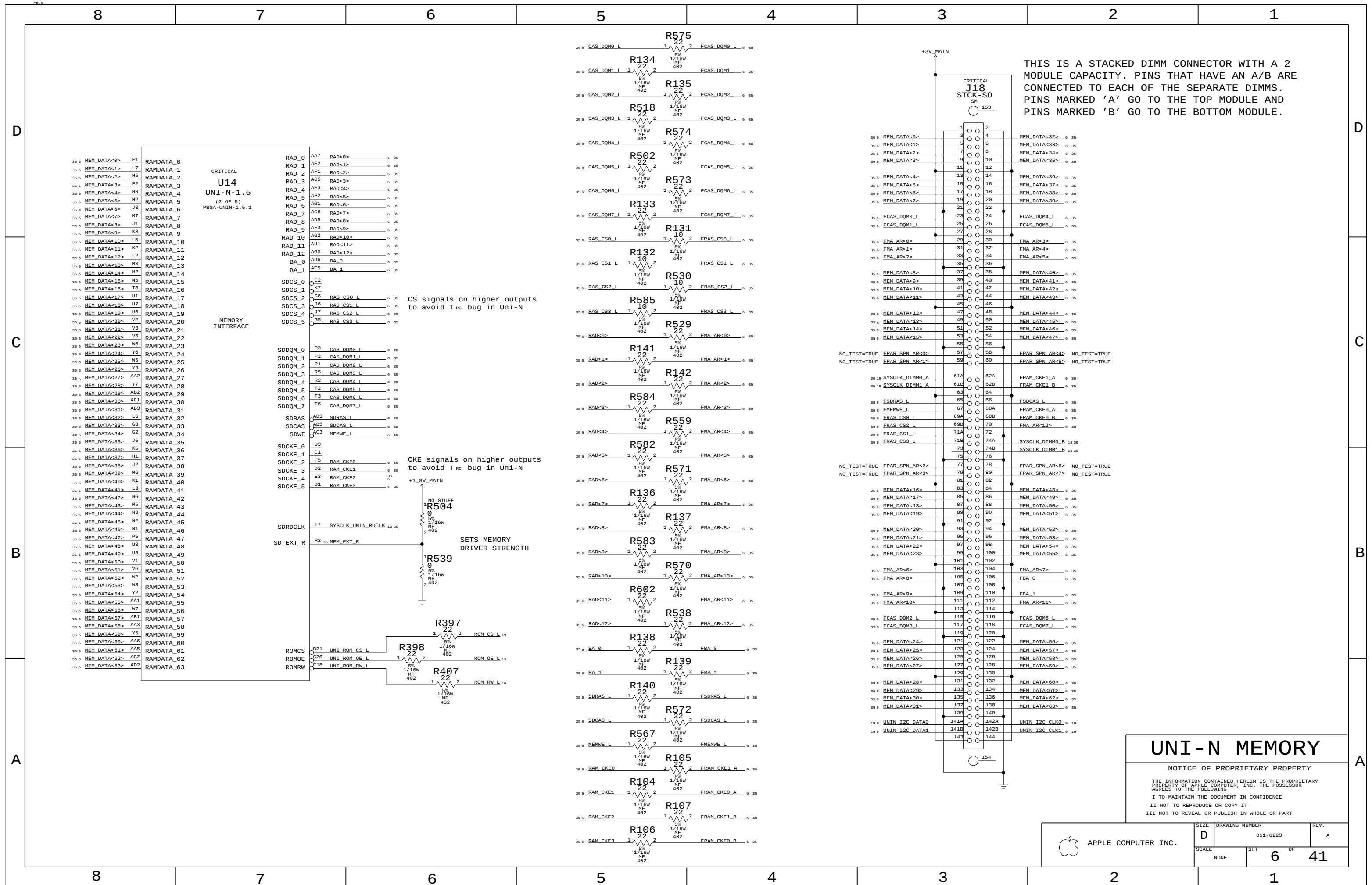
NOTICE OF PROPRIETARY PROPERTY

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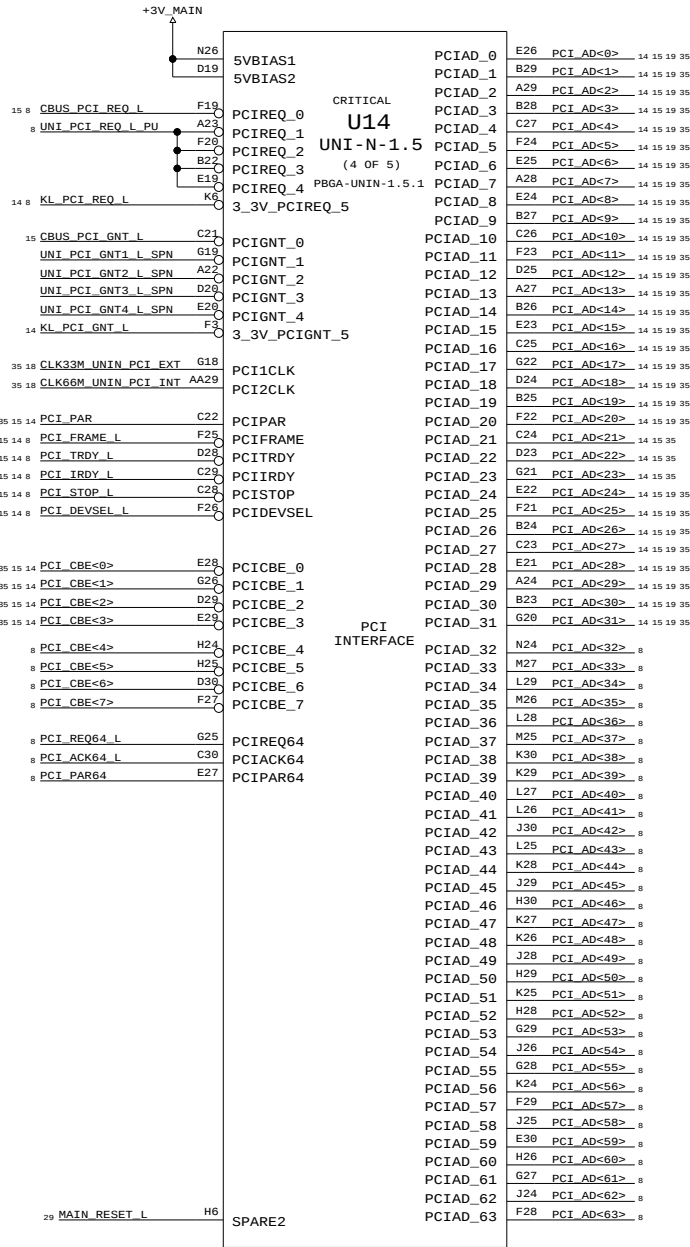
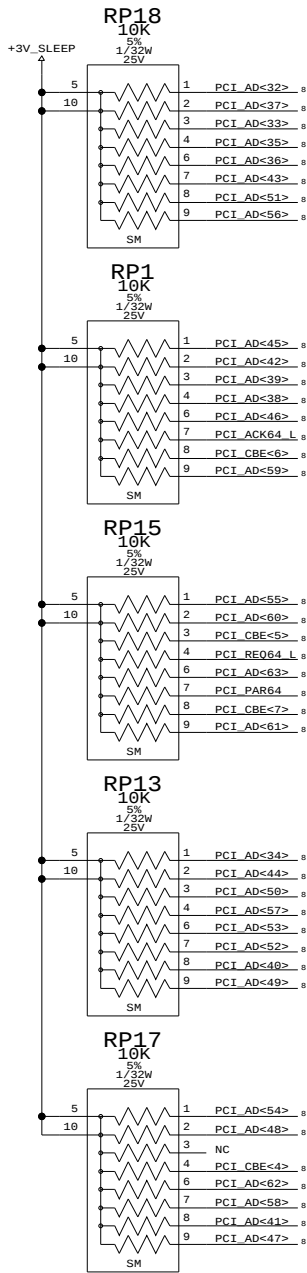
I TO MAINTAIN THE DOCUMENT IN CONFIDENCE

II NOT TO REPRODUCE OR COPY IT

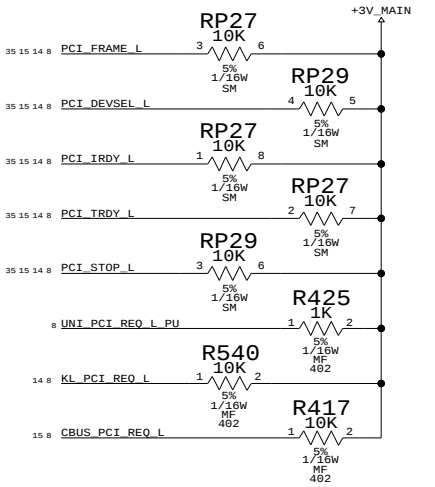
III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART



64-BIT PCI SUPPORT



PCI PULL-UPS



UNI-N PCI

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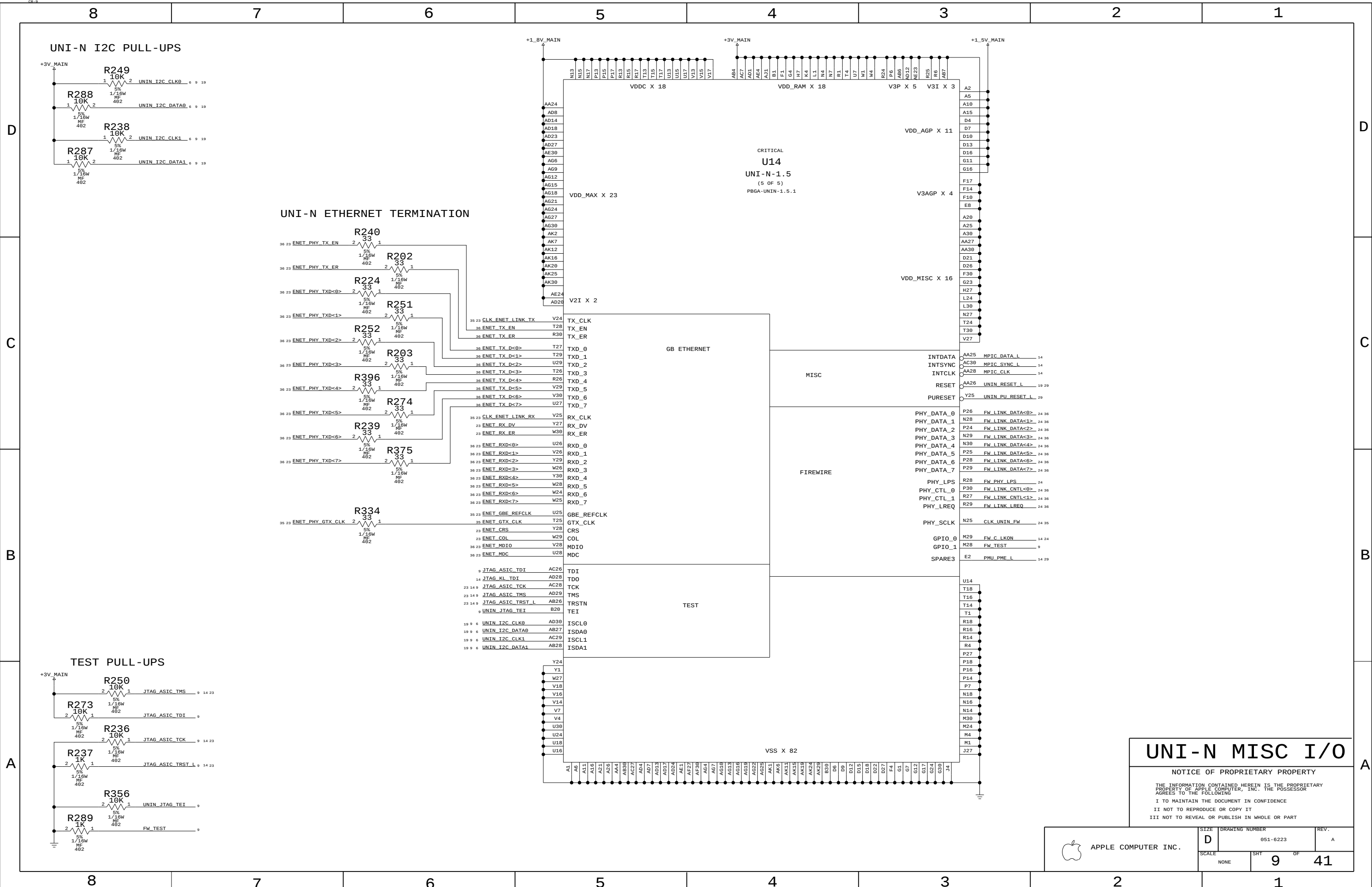
II NOT TO REPRODUCE OR COPY IT

III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART

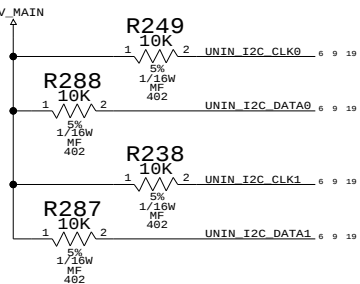


APPLE COMPUTER INC.

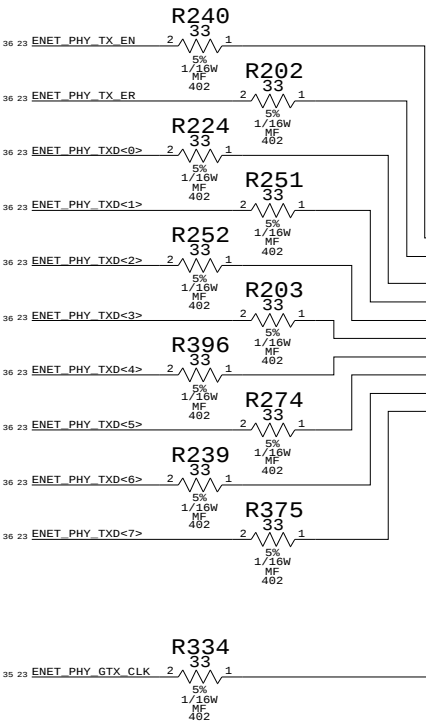
SIZE	DRAWING NUMBER	REV.
D	051-6223	A
SCALE	SHT	OF
NONE	8	41



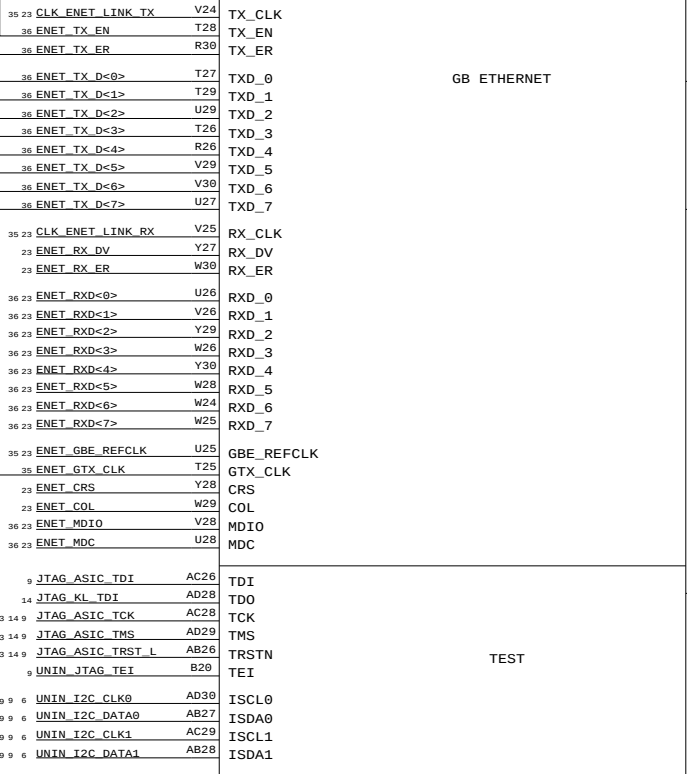
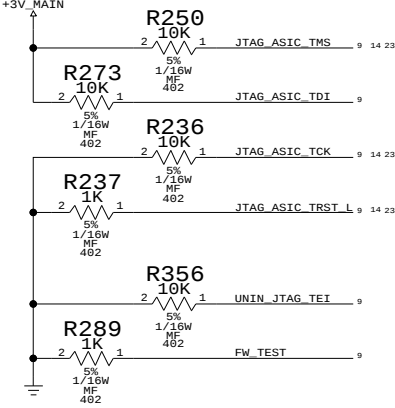
UNI-N I2C PULL-UPS



UNI-N ETHERNET TERMINATION



TEST PULL-UPS



CRITICAL
U14
UNI-N-1.5
(5 OF 5)
PBGA-UNIN-1.5.1

UNI-N MISC I/O

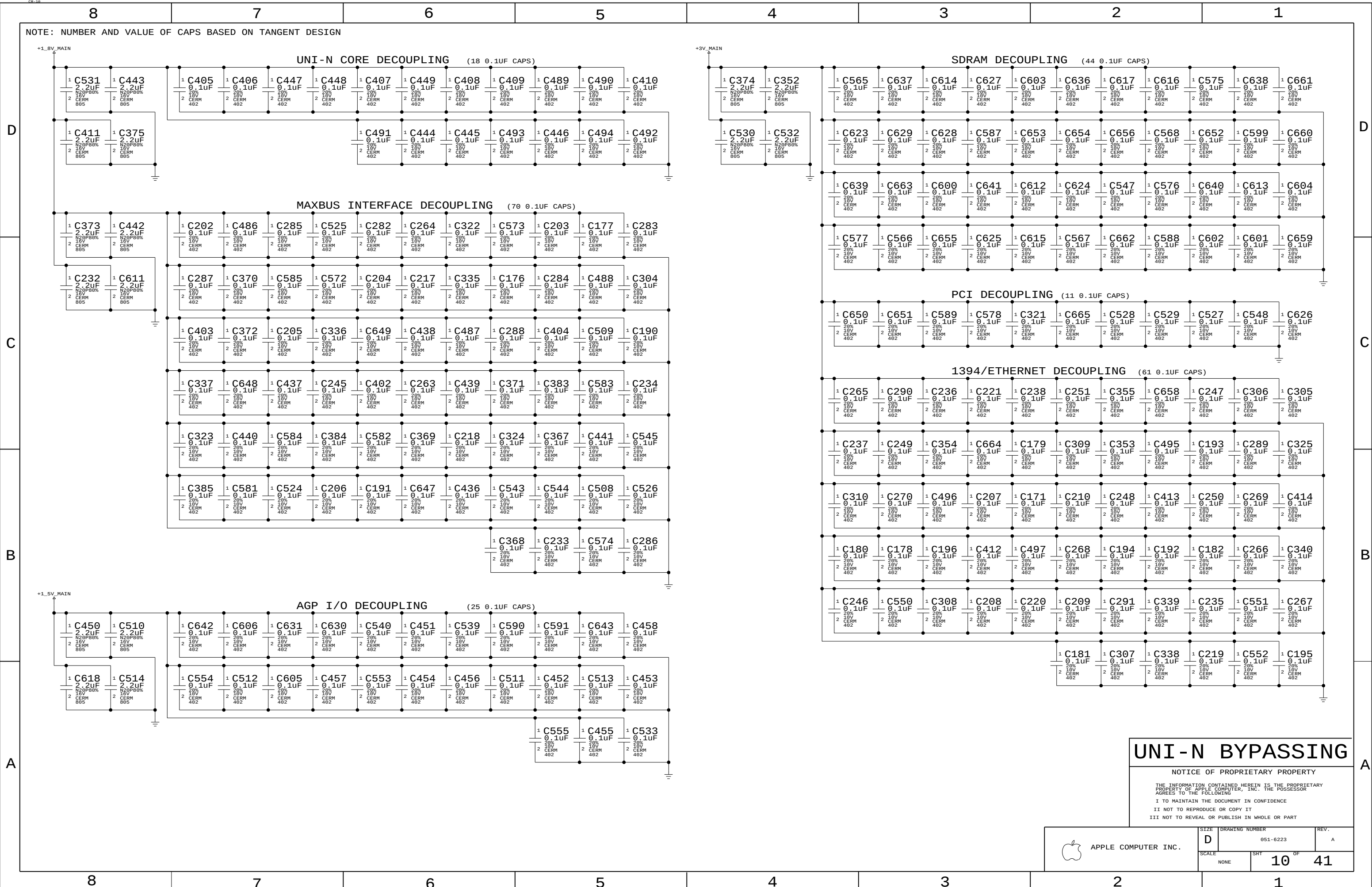
NOTICE OF PROPRIETARY PROPERTY

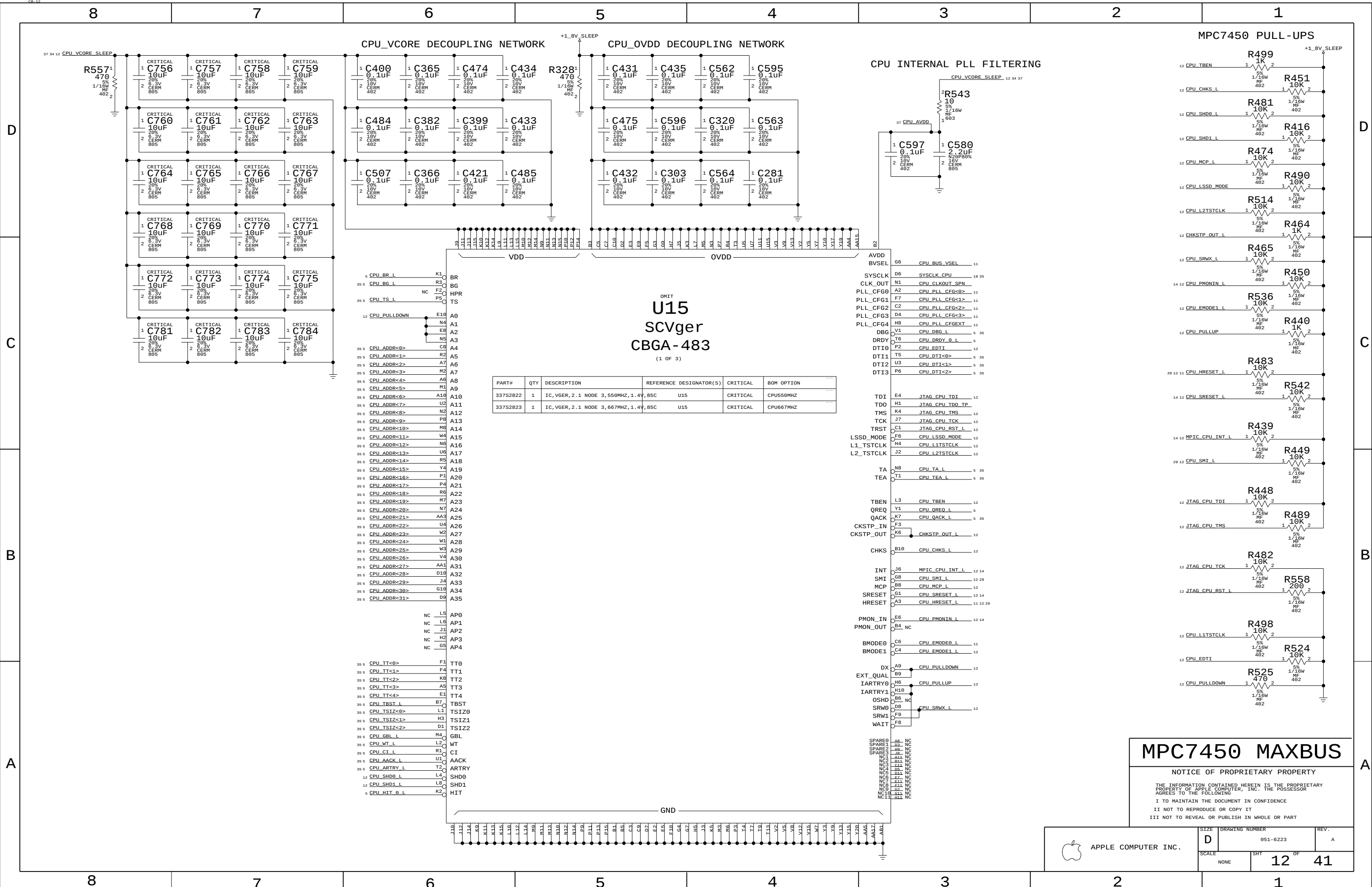
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MPC7450 MAXBUS

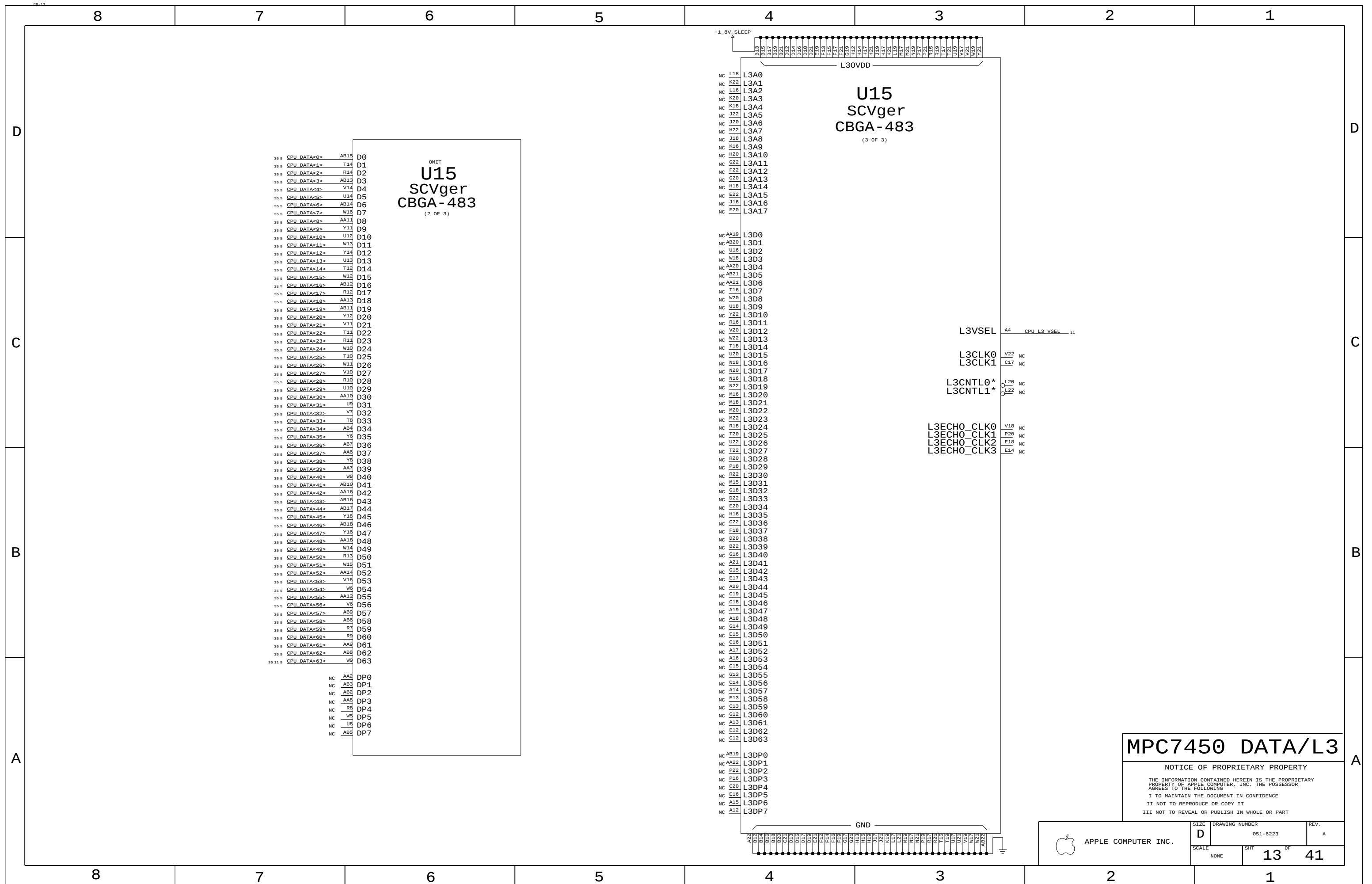
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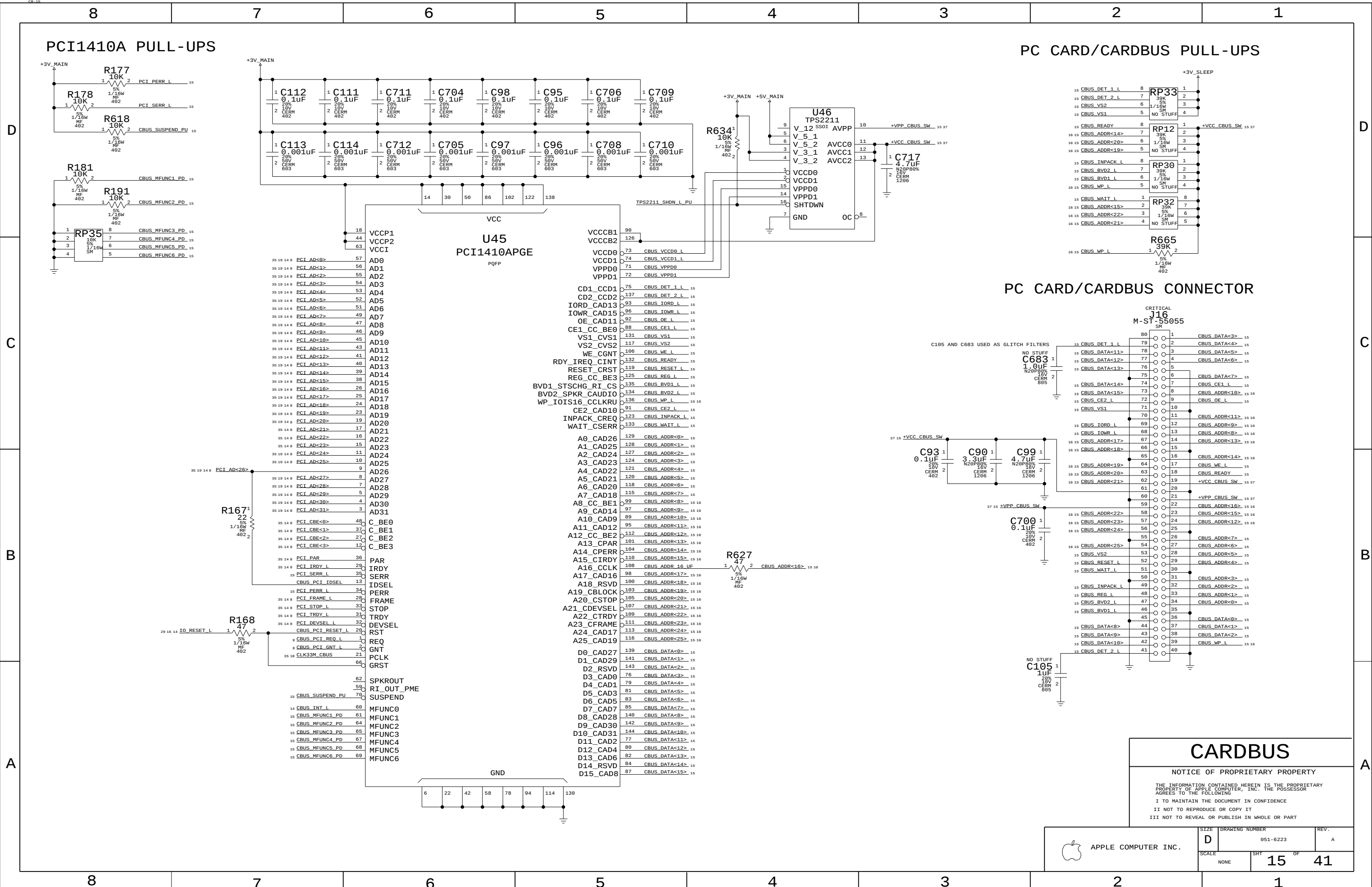
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SIZE	D	DRAWING NUMBER	051-6223	REV.	A
SCALE	NONE	SHT	12	OF	41





CARDBUS

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APPLE COMPUTER INC.

SCALE: NONE

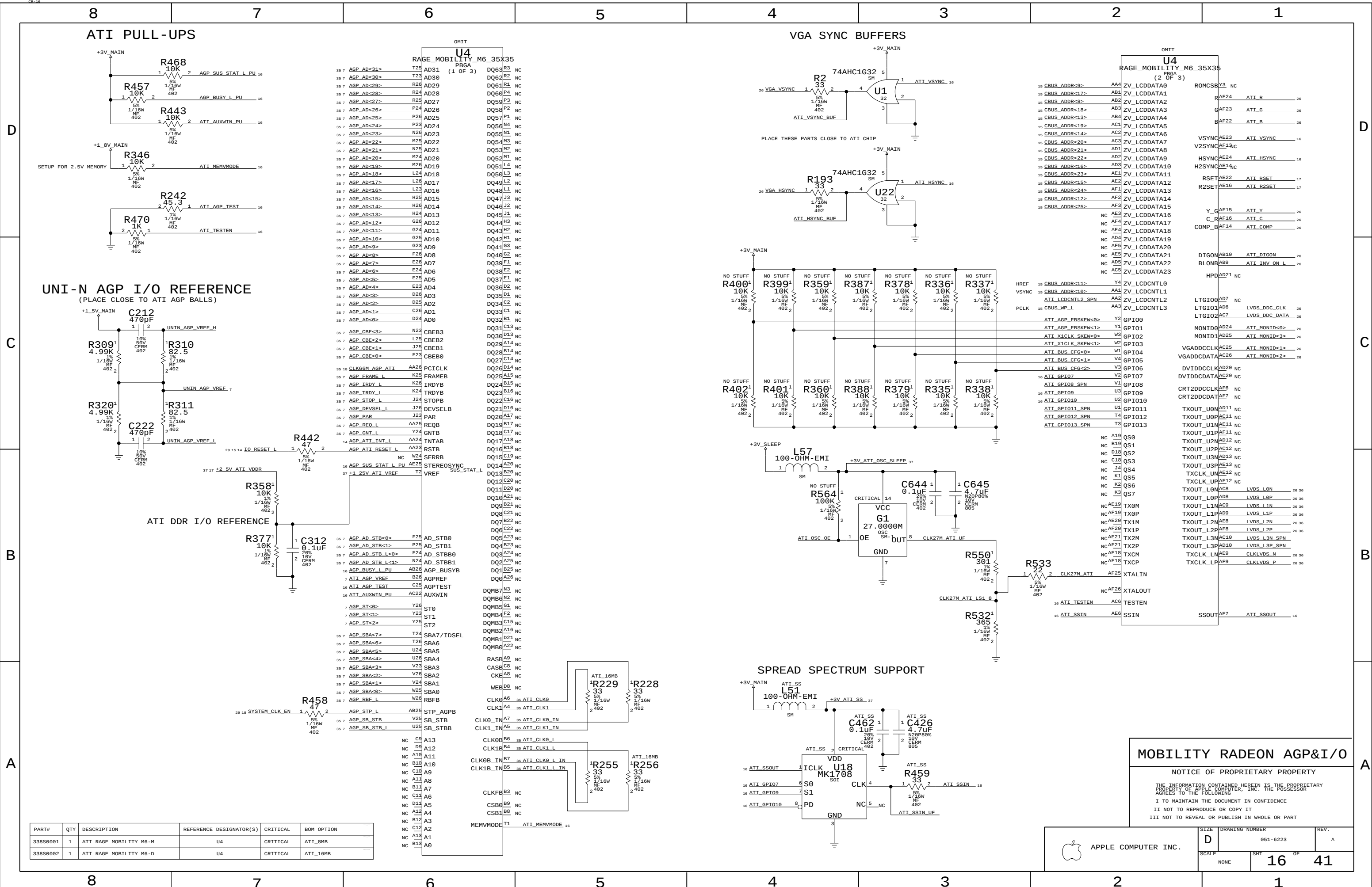
D

DRAWING NUMBER: 051-6223

SHT: 15

OF: 41

REV. A



ATI PULL-UPS

VGA SYNC BUFFERS

UNI-N AGP I/O REFERENCE
(PLACE CLOSE TO ATI AGP BALLS)

ATI DDR I/O REFERENCE

SPREAD SPECTRUM SUPPORT

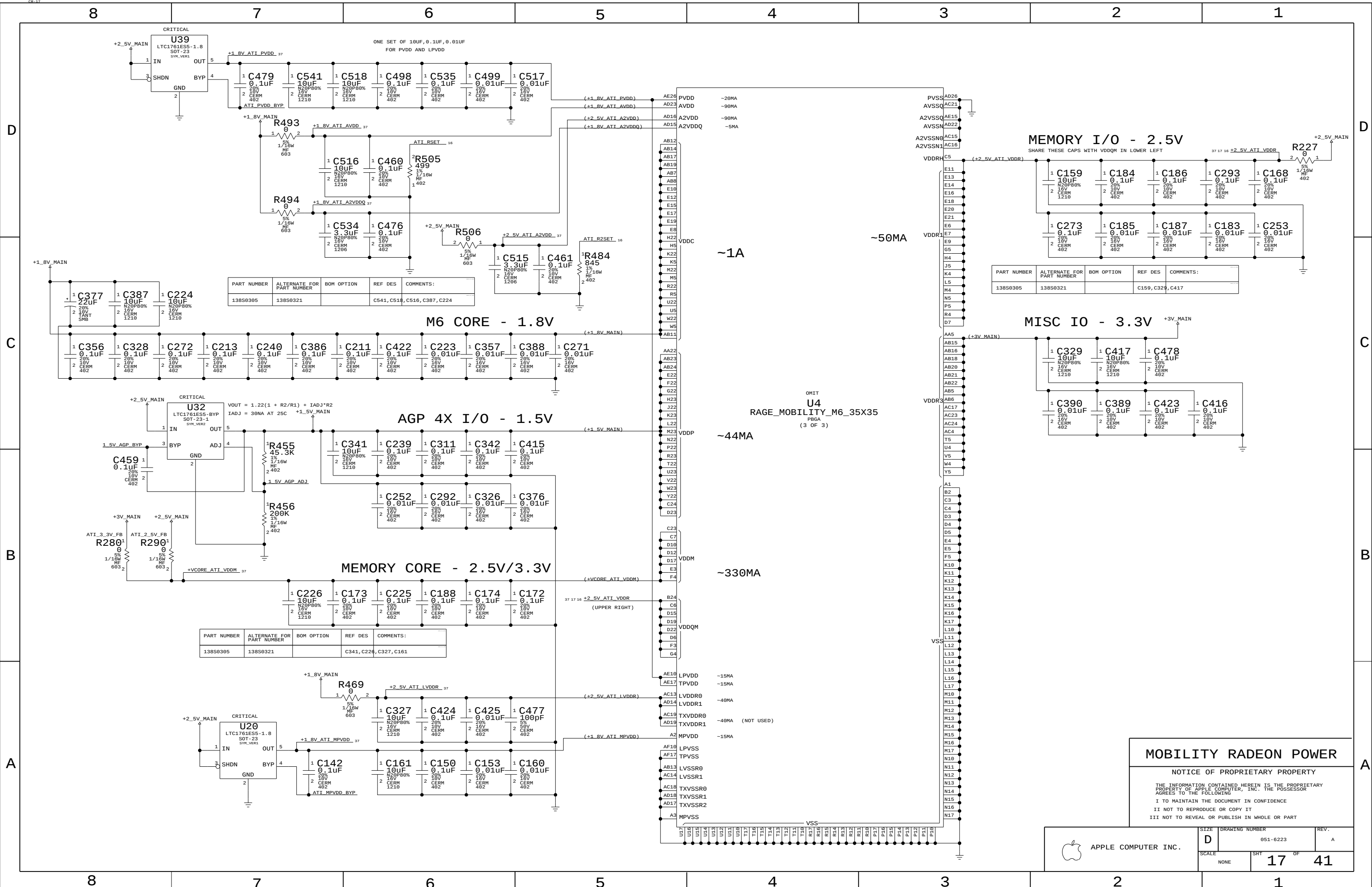
MOBILITY RADEON AGP&I/O

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PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
338S0001	1	ATI RAGE MOBILITY M6-M	U4	CRITICAL	ATI_8MB
338S0002	1	ATI RAGE MOBILITY M6-D	U4	CRITICAL	ATI_16MB

APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-6223	A
SCALE		SHT	OF
NONE		16	41



MOBILITY RADEON POWER

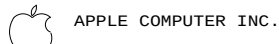
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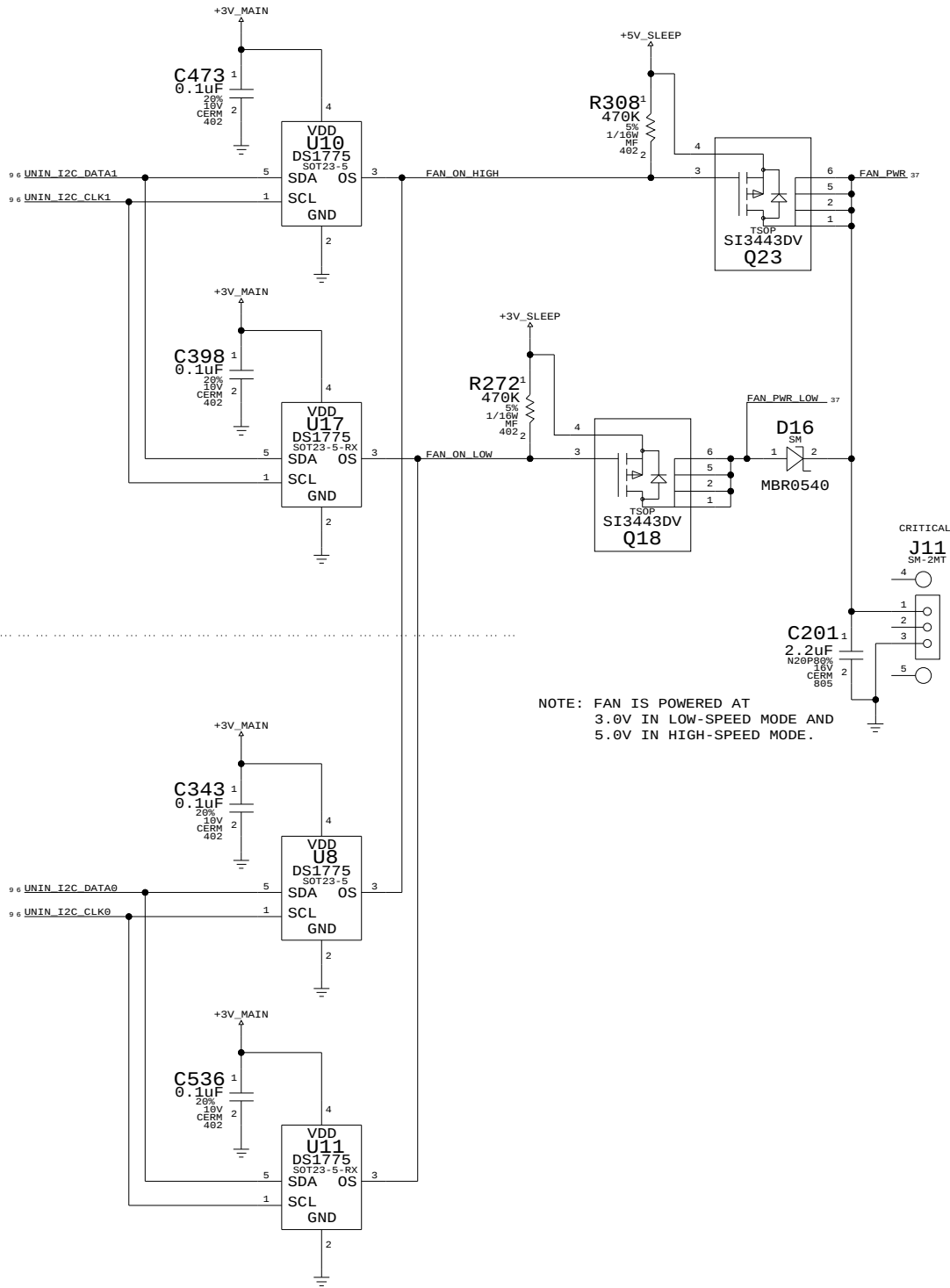
III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART



SIZE	D	DRAWING NUMBER	051-6223	REV.	A
SCALE	NONE	SHT	17	OF	41

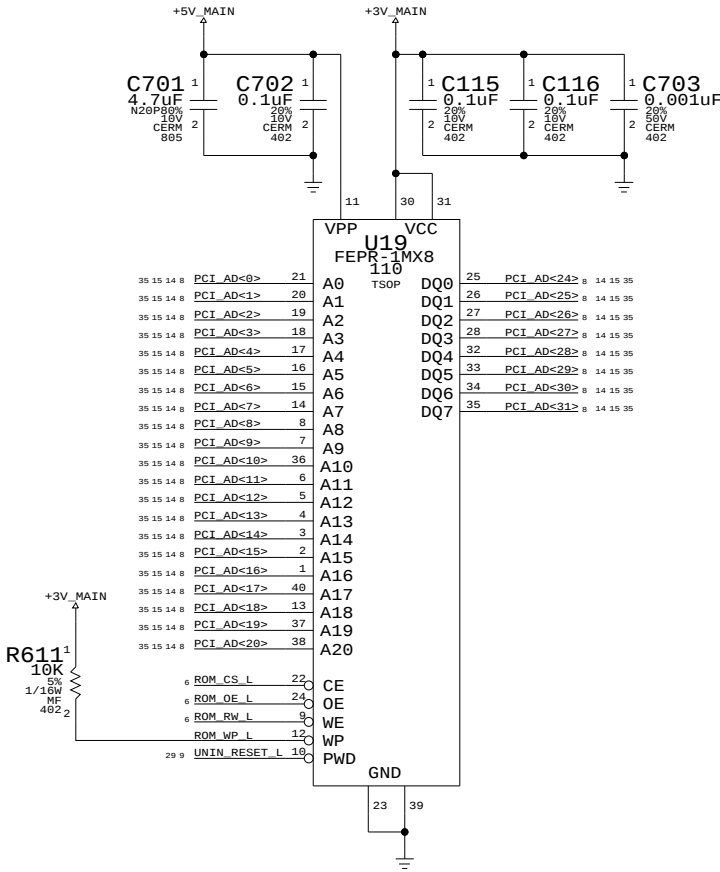
DUAL-SPEED FAN CIRCUIT

NOTE: PLACE THESE SENSORS NEAR V'GER(U15)



NOTE: PLACE THESE SENSORS NEAR MOBILITY RADEON(U4)

FLASH ROM



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
341S0976	1	IC, BOOTROM, V4.2.9F1	U19	

BOOTROM/FAN CIRCUIT

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APPLE COMPUTER INC.

SIZE

D

DRAWING NUMBER

051-6223

REV.

A

SCALE

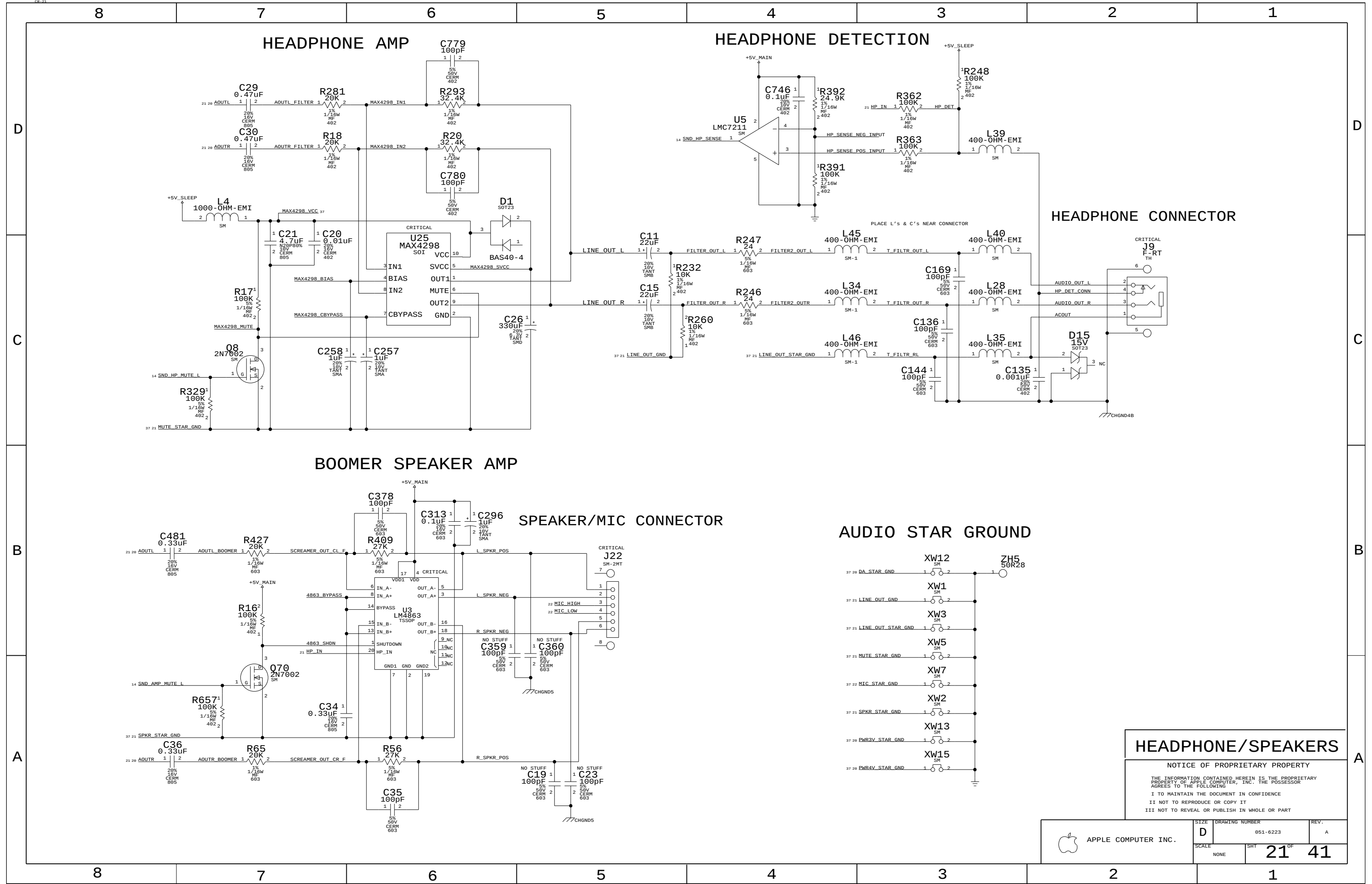
NONE

SHT

19

OF

41



HEADPHONE/SPEAKERS

NOTICE OF PROPRIETARY PROPERTY

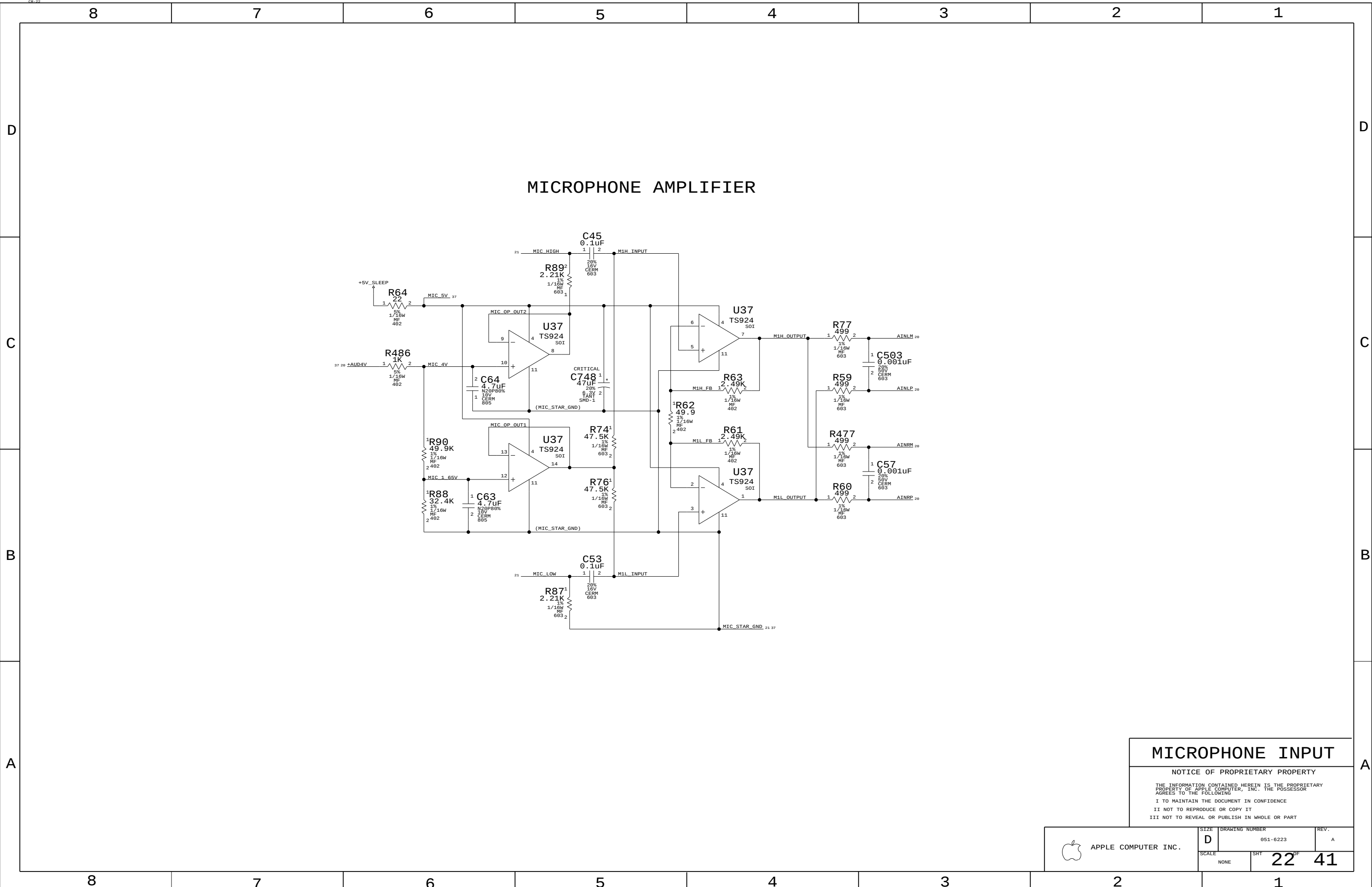
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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-6223	REV. A
	SCALE NONE	SHT 21	OF 41



MICROPHONE INPUT

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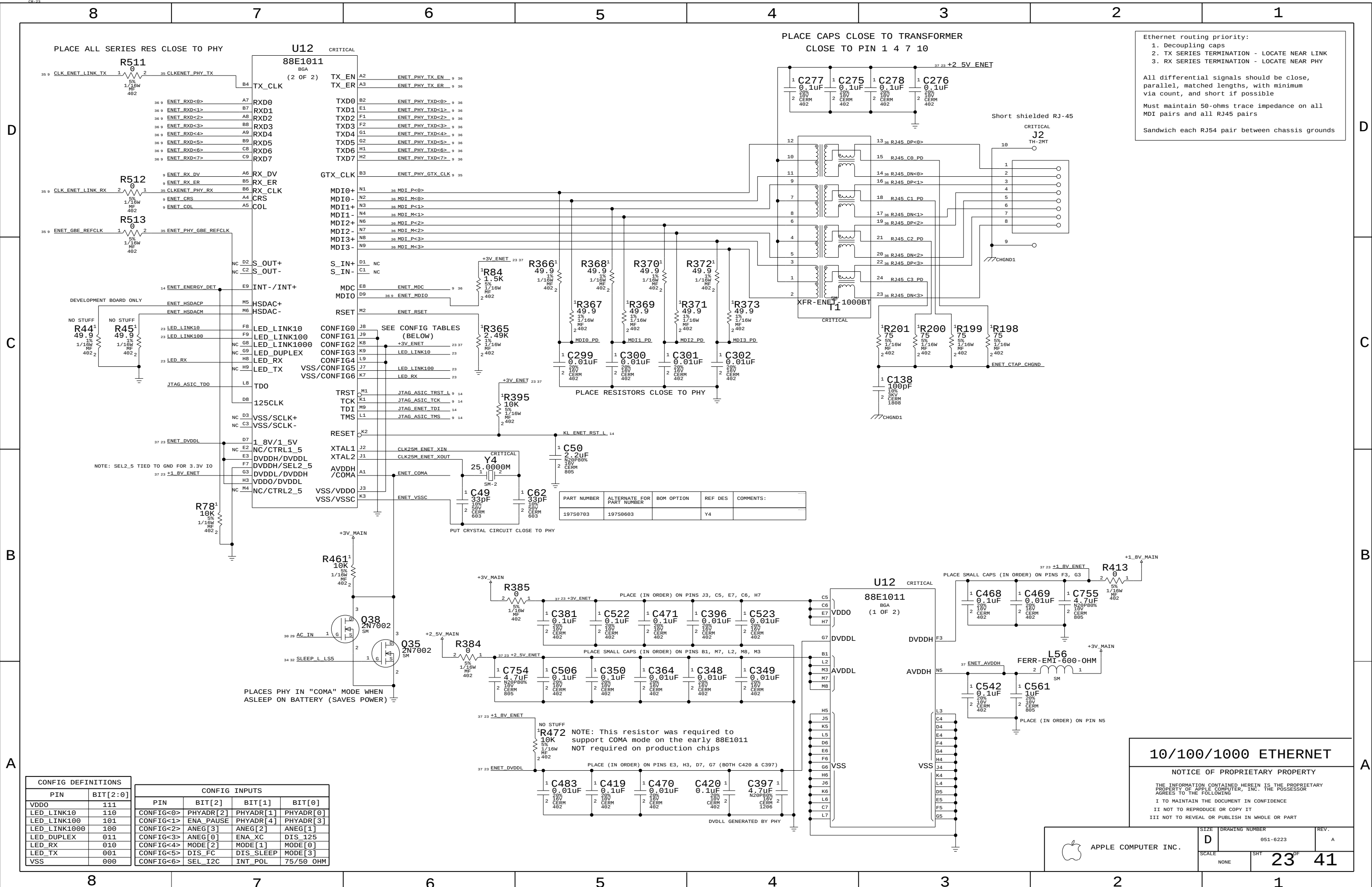
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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-6223	REV. A
	SCALE NONE	SHT 22	OF 41



Ethernet routing priority:
1. Decoupling caps
2. TX SERIES TERMINATION - LOCATE NEAR LINK
3. RX SERIES TERMINATION - LOCATE NEAR PHY

All differential signals should be close, parallel, matched lengths, with minimum via count, and short if possible

Must maintain 50-ohms trace impedance on all MDI pairs and all RJ45 pairs

Sandwich each RJ54 pair between chassis grounds

CONFIG DEFINITIONS		CONFIG INPUTS			
PIN	BIT[2:0]	PIN	BIT[2]	BIT[1]	BIT[0]
VDD0	111	CONFIG<0>	PHYADR[2]	PHYADR[1]	PHYADR[0]
LED_LINK10	110	CONFIG<1>	ENA_PAUSE	PHYADR[4]	PHYADR[3]
LED_LINK100	101	CONFIG<2>	ANEG[3]	ANEG[2]	ANEG[1]
LED_LINK1000	100	CONFIG<3>	ANEG[0]	ENA_XC	DIS_125
LED_DUPLEX	011	CONFIG<4>	MODE[2]	MODE[1]	MODE[0]
LED_RX	010	CONFIG<5>	DIS_FC	DIS_SLEEP	MODE[3]
LED_TX	001	CONFIG<6>	SEL_I2C	INT_POL	75/50 OHM
VSS	000				

NOTE: This resistor was required to support COMA mode on the early 88E1011 NOT required on production chips

10/100/1000 ETHERNET

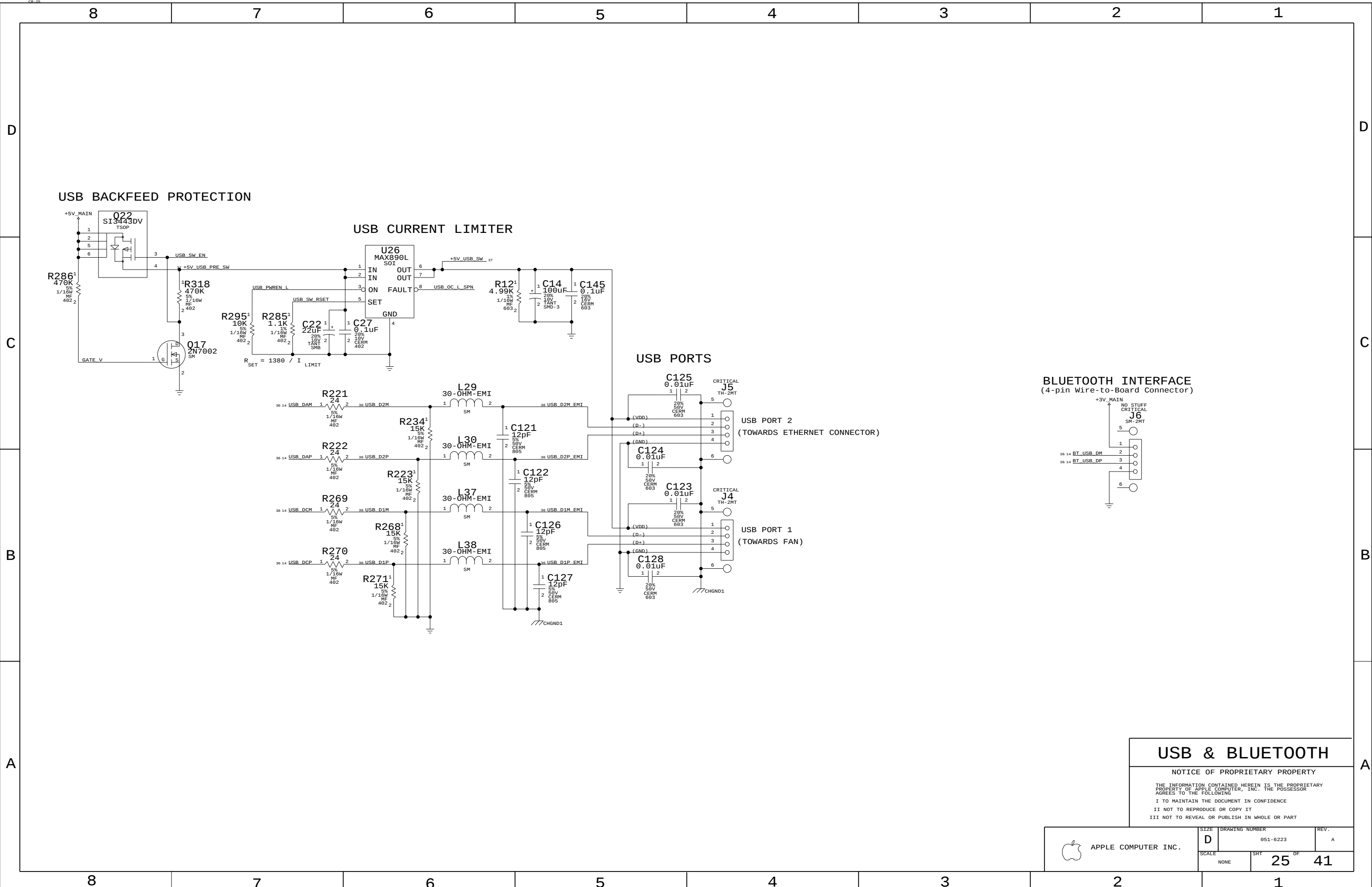
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USB & BLUETOOTH

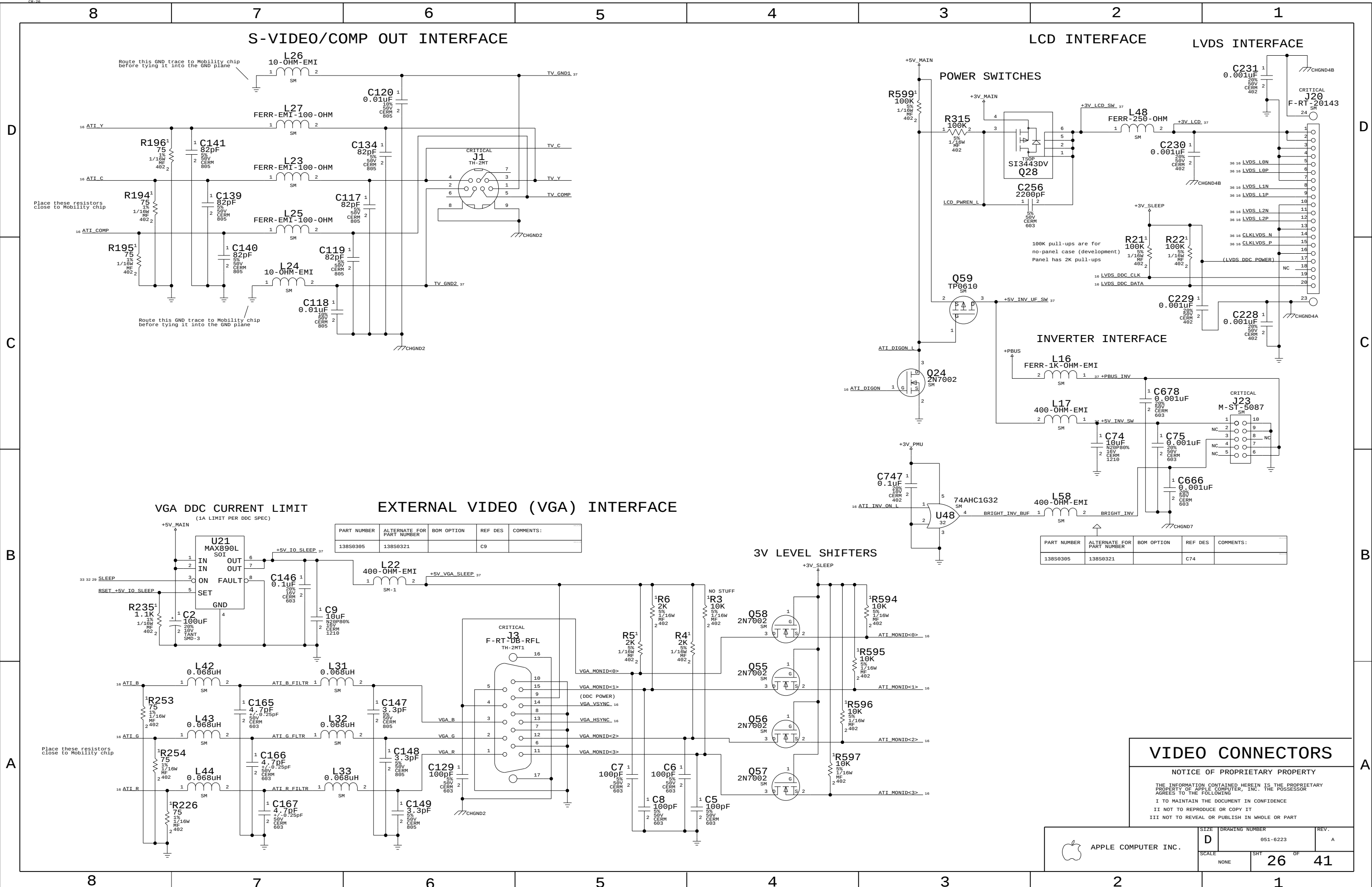
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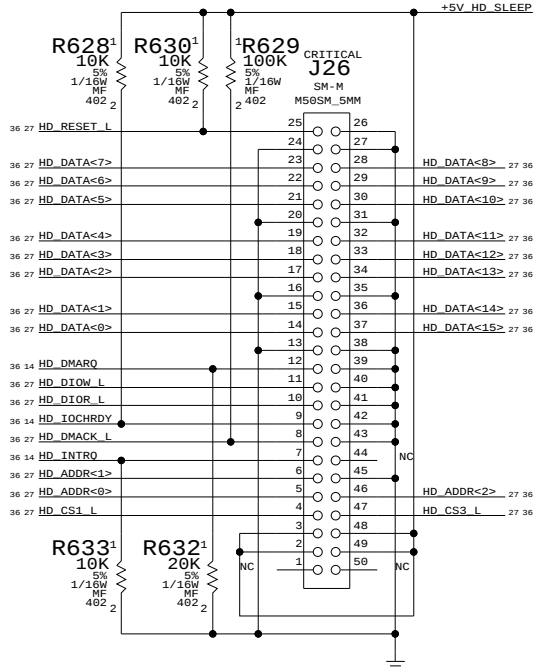
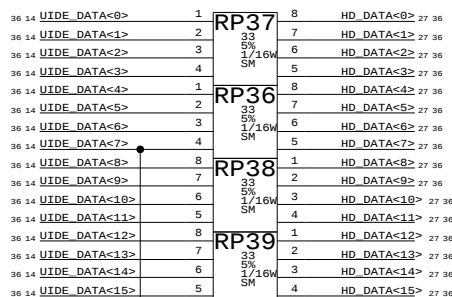
APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6223	A
SCALE	SHT	OF
NONE	25	41

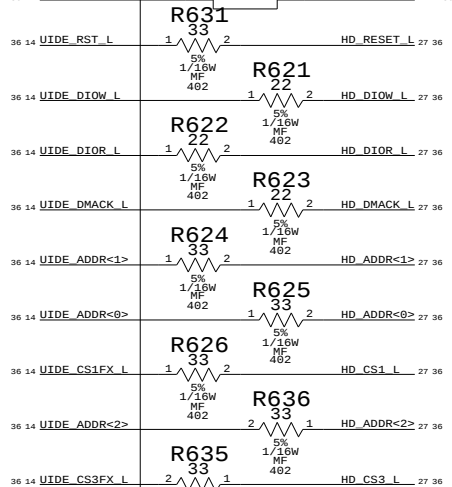


INTERNAL HARD DRIVE INTERFACE

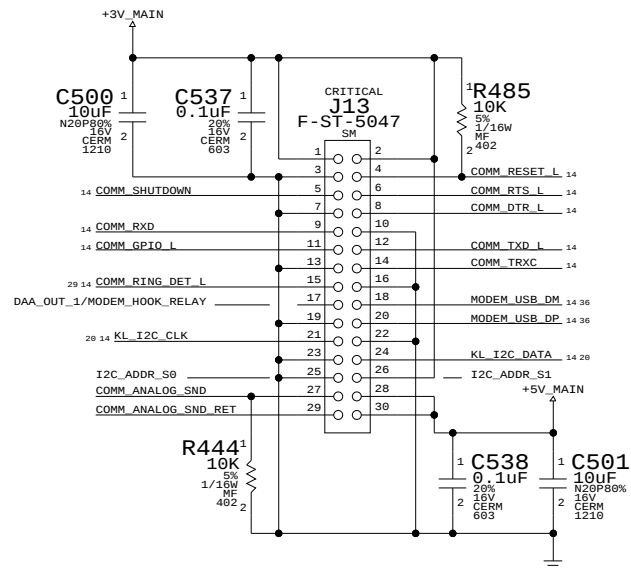
THESE LINES ARE SHARED BETWEEN THE CARDSLOT AND EIDE INTERFACES
PLEASE PLACE THESE TERMINATORS CLOSE TO KEYLARGO AND MINIMIZE THE LENGTH OF THE T



IRDA INTERFACE



MODEM BOARD INTERFACE



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S0305	138S0321		C500, C501	

INTERNAL I/O CONNECTORS

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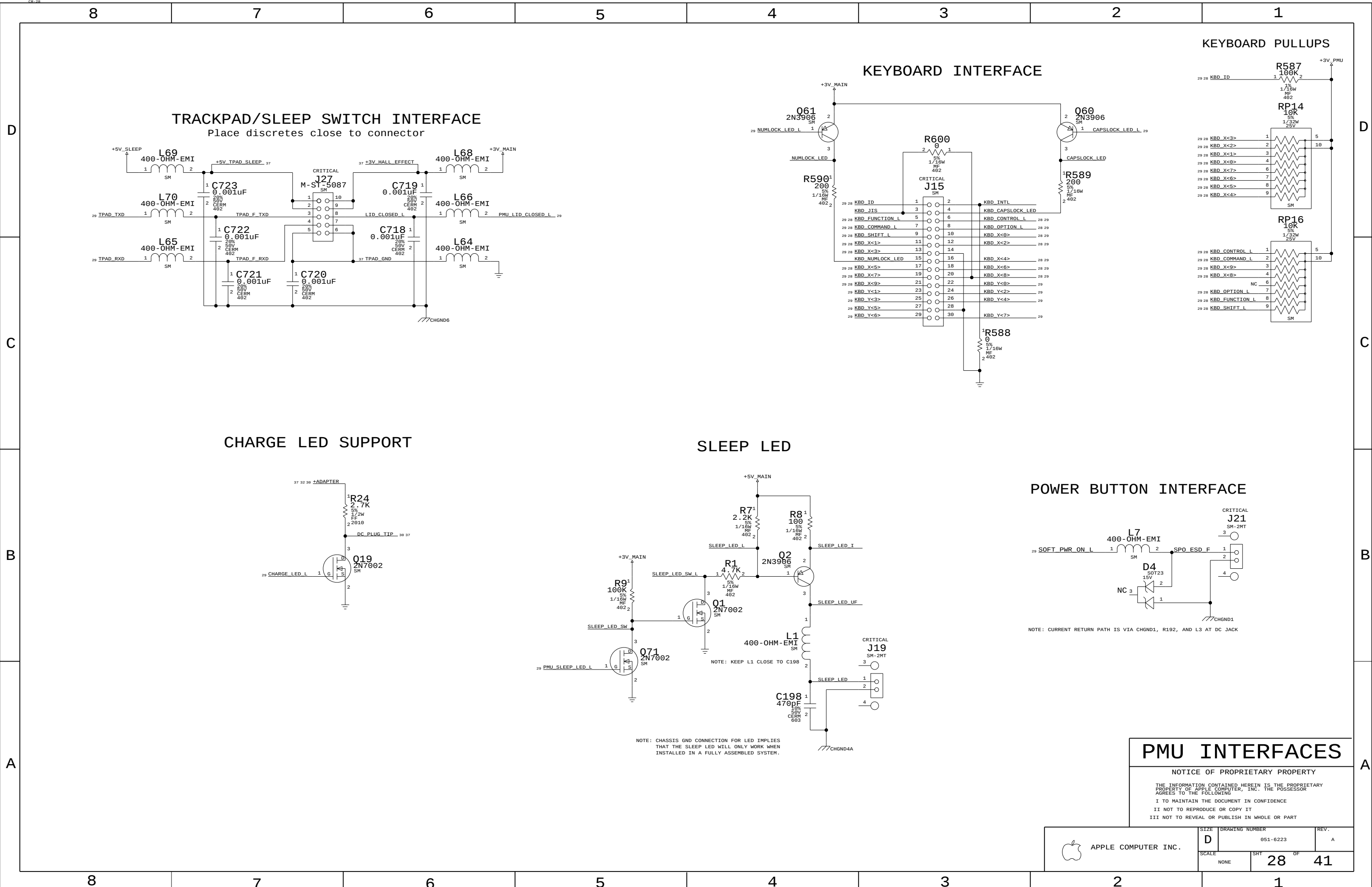
SIZE	DRAWING NUMBER	REV.
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D	051-6223
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SCALE SHEET 27 OF 41

NONE	27	41
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TRACKPAD/SLEEP SWITCH INTERFACE

Place discretes close to connector

KEYBOARD INTERFACE

KEYBOARD PULLUPS

CHARGE LED SUPPORT

SLEEP LED

POWER BUTTON INTERFACE

PMU INTERFACES

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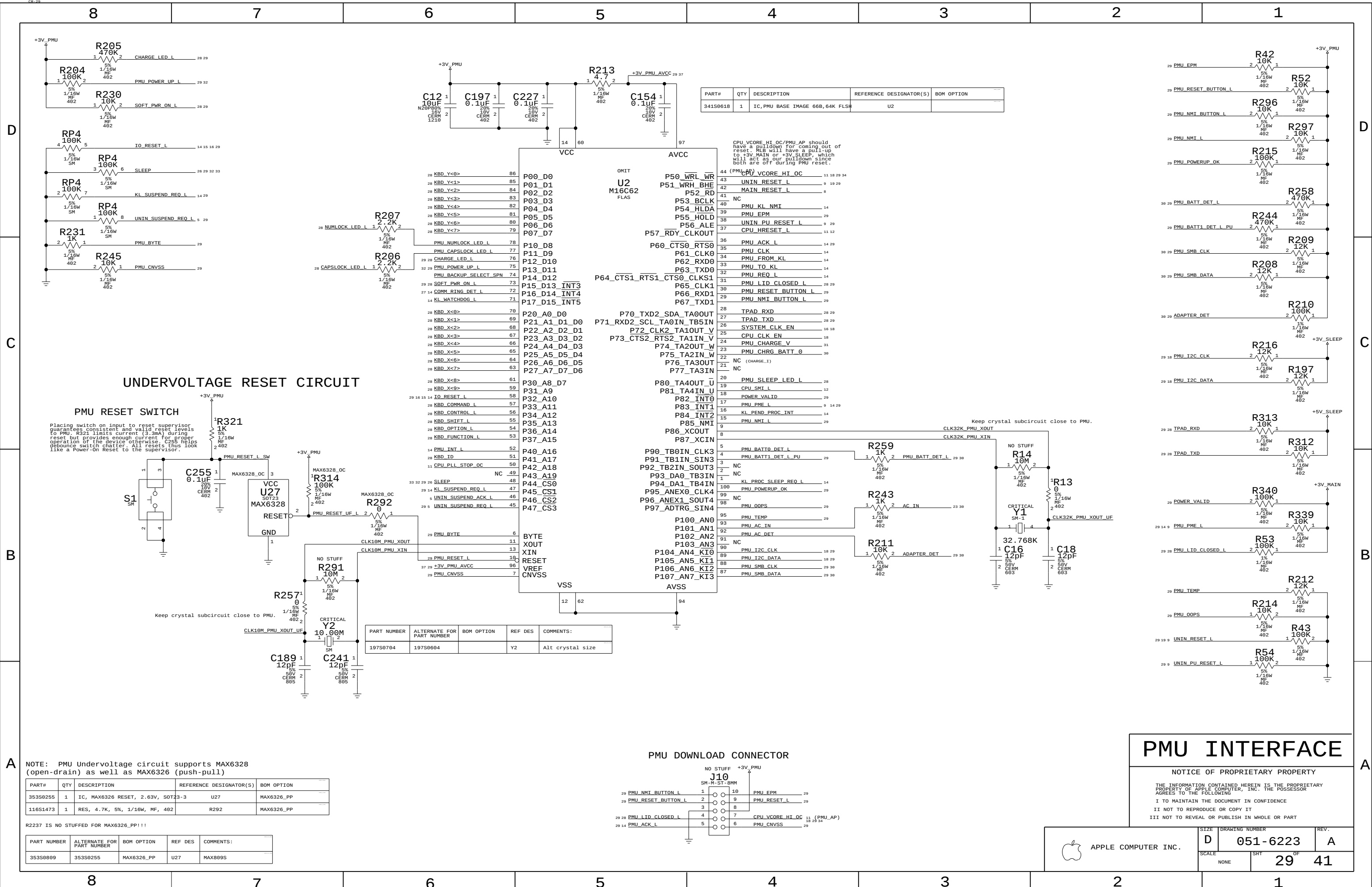
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APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6223	A
SCALE	SHT	OF
NONE	28	41



UNDERVOLTAGE RESET CIRCUIT

PMU RESET SWITCH

Placing switch on input to reset supervisor guarantees consistent and valid reset levels to PMU. R321 limits current (3.3mA) during reset but provides enough current for proper operation of the device otherwise. C255 helps debounce switch chatter. All resets thus look like a Power-On Reset to the supervisor.

PMU DOWNLOAD CONNECTOR

PMU INTERFACE

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PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
353S0255	1	IC, MAX6326 RESET, 2.63V, SOT23-3	U27	MAX6326_PP
116S1473	1	RES, 4.7K, 5%, 1/16W, MF, 402	R292	MAX6326_PP

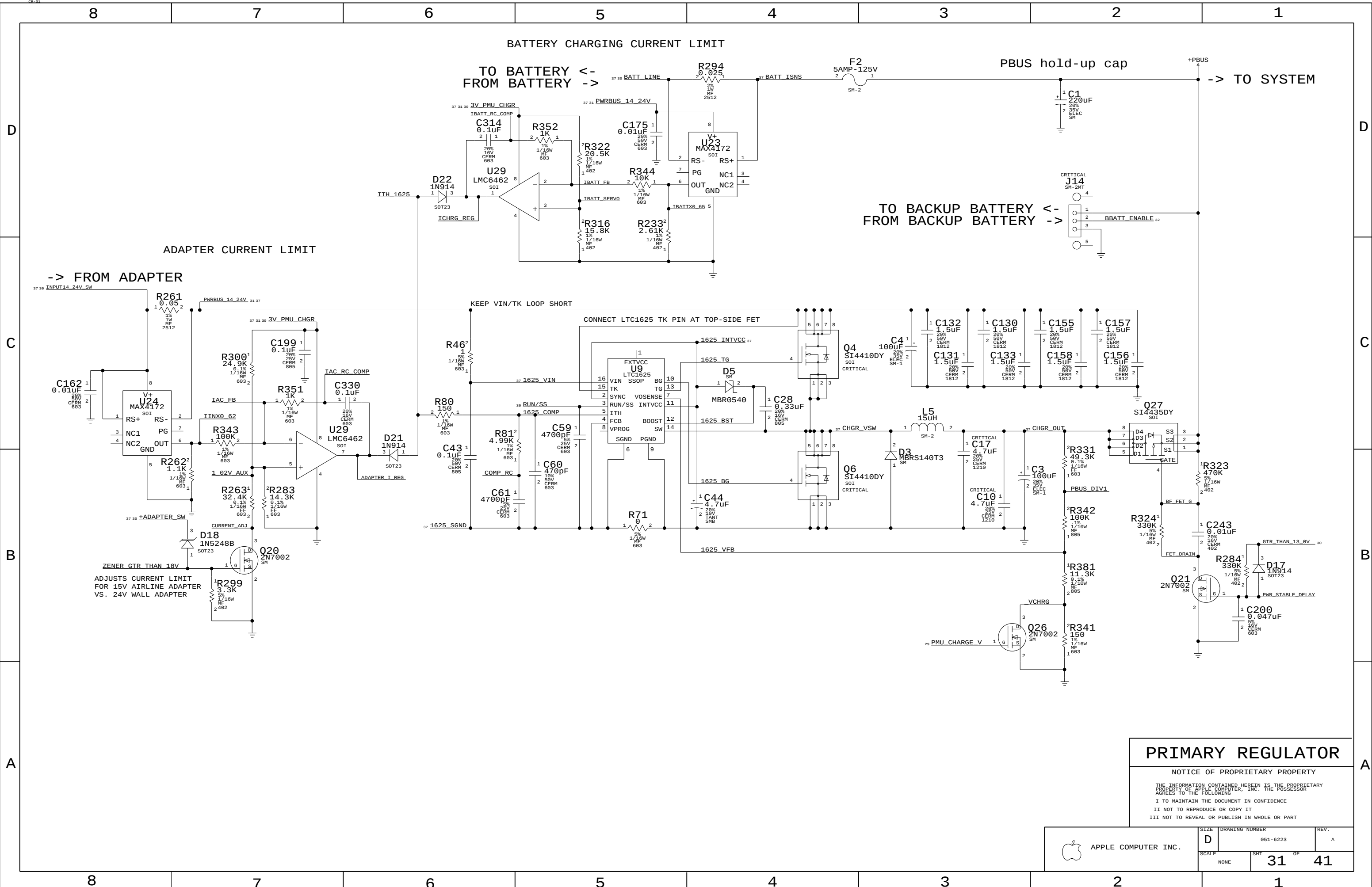
R2237 IS NO STUFFED FOR MAX6326_PP!!!

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
353S0809	353S0255	MAX6326_PP	U27	MAX809S

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
341S0618	1	IC, PMU BASE IMAGE 66B,64K FLSH	U2	

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0704	197S0604		Y2	Alt crystal size

APPLE COMPUTER INC.	SIZE	DRAWING NUMBER	REV.
	D	051-6223	A
SCALE	NONE	SHT	OF
		29	41



PRIMARY REGULATOR

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APPLE COMPUTER INC.

SIZE

D

DRAWING NUMBER

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REV.

A

SCALE

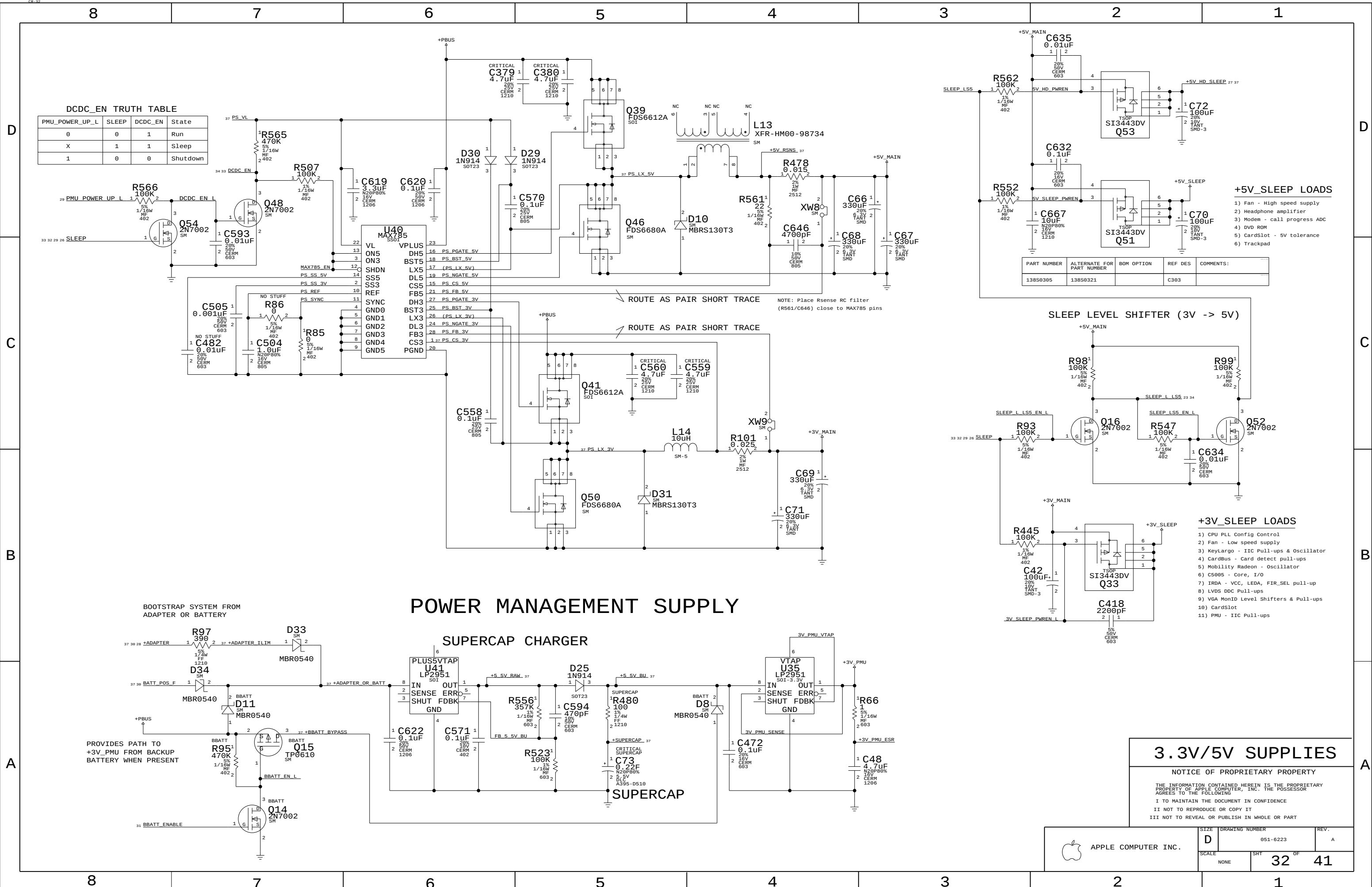
NONE

SHT

31

OF

41



DCDC_EN TRUTH TABLE

PMU_POWER_UP_L	SLEEP	DCDC_EN	State
0	0	1	Run
X	1	1	Sleep
1	0	0	Shutdown

+5V_SLEEP LOADS

- 1) Fan - High speed supply
- 2) Headphone amplifier
- 3) Modem - call progress ADC
- 4) DVD ROM
- 5) CardSlot - 5V tolerance
- 6) Trackpad

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S0305	138S0321		C303	

SLEEP LEVEL SHIFTER (3V -> 5V)

+3V_SLEEP LOADS

- 1) CPU PLL Config Control
- 2) Fan - Low speed supply
- 3) KeyLargo - IIC Pull-ups & Oscillator
- 4) CardBus - Card detect pull-ups
- 5) Mobility Radeon - Oscillator
- 6) C5005 - Core, I/O
- 7) IRDA - VCC, LEDA, FIR_SEL pull-up
- 8) LVDS DDC Pull-ups
- 9) VGA MonID Level Shifters & Pull-ups
- 10) CardSlot
- 11) PMU - IIC Pull-ups

POWER MANAGEMENT SUPPLY

SUPERCAP CHARGER

SUPERCAP

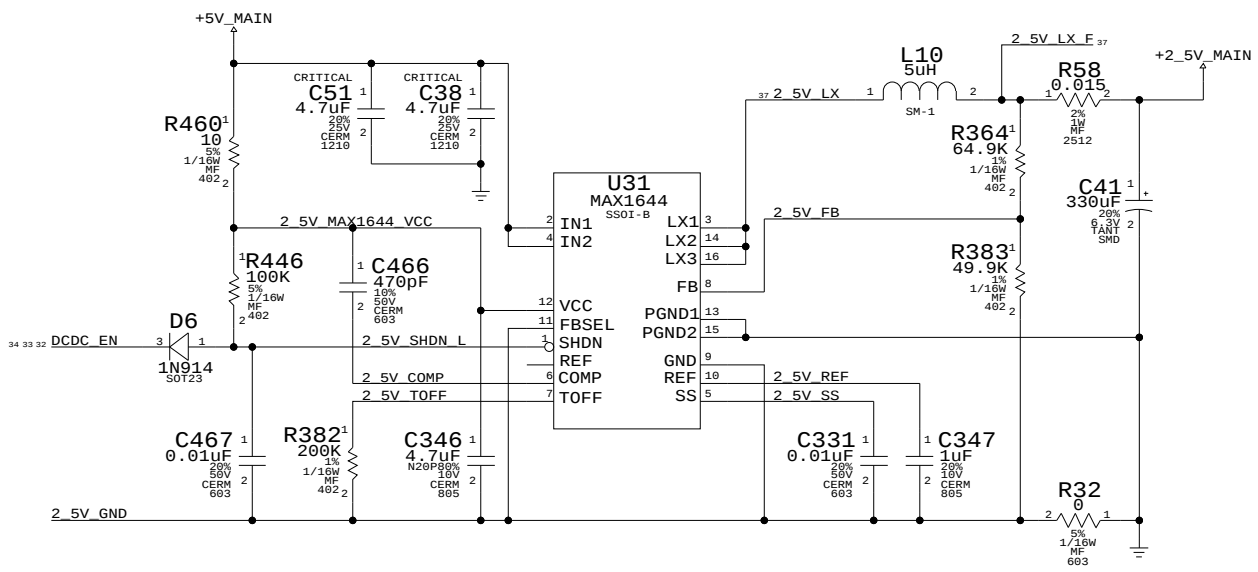
3.3V/5V SUPPLIES

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APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-6223	REV. A
	SCALE NONE	SHT 32 OF 41	

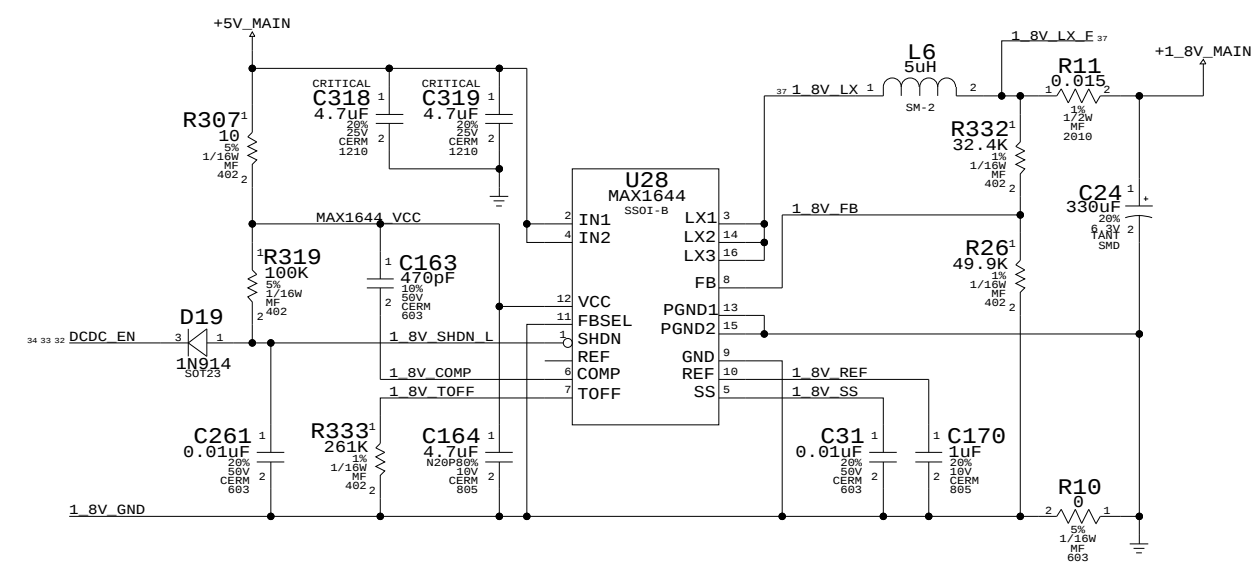
2.5V SWITCHER



+2.5V_MAIN LOADS

- 1) Mobility Radeon - AVDDs and DDR I/O
- 2) Gigabit Ethernet - AVDDL

1.8V SWITCHER

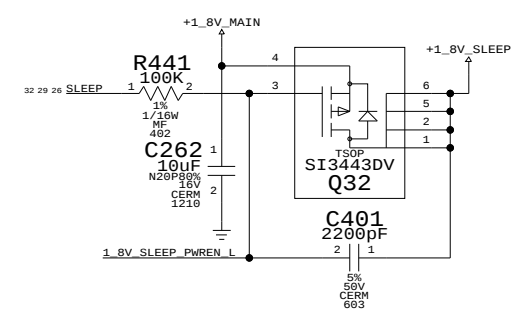


+1.8V_MAIN LOADS

- 1) Uni-N - Core, PLL DVDDs, MaxBus I/O
- 2) Mobility Radeon - Core, AVDDs
- 3) Gigabit Ethernet - DVDDH
- 4) +1.8V_SLEEP loads ->

+1.8V_SLEEP LOADS

- 1) MPC7450 - MaxBus I/O, L3 I/O
- 2) CPU JTAG & MaxBus Pull-ups
- 3) CPU PLL Config Straps
- 4) C5005 VDDCPU0



PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
138S0305	138S0321		C262	

1.8V/2.5V SUPPLIES

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	SCALE NONE	SHT 33	OF 41

Differential Signals

GROUP	SIG_NAME	DIFFERENTIAL_PAIR	MATCHED_DELAY	MIN_LINE_WIDTH	STUB_LENGTH	MAX_EXPOSED_LENGTH
ETHERNET	MDI_P<0>	ENET_TRD0	ENET_TRD0:U12.N1.T1.12:100	5	150	500
	MDI_M<0>	ENET_TRD0	ENET_TRD0:U12.N2.T1.11:100	5	150	500
	RJ45_DP<0>	RJ45_DP0	RJ45_DP0:T1.13.J2.1:100	5	150	
	RJ45_DN<0>	RJ45_DP0	RJ45_DP0:T1.14.J2.2:100	5	150	
	MDI_P<1>	ENET_TRD1	ENET_TRD1:U12.N3.T1.9:100	5	150	500
	MDI_M<1>	ENET_TRD1	ENET_TRD1:U12.N4.T1.8:100	5	150	500
	RJ45_DP<1>	RJ45_DP1	RJ45_DP1:T1.16.J2.3:100	5	150	
	RJ45_DN<1>	RJ45_DP1	RJ45_DP1:T1.17.J2.6:100	5	150	
	MDI_P<2>	ENET_TRD2	ENET_TRD2:U12.N6.T1.6:100	5	150	500
	MDI_M<2>	ENET_TRD2	ENET_TRD2:U12.N7.T1.5:100	5	150	500
	RJ45_DP<2>	RJ45_DP2	RJ45_DP2:T1.19.J2.4:100	5	150	
	RJ45_DN<2>	RJ45_DP2	RJ45_DP2:T1.20.J2.5:100	5	150	
	MDI_P<3>	ENET_TRD3	ENET_TRD3:U12.N8.T1.3:100	5	150	500
	MDI_M<3>	ENET_TRD3	ENET_TRD3:U12.N9.T1.2:100	5	150	500
	RJ45_DP<3>	RJ45_DP3	RJ45_DP3:T1.22.J2.7:100	5	150	
	RJ45_DN<3>	RJ45_DP3	RJ45_DP3:T1.23.J2.8:100	5	150	
FIREWIRE	FW_TPA0N	FW_TPA0	FW_TP0_PHY:::4%		0	500
	FW_TPA0P	FW_TPA0	FW_TP0_PHY:::4%		0	500
	FW_TPB0N	FW_TPB0	FW_TP0_PHY:::4%		0	500
	FW_TPB0P	FW_TPB0	FW_TP0_PHY:::4%		0	500
	FW_TPI1N	FW_TPI1	FW_TP1_PORT:::4%		0	
	FW_TPI1P	FW_TPI1	FW_TP1_PORT:::4%		0	
LVDS	FW_TPO1N	FW_TPO1	FW_TP1_PORT:::4%		0	
	FW_TPO1P	FW_TPO1	FW_TP1_PORT:::4%		0	
	CLKLVDS_N	CLKLVDS	LVDS:::100			
	CLKLVDS_P	CLKLVDS	LVDS:::100			
	LVDS_L0N	LVDS_L0	LVDS:::100			
	LVDS_L0P	LVDS_L0	LVDS:::100			
LVDS	LVDS_L1N	LVDS_L1	LVDS:::100			
	LVDS_L1P	LVDS_L1	LVDS:::100			
	LVDS_L2N	LVDS_L2	LVDS:::100			
	LVDS_L2P	LVDS_L2	LVDS:::100			
	USB_DAM	USB_DA	USB_DA:::200			
	USB_DAP	USB_DA	USB_DA:::200			
USB	USB_DBM	USB_DB	USB_DB:::200			
	USB_DBP	USB_DB	USB_DB:::200			
	USB_DCM	USB_DC	USB_DC:::200			
	USB_DCP	USB_DC	USB_DC:::200			
	USB_DDM	USB_DD	USB_DD:::200			
	USB_DDP	USB_DD	USB_DD:::200			
	BT_USB_DM	BT_USB_D	BT_USB:::200			
	BT_USB_DP	BT_USB_D	BT_USB:::200			
	MODEM_USB_DM	MODEM_USB_D	MODEM_USB:::200			
	MODEM_USB_DP	MODEM_USB_D	MODEM_USB:::200			
	USB_D1M	USB_D1	USB_D1:R269.2:137.1:200			
	USB_D1P	USB_D1	USB_D1:R277.2:138.1:200			
	USB_D1M_EMI	USB_D1_EMI	USB_D1_EMI:137.2:14.2:200			
	USB_D1P_EMI	USB_D1_EMI	USB_D1_EMI:138.2:14.3:200			
	USB_D2M	USB_D2	USB_D2:R221.2:129.1:200			
	USB_D2P	USB_D2	USB_D2:R222.2:130.1:200			
USB_D2M_EMI	USB_D2_EMI	USB_D2_EMI:129.2:135.2:200				
USB_D2P_EMI	USB_D2_EMI	USB_D2_EMI:130.2:135.3:200				

8								7				6				5				4				3				2				1																										
POWER NET CONSTRAINTS																																																										
D	MAIN/SLEEP	GROUP	SIG_NAME	VOLTAGE	MIN_LINE_WIDTH	MIN_NECK_WIDTH																																																				
			/+PBUS	VOLTAGE=16.8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			/+5V_MAIN	VOLTAGE=5V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			/+5V_SLEEP	VOLTAGE=5V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			/+3V_MAIN	VOLTAGE=3.3V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			/+3V_SLEEP	VOLTAGE=3.3V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			/+3V_PMU	VOLTAGE=3.3V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			/+2.5V_MAIN	VOLTAGE=2.5V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			/+1.8V_MAIN	VOLTAGE=1.8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=6																																																				
			/+1.8V_SLEEP	VOLTAGE=1.8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			/+1.5V_MAIN	VOLTAGE=1.5V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
	ADAPTER/BATTERY		+ADAPTER_UF	VOLTAGE=24V	MIN_LINE_WIDTH=50	MIN_NECK_WIDTH=10																																																				
			+ADAPTER	VOLTAGE=24V	MIN_LINE_WIDTH=50	MIN_NECK_WIDTH=10																																																				
			+ADAPTER_SW	VOLTAGE=24V	MIN_LINE_WIDTH=50	MIN_NECK_WIDTH=10																																																				
			INPUT14_24V_SW	VOLTAGE=24V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			PMRBUS_14_24V	VOLTAGE=24V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			1625_VIN	VOLTAGE=24V	MIN_LINE_WIDTH=10																																																					
			CHGR_VSW	VOLTAGE=16.8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			CHGR_OUT	VOLTAGE=16.8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			BATT_FET_SW	VOLTAGE=16.8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			BATT_ISNS	VOLTAGE=16.8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			BATT_LINE	VOLTAGE=16.8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
C	BACKUP		BATT_POS	VOLTAGE=16.8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			BATT_POS_F	VOLTAGE=16.8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			BATT_RES	VOLTAGE=16.8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			1625_INTVCC	VOLTAGE=5.3V	MIN_LINE_WIDTH=10																																																					
			3V_PMU_CHGR	VOLTAGE=3.3V	MIN_LINE_WIDTH=10																																																					
			1625_SGND	VOLTAGE=8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			ADAPTER_GND	VOLTAGE=8V	MIN_LINE_WIDTH=50	MIN_NECK_WIDTH=10																																																				
			BATT_NEG	VOLTAGE=8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			+ADAPTER_OR_BATT	VOLTAGE=24V	MIN_LINE_WIDTH=10																																																					
			+ADAPTER_ILIM	VOLTAGE=24V	MIN_LINE_WIDTH=10																																																					
			+BBATT_BYPASS	VOLTAGE=16.8V	MIN_LINE_WIDTH=10																																																					
	POWER SUPPLIES		+5.5V_RAW	VOLTAGE=5.5V	MIN_LINE_WIDTH=10																																																					
			+5.5V_BU	VOLTAGE=5.5V	MIN_LINE_WIDTH=10																																																					
			+SUPERCAP	VOLTAGE=5.5V	MIN_LINE_WIDTH=10																																																					
			PS_VL	VOLTAGE=5V	MIN_LINE_WIDTH=10																																																					
			VCORE_VCC	VOLTAGE=5V	MIN_LINE_WIDTH=10																																																					
			PS_LX_5V	VOLTAGE=8V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			+5V_RSNS	VOLTAGE=5V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				
			PS_LX_3V	VOLTAGE=3.3V	MIN_LINE_WIDTH=25	MIN_NECK_WIDTH=10																																																				

[illegible]

8										7										6										5										4										3										2										1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
D	R236	RES	9A8	R237	RES	9A8	R238	RES	908	R239	RES	9C6	R240	RES	9C6	R241	RES	7C1	R242	RES	16D7	R243	RES	29B3	R244	RES	29C1	R245	RES	29C8	R246	RES	21C4	R247	RES	21C4	R248	RES	21D3	R249	RES	908	R250	RES	9A8	R251	RES	9C6	R252	RES	9C6	R253	RES	26A8	R254	RES	26A8	R255	RES	16A5	R256	RES	16A5	R257	RES	29B7	R258	RES	29D1	R259	RES	29B3	R260	RES	21C4	R261	RES	31C8	R262	RES	31B7	R263	RES	31B7	R264	RES	11D5	R265	RES	11D5	R266	RES	11D5	R267	RES	11D5	R268	RES	25B6	R269	RES	25B7	R270	RES	25B7	R271	RES	25B6	R272	RES	19C6	R273	RES	9A8	R274	RES	9C6	R275	RES	7D1	R276	RES	7D1	R277	RES	7D1	R278	RES	7D1	R279	RES	7D1	R280	RES	17B8	R281	RES	21D7	R283	RES	31B7	R284	RES	31B1	R285	RES	25C7	R286	RES	25C8	R287	RES	908	R288	RES	908	R289	RES	9A8	R290	RES	17B8	R291	RES	29B7	R292	RES	29B6	R293	RES	21D6	R294	RES	31D4	R295	RES	25C7	R296	RES	29D1	R297	RES	29D1	R299	RES	31B7	R300	RES	31C7	R301	RES	24B3	R302	RES	24B3	R303	RES	24B4	R304	RES	24C3	R305	RES	24C4	R306	RES	24C4	R307	RES	33B7	R308	RES	19D5	R309	RES	16C8	R310	RES	16C8	R311	RES	16C8	R312	RES	29B1	R313	RES	29C1	R314	RES	29B7	R315	RES	26D3	R316	RES	31C5	R317	RES	11D6	R318	RES	25C7	R319	RES	33B7	R320	RES	16C8	R321	RES	29C7	R322	RES	31D5	R323	RES	31B1	R324	RES	31B2	R325	RES	11D6	R326	RES	11D6	R327	RES	11D6	R328	RES	12D5	R329	RES	21C7	R330	RES	39D6	R331	RES	31B2	R332	RES	33B5	R333	RES	33A7	R334	RES	9B6	R335	RES	16C3	R336	RES	16C3	R337	RES	16C3	R338	RES	16C3	R339	RES	29B1	R340	RES	29B1	R341	RES	31B2	R342	RES	31B2	R343	RES	31B7	R344	RES	31D5	R345	RES	11D7	R346	RES	16D8	R347	RES	26C6	R349	RES	39D4	R350	RES	39D5	R351	RES	31C7	R352	RES	31D5	R353	RES	11D7	R354	RES	11D7	R355	RES	11D6	R356	RES	9A8	R358	RES	16B7	R359	RES	16C4	R360	RES	16C4	R361	RES	29D6	R362	RES	21D3	R363	RES	21D3	R364	RES	33D5	R365	RES	23C6	R366	RES	23C5	R367	RES	23C5	R368	RES	23C5	R369	RES	23C5	R370	RES	23C5	R371	RES	23C5	R372	RES	23C4	R373	RES	23C4	R374	RES	11A3	R375	RES	9B6	R376	RES	7C1	R377	RES	16B7	R378	RES	16C3	R379	RES	16C3	R380	RES	39C5	R381	RES	31B2	R382	RES	33C7	R383	RES	33C5	R384	RES	23A6	R385	RES	23B5	R386	RES	11B3	R387	RES	16C3	R388	RES	16C3	R391	RES	21D4	R392	RES	21D4	R393	RES	39C3	R394	RES	39C5	R395	RES	23C6	R396	RES	9C6	R397	RES	6B6	R398	RES	6A6	R399	RES	16C4	R400	RES	16C4	R401	RES	16C4	R402	RES	16C4	R405	RES	11D4	R406	RES	11D4	R407	RES	6A6	R408	RES	7D1	R409	RES	21B6	R410	RES	39C5	R411	RES	39D3	R413	RES	23B2	R415	RES	11D4	R416	RES	12D1	R417	RES	8C1	R418	RES	8C1	R419	RES	7C1	R420	RES	39C5	R421	RES	24B5	R422	RES	11D4	R423	RES	11B3	R424	RES	11A3	R425	RES	8C1	R426	RES	7B1	R427	RES	21B7	R428	RES	38C5	R429	RES	39C5	R430	RES	39C3	R431	RES	38C3	R438	RES	34D8	R439	RES	12C1	R440	RES	12C1	R441	RES	33B3	R442	RES	16B7	R443	RES	16D7	R444	RES	27B2	R445	RES	32B3	R446	RES	33C7	R448	RES	12B1	R449	RES	12C1	R451	RES	5D1	R453	RES	5B1	R454	RES	7C1	R455	RES	17B7	R456	RES	17B7	R457	RES	16A7	R458	RES	16A7	R459	RES	16A3	R460	RES	33D7	R461	RES	23B6	R464	RES	12C1	R465	RES	12C1	R466	RES	5B1	R467	RES	7D5	R468	RES	16D7	R469	RES	17A6	R470	RES	16C8	R472	RES	23A5	R473	RES	5D1	R474	RES	12D1	R475	RES	5B1	R476	RES	5C1	R477	RES	27B8	R478	RES	32D4	R479	RES	24D7	R480	RES	22C8	R481	RES	12D1	R482	RES	12B1	R483	RES	12C1	R484	RES	17C5	R485	RES	27B1	R486	RES	22C8	R487	RES	24C6	R488	RES	34D7	R489	RES	14D1	R490	RES	12D1	R491	RES	11B6	R492	RES	7C1	R493	RES	17D7	R494	RES	17D7	R495	RES	39A3	R497	RES	34D7	R498	RES	12B1	R499	RES	12D1	R500	RES	11A6	R501	RES	8C1	R502	RES	6D5	R503	RES	5A7	R504	RES	6B6	R505	RES	17D6	R506	RES	17C6	R507	RES	23D8	R512	RES	23D8	R513	RES	23C8	R514	RES	12D1	R515	RES	11B5	R516	RES	5D4	R517	RES	6D5	R518	RES	7C1	R519	RES	7C1	R520	RES	7A5	R521	RES	7C4	R522	RES	39A4	R523	RES	32A5	R524	RES	12A1	R525	RES	12A1	R526	RES	11A6	R527	RES	11A5	R528	RES	15C1	R529	RES	6C5	R530	RES	6C5	R531	RES	7C3	R532	RES	16B3	R533	RES	16B2	R534	RES	39B4	R535	RES	5D1	R536	RES	12C1	R537	RES	11A6	R538	RES	6B5	R539	RES	6B6	R540	RES	8C1	R541	RES	7B3	R542	RES	12C1	R543	RES	12D3	R544	RES	7B1	R545	RES	7B4	R546	RES	24C6	R547	RES	32C2	R548	RES	5D1	R549	RES	7D7	R550	RES	16B3	R551	RES	39B5	R552	RES	32D3	R553	RES	5D1	R554	RES	7C1	R555	RES	39A3	R556	RES	32A5	R557	RES	12D8	R558	RES	12B1	R559	RES	6C5	R560	RES	8A6	R561	RES	32D4	R562	RES	11A3	R563	RES	27A7	R564	RES	16B4	R565	RES	32D7	R566	RES	32D8	R567	RES	6A5	R568	RES	7C1	R569	RES	27A5	R570	RES	6B5	R571