

SYSTEM SCHEMATICS

A2630

NOVEMBER, 1989

PN-314033-01



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Commodore Business Machines, Inc.

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DESCRIPTION

The A2630 68030 based Accelerator Card is an 86 pin Coprocessor Slot expansion card for the Amiga 2000. In addition to a Motorola 68030, the A2630 has an onboard 68882 Floating Point Unit (FPU) which is nominally clocked at the same rate. Provisions are provided on the board for the upgrade to a faster 68881 or 68882 clocked by its own separate crystal oscillator. The 68030 is clocked at nearly four times the 7.16 Mhz of the Amiga 68000 CPU. Additionally, the processor addresses a full 32 bit address range with a true 32 bit data path, doubling the data path of 68000. The A2630 is equipped with 2 or 4 megabytes of 32 bit wide DRAM which is autoconfigured and recognized by the system as standard expansion bus FAST memory. The card is also equipped with 64K of 16 bit ROM which is used for system initialization, diagnostics and system bootup time options.

TECHNICAL SPECIFICATIONS

Processor	Motorola MC68030 clocked at 25Mhz with onboard instruction and data caches and built in memory management unit (MMU).
Coprocessor	Motorola MC68882 floating point math coprocessor clocked at 25Mhz. A 33 MHz MC68881 or MC68882 can be used if the appropriate crystal is placed in U203 and jumpered as the clock for the FPU.
Memory	2 or 4 Megabytes of 32 bit data path, autoconfiguring memory. Memory type is 414256 Zip-style package with speed of 100ns.
ROM	64K by 16 bits for power on initialization.
Card Type	Full-size Amiga 2000 86-pin CPU slot.
Power	Supplied by system.
Compatibility	Compatible with the AmigaDOS operating system and platform engine for AMIX. Compatible with most Amiga application software when the following are avoided: 1) use of upper 8 bits of 68000 addresses for tables 2) use of signed math on addresses 3) use of self-modifying code 4) running code on CPU stack 5) basing time dependent code on CPU speed

JUMPER CONFIGURATION**CLOCK CONFIGURATION JUMPERS**

- J200 Generally 2-3 are jumpered to gate -AS instead of delayed -AS
- J202 Crystal Bridge. When in place, CPU crystal also clocks the FPU.
When removed, FPU is clocked by U203. If jumper is removed and FPU is present, crystal must be in U203 to clock FPU or the system will not boot.

SYSTEM CONFIGURATION JUMPERS

- J301 MEG4. With the jumper in place, the system expects 2 megabytes, and removed, the system expects 4 megabytes of DRAM.
- J302 B2000. With this jumper present, the system expects to be installed in an A2000 with 68000 removed. Nominally, with the jumper absent, the system expects a B2000, and through the mouse engaged bootup menu, can boot the 68000 if desired.
- J303 AUTO. With the jumper absent, the onboard memory is autoconfigured at bootup. If the jumper is present, all onboard DRAM is disabled.
- J304 OSMODE. With the jumper absent, the system autoboots AmigaDOS. If the jumper is present, the system will attempt to autoboot AMIX.

A2630 ACCELERATOR CARD INTERNATIONAL PACKING ASSEMBLIES

312287-01 A2630 2M 25MHZ (U.S.)	312287-06 A2630 4M 25MHZ (U.S.)
363035-03 BULK PACKING BOX	363035-03 BULK PACKING BOX
363097-02 PACKING BOX	363097-02 PACKING BOX
363183-01 MANUAL USER A2630 ENGLISH (SUB:)	363183-01 MANUAL USER A2630 ENGLISH (SUB:)
363230-01 MANUAL USER A2630 ENGLISH, FRENCH, SPANISH, GERMAN, ITALIAN	363230-01 MANUAL USER A2630 ENGLISH, FRENCH, SPANISH, GERMAN, ITALIAN
318904-01 WARRANTY CARD (U.S.)	318904-01 WARRANTY CARD (U.S.)
314877-02 SERVICE CENTER LIST	314877-02 SERVICE CENTER LIST
318928-01 PLASTIC BAG	318928-01 PLASTIC BAG
312288-05 PCB ASSY A2630 (2M 25MHZ)	312288-04 PCB ASSY A2630 (4M 25MHZ)
312287-02 A2630 2M 25MHZ (CANADA)	312287-07 A2630 4M 25MHZ (CANADA)
363035-03 BULK PACKING BOX	363035-03 BULK PACKING BOX
363097-02 PACKING BOX	363097-02 PACKING BOX
363183-01 MANUAL USER A2630 ENGLISH (SUB:)	363183-01 MANUAL USER A2630 ENGLISH (SUB:)
363230-01 MANUAL USER A2630 ENGLISH, FRENCH, SPANISH, GERMAN, ITALIAN	363230-01 MANUAL USER A2630 ENGLISH, FRENCH, SPANISH, GERMAN, ITALIAN
318882-01 WARRANTY CARD (CANADA)	318882-01 WARRANTY CARD (CANADA)
318928-01 PLASTIC BAG	314877-02 SERVICE CENTER LIST
312288-03 PCB ASSY A2630 (2M 25MHZ)	318928-01 PLASTIC BAG
312287-03 A2630 2M 25MHZ ENGLISH, FRENCH, SPANISH, GERMAN, ITALIAN	312288-04 PCB ASSY A2630 (4M 25MHZ)
363035-03 BULK PACKING BOX	312287-08 A2630 4M 25MHZ ENGLISH, FRENCH, SPANISH, GERMAN, ITALIAN
363097-02 PACKING BOX	363035-03 BULK PACKING BOX
363183-01 MANUAL USER A2630 ENGLISH (SUB:)	363097-02 PACKING BOX
363230-01 MANUAL USER A2630 ENGLISH, FRENCH, SPANISH, GERMAN, ITALIAN	363183-01 MANUAL USER A2630 ENGLISH (SUB:)
318928-01 PLASTIC BAG	363230-01 MANUAL USER A2630 ENGLISH, FRENCH, SPANISH, GERMAN, ITALIAN
312288-03 PCB ASSY A2630 (2M 25MHZ)	318928-01 PLASTIC BAG
312287-04 A2630 2M 25MHZ ENGLISH, DUTCH, DANISH, SWEDISH, NORWEGIAN	312288-04 PCB ASSY A2630 (4M 25MHZ)
363035-03 BULK PACKING BOX	312287-09 A2630 4M 25MHZ ENGLISH, DUTCH, DANISH, SWEDISH, NORWEGIAN
363097-02 PACKING BOX	363035-03 BULK PACKING BOX
363183-01 MANUAL USER A2630 ENGLISH (SUB:)	363097-02 PACKING BOX
363231-01 MANUAL USER A2630 ENGLISH, DANISH, DUTCH, SWEDISH, NORWEGIAN	363183-01 MANUAL USER A2630 ENGLISH (SUB:)
318928-01 PLASTIC BAG	363231-01 MANUAL USER A2630 ENGLISH, DANISH, DUTCH, SWEDISH, NORWEGIAN
312288-03 PCB ASSY A2630 (2M 25MHZ)	318928-01 PLASTIC BAG
312287-05 A2630 2M 25MHZ (AUSTRALIA)	312288-04 PCB ASSY A2630 (4M 25MHZ)
363035-03 BULK PACKING BOX	312287-10 A2630 4M 25MHZ (AUSTRALIA)
363097-02 PACKING BOX	363035-03 BULK PACKING BOX
363183-01 MANUAL USER A2630 ENGLISH (SUB:)	363097-02 PACKING BOX
363230-01 MANUAL USER A2630 ENGLISH, FRENCH, SPANISH, GERMAN, ITALIAN	363183-01 MANUAL USER A2630 ENGLISH (SUB:)
318884-01 WARRANTY CARD (AUSTRALIA)	363230-01 MANUAL USER A2630 ENGLISH, FRENCH, SPANISH, GERMAN, ITALIAN
318928-01 PLASTIC BAG	318884-01 WARRANTY CARD (AUSTRALIA)
312288-03 PCB ASSY A2630 (2M 25MHZ)	318928-01 PLASTIC BAG
	312288-04 PCB ASSY A2630 (4M 25MHZ)

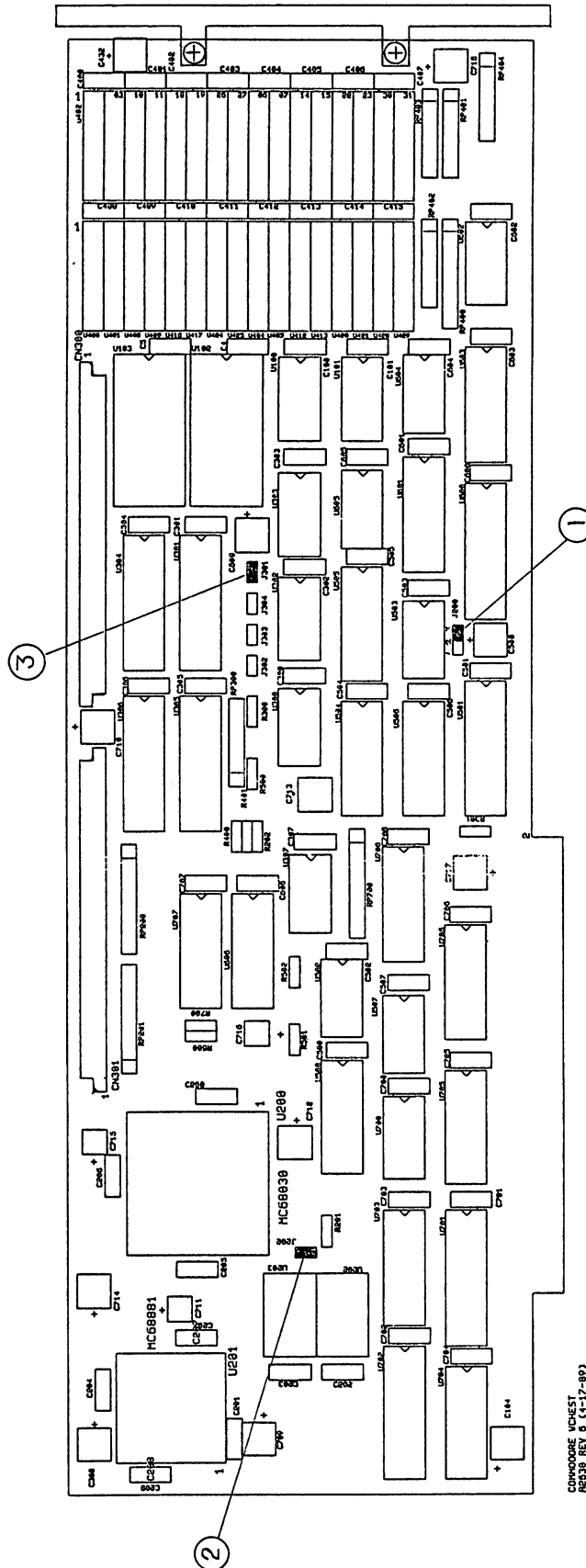
COMPONENT PARTS LIST PCB ASSEMBLY #312288

312288-05 — A2630 PCB ASSY 2MEG 25 MHZ R9.0

Commodore part numbers are provided for reference only and do not indicate the availability of parts from Commodore. Industry standard parts (Resistors, Capacitors, Connectors) should be secured locally. Approved cross-references for TTL chips, Transistors, etc. are available in manual form through the Service Department, order #314000-01.

IC COMPONENTS			RESISTORS 1/4 WATT		
318099-01	414256 DRAM ZIP, 100 NS	U400-431	901550-63	22 OHM	R400,401
390110-01	74F04	U307,204	901550-94	68 OHM	R201,202
318050-01	74F244	U606	901550-58	470 OHM	R301
390091-01	74F257	U100,101,104	901550-01	1K	R300,500-502,700
390081-01	74F74	U502,503,507	901550-94	68 OHM	R203,204,207-211
901521-63	74LS174	U302,303,700	901550-56	47 OHM	R205,206,400,401,503,600
901521-46	74LS245	U703-707			R504-506,600
390281-01	74F646	U701-702	CAPACITORS		
901525-16	74S05	U300	900019-24	330 PF, MLC, RADIAL	C710,714,205,207
390399-01	MC68030 CPU 16MHZ	U200	251318-06	.01 UF, MLC, RADIAL	C200-203
390399-02	MC68030 CPU 25MHZ	U200	900022-03	.1 UF, MLC, RADIAL	C204,206,208,711,715,717
390277-01	68881 FPU 16MHZ	U201			C100,101,4,5,300-307,500-507,600-606,700-708
390434-01	MC68882 FPU 25MHZ	U201	900022-01	.22 UF, MLC, RADIAL	C400-415
901521-16	74LS138	U602			C709,712,718
390404-02	PAL BUFFER CNTRL	U500	900022-05	.33 UF, MLC, RADIAL	C104,308,432,508,608,713
390410-02	PAL BYTE SELECT	U603	390101-06	10 UF, 16V, ELEC, RADIAL	C210-213
390413-02	PAL CLOCK GEN	U708	390101-01	47 UF, 16V, ELEC, RADIAL	C205,710
390407-02	PAL 68000 MACH STATE	U505			C200-203
390406-02	PAL COUNTER/RESET	U504	900462-21	22 PF, MLC, AXIAL COG	C204,206,208,711,717
390408-02	PAL 6800 MACH STATE	U506	900462-49	330 PF, MLC, AXIAL, COG	C100-104,209,300-307,500-507,600-606,700-708
390409-02	PAL REFRESH MACH STATE	U601	390082-02	.01 UF, MLC, AXIAL, Z5U	C400-415
390400-02	PAL AUTOCONFIG	U301	390082-01	.10 UF, MLC, AXIAL, Z5U	C712,714,718
390401-02	PAL CHIP SELECT	U304	390082-05	.22 UF, MLC, AXIAL, Z5U	C105,308,432,508,608,713
390405-03	PAL 68000 INTERFACE	U501			
390402-02	PAL MEMORY SELECT	U305	390082-04	.33 UF, MLC, AXIAL, Z5U	
390403-02	PAL COPROCESSOR CNTRL	U306	900402-09	10 UF, 16V, TANTALUM, RADIAL	
390411-02	PAL RAS/BURST	U600	900402-19	47 UF, 16V, TANTALUM, RADIAL	
390411-03	PAL RAS/BURST	U600			
390282-04	ROM UNIX BOOT LOW	U102	CONNECTORS		
390283-04	ROM UNIX BOOT HIGH	U103	390480-01	EUROCARD RECPT W/O EARS 64 POS	CN300,301
OSCILLATORS			390055-01	EUROCARD RECPT 64 POS	SUB
325566-10	16.000 MHZ, USE ON -01, -02 ASSY	U202	903326-02	HEADER 2 PIN, SIL, .100	J301-304
325566-22	25 MHZ, USE ON -03, -04, -05, -06 ASSY	U202	903326-03	HEADER 3 PIN, SIL, .100	J200
324667-03	DELAY LINE, 20 NS TAPS	U604,605	390043-01	SHUNT, FEMALE, 2 POS	J200,202,301
IC SOCKETS					SEE JUMPER SETTINGS
904150-08	20P 0.300	U500,504-506,601,603,708	903326-02	HEADER 2 PIN, SIL, .100	J202
390060-01	24P 0.600	U301,304-306,501,600	903326-03	HEADER 3 PIN, SIL, .100	JP202
904150-05	28P 0.600	U102,103	390043-01	SHUNT, FEMALE 2 POS	JP202,301
390296-01	68P PGA	U201	MISCELLANEOUS		
390296-05	128P PGA	U200	906800-05	SCREW, PAN HEAD, M3X6 QTY=2	
RESISTOR NETWORKS			312724-01	BRACKET, MOUNTING	
326149-01	22 OHM, 4 X 8	RP401-404	312294-01	SHIELD, RF COVER	
390227-03	22 OHM, 5 X 10	RP400,700	312295-01	SHIELD, RF FENCE	
902410-10	1K, 9 X 10	RP201			
902442-29	3.3K, 7 X 8	RP300			
902410-06	3.3K, 9 X 10	RP200			
902412-14	1K, 8 X 9	RP100-107			
326146-04	47 OHM, 4 X 8	RP401-404			
390227-06	47 OHM, 5 X 10	RP202,400,700			

A2630 BOARD LAYOUT #312288 (-01 & -03)

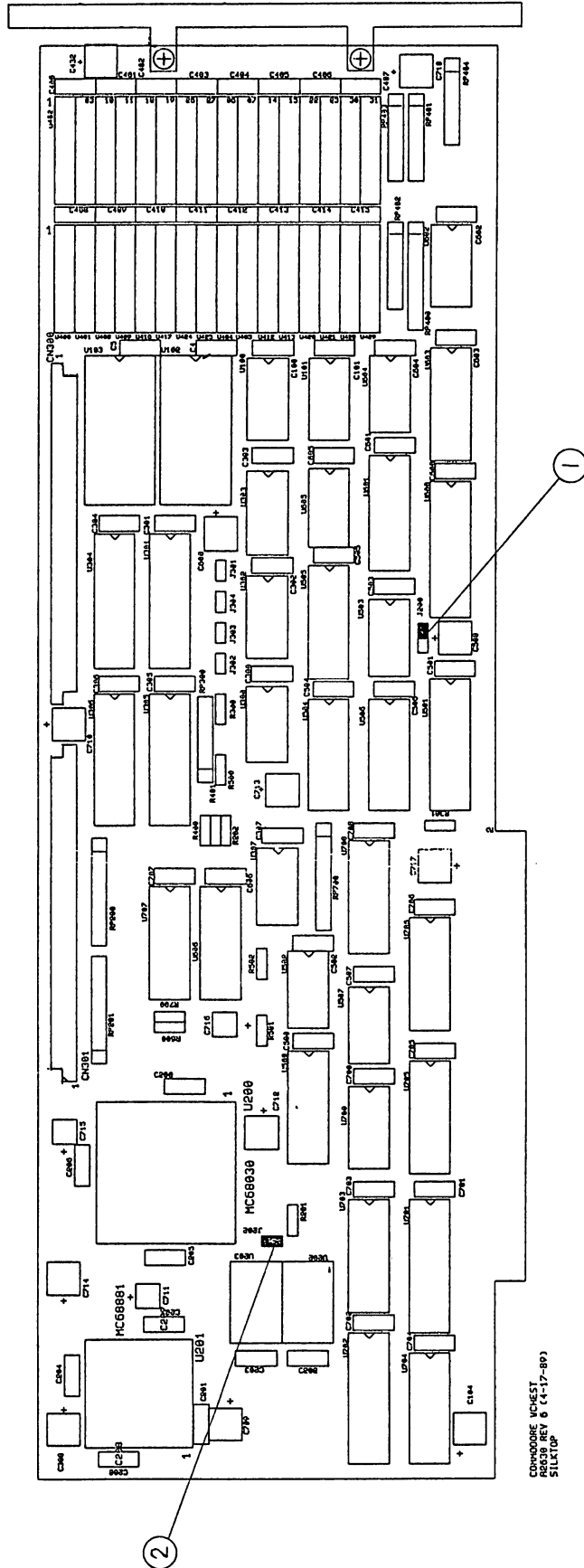


JUMPER SETTING FOR PCB ASSY., A2630 (2M RAM)

- 1) J200 SHORTED BETWEEN PINS 2 AND 3 (USE-AS)
- 2) J202 SHORTED (USE SAME CLOCK FOR U200 AND U201)
- 3) J301 SHORTED (2 MEG OF RAM)

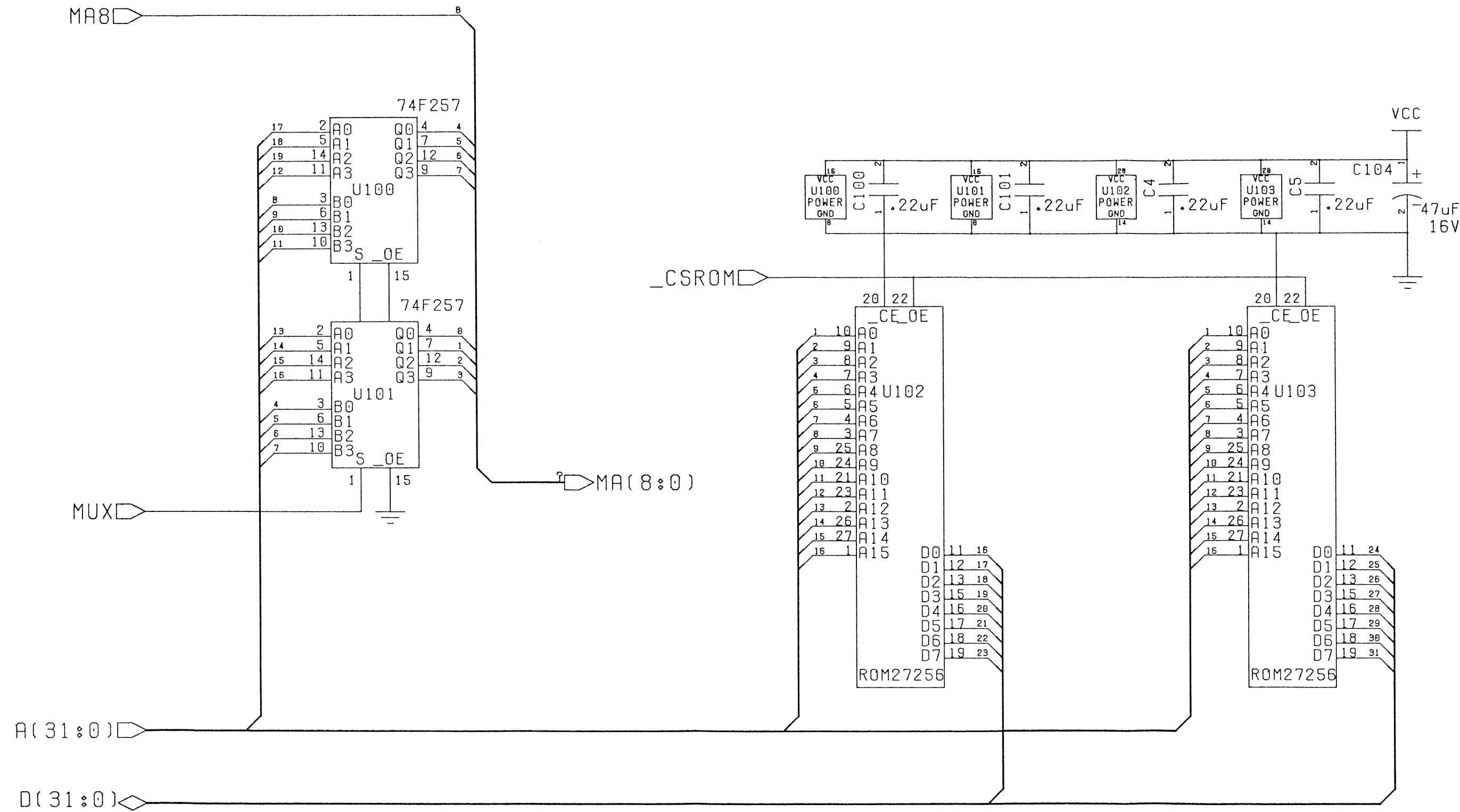
COMPONENTS MUST BE
SILICATED

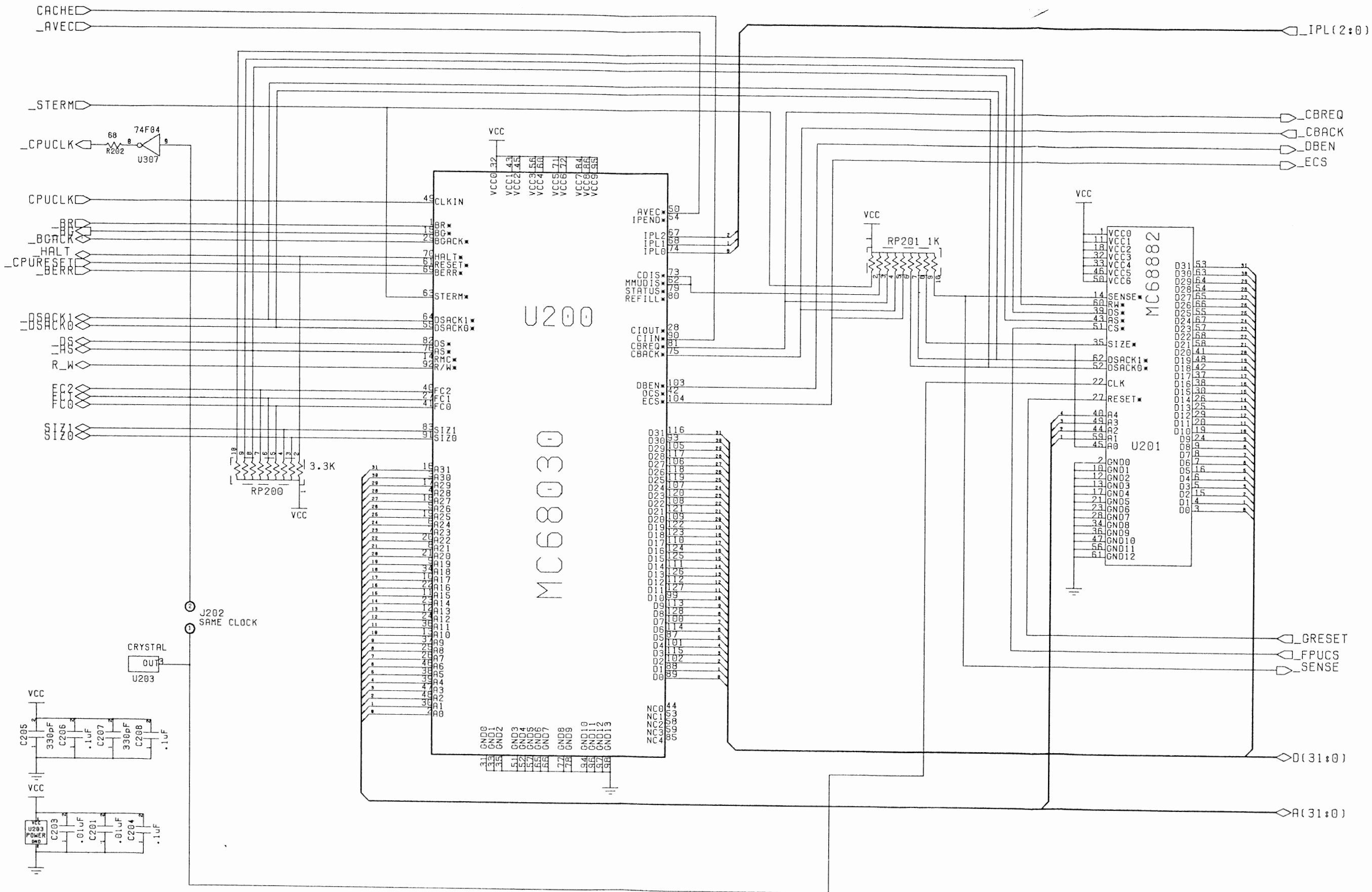
A2630 BOARD LAYOUT #312288 (-02 & -04)

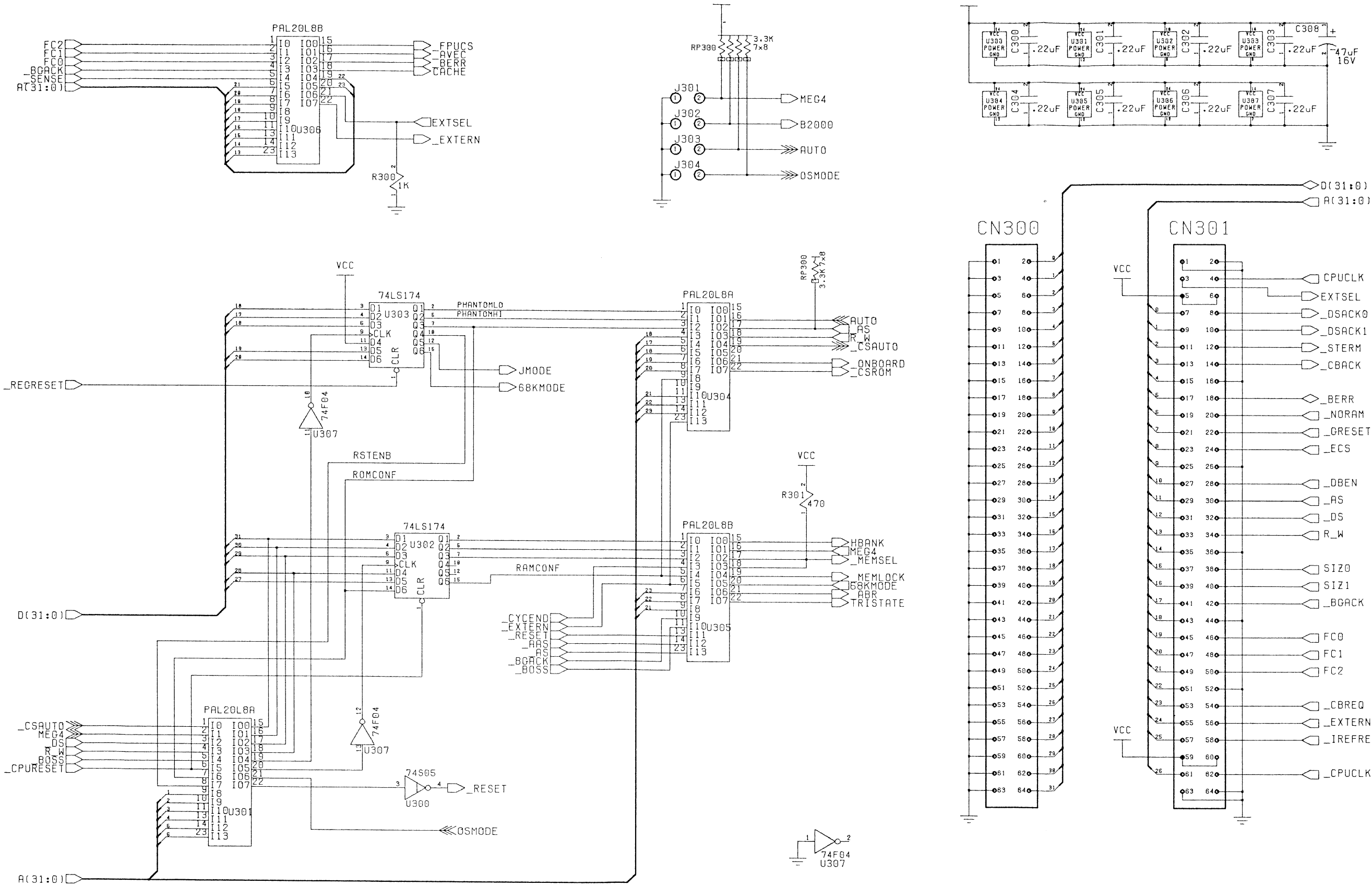


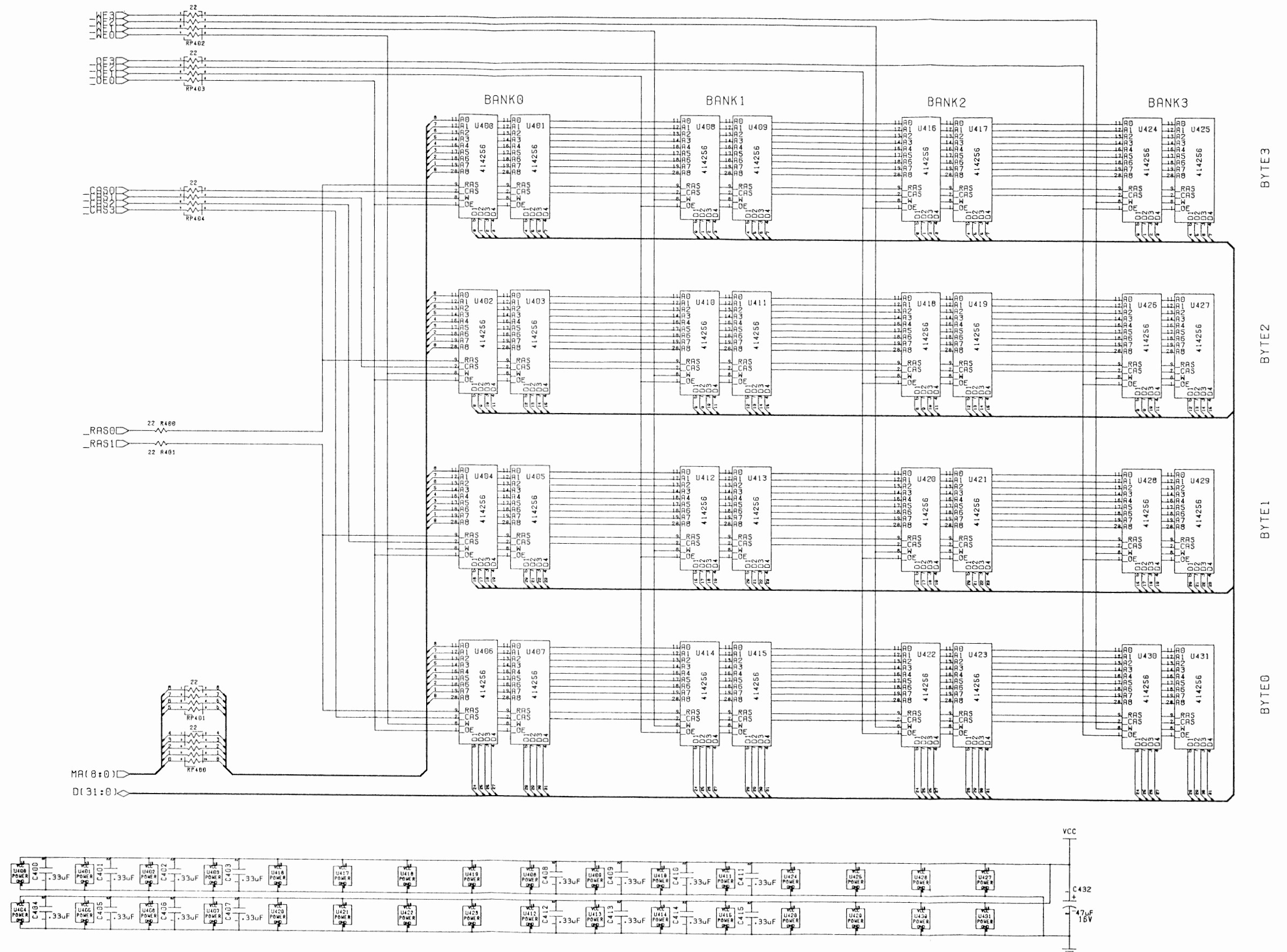
- JUMPER SETTING FOR PCB ASSY., A2630 (4M RAM)**
- 1) J200 SHORTED BETWEEN PINS 2 AND 3 (USE-AS)
 - 2) J202 SHORTED (USE SAME CLOCK FOR U200 AND U201)

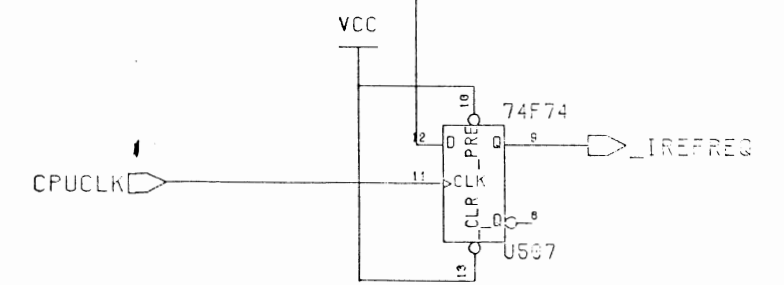
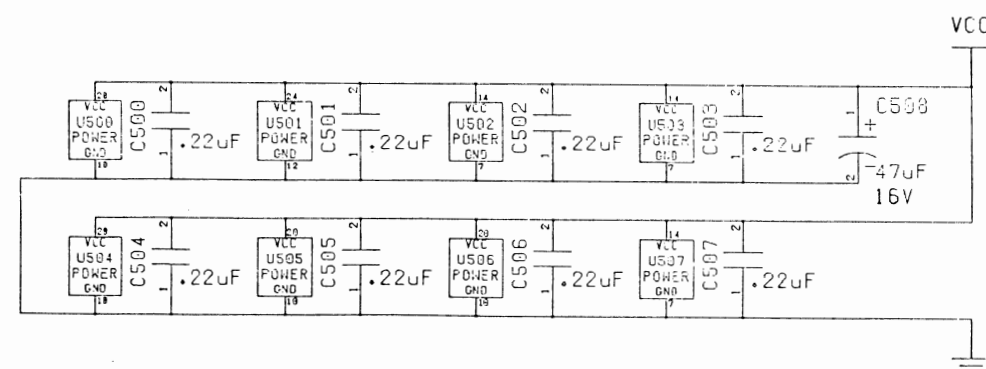
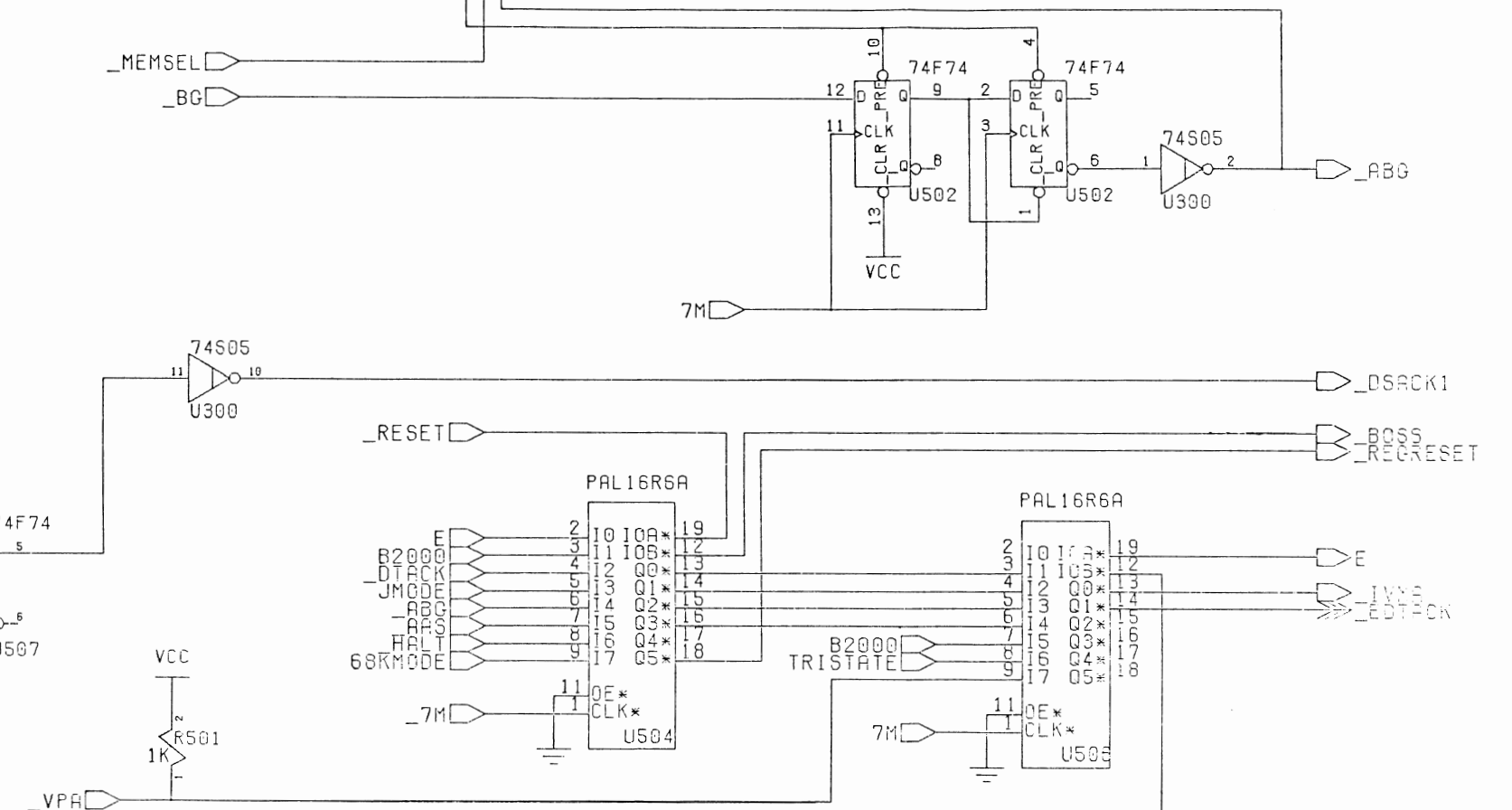
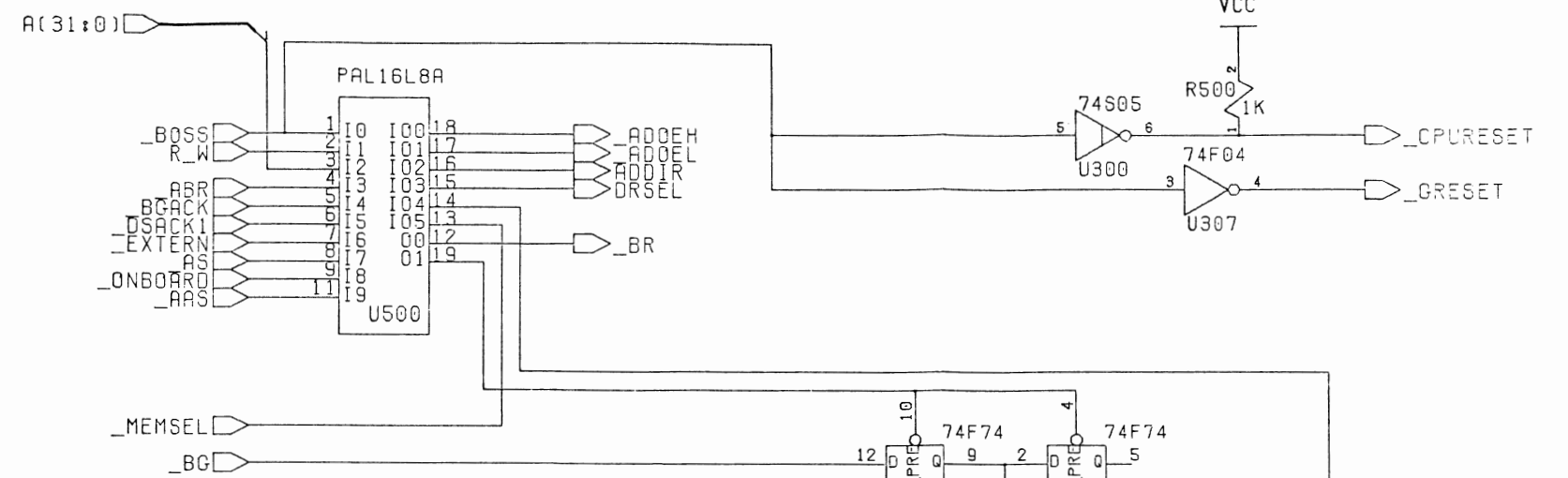
CONVOCORE UICEST
R8038 REV 6 (4-17-89)
SILKTOP

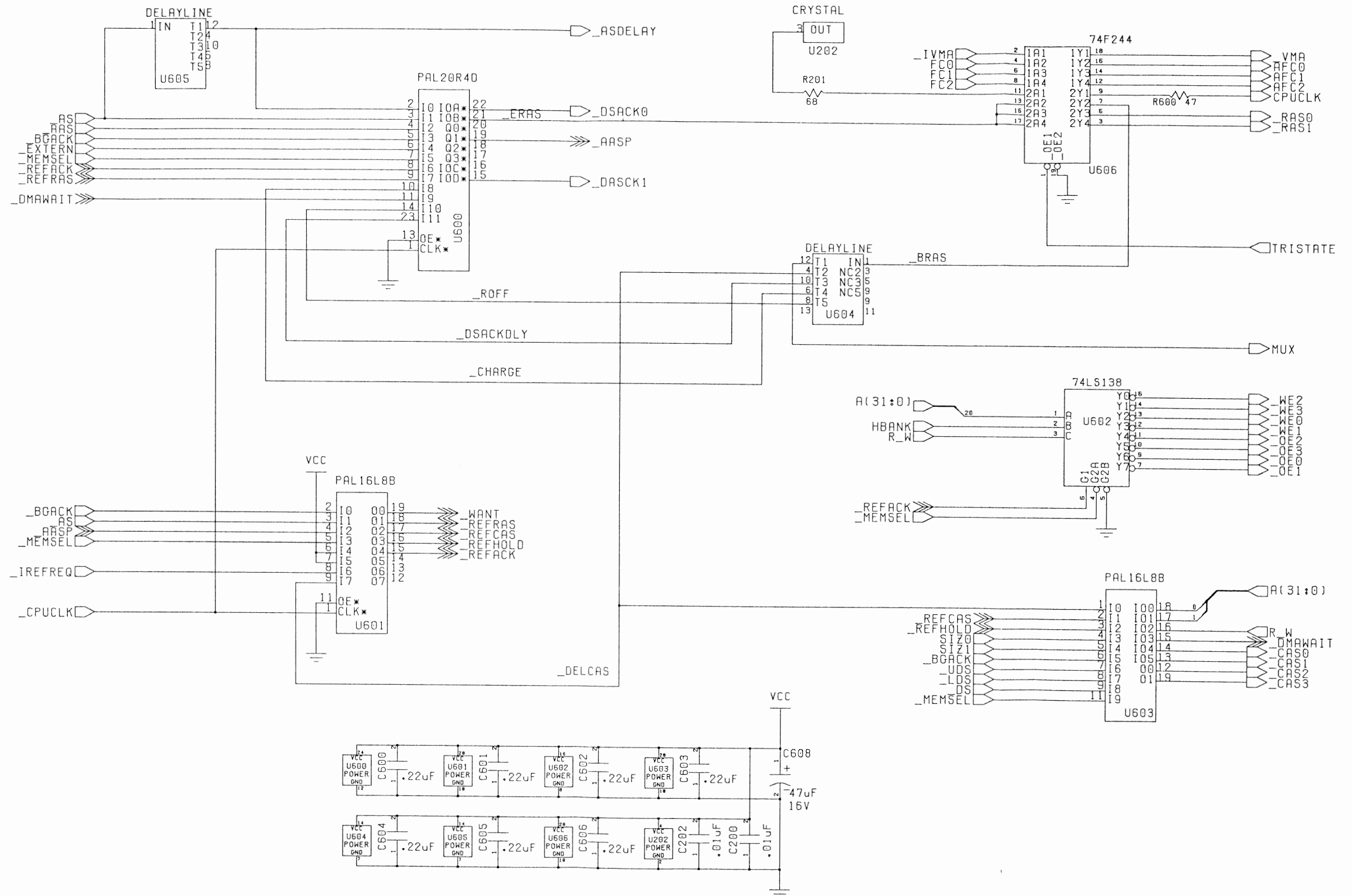
















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