

# System Schematics

*Service Addendum*

## *A1200*



**Commodore**

 **Commodore**  
**AMIGA**

Commodore Business Machines, Inc.  
Technology Group  
1200 Wilson Drive, West Chester, Pennsylvania 19380, USA.

# JUMPERS AND STUFF

REF	TYPE	DESCRIPTION	PAGE
R246	SMT	NISC COLOR BURST	4
R202	SMT	PAL COLOR BURST	4
R625	SMT	KEYBOARD MPU CLOCK	9
R624	SMT	KEYBOARD/SYSTEM RESET	9

# CONNECTORS

REF	TYPE	DESCRIPTION	PAGE
CN1	DB9P	MOUSE/JOYSTICK 1	5
CN2	DB9P	MOUSE/JOYSTICK 2	5
CN3	RCA-J	RIGHT AUDIO OUTPUT	5
CN4	RCA-J	LEFT AUDIO OUTPUT	5
CN5	DB25S	EXTERNAL FLOPPY	6
CN6	DB25P	RS232 SERIAL PORT	7
CN7	DB25S	PARALLEL PRINTER PORT	7
CN8	50 DIN	POWER SUPPLY CONNECTOR	3
CN9	DB23P	VIDEO OUTPUT	6
CN10	RCA-J	COMPOSITE VIDEO	4
CN11	DIL-32	INTERNAL FLOPPY SIGNALS	8
CN12	SIL-4	INTERNAL FLOPPY POWER	8
CN13	HCM-30	INTERNAL FLOPPY MEMBRANE	9
CN14	SIL-4	INTERNAL FLOPPY POWER	8
CN15	HCM-30	KEYBOARD MEMBRANE	9
CN16	SIL-4	KEYBOARD STATUS LED'S	9
CN15	PCMCIA	PC "MEMORY CARD"	11
P9	EDGE	RAM-MEMORY BUS EXPANSION	12

# REVISION HISTORY

REV	DESCRIPTION	DATE	APPV	MANAGER
0	ENGINEERING PROTOTYPE	03/13/92	GRR	
1	ADVANCE ENGINEERING RELEASE	06/29/92	GRR	
A	PILOT PRODUCTION RELEASE	09/09/92	GRR	
B	REVISED PER ECO 120495	11-13-92		

# SIGNAL GLOSSARY

SIGNAL	DESCRIPTION (AREA)	PAGES
28MHZ	28.63636 MHZ MASTER CLOCK	
7MHZ	7.15909 MHZ PROCESSOR CLOCK	
A(23:1)	PROCESSOR ADDRESS BUS (68000)	
ACK	DATA ACKNOWLEDGE (PARALLEL PORT)	
AS	ADDRESS STROBE (68000)	
AUDIN	AUDIO INPUT (RS232 PORT)	
AUDOUT	AUDIO OUTPUT (RS232 JACK)	
BEEP	BUS ERROR (68000)	
BG	BUS GRANT (68000)	
BOACK	BUS GRANT ACKNOWLEDGE (68000)	
BLISS	BLITTER SLOWDOWN (CHIPS)	
BLIT	CHIP MEMORY ACCESS (CHIPS)	
BR	BUS REQUEST (68000)	
BUSY	DEVICE BUSY (PARALLEL PORT)	
CAS/LU	COLUMN ADDRESS STROBE (DRAM)	
CCK/CCKO	COLOR CLOCK / QUADRATURE (CHIPS)	
CDAC	7.15909 MHZ QUADRATURE CLOCK (CHIPS)	
CHNG	MEDIA CHANGE (FLOPPY)	
CLKRD/WR	READ-TIME CLOCK READ / WRITE (RTC)	
COMP	MONOCHROME COMPOSITE VIDEO (VIDEO)	
CSYNC	COMPOSITE SYNC (VIDEO)	
CTS	CLEAR TO SEND (RS232 PORT)	
D[15:0]	PROCESSOR DATA BUS (68000)	
DIR	STEP DIRECTION (FLOPPY)	
DRD0	DISK READ DATA (FLOPPY)	
DRWD	DISK WRITE DATA (FLOPPY)	
DRWE	DISK WRITE ENABLE (FLOPPY)	
DRBP	DATA REQUEST LINE (CHIPS)	
DRB[8:0]	DRAM ADDRESS BUS (DRAM)	
DRD[15:0]	DRAM DATA BUS (DRAM)	
DSR	DATA SET READY (RS232 PORT)	
DTACK	DATA TRANSFER ACKNOWLEDGE (68000)	
QTR	DATA TERMINAL READY (RS232 PORT)	
F	PERIPHERAL ENABLE CLOCK (68000)	
EXTTCK	EXPANSION PRESENT / RTC TICK	
FT[2:0]	FUNCTION CODE (68000)	
FIRE0/1	FIRE BUTTON 0/1 (JOYSTICKS)	
HLT	PROCESSOR HALT (68000)	
HSYNC	HORIZONTAL SYNC (VIDEO)	
INDEX	INDEX PULSE (FLOPPY)	
INT[2,3,6]	INTERERRUPT REQUEST (CHIPS)	
LDRES1	I/O RESET	
IP[12:0]	INTERRYPT PRIORITY LEVEL (68000)	
KBLOCK	KEYBOARD CLOCK (KEYBOARD)	
KBDATA	KEYBOARD DATA (KEYBOARD)	
KPRESET	KEYBOARD RESET (KEYBOARD)	
LDS/LDS0	UPPER / LOWER DATA STROBES (68000)	
LED	POWER ON LED / AUDIO FILTER DISABLE	
LEFT/RIGHT	LEFT RIGHT AUDIO (AUDIO)	

SIGNAL	DESCRIPTION (AREA)	PAGES
LPEN	LIGHT PEN TRIGGER (JOYSTICKS)	
MTR	MOTOR ON (FLOPPY)	
MTR0	MOTOR ON DRIVE 0 (FLOPPY)	
MOV/JOH	MOUSE 0 QUADRATURE V/H (JOYSTICKS)	
MV/VLH	MOUSE 1 QUADRATURE V/H (JOYSTICKS)	
OWL	OVERLAY ROM OVER RAM	
OVR	OVERRIDE SYSTEM DECODING	
PIXELSW	GENLOCK PIXEL SWITCH (VIDEO)	
POT0X/0Y	POT LINES 0 X/Y (JOYSTICKS)	
POT1X/1Y	POT LINES 1 X/Y (JOYSTICKS)	
PNUT	PAPER OUT (PARALLEL PORT)	
PPD1[7:0]	PARALLEL PORT DATA (PARALLEL PORT)	
RAMEN	RAM ENABLE (CHIPS)	
REGEN	CHIP REGISTER ENABLE (CHIPS)	
RASO/1	ROW ADDRESS STROBE (DRAM)	
RDY	DRIVE READY (FLOPPY)	
RESET	GENERAL RESET	
RSB[8:]	REGISTER ADDRESS BUS (CHIPS)	
R/G/B	RED / GREEN / BLUE (VIDEO)	
RI	RING INDICATE (RS232 PORT)	
ROMEN	ROM ENABLE (ROM)	
RTS	REQUEST TO SEND (RS232 PORT)	
RST	PROCESSOR RESET (68000)	
RXD	RECEIVE DATA (RS232 PORT)	
RA	PROCESSOR READ/WRITE (68000)	
SEL	SELECT (PARALLEL PORT)	
SEL[3:0]	DRIVE SELECT (FLOPPY)	
SIDE	SIDE SELECT (FLOPPY)	
STEP	STEP (N/OUT COMMAND (FLOPPY))	
TRK0	TRACK ZERO SENSE (FLOPPY)	
TXD	TRANSMIT DATA (RS232 PORT)	
VMA	VALID MEMORY ADDRESS (68000)	
VPA	VALID PERIPHERAL ADDRESS (68000)	
VSYN	VERTICAL SYNC (VIDEO)	
WE	WRITE ENABLE (DRAM)	
WPROJ	WRITE PROTECT SENSE (FLOPPY)	
XCLK	EXTERNAL GENLOCK CLOCK (VIDEO)	
XCLKEN	EXTERNAL CLOCK ENABLE (VIDEO)	
XRDY	EXTERNAL DATA READY	
	** CREDIT CARD AND [DE STUFF? **	

# KEY COMPONENTS

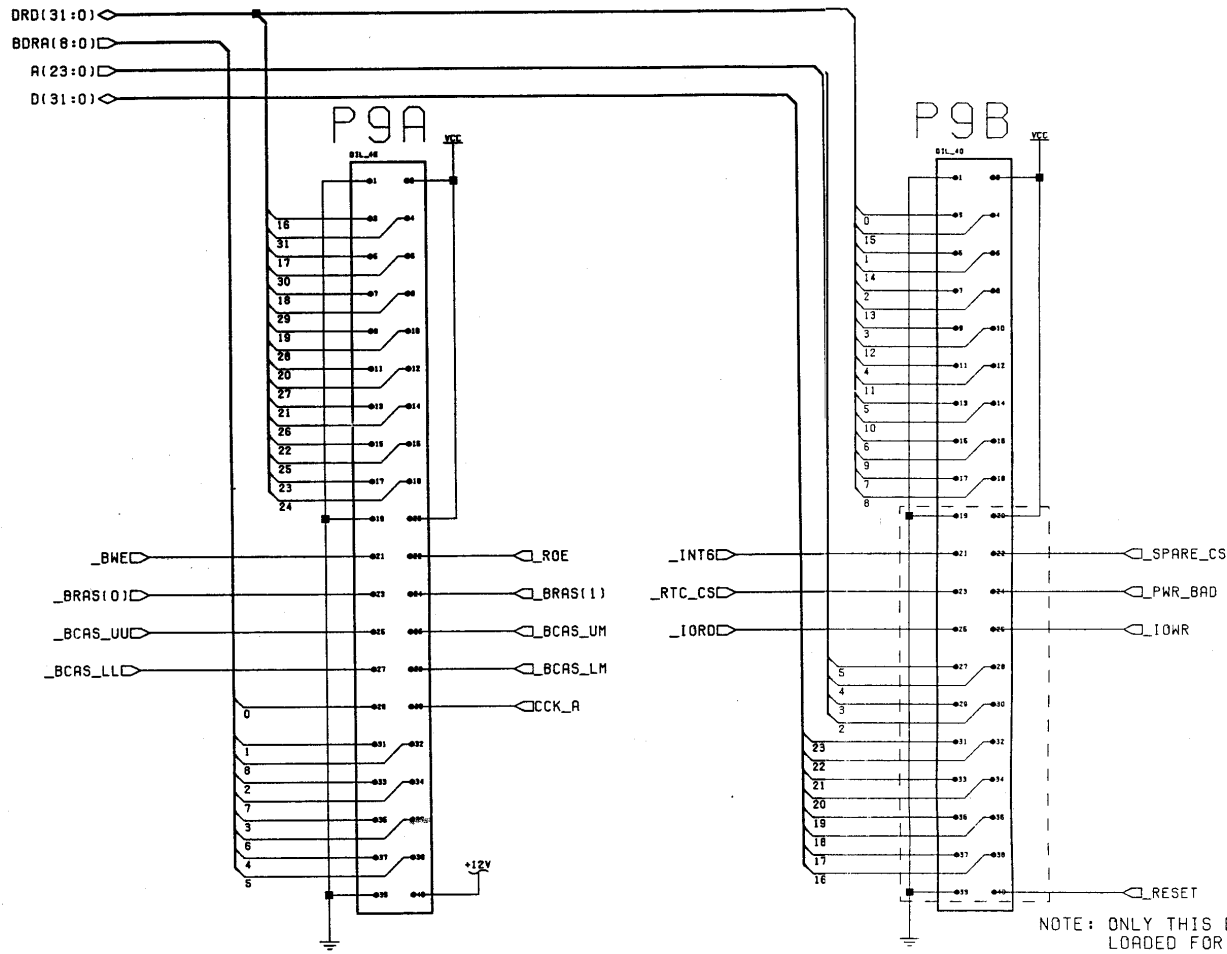
REF	CHIP	DESCRIPTION	PAGE
U1	68000	68000 PROCESSOR 16MHZ	2
U2	8374	ALICE (AA AGNUS)	2
U3	8364	PAULA	2
U4	4203	LISA (AA DENISE)	4
U5	F023A	AA GAYLE (CBM ASIC)	2, B, 11
U6	ASST	ROM 512KX16, 150 NS	10
U7, 8	8520	AMIGA VIA, 1 MHZ	7
U1-11	28F10	FLASH MEMORY 128KX8	10
U12	CXA11450NY	VIDEO ENCODER	4
U13	68HC05	AMIGA KEYBOARD MPU	9
U14	PS1518	LOW VOLTAGE SENSE IC	9
U15	LF347	BIMOS OP-AMP	5
	TLO84	BICMOS OP-AMP	4LT
U15-17	ASST	DRAM 256KX16, 80NS	3
U18-19	ASST	DRAM 256KX16, OPTIONAL	3
U20	3912??	BUGGIE (ASIC)	2
U21	1488	ETA LINE DRIVER	5
U22	1489	ETA LINE RECEIVER	7
U30	BT101	TRIPLE 8-BIT VIDEO DAC4	
X1	Q5C	TTL 28.63636 MHZ NISC	2
	Q5C	TTL 28.37512 MHZ PAL ALT	
Y1-51	XTAL	4.43619MHZ PAL BURST	3
Y1-21	XTAL	3MHZ CERAMIC RESONATORS	3
X2	ASST	PAL VIDEO MODULATOR	4
	ASST	NISC VIDEO MODULATOR	4

A1200 REV 1->1D PCB

### DIRECTORIES AND REVISION HISTORY

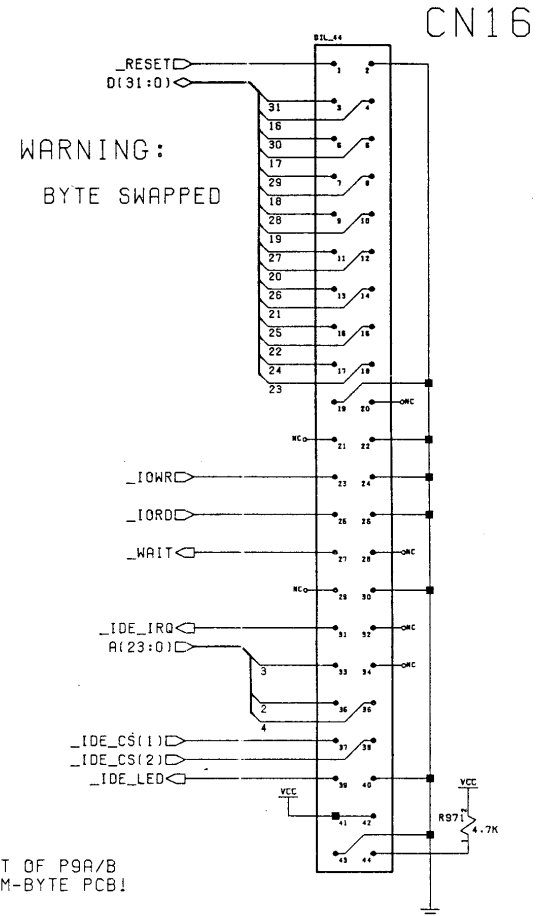
© 1992 COMMODORE BUSINESS MACHINES REPRODUCTION OF THIS DOCUMENT IS THE PROPERTY OF COMMODORE BUSINESS MACHINES, INC. ANY USE, REPRODUCTION OR CIRCULATION OF THIS INFORMATION WITHOUT THE PRIOR WRITTEN PERMISSION OF COMMODORE IS STRICTLY PROHIBITED.		REVISION HISTORY 11-13-92 REVISIONS 11-13-92 REVISIONS 11-13-92 REVISIONS 11-13-92 REVISIONS	COMMODORE SCHEMATIC AL200 RID CHANNEL 1 364717.6 SHEET 1 OF 3
C.A.D. GENERATED		NO MANUAL CHANGES MAY BE MADE TO THIS DOCUMENT	

# MEMORY EXPANSION



NOTE: ONLY THIS BIT OF P9A/B  
LOADED FOR 2M-BYTE PCB!

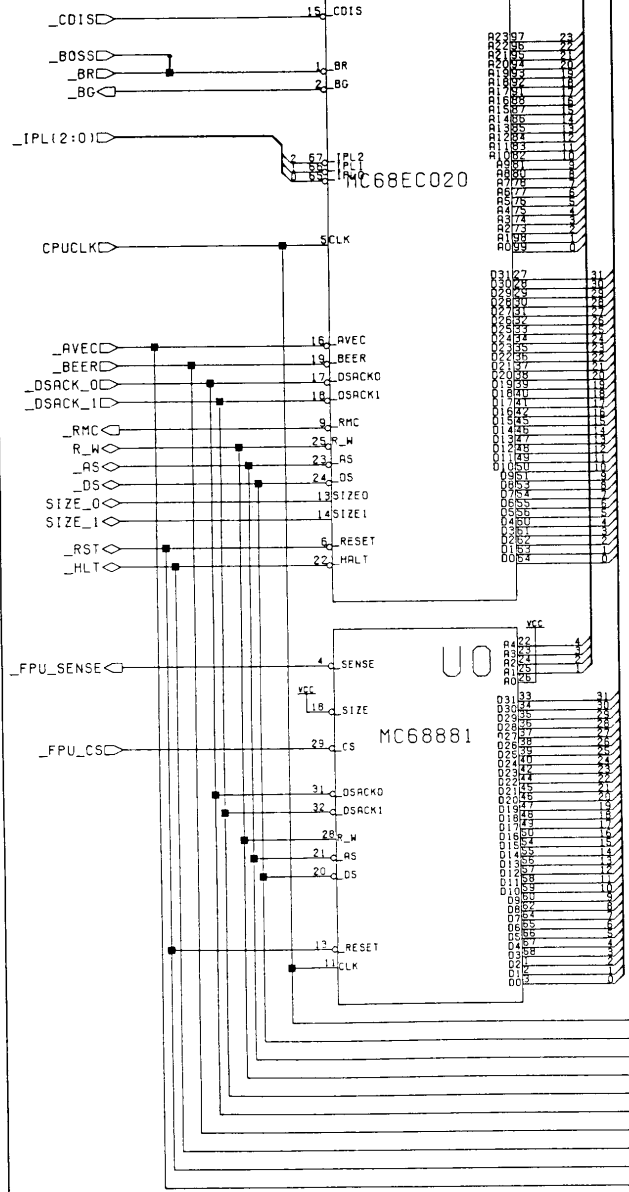
# IDE DRIVE



WARNING:  
BYTE SWAPPED

# CHANNEL Z 10/10/92

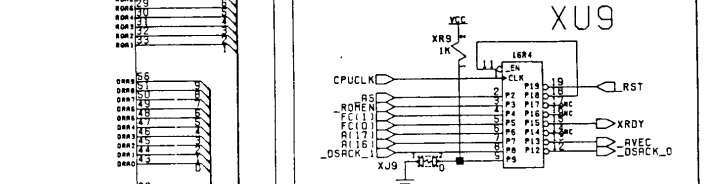
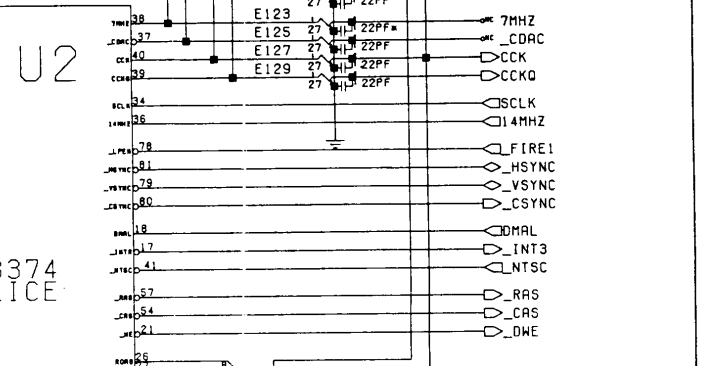
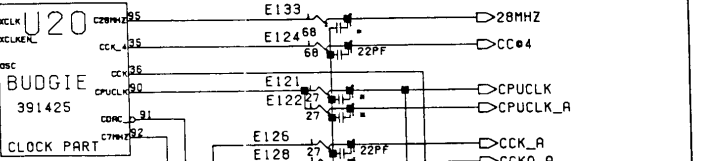
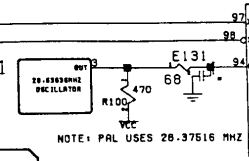
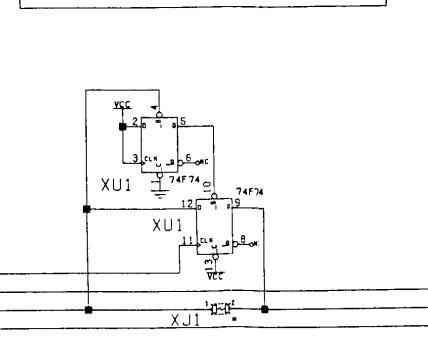
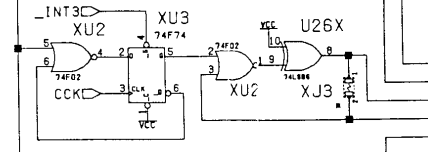
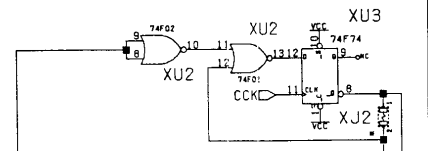
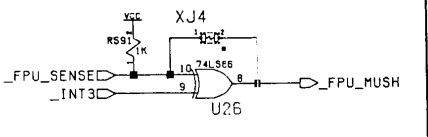
D(31:0)  
A(23:0)  
FC(2:0)



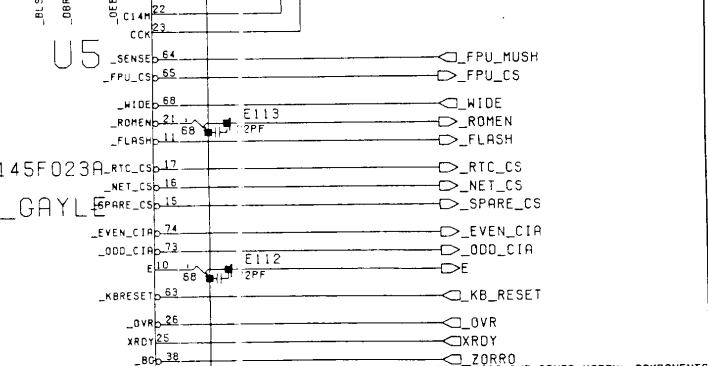
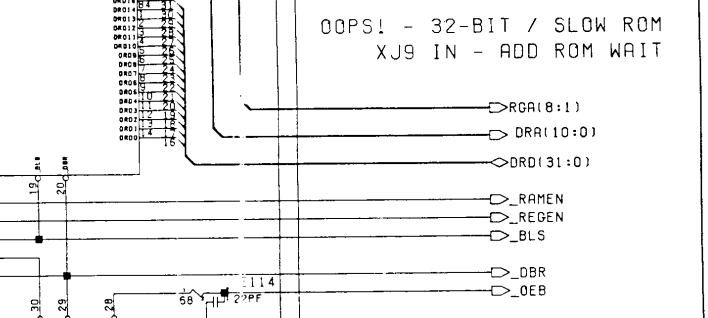
## OOPS!

ALL THIS STUFF SERVES TO CORRECT ONE MINOR GAYLE BUG AND A NUMBER OF ALICE DEFICIENCIES NOT YET CORRECTED. ASSUMING THE CHANGES ARE IMPLEMENTED IN THE PRODUCTION GAULE CHIP, THEN ALL THIS SILLYNESS IS BEST ERASED...

REFERENCE	OLD GAYLE	NEW GAYLE
XU1	74F74	NONE
XU2	74F02	NONE
XU3	74F74	NONE
U26X	74F86	NONE
XJ4	0 OHM	OUT
XJ1	OUT	0 OHM
XJ2	OUT	0 OHM
XJ3	OUT	0 OHM
U26	NOTE	74LS86



OOPS! - 32-BIT / SLOW ROM  
XJ9 IN - ADD ROM WAIT



A1200 REV 1->10 PCB

NOTE: VARIOUS COMPONENTS ARE FOR EMI CONTROL AND MAY BE LOADED WITH FUNNY THINGS...

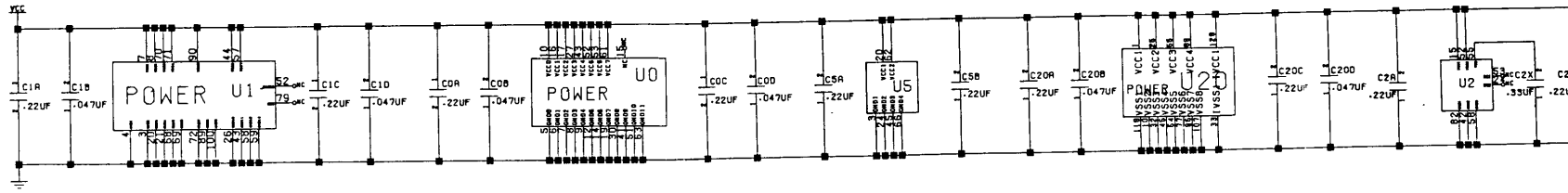
PROCESSOR AND OTHER USEFUL COMPONENTS

COMMODORE  
364717

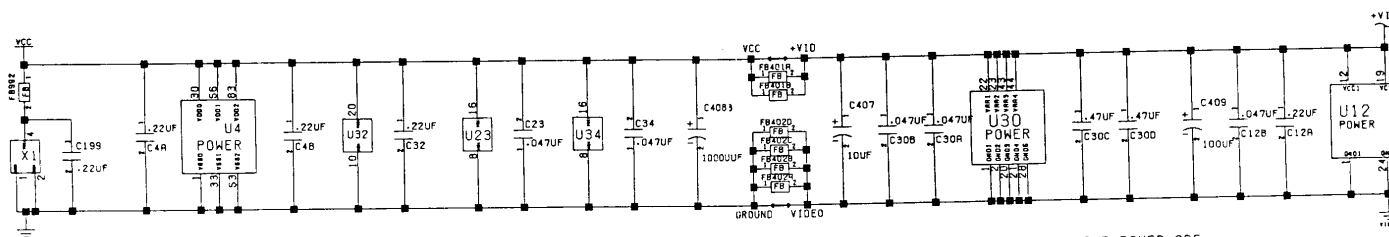
© 1991 COMMODORE BUSINESS MACHINES  
ALL RIGHTS RESERVED.  
REPRODUCTION OR TRANSMISSION OF THIS DOCUMENT IS STRICTLY PROHIBITED.  
C.A.D. GENERATED  
NO FURTHER CHANGES MAY BE MADE TO THIS DOCUMENT

DATE: 7/20/2025 15:00:00

# GENERAL DECOUPLING

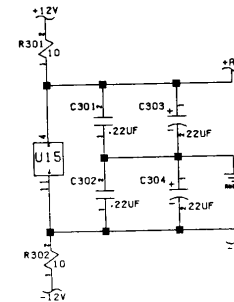


# VIDEO DECOUPLING

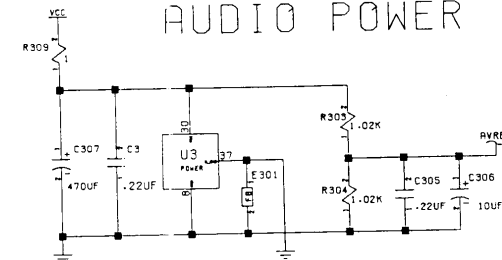


NOTE: AS OF REV 1C, LOGIC AND VIDEO GROUND AND POWER ARE THE SAME NET, BUT ROUTED DISCRETELY EXCEPT AT DAC1. ALSO ADDED C30C AND C30D FOR OVERKILL DAC DECOUPLING.

# AUDIO DECOUPLING

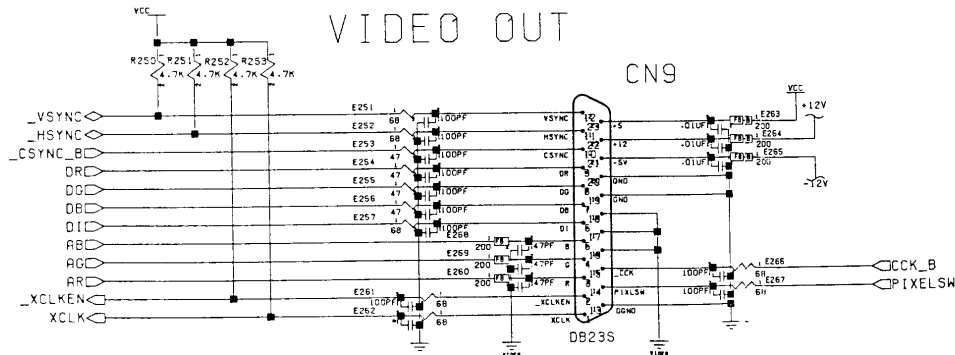


# AUDIO POWER

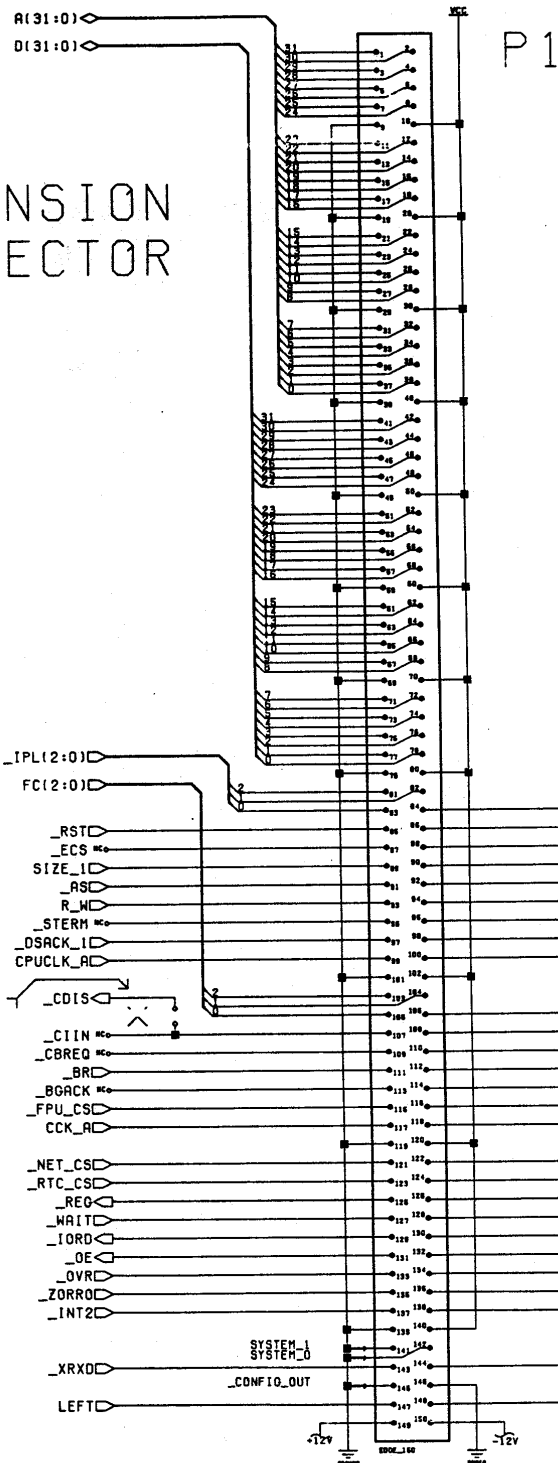


NOTE: GROUND INTERCONNECTION NEAR AUDIO JACKS.

# VIDEO OUT



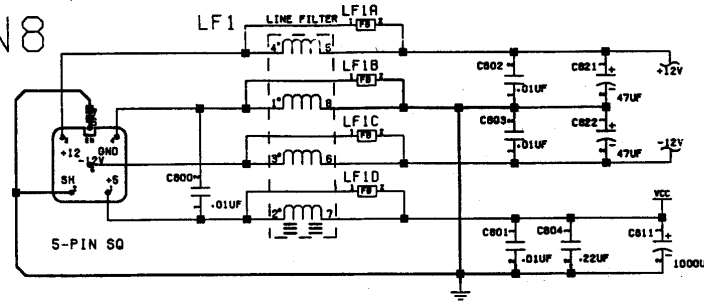
EXPANSION CONNECTOR



DELETED R1B PCB!

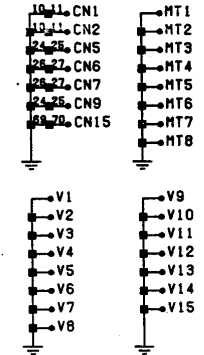
POWER INPUT

CN8

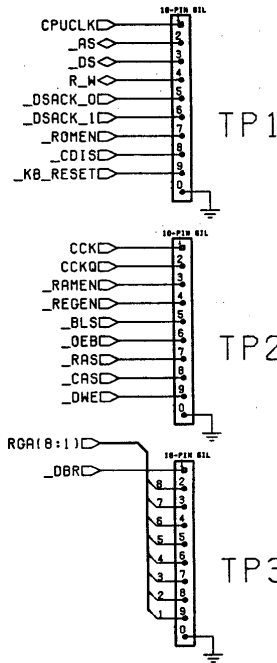


NOTE: HEAVY LINES INDICATE A SINGLE POINT CONNECTION

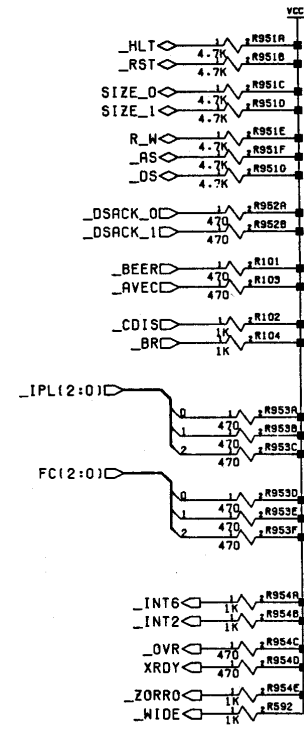
HOLES & C.



TEST ACCESS



TERMINATION



SYSTEM CONFIGURATION BITS

SYSTEM	1	0	0	0	1	1	0	0	1	1	

POWER DISTRIBUTION AND DECOUPLING

© 1991 COMMODORE BUSINESS MACHINES CORPORATION. COMMODORE, THE COMMODORE LOGO, AND THE COMMODORE BUSINESS MACHINES LOGO ARE TRADEMARKS OF COMMODORE BUSINESS MACHINES, INC. ALL OTHER TRADEMARKS OR SERVICE MARKS ARE THE PROPERTY OF THEIR RESPECTIVE OWNERS. COMMODORE IS NOT RESPONSIBLE FOR ANY DAMAGE TO PROPERTY OR PERSONS RESULTING FROM THE USE OF THIS INFORMATION.

C.A.D. GENERATED

REVISIONS

REV	DATE	DESCRIPTION
1	08/14/91	INITIAL RELEASE
2	08/14/91	REVISIONS
3	08/14/91	REVISIONS
4	08/14/91	REVISIONS
5	08/14/91	REVISIONS
6	08/14/91	REVISIONS
7	08/14/91	REVISIONS
8	08/14/91	REVISIONS
9	08/14/91	REVISIONS
10	08/14/91	REVISIONS

COMMODORE

COMMODORE BUSINESS MACHINES

15455 SHILOH ROAD

FREMONT, CA 94538

TEL: (415) 353-0000

FAX: (415) 353-0001

COMMODORE BUSINESS MACHINES

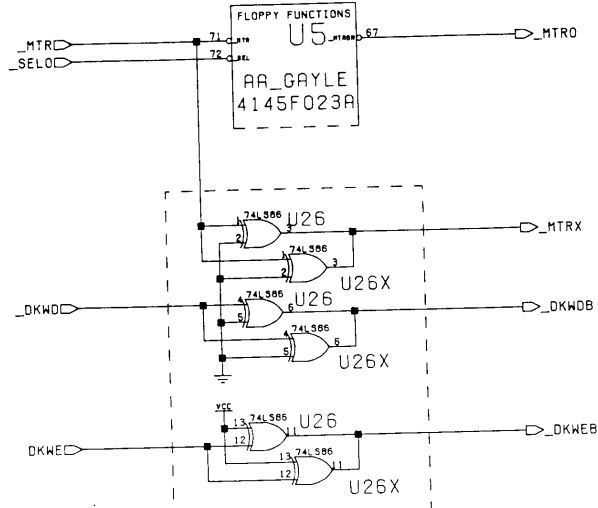
364717

SCALE

SHEET 13 OF 13

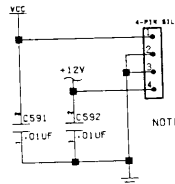
A1200 REV 1->1D PCB

# FLOPPY LOGIC



SEE DOPS ON PAGE 2...  
U26 AND U26X MAY OVERLAP!

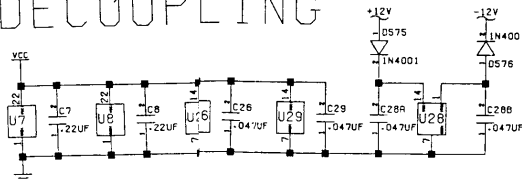
# FLOPPY POWER



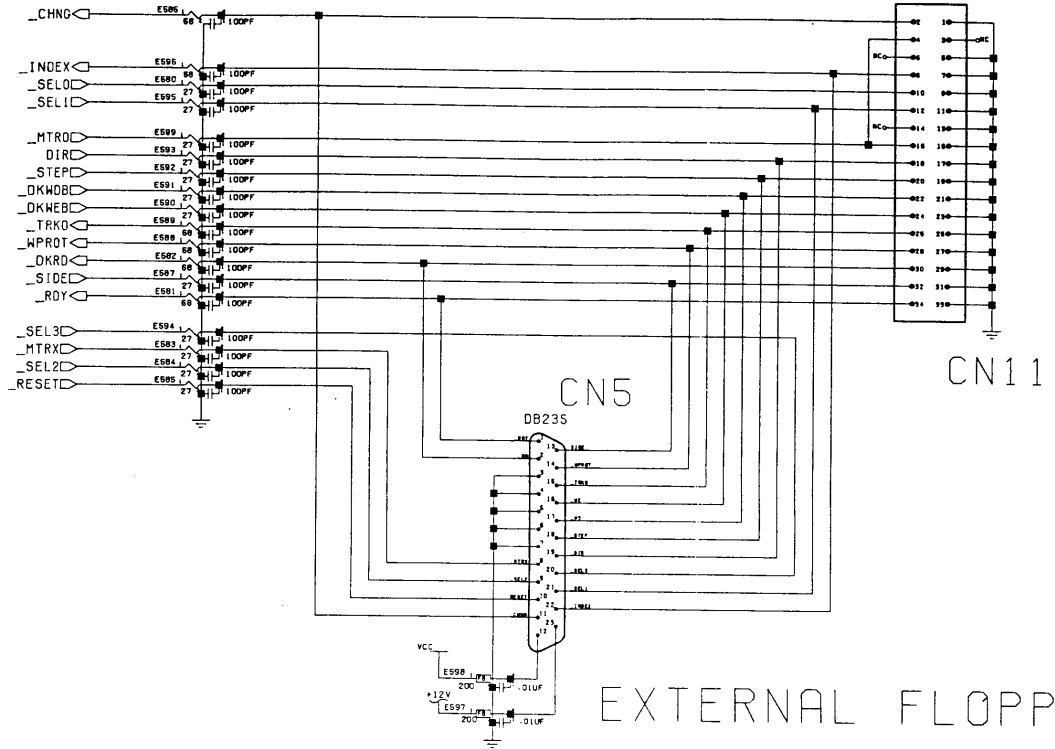
CN12

NOTE: SOME DRIVES ARE +5 ONLY...

# DECOUPLING



# INTERNAL FLOPPY



# EXTERNAL FLOPPY

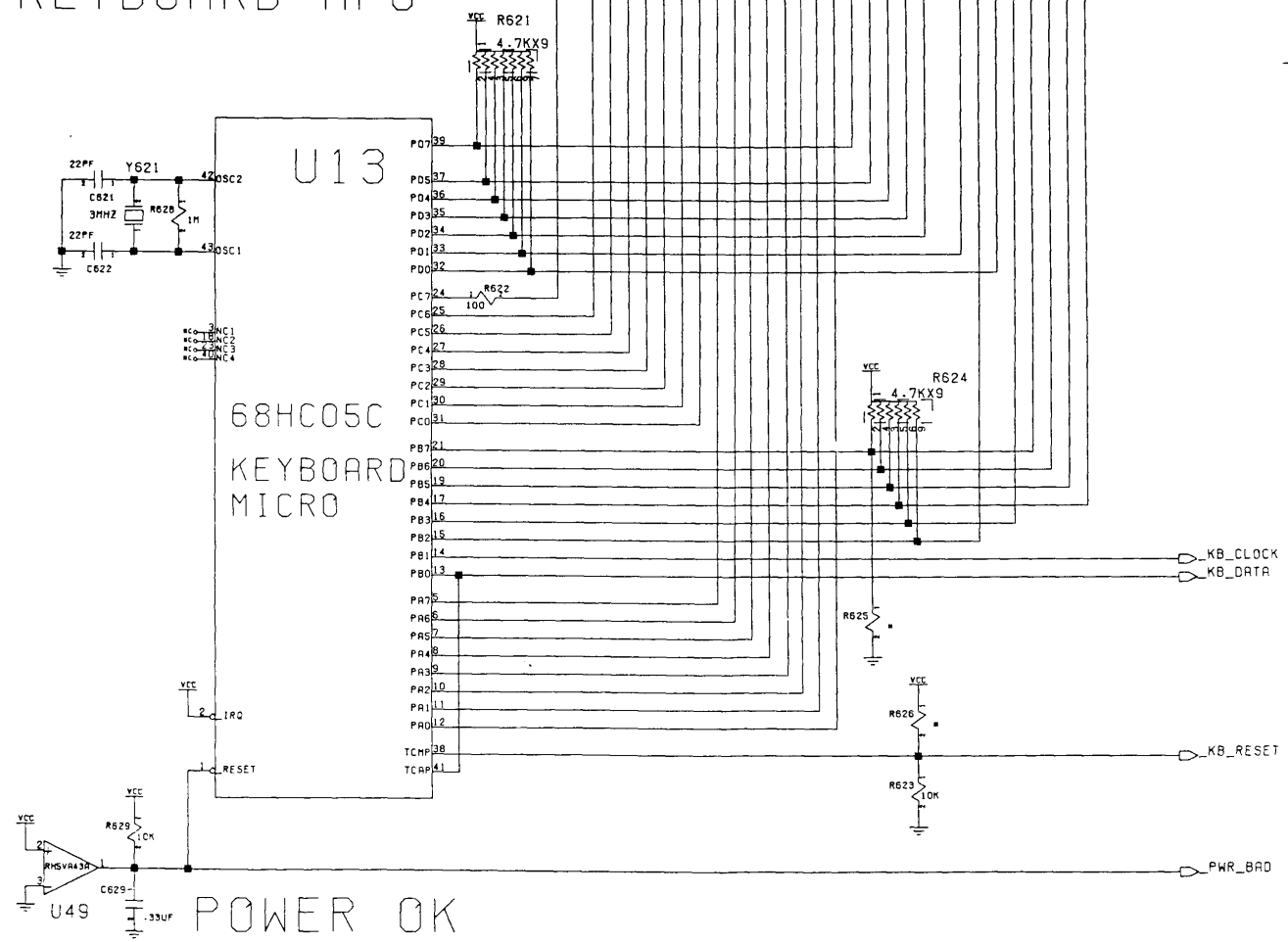
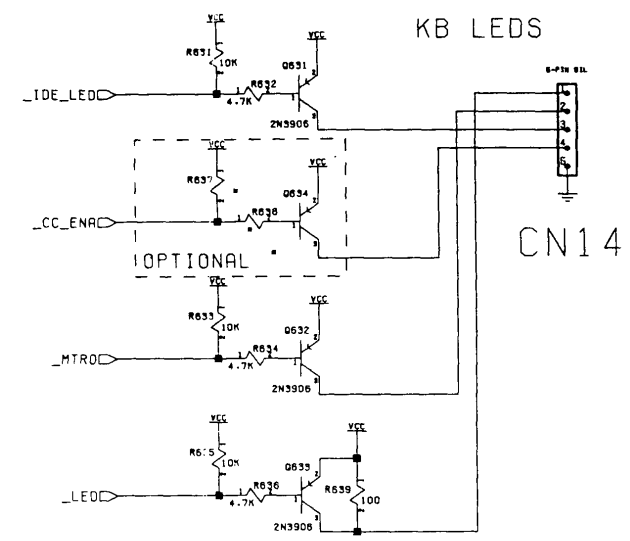
A1200 REV 1->1D PCB

THE REST OF THE FLOPPY STUFF

© 1991 COMMODORE BUSINESS MACHINES IN WHOLE OR PART. ALL RIGHTS RESERVED. COMMODORE BUSINESS MACHINES, INC. MAY USE PERFORMANCE OR SPECIFICATIONS OF THIS INFORMATION WITHOUT THE PRIOR WRITTEN PERMISSION OF COMMODORE. IS STRICTLY FORWARDED.		DESIGNED BY: DAVID DATE: 08/11/91 DRAWN BY: DAVID DATE: 08/11/91 CHECKED BY: DAVID DATE: 08/11/91 SCALE: 1:1	
COMMODORE BUSINESS MACHINES 14550 E. ALYSSA AVENUE DENVER, CO 80231		COMMODORE 21100 MAIN BOARD CHANNEL 2	
C.R.D. GENERATED		E364717 1/8	
NO CHANGES MAY BE MADE TO THIS DOCUMENT		SHEET 8 OF 13	

# KEYBOARD TAIL CN13

# KEYBOARD MPU



A1200 REV 1->1D PCB

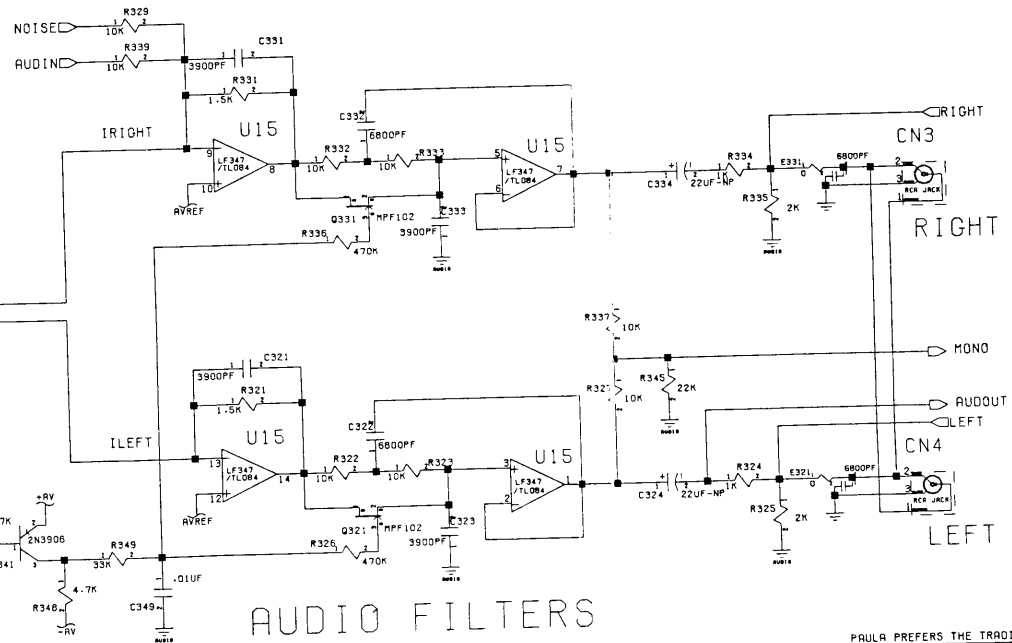
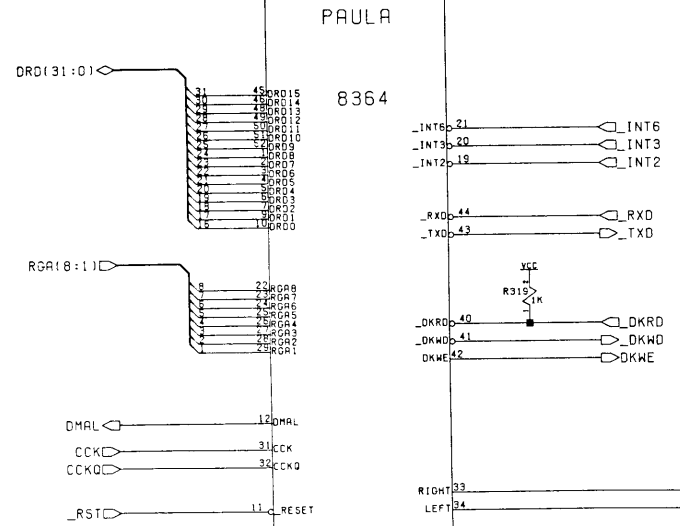
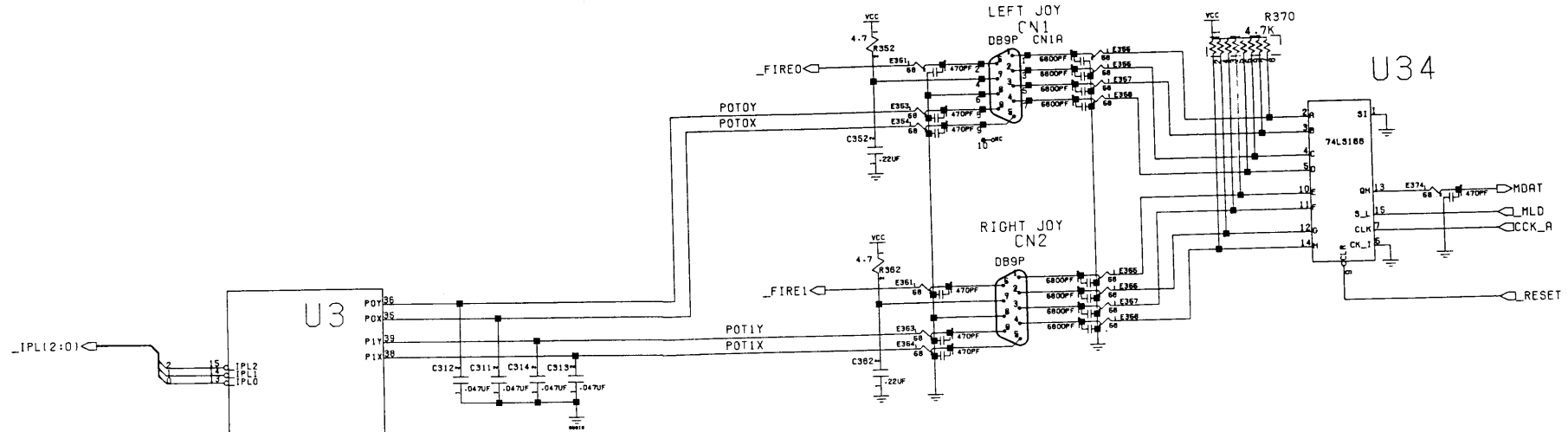
© 1981 COMMODORE BUSINESS MACHINES  
 INFORMATION CONTAINED HEREIN IS THE UNPUBLISHED  
 CONFIDENTIAL AND TRADE SECRET PROPERTY OF  
 COMMODORE BUSINESS MACHINES. IN NO WAY  
 SHOULD THIS DOCUMENT BE REPRODUCED OR  
 TRANSMITTED IN ANY FORM OR BY ANY MEANS  
 WITHOUT THE WRITTEN PERMISSION OF  
 COMMODORE BUSINESS MACHINES.

THE NEW HOME OF THE KEYBOARD VIRUS  
 COMMODORE  
 SCHEMATIC A1200 MID  
 C/A1200 MAIN BOARD  
 CHANNEL 27  
 PART 364717 B  
 SCALE 1/8"=1" SHEET 9 OF 13

C.R.D. GENERATED  
 NO REPAIR, CHANGE MAY BE MADE TO THIS DOCUMENT



# MOUSE/JOYSTICK PORTS



NOTE: LED OFF, FILTERS BYPASSED

# AUDIO FILTERS

A1200 REV 1->1D PCB

PAULA PREFERS THE TRADITIONAL MODES

© 1981 COMMODORE BUSINESS MACHINES  
 ALL RIGHTS RESERVED. COMMODORE, THE COMMODORE LOGO, AND THE TRADE NAME SECRET PROPERTY OF COMMODORE BUSINESS MACHINES, INC. AND U.S. PATENTED. REPRODUCTION OR DISCLOSURE OF THIS INFORMATION WITHOUT THE WRITTEN PERMISSION OF COMMODORE IS STRICTLY PROHIBITED.

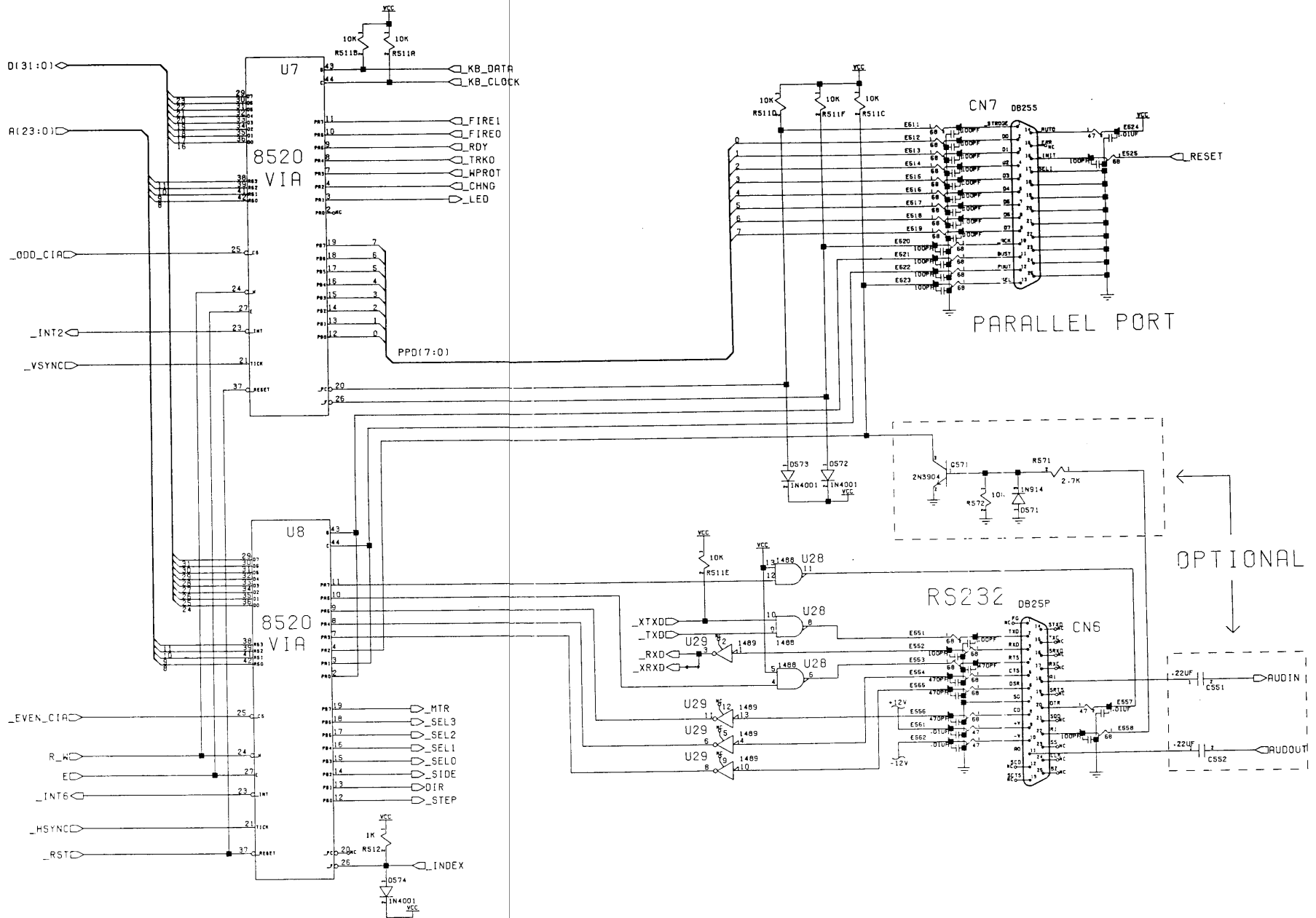
C.H.D. GENERATED

NO OTHER COMPANY HAS MADE THIS DOCUMENT

REVISION HISTORY

REV	DATE	DESCRIPTION
1	11/18/81	INITIAL RELEASE
2	12/15/81	REVISIONS TO CHANNEL 2

COMMODORE  
 A1200 MID  
 CHANNEL 2  
 1364717 B  
 SHEET 5 OF 13

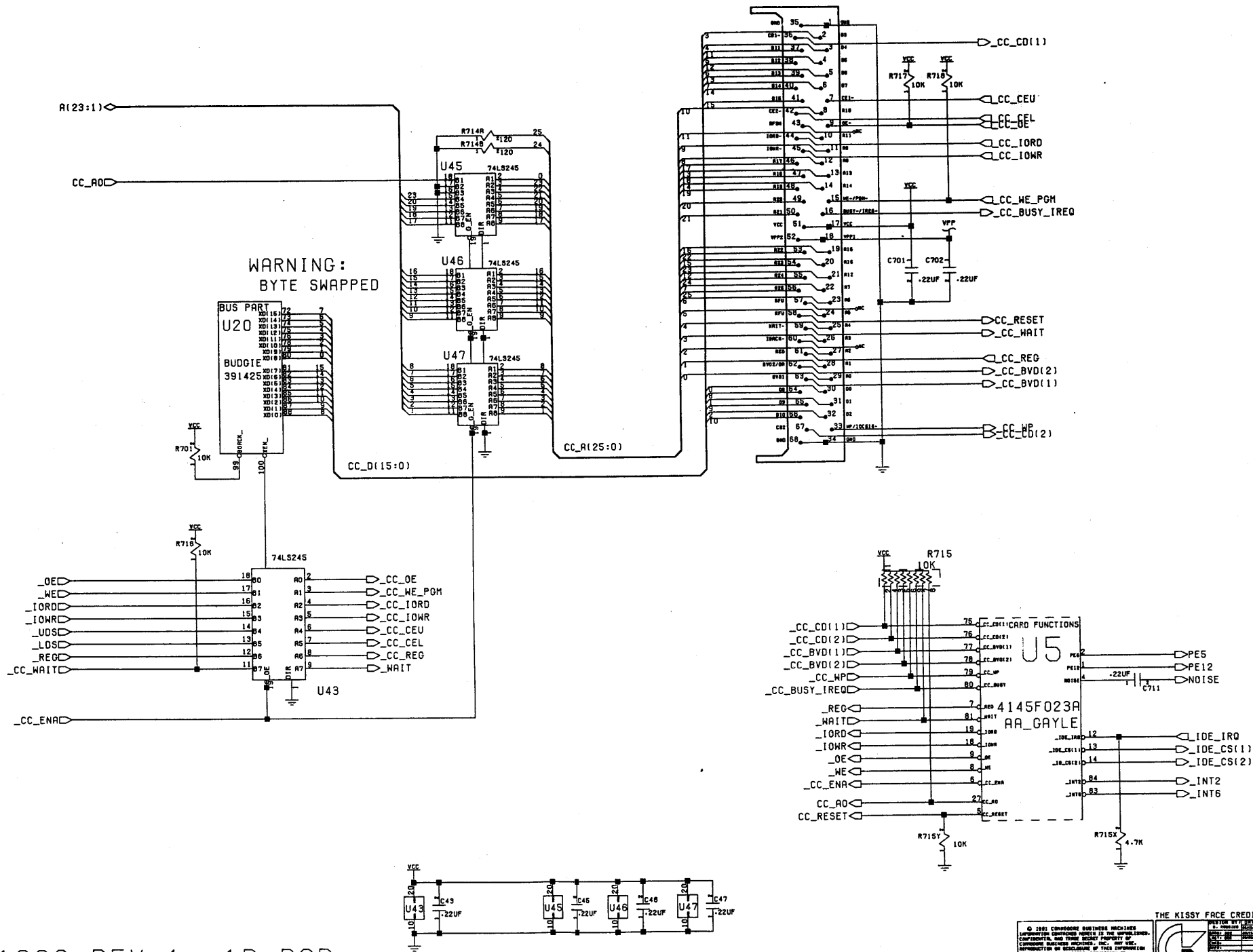


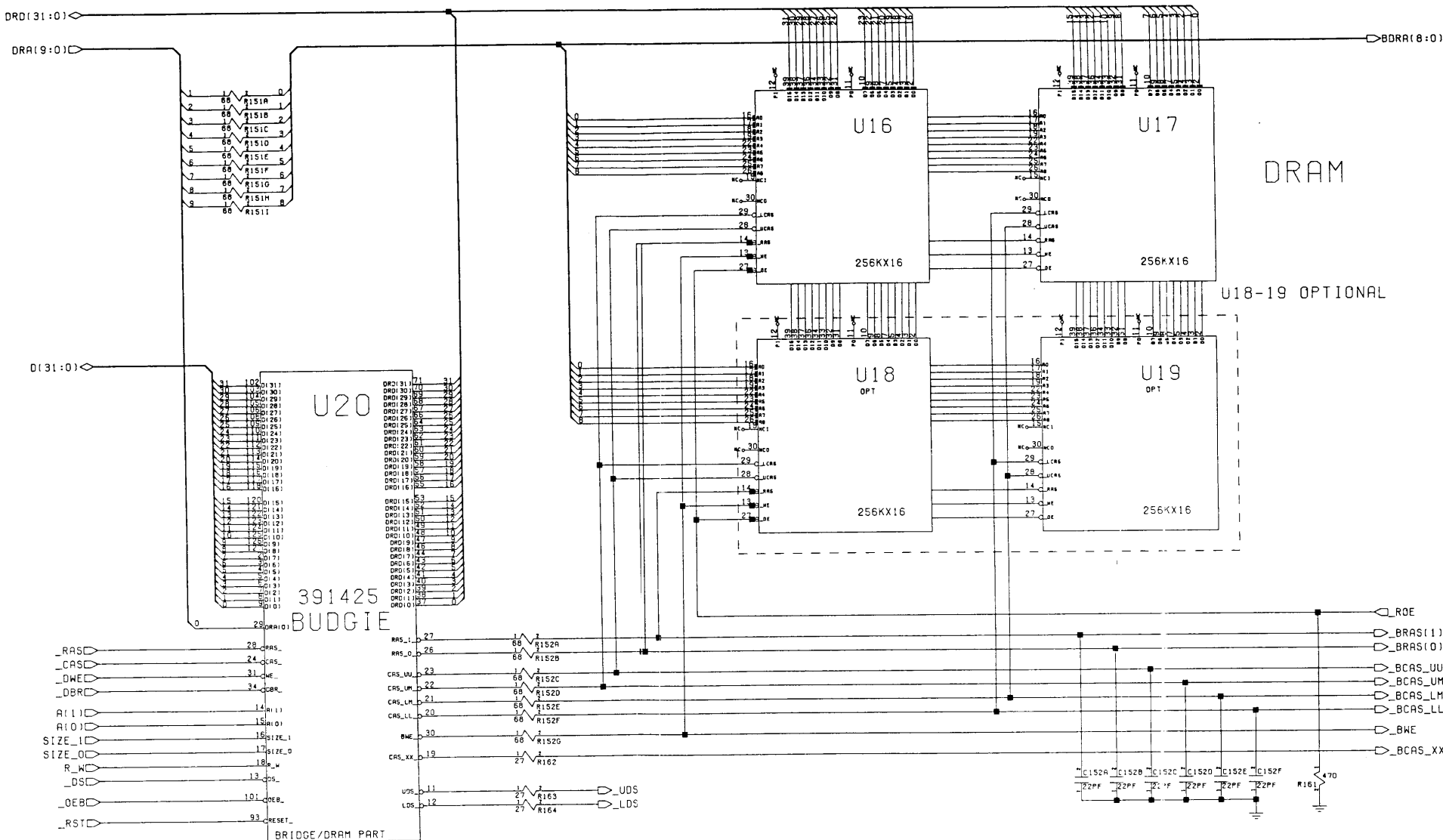
A1200 REV 1->1D PCB

SERIAL AND PARALLEL PORTS  
 © 1981 COMMODORE BUSINESS MACHINES  
 ALL RIGHTS RESERVED  
 COMMODORE BUSINESS MACHINES  
 1500 AVENUE OF THE STARS  
 FORT LIQUOR, VIRGINIA 22049  
 U.S.A.  
 COMMODORE A1200 MAIN BOARD  
 CHANNEL 2  
 364717  
 C.A.D. GENERATED  
 NO PARTS CHANGES MAY BE MADE TO THIS DOCUMENT  
 SHEET 7 OF 13

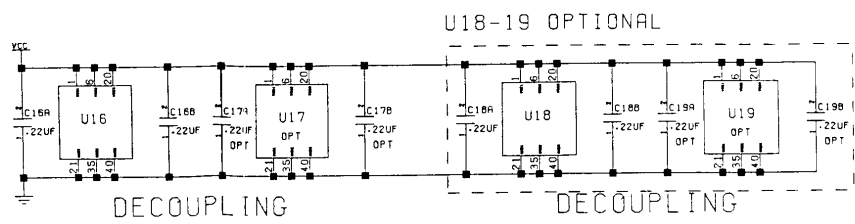
MEMORY CARD

CN15





A1200 REV 1->1D PCB



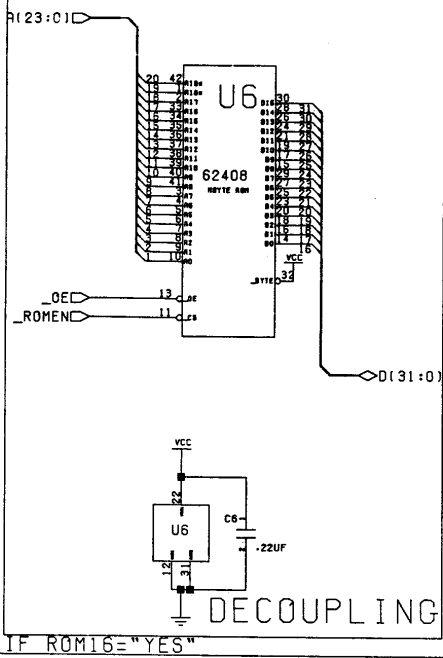
© 1991 COMMODORE BUSINESS MACHINES  
 INFORMATION CONTAINED HEREIN IS THE UNCLASSIFIED, CONFIDENTIAL AND TRADE SECRET PROPERTY OF COMMODORE BUSINESS MACHINES, INC. ANY USE, REPRODUCTION OR DISCLOSURE OF THIS INFORMATION WITHOUT THE WRITTEN PERMISSION OF COMMODORE IS STRICTLY PROHIBITED.

DESIGN BY: J. J. JENSEN  
 DATE: 07/11/91  
 SCALE: 1:1  
 SHEET 3 OF 13

MEMORY AND... WELL, I USED TO REMEMBER  
 COMMODORE  
 CHEMIST: ALDO ALO  
 /A1200 MAIN BOARD  
 CHANNEL 2  
 364717 E

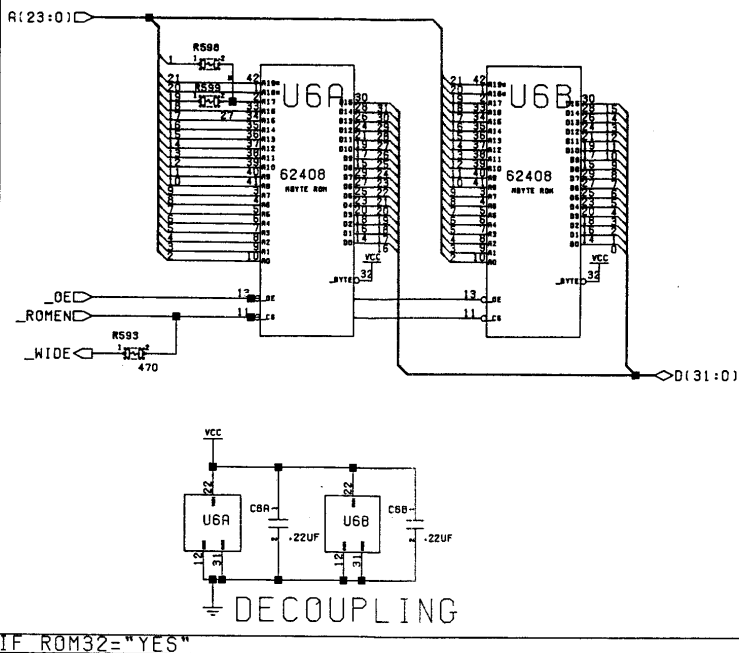
C.A.D. GENERATED  
 NO MANUAL CHANGES MAY BE MADE TO THIS DOCUMENT

### 16-BIT ROM



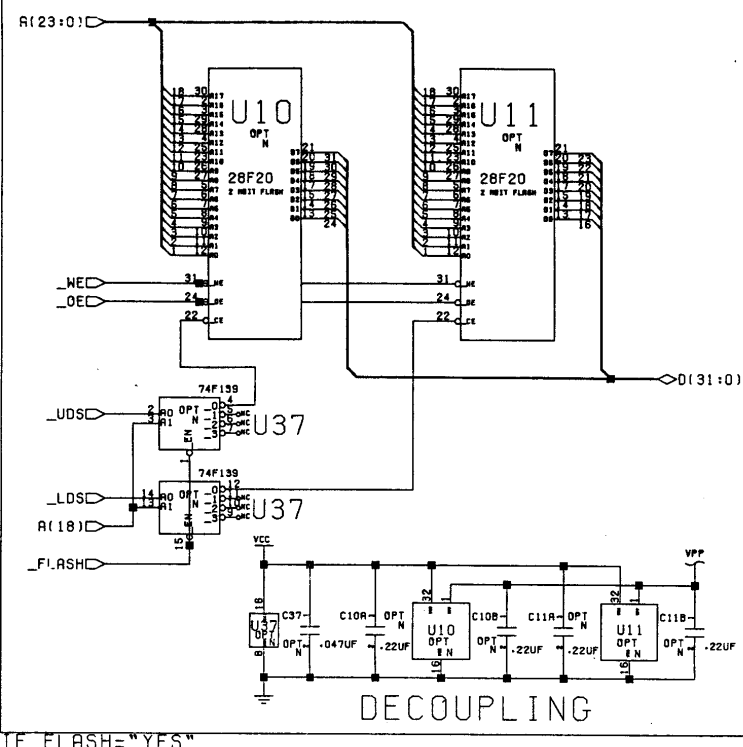
IF ROM16="YES"

### 32-BIT ROM



IF ROM32="YES"

### FLASH MEMORY

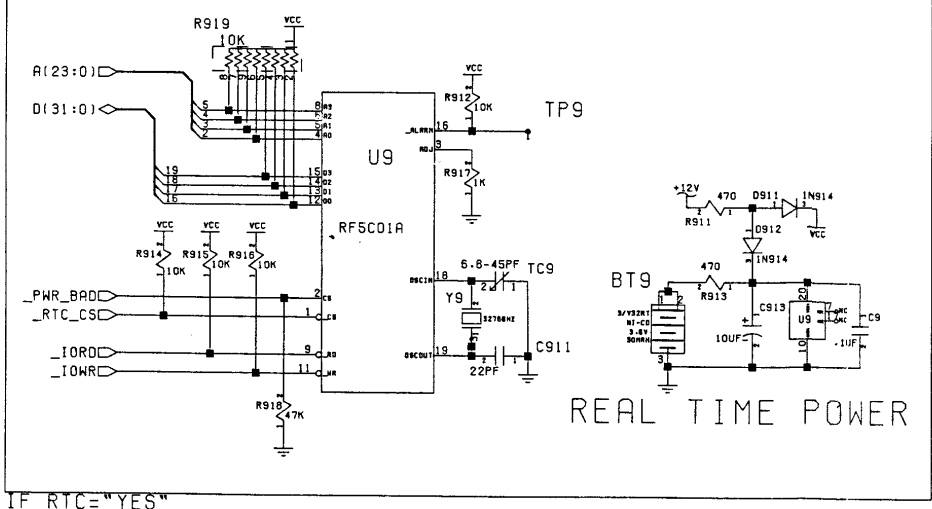


IF FLASH="YES"

16 AND 32-BIT SOCKETS MAY OVERLAP!

### OPTIONAL FLASH MEMORY

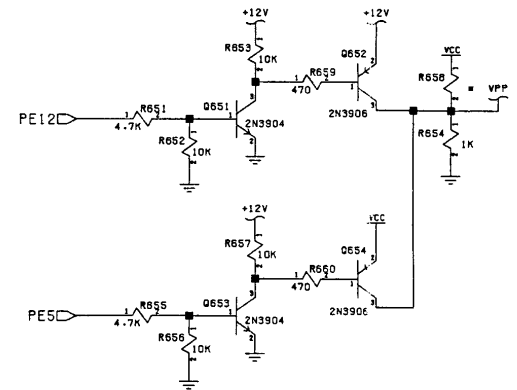
### REAL TIME CLOCK

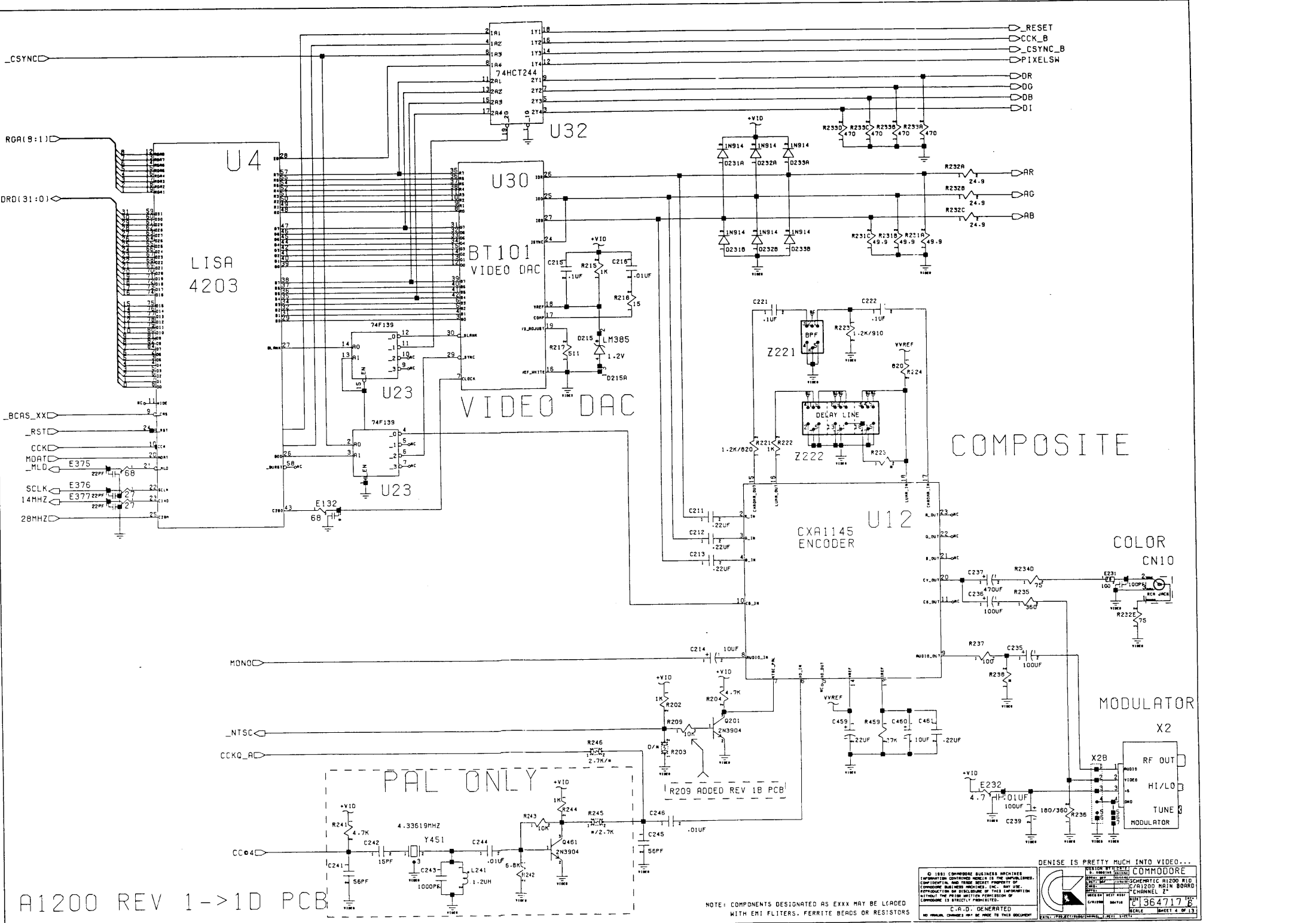


IF RTC="YES"

### OPTIONAL REAL-TIME CLOCK/CALENDAR

### PROGRAMMING VOLTAGE





A1200 REV 1->1D PCB

NOTE: COMPONENTS DESIGNATED AS EXXX MAY BE LOADED WITH EMI FILTERS, FERRITE BEADS OR RESISTORS

© 1991 COMMODORE BUSINESS MACHINES  
 INFORMATION CONTAINED HEREIN IS THE UNPUBLISHED, CONFIDENTIAL AND TRADE SECRET PROPERTY OF COMMODORE BUSINESS MACHINES, INC. ANY REPRODUCTION OR DISSEMINATION OF THIS INFORMATION WITHOUT THE PRIOR WRITTEN PERMISSION OF COMMODORE IS STRICTLY PROHIBITED.

COMMODORE  
 SCHEMATIC A1200 VID BOARD CHANNEL 2  
 E1364717  
 SCALE SHEET 4 OF 13

DATE: 08/18/91  
 DRAWN BY: JMM  
 CHECKED BY: JMM  
 APPROVED BY: JMM

REVISIONS:  
 1. ORIGINAL DESIGN  
 2. SCHEMATIC A1200 VID BOARD CHANNEL 2

DATE: 08/18/91  
 DRAWN BY: JMM  
 CHECKED BY: JMM  
 APPROVED BY: JMM

DATE: 08/18/91  
 DRAWN BY: JMM  
 CHECKED BY: JMM  
 APPROVED BY: JMM