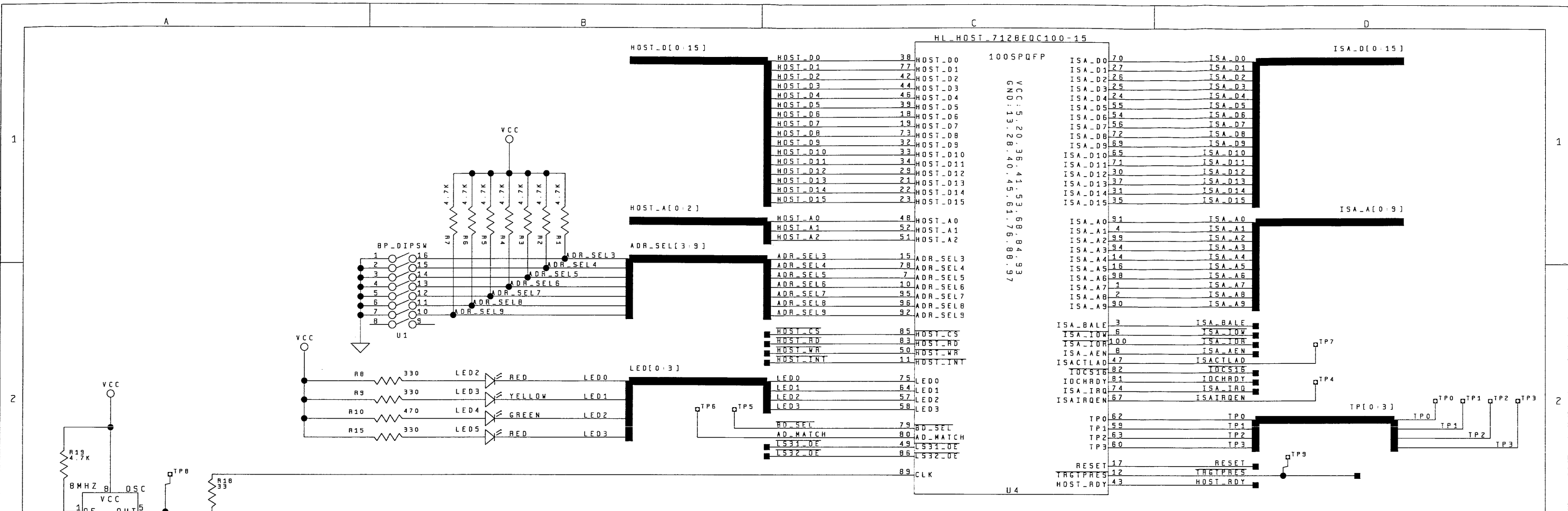


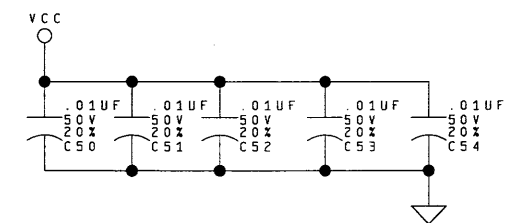
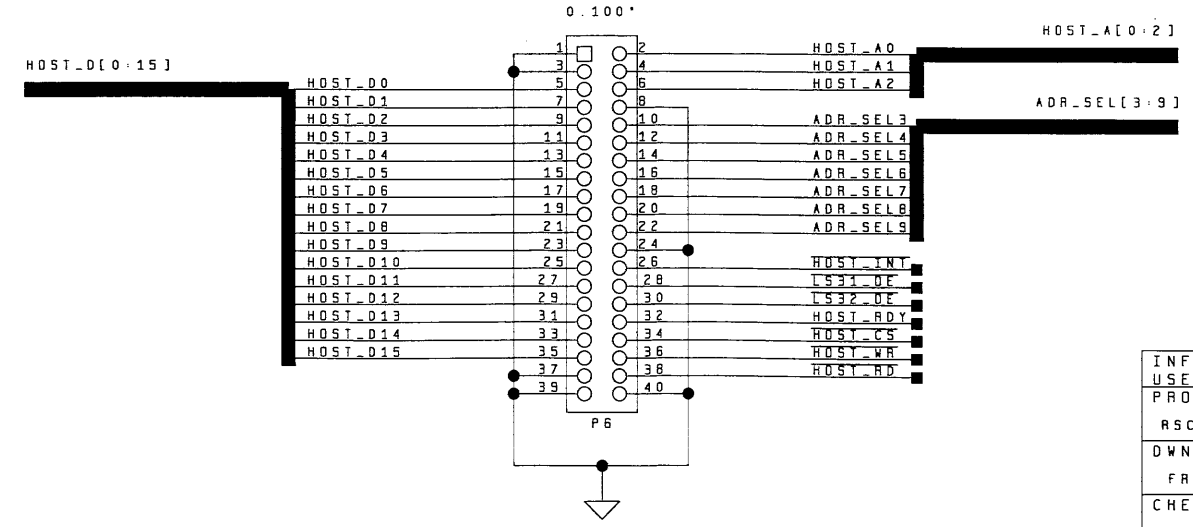
HI_LINK HOST ADAPTER BOARD

		ECN	CHANGE	DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.		1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA
RSC/AND				TITLE HL_HOST
DWN. BY	DATE	1ST USAGE	DATE	TITLE PAGE
FRS	2-13-1996-15:53			
CHECKED	DATE	CURRENT PROJ.	DATE	
APPROVED	DATE	SHEET	1 OF 5	PART NO. 5779-14687-00 REV. 0

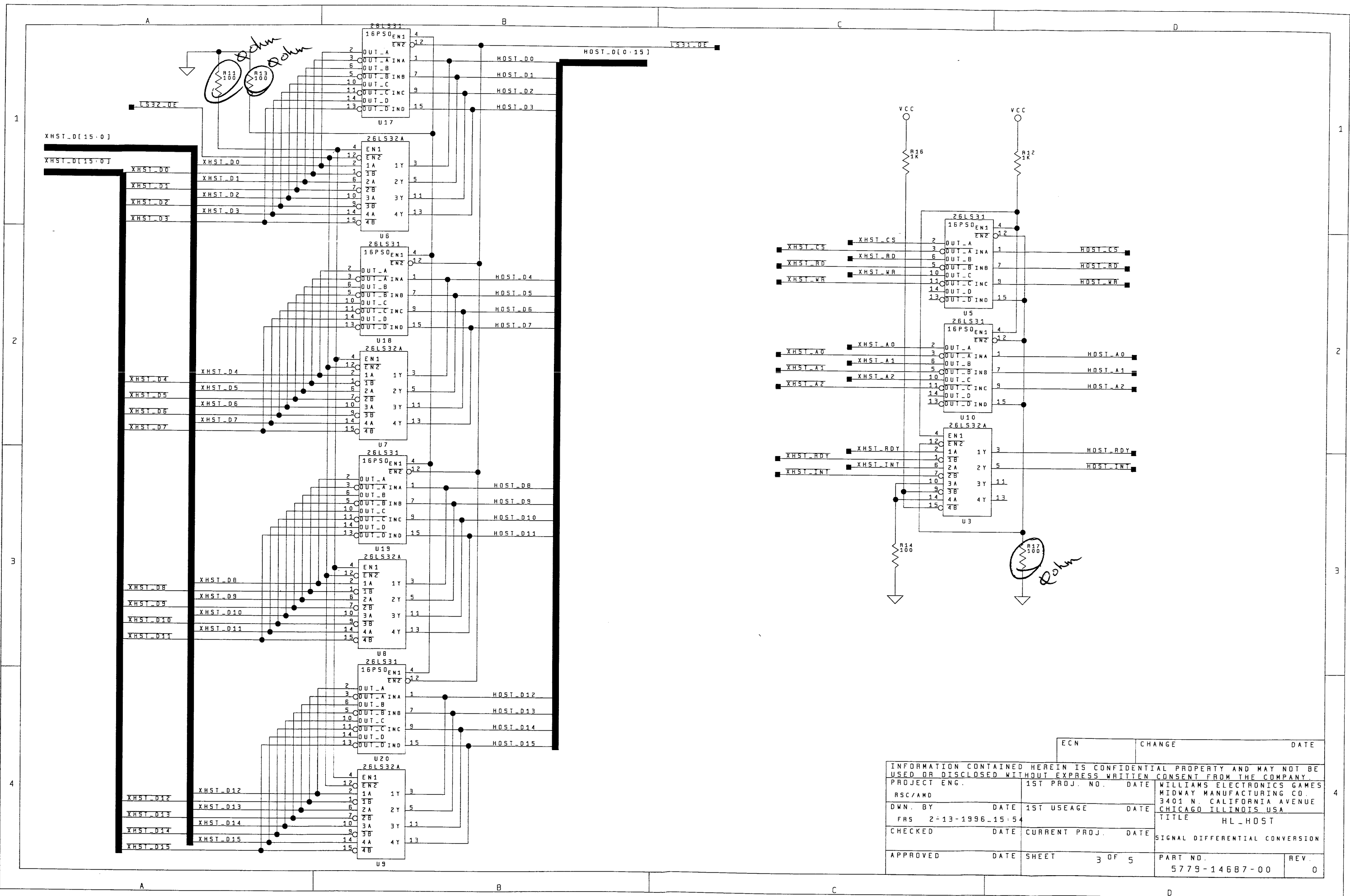


ISA ADDRESS BIT:	X	X	9	8	7	6	5	4	3	X	X	X
DIPSWITCH:	X	8	7	6	5	4	3	2	1	-	-	-
0/1 = CLOSED/OPEN:	X	X	1	0	1	0	0	0	0	-	-	-
EXAMPLE 1:			2				8				0	
0/1 = CLOSED/OPEN:	X	X	1	0	1	0	0	0	1	-	-	-
EXAMPLE 2:			2				8				8	

HL_HOST ALTERA TEST CONNECTORS

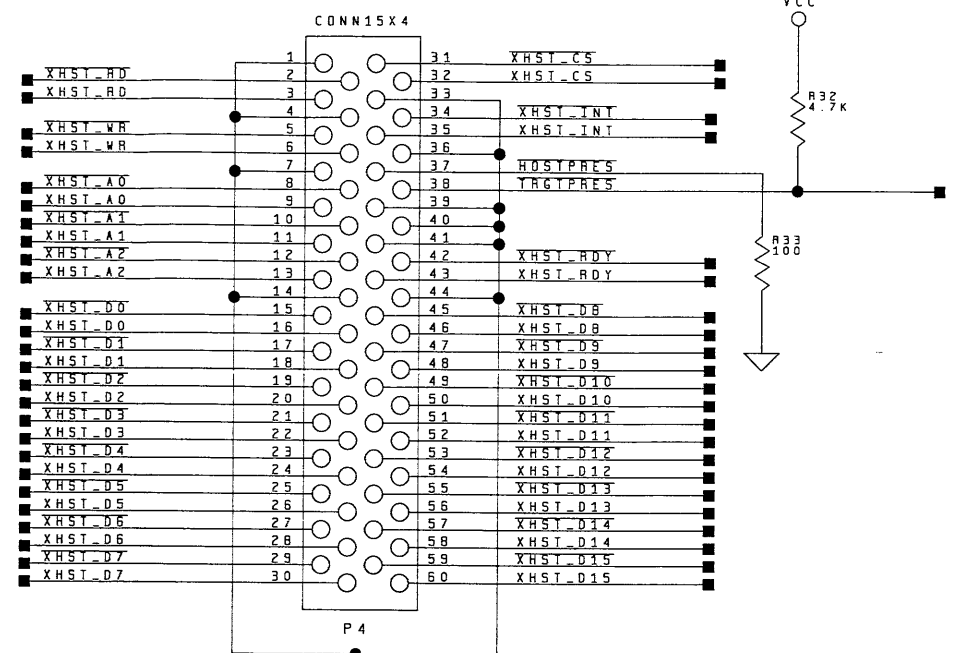


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OWN. BY	DATE	1ST USAGE	DATE	TITLE	
FRS	2-23-1996_11:11			HL_HOST HI-LINK HOST PLD ADDRESS SELECT SWITCHES LED'S & TEST POINTS	
CHECKED	DATE	CURRENT PROJ.	DATE	PART NO.	
APPROVED	DATE	SHEET	2 OF 5	5779-14687-00	
				REV.	0

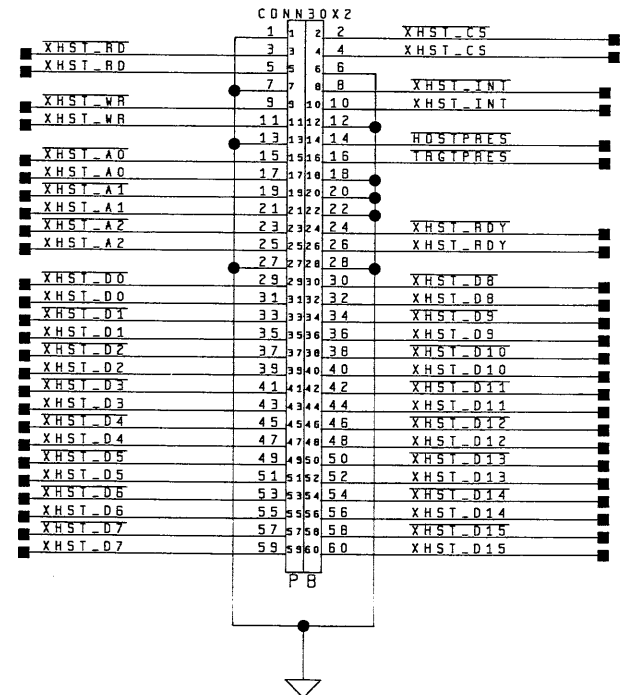


ECN	CHANGE	DATE
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RSC/AMD	DATE	DATE
DWN. BY	DATE	DATE
FRS	2-13-1996	15-54
CHECKED	DATE	DATE
APPROVED	DATE	DATE
SHEET 3 OF 5		DATE
PART NO.		REV.
5779-14687-00		0

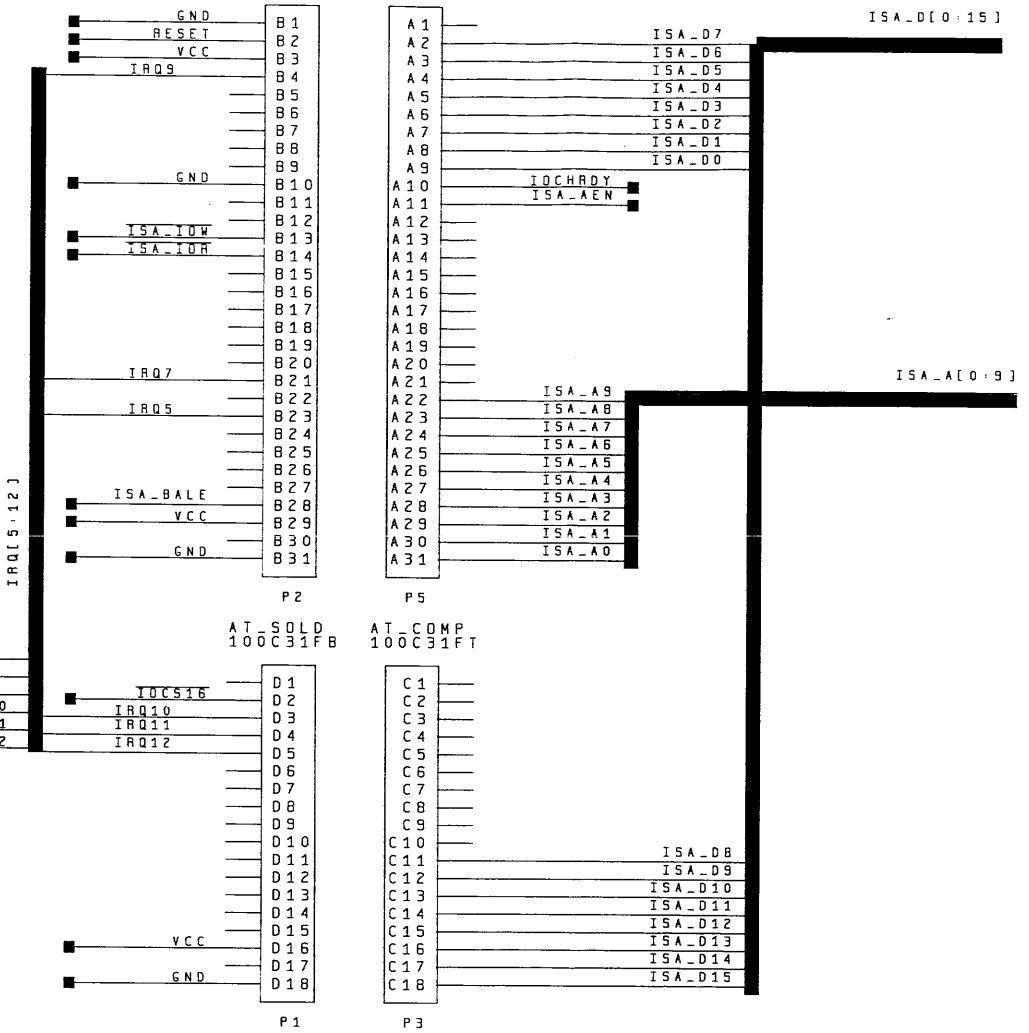
HI_LINK HOST CONNECTOR



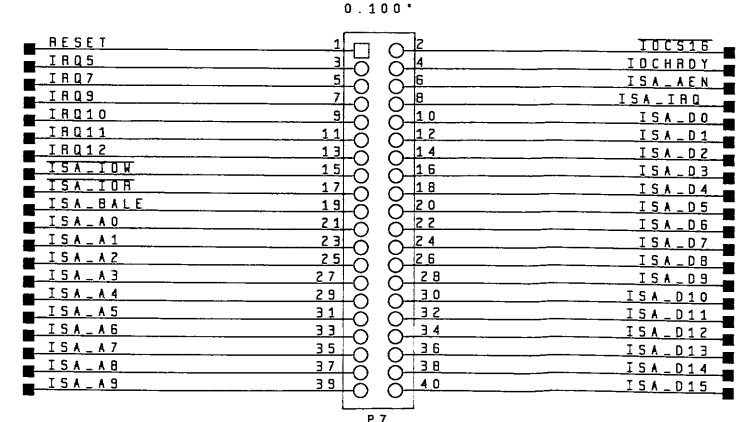
HI_LINK HOST TEST CONNECTOR



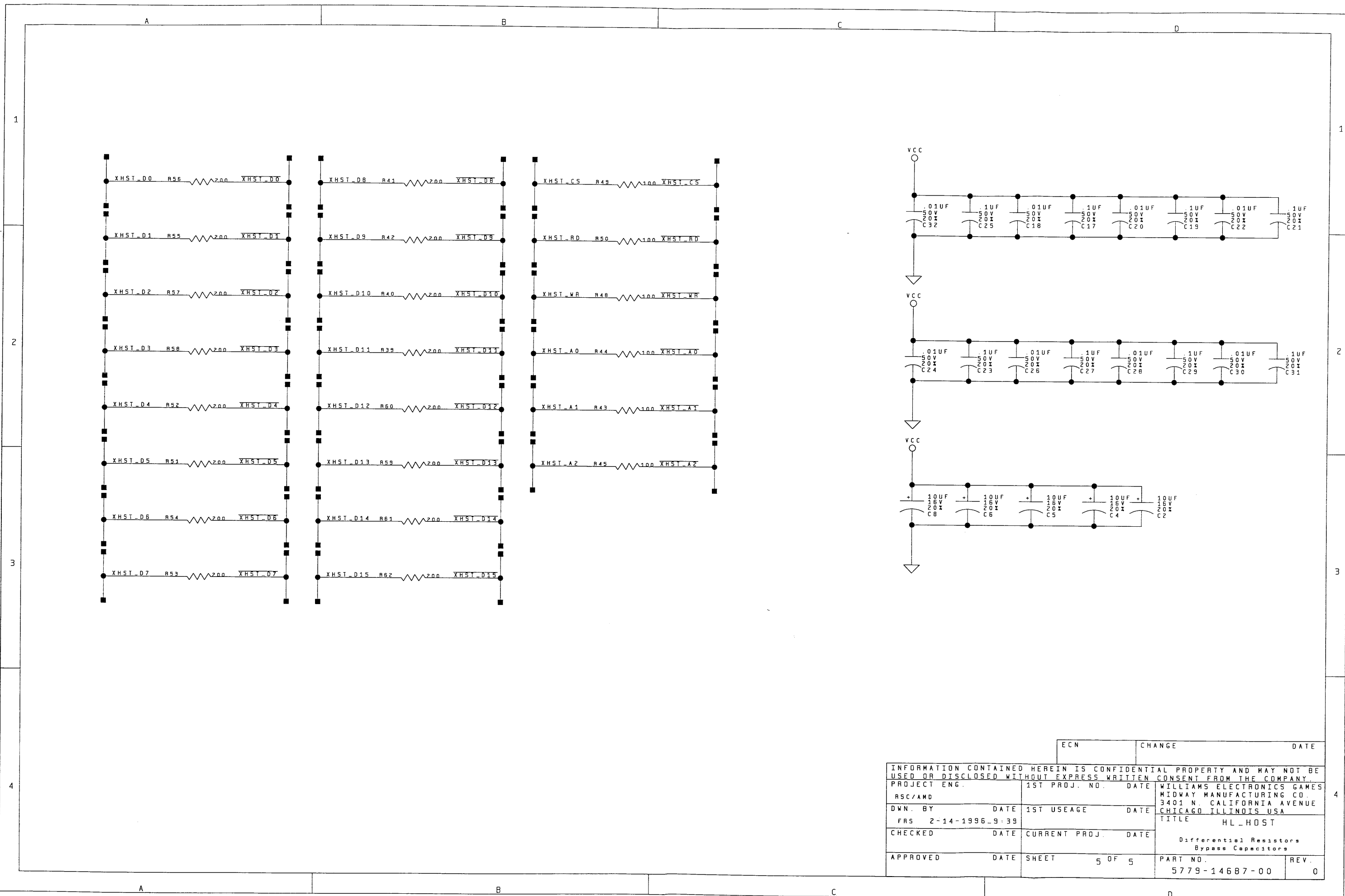
ISA BUS CONNECTOR



ISA BUS TEST CONNECTOR

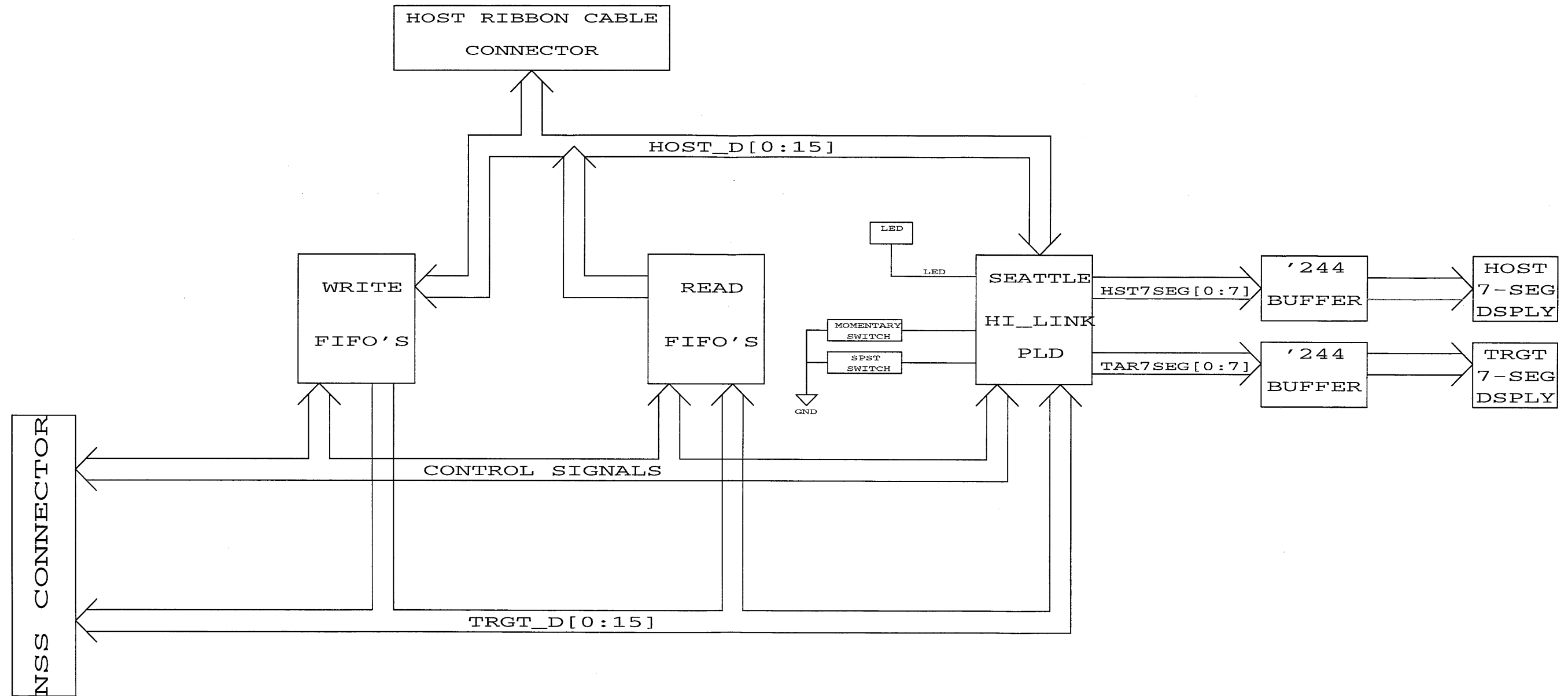


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PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA	
RSC/AMD	DWN. BY	DATE	1ST USEAGE	DATE
FRS	2-14-1996	9:42	TITLE	HL_HOST
CHECKED	DATE	CURRENT PROJ.	DATE	HOST AND ISA CONNECTORS IRQ SELECTION SWITCH & PWR LED
APPROVED	DATE	SHEET	4 OF 5	PART NO. 5779-14687-00
				REV. 0

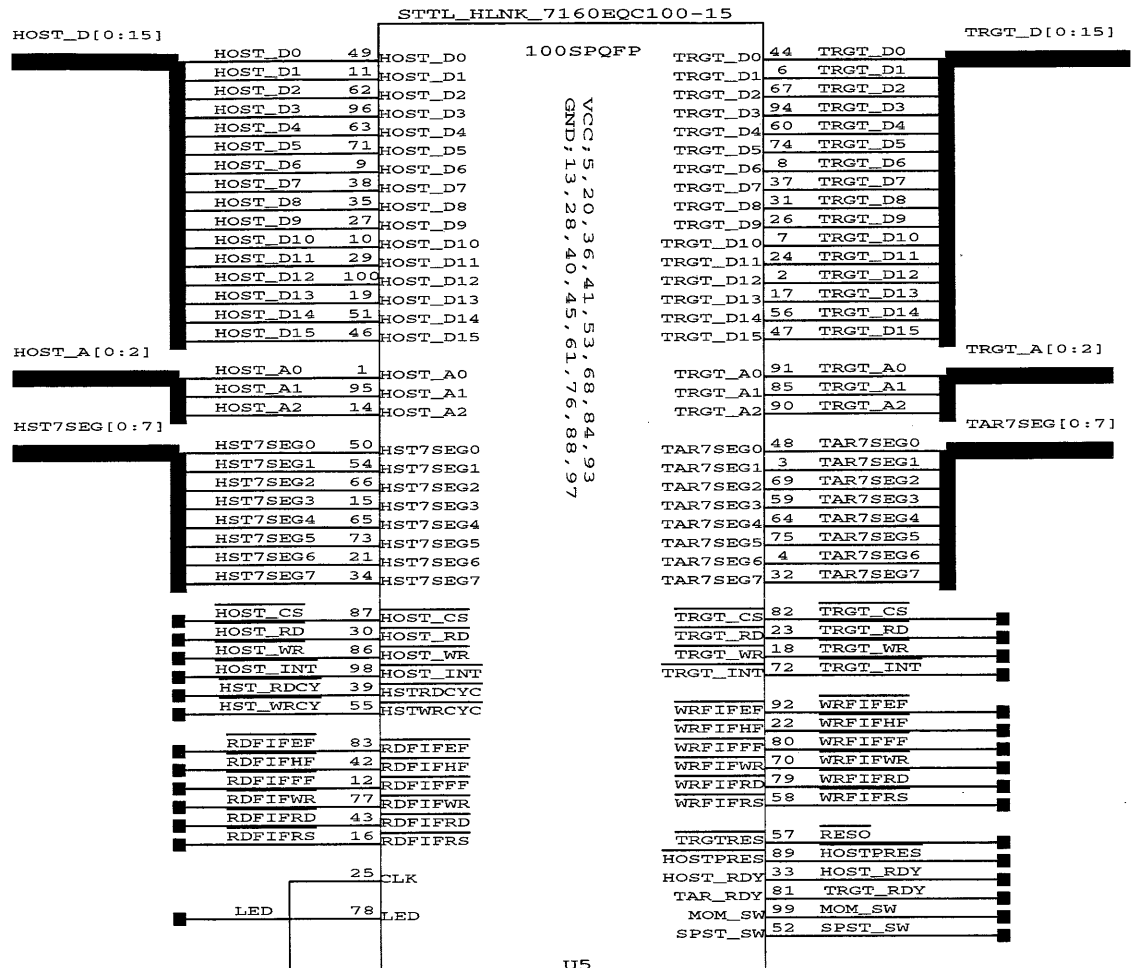


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INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA	
RSC/AND			TITLE	
DWN. BY	DATE	1ST USEAGE	DATE	HL_HOST
FR5	2-14-1996_9:39			Differential Resistors Bypass Capacitors
CHECKED	DATE	CURRENT PROJ.	DATE	
APPROVED	DATE	SHEET	5 OF 5	PART NO. 5779-14687-00
				REV. 0

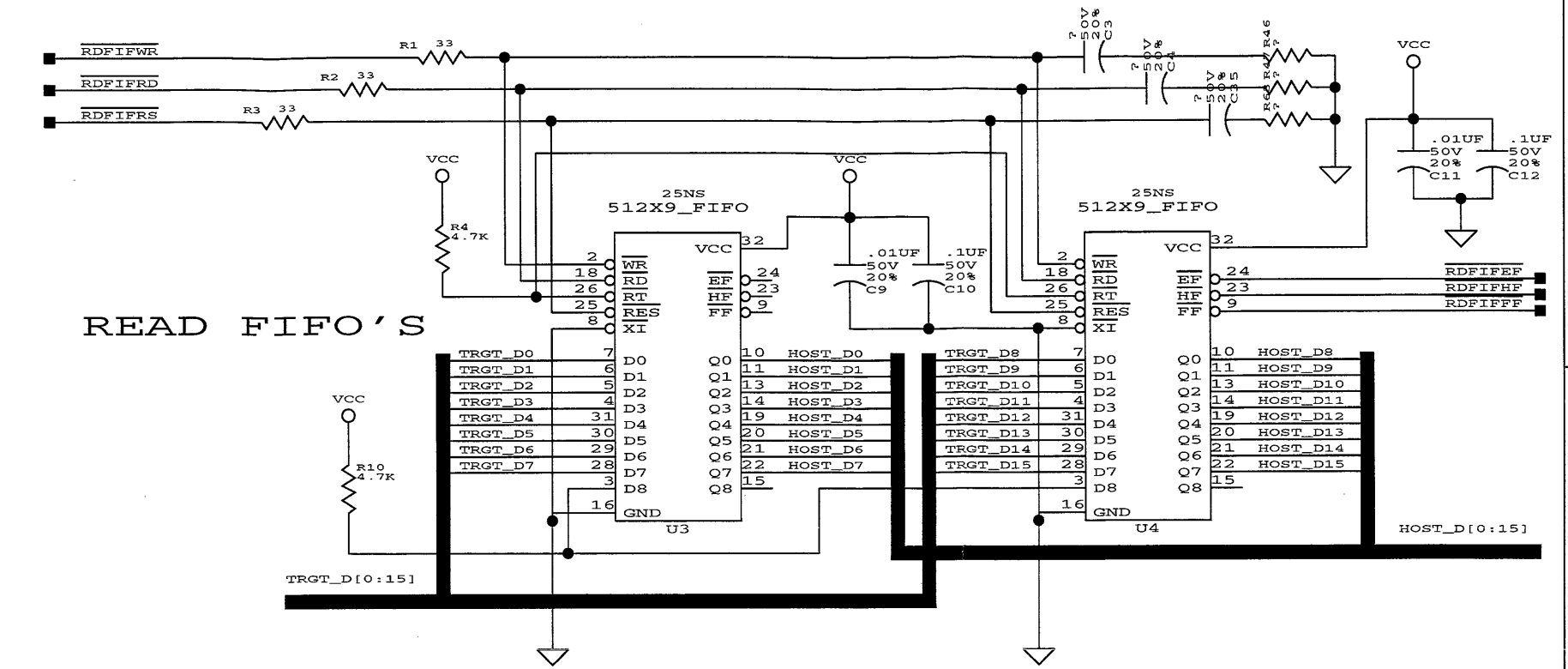
SEATTLE HI_LINK BOARD



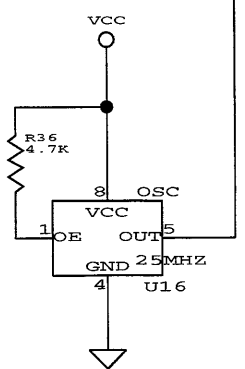
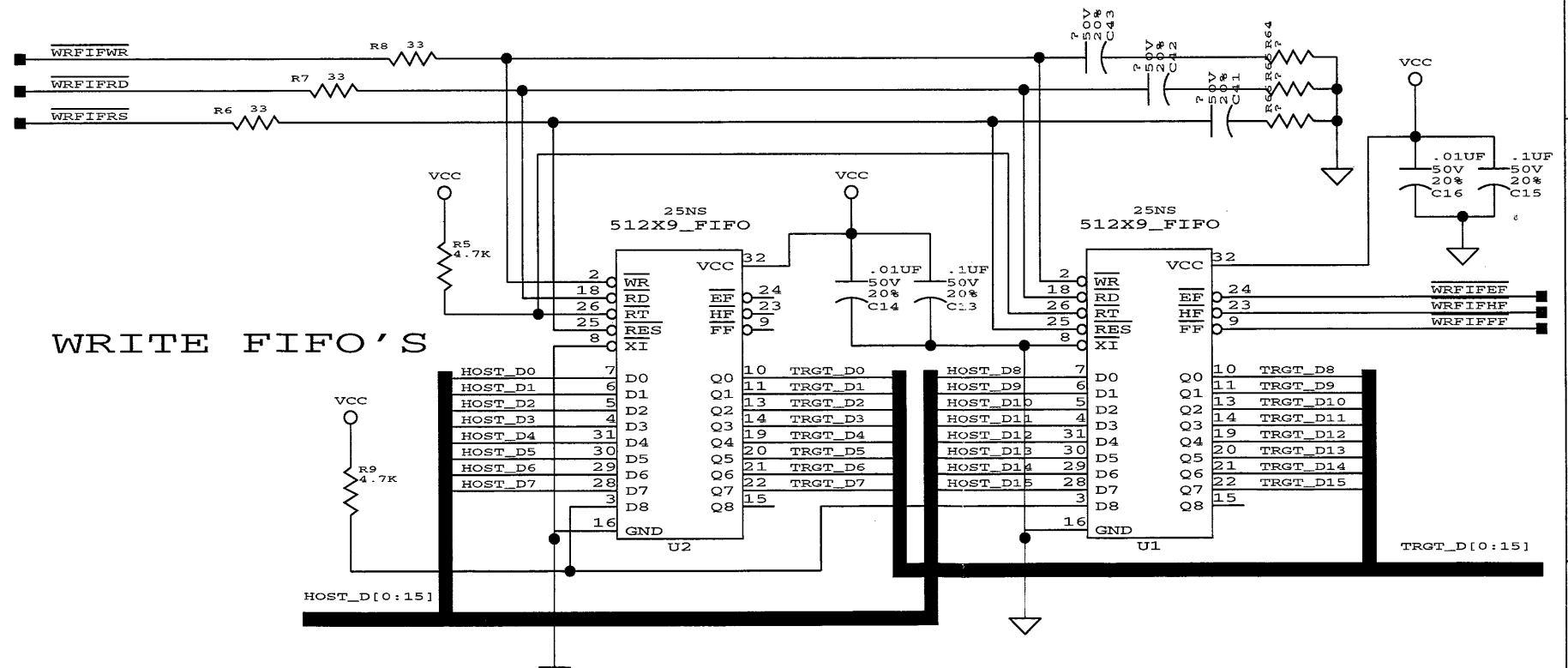
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DWN. BY	DATE	1ST USAGE	DATE	TITLE STTLHLNK
CHECKED	DATE	CURRENT PROJ.	DATE	TITLE PAGE / BLOCK DIAGRAM 12-17-1996_10:05
APPROVED	DATE	SHEET	1 OF 5	PART NO. 5779-15300-00
				REV. 0



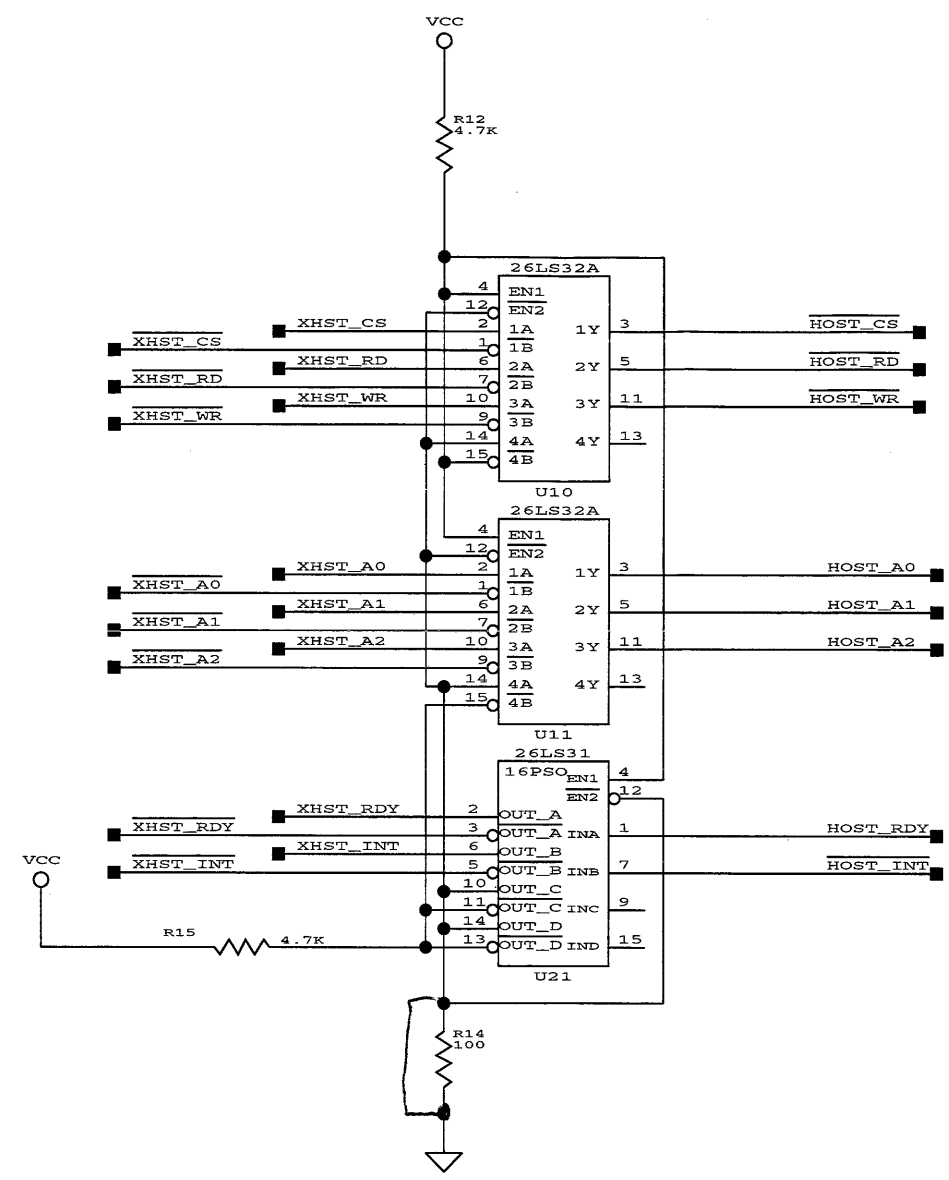
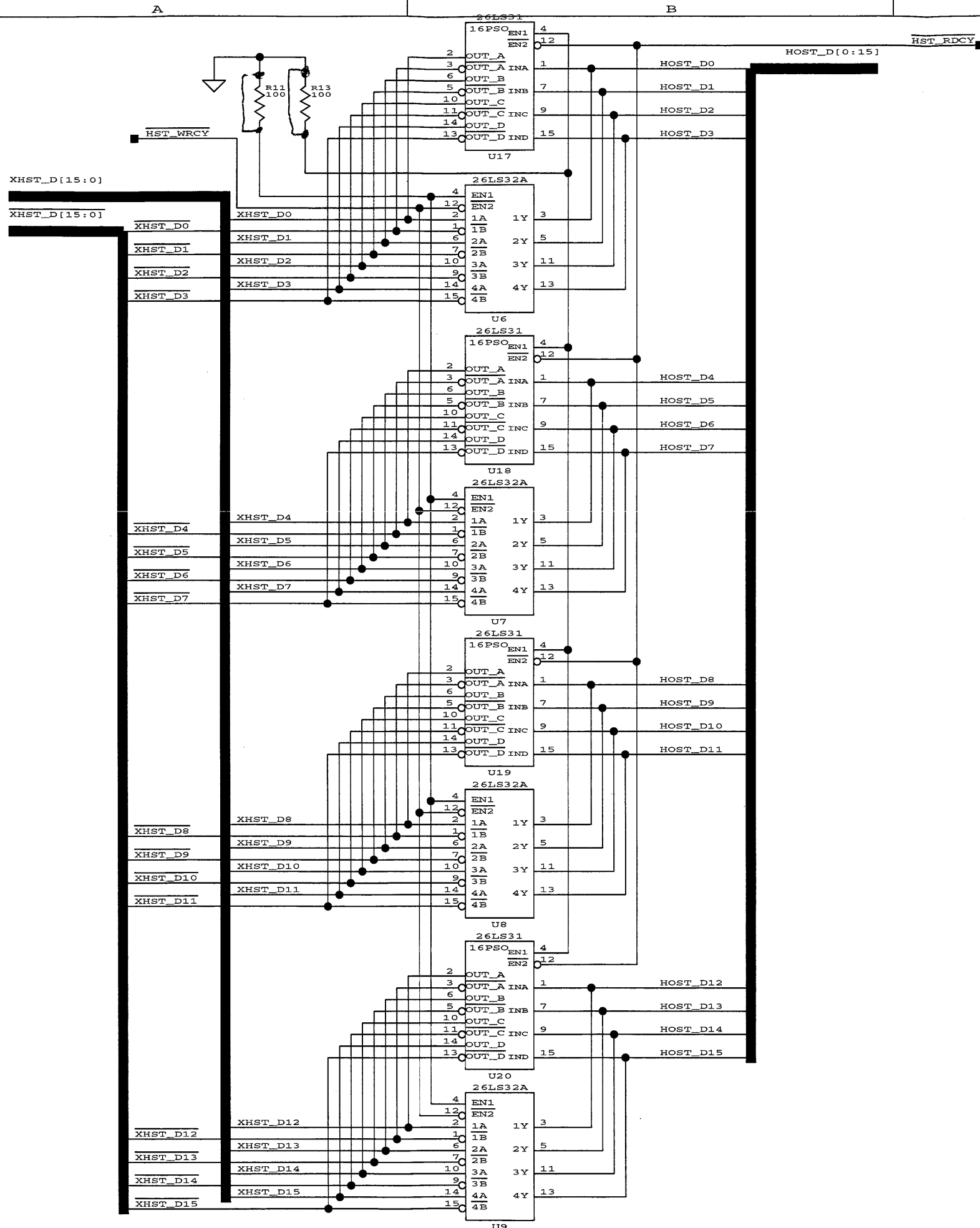
READ FIFO'S



WRITE FIFO'S



ECN		CHANGE		DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES	
RSC/AMD			MIDWAY MANUFACTURING CO.	
DWN. BY	DATE	1ST USAGE	DATE	3401 N. CALIFORNIA AVENUE
FRS				CHICAGO ILLINOIS USA
CHECKED	DATE	CURRENT PROJ.	DATE	TITLE
				STTLHLNK
				HI_LNLIK_PLD
				READ & WRITE FIFO'S
				12-18-1996_10:08
APPROVED	DATE	SHEET	2 OF 5	PART NO.
				5779-15300-00
				REV.
				0



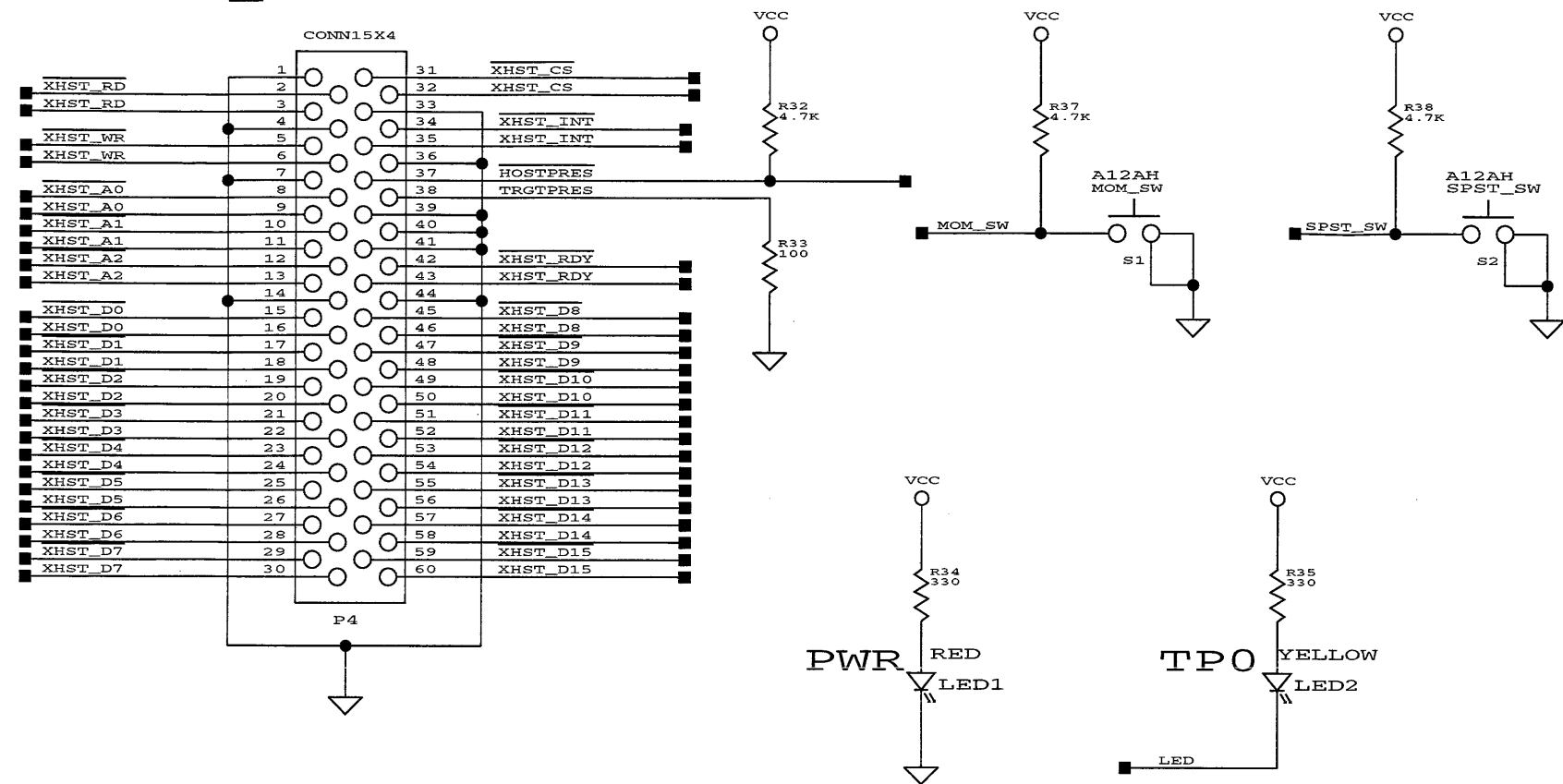
ECN	CHANGE	DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.		
PROJECT ENG.	1ST PROJ. NO.	DATE
RSC/AMD		
DWN. BY	DATE	1ST USAGE
FRS		
CHECKED	DATE	CURRENT PROJ.
		DATE
APPROVED	DATE	SHEET
		3 OF 5
PART NO.		REV.
5779-15300-00		0

WILLIAMS ELECTRONICS GAMES
MIDWAY MANUFACTURING CO.
3401 N. CALIFORNIA AVENUE
CHICAGO ILLINOIS USA

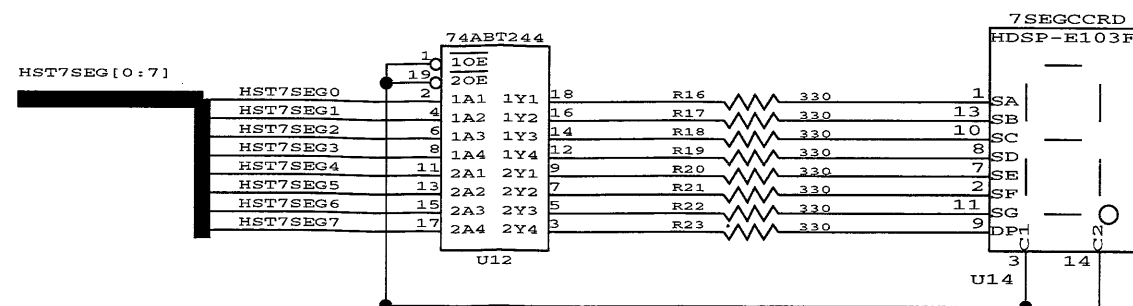
TITLE
S'TTLHLNK

SIGNAL DIFFERENTIAL CONVERSION
12-17-1996_10:03

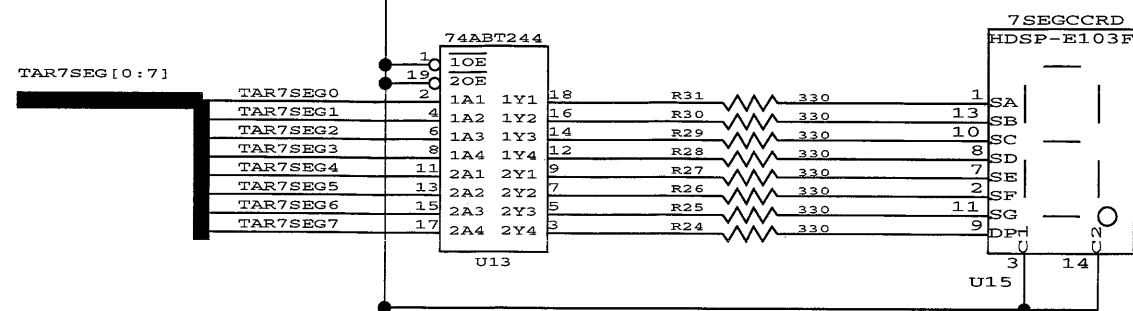
HOST HI_LINK CONNECTOR



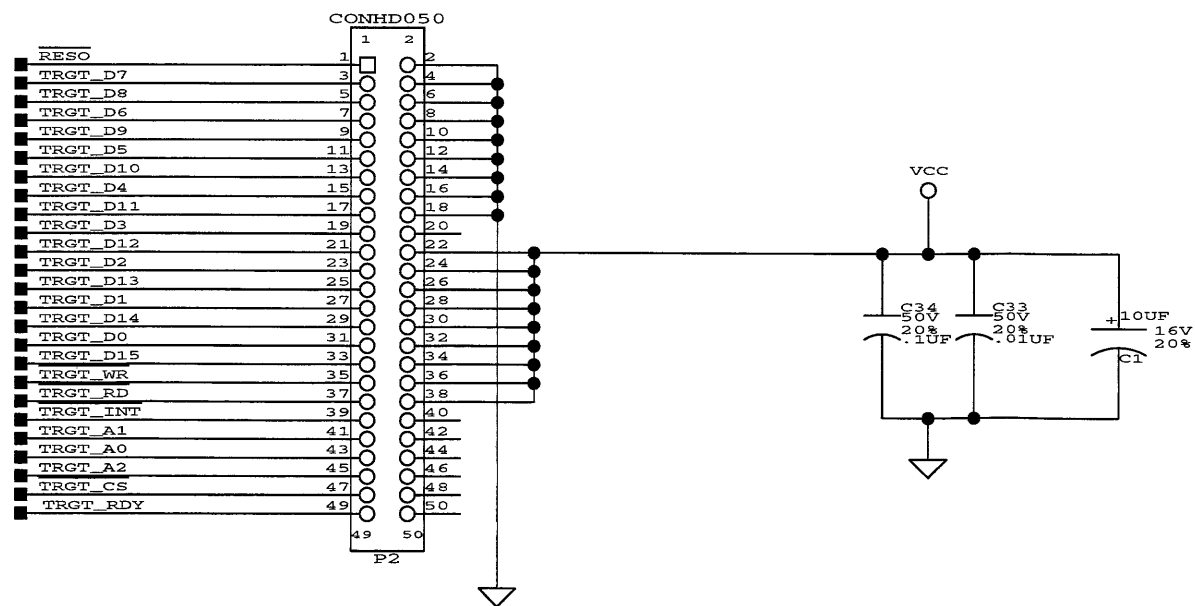
HOST DEBUG DISPLAY



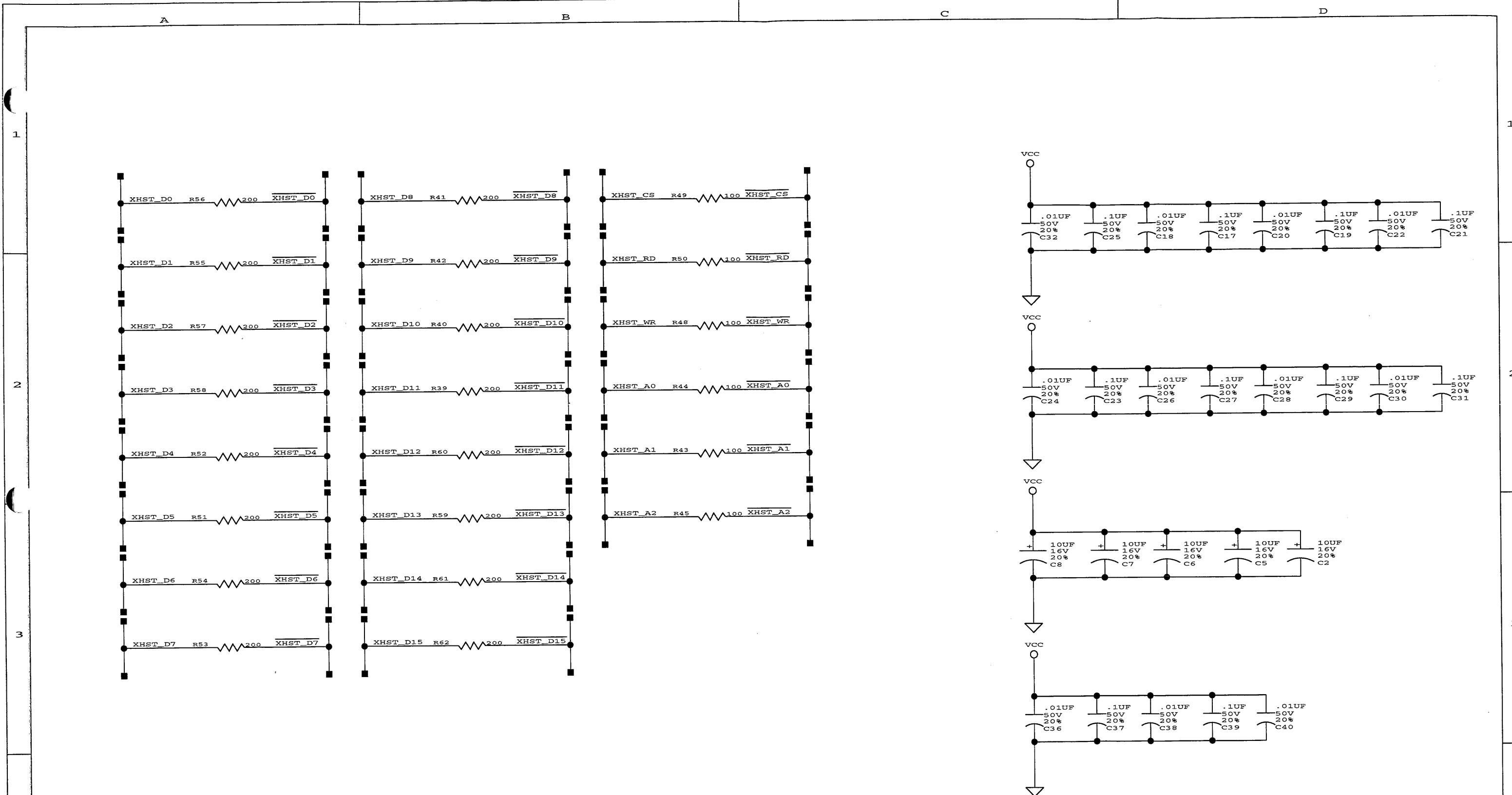
TARGET DEBUG DISPLAY



NSS/WAVENET CONNECTOR

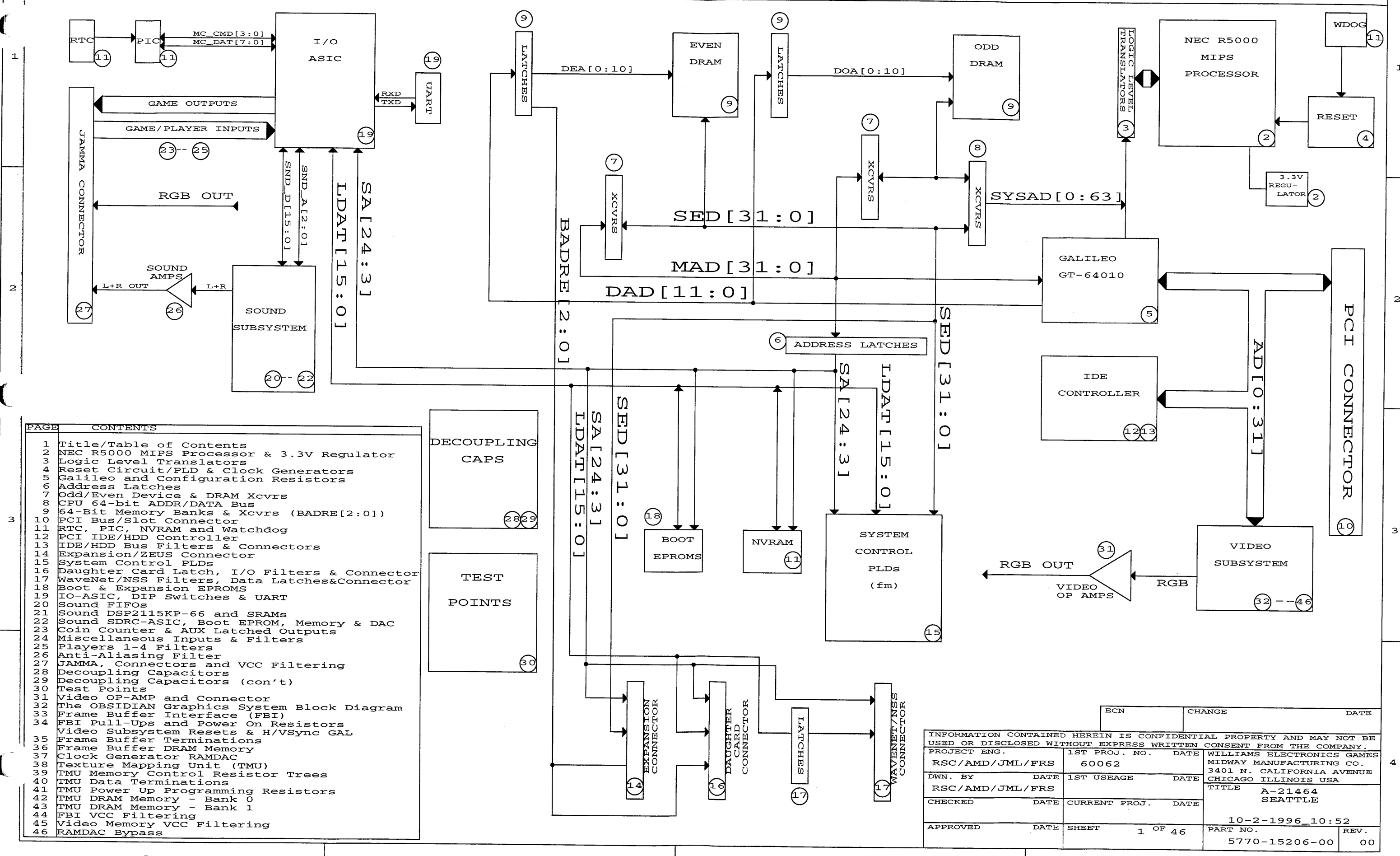


ECN	CHANGE	DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.		
PROJECT ENG.	1ST PROJ. NO.	DATE
RSC/AMD	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA	
DWN. BY	DATE	1ST USAGE
FRS	TITLE	
CHECKED	DATE	CURRENT PROJ.
APPROVED	DATE	SHEET
4 OF 5		PART NO.
5779-15300-00		REV.
		0



ECN		CHANGE		DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES	
RSC/AMD			MIDWAY MANUFACTURING CO.	
			3401 N. CALIFORNIA AVENUE	
			CHICAGO ILLINOIS USA	
DWN. BY	DATE	1ST USAGE	DATE	TITLE
FRS				STTLHLNK
CHECKED	DATE	CURRENT PROJ.	DATE	Differential Resistors
				Bypass Capacitors
				12-17-1996_16:18
APPROVED	DATE	SHEET	5 OF 5	PART NO.
				5779-15300-00
				REV.
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SEATTLE BLOCK DIAGRAM



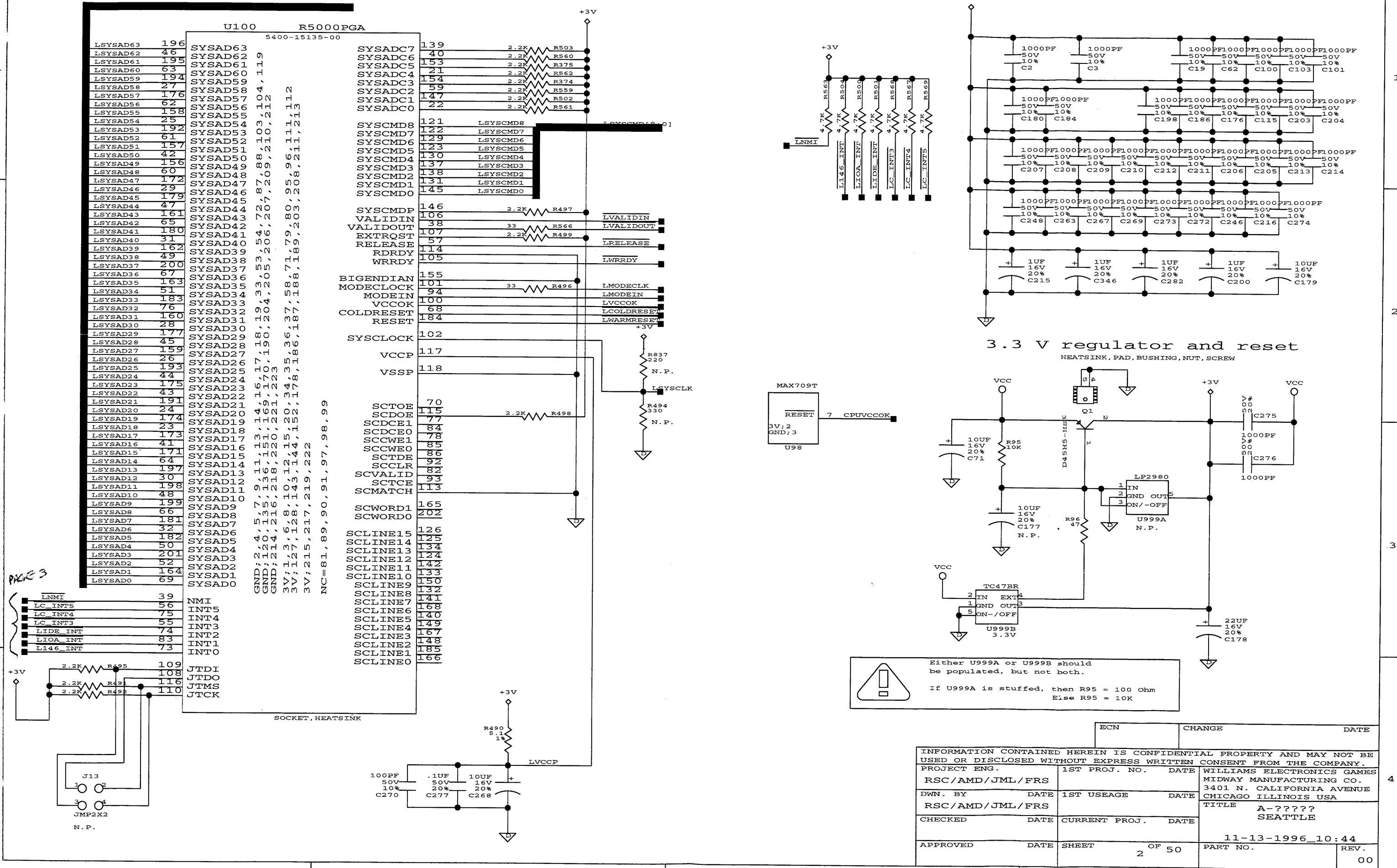
PAGE	CONTENTS
1	Title/Table of Contents
2	NEC R5000 MIPS Processor & 3.3V Regulator
3	Logic Level Translators
4	Reset Circuit/PLD & Clock Generators
5	Galileo and Configuration Resistors
6	Address Latches
7	Odd/Even Device & DRAM Xcvrs
8	CPU 64-bit ADDR/DATA Bus
9	64-Bit Memory Banks & Xcvrs (BADRE[2:0])
10	PCI Bus/Slot Connector
11	RTC, PIC, NVRAM and Watchdog
12	PCI IDE/HDD Controller
13	IDE/HDD Bus Filters & Connectors
14	Expansion/ZEUS Connector
15	System Control PLDs
16	Daughter Card Latch, I/O Filters & Connector
17	WaveNet/NSS Filters, Data Latches&Connector
18	Boot & Expansion EPROMS
19	IO-ASIC, DIP Switches & UART
20	Sound FIFOs
21	Sound DSP2115KP-66 and SRAMS
22	Sound SDRC-ASIC, Boot EPROM, Memory & DAC
23	Coin Counter & AUX Latched Outputs
24	Miscellaneous Inputs & Filters
25	Players 1-4 Filters
26	Anti-Aliasing Filter
27	JAMMA, Connectors and VCC Filtering
28	Decoupling Capacitors
29	Decoupling Capacitors (con't)
30	Test Points
31	Video OP-AMP and Connector
32	The OBSIDIAN Graphics System Block Diagram
33	Frame Buffer Interface (FBI)
34	FBI Pull-Ups and Power On Resistors
35	Video Subsystem Resets & H/VSync GAL
36	Frame Buffer Terminations
37	Frame Buffer DRAM Memory
38	Clock Generator RAMDAC
39	Texture Mapping Unit (TMU)
40	TMU Memory Control Resistor Trees
41	TMU Data Terminations
42	TMU Power Up Programming Resistors
43	TMU DRAM Memory - Bank 0
44	TMU DRAM Memory - Bank 1
45	FBI VCC Filtering
46	Video Memory VCC Filtering
46	RAMDAC Bypass

BCN		CHANGE		DATE
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PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	60062	DATE
DWN. BY	RSC/AMD/JML/FRS	1ST USAGE		DATE
CHECKED		CURRENT PROJ.		DATE
APPROVED		SHEET	1 OF 46	PART NO.
				REV.
				5770-15206-00
				00

NEC R5000 MIPS PROCESSOR

LSYSAD[63:0]

U100 R5000PGA
5400-15135-00



3.3 V regulator and reset

HEATSINK, PAD, BUSHING, NUT, SCREW

Either U999A or U999B should be populated, but not both.
If U999A is stuffed, then R95 = 100 Ohm
Else R95 = 10K

ECN		CHANGE		DATE
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PROJECT ENG.		1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA
RSC/AMD/JML/FRS	DATE	1ST USAGE	DATE	TITLE A-????? SEATTLE
DWN. BY	DATE	CURRENT PROJ.	DATE	11-13-1996_10:44
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CHECKED	DATE	REV.		00
APPROVED	DATE			

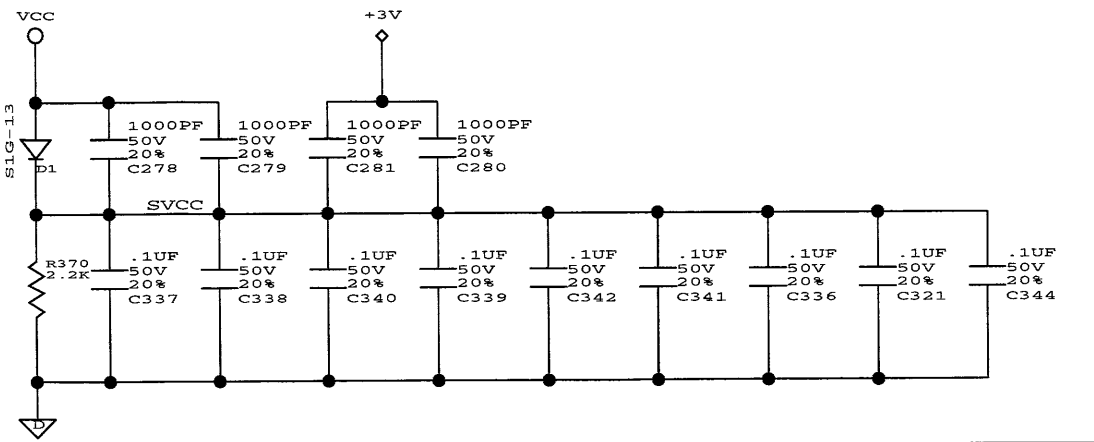
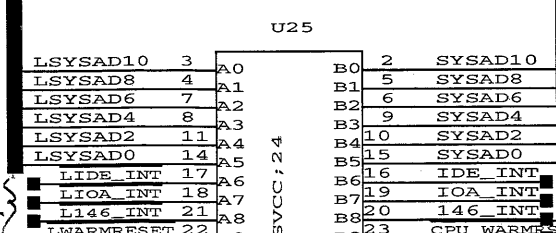
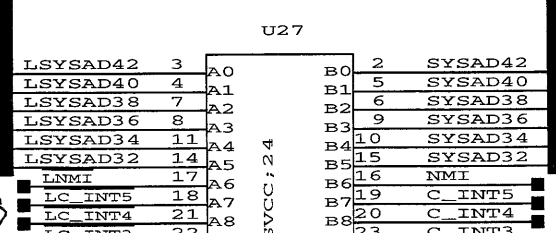
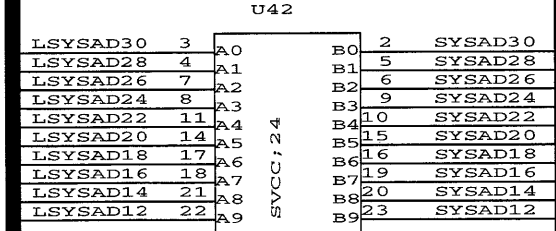
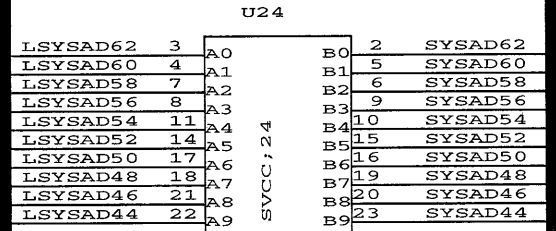
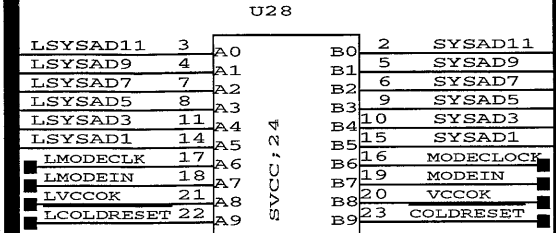
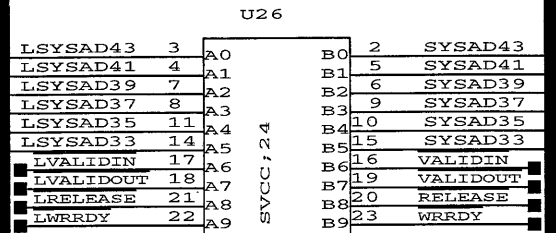
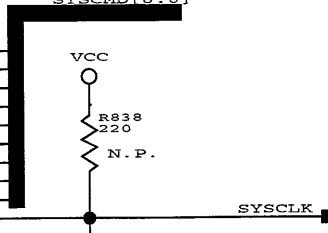
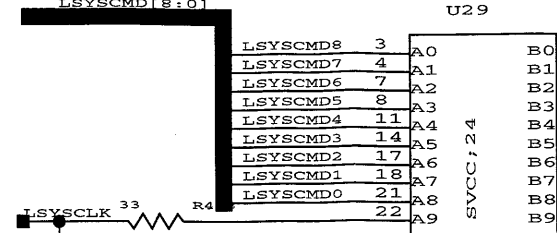
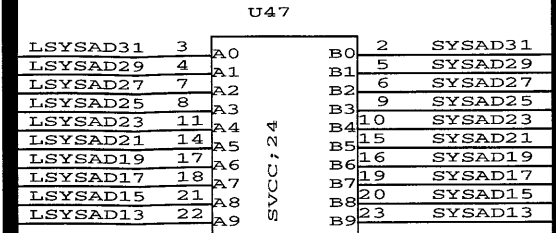
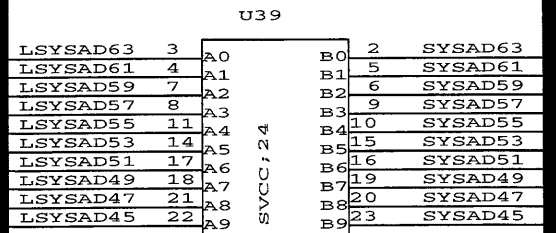
VOLTAGE LEVEL TRANSLATORS

LSYSAD[63:0]

SYSAD[63:0]

LSYSCMD[8:0]

SYSCMD[8:0]



PAGE 2

PAGE 2

PAGE 2

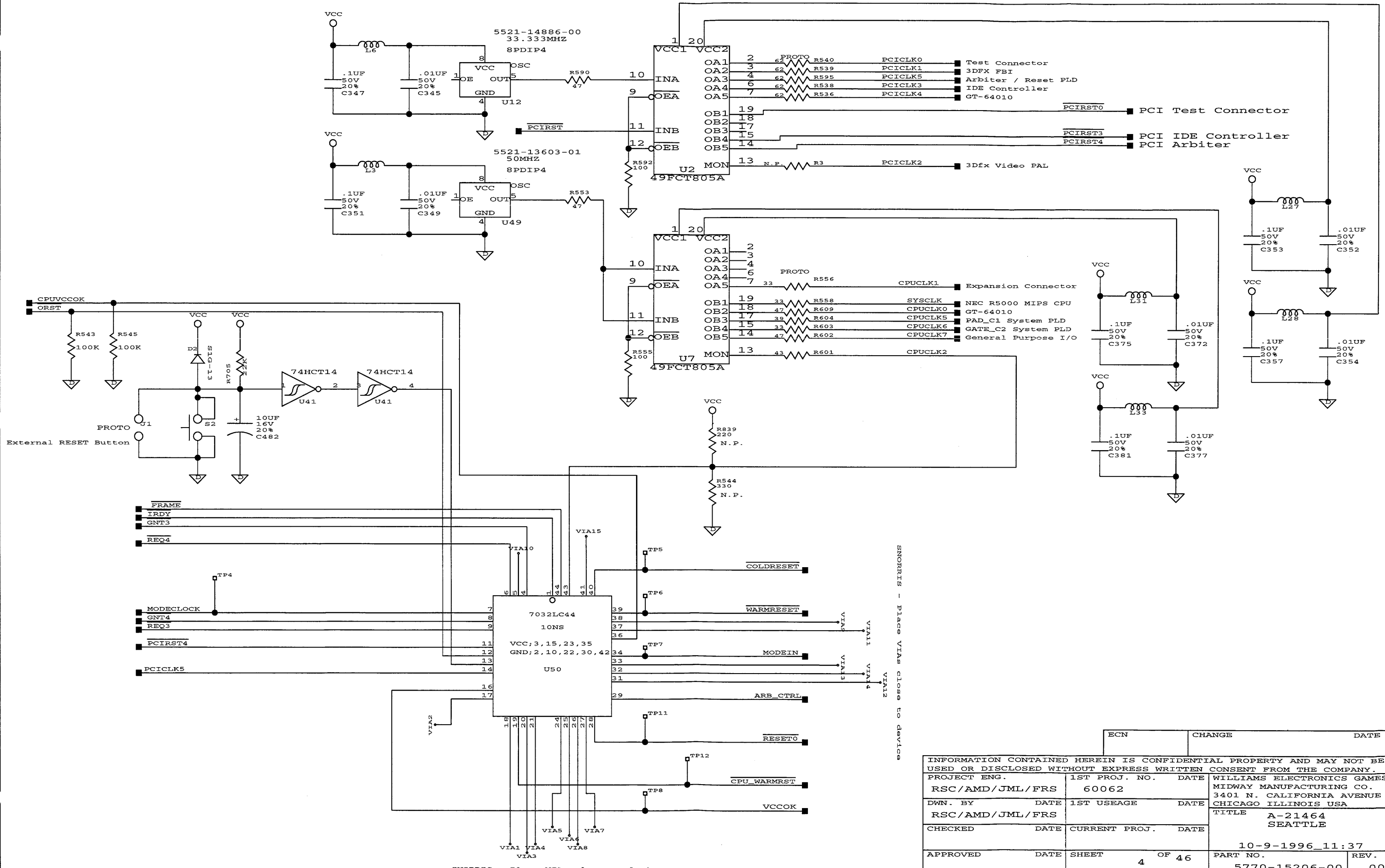
PAGE 2

ECN	CHANGE	DATE
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PROJECT ENG.	1ST PROJ. NO.	DATE
RSC/AMD/JML/FRS		
DWN. BY	DATE	1ST USAGE DATE
RSC/AMD/JML/FRS		
CHECKED	DATE	CURRENT PROJ. DATE
APPROVED	DATE	SHEET 3 OF 50
		PART NO.
		REV. 00

WILLIAMS ELECTRONICS GAMES
MIDWAY MANUFACTURING CO.
3401 N. CALIFORNIA AVENUE
CHICAGO ILLINOIS USA

TITLE A-?????
SEATTLE
10-23-1996_14:18

RESET CIRCUIT/PLD & CLOCK GENERATOR

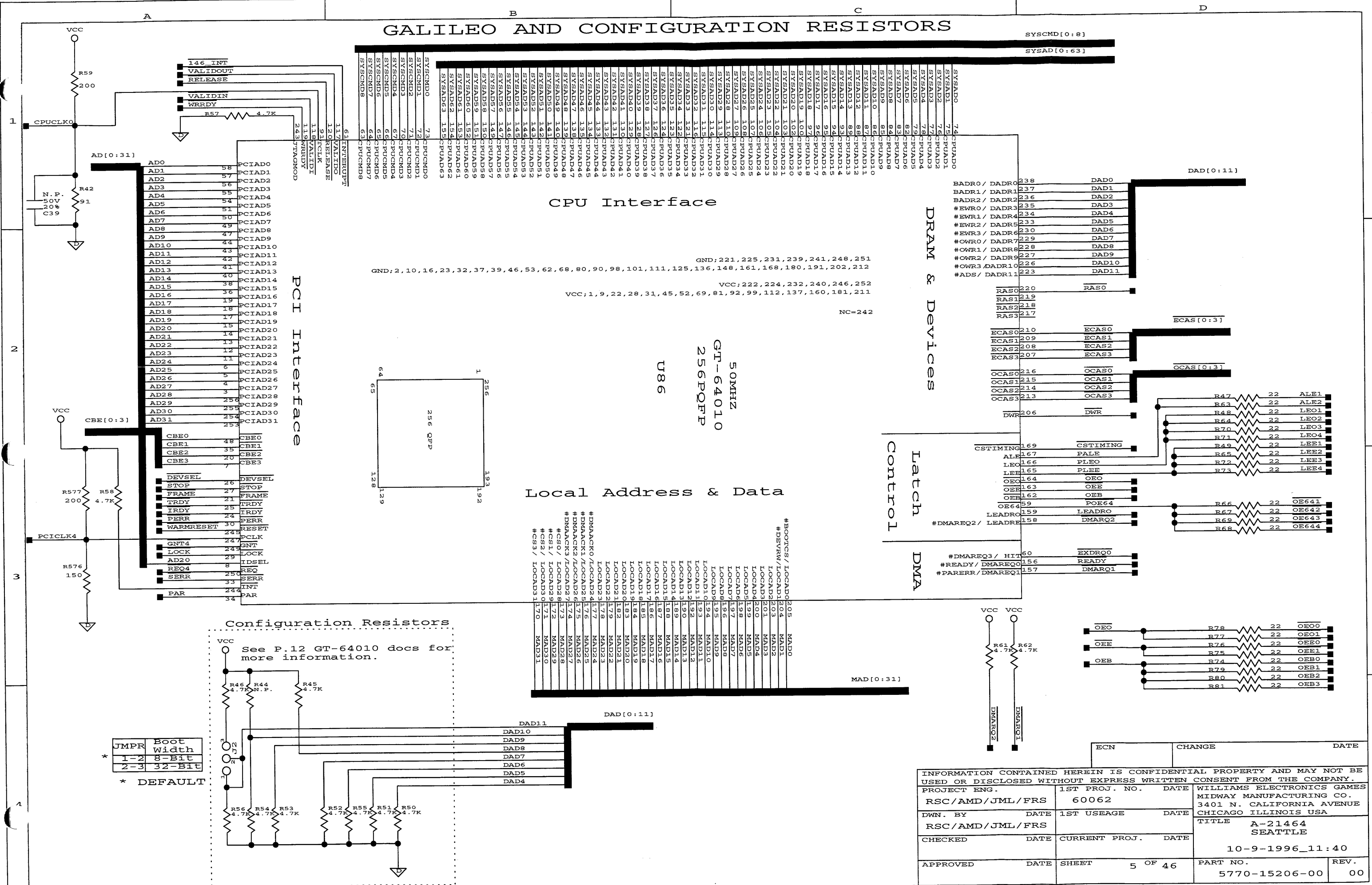


SNORRIS - Place VIAs close to device

SNORRIS - Place VIAs close to device

		ECN	CHANGE	DATE
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PROJECT ENG.		1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES
RSC/AMD/JML/FRS		60062		MIDWAY MANUFACTURING CO.
DWN. BY		1ST USAGE	DATE	3401 N. CALIFORNIA AVENUE
RSC/AMD/JML/FRS				CHICAGO ILLINOIS USA
CHECKED		CURRENT PROJ.	DATE	TITLE
				A-21464
				SEATTLE
APPROVED		SHEET	4 OF 46	10-9-1996_11:37
				PART NO.
				5770-15206-00
				REV.
				00

GALILEO AND CONFIGURATION RESISTORS



CPU Interface

DRAM & Devices

PCI Interface

Local Address & Data

Latch Control DMA

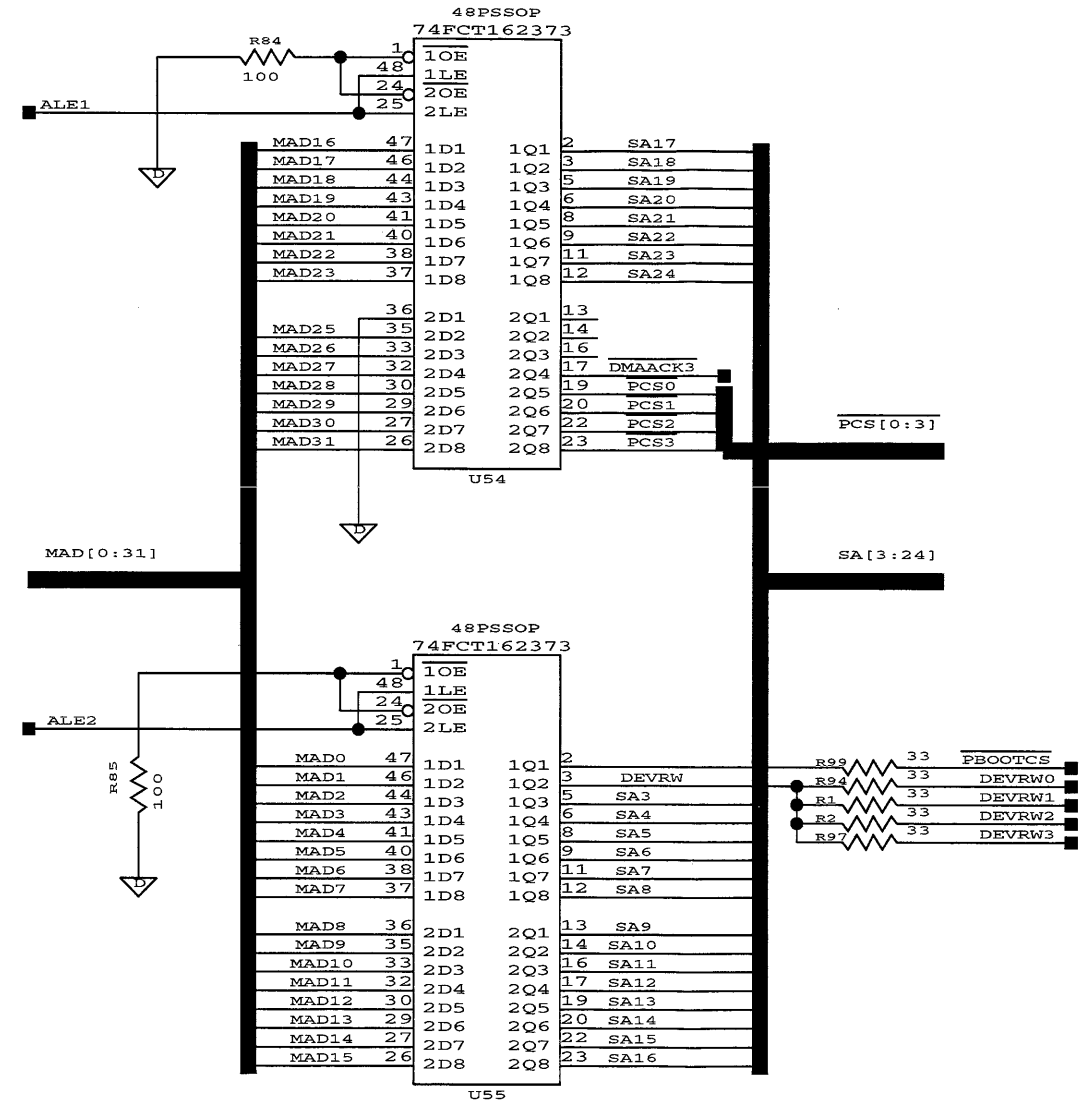
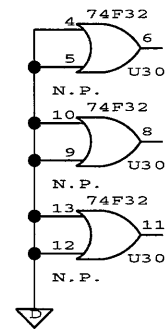
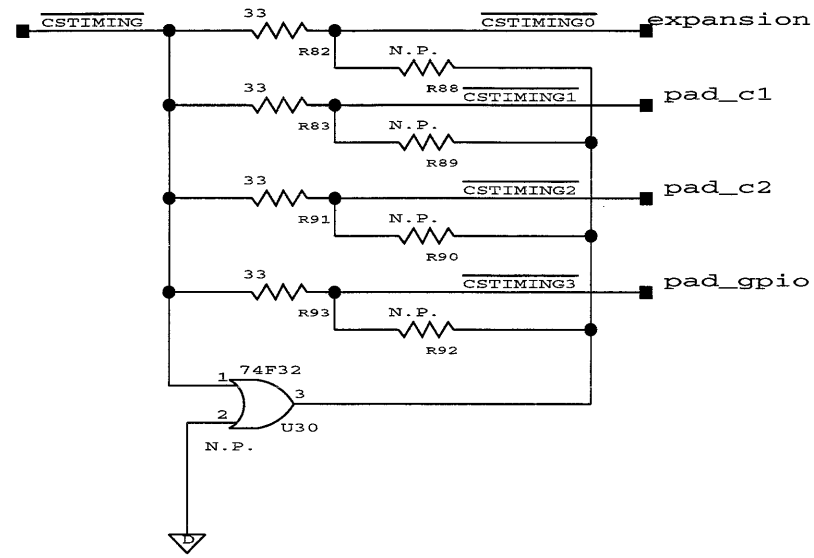
Configuration Resistors

JMPR	Boot Width
1-2	8-Bit
2-3	32-Bit

* DEFAULT

ECN	CHANGE	DATE
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PROJECT ENG.	1ST PROJ. NO.	DATE
RSC/AMD/JML/FRS	60062	
DWN. BY	DATE	1ST USAGE
RSC/AMD/JML/FRS		
CHECKED	DATE	CURRENT PROJ. DATE
APPROVED	DATE	SHEET
		5 OF 46
TITLE		10-9-1996_11:40
PART NO.		5770-15206-00
REV.		00

ADDRESS LATCHES



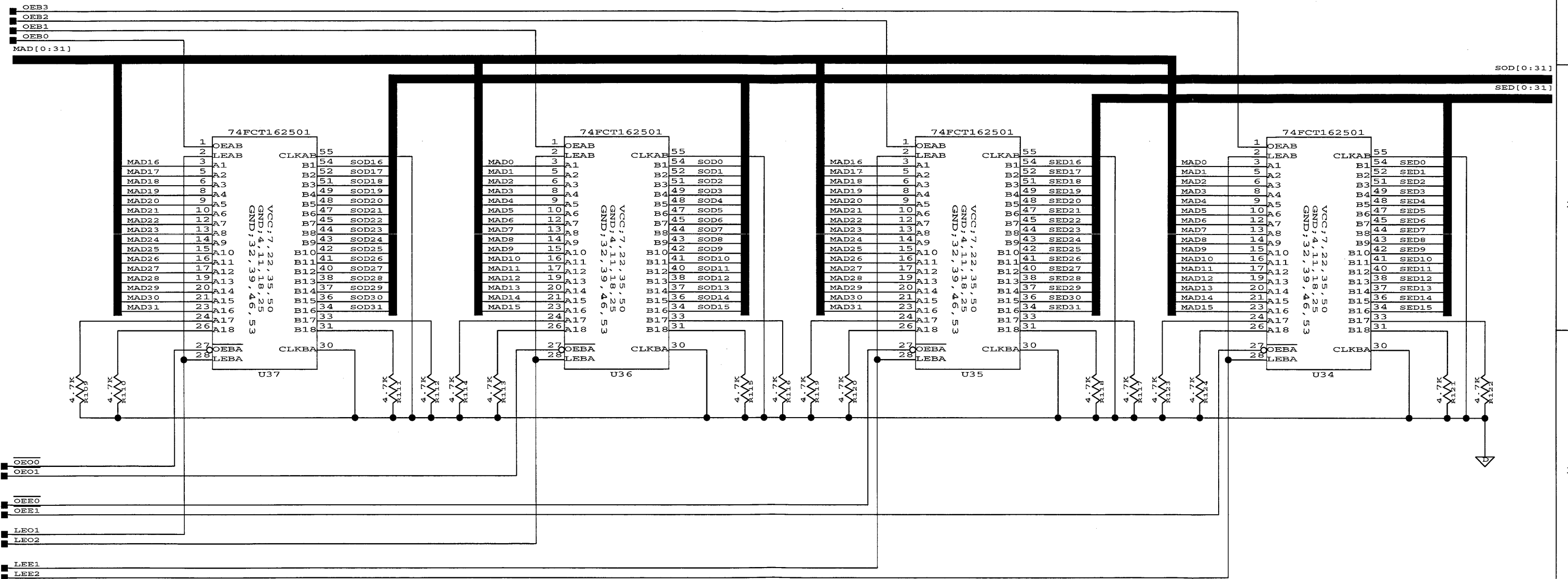
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CHECKED		CURRENT PROJ.		DATE	
APPROVED		SHEET	6 OF 46	PART NO.	5770-15206-00
				REV.	00

WILLIAMS ELECTRONICS GAMES
 MIDWAY MANUFACTURING CO.
 3401 N. CALIFORNIA AVENUE
 CHICAGO ILLINOIS USA

TITLE
 A-21464
 SEATTLE

10-23-1996_10:51

ODD/EVEN DEVICE & DRAM XCVRS



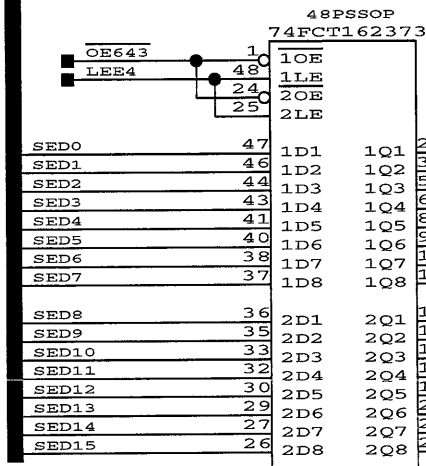
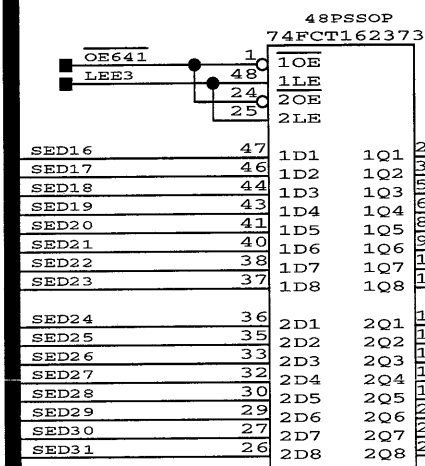
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INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES
RSC/AMD/JML/FRS	60062		MIDWAY MANUFACTURING CO.
DWN. BY	DATE	1ST USAGE	DATE
RSC/AMD/JML/FRS			3401 N. CALIFORNIA AVENUE
CHECKED	DATE	CURRENT PROJ.	DATE
			CHICAGO ILLINOIS USA
APPROVED	DATE	SHEET	TITLE
		7 OF 46	A-21464
			SEATTLE
			10-23-1996_10:52
			PART NO.
			5770-15206-00
			REV.
			00

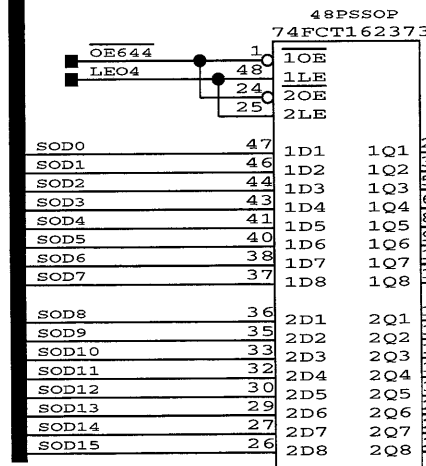
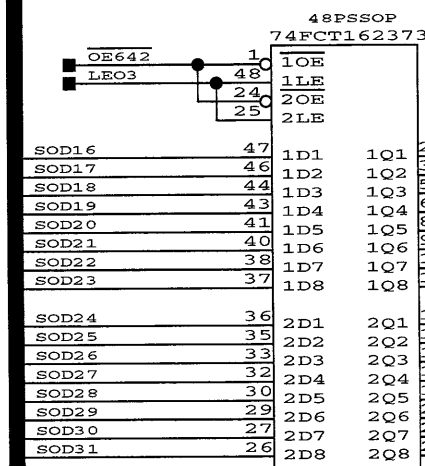
CPU 64-bit ADDR/DATA BUS

SED[0:31]

SYSAD[0:63]



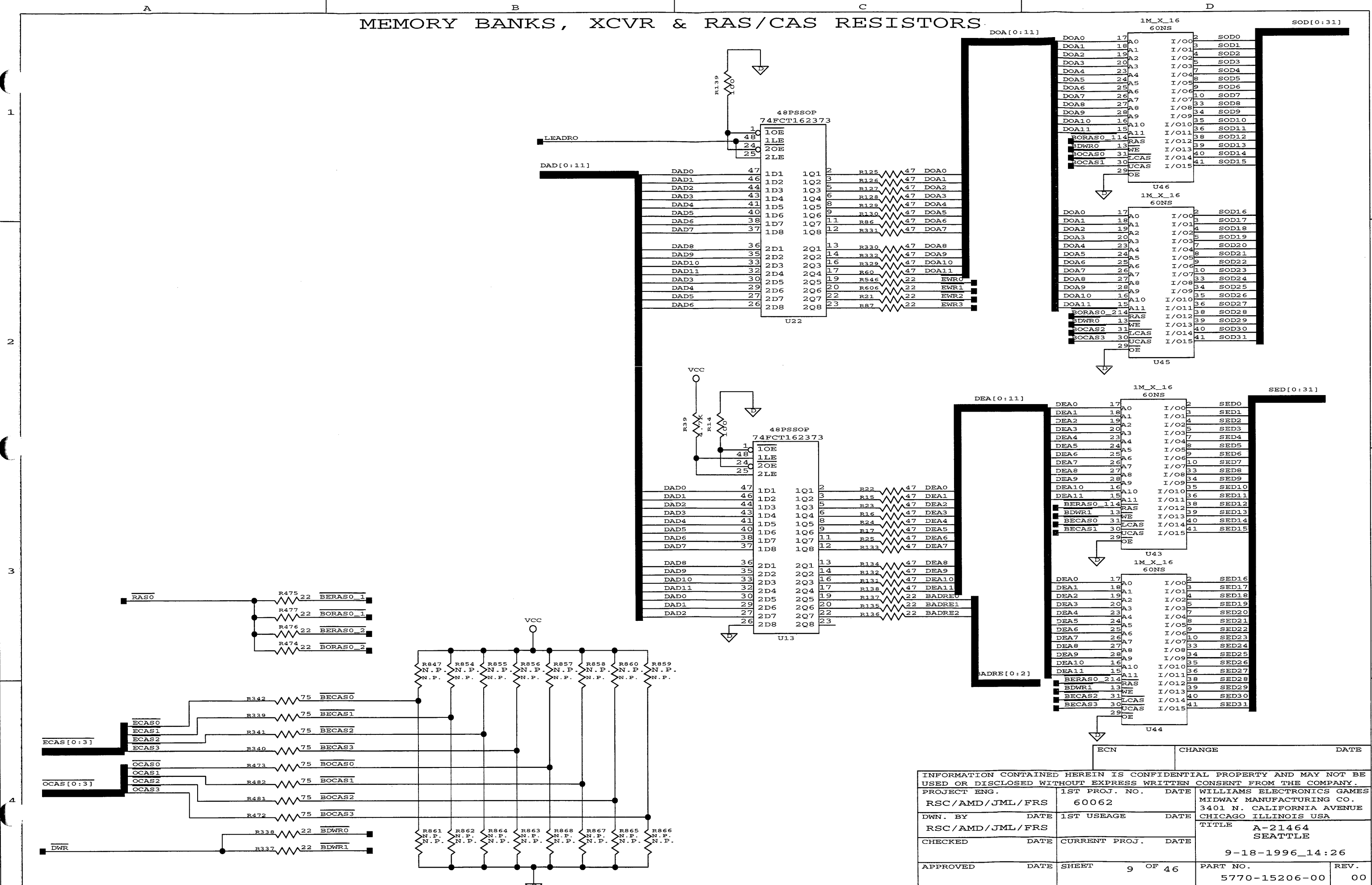
SOD[0:31]



ECN	CHANGE	DATE
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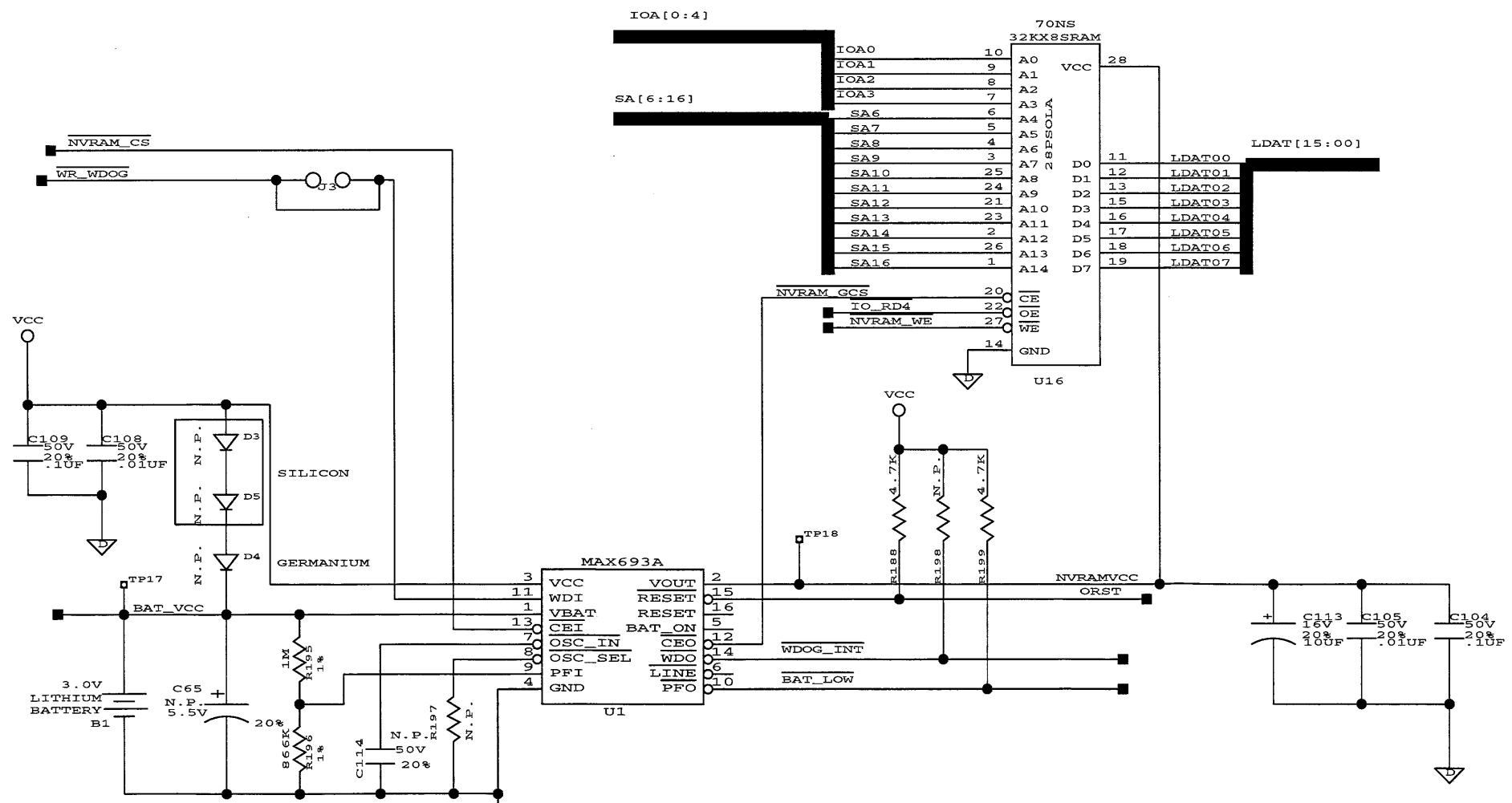
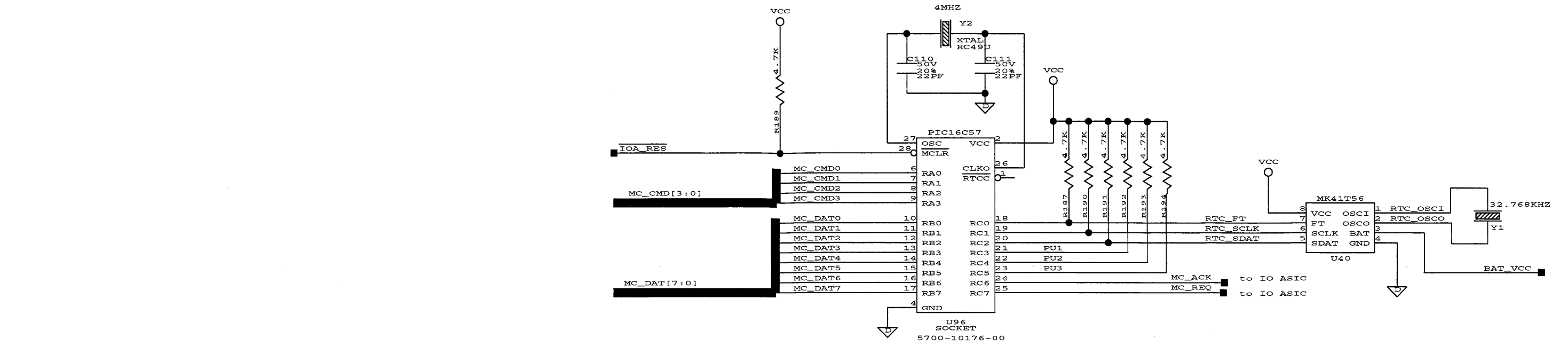
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES
RSC/AMD/JML/FRS	60062		MIDWAY MANUFACTURING CO.
DWN. BY	DATE	1ST USAGE	DATE
RSC/AMD/JML/FRS			CHICAGO ILLINOIS USA
CHECKED	DATE	CURRENT PROJ.	DATE
			TITLE
			A-21464
			SEATTLE
			10-23-1996_10:53
APPROVED	DATE	SHEET	PART NO.
		8 OF 46	5770-15206-00
			REV.
			00

MEMORY BANKS, XCVR & RAS/CAS RESISTORS



ECN	CHANGE	DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.		
PROJECT ENG.	1ST PROJ. NO.	DATE
RSC/AMD/JML/FRS	60062	
DWN. BY	DATE	1ST USAGE
RSC/AMD/JML/FRS		
CHECKED	DATE	CURRENT PROJ.
APPROVED	DATE	SHEET
		9 OF 46
		TITLE
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		9-18-1996_14:26
		PART NO.
		5770-15206-00
		REV.
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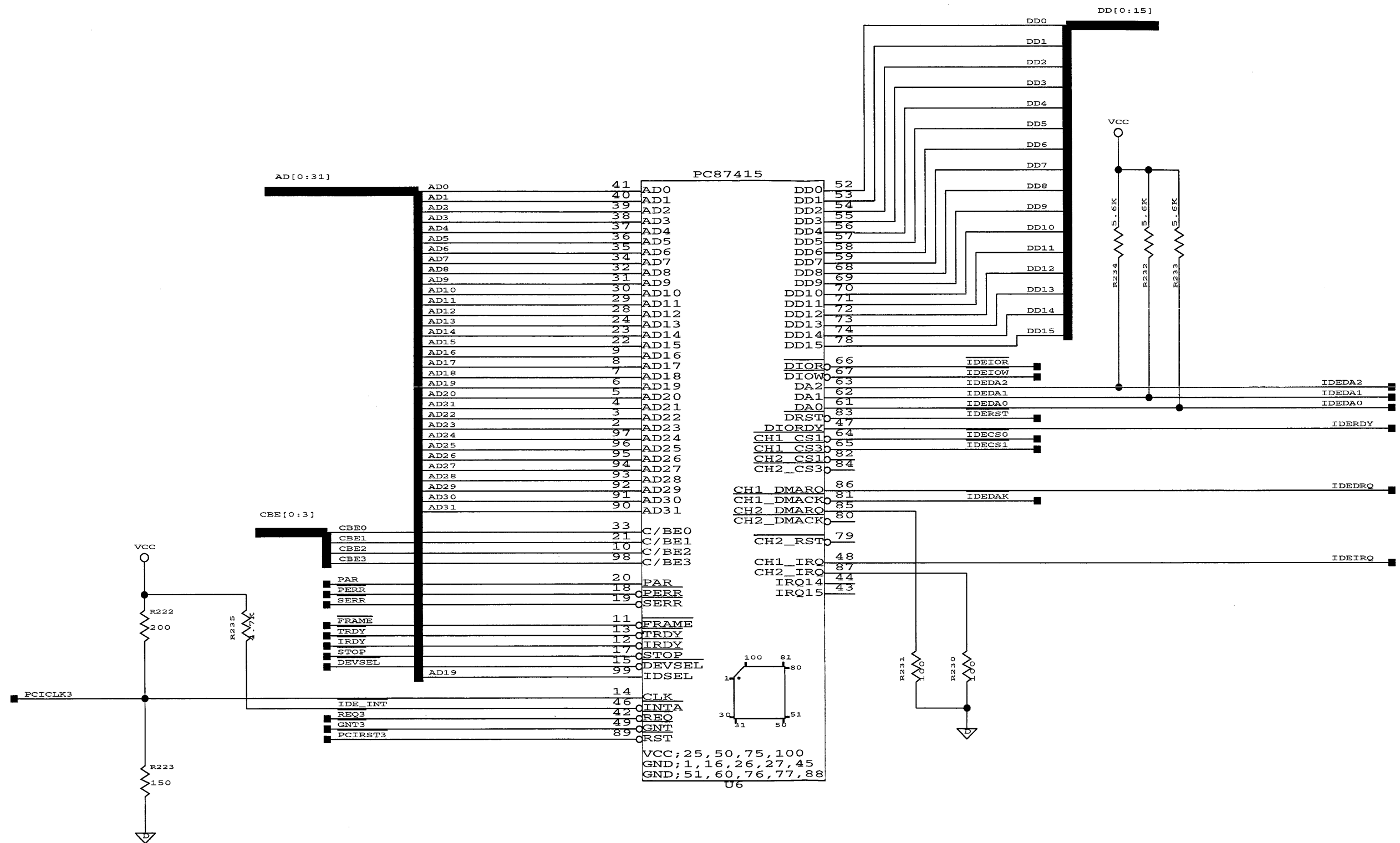
RTC, PIC, NVRAM AND WATCHDOG



NOTE: The circuit should be laid out assuming either C65 and D3-5 **OR** B1/R195-196 is installed. Both sets of parts WILL NOT be populated at the same time.

ECN	CHANGE	DATE	
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA
RSC/AMD/JML/FRS			
DWN. BY	DATE	1ST USAGE	DATE
RSC/AMD/JML/FRS			
CHECKED	DATE	CURRENT PROJ.	DATE
APPROVED	DATE	SHEET	11 OF 50
		PART NO.	REV.
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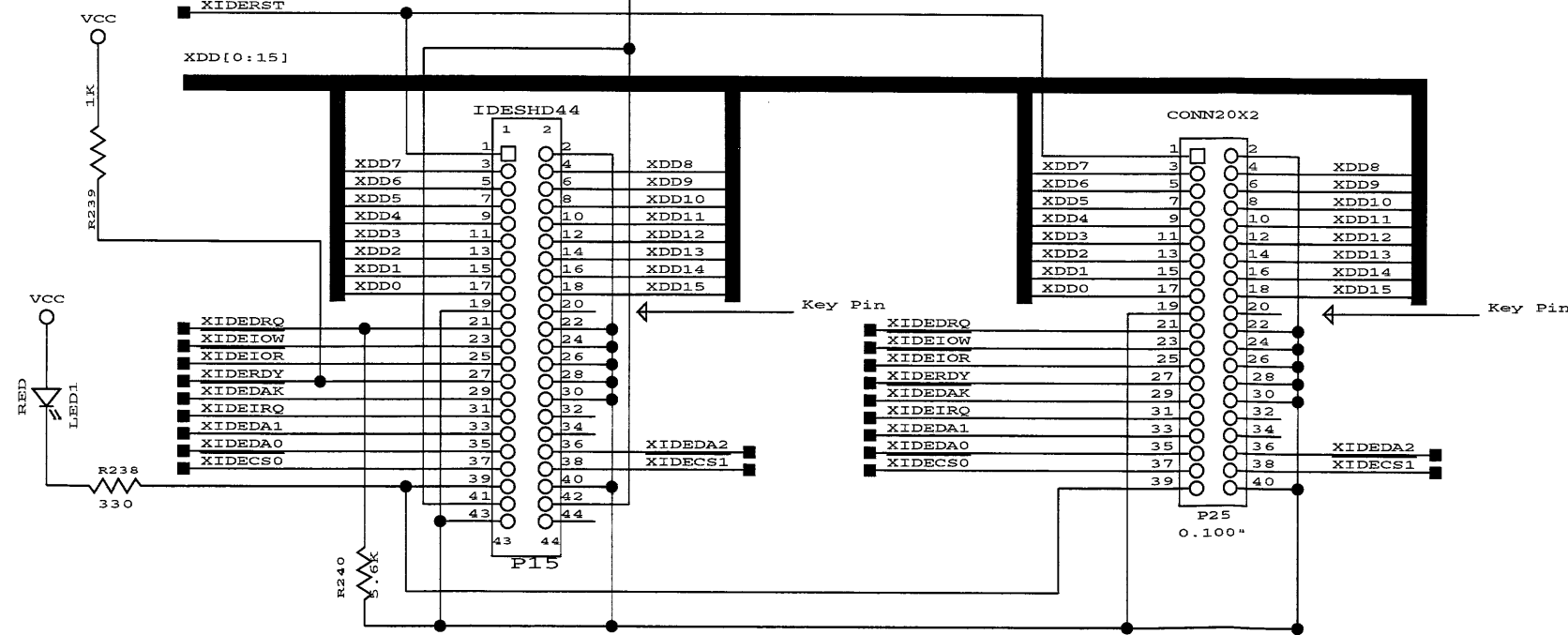
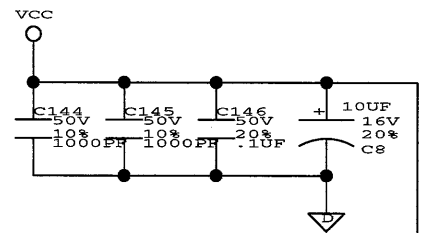
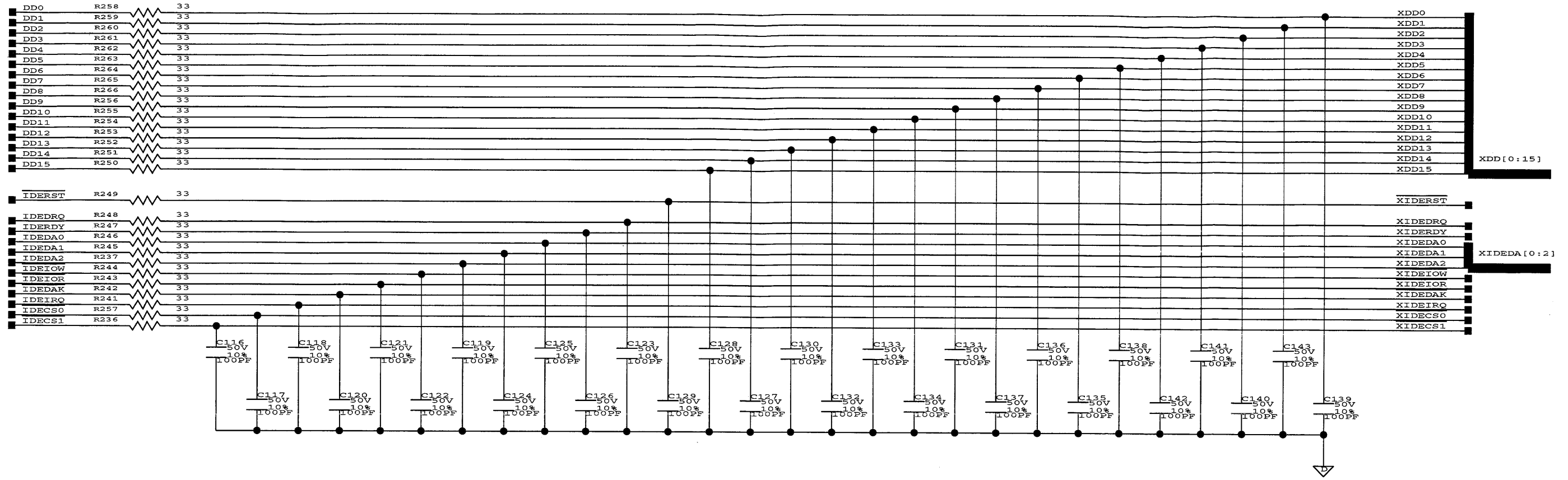
PCI IDE/HDD CONTROLLER



VCC; 25, 50, 75, 100
 GND; 1, 16, 26, 27, 45
 GND; 51, 60, 76, 77, 88
 U6

	ECN	CHANGE	DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG. RSC/AMD/JML/FRS	1ST PROJ. NO. 60062	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA
DWN. BY RSC/AMD/JML/FRS	DATE	1ST USAGE DATE	TITLE A-21464 SEATTLE
CHECKED	DATE	CURRENT PROJ. DATE	9-18-1996_13:07
APPROVED	DATE	SHEET 12 OF 46	PART NO. 5770-15206-00 REV. 00

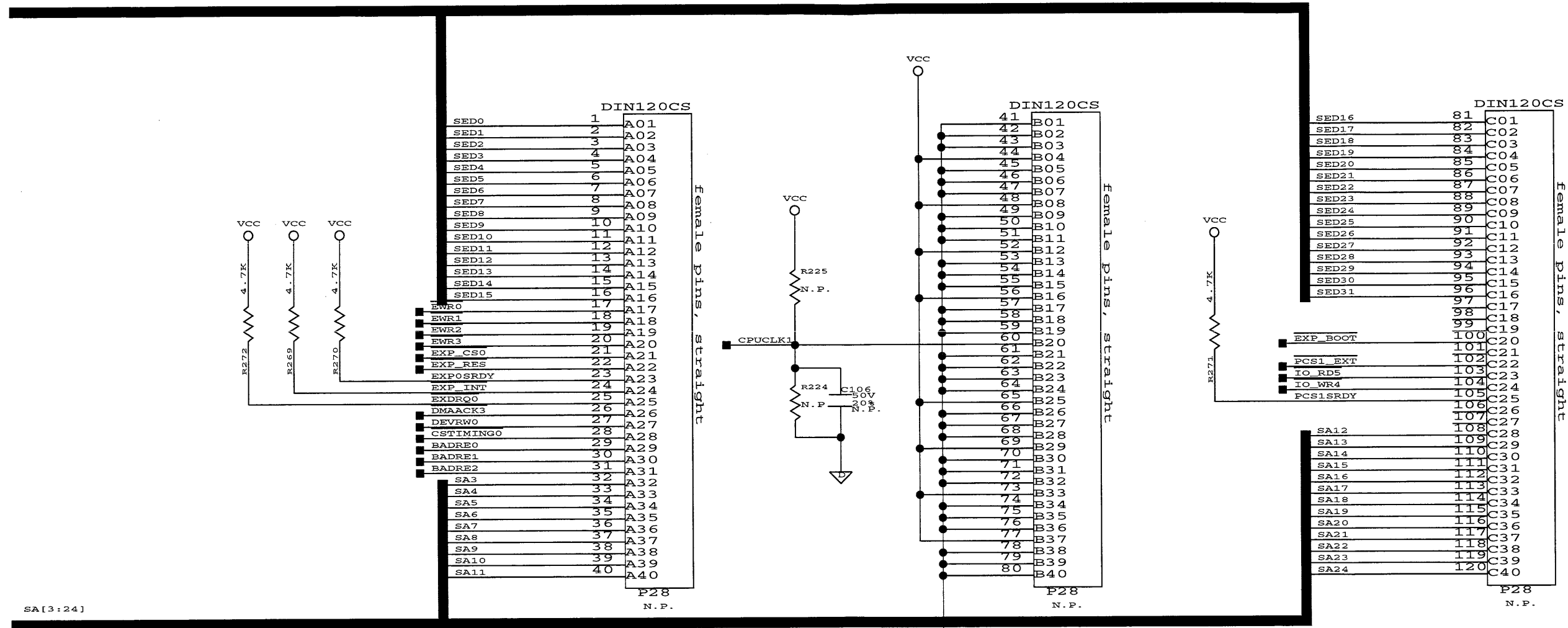
IDE/HDD BUS FILTERS & CONNECTORS



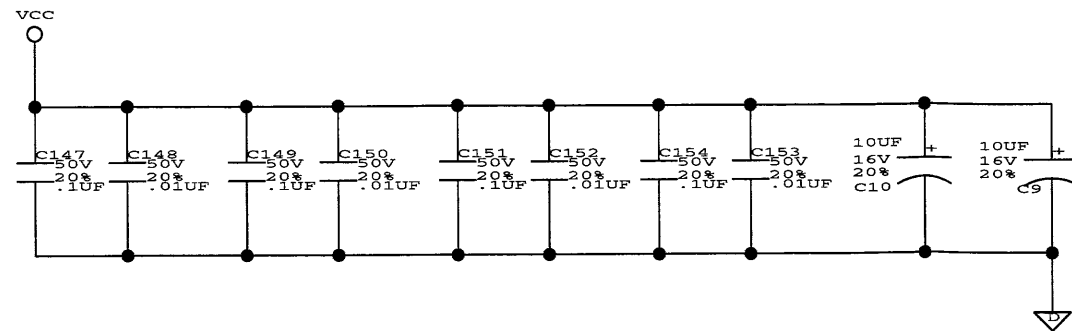
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INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA
		60062		
DWN. BY	DATE	1ST USAGE	DATE	TITLE
RSC/AMD/JML/FRS				A-21464 SEATTLE
CHECKED	DATE	CURRENT PROJ.	DATE	9-18-1996_13:07
APPROVED	DATE	SHEET	13 OF 46	PART NO. 5770-15206-00
				REV. 0 0 0

EXPANSION/ZEUS CONNECTOR

SED[0:31]

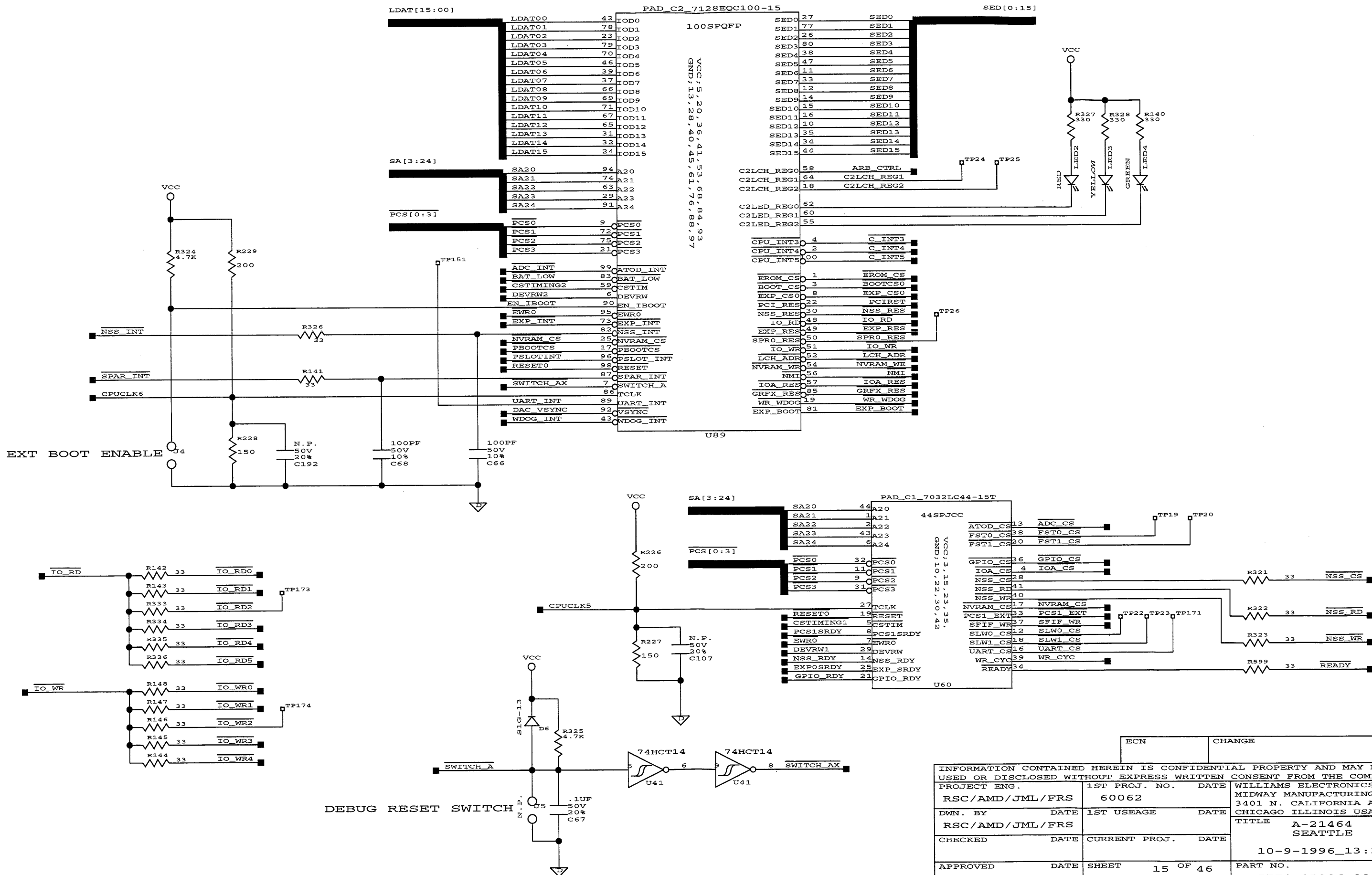


SA[3:24]



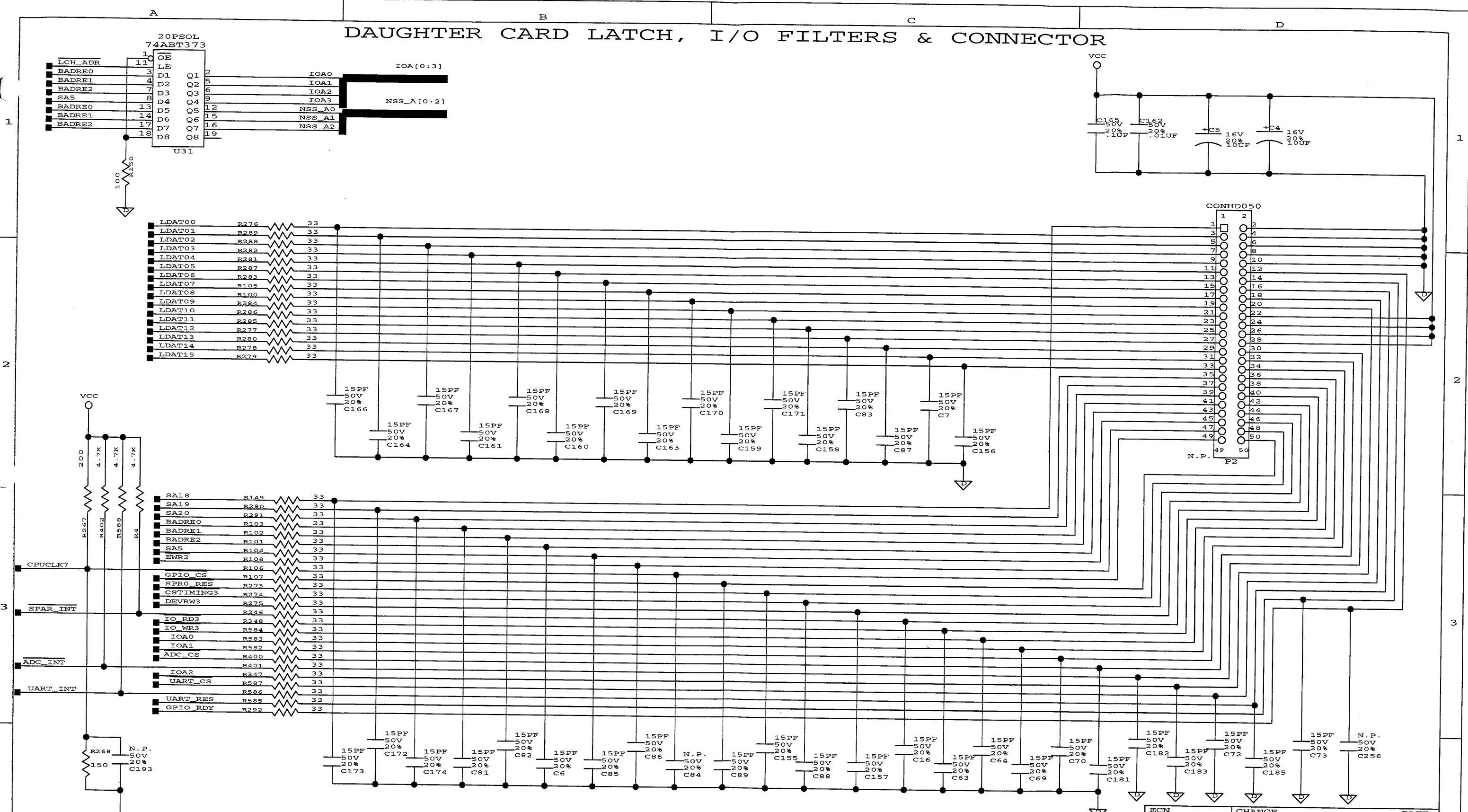
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INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES	
RSC/AMD/JML/FRS	60062		MIDWAY MANUFACTURING CO.	
DWN. BY	DATE	1ST USAGE	DATE	3401 N. CALIFORNIA AVENUE
RSC/AMD/JML/FRS				CHICAGO ILLINOIS USA
CHECKED	DATE	CURRENT PROJ.	DATE	TITLE
				A-21464
				SEATTLE
				9-18-1996_13:08
APPROVED	DATE	SHEET	14 OF 46	PART NO.
				5770-15206-00
				REV.
				00

SYSTEM CONTROL PLDs



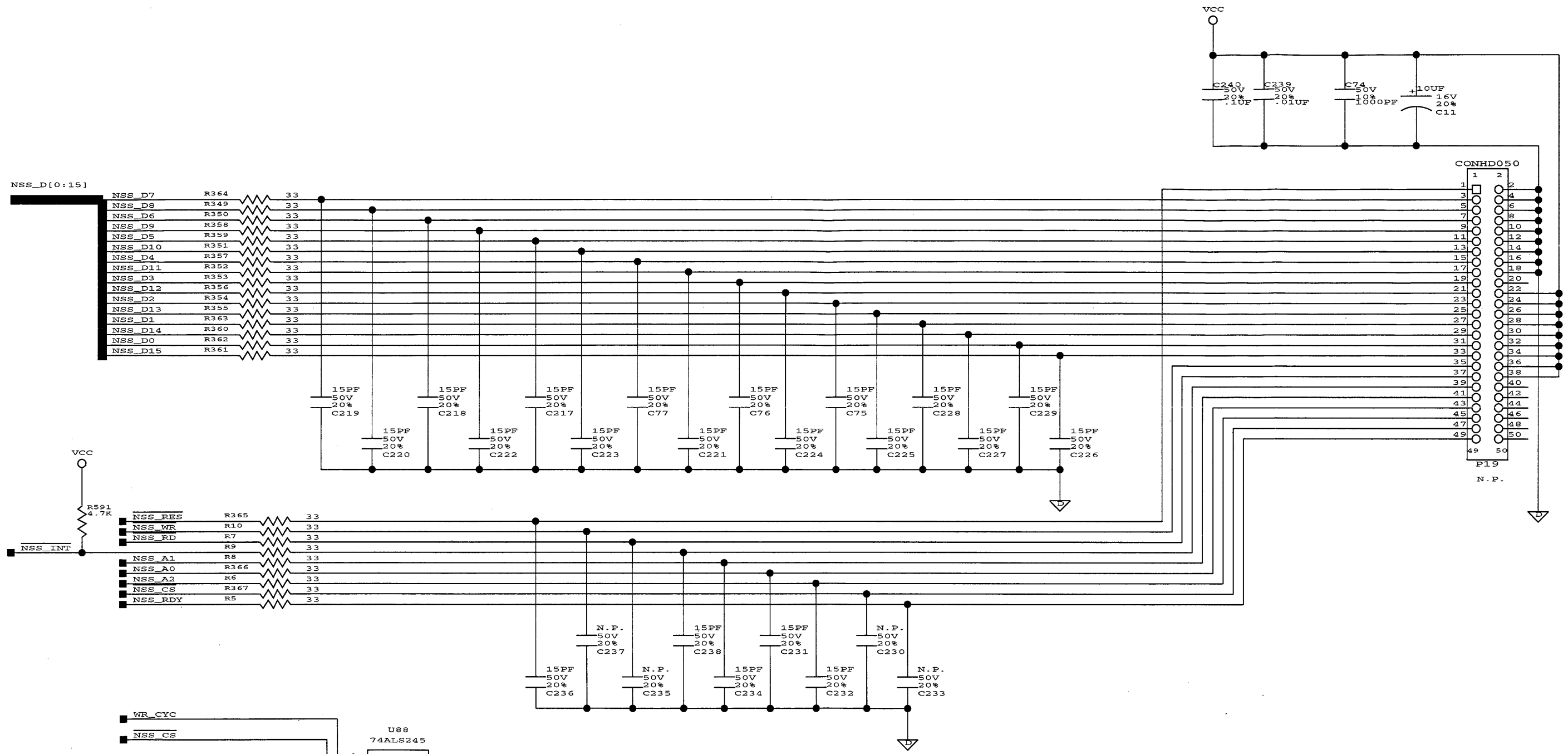
ECN	CHANGE	DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.		
PROJECT ENG.	1ST PROJ. NO.	DATE
RSC/AMD/JML/FRS	60062	
DWN. BY	DATE	1ST USAGE
RSC/AMD/JML/FRS		
CHECKED	DATE	CURRENT PROJ. DATE
APPROVED	DATE	SHEET 15 OF 46
TITLE		PART NO.
A-21464 SEATTLE		5770-15206-00
10-9-1996_13:34		REV. 00

DAUGHTER CARD LATCH, I/O FILTERS & CONNECTOR



ECN		CHANGE		DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	60062	DATE
DWN. BY	RSC/AMD/JML/FRS	1ST USAGE		DATE
CHECKED		CURRENT PROJ.		DATE
APPROVED		SHEET	16 OF 46	DATE
			TITLE	
			A-21464 SEATTLE	
			10-3-1996_13:24	
			PART NO.	REV.
			5770-15206-00	00

WAVENET/NSS FILTERS, DATA LATCHES & CONNECTOR



NSS_RES	R365	33
NSS_WR	R10	33
NSS_RD	R7	33
NSS_A1	R8	33
NSS_A0	R366	33
NSS_A2	R6	33
NSS_CS	R367	33
NSS_RDY	R5	33

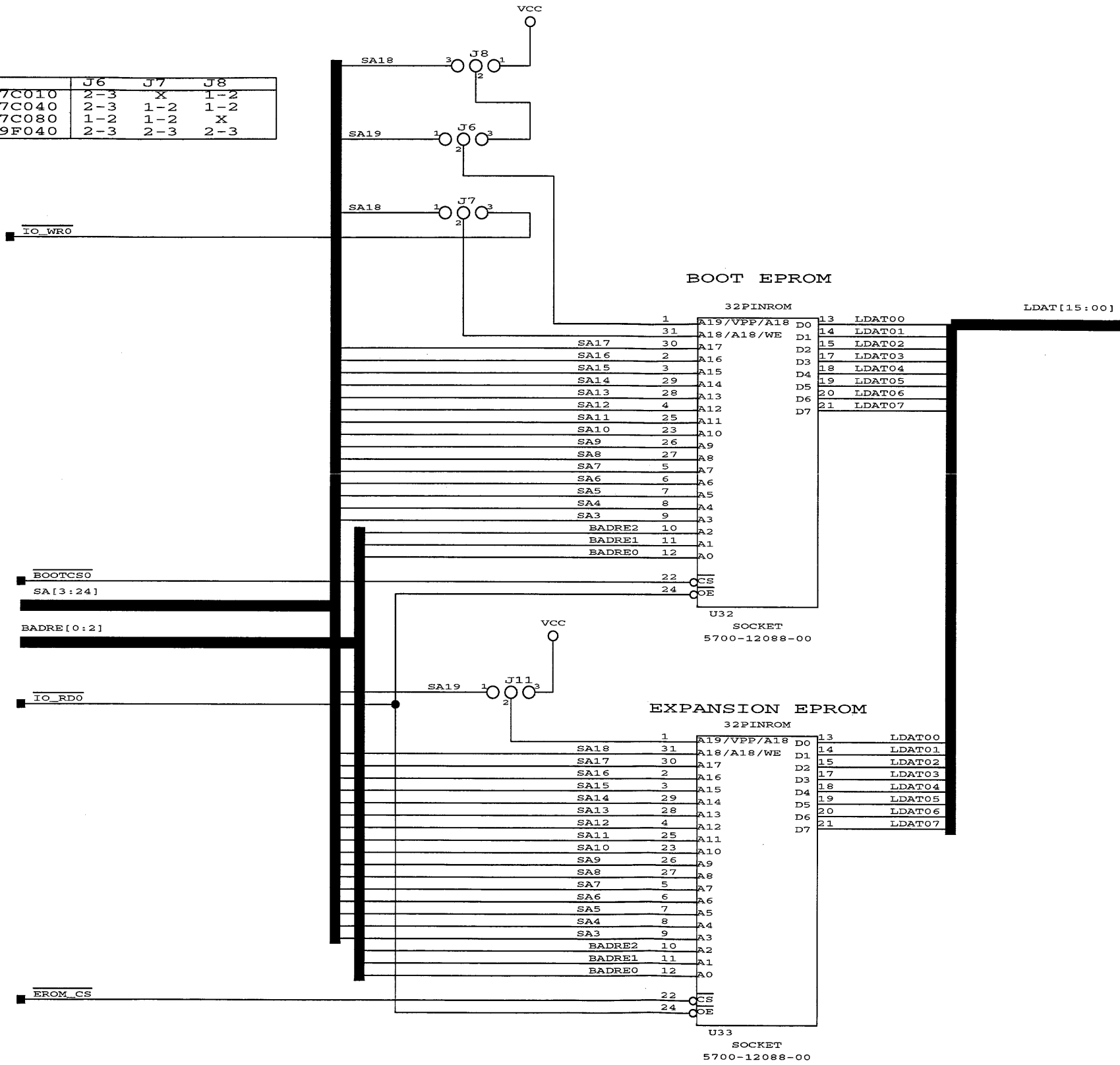
U88		74ALS245		
1	DIR	18	NSS_D0	
19	OE	17	NSS_D1	
2	A1	B1	16	NSS_D2
3	A2	B2	15	NSS_D3
4	A3	B3	14	NSS_D4
5	A4	B4	13	NSS_D5
6	A5	B5	12	NSS_D6
7	A6	B6	11	NSS_D7
8	A7	B7		
9	A8	B8		

U23		74ALS245		
1	DIR	18	NSS_D8	
19	OE	17	NSS_D9	
2	A1	B1	16	NSS_D10
3	A2	B2	15	NSS_D11
4	A3	B3	14	NSS_D12
5	A4	B4	13	NSS_D13
6	A5	B5	12	NSS_D14
7	A6	B6	11	NSS_D15
8	A7	B7		
9	A8	B8		

ECN		CHANGE		DATE	
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.					
PROJECT ENG.		1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES	
RSC/AMD/JML/FRS		60062		MIDWAY MANUFACTURING CO.	
DWN. BY		DATE	1ST USAGE	DATE	3401 N. CALIFORNIA AVENUE
RSC/AMD/JML/FRS					CHICAGO ILLINOIS USA
CHECKED		DATE	CURRENT PROJ.	DATE	TITLE
					A-21464
					SEATTLE
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					9-18-1996_13:08
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					REV.
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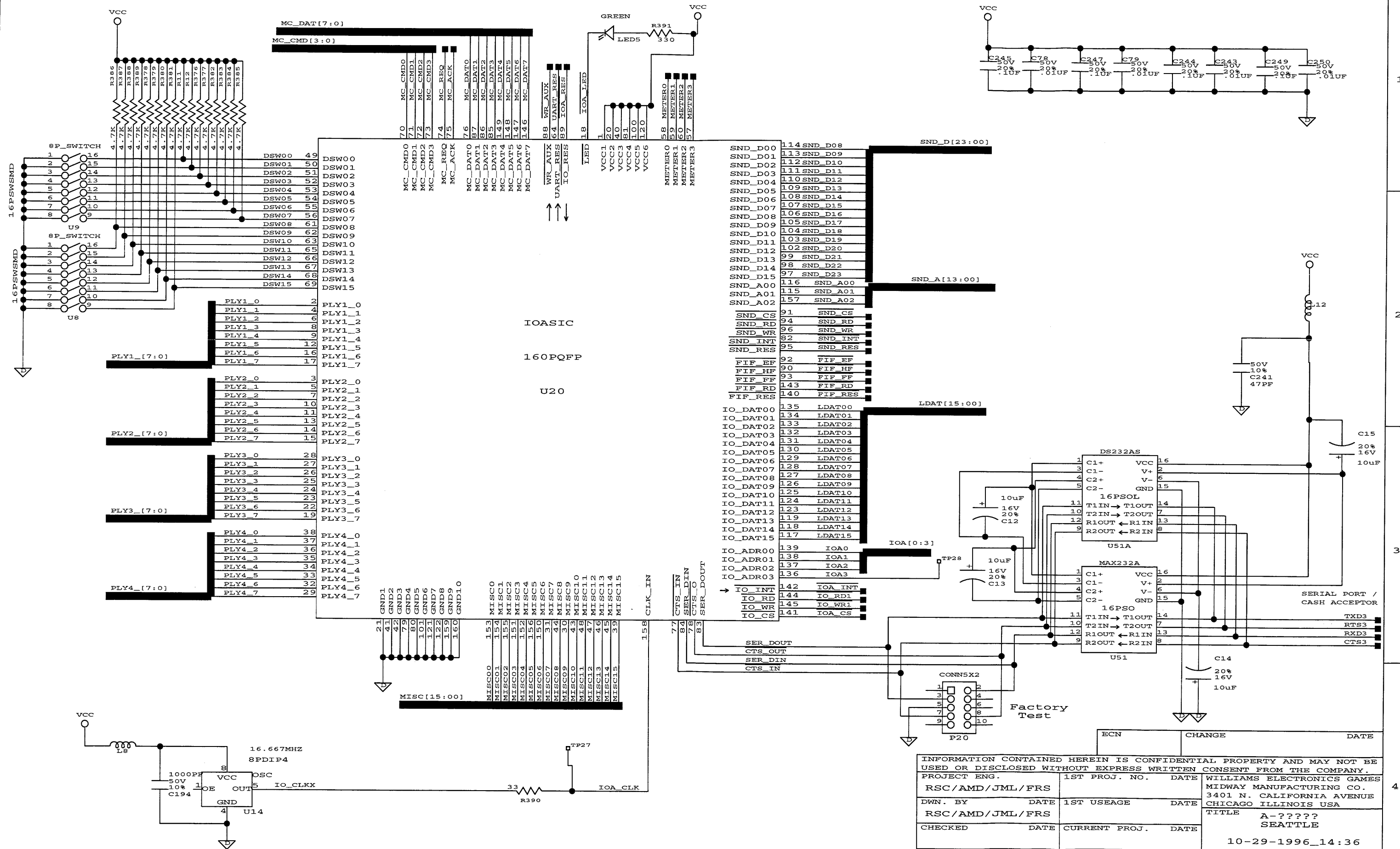
BOOT AND EXPANSION EPROMS

	J6	J7	J8
27C010	2-3	X	1-2
27C040	2-3	1-2	1-2
27C080	1-2	1-2	X
29F040	2-3	2-3	2-3



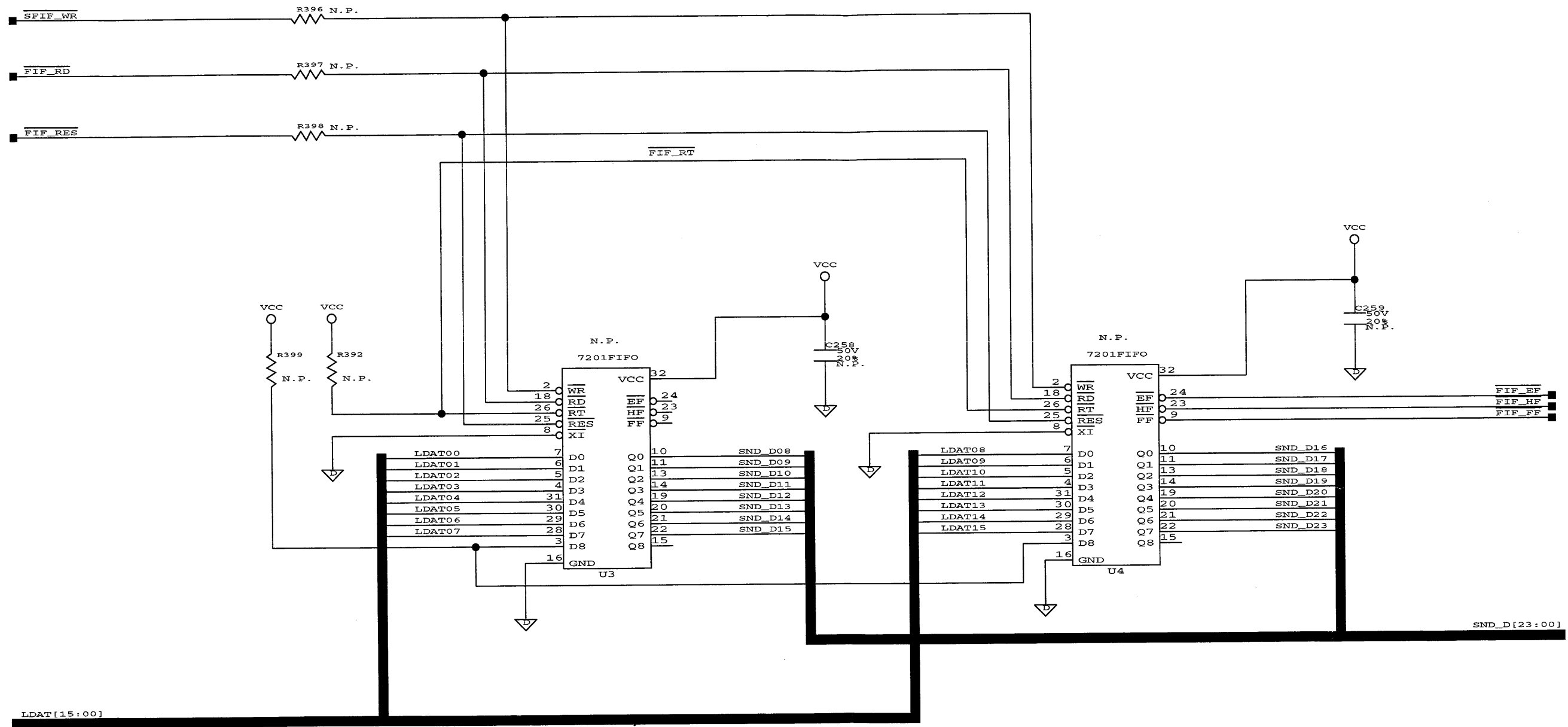
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INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA
		60062		
DWN. BY	DATE	1ST USAGE	DATE	TITLE
RSC/AMD/JML/FRS				A-21464 SEATTLE
CHECKED	DATE	CURRENT PROJ.	DATE	
				9-18-1996_13:09
APPROVED	DATE	SHEET	18 OF 46	PART NO. 5770-15206-00
				REV. 00

IO-ASIC, DIP SWITCHES & UART



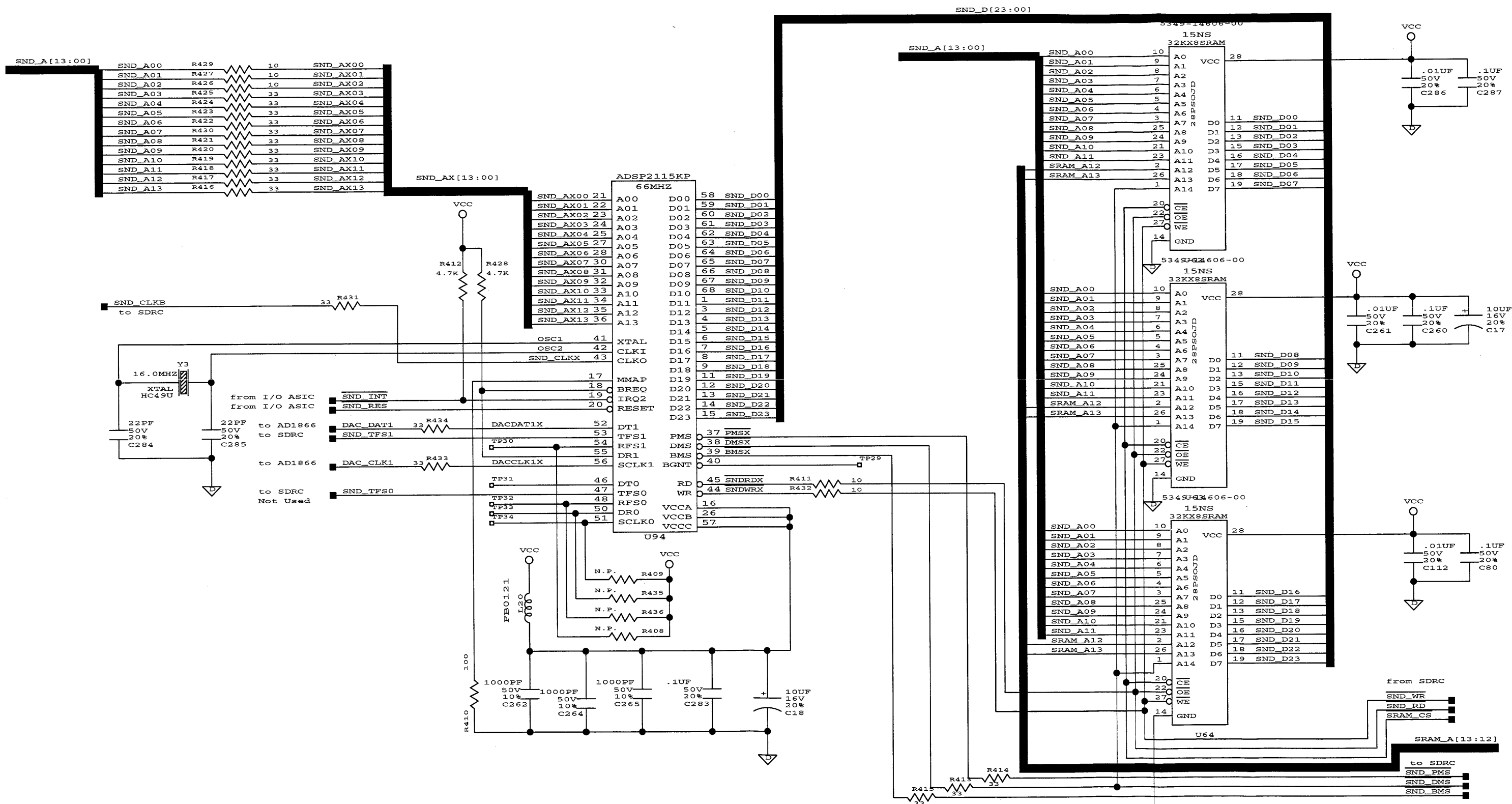
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INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.					
PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES	
DWN. BY	DATE	1ST USAGE	DATE	MIDWAY MANUFACTURING CO.	
RSC/AMD/JML/FRS				3401 N. CALIFORNIA AVENUE	
CHECKED	DATE	CURRENT PROJ.	DATE	CHICAGO ILLINOIS USA	
APPROVED	DATE	SHEET	19 OF 50	TITLE	
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				SEATTLE	
				10-29-1996_14:36	
				PART NO.	REV.
					00

SOUND FIFOS



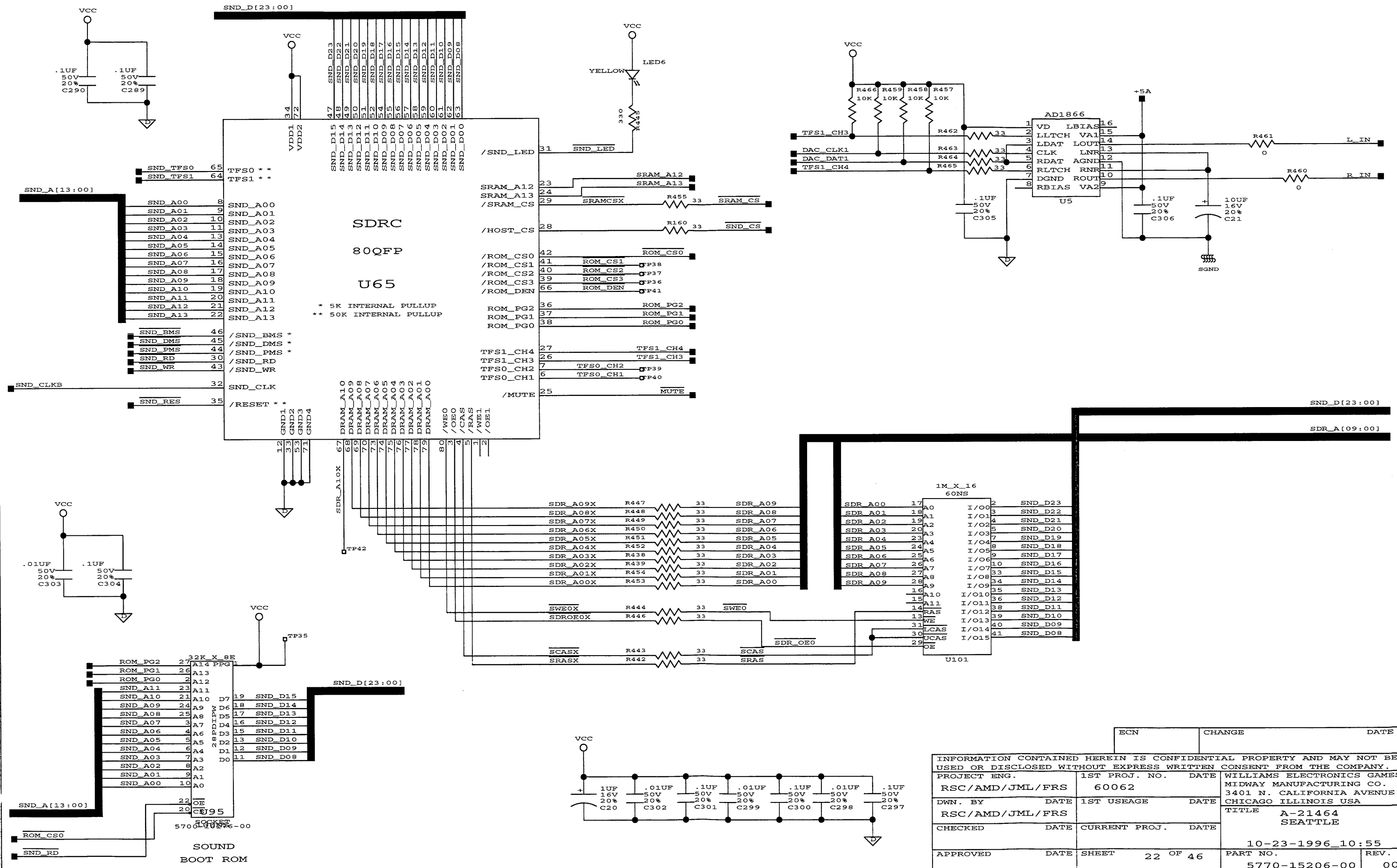
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INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES	
RSC/AMD/JML/FRS	60062		MIDWAY MANUFACTURING CO.	
DWN. BY	DATE	1ST USAGE	3401 N. CALIFORNIA AVENUE	
RSC/AMD/JML/FRS			CHICAGO ILLINOIS USA	
CHECKED	DATE	CURRENT PROJ.	TITLE	
			A-21464	
			SEATTLE	
APPROVED	DATE	SHEET	20 OF 46	9-18-1996_13:10
			PART NO.	REV.
			5770-15206-00	00

SOUND DSP2115KP-66 AND SRAMS



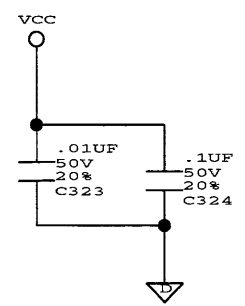
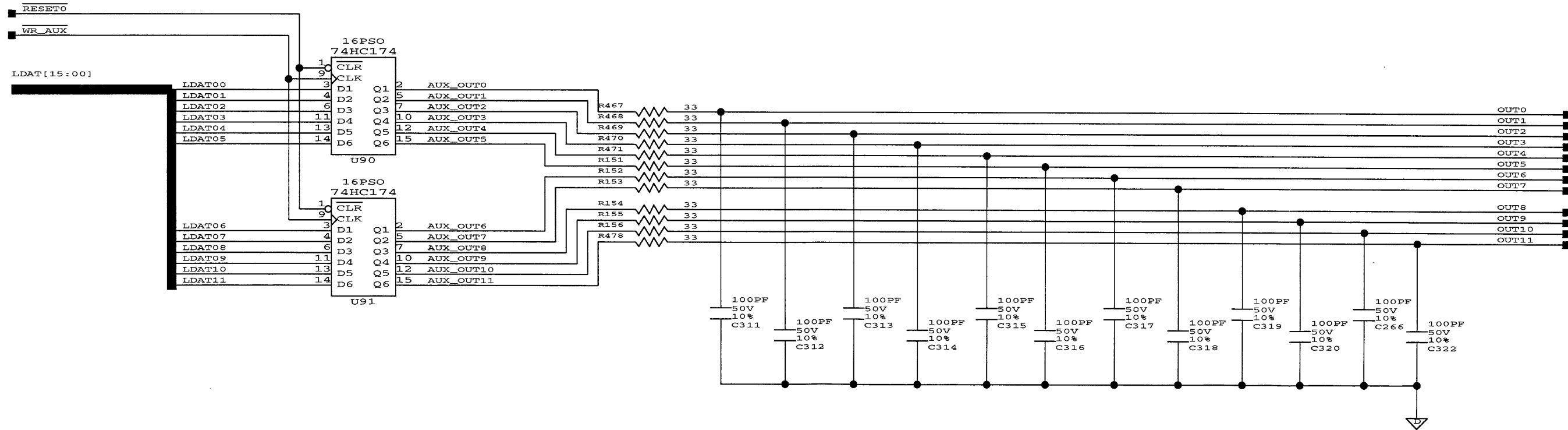
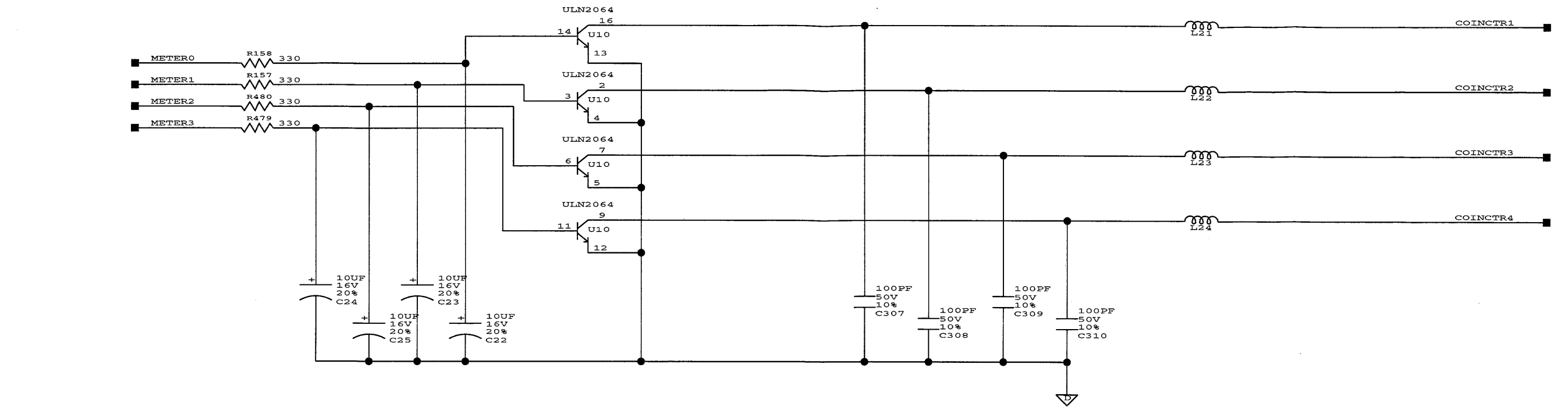
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INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES	
RSC/AMD/JML/FRS	60062		MIDWAY MANUFACTURING CO.	
DWN. BY	DATE	1ST USAGE	DATE	
RSC/AMD/JML/FRS			TITLE	
CHECKED	DATE	CURRENT PROJ.	DATE	
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			SEATTLE	
			10-9-1996_13:50	
APPROVED	DATE	SHEET	PART NO.	REV.
		21 OF 46	5770-15206-00	00

SOUND SDRC-ASIC, BOOT EPROM, MEMORY & DAC



ECN	CHANGE	DATE	
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES
RSC/AMD/JML/FRS	60062		MIDWAY MANUFACTURING CO.
DWN. BY	DATE	1ST USAGE	DATE
RSC/AMD/JML/FRS			
TITLE A-21464 SEATTLE			
CHECKED	DATE	CURRENT PROJ.	DATE
APPROVED	DATE	SHEET	22 OF 46
			10-23-1996_10:55
			PART NO. 5770-15206-00
			REV. 00

COIN COUNTER & AUX LATCHED OUTPUTS



		ECN	CHANGE	DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	60062	DATE
DWN. BY	RSC/AMD/JML/FRS	1ST USAGE		DATE
CHECKED		CURRENT PROJ.		DATE
APPROVED		SHEET	23 OF 46	DATE
			TITLE	A-21464 SEATTLE
			9-18-1996_14:27	
			PART NO.	5770-15206-00
			REV.	00

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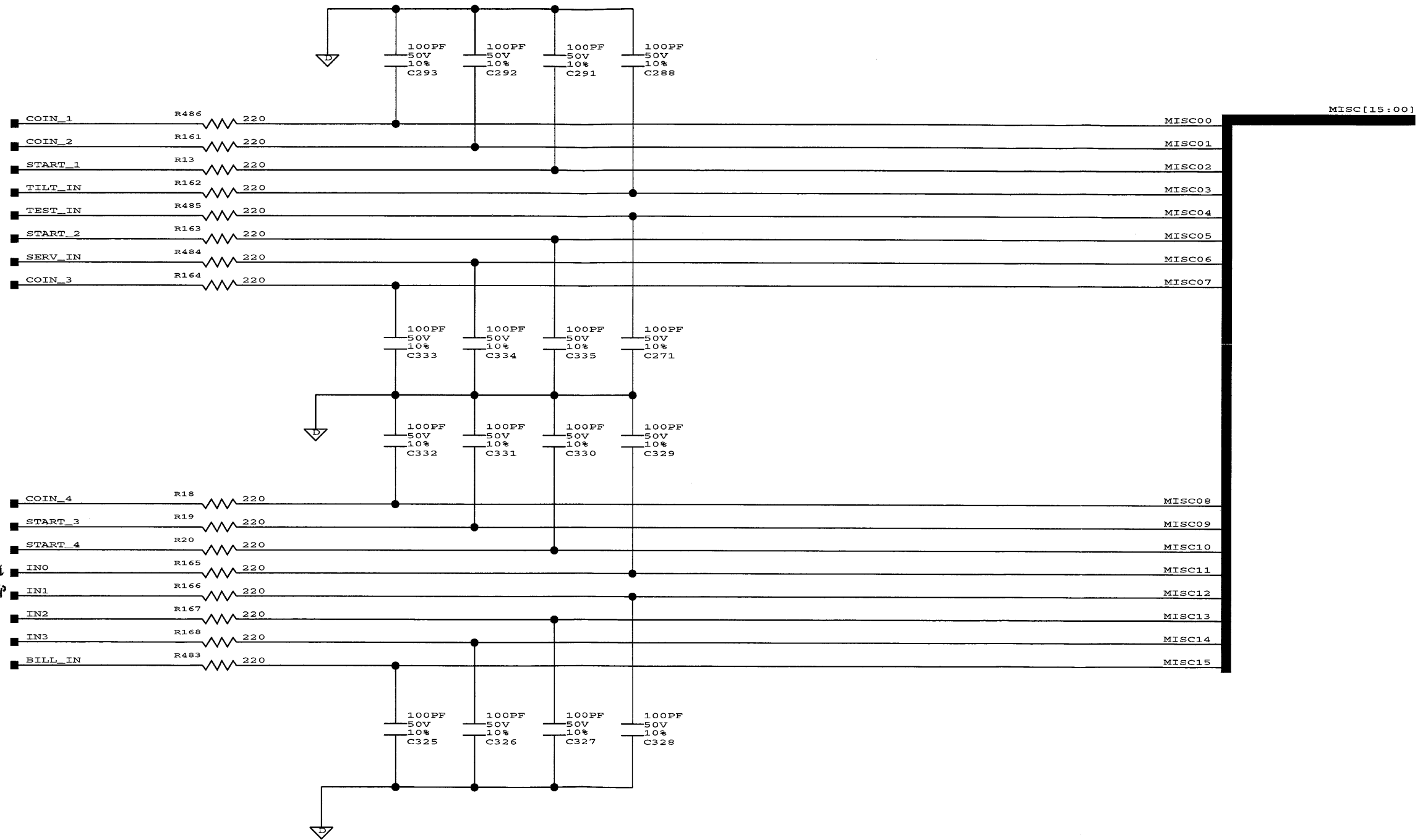
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2

3

4

MISCELLANEOUS INPUTS & FILTERS

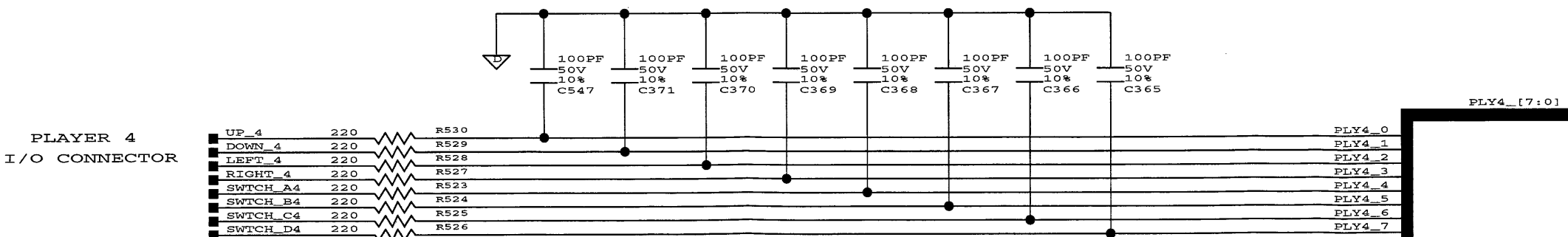
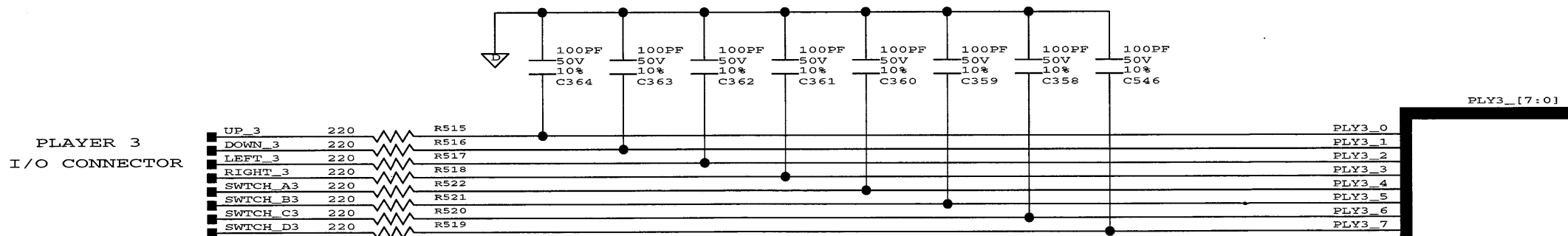
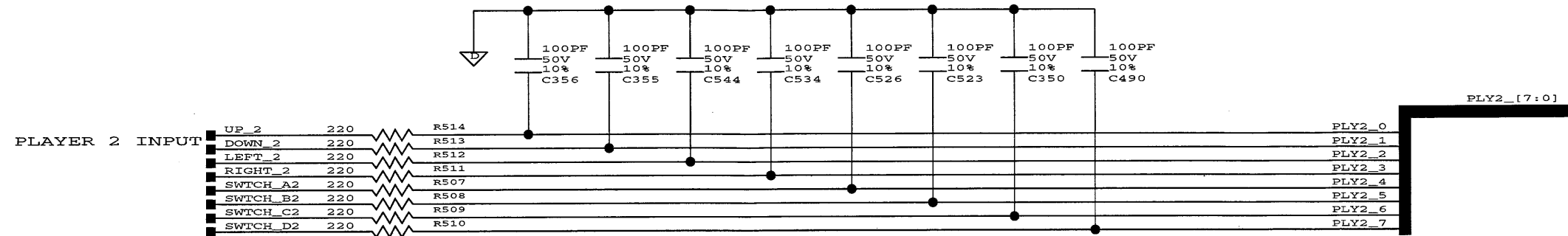
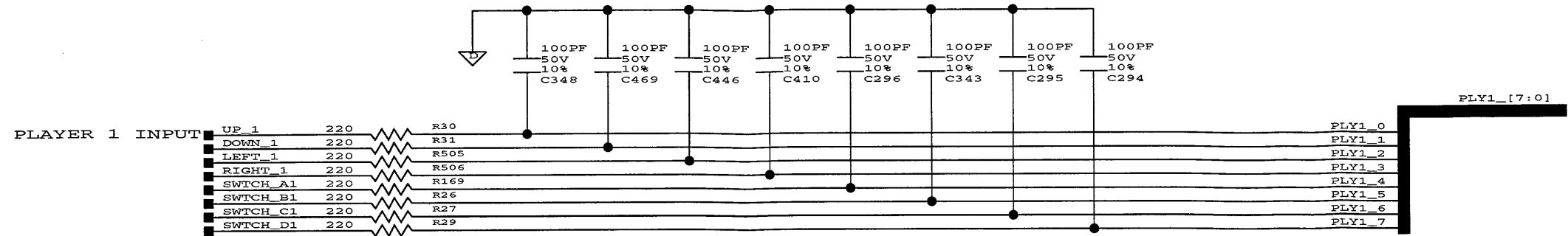


MISC[15:00]

ECN	CHANGE	DATE
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INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES
RSC/AMD/JML/FRS	60062		MIDWAY MANUFACTURING CO.
DWN. BY	DATE	1ST USAGE	DATE
RSC/AMD/JML/FRS			3401 N. CALIFORNIA AVENUE
CHECKED	DATE	CURRENT PROJ.	DATE
			CHICAGO ILLINOIS USA
APPROVED	DATE	SHEET	TITLE
		24 OF 46	A-21464
			SEATTLE
			9-18-1996_14:27
		PART NO.	REV.
		5770-15206-00	00

PLAYERS 1-4 FILTERS



ECN	CHANGE	DATE
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INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES
RSC/AMD/JML/FRS	60062		MIDWAY MANUFACTURING CO.
			3401 N. CALIFORNIA AVENUE
DWN. BY	DATE	1ST USAGE	DATE
RSC/AMD/JML/FRS			CHICAGO ILLINOIS USA
CHECKED	DATE	CURRENT PROJ.	DATE
APPROVED	DATE	SHEET	PART NO.
		25 OF 46	5770-15206-00
			REV.
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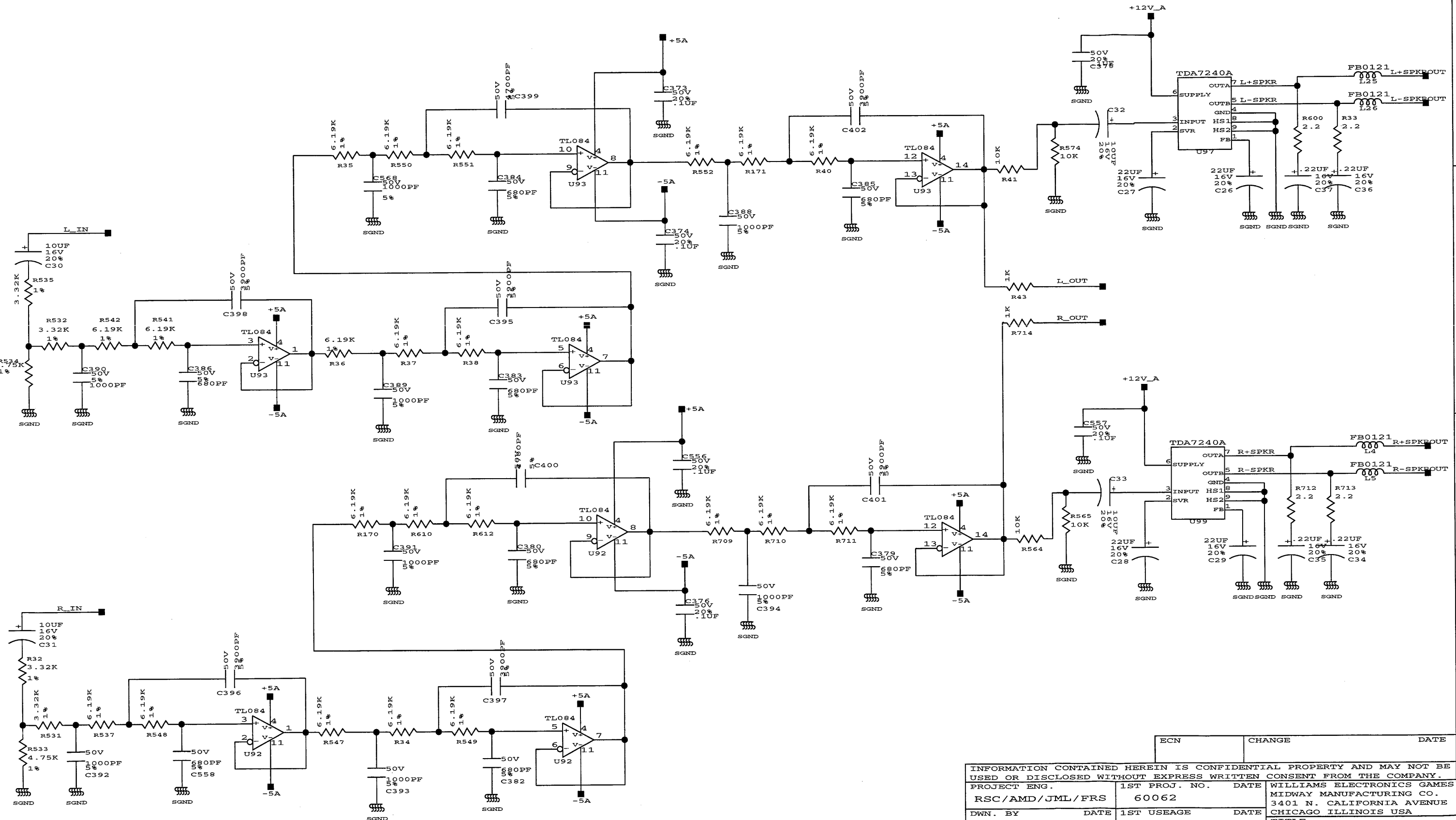
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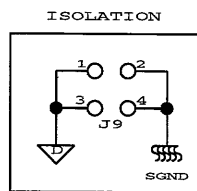
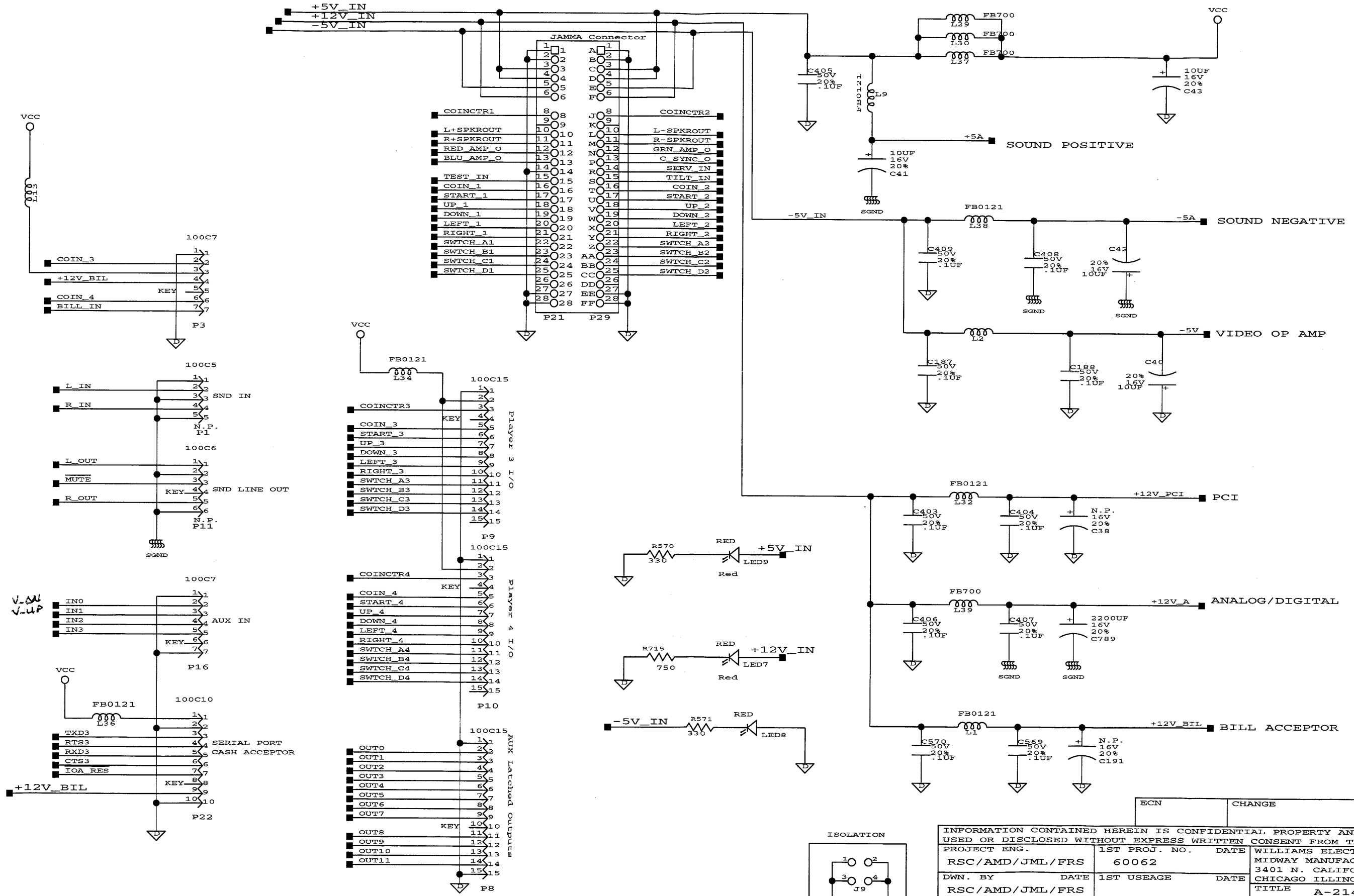
ANTI-ALIASING FILTER



ECN	CHANGE	DATE

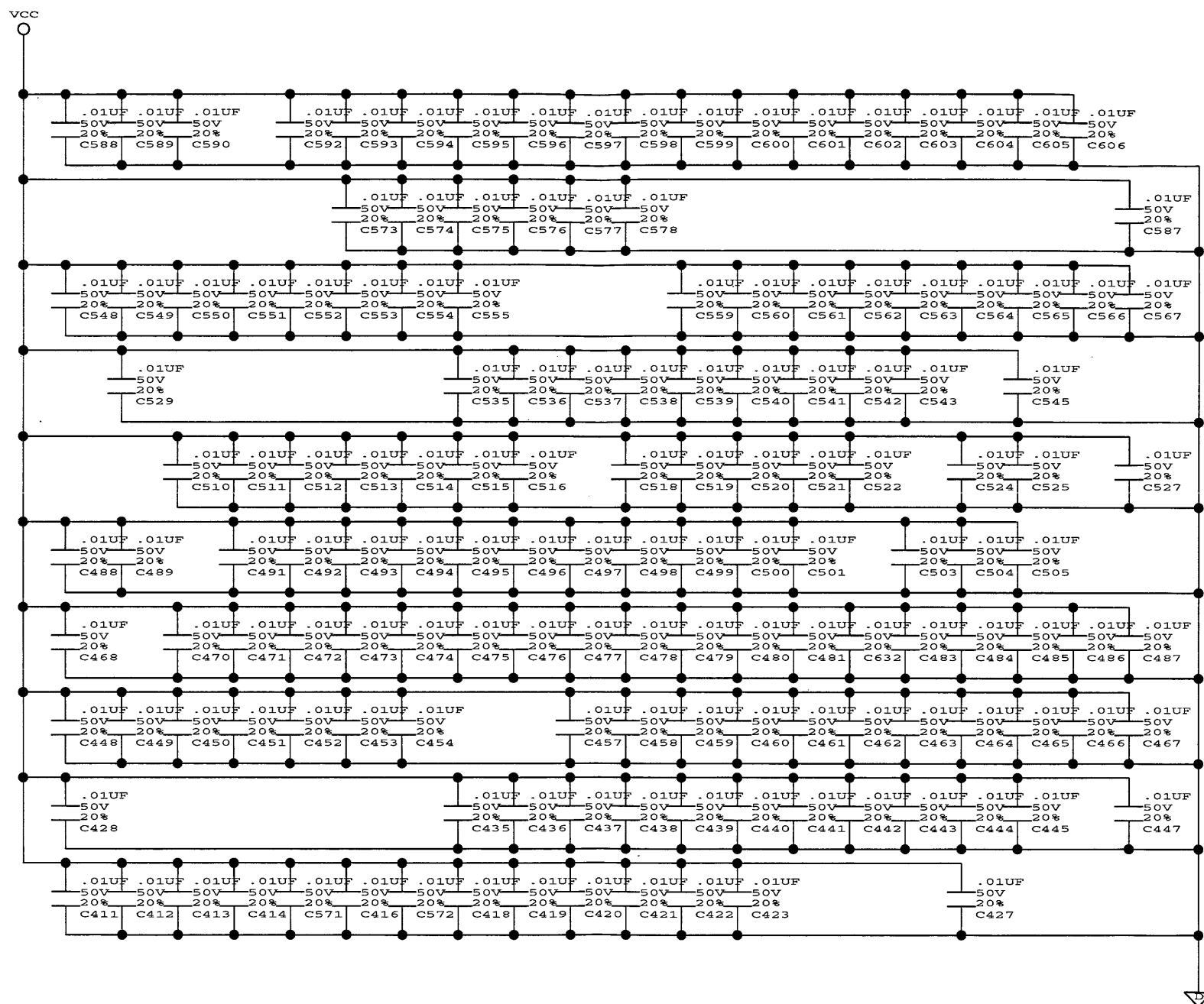
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PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	DATE	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA
DWN. BY	DATE	1ST USAGE	DATE	DATE	TITLE
RSC/AMD/JML/FRS					A-21464 SEATTLE
CHECKED	DATE	CURRENT PROJ.	DATE	DATE	
APPROVED	DATE	SHEET	26 OF 46	PART NO.	9-18-1996 14:27
				5770-15206-00	REV. 00

JAMMA, CONNECTORS AND VCC FILTERING



ECN	CHANGE	DATE	
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES
RSC/AMD/JML/FRS	60062		MIDWAY MANUFACTURING CO.
DWN. BY	DATE	1ST USAGE	DATE
RSC/AMD/JML/FRS			3401 N. CALIFORNIA AVENUE
CHECKED	DATE	CURRENT PROJ.	DATE
			CHICAGO ILLINOIS USA
			TITLE
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			SEATTLE
			9-18-1996_13:12
APPROVED	DATE	SHEET	PART NO.
		27 OF 46	5770-15206-00
			REV.
			00

DECOUPLING CAPACITORS

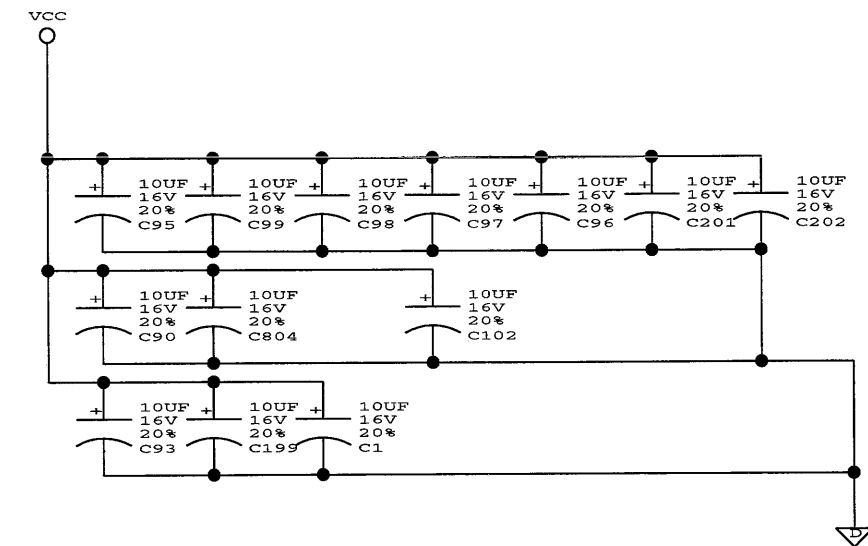
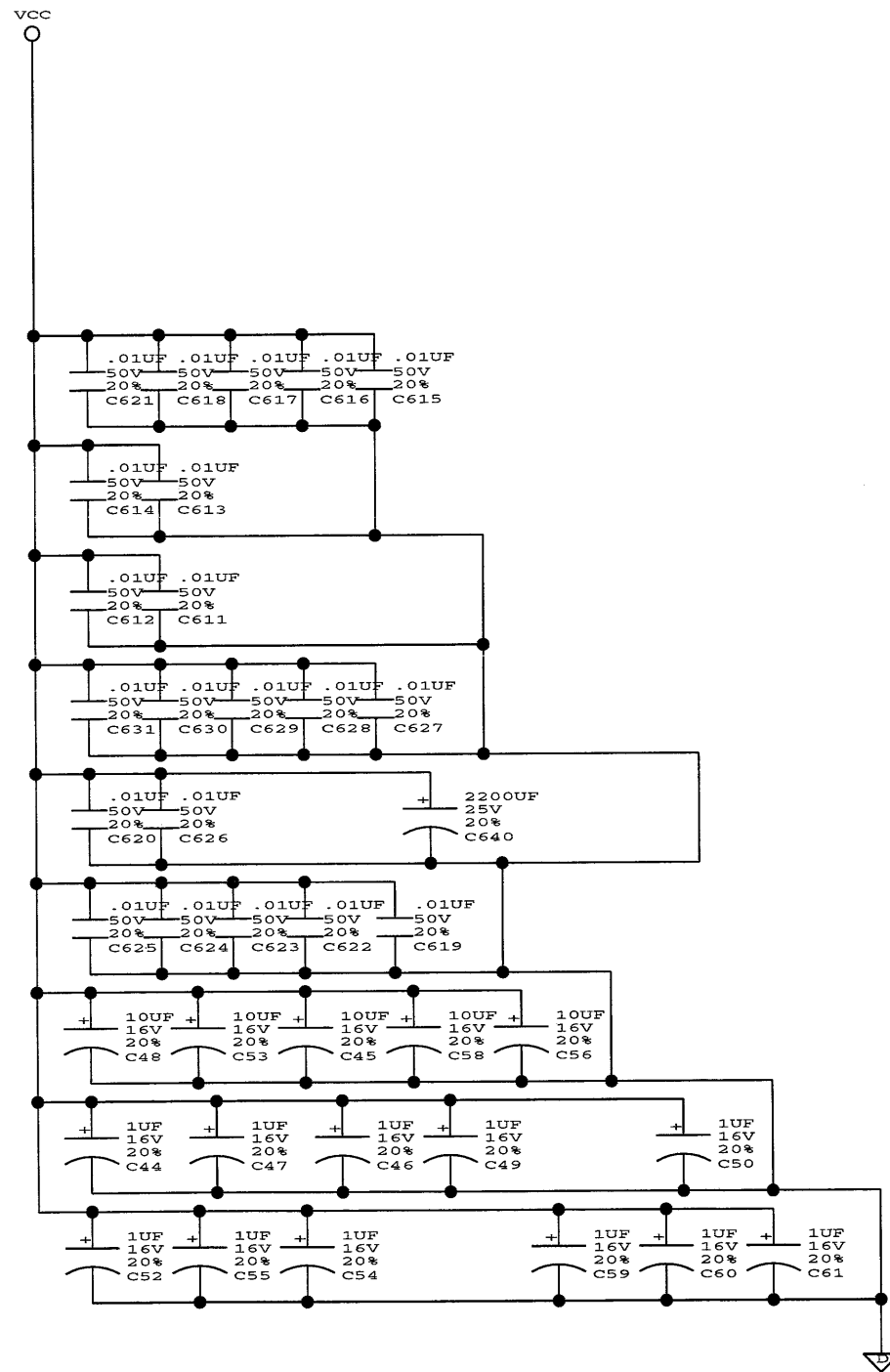


ECN	CHANGE	DATE

INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES
RSC/AMD/JML/FRS			MIDWAY MANUFACTURING CO.
DWN. BY	DATE	1ST USAGE	DATE
RSC/AMD/JML/FRS			
CHECKED	DATE	CURRENT PROJ.	DATE
APPROVED	DATE	SHEET	28 OF 50
		PART NO.	
		REV.	00

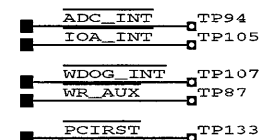
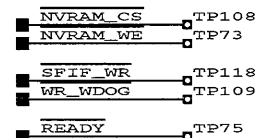
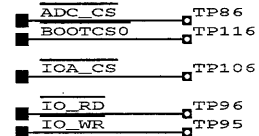
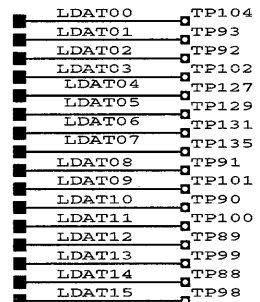
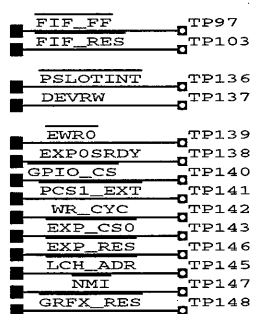
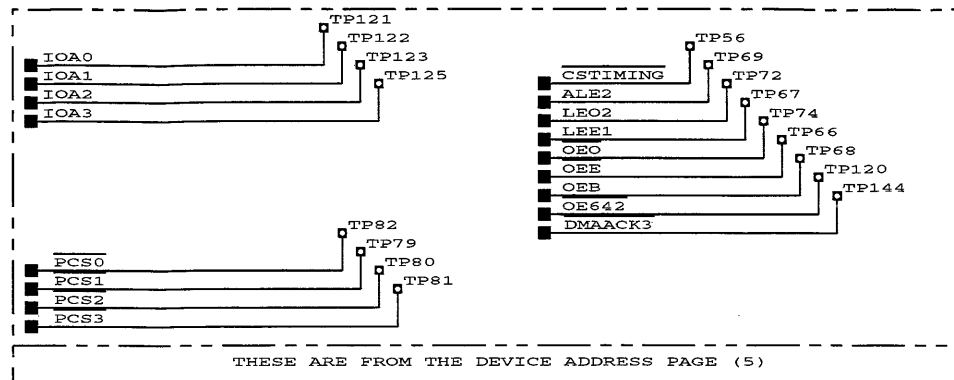
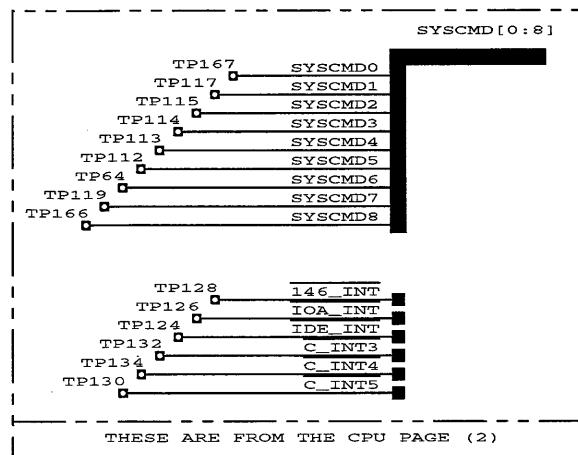
A-?????
SEATTLE
10-29-1996_13:57

DECOUPLING CAPACITORS (con't)



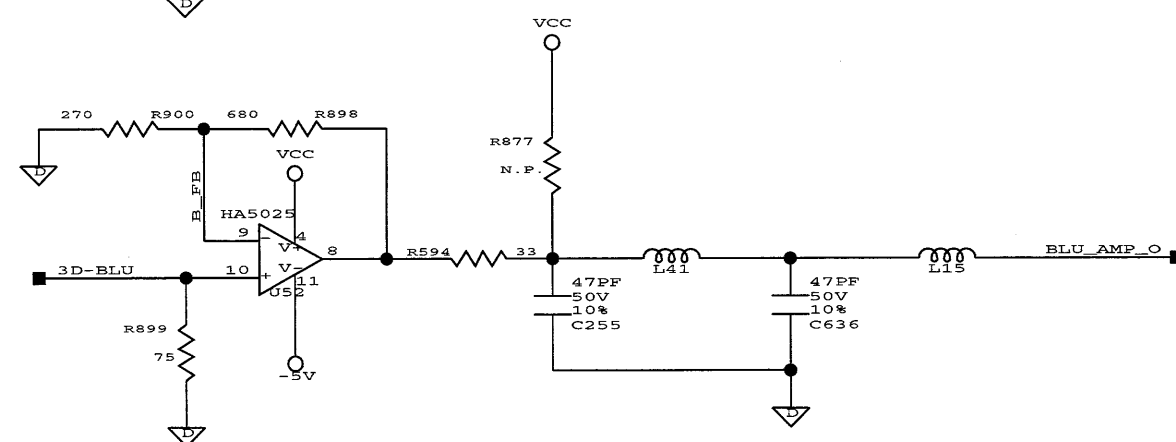
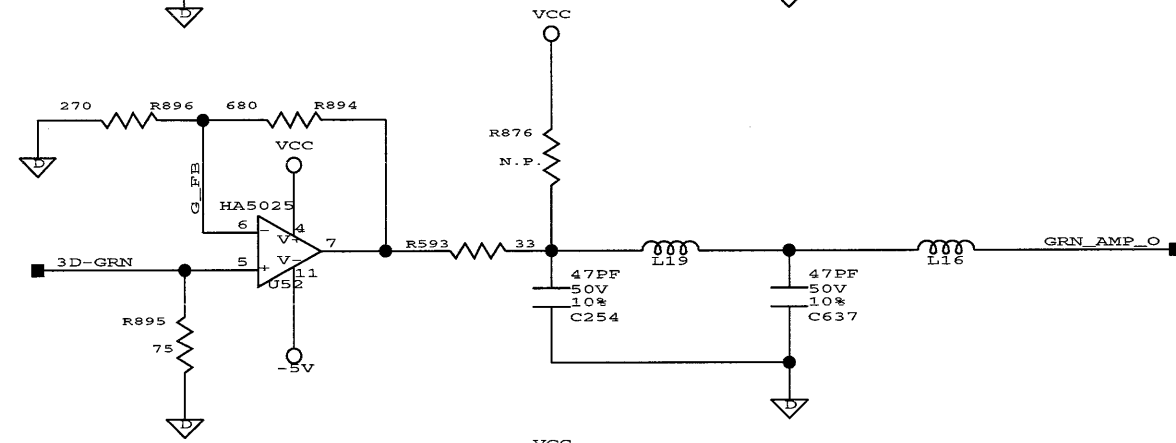
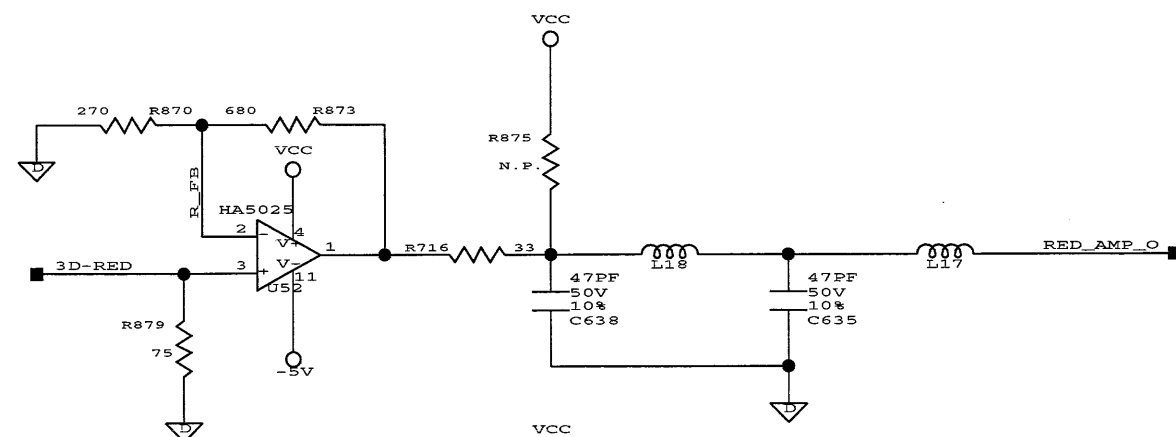
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INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA
RSC/AMD/JML/FRS	1ST USAGE	DATE	TITLE A-????? SEATTLE
DWN. BY	DATE	CURRENT PROJ.	DATE
RSC/AMD/JML/FRS	DATE	10-29-1996_13:49	DATE
CHECKED	DATE	SHEET	PART NO.
APPROVED	DATE	29 OF 50	REV. 00

TEST POINTS

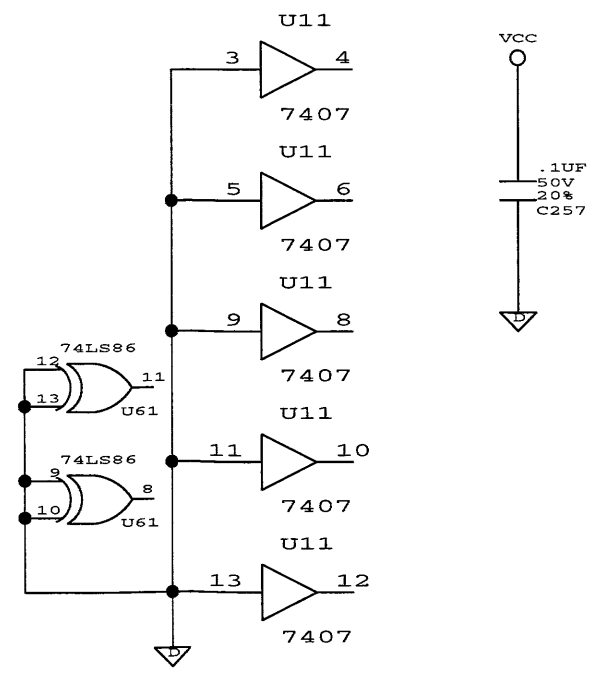
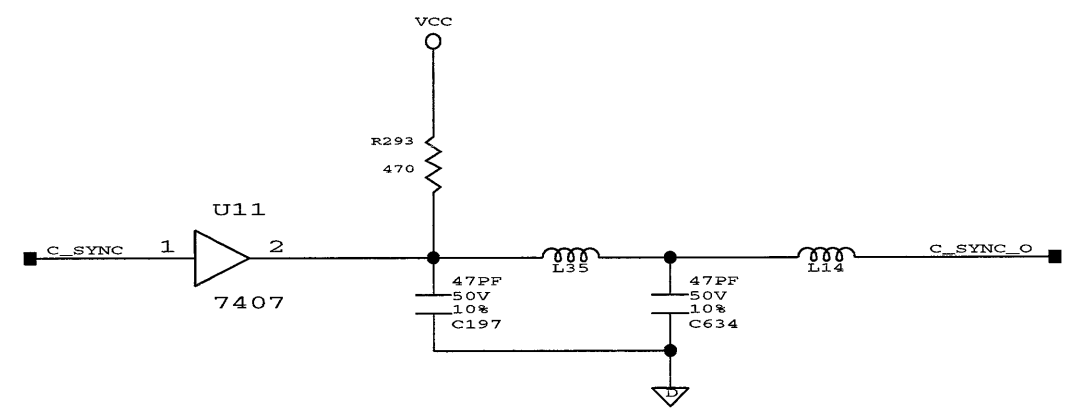
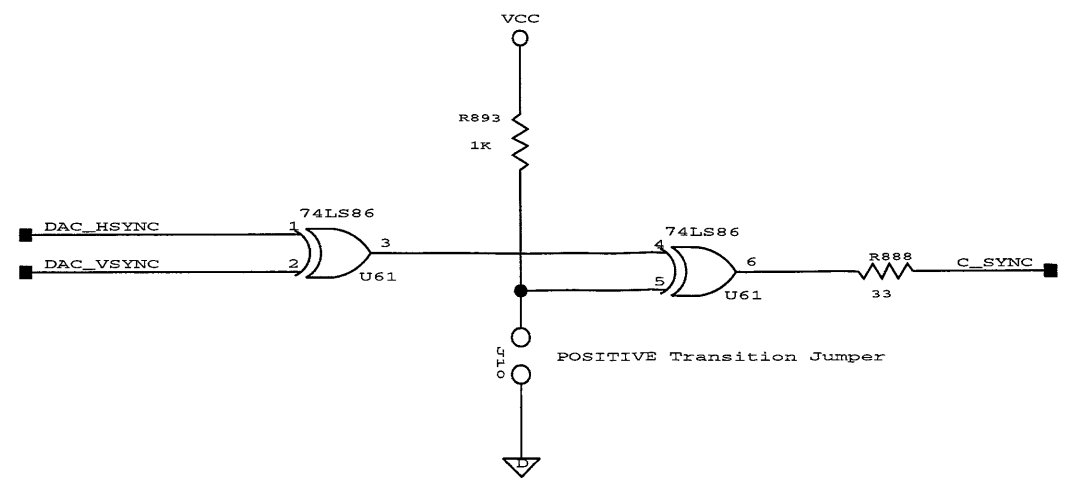
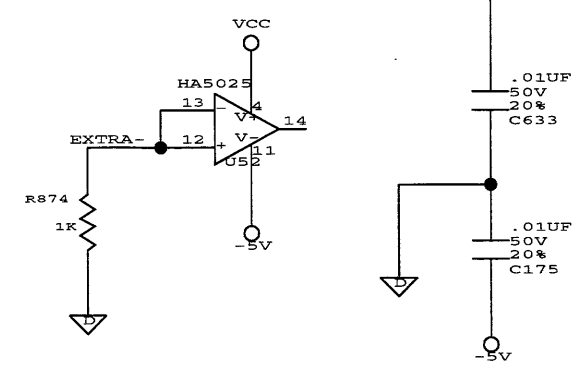


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INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA	
RSC/AMD/JML/FRS	60062			
DWN. BY	DATE	1ST USAGE	DATE	TITLE
RSC/AMD/JML/FRS				A-21464 SEATTLE
CHECKED	DATE	CURRENT PROJ.	DATE	9-18-1996_14:44
APPROVED	DATE	SHEET	30 OF 46	PART NO. 5770-15206-00 REV. 00

VIDEO OP-AMP AND CONNECTOR

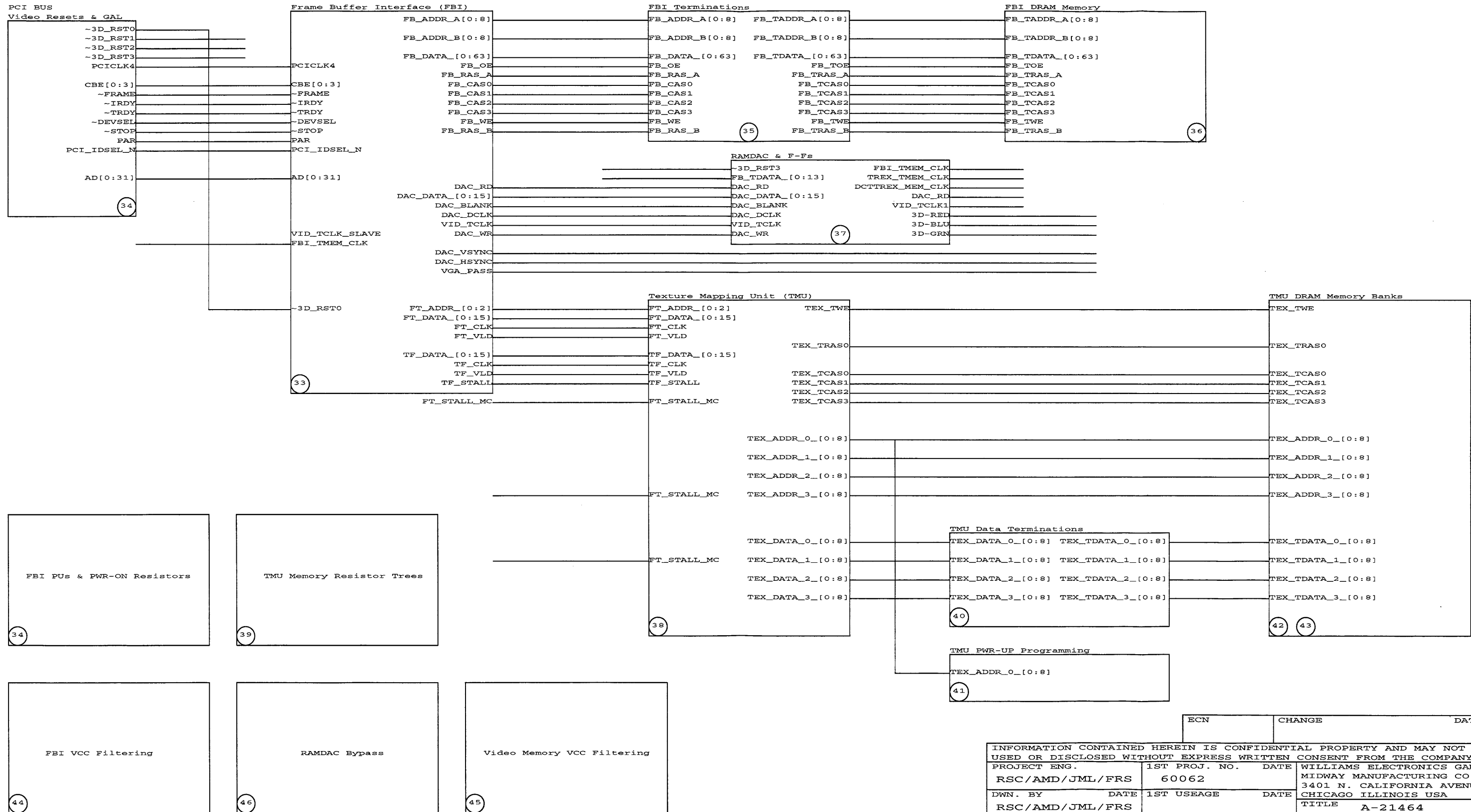


PWR/Amp Conditioning



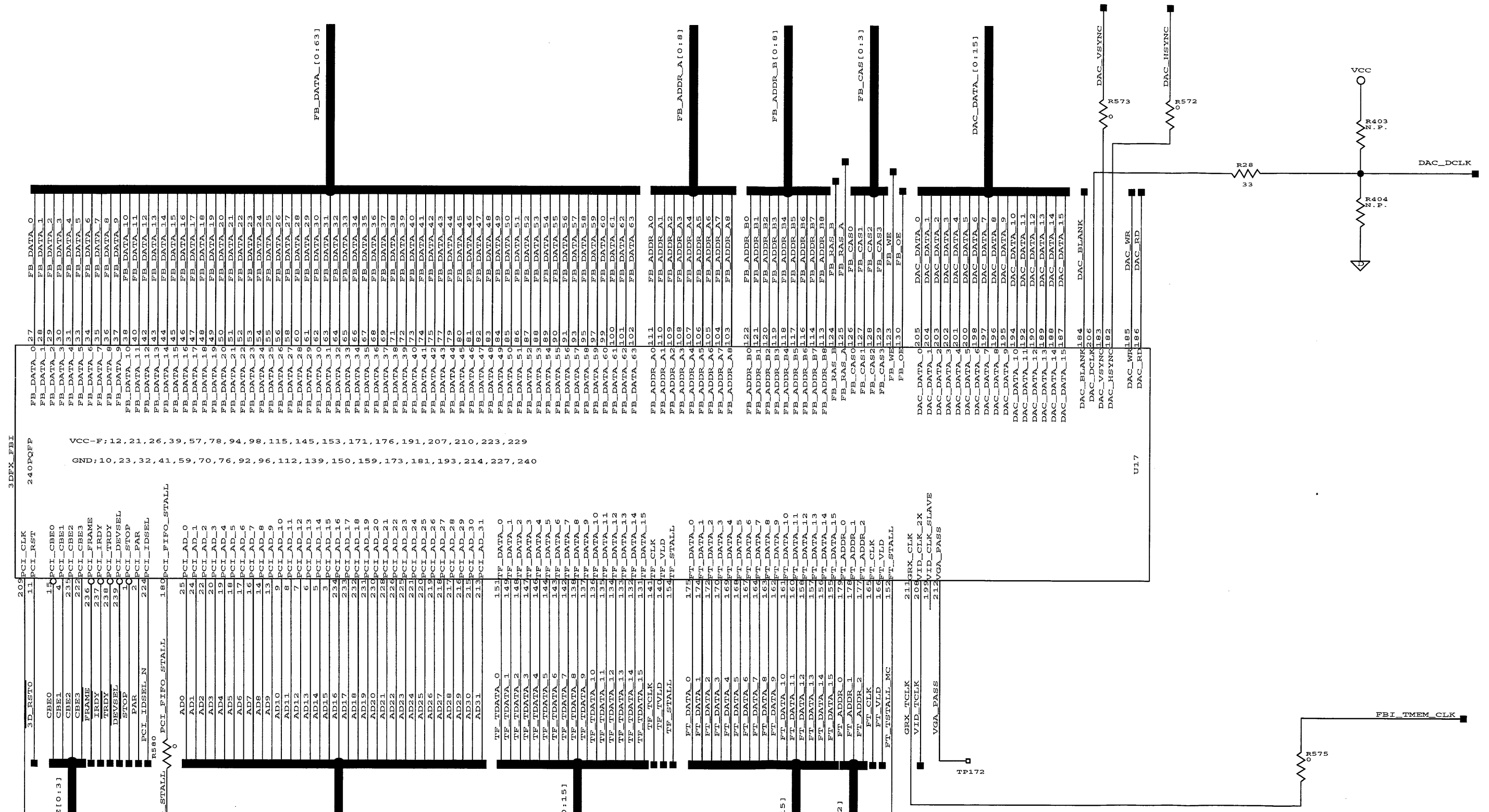
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PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA	
RSC/AMD/JML/FRS	60062			
DWN. BY	DATE	1ST USAGE	DATE	TITLE
RSC/AMD/JML/FRS				A-21464 SEATTLE
CHECKED	DATE	CURRENT PROJ.	DATE	9-18-1996_13:13
		PCB: 5779-14671-01		
APPROVED	DATE	SHEET	31 OF 46	PART NO. 5770-15206-00
				REV. 00

THE OBSIDIAN GRAPHICS SYSTEM BLOCK DIAGRAM



ECN		CHANGE		DATE
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PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES	
RSC/AMD/JML/FRS	60062		MIDWAY MANUFACTURING CO.	
DWN. BY	DATE	1ST USAGE	3401 N. CALIFORNIA AVENUE	
RSC/AMD/JML/FRS			CHICAGO ILLINOIS USA	
CHECKED	DATE	CURRENT PROJ.	TITLE	
			A-21464	
			SEATTLE	
APPROVED	DATE	SHEET	32 OF 46	PART NO.
				9-18-1996_14:15
				5770-15206-00
				REV. 00

FRAME BUFFER INTERFACE (FBI)



3DFX_FBI 240PQFP

VCC - F: 12, 21, 26, 39, 57, 78, 94, 98, 115, 145, 153, 171, 176, 191, 207, 210, 223, 229

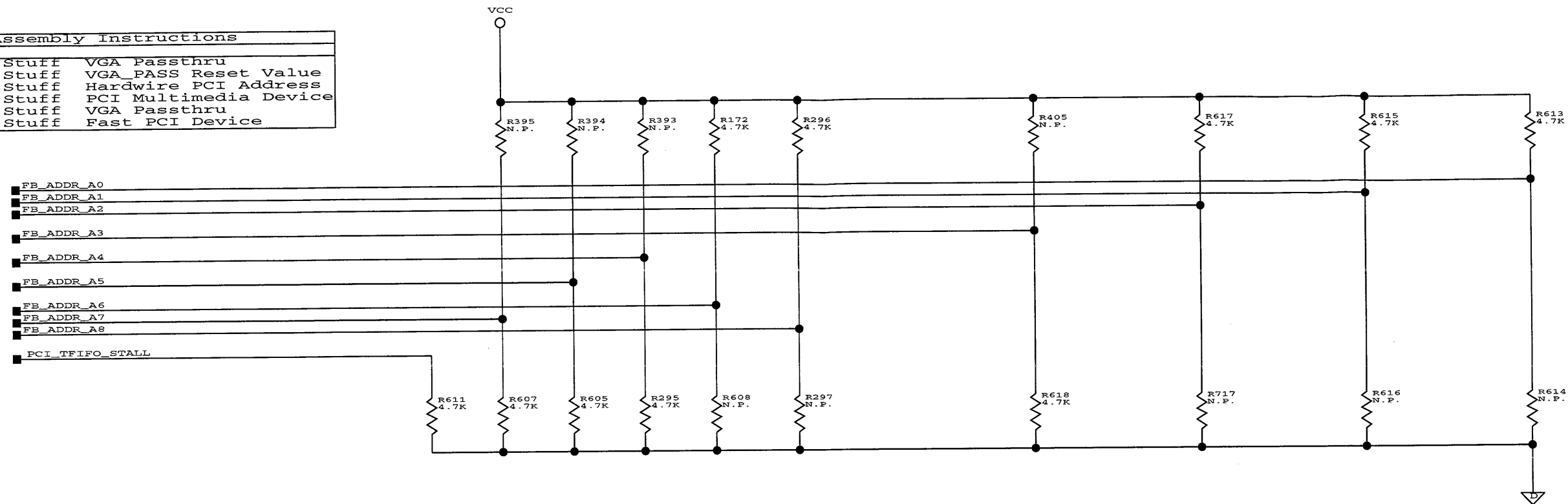
GND: 10, 23, 32, 41, 59, 70, 76, 92, 96, 112, 139, 150, 159, 173, 181, 193, 214, 227, 240

ECN		CHANGE		DATE	
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.					
PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	60062	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA
DWN. BY	RSC/AMD/JML/FRS	1ST USAGE		DATE	TITLE A-21464 SEATTLE
CHECKED		CURRENT PROJ.		DATE	9-18-1996_14:15
APPROVED		SHEET	33 OF 46	PART NO.	5770-15206-00
				REV.	00

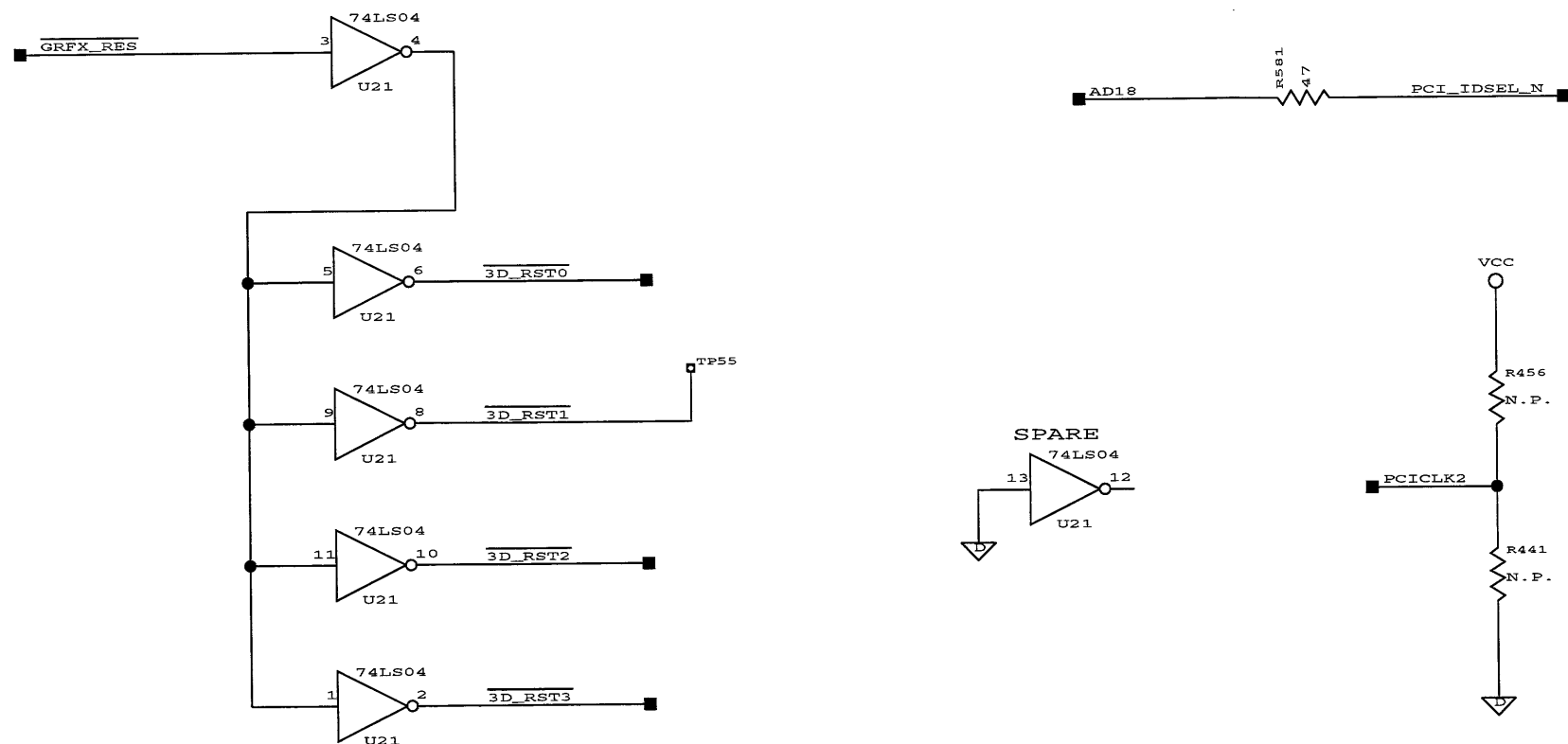
FBI PULL-UPS AND POWER ON RESISTORS

Power Up Assembly Instructions

A3	R618	Stuff	VGA Passthru
A4	R393	Stuff	VGA_PASS Reset Value
A5	R605	Stuff	Hardwire PCI Address
A6	R606	Stuff	PCI Multimedia Device
A7	R607	Stuff	VGA Passthru
A8	R296	Stuff	Fast PCI Device



VIDEO SUBSYSTEM RESETS

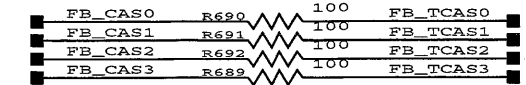
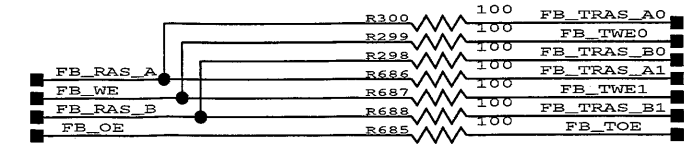
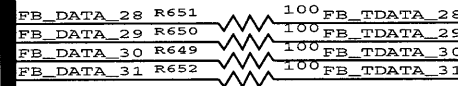
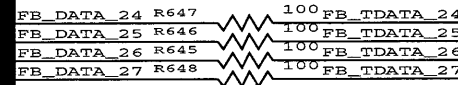
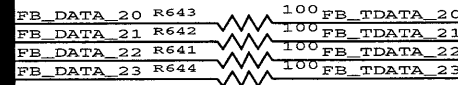
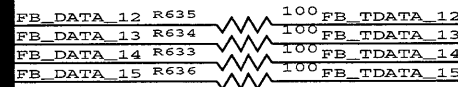
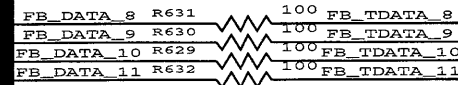


		ECN	CHANGE	DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES	
RSC/AMD/JML/FRS	60062		MIDWAY MANUFACTURING CO.	
DWN. BY	DATE	1ST USAGE	DATE	3401 N. CALIFORNIA AVENUE
RSC/AMD/JML/FRS				CHICAGO ILLINOIS USA
CHECKED	DATE	CURRENT PROJ.	DATE	TITLE A-21464
				SEATTLE
				10-2-1996_11:38
APPROVED	DATE	SHEET	34 OF 46	PART NO.
				5770-15206-00
				REV. 00

FRAME BUFFER TERMINATIONS

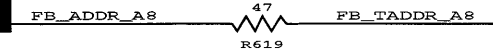
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FB_DATA_[0:63]



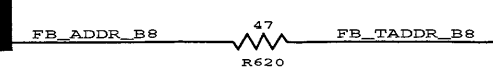
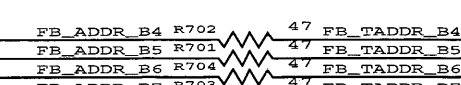
ALL Terminations should be 100 ohms
 R619, R620, R693-708 Should Be Stuffed with 47-ohm
 When Using 500-0003-02 (.5u)
 When Using 500-0003-03 (.5u)

FB_ADDR_A[0:8]



FB_TADDR_A[0:8]

FB_ADDR_B[0:8]

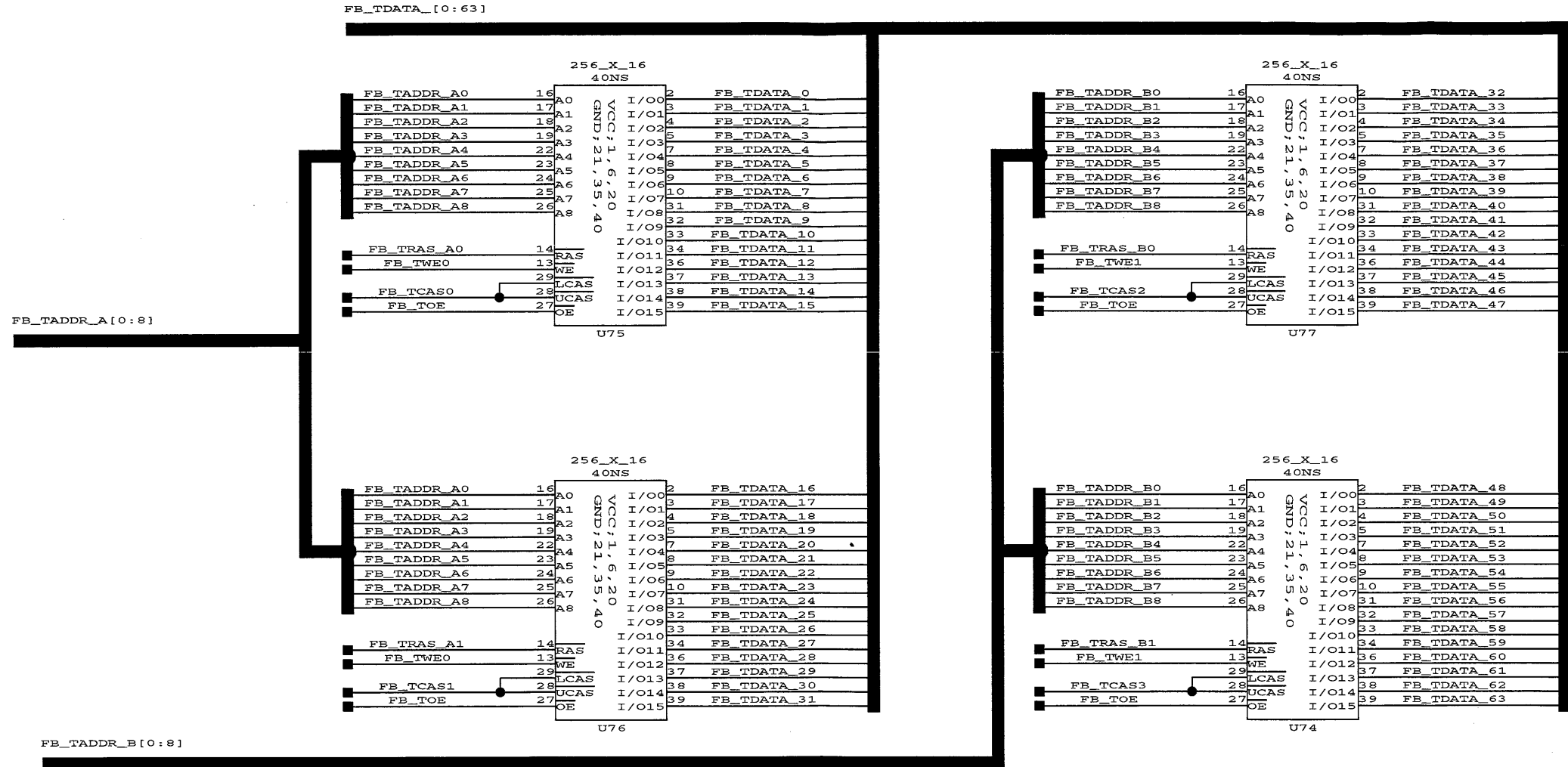


FB_TADDR_B[0:8]

ECN	CHANGE	DATE
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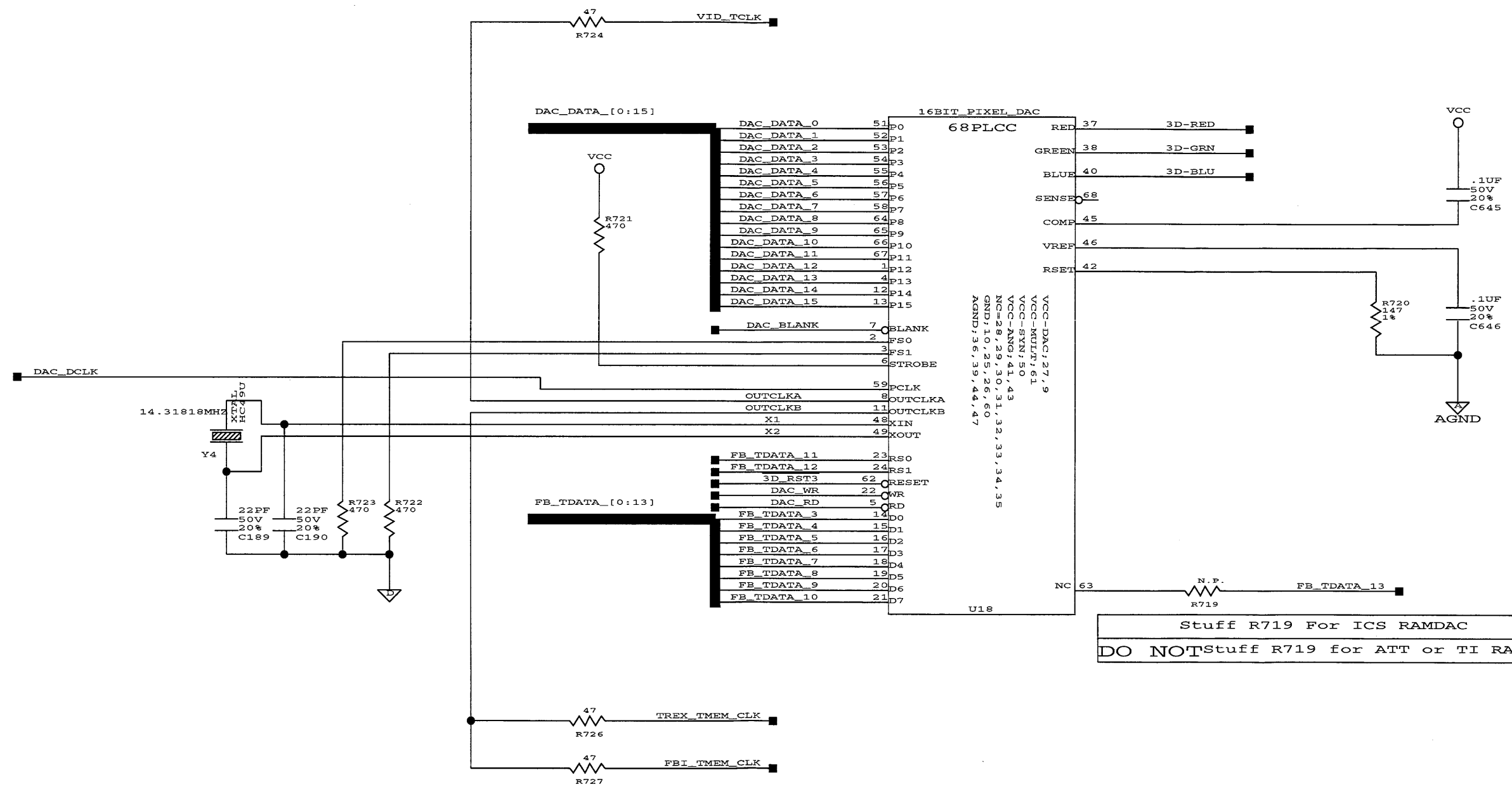
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES
RSC/AMD/JML/FRS	60062		MIDWAY MANUFACTURING CO.
DWN. BY	DATE	1ST USAGE	DATE
RSC/AMD/JML/FRS			
CHECKED	DATE	CURRENT PROJ.	DATE
APPROVED	DATE	SHEET	35 OF 46
		PART NO.	5770-15206-00
		REV.	00

FRAME BUFFER DRAM MEMORY



		ECN	CHANGE	DATE	
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.					
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA TITLE A-21464 SEATTLE 9-18-1996_13:14		
RSC/AMD/JML/FRS	60062				
DWN. BY	DATE	1ST USAGE			DATE
RSC/AMD/JML/FRS					
CHECKED	DATE	CURRENT PROJ.	DATE		
APPROVED	DATE	SHEET	36 OF 46	PART NO. 5770-15206-00	
				REV. 00	

CLOCK GENERATOR RAMDAC



Stuff R719 For ICS RAMDAC
DO NOT Stuff R719 for ATT or TI RAMDAC

	ECN	CHANGE	DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.			
PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	DATE
		60062	
DWN. BY	DATE	1ST USAGE	DATE
RSC/AMD/JML/FRS			
CHECKED	DATE	CURRENT PROJ.	DATE
APPROVED	DATE	SHEET	PART NO.
		37 OF 46	5770-15206-00
			REV. 00

A

B

C

D

1

2

3

4

A

B

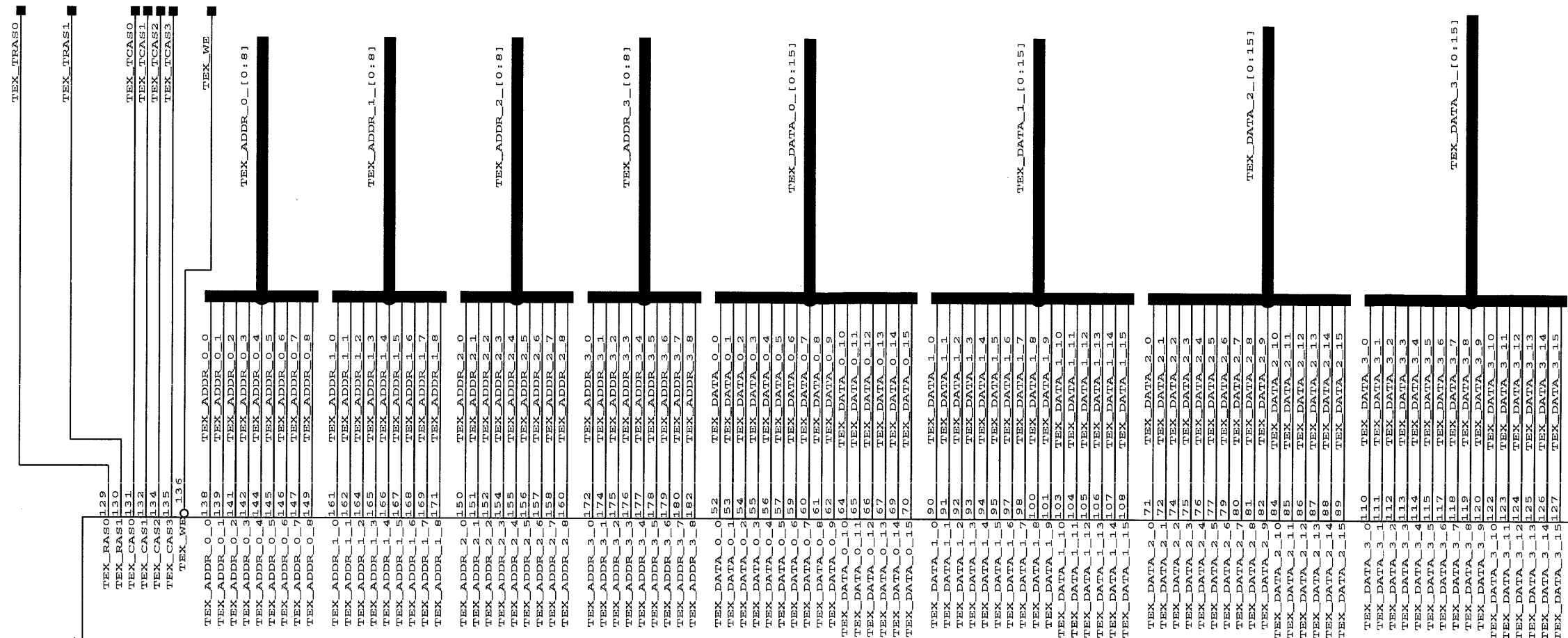
C

D

TEXTURE MAPPING UNIT (TMU)

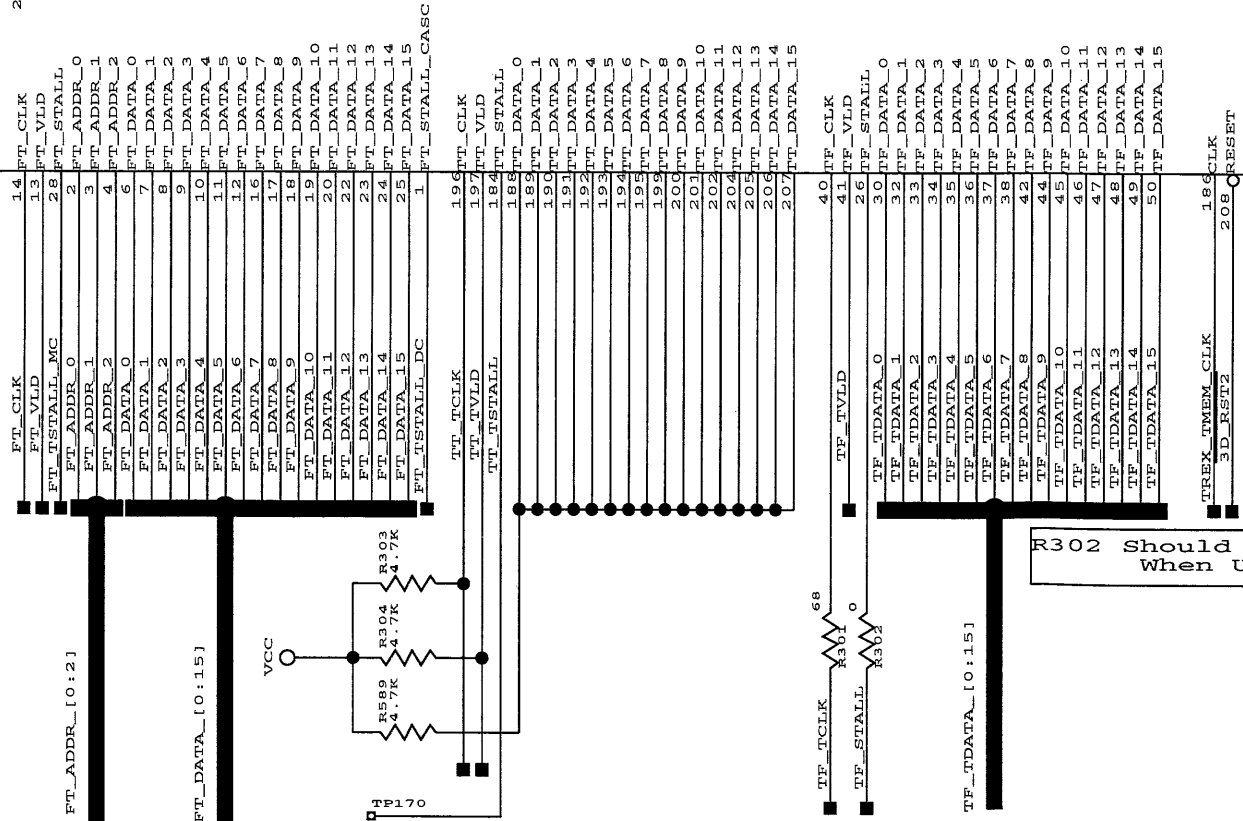
A B C D

A B C D



3DFX_TMU 208PQFP

VCC: 15, 27, 31, 43, 58, 73, 78, 96, 109, 116, 128, 140, 143, 153, 163, 173, 183, 187, 203
 GND: 5, 21, 21, 29, 39, 51, 63, 68, 83, 99, 102, 121, 133, 137, 148, 159, 170, 181, 185, 198



R302 should be Stuffed with 47-ohm
 When Using 500-0004-01 (.5u)

INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.		ECN	CHANGE	DATE
PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA
DWN. BY	DATE	1ST USAGE	DATE	TITLE
RSC/AMD/JML/FRS	DATE	CURRENT PROJ.	DATE	A-21464 SEATTLE
APPROVED	DATE	SHEET	38 OF 46	PART NO. 5770-15206-00
				REV. 00

U67

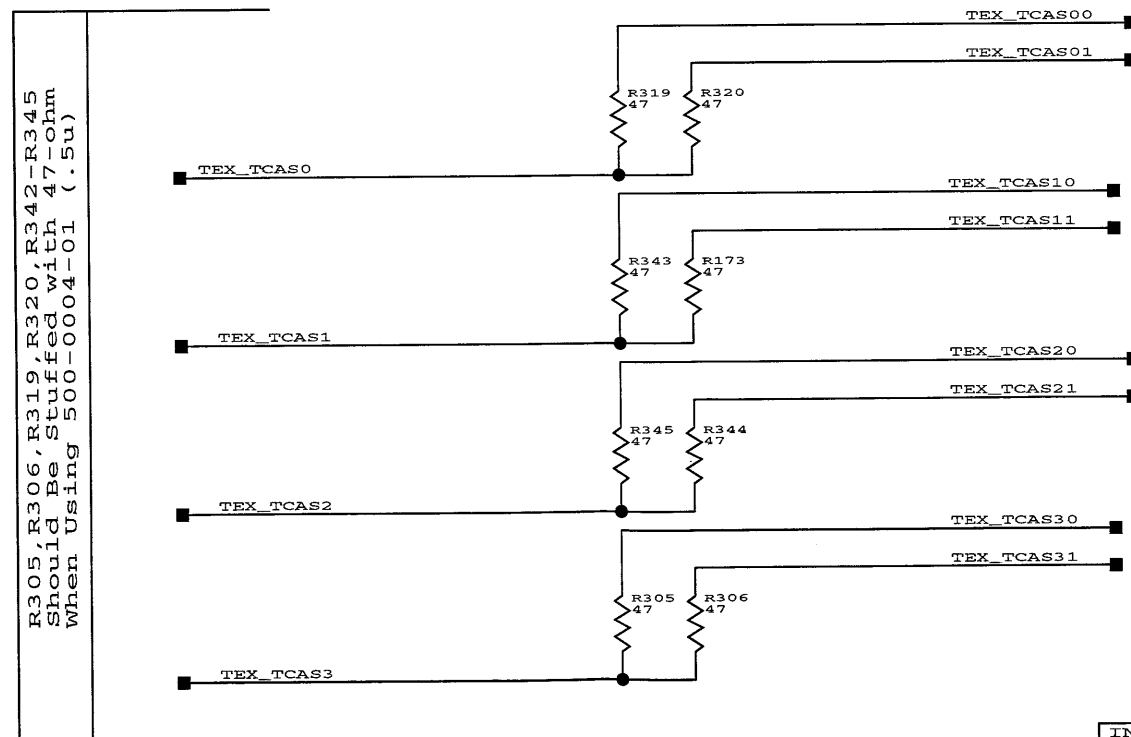
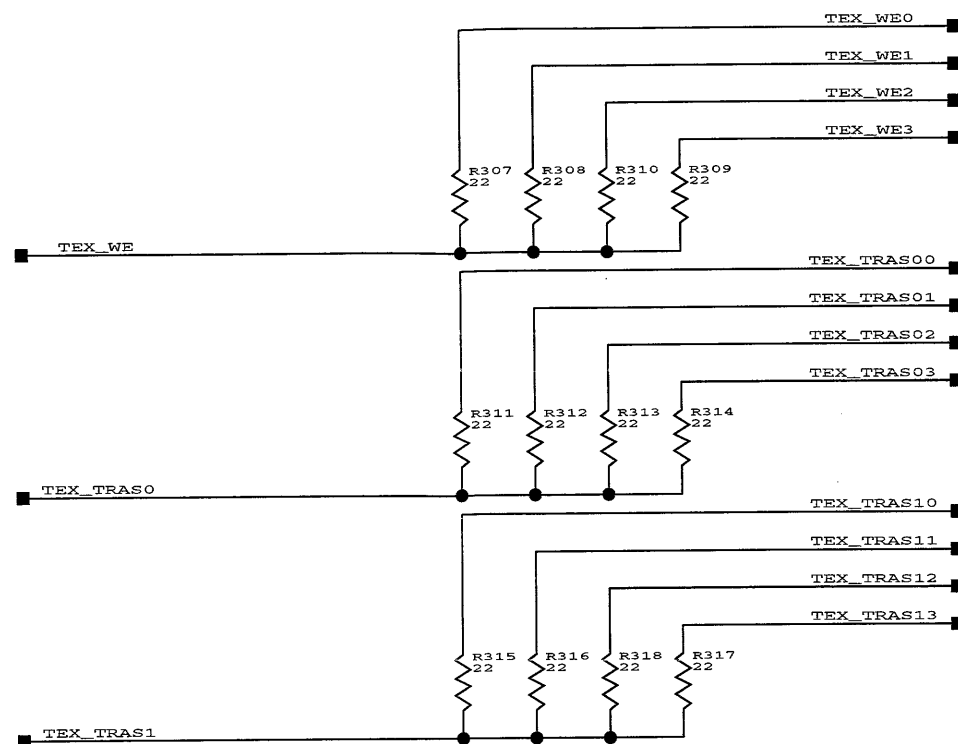
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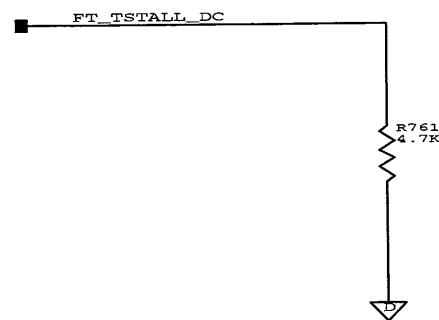
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TMU MEMORY CONTROL RESISTOR TREES

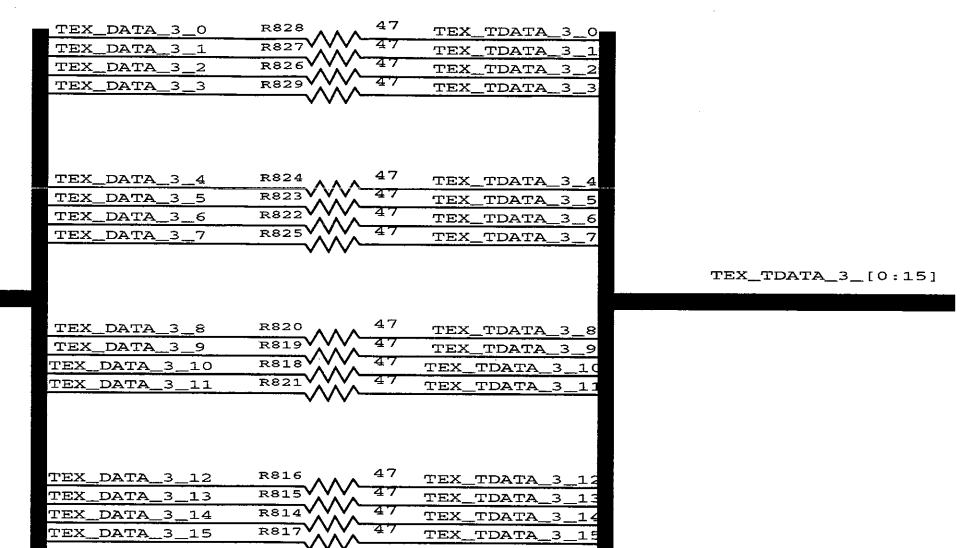
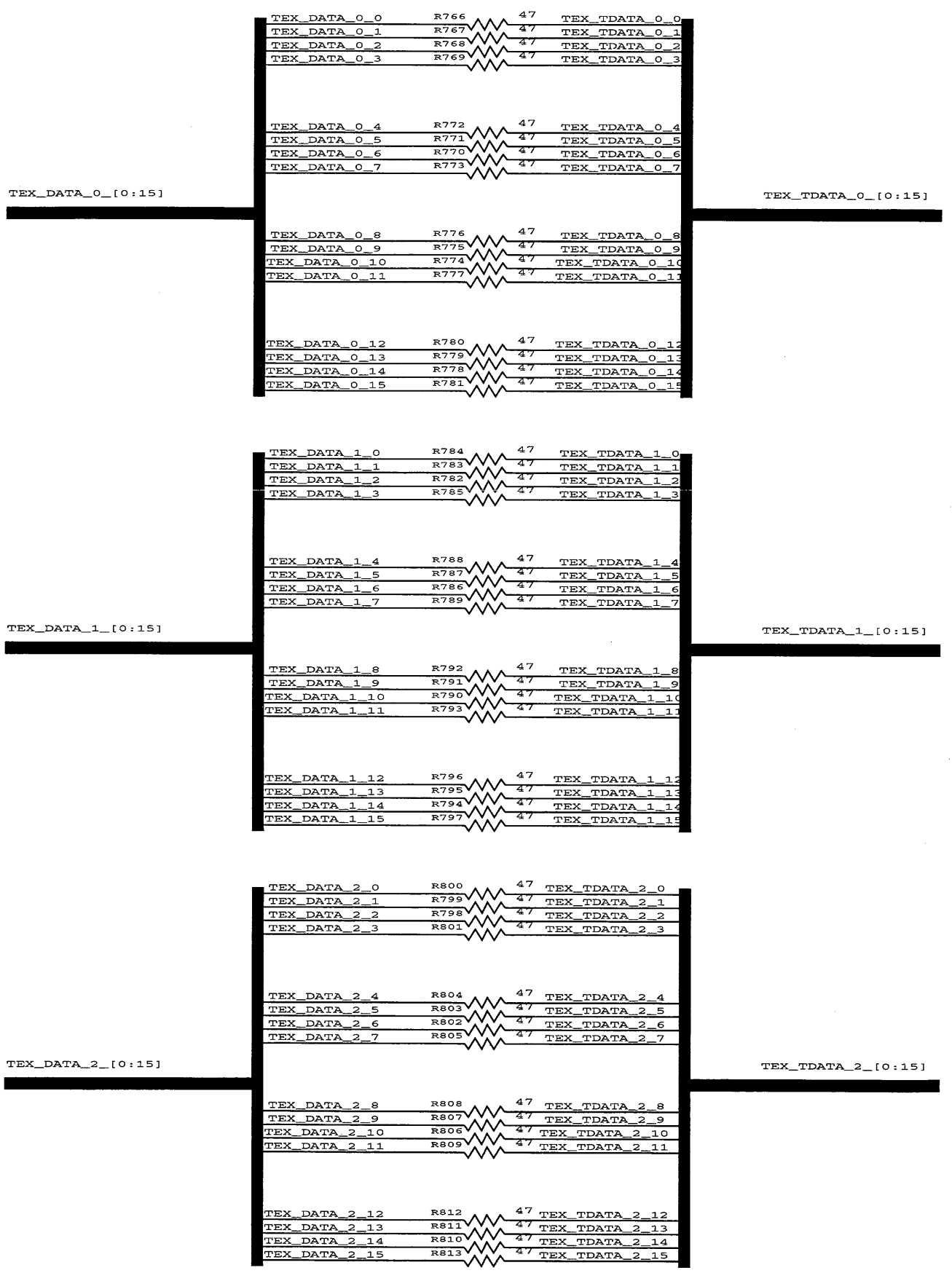


R305, R306, R319, R320, R342-R345
 Should Be Stuffed with 47-ohm
 When Using 500-0004-01 (.5u)



		ECN	CHANGE	DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	60062	DATE
DWN. BY	RSC/AMD/JML/FRS	1ST USAGE		DATE
CHECKED		CURRENT PROJ.		DATE
APPROVED		SHEET	39 OF 46	DATE
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			9-18-1996_14:27	
			PART NO.	5770-15206-00
			REV.	00

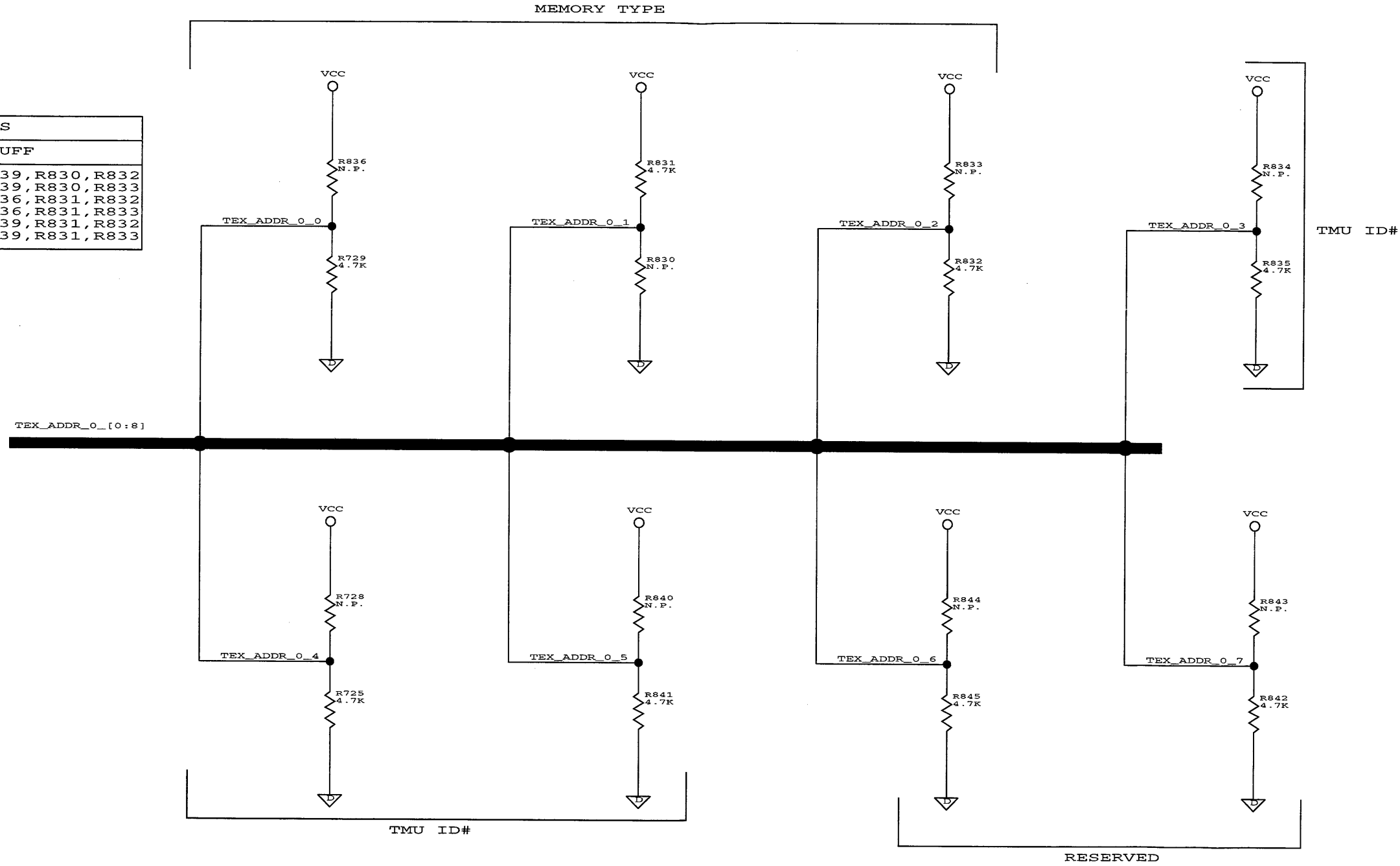
TMU DATA TERMINATIONS



		BCN	CHANGE	DATE
INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	60062	DATE
DWN. BY	RSC/AMD/JML/FRS	1ST USAGE		DATE
CHECKED		CURRENT PROJ.		DATE
APPROVED		SHEET	40 OF 46	PART NO.
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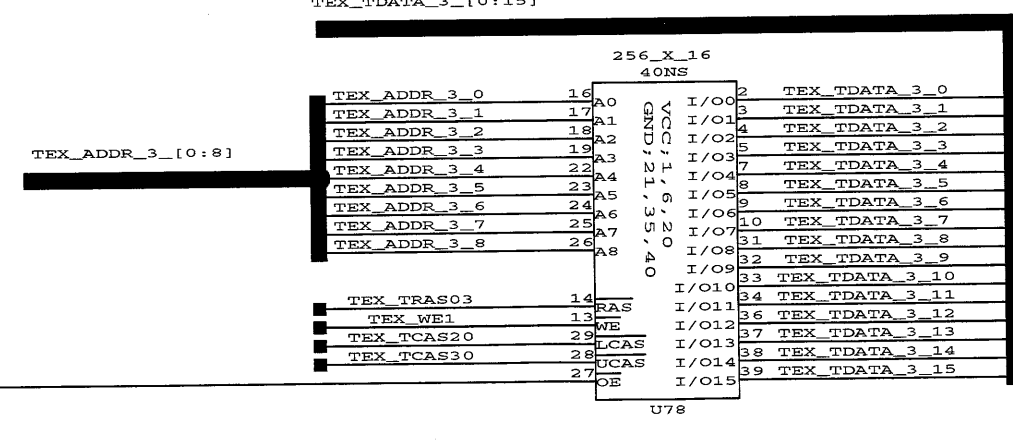
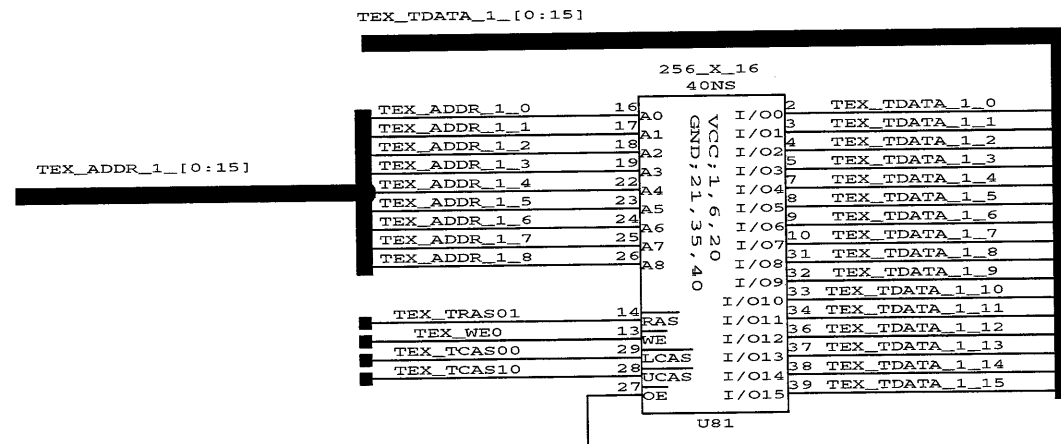
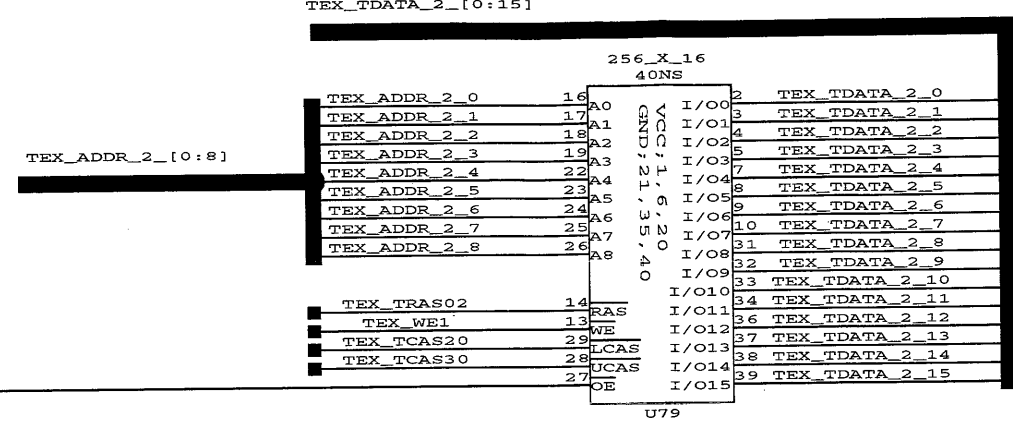
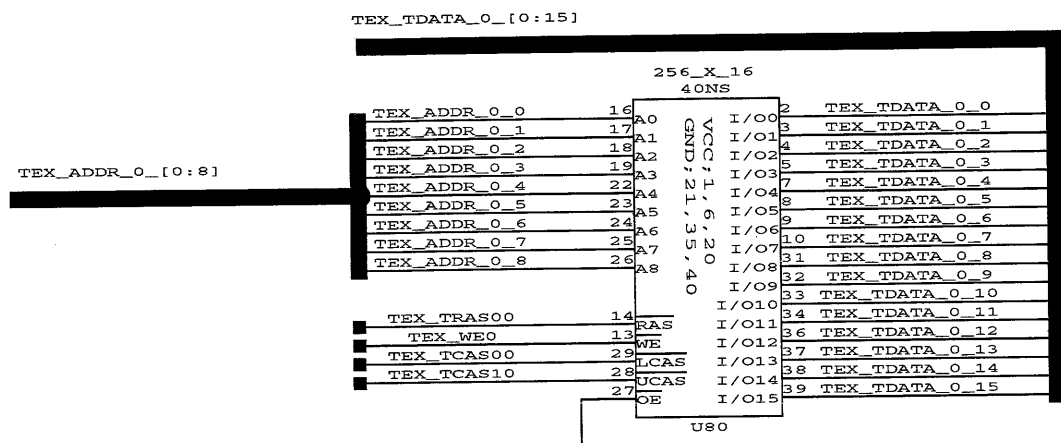
TMU POWER UP PROGRAMMING RESISTORS

TMU MEMORY OPTIONS		
AMOUNT	SPEED	STUFF
1Mb	50ns	R839, R830, R832
1Mb	60ns	R839, R830, R833
2Mb	50ns	R836, R831, R832
2Mb	60ns	R836, R831, R833
4Mb	50ns	R839, R831, R832
4Mb	60ns	R839, R831, R833



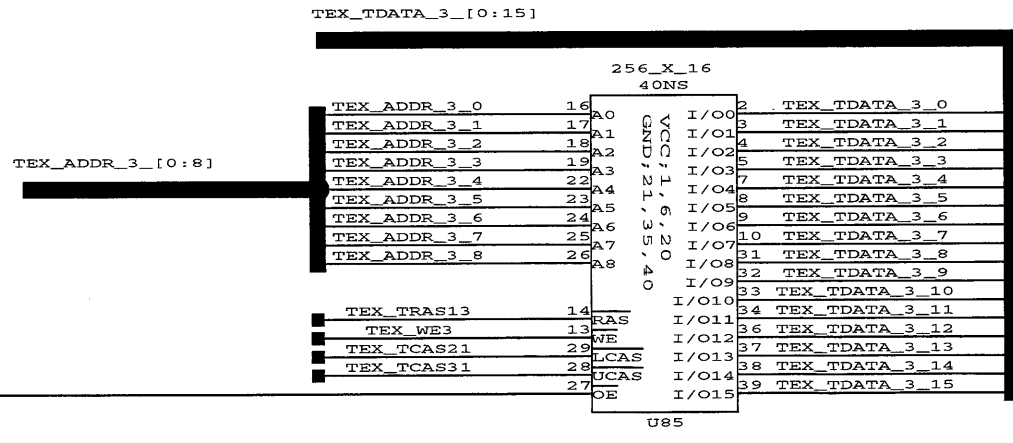
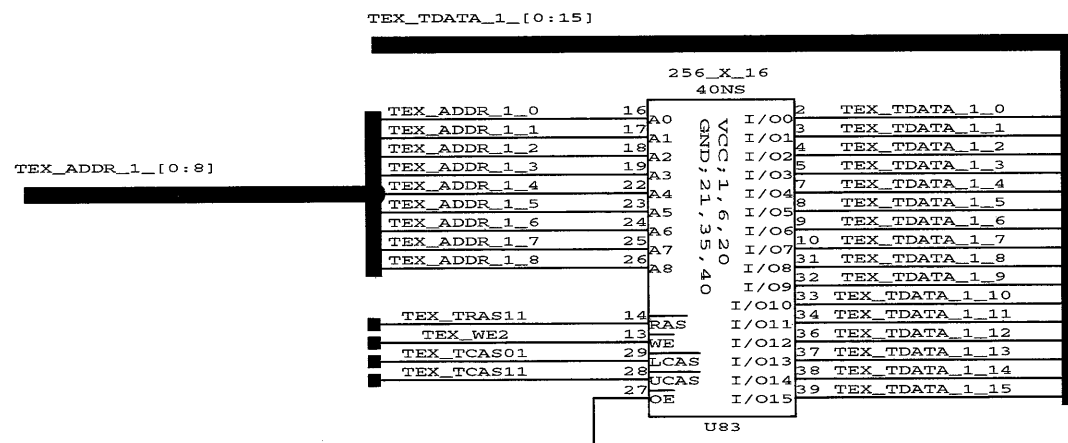
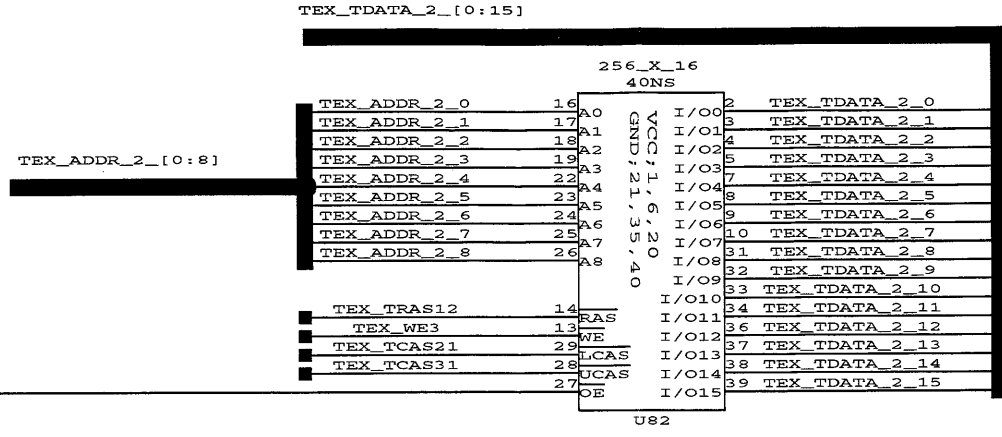
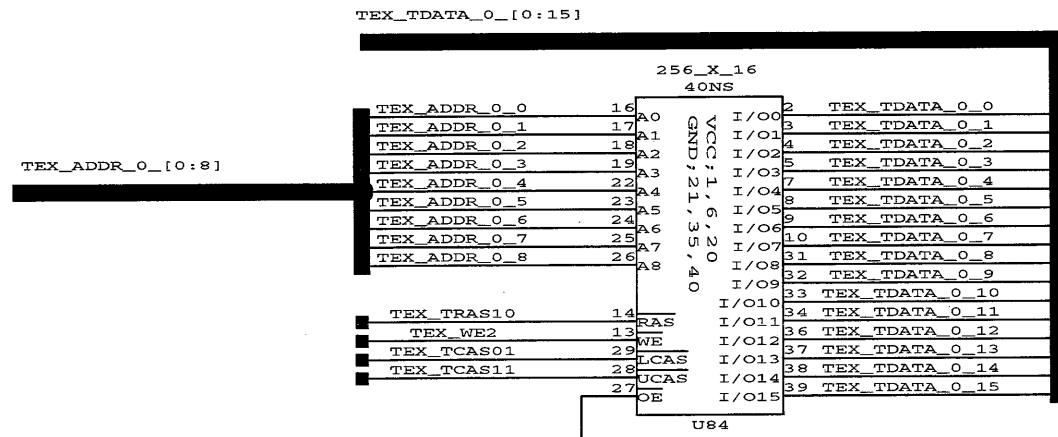
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PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	60062	DATE
DWN. BY	RSC/AMD/JML/FRS	1ST USAGE		DATE
CHECKED		CURRENT PROJ.		DATE
APPROVED		SHEET	41 OF 46	DATE
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			REV.	00

TMU DRAM MEMORY - BANK 0



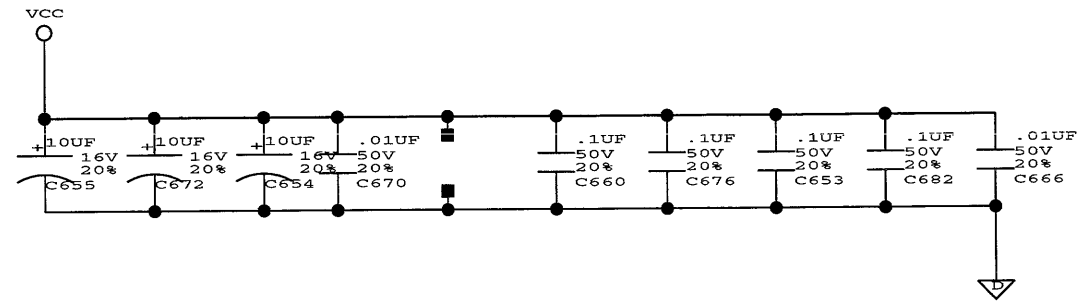
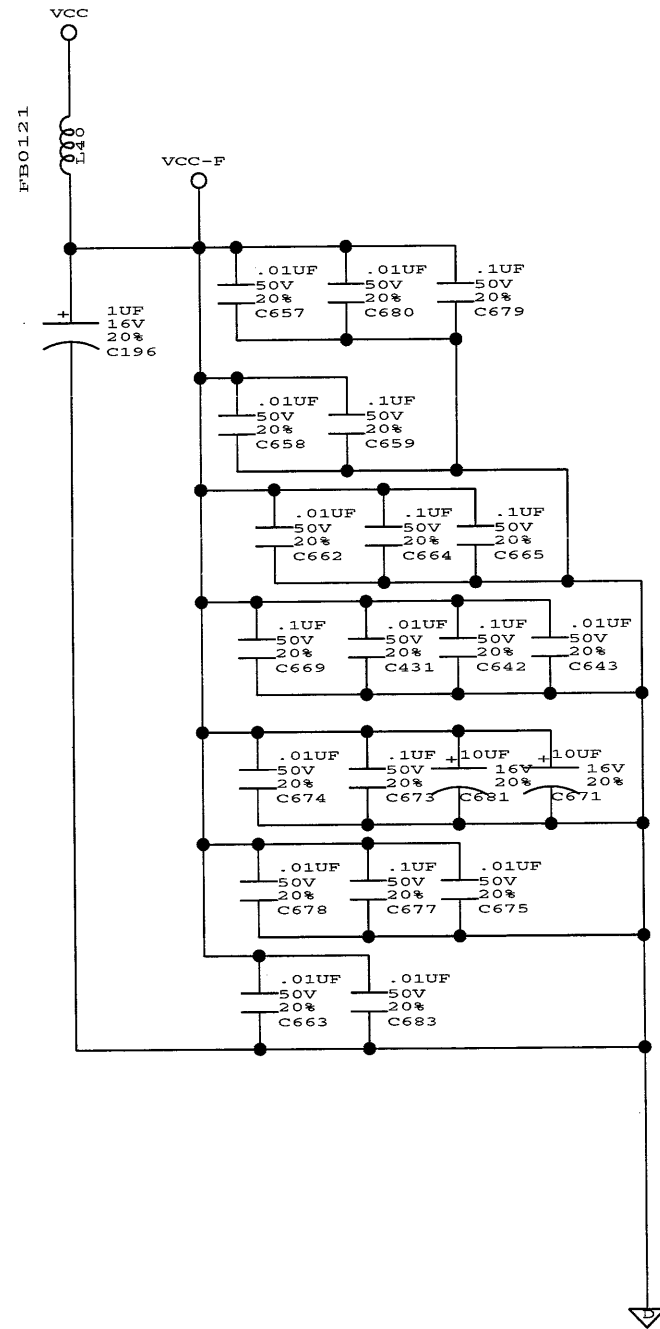
ECN	CHANGE	DATE
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PROJECT ENG.	1ST PROJ. NO.	DATE
RSC/AMD/JML/FRS	60062	
DWN. BY	DATE	1ST USAGE
RSC/AMD/JML/FRS		
CHECKED	DATE	CURRENT PROJ.
APPROVED	DATE	SHEET
		42 OF 46
TITLE		REV.
A-21464 SEATTLE		
9-18-1996_13:16		
PART NO.	REV.	
5770-15206-00	00	

TMU DRAM MEMORY - BANK 1



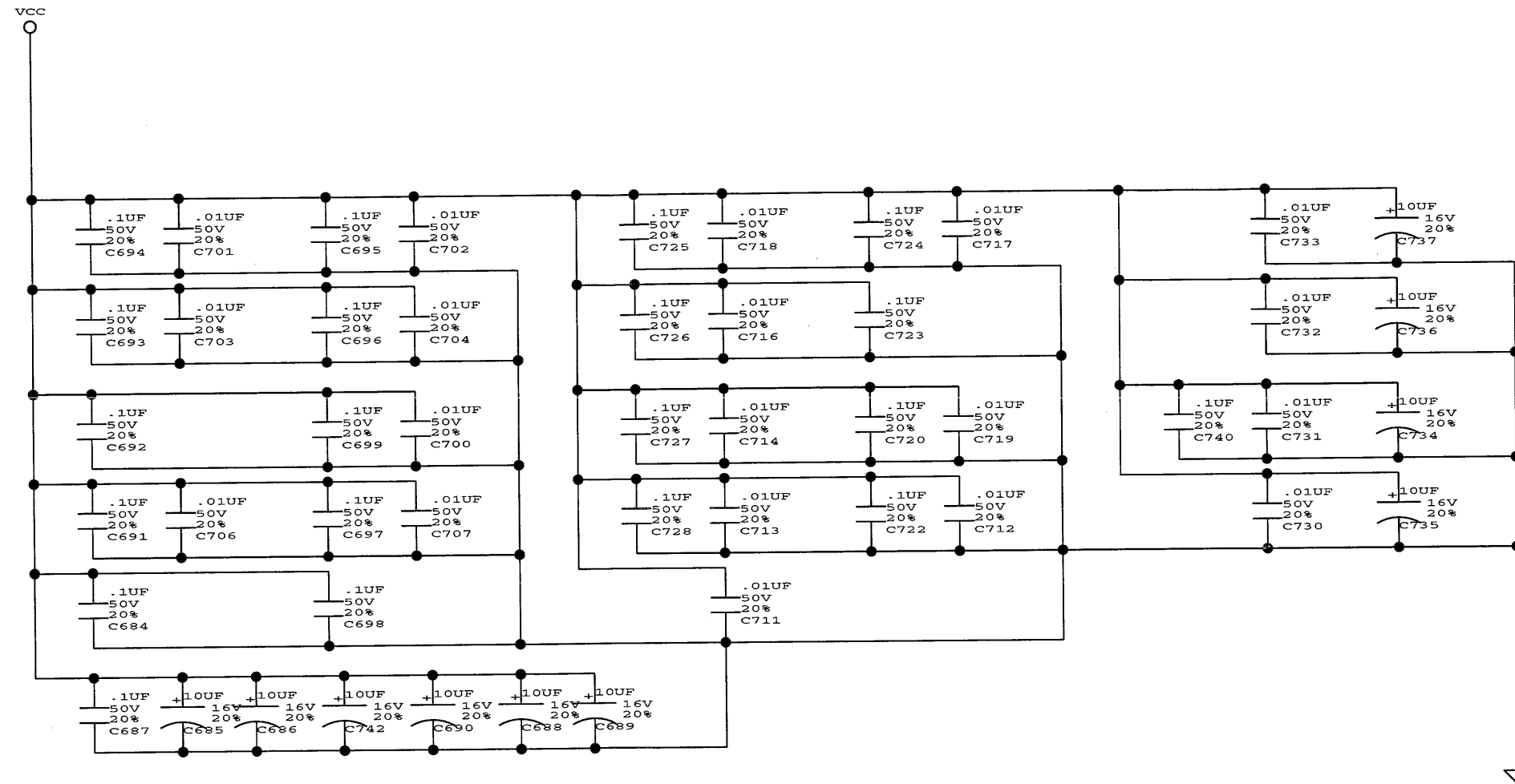
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INFORMATION CONTAINED HEREIN IS CONFIDENTIAL PROPERTY AND MAY NOT BE USED OR DISCLOSED WITHOUT EXPRESS WRITTEN CONSENT FROM THE COMPANY.				
PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES	
RSC/AMD/JML/FRS	60062		MIDWAY MANUFACTURING CO.	
DWN. BY	DATE	1ST USAGE	DATE	3401 N. CALIFORNIA AVENUE
RSC/AMD/JML/FRS				CHICAGO ILLINOIS USA
CHECKED	DATE	CURRENT PROJ.	DATE	TITLE
				A-21464
				SEATTLE
APPROVED	DATE	SHEET	OF	9-18-1996_13:16
		43	46	PART NO.
				5770-15206-00
				REV.
				00

FBI VCC FILTERING



		ECN	CHANGE	DATE
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PROJECT ENG.	RSC/AMD/JML/FRS	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA
DWN. BY	RSC/AMD/JML/FRS	1ST USAGE	DATE	TITLE A-????? SEATTLE
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VIDEO MEMORY VCC FILTERING



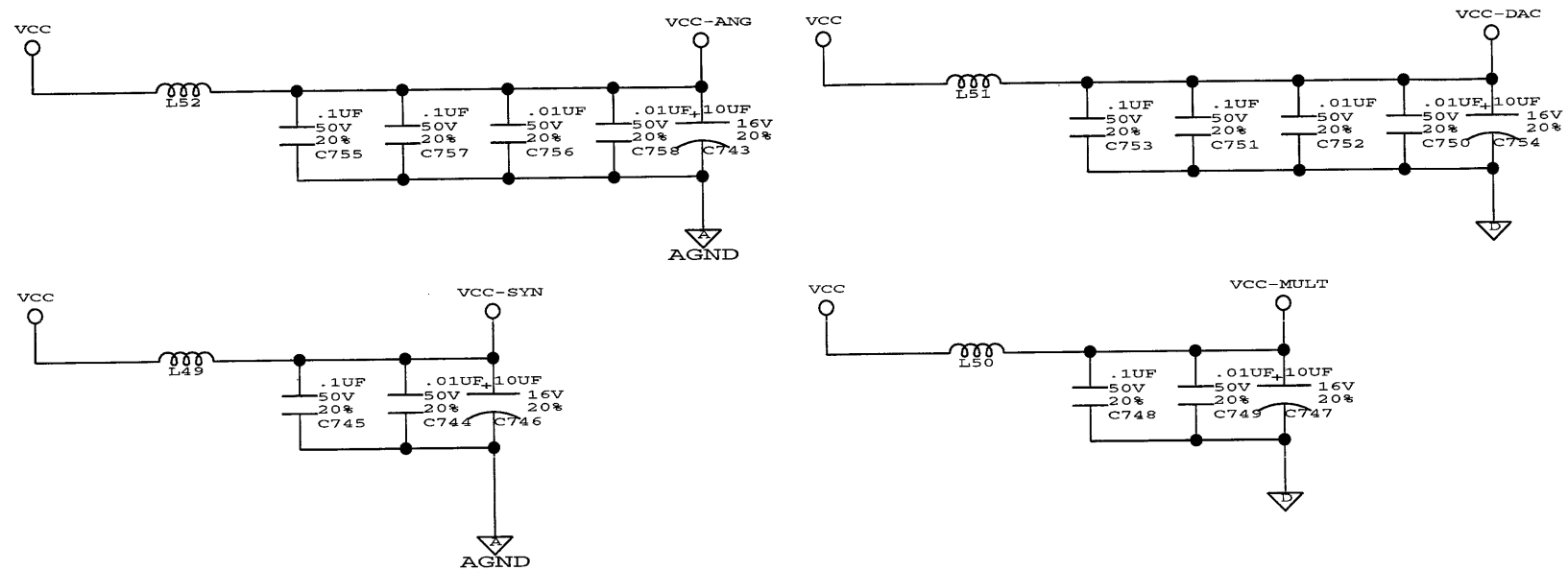
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DWN. BY	RSC/AMD/JML/FRS	1ST USAGE	DATE
CHECKED		CURRENT PROJ.	DATE
APPROVED		SHEET 45 OF 50	PART NO.
			REV. 00

WILLIAMS ELECTRONICS GAMES
MIDWAY MANUFACTURING CO.
3401 N. CALIFORNIA AVENUE
CHICAGO ILLINOIS USA

TITLE A-?????
SEATTLE

10-29-1996_14:30

RAMDAC BYPASS



	ECN	CHANGE	DATE
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PROJECT ENG.	1ST PROJ. NO.	DATE	WILLIAMS ELECTRONICS GAMES MIDWAY MANUFACTURING CO. 3401 N. CALIFORNIA AVENUE CHICAGO ILLINOIS USA
RSC/AMD/JML/FRS	60062		
DWN. BY	DATE	1ST USAGE	DATE
RSC/AMD/JML/FRS			
CHECKED	DATE	CURRENT PROJ.	DATE
APPROVED	DATE	SHEET	46 OF 46
		PART NO.	5770-15206-00
		REV.	00

U5000 Main PCB Assembly Parts List

ZENER DIODES

Z500	ZENER DIODE 12V 5% 1.0W	066X0040-050
Z601	ZENER DIODE 12V 5% 0.5W	066X0040-046
Z701	ZENER DIODE 5.6V 5% 0.5W	066X0040-022
Z700	ZENER DIODE 5.1V 5% 0.5W	066X0040-028
Z702	ZENER DIODE 13V 6.5% 1.0W	066X0040-017
Z705	ZENER DIODE 9.1V 5% 0.5W	066X0040-020
Z802	ZENER DIODE 24V 3% 0.5W	066X0040-031

DIODES

D501 D502 D503 D507	DIODE 1N914B	066X0070-001
D504 D505 D506	DIODE SANYO GMA02	066X0062-001
D802 D803 D807	DIODE SANYO GMA02	066X0062-001
D600 D601 D602 D604 D700	DIODE	066X0070-001
D702 D709 D710 D711 D712	DIODE 1N914B	066X0070-001
D713 D800 D804 D805 D806	DIODE 1N914B	066X0070-001
D109 D110 D111 D114 D603	DIODE 1N4001	066X0071-001
D101 D102 D103 D104	DIODE 1N5406	066X0135-001
D108 D112 D113 D310	DIODE RU-2 1A 600V FAST REC	066X0090-001
D301 D302 D303	DIODE RU-2 1A 600V FAST REC	066X0090-001
D117	DIODE DAMP 1A 600V GI RGP10J	066X0144-001
D105	DIODE 1N4007	066X0095-001
D106A D106B D106C	DIODE 200V 3.5A BYV28-200	066X0097-001
D708 D716	DIODE BOOST 600V 4A MUR460	066X0126-005
D107	DIODE BOOST 900V 4A MUR490E	066X0126-002
D707	DIODE DD20R	066X0143-001

TRANSISTORS

Q501 Q502 Q506 Q507 Q508	TRSTR 2N3904 MOT	086X0113-501
Q503 Q504 Q505	TRSTR NPN SANYO 2SC3782	086X0287-001
Q509 Q510 Q511	TRSTR 2N3906 MOT	086X0114-501
Q601 Q602 Q700 Q808	TRSTR 2N3904 MOT	086X0113-501
Q705	TRSTR 2N3906 MOT	086X0114-501
Q709	TRSTR 2N4403	086X0211-501
Q800	TRSTR MPSA92 MOT	086X0133-501
Q703 Q708	TRSTR 2SC2482 TOSH	086X0185-501
Q704	TRSTR 2SC3686	086X0286-001
Q710	TRSTR BDX53A SGS NPN DAR	086X0335-001
Q101	TRSTR N-MOSFET 6N60	086X0334-001

ICS

U500	IC LM1203N RGB VIDAMP	086X0270-001
U101	IC PWM UC3842AN	086X0257-001
U601	IC VERT DEFL TDA1771	086X0326-001
U701	IC LA7850 HV PROC SANYO	086X0274-001
U702	IC QUAD 2-INPUT X-OR 2N74LS136	086X0333-001

MISCELLANEOUS

F101	FUSE 3AFast BLOW 5X20MM	016X0208-001
R760	RES 100 OHM 5% 0.5W FP FAILSAFE	003X0509-004
P15/25K	FREQ CHANGE PLUGASSY	038A7508-000

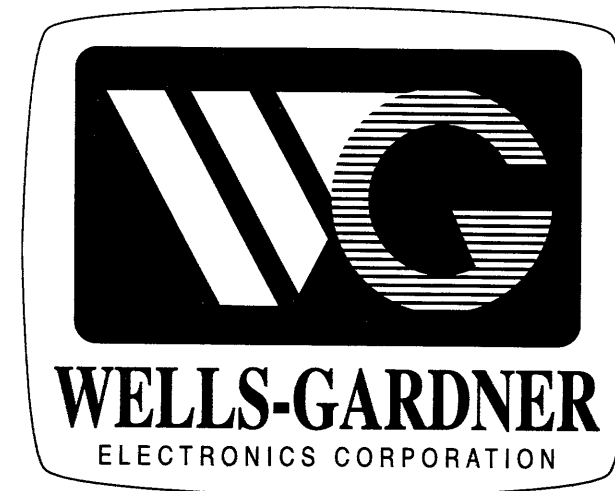


WELLS-GARDNER

ELECTRONICS CORPORATION

2701 N. KILDARE AVENUE
CHICAGO, ILLINOIS 60639

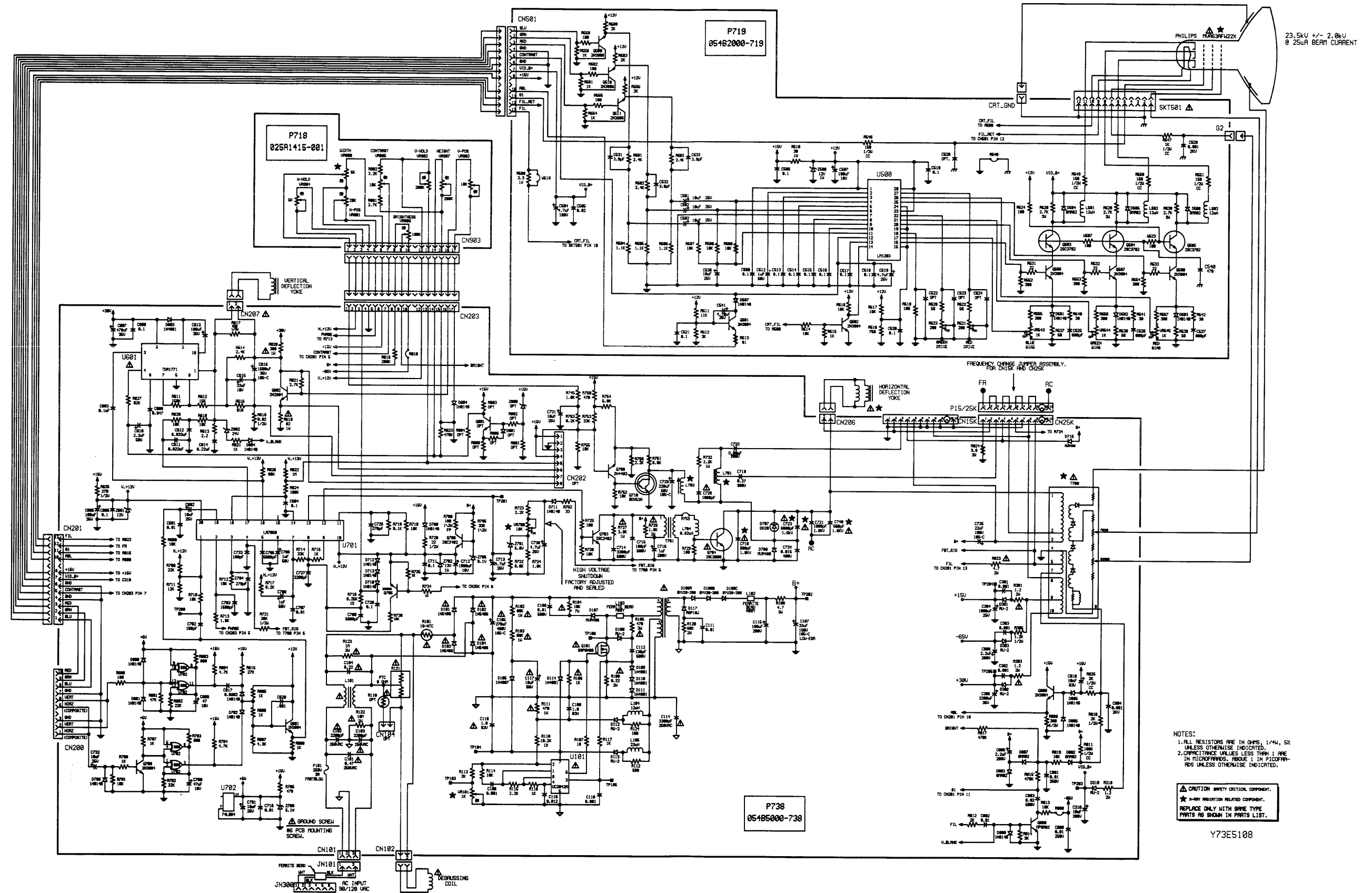
PHONE: 312/252-8220 · FAX: 312/252-8072
TOLL FREE: 1-800-336-6630



U5000

SERVICE MANUAL SUPPLEMENT

MODEL 25K5108



NOTES:
 1. ALL RESISTORS ARE IN OHMS, 1/4W, 5% UNLESS OTHERWISE INDICATED.
 2. CAPACITANCE UNLESS LESS THAN 1 ARE IN MICROFARADS, ABOVE 1 IN PICOFARADS UNLESS OTHERWISE INDICATED.

CAUTION SAFETY CRITICAL COMPONENT.
 * X-RAY PROTECTION RELATED COMPONENT.
 REPLACE ONLY WITH SAME TYPE PARTS AS SHOWN IN PARTS LIST.

Y73E5108