

# TOOBIN'

## Schematic Package

Supplement to the Operators Manual

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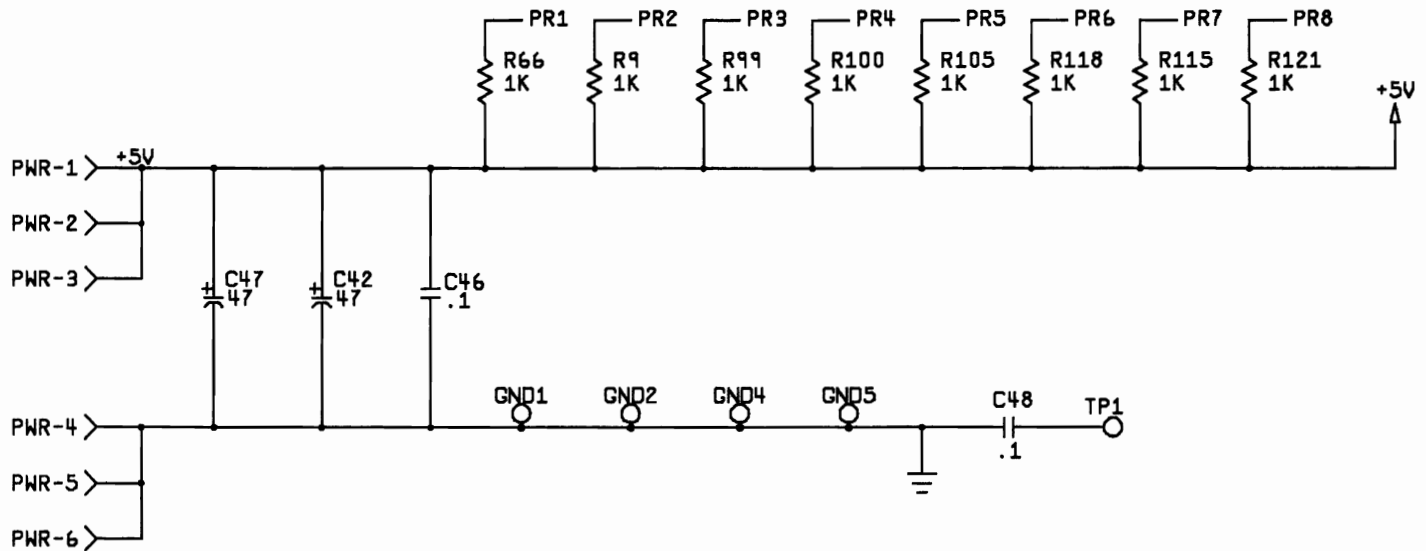
**NOTE** This staple temporarily holds the schematic package together. Remove the staple when you use the schematics.



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# Faulty RAM/ROM Tables



**Table 1 Faulty RAM Locations**

Ram Type	Location	Video Display Characteristic
CPU	7J, 7F	Background color is red.
PF	1E, 3E, 4/5E	Background color is green.
AL/MO	17D, 18D	Background color is blue.
COL	8J, 9J	Background color varies between red, white, and blue.

**Table 2 Faulty ROM Locations**

Error Address	Location on Game PCB	
00000	U = 1J	L = 1F
20000	U = 2J	L = 2F
40000	U = 4J	L = 4F
60000	U = 5J	L = 5F

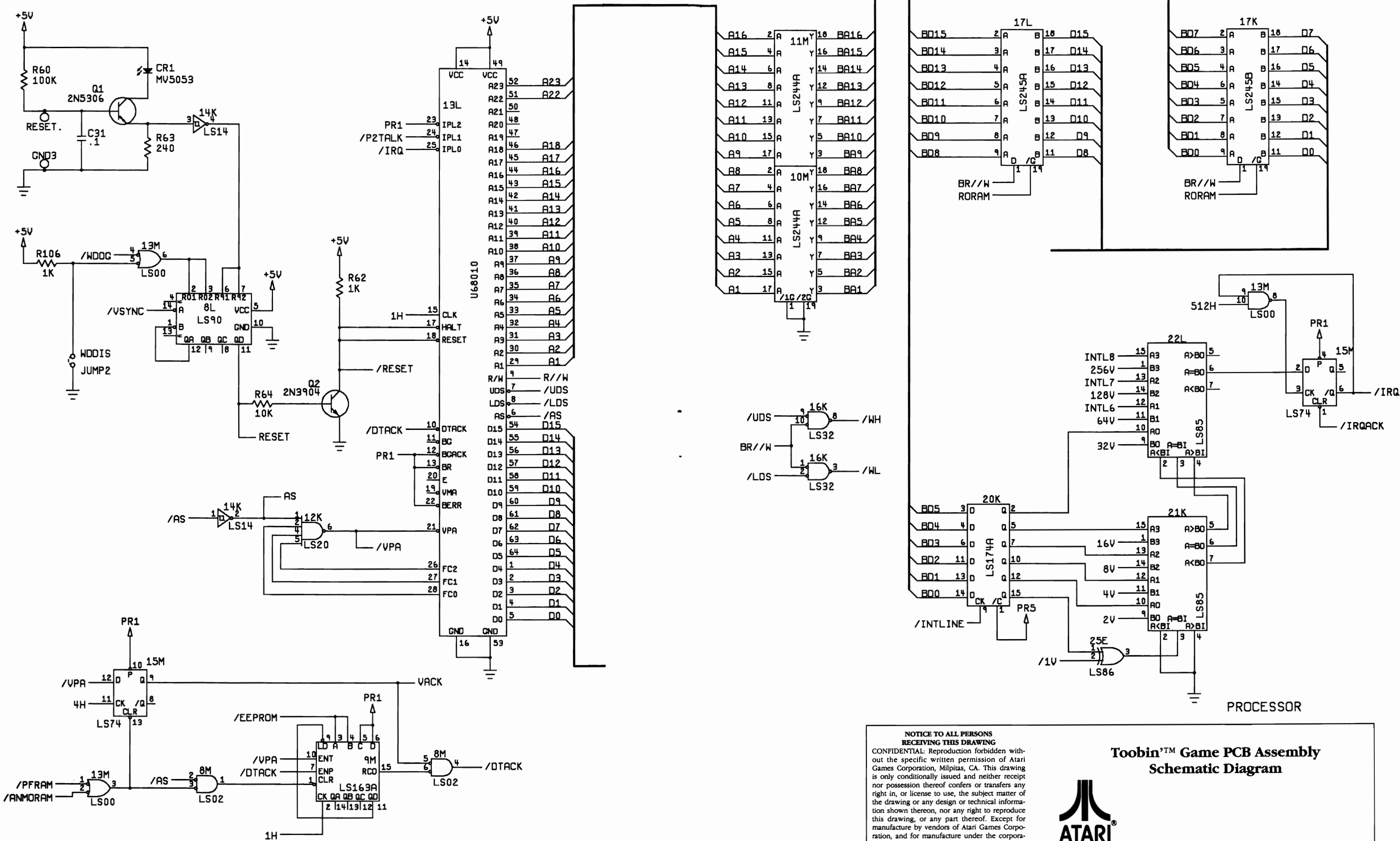
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**Toobin™ Game PCB Assembly Schematic Diagram, Faulty RAM/ROM Tables**



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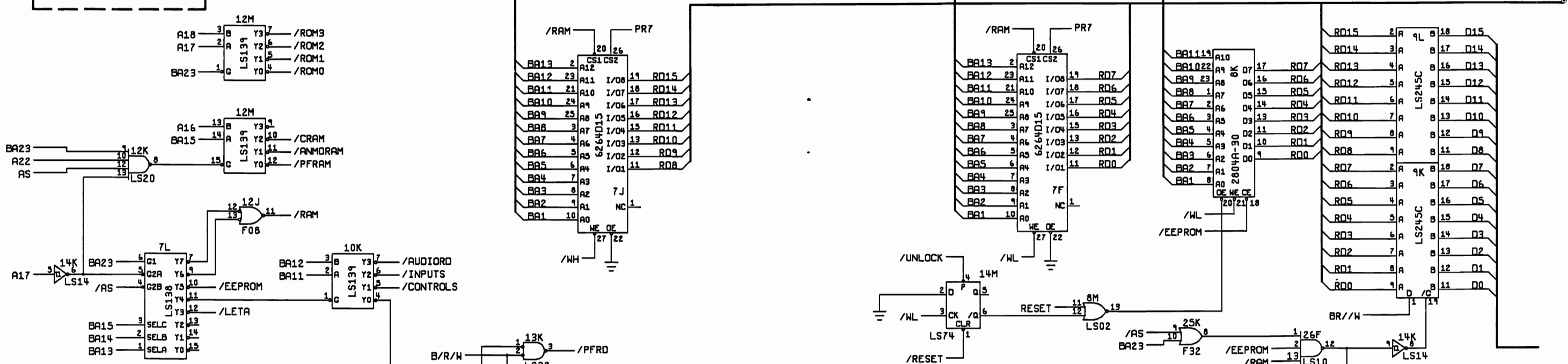
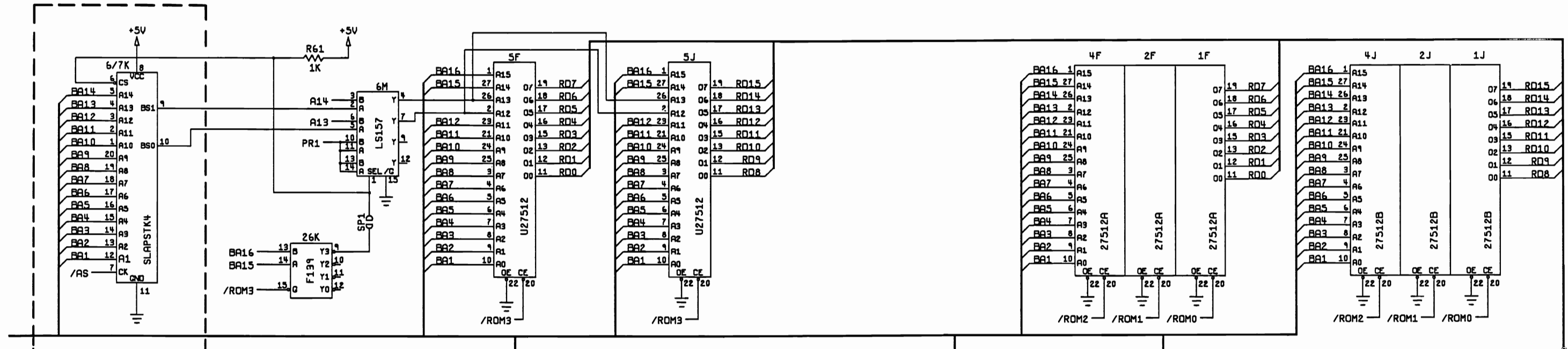
**Toobin™ Game PCB Assembly Schematic Diagram**

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RAM, ROM, ADDRESS DECODES



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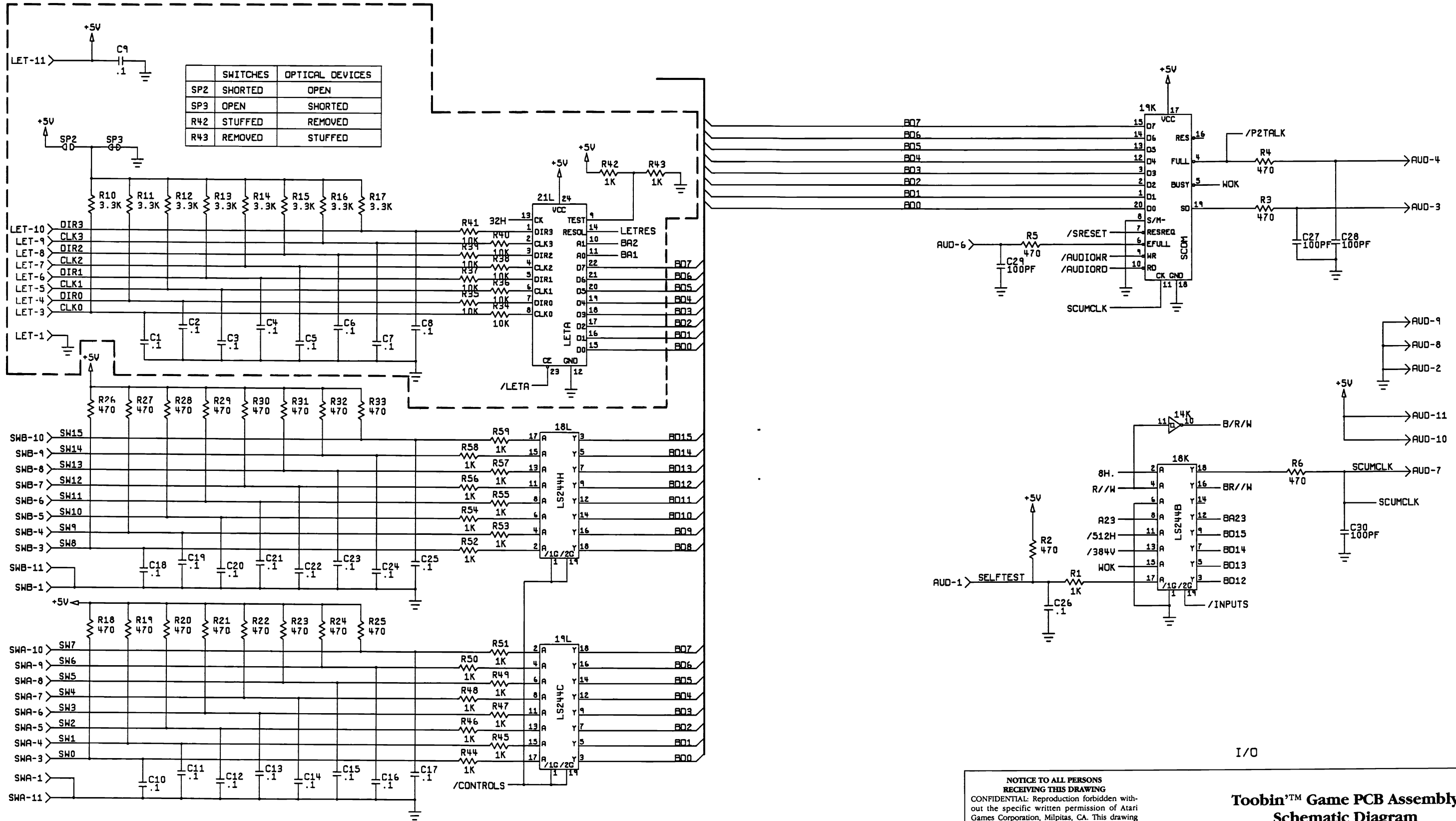
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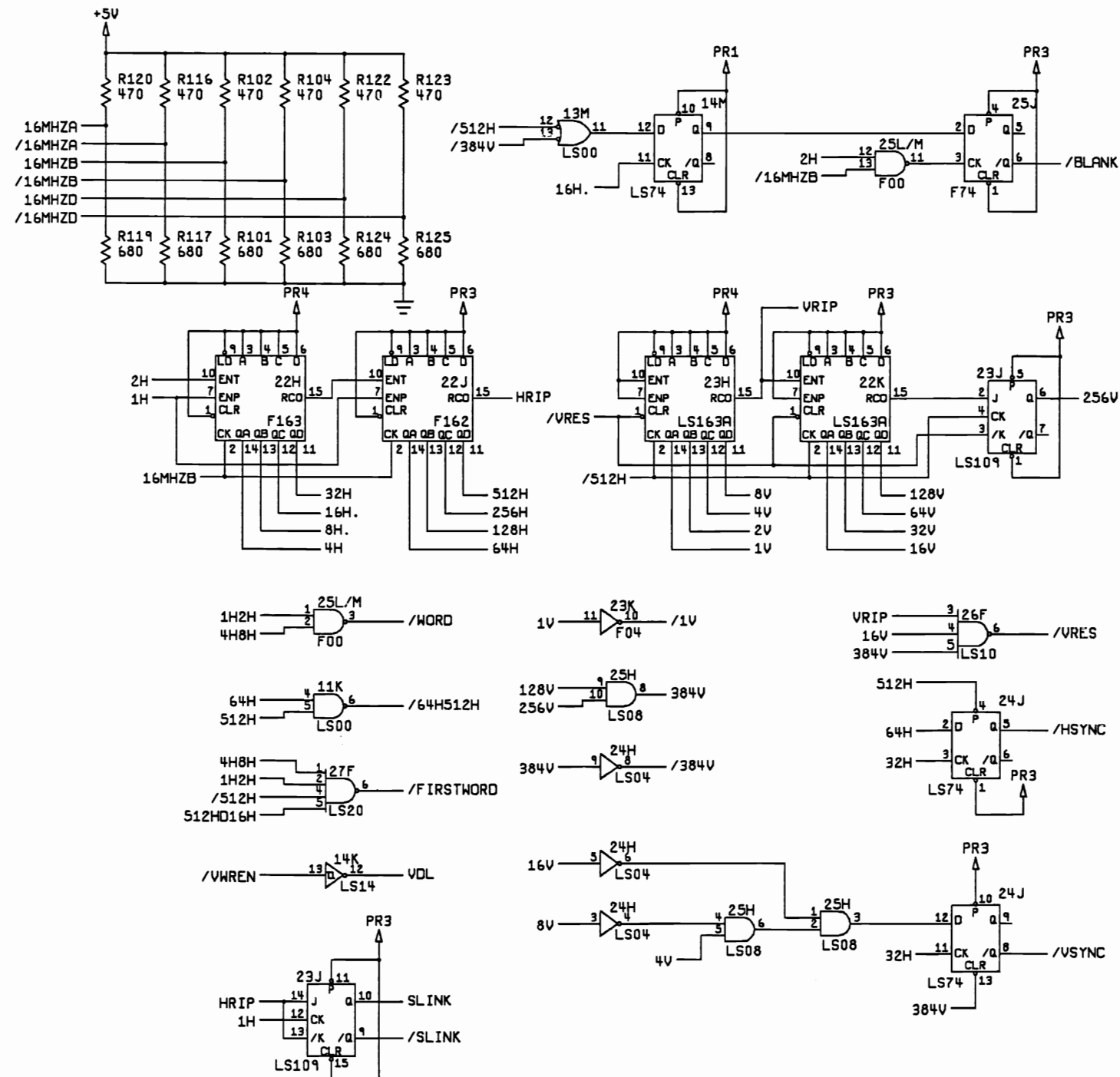
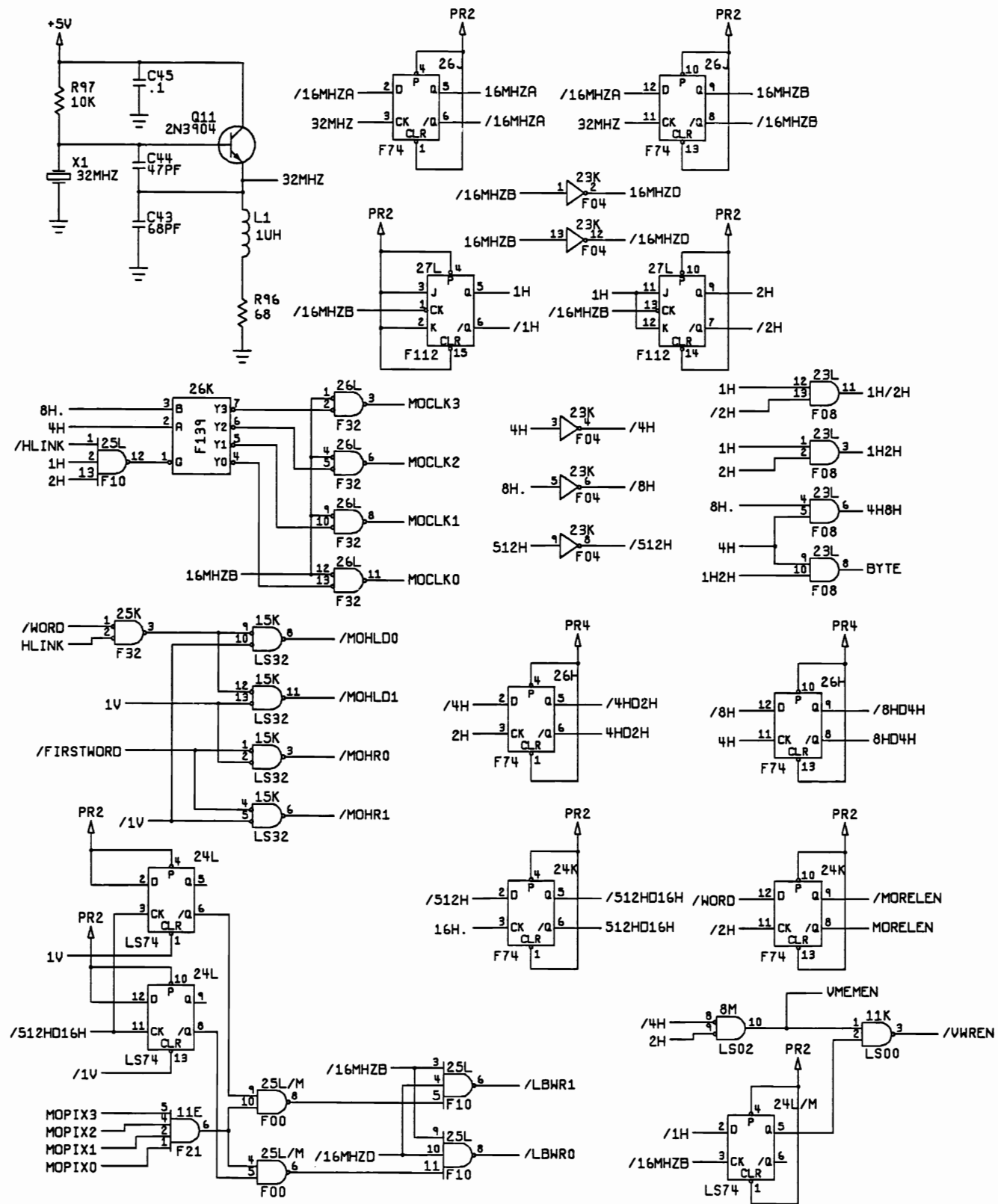
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SYNC, TIMING

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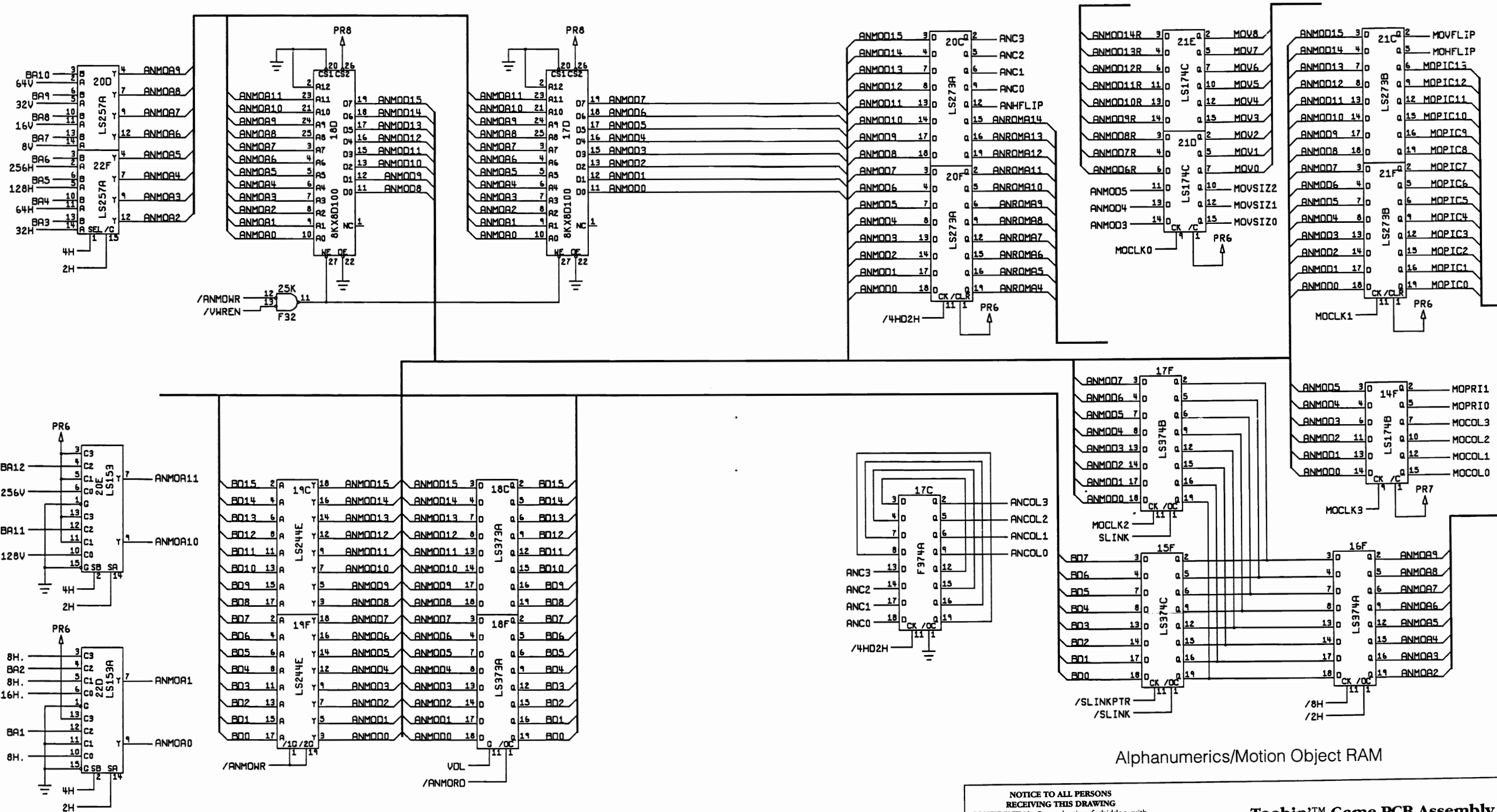
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Alphanumerics/Motion Object RAM

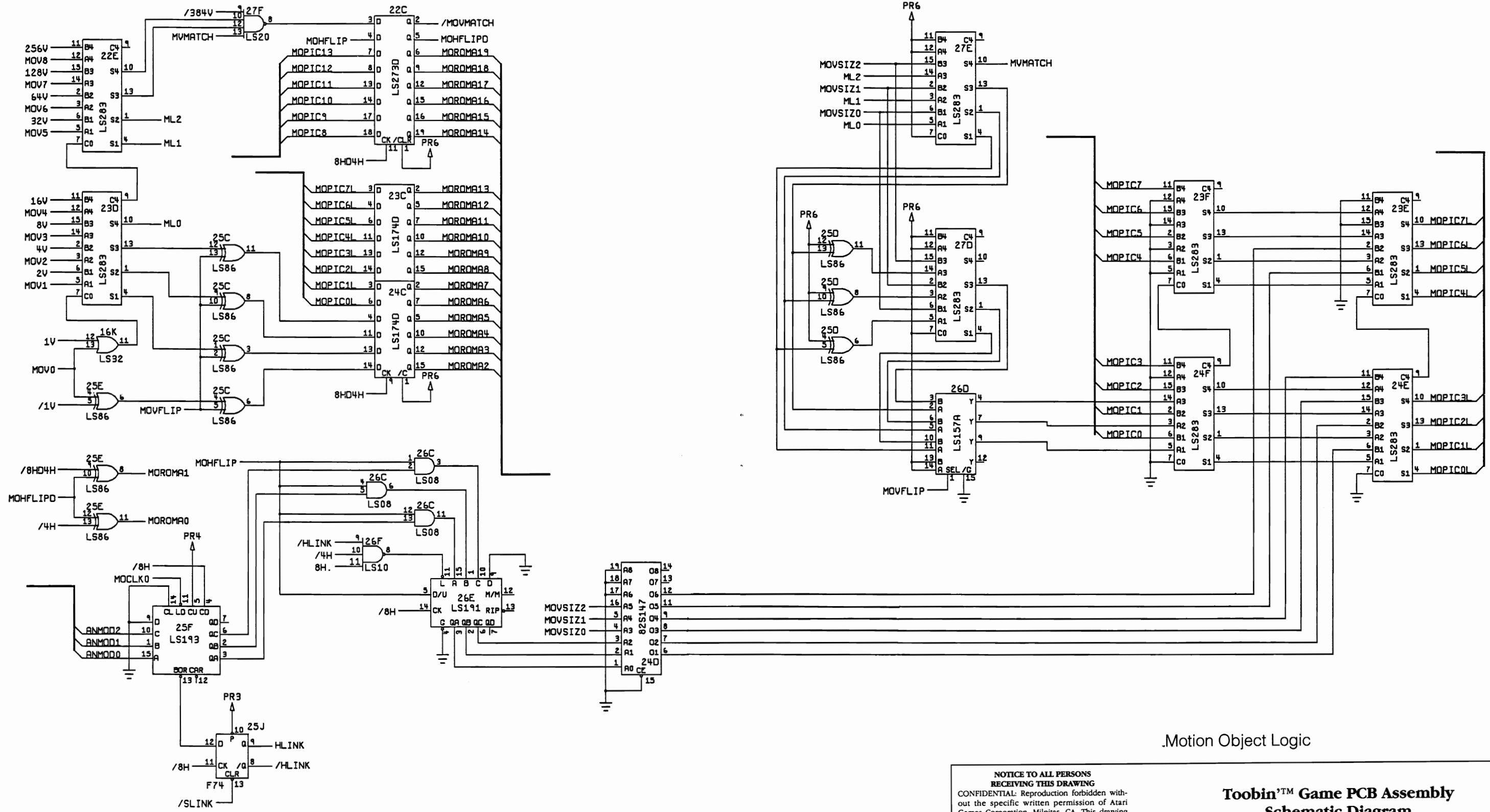
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**Toobin™ Game PCB Assembly Schematic Diagram**




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.Motion Object Logic

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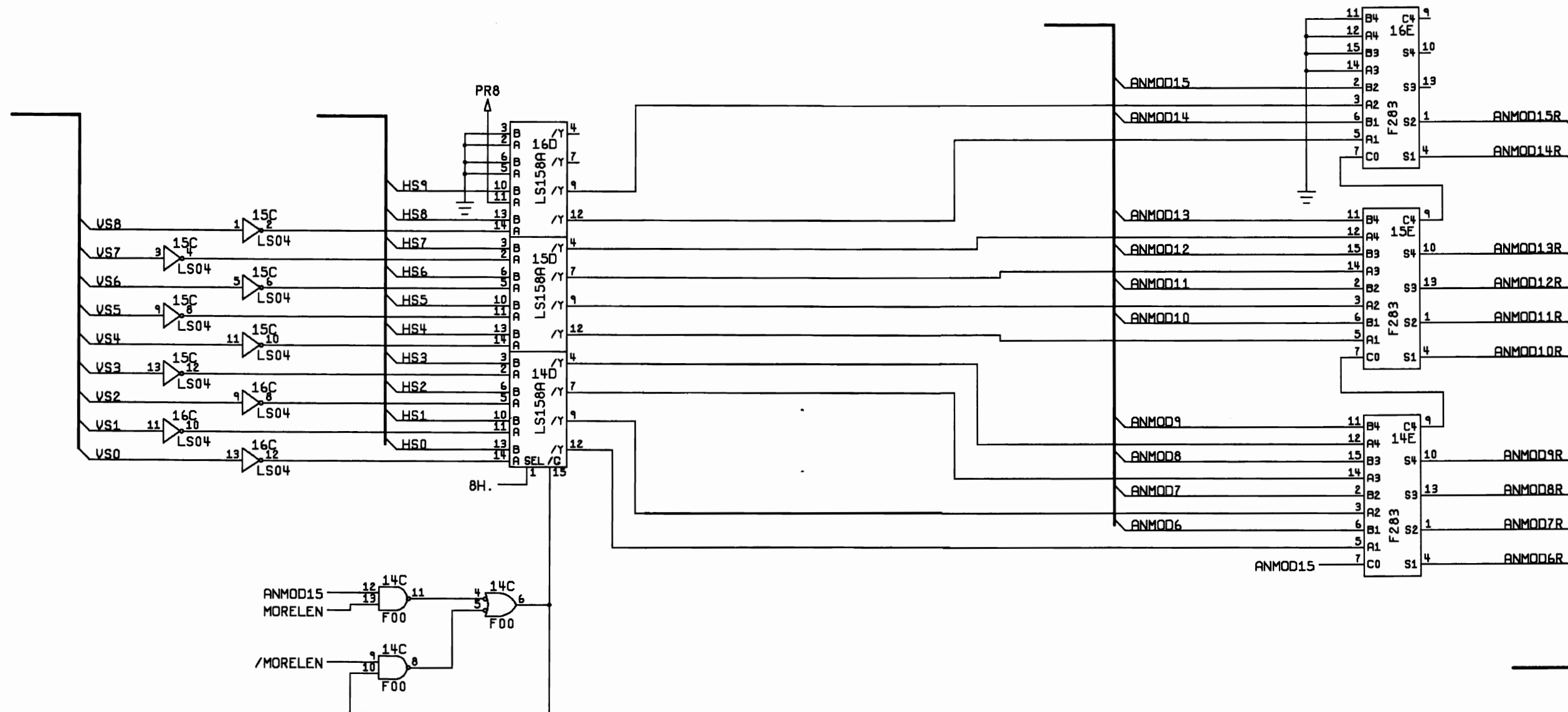
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Motion Object Relative/Absolute Position Logic

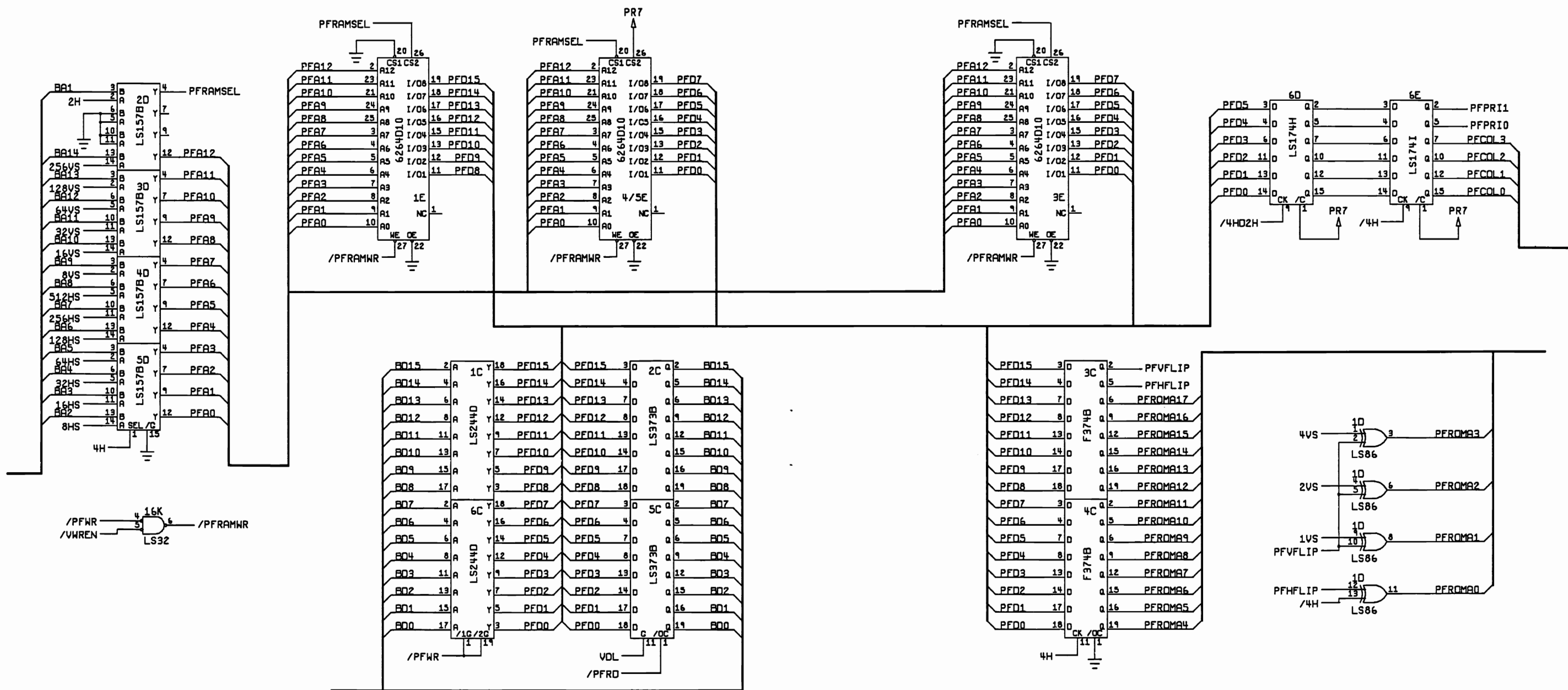
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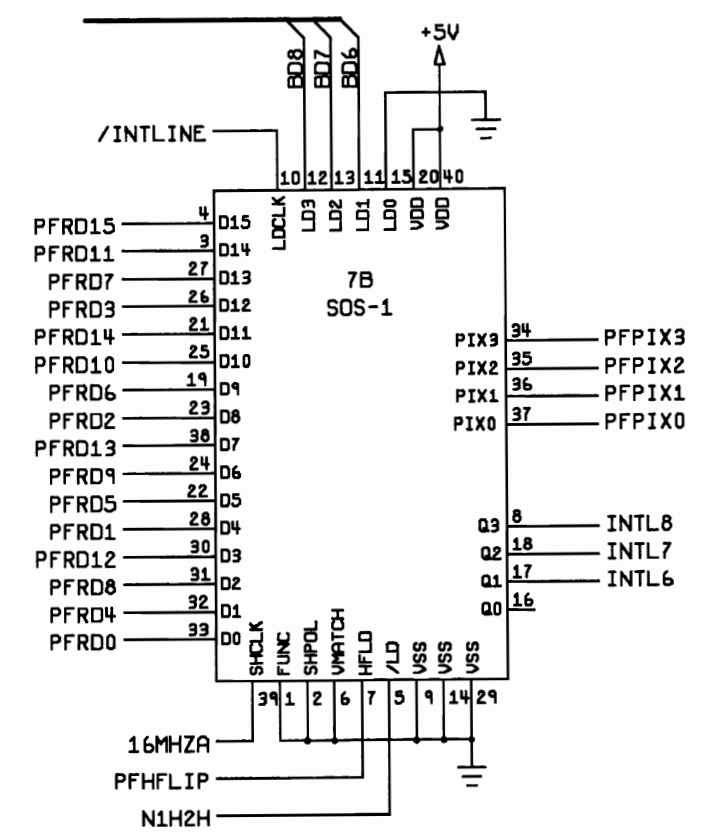
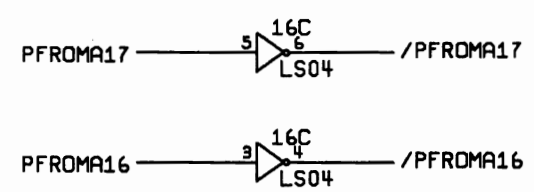
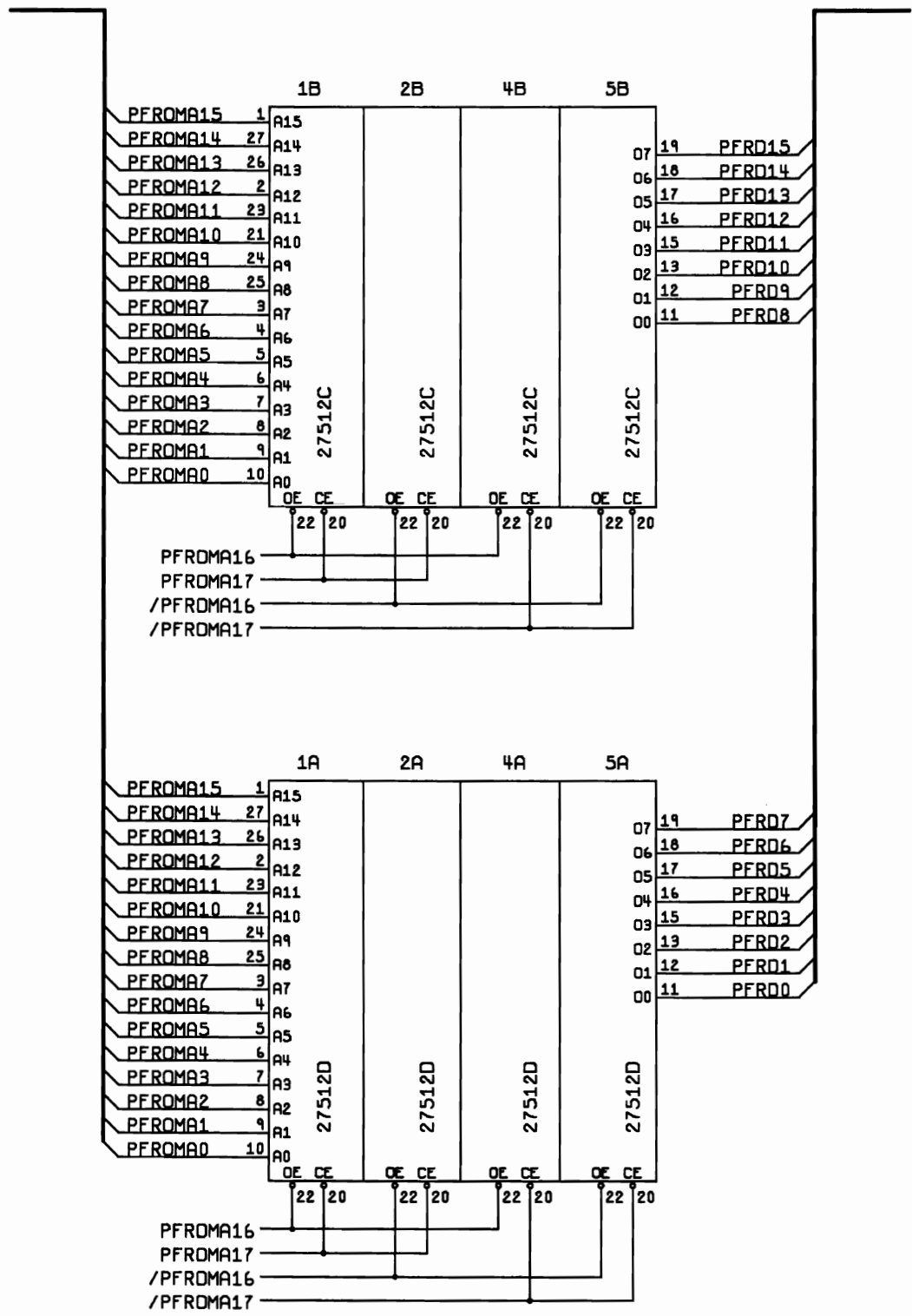


Playfield RAM

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Playfield Graphics ROM, Shifter

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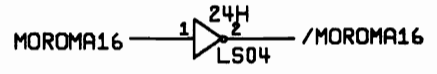
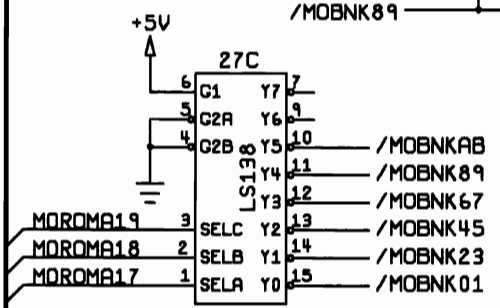
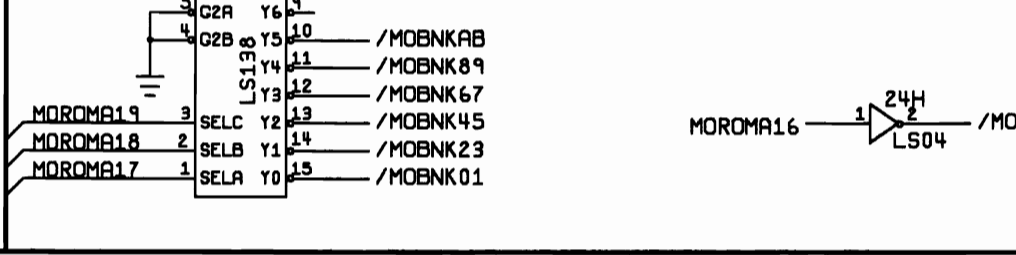
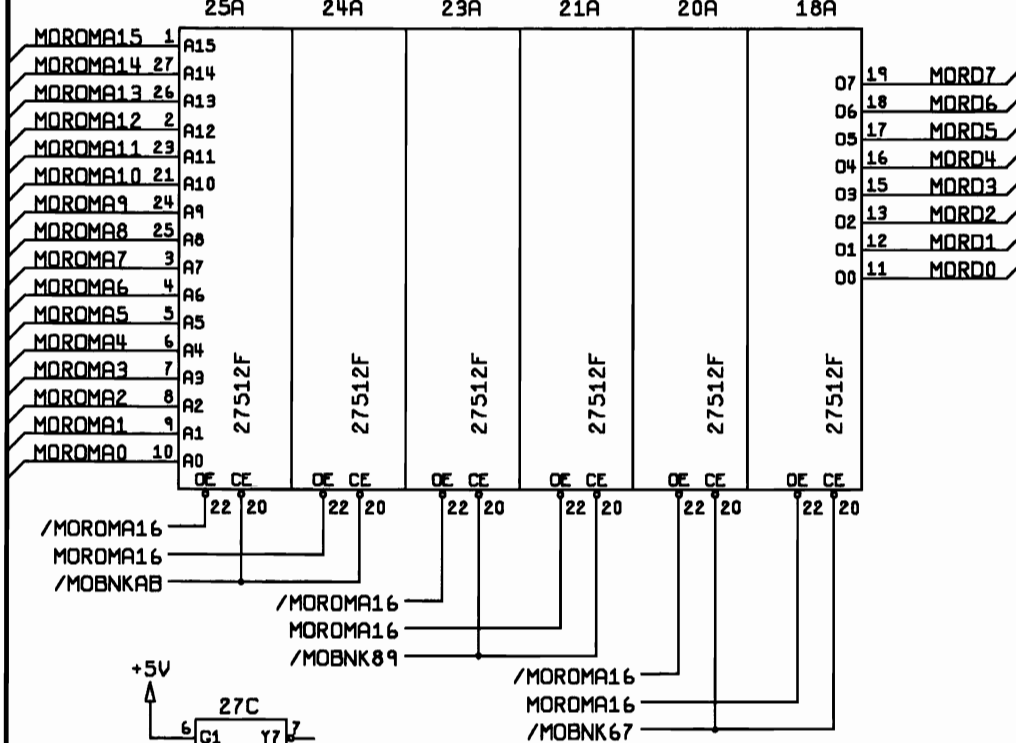
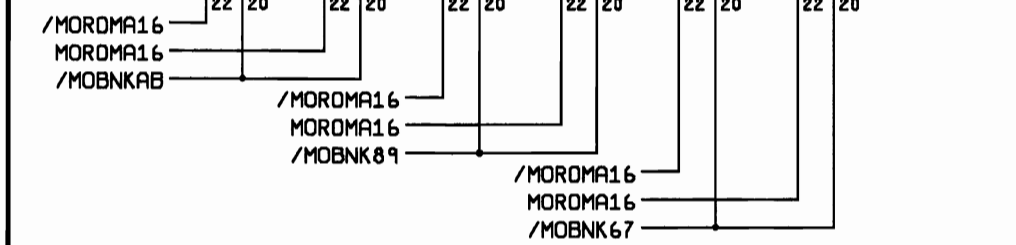
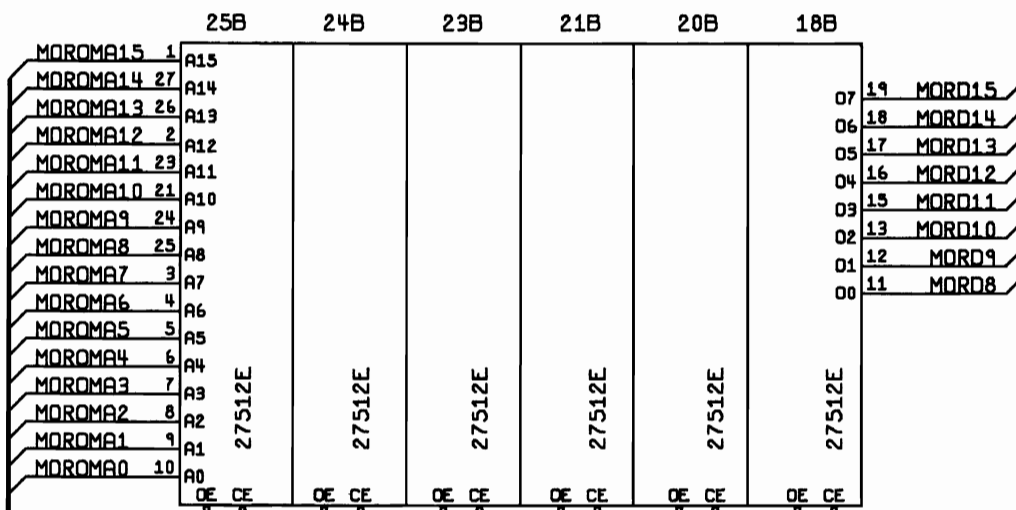
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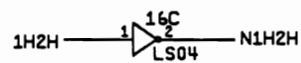
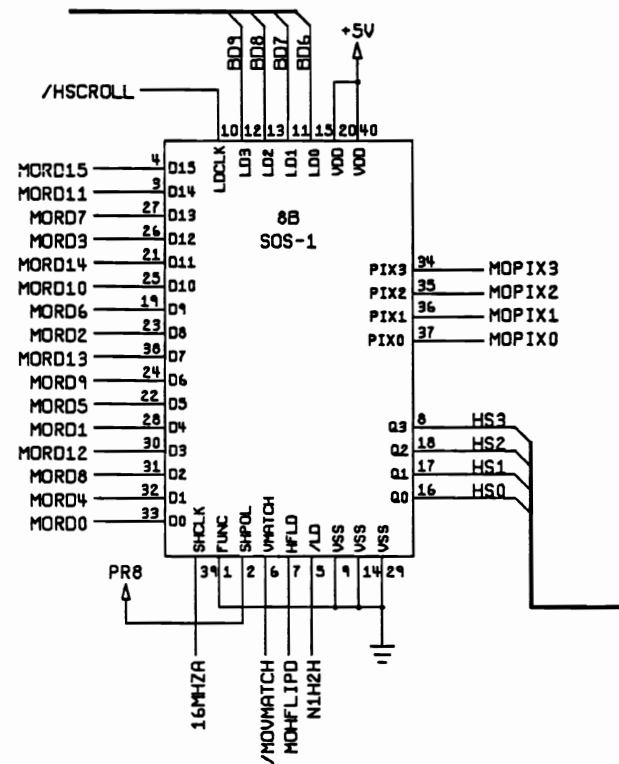
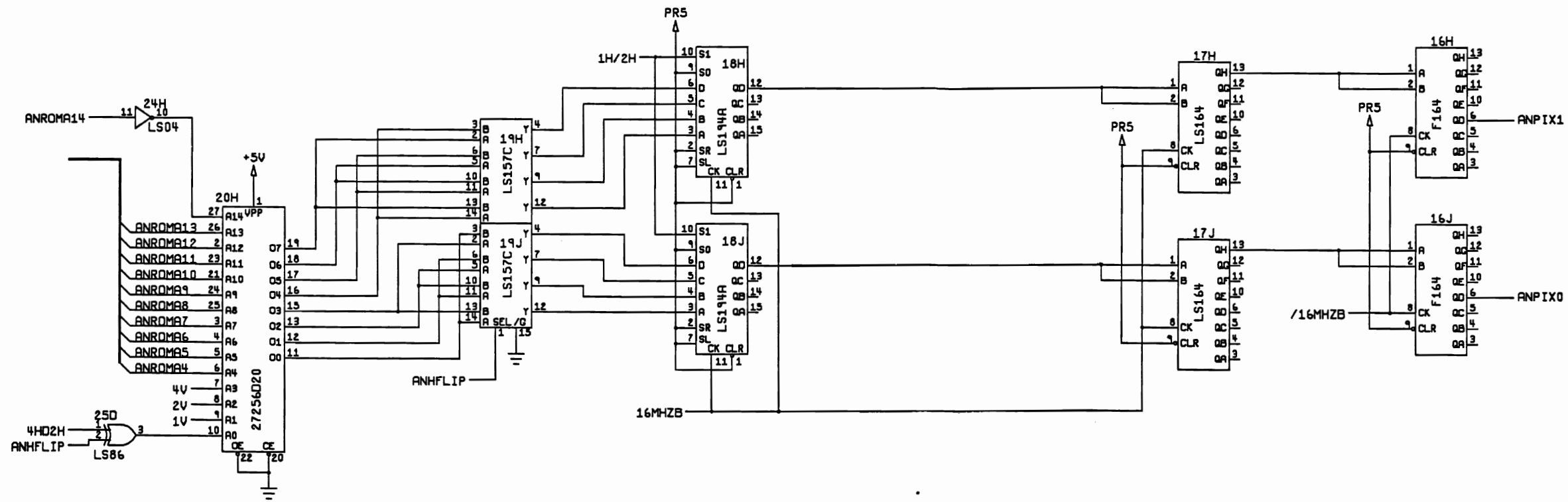


Motion Object Graphics ROM

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Alphanumerics ROM, Motion Object Shifter

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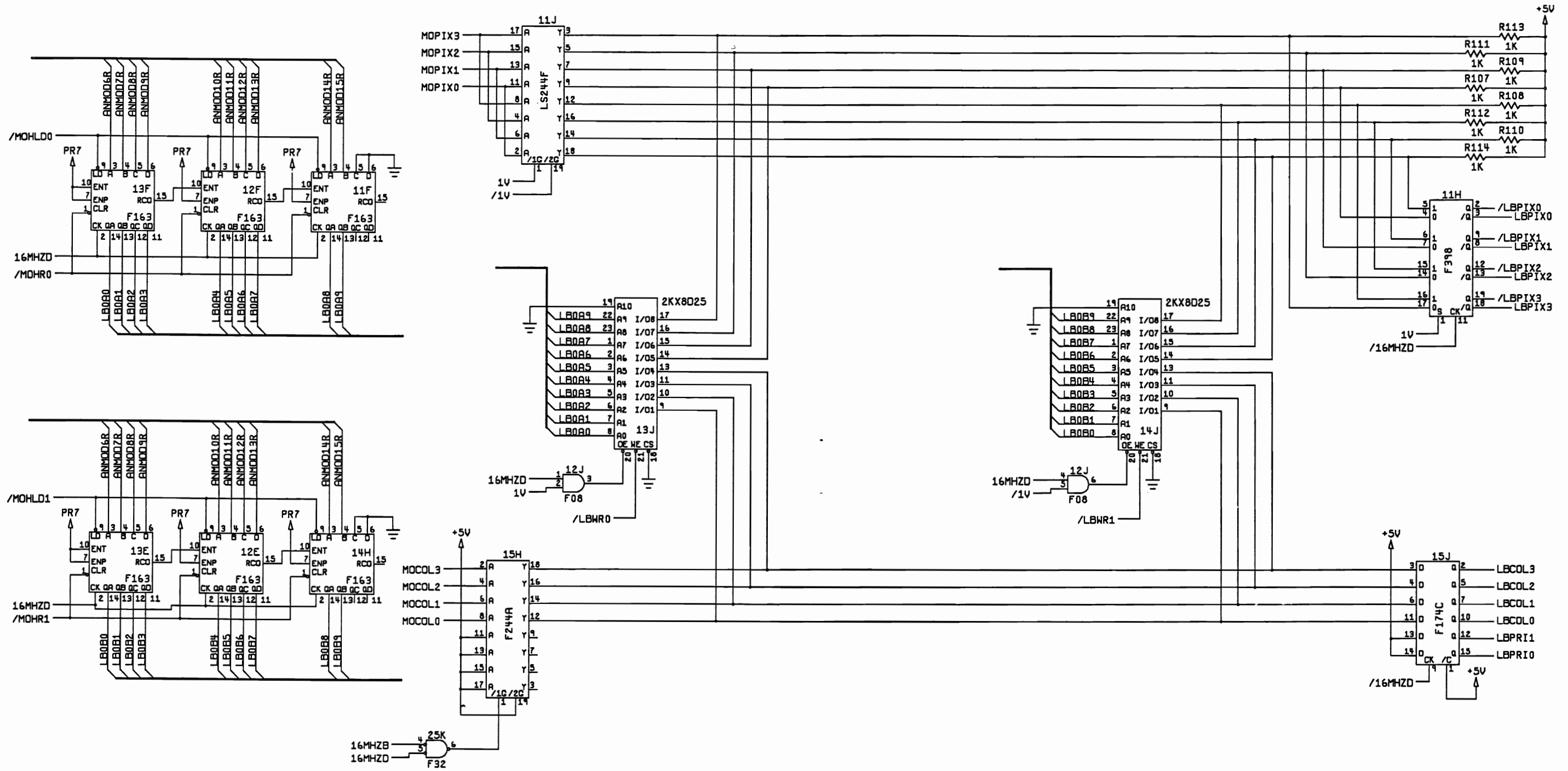
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Motion Object Line Buffers

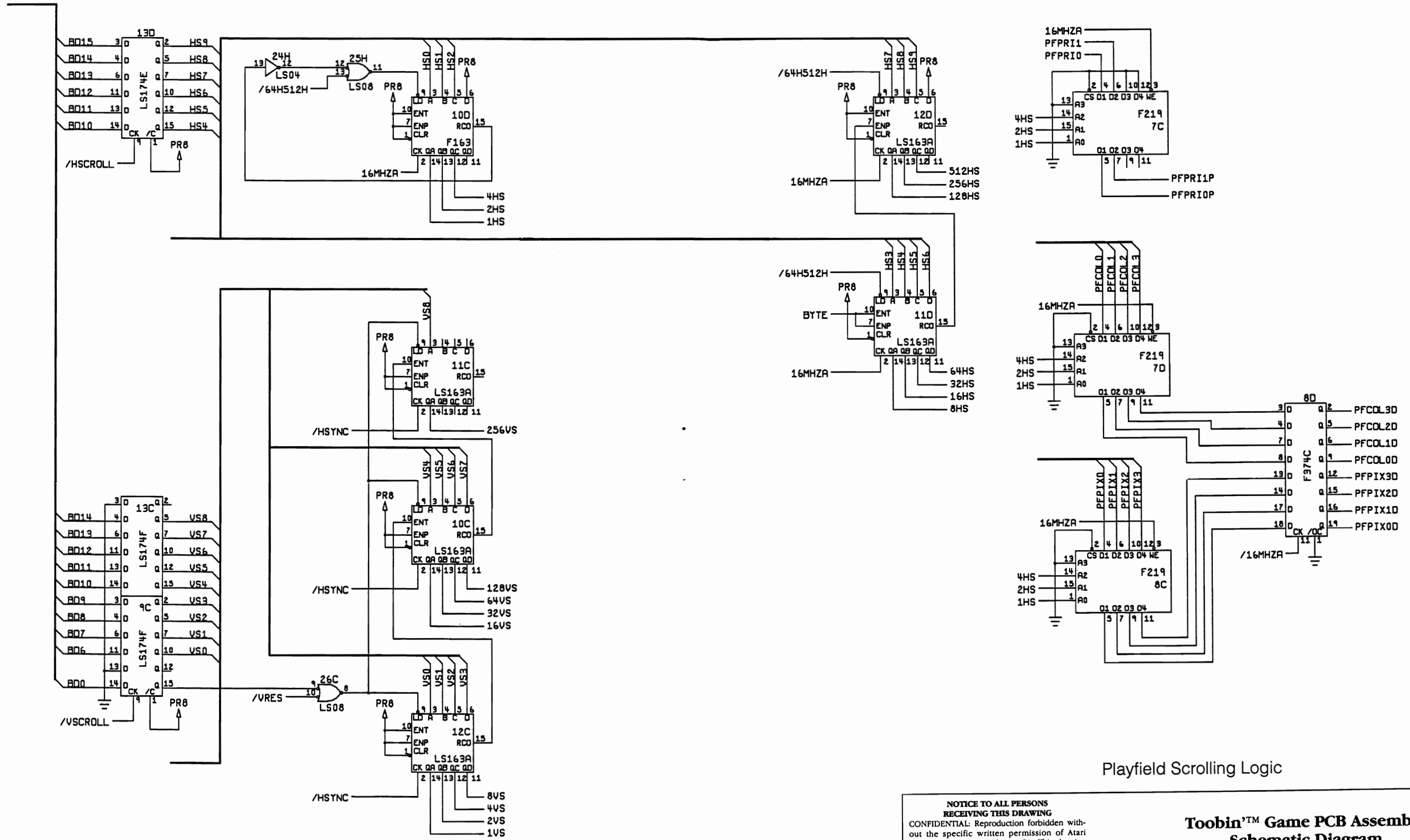
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Playfield Scrolling Logic

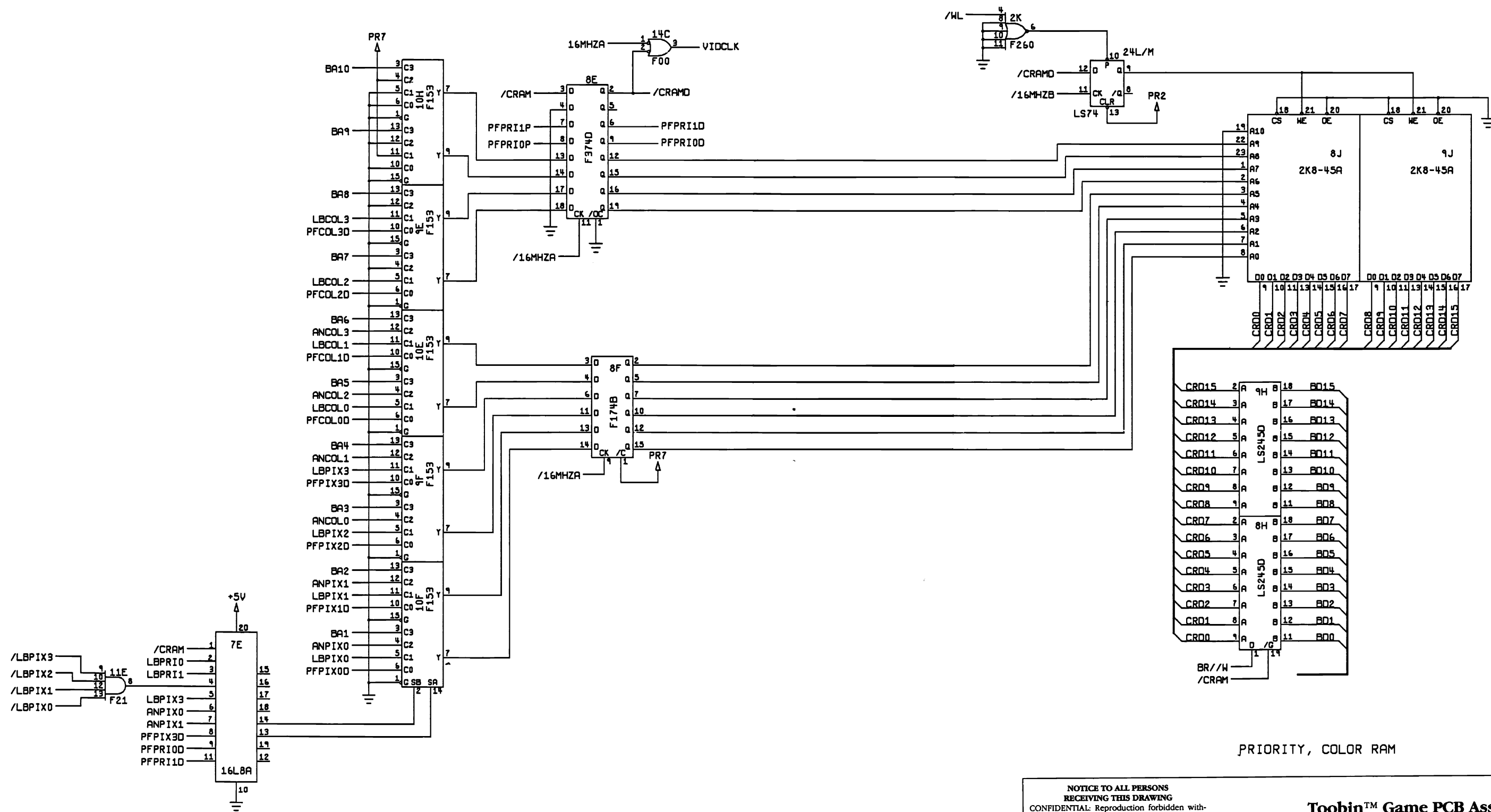
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PRIORITY, COLOR RAM

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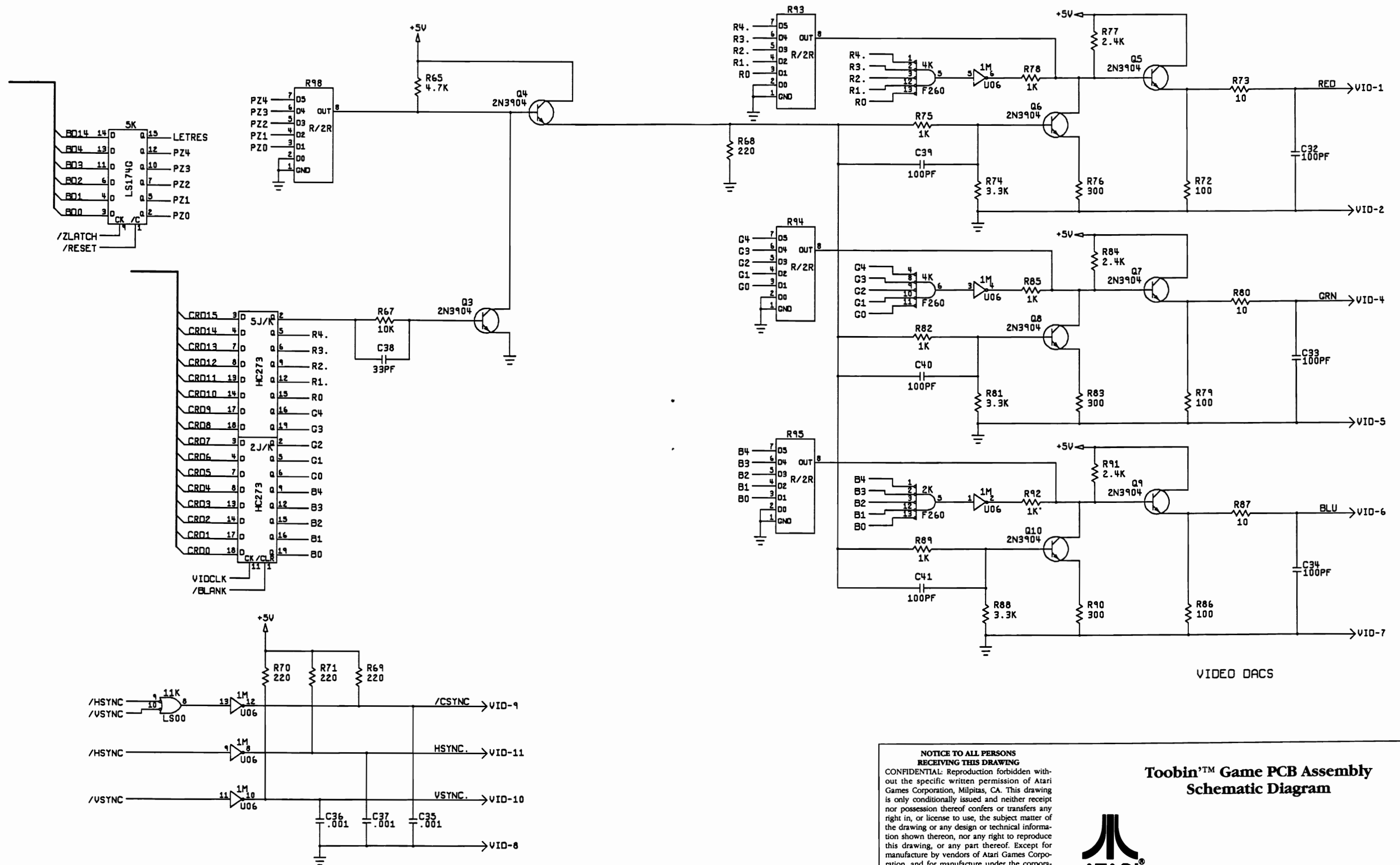
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# Toobin' Memory Map

HEXADECIMAL	ADDRESS						DATA				FUNCTION		
	AAAA	AAAA	AAAA	AA	-----	-----	DDDD	DD	-----	-----			
	2222	1111	1111	11AA	AAAA	AAAA	R/	1111	11DD	DDDD	DDDD		
	3210	9876	5432	1098	7654	3210	W	5432	1098	7654	3210		
000000-07FFFF	0XXX	XAAA	AAAA	AAAA	AAAA	AAAA	R	DDDD	DDDD	DDDD	DDDD	512K BYTES PROGRAM ROM	
C00000-C07FFC	11XX	XX00	0AAA	AAAA	AAAA	AA0X	R/W				DDDD	PLAYFIELD PALETTE	
C00000-C07FFC	11XX	XX00	0AAA	AAAA	AAAA	AA0X	R/W			DDDD		PLAYFIELD PRIORITY	
C00000-C07FFE	11XX	XX00	0AAA	AAAA	AAAA	AA1X	R/W	D				PLAYFIELD VERTICAL FLIP	
C00000-C07FFE	11XX	XX00	0AAA	AAAA	AAAA	AA1X	R/W	D				PLAYFIELD HORIZONTAL FLIP	
C00000-C07FFE	11XX	XX00	0AAA	AAAA	AAAA	AA1X	R/W	DD	DDDD	DDDD	DDDD	PLAYFIELD STAMP CODE	
C08000-C09FFE	11XX	XX00	1XXA	AAAA	AAAA	AAAX	R/W	DDDD	DDDD	DDDD	DDDD	ALPHANUMERICS/MOTION OBJECT RAM	
C08000-C097FE	11XX	XX00	1XXA	AAAA	AAAA	AAAX	R/W	DDDD				ALPHANUMERIC PALETTE	
C08000-C097FE	11XX	XX00	1XXA	AAAA	AAAA	AAAX	R/W		D			ALPHANUMERIC HORIZONTAL FLIP	
C08000-C097FE	11XX	XX00	1XXA	AAAA	AAAA	AAAX	R/W		DDD	DDDD	DDDD	ALPHANUMERIC STAMP CODE	
C09800-C09FF8	11XX	XX00	1XX1	1AAA	AAAA	A00X	R/W	D (1 = ABSOLUTE)				M.O. ABSOLUTE/P.F. RELATIVE POSITION	
C09800-C09FF8	11XX	XX00	1XX1	1AAA	AAAA	A00X	R/W	DDD	DDDD	DD		M.O. VERTICAL POSITION	
C09800-C09FF8	11XX	XX00	1XX1	1AAA	AAAA	A00X	R/W			DD	D	M.O. VERTICAL SIZE	
C09800-C09FF8	11XX	XX00	1XX1	1AAA	AAAA	A00X	R/W				DDD	M.O. HORIZONTAL SIZE	
C09802-C09FFA	11XX	XX00	1XX1	1AAA	AAAA	A01X	R/W	D				M.O. VERTICAL FLIP	
C09802-C09FFA	11XX	XX00	1XX1	1AAA	AAAA	A01X	R/W	D				M.O. HORIZONTAL FLIP	
C09802-C09FFA	11XX	XX00	1XX1	1AAA	AAAA	A01X	R/W	D	DDDD	DDDD	DDDD	M.O. BASE STAMP CODE	
C09804-C09FFC	11XX	XX00	1XX1	1AAA	AAAA	A10X	R/W	DDDD				M.O. PALETTE	
C09804-C09FFC	11XX	XX00	1XX1	1AAA	AAAA	A10X	R/W		DDD	DDDD	D	M.O. LINK POINTER	
C09806-C09FFE	11XX	XX00	1XX1	1AAA	AAAA	A11X	R/W	DDDD	DDDD	DD		M.O. HORIZONTAL POSITION	
C09806-C09FFE	11XX	XX00	1XX1	1AAA	AAAA	A11X	R/W				DDDD	M.O. PRIORITY	
C10000-C101FE	11XX	XX01	0XXX	X00P	PPPC	CCCX	R/W	DDDD	DDDD	DDDD	DDDD	PLAYFIELD COLOR RAM (256 WORDS)	
C10200-C103FE	11XX	XX01	0XXX	X01P	PPPC	CCCX	R/W	DDDD	DDDD	DDDD	DDDD	MOTION OBJECT COLOR RAM (256 WORDS)	
C10400-C1047E	11XX	XX01	0XXX	X100	OPPP	PCCX	R/W	DDDD	DDDD	DDDD	DDDD	ALPHANUMERICS COLOR RAM (64 WORDS)	
						(P = PALETTE, C = COLOR)							
C10000-C107FE	11XX	XX01	0XXX	XAAA	AAAA	AAAX	R/W	DDD	DD			COLOR RAM (ALL) - RED	
C10000-C107FE	11XX	XX01	0XXX	XAAA	AAAA	AAAX	R/W		DD	DDD		COLOR RAM (ALL) - GREEN	
C10000-C107FE	11XX	XX01	0XXX	XAAA	AAAA	AAAX	R/W			D	DDDD	COLOR RAM (ALL) - BLUE	
C10000-C107FE	11XX	XX01	0XXX	XAAA	AAAA	AAAX	R/W	D				COLOR RAM (ALL) - OVERALL INTENSITY DISABLE	
FF8300	1XXX	XX1X	1000	0011	00XX	XXXX	W				D	DDDD	OVERALL COLOR INTENSITY
FF8000	1XXX	XX1X	1000	0000	XXXX	XXXX	W						WATCHDOG CLEAR
FF8100	1XXX	XX1X	1000	0001	XXXX	XXXX	W						COMM. PORT TO SOUND CPU
FF8300	1XXX	XX1X	1000	0011	00XX	XXXX	W			D	DDDD	DDDD	OVERALL COLOR INTENSITY (D4:D0)
F8340	1XXX	XX1X	1000	0011	01XX	XXXX	W		D	DDDD	DDDD		INTERRUPT SCAN LINE
F83C0	1XXX	XX1X	1000	0011	11XX	XXXX	W						IRQ ACKNOWLEDGE
F8400	1XXX	XX1X	1000	0100	XXXX	XXXX	W						SOUND CPU RESET
F8500	1XXX	XX1X	1000	0101	XXXX	XXXX	W						EEPROM UNLOCK STROBE
F8600	1XXX	XX1X	1000	0110	XXXX	XXXX	W	DDDD	DDDD	DD			HSCROLL
F8700	1XXX	XX1X	1000	0111	XXXX	XXXX	W	DDD	DDDD	DD			VSCROLL
F8700	1XXX	XX1X	1000	0111	XXXX	XXXX	W					D	RESTART VSCROLL COUNTER (IF 0 DURING HBLANK)
FF8800	1XXX	XX1X	1000	1XXX	XXXX	XXXX	R	DDDD	DDDD	DDDD	DDDD		SWITCHES
FF9000	1XXX	XX1X	1001	0XXX	XXXX	XXXX	R						INPUTS
FF9000	1XXX	XX1X	1001	0XXX	XXXX	XXXX	R	D					HBLANK (0 = TRUE)
FF9000	1XXX	XX1X	1001	0XXX	XXXX	XXXX	R	D					VBLANK (0 = TRUE)
FF9000	1XXX	XX1X	1001	0XXX	XXXX	XXXX	R	D					SOUND CPU TRANSMIT COMM. LATCH FULL FLAG (0 = FULL)
FF9000	1XXX	XX1X	1001	0XXX	XXXX	XXXX	R	D					SELF-TEST SWITCH (0 = ON)
FF9800	1XXX	XX1X	1001	1XXX	XXXX	XXXX	R			DDDD	DDDD		COMM. PORT FROM SOUND CPU
FFA000-FFAFFE	1XXX	XX1X	101X	AAAA	AAAA	AAA0	R/W			DDDD	DDDD		EEPROM
FFC000-FFFFF	1XXX	XX1X	11AA	AAAA	AAAA	AAAA	R/W	DDDD	DDDD	DDDD	DDDD		8K WORDS RAM (BYTE-ADDRESSABLE)



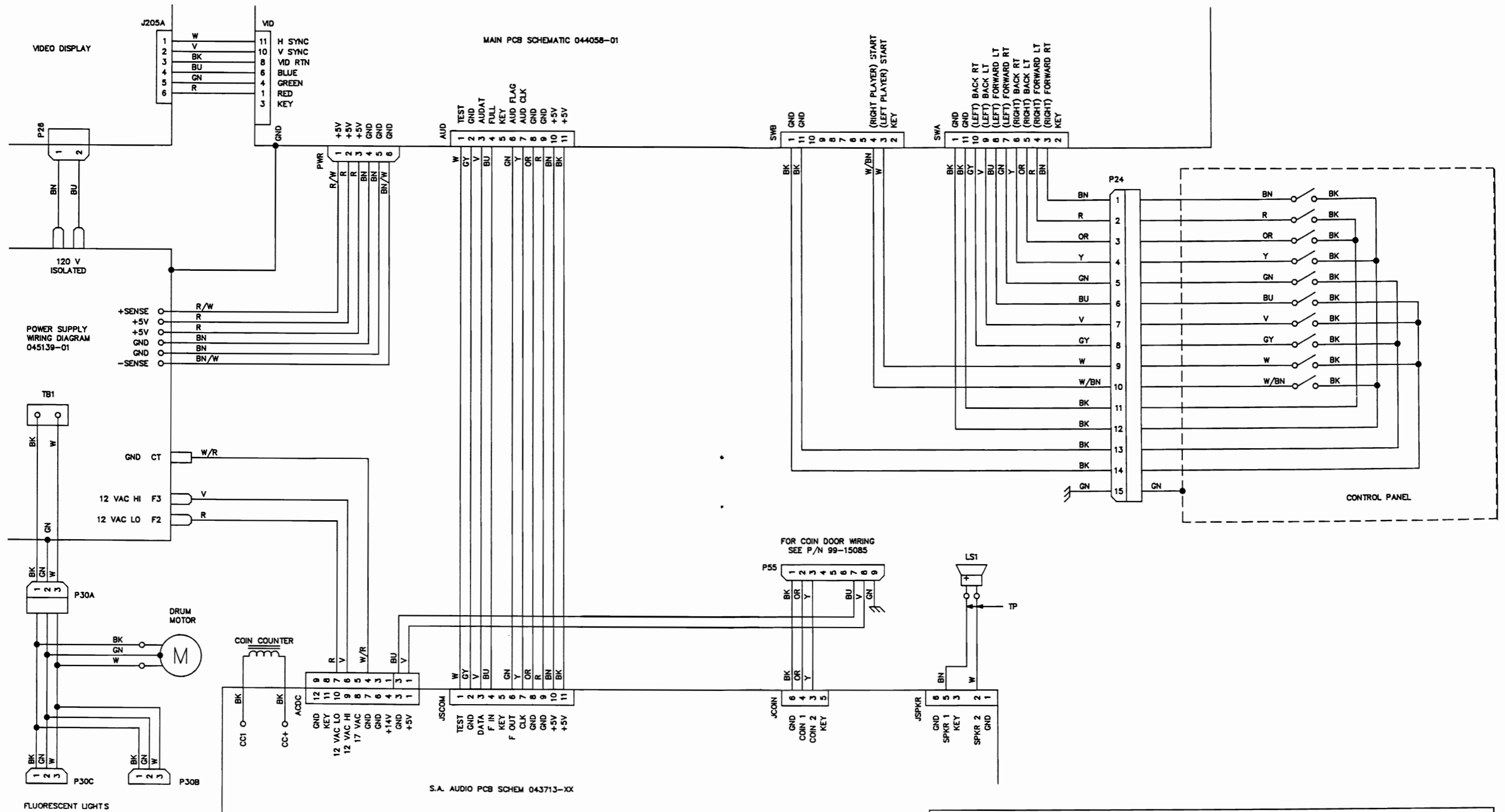
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**Toobin'™ Memory Map**

  
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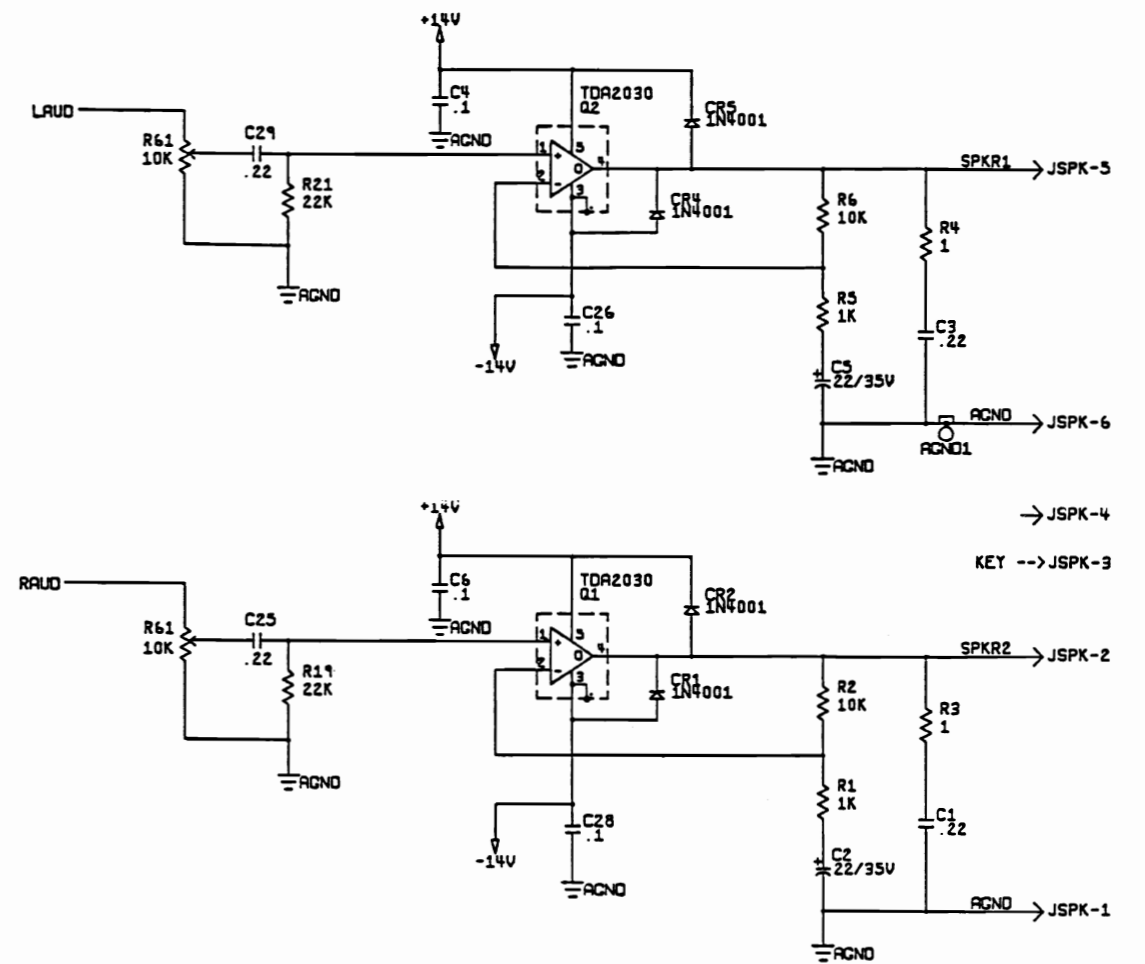
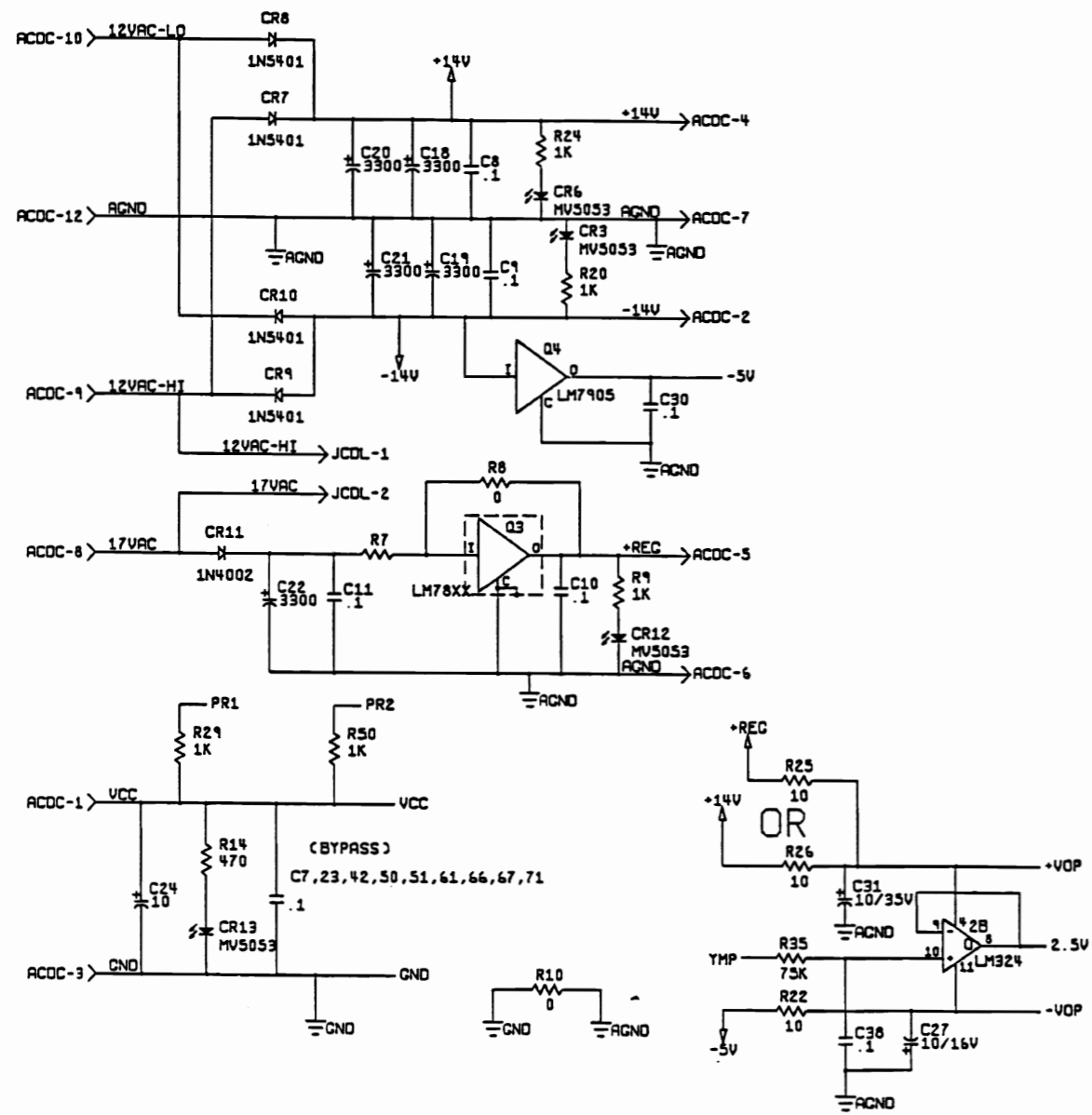
**Toobin™ Main Wiring Diagram**

  
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ACDC-11 >-- KEY



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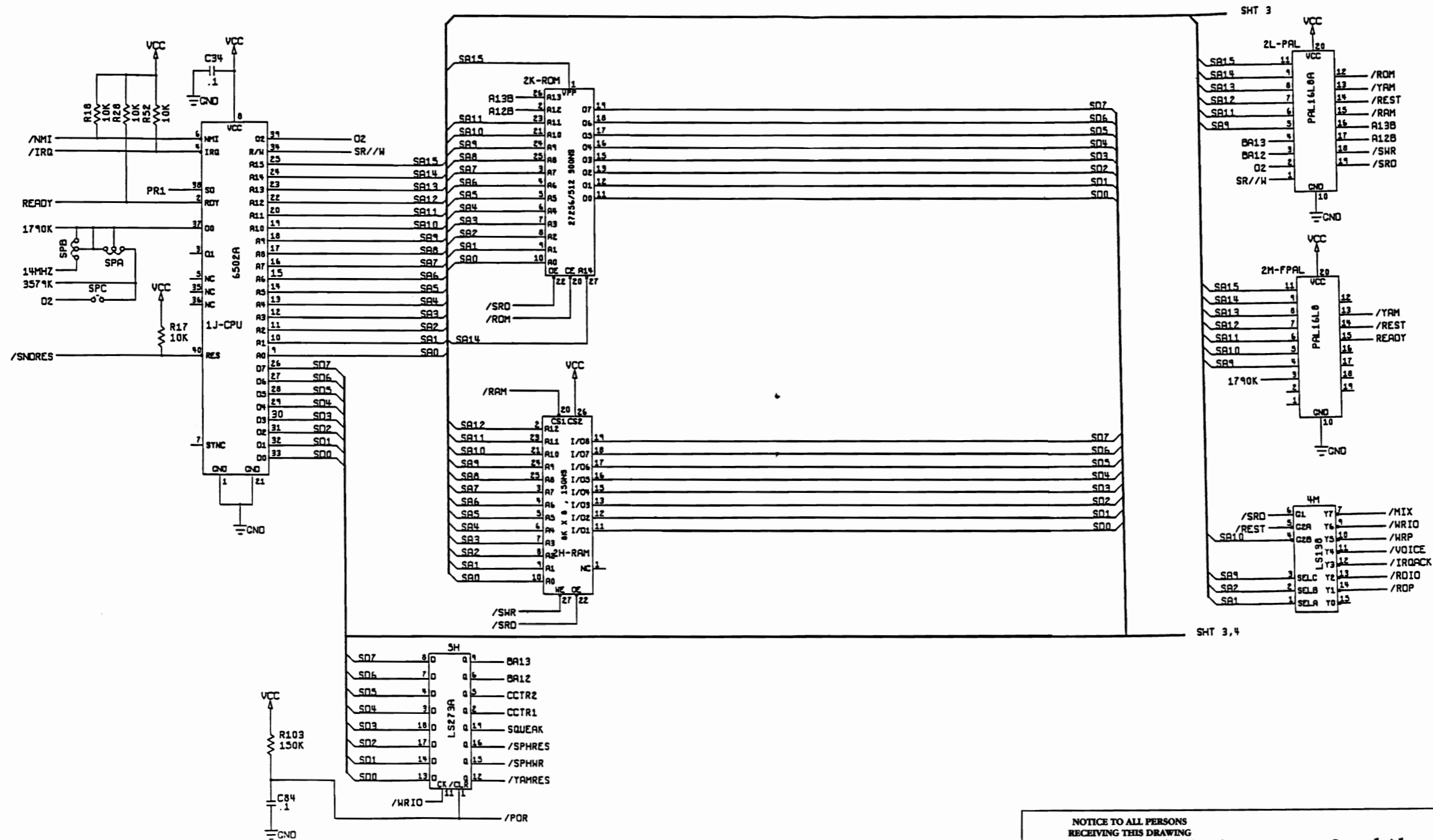
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**Stand-Alone Audio PCB Assembly Schematic Diagram, Sheet 1**

  
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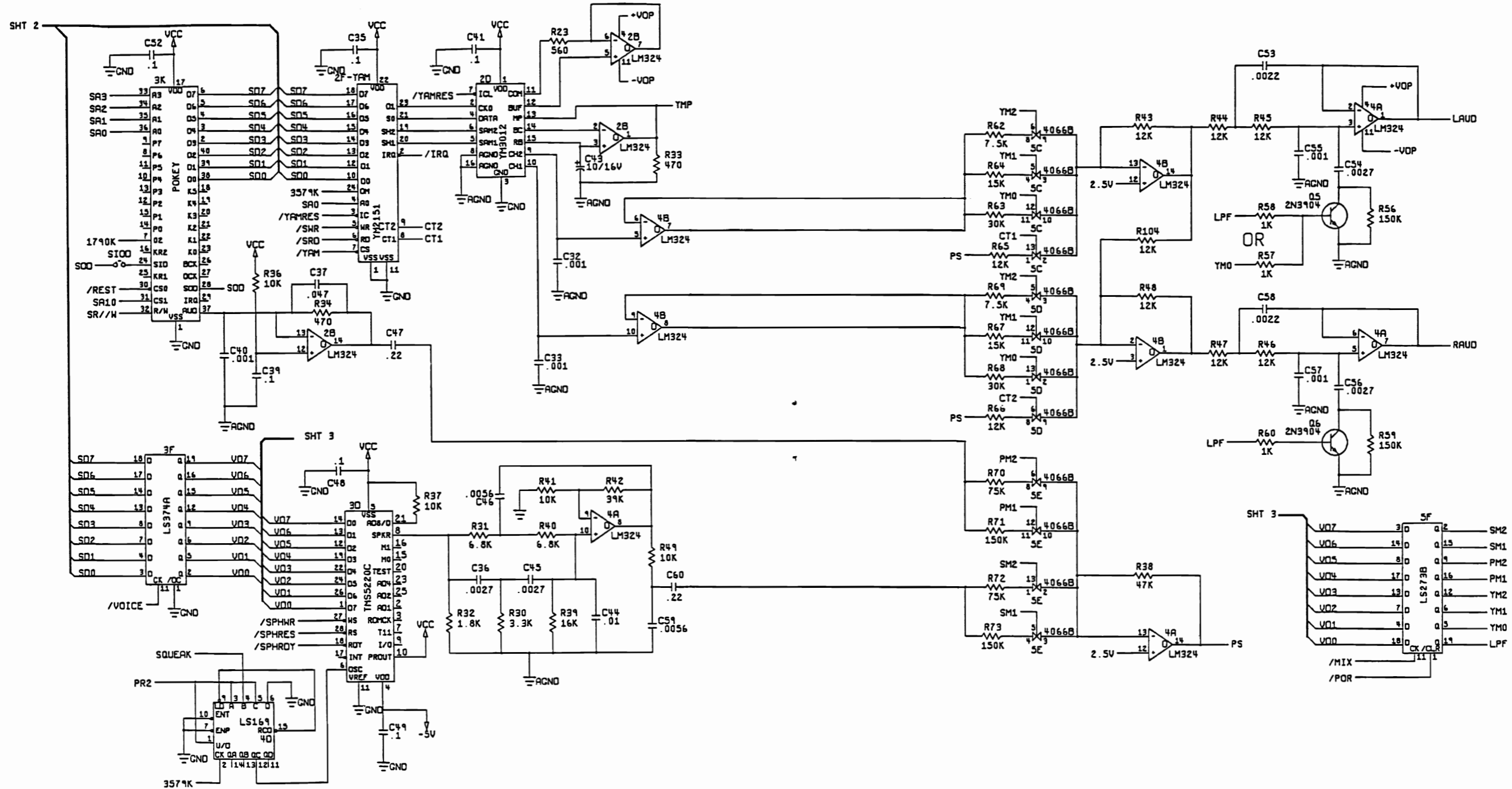


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**Stand-Alone Audio PCB Assembly Schematic Diagram, Sheet 2**

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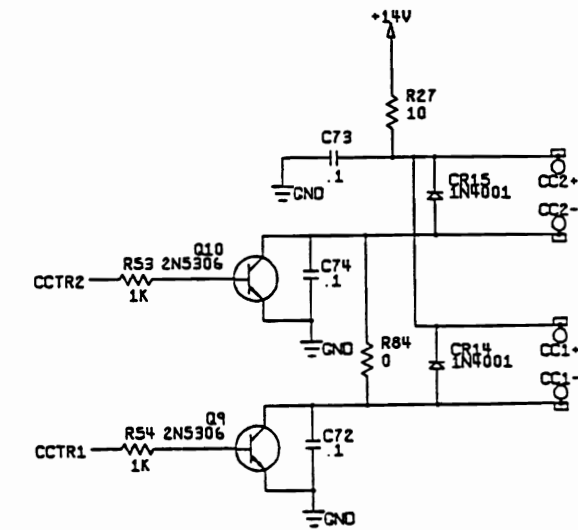
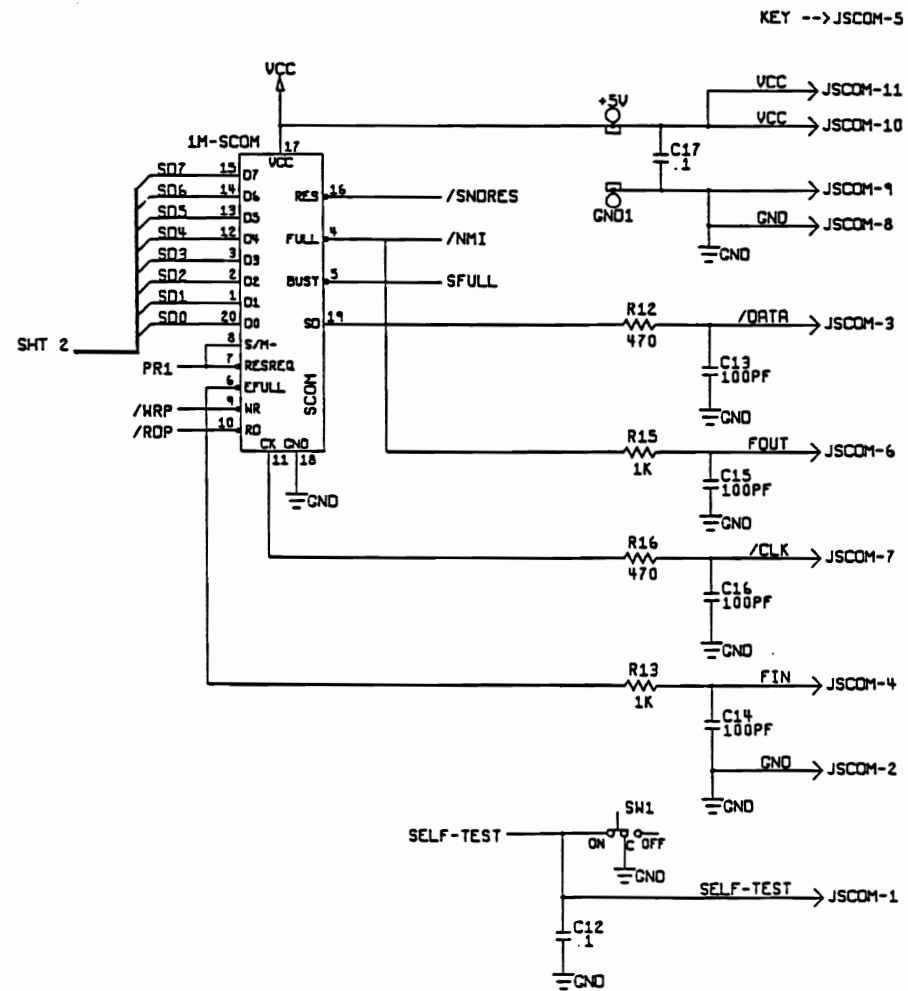
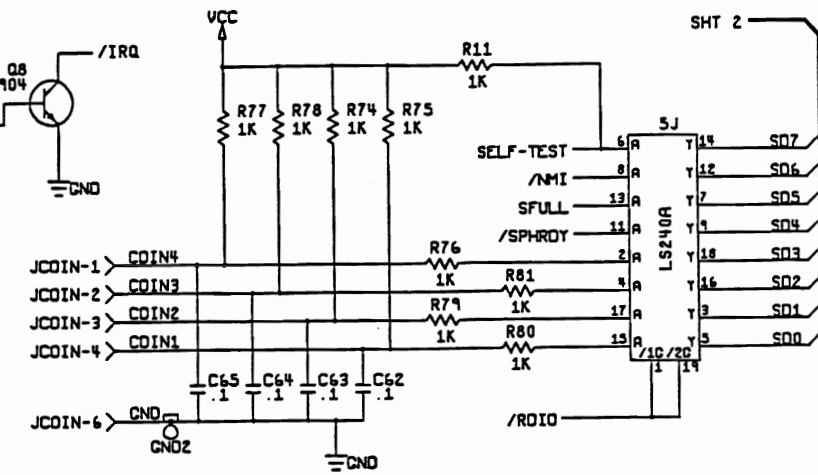
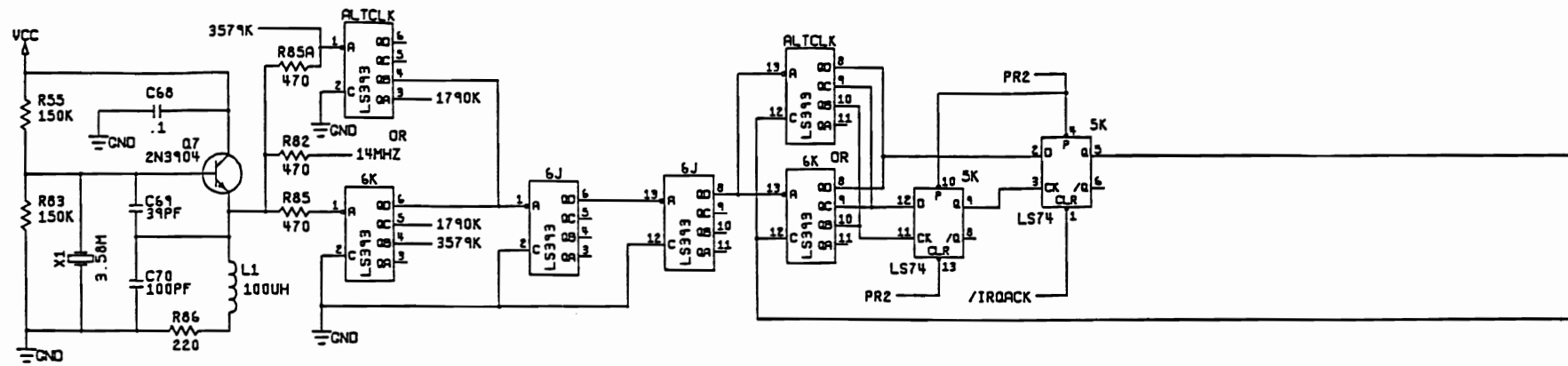
**Stand-Alone Audio PCB Assembly Schematic Diagram, Sheet 3**



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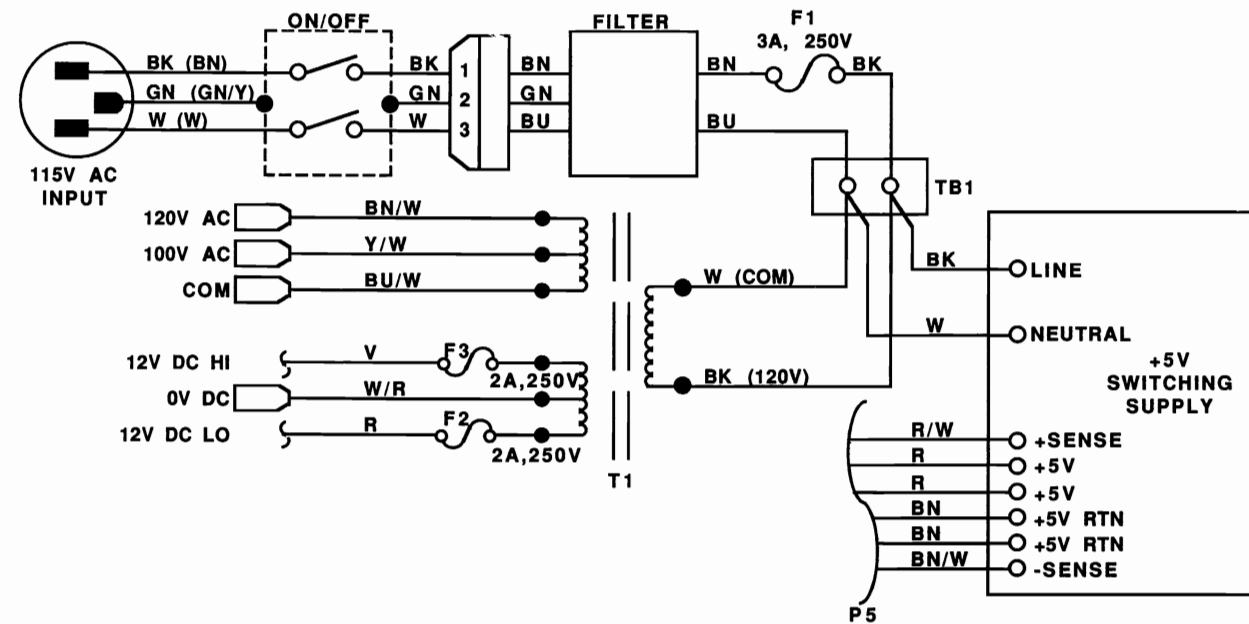
**Stand-Alone Audio PCB Assembly Schematic Diagram, Sheet 4**

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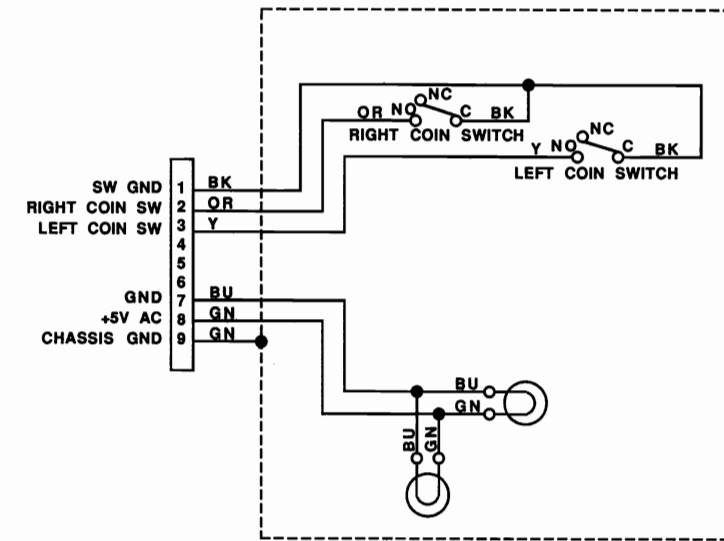
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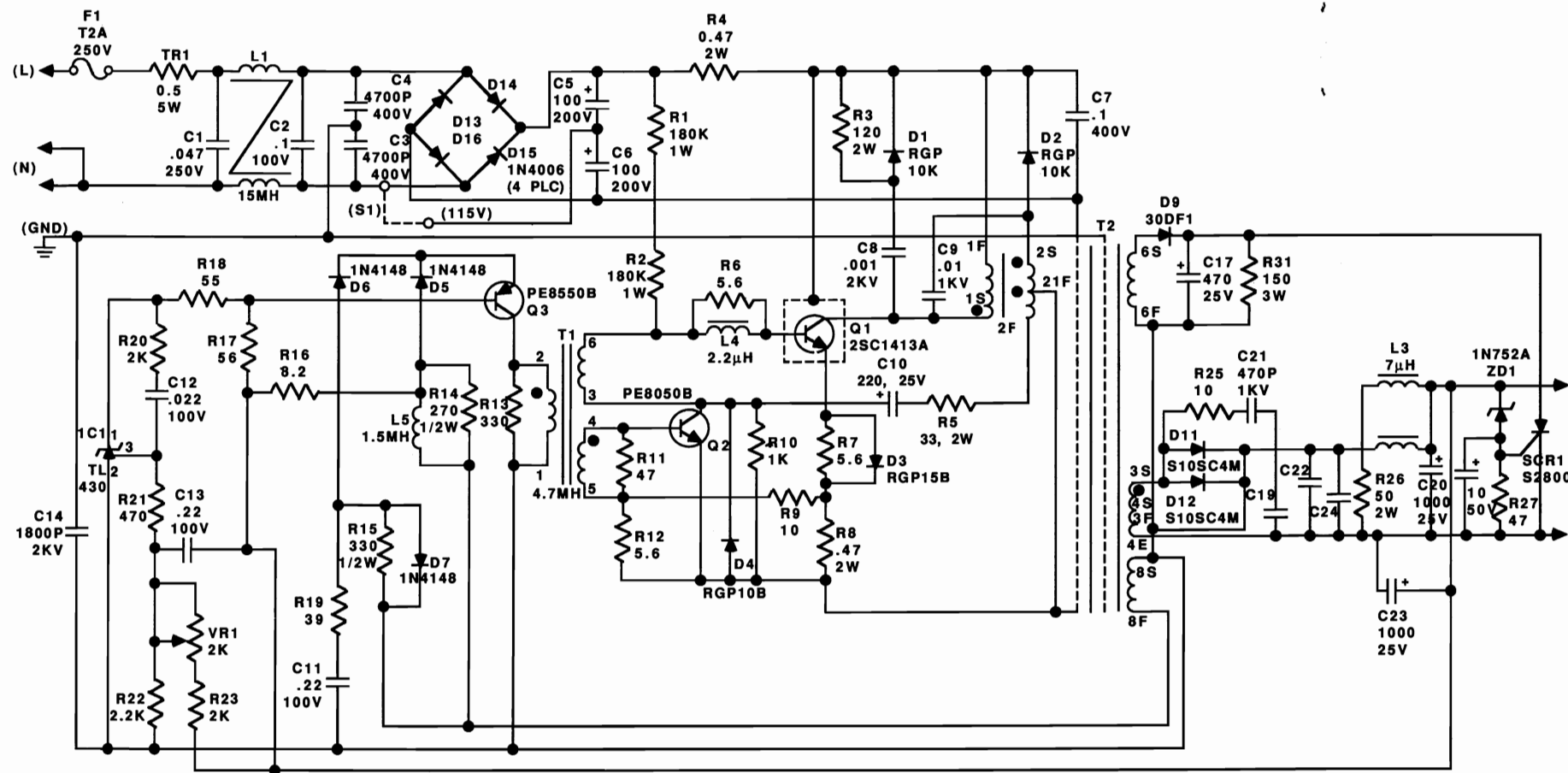
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Switching/Linear (SL) Power Supply



Coin Door Wiring Diagram



ATARI PART NO: 149003-003 (120V)  
149003-103 (240V)

Hitron 5V 10A Switching Power Supply

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**Wiring Diagrams for Switching/Linear (SL) Power Supply, Hitron 5V 10A Switching Power Supply, and Coin Door**

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