

**ICE-49™
IN-CIRCUIT EMULATOR**

Order Number: 9800839-02

**schematic
drawings**

intel



ICE-49™ IN-CIRCUIT EMULATOR

Order Number: 9800839-02

TITLE	NUMBER
Buffer Assembly (1 sheet)	4002437
Cable Buffer PWA (1 sheet)	1002468
Cable Buffer Schematic (2 sheets)	2002267
Emulator PWA (1 sheet)	1002464
Emulator Schematic (9 sheets)	2002539
Control Processor PWA (1 sheet)	1002433
Control Processor Schematic (7 sheets)	2002434

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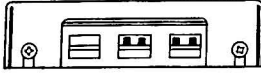
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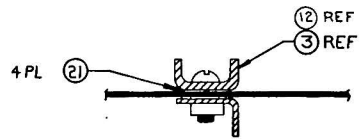
- | | | |
|----------|-----------------|-------------|
| i | ISBC | Multimodule |
| ICE | Library Manager | PROMPT |
| iCS | MCS | Promware |
| Insite | Megachassis | RMX |
| Intel | Micromap | UPI |
| Intellec | Multibus | µScope |

and the combination of ICE, iCS, ISBC, MCS, or RMX and a numerical suffix.

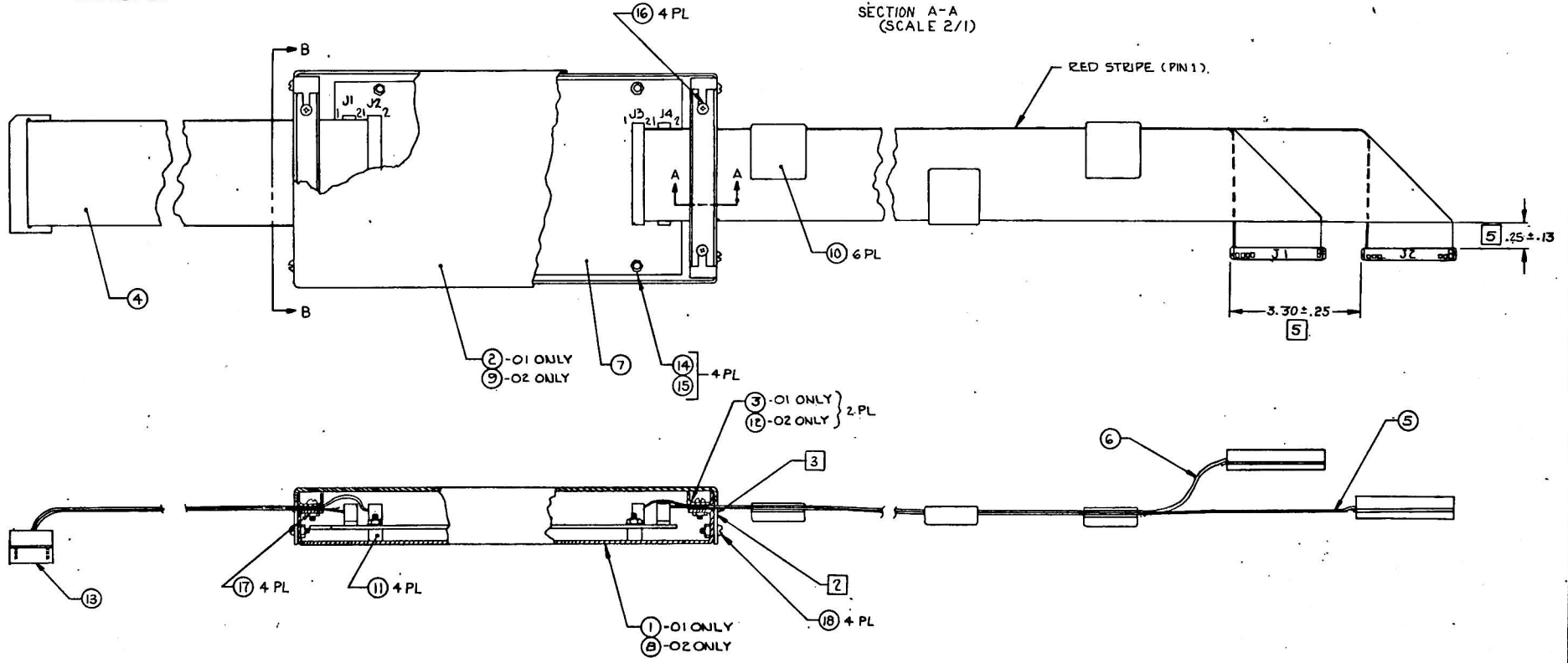
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VIEW B-B
(SCALE 1/1)
ROTATED 90°



SECTION A-A
(SCALE 2/1)



SEE SEPARATE PARTS LIST

3 MARK VENDOR I.D. WITH CONTRASTING, PERM COLOR, APPROX WHERE SHOWN.

2 MARK PART NO. AND REV LEVEL WITH CONTRASTING, PERM COLOR, J2 HIGH, APPROX WHERE SHOWN.

1 ASST PART NO. 19 4002437-01 ASSY AND P/L ARE TRACKING DOCUMENTS.
NOTES: UNLESS OTHERWISE SPECIFIED

6. WORKMANSHIP PER MCSD QAW 99-0007-001.

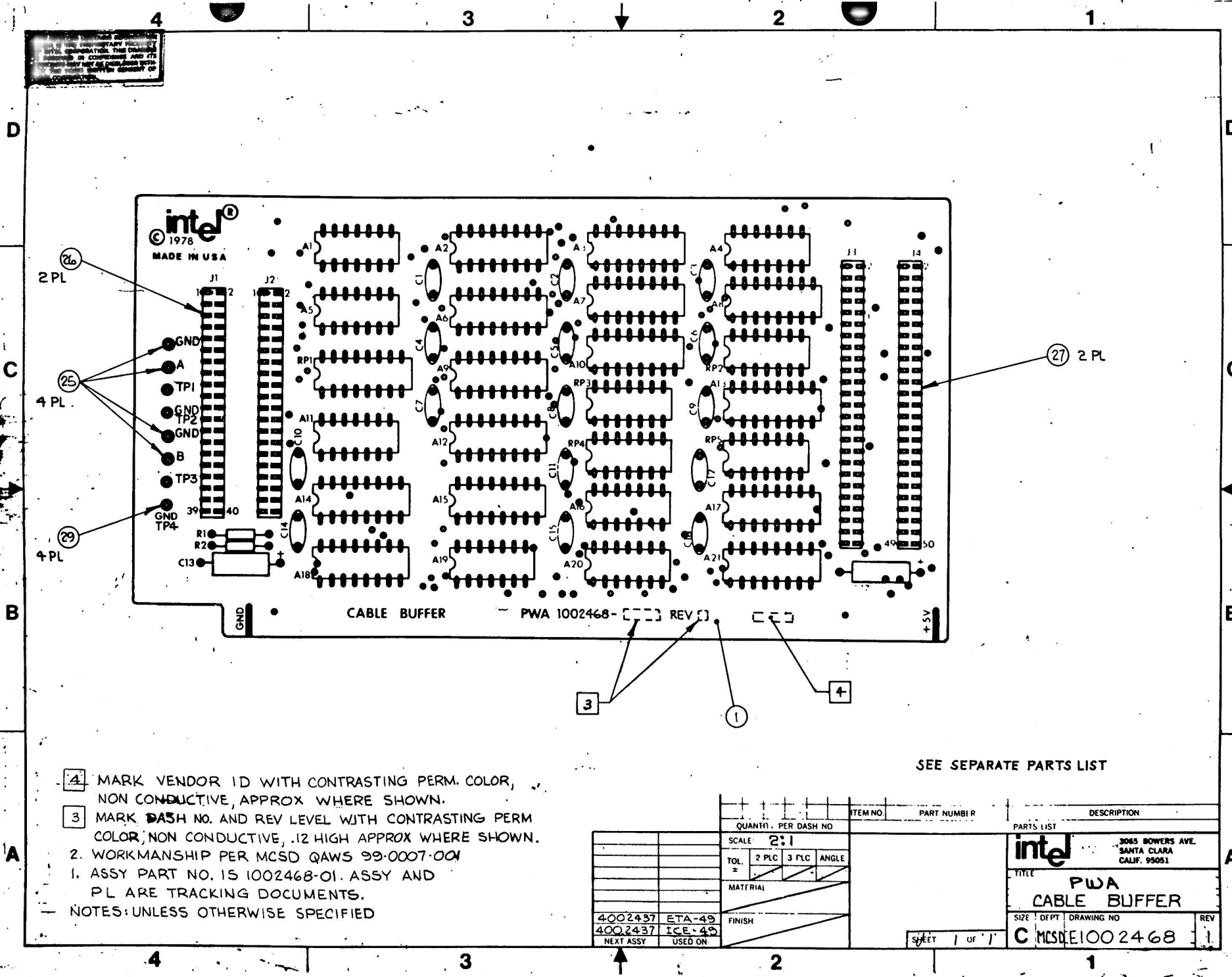
5 FOLD AND PRESS INTO POSITION AS SHOWN

4 THE BOX (ITEM 1) HAS CUT-OUTS ON ONLY ONE SIDE. POSITION PWA INSIDE SO AS TO REVEAL TEST POINT PLUGS THRU THESE CUT-OUTS.

QUANTITY PER DASH NO.		ITEM NO.	PART NUMBER	DESCRIPTION
SCALE: 1/1	TOL:			
2 P.C.	3 P.C.	ANGLE		
MATERIAL:				
FINISH:				
4002454	EIA-49			
4002452	ICE-49			
NEXT ASSY	USED ON			

PARTS LIST		INTEL	
TITLE: BUFFER ASSEMBLY		3865 BOWEN AVE. SANTA CLARA, CALIF. 95051	
SIZE: D	DEPT: MCSD	DRAWING NO.: E4002437	REV: 1
SHEET 1 OF 1			

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- 4 MARK VENDOR ID WITH CONTRASTING PERM. COLOR, NON CONDUCTIVE, APPROX WHERE SHOWN.
- 3 MARK DASH NO. AND REV LEVEL WITH CONTRASTING PERM COLOR, NON CONDUCTIVE, .12 HIGH APPROX WHERE SHOWN.
2. WORKMANSHIP PER MCSD QAWS 99-0007-004
1. ASSY PART NO. IS 1002468-01. ASSY AND PL ARE TRACKING DOCUMENTS.
- NOTES: UNLESS OTHERWISE SPECIFIED

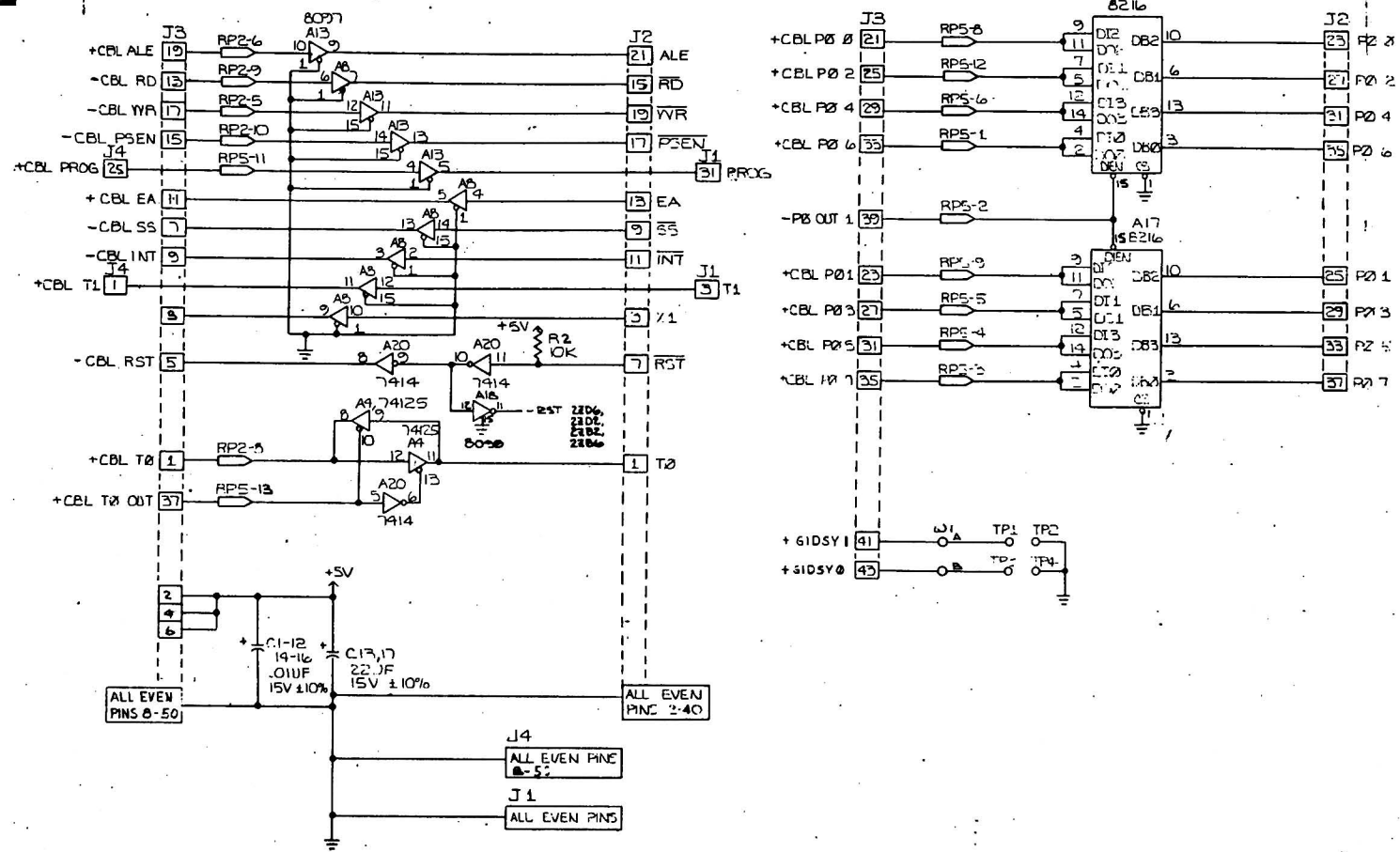
SEE SEPARATE PARTS LIST

QUANTITY PER DASH NO		ITEM NO.	PART NUMBER	DESCRIPTION
4002437	ETA-49			
4002437	ICE-49			
	NEXT ASSY			
	USED ON			

SCALE: 2:1	TOL: 2 PLC 3 PLC ANGLE	MATERIAL	FINISH
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intel	3065 BOWERS AVE. SANTA CLARA CALIF. 95051
TITLE: PWA CABLE BUFFER	
SIZE: DPT	DRAWING NO: C MCSD E1002468
REV: 1	

SHEET 1 OF 1



REVISIONS			
LTR	DESCRIPTION	DATE	BY
A	PROD REL	10/27/79	...
-	CHANGED N/A & USED ON TO 1002468 ICE-49, ETA-49	11/27/79	...
-	ECO 2-3151	1/4/80	...

2. SYMBOLIZES A TERMINATING RESISTOR, EG:
 220
 330

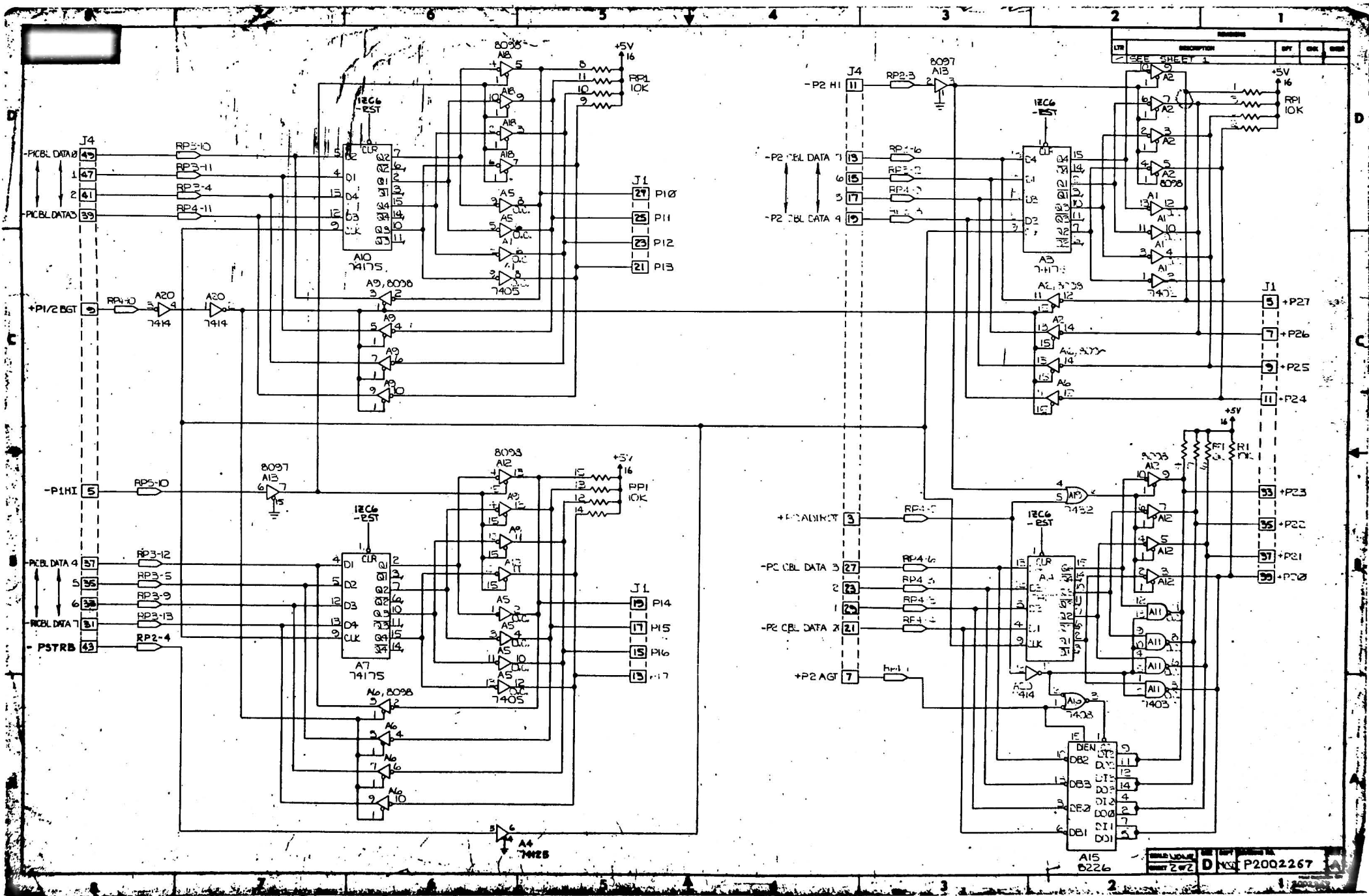
1. RESISTANCE VALUES ARE IN OHMS, ±5% TOL.
 NOTES: UNLESS OTHERWISE SPECIFIED,

RP2 - RPS	RES PACK	14	7	14
RP1	RES PACK	16	—	16
A8,13	8097	16	8	16
A16	7408	14	7	14
A11	7403	14	7	14
A17	7432	14	7	14
A4	74125	16	8	16
A20	7414	14	7	14
A1,5	7405	14	7	14
A2,6,9,12,18	8098	16	8	16
A3,7,10,14	74175	16	8	16
A17,21	8216-1	16	8	16
A15	8226	16	8	16

TP4	J4	C17	RP5	R2	A20
8098	A18	2	74125	A4	1
7400	A16	3			

TYPE	REF DES	QTY
SPARE GATES		

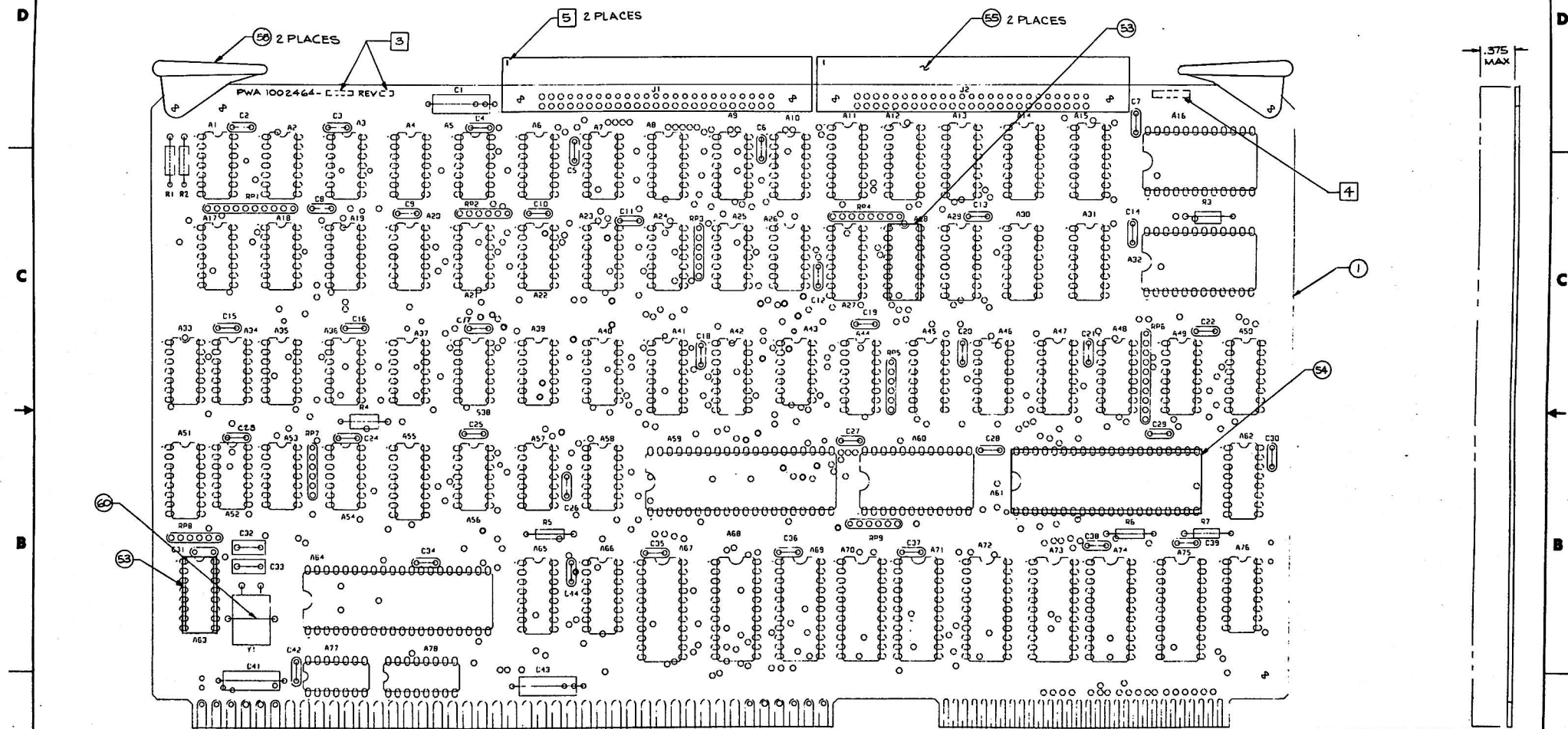
QUANTITY PER DRAWING NO.		ITEM NO.	PART NUMBER	DESCRIPTION
SCALE: NONE	TOL: 2 PLS	3 PLS	AMBL	
MATERIAL:				
PARTS LIST				SCHEMATIC CABLE BUFFER
1002468	ETA-49			
1002468	ICE-49			
1001305	ETA-49			
1001305	ICE-48			
CODE:	SHEET 1 of 2	D	MOCD	P2002267



A15
 B226
 P20Q2267

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DWG NO. E1002464 SH 1 REV A

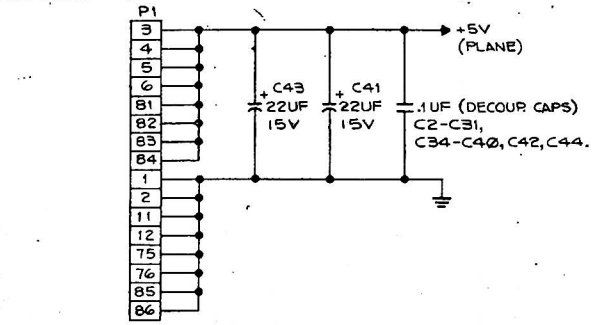
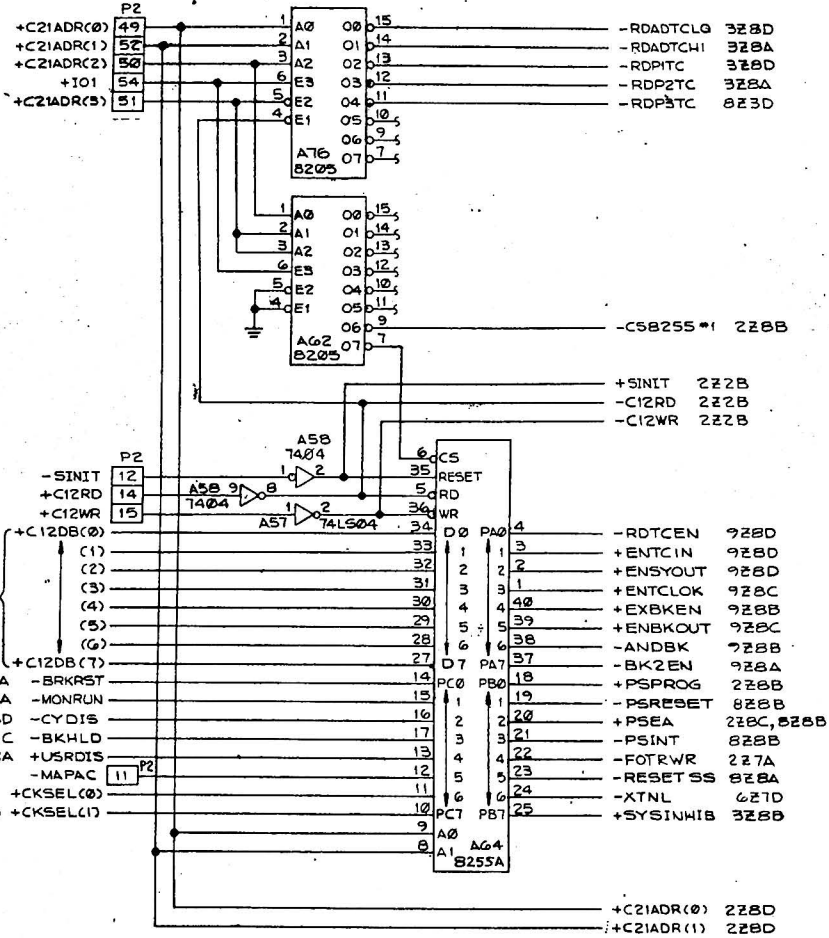


SEE SEPARATE PARTS LIST

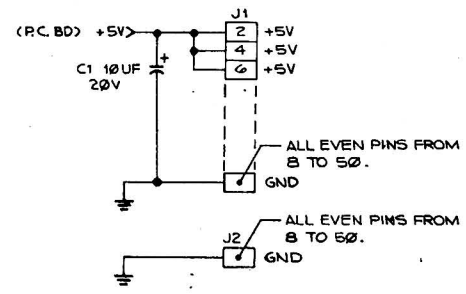
- 5 MARK PIN1 DESIGNATION WITH CONTRASTING PERM COLOR .12 HIGH APPROX WHERE SHOWN
 - 4 MARK VENDOR ID WITH CONTRASTING PERM. COLOR, NON-CONDUCTIVE, APPROX WHERE SHOWN.
 - 3 MARK DASH NO. AND REV LEVEL WITH CONTRASTING PERM. COLOR, NON-CONDUCTIVE .12 HIGH APPROX WHERE SHOWN.
 - 2. WORKMANSHIP PER MCSD QAWS 99-0007-001
 - 1. ASSY PART NO. IS 1002464-01. ASSY AND PL ARE TRACKING DOCUMENTS
- NOTES: UNLESS OTHERWISE SPECIFIED

QUANTITY PER DASH NO.		ITEM NO.	PART NUMBER	DESCRIPTION
UNLESS OTHERWISE SPECIFIED:				
1. DIMENSIONS ARE IN INCHES.				
2. BREAK ALL SHARP EDGES.				
3. DO NOT SCALE DRAWING.				
4. TOLERANCES:				
ANGLES ± 2°				
XX = .020				
XXX = .010				
SURFACE FINISH 7				
4001066	MCB-428			
4002464	ETA-43			
4002432	ICP-49			
NEXT ASSY	USED ON			

intel		300 BOWERS AVE. SANTA CLARA CALIF. 95051	
TITLE PRINTED WIRING ASSY EMULATOR			
SIZE	CODE	DWG. NO.	REV
D	MCSD	E1002464	A
SCALE	2/1	SHEET 1 OF 1	



8043	40	16	20
8255A	40	26	7
8226	16	16	8
8224	16	16	8
8216	16	16	8
8212	24	24	12
8205	16	16	8
74LS257	16	16	8
74181	24	24	12
74LS175	16	16	8
74164	14	14	7
74157	16	16	8
74125	14	14	7
74LS109	16	16	8
74LS74	14	14	7
7438	14	14	7
74LS32	14	14	7
74LS21	14	14	7
74S20	14	14	7
74LS12	14	14	7
74LS11	14	14	7
74LS10	14	14	7
74LS08	14	14	7
74LS04	14	14	7
7404	14	14	7
74LS02	14	14	7
74LS00	14	14	7
3601	16	16	8
2101A	22	22	8
DEVICE	TOTAL PINS	+5V	GND



2. ALL RESISTANCE VALUES ARE 1K OHMS, ±5%, 1/4 W.
 1. ALL CAPACITANCE VALUES ARE IN UF.
 NOTES: UNLESS OTHERWISE SPECIFIED

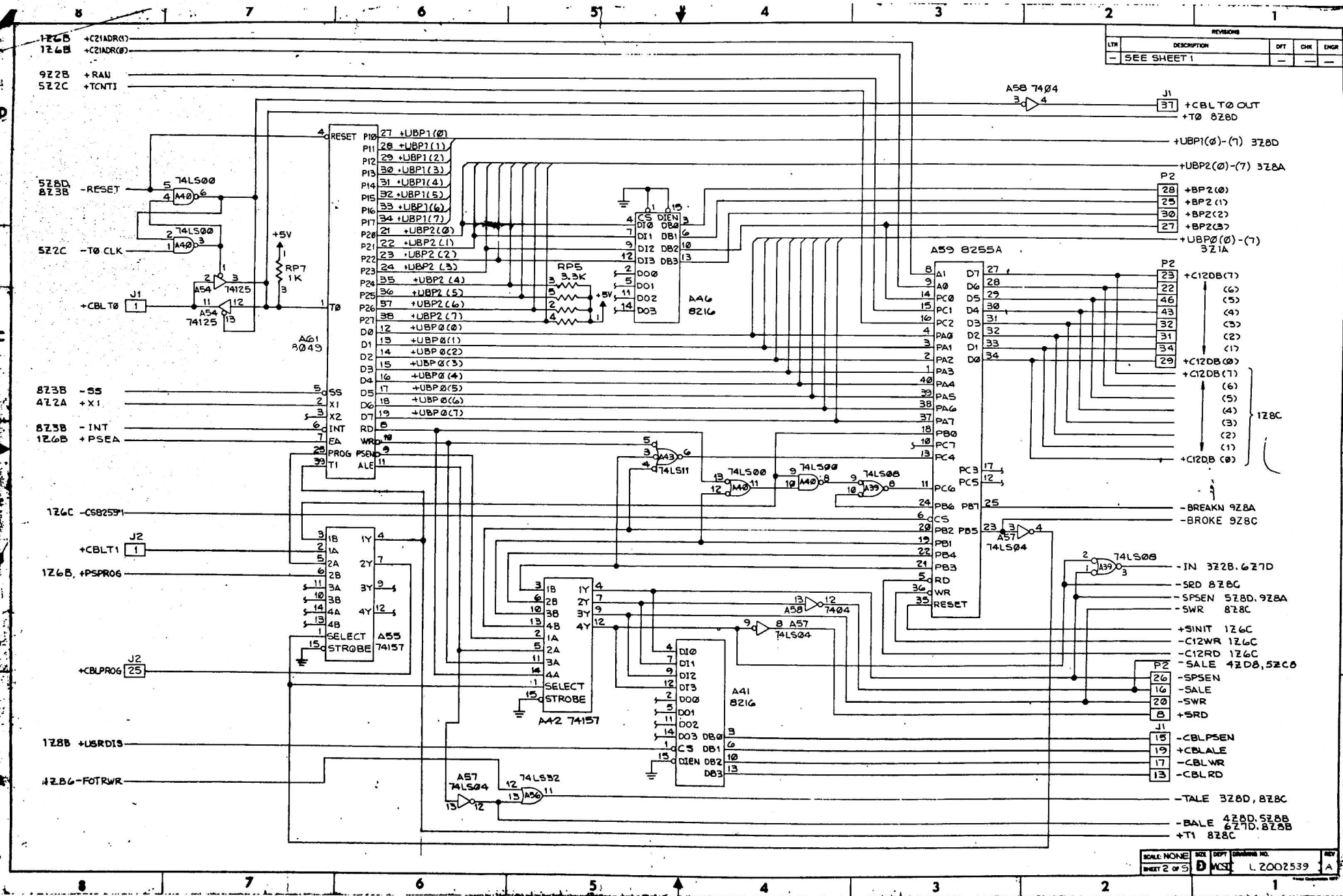
P2	74LS00	A23	1
	74LS00	A34	1
	74LS12	A37	2
	74LS08	A39	1
Y1	74LS00	A40	1
RP9	74LS11	A43	1
J2	7438	A52	2
C44	74LS05	A77	3
A77	SPARE	A78	1
LAST USED NOTICES	TYPE	REF DES	QTY
REF DESIGNATIONS	SPARE GATES		

SCALE:	NONE
TOL:	2 PLC 3 PLC ANGLE
MATERIAL:	
FROM:	
QUANTITY PER DASH NO.	
ITEM NO.	
PART NUMBER	
DESCRIPTION	

INTEL
 3065 BOWLING AVE.
 SANTA CLARA
 CALIF. 95051

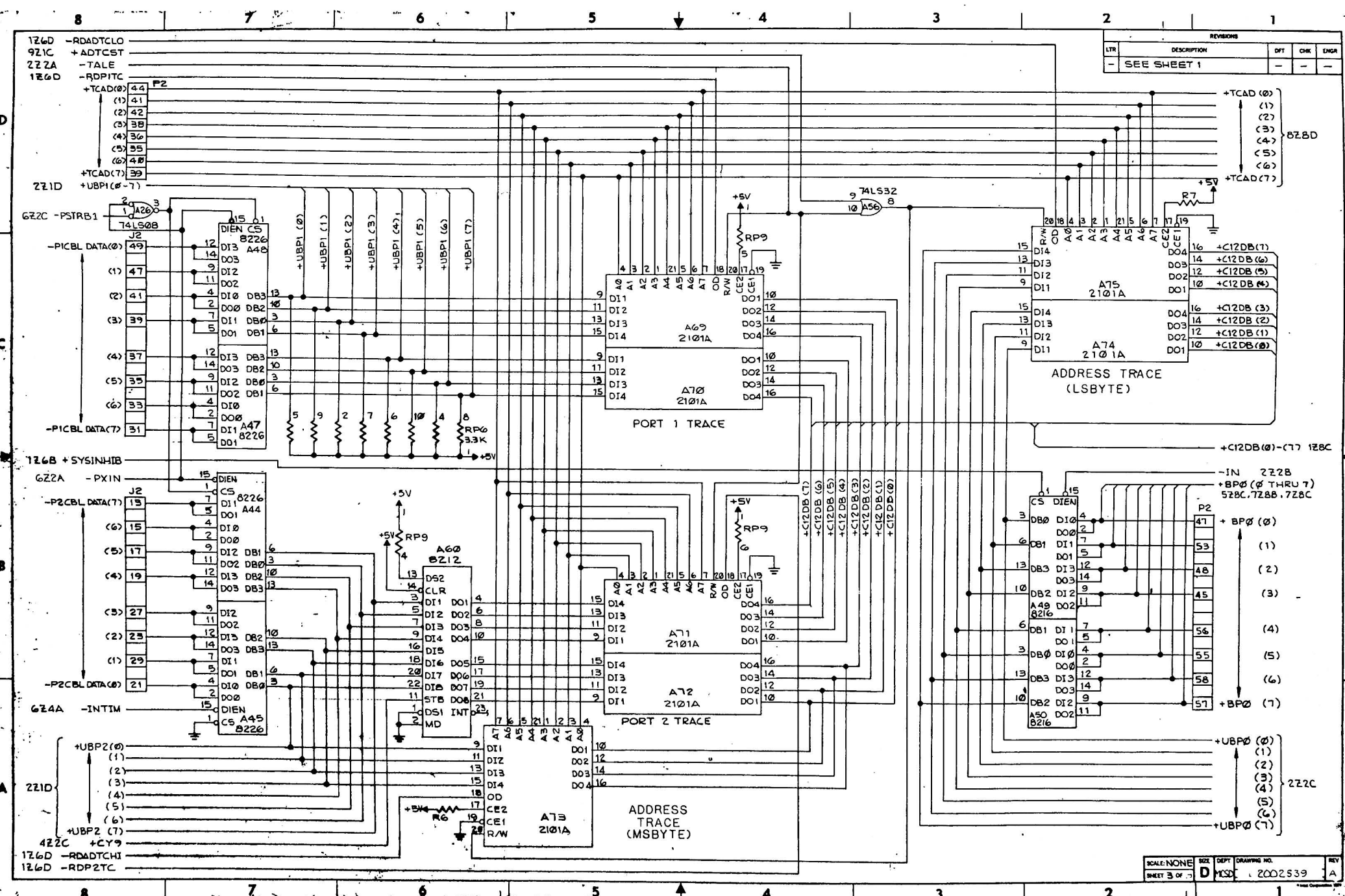
TITLE SCHEMATIC DIAGRAM
 EMULATOR

SIZE DEPT DRAWING NO.
 D MCLSD 2002539 A



REVISIONS				
LTR	DESCRIPTION	DFT	CHK	ENGR
-	SEE SHEET 1	-	-	-

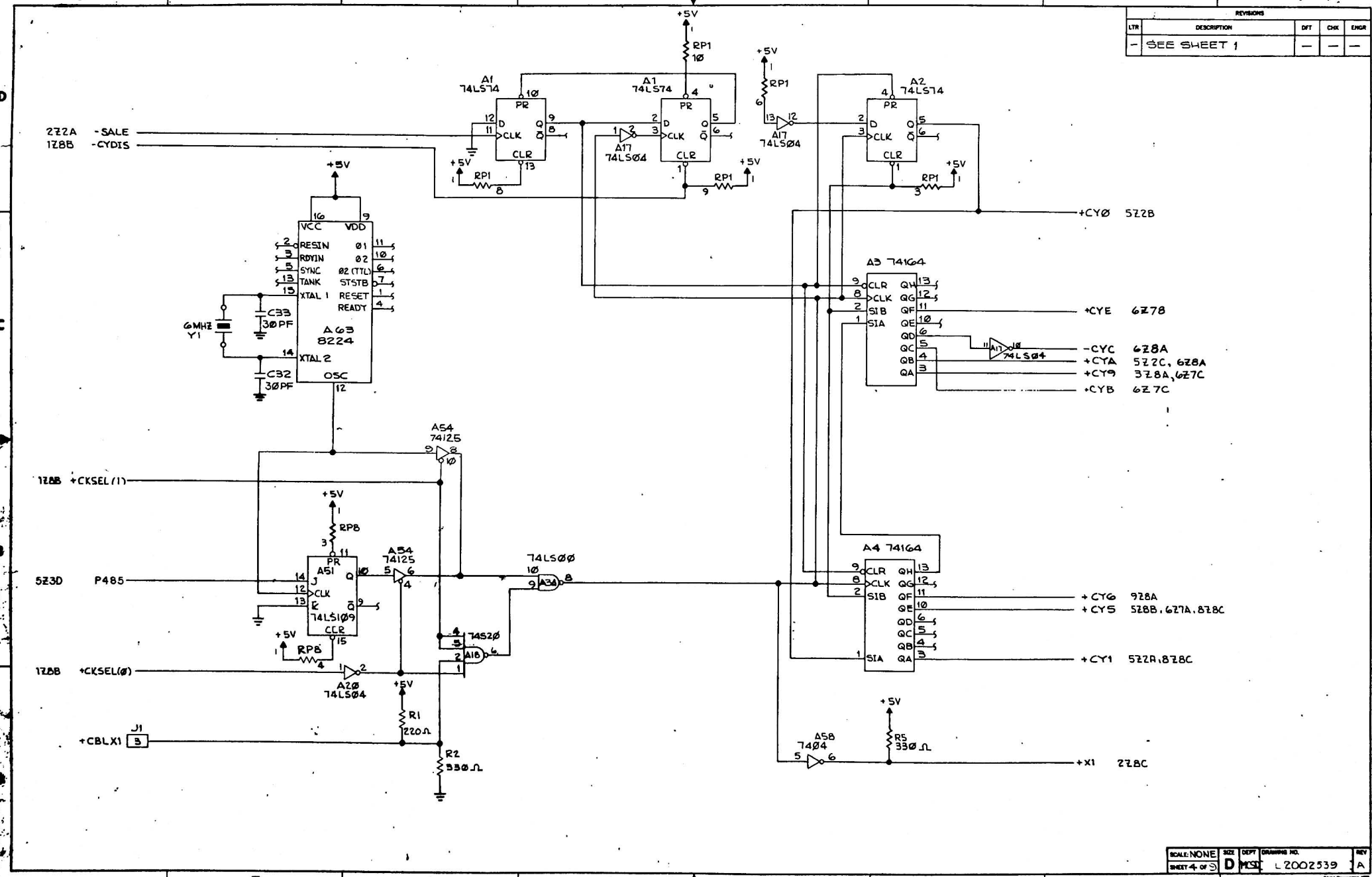
SCALE: NONE	SIZE: D	DEPT: MCSI	DATE: L 2002539	REV: A
SHEET 2 OF 3				

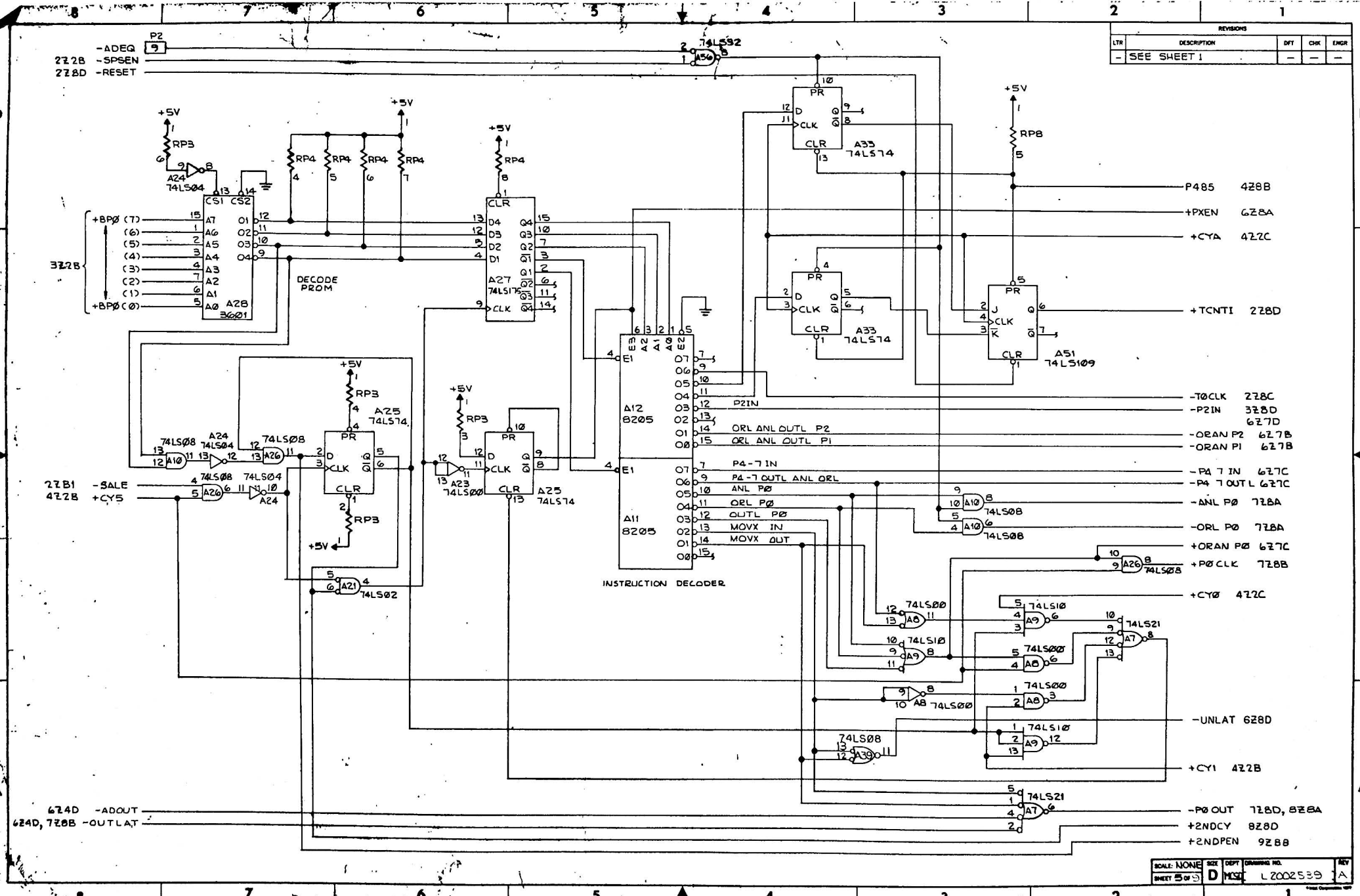


REVISIONS				
LTR	DESCRIPTION	DFT	CHK	ENGR
-	SEE SHEET 1	-	-	-

SCALE: NONE	SIZE: D	DEPT: MCD	DRAWING NO.: 2002539	REV: A
SHEET 3 OF 3				

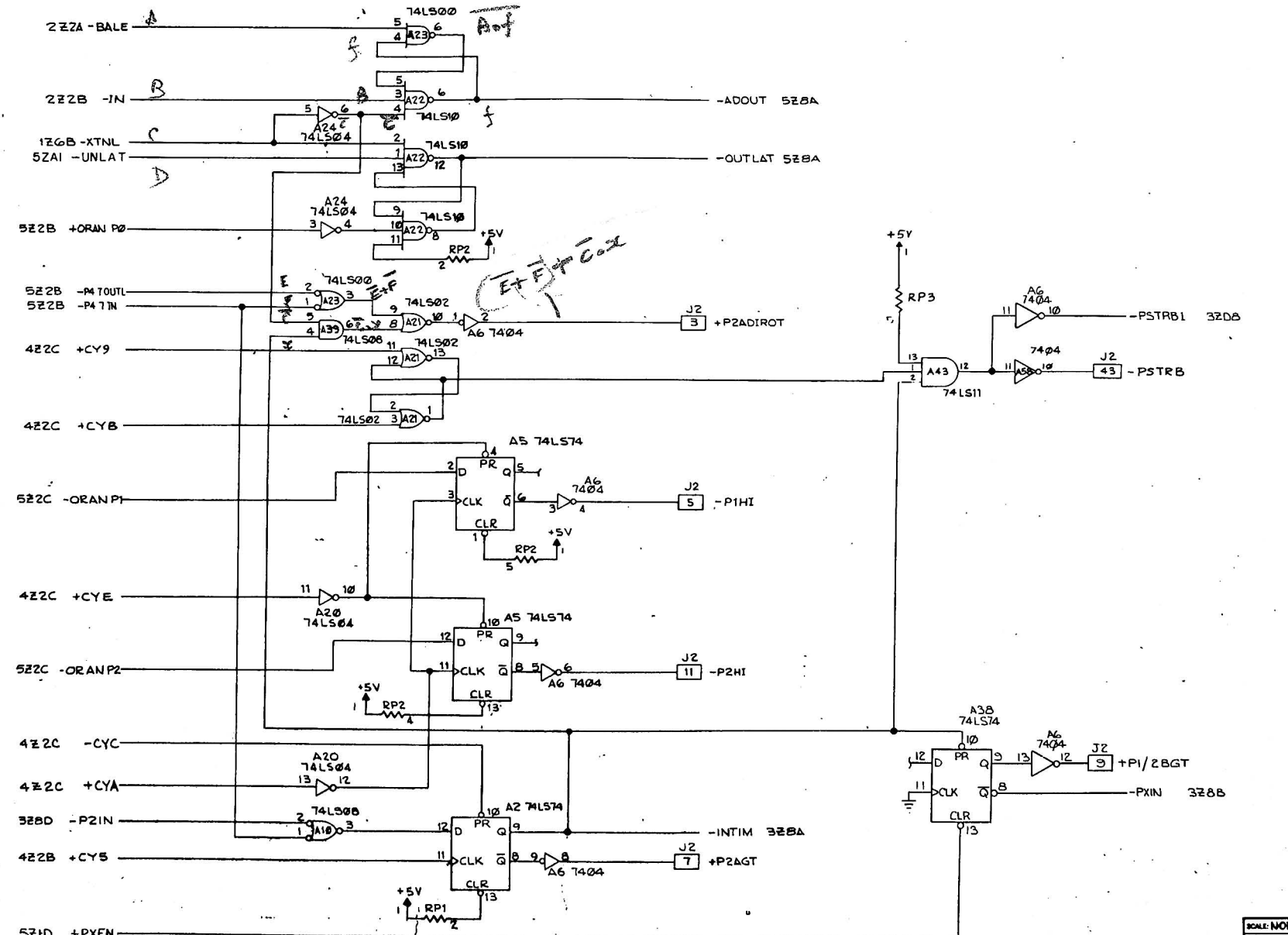
REVISIONS				
LTR	DESCRIPTION	DFT	CHK	ENGR
-	SEE SHEET 1	-	-	-



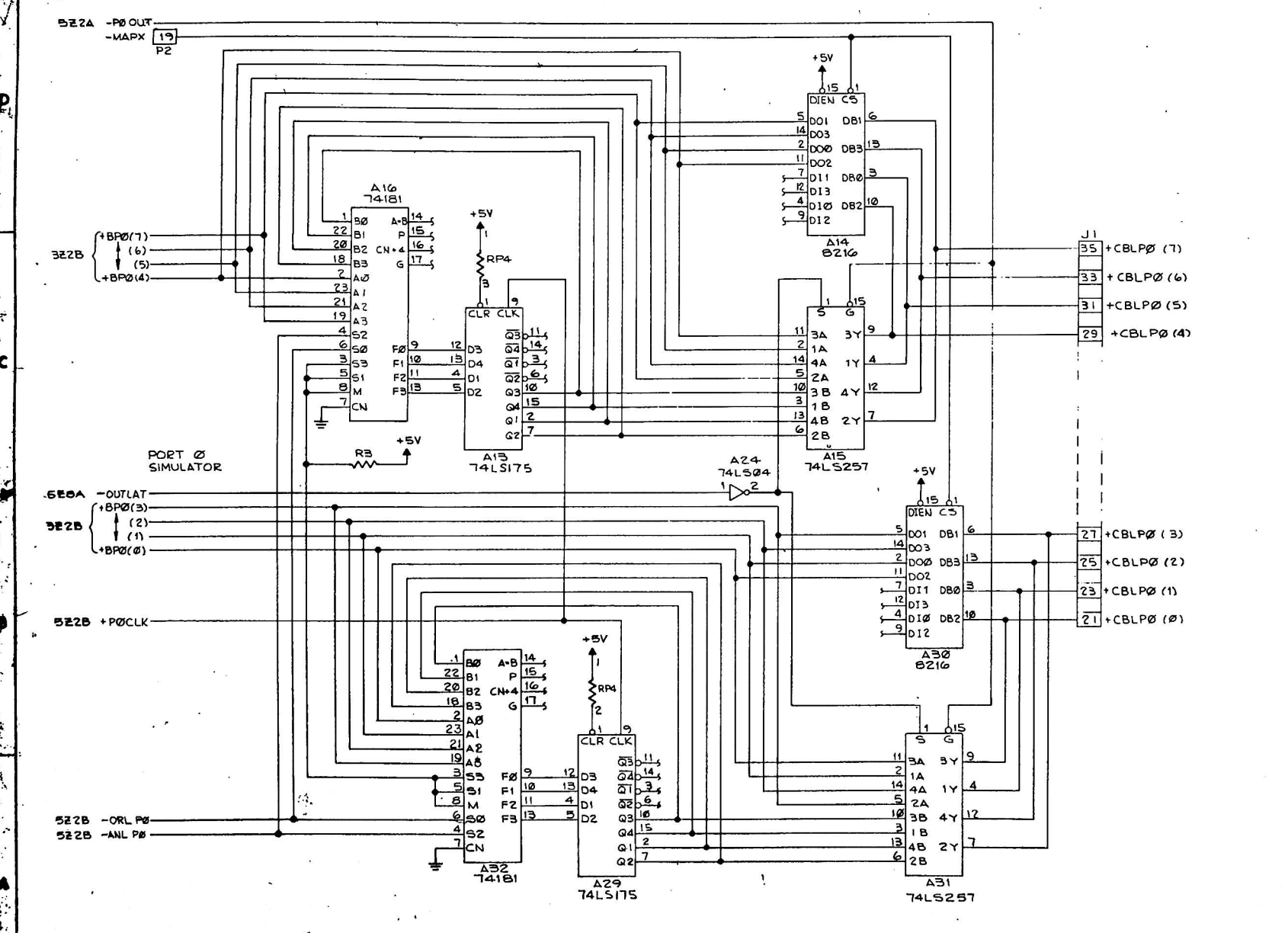


REVISIONS				
LTR	DESCRIPTION	DTY	CHK	ENGR
-	SEE SHEET 1	-	-	-

REVISIONS			
LTR	DESCRIPTION	DFT	CHK
-	SEE SHEET 1	-	-

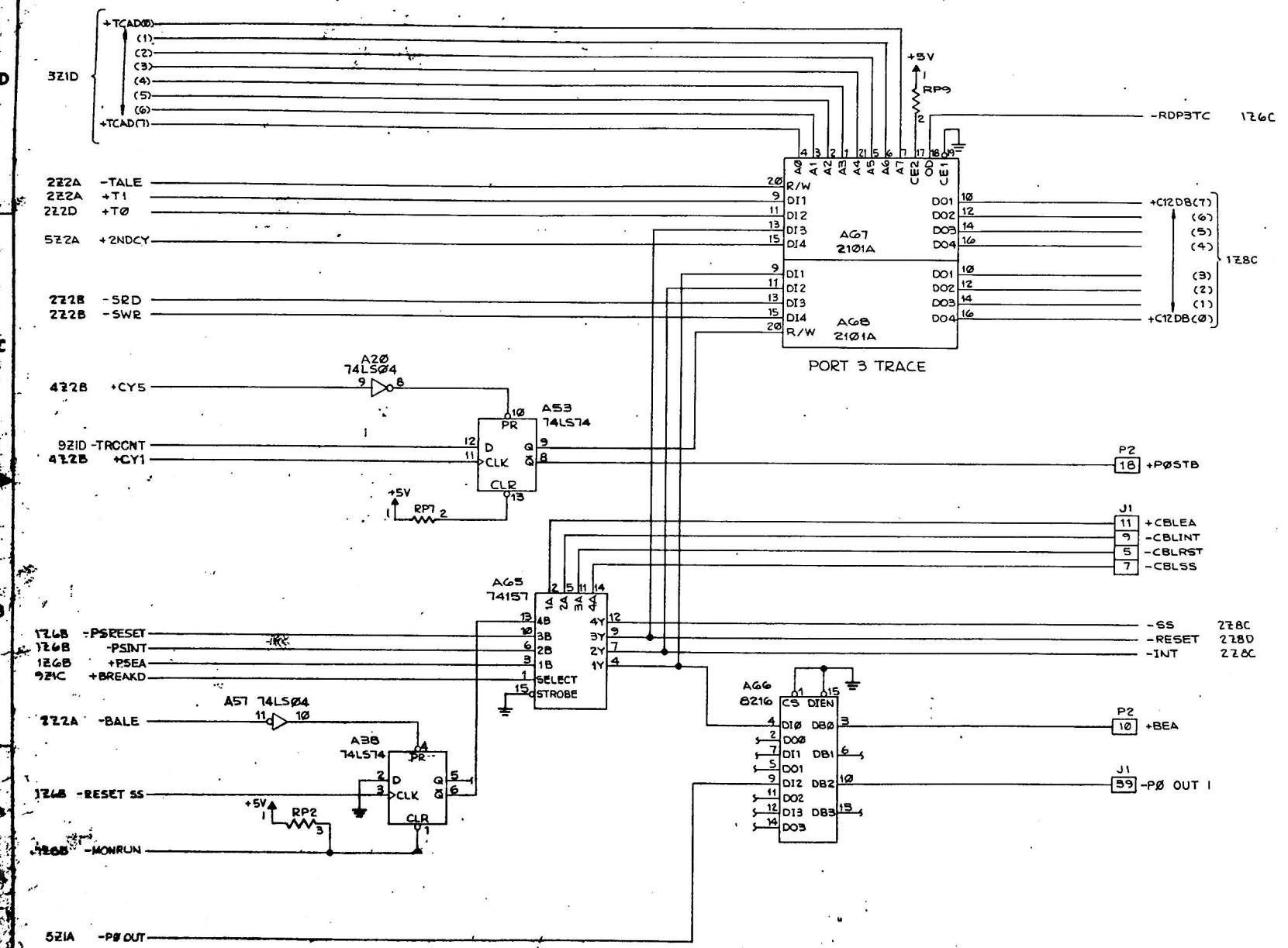


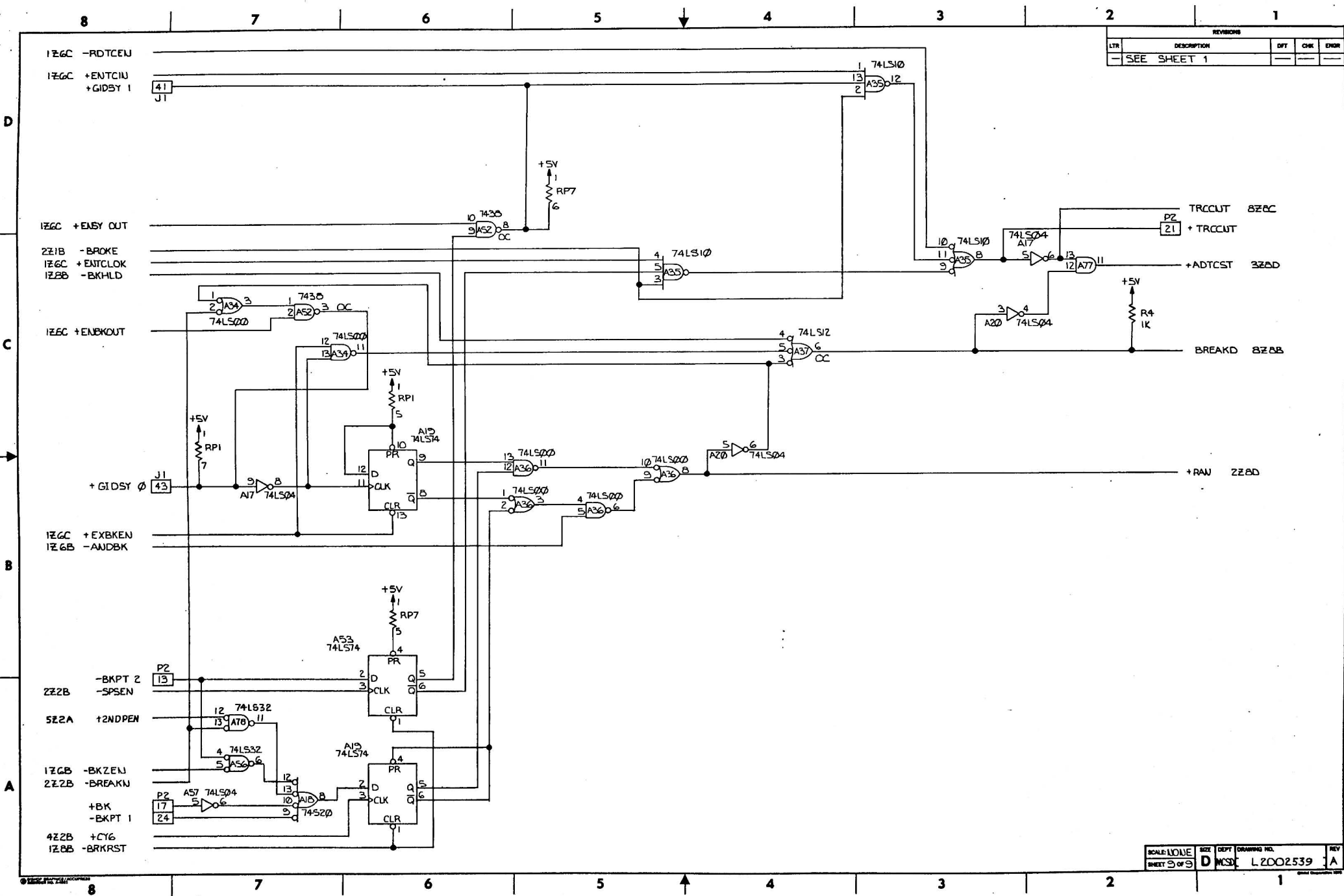
REVISIONS				
LTR	DESCRIPTION	DFT	CHK	ENGR
-	SEE SHEET 1	-	-	-



- J1 35 +CBLP0 (7)
- 33 +CBLP0 (6)
- 31 +CBLP0 (5)
- 29 +CBLP0 (4)
- 27 +CBLP0 (3)
- 25 +CBLP0 (2)
- 23 +CBLP0 (1)
- 21 +CBLP0 (0)

REVISIONS			
LTR	DESCRIPTION	DTY	CHK
-	SEE SHEET 1	-	-

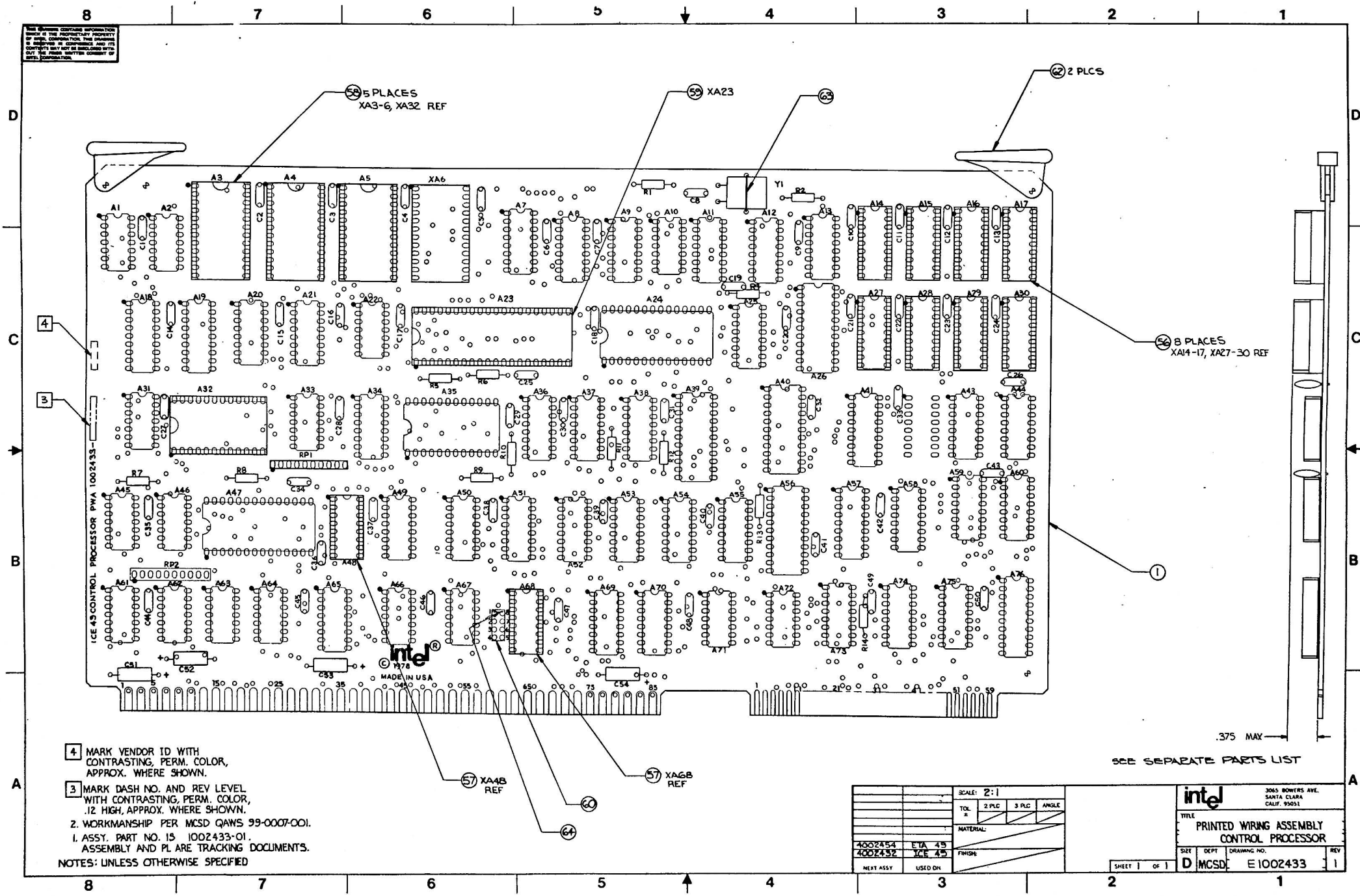




REVISIONS				
LTR	DESCRIPTION	DFT	CHK	ENGR
-	SEE SHEET 1	-	-	-

SCALE: NONE	SIZE: D	DEPT: MCSI	DRAWING NO.: L2002539	REV: A
SHEET 3 OF 3				

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- 4 MARK VENDOR ID WITH CONTRASTING, PERM. COLOR, APPROX. WHERE SHOWN.
 - 3 MARK DASH NO. AND REV LEVEL WITH CONTRASTING, PERM. COLOR, .12 HIGH, APPROX. WHERE SHOWN.
 - 2. WORKMANSHIP PER MCSD QAWS 99-0007-001.
 - 1. ASSY. PART NO. IS 1002433-01. ASSEMBLY AND PL ARE TRACKING DOCUMENTS.
- NOTES: UNLESS OTHERWISE SPECIFIED

SEE SEPARATE PARTS LIST

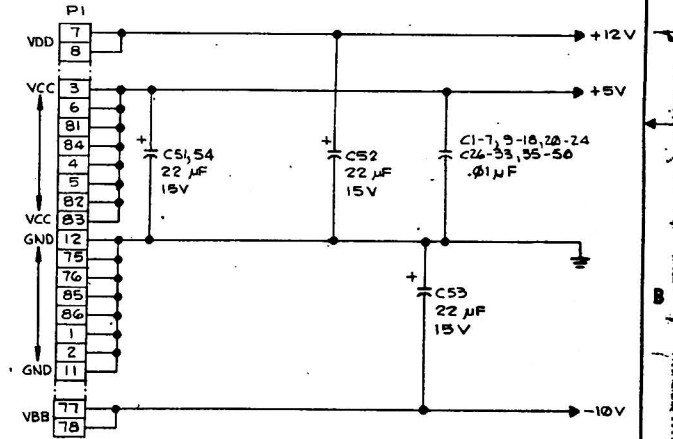
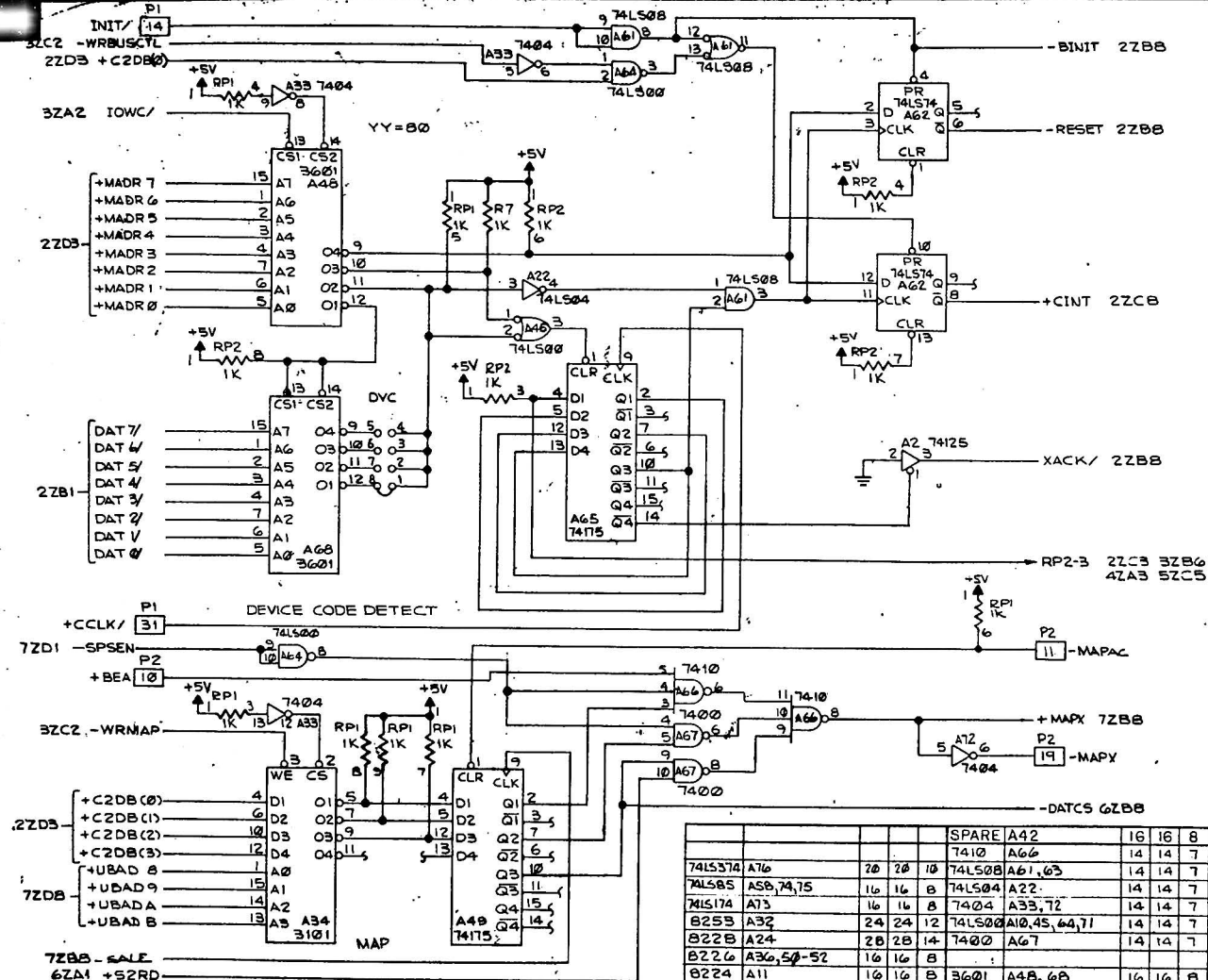
SCALE: 2:1	
TOL:	2 PLC 3 PLC ANGLE
MATERIAL:	
4002454 EIA 45	FINISH:
4002432 ICE 45	
NEXT ASSY:	USED ON:

intel 3065 BOWERS AVE. SANTA CLARA CALIF. 95051

TITLE: PRINTED WIRING ASSEMBLY CONTROL PROCESSOR

SIZE: D	DEPT: MCSD	DRAWING NO.: E1002433	REV: 1
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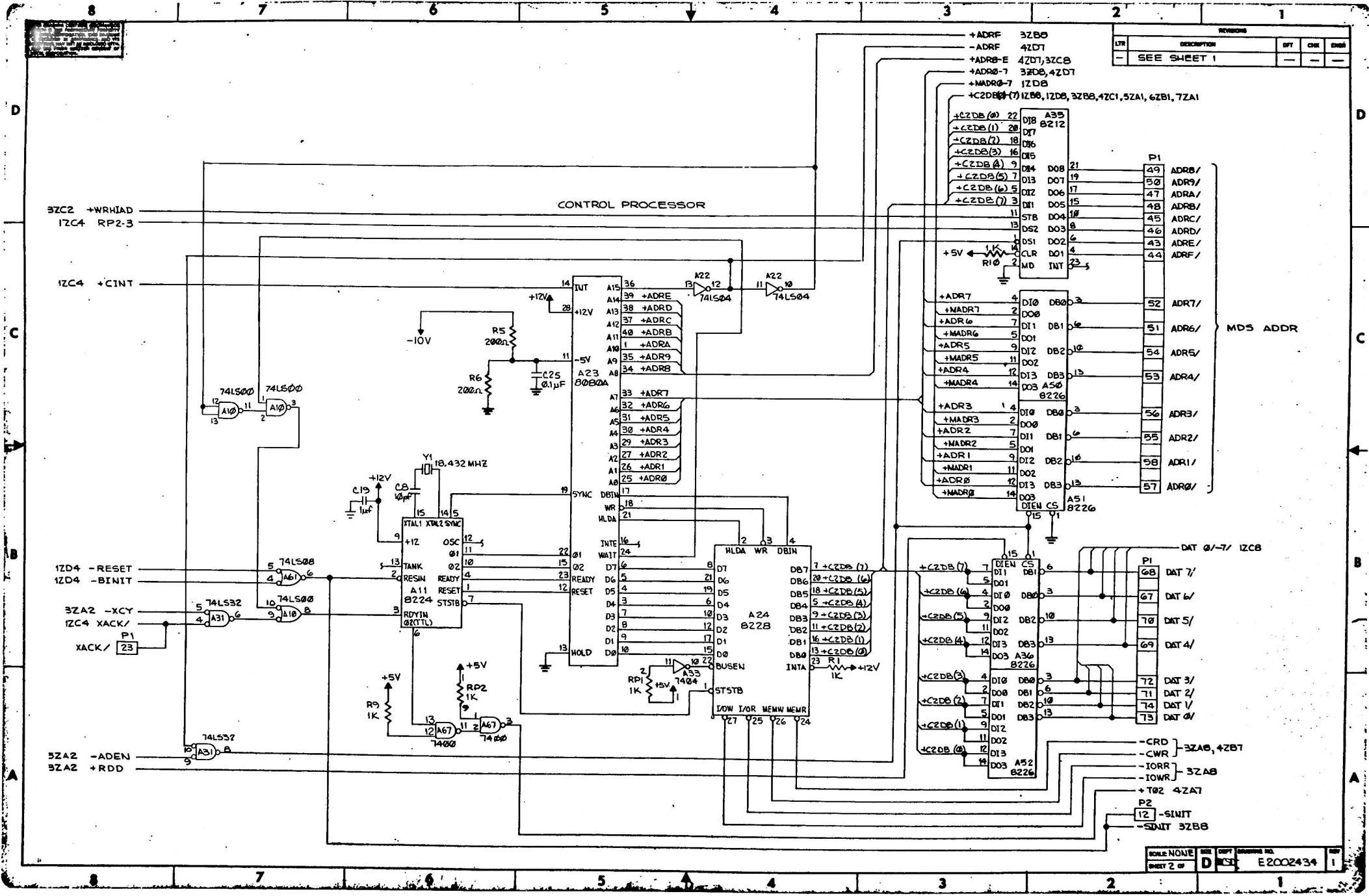
SHEET 1 OF 1



REF. DES.	QTY	PART NO.	REF. DES.	QTY	PART NO.		
		SPARE	A42	16	16 8		
		7410	A66	14	14 7		
74LS374	A76	20	20 10	74LS08	A61,63	14	14 7
74LS85	A59,74,75	16	16 8	74LS04	A22	14	14 7
74LS174	A73	16	16 8	7404	A33,72	14	14 7
B253	A32	24	24 12	74LS00	A10,45,44,71	14	14 7
B228	A24	28	28 14	7400	A67	14	14 7
B226	A30,50-52	16	16 8				
B224	A11	16	16 8	3601	A48,68	16	16 8
52-104	A47	28	28 14	3101	A34	16	16 8
B216	A12,21,37,43,44,55-58,59,65,70	16	16 8				
B212	A35	24	24 12	2116	A3-6	24	24 12
B205	A7-9	16	16 8	2114	A14-17 + 27+30	18	18 9
211A	A18,19,41,37	18	18 9				
B0800A	A25	40	20 2	2101A	A26,39,40,56	22	22 8
74175	A49,65	16	16 8	DEVICE	REF DES	PINS	+5V GND
74161A	A25,38	16	16 8				
74LS199	A13	16	16 8	RP2			
74125	A2	14	14 7	Y1			
74LS74	A1,46,62	14	14 7	C54			
74LS32	A31	14	14 7	R14			
DEVICE	REF DES	PINS	+5V GND	REF DESIGNATIONS	NOT USED	LAST USED	
					1002433	ETA-49	
					1002433	ICE-49	

2. ALL CAPACITANCE VALUES IN MICROFARADS.
 1. ALL RESISTANCE VALUES IN OHMS, 5% 1/4WATT.
 NOTES: UNLESS OTHERWISE SPECIFIED,

QUANTITY PER DASH NO.		ITEM NO.	PART NUMBER	DESCRIPTION								
SCALE: NONE		PARTS LIST										
TOL.	2 PLC	3 PLC	AMPL.									
MATERIAL:												
FINISH:												
<table border="1"> <tr> <td>SIZE</td> <td>DEPT</td> <td>DRAWING NO.</td> <td>REV</td> </tr> <tr> <td>D</td> <td>WCS</td> <td>E2002434</td> <td>1</td> </tr> </table>					SIZE	DEPT	DRAWING NO.	REV	D	WCS	E2002434	1
SIZE	DEPT	DRAWING NO.	REV									
D	WCS	E2002434	1									

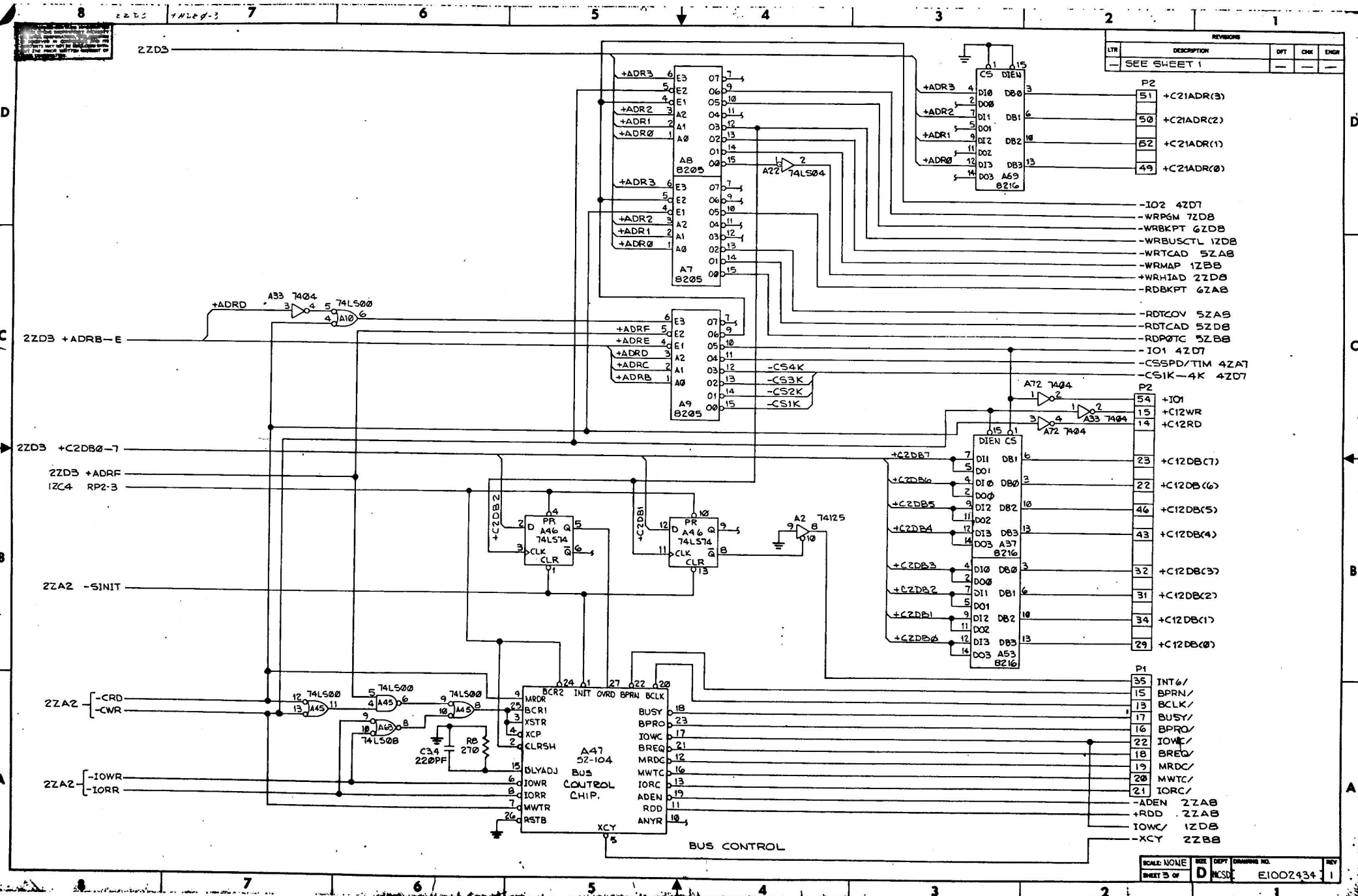


REVISIONS			
LTR	DESCRIPTION	DFT	CHK
-	SEE SHEET 1	-	-

+CZDB (0) 22			P1		
+CZDB (0)	D18	A33	49	ADR8/	
+CZDB (1)	D17	B212	50	ADR9/	
+CZDB (2)	D16		47	ADRA/	
+CZDB (3)	D15		48	ADRB/	
+CZDB (4)	D14	D08	45	ADRC/	
+CZDB (5)	D13	D07	46	ADRD/	
+CZDB (6)	D12	D06	43	ADRE/	
+CZDB (7)	D11	D05	44	ADRF/	
	D10	D04			
	D09	D03			
	D08	D02			
	D07	D01			
	D06	D00			
	D05	D00	52	ADR7/	
	D04	D01	51	ADR6/	
	D03	D02	54	ADR5/	
	D02	D03	53	ADRA/	
	D01	A50	56	ADR3/	
	D00	B226	55	ADR2/	
	D00	D00	58	ADR1/	
	D00	D01	57	ADR0/	
	D00	D02			
	D00	D03			
	D00	D03			

+ADR7			P1		
+ADR7	D10	D00	52	ADR7/	
+ADR6	D09	D01	51	ADR6/	
+ADR5	D08	D02	54	ADR5/	
+ADR4	D07	D03	53	ADRA/	
+ADR3	D06	D00	56	ADR3/	
+ADR2	D05	D01	55	ADR2/	
+ADR1	D04	D02	58	ADR1/	
+ADR0	D03	D03	57	ADR0/	

+CZDB (7)			P1		
+CZDB (7)	D18	D01	68	DAT 7/	
+CZDB (6)	D17	D00	67	DAT 6/	
+CZDB (5)	D16	D00	70	DAT 5/	
+CZDB (4)	D15	D01	69	DAT 4/	
+CZDB (3)	D14	D00	72	DAT 3/	
+CZDB (2)	D13	D01	71	DAT 2/	
+CZDB (1)	D12	D02	74	DAT 1/	
+CZDB (0)	D11	D03	73	DAT 0/	



REVISIONS			
LTR	DESCRIPTION	DFT	CHK
-	SEE SHEET 1	-	-

P2	
51	+C21ADR(3)
50	+C21ADR(2)
52	+C21ADR(1)
49	+C21ADR(0)
-IO2 4ZD7	
-WRP6M 7ZDB	
-WRBKPT 6ZDB	
-WRBUSCTL 1ZDB	
-WRTCAD 5ZAB	
-WRMAP 1ZBB	
+WRHIAD 2ZDB	
-RDBKPT 6ZAB	
-RDTKOV 5ZAB	
-RDTCAD 5ZDB	
-RDP0TC 5ZBB	
-IO1 4ZD7	
-CSSPD/TIM 4ZAT	
-CS1K-4K 4ZD7	
P2	
54	+IO1
15	+C12WR
14	+C12RD
+C12DB(7)	
23	+C12DB(7)
+C12DB(6)	
22	+C12DB(6)
+C12DB(5)	
46	+C12DB(5)
+C12DB(4)	
43	+C12DB(4)
+C12DB(3)	
32	+C12DB(3)
+C12DB(2)	
31	+C12DB(2)
+C12DB(1)	
34	+C12DB(1)
+C12DB(0)	
29	+C12DB(0)
P1	
35	INT6/
15	BPRN/
13	BCLK/
17	BUSY/
16	BPRO/
22	IOWC/
18	BREQ/
19	MRDC/
20	MWTC/
21	IORC/
-ADEN 2ZAB	
+RDD 2ZAB	
IOWC/ 1ZDB	
-XCY 2ZBB	

8 7 6 5 4 3 2 1

REVISIONS			
LTR	DESCRIPTION	DFT	CHK
-	SEE SHEET 1	-	-

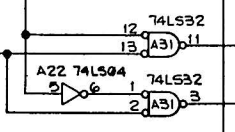
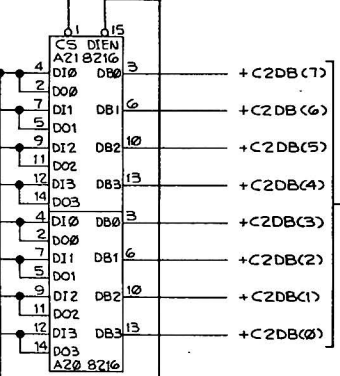
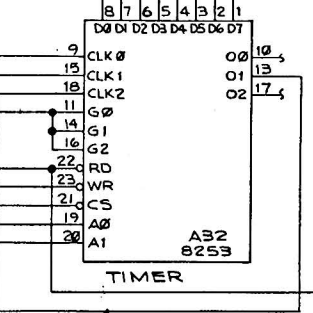
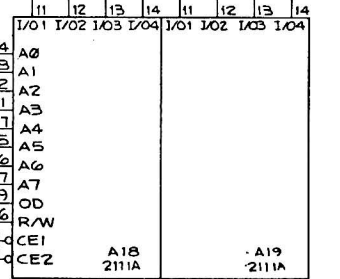
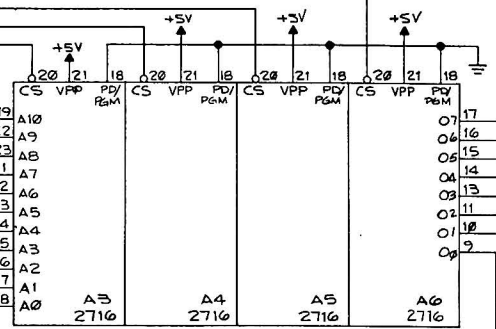
2ZD3 -ADRF
 3ZC2 -IO1
 3ZD2 -IO2
 3ZC2 -CS4K
 -CS3K
 -CS2K
 -CS1K

2ZD3 +ADRA
 +ADR9
 +ADR8
 +ADR7
 +ADR6
 +ADR5
 2ZD3 +ADR4
 +ADR3
 +ADR2
 +ADR1
 +ADR0

2ZA2 -CRD
 -CWR

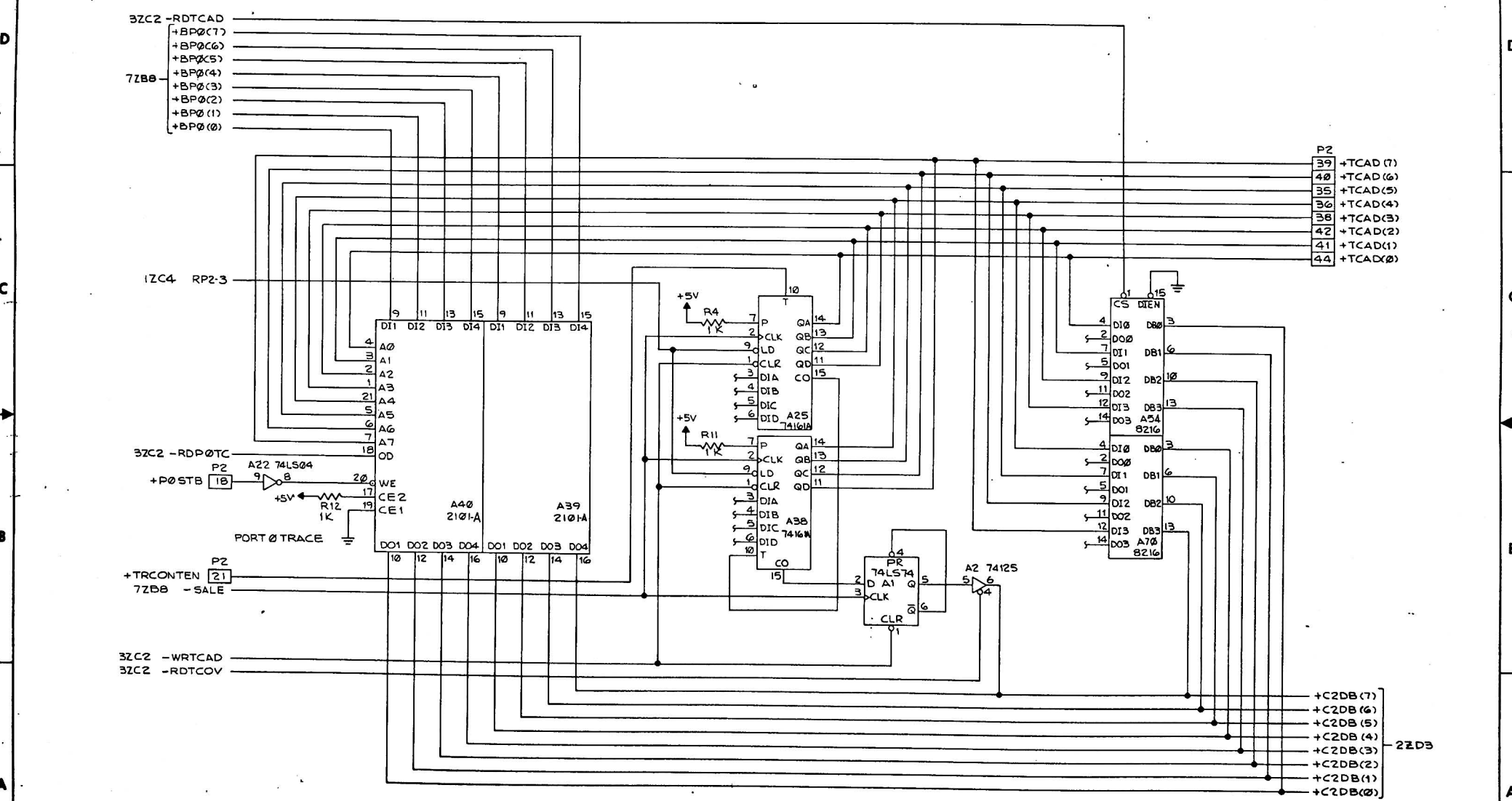
7ZBB -SALE
 2ZA2 +T02
 1ZC4 RPT3

3ZC2 -CSSPD/TIM

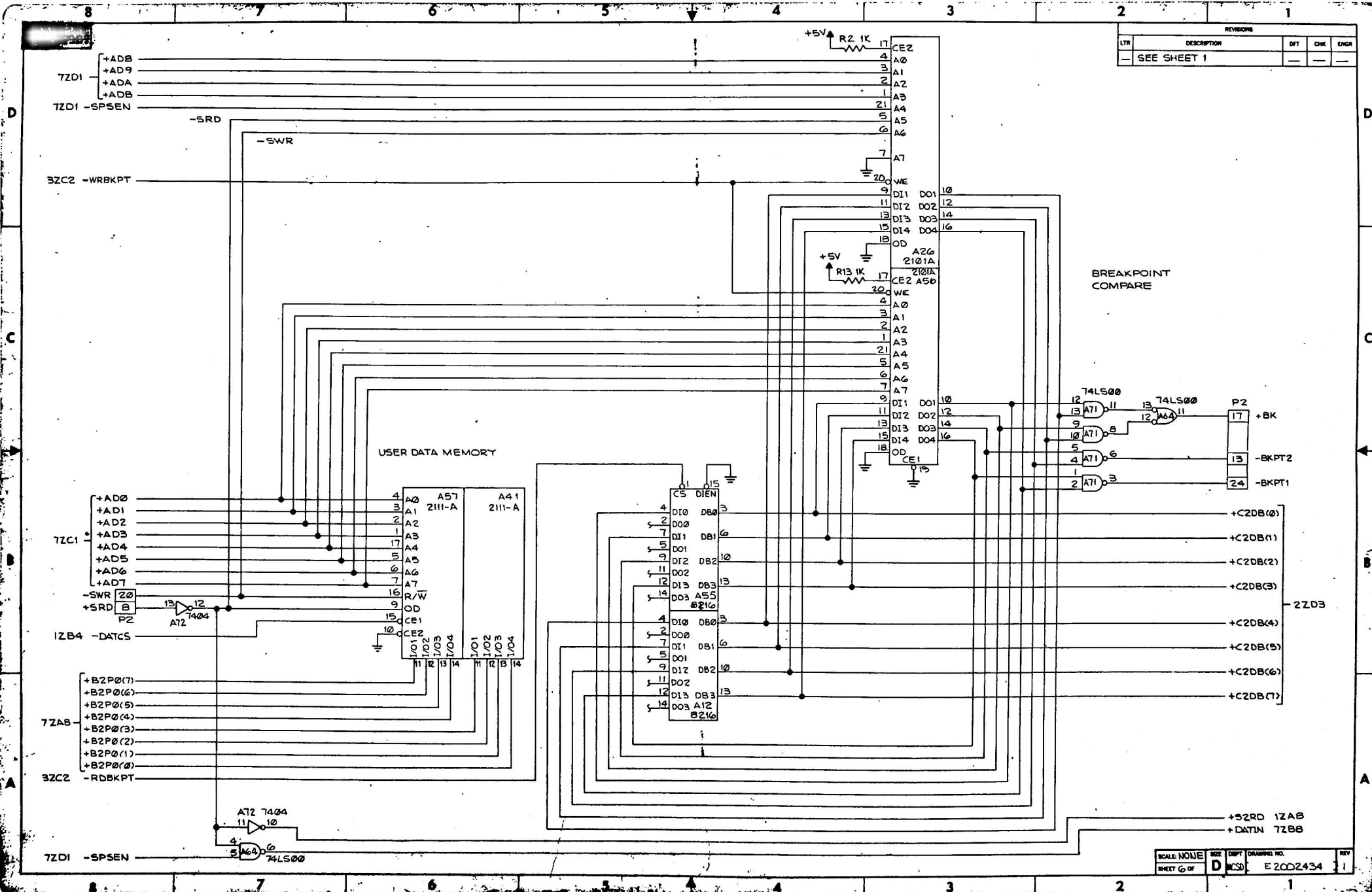


8 7 6 5 4 3 2 1

REVISIONS				
LTR	DESCRIPTION	DFT	CHK	ENGR
-	SEE SHEET 1	-	-	-

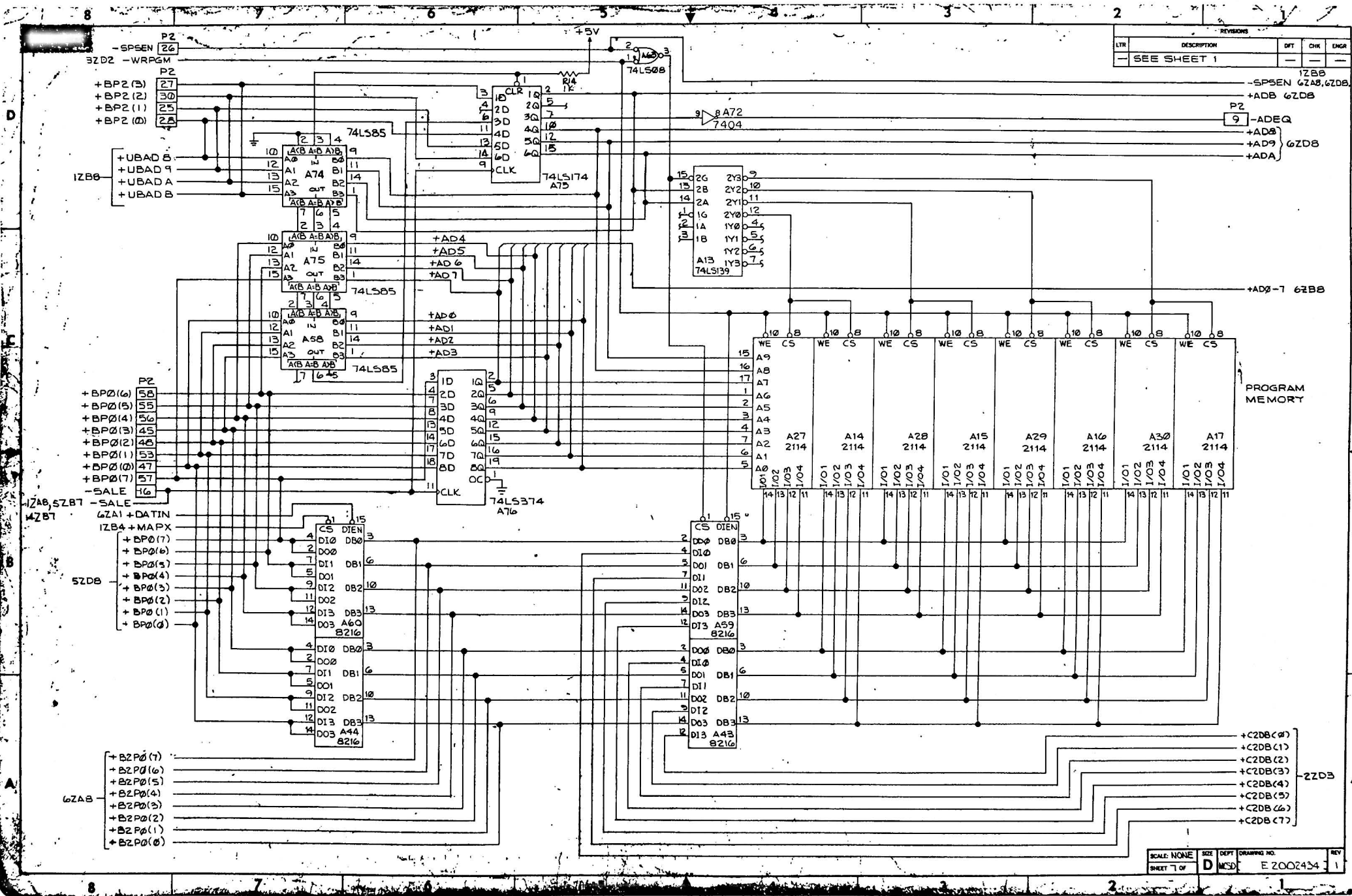


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SHEET 5 OF				



REVISIONS				
LTR	DESCRIPTION	DFT	CHK	ENGR
-	SEE SHEET 1	-	-	-

SCALE: NONE	SIZE: D	DWPT: MCD	DRAWING NO.: E 2002434	REV: 1
SHEET 6 OF 6				



REVISIONS			
LTR	DESCRIPTION	DFT	CHK
-	SEE SHEET 1	-	-

IZB8	-SPSEN	6ZAB, 6ZDB
P2	+ADB	6ZDB
P2	-ADEQ	
	+AD8	
	+AD9	6ZDB
	+ADA	

+AD8-7 62BB

PROGRAM MEMORY

+C2DB(0)
+C2DB(1)
+C2DB(2)
+C2DB(3)
+C2DB(4)
+C2DB(5)
+C2DB(6)
+C2DB(7)

SCALE: NONE	SIZE: D	DEPT: MCS	DRAWING NO. E 2002434	REV: 1
SHEET 7 OF 7				



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