
RAM-COMM Expansion Board	1
--------------------------	---

Interface Circuitry	1
Input/Output Handling	1
Expansion Board Schematic	2

RAM - COMM Expansion Board

The expansion hardware provides additional memory and communication capabilities for the AT&T UNIX PC. The expansion hardware's EIA ports make it possible for the PC to communicate with another terminal or computer. Additional memory and EIA capabilities are available separately or in combination, as shown in the following list of expansion hardware options:

- o 0.5MB RAM Expansion Board (no EIA ports)
- o 2.0MB RAM Expansion Board (no EIA ports)
- o 0.5MB EIA/RAM Combo Board (two EIA ports)
- o 1.0MB EIA/RAM Combo Board (two EIA ports)
- o 1.5MB EIA/RAM Combo Board (two EIA ports)
- o Dual EIA Port Board (no RAM, two EIA ports)

The expansion hardware includes:

- o An interface connection P1 and associated circuitry
- o RAM memory
- o EIA connection circuitry (if an EIA or Combo board)

Interface Circuitry

All communications between the expansion board and the UNIX PC bus are through the expansion board interface connector P1.

Input/Output Handling

As a direct memory access (DMA) device, data transfer from the expansion board to the PC bus causes the 68010 to wait while data is transferred into RAM memory. Data transfer is considered a fast cycle (500 ns).

Expansion Hardware

There are three functions which the expansion board may be called upon to perform. Read to memory, read from memory and port to or from memory to the RS-232 interface.

Expansion Board Schematic

Sheet 2--Memory Access Control Circuitry:

This circuitry consists of address latch 1K, lower and upper data strobe control, consisting of demultiplexers 3H and 3J and OR gates 3B and parity interrupt, 2C and 2E.

Sheet 3--Memory Bus Management and Communications Circuitry:

The upper portion of sheet 3 of the schematic contains map address management circuitry consisting of multiplexers 4A, 4B, 4C, 4E, 4H, and 4J. The lower portion of sheet 3 contains the communication interface IC 11E, RS-232 line drivers 12J, 12K, and 12A, and RS-232 receivers 11A and 12B and port connectors J1 and J2.

Note

This circuitry is present only on the EIA/RAM Combo and EIA/RAM boards. The 0.5 and 2.0 RAM expansion boards do not contain interface circuitry or RS-232 ports.

Sheets 4, 5 and 6--Memory (RAM):

Memory circuitry consists of the X, Y, and Z bus, the read bus and read bus control 11H and 11C, and upper and lower parity generator ICs 5K through 10K.

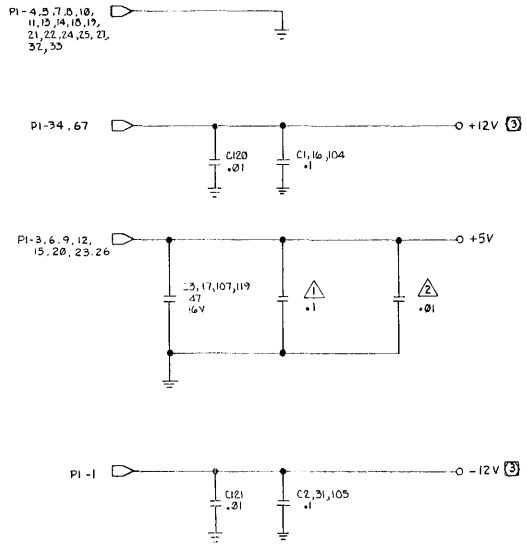
Depending on the amount of RAM that is mounted physically on the expansion board, these locations may or may not be used.

Sheet 5--Expansion Bus Interface:

The lower portion of sheet 5 of the schematic also contains data transceivers 1C and 1E connected to the read bus and expansion bus connector P1 completing the expansion loop.

REVISIONS			DATE	CHK	APPROVED
A	RELEASE TO CONTROL		4-4-85	RAJ	[Signature]
B	REVISED PER C.O. # 5190		4-3-85	[Signature]	[Signature]
C	REVISED PER C.O. # 5205		5-28-85	[Signature]	[Signature]
D	REVISED PER C.O. # 5201		6-4-85	[Signature]	[Signature]
DI	PER RECORD CHANGE # D-023		10/1/85	[Signature]	[Signature]
E	REVISED PER C.O. # 5411		11/1/85	[Signature]	[Signature]
F	REVISED PER C.O. # 5345		2/1/85	[Signature]	[Signature]
G	REVISED PER C.O. # 5446		3/1/85	[Signature]	[Signature]

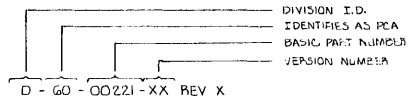
I.C. DEVICE CHART				
I.C. TYPE	REFERENCE DESIGNATIONS	+5V	GND	UNUSED OUTPUTS
74F00	2A, 2H	14	7	
74F08	3A, 1H	14	7	
74F32	3B, 2J	14	7	
74A374	1B	14	7	
74F138	2E, 3H, 3J	16	8	
74F245	1C, 1E	20	10	
74F258	4A, 4B, 4C, 4E, 4H, 4J, 3K, 4K	16	8	
74F373	1K	20	10	
74F85	1J	16	8	
74LS125	1A, 1B	14	7	
825123	11H	16	8	
74LS280	2C, 2E	14	7	
1488	12A, 12J	③	7	
1489	11A, 12B, 12K	14	7	
8530	11E	7	51	
48256	5A, 5B, 5C, 5D, 5E, 5F, 5H, 5J, 5K, 6A, 6B, 6C, 6D, 6E, 6F, 6H, 6J, 6K, 7A, 7B, 7C, 7D, 7E, 7F, 7H, 7J, 7K, 8A, 8B, 8C, 8D, 8E, 8F, 8H, 8J, 8K, 9A, 9B, 9C, 9D, 9E, 9F, 9H, 9J, 9K, 10A, 10B, 10C, 10D, 10E, 10F, 10H, 10J, 10K	8	16	
74F06	2B	14	7	
74123	2H, 11H	16	8	
74LS374	11C	20	10	
DL	3C	14	7	



- ① C4, 6, 8, 11, 13, 15, 20, 21, 22, 23, 25, 27, 29, 30, 41, 43, 45, 47, 49, 51, 53, 55, 57, 60, 61, 62, 64, 66, 68, 69, 71, 73, 75, 77, 80, 82, 84, 94, 95, 97, 100, 102, 112, 114, 116, 118
- ② C5, 7, 10, 12, 14, 19, 24, 26, 28, 42, 44, 46, 49, 53, 52, 54, 56, 58, 63, 65, 67, 70, 72, 74, 76, 78, 81, 83, 85, 87, 89, 91, 93, 96, 101, 103, 105, 111, 113, 115, 117

REFERENCE DESIGNATIONS		
LAST USED	NOT USED	USED BUT NOT SHIPPED
C123	C9, C87, C19	C18
J2		
PI		
PI0		
PI12		
YZ		
WS		

SPARES (EXCL IC'S)	
PART	UNUSED PINS
RPG	1, 2
RPT	1, 2
RP2	1, 2
RP11	3, 4, 5, 6
J1	1, 9, 10, 11, 12, 13, 14, 16, 18, 19, 21, 22, 23
J2	1, 9, 10, 11, 12, 13, 14, 16, 18, 19, 21, 22, 23
PI	16, 17, 40, 42, 43, 44, 45, 54, 56, 59, 60, 61, 62, 63, 69, 71, 73



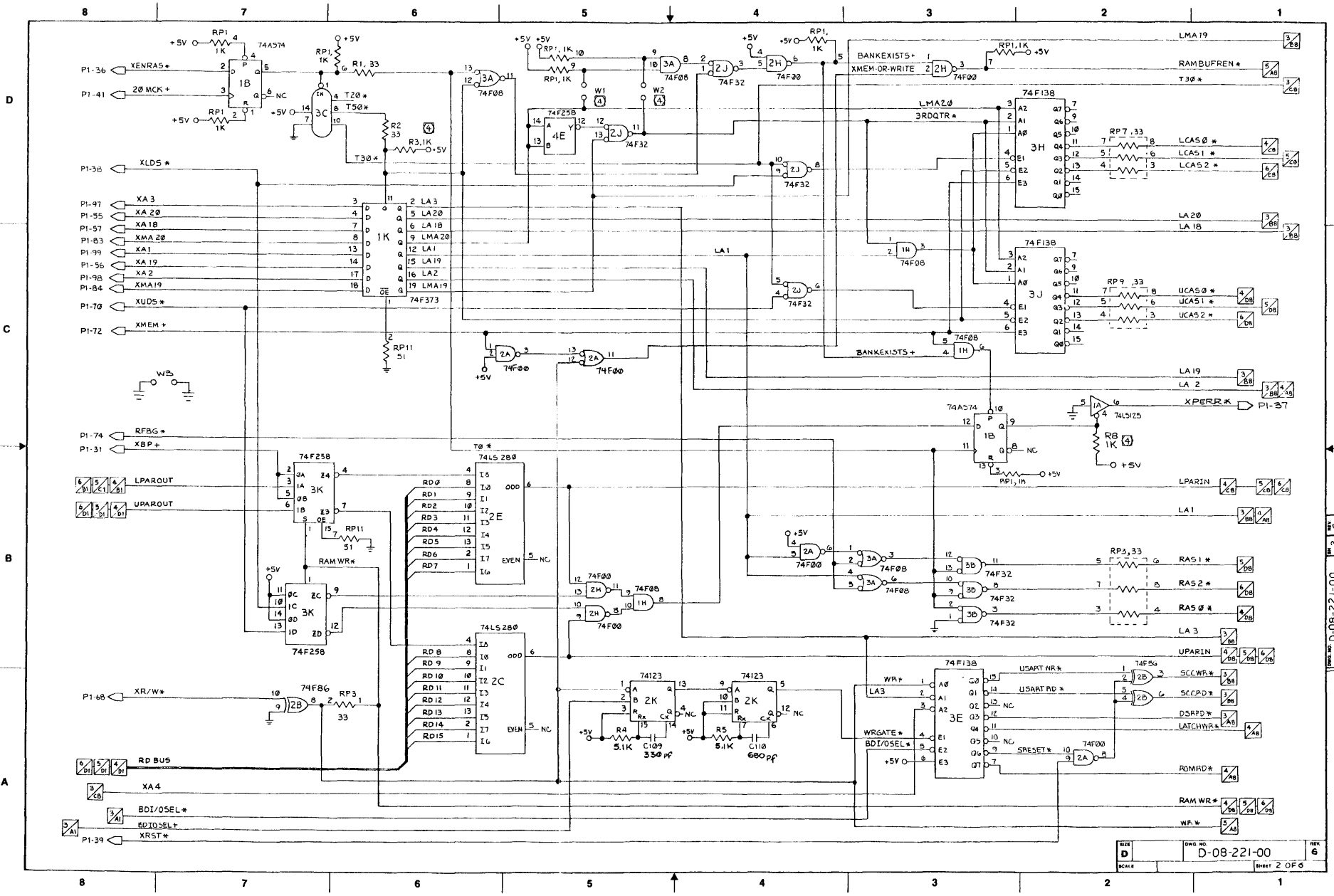
D - 60 - 00221 - XX REV X

- NOTES: UNLESS OTHERWISE SPECIFIED
- ALL RESISTOR VALUES ARE IN OHMS, 1/10W, 5%.
 - ALL CAPACITOR VALUES ARE IN MICROFARADS.
 - CONNECT PIN 14 OF ALL 1480'S TO +12V. CONNECT PIN 1 OF ALL 1489'S TO -12V.
 - PART AFFECTED BY VERSION; SEE TABLE.
 - PAGE REFERENCE SHOWN AS: SHEET NO. ZONE

④ PARTS AFFECTED BY VERSION

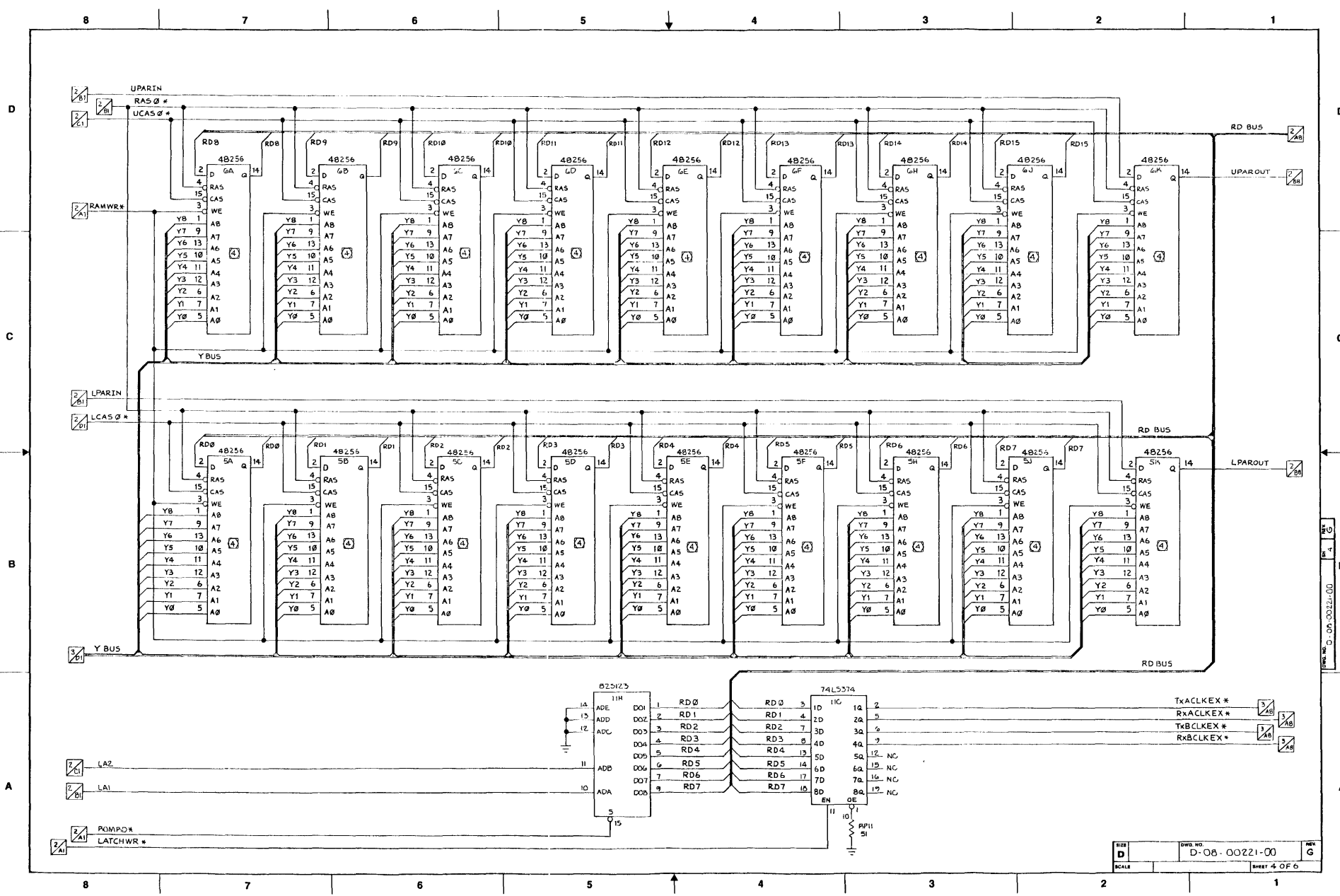
ASSY DASH NO.	VERSION CHARACTERISTIC	W1	W2	5A THRU 5H	6A THRU 6H	7A THRU 7H	8A THRU 8H	9A THRU 9H	10A THRU 10H	R3	R3
-00	GENERIC										
-01	.5 MBYTE	—	INSTALL	INSTALL	INSTALL	—	—	—	—	—	—
-02	1.0 MBYTE	INSTALL	—	—	—	INSTALL	INSTALL	INSTALL	INSTALL	—	—
-03	1.5 MBYTE	INSTALL	INSTALL	INSTALL	INSTALL	INSTALL	INSTALL	INSTALL	INSTALL	—	—

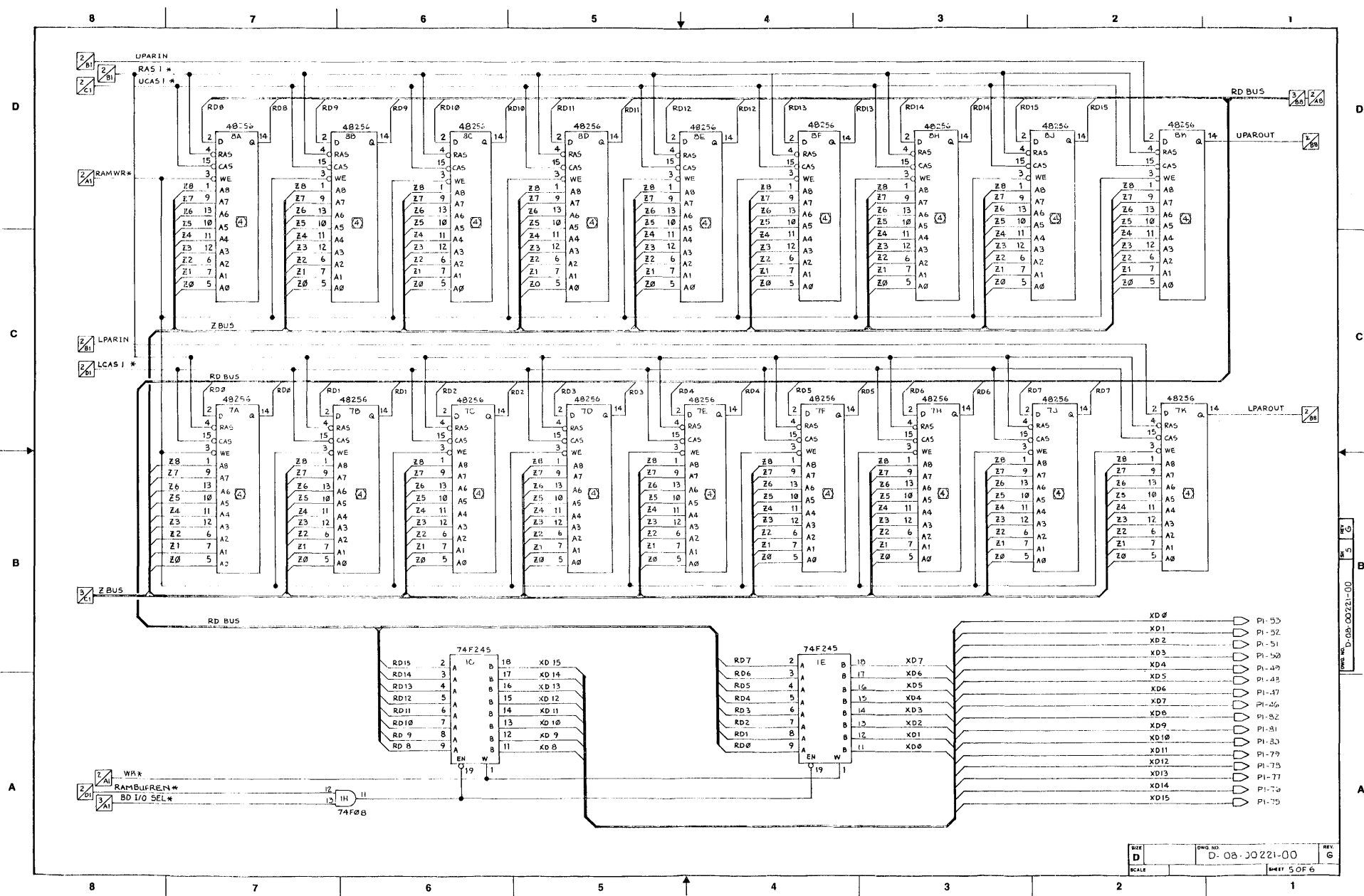
INCHES		QTY	PART OR IDENTIFIED NO.	DESCRIPTION OR IDENTIFICATION	MATERIAL SPECIFICATION
THIRD ANGLE PROJECTION		PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONAL DECIMAL ANGLES		This drawing contains information which is the proprietary property of Convergent Technologies. This drawing is received in confidence and its contents may not be disclosed without the prior written consent of Convergent Technologies.			
MATERIAL		APPROVALS		DATE	
FINISH		DRAWN		DATE	
NEXT ASSY		CHECKED		DATE	
USED ON		APPROVED		DATE	
APPLICATION		DO NOT SCALE DRAWING		SCALE	
		CONVERGENT TECHNOLOGIES™		TITLE	
		SCHEMATIC, 54 COMEC CARD		REV	
		DWG NO. D-03-00221-00		REV G	
		DATE 4-9-85		SHEET 1 OF 10	

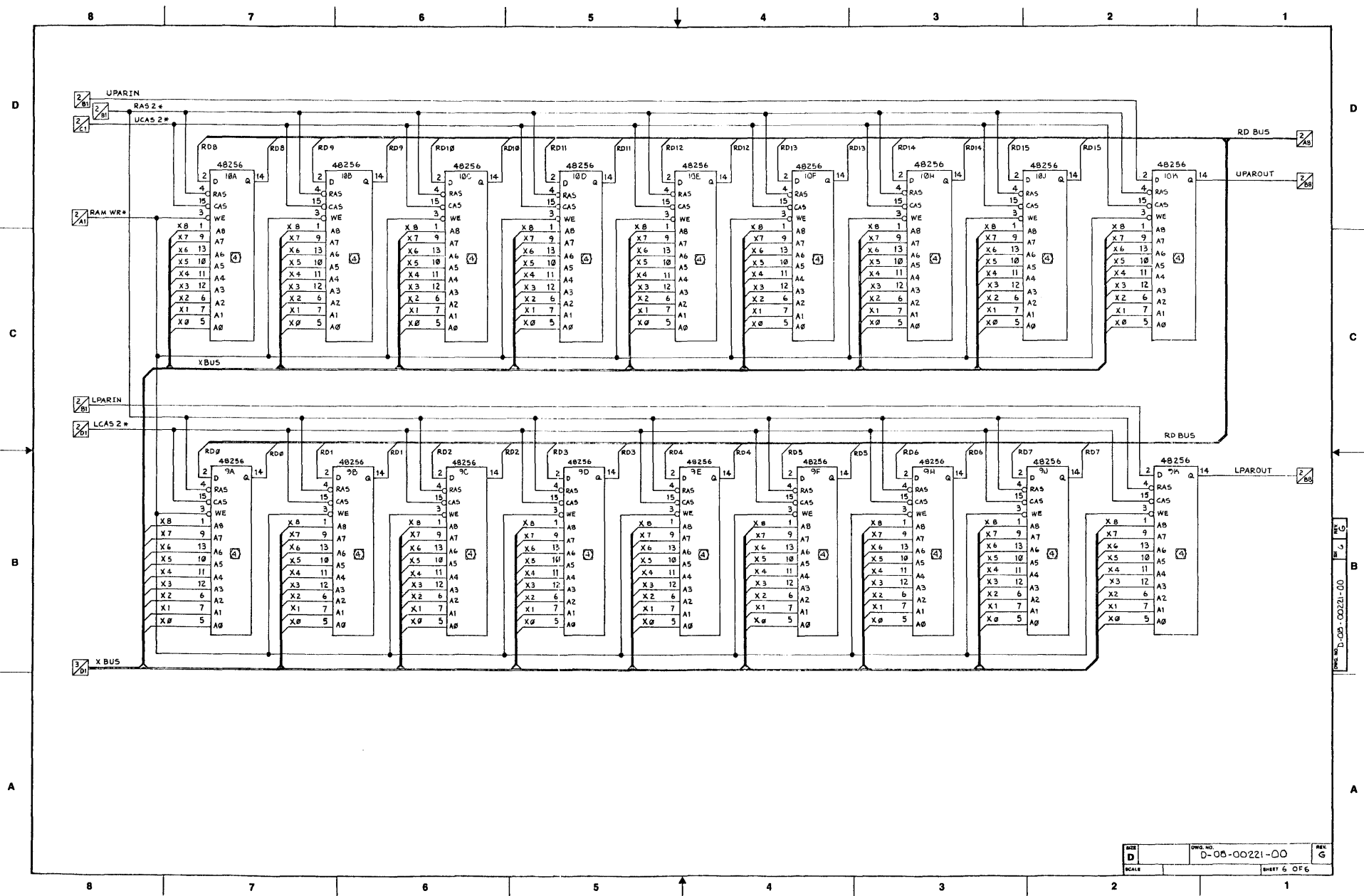


DRAWING NO. **D-08-221-00** REV **6**
 SCALE _____ SHEET **2** OF **6**

D-08-221-00







REV. D-08-00221-00