"THE MATERIAL HEREIN IS FOR INFORMATION PURPOSES ONLY AND IS SUBJECT TO CHANGE WITHOUT NOTICE. DIGITAL EQUIPMENT CORPORATION ASSUMES NO RESPONSIBILITY FOR ANY ERRORS WHICH MAY APPEAR HEREIN."

FIELD MAINTENANCE PRINT SET

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © 1977 . DIGITAL EQUIPMENT CORPORATION."

TABLE OF CONTENTS

B-TC-DW78Ø-Ø-1	11780 UNIBUS ADAPTOR ASSY (TC)
B-DD-DW78Ø-Ø	11780 UNIBUS ADAPTOR ASSY
E-UA-DW78Ø-Ø-Ø	11780 UNIBUS ADAPTOR ASSY (DW78Ø)
A-PL-DW78Ø-Ø-Ø	11780 UNIBUS ADAPTOR ASSY (DW78Ø) (PL)
D-MU-DW78Ø-Ø-2	MODULE UTILIZATION U.B.A.
D-BD-DW78Ø-Ø-3	U.B.A. BLOCK DIAGRAM
D-TD-DW78Ø-Ø-4	U.B.A. TIMING DIAGRAM
D-FD-DW78Ø-Ø-5	U.B.A. MICRO FLOWS
D-IC-11780-0-3	11780 SUB SYSTEM DIAGRAM
D-IA-7013626-Ø-Ø	BACKPLANE ASSY (U.B.A.)
E-MD-5012979-0-0	BOARD, DRILL AND ETCH
E-UA-M827Ø-Ø-Ø	USI
B-PL-M827Ø-Ø-Ø	USI
D-CS-M827Ø-Ø-1	USI
E-UA-M8271-Ø-Ø	UCB
B-PL-M8271-Ø-Ø	UCB
D-CS-M8271-Ø-1	UCB
D-UA-M8272-Ø-Ø	UMD
B-PL-M8272-Ø-Ø	UMD
D-CS-M8272-Ø-1	UMD
E-UA-M8273-Ø-Ø	UAI
B-PL-M8273-Ø-Ø	UAI
D-CS-M8273-Ø-1	UAI
D-UA-M9Ø42-Ø-Ø	UPC
B-PL-M9Ø42-Ø-Ø	UPC
D-CS-M9Ø42-Ø-1	UPC
D-UA-M9Ø44-Ø-Ø	UBT
B-PL-M9Ø44-Ø-Ø	UBT
D-CS-M9Ø44-Ø-1	UBT
D-CS-M93Ø2-Ø-1	UNIBUS TERMINATOR
D-UA-M9Ø14-Ø-Ø	UNIBUS TO H854 ADATPOR BOARD
B-PL-M9Ø14-Ø-Ø	UNIBUS TO H854 ADAPTOR BOARD
D-CS-M9Ø14-Ø-1	UNIBUS TO H854 ADAPTOR BOARD
D-IA-1700087-00	COAX, RIBBON CABLE
C-IA-7013622-0-0	CABLE, UNIBUS (BC05L)
D-IA-7014213-0K	CABLE, OVER TEMP.
D-IA-7014212-0M	CABLE, AC, DC LO

UNIT VARIATIONS COVERED BY THIS PRINT SET
DW78Ø
DW78Ø-AA
DW78Ø-AB

"THE MATERIAL HEREIN IS FOR INFORMATION PURPOSES ONLY AND IS SUBJECT TO CHANGE WITHOUT NOTICE. DIGITAL EQUIPMENT CORPORATION ASSUMES NO RESPONSIBILITY FOR ANY ERRORS WHICH MAY APPEAR HEREIN."

DRAWING DIRECTORY

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION.

UNIT VARIATIONS

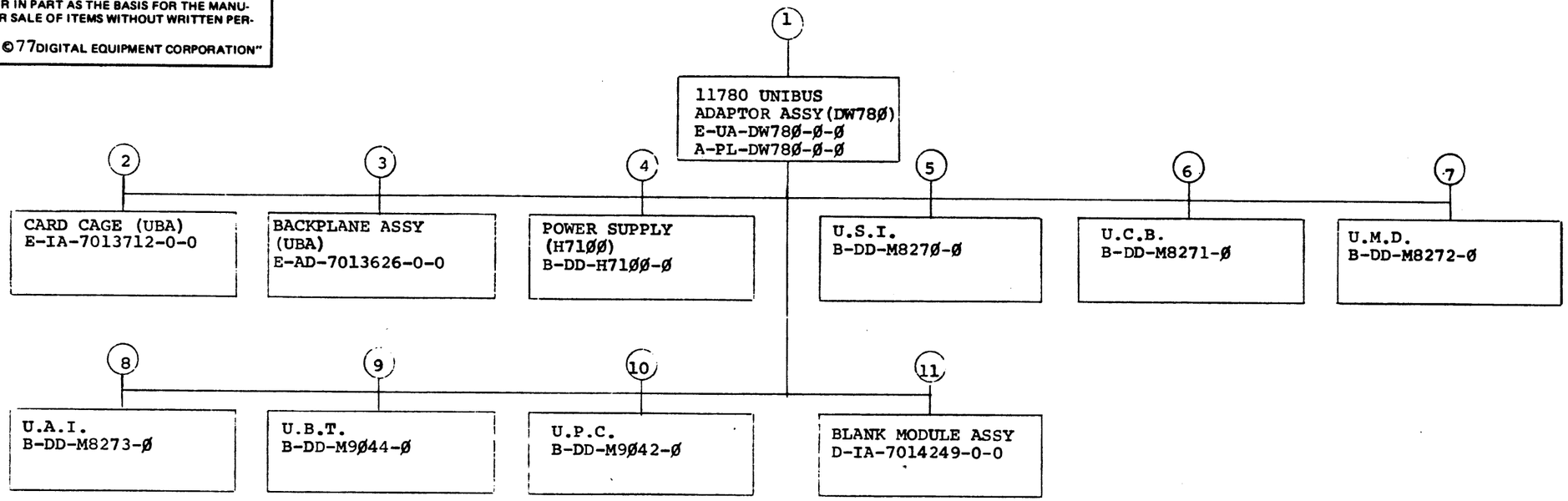
VAR	TITLE
DW78Ø	11780 UNIBUS ADAPTOR
DW78Ø-AA	DW78Ø + H71ØØ-A POWER SUPPLY
	H71Ø1 REG. 115V AC 50/60 HZ
DW78Ø-AB	DW78Ø-AA EXCEPT H71ØØ-B POWER SUPPLY
	23ØV AC 50/60 HZ

REVISIONS	REV.	CHANGE NO.	CHK
	A	DW78Ø-1	P.C.
	B	DW78Ø-2	
	C	DW78Ø-3	

USED ON OPTION/MODEL	DRN. P. BOUDREAU	DATE OCT 77	TITLE digital 11780 UNIBUS ADAPTOR ASSY (DW78Ø)
11780	CHK'D. D. HEALY	DATE NOV 77	
	PROJ. ENG. Bob Casdona	DATE 15 Nov 77	SIZE B · CODE DD · NUMBER DW78Ø-Ø · REV C
SHEET 1 OF 3	PROD. Grant Lee	DATE 11/17/77	DIST.

DRB 106A

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 77 DIGITAL EQUIPMENT CORPORATION"



TITLE		SIZE	CODE	NUMBER	REV
11780 UNIBUS ADAPTOR ASSY(DW78Ø)	SHEET 2 OF 3	B	DD	DW78Ø-Ø	C

DRB 107

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
1	MPØØ497	11780 UNIBUS ADAPTOR ASSY (DW78Ø) (MP)	-
	B-TC-DW78Ø-Ø-1	11780 UNIBUS ADAPTOR ASSY (DW78Ø) (TC)	-
	E-UA-DW78Ø-Ø-Ø	11780 UNIBUS ADAPTOR ASSY (DW78Ø)	E/M
	A-PL-DW78Ø-Ø-Ø	11780 UNIBUS ADAPTOR ASSY (DW78Ø) (PL)	E/M
	B-MD-7418902-0-0	PLATE STUD	M
	B-MD-7418903-0-0	"U" BAR	M
	B-MD-7419084-0-0	PLATE, HOLDING	M
	B-MD-7419485-0-0	COVER, BUS BAR	M
	D-IC-11780-0-1	11780 SYSTEM POWER DIAGRAM	E/M
	D-IC-11780-0-2	11780 SYSTEM INTERCONNECT DIAGRAM	E/M
	D-IC-11780-0-3	11780 SUB_SYSTEM INTERCONNECT	E/M
	D-MU-DW78Ø-Ø-2	DW78Ø MODULE UTILIZATION (UBA)	E
	D-IA-7014249-0-0	CABLE, POWER (BLACK)	E/M
	D-IA-7014530-0-0	CABLE, POWER (RED)	E/M
	D-IA-7014212-0-0	CABLE, AC, DC LO	E/M
	C-MD-7419457-0-0	COVER, U.B.A. BACKPLANE	M
	D-IA-1700087-00	CABLE, COAX RIBBON	E/M
	C-IA-7013622-0-0	CABLE, UNIBUS (BC05L)	E/M
	D-IA-7014213-0K	CABLE, OVER TEMP	E/M
2	E-IA-7013712-0-0	CARD CAGE (UBA)	M
	C-MD-7417930-0-0	MOUNTING BAR VERTICAL	M
	C-MD-7417966-0-0	BRACKET BOTTOM REAR	M
	B-MD-7417963-0-0	BRACKET CARD GUIDE	M
	C-MD-7417967-0-0	BRACKET BOTTOM CARD GUIDE	M
	C-MD-7417964-0-0	BRACKET TOP CARD GUIDE	M
	C-MD-7417942-0-0	HANDLE	M
	C-MD-7417965-0-0	BRACKET TOP REAR	M
	C-MD-7418194-0-0	STIFFENER	M
	C-MD-7418181-0-0	STIFFENER, CORNER	M
3	E-IA-7013626-0-0	BACKPLANE ASSY (UBA)	E/M
	E-MD-5012979-0-0	BOARD, DRILL AND ETCH	M
	C-MD-7417866-0-0	BAR, MOUNTING	M
	D-PS-1214348-0-0	BUS BAR	M
	B-MD-7419254-0-0	REWORK, CONN. BLOCK	M
	C-MD-7411399-0-0	STRIP, FIBERGLASS	M
	A-DC-7411881-0-0	DECAL AWT REV. STATUS	M
	B-MD-7417973-0-0	BLOCK, SPACER	M
	K-WL-7013626-0-1	WIRE LIST (UBA)	E

FIND NO.	DRAWING NO.	DESCRIPTION	TYPE
	A-WT-7013626-0	AWT REV. STATUS	E
4	B-DD-H71ØØ-Ø	POWER SUPPLY (H71ØØ)	E/M
5	B-DD-M827Ø-Ø	U.S.I.	E/M
6	B-DD-M8271-Ø	U.C.B.	E/M
7	B-DD-M8272-Ø	U.M.D.	E/M
8	B-DD-M8273-Ø	U.A.I.	E/M
9	B-DD-M9Ø44-Ø	U.B.T.	E/M
10	B-DD-M9Ø42-Ø	U.P.C.	E/M
11	D-IA-7014103-0-0	BLANK MODULE ASSY	M
	E-MD-7418172-0-0	BLANK MODULE	M

TYPE: E ELECTRICAL
M MECHANICAL
E/M ELECTRO/MECHANICAL

digital

TITLE: 11780 UNIBUS ADAPTOR ASSY (DW78Ø)

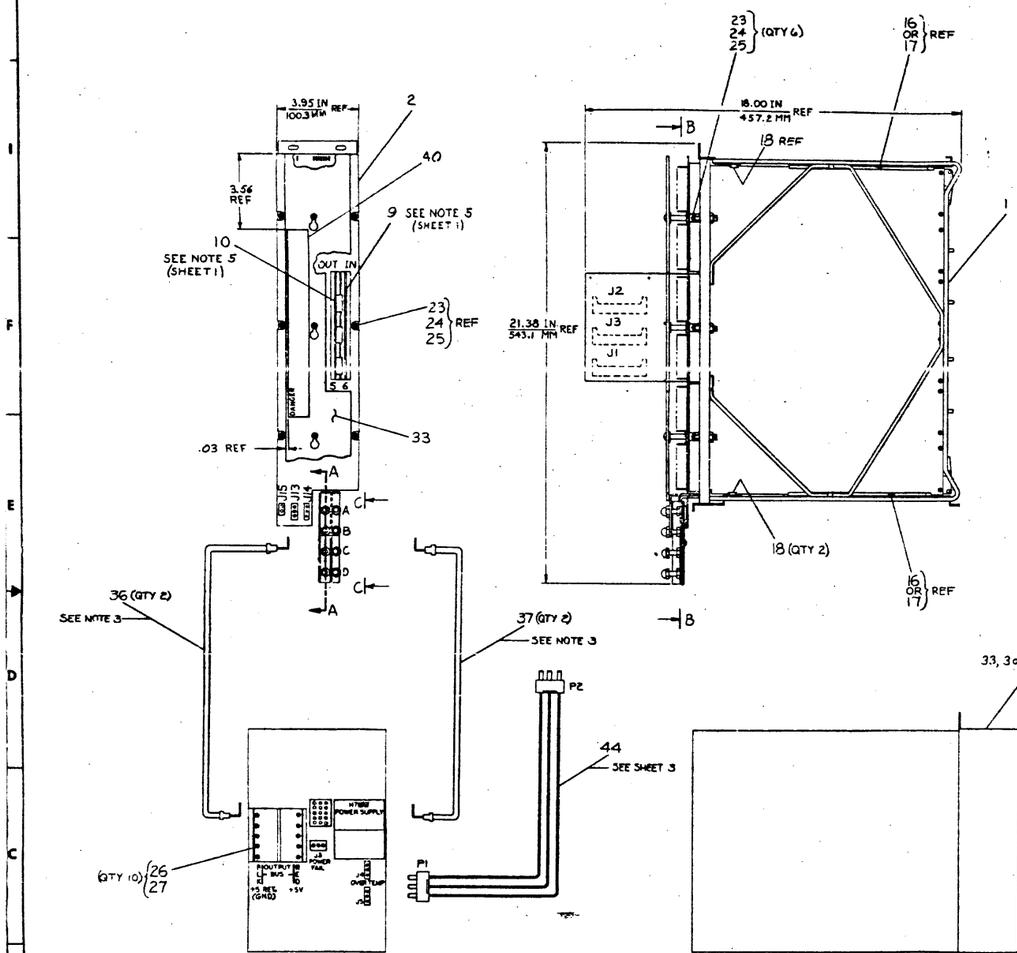
SHEET 3 OF 3 | SIZE B | CODE DD | NUMBER DW78Ø-Ø | REV C

DRB 108A

LEGEND	
NUMBER	VARIATION
DW78Ø	11780 UNIBUS ADAPTOR
DW78Ø-AA	DW78Ø-H7188-A P.S. H7101-L - REG. 115 VAC 50/60 HZ
DW78Ø-AB	DW78Ø-AA EXCEPT H7101-B P.S. 230 VAC 50/60 HZ

NOTES: (PERTAINS TO SHEET 1 ONLY)

1. CARD GUIDES TO BE INSTALLED AS FOLLOWS: ITEM #16 IN ROWS 1,3 & 5; ITEM #17 IN ROWS 2,4 & 6.
2. FOR SYSTEM AC INTERCONNECT SEE D-IC-11780-0-1
3. FOR SYSTEM INTERCONNECT. SEE D-IC-11780-0-3
4. FOR SYSTEM CABLE INTERCONNECT SEE E-IC-11780-0-2
5. FOR DW780 MODULE UTILIZATION SEE D-MU-DW780-0-4
6. FOR ORIENTATION OF POWER SUPPLY & REGULATORS REFER TO: E-UA-H7188-0-0
7. FOR PLACEMENT OF DECAL #3619748-00 REF. TO CABINET CONFIGURATION GUIDE LINES.



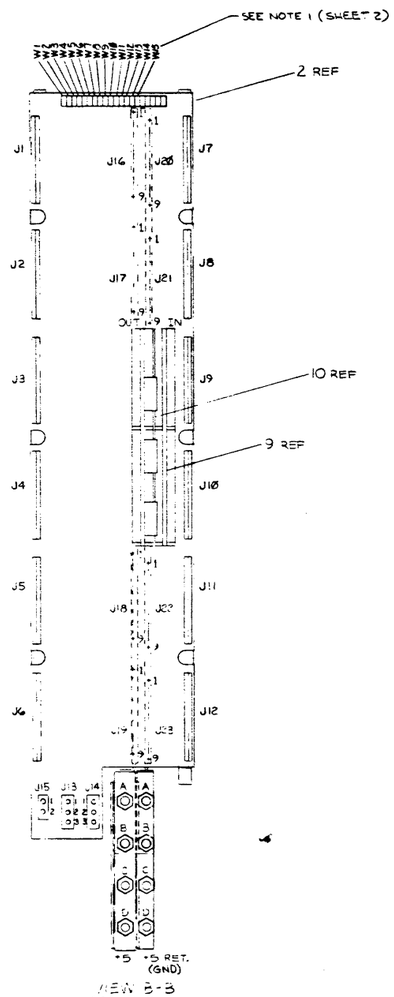
CAUTION: PARTS LIST EXIST
REFER TO K-PL-DW780-0-DBP

SIZE	E
TITLE	11780 UNIBUS ADAPTOR ASSY (DW78Ø)
NUMBER	DW780-0-0
REV	
SCALE	1/2
SHEET	1 OF 3
DRAWN	VA
CHECKED	
ENGR	
PROJ ENGR	
PROD	
QUALITY	
MFG	11780
DATE	

PARTS LIST

NOTES: (PERTAINS TO SHEET 2 ONLY)

1. INSTALL JUMPER PLUGS AS PER TABLES 1, 2, 3. INSTALL REMAINING JUMPER PLUGS ON ANY OF THE FOLLOWING PINS W9 THROUGH W16.
2. STANDARD CONFIGURATION IS TR# 3 (TABLE 1) ADAPTOR #0 (TABLE 2) REQUEST LEVEL 4 (TABLE 3)



VIEW B-B
SCALE 1
SHOWN WITH MTG. HARDWARE & ITEM NO. 33 REMOVED

BUS BAR CONNECTIONS

+5V	GND
J16 1-9	J20 1-9
J17 1-9	J21 1-9
J18 1-9	J22 1-9
J19 1-9	J23 1-9

TABLE 1 (SEE NOTES 1&2, SHEET 2)
UBA TR ARBITRATION LEVEL SELECTION

TR #	W3 (USIC TR SEL A L)	W4 (USIC TR SEL B L)	W5 (USIC TR SEL C L)	W6 (USIC TR SEL D L)	WIRE WRAPPED TR ARBITRATION SIGNAL BUS TR L	BUS SBI TR# L
1	—	—	—	—	D01R2 —	F01C1
2	I	—	—	—		F01D1
3	—	I	—	—		F01E1
4	I	I	—	—		F01F2
5	—	—	I	—		F01H2
6	I	—	I	—		F01J1
7	—	I	I	—		F01J2
8	I	I	I	—		F01M1
9	—	—	—	I		F01N1
10	I	—	—	I		F31P1
11	—	I	—	I		F01P2
12	I	I	—	I		F01S2
13	—	—	I	I		F01T2
14	I	—	I	I		F01U1
15	—	I	I	I	D01R2 —	F01U2
16	I	I	I	I	—	—

UBA JUMPER SELECTION
I = JUMPER PLUG IN
(SIGNAL LOW TRUE)

MATE-N-LOK CONNECTIONS

CONN.	PS AC LO L	PS DC LO L	-5V	GND	
J15	NC	NC	1	2	
J13	1	2	NC	3	
J14	1	2	NC	3	

NC = NO CONNECTION

TABLE 2 (SEE NOTES 1&2 SHEET 2)
UBA UNIBUS ADDRESS SPACE SELECTION

ADAPTOR #	W1 (USID ADAPTOR 1 L)	W2 (USID ADAPTOR Ø L)
Ø	—	—
1	—	I
2	I	—
3	I	I

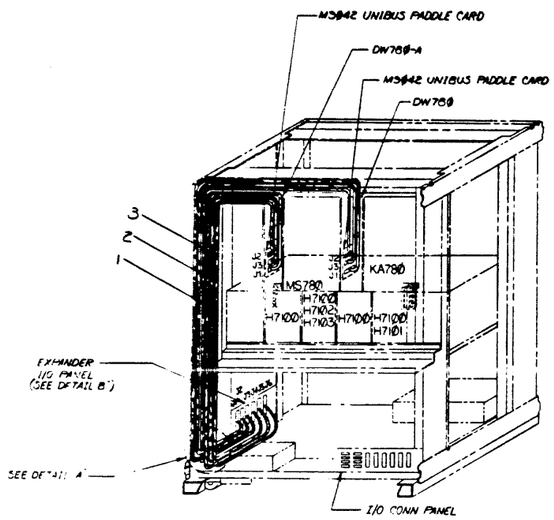
UBA JUMPER SELECTION
I = JUMPER PLUGIN
(SIGNAL LOW TRUE)
TABLE 2 (SEE NOTES 1&2, SHEET 2)

TABLE 3 (SEE NOTES 1&2 SHEET 2)
UBA INTERRUPT LEVEL SELECTION

REQUEST LEVEL	W7 (UAIF SBI PRI JMP Ø L)	W8 (UAIF SBI PRI JMP 1 L)
4	—	—
5	I	—
6	—	I
7	I	I

UBA JUMPER SELECTION
I = JUMPER PLUGIN
(SIGNAL LOW TRUE)

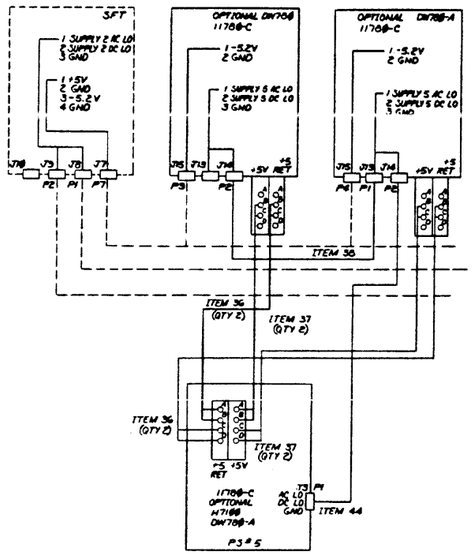
TITLE: 11/780 UNIBUS ADAPTOR ASSY (DW780)	SIZE: B	DRAWING NO: DW780-0-0	REV: E
SCALE: —	SHEET 2 OF 3		

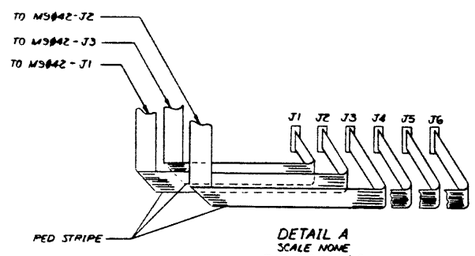


11780-C CABINET
REAR VIEW
SEE NOTES 1 & 2

ITEM NO (REF ONLY)	11780-C			
	PART NO	DESCRIPTION	FROM	TO
1	70136-22-00	CABLE, RIBBON UNIBUS	M3842 - J2	EXP I/O CONN - J6
2			M3842 - J3	EXP I/O CONN - J4
3			M3842 - J1	EXP I/O CONN - J5

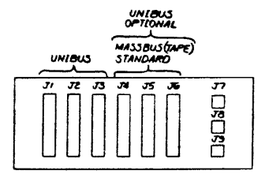
NOTES:
1. ALTHOUGH THESE VIEWS ARE BEING USED AS A BASIS FOR SHOWING THE LOCATION AND INTERCONNECT OF ADDITIONAL UBA'S (DW780) WITHIN THE 11780-C CABINET, THIS REPRESENTATION WOULD ALSO APPLY TO THE USE OF THE CPU EXPANDER CABINET (H3682-H) FOR UBA EXPANSION. SEE (D-AR-H3682-H) AND (E-UA-11780-0-0) FOR MORE INTER-CONNECT DETAIL AND INFORMATION
2. WITH THE EXCEPTION OF THE TYPE OF PADDLE CARD USED, THE CABLE ROUTING AND FOLDS FOLLOW THE SAME GENERIC METHODS USED FOR THE STANDARD DW780. SEE (E-UA-11780-0-0).
3. NORMALLY THE I/O PANEL (CAB-CAB) SLOTS (J4, J5 & J6) ARE ASSIGNED TO MASSBUS (TAPE) IN THE 11780-D SYSTEM. IN THE 11780-C SYSTEM, THESE SLOTS ARE AVAILABLE FOR UBA (DW780) EXPANSION.





DETAIL A
SCALE NONE
TYP FOR 11780-C
(SEE NOTES 1, 2 & 3)

MULTIPLE UBA CONFIGURATIONS



DETAIL B
VIEWED FROM INSIDE OF CABINET
(SEE NOTES 1 & 3)

TITLE	11780 UNIBUS ADAPTER ASSY (DW780)			
SCALE NONE	SHEET 1 OF 3	SIZE E	UA	DW780-0-0	REV. E

AUTOMATED BY PRTLST.3P(44)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QUANTITY PER VARIATION 00	AA	AB
1	1	E-IA-7013712-0-0	7013712-00	CARD CAGE MBA/UBA	1	1	1
2	2	E-IA-7013626-0-0	7013626-00	BACKPLANE ASSY (UBA)	1	1	1
3	3	E-UA-H7100-0-0	H7100-A	11780 500 WATT SUPPLY: 5V 100A,1	0	1	0
4	4	E-UA-H7100-0-0	H7100-B	11780 500-WATT SUPPLY: 5V 100A,2	0	0	1
5	5	D-UA-M8270-0-0	M8270-00	YSI SBI INTERFACE	1	1	1
6	6	E-UA-M8271-0-0	M8271-00	YMD UNIBUS MAP AND DATA PATH	1	1	1
7	7	D-UA-M8272-0-0	M8272-00	UNIBUS ADAPTER ADDRESS	1	1	1
8	8	E-UA-M8273-0-0	M8273-00	UNIBUS ADAPTER CONTROL	1	1	1
9	9	D-UA-M9044-0-0	M9044-00	UBA UNIBUS TERMINAL	1	1	1
10	10	D-UA-M9042-0-0	M9042-00	UNIBUS PADDLE CARD	1	1	1
11	11	D-IA-7014103-0-0	7014103-00	BLANK MODULE ASSY	2	2	2
12	12	B-MD-7418902-0-0	7418902-00	STUD PLATE BUS BAR ADAPTER	2	2	2
13	13	B-MD-7418903-0-0	7418903-00	U-BAR	1	1	1
14	14	B-MD-7419084-0-0	7419084-00	PLATE, HOLDING	2	2	2
15	15	B-MD-7419485-0-0	7419485-00	COVER, BUS BAR MEMORY	1	1	1
16	16		1212405-00	CARD GUIDE,NYLON	6	6	6
17	17		1212405-01	CARD GUIDE,NYLON	6	6	6
18	18		1211630-00	CARD GUIDE	2	2	2
19	19		9006610-00	NUT,CAP , 10-32 X7/16AF REL	8	8	8
20	20		9006565-00	NUT,KEP , 10-32X 3/8 AF	8	8	8
21	21		9008032-01	SCREW,PAN,PHIL 4-40X 3/16 SS	4	4	4
22	22		9006655-00	WASHER, FLAT, .312 O.D. X .125 I	4	4	4
23	23		9006043-01	SCREW,PAN,PHIL 8-32X1 SS	6	6	6
24	24		9006660-00	WASHER, FLAT, .375 O.D. X .187 I	6	6	6
25	25		9006563-00	NUT,KEP , 8-32 X11/32AF	6	6	6
26	26		9006073-01	SCREW,PAN,PHIL 10-32X 1/2 SS	10	10	10
27	27		9007906-00	WASHER, LOCK S.S. #10	10	10	10
28	28	D-IC-11780-0-3		11780 SUB SYSTEM INTERCONNECT	REF	REF	REF
29	29	D-IC-11780-0-2		11780 SYSTEM INTERCONNECT DIAGRA	REF	REF	REF
30	30	D-IC-11780-0-1		11780 SYSTEM POWER DIAGRAM	REF	REF	REF

REVISION HISTORY			BASIC PART NO: DW780										
ENG	ECO NUMBER	REV	SECTION A OF A	DRN: H. DARAKJIAN	DATE: 24-JUN-81		D	I	G	I	T	A	L
	INITIAL	-	SECTION. VARIATION INDEX	CHK'D: H. DARAKJIAN	DATE: 24-JUN-81	TITLE	PARTS LIST						
DR	DW780-TW005	E	[A] 00,AA,AB			11780 UNBS ADPT ASSY (DW780)							
			[B]	DES.ENG.: D. RAINVILLE	DATE: 24-JUN-81								
			[C]			DOCUMENT NUMBER							
			[D]	RESP.ENG.: D. RAINVILLE	DATE: 24-JUN-81	SIZE	CODE	NUMBER		REV			
			[E]	MFG.ENG.: B. CARLEY	DATE: 24-JUN-81	K	PL	DW780-0-DBP		E			
			[F]	ASSEMBLY NUMBER: E-UA-DW780-0-0	TOP DOCUMENT NUMBER: B-DD-DW780-0-0			FILE NAME: Z2608.PLS		EDIT # 6			

*THIS DRAWING AND SPECIFICATIONS HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT (C) 1981, DIGITAL EQUIPMENT CORPORATION *

TW

AUTOMATED BY PRTLST.3P(44)

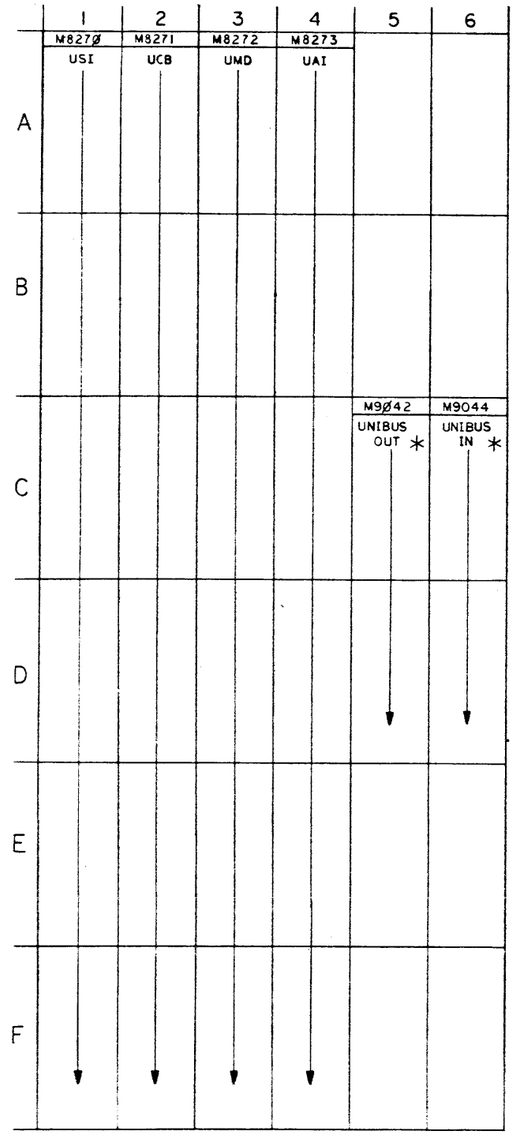
P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QUANTITY PER VARIATION 00	AA	AB
31	31	D-MU-DW780-0-2		DW780 MODULE UTILIZATION	REF	REF	REF
32	32		3613281-03	LABEL,ADHESIVE BACK FOR BA11-K	2	2	2
33	33	C-MD-7419457-0-0	7419457-00	COVER, U.B.A. BACKPLANE	1	1	1
34	34		1700087-00	CABLE,RIBBON,20 COND. ASSY FLAT	6	6	6
35	35		7013622-00	UNIBUS CABLE	3	3	3
36	36	D-IA-7014249-0-0	7014249-1A	POWER CABLE, BLACK	2	2	2
37	37	D-IA-7014530-0-0	7014530-1A	CABLE PCWER RED	2	2	2
38	38	D-IA-7014212-0-0	7014212-0H	CABLE AC,DC,LOW	1	0	0
39	39		1214314-00	CONN 2POS JUMPER	8	8	8
40	40		3615087-02	LABEL,"DANGER-HIGH CURRENT"	1	1	1
41	41		7014213-0K	CAB OVER TEMP	0	1	1
42	42		9009642-00	SCREW,PAN,PHIL,SEMS 8-32X .25 L	4	5	5
43	43		3614748-00	LABEL,ADHESIVE BACK FOR DW770	1	1	1
44	44	D-IA-7014212-0-0	7014212-0M	CABLE AC,DC,LOW	0	1	1
45	45	D-UA-M9014-0-0	M9014-00	ADAPTOR BOARD	0	1	1
46	46	D-CS-M9302-0-1		UNIBUS TERMINATOR	0	1	1
47	47	D-AD-7014246-0-0	7014246-15	INTERNAL UNIBUS CABLE ASSY.	0	1	1

D	I	G	I	T	A	L	TITLE	SECTION	SIZE	CODE	DOCUMENT NUMBER	REV
							11780 UNBS ADPT ASSY (DW780)	A OF A	K	PL	DW780-0-DBP	E

TW

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 , DIGITAL EQUIPMENT CORPORATION"



NOTE:

* MODULES PLUG IN FROM PIN SIDE

REVISIONS	REV.	CHANGE NO.	CHK.

DRN. AFM	10-20-77	FIRST USED ON VAX 11780	digital
CHK'D Fagan	10-19-77		
ENG Bob Conlon	10-27-77	TITLE MODULE UTILIZATION UNIBUS ADAPTOR	
PROJ. ENG Mike Rad	10-27-77		
PROD. Brent Lee	11/9/77		
NEXT HIGHER ASSY.			
B-DD-DW780-0		SIZE D / CODE MU / NUMBER DW780-0-2	REV.
SCALE 1=1			
SHEET 1 OF 1		DIST.	

DMU DW780-0-2 REV.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

USI M8270

SBI B <31:00>
SBI MASK <3:0>
SBI TAG <2:0>
SBI ID <4:0>
SBI TR <15:00>
SBI REQ <3:0>
SBI UNJAM
SBI DEAD
SBI INTERLOCK

SBI

SBI DEAD, UNJAM

SBI INTER-FACE

REQ <7:4>
RCV MASK
REQ MSK XCV

REC B <31:00>
CNFGR REC
DCR
BUS T <31:00>
IB RCV
INTERRUPT SUMMARY RESPONCE
SBI FUNCTION ADDRESS DECODE
T MASK
MSK SB XCVR
* BUS MSK-SB
4

SBI TRANSMIT LOGIC

MSK SB XCVR
MASK
SBI FUNC MASK ENCODE
FUNC <3:0>

UCB M8271

UMD M8272

BUS REQ MSK * / 4

IB RCV
BUS IB <31:30> *
UMD RECV IB <31:30>
SBI REGISTER ADDRESS STORE
RCV READ DATA-WRITE DATA ETC F
UNIBUS WRITE DATA STORE
BUS D OUT
REC DATA LATCH
UMD ID <31:00>
BUS AD <15:00>

UNIBUS TO SBI ADDRESS MAP
FMER
BDP SRC MUX
ZERO
DIRECT DATA PATH BUFFER DATA PATH BRSVR'S BRRVR'S
DP RAM AND SHIFTERS
DP ADD <5:2>
BDP NO. IN <3:0>
STORED BDP
BDP MASK AND STATE
COUNTER

SB SEL
UBA MICRO CONTROL LOGIC
U B ATT SEL
DMA ATT SEL
DMA OPERATION DECODE
MAP ADDRESS RANGE
SBI DEAD, UNJAM
UBA POWER FAIL AND INITALIZATION LOGIC
UNIBUS ACLO
UNIBUS DCLO
POWER SUPPLY ACLO, DCLO
UNIBUS BUS INIT

UNIBUS D <15:00>

UNIBUS DATA TRANSCEIVERS
RECV D <15:00>

UAI M8273

REG MSK XCV
BR XCVR
BUS BR IN <7:4> (BUS OUT)
BUS BR OUT <7:4> (BUS IN)

IB RCV
UAI RECV IB
CONTROL REG
STATUS REG
UNIBUS CONTROL ADDRESS ENCODER AND STORE
FUBAR
UNIBUS CONTROL ADDRESS TRANCEIVERS
UNIBUS A<17:00>
UNIBUS C<1:0>

ADDRESS HOLD
UNIBUS ADDRESS DECODE

M9044 UBT
UNIBUS BUS IN
UNIBUS BUS OUT
UBA

UBA TO UNIBUS ARBITRATION AND MASTER CONTROL
MSYN
SSYN
BBSY
BUS INTR IN (BUS OUT)
BUS INTR OUT (BUS IN)

UNIBUS INTERRUPT CONTROL
BUS NPR IN (BUS OUT)
BUS NPG OUT (BUS OUT)
BUS SACK IN (BUS OUT)
BUS BG OUT (BUS OUT)
BUS BG IN <7:4> (BUS IN)
BUS SACK OUT (BUS IN)
BUS NPG IN (BUS IN)
BUS NPR OUT(BUS IN)

UNIBUS IN
UBT M9044
INSERTED INTO UNIBUS IN OF UBA
BUS NPR
BUS NPG
BUS SACK
BUS DCLO
BUS INIT
BUS BG <7:4>
(GROUND)

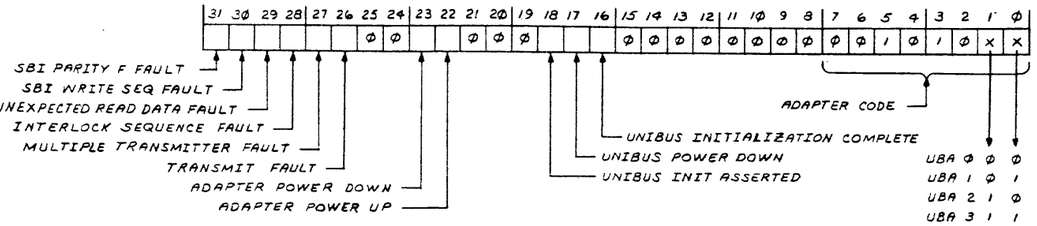
* NOTE: BUS IB, BUS REQ MSK, AND BUS MSK SB ARE TRI STATE-TIME MULTIPLEXED BUSSES
AT T3-T0 INFORMATION IS ENABLED FROM THE USI BOARD (50hs)
AT T1-T2 INFORMATION IS ENABLED FROM: UAI BOARD FOR BUS REQ MASK, UCB BOARD FOR BUS MSK SB,
AND FROM UMD OR UAI WHEN REQUIRED FOR BUS IB.

REVISIONS		
CHK	CHANGE NO.	REV.

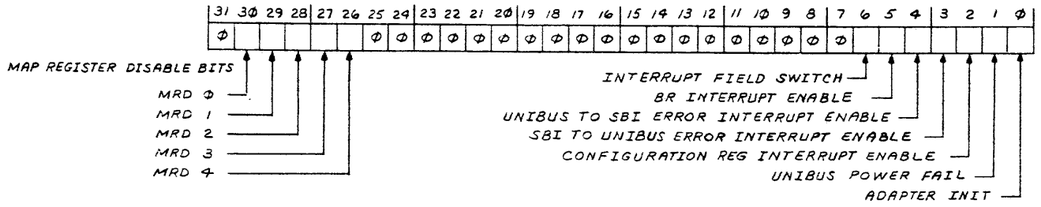
DRN. J Vincent	10-20-77	FIRST USED ON: VAX 11780
CHK'D T Leyon	11-5-77	TITLE: UBA BLOCK DIAGRAM
ENG. L Cook	7 NOV 77	
PROJ. ENG. [illegible]	7 NOV 77	
PROD. [illegible]	11-15-77	
NEXT HIGHER ASSY.		
B-DD-DW780-0		SIZE D, CODE BD, NUMBER DW780-0-3, REV.
SCALE		
SHEET 1 OF 3		DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

UBA CONFIGURATION REGISTER (UBA CNFGR) ADDRESS = 200XY*000

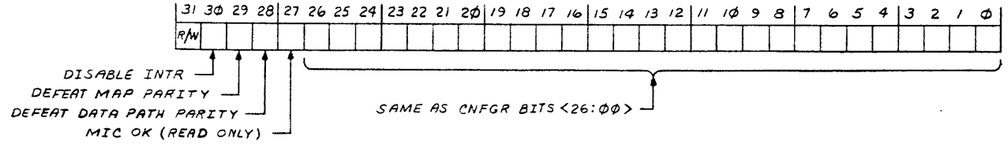


UBA CONTROL REGISTER (UBACR) ADDRESS = 200XY*004

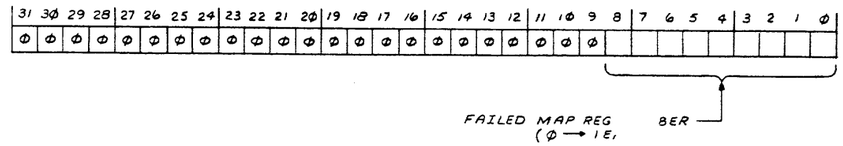


UBA STATUS REGISTER (UBASR) ADDRESS = 200XY*008

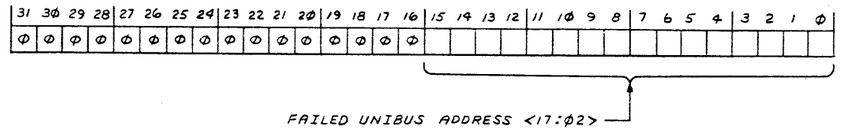
UBA DIAGNOSTIC CONTROL REGISTER (DCR) ADDRESS = 200XY*00C



UBA FAILED MAP ENTRY REGISTER (FMER) ADDRESS = 200XY*010 (OR) 200XY018

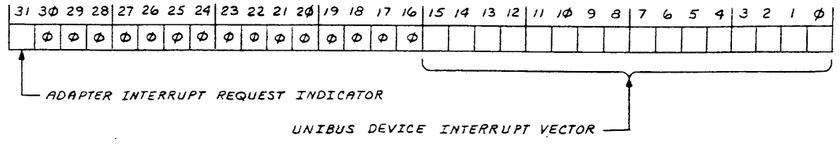


UBA FAILED UNIBUS ADDRESS REG (FUBAR) ADDRESS = 200XY*014 (OR) 200XY01C



UBA BUFFER SELECTION VERIFICATION REGISTER (BRSVR) ADDRESS = 200XY*020 = BRSVR 0; 200XY024 = BRSVR 1; 200XY028 = BRSVR 2; 200XY02C = BRSVR 3

UBA BR RECEIVE VECTOR REGISTER (BRRVR) ADDRESS = 200XY*030 = BRRVR 4; 200XY034 = BRRVR 5; 200XY038 = BRRVR 6; 200XY03C = BRRVR 7



* SEE ADDRESSING NOTE ON PAGE 3

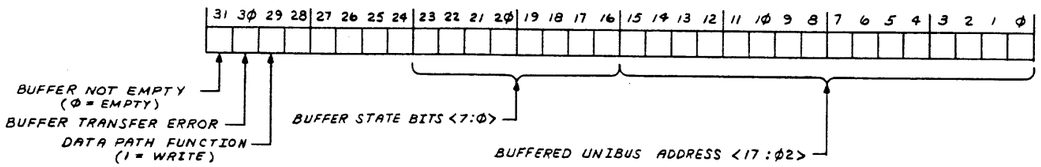
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA BLOCK DIAGRAM	D	BD	DW780-0-3	
SCALE —	SHEET 2 OF 3	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

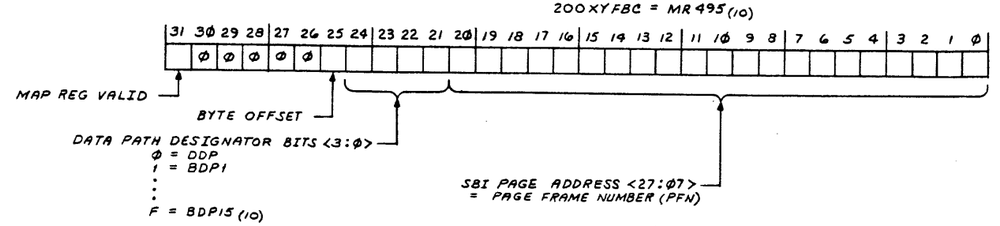
UBA DATA PATH REGISTER (DPR Ø → 15)

ADDRESS = 200XY040* = DPA Ø
200XY044 = DPA 1
⋮
200XY07C = DPA 15



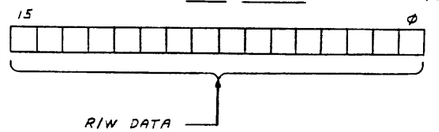
UBA MAP REGISTERS (MR Ø → 495 (10))

ADDRESS = 200XY800* = MR Ø
200XY804 = MR 1
⋮
200XYFBC = MR 495(10)



UNIBUS ADDRESS SPACE ($128_{(10)}$ K WORDS)

WORD ADDRESS = 201XXXXX(16)**



* ADDRESSING NOTE
VALUES OF X,Y FOR TR NUMBER OF UBA

TR NUMBER	X	Y
1	Ø	2
2	Ø	4
3	Ø	6
4	Ø	8
5	Ø	A
6	Ø	C
7	Ø	E
8	1	Ø
9	1	2
1Ø	1	4
11	1	6
12	1	8
13	1	A
14	1	C
15	1	E

** UBA ADAPTER CODE (FROM CNFGR) AND UNIBUS ADDRESS SPACE FOR EACH UBA

UBA NUMBER	ADAPTER CODE	UNIBUS ADDRESS SPACE(HEX)
Ø	28	20100000-2013FFFE
1	29	20140000-2017FFFE
2	2A	20180000-2018FFFE
3	2B	201C0000-201FFFFE

REVISIONS

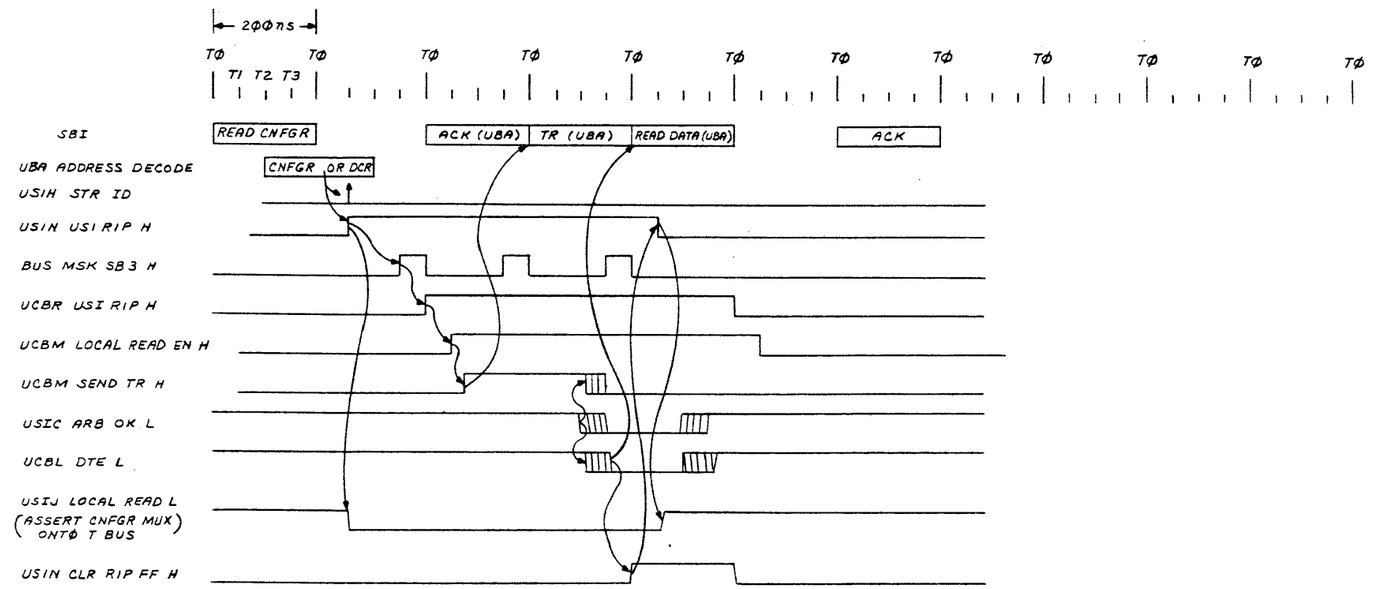
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA BLOCK DIAGRAM	D	BD	DW78Ø-Ø-3	
SCALE —// — SHEET 3 OF 3	DIST.			

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 , DIGITAL EQUIPMENT CORPORATION"

SBI READ TO CNFGR OR DCR

(MICROSEQUENCER NOT USED)



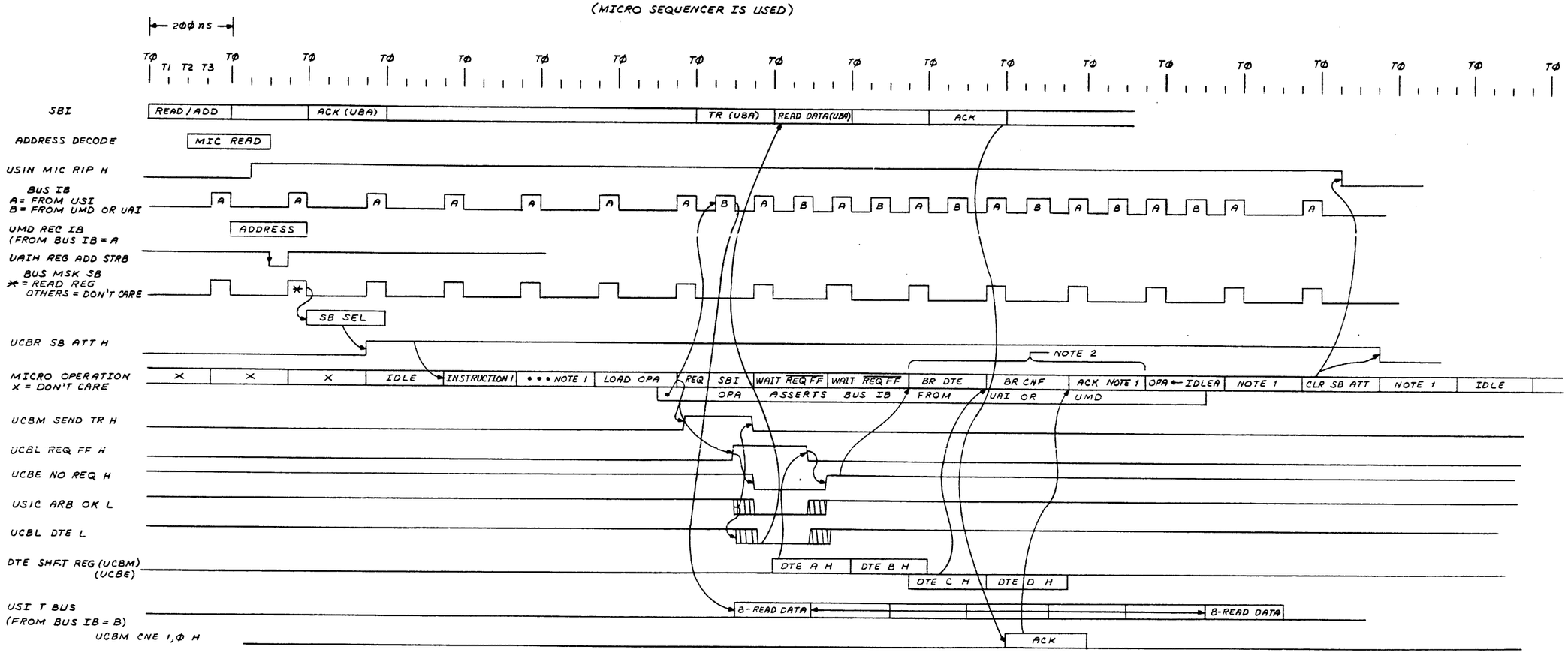
DRN. J. Vincent	10-18-77	FIRST USED ON: VAX 1178Ø
CHK T. Tessoro	11-8-77	TITLE: UBA TIMING DIAGRAM
ENG. Rick Conte	11-8-77	
PROJ. ENG. Rick Conte	11-8-77	
PROD. Print Eng.	11/8/77	
NEXT HIGHER ASSY.	8-DD-DW78Ø-Ø	
SCALE — "	SIZE D	CODE TD
SHEET 1 OF 5	DIST.	NUMBER DW78Ø-Ø-4 REV.

REVISIONS: REV. | CHANGE NO. | CHK

DTD DW78Ø-Ø-4

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

SBI READ TO REGISTERS OTHER THAN CNFGR AND DCR
(MICRO SEQUENCER IS USED)



NOTE 1. THE NUMBER OF STATES REPRESENTED BY THESE BOXES MAY BE DIFFERENT FOR EACH ROUTINE.

NOTE 2. THESE STATES MAY NOT BE PRESENT IN ALL RETURN READ DATA ROUTINES.

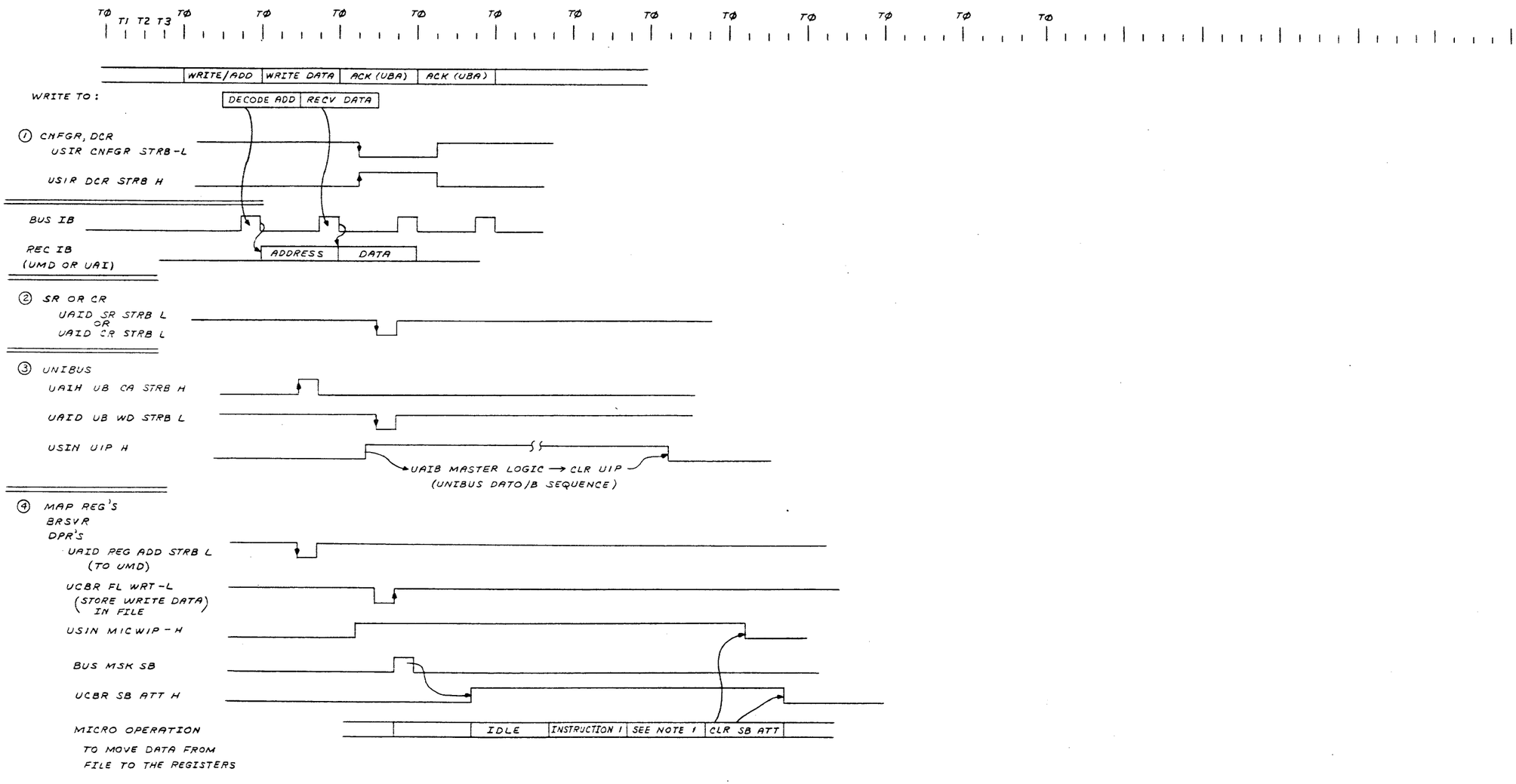
(SBI READ TO INTERNAL REGISTERS)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA TIMING DIAGRAM	D	TD	DW78Ø-Ø-4	
SCALE —/— SHEET 2 OF 5	DIST.			

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

SBI TO UBA OR UNIBUS WRITES

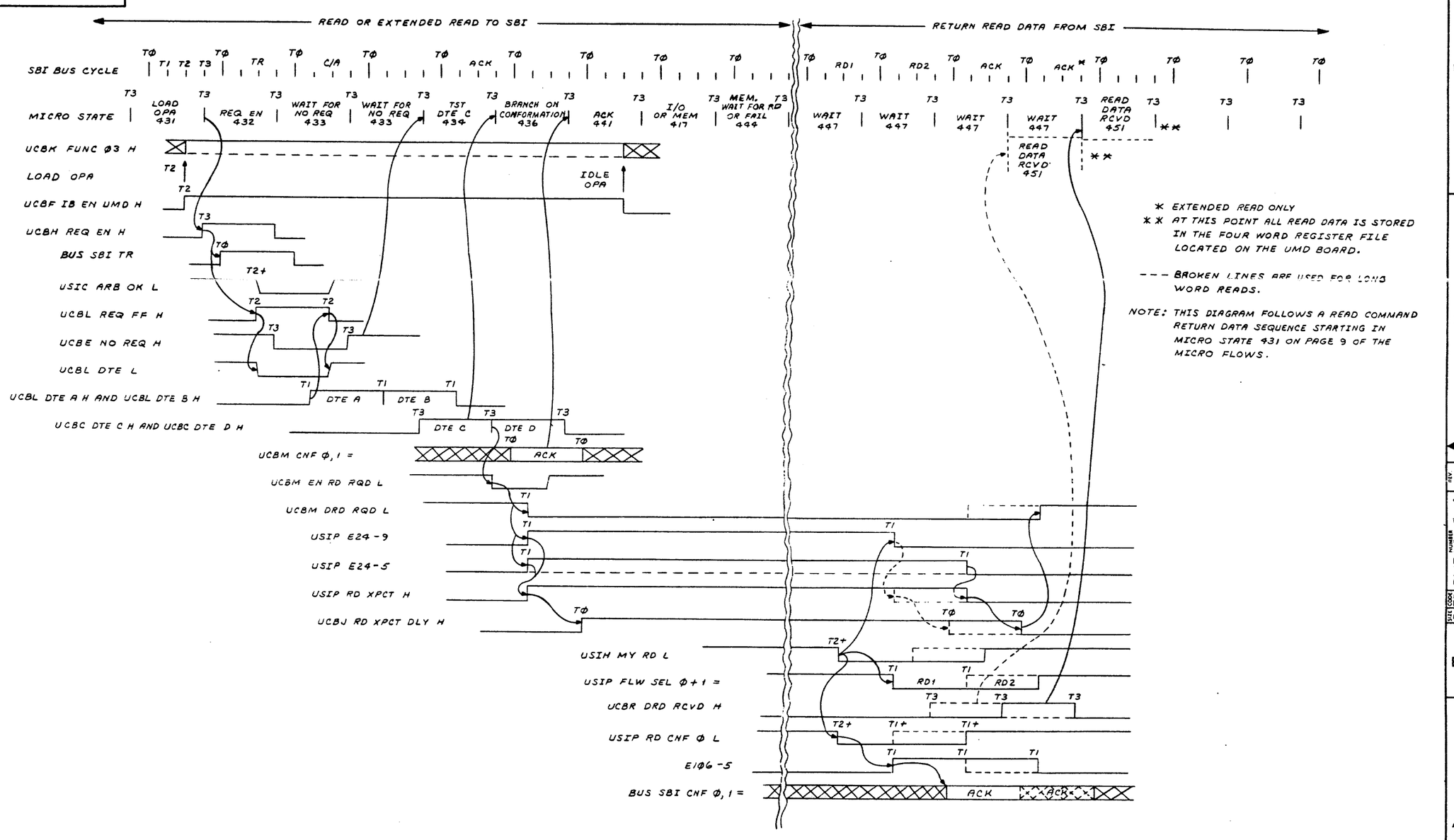


(SBI WRITES TO UBA OR UNIBUS TIMIMG)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA TIMING DIAGRAM	D	TD	DW78Ø-Ø-4	
SCALE —H— SHEET 3 OF 5	DIST.			

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"



* EXTENDED READ ONLY

** AT THIS POINT ALL READ DATA IS STORED IN THE FOUR WORD REGISTER FILE LOCATED ON THE UMD BOARD.

--- BROKEN LINES ARE USED FOR LONG WORD READS.

NOTE: THIS DIAGRAM FOLLOWS A READ COMMAND RETURN DATA SEQUENCE STARTING IN MICRO STATE 431 ON PAGE 9 OF THE MICRO FLOWS.

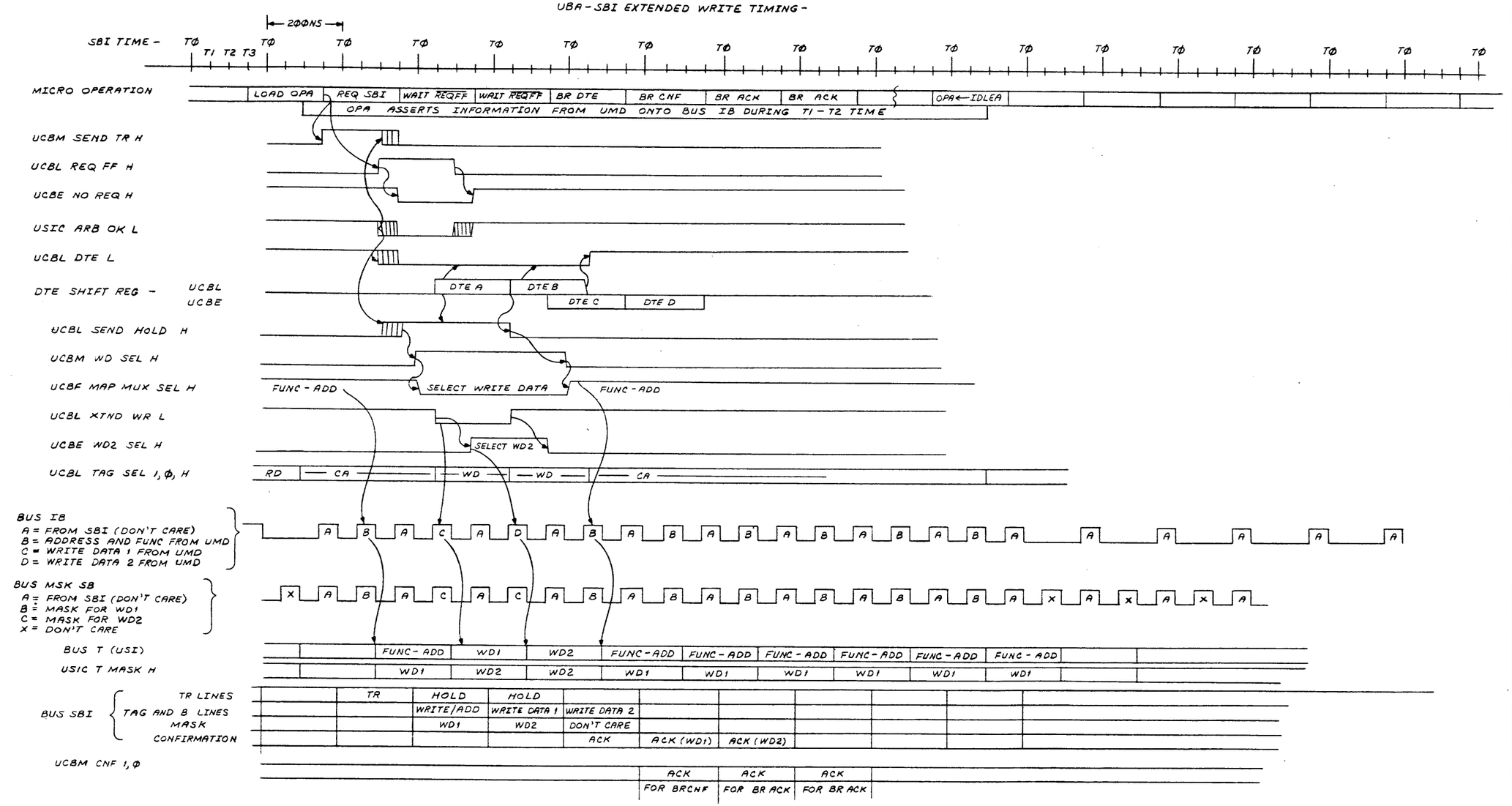
(UBA TO SBI READ, AND EXTENDED READ SEQUENCE)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA TIMING DIAGRAM	D	TD	DW78Ø-Ø-4	
SCALE —//	SHEET 4 OF 5	DIST.		

THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©, 1977 DIGITAL EQUIPMENT CORPORATION

UBA - SBI EXTENDED WRITE TIMING -



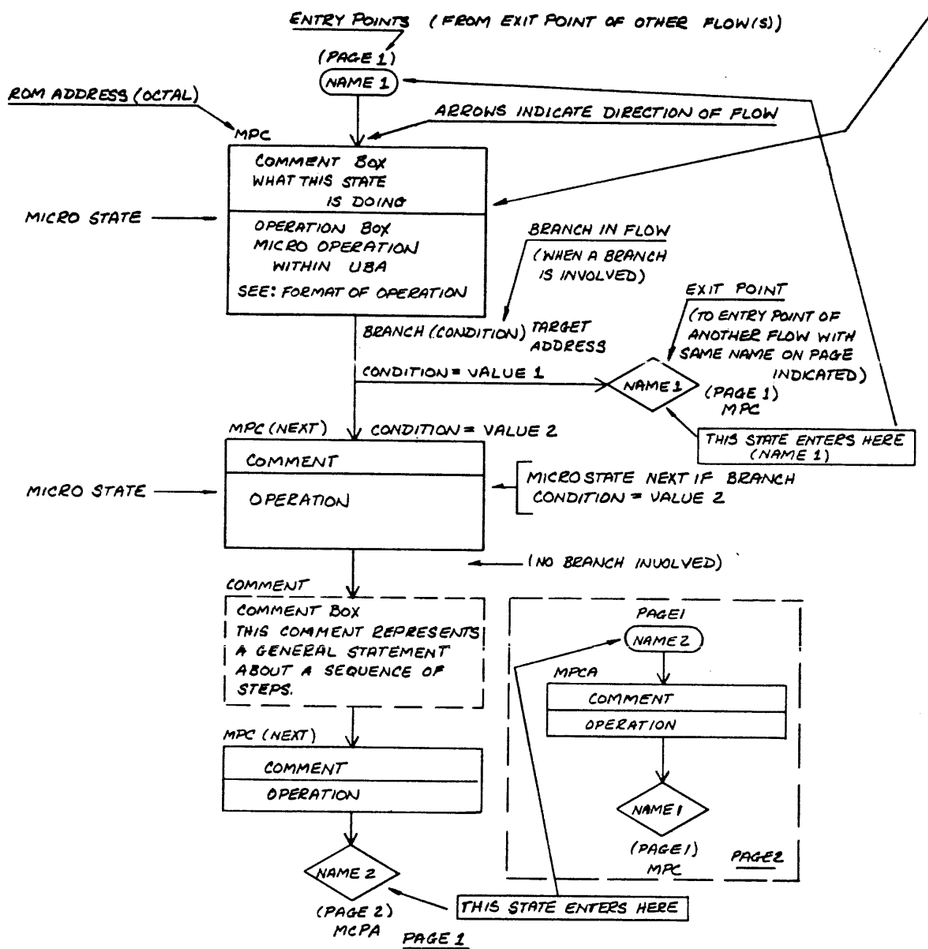
(UBA TO SBI EXTENDED WRITE SEQUENCE)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA TIMING DIAGRAM	D	TD	DW78Ø-Ø-4	
SCALE —	SHEET 5 OF 5		DIST.	

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977, DIGITAL EQUIPMENT CORPORATION"

UBA MICRO FLOW ORGANIZATION



NOTE: THE UBA MICRO FLOWS SHOW ONLY THE FLOWS OF THE CONTROL OPERATIONS. THE MICRO OPERATIONS OF THESE FLOWS ACCOUNT FOR ALL THE ROM FIELDS OF THE CONTROL STORE ROM IN SYMBOLIC NOMENCLATURE. THE UCB MICRO SEQ GUIDE (MB271 PRINT SET) SHOWS ALL OF THE ROM FIELDS AND THE VALUES REQUIRED TO PERFORM THE OPERATIONS DESCRIBED IN THESE FLOWS. THE "OCTAL REPRESENTATION OF UCB CONTROL STORE" (MB271 PRINT SET) SHOWS THE ACTUAL VALUE OF THE CONTROL STORE ROM FOR EACH ROM ADDRESS.

FORMAT OF OPERATION BOX

1. MOVE
   DESTINATION ← SOURCE
2. VALUE OF A ROM FIELD
   (WHEN OTHER THAN IDLE STATE AND NOT AFFECTED BY OTHER OPERATIONS OF THIS STATE. USED FOR PREPARATION FOR NEXT STATE OR TO LOCK OUT DMA ATTENTION FOR THIS STATE)
   ROM FIELD = VALUE
3. BUS ASSERTION (FOR OTHER THAN A MOVE TO A REGISTER)
   BUS ←(A) SOURCE
4. LOAD OPA: VALUE OF OPA FIELDS WHEN OTHER THAN IDLE STATE ARE LISTED BELOW "LOAD OPA:".
5. LOAD OPB: VALUE OF OPB FIELDS WHEN OTHER THAN IDLE STATE ARE LISTED BELOW "LOAD OPB:".
6. CHANGE STATE: THE NEW VALUES OF BNE (BSTATE), BTE AND BFNC ARE LISTED BELOW "CHANGE STATE:". ONLY THE VALUES CHANGED ARE LISTED. ALL OTHERS REMAIN UNCHANGED.
7. CHANGE MASK: SETS AND CLEARS MASK BITS. ALL MASK BITS ARE CLEARED BY CLEAR MASK. MASK BITS ARE SET INDIVIDUALLY OR IN PAIRS AS INDICATED BY THE MASK ROM PATTERN (UCB MICRO SEQ GUIDE) FORMAT—
   MSK ROM ← SMSK 3, 2
   SETS MASK BITS 2 AND 3 (THESE ARE THE BUFFER STATE BITS OF THE DATA PATH REG.) ONLY THE BITS INDICATED BY SMSK ARE CHANGED. ALL OTHER BITS REMAIN UNCHANGED.

NOTATION FOR DP RAM ACCESS

(REFER TO UCB PRINTS – DP RAM ORGANIZATION)

BYTE POSITIONS SHOWN BY * BELOW
DPA (FUNCTION OF BSS) 01, 11, 21, 31

HORIZONTAL POSITION DETERMINED BY DSS
VERTICAL POSITION DETERMINED BY
LAD FOR BYTE Ø, 1, 2
HAD FOR BYTE 3

	LAD			HAD
3	03	13	23	33
2	02	12	22	32*
1	01*	11*	21*	31
Ø	00	10	20	30
	Ø	1	2	3 — BYTE

IDLE STATE ROM FIELDS

CFD = NO OP
CFS = NO OP
CFB = NO OP
CFA = NO OP
DSS = NO SHIFT
DMS = ID (UMDA FILE)
HAD = Ø
LAD = Ø
FRS = ADPT WD
MAS = BUS AD
MWS = MAP HI
BSS = BDP NUM (FROM MAP)
BRG, BRS } = NO BRANCH

FUNCTIONS OF OPA-OPB

OPA — • BUS IB CONTROL AT T1-T2 TIME.
• SBI TRANSMIT FUNCTION (OP CODE ON UCB MICRO SEQ GUIDE)
• DP MUX ENABLE
COUNTER INCREMENT CONTROL
OPB — • BUS AD CONTROL
• MAP DATA ENABLE AND UCBN AD MUX AND UCBF BDP NO. IN SELECTS

IDLE STATE OF OPA (IDLEA)

OP CODE = Ø (No SBI OPERATION)
MIC STATE = Ø
DP MUX DISABLE = Ø (ENABLED)
IB EN = Ø (BUS IB DISABLED DURING TIME T1-T2)
CNTR INC = 1 (ENABLED)

IDLE STATE OF OPB (IDLEB)

BUS AD = ADD HLD (UNIBUS ADDRESS)
CNTR SEL, MAP DATA DISABLE (MDS) = Ø
(MAP DATA ENABLED
UCB AD MUX SELECTS
DATA PATH REG CONTENS
(MASK AND STATE BITS))

(MICRO FLOW FORMAT AND ORGANIZATION)

DRN. L CHILDS	10-12-77	FIRST USED ON	digital
CHK'D	(1st)	VAX 1178Ø	
ENG.	7Apr77	TITLE	
PROJ. ENG.	7Apr77	UBA MICRO FLOW	
PROD.	11/8/77		
NEXT HIGHER ASSY.			
B-DD-DW78Ø-Ø		SIZE D	CODE FD
SCALE		NUMBER DW78Ø-Ø-5	REV.
SHEET 1 OF 27		DIST.	

REVISIONS: REV. | CHK | CHANGE NO.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1971 DIGITAL EQUIPMENT CORPORATION"

ALL PAGES

IDLE

003

IDLE STATE OF MICRO CONTROLLER. WAIT FOR ATTENTION FROM HARDWARE AND JUMP TO HARDWARE DEVELOPED START ADDRESS. (UCB PRINT SET)

ASSERT MICOK (DCR BIT 27)

HARDWARE BRANCH (PRIORITIZED ATTENTION)

ATTENTION NOT ACTIVE

PRIORITY 0 (LOWEST) — SB ATT (MF1) 61 → 67 — SBI TO UBA FUNCTION

PRIORITY 1 — UB ATT (MF1) 50→57 — UNIBUS CONTROL OR INTERRUPT FUNCTION

PRIORITY 2 — PFRD RCUD (MF1) 70 → 71 — PREFETCH READ DATA RECEIVED

PRIORITY 3 (HIGHEST) — DMA ATT (MF1) 04→37 — UNIBUS DMA ACCESS TO MAPPED SBI ADDRESS SPACE

(MF1)
DMA ATT

JUMP ON HARDWARE DMA DECODE MUX (UCBA.)
THE HARDWARE SELECTS THE MUX INPUT (A,B,C,D) BASED ON THE FLOW IN UCB PRINT SET (UBA UCB IR DECODE)
THE INPUT SELECTED IS SHOWN IN THE ROUTINE DESIGNATION (DMA A, DMA B, DMA C, DMA D.)

UNIBUS FUNCTION TO DIRECT DATA PATH DATI, DATIP DATO, DATOB

UNIBUS TO SBI READ DDP — DMA D0 (MF17) 04

UNIBUS TO SBI WRITE DDP — DMA D1 (MF18) 05

UNIBUS TO SBI READ WITH READ DATA PENDING — DMA D2 (MF19) 06

UNIBUS TO SBI WRITE DDP- SAME AS DMA D1 — DMA D3 (MF18) 07

UNIBUS READ TO BUFFER DATA PATH (DATI) BDP IS EMPTY

UNIBUS TO BDP TO SBI READ (BDP IS EMPTY) — DMA B0 (MF9) 10

UNIBUS TO BDP TO SBI READ WITH READ DATA PENDING FOR ANOTHER BDP — DMA B1 (MF13) 11

UNIBUS TO BDP TO SBI READ (SAME AS DMA B0) — DMA B2 (MF9) 12

UNIBUS TO BDP READ WITH READ DATA PENDING FOR THIS BDP (FROM PREFETCH) — DMA B3 (MF14) 13

UNIBUS WRITE TO BUFFER DATA PATA (DATO, DATOB)

UNIBUS DATO TO BDP (SBI MEM ADDRESS) — DMA A0 (MF3) 14

UNIBUS DATOB TO BDP SBI MEM ADDRESS — DMA A1 (MF4) 15

UNIBUS DATO TO BDP (SBI I/O ADDRESS) — DMA A2 (MF5) 16

UNIBUS DATOB TO BDP (SBI I/O ADDRESS) — DMA A3 (MF5) 17

UNIBUS READ TO BUFFER DATA PATH (DATI) BDP CONTAINS DATA

DATI BYTES 0,1 MEM ADDRESS — DMA C0 (MF15) 20

DATI BYTES 2,3 MEM ADDRESS — DMA C1 (MF15) 21

DATI BYTES 4,5 MEM ADDRESS — DMA C2 (MF15) 22

DATI BYTES 6,7 MEM ADDRESS — DMA C3 (MF16) 23

DATI BYTES 1,2 MEM ADD, BYTE OFST — DMA C4 (MF15) 24

DATI BYTES 3,4 MEM ADD, BYTE OFST — DMA C5 (MF15) 25

DATI BYTES 5,6 MEM ADD, BYTE OFST — DMA C6 MF16 26

DATI BYTES 7,0 MEM ADD, BYTE OFST — DMA C7 (MF15) 27

DATI BYTES 0,1 I/O ADD — DMA C8 (MF15) 30

DATI BYTES 2,3 I/O ADD — DMA C9 (MF15) 31

DATI BYTES 0,1 I/O ADD — DMA C10 (MF15) 32

DATI BYTES 2,3 I/O ADD — DMA C11 (MF15) 33

DATI BYTES 0,1 I/O ADD — DMA C12 (MF15) 34

DATI BYTES 2,3 I/O ADD — DMA C13 (MF15) 35

DATI BYTES 0,1 I/O ADD — DMA C14 (MF15) 36

DATI BYTES 2,3 I/O ADD — DMA C15 (MF15) 37

(MF1)
PFRD RCUD

READ DATA RETURNED FROM PREFETCH

WITHOUT BYTE OFST — PF0 (MF16) 70

WITH BYTE OFST — PF1 (MF16) 71

MF1
UB ATT

RESPONSE TO UNIBUS CONTROL LOGIC ON UAI

MASTER DATI TIMEOUT (RETURN 0 REAR DATA) — UBC 0 (MF20) 50

BRRUR SAD RAM (SEND CONTENTS OF BRRUR FOR READ DATA. NO INTERRUPT TRANSACTION) — UBC 1 (MF20) 51

MASTER DATI W1 DATI COMPLETE SEND HI 16 BITS FOR READ DATA — UBC 2 (MF21) 52

MASTER DATI W0 DATI COMPLETE SEND LO16 BITS FOR READ DATA — UBC 3 (MF21) 53

INTR FLD OK INTERRUPT TRANSACTION COMPLETED RETURN VECTOR FOR READ DATA — UBC 5 (MF20) 55

(MF1)
SB ATT * SEE NOTE 1:

UAI READ READ CR, SR, FMER, FUBAR — SB1 (MF22) 61

DPR READ — SB2 (MF22) 62

BRSVR READ — SB3 (MF22) 63

MAP REG READ — SB4 (MF23) 64

DPR WRITE CLR BYE BIT, PURGE, OR NO-OP — SB5 (MF24) 65

BRSVR WRITE — SB6 (MF23) 66

MAP REG WRITE — SB7 (MF23) 67

MICRO CONTROLLER INITIALIZATION

ANY

ANY STATE
OPERATION ON THIS STATE

HARDWARE JMP (ADCLR) 0, 400

ADCLR ASSERTED — ADCLR (MF2) 0, OR 400

NEXT

ADCLR NOT ASSERTED

OPERATION OF THIS STATE

ADCLR = PS DCLO + SBI DEAD + UBA ADINIT
ADCLR FORCES THE ADDRESS OF THE ADCLR ROUTINE.

NOTES:

1. THE OPERATIONS FROM THE SBI REQUIRING THE MICRO SEQUENCER ARE SHOWN ABOVE.
   THE REMAINING OPERATIONS:
   WRITE CNFGR.
   READ CNFGR
   WRITE DCR.
   READ DCR.
   WRITE SR.
   WRITE CR.
   ARE HARDWARE OPERATIONS THAT DO NOT REQUIRE THE MICRO SEQUENCER.
2. START ADDRESSES FOR INTERNAL UBA ROUTINES:
   (FROM UBA CONTROL STORE LISTING)
   100 - AD INIT - (MF2)
   160 - BDP TO SBI WRITE - (MF6)
   (NO BYTE OFFSET)
   210 - ERROR RECOVERY FROM BDP TO SBI WAITE - (MF7)
   217 - BDP TO SBI WRITE - (MF8)
   (WITH BYTE OFFSET)

(HARDWARE ENTRY POINTS INTO MICRO CONTROLLER) (MF1)

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW780-0-5	

SCALE — SHEET 2 OF 27 — DIST.

DEC FORM NO. D00 137

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © DIGITAL EQUIPMENT CORPORATION"

UBA INITIALIZATION SEQUENCE

(UAIN) PSDCLO — (UAIN) DEAD — (UAIN) ADINIT

SEE NOTE

AD CLR

Ø OR 4ØØ

PREPARE FOR INITALIZATION SEQUENCE
DISABLE MAP RAM DATA IN (Ø)
ASSERT COUNTER ON TO BUS AD AND BDP NO IN

LOAD OPB:
CNTR SEL:
UCBN AD MUX = CNTR
BDP NO IN = CNTR
MAP DATA DISABLE

BUS AD ←A— UCBN AD MUX
CLR CNTR
BSS = BDP NO IN (CNTR)

HARDWARE BRANCH AD CLR ASSERTED

AD CLR NEGATED

1ØØ

DISABLE DP RAM DATA IN (Ø)

LOAD OPA
DP MUX DISABLE
CLR CNTR
BSS = CNTR

COMMENT
CLR 16 DATA PATH RAM BLOCKS (4 LOCATIONS PER BLOCK) AND FIRST 16 MAP REGISTERS (2 LOCATIONS PER MAP REG)
LOOP 16 TIMES

NOTE: .AD CLR IS A CONDITION FORCED BY:
1. POWER SUPPLY DCLO ASSERTED (PS DCLO)
2. SBI DEAD ASSERTED (DEAL)
3. CONTROL REGISTER BIT ADINIT ASSERTED (WHEN SET, THIS BIT IS ASSERTED AND IT IS THEN CLEARED BY THE HARDWARE 400 NS LATER.)
.WHEN AD CLR IS ASSERTED, THE MICRO SEQUENCER WILL BE FORCED INTO THIS ROUTINE FROM WHAT EVER STATE THAT IT WAS IN.

CNTR 4 = Ø

1Ø1

CLEAR HI 16 BITS OF MAP REG

MR HI ⟨BUS AD⟩ ← Ø
BSS = CNTR

1Ø3

CLEAR FIRST LOCATION OF DP RAM (4 BYTES)
CLR BNE BIT, FNC BIT, BTE BIT

DPA (CNTR) ØØ, 1Ø, 2Ø, 3Ø ← Ø
CHANGE STATE (CNTR)
BSTATE ← Ø
BFNC ← Ø
BTE ← Ø

1Ø4

CLEAR 2ND LOCATION OF DP RAM (4 BYTES)
CLEAR MASK BITS

DPA (CNTR) Ø1, 11, 21, 31 ← Ø
CHANGE MASK (CNTR)
CLR MASK

1Ø5

CLR 3RD LOCATION OF DP RAM (4 BYTES)

DPA (CNTR) Ø2, 12, 22, 32 ← Ø

1Ø6

CLR 4TH LOCATION OF DP RAM (4 BYTES)

DPA (CNTR) Ø3, 13, 23, 33 ← Ø

1Ø7

CLR LO 16 BITS OF MAP REG
ENABLE COUNTER INCREMENT SUCH THAT COUNTER WILL INCREMENT TO NEXT ADDRESS

MRLO ⟨BUS AD⟩ ← Ø
LOAD OPA:
DP MUX DISABLE
INC COUNTER ENABLE
BSS = CNTR

11Ø

DISABLE COUNTER INCREMENT

LOAD OPA:
DP MUX DISABLE
INC COUNTER DISABLE
BSS = CNTR

111

BRANCH ON COUNTER = 16

BSS = CNTR

BR (CNTR 4) 1Ø1

CNTR 4 = 1

COMMENT
CLEAR REMAINING MAP REGISTERS
LOOP 496 TIMES

1Ø2

CLR LO 16 BITS OF MAP REG

MAP LO ⟨CNTR⟩ ← Ø

112

CLR HI 16 BITS OF MAP REG.
ENABLE COUNTER INCREMENT

MR HI ⟨CNTR⟩ ← Ø
LOAD OPA
INC CNTR EN
DP MUX DISABLE

114

DISABLE COUNTER INCREMENT

LOAD OPA
INC CNTR DISABLE
DP MUX DISABLE

115

CLR LO 16 BITS OF MAP REG

MAP LO ⟨CNTR⟩ ← Ø

BR (CNTR FULL) 112
CNTR FULL = Ø

CNTR FULL = 1

113

CLR OPB TO IDLE STATE

OPB ← IDLE B

116

CLR OPA TO IDLE STATE

OPA ← IDLE A

IDLE

MF1
ØØ3

(UBA INITIALIZATION SEQUENCE)

(MF2)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW780-0-5	
SCALE	SHEET 3 OF 27	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

MEM DATOB-UNIBUS DATO VIA BDP TO SBI MEM ADDRES SPACE

(MF1)
DMAA0

0I4
BRANCH ON BYTE OFST, AND UNBUS ADDRESS <A2,A1>
CHANGE STATE AND SEND SLAVE SYNC
STORE UNIBUS ADDRESS

CHANGE STATE SEND SSYN:
BSTATE ← 1
BFNC ← 1
DPA 23,33 ← BUS AD

BR(B0,A2,AI) 550

<B0A2,A1>= 0

550
SET MASK BITS 0,1 AND CLR DMA ATT
MOVE UNIBUS DATA TO BUFFER

CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 1,0
DPA 00,10 ← REC D

<B0.A2, A1> = 1

551
SET MASK BITS 2,3 AND CLR DMA ATT
MOVE UNIBUS DATA TO BUFFER

CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 3,2
DPA 20 30 ← REC D

<B0. A2,A1> = 2

552
SET MASK BITS 4,5 AND CLR DMA ATT
MOVE UNIBUS DATA TO BUFFER

CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 5,4
DPA 01 11 ← REC D

IDLE
(MF1)
00 3

(B0, A2, A1) = 7

(B0, A2, A1) = 6

556
BYTE OFST
SET MASK BITS 5,6 AND CLR DMA ATT
MOVE UNIBUS DATA TO BUFFER

CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMS 6,5
DPA 11,21 ← REC D

(B0. A2, A1) = 5

555
BYTE OFST
SET MASK BITS 3,4 AND CLR DMA ATT
MOVE UNIBUS DATA TO BUFFER

CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 4,3
DPA 30 01 ← REC D

(B0, A2, A1)= 4

554
BYTE OFST
SET MASK BITS 1,2 AND CLR DMA ATT
MOVE UNIBUS DATA TO BUFFER

CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 2,1
DPA 10, 20 ← REC D

<B0. A2, A1> = 3

553
SET MASK BITS 6,7
MOVE UNIBUS DATA TO BUFFER

CHANGE MSK:
MSK ROM ← SMSK 7,6
DPA 21.31 ← REC D

IDLE
(MF1)
00 3

(MF4,5)
STRT WRT

560
BDP WRITE TRANSFER BUFFERED DATA TO SBI MEM
LOAD OPA FOR BDP WRITE
LATCH HI 16 BITS OF MAP RAM
CLR COUNTER FOR TIMEOUT

LOAD OPA:
IB EN UMD
CNTR ENABLE
OP CODE ← BDP WRITE
MIC STATE ← 0
CLR CNTR
MR LATCH ← MR H <BUS AD>

BDPWA
(MF6)
160

557
BYTE OFST
SET MASK BIT 7
MOV UNIBUS DATA TO BUFFER AND TMPSTR
ENABLE BUS AD INCREMENT

CHANGE MSK:
MSK ROM ← SMSK 7
DPA 31 ← REC D0
TMPSTR 0 ← REC D1
AD INC ENABLE

561
STORE UNIBUS ADD + 1

DPA 23,33 ← BUS AD + 1

562
BDP WRITE TRANSFER BUFFERD DATA TO SBI MEM
LOAD OPA FOR BDP WRITE
LATCH HI 16 BITS OF MAP RAM
CLR COUNTER FOR TIME OUT

LOAD OPA:
IB EN UMD
CNTR ENABLE
OP CODE ← BDP WRITE
MIC STATE ← 0
CLR CNTR
MR LATCH ← MR H <BUS AD>

BDP WB
(MF7)
217

(MF3)

REVISIONS
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW780-0-5	
SCALE	SHEET 4 OF 27	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

MEM DATOB UNIBUS DATOB VIA BDP TO SBI MEM ADDRESS SPACE

(MF1)
DMA A1

Ø15
BRANCH ON BYTLE OFST AND UNIBUS ADDRESS<A2,A1,AØ>
CHANGE STATE AND SEND SLAVE SYNC
STORE UNIBUS ADDRESS
CNG STATE SND SSYN:
BSTATE ← 1
BFNC ← 1
DPA 23,33 ← BUS AD

BR(BØ, A2, A1, AØ) 6ØØ

(BØ, A2, A1, AØ) = Ø
6ØØ
SET MASK BIT Ø AND CLR DMA ATT
MOVE UNIBUS DATA TO BUFFER
CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK Ø
DPA ØØ ← REC D Ø

(BØ, A2, A1, AØ) = 1
6Ø1
SET MASK BIT 1 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER
CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 1
DPA Ø1 ← REC D 1

(BØ, A2, A1, AØ) = 2
6Ø2
SET MASK BIT 2 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER
CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 2
DPA Ø2 ← REC D Ø

(BØ, A2, A1, AØ) = 3
6Ø3
SET MASK BIT 3 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER
CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 3
DPA Ø3 ← REC D 1

(BØ, A2, A1, AØ) = 4
6Ø4
SET MASK BIT 4 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER
CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 4
DPA Ø1 ← REC D Ø

(BØ, A2, A1, AØ) = 5
6Ø5
SET MASK BIT 5 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER
CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 5
DPA 11 ← REC D 1

(BØ, A2, A1, AØ) = 6
6Ø6
SET MASK BIT 6 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER
CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 6
DPA 21 ← REC D Ø

(BØ, A2, A1, AØ) = 7
6Ø7
SET MASK BIT 7
MOVE UNIBUS DATA TO BUFFER
START SBI TRANSFER
CHANGE MSK
MSK ROM ← SMSK 7
DPA 31 ← REC D 1

STRT WRT → (MF3) 56Ø

(BØ, A2, A1, AØ) = 1Ø
610
BYTE OFST
SET MASK BIT 1 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER
CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 1
DPA 1Ø ← REC D Ø

(BØ, A2, A1, AØ) = 11
611
BYTE OFST
SET MASK BIT 2 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER
CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 2
DPA 2Ø ← REC D 1

(BØ, A2, A1, AØ) = 12
612
BYTE OFST
SET MASK BIT 3 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER
CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 3
DPA 3Ø ← REC D Ø

(BØ, A2, A1, AØ) = 13
613
BYTE OFST
SET MASK BIT 4 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER
CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 4
DPA Ø1 ← REC D 1

(BØ, A2, A1, AØ) = 14
614
BYTE OFST
SET MASK BIT 5 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER
CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 5
DPA 11 ← REC D Ø

(BØ, A2, A1, AØ) = 15
615
BYTE OFST
SET MASK BIT 6 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER
CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 6
DPA 21 ← REC D 1

(BØ, A2, A1, AØ) = 16
616
BYTE OFST
SET MASK BIT 7
MOVE UNIBUS DATA TO BUFFER
START SBI TRANSFER
CHANGE MSK
MSK ROM ← SMSK 7
DPA 31 ← REC D Ø

STRT WRT → (MF3) 56Ø

(BØ, A2, A1, AØ) = 17
617
BYTE OFST
SET MASK BIT Ø
MOVE UNIBUS DATA TO BUFFER
CHNG MSK:
MSK ROM ← SMSK Ø
DPA ØØ ← REC D 1

624
INCREMENT UNIBUS ADDRESS AND STORE IN BDP
CLR DMA ATTENTION
DPA 23 33 ← BUS AD + 1
CLR DMA ATT

IDLE (MF1) ØØ3

IDLE (MF1) ØØ3

IDLE (MF1) ØØ3

IDLE (MF1) ØØ3

(MF4)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW78Ø-Ø-5	
SCALE —	SHEET 5 OF 27		DIST.	

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © '77' DIGITAL EQUIPMENT CORPORATION"

I/O DATOB UNIBUS DATOB VIA BDP TO SBI I/O ADDRESS SPACE.

(MF1)

DMA A2

016

BRANCH ON UNIBUS ADD (A1)
CHANGE STATE AND SEND SLAVE SYNC
STORE UNIBUS ADDRESS

CHNG STATE SND SSYN:
BSTATE ← 1
BFNL ← 1
DPA 23, 33 ← BUS AD

BR(A1) 567

A1 = Ø

567

SET MASK BITS ØIL AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER

CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK 1, Ø
DPA ØØ, 1Ø ← REC D

IDLE

(MF1)
ØØ3

570

A1 = 1

SET MASK BITS 2,3
MOVE UNIBUS DATA TO BUFFER
START SBI TRANSFER

CHANGE MSK:
MSK ROM ← SMSK 3,2
DPA 2Ø, 3Ø ← REC D

STRT WRT

(MF3)
56Ø

I/O DATOB- UNIBUS DATOB VIA BDP TO SBI I/O ADDRESS SPACE

(MF1)

DMA A3

BRANCH ON UNIBUS ADDRESS (A1,AØ)
CHANGE STATE AND SEND SLAVE SYNC
STORE UNIBUS ADDRESS

CHNG STATE SND SSYN:
BSTATE ← 1
BFNC ← 1
DPA 23,33 ← BUS AD

BR(A1, AØ) 571

(A1, AØ)=Ø

571

SET MASK BIT Ø AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER

CHNG MSK AND CLR DMA ATT:
MSK ROM ← SMSK Ø
DPA 1Ø ← REC DI

(A1, AØ)=1

572

SET MASK BIT 1 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER

CHNG MASK AND CLR DMA ATT:
MSK ROM ← SMSK Ø
DPA 1Ø ← REC DI

(A1, AØ)=2

573

SET MASK BIT 2 AND CLEAR DMA ATT
MOVE UNIBUS DATA TO BUFFER

CHNG MASK AND CLR DMA ATT;
MSK ROM ← SMSK 2
DPA 2Ø ← REC DØ

(A1, AØ) 3

574

SET MASK BIT 3
MOVE UNIBUS DATA TO BUFFER
START SBI TRANSFER

CHANGE MSK:
MSK ROM ← SMSK 3
DPA 3Ø ← REC DI

STRT WRT

(MF3)
56Ø

IDLE

(MF1)
ØØ3

REVISIONS

CHK	CHANGE NO.	REV.

(MF5)

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW78Ø-Ø-5	

SCALE ++ SHEET 6 OF 27 DIST.

DFD DW78Ø-Ø-5

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © DIGITAL EQUIPMENT CORPORATION"

BUFFER DATA PATH TO SBI WRITE
(NO BYTE DPST)

(MF3)
BDP WA

160
REQUEST SBI
BRANCH ON EXTENDED FUNC
ENABLE DP PARITY PER CATCH
SBI REQ EN
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAPLO

BR (EXT FUNC) 161
EXT FUNC = Ø
(MF6, 7, 8)
BDPXWRT
EXT FUNC = 1
BDPLWRT (MF7) 161

162
EXTENDED WRITE
WAIT FOR SBI REQ FF TO BE CLEARED
ENABLE DP PARITY ERR CATCH
BUS IB ←A DP RAM
EN DPE CATCH
MWS = MAPLO

SBI REQ FF=SET(Ø)
BR (EXT FUNC) 162

163
BRANCH ON DATA TRANSFER
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAP LO

SBI REQ FF = CLRD (1)
BR (DTE) 164
DTE = 1

164
DTE = Ø
SBI TRANSFER DID NOT TAKE PLACE:
COMMAND TIMEOUT OR MAP PARITY ERROR
BUS IB ←A DP RAM
EN CATO
EN MAP STAT
MWS = MAP LO

WRT ERR (MF7) 21Ø

165
SBI COMMAND TRANSFERRED
BRANCH ON CONFIRMATION
BUS ←A DP RAM
MWS = MAP LO

BR (CNF(1:Ø)) 166
CNF(1:Ø) = Ø (NR)

166
No RESPONSE - REPEAT
SBI REQ EN
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAP LO

BR (EXT FUNC) 161
EXT FUNC = Ø
BDPLWRT (MF7) 161
EXT FUNC = 1
BDPXWRT (MF6) 162

CNF(1:Ø) = 1 (ACK)

CNF (1:Ø) = 2 (BSY)

17Ø
BUSY - REPEAT
SBI REQ EN
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAP LO

BR (EXT FUNC) 161
EXT FUNC = Ø
BDPLWRT (MF7) 161
EXT FUNC = 1
BDPXWRT (MF6) 162

CNF (1:Ø) = 3 (ERR)

171
ERROR CONFIRMATION
ENABLE COMMAND ERROR STATUS BIT
EN CXTER
MWS = MAP LO

WRT ERR (MF7) 21Ø

167
ACK - CONTINUE
BRANCH ON ACK FOR WD1
BUS IB ←A DP RAM
MWS = MAP LO

BR (ACK) 172
ACK = Ø

173
ACK FOR WD1 RECEIVED
BRANCH ON ACK FOR WD2
BUS IB ←A DP RAM
MWS = MAP LO

BR (ACK) 174
(MF7)
BDPAWDL

ACK = Ø
ACK = 1

175
ACK FOR LAST WD RECEIVED
CLR MASK AND STATE
TEST FOR DP PARITY ERR
CHANGE MASK AND STATE:
BSTATE ← Ø
B FNC ← Ø
CLR MASK

DPPE = Ø
DPPE = 1

177
DP PARITY ERROR
ENABLE STATUS BIT
EN DPPE STAT

WRT ERR (MF7) 21Ø

172
ACK FOR WD2 RECEIVED
REPEAT
SBI REQ EN
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAP LO

BR (EXT FUNC) 161
EXT FUNC = Ø
BDPLWRT (MF7) 161
EXT FUNC = 1
BDPXWRT (MF6) 162

174
ACK NOT RECEIVED
REPEAT
SBI REQ EN
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAP LO

BR (EXT FUNC) 161
EXT FUNC = Ø
BDPLWRT (MF7) 161
EXT FUNC = 1
BDPXWRT (MF6) 162

176
NO ERRORS
CLEAR OPA TO IDLE STATE
RELEASE MR LATCH
CLEAR DMA ATTENTION
OPA ← IDLEA
CLR MR HI GATE
CLR DMA ATT

IDLE (MF1) ØØ3

(MF6)

REVISIONS
CHK | CHANGE NO. | REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOW	D	FD	DW78Ø-Ø-5	
SCALE —	SHEET 7 OF 27	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

(MF6,7,8)
BDPLWRT

161
BDPA WRITE LONG
EN DPPE CATCH
MWS = MAP LO
BUS IB ←A DP RAM

(MF8)
BWRTL

220
BDPB WRITE LONG
EN DPPE CATCH
MWS = MAP LO
BUS IB ←A DP RAM

200
WAIT FOR REQ FF TO BE CLEARED
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAP LO

BR (SBI REQ FF) 200
SBI REQ FF = SET (0)

SBI REQ FF = CLRD (1)

201
BRANCH ON DATA TRANSFER ENABLE
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAP LO

BR (DTE) 202
DTE = 1

DTE = 0

202
SBI TRANSFER DID NOT TAKE PLACE COMMAND TIMEOUT OR MAP PARITY ERROR
BUS IB ←A DP RAM
EN CATO
EN MAP STAT
MWS = MAP LO

WRT ERR
(MF7)
210

203
SBI COMMAND TRANSFERRED BRANCH ON CONFIRMATION
BUS IB ←A DP RAM
MWS = MAP LO

BR (CNF(1:0)) 204
CNF(1:0) = 0 NR

204
NO RESPONSE- REPEAT
SBI REQ EN
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAP LO

BR (EXT FUNC) 161
EXT FUNC = 0
BDPLWRT (MF7) 161

EXT FUNC = 1
BDPXWRT (MF6) 162

CNF(1:0) = 1 (ACK)

205
ACK CONFIRMATION BRANCH ON ACK FOR WD1
BUS IB ←A DP RAM
MWS = MAPLO

BR (ACK) 174
BDPAWDL (MF6) 174, 175

CNF(1:0) = 2 (BSY)

206
BUSY- REPEAT
SBI REQ EN
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAP LO

BR (EXT FUNC) 161
EXT FUNC = 0
BDPLWRT (MF7) 161

EXT FUNC = 1
BDPXWRT (MF6) 162

CNF(1:0) = 3 (ERR)

207
ERROR CONFIRMATION ENABLE COMMAND ERROR STATUS BIT
EN CXTER

WRT ERR
(MF7)
210

(MF6,7,8,24,25)
WRT ERR

210
ERROR DURING BUFFER TO SBI WRITE:
SET BTE BIT AND CLEAR STATE, FUNC, AND MASK
BRANCH ON MIC STATE TO "FINISH" SEQUENCE
CHNG MSK AND STATE:
BSTATE ← 0
B FUNC ← 0
BTE ← 1
CLR MSK

BR (MIC STATE) 211

MIC STATE = 0 (BDP WRT)

211
CLR OPA TO IDLE STATE
CLR DMA ATTENTION
RELEASE MR LATCH
OPA ← IDLE A
CLR DMA ATT
CLR MR HI GATE

IDLE
(MF1)
003

MIC STATE = 1 (PRG CMPLT)

212
CLR OPB TO IDLE STATE
RELEASE MR LATCH
OPB ← IDLE B
CLR MR HI GATE
BSS = 1 (INHIBIT DMA ATT)

PRGCMPT
(MF24)
703

REVISIONS

CHK	CHANGE NO.	REV.

(MF7)

TITLE: UBA MICRO FLOW
SIZE: D | CODE: FD | NUMBER: DW780-0-5 | REV.
SCALE | SHEET 8 OF 27 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © DIGITAL EQUIPMENT CORPORATION"

BUFFER DATA PATH TO SBI WRITE WITH BYTE OFST

(MF3)

BDPWP

217
REQUEST SBI
BRANCH TO EXTENDED FUNC
ENABLE DP PARITY ERR CATCH
SBI REQ EN
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAPLO

BR (EXT FUNC) 22Ø
EXT FUNC = Ø → BWRTL (MF7) 22Ø

(MF8) BWRTX — EXT FUNC=1

221
EXTENDED WRITE
WAIT FOR SBI REQ FF TO BE CLEARED
ENABLE DP PARITY ERR CATCH
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAPLO

BR (SBI REQFF) 221

SBI REQFF = SET(Ø)

222
BRANCH ON DATA TRANSFER
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAPLO

SBI REQFF = CLRD(1)

BR (DTE) 223

DTE = 1

223
SBI TRANSFER DID NOT TAKE PLACE
COMMAND TIMEOUT OR MAP PARITY ERROR
BUS IB ←A DP RAM
EN CATO
EN MAP STAT
MWS = MAPLO

DTE = Ø

WRT ERR (MF7) 21Ø

224
SBI COMMAND TRANSFERRED
BRANCH ON CONFIRMATION
BUS IB ←A DP RAM
MWS = MAPLO

BR (CNF(1:Ø)) 27Ø

CNF(1:Ø) = Ø (NR)

27Ø
NO RESPONSE - REPEAT
SBI REQ EN
BUS IB DP RAM
EN DPPE CATCH
MWS = MAPLO

BR (EXT FUNC) 22Ø
EXT FUNC = Ø → BWRTL (MF7) 22Ø
EXT FUNC = 1 → BWRTX (MF8) 221

CNF (1:Ø) = 1 (ACK)

CNF (1:Ø) = 2 (BSY)

272
BUSY - REPEAT
SBI REQ EN
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAPLO

BR (EXT FUNC)
EXT FUNC = Ø → BWRTL (MF7) 22Ø
EXT FUNC = 1 → BWRTX (MF8) 221

CNF (1:Ø) = 3 (ERR)

273
ERROR CONFIRMATION
ENABLE COMMAND ERROR STATUS BIT
EN CXTR
MWS = MAPLO

WRT ERR (MF7) 21Ø

271
ACK - CONTINUE
BRANCH ON ACK FOR WD1
BUS IB ←A DP RAM
MWS = MAPLO

BR (ACK) 3ØØ

ACK = Ø

3Ø1 ACK = 1
ACK FOR WD1 RECEIVED
BRANCH ON ACK FOR WD2
BUS IB ←A DP RAM
MWS = MAPLO

BR (ACK) 3Ø2

3ØØ
ACK FOR WD1 NOT RECEIVED
REPEAT
SBI REQ EN
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAPLO

BR (EXT FUNC) 22Ø
EXT FUNC = Ø → BWRTL (MF7) 22Ø
EXT FUNC = 1 → BWRTX (MF8) 221

ACK = Ø

3Ø3 ACK = 1
ACK FOR LAST WD RECEIVED
MOVE TMPSTR TO BUFFER
CLR MASK AND SET MASK BIT Ø
TEST FOR DP PARITY ERR
DPA ØØ ← TMPSTR Ø
CHNG MASK AND STATE:
CLR MSK
MSK ROM ← SMSK Ø

BR (DPPE) 3Ø4

3Ø2
ACK NOT RECEIVED
REPEAT
SBI REQ EN
BUS IB ←A DP RAM
EN DPPE CATCH
MWS = MAPLO

BR (EXT FUNC)
EXT FUNC = Ø → BWRTL (MF7) 22Ø
EXT FUNC = 1 → BWRTX (MF8) 221

DPPE = 1

3Ø5
DP PARITY ERR
ENABLE STATUS BIT
EN DPPE STAT

WRTERR (MF7) 21Ø

3Ø4
NO ERRORS
CLR OPA TO IDLE STATE
CLR DMA ATTENTION
RELEASE MR LATCH
OPA ← IDLE A
CLR DMA ATT
CLR MR HI GATE

IDLE (MF1) ØØ3

(MF8)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOW	D	FD	DW78Ø-Ø-5	
SCALE —	SHEET 9 OF 27	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UNIBUS TO BDP TO SBI READ
(BDP IS EMPTY)

(MF1,13)
DMA-BØ

(MF9,13)
BDP READ

ØIØ
LATCH HI 16 BITS OF MAP RAM
MR LATCH ← MRH ⟨BUS AD⟩

431
LOAD FOR BDP READ
LOAD OPA:
IB EN UMD
CNTR ENABLE
NIC STATE ← Ø
OP CODE ← BDP READ
CLR CNTR

432
REQUEST SBI
SBI REQ EN
MWS = MAP LO

MF9
BØ WAT

433
WAIT FOR SBI REQ FF TO BE CLEARED
MWS = MAP LO
BR (SBI REQ FF) 433
SBI REQ FF = Ø (SET)

434
SBI REQ FF=1 (CLRD)
BRANCH ON DATA TRANSFER
MWS = MAP LO
BR(DTE) 435
DTE = 1

435
DTE = Ø
NO COMMAND TRANSFER ENABLE STATUS BITS AND ABORT UNIBUS XFER
EN MAP STAT
EN CATO
MWS = MAP LO

DBPR ABORT
(MF12)
4Ø2

436
COMMAND TRANSFERRED BRANCH ON CONFIRMATION
MWS = MAP LO

BR ⟨CNF ⟨1:Ø⟩⟩ 44Ø

CNF ⟨1:Ø⟩ = Ø

44Ø
NO RESPONSE REPEAT
SBI REQ EN
MWS = MAP LO

BØ WAT
(MF9)
433

CNF ⟨1:Ø⟩ = 1

441
ACK CONFIRMATION
CLR OPA
CLR MR LATCH
OPA ← IDLEA
CLR MR HI GATE

CNF ⟨1:Ø⟩ = 2

442
BUSY CONFIRMATION REPEAT
SBI REQ EN
MWS = MAP LO

BØ WAT
(MF9)
433

CNF ⟨1:Ø⟩ = 3

443
ERROR CONFIRMATION
ENABLE STATUS BIT AND ABORT UNIBUS XFER
EN CXTER

BDPR ABORT
(MF12)
4Ø2

417
BRANCH TO I/O RORTINE IF THIS READ IS TO THE SBI I/O ADDRESS SPACE
NO-OP

BR (SBI I/O PG) 444

SBI I/O PG = 1
IØ WAIT
(MF12)
445

444
MEMORY ADDRESS RANGE BRANCH ON READ DATA RECEIVED OR READ DATA FAIL SAFE
NO-OP

BR (DRDRCVD, RD FAIL SAFE) 447

DRDRCVD, RD FAIL SAFE = Ø

447
STILL WAITING
FRS = RD I
BR DRDRCVD, RD FAIL SAFE 447

DRDRCVD, RD FAIL SAFE = 1

45Ø
NO READ DATA RECEIVED ABORT UNIBUS TRANSFER
CLR DRDRCVD
MWS = MAP LO

BDPR ABORT
(MF12)
4Ø2

DRDRCVD, RD FAIL SAFE = 2

451
READ DATA RECEIVED BRANCH ON UNIBUS ADDRESS AND BYTE OFFSET
CLR DRDRCVD
FRS = RDI
BR(BØ, A2, AI) 46Ø

DRDRCVD, RD FAIL SAFE = 3

452
READ DATA RECEIVED BRANCH ON UNIBUS ADDRESS AND BYTE OFFSET
CLR DRDRCVD
FRS = RD I
BR(BØ, A2, AI) 46Ø

MEM BRANCH
MFIØ
BR-46Ø

UN BUS TO BDP TO SBI READ
(BDP IS EMPTY)

(MF1)
DMA-B2

D12
LATCH HI 16 BITS OF MAP RAM
MR LATCH ← M H ⟨BUS AD⟩

BDP READ
(MF9)
431

REVISIONS
CHK | CHANGE NO. | REV.

(MF9)

TITLE UBA MICRO FLOWS
SIZE D CODE FD NUMBER DW78Ø-Ø-5 REV.
SCALE 1-1 SHEET 10 OF 27 DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

(MF9) MEM BRANCH

B0, A2, A1 = 0

460
MOVE RDI BYTE 0 AND 1 TO DOUT EN SSYN
DOUT ← RDI (1, 0)
EN SSYN

453
MOVE RDI TO BDP
DPA 00, 10, 20, 30 ← RDI

B0, A2 A1 = 1

461
MOVE RDI BYTE 2 AND 3 TO DOUT EN SSYN
DOUT ← RDI (3,2)
EN SSYN

454
MOVE RD2 TO BDP
SET BNE BIT (BFNC IS CLEARED IN THIS STATE BUT WE DON'T CARE SINCE IT WAS 0 TO BEGIN WITH)
DPA 01, 11, 21, 31 ← RD 2
CHANGE STATE:
BSTATE ← 1

B0, A2, A1 = 2

462
MOVE RDI BYTE 0 AND 1 TO DOUT EN SSYN
DOUT ← RDI (1, 0)
EN SSYN
*

456
MOVE RDI TO BDP
SET BNE BIT
DPA 01, 11, 21, 31 ← RDI
CHANGE STATE:
BSTATE ← 1

B0, A2 A1 = 3

463
MOVE RDI BYTE 2 AND 3 TO DOUT EN SSYN
DOUT ← RDI (3,2)
EN SSYN
CHANGE STATE:
B STATE ← 0
*

PREFETCH (MF16) 625

(MF11) LOAD BDP

B0, A2, A1 = 4

464
MOVE RDI BYTE 1 AND 2 TO DOUT EN SSYN
DOUT ← RDI (2, 1)
EN SSYN

472
MOVE RDI TO BDP
DPA 00, 10, 20, 30 ← RDI

(MF12) BDP R CMPLT

BYTE OFFSET

B0, A2, A1 = 5

465
MOVE RDI BYTE 3 TO LO DOUT (LOW BYTE)
LO DOUT ← RDI (3)

470
MOVE RD 2 BYTE 0 TO HI DOUT (HI BYTE) EN SYNN
HI DOUT ← RD 2 (0)
EN SSYN

B0, A2, A1 = 6

466
MOVE RDI BYTE 1 AND 2 TO DOUT EN SSYN
DOUT ← RDI (2, 1)
*

471
MOVE RDI TO BDP (BYTE OFFSET)
CLR BNE BIT
DPA 01 11 21 32
CHANGE STATE:
0 ← BSTATE

B0, A2, A1 = 7

467
MOVE RDI BYTE 3 TO LO DOUT (LOW BYTE)
CLR BNE BIT
LO DOUT RDI (3)
CHANGE STATE
B STATE ← 1
AD INC EN
*

2ND READ (MF11) 502

PREFETCH (MF16) 625

457
MOVE RD2 TO BDP (BYTE OFFSET)
SET BNE BIT BFNC IS CLEARED IN THIS STATE BUT WE DON'T CARE SINCE IT WAS 0 TO BEGIN WITH AND SHOULD BE ZERO
DPA 01 11 21 32 ← RD2
CHANGE STATE:
BSTATE ← 1

455
COMPLETE: CLR OPA TO IDLE STATE, CLR DMA ATT AND MR HI GATE
CLR DMA ATT
CLR MR HI GATE
OPA ← IDLE A

IDLE (MF1) 003

(MF10)

NOTE:
* FOR THESE CASES, THE UBA TRANSMITTED A READ MASK COMMAND INSTEAD OF AN EXTENDED READ COMMAND. (LOGIC IS ON UCBK).

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW780-0-5	
SCALE	SHEET 11 OF 27	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

(MFIØ) 2ND READ

5Ø2
INCREMENT UB ADDRESS AND LOAD INTO BUF ADD STORE
PUT BUF AD STORE ONTO BUS AD
BUF ADD STR ← AD + 1
LOAD OPB: BUS AD ←A— BUFF ADD STR

5Ø3
LATCH HI 16 BITS OF MAP RAM
MR LATCH ← MR HI ⟨BUS AD⟩

5Ø4
LOAD OPA FOR BDP READ
CLR COUNTER FOR TIMEOUT
LOAD OPA:
IB EN UMD
CNTR ENABLE
MIC STATE ← Ø
OP CODE ← BDP READ
CLR CNTR

5Ø5
REQUEST SBI
SBI REQ EN
MWS = MAP LO

(MFII) 2ND WAIT

5Ø6
WAIT FOR SBI REQ FF TO BE CLEARED
MWS = MAP LO
BR(SBI REQ FF) 5Ø6
SBI REQ FF = Ø SET

5Ø7
SBI REQ FF = 1 (CCRD
BRANCH ON DATA TRANSFER
MWS = MAP LO
BR(DTE) 51Ø
DTE = 1

51Ø
DTE = Ø
NO COMMAND TRANSFER
ENABLE STATUS BITS
ABORT UNIBUS XFER
EN MAP STAT
EN CATO
MWS = MAP LO

BDPR ABORT
MF12
4Ø2

511
COMMAND TRANSFERRED
BRANCH ON CONFIRMATION
MWS = MAP LO
BR(CNF⟨1:Ø⟩) 512
CNF⟨1:Ø⟩ = Ø

512
NO RESPONSE — REPEAT
SBI REQ EN

2ND WAIT (MFII) 5Ø6

CNF⟨1:Ø⟩ = 1

513
ACK — CLR OPB, CLR MR LATCH
OPB ← IDLE B
CLR MR HI GATE

CNF⟨1:Ø⟩ = 2

514
BUSY — REPEAT
SBI REQ EN
MWS = MAP LO

2ND WAIT (MFII) 5Ø6

CNF⟨1:Ø⟩ = 3

515
ERROR ENABLE STATUS BITS AND ABORT UNIBUS XFER
EN CXTER

BDPR ABORT (MF12) 4Ø2

52Ø
CLR MR LATCH
WAIT FOR RD RETURN OR READ DATA FAIL SAFE
CLR MR HI GATE
DSS = SHIFT 1
FRS = RDI
BR(DRDRCVD, RD FAIL SAFE) 52Ø
DRDRCVD, RD FAIL SAFE = Ø

DRDRCVD, RD FAIL SAFE = 1

521
NO RD RETURNED
CLR DIRECT RD RCVD
ABORT UNIBUS TRANSFER
CLR DRD RCVD

BDPR ABORT (MF12) 4Ø2

DRDRCVD, RD FAIL SAFE = 2

522
READ DATA RETURNED
MOVE RDI BYTE Ø TO HI DOUT (HI BYTE) · EN SSYN
CLR DIRECT RD RCVD
HI DOUT ← RDI (Ø)
EN SSYN
CLR DRD RCVD

DRDRCVD, RD FAIL SAFE = 3

523
READ DATA RETURNED
MOVE RDI BYTE Ø TO HI DOUT (HI BYTE) · EN SSYN
CLR DIRECT RD RCVD
HI DOUT ← RDI (Ø)
EN SSYN
CLR DRDRCVD

437
CLR OPA TO IDLE
OPA ← IDLEA

LOAD BDP (MFIØ) 4Ø2

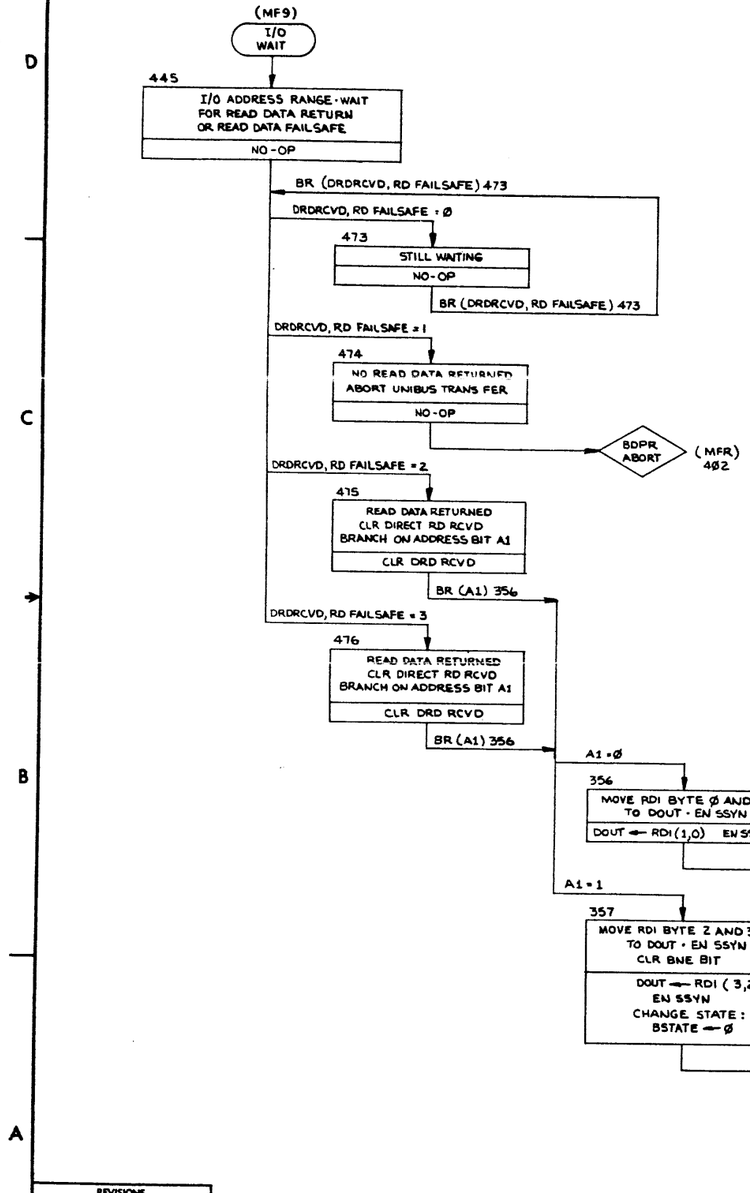
REVISIONS		
CHK	CHANGE NO.	REV.

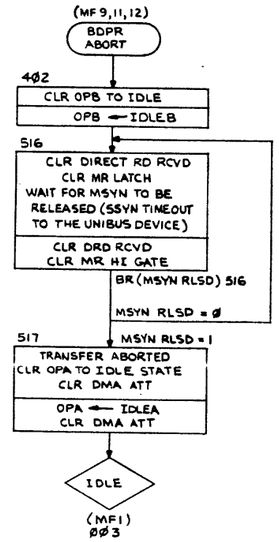
(MFII)

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW78Ø-Ø-5	
SCALE —	SHEET 12 OF 27	DIST.		

DFD DW78Ø-Ø-5 REV.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"





(MF12)

REVISIONS

CHK	CHANGE NO.	REV.

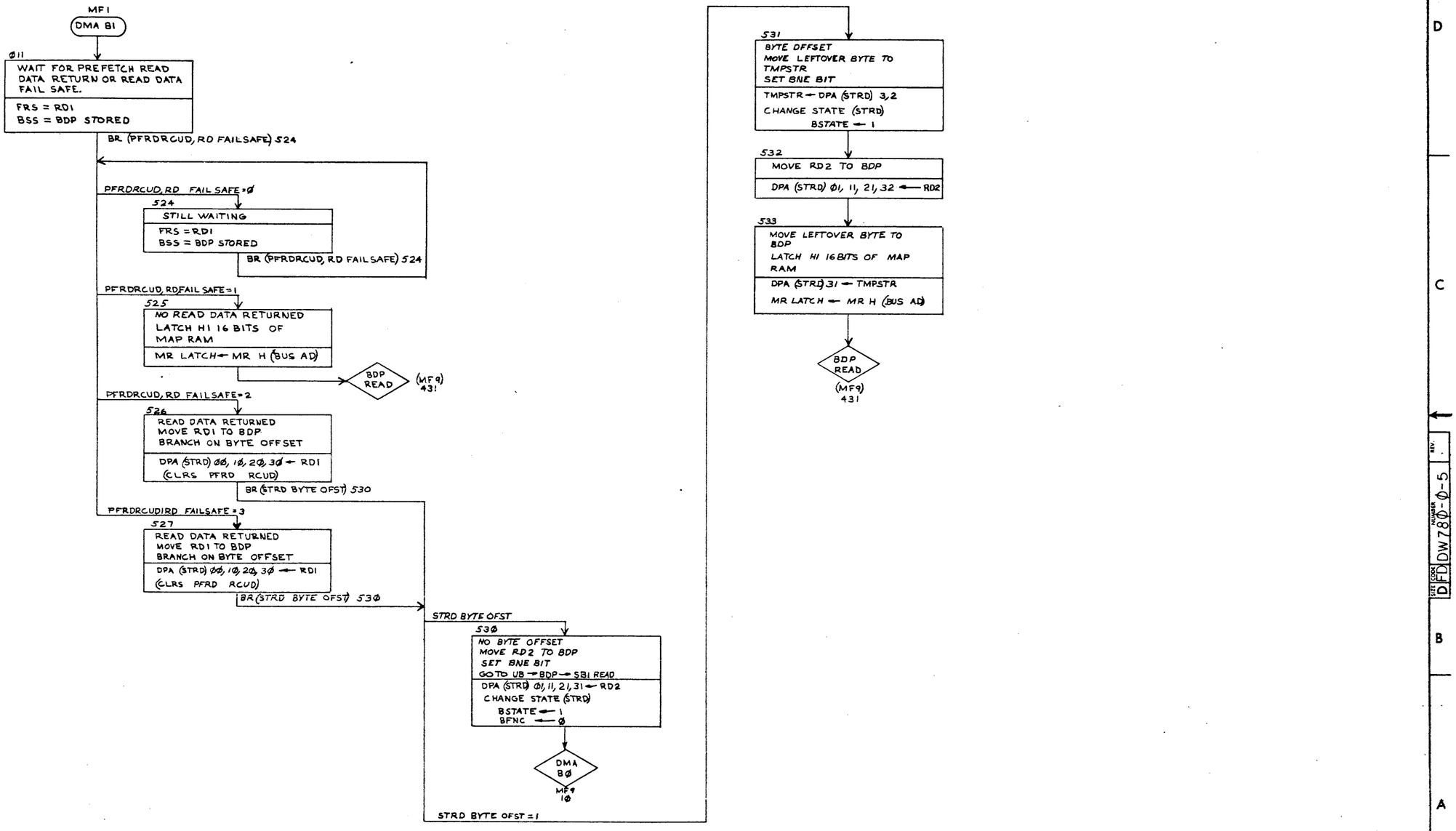
TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW78Ø-Ø-5	
SCALE —/— SHEET 13 OF 27	DIST.			

DEC FORM 105 REV 1.00

DFD DW78Ø-Ø-5 REV

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

UB-BDP-SBI READ
WITH A PREFETCH READ DATA
PENDING FOR ANOTHER BDF.



MF13

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW780-0-5	
SCALE —	SHEET 14 OF 27	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UNIBUS TO BDP TO SBI READ
WITH PREFETCH READ DATA
PENDING FOR THE SAME BDP

(MF1)
DMA B3

Ø13
WAIT FOR PREFETCH READ DATA RETURN OR RD FAIL SAFE
FRS = RDI

BR(PF RD RCVD, RD FAIL SAFE) 534

PFRDRCVD, RD FAIL SAFE = Ø
534
STILL WAITING
FRS = RDI
BR(PFRDRCVD, RD FAIL SAFE)534

PFRDRCVD, RD FAIL SAFE = 1
535
NO READ DATA RETURNED
ABORT UNIBUS TRANSFER
WAIT FOR MSYN TO BE RELEASED BY UNIBUS DEVICE (SSYN TIME OUT)
NO – OP
BR(MSYN RLSD) 546

BFRDRCVD, RD FAIL SAFE = 2
536
READ DATA RETURNED
MOVE RDI TO BDP
BRANCH ON BYTE OFFSET
DPA ØØ, 1Ø, 2Ø, 3Ø ← RDI
BR(STRD BYTE OFST) 54Ø

PFRDRCVD, RD FAIL SAFE = 2
537
READ DATA RETURNED
MOVE RDI TO BDP
BRANCH ON BYTLE OFFSET
DPA ØØ, 1Ø, 2Ø, 3Ø ← RDI.
BR(STRD BYTE OFST) 54Ø

MSYN RLSD = Ø
546
STILL WAITING
NO–OP
BR MSYN RLSD 546

MSYN RLSD = 1
547
TRANS FER ABORTED
CLR DMA ATT

IDLE
(MF1)
ØØ3

STRD BYTE OFST = Ø
54Ø
MOVE RDI BYTE Ø AND 1 TO DOUT EN SSYN
DOUT ← RDI (1, Ø)
EN SSYN

STRD BYTE OFST = 1
541
MOVE RDI BYTE Ø TO HI DOUT (HI BYTE)
H DOUT ← RDI (Ø)

544
MOVE LEFT OVER BYTE FROM BDP TO LO DOUT (LOW BYTE)
EN SSYN
LO DOUT ← DPA 32
EN SSYN
FRS = RD2

545
MOVE READ DATA 2 TO BDP
SET BNE BIT
DPA ØL 11, 21, 32 ← RD2
CHANGE STATE:
BSTATE ← 1
BFNC ← Ø

542
MOVE RD2 TO BDP
SET BNE BIT
DPA Ø1, 11, 21, 31 ← RD 2
CHANGE STATE:
BSTATE ← 1
BFNC ← Ø

543
COMPLETE
CLR DMA ATT

IDLE
(MF1)
ØØ3

REVISIONS
CHK | CHANGE NO. | REV.

(MF14)

TITLE UBA MICRO FLOWS
SIZE D | CODE FD | NUMBER DW78Ø-Ø-5 | REV.
SCALE | SHEET 15 OF 27 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

DMA CØ THRU C7 ARE UNIBUS DATI TO SBI MEMORY ADDRESS TRANSFERS - WITH DATA AVAILABLE IN THE BDP

(MF1) DMA CØ → Ø2Ø: MOVE WORD Ø FROM BDP TO UNIBUS; DOUT ← DPA ØØ, 1Ø; EN SSYN; EN PB CLK

(MF1) DMA C1 → Ø21: MOVE WORD 1 FROM BDP TO UNIBUS; DOUT ← DPA 2Ø, 3Ø; EN SSYN; EN PB CLK

(MF1) DMA C2 → Ø22: MOVE WORD 2 FROM BDP TO UNIBUS; DOUT ← DPA Ø1, 11; EN SSYN; EN PB CLK

(MF1) DMA C4 → Ø24: MOVE FIRST WORD(BYTE OFST) FROM BDP TO UNIBUS; DOUT ← DPA 1Ø, 2Ø; EN SSYN; EN PB CLK

(MF1) DMA C5 → Ø25: MOVE SECOND WORD(BYTE OFST) FROM BDP TO UNIBUS; DOUT ← DPA 3Ø, Ø1; EN SSYN; EN PB CLK

(MF1) DMA C7 → Ø27: MOVE FOURTH WORD(BYTE OFST) FROM BDP TO UNIBUS; DOUT ← DPA 31, ØØ; EN SSYN; EN PB CLK

620: TEST FOR A DP PARITY ERROR; COND CLR DMA ATT

BR(TXPB) 621 TXPB = 1

TXPB = Ø → 621: NO PARITY ERROR COMPLETE; NO-OP; BR(IR) ØØ3 → IDLE (MF1) ØØ3

PARITY ERROR → 622: SET DP PARITY ERROR; EN DPPE STAT; MR LATCH ← MR HI

623: SET BTE FOR BDP; CHANGE STATE BTE ← 1; CLR DMA ATT; CLR MR HI GATE → IDLE (MF1) ØØ3

DMA C8 THRU C15 ARE UNIBUS DATI TO SBI I/O ADDRESS TRANSFERS WITH DATA AVAILABLE IN THE BDP

(MF1) DMA C8 → Ø3Ø: MOVE WORD Ø FROM BDP TO UNIBUS; DOUT ← DPA ØØ, 1Ø; EN SSYN; EN PB CLK

(MF1) DMA C9 → Ø31: MOVE WORD 1 FROM BDP TO UNIBUS; DOUT ← DPA 2Ø, 3Ø; EN SSYN; EN PB CLK

(MF1) DMA C1Ø → Ø32: SAME AS DMA C8

(MF1) DMA C12 → Ø34: SAME AS DMA C8

(MF1) DMA C14 → Ø36: SAME AS DMA C8

(MF1) DMA C11 → Ø33: SAME AS DMA C9

(MF1) DMA C13 → Ø35: SAME AS DMA C9

(MF1) DMA C15 → Ø37: SAME AS DMA C9

REVISIONS		
CHK	CHANGE NO.	REV.

(MF15)

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW78Ø-Ø-5	

SCALE — SHEET 16 OF 27 — DIST.

DW78Ø-Ø-5 REV.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

BDP PREFETCH

(MFI) DMA C6

026
MOVE THIRD WORD (BYTE OFST) FROM BDP TO UNIBUS
CLR BNE BIT
DOUT ← DPA 11, 21
EN SSYN
EN PB CLK
CHANGE STATE:
BSTATE ← Ø

(MFIØ) PREFETCH

(MFI) DMA C3

MOVE WORD 3 (LAST) FROM BDP TO UNIBUS.
CLR BNE BIT
DOUT ← DPA 21, 31
EN SSYN
EN PB CLK
CHANGE STATE:
BSTATE ← Ø

625
AD INC EN

626
START PREFETCH SEQUENCE INCREMENT UNIBUS ADD AND THEN MAP NEW ADD
BUFF ADD STR ← AD + 1
LOAD OPB
BUS AD ← A ← BUFF ADD STR

627
LOAD OPA FOR PREFETCH
LATCH HI 16 BITS OF MAP RAM
CLR COUNTER FOR TIME OUT
LOAD OPA:
IB EN UMD
CNTR ENABLE
OP CODE ← PREFETCH
MR LATCH ← MR H ⟨BUS AD⟩
CLR CNTR

630
REQUEST SBI BRANCH ON PB
SBI REQ EN
MWS = MAP LO

BR (TXPB) 631 TXPB = Ø

632 TXPB = 1
DATA PATH PARITY ERROR
MWS = MAP LO

BR SBI REQ FF

635
WAIT FOR SBI REQ FF TO BE CLEARED
MWS = MAP LO

SBI REQ FF = Ø (SET)
BR (SBI REQ FF) 635

SBI REQ FF = 1 (CLRD)

PRFCH PAR ERR (MF16) 636

631
NO PARITY ERROR
MWS = MAP LO

SBI REQ FF = 1 (CLRD)
BR (SBI REQ FF) 633

633
WAIT FOR SBI REQ FF TO BE CLEARED
MWS = MAP LO

SBI REQ FF = Ø (SET)
BR (SBI REQ FF) 633

SBI REQ FF = Ø (SET)

634
BRANCH ON DATA TRANSFER
MWS = MAP LO

SBI REQ FF = 1 (CLRD)
BR (DTE) 645 DTE = Ø
DTE = 1

646
READ COMMAND TRANSFERED
MWS = MAP LO

BR (CNF ⟨1:Ø⟩) 641

CNF ⟨1:Ø⟩ = Ø

641
NO RESPONCE REPEAT
SBI REQ EN
MWS = MAP LO

CNF ⟨1:Ø⟩ = 1

642 * NOTE 1
ACK CONFIRMATION COMPLETE SEQUENCE
CLR MR HI GATE
CLR DMA ATT
OPB ← IDLE B

CNF ⟨1:Ø⟩ = 2

643
BUSY CONFIRMATION - REPEAT
MWS = MAP LO
SBI REQ EN

CNF ⟨1:Ø⟩ = 3

644
ERR CONFIRMATION ABORT SEQUENCE
CLR MR HI GATE
CLR DMA ATT
OPB ← IDLE B

PRFCH PAR ERR

636
SET BYTE AND DATA PATH PARITY ERROR
CHANGE STATE
BTE ← 1
EN DPPE STAT

645
ERROR COMPLETE SEQUENCE
CLR MR HI GATE
CLR DMA ATT
OPB ← IDLE B

575
SEQUENCE COMPLETE
OPA ← IDLE A

IDLE

(MFI) ØØ3

NOTE 1: THE HARDWARE SETS THE PREFETCH READ DATA REQUIRED FLIP FLOP (UCBM PREF CMND L) WHEN ACK IS RECEIVED DURING THE PREFETCH SEQUENCE.

PREFETCH READ DATA RECEIVED (NO BYTE OFFSET)

(MFI) PF Ø

7Ø
MOVE RD2 TO BDP
DPA ⟨STRD⟩ Ø1, 11, 21, 31 ← RD 2

153
MOVE RD1 TO BDP
SET BNE BIT
DPA ⟨STRD⟩ ØØ, 1Ø, 2Ø, 3Ø ← RD 1
CHANGE STATE
BSTATE ← 1

IDLE

(MFI) ØØ3

PREFETCH READ DATA RECEIVED (BYTE OFFSET)

(MFI) PF 1

71
MOVE LEFT OVER BYTE TO TMPSTR
TMPSTR DPA ⟨STRD⟩ 32
FRS = RD2

154
MOVE RD2 TO BDP
DPA ⟨STRD⟩ Ø1, 11, 21, 32 ← RD 2

155
MOVE LEFT OVER BYTE TO BDP
DPA ⟨STRD⟩ 31 ← TMPSTR
FRS = RD1

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW78Ø-Ø-5	
SCALE —	SHEET 17 OF 27	DIST.		

(MF16)

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

DIRECT DATA PATH TO SBI READ

(MF1,19)
DMA DØ

ØØ4
LOAD OPA FOR DIRECT DATA PATH FUNCTION
LATCH HI 16 BITS OF MAP RAM
CLR CNTR FOR TIME OUT

LOAD OPA:
IB EN UMD
CNTR ENABLE
OP CODE ← DDP FUNC
MR LATCH ← MR H ⟨BUS AD⟩
CLR CNTR

360
REQUESTS SBI

SBI REQ EN
MWS = MAP LO

MF17
DØ WAT

361
WAIT FOR SBI REQ FF TO BE CLEARED

MWS = MAP LO
BR(SBI REQ FF) 361
SBI REQ FF=SET (Ø)

362
SBI REQ FF = CLR D(1)
BRANCH ON DATA TRANSFER

MWS = MAP LO
BR (DTE) 363
DTE = 1

363
DTE = Ø
NO COMMAND TRANSFER
MASTER SYNC RELEASED
OR
MAP PARITY ERROR
COMMAND OR TIME OUT

ENABLE MAP STAT
EN CATO
MWS = MAP LO

364
READ COMMAND TRANSFERRED BRANCH ON CONFIRMATION

MWS = MAP LO
BR CNF⟨1:Ø⟩ 365

CNF⟨1:Ø⟩ = Ø (NR)
365
NO RESPONSE - REPEAT

SBI REQ EN
MWS = MAP LO
DØ WAT MF17 361

CNF⟨1:Ø⟩ = 1 (ACK)
366
ACK: WAIT FOR RD RECVD

FRS = RDI
BR(DRDRCVD, RD FAIL SAFE) 371

CNF⟨1:Ø⟩ = 2 (BSY)
367
BUSY CONFIRMATION: REPEAT

SBI REQ EN
MWS = MAP LO
DØ WAT (MF17) 361

CNF⟨1:Ø⟩ = 3 (ERR)
370
ERROR CONFIRMATION SET STATUS BIT

EN CXTR
CLR CNTR

DRDRCVD, RD FAIL SAFE = Ø
371
STILL WAITING

FRS = RDI
BR DRDRCVD RD FAILSAFE=371

DRDRCVD, RD FAIL SAFE=1
372
READ DATA TIME OUT OR UNIBUS TIME OUT

NO-OP

DRDRCVD, RD FAILSAFE = 2
373
READ DATA RETURNED ENABLE INTERLOCK FF BRANCH ON UNIBUS ADD ⟨A1⟩

FRS = RDI
INTLK SET ENABLE
BR (UB AI) 375

DRDRCVD, RD FAILSAFE = 3
374
READ DATA RETURNED ENABLE INTERLOCK FF BRANCH ON UNIBUS ADD ⟨A1⟩

FRS = RDI
INTLK SET ENABLE
BR(UB AI) 375

UB AI = Ø
375
MOVE LO 16 BITS OF RDI TO DOUT ENABLE SLAVE SYNC

DOUT ← RDI LO
EN SSYN

UB AI = 1
376
MOVE HI 16 BITS OF RDI TO DOUT ENABLE SLAVE SYNC

DOUT ← RDI HI
EN SSYN

354
COMPLETION:
CLR DMA ATTENTION
RELEASE MR LATCH
CLR CNTR
WAIT FOR MSYN TO BE RELEASE

CLR DMA ATT
CLR MR HI GATE
CLR CNTR
BSS = 1
BR⟨MSYN RLSD⟩ 354
MSYN RLSD = Ø

MSYN RLSD = 1
355
CLR OPA TO IDLE STATE
CLR READ DATA RECEIVED
CLR COUNTER

OPA ← IDLE A
CLR RD RCVD
CLR CNTR

IDLE
(MFI)
ØØ3

REVISIONS		
CHK	CHANGE NO.	REV.

(MF17)

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW78Ø-Ø-5	
SCALE —	SHEET 18 OF 27	DIST.		

DW78Ø-Ø-5

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

DIRECT DATA PATH SBI WRITE

(MF1) DMA DI

ØØ5 LOAD OPA FOR DIRECT DATA PATH FUNCTION; CLR CNTR FOR TIME OUT; LATCH HI 16 BITS OF MAP RAM
LOAD OPA:
IB EN UMD
DP MUX HI DISABLE
CNTR ENABLE
OP CODE ← DDP FUNC
CLR CNTR
MR LATCH ← MR H ⟨BUS AD⟩

(MF1) DMA D3

ØØ7 SAME AS STATE ØØ5 ←

377 REQUEST SBI; BRANCH ON UNIBUS ADD ⟨AI⟩
SBI REQ EN
BUS IB LO ← A REC D
MWS = MAP LO
BR(UB AI) 351

MF18 DDP WRT

UB AI = Ø

UB AI = 1

352 WAIT FOR SBI REQ FF TO BE CLEARED; UNIBUS DATA GOES TO HI 16 BITS OF SBI
BUS IB HI ← A REC D
MWS = MAP LO
BR(SBI REQ FF) 352
SBI REQ FF = SET(Ø)

353 BRANCH ON DATA TRANSFER
BUS IB HI ← A REC D
MWS = MAP LO
ENABLE INTERLOCK FLIP FLOP
BR(DTE) 4Ø5

351 GO TO 4Ø3; UNIBUS DATA GOES TO LO 16 BITS OF SBI
BUS IB LO ← A REC D
MWS = MAP LO

4Ø3 WAIT FOR SBI REQ FF TO BE CLEARED
BUS IB LO ← A REC D
MWS = MAP LO
BR(SBI REQ FF) 4Ø3
SBI REQ FF = SET (Ø)

4Ø4 BRANCH ON DATA TRANSER
BUS IB LO ← A REC D
MWS = MAP LO
ENABLE INTERLOCK FLIP FLOP
BR(DTE) 4Ø5
SBI REQ FF = CLRD (1)

DTE = 1

4Ø6 SBI COMMAND TRANSFERRED BRANCH ON CONFIRMATION
BUS IB LO ← A REC D
MWS = MAP LO
BR(CNF⟨1:Ø⟩) 4Ø7

DTE = Ø

4Ø5 COMMAND NOT TRANSFERRED ENABLE ERROR BITS
EN CATO
EN MAP STAT
MWS = MAP LO

CNF⟨1:Ø⟩ Ø (NR)

4Ø7 NO RESPONSE - REPEAT
SBI REQ EN
BUS IB LO ← A REC D
MWS = MAP LO
BR(UB AI) 351

DDP WRT (MF18) 351

CNF⟨1:Ø⟩ = 1 (ACK)

CNF⟨1:Ø⟩ = 2 (BSY)

411 BUSY RESPONSE REPEAT
SBI REQ EN
BUS IB LO ← A REC D
MWS = MAP LO
BR(UB AI) 351

DDP WRT (MF18) 351

CNF⟨1:Ø⟩ = 3 (ERR)

412 ERROR RESPONSE
EN CXTER
MWS = MAP LO

410 ACK CONFIRMATION BRANCH ON ACK FOR WRITE DATA
BUS IB LO ← A REC D
MWS = MAP LO
BR(ACK) 413

ACK = 1

ACK = Ø

413 NO ACK FOR WRITE DATA REPEAT
SBI REQ EN
BUS IB LO ← A REC D
MWS = MAP LO

DDP WRT (MF18) 351

414 ACK RECEIVED SEND SLAVE SYNC
SND. SSYN
CLR MR HI GATE

415 COMPLETE SEQUENCE WAIT FOR MSYN TO BE RELEASED
CLR MR HI GATE
CLR DMA ATT
BSS = 1
BR(MSYN RLSD) 415
MSYN RLSD = Ø

MSYN RCSD = 1

416 CLR OPA TO IDLE STATE
OPA ← IDLE A

IDLE (MF1) ØØ3

REVISIONS		
CHK	CHANGE NO.	REV.

(MF18)

TITLE UBA MICRO FLOWS
SIZE D | CODE FD | NUMBER DW78Ø-Ø-5 | REV.
SCALE — | SHEET 19 OF 27 | DIST.

DEC 1000 DW780-0-5 REV

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

STORE READ DATA OR WAIT FOR AND STORE READ DATA THEN GO TO DDP TO SBI READ

DMA D2

00 6
BRANCH ON STATE OF READ DATA IN PROGRESS
BSS = DP ADD ⟨STORE⟩
FRS = READ DATA 1

BR(PFRDRCVD, RDFS) 420

PFRDRCVD, RDFS = 0

420
WAIT
BSS = DP ADD ⟨STORED⟩
FRS = READ DATA 1

BR(PFRDRCVD, RDFS) 420

PFRDRCVD, RDFS = 1

421
READ DATA FAIL SAFE
READ DATA NOT RECEIVED
NO-OP - GO TO DDP READ

DMA D0 (MF17) 004

PFRDRCVD, RDFS = 2

422
PREFETCH READ DATA RECEIVED.
STORE READ DATA 1 AND BRANCH ON STORE BYTE OFFSET.
DPA ⟨STRD⟩ 00, 10, 20, 30 ← RDI

BR(STRD BYTE OFST) 424

PFRDRCVD, RDFS = 3

PREFETCH READ DATA RECEIVED
STORE READ DATA 1 AND BRANCH ON STORED BYTE OFFSET
DPA STRD 00, 10, 20, 30 ← RDI

BR(STRD BYTE OFST) 424

STRD BYTE OFST = 0

424
NO BYTE OFFSET
STORE READ DATA 2
DPA ⟨STRD⟩ 01, 11, 21, 31 ← RD 2

426
SET BNE BIT FOR BDP
CHANGE STATE (DPA ⟨STRD⟩)
BSTATE ← 1
BNFC ← 0
CLR RD RCVD

DMA D0 (MF17) 004

STRD BYTE OFST = 1

425
BYTE OFFSET
MORE TEMPORARY BUFFER TO TMPSTR
TMPSTR ← DPA ⟨STRD⟩ 32
FRS = READ DATA 2

427
MOVE READ DATA 2 TO BDP AND TEMPORARY BUFFER
DPA ⟨STRD⟩ 01, 11, 21, 32 ← RD 2

430
MOVE TMPSTR TO BDP
SET BNE BIT FOR BDP
DPA ⟨STRD⟩ 31 ← TMPSTR
CHANGE STATE (DPA ⟨STRD⟩)
BSTATE ← 1
BFNC ← 0
CLR RD RCVD

DMA D0 (MF17) 004

REVISIONS		
CHK	CHANGE NO.	REV.

MF19

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW780-0-5	
SCALE	SHEET 20 OF 27	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UNIBUS MASTER - DATA IN TIMEOUT
SEND ZERO READ DATA
MF1

UBC Ø

50
LOAD OPA FOR ZERO RD
CLR COUNTER FOR TIMEOUT
LOAD OPA:
DP MUX DISABLE
IB ENABLE UMD
INC CNTR ENABLE
OP CODE ← RD MSK = Ø
CLR CNTR

231
STORE ZERO IN HI DOUT AND LO DOUT
REQUEST SBI
HI DOUT ← Ø
LO DOUT ← Ø
SBI REQ EN

232
WAIT FOR SBI REQ FF TO BE CLEARED
NO-OP
BR (SBI REQ FF) 232
SBI REQ FF = SET (Ø)
SBI REQ FF = CLRD (1)

233
INSTRUCTION COMPLETE
CLR OPA TO IDLE STATE
CLR ATTENTION
GO TO IDLE
OPA ← IDLE
CLR UB ATT
CLR CNTR

IDLE
(MF1) ØØ3

BRRVR SEND RAM
SEND STORED BRRVR FOR REAR DATA

(MF1)
UBC 1

51
SELECT BRRVR NUMBER AND BRANCH ON THAT VALUE
BSS = REG ADD

BR(DP ADD<3:2>) 241
DP ADD<3:2> = Ø

241
MOVE BRRVR 4 TO TMPSTR
TMPSTR ← DPA Ø Ø2,12

DP ADD<3:2> = 1

242
MOVE BRRVR 5 TO TMPSTR
TMPSTR ← DPA Ø 22,32

DP ADD<3:2> = 2

243
MOVE BRRVR 6 TO TMPSTR
TMPSTR ← DPA Ø Ø3,13

DP ADD<3:2> = 3

244
MOVE BRRVR 7 TO TMPSTR
TMPSTR ← DPA Ø 23,33

245
BRANCH ON BRRVR FULL
NO-OP
BR (BRRVR FULL) 246

BRRVR FULL = 1 (FULL)

247
LOAD OPA FOR TMPSTR RD
CLR COUNTER FOR TIMEOUT
LOAD OPA:
DP MUX H DISABLE
IB ENABLE UMD
INC CNTR ENABLE
OP CODE ← RD MSK = Ø
CLR CNTR

BRRVR FULL = Ø

246
LOAD OPA FOR ZERO RD
CLR COUNTER FOR TIMEOUT
LOAD OPA:
DP MUX DISABLE
IB ENABLE UMD
INC CNTR ENABLE
OPCODE ← RD MSK = Ø
CLR CNTR

BRRVR SEND VECTOR
SEND UNIBUS VECTOR FOR BRRVR READ DATA

(MF1)
UBC 5

55
MOV UNIBUS VECTOR TO TMPSTR
TMPSTR ← REG D

250
REQUEST SBI
SELECT TMPSTR
SBI REQ EN
BUS IB ← D TMPSTR

251
WAIT FOR SBI REQ FF TO BE CLEARED
SELECT TMPSTR
BUS IB ← A TMPSTR
BR(SBI REQ FF) 251
SBI REQ FF = SET (Ø)
SBI REQ FF = CLRD (1)

252
BRANCH ON DATA X FERRED
NO-OP
BR (DTE) 253
DTE = Ø
DTE = 1

254
DATA WAS TRANSFERRED
TEST FOR ACK
NO-OP
BR (ACK) 255
ACK = Ø
ACK = 1

256
READ DATA RECEIVED
CLR OPA TO IDLE STATE
CLR COUNTER
CLR BRRVR FULL BIT
OPA ← IDLE
CLR CNTR

275
TEST THAT UNIBUS INTR IS NEGATED
CLR BRRVR FULL
BR(INTR RLSD) 275
INTR RLSD = Ø
INTR RLSD = 1

276
CLR SB ATT

257
CLR UB ATT

IDLE
(MF1) ØØ3

253
NO DATA TRANSFER
CLR OPA TO IDLE STATE
OPA ← IDLE
CLA CNTR
CLR SB ATT

255
READ DATA FAILED
CLR OPA TO IDLE STATE
OPA ← IDLE
CLR CNTR

260
STORE VECTOR IN BRRVR
SELECT BRRVR NUMBER AND BRANCH ON THAT VALUE
SELECT TMPSTR AND LAD=2, HAD=2
BSS = REG ADD

BR(DP ADD<3:2>) 261
DP ADD<3:2> = Ø

261
MOVE TMPSTR TO BRRVR 4
DPA Ø Ø2,12 ← TMPSTR

DP ADD<3:2> = 1

262
MOV TMPSTR TO BRRVR 5
DPA Ø 22,32 ← TMPSTR

DP ADD<3:2> = 2

263
MOVE TMPSTR TO BRRVR 6
DPA Ø Ø3,13 ← TMPSTR

DP ADD<3:2> = 3

264
MOV TMPSTR TO BRRVR 7
DPA Ø 23,33 ← TMPSTR

REVISIONS		
CHK	CHANGE NO.	REV.

(MF2Ø)

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOWS	D	FD	DW78Ø-Ø-5	
SCALE —	SHEET 21 OF 27	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © DIGITAL EQUIPMENT CORPORATION"

MASTER DATI RTN W1
RETURN UNIBUS DATA IN UPPER
16 BITS FOR READ DATA
(ZERO IN LOWER 16 BITS)
(MF1)

UCB2

52
LOAD OPA FOR UNIBUS RD
CLR COUNTER FOR TIMEOUT
LOAD OPA:
DP MUX H DISABLE
IB ENABLE UMD
CNTR ENABLE
OP CODE ← RD MSK=PB
CLR CNTR

234
STORE UNIBUS DATA IN
HI DOUT AND LO DOUT
REQUEST SBI
HI DOUT, LO DOUT ← REC D
SBI REQ EN
BUS IB ←A REC D (SHFT 2)

235
WAIT FOR REQ FF
TO BE CLEARED
BUS IB ←A REC D (SHFT 2)
BR (SBI REQ FF) 235
SBI REQ FF = SET (Ø)

236
SBI REQ FF = CLRD (1)
TRANSFER COMPLETE
CLR OPA TO IDLE STATE
OPA ← IDLE
CLR CNTR
CLR UB ATT

IDLE
(MF1)
ØØ3

MASTER DATI RTN WØ
RETURN UNIBUS DATA IN LOWER
16 BITS FOR READ DATA
(ZERO IN UPPER 16 BITS)
(MF1)

UBC3

53
LOAD OPA FOR UNIBUS RD
CLR COUNTER FOR TIMEOUT
LOAD OPA:
DP MUX H DISABLE
IB ENABLE UMD
CNTR ENABLE
OP CODE ← RD MSK PB
CLR CNTR

237
STORE UNIBUS DATA IN
HI DOUT AND LO DOUT
HI DOUT, LO DOUT ← REC D

265
REQUEST SBI
BUS IB ←A REC D
SBI REQ EN

266
WAIT FOR SBI REQ FF TO
BE CLEARED
BUS IB ←A REC D
BR (SBI REQ FF) 266
SBI REQ FF = SET (Ø)

267
SBI REQ FF = CLRD (1)
TRANSFER COMPLETE
CLR OPA TO IDLE STATE
OPA ← IDLE
CLR CNTR
CLR UB ATT

IDLE
(MF1)
ØØ3

REVISIONS
CHK | CHANGE NO. | REV.

(MF21)

TITLE: UBA MICRO FLOW
SIZE D | CODE FD | NUMBER DW780-0-5 | REV.
SCALE | SHEET 22 OF 27 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © DIGITAL EQUIPMENT CORPORATION"

UAI READ
FUBAR, FMER, SR, CR - READ
(MF1)

SB1

61
LOAD OPA FOR UAI RD
CLEAR COUNTER FOR TIME OUT
LOAD OPA:
DP MUX DISABLE
IB ENABLE UAI
CNTR ENABLE
OP CODE ← RD MSK=Ø

120
REQUEST SBI
SBI REQ EN

121
WAIT FOR SBI REQ FF TO BE CLEARED
NO-OP

BR (SBI REQ FF) 121
SBI REQFF = SET(Ø)

122
SBI REQ FF = CLRD (1)
INSTRUCTION COMPLETE
CLR OPA TO IDLE STATE
OPA ← IDLEA
CLR SB ATT

IDLE
(MF1)
ØØ3

DPR READ
IF DPRØ → SEND ZERO
IF DPR1→15, SEND CONTENTS
(MF1)

SB2

62
SELECT BSS = REG ADD AND BRANCH ON NON-ZERO ADDRESS
BSS = REG ADD

BR (DP) Ø) 123
(DP) Ø) = 1

(DP) Ø) = Ø
123
DP REG Ø - SEND ZERO RD
LOAD OPA FOR ZERO RD
CLEAR CNTR FOR TIMEOUT
PREPARE FOR ROTATE
LOAD OPA:
DP MUX DISABLE
IB EN UMD
CNTR ENABLE
OP CODE RD MSK = Ø
CLR CNTR
BSS = REG ADD
DSS = 2 (ROT2)

127
REQUEST SBI
ROTATE DP RAM 2 BYTES
SBI REQ EN
BUS IB ←A DPA (REG ADD) (ROT 2) Ø3,13,23,33

130
WAIT FOR SBI REQ FF TO BE CLEARED
BUS IB ←A DPA (REG ADD) Ø3,13. (ROT 2) 23,33

BR (SBI REQFF) 130
SBI REQ FF = SET(Ø)

131
SBI REQ FF = CLRD (1)
CLR OPB
OPB ← IDLE B

COMMENT
DP REG 1→15: GET DP STATE INFORMATION FROM MSK AND STATE RAM ON UCBJ AND COMBINE WITH DP ADDRESS INFORMATION IN DP RAM (UMD).
MICRO STATE 124, 125

124
ENABLE STATE AND MSK ONTO AD BUS
LOAD OPB:
BUS AD ←A UCB AD MUX
BSS = REG ADD

125
MOVE STATE AND MSK TO DATA PATH RAM
DPA (REG ADD) Ø3,13 ← BUS AD

126
LOAD OPA FOR DPR RD
CLR CNTR FOR TIMEOUT
PREPARE FOR ROTATE
LOAD OPA:
IB ENABLE UMD
CNTR ENABLE
OP CODE ← RD MSK = Ø
CLR CNTR
BSS = REG ADD
DSS = 2 (ROT 2)

BSRVR READ
(MF1)

SB3

63
SELECT BSS = REG ADD AND BRANCH ON VALUE SELECT DMS = DP RAM
BSS = REG ADD
DMS = DP RAM

BR (DP ADD (3:2)) 14?

DP ADD (3:2) = Ø
142
MOV BRSVR 4 TO TMPSTR
TMPSTR ← DPA Ø ØØ, 1Ø

DP ADD (3:2) = 1
143
MOV BRSVR 5 TO TMPSTR
TMPSTR ← DPA Ø 2Ø, 3Ø

DP ADD (3:2) = 2
144
MOV BRSVR 6 TO TMPSTR
TMPSTR ← DPA Ø Ø1, 11

DP ADD (3:2) = 3
145
MOV BRSVR 7 TO TMPSTR
TMPSTR ← DPA Ø 21, 31

46
LOAD OPA FOR TMPSTR RD
CLR CNTR FOR TIMEOUT
LOAD OPA:
DP MUX H DISABLE
IB ENABLE UMD
CNTR ENABLE
OP CODE ← RD MSK = Ø
CLR CNTR

147
REQUEST SBI
SBI REQ EN
BUS IB ←A TMPSTR

150
WAIT FOR SBI REQ FF TO BE CLEARED
BUS IB ←A TMPSTR

BR (SBI REQ FF) 150
SBI REQ FF = SET(Ø)

151
SBI REQ FF = CLRD (1)
INSTRUCTION COMPLETE
CLR OPA TO IDLE STATE
OPA ← IDLE A
CLR SB ATT

IDLE
(MF1)
ØØ3

(MF22)

REVISIONS
CHK | CHANGE NO. | REV.

TITLE: UBA MICRO FLOW
SIZE: D | CODE: FD | NUMBER: DW78Ø-Ø-5 | REV.
SCALE | SHEET 23 OF 27 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

MAP REGISTER READ
(MF1)

SB4

64
SELECT MAS = REG ADD
STORE HIGH 16 BITS OF MAP REG
MRLATCH ← MR H(REG ADD)

136
LOAD OPA FOR MAP REG RD
SELECT MR LOW
CLR CNTR
LOAD OPA
IB ENABLE UMD
CNTR ENABLE
OP CODE ← MAP REG RD
CLR CNTR
MWS = MAP LO

137
REQUEST SBI
SELECT MRLO
SBI REQ EN
MWS = MAP LO

140
WAIT FOR SBI REQ FF TO BE CLEARED
MWS = MAP LO

BR(SBI REQ FF) 140
SBI REQ FF = SET(Ø)

141
INSTRUCTION COMPLETE
CLR OPA TO IDLE STATE
RELEASE MR LATCH
OPA ← IDLEA
CLR MR HI GATE
CLR CNTR
CLR SB ATT

IDLE
(MF1)
ØØ3

BRSVR WRITE
(MF1)

SB6

66
SELECT BSS = REC ADD
AND BRANCH ON VALUE
BSS = REG ADD

BR(DP ADD (3:2) 332

DP ADD (3:2) = Ø
332
MOVE AD WD TO BRSVR4
DPA Ø ØØ,1Ø ← AD WD

DP ADD (3:2) = 1
333
MOV AD WD TO BRSVR5
DPA Ø 2Ø, 3Ø ← AD WD

DP ADD (3:2) = 2
334
MOV AD WD TO BRSVR6
DPA Ø Ø1,11 ← AD WD

DP ADD (3:2) = 3
335
MOV AD WD TO BRSVR7
DPA Ø 21,31 ← AD WD

336
INSTRUCTION COMPLETE
CLR SB ATT

IDLE
(MF1)
ØØ3

MAP REGISTER WRITE
(MF1)

SB7

67
MOVE LOWER 16 BITS OF AD WD TO MAPREG LOW
MR L(REG ADD) ← ADWD

152
MOVE UPPER 16 BITS OF AD WD TO MAP REG HI
MR H (REG ADD) ← AD WD
CLR SB ATT

IDLE
(MF1)
ØØ3

REVISIONS		
CHK	CHANGE NO.	REV.

(MF23)

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOW	D	FD	DW78Ø-Ø-5	
SCALE —	SHEET 24 OF 27	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 "DIGITAL EQUIPMENT CORPORATION"

DPR WRITE- (NO-OP, CLR BTE, PURGE OR CLR BTE AND PURGE)

(MF1)

SB 5

65
SELECT BSS = REG ADD AND BRANCH ON NON-ZERO
BSS = REG ADD

BR (DP>Ø) 66Ø
(DP>Ø)=Ø

(DP>Ø)=1

661
DPR1 TO 15
BRANCH ON DATA BITS 31,30 TO DETERMINE OPERATION
BSS = REG ADD

BR(SBI BIT<31:30>)662

SBI BIT (31:30) = Ø

662
NO-OP
CLR SB ATT

IDLE (MF1) ØØ3

SBI BIT (31:3Ø) = 1

663
CLR BTE ONLY
CHANGE STATE:
BTE (REG ADD) ← Ø
CLR SB ATT

IDLE (MF1) ØØ3

SBI BIT (31:3Ø) = 2

SBI BIT (31:3Ø) = 3

665
CLR BTE- GO TO PURGE
CHANGE STATE
BTE (REG ADD) ← Ø

660
NON-OP FOR DPØ
CLR SB ATT

IDLE (MF1) ØØ3

664
DPR PURGE
BRANCH ON PURGE REQUIRED (FUNC = WRITE • AND • BDP CONTAINS DATA)
BSS = REG ADD

BR (PRG RQD) 666
PRG RQD = Ø (NO)

PRG RQD = 1 (YES)

667
PURGE REQUIRED
MOVE STORED BUFFER ADDRESS TO BAS
ENABLE DP PARITY ERROR CATCH
BUFF ADD STR ← DPA(REG ADD) 28,33
EN DPPE CATCH

67Ø
ROUTE STORED ADDRESS (BAS) TO MAP (AD BUS) FOR ADDRESS MAPPING
LOAD OPB
BUS AD ←A BUFF ADD STR
BSS = REG STR

671
STORE HIGH 16 BITS OF MAP RAM
MR LATCH MRH <BUS AD>
BSS = REG ADD

672
LOAD OPA FOR PURGE
SELECT LOW 16 BITS OF MAP RAM
CLR CNTR FOR TIMEOUT
LOAD OPA:
MIC STATE ← 1
IB EN UMD
CNTR ENABLE
OP CODE ← PURGE
MWS <Ø> = Ø
BSS = REG ADD
CLR CNTR

673
BRANCH ON MAP RAM OR DP RAM PARITY ERRORS (TEST PURGE ACCESS OK)
BUS = REG ADD
MWS = Ø
CLR CNTR

BR (PRG ACCESS OK) 674
PRG ACC OK = Ø (FAILURE)
PRG ACC OK = 1 (SUCCESS)

PURGE (MF25) 675

666
PRG NOT REQUIRED
BRANCH ON BDP ACTIVE (PREFETCH)
BSS = REG ADD

BR (BDP ACTIVE) 700
BDP ACTIVE = 1 (YES)

BDP ACTIVE = Ø (NO)

7ØØ
BDP NOT ACTIVE
CLR BSTATE (BNE) AND BFNC
CHANGE STATE
BSTATE <REG ADD> ← Ø
BFNC <REG ADD> ← Ø

674
ENABLE DP PARITY STATUS BIT
ENABLE MAP STATUS BITS (INVALID MAP REG + MAP REG PARITY ERR)
SET BTE, CLR BSTATE AND FUNC
EN MAP STAT
EN DPPE STAT
CHANGE STATE:
BSTATE <REG ADD> ← Ø
BTE <REG ADD> ← 1
BFNC <REG ADD> ← Ø

7Ø1
BDP ACTIVE
CLR READ DATA RECEIVED
WAIT FOR COMPLETE
BSS = REG ADD
CLR RD RCVD

BR (RD FAILSAFE) 701
RD FAILSAFE = Ø (READ DATA EXPECTED)

RD FAILSAFE = 1

7Ø2
READ DATA NOT EXPECTED
CLR BSTATE (BNE) AND BFNC
CHANGE STATE
BSTATE <REG ADD> Ø
BFNC <REG ADD> Ø

676
CLEAR MASK BITS
CHANGE MASK
MSK <REG ADD> ALL ← Ø

677
CLR OPB TO IDLE STATE
RELEASE MR LATCH
OPB ← IDLE B
CLR MR HI GATE
BSS = 1

703
CLR OPA TO IDLE STATE
CLR SB ATTENTION
OPA ← IDLE A
CLR SB ATT

IDLE (MF1) ØØ3

(MF7,25)
PRGCMPT

(MF24)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOW	D	FD	DW78Ø-Ø-5	
SCALE	SHEET 25 OF 27	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © DIGITAL EQUIPMENT CORPORATION"

(MF24)
PURGE

675
REQUEST SBI
BRANCH ON EXTENDED FUNC.
ENABLE DP PARITY ERR CATCH
SBI REQ EN
BUS IB ← A DP RAM
EN DPPE CATCH
MWS = MAPLO

BR (EXT FUNC) 312
EXT FUNC = Ø → PRGLWRT (MF26) 312

(MF25,26)
PRGXWRT ← EXT FUNC = 1

313
EXTENDED WRITE
WAIT FOR SBI REQ FF
TO BE CLEARED
ENABLE DP PARITY ERR CATCH
BUS IB ← A DP RAM
EN DPPE CATCH
MWS = MAPLO

BR (EXT FUNC) 313
SBI REQ FF = SET (Ø)

314
BRANCH ON DATA TRANSFER
SBI REQ FF = CLRD (1)
BUS IB ← A DP RAM
EN DPPE CATCH
MWS = MAPLO

BR (DTE) 315
DTE = 1

315
DTE = Ø
SBI TRANSFER DID NOT TAKE PLACE:
COMMAND TIMEOUT OR MAP PARITY ERROR
BUS IB ← A DP RAM
EN CATO
EN MAP STAT
MWS = MAP LO

WRT ERR
(MF7)
21Ø

316
SBI COMMAND TRANSFERRED
BRANCH ON CONFIRMATION
BUS IB ← A DP RAM
MWS = MAPLO

BR (CNF(1:Ø)) 320

CNF(1:Ø) = Ø (NR)

32Ø
NO RESPONSE - REPEAT
SBI REQ EN
BUS IB ← A DP RAM
EN DPPE CATCH
MWS = MAPLO

BR (EXT FUNC) 312
EXT FUNC = Ø → PRGLWRT (MF26) 312

EXT FUNC = 1 → PRGXWRT (MF25) 313

CNF(1:Ø) = 1 (ACK)

CNF(1:Ø) = 2 (BSY)

322
BUSY - REPEAT
SBI REQ EN
BUS IB ← A DP RAM
EN DPPE CATCH
MWS = MAPLO

BR (EXT FUNC) 312
EXT FUNC = Ø → PRGLWRT (MF26) 312

EXT FUNC = 1 → PRGXWRT (MF25) 313

CNF(1:Ø) = 3 (ERR)

323
ERROR CONFIRMATION
ENABLE COMMAND ERROR STATUS BIT
EN CXTER

WRT ERR
(MF7)
21Ø

321
ACK - CONTINUE
BRANCH ON ACK FOR WD1
BUS IB ← A DP RAM
MWS = MAPLO

BR (ACK) 324
ACK = Ø

ACK = 1
325
ACK FOR WD1 RECEIVED
BRANCH ON ACK FOR WD2
BUS IB ← A DP RAM
MWS = MAPLO

BR (ACK) 326

(MF26)
PRGWDL

ACK = Ø

ACK = 1
327
ACK FOR LAST WD RECEIVED
CLEAR STATE AND MASK
TEST FOR DP PARITY ERR
CNG MASK AND STATE:
BSTATE ← Ø
BFUNC ← Ø
CLR MSK

BR (DPPE) 33Ø

DPPE = Ø

DPPE = 1
331
DP PARITY ERROR
ENABLE STATUS BIT
EN DPPE STAT

WRT ERR
(MF7)
21Ø

324
ACK FOR WD1 NOT RECEIVED
REPEAT
SBI REQ EN
BUS IB ← A DP RAM
EN DPPE CATCH
MWS = MAP LO

BR (EXT FUNC) 312
EXT FUNC = Ø → PRGLWRT (MF26) 312

EXT FUNC = 1 → PRGXWRT (MF25) 313

326
ACK NOT RECEIVED
REPEAT
SBI REQ EN
BUS IB ← A DP RAM
EN DPPE CATCH
MWS = MAP LO

BR (EXT FUNC) 312
EXT FUNC = Ø → PRGLWRT (MF26) 312

EXT FUNC = 1 → PRGXWRT (MF25) 313

330
NO ERRORS:
CLR OPB TO IDLE STATE
RELEASE MR LATCH
OPB ← IDLE B
CLR MR HI GATE

PRGCMPT
(MF24)
7Ø3

(MF25)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOW	D	FD	DW78Ø-Ø-5	
SCALE —	SHEET 26 OF 27	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © DIGITAL EQUIPMENT CORPORATION"

(MF25, 26)
PRGLWRT

312
PURGE WRITE LONG
BUS IB ← A DP RAM
EN DPPE CATCH
MWS = MAP LO

341
WAIT FOR REQ FF TO BE CLEARED
BUS IB ← A DP RAM
EN DPPE CATCH
MWS = MAP LO
BR (SBI REQ FF)
SBI REQ FF = SET (Ø)
SBI REQ FF = CLRD (1)

342
BRANCH ON DATA TRANSFER ENABLE
BUS IB ← A DP RAM
EN DPPE CATCH
MWS = MAP LO
BR (DTE)
DTE = 1
DTE = Ø

343
SBI TRANSFER DID NOT TAKE PLACE: COMMAND TIMEOUT OR MAP PARITY ERROR
BUS IB ← A DP RAM
EN CATO
EN MAP STAT
MWS = MAP LO

WRT ERR
(MF7)
21Ø

344
SBI COMMAND TRANSFERRED BRANCH ON CONFIRMATION
BUS IB ← A DP RAM
MWS = MAP LO

BR (CNF(1:Ø)) 345
CNF(1:Ø) = Ø (NR)

345
NO RESPONSE - REPEAT
SBI REQ EN
BUS IB ← A DP RAM
EN DPPE CATCH
MWS = MAP LO

BR (EXT FUNC) 312
EXT FUNC = Ø
PRGLWRT (MF26) 312
EXT FUNC = 1
PRGXWRT (MF25) 313

CNF(1:Ø) = 1 (ACK)

346
ACK CONFIRMATION BRANCH ON ACK FOR WDI
BUS IB ← A DP RAM
MWS = MAP LO
BR (ACK) 326
PRGNDL (MF25) 326, 327

CNF(1:Ø) = 2 (BSY)

347
BUSY - REPEAT
SBI REQ EN
BUS IB ← A DP RAM
EN DPPE CATCH
MWS = MAP LO
BR (EXT FUNC)
EXT FUNC = Ø
PRG LWRT (MF26) 312
EXT FUNC = 1
PRGXWRT (MF25) 313

CNF(1:Ø) = 3 (ERR)

35Ø
ERROR CONFIRMATION ENABLE COMMAND ERROR STATUS BIT
EN CXTER

WRT ERR
(MF7)
21Ø

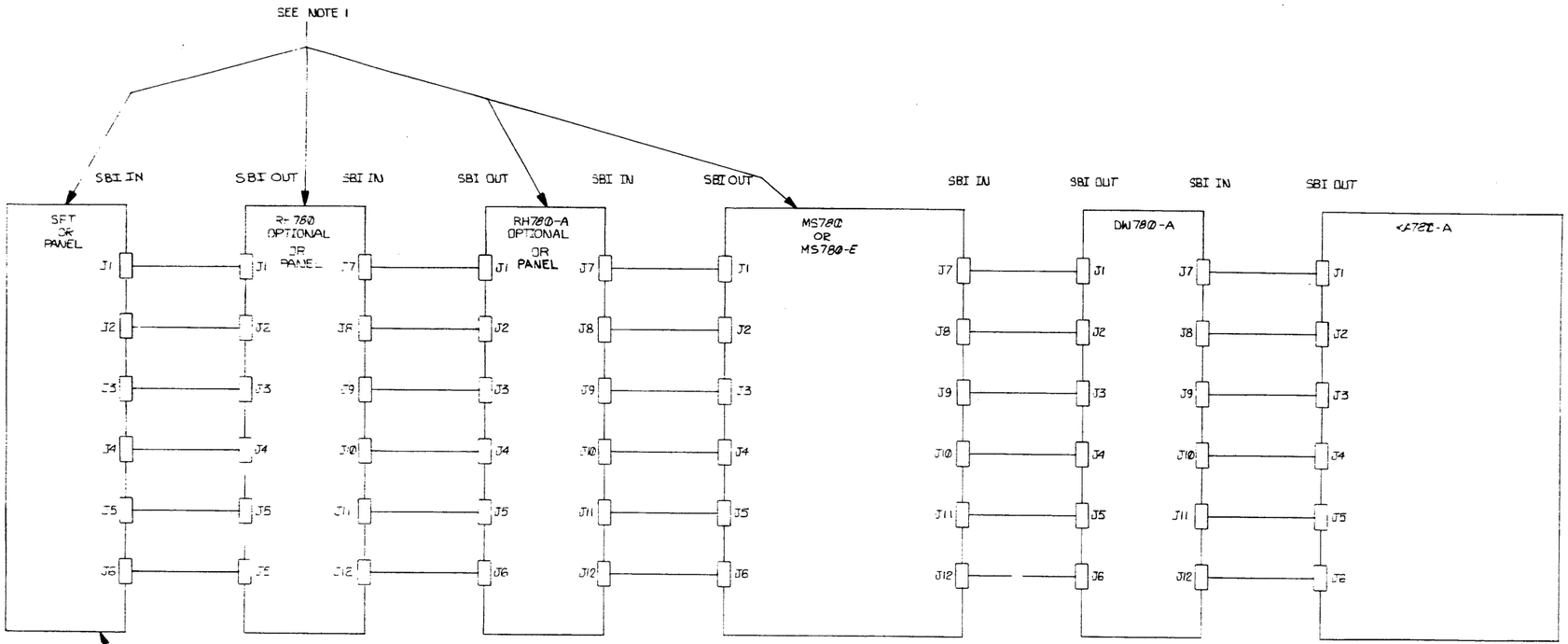
(MF26)

REVISIONS
CHK | CHANGE NO. | REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MICRO FLOW	D	FD	DW78Ø-Ø-5	
SCALE	SHEET 27 OF 27	DIST.		

DEC DW78Ø-Ø-5 REV.

"THIS DRAWING AND SPECIFICATIONS, HEREON, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977, DIGITAL EQUIPMENT CORPORATION"



NOTES:

1.) 11780-C SYSTEM CONSISTS OF
- A. KA780-A
- B. DW780-A
- C. MS780
- D. SFT (# M9043)
- E. 2 DUMMY PANELS (# 7418973)

11780-D SYSTEM CONSISTS OF
- A. KA780-A
- B. DW780-A
- C. MS780
- D. RH780-A
- E. RH780
- F. SFT

11780-EA, EC, ED SYSTEM CONSISTS OF
- A. KA780-A
- B. DW780
- C. MS780-E
- D. SFT (#M9043)
- E. 2 DUMMY PANELS (#7418973)

CONT:

11780-EK, EM, EN SYSTEM CONSISTS OF
- A. KA780-A
- B. DW780
- C. MS780-E
- D. RH780-A
- E. RH780
- F. SFT

2.) SBI CABLE CONNECTIONS TO SFT FROM ADJACENT BACKPLANE ARE ALWAYS 1700087-1 (QUANTITY 4) OTHER SBI CABLES ARE 1700087-0.

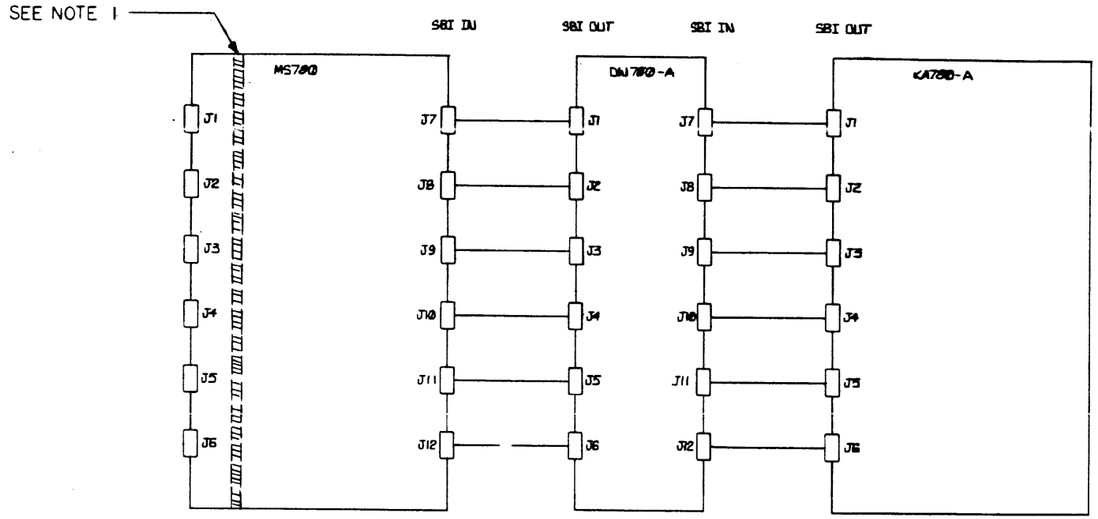
REVISIONS				
CHK	CHANGE NO	REV		
[illegible]	11780-TW002	A	E. ANTON	[illegible]
[illegible]	11780-TW006	B	R. CHUSMAE	[illegible]
[illegible]	11780-TW010	C	D. SMITH	[illegible]

(BACKPLANE S.B.I. INTERCONNECT)

DRN. E Taylor	26 JUL 77	FIRST USED ON 11780	digital
CHK'D D Young	9 AUG 77	TITLE 11780 SUB SYSTEM INTERCONN.	
ENG. E. Anton	8 SEP 77		
PROJ. ENG. [illegible]	12 SEP 77		
PROD. R Chusmae	11-18-77		
NEXT HIGHER ASSY.			
B-DD-11780-0		SIZE D CODE IC NUMBER 11780-0-3 REV E	
SCALE		DIST.	
SHEET 1 OF 9			

TW 1

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1979 , DIGITAL EQUIPMENT CORPORATION"



NOTES:
1) 11730 CU.CV SYSTEM CONSISTS OF
   A. KA780 A
   B. DW780 A
   C. MS780
   D. TRM (M9040) MOUNTED IN SLOT# 1 OF MS780 BACKPLANE.

THIS SHEET FOR CU+CV VARIATIONS ONLY

(BACKPLANE S.B.I. INTERCONNECT)

DRN. R.E. LENNON 9/17/79	FIRST USED ON 11780	digital
CHK'D.	TITLE 11780 SUB SYSTEM INTERCONN.	
ENG.		
PROJ. ENG		
PROD.		
NEXT HIGHER ASSY.		
B-DD-11780-0	SIZE D CODE IC NUMBER 11780-0-3	REV. C
SCALE		
SHEET 2 OF 9	DIST.	

REVISIONS | REV. | CHANGE NO. | CHK.

TW 1

"THIS DRAWING AND SPECIFICATIONS, HEREON, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 , DIGITAL EQUIPMENT CORPORATION"

J7

BUS SBI B00 L
BUS SBI B01 L
BUS SBI B02 L
BUS SBI B03 L
BUS SBI B04 L
BUS SBI B27 L
BUS SBI B05 L
BUS SBI B06 L
BUS SBI B26 L
BUS SBI B09 L
BUS SBI B10 L
BUS SBI B11 L

J9

BUS SBI B20 L
BUS SBI B23 L
BUS SBI B22 L
BUS SBI B24 L
BUS SBI B27 L
BUS SBI B25 L
BUS SBI B28 L
BUS SBI B26 L
BUS SBI B29 L
BUS SBI B30 L
BUS SBI FAIL L
BUS SBI B31 L

J11

BUS SBI REQ4 L
BUS SBI REQ7 L
BUS SBI REQ5 L
BUS SBI TP L
BUS SBI REQ6 L
BUS SBI PCLK H
BUS SBI TP H
BUS SBI PDCLK H
BUS SBI PDCLK L
BUS SBI PDCLK L
BUS SBI MP2 L
BUS SBI MP1 L
BUS SBI ALERT L
BUS SBI UNJAM L
BUS SBI CNF0 L
BUS SBI FAULT L
BUS CNF1 L

J8

BUS SBI B12 L
BUS SBI B14 L
BUS SBI B13 L
BUS SBI B15 L
BUS SBI B46 L
BUS SBI B17 L
BUS SBI B18 L
BUS SBI B19 L

J10

BUS SBI M0 L
BUS SBI DEAD L
BUS SBI M1 L
BUS SBI M3 L
BUS SBI M2 L
BUS SBI P0 L
BUS SBI SPARE 0
BUS SBI P1 L
BUS SBI SPARE 1
BUS SBI TAG0 L
BUS SBI ID0 L
BUS SBI TAG1 L
BUS SBI ID1 L
BUS SBI TAG2 L
BUS SBI ID2 L
BUS SBI ID3 L
BUS SBI ID4 L

J12

BUS SBI INTLK L
BUS SBI TR01 L
BUS SBI TR02 L
BUS SBI TR03 L
BUS SBI TR02 L
BUS SBI TR04 L
BUS SBI TR05 L
BUS SBI TR06 L
BUS SBI TR07 L
BUS SBI TR08 L
BUS SBI TR09 L
BUS SBI TR10 L
BUS SBI TR11 L
BUS SBI TR13 L
BUS SBI TR12 L
BUS SBI TR14 L
BUS SBI TR15 L

(SBI IN)

REVISIONS	REV.	CHANGE NO.	CHK.

DRN. E Taylor	25 July 77	FIRST USED ON 11780
CHK'D D Hough	16 AUG 77	digital
ENG. Ed Pontin	16 Sept 77	TITLE 11780 SUB SYSTEM INTERCONNECT
PROJ. ENG. A Watts	16 Sept 77	
PROD. R. Zinno	11-NOV-77	
NEXT HIGHER ASSY.		
B-DD-11780		SIZE D · CODE IC · NUMBER 11780-0-3 · REV. C
SCALE		
SHEET 3 OF 9		DIST.

TW

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 , DIGITAL EQUIPMENT CORPORATION"

J1

BUS SBI B00 L
BUS SBI B01 L
BUS SBI B02 L
BUS SBI B03 L
BUS SBI B04 L
BUS SBI B07 L
BUS SBI B05 L
BUS SBI B06 L
BUS SBI B00 L
BUS SBI B09 L
BUS SBI B10 L
BUS SBI B11 L

J2

BUS SBI B12 L
BUS SBI B14 L
BUS SBI B13 L
BUS SBI B15 L
BUS SBI B16 L
BUS SBI B17 L
BUS SBI B18 L
BUS SBI B19 L

J3

BUS SBI B20 L
BUS SBI B23 L
BUS SBI B21 L
BUS SBI B22 L
BUS SBI B24 L
BUS SBI B27 L
BUS SBI B25 L
BUS SBI B28 L
BUS SBI B26 L
BUS SBI B29 L
BUS SBI B30 L
BUS SBI FAIL L
BUS SBI B31 L

J4

BUS SBI M00 L
BUS SBI DEAD L
BUS SBI M1 L
BUS SBI M3 L
BUS SBI M2 L
BUS SBI P0 L
BUS SBI SPARE 0
BUS SBI P1 L
BUS SBI SPARE 1
BUS SBI TAG0 L
BUS SBI ID0 L
BUS SBI TAG1 L
BUS SBI ID1 L
BUS SBI TAG2 L
BUS SBI ID2 L
BUS SBI ID3 L
BUS SBI ID4 L

J5

BUS SBI REQ4 L
BUS SBI REQ7 L
BUS SBI REQ5 L
BUS SBI TP L
BUS SBI REQ6 L
BUS SBI PCLK H
BUS SBI TP H
BUS SBI PDCLK H
BUS SBI PCLK L
BUS SBI PDCLK L
BUS SBI MP2 L
BUS SBI MP1 L
BUS SBI ALERT
BUS SBI UNJAM
BUS SBI CNF0 L
BUS SBI FAULT
BUS SBI CNF1 L

J6

BUS SBI INTLK L
BUS SBI TR01 L
BUS SBI TR00 L
BUS SBI TR03 L
BUS SBI TR02 L
BUS SBI TR04 L
BUS SBI TR05 L
BUS SBI TR06 L
BUS SBI TR07 L
BUS SBI TR08 L
BUS SBI TR09 L
BUS SBI TR10 L
BUS SBI TR11 L
BUS SBI TR13 L
BUS SBI TR12 L
BUS SBI TR14 L
BUS SBI TR15 L

(S.B.I. OUT)

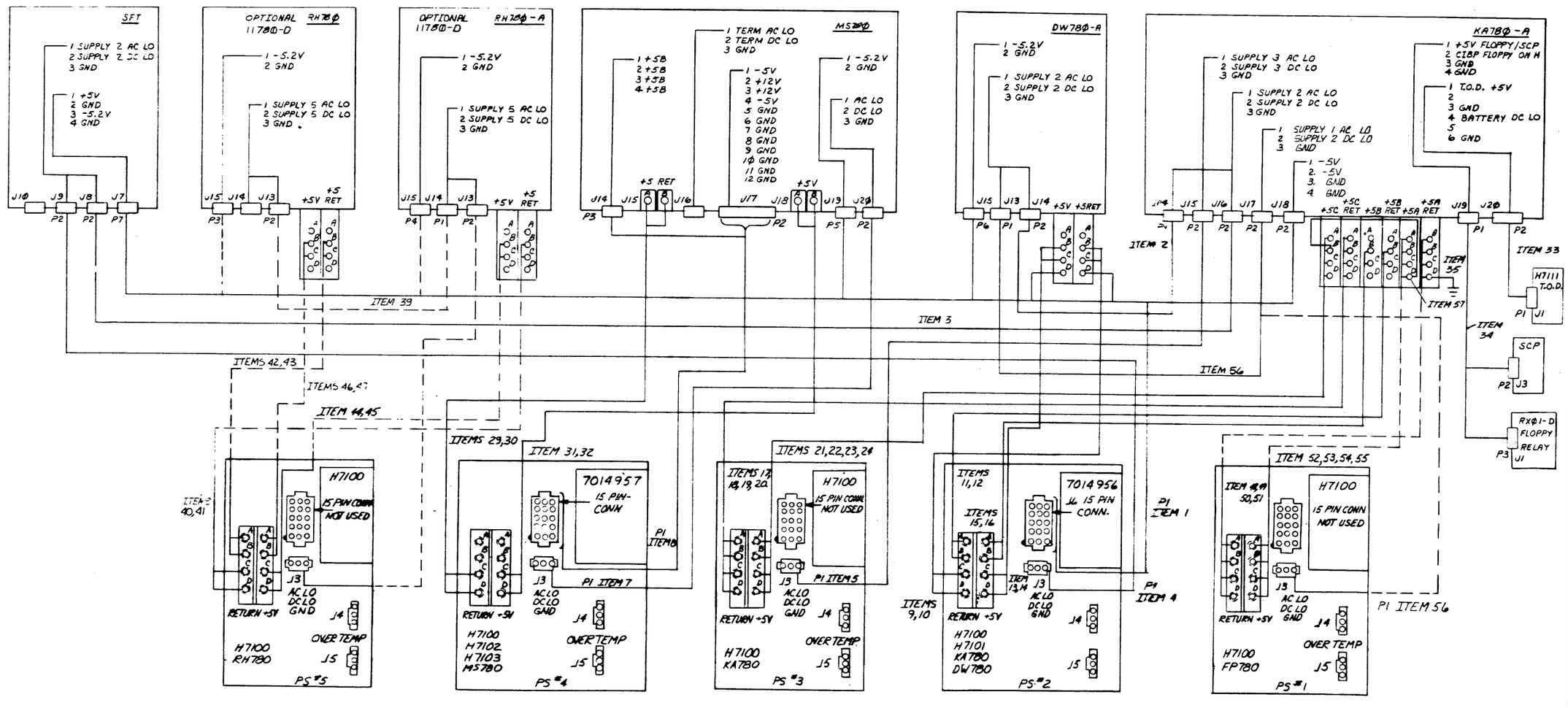
REVISIONS		
REV.	CHANGE NO.	CHK

DRN. E TAYLOR	25 Jan 77	FIRST USED ON 11780
CHK'D D Gray	26 Jan 77	digital
ENG. Ed Antle	16 Sept 77	TITLE 11780 SUB SYSTEM INTERCONNECT
PROJ. ENG. Kathy	16 Feb 77	
PROD. R Zinno	11-16-77	
NEXT HIGHER ASSY.		
SCALE		SIZE D / CODE 1C / NUMBER 11780-0-3 / REV. C
SHEET 4 OF 9		DIST.

TW 1

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 , DIGITAL EQUIPMENT CORPORATION"

NOTES:
1.) ITEM # S ARE SHOWN FOR REFERENCE IN LOCATING CABLE DESTINATIONS ONLY USING SHEET 7 D-IC-11780-0-3



SEE SHEET #6 FOR REF. PARTS LIST.

(BACKPLANE D.C. INTERCONNECT)

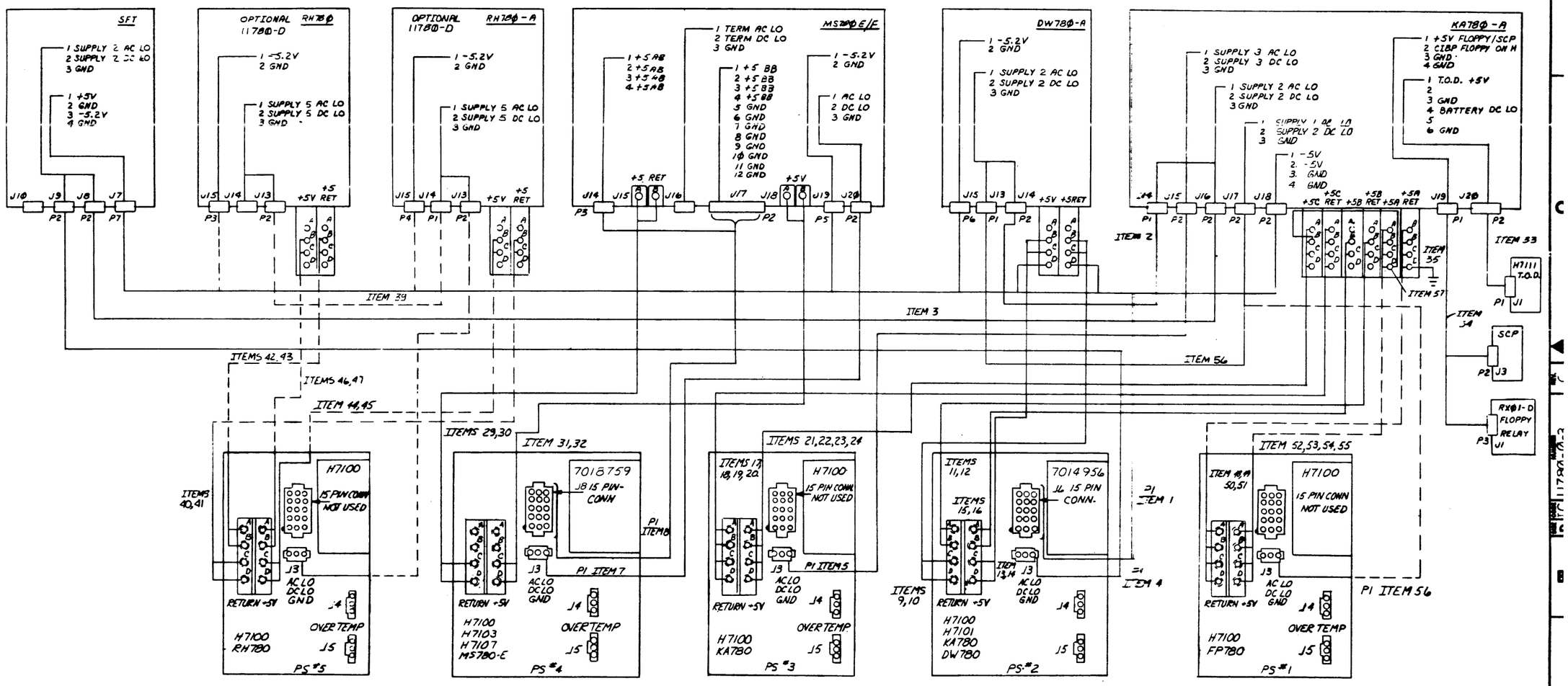
11780-C+D CONFIGURATIONS

DRN. E. TAYLOR	25 JUL 77	FIRST USED ON 11780	20-DEC-0 A
CHK'D		TITLE 11780 SUB SYSTEM INTERCONNECT	
ENG. Ed Arm	28 JUL 77		
PROJ. ENG.	28 JUL 77		
PROD.	11-18-77		
NEXT HIGHER ASSY.		SIZE D CODE IC NUMBER 11780-0-3 REV. C	
SCALE		DIST.	
SHEET 5 OF 9			

REVISIONS: REV. | CHANGE NO. | DIR.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 , DIGITAL EQUIPMENT CORPORATION"

NOTES:
1.) ITEM # S ARE SHOWN FOR REFERENCE IN LOCATING CABLE DESTINATIONS ONLY USING SHEET 7 D-IC-11780-0-3



SEE SHEET #6 FOR REF. PARTS LIST.

(BACKPLANE D.C. INTERCONNECT)

11780-E CONFIGURATIONS

DRN. E. TAYLOR	25 JAN 77	FIRST USED ON 11780
CHK'D [illegible]	1/6 FEB 77	digital
ENG. Ed Ayer	25 OCT 77	TITLE 11780 SUB SYSTEM INTERCONNECT
PROJ. ENG. [illegible]	6 JAN 77	
PROD. [illegible]	11-18-77	
NEXT HIGHER ASSY.		SIZE D CODE IC NUMBER 11780-0-3 REV. C
SCALE —H—		DIST.
SHEET 6 OF 9		

REVISIONS: REV. | CHANGE NO. | DR.

TW 1

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

11780 - E (SEE NOTE 4)
11780 - C & D (SEE SHEETS 7&8 FOR CU,CV VARIATIONS)

REF ITEM NUMBER	PART NUMBER	DESCRIPTION	FROM	TO	REMARKS
1	7015073-0-0	HARNESS 5V TERMINATOR	HARNESS P1	PS#2 - J6	-5V GND
			HARNESS P2	KA780-J18	
			HARNESS P5	MS780-J19	
			HARNESS P6	DW780-J15	-5V, GND
			HARNESS P7	SFT-J7	+5V, GND
			HARNESS RING TERM (RED WIRE)	DW780+5V-D	+5V
	7015073-0-0	HARNESS 5V TERM	HARNESS RING TERM (BLK WIRE)	DW780+5VRT-D	+5V RETURN
2	70.4212-0H	CABLE AC DC LOW	CABLE P1	KA780-J14	
			CABLE P2	DW780-J14	
3	7014212-2M	CABLE AC DC LOW	CABLE P1	KA780-J16	
			CABLE P2	SFT-J8	
4	7014212-2M	CABLE AC DC LOW	CABLE P1	PS#2-J3	AC DC LOW GND
			P2	SFT-J9	
5	7014212-0M	CABLE AC DC LOW	CABLE P1	PS#3-J3	AC DC LOW & GND
			P2	KA780-J15	
7	7014212-1C	CABLE AC DC LOW	CABLE P1	PS#4-J3	AC DC LOW & GND
			P2	MS780-J20	
SEE NOTE 4 * 8	7014234-0K	CABLE +5B & +12	CABLE P1	PS#4-J7	+5B & +12
			P2	MS780-J17	
			P3	MS780-J14	
9	7014249-1A	CABLE POWER (BLK)	PS#2+5 RET-D	DW780+5 RET-B	PS#2+5 RETURN
10	7014249-1A	CABLE POWER (BLK)	PS#2+5 RET-C	DW780+5 RET-C	
11	7014249-1C	CABLE POWER (BLK)	PS#2+5 RET-B	KA780+5B RET-B	
12	7014249-1C	CABLE POWER BLK	PS#2+5 RET A	KA780+5B RET C	PS#2+5 RETURN
13	7014530-1A	CABLE POWER (RED)	PS#2+5 - D	DW780+5 - B	PS#2+5
14			C	DW780+5 - C	
5	7014530-1A	CABLE POWER (RED)	PS#2+5 B	KA780+5B C	
16	7014530-1A	CABLE POWER (RED)	PS#2+5 A	KA780+5B B	PS#2+5
17	7014249-1J	CABLE POWER (BLK)	PS#3-5 RET D	KA780-5C RET D	PS#3+5 RETURN
18			C	C	
19			B	B	
20	7014249-1J	CABLE POWER (BLK)	PS#3-5 RET A	KA780+5C - A	PS#3+5 RETURN
21	7014530-1E	CABLE POWER (RED)	PS#3+5 - D	KA780+5C - D	PS#3+5 RETURN
22			C	C	
23			B	B	
24	7014530-1E	CABLE POWER (RED)	PS#3+5 - A	KA780+5C - A	
* 58	7019586-1K	CABLE +5B	CABLE P1	PS#4-J8	
			CABLE P2	MS780-J17	
			CABLE P3	MS780-J14	
29	7014250-0K	CABLE POWER	PS#4+5 RET C	MS780-J16 - A	PS#4+5 RETURN
30	7014250-0K	CR MEMORY BLK	PS#4+5 RET D	MS780-J16 B	
31	7014529-0K	CABLE POWER	PS#4+5 C	MS780-J18 - A	PS#4+5V
32		-5 MEMORY (RED)	PS#4+5 D	MS780-J18 B	
33	7014243-3M	CABLE TO T-OLD BAT.	HARNESS P2	KA780-J20	
			P1	H7111-J1	
34	70.4243-2J	FLOPPY RELAY	HARNESS P1	KA780-J19	
		5C PWR HARNESS	P2	BCP-J3	
			P3	RX01-J1	
35	7014249-0L	CABLE POWER (BLK)	KA780-A+5A RET D	FRAME	
56	7014212-0M	CABLE AC/DC LO	CABLE P1	DW780-J13	SEE NOTE *3
			CABLE P2	KA780-J17	

11780 - D, EK, EM, EN

REF ITEM NUMBER	PART NUMBER	DESCRIPTION	FROM	TO	REMARKS
1	7015073-0-0	HARNESS-5V TERM.	HARNESS P3	RH-780-A-J15	-5V GND
1	7015073-0-0	HARNESS-5V TERM.	HARNESS P4	RH-780-A-J15	-5V GND
38	7014212-0M	CABLE AC DC LOW	CABLE P1	PS#5-J3	AC DC LO & GND
	7014212-0M	CABLE AC DC LOW	CABLE P2	RH-780-A-J13	AC DC LO & GND
39	7014212-0H	CABLE AC DC LOW	CABLE P1	RH-780-A-J14	AC DC LO & GND
	7014212-0H	CABLE AC DC LOW	CABLE P2	RH-780-A-J13	AC DC LO & GND
40	7014249-0L	CABLE POWER (BLK)	PS#5+5 RET-D	RH-780-A+5 RET C	PS#5+5 RETURN
41			C	B	
42	7014249-0L	CABLE POWER (BLK)	PS#5+5 RET-B	RH-780-A+5-C	PS#5+5 RETURN
43			A	B	
44	7014530-0L	CABLE POWER (RED)	PS#5+5 - D	RH-780-A+5 - C	PS#5+5V
45			C	B	
46	7014530-0L	CABLE POWER (RED)	PS#5+5 - B	RH-780+5 - C	PS#5+5V
47			A	B	

FP780
OR
FP780 & KU780 SEE NOTE 1

48	7014249-0L	POWER CABLE BLK	PS#1+5 A RET D	<FP780-5A RET D	PS#1+5 RETURN
49			C	C	
50			B	B	
51	7014249-0L	POWER CABLE (BLK)	PS#1+5 A RET A	<FP780-5A RET A	PS#1+5 RETURN
52	7014530-0L	POWER CABLE (RED)	PS#1+5 - D	<FP780-5A - D	PS#1+5V
53			C	C	
54			B	B	
55	7014530-0L	POWER CABLE (RED)	PS#1+5 - A	<FP780-5A - A	PS#1+5V
56	7014212-0M	CABLE AC DC LO	CABLE P1	PS#1 J3	AC, DC, LOW
			P2	KA780-J17	

SEE NOTE 3

OPTIONAL

KC780 OR KU780 SEE NOTE 2

57	7014530-0L	CABLE POWER (RED)	KA780-A+5A D	<KA780-A+5C- B	PS#2+5V

NOTES:

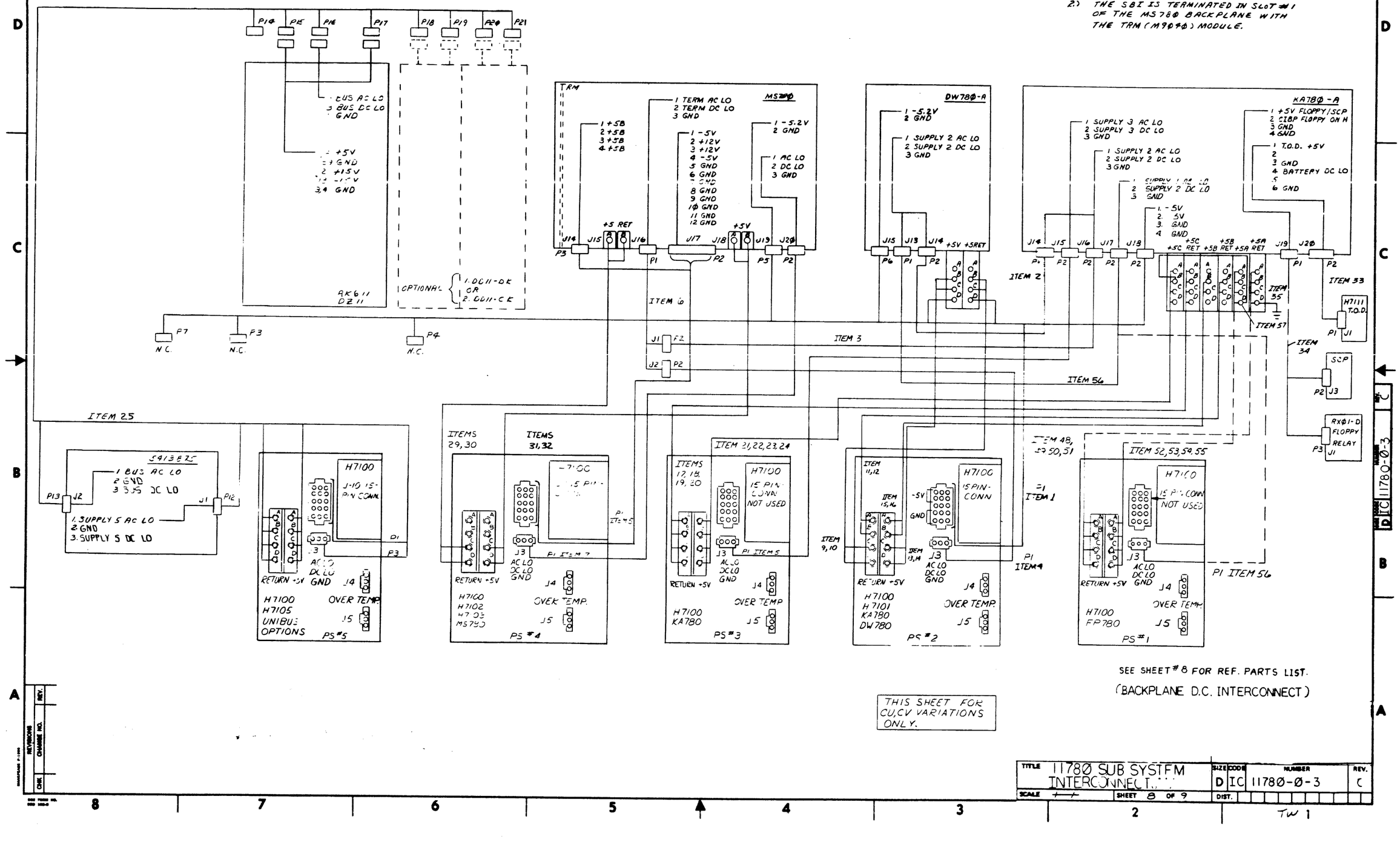
1. REFER TO E-UA-KA780 FOR INSTRUCTIONS OF JUMPER REMOVAL IN CONFIGURATIONS USING PS#1.
2. IF THE FP780 IS INSTALLED REMOVE ITEM 57.
3. IF THE FP780 IS INSTALLED; ITEM #56 P1 CONNECTS TO PS#1-J3. OTHERWISE IT IS CONNECTED TO DW780-J13.
4. 11780-E VARIATIONS MUST USE ITEM 58 INPLACE OF ITEM 8.

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
11780 SUB-SYSTEM INTERCONNECT	D	1C	11780-0-3	C
SCALE —	SHEET 7 OF 9	DIST.		

"THIS DRAWING AND SPECIFICATIONS, WHERE, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1979 , DIGITAL EQUIPMENT CORPORATION"

NOTES:
1.) ITEM #'S ARE SHOWN FOR REFERENCE IN LOCATING CABLE DESTINATIONS ONLY USING SHEET 9 D-IC-11780-0-3
2.) THE SBI IS TERMINATED IN SLOT #1 OF THE MS76Ø BACKPLANE WITH THE TRM (M9Ø9Ø) MODULE.



SEE SHEET #8 FOR REF. PARTS LIST.

(BACKPLANE D.C. INTERCONNECT)

THIS SHEET FOR CU,CV VARIATIONS ONLY.

REVISIONS	REV.	CHANGE NO.	CHK.

TITLE	SIZE	CODE	NUMBER	REV.
11780 SUB SYSTEM INTERCONNECT	D	IC	11780-0-3	C
SCALE —	SHEET 8 OF 9	DIST.		

TW 1

THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1980
DIGITAL EQUIPMENT CORPORATION

11780-CU/CV

REF ITEM NUMBER	PART NUMBER	DESCRIPTION	FROM	TO	REMARKS
1	70 5073-0-0	HARNESS-5V TERMINATOR	HARNESS - P1	PS#2 - J6	-5V GND
			HARNESS - P2	KA780-J18	
			HARNESS - P5	MS780-J19	
			HARNESS - P6	DW780-J15	-5V GND
			HARNESS - P7	N.C.	±5V GND
			HARNESS RING TERM. (RED WIRE)	DW780+5V-D	-5V
	70 5073-0-0	HARNESS-5V TERMINATOR	HARNESS RING TERM. (BLK WIRE)	DW780+5V RT-D	+5V RETURN
2	70142 2-0H	CABLE AC DC LOW	CABLE - P1	KA780-J14	AC,DC LOW+GND
			CABLE - P2	DW780-J14	
3	70142 2-2M	CABLE AC DC LOW	CABLE - P1	KA780-J16	AC,DC LOW+GND
			CABLE - P2	ITEM#6-J1	
4	70142 2-2M	CABLE AC DC LOW	CABLE - P1	PS#2 - J3	AC,DC LOW+GND
			CABLE - P2	ITEM#6-J2	
5	70142 2-0V	CABLE AC DC LOW	CABLE - P1	PS#3 - J3	AC,DC LOW+GND
			CABLE - P2	KA780-J15	
6	70 -0U	AC DC LOW WYE CABLE	CABLE - P1	MS780-J16	AC,DC LOW+GND
			CABLE - J1	ITEM#3-P2	
			CABLE - J2	ITEM#4-P2	
7	70142 2-1C	CABLE AC DC LOW	CABLE - P1	PS#4 - J3	AC,DC LOW+GND
			CABLE - P2	MS780-J20	
8	70142 2-0K	CABLE ±5B +12V	CABLE - P1	PS#4 - J7	±5B +12V-GND
			CABLE - P2	MS780-J17	
			CABLE - P3	MS780-J14	
9	70 4249-1A	CABLE POWER (BLK	PS#2 +5 RET - D	DW780+5 RET-B	PS#2+5 RETURN
10	70 4249-1A	CABLE POWER (BLK)	PS#2 +5 RET - C	DW780+5 RET-C	
11	70 4249-1C	CABLE POWER (BLK)	PS#2 +5 RET - B	KA780+5B RET-B	
12	70 4249-1C	CABLE POWER (BLK	PS#2 +5 RET - A	KA780+5B RET-C	PS#2 +5 RETURN
13	70 4530-1A	CABLE POWER (RED)	PS#2 +5V - D	DW780+5V-B	PS#2 +5V
14	70 4530-1A	CABLE POWER (RED)	PS#2 +5V - C	DW780+5V-C	
15	70 4530-1A	CABLE POWER (RED)	PS#2 +5V - B	KA780+5B-C	
16	70 4530-1A	CABLE POWER (RED)	PS#2 +5V - A	KA780+5B-B	PS#2 +5V
17	70 4249-1J	CABLE POWER (BLK)	PS#3 +5V RET - D	KA780+5C RET-D	
18			- C	- C	
19			- B	- B	
20	70 4249-1J	CABLE POWER (BLK)	PS#3 +5V RET - A	KA780+5C RET-A	PS#3 +5 RETURN
21	70 4530-1E	CABLE POWER (RED)	PS#3 +5V - D	KA780+5C - D	PS#3 +5 RETURN
22			- C	- C	
23			- B	- B	
24	70 4530-1E	CABLE POWER (RED)	PS#3 +5V - A	KA780-5C - A	
25	70 16951-0-0	UNIBUS PWR HARNESS	HARNESS - P1	PS#5 - J10	PS#5 +15V -15V+GND
			HARNESS RING TERM (BLK WIRE) - P2	PS#5 +5 RET - D	PS#5 +5 RETURN
			HARNESS - P3	PS#5 - J3	AC,DC LOW +GND
			HARNESS RING TERM (RED WIRE) - P4	PS#5 +5V - D	PS#5 -5V
			- P5	- C	
			- P6	- B	
			HARNESS RING TERM (RED WIRE) - P7	PS#5 +5V - A	
			HARNESS RING TERM (BLK WIRE) - P8	PS#5 +5 RET - D	PS#5 +5 RETURN
			- P9	- C	
			- P10	- B	
			HARNESS RING TERM (BLK WIRE) - P11	PS#5 +5 RET - A	
	70 16951-0-0	UNIBUS PWR HARNESS	HARNESS - P12	ADAPTER BOARD-J1	AC,DC LOW + GND

11780-CJ/CV

REF ITEM NUMBER	PART NUMBER	DESCRIPTION	FROM	TO	REMARKS
25	70 16951-0-0	UNIBUS PWR HARNESS	HARNESS - P13	ADAPTER BOARD-J2	ADAPT. AC,DC LOW+GND
			- P14	N.C. (OPTIONAL)	
			- P15	RK611 - P2	
			- P16	RK611 - P3	
			- P17	RK611 - P4	
			- P18	N.C. (OPTIONAL)	
			- P19		
			- P20		
	70 16951-0-0	UNIBUS PWR HARNESS	HARNESS - P21	N.C. (OPTIONAL)	
29	70 14250-0K	CABLE POWER RTR MEMORY (BLK)	PS#4 -5V RET - C	MS780-J15-A	PS#4 +5 RETURN
30			- D	- B	
31	70 14529-0K	CABLE POWER +5 MEMORY (RED)	PS#4 -5V - C	MS780-J18-A	PS#4 +5V
32			- D	- B	
33	70 14243-3M	CABLE TO T.Q.D. BAT.	HARNESS - P2	KA780-J20	
			- P1	H7111 - J1	
34	70 14243-21	FLOPPY RELAY SC PWR HARNESS	HARNESS - P1	KA780-J19	
			- P2	SCP - J3	
			- P3	RX01 - J1	
35	70 14249-0L	CABLE POWER (BLK)	KA780-5A RET-D	FRAME	
56	70 14212-0M	CABLE AC/DC LO	CABLE - P1	DW780-J13	SEE NOTE #3
			CABLE - P2	KA780-J17	

FP780
OR
FP780 + KU780

SEE NOTE 1

48	70 14249-0L	POWER CABLE (BLK)	PS#1 -5A RET - D	KA780+5A RET-D	PS#1 +5 RETURN
49			- C	- C	
50			- B	- B	
51	70 14249-0L	POWER CABLE (BLK)	PS#1 -5A RET - A	KA780+5A RET-A	
52	70 14530-0L	POWER CABLE (RED)	PS#1 -5V - D	KA780+5A - D	PS#1 +5A
53			- C	- C	
54			- B	- B	
55	70 14530-0L	POWER CABLE (RED)	PS#1 -5V - A	KA780+5A - A	
56	70 14212-0M	CABLE AC DC LO	CABLE - P1	PS#1 - J3	AC,DC LOW & GND
			CABLE - P2	KA780 - J17	

OPTIONAL

KC780 OR KJ780

SEE NOTE 2

57	70 14530-0L	CABLE POWER (RED)	KA780 -5A - D	KA780+5C - B	PS#2 +5V

SEE NOTE 3

NOTES:

1. REFER TO E-UA-KA780 FOR INSTRUCTIONS IF JUMPER REMOVAL IN CONFIGERATIONS USING PS#.
2. IF THE FP780 IS INSTALLED, REMOVE ITEM 57.
3. IF THE FP780 IS INSTALLED: ITEM #56 P1 CONNECTS TO PS#1-J3 OTHERWISE IT IS CONNECTED TO DW780-J13.

THIS SHEET FOR CU+CV VARIATION ONLY

REVISION HISTORY		
DATE	ECO NUMBER	REV

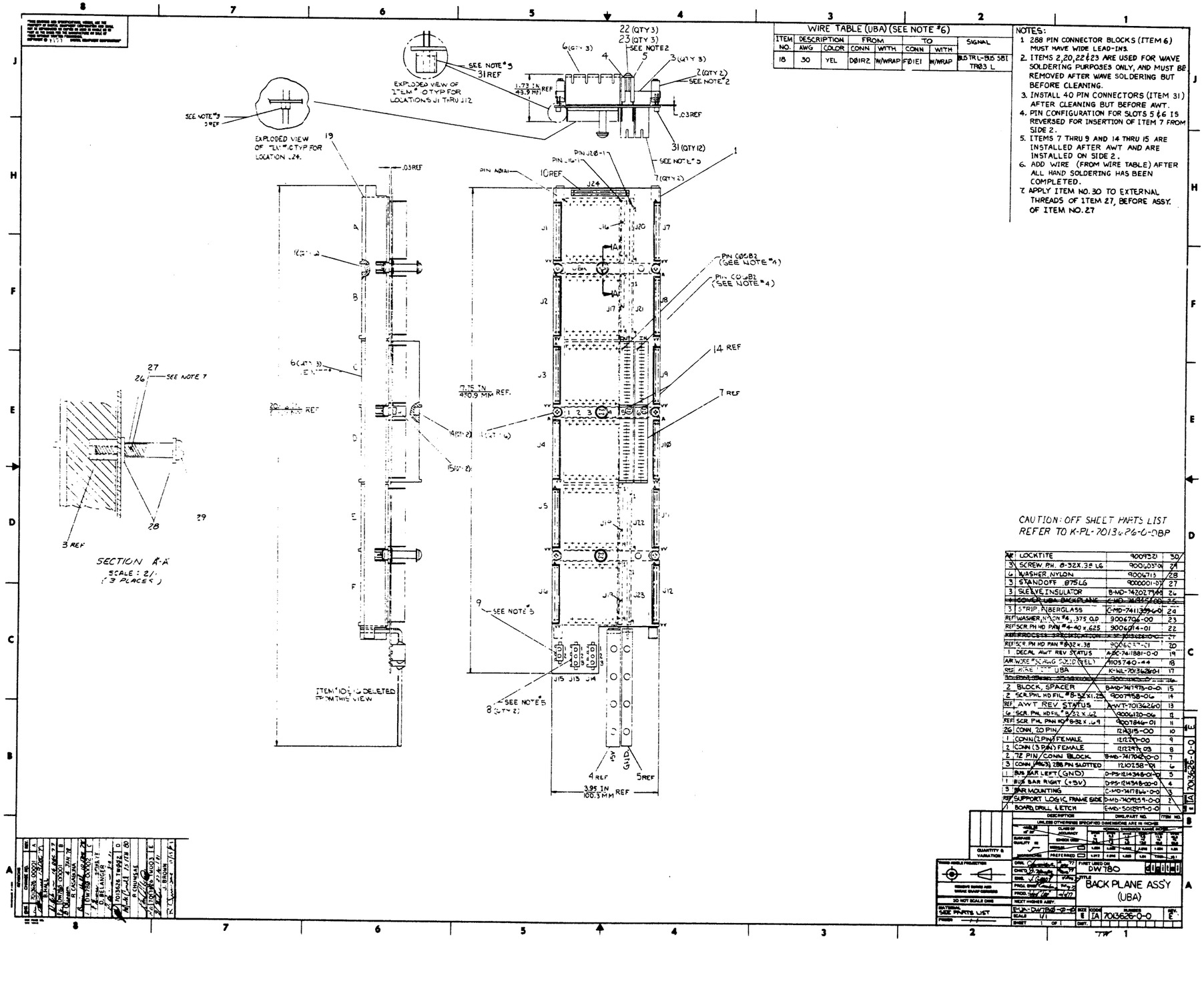
DRD 137A

TITLE 1780 SUB-SYSTEM INTERCONNECT

DOCUMENT NUMBER: SIZE D | CODE IC | NUMBER 11780-0-3 | REV C

SCALE | SHEET 9 OF 9

TW



WIRE TABLE (UBA) (SEE NOTE #6)								
ITEM NO.	DESCRIPTION AWG	DESCRIPTION COLOR	FROM CONN	FROM WITH	TO CONN	TO WITH	SIGNAL
18	30	YEL	D01R2	W/WRAP	F01E1	W/WRAP	BUS TRL-BUS 581 TP03 L

NOTES:
1. 288 PIN CONNECTOR BLOCKS (ITEM 6) MUST HAVE WIDE LEAD-INS.
2. ITEMS 2, 20, 22 & 23 ARE USED FOR WAVE SOLDERING PURPOSES ONLY, AND MUST BE REMOVED AFTER WAVE SOLDERING BUT BEFORE CLEANING.
3. INSTALL 40 PIN CONNECTORS (ITEM 31) AFTER CLEANING BUT BEFORE AWT.
4. PIN CONFIGURATION FOR SLOTS 5 & 6 IS REVERSED FOR INSERTION OF ITEM 7 FROM SIDE 2.
5. ITEMS 7 THRU 9 AND 14 THRU 15 ARE INSTALLED AFTER AWT AND ARE INSTALLED ON SIDE 2.
6. ADD WIRE (FROM WIRE TABLE) AFTER ALL HAND SOLDERING HAS BEEN COMPLETED.
7. APPLY ITEM NO. 30 TO EXTERNAL THREADS OF ITEM 27, BEFORE ASSY. OF ITEM NO. 27

CAUTION: OFF SHEET PARTS LIST
REFER TO K-PL-7013626-0-0BP

QTY	DESCRIPTION	DWG/PART NO.	ITEM NO.
AR	LOCKTITE	9009321	30
3	SCREW PH. 8-32X.38 LG	9001038-01	29
6	WASHER NYLON	9006713	28
3	STANDOFF .875LG	9000001-03	27
3	SLEEVE INSULATOR	B-MD-7420279-0	26
~~1~~	~~SCREW UBA BACKPLANE~~	~~C-MD-7413756-00~~	~~25~~
3	STRIP, FIBERGLASS	K-MD-7411399-0	24
REF	WASHER, NYLON #8 .375 OD	9006706-00	23
REF	SCR, PH HD PAN #4-40 x .625	9006014-01	22
~~REF~~	~~SCREW, SOCKET HD CAP #8-32 x .50~~	~~9006009-01~~	~~21~~
REF	SCR, PH HD PAN #8-32 x .38	9006009-01	20
1	DECAL, AWT REV STATUS	A-DC-7411881-0-0	19
AR	WIRE, #30 AWG SOLID (YEL)	9105740-44	18
REF	WIRE LIST UBA	K-WL-7013626-01	17
~~1~~	~~SCREW, PAN HD #8-32 x .50~~	~~9006009-01~~	~~16~~
2	BLOCK, SPACER	B-MD-7411973-0-0	15
2	SCR, PHL HD FIL #8-32X1.25	9007458-06	14
REF	AWT REV STATUS	AWT-7013626D	13
6	SCR, PHL HD FIL 8-32 x .62	9006120-06	12
REF	SCR, PHL PAN HD 6-32 x .69	9007846-01	11
26	CONN, 20 PIN	1203398-00	10
1	CONN (2 PIN) FEMALE	1212329-00	9
2	CONN (3 PIN) FEMALE	1212293-03	8
2	.72 PIN/CONN BLOCK	B-MD-7417042-0-0	7
3	CONN (96/3) 288 PIN SLOTTED	1210258-01	6
1	BUS BAR LEFT (GND)	D-PS-1214348-01-0	5
1	BUS BAR RIGHT (+5V)	D-PS-1214348-00-0	4
3	BAR MOUNTING	C-MD-7417846-0-0	3
REF	SUPPORT LOGIC FRAME SIDE	D-MD-7409259-0-0	2
1	BOARD, DRILL, ETCH	E-MD-5012977-0-0	1

REVISIONS					
REV	DESCRIPTION	DWG/PART NO.	ECO NO.	BY	DATE
A	INITIAL RELEASE	7013626-0000	1A	J. BELANGER	3/7/84
B	ADD 4 PIN J6	7013626-0001	1B	J. BELANGER	4/4/84
C	ADD 4 PIN J6	7013626-0002	1C	J. BELANGER	4/24/84
D	7013626-0001 TO 0002	7013626-TW002	1D	R. CHUNESE	11/28/84
E	ADD 4 PIN J6	7013626-0003	1E	J. BELANGER	3/7/85

DRAWN	J. BELANGER	3/7/84	
CHECKED			
ENGR APPR			
MFG APPR			
PROJ ENGR			
PROD ENGR			
NEXT HIGHER ASSY			
MATERIAL SEE PARTS LIST			
FINISH			

QUANTITY & VARIATION			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES			
TOLERANCES	FRACTIONAL ±	ANGULAR ±	TWO PLACE DECIMAL ±
	.XXX ±	.XX ±	
MATERIAL			
FINISH			
DO NOT SCALE DWG			
NEXT HIGHER ASSY			

PART NO.	DW780		
TITLE	BACK PLANE ASSY (UBA)		
E-UA-DW780-0-0	SIZE E	CODE IDENT NO. 1A	DRAWING NO. 7013626-0-0
SCALE 1/1	SHEET 1 OF 1	DWT.	REV. E

COMPONENT SIDE VIEW

digital

TITLE UNIBUS ADAPTER (INTERFACE) (USI)

SIGNATURES
DRN.
CHKD.
ENG.
PROJ. ENG.
PROD.
SCALE
SHT OF

NEXT HIGHER ASSY

ETCH REV.
PLC DESIGN DATA BASE REV.

CHECHANGE NO REV

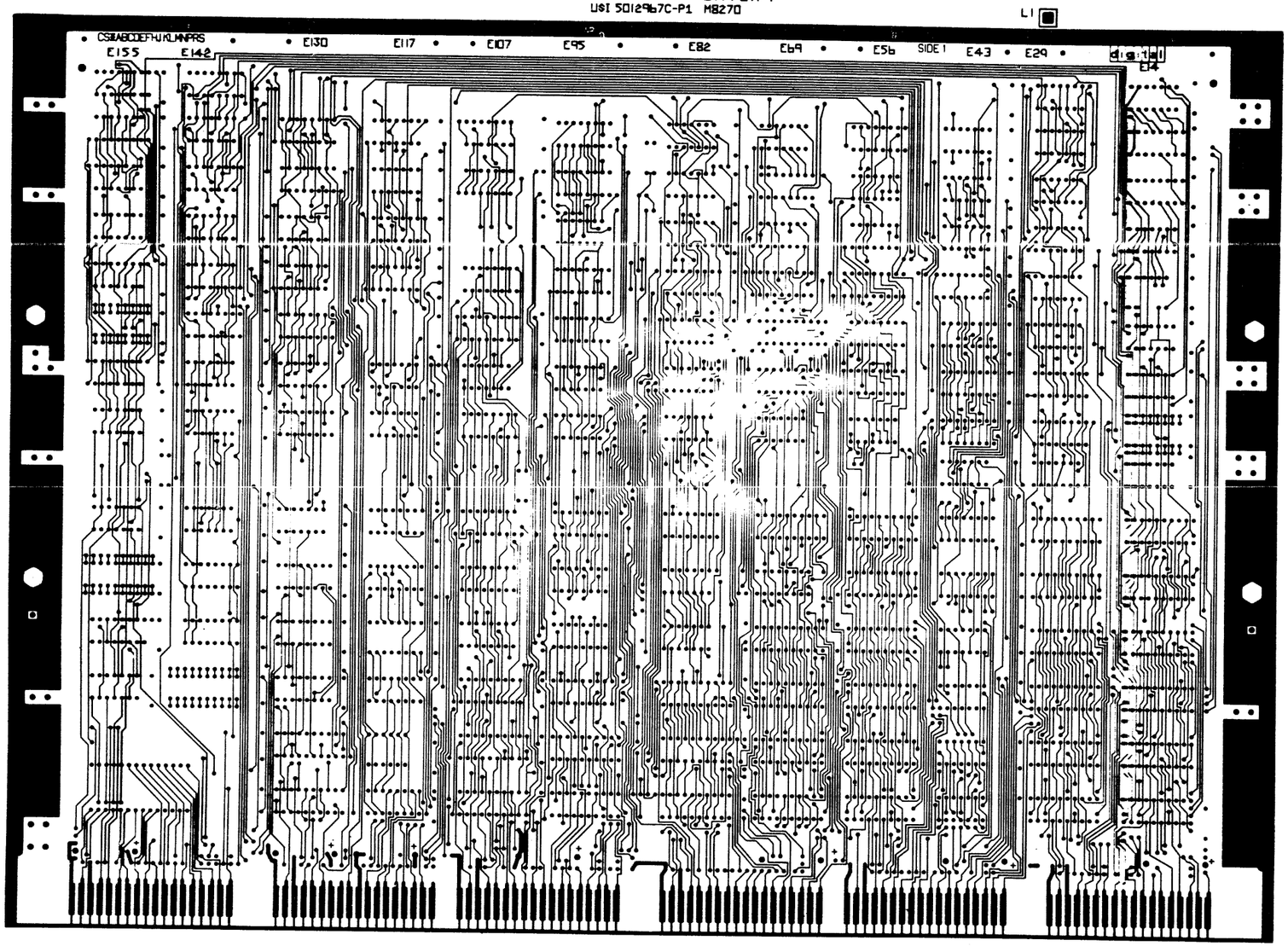
NOTES:

E UPMS270-00 D

THIS DRAWING AND SPECIFICATION, EITHER ON THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND DO NOT CONTAIN IT SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION. COPYRIGHT © DIGITAL EQUIPMENT CORPORATION

LAYER 1

USI 5012967C-P1 M8270



REVISIONS		
SYM	CHANGE NO.	DATE

UNIBUS ADAPTER
SBI INTERFACE

SIZE D | UA M8270 - 0 - 0 | REV D

SCALE 2 | SHEET 2 OF 3

L4

USI 5012967C-P1 M8270

SIDE 2

UNIBUS ADAPTER
SBI INTERFACE

M8270 - 0 - 0

D

AUTOMATED BY PRILST,3L(3A)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	D-MD-5012967-0-0	5012967-00	M8270 PC BRD	1	
2	2		1012084-01	8 MFD 25V G% 30D AL EL	7	C1-C7
3	3		1012784-00	.047 MFD 50V -20+80 CER	79	C8-C85,C86
4	4		1300365-00	1 K 1/4W 5% CC	3	R5,R6,R17
5	5		1301972-00	270 1/4W 5% CC	14	R1-R4,R7-R16
6	6		1300247-00	120 1/4W 5% CC	4	R18,R20,R22,R24
7	7		1300295-00	330 1/4W 5% CC	4	R19,R21,R23,R25
8	8		1913493-00	74S241 OCTAL BUFFER,TRI-STA	11	E3,E6,E17,E20,E46,E49,E59,E62,
					CONT	E65,E71,E119
9	9		1911641-00	SN 74S257 MUX,QUAD 2 TO 1	2	E34,E61
10	10		1911573-00	74S280 PARITY GEN/CHKR,9BIT	4	E30,E31,E32,E33
11	11		1913670-00	74S373 LATCH 8BIT TRASP TR	3	E5,E19,E48
12	12		1913671-00	74S374 FF-D OCTAL TRISTATE	5	E4,E18,E47,E60,E72
13	13		1912813-00	LS27 NOR GATE-TRIPLE 3IN	2	E63,E79
14	14		1912815-00	LS30 NAND GATE-SINGLE 8IN	2	E40,E74
15	15		1912801-00	LS02 NOR-GATE-QUAD 2IN	2	E50,E76
16	16		1912824-00	LS74 FF-D DUAL,EDGE TRIGG	1	E55
17	17		1912828-00	LS85 COMPARATOR,4BIT MAGN	4	E22,E51,E99,E100
18	18		1912834-00	LS112 FF-JK DUAL,EDGE TRIG	3	E52,E53,E66
19	19		1912849-00	LS161 COUNTER,SYNCHR,4BIT	4	E92,E105,E132,E133
20	20		1912860-00	LS259 LATCH 8BIT	2	E35,E75
21	21		1912865-00	LS283 ADDER-4BIT BINARY FU	1	E145
22	22		1912697-00	LS174 FF-D HEX W/CLEAR	4	E98,E101,E102,E126
23	23		1912853-00	LS175 FF-D QUAD	2	E23,E64
24	24		1912731-00	DEC 8646A TRANSCEIVER,4BIT BUS	14	E1,E2,E15,E16,E44,E45,E57,E58,
					CONT	E70,E83,E94,E96,E97,E118
25	25		1913730-00	DC 101 PRIORITY ARBITRATOR	1	E143
26	26		1911398-00	10101 OR/NOR GATE,4-2IN	2	E109,E110
27	27		1911415-00	10125 ECL TO TTL TRNSLTR	3	E120,E121,E122
28	28		1913220-00	10216 RECEIVER,TRIPLE LINE	1	E108

REVISION HISTORY			BASIC PART NO: M8270
ENG	ECO NUMBER	REV	SECTION A OF A
---	INITIAL	D	SECTION,VARIATION INDEX
			[A] 00
			[B]
			[C]
			[D]
			[E]
			[F]
			[H]
			[J]
			[K]
			[L]
			[M]
			[N]

DRN: K.FRIEDGEN	DATE: 07-SEP-79	D I G I T A L
CHK'D: D.HEALEY	DATE: 07-SEP-79	TITLE PARTS LIST
		USI I
DES.ENG: J.GRADY	DATE: 07-SEP-79	
RESP.ENG.: J.GRADY	DATE: 07-SEP-79	DOCUMENT NUMBER
MFG.ENG.: M.TEPELLA	DATE: 07-SEP-79	SIZE: K CODE: PL NUMBER: M8270-0-DBP REV: D
ASSEMBLY NUMBER: D-UA-M8270-0-0	TOP DOCUMENT NUMBER: B-DD-M8270-0-0	FILE NAME: M8270.PLS EDIT #: 5

"THIS DRAWING AND SPECIFICATIONS HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT (C) 1979, DIGITAL EQUIPMENT CORPORATION "

TW

AUTOMATED BY PRTLST,3L(3^)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
29	29		1912810-00	LS20 NAND GATE-DUAL 4IN	1	E77
30	30		1910532-00	74S00 NAND GATE-QUAD 2IN$	8	E7,E28,E43,E89,E93,E107,E116,
						CONT E134
31	31		1912388-00	74S02 NOR GATE-QUAD 2IN,PO	5	E41,E80,E82,E113,E154
32	32		1910534-00	74S04 INVERTER GATE-HEX 1I	6	E25,E123,E136,E140,E144,E128
33	33		1912389-00	74S08 AND GATE-QUAD 2IN,PO	5	E24,E36,E42,E125,E135
34	34		1910536-00	74S10 NAND GATE-TRIPLE 3IN	7	E26,E29,E54,E114,E148,E152,E153
35	35		1910537-00	74S11 AND GATE-TRIPLE 3INP	4	E27,E69,E112,E127
36	36		1910539-00	74S20 NAND GATE-DUAL 4INPU	8	E11,E14,E67,E138,E139,E141,E149,
						CONT E151
37	37		1910542-00	74S64 A-O-I GATE 4-2-3-2	1	E73
38	38		1910544-00	74S74 FF-D DUAL,EDGE TRIGG	4	E10,E103,E106,E147
39	39		1910547-00	74S112 FF-JK DUAL,EDGE TRIG	5	E124,E129,E130,E142,E155
40	40		1911983-00	74S133 NAND GATE-POSITIVE 1	5	E37,E38,E39,E94,E95
41	41		1912125-00	74S135 XOR/NOR GATE-QUAD 2I	1	E104
42	42		1913340-00	74S32 OR GATE-QUAD 2IN	4	E9,E78,E117,E81
43	43		1911675-00	74S138 DECODER/DEMUX 3-8 LIN	4	E56,E111,E12,E13
44	44		1911676-00	74S139 DECODER-DUAL TWO-INP	1	E68
45	45		1910546-00	74S140 NAND GATE-DUAL 4INPU	1	E21
46	46		1910956-00	74S151 MUX 1 OF 8	1	E91
47	47		1910548-00	74S157 MUX 1 OF 2 (QUAD)	2	E85,E86
48	48		1910550-00	74S174 FF-D HEX	3	E87,E88,E137
49	49		1910957-00	74S175 FF-D QUAD COMMON CLO	1	E115
50	50		1912746-00	DEC 74S37 NAND GATE-QUAD 2IN	1	E90
51	51		9000024-01	EYELET, ROLLED FLANGE, .121 OD X	12	
52	52		1210711-02	HANDLE,MODULE,HEX	1	

Ø NOTE: I.C. SPARE LOCATIONS ARE: E8,E131,E146,E150

DIGITAL	TITLE	SECTION	SIZE	CODE	DOCUMENT NUMBER	REV
	USI I	A OF A	K	PL	M8270-Ø-DBP	D

TW

"THIS DRAWING AND SPECIFICATIONS, HEREON, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 , DIGITAL EQUIPMENT CORPORATION"

B DATA <31:0> — 32 RCV BUS

STRB ADR A9, A4, A0 (USIF)

CNFGR (USIE) → CNFGR INTR (UAI)

DCR (USIE)

(USIF) S → STRD A0; E → LOCAL READ TSE

(USIA)

B<31:28> → FUNC VLD (USIK)

B<27:0> → UB / UBA (USID) → UNIBUS ADR OK, UBA ADR OK

ADAP<1:0>, UB INIT, C/A TAG, TR# → ADR DECODE

B<7:4> → (USIJ) → ISR DTE

TX REQ<7:4>, P OK, ISR TAG

(USIJ) → TR#

(USIB) IB BUS 32

ISR DTE, LOCAL READ ENA (UCB) → (USIJ) → MIC TX TSE, ISR TSE, LOCAL READ TSE

74S241 (USIJ) 16 → 32

(USIB) → T2, MIC TX TSE

(USIN) MAP REG WD OK, BRSVR WD OK, DPR WD OK, READ MAP REG, READ BRSVR, READ DPR, UAI READ, TI → μIR

(USIN) STRB STRD ADR, UB WD OK, STRB STATUS REG, STRB CONTROL REG, UB C/A STRB, RD SUBSTITUTE, CORRECTED RD, TI → STRBS

(UAI)

T BUSS

MASK (USIC) — RCV MASK, TX MASK → 74S241 (USIC) T3 → 4 → MASK-REG BUS

T REG (USIC) — T REQ <7:4> → 74S374 (USIC) CLK, T2

RD XPCT, μIR 3 → T3 → 4 → BUS MSK SB

UBA MSK VLD

UB MSK VLD

B<4:0>, UBA M VLD, P OK, FUNC VLD, UBA ADR OK, F1 (READ/WRITE), AIP (ADAPTOR IN PROGRESS), RIP (READ IN PROGRESS)

UBA FUNC DECODE (USIL) (USIN)

SET USI RIP, MAP REG READ, SET BRSVR READ, BRRVR RIP (J), READ DPR, SET MIC WD XPCT, SET CSR WD XPCT, SET MIC RIP, STRB STRD ADR, UBA ERR, UBA BSY, UBA ACK

MIC CMPT, BRRVR RIP(I) → AND

SET USI RIP, CLR RIP → USI RIP (I)

BRRVR RIP(J) → BRRVR RIP (I)

SET MIC RIP, MIC CMPT → MIC RIP (I)

SET UB RIP → UB RIP (I)

UB WIP, UB WR CMPT → UB WIP (I)

MIC WIP, MIC CMPT → MIC WIP (I)

T1 (USIN)

Σ8646 K PARITY

PARITY (USIC) — RCV PARITY, TX PARITY → PARITY CHECK (USIA) → P OK, Σ 8646 T PARITY

P OK → WRITE DATA EXPECTED LOGIC (USIM)

STRB DCR, STRB CNFGR, STRB STATUS REG, STRB CNTRL REG, UB WD OK, MAP REG OK, BRSVR WD OK, DPR WD OK, CLR RIFF, UB INLK WD OK, WD ACK, UNXPCT WD FLT

STRD<A4,A9>, B<1,0>, WRITE DATA TAG, TI

UNIBUS ADR OK, P OK, UB M VLD, FUNC VLD, RIP (READ-IN-PROGRESS), UIP (UNIBUS-IN-PROGRESS), RIFF (READ INTERLOCK-FF)

UB FUNC DECODE (USIK) → UB BSY, UB ACK, IL W FLT, UB ERR, STRB STRD ADR - SET UB WD XPCT, SET UB RIP, SET RIFF CLR ENA, SET RIFF

TAG (USIC) — R TAG, T TAG (UCB)

TAG DECODE (USIH) → COMMAND/ADDRESS TAG, WRITE DATA TAG, READ DATA TAG, INTERRUPT SUMMARY REQUEST TAG

SBI INTERFACE

RIFF TO, UB WR CMPT, UB WD IL OK → (USIN) → RIFF (J) / RIFF TO / RIFF (C) (S/C) (USIK) → RIFF TO

RIFF TO, UB WD OK → (USIM) → UB WIP

DPR WD OK, MAP REG WD OK → (USIN) → MIC WIP

UB RIP, UB WIP → (USIN) → UIP (UAI)

UB RIP (I), BRRVR RIP (I), MIC RIP (I), USI RIP (I) → (USIN) → RIP

BRRVR RIP (I), MIC RIP (I), MIC WIP (I), USI RIP (I) → (USIN) → AIP

REVISIONS			
DWR	CHANGE NO.	REV.	
	M8270-00001	B	11 OCT 77 R. CASABONA
	M8270-00002	C	16 DEC 77 R. CASABUNA
	M8270-TW003	D	20 JUNE 79 R. CASABONA 5-21-79

(USI BLOCK DIAGRAM) (SLOT 1)

DRN. AFM	2-8-77	FIRST USED ON 11780
CHK'D		digital
ENG. J. GRADY	6/4/79	TITLE UNIBUS ADAPTOR SBI INTERFACE
PROJ. ENG.		
PROD.	5/5/79	
NEXT HIGHER ASSY. 11780		SIZE D CODE CS NUMBER M8270-0-1 REV. D
SCALE		SHEET 1 OF 19 DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

(USIC) ID

RCV ID

TX ID

DTE

RD SEL

TR#

RCV ID

STRB ID STR

LAST TX ID

T3

ARBITRATION CHIP DC101

ARB OK

HOLD

SEND TR

INTERLOCK

SBI TX LOGIC ON UCB

(USIC)

4 TR#

FAULT (USIR)

T FLT

R FLT

CNF (USIR)

R CNF (UCB)

SBI INTERFACE

RCV ID

LAST TX ID

DTE A

MXT FLT

(USIH)

SET RD1 XPCT

CLR RD 1

RD1 XPCT (1) H

(USIP)

SET RD2

CLR RD 2

RD2 XPCT (1) H

RD1 XPCT (1) H

RD2 XPCT (1) H

RD XPCT

RD2 RCV OK

RD1 RCV OK

MIC WD OK

SEL STRB Ø

SEL STRB 1

RCV ID

TR#

MY ID

P OK

TAG RD

MSK 3

MSK 2

MSK 1

MY READ DATA

RD XPCT

RD FLT

RD RCV OK

CORRECTED RD

RD SUBSTITUTE

RCV MSK Ø

RD TO 512 CYCLES

RD TIME OUT

RD RCV OK

DTE

DTE A

DTE B

T FLT (USIE)

P OK

UNXPCT RD FLT

IL W FLT

UNXPCT WD FLT

MXT FLT

TO CNFGR

UB ERR

UB ACK

UB BSY

UBA ERR

UBA ACK

UBA BSY

WD ACK

T CNF

TØ

DTE B

MY FLT

(USIR)

(USI BLOCK DIAGRAM) (SLOT 1)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS ADAPTOR SBI INTERFACE	D	CS	M8270-0-1	D
SCALE —	SHEET 2 OF 19	DIST.		

TW 1

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

BUS SBI TP H

BUS SBI TP L

BUS SBI P CLK H

BUS SBI P CLK L

BUS SBI PD CLK H

BUS SBI PD CLK L

50NS 50NS 50NS 50NS 50NS 50NS 50NS 50NS 50NS 50NS 50NS 50NS

TØ = TP • P CLK — USIS TØ CLK H, USIS T CLK H, USIS TØ UAI H

TØ TØ TØ

NOTE: TØ CLK L IS THIS SIGNAL INVERTED
USIS TØ UCB L

T1 = $\overline{TP}$ • PD CLK — USIS T1A CLK H, USIS T1B CLK H,
USIS T1 CLK H, USIS T1 UAI H

T1 T1 T1

NOTE: T1 CLK L IS THIS SIGNAL INVERTED
USIS T1 CLK L, USIS T1 UCB L, USIS T1A CLK L, USIS T1B CLK L

T2 = TP • $\overline{P\ CLK}$ — USIS R CLK H, USIS R2 CLK H

T2 T2 T2

NOTE: T2 CLK L IS THIS SIGNAL INVERTED
USIS T2 CLK L, USIS T2 UCB L, USIS T2 UAI L

T3 = $\overline{TP}$ • $\overline{PD\ CLK}$ — USIS T3A CLK H

T3 T3 T3

NOTE: T3 CLK L IS THIS SIGNAL INVERTED
USIS T3 UCB L

IB BUS TRI-STATE ENA OUT L (USI → UMD, UAI)

SBI RCV LATCH OPEN →

USIB IB OUT CLK H

SBI CYCLE Ⓐ SBI CYCLE Ⓑ SBI CYCLE Ⓒ

DATA CLOCKED INTO 74S374 RCVR'S
ON UMDA, B, UAIH *FROM PREVIOUS* SBI CYCLE

DATA VALID FROM SBI Ⓐ DATA VALID FROM CYCLE Ⓑ

IB BUS TRI STATE ENA IN L (UMD, UIA → USI)

USIB IB IN CLK H

UBA CYCLE Ⓐ UBA CYCLE Ⓑ

SBI TRANSMIT ENA →

DATA CLOCKED INTO 74S374 RCVR'S ON
USIB, USIC FOR NEXT SBI TRANSMIT CYCLE

DATA VALID FROM UBA CYCLE
Ⓐ FOR SBI TRANSMIT

(USI CLOCK GENERATION) (SLOT 1)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS ADAPTOR SBI INTERFACE	D	CS	M8270-0-1	D
SCALE —//	SHEET 3 OF 19	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

SBI R DATA LATCHED AT T3

PARITY OK? — NO → SET P FLT → NR
PARITY OK? — YES → UBA TX IN PROGRESS — YES → SET MXT FLT → NR
UBA TX IN PROGRESS — NO → ID RCV = ID TX — NO → SET MXT FLT → NR
ID RCV = ID TX — YES → WD XPCT — YES → TAG = WD — YES → TAG
TAG = WD — NO → SET WRT SQ FLT
WD XPCT — NO → TAG

TAG → READ DATA
UAI STRB6-UB WD
UB WRITE DATA — YES → ILK WD XPCT — YES → UB WRITE DATA — NO → CSR WRITE DATA — YES → UAI STRB5-SR; UAI STRB4-CR; USI-STRB CNFGR; USI-STRB DCR
CSR WRITE DATA — NO → USA WRITE DATA — YES → SB5-DPR; SB6-BRSVR; SB7-MAP; FLW-STRB Ø → ACK
ILK WD XPCT — NO → SET ILK WRT FLT → NR

READ DATA → ID = TR# — NO → UX RD FLT → NR
ID = TR# — YES → RD XPCT — NO → UX RD FLT → NR
RD XPCT — YES → MSK OK — NO → UAI STRB2-RD SUB
MSK OK — YES → UAI STRB1 COR RD
RD1 — YES → FLW STRB 1
RD1 — NO → RD2 — YES → FLW STRB 2 → ACK

TAG → INTERRUPT SUMMARY READ
REQ ENA — NO → NR
REQ ENA — YES → EN ISR → NR

TAG → COMMAND/ADDRESS
FUNC VLD — NO → ERR
FUNC VLD — YES → ADDR DECODE
ADDR DECODE — UB → UB MASK OK — NO → ERR
UB MASK OK — YES → UB FUNC DECODE
ADDR DECODE — UBA → UBA MASK OK — NO → ERR
UBA MASK OK — YES → UBA FUNC DECODE

UB FUNC DECODE
READ IN PROGRESS — YES → BSY
READ IN PROGRESS — NO → ILK READ — NO → SET READ ILK FF → ACK
ILK READ — YES → UB IN PROGRESS — NO → WRITE → SET CLR RIFF ENA → UWIP; URIP; UB WD XPCT; UAI STRB3-UB C/A STRB → ACK
UB IN PROGRESS — YES → URIP; UIP; UAI STRB3-UB C/A STRB → ACK

UBA FUNC DECODE
READ → RIP + AIP — NO → RIP; MIC RIP; BRRVRIP; USI RIP; SB1-READ SR,CR; SB2-READ DPR; SB3-READ BRSVR; SB4-READ MR → ACK
RIP + AIP — YES → BSY
WRITE → AIP — YES → BSY
AIP — NO → AIP MIC WD XPCT → ACK
LOCAL WRITE → CSR WD XPCT → ACK

UAI STRB7-REG ADR STRB

(USI SBI RCV FLOWS) (SLOT 1)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS ADAPTOR SBI INTERFACE	D	CS	M8270-0-1	D

SCALE — | SHEET 4 OF 19 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

USIS TØ CLK H

USIS R2 CLK H

USIS R CLK H

USIS TCLK H

USIJ DATA DTE L

XCLK XENB — 8646 E58 — LATCH 1

BUS SBI B31 L (CU2) BUS SBI B30 L (CU1) BUS SBI B29 L (CT2) BUS SBI B28 L (CS2)

- USIA T P7 H(USIA)
- BUS T B31 H
- BUS T B30 H
- BUS T B29 H
- BUS T B28 H
- USIA R B31 H(USIB,E,K)
- USIA R B30 H(USIB,E)
- USIA R B29 H(USIB,E)
- USIA R B28 H(USIB,E,K)
- USIA R P7 H(USIA)

XCLK XENB — 8646 E57 — LATCH 1

BUS SBI B27 L (CP2) BUS SBI B26 L (CP1) BUS SBI B25 L (CN1) BUS SBI B24 L (CM1)

- USIA T P6 H(USIA)
- BUS T B27 H
- BUS T B26 H
- BUS T B25 H
- BUS T B24 H
- USIA R B27 H(USIB)
- USIA R B26 H(USIB,D)
- USIA R B25 H(USIB,D)
- USIA R B24 H(USIB,D)
- USIA R P6 H(USIA)

XCLK XENB — 8646 E45 — LATCH 1

BUS SBI B23 L (CD2) BUS SBI B22 L (CD1) BUS SBI B21 L (CC1) BUS SBI B20 L (CB1)

- USIA T P5 H(USIA)
- BUS T B23 H
- BUS T B22 H
- BUS T B21 H
- BUS T B20 H
- USIA R B23 H(USIB,D,E)
- USIA R B22 H(USIB,D,E)
- USIA R B21 H(USIB,D,E)
- USIA R B20 H(USIB,D)
- USIA R P5 H(USIA)

XCLK XENB — 8646 E44 — LATCH 1

BUS SBI B19 L (BU2) BUS SBI B18 L (BU1) BUS SBI B17 L (BT2) BUS SBI B16 L (BS2)

- USIA T P4 H(USIA)
- BUS T B19 H
- BUS T B18 H
- BUS T B17 H
- BUS T B16 H
- USIA R B19 H(USIB,D)
- USIA R B18 H(USID,E)
- USIA R B17 H(USID,E)
- USIA R B16 H(USID,E)
- USIA R P4 H(USIA)

XCLK XENB — 8646 E16 — LATCH 1

BUS SBI B15 L (BJ2) BUS SBI B14 L (BJ1) BUS SBI B13 L (BH2) BUS SBI B12 L (BF2)

- USIA T P3 H(USIA)
- BUS T B15 H
- BUS T B14 H
- BUS T B13 H
- BUS T B12 H
- USIA R B15 H(USIB,D)
- USIA R B14 H(USIB,D)
- USIA R B13 H(USIB,D)
- USIA R B12 H(USIB,D)
- USIA R P3 H(USIA)

XCLK XENB — 8646 E15 — LATCH 1

BUS SBI B11 L (AU2) BUS SBI B10 L (AU1) BUS SBI B9 L (AT2) BUS SBI B8 L (AS2)

- USIA T P2 H(USIA)
- BUS T B11 H
- BUS T B10 H
- BUS T B9 H
- BUS T B8 H
- USIA R B11 H(USIB,D)
- USIA R B10 H(USIB,D)
- USIA R B9 H(USIB)
- USIA R B8 H(USIB,D)
- USIA R P2 H(USIA)

USIS R2 CLK H → 74S00 E7 (SCHOTTKY CLAMP)

XCLK XENB — E2 — LATCH 1

BUS SBI B7 L (AP2) BUS SBI B6 L (AP1) BUS SBI B5 L (AN1) BUS SBI B4 L (AM1)

- USIA T P1 H(USIA)
- BUS T B7 H
- BUS T B6 H
- BUS T B5 H
- BUS T B4 H
- USIA R B7 H(USIB,D,J)
- USIA R B6 H(USIB,D,J)
- USIA R B5 H(USIB,D,J)
- USIA R B4 H(USIB,D,J)
- USIA R P1 H(USIA)

XCLK XENB — E1 — LATCH 1

BUS SBI B3 L (AE1) BUS SBI B2 L (AD1) BUS SBI B1 L (AC1) BUS SBI B0 L (AB1)

- USIA T PØ H(USIA)
- BUS T B3 H
- BUS T B2 H
- BUS T B1 H
- BUS T BØ H
- USIA R B3 H(USIB,L)
- USIA R B2 H(USIB,L)
- USIA R B1 H(USIB,L,M)
- USIA R BØ H(USIB,F,L,M)
- USIA R PØ H(USIA)

74S280 E31 — USIA T PAR 1 H(USIC)

- USIA T P7 H
- USIA T P6 H
- USIA T P5 H
- USIA T P4 H
- USIA T P3 H
- USIA T P2 H
- USIA T P1 H
- USIA T PØ H

74S280 E32 — USIA T PAR Ø H(USIC)

- USIC T MSK P H
- USIC T ID P H
- USIC T TAG P H

PARITY 8646

ΣØ = EVEN L
ODD H

74S280 E30 — USIA T PAR 1 H(USIC)

- USIA R P7 H
- USIA R P6 H
- USIA R P5 H
- USIA R P4 H
- USIA R P3 H
- USIA R P2 H
- USIA R P1 H
- USIA R PØ H
- USIC R PAR 1 H

74S280 E33 — USIA R PAR Ø H(USIC)

- USIC R MSK P H
- USIC R ID P H
- USIC R TAG P H
- USIC R PAR Ø H

74S08 E36 — USIA P1 OK H(USIK,L)

74S08 E36 — USIA P OK H (USIH,K,M,N,P)

74S00 E7 — USIA P OK L (USIE,J,N)

(DATA TRANSCEIVERS & PARITY) (SLOT 1)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS ADAPTOR SBI INTERFACE (USIA)	D	CS	M8270-0-1	D
SCALE —	SHEET 5 OF 19	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

USIA R B31 H
USIA R B30 H
USIA R B29 H
USIA R B28 H
USIA R B27 H
USIA R B26 H
USIA R B25 H
USIA R B24 H
USIA R B23 H
USIA R B22 H
USIA R B21 H
USIA R B20 H
USIA R B19 H
USIA R B18 H
USIA R B17 H
USIA R B16 H
USIB IB OUT ENA L
USIB IB OUT ENA H
USIB IB IN CLK H
USIJ MIC TX ENA L

745241 E59
745241 E46

EE2 BUS IB31 H
EE1 BUS IB30 H
EB2 BUS IB29 H
CA1 BUS IB28 H
BV2 BUS IB27 H
BS1 BUS IB26 H
BR2 BUS IB25 H
BR1 BUS IB24 H
BP2 BUS IB23 H
BP1 BUS IB22 H
FN1 BUS IB21 H
BM2 BUS IB20 H
BM1 BUS IB19 H
BF1 BUS IB18 H
BE2 BUS IB17 H
BE1 BUS IB16 H

745374 E60
745374 E47

D0 F0 BUS T B31 H
D1 F1 BUS T B30 H
D2 F2 BUS T B29 H
D3 F3 BUS T B28 H
D4 F4 BUS T B27 H
D5 F5 BUS T B26 H
D6 F6 BUS T B25 H
D7 F7 BUS T B24 H
CLK ENAB

D0 F0 BUS T B23 H
D1 F1 BUS T B22 H
D2 F2 BUS T B21 H
D3 F3 BUS T B20 H
D4 F4 BUS T B19 H
D5 F5 BUS T B18 H
D6 F6 BUS T B17 H
D7 F7 BUS T B16 H
CLK ENAB

USIA R B15 H
USIA R B14 H
USIA R B13 H
USIA R B12 H
USIA R B11 H
USIA R B10 H
USIA R B9 H
USIA R B8 H
USIA R B7 H
USIA R B6 H
USIA R B5 H
USIA R B4 H
USIA R B3 H
USIA R B2 H
USIA R B1 H
USIA R B0 H

745241 E17
745241 E3

BC1 BUS IB15 H
BB2 BUS IB14 H
BB1 BUS IB13 H
BA1 BUS IB12 H
AV2 BUS IB11 H
AR1 BUS IB10 H
AR2 BUS IB9 H
AM2 BUS IB8 H
AL1 BUS IB7 H
AJ2 BUS IB6 H
AJ1 BUS IB5 H
AH2 BUS IB4 H
AE2 BUS IB3 H
AD2 BUS IB2 H
AB2 BUS IB1 H
AA1 BUS IB0 H

745374 E18
745374 E4

D0 F0 BUS T B15 H
D1 F1 BUS T B14 H
D2 F2 BUS T B13 H
D3 F3 BUS T B12 H
D4 F4 BUS T B11 H
D5 F5 BUS T B10 H
D6 F6 BUS T B9 H
D7 F7 BUS T B8 H
CLK ENAB

D0 F0 BUS T B7 H
D1 F1 BUS T B6 H
D2 F2 BUS T B5 H
D3 F3 BUS T B4 H
D4 F4 BUS T B3 H
D5 F5 BUS T B2 H
D6 F6 BUS T B1 H
D7 F7 BUS T B0 H
CLK ENAB

USIA R B9 H → USIB A9 H (USID,F)
USIA R B4 H → USIB A4 H (USIF,L)
USIR SBI B CLR L → USIB SBI C CLR L (USIN,P)
USIA R B30 H → USIB F2 H (USIK)
USIA R B29 H → USIB F1 H (USIK,L,N)
USIA R B27 H → USIB A27 H (USID)
USIR R FLT H → USIB RB FLT H (USIR)
USIP +VC H

745241 E65

USIB RB FLT L (USIR)

745000 E7

USIP +VA H
USIS T3A CLK H

745140 E21
745008 E36
745000 E7

USIB IB OUT ENA L (USIB,C)
USIB IB OUT ENA H (USIB,C)
USIB IB OUT CLK H (UAIH,P,UCBR, UMDA,B)

USIP +VA H
USIS T1B CLK H

745140 E21

USIB IB IN CLK H (USIB,C,UAIK UCBF)

REVISIONS
CHK | CHANGE NO. | REV.

(IB BUSS & CLKS & ENA) (SLOT 1)

TITLE UNIBUS ADAP USI SBI INTERFACE (USIB)
SIZE D | CODE CS | NUMBER M8270-0-1 | REV. D
SCALE | SHEET 6 OF 19 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

UCBL DTE L DK1

XCLK XENB 8646 E70 — XD4 XD3 XD2 XD1 XPAR RD4 RD3 RD2 RD1 REC PAR LATCH

BUS SBI M3 L DD2 · BUS SBI M2 L DD1 · BUS SBI M1 L DC1 · BUS SBI M0 L DB1

USIS R CLK H · USIR AD CLR H · USIS T CLR H

USIC T MASK 3 H · USIC T MASK 2 H · USIC T MASK 1 H · USIC T MASK 0 H

USIC T MSK P H (USIA)

USIC R MSK 3 H(USIC,P) · USIC R MSK 2 H(USIC,P) · USIC R MSK 1 H(USIC,P) · USIC R MSK 0 H(USIC,P) · USIC R MSK P H(USIA)

74S241 E71 — FV2 FS1 CF1 CE1 — BUS REQ MSK 3 H · BUS REQ MSK 2 H · BUS REQ MSK 1 H · BUS REQ MSK 0 H

USIN USI RIP H · USIN MIC IR QC H · USIN MIC IR QB H · USIN MIC IR QA H

USIB IB OUT ENA H · USIB IB OUT ENA L

74S241 E71 — CB2 CE2 CF2 CL2 — BUS MSK SB 3 H · BUS MSK SB 2 H · BUS MSK SB 1 H · BUS MSK SB 0 H

74S374 E72 — D6 D5 D4 D7 D3 D2 D1 D0 — F6 F5 F4 F7 F3 F2 F1 F0 — CLK ENAB

USIB IB IN CLK H

USIC T REQ 7 H (USIC,J) · USIC T REQ 6 H (USIC,J) · USIC T REQ 5 H (USIC,J) · USIC T REQ 4 H (USIC,J) · USIC T MASK 3 H (USIC) · USIC T MASK 2 H (USIC) · USIC T MASK 1 H (USIC) · USIC T MASK 0 H (USIC)

XCLK XENB 8646 E118 — XD4 XD3 XD2 XD1 XPAR RD4 RD3 RD2 RD1 REC PAR LATCH

BUS SBI REQ 7 L ED2 · BUS SBI REQ 6 L ED1 · BUS SBI REQ 5 L EC1 · BUS SBI REQ 4 L EB1

USIC T REQ 7 H · USIC T REQ 6 H · USIC T REQ 5 H · USIC T REQ 4 H

UCBL DTE L DK1 · USIS T CLK H

XCLK XENA 8646 E83 — XD4 XD3 XD2 XD1 XPAR RD4 RD3 RD2 RD1 REC PAR LATCH

BUS SBI PAR 1 L DH2 · BUS SBI PAR 0 L DF2

USIA T PAR 1 H · USIA T PAR 0 H

USIC R PAR 1 H(USIA) · USIC R PAR 0 H(USIA)

USIS R CLK H

USIC R MASK 3 H · USIC R MASK 2 H · USIC R MASK 1 H · USIC R MASK 0 H

74LS20 E77 — USIC UBA MASK VLD L(USIL,N)

USIC R MASK 0 H · USIC R MASK 1 H — 74S32 E78

USIC R MASK 2 H · USIC R MASK 3 H — 74S32 E78

74S32 E78 · 74S135 E104 — USIC UB MASK VLD L(USIK)

UCBL DTE L DK1 · USIS T0 CLK H

XCLK XENB 8646 E97 — XD4 XD3 XD2 XD1 XPAR RD4 RD3 RD2 RD1 REC PAR LATCH

BUS SBI ID 4 H DU2 · BUS SBI ID 3 H DU1 · BUS SBI ID 2 H DT2 · BUS SBI ID 1 H DS2

USIH T ID 4 H · USIH T ID 3 H · USIH T ID 2 H · USIH T ID 1 H · USIC T ID P H(USIA) · USIC R ID 4 H(USIH) · USIC R ID 3 H(USIH) · USIC R ID 2 H(USIH) · USIC R ID 1 H(USIH) · USIC R ID P H(USIA)

USIS R2 CLK H · USIS T CLK H

XCLK XENB 8646 E96 — XD4 XD3 XD2 XD1 XPAR RD4 RD3 RD2 RD1 REC PAR LATCH

BUS SBI ID 0 L DP2 · BUS SBI TAG 2 L DP1 · BUS SBI TAG 1 L DN1 · BUS SBI TAG 0 L DM1

USIH T ID 0 H · UCBL TAG SEL 1 H · UCBL TAG SEL 0 H · USIC T TAG 0 H · USIC T TAG P H(USIA) · USIC R ID 0 H(USIH) · USIC R TAG 2 H(USIH) · USIC R TAG 1 H(USIH) · USIC R TAG 0 H(USIH) · USIC R TAG P H(USIA)

USIS R CLK H

UCBL TAG SEL 0 H · UCBL TAG SEL 1 H — 74S32 E78 — USIC T TAG 0 H(USIC,H)

AF1 USIC TR SEL D L(USID) · AK1 USIC TR SEL C L(USID) · AK2 USIC TR SEL B L(USID) · AL2 USIC TR SEL A L(USID)

L3D 35D 25D MSD DC180! E143

BUS SBI TR 15 L FU2 · BUS SBI TR 14 L FU1 · BUS SBI TR 13 L FT2 · BUS SBI TR 12 L FS2 · BUS SBI TR 11 L FP2 · BUS SBI TR 10 L FP1 · BUS SBI TR 9 L FN1 · BUS SBI TR 8 L FM1 · BUS SBI TR 7 L FJ2 · BUS SBI TR 6 L FJ1 · BUS SBI TR 5 L FH2 · BUS SBI TR 4 L FF2 · BUS SBI TR 3 L FE1 · BUS SBI TR 2 L FD1 · BUS SBI TR 1 L FC1 · BUS SBI TR 0 L FB1

DR2 BUS TR L

FK2 USIC ARB OK L(UCBL,M)

USIS R CLK H · USIS T0 CLK H · UCBM SEND TR H FM2 · UCBL SEND HOLD H FL2

3	2	1	0	MASK BITS
1	1	1	1	UBA VLD MASK
0	0	1	1	UB VLD MASK
0	0	0	1	
0	0	1	0	
1	1	0	0	
1	0	0	0	
0	1	0	0	

UBCL TAG SEL	1	0
READ DATA	0	0
WRITE DATA	1	0
COMMAND ADDRESS	0	1
BAD TAG	1	1

BUS SBI TAG	2	1	0
READ DATA	0	0	0
COMM ADD	0	1	1
WRITE DATA	1	0	1

(SBI ; TAG, MASK, PARITY, ID, ARBITRATION) (SLOT 1)

REVISIONS

CHK	CHANGE NO.	REV.

TITLE UNIBUS ADAPTOR SBI INTERFACE (USIC)
SIZE D | CODE DCS | NUMBER M8270-0-1 | REV D
SCALE — | SHEET 7 OF 19 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

USIA R B8 H
USIA R B7 H
USIA R B6 H
USIA R B5 H
USIA R B4 H
USIP +VC H
74LS30 E74
74LS02 E50
74LS02 E76
74LS02 E50
74LS02 E50
74LS02 E50
74LS27 E63
74LS27 E63
74LS02 E50
74LS02 E50

USIA R B26 H
USIA R B25 H
USIA R B24 H
USIA R B23 H
USIA R B22 H
USIA R B21 H
USIA R B20 H
USIA R B19 H
USIA R B18 H
USIA R B17 H
USIA R B16 H
USIA R B1Ø H

USIP +VA H
USIB A27 H
USID TR ADR OK H
USID A9 L
USIH TAG C/A H
745133 E37
USID INTERNAL REG L(USID,L)

USID INTERNAL REG L
USID MAP REG L
USID UB ADR L
USID +VC H
74LS28 E77
USID ALL ADR SPACE H(USIK)

USIP +VA H
USIB A27 H
USID OUR UB SPACE H
USIH TAG C/A H
745133 E39
USID UB ADR L(USID,K)

UAIN UB INIT DN L
EP1
74LS74 E183
CJ1
UAIN SET UB INIT L

USIP +VA H
USIB A27 H
USID TR ADR OK H
USIB A9 H
745133 E38
USID MAP REG ADR L(USID,N)
USIH TAG C/A H

+5V
R6 1K
R5 1K
USID ADAPTOR 1 L
BD1
74S04 E25
USID ADAPTOR 1 H(USID,F)
USID ADAPTOR Ø L
BD2
74S04 E25
USID ADAPTOR Ø H(USID,F)
USIB A9 H
74S04 E25
USID A9 L (USID)

USIC TR SEL D L
AF1
74S04 E144
USIC TR SEL C L
AK1
74S04 E144
USIC TR SEL B L
AK2
74S04 E144
USIC TR SEL A L
AL2
74S04 E144
74LS283 B4 E145
USID TR SEL D H(USID,H,J)
USID TR SEL C H(USID,H,J)
USID TR SEL B H(USID,H,J)
USID TR SEL A H(USID,H,J)
USIP +VD H

74LS85 E51
USIC A 27 H
USIP +VC H
USIA R B18 H
USIP +VC H
USIA R B17 H
USID ADAPTOR 1 H
USIA R B16 H
USID ADAPTOR Ø H
A>B A=B A<B
USID OUR UB SPACE H(USID)
IN> IN= IN<
USIP+VC H

74LS85 E22
USIA R B14 H
USID TR SEL D H
USIA R B13 H
USID TR SEL C H
USIA R B12 H
USID TR SEL B H
USIA R B11 H
USID TR SEL A H
A>B A=B A<B
USID TR ADR OK H(USID)
IN> IN= IN<
USIA R B15 H
745135 E184

REVISIONS
CHK | CHANGE NO. | REV.

(UBA ADDRESS DECODE, UNIBUS ADDRESS DECODE)(SLOT)

TITLE UNIBUS ADAPTOR SBI INTERFACE (USID)
SIZE D | CODE CS | NUMBER M8270-0-1 | REV. D
SCALE — | SHEET 8 OF 19 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

74LS175 E64
USIA R B31 H
USIA R B3Ø H
USIA R B29 H
USIA R B28 H
USIR SBI A CLR L
USIR DCR STRB H
USIE DCR 31 H (USIF)
USIE DCR 3Ø H (USIF)
USIE DIS INTR L (UAIJ)
USIE DCR 29 H (USIF)
USIE DEF MAP PAR L (UMDH)
USIE DCR 28 H (USIF)
USIE DEF DP PAR L (UMDM,N,P,R)

+5V
R17 1KΩ
USIE OV TEMP L
USIA R B21 H
USIR AD CLR L
UAIN SET UB INIT L
USIA R B18 H
UAIN SET UB P DN L
USIA R B17 H
UAIN UB INIT DN L
USIR CNFGR STRB L
USIA R B16 H
USIE CLR UB INIT DN L
74LS112 E53
74LS112 E52
74S08 E24
USIE CNFGR 21 H (USIF)
USIE OV TEMP L (USIF)
USIE CNFGR 18 H (USIF)
USIE UB INIT L (USIF)
USIE CNFGR 17 H (USIF)
USIE UB P DN L (USIF)
USIE CNFGR 16 H (USIF)
USIE UB INIT DN L (USIF)
USIR AD CLR L
USIE CLR UB INIT DN L (USIE)

UAIN AD P DN L
USIA R B23 H
UAIN AD P UP L
USIR CNFGR STRB L
USIA R B22 H
UAIN AD P DN L
74LS112 E66
USIE CNFGR 23 H (USIF)
USIE AD P DN L (USIF)
USIE CNFGR 22 H (USIF)
USIE AD P UP L (USIF)

74LS27 E63
74LS02 E76
74S00 E89
USIE T FLT H (USIR)

74S174 E88
USIA P OK L
USIM W SQ FLT H
JSIP UX RD FLT H
USIK IL SQ FLT H
USIH MXT FLT H
UCBH MIC OK H
USIR AD CLR L
USIS TIB CLK H
USIE MIC OK H (USIF)

74S174 E87
USIE CNFGR 31 H (USIF)
USIE CNFGR 3Ø H (USIF)
USIE CNFGR 29 H (USIF)
USIE CNFGR 28 H (USIF)
USIE CNFGR 27 H (USIF)

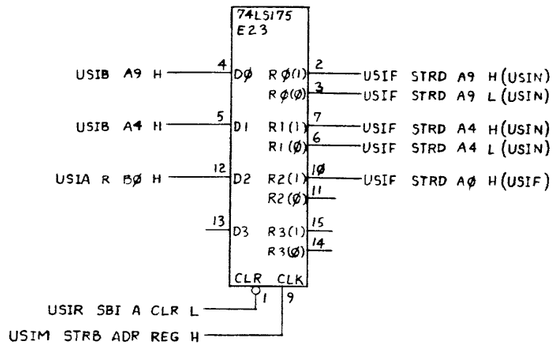
USIB RB FLT L
USIS T CLK H
74S08 E24

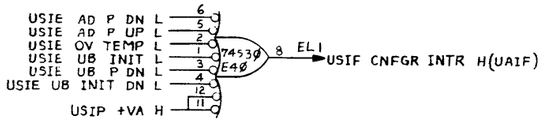
REVISIONS		
CHK	CHANGE NO.	REV.

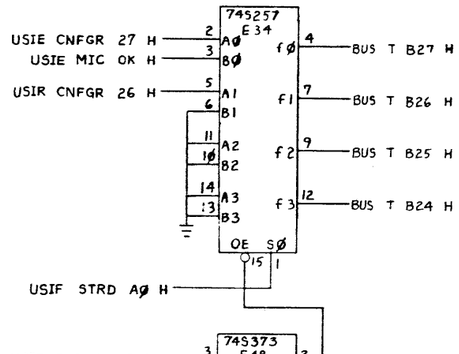
(CONFIGURATION & DIAGNOSTIC CONTROL REG) (SLOT 1)

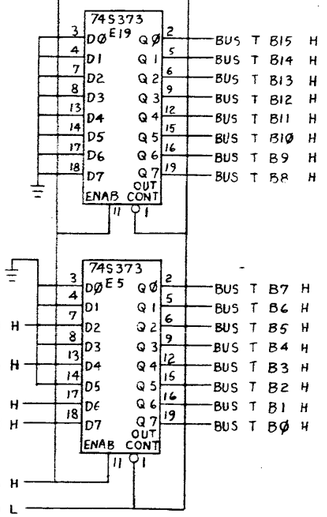
TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS ADAPTOR SBI INTERFACE (USIE)	D	CS	M827Ø-Ø-1	D
SCALE — SHEET 9 OF 19	DIST.			

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"









REVISIONS		
CHK	CHANGE NO.	REV.

(TRANS. LOCAL REG., CNFGR INTR) (SLOT 1)

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS ADAPTOR SBI INTERFACE (USIF)	D	CS	M8270-0-1	D
SCALE —	SHEET 10 OF 19	DIST.		

TW 1

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

R TAG	2	1	Ø
ISR	1	1	Ø
WD	1	Ø	1
C/A	Ø	1	1
RD	Ø	Ø	Ø

74LS138 E111
USIC R TAG 2 H
USIC R TAG 1 H
USIC R TAG Ø H
USIP +VD H
USIH TAG ISR L(USIJ)
USIH WD TAG L(USIM)
74S04 E123
USIH TAG C/A H(USID,K)
74S04 E123
USIH TAG RD H(USIN)

74LS174 E102
USIH T ID 4 H
USIH T ID 3 H
USIH T ID 2 H
USIH T ID 1 H
USIH T ID Ø H
74LS174 E101
USIH DT ID 4 H(USIH)
USIH DT ID 3 H(USIH)
USIH DT ID 2 H(USIH)
USIH DT ID 1 H(USIH)
USIH DT ID Ø H(USIH)
USIR SBI A CLR L
USIS T3A CLK H

74LS174 E98
USIC R ID 4 H
USIC R ID 3 H
USIC R ID 2 H
USIC R ID 1 H
USIC R ID Ø H
USIH STR ID 4 H(USIH)
USIH STR ID 3 H(USIH)
USIH STR ID 2 H(USIH)
USIH STR ID 1 H(USIH)
USIH STR ID Ø H(USIH)
USIS T1A CLK L
USIL 1 READ CNF Ø L
USIN READ MR L
USIK UB READ L
74S11 E112
74S02 E113

74LS85 E100
USIC R ID 4 H
USIH DT ID 4 H
USIC R ID 3 H
USIH DT ID 3 H
USIC R ID 2 H
USIH DT ID 2 H
USIC R ID 1 H
USIH DT ID 1 H
USIC R ID Ø H
USIH DT ID Ø H
74S135 E104
74S04 E123
USIP +VD H
USIR DTE A H
74S11 E112
USIH MXT FLT H(USIE)

74S157 E85
USIH STR ID 4 H
USIH STR ID 3 H
USID TR SEL D H
USIH STR ID 2 H
USID TR SEL C H
USIH STR ID 1 H
USID TR SEL B H
USIH T ID 4 H(USIC,H)
USIH T ID 3 H(USIC,H)
USIH T ID 2 H(USIC,H)
USIH T ID 1 H(USIC,H)

74LS85 E99
USIC R ID 4 H
USIC R ID 3 H
USID TR SEL D H
USIC R ID 2 H
USID TR SEL C H
USIC R ID 1 H
USID TR SEL B H
USID TR SEL A H
USIC R ID Ø H
74S135 E104
74S00 E89
USIH MY RD L(USIP)
USIH TAG RD H

74S157 E86
USIH STR ID Ø H
USID TR SEL A H
USIH T ID Ø H(USIC,H)
USIC T TAG Ø H

74S135
PINS 4 & 12 TIED TO USIP +VB H

REVISIONS		
CHK	CHANGE NO.	REV.

(ID COMPARE & ID STORE) (SLOT 1)

TITLE UNIBUS ADAPTOR SBI INTERFACE (USIH)
SIZE D | CODE CS | NUMBER M8270-0-1 | REV D
SCALE | SHEET 11 OF 19 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

USIJ ISR OK L
UCBM LOCAL READ ENA H — CK2
74S20 E11 — USIJ LOCAL READ L (USIF)
74S04 E25
74S20 E11 — USIJ MIC TX ENA L (USIB)
USIJ ISR OK H
74S10 E26 — USIJ ISR DTE L (USIJ)
74S04 E25 — USIJ ISR DTE H (USIJ)

74LS259 E35
USID TR SEL C H
USID TR SEL B H
USID TR SEL A H
USIP +VA H — DATA
USID TR SEL D H — 74S04 E25

74LS259 E75
USID TR SEL C H
USID TR SEL B H
USID TR SEL A H
USIP +VC H — DATA
USID TR SEL D H

USIJ ISR DTE L
UCBL DTE L — DKI
74S08 E125 — USIJ DATA DTE L (USIA)

USIA P OK L
USIA R B6 H
USIC T REQ 6 H
USIP +VC H
USIA R B7 H
USIC T REQ 7 H
USIA R B5 H
USIC T REQ 5 H
USIP +VC H
USIA R B4 H
USIC T REQ 4 H
74S64 E73 — 74LS27 E79
USIH TAG ISR L

USIP +VB H
74S74 E103
USIS T1B CLK H
USIR SBI A CLR L
USIJ ISR OK H (USIJ)
USIJ ISR OK L (USIJ)

74S241 E6 — BUS T B31 H, BUS T B30 H, BUS T B29 H, BUS T B28 H, BUS T B27 H, BUS T B26 H, BUS T B25 H, BUS T B24 H
74S241 E20 — BUS T B15 H, BUS T B14 H, BUS T B13 H, BUS T B12 H, BUS T B11 H, BUS T B10 H, BUS T B9 H, BUS T B8 H
74S241 E49 — BUS T B23 H, BUS T B22 H, BUS T B21 H, BUS T B20 H, BUS T B19 H, BUS T B18 H, BUS T B17 H, BUS T B16 H
74S241 E62 — BUS T B7 H, BUS T B6 H, BUS T B5 H, BUS T B4 H, BUS T B3 H, BUS T B2 H, BUS T B1 H, BUS T B0 H

USIJ ISR DTE L
USIJ ISR DTE H

(INTERRUPT SUMMARY RESPONSE) (SLOT 1)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE UNIBUS ADAPTOR SBI INTERFACE (USIJ)
SIZE D | CODE CS | NUMBER M8270-0-1 | REV D
SCALE — | SHEET 12 OF 19 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

USIA R B31 H
USIP +VB H
74S151 E91 STB D7 D6 D5 D4 D3 D2 D1 D0 S2 S1 S0 FØ F1
USIB F2 H
USIB F1 H
USIA R B28 H
USIK FUNC VLD L(USIK,L,N)
USIK FUNC VLD H(USIK,L)

USIP +VA H
USIS TØ CLK H
USIR SBI B CLR L
74S74 E1Ø
USIK TIME OUT CLK H(USIP)
USIP +VC H
USIN RIFF H
74LS161 E92 D0 D1 D2 D3 R0(1) R1(1) R2(1) R3(1) CLR LD CLK CNT EN CRY EN CO
USIP +VB H
74LS161 E105
USIP +VD H
74S112 E129
ER2
USIK RIFF TO H(UAIA)
USIK RIFF TO L(USIN)
USIS T1A CLK L
UAIB UB WR CMPT H
EL2
USIR SBI B CLR L

USIN UIP H
USIN RIFF L
74S10 E26
USIN RIFF H
USIN UIP L
USIB F1 H
USIB F2 H
74S08 E24
USIK IW H(USIK)
74S11 E27
74S02 E41
USIK IL W FLT H(USIE)
USIK SET RIFF CLR ENA H(USIM)

74S138 E12 D7 D6 D5 D4 D3 D2 D1 D0 SEL C SEL B SEL A
USIN RIP H
USIB F1 H
USIB F2 H
USIN UIP H
USIN RIFF H
USIP +VA H
EN
74S11 E27
74S02 E41
USIK SET UB WD XPCT H(USIM)
74S02 E41
USIK RIFF (J) H(USIN)
74S08 E42
74S32 E117
USIK UB C/A STRB L(USIN,R)
74S02 E80
USIK URIP (J) H(USIN)
USID UB ADR L
USIC UB MASK VLD L
74S02 E80
74S10 E54
USIK FUNC VLD H
USIA P1 OK H
74S04 E136
USIK UB ADR H(USIK)
USID ALL ADR SPACE H
USIA P OK H
USIK FUNC VLD L
USIH TAG C/A H
74S20 E67
USIK INVLD FUNC ERR L(USIR)
74S04 E136
USIK UB READ L(USIH)

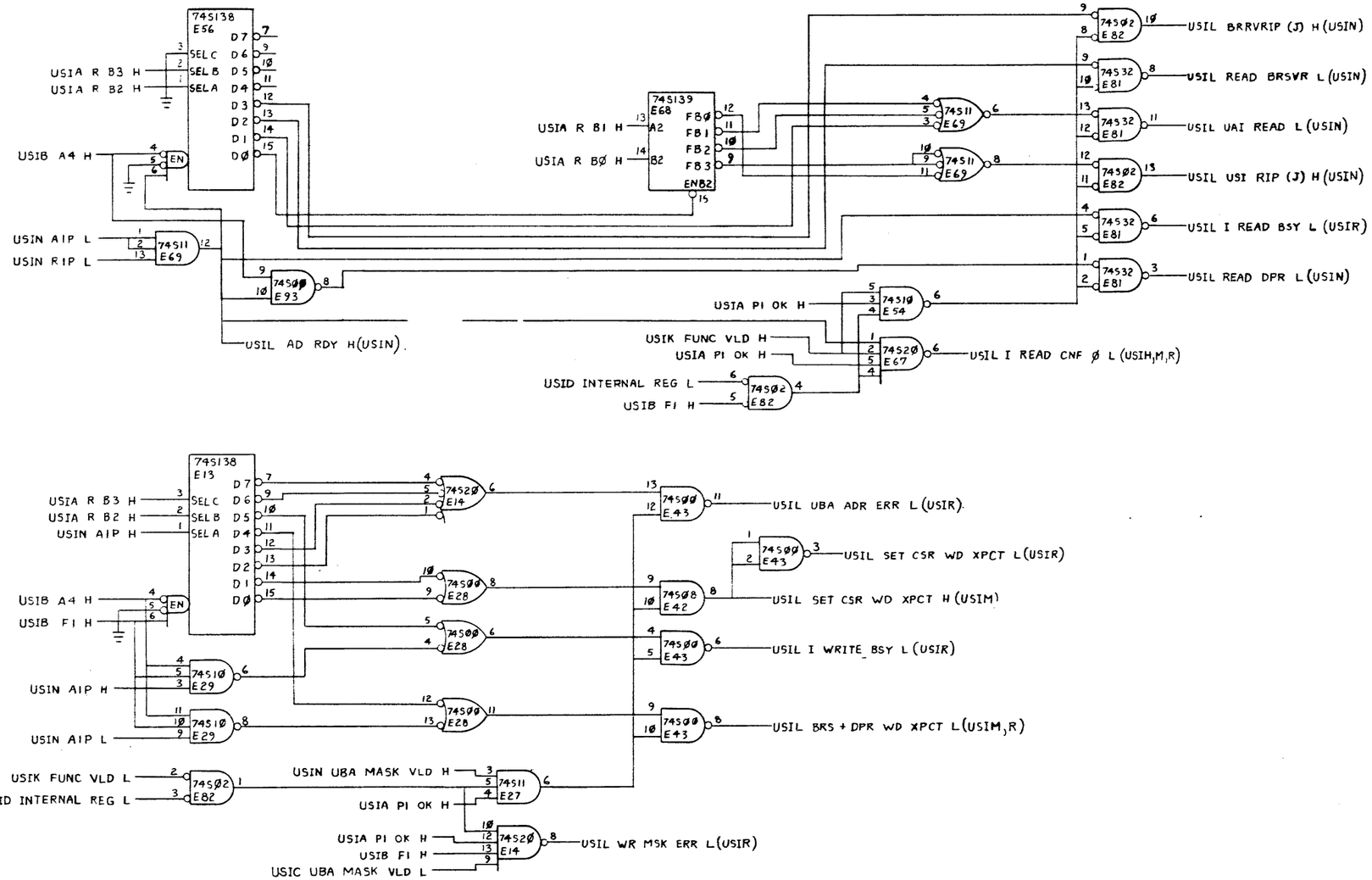
74S10 E54
USIK UB CNF 1 L(USIR)
USIC UB MASK VLD L
USIA P1 OK H
USIK UB ADR H
74S08 E42
74S00 E107
USIK UB MASK ERR L(USIR)

(SLOT 1) (UNIBUS FUNCTION DECODE, READ INTERLOCK TIMEOUT)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS ADAPTOR SBI INTERFACE (USIK)	D	DCS	M8270-0-1	D
SCALE —/— SHEET 13 OF 19 DIST.				

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"



(UBA FUNCTION DECODE) (SLOT 1)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS ADAPTOR SBI INTERFACE (USIL)	D	CS	M8270-0-1	D
SCALE —/—	SHEET 14 OF 19	DIST.		

TW

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

74S175 E115

USIK SET UB WD XPCT H
USIK SET RIFF CLR ENA H
USIL SET CSR WD XPCT H
USIM MIC WD XPCT H
USIR SBI A CLR L
USIS T1A CLK H

74S10 E114

USIA P OK H
USIH WD TAG L
74S11 E127
74S04 E128
74S00 E116
74S08 E125

USIM W SQ FLT H (USIE)
USIM WD XPCT CNF Ø L (USIR)
USIM CSR WD OK L (USIM)
USIM UB WD STRB L (USIN)
USIM UB WD IL OK L (USIN)
USIM MIC WD OK L (USIN,P)
USIM MIC WIP (J) H (USIN)

74S139 E68

USIP +VC H
USIA R B1 H
USIA R BØ H
USIS T1B CLK H
USIR SBI A CLR L
74LS74 E55

USIM CSR WD OK L

FAØ USIM CNFGR STRB EN L (USIR)
FA1 USIM CR W OK L (USIN)
FA2 USIM SR W OK L (USIN)
FA3 USIM DCR STRB EN L (USIR)

USIL BRS + DPR WD XPCT L
USIN MR WD XPCT L
74S00 E107

USIM MIC WD XPCT H (USIM)

USIL I READ CNF Ø L
USIN READ MR L
74S11 E127

USIM ENA ADR STRB L (USIN)

USIM MIC WD XPCT H
74S04 E128

74S02 E113

USIS T1A CLK L
USIM STRB ADR REG H (USIF)

(WRITE DATA EXPECTED LOGIC) (SLOT 1)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS ADAPTOR SBI INTERFACE (USIM)	D	CS	M8270-0-1	D
SCALE — SHEET 15 OF 19	DIST.			

TW 1

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

USIL AD RDY H
USIA P OK H
USIB FI H
USID MAP REG ADR L
USIK FUNC VLD L
USIA P OK L
USIN AIP H
USIC UBA MASK VLD L
USIB FI H

74S04 E140 — 74S10 E152 — USIN MR READ BSY L (USIR)
74S10 E152 — USIN READ MR L (USIH,M,N,R)
74S32 E117 — 74S02 E154
74S02 E154 — 74S10 E153 — USIN MR WR BSY L (USIR)
74S02 E154 — 74S10 E153 — USIN MR WD XPCT L (USIM,R)
74S10 E153 — USIN MR ERR L (USIR)
74S04 E140 — USIN UBA MASK VLD H (USIL)

USIP +VD H
USIK URIP (J) H — 74S112 E142 — USIN URIP H (USIN)
74S112 E142 — USIN URIP L (USIN)
USIL USI RIP (J) H — USIN USI RIP H (USIC)
USIN CLR RIP FF H — 74S112 E142 — USIN USI RIP L (USIN)
USIN MIC RIP (J) H — 74S112 E155 — USIN MIC RIP L (USIN)
UCBH MIC CMPT H (DM2)
USIL BRRVRIP (J) H — USIN BRRVRIP H (USIN)
USIS T1B CLK L — 74S112 E155 — USIN BRRVRIP L (USIN,UAIE,J) (BK1)
USIN BRRVRIP (K) H
USIB SBI C CLR L

USIL UAI READ L
USIL READ BRSVR L
USIN READ MR L
USIL READ DPR L — 74S20 E149 — USIN MIC RIP (J) H (USIN)

UCBH MIC CMPT H (DM2)
USIN BRRVRIP H — 74S08 E125 — USIN BRRVRIP (K) H (USIN

USIP +VD H
USIM UB WD STRB L
USIK RIFF TO L — 74S00 E107 — USIN UWIP H (USIN)
UAIC UB WR CMPT H (EL2) — 74S112 E130 — USIN RIFF H (USIK)
USIS T1A CLK L
USIN RIFF (K) H — USIN RIFF L (USIK)
USIM MIC WIP (J) H — 74S112 E129 — USIN MIC WIP L (USIN)
USIS T1B CLK L
UCBH MIC CMPT H (DM2)
USIB SBI C CLR L

UAIB UB WR CMPT H (EL2) — 74S04 E140
USIK RIFF TO L — 74S10 E152 — USIN RIFF (K) H (USIN)
USIM UB WD IL OK L

USIP +VA H
UCBL TAG SEL 1 H (DE2)
UCBL TAG SEL 0 H (DE1) — 74LS2 E79
UCBL DTE L (DK1)
USIS T CLK H — 74S74 E10 — USIN CLR RIP FF H (USIN)
USIR SBI B CLR L

USIM MIC WD OK L
USIF STRD A9 L — 74S32 E78 — (MR WD OK L)
USIF STRD A4 H
USIF STRD A9 H — 74S32 E9 — (BRSVR WD OK L)
USIF STRD A4 L — 74S32 E9 — 74S32 E9 — (DPR WD OK L)

(MR WD OK L)
(BRSVR WD OK L)
(DPR WD OK L)
USIN READ MR L — 74S20 E151 — 74S20 E138

USIL READ BRSVR L — 74S20 E151
USIL READ DPR L — 74S20 E138
USIL UAI READ L

745174 E137
D0 R0(1) — USIN MIC IR QC H (USIC)
D1 R1(1) — USIN MIC IR QB H (USIC)
D2 R2(1) — USIN MIC IR QA H (USIC)
D5 R5(1) — USIN UAI STRB 2 H (UAID) (EU2)
D4 R4(1) — USIN UAI STRB 1 H (UAID) (E51)
D3 R3(1) — USIN UAI STRB 0 H (UAID) (EM2)
CLR CLK

USIN ENA ADR STRB L
USIM UB WD STRB L
USIM SR W OK L
USIM CR W OK L — 74S20 E139
USIK UB C/A STRB L
USIP RD SUB SET L — 74S20 E139
USIP COR RD SET L — 74S20 E138

USIR SBI B CLR L
USIS T1A CLK H

USIN URIP H
USIN UWIP H — 74S02 E154 — CH2 USIN UIP L (USIK,UAIB)
74S04 E140 — USIN UIP H (USIK)

USIN URIP L
USIN USI RIP L
USIN MIC RIP L
USIN BRRVRIP L — 74S20 E141 — USIN RIP H (USIK)
74S04 E140 — USIN RIP L (USIL)
74S20 E141 — USIN AIP H (USIL,N)
USIN MIC WIP L
74S04 E140 — USIN AIP L (USIL)

(MAP REGISTER FUNCTION DECODE, IN PROGRESS FF, FUNCTION ENCODE UAI & UCB) (SLOT 1)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE UNIBUS ADAPTOR SBI INTERFACE (USIN)
SIZE D | CODE DCS | NUMBER M8270-0-1 | REV D
SCALE — | SHEET 16 OF 19 | DIST.

TW 1

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

UMD FILE WRITE SEL		
FLW	STRB	
Ø	/	OPERATION
H	H	NO-OP
L	H	RD2
H	L	RD1
L	L	MIC WD

USIA P OK L
USIH MY RD L
UCBM SET RD2 H
USIP +VD H
UCBM SET RD1 H
USIS TIA CLK L
USIB SBI C CLR L
USIP RD TO L
USIC R MASK 3 H
USIC R MASK 2 H
USIC R MASK 1 H
USIC R MASK Ø H
USIP UX RD FLT H (USIE)
USIP RD XPCT H (UCBJ,R)
USIP RD CNF Ø L (USIR)
USIP COR RD SET L (USIN)
USIP RD SUB SET L (USIN)
USIM MIC WD OK L
USIS TIA CLK H
USIP FLW SEL Ø H (USIP, UMDA,B)
USIP FLW SEL 1 H (USIP, UMDA,B)
USIS T3A CLK L
USIP +VD H
USIK TIME OUT CLK H
USIS TIB CLK H
USIP RD TO L (USIP, UAIK)
USIP +VA H (USIB,D,F,J,K,N)
USIP +VB H (USIH,J,K,R)
USIP +VC H (USID,J,K,M,R)
USIP +VD H (USID,H,K,N,P)
USIP FLW SEL Ø H
USIP FLW SEL 1 H
USIM MIC WIP (L) H
AA2, AV1
BA2, BV1
CA2, CV1
DA2, DV1
EA2, EV1
FA2, FV1
AC2, AT1, AN2
BC2, BT1, BN2
CC2, CT1, CN2
DC2, DT1, DN2
EC2, ET1, EN2
FC2, FT1, FN2
+5V
-5.2V
C8 - C49
C53 - C60
C64 - C95
.047 μf
C1 - C4
C6, C7
8 μf
C50, C51, C52
C61, C62
C63, C96
.047 μf
C5
8 μf
R18
120 Ω
R19
330 Ω
R20
120 Ω
R21
330 Ω
R22
120 Ω
R23
330 Ω
R24
120 Ω
R25
330 Ω
(READ DATA RECEIVED) (SLOT 1)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS ADAPTOR SBI INTERFACE (USIP)	D	CS	M8270-0-1	D
SCALE — SHEET 17 OF 19	DIST.			

TW 1

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

USIP RD CNF 2 L
USIK UB C/A STRB L
USIL BRQ + DPP WD XPCT L
USIL SET CSP WD XPCT L
USIL I READ CNF Ø L
USIN MR WD XPCT L
USIN READ MR L
USIM WD XPCT CNF Ø L
USIN MP ERR L
USIL WR MSK ERR L
USIL UBA ADR ERR L
USIK UB MASK ERR L
USIK INVLD FUNC ERR L
USIP +VC H

74S133 E95 (CNF Ø)

USIN MR WR BSY L
USIN MR READ BSY L
USIL I WRITE BSY L
USIK UB CNF I L
USIL I READ BSY L
USIP +VC H

74S133 E94 (CNF 1)

74S74 E106

USIP +VB H
USIR SBI B CLR L
USIS T1A CLK H

UCBL DTE L — DK1 — 74S04 E136
USIM DCR STRB EN L — 74S04 E136
USIM CNFGR STRB EN L

74LS174 E126
D0 R0(1) → USIR DTE A H (USIH)
D1 R1(1)
D2 R2(1) → USIR DCR STRB H (USIE)
D3 R3(1)
D4 R4(1) → USIR CNFGR STRB L (USIE)
D5 R5(1)
CLR CLK

USIR AD CLR L
USIS T1A CLK H

74S04 E136
74S08 E125
74S02 E113
USIB RB FLT H

74LS02 E76
74LS02 E76 → USIR CNFGR 26 H (USIF)
USIB RB FLT L

UCBL INTLK H — DL1
USIE T FLT H
USIR AD CLR H
USIS T0 CLK H

8646 E84
XCLK XENB
XPAR
XD4
XD3
XD2
XD1
RD4
RD3
RD2
RD1
REC PAR
LATCH

BUS SBI FAULT L — EU1 — B4
BUS SBI CNF Ø L — ES2 — B3
BUS SBI CNF 1 L — ET2 — B2
BUS SBI INTLK L — FA1 — B1

RD4 → USIR R FLT H (USIB) — CL1
RD3 → USIR R CNF Ø H (UCBM)
RD2 → USIR R CNF 1 H (UCBM) — DA1

USIS R2 CLK H

UAIN AD CLR L — CK1 — 74S37 E90
USIP +VB H
→ USIR AD CLR H (USIC,R)
→ USIR AD CLR L (USIE,R)

UAIN SBI CLR L — CJ2 — 74S00 E89
→ USIR SBI B CLR L (USIB,K,N,R)
→ USIR SBI A CLR L (USIE,F,H,J,M)

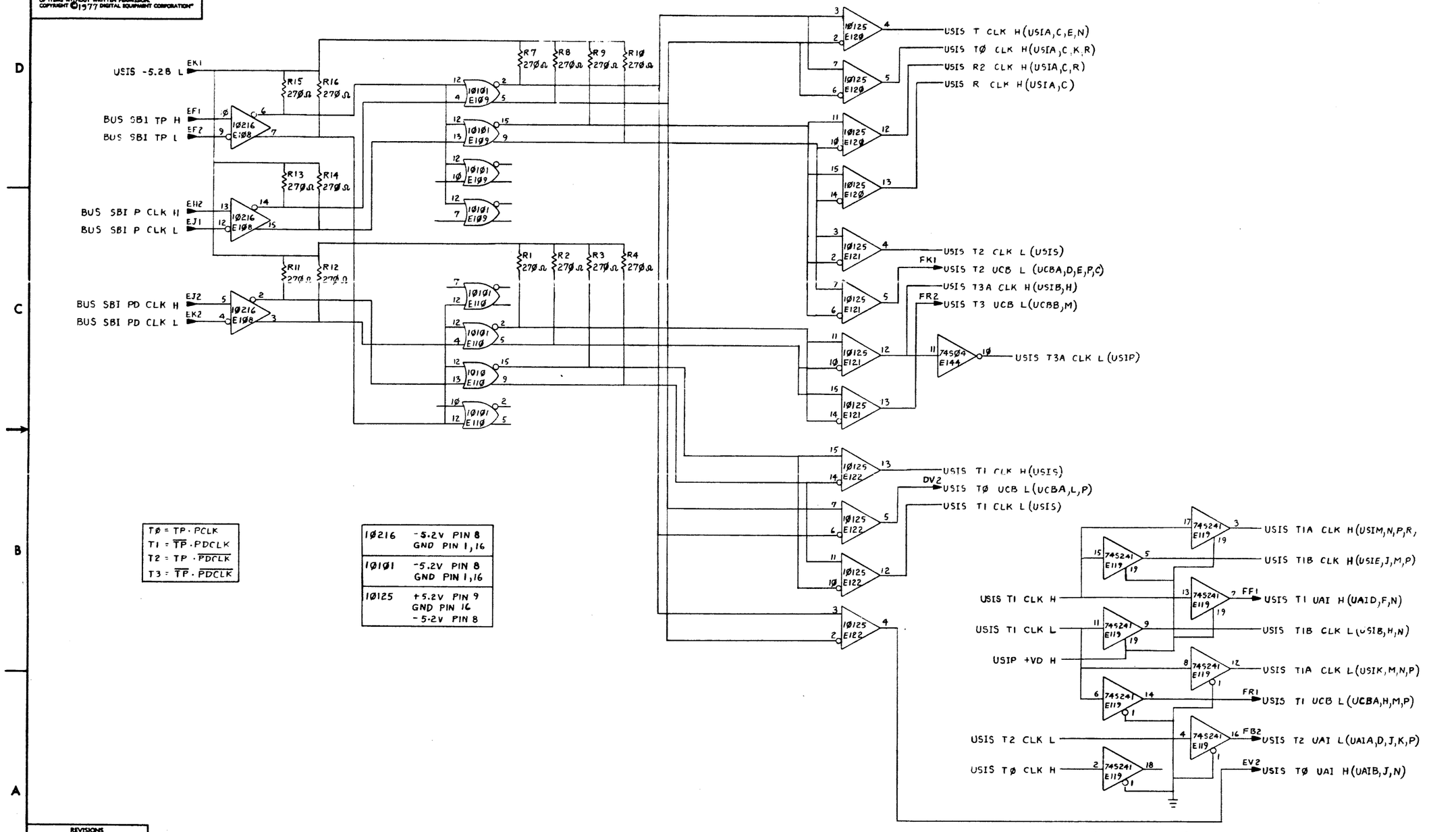
BUS SBI		
CNF 1	CNF Ø	
Ø	Ø	NR
Ø	1	ACK
1	Ø	BSY
1	1	ERR

REVISIONS		
CHK	CHANGE NO.	REV.

(SBI CONFIRMATION) (SLOT 1)

TITLE UNIBUS ADAPTOR SBI INTERFACE (USIR)
SIZE D | CODE CS | NUMBER M8270-0-1 | REV. D
SCALE — | SHEET 18 OF 19 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"



TØ = TP · PCLK
T1 = $\overline{TP}$ · PDCLK
T2 = TP · $\overline{PDCLK}$
T3 = $\overline{TP}$ · $\overline{PDCLK}$

10216	-5.2V PIN 8 GND PIN 1,16
10101	-5.2V PIN 8 GND PIN 1,16
10125	+5.2V PIN 9 GND PIN 16 -5.2V PIN 8

(ECL CLOCKS) (SLOT 1)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	UNIBUS ADAPTOR SBI INTERFACE (USIS)			
SIZE	CODE	NUMBER	REV.	
D	CS	M8270-0-1	D	
SCALE		SHEET 19 OF 19	DIST.	

TW 1

COMPONENT SIDE VIEW

11.91 IN.
302.62MM
F8.S

SIGNATURES	DATE
DRWR. Steve Tyler	12/9/78
ENG. D.	
ENG.	
PROJ.ENG.	
PROD.	
SCALE 2:1	
SHT 1 OF 3	
NEXT ASSY USED ON	

digital

TITLE UBA CONTROL BOARD

EUA M8271-0-0 REV D

ETCH REV.
P.C. DESIGN DATA BASE REV.

B-P1
B-P1

CHECHANGE NO NEW

NOTES:

EUA M8271-0-0 D

L1 M8271 5012993B-P1

LAYER 1

E160 E146 E132 E104 E90 E76 E62 E48 D1 E34 E17

d.g.i.t.a.l

TITLE	SIZE	CODE	NUMBER	REV
UBA CONTROL BOARD	E	UA	M8271-0-0	D
SCALE 2	SHEET 2 OF 3	DIST		

1 TW

...AND SPECIFICATIONS, HEREIN, ARE THE ... DIGITAL EQUIPMENT CORPORATION. ... DIGITAL EQUIPMENT CORPORATION

LAYER 4

UBA CONTROL BOARD M8271 5012983 REV SERIAL

REVISIONS		
CHG	CHANGE NO.	REV

TITLE: UBA CONTROL BOARD		SIZE/CODE: E	NUMBER: UA M8271 - 0 - 0	REV: D
SCALE: 2 - 1	SHEET 3 OF 3		DWG	

NEXT ASSY	USED ON			
E	UA M8271 - 0			D

AUTOMATED BY PRTLST.1D(10) — PARTS LIST — SHEET A1 OF A2

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	E-MD-5012993-0-0	5012993-00	M8271 PC BRD	1	
2	2		1012784-00	.047 MFD 50V +80-20% CER	59	C1-C59
3	3		1012084-01	8 MFD 25V +75-10% AL EL	6	C60-C65
4	4		1110324-00	LED 1MCD@10MA PIV=3	9	D1-D9
5	5		1300365-00	1.0 K .25 W 5.0 % CC	1	R1
6	6		1300247-00	120.0 .25 W 5.0 % CC	3	R11,R13,R15
7	7		1300295-00	330.0 .25 W 5.0 % CC	3	R12,R14,R16
8	8		1300316-00	470.0 .25 W 5.0 % CC	9	R2-R10
9	9		1910532-00	74S00 NAND GATE-QUAD 2IN	15	E68,E136,E123,E108,E98,E131,
					CONT	E125,E81,E105,E37,E99,E86,E49,
					CONT	E130,E138
10	10		1912388-00	74S02 NOR GATE-QUAD 2IN,PO	11	E25,E51,E93,E156,E120,E119,E144,
					CONT	E160,E75,E88,E112
11	11		1910534-00	74S04 INVERTER GATE-HEX 1I	11	E22,E27,E135,E128,E3,E110,E36,
					CONT	E104,E29,E17,E85
12	12		1912389-00	74S08 AND GATE-QUAD 2IN,PO	5	E41,E126,E94,E103,E59
13	13		1910536-00	74S10 NAND GATE-TRIPLE 3IN	8	E20,E95,E129,E117,E124,E76,E35,
					CONT	E89
14	14		1910537-00	74S11 AND GATE-TRIPLE 3INP	1	E134
15	15		1910539-00	74S20 NAND GATE-DUAL 4INPU	3	E53,E80,E102
16	16		1913340-00	74S32 OR GATE-QUAD 2IN	3	E2,E52,E92
17	17		1912746-00	DEC 74S37 NAND GATE-QUAD 2IN	2	E18,E66
18	18		1910542-00	74S64 A-O-I GATE 4-2-3-2	1	E38
19	19		1910544-00	74S74 FF-D DUAL EDGE TRIGG	4	E90,E111,E149,E152
20	20		1912089-00	74S85 CMPRTR-4BIT MAGNITUD	1	E127
21	21		1215006-02	SOCKET 16PIN IC LOW PROFILE	1	XE48
22	22		1910545-00	74S112 FF-JK DUAL,EDGE TRIG	9	E39,E55,E65,E54,E67,E82,E97,E62,
					CONT	E153
23	23		1911675-00	74S138 DECODER/DEMUX 3-8 LIN	4	E4,E23,E73,E74
24	24		1910547-00	74S153 MUX 1 OF 4 (DUAL)	8	E21,E44,E46,E47,E60,E71,E121,

REVISION HISTORY			BASIC PART NO: M8271										
ENG	ECO NUMBER	REV	SECTION A OF A	DRN: G. TYNES	DATE: 11 DEC 78		D	I	G	I	T	A	L
P.G	00002	B	SECTION.VARIATION INDEX	CHK'D: E.T. GERRY	DATE: 11 DEC 78	TITLE	PARTS LIST						
PG	00003	C	[A] 00			UCB							
BH	M8271-TW004	D	[B]	DES.ENG: B. SIMS	DATE: 11 DEC 78								
DR	M8271-TW005	E	[C]			DOCUMENT NUMBER							
			[D]	RESP.ENG.: R. CASABONA	DATE: 11 DEC 78	SIZE	CODE	NUMBER				REV	
			[E]										
			[F]	MFG.ENG.: B. SIMS	DATE: 11 DEC 78	K	PL	M8271-0-DBP				E	
			[H]	ASSEMBLY NUMBER:	TOP DOCUMENT NUMBER:			FILE NAME:				EDIT #	
			[J]	D-UA-M8271-0-0				Z0639.PLS				29	
			[K]										
			[L]										
			[M]										
			[N]										

"THIS DRAWING AND SPECIFICATIONS HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT (C) 1981. DIGITAL EQUIPMENT CORPORATION "

AUTOMATED BY PRTLST.1D(10) P A R T S L I S T SHEET A2 OF A2

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
						CONT E122
25	25		1910548-00	74S157 MUX 1 OF 2 (QUAD)	6	E31,E33,E91,E113,E133,E142
26	26		1910550-00	74S174 FF-D HEX	8	E40,E61,E64,E83,E114,E115,E159,
						CONT E141
27	27		1910957-00	74S175 FF-D QUAD COMMON CLO	2	E78,E109
28	28		1910531-00	DEC 74S181 ALU-4BIT	1	E45
29	29		1912661-00	74S189 MEMORY READ/WRITE	3	E14[illegible],E157,E158
30	30		1913493-00	74S241 OCTAL BUFFER,TRI-STA	2	E63,E77
31	31		1912728-00	74S251 MUX 1 OF 8 TRI-STA	6	E57,E72,E87,E100,E101,E107
32	32		1912660-00	74S253 MUX 1 OF 4 (DUAL)	1	E43
33	33		1911641-00	SN 74S257 MUX,QUAD 2 TO 1	5	E58,E137,E147,E148,E151
34	34		1913671-00	74S374 FF-D OCTAL TRISTATE	6	E24,E26,E28,E30,E32,E96
35	35		1913294-00	93S16 COUNTER,SYNCH UP BIN	3	E139,E140,E154
36	36		1911574-00	8641 TRANSCEIVER,BUS,QUA	1	E1
37	37		1912796-00	74148 EXCODER,PRIORITY,8 T	1	E56
38	38		1912813-00	LS27 NOR GATE-TRIPLE 3IN	2	E69,E84
39	39		1912820-00	LS51 A-O-I GATE 2-WIDE 2I	3	E19,E42,E116
40	40		1912853-00	LS175 FF-D QUAD	3	E5,E70,E79
41	41		1912860-00	LS259 LATCH 8BIT	2	E50,E106
42	42		1210711-02	/REPLACED BY 12-16988-02	1	
43	43		9000024-01	EYELET,ROLL FLANGE .1210DX .192	12	
44	44		23586A9-00	A9-01	1	E6
45	45		23699A9-00	A9-01	1	E7
46	46		23687A9-00	A9-01	1	E8
47	47		23589A9-00	A9-01	1	E9
48	48		23590A9-00	A9-01	1	E10
49	49		23685A9-00	A9-01	1	E11
50	50		23700A9-00	A9-01	1	E12
51	51		23672A9-00	A9-01	1	E13
52	52		23673A9-00	A9-01	1	E14
53	53		23670A9-00	A9-01	1	E15
54	54		23701A9-00	A9-01	1	E16
55	55		23215A1-00	A1-07	1	E145
56	56		9105740-55	*** THIS ITEM IS NOT USED ***	-	

57 NOTE: E34,E118,E132,E146,E150,E155 ARE SPARE I.C. LOCATIONS.

D	I	G	I	T	A	L	TITLE	SECTION A OF A	SIZE	CODE	DOCUMENT NUMBER	REV
							UCB		K	PL	M8271-0-DBP	E

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITS EQUIPMENT WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 , DIGITAL EQUIPMENT CORPORATION"

UAI UB ATT SEL
SB SEL
DMA SEL
PF READ DATA RCVD
USI FILE WRITE SEL
READ DATA IR (UCBR)
IR MUX UCBC
UIR
LED MPC DISPLAY (UCBC)
MPC MONITOR SOCKET E48
CONTROL STORE ROM (UCBD,E)
UCS REG (UCBD,E)
* NOTE 1
USA CONTROL FIELD DECODES (UCBH)
CONTROL STROBES/ENABLES
ENABLE MAP AND DP STATUS
MAP AND DATA PATH SELECTS
BUS MSK SB (UCB, USI)
SBI IR (UCBR)
SB ATT
BRANCH CONDS
UC STATE
BRANCH COND MUX 2 WAY 4 WAY 4 WAY (UCBB)
BRANCH OFFSET
NXT ADD
MICRO CONTROL (UCBH)
STRB OPA
STRB OPB
CNG MSK
CNG STATE
IR SELECT ENABLE
BR SELECT
OPA REG (UCBF)
OP CD <4:0> (UCD)
DP MUX ENABLE (UMD)
IB IN BUS ENABLE (UCBF)
IB BUS TRANSMIT CONTROL (UAI, UMD)
ORB REG (UCBE)
BUS AD CONTROL
COUNTER SELECT (MAP DATA DISABLE) (UMD)
PRIORITY ENCODE (UCBC)
DMA ATT
IR ATT
UAI UB ATT
REQ SBI (CNTLF-D) OP CODE
DATA TRNSFRD (BRANCH)
SBI TRANSMIT LOGIC (UCBL,M)
SEND TR
ARB OK
TA SEL
SEND HOLD
SET RD XFCT
RCV CNF
USI
UAI MAP ADD RNG
UMD MAP PAR
UMD MAP VALID
BDP STATUS
UAI HOLD <AC>
UB ADD/INTL
DMA ATT DECODE (UCBA)
SET DMA ERROR
CHNG STATE ENABLE
CHNG MASK ENABLE
UAI REC MSYN
ENA SEND SSYN (CONTROL FIELD)
MSYN SYNC (UCBA)
UCB SEND SSYN (UAI)
UNI BUS PA PB
DP PAR
UMD MAP PAR
(OPA REG) OP CD
UAI AA<4:0>
(UB ADD/INT L)
SBI MASK FUNC ENCODE (UCBK)
FUNC
(UMD)
MASK
(UCBM)
BUS MSK SB (UCB, USI)
DP PAR OK
MAP PAR OK
MAP VALID
MAP & DP STATUS BIT SETS UCBP
MAP & DP STATUS BIT SETS (UAI)
BDP MASK-STATE-STORE (UCBJ)
ADD
BDP STATUS (DMA DECODE)
(UCBN)
BUS AD
INIT-TIME OUT CNTR (UCBN)
USI REC CLKS
CLOCK BUFFER DRIVERS (UCBP)
UCB CLKS
+V SOURCE (UCBP)
VA
VB
GR CLR
(UCBF)
BDP NO. IN (UMD)
A=B (UCBJ)
BDP ACTIVE
ZERO TEST (UCBJ)
DP ZERO
DMA DECODE BRANCH CONDITION
BDP STORE (UCBJ)
UMD DP ADD

* NOTE
1. CONTROL STORE FIELDS SHOWN ON NEXT SHEET

REVISIONS		
CHK	CHANGE NO.	REV.
	M8271-TW001	A
	M8271-TW002	B
	M8271-TW003	C
	M8271-TW004	D

BLOCK DIAGRAM

DRN.	6-1-77	FIRST USED ON 11780
CHK'D		
ENG.		TITLE
PROJ. ENG.		UBA CONTROL BOARD
PROD.		
NEXT HIGHER ASSY.	DW780	
SCALE		SIZE D CODE CS NUMBER M8271-0-1 REV. D
SHEET 1 OF 2		DIST.

M8271-0-1 REV D

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

CONTROL STORE LAYOUT

REGISTER	9	6	5	2	19	16	15	12	9	16	5	2	19	16	15	12	9	6	5	2	19	16	15	12	9	6	5	2	19	16	15	12	9	6	5	2
	E36				E24								E26								E28								E3Ø								E32			
ROM	9	1Ø	11	12	9	1Ø	11	12	9	1Ø	11	12	9	1Ø	11	12	9	1Ø	11	12	9	1Ø	11	12	9	1Ø	11	12	9	1Ø	11	12	9	1Ø	11	12
	E6				E7				E8				E9				E10				E11				E12				E13				E14			
	23-586-A9				23-699-A9				23-687-A9				23-589-A9				23-590-A9				25-685-A9				25-T09-A9				23-672-A9				23-673-A9			

	43	42	41	4Ø	39	38	37	36	35	34	33	32	31	3Ø	29	28	27	26	25	24	23	22	21	2Ø	19	18	17	16	15	14	13	12	11	1Ø	9	8	7	6	5	4	3	2	1	Ø
	CNTLRQDD		CNTLRQDC		CNTL FLD B				CNTL FLD A				OP FLD																CLR MSK	BRANCH SELECT						NXT ADDRESS							
	1	Ø	1	Ø	3	2	1	Ø	3	2	1	Ø	15	14	13	12	11	1Ø	9	8	7	6	5	4	3	2	1	Ø		F	E	D	C	B	A	8	7	6	5	4	3	2	1	Ø
	CFD		CFC		CFB				CFA				DSS		DMS		HAD		LAD		FRS		MAS		MWS		BSS		SPR	BRG			BRS			NAD							

MICRO SEQUENCE FUNCTIONS

OUTPUT PIN
CNTL STR REG – CLOCKED AT T3 (74S374)
OUTPUT PI:
CHIP NUMBER (ROM NUMBER)
CONTROL STORE BIT NUMBER
ROM FIELDS
MNEMONIC

UCB MICRO CNTRL FIELDS

	CFD	CFC	CFB	CFA	OCT
Ø	NO-OP	NO-OP	NO-OP	NO-OP	ØØ
1	DPB WE	UPL W	DPI WE	DP Ø WE	Ø1
2	EN SSYN	EN PR CLK	HI D OUT STRB	LO D OUT STRB	Ø2
3	CLR CNTR	SBI REQ EN	CNG STATE SND SSYN	BUF ADD STRB	Ø3
			CNG MSK & STATE	TMP STR STRB	Ø4
			CLR MR HI GATE	CLR RD RCVD	Ø5
			EN DPPE CATCH	CLR SB ATT	Ø6
			AD INC EN	CLR DMA ATT	Ø7
				CLR UB ATT	1Ø
			EN DPPE STAT	EN MR HI LAT	11
			EN CXTER	CLR BRRVR FULL	12
				INTLK SET EM	13
				EN MAP STAT	14
			EN CATO	CND DMA CLR H	15
			WRITE MAP	SPARE	16
				MIC OK	17

DP SHFT SEL 1 · DP SHFT SEL Ø · UP MUX SEL 1 · DP MUX SEL Ø · HDP ADD 1 · HDP ADD Ø · LDP ADD 1 · LDP ADD Ø · FILE READ SEL 1 · FILE READ SEL Ø · MAP ADD SEL 1 · MAP ADD SEL Ø · MAP WORD SEL · SPARE · BDP SRC SEL 1 · BDP SRC SEL Ø

SIGNAL NAME (UCBD)

DATA PATH SELECTS

CHANGE MASK

MSK ROM A0 · MSK ROM A1 · MSK ROM A2 · MSK ROM A4 · MSK ROM A3 · CLR MSK

CHANGE STATE

BFNC		BTE		BSTATE	
CNGH	NEW	CNGH	NEW	CNGH	NEW

MIC STATE 1 · MIC STATE Ø · DP MUX HOLD · DP MUX DIS · IB EN UAD · IB EN UAI · ENABLE CNTR INC · OP CO 4 · OP CO 3 · OP CO 2 · OP CO 1 · OP CO Ø

OPA REG

AD ADD HLD · AD UCB MUX · AD UMDBAS · MDS CNTR SEL

OPB REG

BUS AD CONTROL, COUNTER SELECT

BRANCH FUNCTIONS

FIELD BR G	S	–2 WAY– BRANCH COND 2Ø	TST
Ø	Ø	NEVER	
Ø	1	SBI REQ FF	F
Ø	2	DP > Ø	T
Ø	3	EXT FUNC	T
Ø	4	UTE (DATA TRANSFR ENABLE	T
Ø	5	(SPR)	
Ø	6	BDP ACTIVE	T
Ø	7	ACK	T
1	Ø	UB A1	T
1	1	MSYN RLSD	T
1	2	DPPE (STRD)	T
1	3	SBI I/O P9	T
1	4	STRD BYTE OFST	T
1	5	RD FAILSAFE	T
1	6	PRG ACCESS OK	T
1	7	PRG RQRD	T
2	Ø	CNTR BIT 4	T
2	1	CNTR FULL	T
2	2	(SPR)	
2	3	TX PB	T
2	4	UB ATT SEL 2	T
2	5	SB ATT SEL 2	T
2	6	BRRVR FULL	T
2	7	INTR RLSD	T

FIELD BR G	S	4 WAY BRANCH CONDITIONS 2¹	2Ø	NOTES
4	Ø	DP ADD 3	DP ADD 2	
4	1	SBI BIT 31	SBI BIT 3Ø	(1)
4	2	UB ATT SEL 1	UB ATT SEL Ø	
4	3	CIIF 1	CNF Ø	(2)
4	4	SPARE	SPARE	
4	5	UUB A1 H	UB AØ H	
4	6	PFRD RCVD	RD FAILSAFE	
4	7	DRD RCVD	RD FAILSAFE	
5	Ø	SPARE	SPARE	
5	1	MIC STATE 1	MIC STATE Ø	DPA REG
5	2	SB ATT SEL 1	SBATT SEL Ø	
5	3			

BR G	S	16 WAY BRANCH CONDITIONS 2³	2²	2¹	2Ø
7	Ø	Ø	BYTE OFST (T)	UB A2	UB A1
7	1	BYTE OFST	UB A2	UB A1	UB AØ

(2)

CNF 1	Ø	SBI RSPNC
Ø	Ø	NO RSPNC
Ø	1	ACK
1	Ø	BSY
1	1	ERROR

(1)

SBI DATA BITS 31	3Ø	DATA PATH REG WRITE FUNCTION
Ø	Ø	NO-OP
Ø	1	CLR BTE
1	Ø	PURGE
1	1	CLR BTE PURGE

NON BRANCH FUNCTIONS

BR G	S	FUNCTION
6	Ø	IR SELECT
* 6	1	CHANGE MSK
6	2	CHANGE STATE
6	3	STRB OPA REG
6	4	STRB OPE REG
* 6	5	CHANGE MSK & CLR DMA ATT
6	6	SPARE
6	7	SPARE

* SEE CHANGE MSK ENCODE

DATA PATHS SELECTS

	DSS	DMS	MAD	LAD	FRS	MAS	MWS	BSS	
Ø	NO SHFT	UMD FILE (SBI BYTE) 3 2 1 Ø	Ø	Ø	ADAPT WD	BUS AD <15:Ø7>	MAP REG LO	BDP NUM	Ø
1	IN 1 → OUT Ø	ZERO / REG D 1 Ø	1	1	RD 1	REG ADD <8:Ø>	MAP REG LO	REG ADD <3:Ø>	1
2	IN 2 → OUT Ø	DP RAM 3 2 1 Ø	2	2	RD 2	BUS AD <15:Ø7>	MAP REG HI	ZERO	2
3	IN 3 → OUT Ø	AD INC 1 Ø / TMP STR 1 Ø	3	3	EMPTY	REG ADD <8:Ø)	MAP REG HI	BDP IN	3

23-215-A1 CHANGE MASK ENCODE PROM E145

MSK ROM ADDRESS 4	3	2	1	Ø	PIN 9	7	6	5	4	3	2	1	Ø	SET MASK BIT 7	6	5	4	3	2	1	Ø
Ø	Ø	Ø	Ø	Ø																	
Ø	1	Ø	Ø	Ø																	1
Ø	Ø	1	Ø	Ø																1	
Ø	1	1	Ø	Ø															1		
Ø	Ø	Ø	1	Ø														1			
Ø	1	Ø	1	Ø													1				
Ø	Ø	1	1	Ø												1					
Ø	1	1	1	Ø											1						
Ø	Ø	Ø	Ø	1										1							
Ø	1	Ø	Ø	1																1	1
Ø	Ø	1	Ø	1															1	1	
Ø	1	1	Ø	1													1	1			
Ø	Ø	Ø	1	1										1	1						
Ø	1	Ø	1	1															1	1	
Ø	Ø	1	1	1														1	1		
Ø	1	1	1	1										1	1						
1	1	Ø	1	1																	1
ALL OTHER																					

NOTE:
1 = H OUTPUT
BLANK = L OUTPUT

OP CO BIT 4	3	2	1	Ø	SBI OPERATION
Ø	Ø	1	Ø	Ø	ADAPTOR TO SBI FUNC-MSK
Ø	Ø	1	1	Ø	READ DATA-MASK = Ø
Ø	Ø	1	1	Ø	READ DATA-MASK = F (PB)
Ø	1	1	Ø	Ø	READ DATA-MASK = F (DP PAR)
Ø	1	1	1	Ø	READ DATA-MASK = F (Ø)
Ø	Ø	Ø	1	1	BCP READ-MSK EXT = Ø, MSK LW = 1
1	Ø	Ø	1	1	BDP WRITE MASK-STRD
X	Ø	1	Ø	1	DDP FUNCTION F(A1 AØ, C1, CØ)
Ø	1	Ø	Ø	1	PREFETCH EXT READ
1	1	Ø	Ø	1	PURGE
1	Ø	1	Ø	Ø	BRRVR RD MASK = Ø
1	1	1	Ø	Ø	ERRVR RD MASK = DP

REVISIONS		
CHK	CHANGE NO.	REV.

(UBA MICRO SEQ GUIDE)

TITLE	SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD	D	CS	M8271-Ø-1	D
SCALE — SHEET 2 OF 24	DIST.			

SIZE D CODE DCS NUMBER M8271-Ø-1 REV. D

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

DATA PATH SHIFTER INPUTS (SOURCES)

	DMS <1:0>	SFTR BYTE 0	SFTR BYTE 1	SFTR BYTE 2	SFTR BYTE 3
4 BYTES OF SBI DATA	0	FILE (0) [SBI DATA]	FILE (1)	FILE (2)	FILE (3)
2 BYTES OF UNIBUS DATA	1	RECD (0)	RECD (1)	0	0
4 BYTES OF DATA PATH RAM	2	DP RAM (0)	DP RAM (1)	DP RAM (2)	DP RAM (3)
2 BYTES WRAP AROUND 2 BYTES INC UB ADR	3	TMP STR (0)	TMP STR (1)	ADR INC (0)	ADR INC (1)

DESTINATIONS (TARGET)

DATA PATH SHIFTER OUTPUTS

DP BYTE (0)	DP BYTE (1)	DP BYTE (2)	DP BYTE (3)
TMPSTR (0)	TMPSTR (1)	UB DATA (0) <7:0>	UB DATA (1) <15:8>
		BUFFER ADDRESS STORE <09:02>	BUFFER ADDRESS STORE <17:10>
DP RAM (0)	DP RAM (1)	DP RAM (2)	DP RAM (3)
BUS IB (0)	BUS IB (1)	BUS IB (2)	BUS IB (3)

SHIFTER CONTROL — DSS <1:0>

SHIFTER BYTE OUT PUT

	SFTR (0) OUT	SFTR (1) OUT	SFTR (2) OUT	SFTR (3) OUT
0	SFTR (0) IN	SFTR (1) IN	SFTR (2) IN	SFTR (3) IN
1	SFTR (1) IN	SFTR (2) IN	SFTR (3) IN	SFTR (0) IN
2	SFTR (2) IN	SFTR (3) IN	SFTR (0) IN	SFTR (1) IN
3	SFTR 3 (IN)	SFTR 0 (IN)	SFTR (1) IN	SFTR (2) IN

DATA PATH RAM ORGANIZATION

CONTROL STORE BITS L ADD <1:0> — BUFFERED DATA PATH ORGANIZATION 1-15 — CONTROL STORE BITS H ADD <1:0>

DP AD <5:2> = 1-15

3			16 BITS OF UB ADR <17:02> FOR DATA PATH REG		3
2	BYTE OFFSET TEMP BUFFER				2
1	BUFFER DATA PATH LONG WORD 2				1
	BYTE 4	BYTE 5	BYTE 6	BYTE 7	
0	BUFFER DATA PATH LONG WORD 1				0
	BYTE 0	BYTE 1	BYTE 2	BYTE 3	
DATA PATH RAM BYTE	0	1	2	3	

CONTROL STORE BITS L ADD <1:0> — BRRVR / BRSVR ORGANIZATION — CONTROL STORE BITS H ADD <1:0>

DP AD <5:2> = 0

3	BRRVR #6	BRRVR #7	3	BRRVR'S
2	BRRVR #4	BRRVR #5	2	
1	BRSVR #2	BRSVR #3	1	BRAVR'S DIAGNOSTIC USE ONLY
0	BRSVR #0	BRSVR #1	0	
DATA PATH RAM BYTE	0	1	2	3

(DATA PATH ORGANIZATION)

REVISIONS

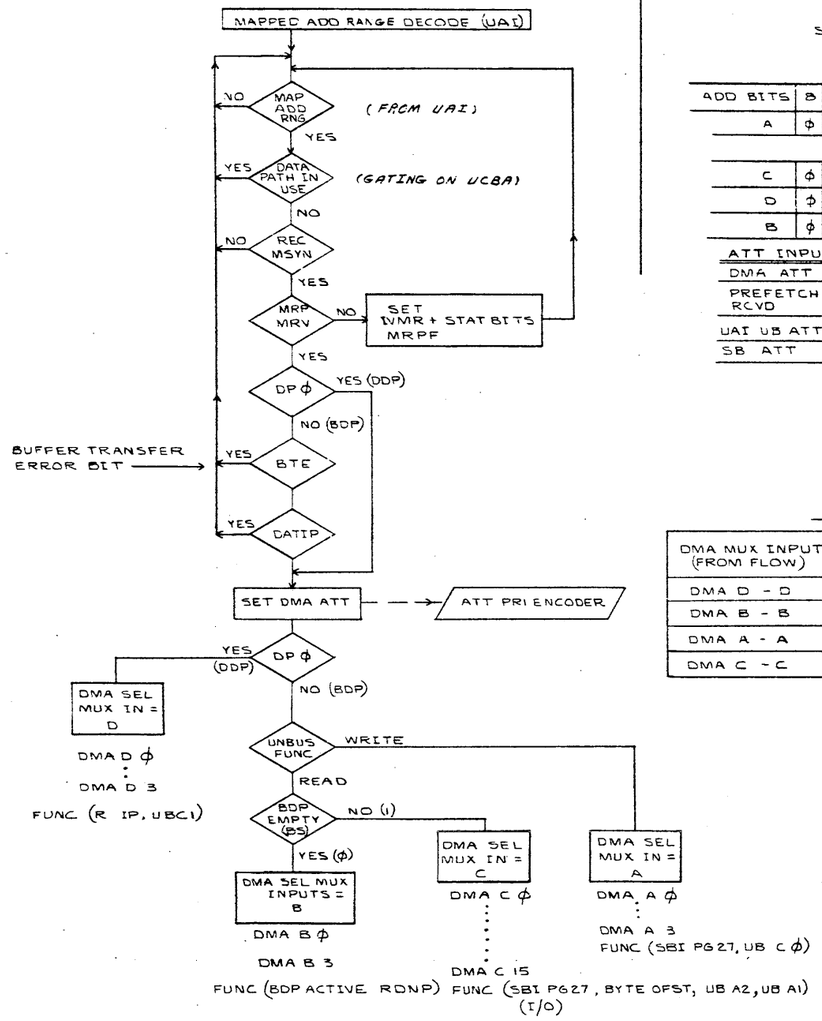
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD	D	CS	M8271-0-1	D
SCALE	SHEET 3 OF 21	DIST.		

TW

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UNIBUS ACCESS TO THE ENABLED MAPPED MEMORY ADDRESS SPACE (LOGIC OR UCBA)



MICRO TR MUX INPUTS (UCBC)

START ADDRESS GENERATION (UCBC)

MIC PROG ADD

ADD BITS	8	7	6	5	4	3	2	1	Φ	
A	Φ	Φ	Φ	Φ	— DMA SEL —					SEE DMA SEL GENERATION
C	Φ	Φ	Φ	1	Φ	1	UB ATT			UAI
D	Φ	Φ	Φ	1	1	Φ	SB ATT			UCBR (FROM SBI)
B	Φ	Φ	Φ	1	1	1	Φ	Φ	BO*	* STORED BYTE OFST

ATT INPUT - IR MUX INPUT SEL - PRIORITY

DMA ATT	A	3
PREFETCH RD RCVD	B	2
UAI UB ATT	C1	1
SB ATT	D	Φ LOWEST

DMA SEL GENERATION (UCBA)

DMA MUX INPUT (FROM FLOW)	BIT (DMA SEL) 4	3	2	1	Φ
DMA D - D	Φ	Φ	1	RDIP (RD APCT + PFRD RCVR)	UB C1
DMA B - B	Φ	1	Φ	BDP ACTIVE	RDIP
DMA A - A	Φ	1	1	SBI PG 27 (I/O - H)	UB CΦ
DMA C - C	1	SBI PG 27 (I/O - H)	BYTE OFST	UB A 2	UB A1

MICRO CNTL START ADDRESSES

START ADD(8)	IR SEL	FLOW SYMBOL	INSTRUCTION	
Φ	X	CLR UBA	INITIAL IZE UBA	
1	X		RSVD	
2	X		RSVD	
3	X	STRT	BR(IR) ATT	
4	A	DMA DΦ	SBI READ (DDP)	BDP ↓ DMA
5		DMA D1	SBI WRITE (DDP)	
6		DMA D2	STORE RD, SBI READ (DDP)	
7		DMA D3	SBI WRITE = D1	BDP
1Φ		DMA BΦ	SBI READ (BDP)	BDP READ
11		DMA B1	STORE RD SBI READ (BDP)	BDP EMPTY
12		DMA B2	SBI READ (DDP) = BΦ	
13		DMA B3	WAIT RD RTN	
14		DMA AΦ	MEM DATO	BDP WRITE
15		DMA A1	MEM DATO B	
16		DMA A2	I/O DATO	
17		DMA A3	I/O DATO B	
2Φ		DMA CΦ	DATI BO1 MEM	BDP READ
21		DMA C1	DATI B23 MEM	
22		DMA C2	DATI B45 MEM	BDP
23		DMA C3	DATI B67 MEM	CONTAINS
24		DMA C4	DATI B12 MEM (BYTE OFST)	DATA
25		DMA C5	DATI B34 MEM	
26		DMA C6	DATI B56 MEM	
27		DMA C7	DATI B7 - BΦ MEM	
3Φ		DMA C8	SBI BDP READ, DATI B Φ1	
31		DMA C9	DATI B23 I/O	
32		DMA CIΦ	SBI BDP READ, DATI BΦ1 = C8	
33		DMA C11	DATI B23 I/O = C9	
34		DMA C12	SBI BDP READ DATI BΦ1 = C8	
35		DMA C13	DATI B23 I/O = C9	
36		DMA C14	SBI BDP READ DATI BΦ1 = C8	
37	A	DMA C15	DATI B23 I/O = C9	DMA
4Φ	CΦ			
41	CΦ			
42				
43				
44				
45				
46				
47	CΦ			
5Φ	C1	UBC Φ	MASTER DATI TIMEOUT	
51	C1	UBC 1	BRRVR SND RAM	
52		UBC 2	MASTER DATI RTN W1	UBC (UAI)
53		UBC 3	MASTER DATI RTN WΦ	
54				
55		UBC 5	INTR FLD OK-RTN VECTOR	
56				
57	C1	UBC 7	NO-OP	
6Φ	D	SB Φ	NO-OP	
61	D	SB 1	UAI REG READ	
62		SB 2	DPR READ	
63		SB 3	BRSVR READ	SB (USI)
64		SB 4	MAP REG READ	
65		SB 5	DPR WRITE	
66		SB 6	BRSVR WRITE	
67	D	SB 7	MAP REG WRITE	
7Φ	B	PF Φ	PFRD RCVD	
71	B	PF 1	PFRD RCVD BYTE OFST	
4ΦΦ	X	CLR UBA	INITIALIZE UBA	

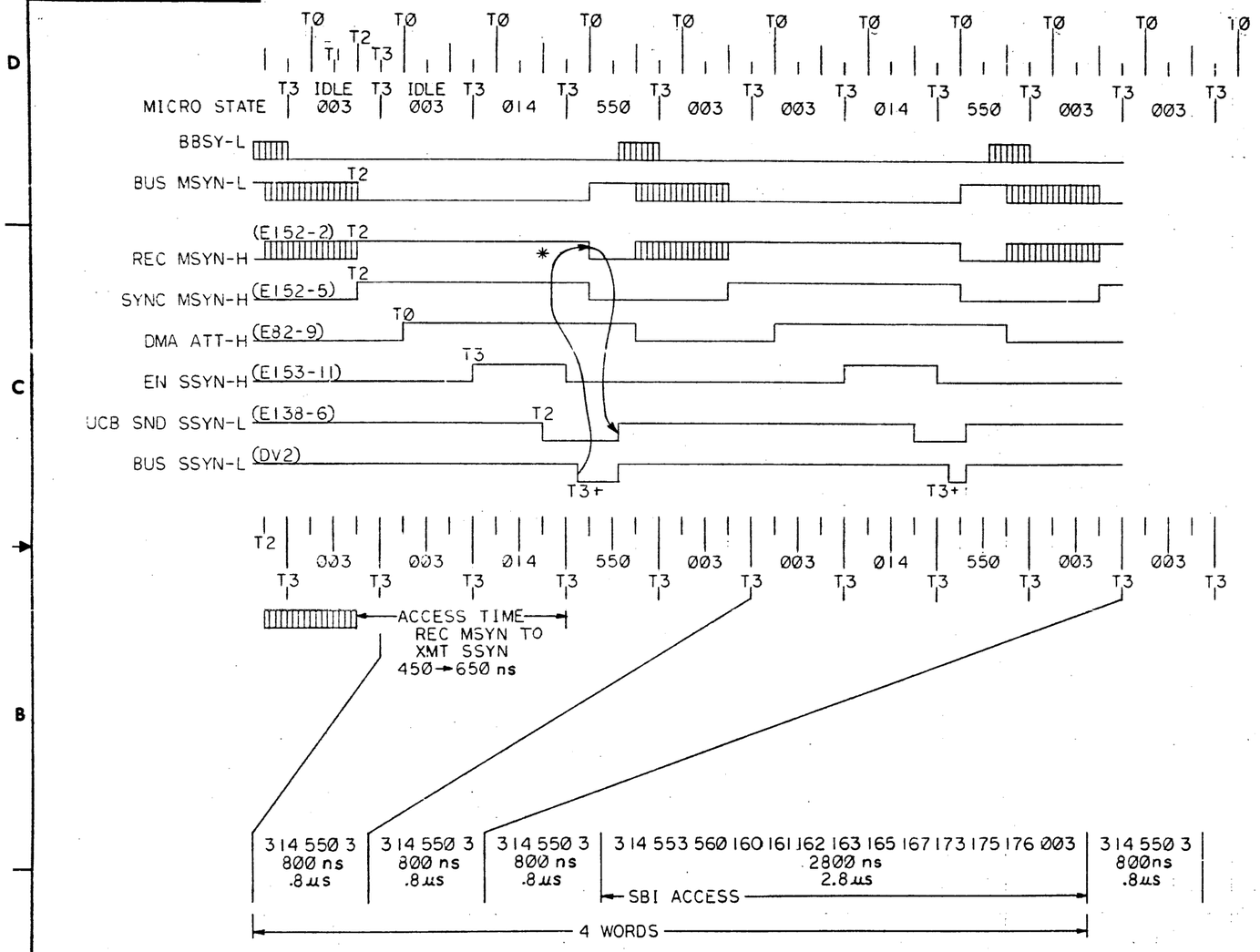
(UBA UCB IR DECODE)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD	D	CS	M8271-Φ-1	D
SCALE —" SHEET 4 OF 21	DIST.			

SIZE D CODE CS NUMBER M8271-Φ-1 REV D

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1979 DIGITAL EQUIPMENT CORPORATION"



* TIME DELAY IS DUE TO INTERNAL TIME OF EXTERNAL DEVICE.

REVISION HISTORY		
DATE	ECO NUMBER	REV.

TITLE	DOCUMENT NUMBER		
UNIBUS ACCESS TIME TIMING	SIZE / CODE	NUMBER	REV.
	D DCS	M8271-Ø-1	D
	SCALE	SHEET 5 OF 21	

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UCBP GR CLR L
UCBE ADD DOT WORD H
UCBH INHIB DMA H
UCBD MAS Φ H
UCBD BDP SRC SEL Φ H
UCBD BDP SRC SEL 1 H
74S02 E88
74S10 E89
74S74 E90
FKI
USIS T2 UCB L
UCBP VB H
74S20 E102
UCBA MRV L
UMDK MRV H
AJ2
74S04 E85
UMDH MAP PAR OK L
CB1
UCBI DP Φ L
UCBI BTE H
74S32 E102
74S00 E99
UCBK HOLD C1 L
UAIK HOLD C Φ H
EH2
UAIA MAR H
CF1
74S08 E41
74S112 E153
74S74 E152
UAIP REC MSYN H
ED2
USIS T1 UCB L
FR1
UCBP VA H
UCBP T Φ 1 H
74S00 E138
UCBA MSYN RLSD H
UCBA DMA ATT L
UCBE ADD DOT WORD H
UCBH INHIB DMA H
UCBD MAS Φ H
UCBD BDP SRC SEL Φ H
UCBD BDP SRC SEL 1 H
USIS TO UCB L
DV2
74S112 E82
UCBP AD CLR H
UCBH PLS DMA CLR L
EM1
UCBA DMA ATT L
(UAIA, UCBC, A)
UCBE B STATE H
UCBH EN SND SSYN H
UCBP T12 H
UCBA DMA ATT L
BJ2
UCBA ATT INHIB H
(UAIA) (UCBK)
UCBA SND SSYN L
(UAIA)
EDI
UCBA MSYN RLSD H
UCBA DMA ATT L
74S86 E86
74S00 E86
74S04 E85
74S00 E85
74S00 E99
74S00 E41
74S00 E153
74S00 E138
74S00 E139
74S00 E82
74S00 E92
74S00 E111
74S00 E152
74S00 E86
74S00 E85
74S00 E99
74S00 E41
74S00 E153
74S00 E138
74S00 E139
74S00 E82
74S00 E92
74S00 E111
74S00 E152
74S00 E86
74S00 E85
74S153 E71
UAIK HOLD C Φ H (EH2)
UAIK HOLD A Φ 1 H
EF1
UAIK HOLD C 1 H
EF2
UMDK SBI PG 27 H
AU1
UCBJ BDP ACTIVE H
FB1
BUS AD Φ Φ H
UCBR RDIP H
ST0 ST1 SΦ S1 AΦ BΦ CΦ DΦ A1 B1 C1 D1 FΦ F1
74S153 E71
UCBP VB H
UMDK BYTE OFST H
CP2
UMDK SBI PG 27 H
AU1
UCBP VA H
74S153 E60
74S174 E61
D5 R5(1) UCBA DMA SEL Φ H (UCBC)
D4 R4(1) UCBA DMA SEL 1 H (UCBC)
D3 R3(1) UCBA DMA SEL 2 H (UCBC)
D2 R2(1) UCBA DMA SEL 3 H (UCBC)
D1 R1(1) UCBA DMA SEL 4 H (UCBC)
DΦ RΦ(1)
CLR CLK
UCBP GR CLR L
UCBA DMA ATT H
UCBA SET DMA ERR H (UCBP)
UCBP VB H
USIS T2 UCB L
FK1
74S112 E62
UCBP GR CLR L

74S153 TRUTH TABLE

ST0	S1	SΦ	F
L	L	L	A
L	L	H	B
L	H	L	C
L	H	H	D
H	X	X	L

X = DONT CARE

REVISIONS		
CHK	CHANGE NO.	REV.

(DMA IR DECODE) (SLOT 2)

TITLE	SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD (UCBA)	D	CS	M8271-Φ-1	D
SCALE —	SHEET 6 OF 21	DIST.		

REV D | NUMBER M8271-Φ-1 | DIST CODE DCS | B

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

+5V
R1 1K

UCBB C2 WAY TSE L
UCBJ INTR RLSD H
UAIE BRRVR FULL H (BU2)
UCBR SB SEL 2H
UAID ATT SEL 2L (EJ1)
UCBK TX PB H
UCBN CNTR FULL H
UCBN CNTR 4 H
74S251 E57
UCBB INC NXT ADD L (UCBC)

UCBB B2 WAY TSE L
UCBJ PRG RQD H
UCBP PRG ACC OK H
UCBM RD FAILSAFE H
UCBJ STRD BYTE OFST H
UMDK SBI PG 27 H
UCBP DPPE CATCH H
UCBA MSYN RLSD H
UAIK HOLD A ϕ1 H (EF1)
74S251 E72

UCBB A2 WAY TSE L
UCBM ACK H
UCBJ BDP ACTIVE H
UCBE DTEC H
UCBK FUNC ϕ3 H
UCBJ DP ϕ L
UCBE NO REQ H
74S251 E1ØØ

UCBD BR SEL C H
UCBD BR SEL B H
UCBD BR SEL A H

UCBB B4 WAY TSE L
UAID UB ATT L (BJ1)
UCBR SB SEL 1 H
UCBF MIC STAT 1 H
UCBR SB ATT L
UCBR SB SEL ϕ H
UCBF MIC STAT ϕ H
74S253 E43

UCBB A4 WAY TSE L
UCBR DRD RCVD H
UCBR PFRD RCVD H
UAIK HOLD A ϕ1 H (EF1)
UCBM CNF 1 H
UAID ATT SEL 1 L (EJ2)
UMDB ID 31 H (EN1)
UMDK DP ADD 3 H (DM1)
74S251 E1ϕ1

UCBM RD FAILSAFE H
UAIK HOLD A ϕϕ H (EC1)
UCBM CNF ϕ H
UAID ATT SEL ϕ L (ER2)
UMDB ID 3ϕ H (EP1)
UMDK DP ADD 2 H (DM1)
74S251 E87

74S10 E89

UMDK BYTE OFST H (CP2)
BUS AD ϕϕ H (FB1)
UAIK HOLD A ϕϕ H (EC1)
UAIK HOLD A ϕ1 H (EF1)
74S257 E58

74S04 E104

74S08 E59 → UCBB BR OFST 3 H (UCBC)
74S08 E59 → UCBB BR OFST 2 H (UCBC)
74S08 E59 → UCBB BR OFST 1 H (UCBC)
74S08 E59 → UCBB BR OFST ϕ H (UCBC)

74S138 E75
UCBD BR SEL F H
UCBD BR SEL E H
UCBD BR SEL D H
USIST3UCB L (FR2)
D5 → UCBB B 4 WAY TSE L (UC88)
D4 → UCBB A 4 WAY TSE L (UC88)
D2 → UCBB C 2 WAY TSE L (UC88)
D1 → UCBB B 2 WAY TSE L (UC88)
D0 → UCBB A 2 WAY TSE L (UC88)

74S138

EN			SEL			LO OUTPUT.
*	5	6	C	B	A	ALL OTHERS ARE HI
L	L	H	L	L	L	Dϕ
L	L	H	L	L	H	D1
L	L	H	L	H	L	D2
L	L	H	L	H	H	D3
L	L	H	H	L	L	D4
L	L	H	H	L	H	D5
L	L	H	H	H	L	D6
L	L	H	H	H	H	D7
H	X	X	X	X	X	ALL HI
X	H	X	X	X	X	ALL HI
X	X	L	X	X	X	ALL HI

74S251

OUT CONT	S2	S1	Sϕ	F1	Fϕ
L	L	L	L	Dϕ	∿ Dϕ
L	L	L	H	D1	∿ D1
L	L	H	L	D2	∿ D2
L	L	H	H	D3	∿ D3
L	H	L	L	D4	∿ D4
L	H	L	H	D5	∿ D5
L	H	H	L	D6	∿ D6
L	H	H	H	D7	∿ D7
H	X	X	X	HI Z	HI Z

HI Z = HI IMPEDENCE
X = DONT CARE
∿ = INVERTED

74S253

OUT CONT	S1	Sϕ	F
L	L	L	A
L	L	H	B
L	H	L	C
L	H	H	D
H	X	X	HI Z

74S257

OUT CONT	S1	Sϕ
L	L	A
L	H	B
H	X	HI Z

REVISIONS

CHK	CHANGE NO.	REV.

(MICRO BRANCH MUX'S) (SLOT 2)

TITLE	SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD (UCBB)	D	CS	M8271-Ø-1	D
SCALE — SHEET 7 OF 21	DIST.			

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

74148

INPUT								OUTPUT				
EI	7	6	5	4	3	2	1	Ø	A2	A1	A0	GS	EØ
L	H	H	H	H	H	H	H	H	H	H	H	H	L
L	L	X	X	X	X	X	X	X	L	L	L	L	H
L	H	L	X	X	X	X	X	X	L	L	H	L	H
L	H	H	L	X	X	X	X	X	L	H	L	L	H
L	H	H	H	L	X	X	X	X	L	H	H	L	H
L	H	H	H	H	L	X	X	X	H	L	L	L	H
L	H	H	H	H	H	L	X	X	H	L	H	L	H
L	H	H	H	H	H	H	L	X	H	H	L	L	H
L	H	H	H	H	H	H	H	L	H	H	H	L	H
H	X	X	X	X	X	X	X	X	H	H	H	H	H

74S157

STRB	SØ	F
L	L	A
L	H	B
H	X	L

UCBP VB H
UCBA DMA SEL 4 H
UCBA DMA SEL 3 H
UCBR SB SEL 2 H
UAID ATT SEL 2 L EJ1
UCBA DMA SEL 2 H
UCBR SB SEL 1 H
UAID ATT SEL 1 L EJ2
UCBR DMA SEL 1 H
UCBR SB SELØ H
UAID ATT SEL Ø L EK2
UCBJ STRD BYTE OFST H
UCBA DMA SEL Ø H
UCBH IRSEL EN L
UCBB INC NXT ADD L
UCBD NXT ADD 7 H
UCBD NXT ADD 6 H
UCBD NXT ADD 5 H
UCBD NXT ADD 4 H
UCBP AD CLR H
UCBD NXT ADD 3 H
UCBD NXT ADD 2 H
UCBD NXT ADD 1 H
UCBD NXT ADDØ H
UCBB BR OFST 3 H
UCBB BR OFST 2 H
UCBB BR OFST 1 H
UCBB BR OFST Ø H
UCBD NXT ADD 8 H
UCBC MPC B H (UCBD,E)
UCBC MPC 7 H (UCBD,E)
UCBC MPC 6 H (UCBD,E)
UCBC MPC 5 H (UCBD,E)
UCBC MPC 4 H (UCBD,E)
UCBC MPC 3 H (UCBD,E)
UCBC MPC 2 H (UCBD,E)
UCBC MPC 1 H (UCBD,E)
UCBC MPC Ø H (UCBD,E)
USIS TR UCB L FK1 → E48-9
VCC → E48-16
GND → E48-8
E48-4 R1Ø 47Ø D9
E48-5 R9 47Ø D8
E48-6 R8 47Ø D7
E48-7 R7 47Ø D6
E48-11 R6 47Ø D5
E48-12 R5 47Ø D4
E48-13 R4 47Ø D3
E48-14 R3 47Ø D2
E48-15 R2 47Ø D1

NOTE: E48 IS SOCKET PROVIDED FOR EXTERNAL MONITORING OF MICRO PROGRAM COUNTER.

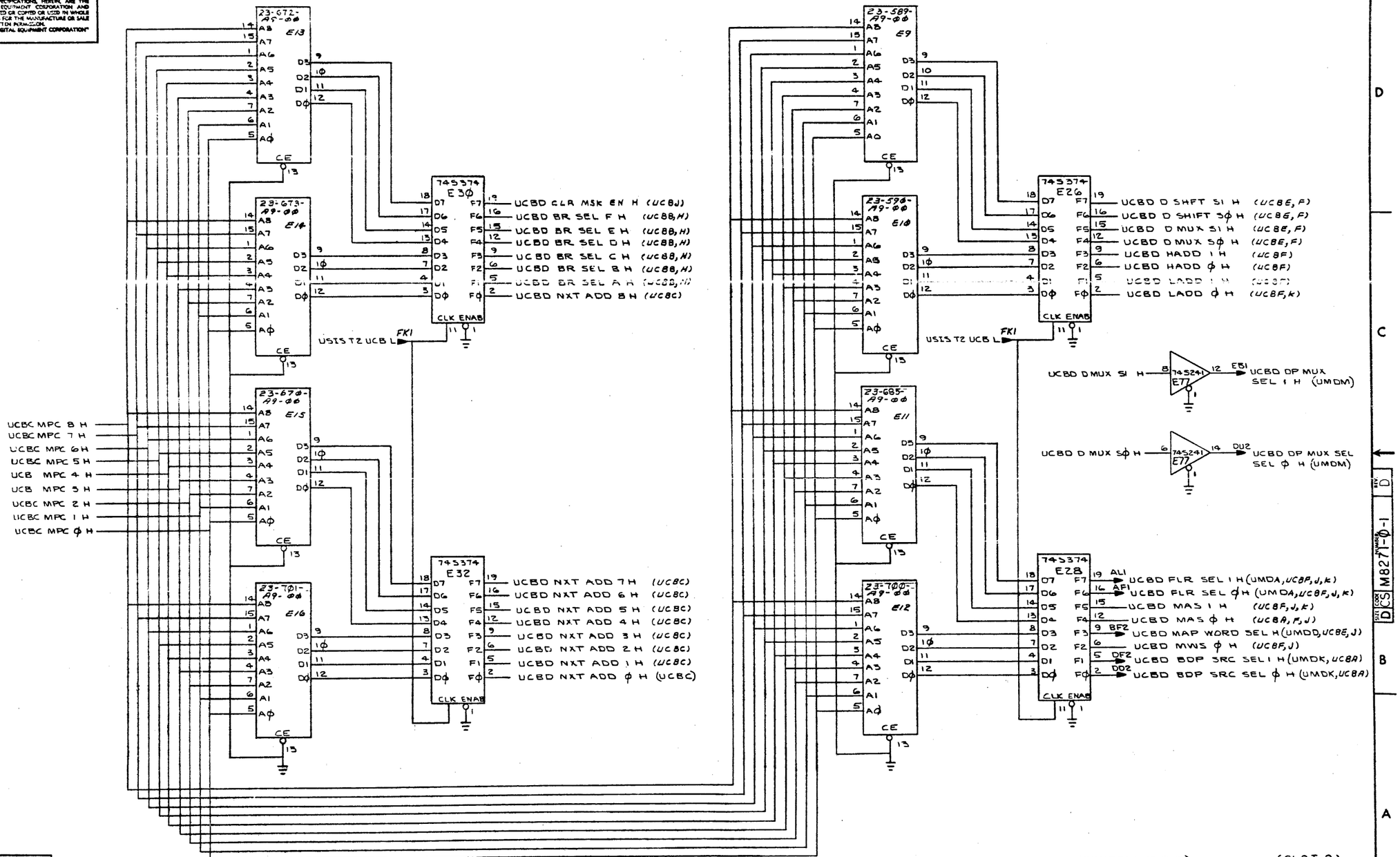
74S181
F(3:Ø)H = A(3:Ø)H PLUS B(3:Ø)H PLUS CIN L

REVISIONS		
CHK	CHANGE NO.	REV.

(MICRO PROGRAM ADDRESS SELECT) (SLOT 2)

TITLE		SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD	(UCBC)	D	CS	M8271-Ø-1	D
SCALE —11—	SHEET 8 OF 21	DIST.			

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

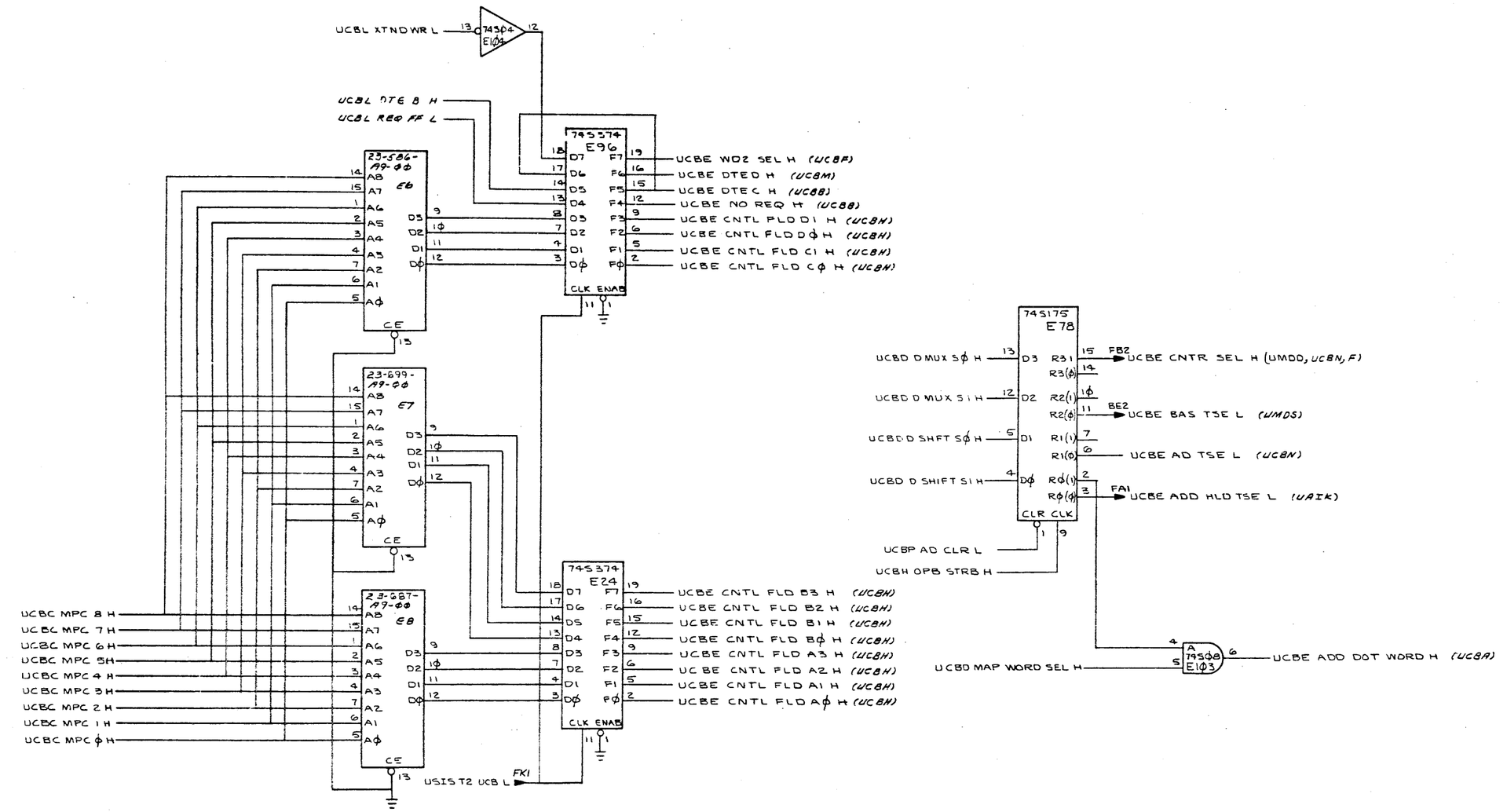


REVISIONS		
CHK	CHANGE NO.	REV.

(CONTROL STORE) (SLOT 2)

TITLE	SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD (UCBD)	D	CS	M8271-Ø-1	D
SCALE —/— SHEET 9 OF 21	DIST.			

THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION



REVISIONS		
CHK	CHANGE NO.	REV.

(CONTROL STORE) (SLOT 2)

TITLE	SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD (UCBE)	D	CS	M8271-Ø-1	D
SCALE — SHEET 10 OF 21	DIST.			

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UCBD DSHFT S1 H → 74S241 E77 → CV2 → UCBF DP SHFT SEL 1 H (UMDS)

UCBD DSHFT SØ H → 74S241 E77 → DB2 → UCBF DP SHFT SEL Ø H (UMDS)

UCBD DMUX S1 H → 74S241 E77 → FE2 → UCBF DP MUX HI EN L (UMDP)

UCBD DMUX SØ H → 74S241 E77 → BH2 → UCBF DP MUX LO EN L (UMDM)

UCBP VAH → 74S241 E77

74S174 E4Ø

UCBD DSHFT S1 H	D5	R5(1)	UCBF MIC STAT 1 H (UCB8)
UCBD DSHIFT SØ H	D4	R4(1)	UCBF MIC STAT Ø H (UCB8)
UCBD DMUX S1 H	D3	R3(1)	
UCBD DMUX SØ H	D2	R2(1)	
UCBD HADD 1 H	D1	R1(1)	UCBF IB EN UMD H
UCBD HADD Ø H	DØ	RØ(1)	UCBF IB EN UAI H

CLR CLK

74S174 E83

UCBD LADD 1 H	D5	R5(1)	UCBF CNTR INC H (UCBL)
UCBD LADD Ø H	D4	R4(1)	UCBF OP CD 4 H (UCBF)
UCBD FLR SEL 1 H	D3	R3(1)	UCBF OP CD 3 H (UCBF,K,L,M)
UCBD FLR SELØH	D2	R2(1)	UCBF OP CD 2 H (UCBF,L,M)
UCBD MAS 1 H	D1	R1(1)	UCBF OP CD 1 H (UCBF,K,L,M)
UCBD MWS Ø H	DØ	RØ(1)	UCBF OP CD Ø H (UCBF,K)

CLR CLK

UCBP AD CLR L

UCBH OP A STRB H

UCBD MAS Ø H → 74S241 E77 → DU1 → UCBF MAP ADD SEL Ø H (UMDD)

UAIF AD REQ ACTIVE H (BC1)
UCBF OP CD 4 H
UCBF OP CD Ø L
→ 74S1Ø E35 → EV2 → UCBF EN BIT 31 L (UMDR)

74S157 E133

UCBN CNTR 3 H	B3	f3	DT2 → UCBF BDP NO IN 3 H (UMDK)
UCBJ STRD BDP 3 H	A3		
UCBN CNTR 2 H	B2	f2	D32 → UCBF BDP NO IN 2 H (UMDK)
UCBJ STRD BDP 2 H	A2		
UCBN CNTR 1 H	B1	f1	DR2 → UCBF BDP NO IN 1 H (UMDK)
UCBJ STRD BDP 1 H	A1		
UCBN CNTR Ø H	BØ	fØ	CP1 → UCBF BDP NO IN Ø H (UMDK)
UCBJ STRD BDP Ø H	AØ		

STB SØ

UCBE CNTRSEL H

74S157 E91

UCBE WD 2 SEL H	B3	f3	DK2 → UCBF LDP ADD Ø H (UMDM)
UCBD LADD Ø H	A3		
UCBD LADD 1 H	B2	f2	DH2 → UCBF LDP ADD 1 H (UMDM)
UCBD HADD Ø H	A2		
UCBD HADD 1 H	B1	f1	FF1 → UCBF HDP ADD Ø H (UMDR)
	A1		
	BØ	fØ	FL1 → UCBF HDP ADD 1 H (UMDR)
	AØ		

STB SØ

UCBF OP CD Ø H → 74SØ4 E36 → 74S241 E63 → DD1 (Ø=CA) (1=MR) → UCBF MAP REG SEL H (UMDT) (UMDU)

74SØ4 E36 → UCBF OP CD BØ H (UCBL,M)

UCBF OP CD ØL

UCBF OP CD 1 H
UCBF OP CD 3 H
→ 74S1Ø E35 → 74SØ4 E37 → AV2 → UCBF MAP MUX SEL H (UMDD)

UCBM WD SEL L → 74SØØ E37

UCBF IB EN UMD H

UCBF IB EN UAI H
UMDA REG ADD Ø2 H
→ EU1 → 74SØØ E37

UMDA REG ADD ØØ H → ES2

USIB IB IN CLK H → BL1

74SØ4 E36 → 74SØ2 E37 → 74S37 E18 → BD2 → UCBF 1 IB OUT TSE L (UMDU)

74SØ4 E36 → 74SØ2 E119 → 74S37 E18 → AN1 → UCBF FMER TSE L (UMDL)

74SØ4 E36 → 74SØ2 E119 → 74S37 E18 → BD1 → UCBF IB ENA TSE L (UAIM)

74S37 E18 → AB1 → UCBF Ø IB OUT TSE L (UMDT)

74SØØ E37 → 74SØ4 E36 → 74S1Ø E35 → AU2 → UCBF FUBAR TSE L (UAIL)

74SØ4 E36 → UCBF SND MSK EN H (UCBK)

(SLOT 2)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD (UCBF)	D	CS	M8271-Ø-1	D
SCALE —	SHEET 14 OF 21	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

74LS259 E1Ø6

UCBE CNTL FLD AØH
UCBE CNTL FLD A1H
UCBE CNTL FLD A2H
UCBP VAH
UCBE CNTL FLD A3H

F4 → Ø
F5 → 1Ø
F6 → DM2 → UCBH MIC CMPT H (UCBR,USIN)
F7 → UCBH CLR DMA ATT H (UCBH)

UCBH CLR RD RCVD H (UCBR)

74LS259 E5Ø

F4 → AP1 → UCBH CLR UB ATT H (UAID)
F5 → UCBH EN MR HI GATE H (UCBP)
F6 → BU1 → UCBH CLR BRRVR FULL H (UAIE)
F7 → DR1 → UCBH MIC OK H (USIE)
UCBH INTLK EN H (UCBK)
UCBH EN MAP STAT H (UCBP)
UCBH CND DMA CLR H (UCBH)

74LS259 USED AS 3 TO 8 DECODER

C̄	Ē	DATA	CBA	HI OUTPUT ALL OTHERS LOW
L	L	H	LLL	F0
L	L	H	LLH	F1
L	L	H	LHL	F2
L	L	H	LHH	F3
L	L	H	HLL	F4
L	L	H	HLH	F5
L	L	H	HHL	F6
L	L	H	HHH	F7
L	H	H	XXX	ALL LOW
L	H	L	XXX	ALL LOW
L	L	L	XXX	ALL LOW

74S138 E4

UCBE CNTL FLD BØH
UCBE CNTL FLD B1H
UCBE CNTL FLD B2H
UCBE CNTL FLD B3H
UCBP VAH

D3 → UCBH CNG ST SSYN L (UCBH,J)
D4 → UCBH CLR MSK ST EN L (UCBJ)
D5 → UCBH CLR MR HI GATE H (UCBP)
D6 → UCBH EN DPPE CATCH H (UCBP)
D7 → FV2 → UCBH INC EN H (UMDP)

74S138 E23

UCBH EN DPPE STAT L (UCBP)
AT2 → UCBH SET CXTER L (UAIK)
UCBH EN CATO L (UCBP)
BK2 → UCBH WRITE MAP L (UMDD)

USISTI UCB L FR1

74S138 E74

UCBD BR SEL AH
UCBD BR SEL BH
UCBD BR SEL CH
UCBD BR SEL DH
UCBD BR SEL EH
UCBD BR SEL FH

D0 → UCBH IR SEL EN L (UCBC)
D1 → UCBH CNG MSK EN L (UCBJ)
D2 → UCBH CNG STATE EN L (UCBJ)
D3 → UCBH CNG MSK ATT L (UCBI,H)

UCBH OP A STRB H (UCBF,K)
UCBH OP B STRB H (UCBE)
UCBP T23 L

74S00 E1Ø5

DB1 → UCBH DP Ø WE L (UMDM, UCBH)
DL2 → UCBH LO D OUT STRB L (UMDS)
EA1 → UCBH BUF ADD STRB L (UMDS)
DC1 → UCBH TMP STR STRB L (UMDM,N)
EL1 → UCBH DP 1 WE L (UMDN)
DS1 → UCBH HI D OUT STRB L (UMDS)

UCBP T12 H

UCBH CND DMA CLR H
UCBK TXPB L
UCBH CNG MSK ATT L
UCBH CLR DMA ATT H
UCBP T23 H

74S00 E81

UCBH PLS DMA CLR L (UCBA)
UCBH INHIB DMA H (UCBA)

74S10 E124

UCBP SBI CLR L
UCBE CNTL FLD C1H
UCBE CNTL FLD CØH
UCBP T12 H
UCBP T23 L
UCBH CNG MSK ATT L
UCBE CNTL FLD D1H
UCBE CNTL FLD DØH

EU2 → UCBH DP 2 WE L (UMDP, UCBH)
ET2 → UCBH DP 3 WE L (UMDR)
UCBH EN SND SSYN H (UCBA)
UCBH CLR CNTR L (UCBN)

74S04 E3

74S04 E11Ø

74S04 E1Ø

UCBH REQ EN L (UCBL, M)
UCBH REQ EN H (UCBL)

74LS27 E84

UCBH PB CLK H (UCBK)

74S32 E92

74S02 E112

UCBH DP Ø WE L
UCBH DP 2 WE L
UCBH CLR PFRD L (UCBR)

REVISIONS		
CHK	CHANGE NO.	REV.

(CNTL FLD DECODE) (SLOT 2)

TITLE (UCBH) UBA CONTROL BOARD
SIZE D CODE CS NUMBER M8271-Ø-1 REV. D
SCALE — SHEET 12 OF 21 DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UCBJ BMØ H
UCBJ BM1 H
UCBJ BM2 H
UCBJ BM3H
UCBJ BM 4 H
UCBJ BM 5 H
UCBJ BM 6 H
UCBJ BM 7 H
23-215-A1-ØB E145
74S02 E160
74S02 E144
UCBH CNG MSK EN L
UCBH CLR MSK STEN L
UCBH CNG MSK ATT L
UCBP T12 H
74S10 E117
74SØØ E131
UCBD MAP WORD SEL H
UCBD MWS Ø H
UCBD MAS 1 H
UCBD MAS Ø H
UCBD FLR SEL 1 H
UCBD FLR SEL Ø H
74S04 E27
74LS51 E116
74LS51 E42
UCBJ BB FNC H
UCBJ BB5 H
UCBM BBTE H
UCBH CNG STATE EN L
UCBJ DP Ø L (UCBA,B)
UCBH CLR MSK ST EN L
UCBH CNG ST SSYN L
UMDK DP ADD 5 H
UMDK DP ADD 4 H
UMDK DP ADD 3 H
UMDK DP ADD 2 H
DP2
DP1
DN1
DM1

UCBJ STRD MSK Ø H (UCBK,N)
UCBJ STRD MSK 1 H (UCBK,N)
UCBJ STRD MSK 2 H (UCBK,N)
UCBJ STRD MSK 3 H (UCBK,N)
UCBJ STRD MSK 4 H (UCBK,N)
UCBJ STRD MSK 5 H (UCBK,N)
UCBJ STRD MSK 6 H (UCBK,N)
UCBJ STRD MSK 7 H (UCBK,N)
74S189 E157
74S189 E158
74S189 E143
74S174 E159
74S174 E114
74S174 E141
D5 R5(1) UCBJ BMØ H
D4 R4(1) UCBJ BM1 H
D3 R3(1) UCBJ BM2 H
D2 R2(1) UCBJ BM 3 H
D1 R1(1) UCBJ BM 4 H
DØ RØ(1) UCBJ BM 5 H
D5 R5(1) UCBJ BM 6 H
D4 R4(1) UCBJ BM 7 H
D3 R3(1) UCBJ BBS H
D2 R2(1) UCBJ BB FNC H
D1 R1(1) UCBJ INTR RLSD H (UCBB)
DØ RØ(1) UCBJ RD XPCT DLY H (UCBM)
CLR CLK
UAIJ TSSYN H (BFI)
USIPRD XPCT H (DFI)
UCBD CLR MSK EN H
74S1Ø E117
UCBP T8I H
UCBK MSK H
74SØ8 E1Ø3
UCBJ PRG RQD H (UCBB)
UCBJ B STATE H (UCBB,N)
UCBJ BTE H (UCBB,M,N)
UCBJ B FNC H (UCBN)
UCBJ STRD BDP 3 H (UCBF)
UCBJ STRD BDP 2 H (UCBF)
UCBJ STRD BDP 1 H (UCBF)
UCBJ STRD BDP ØH (UCBF)
UCBJ STRD BYTE OFST H (UCBB,C)
UMDK BYTE OFST H (CP2)
74S85 E127
UCBJ BDP ACTIVE H (UCBA,B)
A>B A=B A<B
A = B IS HI IF A Ø = B Ø AND A1 = B1 AND A2 = B2 AND A3 = B3 OTHERWISE A=B IS LOW
IN> IN= IN<
UCBP VA H
UCBP AD CLR L
UCBM BDP LD ST RB H

(BDP MASK AND STATE) (UCBJ) (SLOT 2)

REVISIONS
CHK | CHANGE NO. | REV.

TITLE: UBA CONTROL BOARD
SIZE D | CODE CS | NUMBER M8271-Ø-1 | REV. D
SCALE | SHEET 13 OF 21 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

CM1 BUS UPAL
8641 E1
CM2 BUS UPBL
8641 E1
UAIA UB DATA EN L (AC1)
UCBP GR CLR L
UMDR DP PAR OK L (FS1)
UCBH PB CLK H
UCBA ATT INHIB H
74S74 E111
UCBK TXPB H (UCB8)
UCBK TXPB L (UCBH,P)
74LS175 E5
UCBP AD CLR L
UAIA RCV DATA GATE H (AM1)
74S04 E27
UMDR DP PAR OK L (CB1)
UCBF OP CD1 H
UCBF OP CD 3 H
74S153 E21
UCBM LOCAL READ ENA H
74S153 121
74S241 E63 (CL2) BUS MSK SB 0 H
74S241 E63 (CF2) BUS MSK SB 1 H
74S153 E122
74S241 E63 (CE2) BUS MSK SB 2 H
74S241 E63 (CB2) BUS MSK SB 3 H
UAIK HOLD A ϕϕ H (EC1)
UAIK HOLD C ϕ H (EH2)
UAIK HOLD C I H (EF2)
74S11 E134
74S04 E128
UAIK HOLD A ϕI H (EF1)
74S02 E120
74S157 E142
UCBJ STRD MSK ϕ H
UCBJ STRD MSK 4 H
UCBJ STRD MSK 1 H
UCBJ STRD MSK 5 H
UCBJ STRD MSK 2 H
UCBJ STRD MSK 6 H
UCBJ STRD MSK 3 H
UCBJ STRD MSK 7 H
74S02 E156
74S10 E129
UCBK MSK H (UCBJ)
74S08 E126
UCBM WD SEL H
UCBF OP CD ϕ H
74S10 E129
74S04 E128
UCBK MSK HI H
UCBF OP CD 2 H
74S00 E130
74LS27 E84
UCBD MAS 1 H
UMDK SBI PG 27 H (AU1)
BUS AD ϕϕ H (FB1)
UCBD FLR SEL 1 H
UCBD LADD ϕ H
74S157 E113
UCBD FLR SEL ϕ H
74LS175 E79
CU2 UCBK FUNC ϕ5 H (UCBK,8,M,UMDU)
CU1 UCBK FUNC ϕ2 H (UMDU,UCBK,L)
CT2 UCBK FUNC ϕ1 H (UMDU,UCBL)
UCBK FUNC ϕ1 L (UCBK,L,M)
CS2 UCBK FUNC ϕϕ H (UMDU)
UCBH INT LK EN H
UCBK FUNC ϕ2 H
UCBK FUNC ϕ1 H
UCBK FUNC ϕ1 L
74S08 E98
74S02 E25
74S112 E67
UCBD VA H
UCBP T23 L
UCBP SB CLR L
UAIK HOLD C ϕ H (EH2)
UAIK HOLD C I H (EF2)
UCBK HOLD C I L (UCBA)
UCBP VA H
74S251 E107
UCBP GR CLR L
UCBH DPA STR8 H
UCBF SND MSK EN H

(FUNCTION-MASK ENCODE) (SLOT 2)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	UBA CONTROL BOARD (UCBK)		
SIZE	CODE	NUMBER	REV.
D	CS	M8271-ϕ-1	D
SCALE	SHEET 14 OF 21	DIST.	

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UCBN CNTR FULL L
UCBP MAP PAR OK H
UCBH REQ EN H
UCBF OP CD BØ H
→ 74S2Ø E53

UCBF OP CD 2 H
UCBA MSYN RLSD L
UCBK FUNC Ø1 L
UCBF OP CD 1 H
UCBK FUNC Ø1 H
UCBF OP CD 3 H
UMOK MRV H (ADJ)
UCBR R DIP H
UCBK FUNC Ø1 L (READ = H)
→ 74S364 E38, 74SØØ E108

DDP FUNCTION
DDP TO SBI READ
BDP TO SBI WRITE
PURGE OR (PREFETCH · NO READ DATA PENDING) (RDIP)

UCBF OP CD BØ H
UCBH REQ EN L
→ 74S02 E93

→ 74S32 E92

UCBL EN MICIP H (UCBM)

UCBP VA H
UCBL DTE A L
DDP FUNCTION
UCBF OP CD 2 H
UCBA MSYN RLSD H
→ 74S10 E95, 74S20 E80

BDP READ
UCBF OP CD 1 H
UCBK FUNC Ø1 L
UCBF OP CD BØ H
→ 74S20 E80

UCBN CNTR FULL L

UCBP T12 H
→ 74S112 E67

UCBL REQ FF H (UC3M)
UCBL REQ FF L (UCBE,M)
UCRL CLR MIC TP H

UCBP SBI CLR L

USIC ARB OK L (FKZ)
→ 74S04 E135

UCBL REQ FF H
UCBM LOCAL READ ENA L
UCBM LOCAL READ ENA H
→ 74S10 E95, 74S00 E108

UCBL LRD DTE H (UC8M)
DK1 UCBL DTE L (USIN, R, J)
DE2 UCBL TAG SEL 1 H (USIC)
→ 74S04 E135, 74S11 E104

UCBL DTE A H
→ 74S00 E108, 74S08 E94

UCBF OP CDB Ø H
UCBK FUNC Ø1 H
→ 74S08 E94, 74S00 E108

UCBK FUNC. Ø3 H
UCBL DTE B H

→ 74S04 E135

→ 74S00 E123

FL2 UCBL SEND HOLD H (USTC)

UCBL DTE A H
→ 74S00 E123

UCBL XTND WR L (UCBE)

UCBM TAG Ø EN H
UCBF OP CDB Ø H
DE1 UCBL TAG SEL Ø H (USIC)
→ 74S00 E123, 74S02 E93

UCBK FUNC Ø2 H
UCBK FUNC. Ø1 H
DL1 UCBL INTLK H (USIR)
→ 74S10 E95, 74S02 E93

74S175 E109
D3 R3(1) R3(Ø) → UCBL DTE A H, UCBL DTE A L
D2 R2(1) R2(Ø) → UCBL DTEB H (UCB6,L)
UCBL CLR MIC IP H → D1 R1(1) R1(Ø) → UCBL CLR MIC DLY H (UCBM)
UCBF CNTR INC H → DØ RØ(1) RØ(Ø) → UCBL INC CNTR H (UCBN)
CLK CLR
USIS TØ UCB L (DV2)
UCBP SBI CLR L

FUNC.	OP CODE (OP-CD)				
Ø / H	3	2	1	Ø	
X	X	X	X	Ø	MIC READ
X	Ø	Ø	1	1	BDP
X	Ø	1	Ø	1	DDP
Ø	1	Ø	Ø	1	PREFETCH
1	1	Ø	Ø	1	PURGE

TAG SELECT		
1 H	Ø H	SBI XMIT INFORMATION
Ø	Ø	READ DATA
Ø	1	COMMAND ADDRESS
1	Ø	WRITE DATA

REVISIONS		
CHK	CHANGE NO.	REV.

(SBI TRANSMIT LOGIC) (SLOT 2)

TITLE	SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD (UCBL)	D	CS	M8271-Ø-1	D
SCALE —	SHEET 15 OF 21	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

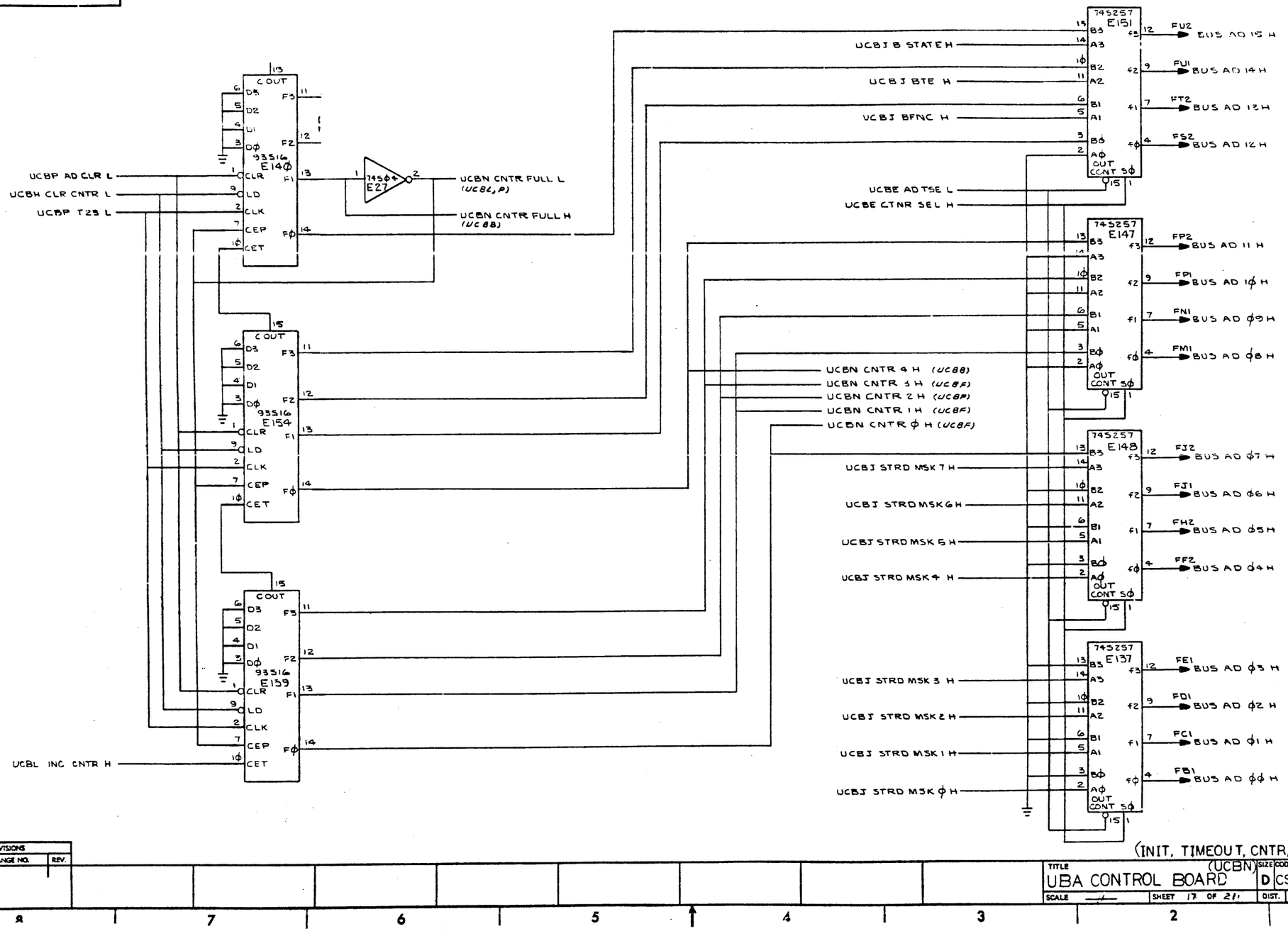
UCBA MSYN RLSD L
UCBK FUNC Ø1 L
UCBF OP CD BØ H
74S52Ø E53
UCBF OP CD1 H
UCBF OP CD2 H
74S32 E52
UCBM EN RD RQD L
74S02 E51
UCBP VB H
USIS T1 UCBL FR1
UCBA MYSN RLSD H
74S32 E52
74S112 E54
BT2
UCBM DRD RQD L (UCBM,R)
UCBK FUNC Ø3 H
74SØ8 E94
DI2
UCBM SET RD2 H (USI)
DI1
UCBM SET RD1 H
74S32 E52
UCBF OP CD3 H
UCBF OP CDBØ H
UCBK FUNC Ø1 L
74S1Ø E2Ø
74S02 E51
UCBJ RD XPCT DLY H
74S04 E22
74S112 E54
UCBM BDP LD STRB H (UCBJ)
UCBM PREF CMND L (UCBR)
UCBP GR CLR L
UCBM RD XPCT L (UCBR)
UCBM DRD RQD L
74S08 E126
74S174 E115
UCBJ BTE H
UCBL SEND HOLD H
D4 R4(1)
D5 R5(1)
D3 R3(1)
D2 R2(1)
D1 R1(1)
DØ RØ(1)
CLK CLR
74S04 E135
UCBM WD SEL L (UCBF)
UCBM RD FAILSAFE H (UCBB)
UCBM BBTE H (UCBJ)
UCBM WD SEL H (UCBK)
UCBM CNF 1 H (UCBB)
UCBM CNF Ø H (UCBB)
UCBM ACK H (UCBB)
UCBP GR CLR L
USIS T3 UCB L FR2
USIR R CNF 1 H DA1
USIR RCNF Ø H CL1
74S04 E135
74S08 E126
UCBE DTED H
74SØØ E136
UCBM EN RD RQD L (UCBM)
UCBL EN MIC IP H
UCBL REQ FF H
74S02 E51
UCBM TAG Ø EN H (UCBL)
UCBP VA H
74S02 E51
UCBP T23 H
UCBL CLR MIC DLY H
74S112 E65
UCBR USI RIP H
74S1Ø E2Ø
74S04 E22
UCBP VA H
USIS T1 UCB L FR1
UCBL LRD DTE H
74S112 E65
CK2
UCBM LOCAL READ ENA H (UCBK,L,USIJ)
UCBM LOCAL READ ENA L (UCBL)
UCBP SBI CLR L
UCBP VB H
USIR RCNF Ø H CL1
UCBK FUNC Ø1 L
UCBR FUNC Ø2 H
74S02 E75
74S08 E1Ø3
74S74 E90
UCBE DTED H
UCBF OP CD BØ H
UCBL REQ FF L
USIC ARB OK L
74SØØ E136
UCBH REQ EN L
74SØØ E136
(HOLD TR)
74S1Ø E76
FM2
UCBM SEND TR H (USIC)
UCBP VA H
USIS T2 UCB L FK1
74S174 E149
UCBP SBI CLR L

(SBI TRANSMIT LOGIC) (SLOT 2)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD (UCBM)	D	CS	M8271-Ø-1	D
SCALE —	SHEET 16 OF 21	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"



(INIT, TIMEOUT, CNTR, AD BUS) (SLOT 2)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD (UCBN)	D	CS	M8271-Ø-1	D
SCALE —	SHEET 17 OF 21	DIST.		

"THIS DRAWING AND SPECIFICATIONS, MATERIAL ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UCBK TXPB L — 74S08 E68 — 74S04 E22 — UCBH EN DPPE STAT L — 74S32 E2 — AA1 UCBP SET DPPE STAT L (UAIK)

UCBP VB H

UCBH EN DPPE CATCH H

UMDR DP PAR OK L FS1 — 74S08 E41

74S112 E55

UCBP DPPE CATCH H (UCBB)

74LS27 E84 — UCBA MRV L — UCBP PRG ACC OK H (UCBB)

UCBH CLR MR HI GATE H

UCBA MSYN RLS D L — UCBH CNTR FULL H — 74S00 E68

UMDH MAP PAR OK L (CB1) — 74S04 E22 — 74S03 E68 — UCBP MR PAR ERR H (UCBK)

UCBP MAP PAR OK H (UCBL)

74S08 E41 — 74S112 E55

UCBH CNTR FULL L — UCBH EN CATO L — 74S02 E25 — 74S04 E22 — AK2 UCBP SET CATO L (UAIK)

UCBP VA H

UCBH EN MR HI GATE H

UCBP T23 L

74S112 E39 — AL2 UCBP MAP HI GATE H (UMDK)

UCBP AD CLR L

USIS TI UCB L — FR1 — 74S37 E66 — UCBP T12 H

UCBP VA H — 74S37 E66 — UCBP T23 H

UCBP VA H — USIS TØ UCB L — DV2 — 74S00 E68 — UCBP TØ1 H

UCBA SET DMA ERR H — 74LS51 E19 — AK1 UCBP SET MRPE L (UAIK)

UCBP MR PAR ERR H

UCBH EN MAP STAT H

UCBP T12 H — 74S32 E2 — 74S10 E20 — AS2 UCBP SET IVMR L (UAIK)

USIS T2 UCB L — FK1 — 74S241 E63 — UCBP T23 L

UCBA MRV L

AA2, AV1
BA2, BV1
CA2, CV1
DA2, DV1
EA2, EV1
FA2, FV1

UAIN AD CLR L — CK1 — 74S241 E63 — UCBP AD CLR L

74S04 E22 — UCBP AD CLR H

UAIN SBI CLR L — CJ2 — 74S241 E63 — UCBP SBI CLR L

Vcc

C1-C59 .047uF — C60-C65 8uF

R11 120Ω — BA1 UCBP GR CLR L — R12 330Ω

R13 120Ω — UCBP VA H — R14 330Ω

R15 120Ω — UCBP VB H — R16 330Ω

AC2, AN2, AT1
BC2, BN2, BT1
CC2, CN2, CT1
DC2, DN2, DT1
EC2, EN2, ET1
FC2, FN2, FT1

REVISIONS		
CHK	CHANGE NO.	REV.

(MAP & DP ERROR SET) (SLOT 2)

TITLE	SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD (UCBP)	D	CS	M8271-Ø-1	D
SCALE —	SHEET 10 OF 21	DIST.		

M8271-Ø-1 D CS

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

74S174 E64
UCBR USIPIP H (UCBM)
BUS MSK SB 3 H CB2
BUS MSK SB 2 H CE2
BUS MSK SB 1 H CF2
BUS MSK SB Ø H CL2
USIB IB OUT CLK H AP2
UCBP AD CLR L
UCBP GR CLR L

74S175 E7Ø
UCBR SB SEL 2 H (UC88,C)
UCBR SB SEL 1 H (UC88,C)
UCBR SB SEL Ø H (UC88,C)

UCBM PREF CMND L
USIP RD XPCT H
UCBP T23 H
UCBH CLR RD RCVD H
UCBH CLR PFRD L
74LS27 E69
74S112 E97
UCBR PFRD RCVD H (UC38)
UCBR PFRD RCVD L (UC8C)
74SØØ E49
UCBM RD XPCT L
UCBR RDIP H (UCBA,L)

UCBP VA H
UCBM DRD RQD L
UCBR DRD RCVD H (UC88)
UCBH CLR PFRD L

74SØØ E49
74S32 E92
USIP FLW SEL Ø H CR1
USIP FLW SEL 1 H CR2
UCBP T23 H
AP2
UCBR FL WRT L (UMDA)

UCBP VA H
74LS27 E69
74SØ4 E85
74S112 E82
UCBP T23 H
UCBH MIC CMPT H
UCBR SBATTL (UC88,C)
UCBP AD CLR L

SPARE GATES AND FLIP FLOPS

74SØØ	E99 (1)
	E125 (2)
	E130 (1)
	E131 (1)
74SØ2	E112 (1)
74SØ4	E17 (1)
	E27 (1)
	E23 (2)
	E124 (3)
	E110 (1)
74S32	E2 (2)
	E52 (1)
74LS51	E19 (1)
	E42 (1)
74SØ8	E41 (1)
74S10	E76 (1)
74S37	E66 (2)
74S112	E39 (1)
	E62 (1)

REVISIONS
CHK	CHANGE NO.	REV.

(SB ATT-RECEIVE READ DATA) (SLOT 2)

TITLE UBA CONTROL BOARD (UCBR)
SIZE D CODE CS NUMBER M8271-Ø-1 REV. D
SCALE — SHEET 19 OF 21 DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1979 DIGITAL EQUIPMENT CORPORATION"

ROM ADDRESS (OCTAL)

ROM FIELDS (OCTAL)

START ADDRESS OF THE ROUTINE THAT THIS ROM STATE BELONGS TO "000" MEANS STATE IS NOT USED

	CFD	CFC	CFB	CFA	DSS	DMS	MAD	LAD	FRS	MAS	MWS	BSS	SPR	BRG	BRS	NAD	STA
000	3	0	00	00	1	1	0	0	0	0	2	3	0	6	4	100	100
001	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	001	000
002	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	002	000
003	0	0	00	17	0	0	0	0	0	0	2	0	0	6	0	003	000
004	3	0	00	11	0	0	2	2	1	0	3	0	0	6	3	360	004
005	3	0	00	11	0	0	2	2	1	0	3	0	0	6	3	377	005
006	0	0	00	00	1	0	0	0	1	0	2	3	0	4	6	420	006
007	3	0	00	11	0	0	2	2	1	0	3	0	0	6	3	377	007
010	0	0	00	11	0	0	0	0	0	0	2	0	0	0	0	431	010
011	0	0	00	00	0	0	0	0	1	0	2	3	0	4	6	524	011
012	0	0	00	11	0	0	0	0	0	0	2	0	0	0	0	431	012
013	0	0	00	00	1	0	0	0	1	0	2	3	0	4	6	514	013
014	1	1	03	00	0	3	3	3	1	0	3	0	0	7	0	550	014
015	1	1	03	00	0	3	3	3	0	0	3	0	0	7	1	600	015
016	1	1	03	00	0	3	3	3	0	0	3	0	0	1	0	567	016
017	1	1	03	00	0	3	3	3	0	0	3	0	0	4	0	571	017
020	2	2	02	02	2	2	0	0	0	0	2	0	0	0	0	620	020
021	2	2	02	02	2	2	0	0	0	0	2	0	0	0	0	620	021
022	2	2	02	02	2	2	1	1	0	0	2	0	0	0	0	620	022
023	2	2	02	02	2	2	1	1	0	0	2	0	0	6	2	625	023
024	2	2	02	02	3	2	0	0	1	0	2	0	0	0	0	620	024
025	2	2	02	02	2	2	0	0	1	0	2	0	0	0	0	620	025
026	2	2	02	02	3	2	1	1	0	0	2	0	0	6	2	625	026
027	2	2	02	02	2	2	1	1	0	0	2	0	0	0	0	620	027
030	2	2	02	02	2	2	0	0	0	0	2	0	0	0	0	620	030
031	2	2	02	02	2	2	0	0	0	0	2	0	0	6	2	670	031
032	2	2	02	02	2	2	0	0	0	0	2	0	0	0	0	620	032
033	2	2	02	02	2	2	0	0	0	0	2	0	0	6	2	620	033
034	2	2	02	02	2	2	0	0	0	0	2	0	0	0	0	620	034
035	2	2	02	02	2	2	0	0	0	0	2	0	0	6	2	620	035
036	2	2	02	02	2	2	0	0	0	0	2	0	0	6	0	670	036
037	2	2	02	02	2	2	0	0	0	0	2	0	0	6	2	620	037
040	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	040	040
041	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	041	041
042	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	042	042
043	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	043	043
044	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	044	044
045	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	045	045
046	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	046	046
047	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	047	047
050	3	0	00	00	0	0	3	1	2	1	0	0	0	4	0	231	050
051	0	0	00	00	0	0	0	0	0	0	2	1	0	4	0	241	051
052	3	0	00	00	0	0	2	2	2	1	2	2	0	6	3	234	052
053	3	0	00	00	0	0	2	2	2	1	2	2	0	6	3	237	053
054	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	054	000
055	0	0	00	04	0	1	0	0	0	0	2	0	0	0	6	246	055
056	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	056	000
057	0	0	16	00	0	0	0	0	1	0	0	0	0	0	0	057	000
060	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	060	000
061	3	0	00	00	0	0	3	1	2	1	0	0	0	6	3	120	061
062	0	0	00	00	0	0	0	0	0	0	2	1	0	0	2	123	062
063	0	0	00	00	0	0	0	0	0	0	2	1	0	4	0	142	063
064	0	0	00	11	0	0	0	0	0	0	0	1	0	0	0	136	064
065	0	0	00	00	0	0	0	0	0	0	2	1	0	0	2	660	065
066	0	0	00	00	0	0	0	0	0	0	2	1	0	4	0	332	066
067	0	0	16	00	0	0	0	0	1	0	0	0	0	0	0	152	067
070	1	1	01	01	0	0	1	1	2	0	2	3	0	0	0	153	070
071	0	0	00	04	3	2	0	0	0	0	2	0	0	0	0	154	071
072	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	072	072
073	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	073	073
074	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	074	074
075	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	075	075
076	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	076	076
077	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	077	077
100	3	0	00	00	0	0	3	0	0	0	2	3	0	6	3	101	100
101	0	0	16	00	0	0	0	0	0	0	2	3	0	0	0	103	100
102	0	0	16	00	0	0	0	0	0	0	2	3	0	0	0	112	100
103	1	1	01	01	0	0	0	0	2	0	2	3	0	6	2	104	100
104	1	1	01	01	0	0	1	1	0	0	3	1	0	6	1	105	100
105	1	1	01	01	0	0	2	2	0	0	0	3	0	0	0	106	100
106	1	1	01	01	0	0	3	3	0	0	0	3	0	0	0	107	100
107	0	0	16	00	0	0	3	2	0	0	0	3	0	6	3	110	100
110	0	0	00	00	0	0	3	3	0	0	0	3	0	6	3	111	100
111	0	0	00	00	0	0	3	0	0	0	2	3	0	6	0	101	100
112	0	0	16	00	0	0	3	0	0	0	2	3	0	6	3	114	100
113	0	0	00	00	2	3	0	0	0	0	2	0	0	6	4	116	100
114	0	0	00	00	0	3	0	0	0	0	0	0	0	6	3	115	100
115	0	0	16	00	0	0	0	0	0	0	0	0	0	2	1	112	100
116	0	0	00	00	0	0	0	0	2	0	0	0	0	6	3	003	100
117	0	0	00	00	0	0	0	0	0	0	2	0	0	0	0	117	000
120	0	3	00	00	0	0	0	0	0	0	2	0	0	0	0	121	061
121	0	0	00	00	0	0	0	0	0	0	2	0	0	0	0	121	061
122	0	0	00	06	0	0	0	0	0	0	2	0	0	6	3	003	061
123	3	0	00	00	2	3	2	2	1	0	2	1	0	6	3	127	062
124	0	0	00	00	1	0	0	0	0	0	2	1	0	6	4	125	062
125	0	0	01	01	2	3	3	3	1	0	2	1	0	0	0	126	062
126	3	0	00	00	2	2	2	2	1	0	2	1	0	6	3	127	062
127	0	3	00	00	2	2	3	3	0	0	2	1	0	0	0	130	062
130	0	0	00	00	2	2	3	3	0	0	2	1	0	0	1	130	062
131	0	0	00	00	0	0	0	0	0	0	2	1	0	6	4	122	062
132	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	132	000
133	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	133	000
134	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	134	000
135	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	135	000
136	3	0	00	00	0	0	2	2	3	2	0	0	0	6	3	137	064
137	0	3	00	00	0	0	0	0	0	0	1	0	0	0	0	140	064
140	0	0	00	00	0	0	0	0	0	0	1	0	0	0	1	140	064
141	0	0	05	06	0	0	0	0	2	0	0	0	0	6	3	003	064
142	0	0	00	04	0	2	0	0	0	0	2	2	0	0	0	146	063
143	0	0	00	04	2	2	2	0	0	0	2	2	0	0	0	146	063
144	0	0	00	04	0	2	2	1	1	0	2	2	0	0	0	146	063
145	0	0	00	04	2	2	2	1	1	0	2	2	0	0	0	146	063
146	3	0	00	00	0	2	2	2	1	0	2	2	0	6	3	147	063

ROM ADDRESS (OCTAL)

ROM FIELDS (OCTAL)

START ADDRESS OF THE ROUTINE THAT THIS ROM STATE BELONGS TO "000" MEANS STATE IS NOT USED

	CFD	CFC	CFB	CFA	DSS	DMS	MAD	LAD	FRS	MAS	MWS	BSS	SPR	BRG	BRS	NAD	STA
147	0	3	00	00	0	3	0	0	0	0	2	0	0	0	0	150	063
150	0	0	00	00	0	3	0	0	0	0	2	0	0	0	1	150	063
151	0	0	00	06	0	0	0	0	0	0	2	0	0	6	3	003	063
152	0	0	16	06	0	0	0	0	0	0	1	2	0	0	0	003	067
153	1	1	01	01	0	0	0	0	1	0	3	3	0	6	2	003	070
154	1	1	01	01	0	0	2	1	2	1	0	2	3	0	0	155	071
155	1	1	00	00	1	3	1	0	1	0	2	3	0	0	0	153	071
156	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	156	000
157	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	157	000
160	0	3	06	00	0	2	0	0	0	0	0	0	0	0	0	161	160
161	0	0	06	00	0	2	0	0	0	0	0	0	0	0	0	200	160
162	0	0	06	00	0	2	0	0	0	0	0	0	0	0	1	162	160
163	0	0	06	00	0	2	0	0	0	0	0	0	0	0	4	164	160
164	0	0	15	14	0	2	0	0	0	0	0	0	0	0	0	210	160
165	0	0	00	00	0	2	0	0	0	0	0	0	0	0	4	3	160
166	0	3	06	00	0	2	0	0	0	0	0	0	0	0	3	161	160
167	0	0	00	00	0	2	0	0	0	0	0	0	0	0	7	172	160
170	0	3	06	00	0	2	0	0	0	0	0	0	0	0	3	161	160
171	0	0	15	00	0	2	0	0	0	0	0	0	0	0	0	210	160
172	0	3	06	00	0	2	0	0	0	0	0	0	0	0	3	161	160
173	0	0	00	00	0	2	0	0	0	0	0	0	0	0	7	174	160
174	0	3	06	00	0	2	0	0	0	0	0	0	0	0	3	161	160
175	0	0	04	00	0	2	0	0	0	2	1	2	0	0	1	2	160
176	0	0	05	07	0	0	0	0	0	0	2	0	0	0	1	3	160
177	0	0	11	00	0	0	0	0	0	0	0	0	0	0	0	210	160
200	0	0	06	00	0	2	0	0	0	0	0	0	0	0	1	200	160
201	0	0	06	00	0	2	0	0	0	0	0	0	0	0	4	202	160
202	0	0	15	14	0	2	0	0	0	0	0	0	0	0	0	210	160
203	0	0	00	00	0	2	0	0	0	0	0	0	0	0	4	204	160
204	0	3	06	00	0	2	0	0	0	0	0	0	0	0	3	161	160
205	0	0	00	00	0	2	0	0	0	0	0	0	0	0	7	174	160
206	0	3	06	00	0	2	0	0	0	0	0	0	0	0	3	161	160
207	0	0	12	00	0	0	0	0	0	0	2	0	0	0	0	210	160
210	0	0	04	00	0	0	0	0	0	2	3	2	0	1	5	211	210
211	0	0	05	07	0	0	0	0	0	0	2	0	0	0	6	3	210
212	0	0	05	00	0	0	0	0	0	0	2	1	0	0	6	4	210
213	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	213	210
214	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	214	210
215	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	215	000
216	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	216	000
217	0	3	06	00	0	2	0	0	0	0	0	0	0	0	3	220	217
220	0	3	06	00	0	2	0	0	0	0	0	0	0	0	0	200	217
221	0	0	06	00	0	2	0	0	0	0	0	0	0	0	1	221	217
222	0	0	06	00	0	2	0	0	0	0	0	0	0	0	4	223	217
223	0	0	15	14	0	2	0	0	0	0	0	0	0	0	0	210	217
224	0	0	00	00	0	2	0	0	0	0	0	0	0	0	4	3	217
225	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	225	000
226	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	226	000
227	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	227	000
230	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	230	000
231	0	3	02	02	2	2	0	0	0	0	2	0	0	0	0	232	050
232	0	0	00	00	0	0	0	0	0	0	2	2	0	0	1	232	050
233	0	0	00	10	0	0	0	0	0	0	2	0	0	6	3	003	050
234	0	3	02	02	2	1	0	0	0	0	2	0	0	0	0	235	052
235	0	0	00	00	2	1	0	0	0	0	2	2	0	0	1	235	052
236	0	0	00	00	0	0	0	0	0	0	2	2	0	6	3	003	052
237	0	0	02	02	2	1	0	0	0	0	2	2	0	0	0	265	053
240	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	240	000
241	0	0	00	04	0	2	2	2	0	0	2	2	0	2	6	246	051
242	0	0	00	04	2	2	2	2	0	0	2	2	0	2	6	246	051
243	0	0	00	04	0	2	2	3	3	0	0	2	2	0	2	6	246	051
244	0	0	00	04	2	2	3	3	0	0	2	2	2	0	2	6	246	051
245	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	245	000
246	3	0	00	00	0	0	3	2	3	1	0	2	0	6	3	250	051
247	3	0	00	00	0	2	2	2	3	1	0	2	0	0	6	3	250	051
250	0	3	00	00	0	3	0	0	0	0	2	0	0	0	0	251	051
251	0	0	00	30	0	3	0	0	0	0	2	0	0	0	1	251	051
252	0	0	00	00	0	3	0	0	0	0	2	0	0	0	4	253	051
253	0	0	00	00	0	0	0	0	0	0	2	2	3	0	6	3	260	051
254	0	0	00	00	0	0	0	0	0	0	2	0	0	0	7	255	051
255	0	0	00	00	0	0	0	0	0	0	2	3	0	6	3	260	051
256	0	0	00	00	0	0	0	0	0	0	2	0	0	6	3	275	051
257	0	0	00	10	0	0	0	0	0	0	2	0	0	0	0	003	051
260	0	0	00	00	3	2	2	0	0	2	2	1	0	4	0	261	051
261	0	0	01	01	0	3	2	2	0	0	2	2	0	0	0	275	051
262	1	1	00	00	2	3	2	2	0	0	2	2	0	0	0	275	051
263	0	0	01	01	0	3	3	3	0	0	2	2	0	0	0	275	051
264	1	1	00	00	2	3	3	3	0	0	2	2	0	0	0	275	051
265	1	3	00	00	0	1	0	0	0	0	2	2	0	0	0	266	053
266	0	0	00	00	0	1	0	0	0	0	2	2	0	0	0	266	053
267	0	0	00	10	0	0	0	0	0	0	2	0	0	6	3	003	053
270	0	3	06	00	0	2	0	0	0	0	0	0	0	0	3	220	217
271	0	0	00	00	0	2	0	0	0	0	0	0	0	0	7	300	217
272	0	3	06	00	0	2	0	0	0	0	0	0	0	0	3	220	217
273	0	0	12	00	0	0	0	0	0	0	2	0	0	0	0	210	217
274	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	274	000
275	0	0	00	12	0	0	0	0	0	0	2	0	0	2	7	275	051
276	0	0	00	06	0	0	0	0	0	0	2	0	0	0	0	257	051
277	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	277	000
300	0	3	06	00	0	2	0	0	0	0	0	0	0	0	3	220	217
301	0	0	00	00	0	2	0	0	0	0	0	0	0	0	7	302	217
302	0	3	06	00	0	2	0	0	0	0	0	0	0	0	3	220	217
303	0	0	04	01	0	3	1	0	0	0	2	0	0	1	3	304	217
304	0	0	05	07	0	0	0	0	0	0	2	0	0	6	3	003	217
305	0	0	11	00	0	0	0	0	0	0	0	0	0	0	0	210	217
306	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	306	000
307	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	307	000
310	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	310	000
311	0	0	00	03	0	0	0	0	0	0	2	0	0	0	0	311	000
312	0	0	06	00	0	2	0	0	0	0	0	0	0	0	0	341	065
313	0	0	06	00	0	2	0	0	0	0	0	0	0	0	1	313	065
314	0	0	06	00	0	2	0	0	0	0	0	0	0	0	4	315	065

ROM ADDRESS (OCTAL)

ROM FIELDS (OCTAL)

START ADDRESS OF THE ROUTINE THAT THIS ROM STATE BELONGS TO "000" MEANS STATE IS NOT USED

	CFD	CFC	CFB	CFA	DSS	DMS	MAD	LAD	FRS	MAS	MWS	BSS	SPR	BRG	BRS	NAD	STA
315	0	0	15

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1979 DIGITAL EQUIPMENT CORPORATION"

ROM ADDRESS (OCTAL)

ROM FIELDS (OCTAL)

START ADDRESS OF THE ROUTINE THAT THIS ROM STATE BELONGS TO '000' MEANS STATE IS NOT USED

	CFD	CFC	CFB	CFA	DSS	DMS	MAD	LAD	FRS	MRS	MWS	BSS	SFR	BRG	RNS	NAD	STA
463	2	0	02	02	0	0	0	0	1	0	2	0	0	6	2	625	010
464	2	0	02	02	3	0	0	0	1	0	2	0	0	0	0	472	010
465	0	0	00	02	1	0	0	0	1	0	2	0	0	0	0	470	010
466	2	0	02	02	3	0	2	1	1	0	2	0	0	0	0	471	010
467	0	0	07	02	1	0	0	0	1	0	2	0	0	6	3	502	010
470	2	0	02	00	1	0	2	1	2	0	3	0	0	0	0	457	010
471	1	1	01	01	0	0	2	1	1	0	2	0	0	6	2	625	010
472	1	1	01	01	0	0	0	0	1	0	2	0	0	0	0	457	010
473	0	0	00	00	0	0	0	0	0	0	2	0	0	4	7	473	010
474	0	0	00	00	0	0	0	0	0	0	2	0	0	0	0	402	010
475	0	0	00	05	0	0	0	0	1	0	2	0	0	1	0	356	010
476	0	0	00	05	0	0	0	0	1	0	2	0	0	1	0	356	010
477	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	477	000
500	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	500	000
501	1	1	01	01	0	0	0	0	1	0	3	0	0	6	2	455	010
502	0	0	07	03	0	3	0	0	0	0	2	0	0	6	4	503	010
503	0	0	00	11	0	0	0	0	0	0	2	0	0	0	0	504	010
504	3	0	00	00	0	0	2	2	0	0	2	1	0	6	3	505	010
505	0	3	00	00	0	0	0	0	0	0	2	0	0	0	0	506	010
506	0	0	00	00	0	0	0	0	0	0	0	0	0	0	1	506	010
507	0	0	00	00	0	0	0	0	0	0	0	0	0	0	4	510	010
510	0	0	15	14	0	0	0	0	0	0	0	0	0	0	0	402	010
511	0	0	00	00	0	0	0	0	0	0	0	0	0	0	3	512	010
512	0	3	00	00	0	0	0	0	0	0	0	0	0	0	0	506	010
513	0	0	05	00	2	0	0	0	0	0	2	0	0	6	4	520	010
514	0	3	00	00	0	0	0	0	0	0	0	0	0	0	0	506	010
515	0	0	12	00	0	0	0	0	0	0	2	0	0	0	0	402	010
516	0	0	00	05	05	0	0	0	0	0	2	0	0	1	1	516	010
517	0	0	00	07	0	0	0	0	2	0	0	2	1	0	6	3	003 010
520	0	0	00	05	00	1	0	0	0	0	1	0	2	0	0	4	7	520 010
521	0	0	00	05	0	0	0	0	0	0	1	0	2	0	0	0	402 010
522	2	0	02	05	1	0	0	0	0	0	1	0	2	0	0	0	437 010
523	2	0	02	05	1	0	0	0	1	0	2	0	0	0	0	0	437 010
524	0	0	00	00	0	0	0	0	1	0	2	3	0	0	4	6	524 011
525	0	0	00	11	0	0	0	0	0	0	2	3	0	0	0	431	011
526	1	1	01	01	0	0	0	0	1	0	2	3	0	0	1	4	530 011
527	1	1	01	01	0	0	0	0	1	0	2	3	0	0	1	4	530 011
530	1	1	01	01	0	0	1	1	2	0	3	3	0	0	6	2	010 011
531	0	0	00	04	3	0	2	1	2	0	2	3	0	0	6	2	532 011
532	1	1	01	01	0	0	2	1	2	0	2	3	0	0	0	533	011
533	1	1	00	11	1	3	1	1	2	0	2	3	0	0	0	431	011
534	0	0	00	00	0	0	0	0	1	0	2	0	0	4	6	534	013
535	0	0	00	00	0	0	0	0	0	0	2	1	0	1	1	546	013
536	1	1	01	01	0	0	0	0	1	0	2	0	0	1	4	540	013
537	1	1	01	01	0	0	0	0	1	0	2	0	0	1	4	540	013
540	2	0	02	02	2	0	1	1	1	0	2	0	0	0	0	542	013
541	0	0	02	00	1	0	2	1	1	0	2	0	0	0	0	544	013
542	1	1	01	01	0	0	1	1	2	0	3	0	0	6	2	543	013
543	0	0	00	07	0	0	0	0	0	0	2	1	0	0	0	003	013
544	2	0	00	02	1	2	2	1	2	0	2	0	0	0	0	545	013
545	1	1	01	01	0	0	2	1	2	0	3	0	0	6	2	543	013
546	0	0	00	00	0	0	0	0	0	0	2	1	0	1	1	546	013
547	0	0	00	07	0	0	0	0	0	0	2	1	0	0	0	003	013
550	0	0	01	01	0	1	0	0	2	0	3	0	0	6	5	003	014
551	1	1	00	00	2	1	0	0	2	2	2	0	0	6	5	003	014
552	0	0	01	01	0	1	1	1	2	2	3	0	0	6	5	003	014
553	1	1	00	00	2	1	1	1	2	2	3	0	0	6	1	560	014
554	0	1	01	00	3	1	1	0	0	3	3	0	0	6	5	003	014
555	1	0	00	01	1	1	1	0	1	3	2	0	0	6	5	003	014
556	0	1	01	00	3	1	1	1	1	3	2	3	0	0	6	5	003 014
557	1	0	07	04	1	1	1	1	2	0	2	0	0	6	1	561	014
560	3	0	00	11	0	0	2	3	0	0	2	3	0	0	3	160	014
561	1	1	07	00	0	3	3	3	0	0	2	0	0	0	0	562	014
562	3	0	00	11	0	0	2	3	0	0	2	3	0	0	6	3	217 014
563	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	563	000
564	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	564	000
565	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	565	000
566	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	566	000
567	0	0	01	01	0	0	1	0	0	2	3	0	0	6	5	003	016
570	1	1	00	00	2	1	0	0	2	2	2	0	0	6	1	560	016
571	0	0	00	01	0	1	0	0	0	0	3	0	0	6	5	003	017
572	0	0	01	00	0	1	0	0	0	2	2	0	0	6	5	003	017
573	0	1	00	00	2	1	0	0	0	2	3	0	0	6	5	003	017
574	1	0	00	00	2	1	0	0	1	0	2	0	0	6	1	560	017
575	0	0	00	00	0	0	0	0	2	0	0	2	0	0	6	3	003 023
576	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	576	000
577	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	577	000
600	0	0	01	00	0	1	0	0	0	3	0	0	0	6	5	003	015
601	0	0	01	00	0	1	0	0	0	2	2	0	0	6	5	003	015
602	0	1	00	00	2	1	0	0	1	0	2	3	0	0	6	5	003 015
603	1	0	00	00	2	1	0	0	1	0	2	0	0	0	6	5	003 015
604	0	0	00	01	0	1	1	1	1	0	3	0	0	6	5	003	015
605	0	0	01	00	0	1	1	1	1	2	2	0	0	6	5	003	015
606	0	1	00	00	2	1	1	1	1	2	3	0	0	6	5	003	015
607	1	0	00	00	2	1	1	1	2	0	2	0	0	6	1	560	015
610	0	0	01	00	3	1	1	0	0	2	2	0	0	6	5	003	015
611	0	1	00	00	3	1	1	0	0	2	3	0	0	6	5	003	015
612	1	0	00	00	1	1	1	0	0	1	0	2	0	0	6	5	003 015
613	0	0	00	01	1	1	1	1	1	1	0	3	0	0	6	5	003 015
614	0	0	01	00	3	1	1	1	1	2	2	0	0	6	5	003	015
615	0	1	00	00	3	1	1	1	1	2	3	0	0	6	5	003	015
616	1	0	00	00	1	1	1	1	2	0	2	0	0	6	1	560	015
617	0	0	07	01	1	1	1	0	0	0	3	0	0	6	1	624	015
620	0	0	00	15	0	0	0	0	0	0	2	0	0	2	3	621	020
621	0	0	00	00	0	0	0	0	0	0	2	0	0	6	0	003	020
622	0	0	11	11	0	0	0	0	0	0	2	0	0	0	0	623	020
623	0	0	05	07	0	0	0	0	2	3	0	0	0	6	4	003	020
624	1	1	07	07	0	3	3	3	0	0	2	0	0	0	0	003	015
625	0	0	07	00	0	3	1	0	0	0	2	0	0	0	0	626	023
626	0	0	07	03	0	3	0	0	0	2	2	0	0	6	4	627	023
627	3	0	00	11	0	0	2	2	2	0	3	0	0	6	3	630	023
630	0	3	00	00	0	0	0	0	0	0	0	0	0	2	1	631	023

ROM ADDRESS (OCTAL)

ROM FIELDS (OCTAL)

START ADDRESS OF THE ROUTINE THAT THIS ROM STATE BELONGS TO '000' MEANS STATE IS NOT USED

	CFD	CFC	CFB	CFA	DSS	DMS	MAD	LAD	FRS	MRS	MWS	BSS	SFR	BRG	RNS	NAD	STA
631	0	0	00	00	0	0	0	0	0	0	0	0	0	0	1	633	023
632	0	0	00	00	0	0	0	0	0	0	0	0	0	0	1	635	023
633	0	0	00	00	0	0	0	0	0	0	0	0	0	0	1	633	023
634	0	0	00	00	0	0	0	0	0	0	0	0	0	0	4	645	023
635	0	0	00	00	0	0	0	0	0	0	0	0	0	0	1	635	023
636	0	0	11	00	0	0	0	0	0	2	3	2	0	0	6	2	645 023
637	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	637	000
640	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	640	000
641	0	3	00	00	0	0	0	0	0	0	0	0	0	0	0	633	023
642	0	0	05	07	2	0	0	0	0	0	2	2	0	0	6	4	575 023
643	0	3	00	00	2	0	0	0	0	0	0	0	0	0	0	633	023
644	0	0	05	07	2	0	0	0	0	0	2	2	0	0	6	4	575 023
645	0	0	05	07	2	0	0	0	0	0	2	2	0	0	6	4	575 023
646	0	0	00	00	0	0	0	0	0	0	0	0	0	0	4	3	641 023
647	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	772	000
650	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
651	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
652	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
653	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
654	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
655	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
656	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
657	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
660	0	0	00	06	0	0	0	0	0	0	0	2	0	0	0	003	065
661	0	0	00	00	0	0	0	0	0	0	0	2	0	0	1	003	065
662	0	0	00	06	0	0	0	0	0	0	2	0	0	0	0	003	065
663	0	0	00	06	0	0	0	0	0	0	2	0	1	0	6	2	003 065
664	0	0	00	00	0	0	0	0	0	0	2	0	1	0	1	7	666 065
665	0	0	00	00	0	0	0	0	0	0	2	0	1	0	6	2	664 065
666	0	0	00	00	0	0	0	0	0	0	2	0	1	0	6	4	700 065
667	0	0	06	03	0	0	0	0	0	0	2	0	1	0	0	4	670 065
670	0	0	00	00	0	0	2	3	0	0	0	2	1	0	0	6	670 065
671	0	0	00	11	0	0	0	0	0	0	2	1	0	0	6	4	471 065
672	3	0	00	00	1	0	2	3	2	0	1	1	0	4	3	473	066
673	3	0	11	14	0	0	0	0	0	0	0	1	0	1	6	674	065
674	0	0	00	00	0	0	0	0	0	0	2	1	0	1	6	676	065
675	0	3	06	00	0	2	0	0	0	0	0	2	1	0	6	3	312 065
676	0	0	00	00	0	0	0	0	0	0	2	1	1	0	1	677	065
677	0	0	05	00	2	0	0	0	0	0	2	1	0	6	4	703	065
700	0	0	00	00	0	0	0	0	0	0	2	1	0	6	5	676	065
701	0	0	00	05	0	0	0	0	0	0	2	1	0	1	5	701	065
702	0	0	00	00	0	0	0	0	0	0	2	1	0	1	2	676	065
703	0	0	00	06	0	0	0	0	0	0	2	1	0	6	3	003	065
704	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
705	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
706	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
707	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
710	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
711	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
712	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
713	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
714	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
715	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
716	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
717	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
720	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
721	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
722	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
723	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
724	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
725	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
726	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
727	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
730	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
731	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
732	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
733	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
734	0	0	30	00	0	0	0	0	0	0	0	0	0	0	0	777	000
735	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
736	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
737	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
740	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
741	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
742	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
743	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
744	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
745	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
746	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
747	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
750	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
751	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
752	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
753	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
754	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
755	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
756	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
757	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
760	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
761	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
762	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
763	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
764	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
765	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
766	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
767	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
770	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
771	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
772	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
773	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
774	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
775	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
776	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000
777	0	0	00	00	0	0	0	0	0	0	0	0	0	0	0	777	000

(OCTAL REPRESENTATION OF UCB CONTROL STORE)

REVISIONS		
CHK	CHANGE NO.	REV

TITLE	SIZE	CODE	NUMBER	REV.
UBA CONTROL BOARD	D	CS	M8271-0-1	D
SCALE	SHEET 21 OF 21		DIST.	

D

COMPONENT SIDE VIEW

11.91 IN
302.62 MM
F.B.S

SIGNATURES	DATE
DRN.	
CHK.	
ENG.	
PROJ. ENG.	
PROD.	
SCALE	
SIZE	OF

digital

TITLE UMD

SIZE E | DIGICODE NUMBER UA M8272-0-0 | REV D

NEXT HIGHER ASSY: EUA-M8272-0

ECO: REV.
P.C.: DESIGN DATA BASE REV.

CHECHANGE NO REV
12 M8272MCC E
12 JUN 87

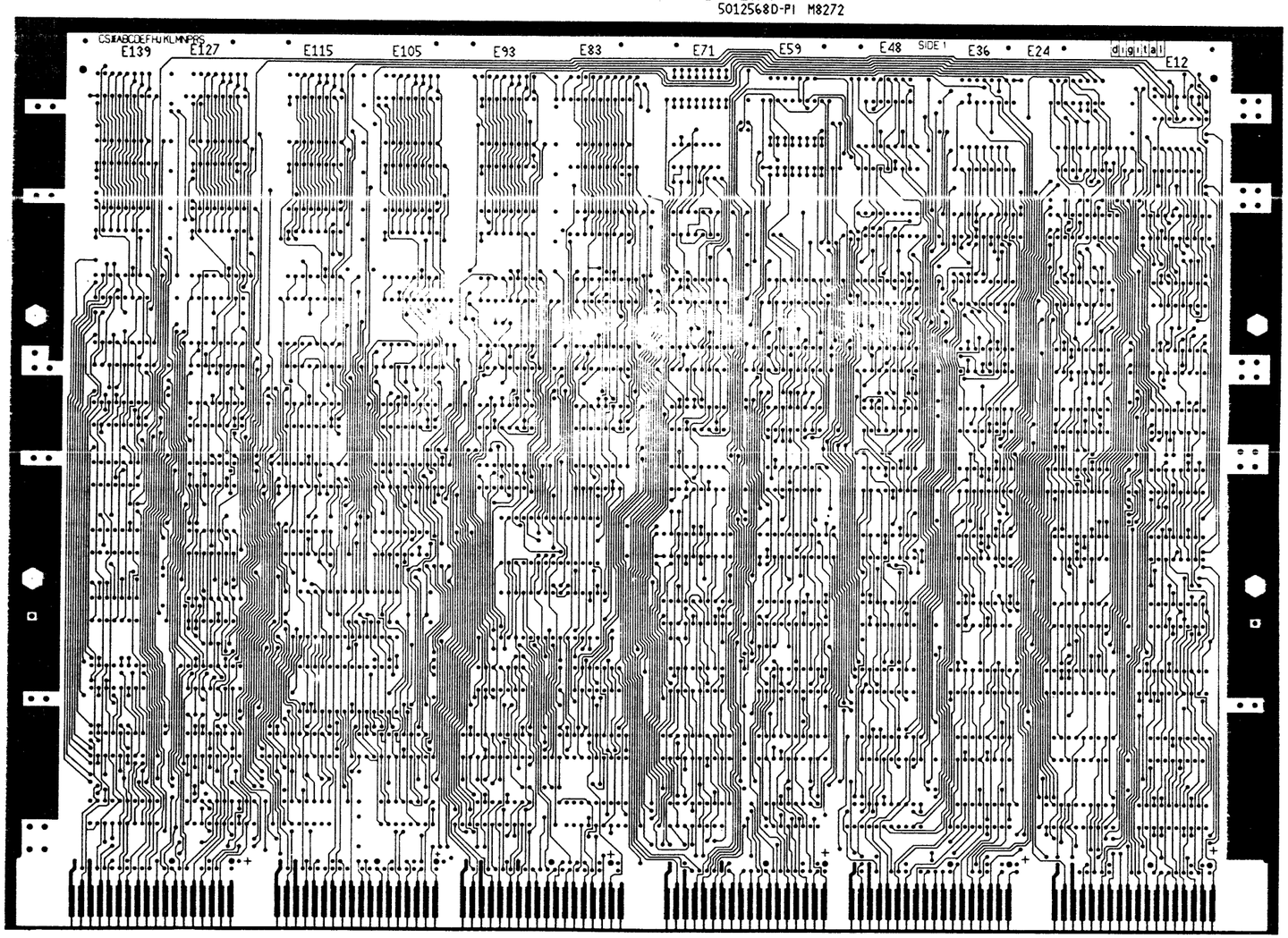
NOTES:

EUA M8272-0-0 D

L1

LAYER 1

5012568D-P1 M8272



TITLE	SIZE	DEC CODE	NUMBER	REV
UMD	E	EUA	M9272	D
	SCALE 2	SHEET 2 OF 3	DIST	

EUA M9272-0-0 REV D

LAYER 4

L4

UMD

SIDE 2 5012562D-P1 M8272

REVISIONS		
CHG	CHANGE REQ.	REV.

TITLE	UMD			
SCALE 2-1	SHEET 3 OF 3	SIZE/CODE E	NUMBER UA M8272-0-0	REV. D
		DIST.		

TW

AUTOMATED BY PRTLST,3J(25)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1	D-MD-5012568-0-0	5012568-00	M8272	1	
2	2		1012084-01	8 MFD 25V G% 30D AL EL	6	C1-C6
3	3		1012784-00	.047 MFD 50V -20+80 CER	36	C7-C42
4	4		1300005-01	R NETWORK 13-1K RESISTORS 5% DIP	3	E77,E98,E120
5	5		1300295-00	330 1/4W 5% CC	1	R1
6	6		1301401-00	750 1/4W 5% CC	1	R2
7	7		1910532-00	74S00 NAND GATE-QUAD 2IN$	4	E59,E69,E121,E132
8	8		1910534-00	74804 INVERTER GATE-HEX 1I	1	E70
9	9		1910539-00	74S20 NAND GATE-DUAL 4INPU	1	E133
10	10		1910547-00	74S153 MUX 1 OF 4 (DUAL)	18	E56,E57,E67,E68,E72,E79,E80,E84,
						CONT E89,E90,E101,E102,E111,E112,
						CONT E123,E124,E135,E136
11	11		1910548-00	74S157 MUX 1 OF 2 (QUAD)	7	E12,E23,E31,E36,E43,E46,E47
12	12		1911573-00	74S280 PARITY GEN/CHKR,9BIT	12	E11,E24,E35,E48,E74,E86,E87,E94,
						CONT E106,E108,E119,E131
13	13		1911579-00	8641 TRANSCEIVER,BUS,QUA	4	E49,E51,E60,E62
14	14		1911641-00	SN 74S257 MUX,QUAD 2 TO 1	16	E2,E4,E8,E9,E14,E16,E20,E21,E25,
						CONT E26,E32,E33,E38,E39,E44,E45
15	15		1912647-00	LS257 MUX 1 OF 2 (QUAD)	4	E28,E40,E54,E65
16	16		1912656-00	LS670 REGISTER FILE,4X4,LO	8	E5,E6,E17,E18,E29,E30,E41,E42
17	17		1912693-00	25S10 SHIFTER,4BIT TRI-STA	8	E55,E66,E78,E88,E100,E110,E122,
						CONT E134
18	18		1910550-00	74S174 FF-D HEX	2	E7,E19
19	19		1913493-00	74S241 OCTAL BUFFER,TRI-STA	1	E22
20	20		1913662-00	RAM 1KX1 16 PIN TT	18	E81,E82,E83,E91,E92,E93,
						CONT E103-E105,E113-E115,E125-E127,
						CONT E137-E139
21	21		1913663-00	93419DC RAM 64X9 28PIN TT	4	E75,E76,E96,E97
22	22		1913670-00	74S373 LATCH 8BIT TRASP TR	6	E1,E10,E15,E34,E53,E64
23	23		1913671-00	74S374 FF-D OCTAL TRISTATE	12	E3,E13,E27,E37,E50,E52,E61,E63,

REVISION HISTORY			BASIC PART NO: M8272
ENG	ECO NUMBER	REV	SECTION A OF A
---	INITIAL	B	SECTION,VARIATION INDEX
P,G	00002	D	[A] 00
PG	TW002	D	[B]
			[C]
			[D]
			[E]
			[F]
			[H]
			[J]
			[K]
			[L]
			[M]
			[N]

DRN: W. HAVENER	DATE: 14-MAR-79	D I G I T A L
CHK'D: D. HEALEY	DATE: 14-MAR-79	TITLE PARTS LIST U. M. D.
DES.ENG: B. HALL	DATE: 14-MAR-79	
RESP.ENG.: B. HALL	DATE: 14-MAR-79	DOCUMENT NUMBER
MFG.ENG.: M. TERELLA	DATE: 14-MAR-79	SIZE K / CODE PL / NUMBER M8272-0-DBP / REV D
ASSEMBLY NUMBER: D-UA-M8272-0-0	TOP DOCUMENT NUMBER:	FILE NAME: M8272.PLS / EDIT #: 8

"THIS DRAWING AND SPECIFICATIONS HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT (C) 1979, DIGITAL EQUIPMENT CORPORATION "

TW

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
						CONT E99,E109,E116,E128
24	24		1913462-00	74S240 OCTAL BUFFER,INVERTI	4	E73,E85,E95,E107
25	25		1912865-00	LS283 ADDER-4BIT BINARY FU	4	E117,E118,E129,E130
26	26		1210711-02	HANDLE,MODULE,HEX	1	
27	27		9000024-01	EYELET, ROLLED FLANGE, .121 OD X	12	
28	28		9105740-55	*** THIS ITEM IS NOT USED ***	-	

Ø NOTE: SPARE IC LOCATIONS ARE E58,E71

DIGITAL	TITLE U. M. D.	SECTION A OF A	SIZE	CODE	DOCUMENT NUMBER	REV
			K	PL	M8272-0-DRP	D

TW

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 , DIGITAL EQUIPMENT CORPORATION"

MAP

DATA PATH

UMDA,B
I.B. B LINE REC T.S.
BUS IB ØØ-31
USIB IB OUT CLK H
RIB ØØ-31
UMDA
REG ADD CLK
USIP FLW SEL
UCBA FL WRT
UMDA,B
WS 32 X 4 REG FILE
WE
RS
WD STORE
RD1 STORE
RD2 STORE
UCBD FLR SEL
UMDB ID3Ø-31 (UCB8)
UMDA REG ADD ØØ-Ø2 (UAIE,L,UCBF)
UAID REG ADD STRB
A (17-9)
A (8-2)
BUS AD ØØ-15
ID ØØ-31
UB RCV DØØ-D15
D EVEN
D ODD
UAIA RCV DATA GATE
REC D LATCH LAT
UMDC
UNIBUS D LINE TRANCEIVERS EN
UNIBUS "D" LINES
UAIA UB DATA EN
TO UCB + UAI
B Ø
B 1
B 2
B 3
A LOW
UMDP
A HI
UMDR
UCBH INC EN
INC
INC
UAIU TUA Ø1
UB WD SEL MUX
UMDV
UAID UB WD STRB
UB WD CLK STORE TSE
UMDV UB WD TSE
UCBF MAP ADD SEL
MAP ADDRESS SEL 9 BITS
UMDD
UCBF CNTR SEL
MAP WD SEL 16 BITS
UMDJ
EN
UCBD MAP WORD SEL
UMDD
FMER LAT TSE
UMDL
A(9-1)
DIN UMDE-H MAP 1K X 18 RAM
UCBH WRITE MAP
WE SBI PAGE 16 P 2ND
V BO DP SBI PAGE 5 P 1ST
UCBF FMER TSE L
UAIK LATCH FMER
USIE DEF MAP PAR
PAR CHECK
MAP PAR OK (UCBA)
1ST UMDK
MRV
RSVD 4 BITS
MBZ
B.D.P. NO. 4 BITS
S.B.I. PAGE 5 BITS
UCBP MAP HI GATE
UCBP BDP SRC SEL Ø,1
B.D.P. NO. SEL 4 BITS
UMDK
UCBF BDP NO IN Ø-3
SBI PG 27 (UCBA,B)
BYTE OFST (UCBA,B
MRV (UCBA)
MAPPED ADD <27:Ø7>
UB ADD <6:Ø>
UCBK FUNC ØØ-Ø3
SBI FUNC-ADDRESS
UMDT,U
SEL
UCBF Ø IB OUT TSE
UCBF IB OUT Ø
UCBF 1 IB OUT TSE
UMDT,U
UCBF MAP MUX SEL
UAIA EN UB WD
UMDV
UBWD TSE (UMDV)
DOUT BUF TSE (UMDS)
UMDM
UMDN
CLR S
DATA MUX 8 BITS X4 SEL
EN
SEL
UCBF DP MUX LO EN
UCBF DP MUX H EN
UCBE BAS TSE
UCBF DP MUX SEL Ø-1
UCBF DP SHFT SEL Ø-1
SHIFTER
UMDS
DP SHFT ØØ-Ø7
DP SHFT Ø8-15
DP SHFT 16-23
DP SHFT 24-31
DP SHFT 24-3Ø
UCBH BUF ADD STRB
BUFFERED STORED UNIBUS ADDRESS
TSE
UCBH LO DOUT STRB
CLK DATA BUF. DE. T.S.
DO CLK TSE
UCBH HI DOUT STRB
UMDV DOUT BUF TSE
UMDR
UCBF EN BIT 31
UCBH DP 1 WE
UCBH DP 2 WE
UCBH DP 3 WE
BIT 31
D.IN A(5-2) G4X9 RAM X4 D.OUT
A(5-2) WE
A(Ø,1)
UCBH BP Ø WE
UCBF L DP ADD Ø,1
UCBF H DP ADD Ø,1
USIE DEF MAP PAR
UMDR
DP PAR OK (UCBK)
BUS UB DOUT ØØ-15
DP ADD 2-5 (UCBB,J)

D.P. RAM ORGANIZATION

	D.P. NO. Ø		D.P. NO. 1-15	
BRRVR's	6	7	3	BUFF UB ADD
	4	5	2	TEMP. DATA
BRSVR's	2	3	1	B.D.P.
	Ø	1	Ø	DATA

► CONTROL INPUTS
◄ CONTROL OUTPUTS

REVISIONS			
CHG	CHANGE NO.	REV.	
	M8272-Ø0001	B	Don Dwyer 11/Ø1/77
	M8272-TW002	C	Dennis Hall 11/Ø4/77
	M8272-TW003	D	R. CASABONA 15 May 78

(BLOCK DIAGRAM)

DRN. J. Vincent	7-22-77	FIRST USED ON 1178Ø	digital
CHK'D	8-18-77		
ENG. R. Kershaw	8-12-77	TITLE UBA MAP + DATA PATH	
PROJ. ENG. R. Casabona	8-12-77		
PROD.	8.12.77		
NEXT HIGHER ASSY. DW78Ø		SIZE D CODE CS NUMBER M8272-Ø-1 REV. D	
SCALE		SHEET 1 OF 19	DIST.

D CS M8272-Ø-1 D

TW

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

74S374 E3
BUS IB00 H — AA1 13 — D0 F4 12 — UMDA RIB 00 H (UMDV)
BUS IB01 H — AB2 8 — D3 F3 9 — UMDA RIB 01 H (UMDV)
BUS IB02 H — AD2 14 — D5 F5 15 — UMDA RIB 02 H (UMDV)
BUS IB03 H — AE2 7 — D2 F2 6 — UMDA RIB 03 H (UMDV)
BUS IB04 H — AH2 4 — D1 F1 5 — UMDA RIB 04 H (UMDV)
BUS IB05 H — AJ1 3 — D0 F0 2 — UMDA RIB 05 H (UMDV)
BUS IB06 H — AJ2 17 — D6 F6 16 — UMDA RIB 06 H (UMDV)
BUS IB07 H — AL1 18 — D7 F7 19 — UMDA RIB 07 H (UMDV)
CLK ENAB — 11 — 1

74S374 E13
BUS IB08 H — AM2 17 — D6 F6 16 — UMDA RIB 08 H (UMDV)
BUS IB09 H — AR2 13 — D4 F4 12 — UMDA RIB 09 H (UMDV)
BUS IB10 H — AR1 14 — D5 F5 15 — UMDA RIB 10 H (UMDV)
BUS IB11 H — AV2 18 — D7 F7 19 — UMDA RIB 11 H (UMDV)
BUS IB12 H — BA1 8 — D3 F3 9 — UMDA RIB 12 H (UMDV)
BUS IB13 H — BB1 7 — D2 F2 6 — UMDA RIB 13 H (UMDV)
BUS IB14 H — BB2 4 — D1 F1 5 — UMDA RIB 14 H (UMDV)
BUS IB15 H — BC1 3 — D0 F0 2 — UMDA RIB 15 H (UMDV)
CLK ENAB — 11 — 1
USIB IB OUT CLK H — AF2

74S174 E19
D0 R0(1) — 2 — ESZ — UMDA REG ADD 00 H (UMDD,K,UAIE,L,UCBF)
D1 R1(1) — 5 — EIZ — UMDA REG ADD 01 H (UMDD,K,UAIE)
D5 R5(1) — 15 — EWI — UMDA REG ADD 02 H (UMDD,K,UCBF)
D2 R2(1) — 7 — UMDA REG ADD 03 H (UMDD,K)
D3 R3(1) — 10 — UMDA REG ADD 04 H (UMDD)
D4 R4(1) — 12 — UMDA REG ADD 05 H (UMDD)
CLK CLR — 9 — 1

74S174 E7
D1 R1(1) — 5 — UMDA REG ADD 06 H (UMDD)
D2 R2(1) — 7 — UMDA REG ADD 07 H (UMDD)
D0 R0(1) — 2 — UMDA REG ADD 08 H (UMDD)
D5 R5(1) — 15
D4 R4(1) — 12
D3 R3(1) — 10
CLK CLR — 9 — 1

UAID REG ADD STRB L — FK2 13 — 74S04 E76 — 12
UMDD HI H

UCBR FL WAT L — AP1
USIP FLW SEL 0 H — CR1
USIP FLW SEL 1 H — CR2

74LS670 E5
WE 12, WS0 14, WS1 13, D0 15, D1 1, D2 2, D3 3, RS0 5, RS1 4, OE 11
D0 Φ1 10 — UMDA ID00 H (UMDJ,M)
D1 D1 9 — UMDA ID01 H (UMDJ,M)
D2 Φ2 7 — UMDA ID02 H (UMDJ,M)
D3 Φ3 6 — UMDA ID03 H (UMDJ,M)

74LS670 E17
WE 12, WS0 14, WS1 13, D0 15, D1 1, D2 2, D3 3, RS0 5, RS1 4, OE 11
D0 Φ0 10 — UMDA ID04 H (UMDJ,M)
D1 Φ1 9 — UMDA ID05 H (UMDJ,M)
D2 Φ2 7 — UMDA ID06 H (UMDJ,M)
D3 Φ3 6 — UMDA ID07 H (UMDJ,M)

74LS670 E18
WE 12, WS0 14, WS1 13, D0 15, D1 1, D2 2, D3 3, RS0 5, RS1 4, OE 11
D0 Φ0 10 — UMDA ID08 H (UMDJ,N)
D1 Φ1 9 — UMDA ID09 H (UMDJ,N)
D2 Φ2 7 — UMDA ID10 H (UMDJ,N)
D3 Φ3 6 — UMDA ID11 H (UMDJ,N)

74LS670 E6
WE 12, WS0 14, WS1 13, D0 15, D1 1, D2 2, D3 3, RS0 5, RS1 4, OE 11
D0 Φ0 10 — UMDA ID12 H (UMDJ,N)
D1 Φ1 9 — UMDA ID13 H (UMDJ,N)
D2 Φ2 7 — UMDA ID14 H (UMDJ,N)
D3 Φ3 6 — UMDA ID15 H (UMDJ,N)

UCBD FLP SEL 0 H — AF1
UCBD FLP SEL 1 H — AR1

(INT BUS RCV 00-15) (SLOT 3)

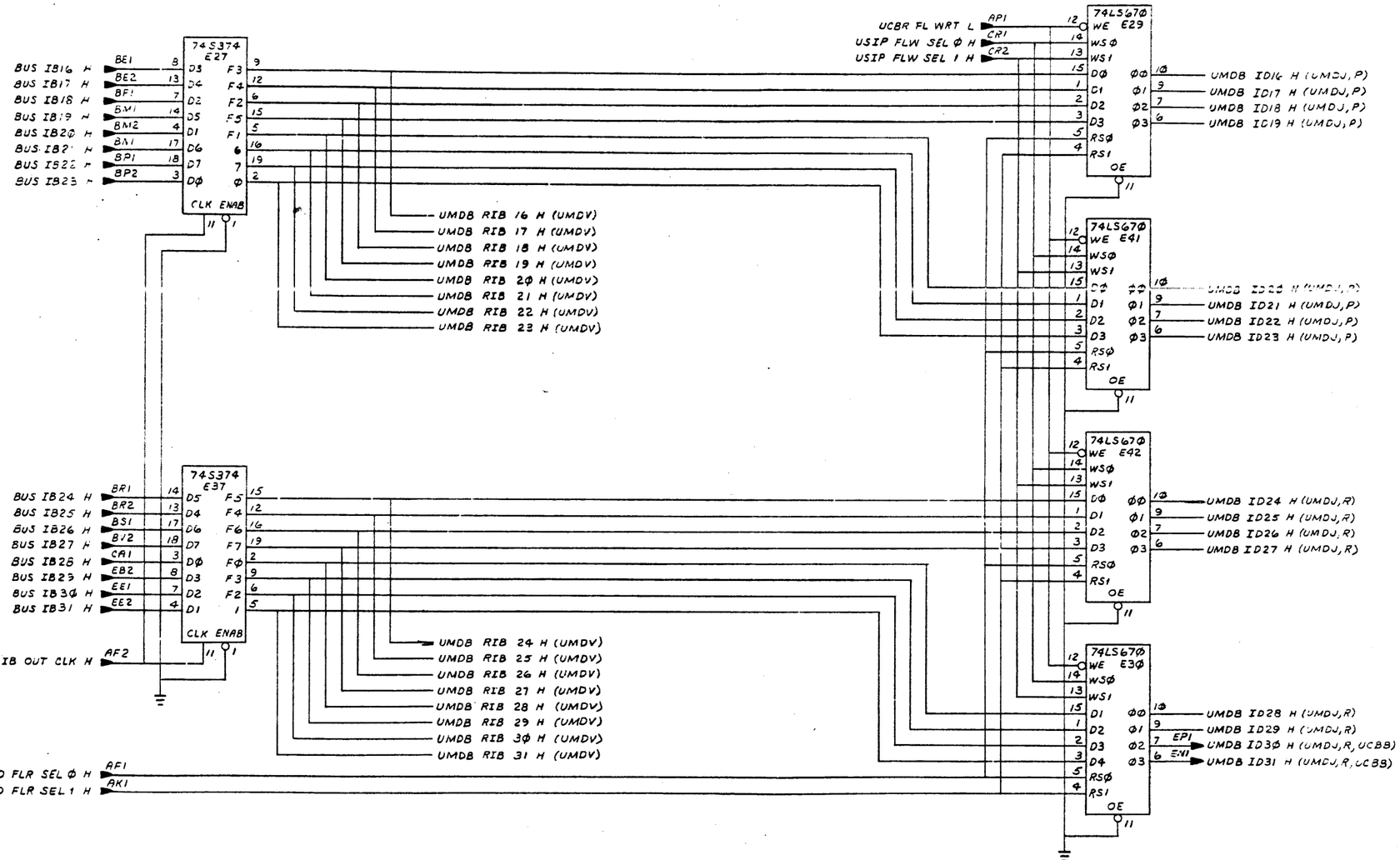
REVISIONS			
CHK	CHANGE NO.	BY	DATE

TITLE	SIZE	CODE	NUMBER	REV.
UBA MAP & DATA PATH (UMDA)	D	CS	M8272-0-1	D
SCALE	SHEET 2 OF 19	DIST.		

1 TW

8 7 6 5 3 2 1

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION COPYRIGHT © 1981 DIGITAL EQUIPMENT CORPORATION"



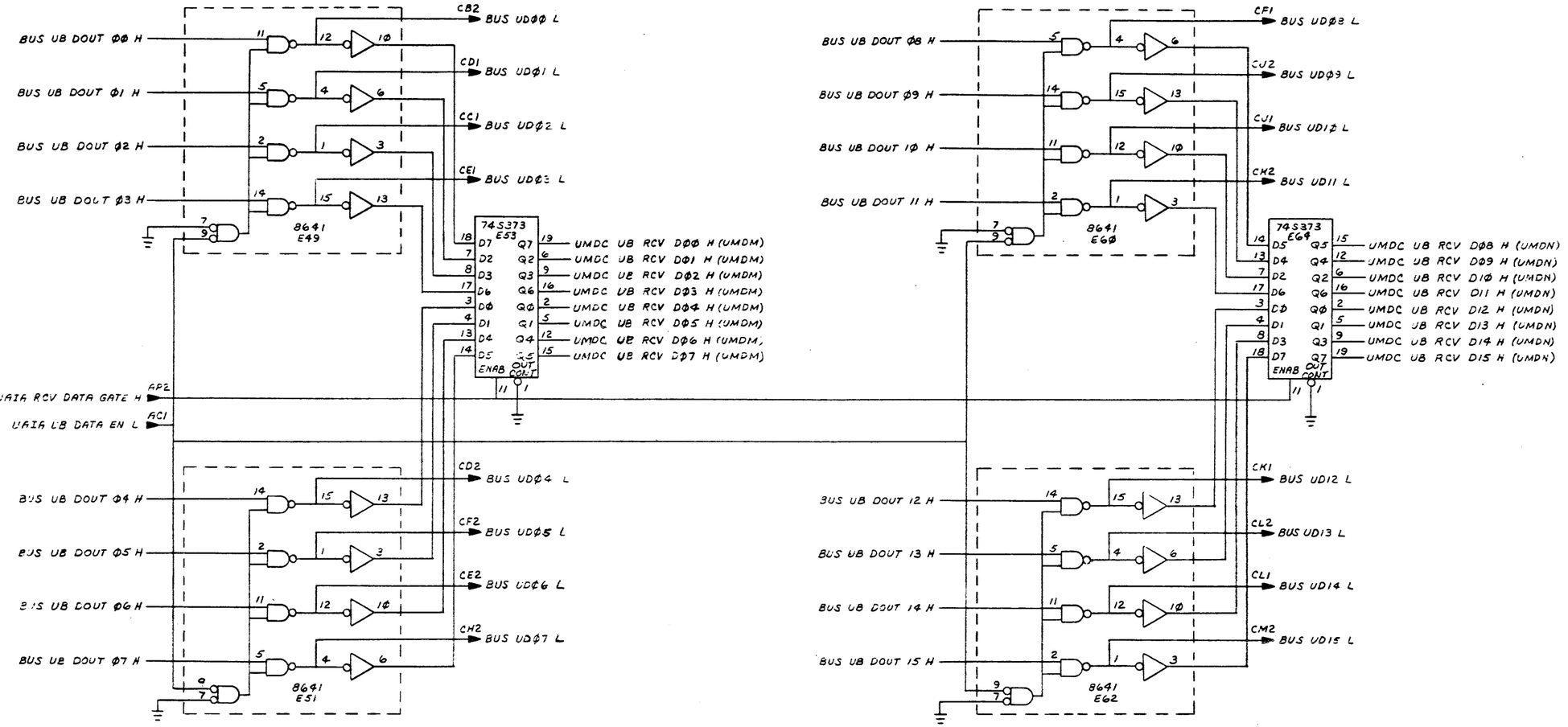
(INT BUS RCV 16-31) (SLOT 3)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MAP & DATA PATH (UMDB)	D	CS	M8272-Ø-1	D
SCALE —	SHEET 3 OF 19	DIST.		

IDCS M8272-Ø-1 D

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

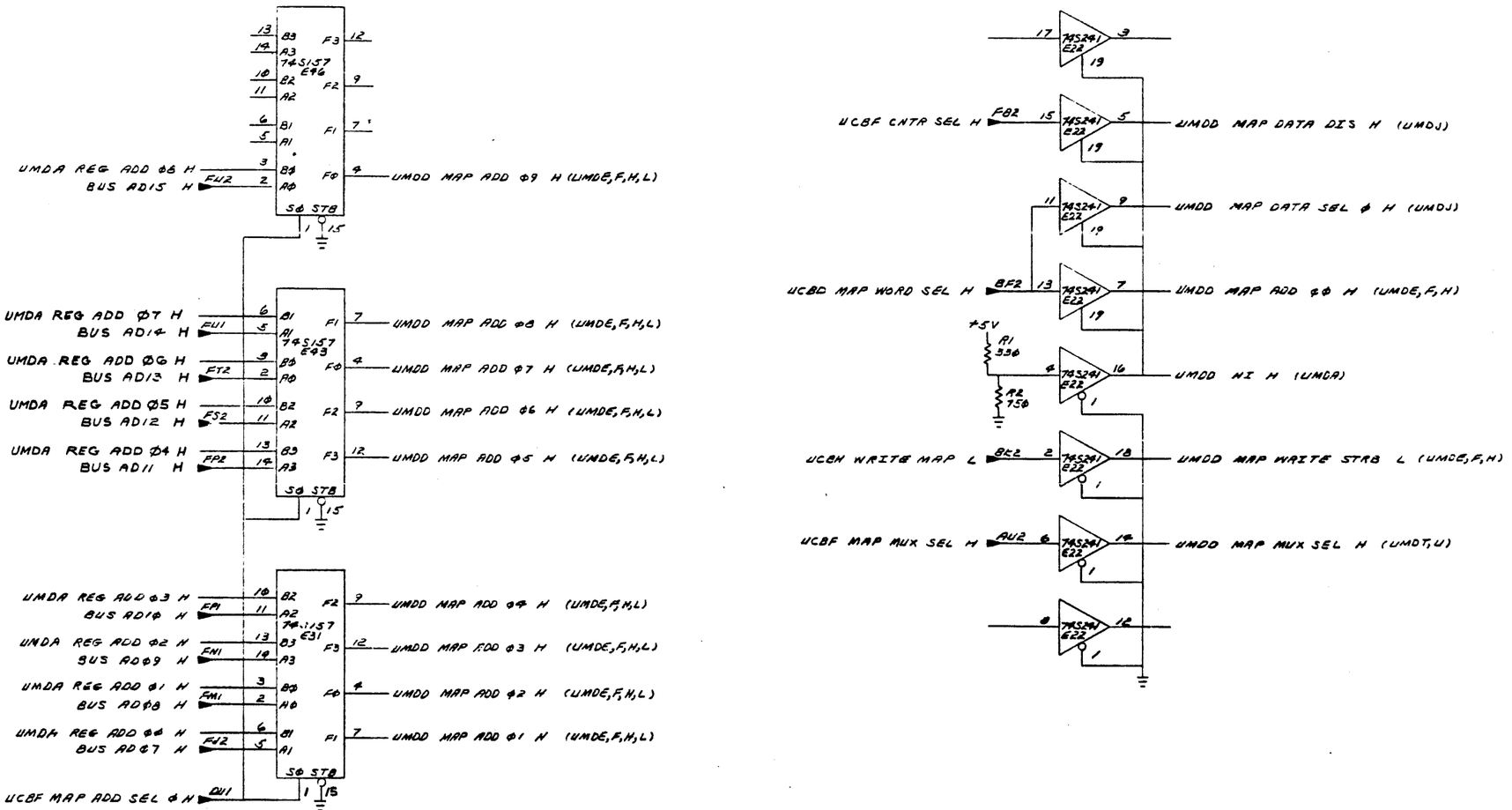


(UB DATA XCVRS) (SLOT 3)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV
UBA MAP & DATA PATH (UMDC)	D	CS	M8272-Ø-1	D
SCALE —H— SHEET 4 OF 19	DIST.			

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

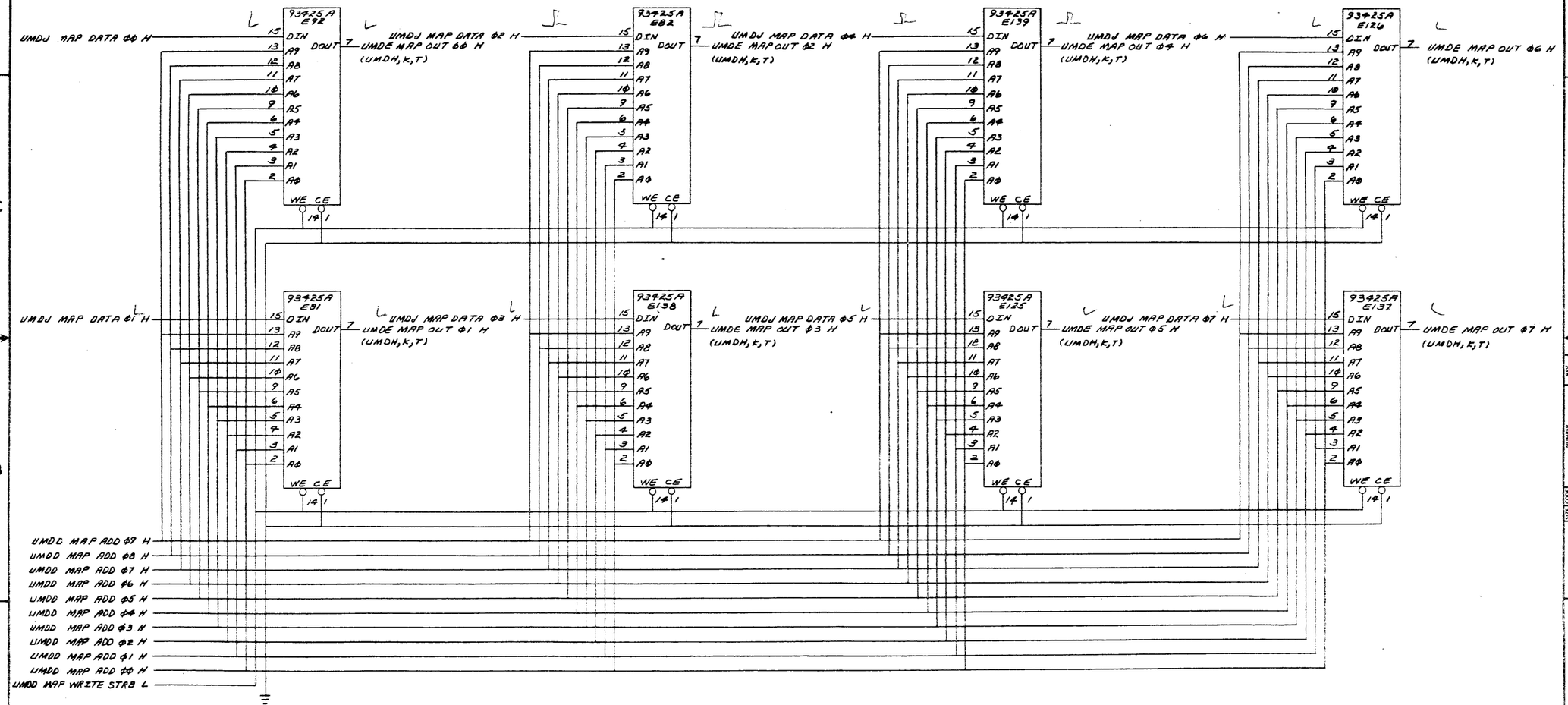


(MAP ADDRESS MUX) (SLOT 3)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MAP & DATA PATH (UMDD)	D	CS	M8272-Ø-1	D
SCALE	SHEET 5 OF 19	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"

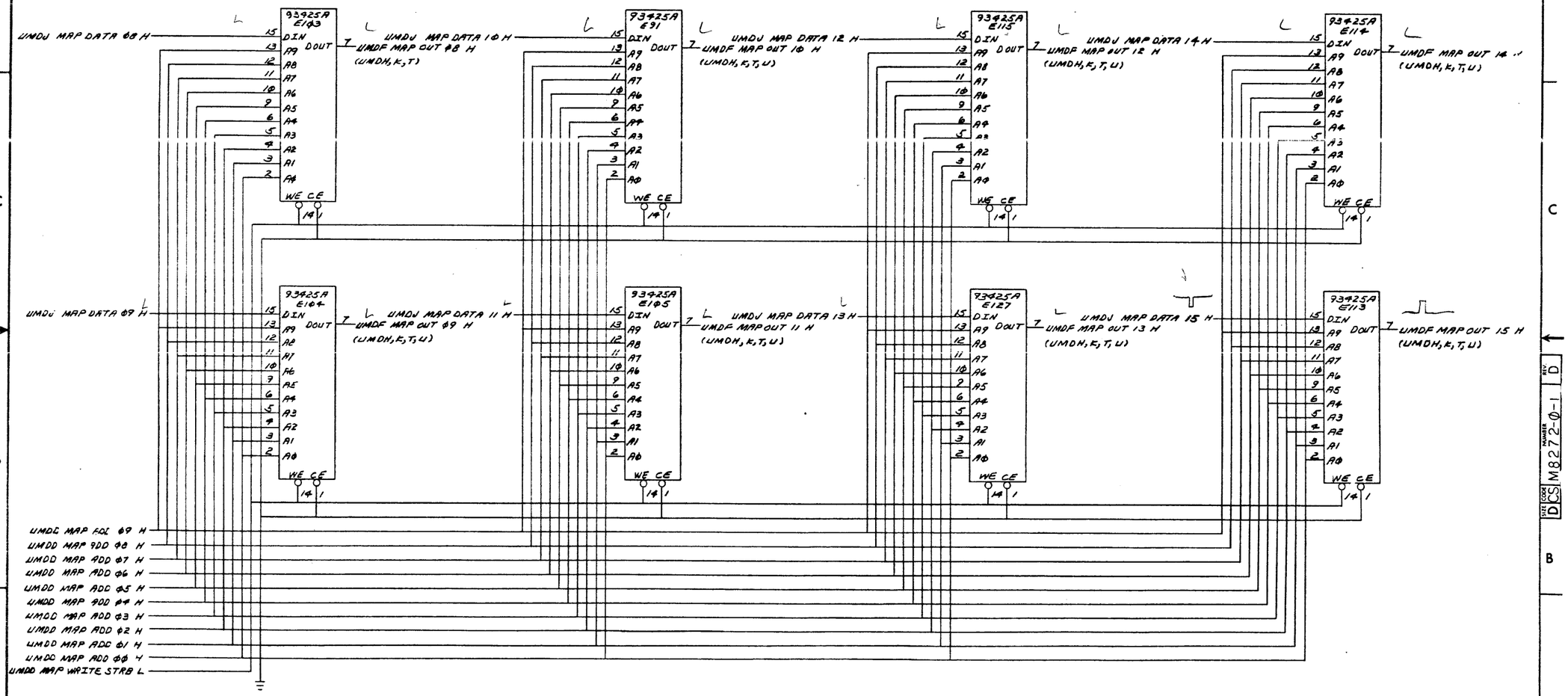


REVISIONS		
CHK	CHANGE NO.	REV.

(MAP ØØ-07) (SLOT 3)

TITLE	SIZE	CODE	NUMBER	REV.
UBA MAP & DATA PATH (UMDE)	D	CS	M8272-Ø-1	D
SCALE —	SHEET 6 OF 19	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"



REVISIONS

CHK	CHANGE NO.	REV.

(MAP 08-15) (SLOT 3)

TITLE: UBA MAP & DATA PATH (UMDF)		SIZE: D	CODE: CS	NUMBER: M8272-0-1 REV: D
SCALE: ⟷	SHEET: 7 OF 19	DIST:		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UMDJ MAP DATA 00 H
UMDJ MAP DATA 01 H
UMDJ MAP DATA 02 H
UMDJ MAP DATA 03 H
UMDJ MAP DATA 04 H
UMDJ MAP DATA 05 H
UMDJ MAP DATA 06 H
UMDJ MAP DATA 07 H

74S280 E24 — F Σ ODD, F Σ EVEN

UMDJ MAP DATA 08 H
UMDJ MAP DATA 09 H
UMDJ MAP DATA 10 H
UMDJ MAP DATA 11 H
UMDJ MAP DATA 12 H
UMDJ MAP DATA 13 H
UMDJ MAP DATA 14 H
UMDJ MAP DATA 15 H

74S280 E48 — F Σ ODD, F Σ EVEN

93425A E83 — DIN, DOUT, A0–A9, WE, CE

93425A E93 — DIN, DOUT, A0–A9, WE, CE

UMDD MAP ADD 00 H
UMDD MAP ADD 01 H
UMDD MAP ADD 02 H
UMDD MAP ADD 03 H
UMDD MAP ADD 04 H
UMDD MAP ADD 05 H
UMDD MAP ADD 06 H
UMDD MAP ADD 07 H
UMDD MAP ADD 08 H
UMDD MAP ADD 09 H

UMDD MAP WRITE STRB L

LSIE DEF MAP PAR L

74S08 E59 — CB1

74S280 E11 — F Σ ODD, F Σ EVEN

UMDE MAP OUT 00 H
UMDE MAP OUT 01 H
UMDE MAP OUT 02 H
UMDE MAP OUT 03 H
UMDE MAP OUT 04 H
UMDE MAP OUT 05 H
UMDE MAP OUT 06 H
UMDE MAP OUT 07 H

74S08 E59 — CB1

UMDH MAP PAR OK L (UCBA)

74S280 E35 — F Σ ODD, F Σ EVEN

UMDE MAP OUT 08 H
UMDE MAP OUT 09 H
UMDE MAP OUT 10 H
UMDE MAP OUT 11 H
UMDE MAP OUT 12 H
UMDE MAP OUT 13 H
UMDE MAP OUT 14 H
UMDE MAP OUT 15 H

74S08 E39

(MAP PARITY) (SLOT 3)

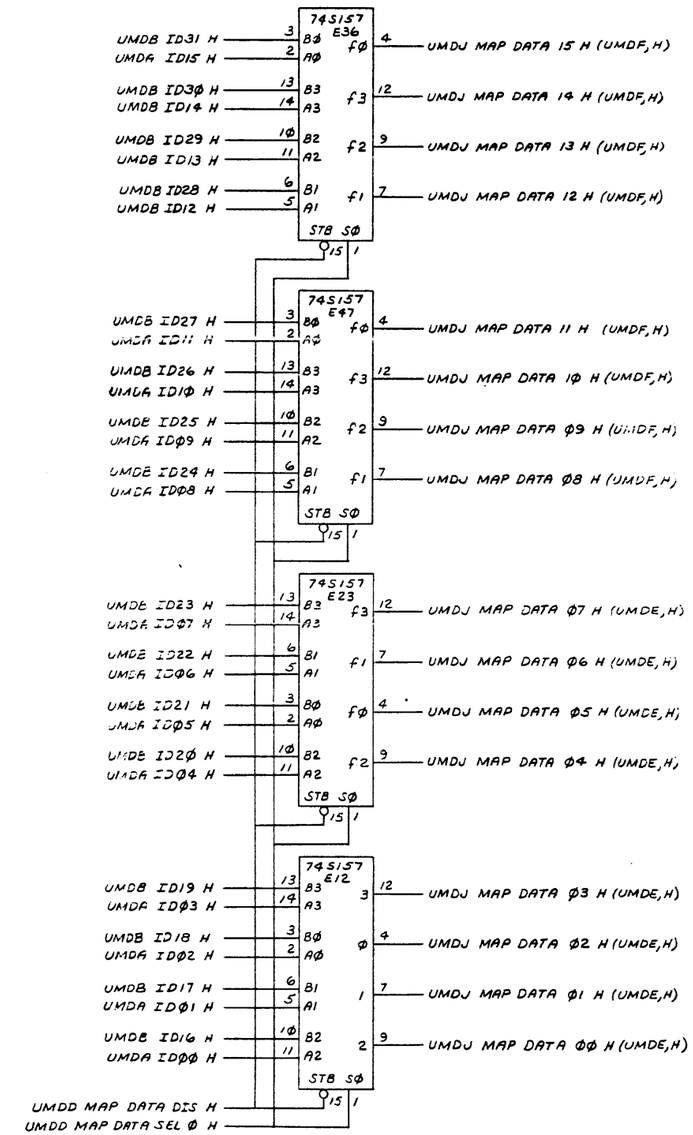
REVISIONS

CHK	CHANGE NO	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MAP & DATA PATH (UMDH)	D	CS	M8272-0-1	D

SCALE | SHEET 8 OF 19 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"



(SLOT 3)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MAP & DATA PATH (UMDJ)	D	CS	M8272-Ø-1	D
SCALE —11— SHEET 9 OF 19 DIST.				

M8272-Ø-1 REV D

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UMDK SBI PAGE 27 H (UMDU)

74S04 E70

74S04 E70

74S00 E69 → AU1 → UMDK SBI PG 27 H (UCBA,B)

74S373 E19

UMDE MAP OUT 00 H → D3 → Q3 → UMDK SBI PG 23 H (UMDU)
UMDE MAP OUT 01 H → D4 → Q4 → UMDK SBI PG 24 H (UMDU)
UMDE MAP OUT 02 H → D2 → Q2 → UMDK SBI PG 25 H (UMDU)
UMDE MAP OUT 03 H → D5 → Q5 → UMDK SBI PG 26 H (UMDU)
UMDE MAP OUT 04 H → D6 → Q6
UMDE MAP OUT 05 H → D1 → Q1 → UMDK BDP BIT 00 H (UMDK,U)
UMDE MAP OUT 06 H → D0 → Q0 → UMDK BDP BIT 01 H (UMDK,U)
UMDE MAP OUT 07 H → D7 → Q7 → UMDK BDP BIT 02 H (UMDK,U)
ENAB CONT OUT

UCBF MAP HI GATE H → AL2

74S373 E34

UMDF MAP OUT 08 H → D3 → Q3 → UMDK BDP BIT 03 H (UMDK,U)
UMDF MAP OUT 09 H → D4 → Q4 → UMDK BYTE OFST H (UMDU, UCBA,B) (CP2)
UMDF MAP OUT 10 H → D2 → Q2
UMDF MAP OUT 11 H → D5 → Q5 → UMDK RSVD 01 H (UMDU)
UMDF MAP OUT 12 H → D6 → Q6 → UMDK RSVD 02 H (UMDU)
UMDF MAP OUT 13 H → D1 → Q1 → UMDK RSVD 03 H (UMDU)
UMDF MAP OUT 14 H → D0 → Q0 → UMDK RSVD 04 H (UMDU)
UMDF MAP OUT 15 H → D7 → Q7 → UMDK MRV H (UMDU, UCBA) (AL2)
ENAB CONT OUT

UMDK LWAE H (UMDU)

UMDK BDP BIT 00 H → A0
UMDA REG ADD 00 H → B0
UCBF BDP NO IN 0 H → C0 (CP1)
UMDK BDP BIT 01 H → A1
UMDA REG ADD 01 H → B1
UCBF BDP NO IN 1 H → C1 (DR2)
UCBD BDP SRC SEL 0 H (DD2)
UCBD BDP SRC SEL 1 H (DF2)
S0 S1
F0 → 7 DM1 → UMDK DP ADD 2 H (UMDM,N,P,R,UCBB,J)
F1 → 9 DN1 → UMDK DP ADD 3 H (UMDM,N,P,R,UCBB,J)
74S153 E72
STB0 STB1

UMDK BDP BIT 02 H → A0
UMDA REG ADD 02 H → B0
UCBF BDP NO IN 2 H → C0 (DS2)
UMDK BDP BIT 03 H → A1
UMDA REG ADD 03 H → B1
UCBF BDP NO IN 3 H → C1 (DT2)
S0 S1
F0 → 7 CP1 → UMDK DP ADD 4 H (UMDM,N,P,R,UCBB)
F1 → 9 DP2 → UMDK DP ADD 5 H (UMDM,N,P,R,UCBB)
74S153 E84
STB0 STB1

74S373

EN	Q
H	D
L	Q

REVISIONS

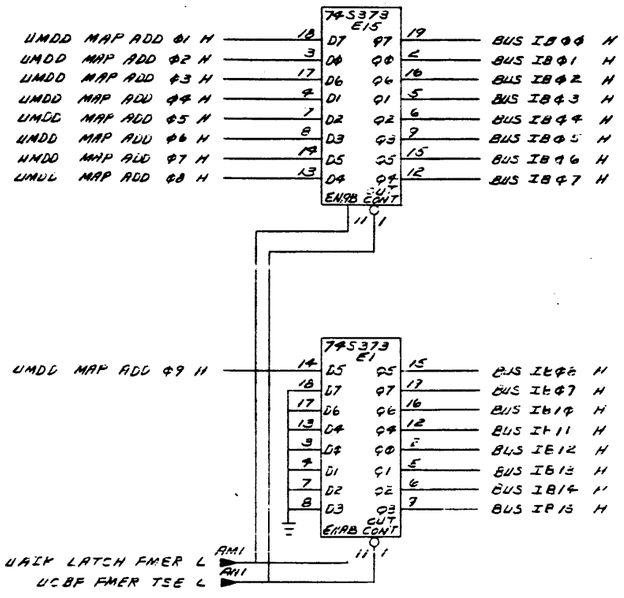
CHK	CHANGE NO.	REV.

(MAP REGISTER, BDP MUX + LNG WD MUX) (SLOT 3)

TITLE UBA MAP & DATA PATH (UMDK)
SIZE D | CODE CS | NUMBER M8272-0-1 | REV D
SCALE | SHEET 10 OF 19 | DIST

TW

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"



(FAILED MAP ADDRESS) (SLOT 3)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MAP & DATA PATH (UMDL)	D	CS	M8272-Ø-1	D
SCALE	SHEET 11 OF 19	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UMDA TMPSTR 00 H (UMDM)
UMDA TMPSTR 01 H (UMDM)
UMDA TMPSTR 02 H (UMDM)
UMDA TMPSTR 03 H (UMDM)
UMDA TMPSTR 04 H (UMDM)
UMDA TMPSTR 05 H (UMDM)
UMDA TMPSTR 06 H (UMDM)
UMDA TMPSTR 07 H (UMDM)
UCBH TMPSTR STB H
UMDK DP ADD 5 H
UMDK DP ADD 4 H
UMDK DP ADD 3 H
UMDK DP ADD 2 H
UCBF LDP ADD 1 H
UCBF LDP ADD 0 H
UMDS DP SHFT 00 H
UMDS DP SHFT 01 H
UMDS DP SHFT 02 H
UMDS DP SHFT 03 H
UMDS DP SHFT 04 H
UMDS DP SHFT 05 H
UMDS DP SHFT 06 H
UMDS DP SHFT 07 H
UCBH DP 0 WE L
UMDM DP RAM 00 H (UMDM)
UMDM DP RAM 01 H (UMDM)
UMDM DP RAM 02 H (UMDM)
UMDM DP RAM 03 H (UMDM)
UMDM DP RAM 04 H (UMDM)
UMDM DP RAM 05 H (UMDM)
UMDM DP RAM 06 H (UMDM)
UMDM DP RAM 07 H (UMDM)
UMDM DP 0 PAR OK H (UMDR)
USIE DEF DP PAR L
UMDM DP MUX 00 H (UMDS)
UMDM DP MUX 01 H (UMDS)
UMDM DP MUX 02 H (UMDS)
UMDM DP MUX 03 H (UMDS)
UMDM DP MUX 04 H (UMDS)
UMDM DP MUX 05 H (UMDS)
UMDM DP MUX 06 H (UMDS)
UMDM DP MUX 07 H (UMDS)
UCBF DP MUX SEL 1 H
UCBF DP MUX SEL 0 H
UCBF DP MUX LOEN L

(DATA PATH 00-07) (SLOT 3)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MAP & DATA PATH (UMDM)	D	CS	M8272-0-1	D
SCALE	SHEET 12 OF 19	DIST.		

DEC FORM NO. DRD 138

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

74S374 E109
UMDN TMPSTR 08 H (UMDN)
UMDN TMPSTR 09 H (UMDN)
UMDN TMPSTR 10 H (UMDN)
UMDN TMPSTR 11 H (UMDN)
UMDN TMPSTR 12 H (UMDN)
UMDN TMPSTR 13 H (UMDN)
UMDN TMPSTR 14 H (UMDN)
UMDN TMPSTR 15 H (UMDN)
UCBH TMPSTR STB H

UMDS DP SHFT 08 H
UMDS DP SHFT 09 H
UMDS DP SHFT 10 H
UMDS DP SHFT 11 H
UMDS DP SHFT 12 H
UMDS DP SHFT 13 H
UMDS DP SHFT 14 H
UMDS DP SHFT 15 H
74S240 E107

UMDK DP ADD 5 H
UMDK DP ADD 4 H
UMDK DP ADD 3 H
UMDK DP ADD 2 H
UCBF LDP ADD 1 H
UCBF LDP ADD 0 H
82S09 E97 64X3 RAM

UMDN DP RAM 08 H (UMDN)
UMDN DP RAM 09 H (UMDN)
UMDN DP RAM 10 H (UMDN)
UMDN DP RAM 11 H (UMDN)
UMDN DP RAM 12 H (UMDN)
UMDN DP RAM 13 H (UMDN)
UMDN DP RAM 14 H (UMDN)
UMDN DP RAM 15 H (UMDN)

UCBH DP 1 WE L

74S280 E108
UMDN DP 1 PAR OK H (UMDA)

74S280 E106

E98 1K +5V

USIE DEF DP PAR L
74S00 E132

74S153 E101
UMDN TMPSTR 08 H
UMDN DP RAM 08 H
UMDC UB RCVD 08 H
UMDA ID08 H
UMDN DP MUX 08 H (UMDS)

74S153 E111
UMDN TMPSTR 09 H
UMDN DP RAM 09 H
UMDC UB RCVD 09 H
UMDA ID09 H
UMDN DP MUX 09 H (UMDS)

74S153 E123
UMDN TMPSTR 10 H
UMDN DP RAM 10 H
UMDC UB RCVD 10 H
UMDA ID10 H
UMDN DP MUX 10 H (UMDS)

74S153 E135
UMDN TMPSTR 11 H
UMDN DP RAM 11 H
UMDC UB RCVD 11 H
UMDA ID11 H
UMDN DP MUX 11 H (UMDS)

74S153 E56
UMDN TMPSTR 12 H
UMDN DP RAM 12 H
UMDC UB RCVD 12 H
UMDA ID12 H
UMDN DP MUX 12 H (UMDS)

74S153 E67
UMDN TMPSTR 13 H
UMDN DP RAM 13 H
UMDC UB RCVD 13 H
UMDA ID13 H
UMDN DP MUX 13 H (UMDS)

74S153 E79
UMDN TMPSTR 14 H
UMDN DP RAM 14 H
UMDC UB RCVD 14 H
UMDA ID14 H
UMDN DP MUX 14 H (UMDS)

74S153 E89
UMDN TMPSTR 15 H
UMDN DP RAM 15 H
UMDC UB RCVD 15 H
UMDA ID15 H
UMDN DP MUX 15 H (UMDS)

UCBF DP MUX SEL 1 H
UCBF DP MUX SEL 0 H
UCBF DP MUX LO EN L

(DATA PATH 08-15) (SLOT 3)

REVISIONS		
CHK	CHANGE NO.	REV

TITLE CBA MAP & DATA PATH (UMDN)
SIZE D | CODE CS | NUMBER M8272-0-1 | REV. J
SCALE | SHEET 13 OF 19 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UMDP CARRY H (UMDR)

C4 74LS283 E117
BUS AD00 H F81 → A1
BUS AD01 H FC1 → A2
BUS AD02 H FD1 → A3
BUS AD03 H FE1 → A4
UCBH INC EN H FV2 → C0
Σ1 → UMDP ADD INC 02 (UMDP)
Σ2 → UMDP ADD INC 03 (UMDP)
Σ3 → UMDP ADD INC 04 (UMDP)
Σ4 → UMDP ADD INC 05 (UMDP)

C4 74LS283 E118
BUS AD04 H FF2 → A1
BUS AD05 H FH2 → A2
BUS AD06 H FJ1 → A3
BUS AD07 H FJ2 → A4
C0 → 7
Σ1 → UMDP ADD INC 06 (UMDP)
Σ2 → UMDP ADD INC 07 (UMDP)
Σ3 → UMDP ADD INC 08 (UMDP)
Σ4 → UMDP ADD INC 09 (UMDP)

UMDP ADD INC 02 H
UMDP DP RAM 16 H
UMDB ID16 H
E182 74S153: D0 C0 B0 A0 → F0 → UMDP DP MUX 16 H (UMDS)
S1 S0 STB0
UCBD DP MUX SEL 1 H EB1
UCBD DP MUX SEL 0 H DD2
UCBF DP MUX HI EN L FE2

UMDP ADD INC 03 H
UMDP DP RAM 17 H
UMDB ID17 H
E112 74S153: D0 C0 B0 A0 → F0 → UMDP DP MUX 17 H (UMDS)
S1 S0 STB0

UMDP ADD INC 04 H
UMDP DP RAM 18 H
UMDB ID18 H
E124 74S153: D0 C0 B0 A0 → F0 → UMDP DP MUX 18 H (UMDS)
S1 S0 STB0

UMDP ADD INC 05 H
UMDP DP RAM 19 H
UMDB ID19 H
E136 74S153: D0 C0 B0 A0 → F0 → UMDP DP MUX 19 H (UMDS)
S1 S0 STB0

UMDP ADD INC 06 H
UMDP DP RAM 20 H
UMDB ID20 H
E57 74S153: D1 C1 B1 A1 → F1 → UMDP DP MUX 20 H (UMDS)
S1 S0 STB1

UMDP ADD INC 07 H
UMDP DP RAM 21 H
UMDB ID21 H
E68 74S153: D0 C0 B0 A0 → F0 → UMDP DP MUX 21 H (UMDS)
S1 S0 STB0

UMDP ADD INC 08 H
UMDP DP RAM 22 H
UMCB ID22 H
E80 74S153: D0 C0 B0 A0 → F0 → UMDP DP MUX 22 H (UMDS)
S1 S0 STB0

UMDP ADD INC 09 H
UMDP DP RAM 23 H
UMDB ID23 H
E90 74S153: D0 C0 B0 A0 → F0 → UMDP DP MUX 23 H (UMDS)
S1 S0 STB0

UMDS DP SHFT 16 H
UMDS DP SHFT 17 H
UMDS DP SHFT 18 H
UMDS DP SHFT 19 H
UMDS DP SHFT 20 H
UMDS DP SHFT 21 H
UMDS DP SHFT 22 H
UMDS DP SHFT 23 H
74S240 E73 (buffers)

UMDK DP ADD 5 H
UMDK DP ADD 4 H
UMDK DP ADD 3 H
UMDK DP ADD 2 H
UCBF LDP ADD 1 H DH2
UCBF LDP ADD 0 H DK2
825091 E75 64X9 RAM
DI0 DI1 DI2 DI3 DI4 DI5 DI6 DI7 DI8
CS WE
UCBH DP 2 WE L EU2

DO0 UMDP DP RAM 16 H (UMDP)
DO1 UMDP DP RAM 17 H (UMDP)
DO2 UMDP DP RAM 18 H (UMDP)
DO3 UMDP DP RAM 19 H (UMDP)
DO4 UMDP DP RAM 20 H (UMDP)
DO5 UMDP DP RAM 21 H (UMDP)
DO6 UMDP DP RAM 22 H (UMDP)
DO7 UMDP DP RAM 23 H (UMDP)
DO8

E98 4 1K 14 +5V
5 1K
6 1K
E120 7 1K
6 1K
8 1K
3 1K

E77 6 1K 14 +5V
E77 7 1K 14 +5V

74S280 E74 (ODD): D0 D1 D2 D3 D4 D5 D6 D7 D8 → FE ODD 6; FE EVEN 5
74S280 E131 (EVEN): D0 D1 D2 D3 D4 D5 D6 D7 D8 → FE 000 6; FE EVEN 5 → UMDP DP 2 PAR OK H (UMDR)

USIE DEF DP PAR L D31
74S00 E121

(DATA PATH 16-23) (SLOT 3)

REVISIONS		
CHK	CHANGE NO.	REV

TITLE UBA MAP & DATA PATH (UMDP)
SIZE D | CODE CS | NUMBER M8272-0-1 | REV D
SCALE → | SHEET 14 OF 19 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

BUS AD Ø8 H — FM1 — C7 74LS283 E129 — Σ1 — UMDR ADD INC 10 H (UMDR)
BUS AD Ø9 H — FN1 — Σ2 — UMDR ADD INC 11 H (UMDR)
BUS AD 10 H — FP1 — Σ3 — UMDR ADD INC 12 H (UMDR)
BUS AD 11 H — FP2 — Σ4 — UMDR ADD INC 13 H (UMDR)
CO — UMDP CARRY H

BUS AD12 H — FS2 — C4 74LS283 E130 — Σ1 — UMDR ADD INC 14 H (UMDR)
BUS AD13 H — FT2 — Σ2 — UMDR ADD INC 15 H (UMDR)
BUS AD14 H — FU1 — Σ3 — UMDR ADD INC 16 H (UMDR)
BUS AD15 H — FU2 — Σ4 — UMDR ADD INC 17 H (UMDR)
CO

UMDR ADD INC 10 H, UMDR DP RAM 24 H — 74S153 E102 F1 — UMDR DP MUX 24 H (UMDS)
UMDB ID24 H
UCBF DP MUX SEL 1 H — EB1
UCBF DP MUX SEL Ø H — DU2
UCBF DP MUX HI EN L — FE2

UMDR ADD INC 11 H, UMDR DP RAM 25 H — 74S153 E112 F1 — UMDR DP MUX 25 H (UMDS)
UMDB ID25 H

UMDR ADD INC 12 H, UMDR DP RAM 26 H — 74S153 E124 F1 — UMDR DP MUX 26 H (UMDS)
UMDB ID26 H

UMDR ADD INC 13 H, UMDR DP RAM 27 H — 74S153 E136 F1 — UMDR DP MUX 27 H (UMDS)
UMDB ID27 H

UMDR ADD INC 14 H, UMDR DP RAM 28 H — 74S153 E57 FØ — UMDR DP MUX 28 H (UMDS)
UMDB ID28 H

UMDR ADD INC 15 H, UMDR DP RAM 29 H — 74S153 E68 F1 — UMDR DP MUX 29 H (UMDS)
UMDB ID29 H

UMDR ADD INC 16 H, UMDR DP RAM 30 H — 74S153 E80 F1 — UMDR DP MUX 30 H (UMDS)
UMDB ID30 H

UMDR ADD INC 17 H, UMDR DP RAM 31 H — 74S153 E90 F1 — UMDR DP MUX 31 H (UMDS)
UMDB ID31 H

UMDS DP SHFT 24 H — 74S240 E85 — UMDR DP SHFT 24 H
UMDS DP SHFT 25 H — 74S240 E85 — UMDR DP SHFT 25 H
UMDS DP SHFT 26 H — 74S240 E85 — UMDR DP SHFT 26 H
UMDS DP SHFT 27 H — 74S240 E85 — UMDR DP SHFT 27 H
UMDS DP SHFT 28 H — 74S240 E85 — UMDR DP SHFT 28 H
UMDS DP SHFT 29 H — 74S240 E85 — UMDR DP SHFT 29 H
UMDS DP SHFT 30 H — 74S240 E85 — UMDR DP SHFT 30 H
UMDS DP SHFT 31 H — 74S240 E85 — UMDR DP SHFT 31 H

UMDR DP ADD 5 H
UMDR DP ADD 4 H
UMDR DP ADD 3 H
UMDR DP ADD 2 H
UCBF HDP ADD 1 H — FL1
UCBF HDP ADD Ø H — FF1
82S09 E76 64x9 RAM
DI Ø, DI 1, DI 2, DI 3, DI 4, DI 5, DI 6, DI 7, DI 8
CS — ES1 — UCBH DP 3 WE L
WE

DO Ø — UMDR DP RAM 24 H (UMDR)
DO 1 — UMDR DP RAM 25 H (UMDR)
DO 2 — UMDR DP RAM 26 H (UMDR)
DO 3 — UMDR DP RAM 27 H (UMDR)
DO 4 — UMDR DP RAM 28 H (UMDR)
DO 5 — UMDR DP RAM 29 H (UMDR)
DO 6 — UMDR DP RAM 30 H (UMDR)
DO 7 — UMDR DP RAM 31 H (UMDR)
DO 8

E77: 1K ×8 — +5V
1K, 1K

74S280 E87 — D Ø, D1, D2, D3, D4, D5, D6, D7, D8 — FΣ ODD, FΣ EVEN
DS1 — USE DEF DP PAR L — 74S00 E121
EV2 — UCBF EN BIT 31 L — 74S00 E121 — UMDR DP OUT 31 H (UMDU)

74S280 E86 — D Ø, D1, D2, D3, D4, D5, D6, D7, D8 — FΣ ODD, FΣ EVEN

UMDP DP 2 PAR OK H
UMDN DP 1 PAR OK H
UMDN DP Ø PAR OK H
74S20 E133 — FS1 — UMDR DP PAR CK L (UCBK)

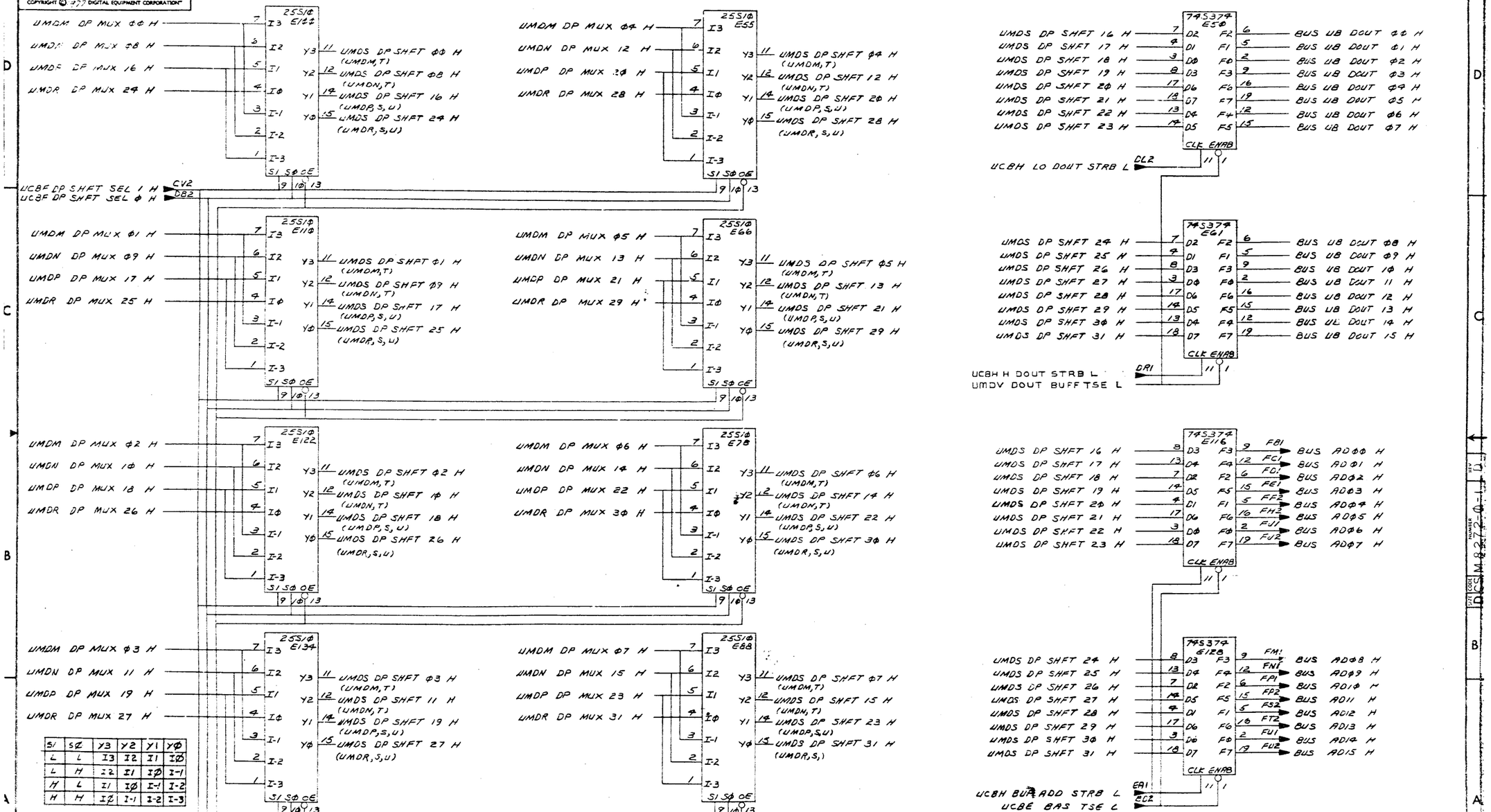
(DATA PATH 24-31) (SLOT 3)

REVISIONS

CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MAP & DATA PATH (UMDR)	D	CS	M8272-Ø-1	D1
SCALE	SHEET 15 OF 19	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"



SI	SØ	Y3	Y2	Y1	YØ
L	L	I3	I2	I1	IØ
L	H	I2	I1	IØ	I-1
H	L	I1	IØ	I-1	I-2
H	H	IØ	I-1	I-2	I-3

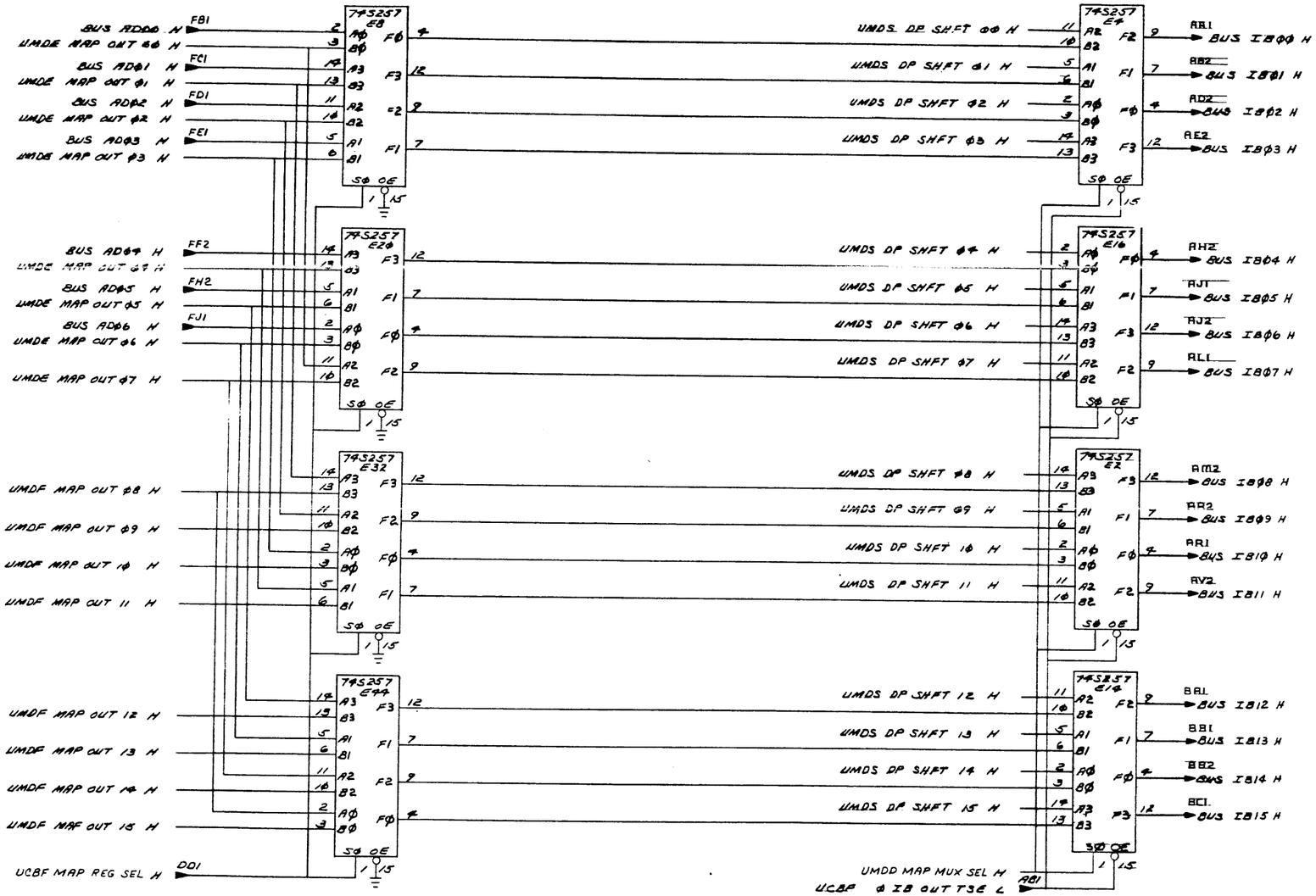
(DATA PATH SHIFT/OUTPUT REG) (SLOT 3)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE		SIZE	CODE	NUMBER	REV.
UBA MAP & DATA PATH (UMDS)		D	CS	M8272-Ø-1	D
SCALE	SHEET 16 OF 19	DIST.			

DCS M8272-0-1 REV D

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"



(INT. BUS OUTPUT MUX 00-15) (SLOT 3)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MAP & DATA PATH (UMDT)	D	CS	M8272-0-i	D
SCALE	SHEET 17 OF 19	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UMDF MAP OUT 09 H
UMDK SBI PG 23 H
UMDF MAP OUT 10 H
UMDK SBI PG 24 H
UMDF MAP OUT 11 H
UMDK SBI PG 25 H
UMDF MAP OUT 12 H
UMDK SBI PG 26 H

74S257 E29 — A0 A1 A2 A3 B0 B1 B2 B3 S0 OE — F0 F1 F2 F3

UMDF MAP OUT 13 H
UMDK SBI PAGE 27 H
UMDF MAP OUT 14 H
UMDK BDP BIT 00 H
UMDF MAP OUT 15 H
UMDK BDP BIT 01 H
UMDK BDP BIT 02 H

74S257 E21 — A0 A1 A2 A3 B0 B1 B2 B3 S0 OE — F0 F1 F2 F3

UMDK BDP BIT 03 H
UMDK BYTE OFST H
UMDK LWAE H
UMDK RSVD 01 H

74S257 E33 — A0 A1 A2 A3 B0 B1 B2 B3 S0 OE — F0 F1 F2 F3

UCBK FUNC 00 H
UMDK RSVD 02 H
UCBK FUNC 01 H
UMDK RSVD 03 H
UCBK FUNC 02 H
UMDK RSVD 04 H
UCBK FUNC 03 H
UMDK MRV H
CS2
CT2
CU1
CU2

74S257 E45 — A2 A1 A3 B2 B1 B3 A0 B0 S0 OE — F2 F1 F3 F0

UCBF MAP REG SEL H
DD1

UMDS DP SHFT 16 H
UMDS DP SHFT 17 H
UMDS DP SHFT 18 H
UMDS DP SHFT 19 H

74S257 E26 — A1 A2 A3 A0 B1 B2 B3 B0 S0 OE — F1 F2 F3 F0

BE1 BUS IB 16 H
BE2 BUS IB 17 H
BF1 BUS IB 18 H
BM1 BUS IB 19 H

UMDS DP SHFT 20 H
UMDS DP SHFT 21 H
UMDS DP SHFT 22 H
UMDS DP SHFT 23 H

74S257 E39 — A0 A3 A2 A1 B0 B3 B2 B1 S0 OE — F0 F3 F2 F1

BM2 BUS IB 20 H
BN1 BUS IB 21 H
BP1 BUS IB 22 H
BP2 BUS IB 23 H

UMDS DP SHFT 24 H
UMDS DP SHFT 25 H
UMDS DP SHFT 26 H
UMDS DP SHFT 27 H

74S257 E38 — A1 A2 A3 A0 B1 B2 B3 B0 S0 OE — F1 F2 F3 F0

BR1 BUS IB 24 H
BR2 BUS IB 25 H
BS1 BUS IB 26 H
BV2 BUS IB 27 H

UMDS DP SHFT 28 H
UMDS DP SHFT 29 H
UMDS DP SHFT 30 H
UMDR DP OUT 31 H

74S257 E25 — A2 A0 A1 A3 B2 B0 B1 B3 S0 OE — F2 F0 F1 F3

CA1 BUS IB 28 H
EB1 BUS IB 29 H
EE1 BUS IB 30 H
EE2 BUS IB 31 H

UMDD MAP MUX SEL H
UCBF IIB OUT T36 L
BD1

(INT. BUS OUTPUT MUX 16 31) (SLOT 3)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MAP & DATA PATH (UMDU)	D	DCS	M8272-0-1	D
SCALE	SHEET 18 OF 19	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

74LS257 E28
UMDA RIB ØØ H — A2
UMDB RIB 16 H — B2
UMDA RIB Ø1 H — AØ
UMDB RIB 17 H — BØ
UMDA RIB Ø2 H — A1
UMDB RIB 18 H — B1
UMDA RIB Ø3 H — A3
UMDB RIB 19 H — B3
F2, FØ, F1, F3
SØ OE

74LS374 E32
DØ D1 D6 D3 D4 D2 D5 — F7 F1 F6 F3 F4 F2 F5
CLK ENAB
BUS UB DOUT ØØ H
BUS UB DOUT Ø1 H
BUS UB DOUT Ø2 H
BUS UB DOUT Ø3 H
BUS UB DOUT Ø4 H
BUS UB DOUT Ø5 H
BUS UB DOUT Ø6 H
BUS UB DOUT Ø7 H

74LS257 E40
UMDA RIB Ø4 H — A2
UMDB RIB 2Ø H — BØ
UMDA RIB Ø5 H — A3
UMDB RIB 21 H — B3
UMDA RIB Ø6 H — A1
UMDB RIB 22 H — B1
UMDA RIB Ø7 H — A2
UMDB RIB 23 H — B2
FØ, F3, F1, F2
SØ OE

UAIA EN UB WD H — ADI
74S00 E69 (1, 2, 3)
74S00 E69 (9, 10, 8) — UMDV DOUT BUFF TSE L (UMDS)
74S00 E69 (4, 5, 6) — UMDV UB WD TSE L

74LS257 E54
UMDA RIB Ø8 H — A2
UMDB RIB 24 H — B2
UMDA RIB Ø9 H — A1
UMDB RIB 25 H — B1
UMDA RIB 1Ø H — AØ
UMDB RIB 26 H — BØ
UMDA RIB 11 H — A3
UMDB RIB 27 H — B3
F2, F1, FØ, F3
SØ OE

74LS374 E63
DØ D3 D7 D1 D4 D5 D6 D2 — FØ F3 F7 F1 F4 F5 F6 F2
CLK ENAB
BUS UB DOUT Ø8 H
BUS UB DOUT Ø9 H
BUS UB DOUT 1Ø H
BUS UB DOUT 11 H
BUS UB DOUT 12 H
BUS UB DOUT 13 H
BUS UB DOUT 14 H
BUS UB DOUT 15 H

74LS257 E65
UMDA RIB 12 H — A2
UMDB RIB 28 H — B2
UMDA RIB 13 H — A1
UMDB RIB 29 H — B1
UMDA RIB 14 H — AØ
UMDB RIB 3Ø H — BØ
UMDA RIB 15 H — A3
UMDB RIB 31 H — B3
F2, F1, FØ, F3
SØ OE
UAIP TUA Ø1 H — BEi

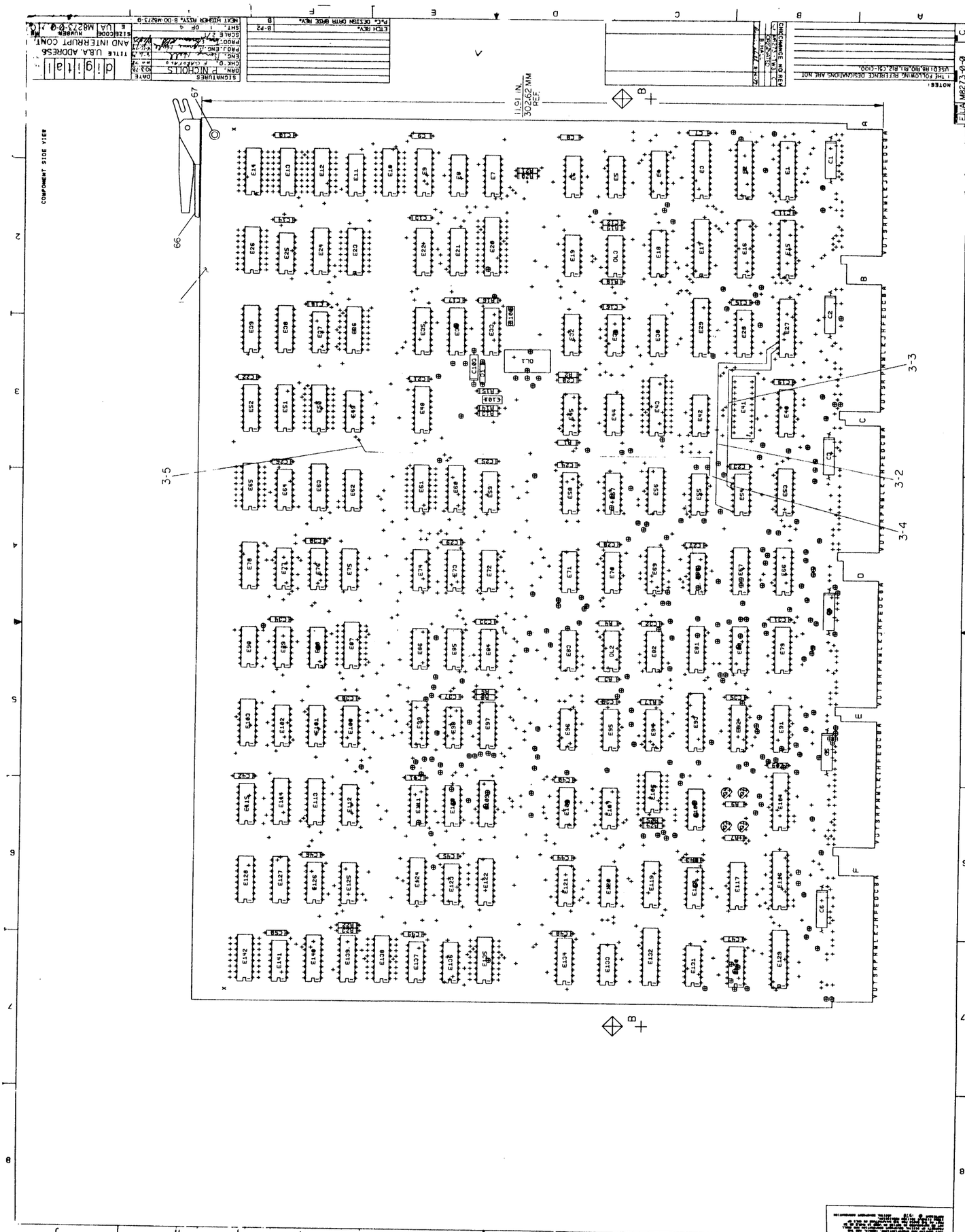
UAID UB WD STRB L — BS2 — 74S04 E78

RESERVED PINS (DO NOT USE)
ASJ
BL2
EKI
FD2

(UB WD STORE) (SLOT 3)

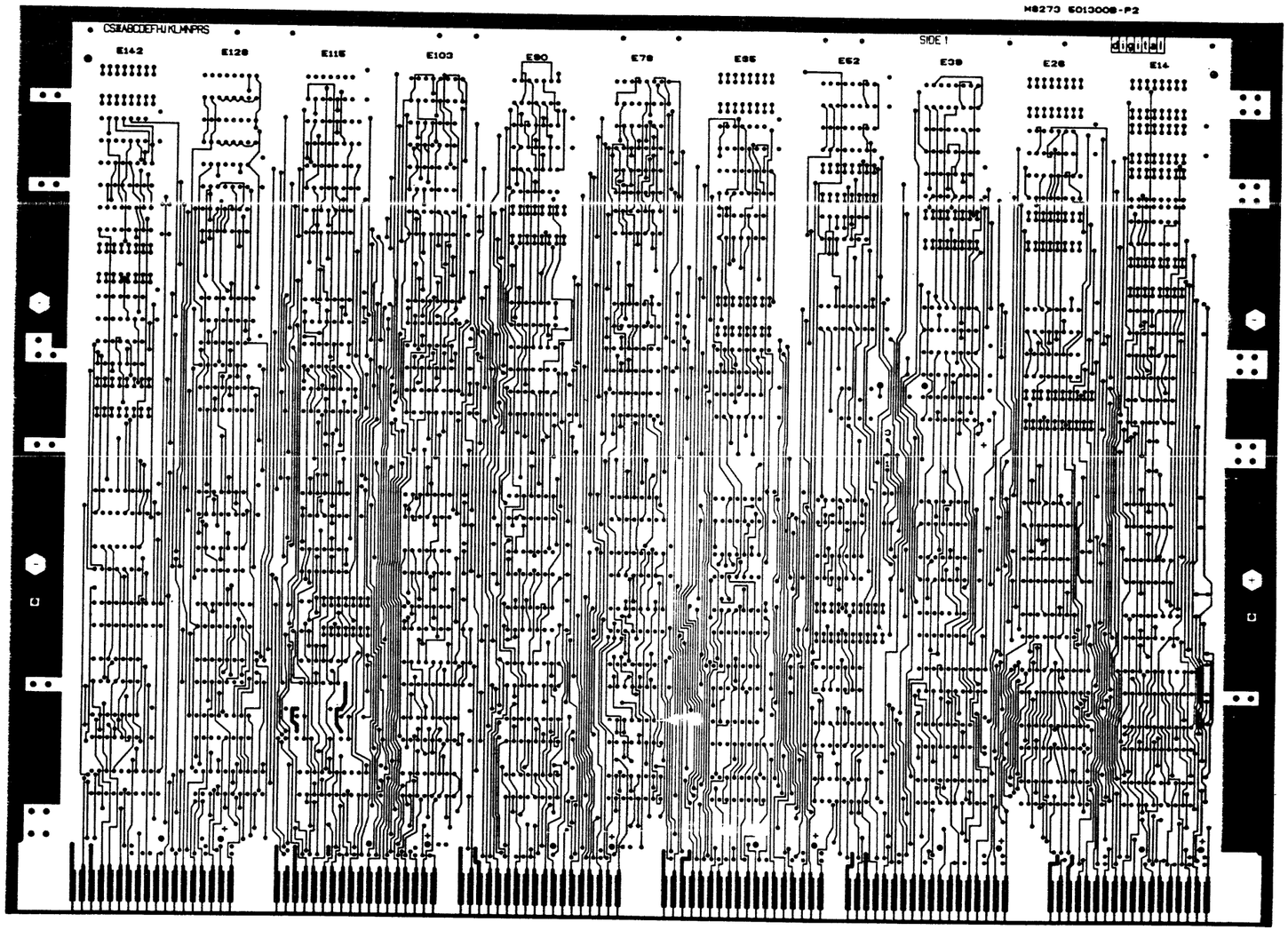
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA MAP & DATA PATH (UMDV)	D	CS	M8272-Ø-1	D
SCALE	SHEET 19 OF 19	DIST.		


COMPONENT SIDE VIEW
1.151 IN.
30.252 MM
REF.
67
66
3-5
3-3
3-2
3-4
NOTES:
1. THE FOLLOWING REFERENCE DESIGNATIONS ARE NOT USED: R0,R8,R9,R1,R12,C1-C100.
REVISIONS
CHG NO.
DESCRIPTION
DATE
APPROVED
ECO-E-ENG-M827-0-0-A
ECO-E-ENG-M827-0-0-B
P.C. DESIGN OMIT BASE REV.
B-P2
ETCH REV.
NEXT HIGHER ASSY: B-00-M8273-0
SHT 1 OF 4
SCALE 2/1
SIZE CODE NUMBER
B 1A M8273-0-0 A
TITLE U.B.A. ADDRESS AND INTERRUPT CONT.
DRN: P.NICHOLLS
DATE 7/9
CHK'D:
ENG:
PROD:
SIGNATURES
digital

LAYER 1

M8273 5013008-P2



REVISIONS		
LTR	CHANGE NO.	REV

TITLE UBA ADDRESS AND INTERRUPT CONT		SIZE/CODE E	NUMBER UAM8273-0-0
SCALE 2/1	SHEET 2 OF 4	DIST	REV C

UAM8273-0-0 C

TW

REVISIONS		
CHG	CHANGE NO.	REV

TITLE		SIZE	DRAWING NUMBER	REV
U.B.A. ADDRESS AND INTERRUPT CONT		E	UA M8273 - 0 - 0	C
SCALE 2/1	SHEET 3 OF 4	DIST		

UA M8273-0-0 SH C

THESE DRAWINGS AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION, AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS OF MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1979

REWORK INSTRUCTIONS
ECO #3

ETCH CUTS 1-WIRE 2 AS SHOWN
J-1 BETWEEN E62-3 AND PIN CONNECTED TO IT.

WIRE ADDS 1-WIRE 1 AS SHOWN
J-2 FROM E29-(16) TO E56-(14)
J-3 FROM E29-(19) TO E56-(10)
J-4 FROM E56-(13) TO E54-(9)
J-5 FROM E56-(9) TO PIN LEFT OF E49 THAT CONNECTS TO E51-(2)

REVISIONS		
ONE	CHANGE NO.	MM

8	7	6	5	4	3	2	1							

TITLE UBA ADDRESS AND INTERRUPT CONT
SCALE 1:1 SHEET 4 OF 4
PROJECT E UAM8273-0-0
DWG. UAM8273-0-0-1
REV. C
DIST.

TW

AUTOMATED BY FRTLST.3L(32)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1		5013003-00	U.A.I.	1	
2	2		1000024-00	470.0 MMF 100V 5%200PPM MICA	1	C101
3	3		1000042-00	1000.0 MMF 100V 5%200PPM MICA	1	C102
4	4		1009964-00	.68 MFD 35V 10% S.TANT	1	C103
5	5		1012084-01	8 MFD 25V +75-10% AL EL	6	C1-C6
6	6		1012784-00	.047 MFD 50V +80-20% CER	44	C7-C50
7	7		1511686-00	DEC5433 FET N 350MW 10 25 1A	4	Q1-Q4
8	8	BLANK			0	
9	9		1100114-00	D 664 QS\75PCB PIV= 25V SP	1	D1
10	10		1300247-00	120.0 .25 W 5.0 % CC	2	R20,R22
11	11		1313349-00	33.0 K .25 W 5.0 % CC	1	R15
12	12		1300219-00	68.0 .25 W 5.0 % CC	1	R14
13	13		1300271-00	220.0 .25 W 5.0 % CC	5	R1,R3,R4,R18,R19
14	14		1300309-00	390.0 .25 W 5.0 % CC	1	R2
15	15		1300365-00	1.0 K .25 W 5.0 % CC	7	R5-R7,R9,R17,R24,R25
16	16	BLANK			0	
17	17		1301775-00	820.0 .25 W 5.0 % CC	1	R13
18	18		1302391-00	20.0 K .25 W 5.0 % CC	1	R16
19	19		1300295-00	330.0 .25 W 5.0 % CC	2	R21,R23
20	20		1312628-01	R NETWORK 14-176.5 11-375 16PIN	2	E56,E69
21	21		1610080-00	DELAY= 18NS,0TAPS	1	DL1
22	22		1612463-00	DELAY= 150NS,10TAPS	2	DL2,DL3
23	23		1910545-00	74S112 FF-JK DUAL,EDGE TRIG	1	E109
24	24		1909705-00	DEC 8881 NAND GATE-QUAD 2IN O	4	E55,E68,E82,E94
25	25		1912746-00	DEC 74S37 NAND GATE-QUAD 2IN	1	E30
26	26		1910532-00	74S00 NAND GATE-QUAD 2IN	3	E85,E118,E133
27	27		1910534-00	74S04 INVERTER GATE-HEX 1I	4	E49,E88,E111,E72
28	28		1910536-00	74S10 NAND GATE-TRIPLE 3IN	3	E100,E131,E59
29	29		1910537-00	74S11 AND GATE-TRIPLE 3INP	1	E6
30	30		1910549-00	74S158 MUX 1 OF 2 (QUAD)	1	E139

REVISION HISTORY			BASIC PART NO: M8273
ENG	ECO NUMBER	REV	SECTION A OF A
	INITIAL	C	SECTION.VARIATION INDEX
RC	M8273-TW004	D	[A] 00
RC	M8273-TW004	D	[B]
			[C]
			[D]
			[E]
			[F]
			[H]
			[J]
			[K]
			[L]
			[M]
			[N]

DRN: P.SANFILLIPO	DATE: 26-JUN-79		D	I	G	I	T	A	L			
CHK'D: L.GIAMMARINO	DATE: 26-JUN-79	TITLE: PARTS LIST										
		UBA ADDRESS & INTERRUPT CTRL										
DES.ENG: B.HALL	DATE: 26-JUN-79											
		DOCUMENT NUMBER										
RESP.ENG.: B.HALL	DATE: 26-JUN-79	SIZE	CODE	NUMBER							REV	
MFG.ENG.: M.TERRILA	DATE: 26-JUN-79	K	PL	M8273-0-DBP							D	
ASSEMBLY NUMBER:	TOP DOCUMENT NUMBER:	FILE NAME:									EDIT #	
D-UA-M8273-0-0	B-DD-M8273-0-0	Z0716D.PLS									13	

"THIS DRAWING AND SPECIFICATIONS HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT (C) 1980, DIGITAL EQUIPMENT CORPORATION "

TW

AUTOMATED BY PRTLST,3L(32) — P-A R T S L-I S T — SHEET A2 OF A2

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER		DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
31	31		1910544-00		74S74 FF-D DUAL,EDGE TRIGG	7	E45,E102,E107,E125,E32,E112,E96
32	32		1910956-00		74S151 MUX 1 OF 8	1	E140
33	33		1910957-00		74S175 FF-D QUAD COMMON CLO	6	E48,E92,E99,E119,E134,E124
34	34		1910436-00	DEC	74123 ONE SHOT-DUAL,RETRIG	1	E33
35	35		1911469-00	DEC	3640 RECEIVER,BUS,QUAD,U	4	E42,E54,E70,E95
36	36		1911579-00		8641 TRANSCEIVER,BUS,QUA	6	E66,E67,E79,E80,E81,E91
37	37		1911641-00	SN	74S257 MUX,QUAD 2 TO 1	5	E4,E18,E28,E40,E53
38	38		1911675-00		74S138 DECODER/DEMUX 3-8 LIN	2	E114,E117
39	39		1911676-00		74S139 DECODER-DUAL TWO-INP	1	E97
40	40		1912388-00		74S02 NOR GATE-QUAD 2IN,PO	3	E19,E105,E141
41	41		1912389-00		74S08 AND GATE-QUAD 2IN,PO	2	E5,E44
42	42		1912799-00		LS00 NAND-GATE-QUAD 2IN,P	5	E57,E74,E86,E120,E121
43	43		1912801-00		LS02 NOR-GATE-QUAD 2IN	3	E31,E89,E126
44	44		1912803-00		LS04 INVERTER GATE-HEX 1I	2	E24,E25
45	45		1912805-00		LS08 AND GATE-QUAD 2IN,PO	2	E84,E98
46	46		1912824-00		LS74 FF-D DUAL,EDGE TRIGG	6	E62,E83,E101,E108,E115,E136
47	47		1912849-00		LS161 COUNTER,SYNCHR,4BIT	2	E51,E52
48	48		1912810-00		LS20 NAND GATE-DUAL 4IN	1	E58
49	49		1912813-00		LS27 NOR GATE-TRIPLE 3IN	3	E73,E130,E137
50	50		1912815-00		LS30 NAND GATE-SINGLE 8IN	2	E7,E11
51	51		1912816-00		LS32 OR GATE-QUAD 2IN,POS	5	E8,E25,E90,E110,E123
52	52		1912821-00		LS54 A-O-I GATE,3-2-2-3IN	3	E37,E76,E77
53	53		1912807-00	***	THIS ITEM IS NOT USED ***	-	
54	54		1912828-00		LS85 COMPARATOR,4BIT MAGN	1	E60
55	55		1912834-00		LS112 FF-JK DUAL,EDGE TRIG	7	E9,E21,E22,E24,E38,E78,E103
56	56		1912697-00		LS174 FF-D HEX W/CLEAR	1	E34
57	57		1912848-00		LS158 MUX 1 OF 2 (QUAD)	1	E39
58	58		1912796-00		74148 EXCODER,PRIORITY,8 T	1	E122
59	59		1913294-00		93S16 COUNTER,SYNCH UP BIN	3	E113,E127,E128
60	60		1913670-00		74S373 LATCH 8BIT TRASP TR	6	E2,E16,E29,E104,E116,E129
61	61		1913671-00		74S374 FF-D OCTAL TRISTATE	7	E1,E3,E15-E17,E27,E93,E132
62	62		1913493-00		74S241 OCTAL BUFFER,TRI-STA	1	E41
63	63		1910550-00		74S174 FF-D HEX	2	E35,E63
64	64		1910542-00		74S64 A-O-I GATE 4-2-3-2	1	E64
65	65	BLANK				0	
66	66		1210711-02		HANDLE,MODULE,HEX	1	
67	67		9000024-01		EYELET, ROLLED FLANGE, .121 OD X	12	
68	68		9105740-55		WIRE(WRAP)30AWG UL1423	A/R	
69	69		9008864-00		TAPE, DOUBLE COATED, 3/8" WIDE X	A/R	

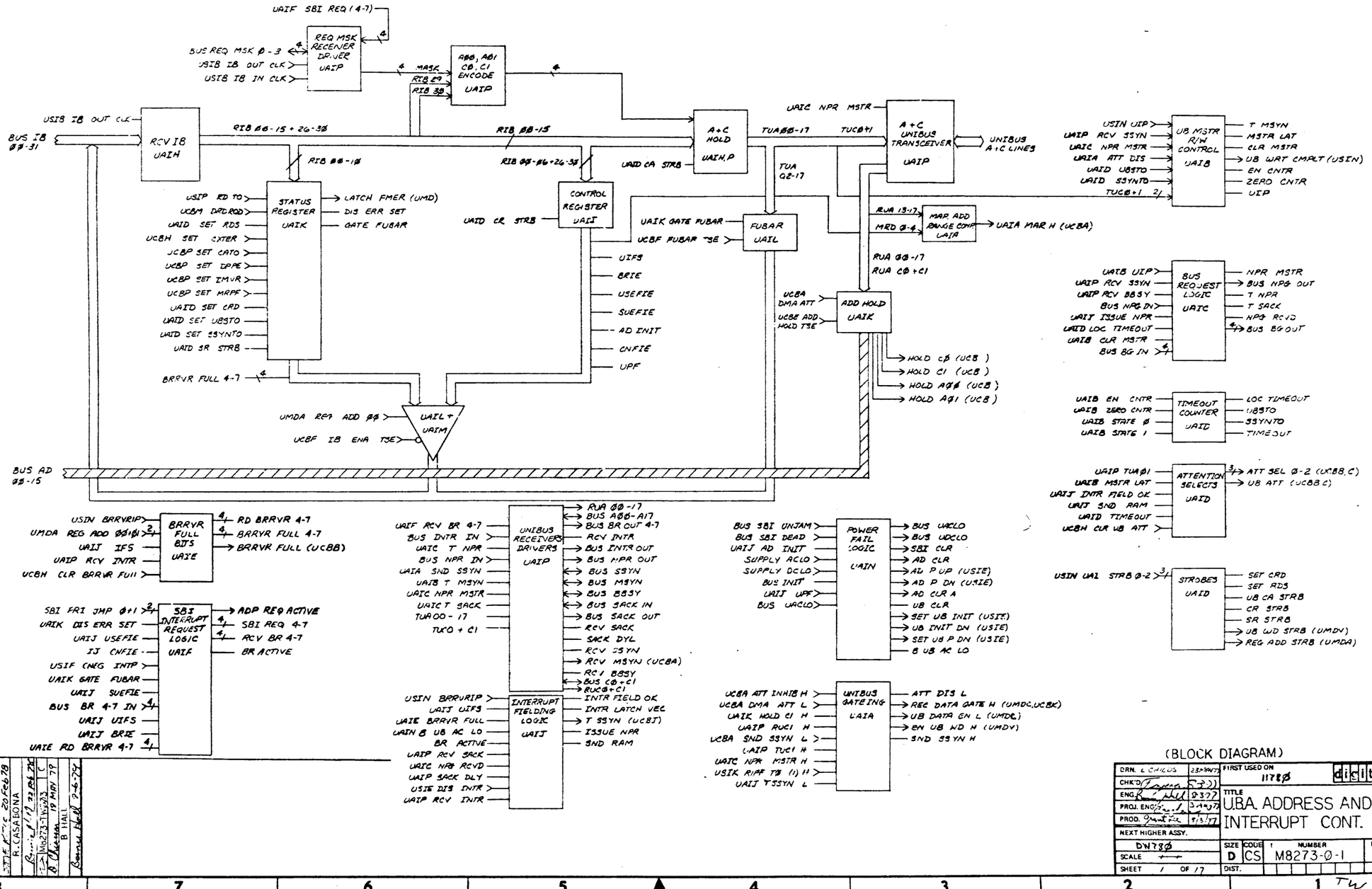
70 NOTE: I.C. SPARE LOCATIONS ARE: E10,E12,E13,E14,E20,E23,E26,E36,
71 NOTE: E43,E50,E61,E65,E87,E135,E138,E142,E106.

D	I	G	I	T	A	L	TITLE	SECTION	OF
							UBA ADDRESS & INTERRUPT CTRL	A	A

SIZE	CODE	DOCUMENT NUMBER	REV
K	PL	M8273-0-DBP	D

TW

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977, DIGITAL EQUIPMENT CORPORATION"



(BLOCK DIAGRAM)

REVISIONS			
CHN	CHANGE NO.	REV.	
232	M8273-00001	A	R.CASABONA 1 NOV 77
[illegible]	M8273-00002	B	Bonnie Hall 20 Feb 78
[illegible]	[illegible]	C	R. CASABONA 22 FEB 78
[illegible]	M8273-TW033	[illegible]	B. Nelson 19 MAY 78
			B HALL 9-6-78

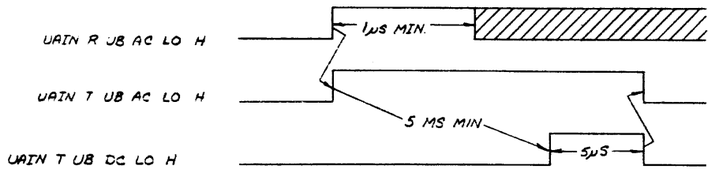
DRN. L CHICOS	23 JAN 77	FIRST USED ON 1178Ø
CHK'D Tanya	9377	digital A
ENG. R. Casabona	9377	TITLE UBA ADDRESS AND INTERRUPT CONT.
PROJ. ENG. [illegible]	2-14-77	
PROD. [illegible]	9/3/77	
NEXT HIGHER ASSY. DW78Ø		SIZE D CODE CS NUMBER M8273-Ø-1 REV. C
SCALE		
SHEET 1 OF 17		DIST.

M8273-Ø-1 REV C

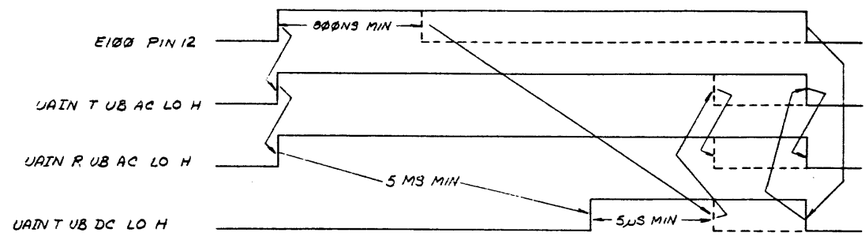
"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UNIBUS ACLO DCLO SEQUENCER

UNIBUS INITIATED

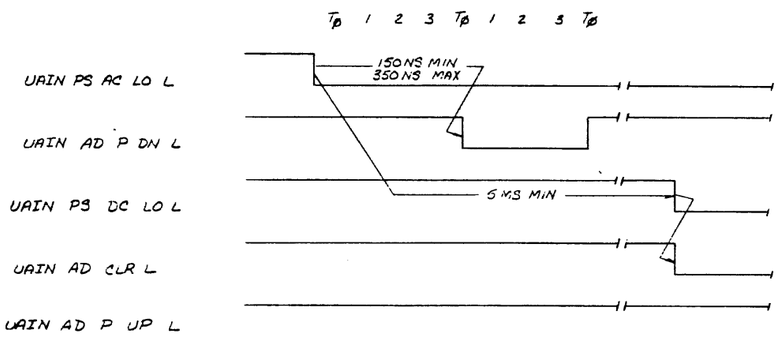


UBA INITIATED

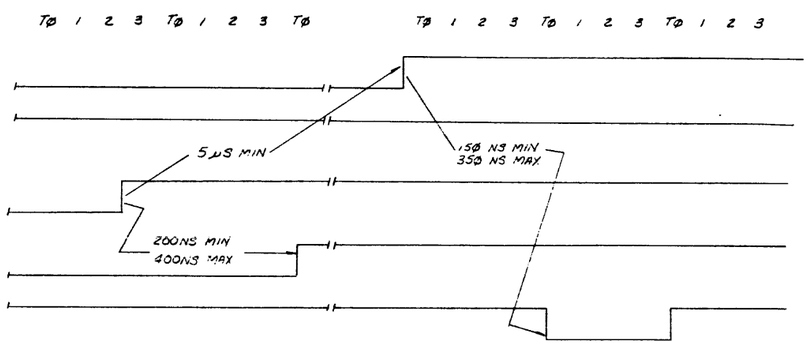


ADAPTER STATUS SEQUENCER

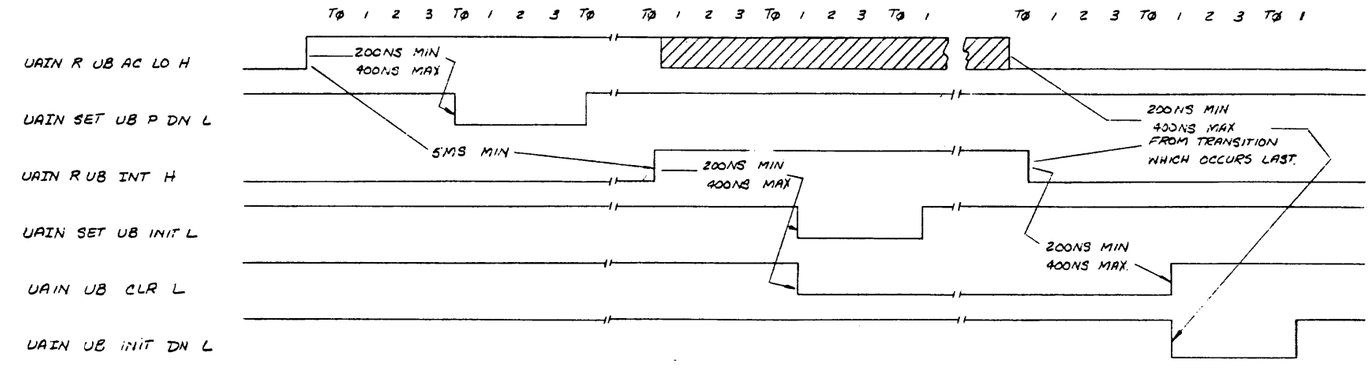
POWER DOWN



POWER UP



UNIBUS STATUS SEQUENCER



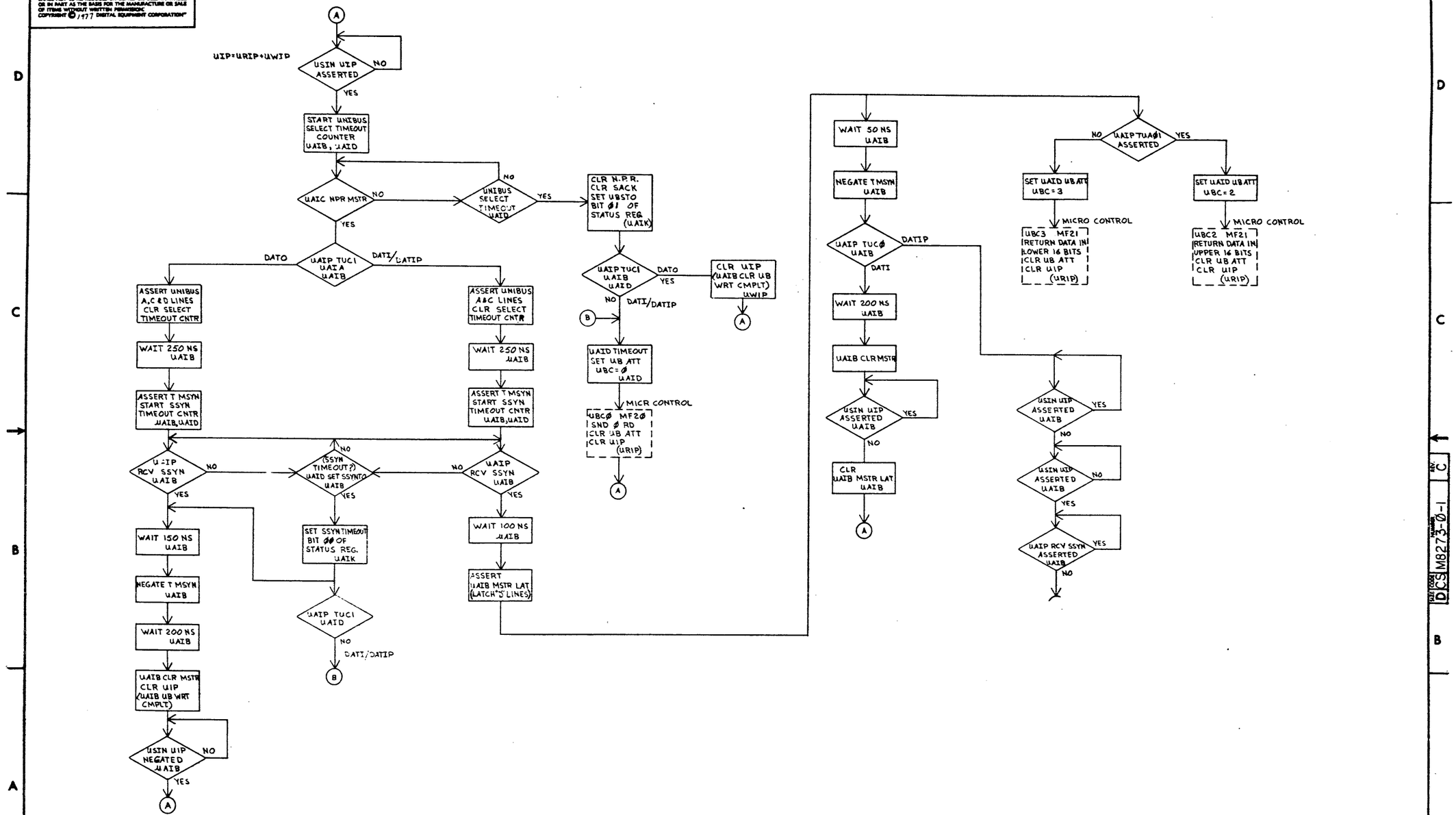
(POWER FAIL TIMING DIAGRAM)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV
U.B.A. ADDRESS AND INTERRUPT CONT.	D	CS	M8273-Ø-1	C
SCALE	SHEET 2 OF 17	DIST.		

M8273-Ø-1 REV C

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

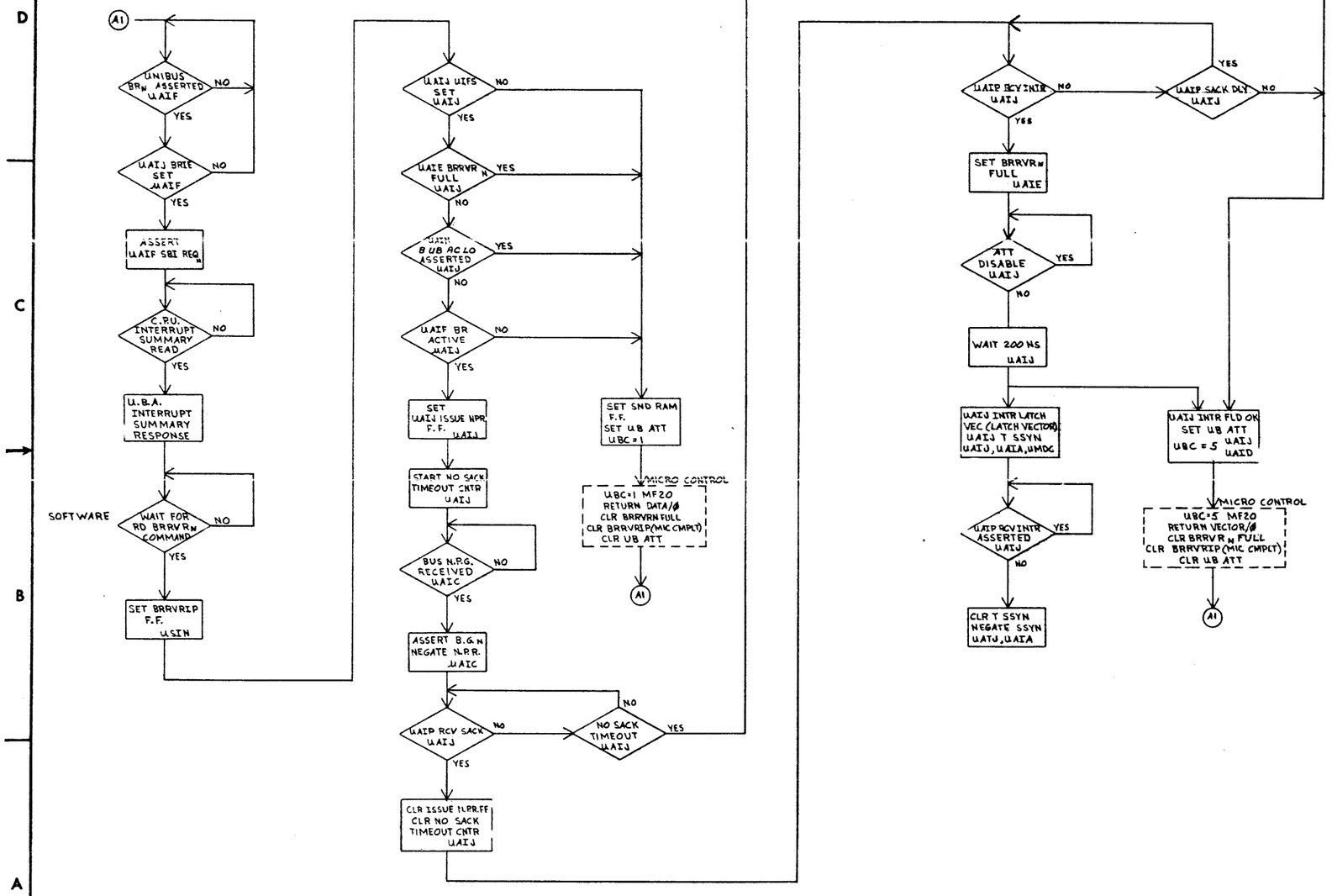


(UNIBUS BUS MASTER CONTROL FLOWS)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
U.B.A. ADDRESS AND INTERRUPT CONT.	D	CS	M8273-Ø-1	C
SCALE	SHEET 3 OF 17	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"



(UNIBUS INTERRUPT FIELDING FLOWS)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	U.B.A. ADDRESS AND INTERRUPT CONT.		
SIZE	CODE	NUMBER	REV.
D	CS	M8273-Ø-1	C
SCALE:		SHEET 4 OF 17	DIST.

DCS M8273-Ø-1 C

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UCBA ATT INHIB H — BJ2 — 74S04 E72 — UAIA ATT DIS L (UAIB, UAIJ)

UAIB MSTR LAT L
UAIJ INTR LATCH VEC L
→ 74S11 E6

UCBA DMA ATT L — EM1 — 74LS32 E11Ø
UAIK HOLD C1 H — 74S04 E72
→ 74S11 E6 — AP2 — UAIA REC DATA GATE H (UMDC, UCBK)

UAIP RUC1 H
UCBA SND SSYN L — ED1 — 74LS32 E11Ø

UAIP TUC1 H
UAIC NPR MSTR H — 74S20 E85
→ 74S08 E5 — AC1 — UAIA UB DATA EN L (UMDC, UCBK)

→ 74S02 E19 — AD1 — UAIA EN UB WD H (UMDV)

USIK RIFF TO H — ER2
74S74 E112
USIS T2 UAI L — FB2
UCBA ATT INHIB H — BJ2
→ 74LS32 E11Ø
→ 74LS27 E12Ø — UAIA SND SSYN H (UAIP)

UAIJ TSSYN L

UAIP RUA 17 H
UAIP RUA 16 H
UAIP RUA 15 H — 74S10 E59

UAIP RUA 14 H
UAIP RUA 13 H — 74LS00 E121
→ 74LS02 E126

UAIN UB CLR H — 74S04 E72 → 74LS32 E11Ø

COMPARATOR 74LS85 E60

UAIJ MRD 4 H
UAIP RUA 17 H
UAIJ MRD 3 H
UAIP RUA 16 H
UAIJ MRD 2 H
UAIP RUA 15 H
UAIJ MRD 1 H
UAIP RUA 14 H
UAIC VC H
UAIP RUA 13 H
UAIJ MRD Ø H — 74S04 E72

A>B, A=B, A<B → 74LS27 E73 — CF2 — UAIA MAR H (UCBA)

AA2, GV1, BA2, BV1
CA2, CV1, DA2, DV1
EA2, EV1, FA2, FV1
+5V
C7-C50 .047μF
+C1-C6 8μF
GND
AC2, AN2, AT1
BC2, BN2, BT1
CC2, CN2, CT1
DC2, DN2, DT1
EC2, EN2, ET1
FC2, FN2, FT1

(MAP ADDRESS RANGE, UNIBUS GATEING) (SLOT 4)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UBA ADDRESS AND INTERRUPT CONT. (UAIA)	D	CS	M8273-Ø-1	C
SCALE	SHEET 5 OF 17	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

USIN UIP L
CN2
74S04 E111
UAIB UIP H (UAIB, UAIC)
UAIP TUCI H
74LS27 E137
74LS02 E126
74S02 E105
UAIC VD H
UAIC NPR MSTR H
UAIC VB H
UAIB MSTR LAT H (UAID)
UAIB TØ L
74S112 E109
UAIB MSTR LAT L (UAIA, UAID)
74S74 E125
USIS TØ UAI H
EV2
UAIA ATT DIS L
UAID SET SSYNTO H
UAIP RCV SSYN H
74LS02 E126
UAID TZ H
UAIN UB CLR L
74S02 E141
74S32 E141
UAIB ZERO CNTR L (UAID)
UAIB STATE Ø L (UAID)
UAIB STATE1 H (UAID)
74S158 E139
74S151 E140
93S16 E113
74S138 E114
74S175 E124
74S04 E111
74S00 E121
74LS32 E123
74LS00 E120
UAIB CLR MSTR H (UAIC)
UAIB T MSYN H (UAIB, P)
UAIB CLR MSTR H (UAIC)
UAID SET USSTO H
UAIP TUCI H
UAIN UB CLR L
EL2
UAIB UB WRT CMPLT H (USIN)
UAIB UIP H
UAIB EN CNTR H (UAID)
UAIC VB H
UAIP TUCØ H
UAIB T MSYN H
74LS74 E108
UAIB TØ L (UAIB)

74S158 74LS158 2:1 MUX		
STRB	SØ	OUTPUT
H	X	H
L	L	A→F
L	H	B→F

FUNCTION	TUCI H	TUCØ H
DAT I	Ø	Ø
DAT IP	Ø	1
DAT O	1	Ø

74S151 8:1 MUX				
STRB	S2	S1	SØ	OUTPUT FB
H	X	X	X	H
L	L	L	L	D0 → FB
L	L	L	H	D1 → FB
L	L	H	L	D2 → FB
L	L	H	H	D3 → FB
L	H	L	L	D4 → FB
L	H	L	H	D5 → FB
L	H	H	L	D6 → FB
L	H	H	H	D7 → FB

DATO

STATE	OUTPUTS OF 9138	INPUTS TO 9151 + 9158
Ø	FUNCTION	TEST
1	ASSERT T MSYN	REC SSYN OR SET SSYNTO
2	NEGATE T MSYN	TRUE
3	UB WT CMPLT CLR MSTR	UIP
4		
5		
6		
7		

DATI

STATE	OUTPUTS OF 9138	INPUTS TO 9151 + 9158
Ø	FUNCTION	TEST
1	ASSERT T MSYN	REC SSYN OR SET SSYNTO*
2		
3		
4		
5	ASSERT MSTR LAT NEG T MSYN	TRUE
6	CLR MSTR	UIP
7	NEGATE MSTR LAT	TRUE

DATIP

STATE	OUTPUTS OF 9138	INPUTS TO 9151 + 9158
Ø	FUNCTION	TEST
1	ASSERT T MSYN	REC SSYN OR SSYNTO*
2		
3		
4		
5	ASSERT MSTR LAT NEG T MSYN	UIP
6	NEGATE MSTR LAT	UIP
7		SSYN

* IF SSYNTO (SSYN TIMEOUT) OCCURS DURING A DATI OR DATIP, THE SEQUENCE WILL FOLLOW THAT OF A DATO

REVISIONS		
CHK	CHANGE NO.	

(UNIBUS MASTER R/W CONTROL) (SLOT 4)

TITLE U.B.A. ADDRESS AND INTERRUPT CONT. (UAIB)
SIZE D CODE CS NUMBER M8273-Ø-1 REV C
SCALE SHEET 2 OF 17 DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UAIC NPG RCVD H (UAIJ)

UAIJ ISSUE NPR H

UAIC VE H

UAIC VA H

UAIC VB H

UAID LOC TIMEOUT L

UAIB CLR MSTR H

UAIB UIP H

UAIN UB CLR L

UAIC VA H

UAIC VB H

CU2

BUS NPG OUT H

BUS NPG IN H

CU1

+5V

R1 220Ω

DL1 180NS

R2 39Ω

30NS

DL2

R3 220

R4 220Ω

UAIC T NPR H (UAIP)

90NS

UAIC VA H

UAIC T SACK H (UAIP)

UAIC NPR MSTR H (UAIA, UAIB, UAIP)

UAIC NPR MSTR L (UAIP)

UAIE RD BRRVR 7 H

BUS BG7 IN H

CK2

CV2

BUS BG7 OUT H

UAIE RD BRRVR 6 H

BUS BG6 IN H

DH1

DB1

BUS BG6 OUT H

UAIE RD BRRVR 5 H

BUS BG5 IN H

DB2

DC1

BUS BG5 OUT H

UAIE RD BRRVR 4 H

BUS BG4 IN H

DF1

DF2

BUS BG4 OUT H

UAIN UB CLR L

UAID LOC TIMEOUT L

UAIP RCV BBSY H

UAIP RCV SSYN H

UAIB CLR MSTR H

R20 120Ω — UAIC VC H

R21 330Ω

R22 120Ω — UAIC VD H

R23 330Ω

E56

UAIC VA H
UAIC VB H
BUS BG7 OUT H
BUS BG6 OUT H
BUS BG5 OUT H
BUS BG7 IN H
BUS BG6 IN H

CE2 BUS NPR OUT L
CS1 BUS NPR IN L
CV2 BUS SACK OUT L
CR1 BUS SACK IN L
CB1 BUS INTR OUT L
CB2 BUS INTR IN L
DE1 BUS BR4 OUT L

E69

UAIC VE H
BUS NPG IN H
BUS NPG OUT H
BUS BG4 OUT H
BUS BG5 IN H
BUS BG4 IN H

DD1 BUS BR5 OUT L
CM1 BUS BR6 OUT L
CS2 BUS BR7 OUT L
CI2 BUS BR7 IN L
CM BUS BR6 IN L
DD2 BUS BR5 IN L
DE2 BUS BR4 IN L

(BUS REQUEST LOGIC)

(SLOT 4)

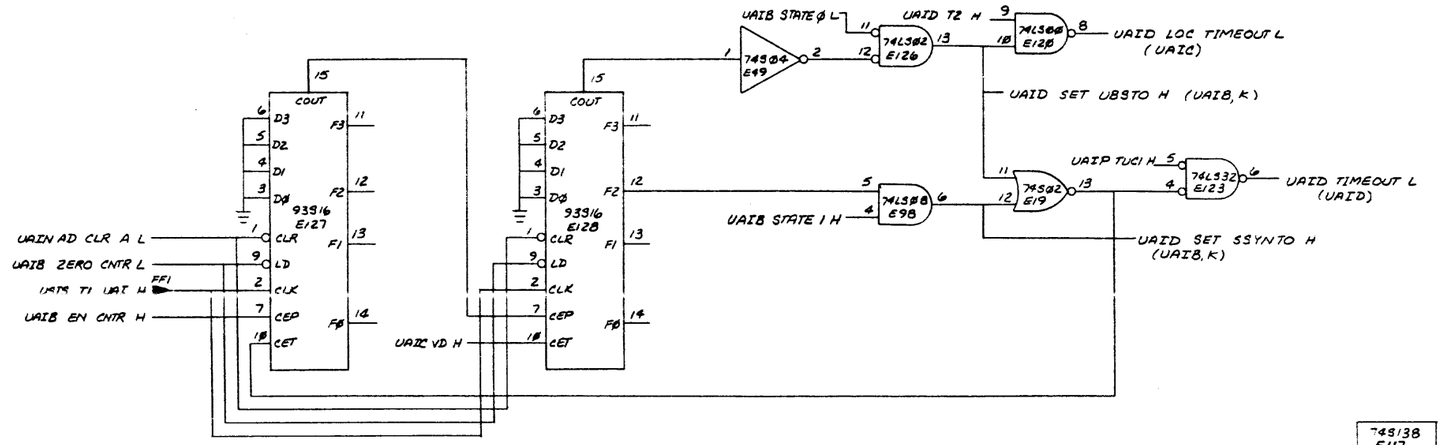
REVISIONS

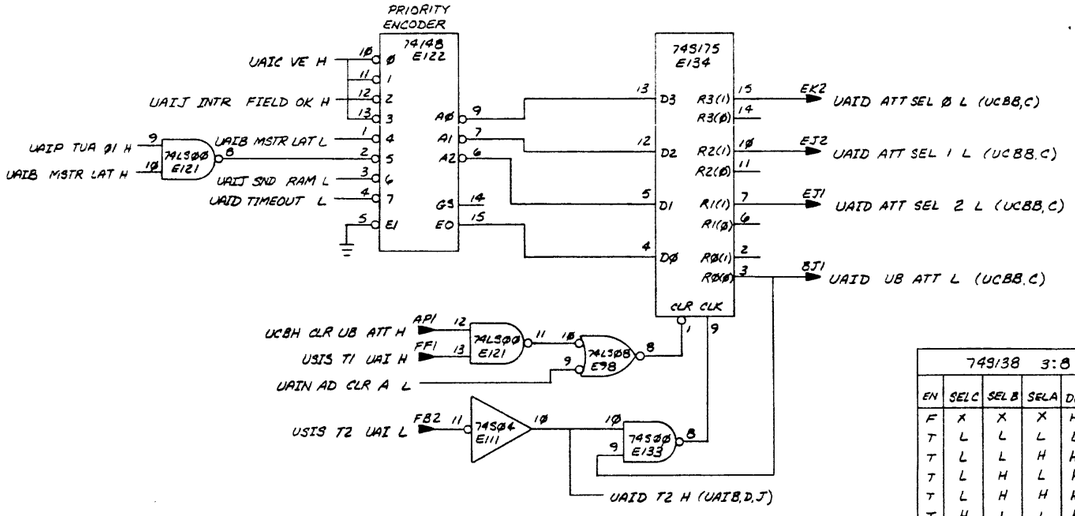
CHK	CHANGE NO.	REV.

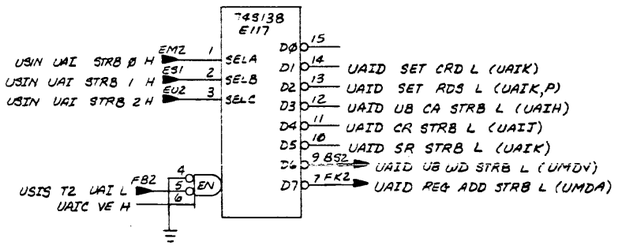
TITLE	U.B.A. ADDRESS AND INTERRUPT CONT (UAIC)		
SIZE	CODE	NUMBER	REV.
D	DCS	M8273-0-1	C
SCALE	SHEET 7 OF 17	DIST.	

MATERIAL CODE DCS MB273-01 REV C

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"







749138 3:8 LINE DECODER

EN	SELC	SELB	SELA	OUTPUTS D0	D1	D2	D3	D4	D5	D6	D7
F	X	X	X	H	H	H	H	H	H	H	H
T	L	L	L	L	H	H	H	H	H	H	H
T	L	L	H	H	L	H	H	H	H	H	H
T	L	H	L	H	H	L	H	H	H	H	H
T	L	H	H	H	H	H	L	H	H	H	H
T	H	L	L	H	H	H	H	L	H	H	H
T	H	L	H	H	H	H	H	H	L	H	H
T	H	H	L	H	H	H	H	H	H	L	H
T	H	H	H	H	H	H	H	H	H	H	L

74:48 PRIORITY ENCODER

EI	INPUTS 2	4	5	6	7	OUTPUTS A2	A1	A0	GS	EO
H	X	X	X	X	X	H	H	H	H	H
L	H	H	H	H	H	H	H	H	H	L
L	X	X	X	X	L	L	L	L	L	H
L	X	X	X	L	H	L	L	H	L	H
L	X	X	L	H	H	L	H	L	L	H
L	X	L	H	H	H	L	H	H	L	H
L	L	H	H	H	H	H	L	H	L	H

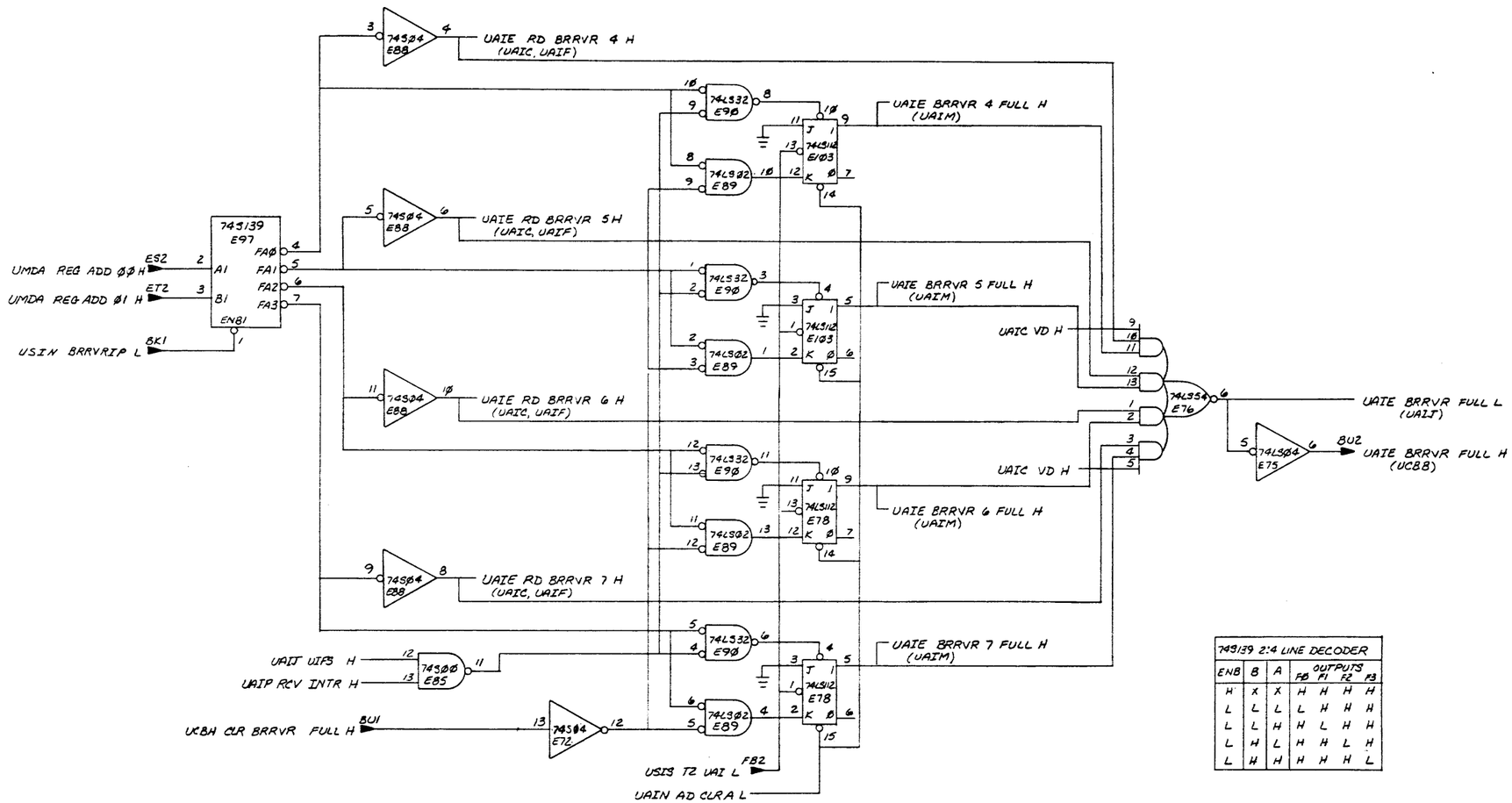
(UNIBUS TIMEOUTS, ATTENTION SELECT) (SLOT 4)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
U.B.A. ADDRESS AND INTERRUPT CONT. (UAID)	D	CS	M8273-Ø-1	C.
SCALE	SHEET 8 OF 17	DIST.		

M8273-Ø-1 C

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"



74S139 2:4 LINE DECODER						
ENB	B	A	OUTPUTS FØ	F1	F2	F3
H	X	X	H	H	H	H
L	L	L	L	H	H	H
L	L	H	H	L	H	H
L	H	L	H	H	L	H
L	H	H	H	H	H	L

(BRRVR FULL BITS) (SLOT 4)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
U.B.A. ADDRESS AND INTERRUPT CONT (UAIE)	D	CS	M8273-Ø-1	C
SCALE —	SHEET 9 OF 17	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

UAIC VD H
UAIP RCV SACK H
UAIC NPR RCVD H
74LS11 E6
74LS174 E101
UAIJ UIFS H
UAIE BRRVR FULL L
UAIN B UB AC LO H
UAIF B R ACTIVE L
74LS00 E85
74LS27 E73
UAIC VD H
UAIJ ISSUE NPR H (UAIC,J)
USIN BRRVRIP L
USIB T0 UAI H
UAIC VD H
74LS74 E101
74S03 E44
UAIN UB CLR L
74LS74 E102
UAIJ SND RAM L (UAID)
74LS04 E71
UAIP SACK DLY H
74LS00 E57
USIE DIS INTR L
UAIP RCV INTR H
74LS20 E58
UAIJ NO SACK TO L
74LS74 E83
74LS74 E83
UAIC VE H
74LS74 E107
74LS08 E98
UAIC VE H
74LS112 E109
UAIC VB H
74LS74 E107
UAID T2 H
UAIC VE H
74LS08 E5
UAIJ INTR FLD OK L (UAID)
UAIJ INTR LATCH VEC L (UAIA)
USIN BRRVRIP L
UAIN UB CLR H
74S02 E105
USIB T2 UAI L
UAIA ATT DIS L
UAIC VE H
74LS74 E108
BH2
UAIJ T SSYN L (UAIA, UC8J)
74LS08 E98
UAIN UB CLR L

74S174 E35
UAIH RIB Ø6 H
UAIH RIB Ø5 H
UAIH RIB Ø4 H
UAIH RIB Ø3 H
UAIH RIB Ø1 H
UAIH RIB ØØ H
D0 R0(1)
D1 R1(1)
D2 R2(1)
D3 R3(1)
D4 R4(1)
D5 R5(1)
CLK CLR
74S04 E88
UAIJ UIFS L (UAIP)
UAIJ UIFS H (UAIE,F,J,L)
UAIJ BRIE H (UAIF,L)
UAIJ USEFIE H (UAIF,L)
UAIJ SUEFIE H (UAIF,L)
UAIJ AD INIT H (UAIL,N)
UAIN SBI CLR L
74S04 E49
UAIJ UPF L (UAIN)
UAIJ UPF H(UAIL,N)
UAIN PS DC LO L
UAIH RIB Ø2 H
74S74 E112
UAIJ CNFIE H (UAIF,L)
UAIN B UNJAM L

74LS174 E34
UAIH RIB 3Ø H
UAIH RIB 29 H
UAIH RIB 28 H
UAIH RIB 27 H
UAIH RIB 26 H
UAIJ MRD 4 H (UAIA,M)
UAIJ MRD 3 H (UAIA,M)
UAIJ MRD 2 H (UAIA,M)
UAIJ MRD 1 H (UAIA,M)
UAIJ MRD Ø H (UAIA,M)
UAIN AD CLR A L
UAID CR STRB L
74S04 E49

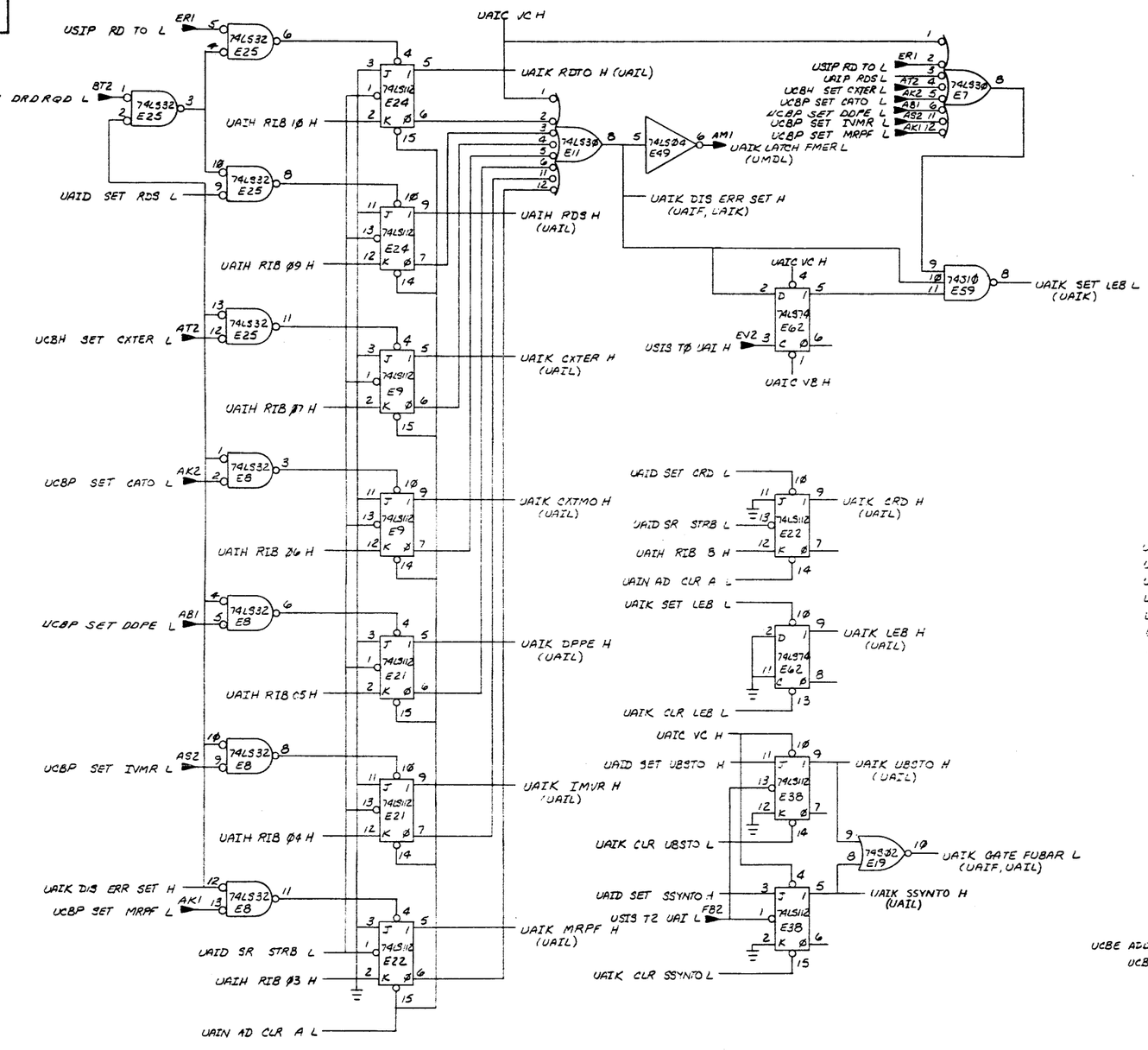
74LS161 E51
UAIJ ISSUE NPR H
UAIH HALF T0
UAIC VC H
COUT
74LS161 E52
74LS04 E71
UAIJ NO SACK TO L (UAIJ)

(SBI CONTROL REG & INTERRUPT FIELDING LOGIC) (SLOT 4)

REVISIONS		
CHK	CHANGE NO.	REV.

TITLE U.B.A. ADDRESS AND INTERRUPT CONT. (UAIJ)
SIZE D | CODE CS | NUMBER M8273-Ø-1 | REV C
SCALE | SHEET 12 OF 17 | DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"



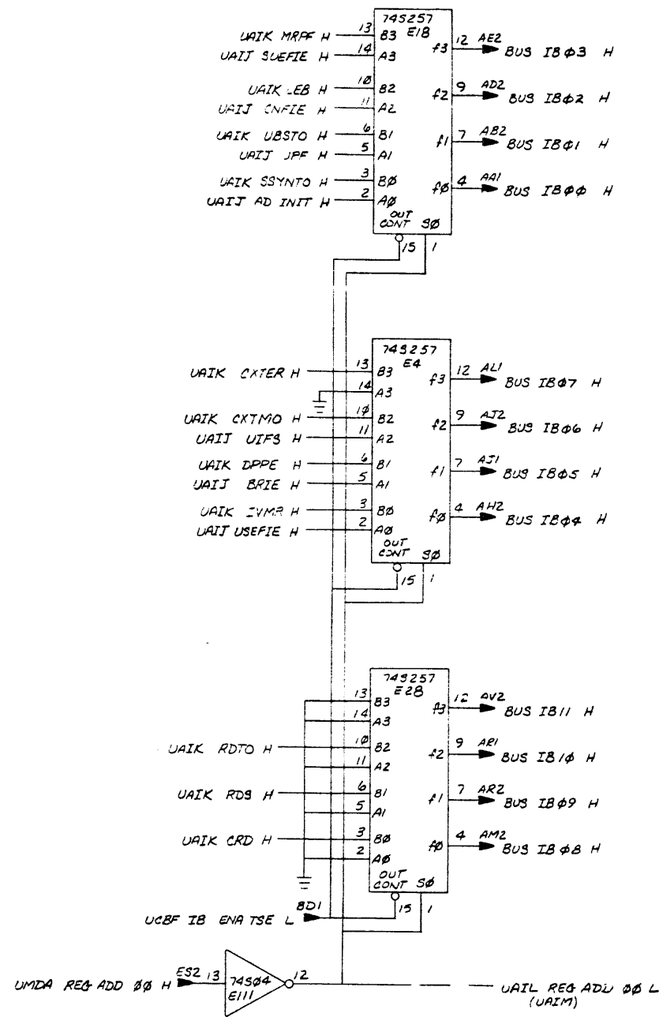
REVISIONS		
CHK	CHANGE NO.	REV.

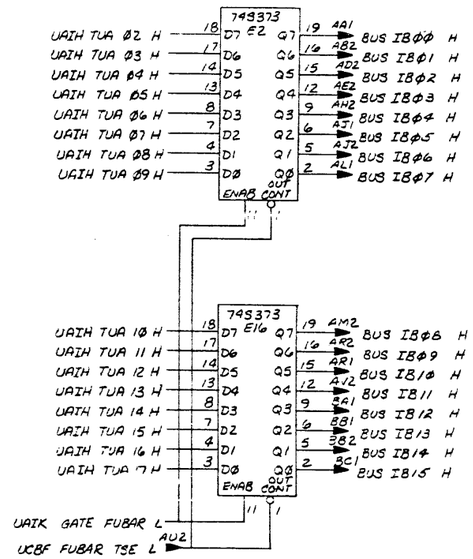
(UNIBUS ADDRESS HOLD & SBI STATUS REG) (SLOT 4)

TITLE	SIZE	CODE	NUMBER	REV.
U.B.A. ADDRESS AND INTERRUPT CONT (UAIK)	D	CS	M8273-0-1	C

SCALE — SHEET 13 OF 17 DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"





745257 2:1 MUX		
STRB	SØ	OUTPUT
H	X	Z
L	L	A → F
L	H	B → F

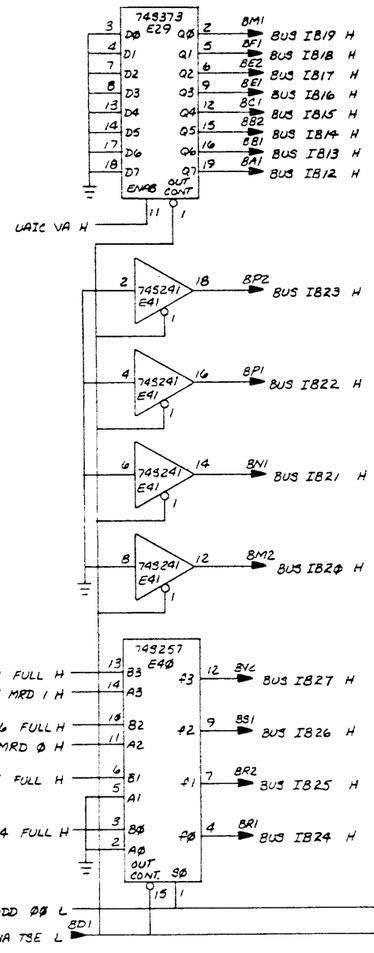
REVISIONS

CHK	CHANGE NO.	REV.

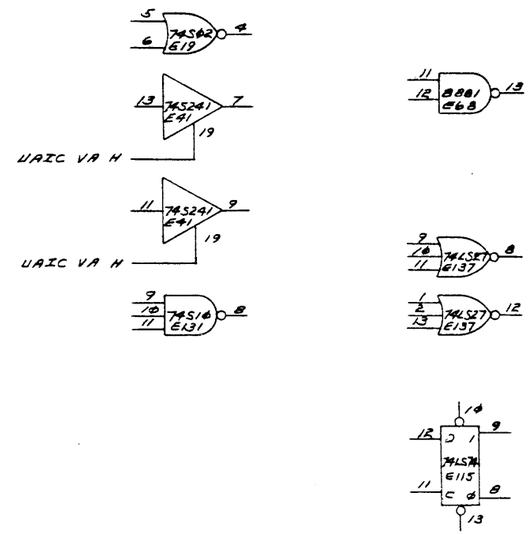
(INT. BUS OUTPUT MUX ØØ-11 & FAILED UNIBUS ADDRESS REG(FUBAR)) (SLOT 4)

TITLE	SIZE	CODE	NUMBER	REV.
U.B.A. ADDRESS AND INTERRUPT CONT. (UAIL)	D	CS	M8273-Ø-1	C
SCALE →	SHEET 14 OF 17	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"



SPARE GATES

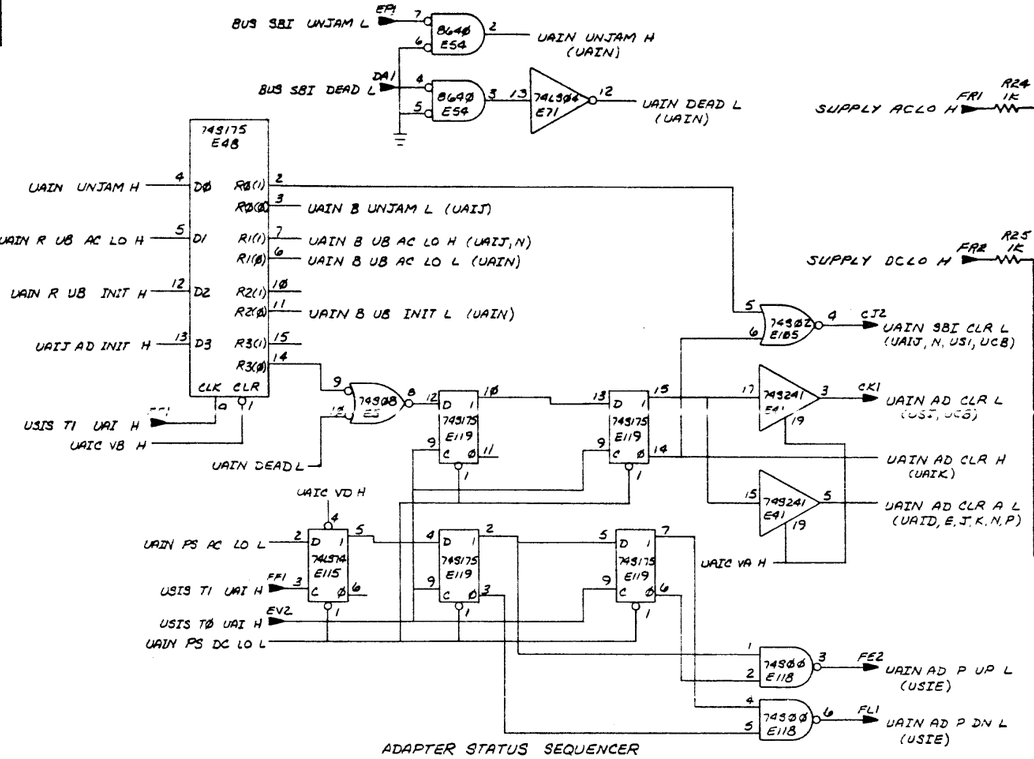


REVISIONS		
CHK	CHANGE NO.	REV.

(INT BUS OUTPUT MUX 12-31) (SLOT 4)

TITLE	SIZE	CODE	NUMBER	REV.
U.B.A. ADDRESS AND INTERRUPT CONT. (UAIM)	D	CS	M8273-01	G
SCALE	SHEET 15 OF 17	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"



REVISIONS		
CHK	CHANGE NO.	REV.

(UBA POWER FAIL LOGIC) (SLOT 4)

TITLE	SIZE	CODE	NUMBER	REV.
UBA, ADDRESS AND INTERRUPT CONT. (UAIN)	D	CS	M8273-Ø-1	C
SCALE	SHEET 16 OF 17		DIST.	

M8273-Ø-1 C
DCS M8273Ø-1

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 "DIGITAL EQUIPMENT CORPORATION"

UAIH RIB 30 H
UAIH RIB 29 H
74S02 E105
74LS27 E130
74LS27 E130
74LS27 E130
74S04 E49
74S00 E133
74S10 E131
74S10 E131
74S00 E133
74S00 E133

74S374 E132
D7 D6 D5 D4 D3 D2 D1 D0 — F7 F6 F5 F4 F3 F2 F1 F0 — CLK ENAB
UAIP TUC0 H (UAI8)
UAIP TUC1 H (UAIA,B,D)
AE1 UAIP TUA 01 H (UAID, UMDV)
UAIH UB CA STRB H

74S175 E92
CLR CLK
BUS REQ MSK 0 H — CE1 — D0 — R0(1) R0(0)
BUS REQ MSK 1 H — CF1 — D1 — R1(1) R1(0)
BUS REQ MSK 2 H — FS1 — D2 — R2(1) R2(0)
BUS REQ MSK 3 H — FV2 — D3 — R3(1) R3(0)
UAIN AD CLR A L
USIB IB OUT CLK H — AF2

BUS INTR IN L — CB2 — 8640 E42 — UAIP RCV INTR H (UAIE1)
UAIJ UIFS L — 8881 E55 — CB1 — BUS INTR OUT L

UAIF RCV BR 7 H — 8881 E82 — CS2 — BUS BR 7 OUT L
UAIJ UIFS L
UAIF RCV BR 6 H — 8881 E82 — CM1 — BUS BR 6 OUT L
UAIF RCV BR 5 H — 8881 E82 — DD1 — BUS BR 5 OUT L
UAIF RCV BR 4 H — 8881 E82 — DE1 — BUS BR 4 OUT L

74S374 E93
UAIF SBI REQ 7 H — F7 — BUS REQ MSK 3 H
UAIF SBI REQ 6 H — F6 — FS1 — BUS REQ MSK 2 H
UAIF SBI REQ 5 H — F5 — CF1 — BUS REQ MSK 1 H
UAIF SBI REQ 4 H — F4 — CE1 — BUS REQ MSK 0 H
UAID SET RDS L — F3 — UAIF RDS L (UAIK)
R17 1K +5V
F2 F1 F0 — CLK ENAB — FB2 BL1
USIS TZ UAI L
USIB IB IN CLK H

BUS NPR IN L — CS1 — 8640 E54 — UAIC NA H — 8881 E55 — CR2 — BUS NPR OUT L
UAIC T NPR H
UAIC NA H

8641 E91
EA1 BUS UC0 L
UAIP RUC 0 H (UAIK)
DU2 BUS UC1 L
UAIP RUC 1 H (UAIA,UAIK)
DJ1 BUS UA00 L
UAIP RUA 00 H (UAIK)
DH2 BUS UA01 L
UAIP RUA 01 H (UAIK)

8641 E66
DK1 BUS UA02 L
UAIH TUA 02 H — UAIP RUA 02 H (UAIK)
DJ2 BUS UA03 L
UAIH TUA 03 H — UAIP RUA 03 H (UAIK)
DL1 BUS UA04 L
UAIH TUA 04 H — UAIP RUA 04 H (UAIK)
DK2 BUS UA05 L
UAIH TUA 05 H — UAIP RUA 05 H (UAIK)

8641 E67
DM1 BUS UA06 L
UAIH TUA 06 H — UAIP RUA 06 H (UAIK)
DL2 BUS UA07 L
UAIH TUA 07 H — UAIP RUA 07 H (UAIK)
DN1 BUS UA08 L
UAIH TUA 08 H — UAIP RUA 08 H (UAIK)
DM2 BUS UA09 L
UAIH TUA 09 H — UAIP RUA 09 H (UAIK)

8641 E79
DV2 BUS SSYN L
UAIA SND SSYN H — UAIP RCV SSYN H (UAIB,C)
EB1 BUS MSYN L
UAIB T MSYN H — ED2 — UAIP REC MSYN H (UC8A)
AP1 BUS BBSY L
UAIC NPR MSTR H — UAIP RCV BBSY H (UAIC)
CR1 BUS SACK IN L
UAIC T SACK H — UAIP RCV SACK H (UAIJ)

74S37 E30 — DL3 — 74LS24 E71 — 74LS24 E71 — 8881 E55 — CP2 — BUS SACK OUT L
+5V R18 220
75NS 150NS
R19 220
UAIP SACK DLY H (UAIJ)

8641 E81
DS2 BUS UA14 L
UAIH TUA 14 H — UAIP RUA 14 H (UAIA,K)
DS1 BUS UA15 L
UAIH TUA 15 H — UAIP RUA 15 H (UAIA,K)
DU1 BUS UA16 L
UAIH TUA 16 H — UAIP RUA 16 H (UAIA,K)
DT2 BUS UA17 L
UAIP TUA 17 H — UAIP RUA 17 H (UAIA,K)

8641 E80
DP2 BUS UA10 L
UAIH TUA 10 H — UAIP RUA 10 H (UAIK)
DP1 BUS UA11 L
UAIH TUA 11 H — UAIP RUA 11 H (UAIK)
DR2 BUS UA12 L
UAIH TUA 12 H — UAIP RUA 12 H (UAIK)
DR1 BUS UA13 L
UAIH TUA 13 H — UAIP RUA 13 H (UAIA,K)
UAIC NPR MSTR L

REVISIONS		
CHK	CHANGE NO.	REV.

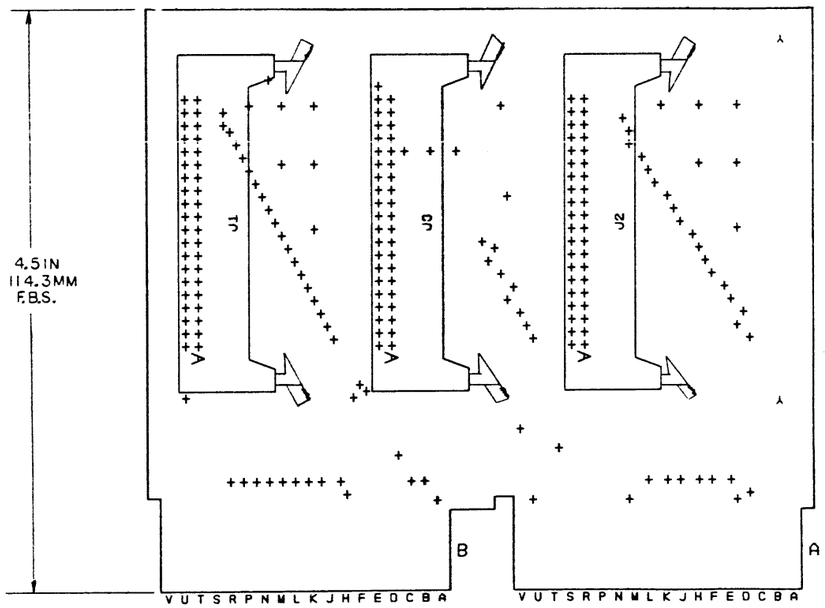
(A00, 01 & C0,1 ENCODE & UNIBUS TRANSCEIVERS) (SLOT 4)

TITLE U.B.A. ADDRESS AND INTERRUPT CONT. (UAIP)
SIZE D | CODE CS | NUMBER M8273-0-1 | REV C
SCALE — | SHEET 17 OF 17 | DIST.

TW

THIS DRAWING AND SPECIFICATIONS, HEREON, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © DIGITAL EQUIPMENT CORPORATION

COMPONENT SIDE VIEW



NOTES:

CHK	CHANGE NO	REV

ETCH REV.	B
P.C. DESIGN DATA BASE REV.	B

SIGNATURES	DATE
DRN.	
CHK'D.	6-17-77
ENG.	6-17-77
PROJ.ENG.	6-17-77
PROD.	7-5-77
SCALE 2/1	
SHT. 1 OF 3	
NEXT HIGHER ASSY. B-DD-M9042-0	

digital

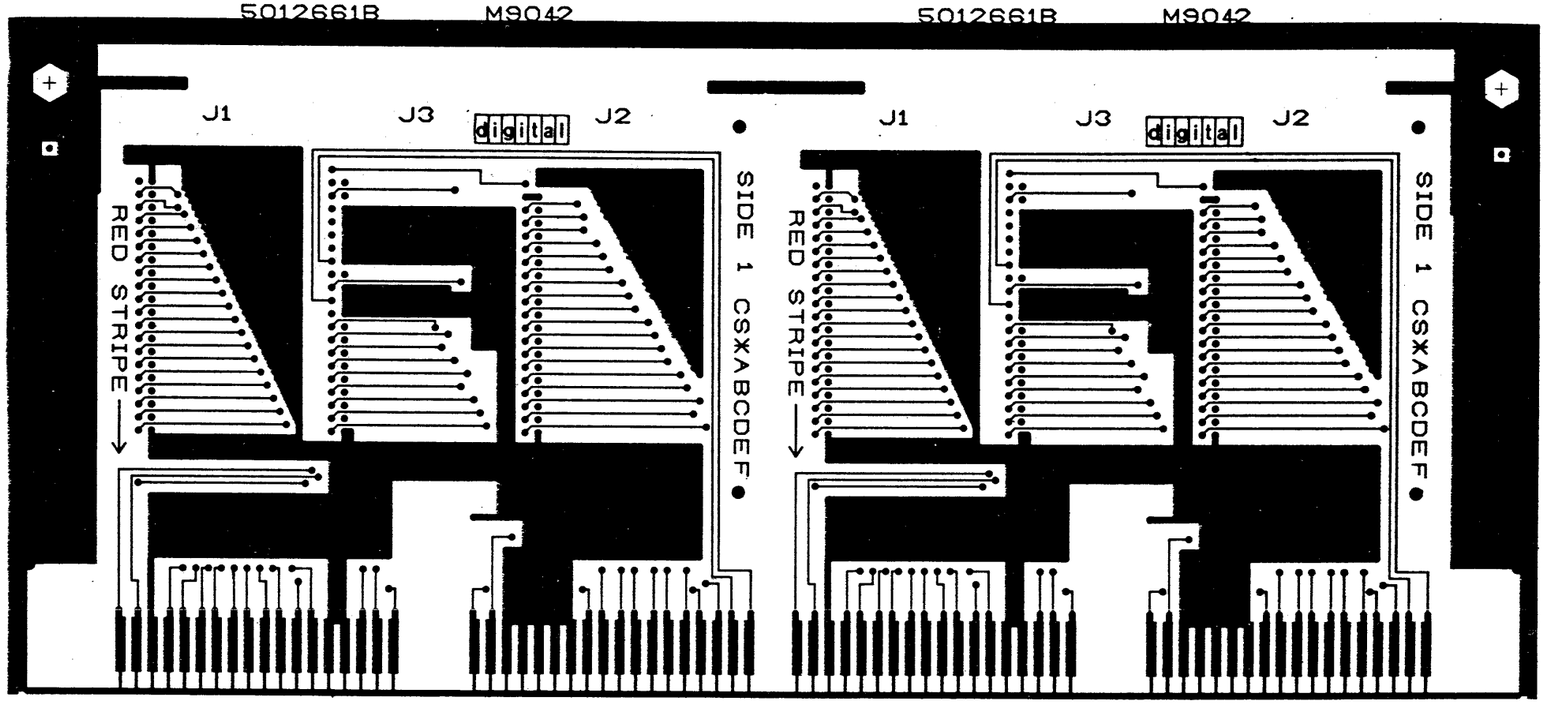
TITLE UNIBUS
PADDLE CARD

SIZE	CODE	NUMBER	REV
D	UA	M9042-0-0	A

MS# 104885

D UA M9042-0-0 A

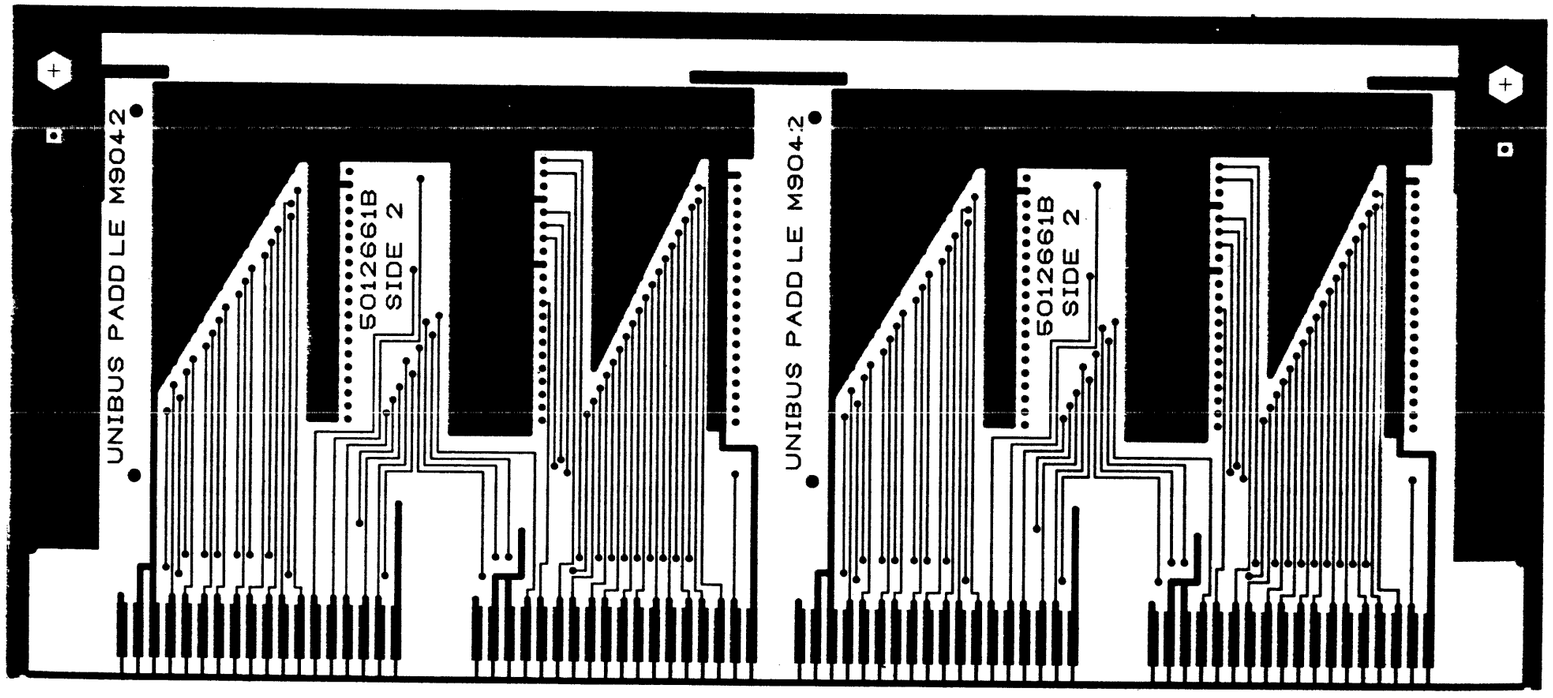
"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © [YEAR] DIGITAL EQUIPMENT CORPORATION"



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS PADDLE CARD	D	UA	M9042-0-0	A
SCALE 2-1 SHEET 2 OF 3	DIST.			

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © DIGITAL EQUIPMENT CORPORATION"



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS PADDLE CARD	D	UA	M9042-0-0	A
SCALE 2-1 SHEET 3 OF 3	DIST.			

M9042-0-0 A
SIZE D CODE UA NUMBER M9042-0-0 REV. A

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY D.J. SIREEN DATE 22 NOV 76	CHECKED G. GIDDINGS DATE 27 DEC 76	SECTION
ENG B. FLAHIVE DATE R. Hall	PROD Mike Tuella DATE 7-5-77	ISSUED SECTION

NOTES:

ETCH REV. B

C S REV. A

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION M9042-0-0	REF DESIGNATION
1	D-MD-5012661-0-0	5012661	ETCHED BOARD	1	
2		1209941-02	CONNECTOR 40 PIN	3	J1,J2,J3
3		12 09941-03	LATCH - LEFT	3	
4		12-09941-04	LATCH RIGHT	3	

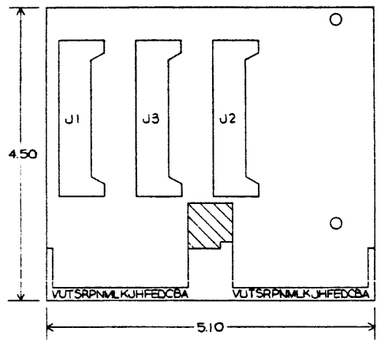
E.C.O. NO.

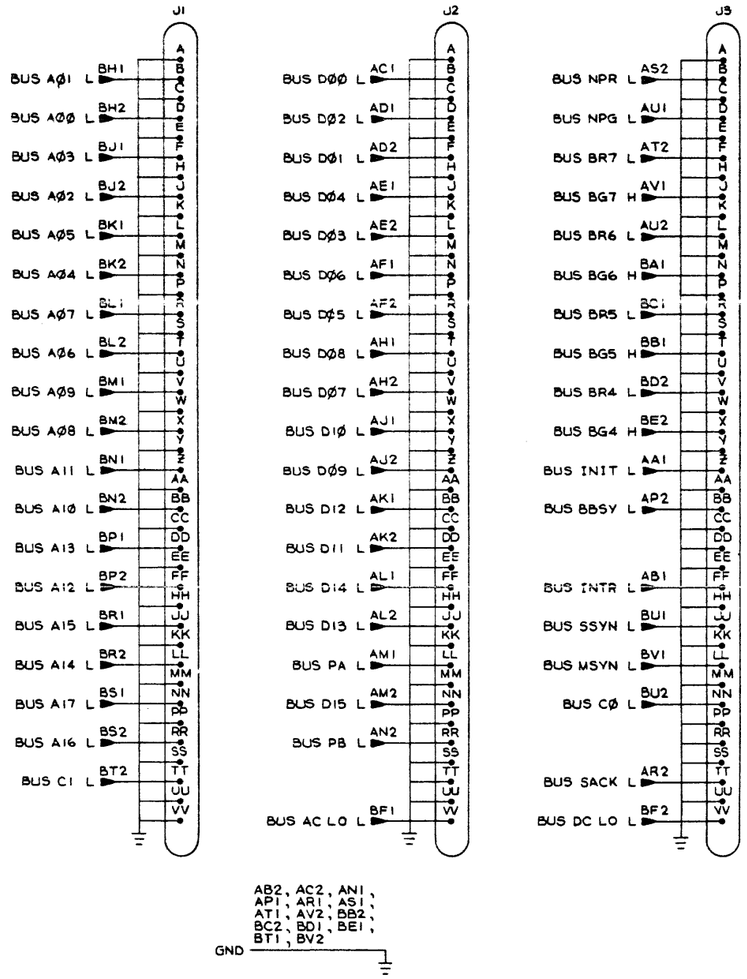
"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1976 DIGITAL EQUIPMENT CORPORATION"

DRB 125

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.
UNIBUS PADDLE CARD	D-UA-M9042-0-0	B	PL	M9042-0-0	A
	SHEET 1 OF 1	INSERTION PARTS LIST DATA BASE REV			

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 , DIGITAL EQUIPMENT CORPORATION"





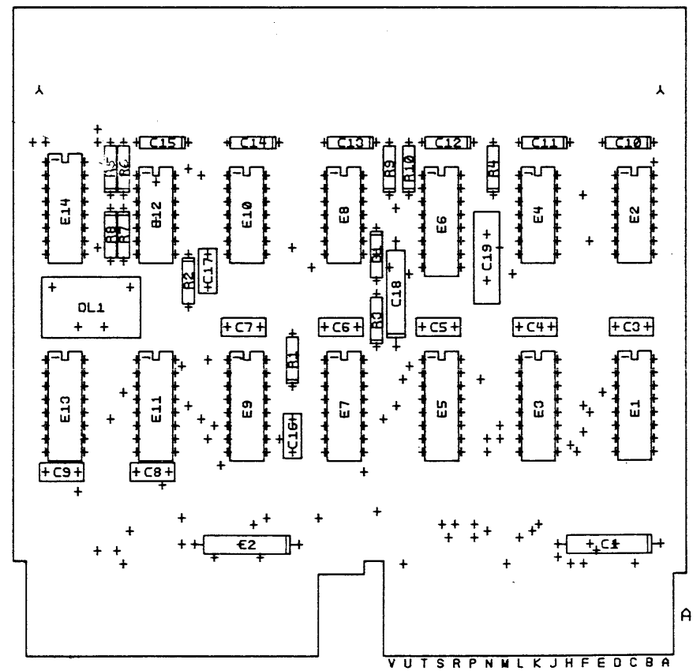
REVISIONS		
DWN	CHANGE NO.	REV.
	ECO 6481	B

DRN. A W Gamm	6-1222	FIRST USED ON
CHK'D	6222	digital
ENG. B. Hall	6-1222	TITLE
PROJ. ENG.	6/22/77	UNIBUS PADDLE CARD
PROD. Frank Lee	6/21/77	
NEXT HIGHER ASSY.		
SCALE		SIZE D · CODE CS · NUMBER M9042-Ø-1 · REV. A
SHEET 1 OF 1		DIST.

M9042-Ø-1 A

THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1975 DIGITAL EQUIPMENT CORPORATION

COMPONENT SIDE VIEW



NOTES:
1. R526 ARE NOT INSERTED

CHK	CHANGE NO	REV
	M9044-TW002 ORIGINATED	C

ECH REV. C-P1
P.C. DESIGN DATA BASE REV. C

SIGNATURES	DATE
DRN. Walt Harrow	8-16-78
CHK. DL	7-27-79
ENG.	7-27-79
PROJ.ENG.	7-27-79
PROD.	7-27-79
SCALE 2:1	
SHT. 1 OF 3	
NEXT HIGHER ASSY. B-DD-M9043-0-0	

digital

TITLE (UBA)
UNIBUS TERMINATOR

SIZE	CODE	NUMBER	REV
D	UA	M9044-0-0	C

TW 1 MS# 171626

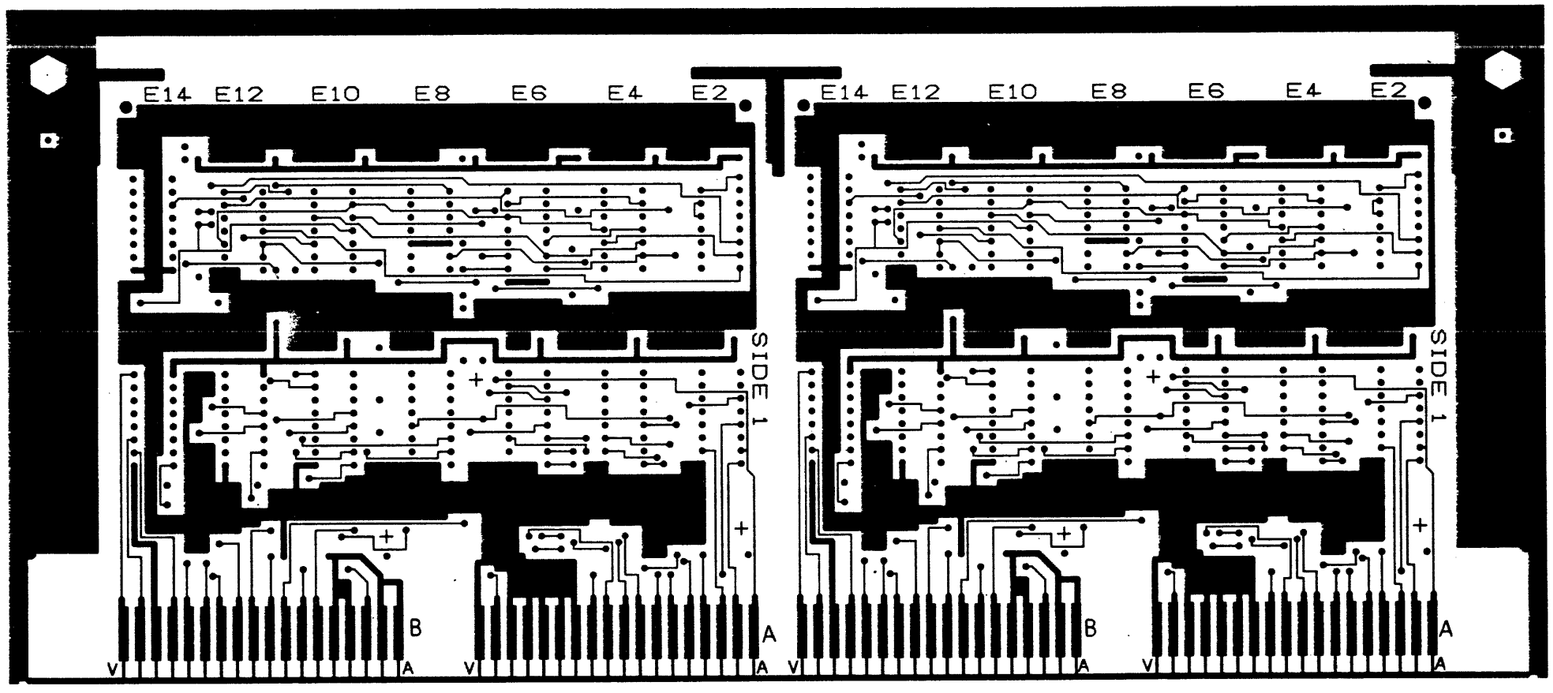
"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1978 DIGITAL EQUIPMENT CORPORATION"

L1

M9044 5012749 CP1

L1

M9044 5012749 CP1



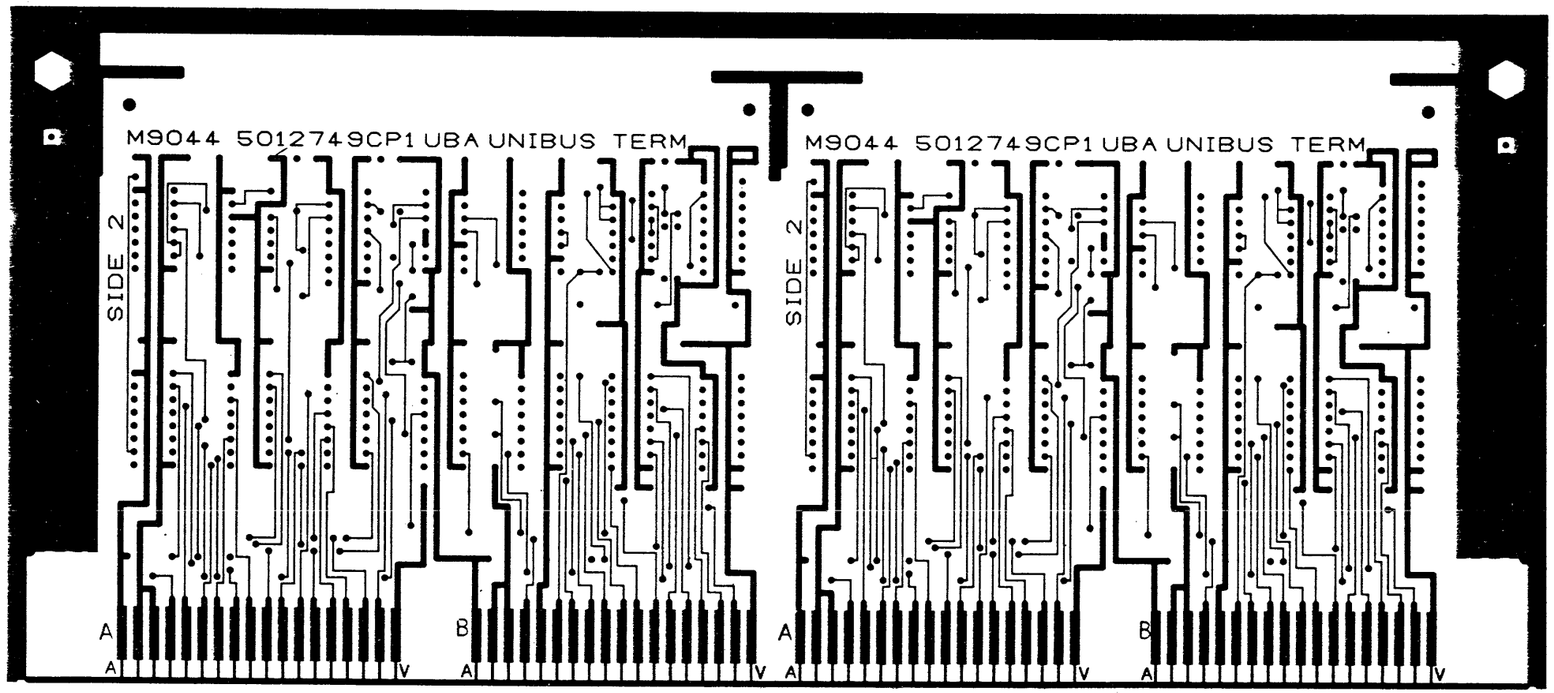
REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS TERMINATOR	D	UA	M9044-0-0	C
SCALE 2/1 SHEET 2 OF 3	DIST.			

TW 1

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1978 DIGITAL EQUIPMENT CORPORATION"

L2 L2



REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS TERMINATOR	D	UA	M9044-0-0	C
SCALE 2/1 SHEET 3 OF 3	DIST.			

TW 1

AUTOMATED BY PRTLST,3H(24)

P A R T S L I S T

LINE	ITEM	DOCUMENT NUMBER	PART NUMBER	DESCRIPTION	QTY PER VARIATION 00	REFERENCE DESIGNATOR
1	1		5012749-00	M9044	1	
2	2		1000076-00	39 MFD 10V 10% 150D S.TA	2	C1,C2
3	3		1010274-01	.22 MFD 50V -20+80 Z5U CER	7	C3-C9
4	4		1000043-00	1000.0 MMF 250V 20% Y5F DISC	2	C16,C17
5	5		1012784-00	.047 MFD 50V -20+80 CER	6	C10-C15
6	6		1002431-00	2.2MFD 35V 10% 150S S.TA	1	C18
7	7		1001636-00	2400.0 MMF 100V 5%200PPM DM19S	1	C19
8	8		1100114-00	D 664 QS\75PCB PIV= 25V SP	1	D1
9	9		1300309-00	390 1/4W 5% CC	2	R1,R2
10	10		1301808-00	22 K 1/4W 5% CC	1	R3
11	11		1300496-00	15 1/4W 5% CC	1	R4
12	12		1300250-00	150 1/4W 5% CC	1	R8
13	13		1301972-00	270 1/4W 5% CC	1	R7
14	14		1300295-00	330 1/4W 5% CC	1	R9
15	15		1301401-00	750 1/4W 5% CC	1	R10
16	16		1312628-01	R NETWORK 14-176.5 11-375	7	E1,E7,E9,E3,E5,E11,E13
17	17		1911469-00	DEC 8640 RECEIVER,BUS,QUAD,U	2	E8,E10
18	18		1910532-00	74S00 NAND GATE-QUAD 2INS	1	E12
19	19		1910436-00	DEC 74123 ONE SHOT-DUAL,RETRIG	1	E6
20	20		1912824-00	LS74 FF-D DUAL,EDGE TRIGG	1	E4
21	21		1909705-00	DEC 9881 NAND GATE-QUAD 2IN O	1	E2
22	22		1609428-00	DELAY= 50NS,0TAPS D0150	1	DL1
23	23		1911116-00	DEC 9837 RECEIVER,BUS,HEX,UN	1	E14

Ø NOTE: R5 AND R6 ARE NOT INSERTED.

REVISION HISTORY			BASIC PART NO: M9044
ENG	ECO NUMBER	REV	SECTION A OF A
---	INITIAL	C	SECTION,VARIATION INDEX
			[A] 00
			[B]
			[C]
			[D]
			[E]
			[F]
			[H]
			[J]
			[K]
			[L]
			[M]
			[N]

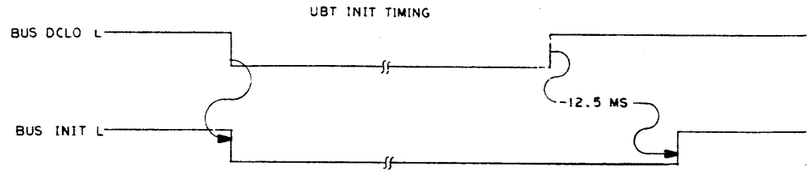
DRN: J.SHOREMAN	DATE: 23-AUG-78	DIGITAL
CHK'D: K.FRIEDGEN	DATE: 2-AUG-79	TITLE: PARTS LIST UBA UNIBUS TERMINATOR
DES.ENG: B.HALL	DATE: 2-AUG-79	
RESP.ENG.: B.HALL	DATE: 2-AUG-79	DOCUMENT NUMBER
MFG.ENG.: B.SIMS	DATE: 2-AUG-79	SIZE: K; CODE: PL; NUMBER: M9044-0-DBP; REV: C
ASSEMBLY NUMBER: D-UA-M9044-0-0	TOP DOCUMENT NUMBER:	FILE NAME: M9044.PLS; EDIT #: 4

"THIS DRAWING AND SPECIFICATIONS HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT (C) 1979, DIGITAL EQUIPMENT CORPORATION "

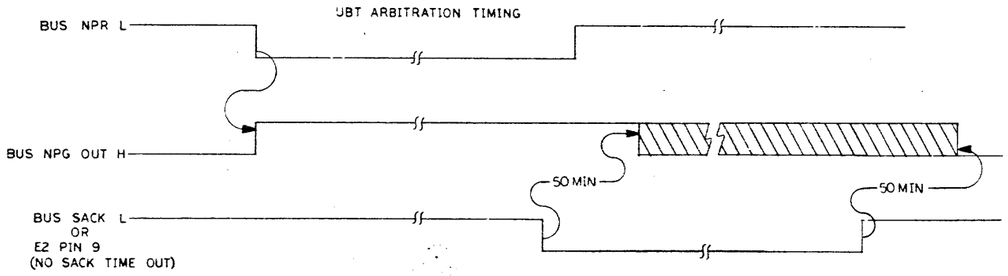
TW

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 , DIGITAL EQUIPMENT CORPORATION"

UBT INIT TIMING



UBT ARBITRATION TIMING



= CANNOT BE ASSERTED

NOTES: 1. BUS INIT L WILL NEGATE BUS NPG OUT H.
2. NO SACK TIME OUT EQUALS 10 MICROSECONDS.

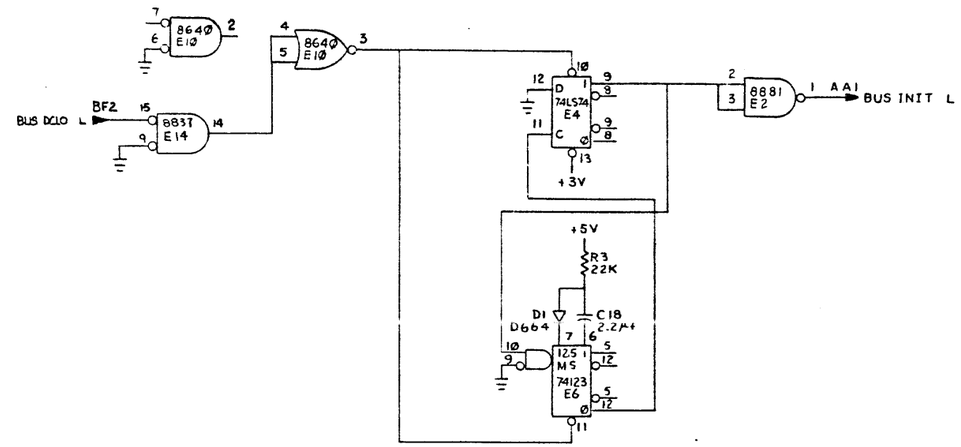
REVISIONS			
DIR	CHANGE NO.	REV.	
	M9044-00001	B	5-Jun-78
	M9044-TW002	C	8 May 79

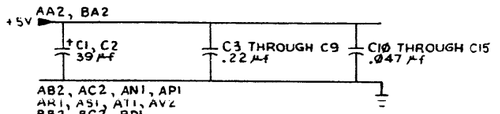
R.CASABONA 6-FEB-78
B HALL 8 May 79
Revised MOD 8-1-77

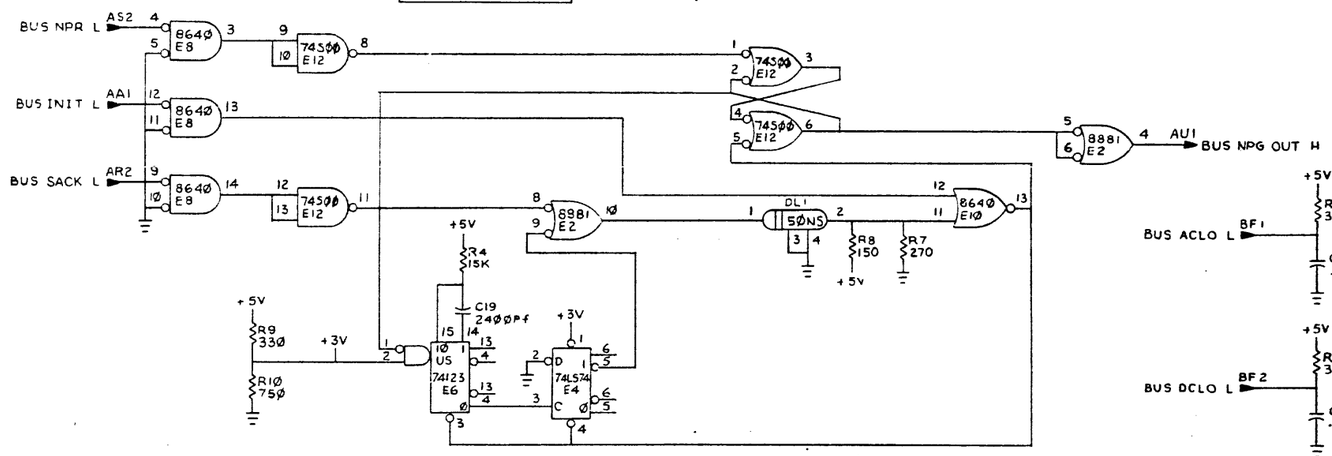
TIMING DIAGRAM

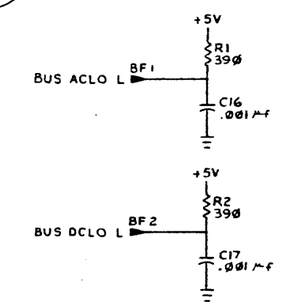
DRN. AFM	5/24	FIRST USED ON 11780	digital
CHK	6-27-77		
ENG. B. Hall	6-27-77	TITLE UBA UNIBUS TERMINATOR	
PROJ. ENG. B. Hall	6-27-77		
PROD.	6/29/77		
NEXT HIGHER ASSY.			
DW780		SIZE D | CODE CS | NUMBER M9044-0-1	REV. C
SCALE			
SHEET 1 OF 3		DIST.	

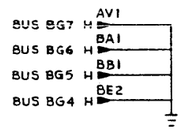
"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1977 DIGITAL EQUIPMENT CORPORATION"







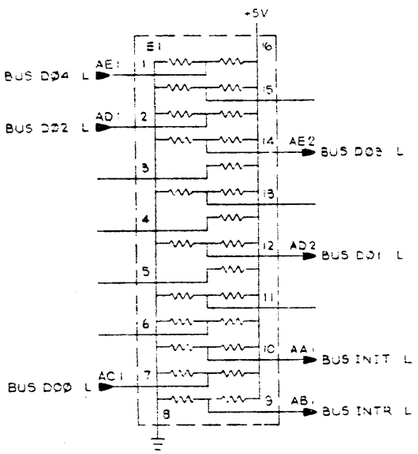


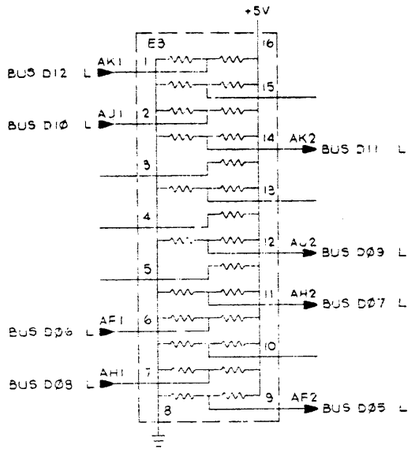


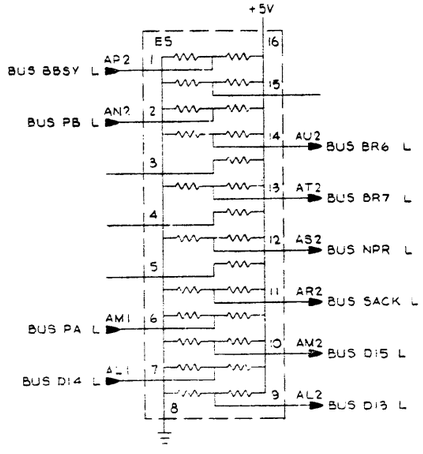
REVISIONS		
CHK	CHANGE NO.	REV.

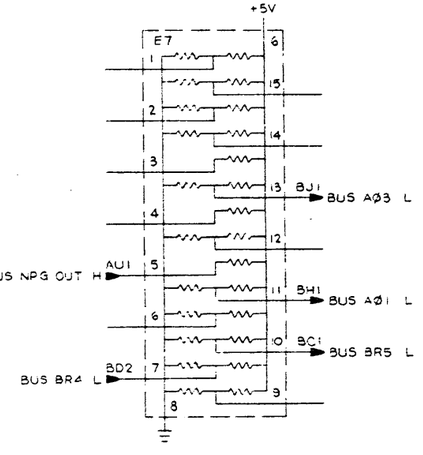
TITLE	SIZE	CODE	NUMBER	REV.
UBA UNIBUS TERMINATOR	D	CS	M9044-Ø-1	C
SCALE —	SHEET 2 OF 3		DIST.	

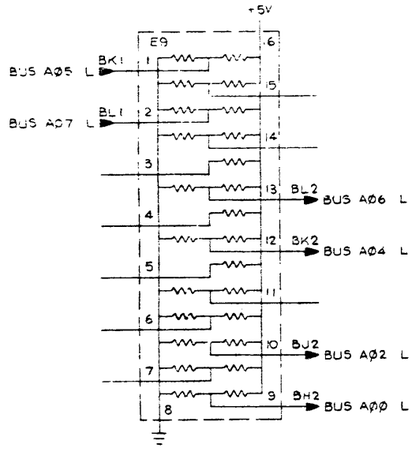
"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1975 DIGITAL EQUIPMENT CORPORATION"

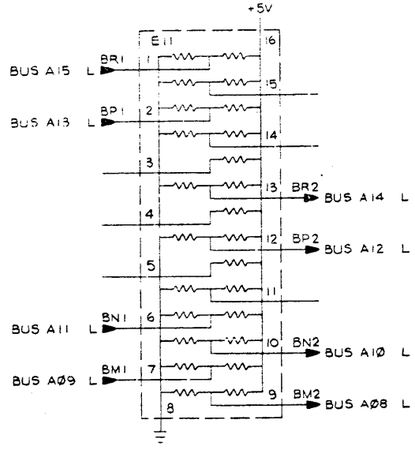


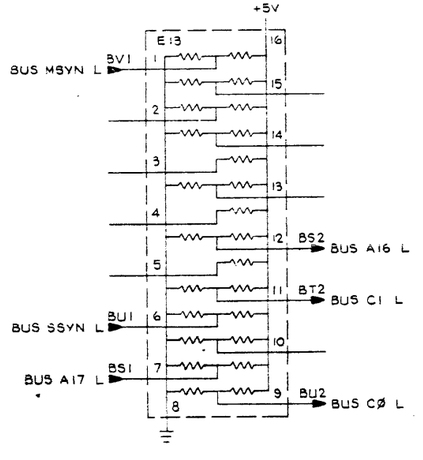












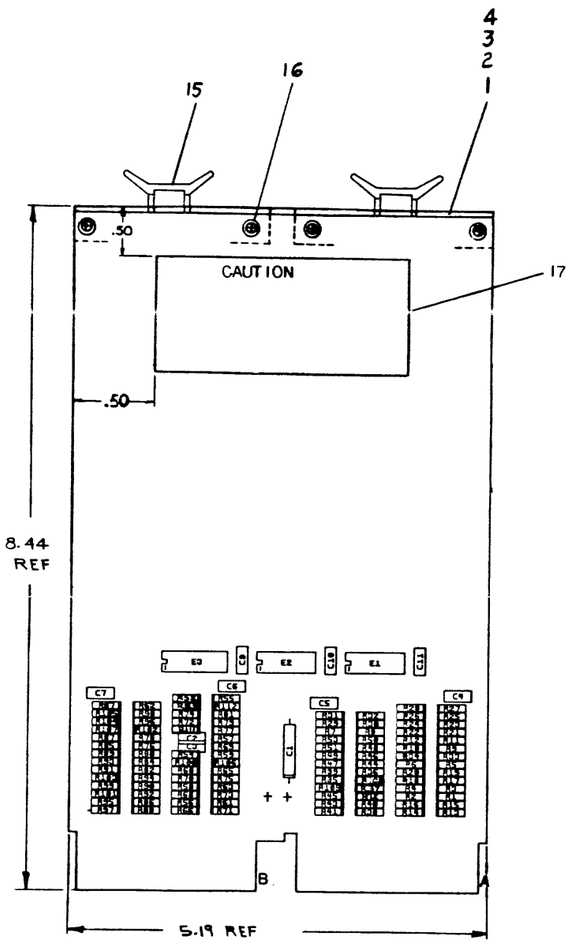
REVISIONS		
CHK	CHANGE NO.	REV.

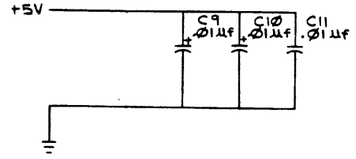
TITLE	SIZE	CODE	NUMBER	REV.
UBA UNIBUS TERMINATOR	D	CS	M9044-Ø-1	C
SCALE —	SHEET 3 OF 3	DIST.		

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT ©1974, DIGITAL EQUIPMENT CORPORATION"

NOTES:

1.) THE FOLLOWING REFERENCE DESIGNATIONS ARE NOT USED: C8, R64, AND R110.





IC DEC 883T	8	16
IC TYPE	GND	+ 5V
GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY EXCEPTIONS ARE STATED ABOVE		
IC PIN LOCATIONS		

REF	QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
REF			X-Y HOLE COORDINATE HOLE LOCATION	K-CO-M9302-0-4	1
REF			ASSY/DRILLING HOLE LAYOUT	D-AH-M9302-0-5	2
REF			MODULE ECO HISTORY	B-MH-M9302-0-6	3
1			ETCHED CIRCUIT BOARD	5011311	4
3	C9,C10,C11		CAP .01 uf 100V 20% DISC	1001610-01	5
1	C1		CAP 39 µf 10V 10%	1000078	6
~~1~~	~~C8~~		~~CAP 6.8 µf 35V 10%~~	~~1005208~~	~~7~~
4	C4 THRU C7		CAP .22 µf 50V X5	1010274-01	8
2	C2,C3		CAP .001 µf 250V 20% DISC	1000043	9
56	R2,R4,R6,R8,R10,R12,R14,R16 R18,R20,R22,R24,R26,R28,R30 R32,R34,R36,R38,R40,R42,R44 R46,R48,R50,R54,R56,R58,R60 R62,R66,R69,R70,R72,R74,R76 R78,R80,R92,R84,R86,R88,R90 R92,R94 R96,R98,R100,R102,R57,R68,R37,R52,R83,R108,R111		RES 383 OHM 1/4W 1%	1305125	10
54	R1,R3,R5,R7,R9,R11,R13,R15 R17,R19,R21,R23,R25,R27,R29 R31,R33,R35,R39,R41,R43,R45 R47,R49,R51,R53,R55, R59 R61,R63,R65,R67, R71,R73 R75,R77,R79,R81,R85,R87,R89 R91,R93,R95,R97,R99,R101, R103 THRU R107,R109,R112		RES 178 OH 1/4W 1%	1311422	11
1	E2		I.C. DEC 7430	1905578	12
1	E1		I.C. DEC 8881	1809705	13
~~1~~	~~E3~~		~~I.C. DEC 8837~~	~~1911176~~	~~14~~
2			HANDLE, FLIP-CHIP (MAGENTA)	9008337-8	15
4			EYELETS	9006732	16
1			DECAL	B-DC-7416791-0-0	17

FIRST USED ON OPTION MODEL

PARTS LIST

ETCH BOARD REV B

REVISIONS	REV	CHANGE NO.	CHK
M9302-00001	B		
M9302-00002	C		
M9302-00003	D		

DEC NO.	EIA NO.	DEC NO.	EIA NO.

SEMICONDUCTOR CONVERSION CHART

B. BERNSTEIN 11/16/77
B. BERNSTEIN 12/5/77
M9302-00002
R. BARRY 14 June 76
M9302-00002
T. DUBANIEWICZ 6/21/73

DRN. J. Magee DATE 10/9/74
CHK'D. DATE 12-2-75
ENG. DATE 12-15-75
PROJ. ENG. DATE 1 23 76
PROD. DATE 3/30/76
NEXT HIGHER ASSY
SCALE
SHEET 1 OF 2

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
UNIBUS TERMINATOR

SIZE D | CODE DCS | NUMBER M9302-0-1 | REV. D
DIST.

D C S M9302-0-1 D

THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1975 DIGITAL EQUIPMENT CORPORATION"

+5V — AA2, BA2

C4 THRU C7 .22µF

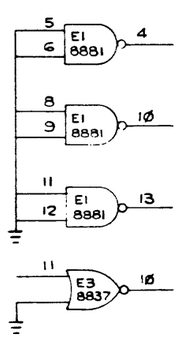
C1 39µF 10V 10%

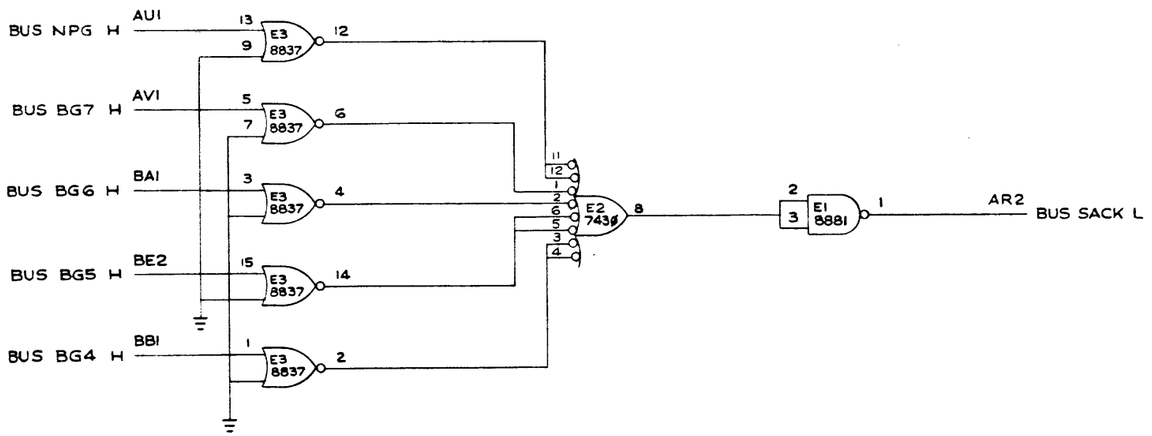
GND — AB2, AC2, AN1, AP1, AR1, AS1, AT1, AV2, BB2, BC2, BD1, BE1, BT1, BV2

BUS DØ5 L	BUS DØ7 L	BUS DØ9 L	BUS DII L	BUS DØ3 L	BUS DØI L	BUS DØ4 L	BUS DØ6 L	BUS DØ8 L	BUS DIØ L	BUS DØ2 L	BUS DØØ L	BUS INTR L	BUS INIT L	BUS PA L	BUS DI4 L	BUS DI2 L	BUS NPG H	BUS BG7 H	BUS SACK L	BUS NPR L	BUS BR7 L	BUS BRG L	BUS BBSY L	BUS PB L	BUS DI5 L	BUS DI3 L	BUS BGG H
R1 178	R3 178	R5 178	R7 178	R9 178	R11 178	R13 178	R15 178	R17 178	R19 178	R21 178	R23 178	R25 178	R27 178	R29 178	R31 178	R33 178	R35 178	RIØ9 178	R39 178	R41 178	R43 178	R45 178	R47 178	R49 178	R51 178	R53 178	R55 178
R2 383	R4 383	R6 383	R8 383	RIØ 383	R12 383	R14 383	R16 383	R18 383	R2Ø 383	R22 383	R24 383	R26 383	R28 383	R3Ø 383	R32 383	R34 383	RIØ8 383	R37 383	R36 383	R38 383	R4Ø 383	R42 383	R44 383	R46 383	R48 383	R5Ø 383	R52 383
AF2	AH2	AJ2	AK2	AE2	AD2	AE1	AF1	AH1	AJ1	AD1	AC1	AB1	AA1	AM1	AL1	AK1	AU1	AV1	AR2	AS2	AT2	AU2	AP2	AN2	AM2	AL2	BA1

BF1	BH1	BJ1	BK1	BL1	BM1	BF2	BH2	BJ2	BK2	BE2	BD2	BC1	BB1	BP2	BP1	BR1	BS1	BR2	BS2	BT2	BU2	BU1	BV1	BN2	BM2	BL2	BN1
R57 383	R59 178	R61 178	R63 178	R65 178	R67 178	R69 383	R71 178	R73 178	R75 178	R77 178	R79 178	R81 178	RII2 178	R85 178	R87 178	R89 178	R91 178	R93 178	R95 178	R97 178	R99 178	RIØ1 178	RIØ3 178	RIØ4 178	RIØ5 178	RIØ6 178	RIØ7 178
C2 .ØØ1 µF	R54 383	R56 383	R58 383	R6Ø 383	R62 383	C3 .ØØ1 µF	R66 383	R68 383	R7Ø 383	RIII 383	R72 383	R74 383	R83 383	R76 383	R78 383	R8Ø 383	R82 383	R84 383	R86 383	R88 383	R9Ø 383	R92 383	R94 383	R96 383	R98 383	RIØØ 383	RIØ2 383
BUS AC LO L	BUS AØI L	BUS AØ3 L	BUS AØ5 L	BUS AØ7 L	BUS AØ9 L	BUS DC LO L	BUS AØØ L	BUS AØ2 L	BUS AØ4 L	BUS BG4 H	BUS BR4 L	BUS BR5 L	BUS BG5 H	BUS AI2 L	BUS AI3 L	BUS AI5 L	BUS AI7 L	BUS AI4 L	BUS AI6 L	BUS CI L	BUS CØ L	BUS SSYN L	BUS MSYN L	BUS AIØ L	BUS AØ8 L	BUS AØ6 L	BUS AII L

SPARES

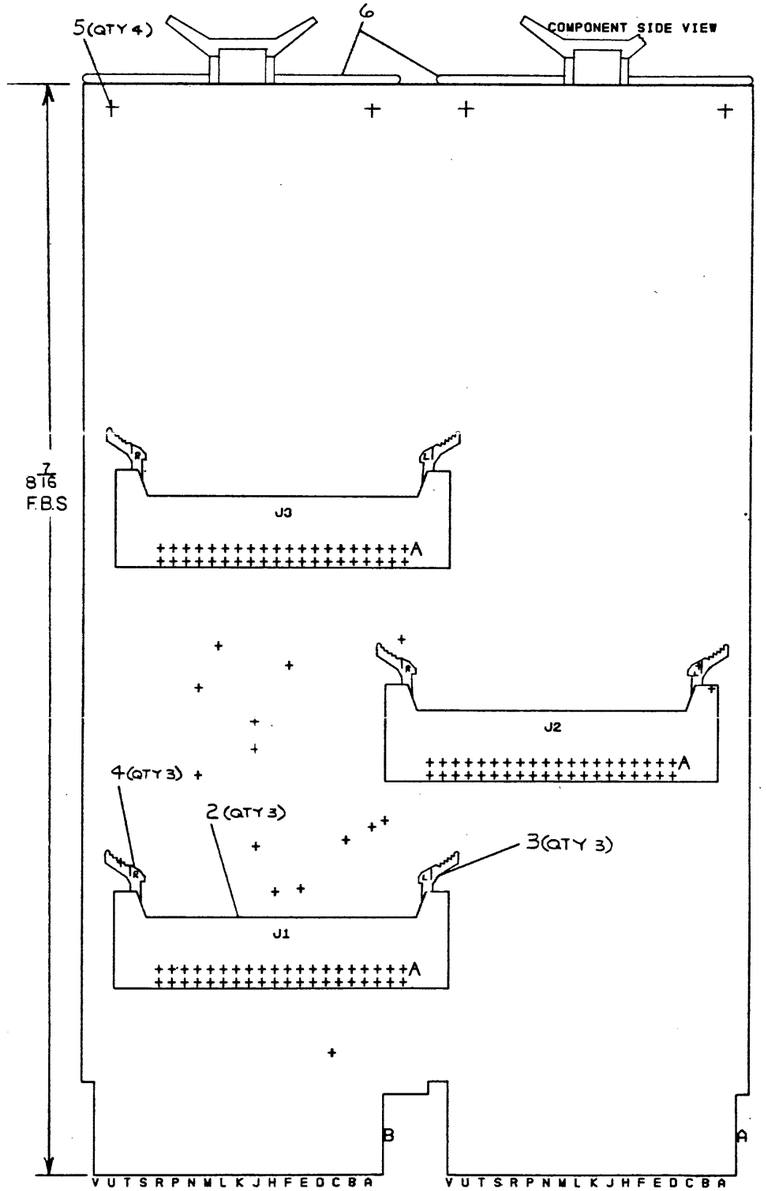




REVISIONS		
CHK	CHANGE NO	REV

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS TERMINATOR	D	CS	M9302-Ø-1	D
SCALE —	SHEET 2 OF 2	DIST		

THIS DRAWING AND SPECIFICATIONS, HERETO, AND THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION



NOTES:

CHK	CHANGE NO	REV

SIGNATURES	DATE
DRN. [illegible]	4-5-77
CHK D. RWC	23 FEB 77
ENG. [illegible]	1 MAR 77
PROJ.ENG. [illegible]	1 MAR 77
PROD. W Gulley	1 MAR 77

digital

TITLE UNIBUS TO H854 ADAPTER BOARD

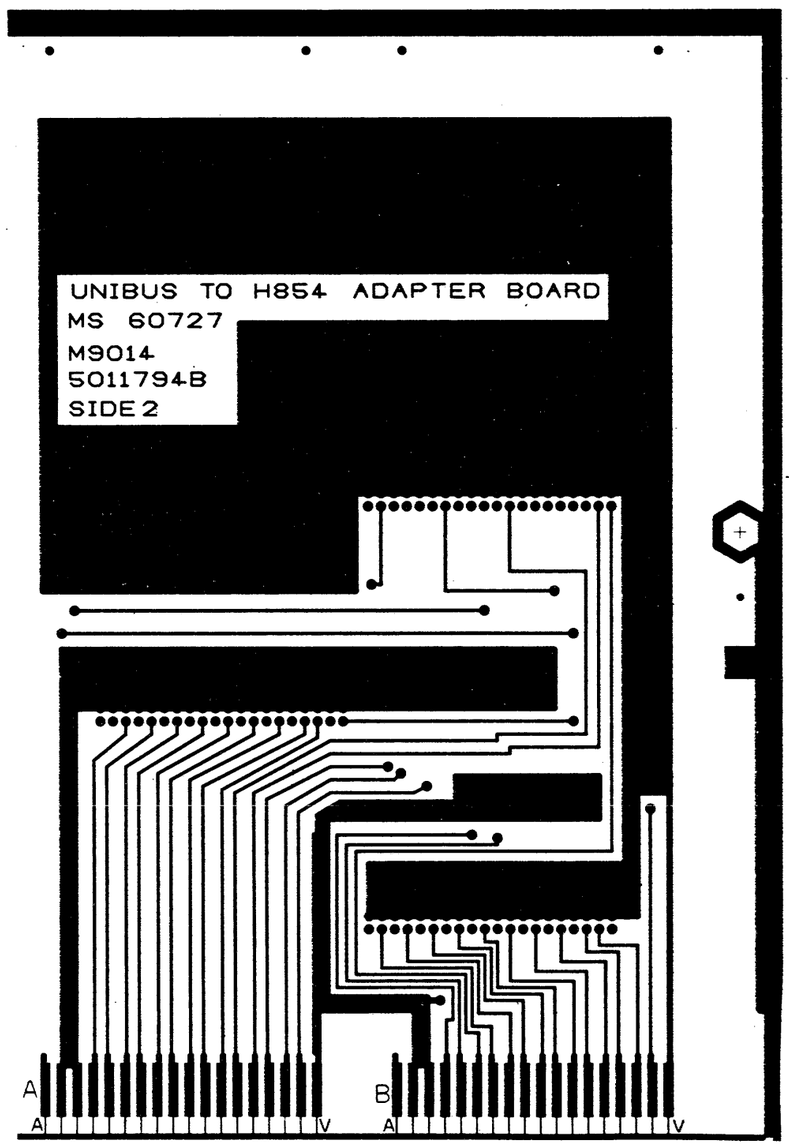
SCALE 2/1	SIZE	CODE	NUMBER	REV
SHT. 1 OF 2	D	UA	M9014-0-0	A

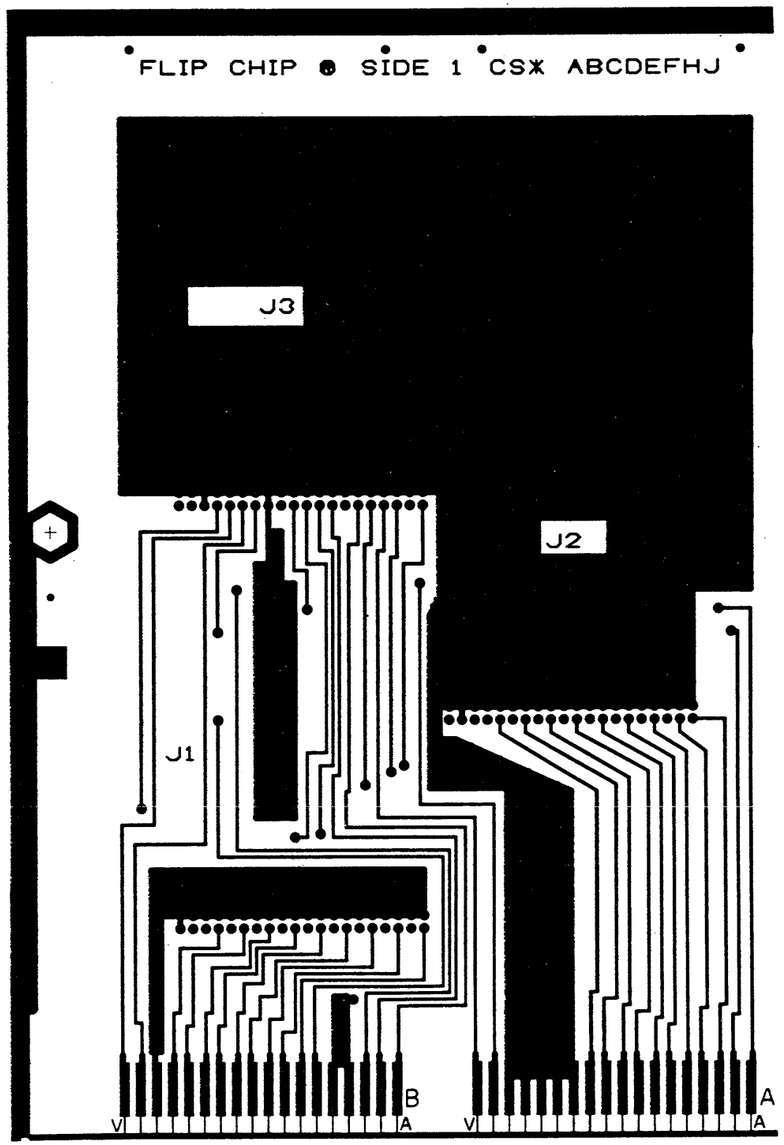
ETCH REV B FIRST USED ON PDP11

MS#60727

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

MS 60727 M9014 5011794-B





REVISIONS		
CHK	CHANGE NO.	REV.

TITLE	SIZE	CODE	NUMBER	REV.
UNIBUS TO H854 ADAPTER BOARD	D	UA	M9014 - Ø - Ø	A
SCALE 2/1 SHEET 2 OF 2	DIST.			

DIGITAL EQUIPMENT CORPORATION
PARTS LIST

MADE BY K. Lamacke DATE 21/FEB/77	CHECKED RW Counter DATE 21 Feb 77	SECTION 1
ENG R. M. Olsen DATE 1 MAR 77	PROD W. Emley 1 MAR 77 DATE	ISSUED SECTION 1

ITEM NO.	DRAWING NO.	PART NO.	DESCRIPTION	QUANTITY / VARIATION	REF DESIGNATION
1		5011794	ETCHED CIRCUIT BOARD	1	
2		1209941-02	CONN., 40 PIN	3	J1,J2,J3
3		1209941-03	LATCH, LEFT	3	
4		1209941-04	LATCH, RIGHT	3	
5		9006732	EYELETS	4	
6		9008337-06	HANDLE, FLIP CHIP, MAGENTA	2	

NOTES:

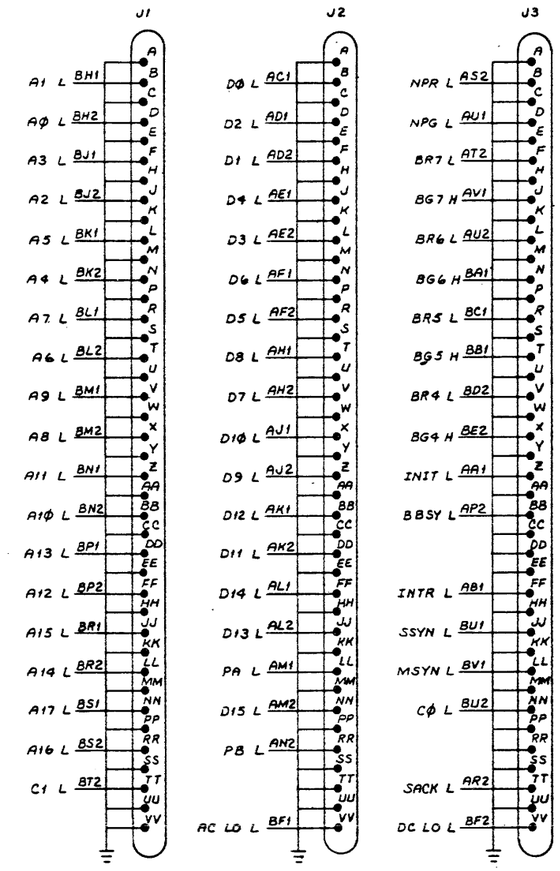
E.C.O. NO.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 DIGITAL EQUIPMENT CORPORATION"

DRB 125

TITLE	ASSY NO.	SIZE	CODE	NUMBER	REV.
UNIBUS TO H854 ADAPTER BOARD	D-UA-M9014-0-0	B	PL	M9014-0-0	A
	SHEET 1 OF 1	INSERTION PARTS LIST DATA BASE REV			

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977, DIGITAL EQUIPMENT CORPORATION"



AB2 AC2 AN1
AP1 AR1 AS1
AT1 AV2 BB2
BC2 BD1 BE1
BT1 BV2

REVISIONS	REV.	CHANGE NO.	CHK.

DRN		
CHK'D		
ENG.		
PROJ. ENGR.		
PROD.		
NEXT HIGHER ASSY.	B-DD-M9014-Ø	
SCALE		
SHEET 1 OF 1		

FIRST USED ON: PDP11

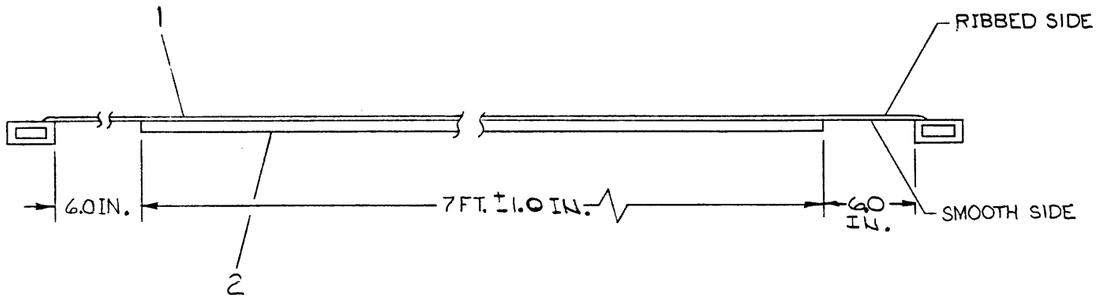
digital

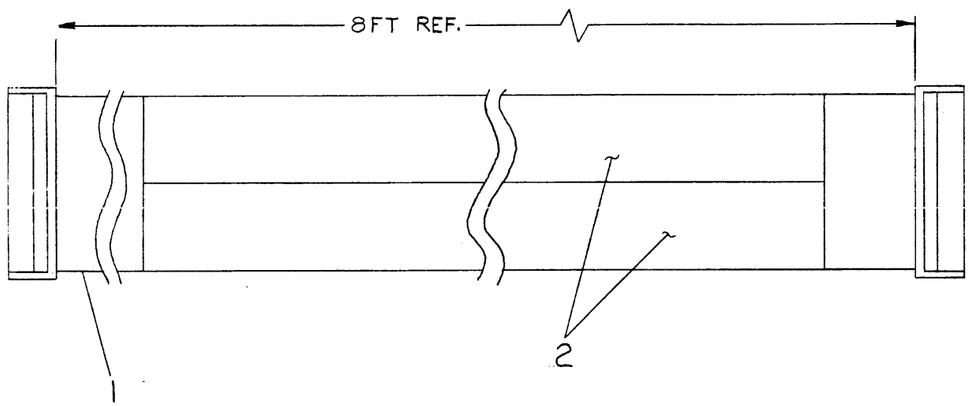
TITLE: UNIBUS TO H854 ADAPTER BOARD

SIZE	CODE	NUMBER	REV.
D	CS	M9014-Ø-1	A

DIST.

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977, DIGITAL EQUIPMENT CORPORATION"





QTY	DESCRIPTION	DWG./PART NO.	ITEM NO.
7FT.	TAPE, FOAM .12 THK x2.00 W	9009087-00	2
1	CABLE, JUMPER	D-UA-BCØ5L-08-0	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES					
		OVER 0 TO 0.2	OVER 0.2 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM ☐	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED ☑	±.012	±.016	±.025	±.04	±.063	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH: ——//——

DRN. J. Fedus	12 Jul 77	
CHK'D D. Hoag	19 AUG 77	
ENG. K. Campbell	20 SEP 77	
PROJ. ENG. J. Cayton	23 Sep 77	
PROD. E. Blair	23 Sep 77	

NEXT HIGHER ASSY.

SCALE 1/1

SHEET 1 OF 1

FIRST USED ON: VAX 11780 digital

TITLE: CABLE, UNIBUS (11780)

SIZE	CODE	NUMBER	REV.
C	1A	7013622-0-0	A

DIST.

REVISIONS		
CHK	CHANGE NO.	REV.
	7013622-TW001	A
R. CHUMSAE 1/12/80		

DEC FORM NO. 06 1060-C

SIZE P-1688

SIZE C 1A NUMBER 7013622-0-0 REV. A

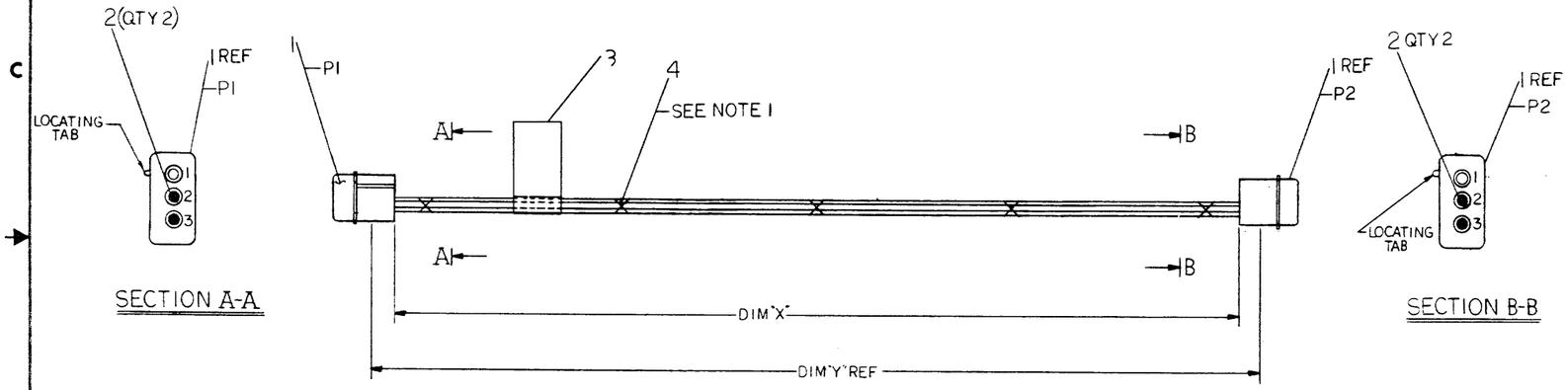
TW

"THIS DRAWING AND SPECIFICATIONS, HEREIN, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977 , DIGITAL EQUIPMENT CORPORATION"

WIRE TABLE								
ITEM NO	DESCRIPTION AWG	COLOR	FROM CONN	FROM WITH	TO CONN	TO WITH	REMARKS
6	18	GRY/WHT	P1-2	1&2	P2-2	1&2	
3	18	GRAY	P1-3	1&2	P2-3	1&2	

LEGEND		
NUMBER	DIM 'X' VARIATION	DIM 'Y' (PRECUT) REF
7014213-ØK	ØFT-9IN ±.5IN	ØFT-10IN±.5IN
7014213-3E	3FT-5IN ±.5IN	3FT-6IN ±.5IN
7014213-4A	4FT-1IN ±.5IN	4FT-2IN ±.5IN

NOTES:
1. USE CABLE TIES (ITEM #4) APPROXIMATELY EVERY THREE (3) INCHES WHEN NECESSARY.



CAUTION: SEE OFF SHT. PARTS LIST

ITEM NO	DESCRIPTION	DWG./PART NO.	QTY
A/R	WIRE, 18 AWG GRY/WHITE	9107360-89	6
1	LABEL, CABLE IDENT	9009528-00	5
A/R	TIE, CABLE	9007031-00	4
A/R	WIRE, 18 AWG GRAY	9107360-88	3
4	PIN, CONTACT	1209378-00	2
2	CONNECTOR MATE N LOCK	1209351-03	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES ±0° 30'	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES: OVER 0 TO 1.2	OVER 1.2 TO 4.0	OVER 4.0 TO 12.0	OVER 12.0 TO 40.0	OVER 40.0 TO 80.0
SURFACE QUALITY IN MICROINCHES	MEDIUM ☐	±.004	±.008	±.012	±.016	±.024	±.06
	PREFERRED ☐	±.012	±.016	±.020	±.06	±.060	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL SEE PARTS LIST

FINISH

DRN. [illegible] 10 Nov 77
CHK'D [illegible] 10 Nov 77
ENG. [illegible] 10 Nov 77
PROJ. ENG. [illegible] 10 Nov 77
PROD. [illegible] 10 Nov 77
NEXT HIGHER ASSY. E-UA-11780-0-0
SCALE NONE
SHEET 1 OF 1

FIRST USED ON VAX 11/780

digital

TITLE
CABLE OVER TEMP

SIZE D | CODE IA | NUMBER 7014213-0-0 | REV. C | DIST.

TW1

REVISIONS				
DWR	CHANGE NO.	REV.		
M.C.	7014213-00001	A	P Turner	25 OCT 77
	7014213-TW0002	B	R. MARTIN	10 Nov 77
			M Cavell	12 JUNE 80
			R. CHUMSAE	
	7014213-TW0003	C	R. Chumsae	23-JAN-80
			J STICKNEY	23 Feb 82
			Jay Sweeney	25 Feb 82

D 7014213-0-0 REV. C

THIS DRAWING AND SPECIFICATIONS, WHETHER SAID TITLE IS CLAIMED OR NOT, ARE THE PROPERTY OF DIGITAL EQUIPMENT CORPORATION AND SHALL NOT BE REPRODUCED OR COPIED OR USED IN WHOLE OR IN PART AS THE BASIS FOR THE MANUFACTURE OR SALE OF ITEMS WITHOUT WRITTEN PERMISSION.
COPYRIGHT © 1977, DIGITAL EQUIPMENT CORPORATION

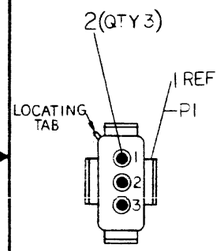
WIRE TABLE

ITEM NO	DESCRIPTION AWG	COLOR	FROM CONN	FROM WITH	TO CONN	TO WITH	REMARKS
4	18	YELLOW	P1-1	1&2	P2-1	1&2	
5	18	VIOLET	P1-2	1&2	P2-2	1&2	
3	18	BLACK	P1-3	1&2	P2-3	1&2	

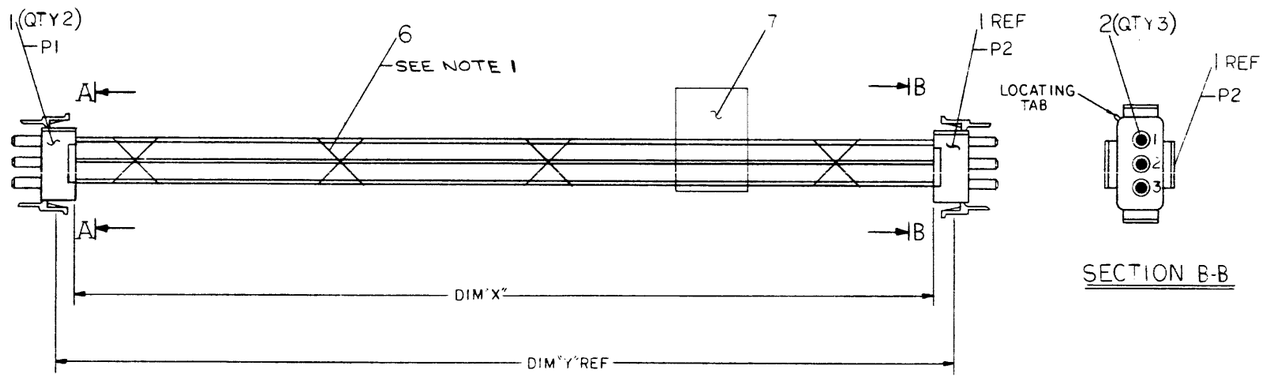
LEGEND

NUMBER	DIM "X" VARIATION	DIM "Y" (PRECUT) REF
7014212-ØH	ØFT-7IN ±.5IN	ØFT-8IN ±.5IN
7014212-ØM	ØFT-11IN±.5IN	1FT-ØIN ±.5IN
7014212-1C	1FT-3IN ±.5IN	1FT-4IN ±.5IN
7014212-2C	2FT-3IN ±.5IN	2FT-4IN ±.5IN
7014212-2M	2FT-11IN ±.5IN	3FT-ØIN ±.5IN

NOTES:
1. USE CABLE TIES (ITEM #6) APPROXIMATELY EVERY THREE (3) INCHES WHEN NECESSARY.



SECTION A-A



SECTION B-B

CAUTION: SEE OFF SHEET PARTS LIST
K-PL-7014212-0-DBP.(ZU473C,PLS).

ITEM NO	DESCRIPTION	DWG./PART NO.	QTY
7	LABEL, CABLE IDENT.	9009532-00	1
A/R	TIE, CABLE	9007031-00	6
A/R	WIRE 18 AWG VIOLET	9107360-77	5
A/R	WIRE 18 AWG YELLOW	9107360-44	4
A/R	WIRE 18 AWG BLACK	9107360-00	3
6	SOCKET, CONTACT	1212170-00	2
2	CONNECTOR, UNIVERSAL	1212167-00	1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

ANGLES	CLASS OF ACCURACY (CHECK ONE)	NOMINAL DIMENSION RANGE INCHES OVER 0 TO 0.3	OVER 0.3 TO 1.2	OVER 1.2 TO 4.8	OVER 4.8 TO 12.0	OVER 12.0 TO 48.0	OVER 48.0 TO 80.0
±0° 30'							
SURFACE QUALITY 125 MICROINCHES	MEDIUM ☐	±.004	±.008	±.012	±.016	±.024	±.04
	PREFERRED ☐	±.012	±.016	±.020	±.06	±.020	±0.1

QUANTITY & VARIATION

THIRD ANGLE PROJECTION

REMOVE BURRS AND BREAK SHARP CORNERS

DO NOT SCALE DWG

MATERIAL: SEE PARTS LIST

FINISH

DRN. J.C. Walker 20-Apr-77
CHK'D D. Gomes 4-May-77
ENG. [illegible] 4-May-77
PROJ. ENGR. [illegible] 4-May-77
PROD. [illegible] 4-May-77
NEXT HIGHER ASSY.
E-UA-11730-0-0
SCALE NONE
SHEET 1 OF 1

FIRST USED ON: VAX 11/780

digital

TITLE: CABLE A.C,D.C LOW

SIZE	CODE	NUMBER	REV.
D	IA	7014212-0-0	C

DIST.

REVISIONS	CHK	CHANGE NO.	REV.
	JC	7014212-00001	A
	A. Shaw 1 Oct 77	R. MARTEL	
	[illegible]	7014212 00002	B
	[illegible]	R. MARTEL	
	[illegible]	J. STICKNEY	C

DIA 7014212-0-C