KE11-E extended instruction set (EIS) option engineering drawings

digital equipment corporation · maynard. massachusetts

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

	SEQUENCE
DRAWING DIRECTORY	B-DD-KE11-E (SHEET 1 ONLY)
KE11-E ASSY	D-UA-KE11-E-Ø
KE11-E BLOCK DIAGRAM	D-BD-KE11-E-BD
EIS FLOW DIAGRAM	D-FD-KE11-E-FD
EIS BOARD	D-CS-M7238-Ø-1
SOFTWARE LIST	A-SL-KE11-E-SL

THIS IS PRINT SET

UNIT VARIATIONS

VARIATION	TITLE	PRINT SET TYPE KE11-E
KE11-E	EXPANDED INSTRUCTION SET	X

REVISIONS		
REV	A	B
ENG. NO.	KE11E-1	KE11E-2
DATE	[illegible]	

DRB 106

USED ON OPTION/MODEL: KD11-A

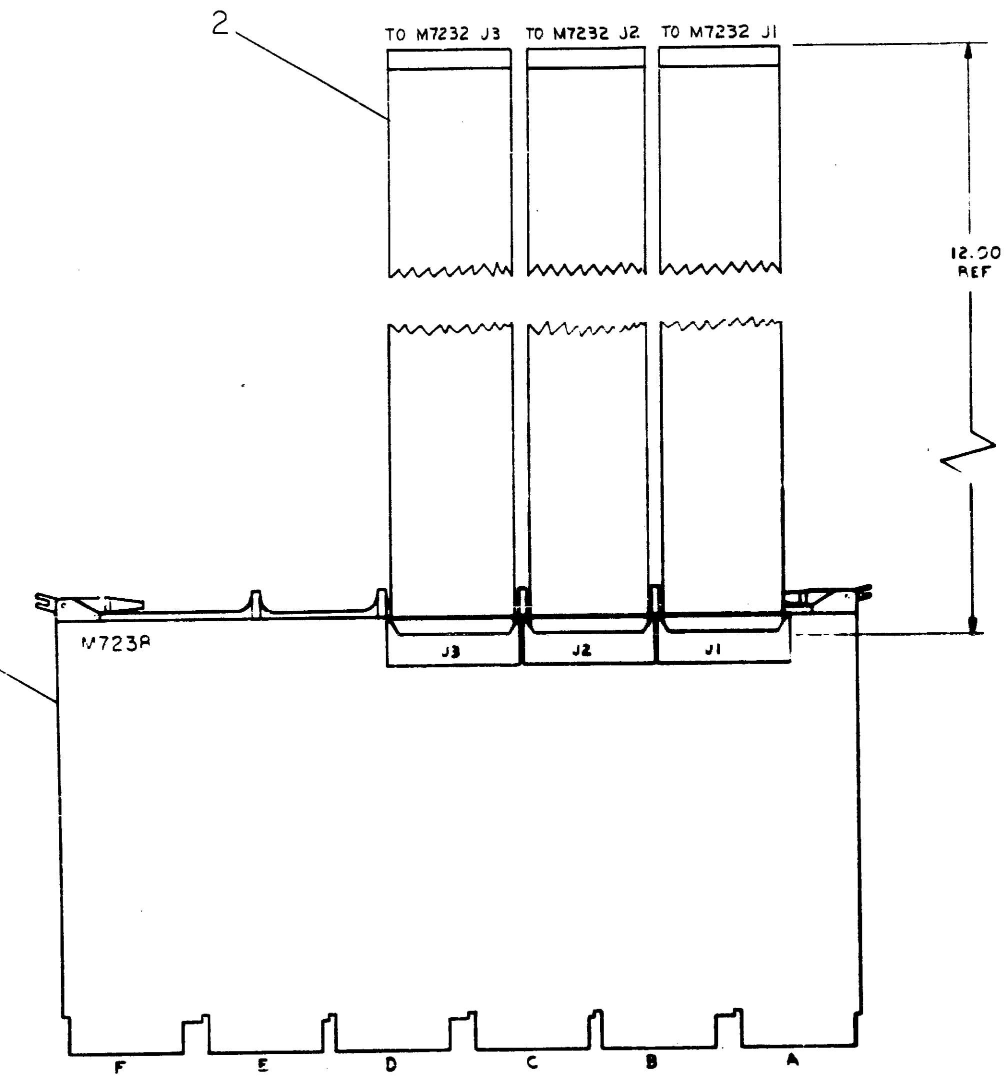
DRN.	[signature]	DATE 9/26/72
CHK'D	[signature]	DATE 9/27/72
PROJ ENG.	[signature]	DATE 9/27/2
PROJ. MGR.	[signature]	DATE 9/28/72
FIELD SERV.	[signature]	DATE 9/27/72

SHEET 1 OF 2

TITLE: EXPANDED INSTRUCTION SET (MUL,DIV,ASH,ASHC)

SIZE	CODE	NUMBER	REV
B	DD	KE11-E	B

DIST



NOTES:

1. PLUG M7238 NTO SLOT A-F2 OF KD11-A SEE D-MU-KD11-A-MU
2. INSTALL CABLES WITH SHIELD TOWARD M7238 MODULE.
3. CUT W1 ON M7233 MODULE (IR DECODE) INSTALLING KE11-E OPTION.
4. CUT W1, W2, W3 ON M7238 MODULE (EIS) WHEN INSTALLING KE11-F OPTION.
5. WHEN INSTALLING KE11-E OPTION IN THE 11/40 TUCK SLACK BC08R-01 CABLE LOOP DOWN IN FRONT OF SLOT 1 MODULE POSITION.
6. FOR DRAWING DIRECTORY INFORMATION REFER TO DRAWING #B-DD-KE11-E

PARTS LIST

QTY.	DESCRIPTION	PART NO.	ITEM NO.
3	I/O CABLE (BC08R)	C-UA-BC08R-01	2
1	EIS BOARD	D-CS-M7238-0-1	1

FIRST USED ON OPTION/MODEL: PDP 11

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
XXX = .005 XX = .02 X = 1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —/ /—

FINISH —/ /—

		DATE
DRN.	[signature]	8-23-72
CHK'D.	[signature]	9-21-72
ENG.	[signature]	9-21-72
PROJ. ENG.	[signature]	9-21-72
PROD.	[signature]	9-21-72

NEXT HIGHER ASSY. B-DD-KE11-E

SCALE NONE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

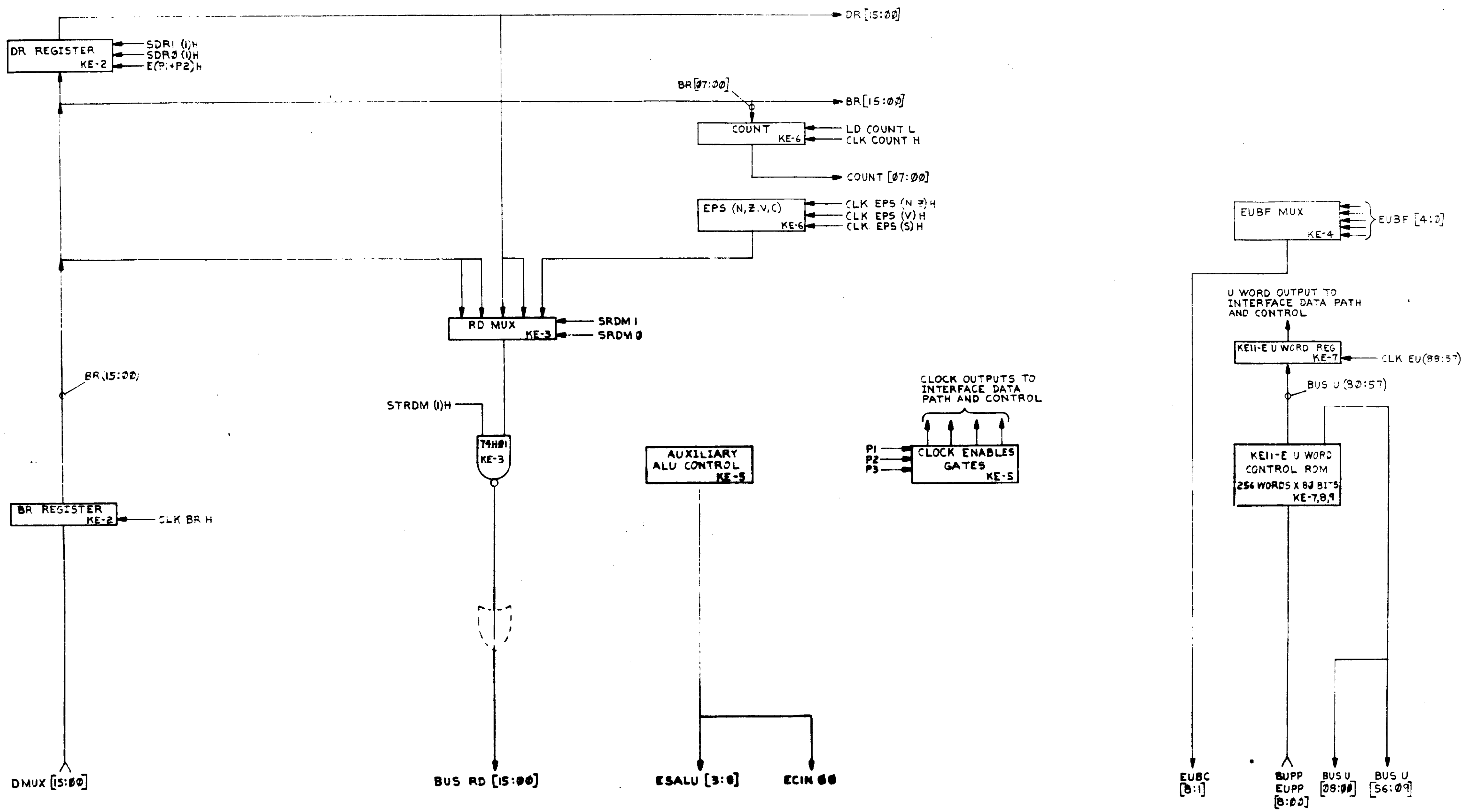
TITLE: KE11-E ASSY

SIZE	CODE	NUMBER	REV.
D	UA	KE11-E-0	

DIST. 6

DEC FORM NO DEC 400-A

NOTE: THIS DIAGRAM IS DRAWN SO THAT INTERFACE SIGNALS AT THE BOTTOM OF THIS SHEET LINE UP WITH THEIR RESPECTIVE SIGNALS AT THE TOP OF THE KD11-A BLOCK DIAGRAM (D-BD-KD11-A-BD)



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES — DECIMALS: XXX ± .005, XX ± .02, X ± 1; ANGLES: ± 0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL — FINISH —

DRN. DATE 3-10-72 · CHK'D. DATE 9-21-72 · ENG. DATE 9-21-72 · PROJ. ENG. DATE 9-21-72

NEXT HIGHER ASSY. B-DD-KE11-E

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: KE11-E BLOCK DIAGRAM (U WORD & TABLES)

SIZE	CODE	NUMBER	REV.
D	BD	KE11-E-BD	A

SCALE NONE · SHEET 1 OF 2 · DIST.

REVISIONS: REV A — CHANGE NO. KE11E-00001 — BUZYNSKI

EXPANSION U WORD

M7239 KE11-F U WORD [U(88:81)] → ← M7238 KE11-E U WORD [U(8Ø:57)]

CON		FCI	FUB	MHR			FRD	ERD	SRD		SDR		CVM		
CON1	CON Ø	FCI BUS	EUBF4	SMSR	SHSR1	SHSRØ	STFRDM	STRDM	SRDM1	SRDMØ	SDR1	SDRØ	SCVM2	SCVM1	SCVMØ
U88(1)H	U87(1)H	U86(1)H	U85(1)H	U84(1)H	U83(1)H	U82(1)H	U81(1)H	U8Ø(1)H	U79(1)H	U78(1)H	U77(1)H	U76(1)H	U75(1)H	U74(1)H	U73(1)H

NZM		CCC			GPC			CEE	CNT		FUB				CBR
SN2M1	SN2MØ	CLK NZ	CLK V	CLK C	GPC2	GPC1	GPCØ	CLK UPP8	LCNT	ECNT	EUBF3	EUBF2	EUBF1	EUBFØ	CLK BR
U72(1)H	U71(1)H	U7Ø(1)H	U69(1)H	U68(1)H	U67(1)H	U66(1)H	U65(1)H	U64(1)H	U63(1)H	U62(1)H	U61(1)H	U60(1)H	U59(1)H	U58(1)H	U57(1)H

EUBC(4:1) BUT CHART						
EUBF 4	EUBF 3	EUBF 2	EUBF 1	EUBF Ø	BUT	
L	L	L	L	L	NOOP	
L	L	L	L	H	DIS	
L	L	L	H	L	SDIVD	
L	L	L	H	H	ERIS	
L	L	H	L	L	D=Ø	
L	L	L	H	L	DRIS	
L	L	H	H	L	NOT USED	
L	L	H	H	H	DIV QUIT	
L	H	L	L	L	COUNT=Ø	
L	H	L	L	H	OVFL+UNFL+STORE	*
L	H	L	H	L	DRØØ * EIS	
L	H	L	H	H	BR(Ø5:ØØ)	
L	H	H	L	L	ZB * EPS(Z)	*
L	H	H	L	H	FINSTR I	*
L	H	H	H	L	EINSTR II	
L	H	H	H	H	EINSTR I	

* = KE11-F

FUBC BUT CHART (KE11-F) EUBC(4:1)					
STB EUBF4	S2 EUBF2	S1 EUBF1	SØ EUBFØ	FN	BUT (FUBC1)
H	—	—	—	L	—
L	L	L	L	DØ	ARGA
L	L	L	H	D1	MSRØ1
L	L	H	L	D2	ZB + EPS(Z)
L	L	H	H	D3	COUNT > 3Ø
L	H	L	L	D4	NORMALIZED
L	H	L	H	D5	MSRØØ
L	H	H	L	D6	—
L	H	H	H	D7	—

CONSTANTS (KE11-F)			
GPC=6	CON1	CON2	CONSTANT (OCTAL)
H	L	L	4ØØ
H	L	H	244
H	H	L	6
H	H	H	3Ø
L	L	L	2ØØ

GPC CHART			
GPC2	GPC1	GPCØ	FUNCTION
Ø	Ø	Ø	NOOP
Ø	Ø	1	BUT (NORMALIZE) TESTS DRØØ – KE11-F
Ø	1	Ø	ALLOWS ALU CONTROL AS A FUNCTION OF CERTAIN CONDITIONS RATHER THAN DIRECTLY BY THE CONTROL ROM
Ø	1	1	ENABLES DRIS TO PROVIDE THE CARRY-IN TO THE ALU
1	Ø	Ø	ENABLES EPS(C) TO PROVIDE THE CARRY-IN TO THE ALU
1	Ø	1	ENABLES MSRIS TO PROVIDE LSB SHIFT INPUT TO THE DR [illegible]
1	1	Ø	USED IN KE11-F. FORMS CONSTANT 2ØØ(8)
1	1	1	USED IN KE11-F EXECUTES A MICROPROGRAM TEST FOR [illegible]

KE11-E KE11-F ALU FUNCTIONS					
ALUM	ALUS3	ALUS2	ALUS1	ALUSØ	ALU F (FUNCTION)
L	L	L	L	L	F = A
L	L	L	H	H	F = MINUS 1 (2'S COMPLEMENT)
L	L	H	H	L	F = A MINUS B MINUS 1
L	H	L	L	H	F = A PLUS B
L	H	H	L	L	F = A PLUS B
H	L	L	L	L	F = Ā
H	L	L	H	H	F = LOGICAL Ø
H	H	L	H	L	F = B
H	H	H	H	L	F = AB

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP 11	PARTS LIST			

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS: .XXX = .005, .XX = .02, .X = .1 — ANGLES: ±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL — / / —

FINISH — / / —

DRN. DATE 9-8-72; CHK'D. DATE 9-21-72; ENG. DATE 9-21-72; PROD. ENG. DATE 9-21-72; PROD. DATE 9-21-72

NEXT HIGHER ASSY. B-DD-KE11-E

SCALE NONE

SHEET 2 OF 2

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

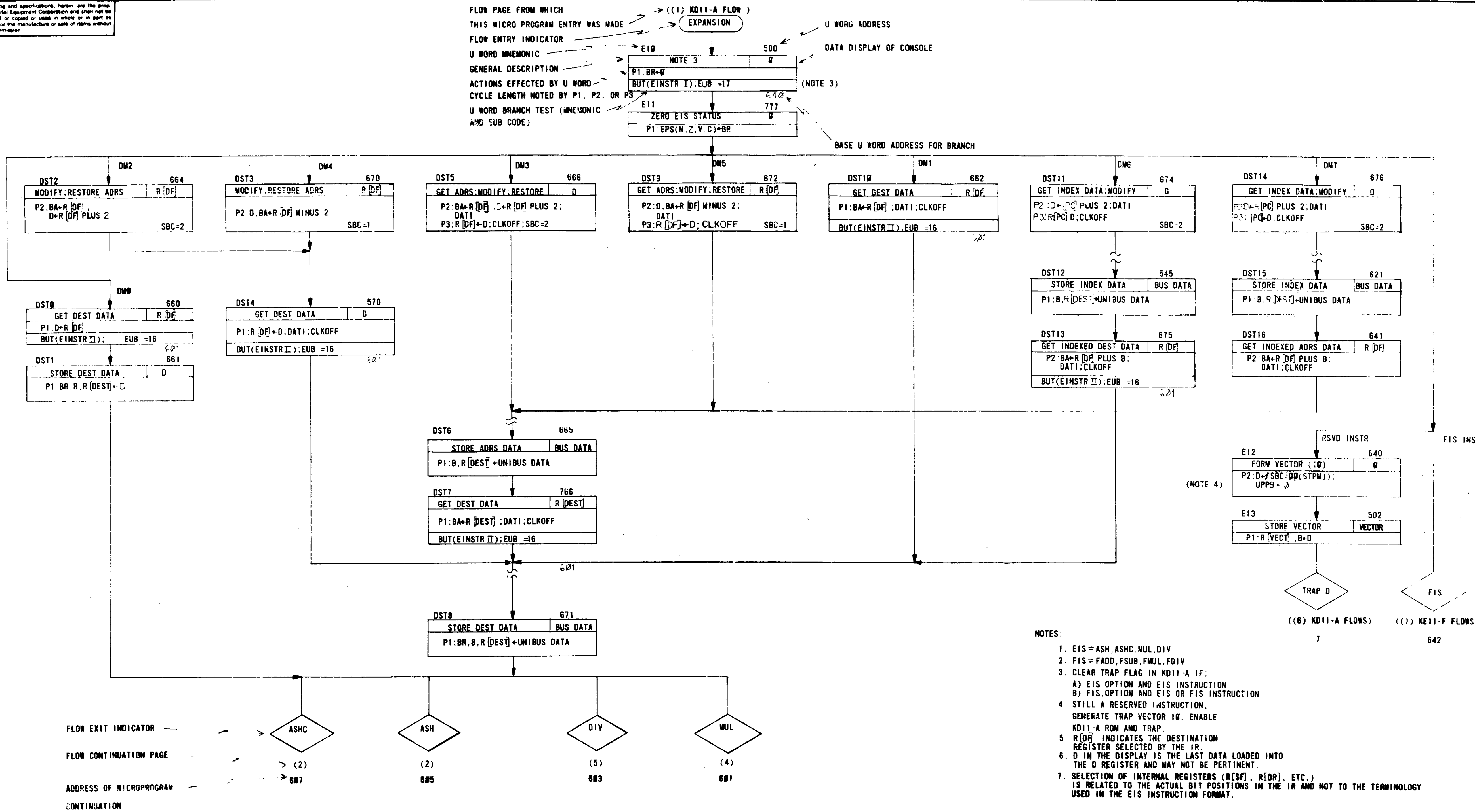
TITLE: KE11-E BLOCK DIAGRAM (U WORD & TABLES)

SIZE D — CODE BD — NUMBER KE11-E-BD — REV. A

DIST.

REVISIONS — REV. — CHANGE NO. — CHK

DEC FORM NO DRD 102-B



NOTES:

1. EIS = ASH, ASHC, MUL, DIV
2. FIS = FADD, FSUB, FMUL, FDIV
3. CLEAR TRAP FLAG IN KD11-A IF:
   A) EIS OPTION AND EIS INSTRUCTION
   B) FIS OPTION AND EIS OR FIS INSTRUCTION
4. STILL A RESERVED INSTRUCTION, GENERATE TRAP VECTOR 10, ENABLE KD11-A ROM AND TRAP.
5. R[DF] INDICATES THE DESTINATION REGISTER SELECTED BY THE IR.
6. D IN THE DISPLAY IS THE LAST DATA LOADED INTO THE D REGISTER AND MAY NOT BE PERTINENT.
7. SELECTION OF INTERNAL REGISTERS (R[SF], R[DR], ETC.) IS RELATED TO THE ACTUAL BIT POSITIONS IN THE IR AND NOT TO THE TERMINOLOGY USED IN THE EIS INSTRUCTION FORMAT.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP11		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS. SURFACE QUALITY ✓

DRN / CHK'D / ENG. / PROJ. ENG. / PROD. — DATE 7-17-72

digital EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS

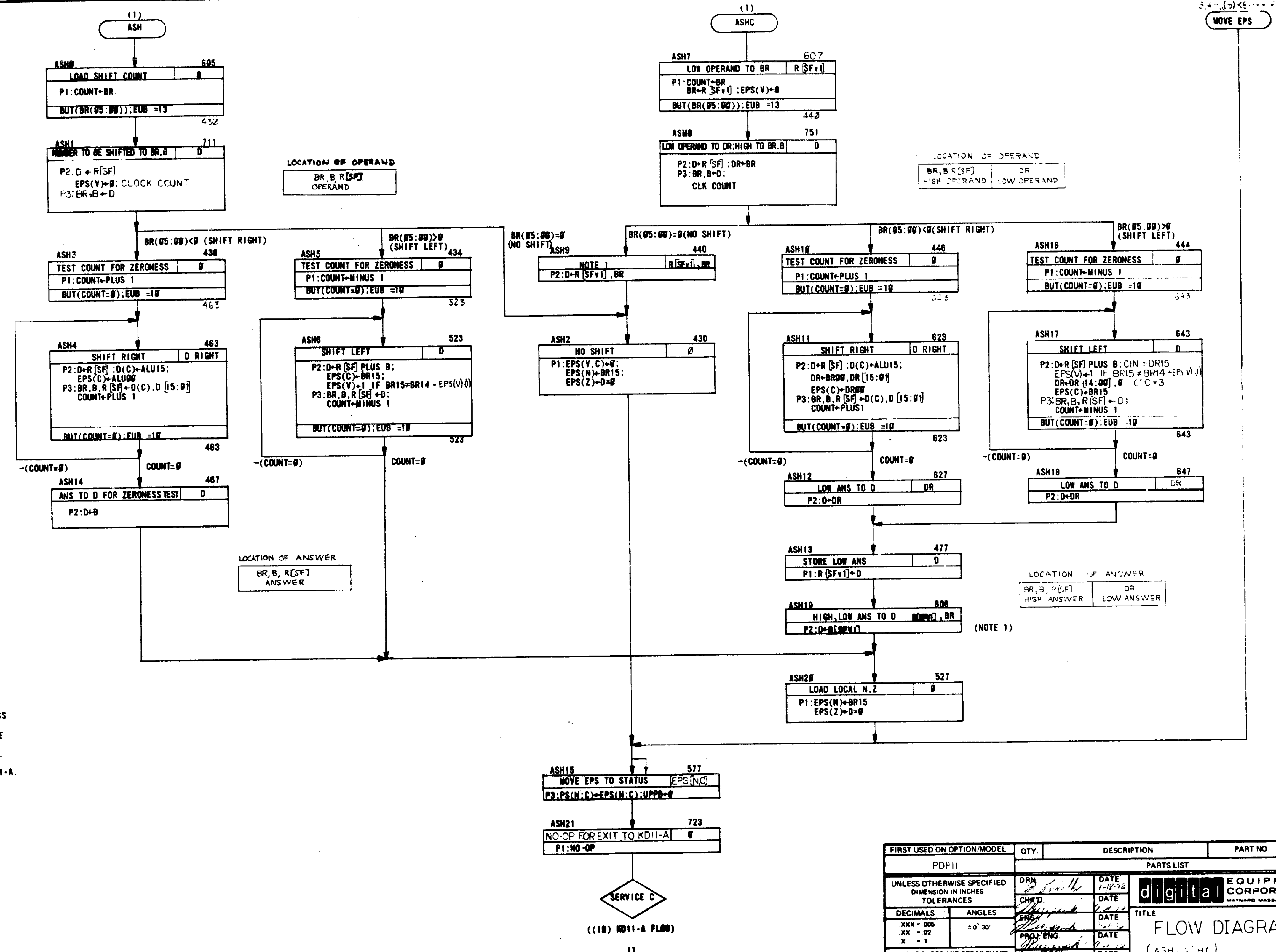
TITLE: FLOW DIAGRAM (KE11-E DEST)

NEXT HIGHER ASSY: B-DD-KD11-A

SIZE D — CODE FD — NUMBER KE11-E-FD — REV. B

SCALE — SHEET 1 OF 5

REV. A — CHANGE NO. KE11E-0001 — BUTYNSKI; REV. B — KE11E-00002 — B. KIRK



NOTES;

1: R [XX] & BR ARE OR'ED TOGETHER ON BUS RD [15:00] TO DETERMINE ZERONESS OF THE 32 BIT ANSWER.
2. BUT (COUNT=0) IS USED TO CLOCK THE NPR & BUS REQUEST FLAGS AND TO CLEAR THE BUSY FLAG IN THE KD11-A. THIS ALLOWS NPRS TO OCCUR WITHOUT DOING A BUS DATA CYCLE IN THE KD11-A.
3. R [SFv1] INDICATES THAT THE SOURCE REGISTER ADDRESS SELECTED BY THE IR IS OR'ED WITH 1.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP11	PARTS LIST			

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —

FINISH —

DRN. DATE 1-18-72 · CHK'D. DATE · ENG. DATE · PROJ. ENG. DATE · PROD. DATE

NEXT HIGHER ASSY. B-DD-KD11-A

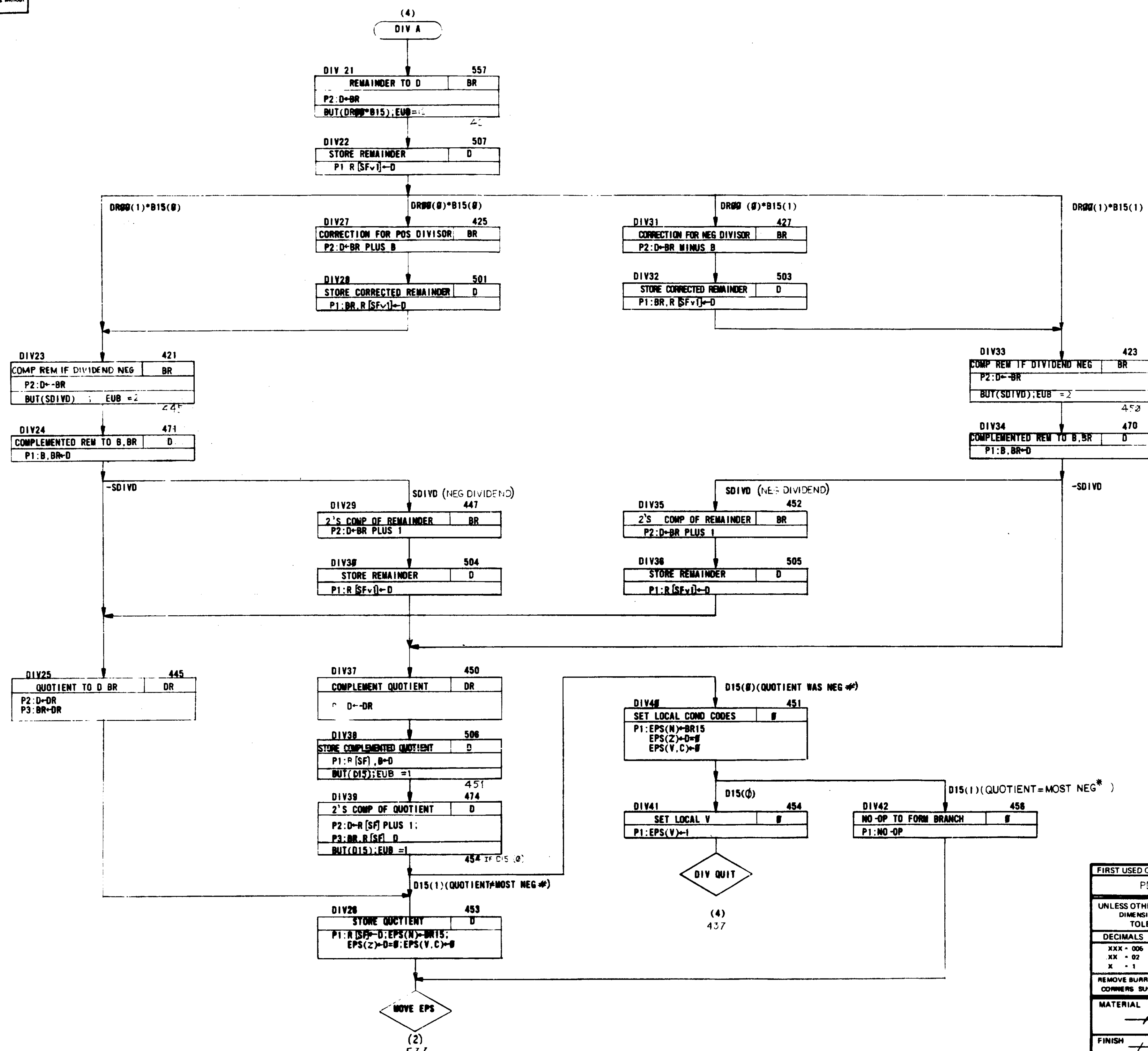
SCALE — SHEET 2 OF 5

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE FLOW DIAGRAM (ASH, ASHC) (2)

SIZE	CODE	NUMBER	REV.
D	FD	KE11-E-FD	B

DIST.


(4)
DIV A
DIV 21 557
REMAINDER TO D BR
P2:D←BR
BUT(DR00*B15);EUB=
DIV22 507
STORE REMAINDER D
P1 R [SF∨1]←D
DR00(1)*B15(0)
DR00(0)*B15(0)
DR00 (0)*B15(1)
DR00(1)*B15(1)
DIV27 425
CORRECTION FOR POS DIVISOR BR
P2:D←BR PLUS B
DIV28 501
STORE CORRECTED REMAINDER D
P1:BR,R [SF∨1]←D
DIV31 427
CORRECTION FOR NEG DIVISOR BR
P2:D←BR MINUS B
DIV32 503
STORE CORRECTED REMAINDER D
P1:BR,R [SF∨1]←D
DIV23 421
COMP REM IF DIVIDEND NEG BR
P2:D←-BR
BUT(SDIVD) ; EUB =2
445
DIV24 471
COMPLEMENTED REM TO B,BR D
P1:B,BR←D
DIV33 423
COMP REM IF DIVIDEND NEG BR
P2:D←-BR
BUT(SDIVD);EUB =2
450
DIV34 470
COMPLEMENTED REM TO B,BR D
P1:B,BR←D
-SDIVD
SDIVD (NEG DIVIDEND)
DIV29 447
2'S COMP OF REMAINDER BR
P2:D←BR PLUS 1
DIV30 504
STORE REMAINDER D
P1:R [SF∨1]←D
SDIVD (NEG DIVIDEND)
DIV35 452
2'S COMP OF REMAINDER BR
P2:D←BR PLUS 1
DIV36 505
STORE REMAINDER D
P1:R [SF∨1]←D
-SDIVD
DIV25 445
QUOTIENT TO D BR DR
P2:D←DR
P3:BR←DR
DIV37 450
COMPLEMENT QUOTIENT DR
D←-DR
DIV38 506
STORE COMPLEMENTED QUOTIENT D
P1:R [SF],B←D
BUT(D15);EUB =1
451
DIV39 474
2'S COMP OF QUOTIENT D
P2:D←R [SF] PLUS 1;
P3:BR,R [SF] D
BUT(D15);EUB =1
454 IF D15 (0)
D15(1)(QUOTIENT≠MOST NEG #)
DIV26 453
STORE QUOTIENT D
P1:R [SF]←D;EPS(N)←BR15;
EPS(Z)←D=0;EPS(V,C)←0
MOVE EPS
(2)
577
D15(0)(QUOTIENT WAS NEG #)
DIV40 451
SET LOCAL COND CODES 0
P1:EPS(N)←BR15
EPS(Z)←D=0
EPS(V,C)←0
D15(0)
D15(1)(QUOTIENT=MOST NEG*)
DIV41 454
SET LOCAL V 0
P1:EPS(V)←1
DIV QUIT
(4)
437
DIV42 456
NO-OP TO FORM BRANCH 0
P1:NO-OP

FIRST USED ON OPTION/MODEL: PDP-11

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

DECIMALS	ANGLES
XXX ± .005 XX ± .02 X ± .1	± 0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —

FINISH —

QTY.	DESCRIPTION	PART NO	ITEM NO.

PARTS LIST

DRN. DATE 7-18-72
CHK'D. DATE
ENG. DATE
PROD. ENG. DATE
PROJ. DATE

NEXT HIGHER ASSY: B-DD-KE11-A

SCALE —
SHEET 5 OF

digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS

TITLE: FLOW DIAGRAM (DIV CONT)

(5)

SIZE	CODE	NUMBER	REV.
D	FD	KE11-E-FD	B

DIST.

REVISIONS: REV | CHANGE NO | CHK

BRUNING 40-522 15840

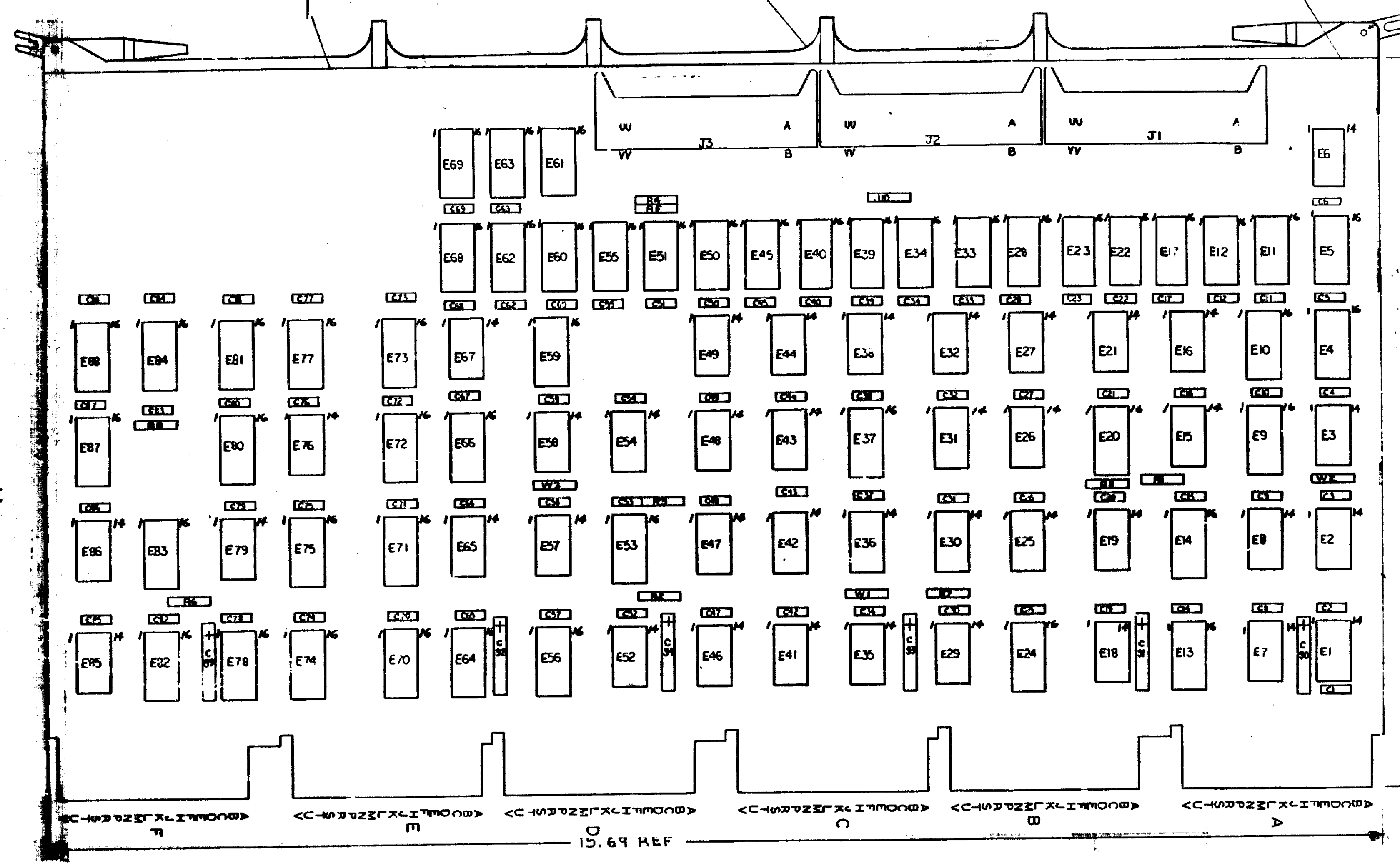
DEC FORM NO DRD 102-B

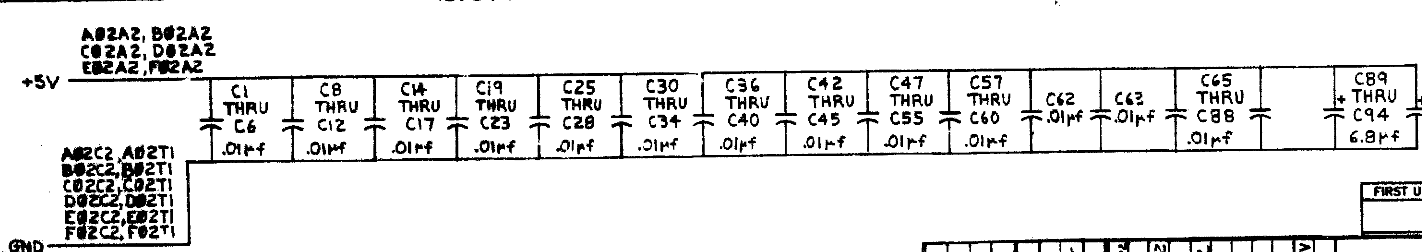
NOTES:

1. PIN NOTATION THROUGHT IS ORDERED UPON MODULE PLACEMENT IN THE KD11-A PROCESSOR. MODULE REFERENCE ALONE IS OBTAINED BY DELETING THE NUMBER (SLOT LOCATION) AFTER THE FIRST LETTER.
2. ALL SIGNALS THAT HAVE MODULE PINS ARE SO NOTED. OUTPUT SIGNALS WITH MODULE PINS ARE BROUGHT TO THE RIGHT SIDE OF THE PRINT.
3. PROCESSOR SIGNAL PREFIX NOTATION (KE-1 FOR EXAMPLE) IDENTIFIES THE SIGNAL SOURCE (PRINT AND MODULE). THE FIRST NUMBER AFTER THE K INDICATES THE MODULE PRINT SET, WHILE THE SECOND INDICATES THE SHEET WITHIN THE SET. SIGNALS WITH A "BUS" PREFIX REPRESENT A "WIRED OR" SITUATION, AND MULTIPLE SOURCES FOR THE SIGNAL CAN EXIST.
4. UNLESS OTHERWISE NOTED: RESISTANCE IS IN OHMS; CAPACITANCE IS IN PICOFARRADS.
5. 74HØ1-1 IS A DIRECT REPLACEMENT FOR THE 974HØ1 (#191Ø176).

INSTALLATION:

1. CUT W1 ON M7233 MODULE WHEN INSTALLING KE11-E
2. CONNECT BCØ8R-Ø1 CABLE (SHIELD TOWARD M7238 BOARD) FROM M7238-J1, J2, J3 TO M7232 J1, J2, J3 RESPECTIVELY.
3. CUT W1, W2 W3 ON THIS MODULE (M7238) WHEN INSTALLING KE11-F OPT[illegible]





IC PIN LOCATIONS

IC TYPE	GND	+ 5V
1311003-02	8	16
DEC 74194	8	16
DEC 74191	8	16
DEC 74174	8	16
DEC 74153	8	16
DEC 74151	8	16
DEC 8251	8	16

GND AND 5V ARE USUALLY PIN 7 AND 14 RESPECTIVELY. EXCEPTIONS ARE STATED ABOVE

PARTS LIST

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
3	W1, W2, W3	INSULATED JUMPER	9009185	[illegible]
12		EYELET	9006732	[illegible]
1	E60	I.C. DEC 23B37A2	23B37A2	[illegible]
1	E68	I.C. DEC 23B30A2	23B3ØA2	[illegible]
1	E62	I.C. DEC 23B29A2	23B29A2	[illegible]
1	E12	I.C. DEC 23B28A2	23B28A2	[illegible]
1	E17	I.C. DEC 23B34A2	23B34A2	[illegible]
1	E11	I.C. DEC 23B26A2	23B26A2	[illegible]
1	E55	I.C. DEC 23B44A2	23B44A2	[illegible]
1	E50	I.C. DEC 23B24A2	23B24A2	[illegible]
1	E51	I.C. DEC 23B23A2	23B23A2	[illegible]
1	E45	I.C. DEC 23B22A2	23B22A2	[illegible]
1	E40	I.C. DEC 23B21A2	23B21A2	[illegible]
1	E34	I.C. DEC 23B2ØA2	23B2ØA2	35
1	E39	I.C. DEC 23B43A2	23B43A2	34
1	E33	I.C. DEC 23B36A2	23B36A2	[illegible]
1	E28	I.C. DEC 23B17A2	23B17A2	[illegible]
1	E22	I.C. DEC 23B16A2	23B16A2	31
1	E23	I.C. DEC 23B15A2	23B15A2	30
7	E5, E10, E63, E69 E70, E78, E82	I.C. DEC 74174	1910652	[illegible]
4	E71, E74 E75 E83	I.C. DEC 74194	1910623	[illegible]
7	E21, E49, E54, E76, E79 E85, E86	I.C. DEC 74H01-1	1909349	[illegible]
2	E56, E64	I.C. DEC 74191	1910096	[illegible]
12	E20, E53, E59, E66 E72 E73, E77, E80, E81, E84 E87, E88	I.C. DEC 74153	1909937	25
3	E14, E24, E37	I.C. DEC 74151	1909936	[illegible]
5	E8, E30, E31, E52 E57	I.C. DEC 74H04	1909931	[illegible]
1	E27	I.C. DEC 7416	1109928	[illegible]
3	E3, E7, E65	I.C. DEC 8815	1909713	[illegible]
1	E44	I.C. DEC 74H74	1909667	[illegible]
2	E9, E13	I.C. DEC 8251	1909594	[illegible]
3	E25, E48, E67	I.C. DEC 74H11	1909267	[illegible]
2	E1, [illegible]2	I.C. DEC 74H53	1909062	17
1	E3[illegible]	I.C. DEC 74H52	1909061	16
5	E15, E29, E32, E42, E46	I.C. DEC 74H50	1909060	15
1	E38	I.C. DEC 74H10	1109057	14
2	E16, E47	I.C. DEC 74H00	1909056	13
2	E19, E43	I.C. DEC 7402	1909004	12
1	E41	I.C. DEC 74H40	190558[illegible]	[illegible]
1	E18	I.C. DEC 7420	1905577	[illegible]
2	E26, E35	I.C. DEC 7400	1905575	[illegible]
2	E6, E58	I.C. DEC 7474	1905547	[illegible]
2	E4, E61	I.C. RES NETWORK	1311003-02	[illegible]
10	R1 THRU R10	RES 1K 1/4W ±5%	1300365	[illegible]
1		HANDLE MODULE	1210711-02	5
3	J1, J2, J3	CONN 40 PIN	1209941	4
6	C89 THRU C94	CAP 6.8µf 35V ±10% TANT	[illegible]005306	3
77	C1 THRU C6, C8 THRU C12 C14 THRU C17, C19 THRU C23 C25 THRU C28, C30 THRU C34 C36 THRU C40, C42 THRU C45 C47 THRU C55, C57 THRU C60 C62, C63, C65 THRU C88	CAP .01µf 100V ±20% DISC	[illegible]001610	2
1		ETCHED CIRCUIT BOARD	5010113	[illegible]

FIRST USED ON OPTION MODEL
PDP 11

ETCH BOARD REV D

REVISIONS

REV	CHANGE NO.			CHK
A	ORIGINATED			
B	M7238-00001	J BUZYNSKI	9/21/72	
C	M7238-00002	J. BUZYNSKI	11-15-72	
D	M7238-00003	J. BUZYNSKI	12-16-72	
E	M7238-00004	K. BANKER	3-24-75	

DEC NO.	EIA NO.	DEC NO.	EIA NO.

SEMICONDUCTOR CONVERSION CHART

DRN.	DATE 8-1-72
CHK'D.	DATE 7-12-72
ENG.	DATE 7-12-72
PROJ. ENG.	DATE [illegible]72
PROD.	DATE [illegible]72

NEXT HIGHER ASSY KE11-E

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: EIS BOARD

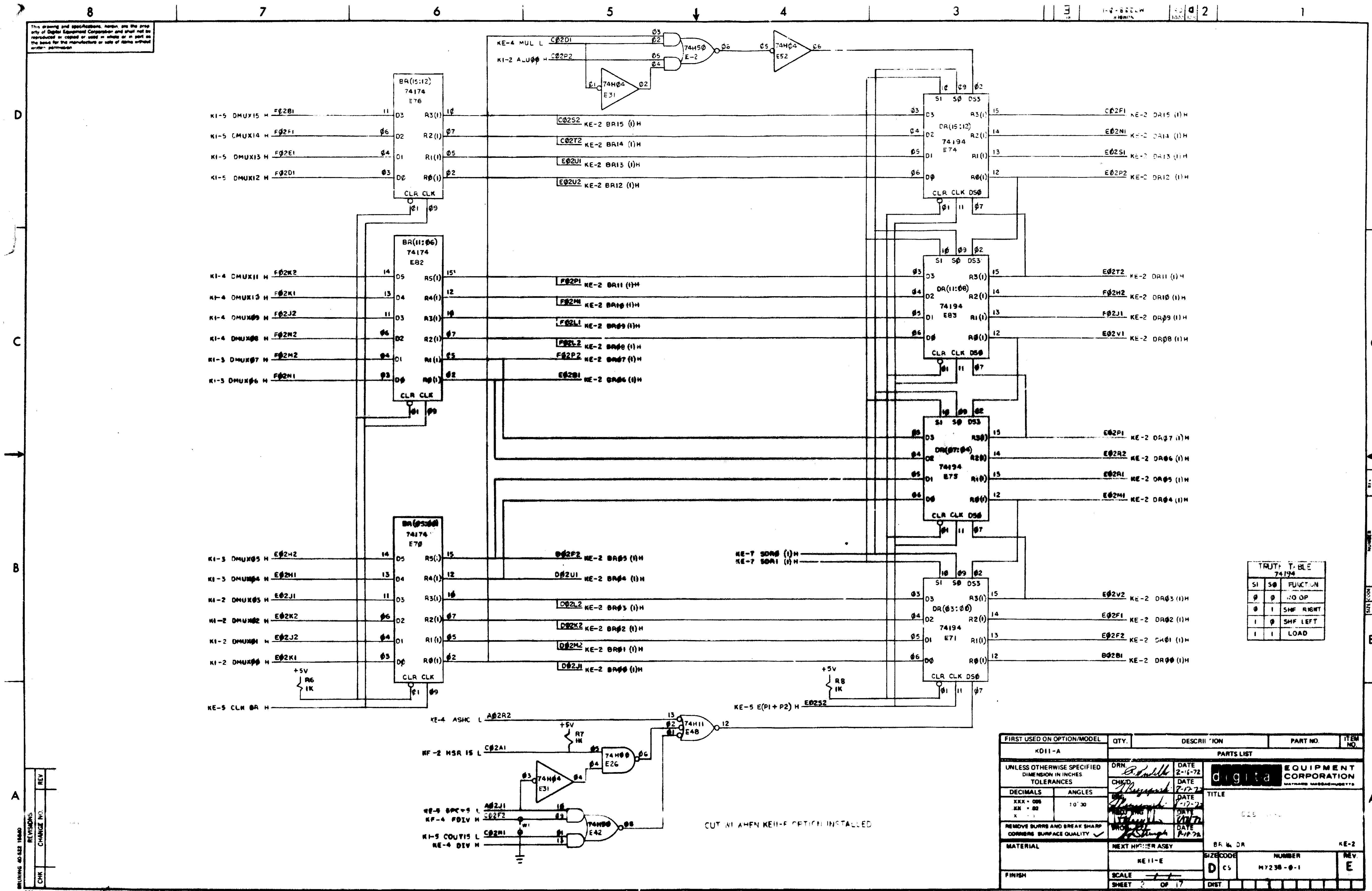
KE-1

SIZE	CODE	NUMBER	REV.
D	[illegible]	M7238-0-[illegible]	E

SCALE NONE

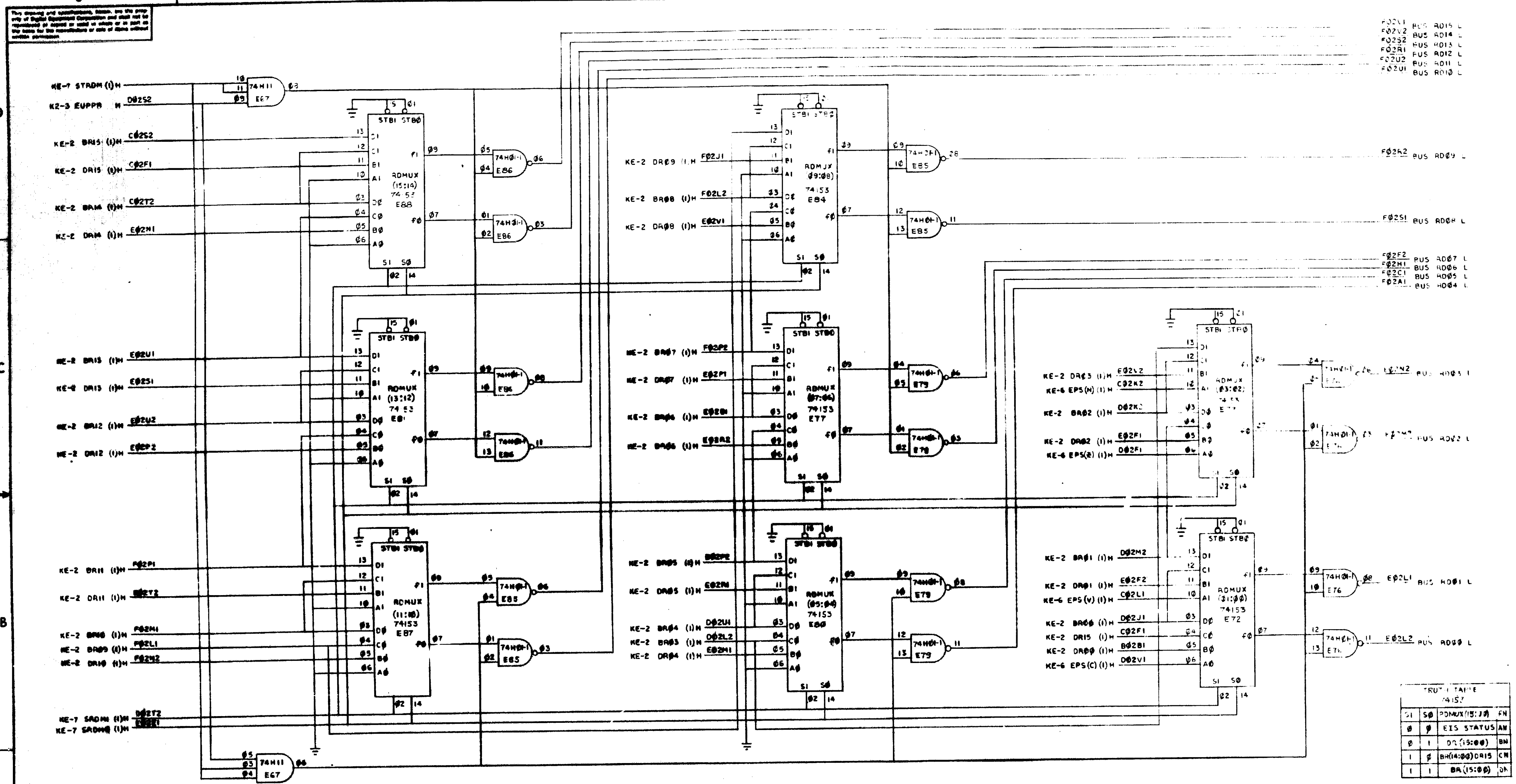
SHEET 1 OF [illegible]

DIST.



TRUTH TABLE 74194

S1	S0	FUNCTION
0	0	NO OP
0	1	SHF RIGHT
1	0	SHF LEFT
1	1	LOAD



TRUTH TABLE 74153

S1	S0	RDMUX(15:00)	FN
0	0	EIS STATUS	AN
0	1	DR(15:00)	BN
1	0	BR(14:00)DR15	CN
1	1	BR(15:00)	DN

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KD11-A		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

DECIMALS XXX ± .005, XX ± .02, X ± .1 — ANGLES ± 0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN DATE 2-16-72 · CHK'D DATE · ENG. DATE · PROD. ENG. DATE · PROJ ENG. DATE

NEXT HIGHER ASSY. KE11-E

SCALE — SHEET 3 OF 17

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: EIS BOARD

RDMUX KE-3

SIZE D CODE CS NUMBER M7238-0-1 REV E

DIST

DEVICE TRUTH TABLE
8251
FOR THE DECIMAL EQUIVALENCE,N, OF THE BINARY NUMBER (D3,D2,D1,D0), ONLY OUTPUT N IS ACTIVE (LOW) FOR Ø ≤ N ≤ 10

EIS-FIS DECODE 8251 E13

KE-4 IR=Ø75XXXL

KE-4 EUBC4 L
KE-4 EUBC3 L
KE-4 EUBC2 L
KE-4 EUBC1 L
KE-4 EUBC0 L

KE-4 EUBC(3:0) = Ø L

KE-4 EUBC(3:0) ENB L

KE-4 EIS INSTR H

KF-4 FIS INSTR L

KE-4 ASHC L
KE-4 ASH L
KE-4 DIV L
KE-4 MUL L

KF-4 FUBC1 L

KE-2 DRØØ (I)H
KE-2 DRØ1 (I)H
KE-2 DRØ2 (I)H
KE-2 DRØ3 (I)H
KE-2 DRØ4 (I)H
KE-2 DRØ5 (I)H
KE-5 DRØØ L

KF-4 OVFL H
KE-5 COUNT=Ø H

KE-2 DR15 (I)H
KE-2 BR15 (I)H
KI-5 DI5 (I)H

KE-7 EUBF2 (I)H
KE-7 EUBF1 (I)H
KE-7 EUBF0 (I)H

EUBC(4:1) BIT CHART

EUBF 4	EUBF 3	EUBF 2	EUBF 1	EUBF Ø	BIT
L	L	L	L	L	NOOP
L	L	L	L	H	DIS
L	L	L	H	L	SOBVD
L	L	L	H	H	BRIS
L	L	H	L	L	D=Ø
L	L	H	L	H	DRIS
L	L	H	H	L	NOT USED
L	L	H	H	H	DIV QUIT
L	H	L	L	L	COUNT = Ø
L	H	L	L	H	OVFL+UNFL+STORE
L	H	L	H	L	DRØØ # BIS
L	H	L	H	H	BR(Ø5:Ø3)
L	H	H	L	L	±BR±EPS(2)
L	H	H	L	H	FINSTR I
L	H	H	H	L	EINSTR II
L	H	H	H	H	EINSTR I

TRUTH TABLE 74153

STB	S1	SØ	FN
H	—	—	L
L	L	L	AN
L	L	H	BN
L	H	L	CN
L	H	H	DN

TRUTH TABLE 74151

STB	S2	S1	SØ	f
H	—	—	—	L
L	L	L	L	DØ
L	L	L	H	D1
L	L	H	L	D2
L	L	H	H	D3
L	H	L	L	D4
L	H	L	H	D5
L	H	H	L	D6
L	H	H	H	D7

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
KDII-A		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES
TOLERANCES
DECIMALS: XXX ± .005, .XX ± .02, X ± 1
ANGLES: ½°
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

DRN. — DATE 2-19-72
CHK'D — DATE 2-17-72
DATE
PROJ. MGR. — DATE 2-17-72
PROD. — DATE 2-17-72

NEXT HIGHER ASSY. KEII-E
SCALE
SHEET 4 OF 17

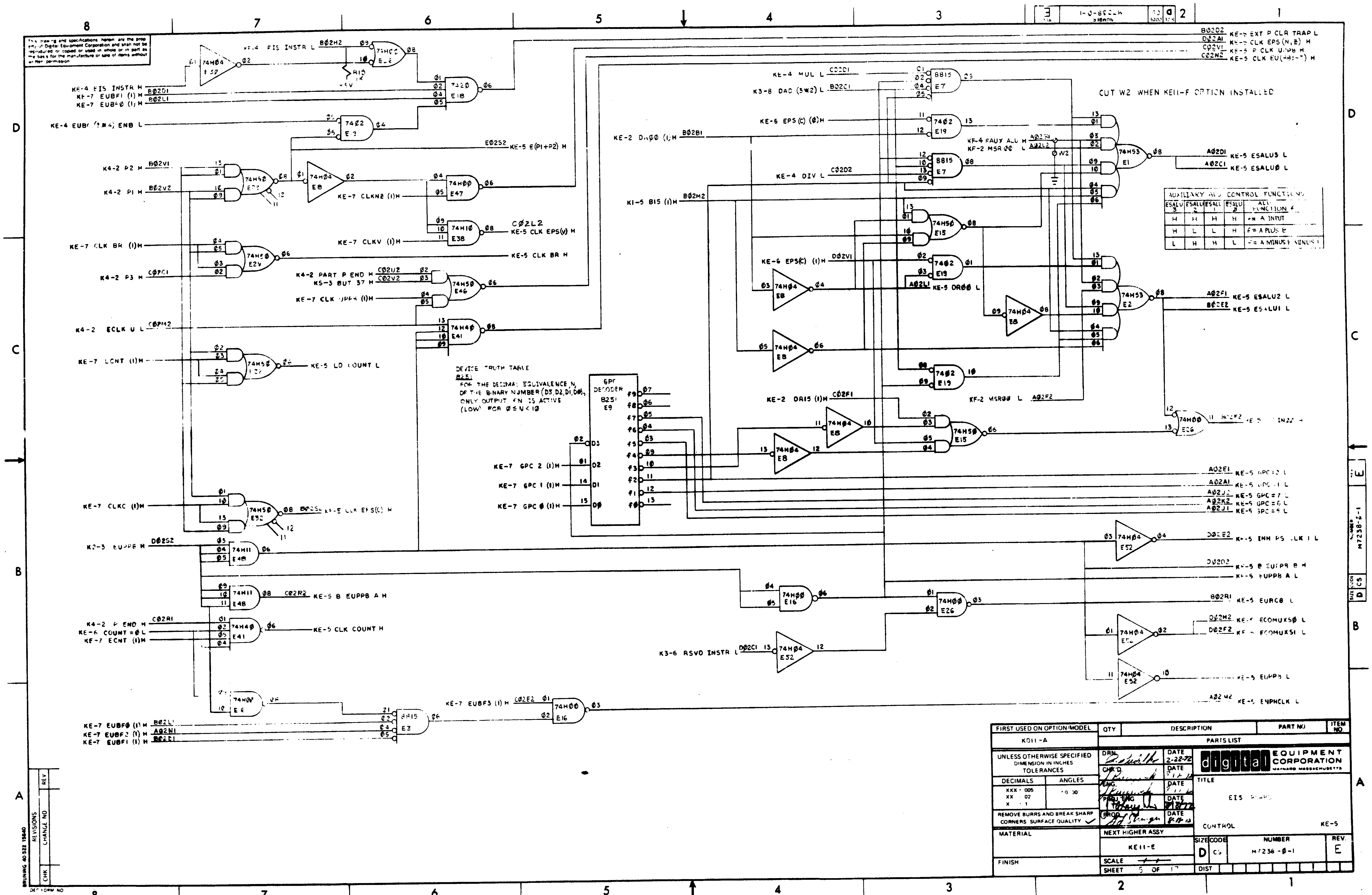
digital EQUIPMENT CORPORATION

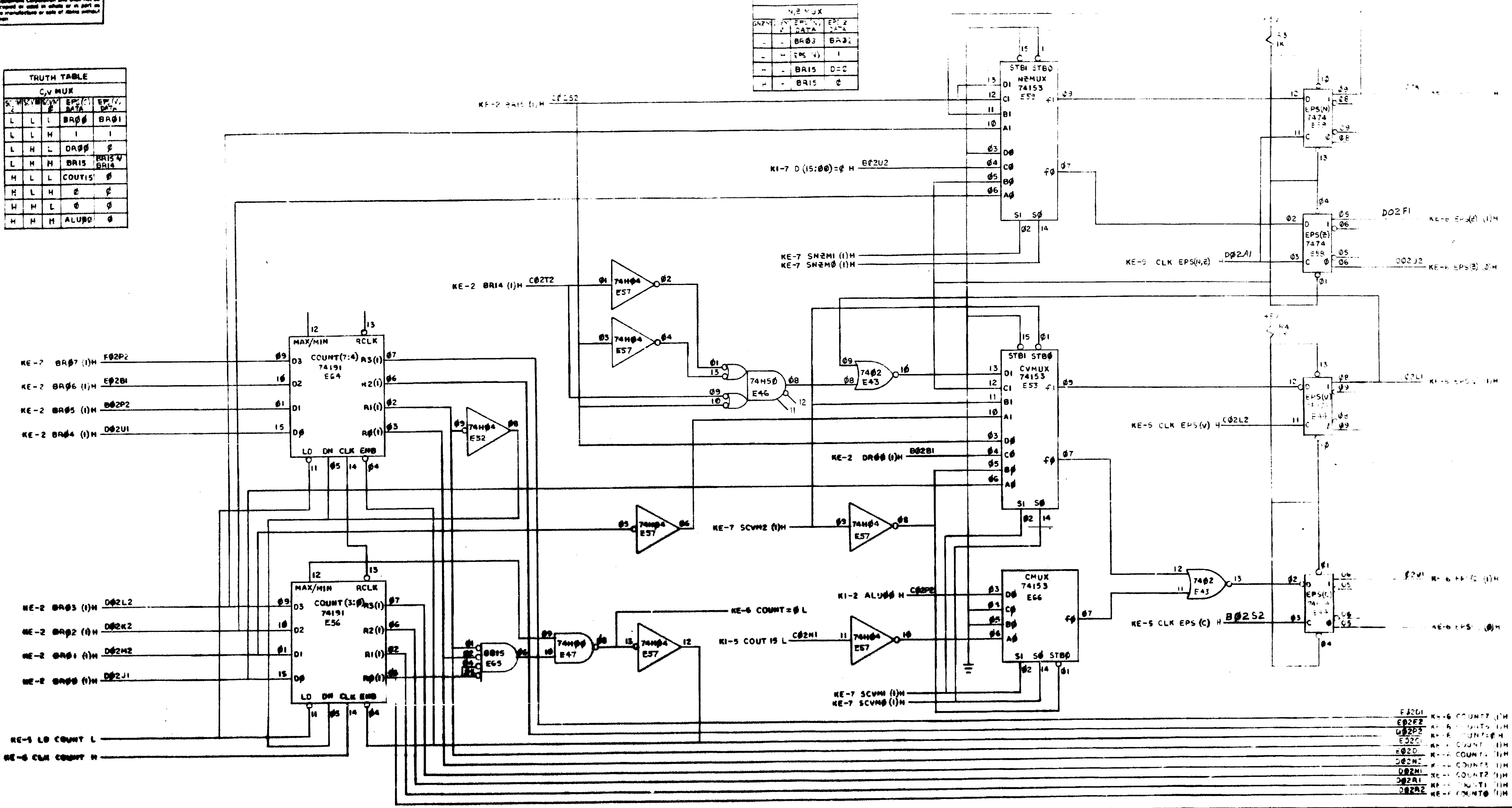
TITLE
EIS BOARD
EUBC CONTROL KE-4

SIZE	CODE	NUMBER	REV
D	CS	M7238-Ø-1	E

DIST.

REV	REVISIONS	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
CUT W2 WHEN KE11-F OPTION INSTALLED
AUXILIARY ALU CONTROL FUNCTIONS
ESALU 3 | ESALU 2 | ESALU 1 | ESALU Ø | ALU FUNCTION F
H | H | H | H | F= A INPUT
H | L | L | H | F= A PLUS B
L | H | H | L | F= A MINUS B MINUS 1
DEVICE TRUTH TABLE
8251
FOR THE DECIMAL EQUIVALENCE N OF THE BINARY NUMBER (D3,D2,D1,DØ), ONLY OUTPUT FN IS ACTIVE (LOW) FOR Ø≤N≤1Ø
GPC DECODER 8251 E9
KE-4 EIS INSTR L
KE-4 EIS INSTR H
KE-7 EUBF1 (1) H
KE-7 EUBFØ (1) H
KE-4 EUB (3 ≡ 4) ENB L
KE-5 E(P1+P2) H
K4-2 P2 H
K4-2 P1 H
KE-7 CLKN2 (1) H
KE-7 CLKV (1) H
KE-5 CLK EPS(V) H
KE-7 CLK BR (1) H
K4-2 P3 H
KE-5 CLK BR H
K4-2 PART P END H
K5-3 BUT 37 H
KE-7 CLK UPPER (1) H
K4-2 ECLK U L
KE-7 LCNT (1) H
KE-5 LD COUNT L
KE-7 CLKC (1) H
KE-5 CLK EPS(C) H
K2-3 EUPPB H
KE-5 B EUPPB A H
K4-2 P END H
KE-6 COUNT=Ø L
KE-7 ECNT (1) H
KE-5 CLK COUNT H
KE-7 EUBF3 (1) H
KE-7 EUBFØ (1) H
KE-7 EUBF2 (1) H
KE-7 EUBF1 (1) H
KE-7 GPC 2 (1) H
KE-7 GPC 1 (1) H
KE-7 GPC Ø (1) H
KE-5 EXT P CLR TRAP L
KE-5 CLK EPS(N,B) H
KE-5 P CLK UPPB H
KE-5 CLK EU(H8:-7) H
KE-4 MUL L
K3-8 DAD (3≡2) L
KE-6 EPS (C) (Ø) H
KE-2 DAØØ (1) H
KE-4 FAUX ALU H
KE-2 MSR ØØ L
KE-4 DIV L
K1-5 B15 (1) H
KE-6 EPS(C) (1) H
KE-5 DRØØ L
KE-2 DR15 (1) H
KE-2 MSRØØ L
KE-5 ESALU3 L
KE-5 ESALUØ L
KE-5 ESALU2 L
KE-5 ESALU1 L
KE-5 GPC=2 L
KE-5 GPC=1 L
KE-5 GPC=7 L
KE-5 GPC=6 L
KE-5 GPC=5 L
KE-5 INH PS CLK 1 L
KE-5 B EUPPB B H
KE-5 EUPPB A L
KE-5 EURCB L
KE-5 ECOMUXSØ L
KE-5 ECOMUXS1 L
K3-6 RSVD INSTR L
KE-5 EUPPB L
KE-5 ENPHCLK L
FIRST USED ON OPTION/MODEL
KD11-A
QTY | DESCRIPTION | PART NO | ITEM NO.
PARTS LIST
UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS
XXX ± .005
XX ± .02
X ± .1
ANGLES
± 0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY
MATERIAL
FINISH
DRN. DATE 2-22-72
CHK'D. DATE
ENG. DATE
PROJ. ENG DATE
PROD. DATE
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
TITLE
EIS
CONTROL KE-5
NEXT HIGHER ASSY
KE11-E
SCALE
SHEET 5 OF 17
SIZE D
CODE CS
NUMBER M7236-Ø-1
REV. E
DIST



TRUTH TABLE				
C,V MUX				
SCVM 2	SCVM 1	SCVM 0	EPS(C) DATA	EPS(V) DATA
L	L	L	BR00	BR01
L	L	H	1	1
L	H	L	DR00	0
L	H	H	BR15	BR15 ⊕ BR14
H	L	L	COUT15	0
H	L	H	0	0
H	H	L	0	0
H	H	H	ALU00	0

TRUTH TABLE			
N,Z MUX			
SNZM 1	SNZM 2	EPS(N) DATA	EPS Z DATA
L	L	BR03	BR02
L	H	EPS (N)	1
H	L	BR15	D=0
H	H	BR15	0

TRUTH TABLE 74153			
STB	S1	S0	FN
H	—	—	L
L	L	L	AN
L	L	H	BN
L	H	L	CN
L	H	H	DN

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO
KD11-A	PARTS LIST			

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES

DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ± 0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN — DATE 2-29-72
CHK'D — DATE 7-12-72
ENG — DATE
DATE
DATE

NEXT HIGHER ASSY: KE11-E

SCALE

SHEET 6 OF 17

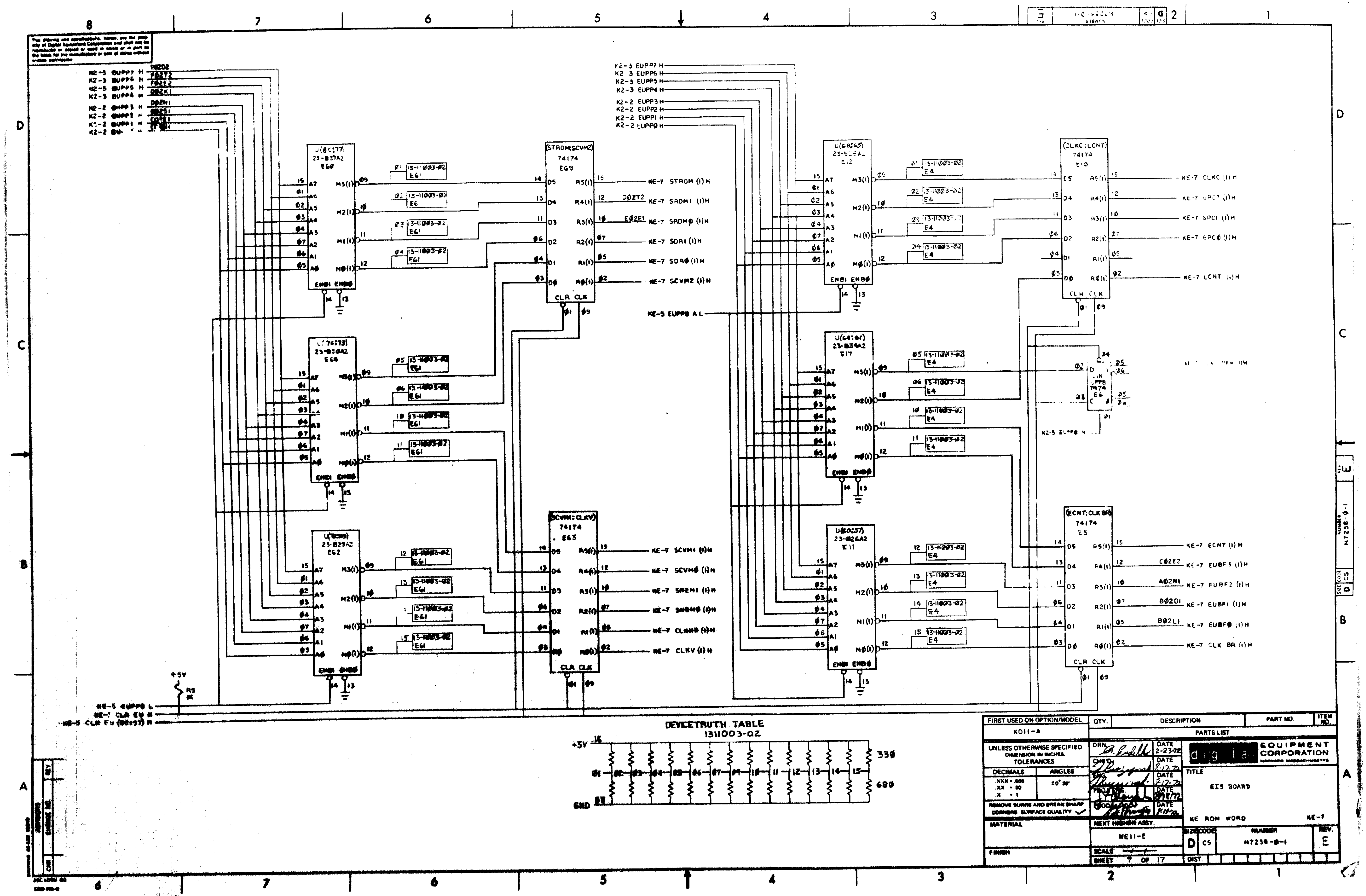
EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: EP… COUNT — KE-6

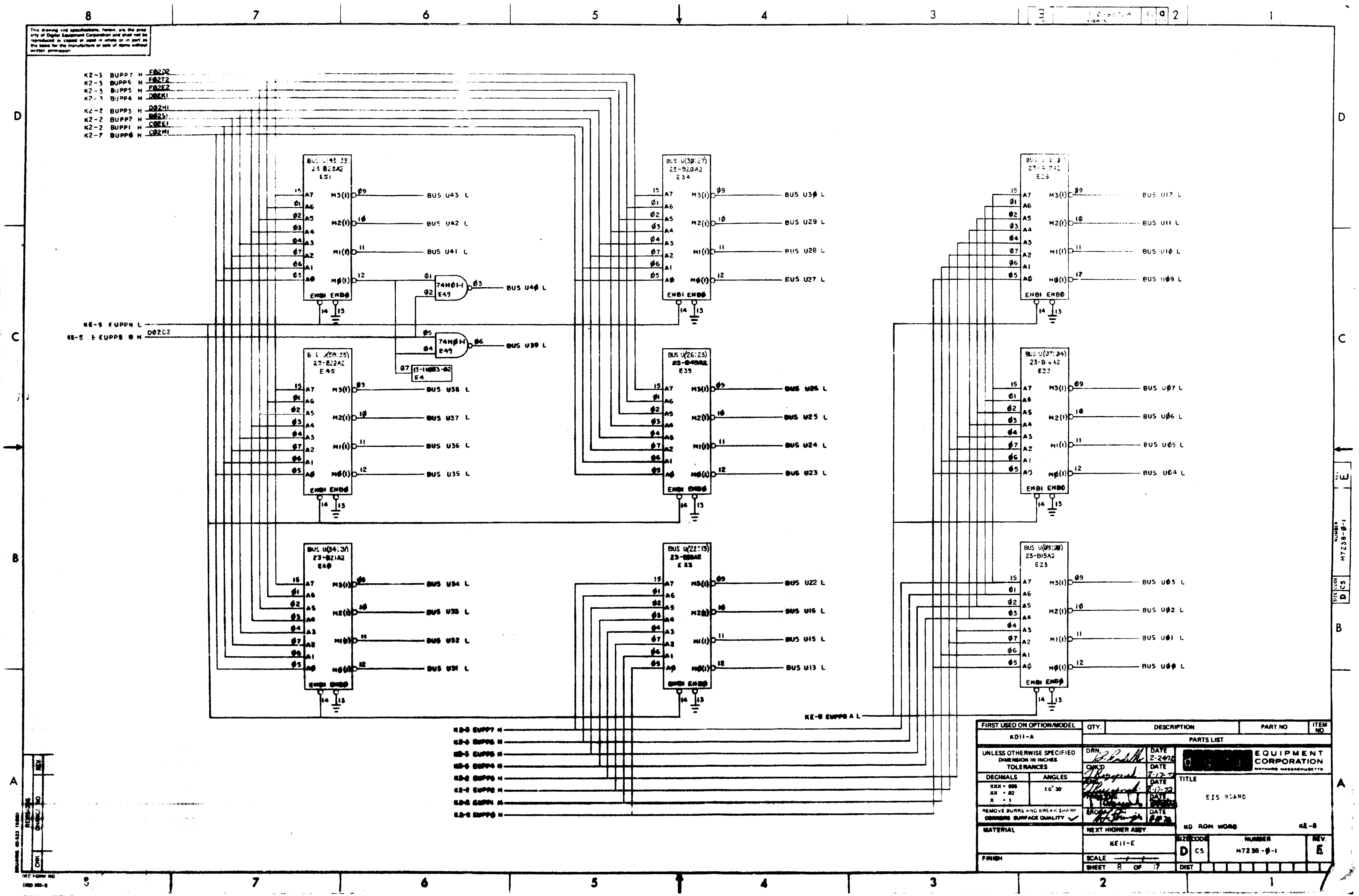
SIZE: D | CODE: CS | NUMBER: M7235-0-1 | REV: E

DIST

DEC FORM NO DRD 102-8



DEVICE TRUTH TABLE
1311003-02
+5V
GND
330
680
KE-5 EUPP8 L
KE-7 CLR EU H
KE-7 STROM (1) H
KE-7 SROM1 (1) H
KE-7 SROMØ (1) H
KE-7 SDR1 (1) H
KE-7 SDRØ (1) H
KE-7 SCVM2 (1) H
KE-7 SCVM1 (1) H
KE-7 SCVMØ (1) H
KE-7 CLKV (1) H
KE-7 CLKC (1) H
KE-7 LCNT (1) H
KE-7 ECNT (1) H
KE-7 CLK BR (1) H
74174
FIRST USED ON OPTION/MODEL
KD11-A
QTY.
DESCRIPTION
PART NO.
ITEM NO.
PARTS LIST
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS
ANGLES
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY
MATERIAL
FINISH
DRN
CHK'D
DATE
2-23-72
NEXT HIGHER ASSY.
KE11-E
SCALE
SHEET 7 OF 17
EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS
TITLE
EIS BOARD
KE ROM WORD
KE-7
SIZE
CODE
NUMBER
REV.
D
CS
M7238-0-1
E
DIST.



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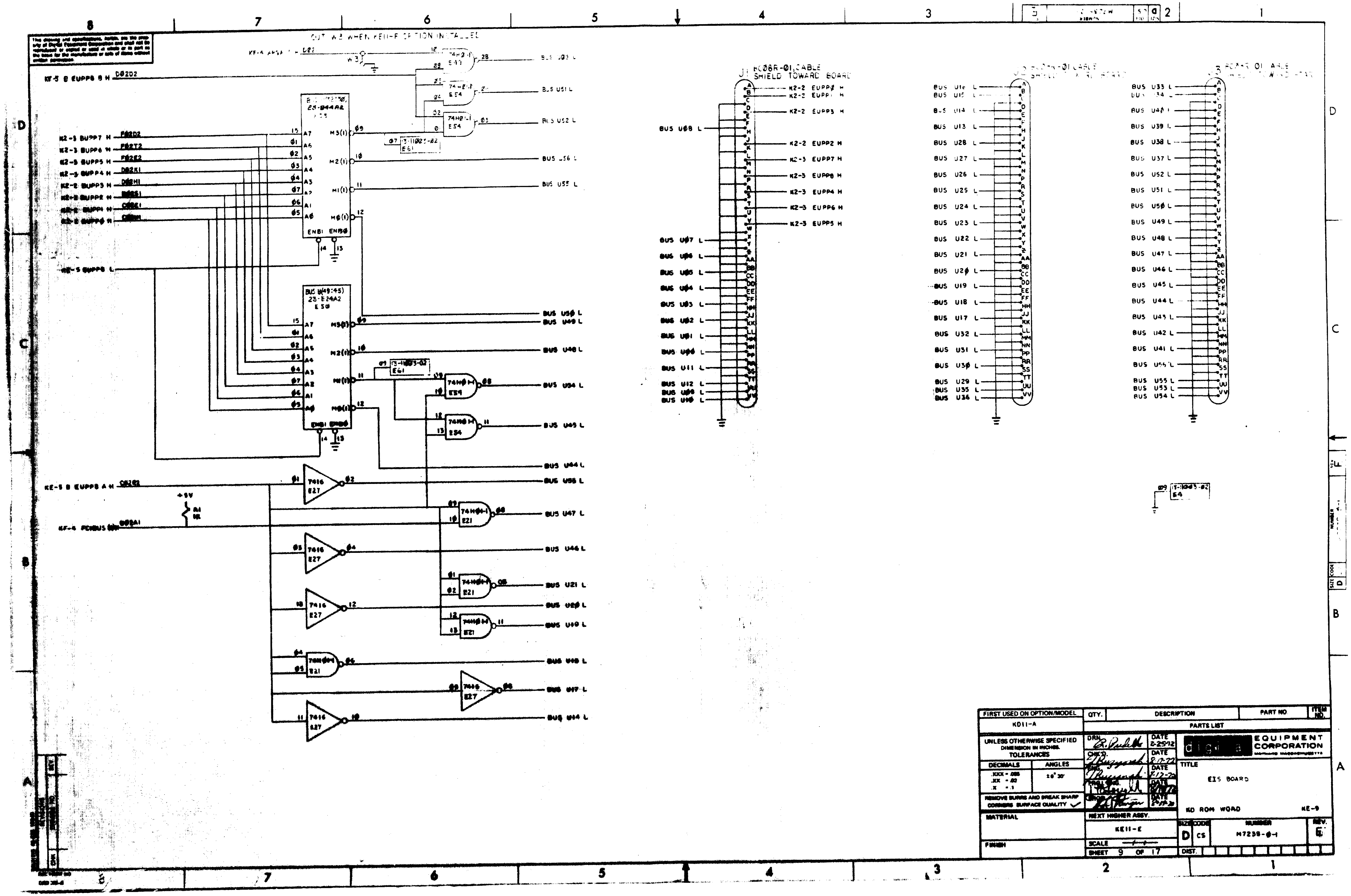
K2-3 BUPP7 H
K2-3 BUPP6 H
K2-3 BUPP5 H
K2-3 BUPP4 H
K2-2 BUPP3 H
K2-2 BUPP2 H
K2-2 BUPP1 H
K2-2 BUPPØ H
KE-5 EUPPN L
KE-5 EUPP8 B H
E51
E34
E45
E39
E40
E33
E23
E49
74HØ1-1
74HØ4
BUS U43 L
BUS U42 L
BUS U41 L
BUS U4Ø L
BUS U39 L
BUS U38 L
BUS U37 L
BUS U36 L
BUS U35 L
BUS U34 L
BUS U33 L
BUS U32 L
BUS U31 L
BUS U3Ø L
BUS U29 L
BUS U28 L
BUS U27 L
BUS U26 L
BUS U25 L
BUS U24 L
BUS U23 L
BUS U22 L
BUS U16 L
BUS U15 L
BUS U13 L
BUS U11 L
BUS U1Ø L
BUS UØ9 L
BUS UØ7 L
BUS UØ6 L
BUS UØ5 L
BUS UØ4 L
BUS UØ3 L
BUS UØ2 L
BUS UØ1 L
BUS UØØ L
KE-8 EUPP8 A L
FIRST USED ON OPTION/MODEL
KD11-A
QTY.
DESCRIPTION
PART NO
ITEM NO
PARTS LIST
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS
ANGLES
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY
MATERIAL
FINISH
NEXT HIGHER ASSY
KE11-E
EQUIPMENT CORPORATION
TITLE
EIS BOARD
SIZE
CODE
NUMBER
REV.
D
CS
M7238-Ø-1
E
SCALE
SHEET 8 OF 17
DIST


OUT W3 WHEN KE11-F OPTION INSTALLED
J1 BC08R-01 CABLE SHIELD TOWARD BOARD
74H00
7416
FIRST USED ON OPTION/MODEL
KD11-A
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS
ANGLES
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY
MATERIAL
FINISH
QTY.
DESCRIPTION
PART NO
ITEM NO.
PARTS LIST
DRN.
CHKD.
DATE
EQUIPMENT CORPORATION
TITLE
EIS BOARD
KD ROM WORD
KE-9
NEXT HIGHER ASSY.
KE11-E
SIZE
CODE
NUMBER
REV.
D
CS
M7238-0-1
E
SCALE
SHEET 9 OF 17
DIST.

PLA#	STATE	ADR	CLK	CIR	WR	CB	CD	CBA	BUS	DAD	SPS	ALU	SBC	SBM	SDM	SBA	UBF	SRX	RIF	UPF
	MUL7	000	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	10	00	204
	MUL19	001	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	133
E3	MUL2	002	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	10	00	015
E3	MUL4	003	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	01	12	075
F5	FDV1	004	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	15	006
E5	MUL16	005	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	00	00	011
F5	FDV2	006	6	0	0	1	1	0	0	10	0	06	06	00	2	0	00	01	14	160
F5	MUL12	007	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	00	00	016
E5	MUL15	010	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	177
E5	MUL18	011	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	11	01	177
E5	MUL14	012	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	177
E5	MUL17	013	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	11	01	177
E5	MUL1	014	4	0	0	0	1	0	0	10	0	06	00	00	0	0	00	00	00	000
E5	MUL3	015	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	10	00	001
E5	MUL13	016	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	11	01	010
F5	ADD23	017	6	0	3	0	1	0	0	00	0	14	00	00	2	0	00	01	11	361
E4	DIV20	020	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	11	01	076
E5	DIV23	021	4	0	0	0	1	0	0	00	0	20	00	00	0	0	00	00	00	071
E4	DIV4	022	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	177
E5	DIV33	023	4	0	0	0	1	0	0	00	0	20	00	00	0	0	00	00	00	070
E4	DIV13	024	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	11	01	147
E5	DIV27	025	4	0	0	0	1	0	0	00	0	11	00	00	0	0	00	00	00	101
E4	DIV7	026	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	10	00	057
E5	DIV31	027	4	0	0	0	1	0	0	10	0	06	00	00	0	0	00	00	00	103
E2	ABM2	030	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	177
E4	DIV16	031	6	0	0	0	1	0	0	14	0	00	00	00	2	0	00	00	00	065
F5	FDV21	032	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	11	372
E4	DIV11	033	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	037
E2	ABM5	034	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	123
E4	DIV19	035	6	0	0	0	1	0	0	14	0	00	00	00	2	0	00	00	00	153
E2	ABM3	036	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	063
E4	DIV12	037	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	177

NOTE:
THE COMPLEMENT OF THE ACTUAL ROM OUTPUT FOR THE UPF, WR, SPS (HIGH 2 BITS), BUS (LOW BIT), AND CLK (LOW BIT) FIELD IS LISTED FOR CLARITY.

PLA#	STATE	ADR	CON	FC1	FUB	MHR	FRD	ERD	SRD	SDR	CVM	NZM	CCC	GPC	CEE	CNT	EUB	CBR
E5	MUL7	000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
E5	MUL19	001	0	0	0	0	0	0	3	0	0	0	0	0	0	1	00	1
E3	MUL2	002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	01	1
E3	MUL4	003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	01	1
F5	FDV1	004	0	0	0	0	0	0	0	0	0	2	4	0	0	0	14	0
E5	MUL16	005	0	0	0	0	0	1	1	0	1	0	1	0	0	0	00	0
F5	FDV2	006	0	0	0	0	0	0	0	0	0	0	0	6	0	0	00	0
F5	MUL12	007	0	0	0	0	0	1	1	0	0	0	0	0	0	0	04	0
E5	MUL15	010	0	0	0	0	0	0	0	0	1	0	1	0	0	0	00	0
E5	MUL18	011	0	0	0	0	0	0	0	0	0	3	4	0	0	0	00	0
E5	MUL14	012	0	0	0	0	0	0	0	0	5	0	1	0	0	0	00	0
E5	MUL17	013	0	0	0	0	0	0	0	0	5	2	5	0	0	0	00	0
E5	MUL1	014	0	0	0	0	0	0	0	0	5	0	1	0	0	2	00	0
E5	MUL3	015	0	0	0	0	0	0	0	3	0	0	0	0	0	0	00	0
E5	MUL13	016	0	0	0	0	0	0	0	0	2	3	6	0	0	0	00	0
F5	ADD23	017	0	0	0	0	0	0	2	0	0	0	0	4	0	0	00	0
E4	DIV20	020	0	0	0	0	0	0	0	0	0	3	4	0	0	0	03	0
E5	DIV23	021	0	0	0	0	0	1	3	0	0	0	0	0	0	0	02	0
E4	DIV4	022	0	0	0	0	0	0	0	0	1	1	7	0	0	0	00	0
E5	DIV33	023	0	0	0	0	0	1	3	0	0	0	0	0	0	0	02	0
E4	DIV13	024	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
E5	DIV27	025	0	0	0	0	0	1	3	0	0	0	0	0	0	0	00	0
E4	DIV7	026	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E5	DIV31	027	0	0	0	0	0	1	3	0	0	0	0	0	0	0	00	0
E2	ABM2	030	0	0	0	0	0	0	0	0	5	2	7	0	0	0	00	0
E4	DIV16	031	0	0	0	0	0	1	2	2	0	0	0	0	0	1	00	1
F5	FDV21	032	0	0	0	0	0	0	1	0	0	0	0	0	0	1	00	0
E4	DIV11	033	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E2	ABM5	034	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0
E4	DIV19	035	0	0	0	0	0	1	2	2	0	0	0	2	0	1	00	1
E2	ABM3	036	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0
E4	DIV12	037	0	0	0	0	0	0	0	0	1	0	2	0	0	0	00	0

REVISIONS	CHANGE NO.	REV.
		CHK

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

DRN.	DATE 8-16-72	TITLE: EIS BOARD (ADRS ØØØ-Ø37)
CHK'D.	DATE 8-17-72	
ENG.	DATE 8-17-72	
PROJ. MG.	DATE 8/17/72	SIZE C · CODE CS · NUMBER M7238-Ø-1 · REV. E
MOD.	DATE 8-18-72	
SHEET 10 OF 17		DIST.

FLOWS	STATE	ADR	CLK	CIR	WR	CB	CD	CBA	BUS	DAD	SPS	ALU	BBC	BBM	BDM	BBA	UBF	BRX	RIF	UPF
E2	ASH9	040	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	11	01	030
F4	FML4	041	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	00	00	190
F5	FDV23	042	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	13	211
F4	FML3	043	6	0	3	1	1	0	0	00	0	23	00	00	2	0	00	01	15	176
E2	ASH16	044	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	243
E5	DIV25	045	6	0	0	0	1	0	0	00	0	00	00	00	0	0	00	00	00	053
E2	ASH10	046	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	223
E5	DIV29	047	4	0	0	0	1	0	0	00	0	11	01	17	0	0	00	00	00	104
E5	DIV37	050	4	0	0	0	1	0	0	00	0	20	00	00	0	0	00	00	00	106
E5	DIV40	051	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	054
E5	DIV35	052	4	0	0	0	1	0	0	00	0	11	01	17	0	0	00	00	00	105
E5	DIV26	053	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	10	00	177
E5	DIV41	054	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	037
E4	DIV2	055	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	10	00	231
E5	DIV42	056	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	177
E4	DIV8	057	6	0	0	0	1	0	0	00	0	06	00	00	2	0	00	00	00	060
E4	DIV9	060	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	061
E4	DIV10	061	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	12	031
E4	DIV15	062	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	12	031
E2	ASH4	063	6	0	3	1	1	0	0	00	0	00	00	00	3	0	00	10	00	065
F2	ADD3	064	6	0	0	0	1	0	0	10	0	06	00	00	2	0	00	00	00	320
E4	DIV17	065	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	066
E4	DIV18	066	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	035
E2	ASH14	067	4	0	0	0	1	0	0	00	0	32	00	00	0	0	00	00	00	127
E5	DIV34	070	2	0	0	1	0	0	0	00	0	00	00	00	2	0	00	00	00	050
E5	DIV24	071	2	0	0	1	0	0	0	00	0	00	00	00	2	0	00	00	00	045
F2	ADD17	072	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	00	00	301
		073	0	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	000
E5	DIV39	074	6	0	3	0	1	0	0	00	0	11	01	17	2	0	00	10	00	051
E3	MUL5	075	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	110
E4	DIV6	076	6	0	0	0	1	0	0	10	0	06	00	00	2	0	00	00	00	024
E2	ASH13	077	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	11	01	206

NOTE:
THE COMPLEMENT OF THE ACTUAL ROM OUTPUT FOR THE UPF, WR, SPS (HIGH 2 BITS), BUS (LOW BIT), AND CLK (LOW BIT) FIELD IS LISTED FOR CLARITY

FLOWS	STATE	ADR	CON	FC1	FUB	MHR	FRD	ERD	SRD	SDR	CVM	NZM	CCC	GPC	CEE	CNT	EUB	CBR
E2	ASH9	040	0	0	0	0	0	1	3	0	0	0	0	0	C	0	00	0
F4	FML4	041	0	0	0	0	1	0	3	0	0	0	0	6	0	0	10	0
F5	FDV23	042	0	0	0	0	0	0	1	0	0	0	0	0	0	0	00	0
F4	FML3	043	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
E2	ASH16	044	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0
E5	DIV25	045	0	0	0	0	0	1	1	0	0	0	0	0	0	0	00	1
E2	ASH10	046	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0
E5	DIV29	047	0	0	0	0	0	1	3	0	0	0	0	0	0	0	00	0
E5	DIV37	050	0	0	0	0	0	1	1	0	0	0	0	0	0	0	00	0
E5	DIV40	051	0	0	0	0	0	0	0	0	5	2	7	0	0	0	00	0
E5	DIV35	052	0	0	0	0	0	1	3	0	0	0	0	0	0	0	00	0
E5	DIV26	053	0	0	0	0	0	0	0	0	5	2	7	0	0	0	00	0
E5	DIV41	054	0	0	0	0	0	0	0	0	1	0	2	0	0	0	00	0
E4	DIV2	055	0	0	0	0	0	0	0	0	0	0	0	0	0	2	04	1
E5	DIV42	056	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E4	DIV8	057	0	0	0	0	0	0	0	3	0	0	0	4	0	0	00	1
E4	DIV9	060	0	0	0	0	0	0	0	0	1	1	7	0	0	0	03	0
E4	DIV10	061	0	0	0	0	0	0	2	0	0	0	0	0	0	0	00	0
E4	DIV15	062	0	0	0	0	0	0	2	0	0	0	0	0	0	0	00	0
E2	ASH4	063	0	0	0	0	0	0	0	0	7	0	1	0	0	1	10	1
F2	ADD3	064	0	0	0	3	0	0	0	0	4	0	1	0	0	0	10	1
E4	DIV17	065	0	0	0	0	0	0	0	0	0	0	0	-	0	0	07	0
E4	DIV18	066	0	0	0	0	0	0	2	0	5	0	1	0	0	1	00	0
E2	ASH14	067	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E5	DIV34	070	0	0	0	0	0	0	3	0	0	0	0	0	0	0	00	1
E5	DIV24	071	0	0	0	0	0	0	3	0	0	0	0	0	0	0	00	1
F2	ADD17	072	0	0	0	3	0	1	1	0	0	0	0	0	0	0	00	0
		073	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E5	DIV39	074	0	0	0	0	0	0	0	0	0	0	0	0	0	0	01	1
E3	MUL5	075	0	0	0	0	0	0	0	3	0	0	0	0	0	0	00	1
E4	DIV6	076	0	0	0	0	0	0	0	0	4	0	1	0	0	0	10	1
E2	ASH13	077	0	0	0	0	0	0	3	0	0	0	0	0	0	0	00	0

REVISIONS	REV.	CHANGE NO.	CHK

DRN.	DATE	8-16-72
CHK'D.	DATE	8-17-72
ENG.	DATE	8-17-72
PROJ. ENG.	DATE	8-17-72
MOD.	DATE	8-18-72

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

TITLE: EIS BOARD
(ADRS 040 - 077)

SIZE	CODE	NUMBER	REV.
C	CS	M723[illegible]-[illegible]	F

SHEET 11 OF 17

DIST.

FLOWS	STATE	ADR	CLK	CIR	WR	CB	CD	CBA	BUS	DAD	SPS	ALU	SBC	SBM	SDM	SBA	UBF	SRX	RIF	UPF
E1	EI0	100	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	377
E5	DIV28	101	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	11	01	021
E1	EI3	102	2	0	3	1	0	0	0	00	0	00	00	00	2	0	00	01	14	007
E5	DIV32	103	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	11	01	023
E5	DIV30	104	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	11	01	050
E5	DIV36	105	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	11	01	045
E5	DIV38	106	2	0	3	1	0	0	0	00	0	00	00	00	2	0	00	10	00	074
E5	DIV22	107	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	11	01	021
E3	MUL6	110	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	10	00	133
E3	MUL22	111	4	0	0	0	1	0	0	00	0	23	00	00	0	0	00	00	00	113
E3	MUL21	112	4	0	0	0	1	0	0	10	0	06	00	00	0	0	00	10	00	111
E3	MUL23	113	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	11	01	114
E3	MUL27	114	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	10	00	133
E3	MUL25	115	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	00	00	141
E3	MUL24	116	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	115
		117	0	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	000
F2	ADD0	120	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	13	251
F1	FP1	121	2	0	3	1	0	0	0	00	0	00	00	00	1	0	00	01	11	125
F2	SUB0	122	6	0	0	0	1	0	0	00	0	20	00	00	2	0	00	00	00	120
E2	ASH6	123	6	0	3	1	1	0	0	00	0	11	00	00	2	0	00	10	00	123
F4	FML0	124	6	0	0	0	0	0	0	00	0	00	00	00	2	0	00	00	00	130
F1	FP2	125	7	0	3	0	1	1	1	00	0	11	02	17	2	0	00	04	00	131
F5	FDV0	126	2	0	0	0	0	0	0	00	0	00	00	00	2	0	00	00	00	004
E2	ASH20	127	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	177
F4	FML1	130	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	14	132
F1	FP3	131	2	0	3	1	0	0	0	00	0	00	00	00	1	0	00	01	13	151
F4	FML2	132	6	0	3	0	1	0	0	00	0	11	00	00	2	0	00	01	15	041
E3	MUL9	133	6	0	0	0	1	0	0	14	0	00	00	00	3	0	00	00	00	135
F5	FDV20	134	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	00	00	154
F1	FP5	135	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	11	155
F6	NDM6	136	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	01	15	305
E3	MUL10	137	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	00	00	167

NOTE:
THE COMPLEMENT OF THE ACTUAL ROM OUTPUT FOR THE UPF, WR, SPS (HIGH 2 BITS), BUS (LOW BIT), AND CLK (LOW BIT) FIELD IS LISTED FOR CLARITY.

FLOWS	STATE	ADR	CON	FC1	FUB	MHR	FRD	ERD	SRD	SDR	CVM	NZM	CCC	GPC	CEE	CNT	EUB	CBR
E1	EI0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	1
E5	DIV28	101	0	0	0	0	0	0	3	0	0	0	0	0	0	0	00	1
E1	EI3	102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E5	DIV32	103	0	0	0	0	0	0	3	0	0	0	0	0	0	0	00	1
E5	DIV30	104	0	0	0	0	0	0	1	0	0	0	0	0	0	0	00	0
E5	DIV36	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E5	DIV38	106	0	0	0	0	0	0	0	0	0	0	0	0	0	0	01	0
E5	DIV22	107	0	0	0	0	0	0	3	0	0	0	0	0	0	0	00	0
E3	MUL6	110	0	0	0	0	0	0	3	0	0	0	0	0	0	1	00	0
E3	MUL22	111	0	0	0	0	0	0	0	0	0	0	0	0	0	0	04	0
E3	MUL21	112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
E3	MUL23	113	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E3	MUL27	114	0	0	0	0	0	0	3	0	0	0	0	0	0	1	00	0
E3	MUL25	115	0	0	0	0	0	1	1	0	2	0	2	0	0	0	00	0
E3	MUL24	116	0	0	0	0	0	0	1	1	0	0	0	0	0	0	00	0
		117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F2	ADD0	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	03	0
F1	FP1	121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
F2	SUB0	122	0	0	0	0	1	0	0	0	0	0	0	0	0	0	00	1
E2	ASH6	123	0	0	0	0	0	0	0	0	3	0	3	0	0	1	10	1
F4	FML0	124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
F1	FP2	125	0	0	0	0	0	0	0	3	0	0	0	0	0	0	00	0
F5	FDV0	126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
E2	ASH20	127	0	0	0	0	0	0	0	0	0	2	4	0	0	0	00	0
F4	FML1	130	0	0	1	0	0	0	0	0	0	2	4	0	0	0	02	0
F1	FP3	131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F4	FML2	132	0	0	0	0	0	0	3	0	0	0	6	0	0	0	00	0
E3	MUL9	133	0	0	0	0	0	1	3	1	2	0	1	2	0	1	10	1
F5	FDV20	134	0	0	0	3	0	0	0	0	0	0	0	0	0	0	00	1
F1	FP5	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F6	NDM6	136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
E3	MUL10	137	0	0	0	0	0	1	3	0	0	0	0	0	0	0	00	0

REVISIONS	CHANGE NO.	REV
		CHK

digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

DRN.	DATE	8-16-72
CHK'D.	DATE	8-17-72
ENG.	DATE	8-17-72
PROJ. ENG.	DATE	8/18/72
PROD.	DATE	8-18-72

TITLE
EIS BOARD
(ADRS 100-137)

SIZE	CODE	NUMBER	REV.
C	CS	M7239-0-	E

SHEET 12 OF 17
DIST.

FLOWS	STATE	ADR	CLK	CIR	WR	CB	CD	CBA	BUS	DAD	SPS	ALU	SBC	SBM	SDM	SBA	UBF	SRX	RIF	UPF
F6	NOM14	140	6	0	3	1	1	0	0	00	0	11	01	17	2	0	00	01	15	142
E3	MUL26	141	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	10	00	177
F6	EXI0	142	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	332
E3	MUL11	143	4	0	0	0	1	0	0	00	0	20	00	00	0	0	00	00	00	005
F1	FP12	144	2	0	3	0	1	0	0	00	0	00	00	00	2	0	00	01	11	244
E1	DST12	145	2	0	3	1	0	0	0	00	0	00	00	00	1	0	00	01	12	275
F1	FP10	146	6	0	3	1	1	0	0	00	0	23	00	00	2	0	00	01	13	252
E4	DIV14	147	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	10	00	062
F4	FML5	150	6	0	3	0	1	0	0	00	0	06	00	00	2	0	00	01	15	365
F1	FP4	151	2	0	3	1	0	0	0	00	0	11	00	00	2	0	00	01	13	135
		152	0	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	000
E4	DIV20	153	6	0	0	0	1	0	0	14	0	00	00	00	2	0	00	00	00	153
F6	NOM1	154	6	0	3	0	1	0	0	00	0	11	01	17	2	0	00	01	15	324
F1	FP6	155	6	0	3	1	1	0	0	00	0	11	00	00	2	0	00	01	11	175
F6	NOM8	156	6	0	0	0	1	0	0	00	0	11	01	17	2	0	00	00	00	174
E5	DIV21	157	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	00	00	107
F5	FDV6	160	4	0	0	0	1	0	0	00	0	11	00	00	0	0	00	00	00	344
F6	EXI4	161	6	0	0	1	0	0	0	00	0	00	00	00	0	0	00	00	00	256
F5	FDV5	162	6	0	3	1	1	0	0	00	0	23	00	00	2	0	00	01	15	176
F2	ADD13	163	4	0	0	0	1	0	0	10	0	06	00	00	0	0	00	00	00	340
F2	ADD5	164	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	11	165
F2	ADD6	165	4	0	0	0	1	0	0	00	0	06	00	00	0	0	00	00	00	202
F5	FDV5	166	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	00	00	350
E3	MUL20	167	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	10	00	143
E1	DST4	170	6	0	3	0	0	0	1	00	0	00	00	00	2	0	00	04	00	271
F5	FDV11	171	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	01	10	042
F4	FML8	172	2	0	0	0	0	0	1	00	0	00	00	00	0	0	00	01	10	210
F5	FDV13	173	6	0	0	0	1	0	0	14	0	00	00	00	2	0	00	00	00	331
F6	NOM9	174	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	273
F1	FP7	175	4	0	0	0	1	0	0	00	0	32	00	10	0	0	00	00	00	367
F6	NOM3	176	2	0	0	0	0	1	0	06	0	00	00	00	1	0	00	04	00	220
F2	ASH15	177	6	0	0	0	0	0	0	00	7	00	00	00	0	0	00	00	00	325

NOTE:
THE COMPLEMENT OF THE ACTUAL ROM OUTPUT FOR THE UPF, WR, SPS (HIGH 2 BITS), BUS (LOW BIT) AND CLK (LOW BIT) FIELD IS LISTED FOR CLARITY.

FLOWS	STATE	ADR	CON	FC1	FUB	MMR	FRD	ERD	SRD	SDR	CVM	NZM	CCC	GPC	CEE	CNT	EUB	CBR
F6	NOM14	140	0	0	0	1	0	0	0	1	0	0	0	0	0	0	00	1
E3	MUL26	141	0	0	0	0	0	0	0	0	1	3	5	0	0	0	00	0
F6	EXI0	142	0	0	0	0	1	0	2	0	0	0	0	0	0	0	00	1
E3	MUL11	143	0	0	0	0	0	1	3	0	2	0	2	0	0	0	04	0
F1	FP12	144	0	0	0	0	0	0	1	0	0	0	0	0	0	0	00	0
E1	DST12	145	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F1	FP10	146	0	0	1	0	0	0	0	0	0	0	0	0	0	0	00	1
E4	DIV14	147	0	0	0	0	0	0	0	3	0	0	0	0	0	0	00	1
F4	FML5	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F1	FP4	151	0	0	0	0	0	0	0	0	4	0	1	0	0	0	00	0
		152	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E4	DIV20	153	0	0	0	0	0	1	2	2	0	0	0	2	0	1	10	1
F6	NOM1	154	0	0	1	0	0	0	0	0	0	0	0	1	0	0	04	0
F1	FP6	155	0	0	0	0	0	0	0	0	0	0	0	4	0	0	10	0
F6	NOM8	156	0	0	0	0	1	0	1	0	4	0	1	0	0	0	00	1
E5	DIV21	157	0	0	0	0	0	1	3	0	0	0	0	0	0	0	12	0
F5	FDV6	160	0	0	0	0	1	0	3	0	0	0	0	6	0	0	00	0
F6	EXI4	161	2	0	0	0	1	0	3	0	1	3	6	0	0	0	00	0
F5	FDV5	162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
F2	ADD13	163	0	0	0	0	0	0	0	0	0	2	4	0	0	2	00	0
F2	ADD5	164	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F2	ADD6	165	0	0	0	0	0	0	0	0	0	0	0	4	0	0	00	0
F5	FDV5	166	1	0	0	0	1	0	3	0	1	0	1	0	0	0	00	0
F5	MUL20	167	0	0	0	0	0	0	3	0	0	0	0	0	0	0	05	0
E1	DST4	170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0
F5	FDV11	171	0	0	0	7	0	0	0	0	0	0	0	0	0	0	00	1
F4	FML8	172	0	0	0	7	0	0	0	0	0	0	0	0	0	0	00	1
F5	FDV13	173	0	0	1	0	0	1	1	3	4	0	1	2	0	0	05	1
F6	NOM9	174	0	0	0	3	0	0	1	0	0	0	0	0	0	0	00	0
F1	FP7	175	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
F6	NOM3	176	0	1	0	3	0	0	1	3	0	2	4	0	0	0	00	0
F2	ASH15	177	0	0	0	0	0	1	0	0	0	0	0	0	1	0	00	0

REVISIONS	REV.	CHANGE NO.	CHK.

DRN D. Smith	DATE 8-16-72	digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
CHK'D	DATE 8-17-72	TITLE EIS BOARD (ADRS 140-177)
ENG.	DATE 8-17-72	
PROJ. ENG.	DATE 8-18-72	SIZE C; CODE 15; NUMBER M7238-1-1; REV. E
PROD.	DATE 8-18-72	DIST.
SHEET 13 OF 17		

FLOW	STATE	ADR	CLK	CIR	WR	CS	CD	CBA	BUS	DAD	SPS	ALU	SBC	SBM	SDM	SBA	UBF	SRX	RIF	UPF
F2	ADD39	200	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	01	15	072
E3	MUL0	201	5	0	0	0	1	0	0	00	0	32	12	17	2	0	00	00	00	014
F2	ADD7	202	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	01	11	500
E4	DIV0	203	6	0	0	0	1	0	0	00	0	32	12	17	2	0	00	00	00	305
E3	MUL8	204	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	001
E2	ABH0	205	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	311
E2	ABH19	206	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	11	01	127
E2	ABH7	207	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	11	01	551
F4	FML9	210	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	212
F5	FDV24	211	6	0	0	0	1	0	0	10	0	06	00	00	2	0	00	00	00	032
F4	FML10	212	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	15	215
F4	FML11	213	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	00	00	232
F6	NOM11	214	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	216
F2	ADD16	215	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	01	15	200
F6	NOM12	216	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	234
F4	FML18	217	6	0	0	0	1	0	0	00	0	00	00	00	2	0	00	00	00	330
F6	EXI7	220	5	0	0	0	1	0	3	00	0	00	00	00	0	0	00	00	00	536
E1	DBT15	221	2	0	3	1	0	0	0	00	0	00	00	00	1	0	00	01	12	241
F6	EXI3	222	6	0	0	0	1	0	2	00	0	03	00	00	2	0	00	00	00	224
E2	ABH11	223	6	0	5	1	1	0	0	00	0	00	00	00	3	0	00	10	00	225
F6	EXI12	224	2	0	0	0	0	0	2	00	0	00	00	00	2	0	00	00	00	161
F2	ADD10	225	6	0	0	0	1	0	0	00	0	06	00	00	2	0	00	00	00	245
F2	ADD15	226	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	00	00	215
E2	ABH12	227	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	00	00	077
F4	FML14	230	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	11	250
E4	DIV3	231	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	020
F4	FML12	232	2	0	0	0	0	0	0	00	0	00	00	00	3	0	00	00	00	304
F3	ADD35	233	6	0	0	1	1	0	0	00	0	36	00	00	0	0	00	00	00	360
F6	NOM13	234	6	0	0	1	1	0	0	00	0	00	00	00	0	0	00	01	15	140
F1	FP9	235	4	0	0	0	1	0	0	00	0	11	00	14	0	0	00	00	00	144
F6	EXI1	236	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	00	00	254
F3	ADD25	237	2	0	0	0	0	0	0	00	0	00	00	00	2	0	00	00	00	341

NOTE:
THE COMPLEMENT OF THE ACTUAL ROM OUTPUT FOR THE UPF, WR, SPS (HIGH 2 BITS), BUS (LOW BIT), AND CLK (LOW BIT) FIELD IS LISTED FOR CLARITY.

FLOW	STATE	ADR	CON	FC1	FUB	MHR	FRD	ERD	SRD	SDR	CVM	NZM	CCC	GPC	CEE	CNT	EUB	CBR
F2	ADD39	200	0	0	0	0	0	0	1	0	0	0	0	0	0	0	00	0
E3	MUL0	201	0	0	0	0	0	0	0	0	0	0	0	0	0	0	03	1
F2	ADD7	202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E4	DIV0	203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
E3	MUL8	204	0	0	0	0	0	0	0	3	0	0	0	0	0	0	00	1
E2	ABH0	205	0	0	0	0	0	0	0	0	0	0	0	0	0	2	13	0
E2	ABH19	206	0	0	0	0	0	1	3	0	0	0	0	0	0	0	00	0
E2	ABH7	207	0	0	0	0	0	0	0	0	2	0	2	0	0	2	15	1
F4	FML9	210	0	0	0	3	0	0	0	0	0	0	0	0	0	0	00	1
F5	FDV24	211	0	0	0	0	0	1	1	3	4	0	1	0	0	0	00	1
F4	FML10	212	2	0	0	0	0	0	3	3	0	0	0	0	0	0	00	0
F4	FML11	213	0	0	1	0	0	1	3	0	0	0	0	0	0	1	01	0
F6	NOM11	214	0	0	0	0	0	0	0	3	0	0	0	0	0	0	00	0
F2	ADD16	215	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
F6	NOM12	216	0	0	1	1	0	0	0	1	0	0	0	1	0	0	04	1
F4	FML18	217	0	0	0	0	0	1	1	3	0	0	0	0	0	0	00	1
F6	EXI7	220	0	0	0	0	1	0	1	0	0	0	0	0	0	0	00	0
E1	DBT15	221	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F6	EXI3	222	2	0	0	0	0	0	3	0	0	0	0	0	0	0	00	1
E2	ABH11	223	0	0	0	0	0	0	1	1	2	0	1	0	0	1	10	1
F6	EXI12	224	2	0	0	0	0	0	3	0	0	0	0	0	0	0	00	1
F2	ADD10	225	0	0	0	0	0	0	0	0	0	0	0	4	0	0	00	1
F2	ADD15	226	0	0	0	0	1	0	1	0	0	0	0	0	0	2	00	0
E2	ABH12	227	0	0	0	0	0	1	1	0	0	0	0	0	0	0	00	0
F4	FML16	230	0	0	0	0	0	0	1	0	0	0	0	7	0	0	10	0
F4	DIV3	231	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F4	FML12	232	1	0	0	5	0	0	0	1	0	0	0	7	0	0	10	1
F3	ADD35	233	0	0	0	0	0	1	1	0	0	0	0	0	0	0	00	0
F6	NOM13	234	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
F1	FP9	235	0	0	1	0	1	0	3	0	0	0	0	0	0	0	00	0
F6	EXI1	236	1	0	0	0	1	0	3	0	0	0	0	0	0	0	11	0
F3	ADD25	237	0	0	0	0	0	0	0	0	0	0	0	7	0	1	10	0

REVISIONS	REV	CHANGE NO.	CHK

DRN. G. Pudelka	DATE 8-16-72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D.	DATE 8-17-72	TITLE EIS BOARD (ADRS 200-237)
ENG.	DATE 8-17-72	
PROJ. ENG.	DATE 8/18/72	SIZE C · CODE 05 · NUMBER M723*-0-1 · REV. E
MODEL	DATE 8-18-72	SHEET 14 OF 17 · DIST.

FLOWS	STATE	ADR	CLK	CIR	WR	CB	CU	CBA	BUS	DAD	SPS	ALU	BBC	SBM	SDM	SBA	UBF	SRX	RIF	UPF
E1	EI2	240	4	0	0	0	1	0	0	00	0	32	00	17	0	0	00	00	00	102
E1	DBT16	241	5	0	0	0	0	1	1	00	0	11	00	00	0	0	00	04	00	265
F1	FP0	242	3	0	0	0	0	1	1	00	0	00	00	00	2	1	00	04	00	121
E2	ASM17	243	6	0	3	1	1	0	0	00	0	11	00	00	2	0	00	10	00	243
F1	FP13	244	7	0	3	0	1	1	1	00	0	11	02	17	2	0	00	04	00	121
F2	ADD11	245	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	14	375
F1	FP14	246	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	00	00	255
F2	ASM18	247	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	00	00	077
F4	FML17	250	6	0	0	0	1	0	0	00	0	11	00	00	2	0	00	00	00	213
F2	ADD1	251	4	0	0	0	1	0	0	10	0	06	00	00	0	0	00	00	00	300
F1	FP11	252	2	0	3	0	1	0	0	00	0	00	00	00	2	0	00	01	11	244
F4	BRQ2	253	6	0	0	1	0	0	0	00	0	00	00	00	0	0	00	00	00	355
F6	EXI2	254	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	01	14	220
F1	FP15	255	6	0	0	0	1	0	0	00	0	26	00	00	0	0	00	00	00	120
F6	EXI5	256	6	0	0	0	0	0	0	00	7	00	00	00	0	0	00	00	00	354
F4	BRQ3	257	6	0	0	1	0	0	0	00	0	00	00	00	0	0	00	00	00	355
E1	DBT0	260	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	04	00	261
E1	DBT1	261	2	0	3	1	0	0	0	00	0	00	00	00	2	0	00	01	12	201
E1	DBT10	262	3	0	0	0	0	1	1	00	0	00	00	00	0	1	00	04	00	271
F4	FML7	263	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	01	12	172
E1	DBT2	264	4	0	0	0	1	1	0	00	0	11	02	17	0	1	00	04	00	170
E1	DBT6	265	2	0	3	1	0	0	0	00	0	00	00	00	1	0	00	01	12	366
E1	DBT5	266	7	0	3	0	1	1	1	00	0	11	02	17	2	1	00	04	00	265
F5	FDV10	267	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	171
E1	DBT3	270	4	0	0	0	1	1	0	00	0	06	01	17	0	0	00	04	00	170
E1	DBT8	271	2	0	3	1	0	0	0	00	0	00	00	00	1	0	00	01	12	201
E1	DBT9	272	7	0	3	0	1	1	1	00	0	06	01	17	2	0	00	04	00	265
F6	NOM10	273	6	0	0	0	1	0	0	00	0	11	00	00	2	0	00	00	00	214
E1	DBT11	274	7	0	3	0	1	0	1	00	0	11	02	17	2	0	00	01	07	145
E1	DBT13	275	5	0	0	0	0	1	1	00	0	11	00	00	0	0	00	04	00	271
E1	DBT14	276	7	0	3	0	1	0	1	00	0	11	02	17	2	0	00	01	07	221
F4	FML15	277	6	0	0	0	1	0	0	00	0	11	00	00	2	0	00	00	00	230

NOTE:
THE COMPLEMENT OF THE ACTUAL ROM OUTPUT FOR THE UPF, WR, SPS (HIGH 2 BITS), BUS (LOW BIT), AND CLK (LOW BIT) FIELD IS LISTED FOR CLARITY.

FLOWS	STATE	ADR	CON	FC1	FUB	MMR	FRD	ERD	SRD	SDR	CVM	NZM	CCC	GPC	CEE	CNT	EUB	CBR
E1	EI2	240	0	0	0	0	0	0	0	0	0	0	0	0	1	0	00	0
E1	DBT16	241	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F1	FP0	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E2	ASM17	243	0	0	0	0	0	0	1	2	3	0	3	3	0	1	10	1
F1	FP13	244	0	0	0	7	0	0	0	0	0	2	4	0	0	0	00	0
F2	ADD11	245	0	0	0	0	0	0	0	3	0	3	4	0	0	0	00	0
F1	FP14	246	0	0	0	0	0	1	1	0	0	0	0	0	0	0	15	0
F2	ASM18	247	0	0	0	0	0	1	1	0	0	0	0	0	0	0	00	0
F4	FML17	250	2	0	0	0	0	1	1	3	0	0	0	4	0	0	00	1
F2	ADD1	251	0	0	0	0	0	0	0	0	4	0	1	0	0	0	00	0
F1	FP11	252	0	0	0	0	0	0	1	0	0	0	0	0	0	0	00	0
F4	BRQ2	253	2	0	0	0	1	0	3	0	0	0	0	0	0	0	00	0
F6	EXI2	254	0	1	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F1	FP15	255	0	0	0	0	1	0	0	0	0	0	0	0	0	0	00	1
F6	EXI5	256	0	0	0	0	0	1	0	0	0	0	0	0	1	0	00	0
F4	BRQ3	257	2	0	0	0	1	0	3	0	0	0	0	0	0	0	00	0
E1	DBT0	260	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0
E1	DBT1	261	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
E1	DBT10	262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0
F4	FML7	263	0	0	0	0	0	0	0	0	0	0	0	0	0	2	00	1
E1	DBT2	264	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E1	DBT6	265	3	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E1	DBT5	266	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F5	FDV10	267	0	0	0	0	0	0	0	3	0	0	0	0	0	0	00	1
E1	DBT3	270	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E1	DBT8	271	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
E1	DBT9	272	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F6	NOM10	273	0	0	0	0	0	1	1	0	0	0	0	4	0	0	10	1
E1	DBT11	274	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E1	DBT13	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0
E1	DBT14	276	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F4	FML15	277	0	0	0	0	0	1	1	3	4	0	1	0	0	0	00	1

REVISIONS		
REV	CHANGE NO.	CHK

DRN.	DATE	8-16-72
CHK'D.	DATE	8-17-72
ENG.	DATE	8-17-72
PROJ. ENG.	DATE	8/18/72
MOD.	DATE	8/17/72
SHEET 15 OF 17		

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: EIS BOARD (ADRS 240-277)

SIZE	CODE	NUMBER	REV.
C	CS	M7238-0-1	E

DIST.

FLOWS	STATE	ADR	CLK	CIN	WR	CB	CO	CBA	BUS	DAD	SPS	ALU	SBC	SBM	SDM	SBA	UBF	SRX	RIF	UPF
F2	ADD2	300	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	12	004
F2	ADD18	301	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	01	11	321
F2	ADD4	302	6	0	3	0	0	0	0	00	0	00	00	00	2	0	00	01	13	164
E4	QIV1	303	4	0	0	0	1	0	0	00	0	32	00	00	0	0	00	00	00	055
F4	FML13	304	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	13	213
F6	NOM7	305	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	156
F4	FML14	306	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	13	277
F6	NOM5	307	4	0	0	0	1	0	0	00	0	06	00	00	0	0	00	01	15	136
F2	ADD21	310	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	01	15	340
E2	A8M1	311	6	0	0	1	1	0	0	00	0	00	00	00	2	0	00	10	00	030
F5	FDV19	312	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	134
F3	ADD27	313	6	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	313
F3	ADD33	314	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	00	00	334
F3	ADD32	315	6	0	0	0	1	0	0	00	0	11	00	00	2	0	00	00	00	314
F5	FDV16	316	6	0	0	0	1	0	0	00	0	00	00	00	2	0	00	00	00	333
F3	ADD30	317	6	0	0	0	1	0	0	00	0	11	00	00	2	0	00	00	00	347
F2	ADD8	320	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	01	10	245
F2	ADD19	321	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	01	11	325
F2	ADD9	322	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	10	225
E2	A8M21	323	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	017
F6	NOM4	324	2	0	0	0	0	1	0	06	0	00	00	00	1	0	00	04	00	305
F2	ADD20	325	4	0	0	0	1	0	0	00	0	00	00	00	0	0	00	01	14	310
F6	NOM2	326	6	0	3	1	1	0	0	00	0	23	00	00	2	0	00	01	15	176
F6	NOM0	327	2	0	0	1	1	0	0	00	0	00	00	00	0	0	00	00	00	154
F4	FML19	330	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	00	00	154
F5	FDV14	331	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	11	370
F6	EXI14	332	4	0	0	0	1	0	0	00	0	32	00	16	0	0	00	00	00	236
F5	FDV12	333	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	13	173
F3	ADD34	334	6	0	0	0	1	0	0	10	0	06	00	00	2	0	00	00	00	233
F3	ADD37	335	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	00	00	334
F6	EXI8	336	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	00	00	356
F5	FDV17	337	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	352

NOTE:
THE COMPLEMENT OF THE ACTUAL ROM OUTPUT FOR THE UPF, WR, SPS (HIGH 2 BITS), BUS (LOW BIT) AND CLK (LOW BIT) FIELD IS LISTED FOR CLARITY.

FLOWS	STATE	ADR	CON	FC1	FUB	MMR	FRD	ERD	SRD	SDR	CVM	NZM	CCC	GPC	CEE	CNT	EUB	CBR
F2	ADD2	300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	05	1
F2	ADD18	301	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	1
F2	ADD4	302	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E4	QIV1	303	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F4	FML13	304	2	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F6	NOM7	305	0	0	0	1	0	0	1	1	0	0	0	0	0	0	10	0
F4	FML14	306	0	0	0	0	0	0	1	0	0	0	0	0	0	0	00	0
F6	NOM5	307	0	0	1	2	0	0	0	2	0	0	0	5	0	0	04	0
F2	ADD21	310	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
E2	A8M1	311	0	0	0	0	0	0	0	0	2	0	1	0	0	1	00	1
F5	FDV19	312	0	0	0	0	1	0	0	0	0	0	0	0	0	0	00	1
F3	ADD27	313	2	0	0	1	0	0	1	1	0	0	0	7	0	1	10	0
F3	ADD33	314	0	0	0	0	1	0	1	3	0	2	4	0	0	0	00	0
F3	ADD32	315	0	0	0	0	0	1	1	0	0	0	4	0	0	0	10	1
F5	FDV16	316	0	0	0	6	0	1	2	2	0	0	0	0	0	0	00	1
F3	ADD30	317	0	0	0	0	1	0	1	0	4	0	1	0	0	0	00	1
F2	ADD8	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
F2	ADD19	321	0	0	0	0	0	0	0	3	0	0	0	0	0	0	00	0
F2	ADD9	322	0	0	0	3	0	0	0	0	0	0	0	0	0	0	00	0
E2	A8M21	323	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F6	NOM4	324	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F2	ADD20	325	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F6	NOM2	326	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	1
F6	NOM0	327	0	0	0	0	0	0	0	0	0	0	0	0	0	0	04	1
F4	FML19	330	0	0	0	3	0	0	0	0	0	0	0	0	0	0	00	1
F5	FDV14	331	0	0	0	0	0	0	1	0	0	0	0	0	0	1	10	0
F6	EXI14	332	0	0	0	0	0	0	0	0	5	2	5	0	0	0	00	0
F5	FDV12	333	0	0	0	0	0	0	1	0	0	0	0	7	0	0	00	0
F3	ADD34	334	0	0	0	0	0	0	1	0	4	0	1	0	0	0	05	1
F3	ADD37	335	0	0	0	0	1	0	1	3	0	0	0	0	0	0	00	0
F6	EXI8	336	0	0	0	0	0	1	3	0	0	0	0	0	0	0	00	0
F5	FDV17	337	0	0	0	0	1	0	1	0	0	0	0	0	0	0	00	1

REVISIONS		
CHA	CHANGE NO.	REV

DRN. L. Pudelka	DATE 8-16-72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS
CHK'D. J. Burgmaster	DATE 8-17-72	TITLE FIS BOARD (ADRS 300 - 337)
ENG. J. Burgmaster	DATE 8-17-72	
PROJ. ENG. G. Olsen	DATE 8/18/72	SIZE C · CODE CS · NUMBER M7234 ¢-1 · REV. E
PROD. L. Trupin	DATE 8-18-72	SHEET 16 OF 17 · DIST.

FLOWS	STATE	ADR	CLK	CIR	NR	CB	CD	CBA	BUS	DAD	SPS	ALU	SBC	SBM	SDM	SBA	UBF	BRK	RIF	UPF
F3	ADD22	340	6	0	0	1	1	0	0	00	0	14	00	00	2	0	00	01	13	017
F3	ADD26	341	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	316
F2	ADD14	342	2	0	0	0	0	0	0	00	0	00	00	00	2	0	00	00	00	226
F3	ADD28	343	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	317
F5	FDV7	344	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	01	15	346
		345	0	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	000
F5	FDV8	346	6	0	0	0	1	0	0	00	0	11	02	17	2	0	00	00	00	364
F3	ADD31	347	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	01	11	315
F5	FDV4	350	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	01	14	222
E2	ABH8	351	6	0	0	1	1	0	0	00	0	00	00	00	2	0	00	10	00	040
F5	FDV18	352	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	312
F3	BRQ0	353	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	00	00	355
F6	EXI6	354	6	0	3	0	1	0	0	10	0	06	00	00	2	0	00	04	00	007
F4	BRQ4	355	6	0	3	0	1	0	0	10	0	06	00	00	2	0	00	04	00	375
F6	EXI9	356	6	0	3	0	1	1	0	06	0	06	01	17	2	0	00	04	00	374
F3	BRQ1	357	2	0	0	1	0	0	0	00	0	00	00	00	0	0	00	00	00	355
F3	ADD38	360	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	327
F3	ADD24	361	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	237
F3	ADD36	362	6	0	0	1	1	0	0	00	0	06	00	00	2	0	00	00	00	335
F3	ADD29	363	2	0	0	0	0	0	0	00	0	00	00	00	2	0	00	00	00	314
F5	FDV9	364	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	01	12	267
F4	FML6	365	6	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	263
E1	DST7	366	3	0	0	0	1	1	0	00	0	00	00	00	0	1	00	01	12	271
F1	FP8	367	2	0	3	0	0	0	0	00	0	00	00	00	2	0	00	01	15	235
F5	FDV15	370	6	0	0	0	1	0	0	00	0	11	00	00	2	0	00	00	00	316
F5	BRQ6	371	6	0	0	1	0	0	0	00	0	00	00	00	0	0	00	00	00	355
F5	FDV22	372	6	0	0	0	1	0	0	00	0	06	00	00	2	0	00	00	00	316
F2	ADD12	373	6	0	0	1	1	0	0	10	0	06	00	00	2	0	00	01	15	163
F6	EXI10	374	5	0	0	0	1	0	1	00	0	32	00	00	0	0	00	00	00	376
F6	BRQ5	375	6	0	3	0	1	0	0	00	0	06	01	17	2	0	00	01	07	017
F6	EXI11	376	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	177
E1	EI1	377	2	0	0	0	0	0	0	00	0	00	00	00	0	0	00	00	00	240

NOTE:
THE COMPLEMENT OF THE ACTUAL ROM OUTPUT FOR THE UPF, WR, SPS (HIGH 2 BITS), BUS (LOW BIT), AND CLK (LOW BIT) FIELD IS LISTED FOR CLARITY.

FLOWS	STATE	ADR	CON	FC1	FUB	MMR	FRD	ERD	SRD	SDR	CVM	NZM	CCC	GPC	CEE	CNT	EUB	CBR
F3	ADD22	340	0	0	1	0	0	0	0	0	4	0	1	0	0	1	03	1
F3	ADD26	341	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0
F2	ADD14	342	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	1
F3	ADD28	343	0	0	0	2	0	0	1	2	0	0	0	5	0	0	00	0
F5	FDV7	344	3	0	0	0	0	0	3	0	0	0	0	0	0	0	10	0
		345	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F5	FDV8	346	3	0	0	0	1	0	3	0	0	0	0	0	0	0	00	1
F3	ADD31	347	0	0	0	3	0	0	1	0	0	0	0	0	0	0	00	0
F5	FDV4	350	0	0	0	0	0	0	1	0	0	0	0	0	0	0	00	0
E2	ABH8	351	0	0	0	0	0	0	3	3	0	0	0	0	0	1	00	1
F5	FDV18	352	0	0	0	0	0	0	0	3	0	0	0	0	0	0	00	0
F3	BRQ0	353	2	0	0	0	1	0	3	0	0	0	0	0	0	0	00	0
F6	EXI6	354	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F4	BRQ4	355	0	0	0	0	0	0	0	0	0	0	0	0	1	0	00	0
F6	EXI9	356	0	1	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F3	BRQ1	357	2	0	0	0	1	0	3	0	0	0	0	0	0	0	00	0
F3	ADD38	360	0	0	0	1	0	0	0	1	0	0	0	0	0	0	00	0
F3	ADD24	361	0	0	1	0	0	1	2	0	0	0	0	0	0	0	02	1
F3	ADD36	362	0	0	0	3	0	0	1	0	0	0	0	4	0	0	00	1
F3	ADD29	363	0	0	0	3	0	0	0	0	0	0	0	0	0	0	10	1
F5	FDV9	364	0	0	0	0	0	0	0	0	0	0	0	0	0	2	00	1
F4	FML6	365	3	0	0	0	1	0	3	0	0	0	0	0	0	0	00	1
E1	DST7	366	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0
F1	FP8	367	0	0	0	0	0	0	3	0	0	2	4	0	0	0	04	0
F5	FDV15	370	0	0	0	0	0	1	1	3	4	0	1	4	0	0	10	1
F5	BRQ6	371	2	0	0	0	1	0	3	0	0	0	0	0	0	0	00	0
F5	FDV22	372	0	0	0	0	0	1	1	3	4	0	1	4	0	0	10	1
F2	ADD12	373	0	0	0	0	0	0	0	0	0	0	0	0	0	0	01	1
F6	EXI10	374	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F6	BRQ5	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	00	0
F6	EXI11	376	0	0	0	0	0	0	0	0	5	2	7	0	0	0	00	0
E1	EI1	377	0	0	0	0	0	0	0	0	0	0	7	0	0	0	00	0

REVISIONS	REV.	CHANGE NO.	CHK

DRN.	DATE 2-16-72	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
CHK'D.	DATE	TITLE	
ENG.	DATE 2-17-72	EIS BOARD	
PROJ. ENG.	DATE 2/18/72	(ADRS 34¢-377)	
PROD.	DATE 2-18-72	SIZE C / CODE CS / NUMBER M7239 ¢-1 / REV. E	
SHEET 17 OF 17		DIST.	

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

SOFTWARE LIST

MADE BY J Fitzgerald	CHECKED J Fitzgerald	SECTION
DATE 9/26/72	DATE 9-27-72	
ENG J Fitzgerald	PROD [illegible]	ISSUED SECT.
DATE 9-27-72	DATE 9-28-72	

LEGEND

- D DOCUMENT
- DN DOCUMENT CHANGE NOTICE
- PA PAPER TAPE ASCII
- PB PAPER TAPE BINARY
- PM PAPER TAPE READ-IN-MODE

ITEM NO.	DWG NO. / PART NO.	DESCRIPTION	QUANTITY / VARIATION KE11-E
1	MAINDEC-11-DCKBI-A-D	ASH INSTRUCTION TEST	1
2	MAINDEC-11-DCKBI-A-PB	ASH INSTRUCTION TEST	1
3	MAINDEC-11-DCKBJ-A-D	ASHC INSTRUCTION TEST	1
4	MAINDEC-11-DCKBJ-A-PB	ASHC INSTRUCTION TEST	1
5	MAINDEC-11-DCKBK-A-D	MUL INSTRUCTION TEST	1
6	MAINDEC-11-DCKBK-A-PB	MUL INSTRUCTION TEST	1
7	MAINDEC-11-DCKBL-A-D	DIV INSTRUCTION TEST	1
8	MAINDEC-11-DCKBL-A-PB	DIV INSTRUCTION TEST	1
9	MAINDEC-11-DCQKA-A-D	MUL/DIV EXERCISER	1
10	MAINDEC-11-DCQKA-A-PB	MUL/DIV EXERCISER	1

KIT CHECK BY _____ DATE _____

INSTALLATION CHECK BY _____ DATE _____

TITLE	ASSY. NO.	SIZE	CODE	NUMBER	REV.	ECO NO
EXPANDED INSTRUCTION SET	SHEET 1 OF 1	A	SL	KE11-E-SL		
		DIST.				

DEC FORM NO.
DRA 120

(1)
MUL

MUL0 601
GET COUNT (17₈) | D
P2:D←fSBC=12
P3:BR←D
BUT(BR15);EUB =3
400

MUL1 414
2'S COMP OF MULTIPLIER | Ø
P2:D←Ø MINUS B;EPS(C)←Ø
COUNT←BR

BR15(Ø) (POS MULTIPLIER)
BR15(1) (NEG MULTIPLIER)

MUL7 400
MULTIPLICAND TO BR | R [SF]
P1:BR←R [SF]

MUL2 402
MULTIPLICAND TO BR | R [SF]
P1:BR←R [SF]
BUT(D15);EUB =1
401

MUL8 604
MULTIPLICAND TO DR | Ø
P1:DR←BR ;BR←Ø

D15(Ø)(MULTIPLIER ≠ 1ØØØØØ₈)
D15(1)(NOTE 1)

MUL19 401
DECREMENT COUNT | Ø
P1:BR←Ø
COUNT←MINUS 1

MUL3 415
MULTIPLICAND TO DR | R [SF]
P2:DR←BR;D←R [SF]

MUL4 403
MULTIPLIER TO BR | R [DEST]
P1:BR←R [DEST]
BUT (D15);EUB =1;
510

MUL5 475
MULTIPLIER TO DR | Ø
P1:DR←BR;BR←Ø

NEG D15(1) MULTIPLICAND

D15(Ø)(POS MULTIPLICAND)

MUL6 510
MULTIPLICAND TO B | R [SF]
P1:B←R [SF] ;
COUNT←MINUS 1

MUL21 512
MULTIPLICAND MINUS B | R [SF]
P2:D←R [SF] MINUS B;
BUT(COUNT=Ø);EUB =1Ø (NOTE 2)

MUL22 511
IS MULTIPLICAND MOST NEG | Ø
P2:D←Ø
BUT(D=Ø);EUB =4
513

MUL23 513
ZERO TO LOW ANSWER | D
P1: R [SF∨1]←D

-(D=Ø) (MULTIPLICAND ≠ 1ØØØØØ₈)

MUL27 514
MULTIPLICAND TO B | R [SF]
P1: B←R [SF] ;
COUNT←MINUS 1

SPECIAL CASE
1ØØØØØ * 1ØØØØØ = 54ØØØØ, ØØØØØØ
GENERATE ANSWER, SET CC'S AND STORE

D=Ø (MULTIPLICAND ≠ 1ØØØØØ₈)

MUL24 516
FORM HIGH PRODUCT | Ø
P1:DR←Ø,DR(15:Ø1)

MUL25 515
GET HIGH PRODUCT | DR
P2:D←DR

MUL26 541
STORE HIGH PRODUCT | D
P1:R [SF]←D;
EPS(N)←BR15;
EPS(Z,V)←Ø;
EPS(C)←1

MUL9 533
MULTIPLY LOOP | D RIGHT
P2:D←f(DR∅∅ ε EPS(C) ⟨BR ε B⟩ :
D(C)←ALU15;
DR←ALU∅∅,DR(15:Ø1)
EPS(C)←DR∅∅
P3:BR←D(C),D(15:Ø1)
COUNT←MINUS 1
GPC=2;DAD=14 NOTES 4,5
BUT(COUNT=Ø);EUB =1Ø
533 ←(COUNT=Ø)

COUNT=Ø

MUL 1Ø 537
GET HIGH PRODUCT | BR
P2:D←BR

MUL2Ø 567
STORE HIGH PRODUCT | D
P1:R [SF]←C
BUT(DR15);EUB =5
405

MUL11 543
COMP HIGH PRODUCT | BR
P2:D←-BR;EPS(V)←Ø
BUT(D=Ø);EUB =4
416 + 411 IF DR15 (Ø)

DR15(1)(LOW PRODUCT IS NEG)
DR15(Ø)(LOW PRODUCT IS POS)

MUL12 407
GET LOW PRODUCT | DR
P2:D←DR
BUT(D=Ø);EUB =4

MUL16 405
GET LOW PRODUCT | DR
P2:D←DR;EPS(C)←1 (NOTE 3)

MUL13 416
STORE LOW PRODUCT | D
P1:R [SF∨1]←D
EPS(V)←Ø
EPS(N)←BR15
410

MUL17 413
STORE LOW PRODUCT | D
P1:R [SF∨1]←D
EPS(N)←BR15;EPS(Z)←D=Ø
EPS(C)←Ø
(NOTE 3)

MUL18 411
STORE LOW PRODUCT | D
P1:R [SF∨1]←D
EPS(N)←BR15
EPS(Z)←Ø

D=Ø -(D=Ø)

MUL14 412
HIGH PRODUCT ALL ONES | Ø
P1:EPS(C)←Ø
(NOTE3)

MUL15 410
HIGH PRODUCT NOT ALL ONES | Ø
P1:EPS(C)←1

MOVE EPS
(2)
577

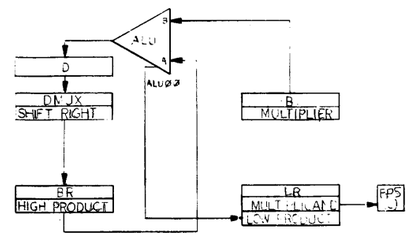
f(DR∅∅ ε EPS(C))		
DR∅∅	EPS(C)	ALUf
Ø	Ø	BR
Ø	1	BR PLUS B
1	Ø	BR MINUS B
1	1	BR

POSITION OF OPERANDS

B : MULTIPLIER

DR: MULTIPLICAND,LOW ANSWER IS SHIFTED IN DR15 AS THE MULTIPLIER IS SHIFTED OUT AT DR∅∅.

BR: INITILIZED TO ZERO. HIGH ANSWER IS ASSEMBLED IN BR.



NOTES:

1: MULTIPLIER IS THE MOST NEGATIVE NUMBER.(ØØØØØØ), MUST PUT MULTIPLIER IN THE DR
2: BUT(COUNT=Ø)IS USED TO CLOCK THE NPR & BUS REQUEST FLAGS AND TO CLEAR THE BBSY FLAG IN THE KDII-A. THIS ALLOWS NPRS TO OCCUR WITHOUT DOING A BUS DATA CYCLE IN THE KDII-A.
3. EPS(C)←▽ IF:(DR15*BR(15:ØØ)=ALL 1'S + -DR15* BR[(15:ØØ)=Ø]

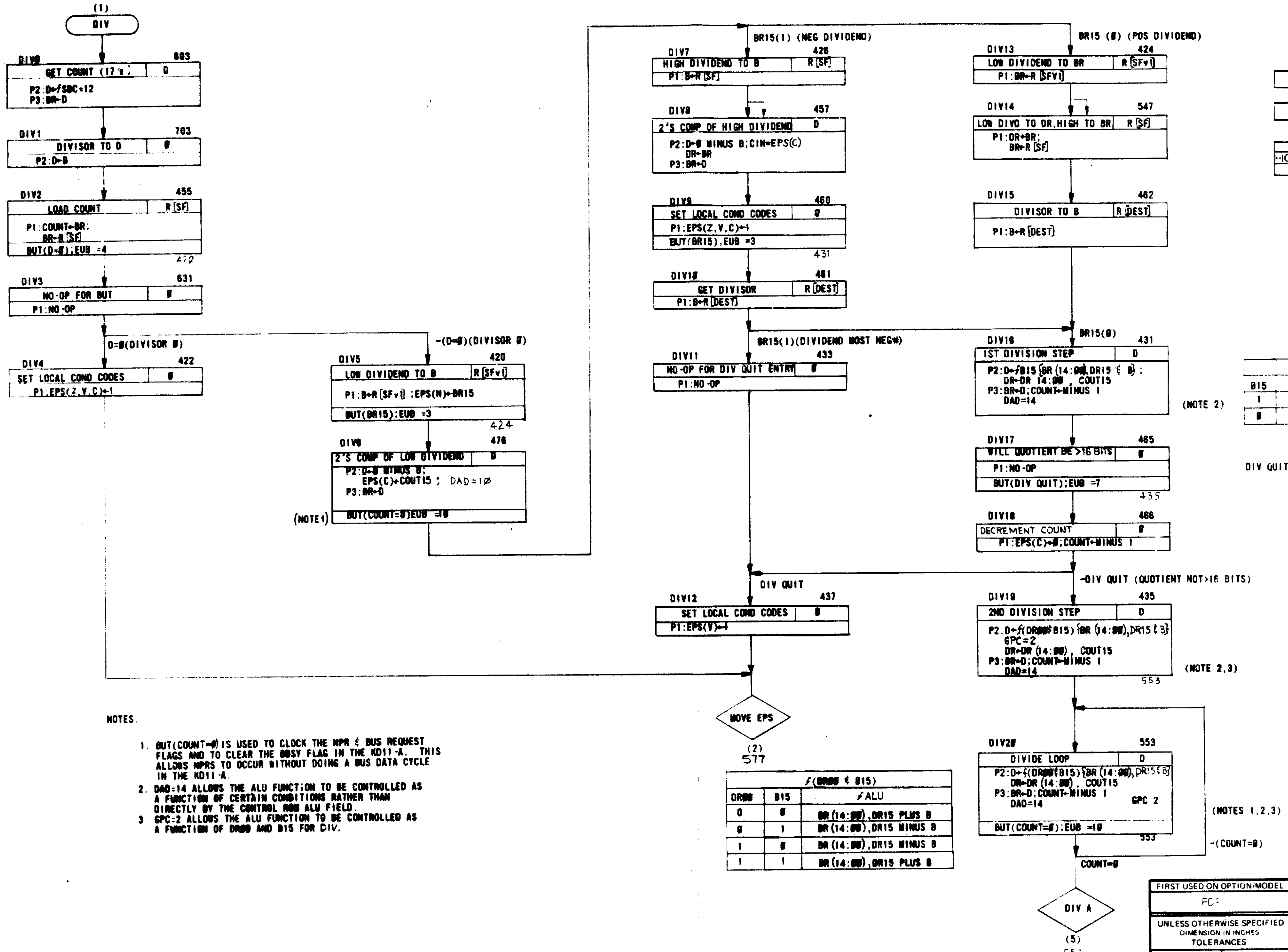
EPS(C) (Ø) INDICATES ANSWER MAY BE REPRESENTED BY ONE WORD,i.e. HIGH 16 BITS OF ANSWER ARE AN EXTENSION OF MSB OF LOW 16 BITS OF THE ANSWER.
4. DAD:14 ALLOWS THE ALU FUNCTION TO BE CONTROLLED AS A FUNCTION OF CERTAIN CONDITIONS RATHER THAN DIRECTLY BY THE CONTROL ROM ALU FIELD.
5 GPC:2 ALLOWS THE ALU FUNCTION TO BE CONTROLLED AS A FUNCTION OF DR∅∅ AND EPS (C) FOR MUL.

FIRST USED ON OPTION/MODEL: PDP :	QTY.	DESCRIPTION	PART NO	ITEM NO
		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN.	DATE	digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS	
DECIMALS: XXX - 005, XX - 02, X - 1	ANGLES: ±0°30'	CHK'D	DATE	TITLE: FLOW DIAGRAM (MUL) (3)	
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		ENG	DATE		
MATERIAL		PROJ. ENG	DATE	NEXT HIGHER ASSY: E-DD-KDII-A	
FINISH		PROJ	DATE	SCALE	
				SHEET 3 OF 5	

SIZE	CODE	NUMBER	REV.
D	FD	KEII-E-FD	B

DIST

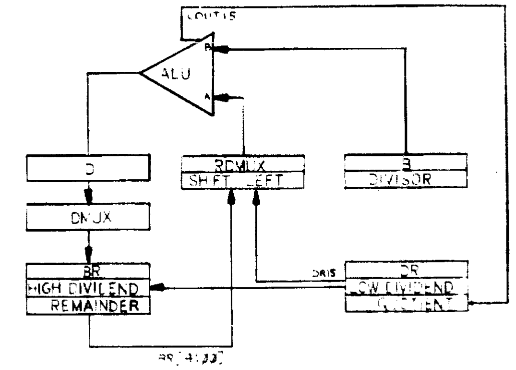
BRUNING 40-122-1584



NOTES.

1. BUT(COUNT=Ø) IS USED TO CLOCK THE NPR & BUS REQUEST FLAGS AND TO CLEAR THE BBSY FLAG IN THE KD11-A. THIS ALLOWS NPRS TO OCCUR WITHOUT DOING A BUS DATA CYCLE IN THE KD11-A.
2. DAD=14 ALLOWS THE ALU FUNCTION TO BE CONTROLLED AS A FUNCTION OF CERTAIN CONDITIONS RATHER THAN DIRECTLY BY THE CONTROL ROM ALU FIELD.
3. GPC=2 ALLOWS THE ALU FUNCTION TO BE CONTROLLED AS A FUNCTION OF DRØØ AND B15 FOR DIV.

f(DRØØ & B15)		
DRØØ	B15	f ALU
Ø	Ø	BR(14:ØØ),DR15 PLUS B
Ø	1	BR(14:ØØ),DR15 MINUS B
1	Ø	BR(14:ØØ),DR15 MINUS B
1	1	BR(14:ØØ),DR15 PLUS B



f B15	
B15	ALU f
1	BR PLUS B
Ø	BR MINUS B

DIV QUIT = (-(D=Ø)*DRØØ + B15*EPS(N)*DRØØ + -B15*-EPS(N)*DRØØ)

POSITION OF OPERANDS

B: DIVISOR

DR. INITIALLY LOADED WITH LOW DIVIDEND. LOW ANSWER IS SHIFTED INTO DRØØ.

BR: INITIALLY LOADED WITH HIGH DIVIDEND. REMAINDER IS ASSEMBLED IN BR.

FIRST USED ON OPTION/MODEL	QTY	DESCRIPTION	PART NO	ITEM NO.
PDP		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES
DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ±0°30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH
DRN. DATE 9-8-72
CHK'D. DATE
ENG. DATE
PROJ. ENG. DATE
PROD. DATE
NEXT HIGHER ASSY
SCALE
SHEET OF

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE DIAGRAM

SIZE D CODE FD NUMBER KE11-E REV. B

DIST