


	1	2	3	4	5	6	7	8		
INSTRUCTION CODE	D-166-O-EC REV LTR A	I MUL 010 010 0xx XX=MODE 00=DIRECT 01=IMMEDIATE 10=MEMORY 11=BOTH	MUL 010 010 1xx XX=SEE I MUL	I DIV 010 011 0xx XX=SEE I MUL	DIV 010 011 1xx XX=SEE I MUL	SHIFTING 010 100 xyy X=1/2 WORDS YY=00-ASH/ASHC 01-ROT/ROTC 10-LSH/LSHC 11-UNUSED	FLOATING POINT 001 1xx y zz XX=FAD,FSB,FMP, FDV Y=-/ROUND ZZ=MODE: DIRECT/DIRECT+ REMAINDER/ MEMORY BOTH	BLT 010 101 001	INSTRUCTION CODE	
INSTRUCTION ACTION	IR 7,8 00: C(AC)X C(E) → C(AC) 01: C(AC)X 0E → C(AC) 10: C(AC)X C(E) → C(E) 11: C AC X C(E) → C(E), C(AC). * LEAST SIGNIF. (OR INTEGER) WORD	00: C(AC)X C(E) → C(AC), C(AC+1) 01: C(AC)X 0E → C(AC), C(AC+1) 10: C(AC)X C(E) → C(E), C(AC+1) 11: C(AC)X C(E) → C(E), C(AC), C(AC+1) * MOST SIGNIF. WORD	00: C(AC) ÷ C(E) → C(E) C(AC, AC+1) 01: C(AC) ÷ 0E → C(E)* C(AC), C(AC+1) 10: C(AC) ÷ C(E) → C(E), C(AC), C(AC+1) 11: C(AC) ÷ C(E) → C(E), C(AC) C(ACH) * LEAST SIGNIF. WORD (C(AC+1)=REMAINDER)	00: K ÷ C(E) → C(AC,ACH) 01: K ÷ 0E → C(AC,AC+1) 10: K ÷ C(E) → C(E)* C(AC, AC+1) 11: K ÷ C(E) → C(E), K = C(AC,AC+1) REMAINDER=C(AC+1) * MOST SIGNIF. WORD	IR 6(0): C(AC) F → C(AC) IR 6(1): C(AC, AC+1) F → C(AC, AC+1)	IR 7,8: 00: C(AC) F C(E) → C(AC) 01: C(AC) F C(E) → C(AC), C(AC+1) 10: C(AC) F C(E) → C(E) 11: C(AC) F C(E) → C(E), C(AC) F = +, -, X, ÷	CHF 5(0): FETCH POINTER CHF 5(1) FETCH & STORE DATA	C(FROM) → C(TO) FROM+1 → FROM TO+1 → TO UNTIL TO=TO MAX		
INITIAL REGISTERS		AR=C(AC) MB=0,E FOR IR 7,8 = 01 MB=C(E) FOR IR 7,8 ≠ 01 MA=E		MQ=C(AC+1)	IR 6(0): MQ=? IR 6(1): MQ=C(AC+1) AR=C(AC) MB=0,E MA=E	AR=C(AC) MB=C(E) MA=E MQ=?	MB=0,E (OR 0, TO MAX) MA=E AR=C(AC) (TO, FROM) MQ=C(C(ACLT)) (C(FROM))	INITIAL REGISTERS		
INITIAL SWITCHES			IR 7,8 ≠ 01 F C(E) ET 4 INH	FAC 2	ASHC V LSHC V ROTC FAC 2 ET 4 INH	F C(E) ET 4 INH	CH INC OPS: F C(E) PSE, FAC INH CH INC OPS: F C(E), FAC INH ET 4 INH	CH LOAD: F C(E), FAC INH CH DEP: F C(E) PSE ET 4 INH	F C(C(ACLT)) ET 4 INH	INITIAL SWITCHES
ET 0									MB(J) ↔ AR(J) MA ← (0) PC+1 INH	ET 0
ET 1									MBLT(J) ↔ MBRT(J)	ET 1
ET 3									MA ← MB(1) BLT T0 MB(J) ↔ MQ(J) MC RST1 MC WR	ET 3
ET 4									BLT T0A MB(J) ↔ MQ(J) 0.1	ET 4
ET 5									BLT T1 MB(J) ↔ AR(J) 0.1	ET 5
ET 6									BLT T2 ARLT ← (0) 0.1	ET 6
ET 7									BLT T3 (SUBTRACT) ART 3: BLT T3A MB(J) ↔ MQ(J) 0.1	ET 7
ET 8									BLT T4 MB(J) ↔ AR(J) PI SYNC 0.1	ET 8
ET 9									BLT T5 AR+100001 → AR ART 3: MB(J) ↔ MQ(J) BLT T5A	ET 9
ET 10									MQ(0): PC+1 MQ(0) AND PI RQ: ET 10 BLT T6 MB(J) ↔ AR(J) 0.1 TO FT1A	ET 10
FINAL SWITCHES	IR 7,8 10: SC(E), SAC INH 11: SC(E)		IR 7,8 00: SAC 2 01: SAC 2 10: SC(E), SAC INH 11: SC(E), SAC 2	IR 6(1) SAC 2	IR 7,8: 01: SAC 2 10: SC(E), SAC INH 11: SC(E)	CH INC OPS: SAC INH	CH DEP: SAC INH	MQ(0): SAC INH	ISSUED AUG 24 1964	FINAL SWITCHES

A-30 7/20/64 P.C.	CHANGE	DRAWN R. WATSON	DATE 1-27-64	 digital EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS	TITLE EXTRA CYCLE INSTRUCTIONS
	DATE	CHECKED R. Small	DATE 3-20-64		FOR ARITH. PROC 166: PDP-6
	ENG	PROJ ENG R. Small	DATE 3/20/64		DRWG NO D-166-O-EC
	ENG	PROD R. Small	DATE 3/20/64		REV LTR A
SHEET		OF		ASSY NO	CODE FD