

PDP-1 summary

MAIN INSTRUCTIONS

OP					I	Y											
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

00			
02 AND	AC ← AC ∧ C(Y)	AND	
04 IOR	AC ← AC ∨ C(Y)	INCLUSIVE OR	
06 XOR	AC ← AC ⊕ C(Y)	EXCLUSIVE OR	
10 XCT	execute C(Y)	EXECUTE	
12 JFD		JUMP TO FIELD	
14			
16 CAL	JDA 100	CALL	
17 JDA	C(Y) ← AC. AC ← PC. PC ← Y+1	JUMP, DEPOSIT AC	
20 LAC	AC ← C(Y)	LOAD AC	
22 LIO	IO ← C(Y)	LOAD IO	
24 DAC	C(Y) ← AC	DEPOSIT AC	
26 DAP	C(Y) ₆₋₁₇ ← AC	DEPOSIT ADDR. PART	
30 DIP	C(Y) ₀₋₅ ← AC	DEPOSIT INST. PART	
32 DIO	C(Y) ← IO	DEPOSIT IO	
34 DZM	C(Y) ← 0	DEPOSIT ZERO	
36			
40 ADD	AC ← AC + C(Y)	ADD	
42 SUB	AC ← AC - C(Y)	SUBTRACT	
44 IDX	C(Y), AC ← C(Y)+1	INDEX	
46 ISP	IDX. AC ≥ 0: SKIP	INDEX, SKIP IF POSITIVE	
50 SAD	AC ≠ C(Y): SKIP	SKIP IF DIFFERENT	
52 SAS	AC = C(Y): SKIP	SKIP IF SAME	
54 MUS		MULTIPLY STEP	
56 DIS		DIVIDE STEP	
60 JMP	PC ← Y	JUMP	
62 JSP	AC ← PC. PC ← Y	JUMP, SAVE PC	
64 SKP		SKIP GROUP	
66 SFT		SHIFT GROUP	
70 LAW	AC ← Y/~Y	LOAD AC WITH	
72 IOT		IO TRANSFER	
74			
76 OPR		OPERATE	

SKIP GROUP

1	1	0	1	0	SKP		SPI	SZO	SMA	SPA	SZA	SZS			SZF		
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

650000 SKP	reverse SKIP condition	SKIP
642000 SPI	IO ₀ = 0: SKIP	SKIP ON PLUS IO
641000 SZO	OV = 0: SKIP	SKIP ON ZERO OV
640400 SMA	AC ₀ = 1: SKIP	SKIP ON MINUS AC
640200 SPA	AC ₀ = 0: SKIP	SKIP ON PLUS AC
640100 SZA	AC = +0: SKIP	SKIP ON ZERO AC
6400X0 SZS	SW _n = 0: SKIP	SKIP ON ZERO SWITCH
64000X SZF	F _n = 0: SKIP	SKIP ON ZERO FLAG

SHIFT GROUP

1	1	0	1	1	R	SFT	IO	AC	N								
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

SFT: 0: rotate (R__). 1: shift (S__)
IO:AC: 01: AC (_A_)
10: IO (_I_)
11: AC:IO (_C_)
R: 0: left (__L). 1: right (__R)
N: steps (number of 1's)

OPERATE GROUP

1	1	1	1	1		CLI	LAT	CMA	HLT	CLA				STF	F		
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

764000 CLI	IO ← 0	CLEAR IO
762000 LAT	AC ← AC ∨ TW	LOAD AC FROM TW
761000 CMA	CMA ← ~CMA	COMPLEMENT AC
760400 HLT	HALT	HALT
760200 CLA	AC ← 0	CLEAR AC
760100 LAP	AC ← AC ∨ PC	LOAD AC FROM PC
76000X CLF	F _n ← 0	CLEAR FLAG
76001X STF	F _n ← 1	SET FLAG