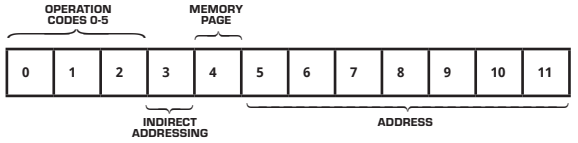
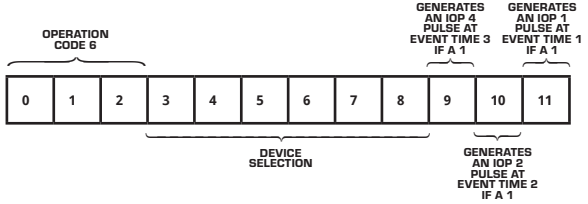
0 = PAGE 0
1 = CURRENT PAGE

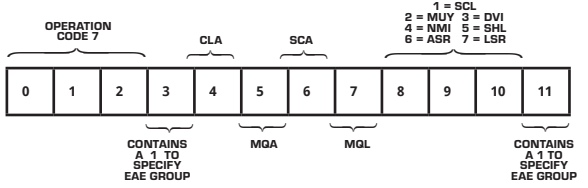


0 = DIRECT
1 = INDIRECT

Memory reference Instruction Bit Assignments



IOT Instruction Bit Assignments



Logical Sequence:
1 — CLA
2 — MQA, MQL, SCA
3 (Bits 8 thru 10 = 1) — SCL
3 (Bits 8 thru 10 = 2) — MUY
3 (Bits 8 thru 10 = 3) — DVI
3 (Bits 8 thru 10 = 4) — NMI
3 (Bits 8 thru 10 = 5) — SHL
3 (Bits 8 thru 10 = 6) — ASR
3 (Bits 8 thru 10 = 7) — LSR

EAE Microinstruction Bit Assignments

ASCII CODE

Character	Code	Character	Code
A	301	!	241
B	302	"	242
C	303	#	243
D	304	$	244
E	305	%	245
F	306	&	246
G	307	'	247
H	310	(	250
I	311	)	251
J	312	*	252
K	313	+	253
L	314	,	254
M	315	—	255
N	316	.	256
O	317	/	257
P	320	:	272
Q	321	;	273
R	322	<	274
S	323	=	275
T	324	>	276
U	325	?	277
V	326	@	300
W	327	[	333
X	330	/	334
Y	331	]	335
Z	332	↑	336
0	260	←	337
1	261	EOT	204
2	262	W RU	205
3	263	RU	206
4	264	BELL	207
5	265	Line Feed	212
6	266	Return	215
7	267	Space	240
8	270	ALT MODE	375
9	271	Rub Out	377
		Escape	233

Rim Loader (Low Speed)		Rim Loader (High Speed)	
7756/	6032	7756/	6014
7757/	6031	7757/	6011
7760/	5357	7760/	5357
7761/	6036	7761/	6016
7762/	7106	7762/	7106
7763/	7006	7763/	7006
7764/	7510	7764/	7510
7765/	5357	7765/	5374
7766/	7006	7766/	7006
7767/	6031	7767/	6011
7770/	5367	7770/	5367
7771/	6034	7771/	6016
7772/	7420	7772/	7420
7773/	3776	7773/	3776
7774/	3376	7774/	3376
7775/	5356	7775/	5357

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pdp8/i instruction list

BASIC INSTRUCTIONS

Mnemonic	Code	Operation	Time (μsec.)
AND	0000	logical AND	3
TAD	1000	2's complement add	3
ISZ	2000	increment and skip if zero	3
DCA	3000	deposit and clear AC	3
JMS	4000	jump to subroutine	3
JMP	5000	jump	1.5
IOT	6000	in/out transfer	4.25
OPR	7000	operate	1.5

GROUP 1 OPERATE MICROINSTRUCTIONS (1 CYCLE)

			Sequence
NOP	7000	no operation	—
CLA	7200	clear AC	1
CLL	7100	clear link	1
CMA	7040	complement AC	2
CML	7020	complement link	2
RAR	7010	rotate AC and link right one	4
RAL	7004	rotate AC and link left one	4
RTR	7012	rotate AC and link right two	4
RTL	7006	rotate AC and link left two	4
IAC	7001	increment AC	3

GROUP 2 OPERATE MICROINSTRUCTIONS (1 CYCLE)

			Sequence
SMA	7500	skip on minus AC	1
SZA	7440	skip on zero AC	1
SPA	7510	skip on plus AC	1
SNA	7450	skip on non zero AC	1
SNL	7420	skip on non-zero link	1
SZL	7430	skip on zero link	1
SKP	7410	skip unconditionally	1
OSR	7404	inclusive OR, switch register with AC	3
HLT	7402	halts the program	3
CLA	7600	clear AC	2

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COMBINED OPERATE MICROINSTRUCTIONS

			Sequence
CIA	7041	complement and increment AC	2, 3
LAS	7604	load AC with switch register	2, 3
STL	7120	set link (to 1)	1, 2
GLK	7204	get link (put link in AC bit 11)	1, 4
CLA CLL	7300	clear AC and link	1
CLA IAC	7201	set AC = 1	1, 3
CLA CMA	7240	set AC = — 1	1, 2
CLL RAR	7110	shift positive number one right	1, 4
CLL RAL	7104	shift positive number one left	1, 4
CLL RTL	7106	clear link, rotate 2 left	1, 4
CLL RTR	7112	clear link, rotate 2 right	1, 4
SZA CLA	7640	skip if AC = 0, then clear AC	1, 2
SZA SNL	7460	skip if AC = 0, or link is 1, or both	1
SNA CLA	7650	skip if AC ≠ 0, then clear AC	1, 2
SMA CLA	7700	skip if AC < 0, then clear AC	1, 2
SMA SZA	7540	skip if AC ≤ 0	1
SMA SNL	7520	skip if AC < 0 or line is 1, or both	1
SPA SNA	7550	skip if AC > 0	1
SPA SZL	7530	skip if AC ≥ 0 and if the link is 0	1
SPA CLA	7710	skip if AC ≥ 0, then clear AC	1, 2
SNA SZL	7470	skip if AC ≠ 0 and link = 0	1

Mnemonic Code		Operation	Time (μsec.)

EAE MICROINSTRUCTIONS TYPE KE 8/I

DVI	7407	divide	5.2 — 7.8
NMI	7411	normalize	1.5 + 0.25n
SHL	7413	shift left	3.0 + 0.25n
ASR	7415	arithmetic shift right	3.0 + 0.25n
LSR	7417	logical shift right	3.0 + 0.25n
MQL	7421	load AC into MQ, clear AC	1.5
MUY	7405	multiply	4.8 — 7.2
MQA	7501	inclusive OR, MQ with AC	1.5
CAM	7621	clear AC and MQ	1.5
SCA	7441	read SC into AC	1.5
CLA	7601	clear AC	1.5
SCL	7403	load the step counter	3.0

IOT MICROINSTRUCTIONS

PROGRAM INTERRUPT

ION	6001	turn interrupt on	1.5
IOF	6001	turn interrupt off	1.5

EXTENDED MEMORY TYPE MC8/I

CDF	62n1	change to data field n	1.5
CIF	62n2	change to instruction field n	1.5
RDF	62n4	read data field into AC 6-8	1.5
RIF	6224	read instruction field into AC 6-8	1.5
RMF	6244	restore memory field	1.5
RIB	6234	read interrupt buffer	1.5

Mnemonic Code		Operation	Time (μsec.)

TELETYPE KEYBOARD/READER

KSF	6031	skip if keyboard/reader flag = 1	4.25
KCC	6032	clear AC and keyboard/reader flag	4.25
KRS	6034	read keyboard/reader buffer, static	4.25
KRB	6036	Clear AC, read keyboard buffer clear keyboard flag	4.25

TELETYPE TELEPRINTER/PUNCH

TSF	6041	skip if teleprinter/punch flag = 1	4.25
TCF	6042	clear teleprinter/punch flag	4.25
TPC	6044	load teleprinter/punch buffer, select and punch	4.25
TLS	6046	load teleprinter/punch buffer, select and punch, and clear teleprinter/punch flag	4.25

HIGH SPEED PERFORATED TAPE READER TYPE PR8/I

RSF	6011	skip if reader flag = 1	4.25
RRB	6012	read reader buffer, and clear flag	4.25
RFC	6014	clear flag and buffer and fetch character	4.25

HIGH SPEED PERFORATED TAPE PUNCH TYPE PP8/I

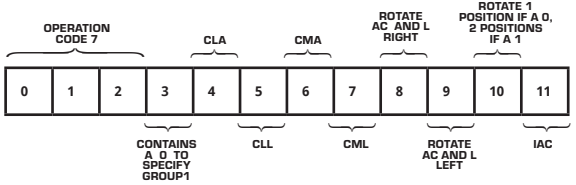
PSF	6021	skip if punch flag = 1	4.25
PCF	6022	clear flag and buffer	4.25
PPC	6024	load buffer, and punch character	4.25
PLS	6026	clear flag and buffer; load and punch	4.25

DECTAPE AND CONTROL TYPE TU56/TC08

DTRA	6761	read status register A	4.25
DTCA	6762	clear status register A	4.25
DTXA	6764	load status register A	4.25
DTSF	6771	skip on flags	4.25
DTRB	6772	read status register B	4.25
DTLB	6774	load status register B	4.25

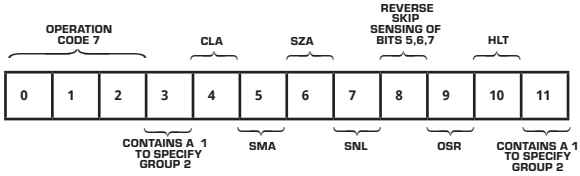
RANDOM ACCESS DISC FILE TYPE DF32D

DCMA	6601	clear disk memory address register, & disk flags	4.25
DMAR	6603	load disk memory address register & read	4.25
DMAW	6605	load disk memory address register and write	4.25
DCEA	6611	clear disk extended address register and memory address extension	4.25
DSAC	6612	skip on address confirmed flag	4.25
DEAL	6615	load disk extended address and memory address extension	4.25
DEAC	6616	read disk extended address register	4.25
DFSE	6621	skip on zero error flag	4.25
DFSC	6622	skip on data completion flag	4.25
DMAC	6626	read disk memory address register	4.25



Logical Sequences:
1 — CLA, CLL
2 — CMA, CML
3 — IAC
4 — RAR. RAL, RTR, RTL

Group 1 Operate Instruction Bit Assignments



Logical Sequences:
1 (Bit 8 is Zero) - Either SMA or SZA or SNL
1 (Bit 8 is Zero) - Both SMA and SZA and SNL
2 — CLA
3 — OSR, HLT

Group 2 Operate Instruction Bit Assignments