

```

SSSSSSSSSSSS 00000000 RRRRRRRRRR TTTTTTTTTT 33333333 22222222
SSSSSSSSSSSS 00000000 RRRRRRRRRR TTTTTTTTTT 33333333 22222222
SSSSSSSSSSSS 00000000 RRRRRRRRRR TTTTTTTTTT 33333333 22222222
SSS          000      000  RRR      RRR  TTT      333      222
SSS          000      000  RRR      RRR  TTT      333      222
SSS          000      000  RRR      RRR  TTT      333      222
SSS          000      000  RRR      RRR  TTT      333      222
SSS          000      000  RRR      RRR  TTT      333      222
SSS          000      000  RRR      RRR  TTT      333      222
SSSSSSSSSS 000      000  RRRRRRRRRR TTT      333      222
SSSSSSSSSS 000      000  RRRRRRRRRR TTT      333      222
SSSSSSSSSS 000      000  RRRRRRRRRR TTT      333      222
SSS          000      000  RRR  RRR  TTT      333      222
SSS          000      000  RRR  RRR  TTT      333      222
SSS          000      000  RRR  RRR  TTT      333      222
SSS          000      000  RRR  RRR  TTT      333      222
SSS          000      000  RRR  RRR  TTT      333      222
SSS          000      000  RRR  RRR  TTT      333      222
SSS          000      000  RRR  RRR  TTT      333      222
SSS          000      000  RRR  RRR  TTT      333      222
SSSSSSSSSS 00000000 RRR      RRR  TTT      33333333 22222222
SSSSSSSSSS 00000000 RRR      RRR  TTT      33333333 22222222
SSSSSSSSSS 00000000 RRR      RRR  TTT      33333333 22222222

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000000  P P P P P P P P  C C C C C C C C  000000  D D D D D D D D  E E E E E E E E  S S S S S S S S
000000  P P P P P P P P  C C C C C C C C  000000  D D D D D D D D  E E E E E E E E  S S S S S S S S
00      00  P P      P P  C C      00      00  D D      D D  E E      S S
00      00  P P      P P  C C      00      00  D D      D D  E E      S S
00      00  P P      P P  C C      00      00  D D      D D  E E      S S
00      00  P P      P P  C C      00      00  D D      D D  E E      S S
00      00  P P P P P P  C C      00      00  D D      D D  E E E E E E  S S S S S S
00      00  P P P P P P  C C      00      00  D D      D D  E E E E E E  S S S S S S
00      00  P P      C C      00      00  D D      D D  E E      S S
00      00  P P      C C      00      00  D D      D D  E E      S S
00      00  P P      C C      00      00  D D      D D  E E      S S
00      00  P P      C C      00      00  D D      D D  E E      S S
00      00  P P      C C      00      00  D D      D D  E E      S S
000000  P P      C C C C C C C C  000000  D D D D D D D D  E E E E E E E E  S S S S S S S S
000000  P P      C C C C C C C C  000000  D D D D D D D D  E E E E E E E E  S S S S S S S S

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L L      I I I I I I  S S S S S S S S
L L      I I I I I I  S S S S S S S S
L L      I I      S S
L L      I I      S S
L L      I I      S S
L L      I I      S S
L L      I I      S S S S S S
L L      I I      S S S S S S
L L      I I      S S
L L      I I      S S
L L      I I      S S
L L      I I      S S
L L L L L L L L L L  I I I I I I  S S S S S S S S
L L L L L L L L L L  I I I I I I  S S S S S S S S

```



0001 0
0002 0
0003 0
0004 0
0005 0
0006 0
0007 0
0008 0
0009 0
0010 0
0011 0
0012 0
0013 0
0014 0
0015 0
0016 0
0017 0
0018 0
0019 0
0020 0
0021 0
0022 0
0023 0
0024 0
0025 0
0026 0
0027 0
0028 0
0029 0
0030 0
0031 0
0032 0
0033 0
0034 0
0035 0
0036 0
0037 0
0038 0
0039 0
0040 0
0041 0
0042 0
0043 0
0044 0

File: OPCODES.REQ IDENT = 'V04-000' ! File: OPCODES.REQ Edit: PDG1001

```
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```
++  
FACILITY: VAX-11 SORT / MERGE  
ABSTRACT:  
    This module defines numeric values of opcodes and operand specifiers.  
ENVIRONMENT: VAX/VMS user mode  
AUTHOR: P. Gilbert, CREATION DATE: 07-Dec-1981  
MODIFIED BY:  
    V01-000 Original  
    V01-001 Change values of two-byte opcodes to conform with definitions  
    in STARLET. PDG 4-Apr-1983  
--
```

Address	Macro	OpCodes	OpCode	Mode 1	Mode 2	Mode 3	Mode 4
0045	HALT	00	00	.	.	.	.
0046	NOP	01	01	.	.	.	.
0047	REI	02	02	.	.	.	.
0048	BPT	03	03	.	.	.	.
0049	RET	04	04	.	.	.	.
0050	RSB	05	05	.	.	.	.
0051	LDPCTX	06	06	.	.	.	.
0052	SVPCTX	07	07	.	.	.	.
0053	CVTSP	08	08	r	ab	r	ab
0054	CVTSP	09	09	r	ab	r	ab
0055	INDEX	0A	0A	r	rl	rl	wl
0056	CRC	0B	0B	ab	ab	ab	ab
0057	PROBER	0C	0C	ab	ab	ab	ab
0058	PROBEW	0D	0D	ab	ab	ab	ab
0059	INSQUE	0E	0E	ab	ab	ab	ab
0060	REMQUE	0F	0F	ab	wl	.	.
0061	BSBB	10	10	ab	.	.	.
0062	BRB	11	11	ab	.	.	.
0063	BNEQ	12	12	ab	.	.	.
0064	BEQL	13	13	ab	.	.	.
0065	BGTR	14	14	ab	.	.	.
0066	BLEQ	15	15	ab	.	.	.
0067	JSB	16	16	ab	.	.	.
0068	JMP	17	17	ab	.	.	.
0069	BGEQ	18	18	ab	.	.	.
0070	BLSS	19	19	ab	.	.	.
0071	BGTRU	1A	1A	ab	.	.	.
0072	BLEQU	1B	1B	ab	.	.	.
0073	BVC	1C	1C	ab	.	.	.
0074	BVS	1D	1D	ab	.	.	.
0075	BGEQU	1E	1E	ab	.	.	.
0076	BLSSU	1F	1F	ab	.	.	.
0077	ADDP4	20	20	r	ab	r	ab
0078	ADDP6	21	21	r	ab	r	ab
0079	SUBP4	22	22	r	ab	r	ab
0080	SUBP6	23	23	r	ab	r	ab
0081	CVTPT	24	24	r	ab	ab	r
0082	MULP	25	25	r	ab	r	ab
0083	CVTTP	26	26	r	ab	ab	r
0084	DIVP	27	27	r	ab	r	ab
0085	MOV3	28	28	r	ab	ab	.
0086	CMPC3	29	29	r	ab	ab	.
0087	SCANC	2A	2A	r	ab	ab	rb
0088	SPANC	2B	2B	r	ab	ab	rb
0089	MOV5	2C	2C	r	ab	rb	r
0090	CMPC5	2D	2D	r	ab	rb	r
0091	MOVTC	2E	2E	r	ab	rb	ab
0092	MOVTC	2F	2F	r	ab	rb	ab
0093	BSBW	30	30	ab	.	.	.
0094	BRW	31	31	ab	.	.	.
0095	CVTWL	32	32	r	wl	.	.
0096	CVTWB	33	33	r	wb	.	.
0097	MOV3	34	34	r	ab	ab	.
0098	CMPP3	35	35	r	ab	ab	.
0099	CVTPL	36	36	r	ab	wl	.
0100	CMPP4	37	37	r	ab	r	ab
0101				.	.	.	.

0102	'EDITPC'	38	r	ab	ab	ab	
0103	'MATCHC'	39	r	ab	ab	ab	
0104	'LOCC'	3A	r	ab	ab	ab	
0105	'SKPC'	3B	r	ab	ab	ab	
0106	'MOVZWL'	3C	r	ab	ab	ab	
0107	'ACBW'	3D	r	ab	ab	ab	
0108	'MOVAV'	3E	r	ab	ab	ab	
0109	'PUSHAW'	3F	r	ab	ab	ab	
0110	'ADDF2'	40	r	ab	ab	ab	
0111	'ADDF3'	41	r	ab	ab	ab	
0112	'SUBF2'	42	r	ab	ab	ab	
0113	'SUBF3'	43	r	ab	ab	ab	
0114	'MULF2'	44	r	ab	ab	ab	
0115	'MULF3'	45	r	ab	ab	ab	
0116	'DIVF2'	46	r	ab	ab	ab	
0117	'DIVF3'	47	r	ab	ab	ab	
0118	'CVTFB'	48	r	ab	ab	ab	
0119	'CVTFW'	49	r	ab	ab	ab	
0120	'CVTFL'	4A	r	ab	ab	ab	
0121	'CVTRFL'	4B	r	ab	ab	ab	
0122	'CVTBF'	4C	r	ab	ab	ab	
0123	'CVTWF'	4D	r	ab	ab	ab	
0124	'CVTLF'	4E	r	ab	ab	ab	
0125	'ACBF'	4F	r	ab	ab	ab	
0126	'MOVF'	50	r	ab	ab	ab	
0127	'CMPF'	51	r	ab	ab	ab	
0128	'MNEGF'	52	r	ab	ab	ab	
0129	'TSTF'	53	r	ab	ab	ab	
0130	'EMODF'	54	r	ab	ab	ab	
0131	'POLYF'	55	r	ab	ab	ab	
0132	'CVTFD'	56	r	ab	ab	ab	
0133	'X57'	57	r	ab	ab	ab	
0134	'ADAWI'	58	r	ab	ab	ab	
0135	'X59'	59	r	ab	ab	ab	
0136	'X5A'	5A	r	ab	ab	ab	
0137	'X5B'	5B	r	ab	ab	ab	
0138	'INSQHI'	5C	r	ab	ab	ab	
0139	'INSQTI'	5D	r	ab	ab	ab	
0140	'REMQHI'	5E	r	ab	ab	ab	
0141	'REMQTI'	5F	r	ab	ab	ab	
0142	'ADDD2'	60	r	ab	ab	ab	
0143	'ADDD3'	61	r	ab	ab	ab	
0144	'SUBD2'	62	r	ab	ab	ab	
0145	'SUBD3'	63	r	ab	ab	ab	
0146	'MULD2'	64	r	ab	ab	ab	
0147	'MULD3'	65	r	ab	ab	ab	
0148	'DIVD2'	66	r	ab	ab	ab	
0149	'DIVD3'	67	r	ab	ab	ab	
0150	'CVTDB'	68	r	ab	ab	ab	
0151	'CVTDW'	69	r	ab	ab	ab	
0152	'CVTDL'	6A	r	ab	ab	ab	
0153	'CVTRDL'	6B	r	ab	ab	ab	
0154	'CVTBD'	6C	r	ab	ab	ab	
0155	'CVTWD'	6D	r	ab	ab	ab	
0156	'CVTLD'	6E	r	ab	ab	ab	
0157	'ACBD'	6F	r	ab	ab	ab	
0158	'MOVD'	70	r	ab	ab	ab	

Address	Opcode	Macro	FDCODES	Comment
00000000	32FD	CVTDH		
00000001	33FD	CVTGF		
00000002	40FD	ADDG2		
00000003	41FD	ADDG3		
00000004	42FD	SUBG2		
00000005	43FD	SUBG3		
00000006	44FD	MULG2		
00000007	45FD	MULG3		
00000008	46FD	DIVG2		
00000009	47FD	DIVG3		
00000010	48FD	CVTGB		
00000011	49FD	CVTGL		
00000012	4AFD	CVTGL		
00000013	4BFD	CVTRGL		
00000014	4CFD	CVTBG		
00000015	4DFD	CVTWG		
00000016	4EFD	CVTLG		
00000017	4FFD	ACBG		
00000018	50FD	MOVG		
00000019	51FD	CMPG		
00000020	52FD	MNEGG		
00000021	53FD	TSTG		
00000022	54FD	EMODG		
00000023	55FD	POLYG		
00000024	56FD	CVTGH		
00000025	60FD	ADDH2		
00000026	61FD	ADDH3		
00000027	62FD	SUBH2		
00000028	63FD	SUBH3		
00000029	64FD	MULH2		
00000030	65FD	MULH3		
00000031	66FD	DIVH2		
00000032	67FD	DIVH3		
00000033	68FD	CVTHB		
00000034	69FD	CVTHW		
00000035	6AFD	CVTHL		
00000036	6BFD	CVTRHL		
00000037	6CFD	CVTBH		
00000038	6DFD	CVTWH		
00000039	6EFD	CVTLH		
00000040	6FFD	ACBH		
00000041	70FD	MOVH		
00000042	71FD	CMPH		
00000043	72FD	MNEGH		
00000044	73FD	TSTH		
00000045	74FD	EMODH		
00000046	75FD	POLYH		
00000047	76FD	CVTHG		
00000048	7CFD	CLRO		
00000049	7DFD	MOV0		
00000050	7EFD	MOVAO		
00000051	7FFD	PUSHA0		
00000052	98FD	CVTFH		
00000053	99FD	CVTFG		
00000054	F6FD	CVTFH		
00000055	F7FD	CVTHD		

F 7
16-Sep-1984 00:21:13
15-Sep-1984 22:50:03

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_S255\$DUA28:[SORT32.SRC]OPCODES.REQ;1 (3)

SOF
VO4

: M 0359 0 'BUGL' : 0: 'FDFD' : il : : : :
: 0360 0 'BUGW' : 0: 'FEFD' : iw : : : : f:

.....

```
..: 0361 0 MACRO  
M 0362 0 DEF_OPCODES[A,B,C,D,E,F,G,H,I] =  
..: 0363 0 %NAME('OPC_',A) = %X ( %;  
..: 0364 0 LITERAL  
..: 0365 0 DEF_OPCODES(OPCODES,FDCODES);  
..: 0366 0  
..: 0367 0 UNDECLARE  
..: 0368 0 %QUOTE OPCODES,  
..: 0369 0 %QUOTE FDCODES;
```

.....

```
0370 0 ! Define literals for the registers
0371 0
0372 0 LITERAL
0373 0 R_0 = 0. ! Register 0
0374 0 R_1 = 1.
0375 0 R_2 = 2.
0376 0 R_3 = 3.
0377 0 R_4 = 4.
0378 0 R_5 = 5.
0379 0 R_6 = 6.
0380 0 R_7 = 7.
0381 0 R_8 = 8.
0382 0 R_9 = 9.
0383 0 R_10 = 10.
0384 0 R_11 = 11.
0385 0 R_AP = 12. ! Argument Pointer
0386 0 R_FP = 13. ! Frame pointer
0387 0 R_SP = 14. ! Stack pointer
0388 0 R_PC = 15. ! Program Counter
0389 0
0390 0 ! Define literals for addressing modes
0391 0
0392 0 LITERAL
0393 0 M_I = ZX'40' ! Indexed mode
0394 0 M_R = ZX'50' ! Register
0395 0 M_RD = ZX'60' ! Register deferred
0396 0 M_AD = ZX'70' ! Autodecrement
0397 0 M_AI = ZX'80' ! Autoincrement
0398 0 M_AID = ZX'90' ! Autoincrement deferred
0399 0 M_BD = ZX'A0' ! Byte displacement
0400 0 M_BDD = ZX'B0' ! Byte displacement deferred
0401 0 M_WD = ZX'C0' ! Word displacement
0402 0 M_WDD = ZX'D0' ! Word displacement deferred
0403 0 M_LD = ZX'E0' ! Longword displacement
0404 0 M_LDD = ZX'F0' ! Longword displacement deferred
```

COMMAND QUALIFIERS

BLISS SRC\$:OPCODES/LIS=LISS\$:OPCODES/LIB=SRC\$:OPCODES

: Run Time: 00:10.3
: Elapsed Time: 00:30.4
: Lines/CPU Min: 2348
: Lexemes/CPU-Min: 92494
: Memory Used: 216 pages
: Library Precompilation Complete

