Compaq 2001 VAX instruction set

op-code	neumonic	operation	generic	sizes		combinations	comments
9D	ACBB	Add compare and branch byte	ACB	BHWLDF		6	Add compare and branch
D8	ADWC	Add with carry	ADC	W		1	Add with carry
80	ADDB2	Add byte 2 operand	ADD	BHWLDF	23	12	Add
8A	BICB2	Bit clear byte 2 operand	AND	BHWL	23	8	And
F3	AOBLEQ	Add one and branch on less or equal	AOBLEQ	W		1	Add one and branch on less or equal
F2	AOBLSS	Add one and branch on less	AOBLSS	W		1	Add one and branch on less
78	ASHL	Arithmetic shift longword	ASH	WL		2	Arithmetic shift
E1	BBC	Branch on bit clear	BBxx	B		8	Branch on bit
93	BITB	Bit test byte	BIT	BHWL		4	Bit test (And)
11	BRB	Branch with byte displacement	BR	BHW		3	Branch
10	BSBB	Branch to subroutine with byte displacement	BS	BHW		3	Branch to subroutine
1E	BCC	Branch on carry clear	Bxx			18	Conditional branch
FA	CALLG	Call with general argument list	CALLG				Call with general argument list
FB	CALLS	Call with stack	CALLS				Call with stack
8F	CASEB	Case byte	CASE	BHWL		4	Case
94	CLRB	Clear byte	CLR	BHWL		4	Clear
91	CMPB	Compare byte	CMP	BHWLDF		6	Compare
6C	CVTBD	Convert byte to D_floating	CVT	BHWLDF^2		30	Convert to
97	DECB	Decrement byte	DEC	BHWL		4	Decrement
86	DIVB2	Divide byte 2 operand	DIV	BHWLDF	23	12	Divide
7B	EDIV	Extended divide	EDIV	W		1	Extended divide
7A	EMUL	Extended multiply	EMUL	W		1	Extended multiply
EE	EXTV	Extract field	EXTV	W		1	Extract field
EF	EXTZV	Extract zero-extended field	EXTZV	W		1	
EB	FFC	Find first clear bit	FFC	W		1	
EA	FFS	Find first set bit	FFS	W		1	
96	INCB	Increment byte	INC	BHWL		4	Increment
F0	INSV	Insert field	INSV	W		1	
17	JMP	Jump	JMP			1	Jump
16	JSB	Jump to subroutine	JSB			1	Jump to subroutine
92	MCOMB	Move complemented byte	MCOM	BHWL		4	Move complemented
8E	MNEGB	Move negated byte	MNEG	BHWLDF		6	Move negated
90	MOVB	Move byte	MOV	BHWL		4	Move
9E	MOVAB	Move address of byte	MOVA	BHWL		4	Move address
0A	MOVZBL	Move zero-extended byte to longword	MOVZ	BHW		3	Move zero-extended
84	MULB2	Multiply byte 2 operand	MUL	BHWLDF	23	12	Multiply
01	NOP	No operation	NOP			1	NOP
88	BISB2	Bit set byte 2 operand	OR	BHWL	23	8	Or
BA	POPR	Pop registers	POPR	W		1	Pop registers
DD	PUSHL	Push longword	PUSH	W		1	Push
9F	PUSHAB	Push address of byte	PUSHA	BHWL		4	Push address
BB	PUSHR	Push registers	PUSHR	W		1	Push registers
04	RET	Return from called procedure	RET			1	Return from called procedure
9C	ROTL	Rotate longword	ROT	W		1	Rotate
05	RSB	Return from subroutine	RSB			1	Return from subroutine
D9	SBWC	Subtract with carry	SBC	W		1	Subtract with carry
F4	SOBGEQ	Subtract one and branch on greater or equal	SOBGEQ			1	Subtract one and branch on greater or eq
F5	SOBGTR	Subtract one and branch on greater	SOBGTR			1	Subtract one and branch on greater
82	SUBB2	Subtract byte 2 operand	SUB	BHWLDF	23	12	Subtract
95	TSTB	Test byte	TST	BHWLDF		6	Test
8C	XORB2	Exclusive-OR byte 2 operand	XOR	BHWL	23	8	Exclusive-OR
6F	ACBD	Add compare and branch D_floating					
4F	ACBF	Add compare and branch F_floating					
4FFD ACBG Add compare and branch G_floating							
6FFD ACBH Add compare and branch H_floating							
F1 ACBL Add compare and branch longword							
3D ACBW Add compare and branch word							
58 ADAWI Add aligned word interlocked							
81 ADDB3 Add byte 3 operand							
60 ADDD2 Add D_floating 2 operand							

61 ADDD3 Add D_floating 3 operand					
40 ADDF2 Add F_floating 2 operand					
41 ADDF3 Add F_floating 3 operand					
40FD ADDG2 Add G_floating 2 operand					
41FD ADDG3 Add G_floating 3 operand					
60FD ADDH2 Add H_floating 2 operand					
61FD ADDH3 Add H_floating 3 operand					
C0 ADDL2 Add longword 2 operand					
C1 ADDL3 Add longword 3 operand					
20 ADDP4 Add packed 4 operand					
21 ADDP6 Add packed 6 operand					
A0 ADDW2 Add word 2 operand					
A1 ADDW3 Add word 3 operand					
F8 ASHP Arithmetic shift and round packed					
79 ASHQ Arithmetic shift quadword					
E5 BBCC Branch on bit clear and clear					
E7 BBCCI Branch on bit clear and clear interlocked					
E3 BBCS Branch on bit clear and set					
E0 BBS Branch on bit set					
E4 BBSC Branch on bit set and clear					
E2 BBSS Branch on bit set and set					
E6 BBSSI Branch on bit set and set interlocked					
1F BCS Branch on carry set					
13 BEQL Branch on equal					
13 BEQLU Branch on equal unsigned					
18 BGEQ Branch on greater or equal					
1E BGEQU Branch on greater or equal unsigned					
14 BGTR Branch on greater					
1A BGTRU Branch on greater unsigned					
8B BICB3 Bit clear byte 3 operand					
CA BICL2 Bit clear longword 2 operand					
CB BICL3 Bit clear longword 3 operand					
B9 BICPSW Bit clear program status word					
AA BICW2 Bit clear word 2 operand					
AB BICW3 Bit clear word 3 operand					
89 BISB3 Bit set byte 3 operand					
C8 BISL2 Bit set longword 2 operand					
C9 BISL3 Bit set longword 3 operand					
B8 BISPSW Bit set program status word					
A8 BISW2 Bit set word 2 operand					
A9 BISW3 Bit set word 3 operand					
D3 BITL Bit test longword					
B3 BITW Bit test word					
E9 BLBC Branch on low bit clear					
E8 BLBS Branch on low bit set					
15 BLEQ Branch on less or equal					
1B BLEQU Branch on less or equal unsigned					
19 BLSS Branch on less					
1F BLSSU Branch on less unsigned					
12 BNEQ Branch on not equal					
12 BNEQU Branch on not equal unsigned					
03 BPT Break point trap					
31 BRW Branch with word displacement					
30 BSBW Branch to subroutine with word displacement					
1C BVC Branch on overflow clear					
1D BVS Branch on overflow set					
CF CASEL Case longword					
AF CASEW Case word					
BD CHME Change mode to executive					
BC CHMK Change mode to kernel					
BE CHMS Change mode to supervisor					
BF CHMU Change mode to user					
7C CLRD Clear D_floating					
DF CLRF Clear F_floating					
7C CLRG Clear G_floating					
7CFD CLRH Clear H_floating					

D4 CLRL Clear longword					
7CFD CLRO Clear octaword					
7C CLRQ Clear quadword					
B4 CLRW Clear word					
29 CMPC3 Compare character 3 operand					
2D CMPC5 Compare character 5 operand					
71 CMPD Compare D_floating					
51 CMPF Compare F_floating					
51FD CMPG Compare G_floating					
71FD CMPH Compare H_floating					
D1 CMPL Compare longword					
35 CMPP3 Compare packed 3 operand					
37 CMPP4 Compare packed 4 operand					
EC CMPV Compare field					
B1 CMPW Compare word					
ED CMPZV Compare zero-extended field					
0B CRC Calculate cyclic redundancy check					
4C CVTBF Convert byte to F_floating					
4CFD CVTBG Convert byte to G_floating					
6CFD CVTBH Convert byte to H_floating					
98 CVTBL Convert byte to longword					
99 CVTBW Convert byte to word					
68 CVTDB Convert D_floating to byte					
76 CVTDF Convert D_floating to F_floating					
32FD CVTDH Convert D_floating to H_floating					
6A CVTDL Convert D_floating to longword					
69 CVTDW Convert D_floating to word					
48 CVTFB Convert F_floating to byte					
56 CVTFD Convert F_floating to D_floating					
99FD CVTFG Convert F_floating to G_floating					
98FD CVTFH Convert F_floating to H_floating					
4A CVTFL Convert F_floating to longword					
49 CVTFW Convert F_floating to word					
48FD CVTGB Convert G_floating to byte					
33FD CVTGF Convert G_floating to F_floating					
56FD CVTGH Convert G_floating to H_floating					
4AFD CVTGL Convert G_floating to longword					
49FD CVTGW Convert G_floating to word					
68FD CVTHB Convert H_floating to byte					
F7FD CVTHD Convert H_floating to D_floating					
F6FD CVTHF Convert H_floating to F_floating					
76FD CVTHG Convert H_floating to G_floating					
6AFD CVTHL Convert H_floating to longword					
69FD CVTHW Convert H_floating to word					
F6 CVTLB Convert longword to byte					
6E CVTLD Convert longword to D_floating					
4E CVTLF Convert longword to F_floating					
4EFD CVTLG Convert longword to G_floating					
6EFD CVTLH Convert longword to H_floating					
F9 CVTLP Convert longword to packed					
F7 CVTLW Convert longword to word					
36 CVTPL Convert packed to longword					
08 CVTPS Convert packed to leading separate					
24 CVTPT Convert packed to trailing					
6B CVTRDL Convert rounded D_floating to longword					
4B CVTRFL Convert rounded F_floating to longword					
4BFD CVTRGL Convert rounded G_floating to longword					
6BFD CVTRHL Convert rounded H_floating to longword					
09 CVTSP Convert leading separate to packed					
26 CVTTP Convert trailing to packed					
33 CVTWB Convert word to byte					
6D CVTWD Convert word to D_floating					
4D CVTWF Convert word to F_floating					
4DFD CVTWG Convert word to G_floating					
6DFD CVTWH Convert word to H_floating					
32 CVTWL Convert word to longword					

D7	DECL	Decrement longword					
B7	DECW	Decrement word					
87 DIVB3 Divide byte 3 operand							
66 DIVD2 Divide D_floating 2 operand							
67 DIVD3 Divide D_floating 3 operand							
46 DIVF2 Divide F_floating 2 operand							
47 DIVF3 Divide F_floating 3 operand							
46FD DIVG2 Divide G_floating 2 operand							
47FD DIVG3 Divide G_floating 3 operand							
66FD DIVH2 Divide H_floating 2 operand							
67FD DIVH3 Divide H_floating 3 operand							
C6 DIVL2 Divide longword 2 operand							
C7 DIVL3 Divide longword 3 operand							
27 DIVP Divide packed							
A6 DIVW2 Divide word 2 operand							
A7 DIVW3 Divide word 3 operand							
38 EDITPC Edit packed to character							
74 EMODD Extended modulus D_floating							
54 EMODF Extended modulus F_floating							
54FD EMODG Extended modulus G_floating							
74FD EMODH Extended modulus H_floating							
00 HALT Halt							
D6 INCL Increment longword							
B6 INCW Increment word							
0A INDEX Index calculation							
5C INSQHI Insert into queue at head, interlocked							
5D INSQTI Insert into queue at tail, interlocked							
0E INSQUE Insert into queue							
EDFD IOTA Generate compressed iota vector							
06 LDPCTX Load program context							
3A LOCC Locate character							
39 MATCHC Match characters							
D2 MCOML Move complemented longword							
B2 MCOMW Move complemented word							
DB MFPR Move from processor register							
31FD MFVP Move from vector processor							
72 MNEGD Move negated D_floating							
52 MNEGF Move negated F_floating							
52FD MNEGG Move negated G_floating							
72FD MNEGH Move negated H_floating							
CE MNEGL Move negated longword							
AE MNEGW Move negated word							
7E MOVAD Move address of D_floating							
DE MOVAF Move address of F_floating							
7E MOVAG Move address of G_floating							
7EFD MOVAH Move address of H_floating							
DE MOVAL Move address of longword							
7EFD MOVAO Move address of octaword							
7E MOVAQ Move address of quadword							
3E MOVAW Move address of word							
28 MOVC3 Move character 3 operand							
2C MOVC5 Move character 5 operand							
70 MOVD Move D_floating							
50 MOVF Move F_floating							
50FD MOVG Move G_floating							
70FD MOVH Move H_floating							
D0 MOVL Move longword							
7DFD MOVO Move data							
34 MOVP Move packed							
DC MOVPSL Move program status longword							
7D MOVQ Move quadword							
2E MOVTC Move translated characters							
2F MOVTUC Move translated until character							
B0 MOVW Move word							
9B MOVZBW Move zero-extended byte to word							
3C MOVZWL Move zero-extended word to longword							

DA MTPR Move to processor register					
A9FD MTVP Move to vector processor					
85 MULB3 Multiply byte 3 operand					
64 MULD2 Multiply D_floating 2 operand					
65 MULD3 Multiply D_floating 3 operand					
44 MULF2 Multiply F_floating 2 operand					
45 MULF3 Multiply F_floating 3 operand					
44FD MULG2 Multiply G_floating 2 operand					
45FD MULG3 Multiply G_floating 3 operand					
64FD MULH2 Multiply H_floating 2 operand					
65FD MULH3 Multiply H_floating 3 operand					
C4 MULL2 Multiply longword 2 operand					
C5 MULL3 Multiply longword 3 operand					
25 MULP Multiply packed					
A4 MULW2 Multiply word 2 operand					
A5 MULW3 Multiply word 3 operand					
75 POLYD Evaluate polynomial D_floating					
55 POLYF Evaluate polynomial F_floating					
55FD POLYG Evaluate polynomial G_floating					
75FD POLYH Evaluate polynomial H_floating					
0C PROBER Probe read access					
0D PROBEW Probe write access					
7F PUSHAD Push address of D_floating					
DF PUSHAF Push address of F_floating					
7F PUSHAG Push address of G_floating					
7FFD PUSHAH Push address of H_floating					
DF PUSHAL Push address of longword					
7FFD PUSHAO Push address of octaword					
7F PUSHAQ Push address of quadword					
3F PUSHAW Push address of word					
02 REI Return from exception or interrupt					
5E REMQHI Remove from queue at head, interlocked					
5F REMQTI Remove from queue at tail, interlocked					
0F REMQUE Remove from queue					
2A SCANC Scan for character					
3B SKPC Skip character					
2B SPANC Span characters					
83 SUBB3 Subtract byte 3 operand					
62 SUBD2 Subtract D_floating 2 operand					
63 SUBD3 Subtract D_floating 3 operand					
42 SUBF2 Subtract F_floating 2 operand					
43 SUBF3 Subtract F_floating 3 operand					
42FD SUBG2 Subtract G_floating 2 operand					
43FD SUBG3 Subtract G_floating 3 operand					
62FD SUBH2 Subtract H_floating 2 operand					
63FD SUBH3 Subtract H_floating 3 operand					
C2 SUBL2 Subtract longword 2 operand					
C3 SUBL3 Subtract longword 3 operand					
22 SUBP4 Subtract packed 4 operand					
23 SUBP6 Subtract packed 6 operand					
A2 SUBW2 Subtract word 2 operand					
A3 SUBW3 Subtract word 3 operand					
07 SVPCTX Save process context					
73 TSTD Test D_floating					
53 TSTF Test F_floating					
53FD TSTG Test G_floating					
73FD TSTH Test H_floating					
D5 TSTL Test longword					
B5 TSTW Test word					
35FD VGATHL Gather longword vector from memory to vector register					
37FD VGATHQ Gather quadword vector from memory to vector register					
34FD VLDL Load longword vector from memory to vector register					
36FD VLDQ Load quadword vector from memory to vector register					
87FD VSADDD Vector scalar add D_floating					
85FD VSADDF Vector scalar add F_floating					
83FD VSADDG Vector scalar add G_floating					

81FD VSADDL Vector scalar add longword							
CDFD VSBICL Vector scalar bit clear longword							
C9FD VSBISL Vector scalar bit set longword							
9DFD VSCATL Scatter longword vector from vector register to memory							
9FFD VSCATQ Scatter quadword vector from vector register to memory							
C7FD VSCMPD Vector scalar compare D_floating							
C5FD VSCMPF Vector scalar compare F_floating							
C3FD VSCMPG Vector scalar compare G_floating							
C1FD VSCMPL Vector scalar compare longword							
AFFD VSDIVD Vector scalar divide D_floating							
ADFD VSDIVF Vector scalar divide F_floating							
ABFD VSDIVG Vector scalar divide G_floating							
EFFD VSMERGE Vector scalar merge							
A7FD VSMULD Vector scalar multiply D_floating							
A5FD VSMULF Vector scalar multiply F_floating							
A3FD VSMULG Vector scalar multiply G_floating							
A1FD VSMULL Vector scalar multiply longword							
E5FD VSSLLL Vector scalar shift left logical longword							
E1FD VSSRLL Vector scalar shift right logical longword							
8FFD VSSUBD Vector scalar subtract D_floating							
8DFD VSSUBF Vector scalar subtract F_floating							
8BFD VSSUBG Vector scalar subtract G_floating							
89FD VSSUBL Vector scalar subtract longword							
9CFD VSTL Store longword vector from vector register to memory							
9EFD VSTQ Store quadword vector from vector register to memory							
E9FD VSXORL Vector scalar exclusive-OR longword							
A8FD VSYNC Synchronize vector memory access							
86FD VVADDD Vector vector add D_floating							
84FD VVADDF Vector vector add F_floating							
82FD VVADDG Vector vector add G_floating							
80FD VVADDL Vector vector add longword							
CCFD VVBICL Vector vector bit clear longword							
C8FD VVBISL Vector vector bit set longword							
C6FD VVCMPD Vector vector compare D_floating							
C4FD VVCMPF Vector vector compare F_floating							
C2FD VVCMPG Vector vector compare G_floating							
C0FD VVCMPL Vector vector compare longword							
ECFD VVCVT Vector convert							
AEFD VVDIVD Vector vector divide D_floating							
ACFD VVDIVF Vector vector divide F_floating							
AAFD VVDIVG Vector vector divide G_floating							
EEFD VVMERGE Vector vector merge							
A6FD VVMULD Vector vector multiply F_floating							
A4FD VVMULF Vector vector multiply F_floating							
A2FD VVMULG Vector vector multiply G_floating							
A0FD VVMULL Vector vector multiply longword							
E4FD VVSLLL Vector vector shift left logical longword							
E0FD VVSRLL Vector vector shift right logical longword							
8EFD VVSUBD Vector vector subtract D_floating							
8CFD VVSUBF Vector vector subtract F_floating							
8AFD VVSUBG Vector vector subtract G_floating							
88FD VVSUBL Vector vector subtract longword							
E8FD VVXORL Vector vector exclusive-OR longword							
FC XFC Extended function call							
8D XORB3 Exclusive-OR byte 3 operand							
CC XORL2 Exclusive-OR longword 2 operand							
CD XORL3 Exclusive-OR longword 3 operand							
AC XORW2 Exclusive-OR word 2 operand							
AD	XORW3	Exclusive-OR word 3 operand					
		# ops	51			221	# inst