

## APPENDIX B P-MACHINE OPCODES (Numeric Order)

Dec	Hex	Opcode	Description
0	00	SLDC0	Short Load Constant
1	01	SLDC1	" " "
2	02	SLDC2	" " "
3	03	SLDC3	" " "
4	04	SLDC4	" " "
5	05	SLDC5	" " "
6	06	SLDC6	" " "
7	07	SLDC7	" " "
8	08	SLDC8	" " "
9	09	SLDC9	" " "
10	0A	SLDC10	" " "
11	0B	SLDC11	" " "
12	0C	SLDC12	" " "
13	0D	SLDC13	" " "
14	0E	SLDC14	" " "
15	0F	SLDC15	" " "
16	10	SLDC16	" " "
17	11	SLDC17	" " "
18	12	SLDC18	" " "
19	13	SLDC19	" " "
20	14	SLDC20	" " "
21	15	SLDC21	" " "
22	16	SLDC22	" " "
23	17	SLDC23	" " "
24	18	SLDC24	" " "
25	19	SLDC25	" " "
26	1A	SLDC26	" " "
27	1B	SLDC27	" " "
28	1C	SLDC28	" " "
29	1D	SLDC29	" " "
30	1E	SLDC30	" " "
31	1F	SLDC31	" " "
32	20	SLDL1	Short Load Local
33	21	SLDL2	" " "
34	22	SLDL3	" " "
35	23	SLDL4	" " "
36	24	SLDL5	" " "
37	25	SLDL6	" " "
38	26	SLDL7	" " "
39	27	SLDL8	" " "
40	28	SLDL9	" " "
41	29	SLDL10	" " "
42	2A	SLDL11	" " "
43	2B	SLDL12	" " "
44	2C	SLDL13	" " "
45	2D	SLDL14	" " "
46	2E	SLDL15	" " "
47	2F	SLDL16	" " "
48	30	SLDO1	Short Load Global
49	31	SLDO2	" " "
50	32	SLDO3	" " "
51	33	SLDO4	" " "
52	34	SLDO5	" " "
53	35	SLDO6	" " "
54	36	SLDO7	" " "

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55	37	SLDO8	"	"	"
56	38	SLDO9	"	"	"
57	39	SLDO10	"	"	"
58	3A	SLDO11	"	"	"
59	3B	SLDO12	"	"	"
60	3C	SLDO13	"	"	"
61	3D	SLDO14	"	"	"
62	3E	SLDO15	"	"	"
63	3F	SLDO16	"	"	"
64	40		unused		
..			"		
95	5F				
96	60	SLLA1	Short Load Local Address		
97	61	SLLA2	"	"	"
98	62	SLLA3	"	"	"
99	63	SLLA4	"	"	"
100	64	SLLA5	"	"	"
101	65	SLLA6	"	"	"
102	66	SLLA7	"	"	"
103	67	SLLA8	"	"	"
104	68	SSTL1	Short Store Local		
105	69	SSTL2	"	"	"
106	6A	SSTL3	"	"	"
107	6B	SSTL4	"	"	"
108	6C	SSTL5	"	"	"
109	6D	SSTL6	"	"	"
110	6E	SSTL7	"	"	"
111	6F	SSTL8	"	"	"
112	70	SCXG1	Short Call External Global		
113	71	SCXG2	"	"	"
114	72	SCXG3	"	"	"
115	73	SCXG4	"	"	"
116	74	SCXG5	"	"	"
117	75	SCXG6	"	"	"
118	76	SCXG7	"	"	"
119	77	SCXG8	"	"	"
120	78	SIND0	Short Index		
121	79	SIND1	"	"	"
122	7A	SIND2	"	"	"
123	7B	SIND3	"	"	"
124	7C	SIND4	"	"	"
125	7D	SIND5	"	"	"
126	7E	SIND6	"	"	"
127	7F	SIND7	"	"	"
128	80	LDCB	Load Constant Byte		
129	81	LDCI	Load Constant Integer		
130	82	LCO	Load Constant Offset		
131	83	LDC	Load Word Constant		
132	84	LLA	Load Local Address		
133	85	LDO	Load Global		
134	86	LAC	Load Global Address		
135	87	LDL	Load Local		
136	88	LDA	Load Intermediate Address		
137	89	LOD	Load Intermediate		
138	8A	UJP	Unconditional Jump		
139	8B	UJPL	Unconditional Jump Long		
140	8C	MPI	Multiply Integer		
141	8D	DVI	Divide Integer		
142	8E	STM	Store Multiple		
143	8F	MODI	Modulo Integers		
144	90	CLP	Call Local Procedure		
145	91	CGP	Call Global Procedure		
146	92	CIP	Call Intermediate Procedure		
147	93	CXL	Call External Local		

148	94	CXG	Call External Global
149	95	CXI	Call External Intermediate
150	96	RPU	Return from Procedure
151	97	CFP	Call Formal Procedure
152	98	IDCN	Load Constant NIL
153	99	LSL	Load Static Link
154	9A	LDE	Load Extended
155	9B	LAE	Load Extended Address
156	9C	NOP	No Operation
157	9D	LPR	Load Processor Register
158	9E	BPT	Break point
159	9F	BNOT	Boolean Not
160	A0	LOR	Logical Or
161	A1	LAND	Logical And
162	A2	ADI	Add Integer
163	A3	SBI	Subtract Integer
164	A4	STL	Store Local
165	A5	SRO	Store Global
166	A6	STR	Store Intermediate
167	A7	LDB	Load Byte
168	A8	NAT	Enter Native Code
169	A9	NAT-INFO	Native Code Information
170	AA		reserved
171	AB	CAP	Copy Array Parameter
172	AC	CSP	Copy String Parameter
173	AD	SLOD1	Short Load Intermediate
174	AE	SLOD2	" " "
175	AF		unused
176	B0	EQUI	Equal Integer
177	B1	NEQI	Not Equal Integer
178	B2	LEQI	Less Than or Equal Integer
179	B3	GEQI	Greater Than or Equal Integer
180	B4	LEUSW	Less Than or Equal Unsigned
181	B5	GEUSW	Greater Than or Equal Unsigned
182	B6	EQPWR	Equal Set
183	B7	LEPWR	Less Than or Equal Set
184	B8	GEPWR	Greater Than or Equal Set
185	B9	EQBYT	Equal Byte Array
186	BA	LEBYT	Less Than or Equal Byte Array
187	BB	GEBYT	Greater Than or Equal Byte Array
188	BC	SRS	Subrange Set
189	BD	SWAP	Swap
190	BE	TNC	Truncate Real
191	BF	RND	Round Real
192	C0	ADR	Add Real
193	C1	SBR	Subtract Real
194	C2	MPR	Multiply Real
195	C3	DVR	Divide Real
196	C4	STO	Store
197	C5	MOV	Move
198	C6	DUPR	Duplicate Real
199	C7	ADJ	Adjust Set
200	C8	STB	Store Byte
201	C9	LDP	Load Packed
202	CA	STP	Store Packed
203	CB	CHK	Check Subrange Bounds
204	CC	FLT	Float
205	CD	EQREAL	Equal Real
206	CE	LEREAL	Less Than or Equal Real
207	CF	GEREAL	Greater Than or Equal Real
208	D0	LDM	Load Multiple
209	D1	SPR	Store Processor Register
210	D2	EFJ	Equal False Jump
211	D3	NFJ	Not Equal False Jump

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212	D4	FJP	False Jump
213	D5	FJPL	False Long Jump
214	D6	XJP	Case Jump
215	D7	IXA	Index Array
216	D8	IXP	Index Packed Array
217	D9	STE	Store Extended
218	DA	JNN	Set Membership
219	DB	UNI	Set Union
220	DC	INT	Set Intersection
221	DD	DIF	Set Difference
222	DE	SIGNAL	Signal
223	DF	WAIT	wait
224	E0	ABI	Absolute Value Integer
225	E1	NGI	Negate Integer
226	E2	DUP1	Duplicate One Word
227	E3	ABR	Absolute Value Real
228	F4	NGR	Negate Real
229	E5	LNOT	Logical Not
230	F6	IND	Index
231	E7	INC	Increment
232	E8	EQSTR	Equal String
233	E9	LESTR	Less Than or Equal String
234	EA	GESTR	Greater Than or Equal String
235	EB	ASTR	Assign String
236	EC	CSTR	Check String Index
237	ED	INCI	Increment Integer
238	EE	DECI	Decrement Integer
239	EF	SCPI1	Short Call Intermediate Procedure
240	F0	SCPI2	" " " "
241	F1	TJP	True Jump
242	F2	LDCRL	Load Constant Real
243	F3	LDRL	Load Real
244	F4	STRL	Store Real
245	F5		unused
...			"
249	F9		"
250	FA	RESERVE1	reserved
251	FB	RESERVE2	"
252	FC	RESERVE3	"
253	FD	RESERVE4	"
254	FE	RESERVE5	"
255	FF	RESERVE6	"