第七章

操作码助记符

本章给出了从 Java 虚拟机指令操作码(包括保留操作码(§6.2))到由这些操作码表示的指令的助记符的映射。

在 Java SE 7 之前没有使用操作码值 186。

常量	加载	存储
00 (0x00) *nop*	21 (0x15) *iload*	54 (0x36) *istore*
01 (0x01) *aconst_null*	22 (0x16) *lload*	55 (0x37) *lstore*
02 (0x02) *iconst_m1*	23 (0x17) *fload*	56 (0x38) *fstore*
03 (0x03) *iconst_0*	24 (0x18) *dload*	57 (0x39) *dstore*
04 (0x04) *iconst_1*	25 (0x19) *aload*	58 (0x3a) *astore*
05 (0x05) *iconst_2*	26 (0x1a) *iload_0*	59 (0x3b) *istore_0*
06 (0x06) *iconst_3*	27 (0x1b) *iload_1*	60 (0x3c) *istore_1*
07 (0x07) *iconst_4*	28 (0x1c) *iload_2*	61 (0x3d) *istore_2*
08 (0x08) *iconst_5*	29 (0x1d) *iload_3*	62 (0x3e) *istore_3*
09 (0x09) *lconst_0*	30 (0x1e) *lload_0*	63 (0x3f) *lstore_0*
10 (0x0a) *lconst_1*	31 (0x1f) *lload_1*	64 (0x40) *lstore_1*
11 (0x0b) *fconst_0*	32 (0x20) *lload_2*	65 (0x41) *lstore_2*
12 (0x0c) *fconst_1*	33 (0x21) *lload_3*	66 (0x42) *lstore_3*
13 (0x0d) *fconst_2*	34 (0x22) *fload_0*	67 (0x43) *fstore_0*
14 (0x0e) *dconst_0*	35 (0x23) *fload_1*	68 (0x44) *fstore_1*
15 (0x0f) *dconst_1*	36 (0x24) *fload_2*	69 (0x45) *fstore_2*
16 (0x10) *bipush*	37 (0x25) *fload_3*	70 (0x46) *fstore_3*
17 (0x11) *sipush*	38 (0x26) *dload_0*	71 (0x47) *dstore_0*
18 (0x12) *ldc*	39 (0x27) *dload_1*	72 (0x48) *dstore_1*
19 (0x13) *ldc_w*	40 (0x28) *dload_2*	73 (0x49) *dstore_2*
20 (0x14) *ldc2_w*	41 (0x29) *dload_3*	74 (0x4a) *dstore_3*
	42 (0x2a) *aload_0*	75 (0x4b) *astore_0*
	43 (0x2b) *aload_1*	76 (0x4c) *astore_1*
	44 (0x2c) *aload_2*	77 (0x4d) *astore_2*
	45 (0x2d) *aload_3*	78 (0x4e) *astore_3*
	46 (0x2e) *iaload*	79 (0x4f) *iastore*
	47 (0x2f) *laload*	80 (0x50) *lastore*
	48 (0x30) *faload*	81 (0x51) *fastore*
	49 (0x31) *daload*	82 (0x52) *dastore*
	50 (0x32) *aaload*	83 (0x53) *aastore*
	51 (0x33) *baload*	84 (0x54) *bastore*
	52 (0x34) *caload*	85 (0x55) *castore*
	53 (0x35) *saload*	86 (0x56) *sastore*

栈

87 (0x57) *pop*
88 (0x58) *pop2*
89 (0x59) *dup*
90 (0x5a) *dup_x1*
91 (0x5b) *dup_x2*
92 (0x5c) *dup2*
93 (0x5d) *dup2_x1*
94 (0x5e) *dup2_x2*
95 (0x5f) *swap*

数学

96 (0x60) *iadd*
97 (0x61) *ladd*
98 (0x62) *fadd*
99 (0x63) *dadd*
100 (0x64) *isub*
101 (0x65) *lsub*
102 (0x66) *fsub*
103 (0x67) *dsub*
104 (0x68) *imul*
105 (0x69) *lmul*
106 (0x6a) *fmul*
107 (0x6b) *dmul*
108 (0x6c) *idiv*
109 (0x6d) *ldiv*
110 (0x6e) *fdiv*
111 (0x6f) *ddiv*
112 (0x70) *irem*
113 (0x71) *lrem*
114 (0x72) *frem*
115 (0x73) *drem*
116 (0x74) *ineg*
117 (0x75) *lneg*
118 (0x76) *fneg*
119 (0x77) *dneg*
120 (0x78) *ishl*
121 (0x79) *lshl*
122 (0x7a) *ishr*
123 (0x7b) *lshr*
124 (0x7c) *iushr*
125 (0x7d) *lushr*
126 (0x7e) *iand*
127 (0x7f) *land*
128 (0x80) *ior*
129 (0x81) *lor*
130 (0x82) *ixor*
131 (0x83) *lxor*
132 (0x84) *iinc*

转换

133 (0x85) *i2l*
134 (0x86) *i2f*
135 (0x87) *i2d*
136 (0x88) *l2i*
137 (0x89) *l2f*
138 (0x8a) *l2d*
139 (0x8b) *f2i*
140 (0x8c) *f2l*
141 (0x8d) *f2d*
142 (0x8e) *d2i*
143 (0x8f) *d2l*
144 (0x90) *d2f*
145 (0x91) *i2b*
146 (0x92) *i2c*
147 (0x93) *i2s*

比较

148 (0x94) *lcmp*
149 (0x95) *fcmpl*
150 (0x96) *fcmpg*
151 (0x97) *dcmpl*
152 (0x98) *dcmpg*
153 (0x99) *ifeq*
154 (0x9a) *ifne*
155 (0x9b) *iflt*
156 (0x9c) *ifge*
157 (0x9d) *ifgt*
158 (0x9e) *ifle*
159 (0x9f) *if_icmpeq*
160 (0xa0) *if_icmpne*
161 (0xa1) *if_icmplt*
162 (0xa2) *if_icmpge*
163 (0xa3) *if_icmpgt*
164 (0xa4) *if_icmple*
165 (0xa5) *if_acmpeq*
166 (0xa6) *if_acmpne*

控制

167 (0xa7) *goto*
168 (0xa8) *jsr*
169 (0xa9) *ret*
170 (0xaa) *tableswitch*
171 (0xab) *lookupswitch*
172 (0xac) *ireturn*
173 (0xad) *lreturn*
174 (0xae) *freturn*
175 (0xaf) *dreturn*
176 (0xb0) *areturn*
177 (0xb1) *return*

引用

178 (0xb2) *getstatic*
179 (0xb3) *putstatic*
180 (0xb4) *getfield*
181 (0xb5) *putfield*
182 (0xb6) *invokevirtual*
183 (0xb7) *invokespecial*
184 (0xb8) *invokestatic*
185 (0xb9) *invokeinterface*
186 (0xba) *invokedynamic*
187 (0xbb) *new*
188 (0xbc) *newarray*
189 (0xbd) *anewarray*
190 (0xbe) *arraylength*
191 (0xbf) *athrow*
192 (0xc0) *checkcast*
193 (0xc1) *instanceof*
194 (0xc2) *monitorenter*
195 (0xc3) *monitorexit*

扩展

196 (0xc4) *wide*
197 (0xc5) *multianewarray*
198 (0xc6) *ifnull*
199 (0xc7) *ifnonnull*
200 (0xc8) *goto_w*
201 (0xc9) *jsr_w*

保留

202 (0xca) *breakpoint*
254 (0xfe) *impdep1*
255 (0xff) *impdep2*