

8051 Instruction Set Table

8051 Instruction Set Table																	@R0		@R1		R0		R1		R2		R3		R4		R5		R6		R7	
Mates (c) 1995, 2002	0000 .0	0001 .1	0010 .2	0011 .3	0100 .4	0101 .5	0110 .6	0111 .7	1000 .8	1001 .9	1010 .A	1011 .B	1100 .C	1101 .D	1110 .E	1111 .F																				
0	0 1c 1	1 2c 2	2 2c 3	3 1c 1	4 1c 1	5 1c 1	6 1c 1	7 1c 1	8 1c 1	9 1c 1	10 1c 1	11 1c 1	12 1c 1	13 1c 1	14 1c 1	15 1c 1																				
	NOP	AJMP 0A8	LJMP A16	RR A	INC A	INC A8	INC @R0	INC @R1	INC R0	INC R1	INC R2	INC R3	INC R4	INC R5	INC R6	INC R7																				
1	16 2c 3	17 2c 2	18 2c 3	19 1c 1	20 1c 1	21 1c 1	22 1c 1	23 1c 1	24 1c 1	25 1c 1	26 1c 1	27 1c 1	28 1c 1	29 1c 1	30 1c 1	31 1c 1																				
	JBC BIT,AR	ACALL 0A8	LCALL A16	RRC A	DEC A	DEC A8	DEC @R0	DEC @R1	DEC R0	DEC R1	DEC R2	DEC R3	DEC R4	DEC R5	DEC R6	DEC R7																				
2	32 2c 3	33 2c 2	34 2c 1	35 1c 1	36 1c 2	37 1c 2	38 1c 1	39 1c 1	40 1c 1	41 1c 1	42 1c 1	43 1c 1	44 1c 1	45 1c 1	46 1c 1	47 1c 1																				
	JB BIT,AR	AJMP 1A8	RET	RL A	ADD A,#D	ADD A,A8	ADD A,@R0	ADD A,@R1	ADD A,R0	ADD A,R1	ADD A,R2	ADD A,R3	ADD A,R4	ADD A,R5	ADD A,R6	ADD A,R7																				
3	48 2c 3	49 2c 2	50 2c 1	51 1c 1	52 1c 2	53 1c 2	54 1c 1	55 1c 1	56 1c 1	57 1c 1	58 1c 1	59 1c 1	60 1c 1	61 1c 1	62 1c 1	63 1c 1																				
	JNB BIT,AR	ACALL 1A8	RETI	RLC A	ADDC A,#D	ADDC A,A8	ADDC A,@R0	ADDC A,@R1	ADDC A,R0	ADDC A,R1	ADDC A,R2	ADDC A,R3	ADDC A,R4	ADDC A,R5	ADDC A,R6	ADDC A,R7																				
4	64 2c 2	65 2c 2	66 1c 2	67 1c 3	68 1c 2	69 1c 2	70 1c 1	71 1c 1	72 1c 1	73 1c 1	74 1c 1	75 1c 1	76 1c 1	77 1c 1	78 1c 1	79 1c 1																				
	JC AR	AJMP 2A8	ORL A8,A	ORL A8,#D	ORL A,#D	ORL A,A8	ORL A,@R0	ORL A,@R1	ORL A,R0	ORL A,R1	ORL A,R2	ORL A,R3	ORL A,R4	ORL A,R5	ORL A,R6	ORL A,R7																				
5	80 2c 2	81 2c 2	82 1c 2	83 1c 3	84 1c 2	85 1c 2	86 1c 1	87 1c 1	88 1c 1	89 1c 1	90 1c 1	91 1c 1	92 1c 1	93 1c 1	94 1c 1	95 1c 1																				
	JNC AR	ACALL 2A8	ANL A8,A	ANL A8,#D	ANL A,#D	ANL A,A8	ANL A,@R0	ANL A,@R1	ANL A,R0	ANL A,R1	ANL A,R2	ANL A,R3	ANL A,R4	ANL A,R5	ANL A,R6	ANL A,R7																				
6	96 2c 2	97 2c 2	98 1c 2	99 1c 3	100 1c 2	101 1c 2	102 1c 1	103 1c 1	104 1c 1	105 1c 1	106 1c 1	107 1c 1	108 1c 1	109 1c 1	110 1c 1	111 1c 1																				
	JZ AR	AJMP 3A8	XRL A8,A	XRL A8,#D	XRL A,#D	XRL A,A8	XRL A,@R0	XRL A,@R1	XRL A,R0	XRL A,R1	XRL A,R2	XRL A,R3	XRL A,R4	XRL A,R5	XRL A,R6	XRL A,R7																				
7	112 2c 2	113 2c 2	114 2c 2	115 2c 1	116 1c 2	117 2c 3	118 1c 2	119 1c 2	120 1c 2	121 1c 2	122 1c 2	123 2c 2	124 1c 2	125 1c 2	126 1c 2	127 1c 2																				
	JNZ AR	ACALL 3A8	ORL C,BIT	JMP @A+DPTR	MOV A,#D	MOV A8,#D	MOV @R0,#D	MOV @R1,#D	MOV R0,#D	MOV R1,#D	MOV R2,#D	MOV R3,#D	MOV R4,#D	MOV R5,#D	MOV R6,#D	MOV R7,#D																				
8	128 2c 2	129 2c 2	130 2c 2	131 2c 1	132 4c 1	133 2c 3	134 2c 2	135 2c 2	136 2c 2	137 2c 2	138 2c 2	139 2c 2	140 2c 2	141 2c 2	142 2c 2	143 2c 2																				
	SJMP AR	AJMP 4A8	ANL C,BIT	MOVC A,@A+PC	DIV AB	MOV A8,A8	MOV A8,@R0	MOV A8,@R1	MOV A8,R0	MOV A8,R1	MOV A8,R2	MOV A8,R3	MOV A8,R4	MOV A8,R5	MOV A8,R6	MOV A8,R7																				
9	144 2c 3	145 2c 2	146 2c 2	147 2c 1	148 1c 2	149 1c 2	150 1c 1	151 1c 1	152 1c 1	153 1c 1	154 1c 1	155 1c 1	156 1c 1	157 1c 1	158 1c 1	159 1c 1																				
	MOV DPTR,#D16	ACALL 4A8	MOV BIT,C	MOVC A,@A+DPTR	SUBB A,#D	SUBB A,A8	SUBB A,@R0	SUBB A,@R1	SUBB A,R0	SUBB A,R1	SUBB A,R2	SUBB A,R3	SUBB A,R4	SUBB A,R5	SUBB A,R6	SUBB A,R7																				
A	208 2c 2	161 2c 2	162 1c 2	163 2c 1	164 4c 1	165	166 2c 2	167 2c 2	168 2c 2	169 2c 2	170 2c 2	171 2c 2	172 2c 2	173 2c 2	174 2c 2	175 2c 2																				
	ORL C,BIT	AJMP 5A8	MOV C,BIT	INC DPTR	MUL AB		MOV @R0,A8	MOV @R1,A8	MOV R0,A8	MOV R1,A8	MOV R2,A8	MOV R3,A8	MOV R4,A8	MOV R5,A8	MOV R6,A8	MOV R7,A8																				
B	176 2c 2	177 2c 2	178 1c 2	179 1c 1	180 2c 3	181 2c 3	182 2c 3	183 2c 3	184 2c 3	185 2c 3	186 2c 3	187 2c 3	188 2c 3	189 2c 3	190 2c 3	191 2c 3																				
	ANL C,BIT	ACALL 5A8	CPL BIT	CPL C	CJNE A,#D,AR	CJNE A,A8,AR	CJNE @R0,#D,AR	CJNE @R1,#D,AR	CJNE R0,#D,AR	CJNE R1,#D,AR	CJNE R2,#D,AR	CJNE R3,#D,AR	CJNE R4,#D,AR	CJNE R5,#D,AR	CJNE R6,#D,AR	CJNE R7,#D,AR																				
C	192 2c 2	193 2c 2	194 1c 2	195 1c 1	196 1c 1	197 1c 2	198 1c 1	199 1c 1	200 1c 1	201 1c 1	202 1c 1	203 1c 1	204 1c 1	205 1c 1	206 1c 1	207 1c 1																				
	PUSH A8	AJMP 6A8	CLR BIT	CLR C	SWAP A	XCH A,A8	XCH A,@R0	XCH A,@R1	XCH A,R0	XCH A,R1	XCH A,R2	XCH A,R3	XCH A,R4	XCH A,R5	XCH A,R6	XCH A,R7																				
D	208 2c 2	209 2c 2	210 1c 2	211 1c 1	212 1c 1	213 2c 3	214 1c 1	215 1c 1	216 2c 2	217 2c 2	218 2c 2	219 2c 2	220 2c 2	221 2c 2	222 2c 2	223 2c 2																				
	POP A8	ACALL 6A8	SETB BIT	SETB C	DA A	DJNZ A8,AR	XCHD A,@R0	XCHD A,@R1	DJNZ R0,AR	DJNZ R1,AR	DJNZ R2,AR	DJNZ R3,AR	DJNZ R4,AR	DJNZ R5,AR	DJNZ R6,AR	DJNZ R7,AR																				
E	224 2c 1	225 2c 2	226 2c 1	227 2c 1	228 1c 1	229 1c 2	230 1c 1	231 1c 1	232 1c 1	233 1c 1	234 1c 1	235 1c 1	236 1c 1	237 1c 1	238 1c 1	239 1c 1																				
	MOVX A,@DPTR	AJMP 7A8	MOVX A,@R0	MOVX A,@R1	CLR A	MOV A,A8	MOV A,@R0	MOV A,@R1	MOV A,R0	MOV A,R1	MOV A,R2	MOV A,R3	MOV A,R4	MOV A,R5	MOV A,R6	MOV A,R7																				
F	240 2c 1	241 2c 2	242 2c 1	243 2c 1	244 1c 1	245 1c 2	246 1c 1	247 1c 1	248 1c 1	249 1c 1	250 1c 1	251 1c 1	252 1c 1	253 1c 1	254 1c 1	255 1c 1																				
	MOVX @DPTR,A	ACALL 7A8	MOVX @R0,A	MOVX @R1,A	CPL A	MOV A8,A	MOV @R0,A	MOV @R1,A	MOV R0,A	MOV R1,A	MOV R2,A	MOV R3,A	MOV R4,A	MOV R5,A	MOV R6,A	MOV R7,A																				

A8 address 8 bits AR relative address 8 bits D data 8 bits
A16 ... address 16 bits BIT ... bit's address D16 ... data 16 bits

INC DEC ADD ADC ORL ANL XRL MOV SUBB CJNE XCH DJNZ