

<div>MCS51 指令表</div> <div>整理自网络</div>				注：	位	7	6	4	3	2	1	0
					ACn	F	D	9	7	5	3	1
					AJn	E	C	8	6	4	2	0
					Rn	F	E	C	B	A	9	8
					Ri						1	0

机器码			助记符	对标志位的影响				字 节 数	周 期 数	操作
16 进制	16 进制	2 进制		P	OV	AC	CY			
算术运算										
28-2F	20+Rn	0010_____	ADD A,Rn	✓	✓	✓	✓	1	1	(A)+(Rn)→A
25	25	00100101	ADD A,direct	✓	✓	✓	✓	2	1	(A)+(direct)→A
26-27	26+Ri	0010011_	ADD A,@Ri	✓	✓	✓	✓	1	1	(A)+((Ri))→A
24	24	00100100	ADD A,#data	✓	✓	✓	✓	2	1	(A)+data→A
38-3F	30+Rn	0011_____	ADDC A,Rn	✓	✓	✓	✓	1	1	(A)+(Rn)+Cy→A
35	35	00110101	ADDC A,direct	✓	✓	✓	✓	2	1	(A)+(direct)+Cy→A
36-37	36+Ri	0011011_	ADDC A,@Ri	✓	✓	✓	✓	1	1	(A)+((Ri))+Cy→A
34	34	00110100	ADDC A,#data	✓	✓	✓	✓	2	1	(A)+data+Cy→A
98-9F	90+Rn	1001_____	SUBB A,Rn	✓	✓	✓	✓	1	1	(A)-(Rn)-Cy→A
95	95	10010101	SUBB A,direct	✓	✓	✓	✓	2	1	(A)-(direct)-Cy→A
96-97	96-97	1001011_	SUBB A,@Ri	✓	✓	✓	✓	1	1	(A)-((Ri))-Cy→A
94	94	10010100	SUBB A,#data	✓	✓	✓	✓	2	1	(A)-data-Cy→A
04	04	00000100	INC A	✓	×	×	×	1	1	(A)+1→A
08-0F	00+Rn	0000_____	INC Rn	×	×	×	×	1	1	(Rn)+1→Rn
05	05	00000101	INC driect	×	×	×	×	2	1	(direct)+1→direct
06-07	06+Ri	0000011_	INC @Ri	×	×	×	×	1	1	((Ri))+1→(Ri)
A3	A3	10100011	INC DPTR	×	×	×	×	1	2	(DPTR)+1→DPTR
14	14	00010100	DEC A	✓	×	×	×	1	1	(A)-1→A
18-1F	10+Rn	0001_____	DEC Rn	×	×	×	×	1	1	(Rn)-1→Rn
15	15	00010101	DEC driect	×	×	×	×	2	1	(direct)-1→direct
16-17	16-17	0001011_	DEC @Ri	×	×	×	×	1	1	((Ri))-1→(Ri)
A4	A4	10100100	MUL AB	✓	×	×	✓	1	4	(A)*(B)→AB
84	84	10000100	DIV AB	✓	×	×	✓	1	4	(A)/(B)→AB
D4	D4	11010100	DA A	✓	✓	✓	✓	1	1	对 A 进行十进制调整
逻辑运算										
58-5F	50+Rn	0101_____	ANL A,Rn	✓	×	×	×	1	1	(A)^(Rn)→A
55	55	01010101	ANL A,direct	✓	×	×	×	2	1	(A)^(direct)→A
56-57	56+Ri	0101011_	ANL A,@Ri	✓	×	×	×	1	1	(A)^(((Ri)))→A
54	54	01010100	ANL A,#data	✓	×	×	×	2	1	(A)^(data)→A
52	52	01010010	ANL direct,A	×	×	×	×	2	1	(direct)^(A)→direct
53	53	01010011	ANL direct,#data	×	×	×	×	3	2	(direct)^(data)→direct
48-4F	48-4F	0100_____	ORL A,Rn	✓	×	×	×	1	1	(A)^(Rn)→A

45	45	01000101	ORL A,direct	✓	×	×	×	2	1	$(A) \vee (\text{direct}) \rightarrow A$
46-47	46+Ri	0100011_	ORL A,@Ri	✓	×	×	×	1	1	$(A) \vee ((Ri)) \rightarrow A$
44	44	01000100	ORL A,#data	✓	×	×	×	2	1	$(A) \vee \text{data} \rightarrow A$
42	42	01000010	ORL direct,A	×	×	×	×	2	1	$(\text{direct}) \vee (A) \rightarrow \text{direct}$
43	43	01000011	ORL direct,#data	×	×	×	×	3	2	$(\text{direct}) \vee \text{data} \rightarrow \text{direct}$
68-6F	60+Rn	0110_____	XRL A,Rn	✓	×	×	×	1	1	$(A) \oplus (Rn) \rightarrow A$
65	65	01100101	XRL A,direct	✓	×	×	×	2	1	$(A) \oplus (\text{direct}) \rightarrow A$
66-67	66+Ri	0110011_	XRL A,@Ri	✓	×	×	×	1	1	$(A) \oplus ((Ri)) \rightarrow A$
64	64	01100100	XRL A,#data	✓	×	×	×	2	1	$(A) \oplus \text{data} \rightarrow A$
62	62	01100010	XRL direct,A	×	×	×	×	2	1	$(\text{direct}) \oplus (A) \rightarrow \text{direct}$
63	63	01100011	XRL direct,#data	×	×	×	×	3	2	$(\text{direct}) \oplus \text{data} \rightarrow \text{direct}$
E4	E4	11100100	CLR A	✓	×	×	×	1	1	$0 \rightarrow A$
F4	F4	11110100	CPL A	×	×	×	×	1	1	$\neg(A) \rightarrow A$
23	23	00100011	RL A	×	×	×	×	1	1	A 循环左移一位
33	33	00110011	RLC A	×	×	×	×	1	1	A 带进位循环左移一位
03	03	00000011	RR A	×	×	×	×	1	1	A 循环右移一位
13	13	00010011	RRC A	×	×	×	×	1	1	A 带进位循环右移一位
C4	C4	11000100	SWAP A	×	×	×	×	1	1	A 半字节交换
数据传送										
E8-EF	E0+Rn	1110_____	MOV A,Rn	✓	×	×	×	1	1	$(Rn) \rightarrow A$
E5	E5	11100101	MOV A,direct	✓	×	×	×	2	1	$(\text{direct}) \rightarrow A$
E6-E7	E6+Ri	1110011_	MOV A,@Ri	✓	×	×	×	1	1	$((Ri)) \rightarrow A$
74	74	01110100	MOV A,#data	✓	×	×	×	2	1	$\text{data} \rightarrow A$
F8-FF	F0+Rn	1111_____	MOV Rn,A	×	×	×	×	1	1	$(A) \rightarrow (Rn)$
A8-AF	A0+Rn	1010_____	MOV Rn,direct	×	×	×	×	2	2	$(\text{direct}) \rightarrow Rn$
78-7F	70+Rn	0111_____	MOV Rn,#data	×	×	×	×	2	1	$\text{data} \rightarrow Rn$
F5	F5	11110101	MOV direct,A	×	×	×	×	2	1	$(A) \rightarrow \text{direct}$
88-8F	80+Rn	1000100_	MOV direct,Rn	×	×	×	×	2	1	$(Rn) \rightarrow \text{direct}$
85	85	10000101	MOV direct1,direct2	×	×	×	×	3	2	$(\text{direct2}) \rightarrow \text{direct1}$
86-87	86+Ri	1000011_	MOV direct,@Ri	×	×	×	×	2	2	$((Ri)) \rightarrow \text{direct}$
75	75	01110101	MOV direct,#data	×	×	×	×	3	2	$\text{data} \rightarrow \text{direct}$
F6-F7	F6+Ri	1111011_	MOV @Ri,A	×	×	×	×	1	2	$(A) \rightarrow (Ri)$
A6-A7	A6+Ri	1010011_	MOV @Ri,direct	×	×	×	×	2	2	$\text{direct} \rightarrow (Ri)$
76-77	76+Ri	0111011_	MOV @Ri,#data	×	×	×	×	2	2	$\text{data} \rightarrow (Ri)$
90	90	10010000	MOV DPTR,#data16	×	×	×	×	3	1	$\text{data16} \rightarrow \text{DPTR}$
93	93	10010011	MOVC A,@A+DPTR	×	×	×	×	1	2	$((A) + (\text{DPTR})) \rightarrow A$
83	83	10000011	MOVC A,@A+PC	×	×	×	×	1	2	$((A) + (\text{PC})) \rightarrow A$
E2-E3	E2+Ri	1110001_	MOVX A,@Ri	✓	×	×	×	1	2	$((Ri) + P2) \rightarrow A$
E0	E0	11100000	MOVX A,@DPTR	✓	×	×	×	1	2	$((\text{DPTR})) \rightarrow A$
F2-F3	F2+Ri	1111001_	MOVX @Ri,A	✓	×	×	×	1	2	$(A) \rightarrow (Ri) + (P2)$
F0	F0	11110000	MOV @DPTR,A	×	×	×	×	1	2	$(A) \rightarrow (\text{DPTR})$
C0	C0	11000000	PUSH direct	×	×	×	×	2	2	$(\text{SP}) + 1 \rightarrow \text{SP}, (\text{direct}) \rightarrow \text{SP}$

D0	D0	11010000	POP direct	×	×	×	×	2	2	((direct))→direct,(SP)-1→SP
C8-8F	C0+Rn	1100____	XCH A,Rn	✓	×	×	×	1	1	(A)←→(Rn)
C5	C5	11000101	XCH A,direct	✓	×	×	×	2	1	(A)←→(direct)
C6-C7	C6+Ri	1100011_	XCH A,@Ri	✓	×	×	×	1	1	(A)←→((Ri))
D6-D7	D6+Ri	1101011_	XCHD A,@Ri	✓	×	×	×	1	1	(A)0--3←→((Ri))0--3
位运算										
C3	C3	11000011	CLR C	×	×	×	✓	1	1	0→Cy
C2	C2	11000010	CLR bit	×	×	×		2	1	0→bit
D3	D3	11010011	SETB C	×	×	×	✓	1	1	1→Cy
D2	D2	11010010	SETB bit	×	×	×		2	1	1→bit
B3	B3	10110011	CPL C	×	×	×	✓	1	1	/(Cy)→Cy
B2	B2	10110010	CPL bit	×	×	×		2	1	/(bit)→bit
82	82	10000010	ANL C,bit	×	×	×	✓	2	2	(Cy)∧(bit)→Cy
B0	B0	10110000	ANL C,/bit	×	×	×	✓	2	2	(Cy)∧/(bit)→Cy
72	72	01110010	ORL C,bit	×	×	×	✓	2	2	(Cy)∨(bit)→Cy
A0	A0	10100000	ORL C,/bit	×	×	×	✓	2	2	(Cy)∨/(bit)→Cy
A2	A2	10100010	MOV C,bit	×	×	×	✓	2	1	(bit)→Cy
92	92	10010010	MOV bit,C	×	×	×	✓	2	1	(Cy)→bit
控制转移										
*1	ACn:1	____0001	ACALL addr11	×	×	×	×	2	2	(PC)+2→PC,(SP)+1→SP,(PC)L→SP, (SP)+1→SP,(PC)H→SP,addr11→PC10~0
12	12	00010010	LCALL addr16	×	×	×	×	3	2	(PC)+2→PC,(SP)+1→SP,(PC)L→SP, (SP)+1→SP,(PC)H→SP,addr16→PC
22	22	00100010	RET	×	×	×	×	1	2	((SP))→PCH,(SP)-1→SP,((SP))→PCL, (SP)-1→SP
32	32	00110010	RETI	×	×	×	×	1	2	((SP))→PCH,(SP)-1→SP,((SP))→PCL, (SP)-1→SP,从中断返回
*1	AJn:1	____0001	AJMP addr11	×	×	×	×	2	2	addr11→PC10~0
02	02	00000010	LJMP addr16	×	×	×	×	3	2	addr16→PC
80	80	10000000	SJMP rel	×	×	×	×	2	2	(PC)+(rel)→PC
73	73	01110011	JMP,@A+DPTR	×	×	×	×	1	2	(A)+(DPTR)→PC
60	60	01100000	JZ rel	×	×	×	×	2	2	(PC)+2→PC,若(A)=0,(PC)+(rel)→PC
70	70	01110000	JNZ rel	×	×	×	×	2	2	(PC)+2→PC,若(A)≠0,(PC)+(rel)→PC
40	40	01000000	JC rel	×	×	×	×	2	2	(PC)+2→PC,若(Cy)=1,(PC)+(rel)→PC
50	50	01010000	JNC rel	×	×	×	×	2	2	(PC)+2→PC,若(Cy)=0,(PC)+(rel)→PC
20	20	00100000	JB bit,rel	×	×	×	×	3	2	(PC)+3→PC,若(bit)=1,(PC)+(rel)→PC
30	30	00110000	JNB bit,rel	×	×	×	×	3	2	(PC)+3→PC,若(bit)≠1,(PC)+(rel)→PC
10	10	00010000	JBC bit,rel	×	×	×	✓	3	2	(PC)+3→PC,若(bit)=1,0→bit,(PC)+(rel)→ PC
B5	B5	10110101	CJNE A,direct,rel	×	×	×	✓	3	2	(PC)+3→PC 若(A)≠(direct),则(PC)+(rel)→PC 若(A)<(direct),则 1→Cy

B4	B4	10110100	CJNE A,#data,rel	×	×	×	✓	3	2	(PC)+3→PC 若(A)≠data,则(PC)+(rel)→PC 若(A)<DATA,则 1→CY
B8-8F	B0+Rn	1011____	CJNE Rn,#data,rel	×	×	×	✓	3	2	(PC)+3→PC 若(Rn)≠data,则(PC)+(rel)→PC 若(Rn)<DATA,则 1→CY
B6-B7	B6+Ri	1011011_	CJNE @Ri,#data,rel	×	×	×	✓	3	2	(PC)+3→PC 若((Ri))≠data,则(PC)+(rel)→PC 若((Ri))<DATA,则 1→CY
D8-DF	D0+Rn	1101____	DJNZ Rn,rel	×	×	×	×	3	2	(PC)+2→PC,(Rn)-1→Rn 若(Rn)≠0,则(PC)+(rel)→PC
D5	D5	11010101	DJNZ direct,rel	×	×	×	×	3	2	(PC)+2→PC,(direct)-1→direct 若(direct)≠0,则(PC)+(rel)→PC
00	00	00000000	NOP	×	×	×	×	1	1	空操作