

Indexed Addressing Mode Post Bytes

OP	MNEM	#	EM ~	NM ~
00	0,X	0	1	1
01	1,X	0	1	1
02	2,X	0	1	1
03	3,X	0	1	1
04	4,X	0	1	1
05	5,X	0	1	1
06	6,X	0	1	1
07	7,X	0	1	1
08	8,X	0	1	1
09	9,X	0	1	1
0A	10,X	0	1	1
0B	11,X	0	1	1
0C	12,X	0	1	1
0D	13,X	0	1	1
0E	14,X	0	1	1
0F	15,X	0	1	1
10	-16,X	0	1	1
11	-15,X	0	1	1
12	-14,X	0	1	1
13	-13,X	0	1	1
14	-12,X	0	1	1
15	-11,X	0	1	1
16	-10,X	0	1	1
17	-9,X	0	1	1
18	-8,X	0	1	1
19	-7,X	0	1	1
1A	-6,X	0	1	1
1B	-5,X	0	1	1
1C	-4,X	0	1	1
1D	-3,X	0	1	1
1E	-2,X	0	1	1
1F	-1,X	0	1	1

OP	MNEM	#	EM ~	NM ~
20	0,Y	0	1	1
21	1,Y	0	1	1
22	2,Y	0	1	1
23	3,Y	0	1	1
24	4,Y	0	1	1
25	5,Y	0	1	1
26	6,Y	0	1	1
27	7,Y	0	1	1
28	8,Y	0	1	1
29	9,Y	0	1	1
2A	10,Y	0	1	1
2B	11,Y	0	1	1
2C	12,Y	0	1	1
2D	13,Y	0	1	1
2E	14,Y	0	1	1
2F	15,Y	0	1	1
30	-16,Y	0	1	1
31	-15,Y	0	1	1
32	-14,Y	0	1	1
33	-13,Y	0	1	1
34	-12,Y	0	1	1
35	-11,Y	0	1	1
36	-10,Y	0	1	1
37	-9,Y	0	1	1
38	-8,Y	0	1	1
39	-7,Y	0	1	1
3A	-6,Y	0	1	1
3B	-5,Y	0	1	1
3C	-4,Y	0	1	1
3D	-3,Y	0	1	1
3E	-2,Y	0	1	1
3F	-1,Y	0	1	1

Appendix A: 6309 Programming Card

Cycle count information was taken from Sock Master's web site:
<http://www.axess.com/twilight/sock/cocofile/4mzcycle.html>

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OP	MNEM	#	EM ~	NM ~
40	0,U	0	1	1
41	1,U	0	1	1
42	2,U	0	1	1
43	3,U	0	1	1
44	4,U	0	1	1
45	5,U	0	1	1
46	6,U	0	1	1
47	7,U	0	1	1
48	8,U	0	1	1
49	9,U	0	1	1
4A	10,U	0	1	1
4B	11,U	0	1	1
4C	12,U	0	1	1
4D	13,U	0	1	1
4E	14,U	0	1	1
4F	15,U	0	1	1
50	-16,U	0	1	1
51	-15,U	0	1	1
52	-14,U	0	1	1
53	-13,U	0	1	1
54	-12,U	0	1	1
55	-11,U	0	1	1
56	-10,U	0	1	1
57	-9,U	0	1	1
58	-8,U	0	1	1
59	-7,U	0	1	1
5A	-6,U	0	1	1
5B	-5,U	0	1	1
5C	-4,U	0	1	1
5D	-3,U	0	1	1
5E	-2,U	0	1	1
5F	-1,U	0	1	1

OP	MNEM	#	EM ~	NM ~
60	0,S	0	1	1
61	1,S	0	1	1
62	2,S	0	1	1
63	3,S	0	1	1
64	4,S	0	1	1
65	5,S	0	1	1
66	6,S	0	1	1
67	7,S	0	1	1
68	8,S	0	1	1
69	9,S	0	1	1
6A	10,S	0	1	1
6B	11,S	0	1	1
6C	12,S	0	1	1
6D	13,S	0	1	1
6E	14,S	0	1	1
6F	15,S	0	1	1
70	-16,S	0	1	1
71	-15,S	0	1	1
72	-14,S	0	1	1
73	-13,S	0	1	1
74	-12,S	0	1	1
75	-11,S	0	1	1
76	-10,S	0	1	1
77	-9,S	0	1	1
78	-8,S	0	1	1
79	-7,S	0	1	1
7A	-6,S	0	1	1
7B	-5,S	0	1	1
7C	-4,S	0	1	1
7D	-3,S	0	1	1
7E	-2,S	0	1	1
7F	-1,S	0	1	1

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OP	MNEM	#	EM ~	NM ~
80	,X+	0	2	1
81	,X++	0	3	2
82	,-X	0	2	1
83	,--X	0	3	2
84	,X	0	0	0
85	B,X	0	1	1
86	A,X	0	1	1
87	E, X	0	1	1
88	nn,X	1	1	1
89	mmnn,X	2	4	3
8A	F,X	1	1	1
8B	D,X	0	4	2
8C	nn,PC	1	1	1
8D	mmnn,PC	2	5	3
8E	W,X	0	4	1
8F	,W	0	0	0
90	[,W]	0	3	3
91	[,X++]	0	6	5
92	Illegal	0	20	19
93	[,--X]	0	6	5
94	[,X]	0	3	3
95	[B,X]	0	4	4
96	[A,X]	0	4	4
97	[E,X]	0	4	4
98	[nn,X]	1	4	4
99	[mmnn,X]	2	7	7
9A	[F,X]	0	4	4
9B	[D,X]	0	7	5
9C	[nn,PC]	1	4	4
9D	[mmnn,PC]	2	8	6
9E	[W,X]	0	7	4
9F	[mmnn]	2	5	5

OP	MNEM	#	EM ~	NM ~
A0	,Y+	0	2	1
A1	,Y++	0	3	2
A2	,-Y	0	2	1
A3	,--Y	0	3	1
A4	,Y	0	0	0
A5	B,Y	0	1	1
A6	A,Y	0	1	1
A7	E,Y	0	1	1
A8	nn,Y	1	1	1
A9	mmnn,Y	2	4	3
AA	F,Y	0	1	1
AB	D,Y	0	4	2
AC	nn,PC	1	1	1
AD	mmnn,PC	2	5	3
AE	W,Y	0	4	1
AF	mmnn,W	2	5	2
B0	[mmnn,W]	2	5	5
B1	[,Y++]	0	6	5
B2	Illegal	0	20	19
B3	[,--Y]	0	6	5
B4	[,Y]	0	3	3
B5	[B,Y]	0	4	4
B6	[A,Y]	0	4	4
B7	[E,Y]	0	4	4
B8	[nn,Y]	1	4	4
B9	[mmnn,Y]	2	7	7
BA	[F,Y]	0	4	4
BB	[D,Y]	0	7	5
BC	[nn,PC]	1	4	4
BD	[mmnn,PC]	2	8	6
BE	[W,Y]	0	7	4
BF	Illegal	0	20	19

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OP	MNEM	#	EM ~	NM ~
C0	,U+	0	2	1
C1	,U++	0	3	2
C2	,-U	0	2	1
C3	,--U	0	3	2
C4	,U	0	0	0
C5	B,U	0	1	1
C6	A,U	0	1	1
C7	E,U	0	1	1
C8	nn,U	1	1	1
C9	mmnn,U	2	4	3
CA	F,U	0	1	1
CB	D,U	0	4	2
CC	nn,PC	1	1	1
CD	mmnn,PC	2	5	3
CE	W,U	0	4	1
CF	,W++	0	3	1
D0	[,W++]	0	4	4
D1	[,U++]	0	6	5
D2	Illegal	0	20	19
D3	[,--U]	0	6	5
D4	[,U]	0	3	3
D5	[B,U]	0	4	4
D6	[A,U]	0	4	4
D7	[E,U]	0	4	4
D8	[nn,U]	1	4	4
D9	[mmnn,U]	2	7	7
DA	[F,U]	0	4	4
DB	[D,U]	0	7	5
DC	[nn,PC]	1	4	4
DD	[mmnn,PC]	2	8	6
DE	[W,U]	0	7	4
DF	Illegal	2	20	19

OP	MNEM	#	EM ~	NM ~
E0	,S+	0	2	1
E1	,S++	0	3	2
E2	,-S	0	2	1
E3	,--S	0	3	2
E4	,S	0	0	0
E5	B,S	0	1	1
E6	A,S	0	1	1
E7	E,S	0	1	1
E8	nn,S	1	1	1
E9	mmnn,S	2	4	3
EA	F,S	0	1	1
EB	D,S	0	4	2
EC	nn,PC	1	1	1
ED	mmnn,PC	2	5	3
EE	W,S	0	4	1
EF	,--W	0	3	1
F0	[,--W]	0	4	4
F1	[,S++]	0	6	5
F2	Illegal	0	20	19
F3	[,--S]	0	6	5
F4	[,S]	0	3	3
F5	[B,S]	0	4	4
F6	[A,S]	0	4	4
F7	[E,S]	0	4	4
F8	[nn,S]	1	4	4
F9	[mmnn,S]	2	7	7
FA	[F,S]	0	4	4
FB	[D,S]	0	7	5
FC	[nn,PC]	1	4	4
FD	[mmnn,PC]	2	8	6
FE	[W,S]	0	7	4
FF	Illegal	2	20	19

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