

8086 & 8088

MICROPROCESSOR INSTANT REFERENCE CARD

MICRO CHART®

Second Byte Table

T	X	0	1	2	3	4	5	6	7	N
7	S	(BX+SI)	00	08	10	18	20	28	30	38
8	U	(BX+DI)	01	09	11	19	21	29	31	39
8	M	(BP+SI)	02	0A	12	1A	22	2A	32	3A
8	M	(BP+DI)	03	0B	13	1B	23	2B	33	3B
5	P	(SI)	04	0C	14	1C	24	2C	34	3C
5	N	(DI)	05	0D	15	1D	25	2D	35	3D
6	T	(dd)	06	0E	16	1E	26	2E	36	3E
5	S	(BX)	07	0F	17	1F	27	2F	37	3F
11		(BX+SI+d)	40	48	50	58	60	68	70	78
12	T	(BX+DI+d)	41	49	51	59	61	69	71	79
12	I	(BP+SI+d)	42	4A	52	5A	62	6A	72	7A
11		(BP+DI+d)	43	4B	53	5B	63	6B	73	7B
9	D	(SI+d)	44	4C	54	5C	64	6C	74	7C
9	A	(DI+d)	45	4D	55	5D	65	6D	75	7D
9	T	(BP+d)	46	4E	56	5E	66	6E	76	7E
9	A	(BX+d)	47	4F	57	5F	67	6F	77	7F
11		(BX+SI+d+d)	80	88	90	98	0A	08	B0	B8
12	I	(BX+DI+d+d)	81	89	91	99	A1	A9	B1	B9
12	N	(BP+SI+d+d)	82	8A	92	9A	A2	AA	B2	BA
11		(BP+DI+d+d)	83	8B	93	9B	A3	AB	B3	BB
9	M	(SI+d+d)	84	8C	94	9C	A4	AC	B4	BC
9	E	(DI+d+d)	85	8D	95	9D	A5	AD	B5	BD
9	M	(BP+d+d)	86	8E	96	9E	A6	AE	B6	BE
9		(BX+d+d)	87	8F	97	9F	A7	AF	B7	BF
R	A	RAx or AL	C0	C8	D0	D8	E0	E8	F0	F8
O	E	CX or CL	C1	C9	D1	D9	E1	E9	F1	F9
G	D	DX or DL	C2	CA	D2	DA	E2	EA	F2	FA
O	B	BX or BL	C3	CB	D3	DB	E3	EB	F3	FB
O	D	SP or AH	C4	CC	D4	DC	E4	EC	F4	FC
A	B	BP or CH	C5	CD	D5	DD	E5	ED	F5	FD
O	T	SI or DH	C6	CE	D6	DE	E6	EE	F6	FE
A	D	DI or BH	C7	CF	D7	DF	E7	EF	F7	FF
			AL	CL	DL	BL	AH	CH	DH	BH

Example

After reading "About the Tables", usage of the tables can be verified by assembly and disassembly of:

The following notes help avoid difficulty when converting to hex) and correspond to the lines above:

- (1) Use "AL" - not "r1."
- (2) Use "r/r" - not "r,r." Read about Second Byte Table to convert X9.
- (3) These indicate mem prnt and form is "m".!n. For first operand is "(SI+4)"
- (4) Use "SI" from reg part of section X.
- (5) Use "(SI)" from mem part of section X.
- (6) Read about "Relative Jumps".
- (7) Special case for disassembly.

Hex and Decimal Conversion

O	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Memory Locations

000 - 00003	Type 0 interrupt pointer for divide-error
004 - 00007	Type 1 interrupt pointer for single-step
008 - 0000B	Type 2 interrupt pointer for Non-Mask-Int
00C - 0000F	Type 3 interrupt pointer for 1-byte-inst
010 - 00013	Type 4 interrupt pointer for INTO inst
014 - 0007F	Type 5 thru 31 interrupt pointers reserved for intel products
080 - 003FF	Type 32 thru 255 available interrupt pointers (or general memory use)
100 - FFFF0	Main memory space
F00 - FFFF8	CPU jumps to code here upon Reset

ASCII

LSD	MSD	0 000	1 001	2 010	3 011	4 100	5 101	6 110	7 111
0	0000	NUL	DLE	SP	0	@	P	a	p
1	0001	SOH	DC1	"	! A	1	B	R	b
2	0010	STX	DC2	"	2	C	S	c	s
3	0011	ETX	DC3	#	3	D	T	d	t
4	0100	EOT	DC4	\$	4	E	U	e	u
5	0101	ENQ	NAK	%	5	E	U	f	v
6	1110	ACK	SYN	&	6	F	V	f	v
7	1111	BEL	ETB	-	7	G	W	g	w
8	1000	BS	CAN	(8	H	X	h	x
9	1001	HT	EM)	9	I	Y	i	y
A	1010	LF	SUB	,	A	J	Z	j	z
B	1011	VT	ESC	+	K	[k	{	{
C	1100	FF	FS	-	L	\	m	\	\
D	1101	CR	GS	=	M]			

Unused

GND	1	40	VCC
AD14	2	39	AD15
AD13	3	38	A16/S3
AD12	4	37	A17/S4
AD11	5	36	A18/S5
AD10	6	35	A19/S6
AD9	7	34	BHE*/S7
AD8	8	33	MN/MX*
AD7	9	32	RD*
AD6	10	31	HOLD (RQ*/GT0*)
AD5	11	30	HLDA (RQ*/GT1*)
AD4	12	29	WR (LOCK*)
AD3	13	28	M/I/O* (S2*)
AD2	14	27	DT/R* (S1*)
AD1	15	26	DEN* (S0*)
AD0	16	25	ALE (QS0)
NMI	17	24	INTA* (QS1)
INTR	18	23	TEST*
CLK	19	22	READY

On 8088 AD8 to AD15 are A8 to A15