



8086/8088 Instruction Set Summary (Continued)

Mnemonic and Description	Instruction Code															
	7 6 5 4 3 2 1 0								7 6 5 4 3 2 1 0							
PROCESSOR CONTROL																
CLC = Clear Carry	1 1 1 1 1 0 0 0															
CMC = Complement Carry	1 1 1 1 0 1 0 1															
STC = Set Carry	1 1 1 1 1 0 0 1															
CLD = Clear Direction	1 1 1 1 1 1 0 0															
STD = Set Direction	1 1 1 1 1 1 0 1															
CLI = Clear Interrupt	1 1 1 1 1 0 1 0															
STI = Set Interrupt	1 1 1 1 1 0 1 1															
HLT = Halt	1 1 1 1 0 1 0 0															
WAIT = Wait	1 0 0 1 1 0 1 1															
ESC = Escape (to External Device)	1 1 0 1 1 x x x mod x x x r/m															
LOCK = Bus Lock Prefix	1 1 1 1 0 0 0 0															

NOTES:
AL = 8-bit accumulator
AX = 16-bit accumulator
CX = Count register
DS = Data segment
ES = Extra segment
Above/below refers to unsigned value
Greater = more positive:
Less = less positive (more negative) signed values
if d = 1 then "to" reg; if d = 0 then "from" reg
if w = 1 then word instruction; if w = 0 then byte instruction
if mod = 11 then r/m is treated as a REG field
if mod = 00 then DISP = 0*, disp-low and disp-high are absent
if mod = 01 then DISP = disp-low sign-extended to 16 bits, disp-high is absent
if mod = 10 then DISP = disp-high; disp-low
if r/m = 000 then EA = (BX) + (SI) + DISP
if r/m = 001 then EA = (BX) + (DI) + DISP
if r/m = 010 then EA = (BP) + (SI) + DISP
if r/m = 011 then EA = (BP) + (DI) + DISP
if r/m = 100 then EA = (SI) + DISP
if r/m = 101 then EA = (DI) + DISP
if r/m = 110 then EA = (BP) + DISP*
if r/m = 111 then EA = (BX) + DISP
DISP follows 2nd byte of instruction (before data if required)
*except if mod = 00 and r/m = then EA = disp-high: disp-low.
if s:w = 01 then 16 bits of immediate data form the operand
if s:w = 11 then an immediate data byte is sign extended to form the 16-bit operand
if v = 0 then "count" = 1; if v = 1 then "count" in (CL) register
x = don't care
z is used for string primitives for comparison with ZF FLAG
SEGMENT OVERRIDE PREFIX

0 0 1 reg 1 1 0

REG is assigned according to the following table:

16-Bit (w = 1)		8-Bit (w = 0)		Segment
000	AX	000	AL	00 ES
001	CX	001	CL	01 CS
010	DX	010	DL	10 SS
011	BX	011	BL	11 DS
100	SP	100	AH	
101	BP	101	CH	
110	SI	110	DH	
111	DI	111	BH	

Instructions which reference the flag register file as a 16-bit object use the symbol FLAGS to represent the file:
FLAGS =
X:X:X:X:(OF):(DF):(IF):(TF):(SF):(ZF):X:(AF):X:(PF):X:(CF)
Mnemonics © Intel, 1978

DATA SHEET REVISION REVIEW

The following list represents key differences between this and the -005 data sheet. Please review this summary carefully.
1. The Intel 8088 implementation technology (HMOS) has been changed to (HMOS-II).

