

8086 Instructions (105)

1. Data Transfer Group (9)

MOV

LEA

LDS

LEA

LES

LSS

XCHG

IN

OUT

2. Arithmetic Group (18)

ADD

ADC

SUB

SBB

MUL

IMUL

DIV

IDIV

INC

DEC

NEG

AAA

AAS

AAM

AAD

DAA

DAS

MOD

3. Logical Group (4)

AND

OR

XOR

NOT

4. Rotation Group (4)

ROL

ROR

RCL

RCR

5. Shifting Group (4)

SHL

SHR

SAL

SAR

6. Comparison Operation (2)

CMP

TEST

7. Relational Operation (6)

EQ

NE

LT

GT

LE

GE

8. Flag Operation (11)

CLC

CLD

CLI

STC

STD

STI

CMC

LAHF

SAHF

PUSHF

POPF

9. Stack Operation (2)

PUSH

POP

10. Looping Instruction (5)

LOOP

LOOPE

LOOPZ

LOOPNE

LOOPNZ

11. Branching Instruction (28)

JA

JAЕ

JB

JBE

JC

JNC

JE

JNE

JZ

JNZ

JG

JNG

JL

JNL

JO

JS

JNS

JP

JPE

JNP

JPO

CALL

INT

JMP

RETN

RETF

RET

IRET

12. Type Conversion (2)

CBW

CWD

13. String Instruction (10)

MOVS

MOVSB

MOVSW

CMPS

CMPSB

CMPW

LODS

LODSB

LODW

REP

8086 ASSEMBLER DIRECTIVES (20)

DB

DW

DD

DQ

?

DUP

EQU

OFFSET

SEGMENT

ENDS

.CODE

.DATA

.STACK

.EXTRA

.MODEL

.MODEL SMALL

.MODEL MEDIUM

.MODEL LARGE

.MODEL COMPACT

END

8086 DOS INTERRUPTS (6)

(Disk Operating System)

(00H-1FH)

(INT 21H)

Function 01H (Read a character with echo)

Function 02H (Display single character)

Function 08H (Keyboard input without echo)

Function 09H (Display string)

Function 0AH (Read String)

Function 4CH (Terminates program)

8086 BIOS INTERRUPTS (5)

(Basic Input Output System)

(20H-3FH)

(INT 10H)

Function 00H (Set video mode of the screen)

Function 02H (Set cursor position)

Function 06H (Scroll up screen)

Function 07H (Scroll down screen)

**Function 09H (Display character and
attribute at cursor)**

ADDRESSING MODES IN 8086 (10)

- **Register Addressing**

MOV AH, BL

MOV DX, CX

- **Immediate Addressing**

MOV AH, 35H

MOV BX, 7A25H

- **Direct Memory Addressing**

MOV AL, [3000H]

MOV [3000H], CX

(Uses DS as default segment address)

- **Register Indirect Addressing**

MOV BX, [SI]

(Allowed address registers are BP, SI, DI, BX. BX, SI, DI uses segment address DS by default. BP uses segment address SS by default.)

- **Base Addressing**

MOV AX, [BX+15]

(BX uses segment address DS by default. BP uses segment address SS by default)

- **Index Addressing**

MOV AX, [DI-125]

(SI, DI uses segment address DS by default)

- **Base-Index Addressing**

MOV CX, [BX+DI]

(Uses BP or BX with SI or DI. BP uses segment address SS by default. BX uses segment address DS by default.)

- **Relative Base-Index Addressing**

MOV AL, [BX+SI+10H]

(BP uses segment address SS by default. BX uses segment address DS default)

- **String Addressing**

(SI points to 1st byte of source operand and DI points to 2nd byte of destination operand. Default segment register for source is DS and for destination is ES)

- **Implied Addressing**

CLC