MOV

Syntax.: MOV destination source

Description: It copies a word or byte of data from a specified source to a specified destination. Source can be register, memory location or immediate value. Destination can be register or location. Both cannot be memory location at the same time.

LEA

Syntax: LEA register source

Description: This determines the offset of the variable or location and puts it to register.

ADD / ADC

Syntax: ADD destination source

ADC destination source

Description: These add the numbers in source and destination and puts the sum in destination. ADC instruction adds the status of the carry flag; ADD doesn't.

SUB/SBB

Syntax: SUB destination source
SBB destination source

Description: These subtract the number in source from the destination and puts the result in destination. SBB also subtracts the contents of carry flag.

MUL

Syntax: MUL source

Description: It multiplies unsigned byte/word from source with AL or AX register and puts in AX and DX. Source can be register or memory location.

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DIV

Syntax: DIV source

Description: Divides an unsigned word by a byte or double word by a word.

INC

Syntax: INC destination

Description: Adds 1 to the destination register or memory location.

DEC

Syntax: DEC destination

Description: Subtracts 1 from the specified register or location.

AND

Syntax: AND destination source

Description: It applies logical AND to every bit of destination and source, and puts the result in destination, source remains unmodified.

OR

Syntax: OR destination source

Description: It applies Logical OR to every bit of source and destination, and puts the result in destination.

XOR

Syntax: XOR destination source

Description: It applies logical XOR among the bits of source and destination, and puts the result in destination.

CMP

Syntax : CMP destination source

Description: It compares destination and source by subtracting source word/byte from destination. If ZF flag is 1, they are equal; if CF, ZF, SF all are 0, then destination is greater; if CF and SF are 1, then destination is smaller.

TEST

Syntax : TEST destination source

Description : It applies logical AND between destination and source and updates the corresponding PF, SF, ZF flag.

RCR

Syntax : RCR destination count

Description : It rotates all the bits in destination to right by number of bit position specified in count. This

operation is circular as LSB is carried into CF and then MSB.

SAL/SHL

Syntax : SAL destination count
SHL destintion count

Description: These instruction shifts the bits by specified count in destination to Left. 0 is put accordingly in LSB and CF contains the most recent MSB which has been shifted out.

SAR

Syntax : SAR destination count

Deseription: It shifts the bits in destination by count to the right and fills the current bit with 0. MSB contains the copy of MSB it had and CF carries the last LSB destination had.

SHR

Syntax: SHR destination count

Description: It shifts every bit in destination by count and fills with zero accordingly. CF holds the most recent LSB destination had.

JMP

Syntax: JMP label

Description: It jumps to specified label.

Syntax: JMP BX

Description: It replaces the content of IP reg. with the content of Bx register.

Syntax: JMP WORD PTR[BX]

Description: It replaces the content of IP register with word from a memory location pointed to by Bx in Dx

JBE/JNA

Syntax: JBE label
JNA label

Description: If zero flag / carry flag is 1, it will jump to label specified satisfying below or equal condition for both JBE and JNA.

JG/JNLE

Syntax: JG label
JNLE label

Description: This instruction is used after CMP and it jumps to specified label satisfying '>' or '≥' condition.

JE/JZ

Syntax: JE label.

Description: It jumps to label satifying the condition '=0'.

PUSH

Syntax : PUSH source

Description: It decrements SP by 2 and copies a word from source to the location in Stack segment to which SP points.

POP

Syntax: POP destionation

Description: It copies a word from stack location pointed by stack pointer to a destination.

IN

Syntax: IN accumulator port

Description: It copies data from a port to AL / Ax register.

OUT

Syntax: OUT port accumulator

Description: It copies byte from AL or word from AX to port.

ENDS

Syntax: CODE SEGMENT

CODE ENDS

Description: It indicates the end of a logical segment

END

Syntax:

Description: END directive is put after the last statement of a program to tell the assembler that it's the end and ignore any directives after this.

DW

Description: This is used to define a word variable to reserve storage.

PROC

Description: PROC directive is used to identify the start of a procedure.

ENDP

Description: This is used along with PROC and this indicates to end of certain procedure.

LABEL

Description: This is used to mark specific points in assembly code.

INCLUDE

Description: This directive is used to insert a block of source code from different file.