

Arithmetic Instruction

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Lab 3

ADD instruction

This instruction add a number from some **source** to a number in some **destination** and put the result in the specified **destination**.

ADD Destination, Source

ADD instruction

ADD Destination, Source

ADD REG, memory

ADD memory, REG

ADD REG, REG

ADD memory, immediate

ADD REG, immediate

ADD instruction

Notes:

- The source and the destination in an instruction **can not** both be memory locations.
- The source and the destination **must be of the same type** (bytes or words).

$Z = a + b$, let $a=5$ and $b=2$, compute Z value

```
mov al, a
```

```
add al,b
```

```
ret
```

```
a db 5
```

```
b db 2
```

SUB instruction

This instruction add a number from some **source** to a number in some **destination** and put the result in the specified **destination**.

SUB Destination, Source

SUB REG, memory

SUB memory, REG

SUB REG, REG

SUB memory, immediate

SUB REG, immediate

SUB instruction

Notes:

- The source and the destination in an instruction **cannot** both be memory locations.
- The source and the destination **must be of the same type** (bytes or words).

$Y = 30_{10} + 15_{10}$, compute the value of Y and put the result in [BX]

```
MOV AL,30
```

```
MOV [BX], 15
```

```
ADD [BX], AL
```

```
ret
```

$Z = x + y - a + b$, compute the value of Z

```
mov al, x
```

```
add al, y
```

```
mov cl, a
```

```
add cl, b
```

```
sub al, cl
```

```
ret
```

```
x db 2
```

```
y db 7
```

```
a db 3
```

```
b db 2
```

ADD instruction

EX1: Write the assembly language program to add the content of memory location A300 with the contain of memory location 2500 and store the result in memory location 3000?

```
MOV AL,[0A300H]
```

```
ADD AL,[2500H]
```

```
MOV [3000H],AL
```

```
ret
```