Lecture one

1. MOV Instruction

2. XCHG Instruction

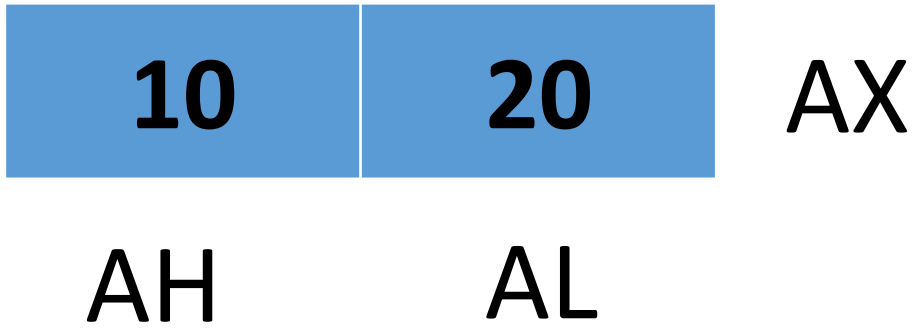
3. Arithmetic Instructions

1.1: Immediate

MOV AX,1020_H

MOV AL,20_H

MOV AH,10_H



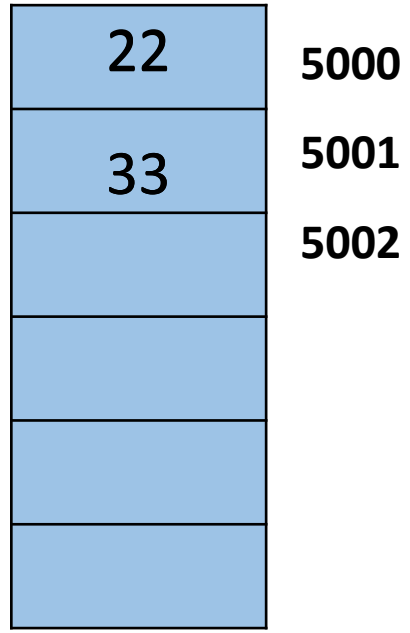
1.2: Direct

MOV AX,[5000H]

MOV AL,[5000H]

MOV AH,[5001H]

AX

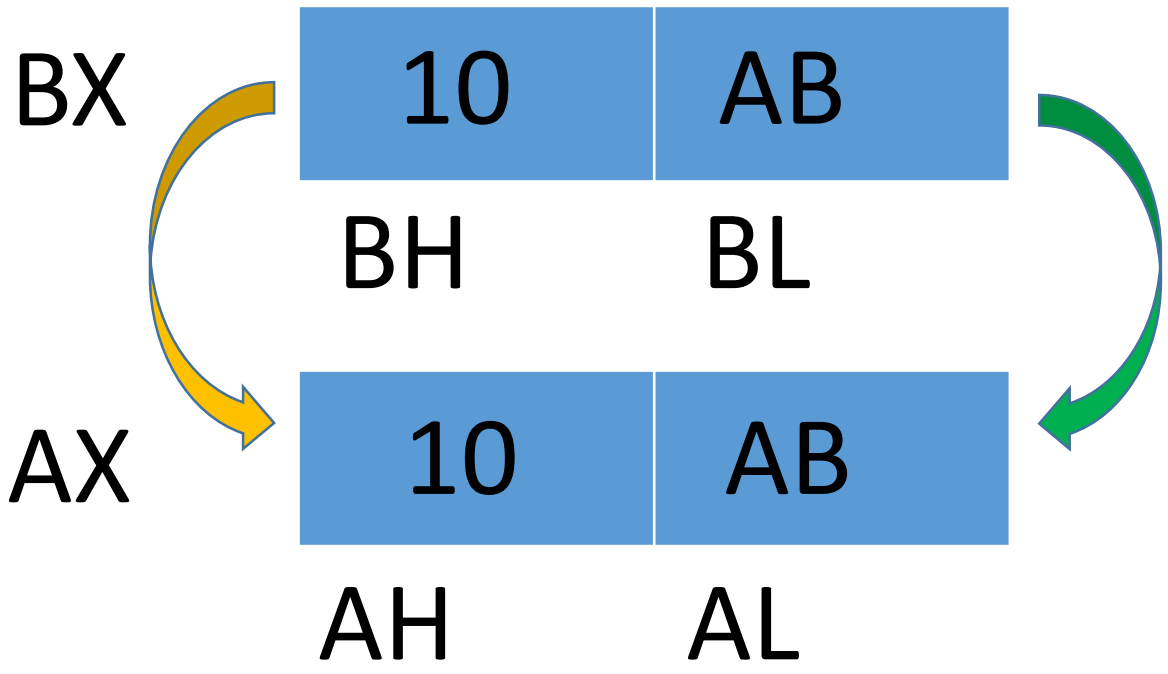


1.3: Register

MOV AX,BX

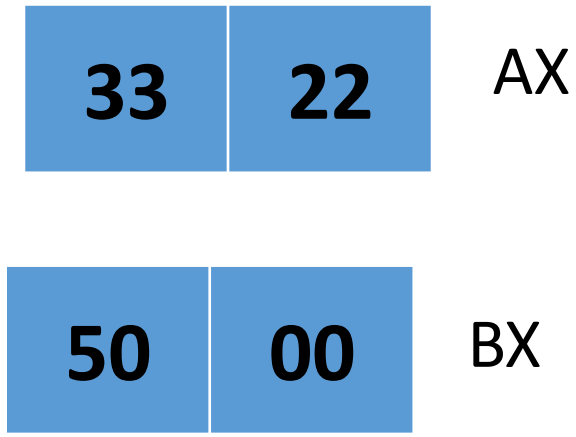
MOV AL,BL

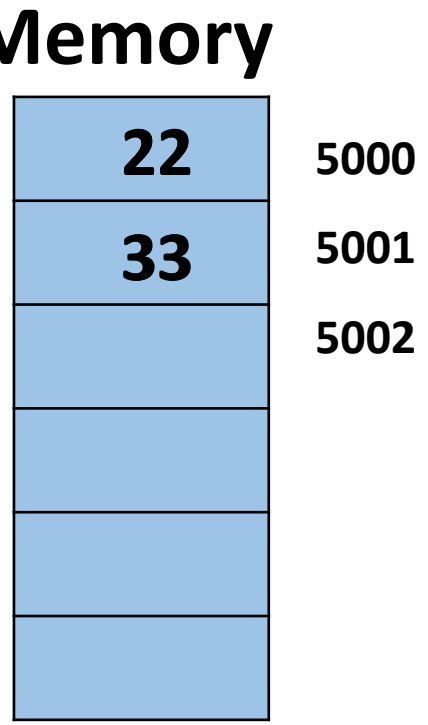
MOV AH,BH



1.4: Register Indirect

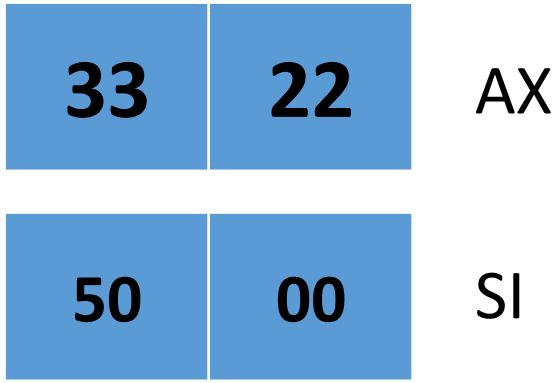
MOV AX,[BX]

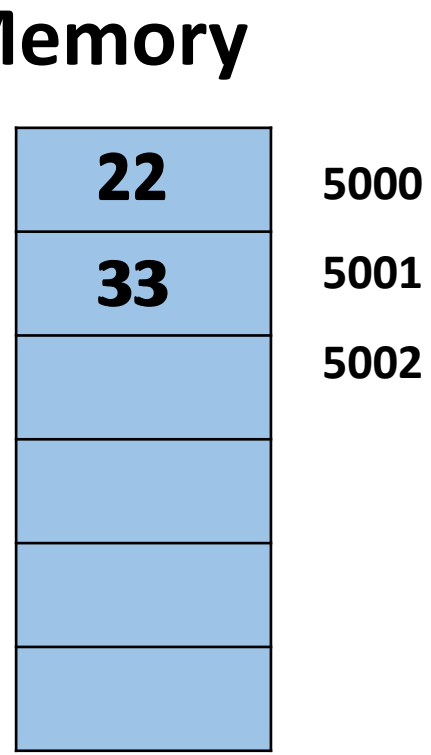




1.5: Indexed

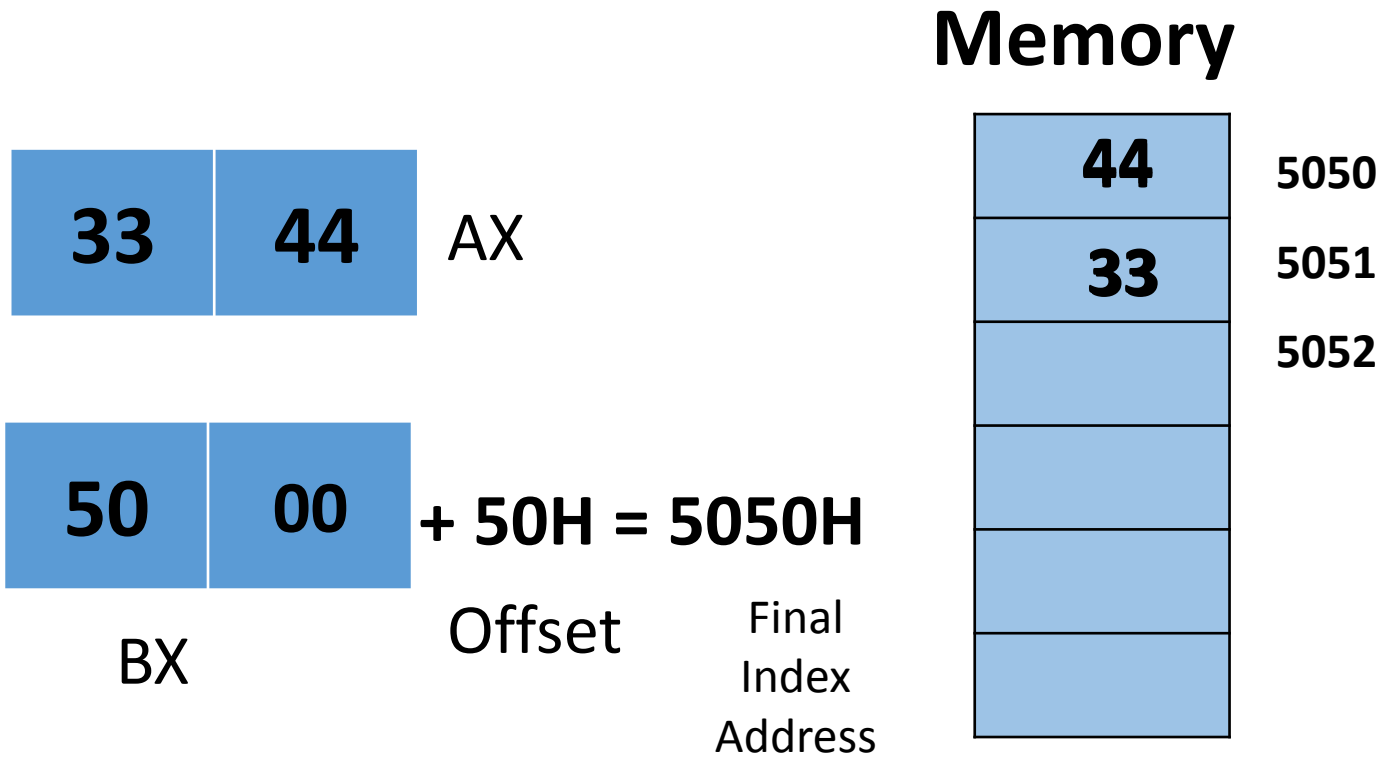
MOV AX,[SI]





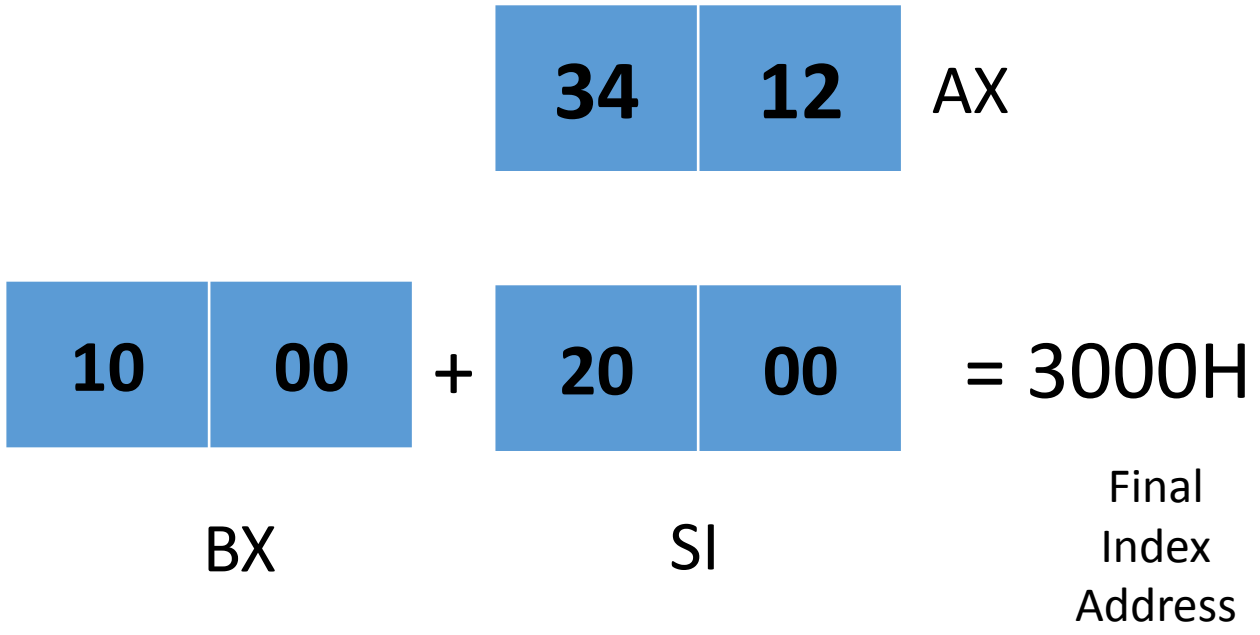
1.6: Register relative

MOV AX, [BX+50H]

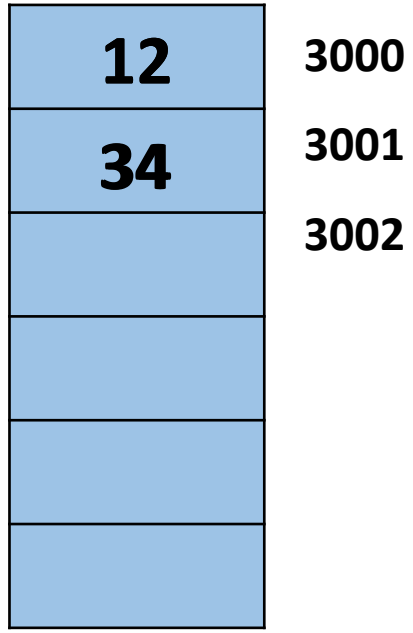


1.7: Base plus index

MOV AX, [BX+SI]

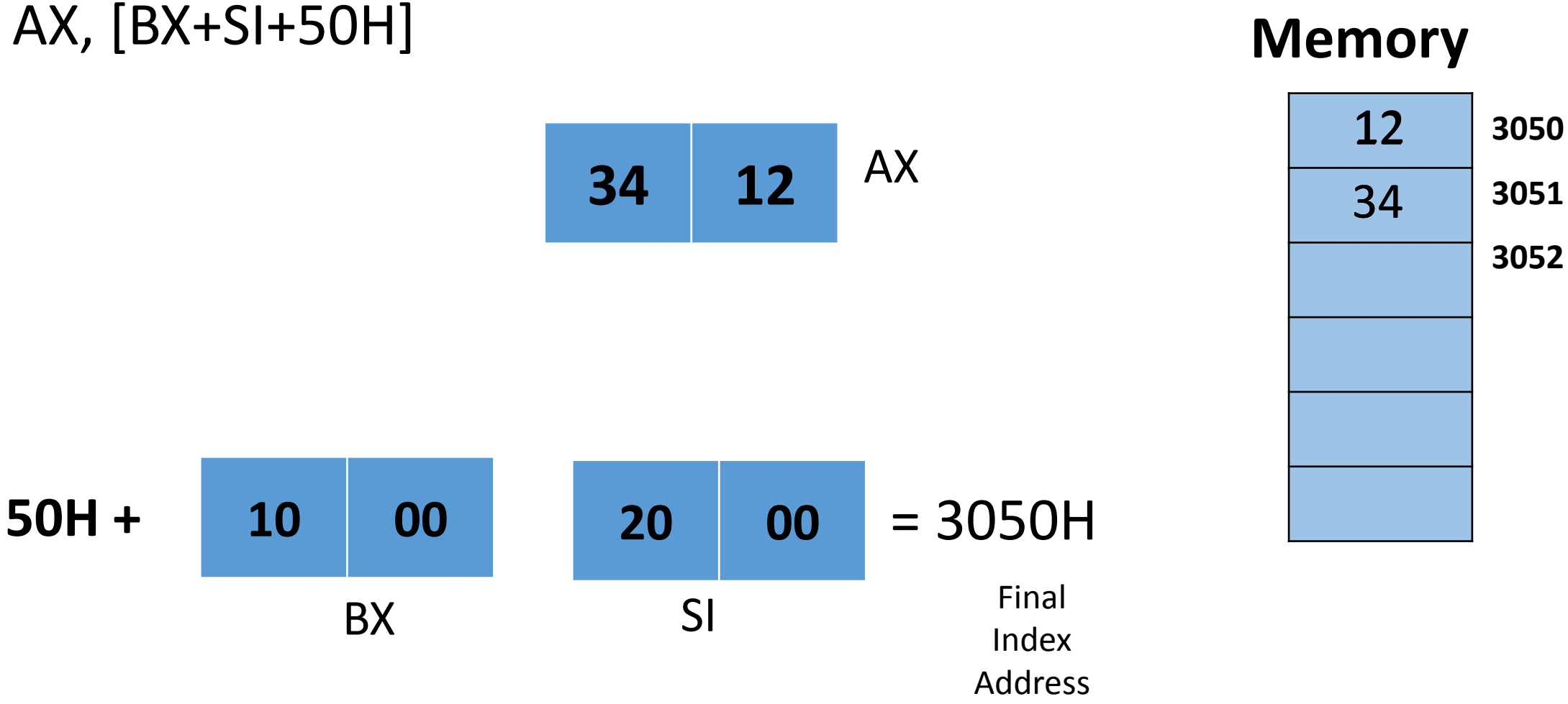


Memory

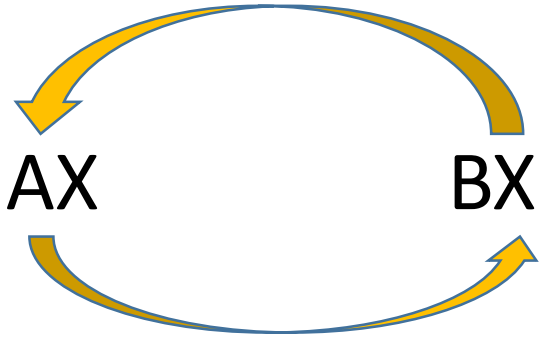


1.8: Base relative plus index

MOV AX, [BX+SI+50H]



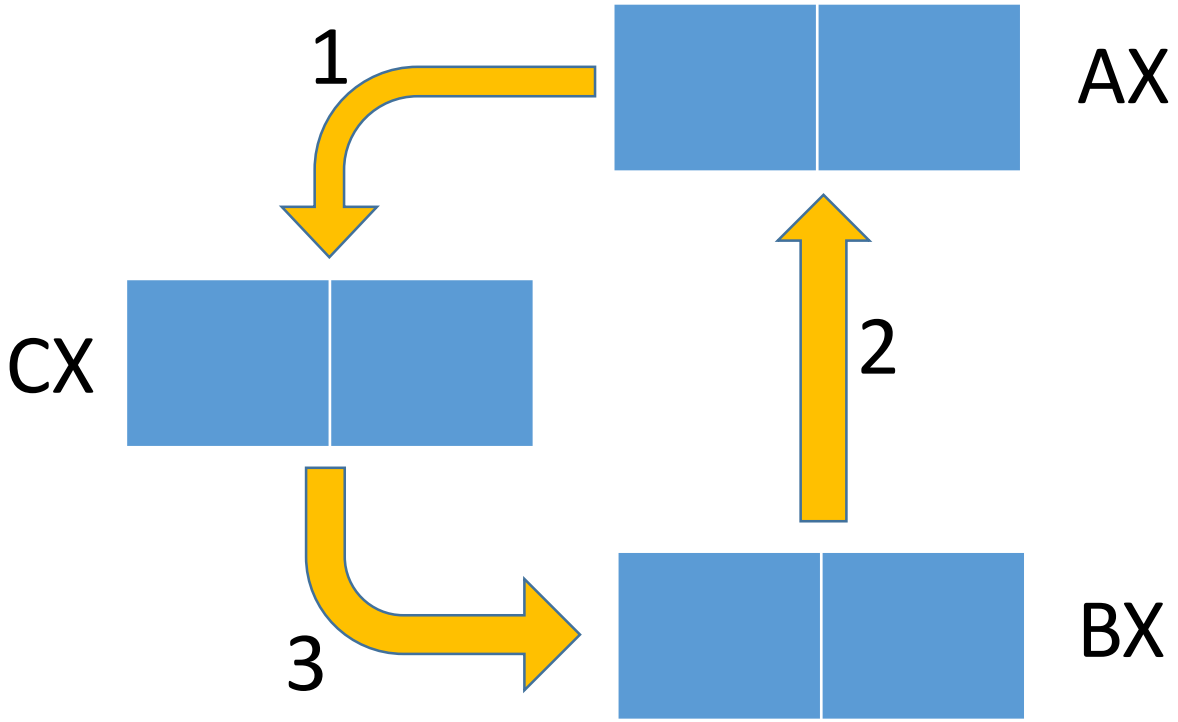
MOV [7000H], [5000H]



MOV CX, AX

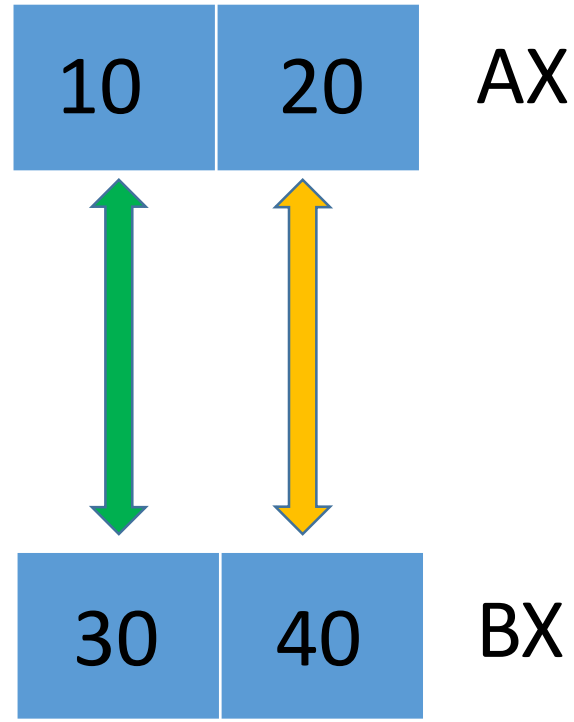
MOV AX, BX

MOV BX, CX



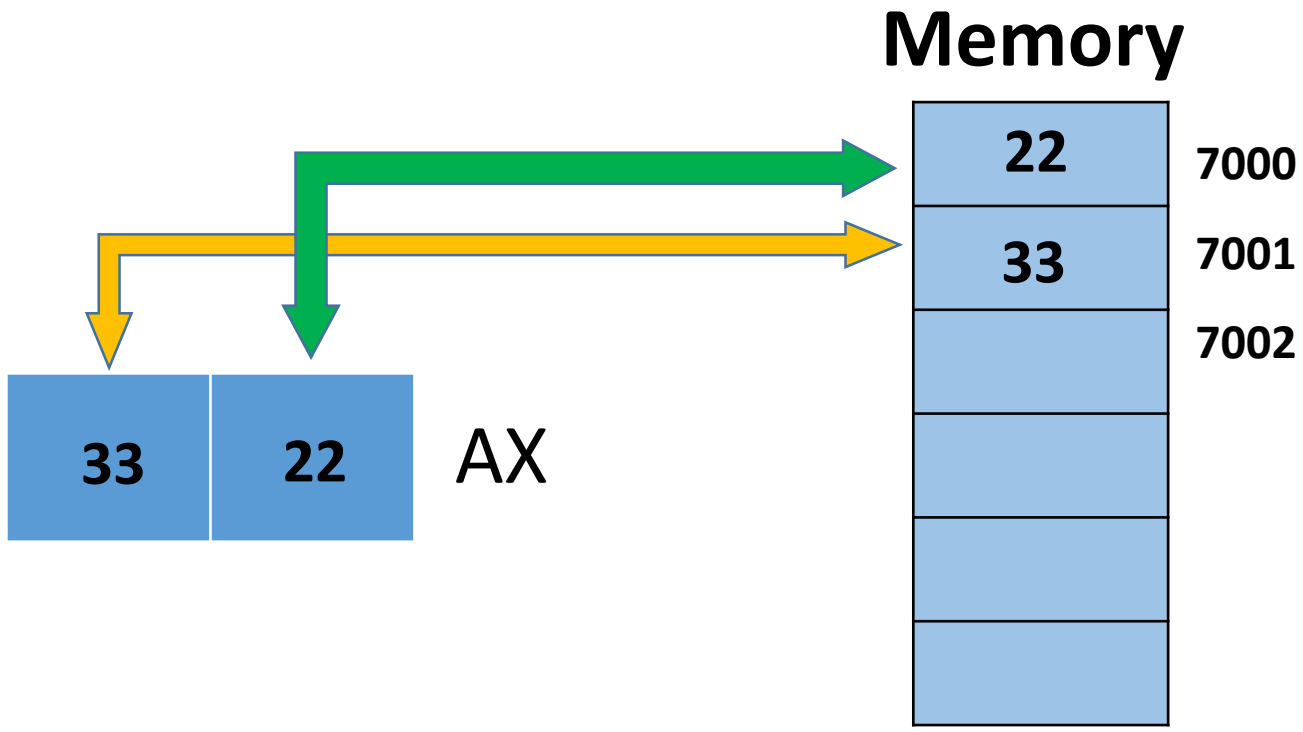
2. XCHG Instruction

XCHG AX, BX



2. XCHG Instruction

XCHG AX, [7000]



3. Arithmetic Instructions

- Addition
- Subtraction
- Increment
- Decrement
- Multiply
- Divide

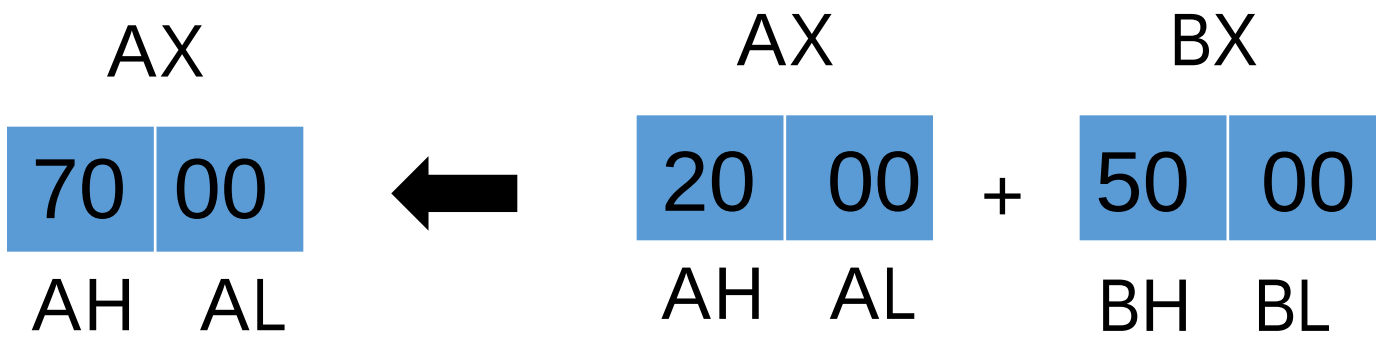
3. Arithmetic Instructions

ADD Destination, Source

- This instruction adds the contents of source operand with the contents of destination operand. The result is stored in destination operand.

- The source may be immediate data, memory location or register.
- The destination may be memory location or register.
- AX is the default destination register.

Eg: ADD AX,BX



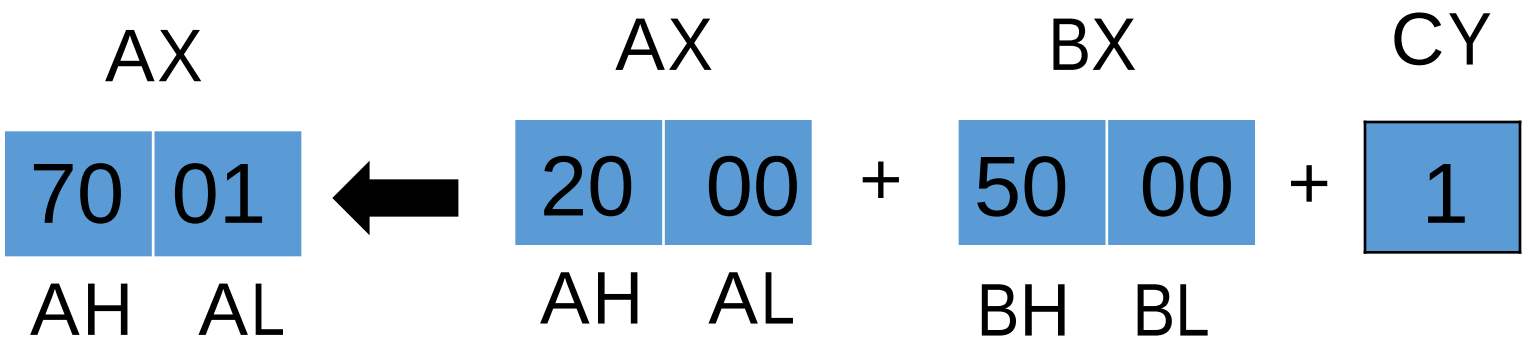
3. Arithmetic Instructions

ADC Destination, Source

- This instruction adds the contents of source operand with the contents of destination operand with carry flag bit.

- The source may be immediate data, memory location or register.
- The destination may be memory location or register.
- The result is stored in destination operand.
- AX is the default destination register.

Eg: ADC AX,BX



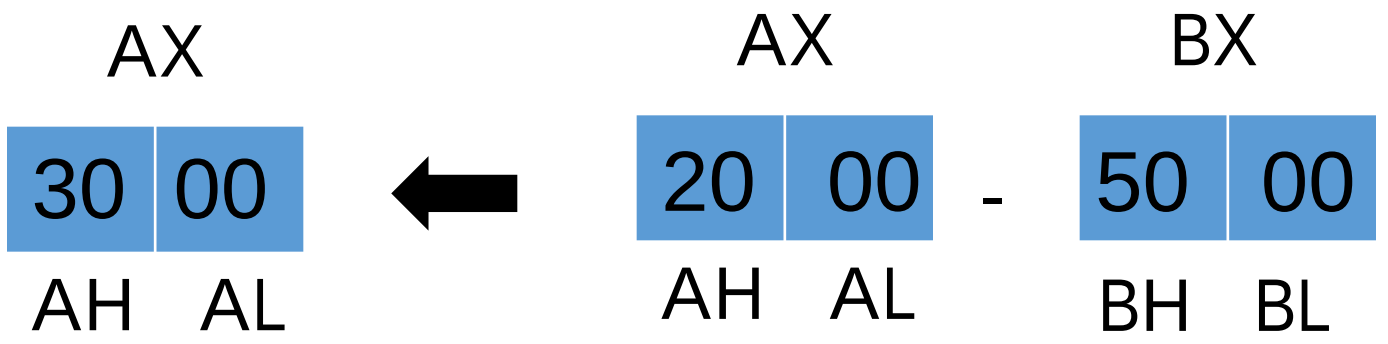
3. Arithmetic Instructions

SUB Destination, Source

- This instruction SUB the contents of source operand with the contents of destination operand. The result is stored in destination operand.

- The source may be immediate data, memory location or register.
- The destination may be memory location or register.
- AX is the default destination register.

Eg: SUB AX,BX



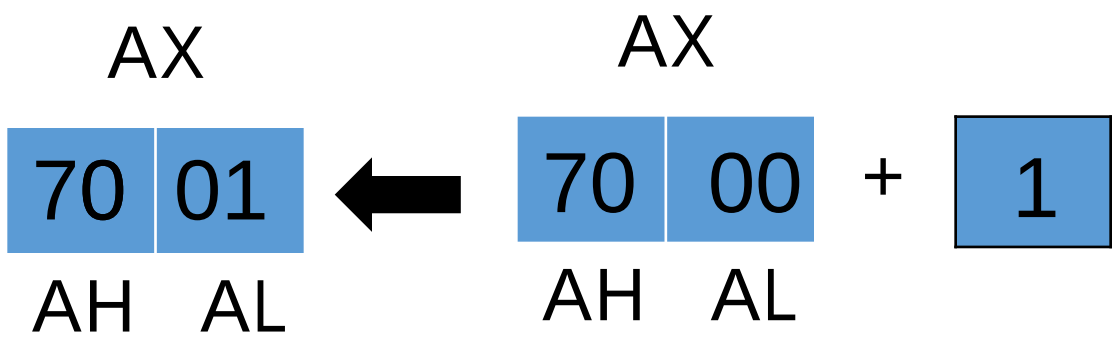
3. Arithmetic Instructions

INC source

- This instruction increases the contents of source operand by 1.

- The source may be memory location or register.
- The source can not be immediate data.
- The result is stored in the same place.

Eg: INC AX



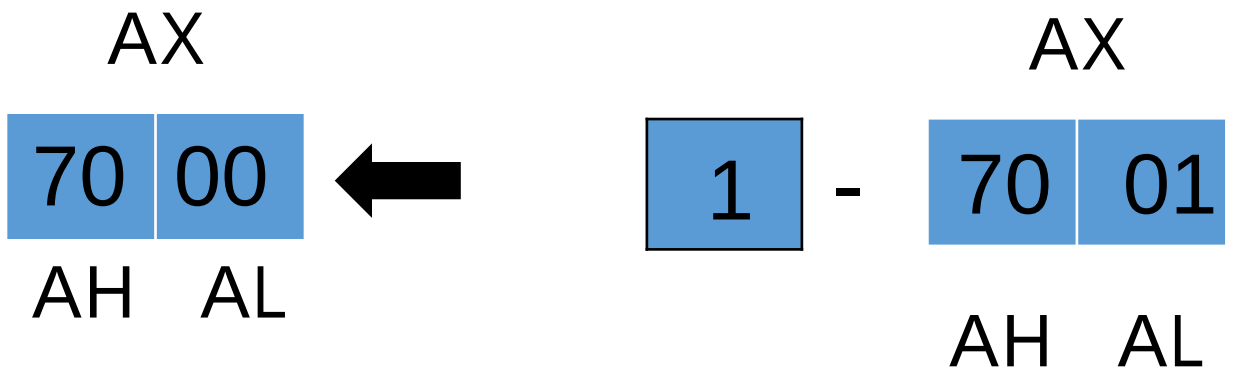
3. Arithmetic Instructions

DEC source

- This instruction increases the contents of source operand by 1.

- The source may be memory location or register.
- The source can not be immediate data.
- The result is stored in the same place.

Eg: DEC AX



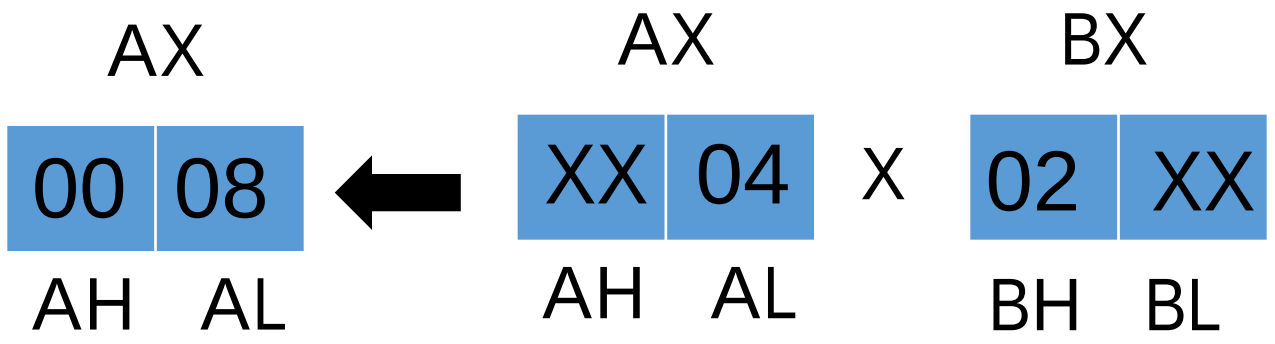
3. Arithmetic Instructions

MUL operand

- This instruction will multiply unsigned operand 8-bit/16-bit with AL/AX and store the result in AX/DX-AX.

- Operand may be general purpose register or memory location.
- If operand is of 8-bit then multiply it with contents of AL.
- If operand is of 16-bit then multiply it with contents of AX.
- Result is stored in accumulator AX in 8 bit operation and DX-AX in 16bit operation.

Eg: MUL BH



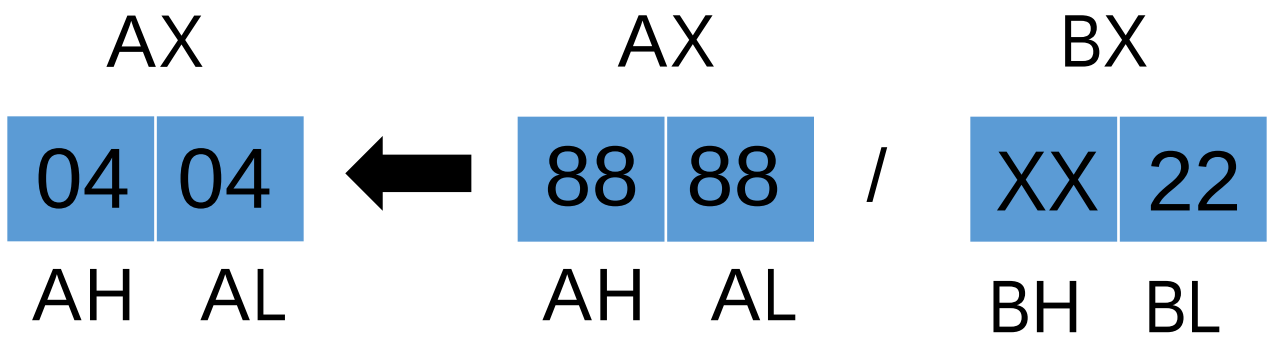
3. Arithmetic Instructions

DIV Operand

- This instruction will divide unsigned operand AX/DX-AX by 8-bit/16-bit number and store the result in AX/DX-AX

- Operand may be general purpose register or memory location.
- AL=AX/Operand (8-bit)
- AL= Quotient, AH=Remainder.
- AX=DX-AX/Operand (16-bit)
- AX= Quotient, DX=Remainder.

Eg: DIV BL



Summary

- MOV
- XCHG
- ADD
- ADC
- SUB
- INC
- DEC
- MUL
- DIV