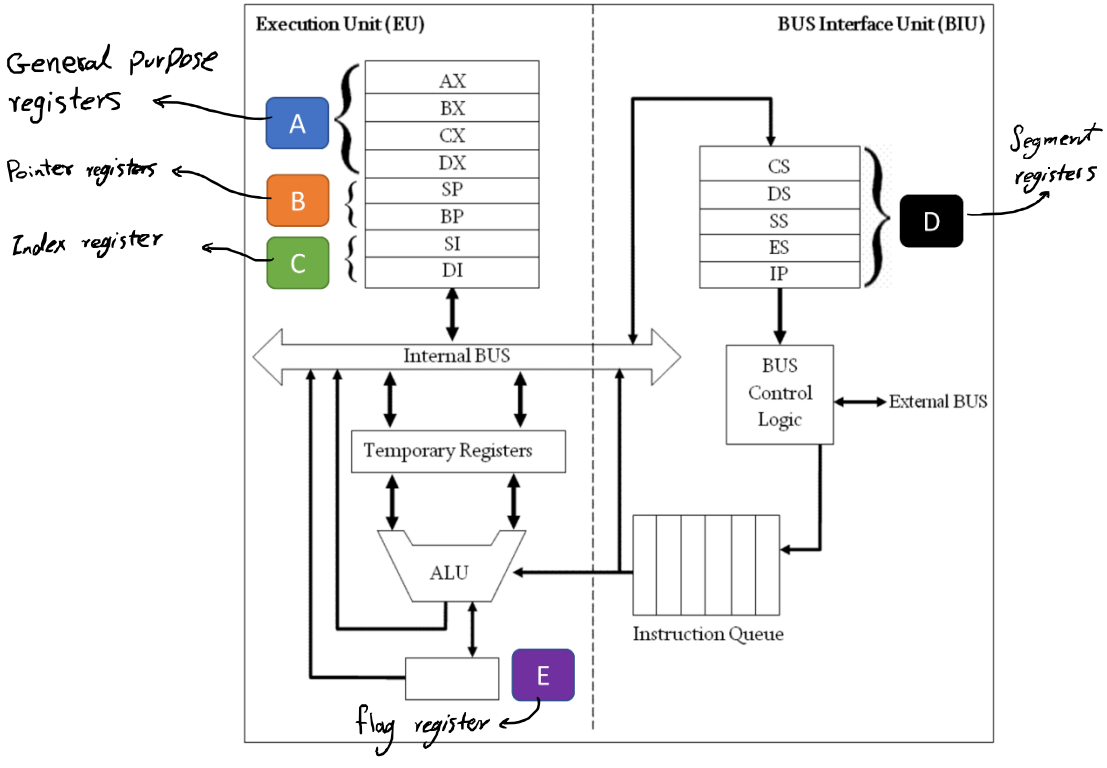
Lab 5
Due October 9, 2024, at 11:59 pm

1. (5 marks) The figure shows the 8086/88 architecture. Provides the name for the letters A, B, C, D, E.



2. (11 marks) Complete the following sentences.
1. The IP indicates the address of the current instruction to be executed, which is stored in the memory.
2. Because Registers are located inside the CPU, they are much faster than memory. So, we should try to keep variables in them.
3. A program is logically divided into two parts: a code part that contains only the instructions, and a data part that keeps only the data. The CS register points to where the program's instructions are stored in the main memory, and the DS register points to the data part of the program. The SS register points to the program's stack segment
4. _____ are a type of instructions that must be only used in the data segment.
5. Regarding endianness, the big-endian seems more natural for English speakers because they read sentences from left to right.
6. The AX, BX, CX, and DX are composed of 16 bits. They are known as the arithmetic, base, count, and data registers, respectively.

4. Data moving instructions

3. (8 marks) Trace the contents of the **ax**, **bx** registers for the following assembly instructions. For each line of the code segment, indicate the current value of **ax** and **bx** in hexadecimal.

```
data segment
    numA dw 2DE0h;
    numB dw 0001010001111101B;
data ends

;Some code for initializing code segment goes here

    mov ax, numA
    mov bx, numB
    add ah, bl
    xchg ax, bx
    mov ax, 512
    mul bx
    dec ax
    mov cx, 0FE00h
    sub ax, cx
    div bl
```

ax = 2DE0
bx = 147D
*change, ax = AAE0
Swap the ax, bx so, { ax = 147D, bx = AAE0
ax = (512)d = 0200h
bx is the same but ax = 0000h, dx = 156Ch
ax = FFFFh
cx = 0FE00h
ax - cx => ax = 01FFh
ax = 01 7Fh