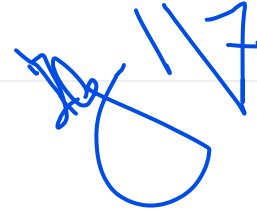


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Question:

Write an ASM instructions to add two data (i.e., 8 bits each) using two registers AL and BL and explain with a neat diagram how your written ASM instructions will be fetched and executed through the internal bus architecture of microprocessor 8086.

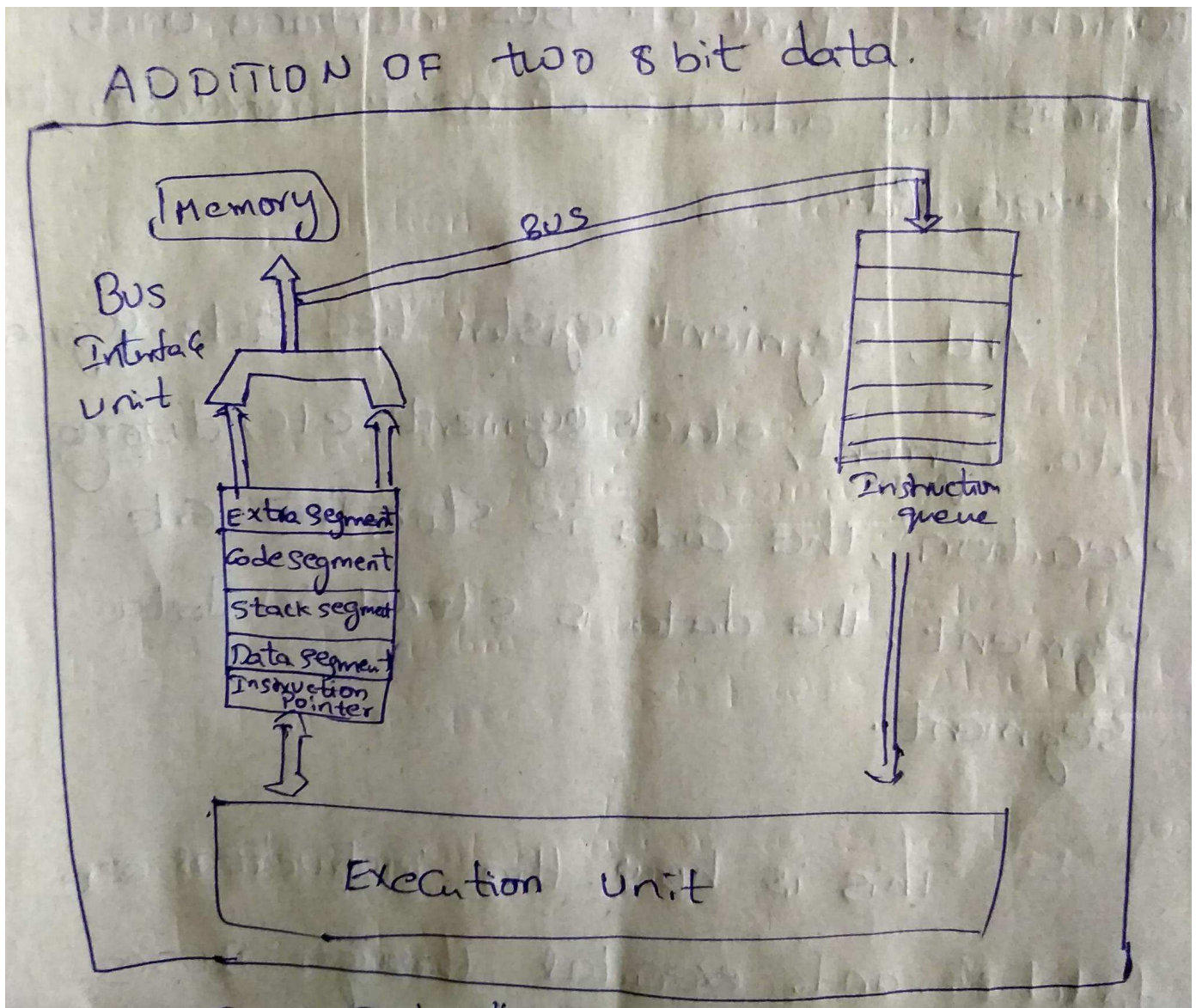


Answer:

ASM INSTRUCTIONS TO ADD TWO DATA OF 8 BITS EACH USING TWO REGISTERS AL AND BL:

```
MOV AL,02;    //Moving 02 8 bit data to the AL register using MOV operation.
MOV BL,04;    //Moving 04 8 bit data to the BL register using MOV operation.
ADD AL,BL;    //Now AL=02 BL=04,Now by using ADD operation the contents in the
              //AL and BL register are added and result stored in the register AL
HLT;          //Terminate the program
```

ADDITION OF two 8 bit data.



- First Instruction `MOV AL, 02`; Here the bus interface unit fetches the data from memory or from the input port and moves into the specified register.
- Next, `MOV BL, 04`; Here also the data is fetched and moved into register specified.
- These data is send to the execution unit.
- The next instruction `ADD AL, BL`; the execution unit adds the content of AL and BL registers and stores the result in AL register.
- Last instruction `HLT`; When the execution unit executes this instruction, it will terminate the program.

During the execution, Instruction queue which is a Part of Bus interface unit, stores the address of next instruction to be executed.

And, Segment registers like Code segment, data segment, stack segment etc, during execution, the code is stored in Code Segment, the data is stored in data Segment.

This is how the instructions are fetched and executed through Buses of microprocessor 8086.