



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai



DEPARTMENT OF ELECTRONICS AND COMMUNICATION

ENGINEERING

19ECT221 – MICROPROCESSORS AND MICROCONTROLLERS

II YEAR - IV SEM

UNIT I – 8085 and 8086 MICROPROCESSOR

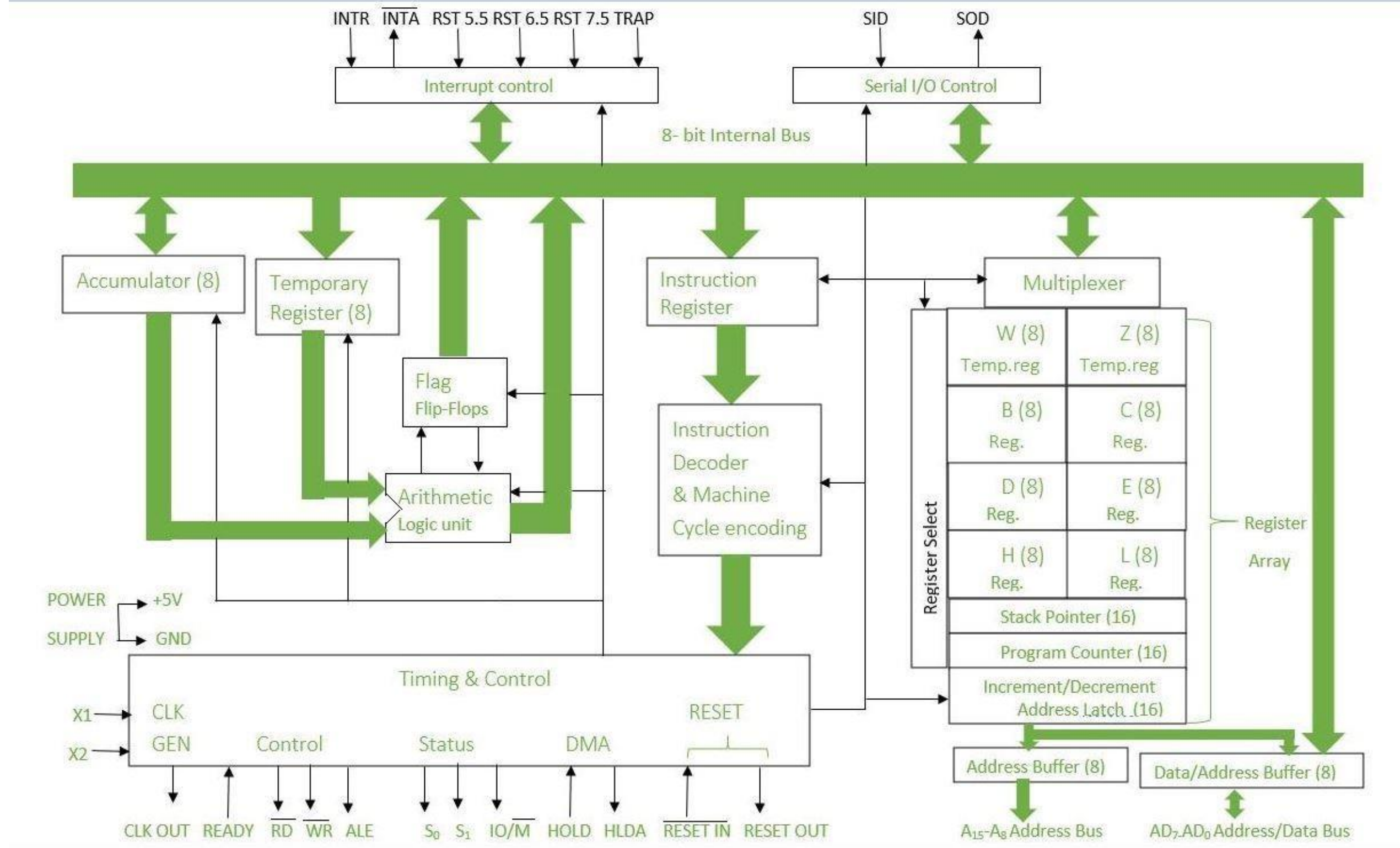


8085 MICROPROCESSOR

- The 8085 microprocessor is an 8-bit processor available as a 40-pin IC package and uses +5 V for power.
- It can run at a maximum frequency of 3 MHz.
- Its data bus width is 8-bit and address bus width is 16-bit, thus it can address $2^{16} = 64$ KB of memory.



8085 ARCHITECTURE





8085 Functional Unit



Accumulator

It is an 8-bit register used to perform arithmetic, logical, I/O & LOAD/STORE operations.

It is connected to internal data bus & ALU.

Arithmetic and logic unit

As the name suggests, it performs arithmetic and logical operations like Addition, Subtraction, AND, OR, etc. on 8-bit data.



8085 Functional Unit



➤ **General purpose register**

➤ There are 6 general purpose registers in 8085 processor, i.e. B, C, D, E, H & L. Each register can hold 8-bit data.

➤ These registers can work in pair to hold 16-bit data and their pairing combination is like B-C, D-E & H-L.

➤ **Program counter**

➤ It is a 16-bit register used to store the memory address location of the next instruction to be executed.

➤ Microprocessor increments the program whenever an instruction is being executed



8085 Functional Unit



Stack pointer

➤ It is also a 16-bit register works like stack, which is always incremented/decremented by 2 during push & pop operations.

Temporary register

➤ It is an 8-bit register, which holds the temporary data of arithmetic and logical operations.



8085 Functional Unit



Flag register

It is an 8-bit register having five 1-bit flip-flops, which holds either 0 or 1 depending upon the result stored in the accumulator.

These are the set of 5 flip-flops –

Sign (S)

Zero (Z)

Auxiliary Carry (AC)

Parity (P)

Carry (C)



8085 Functional Unit



Instruction register and decoder

Timing and control unit

It provides timing and control signal to the microprocessor to perform operations. Following are the timing and control signals, which control external and internal circuits –

Control Signals: READY, RD', WR', ALE

Status Signals: S0, S1, IO/M'

DMA Signals: HOLD, HLDA

RESET Signals: RESET IN, RESET OUT



References

https://www.tutorialspoint.com/microprocessor/microprocessor_8085_architecture.htm

<https://byjus.com/gate/8085-microprocessor/>

<https://www.javatpoint.com/microprocessor-architecture>

Thank You