

## 01: MICRO PROCESSOR

→ General architecture of a comp =

A comp is an programmable electronic device that access raw data as input & processes it with a set of instructions to produce the result as output.

Thus a comp consist for functionally independent main parts -

- a) Input unit
- b) Output
- c) memory
- d) CPU

→ Input unit =

- \* It access an interface for man to machine communication.
- \* Of Input unit →
  - \* access the data & instructions from the output data outside.
  - \* convert the received analog data into comp acceptable digital form.
  - \* Supply the digital form of data & instructions to comp system for further processing
    - \* e.g. → keyboard, mouse

→ Output unit =

If the job is just the reverse

of that of an input unit

\* (\*) of O. unit —

\* access the result produced by the comp by binary coded form.

\* convert the binary coded into humanly acceptable form.

\* supply the converted result into outside world.

\* eg → monitor, printers, speakers.

⇒ memory =

\* The data & instructions that are entered into the comp system through the input unit have to be stored in the comp before the actual processing starts.

\* Similarly, the results produced by the comp ~~are~~ must also be kept somewhere in the comp system before being passed on to the output unit.

\* The memory unit performs all above (\*)s.

⇒ CPU = (brain of the comp)

\* All major calculations & computations are made inside the CPU

\* The CPU is also responsible for activating & controlling the operations of other units of comp system.

\* Its components are register, CU & ALU

$\Rightarrow \text{Registers} =$

- \* They are the temporary storage locations within the CPU where the data fetched from the memory can be held.
- \* Most comp use several types of registers, each designed to perform a particular task.
- \* eg → Accumulator, prgm counter, memory address register, memory buffer (R) instruction (R), etc.

$\Rightarrow \text{ALU} =$

ALU of a comp systems is the place where the actual execution of instruction takes place during the data processing operation.

ALU's are designed to perform the 4 basic Arithmetic operations +, -, \*, / & logical operations → <, =, >

$\Rightarrow \text{Control Unit} = (\text{CU})$

CU acts as a nerve centre of a comp, bcz it controls & coordinates the entire comp system.

CU performs follow (7)s →

\* fetches the instruction from primary memory at the location pointed by the PC (prgm counter) register.

\* Decodes the instruction in the instruction register.

\* Executes the instruction by means of sequencing a series of control

Signals to other components of CPU.  
\* Controls all the data transfer b/w the components [memory & I/O devices]

$\Rightarrow$  Buses =

- \* The diff units of comp system are interconnected by common parallel signal lines  $\rightarrow$  Buses.
- \* The 3 principal in a comp system -
  - a) data bus
  - b) Control bus
  - c) Address bus

3 buses together  $\rightarrow$  System buses