

## PARALLEL PROCESSING

Instead of processing each instruction sequentially, we use a different technique called Parallel Processing.

Parallel Processing:- This technique enables a system to perform Concurrent data processing to achieve faster execution time.

For Eg:- 1) While an instruction is being executed in the ALU, the next instruction can be read from Memory.

- 2) The system may have two or more ALUs and be able to execute two or more instructions at the same time.
- 3) A system may have two or more processors operating concurrently.

“So the purpose of parallel processing is to speed up the computer processing capabilities.”



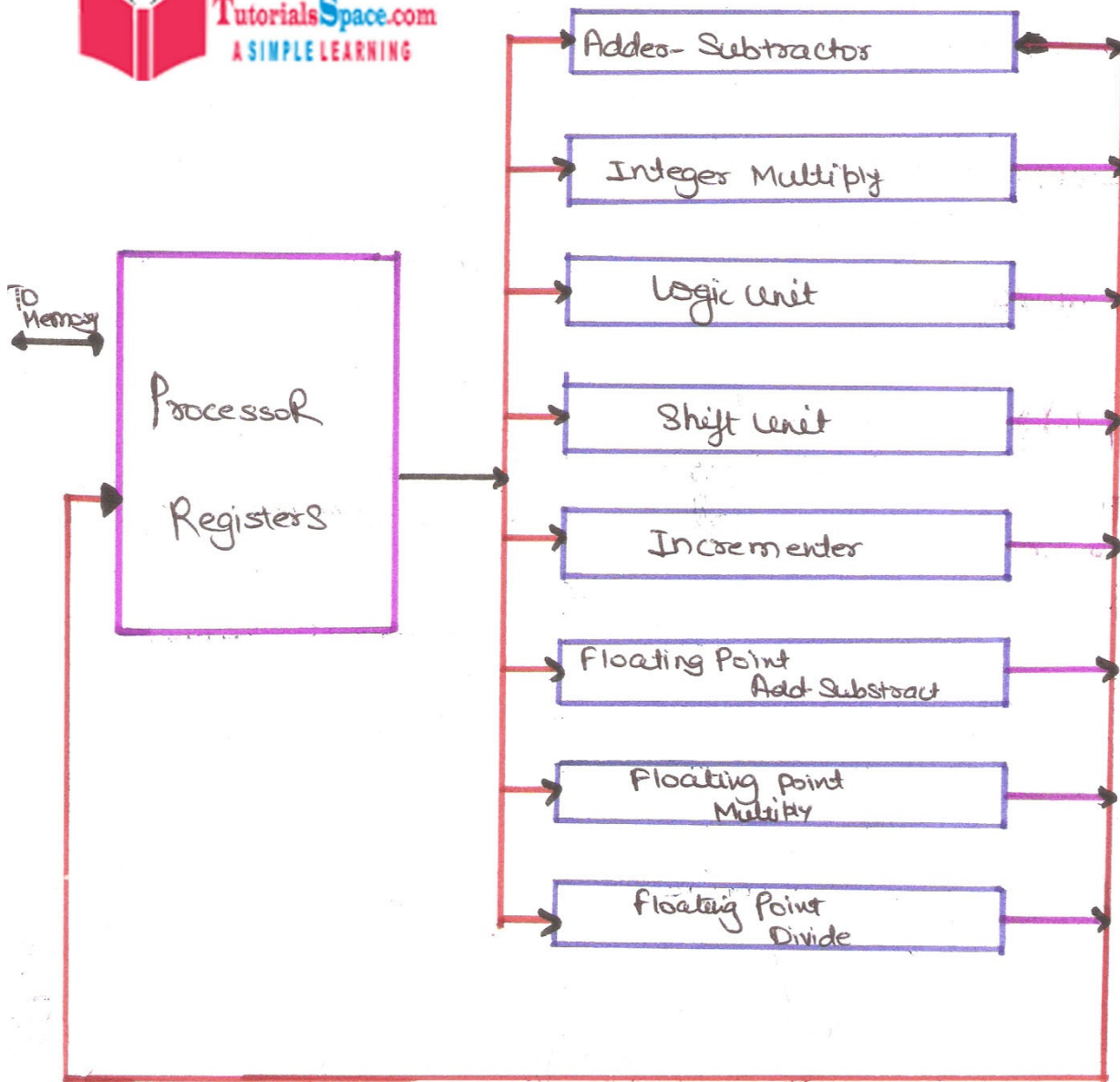
for achieving this amount of hardware increases.

Parallel processing can be viewed from various levels of complexity.

At lowest level, we distinguish between parallel & serial operations by the type of registers used.

Shift Register → It operates in serial fashion one bit at a time, while registers with parallel load operates with all the bits of the words simultaneously.

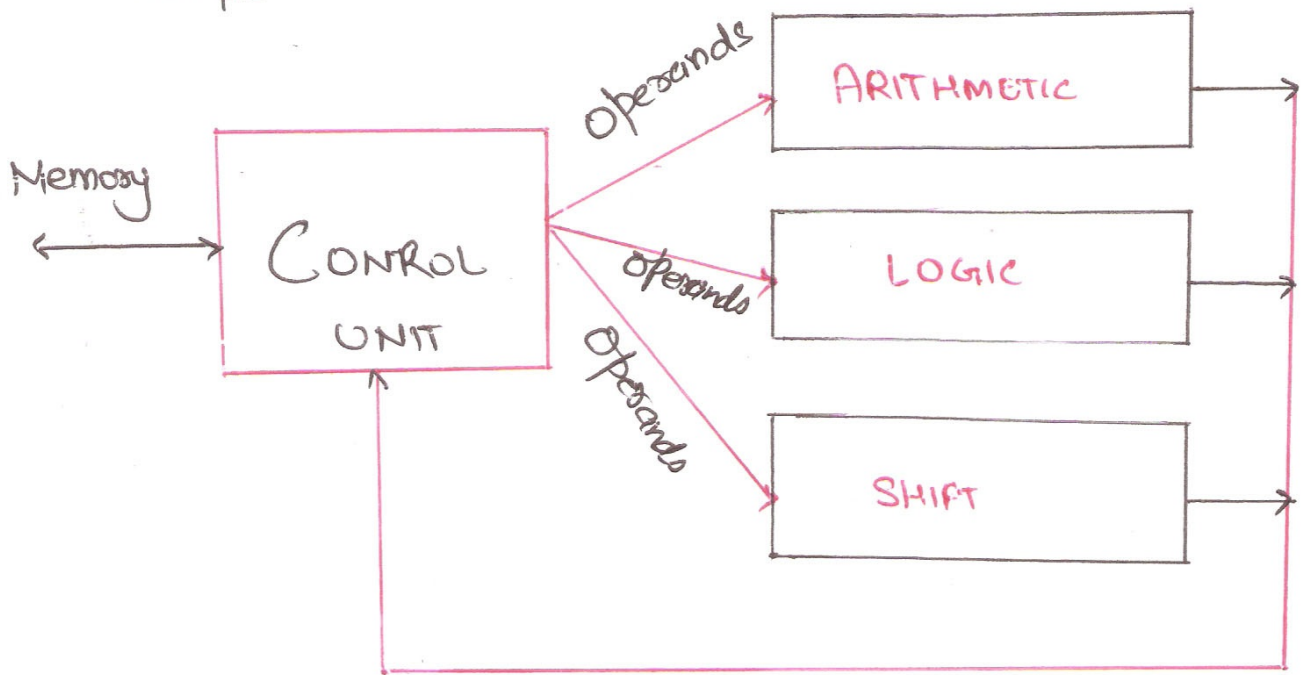
Parallel Processing at a higher level of Complexity can be achieved by having a multiplicity of functional units that perform identical or different operations simultaneously.



### Processor with Multiple functional unit

Parallel processing unit is established by distributing the data among the multiple functional units.

For example



The arithmetic, logic and shift operations can be separated into 3 units and operands diverted to each unit under the supervision of a control unit.

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