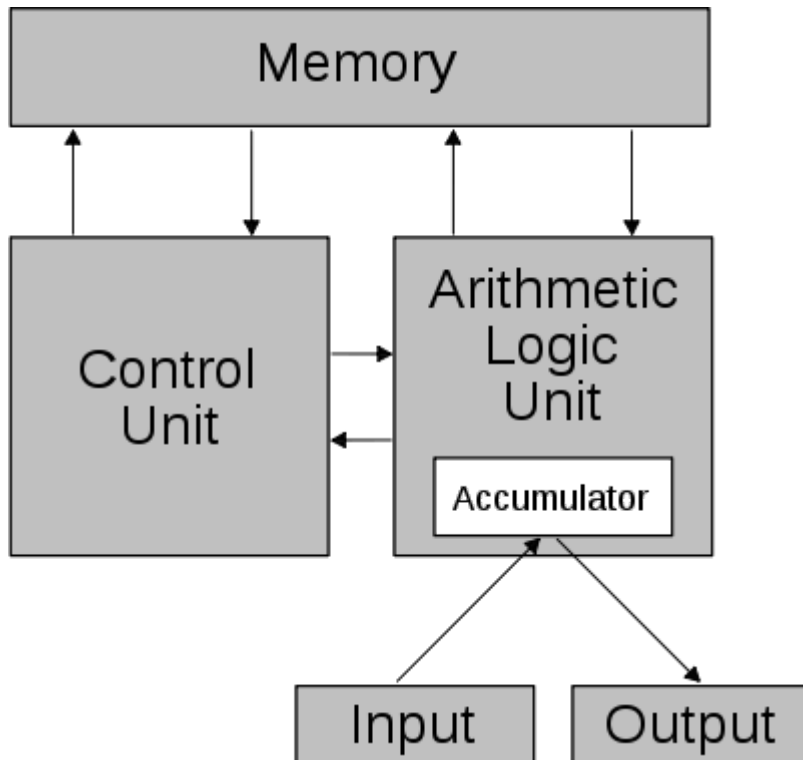


NIOS Computer Science Chapter 1 – Anatomy of a Digital Computer Part 3



CPU Architecture Images

Arithmetic Logic Unit (ALU)

- It represents the fundamental building block of the **central processing unit (CPU)** of a computer.
- This unit is used to perform all the arithmetic and logic operations, such as addition, multiplication, comparison, etc.

For example: Consider the addition of two numbers A and B. The control unit will select the number A from its location in the memory and load it into the arithmetic logic unit.

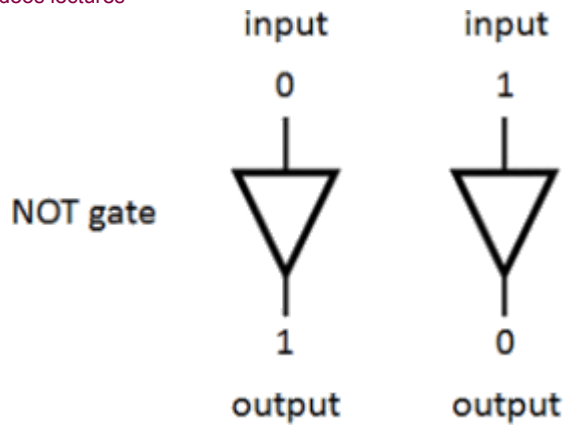
- Modern CPUs contain very powerful and complex ALUs.
- An ALU performs basic arithmetic and logic operations.

Examples of arithmetic operations: addition, subtraction, multiplication, and division.

Examples of logic operations: comparisons of values such as NOT, AND, and OR.

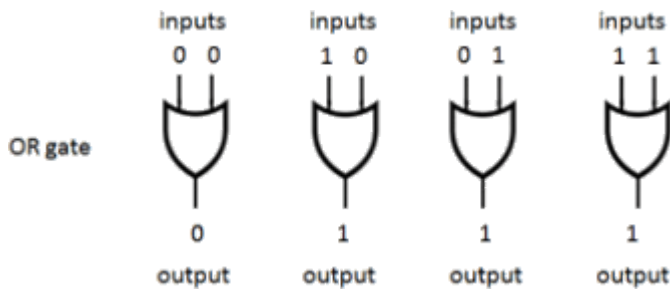
NOT gate

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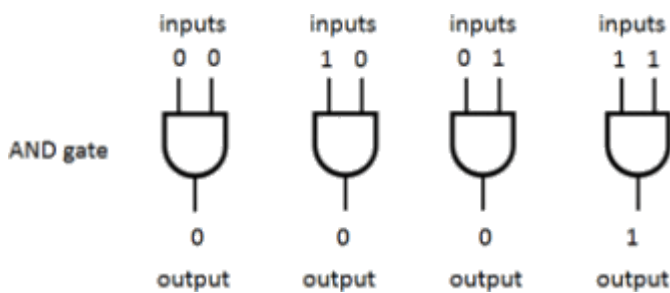
NOT Gate Image

OR gate



Or Gate Image

AND gate



And Gate Image

Control Unit (CU)

- The control unit (CU) is a component of a computer's central processing unit (CPU) that directs the operation of the processor.
- It tells the computer's memory, arithmetic/logic unit and input and output devices.

CU functions are as follows

- Interprets instructions.
- Regulates and controls processor timing.
- Sends and receives control signals from other computer devices.
- Handles multiple tasks, such as fetching, decoding, execution handling and storing results.