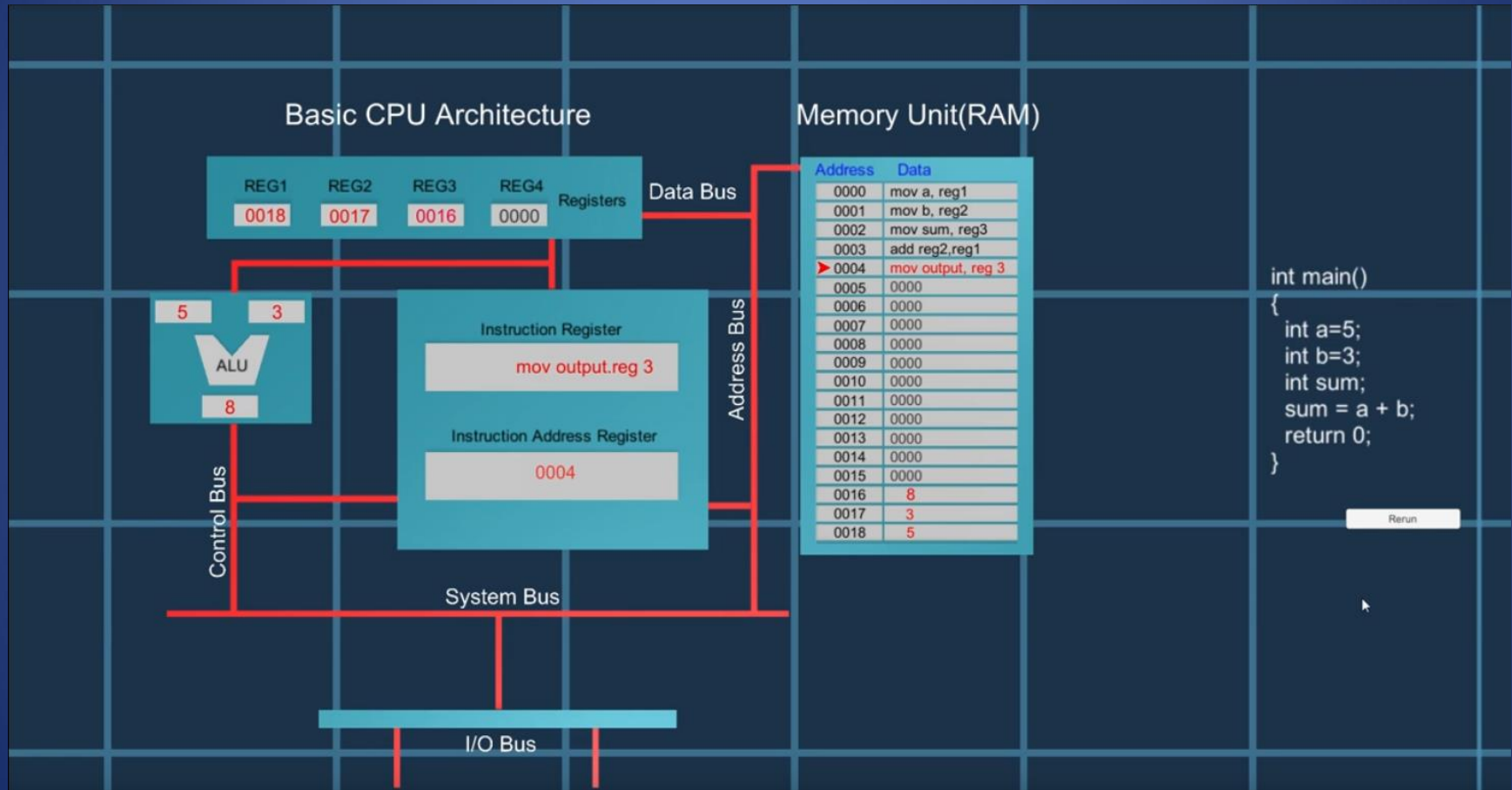


# Basic CPU

# Introduction

- At the heart of any computer you will find a component called a processor, more formally described as a **Central Processing Unit**, or CPU.
- A **processor** that is constructed completely as a very large electrical circuit - called an **integrated circuit** - on one single chip of silicon (colloquially called a computer chip) is called a microprocessor.
- Processor runs a series of instructions (called a **program**), and controls the activity of all other components within the computer;
- The **main components** of a CPU are Registers, Arithmetic Logic Unit, Control unit and Bus.

# CPU Architecture



# CPU Architecture

## Registers

Registers are the processors component which hold values (voltages). These registers contain small amount of fast memory which hold values stored into them. This will make registers unique in away that they will be part of the important instructions. Instructions such as mathematical numbers (written in bits) can be stored in registers and then move these numbers where they should belong.

## RAM

Random Access Memory is the computer's main storage of programs. There is two kinds of memory, static and dynamic RAM. Static RAM uses flip-flops to store the data while dynamic stores the data in a capacitor combined with other digital circuit. This will make the static memory lose its data when it loses power while the dynamic memory can still hold data.

# CPU Architecture

## ALU

The ALU or Arithmetic logic unit is the computer's mathematical processor. The ALU can input bits from different registers and then do mathematical operations when the registers values are input.

## Bus

The bus of the computer is used for communications. This means that all of the computers modules can output to the bus but also input from the bus. Without the bus there is no way for the computer to work since without the communications the different modules can't show what they are outputting or inputting.