**Von Neumann architecture.**

memory, control unit, aritmetic logic unit and input/oput devices

int he aritmetic logic unit their is an accumulator that is a 40 bit register

**The three parts of a computer.**

processore, memory and input,output devidec.

**The von Neumann bottleneck.**

is the limited data transfer rate beetwenn the CPU and the memory compared to the amount of memory

**The three categories of bus signals (CPU pins).**

Controlls, addresses, and data

**How are control signals used (sequence of data and signal assertions) by the CPU to fetch instructions and to read and write memory and i/o.**

A control unit is circuitry that directs operations within the computer's processor by directing the input and output of a computer system. The processor then controls how the rest of the computer operates (giving directions to the other parts and systems). A control unit works by gathering input through a series of commands it receives from instructions in a running programs and then outputs those commands into control signals that the computer and other hardware attached to the computer carry out.

The control unit is basically circuitry inside the CPU, controlling the operations inside the CPU and "directing traffic" in a sense. The functions a control unit performs can depend on the type of CPU, since the varying degrees of architecture between all the different CPUs determine the functions of the control unit.

Computer machine cycle

It asserts one or more control lines to inform the specific device the operation that it wants to carry out. wants is done the device sends back a signal informing the cpu that is done . in other words they are used by presenting and receiving signals on its pins to carry out the desired operation .