

Registers are a type of comp memory used to quickly accept, store, and transfer data and instructions that are being used immediately by the CPU. The registers used by the CPU are often termed as Processor registers.

Comp needs ^{processor} registers for manipulating data and a register for holding a memory address.

Comp registers are memory storing units that operate at high speed. It's a component of a computer's processor that can hold any type of data, including a bit of sequence or a single piece of data.

8 registers, a memory unit, and control unit make up a basic computer.

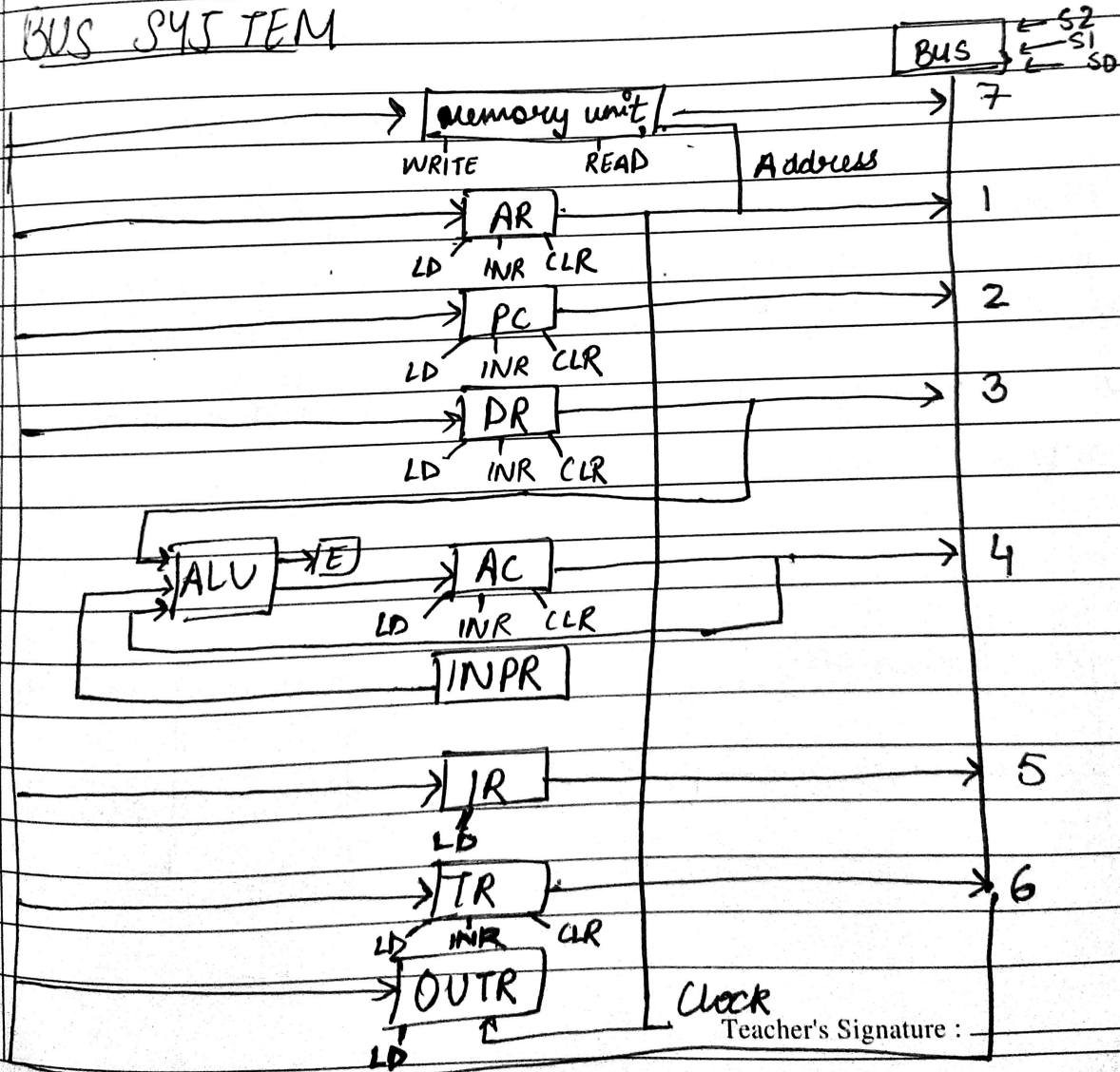
During the execution of a program, registers are used to store data temporarily.

The number of bits that a register can hold determines its size.

Various Registers

- ① Accumulator register
- ② Address register
- ③ Data register
- ④ Instruction register
- ⑤ Input register
- ⑥ Program counter
- ⑦ Temporary register
- ⑧ Output Register

BUS SYSTEM

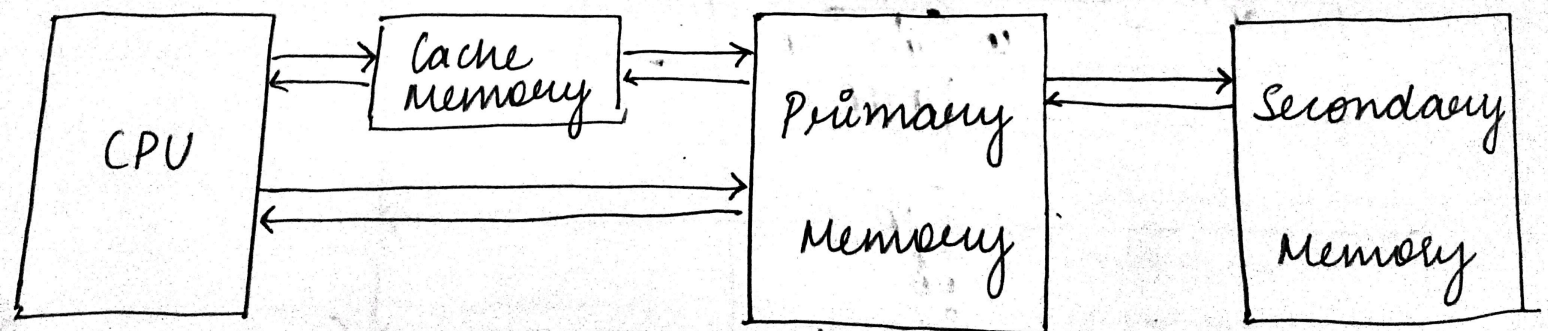


Clock
Teacher's Signature : _____

A bus is a pair of signal lines that allows multi-bit data to be transferred from one system to another. A common bus is a more efficient method of sending data in a system with multiple registers. The common bus connects the outputs of several registers and memory. A bus provides a means for people to communicate with one another.

Cache Memory

Cache memory is a special very high speed memory. It is used to speed up and synchronize with high speed CPU. It is costlier than main memory or disk memory but more economical than comp registers.



Levels of memory:

- ① Level 1 / Registers: It is a type of memory in which data is stored and accepted that are immediately stored in CPU. Most commonly used register is accumulator, program counter, address register etc.
- ② Level 2 / Cache memory: It is the fastest memory which has the fastest access time where data is temporarily stored for faster access.
- ③ Level 3 / Main Memory: It is memory on which computer works currently. It is small in size, and once power is off data no longer stays in the memory.
- ④ Level 4 / Secondary Memory: It is external memory which is not as fast as main memory but data stays permanently in this memory.

Programming language defines a set of instructions that are compiled together to perform a specific task by the CPU. The programming language mainly refers to high level languages.

Low level language is a prog lang that provides no abstraction from the hardware, and it is represented in 0 or 1 forms, which are the machine instructions.

Under this category come :

① Machine level language consists the set of instructions in binary form (0 or 1). It is not portable as each comp has its own instructions, so if we write a prog in one comp, it will not be portable in the other one.

② Assembly language contains a few human readable commands such as mov, add, sub etc. It is an extended form of machine level language. A translator is required that converts the assembly code into machine code. This translator is known as an assembler.

High level language is a programming lang that allows user to write prog which are independent of a particular type of computer.

These are closer to human languages than machine level languages.

Here, a compiler is required to translate high level language into low level language.