**Classification of computer architecture**

**Flynn’s taxonomy:**

Classification of computer systems according to Michael Flynn (1966) is based on the presence of **single** or **multiple** streams of instruction and data:

***Instruction stream***: a sequence of instructions executed by a processor.

***Data stream***: a sequence of data required by an instruction stream.



**SISD:** Execution of instruction in SISD processors is illustrated bellow:



The SISD organization



• Instructions are executed sequentially.

• This is the oldest and until recently, the most common form of computer

• Examples: most PCs, single CPU workstations and mainframes

**SIMD:** Execution of instruction in SIMD processors is illustrated bellow:



The SIMD organization



• A type of parallel computer

• Best suited for specialized problems such as image processing and vector computation.

**MISD:** Execution of MISD processor is illustrated bellow:



The MISD organization



• This architecture is also known as systolic arrays for pipelined execution of specific instructions

• Few actual examples of this class of parallel computer have ever existed. One is the experimental Carnegie-Mellon C.mmp computer (1971).

**MIMD** Execution of MIMD processor is illustrated bellow:



The MIMD organization



• As shown in the above figure there are different processor each processing different task.

• Examples: most current supercomputers, networked parallel computer .