***Instruction Stream*** and ***Data Stream***

clock cycle

deterministic execution

asynchronous

**Supercomputing / High Performance Computing (HPC)**

singular execution component

**Pipelining**

**Symmetric Multi-Processor (SMP)**

data exchange

**Granularity: *Coarse,fine***

**Observed Speedup**

**Parallel Overhead**

**Massively Parallel**

**Embarrassingly Parallel**

**Scalability**

**Portability**

Memory-cpu bus bandwidth

* Communications network bandwidth

cache coherency

 user-friendly programming perspective

Cost effectiveness

data **residing** on a remote node

 memory architecture

race conditions and deadlocks.

computationally intensive kernels

 error-prone and ***iterative***

***latency*** is the time it takes to send a minimal (0 byte) message from point A to point B。

***bandwidth*** is the amount of data that can be communicated per unit of time。

critical design

performance characteristics

calculations