

## Distributed-Memory system

- MIMD, computers are divided into **distributed-memory** and **shared-memory** systems. From a programmer's point of view, a distributed-memory system consists of a collection of core-memory pairs connected by a network, and the memory associated with a core is directly accessible only to that core, as shown in fig 1.

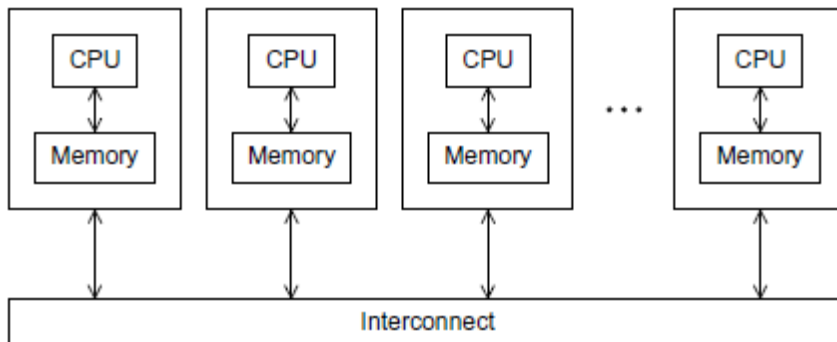


Fig 1: A distributed-memory system

- In message-passing programs, a program running on one core-memory pair is usually called a process, and two processes can communicate by calling functions: one process calls a **send** function and the other calls a **receive** function.
- The implementation of message-passing that we'll be using is called MPI, which is an abbreviation of Message-Passing Interface. MPI is not a new programming language. It defines a library of functions that can be called from C, C++, and Fortran programs.