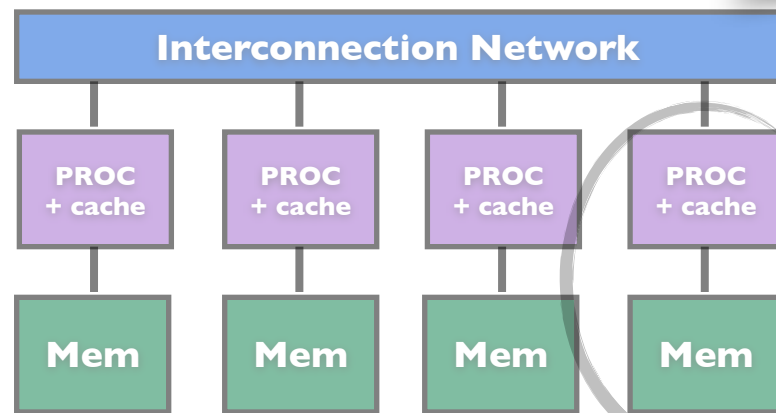


Sockets  
MPI  
Hadoop

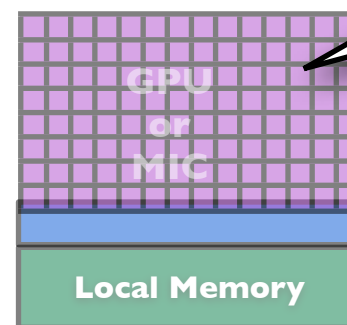
Default is parallel (SPMD): where is my data and who has what I need?

## Distributed Memory



Offload data and tasks. We are slow but many!

## Co-Processor



GPU: Graphical Processing Unit

MIC: Many Integrated Core

CUDA  
OpenCL  
OpenACC

OpenMP  
OpenACC

OpenMP  
Pthreads  
fork

Default is serial: which tasks can the compiler make parallel?

## Shared Memory

