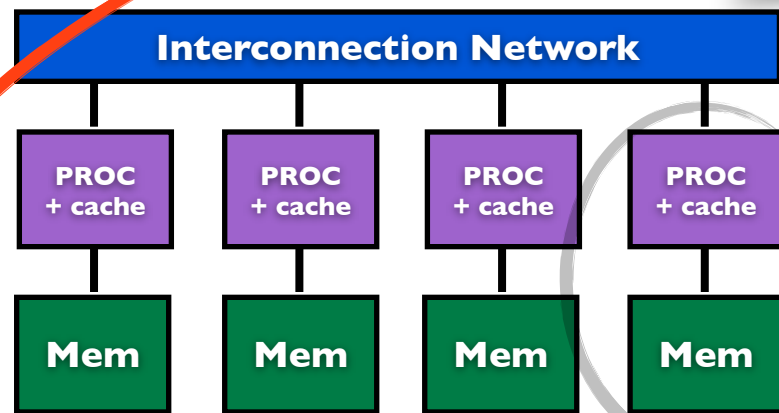


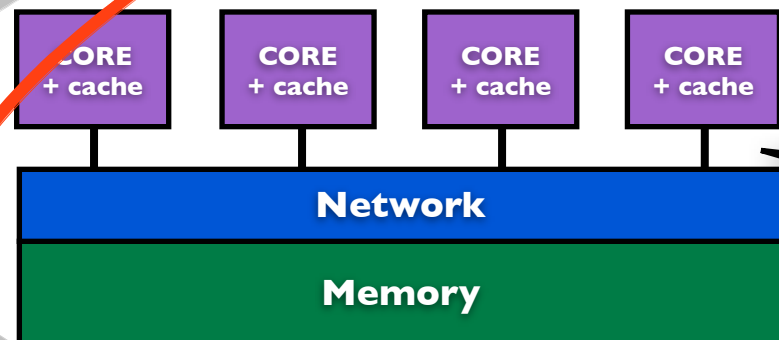
Distributed Memory



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

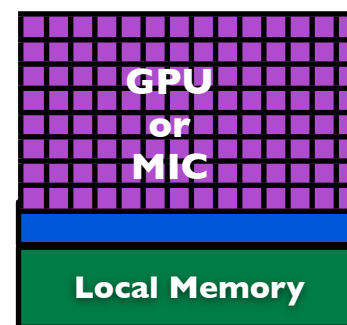
Sockets
MPI
Hadoop

Shared Memory



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

Co-Processor



GPU: Graphical Processing Unit
MIC: Many Integrated Core

Offload data and tasks. We are slow but many!

CUDA
OpenCL
OpenACC

OpenMP
OpenACC

OpenMP
Pthreads
fork