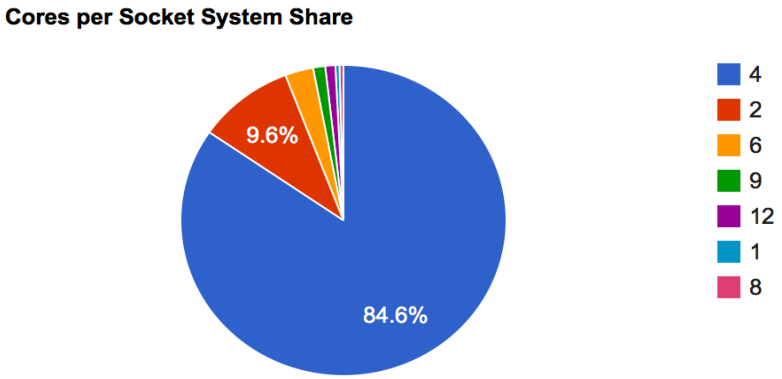
CSCS
Centro Svizzero di Calcolo Scientifico
Swiss National Supercomputing Centre

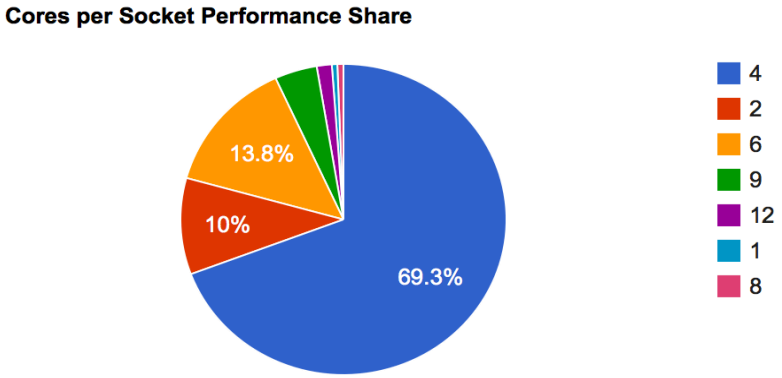
ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Modern Architectures and Programming Paradigms

CSCS-USI Summer School 2014

Trends in Top 500 : June 2010 - multicore





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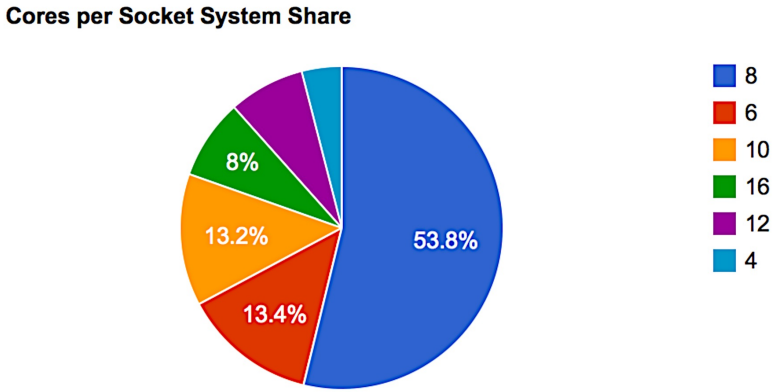
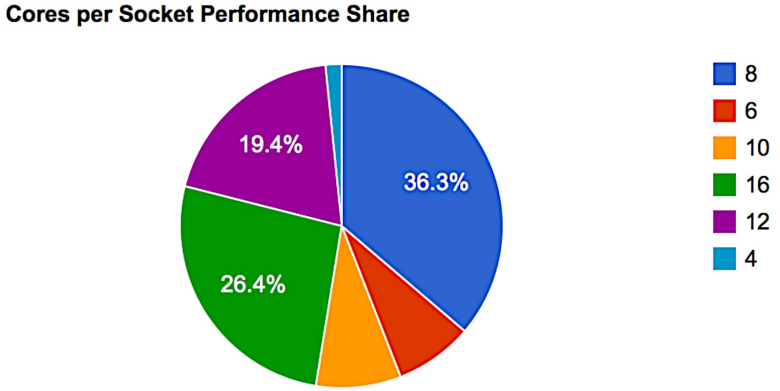
Trends in Top 500: June 2014 - multicore





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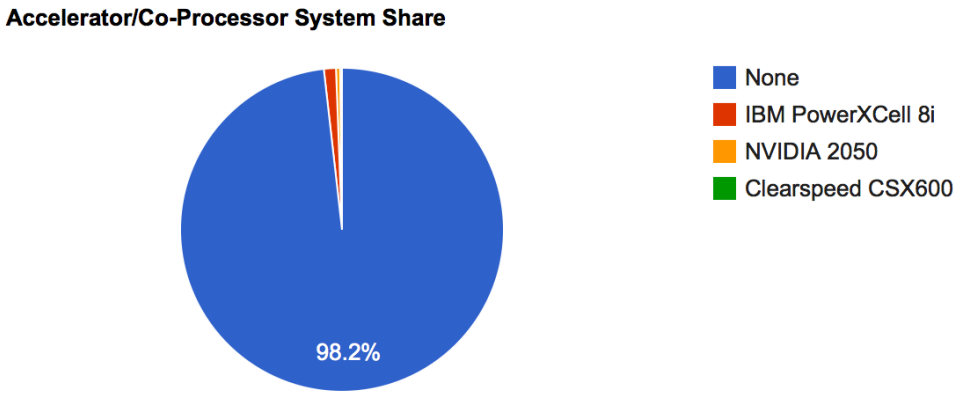
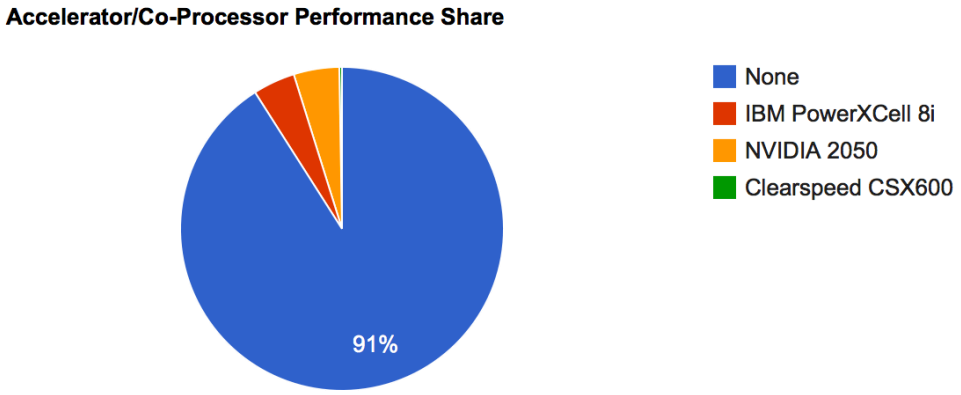
Trends in Top 500: June 2010 – accelerators





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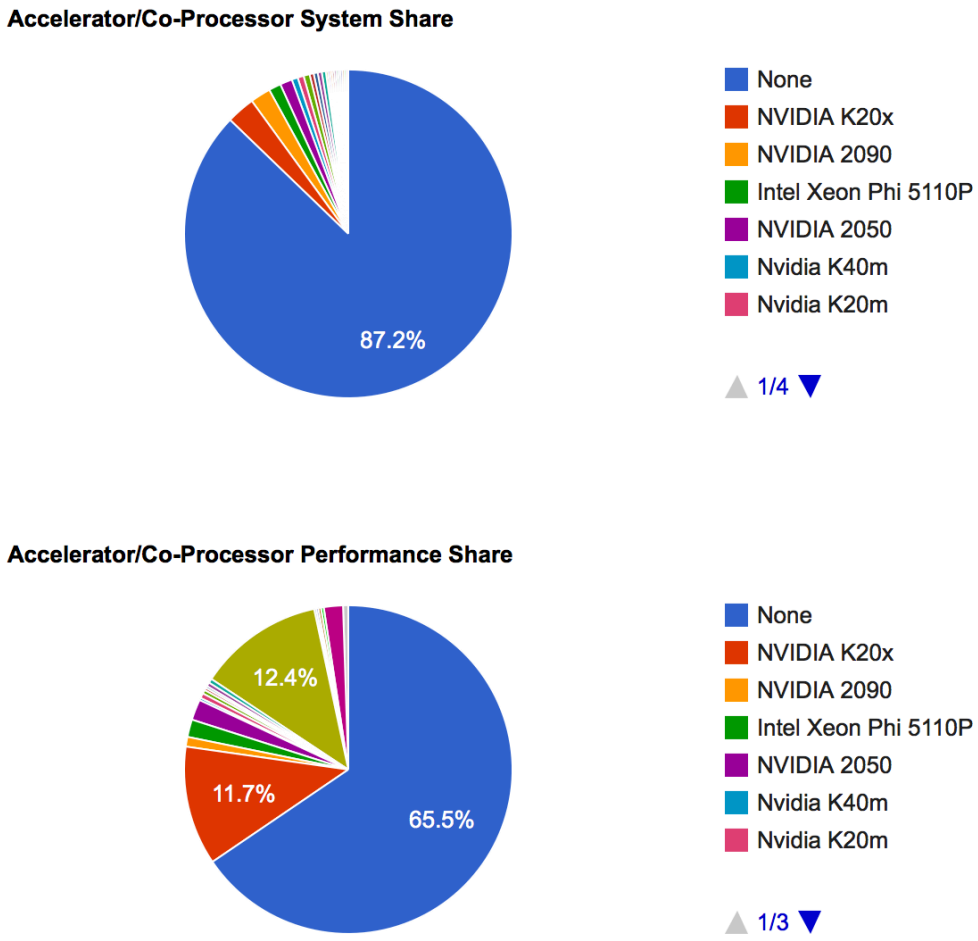
Trends in top 500: June 2014 - accelerators



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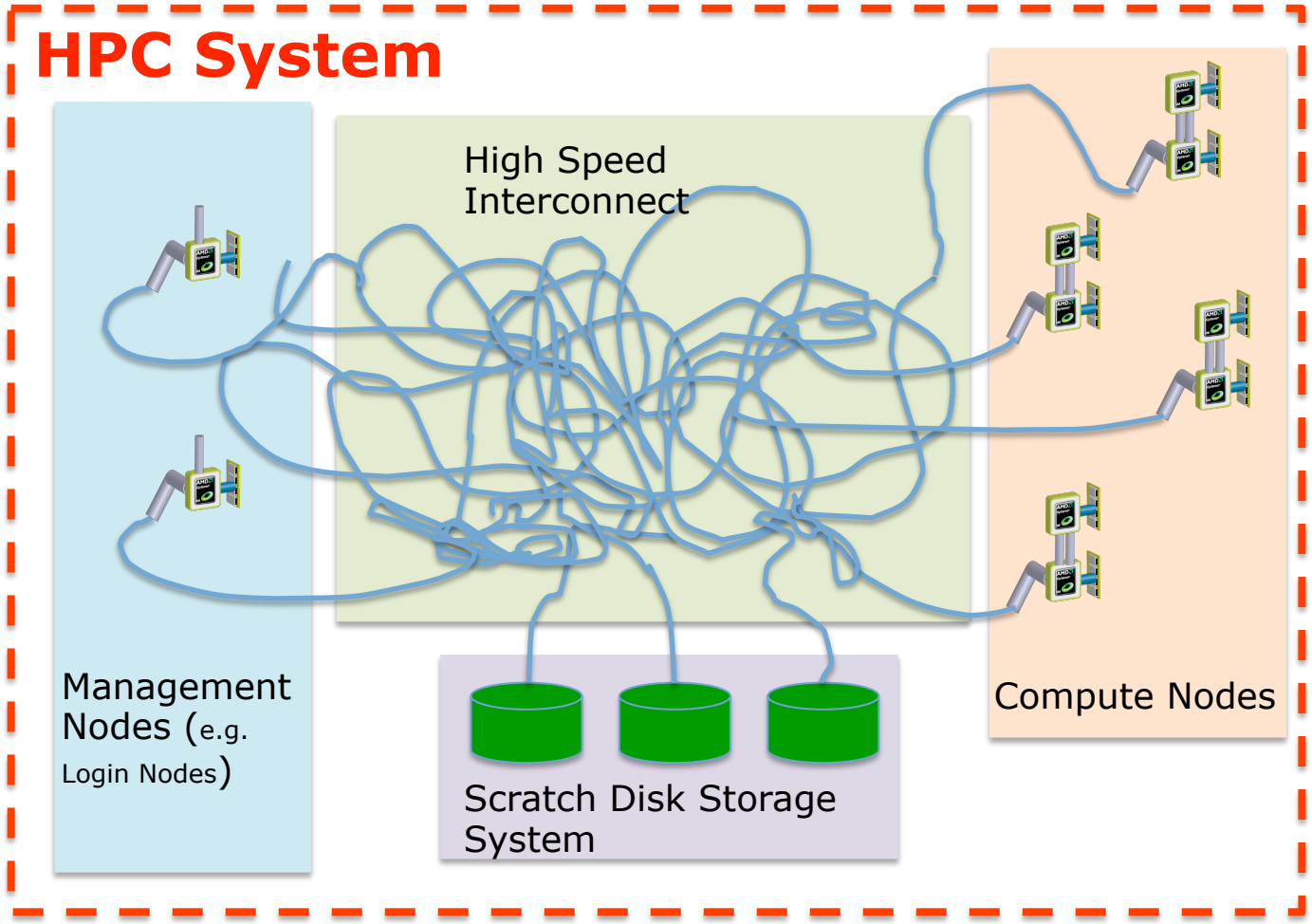
A generic HPC System at a glance…



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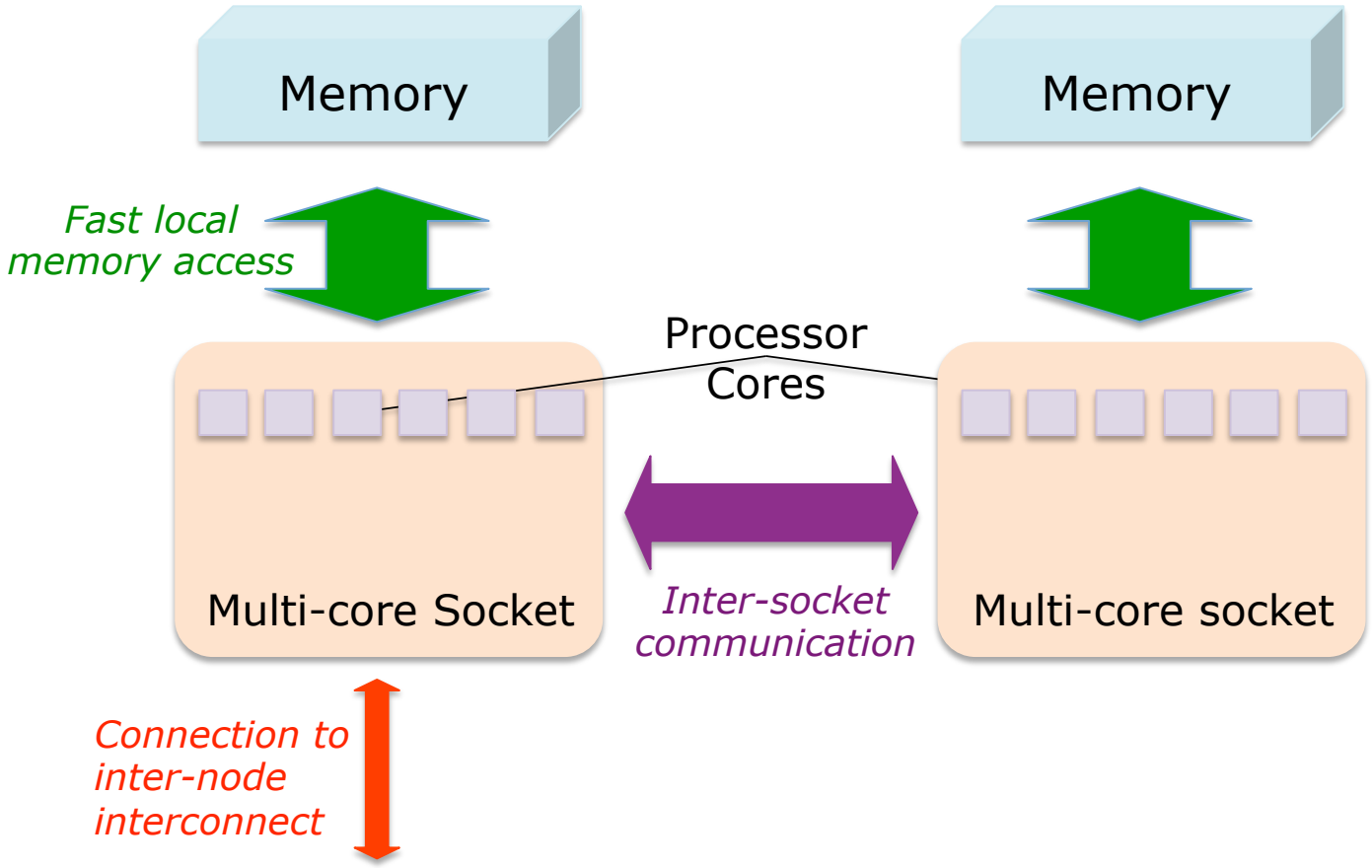
Zoom-in: "Pure" Multicore node



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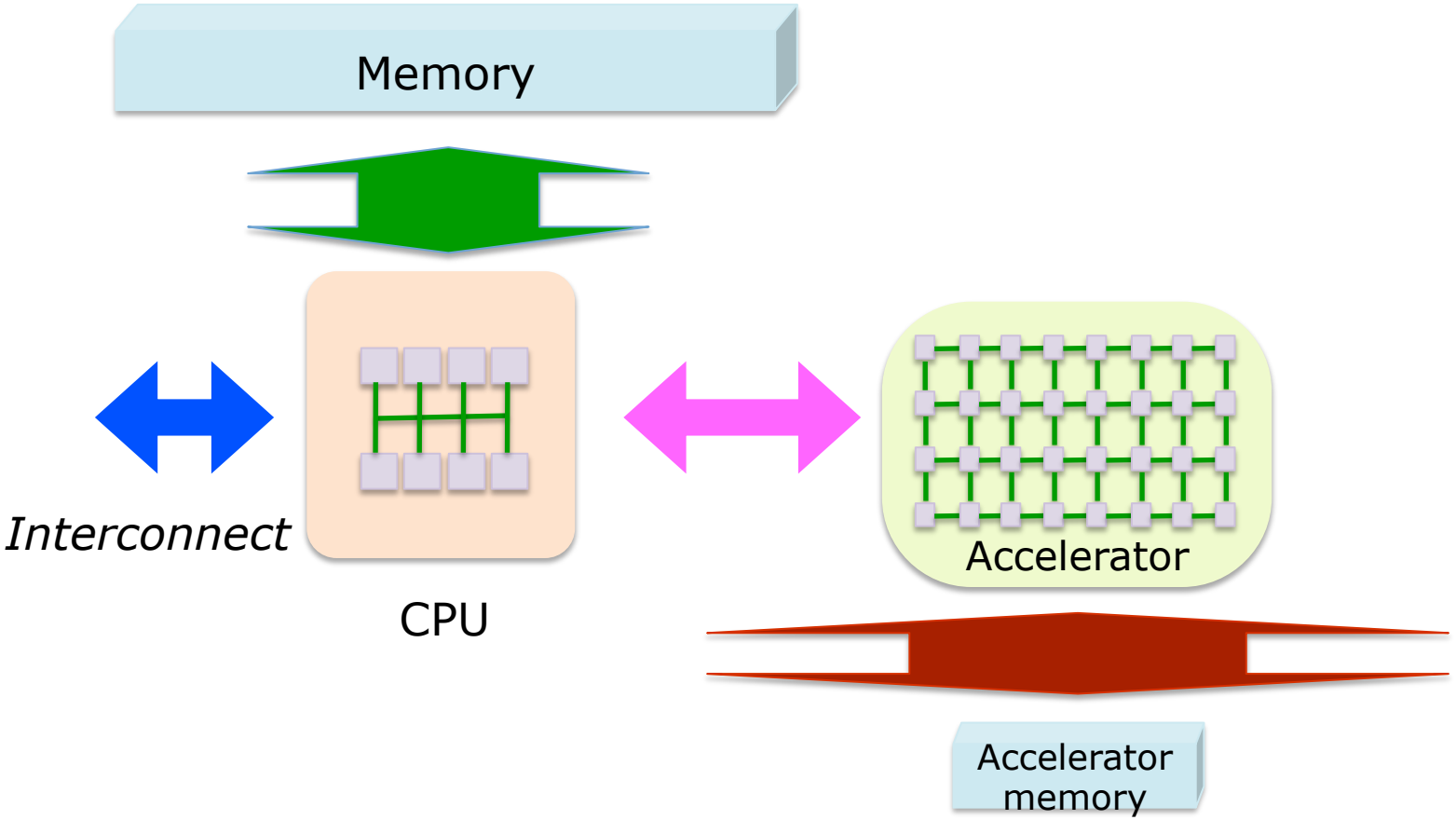
Zoom-in: hybrid node (with i.e GPU)



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How do we program these machines?

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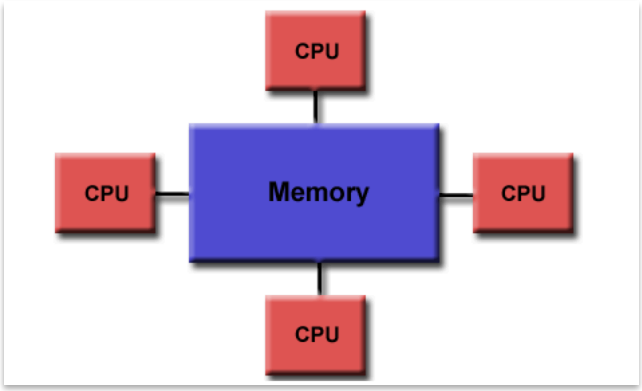
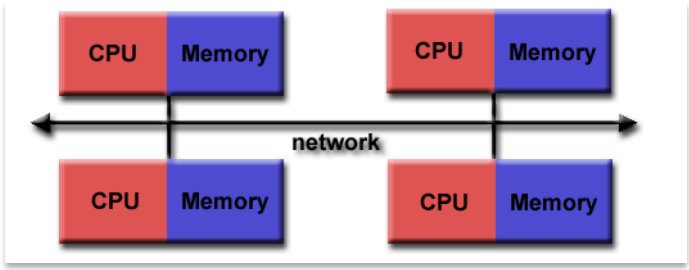
Programming for multicore architectures.



Shared Memory

OpenMP



Distributed Memory

MPI

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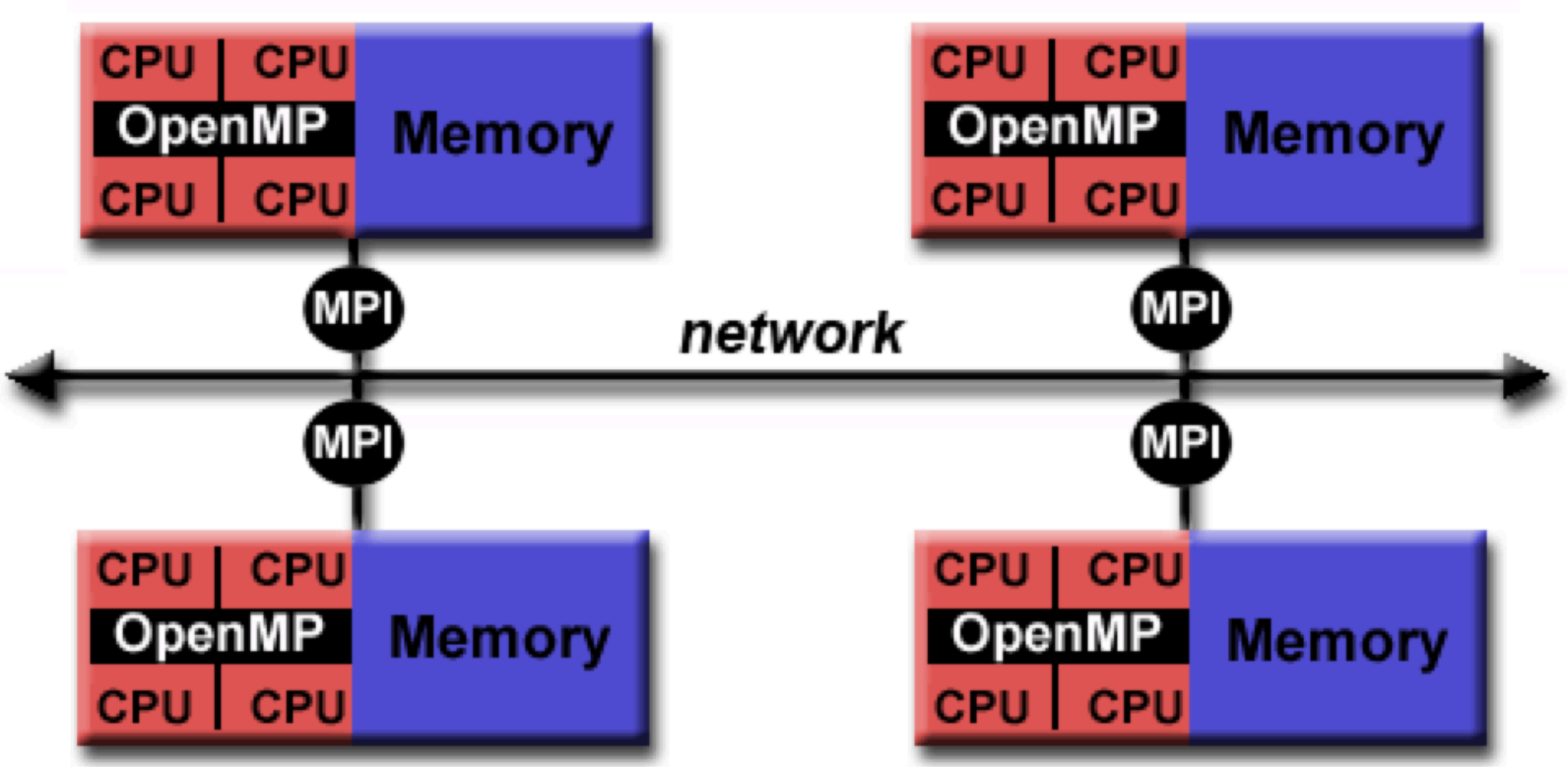
Hybrid MPI+OpenMP



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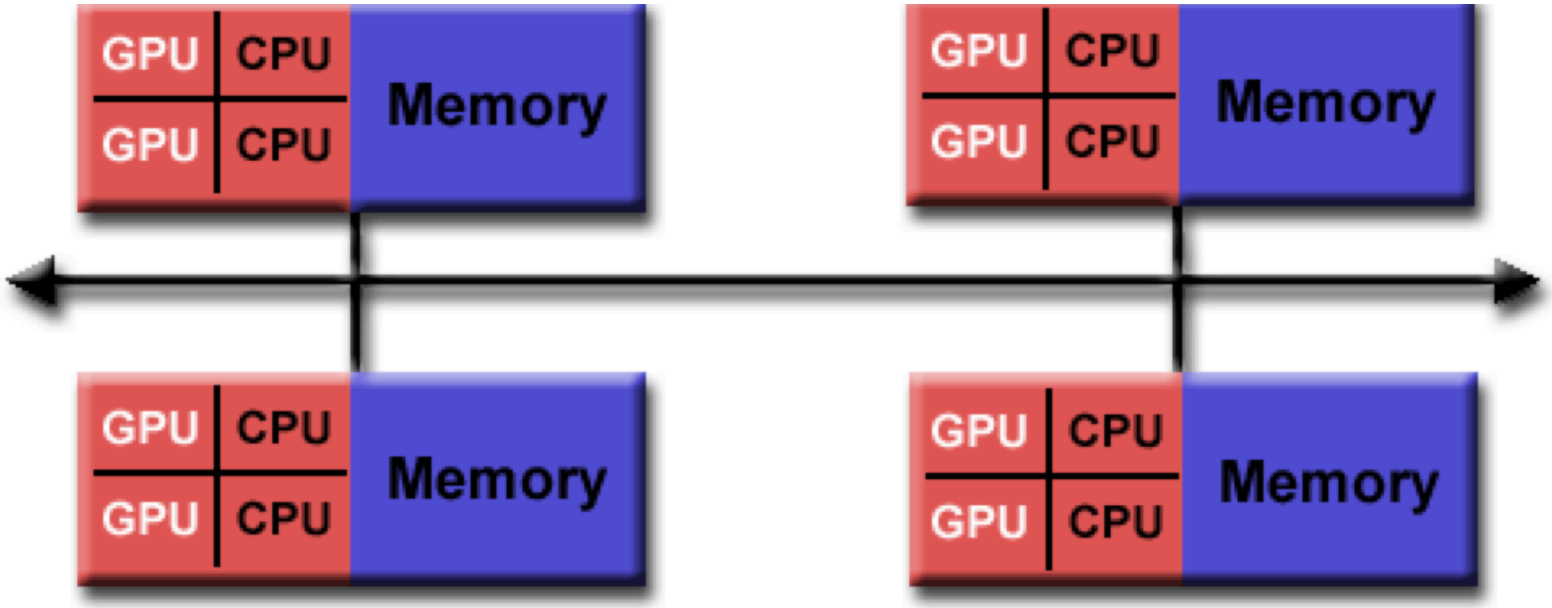
Programming GPUs

- **CUDA**
- **OpenACC**
- **OpenCL**



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Your task for this course:

Refactor a code in

OpenMP, MPI, CUDA and OpenCC !

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Thank you for your attention.

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