INFORMATIK

TECHNISCHE UNIVERSITÄT KAISERSLAUTERN

High Performance Computing

Introduction

Dr. habil. Josef Schüle

Organization

Lecturer	Dr. habil. Josef Schüle (josef.schuele@rhrk.uni-kl.de)
Time	Lecture: Mo. 13:45 – 15:15 Room 32-349 Exercise: Di.10:00 – 11:30 Room 34-118 except 19.04.16 – no exercise
Start	18.04.2016
Language	Deutsch/English
Premises	Basic knowledges in C/C++
Audience	Students in Computer Science, CS/Bachelor and Master
Exam	Oral examination
Points	5 CP.
Modul	INF-44-53-V-6 INF-44-53-U-6
Contact	Email

Exercises

Integral part of lecture
Participation is mandatory and very much recommended
Frequently used as examination questions
At least two exercises have to be handed in.

Exercises are possible on
- local PCs in room 34-118
- remote on HPC-Cluster Elwetritsch

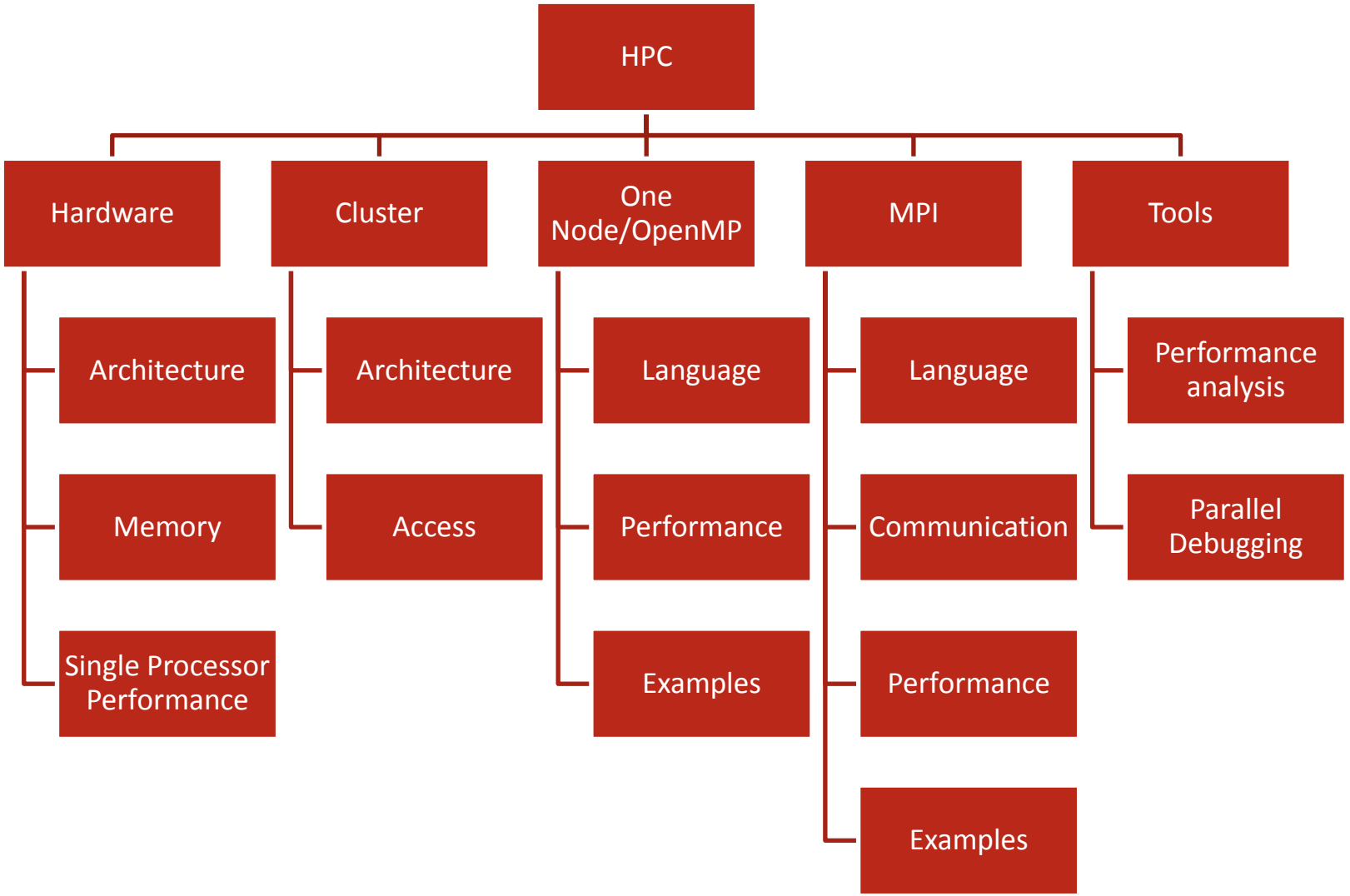
Please register (Email with matricle number and RHRK account) to get access to Elwetritsch!

Further information: https://elwe.rhrk.uni-kl.de

Procedure

- **Participation**
  - Slides are not elaborated for self study
  - Publication on http://www-user.rhrk.uni-kl.de/~schuele/HPC_Intro/
- **Active participation at exercises plus home work**
- **Emailing with discussion of results**
- **Oral examination**

Content


HPC
Hardware
Cluster
One Node/OpenMP
MPI
Tools
Architecture
Memory
Single Processor Performance
Architecture
Access
Language
Performance
Examples
Language
Communication
Performance
Examples
Performance analysis
Parallel Debugging

Related

High Performance Computing with GPGPUs in winter term

Chair Scientific Computing

Literature

- Josef Schüle, Paralleles Rechnen, Oldenbourg 2010.
- Josef Schüle, Parallel Computing, Shaker, 2000.
- W. Gropp, E. Lusk, A. Skjellum, Using MPI, MIT Press, 1997.
- B. Chapman, G. Jost, R. van der Pas, Using OpenMP, MIT Press, 2008.
- H. Bauke, S. Mertens, Cluster Computing, Springer, 2005.
- S. Hoffmann, R. Lienhart, OpenMP, Springer, 2008.
- K. Dowd, High Performance Computing, O'Reilly, 1993.
- D. A. Patterson, J.L. Hennessy, Computer Organization and Design, Morgen Kaufmann.
- P. S. Pacheco, An Introduction to Parallel Programming, MK 2011.

Thanks for your attention