

t.MPC - Multicore and parallel Computing

Person responsible for the course: Markus Thaler, tham

Credits: 4

Valid for: 2010/2011

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Learning objectives:

You know the most important, state of the art, parallel processor architectures (multi/many-core processors, GPU's, etc.) and are able to select a suitable processor / system for a given application.

You know the most important methods to parallelize algorithms and applications and are able to assess and apply them with respect to a given problem.

You are able to design, implement and test software and algorithms for parallel systems. You know the pitfalls when implementing software for parallel systems and know how to avoid them.

You are able to get fast and easily familiar with new problems concerning parallel processors and applications.

Course content:

- Terminology
- Parallel Hardware Systems (Multi/Many-Core Systems, GPU's, etc)
- Parallelization of algorithms and applications, design of parallel software components
- Implementation of parallel software components (instrumentation, testing, debugging)
- Trends

Previous knowledge:

knowledge in C or C++, Java, basic knowledge in processor architecture

Teaching method:

Type of lesson:	Number of lessons per week:
Lecture	14*2
Tutorial/Practicum	14*2
Group teaching	
Block instruction	
Seminar	

Assessment:

According to the table or as specified in writing by the lecture at the beginning of the semester!

Number	Type	Weighting
x	End of term exam	according to lecturer
x	Exam during the semester	according to lecturer
x	Further assessments	according to lecturer

Language of instruction:

german

Instruction material:

slide copies, papers

Books (excerpts)

C. & T. Hughes, Professional Multicore Programming, Wiley, 2008.

T. Rauber, G. Rünger, Multicore: Parallele Programmierung, Springer, 2008.

M. Herlihy, N. Shavit, The Art of Multiprocessor Programming, Elsevier, 2008.

A. Grama, ed. alt, Introduction to Parallel Computing, 2nd. ed. Pearson, 2003

Comments:

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