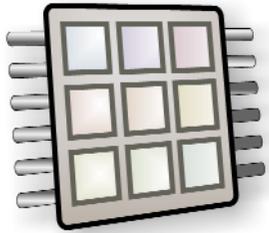


Multicore Software Is Needed

As applications of all sorts are required to run in parallel, parallel programming becomes a concern for more software developers than ever before.

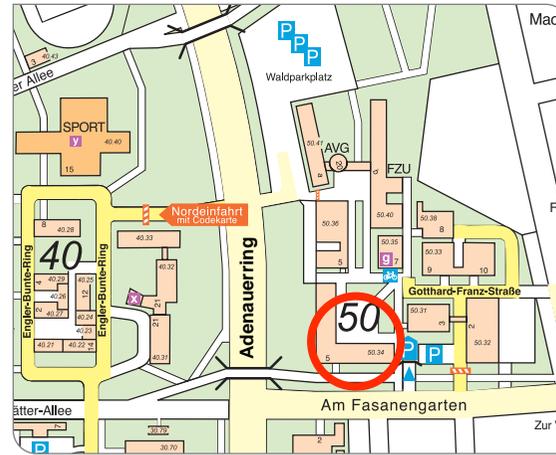
Our group tackles the upcoming problems and advances the state-of-the-art in Multicore Software Engineering. We study parallelism in novel application areas and focus on software engineering concepts, methods, and tools for the development of reliable parallel software of all kinds.



Our research interests include:

- Making multicore software development more accessible to developers
- Design patterns/frameworks/libraries for general-purpose multicore applications
- Automatic performance tuning (Auto-Tuning) for parallel applications
- Programming models and language extensions for multicore
- Testing and debugging of parallel programs
- Reengineering sequential programs for parallelism
- Tools and development environments for multicore software
- Empirical studies

How to Find Us



University of Karlsruhe campus map

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Multicore Software Engineering

Young Investigator Group

INSTITUTE FOR PROGRAM STRUCTURES AND
DATA ORGANIZATION (IPD)

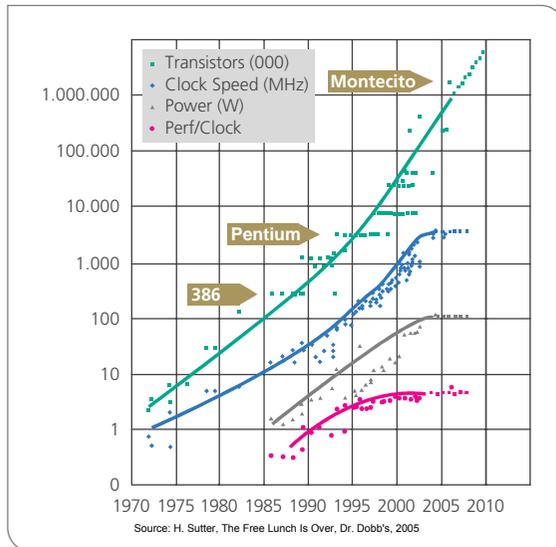


The Landscape of Computing is Changing

Microprocessor design is fundamentally changing: the traditional way of increasing performance by increasing clock frequencies is no longer technically feasible. Instead, all major manufacturers are moving their product lines to parallelism on a chip to keep up with the continuing demand for faster computers.

Multicore processors integrate several processors on a single chip and become standard hardware, available for everyone at low cost. Unfortunately, most of the current general-purpose software is not parallel and does not exploit the full hardware potential. Sequential programs use at most one core, no matter how many cores are available.

In the light of these developments, we aim to close the gap between hardware and software. Despite the existing body of knowledge in parallel scientific computing, fundamental software engineering principles have yet to be developed for programs that do not focus solely on numerics.



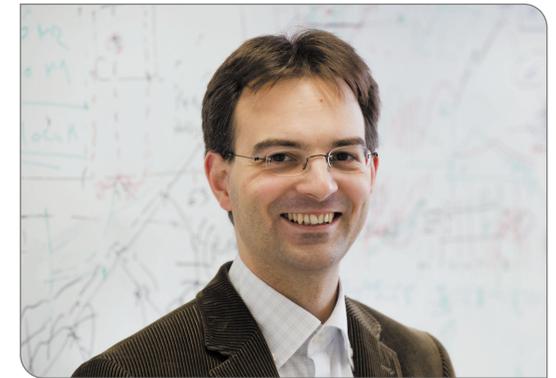
Building up a Community

We are actively involved in forming an international community that brings together scientists and practitioners to advance the field of Multicore Software Engineering.

In 2007, we founded the international working group Software Engineering for parallel Systems (SEPAS) as part of the German Computer Science Society (Gesellschaft für Informatik e.V.). SEPAS facilitates collaboration and exchange between researchers and practitioners. Membership is free and open to everyone. To join SEPAS, please visit

<http://www.multicore-systems.org/gi-ak-sepas>

Co-located with the ACM/IEEE International Conference on Software Engineering (ICSE), the world's largest software engineering conference, we initiated the "International Workshop on Multicore Software Engineering (IWMSE)" series. For details, please visit <http://www.multicore-systems.org/iwmse>



*Dr. Victor Pankratius
Head of Young Investigator Group*

"Multicore Software Engineering is business-critical. Today's pioneers will be tomorrow's winners."

Contact us to discuss opportunities for collaborations.