UNIVERSITÄT SALZBURG

Design-time Analysis for Energy Efficiency Tuning of HPC Applications

**Der Fachbereich Computerwissenschaften
der Paris-Lodron-Universität Salzburg**

lädt am

Donnerstag, 7. Dezember 2017 um 16:00 Uhr

im Hörsaal T02 des Fachbereichs Computerwissenschaften,
Jakob-Haringer-Straße 2,

zum
Gastvortrag
von

Prof. Dr. Michael Gerndt
Technische Universität München

ein.

Assoz. Prof. Dipl.-Ing. Dr. Rade Kutil
Host

Univ.-Prof. Dr. Marian Vajteršic
Host

Energy consumption is a major challenge for the development of Exascale HPC systems. Significant improvements in energy efficiency are required on all levels of the HPC stack to enable deployment of Exascale systems. The European Horizon 2020 project READEX is focusing on improving the energy efficiency of applications with dynamic execution characteristics. The dynamicity requires runtime tuning with low overhead. Therefore, the scenario-based tuning approach from embedded system is leveraged, consisting of design-time analysis and runtime tuning. Design-time analysis is performed by the Periscope Tuning Framework currently under development at TUM. It determines a tuning model that is then passed to runtime tuning during production runs of the application. Runtime tuning switches system configurations for runtime situations as prescribed by the tuning model. This presentation will introduce the concepts and results of the READEX energy efficiency tuning approach.

Zur Person Michael Gerndt:

Michael Gerndt received a Ph.D. in Computer Science in 1989 from the University of Bonn. He developed SUPERB the first automatic parallelizer for distributed memory parallel machines. For two years, in 1990 and 1991, he held a postdoc position at the University of Vienna and joined Research Centre Juelich in 1992 where he concentrated on program languages and implementation issues of shared virtual memory systems. This research led to his habilitation in 1998 at Technische Universität München (TUM). Since 2000 he is professor for architecture of parallel and distributed systems at TUM. His current research focuses on programming models and tools for scalable parallel architectures. He is leading the development of the Periscope Tuning Framework for automatic performance analysis and tuning of HPC application. Within the Transregional Collaborative Research Center InvasIC (TR 89) funded by the German Science Foundation he investigates programming models for elastic HPC applications. Michael Gerndt was the coordinator of the European FP7 project Autotune which ended successfully in 2015. He is a member of the steering committees of the ACM International Conference on Supercomputing (ICS) and of the advisory board of Euro-Par, as well as of several international workshops. He is the contact person of the Faculty of Informatics of TUM for international co-operations.