21st VI-HPS
Tuning Workshop at LRZ

On 18-22 April 2016 the Leibniz Supercomputing Centre hosted the 21st VI-HPS Tuning Workshop in a very fruitful cooperation with the Jülich Supercomputing Centre (JSC) and the VI-HPS consortium. **This series of tuning workshops gives an overview of the VI-HPS performance analysis and tuning tools suite, explains the functionality of individual tools and how to use them effectively, and offers hands-on experience and expert assistance using these tools on participants' own applications.**

The Virtual Institute High-Productivity Supercomputing (VI-HPS) combines the expertise of twelve partner institutions spread around the globe, each with a strong record of high-performance computing research. Its partners have long experience in the development and application of HPC programming tools and host well-known tool projects that are contributing leading-edge technology to this partnership. Most of these tools are open source and freely available to the HPC user communities.

The 5-day workshop attracted over 35 international participants. Talks were given by 15 lecturers from 9 VI-HPS member institution—a record in the long history of VI-HPS tuning workshops which was initiated in 2008.

The following 14 HPC tools were covered during the workshop:

- Score-P instrumentation and measurement
- Scalasca automated trace analysis
- Vampir interactive trace analysis
- Periscope/PTF automated performance analysis and optimisation
- Extra-P automated performance modeling
- Paraver/Extrae/Dimemas trace analysis and performance prediction
- [k]cachegrind cache utilisation analysis
- MAQAO performance analysis & optimisation
- MAP+PR profiling and performance reports
- mpiP lightweight MPI profiling
- Open|SpeedShop profiling and tracing toolset
- MUST runtime error detection for MPI
- ARCHER runtime error detection for OpenMP
- STAT stack trace analysis

The participants especially appreciated the opportunity to optimise their own code during many hands-on sessions with direct help by the instructors, who were in most cases also the developers of the tools. Hands-on sessions were done on the symmetric multiprocessing (SMP) system SGI UltraViolet at LRZ, which was exclusively reserved for the workshop. Also, the organisational efforts of the VI-HPS consortium were greatly acknowledged by the participants.

Fig. 1: Participants of the "21st VI-HPS Tuning Work-shop" hosted by LRZ in front of the Weihenstephan Brewery during the social event.

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References

http://www.vi-hps.org/

http://www.lrz.de/services/compute/courses/

http://www.training.prace-ri.eu/

A social event consisted of a guided tour of the Weihenstephan Brewery, the oldest still-operating brewery in the world (see figure 1), followed by a self-paid dinner at the brewery restaurant which encouraged intensive participant and instructor networking in a relaxed environment.

Slides of the workshop are available at:

http://www.vi-hps.org/training/tws/tw21.html

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