



SYMPOSIUM'16

AMERICA – EUROPE – ASIA



THE ASIAN SPEC SYMPOSIUM ON SERVER EFFICIENCY

The SPECpower Research Working Group

Mission Statement

- Foster interaction between industry and academia by contributing research that enhances and promotes methods and tools for energy efficiency evaluation.

Group Focus

- Power Metrics, Methodologies, and Workloads

Specific Goals

- Creation and enhancement of power measurement methodologies, with research focus
- Promotion of existing and modified SPEC tools through their use in research
- Creation of novel workloads for potential use in future SPEC products
- Conduct analysis of power-related methodologies, systems, and metrics
- Enable transfer of power-related research results between industry and academia

Industry – Research Collaboration Goals

- Utilize current industry challenges of OSG Power as inspiration to direct research
- Enhance OSG Power tools (such as Chauffeur WDK) according to needs of the research community

Topics of Interest

- **Measurement Methodology**
 - Deployment and measurement of advanced workloads
- **Workloads**
 - Create workloads for the evaluation of new device types (e.g., Accelerators, Networking)
 - Transfer new and popular workload types to industry standard benchmarks
- **Metrics**
 - Create and evaluate energy efficiency metrics
- **Methodology Verification**
 - Analyze existing measurement methodologies, workloads, and metrics

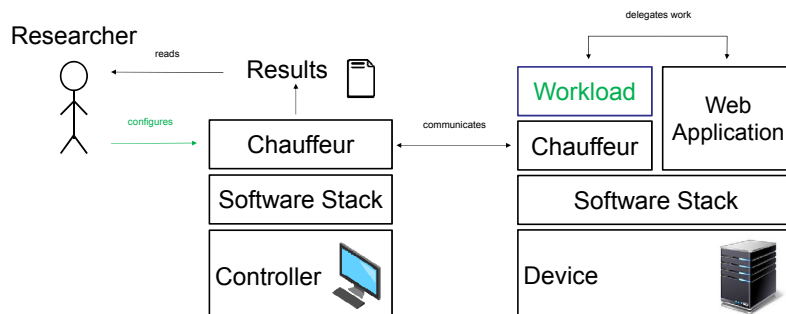
Enhancing Visibility: Selected Publications

K.-D. Lange, M. G. Tricker, J. A. Arnold, H. Block, and C. Koopmann. **The Implementation of the Server Efficiency Rating Tool.** In *Proceedings of the 3rd ACM/SPEC International Conference on Performance Engineering (ICPE'12)*, Boston, MA, April 2012.

J. von Kistowski, J. Beckett, K.-D. Lange, H. Block, J. A. Arnold, and S. Kounev. **Energy Efficiency of Hierarchical Server Load Distribution Strategies.** In *Proceedings of the IEEE 23rd International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (MASCOTS)*, Atlanta, GA, October 2015.

J. von Kistowski, H. Block, J. Beckett, C. Spradling, K.-D. Lange, and S. Kounev. **Variations in CPU Power Consumption.** In *Proceedings of the 7th ACM/SPEC International Conference on Performance Engineering (ICPE'16)*, Delft, the Netherlands, March 2016.

New Workload Example: Energy Efficiency of a Web Application with SPECpower ChauffeurWDK



Enables

- Testing of third-party Software
- Creation of new Benchmarking Workloads
- Training and Validation of Power Models

