



ExaCluster Laboratory Shaping the future of Cluster Computing



- Inspect, optimize and extend software stack and tools used on Petascale Clusters today
- Investigate the capabilities of Intel's Xeon Phi many-core processor
- Explore novel heterogeneous HPC architectures
- Agreement signed during ISC 2010
- 9 technical people (3 from each partner)

Software stack based resiliency for ExaCluster

Goal: Develop methods for failure recovery **Topics:**

- Re-analysis of monitoring data collected on JUROPA
- Adjust the existent monitoring functionality to JURECA
- Development of an combined hardware and software strategy
- Accomplish fault tolerance in DEEP-ER ´s offloading mechanism

Scalable MPI Software Stack

Goal: Improve scalability in ParaStation MPI

Topics:

- Improve pace and efficiency of application startup
- Port ParaStation MPI to the Xeon Phi platform
- Enable ParaStation MPI to support EXTOLL
- Extend ParaStation MPI towards heterogeneous offloading

Exa-Cluster Experimentation Platform

Goal: Explore basic technologies of Booster-based HPC architectures (Juropa) (Juropa)

- Explore alternative organization of heterogeneity
- Investigate innovative non-volatile memory technologies
- From Cluster-Booster towards Modular Supercomputers
- Coordinate the DEEP family of projects
- Lay the foundation of the JURECA Booster

Contact: n.eicker@fz-juelich.de | Website: www.fz-juelich.de/ias/jsc

JURECA is amongst the most efficient cluster in the TOP500



ParaStation

