JÜLICH
FORSCHUNGSZENTRUM

Cross-Sectional Team Application Optimization

Member of the Helmholtz Association
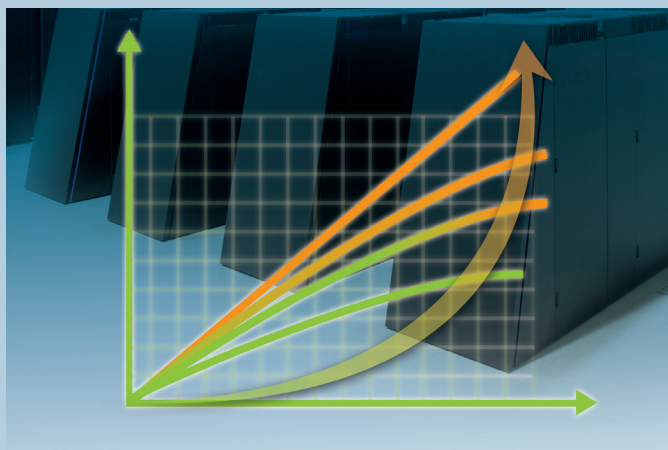
Mission and Objectives

- Optimization and petascaling of applications: performance, efficiency, and parallel I/O

- Provide users with knowledge and proper tool sets

- Interaction of Cross-Sectional Teams and Simulation Laboratories
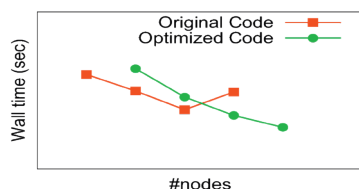
Know-How

- Parallelisation
  MPI, OpenMP, PGAS Languages
- Optimization Strategies
  Compiler, Memory, I/O
- Benchmarking
  Monitoring, evaluation and parameter-studies
  of software packages, new architectures

Collaborations with User Projects

Example: Parallelization with OpenMP:
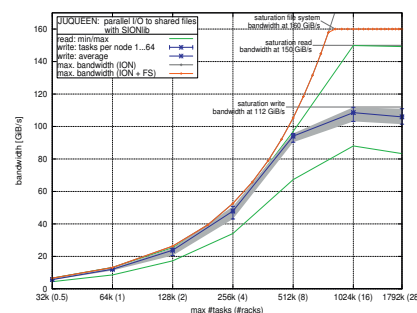

Collaborations with EU Projects

- PRACE - „Scaling Applications for Tier-0 and Tier-1
- EIC - Exascale Innovation Centre
- DEEP-ER - Dynamical Exascale Entry Platform - Extended Reach
- EOCOE - Energy oriented Centre of Excellence

Training:

- Courses on MPI, OpenMP, and Parallel I/O
- Collaboration in Extreme Scaling Workshops

Research and Development

- I/O Research: *SIONlib* –
  I/O Library for efficient parallel I/O of task-local data from massively parallel application

- Tool Development
  LLview - Batch system and job monitoring
  JuBE - Jülich benchmarking environment
- Benchmark Development
  e.g. Scalable MPI point-to-point - *Linktest*

Contact: cst-ao@fz-juelich.de | **Website:** www.fz-juelich.de/ias/jsc