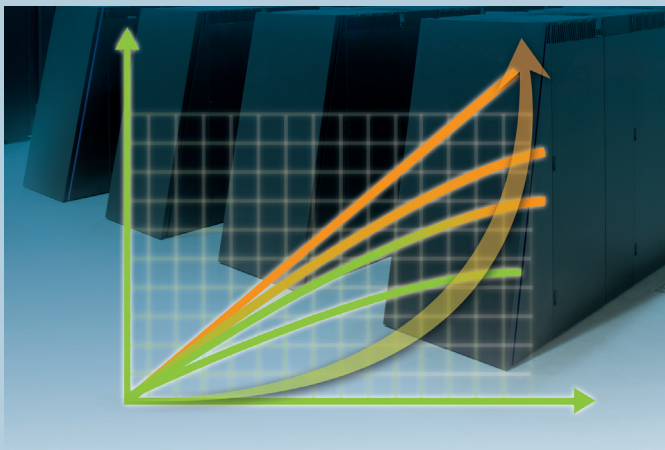


Cross-Sectional Team Application Optimization



Mission and Objectives

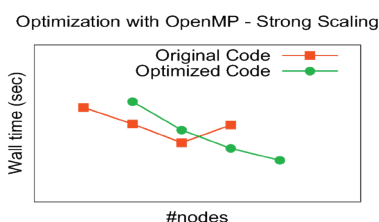
- Optimization and petascaling of applications: performance, efficiency, and parallel I/O
- Provide users with knowledge and proper tool sets
- Interaction of Cross-Sectional Teams and Simulation Laboratories

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 and Industry

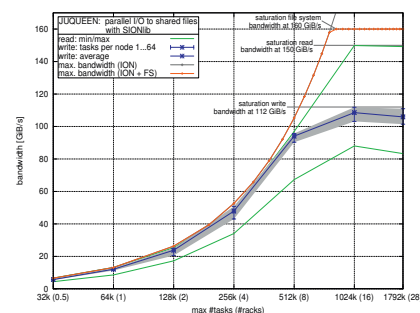
- PRACE - Scaling Applications for Tier-0 and Tier-1
- EIC - Exascale Innovation Centre
- DEEP-Projects - Dynamical Exascale Entry Platform
- EOCOE - Energy oriented Centre of Excellence
- BEAM-ME - HPC in Energy Systems Modelling

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*

