Student Assistant Project:
HSUper CPU/Thread Pinning Analysis

Description:

High Performance Computers such as HSUper are used to tackle parallelized problems using inter node communication utilizing the Message Passing Interface (MPI) and node communication utilizing OpenMP (Open Multi-Processing). Depending on the configuration of the hard- and software, different settings for the job submission might result in very different runtimes.

Hence, different settings on HSUper should be extensively analysed to be able to give recommendations for different scenarios.

Subject to this analysis should be CPU pinning (srun, mpirun) and thread pinning (OpenMP) as well as combinations of both.

Prerequisites:

Basic Linux and HPC (MPI, OpenMP) knowledge

Experiences using Slurm/HSUper/HPC benchmarks favorable

Contact: Chair for High Performance Computing

Hauke Preuß, hauke.preuss@hsu-hh.de

Prof. Dr. Philipp Neumann, philipp.neumann@hsu-hh.de

References:
Examples:

https://nrel.github.io/HPC/blog/2021-06-18-srun/

https://doc.zih.tu-dresden.de/jobs_and_resources/binding_and_distribution_of_tasks/