

## **Parallel Computing with the Wolfram Language on the TACC/Wrangler Supercomputer**

We performed interactive performance measurements for massively parallel computations and data transmission using Wolfram Mathematica on the Wrangler data analysis system of the Texas Advanced Computing Center (TACC), The University of Texas at Austin.

The native master/slave parallelism of Mathematica can be easily adapted to take advantage of a fast shared file system to achieve performance comparable to what symmetric multiprocessing would give.

We measured data rates for broadcast and scatter/gather operations for hundreds of concurrent processes, using the flash file system on Wrangler as transport medium. Additional tests were done with the /data shared file system and the ethernet connections.

Additional benchmarks measured the time it takes to launch and set up hundreds of Mathematica kernel processes.

Bio:

Roman Mäder holds a Ph.D. in Mathematics from ETH Zurich. He is one of the original developers of Mathematica, and was assistant professor of Computer Science at ETH Zurich.

Mäder provides consulting in computer-aided mathematics, and continues to develop the parallel computing subsystem of Mathematica.