The goal of BEAST (Bench-testing Environment for Automated Software Tuning) is to create a framework for exploring and optimizing the performance of computational kernels on hybrid processors that:

1. applies to a diverse range of computational kernels,
2. (semi)automatically generates better performing implementations on various hybrid processor architectures, and
3. increases developer insight into why given kernel/processor combinations have the performance profiles they do.

We call this form of optimization “bench-tuning” because it builds on the model used for traditional benchmarking by combining an abstract kernel specification and corresponding verification test with automated testing and data analysis tools to achieve this threefold goal.

**TOP500 PERFORMANCE SHARE OF ACCELERATORS**

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**RECENT PUBLICATIONS**

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IPDPS 2016 (submitted)

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Accelerating Collaborative Filtering Using Concepts from High Performance Computing
IEEE BigData 2015 (accepted)

J. Kurzak, H. Anzt, M. Gates, J. Dongarra
Implementation and Tuning of Batched Cholesky Factorization and Solve for NVIDIA GPUs
Transactions on Parallel and Distributed Systems
DOI: 10.1109/TPDS.2015.2481890

H. Anzt, B. Haugen, J. Kurzak, P. Luszczek, J. Dongarra
Experiences in Autotuning Matrix Multiplication for Energy Minimization on GPUs
Concurrency and Computation: Practice and Experience
DOI: 10.1002/cpe.3516

B. Haugen, J. Kurzak, J. Dongarra
Search Space Pruning Constraints Visualization
VISSOFT 2014
DOI: 10.1109/VISSOFT.2014.15