

Overview of Beagle:

The Beagle Cray system is one of the fastest supercomputers in the world that is devoted to life sciences. Beagle is already being used by several research teams at the University of Chicago and collaborating institutions. The Beagle



system is a 151 teraflop, Cray XE6 machine that supports advanced computation, simulation and data analysis for the biomedical research community. Beagle is made possible by a grant from the National Institutes of Health (NIH), National Center for Research Resources (NCRR) and through support from the Biological Sciences Division and the Computation Institute at the University of Chicago and Argonne National Laboratory.

Additional information on Beagle can be found at:
<http://beagle.ci.uchicago.edu>

Science Highlight:

Seizure Generation in a Patch of Neocortex (Wim van Drongelen, Dept of Pediatrics and the Computation Institute, University of Chicago)

Summary

Epilepsy, a disorder characterized by repeated seizures with no direct external cause, is the third most commonly diagnosed neurological disease. To overcome some of the limitations of in vitro and in vivo experiments, the van Drongelen team is investigating seizure generation by using a computational model of the neocortex. These models are too demanding to even run algorithm refinement and optimization tests on a department cluster. Networks of up to 400,000 cells have been tested on Beagle, helping the team tune models and rule out some parameter

Upcoming Training:

The Beagle team will be offering 'Getting Started on the Cray XE6 Beagle' on July 27th at 10:00 am. Additional information will be available once a location is finalized:
<http://beagle.ci.uchicago.edu/training-s-and-events/>
The training is meant for new and existing users of the Beagle system, and will cover topics such as:

- Beagle hardware overview, launching a parallel application
- Use of the batch environment
- Job monitoring, modules environment, use of compilers
- Introduction to application debuggers
- An overview of SWIFT

Beagle-Related Publications:

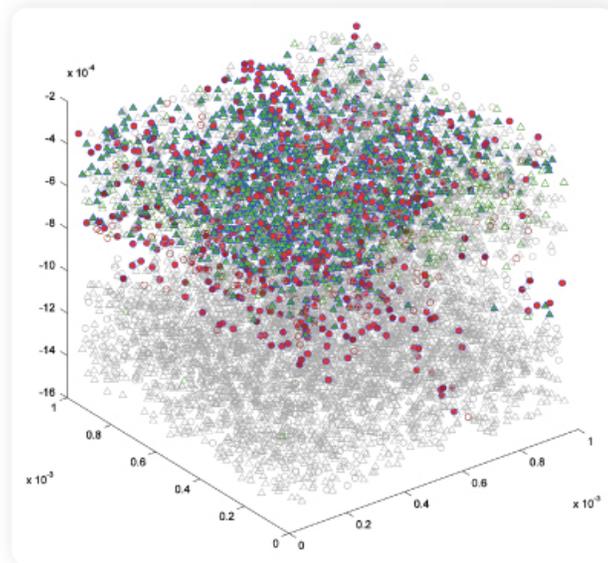
H. C. Lee, M. Hereld, S. Visser, L. Pesce, and W. van Drongelen, "Scaling Behavior Of Computational Model of Neocortex," (poster) 4th International Meeting on Epilepsy Research, Chicago, IL, May 19-21, 2011.

M. Parisien, T. R. Sosnick, T. Pan, "Systematic prediction and validation of RNA-protein interactome," (poster), RNA Society, Kyoto, June 12-19, 2011

Please report any additional or new publications to dsk@ci.uchicago.edu for inclusion in the next Beagle newsletter.

combinations and inefficient simulation schemes. Currently the algorithms are being refined based on those preliminary results to allow the team to perform simulations of 1,000,000 cells or more over hundreds of nodes, which are expected to be large enough to provide new insights when compared with small- and large-scale experimental measurements.

Additional details can be found at: <http://beagle.ci.uchicago.edu/news-and-events/beagle-newsletter/2011-issue-1-july>



Resources:

- **Beagle Wiki:** Get detailed usage information from the Beagle team
- **Beagle support:** Contact the Beagle experts for help
- **Globus Online for file transfer:** Get started moving files to/from Beagle using this fast, easy service
- **Other CI resources:** Learn about other computing resources available at the Computation Institute

Beagle Tips / Techniques:

Scheduling policy and access to Beagle

Summary

- Allocation and scheduling on Beagle is flexible and currently aims at keeping machine utilization high
- The Beagle team strives to allow as many users as possible on Beagle, however, priority will typically be given to NIH funded research projects and BSD scientists, based on decisions made by the Beagle Internal Advisory Committee
- Scheduling is based on a fair-share system, with four queues to meet the varying needs of our users. Details can be found at: <http://beagle.ci.uchicago.edu/news-and-events/beagle-newsletter/2011-issue-1-july>

Computation Institute
Searle Chemistry Laboratory
5735 South Ellis Avenue
Chicago, IL 60637

Help E-Mail: beagle-support@ci.uchicago.edu
Beagle@CI Website:
beagle.ci.uchicago.edu

