

NORTHEASTERN UNIVERSITY

Our Team

- Made up of undergraduate students from Northeastern's Computer Architecture Research Group (NUCAR)
- Research projects include face recognition on Android using OpenCL, RSA using OpenCL, hardware-accelerated finite difference time domain simulation, and memory characterization of embedded devices
- Majors include Electrical Engineering, Computer Engineering, and Computer Science, with minors ranging from cryptography to business administration
- Northeastern is located in Boston, MA, and is representing the Massachusetts Green High Performance Computing Center at SCC

Our System

- Homogeneous 3 node systems that employs kernel extensions for distributed symmetric multiprocessing (DSMP)
- Each node features 4 16-core AMD Opteron 6380 processors and 32 DIMM's each with 16 GB 1600 MHz ECC DDR3 for a total of 1.5TB of shared memory across the entire system
- Forgoes the use of a message-passing interface (MPI) in favor of a system specific implementation of OpenMP and Pthreads so each application can take advantage of all 192 cores and 1.5TB of shared memory.

Learn about our research projects at:

<http://www.northeastern.edu/groups/nucar>



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Our Strategy/Why We'll Win

- Each team member is assigned an app, and we had a designated "system administrator"
- Weekly meetings/mini-hackathons since June to prepare and learn the apps inside out
- Our system is in a star pattern, so memory accesses are equal between each node – no paging across them, and lots of RAM to share
- Learned our hardware inside out, so if we have a failure we will (hopefully) be able to fix it!



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