

# NSF TRACK 2D XHPC KEENELAND

AN NSF-FUNDED PARTNERSHIP TO ENABLE LARGE-SCALE COMPUTATIONAL SCIENCE ON HETEROGENEOUS ARCHITECTURES

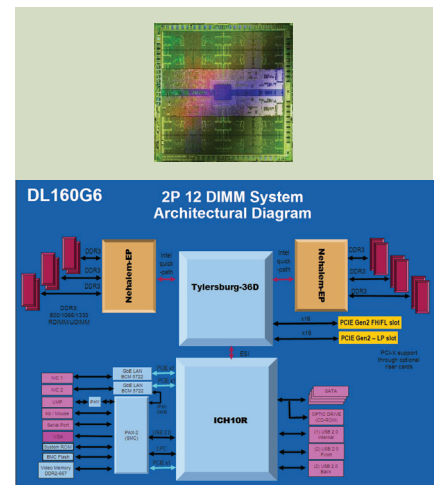
The overarching goal of the Keeneland project is the creation of two heterogeneous, HPC systems that will expand the range of research projects that scientists and engineers can tackle, including computational biology, combustion, materials science, and massive visual analytics. The platforms will be developed and deployed in two phases, with initial system delivery planned for deployment in early 2010. This system's innovations in performance and power will be achieved through heterogeneous processing based on widely-available NVIDIA graphics processing units (GPUs). The project brings together leading expertise and technology resources from Georgia Tech's College of Computing, Oak Ridge National Laboratory (ORNL), University of Tennessee, National Institute for Computational Sciences, HP and NVIDIA.

## OVERVIEW

- Track 2D System of Innovative Design
  - Initial delivery system – Spring 2010
  - Full scale system – Spring 2012
- Large scale GPU cluster
- Software tools, application development
- Operations, user support
- Education, Outreach, Training for scientists, students, industry

## KEENELAND INITIAL DELIVERY (ID) SYSTEM

- Hewlett Packard Nodes
  - Dual socket Intel 2.8 GHz Nehalem-EP
  - 24 GB Main memory per node
- NVIDIA Servers
  - Fermi GPUs
- InfiniBand 4x QDR w/ full bisection interconnect
- Traditional Linux software stack augmented with GPU compilers, software tools, libraries
- Size: ~250 CPUs + ~250 GPUs
- Delivery and acceptance in Spring 2010



## KEENELAND PARTNERS

					
Project management Acquisition and alternatives assessment System software and development tools Education, Outreach, Training	Operations and TG/XD Integration User and Application Support Operational Infrastructure Education, Outreach, Training	Applications Facilities Education, Outreach, Training	Scientific Libraries Education, Outreach, Training	Tesla Applications optimizations Training	HPC Host System System integration Training

FOR FURTHER INFORMATION

 <http://keeneland.gatech.edu/>

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