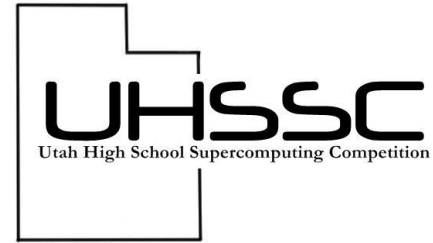Utah High School Supercomputing Competition, Inc.
PO Box 52-2156
Salt Lake City, UT 84152-2156
http://www.uhssc.org

October 30, 2011

Dear Prospective UHSSC Team Mentor /Member:

I would like to take this opportunity to invite you and your team to participate in the 2012 Utah High School Supercomputing Competition. This Competition is designed to allow Utah students to learn hands-on about the art of programming cluster computers. It is a result of a consortium of the Center for High Performance Computing (CHPC) at the University of Utah, the Salt Lake Valley Science and Engineering Fair (SLVSEF), the Utah Education Network (UEN) , and Utah High School Supercomputing Competition, Inc. (UHSSC), a Utah 501(c)3 nonprofit corporation.

UHSSC takes retired supercomputers, breaks them down into smaller units (one pictured at right) for student use, and then issues a series of three challenges to the individual teams. The details of these challenges can be seen at our website at http://www.uhssc.org .

There is no fee to enter this competition, but because of limited hardware, we will only be able to provide the small supercomputers to eight teams. Any team wishing to participate must fill in an application on our website. From these applications, the final eight teams will be selected. The application must be completed by December 15th, 2011 and the announcement of the participating teams will be made during the first week of January, 2012. These teams will then attend a kickoff at CHPC at the University of Utah in mid-January 2012, at which time they will learn how to configure their computers, and leave with enough knowledge to participate.

Two of the challenges in the competition will be done offline, and the results of these challenges will be brought to the final online challenge at the University of Utah on March 28th, 2012. The final challenge, called the "hotseat" competition, will then make use of the techniques learned in the two offline challenges to create a solution to a new, unknown problem on site. There will be cash awards for three of the eight teams who perform the best in the three individual competitions, as well as a Grand Prize for the team that is the overall winner. Details of these awards are on our website.

An Outline of the Competition System:

The competition system hardware consists of a frame with eight plug-in "blades", each of which has two AMD Opteron processors and 4 GB memory, resulting in a cluster computer with a total of 16 processors. Each blade will have CentOS 5.7 Linux installed. The programming language will be Python, a C-like language selected for ease of programming and to minimize memory management issues. Communications between the different "nodes" of the supercomputer will be achieved using "mpi4py", an inter-node messaging interface developed specifically for Python. See the following links: http://www.centos.org   http://www.python.org   http://mpi4py.scipy.org

The challenges will be designed for ease of programming. However, the art to programming cluster computers lay not in the programming per se, but in the efficient management of the tasks assigned to each node in the system. It is this change of perspective that we desire to impart to the students of Utah via this Competition.

Finally, what you have to do to participate:

1) If you're a team, find a good Mentor! Someone with a Linux background would be helpful (but not necessary), and most importantly someone who will be willing to spend time with the team.
2) Complete the application at http://www.uhssc.org by Dec 15th, 2011. The application must be completed in a single sitting so I suggest that you save your responses in an editor and then transfer them to the application via cut-and-paste.
3) Find out a little bit about CentOS (an open source version of Red Hat Linux) and about the Python programming language.
4) Teams will be announced in the first week of January. You will then attend the kickoff at the U's Center for High Performance Computing in mid-January.
5) The final Competition is on March 28th, with the awards ceremony at Highland High School in Salt Lake City on March 30th.

We hope to see you there! Email either Kasimir or Dan with any questions.

Sincerely,

Kasimir Gabert, President UHSSC, Inc. (kasimir@uhssc.org)
Dan McGuire, Treasurer UHSSC, Inc. (dmcguire@uhssc.org)
UHSSC, Inc. is a Utah 501(c)3 nonprofit corporation
 http://www.uhssc.org

Center for High Performance Computing   http://www.chpc.utah.edu
Salt Lake Valley Science and Engineering Fair   http://slvsef.org
Utah Education Network   http://www.uen.org