LSU

CENTER FOR COMPUTATION & TECHNOLOGY
Interdisciplinary | Innovative | Inventive

LOUISIANA STATE UNIVERSITY

Search

Second Annual High Performance Computing Week at LSU

News

Press Releases
Event Announcements
CCT Weekly
Grants and Funding
Student News
Archived News

Louisiana State University held its Second Annual High Performance Computing Week on June 10-15, 2013. Organized in collaboration between the LSU Information Technology Services (ITS), LSU Center for Computation & Technology (CCT), Louisiana Optical Network Initiative (LONI) and the Louisiana Alliance for Simulation-Guided Materials Applications (LA-SiGMA), the HPC Week fostered interaction and knowledge exchange among researchers from various institutions across Louisiana.

"LSU is marking the importance of high performance computing for the present and future success of Louisiana's scientific research. We seek to enable and enrich the supercomputing community through investments in infrastructure, training and events like HPC Week," said Brian Nichols, LSU chief information officer.

For the second year, the LONI Parallel Programming Workshop kicked off HPC Week. The three-day workshop was attended by 20 faculty, students and researchers from LSU, Louisiana Tech University, Tulane University and University of Louisiana at Lafayette representing a wide diversity of disciplines covering engineering, computer science, math, physics and astronomy. It introduced users to dividing work into several smaller parts, which can be solved simultaneously on different computer processors. This is critical for programs running on HPC supercomputers because they contain thousands of processors. The workshop provided the groundwork necessary for researchers to begin thinking about how to parallelize their software programs, or at least access the benefit of trying out parallel methods.

"In our research, my students and I do extensive C/C++ programming. We develop our own numerical solvers and visualizations systems for our problems, but up until now, we've almost never effectively used HPC resources. I was very excited to learn more about supercomputers at the workshop and will ask my students to utilize this facility in the future in many of our projects, where efficiency is a critical issue and remains as the bottleneck," said Xin Li, assistant professor in LSU's School of Electrical Engineering and Computer Science and a faculty member at LSU CCT.

The high point of HPC week was the Second Annual High Performance Computing User Symposium on June 12-13. It consisted of a series of invited talks and a poster session discussing research using HPC systems. Scientists from various institutions across Louisiana, including LSU, Southern University, Tulane University, Louisiana Tech University, Southeastern University and Xavier University, attended the symposium in the LSU Energy, Coast & Environmental Building Rotunda Lobby.

The poster session at the symposium turned out to be an excellent recruiting tool to educate young students to the diversity of scientific research and usefulness of HPC. Students from the Louisiana School of Math, Science and the Arts in Natchitoches, LA. were thoroughly impressed with the scope of research being carried out using supercomputers.

"Being unfamiliar with the world of HPC, I was surprised to see all of the interdisciplinary work at the poster session. While my background in research is primarily in biology and chemistry, I can definitely see the value of HPC in other areas," said student Kripa Upadhyay.

HPC Week culminated with a two-day workshop on Scientific Visualization with VisIt, Mathematica, and ImageJ on June 14-15. Twenty-two participants, including high school and university students from across Louisiana, as well as postdocs and faculty, learned visualization concepts and movie making in a hands-on environment. Large three-dimensional, time-sequence data were visualized by all participants simultaneously with interactive, multi-processor software running on LSU's supercomputer SuperMike-II. Participants left with usable VisIt-python scripts.

"We would like to see more visualization-related events like this one, in a similar format," said Kresimir Rupnik, chemistry instructor at LSU who participated in the workshop. "One important aspect of this event was that we were able to go through all steps of discussed visualization procedures and to complete all assignments. It was also possible to develop methods of interest to individual participants."

HPC Week 2013 was a great success. In addition to the four organizers, the Board of Regents, State of Louisiana and Xavier University supported the event. If everything goes as planned, next year, LSU will hold the Third Annual HPC Week in its effort to foster collaboration between researchers in Louisiana.

Publish Date:
06-21-2013