Dec. 19 – Dec. 25

LSU CCT Scientist Identifies Chess Benchmark Parameters for DARPA's UHPC Project

Steven Brandt, a computational scientist in the LSU Center for Computation & Technology, delivered the first specifications of the "chess benchmark" to be used in the Defense Advanced Research Projects Agency's (DARPA) Ubiquitous High Performance Computing (UHPC) program.

The UHPC Program is DARPA's most recent and aggressive research initiative in high performance computing, to create a revolutionary new generation of computing systems that overcomes the current limitations of power consumption and programming. The UHPC objective is to deliver a single rack capable of 1 Petaflops within a power envelope of 57 Kwatts including cooling.

LSU is participating in the "TA2" project led by the Georgia Tech Research Institute (GTRI) for the development of applications, benchmarks, and metrics in support of DARPA evaluations of four TA1 team system designs.

The chess benchmark serves as an exemplar of graph-based decision problems, designed to stress candidate UHPC machines in atypical and important ways. In particular, an efficient chess program is a dynamic graph-based algorithm that must be able to distribute or redistribute large amounts of parallel work, synchronize and communicate state information across the machine, and selectively abort entire groups of running calculations.

"These capabilities are of use to a number of mission-critical Department of Defense applications related to search or tactical analysis," said Thomas Sterling, LSU CCT and Computer Science professor.

Work on this project is being carried out by the LSU Center for Computation & Technology's ParalleX Group led by Professor Thomas Sterling and includes Dr. Steven Brandt, Chirag Dekate, and Phillip LeBlanc. For more information on the LSU CCT ParalleX group projects, visit http://px.cct.lsu.edu

LSU CCT Research Group Develops Next Generation Cyberinfrastructure Environment

The LSU Advanced Networking Lab (LANET) has developed a new cyberinfrastructure environment to bridge the gap between physical networks and large-scale scientific discovery. This new-age system called "CRON" (Cyberinfrastructure of Reconfigurable Optical Networking) can provide multiple virtual networking testbeds consisting of routers, delay links, and high-end workstations operating up to 10Gbps bandwidth.

"CRON will give application developers and networking researchers the ability to use virtual high-speed networks and computing environments without much technical knowledge," said Seung-Jong Park, associate professor of LSU's Department of Computer Science and the Center for Computation & Technology. "The system also enables large-scale scientific experiments to share CRON without mutual interference," said Park.

LSU's state-of-the-art computer data network, connecting to the Louisiana Optical Network Initiative (LONI), and national cyber-backbones – like Internet2, National Lambda Rail (NLR) – provides high-speed connectivity to the research communities. This allows them to handle very large amounts of data critical to a variety of disciplines. In the past several years, LSU's Network 2010 initiative invested in upgrading the core campus network, creating a research-enabling network infrastructure to at a level of capability available only at the most elite research labs and institutions in the world. CRON provides integrated and automated access to a wide range of high speed networking configurations, such as NLR, Internet2, and LONI. CRON can also allow users to dynamically reconfigure computing resources, operating systems, middleware and applications based on their specific needs. Because of the automated and reconfigurable characteristics, all types of experiments over CRON will be repeatable and controllable.

"With the CRON project, LSU researchers will be able to extend the benefits of its very high-speed research connectivity deep into their research by dynamically accessing different high speed networks and computing resources depending on their demands," said Joel Tohline, the director of the Center for Computation & Technology and professor of LSU's Department of Physics & Astronomy. "A large number of LSU researchers can take advantage of those virtually created high speed networking and computing environments and use the tools developed by CRON to advance science discovery."

The LANET group, led by LSU Associate Professor Seung-Jong Park, focuses their research activities on evaluation and development of networking protocols and designing simulators for heterogeneous large-scale networks consisting of wireless networks and high-speed optical networks. The National Science Foundation (NSF) provided funding for the CRON project.

For more information about CRON or other research from the LANET group, visit: http://cron.cct.lsu.edu/.

Pats on the Back:

- Congratulations to Abhishek Anand, who was one of eight graduates to earn the LSU Distinguished Communicator Award at LSU's commencement on Dec. 17. Abhishek worked as an undergraduate student at CCT under Thomas Sterling in the ParalleX Group.

CCT in the News:
The digital age
Source: The Advocate

Joel Tohline Named New Director of LSU Center for Computation & Technology
Source: LSU University Relations

LSU Center for Computation & Technology Appoints New Director
Source: HPCwire

LSU Scientist Identifies Chess Benchmark Parameters for DARPA UHPC Project
Source: HPCwire

LSU CCT Research Group Develops Next Generation Cyberinfrastructure Environment
Source: LSU University Relations

New Media & Technology Programs for Film Festivals - Part 1
Source: Examinor.com

Eight Graduates Earn LSU's Distinguished Communicator Award
Source: LSU University Relations

CCT Welcomes:
Leigh Townsend will be joining the LA-SiGMA grant project as Outreach Coordinator at the first of the year.

Please Note:

- The University will be closed from Wednesday, December 23, 2010 and will re-open on Monday, January 3, 2011. If you plan to take off any *additional* personal time before or after the holidays, please remember to report your leave time by filling out a leave slip form. Your supervisor must provide their approval by signing the form. All forms should be sent to HR Coordinator, Laurie Rea, once approved by your supervisor. Please contact, Laurie Rea (lrea@cct.lsu.edu) with any questions.

- The newly released 2010 Components can be found at: http://www.cct.lsu.edu/home

- This summer, CCT will host its second Research Experience for Undergraduates

(REU), a nine-week program that gives students an opportunity to join interdisciplinary research groups and use the advanced cyberinfrastructure available on campus to work collaboratively on computational science projects. Each participating student will receive a stipend of $4,500, free housing in University dormitories, and up to $500 in travel expenses. Interested undergraduate students from any academic discipline are welcome to apply. Applications are due February 28, 2011, and students will be notified of whether they have been accepted by March 31. For more information or to see details on how to apply, please visit http://reu.cct.lsu.edu/.

- **SCIENTIFIC COMPUTING AROUND LOUISIANA (SCALA 2011) January 28-29, 2011 Tulane University, New Orleans**
    - Tulane University's Center for Computational Science and the LSU Center for Computation and Technology (CCT) will co-sponsor a meeting to highlight cutting-edge topics in scientific computing, showcase the research at Louisiana institutions and promote collaborations across the state of Louisiana.This meeting is open to any faculty, post-doctoral researcher or student from any college in and around Louisiana. The meeting will start Friday at 1:00 p.m. and run through approximately 5 p.m. Saturday. Registration is FREE, but required. Submission deadline is January 5, 2011 (early submissions encouraged). Register here. For more information, please visit: **http://tulane.edu/sse/ccs/news/scala-2011.cfm**

- Prior approval is required for Special Meal Requests. Employees who make meal purchases without prior approvals may find that they must cover the cost of any monies spent for an unapproved event out of pocket, especially now that state funds are under a spending freeze. Please contact Susie Poskonka (susie@cct.lsu.edu) prior to any special meal with visitor(s) to file the appropriate request for approval. Prior approval could take up to one week, so please plan accordingly.

- LSU now has an iPhone app that provides news, video, campus maps, athletics updates, and more. This app is a free download from the App Store or at http://lsumobileapps.lsu.edu. The technology coordinators who created this app are adding features, and the app should be available to Blackberry mobile users soon. Please send suggestions for content you would like to see through the LSU app to lsumobile@lsu.edu.

- Please remember to send your news concerning grants, awards, conferences, or other pertinent information to PR intern Samantha Navarra at snavarra@cct.lsu.edu.

- Follow CCT with social media to access photos and see news, events or updated information. These pages are public; you do not need an account to view the information.
    - Facebook group : LSU Center for Computation & Technology
    - Twitter : LSUCCT
    - YouTube channel : LSUCCT

Upcoming Grant Deadlines:

Note: Please check the CCT deadline Web site, since it is updated daily.

Cyberlearning: Transforming Education
January 17 2011 10:00 am
At Most $ 2,500,000.00 available

Cyber-Enabled Discovery and Innovation (CDI)
January 19 2011 10:00 am
A Portion Of $ 36,000,000.00 available

*A message from James L. Bates, Executive Director, Office of Sponsored Programs:

"Due to upcoming major deadlines, the Office of Sponsored Programs (OSP) is expecting a very large volume of proposals during the months of October, November and December. Please encourage your faculty and staff to route proposals early so we can meet all deadlines and avoid bottlenecks. Internal deadlines have been established for the Board of Regents proposals:
http://appl003.lsu.edu/osp/osp.nsf/$Content/Board+of+Regents+Deadlines.
For all other proposals during this period, we ask PIs to provide us with additional lead time beyond our normal 3 business day deadline to review and process proposals. Thank you for your cooperation."