News

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

CCT Weekly July 22- July 28, 2012

HPX Update: V0.9.0 released

The LSU Center for Computation & Technology's (CCT) STE||AR Group is proud to announce the fourth formal release of High Performance ParalleX (HPX) (V0.9.0). HPX is the first freely available, open source, feature-complete, modular, and performance-oriented representation of the ParalleX execution model targeted at conventional architectures and, currently, Linux-based systems, such as SMP nodes and conventional clusters.

With this release we were able to add a significant amount of documentation, to converge our API with the Standard C++11 library, to improve overall performance, to fix quite a number of bugs, and to clean up our code base.

The most important design objective of HPX is to create a state-of-the-art parallel runtime system augmenting the Standard C++ runtime environment and providing a solid foundation for extreme-scale applications while remaining as efficient, as portable, and as modular as possible.

The next step will be to move the source code repository to github (http://github.com/STEllAR-GROUP/hpx). This step is a direct consequence of our commitment to release HPX as a true open source library (HPX is licensed under the very liberal Boost license: http://www.boost.org/LICENSE_1_0.txt). Additionally, this move is aligned with the goal to make HPX as widely available as possible and to engage the whole community. We will announce separately when this move has been completed.

The next release, scheduled for October 2012, will be special as it marks V1.0.

For more information about HPX (and ParalleX in general), as well as downloads and release notes, please visit our website at http://stellar.cct.lsu.edu.

Pats on the Back:

- Michal Brylinski received an award from the Louisiana Board of Regents titled, ""Network Biology Approaches to Systems-level Functional Annotation of Proteins and Proteomes." The award is for $103,805 for 3 years.
- Michael Brylinski would like to acknowledge the hardware donation Tesla C2075 from NVIDIA for proposal "Accelerating the pace of protein functional annotation with graphics processors."
- On July 9th, Dr. Kelin Hu, a senior Postdoc from Jim Chen's group, gave a tutorial on Delft3D to a group of 19 coastal modelers from Louisiana State University, the University of Louisiana at Lafayette, the University of New Orleans, the U.S. Geological Survey (USGS), and T. Baker Smith, LLC.

  Delft3D, developed by Deltares (formerly Delft Hydraulics), is a flexible integrated modelling suite, which simulates two-dimensional (in either the horizontal or a vertical plane) and three-dimensional flow, sediment transport and morphology, waves, water quality and ecology and is capable of handling the interactions between these processes. After Delft3D-FLOW was open-sourced in 2011, more and more researchers started using Delft3D. This training provided a shortcut to learn Delft3D.

  Dr. Hu has been using Delft3d since he visited the Delft University of Technology and Delft Hydraulics in 2005. He applied Delft3D to the Yangtze estuary in China to simulate hydrodynamics, sediment transport and morphological evolution. Recently, his research focuses on storm surge and sediment transport in the Breton Sound, LA, by using Delft3D. Basic functions of Delft3D-FLOW, the key module of Delft3D suite, were introduced in the training, including grid generation, data interpolation, nesting, domain decomposition and coupling with waves.

  The tutorial workshop, held at CCT, with modeling teams from the USGS National Wetlands Research Center extends the NSF-funded NG-CHC efforts in linking coastal restoration with reduction of storm surge risks. Sharing of modeling capabilities with USGS will promote join collaboration of evaluating ecosystem services of wetland restoration projects by utilizing similar modeling platforms. In addition, the workshop also fosters the collaboration among LSU, UNO, ULL and industry partners, such as T. Baker Smith, a coastal engineering consulting firm in Louisiana. The tutorial workshop has been highlighted in the NG-CHC annual report for NSF.

CCT in the News:

NSF Announces New INSPIRE Awards

Source: National Science Foundation

Please Note:

- The LSU Center for Computation & Technology will host the **LSU iOS App Boot Camp** for its second year, **July 30-August 10, 2012,** (10 day camp; not including weekends), on the LSU Campus. **NOW OPEN TO EVERYONE!** This educational experience will offer LSU undergraduate students the opportunity to gain knowledge while enhancing their entrepreneurial spirit. Participants will work in groups to create their own functional iOS app and have it loaded on their personal device by end of camp. Post-camp programs to expand and hone new skills will also be available. Registration and more information can be found at: https://www.cct.lsu.edu/ios-abc
- The Summer Undergraduate Research Forum (SURF), will be held Friday**, July 27, 2012 from 1:00pm – 4:00pm** in LSU's Union Cotillion Ballroom. The 19th Annual Summer Undergraduate Research Forum (SURF) where undergraduate students from across the LSU campus present their summer research projects. SURF includes students from research programs such as **CCT REU**, HHMI, **LA-SiGMA**, LBRN, NOYCE, Office of Strategic Initiatives REU (OSI REU), Physics & Astronomy REU, and SURE as well as individual student researchers in various laboratories across LSU. The students will be on hand to discuss their work, which ranges widely across a variety of scientific fields - chemistry, biology, chemical engineering, math, computer science, biochemistry and physics will be represented. Students come from LSU, colleges from all across the state, and universities all across the country. Plan on attending and support our summer research students!
- The Virtual School of Computational Science and Engineering (VSCSE) is excited to announce Summer School courses for 2012. The VSCSE provides courses and learning resources to help computational science students use emerging petascale computing

resources to address real domain science problems. The summer courses for 2012 are:

- **Science Cloud Summer School (July 30 - August 3, 2012)--**located at LSU CCT**
- **Proven Algorithmic Techniques for Many-core Processors (August 13 - 17, 2012)**

  These courses will be delivered to a number of sites nationwide using high definition video conferencing technologies, allowing students to travel to a number of convenient locations where they will be able to work with a cohort of fellow computational scientists, have access to local experts and interact virtually with course instructors. Registration fees for these courses are $100* and help the host sites offset their hospitality and facility costs.

  Please visit http://www.vscse.org/summerschool/2012/ for more information and the full site list or http://hub.vscse.org to register today!

- Student Volunteer applications opened April 1, 2012 and will be available at the SC12 Submissions site: http://submissions.supercomputing.org/. Applications close on July 31, 2012. International attendees who will require a travel visa are strongly encouraged to apply as early as possible. **For more information** on the Student Volunteer program and other student-related programs at SC12, visit: http://sc12.supercomputing.org/content/student-volunteers. **Contact:** student-vols@info.supercomputing.org
- 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. Dine-in restaurant meals are not allowed on LaCarte credit cards. Please contact Susie McGlone (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 two weeks, so please plan accordingly.
- Please remember to send your news concerning grants, awards, conferences, or other pertinent information to CCT Event Coordinator Jennifer Fontenot at jennifer@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

Interest groups:

- **MAG (Mobile App-Art-Action Group)**: Everyone interested in the potential for Mobile Apps is invited to come and add their vision for these revolutionary devices. For more information visit: http://www.cct.lsu.edu/MAG
  - Contact: Jesse Allison (jtallison@lsu.edu)
- **GPU**: meets weekly (Thursdays @ 12:30 pm in 338 Johnston) and encourages participation from anyone who would like to join in the discussions. Join the mailing list: lasigma-gpu@loni.org
  - Contact: Zhifeng Yun (zyun@cct.lsu.edu)

Upcoming events:

May 29- July 28: REU Computational Sciences

May 29- July 28: REU Materials Science

July 27: Summer Undergraduates Research Forum (SURF)

July 30-August 3: Science Cloud Summer School

July 30- August 10: LSU iOS App Boot Camp

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