

Report on PGAS: The Partitioned Global Address Space Programming Model BOF

POCs: Tarek El-Ghazawi (tarek@gwu.edu), Lauren L. Smith (lsmith1@super.org)

The PGAS BOF was from 12:15-1:15 on November 20, 2013. It was well attended and included many new faces. The SC13 slide deck for the session can be found at www.pgas.org.

The Agenda was:

PGAS 2013 Report/PGAS 2014 Announcement/ OpenSHMEM Workshop Announcement

PGAS Project Lightning Updates- Led by Lauren Smith

Panel Discussion: "The PGAS Infrastructure – Now and Then" moderated by Tarek El-Ghazawi

PGAS 2013 Report/PGAS 2014 Conference Announcement/OpenSHMEM Workshop

The report from the PGAS 2013 quickly described some highlights from the recently held conference. The link to the PDF conference proceedings is: www.pgas2013.org.uk. PGAS 2014 was announced and some initial details were provided. The link to PGAS 2014 is: <http://nic.uoregon.edu/pgas14>. The OpenSHMEM workshop was also announced: <http://www.csm.ornl.gov/workshops/openshmem2014>.

PGAS Lightning Updates

There was a phenomenal response to the call for these 1 minute project lightning updates. Lightning updates were given on many projects including: Chapel, Habanero, Phalanx, MVAPICH runtime for PGAS, UPC 1.3 Specification, OpenSHMEM, X10, XcalableMP (XMP), TAU for PGAS, Grappa: PGAS for irregular applications, GPI-2, PGAS Projects at Berkeley (UPC++, Berkeley UPC, GASNET), EMU Systems and PGAS, GNU UPC, Clang UPC, Unified Common Communication Substrate, OpenSHMEM Analyzer, and Power Analysis of PGAS. Links to all of these projects are in the SC13 slide deck. There were minimal questions from the audience on this section. Many of the projects provided attendees with DVDs or pamphlets on their project.

Panel – PGAS Infrastructure Now and Then

The invited panelists included: Bill Carlson (IDA CCS), Kathy Yelick (LBL/UC Berkeley), D.K Panda (OSU), Michael Garland (Nvidia), and Sameer Shende (U. Oregon). Two minutes were given to each panelist to answer the questions: Given today's technologies and the current PGAS infrastructure – what are some of the issues that can still be addressed, and how, for even better performance and scaling? How should the PGAS infrastructure be revolutionized to address next generation HPC systems including Exascale? The responses included many topics including tools infrastructure, adaptive run time systems, hardware assist mechanisms, network optimizations, memory models and language/compiler optimizations. During the audience Q&A session, one significant point made was that the PGAS space has many models (witness the lightning updates!), and doesn't that hinder the development of infrastructure to support PGAS? Another issue raised --- given that many other programming models are integrating PGAS concepts right now, should the community converge on a PGAS infrastructure standard? The panelists felt that was premature, but many of the underlying infrastructure could be made common and possibly standardized. The BOF allocated time is too short to adequately address all of the issues raised by audience questions, nevertheless it opened new directions for thinking and further considerations in subsequent fora. The slides presented by the panelists are in the BOF slide deck.