INTERNATIONAL EXASCALE SOFTWARE PROJECT

http://www.exascale.org

Overview Meetings

- Overall goal:
  - Bring together the international community to explore plans and identify gaps for producing a software infrastructure capable of supporting exascale applications
- Meeting history:
  1. Santa Fe, NM, US, April 2009
  2. Paris, France, June 2009
  3. Tsukuba, Japan, October 2009
  4. Oxford, UK, April 2010
  5. Maui, HI, US, October 2010
  6. San Francisco, US, April 2011
  7. Cologne, Germany, October 2011
  8. Kobe, Japan, April 2012
- SC08 (Austin), SC09 (Portland), ISC09, SC10 (New Orleans), ISC10, SC11 (Seattle)
- www.exascale.org: White Papers and Slides

International Exascale Activities

- Europe:
  - FP7 calls for computing systems, exascale initiatives, under evaluation
  - European Exascale Software Initiative (EESI & EESI2)
  - National Petaflop/s systems in PRACE
- US
  - DOE Applied Math: UQ
  - DOE Computer Science: Advanced Architectures
  - DOE Computer Science: X-Stack
  - DOE Co-design Centers
- G8 call
  - Software for Exascale Applications
- Japan
  - Next-generation supercomputer project (Kei)
  - Strategic Directions for High Performance Computing
- China:
  - Ambitious schedule towards 100's Petaflop/s and Exaflop/s
- Russia:
  - Presidential agenda

This meeting

□ Focus on the Asian efforts
  ◘ Japanese efforts

□ Update on various efforts

□ 3 Breakout groups
  ◘ Co-Design
    ■ (lead by **David Keyes** and **Jean-Claude Andre**)
  ◘ Exascale Software Maintenance, Intl. Coordination
    ■ (lead by **Franck Cappello** and **Rajeev Thakur**)
  ◘ Revolutionary Approaches
    ■ (lead by **Thomas Sterling** and **Bill Gropp**)

Goals for this meeting

□ Summary of extreme scale initiatives of the various regions (couple of pages for each)

    ▫ US, EU, Japan, China, Russia, …

□ Output from breakout groups (couple of pages/ report for each)

□ Update the system software survey

IESP Overview

- Gather the international community
- Generated a roadmap for software to exascale
- Forum for exchange of ideas on exascale software
- Forum for the coordination of existing and new international collaborations
- Forum for collaborative funding, i.e. G8 program
- Forum to promote joint programs in education and training i.e. (*http://bit.ly/cse-survey-2012*)
- Forum to strengthen cooperative and crosscutting efforts with the vendor community
- Forum for summarizing technology and science application trends

- 9:00 - 9:10am Welcome and Overview:
  - Welcome to Japan's Advanced Institute for Computational Science: **Kimihiko Hirao**, Director of Riken AICS
  - IESP Goals and Overview: **Jack Dongarra** (U.of Tennessee) and **Pete Beckman** (Argonne National Laboratory).
- 9:10 - 9:25am Japan's Policy on High Peformance Computing, **Takahiro Hayashi**, Ministry of Education,Culture,Sports,Science & Technology in Japan
- 9:25 - 10:20am Japanese Post-Peta Planning and Feasibility Research:
  - Overview: **Yutaka Ishikawa** (U. of Tokyo)
  - Hardware: **Masaaki Kondo** (U. of Electro-Comm.)
  - Software: **Naoya Maruyama** (TITECH)
  - Applications: **Hirofumi Tomita** (RIKEN AICS)

10:20 - 10:40am Break

- 10:40am - 11:15pm China Activities:
  - HW/SW Issues: **Xuebin Chi**, **Zhong Jin**, **Yutong Lu**
- 11:15 - 11:45pm Other Asian activities (India, Korea, Taiwan): **David Kahaner**

11:45 – 1:00 pm Exhibit and Lunch

- 1:00 – 1:30 pm DOE Activities: **William Harrod**
- 1:30 – 2:00 pm EC Activities on Exascale: **Leonardo Flores**
- 2:00–2:30 pm Overview of EESI2: **Jean-Yves Berthou** and **Philippe Ricoux**

2:30pm Break

- 3:00 – 4:30 pm Breakout Groups
  - Software (**Franck Cappello** & **Rajeev Thakur**): Finish software planning from last meeting
  - Revolutionary Approaches (**Thomas Sterling** & **Bill Gropp**): Approaches for delivering disruptive new technology
  - Apps (**David Keyes** & **Jean-Claude Andre**): co-design, minapps, and "needs" documentation
- 5:00 – 5:30 pm Reports from subgroups

Dinner 6:00 pm Buses to Banquet

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