

INTERNATIONAL CENTER FOR COMPUTATIONAL SCIENCES (ICCS)

Next Steps

Horst Simon

January 27, 2010



ICCS Vision

R&D of Scientific HPC Solutions

Deliver Science Driven Solutions in Hardware, Programming Models, Algorithms, Infrastructure

Enabling Scientific Growth

Simulations, Remote Location Real-time Feedback, Energy Efficiency

Building International Community

Multi-discipline Scientific Communities, Industry Leaders, International Partnerships

Education and Outreach

Curriculum, Training, Publications, Software/Hardware Dissemination, Workshops, Conferences



Organizing Partners

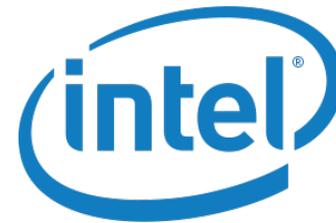
LBL, University of Heidelberg, UC Berkeley, Chinese Academy of Sciences



The organizing partners have made initial investments in time and resources to start ICCS.



Vendor Interest



We would like to invite other vendors to join as vendor partners, and define the role of vendor partners.



Goal: Improve Scientific Effectiveness of Manycore and Accelerator Based Systems

- **Challenge**
 - Existing applications require significant re-engineering to effectively manage resources provided by manycore and accelerator based systems
- **Immediate goal**
 - Identify obstacles to migrating high-end scientific applications to manycore and accelerator based systems
 - Maintain long-term perspective to ensure that today's efforts are not lost on tomorrow's platforms
- **Long term goal**
 - Identify strategies and processes, based on co-design among applications, programming models, and architectures, to support effective development (**productivity**) and execution (**performance**) of scientific application



Potential Technical Working Groups (TWG)

Applications and Libraries

Define migration processes and libraries
Application Communities

Programming Models

Programmer productivity and application performance portability

Hardware Resources

Facilitate access to ICCS resources for members

Performance and Analysis

Predictable application performance
Design feedback

TWG Membership

- **Applications and Libraries (AL), algorithms, sharing of data sets, codes. standards?**
 - Lorena Barba, BU, Salman Habib LANL, Hemant Shukla, LBNL, Assefaw Gh. Purdue, David Yuen U Minn.
- **Programming Models (PM)**
 - Balint Joo, Jlab, Gabriela Jost , TACC,
- **Hardware Resources (HR), software configuration, operating the resources ...**
 - Wes Petersen ETH Zurich, Jeff Hammond, ANL,
- **Performance and Analysis (PA)**
 - Rainer Spurzem, Peter Berzig, David Bailey, Felipe , Hamada-san



Leadership Group

- **Horst Simon, Rainer Spurzem, Hemant Shukla, John Shalf, Hamada and TWG chairs**
- **Responsible for**
 - **Managing ICCS activities**
 - **Workshops**
 - **Web site**
 - **Shared resources**
 - **Internal communication within ICCS**



Thank You and Next Steps

- **ICCS web site**
 - **iccs.lbl.gov**
 - **New members**
 - **New research projects**
- **Monthly call of leadership group to plan activities**
 - **Help formation of TWG**
- **Next workshop**
 - **January 2012, Beijing**

