The HPC Advisory Council Update

- World-wide HPC non-profit organization (300+ members)
  - 110 new members joined the council throughout 2011
- Bridges the gap between HPC usage and its potential
- Provides best practices and a support/development center
- Explores future technologies and future developments
- Working Groups
  - HPC|Cloud, HPC|Scale, HPC|GPU, HPC|Storage, HPC|Works, HPC|FSI
- Leading edge solutions and technology demonstrations
Centers of Excellence
HPC Council Board

- HPC Advisory Council Chairman
  Gilad Shainer - gilad@hpcadvisorycouncil.com

- HPC Advisory Council Media Relations and Events Director
  Brian Sparks - brian@hpcadvisorycouncil.com

- HPC Advisory Council Director of Technical Training
  Todd Wilde - todd@hpcadvisorycouncil.com

- Director of the HPC Advisory Council, Asia
  Tong Liu - tong@hpcadvisorycouncil.com

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  Richard Graham – richard@hpcadvisorycouncil.com

- HPC Advisory Council HPC|Cloud Sub-group Chair
  William Lu – william@hpcadvisorycouncil.com

- HPC Advisory Council HPC|GPU Special Interest Group Chair
  Sadaf Alam – sadaf@hpcadvisorycouncil.com

- HPC Advisory Council India Outreach
  Goldi Misra – goldi@hpcadvisorycouncil.com

- Director of the HPC Advisory Council Switzerland Center of Excellence and HPC|Storage Special Interest Group Chair
  Hussein Harake – hussein@hpcadvisorycouncil.com
Special Interest Subgroups

- **HPC|Scale Subgroup**
  - Explore usage of commodity HPC as a replacement for multi-million dollar mainframes and proprietary based supercomputers

- **HPC|Cloud Subgroup**
  - Explore usage of HPC components as part of the creation of external/public/internal/private cloud computing environments.

- **HPC|Works Subgroup**
  - Provide best practices for building balanced and scalable HPC systems, performance tuning and application guidelines.

- **HPC|Storage Subgroup**
  - Demonstrate how to build high-performance storage solutions and their affect on application performance and productivity

- **HPC|GPU Subgroup**
  - Explore usage models of GPU components as part of next generation compute environments and potential optimizations for GPU based computing

- **HPC|FSI Subgroup**
  - Explore the usage of high-performance computing solutions for low latency trading, productive simulations and overall more efficient financial services
• Adaptive Mesh Refinement (AMR) Installation Best Practices
• Amber Installation Best Practices (AMD-based)
• Amber Installation Best Practices (Intel-based)
• BQCD Installation Best Practices
• CESM Installation Best Practices
• CP2K Installation Best Practices
• CPMD Installation Best Practices
• Espresso Installation Best Practices
• GADGET-2 Installation Best Practices
• GROMACS Installation Best Practices
• Himeno Installation Best Practices
• LAMMPS Installation Best Practices
• MrBayes Installation Best Practices
• NAMD Installation Best Practices
• NEMO Installation Best Practices
• NWChem Installation Best Practices
• Octopus Installation Best Practices
• OpenFOAM Installation Best Practices
• OpenMX Installation Best Practices
• WRF Installation Best Practices
100+ Applications Best Practices Published

- Abaqus
- ABySS
- ANSYS CFX
- ANSYS FLUENT
- ANSYS Mechanics
- BQCD
- CCSM
- CPMD
- Dacapo
- Desmond
- Eclipse
- GROMACS
- Lattice QCD
- LAMMPS
- LS-DYNA
- MM5
- MPQC
- NAMD
- NWChem
- OpenAtom
- OpenFOAM
- PARATEC
- Quantum ESPRESSO
- SPECFEM3D
- CD-adapco STAR-CCM+
- CD-adapco STAR-CD
- WRF
- And many more…
HPC Training

• **HPC Training Center**
  – CPUs
  – GPUs
  – Interconnects
  – Clustering
  – Storage
  – Cables
  – Programming
  – Applications

• **Network of Experts**
  – Ask the experts
University Award Program

• **University award program**
  – Universities are encouraged to submit proposals for advanced research around high-performance computing
  – Twice a year, the HPC Advisory Council will select a few proposals

• **Selected proposal will be provided with:**
  – Exclusive computation time on the HPC Advisory Council’s Compute Center
  – Invitation to present the research results in one of the HPC Advisory Council’s worldwide workshops, including sponsorship of travel expenses (according to the Council Award Program rules)
  – Publication of the research results on the HPC Advisory Council website and related publications
  – Publication of the research results and a demonstration if applicable within HPC Advisory Council world-wide technology demonstration activities

• **2010 award winner is Dr. Xiangqian Hu, Department of Chemistry, Duke University**
  – Topic: “Massively Parallel Quantum Mechanical Simulations for Liquid Water”

• **Spring 2011 award winner is Dr. Marco Aldinucci, University of Torino**

• **Fall 2011 award winner is Jacob Nelson, University of Washington**
  – “Runtime Support for Sparse Graph Applications”

• **To submit a proposal – please check the HPC Advisory Council web site**
Supporting SC’11 Student Cluster Competition

University of Colorado Boulder

Tecnológico de Costa Rica
ISC’12 – Student Cluster Competition

- ISC’12 will feature a new activity - HPCAC-ISC Student Cluster Competition

- University-based teams to compete and demonstrate the incredible capabilities of state-of-the-art HPC systems and applications on the ISC’12 show-floor

- The Student Cluster Competition is designed to introduce the next generation of students to the high performance computing world and community

- Details: scc@isc-events.com, info@hpcadvisorycouncil.com
Two Market Analysis Reports Published

HPC Advisory Council Market Data
The HPC Advisory Council provides market and revenue data, and results from end-users studies. This information provides a deep insight and perspective around the dynamics of the current and emerging HPC market segments, market trends and influences that effect customer behavior and technology adoption.

The presentation provides information on the HPC Interconnect Market state and forecast from 2014. The presentation was provided by IDC for the behalf of the HPC Advisory Council members.

Download Report

The presentation provides information on the overall HPC Market State and Forecast from 2011 to 2015. The data included is based on data from Intersect360 reports.

Download Report
2011 Swiss HPC Conference (March)
HPC Advisory Council
European Workshop
June 19, 2011
Hamburg, Germany
2011 Stanford HPC Conference (December, USA)
2012 HPC Advisory Council Workshops

- Israel, 1 day – February 7th, 2011
- Switzerland, 3 days – March 13th-15th
- Germany (ISC’12), 1 day – June 17th
- Spain, 1 day – September
- China, 1 day – October
- USA (Stanford California), 2 days – December

For more information
- www.hpcadvisorycouncil.com, info@hpcadvisorycouncil.com
Thank You!

The HPC Advisory Council activities are all done by the HPC Advisory Council members for the behalf of the entire HPC community.

We would like to thank all of you that helped make 2011 a prosperous year and looking forward for an even greater 2012.

Special thanks to the HPC Advisory Council board members for their help and contribution throughout the year - Gilad Shainer, Brian Sparks, Todd Wilde, Tong Liu, Pak Lui, Scot Schultz, Tarick Bedeir, Cydney Stevens, Richard Graham, William Lu, Sadaf Alam, Goldi Misra and Hussein Harake.
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