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**HPC User Forum Agenda**

**49th HPC User Forum**

**April 29-May 1, 2013 – Tucson, Arizona**

*"Emerging Trends in HPC"*

**Monday, April 29, 2013**

5:00pm Registration Starts

6:30pm Welcome Dinner Reception and Short Vendor Technology Updates

**Tuesday, April 30, 2013**

7:15am Networking Breakfast

8:00am Meeting Welcome and Announcements, Jim Kasdorf, Rupak Biswas, Earl Joseph and Steve Conway

Morning Session Chair: Jim Kasdorf

8:15am Brief introductions by the end-user sites -- Each user site is asked to:

1. Explain the top 2 issues facing your HPC operations today
2. What new solutions do you need the most and are willing to pay extra to obtain?
3. What new technologies are you aware of that could revolutionize the HPC industry?

**HPC Focus Area: The Skies Above: Aerospace, Astrophysics and Astronomy**

9:00am **Keynote: Engineering for the Mars Science Laboratory**, James Donaldson, NASA Jet Propulsion Laboratory

9:30amHPC for Space and Astrophysical Sciences, Jill Dahlberg, U.S. Naval Research Laboratory

10:00am Recent Advances in Overcoming the Red Shift for CFD Simulation Analytics, Scott Imlay, Tecplot

10:30am Break

11:00am 3D Electronic Model-Based Type Design, Charlie Salzman, Gulfstream

11:30am Applying New Computing Techniques to Numerical Astrophysics, Brant Robertson, University of Arizona

12:00pm Networking Lunch

Afternoon Session Chair: Vijay Agarwala

**HPC Focus Area: The Skies Above: Aerospace, Astrophysics and Astronomy**

1:00pmHPC in Astrophysics, Donald Lamb, University of Chicago

1:30pm Petascale Supernova Simulation, Bronson Messer, Oak Ridge National Laboratory

2:00pm **Panel: What are the HPC Trends in Aerospace, Astrophysics and Astronomy?**

Moderator: Don Lamb, University of Chicago

* NASA JPL, NRL, Tecplot, Gulfstream, ORNL and Intelligent Light

2:30pm Break

3:00pm Paving the Way for HPC in the Cloud, Burak Yenier, UberCloud Experiment

3:15pm High Performance Data Analysis (aka "Big Data Meets HPC") Moderator: Steve Conway

* Big Data Use Cases, Radhika Subramanian, Emcien
* Big Data Use Cases, Darren Schulte, Apixio
* Big Data and HPC I/O Limitations In Today’s World, Henry Newman, Instrumental
* Big Data Use Cases, John Hengeveld, Intel
* New Directions in the Lustre Community, Peter Bojanic

5:15pm Networking Break and Time for 1-on-1 Meetings

5:45pm Bus Leaves for Special Dinner Event at Pima Air & Space Museum

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**Wednesday, May 1, 2013**

7:15am Networking Breakfast

8:10am Welcome and Introductions: Jim Kasdorf, Rupak Biswas, Earl Joseph and Steve Conway

Morning Session Chair: Vince Scarafino

8:15am **Technology Topic #1: Processors, Coprocessors and Accelerators (15 minute updates)** Moderator: Vince Scarafino

* Microserver Research, Ronald Luijten, IBM Zurich Research Laboratory
* The Future of x86 Processors, Stephen Wheat, Intel
* HPC Directions at AMD, Jon Gustafson, AMD
* HPC Directions at Nvidia, Cyril Zeller, Nvidia
* Hybrid Processors with Personalities, Steve Wallach, Convey Computer
* Processor Discussion: The Future of Processors, Coprocessors and Accelerators

9:45am Intel Vendor Technology Update

10:15am BP HPC Plans, Keith Gray, BP

10:30am Break

11:00am HPC Activities and Directions in Russia, Alexey Shmelev, RSC Group

11:30am HP Vendor Technology Update

11:45am IDC Big Data Research Update, Steve Conway and Chirag Dekate, IDC

12:00pm Networking Lunch

Afternoon Session Chair: Steve Finn

1:00pm **Disruptive Technologies Panel --** Panelists will briefly (in 2-3 minutes) present potentially disruptive technologies, Moderator: Earl Joseph

* System vendors: IBM, HP, Dell, Cray, SGI
* Processor vendors: Intel, Micron, AMD, Nvidia, ARM
* Software providers: Intelligent Light, Parallel Scientific
* Storage vendors: Panasas, EMC, NetApp

2:00pm Break

2:30pm **Technology Topic #2: Advanced Visualization**

* A Visualization Tool for Astrophysics, Hari Krishnan, NERSC
* New Visualization Center, David Pugmire, ORNL
* Visualization Infrastructure at the NASA Advanced Supercomputing Division, Chris Henze
* A 3D Fly Through of the Known Universe, Yushu Yao, NERSC
* Visualization at Oak Ridge National Laboratory, April Lewis

4:45pm New Methods for Measuring and Calculating ROI in HPC, Earl Joseph, Steve Conway and Chirag Dekate, IDC

5:00pm Meeting Wrap-Up, Jim Kasdorf, Rupak Biswas, Earl Joseph and Steve Conway