

The 2nd Workshop on “Frontiers of Multicore Computing”  
 Sept. 21-23, 2010, University of Maryland, Baltimore County (UMBC), USA  
 Partially Sponsored by IBM

Sept. 21, 2010, Hilton BWI hotel

6:00-8:00 PM Ice breaker

**UMBC University Center Ballroom**  
 Sept. 22, 2010 UMBC

7:30-8:30 AM Continental Breakfast

8:30-8:45 AM Welcoming Remarks V.P. Research Geoff Summers  
 COEIT Dean Warren DeVries

8:45-9:45 AM **Petaflops Computing and Beyond**

James Sexton (Program Director, Computational Sciences Center, IBM Research) *Blue Waters Project*

Marc Snir (UIUC BlueWaters Project Manager) *Multicore Computing at Extreme: Scale Technologies and Challenges*

9:45 -10 AM **Break**

10:00-10:45 AM **Extreme Environmental Modeling and Simulations**

James Kinter (GMU/COLA) *Revolutionizing Climate Modeling: Advantages of Dedicated HPC*

John Turner (ORNL) *Nuclear energy (fission) and Battery Simulations on the ORNL Cray XT5-HE*

10:45 AM-12:15 PM **CPU vs. Accelerators and Programming Paradigms in Multi- and Many-core Acceleration**

Richard Vuduc (George Tech) *On the limits of and opportunities for GPU co-processing*

Tarek El-Ghazawi (George Washington U) *The productivity of GPUs*

T. Blattner, S. Yang (UMBC) *Performance Study on CUDA GPUs for Parallel Data Assimilation Algorithm*

Sameer et al (U of Oregon) *Performance Tools for Heterogeneous Parallel Systems and Applications*

12:15-1:15 PM **Lunch**

1:15-1:45 PM **Data Intensive Computing**

Frederica Darema (Air Force Office of Scientific Research) *Multicores and Unification of the High-End Computing with the Real-Time Data-Acquisition and Control*

1:45-2:45 PM **Blue-collar computing**

Jakub Kurzak (U of TK/ORNL) *Scheduling for Multicore and Accelerators in the PLASMA Library*

Hector Machin, Mark Englin Wong, *High Performance On-Board Multi-core*

	Damon Bradley (NASA GSFC)	<i>Processor for Hyperspectral Data Size Reduction (H2SIC)</i>
	Tyler A. Simon (NASA GSFC), William A. Ward, Jr. Alan P. Boss	<i>Performance Analysis of Intel Multicore Processors using Astrophysics Simulations</i>
2:45-3:00 PM	<b>Break</b>	
3:00-4:00 PM	<b>Data-Intensive Computing and Cloud Computing</b>	
	Judy Qiu (Indiana U)	<i>MapReduce and Dryad</i>
	Han Dong, Congchong Liu, Shujia Zhou (UMBC)	<i>MapReduce in X10</i>
	Takemasa Miyoshi and Eugenia Kalnay (U. Maryland, College Park)	<i>Multi-core computing of the local ensemble transform Kalman filter with high-dimensional weather models</i>
4:00-5:30 PM	<b>Views from Gov't agencies on Multicore Computing and Challenges</b>	
	NSF- I. Qualters, AFOSR- F. Darema, NASA P. Webster, NOAA/NCEP- B. Kyger, DOD/ARL C. Nietubicz, DOD/DARPA W. Harrod (?)	
5:30-6:30 PM	<b>Reception</b>	
6:30-8:00 PM	<b>Dinner</b>	
	Steven Wallach (Convey Computer)	<i>Computer Software: The 'Trojan Horse' of HPC</i>
Sept. 23, 2010		
9:00-10:00 AM	<b>Multicore Developments in 3-D Visualization</b>	
	Borko Furht, Hari Kalva (FAU)	<i>3D Technologies and Visualization tools</i>
	Aldo Badano (FDA)	<i>The Promise of 3D Displays in Medical Imaging</i>
	Sheldon Brown (UCSD)	<i>Varieties of Virtual World Experiences Via Multicore Computing</i>
10:00-10:15 AM	<b>Break</b>	
10:15-11:15 AM	<b>Situation Awareness Simulations</b>	
	Milt Halem (UMBC/CHMPR)	<i>Human Sensor Networks for Natural Disasters</i>
	Amit Majumdar (UCSD)	<i>On-Demand Dynamic Data Driven Real-Time Computing for Scientific Applications</i>
	Anupam Joshi (UMBC)	<i>Petaflop Scale Semantic Graph Analytics for Situation Awareness</i>
11:15 AM-12 PM	David Barkai (Intel) Addison Snell (Alicce)	<b>HPC: The Missing Middle</b>
12:00-12:55 PM	<b>Lunch/Adjourn</b>	