ACM International Conference on Computing Frontiers

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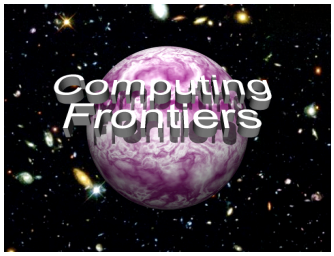

CF'06

Computing Frontiers Conference

Ischia, May 2 - 5, 2006

FINAL PROGRAM

	Tuesday, May 2
8:00 9:00	Registration
	Tutorials
9:00 10:30	Computing with "Empty Space": A Workshop on Rubel's Extended Analog Computer, *Jonathan Mills, (Indiana University)*
10:30	***Coffee Break***
10:45 12:30	Computing with "Empty Space": A Workshop on Rubel's Extended Analog Computer, *Jonathan Mills, (Indiana University)*
12:30 14:00	***Break***
14:00 15:30	Hardware and software architecture of the BlueGene/L Supercomputer, *Jose Moreira (IBM Systems and Technology Group), Valentina Salapura (IBM T.J. Watson Research Center)*
15:30	***Coffee Break***
15:45 17:15	Hardware and software architecture of the BlueGene/L Supercomputer, *Jose Moreira (IBM Systems and Technology Group), Valentina Salapura (IBM T.J. Watson Research Center)*
18:00 19:00	Registration
19:00	***Welcome Reception***

	Wednesday, May 3
8:00	Registration
8:45 9:00	Welcome and Opening remarks
9:00 10:00	***Keynote 1:*** ***Chair: Sally McKee, Cornell University*** Chip Multiprocessing and the Cell Broadband Engine, *Michael Gschwind (IBM T.J. Watson Research Center)*
10:00 10:15	***Coffee Break***
10:15 12:15	***Session 1:*** **Multithreaded, Multicore, and SoC Systems** ***Chair: José Moreira, IBM Systems and Technology Group***
	The Potential of the Cell Processor for Scientific Computing, *Samuel Williams, John Shalf, Leonid Oliker, Parry Husbands, Shoaib Kamil, Katherine Yelick (Lawrence Berkeley National Laboratory)*
	MPSoC ECG Biochip: A Multiprocessor System-on-Chip for Real-Time Human Heart Monitoring and Analysis, *I. Al Khatib, A. Jantsch (Royal Institute of Technology), D. Bertozzi (University of Ferrara), F. Poletti, L. Benini (University of Bologna), M. Bechara, H. Khalifeh, M. Hajjar (American University of Beirut), R. Nabiev, S. Jonsson (Karolinska University Hospital)*
	Dynamic Thread Assignment on Heterogeneous Multiprocessor Architectures, *Michela Becchi, Patrick Crowley (Washington University)*
	Landing OpenMP on Cyclops-64: An efficient Mapping of OpenMP to a many-core System-on-a-Chip, *Juan del Cuvillo, Weirong Zhu, Guang Gao (University of Delaware)*
12:15 13:30	***Lunch Break***
13:30 14:15	***Invited talk:*** ***Chair: Monica Alderighi, IASF-INAF*** Current and future research directions in Embedded Systems: A European Perspective, *Panagiotis Tsarchopoulos (Embedded Systems Unit, European Commission)*

14:15 15:45	***Session 2:* Novel Computing Paradigms** ***Chair: Jonathan Mills, Indiana University***
	Morphogenesis as an Amorphous Computation, *Arnab Bhattacharyya (MIT Computer Science and Artificial Intelligence Laboratory)*
	A Nanoscale Reconfigurable Mesh with Spin-Wave Buses, *Mary Eshaghian-Wilner, Alex Khitun, Shiva Navab, Kang L. Wang (UCLA)*
	Implementing Quantum Genetic Algorithms: A Solution Based on Grover's Algorithm, *Mihai Udrescu Lucian Prodan, Mircea Vladutiu (University "Politehnica" of Timişoara)*
15:45 16:00	***Coffee Break***
16:00 17:30	***Session 3:* Resource-Aware Computing** ***Mihai Udrescu, University "Politehnica" of Timişoara***
	Tile Size Selection for Low-Power Tile-Based Architectures, *John Oliver, Ravishankar Rao (UC Davis), Michael Brown, Jennifer Mankin, Diana Franklin (Cal Poly State University), Frederic T. Chong (UC Santa Barbara), Venkatesh Akella (UC Davis)*
	Profile-driven Compression Scheme for Embedded Systems, *Israel Waldman (Haifa University), Shlomit S. Pinter (IBM, Haifa Research Laboratory)*
	Energy-Aware Data Prefetching for Multi-Speed Disks, *Seung Woo Son, Mahmut Kandemir (The Pennsylvania State University)*

Thursday, May 4		
9:00 10:00	***Keynote 2*** ***Chair: Valentina Salapura, IBM T.J. Watson Research Center*** "Empty Space" Computes: The Evolution of an Unconventional Supercomputer, *Jonathan Mills, Matt Parker, Bryce Himebaugh, Craig Shue, Brian Kopecky, Chris Weilemann (Indiana University)*	
10:00 10:15	***Coffee Break***	
10:15 12:15	***Session 4:* Compilation and Dynamic Optimization** ***Chair: Per Stenstrom, Chalmers University of Technology***	***Session 5:* Reconfigurable and Autonomic Computing** ***Chair: Carsten Trinitis, Munich University of Technology***
	Dynamic Parallelization of Binary Executables on Hierarchical Platforms, *Efe Yardımcı, Michael Franz (University of California)*	REPLICA2Pro: Task Relocation by Bitstream Manipulation in Virtex-II/Pro FPGAs, *Heiko Kalte (University of W. Australia), Mario Porrmann (University of Paderborn)*
	Instruction Folding in a Hardware-Translation Based Java Virtual Machine, *Hitoshi Oi (The University of Aizu)*	An Opportunistic Reconfiguration Strategy for Environmentally Powered Devices, *Igino Folcarelli, Andrea Acquaviva, Alexandru Susu, Theo Kluther, Giovanni De Micheli (LSI-EPFL)*
	On the Decidability of Phase Ordering Problem in Optimizing Compilation, *Sid-Ahmed-Ali Touati, Denis Barthou (University of Versailles)*	Using Managed Communication Channels in Software Components, *Emil Stoyanov (University of Stuttgart), Markus A. Wischy (Siemens AG), Dieter Roller (University of Stuttgart)*
	Multi-Compilation: Capturing Interactions Among Concurrently-Executing Applications, *Ozcan Ozturk, Guangyu Chen, Mahmut Kandemir (Pennsylvania State University)*	
12:15 13:30	***Lunch Break***	
13:30 15:30	***Session 6: Special Session on Reliable Computing*** ***Chair: Lucian Prodan, University "Politehnica" of Timişoara***	
	A Dependability Perspective on Emerging Technologies, *Lucian Prodan, Mihai Udrescu, Mircea Vlăduțiu (University "Politehnica" of Timişoara)*	
	Self-Replication for Reliability: Bio-Inspired Hardware and the Embryonics Project, *Gianluca Tempesti, Daniel Mange, Pierre-André Mudry, Joël Rossier, André Stauffer (Ecole Polytechnique Fédérale de Lausanne)*	
	Dependability in an Evolving World, *Andy M. Tyrrell (University of York)*	
	On Dependability of FPGA-Based Evolvable Hardware Systems That Utilize Virtual Reconfigurable Circuits, *Lukas Sekanina (Brno University of Technology)*	

15:30 15:45	***Coffee Break***
15:45 17:45	***Session 7*: Applications I** ***Chair: Mike Gschwind, IBM***
	Memory Efficient Parallel Matrix Multiplication Operation for Irregular Problems, *Manojkumar Krishnan, Jarek Nieplocha (Pacific Northwest National Laboratory)*
	Database Hash-Join Algorithms on Multithreaded Computer Architectures, *Philip Garcia (University of Wisconsin), Henry F. Korth (Lehigh University)*
	Improving the Memory Behavior of Vertical Filtering in the Discrete Wavelet Transform, *Asadollah Shahbahrami, Ben Juurlink, Stamatis Vassiliadis (Delft University of Technology)*
	Dynamic Testing of Legacy Code Resources on the Grid, *Luigi Bitonti, Tamas Kiss, Gabor Terstyanszky, Thierry Delaitre, Steve Winter (University of Westminster), Peter Kacsuk (MTA SZTAKI)*
20:00	***Conference Banquet***
	Friday, May 5
9:00 11:00	***Session 8:* High Performance Microarchitectures** ***Chair: Stamatis Vassiliadis, Delft University of Technology***
	Kilo-instruction Processors, Runahead and Prefetching, *Tanausu Ramirez, Alex Pajuelo, Mateo Valero (DAC-UPC), Oliverio J. Santana (DISULPGC)*
	Exploiting Locality to Ameliorate Packet Queue Contention and Serialization, *Sailesh Kumar, John Maschmeyer, Patrick Crowley (Washington University)*
	Speculative Early Register Release, *Jesús Alastruey, Teresa Monreal, Víctor Viñals (Universidad de Zaragoza), Mateo Valero (DAC-UPC)*
	VICTORIA - a VMX Indirect Compute Technology Oriented Towards In-line Acceleration, *Jeff H. Derby (IBM Corporation), Robert K. Montoye, Jose Moreira (IBM T. J. Watson Research Ctr.)*
11:00 11:15	***Coffee break***
11:15 12:45	***Session 9:* Cache Architectures** ***Chair: Michel Dubois, USC***
	Cache Miss Behavior: is it $\sqrt{2}$?, *Allan Hartstein, T. R. Puzak, V. Srinivasan, P. G. Emma (IBM – T. J. Watson Research Center)*
	An Efficient Cache Design for Scalable Glueless Shared-Memory Multiprocessors, *Alberto Ros Bardisa, Manuel E. Acacio Sanchez, José M. García Carrasco (Universidad de Murcia)*
	Lazy Direct-to-Cache Transfer during Receive Operations in a Message Passing Environment, *Farshad Khunjush, Nikitas J. Dimopoulos (University of Victoria)*
12:45 13:30	***Lunch Break***
13:30 15:30	***Session 10: Special Session on Cache Optimization*** ***Chair: Jie Tao, University of Karlsruhe***
	Simple Penalty-Sensitive Replacement Policies for Caches, *Jaeheon Jeong (Intel), Per Stenström (Chalmers University of Technology), Michel Dubois (University of Southern California)*
	Static Cache Partitioning Robustness Analysis for Embedded On-chip Multi-processors, *Anca Molnos, S.D. Cotofana (Delft University of Technology), M.J.M. Heijligers, J.T.J. van Eijndhoven (Philips Research)*
	Evaluation of the Field-Programmable Cache: Performance and Energy Consumption, *Domingo Benitez (University of Las Palmas), Juan C. Moure, Dolores I. Rexachs, Emilio Luque (Universidad Autonoma de Barcelona)*
	Intermediately Executed Code is the Key to Find Refactorings that Improve Temporal Data Locality, *Kristof Beyls, Erik H. D'Hollander (Ghent University)*
15:30 16:30	***Session 11:* Applications II** ***Chair: Mahmut Kandemir, Pennsylvania State University***
	Topology-aware Tile Mapping for Clusters of SMPs, *Daniel Chavarria, Jarek Nieplocha Vinod Tipparaju (Pacific Northwest National Laboratory)*
	Performance Characteristics of an Adaptive Mesh Refinement Calculation on Scalar and Vector Platforms, *Michael Welcome, Charles Rendleman, Leonid Oliker (Lawrence Berkeley National Laboratory), Rupak Biswas (NASA Ames Research Center)*
16:30	Closing remarks
16:45	***Coffee***