

FCCM 2011 Call for Papers

The 19th Annual International
IEEE Symposium on Field-Programmable Custom Computing Machines

Salt Lake City, UT
May 1-3, 2011
www.fccm.org

The IEEE Symposium on Field-Programmable Custom Computing Machines is the original and premier forum for presenting and discussing new research related to computing that exploits the unique features and capabilities of FPGAs and other reconfigurable hardware. Over the past two decades, FCCM has been the place to present papers on architectures, tools, and programming models for field-programmable custom computing machines as well as applications that use such systems. Papers on the traditional topics of FCCM as described below are solicited:

Architectures and Programming Models

- Architectures for high-performance and/or low-power configurable computing
- New spatial architectures with immense parallelism but different basic components than FPGAs
- System-level architectures for reconfigurable computing in either real-time or non-real-time systems
- Heterogeneous architectures that integrate a mix of coarse, fine, special-purpose, and general-purpose hardware
- Implications and effects of nanotechnology on reconfigurable computing (and vice versa)

Languages and Compilers

- New languages and development environments to describe spatial or heterogeneous applications
- Tools to make run-time reconfiguration more accessible to application designers
- Compilation and CAD techniques for reconfigurable computing systems and other spatial computers

Run-Time Systems and Run-Time Reconfiguration

- Operating system techniques to manage run-time reconfiguration of resources in reconfigurable computing or spatial computing systems
- Run-time CAD algorithms to support the above techniques or improve fault tolerance/avoidance
- Use of reconfigurability to build evolvable or adaptable computing systems
- Novel uses of run-time reconfiguration in application-specific systems

Applications

- Applications that use reconfigurability to customize hardware for scientific computation, mobile communications, medical image processing, data and communication security, network infrastructure and other embedded systems. These papers must discuss or show novel use of some particular attribute of the reconfigurable device used.
- Comparison of application implementations on different spatial hardware, such as GPGPUs, multi-core processors, and FPGAs

Million-LUT Devices

With the announcement of upcoming FPGAs having close to one million LUTs, it will soon be possible to build systems with several hundred soft processors on a single device. The oft-cited FCCM prediction of “It didn’t fit” (see http://fccm.org/2010/FCCM_2010/More...html) should become less of an issue. However, despite reaching this significant milestone of capacity, it is likely that “We will still hate the tools”! (see above link again).

The significant size of these new devices provides opportunities for using reconfigurable hardware that previously have not been feasible to build. One clear path is to implement massively-parallel soft-processor systems on the reconfigurable fabric and use a parallel programming model to implement functions rather than the low-level abstraction of logic gates. What processor architectures, system architectures and tools should be used? How will applications using this approach compare to other solutions?

This year FCCM 2011 is especially interested to receive submissions about novel reconfigurable computing system architectures, tools, and programming models for using million-LUT devices and multi-device systems. To inspire and promote research for custom computing in this new era, submission of work in progress that does not yet have concrete results is encouraged. Such papers will be evaluated on novelty, feasibility and promise, and they must also describe a clear plan for the research that can be presented and discussed at the conference.

Submissions

FCCM will accept 8-page full papers for oral presentation, 4-page short papers for poster presentation, and poster presentations not included in the proceedings. All submissions should be written in the English language. An online submission link will be available on the FCCM website starting in late December. Papers should use the formatting template linked at the FCCM website.

FCCM is moving this year to a blind reviewing system. Manuscripts must not identify authors or their affiliations. Self-references should be shown as “Removed for blind review”. Papers that identify authors will not be considered.

Best Paper Award

For 2011, FCCM will institute a best paper award. Send in your best work for consideration!

Important Dates

Title and Abstract Submission January 7, 2011

Short and Regular Paper Submission January 7, 2011

Notification of Acceptance March 1, 2011

Camera-ready Copy March 21 2011

Conference May 1–3, 2011

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