



CALL FOR PAPERS

The Computer Journal Special Issue on *Architecture/OS Support for Embedded Multi-Core Systems*

Recent advances in the complexity of handheld devices and their applications have led to multi-core processors becoming more appealing as a viable solution for embedded systems. Although most of the commercial multi-core processors are currently available in the high performance segment, hardware vendors such as ARM have started to offer multi-core solutions for embedded applications. However, multi-core research thrusts have been largely concentrated on high-performance computer systems where applications are drastically different from those found in embedded systems.

The use of on-chip network and distributed shared resources leads to non-trivial performance asymmetry, which could result in a failure to achieve the desired performance levels for co-scheduled programs. Non-deterministic latency variations and technology-induced reliability issues pose further complications and challenges to the designers of future multi-cores. As the Operating System (OS) is the centerpiece of a computer system managing various platform hardware resources, multi-core embedded systems (including multi-core system-on-chips) will inevitably require a fundamental re-examination of the OS design. Many important OS issues, including support for Quality of Service (QoS), fault tolerance, power and thermal control and efficient virtual machine support, can be best dealt with architectural and OS techniques.

The purpose of this special issue is to solicit papers discussing the latest advancements in embedded multi-core system designs, with a focus on computer architecture and operating systems. It is intended to provide an opportunity to exchange the most recent research ideas and results, initiating constructive discussion between international researchers from industry and academia. Additionally, we expect this special issue will bring to the attention of a wider audience the critical problems that need to be addressed in embedded multi-core systems and thus stimulate future research in this area.

Submitted papers may address, but are not limited, to the following subjects:

- Architecture/OS support for processor management in embedded multi-core systems (including multi-core based system-on-chip)
- Architecture/OS support for reliability in embedded multi-core systems (including multi-core based system-on-chip)
- Architecture/OS support for power management in embedded multi-core systems (including multi-core based system-on-chip)
- Architecture/OS support for thermal management in embedded multi-core systems (including multi-core based system-on-chip)
- Architecture/OS support for storage in embedded multi-core systems (including multi-core based system-on-chip)
- Architecture/OS support for security in embedded multi-core systems (including multi-core based system-on-chip)
- Tools for embedded multi-core systems (including multi-core based system-on-chip)
- Experience of embedded multi-core systems (including multi-core based system-on-chip)

Guest Editors

Sung Woo Chung (Korea University) swchung@korea.ac.kr

Hsien-Hsin S. Lee (Georgia Institute of Technology) leehs@gatech.edu
Woo Hyong Lee (Samsung) woohyong.lee@samsung.com

Submission Guidelines

Only original and unpublished high-quality research papers are considered, and manuscripts must be in English. Instructions for Authors can be found in <http://comjnl.oxfordjournals.org/>. The papers must be submitted via the journal web submission route (submission site is: <http://mc.manuscriptcentral.com/comj>) (You must provide a cover letter to indicate that the submission is for “The Special Issue on Architecture/OS Support for Embedded Multi-Core Systems”).

Important Dates

Manuscript submission deadline: 1st July 2009
Notification of acceptance: 1st October 2009
Submission of final revised paper: 15th December 2009
Publication of special issue: around March 2010