



Special Track
**Embedded Systems:
Applications, Solutions, and Techniques**
CALL FOR PAPERS

The field of embedded system is getting more and more challenging, and issues in development of embedded software are becoming very attracting to a wide number of researcher both in industry and academia.

Requirements for embedded systems are very stringent and sometimes conflicting. The prime is the system cost. For obtaining a low-cost device, only the indispensable resources are employed, and they must be exploited as much as possible to improve the user-perceived quality of the final system. Moreover, some applications (especially on hand-held devices) require low power consumption. Up to few years ago, embedded systems have not provided the proper platform for computing-intensive programs. The use of sophisticated, colorful graphical interfaces, the integration of communication devices of any kind, the access to simple databases is becoming common also for this kind of products. Thus, the capabilities of embedded systems have been improved, in order to make them suitable to host this kind of applications. At present, the employment of SoC (System on Chip) multiprocessors for dedicated applications is no more considered futuristic.

Software development in the field of embedded systems is becoming more and more difficult. In fact, often both performance and power consumption issues must be taken into account, and thus the delivery of high-quality products under time-to-market constraints pushes the introduction of innovative supporting methodologies and tools. Nowadays, the use of COTS in this field solves a number of problems, but imposes a new way to look at embedded software development, making the designer operate mostly at the architectural level and tackling performance problems following new approaches.

The purpose of this track is to address both practical and theoretical issues in the development of embedded systems, especially operating on software (i.e. both at OS and application level). In this setting, papers are solicited to deal with problems, state-of-the-art solutions, open issues and future directions in the field of development of dedicated applications for embedded systems. Major topics of interest include but are not limited to the following:

Topics of Interest

- OS & RTOS for embedded systems.
- Criteria for software/hardware partitioning in co-design.
- Use of COTS in embedded applications development.
- Exploitation of memory hierarchy in dedicated applications.
- Advanced architectural features.
- Issues in managing I/O interactions.
- Techniques for optimal use of SoC platforms.
- Software architectures of embedded systems.
- Support for parallel embedded systems.
- Software engineering for embedded applications.
- Development of real-time embedded applications.
- Development of software for wireless devices.
- Performance analysis of embedded systems.
- Software techniques for improving performance.
- Testing, debugging and profiling of embedded software.
- Power-aware software design techniques.
- Methodologies and tools in the field of embedded systems.
- Case studies.

Track Chairs

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Guidelines for Submission

Original papers from the above-mentioned or other related areas will be considered.

This includes three categories of submissions: 1) original and unpublished research; 2) reports of innovative computing applications in the arts, sciences, engineering, business, government, education and industry; and 3) reports of successful technology transfer to new problem domains.

Each submitted paper will be fully refereed and undergo a blind review process by at least three referees.

The accepted papers in all categories will be published in the ACM SAC 2002 proceedings.

Selected papers from the track will be considered for journal publication.

Submission guidelines must be strictly followed:

- Submit your paper *electronically* in either PDF or postscript format, with subject "SA03", to Alessio Bechini (a.bechini@ing.unipi.it), contact chairman for the Special Track on Embedded Systems. Please *note*: neither hardcopy nor fax submissions will be accepted. Submissions should be printable on a standard printer on common paperformats like letter and DIN A4. Please use a Postscript previewer such as Ghostview to check the portability of Postscript documents. The acceptable compression format is Zip.
- The author(s) name(s) and address(es) **must not appear in the body of the paper**, and self-reference should be in the third person. This is to facilitate blind review.
- The body of the paper should not exceed 5,000 words (approximately 15 pages, double-spaced).
- A separate cover sheet (in the case of electronic submission this should be sent separately from the main paper) should show the title of the paper, the author(s) name(s) and affiliation(s), and the address (including e-mail, telephone, and fax) to which correspondence should be sent.
- All submissions must be received by September 6th, 2002.

Important dates

- **September 6th, 2002: Paper Submission**
- October 18, 2002: Author Notification
- November 8, 2001: Camera-Ready Copy

Anyone wishing to review papers for this special track should contact one of the Track Program Chairmen.

Enquiries and questions may be directed to the Track Chairs. Additional details are available at the track home page at <http://www.ing.unipi.it/sac03> and at the conference home page at <http://www.acm.org/conferences/sac/sac2003/> .