



"Industrial Control applications of FPGAs"

The Theme:

Technology opportunities in the field of digital electronics underwent a significant evolution over the last few years, consequently creating many innovative openings for the implementation of more and more complex control systems for industrial applications. Hardware solutions based on FPGAs (Field Programmable Gate Arrays), exploiting the device's inherent parallelism, have recently received increased attention, mainly because they allow designers to build efficient dedicated hardware architectures by means of flexible software. Therefore, FPGAs can now be considered as an appropriate and common solution for optimal fast controllers, by enabling the implementation of new control methods and/or by designing concurrent architectures.

The topics covered by this Special Section are listed below:

- High-performance industrial applications based on FPGA controllers (AC drives, Generator Control, Active filtering, UPS, renewable energy systems, etc).
- Adaptive control algorithms for FPGA implementation (predictive control, redundant control, multi-rate control)
- Efficient design methodologies (dedicated libraries, reusable IP, co-simulation, development kits or design packages).
- Optimized hardware architectures (Systems-on-a-Chip, fully-parallel architectures, time-shared architectures, etc) of FPGA based industrial control systems.
- Microcontroller, DSP and FPGA industrial control solutions comparison for benchmarking.
- FPGA based industrial control systems case studies.

Manuscript Preparation and Submission

Follow the guidelines in "Information for Authors" in the IEEE Transaction on Industrial Informatics <http://tii.ieee-ies.org/>
Please submit your manuscript in electronic form through Manuscript Central web site: <http://mc.manuscriptcentral.com/tii> On the submitting page #1 in popup menu of manuscript type, select: SS on Industrial Control Applications of FPGAs

Submissions to this Special Section must represent original material that has been neither submitted to, nor published in, any other journal. Extended versions of papers previously published in conference proceedings may be eligible for consideration if conditions listed in <http://tii.ieee-ies.org/o/PC.pdf> are fulfilled. Before submitting manuscript check the review criteria (<http://tii.ieee-ies.org/o/RC.pdf>) and other information (<http://tii.ieee-ies.org/o/DI.pdf>)

Note: The recommended papers for the section are subject to final approval by the Editor-in-Chief. Some papers may be published outside the special section, at the EIC discretion.

Timetable: **Deadline for manuscript submissions** **December 1, 2011**

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