Open PhD position:

Project CREED: **Cr**oss-layer Design Space **E**xploration for **E**nergy-aware MP-SoC **D**esign

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Job Description:

In project CREED curiosity-driven research will be performed in which the PhD student will attempt to devise highly automated and accurate system-level design techniques for the energy-aware design of Multi-Processor Systems on Chip (MPSoCs). The PhD student will research and develop novel techniques and tools to tightly couple system-level power/energy modeling with system-level synthesis techniques in order to significantly improve the trustworthiness of system-level power/energy models and to quickly explore and design energy-efficient MPSoCs. More specifically, the PhD student will investigate MPSoC synthesis and measurement techniques needed for dynamically validating and calibrating system-level power/energy and performance models. For the power/energy and performance measurements, we intend to use FPGA-based synthesized MPSoC prototypes and, for example, deploy the on-chip monitor facility that is integrated in the Xilinx Virtex 5 and 6 FPGAs. To ensure successful accomplishment of the research and development tasks mentioned above as well as to enable quick and easy dissemination of the results, the PhD student will not develop completely new tools but he/she will extend substantially already existing tools developed at LIACS, Leiden University which are part of the DAEDALUS framework (http://daedalus.liacs.nl) for System-level design of MPSoCs.

Job Requirements:

University Graduate

Applicants are expected to have a university degree (MSc), preferably in Computer Science or Computer (Electrical) Engineering. Applicants must also be proficient in spoken and written English.

Organization:

Leiden Institute of Advanced Computer Science, Leiden University, The Netherlands

The PhD research will be carried out in the Leiden Embedded Research Center (LERC) at the Leiden Institute of Advanced Computer Science, Leiden University. LERC is an expert group and an internationally recognized leader in advanced research in Embedded Systems and

Software. The group covers two related topics in this rapidly evolving domain: 1) Embedded Systems theory and applications; 2) Embedded Systems Design – methods, techniques, CAD tools and toolflows. LERC's application domains are signal processing, multimedia, communications, smart cameras, computer vision, and graphics. The research at LERC deals with abstract application models, platform/architecture models, and mapping models in these domains, at various levels of abstraction, for performance analysis, exploration and design, conceptually and practically, down to real platform/system implementations. The main mission of LERC is by its research to contribute in a highly innovative way to the system-level design of embedded systems and software – conceptually (theory), methodologically (design methods and tools), and structurally (platforms/architectures). Finally, LERC is advocating and applying state-of-the-art Software Engineering Techniques both in the way the group's projects are integrated, documented, and assessed, and in the way CAD software tools are written, tested and assessed. All this justifies the LERC belief that "The CAD software is the Publication" that makes significant impact in the research and industrial community. In this respect, one of the LERC research achievements is the DAEDALUS open source framework for automated design, programming, and implementation of multi-processor embedded systems, targeting streaming multimedia applications. It can be found at http://daedalus.liacs.nl/. One of the LERC achievements regarding the dissemination of research results to the industry is a professional tool-flow to go very fast from applications specified in Matlab or C to highly efficient implementations of these applications in heterogeneous multi-core platforms. Part of this tool-flow was moved to a start-up company called CompaanDesign BV (http://www.compaandesign.com/).

Conditions of Employment:

Employment conditions (salary, benefits, etc.) are in accordance with the Collective Labour Agreement for Dutch Universities.

Maximum salary amount in Euro's a month: 2612

Employment benefits: An appointment with Leiden University includes a pension build-up and facilitates other benefits such as an annual holiday premium of 8% and an end-of-year premium of 8.3%.

Employment basis: Temporary for specified period

Duration of the contract: Initially, the successful applicant will be appointed for one year. Then after a positive evaluation, the applicant will be appointed for a fixed-term period of three years.

Maximum hours per week: 38

Additional Information:

Additional information about the PhD position can be obtained from:

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E-mail: stefanov@liacs.nl
Web-page: http://www.liacs.nl/~stefanov

How to apply:

You can apply for this PhD position **before 30-04-2011** by sending your application electronically to:

Dr.ir. Todor Plamenov Stefanov
E-mail: stefanov@liacs.nl

The application should include a Curriculum Vitae, a Letter of Motivation, and a MSc diploma with transcripts (courses + grades).