KIT: Fast and easy programming

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Smartphones, cameras and Co. operate with fast, energy-efficient multi-core processors - ALMA wants to simplify application programming. Credit: Photo: Fotolia

An increasing number of electronics products such as smartphones are equipped with fast, energy-efficient multi-core processors. As a matter of fact, however, programming of the respective applications is rather time-consuming and expensive. For fast and easy programming, partners from research and industry within the EU consortium ALMA are developing a novel tool chain based on the open-source software Scilab. ALMA is being coordinated by Professor Jürgen Becker and Dr. Michael Hübner from KIT's Institute for Information Processing Technology (ITIV).

Not only personal computers but also smartphones, camera systems, and other electronics products are increasingly based on multi-core systems

where several parallel processor cores are integrated in one chip to increase processing power while at the same time saving space and energy. Programming new applications for such embedded systems requires highly specialized knowledge and in addition is very time-consuming and expensive. The three-year project ALMA, which started in September 2011, aims to simplify development of software for embedded multi-core processors.

ALMA (Greek for "leap") is an acronym for ALgorithm parallelization for Multicore Architectures. The project uses the open-source software Scilab which had first been developed for numerical-mathematics applications. In ALMA, Scilab will be enhanced by downstream optimization stages allowing intelligent parallelization and distribution of applications to several processors. At the same time, ALMA focuses on a close co-design of software and hardware to create a single tool chain that can efficiently be used in different multicore architectures. "In that way, we obtain a tool chain for easy programming from a higher level of abstraction, i.e. the programmer does not need detailed knowledge of the complex architecture," explains Dr. Michael Hübner from KIT's Institute for Information Processing Technology. The new technology will reduce development time and costs.

More information: www.alma-project.eu/

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