Report from ARTES project
Hardware/Software Codesign of Real-Time Systems at ESLAB/LiTH.
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Abstract
This project deals with the development of techniques and tools for hardware/software codesign of real-time systems. In particular we will concentrate on methods for the architecture selection problem. This entails formulating a hardware/software architecture model, developing a mapping strategy to map a real-time system specification into such an architecture, and designing techniques for the analysis of a given design based on a given architecture and some scheduling methods. We will also study the problem of how to use the analysis results to guide the modification of the given architecture, in order to allow the designers to quickly explore the different design alternatives and find a cost-effective solution of mixed hardware/software implementations of a given real-time system. The research work is being done in close cooperation with the industry, especially those in the automotive electronics area. We will use examples from the industrial partners to demonstrate the advantages of the developed methods.

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Publications
P. Pop, P. Eles, and Z. Peng, "Scheduling with Optimized Communication for Time-Triggered Embedded Systems," Proc. 7th International Workshop on Hardware/Software Codesign (CODES), Rome, Italy, May 3-5, 1999.

P. Eles, K. Kuchcinski, Z. Peng, A. Doboli and P. Pop, "Process Scheduling for Performance Estimation and Synthesis of Hardware/Software Systems," Proc. Euromicro'98 Workshop on Digital System Design: Architectures, Methods and Tools, Västerås, Aug. 25-27, 1998, pp. 168-175.

P. Pop, P. Eles, and Z. Peng, "Scheduling Driven Partitioning of Heterogeneous Embedded Systems," Proc. 7th Swedish Workshop on Computer Systems Architecture, Göteborg, June 3-5, 1998, pp. 99-102.