

Eingeladener Vortrag: The Importance of ASIC-Development and System Level Design for Industrial Automation

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Abstract

Since the 1980s ASIC-design played an important role within Siemens for the development of industrial automation products. This is still true. Like in other industries, the main functionality of electronic products in the field of industrial automation is defined by System-on-Chip (SoC) ASICs and software. Key SoCs are in a way implementing the industrial automation know-how, they are still developed in-house.

The presentation starts with business needs and trends in the field of industry automation. Based on the example of a new SoC for industrial communication, it will be shown, how ASIC development is done today at Siemens, the interfaces, the challenges, and what role EDA-tools and advanced methodology can play.

The second part of the presentation will elaborate on the shift in development paradigm based on system level design methodology, which is currently underway in the industry. Systems under investigation here are the brains and nerves of a manufacturing line: networks of SoC-based controllers and I/O-devices, connected by industrial busses. Transaction level modeling and virtual prototyping allow to address the specification and verification challenges in these systems, which are substantially due to HW/SW-interaction, within a single SoCs but also on network level.

Finally an outlook is given, how system level design methodology can speed-up and improve the results of collaborative development between system houses and suppliers of ICs or electronic components, and what role it may play in the framework of the so-called digital factory.

Curriculum Vitae



Andreas von Schwerin is Director for Electronic System Simulation at Siemens Industry in Nuremberg. He is responsible for the introduction of System Level Design Methodology into the HW/SW-development process. Before this position he was heading the Siemens Design Service and Consulting Center, supporting all ASIC-Design Centers at Siemens in their common tasks. He has obtained a Ph.D. in Physics in 1988.