Software Development and Programming of Multi-core SoC

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Abstract. SoC designs integrate an increasing number of heterogeneous programmable units (CPU, ASIP and DSP subsystems) and sophisticated communication interconnects. In conventional computers programming is based on an operating system that fully hides the underlying hardware architecture. Unlike classic computers, the design of SoC includes the building of application specific memory architecture and specific interconnect and other kinds of hardware components required to efficiently execute the software for a well-defined class of applications. In this case, the programming model hides both hardware and software interfaces that may include sophisticated communication and synchronization concepts to handle parallel programs running on the processors. When the processors are heterogeneous, multiple software stacks may be required. Additionally, when specific Hardware peripherals are used, the development of Hardware dependent Software (HdS) requires a long, fastidious and error prone development and debug cycle. This talk deals with challenges and opportunities for the design and programming of such complex devices.

Short Biography: Dr. Ahmed Jerraya is Director of Strategic Design Programs at CEA/LETI France. He served as General Chair for the Conference DATE in 2001, Co-founded MPSoC Forum (Multiprocessor System on Chip) and is the organization chair of ESWEEK2009. He supervised 51 PhD's, co-authored 8 Books and published more than 250 papers in International Conferences and Journals.

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