Application-driven Development of Flexible Packet-oriented Communication Interfaces

By Christian Sauer

Shaker Verlag Okt 2010, 2010. Taschenbuch. Condition: Neu. Neuware - Application- driven Development of Flexible Packet -oriented Communication Interfaces Today's heterogeneous SoC platforms deploy concurrent processing cores in increasing numbers. But their diverse 10 interfaces remain dedicated non-programmable hardware modules, which are integrated separately and relatively late during the design process. Aimed at fully prograrnmable and homogeneous platforms in network and multimedia domains, this dissertation explores the feasibility of programmable approaches for packet-oriented 10 interfaces in three steps: I) Modeling and analysis of 10 interfaces with respect to a common structure and elementary functions, 11) Design of a Y-chart based methodology and a set o f domain-specific tools for the application-driven development (SystemClick: performance modeling) and later deployment (CRACC, embedded code generation) of flexible 10 interfaces, and 1 11) the quant itative exploration of the programmable interface design space based on a strictly modular platform (NOVA). Case studies of pcr Express, Hypertransport, RapidIO, Ethernet, and Wireless LAN demonstrate feasibility and current limitations of a common protocol-agnostic and truly programmable implementation. Heutige SoCs sind heterogene Plattformen, die mehr und mehr programmierbare Prozessorelemente enthalten. Jedoch werden ihre vie lfältigen ro Funktionen weiterhin in protokoll -spezifischen Hardwaremodulen realisiert, welche nicht programmierbar sind und...

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