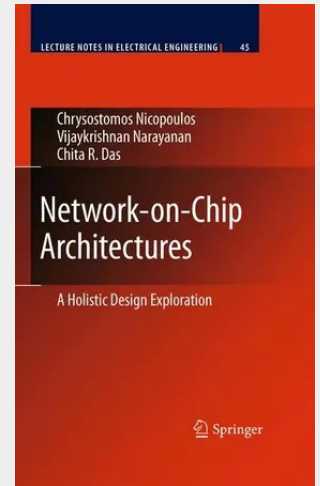


Network-on-Chip Architectures

A Holistic Design Exploration

[2]. The Cell Processor from Sony, Toshiba and IBM (STI) [3], and the Sun UltraSPARC T1 (formerly codenamed Niagara) [4] signal the growing popularity of such systems. Furthermore, Intel's very recently announced 80-core TeraFLOP chip [5] exemplifies the irreversible march toward many-core systems with tens or even hundreds of processing elements. 1.2 The Dawn of the Communication-Centric Revolution The multi-core thrust has ushered the gradual displacement of the computation-centric design model by a more communication-centric approach [6]. The large, sophisticated monolithic modules are giving way to several smaller, simpler processing elements working in tandem. This trend has led to a surge in the popularity of multi-core systems, which typically manifest themselves in two distinct incarnations: heterogeneous Multi-Processor Systems-on-Chip (MPSoC) and homogeneous Chip Multi-Processors (CMP). The SoC philosophy revolves around the technique of Platform-Based Design (PBD) [7], which advocates the reuse of Intellectual Property (IP) cores in flexible design templates that can be customized accordingly to satisfy the demands of particular implementations. The appeal of such a modular approach lies in the substantially reduced Time-To-Market (TTM) incubation period, which is a direct outcome of lower circuit complexity and reduced design effort. The whole system can now be viewed as a diverse collection of pre-existing IP components integrated on a single die.

[2]. The Cell Processor from Sony, Toshiba and IBM (STI) [3], and the Sun UltraSPARC T1 (formerly codenamed Niagara) [4] signal the growing popularity of such systems. Furthermore, Intel's very recently announced 80-core TeraFLOP chip [5] exemplifies the irreversible march toward many-core systems with tens or even hundreds of processing elements. 1.2 The Dawn of the Communication-Centric Revolution The multi-core thrust has ushered the gradual displacement of the computation-centric design model by a more communication-centric approach [6]. The large, sophisticated monolithic modules are giving way to several smaller, simpler processing elements working in tandem. This trend has led to a surge in the popularity of multi-core systems, which typically manifest themselves in two distinct incarnations: heterogeneous Multi-Processor Systems-on-Chip (MPSoC) and homogeneous Chip Multi-Processors (CMP). The SoC philosophy revolves around the technique of Platform-Based Design (PBD) [7], which advocates the reuse of Intellectual Property (IP) cores in flexible design templates that can be customized accordingly to satisfy the demands of particular implementations. The appeal of such a modular approach lies in the substantially reduced Time-To-Market (TTM) incubation period, which is a direct outcome of lower circuit complexity and reduced design effort. The whole system can now be viewed as a diverse collection of pre-existing IP components integrated on a single die.



160,49 €

149,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9789400730496

Medium: Buch

ISBN: 978-94-007-3049-6

Verlag: Springer

Erscheinungstermin: 14.03.2012

Sprache(n): Englisch

Auflage: 1. Auflage 2012

Serie: Lecture Notes in Electrical Engineering

Produktform: Kartoniert

Gewicht: 382 g

Seiten: 223

Format (B x H): 155 x 235 mm

