Abstract

The communication interconnects among the cores of the futuristic SoC is a vital challenge. NoC is being proposed as the appropriate solution for addressing these communication challenges of complex SoCs. To address design complexity and reuse, NoC systems are typically desired to be built from pre-designed and pre-verified homogenous or heterogeneous
building blocks such as programmable RISC cores, DSPs, memory blocks. However most application specific SoC are special-purpose and are tailored to the domain-specific requirements of the desired application, which communicate in a very specific, mostly irregular way. In this work, a methodology for the design of communication centric customized irregular network infrastructure of SoC is proposed. The proposed methodology exploits a priori knowledge of the application’s communication attributes to generate an optimized network and associated routing tables to enable sufficient number of deadlock free paths for enhanced communication traffic and energy distribution across the network infrastructure of the SoC. In the proposed methodology the network is generated according to the requisite deadlock free paths having appropriate distribution of communication traffic.

Reference


**Index Terms**

Computer Science

Communications
Key words
Genetic Algorithms          Core Graph          On-Chip
Networks
Network-on-Chip
Optimization