Abstract

Systems-on-Chip architecture integrates several heterogeneous components on a single chip. A key challenge is to design the communication between the different entities of a SoC in order to minimize the communication overhead. Network-on-chip (NoC) is a new approach for communication infrastructure of Systems-on-Chip (SoC) design, which provides network based solution for on-chip communication. Networks on Chip can be designed in different ways, according to the network architecture and protocol choice. It is important to balance the communication needs across the different links to avoid congestion and hot spots especially for
high performance multimedia application. Application specific irregular topology based Network on Chip design can cater to the need of High performance demanding multimedia application which are congestion and energy aware. To achieve the mentioned objectives, this paper proposed two NoC design methodologies. Statistical experimental results show significant savings in communication bandwidth and communication energy for the high performance demanding multimedia applications when compared to existing standard 2D-Mesh NoCs.

Reference

IrNIRGAM™, IEEE International conference on Emerging Trends in Networks and Computer Communications (ETNCC 2011), April 22-24, 2011, Udaipur, India


Index Terms

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