Abstract

The emerging platform-based design paradigm poses enormous challenges to conceptualizing, implementing, verifying and programming today's complex System on Chip (SoC) design. Network-on-Chip (NoC) architecture provides a scalable, high performance and robust infrastructure for on-chip communication. Perfect Difference Network (PDN) based on
the mathematical notion of Perfect Difference Set as an asymptotically optimal method for connecting IP cores with network diameter $D=2$ so that any IP core is reachable from any other IP core in one or maximum two hops. In this paper, we have proposed the Network on Chip architecture based on the mathematical notion of Perfect Difference Network (PDN), which is referred as Chordal Ring PDN topology for Network on Chip architecture. PDN based Network-on-Chip (NoC) architecture is currently viewed as a ‘revolutionary’ approach as a solution for addressing the design challenges of future high performance nanoscale architecture to provide a scalable, modular and robust infrastructure. In this paper, we present the latency performance of Chordal Ring PDN topology for NoC architecture using simulating tool NS-2.

**Reference**

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**Index Terms**

Computer Science  
Networks

**Key words**

Perfect Difference Network (PDN)  
Network on Chip (NoC)

Perfect Difference Set (PDS)