

300. PHOTONIC APPROACH TO OPTIMIZE ENERGY CONSUMPTION FOR ON-CHIP CLOS NETWORKS

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The introduction of Photonic technology for on-chip communication holds the promise of delivering scalable bandwidth and low latency that cannot be achieved using only electronic communication. Henceforth the photonic network on-chip, PNoC have emerged as a promising replacement for electrical NoCs in future chip multiprocessors. In the analysis of prior PNoC the power inefficiencies are caused due to various issues and therefore this work proposes high performance and power-efficient LumiNOC, a novel PNoC architecture which addresses these issues by adopting a shared-channel, in-band arbitration mechanism to efficiently utilize power, achieving a high performance, and scalable interconnect with extremely low latency. The power efficiency of LumiNOC was analysed using 64-node implementation in VLSI domain.

Keywords—Nanophotonics,optical interconnects, arbitration , dynamic channel scheduling.

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