



Photonic Interconnects: A Computer Architect's Perspective (Paperback)

By Christopher J. Nitta, Matthew Farrens, Venkatesh Akella

Morgan Claypool Publishers, United States, 2013. Paperback. Condition: New. Language: English . Brand New Book. As the number of cores on a chip continues to climb, architects will need to address both bandwidth and power consumption issues related to the interconnection network. Electrical interconnects are not likely to scale well to a large number of processors for energy efficiency reasons, and the problem is compounded by the fact that there is a fixed total power budget for a die, dictated by the amount of heat that can be dissipated without special (and expensive) cooling and packaging techniques. Thus, there is a need to seek alternatives to electrical signaling for on-chip interconnection applications. Photonics, which has a fundamentally different mechanism of signal propagation, offers the potential to not only overcome the drawbacks of electrical signaling, but also enable the architect to build energy efficient, scalable systems. The purpose of this book is to introduce computer architects to the possibilities and challenges of working with photons and designing on-chip photonic interconnection networks.



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