

November 2021: 408pp 246 illustrations

Hb: 978-0-367-26214-3 | \$180.00 eBook: 978-0-429-29203-3

TABLE OF CONTENTS:

<u>Section I High-Performance Computing Interconnect</u> Requirements and Advances

Chapter 1 Silicon Photonic Modulation for High-Performance Computing. Chapter 2 Laser Modulation Schemes for Minimizing Static Power Dissipation. Chapter 3 Scalable Low-Power High-Performance Optical Network for Rack-Scale Computers. Chapter 4 Network-in-Package for Low-Power and High-Performance Computing.

Section II Device- and System-Level Challenges and Improvements

Chapter 5 System-Level Management of Silicon-Photonic Networks in 2.5D Systems. Chapter 6 Thermal Reliability and Communication Performance Co-optimization for WDM-Based Optical Networks-on-Chip. Chapter 7 Exploring Aging Effects in Photonic Interconnects for High-Performance Manycore Architectures. Chapter 8 Improving Energy Efficiency in Silicon Photonic Networks-on-Chip with Approximation Techniques.

Section III Novel Design Solutions and Automation
Chapter 9 Automated, Scalable Silicon Photonics Design and
Verification. Chapter 10 Inverse-Design for High-Performance
Computing Photonics. Chapter 11 Efficiency-Oriented Design
Automation Methods for Wavelength-Routed Optical
Network-on-Chip.

<u>Section IV Novel Materials, Devices, and Photonic Integrated</u> <u>Circuits</u>

Chapter 12 Innovative DWDM Silicon Photonics for High-Performance Computing. Chapter 13 Silicon Photonic Bragg Grating Devices. Chapter 14 Silicon Photonic Integrated Circuits for OAM Generation and Multiplexing. Chapter 15 Novel Materials for Active Silicon Photonics.

Section V Emerging Computing Technologies and Applications Chapter 16 Neuromorphic Silicon Photonics. Chapter 17 Logic Computing and Neural Network on Photonic Integrated Circuit. Chapter 18 High-Performance Programmable MZI-Based Optical Processors. Chapter 19 High-Performance Deep Learning Acceleration with Silicon Photonics.

20% Discount with Discount Code.

Silicon Photonics for High-Performance Computing and Beyond

Edited by **Mahdi Nikdast**, Colorado State University, USA., **Sudeep Pasricha**, Colorado State University, USA, **Gabriela Nicolescu**, Polytechnique Montréal, Canada., **Ashkan Seyedi**, Hewlett Packard Enterprise and **Di Liang**, Hewlett Packard Labs, USA.

This book presents a compilation of 19 outstanding contributions from academic and industry pioneers in the field. The selected contributions present insightful discussions and innovative approaches to understand current and future bottlenecks in high-performance computing systems and traditional computing platforms, and the promise of silicon photonics to address those challenges. The book is ideal for researchers and engineers working in the photonics, electrical, and computer engineering industries as well as academic researchers and graduate students in computer science and engineering, electronic and electrical engineering, applied physics, photonics and optics areas.

20% Discount Available - enter the code FLY21 at checkout*

Hb: 978-0-367-26214-3 | \$144.00

* Offer cannot be used in conjunction with any other offer or discount and only applies to books purchased directly via our website.

To request a copy for review, please contact: https://m.email.taylorandfrancis.com/Review_copy_request



