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Nota di contenuto	1. Introduction to Multicore Systems On-Chip -- 2. Multicore SoCs Design Methods -- 3. Mulicore SoCs Organization -- 4. Multicore SoC On-Chip Interconnection Networks -- 5. Advanced Multicore SoC Interconnects -- 6. 3D Integration Technology for Multicore Systems On-Chip -- 7. Parallelizing Compiler for Single and Multicore Computing -- 8. Power Optimization Techniques for Multicore SoCs -- 9. Real Deign of Embedded Multicore SoC for Health Monitoring.
Sommario/riassunto	From basic architecture, interconnection, and parallelization to power optimization, this book provides a comprehensive description of emerging multicore systems-on-chip (MCSoCs) hardware and software design. Highlighting both fundamentals and advanced software and hardware design, it can serve as a primary textbook for advanced courses in MCSoCs design and embedded systems. The first three chapters introduce MCSoCs architectures, present design challenges and conventional design methods, and describe in detail the main building blocks of MCSoCs. Chapters 4, 5, and 6 discuss fundamental and advanced on-chip interconnection network technologies for multi and many core SoCs, enabling readers to understand the microarchitectures for on-chip routers and network interfaces that are essential in the context of latency, area, and power constraints. With

the rise of multicore and many-core systems, concurrency is becoming a major issue in the daily life of a programmer. Thus, compiler and software development tools are critical in helping programmers create high-performance software. Programmers should make sure that their parallelized program codes will not cause race condition, memory-access deadlocks, or other faults that may crash their entire systems. As such, Chapter 7 describes a novel parallelizing compiler design for high-performance computing. Chapter 8 provides a detailed investigation of power reduction techniques for MCSoCs at component and network levels. It discusses energy conservation in general hardware design, and also in embedded multicore system components, such as CPUs, disks, displays and memories. Lastly, Chapter 9 presents a real embedded MCSoCs system design targeted for health monitoring in the elderly. .