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Graphics Processing Units; 2.1.1 Molecular Mechanics Force Fields; 2.1.2 Graphics Processing Units for MD Simulations; 2.2 Special-Purpose Hardware and Network Topologies for MD Simulations; 2.2.1 High-Throughput Interaction Subsystem; 2.2.2 Hardware Description of the Flexible Subsystem; 2.2.3 Performance and Conclusions
2.3 Quantum MC Applications on Field-Programmable Gate Arrays2.3.1 Energy Computation and WF Kernels; 2.3.2 Hardware Architecture; 2.3.3 PE and WF Computation Kernels; 2.4 Conclusions and Future Directions; References; 3: Embedded GPU Design; 3.1 Introduction; 3.2 System Architecture; 3.3 Graphics Modules Design; 3.3.1 RISC Processor; 3.3.2 Geometry Processor; 3.3.3 Rendering Engine; 3.4 System Power Management; 3.4.1 Multiple Power-Domain Management; 3.4.2 Power Management Unit; 3.5 Implementation Results; 3.5.1 Chip Implementation; 3.5.2 Comparisons; 3.6 Conclusion; References
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5.2 FPGA Configuration Technology

Sommario/riassunto

"The book begins with an introduction of embedded computing systems, honing in on system on a chip (SoCs), multi-processor System-on-Chip (MPSoCs) and Network operation centers (NoCs). It covers on-chip integration of software and custom hardware accelerators, as well as fabric flexibility, custom architectures, and the multiple I/O standards that facilitate PCB integration. The second portion of the book focuses on the technologies associated with embedded computing systems. It also covers the basics of field-programmable gate array (FPGA), digital signal processing (DSP) and application-specific integrated circuit (ASIC) technology, architectural support for on-chip integration of custom accelerators with processors and O/S support for these systems. The third area focuses on architecture, testability and computer-aided design (CAD) support for embedded systems, soft processors, heterogeneous resources, on-chip storage. The final section covers software support, in particular O/S (linux, research and technology organization (RTO))"--