

1. Record Nr.	UNINA9910784548603321
Titolo	Issues and practices [[electronic resource] /] / edited by Patrick Crowley ... [et al.]
Pubbl/distr/stampa	San Francisco, : Morgan Kaufmann, 2005
ISBN	1-280-62622-4 9786610626229 0-08-051250-X
Descrizione fisica	1 online resource (335 p.)
Collana	Network processor design ; ; 3
Altri autori (Persone)	CrowleyPatrick
Disciplina	621.395
Soggetti	Network processors - Design Application-specific integrated circuits - Design
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front Cover; Network Processor Design Issues and Practices; Copyright Page; About the Editors; Contents; Preface; Chapter 1. Network Processors: New Horizons; 1.1 Architecture; 1.2 Tools and Techniques; 1.3 Applications; 1.4 Conclusions; References; Chapter 2. Supporting Mixed Real-Time Workloads in Multithreaded Processors with Segmented Instruction Caches; 2.1 Instruction Delivery in NP Data Processors; 2.2 Segmented Instruction Cache; 2.3 Experimental Evaluation; 2.4 Related Work; 2.5 Conclusions and Future Work; References; Chapter 3. Efficient Packet Classification with Digest Caches 3.1 Related Work3.2 Our Approach; 3.3 Evaluation; 3.4 Hardware Overhead; 3.5 Conclusions; Acknowledgments; References; Chapter 4. Towards a Flexible Network Processor Interface for RapidIO, Hypertransport, and PCI-Express; 4.1 Interface Fundamentals and Comparison; 4.2 Modeling the Interfaces; 4.3 Architecture Evaluation; 4.4 Conclusions; Acknowledgments; References; Chapter 5. A High-Speed, Multithreaded TCP Offload Engine for 10 Gb/s Ethernet; 5.1 Requirements on TCP Offload Solution; 5.2 Architecture of TOE Solution; 5.3 Performance Analysis; 5.4 Conclusions; Acknowledgments; References Chapter 6. A Hardware Platform for Network Intrusion Detection and

Prevention 6.1 Design Rationales and Principles; 6.2 Prototype NNIDS on a Network Interface; 6.3 Evaluation and Results; 6.4 Conclusions; References; Chapter 7. Packet Processing on a SIMD Stream Processor; 7.1 Background: Stream Programs and Architectures; 7.2 AES Encryption; 7.3 IPv4 Forwarding; 7.4 Related Work; 7.5 Conclusions and Future Work; Acknowledgments; References; Chapter 8. A Programming Environment for Packet-Processing Systems: Design Considerations; 8.1 Problem Domain; 8.2 Shangri-La. A Programming Environment for Packet-Processing Systems; 8.3 Design Details and Challenges; 8.4 Conclusions; References; Chapter 9. RNOS-A Middleware Platform for Low-Cost Packet-Processing Devices; 9.1 Scenario; 9.2 Analysis Model of RNOS; 9.3 Implementation Model of RNOS; 9.4 Measurements and Comparison; 9.5 Conclusions and Outlook; Acknowledgments; References; Chapter 10. On the Feasibility of Using Network Processors for DNA Queries; 10.1 Architecture; 10.2 Implementation Details; 10.3 Results; 10.4 Related Work; 10.5 Conclusions; Acknowledgments; References; Chapter 11. Pipeline Task Scheduling on Network Processors; 11.1 The Pipeline Task Assignment Problem; 11.2 The Greedypipe Algorithm; 11.3 Pipeline Design with Greedypipe; 11.4 A Network Processor Problem; 11.5 Conclusions; Acknowledgments; References; Chapter 12. A Framework for Design Space Exploration of Resource Efficient Network Processing on Multiprocessor SoCs; 12.1 Related Work; 12.2 Modeling Packet-Processing Systems; 12.3 Scheduling; 12.4 Mapping the Application to the System; 12.5 Estimating the Resource Consumption; 12.6 A Design Space Exploration Example; 12.7 Conclusions; Acknowledgments

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## Sommario/riassunto

The past few years have seen significant change in the landscape of high-end network processing. In response to the formidable challenges facing this emerging field, the editors of this series set out to survey the latest research and practices in the design, programming, and use of network processors. Through chapters on hardware, software, performance and modeling, Volume 3 illustrates the potential for new NP applications, helping to lay a theoretical foundation for the architecture, evaluation, and programming of networking processors. Like Volume 2 of the series, Volume 3 f

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