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Publications

Books & Book Chapters:

- [B1] Sotiris Ioannidis, Athanasios Papathanasiou, Gregorios Maglis, Evangelos Markatos, Dionisios Pnevmatikatos, and Julia Sevaslidou, ``On Using Reliable Network RAM in Networks of Workstations'', Cluster Computing, pp. 109-121, Chapter 10, 2001, ISBN 1-59033-113-3, Nova Science Publishers, USA.
- [B2] George Kornaros, Ioannis Papaeystathiou, and Dionisios Pnevmatikatos, ``Real-time Monitoring and Diagnostic Services for Networks-on-Chip'', Chanter 9, Networks-on-Chips: Theory and Practice, In Press, Publisher: Taylor & Francis Group LLC - CRC Press, Editors: Fayed Gebali, Haytham Elmiligi, and M.Watheq El-Kharashi.
- [B3] Koen De Bosschere, Wayne Luk, Xavier Martorell, Nacho Navarro, Mike O'Boyle, Dionisios Pnevmatikatos, Alex Ramirez, Pascal Sainrat, André Seznec, Per Stenström, Olivier Temam, ``High-Performance Embedded Architecture and Compilation Roadmap'', *Transactions on High-Performance Embedded Architectures and Compilers*. Springer-Verlag. Vol. 1 (1). 2007. pp. 5-29.
- [B4] «Embedded Systems Design with FPGAs», Athanas, Peter; Pnevmatikatos, Dionisios; Sklavos, Nicolas (Eds.), Springer, ISBN 978-1-4614-1362-2

Journal Publications

- [J1] Jeffrey D. Gee, Mark D. Hill, Dionisios N. Pnevmatikatos, and Alan J. Smith, ``Cache Performance of the SPEC92 Benchmark Suite," IEEE Micro, August 1993.
- [J2] Georgios Kornaros, Dionisios Pnevmatikatos, Panagiota Vatsolaki, Georgios Kalokerinos, Chara Xanthaki, Dimitrios Mavroidis, Dimitrios Serpanos, and Manolis Katevenis, ``Implementation of ATLAS I: a Single-Chip ATM Switch with Backpressure", IEEE Micro, vol. 19, n. 1, pp. 30-41, February 1999.
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- [J4] Dionisios Pnevmatikatos, Evangelos Markatos, Gregory Maglis, and Sotiris Ioannidis, ``On Using Network RAM as a non-volatile Buffer", *Cluster Computing: The Journal on Networks, Software and Applications*, Special Issue on I/O in Shared-Storage Clusters, (4), pp. 295-303, Baltzer Science Publishers, 1999.

- [J5] Evangelos Markatos, Dionisios Pnevmatikatos, Michail Flouris and Manolis Katevenis, ``Secondary Storage Management for Web Proxies," *IEEE Transactions On Networking (TON)*, Vol. 10, No 6, December 2002.
- [J6] Dionisios Pnevmatikatos, Ioannis Soudis and Kyriakos Vlachos, ``An Efficient and Low-Cost Input/Output Subsystem for Network Processors", *IEEE Design and Test of Computers*, Vol. 20, no. 4, pp. 56-64, July 2003.
- [J7] Ioannis Papaefstathiou, Stylianos Perissakis, Theofanis G. Orphanoudakis, Nikos A. Nikolaou, George Kornaros, Nicholas A. Zervos, George Konstantoulakis, Dionisios N. Pnevmatikatos, and Kyriakos Vlachos, ``PRO3: A Hybrid NPU Architecture" , IEEE Micro, Vol. 24, no. 5, pp. 20-33, September/October 2004.
- [J8] Kyriakos Vlachos, Theofanis Orphanoudakis, Yannis Papaefstathiou, Nikolaos Nikolaou, Dionisios Pnevmatikatos, George Konstantoulakis, J. A. Sanchez-P., ``Design and performance evaluation of a Programmable Packet Processing Engine (PPE) suitable for high-speed network processors units", *Journal of Microprocessors and Microsystems*, vol. 31, no 3, 2007.
- [J9] Ioannis Soudis, Dionisios N. Pnevmatikatos, Stamatis Vassiliadis, ``Scalable multigigabit pattern matching for packet inspection", *IEEE Transactions on Very Large Scale Integration (VLSI) Systems*, Volume 16 , Issue 2 (February 2008).
- [J10] Manolis Katevenis, Vassilis Papaefstathiou, Stamatis G. Kavadias, Dionisios N. Pnevmatikatos, Federico Silla, Dimitrios S. Nikolopoulos, ``Explicit Communication and Synchronization in SARC". *IEEE Micro*, vol 30, no 5, pp. 30-41, 2010.
- [J11] George Kalokerinos, Vassilis Papaefstathiou, George Nikiforos, Stamatis Kavadias, Manolis Katevenis, Dionisios Pnevmatikatos and Xiaojun Yang Prototyping a Configurable Cache/Scratchpad Memory with Virtualized User-Level RDMA Capability, *Transactions on HiPEAC*: Volume 5, Issue 3, 2010.
- [J12] G Passas, M Katevenis, D Pnevmatikatos, ``Crossbar NoCs Are Scalable Beyond 100 Nodes", *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 31, no. 4, April 2012.
- [J13] Ioannis Soudis, Christos Strydis, A. Armato, Christos-Savvas Bouganis, Babak Falsafi, Georgi Nedeltchev Gaydadjiev, Sebastian Isaza, Alirad Malek, R. Mariani, Dionisios N. Pnevmatikatos, Dhiraj K. Pradhan, Gerard K. Rauwerda, Robert M. Seepers, Rishad A. Shafik, Kim Sunesen, Dimitris Theodoropoulos, Stavros Tzilis, Michalis Vavouras: ``DeSyRe: On-demand system reliability", *Microprocessors and Microsystems - Embedded Hardware Design* 37(8-C): 981-1001, 2013.
- [J14] George Kornaros, Dionisios N. Pnevmatikatos, ``A survey and taxonomy of on-chip monitoring of multicore systems-on-chip", *ACM Transactions on Design Automation of Electronic Systems* 18(2): 17 (2013)

Conference Publications (Refereed):

- [C1] Dionisios N. Pnevmatikatos, Manoj Franklin, and Gurindar S. Sohi, ``Control Flow Prediction for Dynamic ILP Processors," *Proceedings of the 26th Annual International Symposium on Microarchitecture (MICRO-26)*, December 1993, IEEE/ACM.
- [C2] Dionisios N. Pnevmatikatos and Gurindar S. Sohi, ``Guarded Execution and Branch Prediction in Dynamic ILP Processors," *Proceedings of the 21st Annual International Symposium on Computer Architecture (ISCA-21)*, April 1994, IEEE/ACM.
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- [C4] Georgios Kornaros, Dionisios Pnevmatikatos, Panagiota Vatsolaki, Georgios Kalokerinos, Chara Xanthaki, Dimitrios Mavroidis, Dimitrios Serpanos, and Manolis Katevenis, "Implementation of ATLAS I: a Single-Chip ATM Switch with Backpressure", *Proceedings of the Hot Interconnects VI Symposium*, August 1998.
- [C5] Dionisios Pnevmatikatos, Georgios Kornaros, G. Kalokerinos, and Chara Xanthaki, "The Memory Structures of ATLAS I, a High Performance, 16x16 ATM Switch Supporting Backpressure," *Proceedings of the 11th Annual 1998 IEEE International ASIC Conference*, September 1998.
- [C6] Georgios Kornaros, Dionisios Pnevmatikatos, Dimitrios Mavroidis, Peni Vatsolaki, George Kalokerinos, Chara Xanthaki, Georgios Dimitriadis, "On Optimizing ATLAS I, A 10 Gbps ATM Switch," *Proceedings of the 7-th Hellenic Conference on Informatics*, Ioannina, Greece, August 26-29, 1999, pp. IV.50-IV.60.
- [C7] Dionisios Pnevmatikatos and Georgios Kornaros, "ATLAS II: Optimizing a 10Gbps Single-chip ATM Switch," *12th Annual 1999 IEEE International ASIC/SOC Conference*, Washington, DC, USA, September 15-18, 1999, IEEE.
- [C8] Evangelos Markatos, Manolis Katevenis, Dionisios Pnevmatikatos and Michail Flouris, "Secondary Storage Management for Web Proxies," *Proceedings of the 2nd USENIX Symposium on Internet Technologies and Systems (USITS '99)*, Boulder, CO, USA, October 12-13, 1999, USENIX.
- [C9] Apostolos Dollas, Dionisios Pnevmatikatos, Nikolaos Aslanides, Stamatios Kavvadias, Euripides Sotiriades, Sotiris Zogopoulos, Kyriakos Papademetriou, Architecture and Applications of PLATO, a Reconfigurable Active Network Platform, *Proceedings, 9th International IEEE Symposium on Field-Programmable Custom Computing Machines (FCCM-2001)*, Rohnert Park, CA, April 30 - May 2, 2001, IEEE.
- [C10] Apostolos Dollas, Nikolaos Aslanides, Stamatios Kavvadias, Euripides Sotiriades, Kyriakos Papademetriou, Dionisios N. Pnevmatikatos, Rapid Prototyping of a Reusable 4x4 Active ATM Switch Core with the PCI Pamette, *Proceedings, 12th International IEEE Workshop on Rapid System Prototyping (RSP-2001)*, pp. 17-23, Monterey, CA, June 25-27, 2001, IEEE.
- [C11] Andreas Moshovos, Dionisios Pnevmatikatos, Amirali Baniasadi, "Slice-Processors: An Implementation of Operation-based Prediction", *Proceedings of the 15th ACM International Conference on Supercomputing (ICS)*, Sorrento, Naples, Italy, June, 16 - 21, 2001, ACM.
- [C12] Apostolos Dollas, Dionisios Pnevmatikatos, Nikolaos Aslanides, Euripides Sotiriades, Stamatios Kavvadias, Sotiris Zogopoulos, "Experimental Testing of PLATO, a Reconfigurable Active ATM Network Node", *Proceedings of the 8th Panhellenic Informatics Conference*, Cyprus, November, 2001.
- [C13] K. Vlachos, T. Orphanoudakis, N. Nikolaou, S. Perissakis, D. Pnevmatikatos, G. Kornaros, J.A. Sanchez and G. Konstantoulakis, "Processing and Scheduling Components in an Innovative Network Processor Architecture", *Proceedings of the International Conference on VLSI Design*, New Dehli, India, January 4-8, 2003. (7 pages) IEEE, ACM.
- [C14] Ioannis Sourdis Dionisios Pnevmatikatos, and Kyriakos Vlachos, "An Efficient and Low-Cost Input/Output Subsystem for Network Processors", *Workshop on Application Specific Processors (WASP-1)*, November 19, 2002, Istanbul, Turkey (8 pages).
- [C15] George Lykakis, Nikolaos Mouratidis, George Konstantoulakis, Kyriakos Vlachos, Nikolaos Nikolaou, Stylianos Perissakis, Ioannis Sourdis, Dionisios Pnevmatikatos, Dionisios Reisis, "Efficient Field Processing Cores In An Innovative Protocol Processor System-On-Chip", *Design Automation and Test Europe (DATE)*, March 3-7, 2003, Munich, Germany.
- [C16] Ioannis Sourdis and Dionisios Pnevmatikatos, "Fast, Large-Scale String Match for a 10Gbps FPGA-based Network Intrusion Detection System", *13th International Conference on Field Programmable Logic and Applications (FPL)*, September 1-3, 2003, Lisbon – Portugal.

- [C17]** I. Charitakis, Dionisios Pnevmatikatos, Evangelos Markatos, Kostas Anagnostakis
``S2I: a Tool for Automatic Rule Match Compilation for the IXP Network Processor''.
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Austria.
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High-Speed NIDS Pattern Matching'', Proceedings of the Twelfth Annual IEEE
Symposium on Field Programmable Custom Computing Machines (FCCM), April 20 -
23, 2004, Napa, California, USA.
- [C19]** Vassilios Dimopoulos, Giorgos Papadopoulos and Dionisios Pnevmatikatos, ``On the
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November 11-13, 2005, Volos, Greece. Lecture Notes in Computer Science, Vol.
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- [C20]** Ioannis Soudis, Dionisios Pnevmatikatos, Stephan Wong, and Stamatis Vassiliadis,
``A Reconfigurable Perfect-Hashing Scheme for Packet Inspection'', Proceedings of
the 15th International Conference on Field Programmable Logic and Applications
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- [C21]** Giorgos Papadopoulos and Dionisios Pnevmatikatos, ``Hashing + Memory = Low
Cost, Exact Pattern Matching'', Proceedings of the 15th International Conference on
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Finland.
- [C22]** Aggelos Arelakis and Dionisios Pnevmatikatos, ``Variable-Length Hashing for Exact
Pattern Matching'', Proceedings of the 16th International Conference on Field
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- [C24]** Ioannis Mavroidis, Ioannis Papaefstathiou and Dionisios Pnevmatikatos, ``Hardware
Implementation of 2-Opt Local Search Algorithm for the Travelling Salesman
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- [C25]** George Michelogiannakis and Dionisios Pnevmatikatos and Manolis Katevenis,
``Approaching Ideal NoC Latency with Pre-Configured Routes'', NOCS '07:
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- [C26]** Ioannis Mavroidis and Ioannis Papaefstathiou and Dionisios Pnevmatikatos, ``A Fast
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- [C27]** Vassilis Dimopoulos, Ioannis Papaefstathiou, Dionisios N. Pnevmatikatos, ``A
Memory-Efficient Reconfigurable Aho-Corasick FSM Implementation for Intrusion
Detection Systems'', Proceedings of the 2007 International Conference on Embedded
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Samos, Greece, July 16-19, 2007.
- [C28]** Vassilis Papaefstathiou, Dionisios N. Pnevmatikatos, Manolis Marazakis, Giorgos
Kalokairinos, Aggelos Ioannou, Michael Papamichael, Stamatis Kavadias, Giorgos
Mihelogiannakis, Manolis Katevenis, ``Prototyping Efficient Interprocessor
Communication Mechanisms'', Proceedings of the 2007 International Conference on
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2007), Samos, Greece, July 16-19, 2007.
- [C29]** Ioannis Papaefstathiou, Dimitris Mprachos, Christodoulos Yannakou, Nikolaos
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- [C31] Panagiotis Afratis, Constantinos Galanakis, Euripides Sotiriades, Georgios-Grigoris Mplemenos, Grigoris Chrysos, Yiannis Papaefstathiou, Dionisios Pnevmatikatos, “Design and Implementation of a Database Filter for BLAST Acceleration”, In Proceedings, Design, Automation and Test Europe, 20-24 April 2009, Nice, France.
- [C32] George Kalokerinos, Vassilis Papaefstathiou, George Nikiforos, Stamatis Kavadias, Manolis Katevenis, Dionisios Pnevmatikatos and Xiaojun Yang, “FPGA Implementation of a Configurable Cache/Scratchpad Memory with Virtualized User-Level RDMA Capability”, Proceedings of the 2009 International Conference on Embedded Computer Systems: Architectures, Modelling and Simulation (IC-SAMOS 2009), Samos, Greece, July 20-23, 2009.
- [C33] Konstantinos Kyriakoulakos, Dionisios Pnevmatikatos, “A Novel SRAM-Based FPGA Architecture for Efficient TMR Fault Tolerance Support”, Proceedings of the 19th International Conference on Field Programmable Logic and Applications (FPL), August 31-September 2, 2009, Prague, Czech Republic.
- [C34] Dimitrios Kontos, Ioannis Papaefstathiou, Dionisios Pnevmatikatos, “Design Space Exploration of Reconfigurable Systems for Calculating Flying Object’s Optimal Noise Reduction Paths”, Proceedings of the 19th International Conference on Field Programmable Logic and Applications (FPL), August 31-September 2, 2009, Prague, Czech Republic.
- [C35] K. Siozios, D. Soudris, and D. Pnevmatikatos, “A Framework for Enabling Fault Tolerance in Reconfigurable Architectures”, Proceedings of the 6th International Symposium on Applied Reconfigurable Computing (ARC), pp. 257–268, March 2010.
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- [C37] K. Siozios, D. Soudris, D. Pnevmatikatos, “Towards Supporting Fault-Tolerance in FPGAs” 2010 IEEE Computer Society Annual Symposium on VLSI (ISVLSI), 446-447, 5-7 July 2010.
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- [C39] G. Kornaros, D. Pnevmatikatos, “Hardware-assisted dynamic power and thermal management in multi-core SoCs”, Proceedings of the 21st edition of the Great Lakes symposium on VLSI (GL-VLSI), pp. 115-120, May 2011
- [C40] Spyros Lyberis, George Kalokerinos, Michalis Lygerakis, Vassilis Papaefstathiou, Dimitris Tsaliagkos, Manolis Katevenis, Dionisios Pnevmatikatos, Dimitris Nikolopoulos, “Formic: Cost-efficient and Scalable Prototyping of Manycore Architectures” 20th IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM), April 2012.
- [C41] Kyprianos Papadimitriou, Christian Pilato, Dionisios N. Pnevmatikatos, Marco D. Santambrogio, Catalin Bogdan Ciobanu, Tod Todman, Tobias Becker, Tom Davidson, Xinyu Niu, Georgi Gaydadjiev, Wayne Luk, Dirk Stroobandt: Novel Design Methods and a Tool Flow for Unleashing Dynamic Reconfiguration. CSE 2012: 391-398

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- [C43] Ioannis Soudis, Christos Strydis, Christos-Savvas Bouganis, Babak Falsafi, Georgi Nedeltchev Gaydadjiev, Alirad Malek, R. Mariani, Dionisios N. Pnevmatikatos, D. K. Pradhan, Gerard K. Rauwerda, Kim Sunesen, Stavros Tzilis: The DeSyRe Project: On-Demand System Reliability. Proceedings, DSD 2012: 335-342
- [C44] Spyros Lyberis, George Kalokerinos, Michalis Lygerakis, Vassilis Papaefstathiou, Dimitrios Tsaliagkos, Manolis Katevenis, Dionisios N. Pnevmatikatos, Dimitris S. Nikolopoulos: Formic: Cost-efficient and Scalable Prototyping of Manycore Architectures. Proceedings, FCCM 2012: 61-64
- [C45] Kyprianos Papadimitriou, Charalampos Vatsolakis, Dionisios N. Pnevmatikatos: Acceleration of computationally-intensive kernels in the reconfigurable era. Proceedings, ReCoSoC 2012: 1-5
- [C46] Marco D. Santambrogio, Dionisios N. Pnevmatikatos, Kyprianos Papadimitriou, Christian Pilato, Georgi Gaydadjiev, Dirk Stroobandt, Tom Davidson, Tobias Becker, Tim Todman, Wayne Luk, Alessandra Bonetto, Andrea Cazzaniga, Gianluca Durelli, Donatella Sciuto: "Smart technologies for effective reconfiguration: The FASTER approach". Proceedings, ReCoSoC 2012: 1-7
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- [C48] George Kornaros, Dionisios N. Pnevmatikatos: Real-Time Monitoring of Multicore SoCs through Specialized Hardware Agents on NoC Network Interfaces. IPDPS Workshops 2012: 248-255
- [C49] Kyprianos Papadimitriou, Dionisios N. Pnevmatikatos, Apostolos Dollas, Christos Koulamas, Stavros Aggelidakis, Petros Chatzidakis, Leonidas Vasilikiotis, Maria Emmanouilidou: Developing RFID-Based Systems for Security in Marine Transportations. Panhellenic Conference on Informatics 2012: 50-55
- [C50] Panagiotis Papantonakis, Dionisios N. Pnevmatikatos, Ioannis Papaefstathiou, Charalampos Manifavas: Fast, FPGA-based Rainbow Table creation for attacking encrypted mobile communications. FPL 2013: 1-6
- [C51] Vassilis Papaefstathiou, Manolis Katevenis, Dimitrios S. Nikolopoulos, Dionisios N. Pnevmatikatos: Prefetching and cache management using task lifetimes. ICS 2013: 325-334
- [C52] Dimitris Theodoropoulos, Polyvios Pratikakis, Dionisios N. Pnevmatikatos: Efficient runtime support for embedded MPSoCs. ICSAMOS 2013: 164-171

Conference Poster Publications (accepted after Full Paper Review):

- [P1] George Kornaros, Ioannis Papaefstathiou, Dionisios Pnevmatikatos, ``Dynamic Software-Assisted Monitoring of On-Chip Interconnects'', In Proceedings, Workshop

on Diagnostic Services in Network-on-Chips, IEEE Design Automation & Test in Europe 2007, Nice, France, April 16-20, 2007, 2-page Full paper.

- [P2] Panagiotis Afratis, Eryripides Sotiriades, Grigoris Chrysos, Sotiria Fytraki, Dionisios Pnevmatikatos, "A Rate-based Prefiltering Approach to BLAST Acceleration", In Proceedings, International Conference on Field Programmable Logic and Applications (FPL), September 8-10, 2008, Full 6-page, Poster Presentation.
- [P3] Dimitris Theodoropoulos, Ioannis Papaefstathiou and Dionisios Pnevmatikatos, "Cproc: An efficient Cryptographic Coprocessor", In Proceedings, 16th IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SoC), October 13-15, 2008, 4-page paper, Poster Presentation.
- [P4] Dimitris Theodoropoulos, Alexandros Siskos, Dionisios Pnevmatikatos, "CCproc: A custom VLIW cryptography co-processor for symmetric-key ciphers", 5th International Workshop on Applied Reconfigurable Computing (ARC) 2009, Full 6-page paper, Poster Presentation.
- [P5] Catalin Bogdan Ciobanu, Dionisios N. Pnevmatikatos, Kyprianos D. Papadimitriou, Georgi Nedeltchev Gaydadjiev: FASTER run-time reconfiguration management. ICS 2013: 463-464

Awards

HiPEAC Award for the paper "Formic: Cost-efficient and Scalable Prototyping of Manycore Architectures», Spyros Lyberis, George Kalokerinos, Michalis Lygerakis, Vassilis Papaefstathiou, Dimitris Tsaliagkos, Manolis Katevenis, Dionisios Pnevmatikatos, Dimitris Nikolopoulos, published at Field-Programmable Custom Computing Machines, 2012.

Patents

"Data Cache Fast Address Calculation System and Method". Εφευρέτες: Todd M. Austin, Dionisios N. Pnevmatikatos, και Gurindar S. Sohi, USA Patent Number 5,860,151 (January 12, 1999).