

## **Publication List**

### **Books**

Bode, A.; Karl, W.: *Multicore-Architekturen*. Reihe Informatik im Fokus. Springer-Verlag Heidelberg, to appear

Karl, W.: *Architektur und effiziente Programmierung von Cluster-Systemen*. Habilitationsschrift, Technische Universität München, Januar 2002.

Karl, W.: *Architektureigenschaften und Parallelisierungsmethoden für Rechner mit Funktionspipelining*. Dissertation. Technische Universität München, 1992.

Karl, W.: *Parallele Prozessorarchitekturen – Codegenerierung für superskalare, superpipelined und VLIW-Prozessoren*. Reihe Informatik, Bd. 93, BI-Wissenschaftsverlag, Mannheim, 1993

### **Publications as Editor**

Karl, W.: Mitherausgeber der Buchreihe Informatik im Fokus, Springer-Verlag

Karl, W.; Dimitrios Soudris: *ARCS'11 24th International Conference on Architecture of Computing Systems Workshop Proceedings, February 2011, Como, Italy, VDE-Verlag*

Müller-Schloer, Ch.; Karl, W.; Yehia, S.: *Architecture of Computing Systems – ARCS 2010 23rd International Conference Hannover, Germany, February 2010 Proceedings. Lecture Notes in Computer Science, Vol. 5974, Springer Verlag, Heidelberg, 2010*

Patterson, D. A.; Hennessy, J. L.: *Rechnerorganisation und -entwurf Die Hardware / Software-Schnittstelle*. Elsevier Spektrum Akademischer Verlag, 3. Auflage, 2005. Deutsche Ausgabe herausgegeben von A. Bode, W. Karl, T. Ungerer.

Karl, W. (Gastherausgeber): *Rechnerarchitektur in Deutschland. it – Information Technology, Vol. 47, No. 3, Oldenbourg-Verlag, München, 2005*

Bode, A.; Karl, W. (Hrsg.): *APC 2001 Arbeitsplatzcomputer, Vorträge der Fachtagung der GI/ITG Fachgruppe APS+PC zum Thema „Pervasive Ubiquitous Computing“ vom 10. bis 12. Oktober 2001 in München. ITG Fachberichte Nr. 168, VDE-Verlag, Berlin, Oktober 2001*

Bode, A.; Ludwig, T.; Karl, W.; Wismüller, R. (Eds.): *Euro-Par 2000 Parallel Processing / 6th International Euro-Par Conference München, Germany, August/September 2000 Proceedings*. Springer-Verlag, Heidelberg, Lecture Notes in Computer Science, Band 1900, August 2000

Karl, W.; Horn, G. (Eds.): *Proceedings of the SCI-Europe 2000 Conference – 3<sup>rd</sup> International Conference on SCI-based Technology and Research*. München, Germany, August 29-30, 2000. SINTEF Electronics and Cybernetics, August 2000, ISBN 82-595-9964-3

Karl, W.; Horn, G. (Eds.): *Proceedings of the SCI-Europe'99 Conference – 2<sup>nd</sup> International Conference on SCI-based Technology and Research*. Toulouse, France, September 2-3, 1999. SINTEF Electronics and Cybernetics, August 2000, ISBN 82-14-00014-9

## Publications in Journals and Book Chapters

Kicherer, M.; Nowak, F.; Buchty, R.; Karl, W.: Seamlessly Portable Applications: Managing the Diversity of Modern Heterogeneous Systems. ACM Transactions on Architecture and Code Optimization (TACO) Volume 8 Issue 4, January 2012

Kramer, D.; Buchty, R.; Karl, W.: *Monitoring and Self-awareness for Heterogeneous, Adaptive Computing Systems*. In: Organic Computing - A Paradigm Shift for Complex Systems, pages 163-177. Springer Basel, Series "Autonomic Systems", Volume 1, Part 2, ISBN 978-3-0348-0130-0, June 2011.

Ebi, T.; Kramer, D.; Schuck, C.; von Renteln, A.; Becker, J.; Brinkschulte, U.; Henkel, J.; Karl, W.: *DodOrg -- A Self-adaptive Organic Many-core Architecture*. In: Organic Computing - A Paradigm Shift for Complex Systems, pages 353-368. Springer Basel, Series "Autonomic Systems", Volume 1, Part 2, ISBN 978-3-0348-0130-0, June 2011.

Rainer Buchty, Vincent Heuveline, Wolfgang Karl, Jan-Philipp Weiß: *A Survey on Hardware-aware and Heterogeneous Computing on Multicore Processors and Accelerators*. "Concurrency and Computation: Practice and Experience", Journal, John Wiley & Sons, Ltd., ISSN 1532-0634, September 2011

Eichinger, F.; Kramer, D.; Böhm, K.; Karl, W.: *From Source Code to Runtime Behaviour: Software Metrics Help to Select the Computer Architecture*. In: Knowledge Based Systems, Volume 23, Issue 4, May 2010, pp. 343-349, Elsevier, Mai 2010

Tao, J.; Kunze, M.; Nowak, F.; Buchty, R.; Karl, W.: *Performance Analysis of Reconfigurable Cache Design on Multicore Processor Systems*. In: International Journal on Parallel Programming, Vol. 36, No. 3, Springer-Verlag, Heidelberg, June 2008, pp. 347-360

Buchty, R.; Karl, W.: *Design Aspects for Self-Organizing Heterogeneous Multi-Core Architectures*. In: it – Information Technology, 5/2008, Special Issue "Computer Architecture Challenges", Oldenbourg Wissenschaftsverlag, 2008, pp. 293-299

Brandes, T.; Schwamborn, H.; Gerndt, M.; Jeitner, J.; Kereku, E.; Schulz, M.; Brunst, H.; Nagel, W.; Neumann, R.; Müller-Pfefferkorn, R.; Trenkler, B.; Karl, W.; Tao, J.; Hoppe, H.: *Monitoring Cache Behavior on Parallel SMP Architectures and Related Programming Tools*. In: Future Generation Computer Systems, Elsevier B.V., Vol. 21, No. 8, October 2005, pp. 1298 - 1311

Tao, J.; Schulz, M.; Karl, W.: *Simulation as a Tool for Optimizing Memory Accesses on NUMA Machines*. In: Performance Evaluation, Vol. 60, No. 1-4, Elsevier B.V., May 2005, pp. 31-50

Tao, J.; Schulz, M.; Karl, W.: *ARS: An Adaptive Runtime System for Locality Optimization*. In: Future Generation Computer Systems. Elsevier B.V., Vol. 19, No. 5, 2003, pp.761-776.

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Wismüller, R.; Ludwig, T.; Karl, W.; Bode, A.: *Monitoring Concepts for Parallel Systems AN Evolution Towards Interoperable Tool Environments*. In: Ludwig, T.; Miller, B. (Eds.): Parallel and Distributed Computing Practices, Nova Science Publishers, New York, Vol. 4, No. 3, September 2003, pp. 1-21

Karl, W.; Torralba, G.; Gonzáles, V.; Sanchis, E.; Tao, J.; Schulz, M.: *Data Monitoring in High-Performance Clusters for Computing Applications*. IEEE Transactions on Nuclear Science. Vol. 49, No. 2, April 2002, pp. 525-531

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Weiß, C.; Kowarschik, M.; Rüde, U.; Karl, W.: *Cache-aware Multigrid Methods for Solving Poisson's Equation in Two Dimensions*. *Computing*, Vol. 64, Issue 4, Springer-Verlag, 2000, pp. 0381-0399.

Acher, G.; Karl W.; Leberecht, M.: *The TUM PCI/SCI Adapter*. In: Hellwagner, H., Reinefeld, A. (Eds.): *SCI Scalable Coherent Interface Architecture and Software for High-Performance Compute Clusters*, Springer-Verlag, LNCS State-of -the Arte Survey, Vol. 1734, Berlin, (1999), pp. 89-101

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Karl, W.: *Leistungsmessungen an einem RISC-Prozessor*. In: *Elektronik*, 11, 1989, pp. 130-135

## Publications in Conferences

Nehir Sonmez, Oriol Arcas, Philipp Kirchhofer, Martin Schindewolf, Osman S. Unsal, Adrián Cristal, and Wolfgang Karl. A low-overhead Profiling and Visualization Framework for Hybrid Transactional Memory. In *FCCM 2012: The 20th Annual IEEE International Symposium on Field-Programmable Custom Computing Machines*, pages 1–8, 2012. <http://fccm12.cse.sc.edu/4699a001.pdf>.

Ebi, T.; Kramer, D.; Henkel, J.; Karl, W.: Economic Learning for Thermal-aware Power Budgeting in Many-core Architectures. In: *Proceedings of the seventh IEEE/ACM/IFIP international conference on Hardware/software codesign and system synthesis - CODES+ISSS '11*, pages 189-196, ACM, Series "CODES+ISSS '11", ISBN 978-1-4503-0715-4, New York, NY, USA, October 9-14 2011

David Kramer, Rainer Buchty, Wolfgang Karl: A Light-Weight Approach for Online State Classification of Self-organizing Parallel Systems. In: *Architecture of Computing Systems - ARCS 2011*, pages 183-194. Springer, Series "Lecture Notes of Computer Science (LNCS)", Volume 6566, ISBN 978-3-642-19136-7, Lake Como, Italy, February 22-25 2011

Alexander von Renteln, Uwe Brinkschulte, David Kramer, Wolfgang Karl, Christian Schuck, Jürgen Becker: *Digital On-demand Computing Organism - Interaction between Monitoring and Middleware*. In: *14th IEEE International Symposium on Object/Component/Service-Oriented Real-Time Distributed Computing*, pages 189-196, IEEE Computer Society, Newport Beach, CA, USA, March 28-31, 2011

Mario Kicherer, Rainer Buchty, Wolfgang Karl: *Cost-Aware Function Migration in Heterogeneous Systems*. *HiPEAC 2011 - Proceedings of the 6th International Conference on High Performance and Embedded Architectures and Compilers*. ACM Digital Library, 2011, ISBN 978-1-4503-0241-8, Heraklion, Greece, January 2011, pp. 137 - 145

Martin Schindewolf, Alexander Esselson and Wolfgang Karl. : Compiler-Assisted Selection of a Software Transactional Memory System. In: Architecture of Computing Systems - ARCS 2011, Seiten 147-157. Springer, Reihe "Lecture Notes in Computer Science", Volume 6566, ISBN 978-3-642-19136-7, Lake Como, Italien, 22.-25. Februar 2011.

Martin Schindewolf, Oliver Mattes, Wolfgang Karl: Thread Creation for Self-aware Parallel Systems. In: Facing the Multicore-Challenge, Seiten 42-53. Springer Berlin / Heidelberg, Reihe "Lecture Notes in Computer Science", Volume 6310, ISBN 978-3-642-16232-9, Heidelberg, Deutschland, 17.-19. März 2010.

Mattes, O.; Schindewolf, M.; Karl, W.: Facing the Multicore-Challenge, Heidelberger Akademie der Wissenschaften, Heidelberg, Germany, March 17-19, 2010

Eichinger, F.; Kramer, D.; Böhm, K.; Karl, W.: *From Source Code to Runtime Behaviour: Software Metrics Help to Select the Computer Architecture*. In: Proceedings AI-2009 Twenty-ninth SGA International Conference on Artificial Intelligence, Cambridge, UK, Dec. 2009, Springer,

Kurze, T.; Wang, L.; von Laszewski, G.; Tao, J.; Kunze, M.; Wang, F.; Kramer, D.; Karl, W.; Ekanayake, J.: *Cyberaide Virtual Appliance: On-demand Deploying Middleware for Cyberinfrastructure*. In: Proceedings of the First International Conference on Cloud Computing, Munich, Germany, October 19-21 2009

Buchty, R.; Kicherer, M.; Kramer, D.; Karl, W.: An Embrace-and-Extend Approach to Managing the Complexity of Future Heterogeneous Systems. In: Bartels, K. et.al.: Embedded Computer Systems: Architectures, Modeling, and Simulation. Lecture Notes in Computer Science, 2009, Volume 5657/2009, 227-236, DOI: 10.1007/978-3-642-03138-0\_25

Buchty, R.; Kramer, D.; Kicherer, M.; Karl, W.: *A Light-Weight Approach to Dynamical Runtime Linking Supporting Heterogeneous, Parallel, and Reconfigurable Architectures*. In: Mladen Berenkovic, Christian Müller-Schloer, Christian Hochberger, and Stephan Wong (Eds.) Architecture of Computing Systems – ARCS 2009 22nd International Conference, Delft, The Netherlands, March 2009. Proceedings, Lecture Notes in Computer Science Vol. 5455, Springer Heidelberg / Berlin, March 2009, pp. 60 - 71

Lizhe Wang, Jie Tao, Marcel Kunze, Alvaro Canales Castellanos, David Kramer, Wolfgang Karl: *Scientific Cloud Computing: Early Definition and Experience*. The 10th IEEE Conference on High Performance Computing and Communications (HPCC'08), DeLian, China, September 25-27, 2008

Buchty, R.; Kramer, D.; Karl, W.: *An Organic Computing Approach to Sustained Real-time Monitoring*. In: Biologically-Inspired Collaborative Computing - IFIP 20th World Computer Congress, Second IFIP TC 10 International Conference on Biologically-Inspired Collaborative Computing, September 8-9, 2008, Milano, Italy. IFIP International Federation for Information Processing. Vol. 268/2008, Springer, Boston, 2008, pp. 151-162

Buchty, R.; Mattes, O.; Karl, W.: *Self-aware Memory: Managing Distributed Memory in an Autonomous Multi-master Environment*. In: Uwe Brinkschulte, Theo Ungerer, Christian Hochberger und Rainer G. Spallek (Eds.) Architecture of Computing Systems – ARCS 2008 21st International Conference, Dresden, Germany, February 25-28, 2008. Proceedings, Lecture Notes in Computer Science Vol. 4934, Springer Heidelberg / Berlin, Februar 2008, pp. 98-113

Tao, J.; Kunze, M.; Karl, W.: *Evaluating the Cache Architecture of Multicore Processors*. Proceedings 16<sup>th</sup> Euromicro International Conference on Parallel, Distributed and Network-based Processing PDP 2008, Toulouse, France, IEEE Computer Press, Feb. 2008

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Tao, J.; Dressler, T.; Karl, W.: *An Interactive Graphical Environment for Code Optimization*. Computational Science – ICCS 2007 7th International Conference, Beijing, China, May 27 - 30, 2007, Proceedings, Part II, Lecture Notes in Computer Science, Vol. 4488, Springer-Verlag, Berlin / Heidelberg, 2007, pp. 831-838

Tao, J.; Gaugler, T.; Karl, W.: *A Profiling Tool for Detecting Cache-Critical Data Structures*. In: Anne-Marie Kermarrec, Luc Bougé und Thierry Priol (Eds.) Euro-Par 2007 Parallel Processing 13th International Euro-Par Conference, Rennes, France, August 28-31, 2007. Proceedings. Lecture Notes in Computer Science Vol. 4641, Springer Berlin/Heidelberg, September 2007, pp. 52-61

Tao, J.; Karl, W.: *Supporting Cache Locality Optimization with a Toolset*. In: Wolfgang E. Nagel, Wolfgang V. Walter and Wolfgang Lehner (Eds.): Euro-Par 2006 Parallel Processing 12th International Euro-Par Conference, Dresden, Germany, August 28 – September 1, 2006. Proceedings, LNCS, Nr. 4128, Springer, Heidelberg, 2006, p. 25-34

Löw, H.-P.; Buchty, R.; Karl, W.: *A Network Agent for Diagnosis and Analysis of Real-Time Ethernet Networks*. International Conference on Compilers, Architecture, and Synthesis for Embedded Systems (CASES 2006), ACM Press, ISBN 1-59593-543-6, Seoul, Korea, October 2006, pp. 65-73

Tao, J.; Schloissnig, S.; Karl, W.: *Analysis of the Spatial and Temporal Locality in Data Accesses*. In: Vassil N. Alexandrov, Geert Dick van Albada, Peter M.A. Sloot, Jack Dongarra (Eds.): Computational Science – ICCS 2006: 6th International Conference, Reading, UK, May 28-31, 2006. Proceedings, Part II, Lecture Notes in Computer Science, Vol. 3992, Springer, Berlin, Heidelberg, 2006, pp. 502 – 509

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Karl, W.: *Some Design Aspects for VLIW Architectures Exploiting Fine-Grained Parallelism*. In Bode, Arndt, Mike Reeve und G. Wolf (Eds.): *PARLE'93 Parallel Architectures and Languages Europe*, 5th International PARLE Conference. München: Springer-Verlag, (Juni 1993), LNCS 694, pp. 582-599.

Bemmerl, T.; Karl, W.; Luksch, P.: *Evaluierung von Architekturparametern verschiedener Rechnerstrukturen mit Hilfe von CAE-Workstations*. In: P. Müller-Stoy: *Architektur von Rechensystemen*. Tagungsband 11. ITG/GI Fachtagung München, März 1990, Berlin: VDE Verlag, pp. 255-274

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## **Publications in Workshops**

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