

Publications

Prof. Dr. Peter Marwedel, TU Dortmund

Books and monographs

Peter Marwedel: *Entwicklung und Anwendung von Methoden zur stochastischen Behandlung von linearen und nichtlinearen Systemen am Beispiel eines Radiofrequenzspektrometers* (Development and application of methods for stochastic modelling of linear and non-linear systems using a radio frequency spectrum analyser as an example), *PhD thesis, Institut für Angewandte Physik der Universität Kiel*, 1974

Gerhard Zimmermann, Peter Marwedel: *Elektrotechnische Grundlagen der Informatik I* (Fundamentals of electronics for computer scientists I), *Bibliographisches Institut Mannheim*, 1974

Peter Marwedel: *Ein Software-System zur Synthese von Rechnerstrukturen und zur Erzeugung von Mikrocode* (A software system for the synthesis of computer structures and the generation of microcode), *habilitation thesis, Universität Kiel*, 1985; reprint: *Report 356, FB Informatik der Universität Dortmund*, 1990

Peter Marwedel: *Synthese und Simulation von VLSI-Systemen* (Synthesis and Simulation of VLSI-Systems), *Carl-Hanser*, 1993, ISBN: 978-3446161467

Peter Marwedel, Gert Goossens (ed.): *Code generation for embedded processors*, *Kluwer Academic Publishers*, June 1995, ISBN: 978-0792395775

Rainer Leupers, Peter Marwedel: *Retargetable Compiler Technology for Embedded Systems - Tools and Applications*, *Kluwer Academic Publishers*, Oct 2001, ISBN 0-7923-7578-5

Heiko Falk and Peter Marwedel: *Source Code Optimization Techniques for Data Flow Dominated Embedded Software*, *Kluwer Academic Publishers*, October 2004, ISBN 1-4020-2822-9

Lars Wehmeyer, Peter Marwedel: *Fast, Efficient and Predictable Memory Accesses - Optimization Algorithms for Memory Architecture Aware Compilation*, *Springer-Verlag*, June 2006, ISBN: 1402048211

Manish Verma, Peter Marwedel: *Advanced Memory Optimization Techniques for Low-Power Embedded Processors*, *Springer-Verlag*, May 2007, ISBN: 978-1-4020-5896-7

Peter Marwedel: *MIMOLA – A Fully Synthesizable Language*, in: Prabhat Mishra Nikil Dutt (ed.): *Processor Description Languages – Applications and Methodologies*, *Morgan Kaufmann*, 2008, p. 29-38, ISBN: 978-0123742872

Paul Lokuciejewski, Peter Marwedel. *Worst-Case Execution Time Aware Compilation Techniques for Real-Time Systems*. *Springer*, November 2010.

Alberto Sangiovanni-Vincentelli, Haibo Zeng, Marco Di Natale and Peter Marwedel (Ed.): *Modeling, Analysis and Synthesis of Embedded Software and Systems*, *Springer*, 2013

Textbook on Embedded Systems

Peter Marwedel: Embedded System Design, *Kluwer Academic Publishers*, Nov. 2003, ISBN 1-4020-7690-8

Peter Marwedel: Embedded System Design, (second, corrected printing; paperback), *Springer-Verlag*, Nov. 2005

Peter Marwedel: Eingebettete Systeme, (extended German edition), *Springer-Verlag*, March 2007 (second printing: 2008)

Peter Marwedel: Embedded System Design, (reprint of the 2nd printing with a Chinese preface exclusively for the Chinese market), April 2007, *Science Publishers*, ISBN 978-7-03-018247-0

Peter Marwedel: Embedded Systems Design - Embedded Systems Foundations of Cyber-Physical Systems (2nd ed.), *Springer-Verlag*, 2011, ISBN 978-94-007-0256-1

Peter Marwedel: Embedded Systems Design - Embedded Systems Foundations of Cyber-Physical Systems (2nd ed.), in Chinese, China Machine Press, 2013

Peter Marwedel: Embedded Systems Design - Embedded Systems Foundations of Cyber-Physical Systems (2nd ed.), in Greek, Davinci Books, 2016

Peter Marwedel: Embedded Systems Design - Embedded Systems Foundations of Cyber-Physical Systems (3rd ed.), *Springer-Verlag*, 2018, ISBN 978-3-319-56043-4

Refereed Publications

1975

Peter Marwedel: Einfluss linearer und nichtlinearer Systeme auf stochastische Prozesse (Influence of linear and nonlinear systems on stochastic processes), *Archiv für Elektronik und Übertragungstechnik (AEÜ)*, Vol. 29, 1975, p. 480-484

Peter Marwedel: The MIMOLA Design System: Detailed Description of the Software System, *Proc. 16th Design Automation Conference*, 1979, p. 59-63

1980

Peter Marwedel: The Design of a Subprocessor with Dynamic Microprogramming with MIMOLA, in: G.Zimmermann (ed.), *Informatik-Fachberichte*, Vol. 27, 1980, p. 164-177

1981

Peter Marwedel: A Retargetable Microcode Generation System for a High-Level Microprogramming Language, *ACM Sigmicro Newsletter*, Vol. 12, 1981, p. 115-123

Peter Marwedel: Statistical Studies of Horizontal Microprograms, in: M. Breuer, R.W. Hartenstein (eds.): *Computer Hardware Description Languages and Their Applications*, North Holland, 1981, p. 281-292

1982

Peter Marwedel: The Integrated Design of Computer Systems with MIMOLA, *GI-Jahrestagung 1982, Informatik-Fachberichte, Springer*, Vol. 57, 1982, p. 45-57

1984

Peter Marwedel: The MIMOLA Design System: Tools for the Design of Digital Processors, *Proc. 21st Design Automation Conference*, 1984, p. 587-593

Peter Marwedel: A Retargetable Compiler for a High-Level Microprogramming Language, *ACM SIGMICRO Newsletter*, Vol. 15, 1984, p.267-274

1985

Peter Marwedel: The MIMOLA Design System: A Design System Which Spans Several Levels, in: *W.K. Giloi, B.D. Shriver (eds.): Methodologies for Computer System Design, North Holland*, 1985, p. 223-237

1986

Peter Marwedel: A New Synthesis Algorithm for the MIMOLA Software System, *23rd Design Automation Conference*, 1986, p.271-277

Peter Marwedel: An Algorithm for the Synthesis of Processor Structures from Behavioural Specifications, *Microprocessing and Microprogramming (EUROMICRO Journal)*, Vol. 18, 1986, p. 251-262

1987

Peter Marwedel: On the Use of Hierarchies in the MIMOLA Hardware Design System, *CompEuro Conf. on Computers and VLSI*, Hamburg, 1987, p. 944-948

Lothar Nowak, Peter Marwedel: Ein retargierbarer Mikrocode-Compiler und seine Anwendung in Entwurfsverifikation und Architekturbewertung, in: R. Valk (ed.): *18. GI-Jahrestagung, Informatik-Fachberichte*, Vol. 188, Springer, p.233-245

1989

L. Nowak, Peter Marwedel: Verification of Hardware Descriptions by Retargetable Code Generation, *26th Design Automation Conference*, 1989, p. 441-447

M. Balakrishnan, Peter Marwedel: Integrated Scheduling and Binding: A Synthesis Approach for Design Space Exploration, *26th Design Automation Conference*, 1989, p. 68-74

Peter Marwedel, Wolfgang Schenk: Improving the Performance of High-Level Synthesis, *Microprogramming and Microprocessing*, Vol. 27, 1989, p. 381-388

Oliver Broß, Peter Marwedel, Wolfgang Schenk: Incremental Synthesis and Support for Manual Binding in the MIMOLA Hardware Design System, *Fourth International Workshop on High-Level Synthesis*, Kennebunkport, Oct. 1989

1990

Peter Marwedel: Matching System and Component Behaviour in MIMOLA Synthesis Tools, *Proc. EDAC-90*, 1990, p. 146-156

1992

Peter Marwedel, Wolfgang Rosenstiel: Synthese von Register-Transfer-Strukturen aus Verhaltensbeschreibungen, *Informatik-Spektrum*, 1992

1993

Peter Marwedel: Implementations of IF-Statements in the TODOS Microarchitecture Synthesis System, *IFIP Workshop on Control Dominated Synthesis, Grenoble, 1992* and in: G. Saucier: (ed.) *Synthesis for Control Dominated Circuits*, 1993

Peter Marwedel, Wolfgang Schenk: Cooperation of Synthesis, Retargetable Code Generation and Test Generation in the MSS, *EDAC-EUROASIC-93 (A paper)*, 1993

Peter Marwedel: Tree-Based Mapping of Algorithms to Predefined Structures, *ICCAD-93*,

C. Albrecht, S. Bashford, Peter Marwedel, A. Neumann, W. Schenk: The design of the PRIPS microprocessor, *4th EUROCHIP-Workshop*, 1993

1994

Rainer Leupers, Wolfgang Schenk, Peter Marwedel: Retargetable Assembly Code Generation By Bootstrapping, *7th Int. High Level Synthesis Symposium*, 1994, p. 88-93

Rainer Leupers, Peter Marwedel: Instruction Set Extraction from Programmable Structures, *Proc. Euro-DAC, 1994*, p. 156-161

B. Landwehr, Peter Marwedel, Rainer Dömer: OSCAR: Optimum Simultaneous Scheduling, Allocation and Resource Binding Based on Integer Programming, *Proc. Euro-DAC, 1994*, p. 90-95

1995

Rainer Leupers, Peter Marwedel: A BDD-based frontend for retargetable compilers, *European Design & Test Conference (EDAC-ETC-EUROASIC)*, 1995

Peter Marwedel, Birger Landwehr: Exploitation of Component Information during Scheduling and Assignment in a RAM-based Architectural Synthesis System, *IFIP Workshop on Logic and Architecture Synthesis, Grenoble, 1994*, and in: G. Saucier (ed.): *Logic and Architectural Synthesis*, Chapman and Hall, 1995

Rainer Leupers, Peter Marwedel: Using Compilers for Heterogeneous System Design, *Int. Conf. on Parallel Architectures and Compilation Techniques (PACT)*, 1995

Peter Marwedel: Code Generation for Embedded Processors: An Introduction, in: Peter Marwedel, G. Goossens (ed.): *Code Generation for Embedded Processors*, Kluwer, 1995

Ulrich Bieker, Peter Marwedel: Retargetable Self-Test Program Generation Using Constraint Logic Programming, *32nd Design Automation Conference*, 1995

Rainer Leupers, Peter Marwedel: Time-constrained code compaction for DSPs, *Int. Symp. on System Synthesis (ISSS)*, 1995

1996

Rainer Leupers, Peter Marwedel: Instruction Set Modelling for ASIP Code Generation, *9th Int. Conf. on VLSI Design*, Bangalore, India, 1996

R. Niemann, Peter Marwedel: Hardware/Software Partitioning Using Integer Programming, *ED&TC'96*

Rainer Leupers, Peter Marwedel: Instruction Selection for Embedded DSPs with Complex Instructions, *Euro-DAC*, 1996

Rainer Leupers, Peter Marwedel: Flexible Compiler-Techniken für anwendungsspezifische DSPs, *DSP Deutschland*, Munich, Oct. 1996

Rainer Leupers, Peter Marwedel: Algorithms for Address Assignment in DSP Code Generation, *ICCAD*, 1996

Rainer Leupers, Peter Marwedel: Instruction-Set Modelling for ASIP Code Generation, *9th Int. Conference on VLSI Design*, Bangalore, Jan. 1996

1997

Peter Marwedel, Birger Landwehr, Rainer Dömer: Introducing Complex Components into Architectural Synthesis, *Asia South Pacific Design Automation Conference (ASP-DAC)*, Chiba, Japan, Jan. 1997

Birger Landwehr, Peter Marwedel, Ingolf Markhof, Rainer Dömer: Exploiting Isomorphism for Speeding-Up Instance-Binding in an Integrated Scheduling, Allocation and Assignment Approach to Architectural Synthesis, *Conference on Computer Hardware Description Languages and their Applications*, Toledo, Spain, April 1997

Ralf Niemann, Peter Marwedel: An Algorithm for Hardware/Software Partitioning Using Mixed Integer Linear Programming, *Design Automation for Embedded Systems*, Kluwer, 1997

Rainer Leupers, Peter Marwedel: Optimierende Compiler für DSPs: Was ist verfügbar? *DSP Deutschland '97*, Munich, October 1997

Rainer Leupers, Peter Marwedel: Retargetable Generation of Code Selectors from HDL Processor Models, *European Design & Test Conference (ED & TC)*, Paris, March 1997

Rainer Leupers, Peter Marwedel: Retargetable Compilers for Embedded DSPs, *7th European Multimedia, Microprocessor Systems and Electronic Commerce Conference (EMMSEC)*, Florence, Nov 1997

Rainer Leupers, Peter Marwedel: Formale Methoden in der Codeerzeugung für digitale Signalprozessoren, *5. GI/ITG/GMM Workshop Methoden des Entwurfs und der Verifikation digitaler Systeme*, Linz, April 1997

Rainer Leupers, Peter Marwedel: Time-Constrained Code Compaction for DSPs, *IEEE Trans. on VLSI Systems*, Vol. 5, No. 1, 1997

Birger Landwehr, Peter Marwedel: A New Optimization Technique for Improving Resource Exploitation and Critical Path Minimization, *10th International Symposium on System Synthesis*, Antwerp, 1997

1998

Rainer Leupers, Anupam Basu, Peter Marwedel: Optimized Array Index Computation in DSP Programs, *ASP-DAC '98*, Yokohama/Japan, Feb 1998

Rainer Leupers, Peter Marwedel: Retargetable Code Generation based on Structural Processor Descriptions Design Automation for Embedded Systems, vol. 3, no. 1, *Kluwer Academic Publishers*, Jan 1998

Ralf Niemann, Peter Marwedel: Synthesis of Communicating Controllers for Concurrent Hardware/Software Systems Design, *Automation and Test in Europe (DATE)*, 1998

Anupam Basu, Raj S. Mitra, Peter Marwedel: Interface Synthesis for Embedded Applications in a Codesign Environment, *Eleventh International Conference on VLSI Design*, Chennai, India, Jan 1998

Jean Mermet, Peter Marwedel, Franz J. Ramming, Cleland Newton, Dominique Borrione and Claude Lefaou: Three Decades of Hardware Description Languages in Europe, *Journal of Electrical Engineering and Information Science* 3 6, 1998

1999

Anupam Basu, Rainer Leupers, Peter Marwedel: Array Index Allocation under Register Constraints in DSP Programs, *12th Int. Conf. on VLSI Design*, Goa/India, Jan 1999

Rainer Leupers, Peter Marwedel: Function Inlining under Code Size Constraints for Embedded Processors, *ICCAD*, San Jose (USA), Nov 1999

2000

S. S. Bhattacharyya, Rainer Leupers, Peter Marwedel: Software Synthesis and Code Generation for Signal Processing Systems, *IEEE Trans. on Circuits and Systems II - Analog and Digital Signal Processing*, vol. 47, no. 9, Sep 2000

2001

Markus Lorenz, D. Kottmann, S. Bashford, Rainer Leupers, Peter Marwedel: Optimized Address Assignment for DSPs with SIMD Memory Accesses, *ASP-DAC '01*, Yokohama/Japan, Jan 2001

Peter Marwedel: Embedded Systems (in German), *Log in*, 6/2000 (published in 2001), p. 16-18

Manoj Kumar Jain, Lars Wehmeyer, Stefan Steinke, Peter Marwedel, M. Balakrishnan: Evaluating Register File Size in ASIP Design, *CODES*, Copenhagen (Denmark), April 2001

Stefan Steinke, Lars Wehmeyer, Peter Marwedel: Energieeinsparung durch neue Compiler-Optimierungen, *Elektronik*, 13/2001, p. 62-67

Markus Lorenz, Rainer Leupers, Peter Marwedel, Thorsten Dräger, Gerhard P. Fettweis: Low-Energy DSP Code Generation Using a Genetic Algorithm, *ICCD '01*, Austin/Texas/USA, September 2001

Peter Marwedel: Compilers for Embedded Processors (in German), *Informationstechnik und Technische Informatik (it+ti)*, 4/2001, p.194-199

Stefan Steinke, Markus Knauer, Lars Wehmeyer, Peter Marwedel: An Accurate and Fine Grain Instruction-Level Energy Model Supporting Software Optimizations, *PATMOS*, Yverdon (Switzerland), September 2001

Lars Wehmeyer, M.K. Jain, Stefan Steinke, Peter Marwedel, M. Balakrishnan: Analysis of the Influence of Register File Size on Energy Consumption, Code Size and Execution Time, *IEEE TCAD*, vol. 20, no. 11, Nov 2001

2002

Rajeshwari Banakar, Stefan Steinke, Bo-Sik Lee, M. Balakrishnan, Peter Marwedel: Scratchpad Memory: A Design Alternative for Cache On-chip memory in Embedded Systems, *CODES*, Estes Park (Colorado), May 2002

Stefan Steinke, Lars Wehmeyer, Bo-Sik Lee, Peter Marwedel: Assigning Program and Data Objects to Scratchpad for Energy Reduction, *DATE 2002*, Paris/France, March 2002

Peter Marwedel: Embedded Software: How to make it efficient? Invited paper, *Euromicro symposium on digital system design*, Dortmund, 2002

Stefan Steinke, Nils Grunwald, Lars Wehmeyer, Rajeshwari Banakar, M. Balakrishnan, Peter Marwedel: Reducing Energy Consumption by Dynamic Copying of Instructions onto Onchip Memory, *ISSS 2002*, Kyoto/Japan, Oct 2002

2003

Manish Verma, Stefan Steinke, Peter Marwedel: Data Partitioning for Maximal Scratchpad Usage, *ASPDAC 2003*, KitaKyushu/Japan, Jan 2003

Heiko Falk, Peter Marwedel: Control Flow driven Splitting of Loop Nests at the Source Code Level Design, *Automation and Test in Europe (DATE) 2003*, Munich/Germany, Mar 2003

Heiko Falk, Peter Marwedel, Francky Catthoor: Control Flow driven Splitting of Loop Nests at the Source Code Level, In: *A. Jerraya, S. Yoo, N. Wehn, D. Verkest (eds.): Embedded Software for SOC, Kluwer Academic Publishers, Boston/USA, Sep 2003*

Peter Marwedel, Birgit Sirocic: Overcoming the Limitations of Traditional Media for Teaching Modern Processor Design, *International Conference on Microelectronic Systems Education (MSE 2003)*, Anaheim, June 2003

Rainer Leupers, Oliver Wahlen, Manuel Hohenauer, Tim Kogel, Peter Marwedel: An Executable Intermediate Representation for Retargetable Compilation and High-Level Code Optimization, *International Conference on Information Communication Technologies in Education (SAMOS 2003)*

Peter Marwedel, Birgit Sirocic: Components for the visualization of dynamic behavior in computer architectures, *Proceedings of the Workshop of Computer Architecture Education (WCAE'03)*, San Diego, CA, June 2003

2004

Markus Lorenz, Peter Marwedel, Thorsten Draeger, Gerhard Fettweis, Rainer Leupers: Compiler based Exploration of DSP Energy Savings by SIMD Operations, *ASPDAC*, 2004, p. 839-842

Peter Marwedel, Lars Wehmeyer, Manish Verma, Stefan Steinke, Urs Helmig: Fast, predictable and low energy memory references through architecture-aware compilation, *ASPDAC 2004*, p. 4-11

Markus Lorenz, Peter Marwedel: Phase Coupled Code Generation for DSPs Using a Genetic Algorithm, *DATE*, 2004, p. 1270-1275

Manish Verma, Lars Wehmeyer, Peter Marwedel: Cache Aware Scratchpad Allocation, *DATE*, Paris/France, Feb 2004

Lars Wehmeyer, Peter Marwedel: Influence of Onchip Scratchpad Memories on WCET prediction, *Proceedings of the 4th International Workshop on Worst-Case Execution Time (WCET) Analysis*, 29.06.2004, Catania, Sicily, Italy

Lars Wehmeyer, Urs Helmig, Peter Marwedel: Compiler-optimized Usage of Partitioned Memories, *Proceedings of the 3rd Workshop on Memory Performance Issues (WMPI2004)*, 20.06.2004, Munich, Germany

Peter Marwedel, Birgit Sirocic: Bridges to computer architectures education, *Proceedings of the Workshop of Computer Architecture Education (WCAE'04)*, Munich, June 2004

Manish Verma, Lars Wehmeyer, Peter Marwedel: Dynamic Overlay of Scratchpad Memory for Energy Minimization, *International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS)*, Stockholm, Sweden, Sept 2004

2005

Lars Wehmeyer, Peter Marwedel: Influence of Memory Hierarchies on Predictability for Time Constrained Embedded Software, *Design Automation and Test in Europe (DATE) 2005*, Munich, Germany, 09.-13. March 2005

Peter Marwedel: Towards laying common grounds for embedded system design education, *Workshop on Embedded Systems Education (WESE), held in conjunction with EMSOFT, 2005*

2006

Manish Verma, Klaus Petzold, Lars Wehmeyer, Heiko Falk, Peter Marwedel: Scratchpad Sharing Strategies for Multiprocess Embedded Systems: A First Approach, *IEEE Workshop on Embedded Systems for Real-Time Multimedia (ESTIMEDIA)*, 2005

Manish Verma, Peter Marwedel: Memory Optimization Techniques for Low-Power Embedded Processors, in: *B. Mertsching (ed.): Fundamentals and Methods for Low-Power Information Processing*, Springer, 2006

Manish Verma, Peter Marwedel: Compilation and Simulation Tool Chain for Memory Aware Energy Optimizations, *Workshop on Embedded Computer Systems: Architectures, Modeling, and Simulation (SAMOS VI)*, Samos, Greece, July 2006

Manish Verma, Peter Marwedel: Overlay Techniques for Scratchpad Memories in Low Power Embedded Processors, *IEEE TVLSI*, vol. 14, no. 8, August 2006

Manish Verma, Lars Wehmeyer, Peter Marwedel: Cache-Aware Scratchpad-Allocation Algorithms for Energy-Constrained Embedded Systems, *IEEE Trans. on CAD of Integrated Circuits and Systems*, volume 25, no. 10, 2006, pages 2035-2051, <http://doi.ieeecomputersociety.org/10.1109/TCAD.2005.859523>

2007

Robert Pyka, Christoph Fasbach, Manish Verma, Heiko Falk, and Peter Marwedel: Operating system integrated energy aware scratchpad allocation strategies for multiprocess applications, in: *10th International Workshop on Software & Compilers for Embedded Systems (SCOPES)*, Nice/France, April 2007.

Paul Lokuciejewski, Heiko Falk, Martin Schwarzer and Peter Marwedel: Tighter WCET Estimates by Procedure Cloning, in: *Proceedings of The 7th International Workshop on Worst-Case Execution Time Analysis (WCET)*, Pisa, Italy, July 2007.

Paul Lokuciejewski, Heiko Falk, Martin Schwarzer, Peter Marwedel and Henrik Theiling: Influence of Procedure Cloning on WCET Prediction, in: *Proceedings of "The International Conference on Hardware/Software Codesign and System Synthesis" (CODES+ISSS)*, Salzburg, Austria, October 2007.

2008

Paul Lokuciejewski, Heiko Falk, Peter Marwedel, and Henrik Theiling: WCET-Driven, Code-Size Critical Procedure Cloning, in: *The 11th International Workshop on Software & Compilers for Embedded Systems (SCOPES)*, Munich / Germany, March 2008.

Paul Lokuciejewski, Heiko Falk, and Peter Marwedel: WCET-driven Cache-based Procedure Positioning Optimizations, in: *The 20th Euromicro Conference on Real-Time Systems (ECRTS)*, Prague / Czech Republic, July 2008.

Sascha Plazar, Paul Lokuciejewski, and Peter Marwedel: A Retargetable Framework for Multi-objective WCET-aware High-level Compiler Optimizations, *Proceedings of The 29th IEEE Real-Time Systems Symposium (RTSS) WiP*, pages 49-52, Barcelona / Spain, December 2008.

Peter Marwedel: MIMOLA – A Fully Synthesizable Language, in: Prabhat Misra, Nikil Dutt (eds.): *Processor Description Languages*, Morgan Kaufmann, ISSN= 18759661, 2008

2009

Constantin Timm, Jens Schmutzler, Peter Marwedel, and Christian Wietfeld: Dynamic Web Service Orchestration applied to the Device Profile for Web Services in Hierarchical Networks, *COMSWARE '09: Proceedings of the Fourth International ICST Conference on COMMunication System softWARE and middlewaRE*, S. 1 - 6, Dublin, 06/2009.

Paul Lokuciejewski, Fatih Gedikli, Peter Marwedel, and Katharina Morik: Automatic WCET Reduction by Machine Learning Based Heuristics for Function Inlining, *Proceedings of the 3rd Workshop on Statistical and Machine Learning Approaches to Architectures and Compilation (SMART)*, S. 1-15, Paphos, 2009.

Paul Lokuciejewski, Daniel Cordes, Heiko Falk, and Peter Marwedel: A Fast and Precise Static Loop Analysis based on Abstract Interpretation, Program Slicing and Polytope Models, *International Symposium on Code Generation and Optimization (CGO)*, S. 136-146, Seattle, 2009.

Paul Lokuciejewski, Fatih Gedikli, and Peter Marwedel: Accelerating WCET-driven Optimizations by the Invariant Path - a Case Study of Loop Unswitching,

The 12th International Workshop on Software & Compilers for Embedded Systems (SCOPES), S. 11-20, Nice, 2009.

G. Schünemann, P. Hartmann, D. Schirmer, P. Towalski, T. Weis, K. Wille, and Peter Marwedel: An FPGA Based Data Acquisition System for a fast Orbit Feedback at DELTA, *9th European Workshop on Beam Diagnostics and Instrumentation for Particle Accelerators*, Basel, 2009.

Sascha Plazar, Paul Lokuciejewski, and Peter Marwedel: WCET-aware Software Based Cache Partitioning for Multi-Task Real-Time Systems, *The 9th International Workshop on Worst-Case Execution Time Analysis (WCET)*, pages 78-88, Dublin, 2009.

Paul Lokuciejewski and Peter Marwedel: Combining Worst-Case Timing Models, Loop Unrolling, and Static Loop Analysis for WCET Minimization, *The 21st Euromicro Conference on Real-Time Systems (ECRTS)*, S. 35-44, Dublin, July 2009.

Peter Marwedel: Plea for a Holistic Analysis of the Relationship between Information Technology and Carbon-Dioxide Production (Brief abstract, in German), *Jahrestagung der Gesellschaft für Informatik, Workshop „Grand Challenges in Computer Engineering“*, *Lecture Notes in Informatics (LNI)*, 2009.

2010

Robert Pyka, Felipe Klein, Peter Marwedel, Stylianos Mamagkakis: Versatile System-Level Memory-Aware Platform Description Approach for Embedded MPSoCs, In Proc. of the ACM SIGPLAN/SIGBED 2010 Conference on Languages, Compilers, and Tools for Embedded Systems, pages 9-16, 2010

Frank Weichert, Marcel Gaspar, Constantin Timm, Alexander Zybin, Evgeny Gurevich, Michael Engel, Heinrich Müller, Peter Marwedel: Signal Analysis and Classification for Surface Plasmon Assisted Microscopy of Nanoobjects, *Sensors and Actuators B: Chemical*, Elsevier 151, pages 281-290, 2010

Constantin Timm, Andrej Gelenberg, Peter Marwedel, Frank Weichert: Energy Considerations within the Integration of General Purpose GPUs in Embedded Systems, *In: Proceedings of the International Conference on Advances in Distributed and Parallel Computing*, November 2010

Daniel Cordes, Peter Marwedel, Arindam Mallik: Automatic Parallelization of Embedded Software Using Hierarchical Task Graphs and Integer Linear Programming, *In: Proceedings of the eighth IEEE/ACM/IFIP international conference on Hardware/software codesign and system synthesis (CODES+ISSS 2010)*, Scottsdale / US, October 2010

Andreas Heinig, Michael Engel, Florian Schmoll, Peter Marwedel: Using Application Knowledge to Improve Embedded Systems Dependability, *In: Proceedings of the Workshop on Hot Topics in System Dependability (HotDep 2010)*, Vancouver, Canada, October 2010

Andreas Heinig, Michael Engel, Florian Schmoll and Peter Marwedel: Improving Transient Memory Fault Resilience of an H.264 Decoder, *In: Proceedings of the Workshop on Embedded Systems for Real-time Multimedia (ESTIMedia 2010)*, Scottsdale, AZ, USA, October 2010

Sascha Plazar, Peter Marwedel, Jörg Rahnenführer: Optimizing Execution Runtimes of R Programs, *In: Book of Abstracts of International Symposium on Business and Industrial Statistics (ISBIS)*, pages 81-82, Portoroz (Portorose) / Slovenia, July 2010

Paul Lokuciejewski, Timon Kelter, Peter Marwedel: Superblock-Based Source Code Optimizations for WCET Reduction, *In: Proceedings of the 7th International Conference on Embedded Software and Systems (ICESS)*, pages 1918-1925, Bradford / UK, June 2010

Sascha Plazar, Paul Lokuciejewski, Peter Marwedel: WCET-driven Cache-aware Memory Content Selection, *In: Proceedings of the 13th IEEE International Symposium on Object/Component/Service-oriented Real-time Distributed Computing (ISORC)*, pages 107-114, Carmona / Spain, May 2010

Paul Lokuciejewski, Sascha Plazar, Heiko Falk, Peter Marwedel, Lothar Thiele: Multi-Objective Exploration of Compiler Optimizations for Real-Time Systems, *In: Proceedings of the 13th International Symposium on Object/Component/Service-oriented Real-time Distributed Computing (ISORC)*, pages 115-122, Carmona / Spain, May 2010

Frank Weichert, Marcel Gaspar, Alexander Zybin, Evgeny Gurevich, Alexander Görtz, Constantin Timm, Heinrich Müller and Peter Marwedel: Plasmonen-unterstützte Mikroskopie zur Detektion von Viren, *In: Bildverarbeitung für die Medizin*, Aachen / Germany, March 2010

Peter Marwedel, Michael Engel: Plea for a Holistic Analysis of the Relationship between Information Technology and Carbon-Dioxide Emissions, *In: Workshop on Energy-aware Systems and Methods (GI-ITG)*, Hanover / Germany, February 2010

Paul Lokuciejewski, Marco Stolpe, Katharina Morik, Peter Marwedel: Automatic Selection of Machine Learning Models for WCET-aware Compiler Heuristic Generation, *In: Proceedings of the 4th Workshop on Statistical and Machine Learning Approaches to Architectures and Compilation (SMART)*, pages 3-17, Pisa / Italy, January 2010

2011

[BibTeX][PDF][Abstract]Constantin Timm, Frank Weichert, Peter Marwedel, Heinrich Müller: Multi-Objective Local Instruction Scheduling for GPGPU Applications, *In: Proceedings of the International Conference on Parallel and Distributed Computing Systems (PDCS) 2011*, Dallas, USA, December 2011

Daniel Cordes, Andreas Heinig, Peter Marwedel, Arindam Mallik: Automatic Extraction of Pipeline Parallelism for Embedded Software Using Linear Programming, *In: Proceedings of the Seventeenth IEEE International Conference on Parallel and Distributed Systems (ICPADS 2011)*, Tainan, Taiwan, December 2011

Jörg Henkel, Lars Bauer, Joachim Becker, Oliver Bringmann, Uwe Brinkschulte, Samarjit Chakraborty, Michael Engel, Rolf Ernst, Hermann Härtig, Lars Hedrich, Andreas Herkersdorf, Rüdiger Kapitza, Daniel Lohmann, Peter Marwedel, Marco Platzner, Wolfgang Rosenstiel, Ulf Schlichtmann, Olaf Spinczyk, Mehdi Tahoori, Jürgen Teich, Norbert Wehn, Hans-Joachim Wunderlich: Design and Architectures for Dependable Embedded Systems, *In:*

Proceedings of the International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS), Taipei, Taiwan, October 2011

Michael Engel, Florian Schmoll, Andreas Heinig, Peter Marwedel: Unreliable yet Useful -- Reliability Annotations for Data in Cyber-Physical Systems, In *Proceedings of the 2011 Workshop on Software Language Engineering for Cyber-physical Systems (WS4C)*, Berlin / Germany, October 2011

Sascha Plazar, Jan C. Kleinsorge, Heiko Falk, Peter Marwedel: WCET-driven Branch Prediction aware Code Positioning, In *Proceedings of the International Conference on Compilers, Architectures and Synthesis for Embedded Systems (CASES)*, pages 165-174, Taipei, Taiwan, October 2011

Peter Marwedel, Michael Engel: Embedded System Design 2.0: Rationale Behind a Textbook Revision, In: *Proceedings of Workshop on Embedded Systems Education (WESE)*, Taipei, Taiwan, October 2011

Jan C. Kleinsorge, Heiko Falk, Peter Marwedel: A Synergetic Approach To Accurate Analysis Of Cache-Related Preemption Delay, In: *Proceedings of the International Conference on Embedded Software (EMSOFT)*, pages 329-338, Taipei, Taiwan, October 2011

Peter Marwedel, Jürgen Teich, Georgia Kouveli, Iuliana Bacivarov, Lothar Thiele, Soonhoi Ha, Chanhee Lee, Qiang Xu, Lin Huang: Mapping of Applications to MPSoCs, In: *Proceedings of the International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS)*, Taipei, Taiwan, October 2011

Constantin Timm, Frank Weichert, Peter Marwedel, Heinrich Müller: Design Space Exploration Towards a Realtime and Energy-Aware GPGPU-based Analysis of Biosensor Data, Computer Science - Research and Development, *Special Issue "International Conference on Energy-Aware High Performance Computing (ENA-HPC)"*, September 2011

Constantin Timm, Pascal Libuschewski, Dominic Siedhoff, Frank Weichert, Heinrich Müller, Peter Marwedel: Improving Nanoobject Detection in Optical Biosensor Data, In *Proceedings of the 5th International Symposium on Bio- and Medical Informatics and Cybernetics, BMIC 2011*, July 2011

Timon Kelter, Heiko Falk, Peter Marwedel, Sudipta Chattopadhyay, Abhik Roychoudhury: Bus-Aware Multicore WCET Analysis through TDMA Offset Bounds, In *Proceedings of the 23rd Euromicro Conference on Real-Time Systems (ECRTS)*, pages 3-12, Porto / Portugal, July 2011

Constantin Timm, Frank Weichert, David Fiedler, Christian Prasse, Heinrich Müller, Michael Hompel, Peter Marwedel: Decentralized Control of a Material Flow System enabled by an Embedded Computer Vision System, In: *Proceedings of the IEEE ICC 2011 Workshop on Embedding the Real World into the Future Internet*, June 2011

Paul Lokuciejewski, Sascha Plazar, Heiko Falk, Peter Marwedel and Lothar Thiele: Approximating Pareto optimal compiler optimization sequences---a trade-off between WCET, ACET and code size, *Software: Practice and Experience*, May 2011, DOI 10.1002/spe.1079

Frank Weichert, Constantin Timm, Marcel Gaspar, Alexander Zybin, Evgeny L. Gurevich, Heinrich Müller, Peter Marwedel: GPGPU-basierte Echtzeitdetektion

von Nanoobjekten mittels Plasmonen-unterstützter Mikroskopie, *Bildverarbeitung für die Medizin*, pages 39-43, March 2011

Michael Engel, Florian Schmoll, Andreas Heinig, Peter Marwedel: Temporal Properties of Error Handling for Multimedia Applications, *In: Proceedings of the 14th ITG Conference on Electronic Media Technology*, Dortmund / Germany, February 2011

2012

Michael Engel, Peter Marwedel: Semantic Gaps in Software-Based Reliability, *In: Proceedings of the 4th Workshop on Design for Reliability (DFR'12)*, Paris, France, January 2012

Andreas Heinig, Vincent J. Mooney, Florian Schmoll, Peter Marwedel, Krishna Palem, Michael Engel: Classification-based Improvement of Application Robustness and Quality of Service in Probabilistic Computer Systems, *In: Proceedings of ARCS 2012 - International Conference on Architecture of Computing Systems*, Munich, Germany, March 2012, (best paper award)

Daniel Cordes and Peter Marwedel: PAXES – Parallelism Extraction for Embedded Systems: Three Approaches – One Tool, March 2012, Research Poster at The Designing for Embedded Parallel Computing Platforms: Architectures, Design Tools, and Applications (DEPCP'2012) (DATE Workshop)

Heiko Falk, Peter Marwedel and Paul Lokuciejewski: Reconciling Compilation and Timing Analysis. In Chakraborty, Samarjit and Eberspacher, Jörg (Ed.), *Advances in Real-Time Systems*, Springer, 2012

Daniel Cordes and Peter Marwedel: Multi-Objective Aware Extraction of Task-Level Parallelism Using Genetic Algorithms. In *Proceedings of Design, Automation and Test in Europe (DATE 2012)*, Dresden, Germany, March 2012

Sudipta Chattopadhyay, Chong Lee Kee, Abhik Roychoudhury, Timon Kelter, Heiko Falk, Peter Marwedel: A Unified WCET Analysis Framework for Multi-core Platforms, *In: IEEE Real-Time and Embedded Technology and Applications Symposium*, Beijing, China, April 2012

Sascha Plazar, Heiko Falk, Peter Marwedel: WCET-aware Static Locking of Instruction Caches, *In: Proceedings of the International Symposium on Code Generation and Optimization (CGO)*, San Jose, CA, USA, 2012

Heiko Falk and Peter Marwedel. Introduction to the Special Section on SCOPES'09. *ACM Transactions on Embedded Computing Systems (TECS)* 11S 1, pages 17:1--17:3, June 2012

Constantin Timm, Markus Görlich, Frank Weichert, Peter Marwedel and Heinrich Müller: Feedback-Based Global Instruction Scheduling for GPGPU Applications, 12th International Conference Computational Science and Its Applications 2012 (ICCSA), June 2012

Peter Marwedel and Michael Engel: Efficient Computing in Cyber-Physical Systems, In *Proceedings of SAMOS XII*, 2012

Constantin Timm, Frank Weichert, Christian Prasse, Heinrich Müller, Michael Hompel and Peter Marwedel. Efficient Resource Management based on Non-Functional Requirements for Sensor/Actuator Networks. *Ninth International Network Conference (INC) 2012*, pages 207-217, July 2012

Olivera Jovanovic, Peter Marwedel, Iuliana Bacivarov and Lothar Thiele: MAMOT: Memory-Aware Mapping Optimization Tool for MPSoC. *In 15th Euromicro Conference on Digital System Design (DSD 2012)*, Izmir, Turkey, September 2012.

Daniel Cordes, Michael Engel, Peter Marwedel and Olaf Neugebauer: Automatic Extraction of Multi-Objective Aware Pipeline Parallelism Using Genetic Algorithms. *In Proceedings of the IEEE/ACM/IFIP international conference on Hardware/software codesign and system synthesis (CODES+ISSS 2012)*, Tampere, Finland, October 2012

Olivera Jovanovic, Nils Kneuper, Peter Marwedel and Michael Engel: ILP-based Memory-Aware Mapping Optimization for MPSoCs, *In: The 10th IEEE/IFIP International Conference on Embedded and Ubiquitous Computing*, Paphos, Cyprus, December 2012.

Florian Schmoll, Andreas Heinig, Peter Marwedel and Michael Engel: Improving the Fault Resilience of an H.264 Decoder using Static Analysis Methods, *ACM Transactions on Embedded Computing Systems (TECS)*, 2012.

2013

Timon Kelter, Heiko Falk, Peter Marwedel, Sudipta Chattopadhyay and Abhik Roychoudhury: Static Analysis of Multi-Core TDMA Resource Arbitration Delays, *Real-Time Systems*, 2013

Sudipta Chattopadhyay, Lee Kee Chong, Abhik Roychoudhury, Timon Kelter, Peter Marwedel and Heiko Falk: A Unified WCET Analysis Framework for Multi-core Platforms, *ACM Transactions on Embedded Computing Systems (TECS)*, 2013

Ahmed A. Eltawil, Michael Engel, Bibiche Geuskens, Amin Khajeh Djahromi, Fadi J Kurdahi, Peter Marwedel, Smail Niar and Mazen A. R. Saghir: A Survey of Cross-Layer Power-Performance-Reliability in Multi and Many Core Systems-on-Chip, *Embedded Hardware Design: Microprocessors and Microsystems*, 2013, Invited paper

Andreas Heinig, Ingo Korb, Florian Schmoll, Peter Marwedel and Michael Engel: Fast and Low-Cost Instruction-Aware Fault Injection, *In Proc. of SOBRES 2013*

Alberto Sangiovanni-Vincentelli, Haibo Zeng, Marco Di Natale and Peter Marwedel. Modeling, Analysis and Synthesis of Embedded Software and Systems, 2013, in: Alberto Sangiovanni-Vincentelli, Haibo Zeng, Marco Di Natale and Peter Marwedel (Ed): *Embedded Systems Development - From Functional Methods to Implementations*, Springer, 2013

Florian Schmoll, Andreas Heinig, Peter Marwedel and Michael Engel: Improving the Fault Resilience of an H.264 Decoder using Static Analysis Methods, *ACM Transactions on Embedded Computing Systems (TECS)* 13 1s, pages 31:1--31:27, December 2013

Daniel Cordes, Michael Engel, Olaf Neugebauer and Peter Marwedel: Automatic Extraction of Task-Level Parallelism for Heterogeneous MPSoCs, *In Proceedings of the Fourth International Workshop on Parallel Software Tools and Tool Infrastructures (PSTI 2013)*, Lyon, France, October 2013

Daniel Cordes, Michael Engel, Olaf Neugebauer and Peter Marwedel: Automatic Extraction of Pipeline Parallelism for Embedded Heterogeneous Multi-Core Platforms, In Proceedings of the Sixteenth International Conference on Compilers, Architectures, and Synthesis for Embedded Systems (CASES 2013), Montreal, Canada, October 2013

Jan Kleinsorge, Heiko Falk and Peter Marwedel: Simple Analysis of Partial Worst-case Execution Paths on General Control Flow Graphs, In Proceedings of the International Conference on Embedded Software (EMSOFT 2013), Montreal, Canada, October 2013

Daniel Cordes, Michael Engel, Olaf Neugebauer and Peter Marwedel: Automatic Extraction of Multi-Objective Aware Parallelism for Heterogeneous MPSoCs, In Proceedings of the Sixth International Workshop on Multi-/Many-core Computing Systems (MuCoCoS 2013), Edinburgh, Scotland, UK, September 2013

Timon Kelter, Tim Harde, Peter Marwedel and Heiko Falk: Evaluation of resource arbitration methods for multi-core real-time systems, In Proceedings of the 13th International Workshop on Worst-Case Execution Time Analysis (WCET), Paris, France, July 2013

Peter Marwedel, Wolfgang Rhode, Katharina Morik: The TU Dortmund Cyber-Physical Systems Program – a Step Towards Multi-Disciplinary Education, *First Workshop on Cyber-Physical Systems Education*, 2013 (unfortunately, this program was not accepted at the University level)

2014

Andreas Heinig, Florian Schmoll, Peter Marwedel and Michael Engel: Who's Using that Memory? A Subscriber Model for Mapping Errors to Tasks, In Proceedings of the 10th Workshop on Silicon Errors in Logic - System Effects (SELSE), San Francisco, CA, USA, April 2014

Helena Kotthaus, Ingo Korb, Michel Lang, Bernd Bischl, Jörg Rahnenführer and Peter Marwedel: Runtime and Memory Consumption Analyses for Machine Learning R Programs, *Journal of Statistical Computation and Simulation* 85 1, pages 14-29, 2014

Michel Lang, Helena Kotthaus, Peter Marwedel, Claus Weihs, Jörg Rahnenführer and Bernd Bischl: Automatic Model Selection for High-Dimensional Survival Analysis, *Journal of Statistical Computation and Simulation* 85 1, pages 62-76, 2014

Timon Kelter, Heiko Falk, Peter Marwedel, Sudipta Chattopadhyay and Abhik Roychoudhury: Static Analysis of Multi-Core TDMA Resource Arbitration Delays, *Real-Time Systems* 50 2, pages 185-229, March 2014

Sudipta Chattopadhyay, Lee Kee Chong, Abhik Roychoudhury, Timon Kelter, Peter Marwedel and Heiko Falk: A Unified WCET Analysis Framework for Multi-core Platforms, *ACM Transactions on Embedded Computing Systems (TECS)*, Volume 13, Issue 4s, 2014

Dominic Siedhoff, Pascal Libuschewski, Frank Weichert, Alexander Zybin, Peter Marwedel and Heinrich Müller: Modellierung und Optimierung eines Biosensors zur Detektion viraler Strukturen, *Bildverarbeitung für die Medizin. Lecture Notes in Informatics. Springer-Verlag*, pages 108-113, 2014

Peter Marwedel, Michael Engel: Flipped Classroom Teaching For A Cyber-Physical System Course – An Adequate Presence-Based Learning Approach in the Internet Age, 10th European Workshop on Microelectronics Education (EWME), Tallinn, 2014

Peter Marwedel and Jian-Jia Chen: Flipped Classrooms: an Appropriate Approach for Teaching On-Campus Students in the Internet Age, *Proceedings of Workshop on Embedded Systems Education (WESE)*, 2014

2015

Victoria Shpacovitch, Vladimir Temchura, Mikhail Matrosovich, Joachim Hamacher, Julia Skolnik, Pascal Libuschewski, Dominic Siedhoff, Frank Weichert, Peter Marwedel, Heinrich Müller, Klaus Überla, Roland Hergenröder and Alexander Zybin: Application of Surface Plasmon Resonance Imaging Technique for the Detection of Single Spherical Biological Submicron-particles, *Analytical Biochemistry: Methods in the Biological Sciences*, 2015

Helena Kotthaus, Ingo Korb and Peter Marwedel: Performance Analysis for Parallel R Programs: Towards Efficient Resource Utilization, *In Abstract Booklet of the International R User Conference (UseR!)*, pages 66, Aalborg, Denmark, June 2015

Andreas Heinig, Florian Schmoll, Björn Bönninghoff, Peter Marwedel and Michael Engel: FAME: Flexible Real-Time Aware Error Correction by Combining Application Knowledge and Run-Time Information, *In Proceedings of the 11th Workshop on Silicon Errors in Logic - System Effects (SELSE)*, 2015

Olaf Neugebauer, Michael Engel and Peter Marwedel: Multi-Objective Aware Communication Optimization for Resource-Restricted Embedded Systems, *In: Proceedings of Architecture of Computing Systems. Proceedings, ARCS*, 2015

Olaf Neugebauer, Pascal Libuschewski, Michael Engel, Heinrich Mueller and Peter Marwedel: Plasmon-based Virus Detection on Heterogeneous Embedded Systems, *In: Proceedings of Workshop on Software & Compilers for Embedded Systems (SCOPE)*, 2015

2016

Ingo Korb, Helena Kotthaus and Peter Marwedel: mmapcopy: Efficient Memory Footprint Reduction using Application Knowledge, *In: Proceedings of the 31st Annual ACM Symposium on Applied Computing*, Pisa, Italy, 2016

Jakob Richter, Helena Kotthaus, Bernd Bischl, Peter Marwedel, Jörg Rahmenführer and Michel Lang: Faster Model-Based Optimization through Resource-Aware Scheduling Strategies, *In Proceedings of the 10th International Conference: Learning and Intelligent Optimization (LION 10). vol. 10079 of Lecture Notes in Computer Science.*, pages 267—273, 2016

Helena Kotthaus, Jakob Richter, Andreas Lang, Michel Lang and Peter Marwedel: Resource-Aware Scheduling Strategies for Parallel Machine Learning R Programs through RAMBO, *In: Abstract Booklet of the International R User Conference (UseR!) 195*, USA, Stanford, June 2016

Peter Marwedel and Michael Engel: Cyber-Physical Systems: Opportunities, Challenges and (Some) Solutions, *In: Antonio Guerrier, Valeria Loscri, Anna*

Rovella, Giancarlo Fortino (eds.): *Management of Cyber Physical Objects in the Future Internet of Things*, Springer, 2016, ISBN 978-3319268675

2017

Olaf Neugebauer, Peter Marwedel, Roland Kühn and Michael Engel: Quality Evaluation Strategies for Approximate Computing in Embedded Systems, In: *Technological Innovation for Smart Systems: 8th IFIP WG 5.5/SOCOLNET Advanced Doctoral Conference on Computing, Electrical and Industrial Systems, DoCEIS 2017, Costa de Caparica, Portugal, May 3-5, 2017*, Proceedings, pages 203-210, 2017

Peter Marwedel, Heiko Falk and Olaf Neugebauer: Memory-Aware Optimization of Embedded Software for Multiple Objectives, In: *Soonhoi Ha, Jürgen Teich (eds.): Handbook of Hardware/Software Codesign*, Springer, ISBN 978-94-017-7358-4, 2017

Helena Kotthaus, Jakob Richter, Andreas Lang, Janek Thomas, Bernd Bischl, Peter Marwedel, Jörg Rahnenführer and Michel Lang: RAMBO: Resource-Aware Model-Based Optimization with Scheduling for Heterogeneous Runtimes and a Comparison with Asynchronous Model-Based Optimization, In: *Proceedings of the 11th Internat. Conference: Learning and Intelligent Optimization (LION 11)*, pages 180-195, 2017

Helena Kotthaus, Andreas Lang, Olaf Neugebauer and Peter Marwedel: R goes Mobile: Efficient Scheduling for Parallel R Programs on Heterogeneous Embedded Systems, In: *Abstract Booklet of the International R User Conference (UseR!)*, pages 74, Brussels, Belgium, July 2017

2018

Helena Kotthaus, Andreas Lang and Peter Marwedel: Optimizing Parallel R Programs via Dynamic Scheduling Strategies, In: *Abstract Booklet of the International R User Conference (UseR!)*, Brisbane, Australia, July 2018

2019

Helena Kotthaus, Lea Schönberger, Andreas Lang, Jian-Jia Chen and Peter Marwedel: Can Flexible Multi-Core Scheduling Help to Execute Machine Learning Algorithms Resource-Efficiently?, In: *22nd International Workshop on Software and Compilers for Embedded Systems (SCOPES)*, pages 59-62, 2019

Tutorials

S. Dey, Peter Marwedel: New Trends in Designing and Testing VLSI Systems, *VLSI Test Symposium, Princeton*, 1996

Peter Marwedel: Processor-Core Based Design and Test (Invited Embedded Tutorial), *Asia and South Pacific Design Automation Conference*, Tokio, 1997

Peter Marwedel: Code Generation for Core Processors (Invited embedded tutorial), *34th Design Automation Conference*, Anaheim, 1997

Peter Marwedel: Compilers for Embedded Processors (Invited Embedded Tutorial), *SASIMI*, Osaka, 1997

R. K. Gupta, S. Dey, Peter Marwedel: Embedded System Design and Validation: Building Systems from IC Cores to Chips (Tutorial), *Indian Conference on VLSI Design*, Madras, 1998.

Peter Marwedel: Compilers for Embedded Processors, *Design, Automation & Test in Europe (DATE)*, Paris, 1998

Peter Marwedel, Compiler and software generation for embedded processors, *tutorial at universities of Taipeh, Hsinchu, Yun-lin, Hua-lin and Kaohsiung*, Taiwan, 1999

E. Verhulst, Peter Marwedel: Real-time and Digital Signal Processing Embedded Software, *Design, Automation & Test in Europe (DATE)*, Paris, 2000

Peter Marwedel, Software and compiler generation for embedded systems, *DAK Forum*, Trondheim, 2000

Peter Marwedel: Compilation techniques for embedded software, *ASP-DAC*, Yokohama, 2001

Peter Marwedel, Luca Benini: Low-power/low-energy embedded software, *Tutorial at Design, Automation and Test in Europe (DATE)*, Paris, 2002

Peter Marwedel: Code optimizations for efficient embedded systems, *SCOPES*, Dallas, 2005

Peter Marwedel: Code optimizations for efficient embedded systems, *Embedded Systems Workshop*, Manukau Institute of Technology, Auckland, 2005

Lothar Thiele and Peter Marwedel: ARTIST2 Spring School in China on Models, Methods and Tools for Embedded Systems, Xi'an, China, April 3rd-15th, 2006; www.artist-embedded.org

Peter Marwedel: Embedded systems: overview and research issues, *1st Summer School on Ubiquitous Knowledge Discovery*, Dortmund, Sept. 2006

Peter Marwedel: Memory-architecture aware compilation, *CASTNESS workshop*, Rome, Jan. 2007

Peter Marwedel: Memory-architecture aware compilation, *ACACES workshop*, L'Aquila, July 2007, <http://www.hipeac.net/summerschool>

Peter Marwedel: Embedded Systems in a Nutshell (full day tutorial), *Spring School on Knowledge Discovery in Ubiquitous Systems*, March 2, 2008, Porto, www.kdubiq.org.

Peter Marwedel, Heiko Falk: Embedded Systems -with Emphasis on the Exploitation of the Memory Hierarchy- (Full week tutorial), *Advanced Institute of Information Technology*, Aug. 11-15, 2008, Seoul, ttt.aiit.or.kr/.

Peter Marwedel: Memory architecture aware compilation for Embedded Systems (10 h tutorial), *Artist South American Summer School*, Aug. 25.-29., 2008, Florianopolis, Brazil, www.artist-embedded.org,

Peter Marwedel, Heiko Falk: Memory-architecture aware compilation, *ARTIST2 Summer School 2008 in Europe*, Autrans, 2008

Peter Marwedel: Model-based embedded system design, *ArtistDesign Summer School in Morocco*, July 2010

Peter Marwedel: Energy-efficient embedded computing, *EACO Workshop, University of Bristol*, July 2010

Peter Marwedel: Embedded System Foundations of Cyber-Physical Systems, *ArtistDesign Summer School*, Beijing, Aug. 2011

Peter Marwedel: Energy modeling, *Fall Seminar of SFB 876*, Lüdenscheid, Germany, Oct. 2011

Peter Marwedel: Efficient Computing in Cyber-Physical Systems, *Artist/Nano-Tera Summer School*, Aix-les-Bains, Sept. 2012

Peter Marwedel: Battery Capacity Models, *Summer School SFB 876*, 2012

Peter Marwedel: Exploitation of Memory Hierarchies, *Summer School SFB 876*, 2012

Peter Marwedel: Cyber-physical systems: opportunities, problems and (some) solutions, Tutorial, Summer School SFB 876, 2014

Peter Marwedel and Jian-Jia Chen: The multicore revolution, *Summer School SFB 876*, 2014

Peter Marwedel: Cyber-physical systems: opportunities, problems and (some) solutions, Tutorial, TU Copenhagen, 2015

Peter Marwedel, Heiko Falk: Compilation and Synthesis with Multiple Constraints and Objectives, *Tutorial, ESWEEK*, Seoul, 2017 (video presentation due to illness)

Peter Marwedel: Design of Cyber-Physical Systems, Course at IIT Delhi, 2018

Video-tapes, CDs

Peter Marwedel: Video tape on the simulation of integrated circuits, University of Hagen, *transmitted on channel WDR 3*.

Peter Marwedel: Code generation for embedded processors, in: *ACM-SIGDA (ed.): CD on System Level Design Tools*.

Peter Marwedel: Eingebettete Systeme, Freiburg, *Embedded System Talks – Academia meets Industry-*, 2004, DVD

Peter Marwedel: Cyber-physical system foundations (slides), <http://s12-www.cs.tu-dortmund.de/daes/daes/mitarbeiter/prof-dr-peter-Marwedel/embedded-system-text-book/slides/slides-2010.html>

Peter Marwedel: Cyber-physical system foundations, Youtube channel <https://www.youtube.com/user/cyphysystems>

Peter Marwedel: Rechnerstrukturen, youtube channel https://www.youtube.com/channel/UC6mwrp_RAnkLuw00bdInTFA

Peter Marwedel: Rechnerarchitektur, youtube channel <https://www.youtube.com/channel/UC37EPqmPB8DFXPoIHlaExOQ>

Special issues

Peter Marwedel, Carlos Lopez-Barrio (eds.): Special issue on ED&TC, *IEEE Design & Test*, April-June 1997

Peter Marwedel, Ivo Bolsens (eds.): Proceedings of DATE'2000 (Design, Automation and Test in Europe), *IEEE Computer Society*, ISBN 0-7695-0537-6

Peter Marwedel (ed.): Special issue on SCOPES, *Design Automation for Embedded Systems*, 1999

Peter Marwedel (ed.): Special issue on SCOPES'99, *TODAES*, Oct. 2000, Vol. 5, No. 4

Peter Marwedel (ed.): Special Issue on Software and Compilers for Embedded Systems, *IEEE TCAD*, Nov. 2001, Vol. 20, No. 11

Peter Marwedel (ed.): Processor-Based Designs, Special Section, *IEEE Design & Test*, July-August 2002

Peter Marwedel, Srinivas Devadas (eds.): LCTES'02-SCOPES'02: Joint Conference on Languages, Compilers and Tools for Embedded Systems & Software and Compilers for Embedded Systems, *ACM Press*, June 2002

Heiko Falk, Peter Marwedel (eds.): Workshop on Software and Compilers for Embedded Systems (SCOPES), Proceedings, *ACM Digital Library*, 2007

Jeff Jackson, Peter Marwedel, and Kenneth Ricks (eds.): Proceedings of the 2008 Workshop on Embedded Systems Education (WESE), 2008, <http://www.lulu.com/content/3613764>

Peter Marwedel, Jeff Jackson, and Kenneth Ricks (eds.): Proceedings of the 2009 Workshop on Embedded Systems Education (WESE), 2009, *ACM Digital Library*

Peter Marwedel, Jeff Jackson, and Kenneth Ricks (eds.): Proceedings of the 2010 Workshop on Embedded Systems Education (WESE), 2010, *ACM Digital Library*

Peter Marwedel, Jeff Jackson, and Kenneth Ricks (eds.): Proceedings of the 2011 Workshop on Embedded Systems Education (WESE), 2011, *ACM Digital Library*

Short papers and papers in proceedings not publicly available

Peter Marwedel: Project groups at the University of Dortmund: An adequate environment for teaching VLSI-design, *4th EUROCHIP-Workshop*, 1993,

Birger Landwehr, Peter Marwedel: Intelligent library component selection and management in an IP-model based high-level synthesis system, *IFIP Workshop on Logic and Architecture Synthesis*, Grenoble 1993

B. Landwehr, Peter Marwedel, R. Dömer: OSCAR: Optimum Simultaneous Scheduling, Allocation and Resource Binding Based on Integer Programming, *IFIP Workshop on Logic and Architecture Synthesis*, Grenoble, 1994

Anupam Basu, Rainer Leupers, Peter Marwedel: Register-Constrained Address Computation in DSP Programs, *Design Automation and Test in Europe (DATE)*, poster presentation, Paris/France, Feb 1998

U. Bieker, M. Kaibel, Peter Marwedel, W. Geisselhardt: STAR-DUST: Hierarchical Test of Embedded Processors by Self-Test Programs, *European Test Workshop*, 1999

Peter Marwedel, Stefan Steinke, Lars Wehmeyer: Compilation techniques for energy-, code-size-, and run-time-efficient embedded software, *Int. Workshop on Advanced Compiler Techniques for High Performance and Embedded Processors*, Bucharest, 2001

Peter Marwedel, Khac Dung Cong, Sergej Schwenk: RAVI: Interactive Visualization of information systems dynamics using a Java-based schematic editor and simulator, *Open IFIP-GI-Conference on Social, Ethical and Cognitive Issues of Informatics and ICT (Information and Communication Technologies)*, SECIII, 2002

Peter Marwedel, Birgit Sirocic: Interaktive Visualisierung dynamischer Vorgänge in Rechensystemen mittels Multimediatechnik, *Tagungsband Universität Dortmund: Integration von Wissen- und Dienstleistungsarbeit, 2. Dortmunder Bildungsforum*, Feb 2003

D. Gajski, H. De Man, E. de Kock, Peter Marwedel, M. Sami, I. Söderquist: Embedded systems education: How to teach the required skills, *panel ISSS-CODES*, 2004

Dan Gajski, David Goodwin, Jeff Welser, Peter Marwedel, Patrick Lysaght, Mike Muller: What will system design be when it grows up?, Panel, CODES-ISSS, 2005

Peter Marwedel, Manish Verma, Lars Wehmeyer: Compiler optimizations improving the processor/memory interface, Workshop on Optimizing Compiler Assisted SoC Assembly (OCASA), held in conjunction with CASES, Sept. 2005

Peter Marwedel: Towards laying common grounds for embedded system design education, Invited Opening talk, *Embedded Systems Workshop, Manukau Institute of Technology*, Auckland, 2005

Peter Marwedel. Mapping of Applications to MPSoCs (Invited Talk), *IP-ESC*, Grenoble, December 2009.

Peter Marwedel: Software-based Flexible Fault Tolerance for Embedded Real-time Systems, *presentation at the panel on "Enhancing the Reliability of Hard Real-Time Systems"*, 2nd *hipec workshop on design for predictability*, Pisa, 2010

Arindam Mallik, Stylianos Mamagkakis, Christos Baloukas, Lazaros Papadopoulos, Dimitrios Soudris, Sander Stuijk, Olivera Jovanovic, Florian Schmoll, Daniel Cordes, Robert Pyka, Peter Marwedel, François Capman, Séverin Collet, Nikolaos Mitas and Dimitrios Kritharidis: MNEMEE – An automated toolflow for parallelization and memory management in MPSoC platforms, *User forum presentation*, 48th Design Automation Conference (DAC), San Diego, California, USA, June 2011

Selected Posters

Helena Kotthaus, Sascha Plazar and Peter Marwedel: A JVM-based Compiler Strategy for the R Language, June 2012, Research Poster at The 8th

International R User Conference (UseR!) WiP, 2012, June, Nashville, Tennessee, USA

Reports

Peter Marwedel: Ein praktisches Verfahren zum Entwurf synchroner Schaltwerke, *Report 1/77, Institut für Informatik und Praktische Mathematik, Universität Kiel*, 1977

Peter Marwedel, Gerhard Zimmermann: MIMOLA-Report Revision 1 and MIMOLA Software System User Manual, *Report 2/79, Institut für Informatik und Praktische Mathematik, Universität Kiel*, 1979

Peter Marwedel: Hardware Allocation for Horizontal Microinstructions in the MIMOLA Software System, *Report 5/80, Institut für Informatik und Praktische Mathematik, Universität Kiel*, 1979

K. Kelle, Gerd Krüger, Peter Marwedel, Lothar Nowak, Lutz Terasa, F. Wosnitza: Werkzeuge des MIMOLA-Hardware-Entwurfssystems, *Report 8707, Institut für Informatik und Praktische Mathematik, Universität Kiel*, 1987

Reinhard Jöhnk, Peter Marwedel: MIMOLA Reference Manual, Version 3.45, *Report 8902, Institut für Informatik und Praktische Mathematik, Universität Kiel*, 1989 *Reprint: Report 470, FB Informatik der Universität Dortmund*, 1993

Renate Beckmann, Detlef Pusch, Reinhard Jöhnk, Peter Marwedel, Wolfgang Schenk: The MIMOLA Language Reference Manual - Version 4.0 -, *Report 363, FB Informatik der Universität Dortmund*, 1991 (2. edition 1992)

G. Baumann, Peter Marwedel, Detlef Pusch: The Effect of VHDL on the MIMOLA Hardware Design System, in: Peter Marwedel (ed.): Verifikation und Synthese auf der Basis von VHDL, *Workshop SIG 3.5.1 of the German Computer Society, Report, FB Informatik der Universität Dortmund*, Mai 1991

Peter Marwedel: MSSV: Tree-Based Mapping of Algorithms to Predefined Structures, *Report 431, FB Informatik der Universität Dortmund*, 1993

Birger Landwehr, Peter Marwedel: OSCAR: Optimal Constrained Simultaneous Scheduling, Allocation and Resource Binding in High-Level-Synthesis, *Report 484, FB Informatik der Universität Dortmund*, 1993

Peter Marwedel, Steven Bashford, Rainer Dömer, Birger Landwehr, Ingolf Markhof: A Technique for Avoiding Isomorphic Netlists in Architectural Synthesis, *Report #95-28, University of California at Irvine*, 1995

Ulrich Bieker, Martin Kaibel, Peter Marwedel, Walter Geisselhardt: STAR-DUST: Hierarchical Test of Embedded Processors by Self-Test Programs, *Report No. 700, FB Informatik der Universität Dortmund*, 1998

S. S. Bhattacharyya, Rainer Leupers, Peter Marwedel: Software Synthesis and Code Generation for Signal Processing Systems, *Technical report UMIACS-TR-99-57, Institute for Advanced Computer Studies, University of Maryland, College Park 20742, USA*, Sept 1999

M. K. Jain, Lars Wehmeyer, Peter Marwedel, M. Balakrishnan: Register File Synthesis in ASIP, *Design Technical Report No. 746, University of Dortmund, Dept. of CS 12*, 2000

Stefan Steinke, Rüdiger Schwarz, Lars Wehmeyer, Peter Marwedel: Low power code generation for a RISC processor by register pipelining, *Technical Report No. 754, University of Dortmund, Dept. of CS 12*

Stefan Steinke, Christoph Zbiegala, Lars Wehmeyer, Peter Marwedel: Moving Program Objects to Scratch-Pad Memory for Energy Reduction, *Technical Report No. 756, University of Dortmund, Dept. of CS 12*

Rajeshwari Banakar, Stefan Steinke, Bo-Sik Lee, M. Balakrishnan, Peter Marwedel: Comparison of Cache- and Scratch-Pad based Memory Systems with respect to Performance, Area and Energy Consumption, *Technical Report No. 762, University of Dortmund, Dept. of CS 12*

Constantin Timm, Andrej Gelenberg, Frank Weichert, and Peter Marwedel. Reducing the Energy Consumption of Embedded Systems by Integrating General Purpose GPUs. *Technical Report 829, TU Dortmund, Faculty of Computer Science 12, 2010.*

Frank Weichert, Marcel Gaspar, Constantin Timm, Alexander Zybin, Evgeny Gurevich, Michael Engel, Heinrich Müller, and Peter Marwedel. Signal analysis and classification for plasmon assisted microscopy of nanoobjects. *Technical Report 830, TU Dortmund, Dept. of CS 12, 2010.*

Timon Kelter, Heiko Falk, Peter Marwedel, Sudipta Chattopadhyay, Abhik Roychoudhury: Bus-Aware Multicore WCET Analysis through TDMA Offset Bounds, *Technical Report 837, TU Dortmund, Dept. of CS 12, 2011*

Florian Schmoll, Andreas Heinig, Peter Marwedel and Michael Engel: Passing error handling information from a compiler to runtime components, *Technical Report #844, TU Dortmund, Faculty of Computer Science 12, 2014*

Helena Kotthaus, Ingo Korb and Peter Marwedel: Performance Analysis for Parallel R Programs: Towards Efficient Resource Utilization, *Technical Report #01/2015, Department of Computer Science 12, TU Dortmund University, July 2015*

Keynotes and Selected Invited Talks

Peter Marwedel: Optimizing embedded software for timing-predictability and memory-awareness, *IEEE East-West Design & Test Symposium (EWDTS), Moscow, September 18–21, 2009*

Peter Marwedel: From Embedded Systems to Cyber-Physical Systems: Does the Name Change Matter, *Anniversary Celebration, Uppsala University, 2009*

Peter Marwedel: Cyber-Physical Systems: Opportunities and Challenges, *IEEE International Conference on Cyber, Physical, and Social Computing (CPSCom), Besancon, France, November 20-23, 2012*

Peter Marwedel: Designing Efficient Cyber-Physical Systems, *Tools and Methods of Competitive Engineering (TMCE), Budapest, 2014*

Peter Marwedel: 1974-2014: 40 years of work in design automation – and any wiser? *International Workshop on Software and Compilers for Embedded Systems (SCOPES), 2014*

Peter Marwedel, Helena Kotthaus, Ingo Korb, Florian Schmall: Survey on recent embedded system memory optimization research at TU Dortmund, *Memory Architecture and Organization Workshop (MEAOW) at ESWEEK*, 2014

Peter Marwedel: Cyber-Physical Systems: Opportunities, Challenges, and (Some) Solutions, *Excellence Center at Linköping-Lund in Information Technology (ELLIIT) – Workshop, Norrköping*, 2014

Peter Marwedel: Resource Awareness in Data Processing, *U.S.-German Workshop on the Internet of Things (IoT)/Cyber-Physical-System (CPS)*, organized by NSF and the German Government, 2016

Peter Marwedel: Integration von Physik und Informatik in Cyber-Physical Systems, *Workshop of Teachers of CS of North-Rhine-Westfalia*, 2016

Peter Marwedel: Cyber-Physical Systems: Opportunities, Challenges, and (Some) Solutions, *21st Workshop on Synthesis And System Integration of Mixed Information technologies (SASIMI)*, Matsue (Japan), 2018

Peter Marwedel: Cooperative Research Center CRC 876 on Resource-Constrained Machine Learning: Drilling Holes into the Walls Between Disciplines, *SCOPES*, 2018