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Embedded Software

First International Workshop, EMSOFT 2001
Tahoe City, CA, USA, October 8-10, 2001
Proceedings



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Preface

This volume contains the proceedings of EMSOFT 2001, the *First International Workshop on Embedded Software*. The workshop was organized October 8–10, 2001, at Tahoe City, California. The steering committee of the workshop has the following members:

G rard Berry (Esterel Technologies, France)
Paul Hudak (Yale University, USA)
Hermann Kopetz (Technical University of Vienna, Austria)
Edward Lee (University of California, Berkeley, USA)
Ragunathan Rajkumar (Carnegie Mellon University, USA)
Alberto Sangiovanni-Vincentelli (University of California, Berkeley, USA)
Douglas Schmidt (Defense Advanced Research Projects Agency, USA)
Joseph Sifakis (Verimag Grenoble, France)

The workshop was sponsored jointly by the DARPA Information Technology Office within the MobIES (Model-based Integration of Embedded Systems) program (Dr. Janos Sztipanovits), and by the National Science Foundation (Dr. Helen Gill). The workshop URL is www.emsoft.org.

Embedded software is software that interacts with physical processes. As embedded systems increasingly permeate our daily lives on all levels, from microscopic devices to international networks, the cost-efficient development of reliable embedded software is one of the grand challenges in computer science today. The purpose of the workshop is to bring together researchers in all areas of computer science that are traditionally distinct but relevant to embedded software development, and to incubate a research community in this way. The workshop aims to cover all aspects of the design and implementation of embedded software, including operating systems and middleware, programming languages and compilers, modeling and validation, software engineering and programming methodologies, scheduling and execution time analysis, networking and fault tolerance, as well as application areas, such as embedded control, real-time signal processing, and telecommunications.

All presentations at the workshop were by invitation. The following speakers were invited:

Perry Alexander (University of Kansas, USA)
Rajeev Alur (University of Pennsylvania, USA)
Albert Benveniste (INRIA/IRISA Rennes, France)
G rard Berry (Esterel Technologies, France)
Manfred Broy (Technical University of Munich, Germany)
Kenneth Butts (Ford Motor Company, USA)
Paul Caspi (Verimag Grenoble, France)
Patrick Cousot ( cole Normale Sup rieure Paris, France)
David Culler (University of California, Berkeley, USA)

Ron Cytron (Washington University, USA)
 Luca de Alfaro (University of California, Santa Cruz, USA)
 Thomas Henzinger (University of California, Berkeley, USA)
 Paul Hudak (Yale University, USA)
 Kevin Jeffay (University of North Carolina, USA)
 Hermann Kopetz (Technical University of Vienna, Austria)
 Edward Lee (University of California, Berkeley, USA)
 Sharad Malik (Princeton University, USA)
 Krishna Palem (Georgia Institute of Technology, USA)
 Wolfgang Pree (University of Constance, Germany)
 Ragunathan Rajkumar (Carnegie Mellon University, USA)
 Martin Rinard (Massachusetts Institute of Technology, USA)
 John Rushby (SRI International, USA)
 Alberto Sangiovanni-Vincentelli (University of California, Berkeley, USA)
 Shankar Sastry (University of California, Berkeley, USA)
 Douglas Schmidt (Defense Advanced Research Projects Agency, USA)
 Joseph Sifakis (Verimag Grenoble, France)
 John Stankovic (University of Virginia, USA)
 Janos Sztipanovits (Vanderbilt University, USA)
 Lothar Thiele (ETH Zürich, Switzerland)
 Pravin Varaiya (University of California, Berkeley, USA)
 Steve Vestal (Honeywell Laboratories, USA)
 Reinhard Wilhelm (University of Saarbrücken, Germany)
 Niklaus Wirth (ETH Zürich, Switzerland)
 Wayne Wolf (Princeton University, USA)

In addition to the invited presentations, there were two panels at the workshop. The first group of panelists was from industry; they discussed the current and future challenges in the industrial development of embedded software. The second group of panelists was from academia; they discussed how the community should organize itself to further both research and education in embedded software.

We are grateful to the steering committee, the invited speakers, the sponsors, and the panelists for making the workshop a success. In addition, we wish to thank Cynthia Ernest, Charlotte Jones, Peggy Kingsley, and Peter Ray for help with the workshop organization.

July 2001

Tom Henzinger
Christoph Kirsch

Table of Contents

Heterogeneous Modeling Support for Embedded Systems Design	1
<i>P. Alexander, C. Kong</i>	
Hierarchical Hybrid Modeling of Embedded Systems	14
<i>R. Alur, T. Dang, J. Esposito, R. Fierro, Y. Hur, F. Ivančić, V. Kumar, I. Lee, P. Mishra, G. Pappas, O. Sokolsky</i>	
Some Synchronization Issues When Designing Embedded Systems from Components	32
<i>A. Benveniste</i>	
Synchronous Programming Techniques for Embedded Systems: Present and Future	50
<i>G. Berry</i>	
From Requirements to Validated Embedded Systems	51
<i>M. Broy, O. Slotosch</i>	
Usage Scenarios for an Automated Model Compiler	66
<i>K. Butts, D. Bostic, A. Chutinan, J. Cook, B. Milam, Y. Wang</i>	
Embedded Control: From Asynchrony to Synchrony and Back	80
<i>P. Caspi</i>	
Verification of Embedded Software: Problems and Perspectives	97
<i>P. Cousot, R. Cousot</i>	
A Network-Centric Approach to Embedded Software for Tiny Devices	114
<i>D.E. Culler, J. Hill, P. Buonadonna, R. Szewczyk, A. Woo</i>	
Storage Allocation for Real-Time, Embedded Systems	131
<i>S.M. Donahue, M.P. Hampton, M. Deters, J.M. Nye, R.K. Cytron, K.M. Kavi</i>	
Interface Theories for Component-Based Design	148
<i>L. de Alfaro, T.A. Henzinger</i>	
Giotto: A Time-Triggered Language for Embedded Programming	166
<i>T.A. Henzinger, B. Horowitz, C.M. Kirsch</i>	
Directions in Functional Programming for Real(-Time) Applications	185
<i>W. Taha, P. Hudak, Z. Wan</i>	
Rate-Based Resource Allocation Models for Embedded Systems	204
<i>K. Jeffay, S. Goddard</i>	

The Temporal Specification of Interfaces in Distributed Real-Time Systems	223
<i>H. Kopetz</i>	
System-Level Types for Component-Based Design	237
<i>E.A. Lee, Y. Xiong</i>	
Embedded Software Implementation Tools for Fully Programmable Application Specific Systems	254
<i>S. Malik</i>	
Compiler Optimizations for Adaptive EPIC Processors	257
<i>K.V. Palem, S. Talla, W.-F. Wong</i>	
Embedded Software Market Transformation through Reusable Frameworks	274
<i>W. Pree, A. Pasetti</i>	
An End-to-End Methodology for Building Embedded Systems	287
<i>R. Rajkumar</i>	
An Implementation of Scoped Memory for Real-Time Java	289
<i>W.S. Beebe, M. Rinard</i>	
Bus Architectures for Safety-Critical Embedded Systems	306
<i>J. Rushby</i>	
Using Multiple Levels of Abstractions in Embedded Software Design	324
<i>J.R. Burch, R. Passerone, A.L. Sangiovanni-Vincentelli</i>	
Hierarchical Approach for Design of Multi-vehicle Multi-modal Embedded Software	344
<i>T.J. Koo, J. Liebman, C. Ma, S.S. Sastry</i>	
Adaptive and Reflective Middleware for Distributed Real-Time and Embedded Systems	361
<i>D.C. Schmidt</i>	
Modeling Real-Time Systems – Challenges and Work Directions	373
<i>J. Sifakis</i>	
VEST – A Toolset for Constructing and Analyzing Component Based Embedded Systems	390
<i>J.A. Stankovic</i>	
Embedded Software: Challenges and Opportunities	403
<i>J. Sztipanovits, G. Karsai</i>	
Embedded Software in Network Processors – Models and Algorithms	416
<i>L. Thiele, S. Chakraborty, M. Gries, A. Mariaguine, J. Greutert</i>	

Design of Autonomous, Distributed Systems	435
<i>T. Simsek, P. Varaiya</i>	
Formalizing Software Architectures for Embedded Systems	451
<i>P. Binns, S. Vestal</i>	
Reliable and Precise WCET Determination for a Real-Life Processor	469
<i>C. Ferdinand, R. Heckmann, M. Langenbach, F. Martin, M. Schmidt, H. Theiling, S. Thesing, R. Wilhelm</i>	
Embedded Systems and Real-Time Programming	486
<i>N. Wirth</i>	
Embedded Software for Video	493
<i>W. Wolf</i>	
Author Index	503