

**11th International Workshop on
Parallel and Distributed Real-Time Systems
April 22-24, 2003**

Advanced Program WPDRTS 2003

April 22, 2003 (Tuesday)

8:45 – 9:00 Opening Remarks by PC-Chairs

9:00 – 10:00 Keynote Speech 1

- Inter-Vehicle Real-Time Communication and Networking, Ralf G. Herrtwich, Director Telematics Research, DaimlerChrysler, Germany.

10:00 – 10:30 Coffee Break

10:30 – 12:00 Invited Tutorial

- *Design and analysis of real-time software, the state of present, the state of future*, Roosmalen O.S. van (Eindhoven University of Technology, The Netherlands)

12:30 – 1:30 Lunch

1:30 – 3:30 Invited Session 1: “Sociological Models for Distributed Real-Time Systems,” organized by Lonnie Welch and Bob Shelly (Ohio University, USA)

- Distributed Decisions in Exchange Networks, D. Willer (University of South Carolina, USA)
- KURT-Linux Support for Adaptive Computing, D. Niehaus (University of Kansas, USA)
- Incorporating Theories of Group Dynamics in the GDSS Design, L. Troyer (University of Iowa, USA)
- The Applicability of Social Models for Self-Organizing Computer Systems, L. Welch, R. Shelly, and D. Gu (Ohio University, USA)

3:00 – 3:30 Coffee Break

3:30 – 5:30 Challenge Problem Session: “System Certification for Real-Time Systems that Employ Dynamic Resource Management,” organized by Michael Masters (US Navy)

- On Certification of Dynamically Reconfigurable Tactical Computer Systems, M.Y. Chang (Naval Surface Warfare Center, USA) and R.W.L. Thomas (EG&G Technical Services, USA)
- ConFiRM-DRTS: A Certification Framework for Dynamic Resource Management in Distributed Real-Time Systems, S. Lin, A. Sai Sudhir, and G. Manimaran (Iowa State University, USA)
- An Approach for On-line Performance Certification, L.R. Welch (Ohio University, USA)

5:30 – 6:30 Work-in-Progress Session
(Session Chair: Program Committee Chairs)

- SCIMPS: An Integrated Approach to Distributed Processing in Sensor Webs, D. Andrews, J. Evans, V. Mangipudi, and A. Mandapaka (ITTC, University of Kansas, USA)
- An Optimization Framework for Dynamic, Distributed Real-Time Systems, K. Ecker (Technical University of Clausthal, Germany), D. Juedes, L. Welch, D. Chelberg, C. Bruggeman, F. Drews, D. Fleeman (Ohio University, USA), D. Parrott (Technical University of Clausthal, Germany), and B. Pfarr (NASA GSFC, USA)
- VirtualBoard: Real-Time Visual Gesture Recognition for Natural Human-Computer Interaction, C. Costanzo, G. Iannizzotto, and F.L. Rosa (Univeristy of Messina, Italy)
- Dual Priority Algorithm to Schedule Real-Time Tasks in a Shared Memory Multiprocessor, J.M. Banus, A. Arenas (Universitat Rovira i Virgili, Spain), and J. Labarta (Universitat Politecnica de Catalunya, Spain)
- Dynamic Power Management of Heterogeneous Systems, J. Suh, D. Kang, and S. Crago (USC/ISI, USA)
- Adaptive QoS-Based Resource Allocation in Distributed Multimedia Systems, R. Moghal and M.S. Mian (University of Engineering & Technology, Lahore, Pakistan)
- Parallel Direct Solution of Linear Equations on FPGA-Based Machines, X. Wang, S.G. Ziavras, and J. Savir (New Jersey Institute of Technology, USA)

April 23, 2003 (Wednesday)

8:30 – 9:30 IPDPS Keynote Speech

9:30 – 10:00 Coffee Break

10:00 – 11:00 Keynote Speech 2

- Real-time Flight Software Systems of Today and Tomorrow, Michael Aguilar, NASA, Goddard Space Flight Center, Flight Software Branch, USA.

11:00 – 12:30 Session 1: Multiprocessor Scheduling
(Session Chair: L. Troyer, University of Iowa, USA)

- Energy-aware Partitioning for Multiprocessor Real-Time Systems, H. Aydin and Q. Yang (George Mason University, USA)
- Fair Scheduling of Dynamic Tasks on Multiprocessors, A. Srinivasan and J.H. Anderson (University of North Carolina, USA)
- Real-Time Hybrid Task Scheduling Upon Multiprocessor Production Stages, D.A. El-Kebbe (Paderborn University, Germany)
- The Case for Fair Multiprocessor Scheduling, A. Srinivasan, P. Holman, J.H. Anderson, and S. Baruah (University of North Carolina, USA)

12:30 – 2:00 Lunch

2:00 – 4:00 Invited Session 2: “Real-Time and Embedded Systems: Beyond Current Assumptions,” organized by Chris Gill (Washington University, USA) and Doug Niehuas (University of Kansas, USA)

- Implementing and Optimizing Real-time Java, A. Corsaro and R.K. Cytron (Washington University, USA)
- Real-time Systems for Industrial Use: Requirements for the Future, T. Gleixner (Linutronix, Germany)
- Hard Real-Time Programming is Different, P. Puschner (Institut fur Technische Informatik, Austria)

4:00 – 4:30 Coffee Break

4:30 – 6:00 Session 2: Resource Allocation and Scheduling

(Session Chair: H. Aydin, George Mason University, USA)

- Probabilistic Models for Multiprocessor Scheduling, N. Nissanke and A. Leulseged (South Bank University, UK)
- MIP Formulations for Robust Resource Allocation in Dynamic Real-Time Systems, S. Gertphol and V.K. Prasanna (University of Southern California, USA)
- Robust Scheduling of Team Robotics, M. Gergeleit (Otto-von-Guericke-Universitat Magdeburg, Germany), L.B. Becker (Federal University of Rio Grande Do Sul, Brasil), and E. Nett (Otto-von-Guericke-Universitat Magdeburg, Germany)
- An Efficient Job Selection Scheme in Real-Time Scheduling under the Stack Resource Policy, S. Han, M. Park, and Y. Cho (Seoul National University, Korea)

April 24, 2003 (Thursday)

8:30 – 9:30 IPDPS Keynote Speech

9:30 – 10:00 Coffee Break

10:00 – 11:00 Keynote Speech 3

- Mission Critical Applications Enabled by Distributed Real-Time Systems, Dave Martinez, MIT Lincoln Laboratory, USA

11:00 – 12:30 Session 3: Real-Time Applications

(Session Chair: Kyu-Ho Park, Korea Advanced Institute of Science and Technology)

- A Train Control System Case Study in Model-Based Real-Time System Design, A. Zimmermann and G. Hommel (Technische Universitat, Berlin, Germany)
- Distributed Hardware-In-the-Loop Simulator for Autonomous Continuous Dynamic Systems with Spatially Constrained Interactions, Z. Papp, M. Dorrepaal, and D.J. Verburg (TNO Institute of Applied Physics, The Netherlands)
- Supporting the Hard Real-Time Requirements of Mechatronic Systems by 2-Level Interrupt Service Management, C. Siemers (University of Applied Sciences Nordhausen, Germany), R. Falsett, R. Seyer (Daimler Chrysler Research, Germany), and K. Ecker (Technical University Clausthal, Germany)
- Shielded Processors: Guaranteeing Sub-millisecond Response in Standard Linux, S. Brosky and S. Rotolo (Concurrent Computer Corporation, USA)

12:30 – 1:30 Lunch

1:30 – 3:30 Session 4: Real-Time Communication & Survivability

(Session Chair: A. Bouabdallah, Universite de Technologie de Compiegne, France)

- A Real-Time Event Channel Model for the CAN-Bus, J. Kaiser, C. Brudna, and C. Mitidieri (University of Ulm, Germany)
- Integration of CAN-based Connection-oriented Communication Model into Real-Time CORBA, S. Lankes, A. Jabs, T. Bemmerl (Lehrstuhl fur Betriebssysteme, Germany)
- A Multiple Segmented Backups Scheme for Dependable Real-Time Communication in Multihop Networks, G. Ranjit (Veritas Software, India), C.S.R. Murthy (IIT Madras, India)
- Recovery Schemes for High Availability and High Performance in Distributed Real-Time Computing, L. Lundberg and D. Haggander (Blekinge Institute of Technology, Sweden)
- Dynamic Resource Discovery for Applications Survivability in Distributed Real-Time Systems, B.K. Choi (Michigan Technological University, USA), S. Rho and R. Bettati (Texas A&M University, USA)

3:30 – 4:00 Coffee Break

4:00 – 5:30 Session 5: QoS Management

(Session Chair: V. Kalogeraki, University of California, Riverside, USA)

- The Flexible Time-Triggered (FTT) Paradigm: An Approach to QoS Management in Distributed Real-time Systems, P. Pedreiras and L. Almeida (University of Averoio, Portugal)
- Enhanced Processor Budget for QoS Management in Multimedia Systems, C. Lee (Ohio State University, USA)
- A Real-Time Disk Scheduler for Multimedia Integrated Server Considering the Disk Internal Scheduler, K.H. Kim, J.Y. Hwang, S.H. Lim, J.W. Cho, and K.H. Park (Korea Advanced Institute of Science and Technology, Korea)
- Better Real-time Response for Time-share Scheduling, S.A. Banachowski and S.A. Brandt (University of California, Santa Cruz, USA)

5:30 – 5:45 Closing Remarks