

# Table of Contents

## Invited Paper

An Architectural Perspective of Real-Time Ada Applications .....	1
<i>C. Douglass Locke</i>	

## Ravenscar Profile and High Integrity Systems

A Formal Model of the Ada Ravenscar Tasking Profile; Protected Objects .....	12
<i>Kristina Lundqvist, Lars Asplund, and Stephen Michell</i>	
An Ada Runtime System Implementation of the Ravenscar Profile for High Speed Application-Layer Data Switch .....	26
<i>Mike Kamrad and Barry Spinney</i>	
Re-engineering a Safety-Critical Application Using SPARK 95 and GNORT .....	39
<i>Roderick Chapman and Robert Dewar</i>	
An Ada95 Solution for Certification of Embedded Safety Critical Applications.....	52
<i>Jacob Frost</i>	

## Software Architectures and Design

Architectural Frameworks: Defining the Contents of Architectural Descriptions .....	64
<i>David E. Emery</i>	
Mapping Object-Oriented Designs to Ada .....	76
<i>Alfred Strohmeier</i>	
Efficient and Extensible Multithreaded Remote Servers.....	91
<i>Ricardo Jiménez-Peris, M. Patiño-Martínez, F. J. Ballesteros, and S. Arévalo</i>	

## Testing

Report on the VERA Experiment.....	103
<i>Bruno Hêmeury</i>	
Acceptance Testing of Object Oriented Systems .....	114
<i>Jose L. Fernández</i>	

## Formal Methods

Environment for the Development and Specification of Real-Time Ada Programs .	124
<i>Apolinar González and Alfons Crespo</i>	
Interprocedural Symbolic Evaluation of Ada Programs with Aliases .....	136
<i>J. Blieberger, B. Burgstaller, and B. Scholz</i>	

Automatic Verification of Concurrent Ada Programs .....	146
<i>Eric Bruneton and Jean-François Pradat-Peyre</i>	
Translating Time Petri Net Structures into Ada 95 Statements .....	158
<i>F.J. García and J.L. Villarroel</i>	

## Education

Railway Scale Model Simulator .....	170
<i>Pierre Breguet and Luigi Zaffalon</i>	
Ada 95 as a Foundation Language in Computer Engineering Education in Ukraine .....	181
<i>Alexandr Korochkin</i>	

## Distributed Systems

yaRTI, an Ada 95 HLA Run-Time Infrastructure .....	187
<i>Dominique Canazzi</i>	
An Ada95 Implementation of a Network Coordination Language with Code Mobility .....	199
<i>Emilio Tuosto</i>	
CORBA & DSA: Divorce or Marriage? .....	211
<i>Laurent Pautet, Thomas Quinot, and Samuel Tardieu</i>	
How to Modify the GNAT Frontend to Experiment with Ada Extensions .....	226
<i>J. Miranda, F. Guerra, J. Martín, and A. González</i>	
On the Use of Controlled Types for Fossil Collection in a Distributed Simulation System .....	238
<i>Helge Hagenauer</i>	
An Application (Layer 7) Routing Switch with Ada95 Software .....	250
<i>Mike Kamrad</i>	
Ada Binding to a Shared Object Layer .....	263
<i>Johann Blieberger, Johann Klasek, and Eva Kühn</i>	

## Real-Time Scheduling and Kernels

The Ceiling Protocol in Multi-moded Real-Time Systems .....	275
<i>Jorge Real and Andy Wellings</i>	
A “Bare-Machine” Implementation of Ada Multi-tasking Beneath the Linux Kernel .....	287
<i>Hongfeng Shen, Arnaud Charlet, and T.P. Baker</i>	

Implementing a New Low-Level Tasking Support for the GNAT Runtime System	298
<i>José F. Ruiz and Jesús M. González-Barahona</i>	

## Tools

MetaScribe, an Ada-based Tool for the Construction of Transformation Engines	308
<i>Fabrice Kordon</i>	
An Adaptation of our Ada95/O2 Binding to Provide Persistence to the Java Language: Sharing and Handling of Data between Heterogeneous Applications using Persistence	320
<i>Thierry Millan, Myriam Lamolle, and Frédéric Mulatero</i>	
Browsing a Component Library Using Non-functional Information	332
<i>Xavier Franch, Josep Pinyol, and Joan Vancells</i>	

## The Role of Ada in Hardware/Software Codesign

HW/SW Co-design of Embedded Systems	344
<i>William Fornaciari and Donatella Sciuto</i>	
Hardware/Software Embedded System Specification and Design Using Ada and VHDL	356
<i>Adrian López, Maite Veiga, and Eugenio Villar</i>	
System on Chip Specification and Design Languages Standardization	371
<i>Jean Mermet</i>	

## Fault Tolerance

An Incremental Recovery Cache Supporting Software Fault Tolerance	385
<i>P. Rogers and A.J. Wellings</i>	
Shared Recoverable Objects	397
<i>Jörg Kienzle and Alfred Strohmeier</i>	
Fault Tolerance by Transparent Replication for Distributed Ada 95	412
<i>Thomas Wolf and Alfred Strohmeier</i>	

## Case Studies

A Case Study in the Reuse of On-board Embedded Real-Time Software	425
<i>Tullio Vardanega, Gert Caspersen, and Jan Storbak Pedersen</i>	
Development of Flight Control Software in Ada: Architecture and Design Issues and Approaches	437
<i>Alfred Rosskopf</i>	

<b>Author Index</b>	451
---------------------	-----

Reliable Software Technologies - Ada-Europe '99  
1999 Ada-Europe International Conference on Reliable  
Software Technologies, Santander, Spain, June 7-11,  
1999, Proceedings  
Gonzalez Harbour, M.; de la Puente, J.A. (Eds.)  
1999, XIV, 458 p., Softcover  
ISBN: 978-3-540-66093-4