

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 Hémeury</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
Eric Bruneton and Jean-François Pradat-Peyre

Translating Time Petri Net Structures into Ada 95 Statements..... 158
F.J. García and J.L. Villarroel

Education

Railway Scale Model Simulator..... 170
Pierre Breguet and Luigi Zaffalon

Ada 95 as a Foundation Language in Computer Engineering Education
in Ukraine..... 181
Alexandr Korochkin

Distributed Systems

yaRTI, an Ada 95 HLA Run-Time Infrastructure 187
Dominique Canazzi

An Ada95 Implementation of a Network Coordination Language with
Code Mobility 199
Emilio Tuosto

CORBA & DSA: Divorce or Marriage?..... 211
Laurent Pautet, Thomas Quinot, and Samuel Tardieu

How to Modify the GNAT Frontend to Experiment with Ada Extensions 226
J. Miranda, F. Guerra, J. Martín, and A. González

On the Use of Controlled Types for Fossil Collection in a Distributed
Simulation System..... 238
Helge Hagenauer

An Application (Layer 7) Routing Switch with Ada95 Software 250
Mike Kamrad

Ada Binding to a Shared Object Layer..... 263
Johann Bliederger, Johann Klasek, and Eva Kühn

Real-Time Scheduling and Kernels

The Ceiling Protocol in Multi-moded Real-Time Systems 275
Jorge Real and Andy Wellings

A “Bare-Machine” Implementation of Ada Multi-tasking Beneath the
Linux Kernel 287
Hongfeng Shen, Arnaud Charlet, and T.P. Baker

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

Tools

MetaScribe, an Ada-based Tool for the Construction of Transformation Engines ...308
Fabrice Kordon

An Adaptation of our Ada95/O2 Binding to Provide Persistence to the
 Java Language: Sharing and Handling of Data between Heterogeneous
 Applications using Persistence320
Thierry Millan, Myriam Lamolle, and Frédéric Mulatero

Browsing a Component Library Using Non-functional Information332
Xavier Franch, Josep Pinyol, and Joan Vancells

The Role of Ada in Hardware/Software Codesign

HW/SW Co-design of Embedded Systems344
William Fornaciari and Donatella Sciuto

Hardware/Software Embedded System Specification and Design Using
 Ada and VHDL356
Adrian López, Maite Veiga, and Eugenio Villar

System on Chip Specification and Design Languages Standardization371
Jean Mermet

Fault Tolerance

An Incremental Recovery Cache Supporting Software Fault Tolerance.....385
P. Rogers and A.J. Wellings

Shared Recoverable Objects.....397
Jörg Kienzle and Alfred Strohmeier

Fault Tolerance by Transparent Replication for Distributed Ada 95412
Thomas Wolf and Alfred Strohmeier

Case Studies

A Case Study in the Reuse of On-board Embedded Real-Time Software425
Tullio Vardanega, Gert Caspersen, and Jan Storbank Pedersen

Development of Flight Control Software in Ada: Architecture and Design
 Issues and Approaches437
Alfred Roskopf

Author Index.....451