Table of Contents

Message from the General Chair ................................................................. ix
Message from the Technical Program Co-Chairs ................................... x
Conference Committee ........................................................................... xi

POSTER SESSION I

Pros and Cons of Public Domain VLSIC Design Suites ..................... 3
    H.S. Abdel-Aty-Zohdy
A Multilevel Approach to Teaching Hardware Description Languages .... 5
      J. Armstrong
Tools for Documenting Digital Designs on the Web .............................. 7
      G. Borriello, D. Beal, and T. Li
A VLSI Circuit Design Course for Practitioners and Researchers ........ 9
      B.S. Carlson
Experience Extending VLSI Design with Mathematical Logic ............... 11
      S.-K. Chin
Integrating CAE Tools into Computer Engineering Courses ................ 13
      R.J. Duckworth
Cache Memory Design for Embedded Systems Based on Program Locality Analysis ................................................................. 16
      R. Giorgi, C.A. Prete, and G. Prina
Semiconductor Teaching Chips ............................................................... 19
      L.I. Haworth, A. Ross, A. Gundlach, and J.M. Robertson
An Electronics Manufacturing Minor in Engineering with Emphasis on Rapid Prototyping ................................................................. 21
      P.T. Hulina and D.L. Landis
Network-Based Simulation Laboratories for Microelectronics Systems Design and Education ................................................................. 23
      N.H. Kapadia, M.S. Lundstrom, J.A.B. Fortes, and K. Roy
Personal-Computer Based Digital and Analog VLSI Design Laboratories  25
      W.B. Leigh
Integrating Mixed Signal IC Design Research into a Project-Based Undergraduate Microelectronics Curriculum .............................. 28
      J.A. McNeill and R. Vaz
<<Learning by Virtual Doing >>: Protocol Simulators for Surface Analysis in Microelectronics ................................................................. 30
      F. Pécheux, Y. Hervé, H. Marchal, N. Hertel, J.P. Stoquert, and R. Stuck
EDA on UNIX/Sparc and Win95/Intel Platforms: Does Compatibility Exist? 32
      R.B. Reese
The University of Tennessee/Oak Ridge National Laboratory Joint Program in Mixed-Signal VLSI and Monolithic Sensors ........................ 34
      M.L. Simpson, J.M. Rochelle, G.T. Alley, T.V. Blalock, C.L. Britton,
      D.W. Bouldin, W.L. Bryan, R.C. Gonzalez, M.N. Ericson,
      M.J. Paulus, E.J. Kennedy, S.F. Smith, M.J. Roberts, and A.L. Wintenberg
A Systems Design Course Emphasizing Interfaces

J. Staunstrup

Meeting the Computer Competency Expectations of the Construction Industry

A. Wiezel, C. Schexnayder, and K. Walsh

POSTER SESSION II

Diverse-Projects Design-Experiences in Analog/Digital Microelectronic Systems

H.S. Abdel-Aty-Zohdy

Microelectronic Systems Education at an Urban Non-Residential Campus

R.J. Auletta

Interacting with Physical Devices over the Web

G. Borriello and E. McManus

A World Wide Web Education Center for Analog Microsystem Design Education

R.H. Caverly and V. Zlatkovic

Microelectronic Design Cooperative Education Program

W.A. Chren, Jr.

An Industrial-Strength Design Flow in Just Fifteen Easy Weeks!

J.F. Frenzel

Toward an Optimized Computer Assisted Electronics Laboratory

J.J. González

System Oriented VLSI Curriculum at KTH

L. Hellberg, A. Hemani, J. Isoaho, A. Jantsch, M. Mokhtari, and H. Tenhunen

ProTest: A Low Cost Rapid Prototyping and Test System for ASICs and FPGAs

M. Jacomet, R. Walti, L. Winzenried, J. Perez, and M. Gysel

An Undergraduate Advanced Computer Design Course Using Virtual-Prototyping

R.H. Klenke and J.H. Aylor

Experiences Teaching Design Automation in the Introductory Level Course

Y.Y. Li

The 21st Century Engineering Consortium

M.P. Nassif

Low Cost, Prototype ASIC and MCM Fabrication and Assembly from the MOSIS Service

J. Peltier and W. Hansford

Industrial Feedback for a Microelectronics Curriculum

J.T. Ross

A Simplified Module Interface Style for Synthesis Education

D.R. Smith

Design, Integration and Characterization of Analog Integrated Circuits:

A Complete Design Flow Dedicated to Microelectronics Education


Interactive Learning Toolbox for Logic Synthesis with VHDL

A. Wu
POSTER SESSION III

Teaching the Design of a Chip Under the Cadence Opus Environment
Using the Alliance Cells Libraries.......................................................... 81
   M. Aberbour, A. Derieux, H. Mehrez, and N. Vaucher
EUROPRACTICE and FUSE: The European Commission Programs for
Supporting Education and Technology Transfer in Microelectronics..... 83
   A. de Baas and M.J. Declercq
Experiences Teaching Synthesis of FPGAs and Testable ASICs............. 85
   D.W. Bouldin
A Project Oriented Undergraduate CMOS Analog Microelectronic System
Design Course ...................................................................................... 87
   R.H. Caverly
Introducing Multimedia in Teaching of Digital System Design............. 89
   P. Conradi, U. Heinkel, and M. Wahl
Microelectronic Systems Design Educational Challenge.................... 91
   R.H. Fujii
Curricular Integration for Next Generation in Microsystem Design Education.................. 93
   R.K. Gupta
Infrastructure for Laboratory Distribution........................................... 95
   R.F. Hodson and J. Hereford
Experience Teaching a Senior Level Course on Digital Design Using FPGAs ............................. 97
   L. John
A WWW Facilitated Rapid System Prototyping Class ......................... 99
   D.L. Landis and P.T. Hulina
Distributed Learning via the World Wide Web through Interactive Modules............................................. 101
   J.W. Lockwood
Artificial Device: A New Way of Using Monte Carlo Simulations for
Pedagogic Applications ...................................................................... 103
   A.C. Negoi and J. Zimmermann
Industrial Strength Design Automation Tools in an Introductory Computer
Engineering Laboratory ..................................................................... 105
   H.J. Pottinger
A Distance Laboratory for Computer-Aided Design ............................ 107
   R. Seinauskas
Role of FPGAs in Undergraduate Project Courses............................. 109
   M.A. Soderstrand
Using Hypermedia for Programmable Logic Devices Education........ 111
   M.D. Valdés, M.J. Moure, L. Pardo, J. Álvarez, and E. Mandado
A World-Wide-Web Based Instrumentation Pool Real Testing in a Virtual World ................. 114
   T. Zimmer, P. Kadionik, and Y. Danto

POSTER SESSION IV

Implementation of the VLSI Education Program at South Dakota
State University.................................................................................. 119
   M. Andrawis
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The French Microelectronics Training Network Supported by Industry</td>
<td>121</td>
</tr>
<tr>
<td>and Education Ministries</td>
<td></td>
</tr>
<tr>
<td>O. Bonnaud and G. Rey</td>
<td></td>
</tr>
<tr>
<td>Project-Oriented Training of Engineering Students on MMIC and HMIC</td>
<td>123</td>
</tr>
<tr>
<td>at LHOG/INPG</td>
<td></td>
</tr>
<tr>
<td>N. Guilleminot, B. Cabon, A. Vilcot, and N. Corrao</td>
<td></td>
</tr>
<tr>
<td>Including HDL and Synthesis in the EE and CSE Digital Design Curriculum</td>
<td>125</td>
</tr>
<tr>
<td>K.C. Chang</td>
<td></td>
</tr>
<tr>
<td>Multimedia Optimisation and Demonstration for Education in Microelectronics (MODEM): A New European Microelectronics Telematics Based Educational Initiative</td>
<td>127</td>
</tr>
<tr>
<td>G.M. Crean and M. O'Sullivan</td>
<td></td>
</tr>
<tr>
<td>Continuing Education for Small and Medium-Sized Industries: The French JESSICA Programme</td>
<td>129</td>
</tr>
<tr>
<td>P. Gentil</td>
<td></td>
</tr>
<tr>
<td>Using Synthesis, Simulation, and Hardware Emulation to Prototype a Pipelined RISC Computer System</td>
<td>131</td>
</tr>
<tr>
<td>J.O. Hamblen</td>
<td></td>
</tr>
<tr>
<td>The Teaching of VHDL in Computer Architecture</td>
<td>133</td>
</tr>
<tr>
<td>T.C. Huang, R.W. Melton, P.R. Bingham, C.O. Alford, and F. Ghannadian</td>
<td></td>
</tr>
<tr>
<td>Getting Started with VHDL</td>
<td>135</td>
</tr>
<tr>
<td>P.L. Jones</td>
<td></td>
</tr>
<tr>
<td>Flip-chip Assembly for Senior Designs in the 21st Century</td>
<td>137</td>
</tr>
<tr>
<td>Y.C. Lee and Q. Tan</td>
<td></td>
</tr>
<tr>
<td>Facilitating Interconnect-Based VLSI Design</td>
<td>139</td>
</tr>
<tr>
<td>R. Mangaser and K. Rose</td>
<td></td>
</tr>
<tr>
<td>Doing More with Less: Magic on Windows 95/NT</td>
<td>141</td>
</tr>
<tr>
<td>D.F. Newport</td>
<td></td>
</tr>
<tr>
<td>Significant Microelectronics Systems Design Experience for a Heterogeneous Class of CS, CE, and EE Students</td>
<td>143</td>
</tr>
<tr>
<td>C.N. Purdy</td>
<td></td>
</tr>
<tr>
<td>A Multidisciplinary Course in Rapid Prototyping of Wearable Computers</td>
<td>145</td>
</tr>
<tr>
<td>D.P. Siewiorek and A. Smailagic</td>
<td></td>
</tr>
<tr>
<td>Educational Use of MOSIS</td>
<td>147</td>
</tr>
<tr>
<td>J. Staudhammer</td>
<td></td>
</tr>
<tr>
<td>Mixing Web Technologies and Educational Concepts to Promote Quality of Training in ASIC CAD</td>
<td>149</td>
</tr>
<tr>
<td>T. Vassileva, V. Tchoumatchenko, and I. Astinov</td>
<td></td>
</tr>
<tr>
<td>Multimedia Virtual Lab in Electronics</td>
<td>151</td>
</tr>
<tr>
<td>E. Zysman</td>
<td></td>
</tr>
<tr>
<td><strong>Author Index</strong></td>
<td>153</td>
</tr>
</tbody>
</table>