Preface

IFIP Working Group 10.2 was pleased to sponsor DIPES 2010, the IFIP Conference on Distributed and Parallel Embedded Systems. The conference was held in Brisbane, Australia during September 20-22, 2010 as part of the IFIP World Computer Conference.

Already when establishing this conference series in 1998, the idea of distribution, where the control task is carried out by a number of controllers distributed over the entire system and connected by some interconnect network, was emphasized in its title. This idea naturally leads to the recent research field of cyber physical systems where embedded systems are no longer seen as "closed boxes" that do not expose the computing capability to the outside. Instead networked embedded systems interact with physical processes in a feedback loop leading to ever more "intelligent" applications with increased adaptability, autonomy, efficiency, functionality, reliability, safety, and usability. Examples like collision avoidance, nano-tolerance manufacturing, autonomous systems for search and rescue, zero-net energy buildings, assistive technologies and ubiquitous healthcare cover a wide range of domains influencing nearly all parts of our lives.

Hence, the design of distributed embedded systems interacting with physical processes is becoming ever more challenging and more than ever needs the interdisciplinary research of designers and researches from industry and academia. DIPES provides an excellent forum for discussing recent research activities and results.

DIPES 2010 received 37 submissions: 30 from Europe, 4 from South America, 2 from Asia/Australia, and 1 from Africa. From these submissions, the Program Committee accepted 18 papers for presentation at the conference. The contributions present advanced design methods for distributed embedded systems, starting from specification and modelling over verification and validation to scheduling, partitioning and code generation, also targeting specific architectures such as upcoming multi-core systems or reconfigurable systems.

We would like to thank all authors for their submitted papers and the Program Committee for their careful reviews. Our thanks also go to Rolf Ernst for his inspiring keynote speech on mastering the conflicting trends safety, efficiency and autonomy in embedded systems design. We gratefully acknowledge the superb organization of this event by the WCC Committee. Furthermore, we also thank our colleague Claudius Stern for his valuable support in preparing the camera-ready material for this book.

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