

Preface

This book is based on an exciting and intense period of collaboration while we were trying to understand the fundamental aspects of communication-based design of multiprocessor systems-on-chip (MPSoC). While the core material is largely based on first author's EDAA award winning Ph.D. thesis, the overall structure and contents has been updated to reflect our deeper and broader understanding of the role of the "network" in MPSoC design that only the intervening years and prototyping experience made it possible.

In terms of contents, the book provides a system-level view on various modeling and optimization issues for future MPSoCs. As such, it can be used as an advanced introduction in the area of multicore design and optimization where communication happens via the network-on-chip approach. At the same time, we hope to see this book helping readers overcome the abundance of available information (not always well structured) researchers face nowadays and stimulate new research in this exciting area.

We would like to express our gratitude to many close collaborators and entities that make this endeavor possible. First, we would like to thank our many colleagues at Carnegie Mellon University who directly influenced some of our ideas and provided valuable feedback over the years. In particular, we thank Drs. Jingcao Hu, Paul Bogdan, Hyung Gyu Lee, Chen-Ling Chou, Nicholas H. Zamora, Jung-Chun Kao, Radu David of the System Level Design group and Siddharth Garg, Natasa Miskov-Zivanov, Puru Choudhary and Prof. Diana Marculescu of the Energy Aware Computing group, also Professors Rob A. Rutenbar, Hui Zhang, and Shawn Blanton. In general, the CSSI environment at CMU proved to be the true 'home' for many of our intellectual endeavors.

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