

# 2<sup>nd</sup> Edition Preface

## Why the 2<sup>nd</sup> Edition?

The reader (or prospective buyer of this book) might ask about the need for a second edition. The first edition was highly successful and progressed to a second and third life after being translated to Japanese and Korean.

There are three over-arching reasons for the second edition:

- A fast changing technical landscape
- Incorporation of additional topic suggestions from readers
- Fixing of errors and improvement of confusing text segments and chapters

To address the shifting technical landscape, we have significantly updated the chapters addressing Electronic System-Level design to reflect the refinements of ESL methodology thinking in the industry. Although this is not a complete discussion of ESL, it is an overview of the industry as currently viewed by the authors.

We have added a chapter on TLM, a standard that will enable interoperability of models and a model marketplace. Although this chapter discusses TLM 1.0, we think it imparts to the reader a basic understanding of TLM. Those of you who follow the industry will note that this is not TLM 2.0. This new standard was still emerging during the writing of this edition. But not to worry! Purchasers of this edition can download an additional chapter on TLM 2.0 when it becomes available within the next six months at [www.scftgu.com](http://www.scftgu.com).

Although SystemC is now IEEE 1666 it is not immune from the shifting technical landscape, so the authors have included material on some proposed extensions to the SystemC standard related to process control.

Readers have suggested several additional topics over the last several years and we have tried to address these with an additional chapter on the SystemC Verification (SCV) Library and an appendix on C++ fundamentals.

The chapter on the SCV library is a high level introduction and points the reader to additional resources. The authors have found that many organizations have started using the SCV library after becoming familiar with SystemC and ESL methodologies. For those readers, we have added this chapter.

The authors received several suggestions asking us to add examples and comparisons to HDL languages like Verilog and VHDL. The authors have respectfully declined, as we feel this actually impedes the reader from seeing the intended uses of SystemC. After exploring these suggestions, we have found that these readers were not entirely comfortable with C++, and because C++ is fundamental to an understanding of SystemC, this edition includes a special appendix that attempts to highlight those aspects of C++ that are important prerequisites, which is most of the language.

Writing a book of this type is very humbling, as most who have journeyed on similar endeavors will confirm. Despite our best efforts at eliminating errors from the first edition, the errata list had grown quite long. We have also received feedback that certain portions of the book were “confusing” or “not clear”. After reviewing many of these sections, we had to ask: What were we thinking? (a question asked by many developers when they revisit their “code” after several years)

In some cases we were obviously “not thinking”, so several chapters and sections of chapters have been significantly updated or completely rewritten. The topic of concurrency proved a more challenging concept to explain than the authors first thought. This edition effectively rewrote the chapters and sections dealing with the concept of concurrency.

The authors have been quite gratified at the acceptance of the first edition and the rapid adoption of SystemC. We hope we have played at least a small part in the resulting changes to our community. We wish you good luck with SystemC and your contributions to our community.

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SystemC: From the Ground Up, Second Edition

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2010, XXIII, 281 p., Hardcover

ISBN: 978-0-387-69957-8