Book
REVIEWS

SYSTEM LEVEL DESIGN MODEL WITH REUSE OF SYSTEM IP

By P. Cavalloro, Chr. Gendarme, K. Kronlof, J. Mermet, J.V. Sas, K. Tiensyrja, and N. Voros, Springer-Verlag, 2003.

This book presents the perspective of the SYDIC-Telecom project on system design and reuse as perceived during the course of the research from 1999–2003.

Chapters 2 and 3 are dedicated to system design. First, the system design practices in industry are introduced for today's applications. While these topics are not analyzed in depth, general aspects are highlighted. Chapter 4 is of great importance from the aspect of methodology development, although it appears rather theoretical. More analytically, it illustrates the foundations of the system design conceptual model. Concepts for system specification and design languages are developed in Chapter 5.

Chapter 6 gives a general overview of the performance analysis techniques used during architecture exploration on different levels of abstraction of a networking environment. In addition, the authors focus on a methodology enabling the assessment of system-level modeling from performance modeling in the context of system-level intellectual property reuse.

The recently introduced research area of system design reuse is analyzed in Chapter 7. Advancements in system IP reuse are given, providing readers with a common base of reference and stimulus for all ongoing work in this area. Chapter 8 presents an example of using the system design conceptual model.

The final portion of this book consists of five annexes. The focused topics of the annexes cover the glossary, action semantics, language analysis framework, and a guideline for system-level performance analysis. Finally, practical concept illustration is offered through the Bluestone case example.

Nicolas Sklavos
University of Patras

CMOS CIRCUIT DESIGN, LAYOUT, AND SIMULATION, 2ND EDITION

By R. Jacob Baker, Wiley, 2004.

The second edition of the book adds chapters about CMOS manufacturing and noise-related matter as well as some enhancements related to short-channel phenomena.

The first few chapters discuss the use of layout tools. The details of the metal layers, well, poly, and other layout-related layers are mentioned. Layout techniques that avoid mismatches and process variation are taught. There are chapters devoted to CMOS device operation. The definition of Vsat for short-channel devices is described. The different modeling techniques for digital and analog design are discussed.

Most of the chapters concentrate on basic circuit design techniques, covering operational amplifiers to digital circuits. For readers or students who would like a comprehensive book that covers as many circuits as possible, this book might be a good choice. The book covers mostly amplifiers, voltage reference, data converters, and digital circuits.

The second edition offers some discussion of what elements of circuit design must change when using short-channel devices. Much of the discussion is seen in the current mirror and amplifier sections.

I recommend the book for use in entry-level digital and analog circuit design classes.

OPTICAL WDM NETWORKS, CONCEPTS, AND DESIGN PRINCIPLES

By Jun Zheng and Hussen T. Mouftah, Wiley-IEEE Press, 2004.

The objective of this book is to promote the development of new all-optical devices for optical networking to eliminate many current complications involving optical-to-electronic signal transformations in the systems in order to make full use of the inherently wide bandwidth of optical communication systems. This book provides an introduction to basic concepts and network design principles for wavelength division multiplexing (WDM) technology used primarily in optical networks, with emphasis on the networking aspects of the Internet networks covering the latest technological developments.

The book consists of eight chapters covering the most important networking aspects. After a general introduction in Chapter 1, Chapter 2 gives an introduction to the fundamentals of major optical devices used in WDM networks. Chapter 3 covers the concept and objectives of the routing and rerouting of wavelength assignment. Virtual topology design and reconfiguration are the focus of Chapter 4.

Chapter 5 is dedicated to distributed light path establishment. Chapter 6 concentrates on optical layer protection and restoration, and Chapter 7 covers major issues related to Internet protocol over WDM networks. Lastly, Chapter 8 briefly covers a discussion on future trends.