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Basic VLSI Design Technology

Technical Questions and Solutions

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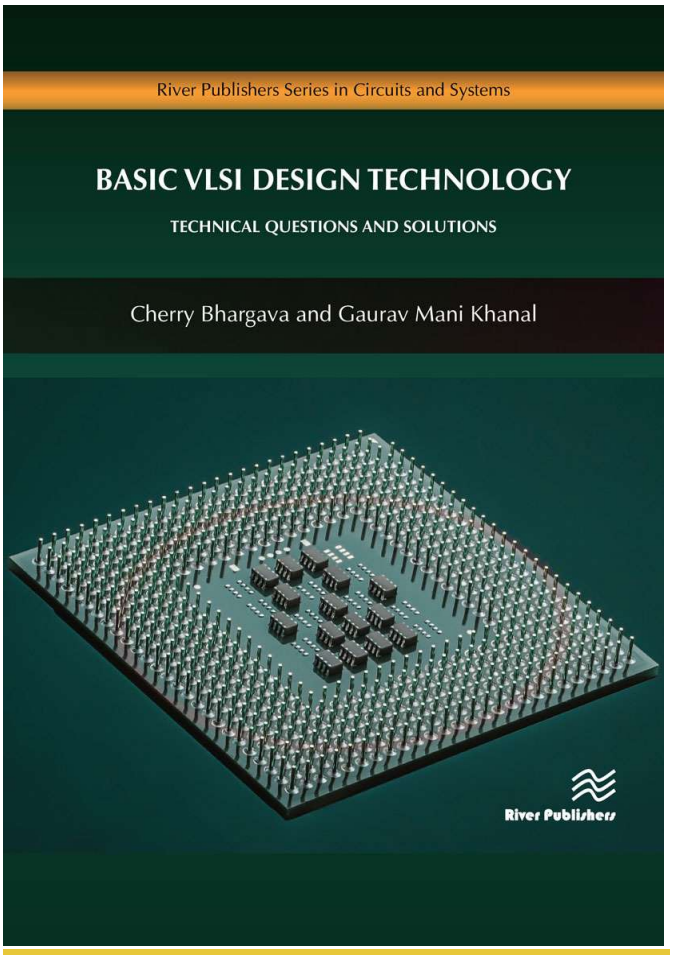
The current cutting-edge VLSI circuit design technologies provide end-users with many applications, increased processing power and improved cost effectiveness. This trend is accelerating, with significant implications on future VLSI and systems design. VLSI design engineers are always in demand for front-end and back-end design applications.

The book aims to give future and current VSLI design engineers a robust understanding of the underlying principles of the subject. It not only focuses on circuit design processes obeying VLSI rules but also on technological aspects of fabrication. The Hardware Description Language (HDL) Verilog is explained along with its modelling style. The book also covers CMOS design from the digital systems level to the circuit level. The book clearly explains fundamental principles and is a guide to good design practices.

The book is intended as a reference book for senior undergraduate, first-year post graduate students, researchers as well as academicians in VLSI design, electronics & electrical engineering and materials science. The basics and applications of VLSI design from digital system design to IC fabrication and FPGA Prototyping are each covered in a comprehensive manner. At the end of each unit is a section with technical questions including solutions which will serve as an excellent teaching aid to all readers.

Technical topics discussed in the book include:

- Digital System Design
- Design flow for IC fabrication and FPGA based prototyping
- Verilog HDL
- IC Fabrication Technology
- CMOS VLSI Design
- Miscellaneous (It covers basics of Electronics, and Reconfigurable computing, PLDs, Latest technology etc.)



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