

Preface

The area of VLSI design has gained enormous popularity over the past few decades due to the rapid advancements in integrated circuit (IC) design and technology. The ability to produce miniaturized circuits with high performance in terms of power and speed is the reason for its popularity. Low production cost and advanced techniques for reduced time-to-market adds to the ever-growing demand for ICs. The two major IC design flows – FPGA and ASIC have their own advantages and disadvantages. FPGAs are widely used for quick prototyping and also implementation of various multimedia applications by compromising power, area and speed performance with substantially reduced time-to-market and cost factors. Using ASIC technology, it has been possible to develop high performance multi-core processors. Verification and testing of such complex designs is a critical and challenging task to ensure the quality of the resulting circuits. The advances in EDA software and CAD tools alleviate the effort necessary to carry out the cumbersome design and verification process of ICs.

As we understand that the subject of VLSI design is vast, it is quite complex to find and comprehend the complete details about the design process. This book *VLSI Design: A practical guide for FPGA and ASIC implementations* provides an insight into practical design of VLSI circuits with minimal theoretical arguments. While this publication is not a complete text book on VLSI design, it is intended to serve as supplementary or reference material on practical design and implementation of VLSI circuits. The content of the book is focused for novice VLSI designers and other enthusiasts who would like to understand the VLSI practical design flows. The designs are demonstrated using industry standard software from MATLAB®, Mentor Graphics®, Xilinx®, Synopsys® and Cadence®.

I encourage you to send any errata or feedback for improving the quality of this book to vikramac@ieee.org.

Thank you,

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VLSI Design

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