

# Digital Design (VHDL): An Embedded Systems Approach Using VHDL

By Peter J. Ashenden



## **Digital Design (VHDL): An Embedded Systems Approach Using VHDL** By Peter J. Ashenden

Digital Design: An Embedded Systems Approach Using VHDL provides a foundation in digital design for students in computer engineering, electrical engineering and computer science courses. It takes an up-to-date and modern approach of presenting digital logic design as an activity in a larger systems design context.

Rather than focus on aspects of digital design that have little relevance in a realistic design context, this book concentrates on modern and evolving knowledge and design skills. Hardware description language (HDL)-based design and verification is emphasized--VHDL examples are used extensively throughout. By treating digital logic as part of embedded systems design, this book provides an understanding of the hardware needed in the analysis and design of systems comprising both hardware and software components.

Includes a Web site with links to vendor tools, labs and tutorials.

- Presents digital logic design as an activity in a larger systems design context.
- Features extensive use of VHDL examples to demonstrate HDL (hardware description language) usage at the abstract behavioural level and register transfer level, as well as for low-level verification and verification environments.
- Includes worked examples throughout to enhance the reader's understanding and retention of the material.
- Companion Web site includes links to tools for FPGA design from Synplicity, Mentor Graphics, and Xilinx, VHDL source code for all the examples in the book, lecture slides, laboratory projects, and solutions to exercises.

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About the Author

**Peter J. Ashenden** received his B.Sc.(Hons) and Ph.D. from the University of Adelaide, Australia. He was previously a senior lecturer in computer science and is now a Visiting Research Fellow at the University of Adelaide. His research interests are computer organization and electronic design automation. Dr. Ashenden is also an independent consultant specializing in electronic design automation (EDA). He is actively involved in IEEE working groups developing VHDL standards, is the author of *The Designer's Guide to VHDL* and *The Student's Guide to VHDL* and co-editor of the Morgan Kaufmann series, Systems on Silicon. He is a senior member of the IEEE and a member of the ACM.

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