

[Free pdf] The Designer's Guide to VHDL (Systems on Silicon)

## The Designer's Guide to VHDL (Systems on Silicon)

Von Peter J. Ashenden

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**Von Peter J. Ashenden : The Designer's Guide to VHDL (Systems on Silicon)** before purchasing it in order to gage whether or not it would be worth my time, and all praised The Designer's Guide to VHDL (Systems on Silicon):

KundenrezensionenHilfreichste Kundenrezensionen1 von 1 Kunden fanden die folgende Rezension hilfreich. The VHDL reference textVon Ein KundeThis book is the reference text when it comes to VHDL. Even students should pick this book rather than the Student's guide to VHDL by the same author. The basics on VHDL are also covered in this book and there are a lot of helpful examples, that show you how powerful VHDL can be. A good choice for everyone working or studying in the field of chip/systems design.0 von 0 Kunden fanden die folgende Rezension hilfreich. Very good introduction to VHDLVon Ekkehard DomningThe book is a very good introduction to VHDL. Since I am not a native english speaker (I am german), the complexity of the used language should not be too high. This condition is true, so I was able to follow the writer in allmost every point.For allmost every detail an example is available. I am working with the Altera Quartus 9 (web) edition to test the examples, and found nothing serious to complain.I would suggest that the writer adds more explanations to the examples. Specially at the beginning of the

VHDL understanding it is very difficult to distinguish between essential and optional declaration and code. But again, this book is a very good starting point for designing logic in VHDL.

**Kurzbeschreibung** Since the publication of the first edition of *The Designer's Guide to VHDL* in 1996, digital electronic systems have increased exponentially in their complexity, product lifetimes have dramatically shrunk, and reliability requirements have shot through the roof. As a result more and more designers have turned to VHDL to help them dramatically improve productivity as well as the quality of their designs. VHDL, the IEEE standard hardware description language for describing digital electronic systems, allows engineers to describe the structure and specify the function of a digital system as well as simulate and test it before manufacturing. In addition, designers use VHDL to synthesize a more detailed structure of the design, freeing them to concentrate on more strategic design decisions and reduce time to market. Adopted by designers around the world, the VHDL family of standards have recently been revised to address a range of issues, including portability across synthesis tools. This best-selling comprehensive tutorial for the language and authoritative reference on its use in hardware design at all levels--from system to gates--has been revised to reflect the new IEEE standard, VHDL-2001. Peter Ashenden, a member of the IEEE VHDL standards committee, presents the entire description language and builds a modeling methodology based on successful software engineering techniques. [www.cad.de](http://www.cad.de) has consistently rated the first edition with five stars. This second edition updates the first, retaining the authors unique ability to teach this complex subject to a broad audience of students and practicing professionals.\* Details how the new standard allows for increased portability across tools.\* Covers related standards, including the Numeric Synthesis Package and the Synthesis Operability Package, demonstrating how they can be used for digital systems design.\* Presents four extensive case studies to demonstrate and combine features of the language taught across multiple chapters.\* Requires only a minimal background in programming, making it an excellent tutorial for anyone in computer architecture, digital systems engineering, or CAD.  
**VHDL** may sound like a new Internet language, but it really stands for VHSIC (Very High Speed Integrated Circuit) Hardware Definition Language. VHDL borrows ideas from software engineering (architectural, behavior, and formal models, as well as modular design) and is used to design today's custom integrated circuits, from cell phones to microwave ovens and even CPUs. Peter Ashenden's *The Designer's Guide to VHDL* shows you how to use this language to write a hardware design, which you can then test in a simulator before "synthesizing" it into an actual hardware design in silicon. The book begins with the basics of VHDL, which, like any software language, has keywords, operators, flow control statements, and programming conventions. Next, the author introduces his first case study--a "pipelined multiplier accumulator," which simulates a CPU register. He then moves on to more complicated models, such as a design for a complete CPU (the DLX processor, which is used as a model for educating future CPU designers). More advanced aspects of VHDL follow, including guard signals, abstract data types, and even file I/O. A final case study (for a "queuing network") puts these components into practice. The book closes with a discussion of "synthesizers"--additional software tools that convert a VHDL specification into silicon--and how these tools impose design limits. The appendices include Institute of Electrical and Electronics Engineers (IEEE) enhancements to VHDL, which have increased the design language's power. Although most of us won't ever need to design our own integrated circuit, this book shows how it's done. Engineering students who need to master VHDL during a semester-length course, will find Ashenden's guide to be indispensable--and written in an accessible style rarely found in engineering texts.  
**Pressestimmen** "The second edition of *The Designer's Guide to VHDL* sets a new standard in VHDL texts. I am certain that you will find it a very valuable addition to your library."--From the foreword by Paul Menchini, Menchini Associates