

Massachusetts Institute of Technology  
Department of Electrical Engineering and Computer Science  
6.111 - Introductory Digital Systems Laboratory

**VHDL Books**

These are roughly in order of applicability to 6.111

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Skahill, Kevin. "VHDL for Programmable Logic". Addison-Wesley.

I used this book for 6.195 taught in the fall of 1997. It is a good introduction to the Cypress Warp software. It is oriented towards synthesis rather than simulation. It includes references to and explanation of gate arrays, although Cypress, at this juncture, does not sell gate arrays. It deals with release4 4.3. It does not describe the current release 5.2. 6.111 emphasizes synthesis. There are a lot of typos. It is likely out of stock.

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Ott, Douglas.E. and Wilderotter, Thomas.J. "A Designer's Guide to VHDL Synthesis". Kluwer Academic Publishers.

This book is quite readable. It has a number of tutorials at the end, including one using the WARP software tools.

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Pellerin, David. and Taylor, Douglas. "VHDL Made Easy". Prentice Hall.  
Quite readable, a good introduction to VHDL.

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Ashendon, Peter.J."The Student's Guide to VHDL".

Morgan Kaufmann Publishers Inc.

San Francisco, CA  
ISBN 1-55860-520-7

This book has lots of information about VHDL. I get the impression that it is useful for those who already know how they want to design a digital system and generally how they go about organizing their design description in VHDL but do not know the details of VHDL. In other words, it is a good book to use to find out details of VHDL constructs. I doubt that it is a good book to start with. It does NOT (nor does it pretend to) deal with using VHDL to design digital systems.

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Yalamanchilli, Sudhakar."VHDL Starter's Guide".

Prentice Hall  
Upper Saddle River, NJ 07458  
ISBN 0-13-519802-X

This is quite a readable book. It has many examples used to present VHDL constructs. It is mainly written with an eye to simulation rather than to synthesis as is the focus in this subject. The treatment of digital design ranges from the trivial to nonexistent. To be fair, the author states that it is aimed as a companion text to

an existing text on digital design.

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Dewey, Allen. "Analysis and Design of Digital Systems With VHDL". PWS Publishing Company.

I have not read nor skimmed this book yet.

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Ashenden, Peter.J. "The Designer's Guide to VHDL" Morgan Kauffman  
ISBN 1-55860-270-4

I have not read nor skimmed this book yet.  
However, some students have said that they got a lot from this book  
and that they appreciated that it treated VHDL as a programming language.

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Roth, Charles.H.Jr. "Digital Systems Design Using VHDL"

#### PWS Publishing Company

20 Parkl Plaza, Noston, MA 02116  
ISBN 0-534-95099-X

The first chapter is a good summary of aspects of digital systems.  
The second chapter is a reasonable introduction to VHDL.  
The book mainly treats VHDL for simulation.  
The treatment of state machines is mostly from a programming viewpoint.  
It has a bunch of information on testing that seems to me to be focussed on testing an ASIC for manufacturing flaws.

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IEEE Standards

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IEEE Standard VHDL Language Reference Manual  
IEEE Std 1076-1993

This defines the VHDL language. It is in BNF form with an English description of each construct, i.e., signals.

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IEEE Standard Multivalue Logic System for VHDL Model  
Interoperability  
(Std\_logic\_1164)  
IEEE Std 1164-1993

This is primarily VHDL code which implements the Std\_logic\_1164. It consists of package declaration code as well as package body code. It has a short "how to use section" at the end. You should look at it in the library (where I think it is, anyway I have a copy) before you buy it.

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IEEE Standard VHDL Synthesis Packages  
IEEE Std 1076.3-1997

This includes VHDL code for Numeric\_Bit and Numeric\_Standard packages. You should look at it in the library (where I think it is, anyway I have a copy) before you buy it.

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IEEE Standards Interpretations: IEEE std 1076-1987, IEEE Standard VHDL Language Reference Manual

IEEE Std 1076/INT-1991

This is a description of problems and proposed resolutions.  
Likely, you don't want to bother reading it.

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