VHDL Books

These are roughly in order of applicability to 6.111

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 release 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.


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

Quite readable, a good introduction to VHDL.

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.


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 non-existent. 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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I have not read nor skimmed this book yet.

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Ashenden, Peter J. "The Designer's Guide to VHDL" Morgan Kaufmann
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 Park Plaza, Noston, MA 02116

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.
IEEE Standards

IEEE Std 1076-1993

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

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.

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.

IEEE Std 1076/INT-1991

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