

TABLE OF CONTENTS

1. Introduction.....	1
2. Part I : VHDL Simulation using MODELSIM.....	2
I. Setting up the user environment to run the Modelsim VHDL simulation tools.....	2
II. Performing VHDL simulation using Modelsim.....	3
3. Part II : Logic Synthesis with Precision RTL	20
I. Performing Logic Synthesis	20
4. Part III : Implementation using Xilinx ISE.....	32
I. Setting up the user environment to run Xilinx ISE.....	32
II. Implementing a Design with the Xilinx ISE Project Navigator.....	32
III. Using Xilinx Impact to program a Compact Flash card with a System ACE file	43
5. Part IV : Xilinx FPGA Demonstration Board.....	51
I. User LEDs and Switches	52
II. Expansion LEDs and DIP Switches	52
III. Board Documentation.....	54
6. Part V : Command Line Interface.....	55
I. Running Precision RTL from the Command Line.....	55
II. Running Xilinx ISE from the Command Line	58
III. Running the Xilinx Impact tool from the Command Line.....	62
7. REFERENCES	64

REVISION HISTORY

Sept. 7, 2001 : T. Obuchowicz, modifications to Dynatext browser information, added information on expansion I/O.

July 25, 2002: T. Obuchowicz, modifications to paths of setup files (found in /CMC/ENVIRONMENT instead of /home/ted/ENVIRONMENT), removed Dynatext browser information since it has been replaced by a Web browser interface).

June 2006: T.Obuchowicz, complete revision of Part II and Part III and Part IV. Part II rewritten for Using Precision RTL for synthesis since Synopsys Design Compiler no longer supports FPGA synthesis. Part III rewritten for use with Xilinx ISE, Part IV revised for the new XUP Virtex-II Pro XC2VP30 board which replaces the XC4010E boards made obsolete due to vendor (Mentor) no longer supporting technology libraries for this device family. Added a Reference section.

July 2007: T. Obuchowicz, added Part V on running tools from the UNIX command line. Added Part VI on performing gate-level simulation.

August 2007: T. Obuchowicz, updated Part IV to include expansion IO module pin mapping information.

March 7, 2011: T. Obuchowicz, updated Part II to reflect the fact that Precision RTL runs only on Linux (and is no longer available on Solaris 10 systems).

July 21, 2011: T. Obuchowicz, updated Part I to account that Synopsys VSS is no longer available under Linux and that Modelsim is the replacement simulator. The Solaris systems in H913 have been replaced with Linux systems. Updated Part III to account for slight differences in the Xilinx ISE 9.2i GUI for the Impact software.