Warp Release 4.1

The software release (version) of Warp included with *VHDL for Programmable Logic* has been upgraded to Warp2 Release 4.1 as of the fourth printing of the text. The primary motivation for this upgrade is to provide better support in the Windows NT and 95 environments.

The text refers to Release 4.0 of Warp. Among other minor differences between Release 4.1 and 4.0, the FLASH370i family of CPLDs replaces the FLASH370 family of CPLDs. While you may still select FLASH370 devices, Warp will issue warning messages similar to the following.

```
topld:  cnt4.vhd:  Warning: (W477) Device 'c371' is not
recommended for new designs. Please choose the 'c371i' device
instead.
```

These are only warning messages and may be ignored. Alternatively, for example, you may select the 'c371i' device in place of the 'c371' device. Keep this in mind when asked to select FLASH370 devices in breakout exercises and end-of-chapter problems.

Installing Warp

Installation instructions, including the serial number, are contained in Appendix A of the text. Detailed instructions are found in the files warppc.txt (for PC users) and warpunix.txt (for UNIX users) located in the root directory of the CD-ROM.

Warp Release 4.1 Update

Who needs it: All Warp Release 4.1 users are encouraged to install this update. This update includes enhancements and bug fixes defined below.

- Improved fitting for control signals in Flash370i CPLDs (e.g. OEs, asynchronous resets, and asynchronous presets).

  Users may have seen the error

  ```
  Error: Logic equation for signal x.OE is redefining banked
  expression
  ```

  with certain designs using fixed pins even though there were enough resources available.

  This happened when multiple signals had controls (OE, AR, AP) larger than one product term and such control signals were not being combined into a common macrocell. This problem has been fixed so that complex control signals (more than one product term) are optimized and duplicate control signals are eliminated.

- When targeting the Flash370/Flash370i devices in non-PLCC packages, the report file will now show the correct pin out.

  In Release of 4.1, the pin information table for Flash37Xi parts is incorrect for power and ground pins when non-PLCC packages are used. This has been fixed. For non PLCC packages, the power and ground pins are no longer shown. Please refer to the data-book for this information.

- The pin assignment produced for the 20V8-15JC is now correct. In previous versions, the fitter showed the pin assignment for a DIP.

- A bug that caused generation of an incorrect JEDEC map for certain Flash374/374I designs has been fixed. The symptom of this bug is the synthesis appears correct in the report file, but the design simulation will show incorrect behavior.

- Improved pad generation for FPGAs is now available. This affects any design having problems due to oscillations created by a feedback loop.

Installation Instructions
These instructions assume that Warp Release 4.1 has already been installed. Please see Appendix A for installation instructions. These instructions assume that \Warp is the directory into which Warp was installed.

WINDOWS PC
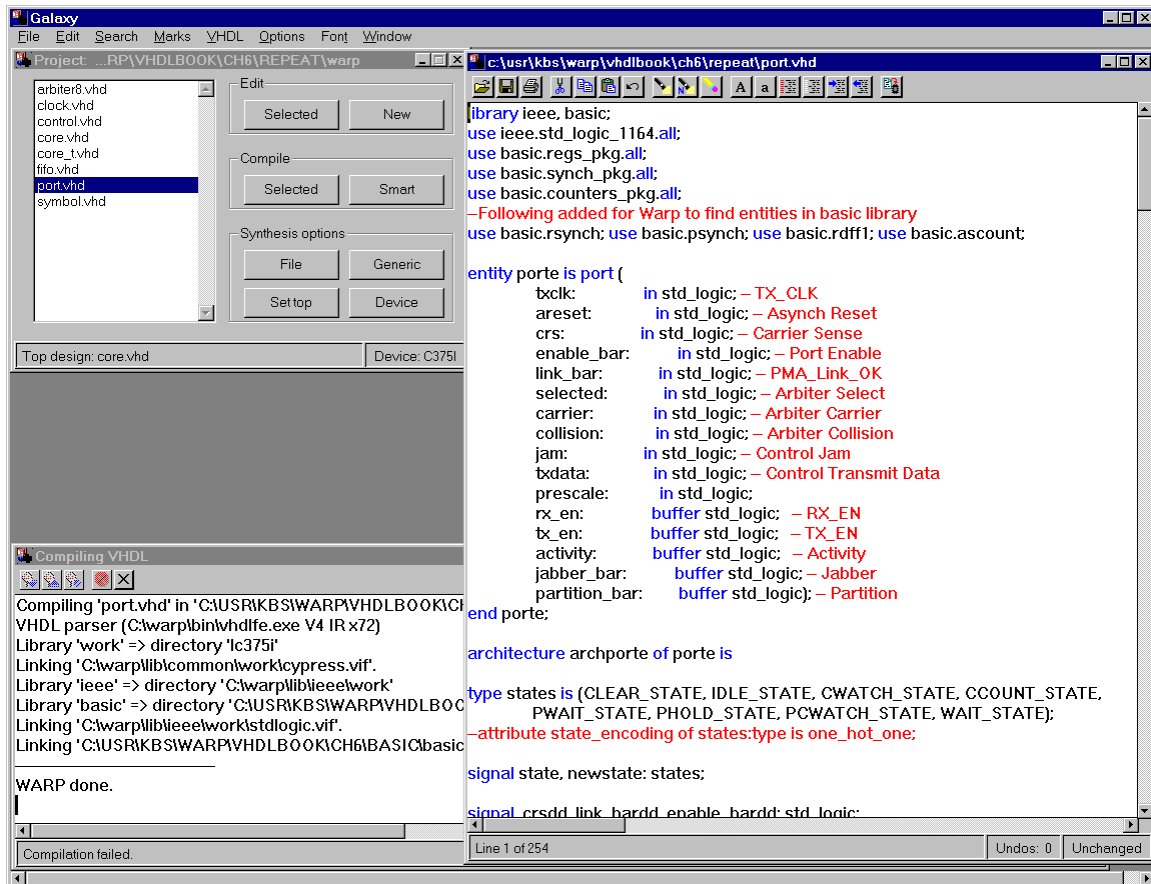Please read directions completely before beginning.
1. Copy the file wupd_win.exe (852KB) from the \pc directory of the CD-ROM to the \warp\bin directory on your hard drive.
2. Open a DOS window, change directories to the temporary directory and type "wupd_win" (without the quotes) to extract the files, overwriting existing files. You can also double-click on this file in File Manager or Windows Explorer to extract the archive to the \Warp\bin directory, overwriting existing files.
3. You may now delete the wupd_win.exe archive, if you wish.

UNIX
1. Copy the appropriate file from the CD-ROM into a temporary directory.
   If your operating system is HPUX, /hp/warpupdh.tar.Z 1.8MB
   If your operating system is Solaris 2.x, /solaris/warpups.tar.Z 1.7MB
   If your operating system is SunOS, /sunos/warpupds.tar.Z 1.5MB
2. Type uncompress {file name}.Z to extract the file; then type tar xvf {file name}.tar to unarchive the files. You can also type the command zcat {file name}.Z | tar xvf - to unarchive the files in a single command line
3. Switch to the $CYPRESS_DIR\bin directory
4. Move the existing files (c37x.fit,c37xfit,dsgnopt,pld.opt,topld) to a backup directory or rename the existing files to a backup name
5. Copy the new files from the temporary directory into the $CYPRESS_DIR\bin directory. The new files will be in a subdirectory of the temporary directory, corresponding to your operating system, where you extracted the archive. For example, if you extracted the file warpupds.tar.Z in the directory /tmp, the files you will copy will be in /tmp/solaris

Enhanced Project Manager and Editor for Windows NT and 95

If you are operating Windows NT or 95, you may install, at your option, an enhanced 'Galaxy' project manager and editor. The new project manager has a Windows NT and 95 look-and-feel: The several windows that run in Warp are unified under one window, as shown below. In addition, the new editor provides an 'undo' function, color coding of reserved words and comment lines, and line numbering.

Galaxy

File Edit Search Marks VHDL Options Font Window

Project: ...RP\VHDLBOOK\CH6\REPEAT\warp

arbiter8.vhd
clock.vhd
control.vhd
core.vhd
core_t.vhd
fifo.vhd
port.vhd
symbol.vhd

Edit
  Selected   New

Compile
  Selected   Smart

Synthesis options
  File   Generic
  Set top   Device

Top design: core.vhd   Device: C375I

Compiling VHDL

Compiling 'port.vhd' in 'C:\USR\KBS\WARP\VHDLBOOK\CH
VHDL parser (C:\warp\bin\vhdlfe.exe V4 IR x72)
Library 'work' => directory 'Ic375i'
Linking 'C:\warp\lib\common\work\cypress.vif'.
Library 'ieee' => directory 'C:\warp\lib\ieee\work'
Library 'basic' => directory 'C:\USR\KBS\WARP\VHDLBOO
Linking 'C:\warp\lib\ieee\work\stdlogic.vif'.
Linking 'C:\USR\KBS\WARP\VHDLBOOK\CH6\BASIC\basic

WARP done.

Compilation failed.

c:\usr\kbs\warp\vhdlbook\ch6\repeat\port.vhd

```vhdl
library ieee, basic;
use ieee.std_logic_1164.all;
use basic.regs_pkg.all;
use basic.synch_pkg.all;
use basic.counters_pkg.all;
--Following added for Warp to find entities in basic library
use basic.rsynch; use basic.psynch; use basic.rdff1; use basic.ascount;

entity porte is port (
        txclk:           in std_logic; -- TX_CLK
        areset:          in std_logic; -- Asynch Reset
        crs:             in std_logic; -- Carrier Sense
        enable_bar:      in std_logic; -- Port Enable
        link_bar:        in std_logic; -- PMA_Link_OK
        selected:        in std_logic; -- Arbiter Select
        carrier:         in std_logic; -- Arbiter Carrier
        collision:       in std_logic; -- Arbiter Collision
        jam:             in std_logic; -- Control Jam
        txdata:          in std_logic; -- Control Transmit Data
        prescale:        in std_logic;
        rx_en:           buffer std_logic;  -- RX_EN
        tx_en:           buffer std_logic;  -- TX_EN
        activity:        buffer std_logic;  -- Activity
        jabber_bar:      buffer std_logic; -- Jabber
        partition_bar:   buffer std_logic); -- Partition
end porte;

architecture archporte of porte is

type states is (CLEAR_STATE, IDLE_STATE, CWATCH_STATE, CCOUNT_STATE,
        PWAIT_STATE, PHOLD_STATE, PCWATCH_STATE, WAIT_STATE);
--attribute state_encoding of states:type is one_hot_one;

signal state, newstate: states;

signal crsdd_link_bardd_enable_bardd: std_logic;
```

Line 1 of 254   Undos: 0   Unchanged

Use of this new project manager and editor is entirely optional: Warp will work just fine with the project manager and editor provided with Release 4.1. In fact, if you choose to install this editor you should be aware of the following:

- Projects saved with the enhanced Galaxy Project manager and editor cannot be opened with the older Galaxy.
- The Windows 95 look-and-feel differs slightly from the Windows 3.1 environment shown in the text.
- Two options listed in the 'Generic' Synthesis options are not supported. These options are 'Sensitivity List Checking' and 'Enable Test Bench Output.' These options are ignored if selected.
- Pasting over a selection inserts text but does not replace a selection. If a section of text is highlighted and a paste function is performed, the selected portion of text is not replaced. Rather, the new text is merely inserted in front of the selection.
- This editor was made available after Release 4.1 but before Release 4.2. Consequently, it does not have some of the capability being developed for Release 4.2 (such as support for CTRL-C, CTRL-X, CTRL-V for copy, cut, and paste functions).

Following are directions for installing the project manager and editor for Warp installed on **Windows NT or Windows 95** environments. (This will **not** work for Windows 3.1).

- These directions assume that you have installed Warp Release 4.1 into the \Warp directory. Please see Appendix A for instructions on installing Warp.
- Copy the file \editor\galaxy32.exe from the CD-ROM to the \Warp\bin directory on your hard-drive. This file is a self-extracting archive. Execute this program from the \warp\bin directory, extracting files into the \warp\bin directory and overwriting any existing files.