Instruction of using DE2 "build" files
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General

This directory contains the FPGA configuration files (generated from Quartus II) and software image files (generated from EDS) for the DE2 board. It includes:

- p34_top_de2.sof: the device configuration file for the Nios II system discussed in Section 16.10.2, which contains the main IP cores of Parts III and IV.
- nios_p34_de2.sopcinfo: the Nios II system information file for the Nios II system discussed in Section 16.10.2.
- *.elf: software image files from Chapters 16 to 22.

These files are board specific and thus can only be use with the DE2 board

Usage 1: software development

The Nios II system discussed in Section 16.10.2 contains the main IP cores of Parts III and IV. It can be used for software development without invoking Quartus II synthesis software. The basic steps are

- Download the p34_top_de2.sof configuration file to FPGA device on DE2 board (i.e., program the FPGA device). The Quartus II Programmer utility can be invoked directly from the "Nios II" menu of Eclipse GUI.
- Create a BSP with nios_p34_de2.sopcinfo.
- Create an application project, copy the software drivers to the project directory and develop the main program.

Usage 2: quick demonstration

The device configuration file and software image files can be downloaded to the DE2 board by using simple command line shell to demonstrate the operation of the main testing programs in Parts III and IV. In Windows 7, the basic steps are (tested in EDS version 10.1 sp1):

- Copy the p34_top_de2.sof and *.elf files to a directory (say c:/tmp/build)
- Invoke the command shell by selecting
  Start → Altera → Nios II EDS 10.1sp1 → Nios II 10.1 Command Shell
  and a command window appears.
- In command shell prompt, enter "cd c:/tmp/build" to move to the directory.
- Optionally, enter "ls" or "dir" to verify the existence of configuration and image files.
- Enter "nios2-configure-sof" to download the configuration file to the FPGA device. Note that no file name is needed.
- Enter "nios2-download –g file_name.elf" to download the software image file to memory. The file_name is the name of the desired elf file. The "–g" is for "go", which starts the processor after the image file is downloaded.
- Enter "nios2-terminal". This command establishes the stdin and stdout channels with the JTAG UART module of the processor. Use Ctrl-C to exit.

At the time of writing, the stdin channel does not work. While the command window displays output, it does not take any input data.

Additional information about the command line usage can be found in the "*Nios II Command-Line Tools*" chapter of the manual.

The following is the screen capture of a sample session. Note that the command prompt is "bash-3.1$"