Digilent Adept --Installing steps for USC Students (EE101/EE201L/EE560)

1 PC Operating system:

1.1 Adept 2.3: Windows XP (and also Windows 2000 with SP4)
   If you have Vista, perhaps you can only install the older version Adept 1.10

2 Installing Adept 2.3

2.1 The following installation may take 40 minutes. Currently (as of May 23, 2010), the latest version is Adept 2.3.

2.2 Uninstall any previous versions of the Adept, before installing this version.

2.3 Go to http://www.digilentinc.com/ and expand Software on the left panel. Click on Adept.

2.4 This takes you to
   http://www.digilentinc.com/Products/Detail.cfm?NavPath=2,66,69&Prod=ADEPT
   Make sure that you have not connected any Digilent board such as Nexys-2 to the USB port. You need to be in administrator mode on the PC. Click on

2.5 I have installed Adept 2.3 on my PC (running XP).

2.6 Welcome window ==> License agreement window
   Some of the significant screen shots are shown below.

   TAs: Choose this for the lab computers
2.7

After closing other active programs, click on Finish to reboot.

2.8

After closing other active programs, click on Finish to reboot.
2.9 **Digilent Plug-in is needed for chipscope:** EE101 students can skip this step. EE201L and EE560 TAs, EE560 students (and also perhaps EE201L students) would have installed ChipScope also besides ISE. If the chipscope installed is of version 10.1, they need to make sure that service pack 3 for chipscope is also installed.

To communicate with the on-chip logic analyzer though USB using Adept, we need a special plug-in provided by Digilent.

Go to

IC:`\Program Files\Digilent\ChipScopePlugin`  
In the above directory, Digilent has provided am .xml file, and also platform specific .dll files.

For my computer, I used `libCseDigilent.dll` in

Steps you need to follow:

1. On your PC, go to the directory `c:\Xilinx\10.1\ChipScope\bin\nt\plugins`

2. Make a sub-directory with name **Digilent** in the above directory. In this **Digilent** sub-directory, make another sub-directory with name `libCseDigilent`.

3. Copy and paste `libCseDigilent.xml` from `C:\Program Files\Digilent\ChipScopePlugin\` to `c:\Xilinx\10.1\ChipScope\bin\nt\plugins\Digilent\libCseDigilent\`

4. Copy and paste `libCseDigilent.dll` from  
   `C:\Program Files\Digilent\ChipScopePlugin\cse_nt_10.1`
   to `c:\Xilinx\10.1\ChipScope\bin\nt\plugins\Digilent\libCseDigilent\`
   For nt64(amd64), substitute the source directory, `cse_nt_10.1`, with `cse_nt64_10.1`

5. Reboot the system.
2.10 Attach your Nexys-2 board to an USB port on your PC. Since you are attaching this USB device for the first time, PC needs to install drivers to recognize and work with this board.
2.11

Now, invoke the Adept tool and also open the user’s manual.

2.12

Adept should automatically recognize your board. For example for EE201L course, it shows the product as Nexys2 - 500. Browse and locate the bit file to configure and then click the Program button.

2.13

You can go to the tab and test your board.

Click on . The red button changes to green .

You see "PASS" and "128" appear alternately on the 7-seg display.

Play with the 8 switches and notice that the 8 singular LEDs on the board and the 8 virtual displays on the PC GUI follow the switches. Also you see that the 7-seg display changes to a singular-8 on one of the 4 SSDs (Seven Segment Displays). Now play with the four push buttons and notice that the "snake" display crawls on the 4 SSDs to the button pressed.
2.14.1 Now, you can test RAM and test Flash on your board.
You can finally stop the test by pressing the Stop Test button.

2.15 We intend to use EE560 students use these tabs to communicate between the PC and the Nexys-2 board using Epp protocol.

2.16 If your instructor or the TA has given you a sample project to test the board, you can test the board as well as the Adept software with that. If he has not provided you the .bit file, produce it using the ISE WebPack. If he has provided you the .bit file, (say, test_nexys2_500.bit), then you can download it using the following steps.

2.16.1 Invoke adept. Select Config tab. Browse and locate the bit file (say, test_nexys2_500.bit). Click the Program button. You should see the walking LEDs patter.

2.16.2 Probably you are given a test project (test_nexys2_verilog_with_chipscope) for testing the chipscope. If you already have the .bit file, then you can download the .bit file using adept directly or using the ChipScope Analyzer. Let us now narrate the later.

2.16.2.1 Keep the FPGA board connected. Invoke ChipScope Analyzer. Start => All Programs => Xilinx ISE Design Suite10, => ChipscopePro ==> Analyzer. Click on JTAG chain. Select Open Plug-In => In the Plug-in Parameters, type-in digilent_plugin. Rest of the procedure can be found in the testing document for chipscope.