Fall 2016 **ECEC–471\571 Introduction to VLSI Design**

Lab Assignment #1(b)

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1 Objective

This handout serves as a guide to setup the Cadence Virtuoso EDA design tool. The major goals are to:

- Setup X-win to connect to the Xunil server cluster
- Add necessary bashrc settings to allow virtuoso to run correctly for the IBM CMOS7RF process design kit (PDK)
- Ensure virtuoso is correctly setup and ready to use

2 X-win Setup

2.1 Create X-win profile for Xunil

Open X-win32 and click on the Wizard... button, shown circled in Figure 1. NOTE: If you would like to use X-win at home Drexel has the software available for download at software.drexel.edu.

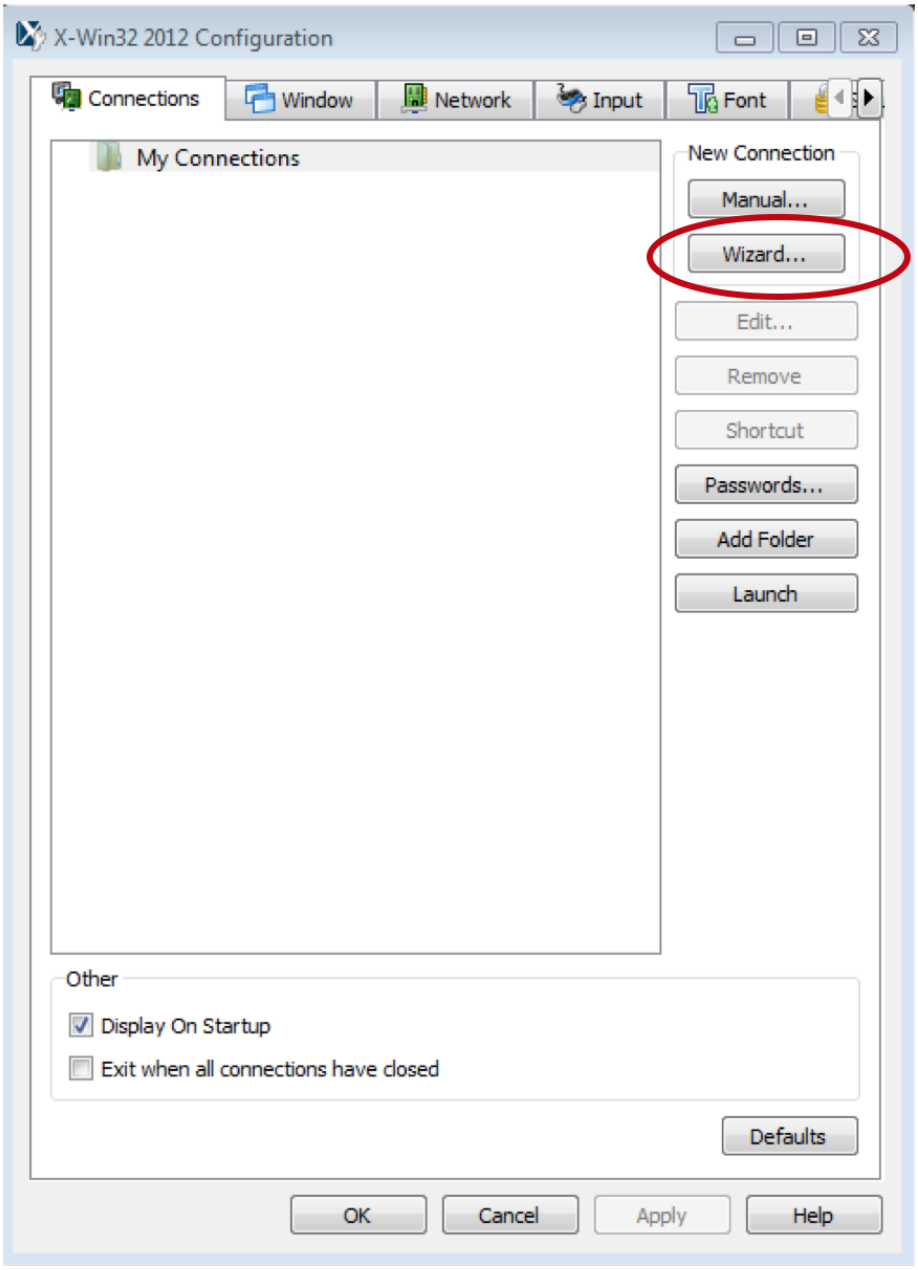

Figure 1: X-Win Configuration

Next enter the name of the server. This is simply an alias and is not the address of the server. Once a name is given click ssh as the connection type and click Next.

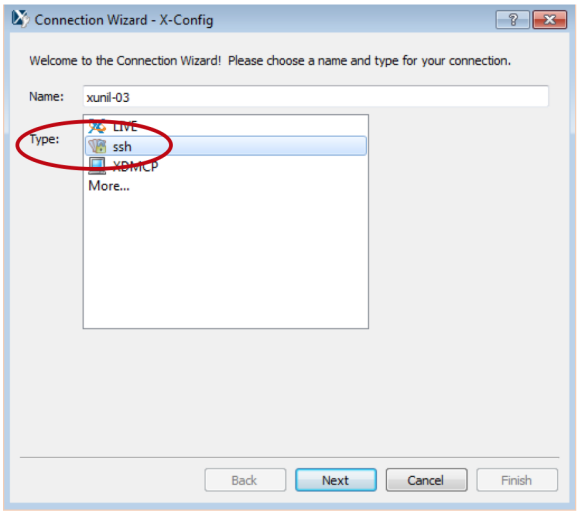

Figure 2: X-Win connection and type

Enter xunil-03.coe.drexel.edu into the Host field and click next. NOTE: You can also use xunil-04.coe.drexel.edu into the Host field.

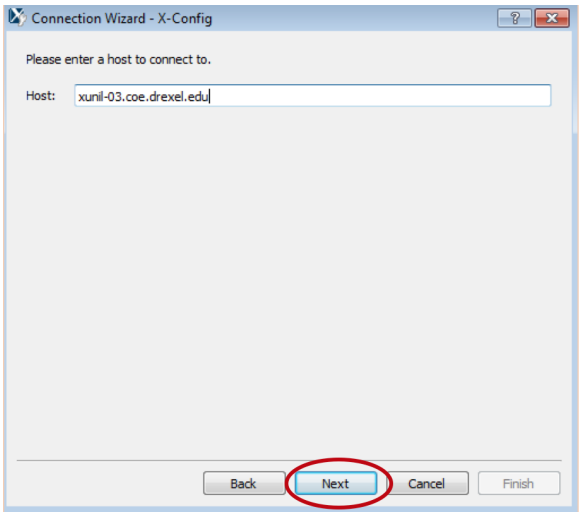

Figure 3: X-Win server name

Enter your login name and password for your xunil account and then click next

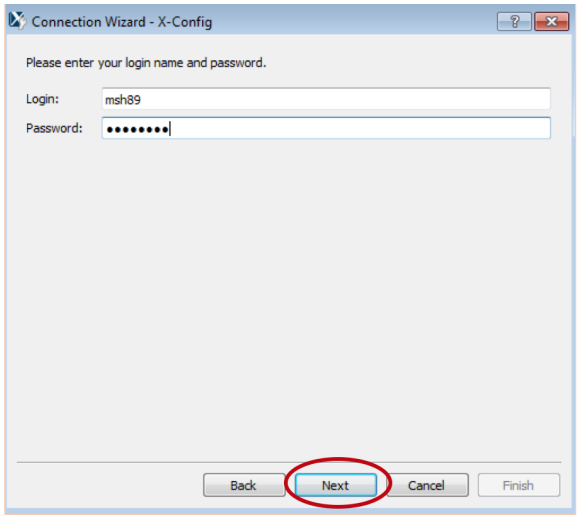

Figure 4: X-Win login information

Choose Linux as the command type and select Finish.

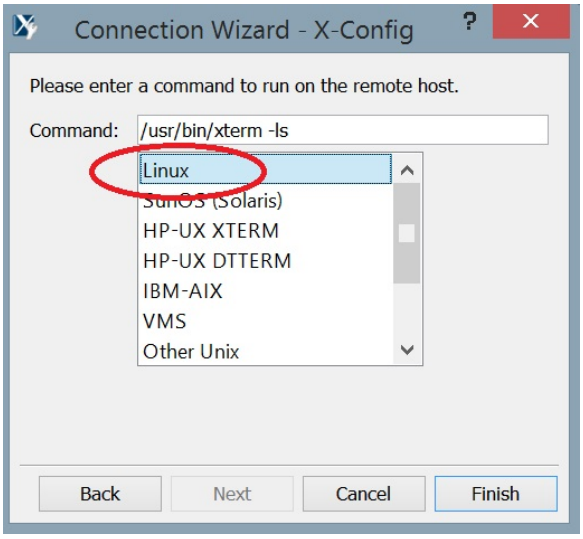

Figure 5: X-Win command setting

Finally, launch the configuration that was created by choosing the connection just created and clicking launch.

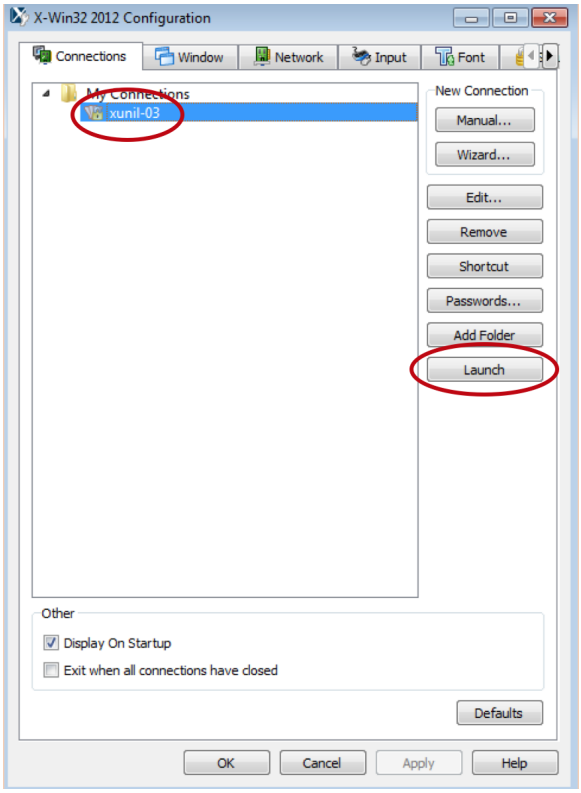

Figure 6: X-Win Launch Connection

NOTE: If required, you can download the X-win license activation key from here.

3 Set Cadence environment settings on Xunil

3.1 Log into Xunil

Once logged into Xunil, create a directory called IBM_CMOS7RF in your home directory by executing the following command. This directory will be used as your working directory for Cadence.

mkdir IBM_CMOS7RF

Now open your .bashrc file in your home directory with an editor of your choice. The editor vim will be used for this tutorial, but you may use another editor if you would like. The linux tutorial will give more information on using vi (which is very similar to vim) if you are unfamiliar with any linux text editors.

vim .bashrc

Add the following line to the bottom of your .bashrc run virtuoso with the required settings.

alias run_virt='source /mnt/class_data/ecec571-f2015/scripts/cadence_setup'

NOTE: The following commands will allow for the insertion of text into vim.

i - insert text

:wq - save and quit the file

After you save and exit your .bashrc file execute the following command. This will allow for the run_virt alias to be used.

source .bashrc

Then execute the following command. This will load the Cadence environment variables and files.

run_virt

Once virtuoso opens select **Tools −>Library Manager** in the CIW, which is shown in Figure 7.

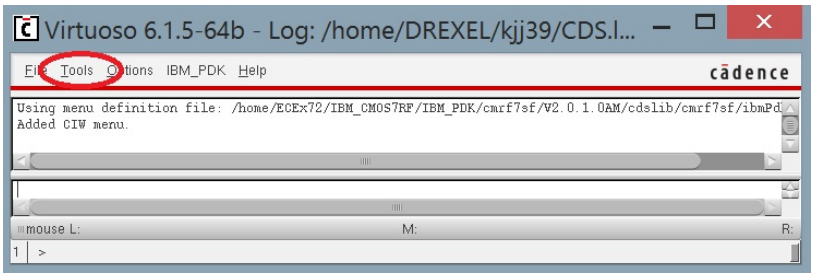

Figure 7: Virtuoso CIW

Once the Library Manager opens make sure the highlighted libraries in Figure 8 are shown.

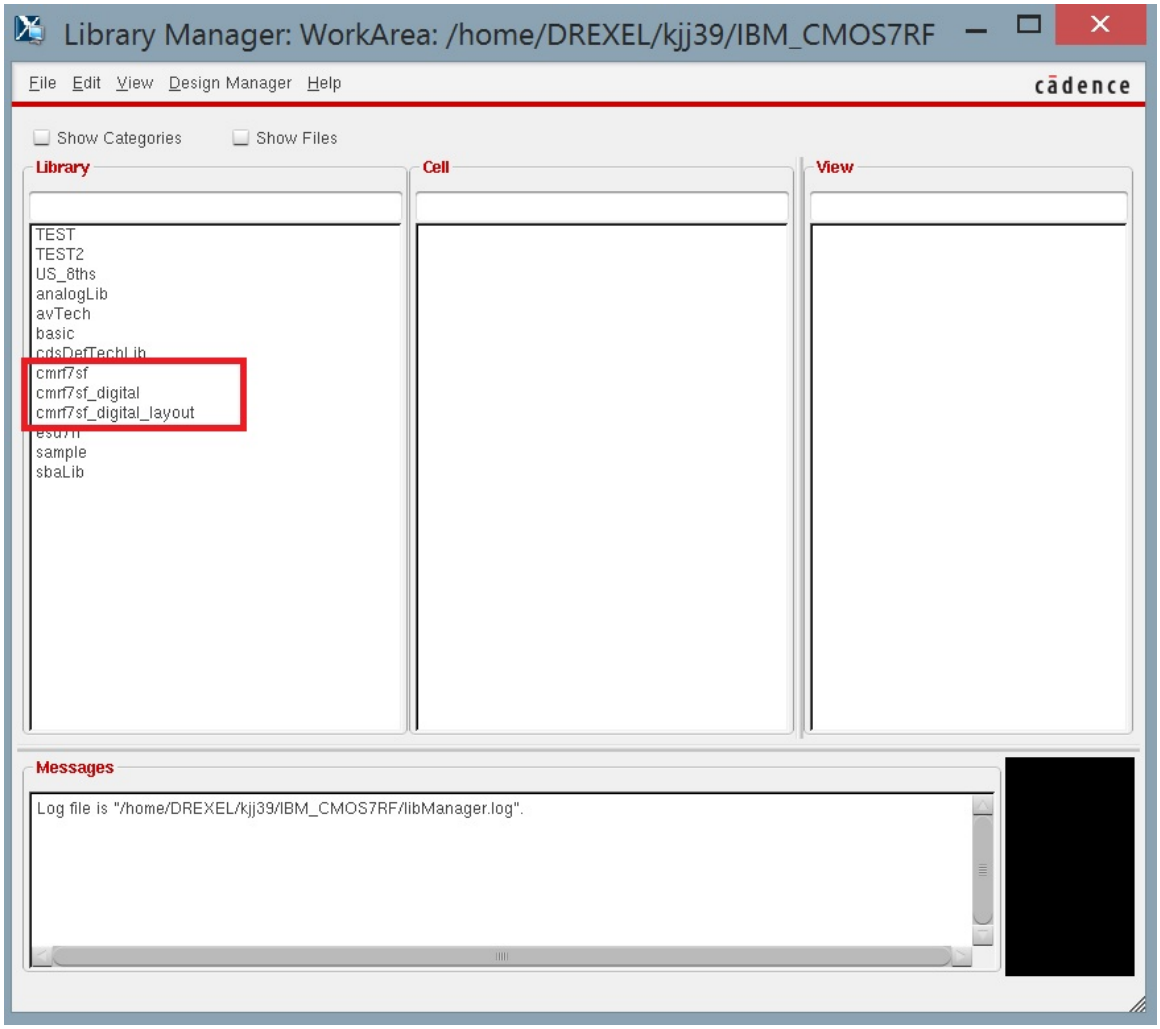

Figure 8: Library Manager