

EEL 5344C Digital CMOS VLSI Design
Fall 2003
Handout on VERILOG Simulator
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Simulating the Layout

- a. Open the extracted layout from the library manager window.
- b. Now select **Tools**→**Verilog-XL** from the extracted window, a window pops up (Fig. 1). Select the appropriate library and cell (View has to be "extracted"). Type "ok".



Fig.1

- c. Another window pops up.
Select **Start Interactive** → **Continue**
- d. The netlist for the design is now created. Go to the terminal (sunblast) change the directory to "**inverter.run1**" (If you are simulating **Inverter**) and open the "**testfixture.verilog**" file.
- e. Edit the testfixture file:
Change the line
 io_Vdd_ = 1 'bz
to
 io_Vdd_ = 1 'b1
and include the following line before "end"
#20 \$finish;
'20' indicates simulation time in nanoseconds.
If you want to simulate the design for "**T ns**" then type

#T \$finish;

Then open the simulation window again and click "**Start Interactive**", a window pops up prompting you whether you want to "**Renetlist**" the design? Click "**NO.**" and then click on "**Continue**".

To generate clocked input type the following line at the end of **testfixture.verilog** always #5 <input pin name>=~<input pin name>;

- f. Now that you have simulated the design you need to check the output of the circuit, which can be done by watching the output waveforms.
- g. Go to the terminal(sunblast) and type
Sunserver: simvision &
You will get a window named "SimVision : Design Browser 1".
Click **File** → **Open Database**
In Open Database window, go to
Inverter.run1 → **RunObject.0** → **shmDir** → **shm.db** → **shm.trn**

Go to Design Browser window and right click on **shm** directory inside the Scope tree and click **Select Deep**. Then right click on **shm** directory again and click **Send to new Waveform Window**.

You will get a window named "SimVision : Waveform 1" which will contain the resultant waveforms.

Capturing Layouts and Waveforms

- h. The layout and waveforms can be captured by using the **Camera option**. Camera can be selected from the "**icfb**" window by clicking **Tools**→**camera**→**postscript**

A window pops up, type the file name to which you want to save the output and check "**invert image**." Select crop image or window select according to the need. Wait for 3 beeps to get a proper snap.