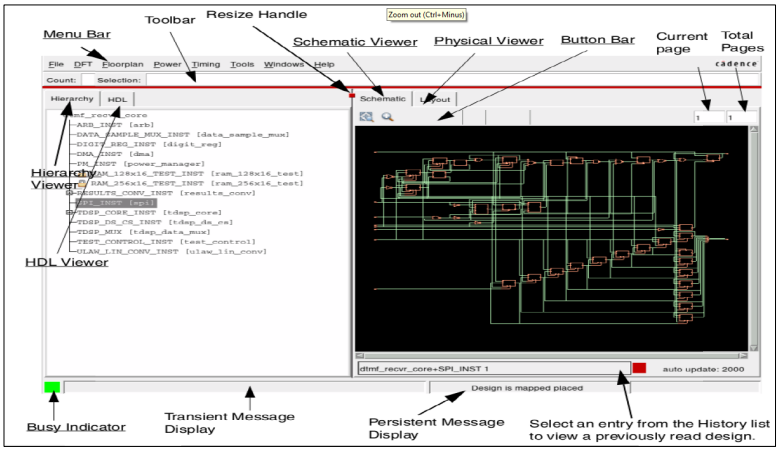
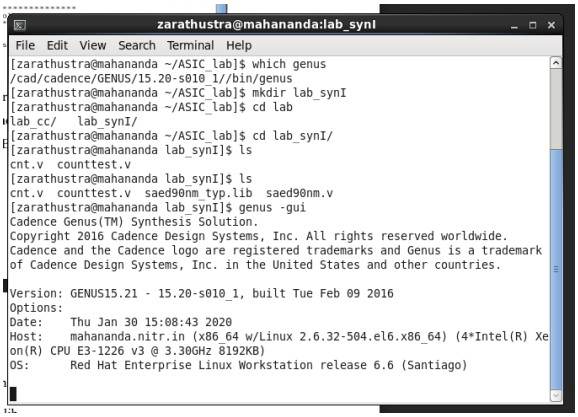
ASIC Design Lab (EC-6272)
Experiment – IV
Synthesis I

1. Open a terminal in the workstations
2. Source cadence.cshrc in the terminal
3. In this lab session, Synthesis of RTL models will be carried out, for which a few library files will be nedded. The library files can be downloaded from links provided during class.

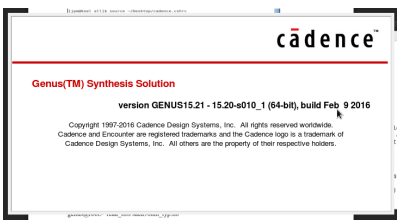


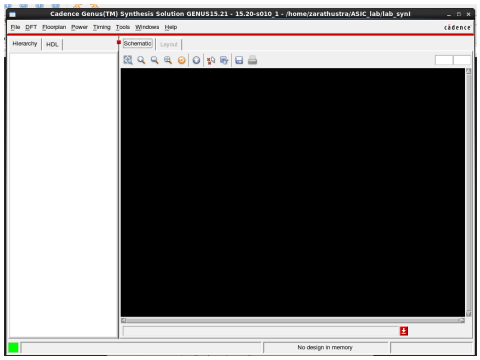
4. Check whether the commands are working as shown in figure below. Make a working folder, script the verilog RTL and testbench. Clear the errors, simulate and confirm the functionality through simvision simulations (Follow the instructions in the experiment-I).

5. We use Cadence synthesis tool : GENUS Synthesis Solution. Type the command as below and check path of genus is echoed or not in the workstation.



6. In the terminal, execute genus –gui for invoking the EDA Synthesis tool
   ]$ **genus –gui**





7. Minimize the gui and follow below instructions, mentioning the proper path for linking the saed90nm library files

   genus@root:> read_libs saed90nm_typ.lib
   genus@root:> read_hdl -v2001 counter.v
   genus@root:> elaborate
   genus@root:> synthesize -to_mapped

8. Save the gate level netlist

   genus@root:> write_hdl > design_netlist.v

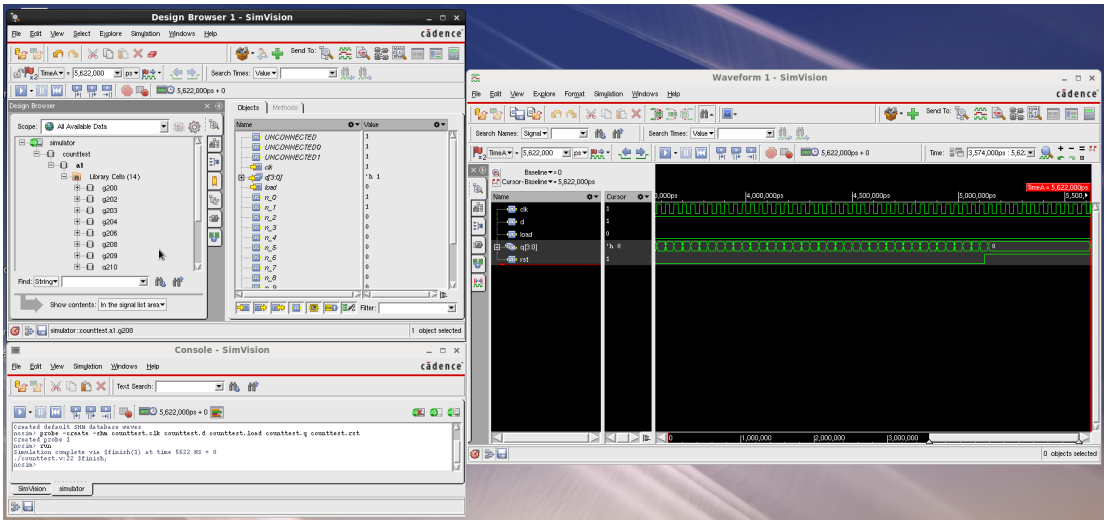
9. Find the design_netlist.v file created in the working directory. A cmd and a log file will also be generated that stores the current activities along with a fv verification file.

10. Record the area, timing and power by following the below commands

    genus@root:> report_units
    genus@root:> report_gates
    genus@root:> report_utilization
    genus@root:> report_sequential
    genus@root:> report_power

11. Simulate the design as you did in earlier experiment. Check the simulation using this netlist file. (Blindly don't follow the manual. Give the correct path based on where you have the libs folder copied. Use the command "pwd" to get path)

    ]$ ncverilog counter_tst.v design_netlist.v +access+rw -v saed90nm.v +gui



For more details check the Genus_gui document in the installed folder