

ECE232

Altera/Modelsim Tutorial

MORE THAN A TUTORIAL - A DEMO

QUARTUS II / MODELSIM
MODELSIM

Design an 8 bit CLA Adder

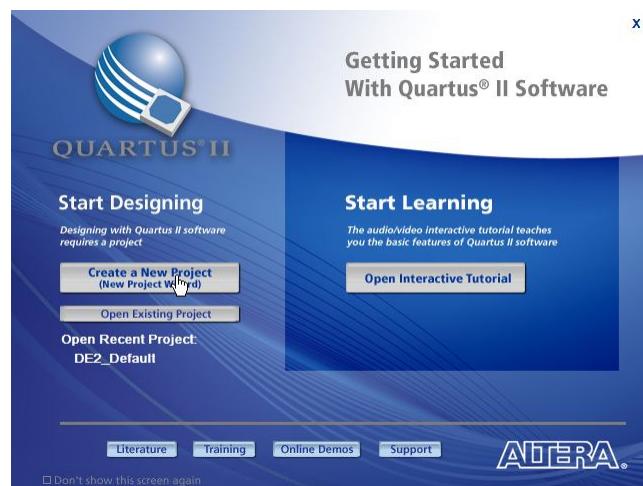
Delay computation for P_i and G_i and C_i

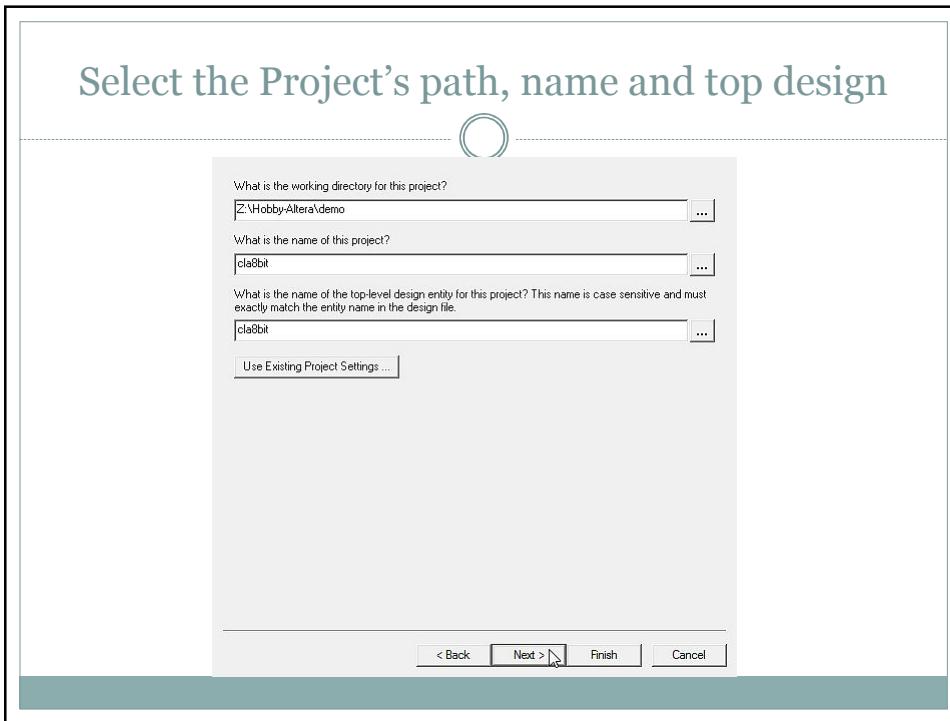
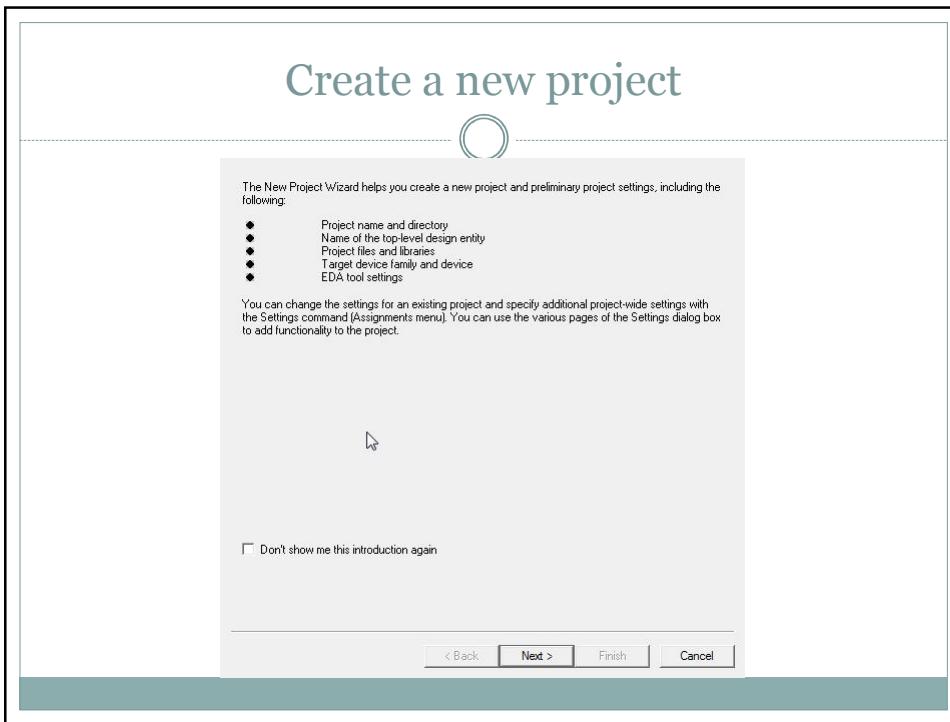
$$\begin{aligned}P_i &= X_i \oplus Y_i \\G_i &= X_i \& Y_i \\C_{i+1} &= G_i + P_i C_i \\Sum_i &= X_i \oplus Y_i \oplus C_i\end{aligned}$$

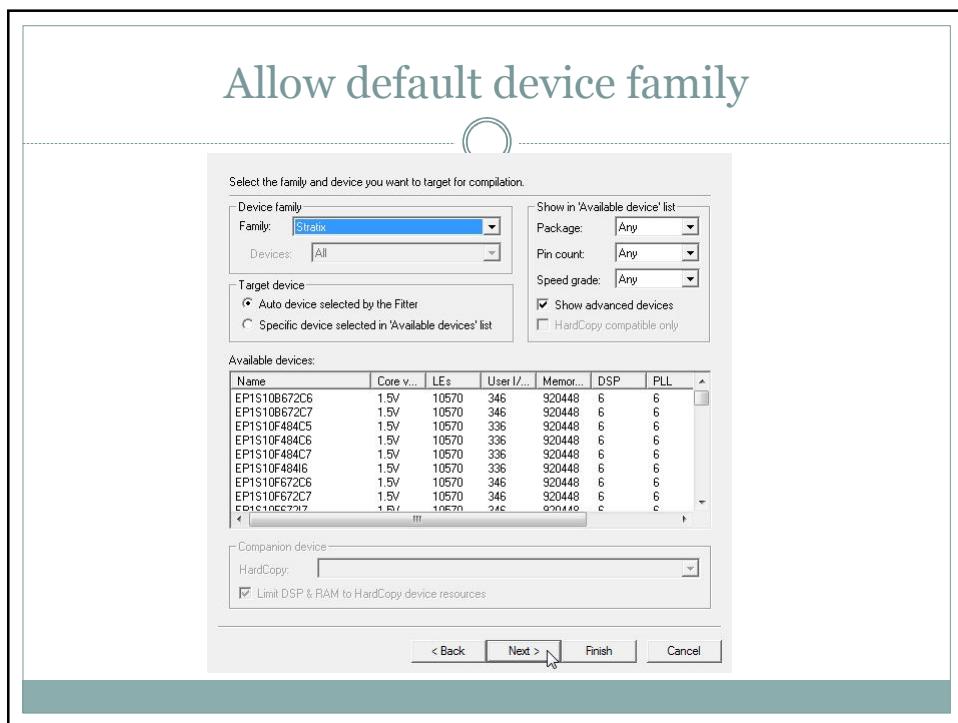
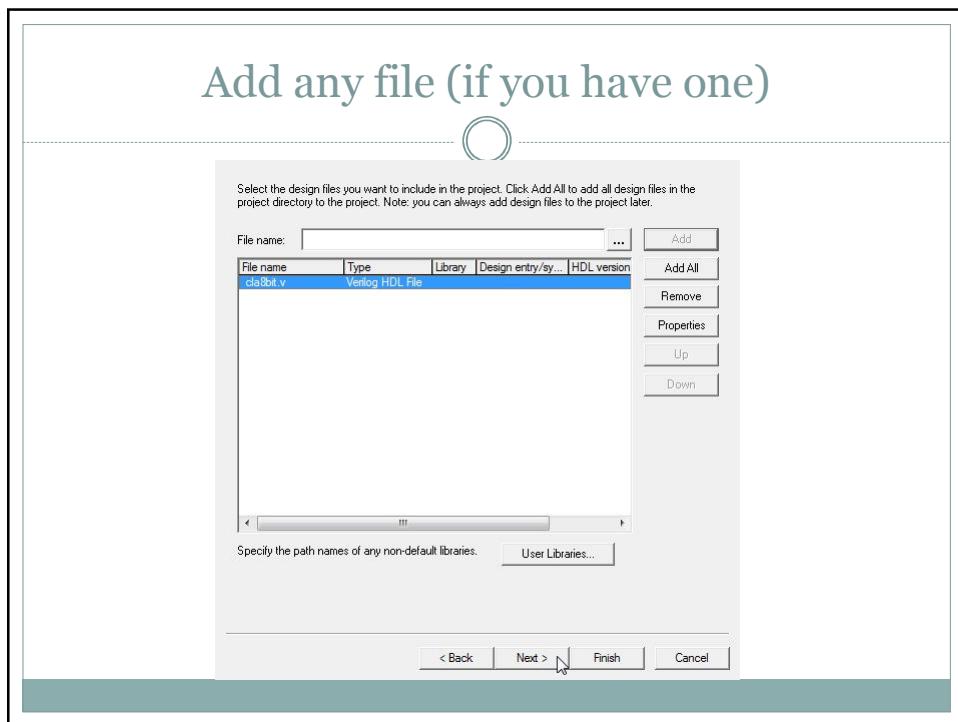
Using Quartus II/ ModelSim

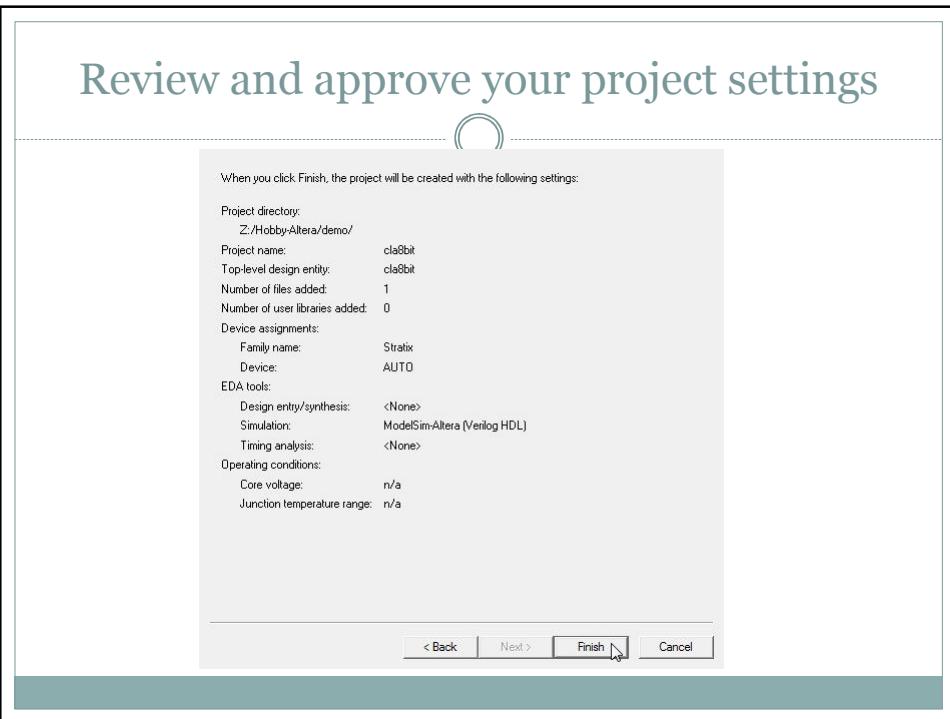
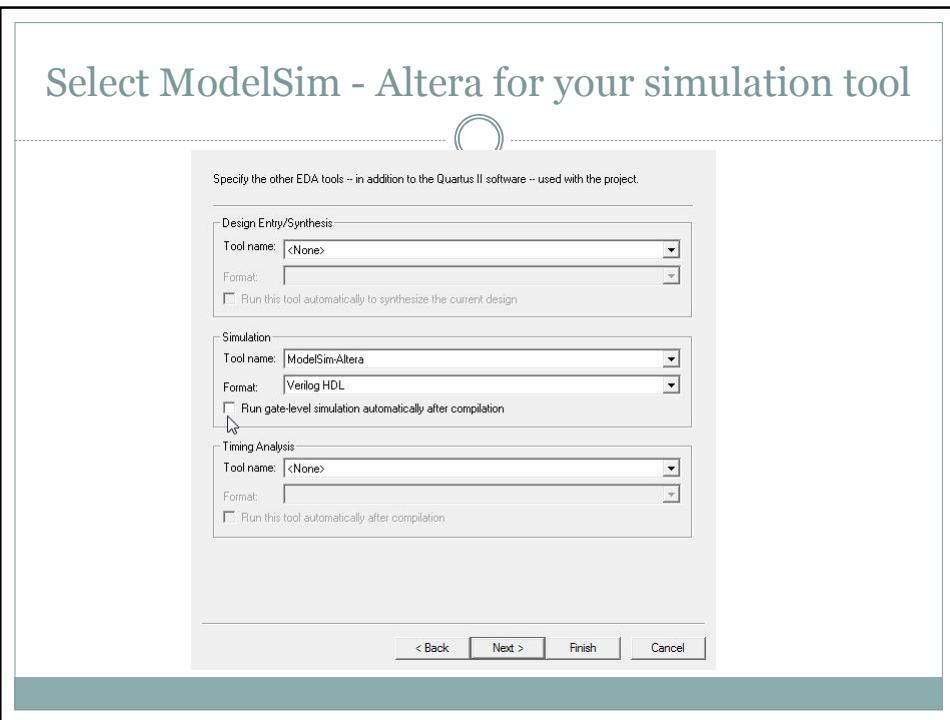
- How to create a project
- Add a test bench
- Obtain the schematic
- Obtain the simulation

Start the Quartus II tool (create new project)

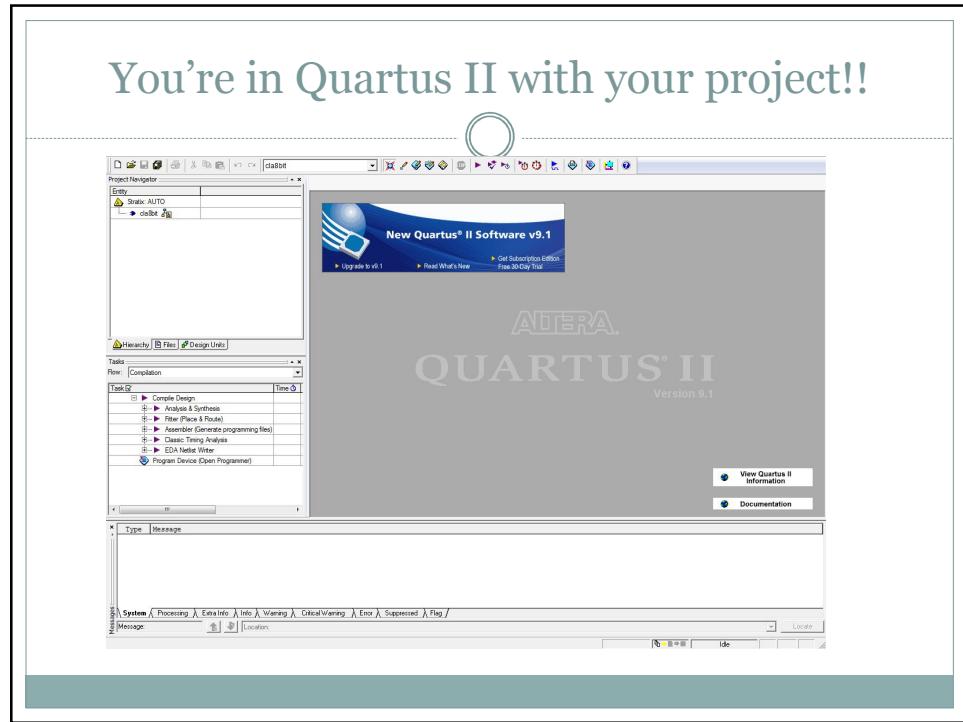




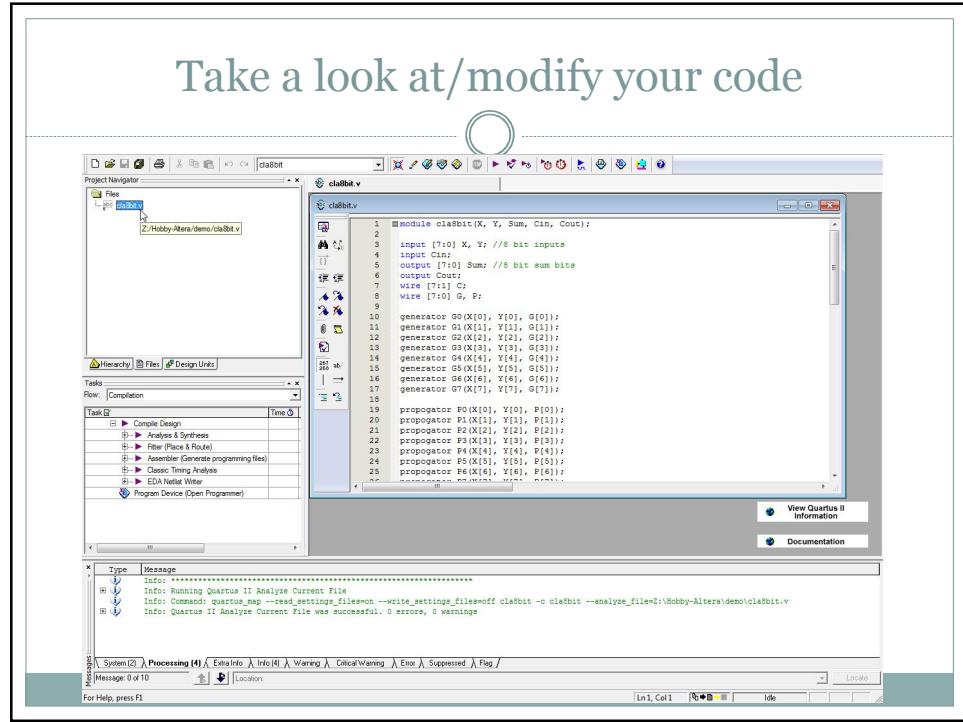




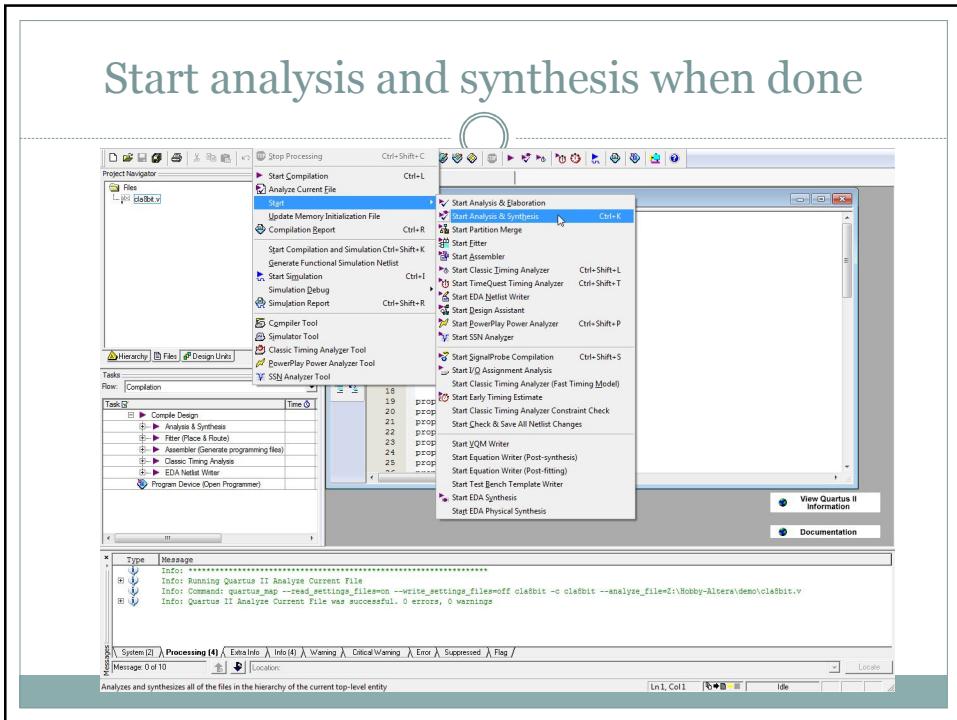
You're in Quartus II with your project!!



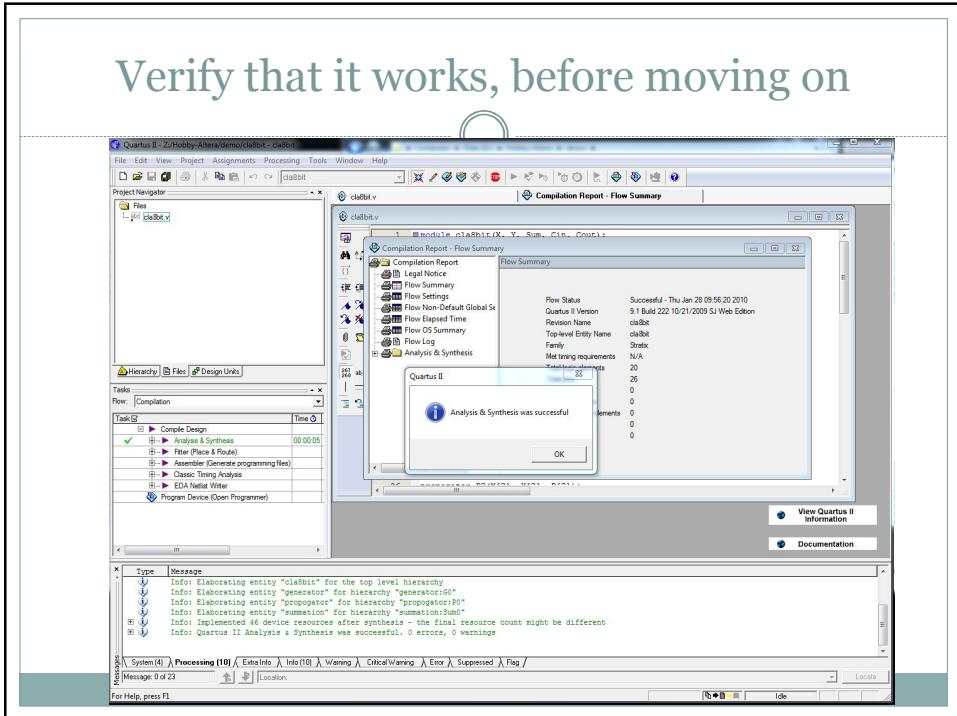
Take a look at/modify your code



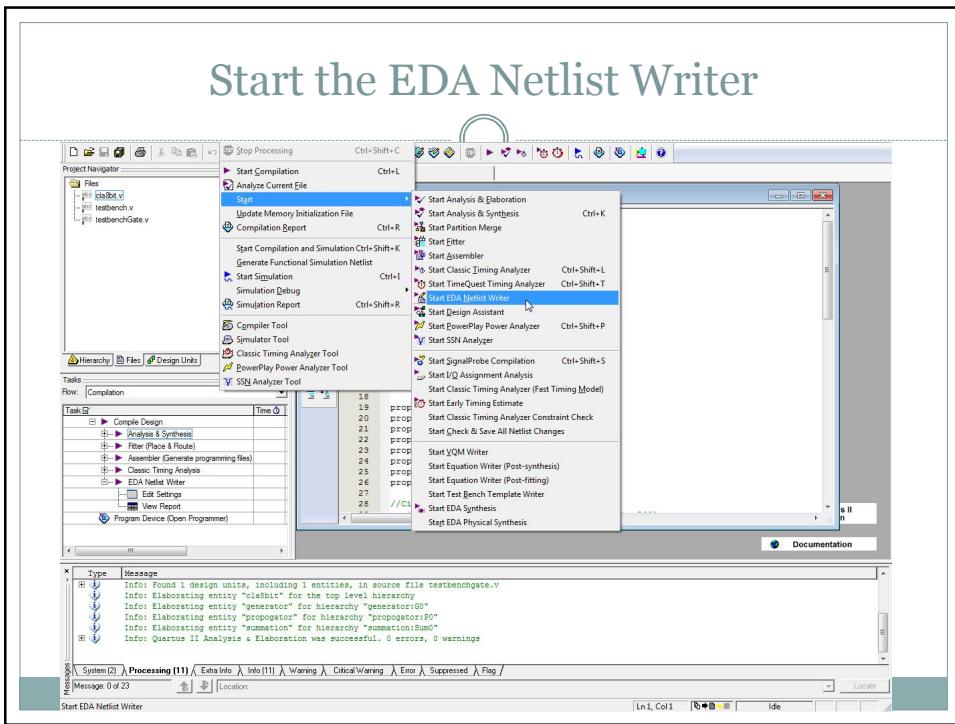
Start analysis and synthesis when done



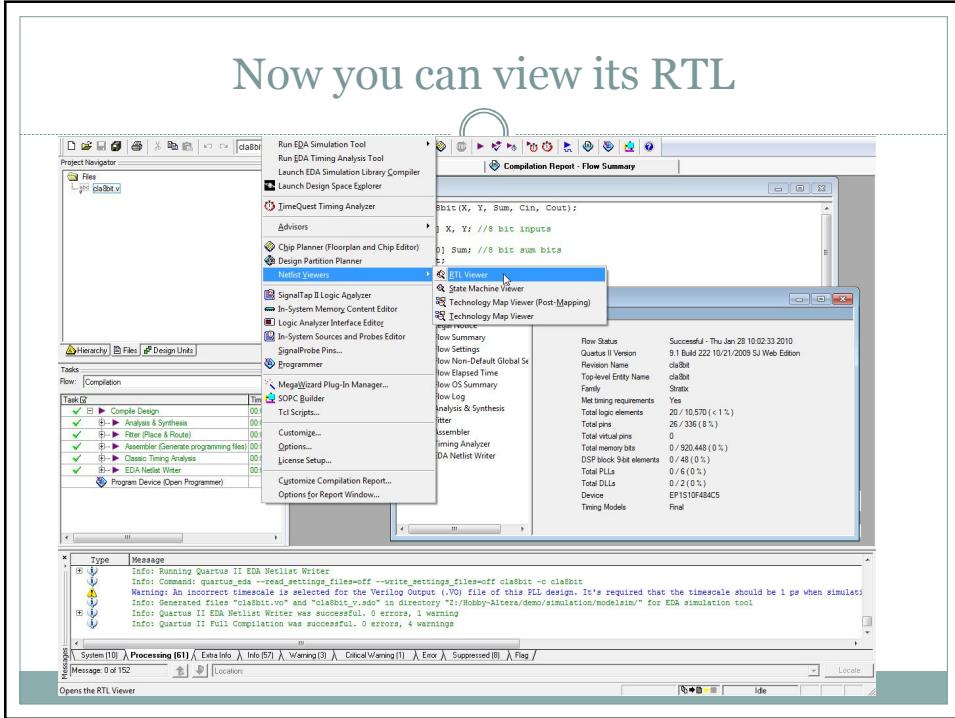
Verify that it works, before moving on



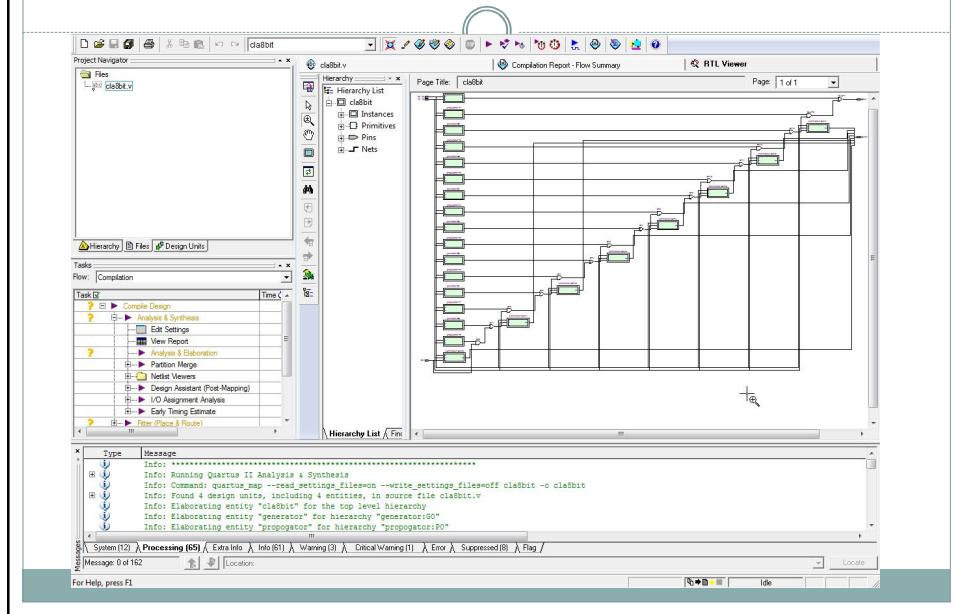
Start the EDA Netlist Writer



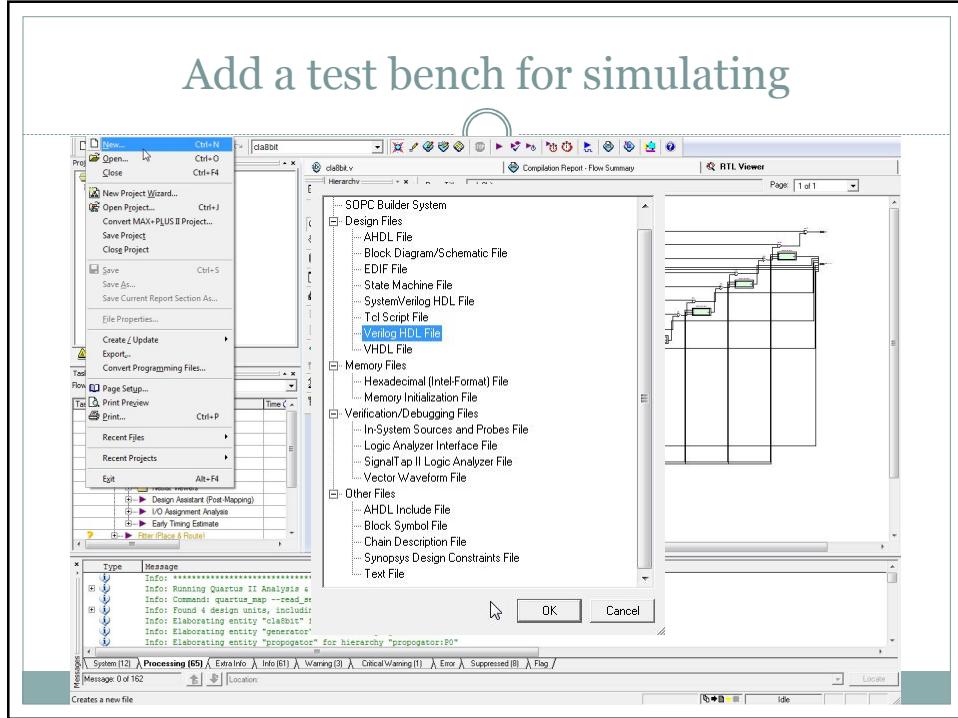
Now you can view its RTL



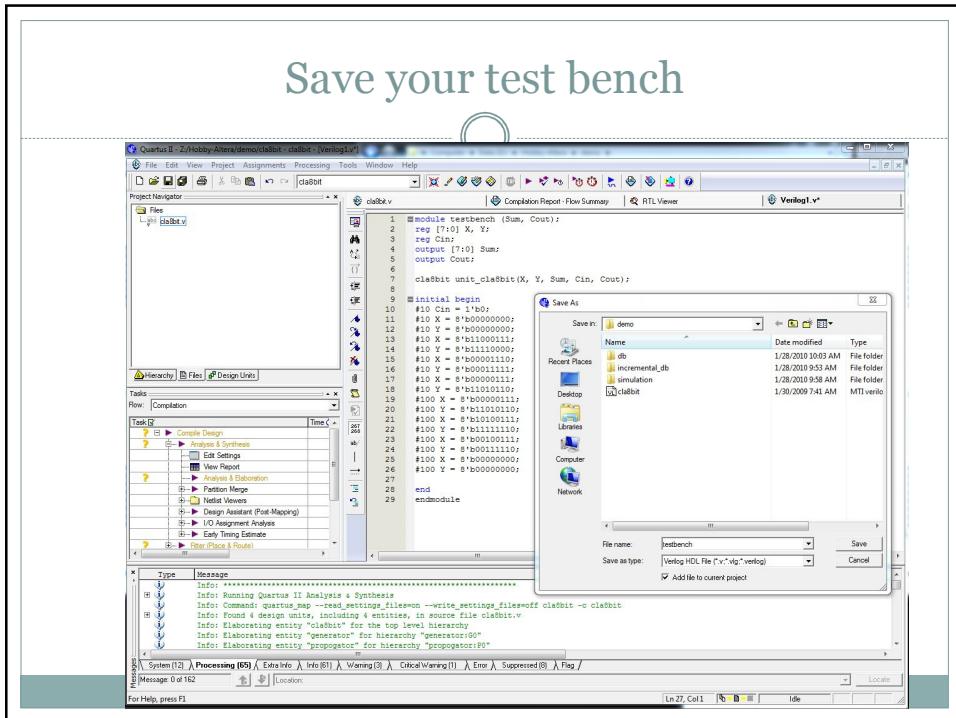
Verify that it is what you intended to do



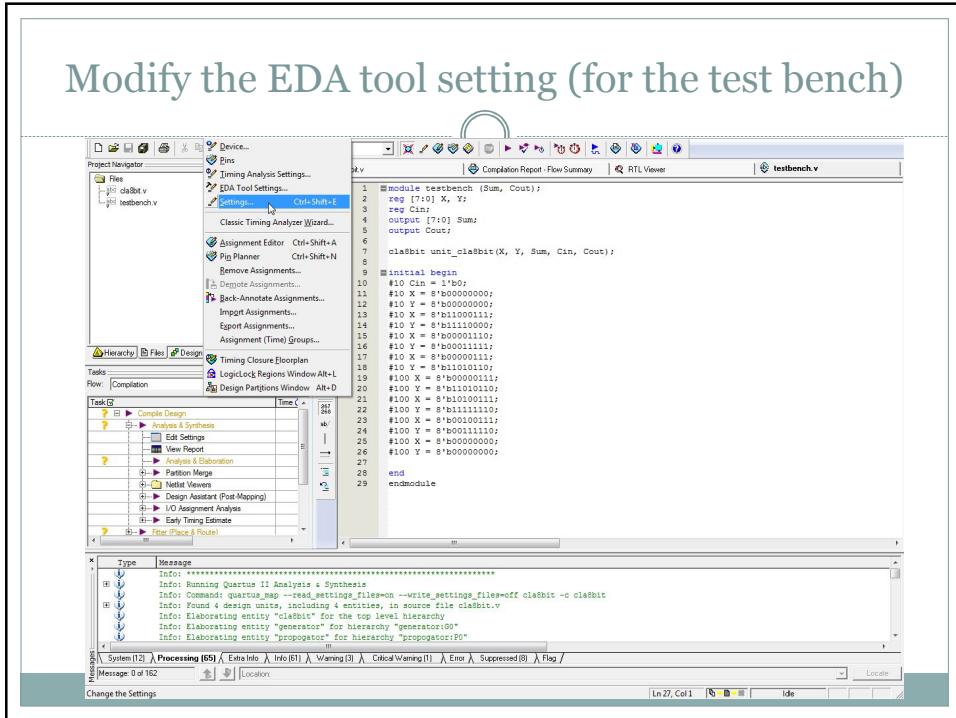
Add a test bench for simulating

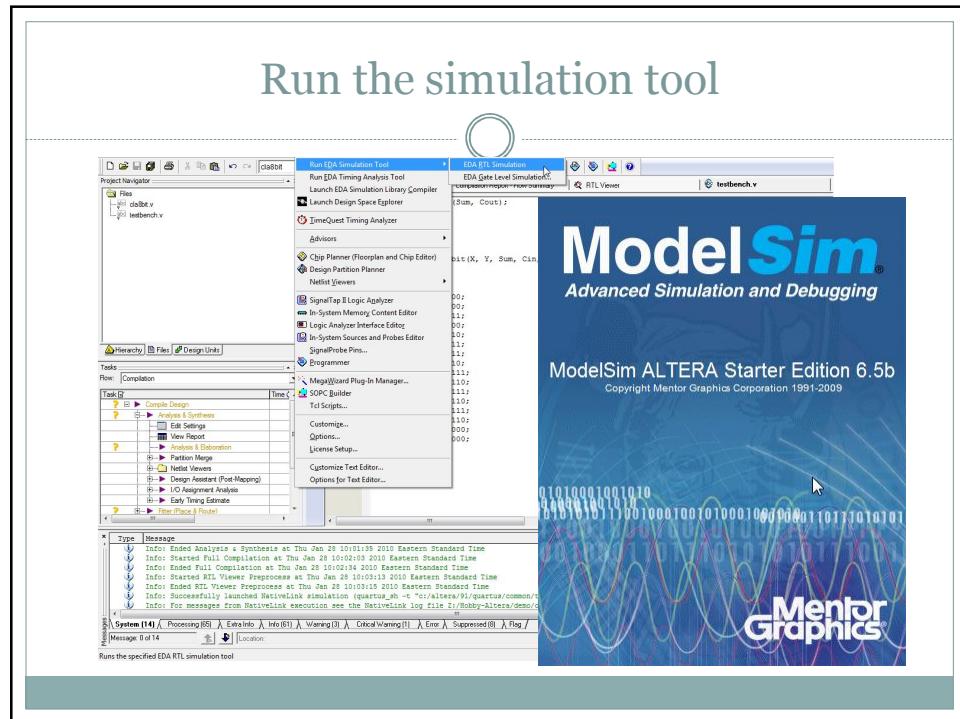
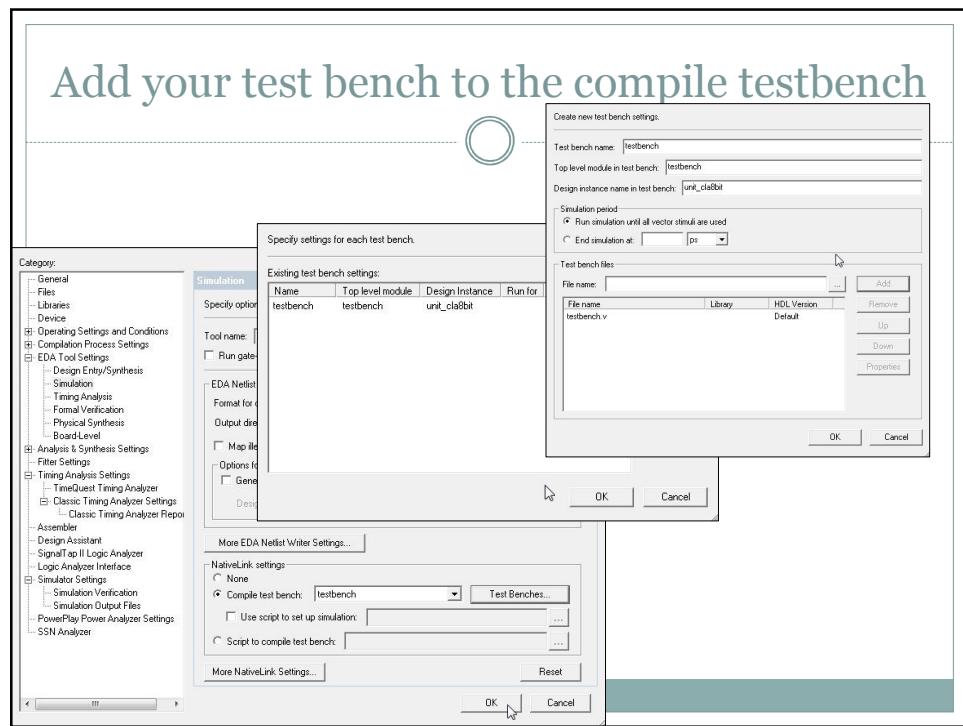


Save your test bench

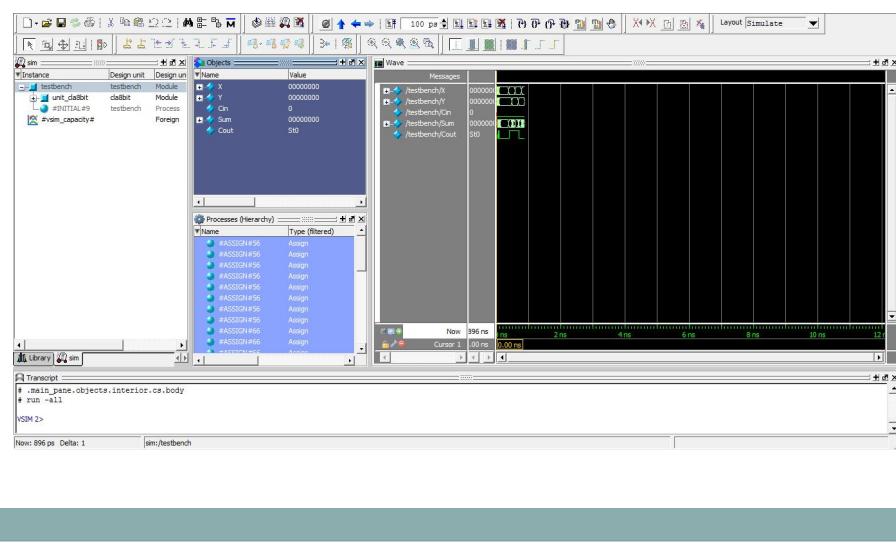


Modify the EDA tool setting (for the test bench)

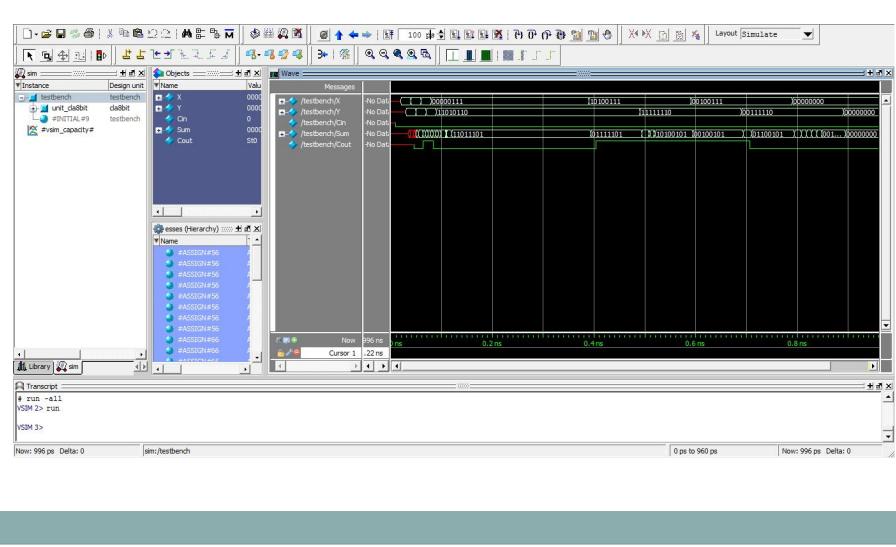




Observe the results (RTL simulation)



Enlarge the results to see the details



If you find this error



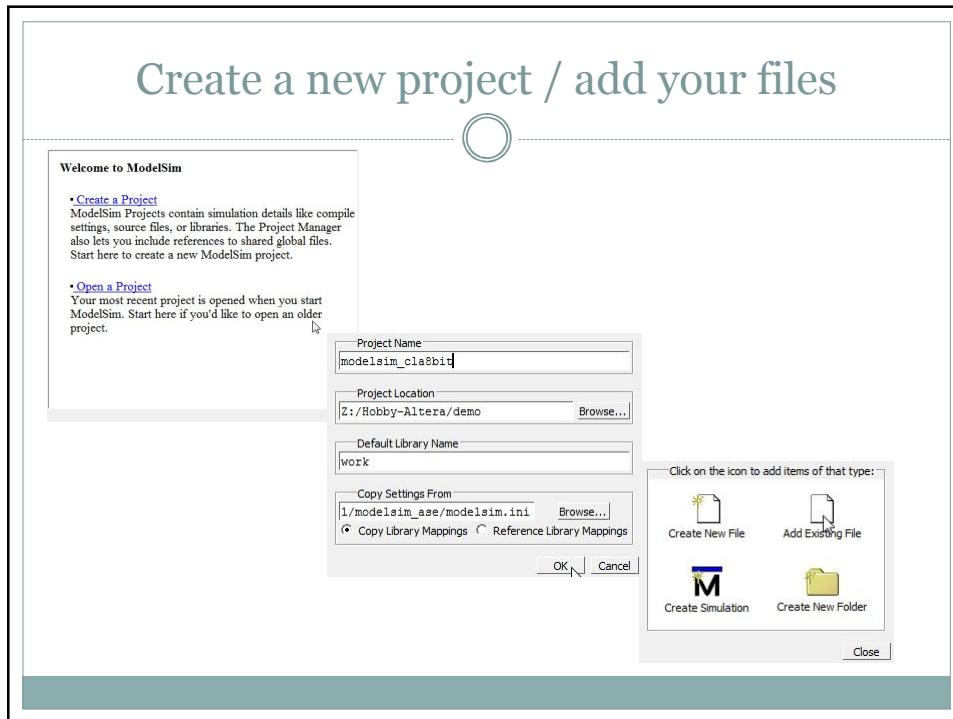
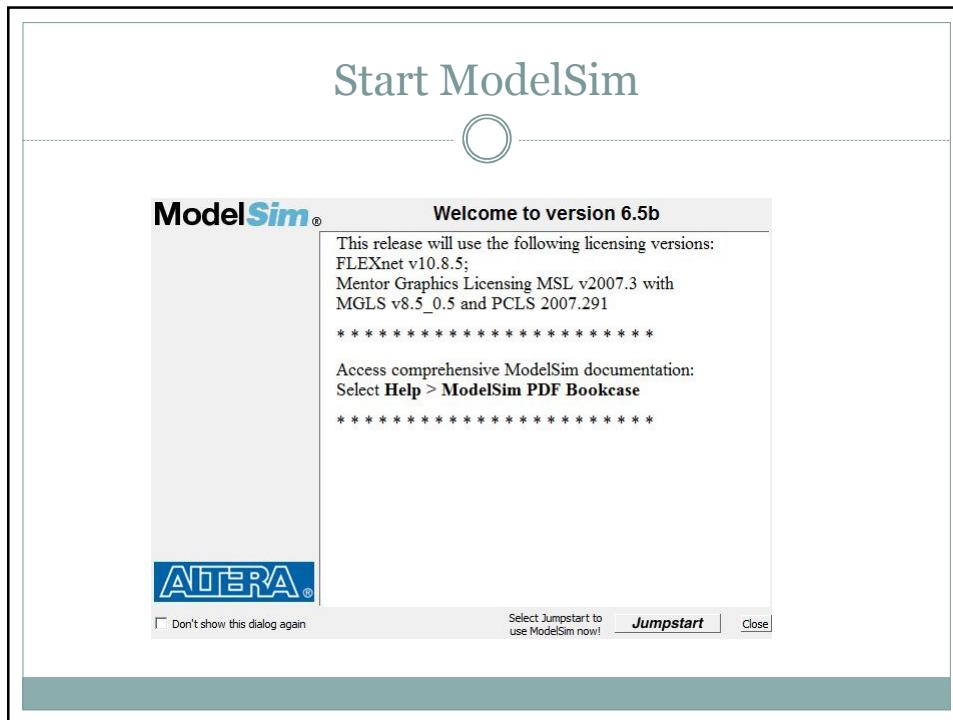
error deleting "msim_transcript": permission denied.
Check the NativeLink log file
Z:/Hobby-Altera/demo/cla8bit_nativelink_simulation.rpt for detailed
error messages

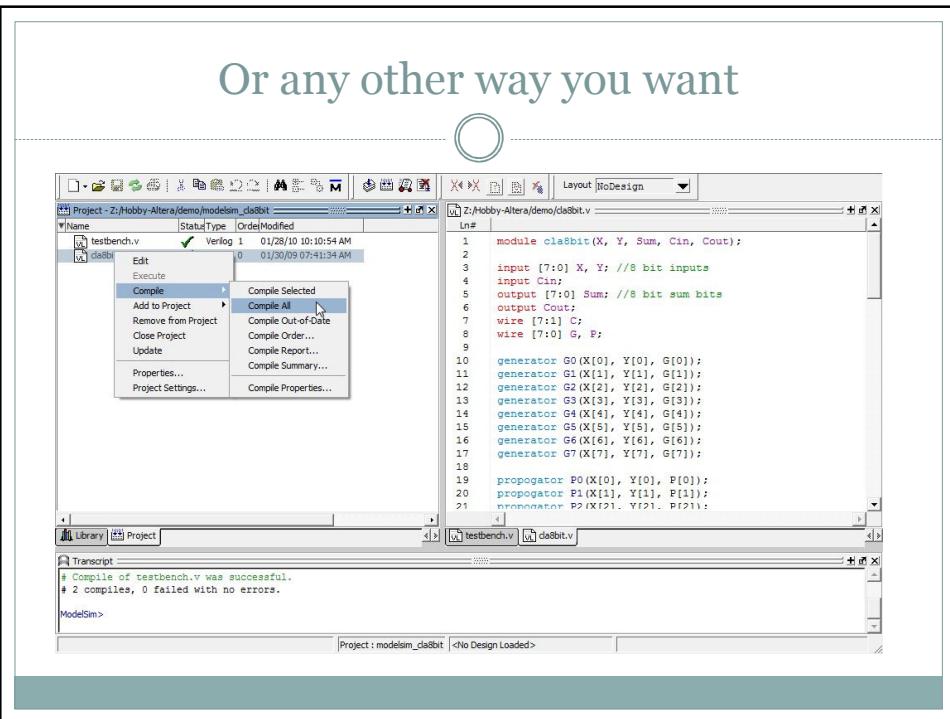
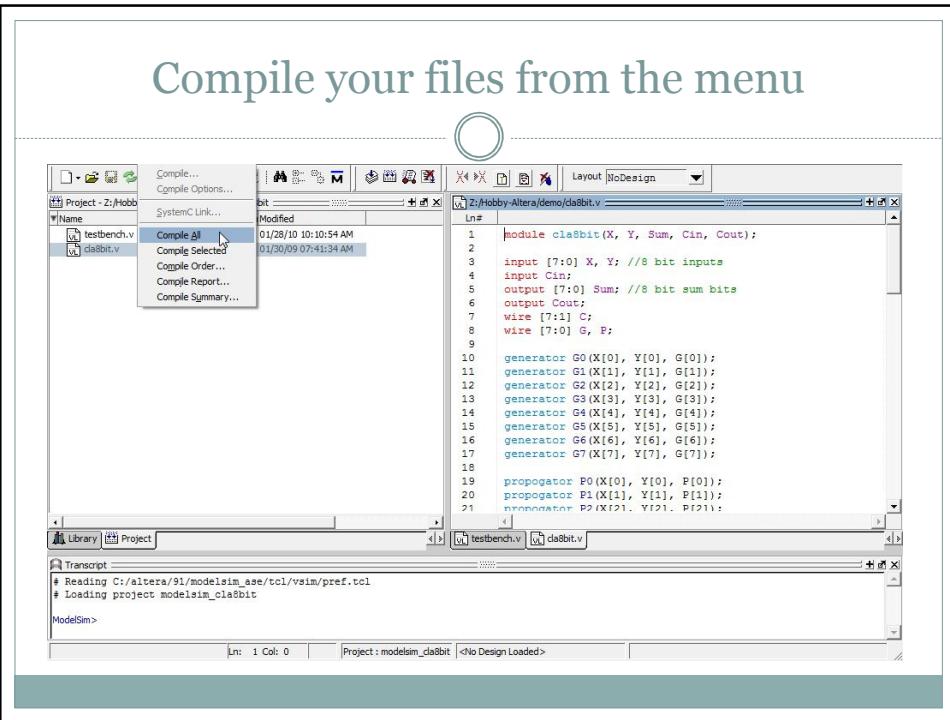
OK

It is because you have double
launched ModelSim

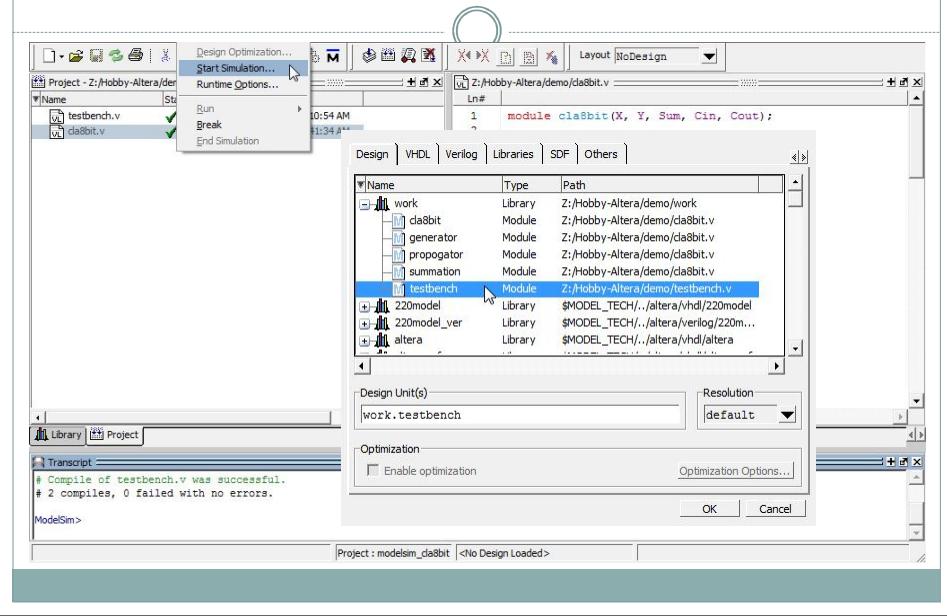
Using ModelSim

- How to create a project
- Run simulation

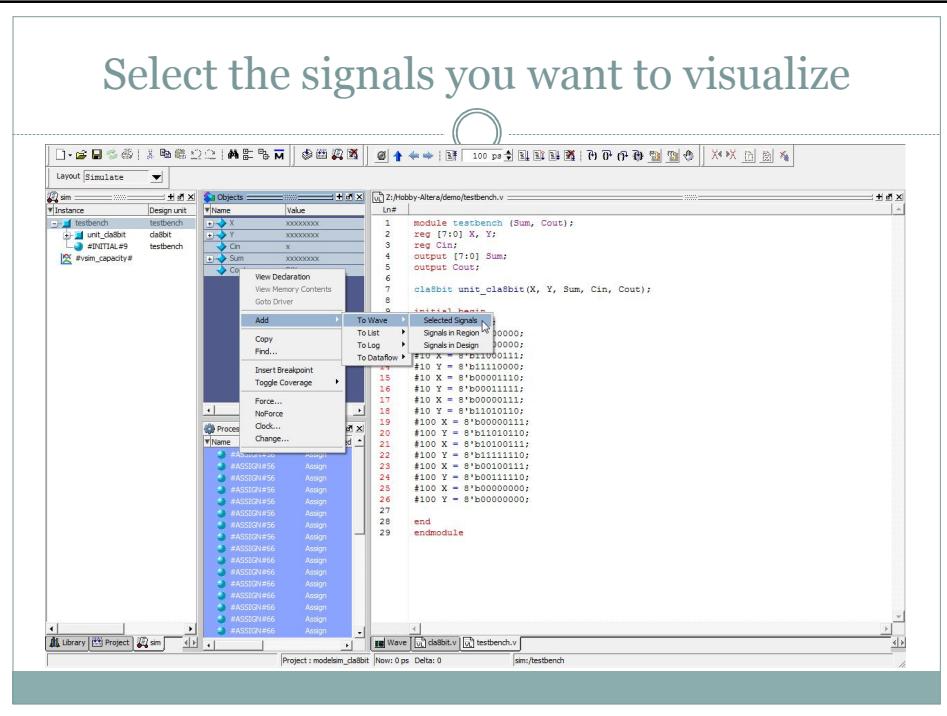




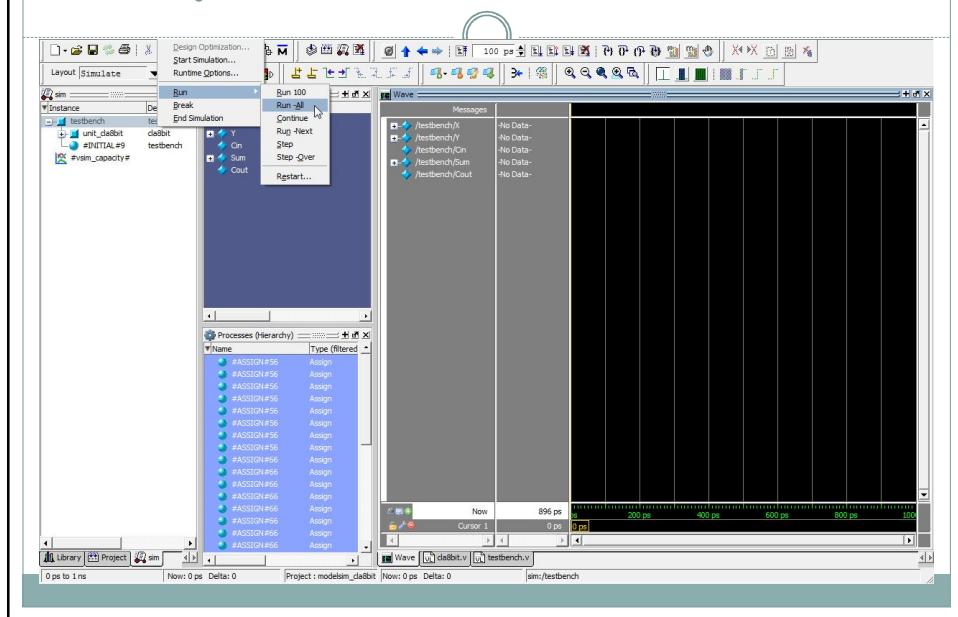
Start simulation, choose your test bench



Select the signals you want to visualize



Now you can run the test bench (run all)



Verify your results

