

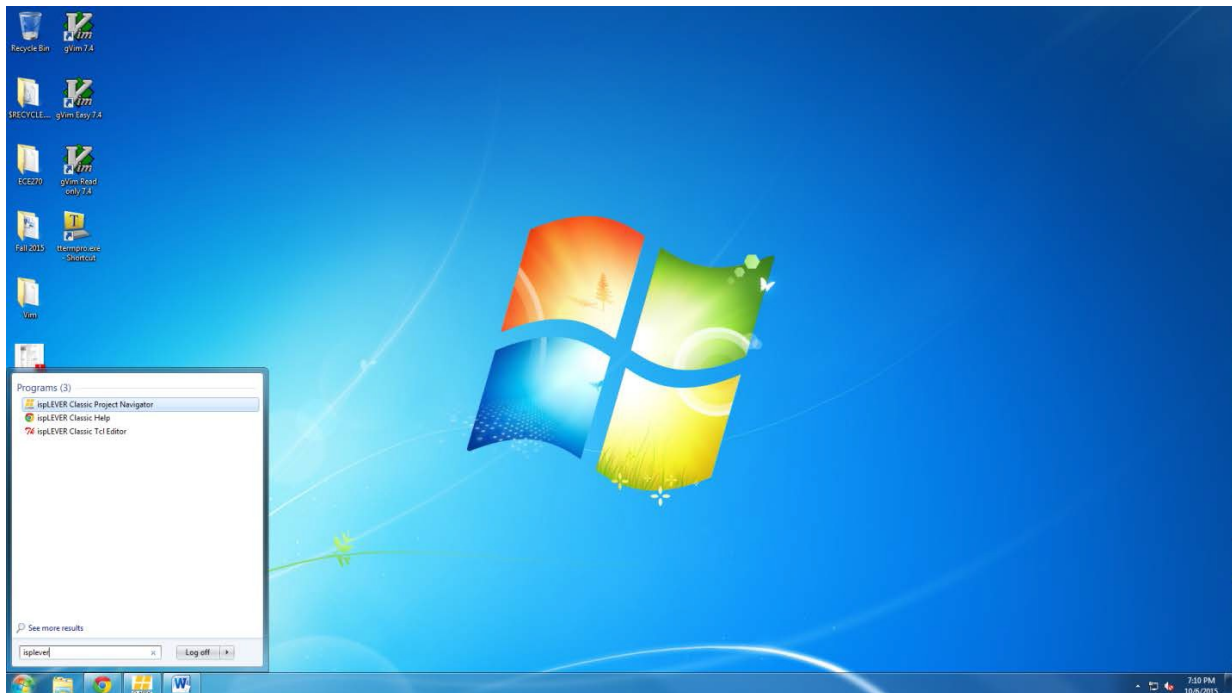
# Using ispLever Classic Project Navigator and Dataman

ispLever Classic Project Navigator – used to create a new project, write a Verilog module, synthesize it, and create a JED file

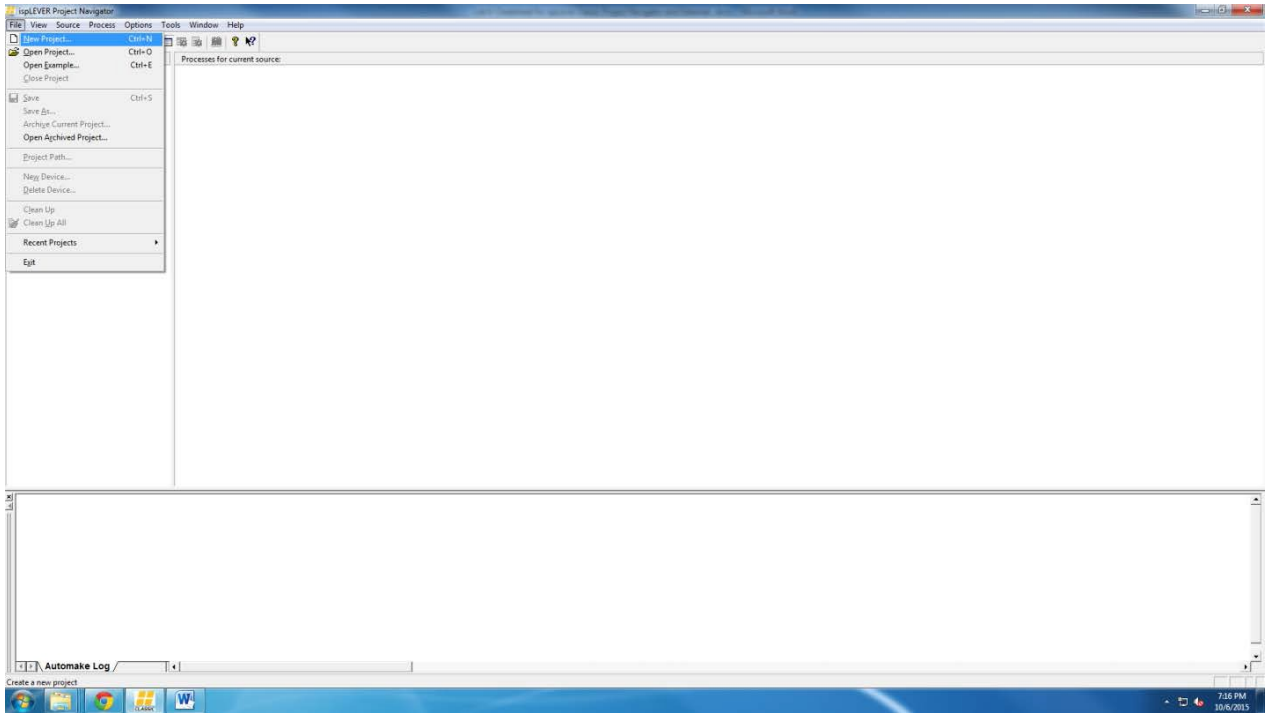
Dataman – used to program the created JED file onto an IC (GAL22V10 for Lab6)

## A) ispLever Classic Project Navigator

1. Create a new folder on Desktop named “Lab6” (U:\Desktop\Lab6)
2. Open ispLever Classic Project Navigator from Start Menu



### 3. File → New Project



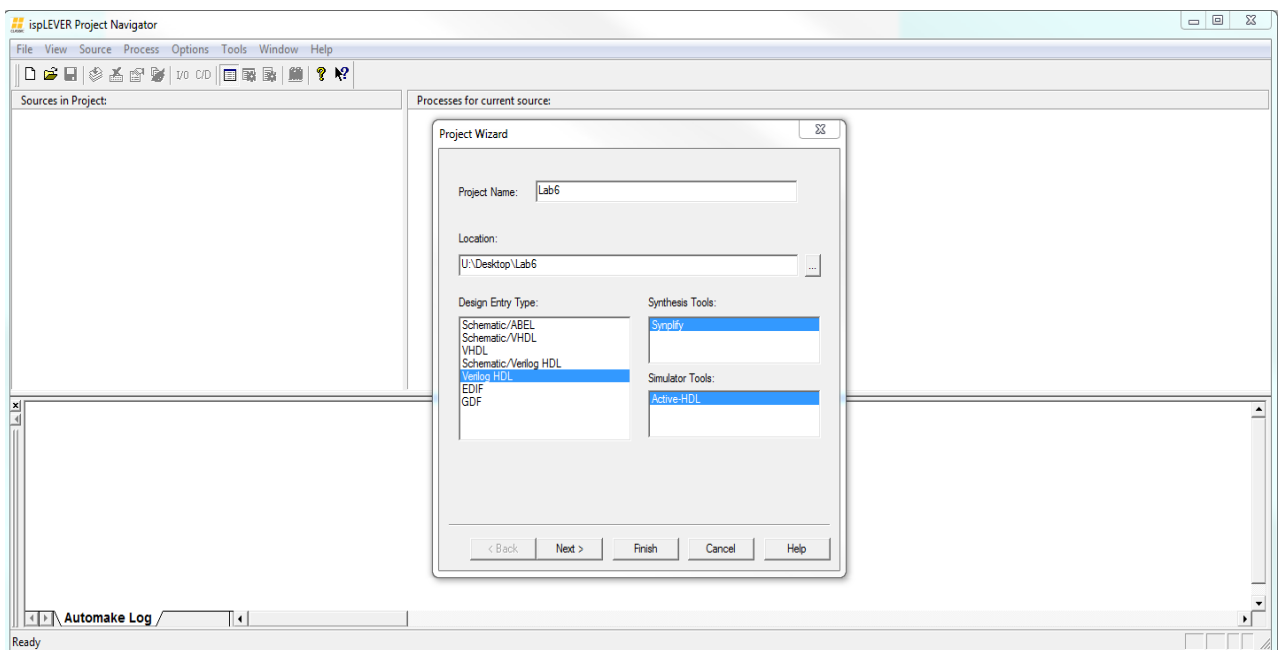
### 4. Project Name: Lab6

Location: Choose the Lab6 folder you created on your desktop

Design Entry Type: Verilog HDL

Synthesis Tools: Synplify Simulator Tools – Active HDL

Click on “Next”



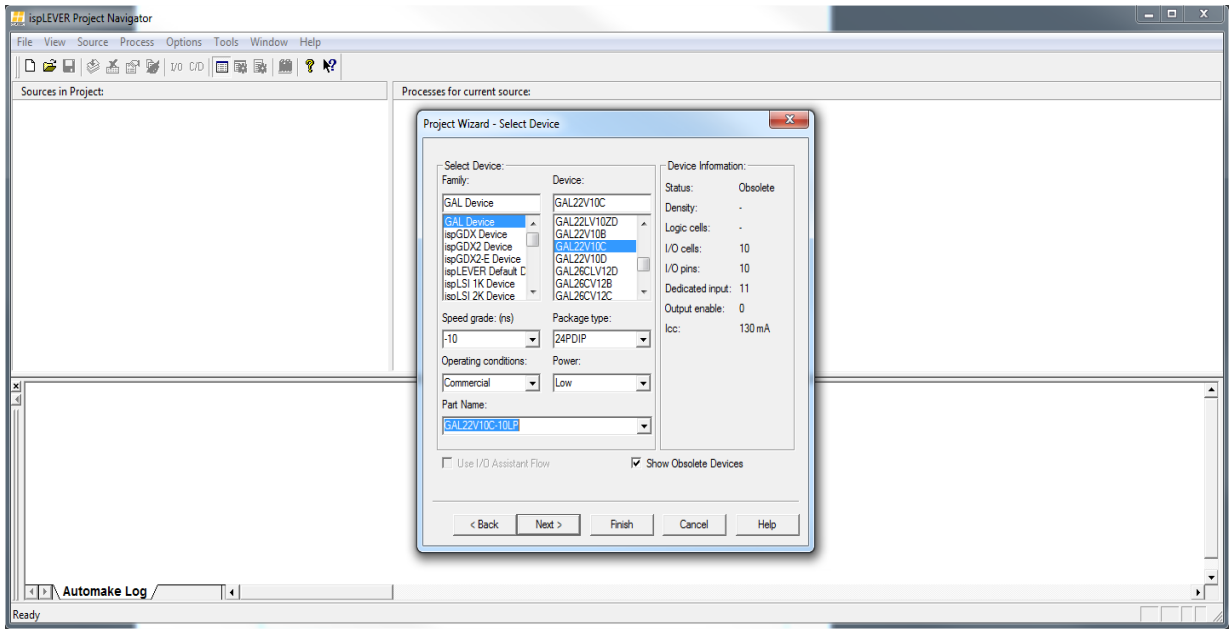
5. Check Show Obsolete Devices Family – Select GAL Device – GAL22V10C

Package type: 24PDIP

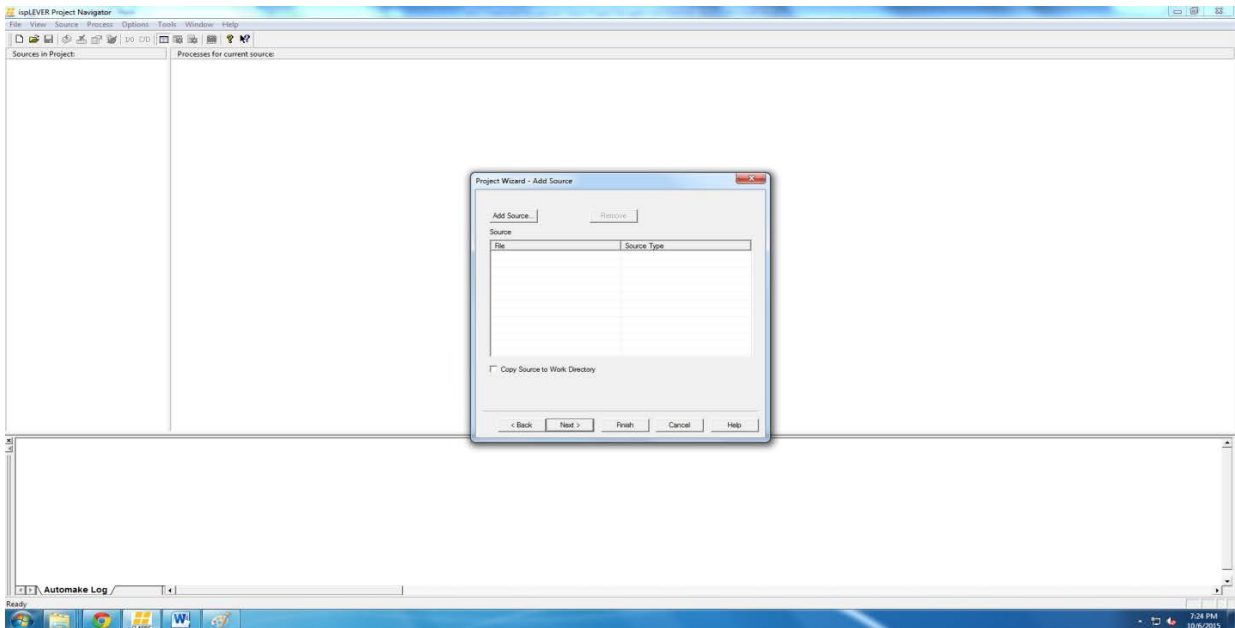
Part Name: GAL22V10C-10LP

(leave everything else as it is)

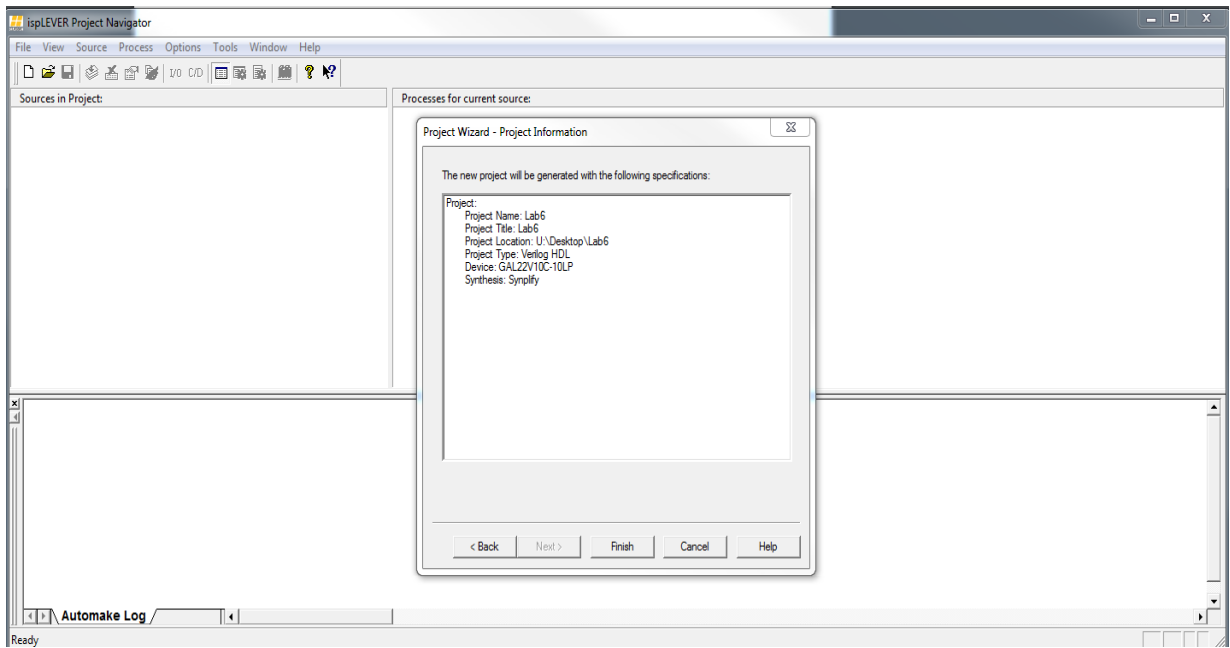
Click on “Next”



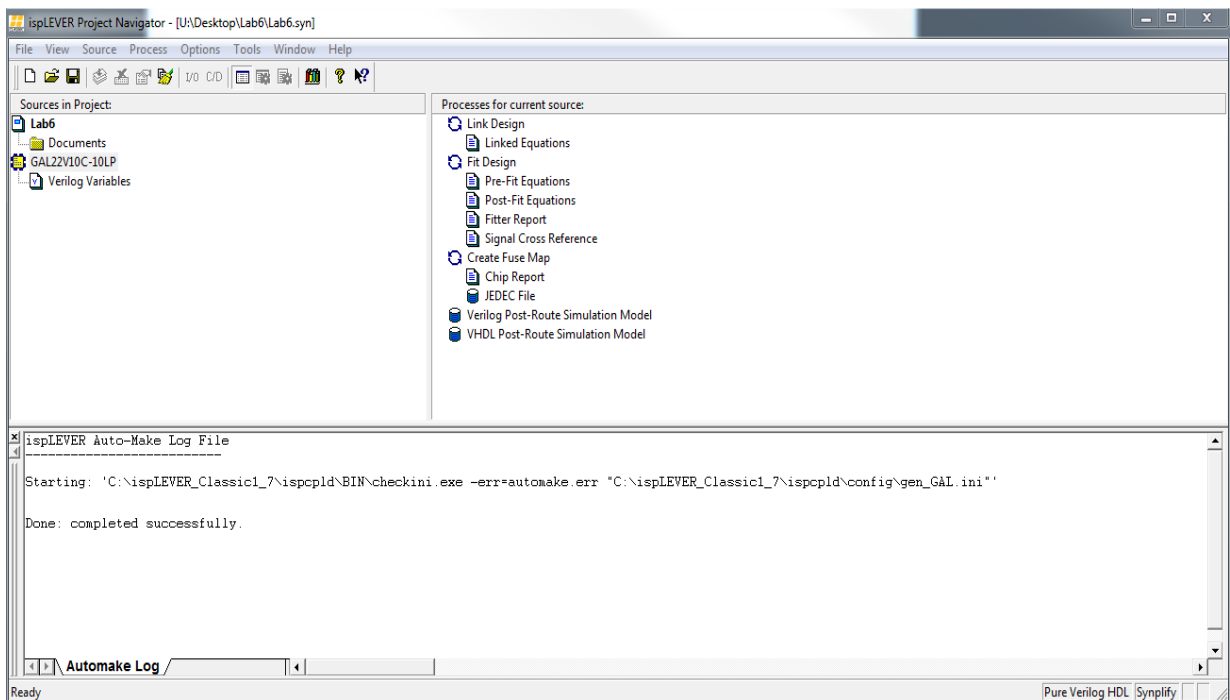
6. Click on “Next” again (we will add a source file later)



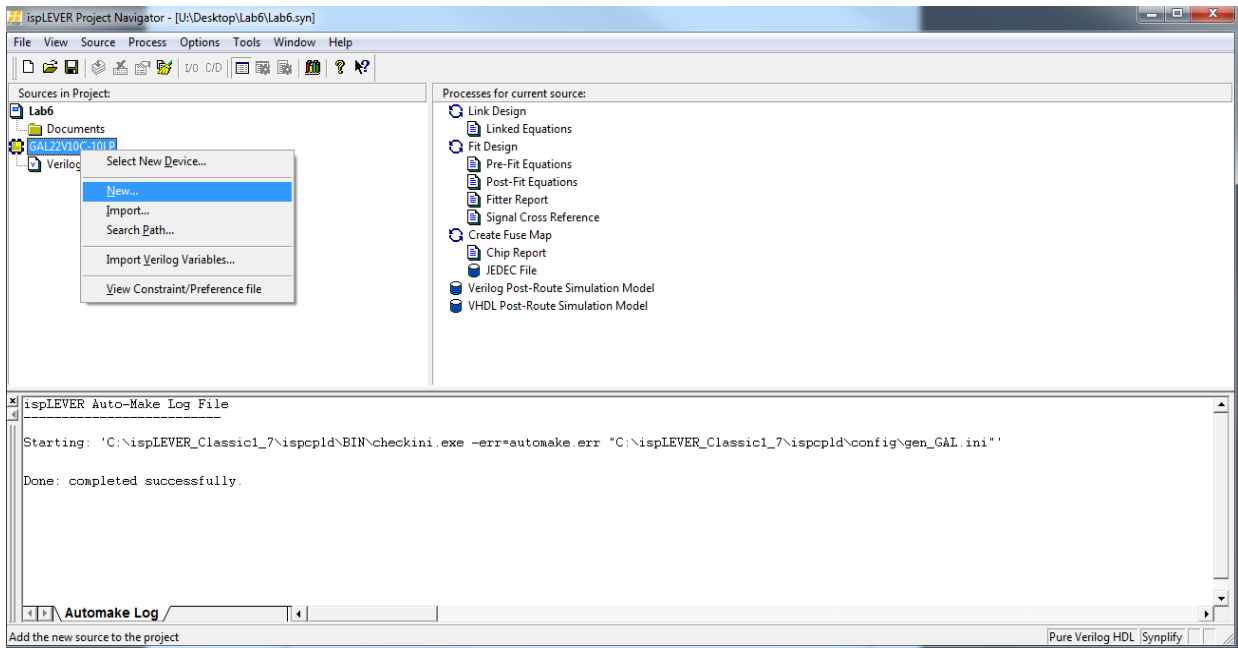
## 7. Click on “Finish”



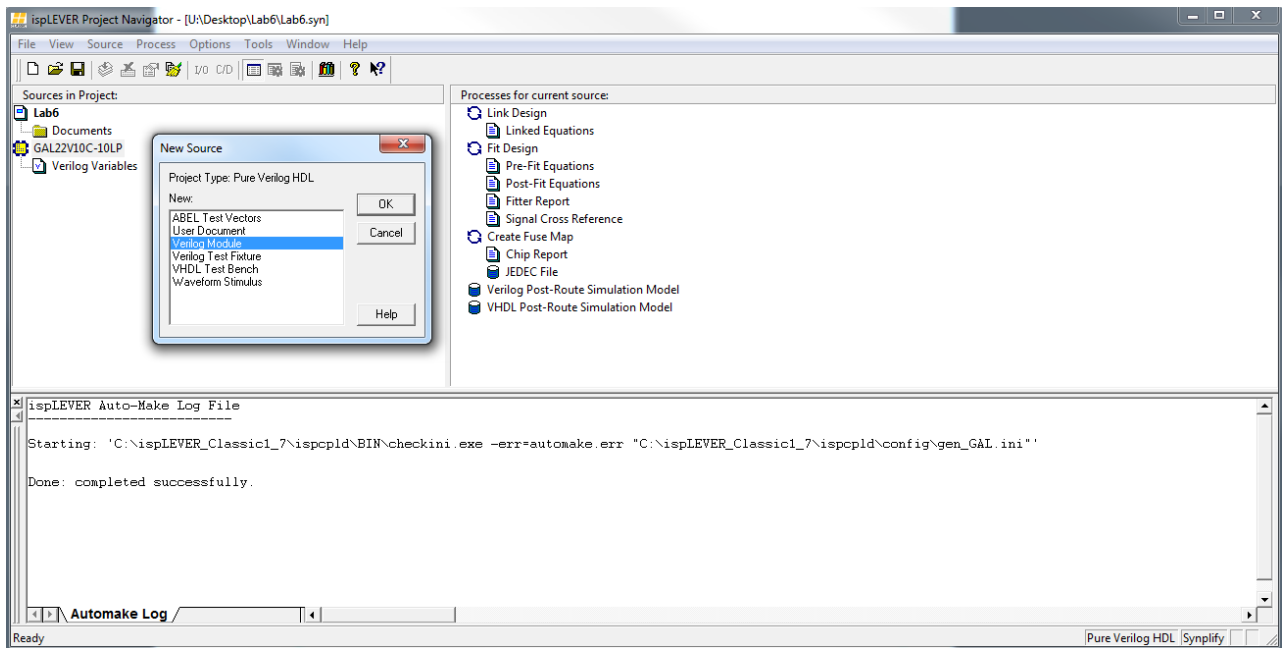
## 8. It should look like this now



9. Right click on “GAL22V10C-10LP” and select “New”



10. Select Verilog Module and click “OK”

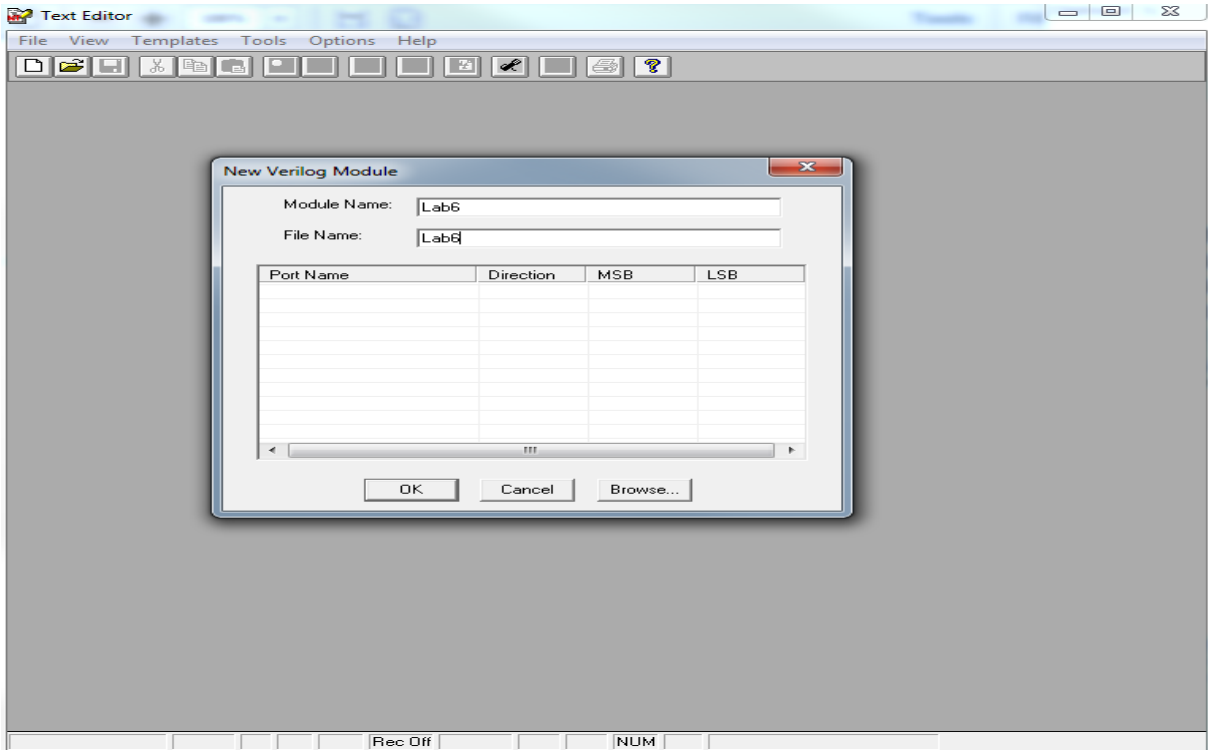


11. The TEXT editor will open

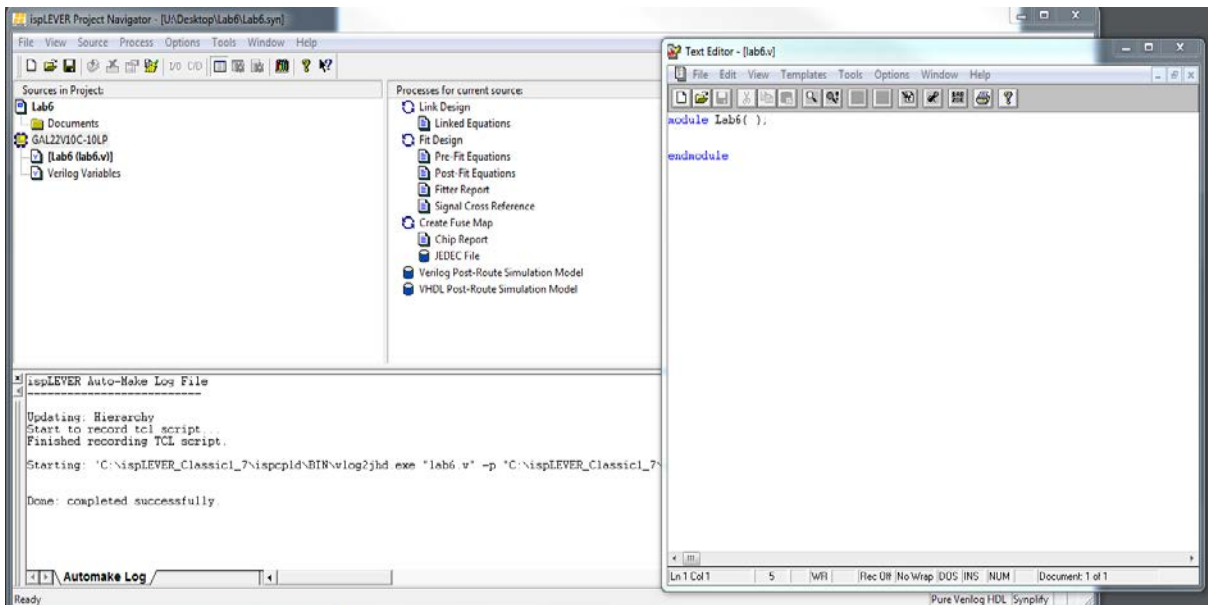
Give any module name, file name and title (avoid spaces in names)

Here, we are using "Lab6" for all these

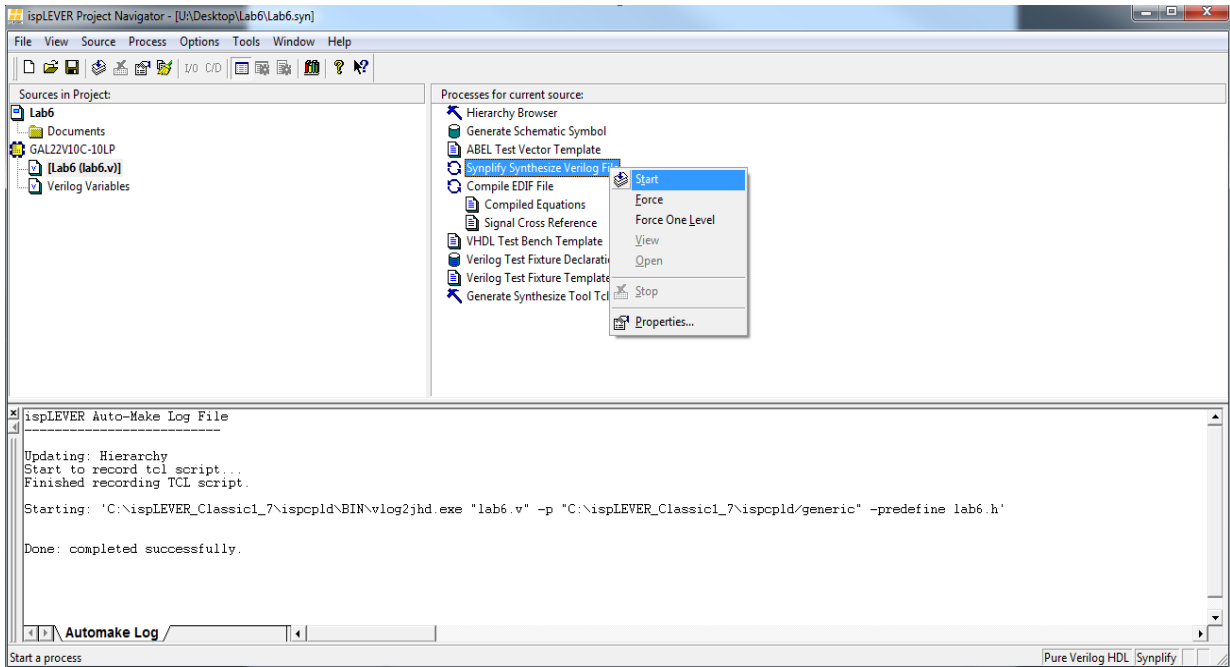
Click "OK"



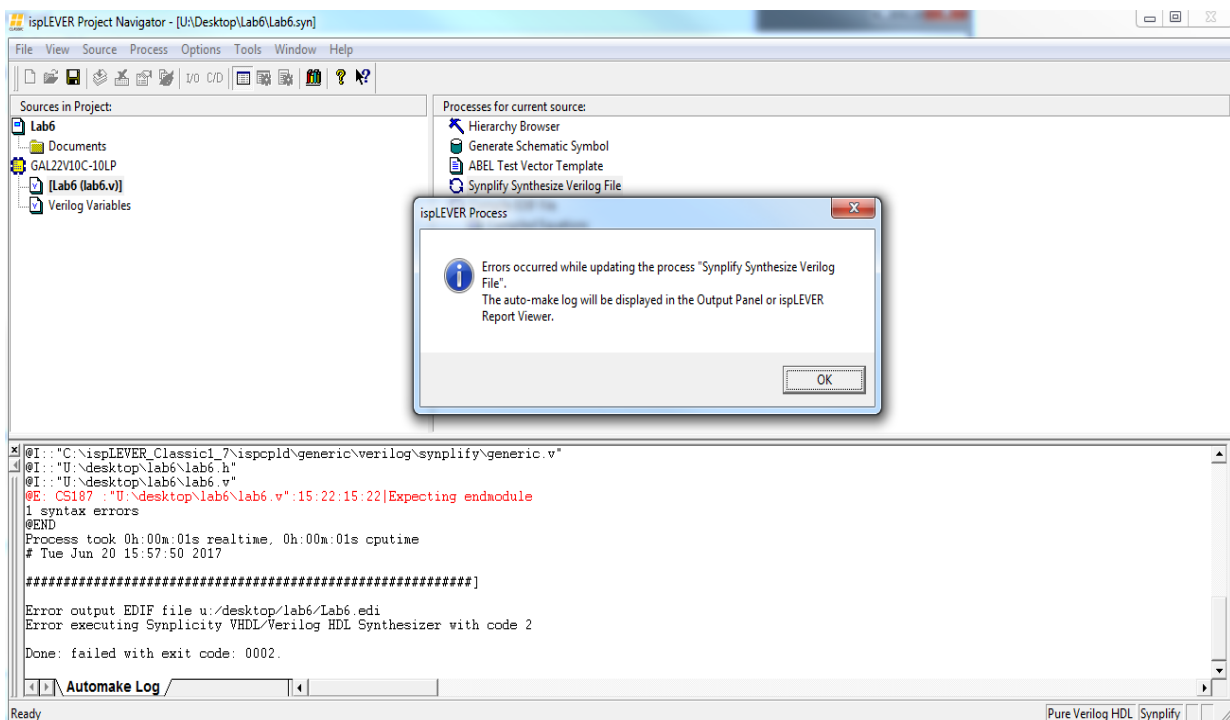
12. A file called "Lab6.v" will be created and a "Verilog Variables" file will be present; add your code in the "Lab6.v" file and then Save the file (see the Module 2 Class Presentation Slides to learn how to code in Verilog – the example programs will prove to be helpful)



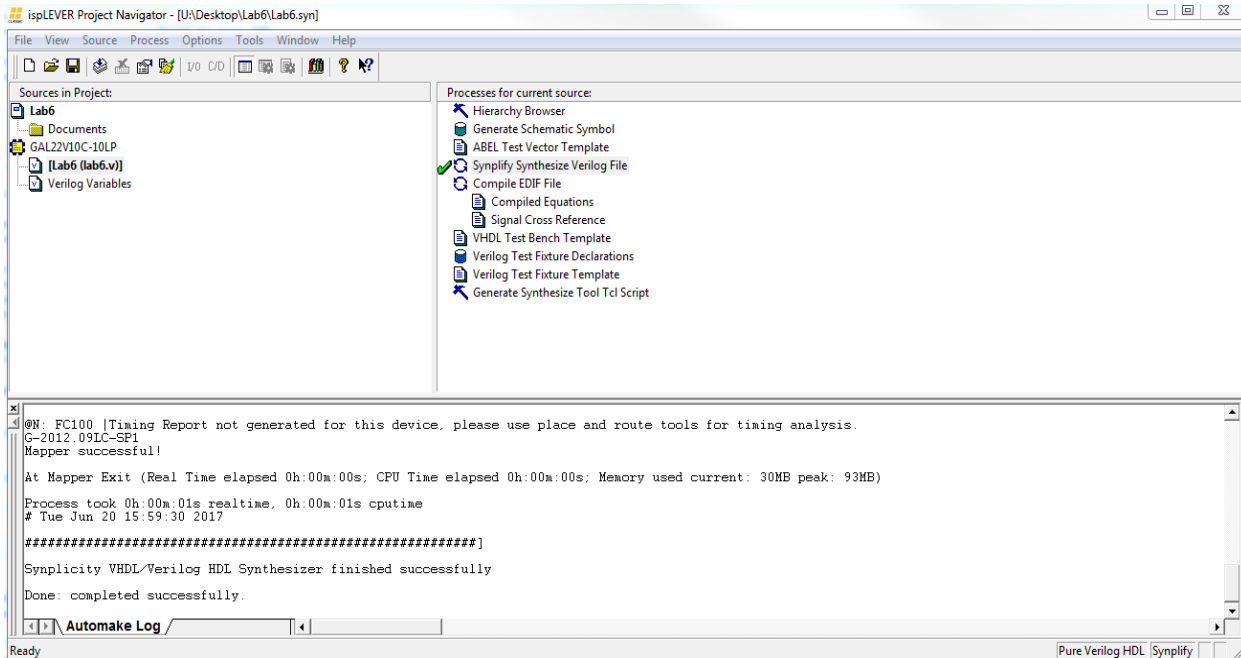
- Return to the **ispLever Project Navigator** and you should see “Lab6.v” under “GAL22V10C-10LP”  
Click on “Lab6.v” and then on the right side under “Processes for current source” right click on “Synplify Synthesize Verilog File” and then select “Start”



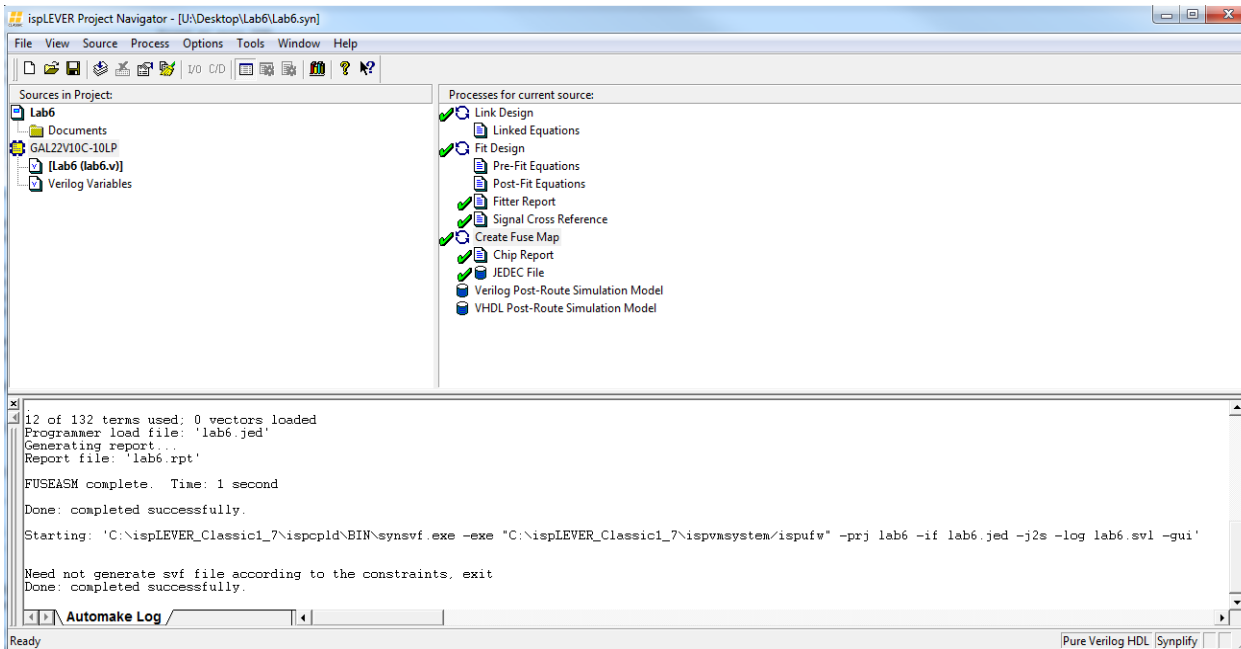
- If there are errors they will appear on the Automake Log below, along with the line number;  
correct the errors that have been identified in the “Lab6.v” file



15. Once all errors have been cleaned up repeat Step 13. You should see “Synplicity VHDL/Verilog HDL Synthesizer finished successfully” in the Automake Log window:



16. Again in the ispLever Project Navigator click on “GAL22V10C-10LP” Then on right side you will see “Link Design”, “Fit Design”, “Create Fuse Map”. Right click on each and select “Start” in the order: Link Design → Fit Design → Create Fuse map  
*If all steps pass, it should look like this:*



17. Verify that “lab6.jed” file is created in Lab6 folder on desktop  
<U:\Desktop\Lab6\lab6.jed>

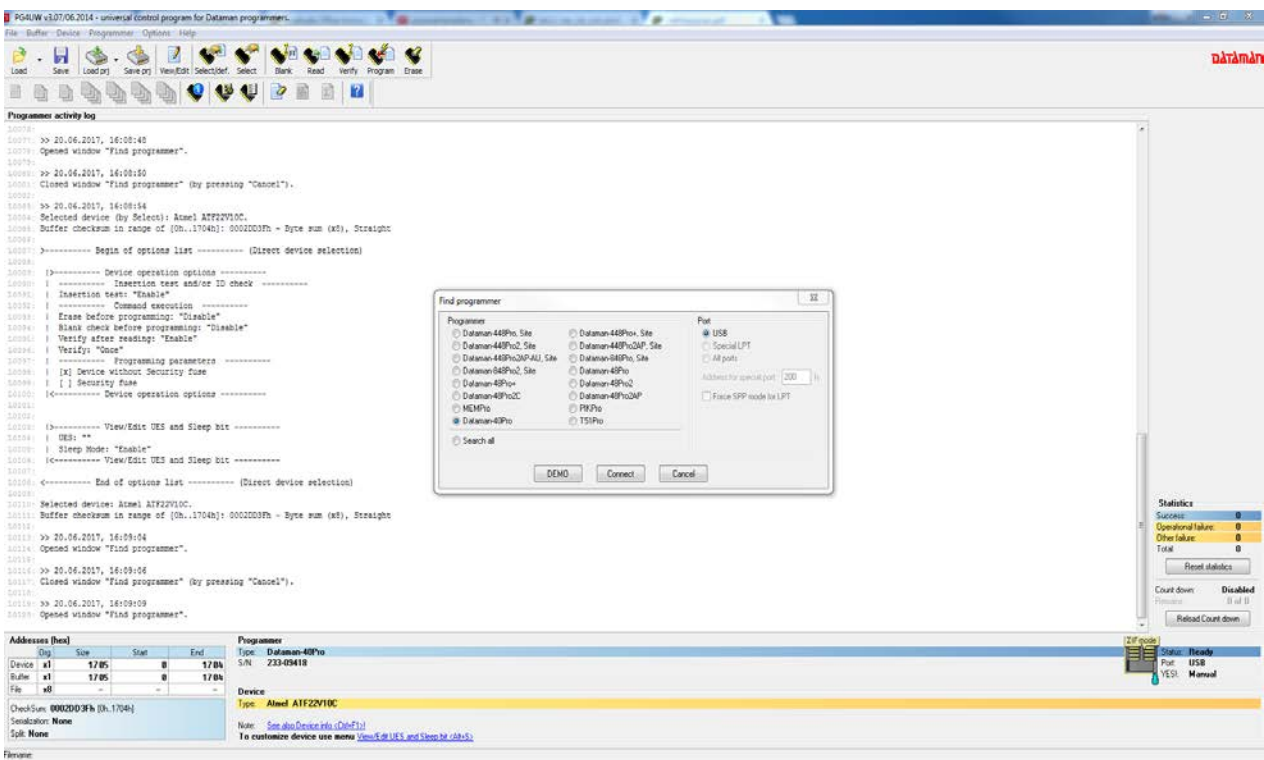


## B) DATAMAN

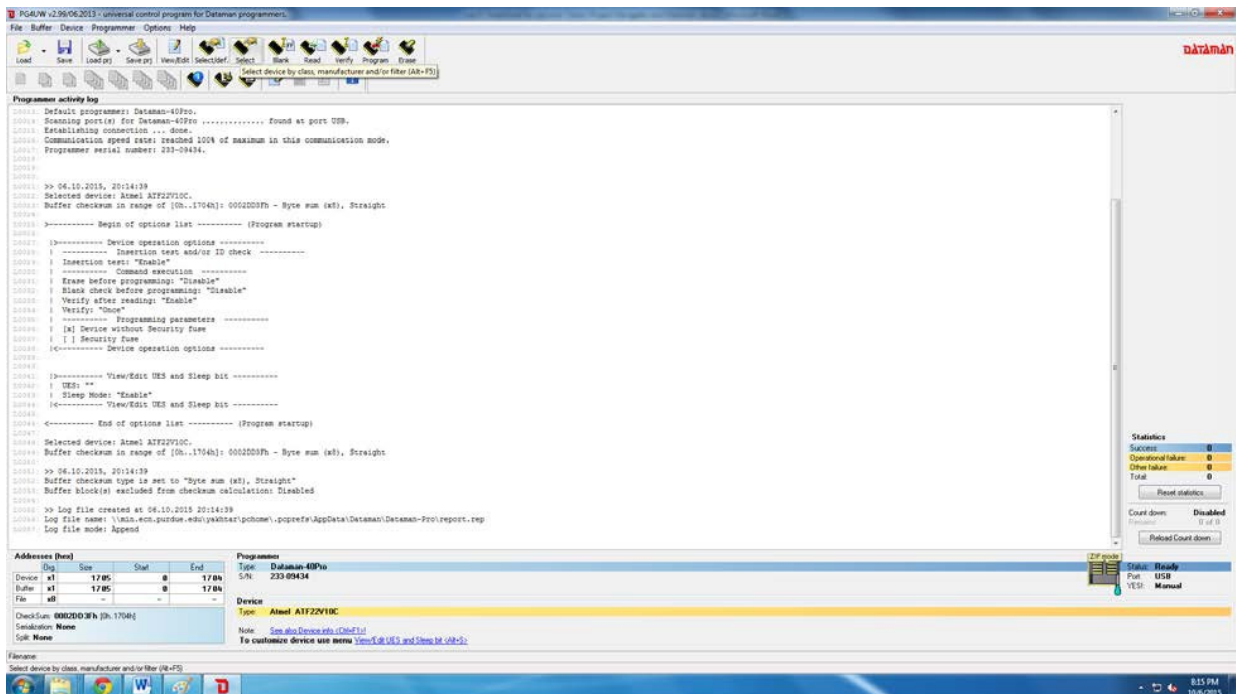
### 1. Open Dataman-Pro PG4UW



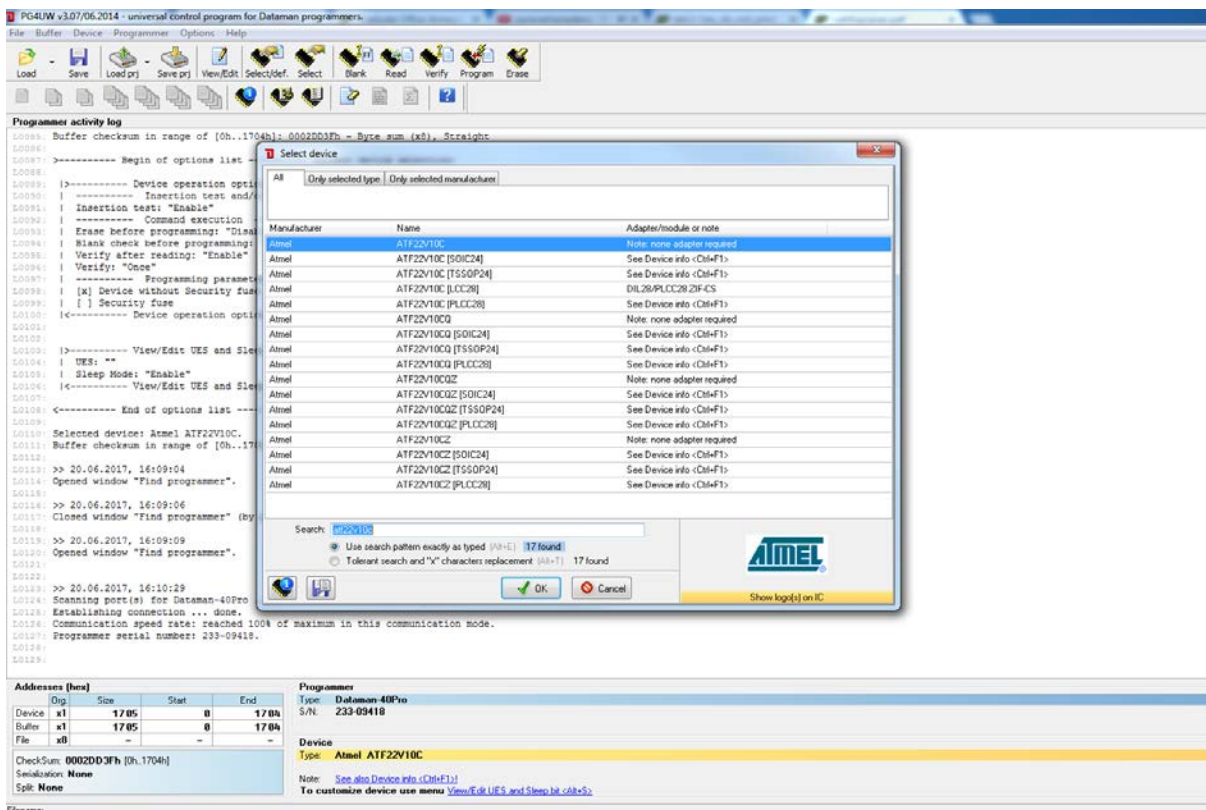
### 2. Select Programmer “Programmer → Find Programmer → Dataman-40Pro → Connect”



### 3. "Select Device" – the second one

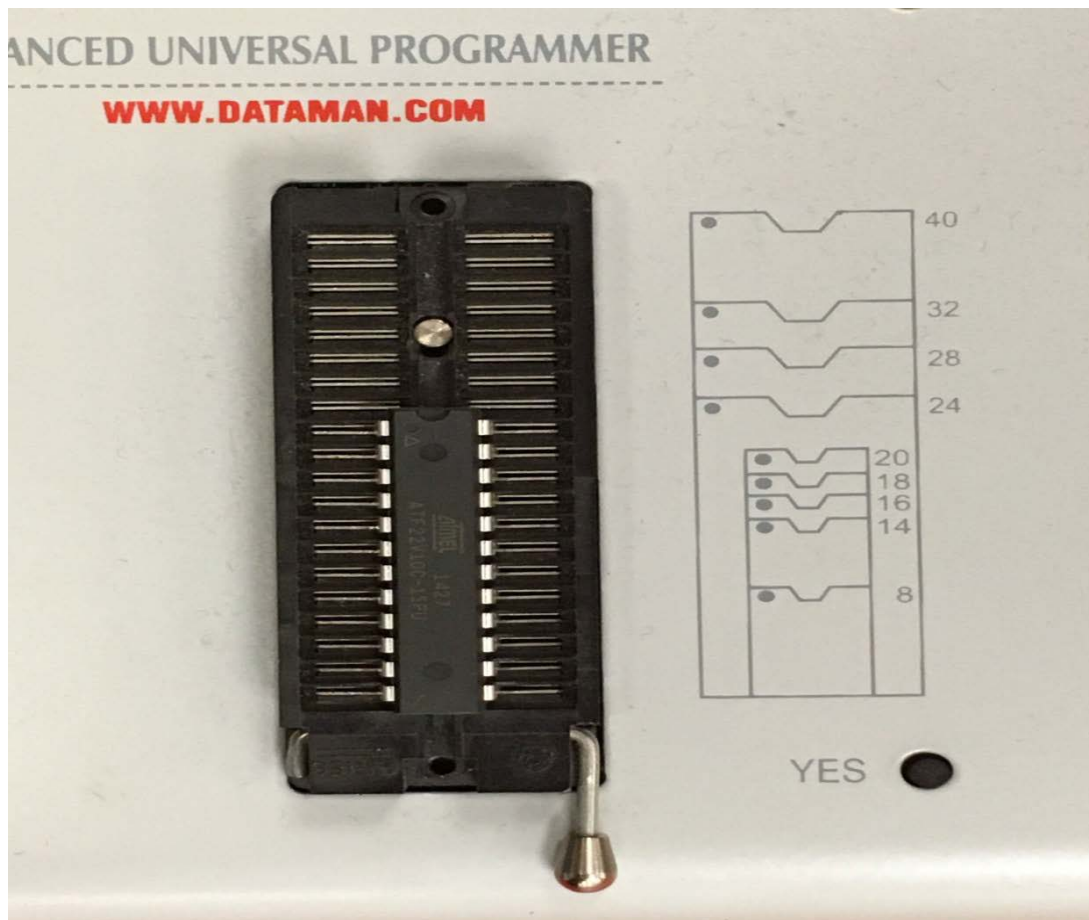


### 4. Type in "atf22v10c" in the Search bar and select the one with "none adapter required"

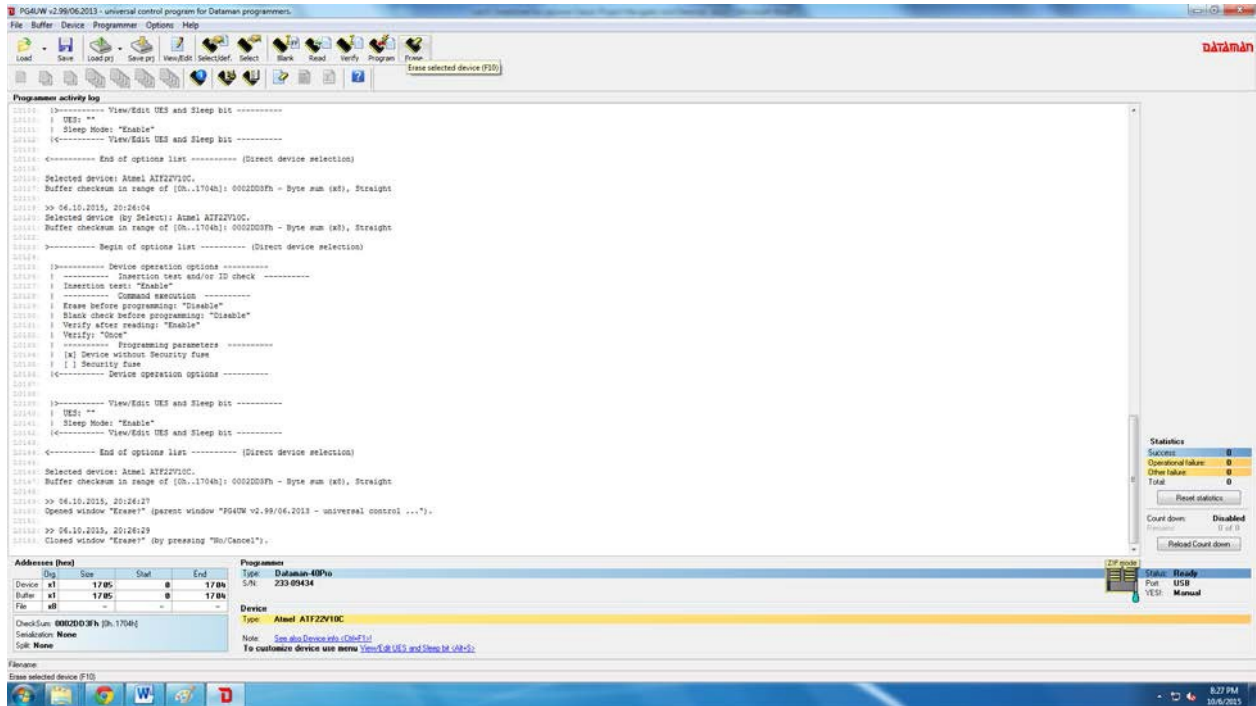


5. BE VERY CAREFUL COMPLETING THIS STEP: *Make sure you select the actual device that you have (in your parts kit) and place it carefully in the DATAMAN programmer socket – also, be very careful to avoid static discharge when handling your chip.*

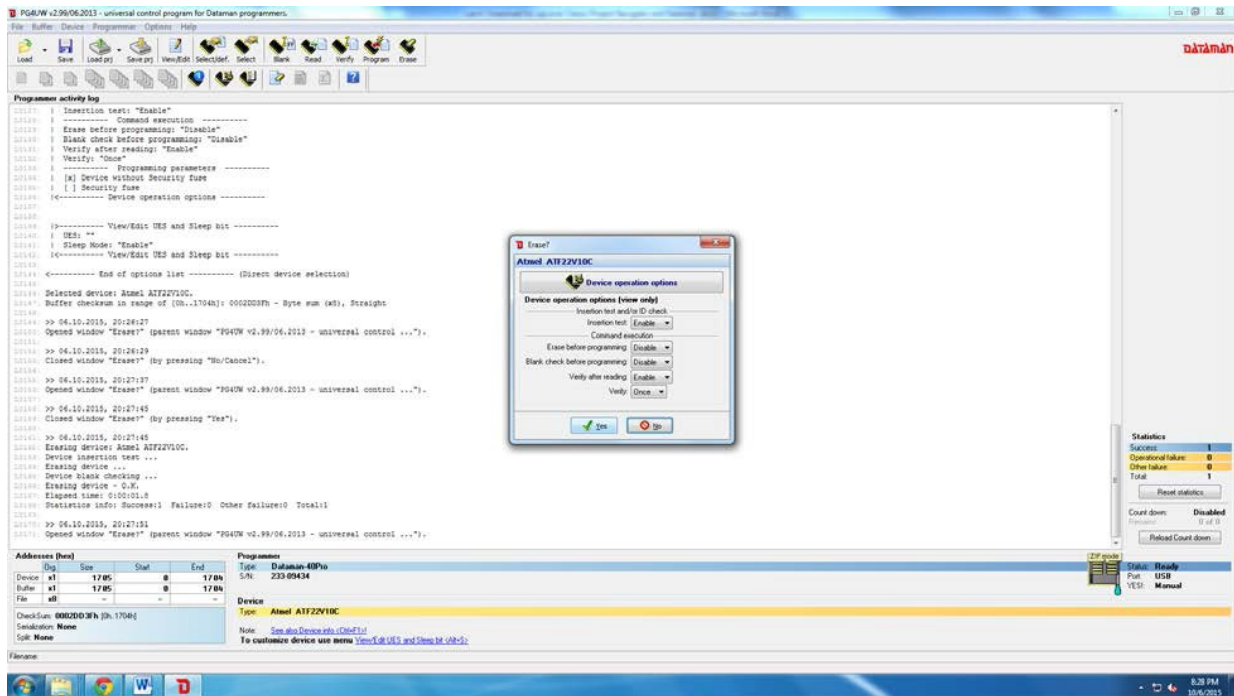
Part name to select – ATF22V10C-15PU (*NOTE: You may have a different part in your kit*)  
Click “OK”



## 6. Click on "Erase" first

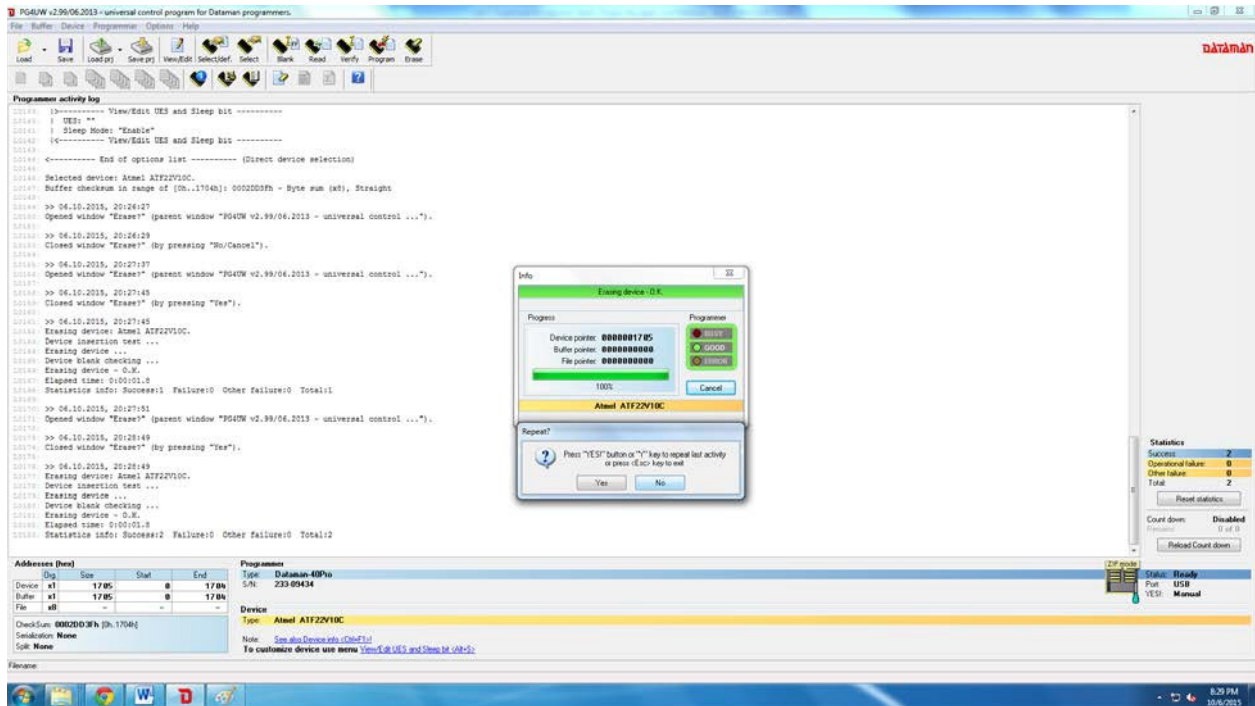


## 7. Click on "Yes"

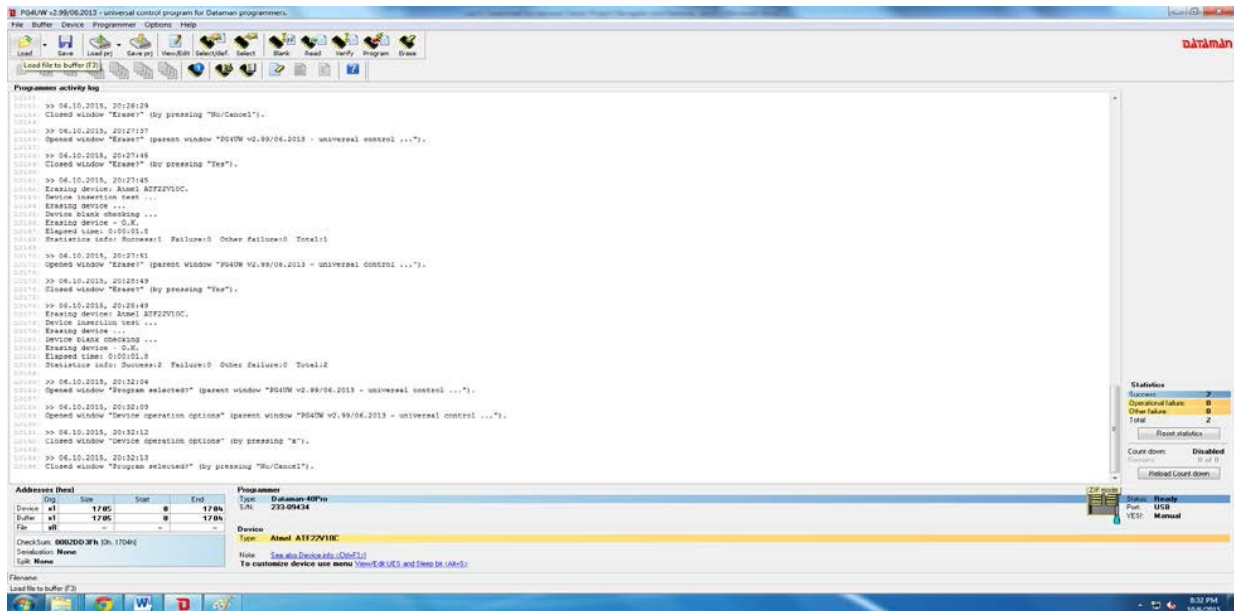




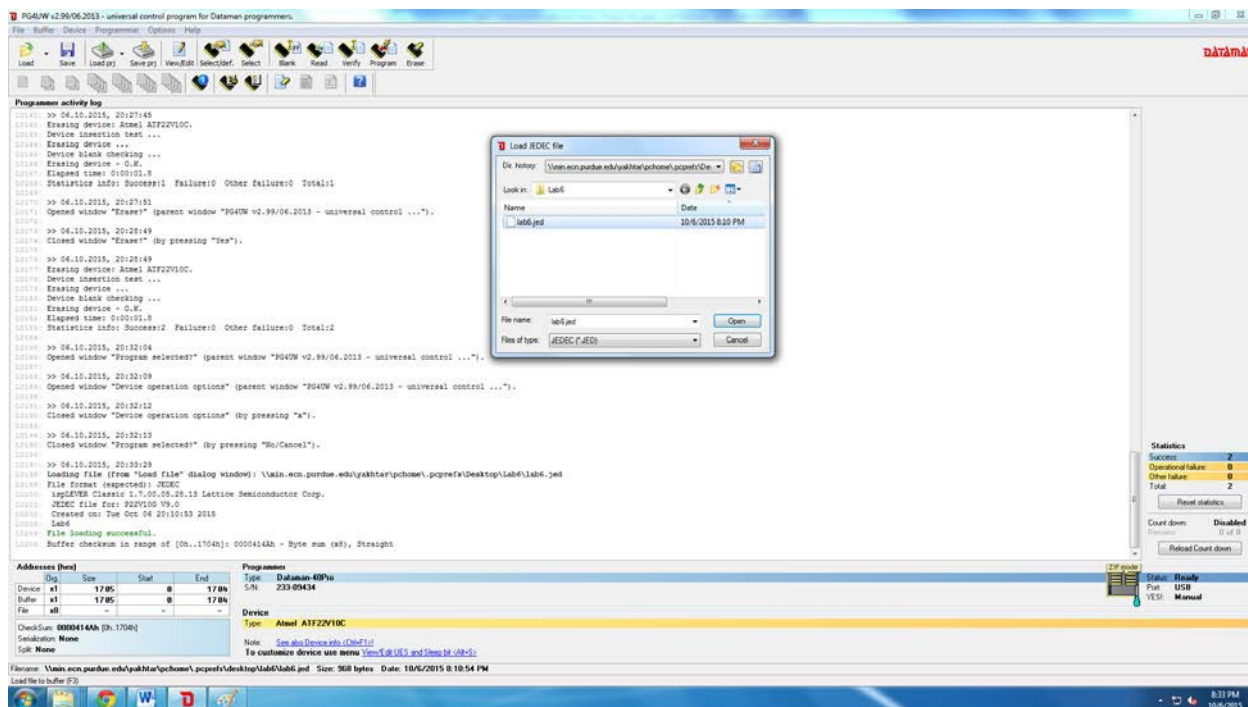
- You should see "OK" status and green "GOOD" light on Dataman Programmer Device. After that click on NO (no need to repeat it again).



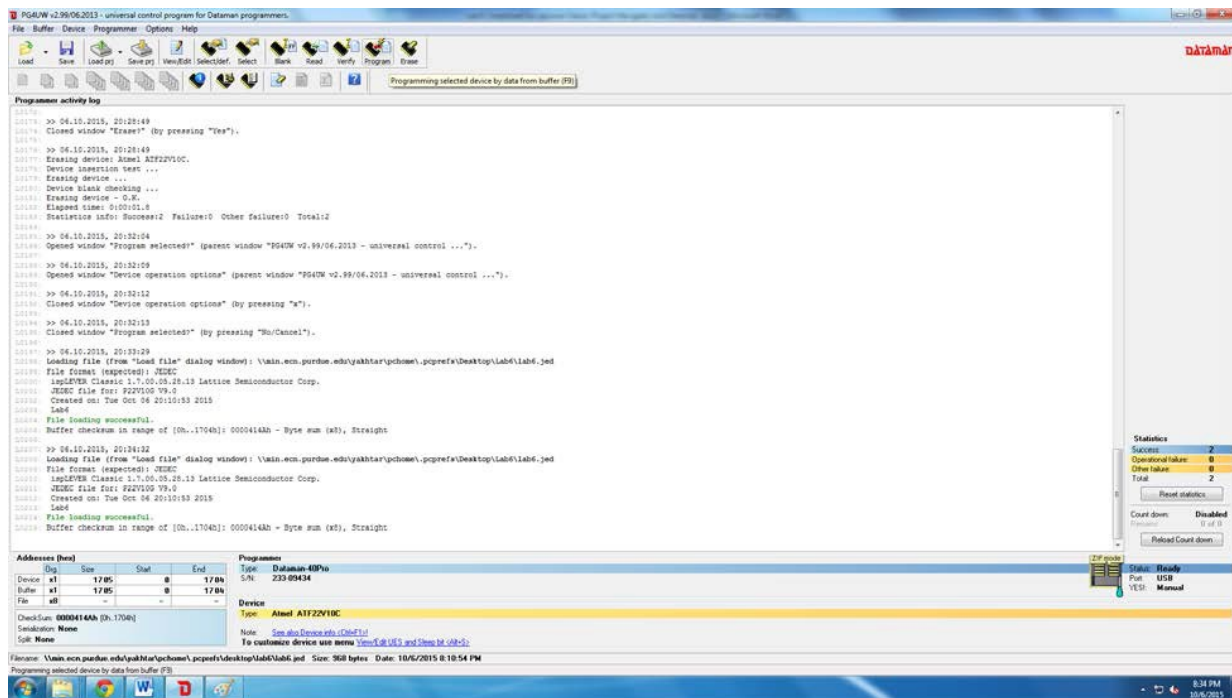
- Now we have erased the old program on the GAL22V10C device. Now we need to program the new JED file that we have created onto it...but first we need to load the new JED file. Click on "LOAD"



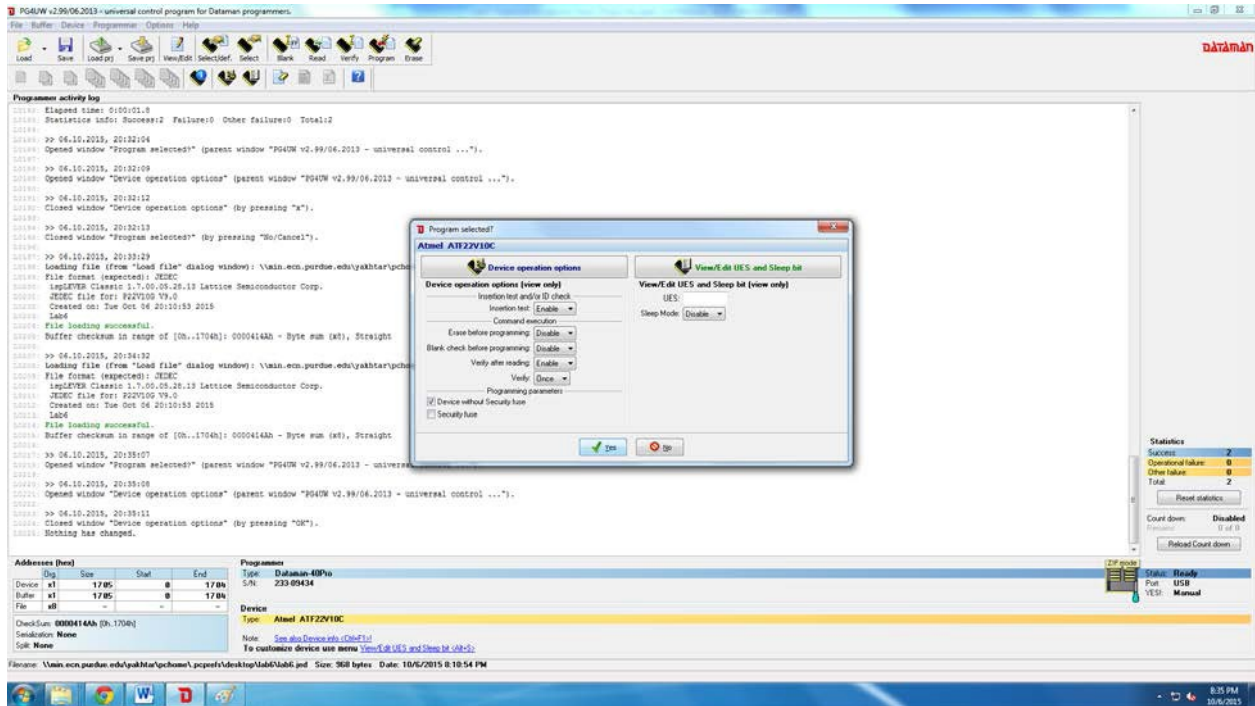
10. Select the new "lab6.jed" file you created using ispLever. Click "OK"



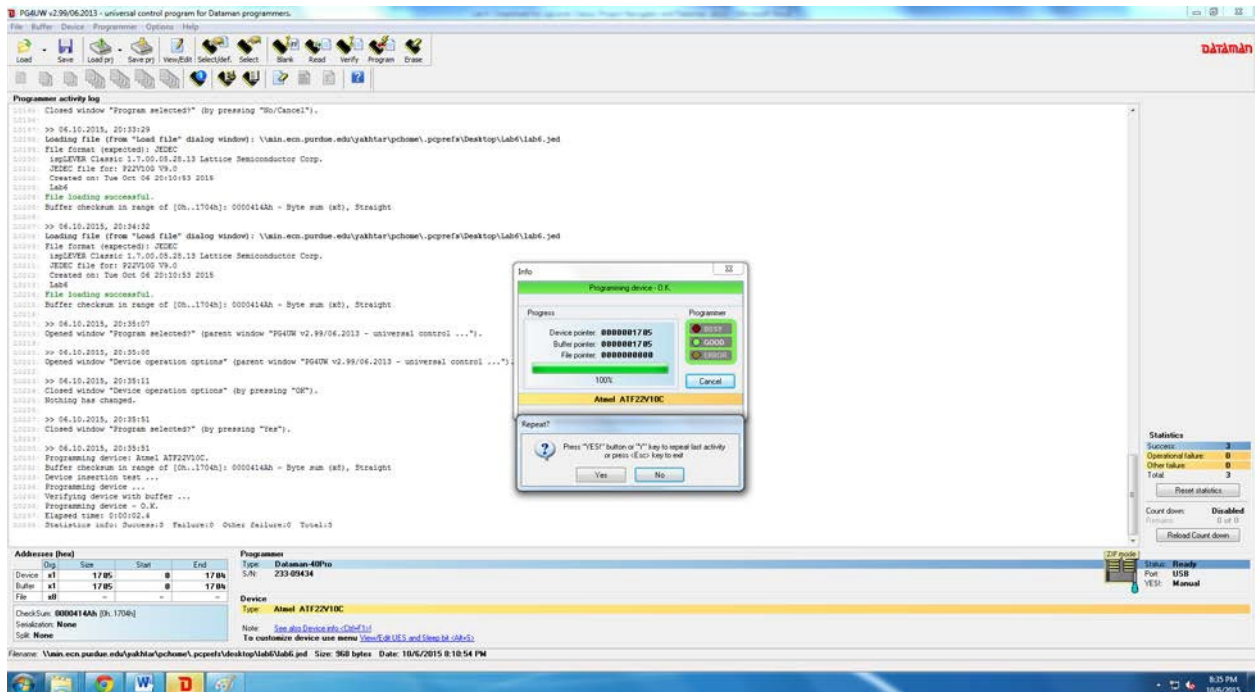
11. Now select "PROGRAM"



## 12. Click "YES"



13. Again you should see "OK" status and green "GOOD" light on the Dataman Programmer Device. After that click on "NO" (no need to repeat it again).



**YOUR GAL DEVICE IS PROGRAMMED NOW AND YOU NEED TO CONNECT THE INPUT PINS AND OUTPUT PINS CORRECTLY ON THE BREADBOARD.**