



Dymin_FPGA_Main.vi

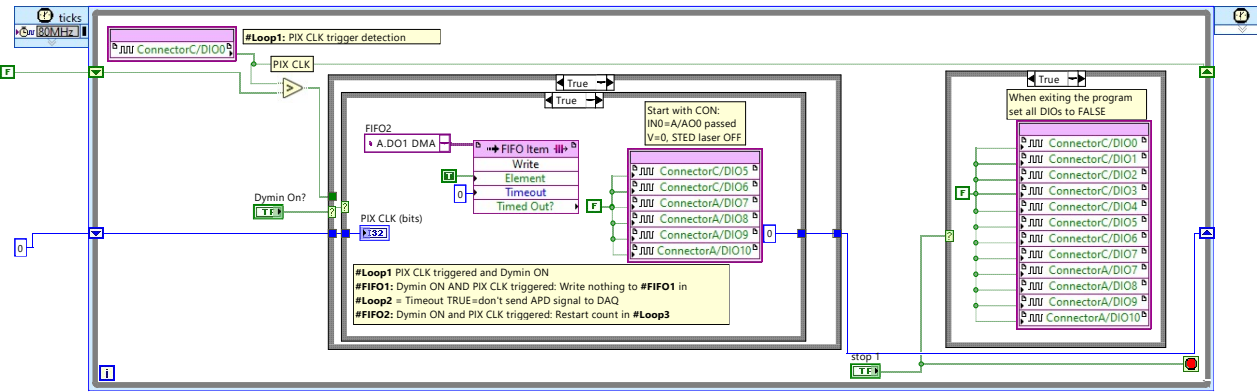
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to do:
clean up diagram
add comments
Remove EXC trigger entirely

#Loop1: LOOP DETECTING PIXEL CLOCK TO TRIGGER START OF COUNTING



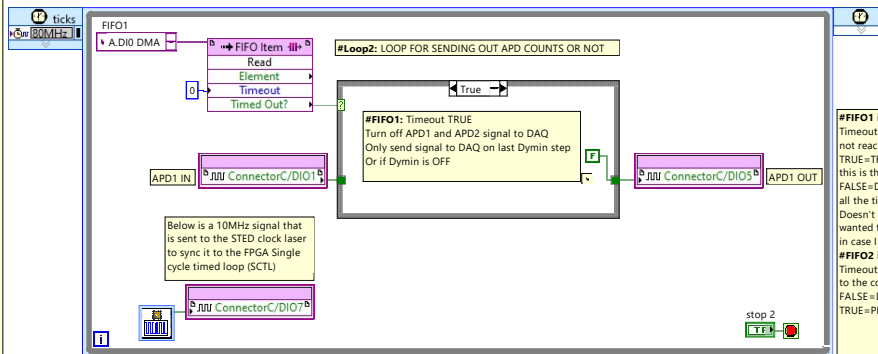
Multiplexer inputs from FPGA DIOs:
A0=DIO7
A1=DIO8
CK=CKBAR=DIO9=0 always
CS=DIO10=0 (unless High Z desired)

Multiplexer digital input names and truth table:
CS A1 A0 CK1 CK2 -> Output
00000 -> IN1 = A/AO0
01000 -> IN1 = C/AO0
01000 -> IN2 = C/AO1
01100 -> IN3 = A/AO1
1XXXX -> High-Z, X means anything

Other FPGA DIOs
Connector C is side screw terminal connectors
Digital Inputs
C/DIO0=pixel clock IN
C/DIO1=APD1 IN
C/DIO2=APD2 IN
Digital Outputs
C/DIO5=APD1 OUT
C/DIO6=APD2 OUT
C/DIO7=10MHz OUT (to sync with STED clock)

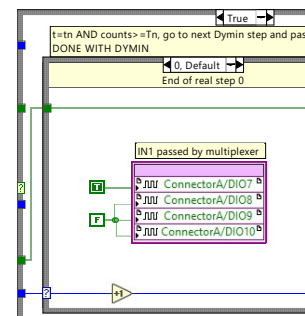
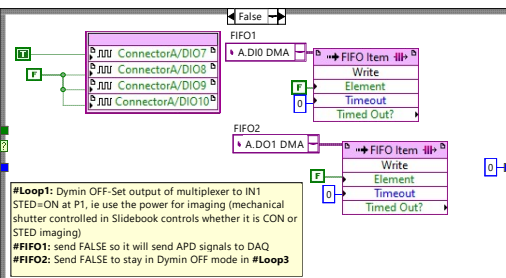
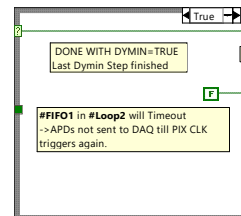
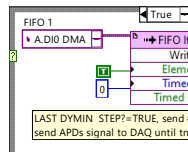
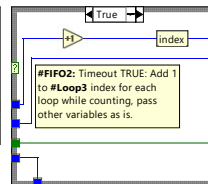
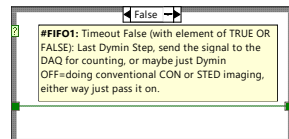
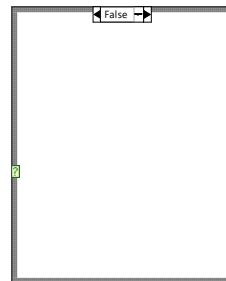
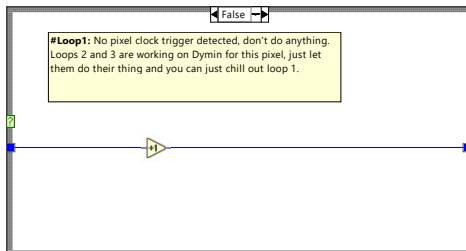
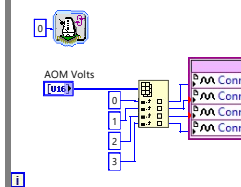
See datasheets for myRio-1900 and for the Multiplexer and EVAL board to find the locations of these inputs and outputs on the FPGA and Eval board.

Before last Dymin step:
Keep APD's from sending signal to DAQ (APD's OFF)
During last Dymin step:
-APD's ON (ie sending signal to DAQ)
After last Dymin step:
-Shut off APD's and EXC trigger

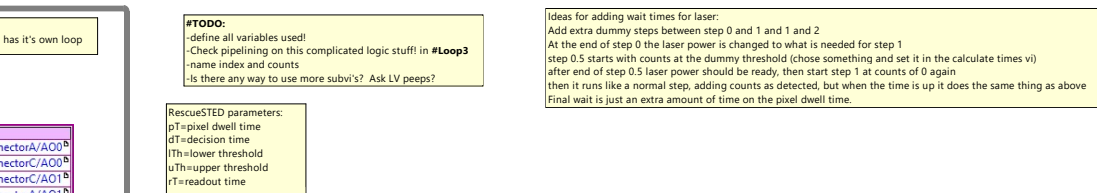


#FIFO1 is read in #Loop2
Timeout: Threshold not reached yet, or threshold not reached in time, abort Dymin, keep APD's off
TRUE=Threshold reached in time on last step and this is the final step, let the counts go to Slidebook
FALSE=Dymin OFF, just let counts go to Slidebook all the time
Doesn't matter which is selected for now, but I wanted to make sure which state I was in is available in case I need to include it in my code someday.
#FIFO2 is read in #Loop3
Timeout: True Keep running Dymin Loop 3, adding to the counts and running through the steps
FALSE=Dymin OFF
TRUE=PIX CLK triggered

#Loop4: LOOP FOR CHANGING AO VALUES
Can't be inside of Single cycle times loop so it



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stop 4

Below: Pass IN0 to multiplexer

Is LAST DYMIN STEP? to

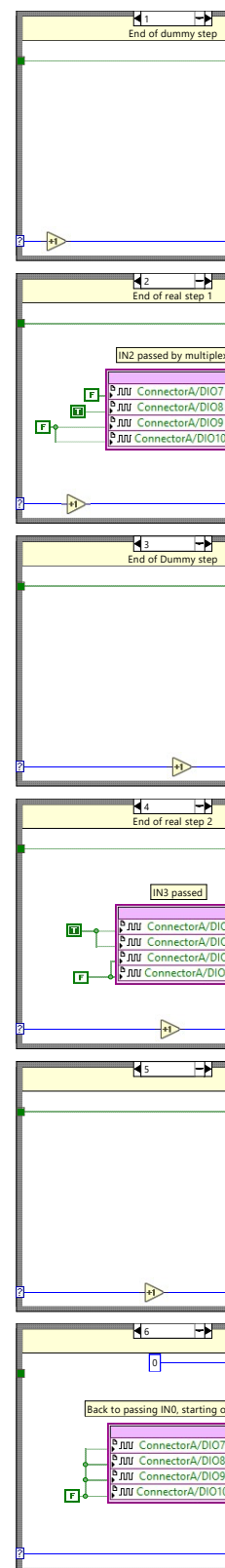


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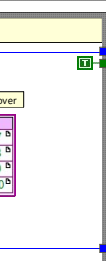
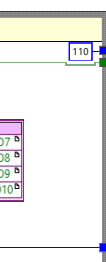
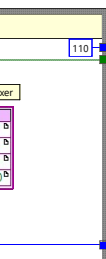


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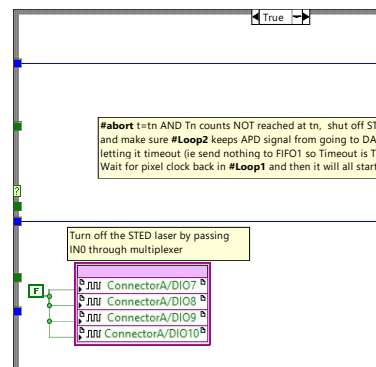


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