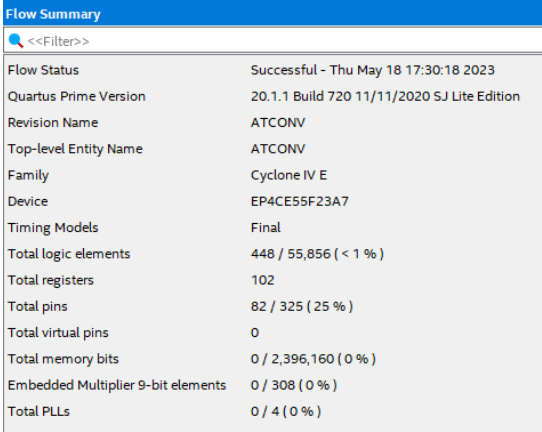


## 2023 Digital IC Design Homework 4

NAME	江坤諦		
Student ID	N16100242		
<b>Simulation Result</b>			
Functional simulation	100	Gate-level simulation	100
<pre> #----- SUMMARY ----- # Congratulations! Layer 0 data have been generated successfully! The result is PASS!! # Congratulations! Layer 1 data have been generated successfully! The result is PASS!! # terminate at      50184 cycle #----- # ** Note: cfinish      : C:/Users/Baron/Desktop/dic-2023/HW4/file/testfixture.v(178) # Time: 2509207454 ps  Iteration: 0  Instance: /testfixture # </pre>		<pre> #----- SUMMARY ----- # Congratulations! Layer 0 data have been generated successfully! The result is PASS!! # Congratulations! Layer 1 data have been generated successfully! The result is PASS!! # terminate at      50185 cycle #----- # ** Note: cfinish      : testfixture.v(178) # Time: 2509250 ns   Iteration: 0  Instance: /testfixture # </pre>	
<b>Synthesis Result</b>			
Total logic elements	448		
Total memory bits	0		
Embedded multiplier 9-bit elements	0		
Total cycle used	50184		
			
<b>Description of your design</b>			
<p>In my design, the difficult point is about `iaddr` signal control, I give several boundary conditions to decide the padding algorithm. In the convolution procedure, according to the homework description, construct a 2's complement method case by case to calculate the convolution layer kernel.</p> <p>Next, another two stage “RDANDMAXPOOL” and “CEILANDSTR1” handle the reading operation from layer 0 memory and do the max-pooling operation and store</p>			

to layer 1 memory. Finally, when layer 1 memory is filled with value (use counter), “DONE” stage is active and pull down the “busy” signal to let testbench test the results.

Note: <https://hackmd.io/@chiangkd/dic-2023-hw4>

*Scoring = (Total logic elements + Total memory bits + 9\*Embedded multipliers 9-bit elements) X Total cycle used*

**\* Total logic elements must not exceed 1000.**

Total logic elements	448
Total memory bits	0
Embedded multipliers 9-bit elements	0
Total cycle used	50184
<b>Scoring</b>	<b>22482432</b>