Homework #2.

010.133 Digital Computer Concept and Practice

Due Date: 11:59PM, April 10, 2013

1. Make a circuit of 4-bit binary counter using logisim. Your circuit should follow the following restrictions.
   - Multiplexer should be built with tristate buffers(controlled buffer)
   - You may use the built-in D Flip-Flops
   - Half-adder should be built with logic gates.
   - There should be 4 input pins(inc, load, clock, i0~i3) and 1 output pin(o0~o3)
   - Hierarchical tree should look like **Figure1**

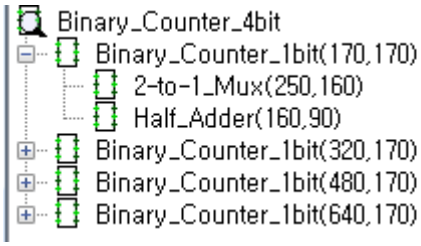

Figure 1

2. Using 2 4-bit binary counters, make a 8-bit binary counter. Your circuit should follow the following restrictions.
   - You can use built-in 4-bit binary counter of logisim, or you can use the circuit of your own.
   - There should be 4 input pins(inc, load, clock, i0~i7) and 1 output pin(o0~o7)

3. Submit a report for your circuit. Your report should include the followings.
   - Submit a full log of your 4-bit binary counter. Your log should show the counting operation and the operation of load input.
   - Justify that your 8-bit binary counter works correctly.

Submission

① The logisim circuit file name should be "HW#2_StudentID_NAME.circ"
② The report file name should be "HW#2_StudentID_NAME.pdf"
③ It's ok to transform from .docx or .hwp to .pdf
④ Send email to TA(dccpta@aces.snu.ac.kr) with attached files.