4COM2003.circ-T03L1e11

Build a circuit that has two 8-bit two's complement numbers U and W as its inputs and a single 8-bit output Z, such that
$Z = 2U + W$ when $U < W$
and $Z = U + W$ otherwise.

You are not allowed to use the Arithmetic and Plexers libraries; however, an 8-bit adder, incrementer and multiplexer, implemented via gates, are provided on the design board for your convenience. Feel free to use them, or build your own if you prefer.

How to submit your work

Do not move any of the input and output pins, since Logisim connects the test circuit to them based on their position rather than name (which is quite unfortunate, but cannot be helped)

Test the circuit by pressing on input pins with the hand control and recording your observations. When you are certain that the circuit works, reply to this message with the circuit file of your solution (and only the circuit file of your solution) in attachment. Do not change the subject line; make sure that the ticket number in it (i.e. the part that begins with **) is intact.