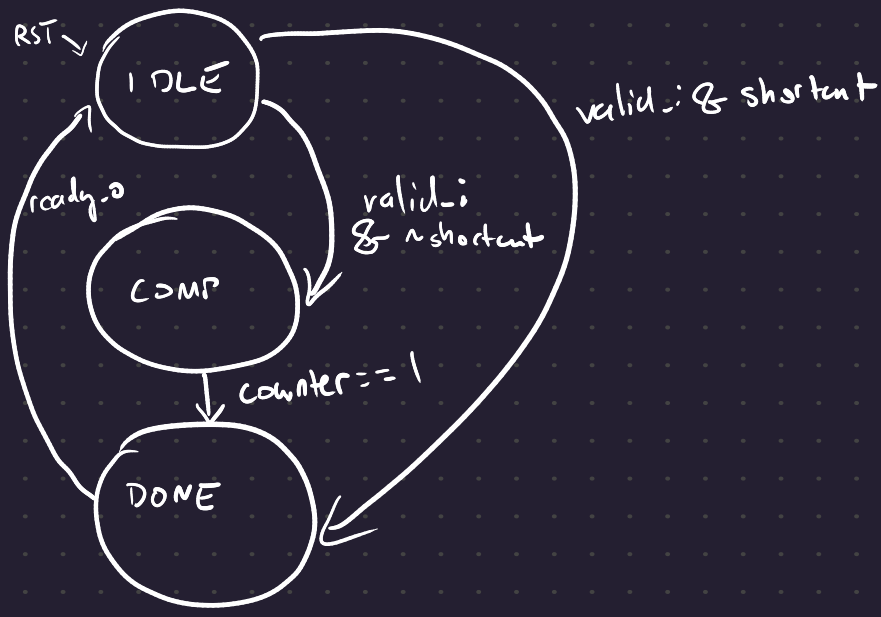
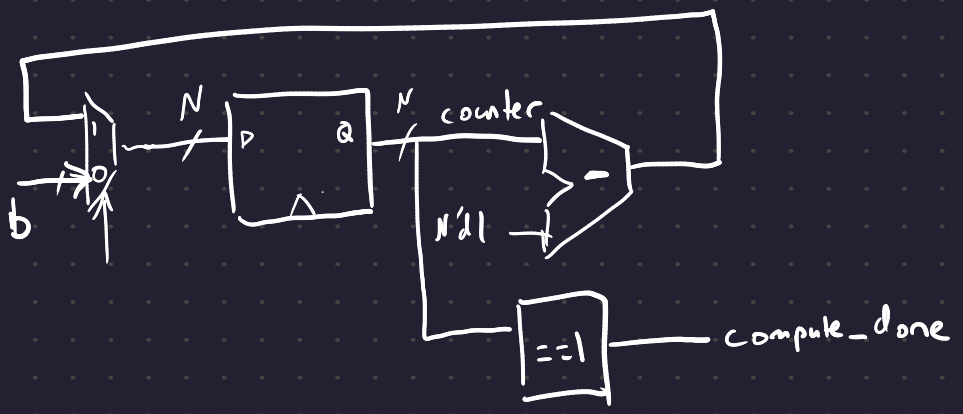
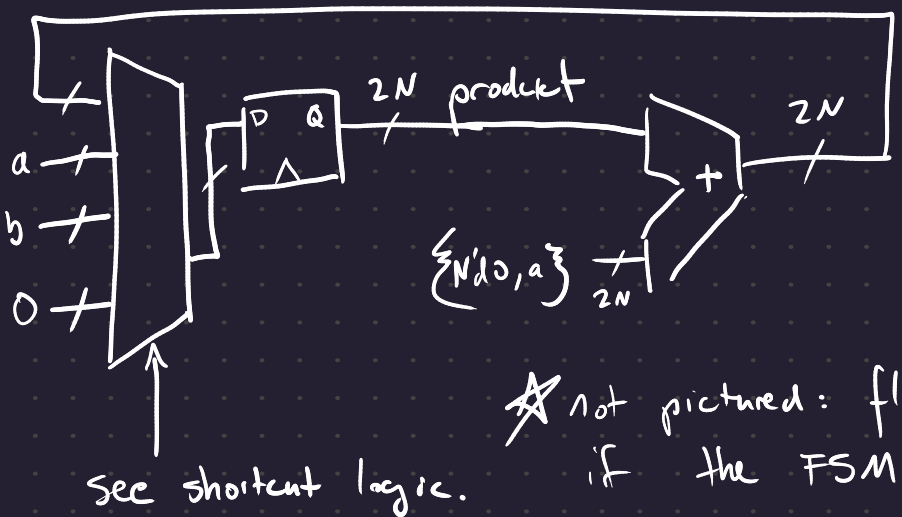
Multiplier FSM







see shortcut logic.

☆ not pictured: flops are only enabled if the FSM requires it.

Approach: add a to itself b-times.

At start of compute, initialize a COUNTER to b, and an ACCUMULATOR to a.

Each cycle, increment the Accumulator by a, and decrement COUNTER.

After B cycles, assert that the result is valid!

Wait till Main asserts ready_o to go back to IDLE.

Optimization of Special Cases

if a == 0, or b == 0, result is zero.

if a == 1, result is b and vice versa.

clever muxing can save states!