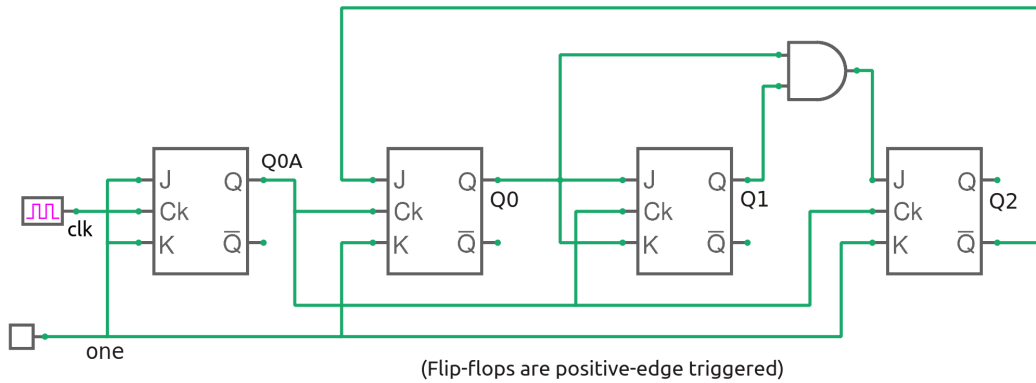


ee101_counter_7.sqproj



We are interested in the sequence produced by the synchronous counter shown in the figure, starting with the initial state $Q_2Q_1Q_0Q_{0A} = 0000$.

Exercise Set

1. Sketch the waveforms for Q_{0A} , Q_0 , Q_1 , Q_2 . Use the fact that the counter is in fact a combination of two counters: (a) a divide-by-2 counter (with output Q_{0A}) and (b) a three-bit counter ($Q_2Q_1Q_0$) for which the counting sequence has already been worked out in ee101_counter_6.sqproj.

Note that the output of the divide-by-2 counter serves as the clock for the three-bit counter.

2. Verify your results with simulation.