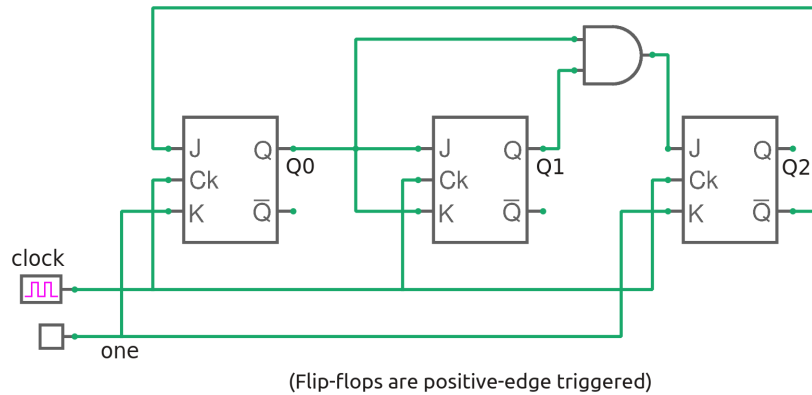


# ee101\_counter\_6.sqproj



We are interested in the sequence produced by the synchronous counter shown in the figure, starting with the initial state  $Q_2Q_1Q_0 = 000$ . For this purpose, we can prepare a table in the following format:

clock	$Q_0$	$Q_1$	$Q_2$	$J_0$	$K_0$	$J_1$	$K_1$	$J_2$	$K_2$	$Q_0^{\text{next}}$	$Q_1^{\text{next}}$	$Q_2^{\text{next}}$
1												
2												
3												
4												
5												
6												

Note that  $Q_0^{\text{next}}$ ,  $Q_1^{\text{next}}$ ,  $Q_2^{\text{next}}$  of the first row will be  $Q_0$ ,  $Q_1$ ,  $Q_2$ , respectively, of the second row, and so on. When the table is completed, we know the counter sequence and also its modulo number.

## Exercise Set

1. Work out the counter sequence.
2. Verify your sequence with simulation.