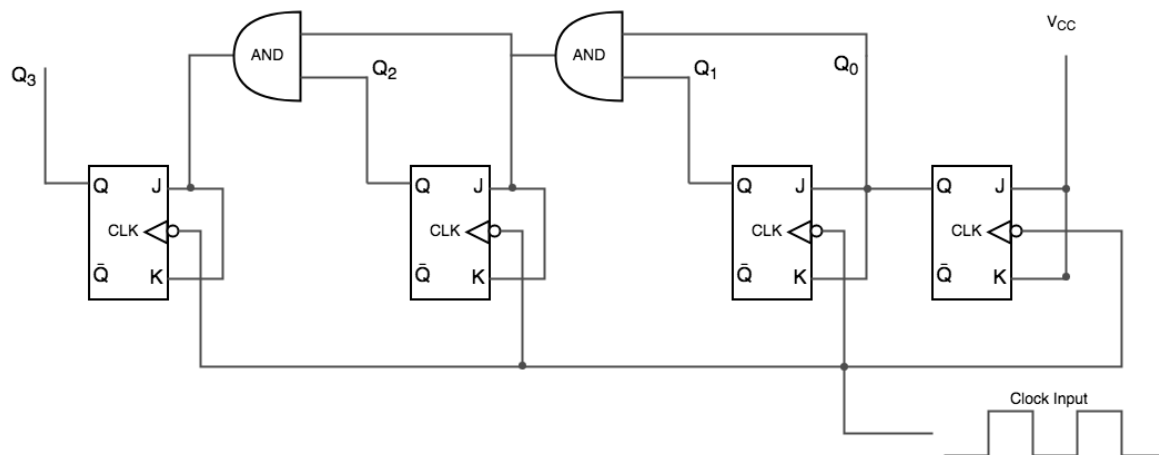
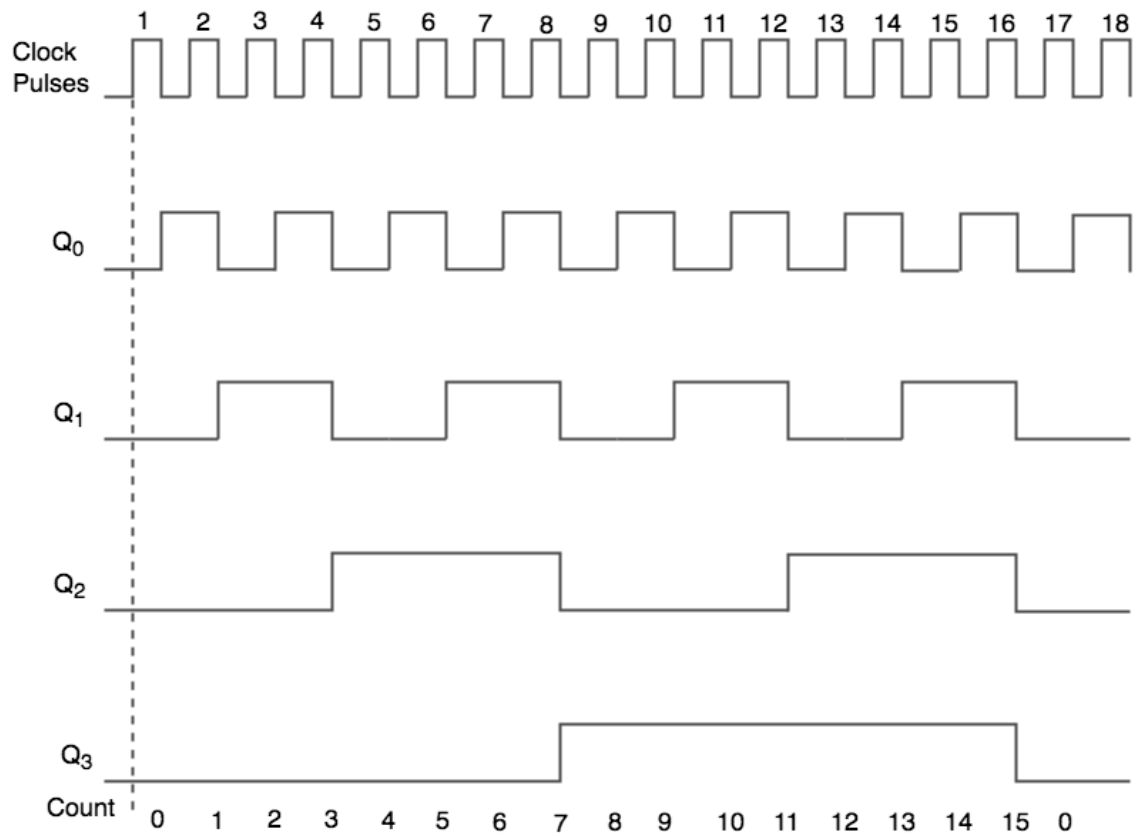


Synchronous Counter

Unlike the asynchronous counter, synchronous counter has one global clock which drives each flip flop so output changes in parallel. The one advantage of synchronous counter over asynchronous counter is, it can operate on higher frequency than asynchronous counter as it does not have cumulative delay because of same clock is given to each flip flop. It is also called as parallel counter.



Synchronous counter circuit



Timing diagram synchronous counter

From circuit diagram we see that Q₀ bit gives response to each falling edge of clock while Q₁ is dependent on Q₀, Q₂ is dependent on Q₁ and Q₀, Q₃ is dependent on Q₂, Q₁ and Q₀.