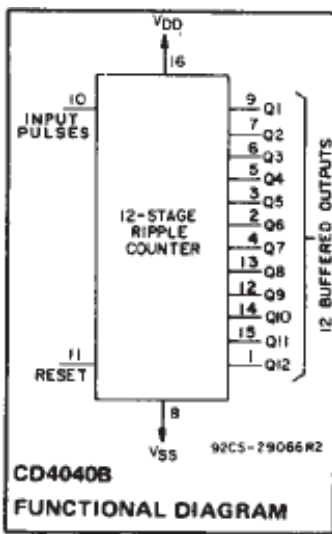


# Binary Counter

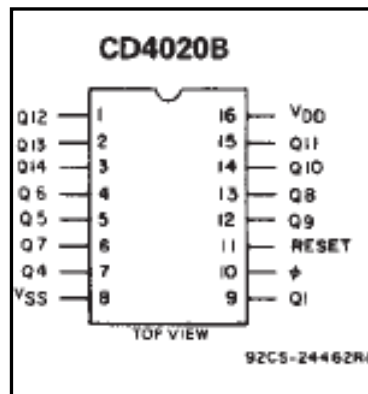
In digital logic and computing, a counter is a device which stores (and sometimes displays) the number of times a particular event or process has occurred, often in relationship to a clock signal. In practice, there are two types of counters:

- Up counters, which increase in value
- Down counters, which decrease in value

Types of Binary Counter include:  
A Synchronous Binary Counter  
and Binary Integrated Circuit.

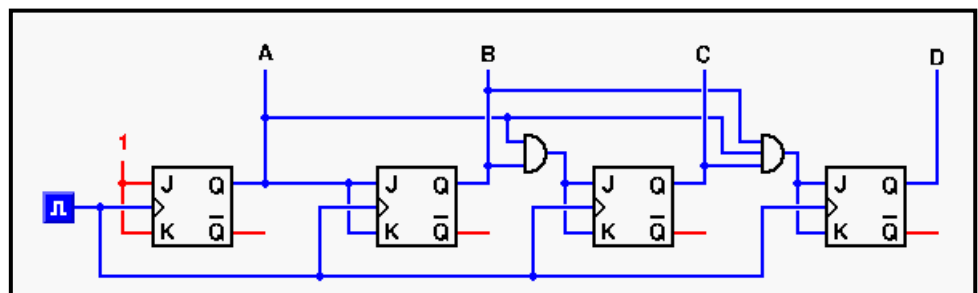


*Binary Integrated Circuit (- 7 Stage Binary Ripple Counter)*



*Synchronous Binary Counter*

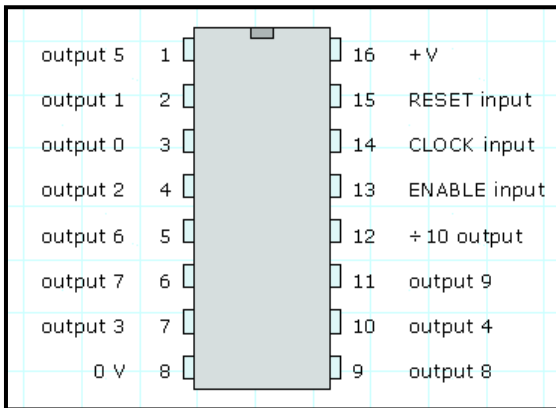
With Synchronous Counters, the external clock signal is connected to the clock input of EVERY individual flip-flop within the counter so that all of the flip-flops are clocked together simultaneously (in parallel) at the same time giving a fixed time relationship.



# Decade Counter

A decade counter is one that counts in decimal digits, rather than binary. A decimal counter may have each digit binary encoded (that is, it may count in binary-coded decimal, as the 7490 integrated circuit did) or other binary encodings. Alternatively, it may have a "fully decoded" or one-hot output code in which each output goes high in turn; the 4017 was such a circuit.

The 4017 decade counter is a highly versatile device. It counts positive going edges on the 'clock' input and stores the result. The value of the stored count is presented at the 'decoded' outputs O0-O9. The outputs are normally low except for the output that corresponds to the stored count.



On the tenth count, 12 changes from low to high and the counter resets to 0. 12 provides a facility for counting larger numbers; it should be connected to the clock input of the next stage (or digit).

