

Date: 23/2/21

EXP NO: 5

Aim: Design a mod 8 asynchronous UP/down counter with a control line (to control the up or down count).

Material required:

1 - JK flip flops

2 - AND Gate

3 - NOT gate

4 - OR gate

Theory :

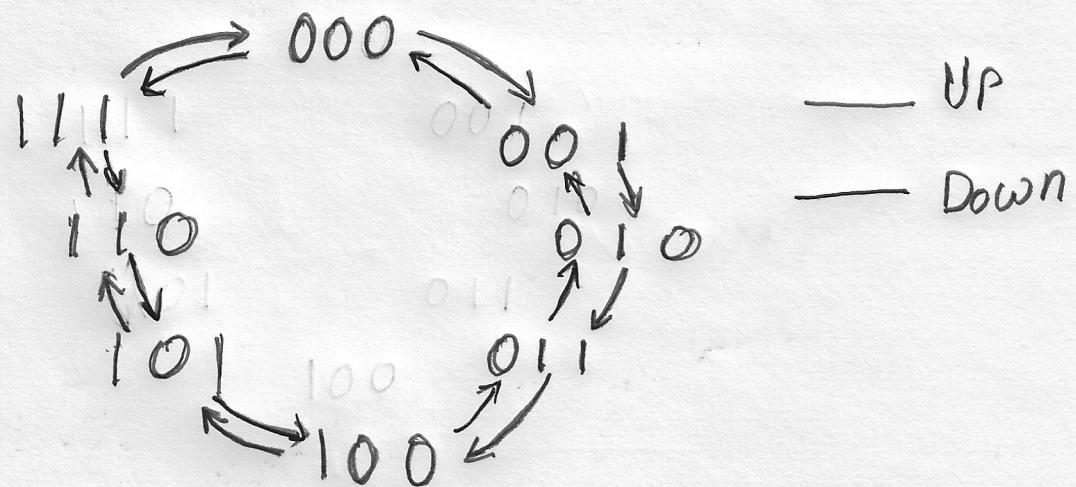
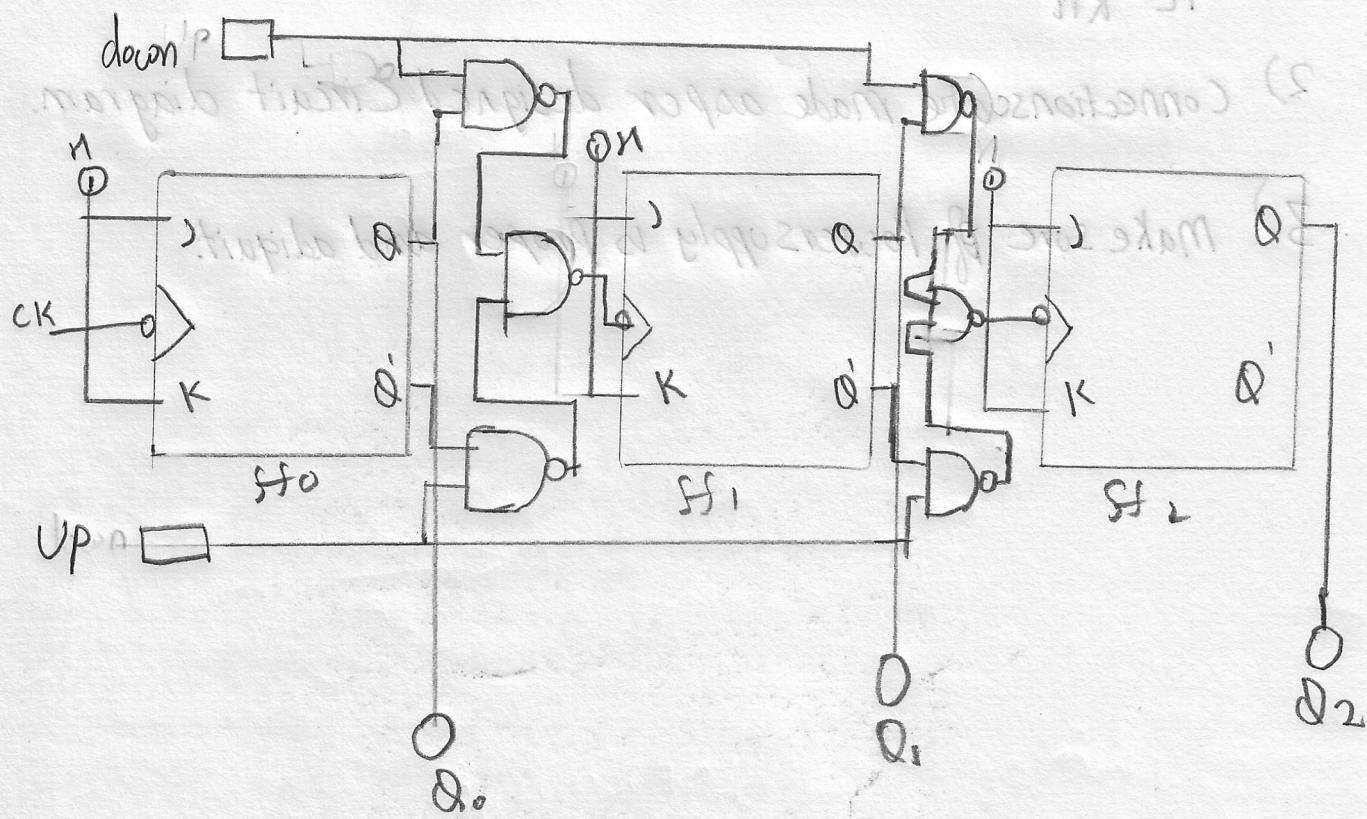
UP counter & down counter are combined together to obtain an UP/down counter. A mode control (m) input is also provided to select either up or down counter mode. A combinational circuit is required to be designed and used between each pair of flip flop in order to achieve the UP/down operation.

Updown

UP counting:

If the UP input & down inputs are 1 & 0 respectively, then the NAND gates b/n first flip flop & third flip flop will pass the non inverted output of FF 0 to the clock input of FF 1, similarly & output of FF 1 will pass to the clock input of FF 2. Thus the up/down counter performs

The up/down counter is slower than both up & down counter because the addition propagation delay will added to the Nand NAND gate network.



Practical Procedure:

- 1) IC's are placed properly on breadboard of IC kit
- 2) Connections are made as per designed circuit diagram.
- 3) Make sure of Powersupply is proper and adiquit.

Observations and conclusions:

1. The asynchronous counter we don't use universal clock, only first flip flop is driven by main clock and the clock input of rest of the following flip flop is driven by output of previous flip flops.
2. 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. Counter are used in digital electronics for counting purpose, they can count specific event happening in the circuit.
3. This counter is slow with respect to both upcounter and down counter

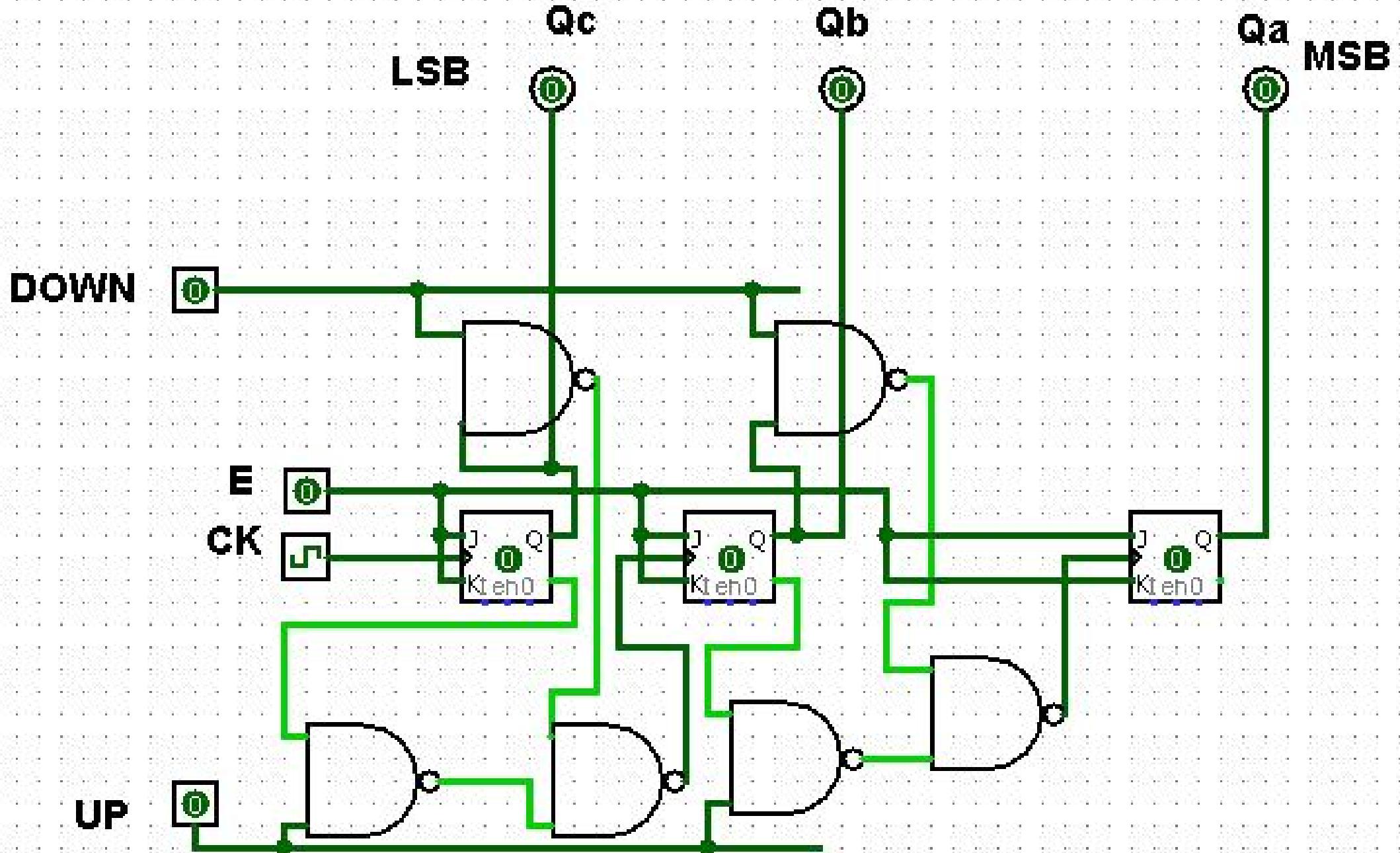
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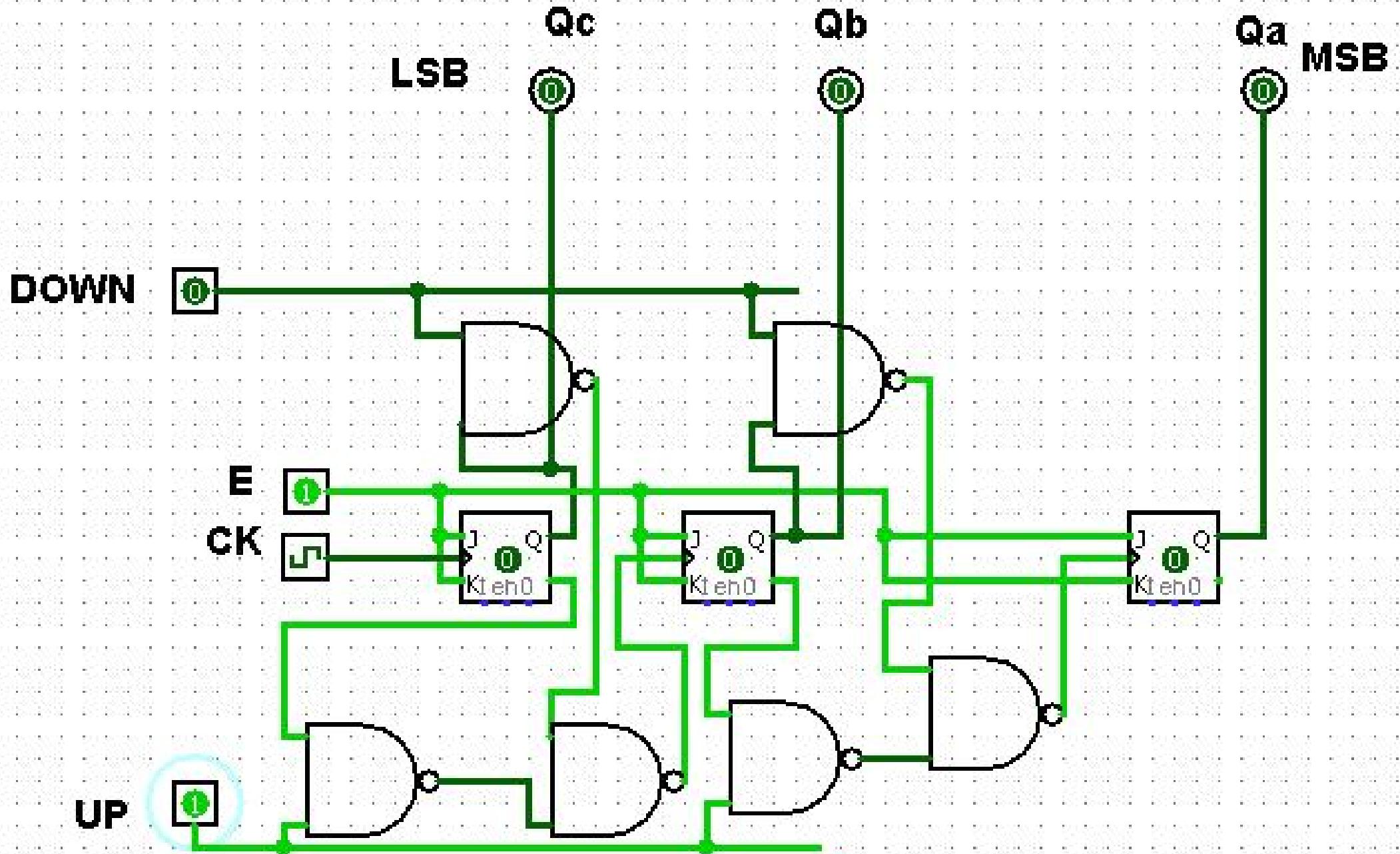
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Sign:

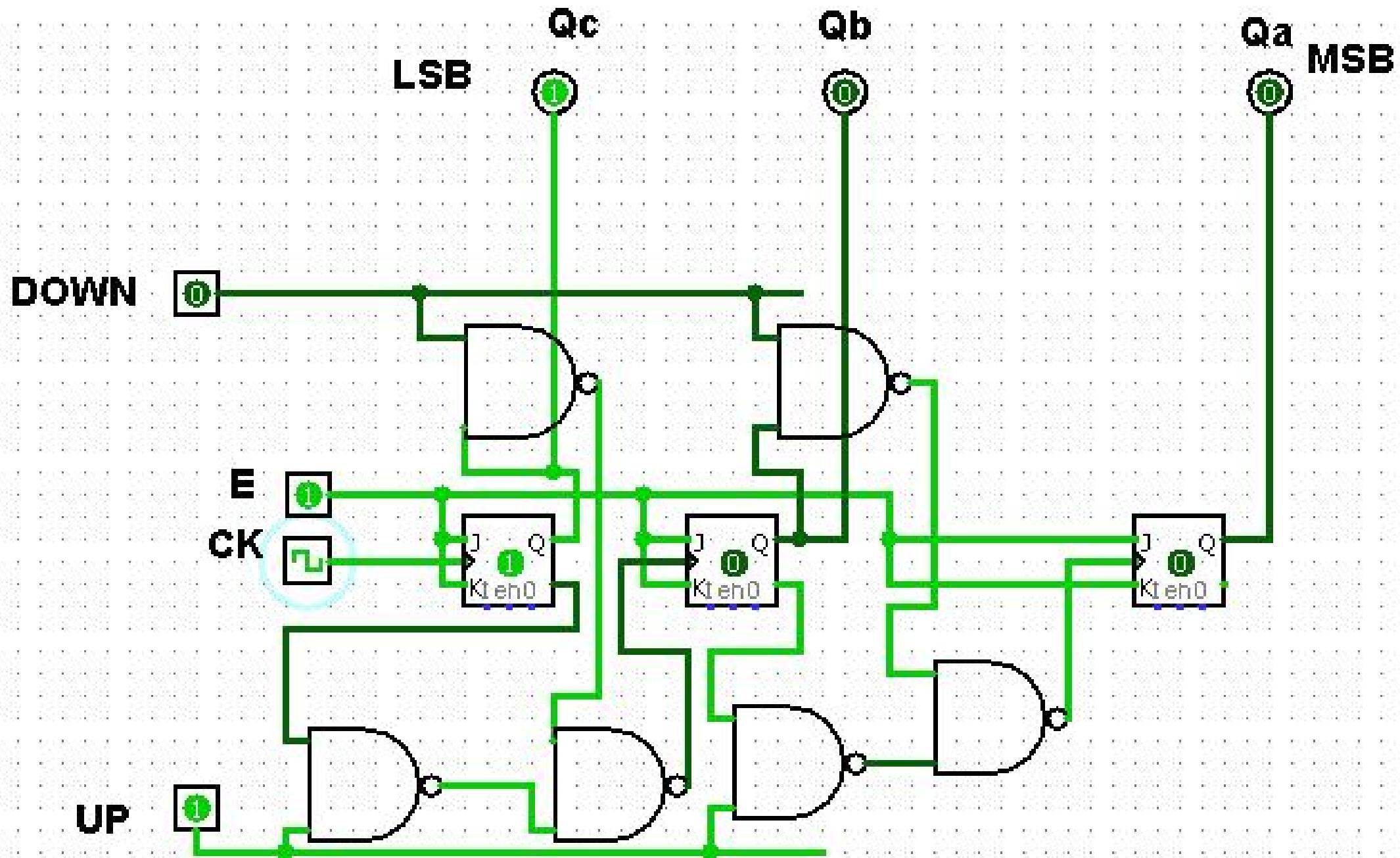
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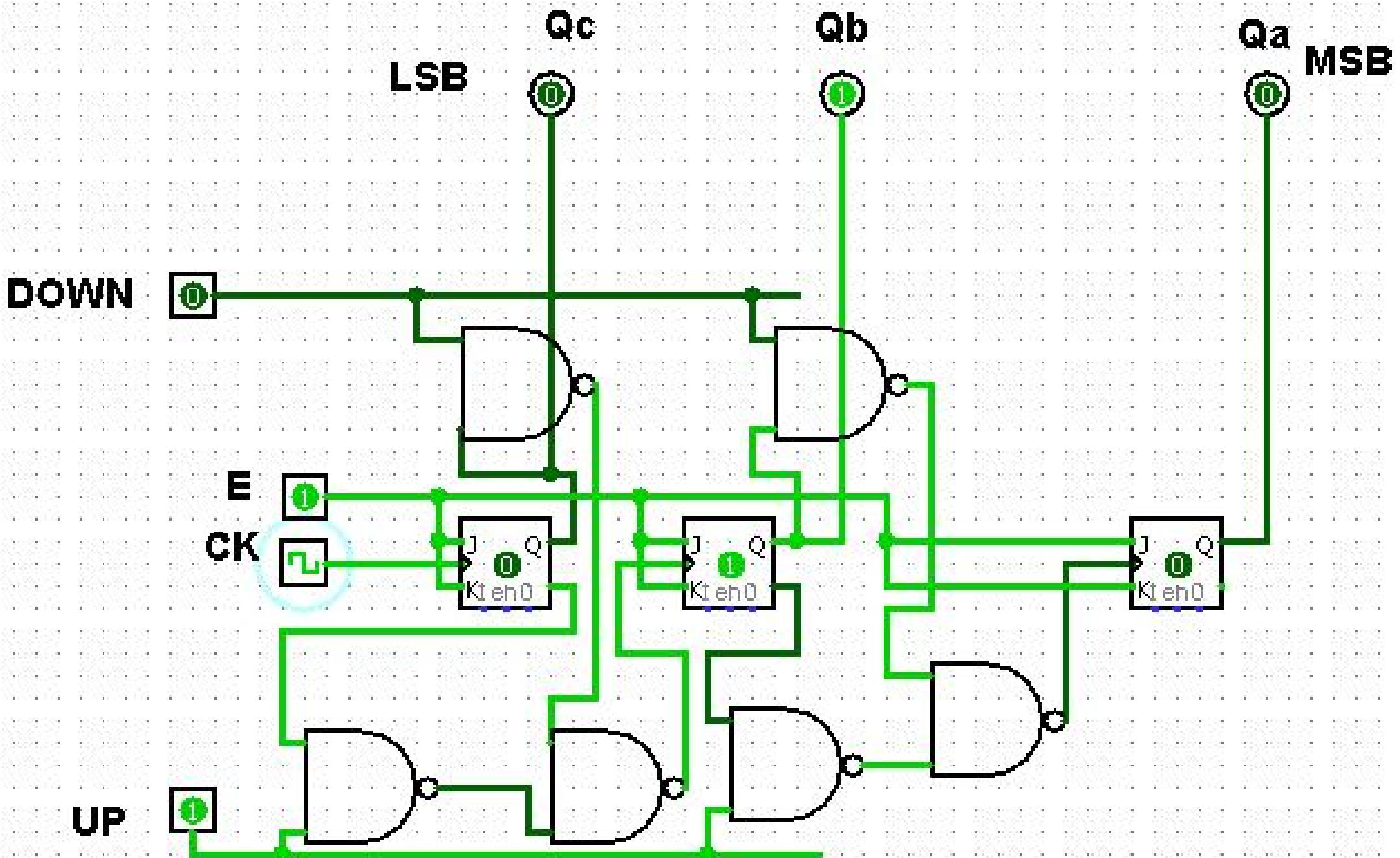
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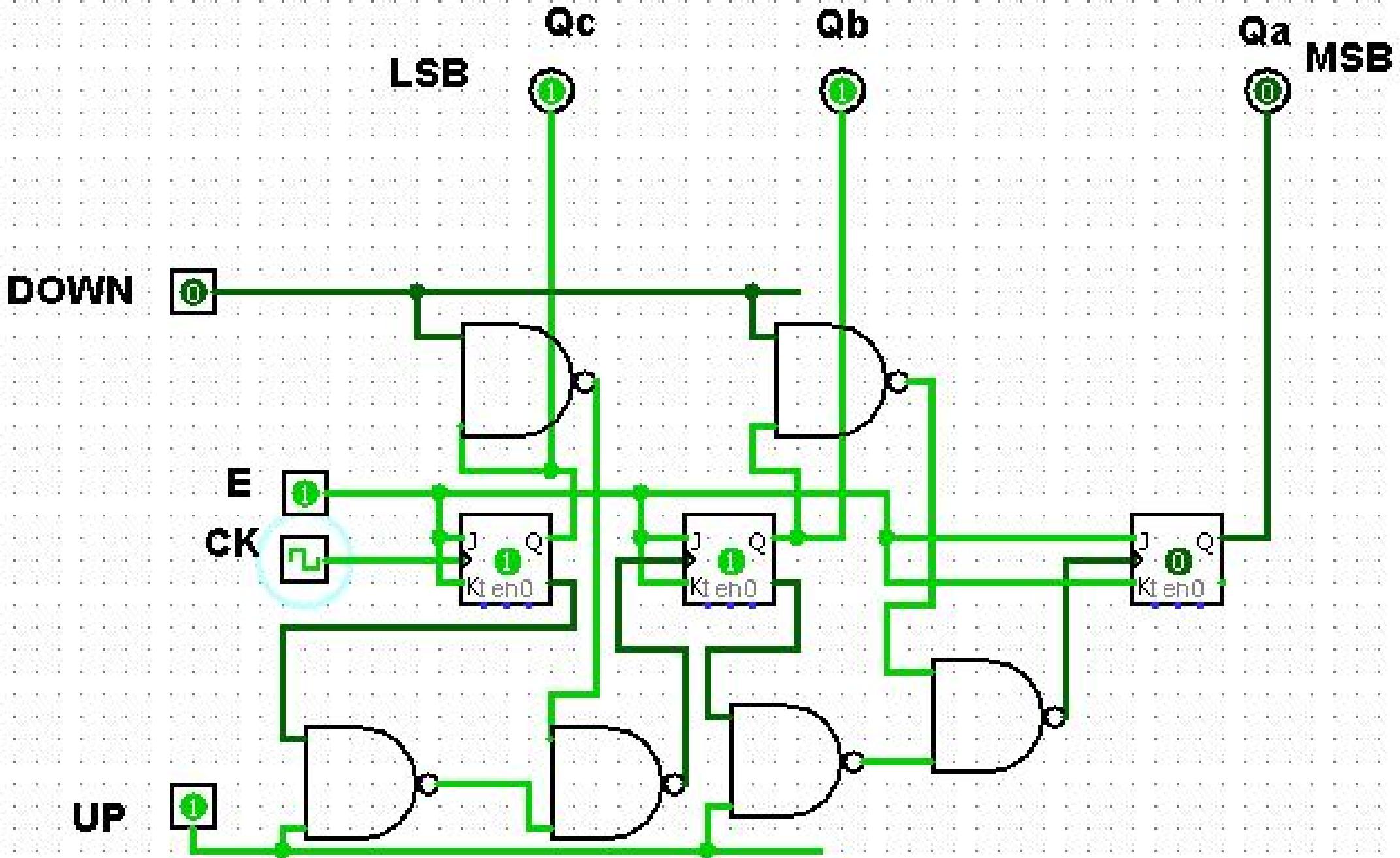
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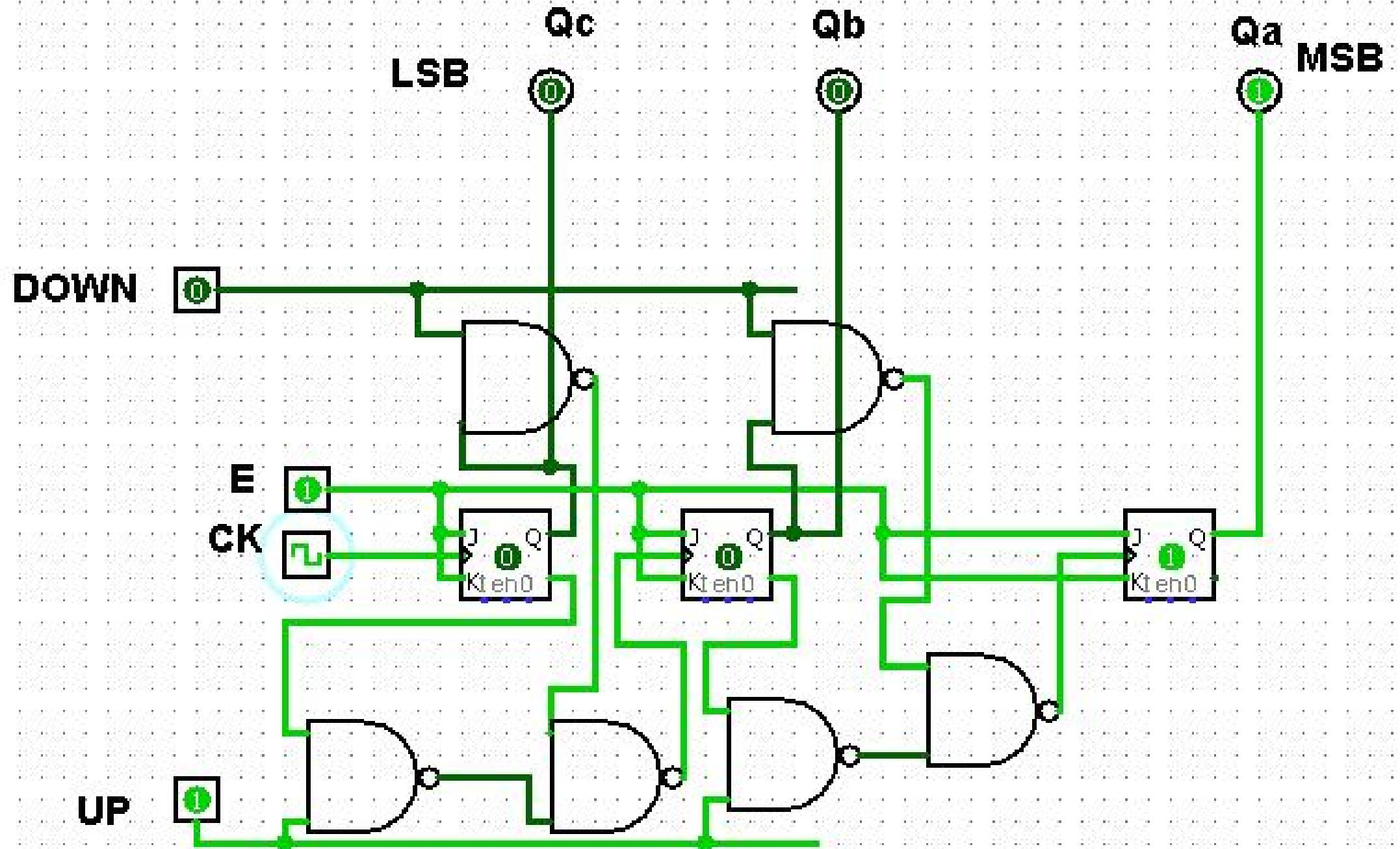
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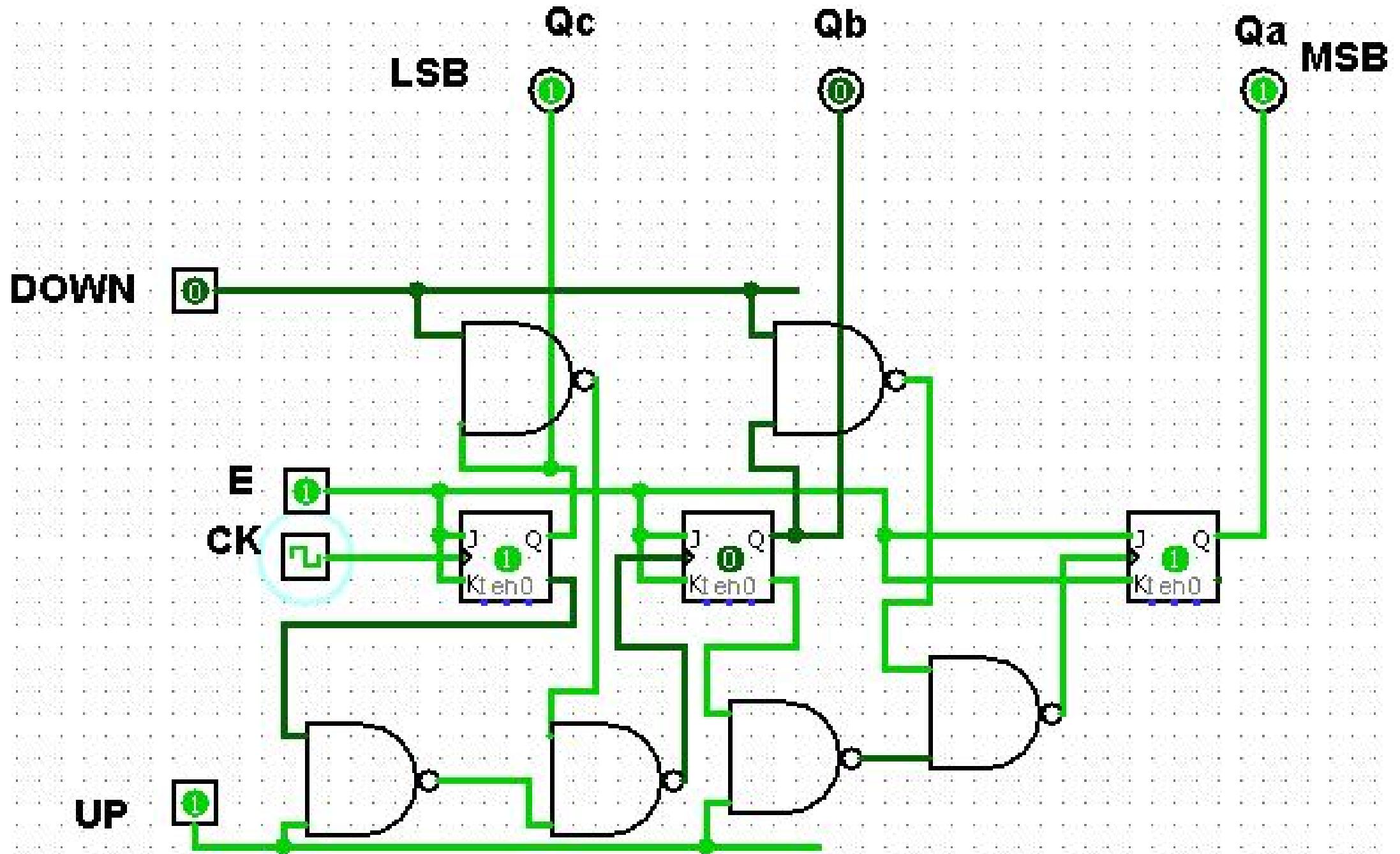
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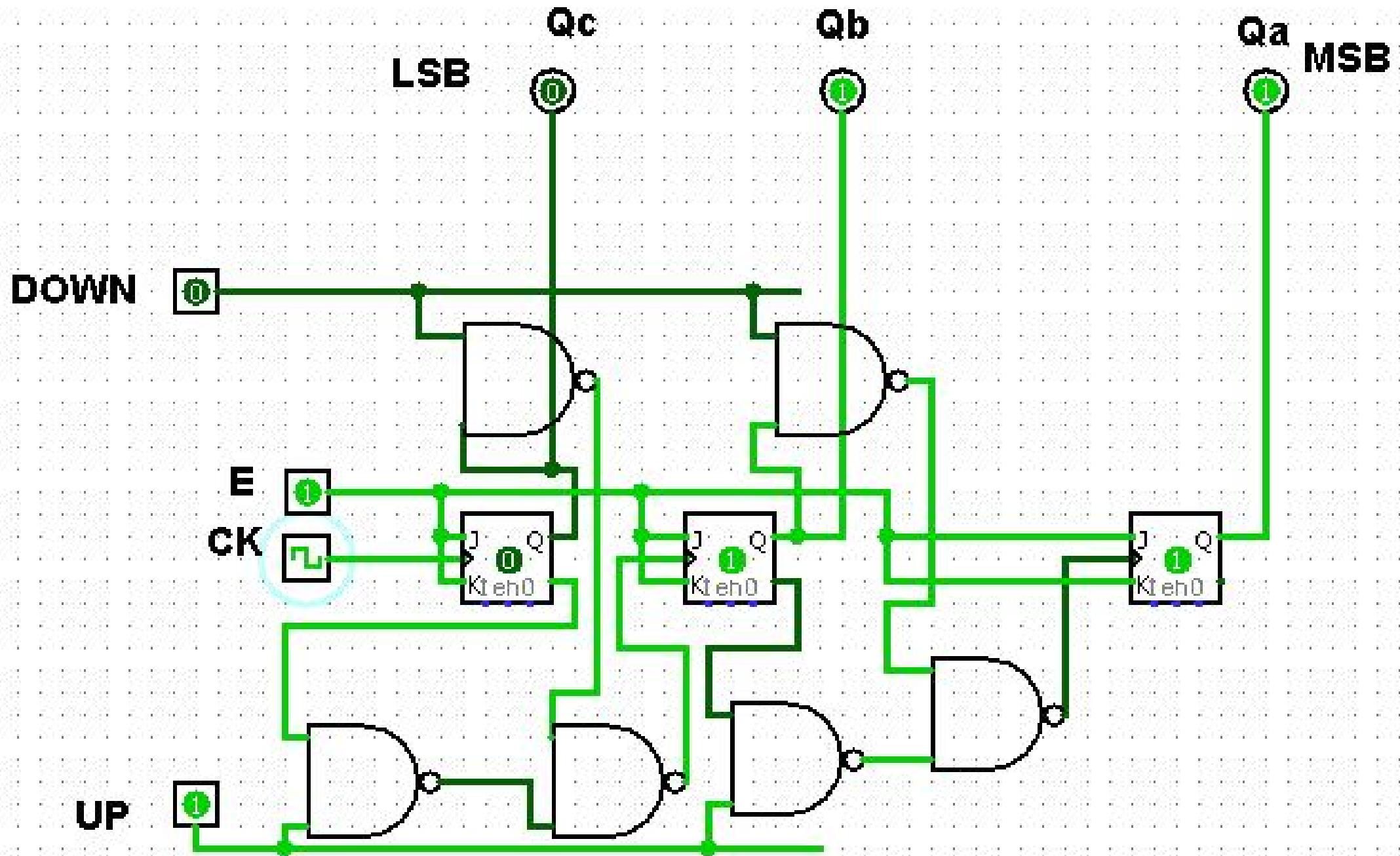
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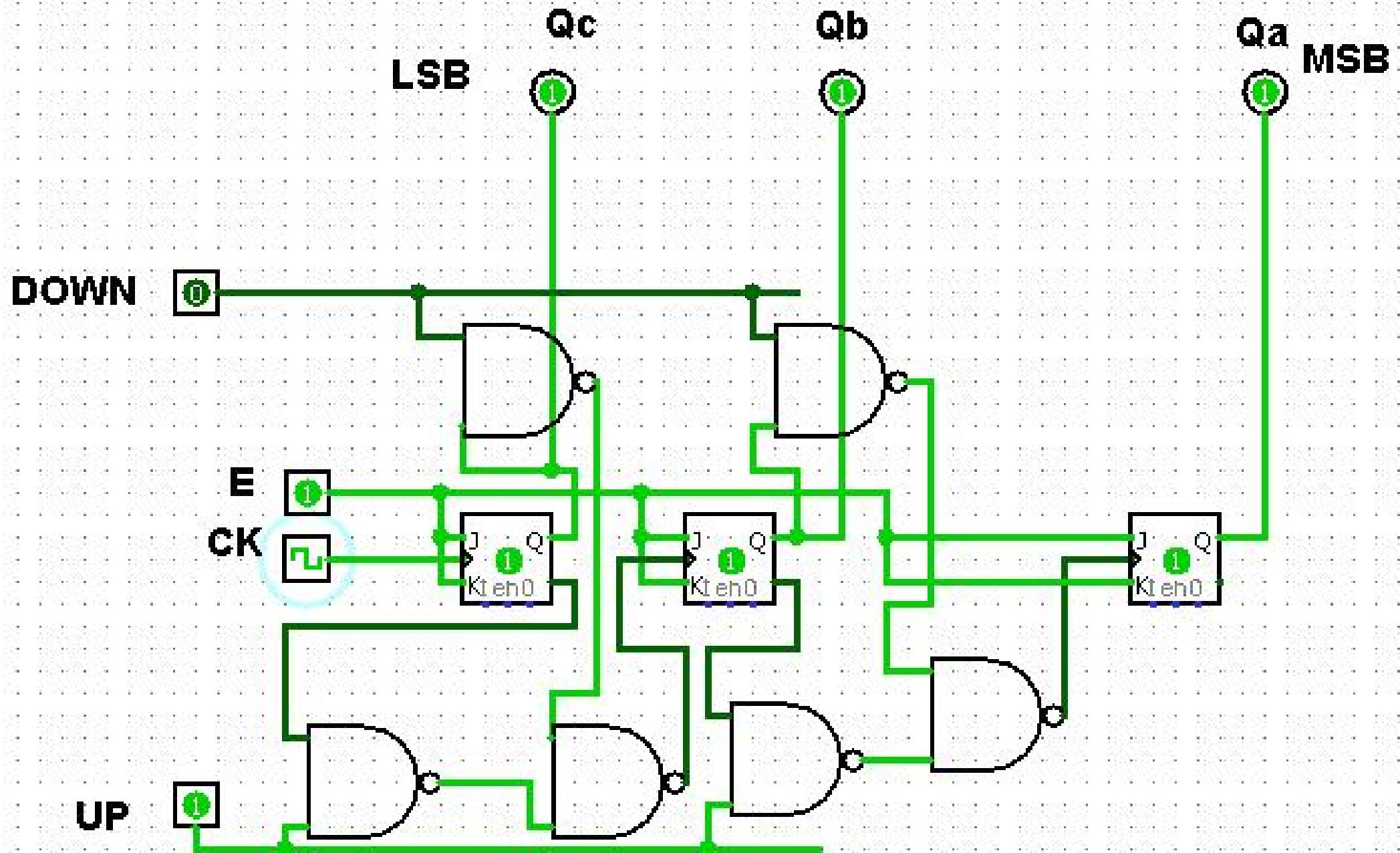
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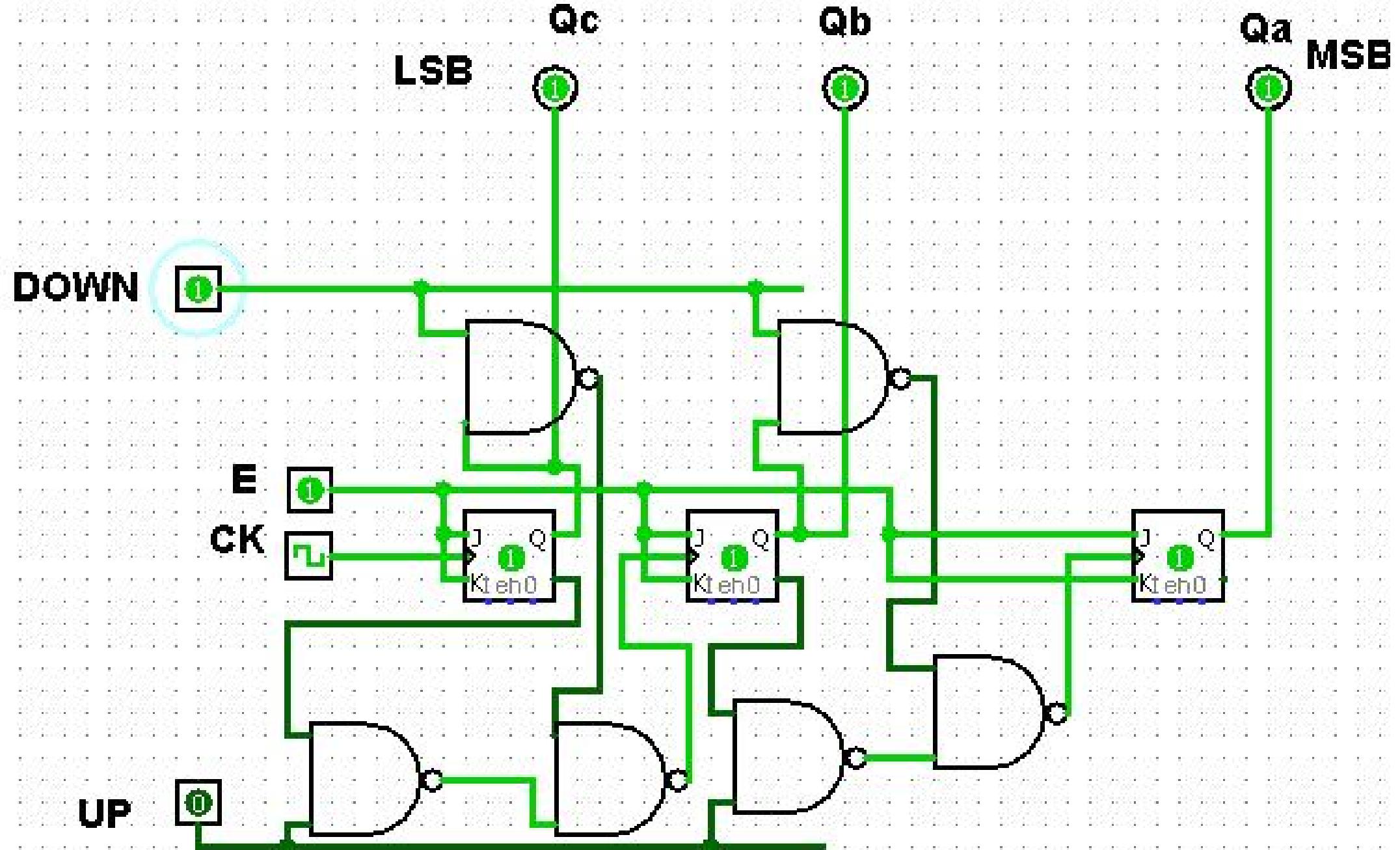
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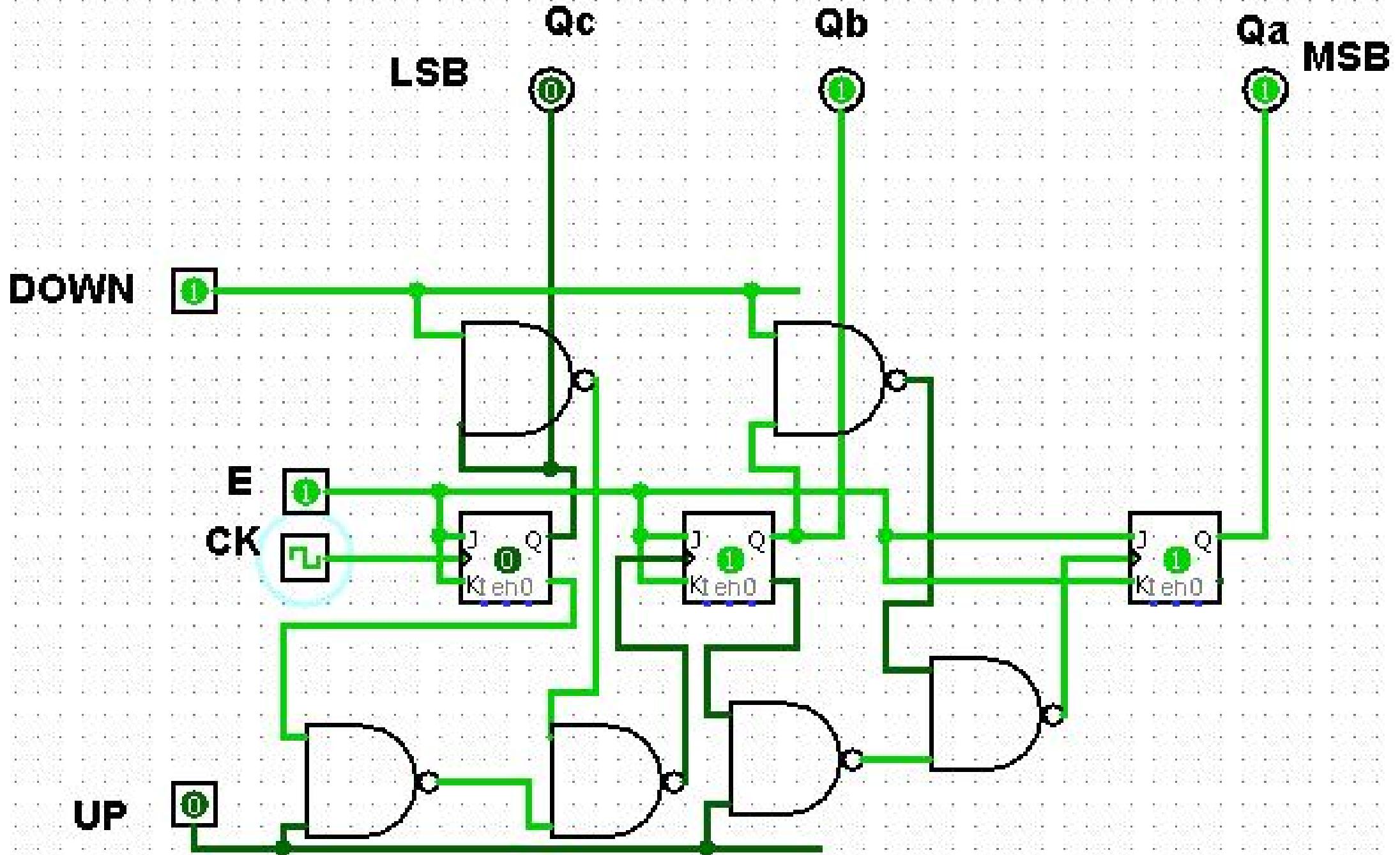
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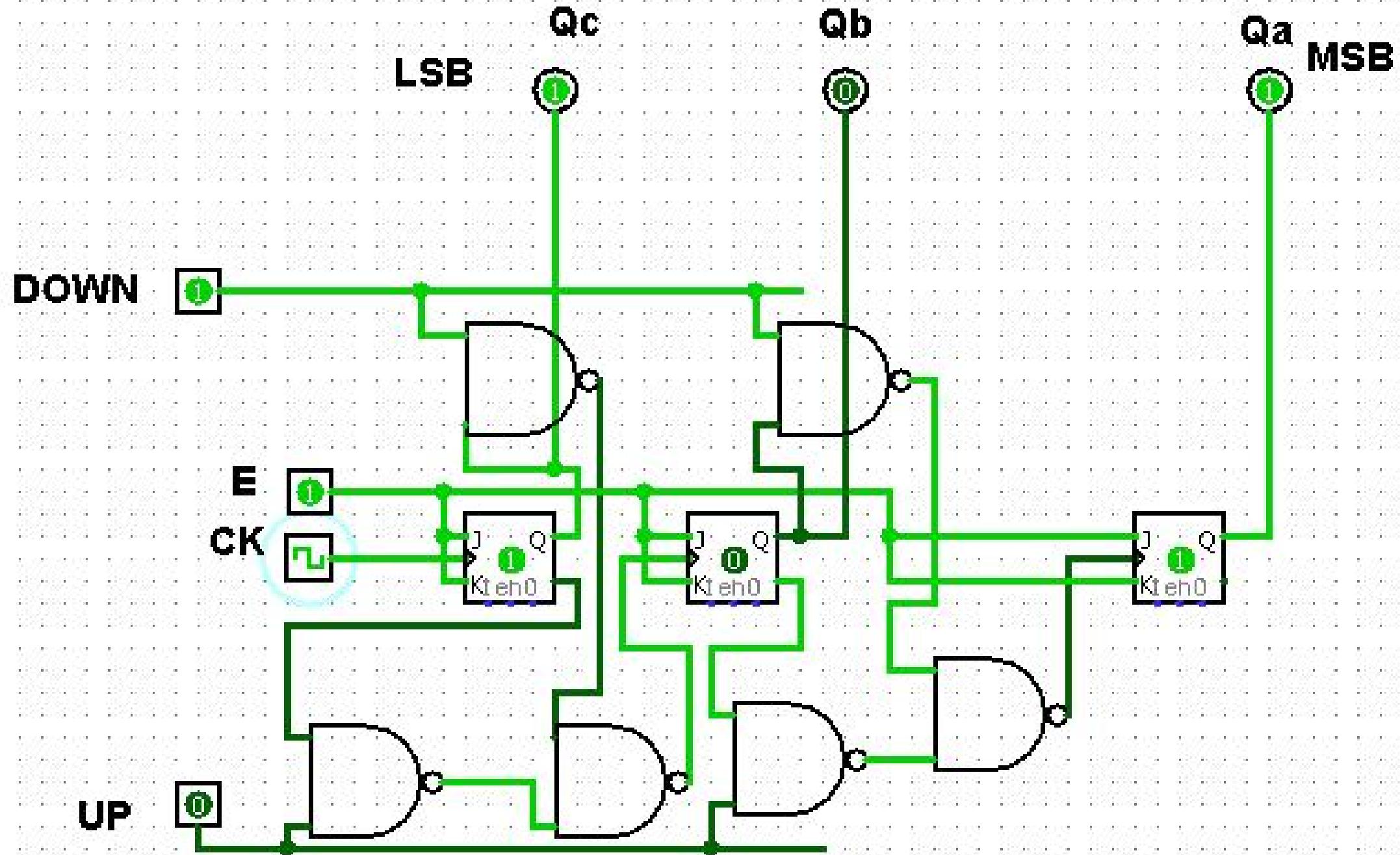
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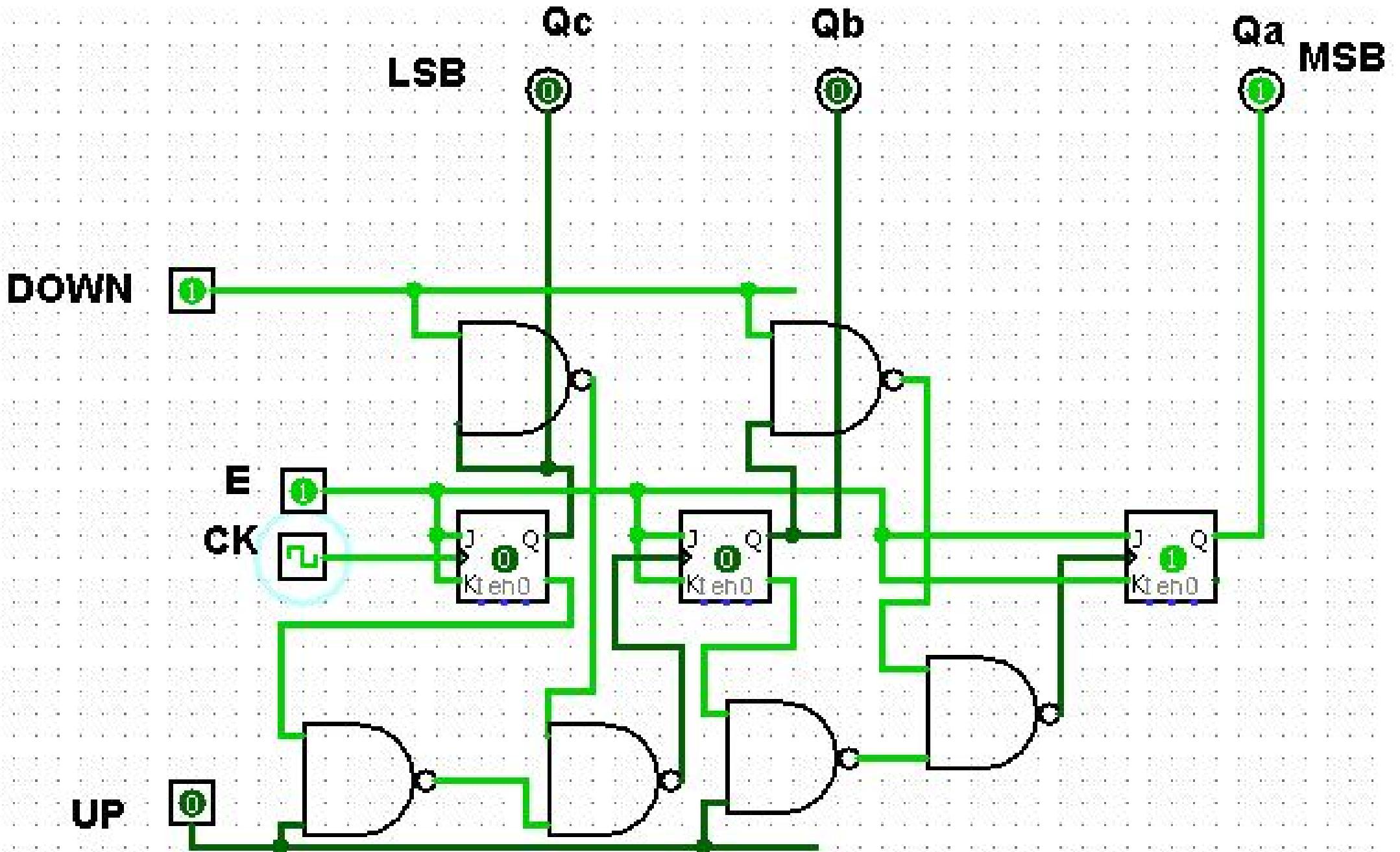
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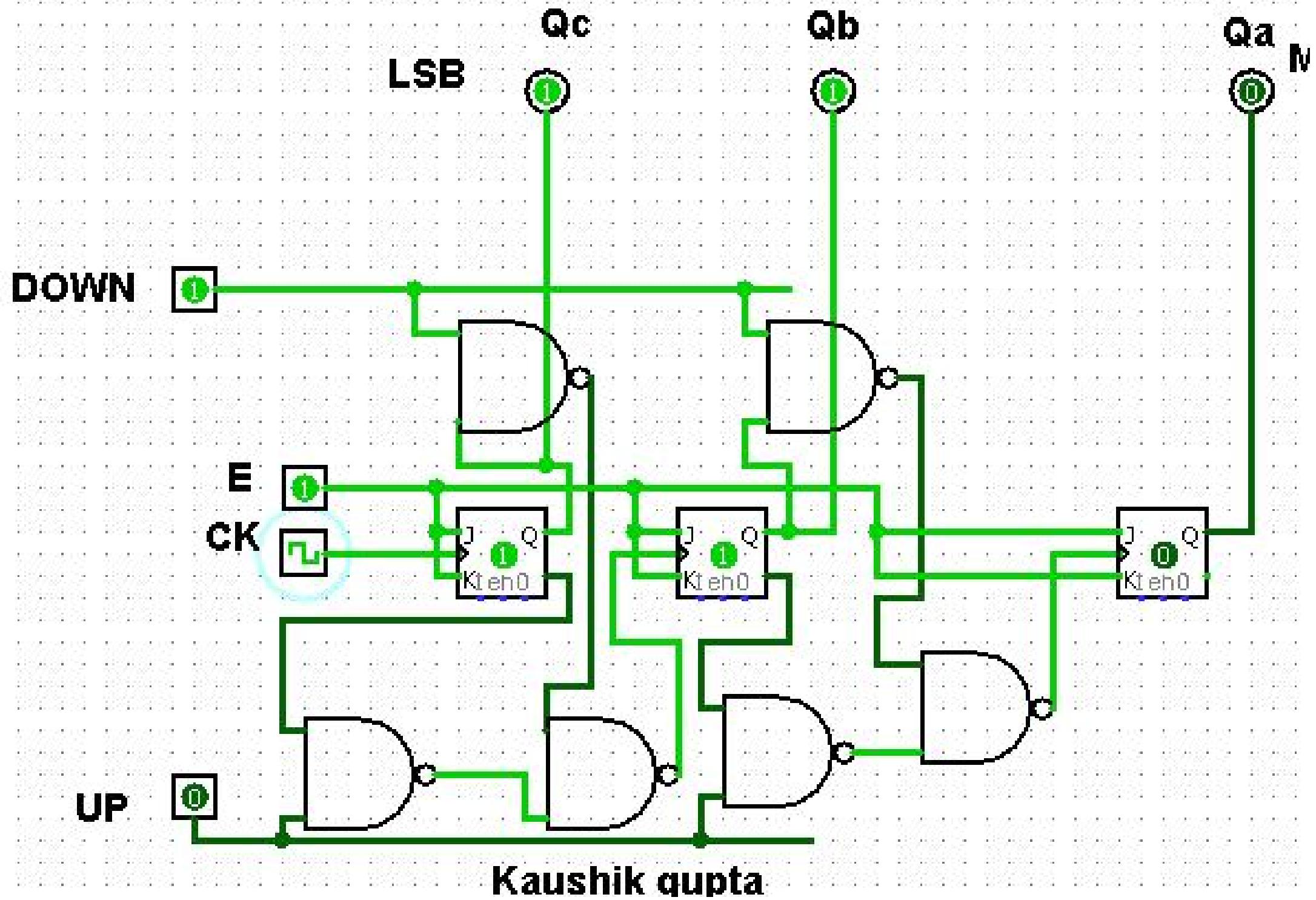
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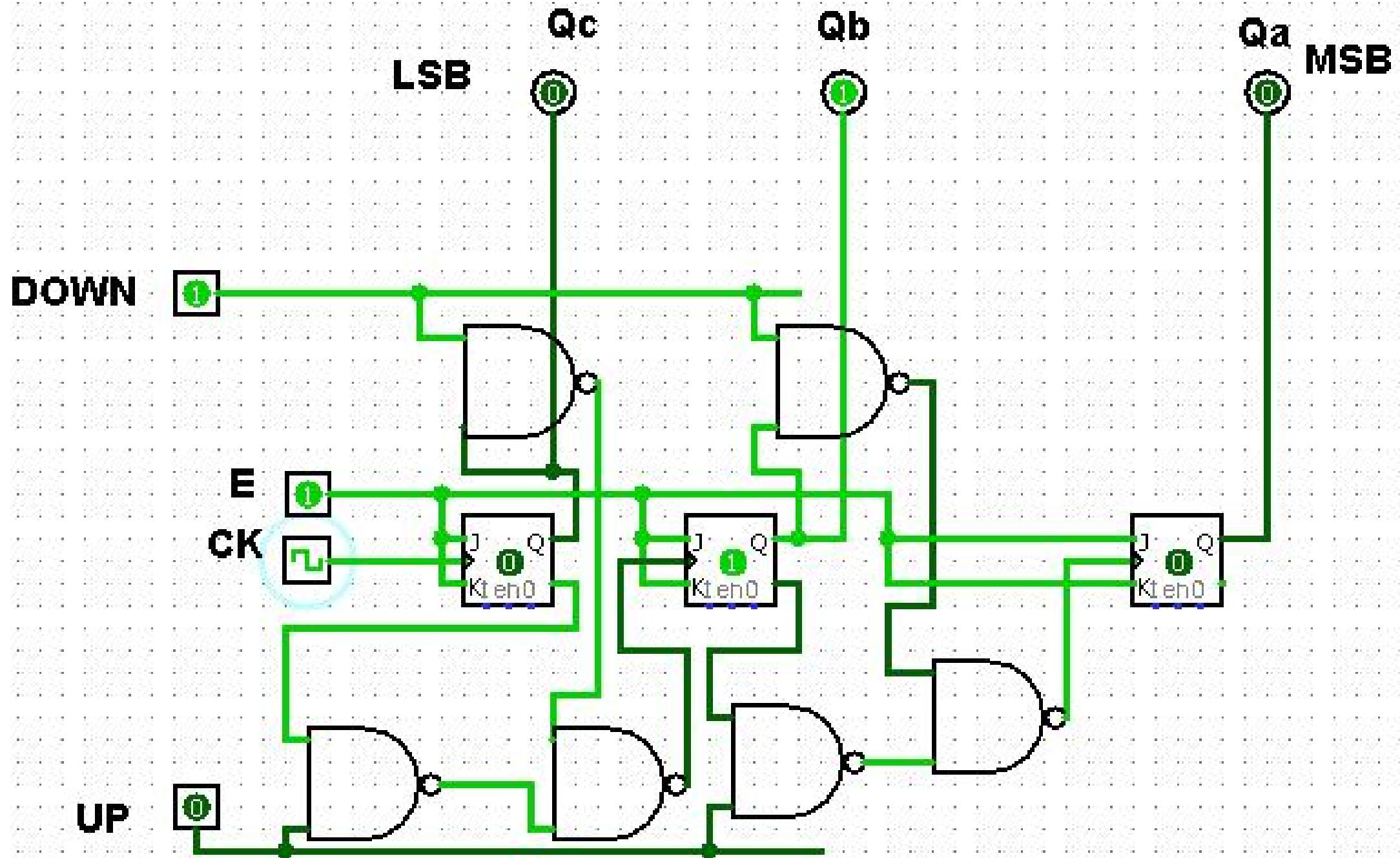


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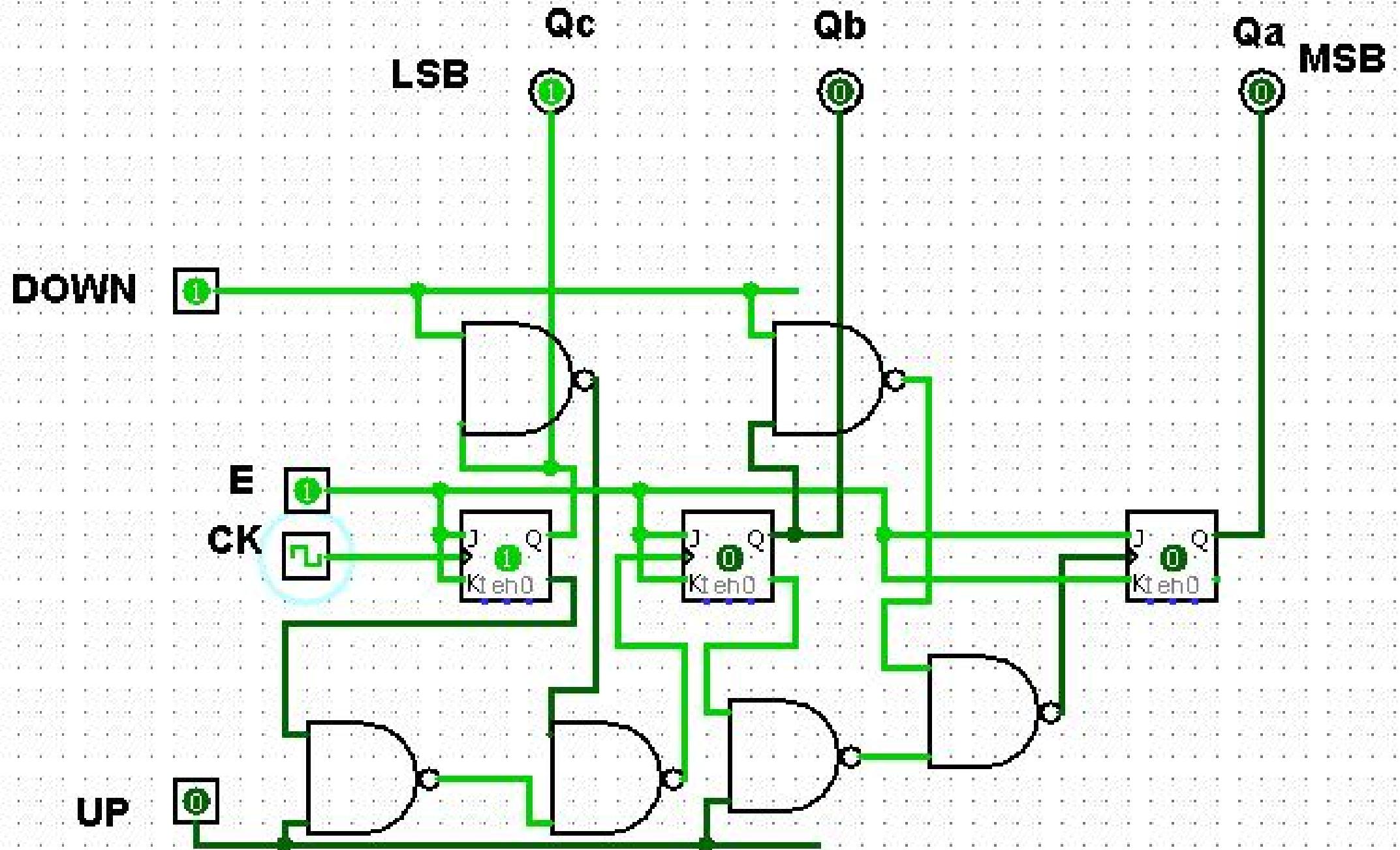


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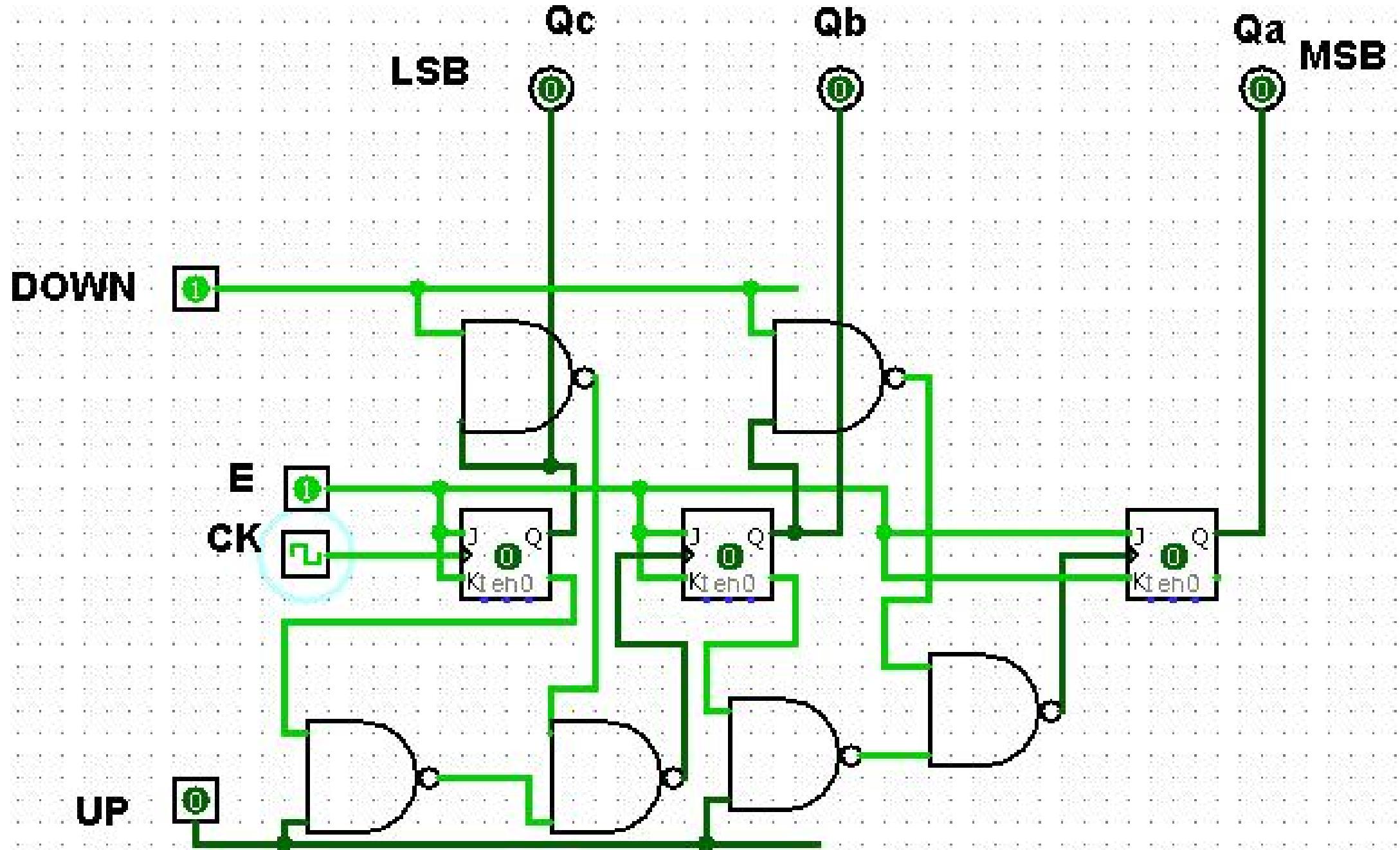




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