One for Consecutive Ones

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Author Note

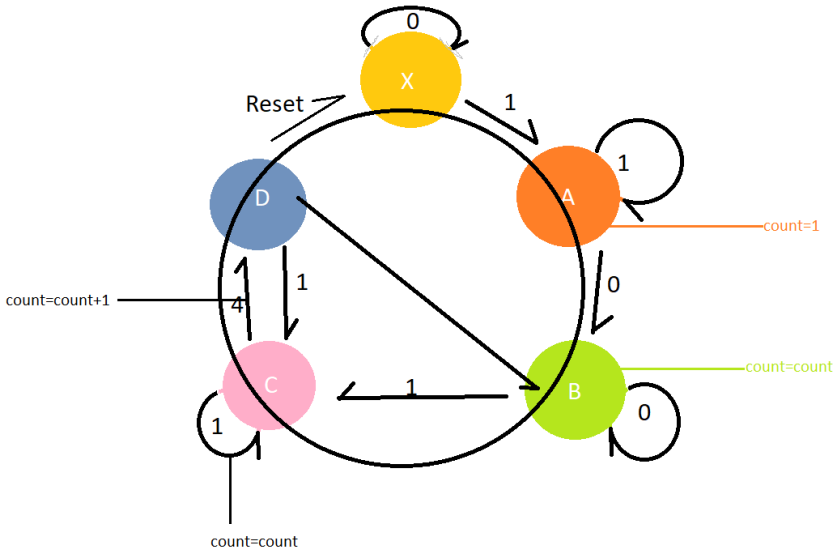
Only for a reference purpose.

Content of this Attachment and all other VERILOG codes are completely prepared by the author. For contribution contact the Author through details (which also includes doubts on the program and the logic through contact).

***This project is a testing subpart of another project. ***

We are to detect consecutive ones and count them as a single one. So, if we count a one and then there exists another one just next to it then we cannot count up but if there is a zero first and one next then we can count up.

Now to make it simpler make a state diagram



So, we would require the following variables i.e. 1) count 2) State

let us take an example

Suppose my input is 11101010

So, initially in X state we detected 1 so it goes to state A and our count becomes 1.

Then our next input is also 1 so it remains in the same state.

Same as above for the 3rd input

Then we have 0 as input so it goes to state B keeping the count same as before in this case 1

Then we have 1 as input so it goes to state C keeping count same.

Then we have 0 as input so it goes to state D and count becomes count +1 in this case it is 2

Then we have 1 as input so it goes back to state C and count remains the same.

Then we have 0 as input so it goes to state D and count becomes count +1 i.e. 3 in this case.

*****So, the only constraint in this program is that the last number should always be 0 to detect.**

So always make sure that the last number of your input array is zero this also would help to assure that the system is OFF.