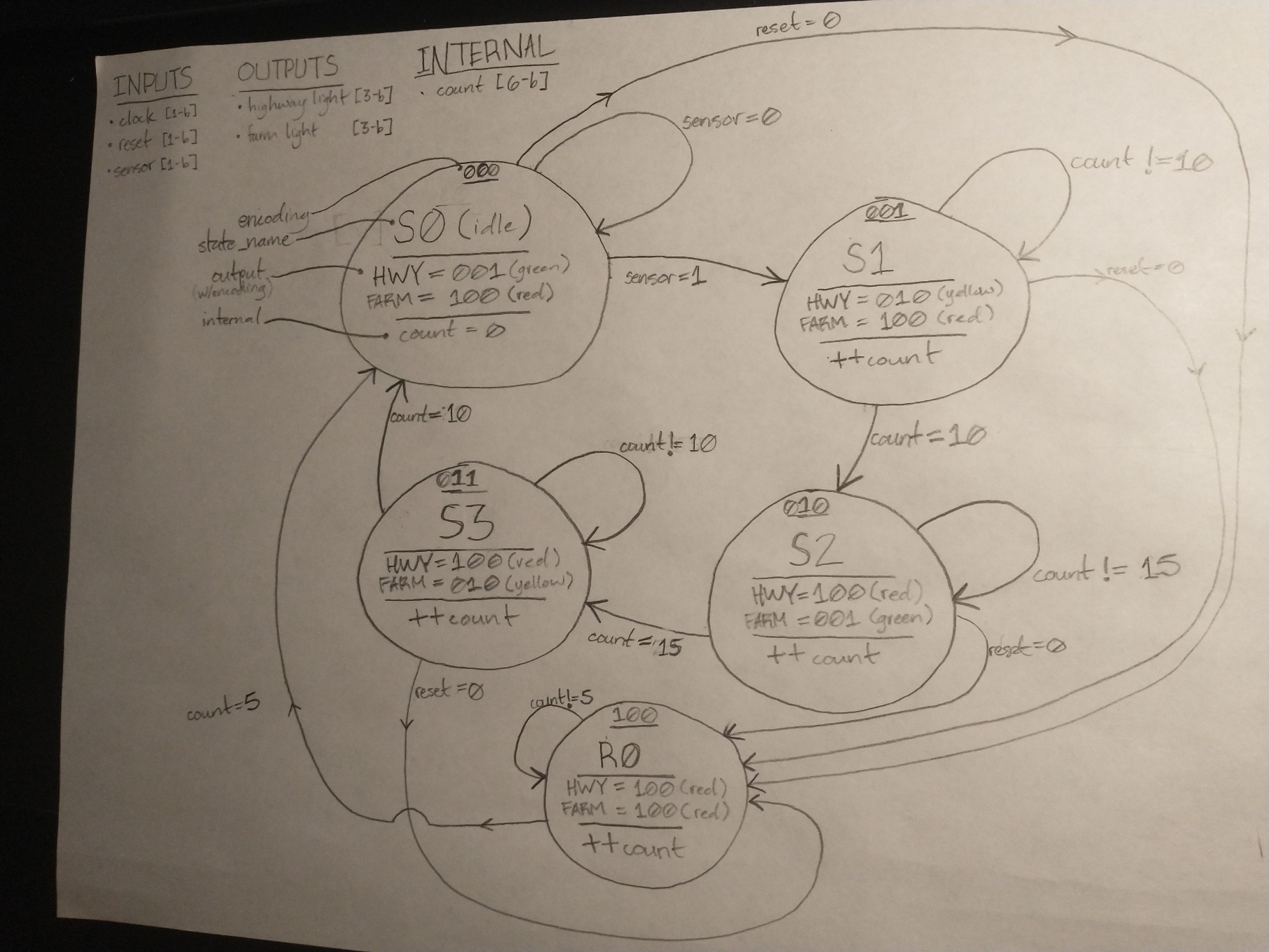
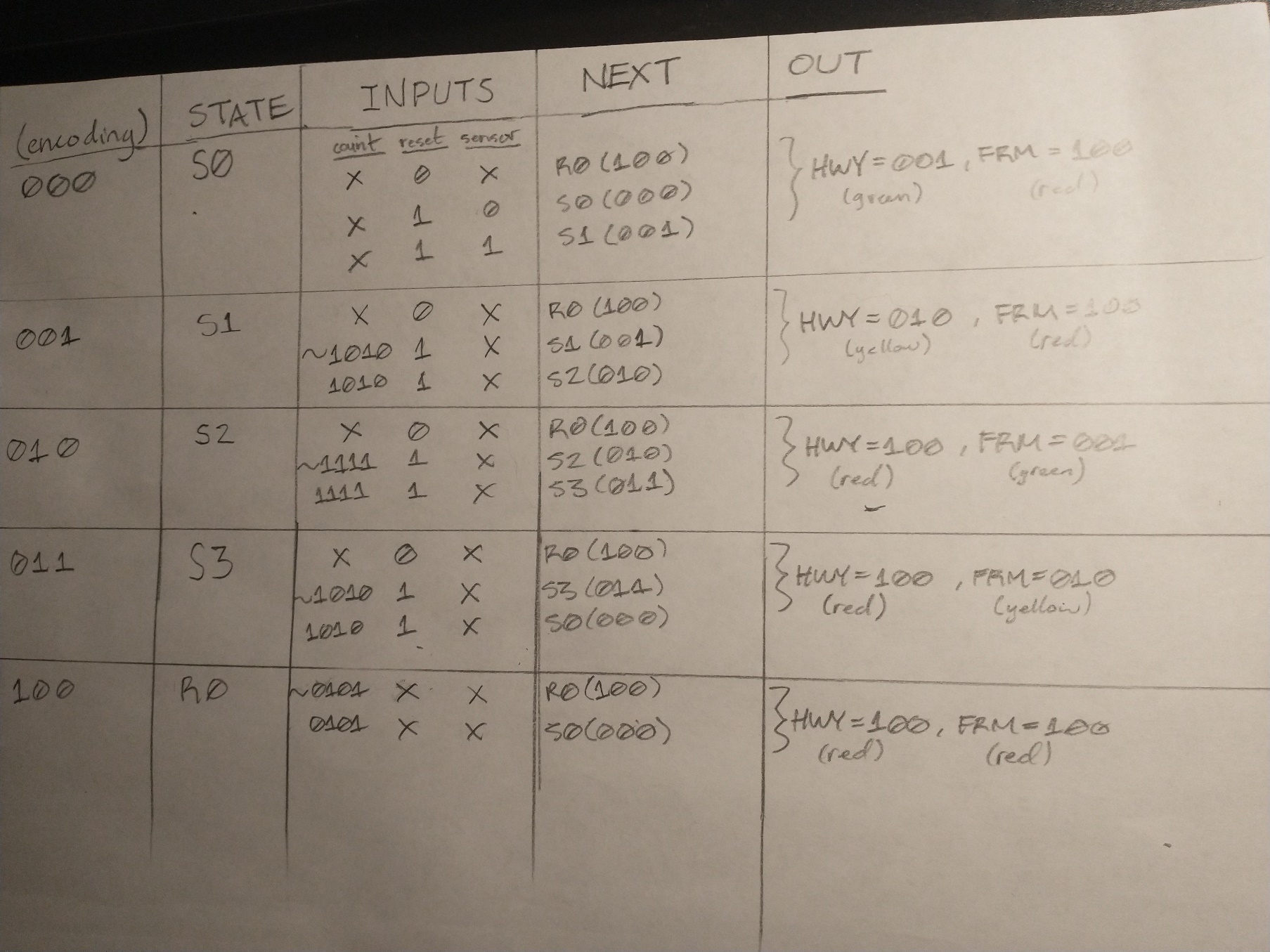
**LAB 7**

*TRAFFIC LIGHT CONTROLLER*

**State Transition Diagram**

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**State Transition Table**

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**Next State Equations**

S0 = S0&reset&~sensor + S3&reset&[count==1010]

+ R0&[count==0101]

S1 = S1&reset&[count!=1010] + S0&reset&sensor

S2 = S2&reset&[count!=1111] + S1&reset&[count==1010]

S3 = S3&reset&[count!=1010] + S2&reset&[count==1111]

R0 = S0&~reset + S1&~reset + S2&~reset + S3&~reset

+ R0&[count!=0101]

**Output Equations**

red\_farm = S0 + S1 + R0

green\_farm = S2

yellow\_farm = S3

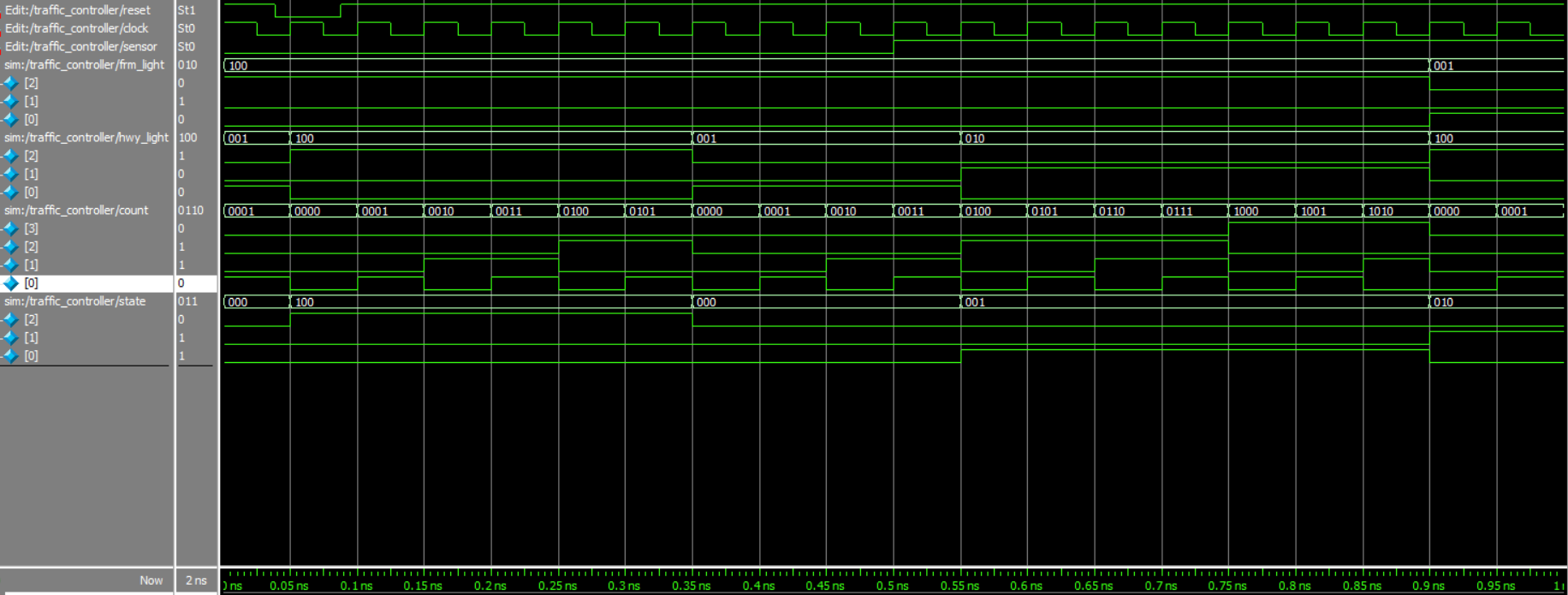
red\_highway = S2 + S3 + R0

green\_highway = S0

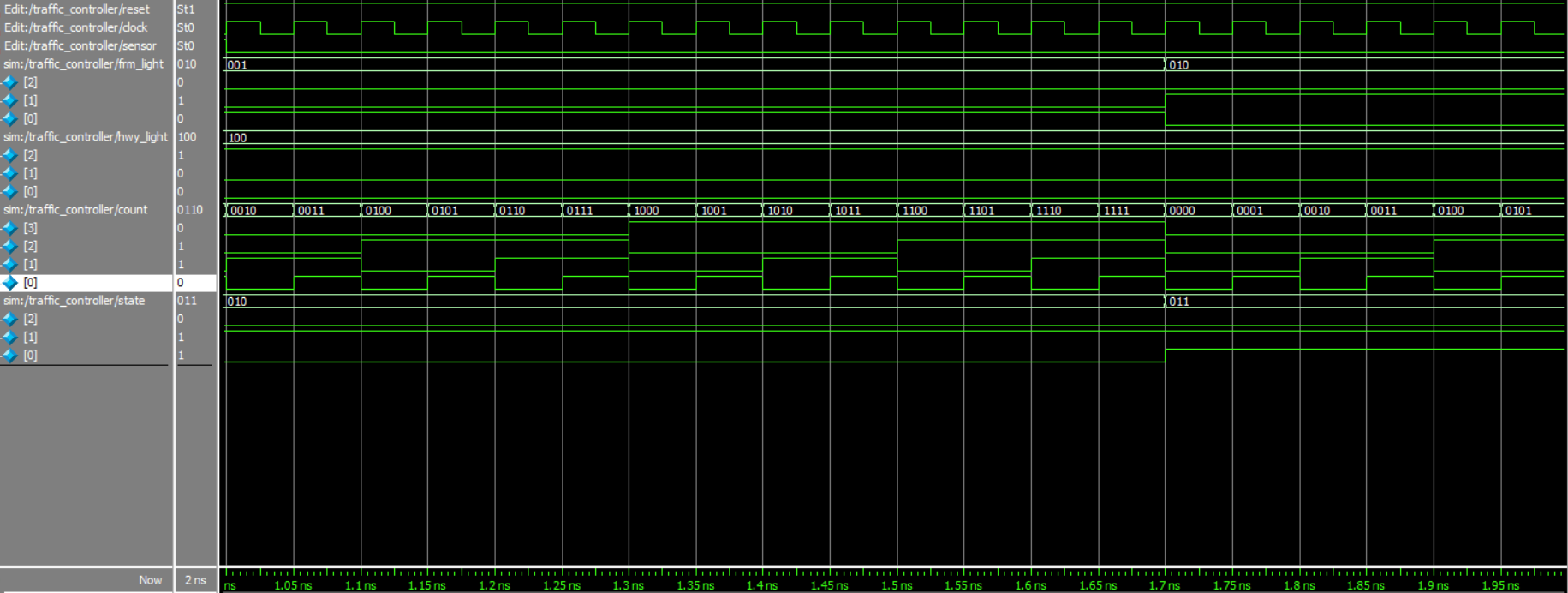
yellow\_highway = S1

**ModelSim**

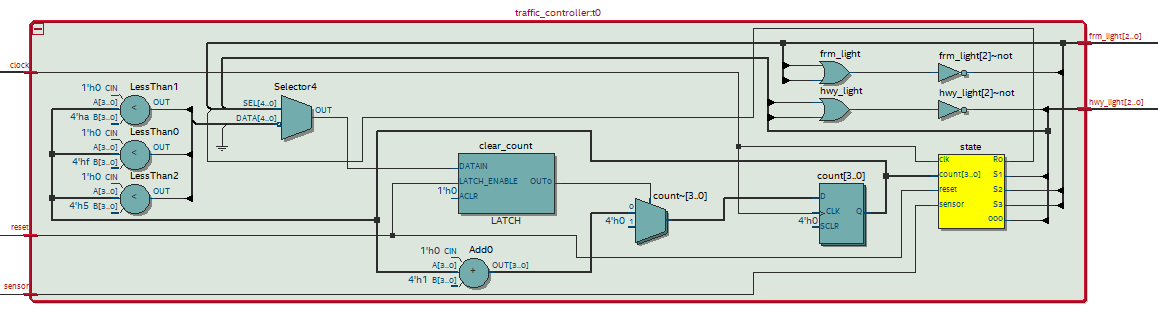
*[FIRST HALF : 0 ns🡪 1 ns]*

****

*[SECOND HALF : 1 ns🡪 2 ns]*

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**RTL Viewer**

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