FSM implementation

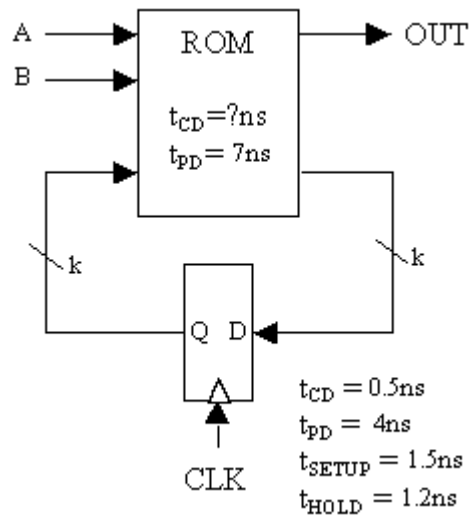
Bookmark this page

Lab due Oct 31, 2016 21:59 -02 Past due

FSM implementation

0.0/2.0 points (graded)

A possible implementation of a finite state machine with two inputs and one output is shown below.



1. If the register is 5 bits wide (i.e., k = 5) what is the appropriate size of the ROM? Give the number of locations and the number of bits in each location.

   Number of locations: 128 Answer: 128

   Number of bits in each location: 6 Answer: 6

2. If the register is 5 bits wide what is the maximum number of states in an FSM implemented using this circuit?

   Maximum number of states? 32 Answer: 32

3. What is the smallest possible value for the ROM's contamination delay that still ensures the necessary timing specifications are met?

   Smallest possible value for t_{CD} (in ns): 1.7 Answer: 0.7

4. Assume that the ROM's $t_{CD} = 3\text{ns}$. What is the shortest possible clock period that still ensures that the necessary timing specifications are met?

   Smallest clock period (in ns): 12.5 Answer: 12.5

Submit

Discussion

Topic: Assignment 3 (due Oct 31) / FSM implementation

Hide Discussion

Add a Post

All Posts

FSM implementation Q1.B

question posted 7 years ago by anonymous

1.B) Number of bits in each location: N if the number of locations in memory are 2^N. But the grading system is showing wrong for N. Could you please check the answer for this question in grading system?.

Calculator

This post is visible to everyone.

silvinahw (Staff)
7 years ago - marked as answer 7 years ago by **silvinahw** (Staff)

The grader is correct.

Silvinahw - Could you please elaborate on how the number of bits in each location are calculated in this example.?

posted 7 years ago by **JeffreyLatter**

The number of bits in each location is equal to the number of state bits plus the number of outputs. Since there are 5 state bits and 1 output, that makes each location require 6 bits to specify the next state and output for each input combination.

The number of entries in the ROM is 2^(num states + num inputs) = 2^7.

posted 7 years ago by **silvinahw** (Staff)

Arhh of course - Thank you!

posted 7 years ago by **JeffreyLatter**

Add a comment

Preview

Previous Next

edX

About
Affiliates
edX for Business
Open edX
Careers
News

Calculator

Legal

Connect

Calculator