Faculty of Science, Engineering and Technology

Computer Systems

Week 5

Overview

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Planning your assignment

1. Read through the assignment handout carefully and make sure you understand the requirements. Ask your lab demonstrator, or post to the discussion board if you have any questions.

2. Examine the first stage of the assignment:

2.1. List the major components you believe you will need to build to achieve this.

Ans: I should separate the clock into a second sub-circuit, a minute sub-circuit and an hour sub-circuit. The second and minute sub-circuit counts from 00 to 59 then redo and increment the next circuit (which is minute for second and hour for minute) by 1. The hour sub-circuit counts from 00 to 12 then reset to 01 and continue counting.

2.2. What resources (lecture slides, previous labs, online links etc) do you have that are relevant to these components ?

Ans: Previous labs provide the proper mechanism to fulfill the assignment. The counter from 0 to 59 can be implemented with the combination of a mod-10 counter and a mod-6 counter. The 'hour' counter should be a mod-10 counter but required appropriate modification so that it becomes 01 after reaching 12

3. Start sketching your solution - either free-hand drawings or logisim circuits are fine. You

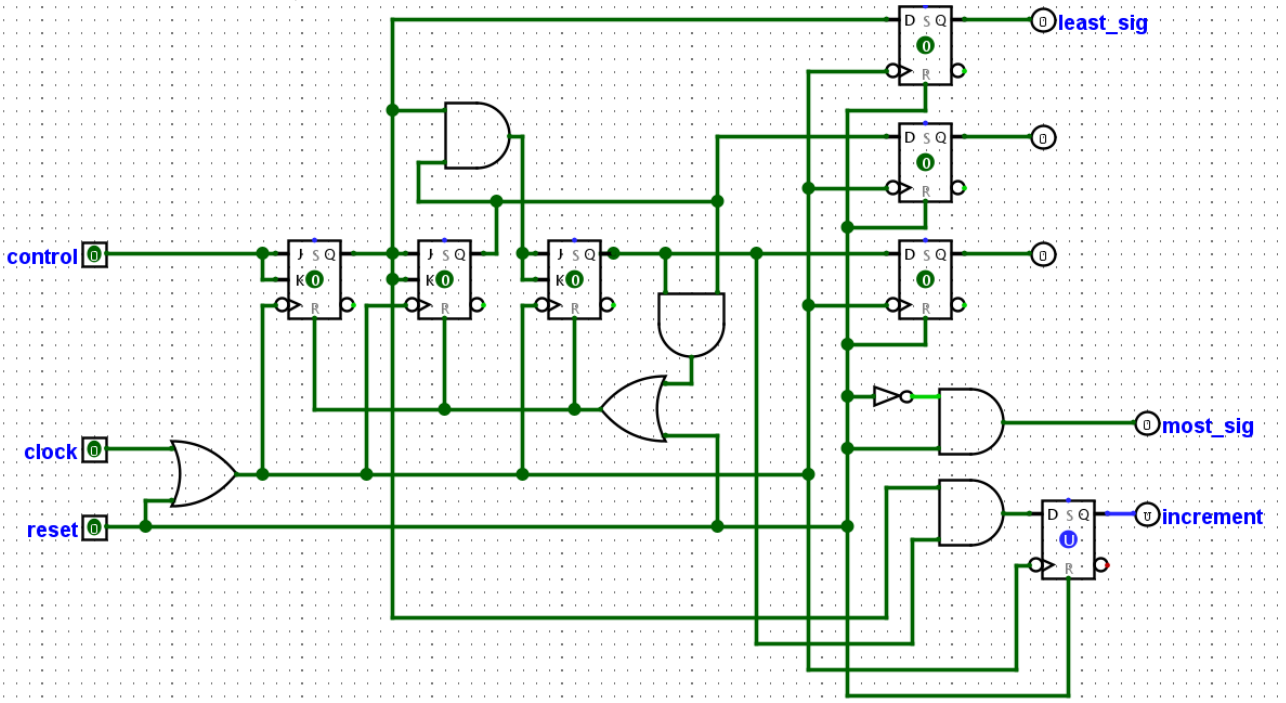
might want to focus on specific components and consider their design in isolation. Discuss with your labmates, and your demonstrator (but remember your work has to be your own !)

Export your rough circuits as images (or take pictures of your sketches) and include them in your submission document, along with your responses to the above questions.

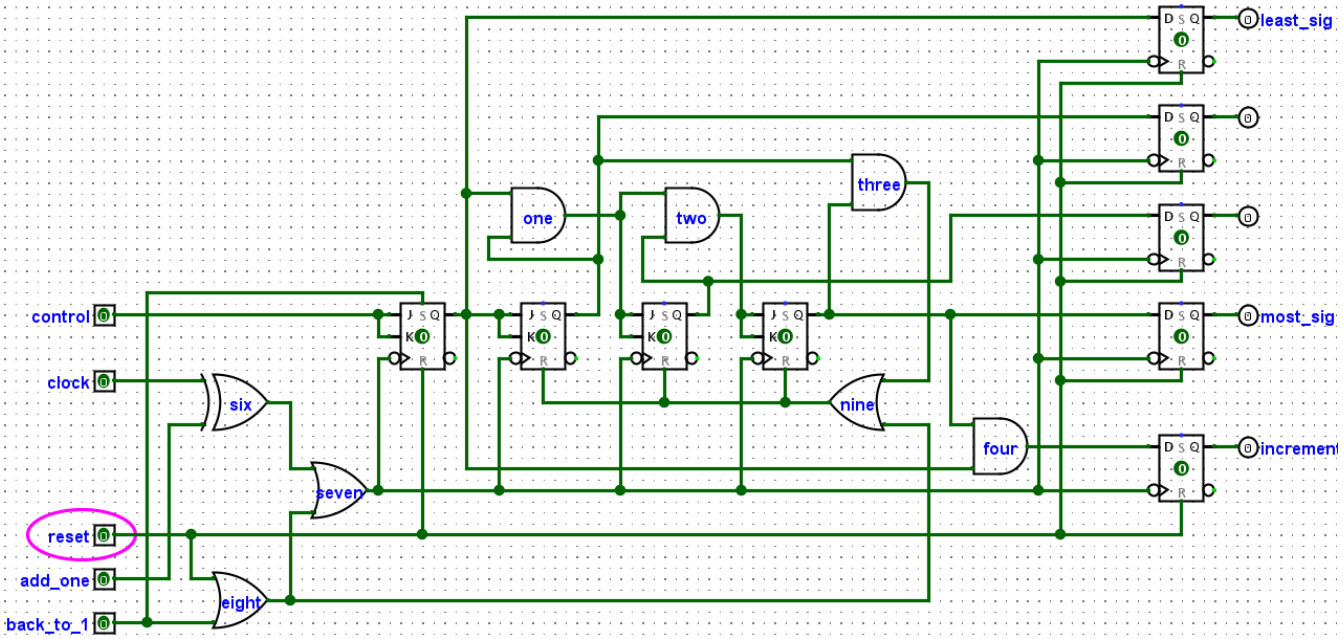
Note: Some redundant inputs/outputs are prepared for upcoming parts.

Product: Components for a minute counter and display

- A six modulo synchronous counter



- A ten modulo synchronous counter



- A counter to 59 and reset to 00