

Design of Digital Circuits: Lab Report		
Lab 8: Full System Integration (Session I)		
Date		Grade
Names		
		Lab session / lab room

You have to submit this report and the required codes via Moodle (<https://moodle-app2.let.ethz.ch/mod/assign/view.php?id=240199>).

Use a zip file or tarball that contains the report and the codes. Only one of the members of each group should submit. All member of the group will get the same grade.

The name of the submitted file should be *Lab8_part1_LastName1_LastName2.zip* (or *.tar*), where *LastName1* and *LastName2* are the family names of the members of the group.

Part 1

Which MIPS instructions do you think would produce wrong outputs if the ControlUnit signal *RegWrite* is 'stuck at 0', i.e., *RegWrite* always has value 0? In other words, which MIPS instructions depend on the control signal *RegWrite*?

Part 2

Explain why a 6-bit address is enough for the instruction and data memory. (*Hint: size of the memory.*)

Part 3

As you might have noticed, there are three different counters used in Part 1 of this exercise. One is present in the *snake_patterns.asm* file, the second is in the `clock_div` module and the third is the `DispCount` signal for the 7-segment display. Explain the functions of each of these three counters/dividers in a sentence or two each.

Part 4

Submit your code for the working crawling snake (Part 1) via Moodle. Include explanations/comments in your code. Include all the necessary files to run your code on the simulator. They should be in a folder called *Part_1*.

If you have any comments about the exercise, please include a textfile in your Tarball submission including: mistakes in the text, difficulty level of the exercise, anything that will help us improve it for the next time.