CSE4117 Microprocessors

HW2

Deadline: 13.11.2022 23:59

Demo schedule will be announced later.

You will upload your homework to classroom as a zip file which contains all source files (.vs, .qpf,.qsf, .sof). The name of your zip file will be the name and IDs of group members, e.g. CSE4117_name_surname_ID1_name_surname_ID2_name_surname_ID3_hw#.zip. Any of group members can upload the file.

In this project, you will read some data from the keypad and print it to seven-segment display. You will also manipulate the data on the seven-segment display. You will use the push buttons and switches that are on the DE0-nano FPGA board.

Realize the following instructions with System Verilog and FPGA:

1) If the slider button (switch) is up, when you press a key, the data on the seven-segment display will be shifted to the left and the newly pressed key will be displayed on the rightmost display.
2) If the slider button (switch) is down, when you press a key, the data on the seven segment display will be shifted to the right and the newly pressed key will be displayed on the leftmost display.
3) If you press the left push button, the data in the display will be incremented by one.
4) If you press the right push button, the data in the display will be rotated to the left, e.g. abcd → bcda.

Note: There are four switches on the FPGA board and use only one of them in your project.