

Lab 04: Wiring switches to LEDs using logic functions

In this lab, we modify the simple switches to LED design, using some boolean logic functions

Lab Goals

- Create a simple VHDL design

The Design

Port	Direction	Width
SW0	IN	1
SW1	IN	1
SW2	IN	1
SW3	IN	1
LED0	OUT	1
LED1	OUT	1

The design should implement the following truth tables.

SW0	SW1	LED0
0	0	0
1	0	0
0	1	0
1	1	1

SW2	SW3	LED1
0	0	0
1	0	1
0	1	1
1	1	1

Exercise 1.

1. Go to `~/labs/lab04` and start Vivado
2. Create a new Vivado project, called `switches_to_leds2` (RTL Project)
3. In the `Add Sources` window, click on `Add Files` and import `~/labs/lab04/src/switches_to_leds2.vhd`.

4. In the `Add Constraints` window, click on `Add Files` and import
`~/labs/lab04/src/Basys3.xdc`
5. In the `Default Part` select the `Basys3` from the Boards tab.
6. Click on Finish
7. Modify the file, following the comments inside it
8. Once you module is ready, click on `Generate Bitstream` to launch the workflow.
9. If everything goes well, you can now open the Hardware Manager, and load the bitstream to the board.
10. Move the switches, and check that the LEDs go on/off following the provided truth tables