

Set of peripherals for Digilent Inc. boards

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Overview

This document only describes the modules operation for the components included in this project. You can get more information in the README.md files available in some directories.

The components are common designs to use with the peripherals included in low range Digilent boards like Basys and Nesys. The modules interface is ready to be easily connected as peripheral to microcontrollers. For this purpose has been added to the project some examples of use with the Picoblaze microcontroller.

The components definitions in package *digilent_peripherals_pk* are the following:

- Inputs buttons synchronizer
- Switchs controller
- Display controller
- Leds out controller

Functional description

All peripherals are very similar and easy to use. Each peripheral contains an internal register to store the input or output data and a signal enable ready to be used as the peripheral selection signal. The figures and the tables details the signal and its behavior.

For more info about how to use it, you can see the examples included with this mini-project.

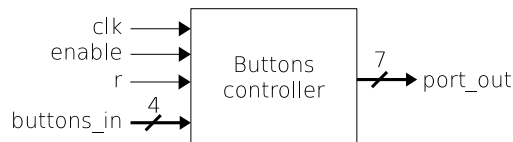


Figure 1: Buttons controller

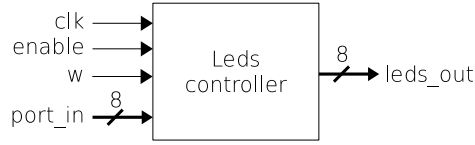


Figure 2: Leds controller

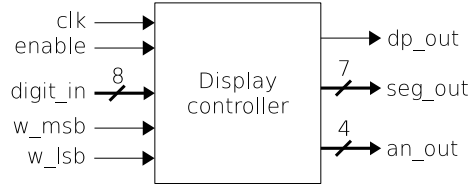


Figure 3: Display controller

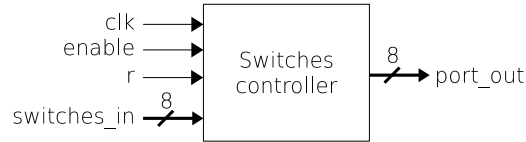


Figure 4: Switches controller

enable	r	Operation
0	-	-
1	1	internal_reg[7:0] ← "0000" & digit_in[3:0]

Table 1: Buttons controller signals behavior

enable	r	Operation
0	-	-
1	1	internal_reg ← port_in

Table 2: Leds controller signals behavior

enable	w_msb	w_lsb	Operation
0	-	-	-
1	0	1	lsb_reg ← digit_in
1	1	0	msb_reg ← digit_in

Table 3: Display controller signals behavior

enable	r	Operation
0	-	-
1	1	internal_reg ← switches_in

Table 4: Switches controller signals behavior

About Picoblaze peripheral examples

See README.md file included in *examples* directory