Moving LED

Lab 03

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Design Description

The design creates a unique LED display pattern on the Basys3 FPGA board based on the amount of times the right,left, and center buttons are pressed. The system will light up a single LED based on the position determined by the buttons pressed.

The component takes in the press for the position of the led and the Basys3 seven-segment display will represent the current position of the led by displaying the decimal and hexadecimal values of the led. This design also uses the concept of sequential elements to complete this task with storing the current position of the led with the use of the system clock.

Component

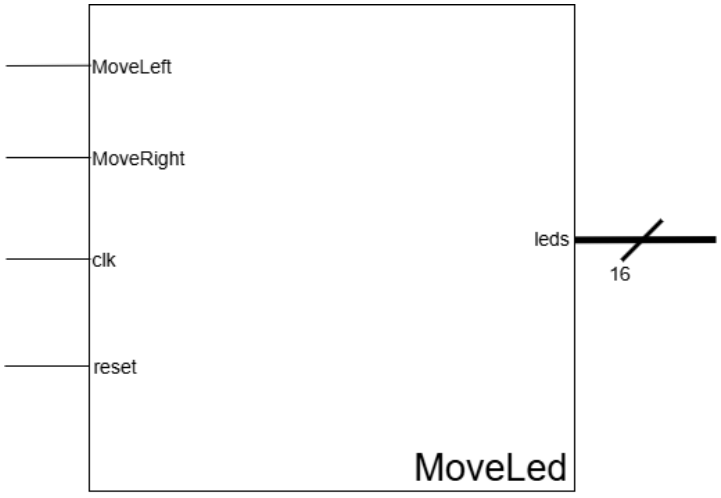

Figure 1: MoveLed Component Diagram

Design

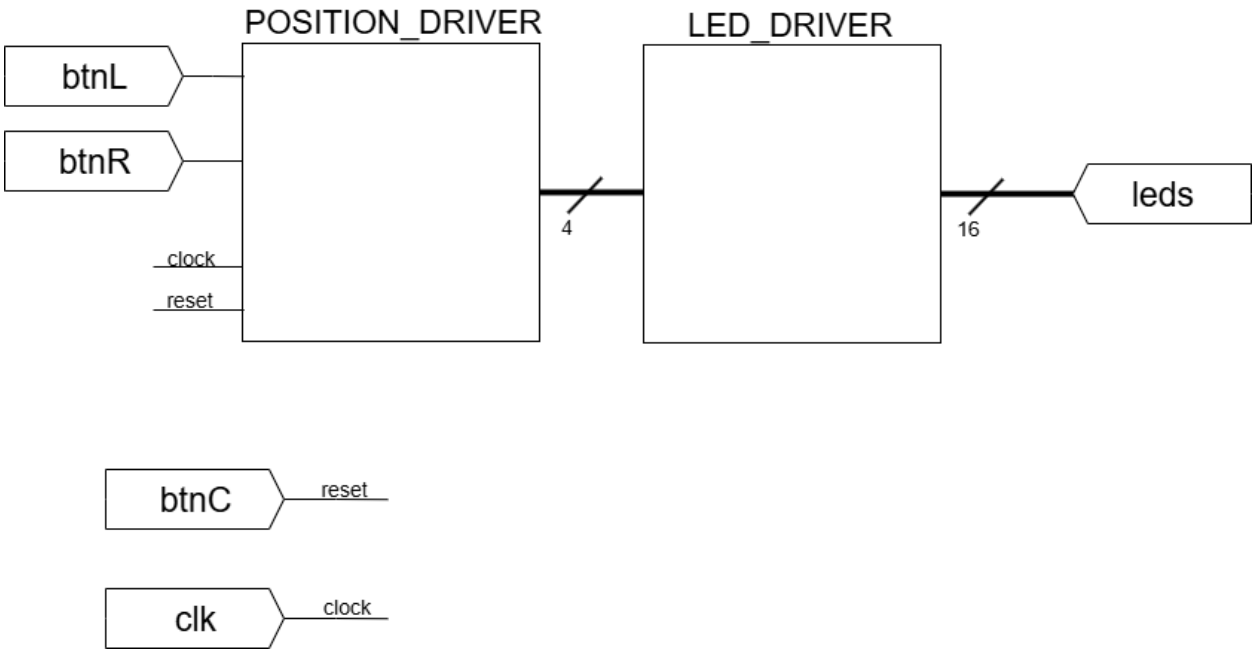

Figure 2: MoveLed Design Diagram

Test Bench

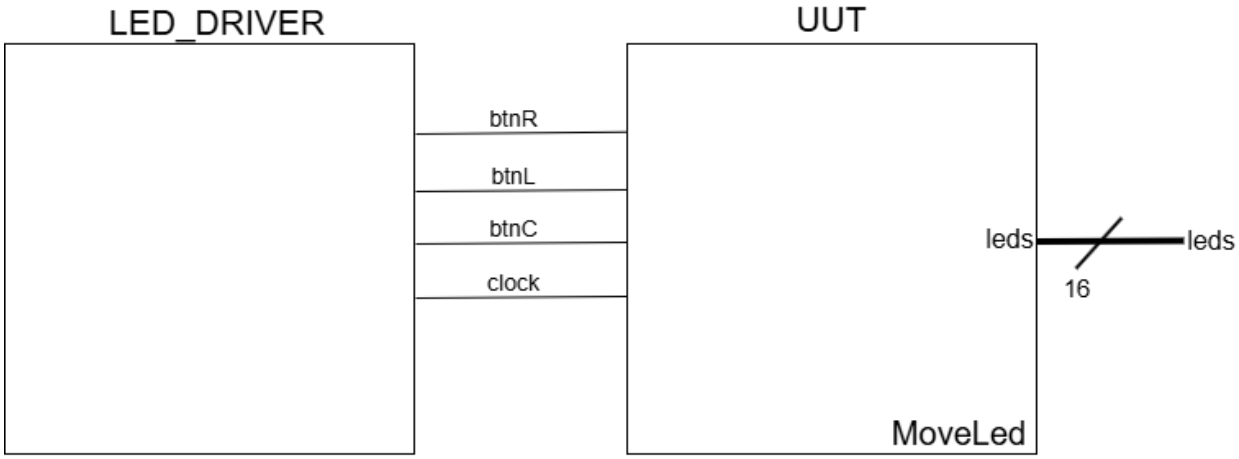

Figure 3: MoveLed Test Bench Diagram

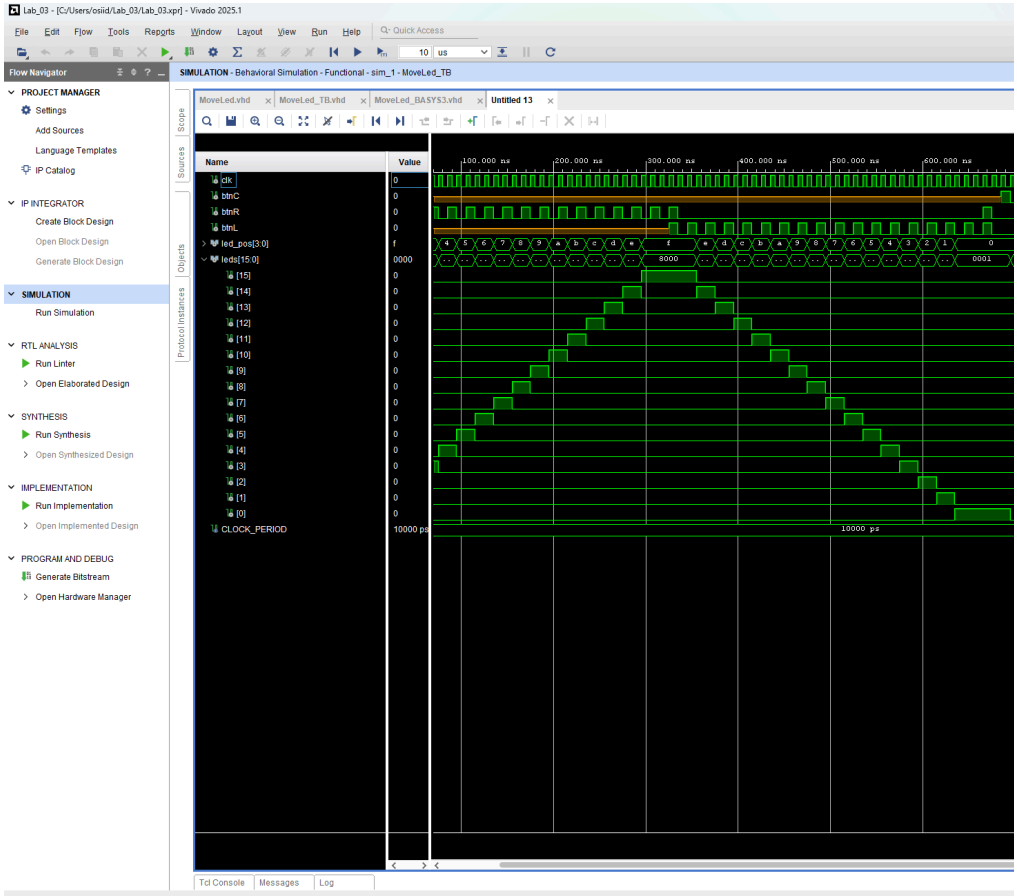

Figure 4: MoveLed Test Bench Waveforms

Basys3 Wrapper

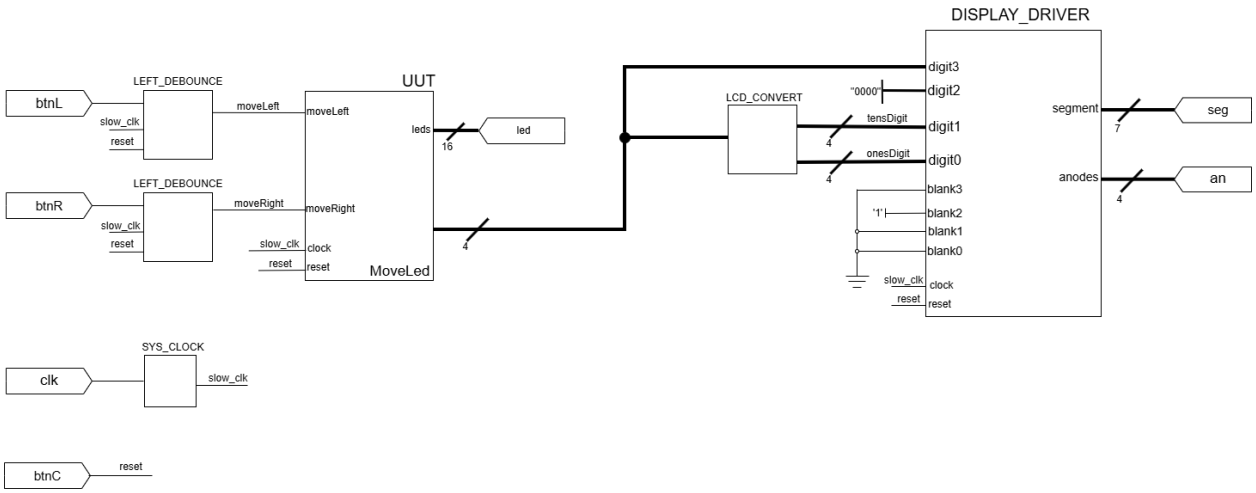

Figure 5:MoveLed Wrapper for Basys3