Calculator

SANDER BABBY, ALIN STAN, AND DUSTIN HOSKINS

Project Overview

Create a calculator that can handle basic operations (+, -, *, /) using the Nexys 4 board

The calculator can handle 4 bit numbers

Input will be from a user using an external keypad

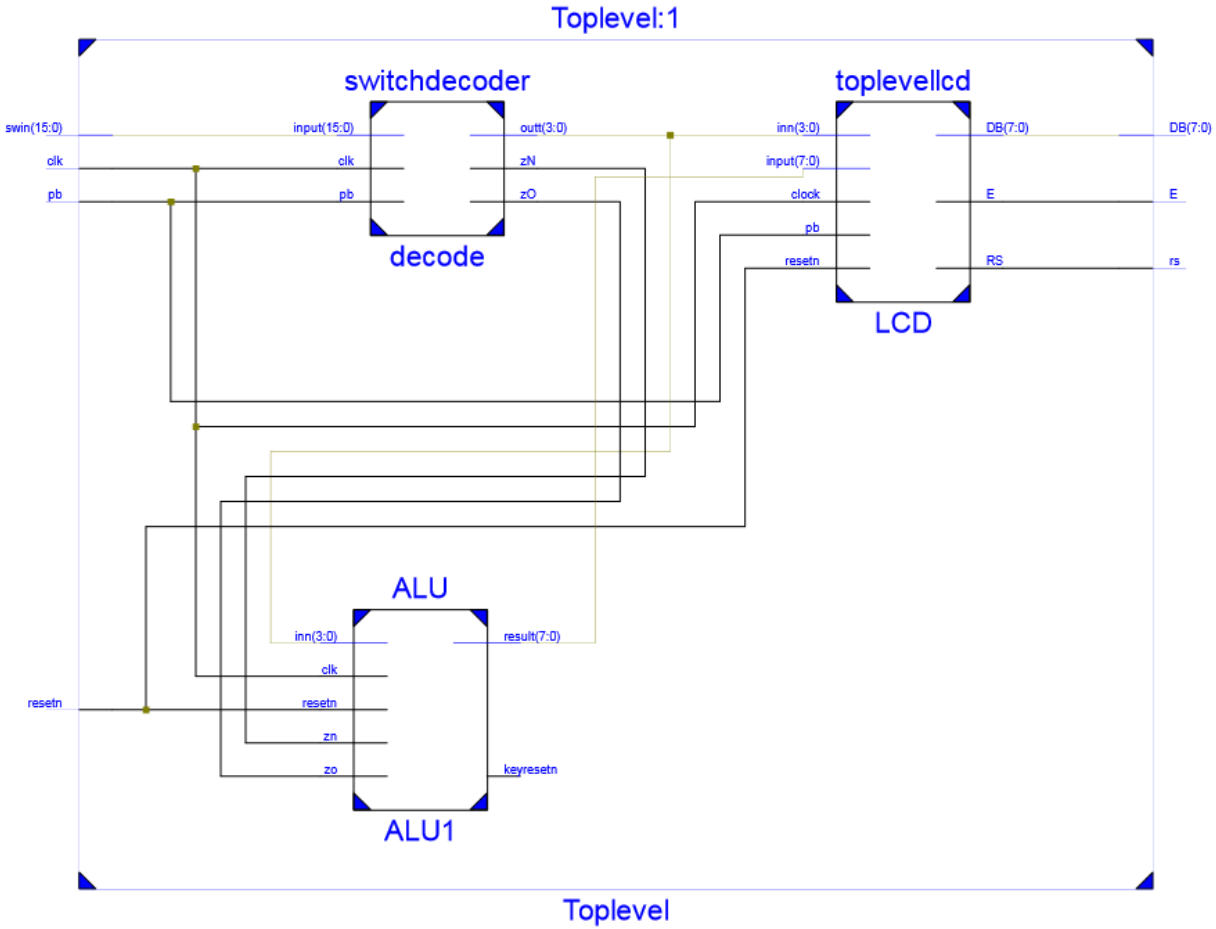
Output is sent to an external LCD

Datapath and Control

Datapath is shown in the figure. The inputs will be from the user and the output will be to the lcd.

The three main components will be the keypad, ALU, and LCD.

Control is within the ALU.



Keypad

The keypad will attach to 1 of 4 PMOD ports on the Nexys .

Works by sending signals 4 for the rows and 4 signals for the columns to determine which key is pressed.

Two signals will also be outputted to signify if a number or operator was pressed by the user.

ALU

Using inputs from the keypad it will determine if a number or operator was pressed.

Once number, operator, number and equals is sequenced then the result is calculated.

This will send the result to the LCD to display.

LCD

Inputs are taken from the keypad and the ALU.

As keys are pressed into the keypad then they are displayed onto the LCD.

Once the ALU has finished calculating, the result is sent to the LCD to display.

The End