YORK UNIVERSITÉ UNIVERSITY

EECS3201 PROJECT

Multiple Function Calculator

Presented By

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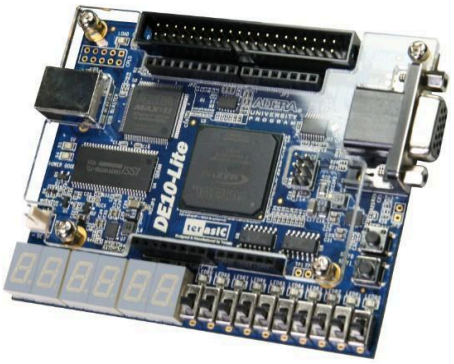

Multiple Function Calculator

Introduction:

The project aims to design and implement a multi-function calculator capable of performing addition, subtraction, multiplication, division, and factorial. The calculator operates by switching between these functions using a key button interface. The design was implemented using Verilog HDL, and DE-10 Light Board on Intel Quartus IDE platform.

Design Description:

The calculator's design was approached with combinational & sequential, and machine states concepts. The system applied to this project operates the calculator by transitioning between different states (addition, subtraction, multiplication, division, factorial) using the input key button, which is assigned to "0" as well as key button "1" is responsible for starting the operation. The inputs have been controlled by switches and the outputs have been displayed on seven-segment Hex(0-5) displays through the project system. The project design is divided into multiple modules as each module is responsible for implementing different
arithmetic operations, to create a multiple function calculator.

Design Simulation Image:

Link: https://pdf.ac/1LggnO

Video Link:

Link: https://youtu.be/FcSPLO7dj8A

References:

1. Vlsiverify. (2022, December 11). *Wallace Tree multiplier*. VLSI Verify. https://vlsiverify.com/verilog/verilog-codes/wallace-tree-multiplier
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3. Admin. (n.d.). *Verilog*. ChipVerify. https://www.chipverify.com/tutorials/verilog