

Calculator

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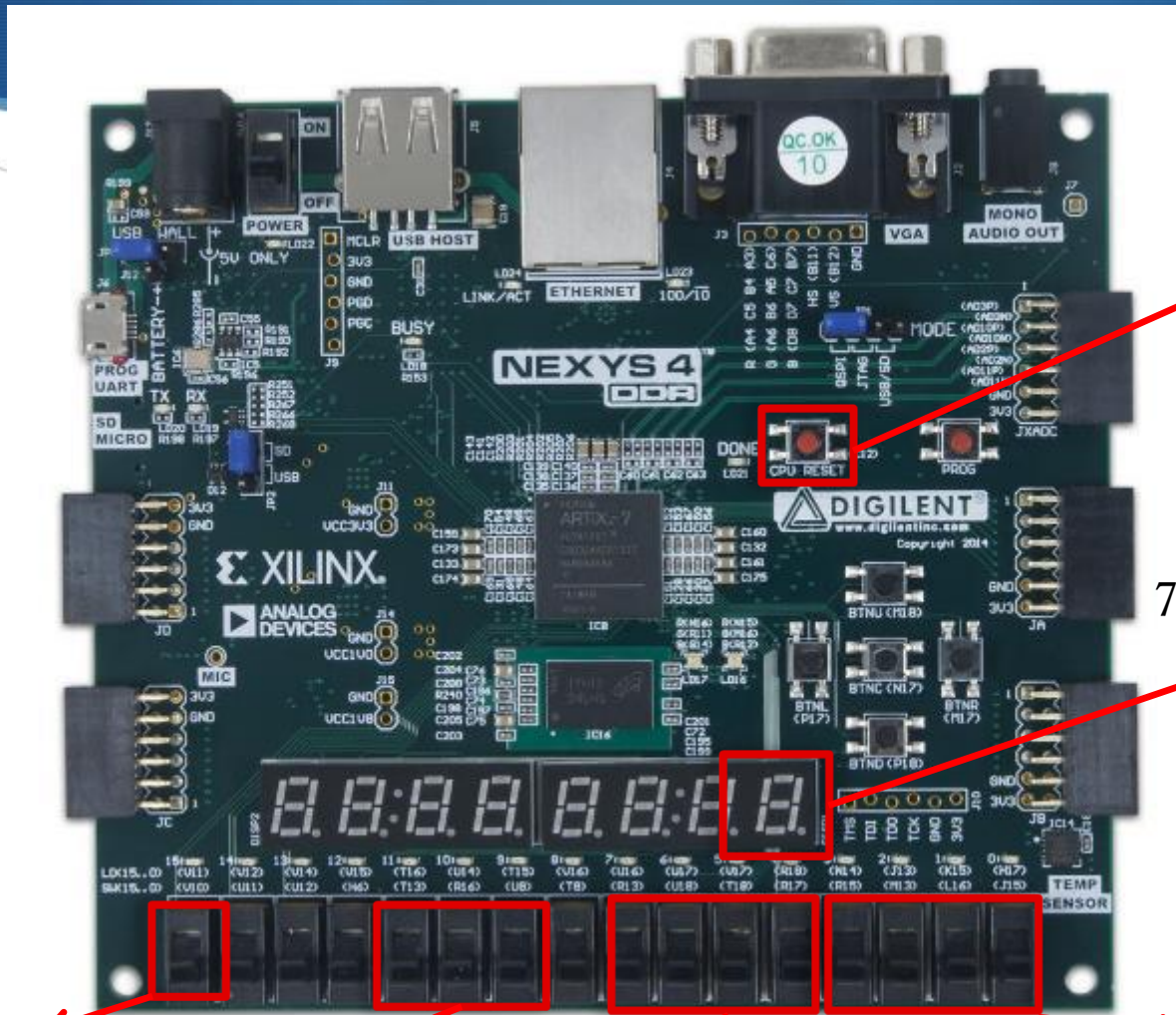


Introduction

This calculator performs basic operations such as:

- 💧 addition/ subtraction
- 💧 multiplication/ division
- 💧 squaring

NEXYS4 Setup



Reset

7-Segment Display

Enable

Sel

Input B

Input A

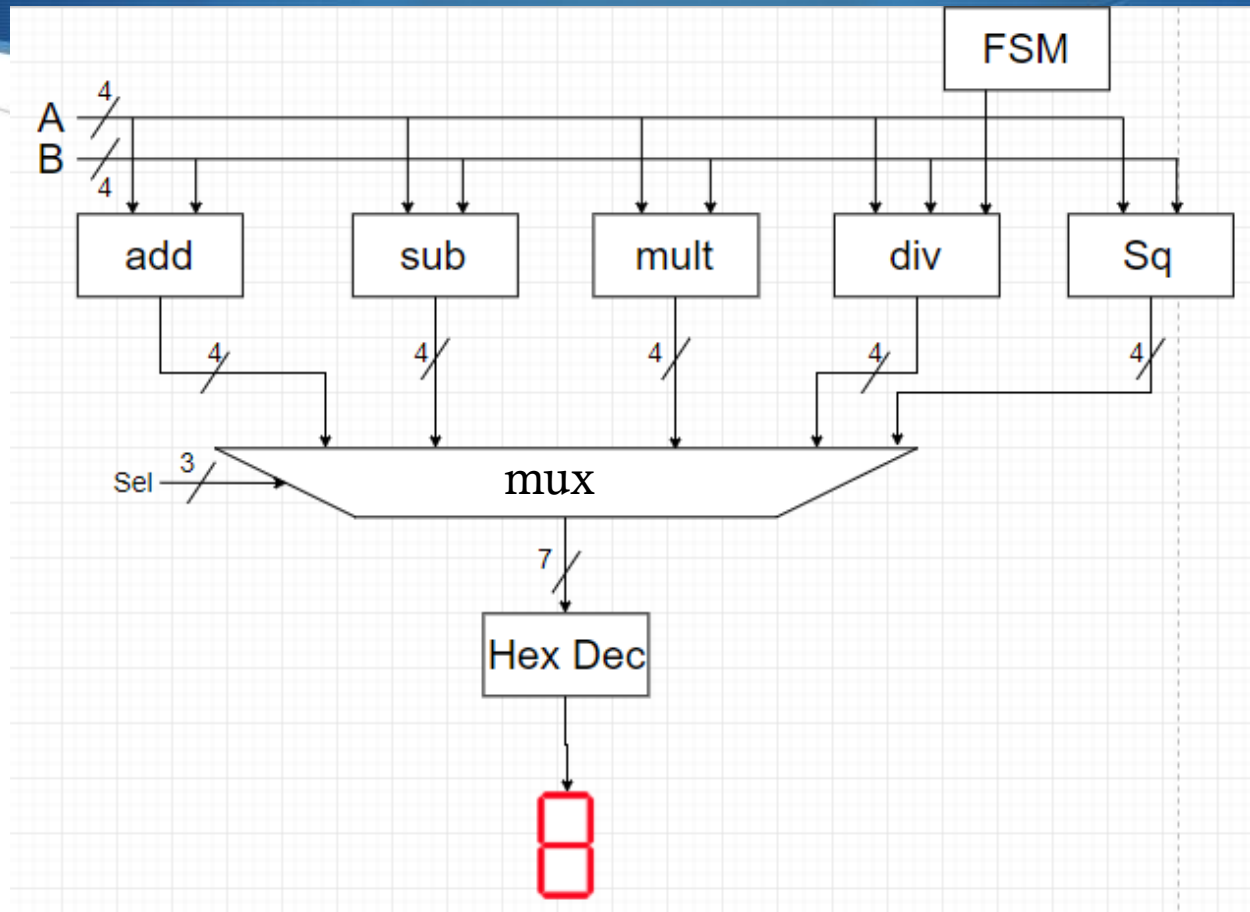
Switches Explained

- ◆ A and B input Switches

- ◆ Select Switches

- ◆ Enable Switch

System



Applications

- ◆ Applications for a calculator range from the general calculations done on a daily basis to basic mathematics and physics
- ◆ Can be used for basic math operations



Difficulties Along the Way

- ◆ To have more than one value on the Seven Segment Display
- ◆ Selection of the Multiplexer for the square function

Improvements

- ◆ Increase the Seven Segment Display to more values
- ◆ Change the Seven Segment Display to display binary with LED's
- ◆ Introduce signed numbers

Summary

- ◆ Constructed a calculator that demonstrates general functions of a calculator by adding/subtracting, multiplying/dividing and using a square function.

Resources

- ◆ <https://reference.digilentinc.com/reference/programmable-logic/nexys-4-ddr/start>
- ◆ <https://reference.digilentinc.com/reference/programmable-logic/nexys-4-ddr/reference-manual>
- ◆ <http://fpgacenter.com/examples/counter2/VhdlCode.php>
- ◆ https://www.google.com/search?q=8+seven+segment+display&rlz=1C1GGRV_enUS774US774&source=lnms&tbm=isch&sa=X&ved=0ahUKEwiCroes6fPXAUI64MKHfscD8IQ_AUICigB&biw=1920&bih=974#imgrc=8rwKiTbiqvplLM:
- ◆ Daniel Llamocca Website
- ◆ TA's Jing Wu and Michael Lohrer