

Floating Point Calculator

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Project Description

- A circuit that calculates various operations of addition, subtraction, multiplication, and division on floating point numbers.
- The user will Input numbers of 32-bit size via USB keyboard and the result will display on a 7-segment display.
- The project will utilize the topics of floating point mathematics and external interfacing.



Design components

External: USB keyboard and 7 segment displays.

Internal:

• Adder, Subtractor, Multiplier, and Divider.

Sub components: LZD, Barrel Shifter, MUX, ADDSUB, SM2C, U_ABS_SIGN, XOR gate

• keycode, LUT, FSM, Hex to 7-seg display.



✤ Adder

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✤ Keyboard













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FSM readOp (gets operation)





Challenges

- Divider and Multiplier Circuit debugging.
- Designing and implementing a 32bit input system using a PS2 Keyboard.
- Having a problem with the input system that would lag too many inputs inwards even though we had a fully operational and perfect simulation set (using wrong DONE from PS2 Keyboard)
- Putting all the pieces together

DEMONSTRATION

https://www.youtube.com/watch?v=ea7pYvGC4_g&feature=youtu.be

