BCD To Binary Converter

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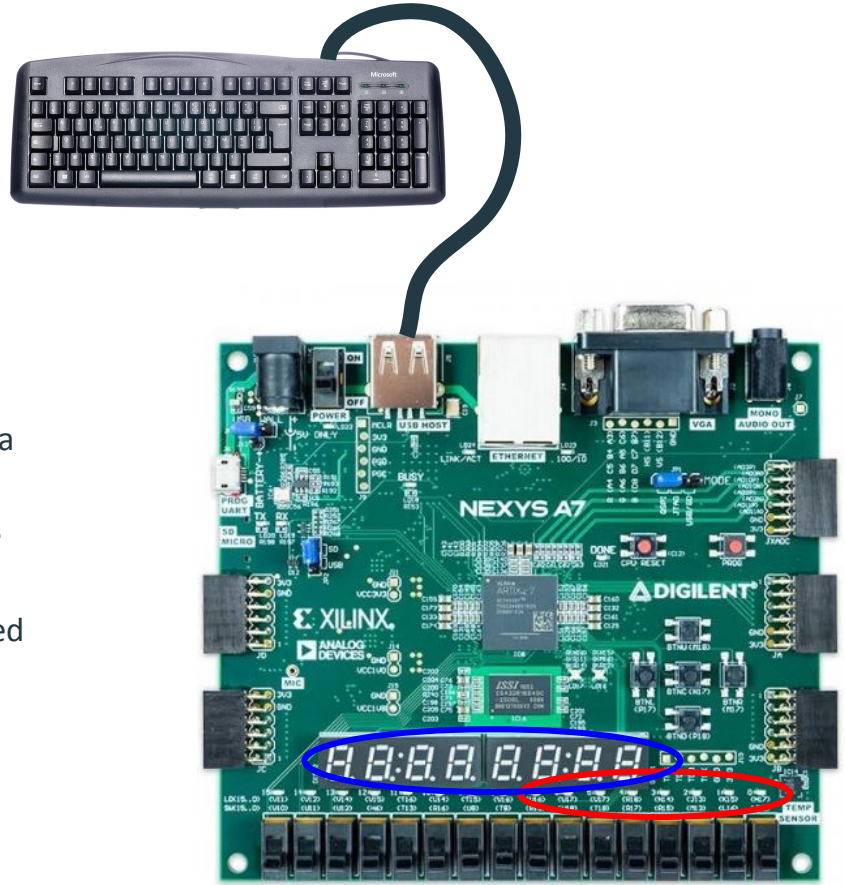
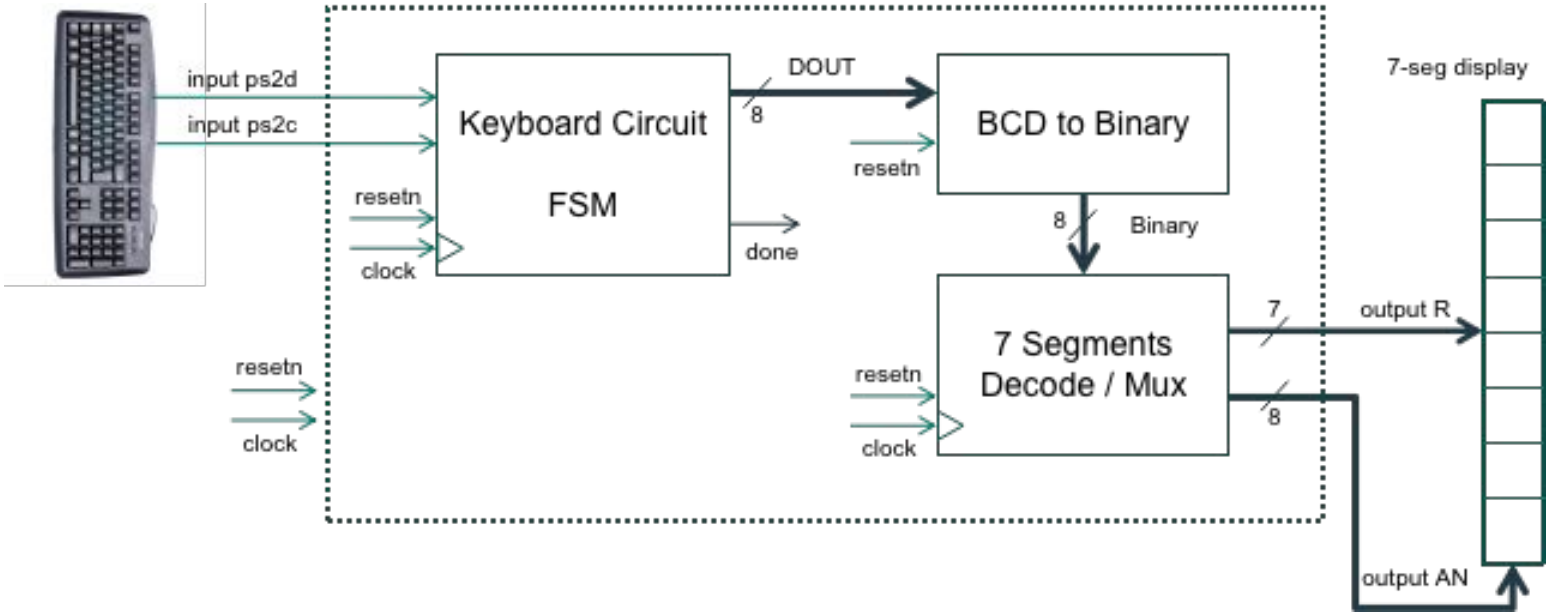
Overview

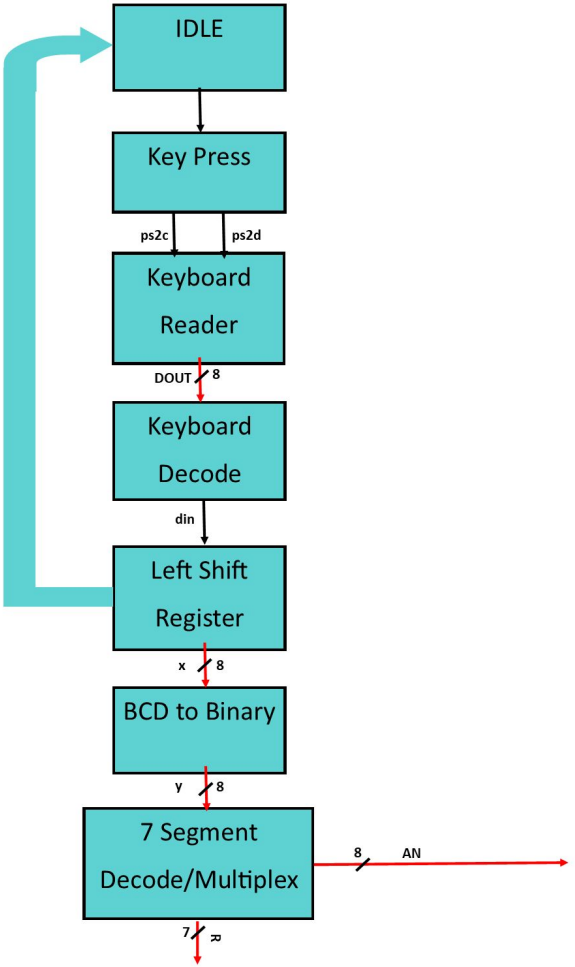
- Purpose: To create a circuit that converts BCD inputs into Binary outputs.
- The user inputs a BCD value using the 0 and 1 key of a keyboard.
- The inputted BCD value will appear on LED 0-7 of the NEXYS board, circled in red.
- The Binary value will then be calculated, and displayed on the 7 segment display, circled in blue.



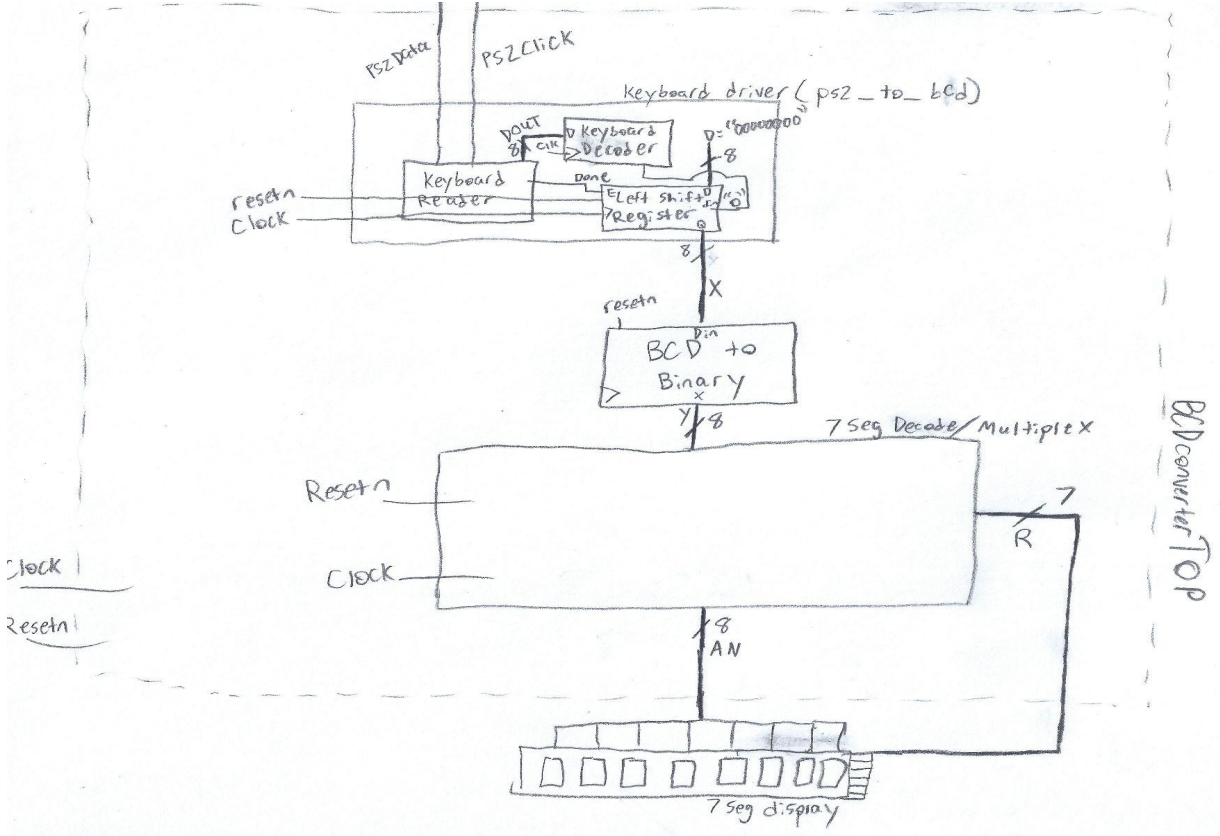
Block Diagram



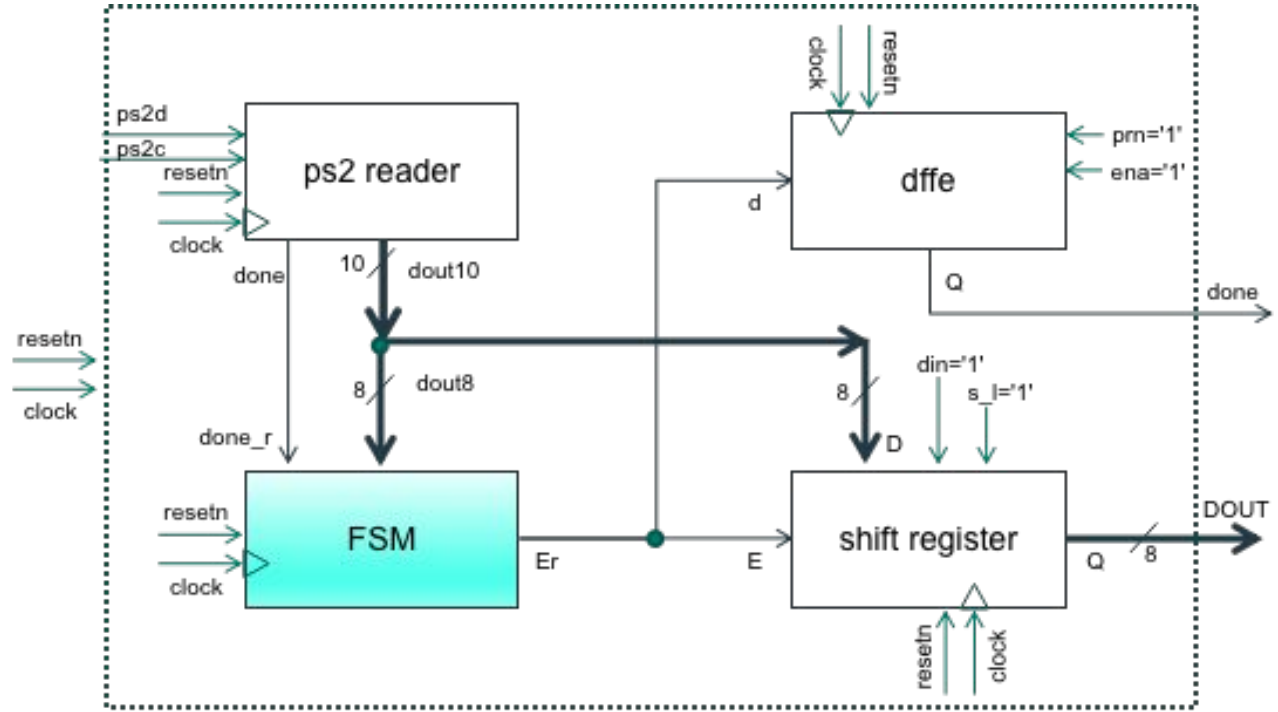
Process Block Diagram



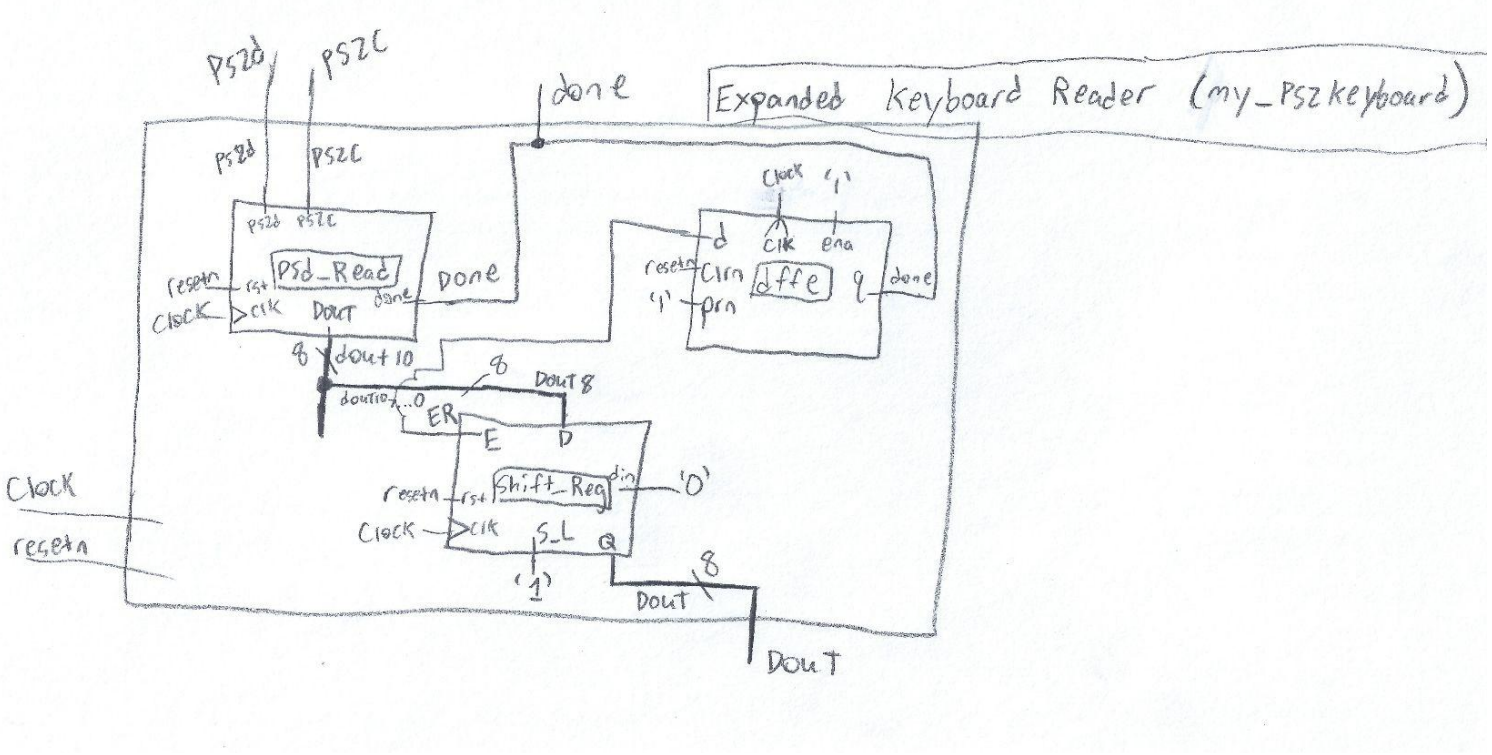
Top level Data Path Schematic



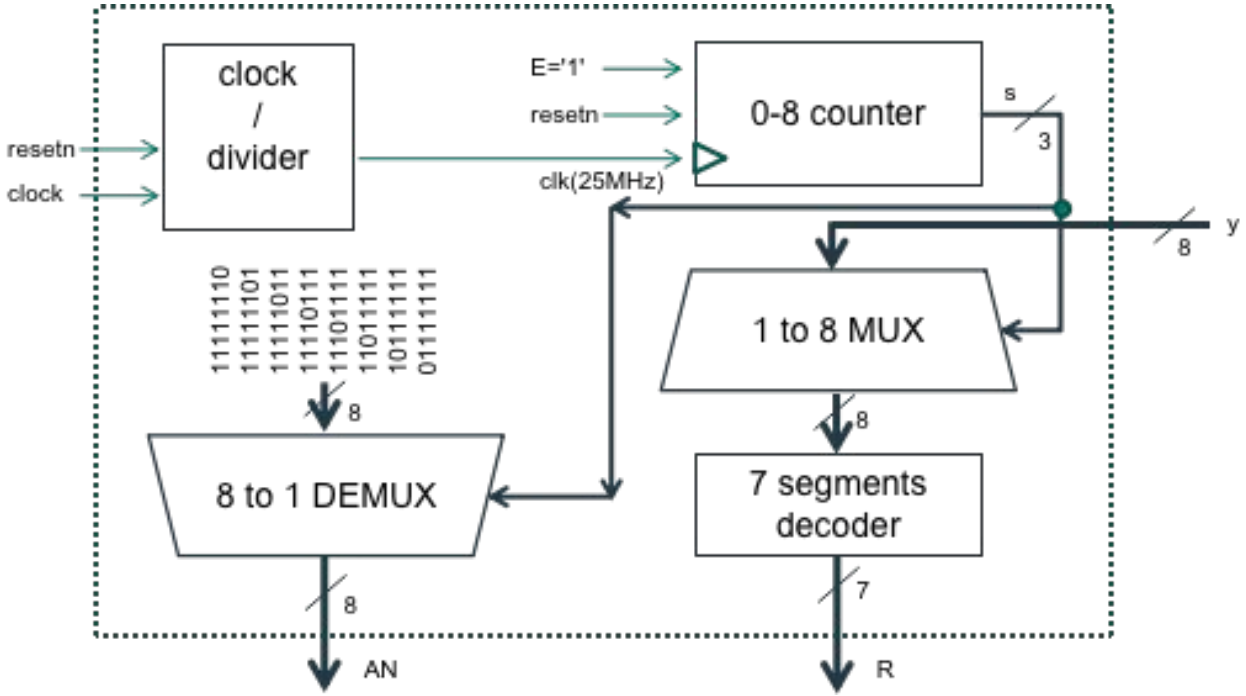
Keyboard Reader Data Path + FSM



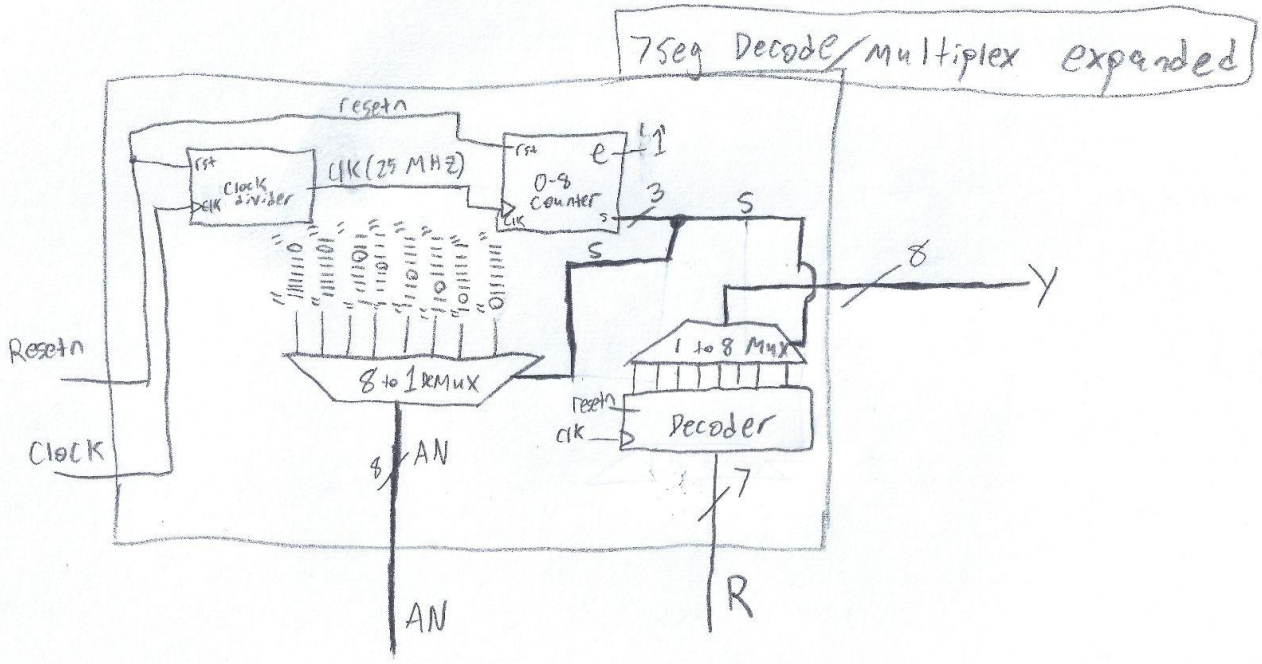
Keyboard Reader Data Path Schematic



Seven Segment Decode/Multiplex Data Path



Seven Segment Decode/Multiplex Data Path Schematic



Demo Setup

Trial #	BCD Input	Expected Binary Output
1	00101001	00011101
2	01100011	00111111
3	00000001	00000001

Back-Up Demo Video: https://youtu.be/CLaNo0RR-D4

Conclusion

We came across an issue on attempting to connect a keyboard to the nexsys board and found that only a standard usb keyboard would work other keyboards that use secondary usb for things like RGB had issues.

In the end converting to binary from BCD was a success when inputting from a standard usb keyboard.

Thank You!

Any Questions?