

CSE 2301 Lab 10

Theory

Shift registers are a set of multiple D-Flip-Flops, each storing a bit, so when a new bit is shifted in, the shift register is able to shift each bit over to the next D-Flip-Flop which also saves the data. They can have both a serial or parallel input, which is either shifting through consecutively, or use presets and clears to set the entire shift register to a new set of data immediately back to the preset values.

We need a debouncer circuit to control the clock to make sure we don't have non-discrete impedance and use high and low voltage without any in-betweens.

Deliverables

PeopleSoft Last 2: 64

BCD: 0110 0100

Step	Input	Registers	Decimal
1	0	00000000	0
2	0	00000000	0
3	1	10000000	128
4	0	01000000	64
5	0	00100000	32
6	1	10010000	144
7	1	11001000	200
8	0	01100100	100

Discussion

I learned about shift registers and more about flip flops. I also learned about a debouncer circuit and how important it is. This was a challenging lab to get right as my breadboard wasn't working and losing some of the components.

Questions

What are the main functional purposes of a register?

A shift register is very useful for storing a sequence of bits as data, and to be able to shift them left and right (multiplication and division by 2). Registers are also useful for data storage in general because it allows data to be stored as it is transferred, so that it will maintain its order without error. You can also create counters and comparison codes from this because they can store a string of bits instead of just one, and this string can change if necessary.

Is a SN5474 the same as a SN7474? If not, what are the differences?

Both SN5474 and SN7474 are Dual D-Type Positive-Edge-Triggered Flip-Flops with Preset and Clear options. The only difference is the different pin placements for both, they both work the same only having different pin-outs.