ECEE 434 Lab #5 - Positive/Negative Flip-flop

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Introduction & Background

The previous experiment introduced the use of D-latches, how they operate, and their limitations. This experiment introduces a different kind of latch called a flip-flop. A flip-flop differs from a latch in that it registers data while the clock is rising, rather than when it is high. A negative version can also be created.

The purpose of this experiment is to build a positive flip-flop and characterize it. The D-latch from the previous experiment is used in this one to create the new circuit.

Procedure

In order to achieve the objective of this experiment, the following procedure was followed:

- Build a negative latch and show its functionality.
  - Use the latch circuit from the previous experiment
  - Simulate its output using Spectre and show the graph.

- Build a positive flip-flop and show it's functionality
- Using the defitions of hold time and setup time for flip-flops, characterize the flip-flop using those measurements.

Results

some stuff resulted in more stuff.

Conclusion

Some cool stuff happened.