CPE 1500 Lab 4: Integrated Circuits Parametrics
1 dedicated lab period, 1 lab period to complete

Objectives
- Measure VOL, VOH
- Measure delays, t_{pdr} and t_{pdf}
- Measure VIL, VIH

Assignment

Common Settings: $V_{DD} = V_{CC} = 5V$

Part 1: **V_{OH}, V_{OL} measurements**

      A. Wire up a 74LS08 AND gate

        Tie both inputs to Gnd

        Using the AD2 – measure the output voltage
        Tie both inputs to V_{CC}

        Using the AD2 – measure the output voltage

      B. Repeat part A with a CD4081 AND gate

Part 2: **Delay measurements**

      A. Wire up 2, 74LS08 AND gates in series

        Tie one input of each to V_{CC}

        Using the AD2 – measure the gate delay through the 2 gates
        Be sure to measure t_{pdr} and t_{pdf}

      B. Repeat part A with a CD4081 AND gate

Part 3: **V_{IL}, V_{IH}**

      A. Wire up a single 74LS08 AND gate

        Tie both inputs together

        Keep the supply set to 5V

        Raise the input low value until the AND gate fails

        Lower the input high value until the AND gate fails

      B. Repeat with a single CD4081 AND gate

For all 3 parts: Document your results and compare them to the specifications

Check Off

You must demonstrate part 2B prior to submission of your report
- Part 1B results and full part 1 informal report   30%
- Demo part 2B results and full part 2 informal report   40%
- Part 3 results and full part 3 informal report   30%

Due at 3:00pm on Tuesday following the lab period – in the box