# LAB Assignment #4 for ECE 525

Assigned: Wed., Mar. 9, 2016
Due: Wed., Mar. 23, 2016

## Description: Compute Inter-chip HD and NIST statistics on HELP timing values for different values of the modulus

1) Using the first 4,096 values from different boards as posted on the website and/or subsequent subsets of timing values from the 116,288 set in YOUR OWN file, compute the Inter-chip HD and NIST statistics for the following modulus values: 32, 40 and 48

2) Compare with your results using a modulus of 64.

3) Did you get any bit flips using a margin of 6 when you regenerated the set 116,288 values the next day? What is the first value of margin, i.e., 5, 4, 3, 2, 1 or 0, that produces at least one bit flip error?

4) Generate 10 sets of timing value labeled run1 through r10 using your board. Compute the bit-strings using the first 4,096 timing values (as before) with the following differences:
    a) Use only the first sample (of the 16 in the timing values file), i.e., do NOT use the average of the 16 samples as you did above
    b) Set the margin to 0
    c) Set the modulus to 2
Compute the Interchip HD using the 10 bitstrings, and apply the NIST tests.

5) Turn in a 1-page pdf of your findings.