

## ELEC 5280/6280 BIST

### Assignment #2 - Random Test Pattern Fault Simulation

Use the 2000 random test patterns from assignment #1 or re-generate 2000 random test patterns for your circuit using the random vector generator (*ranvec.exe*) included in the AUSIM.zip file. To execute this program, type the following in a DOS command prompt window in the directory containing the *ranvec.exe* executable:

```
ranvec s#.vec 2000 #ins
```

where *s#* is the name of your assigned circuit and *#ins* is the number of primary inputs to your circuit (not counting the clock input). You will need to open and look at the inputs “ckt:” statement in ASL description of your circuit to count the number of inputs or use the number given in the comment lines at the top of the ASL file.

Make sure your vector filename prefix (*s#.vec*) matches your ASL filename prefix (*s#.asl*) and make a dummy library file (an empty file or a file with just a comment) named *s#.lib*, where # is the number of your circuit. The following control file give example for logic and fault generation:

<u>For logic &amp; serial fault simulation w/collapsed faults:</u>	<u>For parallel fault simulation w/uncollapsed faults:</u>
default <i>s#</i>	default <i>s#</i>
proc	proc
audit	uncol
simul8	fltgen
fltgen	pftsim
fltsim	

Run serial and parallel fault simulations for collapsed and uncollapsed gate-level stuck-at faults (four simulations total). Record (or calculate) the following information for each simulation:

- A. Record the following data for your circuit from the audit file (*s#.aud*):
1. Record the logic simulation time (given at end of fault simulation)
  2. Total number of faults (found in *s#.flt*)
  3. Total number of detected faults (found in *s#.det*)
  4. Total number of potentially detected faults (found in *s#.pdt*)
  5. Total number of undetected faults (found in *s#.udt*)
  6. Calculate the fault coverage assuming potentially detected faults have a 0.5 probability of actual detection

Turn in your results on paper at the beginning of class on or before the due date (be sure to include your *s#* next to your name on the sheet(s) of paper). Happy BISTing!!!