EEIE30069: VLSI Testing

Assignment #1 (Due: Sep. 23, 2024 23:59:99)

Last update: 2024-09-7

Reading:

- Source code already provided in assignment #0.
- Please put all source code and your report named by your student ID in a folder also named by your student ID.
- Please compress the folder containing your source code and reports to a file named by "ASS1_<your-student-ID>" and upload it to new E3.
- The report should include:
  - The algorithm or idea of your code
  - Several test case results
  - How to compile your code

Assignment Description:

1. (100 pts) Given a benchmark, one primary input (PI) and a primary output (PO) , please list and count all possible paths connecting the given PI and PO.
   The test circuit will only be combinational circuits, so there's no Flip-Flop (DFF) nor loop in the circuit.

   A path is a list of connected gates, and all listed paths have the same PI and PO gates.

Grading:

- **Correctness: 60%**
- **Performance: 30%**
- **Report: 10%**

Attention:

1. The required command format is as follows:
   ./atpg -path -start [PI] -end [PO] [circuit_name]

2. Example:

   Input:

./atpg -path -start G3 -end PO_G16 c17.bench

Output:

G3 net17 G16 PO_G16
G3 net14 net18 G16 PO_G16
The paths from G3 to PO_G16: 2

3. Example (medium circuit, c880.bench in iscas85):

Input:

./atpg -path -start 126GAT_30 -end PO_863GAT_424 c880.bench

Output:

(several paths)
The paths from 126GAT_30 to PO_863GAT_424: 4

4. Example (larger circuit, c6288.bench in iscas85):

Input:

./atpg -path -start 307GAT_18 -end PO_2548GAT_840 c6288.bench

Output:

(several paths)
The paths from 307GAT_18 to PO_2548GAT_840: 468