****

**EE 4550L**

**IC Hardware Security and Trust LAB**

**SPRING 2024**

**TA: Kanchan Vissamsetty**

**Lab section: 01**

**Name: Alex Yeoh**

**“I have neither given nor received aid on this assignment, nor have I observed any violation of the Honor code”**

**Signature: Alex Yeoh Date: 10th April 2024**

**Report due date: 12th April 2024**

1. **OBJECTIVE**

To learn how a timing-based hardware trojan detection method works.

1. **PROCEDURE**

Build the desired circuits and a 4-bit full adder with and without a trojan as the circuit to be put in the testing path.

1. **RESULT**

A computer screen shot of a computer

Description automatically generated

Inverter, schematic

A graph with a line on it

Description automatically generated

Inverter, waveform

A computer screen shot of a circuit board

Description automatically generated

XOR2, schematic

A screen shot of a graph

Description automatically generated

XOR2, waveform

A computer screen shot of a computer

Description automatically generated

DFF, schematic

A screen shot of a graph

Description automatically generated

DFF, waveform

A computer screen shot of a computer circuit

Description automatically generated

Switch, schematic

A graph with different colored lines

Description automatically generated

Switch, waveform

A computer screen shot of a computer scheme

Description automatically generated

FAO, schematic

A screen shot of a graph

Description automatically generated

FAO, waveform

A computer screen shot of a computer circuit

Description automatically generated

HT detection circuit with DUT, schematic

A graph with different colored lines

Description automatically generated

HT detection circuit with DUT without trojan, waveform

A graph with different colored lines

Description automatically generated

HT detection circuit with DUT with 500f F capacitor as a trojan, waveform

1. **CONCLUSION**

My results satisfy the requirements. I do not think it is possible to improve my design with better results as I am unsure what better results would entail. I have learned how timing-based hardware trojan detection works.