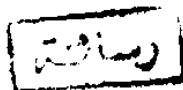
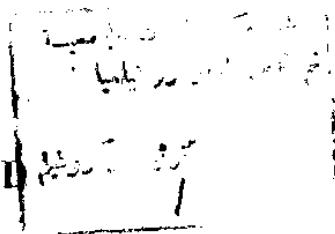


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**Modeling and Simulation of Digital Circuit  
in VHDL and PSpice:  
a Comparative Study**

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## **Approval Sheet**

The Thesis on

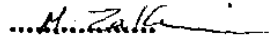
### **Modeling and Simulation of Digital circuit in VHDL and PSpice: a Comparative Study**

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## **STATEMENT**

This dissertation is submitted to Ain Shams University in partial fulfillment of the requirements for the degree of Master of Science in Electrical Engineering (Computer and System Engineering ).

The work included in this thesis was carried out by the author at Computer and Systems Engineering Department, Ain Shams University.

No part of this thesis has been submitted for a degree or a qualification at any other universities or institutions.

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**ABSTRACT of M.Sc Degree**  
**On**  
**Modeling and Simulation of Digital Circuit**  
**in VHDL and PSpice**  
**a Comparative Study**  
**By**  
**Salah El Din Habib Ahmed**  
**Ain Shams University**  
**Faculty of Engineering**  
**Computer & Systems Engineering Department, 1997**

Using hardware description languages in Modeling and simulation of hardware systems is an important and challenging subject. Several computer languages are devised especially for this task with some successes and failures.

The aim of this research is to investigate the capabilities and limitations of two famous hardware description languages. Brief description of both (VHSIC Hardware Description Language) **VHDL** and (Simulation Program with Integrated Circuit Emphasis) **PSpice** are addressed. The basic digital building blocks are described and simulated using the two languages. A comparison between the two models (**VHDL** model and **PSpice** model ) of each building block is performed and explained, as well as the limitations of both languages are described.

A real case study (Priority switch circuit) is performed to verify the results of the comparison between the two languages. The circuit is described using these primitives in both languages. The two models are simulated using a digital and mixed mode simulators. The results confirm that capability of **VHDL** in modeling and simulation of digital circuits however the **PSpice** is more powerful in analog simulation .

**key words**

**VHDL, PSpice, Modeling and Simulation.**



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