

Indiana University – Purdue University Fort Wayne  
**Opus: Research & Creativity at IPFW**

---

Computer and Electrical Engineering Technology &  
Information Systems and Technology Senior Design  
Projects

School of Engineering, Technology and Computer  
Science Design Projects

---

4-15-1988

## 7400 Series Chip Tester

David K. Kerner

*Indiana University - Purdue University Fort Wayne*

Follow this and additional works at: [http://opus.ipfw.edu/etcs\\_seniorproj](http://opus.ipfw.edu/etcs_seniorproj)



Part of the [Computer Sciences Commons](#), and the [Engineering Commons](#)

---

### Opus Citation

David K. Kerner (1988). 7400 Series Chip Tester.  
[http://opus.ipfw.edu/etcs\\_seniorproj/187](http://opus.ipfw.edu/etcs_seniorproj/187)

This Senior Design Project is brought to you for free and open access by the School of Engineering, Technology and Computer Science Design Projects at Opus: Research & Creativity at IPFW. It has been accepted for inclusion in Computer and Electrical Engineering Technology & Information Systems and Technology Senior Design Projects by an authorized administrator of Opus: Research & Creativity at IPFW. For more information, please contact [admin@lib.ipfw.edu](mailto:admin@lib.ipfw.edu).

A Senior Design Project  
to  
Design and Construct an IBM-Based  
7400 Series Integrated Circuit Tester

Professor Harold Gates

EET 491

To complete the Phase II  
Senior Design requirements

established by the

Electrical Engineering Technology Department

Indiana University-Purdue University

at Fort Wayne, Indiana

by

David K. Kerner

April 15, 1988

## TABLE OF CONTENTS

	Page
ABSTRACT .....	1
INTRODUCTION .....	1
Statement of Problem.....	1
Proposed Solution.....	2
Purpose .....	3
Methods .....	3
Plan of Procedure .....	4
1. IBM PRINTER INTERFACE .....	5
Characteristics.....	5
Programing Methods.....	6
Interface I/O.....	6
2. OPERATING SOFTWARE.....	7
Chip Selection.....	7
Data Acquisition.....	8
Data I/O.....	8
3. CHIP TESTER INTERFACE.....	9
Description.....	9
Operation.....	9
Tester Interface Layout.....	10
Chip Sockets.....	11
Power Requirements.....	11
Chip Socket Layout.....	12
4. USER INSTRUCTIONS.....	13
CONCLUSION.....	14
Summary.....	14
Recomendations.....	14
References.....	15
APPENDIX A -- Senior Design Proposal.....	16
APPENDIX B -- BASIC Program.....	28
APPENDIX C -- IBM Interface Information.....	33

**ABSTRACT**  
**OF THE**  
**7400 SERIES CHIP TESTER**  
**BY**  
**DAVID KERNER**

Electrical Engineering Technology students need a quick and easy way to test their 7400 series logic chips. The 7400 Series Integrated Circuit Tester is a simple answer to this problem.

The 7400 IC tester is an IBM based tester capable of testing most of the common logic ICs used in the EET 254 course. In its present state it can test eight different 7400 chips, but it could be easily expanded to check additional chips.

The chip tester is operated from an IBM personal computer. The tester is connected to the IBM Printer Port. However the program could be easily modified to work with any parallel IBM port. The operating computer must have at least one disk-drive or hard-drive for the tester to function.

The tester operates by placing digital signals on the input of a 7400 series microchip, and comparing the output of the chip to predetermined results stored on the system disk. The computer will then respond with a verdict on the chip being tested. The operating program gives complete instructions for set-up and operation of the tester.