

A Review Paper On 8085 Microprocessor

Deepak Kumar, Divanshu Kaushik
Department of computer Information Technology
Dronacharya college of engineering, gurgaon, India

Abstract- This paper describes the development of 8085 cross assembler for students working in their microprocessor lab. The software has been written in Visual BASIC 5.0 and is user friendly. The cross assembler converts any 8085 assembly program to the corresponding operational code and saves it in user defined binary file used for burning the EPROM chip. A simulator is defined as any device or system that simulates specific conditions or the characteristics of a real process or machine for the purposes of research or operator training. The 8085 microprocessor is an excellent teaching material to teach basic concepts and programming concepts of a microprocessor.

Index Terms- Simulator, microprocessor 8085, LMS, PHP, Cross Assembler.

I. INTRODUCTION

The 8085 microprocessor was invented by Intel Corporation in 1976. Its clock speed is 5 MHz, which is about one thousandth of the latest microprocessor such as Intel Core i7. However, the 8085 is still used widely in higher education, because the 8085 has a simple architecture and an adequate instruction set. Assembler is a software program that takes an assembly program segment of mnemonics, the source language, and translates it into an equivalent binary file program, the target machine language, which can thus be used to burn the EPROM chip for dedicated application. Presently we are using M85-01 kit in various institutions to train engineers regarding the programming with assembly language. The kit is single board microprocessor kit.

II. THE 8085 MICROPROCESSOR TRAINER KIT

At present, the 8085 microprocessor trainer kit made by Minmax Electronics in India is used as practice devices in the practices of the microprocessor-related subjects at our college. The 8085 microprocessor has only 246 instruction sets.

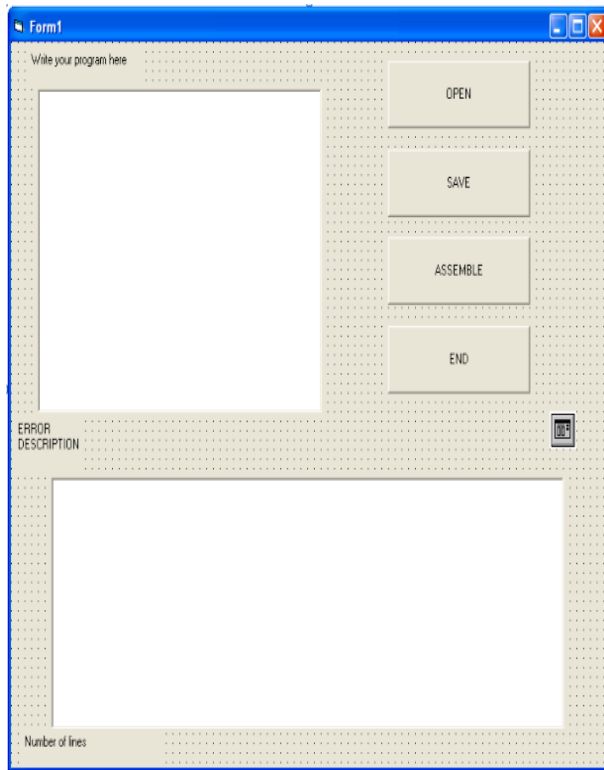


The 8085 microprocessor trainer.

III. DEVELOPED SOFTWARE

The cross assembler software has been programmed in the Visual BASIC 5.0. The developed software is user friendly. It reads the instruction set as well as its corresponding binary code from a predefined 8085.txt file in the system in use. On running the program it opens a window as shown in Fig and allows the user to browse the existing assembly file or to enter the mnemonic code in the run time also as shown in Fig. It then allows the user to save the entered code in a user defined .asm file, as shown in

Fig



Initial form of the 8085 Cross Assembler developed

[3.1] Execution Module:

Execution module executes a set of Hex machine codes received from Main module, and transfers the results to GUI module. Here, the results mean the contents of registers and memory locations after the execution. Execution module has two execution modes: RUN mode and STEP mode. The RUN mode batch processes a set of the machine codes and transfers the results to GUI module at a time. On the other hand, the STEP mode executes each machine code and transfers each result to GUI module step by step.

[3.2] GUI Module:

The user inputs the assembly program by GUI module, and GUI module sends the input program to Main module. Each instruction of the program consists of an op-code which is the task to be performed and an operand which is the data to be operated on. The operand input and the op-code input windows are shown in Figs. , respectively. Referring to , the buttons are arranged.

IV. IMPLEMENTATION OF THE 8085 MICROPROCESSOR SIMULATOR ON LMS

After the development of the simulator, it is implemented on the Moodle-based LMS of our college as an activity module. Generally, a new activity module of Moodle is created by modifying the NEWMODULE template which can be downloaded from the Moodle website. The NEWMODULE template is composed of four folders and fifteen files. Main modifications from the template are described as follows.

V. CONCLUSION

We have developed the 8085 microprocessor simulator on PHP, which is composed of three modules: Main module, Execution module, and GUI module. It has been implemented on the Moodle-based LMS of our college. At present, the microprocessor simulator is used four times and the microprocessor trainer is used six times in ten practices of the microprocessor-related subjects at our college. Motorola and other processors and controllers. The developed software is a cost effective and fast way to generate the .bin file. It also gives the computer students an inside knowledge of Parser. Following additions can be made for further enhancement of the project

- A runtime graph can be included
- All the remaining instructions i.e. 5 more instructions can be implemented.

REFERENCES

- [1] R. S. Gaonkar, Microprocessor Architecture, Programming, and Applications with the 8085, 5th ed., Upper Saddle River, NJ: Prentice Hall, 2002, pp. 1–171.
- [2] S. K. Breckling, Microprocessor 8085 and Its Interfacing, 2nd ed., New Delhi, India: PHI Learning, 2011.
- [3] A. K. Ganguly, and A. Ganguly, Microprocessors and Microcontrollers 8085, 8086 and 8051, Oxford, U.K.: Alpha Science International, 2012.
- [4] Sakai Project. (2012) Collaboration and learning – for educations by educators [Online]. Available: <http://sakaiproject.org>
- [5] Moodle.org. (2012) Moodle Statistics [Online]. Available: <http://moodle.org/stats>

- [6] GNUSim8085. (2011) 8085 Simulator for Linux and Windows [Online]. Available: <http://gnusim8085.org>
- [7] Allen I. Holub, “Compiler Design in C”, Prentice Hall of India Pvt. Ltd., 2007.
- [8] Alfred V. Aho, Ravi Sethi, Jeffrey D. Ullman, “Compilers: Principles Techniques and Tools”, Pearson Education, 2001.
- [9] Ramesh S. Gaonkar, “Microprocessor Architecture, Programming, and Applications with the 8085/8085A”, Wiley Eastern Limited.
- [10] Gary Cornel, “Visual Basic 5 from Ground Up”, TMH Publications
- [11] Brian Siler and Jeff Spotts, “Using Visual Basic 6”, Que Prentice Hall of India Pvt. Ltd., 2002.
- [12] B.Ram Principles of microprocessor, Dhanpat Rai publication
- [13] <http://www.scribd.com/doc/4616314/8085-microprocessor>
- [14] <http://www.angelfire.com/electronic2/8085Simulator/simulator.zip>
- [15] Advanced simulation topics on 8 bit microprocessor in Education conference , 1993, Twenty third annual conference, Engineering education, Renewing America’s technology
- [16] A graphical simulation tool for teaching microprocessor architecture and assembly language/volume 2.