

IBM PC 5150

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Spring 2017

CONTENTS

| | | |
|----|-------------------------------|----|
| 1. | Introduction | 3 |
| 2. | System Hardware/Software | 4 |
| 3. | System Commands | 5 |
| 4. | Basic Programming | 7 |
| 5. | Installation of Floppy Drives | 10 |
| 6. | References | 11 |

1. Introduction

IBM Personal Computer (IBM 5150) was introduced to the world 35 years ago. This system offers a variety of options. This system could process information faster than earlier machines. The Heart or Brains of your Personal Computer is the System Unit. It also consists of two 5 ¼" diskette drives. System Unit support a variety of black and white or color televisions and monitors for home entertainment, education and business applications.



Fig 1: IBM PC 5150

2. System Hardware/Software

The following is the specification for the IBM PC 5150 in the Math & CS department at Indiana State University.

Hardware:

CPU - Intel 8088, 4.77MHz

RAM - 640K

Display - 80x24 text

Storage – 21MB hard disk drive, 160kb 5.25-inch and 3.5-inch floppy disk drives

Keyboard - 83 key

Screen - Monochrome Display CGA

Software:

Operating System - IBM DOS V 4.0

Input to the System Unit is through an 83-key keyboard which includes a numeric keypad and 10 function keys. The Keyboard is connected to the System Unit with a six-foot coiled cable which allows you to move the keyboard to a comfortable operating position.

Switching ON your system:

- i. Plug in all the connections.
- ii. Plug in the Keyboard at the back of the system unit.
- iii. Once you plug in the system starts with a blank screen on the monitor.
- iv. To the right side of the system unit, there is a button to switch on.
- v. After you switch on, you will be able to hear a beep.
- vi. After the beep. You will be able to see the screen menu (takes a while).

3. SYSTEM COMMANDS

| Name | Function |
|-------------|--|
| dir | Displays the contents of a directory. |
| cd | Change directory. |
| del | Delete a file. |
| copy | Copies file from one location to another. |
| cls | Clears the screen. |
| date | Displays the system date. |
| deltree | Deletes a subdirectory along with its files. |
| exit | Exits the command prompt. |
| fdisk | Manipulates the hard disk partition tables. |
| chkdsk | Displays disk information. |
| find | To find lines in an input data stream. |
| Move | Move file or rename. |

| | |
|-------|--------------------------------------|
| rmdir | Remove/Delete a directory. |
| sort | Sort lines in the input data stream. |

4. BASIC PROGRAMMING

IBM PC 5150 consists of QuickBasic (i.e. QB or QBasic) in which DOS programs are written. The location to the file - C:\QB45\QB.exe. Once you enter the directory, you need to click enter on the QB.exe file. You will see a welcome screen with the options file system, command prompt etc.

How does it work?

Once you see the welcome screen.

- i. Go to the location of the file and click enter twice.
- ii. Go to the file Options and click on "New Program".
- iii. Once you have clicked you will see a new empty window. You can start writing your code on that window.
- iv. Once you have finished writing the code. Click on File again and Save As. a name for the program.
- v. Click on Run and select Set Main Module... Option.
- vi. Again Click on Run and then click on Start Option.
- vii. You will get the output on the screen. Click enter again.

Basic Functions of QBasic:

| Name | Operation |
|------|---|
| If | An IF statement can be used to evaluate variables or other things and execute code based on the result. |

| | |
|--------------|--|
| cls | Clears the screen. |
| For loop | This command allows you to execute a part of a program a certain number of times. |
| dim | To define values in order to use them later. |
| For...NEXT | With FOR...NEXT you can use the STEP command, which tells QBasic how to count from one number to another. |
| Print | PRINT is QBasic's text output function. PRINT is a QBasic function that requires arguments. |
| Input | The input command is used to gather input from the user. |
| While | While loop is a control flow statement that allows code to be executed repeatedly based on a given Boolean condition. |
| do ... while | It's a block of commands, where the program doesn't have to loop a certain number of times, like in FOR...NEXT. It can loop indefinitely, while the condition is met (and when it's not met, the loop stops) |
| Random | QBasic has a random number statement, RND that generates a random decimal between 0 and 1. |
| Select | The select statement is a substitute for repeated use of IF statements. |

How to Code?

In order to start writing a simple code in QB one should know the basic commands/functions and what they do etc. The QuickBasic exe file is located in the following location – C:\QB45 along with additional programs. Note that the QB files have an extension .BAS. For example, let's write a simple QBasic program to add two numbers.

QB program to add 2 Numbers:

```
CLS  
PRINT "ADDITION OF 2 NUMBER"  
INPUT "ENTER A: ", A  
INPUT "ENTER B: ", B  
C = A + B  
PRINT C
```

The output for this code would be something like:

```
ENTER A:    10(Enter the value of A).  
ENTER B:    10(Enter the value of B).  
20
```

Explanation: Print statement prints the output to the screen once it is compiled and a, b are the integers that are defined and "INPUT" is a function which reads the input from the keyboard.

TIP: Always use cls before the print statement.

5. Installation from a Floppy Disk

IBM PC has two drives – The Floppy 3.5' inch drive and 5.25' inch Diskette drive. One should always be careful while handling a floppy or diskette. Please read the instructions on how to handle and insert a floppy before you go through.

To install a software from the Floppy disk or a Diskette. We need to insert the disk into the appropriate drives. Note that, Drive A: reads the 5.25 inch Diskette drive and Drive B:/D: reads the 3.5 inch floppy drive.

Once the disk is inserted in the appropriate drive.

- i. Go to the File System.
- ii. Press tab and select the appropriate disk (Light blinks when you are reading that drive).
- iii. Press tab again and select the file that you want to read.
- iv. Click on the .exe, .com, .bat file for any installation and follows the instructions to install.
- v. Finish installation and remove the disk from the drive.

If you want to copy the contents of the disk onto your system. Please use the copy command mentioned in the SYSTEM COMMANDS section. To copy the entire disk to the system use the below syntax – copy *.* [Destination Drive i.e. C:|B:|A:].

Additional Data about the software's in the PC:

Some of the Working Software in the PC are – QB.exe, gemanage.exe, globs.exe, turbo.exe (Pascal), Addition.com, JIGSAW (Puzzle).

Not working Software – Carmen.exe (Game).

6. References

- i. http://www.minuszerodegrees.net/manuals/IBM_5150_Guide_to_Operations_6025000_AUG81.pdf
- ii. <http://oldcomputers.net/ibm5150.html>
- iii. http://www.schoolfreeware.com/QBasic_Tutorials_-_QB64_Tutorials_-_Programming_And_Code_Examples.html
- iv. <http://www.computerhope.com/overview.htm>