

INTRODUCTION to

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Introduction to the IBM PC and DOS

Preface

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This Manual is one in a series of Training Manuals prepared by Computer Consultants International (CCI) for use by students and instructors in the area of Computer Programs in Continuing Education and Corporate classes. It is intended that these materials will be used to assist students in the learning process.

Computer Consultants International would like to acknowledge the contributions of the Instructors and Consultants of Computer Consultants International for their participation in the development of this Training Manual.

This Training Manual is not intended to replace the MS-DOS User's Manual that is supplied with the MS-DOS software. The MS-DOS User's Manual covers topics in more detail than this Manual. The material contained in this Manual is based on our interpretation of available information, and is subject to change.

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Introduction

1.1 Course Objectives

The purpose of this course is to introduce you to the IBM Personal Computer and its standard disk operating system called DOS. Upon successful completion of this course, you will be able to:

- Understand fundamental computer terminology.
- List the major components of a personal computer.
- Handle, care for, and format diskettes.
- Safely turn on and off a personal computer.
- Load the disk operating system (referred to as DOS).
- Reset the computer.
- Perform several common DOS functions.
- Create and save work to a floppy diskette or hard disk drive.
- Manage the individual files on a floppy diskette or hard disk drive.
- Create and manage an effective directory structure on a disk.
- Perform a routine backup and restoration of data.
- Create and use batch files to simplify the use of the computer.

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- Confidently use the following DOS commands:

TIME	COPY	MD	PROMPT
DATE	RENAME	CD	DISKCOPY
CLS	DELETE	RD	BACKUP
DIR	TYPE	PATH	RESTORE
FORMAT			

These objectives are reached with the help of the instructor and with the use of the material and exercises in this manual.

MS-DOS is a very large and powerful program that resides on every IBM PC and IBM compatible personal computer. This manual presents a tremendous amount of material in a concise and easy-to-learn format. It is recommended that you read ahead as well as re-read the material in this manual. This increases your retention of the knowledge, concepts and skills.

1.2 Manual Conventions

The following conventions are used throughout the course material:

- **Bold** characters represent the key to be pressed.
- ***Bold Italic*** characters represent menu options, menu choices or field names.
- The word "type" means to type the indicated *text*.
- The word "press" means to press the specified **key**.
- Menu options and features are listed in left-hand columns and corresponding descriptions are in the right-hand column.
- Instructions for exercises and examples are in numbered steps.
- **Shift** **Ctrl** and **Alt** keys are *pressed first and held down* in conjunction with other keys (e.g., **Ctrl** + **Alt** + **Delete**).

Special "Notes" and "Hints" are placed in a box like this.

Menu messages are displayed in a box like this.

Exercises are written in this font and have a ruling line above and below the text to be typed.

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1.3 Objectives of Section 1

This section introduces the most popular personal computer in the world, the IBM PC, and its standard disk operating system called DOS. Upon successful completion of this section, you will be able to:

- Compare and contrast the various types of computers.
- Describe the main parts of a typical personal computer.
- Explain the difference between hardware and software.
- List the most popular applications or uses of a personal computer.
- List the most popular software programs for performing these different applications.
- Understand the importance of maintaining your personal computer through careful attention to diskettes and by avoiding environmental hazards.
- Discuss purchasing a computer system using the appropriate terminology.
- Differentiate between the various types of diskettes.
- Safely turn the computer on and off.
- Reset the computer system without using the power switch.
- Set the time and date on the computer.

1.4 Types of Computers

There are many different types of computers that have emerged over the past 30 years. From the first mainframe computers which filled entire rooms and required staffs in excess of 50 people, technology has rushed ahead into an era of carrying computers in briefcases. At first, these smaller computers were referred to as *personal computers* or *PCs* because only one person could access the computer's power at any one time. However, today's personal computers are no longer just for personal use, allowing multiple people to have simultaneous access to their power and storage facilities. With the development of the PC came the development of new names for the PC, including: microcomputer, desktop computer, laptop computer, notebook computer, and palmtop computer. It is important to remember that all of these terms refer to the same family of the personal computer.

To understand where the PC or microcomputer sits in relation to other computers, the following section describes the three primary categories of computers.

1.4.1 Mainframe Computer

- Computer equipment (hardware) fills a large room.
- Large volumes of data are processed extremely fast.
- Many people can use the computer at the same time.
- Large capital expenditure, often costing millions of dollars.
- Requires a staff of 10 or more programmers and technicians.
- Commonly found in large organizations, financial institutions, and government agencies.

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1.4.2 Minicomputer

- Computer equipment fills a small room.
- Data is processed at a slower speed and at lower volumes, compared to mainframe computers.
- Several people can use the computer at the same time.
- Medium expenditure, often costing tens of thousands of dollars.
- Commonly found in medium-sized manufacturing companies, legal firms, and accounting firms.

1.4.3 Microcomputer

- Sits on or beside a desk.
- Small volumes of data are processed quickly.
- Normally, only one person uses the computer.
- Small expenditure, often costing less than two thousand dollars.
- Commonly found in businesses, schools, and homes.

When comparing the three classes of computers, note the number of people able to use the computer efficiently at a single time. One of the most powerful features of the larger mainframe computers is their ability to simultaneously handle several different programs and multiple users without a severe degradation in performance. Although minicomputers have similar capabilities, they may become slower and slower with each additional user that logs onto the system. This is one of the primary reasons for businesses investing in microcomputers, especially for those jobs where sharing data between multiple users is not crucial.

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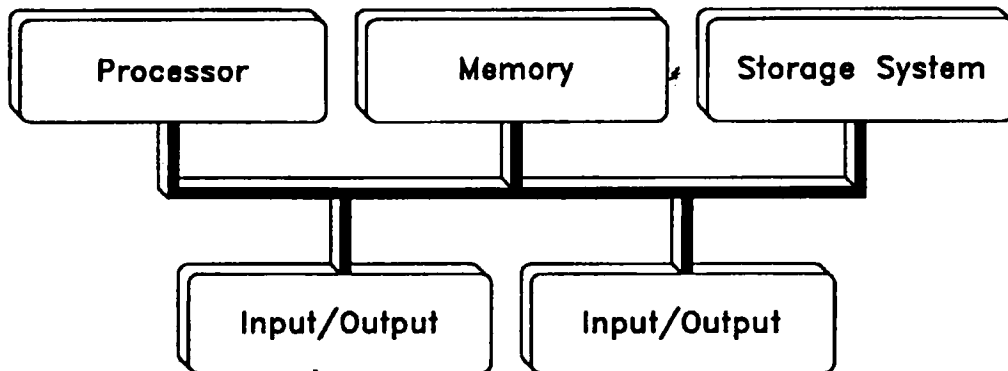
Although microcomputers are cost-effective, relatively powerful, and can perform many tasks required by small businesses, the larger computers are still needed in many areas. Large national companies with regional offices, government facilities, hospitals and other organizations require the power and speed of mainframe computers to handle many people in different locations accessing the same data at the same time.

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1.5 A Typical Computer

1.5.1 The Parts of a Computer

There are four major parts of a microcomputer: the processor, memory, input/output devices, and the storage system. These physical parts are the *Hardware* component of a computer system. The *Software* component refers to the collection of programs that perform the actual applications.



The *Processor* or *CPU* is the brain of the computer and is located within the box. The CPU receives and executes instructions from the software program loaded in the computer's memory.

The *Memory*, called *RAM* (Random Access Memory), is where the software program is temporarily stored when in use. Because a computer's RAM memory is volatile, and usually quite limited in capacity, the actual software programs must permanently reside on a hard or floppy disk. Programs are then loaded into and removed from memory as required by the person using the computer. It is important to remember that RAM is only a temporary storage location – it is wiped clean when the computer is turned off. RAM is located in the box with the CPU.

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The *Input/Output (I/O)* devices of a computer allow the computer to communicate with the user, and include the various pieces of equipment connected to the box. There are actually three classifications of I/O devices: devices used to send information to the computer, devices used to display information from the computer, and devices used to communicate between computers.

Examples of I/O devices are:

- Sending information to the computer (Input):
 - » Keyboard
 - » Mouse or Trackball
 - » Pen and Tablet
 - » Scanner
- Displaying information from the computer (Output):
 - » Monitor
 - » Printer
 - » Plotter
- Communicating between computers (Input and Output):
 - » Modem
 - » Network

A *Modem* is a relatively inexpensive item that acts as both an input and output device. A modem transfers data from one computer to another across normal telephone lines, similar to how a fax transmission is sent or received. As with fax machines, you must have a modem at each end (attached to each computer) to complete the transmission. The only cost involved with using a modem is regular long-distance telephone charges.

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Warning: *All of these devices are commonly connected to the back of the box. If a connection comes loose while you are using the computer, DO NOT plug it back in without turning off the computer first. Otherwise, you may damage the connection.*

The *storage system* enables you to permanently save your work. The normal microcomputer storage system consists of floppy disk drives and hard disk drives.

1.5.2 Purchasing a Microcomputer

Before you go into the local computer store and talk to the salesman, it may help to know what to expect and what questions to ask. This section applies to purchasing an IBM or IBM compatible computer. An IBM compatible computer is not a lesser-quality computer than a true IBM PC; it is simply manufactured by a company other than IBM to run DOS software programs.

As discussed in the previous section, a typical microcomputer is divided into these components:

- Box (where the CPU and RAM are located)
- Things Connected to the Box (I/O or Peripheral Devices)
- Storage System (Floppy and Hard Disk drives)

The following provides a step-by-step guide to purchasing the various components that make up a "complete" microcomputer system.

1. The first step in purchasing a computer is to select the appropriate Box for your requirements. When selecting the Box, you are actually selecting the model number of the processor or CPU. Each CPU model processes information and instructions at a different speed, measured in Megahertz (MHz). Try to imagine the MHz rating as a Miles per Hour (Mph) rating, where it is the relative speed among the models that is important. The chart below includes the common amount of RAM memory for each CPU model, and is provided only as a benchmark for making a purchasing decision.