汉英对照

通用微机教程

Textbook for Universal Microcomputer

in Chinese and English

李有文 编著

Li Yuwen

参照国家教委等级考试的大纲编写，按照学用结合的原则，以磁盘操作系统及汉字输入编辑为重点，兼顾工具软件并向视窗平台及互联网络过渡。可作为各级各类学校的微机教材，边掌握微机边提高英语。

I took the programs concerning coinputer level examination of National Educational Committee as reference to write. The principle I obey is that studying must combine with application. As far as the contents are concerned, DOS and Chinese Character typing & editing are considered to be the gravity. Tool software is also considered. There is a transition towards Windows desktop and Internet. It may be taken as the textbook for all schools at different level. On occasion of you play microcomputer, you can enhance your English capability.

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内容简介

本书参照国家教委等级考试的大纲编写，按照学用结合的原则，教程以磁盘操作系统及汉字输入编辑为重点，兼顾工具软件并向视窗平台及网络 Internet 过渡。各章节的内容深入浅出，互相呼应，重视基本训练，兼顾最新发展。各章末附有适当习题。

本教程可作各级各类学校的微机参考教材，对计算机专业的学生和专业人员也有参考价值。写成汉英对照，为的是使读者通过本教程的学习边摆弄微机边提高英语能力，这不仅可能，而且有效。

序言

Preface

微机是工具；掌握（或者说能玩得转）微机是一种技能。

Microcomputer is actually a tool . You are enable to have better capability if you can master it skillfully.

不管您学什么专业，干什么工作，都应该悉它，叫它为您服务。如果说在过去的较长岁月里所谓的“个人电脑”在九百六十万平方公里土地上一直是“公家”购买的对象，那么，现在它已在“个人”射程之内，进入家庭在经济上已没有太大障碍。

You ought to be familiar with it and let it be as a servant of you independent of your career or any job you are doing. If we say that the personal computers were the products bought by officials during the past years in China's 9,600,000 square kilometers land, at present people can buy it without too much difficulties from the viewpoint of economy.

前美国总统乔治·布什摆弄电脑；已故印度前总理拉·甘地要用电脑把印度“拖入”二十一世纪；邓小平很早就强调要“从娃娃抓起”。这些著名政治家忙政治都忙不过来，还要对计算机这玩艺儿或极为重视，或身体力行，其道理不言自明。

The former US president J. Bush plays microcomputer, The died former India primer L. Guandi wanted to use the computer to help his country " be dragged into" the 21st century. Deng Shiaoping emphasized that computer education must start from younger generation even in their childhood. These famous politicians are very busy in their political affairs, nevertheless, they put the computer education and application in extremely important position. This shows there is a truth that we could understand easily.

在中国，作为中国人，不论是大中学生还是成人，您应该会汉字输入及编辑排版，即用键盘当“笔”，屏幕作“纸”，书写创意。

If you are a Chinese by birth (a student in middle school or university or an adult) you should learn how to type Chinese Characters, write by the "pen", which is keyboard, and edit them in the "paper", which is the screen. Furthermore, do your presentation by a microcomputer.

这并不等于您一定和电子电路打交道，也不意味您一定要学习枯燥的汇编等语言。

This doesn't mean that you have to deal with electronic circuits, or you have to study assembler language which you are not interested in.

本书参照国家教委等级考试的大纲编写，按照学用结合的原则，教程以磁盘操作系统及汉字输入编辑为重点，兼顾工具软件并向视窗平台及信息高速公路过渡。各章节的内容深入浅出，互相呼应，重视基本训练，兼顾最新发展。各章末附有适当习题。

I took the programs concerning computer level examination of National Educational Committee as reference to write this book. The principle I trusted is that study must be combined with application. As

far as the contents are concerned, disk operating system and Chinese Character typing & editing are considered to be focus, tool software also occupies a suitable portion. There is a transition towards Windows desktop and information high way. The contents are selected carefully in such a way, that I tries to explain them more popularly, to find their reason more deeply, to let their mutual connection more powerfully, to emphasize on the training of basic skill and to take care of recent development. Additionally, There are suitable exercises at the end of each chapter.

本教程可以作各级各类学校的微机参考教材，对计算机专业的学生和专业人员也有参考价值。我把它写成汉英对照，为的是使读者通过本教程的学习边摆弄微机边提高英语能力，这不仅可能，而且有效。

This textbook may be taken as the teaching reference for all schools at different level. It is valuable for students as well as technician in computer field. I write it in both Chinese and English language for the purpose that, on occasion of you play microcomputer, you can enhance your English capability. This is not only possible, but also effective.

对于"微机盲"和不懂英语者，利用本书通过四十个学时的讲授并配以约一比一上机便"玩转"微机。这已被作者多年来校内外数十遍的授课及带上机实习的经验所证明，这并不"吹牛"

As for "blindness for microcomputer" and anybody who doses'nt know English language, it is proved that he or she can master microcomputer in satisfactory fashion through 40-hours studying and same quantity of operating hours under the guidande of this book. In evidence of the experiences of mine and a great deal of teaching and operation-training inside and outside the university, surely it is not to "boast".

与之相配的软件为配套的一张5英寸高密（1.2兆字节）软盘和一张3英寸高密（1.44兆字节）软盘，上面驻存有实习用的操作系统DOS 6.22，汉字软件及其它工具软件等。请需要者与作者联系。

The associated software is in two floppy disks, one is a five-inch high density diskette(1.2 MB) and the other is a three-inch high density diskette(1.44 MB), in which the operating system version 6.22 , Chinese Character processing software and other software tools are loaded. Please contact with me if you want to get.

本书的出版，得到云南大学出版社副社长蔡圣俭先生的许多指导，友人Siklocy博士阅读过英文稿，深表谢忱。

I will give my deep thanks to Mr. Chi Shanjian, deputy director of Yunnan University Press, for his guidance for the publication of this textbook, and to Dr. Siklocy for his reading in English portion of this book.

李有文　谨识

Sincerely Yours

Li Yuwen

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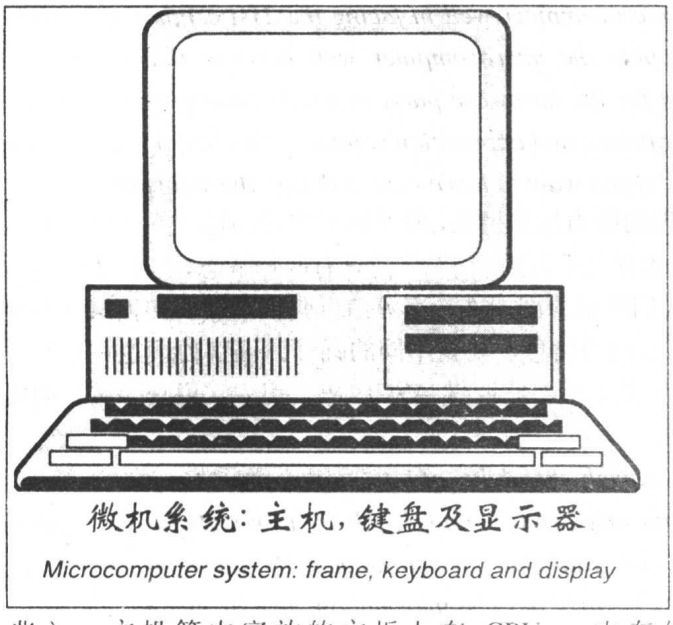
绪论

Introduction

计算机自从问世到现在，不过五十年的时间。其基本部件从电子管、分离的晶体管、发展到集成电路。如今微电子集成已从小规模、中规模、大规模发展到超大规模集成。微机的 286 已经被淘汰， 386 已趋于被淘汰， 486 、 586 是目前的主流机种。更高档次的 P6 芯片已经问世， P7 芯片不长时间亦推出，这意味着微机的性能更加强大。但随着芯片的升级,价格却不断下降，这称之为摩尔定律。

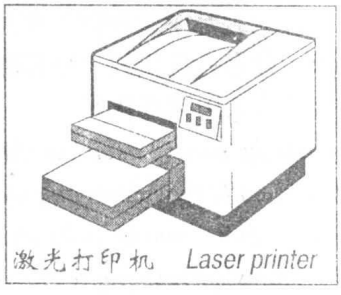
Fifty years passed since the computer came to this world. Its basic parts develop gradually from electronic tube to separate transistor, again to integrated circuits. The microelectronics integration developed from small scale, medium scale, large scale to very large integration now. The processing capability of the microcomputer enhances at very high speed compared with that of the past. The Central Processing Unit, known as CPU, of the core part of the computer uses VLSIC (Very Large Scale Integrated Circuits). Accordingly type 286 went away and 386 trends to go away, whereas 486 and 586 at present are available. The so called P6 chips are making, and P7 chip will appear. This means that the performance of the computer will be more powerful. Moor's law tells us that the price will go down linearly with the higher level of the chips.



微机系统：主机，键盘及显示器

Microcomputer system: frame, keyboard and display

微机的基本构成是主机、键盘和显示器，如图所示。键盘是用户的输入设备，其主要部分类似英文打字机；显示器是输出设备，用来显示信息，看上去好象一台电视机；主机面板上可以看见电源开关（ Power ）、全机复位开关（ Reset ），一般还安放有一对软盘驱动器（ 1.2 兆 + 1.44 兆）。主机箱内安放的主板上有 CPU 、内存条



激光打印机 *Laser printer*

（RAM）、扩展槽和附属电路、硬盘也放在机箱里。

The fundamental structure is mainframe case, keyboard and display shown as in the figure. The keyboard is an input device of the user and its main part is similar to a typewriter. The display is an output device that is used to show the information and looks like a television set. You may see the power switch and reset switch, and two slots of a couple of floppy disk (1.2 megabyte + 1.44 megabyte) on the panel of mainframe case. The mainboard on which the CPU, the memory (e.g., the RAM, Random Access Memory), the expanded slots and the associated circuits are included, mount inner the mainframe case. And The hard disk also locates in mainframe case.

应当指出，微机的发展趋向于多媒体微机。即在机箱扩展槽内插入诸如声卡、视卡、传真卡，并在箱内安放光盘驱动器 CD-ROM 使在面板上可插入激光盘。这样，可以处理的信息便不仅仅是文字，图片、声音及电视信号都可处理，与电话系统及互联网络系统相联，便可进入信息高速公路。

It shows that the development of the microcomputer evolves to Multimedia Personal Computer or MPC, in the way of that several card such as audio card, video card and modem/fax card are inserted into the expanded slots of the mainboard. Of course the CD-ROM (Compressed Disk of Read Only Memory) Drive is mounted inside the mainframe case and its slot appears on the panel. Accordingly, the processed information may include characters, pictures, sound and the video signals. You may enter the Information High Way to share the information if the MPC connects with telephone system and Internet.

微机的应用已经深入社会生活各个领域。微机的老祖宗算盘的无可挽回地被淘汰足以说明，要面向二十一世纪，玩不转微机是极大的缺憾。当然，要玩转微机必需经过训练，原因是除称之为硬件的那些部件外，还一定要有软件的支持。软件又分成两大类，即系统软件和应用软件。要会用这些软件要花功夫，要会设计软件就得下更大功夫了。

The application of the microcomputer roots deeply in all fields of the social life. That the abacus, which is the ancestor of the microcomputer, is discarded proved that it would be a big shortcoming if you could not play the microcomputer well in facing the 21st century. Of course, Training is necessary if you want to play the microcomputer well because that software is necessary for the microcomputer except for the hardware parts in good condition. The software may be divided into two kinds: system software and application software. You will do your best to use the software, and you will work hard if you want to learn how to design the software.

微机的逻辑判断能力，或信息处理的能力虽然极强，但说穿了它只知道“0”和“1”，原因是芯片上的集成电路好象设置了成百上千万道“门”。门只有两种状态，“开”及“关”，分别对应于数字“1”和“0”。我们所说的图、文、声等信息归根结底要转换成这两个数字。软件就起到了“翻译”作用。不同的信息，要找不同的翻译。汉字处理也许要经过几层翻译。最靠近机器的“贴身翻译”是谁呢？它叫做 ASCII 码，用中文说长了些，叫关于信息交换的美国标准代码。

Though the logical decision ability, namely the ability of information-processing is extremely high, but basically the microcomputer can only know '0' and '1.' The reason is that the integrated circuits in the chip seem to make millions of 'Gate' that has two states: 'ON' state and 'OFF' state. These two states correspond to the digit "1" and "0." The information such as picture, character

and audio will be transformed into these two digits finally. Software functions as the translator or interpreter. Different kind of software means different translator. Perhaps the Chinese Character Processing needs several levels of translator to make the machine understand. Who is the translator nearest to the machine? It is ASCII (the abbreviation of American Standard Code for Information Interchange) Code.

ASCII 码一共有 256 个码子。每个码子都由 8 个“字位”组合而成。这个“字位”不是“0”就是“1”。比方，小写的英文字母 a 用 01100001 表示，大写的英文字母 A 用 01000001 表示，阿拉伯数字 0 用 00110000 表示，1 用表示 00110001，2 用 00110010 表示，等等。详见附录 A: ASCII 字符集常用集。

ASCII includes 256 codes totally. Each code includes bits. The bit is "1" or "0." For example, the lower letter 'a' is represented by 0110001, the upper letter ' A' is represented by 01000001. The Arabic digit '0' is represented by 00110000, '1' is represented by 00110001, and '2' is represented by 00110010, etc. You can see them in given ASCII common set in detail.

从 ASCII 码到“1”和“0”之间有一种转换机制。人们生活中所熟悉的是十进位数制，机器认识的实际上是二进位数制，这两种数制之间是通过所谓十六进位数制完成转换的。这样，我们可以列出:

There is a transforming mechanism between ASCII and "1" and "0." People are familiar with the decimal (ten-carry number) system, but the machines only recognize the binary (two-carry number) system. The transformation between these two system is actually completed through the hexadecimal(sixteen-carry number) system. We give:

十进数制 *Decimal System*	十六进数制 *Hexadecimal System*	二进数制 *Binary System*
0	0	0000
1	1	0001
2	2	0010
3	3	0011
4	4	0100
5	5	0101
6	6	0110
7	7	0111
8	8	10000
9	9	10001
10	A	10010
11	B	10011
12	C	10100
13	D	10101
14	E	10110
15	F	10111
16	10	11000

255　　FF　　11111111

从十进位数制到二或十六进位数制之间的换算采取“除模（数）取余（数）排列，最低位为第一个余数，其余类推，最高位为最末一个商数”的原则完成。反之，采取按位值作为系数、与基数作为底的位序方幂相乘，再求和得到”的原则办理。例如:

The transformation from decimal system to binary or decimal system completes according to the principle in which the sequence of the digits is that the lowest digit is the first reminder and the highest digit is the last quotient; oppositely, the principle is that the value is obtained in this way: it is The sum of each value of the product in which the coefficient multiplied by the power of the position value, and the base is the base of the number system. For Instance ,

十进制 255 = 十六进制 FF = 二进制 11111111

所以，我们说信息的最小单位为“字位”即“比特”（Bit），之后是“字节”（Byte），1 字节=8 字位。ASCII 字符占 8 个字位。汉字不是拼音文字，其表示方法是以图形方式完成的。一个汉字用 8 个字位不可能表示完全，必需要用两个字节即 16 个字位方可。不论以何种方法输入汉字，五笔字型方法也好，拼音方法也好，最终也都是转换成 ASCII 码。至于汉字处理中的“全角”与“半角”，前者表示无论英文符号还是汉字都取 16 位；而后者表示只有汉字取 16 位，其它英文符号只占 8 位。

Therefore, we say that the most basic information unit is bit, then the another big unit is byte. We have 1 Byte = 8 Bits. Each ASCII character includes 8 Bits. A Chinese Character needs two Bytes (16 Bits) to express because that it expresses by using graphic mode, so that 8 Bits is not enough to represent a single Chinese Character. However, either Five-Strokes Mode or Spelling Mode is adapted, the ASCII code is finally gotten from the transformation. As far as the "All-Angle" and "Half-Angle" are concerned, the former shows that Chinese Character, letters and other symbols occupy 16 Bits, but the latter shows that only the Chinese Character occupy 16 Bits , the others occupy only 8 Bits.

如何存储信息？它存储在象软盘这样的存储媒体上。所以我们要首先介绍键盘和软盘。

How does the information got stored? It is stored in the media such as floppy disk. As a beginner, you must learn how to use keyboard and floppy disk. Therefore, at first we want to introduce keyboard and floppy disk.

第一章　键盘指法、磁盘及开关机

Chapter 1　Keyboard Fingering, Disk and Power on/off

由于旨在教会你玩转微机，有必要对键盘、磁盘等专章描述。因为用户必须对键盘各键位了若指掌；对磁盘，特别是软盘的规格性能心中有数才谈得上诸如打字、正确的指法、快速的输入及排版等。

The purpose of this book is to teach you how to play the microcomputer. It is necessary to describe keyboard and disk in a special chapter. Because a user must be very familiar with all keypads of the keyboard and know the specification and performance of the disk, especially the specification of floppy disk, he can work with the microcomputer in typing with correct fingering method and editing quickly.

总之，要想把屏幕作“纸”，用键盘当“笔”，进行文件（章）写作，必须熟悉键盘和有正确的指法。另外，要首先会用软盘这种存储媒体，并正确地开机、关机，使之很快“进入情况”。

In a word, you have to take the screen as the "paper" and the keyboard as a "pen" to write your file in correct keyboard fingering method. Besides, you have to know how to use the floppy disk as a storage medium Also, you have to power on/off the microcomputer normally. So, you enter the microcomputer environment naturally.

1　键盘构造

Keyboard Structure

如果用户留意，微机键盘的中部实际上是一部通用英文打字机部分。然而，这是表观上的，其机理却不一样。

If you take care of the central part of a keyboard, it is actually a universal typewriter. However, this is superficial, the microcompupter keyboard has different mechanism compared with a typewriter.

键盘本身含有一个微动开关矩阵，当按下某个键帽时，实际上是接通塑料键帽下的微动开关，向矩阵发送一个信息，该信息被键盘内的一块小芯片快速扫描和处理并转换成所谓“扫描码”，再送给 CPU 进行译码。

There is a micro-touch switch matrix in a keyboard. When any keypad is pressed a micro-touch switch is connected to sent a message that is scanned and handled by a chip in the keyboard, then the message is transformed into a "scan code". Then CPU decodes the scan code.

每个扫描码都存储在小芯片的内部缓冲器中。每隔 3 至 5 毫秒，小芯片便对键盘矩阵