



重点大学 计算机基础课程教材

计算机英语

邱仲潘 主编

清华大学出版社 • 北京交通大学出版社

内容简介

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内 容 简 介

本书是为计算机专业本科三年级学生编写的专业英语教材,全书分20章,每章有一篇计算机时文和难句解释,并将文中涉及的关键术语放在练习中,每章最后还有课外阅读。为了帮助学生阅读和翻译科技文献,每章会介绍一些翻译技巧。时文选择既考虑让学生掌握必要的专业词汇,又考虑介绍一些前沿技术,开拓学生的视野。作者作为一线教师,了解学生的知识水平、接受能力和需求点,而且翻译过大量计算机图书,有丰富的翻译经验,翻译技巧的系统介绍是本书的一大特色。

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前言 Preface

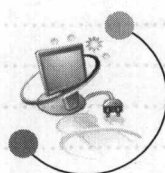
打开计算机,即使使用中文版操作系统和汉化软件,仍然可能遇到大量英文内容。如果计算机显示 CMOS battery failed (CMOS 电池失效),说明 CMOS 电池的电力已经不足,需要更换新的电池。如果计算机显示 Resuming from disk, Press TAB to show POST screen (从硬盘恢复开机,按 TAB 键显示开机自检画面),则是因为某些主板的 BIOS 提供了 Suspend to disk (挂起到硬盘)的功能,当使用者以 Suspend to disk 的方式来关机时,下次开机就会显示此提示消息。

这是计算机技术资料中常见的例子,不要头疼。计算机技术是从英语国家开始的,从事计算机行业的人,难免遇到大量英文资料,无论是外版教材、技术手册还是联机说明都是如此,而希望阅读或者发表高水平的专业论文,也必须使用英语。因此,学好专业英语对计算机专业学生来说非常重要。

本书是针对计算机专业本科三年级学生编写的。计算机专业学生的基本要求是读懂外方的软件需求文档和在编程中根据要求插入简单的注释文本。因此在本书编写过程中,我们一直认为应该强调阅读理解,强调简单文本写作及强调专业术语与基本科技英语语法。同时,为了提高效率和便于工作中的资料积累与交流,应该介绍一些翻译技巧,使学生能够把看懂的内容用比较准确和流畅的中文表达出来,能够把软件设计与实现中的思路翻译成简单英文。为此,我们挑选一些难句,给出准确翻译并进行剖析,增加学生的理解深度。课文后面还有关键术语的解释、翻译技巧及技术方面、语言方面的知识,非常实用。每章最后还有参考读物,难度略大于课文,建议老师在保证让学生掌握课文内容的前提下,根据学生的接受情况和兴趣、水平决定教学内容的深浅。俗话说,兴趣是成功之母,本教材努力通过各种背景知识增加趣味性,老师还可以通过调动学生积极参与课堂教学活动激发学生的学习兴趣,可以鼓励学生自己从网络和其他地方寻找相关资料,扩大视野,并且把学习的专业英语知识应用到其他专业课程的学习中,学以致用,切实体会计算机英语的作用,变“要我学”为“我要学”。

本书由邱仲潘主编,第1章至第14章由邱仲潘编写,第15章至第20章由刘文红编写,邱仲潘负责全书的统稿工作。在本书的写作过程中,陈镭、邓琳、黄宣达、江松波、杨静、刘文琼、张艺永等同志也做了大量工作,在此深表感谢。由于时间仓促,书中难免存在错误和缺漏之处,期待各位读者不吝赐教,以便今后修订时改正和增补。

编者
2008年9月



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Chapter 1

Personal Computer



1.1 Text ///

When you mention the word “technology”, most people think about **computers**. Virtually every facet of our lives has some computerized components. The appliances in our homes have microprocessors built into them, as do our televisions. Even our cars have a computer. But the computer that everyone thinks of first is typically the **personal computer**, or **PC**. Figure 1 – 1 shows PC and its peripherals.

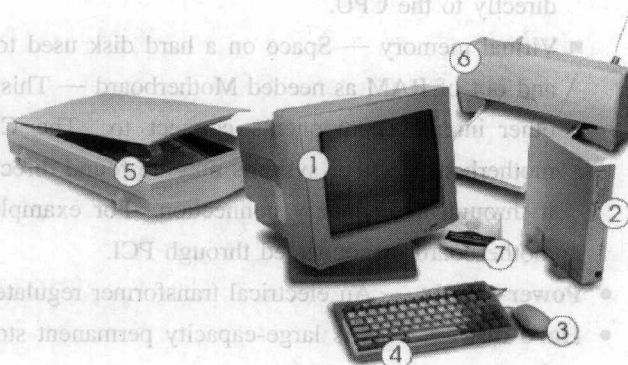


Figure 1 – 1 PC and its peripherals

A PC is a general purpose tool building around a microprocessor.

- ① — Monitor; ② — Hard Drive; ③ — Mouse; ④ — Keyboard;
⑤ — Scanner; ⑥ — Printer; ⑦ — Modem

It has lots of different parts — memory, a hard disk, a modem, etc. — that work together. “General purpose” means that you can do many different things with a PC. You can use it to type documents, send e-mail, browse the Web and play games.

Here is one way to think about it: A PC is a **general-purpose** information processing device. It can take information from a person (through the keyboard and mouse), from a device (like a floppy disk or CD) or from the network (through a modem or a network card) and process it. Once processed, the information is shown to the user (on the monitor), stored on a device (like a hard disk) or sent somewhere else on the network (back through the modem or network card). We have lots of special-purpose processors in our lives. An MP3 Player is a specialized computer for processing MP3 files. It can’t do anything else. A GPS is a specialized computer for handling GPS signals. It can’t do anything else. A Gameboy is a specialized computer for handling games, but it can’t do anything else. A PC can do it all because it is general-purpose.

Let's take a look at the main components of a typical desktop computer.

- **Central processing unit (CPU)** — The microprocessor “brain” of the computer system is called the central processing unit. Everything that a computer does is overseen by the CPU.
- **Memory** — This is very fast storage used to hold data. It has to be fast because it connects directly to the microprocessor. There are several specific types of memory in a computer.
 - **Random-access memory (RAM)** — Used to temporarily store information that the computer is currently working with.
 - **Read-only memory (ROM)** — A permanent type of memory storage used by the computer for important data that does not change.
 - **Basic input/output system (BIOS)** — A type of ROM that is used by the computer to establish basic communication when the computer is first turned on.
 - **Caching** — The storing of frequently used data in extremely fast RAM that connects directly to the CPU.
 - **Virtual memory** — Space on a hard disk used to temporarily store data and swap it in and out of RAM as needed.
- **Motherboard** — This is the main circuit board that all of the other internal components connect to. The CPU and memory are usually on the motherboard. Other systems may be found directly on the motherboard or connected to it through a secondary connection. For example, a sound card can be built into the motherboard or connected through PCI.
- **Power supply** — An electrical transformer regulates the electricity used by the computer.
- **Hard disk** — This is large-capacity permanent storage used to hold information such as programs and documents.
- **Operating system** — This is the basic software that allows the user to interface with the computer.
- **Integrated Drive Electronics (IDE) Controller** — This is the primary interface for the hard drive, CD-ROM and floppy disk drive.
- **Peripheral Component Interconnect (PCI) Bus** — The most common way to connect additional components to the computer, PCI uses a series of slots on the motherboard that PCI cards plug into.
- **SCSI** — Pronounced “scuzzy”, the **small computer system interface** is a method of adding additional devices, such as hard drives or scanners, to the computer.
- **AGP** — Accelerated Graphics Port is a very high-speed connection used by the graphics card to interface with the computer.
- **Sound card** — This is used by the computer to record and play audio by converting analog sound into digital information and back again.
- **Graphics card** — This translates image data from the computer into a format that can be displayed by the monitor.

No matter how powerful the components inside your computer are, you need a way to interact with them. This interaction is called **input/output (I/O)**. The most common types of I/O in PCs are:

- **Monitor** — The monitor is the primary device for displaying information from the computer.
- **Keyboard** — The keyboard is the primary device for entering information into the computer.
- **Mouse** — The mouse is the primary device for navigating and interacting with the computer.
- **Removable storage** — Removable storage devices allow you to add new information to your computer very easily, as well as save information that you want to carry to a different location.
 - **Floppy disk** — The most common form of removable storage, floppy disks are extremely inexpensive and easy to save information to.
 - **CD-ROM** — CD-ROM (compact disc, read-only memory) is a popular form of distribution of commercial software. Many systems now offer CD-R (recordable) and CD-RW (rewritable), which can also record.
 - **Flash memory** — Based on a type of ROM called electrically erasable programmable read-only memory (EEPROM), Flash memory provides fast and permanent storage. CompactFlash, SmartMedia and PCMCIA cards are all types of Flash memory.
 - **DVD-ROM** — DVD-ROM (digital versatile disc, read-only memory) is similar to CD-ROM but is capable of holding much more information.

Now let's see those components related with networking connections:

- **Parallel** — This port is commonly used to connect a printer.
- **Serial** — This port is typically used to connect an external modem.
- **Universal Serial Bus (USB)** — Quickly becoming the most popular external connection, USB ports offer power and versatility and are incredibly easy to use.
- **FireWire (IEEE 1394)** — FireWire is a very popular method of connecting digital-video devices, such as camcorders or digital cameras, to your computer.
- **Modem** — This is the standard method of connecting to the Internet.
- **Local area network (LAN) card** — This is used by many computers, particularly those in an Ethernet office network, to connect to each other.
- **Cable modem** — Some people now use the cable-television system in their home to connect to the Internet.
- **Digital Subscriber Line (DSL) modem** — This is a high-speed connection that works over a standard telephone line.
- **Very high bit-rate DSL (VDSL) modem** — A newer variation of DSL, VDSL requires that your phone line have fiber-optic cables.

Now that you are familiar with the parts of a PC, let's see what happens in a typical computer



session, from the moment you turn the computer on until you shut it down.

① You press the “On” button on the computer and the monitor.

② You see the **BIOS** software doing its thing, called the **power-on self-test (POST)**. On many machines, the BIOS displays text describing such data as the amount of memory installed in your computer and the type of hard disk you have. During this boot sequence, the BIOS does a remarkable amount of work to get your computer ready to run.

- The BIOS determines whether the video card is operational. Most video cards have a miniature BIOS of their own that initializes the memory and graphics processor on the card. If they do not, there is usually video-driver information on another ROM on the motherboard that the BIOS can load.
- The BIOS checks to see if this is a cold boot or a reboot. It does this by checking the value at memory address 0000: 0472. A value of 1234h indicates a reboot, in which case the BIOS skips the rest of POST. Any other value is considered a cold boot.
- If it is a cold boot, the BIOS verifies RAM by performing a read/write test of each memory address. It checks for a keyboard and a mouse. It looks for a PCI bus and, if it finds one, checks all the PCI cards. If the BIOS finds any error during the POST, it notifies you with a series of beeps or a text message displayed on the screen. An error at this point is almost always a hardware problem.
- The BIOS displays some details about your system. This typically includes information about the following:
 - Processor
 - Floppy and hard drive
 - Memory
 - BIOS revision and date
 - Display
- Any special drivers, such as the ones for SCSI adapters, are loaded from the adapter and the BIOS displays the information.

The BIOS looks at the sequence of storage devices identified as boot devices in the CMOS Setup. “Boot” is short for “bootstrap”, as in the old phrase “Lift yourself up by your bootstraps.” Boot refers to the process of launching the operating system. The BIOS tries to initiate the boot sequence from the first device using the **bootstrap loader**.

③ The **bootstrap loader** loads the **operating system** into memory and allows it to begin operation. It does this by setting up the divisions of memory that hold the operating system, user information and applications. The bootstrap loader then establishes the data structures that are used to communicate within and between the sub-systems and applications of the computer. Finally, it turns control of the computer over to the operating system.

Once loaded, the operating system’s tasks fall into six broad categories.

- **Processor management** — Breaking the tasks down into manageable chunks and prioritizing them before sending to the CPU.

- **Memory management** — Coordinating the flow of data in and out of RAM and determining when virtual memory is necessary.
- **Device management** — Providing an interface between each device connected to the computer, the CPU and applications.
- **Storage management** — Directing where data will be stored permanently on hard drives and other forms of storage.
- **Application Interface** — Providing a standard communications and data exchange between software programs and the computer.
- **User Interface** — Providing a way for you to communicate and interact with the computer.

You open up a word processing program and type a letter, save it and then print it out.

Several components work together to make this happen.

- The keyboard and mouse send your input to the operating system.
- The operating system determines that the word-processing program is the active program and accepts your input as data for that program.
- The word-processing program determines the format that the data is in and, via the operating system, stores it temporarily in RAM.
- Each instruction from the word-processing program is sent by the operating system to the CPU. These instructions are intertwined with instructions from other programs that the operating system is overseeing before being sent to the CPU.
- All this time, the operating system is steadily providing display information to the graphics card, directing what will be displayed on the monitor.
- When you choose to save the letter, the word-processing program sends a request to the operating system, which then provides a standard window for selecting where you wish to save the information and what you want to call it. Once you have chosen the name and file path, the operating system directs the data from RAM to the appropriate storage device.
- You click on "Print". The word-processing program sends a request to the operating system, which translates the data into a format the printer understands and directs the data from RAM to the appropriate port for the printer you requested.

You open up a Web browser and check out a **URL**. Once again, the operating system coordinates all of the action. This time, though, the computer receives input from another source, the Internet, as well as from you. The operating system seamlessly integrates all incoming and outgoing information.

You close the Web browser and choose the "Shut Down" option.

The operating system closes all programs that are currently active. If a program has unsaved information, you are given an opportunity to save it before closing the program.

The operating system writes its current settings to a special configuration file so that it will boot up next time with the same settings.

If the computer provides software control of power, the operating system will completely turn off the computer when it finishes its own shut-down cycle. Otherwise, you will have to manually



turn the power off.

1.2 Notes ///

(1) Removable Storage devices allow you to carry information to a different location.

译文：可拆存储器可以方便地向计算机中加入新信息。

(2) The mouse is the primary device for navigating and interacting with the computer.

译文：鼠标是计算机导航与交互的主要设备。

(3) Floppy disks are extremely inexpensive and easy to save information to.

译文：软盘非常便宜，很容易保存信息。

(4) Based on a type of ROM called EEPROM, Flash memory provides fast and permanent storage.

译文：闪存利用电可擦除编程只读内存 (EEPROM)，提供快速且永久的存储。

(5) DVD-ROM (digital versatile disc, read-only memory) is similar to CD-ROM, but the former is capable of holding much more information.

译文：数字光盘 (数字万用盘，只读存储器) 与 CD-ROM 相似，但可以保存更多信息。

(6) Universal Serial Bus (USB) — Quickly becoming the most popular external connection, USB ports offer power and versatility and are incredibly easy to use.

译文：通用串行总线 (USB) 端口——USB 端口很快成为最常用的外部连接端口，强大、灵活而很容易使用。

(7) Local area network (LAN) card — This is used by many computers, particularly those in an Ethernet office network, to connect to each other.

译文：局域网 (LAN) 卡——许多计算机用其相互连接，特别是以太网办公网中的计算机。

(8) The BIOS displays text describing such data as the amount of memory installed in your computer and the type of hard disk you have.

译文：BIOS 显示的文本描述计算机上安装的内存量、安装的硬盘类型等数据。

(9) Most video cards have a miniature BIOS of their own that initializes the memory and graphic processor on the card.

译文：显卡本身有个微 BIOS，初始化显卡上的内存和图形处理器。

(10) A value of 1234h indicates a reboot, in which case the BIOS skips the rest of POST.

译文：值为 1234h 表示重新启动，这时 BIOS 跳过 POST 其余部分。

1.3 Keywords ///

1. virtual terminal 虚拟终端, virtual memory 虚拟内存

2. processor 处理器, microprocessor 微处理器

3. computerized component 计算机化组件

4. browse the web 浏览网络, browser 浏览器
5. keyboard 键盘, mouse 鼠标
6. floppy disk 软盘
7. monitor 显示器
8. MP3 MP3 文件格式或 MP3 播放器
9. GPS 全球定位系统
10. CPU 中央处理器
11. RAM 随机存取内存, ROM 只读存取内存
12. save information 保存信息
13. Flash Memory 闪存, 优盘
14. DVD-ROM 数字化光盘
15. CompactFlash 压缩闪存, SmartMedia 智能媒介
16. PCMCIA 个人计算机内存卡国际协会

1.4 Exercises ///

1. Answer the questions

- (1) What is the primary device for entering information?
- (2) What is the most popular form of distribution of commercial software?
- (3) What is a removable storage?
- (4) What is Flash memory?

2. Translation

- (1) Once loaded, the OS's (operation system) tasks fall into six broad categories.
- (2) Several components work together to make the word processing happen.
- (3) You open up a Web browser and check out a URL.
- (4) If a program has unsaved information, you are given an opportunity to save it before closing the program.
- (5) The OS will completely turn off the computer when it finishes its own shut-down cycle.

1.5 Related Topics ///

计算机英语漫谈

计算机技术的发展, 美国目前具有绝对优势, 因此, 从事计算机行业的人, 难免遇到大量英文资料, 无论是原版引进教材、技术手册, 还是联机说明。因此, 学好专业英语对计算机专业学生来说非常重要。2001 年作者出席“华东地区 (第六届) 翻译研讨会”, 作了题为



“计算机图书翻译的特点”的演讲，从计算机图书翻译的角度把计算机英语的特点概括为快、新、专，至今仍然适用。

1. 快

计算机图书翻译的最大特点是快，这是由计算机行业的特点决定的。众所周知，人类文明已经有五千多年，而计算机世界不过五十多年，但计算机已经给人类文明带来了深刻的变化，从工业社会进入了信息时代，计算机与互联网影响了人们生活、工作的方方面面。清代诗人龚自珍有两句名诗“江山代有才人出，各领风骚数百年”，套用到 IT 行业，可以说是“天天都有软件出，各领风骚一两年”。

在软件不断推陈出新的同时，软件厂家周围形成了一支职业写手队伍，专门编写使用这些软件的文章与著作。这些技术作家与软件公司密切合作，在软件还处于 Alpha 测试、Beta 测试阶段时就免费将产品提供给这些作者试用，派专人负责回答这些作家在使用过程中遇到的问题并及时通知软件产品所作的任何改变。在美国，计算机软件推出的同时，相关的图书也几乎同时推出。

为了尽快把新技术介绍到国内，有些出版社与国外出版社签订了长期合同，在对方确立选题之后就抓紧组织国内翻译力量。得到选题后，专业译手就开始有针对性地翻阅相关资料，为迎接新书翻译任务做准备。别的翻译工作抓得再紧，也是书到以后才开始进行；而计算机图书则是“书未到就开始翻译”了。也许有人会说，没有书，怎么翻译？用电子文件！外国出版社的样书还没推出，就先把电子文件传递到出版社，而出版社立即把电子文件传递给译手。有时等样书到手，初译已经完成，只等进行一校、二校了。

对于计算机图书，时间就是生命，效率决定生存。如果一本书无法及时推出，读者只能从其他渠道寻找参考资料，因为掌握新软件是火烧眉毛的事，不容等待。如果等书“精雕细琢”出来，这个软件也许已经升级，那么新书也成了“明日黄花”，可以休矣。

2. 新

计算机行业的另一特点是天天都有新东西，时时冒出新名词。这是一个充满活力的行业，这是一个不断创新的领域，每年都有多次专业研讨会，每一次都会有专家提出新思想、新概念，而每个新概念又可能为软件的下一步发展指明新的方向。最为典型的例子是，“对象”(Object)的提出，出现了面向对象编程时代；“组件”(Component)的提出，迎来了组件编程的新纪元。有了对象，就会带来抽象、包装、继承、属性、方法等新概念；有了组件，就有了容器、事务、EJB……这些词是当时字典上查不到的，是国内计算机专业的行家们还没有遇到的，技术翻译人员和软件设计人员第一次面对这些新词，要负责把它变成贴切的中文说法。可以说，这些人虽然中文功底和行业水平有限，却身不由己地承担了为一个新兴行业选词的重任，许多后来让人们朗朗上口的名词就是他们最初“草创”出来的。著名翻译前辈严复为翻译《天演论》，“一词之立，数月踌躇”，但人们最终还是把“天演论”改成了“进化论”。这些草创的词也有最终被接受的部分和最终被淘汰的部分。

翻译也是一种再创作，选词过程就是一个充满创造性的过程。日常生活中，“可口可乐”之类的汉译，早已广为传颂成为美谈，而计算机行业的新词，同样有许多妙笔传译，只是从事 IT 行业的人们太忙，无暇传颂，而行外人士又了解不多而已。

3. 专

俗话说，“隔行如隔山”。一个外行人，拿起最基本的计算机入门书，早已被一行行专

业术语吓跑，更不用说天天都会冒出新词了。即使听说过这些词，也还得了解其工作原理，否则仍然不知所云。作者曾经请中英文均不错的同志试评一段计算机材料，发现不仅吃力，而且常常让人哭笑不得。要让一个没摸透计算机的人翻译计算机图书，几乎是不可能的。

即使熟悉计算机操作的人，也并非拿着书就能看懂。要想做好计算机译手，就要经常关注业界消息，与同行广泛交流，并选准一两个自己比较拿手的方向。计算机图书粗略分类，包括网络、编程、图形、硬件等，而编程语言就有几十种之多，仅微软公司的 VB (Visual Basic)、VC (Visual C++)、VJ (Visual J++) 等“维生素”系列产品，就足以让人眼花缭乱，并且每种产品又有许多版本，不断增加新功能和新组件。因此，必须选准方向，深入跟踪，才能游刃有余。

世界上第一台电子计算机是埃尼亚克 (ENIAC)，1946 年诞生于美国宾夕法尼亚州州立大学，这就决定了计算机从发明之日起就使用英语作为人机交流的桥梁。计算机中的每一条命令、每一个语句乃至每一个符号，以及用各种高级程序设计语言编写的程序都是用英语单词或英语单词的缩写形式写成。只要打开计算机，首先出现在屏幕上的各种信息都是用英语表达的，在 DOS 下操作计算机要输入的各种命令也是一些英文单词或英文单词的缩写。例如，Copy (复制文件命令) 是英语单词，意为“复制、抄写”，DIR (显示目录命令) 是英语单词 Directory 缩略而来，REN (改变文件名命令) 来自英语单词 Rename。世界上最大的计算机公司 (IBM、HP)，最大的 CPU 公司 (Intel、AMD)、最大的软件公司 (Microsoft、Oracle) 等都是美国的。其最新产品的包装、使用说明、软件的操作等最初使用的都是英语。

许多操作计算机的命令、计算机中的一些重要名词、概念等都来自日常英语词汇，如果英语基础好，对这些命令、名词、概念等稍加分析、记忆就能掌握，可凭借英语单词的词义来加深对计算机知识的理解。例如：DEL (删除文件命令) = Delete (删除)，MD (建立子目录命令) = Make Directory (建立目录)，CD (改变或进入目录命令) = Change Directory (改变目录)，CLS (清除屏幕命令) = Clear Screen (清除屏幕)，CHKDSK (检查磁盘状态命令) = Check Disk (检查磁盘)，VER (显示版本号命令) = Version (版本) 等。

在计算机中有一些常用术语、软件名称、略写形式的专有名词，都源于常用英文单词或多个英文单词的首写字母。例如：被称为计算机心脏的 CPU (中央处理器) = Central Processing Unit (中央处理单元)，DOS = Disk Operating System (磁盘操作系统)，PC = Personal Computer (个人计算机)，MPC = Multimedia Personal Computer (多媒体个人计算机)，VCD = Video Compact Disk (视频压缩光盘)，RAM = Random Access Memory (随机存储器，即人们常说的“内存”)，国际标准计算机编码 ASCII = American Standard Code for Information Interchange (美国标准信息交换码)，世界上流行最早、使用人数最多的计算机高级语言 BASIC = Beginner's All-purpose Symbolic Instruction Code (初学者通用符号指令代码)。还有一些必须掌握的基本概念，如计算机存储容量单位，KB = Kilo Byte (千字节)，MB = Mega Byte (兆字节)，GB = Giga Byte (吉字节，千兆字节)。K = Kilo (构词成分) 表示“千”；M = Mega (构词成分) 表示“兆，百万”；G = Giga (构词成分) 表示“吉，千兆，十亿”；B = Byte 表示“字节”，是计算机最小存储单位 (一个字节可以存储一个英