

● 高等院校计算机经典教材

计算机

专业英语

Professional English for Computers

● 李代平 章文 张雯雯 王琼英 编著



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内容简介

本书是一本用英语编写的计算机技术培训教材，其内容从计算机技术基础理论到系统应用的各方面。针对计算机技术人员的特点，选择了硬件基础知识、软件应用以及计算机网络等计算机专业的内容。取材新，符合计算机技术人员的需求。书中出现的英语现象是科技英语中常见的。每一课都附有相应的阅读材料、练习和参考译文，书后还给出了练习答案。

本书内容丰富、结构严谨，可以作为大专院校计算机专业英语教材，也可供计算机技术人员参考。

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前 言

在多年的计算机专业研究与教学工作中,我们认识到计算机的发展非常迅速,以至计算机工作者要不断地阅读来自 Internet 的信息和各种英文资料。为了适应计算机专业人员的需要,计算机专业英语的教材只有不断地更新,不断地补充新内容,才能满足需求。为此我们编写了这本教程。

本书是根据计算机专业英语的要求,在参考了国外近二十本原版书籍后,编写的计算机专业英语教材。题材包括科学技术理论叙述、技术应用介绍、产品说明书等各种类型的文章。

内容包括:什么是计算机系统、计算机系统结构、并行系统、当代计算机、视频显示设备、操作系统、C++Builder 4、软件生存周期、SQL Server 2000 组件概述、DTS 基础、智能型计算化教师、Office 2000 套件的新增功能、Windows 2000 Advanced Server 新增功能、Windows 2000 新的安全功能、计算机网络的应用、交换与路由、TCP/IP 是如何工作的、电子商务的策略、应用服务器以及 ISDN 访问。

为了配合读者学习,每一课配备了丰富的阅读材料。阅读的文章有计算机组成与发展、超级计算机、笔记本电脑、Windows 操作系统、并行操作系统、分布式系统、并行程序设计、软件方法学概论、机器人、计算机辅助设计、图形学、计算机网络安全、IP 网络电话、XML——下一代语言、因特网协议安全、基于网站的组件、企业应用集成等五十多篇反映现代计算机技术最新发展的题材。

为了便于读者学习,该书在每篇课文后除给出主要词汇外,在本书的最后还给出了参考译文。读者还可以通过阅读课后的阅读材料以及完成相应的练习,来增强对计算机英语的阅读理解能力,书中的所有练习都有参考答案。

本书共 20 课,适用于大专院校计算机专业英语课程 30~54 课时的教学。也可作为计算机专业技术人员学习计算机专业英语的参考书。

由于作者水平有限,加之时间仓促,书中定有不少错误和疏漏,恳请各位读者不吝指正。

编 者

2001 年 8 月

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LESSON ONE

TEXT

WHAT IS A COMPUTER SYSTEM

The term computer is used to describe a device made up of a combination of electronic and electromechanical (part electronic and part mechanical) components. By itself, a computer has no intelligence and is referred to as hardware. A computer doesn't come to life until it is connected to other parts of a computer system. A computer system (Figure 1-1) is a combination of five elements (listed here in the order of how expensive it would be to replace them in a system, from least to most expensive):

- Hardware
- Software
- Data/information
- Procedures
- People

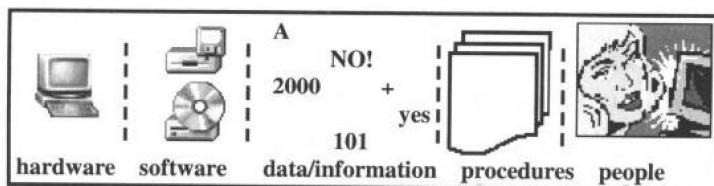


Figure 1-1 A computer system

When one computer system is set up to communicate with another computer system, connectivity becomes a sixth system element. In other words, the manner in which the various individual systems are connected—for example, by phone lines, microwave transmission, or satellite—is an element of the total computer system.

Software is the term used to describe the instructions that tell the hardware how to perform a task; without software instructions, the hardware doesn't know what to do. People, however, constitute the most important component of the computer system. People operate the computer hardware; they create the computer software instructions and respond to the procedures that those instructions present. You will learn more about software and procedures later. Right now we want to discuss the importance of data and information.

The purpose of a computer system is to convert data into information. Data is raw, unevaluated facts and figures, concepts, or instructions. This raw material is processed into useful information. In other words, information is the product of data processing. This

processing includes refining, summarizing, categorizing, and otherwise manipulating the data into a useful form for decision making. For example, the facts and figures contained in a stack of customer orders waiting to be entered into a computer-based order entry system are data; after the data is entered and processed, an output report about how that data affected product inventory would be information.

People “capture” data in a variety of ways—for example, by reading, listening, or seeing. Then they may record the data on a document. For instance, Roger Shu records his name on an employee timecard by first entering the letter R. This letter, and each of the remaining letters in his name, is an element of data, as are the numbers 12/22 and 5, used to indicate the date and the number of overtime hours worked. By themselves, these data elements are useless; we must process them to make them mean something. The report produced when Roger’s data is run through a computer-based employee records system gives us information—for example, the amount of money due Roger for his overtime work.

Now we’ll discuss the basics about the hardware devices that convert data into information in a typical computer-based system.

Computer Hardware

If, at a job interview, you are asked about what kind of computer equipment you’ve used before or what you know about hardware, and you don’t have an answer, your interviewer will probably perceive you as a person who doesn’t take an active role in what’s going on around you—a perception that could dramatically hurt your chances of getting the job you want. In today’s business world, not knowing what computer hardware is and what typical hardware components do is similar to being a taxi driver and not knowing what a car is and that it has components such as an engine, doors, windows, and so on.

We talk in detail about the different categories of computer hardware later. In this section, however, we provide a brief description of the components found in each category of hardware so that you can see how they relate to one another and how they fit into larger picture of computers in business. (Don’t try to memorize a lot of details now; focus on the large concepts.)

Computer hardware can be divided into four categories: (1) input hardware, (2) storage hardware, (3) processing hardware, and (4) output hardware. Figure 1-2 shows the typical configuration of computer hardware.

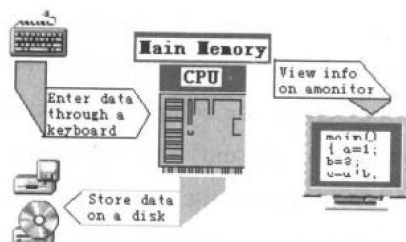


Figure 1-2 Typical hardware components. The four categories of computer hardware are input, storage, processing, and output

Input Hardware

The purpose of input hardware is to collect data and convert it into a form suitable for computer processing. The most common input device is a keyboard. It looks very much like a typewriter keyboard with rows of keys arranged in the typical typewriter layout, as well as a number of additional keys used to enter special computer-related codes. Although it isn't the only type of input device available, the computer keyboard is the one most generally used by the business community. We will describe keyboard functions and other types of input devices later.

Storage Hardware

The purpose of storage hardware is to provide a means of storing computer instructions and data in a form that is relatively permanent, or nonvolatile—that is, the data is not lost when the power is turned off—and easy to retrieve when needed for processing. Storage hardware serves the same basic functions as do office filing systems except that it stores data as electromagnetic signals or laser-etched spots, commonly on disk or tape, rather than on paper. Storage devices will be discussed later.

Processing Hardware

The purpose of processing hardware is to retrieve, interpret, and direct the execution of software instructions provided to the computer. The most common components of processing hardware are the central processing unit and main memory.

The central processing unit (CPU) is the brain of the computer. It reads and interprets software instructions and coordinates the processing activities that must take place. The design of the CPU affects the processing power and the speed of the computer, as well as the amount of main memory it can use effectively. With a well-designed CPU in your computer, you can perform highly sophisticated tasks in a very short time.

Main memory (also called internal memory, primary storage, or just memory) can be thought of as an electronic desktop. The more desk surface you have in front of you, the more you can place on it. Similarly, if your computer has a lot of memory, you can place more software instructions in it. The amount of memory available determines whether you can run simple or sophisticated software; a computer with a large memory is more capable of holding the thousands of instruction that are contained in the more sophisticated software programs. A large memory also allows you to work with and manipulate great amounts of data and information at one time. Quite simply, the more main memory you have in you computer, the more your can accomplish.

We will describe computer processing and main memory in much more detail later.

Output Hardware

The purpose of output hardware is to provide the user with the means to view information produced by the computer system. Information is output in either hardcopy or softcopy form. Hardcopy output can be held in your hand—examples are paper with text (words or numbers) or graphics printed on it. Softcopy output is displayed on a monitor, a television-like screen on which you can read text and graphics. We will describe other types of output devices later.

Communications hardware, which is used to transmit output among and receive input from different computer systems, is discussed later.

Computer Software

A computer is an inanimate device that has no intelligence of its own and must be supplied with instructions so that it knows what to do and how and when to do it. These instructions are called software. The importance of software can't be overestimated. You might have what most people consider the "best" computer sitting on your desk in front of you; however, without software to "feed" it, the computer will do nothing more than take up space.

Software is made up of a group of related programs, each of which is a group of related instructions that perform very specific processing tasks. Software acquired to perform a general business function is often referred to as a software package. Software packages, which are usually created by professional software writers, are accompanied by documentation—users' manuals—that explains how to use the software.

Software can generally be divided into two categories: (1) systems software and (2) applications software. Explores each of these categories in detail later. For now, some basic information will suffice.

Systems Software

Programs designed to allow the computer to manage its own resources are called systems software. This software runs the basic operations; it tells the hardware what to do and how and when to do it. However, it does not solve specific problems relating to a business or a profession. For example, systems software will not process a prediction of what your company's tax bill will be next year, but it will tell the computer where to store the data used during processing; systems software will not process the creation of the animation strip for your next file, but it will manage how it is output.

Applications Software

Any instructions or collection of related programs designed to be carried out by a computer to satisfy a user's specific needs are applications software. A group of programs written to perform payroll processing is one type of applications software, as are programs written to maintain personnel records, update an inventory system, help you calculate a budget, or monitor the incubation temperatures at your poultry farm.

Applications software can be purchased "off the shelf", or packaged—that is, already programmed, or written—or it can be written to order by qualified programmers. If, for example, a company's payroll processing requirements are fairly routine, it can probably purchase one or more payroll applications software programs off the shelf to handle the job. However, if a company has unique payroll requirements, such as a need to handle the records of hourly employees, salaried employees, and commissioned employees, then off-the-shelf software may not be satisfactory. It may be more cost-effective to have the payroll programs written to exact specifications than to try to modify off-the-shelf programs to do something they were never intended to do.

We The People

People, computer professionals and users, are the most important component in the computer system. Although our role may seem rather obvious, it is often underestimated. Here are some of the ways people can affect computer operations.

- 1) Computer professionals design computer hardware and related equipment.
- 2) Computer professionals design, create, and develop computer software.
- 3) Professional computer operators run the computer systems and monitor their activities during processing.
- 4) Professional data entry clerks and users key in vast amounts of data every day in computer-usable form for storage and processing at a later time.
- 5) Users also input data to be processed right away, depending on the design of the computer system.
- 6) In some cases, users create their own specialized applications software.
- 7) Users review information produced by the computer for use in making business and professional decisions.
- 8) Users and computer professionals make decisions and use and operate computer systems in ways that can affect our security, comfort, and well-being in daily life.

WORDS AND EXPRESSIONS

electromechanical	adj.	电动机械的, 机电的, 电机的
hardware	n.	硬件
software	n.	软件
procedures	n.	过程, 程序
microwave	n.	微波
categorize	v.	分类
manipulate	v.	(熟练)操作, 使用(机器等)
nonvolatile	adj.	非易失性
electromagnetic	adj.	电磁的
intelligence	n.	智力, 聪明, 智能
payroll	n.	薪水册, 工资单
professional	n.	专业人员
component	n.	成分, 组件, 元件
review	v.	回顾, 复习, 检查, 审阅
security	n.	安全

EXERCISES

1. Translate the following phrases into Chinese.

ANSI

ASCII

RAID

BIOS

Bottleneck

Copyright

Daemon	DOS	Kernel
Modem	RISC	SSE
CISC	FireWire	USB
HAL	FDC	ISO
IEC		

2. Identify the following sentences to be True or False according to the text.

1. Hardware is the term used to describe the instructions that tell the software how to perform a task.
2. The purpose of input hardware is to deal with data.
3. The purpose of CPU is to retrieve, interpret, and direct the execution of software instructions provided to the computer.
4. Output hardware provides the user with the means to view information produced by the computer system including of display, printer and mouse.
5. Operating system is designed to satisfy a user's specific needs are applications software.
6. Only the computer experts are the most important component in the computer system.

3. Translate the following sentence into English.

目前使用两种基本类型的电子计算机：模拟计算机和数字计算机。数字计算机可分为专用的和通用的。专用计算机是为了完成某一专门任务而设计的计算机。通用计算机是一种可以存储不同程序，并且应用很广的计算机。

READING MATERIALS

THE EFFECT OF COMPUTERS ON PROCESSING DATA AND INFORMATION

New generations of computer technology will continue to affect the processing of data and information. Data collection continues to become easier and easier, data processing is getting faster and faster, mathematical calculations continue to be performed with increased precision, and information is being provided to users in generally more useful forms. And one of the best improvements that new technology brings us is that computers continue to become easier to use.

Data Collection: Hard Labor to Easy Time

Before computers were invented, data was collected and processed by hand in a variety of tedious ways. The data often had to be copied and recopied more than once before it could be processed into information. Data collection for early computers was often done by transcribing hardcopy data into computer-usable forms such as punched cards or paper tape. The data was recorded by hardware, software, and systems businesses. Although the following general career information may not be essential to the understanding of the main topics presented in this chapter, many students find it useful.

Opportunities for Computer Professionals

The employment picture for computer professionals looks good and is getting better. Several million people are employed as computer programmers, computer operators, information

managers, systems analysts, data entry clerks, database managers and other more technical workers. The growth of the microcomputer hardware and software industries in recent years has created a large number of new jobs in the retail sales and marketing of computers as well. Many jobs have also been created by companies that manufacture the various computer components and by companies that specialize in computer repair.

In general, computer programmers' design, write, test, and implement the programs that process the data in the computer system (covers programming). Systems analysts know programming basics but have broader responsibilities than do programmers. They plan and design not just individual programs but entire systems of programs, including the procedures that users must follow when using the system (covers systems design and analysis). The database administrator (DBA) works with systems analysts on issues relating to the database. He or she must resolve conflicts among users and among technical people working on the database and database management software and administer the use, maintenance, and security of the database. The chief information officer coordinates and gives direction to the database managers, systems analysts, programmers, and various office systems managers. He or she helps people cope with changes in technology and solves problems relating to information needs.

Opportunities for Users

The employment picture for users (you) is good if you have had some experience actually using computers. As we've mentioned, many employers now require some degree of computer competency as a prerequisite for employment. Computers are becoming standard business tools for all employees, from the president of the company to the clerks in the typing pool. For example, accounting departments and public accounting firms now seek college graduates who have substantial experience. They are also using microcomputers or computer terminals in their offices. To meet the demand for computer literacy, many schools offer extension courses or seminars in computer skills.

The most popular courses cover word processing programs (designed to output professional documents in a short amount of time), database management system programs (designed to easily store, update, and manipulate large amounts of data), and electronic spreadsheet programs (designed to handle calculations and update complex financial forms). Enrollment in these courses by working professionals has increased dramatically in the past few years. An informal survey of several universities has shown that people enroll for training for three reasons:

- To satisfy job requirements. Some of those surveyed stated that they were strongly encouraged or required by their employers to learn more computer skills.
- To increase job skills and marketability. Others surveyed said that because microcomputers and related software have become so popular, they felt they needed some additional skills to keep their jobs, to be considered for advancement, or to change to a more desirable job.
- To learn to use a computer as a personal resource. The remaining people indicated that they wanted to learn to use the computer as a personal resource on the job and at home. These