

21 世纪高职高专计算机系列教材

# 计算机 英语教程

主 编 李占利  
主 审 李尊朝

西安交通大学出版社

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西安交通大学出版社

· 西 安 ·

## 内 容 简 介

本书根据计算机专业英语的教学需要,精选了 13 个主题,对计算机英语进行了全面的描述,内容涉及软硬件基础知识、操作系统、算法与数据结构、程序设计与软件开发、计算机网络、多媒体技术、计算机图形学、图像处理、数据库、人工智能、计算机病毒与安全等内容,并对计算机专业英语中常见的语言知识进行了讲解。

本书选材规范、内容新颖、难易适当、完整实用。每一章均包括课文、生词与短语、注释、语言点、练习、阅读材料等内容。

本书可作为高职高专计算机专业及相关专业的计算机专业英语教材,也可供广大计算机应用工作者和爱好者学习和参考。

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# 序

随着我国科学技术的发展,全民高等教育已经成为时代的要求。扩大招生规模,发展高等职业教育,已经成为各级政府和广大教育工作者的共识。为了指导和推动全国高等职业教育的健康发展,教育部先后制定了“高职高专教育基础课程教学基本要求”和“高职高专教育专业人才培养目标和规格”两个文件。在此基础上,许多出版社先后出版了相关的系列教材,对推动我国的高等职业教育起到了积极的作用。

时代在前进,科学技术在发展,尤其是计算机信息技术发展的速度更是惊人,这就要求高等学校的教学内容应能跟上科学技术的发展,应能满足新技术对新型人才的需求;教材应当不断地修改和更新。故此,我们组织高校中长期从事高等职业教育的专家、学者编写了“21 世纪高职高专计算机系列教材”。在编写过程中,我们以教育部的上述两个文件为依据,参阅同类教材,汲取多年来在高等专科教育、成人教育中培养应用型人才的成功经验,充分体现高职高专实用型人才的特征,“以应用为目的,以必须、够用为度”,尽量做到从实际应用的需求出发,减少枯燥乏味的纯理论和概念,使学生理论联系实际,学中有用,边学边用,通过学习提高应用和解决实际问题的能力。在编排顺序方面,尽量做到由浅入深,循序渐进,内容多样,结构合理,语言简练,文字流畅,使学生易学、易懂、易掌握。

这套教材目前已列入选题的有 19 种,既有专业基础知识,又有最新技术,可作为高职高专基础课、专业基础课以及最新技术课的教材,也可供自考和学历文凭教育使用。

在 21 世纪到来的时候,我国高等职业教育迅猛发展的格局已经形成。这就要求教育界的志士仁人奋发努力,以自己的心血和汗水去培养时代所需要的一代有理想、有道德、有知识、有能力的高素质、高水平的应用型专业人才。

陈建铎

2002 年 10 月

# 前 言

随着计算机技术突飞猛进的发展和日益广泛的应用,许多媒体、书刊和软件中出现了愈来愈多的和计算机技术密切相关的直接采用英文描述的新概念、新术语;在计算机操作过程中,用户在屏幕上所看到的大多也都是英文提示和说明;伴随着 Internet 应用的日益普及,网上也蕴含着大量的英文信息。因此,为了掌握和使用计算机技术,了解计算机技术的发展动态,必须具备较好的计算机专业英语水平。

本书根据高职高专计算机专业英语的教学要求,参照计算机类专业教学计划中所含的知识体系,从实用性、多样性和实时性的角度出发组织内容,并注重计算机专业英语的应用技能的培养。本书精选了 13 个主题,对计算机英语进行了全面的描述,内容涉及软硬件基础知识、操作系统、算法与数据结构、程序设计与软件开发、计算机网络、多媒体技术、计算机图形学、图像处理、数据库、人工智能、计算机病毒与安全等内容,并对计算机专业英语中常见的语言知识进行了讲解。

本书选材规范、内容新颖、难易适当、系统实用。每一章均包括课文、生词与短语、注释、语言点、练习、阅读材料等内容;每一章都给出了一个专业英语知识点,讲述专业英语阅读、翻译、写作等方面的特点和技巧。本书还附有专业英语常用语法,较为系统全面地讲述了专业英语中常见的语法知识。

本书可作为高职高专计算机专业及相关专业的计算机专业英语教材,也可作为广大科技工作者学习计算机专业知识的参考书。

本书由李占利主编,全书的语言知识及语法由周筱媛编写,第 1、2 章及附录由李占利编写,第 3 章由龚尚福编写,第 4、10 章由吕阿璐编写,第 5、8、9、13 章由史豪斌、潘炜编写,第 6、7 章由齐爱玲编写,第 11、12 章由杜云编写。西安交通大学李尊朝副教授审阅了全书,并提出了许多宝贵意见,在此表示衷心的感谢。

由于编者水平有限,加之时间仓促,书中难免出现不妥之处,敬请读者批评指正。

编者

2003 年 3 月

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# Chapter 1

## *Fundamentals of Computers*

### (计算机基础)

#### Text



#### Computer Generations (计算机的发展)

##### **The First Generation of Computers (1946 to 1959)**

The first generation of computers was characterized by the most prominent feature of the ENIAC-vacuum tubes. Through 1950s, several other notable computers were built, each contributed significant advancements, such as binary arithmetic, random access, and the concept of stored programs. These computer concepts are common in today's computers.

##### **The Second Generation of Computers (1959 to 1964)**

To most people, the invention of the transistor meant small portable radios. To those in the data processing business, it signaled the start of the second generation of computers. The transistor meant more powerful, more reliable, and less expensive computers that would occupy less space and give off less heat than did vacuum-tube-powered computers.

The expense item should be emphasized. The cost of a computer during the first, second, and part of the third generation represented a significant portion of a company's budget. Computers were expensive. Cost per instruction executed can be used to compare the cost of computers over the last three decades. Significant innovations, spurred by intense competition, have resulted in enormous increases in computer performance and substantial reductions in price. This trend, established with the introduction of second-generation computers, continues today.

##### **The Third Generation of Computers (1964 to 1971)**

What some computer historians consider to be the single most important event in the history of computers occurred when IBM announced their System 360 line of computers on April 7, 1964. The System 360 ushered in the third generation of computers. Integrated circuits did for the third generation what transistors did for the second generation. The System

360s and the third-generation computers of Honeywell, NCR, CDC, UNIVAC, Burroughs, GE and other manufactures made all previously installed computers obsolete.

The compatibility problems of second-generation computers were almost eliminated in third-generation computers. However, third-generation computers differed radically from second-generation computers. The change was revolutionary, not evolutionary, and caused conversion nightmares for thousands of computer users. In time, the conversion of information systems from second-generation to third-generation hardware was written off as the price of progress.

Third-generation computers work so quickly that they provide the capability to run more than one program concurrently (multiprogramming). For example, at any given time the computer might be printing payroll checks, accepting orders, and testing programs.

### **The Fourth Generation of Computers**

Most computer vendors classify their computers as being in the fourth generation of computers, and a few call theirs the "fifth generation". The first three generations were characterized by significant technological breakthroughs in electronics—the use of vacuum tubes, then transistors, and then integrated circuits. Some people prefer to pinpoint the start of the fourth generation as 1971, with the introduction of large-scale integration (more circuits per unit space) of electronic circuitry. However, other computer designers argue that if we accept this premise, then there would probably have been a fifth, a sixth, and maybe a seventh generation since 1971.

The base technology of today's computers is still the integrated circuit. This is not to say that two decades have passed without any significant innovations. In truth, the computer industry has experienced a mind-boggling succession of advances in the further miniaturization of circuitry, data communications, the design of computer hardware and software, and input/output devices.

One of the most significant contributions to the emergence of the fourth generation of computers is the microprocessor. The microprocessor, which can be contained on a single silicon chip, is a product of the microminiaturization of electronic circuitry. The first fully operational microprocessor, sometimes called a "computer on a chip", was invented in 1971. Today, there are more microprocessors on Earth than there are people. This device costs less than a soft drink and can be found in everything from elevators to satellites.

### **Generationless Computers**

We may have defined our last generation of computers and begun the era of generationless computers. Even though computer manufacturers talk of "fifth" and "sixth" generation computers, this talk is more a marketing play than a reflection of reality. Advocates of the concept of generationless computers say that even though technological innovations are coming in rapid succession, no single innovation is, or will be, significant enough to characterize another generation of computers.

## New Words and Phrases

prominent	<i>adj.</i> 卓越的, 显著的
vacuum tube	真空管
transistor	<i>n.</i> 晶体管
innovation	<i>n.</i> 革新, 创新
spur	<i>v.</i> 促进, 刺激
usher	<i>vt.</i> (常与 in 连用) 展示, 体现
obsolete	<i>adj.</i> 废弃的, 陈旧的
nightmare	<i>n.</i> 噩梦, 可怕的事物
hardware	<i>n.</i> 硬件
vendor	<i>n.</i> 提供商, 零售商
breakthrough	<i>n.</i> 突破
pinpoint	<i>v.</i> 查明
electronic circuitry	电子电路
premise	<i>n.</i> 前提, 预述, 假定
mind-boggling	<i>adj.</i> 令人难以置信的
miniaturization	<i>n.</i> 小型化
microminiaturization	<i>n.</i> 微小型化
software	<i>n.</i> 软件
microprocessor	<i>n.</i> 微处理器
advocate	<i>n.</i> 拥护者, 提倡者
integrated circuit	集成电路
generationless computer	无代计算机
ENIAC	电子数字积分计算机 (Electronic Numerical Integrator And Calculator)

## Notes

(1) What some computer historians consider to be the single most important event in the history of computers occurred when IBM announced their System 360 line of computers on April 7, 1964.

句中, 由连接代词 what 引导主语从句, what 在从句中做 consider 的宾语。主句中的谓语为 occurred.

(2) Integrated circuits did for the third generation what transistors did for the second generation.

句中, what = that which, 引导宾语从句, that 做前一个 did 的宾语, which 做宾语从句的逻辑宾语。

(3) The microprocessor, which can be contained on a single silicon chip, is a product of the microminiaturization of electronic circuitry.

句中, which 引导的是非限制性定语从句, 修饰主语 the microprocessor.



## Computer Hardware Basics

### (计算机硬件基础)

Your AAA computer is made up of many parts called hardware. Hardware refers to the parts of the computer that you can see and touch.

#### **The Computer**

Your AAA computer contains a microprocessor, memory, disk drives, and other electronic components. The microprocessor and memory of your computer are located inside the computer. The microprocessor, also called a processor, is the “brain” of your computer. This is where your computer interprets and processes information.

The electronic components inside your computer are organized in the most logical and efficient way possible, much like the plumbing system in a building. If you have to locate a part inside your computer, you can frequently find the switches (jumpers), upgrade sockets, and related components in the same section of the system board. This same principle applies to your power supply, the unit that channels electrical power in your computer. You can always find the cooling fan, voltage-selection switch, and power connector in the same location on the back of your computer.

#### **Memory**

Your computer comes with factory-installed permanent memory called ROM (Read Only Memory). The basic operating instructions are stored in ROM and are not erased when the computer is turned off. In the past, it has been impossible to change the instructions stored in ROM without changing the ROM modules, or the system board in the computer. Your computer has a module, called the flash EEPROM (Electrically Erasable Programmable Read-Only Memory), that can be updated. The BIOS (Basic Input/Output System) instructions and the Configuration Utility program are stored in the flash EEPROM in your computer. In addition to permanent memory, your computer also has a temporary type of memory. You might have heard computer memory referred to as RAM for random-access memory. The instructions that your computer gets and the information your computer processes remain in RAM during your work sessions.

Computer memory is measured in kilobytes or megabytes of information (A byte is the amount of storage needed to hold one character, such as a letter or a numeric digit). One kilobyte (KB) equals 1024 bytes, and one megabyte (MB) is about 1 million bytes. Software requires the correct amount of RAM to work properly. If you want to add new software to your computer, you can usually find the exact memory requirements on the software packaging.

RAM is not a permanent storage place for information. When you turn your computer off, the information you entered during the work session does not remain in memory. Since

RAM is only active when computer is on, your computer uses disk drives to store information even when the computer is off.

### Displays

The display screen is the most common output device used to show you what the computer is doing. The display screen shows messages from the POST (Power-On Self-Test), the Configuration Utility program, your operating system, and your application programs. The display screen also echoes (copies) the characters as you type them on the keyboard.

Displays come in many sizes and types. Your computer's SVGA video controller supports a wide range of monochrome and color displays.

### Disk Drives

The AAA computer comes with a diskette drive that uses 3.5-inch diskettes. Your AAA computer also supports a second diskette drive that uses 5.25-inch diskettes, or 3.5-inch diskettes, depending upon the type of drive installed.

There are two common types of disk drives: a hard disk drive (sometimes called a fixed disk drive) and a diskette drive (sometimes called a floppy disk drive). The hard disk drive is built into your computer (some models might not have a hard disk drive). With a hard disk, your computer can store large amounts of information (called files) in one convenient place. Using a hard disk, your computer can save and retrieve information much faster than with a diskette drive. A diskette drive uses a removable diskette, which has less storage space than a hard disk.

Each disk drive has a letter assigned to it, so you can tell your computer where to find information. For example, if your computer has two diskette drives, one is called drive A, the other is called drive B. If you have a hard disk drive, it is called drive C.

### Keyboards

If you are familiar with a typewriter, you'll find the layout of the computer keyboard very similar. You can use your keyboard for many purposes:

- Typing information.
- Entering numbers with the numeric keypad.
- Requesting specific functions.
- Performing system functions with key combinations
- Moving around the computer screen.

The keyboard has letter keys, punctuation keys, and a spacebar. It also has function, numeric, and arrow keys. How you use the keys depends on the software installed on your computer. The documentation that comes with your software has information about specific key functions.

You will probably notice a difference between the touch (response) on a computer keyboard and the response of a typewriter. A computer keyboard is so responsive that you can type using a light touch. When you hold down a character key, the character continues to

type. This is called the typematic effect of a computer keyboard.

### Adding Hardware

Ports (sometimes called connectors) are sockets on the back of the computer. When you set up your computer, you connect the display, keyboard, and mouse into ports. Your computer also has ports for adding hardware such as a printer or an external modem. Adding an external modem to your computer requires a serial port; adding a printer typically requires a parallel port.

- **The Serial Port**

The serial port is a connector on the back of the computer. You can use it to add hardware to your computer, such as a plotter, serial printer, or external modem. You have two serial ports in your computer, Serial B and Serial A.

- **The Parallel Port**

The parallel port on the back of the AAA computer lets you connect a printer to your computer.

- **The Mouse**

The mouse is a pointing device for selecting items on a computer screen. You can use it instead of the keyboard to do many tasks on your AAA computer. In many cases, a mouse makes your program easier to use. With the mouse, you control the pointer that selects items on the screen.

- **Printers**

Printers vary not only in quality, speed, and graphics capability, but also in the type of fonts (type styles) supported.

- **The Modem**

A modem is used to communicate with another computer over telephone lines. Some modems are installed inside the computer; others attached to the outside using a serial port. Modems send and receive information at different speeds (baud rate).

### New Words and Phrases

memory	n. 内存
drive	n. 驱动器
jumper	n. 跳线
upgrade	n. 升级,更新
channel	v. 引导
instruction	n. 指令
module	n. 模块
program	n. 程序
kilobyte	n. 千字节, 1 024 字节(缩写为:KB)
megabyte	n. 兆字节(缩写为:MB)



approximately	<i>adv.</i> 大约, 近似
echo	<i>vt.</i> 摹仿, 重复
keyboard	<i>n.</i> 键盘
monochrome	<i>n.</i> 单色
typewriter	<i>n.</i> 打字机
screen	<i>n.</i> 屏幕
spacebar	<i>n.</i> 空格键
typematic	<i>n.</i> 键盘响应速率
port	<i>n.</i> 端口
mouse	<i>n.</i> 鼠标
printer	<i>n.</i> 打印机
modem	<i>n.</i> 调制解调器
serial	<i>adj.</i> 串行的
parallel	<i>adj.</i> 并行的
plotter	<i>n.</i> 绘图机
disk drive	磁盘驱动器
system board	主板
power supply	电源
cooling fan	冷却风扇
Configuration Utility	配置应用(程序)
work session	工作会话
operating system	操作系统
punctuation key	标点符号键
serial port	串行口
parallel port	并行口
baud rate	波特率
ROM	只读存储器 (Read Only Memory)
EEPROM	电可擦除只读存储器 (Electrically Erasable Programmable Read-Only Memory)
BIOS	基本输入/输出系统 (Basic Input/Output System)
RAM	随机存储器 (Random-Access Memory)
POST	加电自检 (Power-On Self-Test)

## Notes

(1) In the past, it has been impossible to change the instructions stored in ROM without changing the ROM modules, or the system board in the computer.

句中, it 是形式主语, 真正的主语是动词不定式短语 to change the instructions stored in ROM. 该短语中, stored in ROM 是过去分词短语做定语, 修饰 the instructions. without