21st CENTURY
规划教材

面向21世纪高职高专计算机系列规划教材
COURSES FOR VOCATIONAL HIGHER EDUCATION：COMPUTER

计算机专业英语

COMPUTER ENGLISH

杨得新 主 编
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内　容　简　介

本书内容包括以下几部分:计算机基础、编程、操作系统、数据库、计算机网络和软件工程。本书旨在提高学生的英语阅读、理解和翻译计算机专业文献的能力以及以英语为工具获取和交流信息的能力。本书的所有材料均来自于原版资料和Internet,知识面广,内容新颖。本书注重实用,尽量达到使学生学用结合的目的。

本书可作为高职高专院校计算机相关专业的教材,也可作为其他院校和工程技术人员的参考资料。

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出版前言

随着世界经济的发展，人们越来越深刻地认识到经济发展需要的人才是多元化、多层次的，既需要大批优秀的理论型、研究型的人才，也需要大批应用型人才。然而，我国传统的教育模式主要是培养理论型、研究型的人才。教育界在社会对应用型人才需求的推动下，专门研究了国外应用型人才教育的成功经验，结合国情大力度地改革我国的“高等职业教育”，制定了一系列的方针政策。联合国教科文组织 1997 年公布的教育分类中将这种教育称之为“高等技术与职业教育”，也就是我们通常所说的“高职高专”教育。

我国经济建设需要大批应用型人才，呼唤高职高专教育的崛起和成熟，寄希望于高职高专教育尽快向国家输送高质量的紧缺人才。近几年，高职高专教育发展迅速。目前，各类高职高专学校已占全国高等院校的近 1/2，约有 600 所之多。教育部针对高职高专教育出台的一系列政策和改革方案主要体现在以下几个方面：

- “就业导向”成为高职高专教育的共识。高职高专院校在办学过程中充分考虑市场需求，用“就业导向”的思想制定招生和培养计划。
- 加快“双师型”教师队伍建设。已建立 12 个国家高职高专学生和教师的实训基地。
- 对学生实行“双认证”教育。学历文凭和职业资格“双认证”教育是高职高专教育特色之一。
- 高职高专教育以两年学制为主。从学制入手，加快高职高专教学方向的改革，充分办出高职高专教育特色，尽快完成紧缺人才的培养。
- 开展精品专业和精品教材建设。已建立科学的高职高专教育评估体系和评估专家队伍，指导、敦促不同层次、不同类型的学校办出一流的教育。

在教育部关于“高职高专”教育思想和方针指导下，科学出版社积极参与到高职高专教材的建设中去，在组织教材过程中采取了“请进来，走出去”的工作方法，即由教育界的专家、领导和一线的教师，以及企事业从事人力资源工作的人员组成顾问班子，充分分析我国各地区的经济发展、产业结构以及人才需求现状，研究培养国家紧缺人才的关键要素，寻求切实可行的教学方法、手段和途径。

通过研讨认识到，我国幅员辽阔，各地区的产业结构有明显的差异，经济发展也不平衡，各地区对人才的实际需求也有所不同。相应地，对相同专业和相近专业，不同地区的教学单位在培养目标和培养内容上也各有自己的定位。鉴于此，适应教育现状的教材建设应该具有多层次的设计。

为了使教材的编写能针对受教育者的培养目标，出版社的编辑分不同地区逐所学校拜访校长、系主任和老师，深入到高职高专学校及相关企事业，广泛、深入地和教学第

一线的老师、用人单位交流，掌握了不同地区、不同类型的高职高专院校的教师、学生和教学设施情况，清楚了各学校所设专业的培养目标和办学特点，明确了用人单位的需求条件。各区域编辑对采集的数据进行统计分析，在相互交流的基础上找出各地区、各学校之间的共性和个性，有的放矢地制定选题项目，并进一步向老师、教育管理者征询意见，在获得明确指导性意见后完成“高职高专规划教材”策划及教材的组织工作：

- 第一批“高职高专规划教材”包括三个学科大系：经济管理、信息技术、建筑。
- 第一批“高职高专规划教材”在注意学科建设完整性的同时，十分关注具有区域人才培养特色的教材。
- 第一批“高职高专规划教材”组织过程正值高职高专学制从 3 年制向 2 年制转轨，教材编写将其作为考虑因素，要求提示不同学制的讲授内容。
- 第一批“高职高专规划教材”编写强调
  - ◆ 以就业岗位对知识和技能需求下的教材体系的系统性、科学性和实用性。
  - ◆ 教材以实例为先，应用为目的，围绕应用讲理论，取舍适度，不追求理论的完整性。
  - ◆ 提出问题→解决问题→归纳问题的教、学法，培养学生触类旁通的实际工作能力。
  - ◆ 课后作业和练习（或实训）真正具有培养学生实践能力的作用。

在“高职高专规划教材”编委的总体指导下，第一批各科教材基本是由系主任或从教学一线中遴选的骨干教师执笔撰写。在每本书主编的严格审读及监控下，在各位老师的辛勤编撰下，这套凝聚了所有作者及参与研讨的老师们的经验、智慧和资源，涉及三个大的学科近 200 种的高职高专教材即将面世。我们希望经过近一年的努力，奉献给读者的这套书是他们渴望已久的适用教材。同时，我们也清醒地认识到，“高职高专”是正在探索中的教育，加之我们的水平和经验有限，教材的选题和编辑出版会存在一些不尽人意的地方，真诚地希望得到老师和学生的批评、建议，以利今后改进，为繁荣我国的高职高专教育不懈努力。

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前　　言

计算机技术是目前发展最快的技术之一，计算机领域的技术书刊、杂志和资料等层出不穷。不断涌现的各种计算机软件几乎都是英文的；计算机工作者在屏幕上所看到的也是英文提示和说明；Internet 已经渗透到各行各业，甚至每一个家庭，其信息绝大多数也是以英文的形式出现的。因此，作为计算机及其相关专业的学生必须要具备良好的英语能力才能跟上计算机技术的最新发展。

专业英语是英语教学的第二阶段，指导学生阅读计算机专业的英语书刊和文选，提高学生阅读英语资料的能力，并能以英语为工具，获取专业所需的信息和交流专业信息。以上都是专业英语教学的主要目标。近几年来的专业英语教学实践发现，学生阅读英文技术资料的主要困难表现在：一是词汇量不够，特别是专业术语；二是专业资料接触太少；三是不熟悉科技英语文章的结构和体裁。

本书是为高职高专计算机及其相关专业的学生编写的，在编写时，我们无论是在选材，还是词汇的解释方面都充分地考虑了高职高专学生的知识和学习特征，力争做到目前学习的知识就是将来要用的，也就是"够用为度，注重实用"的原则。

本书共 6 章，第 1 章由孔令艳老师编写，第 2、3、4 章由杨得新老师编写，第 5、6 章由郭雪妍老师编写。杨得新负责全书的统稿工作。参加本书文字录入的有朱永华、甘心等同学，在此深表谢意。本书可作为高职高专院校计算机相关专业的教材，也可以作为其他院校和工程技术人员的参考资料。由于编者水平有限，不当之处恳请批评指正。

Contents

Chapter 1 Introduction to the Computer

1.1 What Is a Computer and What Does It Do

A computer is a programmable, electronic device that accepts input, performs operations or processing on the data, and outputs and stores the results. Because it is programmable, the instructions, called program, tell the computer what to do.

To illustrate these operations, look at a comparable device you probably have in your home-a stereo system might consist of a Compact Disc (CD) player, a receiver, and a pair of speakers. To use the system, a CD is inserted into the CD player and the power to the system is turned on. The CD player then converts the patterns stored on the CD into electronic signals and transmits them to the receiver. The receiver receives the signals, strengthens them, and transmits them to the speakers, which play the corresponding music. In computer terms, the CD player reads data (music) from the storage media (the CD) and sends the appropriate input to the receiver. The receiver processes the data and sends it to the speakers, which produce musical output. Though these operations resemble the operations a computer system performs, there is one important difference that the stereo system is not a versatile, programmable system, like a computer system is. A computer can perform an enormous variety of processing tasks, as well as support a much greater variety of peripheral equipment (input, output, and storage devices), than can a stereo system.

Traditional and Multimedia Hardware

A computer system consists of a computer and its peripheral equipment. It includes the instructions and facts that the computer processes, as well as the operating manuals, procedures, and people who use the computer. In other words, all the components that contribute to the computer functioning as a useful tool can be said to be part of a computer system. The physical machinery in a computer system is collectively referred to as hardware; the various hardware devices in a computer system are discussed next. The instructions or programs used in a computer system-called software-are discussed in a later section.

Virtually all computer systems sold today are multimedia computer systems that contain traditional hardware for working with text and graphics, plus additional hardware for use with other types of media, such as sound and video. Multimedia hardware includes speakers, microphones, and video cameras.

Input Devices

An input device is any piece of equipment that supplies material (input) to the computer. The most common input devices are keyboard and mouse. Other possibilities include image and bar-code scanners, joysticks, touch screens, digital cameras, electronic pens, fingerprint readers, and microphones. Input devices for a stereo system might be a CD player and antenna.

Processing Devices

At the heart of any computer system is the central processing unit (CPU), located inside the computer's main box or system unit. The CPU in a computer system is the equivalent of a stereo system's receiver. Like its counterpart, the CPU can't do anything useful without peripheral equipment for input, output, and storage functions, as well as storage media to hold the data it needs to process. A computer system, of course, is not a stereo system. A CPU can be programmed, or given new instructions. Consequently, a computer system can perform an amazing variety of tasks, such as mathematical calculations, writing letters, accessing the Internet, composing music, and creating animation sequences.

Output Devices

An output device accepts processed materials from the computer, similar to the way the speakers in a stereo system output sound processed by the stereo receiver. Most computer systems also have a monitor and a printer as output devices.

Storage Devices

Storage devices include the disks and other storage media used to store data, as well as the drives and other devices used to access those media. The storage devices are a hard disk drive, a floppy disk drive, a Zip drive, removable disks, a CD or DVD drive, and CD or DVD discs, etc. This type of storage, which stores the data and programs that people need from session to session, is sometimes more specifically referred to be secondary storage. Storage devices can either be installed inside the computer or attached to the computer as an external device.

A second type of storage is memory (sometimes called primary storage). This type of storage is volatile, which means that the data is only there while the power to the computer is turned on and while it is needed for processing. Memory is located within the system unit that houses the CPU and other components. Since turning off the power to the computer erases any data left in memory, storage devices are used instead of memory to save any work that may be needed at a later time.

Words and Expressions

programmable [ə'prəugræməbl, -grə-, prəu'græ-] adj. 可编程的
illustrate ['iləstreit] vt. 举例说明，图解，加插图于，阐明；vi. 举例
comparable ['kɔmpərəbl] adj. 可比较的，比得上的
pattern ['pætən] n. 模范，式样，模式，样品，格调，图案
transmit [trænz'mit] vt. 传输，转送，传达，传导，发射，遗传，传播
correspond [kɔris'pɔnd] vi. 符合，协调，通信，相当，相应
versatile ['və:sətail] adj. 通用的，万能的，多才多艺的，多面手的

peripheral [pə'rifərəl] adj. 外围的；n. 外围设备
traditional [trə'diʃən (ə) l] adj. 传统的，惯例的，口传的，传说的
multimedia ['mʌlti'miːdjə] n. 多媒体，多媒体的采用
component [kəm'pəunənt] n. 成分，组件，部件；adj. 组成的，构成的
bar-code scanner 条码扫描仪
joystick ['dʒɔiˌstik] n. 操纵杆
touch screen 触摸屏
digital camera 数码相机
electronic pen 电子笔
fingerprint reader 指纹阅读机
central processing unit (CPU) 中央处理器
counterpart ['kauntəpaːt] n. 副本，极相似的人或物，配对物
animation [ˌæni'meiʃən] n. 活泼，动画
receiver [ri'siːvə] n. 接收者，接收器，收信机
secondary ['sekəndəri] adj. 次要的，二级的，中级的，第二的
volatile ['vɔlətail] adj. 飞行的，挥发性的，可变的，不稳定的，爆炸性的

【参考译文】

什么是计算机？它能做什么？

计算机是一种可编程的电子设备，它可以接收输入，对数据执行操作或者处理，并且输出和存储处理的结果。由于它是可编程的，指令——也称为程序——告诉计算机做什么。

为了描述这些操作，我们可以看一下也许你家里就有的一种可以类比的设备——音响系统，它可能由CD播放机、接收器和一对扬声器构成。为了使用该系统，在CD播放机中放入一张CD，并且给系统通电。CD播放机将CD上保存的信息转化为电子信号，并且传给接收器。接收器接收信号，放大，然后传给扬声器，扬声器播放相应的音乐。按照计算机的术语，CD播放机从存储介质（CD）中读取数据（音乐）并且将适当的输入发送到接收器，接收器处理数据后传给扬声器，扬声器发出音乐输出。尽管音响系统的操作和计算机的操作相似，但它们之间有一个很重要的差异：音响系统不像计算机一样是通用的、可编程的系统。计算机可以完成大量不同的处理任务，同时比音响系统支持更多种不同的外围设备（输入、输出和存储设备）。

传统硬件和多媒体硬件

计算机系统由计算机和它的外围设备构成。它包括计算机处理的指令和数值，以及操作手册、过程和使用计算机的人员等。换言之，所有使计算机成为一个有用的工具的部件都可以认为是计算机系统的一部分。计算机系统中的物理设备就是硬件；计算机系统的各种硬件将在后面讨论。计算机系统的指令或者程序，即软件，也在以后的章节讨论。

实际上，今天所销售的所有计算机系统都是多媒体计算机系统，它包括用于操作文本和图形的传统硬件，还包括处理其他类型的媒体，如声音和视频，的硬件。多媒

体硬件包括扬声器、麦克风和摄像机等。

输入设备

输入设备是指任何可以为计算机提供材料（输入）的设备。最常见的输入设备是键盘和鼠标。其他可能包括的输入设备还包括图像和条码扫描仪、游戏操纵杆、触摸屏、数码相机、电子笔、指纹阅读机和麦克风等。音响系统的输入设备就是 CD 播放机和天线。

处理设备

所有计算机系统的心脏都是中央处理器（CPU），它位于主机箱内或者系统主板上。计算机系统的 CPU 等同于音响系统的接收器。和音响一样，如果没有用于提供输入、输出和存储功能的外围设备，以及用于存放需要处理的数据的存储介质，CPU 没有任何用途。当然，计算机系统不是音响系统。CPU 可以被编程或者获得新的指令。因此，计算机系统可以完成各种有趣的任务，如数学计算、写信、访问 Internet、作曲和制作动画。

输出设备

输出设备从计算机接收经过处理的材料，类似于音响系统中的扬声器，它输出由音响接收器处理过的声音。大多数计算机系统也有一台显示器和一台打印机作为输出设备。

存储设备

存储设备包括用于存储数据的磁盘和其他存储介质，以及用于访问它们的驱动器和其他设备。硬盘驱动器、软盘驱动器、Zip 驱动器、移动磁盘、CD 或 DVD 驱动器以及 CD 和 DVD 盘等都是存储设备。这些用于存储人们在从一个会话到另外一个会话时需要的程序和数据的存储器类型被称为辅助存储器。存储设备既可以安装在计算机内部，也可以和计算机连接起来作为外部设备。

第二种类型的存储设备是内存（有时称为主存储器）。这种类型的存储器是不稳定的，也就是指数据在计算机通电和被处理时才存在。内存位于计算机的主机内部，与 CPU 和其他部件在一起。当计算机断电时，内存中的数据就消失，存储设备替代内存用于保存以后所需要的数据。

1.1.1 Reading Material

John Louis von Neumann Born 28 December 1903, Budapest, Hungary; Died 8 February 1957, Washington DC; Brilliant mathematician, synthesizer, and promoter of the stored program concept, whose logical design of the IAS became the prototype of most of its successors-the von Neumann Architecture. Von Neumann was a child prodigy, born into a banking family in Budapest, Hungary. When only six years old he could divide eight-digit numbers in his head. He received his early education in Budapest, under the tutelage of M. Fekete, with whom he published his first paper at the age of 18. Entering the University of Budapest in 1921, he studied Chemistry, moving his base of studies to both Berlin and Zurich before receiving his diploma in 1925 in Chemical Engineering. He returned to his first love of mathematics in completing his doctoral degree in 1928. He quickly gained a reputation in set theory, algebra, and quantum mechanics. At a time of political unrest in central Europe, he was invited to visit Princeton University in 1930, and when the Institute for Advanced Studies was founded there in 1933, he was appointed to be one of the original six Professors of Mathematics, a position which he retained for the remainder of his life. At the instigation and sponsorship of Oskar Morganstern, von Neumann and Kurt Gödel became US citizens in time for their clearance for wartime work. There is an anecdote that tells of Morganstern driving them to their immigration interview, after having learned about the US Constitution and the history of the country. On the drive there Morganstern asked them if they had any questions that he could answer. Gödel replied that he had no questions but he had found some logical inconsistencies in the Constitution that he wanted to ask the Immigration officers about. Morganstern strongly recommended that he did not ask questions, just answered them!

During 1936 through 1938 Alan Turing was a graduate student in the Department of Mathematics at Princeton and did his dissertation under Alonzo Church. Von Neumann invited Turing to stay on at the Institute as his assistant but he preferred to return to Cambridge; a year later Turing was involved in war work at Bletchley Park. This visit occurred shortly after Turing's publication of his 1934 paper "On Computable Numbers with an Application to the Entscheidungs-problem" which involved the concepts of logical design and the universal machine. It must be concluded that von Neumann knew of Turing's ideas, though whether he applied them to the design of the IAS Machine ten years later is questionable.

Von Neumann's interest in computers differed from that of his peers by his quickly perceiving the application of computers to applied mathematics for specific problems, rather than their mere application to the development of tables. During the war, von Neumann's expertise in hydrodynamics, ballistics, meteorology, game theory, and statistics, was put to good use in several projects. This work led him to consider the use of mechanical devices for computation, and although the stories about von Neumann imply that his first computer encounter was with the ENIAC, in fact it was with Howard Aiken's Harvard Mark I (ASCC) calculator. His correspondence in 1944 shows his interest with the work of not only Aiken but also the electromechanical relay computers of George Stibitz, and the work by Jan Schilt at the Watson Scientific Computing Laboratory at Columbia University. By the latter years of World War II von Neumann was playing the part of an executive management consultant, serving on several national committees, applying his amazing ability to rapidly see through problems to their solutions. Through this means he was also a conduit between groups of scientists who were otherwise shielded from each other by the requirements of secrecy. He brought together the needs of the Los Alamos National Laboratory (and the Manhattan Project) with the capabilities of firstly the engineers at the Moore School of Electrical Engineering who were building the ENIAC, and later his own work on building the IAS machine. Several "supercomputers" were built by National Laboratories as copies of his machine.

Postwar von Neumann concentrated on the development of the Institute for Advanced Studies (IAS) computer and its copies around the world. His work with the Los Alamos group continued and he continued to develop the synergism between computers capabilities and the needs for computational solutions to nuclear problems related to the hydrogen bomb.

Any computer scientist who reviews the formal obituaries of John von Neumann of the period shortly after his death will be struck by the lack of recognition of his involvement in the field of computers and computing. His Academy of Sciences biography, written by Salomon Bochner [1958], for example, includes but a single, short paragraph in ten pages. "... in 1944 von Neumann's attention turned to computing machines and, somewhat surprisingly, he decided to build his own. As the years progressed, he appeared to thrive on the multitudinousness of his tasks. It has been stated that von Neumann's electronic computer hastened the hydrogen bomb explosion on November 1, 1952." Dieudonné [1981] is a little more generous with words but appears to confuse the concept of the stored program concept with the wiring of computers: "Dissatisfied with the computing machines available immediately after the war, he was led to examine from its foundations the optimal method that such machines should follow, and he introduced new procedures in the logical organization, the 'codes' by which a fixed system of wiring could solve a great variety of problems."

From the point of view of von Neumann's contributions to the field of computing, including the application of his concepts of mathematics to computing, and the application of computing to his other interests such as mathematical physics and economics, perhaps the most comprehensive is by Hermao Goldstine [1972]. There has been some criticism of Goldstine's perspective since he personally was intimately involved in von Neumann's computing activities from the time of their chance meeting on the railroad platform at Aberdeen in 1944 through their joint activities at the Institute for Advanced Studies in developing the IAS machine.

There is no doubt that his insights into the organization of machines led to the infrastructure which is now known as the "von Neumann Architecture". However, von Neumann's ideas were not along those lines originally; he recognized the need for parallelism in computers but equally well recognized the problems of construction and hence settled for a sequential system of implementation. Through the report entitled First Draft of a Report on the EDVAC [1945], authored solely by von Neumann, the basic elements of the stored program concept were introduced to the industry. A retrospective examination of the development of this idea reveals that the concept was discussed by J. Presper Eckert, John Mauchly, Arthur Burks, and others in connection with their plans for a successor machine to the ENIAC. The "Draft Report" was just that, a draft, and although written by von Neumann was intended to be the joint publication of the whole group. The EDVAC was intended to be the first stored program computer, but the summer school at the Moore School in 1946 there was so much emphasis in the EDVAC that Maurice Wilkes, Cambridge University Mathematical Laboratory, conceived his own design for the EDSAC, which became the world's first operational, production, stored-program computer.

In the 1950s von Neumann was employed as a consultant to IBM to review proposed and ongoing advanced technology projects. One day a week, von Neumann "held court" at 590 Madison Avenue, New York. On one of these occasions in 1954 he was confronted with the FORTRAN concept; John Backus remembered von Neumann being unimpressed and that he asked "why would you want more than machine language?" Frank Beckman, who was also present, recalled that von Neumann dismissed the whole development as "but an application of the idea of Turing's 'short code'." Donald Gillies, one of von Neumann's students at Princeton, and later a faculty member at the University of Illinois, recalled in the mid-1970's that the graduates students were being "used" to hand assemble programs into binary for their early machine (probably the IAS machine). He took time out to build an assembler, but when von Neumann found out about he was very angry, saying (paraphrased), "It is a waste of a valuable scientific computing instrument to use it to do clerical work."

One last anecdote about von Neumann's brilliant mathematical capabilities. The von Neumann household in Princeton was open to many social activities and on one such occasion someone posed the "fly and the train" problem to von Neumann. Quickly von Neumann came up with the answer. Suspecting that he had seen through the problem to discover a simple solution, he was asked how he solved the problem. "Simple", he responded, "I summed the series!"

The Institute of Electrical and Electronics Engineers (IEEE) continues to honor John von Neumann through the presentation of an annual award in his name. The IEEE John von Neumann Medal was established by the Board of Directors in 1990 and may be presented annually "for outstanding achievements in computer-related science and technology." The achievements may be theoretical, technological, or entrepreneurial, and need not iave been made immediately prior to the date of the award.

Words and Expressions

synthesizer ['sinθisaizə (r)] n. 综合者，[电子] 合成器
promoter [prə'məutə] n. 促进者，助长者
prototype ['prəutəutaip] n. 原型
prodigy ['prɔdidʒi] n. 惊人的事物，天才（特指神童），奇观，奇事
architecture ['a:kitektʃə (r)] n. 建筑，建筑学，体系结构
tutelage ['tju:tilidʒ] n. 监护
reputation [repju'teiʃ (ə) n] n. 名誉，名声

quantum ['kwɔntəm] n. 量，额，[物] 量子，量子论
instigation [ˌinsti'geiʃən] n. 教唆，鼓动，煽动
sponsorship ['spɔnsəʃip] n. 赞助者的地位、任务
anecdote ['ænikdəut] n. 轶事，奇闻
inconsistency [ˌinkən'sistənsi] n. 矛盾
dissertation [disə'teiʃ (ə) n] n. （学位）论文，专题，论述，学术演讲
questionable ['kwestʃənəb (ə) l] adj. 可疑的
hydrodynamics [ˌhaidrəudai'næmiks] n. 流体力学，水动力学
ballistics [bə'listiks] n. 弹道学，发射
meteorology [mi:tiə'rɔlədʒi] n. 气象学，气象状态
conduit ['kɔndit; (US) 'kandwit] n. 管道，导管，沟渠，泉水，喷泉
secrecy ['si:krəsi] n. 秘密，保密
synergism [si'nə:dʒizəm, 'sinə-] n. 神人协力合作说，合作
obituary [ə'bitjuəri; (US) ə'bitʃueri] n. 讣告；adj. 死亡的
multitudinous [mʌlti'tju:dinəs] adj. 大量的，群集的，多种多样的
perspective [pə'spektiv] n. 透视画法，透视图，远景，前途，观点，看法，观点
infrastructure ['infrəstrʌktʃə (r)] n. 下部构造，基础结构
parallelism ['pærəlelizm] n. [数] 平行，对应，类似
emphasis ['emfəsis] n. 强调，重点

1.1.2 Translation

The technical term for a PC is micro data processor. That name is no longer in common use. However, it places the PC in the bottom of the computer hierarchy.

Supercomputers and Mainframes are the largest computers—million dollar machines, which can occupy more than one room. An example is IBM model 390.

Minicomputers are large powerful machines. They typically serve a network of simple terminals. IBM's AS/400 is an example of a minicomputer.

Workstations are powerful user machines. They have the power to handle complex engineering applications. They use the UNIX or sometimes the NT operating system. Workstations can be equipped with powerful RISC processors like Digital Alpha or MIPS.

The PCs are the Benjamin in this order: Small inexpensive, mass produced computers. They work on DOS, Windows, or similar operating systems. They are used for standard applications.

The point of this history is, that Benjamin has grown. He has actually been promoted to captain! Today's PCs are just as powerful as minicomputers and mainframes were not too many years ago. A powerful PC can easily keep up with the expensive workstations. How have we advanced this far?

Words and Expressions

PC 个人计算机，个人电脑

supercomputer [ˌsjuːpəkəmˈpjuːtə] n. [计] 超级计算机

mainframe [ˈmeinfreim] n. [计] 主机，大型机

minicomputer [ˈminikəmˌpjuːtə] n. 小型机

terminal [ˈtəːminl] n. 终点站，终端，接线端

workstation [ˈwɜːksteiʃ(ə)n] n. 工作站

MIPS 每秒百万条指令

RISC 精简指令集计算机

1.2 The PC Construction

The PC consists of a central unit (referred to as the computer) and various peripherals. The computer is a box, which contains most of the working electronics. It is connected with cables to the peripherals.

On these pages, I will show you the computer and its components. Figure 1-1 is a picture of the computer.

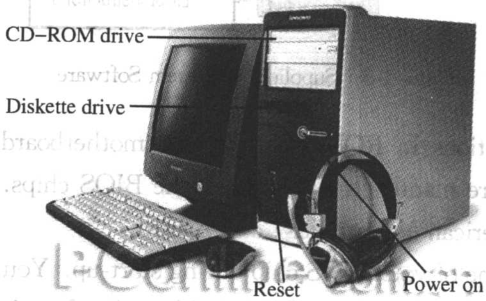

Figure 1-1 A picture of the computer

Figure 1-2 is a list of the PC components. Read it and ask yourself what the words mean. Do you recognize all these components?

Components in the central unit-the computer	Peripherals
Motherboard: CPU, RAM; cache, ROM; chips with BIOS and start-up programs; chip sets (controllers); ports, buses and expansion slots Drives: hard disk (s), floppy drive (s), CD-ROM, etc Expansion cards: graphics card (video adapter), network controller, SCSI controller; sound card, video and TV card. Internal modem and ISDN card	Keyboard and mouse Joystick Monitor Printer Scanner Loudspeakers External drives External tape station External modem

Figure 1-2 Data Exchange——Motherboard