信息技术英语阅读

Information Technology English Readin

王　栋　迟桂荣　编著

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内 容 简 介

本书不同于一般的计算机专业外语教材，而是针对目前全国高校各专业大学生学习信息技术和相关英语知识的实际需要编写的教材和课外读物。

全书共分为 8 个单元，精选了近 50 篇近几年发表的原版英语文章，内容涵盖计算机硬件、软件、操作系统、办公自动化、编程语言、数码产品、网络和安全等主题。文章难易适中、图文并茂，读者从中既可以学到实用的信息技术知识，又可以熟悉并掌握信息技术领域英语文献的词汇、惯用语和表述方式。通过本书的学习，读者可以达到独立阅读相当程度的英文信息技术文章的水平。

本书可以用做大学信息技术类课程的教材或参考书，也可以用做社会各类人员学习信息技术的读物或培训教材。

序　言

　　时光更迭、历史嬗递。中国经济带着她足以令世人惊叹的持续高速发展驶入了一个新的世纪，一个新的千年。世纪之初，以微电子、计算机、软件、通信技术为主导的信息技术革命给我们生存的社会带来的变化令人目不暇接。软件是优化我国产业结构、加速传统产业改造和用信息化带动工业化的基础产业，是体现国家竞争力的战略性产业，是从事知识的提炼、总结、深化和应用的高智型产业；软件关系到国家的安全，是保证我国政治独立、文化不受侵蚀的重要因素；软件也是促进其他学科发展和提升的基础学科；软件作为 20 世纪人类文明进步的最伟大成果之一，代表了先进文化的前进方向。美国政府早在 1992 年"国家关键技术"一文中提出"美国在软件开发和应用上所处的传统领先地位是信息技术及其他重要领域竞争能力的一个关键因素"，"一个成熟的软件制造工业的发展是满足商业与国防对复杂程序日益增长的要求所必需的"，"在很多国家关键技术中，软件是关键的起推动作用（或阻碍作用）的因素"。在 1999 年 1 月美国总统信息技术顾问委员会的报告"21 世纪的信息技术"中指出"从台式计算机、电话系统到股市，我们的经济与社会越来越依赖于软件"，"软件研究为基础研究方面最优先发展的领域"。而软件人才的缺乏和激烈竞争是当前国际的共性问题。各国、各企业都对培养、引进软件人才采取了特殊政策与措施。

　　为了满足社会对软件人才的需要，为了让更多的人可以更快地学到实用的软件理论、技术与方法。我们编著了《普通高等院校计算机专业（本科）实用教程系列丛书》。本套丛书面向普通高等院校学生，以培养面向 21 世纪计算机专业应用人才（以软件工程师为主）为目标，以简明实用、便于自学、反映计算机技术最新发展和应用为特色，具体归纳为以下几点：

　　1. 讲透基本理论、基本原理、方法和技术，在写法上力求叙述详细，算法具体，通俗通懂，便于自学。

　　2. 理论结合实际。计算机是一门实践性很强的科学，丛书贯彻从实践中来到实践中去的原则，许多技术理论结合实例讲，以便于学习和理解。

　　3. 本丛书形成完整的体系，每本教材既有相对独立性，又有相互衔接和呼应，为总的培养目标服务。

　　4. 每本教材都配以习题和实验，在各教学阶段安排课程设计或大作业，培养学生的实战能力与创新精神。习题和实验可以制作成光盘。

　　新世纪曙光激人向上，催人奋进。江总书记在十五届五中全会上的讲话："大力推进国民经济和社会信息化，是覆盖现代化建设全局的战略举措。以信息化带动工业化，发挥优势，实现社会生产力的跨越式发展。"指明了我国信息界前进的方向。21 世纪日趋开放的国策与更加迅速发展的科技会托起祖国更加辉煌灿烂的明天。

<div style="text-align: right;">

孙家广

2001 年 3 月

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普通高等院校计算机专业（本科）实用教程系列
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前　言

当今是信息时代各行各业的人都在学习信息技术知识，并将其应用到各自的工作、学习和生活中去。可以说，信息技术极大地改变了我们的学习、工作和生活方式，使之更加丰富多彩、轻松愉快。

高等学校各专业的学生在校期间也要学习众多的信息技术相关课程，以适应信息技术的发展和将来工作的需要。作者便是从事信息技术类课程教学和研究的高校教师。

作者在教学工作中发现，为数不少的中文书籍内容比较陈旧，而翻译的新书质量普遍不高。对于信息技术的初学者来说，合适的中文版信息技术书籍确实不多。而目前，能反映最新研究成果和进展的、高质量的教材和相关书籍大多是英文版，并且不少产品说明书、使用手册、广告、资料、网上信息都是英文的。所以，作者认为能够独立阅读英文原版文章是最好的办法。

信息技术英语与其他科技英语一样，语法相对简单，通过国家英语四级统考的人在语法上不会有障碍。需要学习的内容主要集中在词汇、惯用语和缩略语上。作者认为阅读一些有代表性的文章是学习这些内容的捷径，于是着手搜集资料编写此书。

本书精选了近 50 篇纯正的英文原版文章，涵盖了计算机硬件、软件、操作系统、办公自动化、编程语言、数码产品、网络和安全等主题。这些文章适用性强、难度适中、内容新颖，侧重于信息技术的应用，不涉及很具体的理论知识和技术细节，适合各专业的学生和从事各种工作的读者。书中对专业词汇进行了注释，并附有词汇表和缩略语表。通过学习本书，读者完全可以阅读相近难度的其他原版文章。

正文每页的脚注只对书中首次出现的专业词汇进行解释，给出的词义一般只针对其上下文。所以，建议读者从前向后依次阅读，这样也符合本书对内容的安排。附录中的词汇表列出的是本书中出现的词汇。限于篇幅，作者对其中部分文章进行了删节或调整。另外，作者根据文字的需要，增加了一些插图。

因作者水平所限，加之信息技术发展迅速，书中肯定有错误和不足，望读者和同行提出宝贵的意见和建议。

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2004 年 8 月 4 日

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Unit 1   Computer (计算机)

Passage 1   Computer Overview[1] (计算机概述)

I   Introduction

Computer, machine that performs tasks, such as mathematical calculations or electronic communication, under the control of a set of instructions[2] called a program[3]. Programs usually reside within the computer and are retrieved and processed by the computer's electronics, and the program results are stored or routed to output devices, such as video[4] display monitors or printers. Computers are used to perform a wide variety of activities with reliability, accuracy, and speed.

Computers in the Classroom

II   Uses of Computers

People use computers in a wide variety of ways. In business, computers track inventories with bar codes[5] and scanners, check the credit status of customers, and transfer funds electronically. In homes, tiny computers embedded[6] in the electronic circuitry of most appliances control the indoor temperature, operate home security systems, tell the time, and turn videocassette recorders on and off. Computers in automobiles regulate the flow of fuel, thereby increasing gas mileage. Computers also entertain, creating digitized sound on stereo systems or computer-animated features from a digitally encoded laser disc. Computer programs, or applications[7], exist to aid every level of education, from programs that teach simple addition or sentence construction to programs that teach ad-

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1   本文摘自 *Microsoft Encarta Encyclopedia Delux 2004*，作者为 Timothy Law Snyder
2   instruction：（计算机）指令
3   program：（计算机）程序
4   video：视频的
5   bar code：条形码
6   embed：嵌入
7   application：计算机应用程序，应用软件

vanced calculus. Educators use computers to track grades and prepare notes; with computer-controlled projection units, they can add graphics, sound, and animation to their lectures. Computers are used extensively in scientific research to solve mathematical problems, display complicated data[1], or model systems that are too costly or impractical to build, such as testing the air flow around the next generation of space shuttles. The military employs computers in sophisticated communications to encode[2] and unscramble[3] messages, and to keep track of personnel and supplies.

Seniors in Computer Class

III   How Computers Work

The physical computer and its components are known as hardware[4]. Computer hardware includes the memory[5] that stores data and instructions; the central processing unit (CPU)[6] that carries out instructions; the bus[7] that connects the various computer components; the input devices, such as a keyboard[8] or mouse[9], that allow the user to communicate with the computer; and the output devices, such as printers and video display monitors, that enable the computer to present information to the user. The programs that run the computer are called software[10]. Software generally is designed to perform a particular type of task-for example, to control the arm of a robot to weld a car's body, to write a letter, to draw a graph, or to direct the
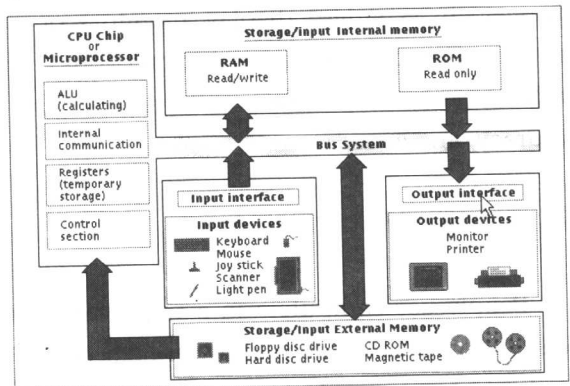
Computer System

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1 data：（datum 的复数形式）数据

2 encode：编码

3 unscramble：解码

4 hardware：硬件

5 memory：内存，存储器

6 central processing unit(CPU)：中央处理器

7 bus：总线

8 keyboard：键盘

9 mouse：鼠标

10 software：软件

general operation of the computer.

IV　Types of Computers

A　Digital[1] and Analog[2]

Computers can be either digital or analog. Virtually all modern computers are digital. Digital refers to the processes in computers that manipulate binary[3] numbers (0s or 1s), which represent[4] switches that are turned on or off by electrical current. A bit[5] can have the value 0 or the value 1, but nothing in between 0 and 1. Analog refers to circuits or numerical values that have a continuous range. Both 0 and 1 can be represented by analog computers, but so can 0.5, 1.5, or a number like π(approximately 3.14).

A desk lamp can serve as an example of the difference between analog and digital. If the lamp has a simple on/off switch, then the lamp system is digital, because the lamp either produces light at a given moment or it does not. If a dimmer[6] replaces the on/off switch, then the lamp is analog, because the amount of light can vary continuously from on to off and all intensities in between.

Analog computer systems were the first type to be produced. A popular analog computer used in the 20th century was the slide rule. To perform calculations with a slide rule, the user slides a narrow, gauged wooden strip inside a rulerlike holder.

Desktop Computer

Because the sliding is continuous and there is no mechanism to stop at any exact values, the slide rule is analog. New interest has been shown recently in analog computers, particularly in areas such as neural[7] networks. These are specialized computer designs that attempt to mimic[8] neurons of the brain. They can be built to respond to continuous electrical signals. Most modern computers, however, are digital machines whose components have a finite number of states—for example, the 0 or 1, or on or off bits. These bits can be combined to denote information such as numbers, letters, graphics, sound, and program instructions.

1　digital：数字式的，数码的
2　analog：模拟的（相对于数字的）
3　binary：二进制的
4　represent：表示，描述
5　bit：（二进制的）位
6　dimmer：调光器
7　neural：神经系统的
8　mimic：模拟，模仿

B Range of Computer Ability

Computers exist in a wide range of sizes and power. The smallest are embedded within the circuitry of appliances, such as televisions and wristwatches. These computers are typically preprogrammed for a specific task, such as tuning to a particular television frequency, delivering doses of medicine, or keeping accurate time. They generally are "hard-wired"—that is, their programs are represented as circuits that cannot be reprogrammed.
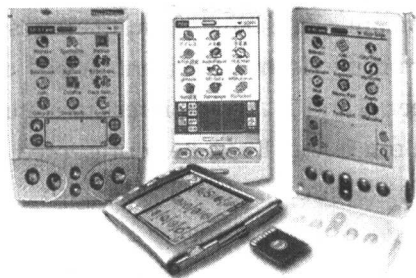

Personal Digital Assistants

Programmable computers vary enormously in their computational power, speed, memory, and physical size. Some small computers can be held in one hand and are called personal digital assistants (PDAs)[1]. They are used as notepads, scheduling systems, and address books; if equipped with a cellular phone[2], they can connect to worldwide computer networks to exchange information regardless of location. Hand-held game devices are also examples of small computers.

Portable laptop and notebook computers[3] and desktop PCs are typically used in businesses and at home to communicate on computer networks, for word processing, to track finances, and for entertainment. They have large amounts of internal memory to store hundreds of programs and documents. They are equipped with a keyboard; a mouse, trackball[4], or other pointing device; and a video display monitor or liquid crystal display (LCD)[5] to display information. Laptop and notebook computers usually have hardware and software similar to PCs, but they are more compact and have flat, lightweight LCDs instead of television-like sion-like video display monitors.
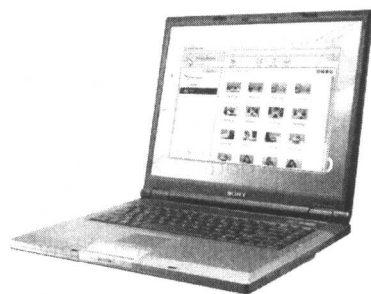
Notebook Computer

Workstations[6] are similar to personal computers but have greater memory and more extensive mathematical abilities, and they are connected to other workstations or personal computers to exchange data. They are typically found in scientific, industrial, and business environments—especially financial ones, such as stock exchanges—that

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1 personal digital assistants (PDAs)：个人数字助理

2 cellular phone：蜂窝电话，移动电话

3 laptop：膝上型计算机；notebook computer：笔记本型计算机。现均指便携式计算机

4 trackball：（一种类似于鼠标的指点设备）轨迹球，跟踪球

5 liquid crystal display(LCD)：液晶显示器

6 workstation：工作站

require complex and fast computations.

Mainframe[1] computers have more memory, speed, and capabilities than worksta-
tions and are usually shared by multiple users
through a series of interconnected computers. They
control businesses and industrial facilities and are
used for scientific research. The most powerful
mainframe computers, called supercomputers[2],
process complex and time-consuming calculations,
such as those used to create weather predictions.
Large businesses, scientific institutions, and the
military use them. Some supercomputers have
many sets of CPUs. These computers break a task
into small pieces, and each CPU processes a portion
of the task to increase overall speed and efficiency.
Such computers are called parallel processors. As

Cray Supercomputer

computers have increased in sophistication, the boundaries between the various types
have become less rigid. The performance of various tasks and types of computing have
also moved from one type of computer to another. For example, networked PCs can
work together on a given task in a version of parallel[3] processing known as distributed[4]
computing.

V　History

Between 1937 and 1939, while teaching at Iowa State College, American physicist
John Vincent Atanasoff built a prototype[5] computing device called the Atanasoff-Berry
Computer, or ABC, with the help of his assistant, Clifford Berry. Atanasoff developed the
concepts that were later used in the design of the first electronic digital computer, the
Electronic Numerical Integrator and Computer (ENIAC). Atanasoff's device was the first
computer to separate data processing from memory. Atanasoff did not receive credit as
the developer of one of the most important technological advances of the century until
1973, when a lawsuit regarding the patent on ENIAC was settled.

American physicist John Mauchly proposed the electronic digital computer called
ENIAC and helped build it, along with American engineer John Presper Eckert, Jr., at the
Moore School of Engineering at the University of Pennsylvania in Philadelphia. ENIAC

1　mainframe：大型机
2　supercomputer：超级计算机
3　parallel：并行的
4　distributed：分布式的
5　prototype：原型，模型

was completed in 1945 and is regarded as the first successful, general digital computer. It weighed more than 27,000 kg and contained more than 18,000 vacuum tubes[1]. Roughly 2,000 of the computer's vacuum tubes were replaced each month by a team of six technicians. Many of ENIAC's first tasks were for military purposes, such as calculating ballistic firing tables and designing atomic weapons. Since ENIAC was initially not a stored program machine, it had to be reprogrammed for each task.

In 1948, at Bell Telephone Laboratories, American physicists Walter Houser Brattain, John Bardeen, and William Bradford Shockley developed the transistor[2], a device that can act as an electric switch. The transistor had a tremendous impact on computer design, replacing costly, energy-inefficient, and unreliable vacuum tubes.

ENIAC
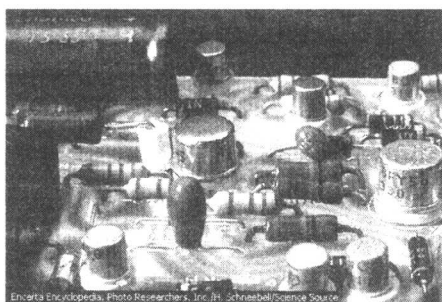
Circuit Board and Transistors

Integrated Circus Chip

In the late 1960s integrated circuits[3], tiny transistors and other electrical components arranged on a single chip[4] of silicon[5], replaced individual transistors in computers. Integrated circuits became miniaturized, enabling more components to be designed into a single computer circuit. In the 1970s refinements in integrated circuit technology led to the development of the modern microprocessor[6], integrated circuits that contained thousands of transistors. Modern microprocessors can contain more than 20 million transistors.
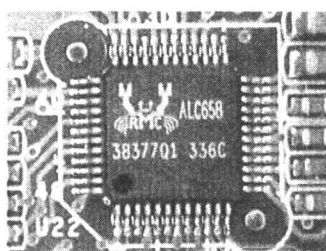
Manufacturers used integrated circuit technology to build smaller and cheaper computers. The first of these so-called personal computers (PCs)[7] was sold by Micro In-

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1 vacuum tubes：真空管，电子管
2 transistor：晶体管
3 integrated circuit：集成电路
4 chip：芯片
5 silicon：硅
6 microprocessor：微处理器
7 personal computer (PC)：个人计算机

strumentation Telemetry Systems. The Altair 8800 appeared in 1975. It used an 8-bit Intel[1] 8080 microprocessor, had 256 bytes of RAM, received input through switches on the front panel, and displayed output on rows of light-emitting diodes (LEDs)[2]. Refinements in the PC continued with the inclusion of video displays, better storage devices, and CPUs with more computational abilities. Graphical user interfaces[3] were first designed by the Xerox Corporation[4], then later used successfully by the Apple Computer Corporation with its Macintosh computer[5]. Today the development of sophisticated[6] operating systems such as Windows and UNIX enables computer users to run programs and manipulate data in ways that were unimaginable 50 years ago.

In 1996 IBM challenged Garry Kasparov, the reigning world chess champion, to a chess match with a supercomputer called Deep Blue. The computer had the ability to compute more than 100 million chess positions per second. In a 1997 rematch Deep Blue defeated Kasparov, becoming the first computer to win a match against a reigning world chess champion with regulation time controls. Many experts predict these types of parallel processing machines will soon surpass human chess playing ability, and some speculate that massive calculating power will one day replace intelligence. Deep Blue serves as a prototype for future computers that will be required to solve complex problems. At issue, however, is whether a computer can be developed with the ability to learn to solve problems on its own, rather than one programmed to solve a specific set of tasks.

VI   Future Developments

In 1965 semiconductor pioneer Gordon Moore predicted that the number of transistors contained on a computer chip would double every year. This is now known as Moore's Law[7], and it has proven to be somewhat accurate. The number of transistors and the computational speed of microprocessors currently doubles approximately every 18 months. Components continue to shrink in size and are becoming faster, cheaper, and more versatile.

With their increasing power and versatility, computers simplify day-to-day life. Unfortunately, as computer use becomes more widespread, so do the opportunities for misuse. Computer hackers[8]-people who illegally gain access to computer systems-often

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1　Intel: 美国英特尔公司
2　light-emitting diodes (LEDs): 发光二极管
3　interface: 界面，接口
4　Xerox Corporation: 美国施乐公司
5　Macintosh computer: 麦金塔计算机（由美国 Apple 公司生产的一种计算机）
6　sophisticated: 成熟的，完美的，复杂的
7　Moore's Law: 摩尔定律；戈登·摩尔（Gordon Moore）是英特尔公司的创始人之一
8　hacker: 黑客

violate privacy and can tamper with or destroy records. Programs called viruses or worms[1] can replicate and spread from computer to computer, erasing information or causing computer malfunctions. Other individuals have used computers to electronically embezzle funds and alter credit histories. New ethical issues also have arisen, such as how to regulate material on the Internet and the World Wide Web. Individuals, companies, and governments are working to solve these problems by developing better computer security and enacting regulatory legislation.

Computers will become more advanced and they will also become easier to use. Improved speech recognition will make the operation of a computer easier. Virtual reality[2], the technology of interacting with a computer using all of the human senses, will also contribute to better human and computer interfaces. Standards for virtual-reality program languages, called Virtual Reality Modeling language (VRML), currently are being developed for the World Wide Web.

Breakthroughs occurred in the area of quantum[3] computing in the late 1990s.
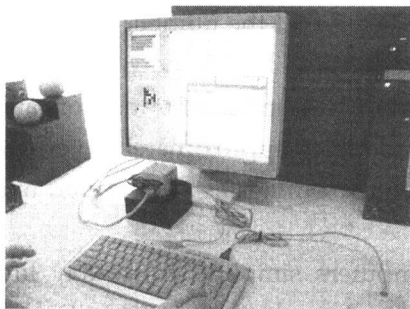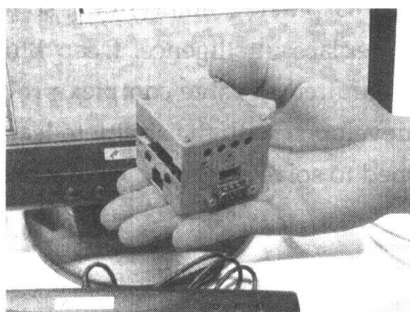
Mini Computer

Quantum computers under development use components of a chloroform molecule[4] (a combination of chlorine and hydrogen atoms) and a variation of a medical procedure called magnetic resonance imaging (MRI) to compute at a molecular level. Scientists used a branch of physics called quantum mechanics, which describes the activity of subatomic particles (particles that make up atoms), as the basis for quantum computing. Quantum computers may one day be thousands to millions of times faster than current computers, because they take advantage of the laws that govern the behavior of subatomic particles. These laws allow quantum computers to examine all possible answers to a query at one time. Future uses of quantum computers could include code breaking and large database[5] queries[6].

Communications between computer users and networks will benefit from new

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1 virus：（计算机）病毒；worm：蠕虫
2 virtual reality：虚拟现实（技术）
3 quantum：量子
4 molecule：分子
5 database：数据库
6 query：查询

technologies such as broadband[1] communication systems that can carry significantly more data and carry it faster, to and from the vast interconnected databases that continue to grow in number and type.

Passage 2　Personal Computer[2] (个人计算机)

I　Introduction

Personal Computer (PC), machine capable of performing calculations and instructions quickly and repetitively. Designed to be used by a single person at a time, a PC is generally smaller, less expensive, and easier to use than supercomputers, mainframe computers, and computer workstations, which usually have more computational power than a PC. The PC, on the other hand, is generally larger and more powerful than handheld[3] computers, including personal digital assistants (PDAs), and gaming devices.

PCs have revolutionized entertainment, science, the media, art, medicine, education, and business because they provide computational abilities at low cost to people with no extensive programming experience. PCs enable artists to envision and manipulate images. Musicians use them for learning, creating, and recording music. Businesses track finances and forecast company performance using PCs. News reporters can compose news stories on portable[4] PCs, called laptops, and electronically submit these stories from remote locations. Many people work at home and communicate with fellow workers via their PCs in a practice known as telecommuting. PCs are also able to interface with worldwide communication networks, such as the Internet and the graphics-based information database known as the World Wide Web, to find and send information on any subject.

PCs are now commonly used in everyday life. They can be used to send electronic mail[5], to write school reports or fiction, to balance checkbooks and keep financial data, or to track news stories and visit Web sites[6].

II　Parts of a Personal Computer

PCs consist of electronic circuitry called a microprocessor, such as the central proc-

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1　broadband：宽带
2　本文摘自 *Microsoft Encarta Encyclopedia Delux 2004*，作者为 Timothy Law Snyder
3　handheld：手持式的
4　portable：便携式的
5　electronic mail：(E-mail)电子邮件
6　Web site：网站