面向21世纪高等教育规划教材

计算机专业英语

JISUANJI ZHUANYE YINGYU

主编 何英

江西科学技术出版社

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The specialized English of Computer

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前　言

随着时代的发展，计算机与网络技术已渗透到人们工作和生活的各个方面。计算机英语也随之独立成为一门专业英语，并在计算机应用中作为人机之间交流的媒介。作为未来IT业的专业人员，必须能够阅读和翻译与计算机有关的英文资料和技术文献以及国外的一些最新的计算机研究成果，以便能及时了解计算机发展的新技术和新方向。

现在各大专院校、职业技术学院和中专学校都开设了计算机专业英语的课程，为了满足教学需求和学生的实际需求，在以目前国外最新的计算机教材和文献作为素材的基础上，编写了本教材。

本书的结构及内容：本书从内容上可分为6大部分。

第1部分信息技术概述（第1章），内容包括数字计算机、计算机的发展历程、计算机的分类、数据的类型和信息系统。

第2部分计算机软件（第2～3章），内容包括系统软件（操作系统、实用软件、驱动程序、程序设计语言和编译程序）和应用软件（应用软件的特征、浏览器、字处理软件、电子制表软件、数据库管理系统、演示图形软件和软件套装）。

第3部分计算机硬件（第4～7章），内容包括主机（主板、微处理器、内存、系统时钟、总线、端口和线缆）、输入设备（键盘、鼠标、触摸屏、扫描仪和声音识别设备）、输出设备（显示器、打印机和音频输出设备）和二级存储器（软盘、硬盘、光盘和U盘）。

第4部分通信、网络和因特网（第8～10章），内容包括通信系统（通信媒体、通信设备、通信技术和数据传输）、计算机网络（网络体系结构、网络拓扑结构和网络的分类）和因特网（网站、因特网服务提供商、因特网地址、域名、电子邮件、搜索引擎和网络实用软件）。

第5部分电子商务和安全（第11章），内容包括电子商务、电子商务的类型、网上商店、网上拍卖、电子数据交换和电子商务安全隐私等。

第6部分信息系统领域的职业（第12章），内容包括系统分析员、WEB站点管理员、数据库管理员、程序员、网络管理员、计算机维护专家、科技作家、计算机培训师、计算机技术员和技术支持工程师。

本书每章的内容由课文、关键词汇、练习和阅读材料4部分构成。为了增加课文的直观性，使读者更容易理解计算机的词汇，文中配有大量的插图。

另外，附录给出了本书的关键词汇表索引，并注有音标和中文解释，使读者在掌握词义的同时能熟悉相关的发音。

适用对象：本书可作为高等院校、高职高专广大师生的教材，同时也可作为大中专院校相关专业学生的参考书，还可作为计算机爱好者的自学书。

本书在编写过程中得到领导和同事的大力支持，在此向他们表示最真挚的感谢！

由于计算机技术发展迅速，计算机新词汇不断出现，书中有些新词汇尚无规范译法，加上作者水平有限，书中难免会有疏漏之处，恳请读者批评指正。

编　者

Contents

CHAPTER 1

Introduction to Information Technology

Objective

After reading this chapter, you should be able to:

- Define what the digital computer is.
- Know the evolution of computers.
- Describe the five types of computers.
- Know the several types of data.
- Explain the five parts of an information system.

1.1 Digital Computer

The modern digital computer was invented between 1935 and 1945. Digital computer is an acknowledged symbol of 20th century technology. Digital computers surround us. It's hard to find a field in which digital computers are not being used. The word "digital" implies that the information in the computer is represented by variables that take a limited number of discrete values. Digital computer is also called electronic computer or computer – a tool that is a programmable, electronic device that accepts input, performs operations or processing on the data, and outputs and stores the results. The relationships between these four main computer operations (input, processing, output and storage) are shown in Figure 1 – 1.

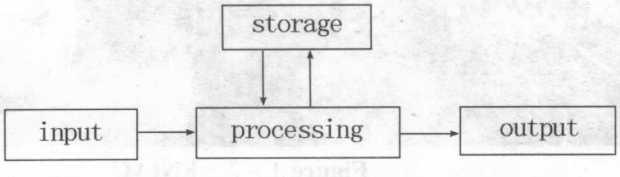

Figure 1 – 1 The relationships between four main computer operations

The actual machinery (wires, transistors, and circuits) is called hardware; the instructions and data are called software. All general-purpose computers require the following hardware components:

Central processing unit (CPU). The heart of the computer, this is the component that actually executes instructions organized in programs ("software") which tell the computer what to do.

Memory (fast, expensive, short-term memory). Enables a computer to store, at least temporarily, data, programs, and intermediate results.

Mass storage device (slower, cheaper, long-term memory). Allows a computer to permanently retain large amounts of data and programs between jobs. Common mass storage devices include disk drives and tape drives.

Input device. Usually a keyboard and mouse, the input device is the conduit through which data and instructions enter a computer.

Output device. A display screen, printer, or other device that lets you see what the computer has accomplished.

In addition to these components, many others make it possible for the basic components to work together efficiently. For example, every computer requires a bus that transmits data from one part of the computer to another.

1.2 Evolution of Computers

Computers have appeared so rapidly, in the modern time that it is hard to imagine that they have any history at all. Yet they do, and it is a most interesting history indeed. From the first large-scale electronic computer – the Electronic Numerical Integrator and Computer (See Figure 1 – 2.) – was built, computers have developed through five generations.

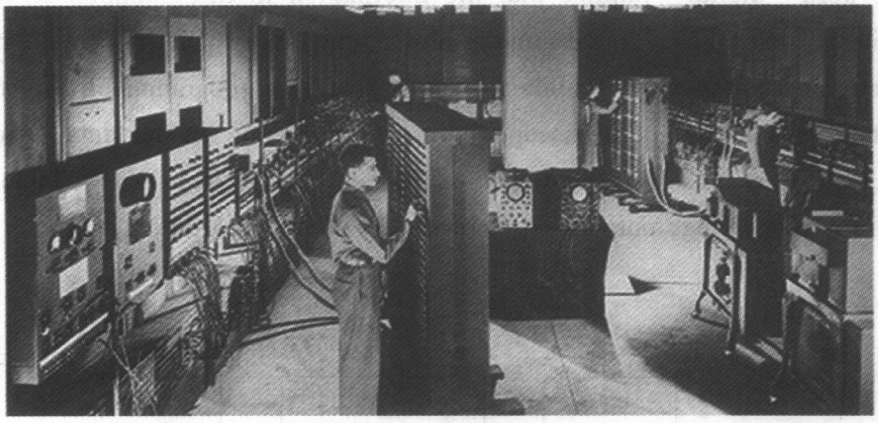

Figure 1 – 2 ENIAC

1.2.1 First Generation (1944-1958): Vacuum Tubes

The first generation computers used vacuum tubes (See Figure 1 – 3.) for circuitry and magnetic drums (See Figure 1 – 4.) for memory. Because they used vacuum tubes, they were very unreliable, required a lot of power to run, and produced so much heat that adequate air conditioning was critical to protect the computer parts. Compared to today's computers, they had slow input and output devices, were slow in processing, and had small storage capacities. Many of the internal processing functions were measured in thousandths of a second (millisecond). The software (computer program) used on first generation computers was unsophisticated and machine oriented. This meant that the programmers had to code all computer instructions and data in actual machine language. They also had to keep track of where instructions and data were stored in memory. Using such a machine language was efficient for the computer but difficult for the programmer.

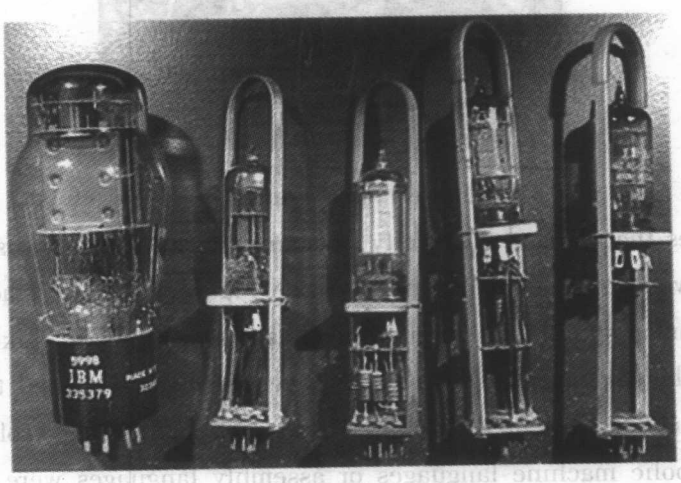

Figure 1 – 3 Vacuum tubes

First-generation machines were large, costly to buy, expensive to power and often unreliable.

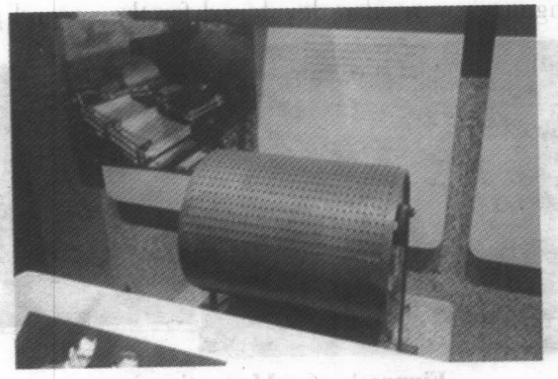

Figure 1 – 4 Magnetic drum

1.2.2 Second Generation Computers (1959-1964): Transistor

By the early 1960s, transistors (See Figure 1 – 5.) and some other solid-state devices that were much smaller than vacuum tubes were being used for much of the computer. Transistors are smaller and less expensive than vacuum tubes, and they operate faster and produce less heat. The use of small, long lasting transistors also increased in processing speeds and reliability. Cost performance also improved. Magnetic cores (See Figure 1 – 6.), which looked like very small metal washers strung

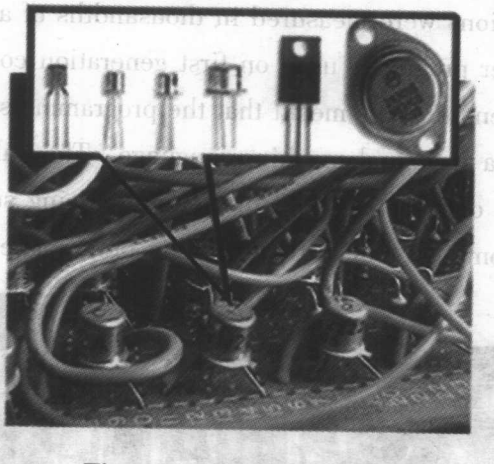

Figure 1 – 5 Transistors

together by wires that carried electricity, became the most widely used type of main memory. Removable magnetic disk packs (See Figure 1 – 7.), stacks of disk connected by a common spindle, were introduced as storage devices. Like the first generation, a particular computer of the second generation was designed to process either scientific or business oriented problems but not both. The software was also improved. Symbolic machine languages or assembly languages were used instead of actual machine languages. This allowed the programmer to use mnemonic operation codes for instruction operations and symbolic names for storage locations or stored variables. Compiler languages were also developed for the second generation computers.

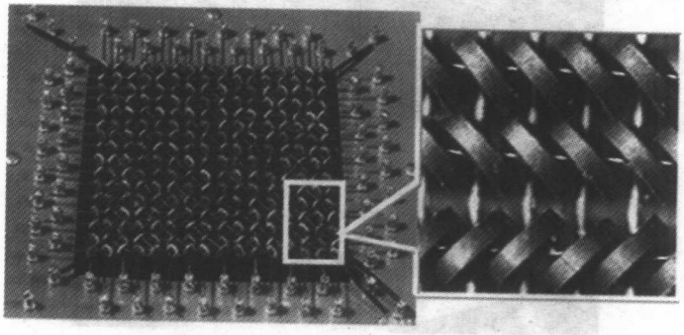

Figure 1 – 6 Magnetic cores

Second-generation machines tended to be smaller, more reliable, and significantly faster than first-generation computers.

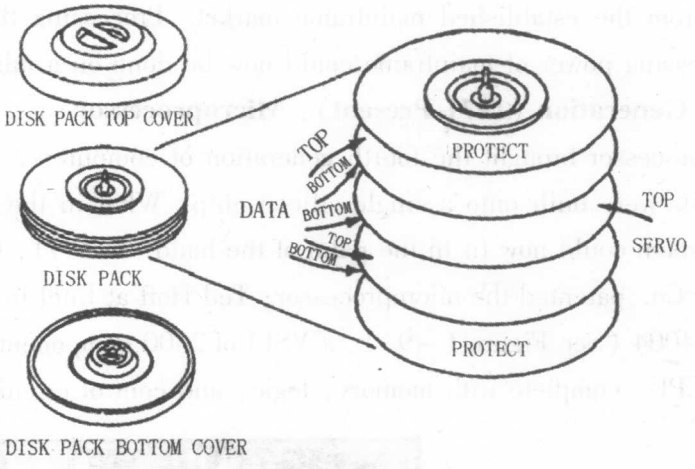

Figure 1 – 7 Magnetic disk packs

1.2.3 Third Generation Computers (1964-1970): Integrated Circuits

On April 7, 1964, IBM announced the System/360 all-purpose computer. It was considered to be the most important event in the history of computer. It is the beginning of the third generation of computer, which was characterized by the integrated circuits or IC (See Figure 1 – 8.). Integrated circuits are cost-effective because individual components don't need to be wired directly to the computer's system board.

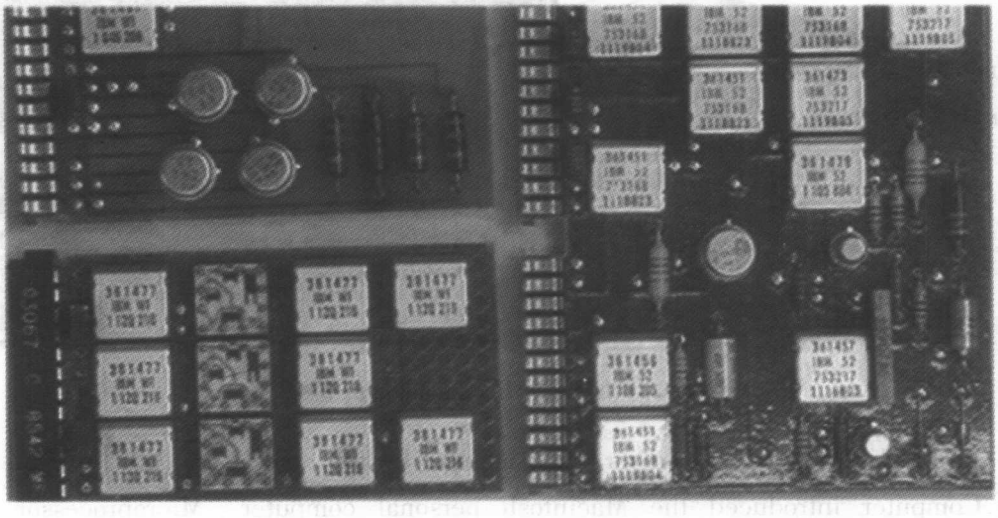

Figure 1 – 8 Integrated circuit

The use of magnetic disks for secondary data storage became widespread, and

computers began to support such capabilities as multiprogramming and timesharing. Minicomputers were being widely used by the early 1970s and were taking some of the business away from the established mainframe market. Processing that formerly required the processing power of mainframe could now be done on a minicomputer.

1.2.4 Fourth Generation (1971-Present): Microprocessor

The microprocessor brought the fourth generation of computers, as thousands of integrated circuits were built onto a single silicon chip. What in the first generation filled an entire room could now fit in the palm of the hand. In 1971, Gilbert Hyatt at Micro Computer Co. patented the microprocessor; Ted Hoff at Intel in February introduced the 4-bit 4004 (See Figure 1 – 9.), a VSLI of 2300 components, which packaged an entire CPU, complete with memory, logic, and control circuits.

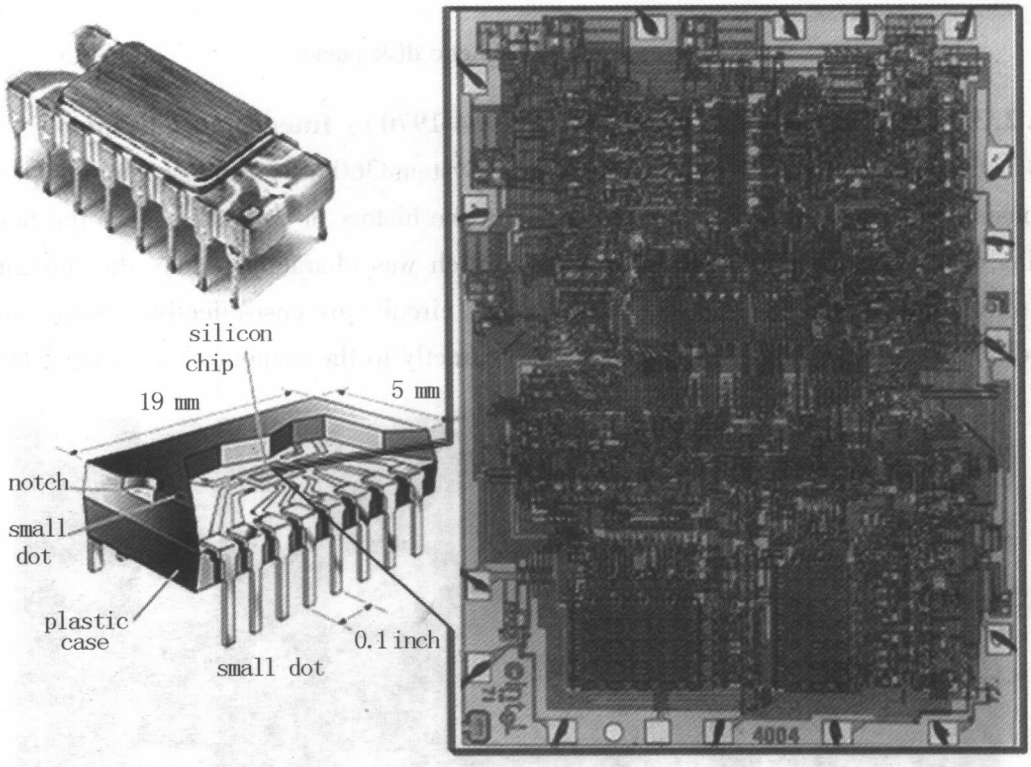

Figure 1 – 9 **Microprocessor** 4004

In 1981, IBM introduced its first computer for the home user, and in 1984 Apple Computer introduced the Macintosh personal computer. Microprocessor also moved out of the realm of desktop computers (See Figure 1 – 10.) and into many areas of life as more and more everyday products began to use microprocessors.

Figure 1 – 10 Desktop computer

1.2.5 Fifth Generation (Present and Beyond): Artificial Intelligence

Fifth generation computing devices, based on artificial intelligence, are still in development. The use of parallel processing and superconductors is helping to make artificial intelligence a reality. The goal of fifth-generation computing is to develop devices that respond to natural language input and are capable of learning and self-organization.

1.3 Types of Computers

Computers can be generally classified by size and power as follows (See Figure 1 – 11.), though there is considerable overlap:

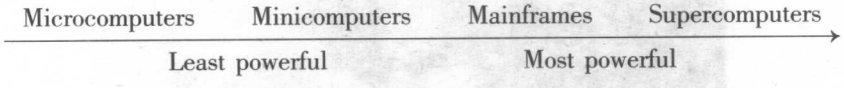

Figure 1 – 11 Types of computers

1.3.1 Supercomputers

The supercomputer (See Figure 1 – 12.) is the top of the heap in power and expense. These are used for jobs that take massive amounts of calculating, like weather forecasting, engineering design and testing, serious decryption, economic forecasting, etc. This type of computer usually costs hundreds of thousands or even millions of dollars.

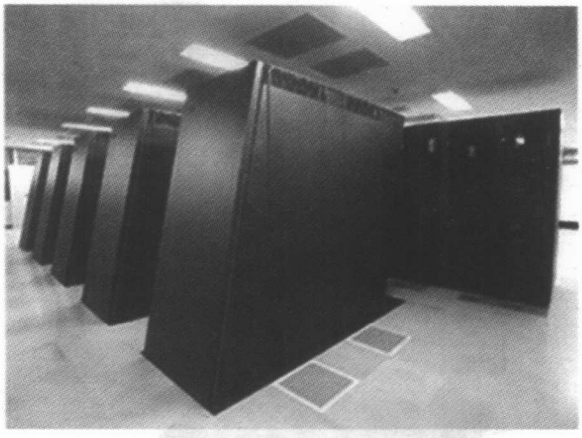

Figure 1 – 12 **Supercomputer**

1.3.2 Mainframe Computers

The mainframe computer is a powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously. Mainframe (See Figure 1 – 13.) was a term originally referring to the cabinet containing the central processor u-

Figure 1 – 13 **Mainframe computer**

nit or "main frame" of a room-filling Stone Age batch machine. After the emergence of smaller "minicomputer" designs in the early 1970s, the traditional big iron machines were described as "mainframe computers" and eventually just as mainframes. Nowadays a Mainframe is a very large and expensive computer capable of supporting hundreds, or even thousands, of users simultaneously. The chief difference between a supercomputer and a mainframe is that a supercomputer channels all its power into

executing a few programs as fast as possible, whereas a mainframe uses its power to execute many programs concurrently. In some ways, mainframes are more powerful than supercomputers because they support more simultaneous programs. But supercomputers can execute a single program faster than a mainframe.

1.3.3 Minicomputers

It is a midsize computer (See Figure 1 – 14.). In the past decade, the distinction between large minicomputers and small mainframes has blurred, however, as has the distinction between small minicomputers and workstations. But in general, a minicomputer is a multiprocessing system capable of supporting from up to 200 users simultaneously.

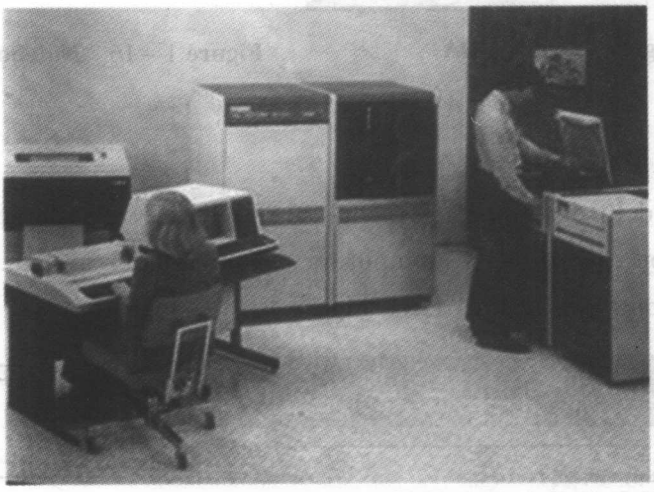

Figure 1 – 14 **Minicomputer**

1.3.4 Microcomputers

Microcomputers are the least powerful, yet are the most widely used and fastest-growing type of computer. Categories of microcomputer include desktop computers (See Figure 1 – 10.), notebook computers (See Figure 1 – 16.), and personal digital assistants (PDAs, See Figure 1 – 15.).

Desktop computers. Desktop computers are designed to fit comfortably on top of a desk, typically with the monitor sitting on top of the computer.

Notebook computers. Notebook computers typically weigh less than 6 pounds and are small enough to fit easily in a briefcase.

PDAs. A PDA is a handheld device that combines computing, telephone/fax and networking features.