



全国高等职业教育规划教材

计算机专业英语

陈 嘉 周月红 李 敏 主编



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全国高等职业教育规划教材

计算机专业英语

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本书是计算机专业英语教材。全书分为 8 个部分, 21 个单元, 涵盖了计算机基础知识、软硬件结构体系、网络技术、计算机安全、计算机应用、搜索引擎以及计算机英文文档等方面的专业知识。每一单元均有难点注释、关键术语的定义、习题以及计算机英语的翻译和写作技巧, 有利于读者对课文的理解和掌握, 提高对计算机专业英语的阅读和理解能力。

本书内容丰富、选材新颖、面向应用, 以提高学生对计算机英语的阅读及理解能力、掌握计算机专业英语的翻译技巧和写作方法为目标, 难易适中, 通俗易懂, 实用性强, 适合作为高职高专院校计算机专业计算机英语课程的教材, 也可供计算机相关专业技术人员学习和参考。

本书配有电子教案、习题答案及参考译文, 需要的读者可登录机械工业出版社教材服务网 www.cmpedu.com 免费注册, 审核通过后下载, 或联系编辑索取 (QQ: 81922385, 电话: (010) 88379739)。

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出版说明

根据《教育部关于以就业为导向深化高等职业教育改革的若干意见》中提出的高等职业院校必须把培养学生动手能力、实践能力和可持续发展能力放在突出的地位，促进学生技能的培养，以及教材内容要紧紧密结合生产实际，并注意及时跟踪先进技术的发展等指导精神，机械工业出版社组织全国近 60 所高等职业院校的骨干教师对在 2001 年出版的“面向 21 世纪高职高专系列教材”进行了全面的修订和增补，并更名为“全国高等职业教育规划教材”。

本系列教材是由高职高专计算机专业、电子技术专业和机电专业教材编委会分别会同各高职高专院校的一线骨干教师，针对相关专业的课程设置，融合教学中的实践经验，同时吸收高等职业教育改革的成果而编写完成的，具有“定位准确、注重能力、内容创新、结构合理和叙述通俗”的编写特色。在几年的教学实践中，本系列教材获得了较高的评价，并有多品种被评为普通高等教育“十一五”国家级规划教材。在修订和增补过程中，除了保持原有特色外，针对课程的不同性质采取了不同的优化措施。其中，核心基础课的教材在保持扎实的理论基础的同时，增加实训和习题；实践性较强的课程强调理论与实训紧密结合；涉及实用技术的课程则在教材中引入了最新的知识、技术、工艺和方法。同时，根据实际教学的需要对部分课程进行了整合。

归纳起来，本系列教材具有以下特点：

- 1) 围绕培养学生的职业技能这条主线来设计教材的结构、内容和形式。
- 2) 合理安排基础知识和实践知识的比例。基础知识以“必需、够用”为度，强调专业技术应用能力的训练，适当增加实训环节。
- 3) 符合高职学生的学习特点和认知规律。对基本理论和方法的论述要容易理解、清晰简洁，多用图表来表达信息；增加相关技术在生产中的应用实例，引导学生主动学习。
- 4) 教材内容紧随技术和经济的发展而更新，及时将新知识、新技术、新工艺和新案例等引入教材。同时注重吸收最新的教学理念，并积极支持新专业的教材建设。
- 5) 注重立体化教材建设。通过主教材、电子教案、配套素材光盘、实训指导和习题及解答等教学资源的有机结合，提高教学服务水平，为高素质技能型人才的培养创造良好的条件。

由于我国高等职业教育改革和发展的速度很快，加之我们的水平和经验有限，因此在教材的编写和出版过程中难免出现问题和错误。我们恳请使用这套教材的师生及时向我们反馈质量信息，以利于我们今后不断提高教材的出版质量，为广大师生提供更多、更适用的教材。

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前 言

计算机技术是当今发展最快的技术之一，计算机的使用已经非常普及了。大多数软件的帮助文档是英文的，屏幕上看到的也都是英文提示和说明，已经渗透到各行各业、学习生活的 Internet 上的信息大多数用英文表示。无论是学习计算机科学与技术，还是使用计算机软硬件产品，都离不开对计算机英语的熟练掌握。因此，每个从事计算机科学与技术的学习、教学、科研、工程技术及经营管理的人员都必须具备良好的英语能力，达到一定的计算机专业英语水平，才能跟上计算机技术的飞速发展。

本书面向计算机应用及相关专业，强调与计算机专业课程的协调性。在教材编写上，本书没有过分强调抽象的语法和晦涩的术语，而是更多地关注计算机应用以及对社会和生活的影响。在选材上，除了计算机基础知识、软硬件结构体系，本书还涵盖了网络技术、计算机安全、计算机应用、搜索引擎以及计算机英文文档等方面的专业知识。

本书共有 21 个单元 (Unit)，分为 8 个部分。第 1 部分是第 1 单元，介绍计算机基础知识；第 2 部分是第 2~4 单元，介绍计算机硬件的基本知识，主要包括计算机硬件组成、中央处理器、计算机外围设备；第 3 部分是第 5~7 单元，介绍计算机软件的基础知识，主要包括计算机软件基础、计算机操作系统、计算机应用软件；第 4 部分是第 8~10 单元，介绍计算机网络知识，主要包括计算机网络技术、Internet、Internet 2；第 5 部分是第 11~13 单元，介绍计算机安全知识，主要包括计算机病毒、防火墙工作原理、计算机加密；第 6 部分是第 14~16 单元，介绍计算机应用方面的知识，主要包括数据库应用、多媒体技术、电子商务的应用；第 7 部分是第 17~19 单元，介绍网络搜索引擎技术，主要包括网络搜索引擎技术原理、关于 Microsoft.com 的搜索、搜索引擎的类型；第 8 部分是第 20~21 单元，主要包括计算机文档和 Windows 帮助文档。每一单元后面均有难点注释、关键术语的定义、习题以及阅读材料和计算机英语相关知识介绍，有利于读者对课文的理解和掌握，提高对计算机专业英语的阅读和理解能力。

本书由陈嘉、周月红、李敏任主编，孟大伟、苏福振、张红娟任副主编，郭晓燕、王飞、王晓玲等编著，参加编写的作者还有江天仿、何俨、朱晓波、郭璐青、贾燕玲、李晓娟、魏蔚、张建华、姜超、范辉、彭春艳。全书由陈嘉、周月红统稿，刘瑞新主审。

本书可作为高职高专院校计算机专业的计算机英语课程的教材，也可作为自学人员和网站开发人员的技术参考书。

由于编者水平有限，书中错误与疏漏之处在所难免，敬请读者批评指正。

编 者

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Unit 1 Introduction to Computers

Part I Text

What Is a Computer?

The basic job of computers is the *processing* of information. For this reason, computers can be defined as very-high-speed *electronic* device which accept information in the form of *instructions* called a *program* and characters called *data*, perform mathematical and /or logical operations on the information, and then supply results of these operations. The program, or part of it, which tells the computers what to do and the data, which provide the information needed to solve the problem, are kept inside the computer in a place called *memory*.

Computers are thought to have many remarkable powers. However, many computers whether large or small have three basic *capabilities*. First, computers have *circuits* for performing arithmetic operations, such as addition, subtraction, multiplication, division and *exponentiation*. Second, computers have a means of communicating with the user. After all, if we couldn't feed information in and get results back, these machines wouldn't be of much use. However, certain computers (commonly *minicomputers* and *microcomputers*) are used to control things directly, such as robots, aircraft navigation systems, medical instruments, etc.

Some of the most common methods of *inputting* information are to use *magnetic tape*, disks, and *terminals*. The computer's input device (which might be a *keyboard*, a *tape drive* or *disk drive*, depending on the *medium* used in inputting information) reads the information into the computer. For *outputting* information, two common devices used are a *printer* which prints the new information on paper, and a *CRT display screen* also called a *monitor* which shows the results on a TV-like screen.

Third, computers have circuits which can make decisions. The kinds of decisions which computer circuits can make are not of the type "Who would win a war between two countries?" or "Who is the richest person in the world?". Unfortunately, the computer can only decide three things, namely: "Is one number less than another?", "Are two numbers equal?", and "Is one number greater than another?"

The numbers, letters, and *images* inputted to a computer are called data. The instructions that carry out the processing are called computer programs or *software*. The output, intended for use and *interpretation* by people, is called information.

A computer can solve a series of problems and make hundreds, even thousands, of logical decisions without becoming tired or bored. It can find the solution to a problem in a fraction of the

time it takes a human being to do the job. A computer can replace people in dull, routine tasks, but it has no *originality*; it works according to the instructions given to it and cannot make any value judgments. Sometimes a computer seems to operate like a mechanical “brain”, but its achievements are limited by the minds of human beings. A computer cannot do anything unless a person tells it what to do and gives it the appropriate information, but because *electric pulses* can move at the speed of light, a computer can carry out vast numbers of arithmetic-logical operations almost *instantaneously*.

It's hard to *assign* a worthwhile definition to each type of computer because *definitions* can get *bogged down* in *potentially* confusing technical *jargon*.^[1] Nevertheless, the following definitions can *suffice*:

1) A *supercomputer* can handle *gigantic* amounts of scientific computation. It's usually maintained in a special room or environment, and may be about 50,000 times faster than a microcomputer. As a user in business, you probably would not have contact with a supercomputer. However, you might if you worked in the areas of defense and *weaponry*, weather forecasting, scientific research, at one of several large universities, or for the National *Aeronautics* and Space Administration.^[2]

2) A *mainframe computer* is a large computer, usually *housed* in a controlled environment, that can support the processing requirements of hundreds or thousands of users and computer *professionals*.^[3] If you go to work for an airline, a bank, a large insurance company, a large *accounting* company, a large university, or the Social Security Administration, you will likely have contact, through your individual *workstation*, with a mainframe computer.

3) A minicomputer, also known as a midsize or low-end mainframe computer, is similar to but less powerful than a mainframe computer. It can support 2 to 50 users and computer professionals. Minicomputers and mainframe computers can work much faster than microcomputers and have much more *storage locations* in *main memory*. Many small and medium-sized companies today use minicomputers, so if you go into the business world, you will have good chances to contact with a minicomputer.

4) The microcomputer is the type of computer that you undoubtedly will deal with as a user. Many readers are probably already familiar with the microcomputer, also known as a *personal computer* (PC, See Fig. 1-1). They vary in size from small *portables*, and *laptop* computers that you can carry around like a *briefcase*, to powerful *desktop* workstations, such as those used by engineers and scientists. A microcomputer—generally used by only one person at a time—uses a *microprocessor chip* as its *CPU*. As small as one quarter of an inch square, a chip is made of *silicon*, a material made from sand. Silicon is referred to as a *semiconductor* because it sometimes conducts electricity and sometimes does not (semi means “partly”), depending on applied *voltages* and added chemical *impurities* (“*dopants*”).



Fig. 1-1 The personal computer

In general, a computer's type is determined by the following seven factors:

1) The type of CPU. As noted, microcomputers use microprocessors.^[4] The larger computers tend to use CPUs made up of separate, high-speed, *sophisticated* components.

2) The amount of main memory the CPU can use. A computer equipped with a large amount of main memory can support more sophisticated programs and can even hold several different programs in memory at the same time.

3) The *capacity* of the *storage devices*. The larger computer systems tend to be equipped with higher capacity storage devices.

4) The speed of the *output devices*. The speed of microcomputer output devices tends to be rated in terms of the number of *characters per second (cps)* that can be printed—usually in tens and hundreds of cps. Larger computers' output devices are faster and are usually rated at the speed of hundreds or thousands of lines that can be printed per minute.

5) The processing speed in *millions of instructions per second (mips)*. The term *instruction* is used here to describe a basic task the software asks the computer to perform while also *identifying* the data to be affected. The processing speed of the smaller computers ranges from 7 to 40 mips. The speed of large computers can be 30 to 150 mips or more, and supercomputers can process more than 200 mips. In other words, a mainframe computer can process your data a great deal faster than a microcomputer can.

6) The number of users that can *access* the computer at one time. Some small computers can support only a single user, some can support as many as two or three at a time. Large computers can support hundreds of users *simultaneously*.

7) The cost of the computer system. Business systems can cost as little as \$500 (for a microcomputer) or as much as \$10 million (for a mainframe) and much more for a supercomputer.

New Words



New Words

process	v.	处理
electronic	adj.	电子的
instruction	n.	指令
program	n.	程序
data	n.	数据
memory	n.	存储器
capability	n.	能力
circuit	n.	电路
exponentiation	n.	乘方
minicomputer	n.	小型计算机
microcomputer	n.	微型计算机, 微机
input	n.&v.	输入

terminal	<i>n.</i>	终端
keyboard	<i>n.</i>	键盘
medium	<i>n.</i>	媒体, 介质
output	<i>n.&v.</i>	输出
printer	<i>n.</i>	打印机
monitor	<i>n.</i>	监视器
image	<i>n.</i>	图像
software	<i>n.</i>	软件
interpretation	<i>n.</i>	解释, 译码
originality	<i>n.</i>	创意, 新奇
electric	<i>adj.</i>	电的, 电气的
pulse	<i>n.</i>	脉冲
instantaneously	<i>adv.</i>	瞬间地, 即刻地, 即时地
assign	<i>v.</i>	分配, 赋值, 指定, 分派
definition	<i>n.</i>	概念, 定义
bog (down)	<i>vi.</i>	陷入
potentially	<i>adv.</i>	可能地, 大概地, 潜伏地
jargon	<i>n.</i>	术语, 难懂的话, 行话
	<i>vt.</i>	说行话
suffice	<i>vi.</i>	足够
supercomputer	<i>n.</i>	巨型计算机
gigantic	<i>adj.</i>	巨大的
weaponry	<i>n.</i>	(总称) 武器
aeronautics	<i>n.</i>	航空术, 航空学
house	<i>vt.</i>	安置
professional	<i>adj.</i>	职业的, 专业的
accounting	<i>adj.</i>	会计的, 财务的, 帐户的
workstation	<i>n.</i>	工作站
portable	<i>adj.</i>	便携式的
laptop	<i>n.</i>	膝盖, 膝面, 膝上
briefcase	<i>n.</i>	箱子
desktop	<i>n.</i>	桌面, 桌上型电脑
microprocessor	<i>n.</i>	微处理器
chip	<i>n.</i>	芯片
silicon	<i>n.</i>	硅
semiconductor	<i>n.</i>	半导体
voltage	<i>n.</i>	电压
impurity	<i>n.</i>	不纯, 不清洁, 混杂物
dopant	<i>n.</i>	掺杂物

sophisticated	adj.	复杂的
capacity	n.	容量
identify	vt.	确实, 识别, 标记, 标识
access	n.	存取, 访问, 选取, 接近
simultaneously	adv.	同时



Phrases & Expressions

magnetic tape	磁带
tape drive	磁带机
disk drive	磁盘驱动器
display screen	显示屏
mainframe computer	大型计算机
storage location	存储地址
main memory	主存储器
storage device	存储设备
output device	输出设备
in terms of	用……衡量或表示, 根据, 按照



Abbreviations

CRT (Cathode Ray Tube)	阴极射线管
PC (Personal Computer)	个人计算机
CPU (Central Processing Unit)	中央处理器
cps (characters per second)	每秒钟字符数
mips (million instructions per second)	每秒钟百万指令

Notes

Notes

[1] It's hard to assign a worthwhile definition to each type of computer because definitions can get bogged down in potentially confusing technical jargon.

分析: assign ... to...表示“将……赋予……”。assign a worthwhile definition to each type of computer 即“给每一种类型的计算机赋予一个有价值的定义”。又如, assign an attribute to a file 表示“给某个文件赋予一种属性”。

译文: 要给每一种类型的计算机都下一个确有价值的定义并非易事, 因为这样做有可能陷入令人混淆的技术术语当中去。

[2] However, you might if you worked in the areas of defense and weaponry, weather forecasting, scientific research, at one of several large universities, or for the National Aeronautics and Space Administration.

分析：句中 you might 后省去了前句中已经提到的谓语部分，即 have contact with a supercomputer。

译文：但如果你工作在国防、军工、气象、科研单位、某个名牌大学或是国家航空航天力的管理部门，就可能接触过这种巨型计算机。

[3] A mainframe computer is a large computer, usually housed in a controlled environment, that can support the processing requirements of hundreds or thousands of users and computer professionals.

分析：句中的 that 从句是限制性定语从句，只不过前面有一个插入语，这才用逗号跟主句分开。

译文：大型计算机是一种能满足数百甚至数千用户或计算机专家操作要求的大型计算机，通常安装在受控制的环境里。

[4] As noted, microcomputers use microprocessor.

分析：句中的 As noted 是一个省略从句，省掉了“主语+be”，完整的句子应是 As it is noted，类似的省略句有 If necessary、When possible 等。

译文：如上所述，微型计算机使用微处理器。

Part II Exercises

I. Match each of the following definition to the phrase or term that is most closely related.

a. portable

b. desktop

c. workstation

d. read only memory (ROM)

e. semiconductor

f. voltage

g. capacity

h. laptop computer

i. silicon

j. random access memory (RAM)

1. a powerful single-user computer, usually attached to a network

2. the generic term for any microcomputer that is designed to be carried around

3. a kind of portable computer which can be put on the lap

4. a non-metallic element with semiconductor characteristics

5. a material whose electrical conductivity increases with temperature and is intermediate between metals and insulators

6. electrical force measured in volts

7. the amount of space in a storage device

8. designed for use on a desk or table

II. Fill in the blanks with the right words.

Types of Computer

Computer can be generally classified by size and power as follows, though there is considerable overlap among them.

A _____ refers to a small, single-user computer based on a microprocessor, with a keyboard for entering data, a monitor for displaying information, and a storage device for saving data.

A _____ is a powerful, single-user computer, which, though looks like a microcomputer, has a more powerful microprocessor and a higher-quality monitor.

A _____ stands as a multi-user computer capable of supporting from 10 to hundreds of terminals or users simultaneously.

A _____, synonymous with “giant”, is the name for a powerful multi-user computer which supports hundreds of thousands of users at the same time.

A _____ describes an extremely fast computer that can perform hundreds of millions of instructions per second.

Words to be chosen from:

supercomputer, minicomputer, mainframe, workstation, personal computer

III. Translate the following passage into Chinese.

Another critical component in computers is memory. The two most important kinds of memory are read-only memory (ROM) and random access memory (RAM). Computers can read data stored in ROM, but can't write new data to it. With RAM, computers can read from and write to that memory. Without computer memory, every calculation on a computer would be stateless. That means there would be no way to preserve information from one moment to the next and every process would start on a clean slate. That's not useful if you want to create complex programs.

IV. Illustrate the important functions of computers.

Part III Reading Material

The History of Computer

The first use of the word “computer” was recorded in 1613, referring to a person who carried out calculations, or computations, and the word continued to be used in that sense until the middle of the 20th century. From the end of the 19th century onwards though, the word began to take on its more familiar meaning, describing a machine that carries out computations.

The history of computer development is often in reference to the different *generations* of computing devices. A generation refers to the state of improvement in the product development process. This term is also used in the different advancements of new computer technology. With each new generation, the circuitry has gotten smaller and more advanced than the previous generation before it. As a result of the *miniaturization*, speed, power, and computer memory have

proportionally increased.

Each generation of computers is characterized by major technological development that fundamentally changed the way computers operate, resulting in increasingly smaller, cheaper, more powerful and more efficient and reliable devices. The followings listed are each generation and the developments that led to the current devices that we use today.

First Generation (1940~1956): *Vacuum Tubes*

The first computers used vacuum tubes for circuitry and *magnetic drums* for memory, and were often enormous, taking up entire rooms. They were very expensive to operate and in addition to using a great deal of electricity, generated a lot of heat, which was often the cause of *malfunctions*.

First generation computers relied on machine language, the lowest-level programming language understood by computers, to perform operations, and they could only solve one problem at a time. While easily understood by computers, machine languages are almost impossible for humans to use because they consist entirely of numbers. Every CPU has its own unique machine language. Programs must be rewritten or recompiled, therefore, to run on different types of computers. Input was based on *punched cards* and *paper tape*, and output was displayed on printouts.

The *UNIVAC* and *ENIAC* computers, as shown in Fig. 1-2, are examples of first-generation computing devices. The *UNIVAC* was the first commercial computer delivered to a business client, the U.S. Census Bureau in 1951.

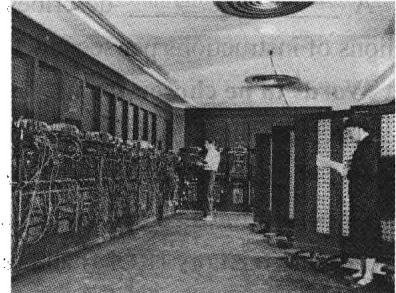


Fig. 1-2 The ENIAC

The *ENIAC*, acronym for *Electronic Numerical Integrator And Computer*, the world's first operational electronic digital computer, developed by Army Ordnance to compute World War II *ballistic* firing tables, weighing 30 tons, using 200 *kilowatts* of electric power and consisting of 18,000 vacuum tubes, 1,500 *relays*, and hundreds of thousands of *resistors*, *capacitors*, and *inductors*, was completed in 1945. In addition to ballistics, the *ENIAC*'s field of application included weather prediction, *atomic-energy* calculations, *cosmic-ray* studies, *thermal ignition*, *random-number* studies, *wind-tunnel* design, and other scientific uses. The *ENIAC* soon became obsolete as the need arose

for faster computing speeds.

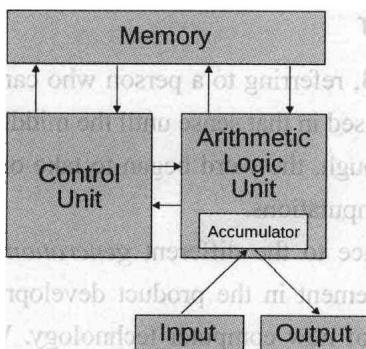


Fig. 1-3 The von Neumann architecture

Even before the *ENIAC* was finished, Eckert and Mauchly recognized its limitations and started the design of a *stored-program* computer, *EDVAC*. John von Neumann was credited with a widely circulated report describing the *EDVAC* design in which both the programs and working data were stored in a single, unified store. This basic design, denoted *the von Neumann architecture*(See Fig. 1-3), would serve as the foundation for the worldwide development of *ENIAC*'s successors.

Second Generation (1956~1963): Transistors

Transistors replaced vacuum tubes and used in the second generation of computers. Transistor, as shown in Fig. 1-4, is a device composed of semiconductor material that *amplifies* a signal or opens or closes a circuit. The transistor was invented in 1947 at Bell Labs, but was not widely used in computers until the late 1950s. The transistor was far superior to the vacuum tube, allowing computers to become smaller, faster, cheaper, more energy-efficient and more reliable than their first-generation predecessors. Though the transistor still generated a great deal of heat that subjected the computer to damage, it was a vast improvement over the vacuum tube. Second-generation computers still relied on punched cards for input and printouts for output.

Second-generation computers moved from cryptic *binary* machine language to symbolic, or *assembly languages*, which allowed programmers to specify instructions in words. High-level programming languages were also being developed at this time, such as early versions of *COBOL* and *FORTRAN*. These were also the first computers that stored their instructions in their memory, which moved from a magnetic drum to *magnetic core* technology.

The first computers of this generation were developed for the atomic energy industry.

Third Generation (1964~1971): Integrated Circuits (ICs)

The development of the integrated circuit was the hallmark of the third generation of computers. Transistors were miniaturized and placed on silicon chips, called semiconductors, which drastically increased the speed and efficiency of computers. The Fig. 1-5 gives an example of IC chip.

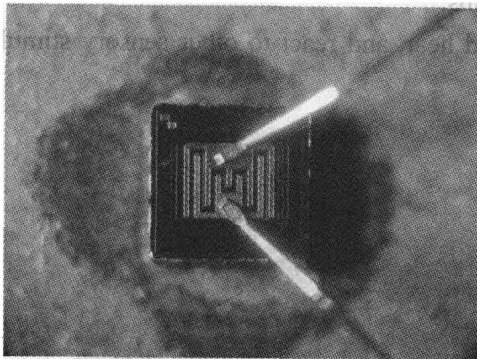


Fig. 1-4 The transistor

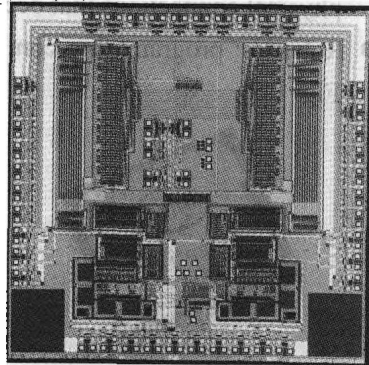


Fig. 1-5 The IC chip example

Instead of punched cards and printouts, users *interacted* with third generation computers through keyboards and monitors and interfaced with an *operating system*, which allowed the device to run many different applications at one time with a *central program* that *monitored the memory*. Computers for the first time became accessible to a mass audience because they were smaller and cheaper than their predecessors.

Fourth Generation (1971~Present): Microprocessors

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. The *Intel 4004* chip, developed in 1971, located all the components