

Unit 1

The Development of Computer

Technology

I. Guided Reading

Pre-reading Activities

1. Try to fill in the missing words. The first letter of each is given to help you.

The first electronic c _____ were built in the 1940s. By the early 1970s, they were in common in large use in large b _____, g _____, and the m _____. The largest computers are called m _____.

2. Name each of the following figures.



Figure 1 _____



Figure 2 _____

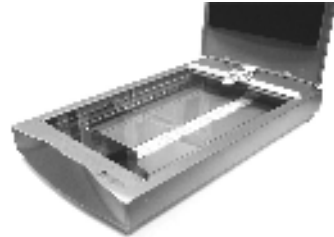


Figure 3 _____

New Words

apprentice

n. 学徒

numerical

a. 数字的

integrator

n. 积分器

installation

n. 安装

semiconductor

n. 半导体

share

n. 份额

mainframe

n. 主机

house

v. 给……提供住房

stride

n. 进步

component

n. 构件, 元件

chip	n. 芯片
miniaturize	v. 微小化
circuit	n. 电路, 线路
kit	n. 一组工具, 一套
hurdle	n. 困难
simplify	v. 简化
drop-out	n. 辍学
fledgling	a. 刚刚起步的
unprecedented	a. 前所未有的
spreadsheet	n. 电子表格
automate	v. 自动化
band	v. 结合(通常与 together 连用)
novice	n. 初学者
abruptly	ad. 突然地
dub	v. 配制
prestige	n. 声望
fad	n. 时尚
retrieve	v. 检索
legitimate	a. 合法的

Useful Phrases

make great /rapid strides	取得很大进展/进步
in the form of	以……形式
at the rate of	以……速度/比率
be accustomed to	习惯于
a matter of	大约
all levels of	各行各业的

Reading Passage

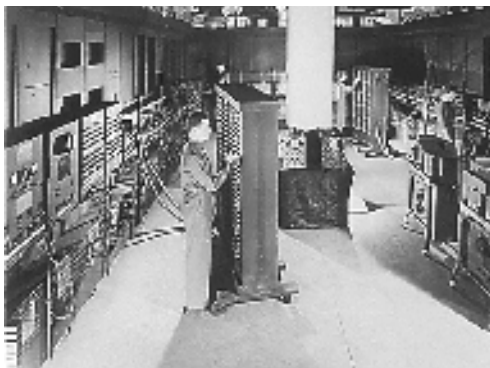
The Development of Computer Technology

Whatever you are, a scientist or an apprentice, a farmer or a successful scholar; and whether you are diligent or lazy, old or young; in the modern work, study and life, you always need your honest friends — computers.

The first electronic computers were built in the 1940s. By the early 1970s, they were in common use in large businesses, government, and the military. The largest computers (like the ENIAC = the Electronic Numerical Integrator and Computer) were called mainframes.

And typically cost more than a million dollars. Designed for use by a major company or a government installation, they were housed in a large room, and required special electrical cabling and air conditioning.

In the late 1960s and early 1970s, engineers made great strides in reducing the size of electronic components. They developed the semiconductor chip, which was about the size of a fingernail and could contain hundreds of transistors. The semiconductor chips enabled engineers to miniaturize the circuits contained in all electronic devices. Most importantly, it produced a new generation of mainframes and minicomputers with increased capability, greater speed, and smaller size.



In the early 1970s, semiconductor technology progressed to the point where the circuits for the “brain” of a computer (the central processing unit or CPU) could be manufactured on a single semiconductor chip. These miniaturized computers were called microprocessors, and were manufactured by corporations such as Intel and Motorola.

By the mid-1970, several such microcomputers were available to consumers. The first microcomputers were sold in the form of kits, designed for electronic hobbyists.



In order for microcomputers to become problem-solving tools, a number of hurdles needed to be overcome. The first was to simplify the program for the machines. One step in this direction was taken by a young Harvard drop-out named Bill Gates, who wrote a version of the programming language BASIC for one of the earliest microcomputers. BASIC had been introduced at Dartmouth College in the mid-1960s by John Kemeny and

Kenneth Kurtz. Thus it was a popular programming language on mainframe computers. Gates founded a computer company called Microsoft, which has become one of the major producers of software for microcomputers.

In 1977, Stephen Jobs and Stephen Wozniak, two microcomputer enthusiasts, working in a garage, designed their own microcomputer. This was to be named the Apple. And their fledgling business was to become the Apple Computer Corporation. Business grew at an unprecedented rate. In no time, Apple was selling hundreds and then thousands of machines per month.

One reason behind Apple’s success was the availability of a number of useful application programs. The most important of these was spreadsheet VISICALS, which allowed

accountants and financial planners to automate many of the calculations that they were accustomed to doing on adding machines, or with pencil and paper. Hours of calculations were thus completed in a matter of seconds. Such raw power did much to convince people that microcomputers were real problem-solving tools, not toys.

At about the same time as the introduction of the Apple II, a number of the microcomputers appeared on the market. One of the most popular was Tandy Corporation's TRS-80. Apple and Tandy were the two largest manufacturers, each with about a 25 percent share of the market.

Early microcomputer users banded together into groups to exchange ideas and to share solutions to problems. A strong spirit of adventure encouraged users to feel they were participating in a major intellectual turning point in computer use. Part of the excitement was created by the unusual mixture of people who participated. In addition to computer scientists and engineers, physicians, business people, and students become microcomputer enthusiasts, at work as well as home. All were interested in the same goal; using microcomputers to solve problems.

So many application packages began to appear around 1980. The first generation programs for word processing, data management, spreadsheets, and communication allowed novice users to experience the power of microcomputing.

However, most corporations underestimated the significance of bringing computing power down to the level of the individual users. This view abruptly changed in 1981 when International Business Machines (IBM), the largest computer company in the world, introduced its own microcomputer, dubbed the IBM PC ("PC" being the abbreviation for personal computer). The fact that IBM, a company of such corporate prestige, would enter this market convinced businesses that the microcomputer was more than a passing fad. Within a short time, the microprocessor was recognized as a productivity tool to be used by workers at all levels to process, store, retrieve, and analyze information. Almost every business could find a legitimate place for the microcomputer.

Now, there is a light-weight, notebook computer, or portable computer, designed to be moved easily.

Notes to the Passage

1. The most important of these was spreadsheet VISICALS, which allowed accountants and financial planners to automate many of the calculations that they were accustomed to doing on adding machines, or with pencil and paper.

which 引导非限制性定语从句, 修饰 VISICALS。在这个非限制性定语从句中, 还有一个由 that 引导的限制性定语从句, 修饰 many of the calculations。

2. A strong spirit of adventure encouraged users to feel they were participating in major

intellectual turning point in computer use.

句中动词不定式短语 to feel . . . use 充当宾语 users 补足语, they were participating in major intellectual turning point in computer use 是省略了从属连词 that 的从句, 充当 feel 的宾语。

3. The fact that IBM, a company of such corporate prestige, would enter this market convinced businesses that the microcomputer was more than a passing fad.

主句的主语为 the fact, 主句的谓语为 convinced, 其后带有一个由 that 引导的同位语从句 that . . . a passing fad。同位语从句中的 IBM, 又带有一个同位语 a company of such corporate prestige。

Check Your Comprehension

1. Answer the following questions.

- 1) What were the largest computers like ENIAC called?
- 2) What did engineers develop in the late 1960s and early 1970s?
- 3) What was the significance of the appearance of the semiconductor chip?
- 4) What strides did the engineers make in semiconductor technology in the early 1970s?
- 5) Who wrote a version of the programming language BASIC?
- 6) Who designed and developed the Apple?
- 7) Why was the Apple so successful?
- 8) When did many application packages begin to appear?
- 9) What were the first generation programs?
- 10) When did IBM introduce its own microcomputer IBM PC?

2. Complete the following note-taking with the information mentioned in the passage.

- 1) The semiconductor chip developed in the late 1960s and early 1970s was about the size of a _____ and could contain hundreds of _____. The semiconductor chips enabled engineers to miniaturize the _____ contained in all electronic devices. Most importantly, it produced a new generation of _____ and minicomputers with _____ capability, _____ speed, and _____ size.
- 2) In the early 1970s, semiconductor technology progressed so that the Central Processing Unit could be manufactured on a single _____. These miniaturized computers were called _____, and were manufactured by corporations as _____ and _____.
- 3) Many application packages began to appear around 1980. Among these were programs for _____, _____, spreadsheets and _____.

3. Fill in each blank with a suitable term according to its official definition. Then, translate them into Chinese.

- 1) _____, to convert a process or equipment to automatic operations

- 2) _____, a large computer, in particular one to which other computers can be connected so that they can share facilities the mainframe provides
- 3) _____, in data communications, a means of two-way communication between two data terminal installations
- 4) _____, a software package widely used by managers and accounts, which is a visually oriented program that aids in executing and understanding financial calculations(A spreadsheet consists of cells which are organized by row and column.)
- 5) _____, a common program written for a major application so that a user's specific problems of data or organization will not make the package less useful
- 6) _____, the process of transferring information in the various media from one point, person, or device to another
- 7) _____, to locate data in storage and read it so that it can be processed, printed, or displayed
- 8) _____, a high-level programming language with a small repertoire of commands and a simple syntax widely used in microcomputers
- 9) _____, in computer programming, a popular spreadsheet package

4. Recognize the following abbreviations by matching them with their corresponding full names.

- | | |
|----------|---|
| 1) BASIC | a. the Electronic Numerical Integrator and Computer |
| 2) ENIAC | b. Beginner's All-purpose Symbolic Instruction Code |
| 3) CPU | c. Personal Computer |
| 4) PC | d. the Central Processing Unit |
| 5) IBM | e. International Business Machines |
| 6) TTE | f. Terminal-Table Entry |

5. Match each of the following terms to its equivalent(s).

- | | |
|-------------------|-------------------|
| 1) main memory | a. host machine |
| 2) host computer | b. main storage |
| 3) header table | c. header record |
| 4) clear data | d. binder utility |
| 5) binder program | e. plaintext |

6. Oral Activity.

A: Professor Li, we know you're an expert on computer technology. Could you please tell our TV audience some information about the history of computers?

B: Okay. In 1930, the first analogue computer(模拟机) was built by an American named Vannevar Bush.

A: What about the second generation?

B: In 1960 the second generation of computers was developed. Compared to the first generation, they could perform work 10 times faster.

A : What was the reason?

B : Because transistors were used instead of vacuum tubes. And they were smaller, faster and more dependable.

A : Thanks for your information. Would you please further explain the third and fourth generations?

B : Yeah. The third generation appeared on the market in 1965. Their calculation speed was 1000 times as the first generation.

A : What's the difference between the second and the third generations?

B : The third generation was controlled by tiny integrated circuits, so they were smaller and more dependable.

A : Now, let's come to the fourth.

B : Because of the development of microminiaturization technology, the fourth generation of computers is 50 times faster than the third generation and can complete approximately 1 000 000 instructions per second.

A : As we know, the fifth generation of computers, that is, portable computers, has entered into our life such as business area.

B : Yes. The fifth-generation computer will replace every computer we know sooner or later.

A : Let's end our programs today. Thank you, Professor Li.

II. Language Work

Vocabulary

Exercise 1 Form new words by adding one of the suffixes: *-age*, *-(a)tion*, *-ion*, *-ist*, *-ity*. Then give their Chinese meanings.

productive	_____	_____
capable	_____	_____
available	_____	_____
hobby	_____	_____
enthusiastic	_____	_____
simplify	_____	_____
automate	_____	_____
apply	_____	_____
calculate	_____	_____
introduce	_____	_____
pack	_____	_____
complex	_____	_____

Exercise 2 Fill in the blanks with the words or phrases given below. Change the form where necessary.

manufacture	a matter of	available	accustomed	make great strides
recognize	band	participate in	progress	at the rate of

1. She has been working on the design of the drawing for _____ six hours.
2. Intel and Motorola _____ microprocessors.
3. I'm not _____ to associating with society people.
4. There were no tickets _____ for Friday's performance.
5. China has _____ in computer technology.
6. The cattle _____ together for protection from the wind.
7. John is _____ as the best footballer in the school.
8. The output of computers manufactured in China increases _____ 20 percent yearly.
9. The construction of the new building is _____ according to schedule.
10. There is a rule that professionals cannot _____ the tournament.

Structure

句子的成分

句子的成分包括主语(the Subject)、谓语(the Predicate)、宾语(the Object)、表语(the Predicative)、定语(the Attribute)、状语(the Adverbial)和同位语(the Appositive)等。

主语是句子中行为、动作、状态的主体,是施动者;被动句中的主语是受动者。名词、代词或起名词作用的词组、短语或句子可以充当句子的主语。谓语用来说明主语的动作或处于某种状态,或具有某种特征,一般都是动词。主语和谓语是句子的主要成分。谓语在人称上必须和主语保持一致。宾语表示动作的承受者或动作产生的结果。它可分为直接宾语、间接宾语、复合宾语、同源宾语和保留宾语等。表语是说明主语的身份、特征或状态的,也称为主语补足语。定语用来修饰或限制名词、短语或句子,说明事物的属性、性质、特征或状态等。定语分前置定语和后置定语两种。状语是修饰动词、形容词或全句的句子成分。同位语是对句子某一成分做进一步解释说明,而在语法上又处于同等地位的词、短语或句子。

此外,还有与整个句子没有语法联系的独立成分。如对句子起补充说明的插入成分(Parenthesis),表示说话人情感的感叹词(Interjections),以及称他人的呼语(Direct Address)。

Exercise Analyze the following sentences, and point out the function of the underlined parts in each sentence.

1. Laser is one of the most sensational developments in recent years.
2. The computers have already changed our lives since 1946.

3. Computers are wonderful machines.
4. The Back Space is near the top right side of keyboard.
5. Scientists have sent rockets into outer space.
6. Before quitting the program, you must save your work.
7. The computer must have an operating system — its main control program — or it just won't start.
8. In any event of freeze-ups, by pressing the Reset button, you are telling the computer to give up and start over.
9. Oh, what a fine computer!
10. Normally, when you see the term BIOS by itself, it refers to the PC's main BIOS.

Translation

词义的选择

英语中一个词可以分属几个词类；而同一个词在不同的语境中有不同的词义；同一个词和不同的词搭配又有不同的词义。所以，学习英语单词，必须注意它的概念意义和关联意义。翻译时，要根据词在特定句子中的作用，或根据不同的交际场合，或根据上下文，或根据与其他词的搭配等，选择适当的汉语（这里指汉语）对应词，才能准确地表达该词的意义。如在 A computer system is made up of a number of different sub-component systems, which together allow the system to perform calculations and complicated tasks. 句中三次出现 system 一词，却表示三种不同的汉语意义：a computer system 译作“计算机系统”；a number of different sub-component systems 译作“元件”；allow the system to perform 译作“计算机”。

system 在不同学科领域中汉译也不同。如：system of equations 译作“(方程)组”；system of notation 译作“(计数)法”；the postal system 译作“(邮政)制度”；Her system was harmed by living abroad. 译作“身体”；You need some system in your life if you want to succeed. 译作“有条不紊，有条理”。

Exercise 1 *Translate the following sentences into Chinese, and pay more attention to the underlined parts.*

1. This allows you to change or modify a file or a program.
2. How much time did they allow us for making the preparations.
3. Computer systems allow you to perform such tasks as solving statistical problems, keeping your company's account books or playing a computer game.
4. We must allow that computers can reach solutions to problems in a fraction of time that it takes men to do the job.
5. Also like the desk, memory devices usually hold one or more sets of instructions.
6. A storage device with 16KB can hold 16 384 bytes, and one that holds 5 megabytes

holds 5 million bytes.

7. You might want to hold the board just above the case motherboard plate and see which holes on the case line up with holes on the motherboard.
8. It is difficult to locate a company that doesn't use a microcomputer for some of its processing.
9. The central processing unit(CPU) and main memory are located in the small cabinet under the screen.
10. Devices in a computer system perform the same functions as human brain.
11. One should always perform what one promises.

Exercise 2 Translate the following sentences into English.

1. 他们研制了半导体芯片。这些芯片有指甲般大小,能容纳数百个晶体管,使得工程技术人员能够将所有电子装置含有的电路微型化。
2. 20 世纪 70 年代早期,半导体技术发展很快,计算机的中枢(即 CPU)能够缩小安装到一块半导体芯片上。
3. 早期的计算机用户们联合起来,交流思想,共同解决问题。
4. 1980 年前后,许多应用软件包开始出现了,第一代文字处理程序、数据管理程序、电子表格以及通信程序使得那些微型计算机的使用者们初次领略到微型计算机的功效。
5. 在相当短的时间内,各行各业的人们就认识到微型计算机是一种有效的工具,可以用来处理、储存、获取和分析信息。

Exercise 3 Translate the following passage into Chinese.

A group of Japanese engineers are working on the fifth generation of computers. They've already set out to "break the software barrier" while developing new elements such as very fast processors and huge memories.

The aim with the intelligent interface is to change the method of access to a computer. Currently, access is through a keyboard. The plan is to change all that; instead, the user will merely ask a question in the same way that he would ask his colleague in the office. The answer will be given verbally, but in many cases a "written" answer will appear on a display as well. If the question is too vague, the computer will say so and will ask a question to help the user ask a more precise one. That may be simple enough, but it involves the development of very complex software which in turn needs a lot of new hardware.

III. Hands-on Practice

Practice 1 Read the following passage and connect a computer system together by rearranging the steps following the passage in a logical and correct order.

Place the system base unit(主机) on the table or work area where it will be used. If fitted with a hard disk, be very careful not to bump or shake the base unit. Damage to the