

21世纪高等院校计算机专业规划教材



计算机英语

(第二版)

邱仲潘 朱云贞 等 编著

中国铁道出版社
CHINA RAILWAY PUBLISHING HOUSE

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内 容 简 介

本书共分为 20 章, 每章由正文、关键词、练习和课外阅读等部分组成, 每章还提供了参考译文。章节安排既成体系又相互独立, 涉及硬件、软件、系统、网络、应用程序等计算机相关知识。

本书由一线教师编写, 作者了解学生的知识水平、接受能力和需求点, 并且翻译过大量计算机图书, 有丰富的翻译经验。本书强调阅读理解, 注重专业术语和科技英语的基础语法。

本书可作为高等院校“计算机英语”课程的教材或教学参考书, 也可供有一定英语基础的广大计算机用户学习计算机英语时使用。

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第二版前言

FOREWORD >>>

本书自第一版出版以来,已经有五年时间。五年来,在不断的教学实践过程中,我们感觉到本书一些地方需要改进;同时也从广大教师和学生的反映中发现了一些需要处理的共性问题。为此,经过与出版社编辑多次商议,进行了这次改版。本书共分为 20 章,每章由正文、关键词、练习和课外阅读等部分组成;此外,每章还提供了参考译文。章节安排既成体系又相互独立,涉及硬件、软件、系统、网络、应用程序等计算机相关知识。本书强调阅读理解,注重专业术语和科技英语的基础语法。对一些难句进行了深入的解析,其中相关知识包括翻译技巧以及技术和语言方面的知识。本书可作为高等院校“计算机英语”课程的教材或教学参考书,也可供有一定英语基础的广大计算机用户学习计算机英语时使用。

计算机技术的发展,最初是从英语国家开始的,英语是计算机的“母语”。从事计算机行业的人,难免会遇到大量英文资料需要阅读,要发表高水平的专业论文也会用到英语。因此,学好专业英语对计算机专业的学生非常重要。即使不是计算机专业的学生,也很难离开计算机,很难不和它的“母语”打交道,因为我们处在信息时代,而计算机是信息时代的“图标”。

本书是针对计算机专业本科三年级学生编写的。计算机专业学生的基本要求是读懂外方的软件需求文档和在编程中根据要求插入简单的注释文本,因此,在本书编写过程中,我们一直认为应该强调阅读理解,强调简单文本写作,强调专业术语与科技英语基础语法。同时,为了提高效率和便于工作中的资料积累与交流,应该介绍一些翻译技巧,使学生能够把看懂的内容用比较准确和流畅的中文表达出来,能够把软件设计与实现中的思路翻译成简单的英文。为此,我们挑选一些难句,在给出准确的翻译的同时选择学生常见的翻译错误进行剖析,增加学生的理解深度。课文后面还用英语提供关键术语的解释,使有兴趣的学生可以了解到许多相关专业知识和有趣的词源知识。相关知识包括翻译技巧以及技术方面和语言方面的知识,非常实用。文章后面还有参考读物,难度略大于课文。建议老师在保证让学生掌握课文内容的前提下,根据学生接受情况和兴趣决定教学内容的深浅。俗话说,兴趣是最好的老师,本教材努力通过各种背景知识和词源知识增加趣味性,老师还可以通过调动学生积极参与课堂教学活动激发学生的学习兴趣,除此之外,也可以鼓励学生自己从网络和其他地方寻找相关资料,扩大视野,并且把学到的专业英语知识应用到其他专业课程的学习中,学以致用,切实体会计算机英语的作用,变“要我学”为“我要学”。对于非计算机专业的学生,本书选择的内容也是值得一看的,因为通过这些文章的

学习，不仅可以无语言障碍地和这个信息时代的“图标”打交道，而且可以了解计算机世界许多有趣的故事。

本书 1~7 章由邱仲潘编写，作者翻译了大量计算机科学图书，积累了许多素材，辅助材料大部分是由邱仲潘提供的；朱云贞同志负责 8~12 章内容和全书练习的编写；宋智军同志负责 13~17 章内容的编写；王帅同志负责 18~20 章内容的编写。在本书写作过程中，刘文红、邹文、邓欣欣、王润涛、周丹丹、朱敏、张朋丽、刘文琼、张艺永等同志也投入了大量精力，在此深表感谢。由于时间仓促，书中难免存在错误和缺漏之处，期待各位老师和同学不吝赐教，以便今后修订时改正和增补。

编 者

2011 年 6 月

第一版前言

FOREWORD >>>

计算机技术的发展,最初是从英语国家开始的。从事计算机行业的人,难免会遇到大量英文资料需要阅读,要发表高水平的专业论文,也会用到英语。因此,学好专业英语对计算机专业学生来说非常重要。

本书是针对计算机专业学生编写的。计算机专业学生的基本要求是读懂外方的软件需求文档和在编程中根据要求插入简单的注释文本,因此在本书编写过程中,作者一直认为应该强调阅读理解,强调简单文本写作和强调专业术语与基本科技英语语法。同时,为了提高效率和便于工作中的资料积累与交流,应该介绍一些翻译技巧,使学生能够把看懂的内容用比较准确和流畅的中文表达出来,能够把软件设计与实现中的思路翻译成简单英文。为此,我们挑选一些难句,在给出准确的翻译的同时选择学生常见的翻译错误进行剖析,增加学生的理解深度。课文后面还用英语提供关键术语的解释,使有兴趣的学生可以了解到许多相关专业知识和有趣的词源知识。相关知识包括翻译技巧以及技术方面和语言方面的知识,非常实用。文章后面还有参考读物,难度略大于课文。建议老师在保证让学生掌握课文内容的前提下,根据学生接受情况和兴趣决定教学内容的深浅。俗话说,兴趣是最好的老师,教材努力通过各种背景知识和词源知识增加趣味性,老师还可以通过调动学生积极参与课堂教学活动激发学生的学习兴趣,可以鼓励学生自己从网络和其他地方寻找相关资料,扩大视野,并且把学到的专业英语知识应用到其他专业课程的学习中,学以致用,切实体会计算机英语的作用,变“要我学”为“我要学”。

本书第1~7章由邱仲潘编写,作者翻译了大量计算机科学图书,积累了许多素材,辅助材料大部分是由邱仲潘提供的。罗达华和陈荣溢同志负责第8~14章和全书练习部分的编写。刘文红同志负责第15~20章的编写。在本书写作过程中,陈镭、邓琳、黄宣达、江松波、杨静、刘文琮、张艺永等同志也做了大量工作,在此深表感谢。由于时间仓促,书中难免存在错误和疏漏之处,期待各位老师和同学不吝赐教,以便今后修订时改正和增补。

编者

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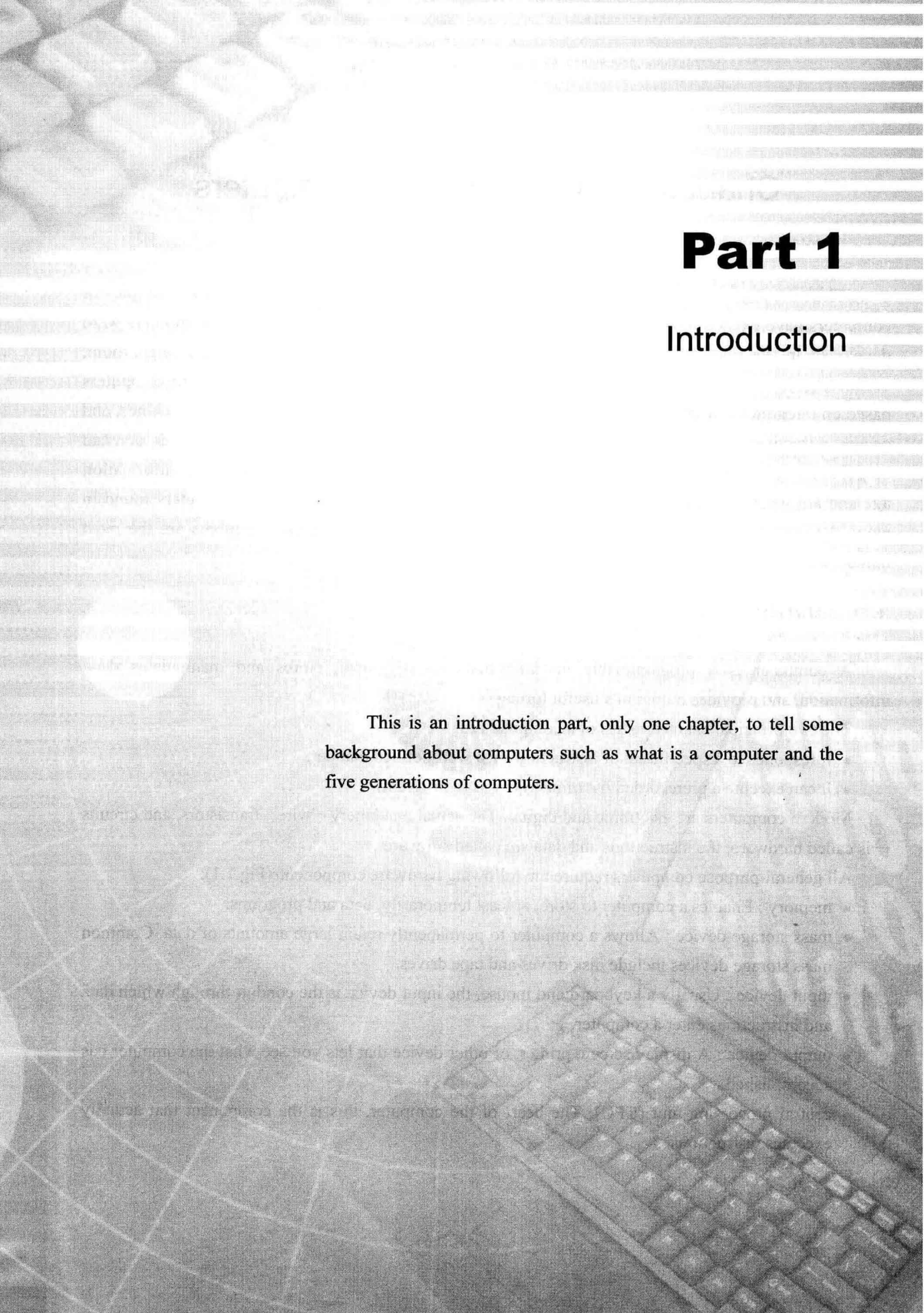
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Part 1

Introduction

This is an introduction part, only one chapter, to tell some background about computers such as what is a computer and the five generations of computers.

Chapter 1 Introduction to Computers

While a computer can, in theory, be made out of almost anything, and mechanical examples of computers have existed through much of recorded human history, the first electronic computers were developed in the mid-20th century (1940–1945). Originally, they were the size of a large room, consuming as much power as several hundred modern personal computers (PCs). Modern computers based on integrated circuits are millions to billions of times more capable than the early machines, and occupy a fraction of the space. Simple computers are small enough to fit into mobile devices, and can be powered by a small battery. Personal computers in their various forms are icons of the information age and are what most people think of as "computers". However, the embedded computers found in many devices from MP3 players to fighter aircraft and from toys to industrial robots are the most numerous.

1.1 What is a computer

A computer is a programmable machine that receives input, stores and manipulates data/information, and provides output in a useful format.

The two principal characteristics of a computer are:

- It responds to a specific set of instructions in a well-defined manner.
- It can execute a prerecorded list of instructions (a program).

Modern computers are electronic and digital. 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(Fig.1.1):

- memory : Enables a computer to store, at least temporarily, data and programs.
- mass storage device : Allows a computer to permanently retain large amounts of data. 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.
- central processing unit (CPU): The heart of the computer, this is the component that actually executes instructions.

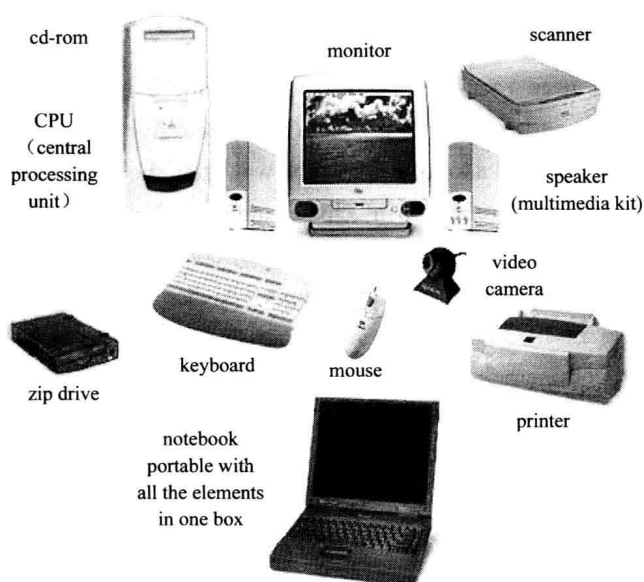


Fig.1.1 Hardware components

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.

Computers can be generally classified by size and power as follows, though there is considerable overlap:

- personal computer: A small, single-user computer based on a microprocessor. In addition to the microprocessor, a personal computer has a keyboard for entering data, a monitor for displaying information, and a storage device for saving data.
- workstation: A powerful, single-user computer. A workstation is like a personal computer, but it has a more powerful microprocessor and a higher-quality monitor.
- minicomputer: A multi-user computer capable of supporting from 10 to hundreds of users simultaneously.
- mainframe: A powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously.
- supercomputer: An extremely fast computer that can perform hundreds of millions of instructions per second.

1.2 The Five Generations of Computers

The history of computer development is often referred to in reference to the different generations of computing devices. Each generation of computer is characterized by a major technological development that fundamentally changed the way computers operate, resulting in increasingly smaller, cheaper, more powerful and more efficient and reliable devices.