

计算机英语

刘兆毓 彭向东 刘卫宁 编

汤宝兴主审

清华大学出版社

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内 容 简 介

本书是一本用英语编写的计算机技术的培训教材,它涉及了计算机技术从基础理论、系统到应用的各个方面。本书针对软件人员的需要,按硬件基础知识、软件及应用三部分,选择各种计算机专业常用的基本知识的文章,系统性强,取材也较新,符合软件人员水平考试的要求。

书中出现的英语现象在英语科技文献中非常常见,也是最基础的东西,其中一些难点通过注释形式帮助读者理解这些语言现象。通过掌握这些语言现象,提高阅读英语计算机文献的水平。书后附有参考译文,供读者对照、理解文章。

本书可供参加计算机软件技术资格和水平考试的考生、广大工程技术人员、大专院校师生学习计算机专业英语使用。

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前 言

本书参照“计算机软件技术资格和水平考试大纲”中关于计算机专业英语的要求,在参考了国外近二十本最新原版书籍后编写而成。

全书分为三部分共十六章,内容较广泛地涉猎了计算机科学与技术的主要领域。考虑到满足软件人员水平考试的需要,全书软件部分所占篇幅在70%以上。在选材及组织结构上,既有基本概念,又有当前一些最新技术;不仅兼顾全书的系统性与针对性,而且在各有关部分都编入了一些跟踪九十年代最新发展的文章(如工程工作站、RISC技术等)。

本书的编写原则是方便于教学以及为自学者提供充分的指导。除了内容广泛的正文之外,在每章后面都给出了关键字,相关概念以及内容丰富、形式多样的练习,书末附有参考答案。在每篇正文后面还做了较详尽的注释,其中不乏科技英语阅读与翻译技术点滴。

本书第一、三部分(基础与应用)由刘兆毓、刘卫宁编写;第二部分(软件)由彭向东、贾实、唐瑞编写。全书统稿工作由刘兆毓负责。在编写过程中,得到了重庆大学计算机系教授程代杰的热情指导和帮助,同时他还负责了本书的审稿工作,在此表示感谢。此外,重庆大学计算机系幸世芳、唐尚伟及邓兴国等同志完成了大部分文稿的录入工作,在此一并表示谢意。

本书由计算机世界编辑部汤宝兴先生主审,对全书作了仔细的审阅,提出了许多宝贵意见,特致谢意。

本书主要是为计算机软件人员水平考试编写,但同时可作为计算机领域各层次教学及培训教材。

由于我们的水平有限,书中一定会有不妥或错误之处,敬请读者批评指正。

编者

1992.2于重庆大学

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COMPUTER ENGLISH

PART I FUNDAMENTALS OF COMPUTERS	1
CHAPTER 1 INTRODUCTION	1
1-1 ORGANIZATION OF COMPUTER SYSTEM	
COMPONENTS	1
1-2 TYPES OF COMPUTERS	5
1-3 COMPUTER GENERATIONS	9
READING MATERIALS:	
WHAT'S A WORKSTATION?	13
CHAPTER 2 HARDWARE AND SYSTEM CONCEPTS	19
2-1 COMPUTER CODES	19
2-2 WHAT IS A PROCESSOR	25
2-3 THE STORAGE HIERARCHY	29
2-4 COMPUTER-SYSTEM INPUT, OUTPUT	33
2-5 MULTIPROCESSING	37
2-6 PERFORMANCE MEASUREMENT AND	
EVALUATION	41
PART II SOFTWARE	49
CHAPTER 3 DISCRETE MATHEMATICS	49
3-1 MATHEMATICAL LOGIC	49
3-2 BOOLEAN ALGEBRA	55
3-3 GRAPH THEORY	59
3-4 COMBINATORIAL PROBLEMS	66
CHAPTER 4 ALGORITHM	72

4-1	ALGORITHM ATTRIBUTE	72
4-2	ALGORITHMS AND COMPLEXITY	74
4-3	MEASURES OF EFFICIENCY	77
READING MATERIALS;		
	NP-HARD AND NP-COMPLETE PROBLEMS	79
CHAPTRE 5	DATA AND STRUCTURE	83
5-1	DATA TYPES AND STRUCTURES	83
5-2	TYPICAL DATA STRUCTURES — STACKS AND QUEUES	89
READING MATERIALS;		
	TYPICAL SORT PROBLEMS	91
CHAPTER 6	OPERATING SYSTEM	94
6-1	SUMMARY OF OPERATING SYSTEM	94
6-2	CHARACTERISTICS OF OPERATING SYSTEM	96
6-3	FILE SYSTEMS	99
6-4	THE DISK OPERATING SYSTEM (DOS).....	102
READING MATERIALS;		
	UNIX GOES UPSCALE	105
CHAPTER 7	PROGRAM DESIGN	110
7-1	PROGRAM	110
7-2	PROGRAM LANGUAGE	115
7-3	LANGUAGE PROCESSORS	122
7-4	FLOWCHART	127
READING MATERIALS;		
	A TYPICAL LANGUAGE — C	134
CHAPTER 8	SOFTWARE ENGINEERING	141
8-1	THE SOFTWARE LIFE CYCLE	141

8-2	SOFTWARE DESIGN	145
8-3	SOFTWARE TESTING	149
8-4	SOFTWARE QUALITY ASSURANCE	152
8-5	SOFTWARE MAINTENANCE	156
CHAPTER 9	SOFTWARE TOOLS	162
9-1	USER INTERFACES	162
9-2	INTEGRATED MICRO SOFTWARE	165
	READING MATERIALS:	
	MULTIMEDIA TECHNOLOGY	168
CHAPTER 10	SYSTEM ANALYSIS AND DESIGN	173
10-1	REQUIREMENTS ANALYSIS	173
10-2	TESTING	177
10-3	DOCUMENTATION TECHNIQUES	180
10-4	EVALUATING A SYSTEM'S	
	PERFORMANCE	182
	READING MATERIALS:	
	PROTOTYPING; SHORTCUT TO	
	APPLICATIONS	184
PART III	APPLICATIONS	189
CHAPTER 11	DISTRIBUTED COMPUTER SYSTEMS	189
11-1	CENTRALIZED COMPUTER SYSTEM	189
11-2	DATA COMMUNICATIONS	192
11-3	COMPUTER NETWORKS	195
	READING MATERIALS:	
	CLIENT-SERVER COMPUTING HAS THE	
	ADVANTAGE	199
CHAPTER 12	DATA BASE	203

12-1	DATA BASE MANAGEMENT SYSTEMS (DBMS)	203
12-2	DBMS STRUCTURING TECHNIQUES	205
12-3	DATA INDEPENDENCE, INTEGRITY AND SECURITY	211
12-4	MANAGEMENT INFORMATION SYSTEM (MIS)	215
CHAPTER 13	OFFICE AUTOMATION	219
13-1	OFFICE AUTOMATION	219
13-2	APPLICATION OF OFFICE AUTOMATION	222
CHAPTER 14	COMPUTER-AIDED DESIGN	227
14-1	A GENERAL CAD SYSTEM	227
14-2	SYSTEM INTEGRATION IN THE MANUFACTURING INDUSTRY	229
READING MATERIALS:		
	AN EXPANDING ROLE FOR GROUP TECHNOLOGY	232
CHAPTER 15	ON-LINE PROCESSING SYSTEMS	234
15-1	REAL-TIME PROCESSING	234
15-2	PROCESS CONTROL	237
CHAPTER 16	ARTIFICIAL INTELLIGENCE	242
16-1	AUTOMATA THEORY	242
16-2	EXPERT SYSTEMS	245
16-3	ROBOTICS	248
	ANSWER	253
参考文献		256

参 考 译 文 目 录

第 I 部分 硬件基础知识	257
第1章 引言	257
1-1 计算机系统的组成	257
1-2 计算机如何分类?	258
1-3 计算机的发展	260
第2章 硬件和系统知识	263
2-1 计算机代码	263
2-2 什么是处理器	265
2-3 存储器多级结构	267
2-4 计算机系统的输入/输出	269
2-5 多处理系统	270
2-6 性能量度和评价	272
第 II 部分 软件	274
第3章 离散数学	274
3-1 数理逻辑	274
3-2 布尔代数	277
3-3 图论	280
3-4 组合学问题	283
第4章 算法	287
4-1 算法特性	287
4-2 算法和复杂性	288
4-3 算法有效性的测试	290
第5章 数据结构	292

5-1 数据类型和数据结构	292
5-2 典型数据结构:栈和队列	296
第6章 操作系统	298
6-1 操作系统的概述	298
6-2 操作系统的性能	299
6-3 文件系统	301
6-4 磁盘操作系统	302
第7章 程序设计	304
7-1 程序	304
7-2 程序设计语言	307
7-3 语言处理程序	311
7-4 流程图	313
第8章 软件工程	317
8-1 软件的生命周期	317
8-2 软件设计	319
8-3 软件测试	321
8-4 软件质量保证	322
8-5 软件维护	324
第9章 软件工具	327
9-1 用户界面	327
9-2 集成微软件	328
第10章 系统分析与设计	331
10-1 需求分析	331
10-2 测试	333
10-3 文档编制技术	335
10-4 系统性能评价	336
第Ⅲ部分 应用	338
第11章 分布式计算机系统	338

11-1	集中式和分布式系统	338
11-2	数据通信	339
11-3	计算机网络	341
第12章	数据库	343
12-1	数据库管理系统(DBMS)	343
12-2	DBMS 的组织技术	344
12-3	数据的独立性、完整性和安全性	346
12-4	管理信息系统(MIS)	347
第13章	办公室自动化	349
13-1	办公室自动化	349
13-2	办公室自动化的应用软件	351
第14章	计算机辅助设计	353
14-1	通用 CAD 系统	353
14-2	制造业中的系统集成	354
第15章	联机处理系统	356
15-1	实时处理	356
15-2	过程控制	357
第16章	人工智能	360
16-1	自动机理论	360
16-2	专家系统	361
16-3	机器人技术	363

PART I FUNDAMENTALS OF COMPUTERS

CHAPTER 1 INTRODUCTION

1-1 ORGANIZATION OF COMPUTER SYSTEM COMPONENTS

Now that we've examined what is a computer^[1], let's look again at our computer definition: A computer is a fast and accurate symbol manipulating system that is organized to accept, store, and process data and produce output results under the direction of a stored program of instructions. This section explains why a computer is a system and how a computer system is organized.

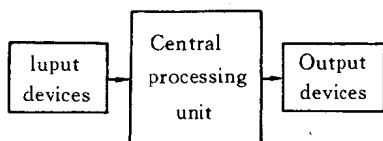


Figure 1-1 The basic organization of a computer system

Figure 1-1 shows the basic organization of a computer system. Key elements in this system include input, processing, and

output devices. Let's examine each component of the system in more detail.

INPUT DEVICES. Computer systems use many devices for input purpose. As shown in Figure 1-2, some INPUT DEVICES allow direct human/machine communication, while some first require data to be recorded on an input medium such as a magnetizable material^[2]. Devices that read data magnetically recorded on specially coated plastic tapes or flexible or floppy plastic disks are popular^[3]. The keyboard of a workstation connected directly to ... or ONLINE to ... a computer is an example of a direct in-

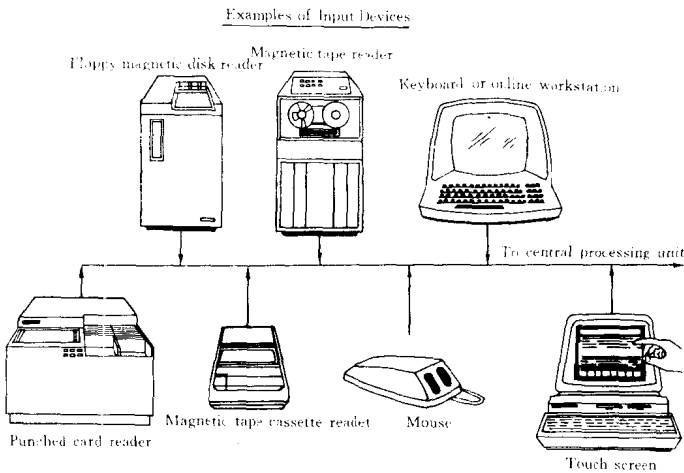


Figure 1-2 A few examples of input devices

put device^[4]. Additional direct input devices include the mouse, input pen, touch screen, and microphone. Regardless of the type of device used, all are components for interpretation and

communication between people and computer systems.

CENTRAL PROCESSING UNIT. The heart of any comput-

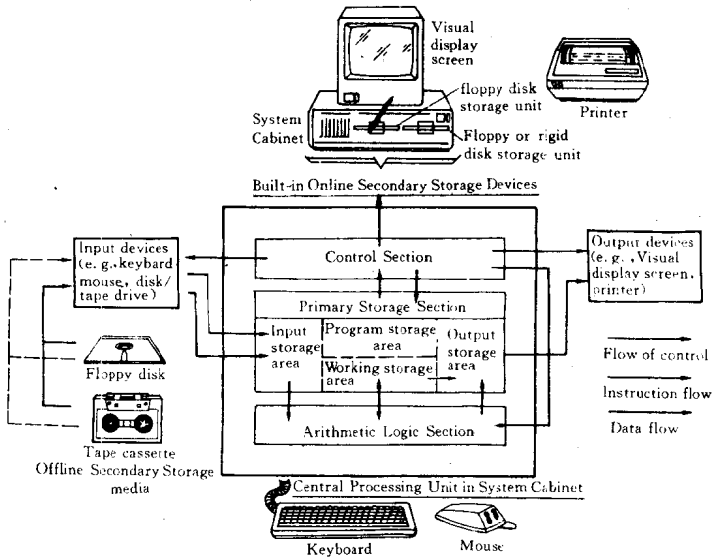


Figure 1-3 The components in the CPU of a personal computer system. Primary storage, arithmetic-logic and control sections are found in CPUs of all sizes. The specific areas of primary storage used for a particular purpose (input storage, program storage, etc.) are not physically fixed. Rather, they vary depending on the application program. The dashed lines in the storage section are used to indicate this boundary flexibility.

er system is the central processing unit (CPU). As Figure 1-3

shows, there are three main sections found in the CPU of a typical personal computer system: The primary storage section, The arithmetic-logic section, and The control section. But these three sections aren't unique to personal computer; They are found in CPUs of all sizes.

OUTPUT DEVICES. Like input units, output devices are instruments of interpretation and communication between humans and computer systems of all sizes. These devices take output results from the CPU in machine-coded form and convert them into a form that can be used (a) by people (e.g., a printed and/or displayed report) or (b) as machine input in another processing cycle.

In personal computer systems (Figure 1-3), display screen and desktop printers are popular output devices. Larger and faster printers, many online workstations, and magnetic tape drives are commonly found in larger systems.

The input/output and secondary storage units shown in Figure 1-3 are sometimes called peripheral devices (or just peripherals). This terminology refers to the fact that although these devices are not a part of the CPU, they are often located near it.

NOTES:

- [1] Now 此处作连接词用,意为既然,由于。
- [2] 由 while 连接的并列复合句,有转折的意思,译成“而”、“可是”等。
- [3] flexible or floppy plastic disks 可简单译为软磁盘。
- [4] online 与直接联接的概念不同。前者是“联机”,此处是指工作站键盘与主机联在一起工作,后者是指“物理联接”。

KEYWORDS:

stored program	存储程序
input device	输入设备
central processing unit	中央处理器
output device	输出设备
primary storage (memory)	主存储器
secondary storage (memory)	辅助存储器, 二级存储器
arithmetic-logic section	算术逻辑部件
workstation	工作站
magnetic tape drive	磁带机
display screen	显示屏
peripheral	外围设备, 外设

1-2 TYPES OF COMPUTERS

1. HOW COMPUTERS ARE CLASSIFIED ?

(1) DIGITAL, ANALOG, AND HYBRID COMPUTERS

A digital computer is a counting device that operates on discrete data. It operates by directly counting numbers (or digits) that represent numbers, letters, or other special symbols. Just as digital watches directly count off the seconds and minutes in an hour, digital processors also count discrete values to achieve the desired output results.

In contrast to digital processors, however, there are also analog computers that do not compute directly with numbers. Rather, they deal with variables that are measured analog a continuous scale and are recorded to some predetermined degree of accuracy. Temperature, for example, may be measured to the nearest tenth of a degree on the Celsius scale, voltage may be