

## <<嵌入式系统>>

### 图书基本信息

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## 前言

Embedded system design needs hardware and software professionals as a team. Explaining both hardware and software concepts while keeping multidisciplinary undergraduates in mind in a single book is a difficult task. It appears that the earlier edition met this task successfully, considering the positive response it has received in India as well as internationally. A rough estimate is that 80000 engineering and professional training students became the first-time readers of this book in India alone. The book originally published in India has now McGraw—Hill translations published in China and South Korea, an International Students Edition and McGraw—Hill USA editions published from Singapore and New YORK. After the publication of the earlier edition, there have been two developments: (1) numerous technology advancements occurred at a fast pace, and (2) many universities introduced syllabi on an Embedded Systems course at the Bachelors of Technology level in multiple engineering disciplines, for example, Computer Science and Engineering, Information Technology, Electronics and Communication, and instrumentation and control engineering.

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### 内容概要

《嵌入式系统：体系结构、编程与设计(第2版)》是关于嵌入式系统开发与设计的一部最新力作，介绍了嵌入式系统的硬件、操作系统、开发过程以及编程。

全书系统地阐述了嵌入式系统的基本概念、处理器和存储器、设备与总线、设备驱动与中断服务、基本的C与C++、编程模型、软件工程的思想、进程间通信与同步、实时操作系统以及软硬件协同设计

。附录中包含了CISC与RISC指令集特征，并详细阐述了几种高性能的嵌入式处理器、微控制器、数字信号处理器以及总线和设备。

《嵌入式系统：体系结构、编程与设计(第2版)》提供了大量案例，这对读者的实践开发具有非常好的指导意义。

《嵌入式系统：体系结构、编程与设计(第2版)》适合于嵌入式系统的软硬件开发人员，以及接受嵌入式系统课程教育的本科生和研究生。

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## 作者简介

About the Author Raj Kamal did his M.Sc. at the age of 17 , published his first research paper in a UK journal at the age of 18 , wrote his first program in FORTRAN that ran at ICT 1904 , also at the age of 18 and completed his Ph.D. from the Indian Institute of Technology , Delhi , at 22. He has 40 years of experience in research and teaching. He has so far successfully guided nine research students and has published about 90 research papers in journals and conferences of both international and national repute. Due to his constant drive for understanding emerging technologies and passion for acquiring the latest knowledge and its dissemination , he is lovingly referred by a few colleagues as the learning machine and by a few others as a human dynamo !

He has authored ten textbooks ( refer [www.rajkamal.org](http://www.rajkamal.org) ) for students of Computers , Electronics , and Communication and Information Technology , which includes books on Embedded Systems , Computer Architecture ( a Schaum Series adaptation ) and Internet and Web technologies , published from McGraw—Hill India , McGraw—Hill China , McGraw—Hill South Korea , McGraw—Hill Singapore , and McGraw—Hill USA. He has been associated for several years with Punjab University , Punjab; Kalasalingam University , Tamil Nadu; and Guru Nanak Engineering College , Andhra Pradesh. Currently , he is a Senior Professor in School of Computer Sciences and Electronics , Devi Ahilya Vishwavidyalaya , Indore.

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## 章节摘录

1. The Microcontroller used can be MC68HCl 1D0 or PIC16C84 or a smart card processor Philips Smart XA or a similar ASIP Processor. MC68HCII D0 has 8 kB internal RAM and 32 kB EPROM and 2/3 wire protected memory. Most cards use 8-bit CPUs. The recent introduction in the cards is of a 32-bit RISC CPU. A smart card CPU should have special features, for example, a security lock. The lock is for a certain sections of the memory. A protection bit at the microcontroller may protect 1 kB or more data from modification and access by any external source or instructions outside that memory. Once the protection bit is placed at the maskable ROM in the microcontroller, the instructions or data within that part of the memory are accessible from instructions in that part only ( internally ) and not accessible from the external instructions or instructions outside that part. The CPU may disable access by blocking the write cycle placement of the data bits on the buses for instructions and data protection at the physical memory after certain phases of card initialization and before issuing the card to the user. Another way of protecting is as follows: The CPU may access by using the physical addresses, which are different from the logical address used in the program.

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