

<<操作系统设计与实现>>

图书基本信息

书名：<<操作系统设计与实现>>

13位ISBN编号：9787302172765

10位ISBN编号：7302172765

出版时间：2008 年5月

出版时间：清华大学出版社

作者：(美)ANDREW S.TANENBAUM,ALBERT S.WOODHULL

页数：608

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

<<操作系统设计与实现>>

内容概要

本书是著名作者Andrew S.Tanenbaum关于操作系统的权威教材。

多数操作系统的教材只重理论而轻实践，本书力图实现这两者之间的平衡。

本书首先详细探讨了操作系统的基本原理，如进程、进程间通信、信号量、消息传递、调度算法、输入/输出、死锁、设备驱动程序、存储管理、调页算法、文件系统设计、安全和保护机制等，然后详细讨论了一个具体的操作系统MINIX3的实现，并给出了该系统的完整源代码，以便于读者仔细研究。这样不仅可以让读者掌握操作系统的基本原理，而且可让读者明白这些基本原理如何应用到实际操作系统设计中去，从而提供读者的实际设计和实现能力。

本书可以作为高等院校计算机及相关专业“操作系统”的双语教材，对程序开发人员、工程技术人员、系统架构师等专业人员也具有很高的参考价值。

<<操作系统设计与实现>>

书籍目录

INTRODUCTION 1.1 WHAT IS AN OPERATING SYSTEM? 1.1.1 The Operating System as an Extended Machine 1.1.2 The Operating System as a Resource Manager 1.2 HISTORY OF OPERATING SYSTEMS 1.2.1 The First Generation (1945-55) Vacuum Tubes and Plugboards 1.2.2 The Second Generation (1955-65) Transistors and Batch Systems 1.2.3 The Third Generation (1965-1980) ICs and Multiprogramming 1.2.4 The Fourth Generation (1980-Present) Personal Computers 1.2.5 History of MINIX 3 1.3 OPERATING SYSTEM CONCEPTS 1.3.1 Processes 1.3.2 Files 1.3.3 The Shell 1.4 SYSTEM CALLS 1.4.1 System Calls for Process Management 1.4.2 System Calls for Signaling 1.4.3 System Calls for File Management 1.4.4 System Calls for Directory Management 1.4.5 System Calls for Protection 1.4.6 System Calls for Time Management 1.5 OPERATING SYSTEM STRUCTURE 1.5.1 Monolithic Systems 1.5.2 Layered Systems 1.5.3 Virtual Machines 1.5.4 Exokernels 1.5.5 Client-Server Model 1.6 OUTLINE OF THE REST OF THIS BOOK 1.7 SUMMARY 2 PROCESSES 2.1 INTRODUCTION TO PROCESSES 2.1.1 The Process Model 2.1.2 Process Creation 2.1.3 Process Termination 2.1.4 Process Hierarchies 2.1.5 Process States 2.1.6 Implementation of Processes 2.1.7 Threads 2.2 INTERPROCESS COMMUNICATION 2.2.1 Race Conditions 2.2.2 Critical Sections 2.2.3 Mutual Exclusion with Busy Waiting 2.2.4 Sleep and Wakeup 2.2.5 Semaphores 2.2.6 Mutexes 2.2.7 Monitors 2.2.8 Message Passing 2.3 CLASSICAL IPC PROBLEMS 2.3.1 The Dining Philosophers Problem 2.3.2 The Readers and Writers Problem 2.4 SCHEDULING 2.4.1 Introduction to Scheduling 2.4.2 Scheduling in Batch Systems 2.4.3 Scheduling in Interactive Systems 2.4.4 Scheduling in Real-Time Systems 2.4.5 Policy versus Mechanism 2.4.6 Thread Scheduling 2.5 OVERVIEW OF PROCESSES IN MINIX 3 2.5.1 The Internal Structure of MINIX 3 2.5.2 Process Management in MINIX 3 2.5.3 Interprocess Communication in MINIX 3 2.5.4 Documentation of Scheduling in MINIX 3 2.6 IMPLEMENTATION OF PROCESSES IN MINIX 3 2.6.1 Organization of the MINIX 3 Source Code 2.6.2 Compiling and Annuling MINIX 3 2.6.3 The Common Header Files 2.6.4 The MINIX 3 Header Files 2.6.5 Process Data Structures and Header Files 2.6.6 Bootstrapping MINIX 3 2.6.7 System Initialization 2.6.8 Interrupt Handling in MINIX 3 2.6.9 Interprocess Communication in MINIX 3 2.6.10 Scheduling in MINIX 3 2.6.11 Hardware Dependent Kernel Support 2.6.12 Utilities and the Kernel Library 2.7 THE SYSTEM TASK IN MINIX 3 2.7.1 Overview of the System Task 2.7.2 Implementation of the System Task 2.7.3 Implementation of the System Library 2.8 THE CLOCK TASK IN MINIX 3 2.8.1 Clock Hardware 2.8.2 Clock Software 2.8.3 Overview of the Clock Driver in MINIX 3 2.8.4 Implementation of the Clock Driver in MINIX 3 2.9 SUMMARY 3 INPUT/OUTPUT 3.1 PRINCIPLES OF I/O HARDWARE 3.1.1 I/O Devices 3.1.2 Device Controllers 3.1.3 Memory-Mapped I/O 3.1.4 Interrupts 3.1.5 Direct Memory Access 3.2 PRINCIPLES OF I/O SOFTWARE 3.2.1 Goals of the I/O Software 3.2.2 Interrupt Handlers 3.2.3 Device Drivers 3.2.4 Device-independent I/O Software 3.2.5 User Space I/O Software 3.3 DEADLOCKS 3.3.1 Resources 3.3.2 Principles of Deadlock 3.3.3 The Ostrich Algorithm 3.3.4 Detection and Recovery 3.3.5 Deadlock Prevention 3.3.6 Deadlock Avoidance 3.4 OVERVIEW OF I/O IN MINIX 3 3.4.1 Interrupt Handlers in MINIX 3 3.4.2 Device Drivers in MINIX 3 3.4.3 Device-Independent I/O Software in MINIX 3 3.4.4 User Level Software in MINIX 3 3.4.5 Deadlock Handling in MINIX 3 3.5 BLOCK DEVICES IN MINIX 3 3.5.1 Overview of Block Device Drivers in MINIX 3 3.5.2 Common Block Device Driver Software 3.5.3 The DMA Library 3.6 DISKS 3.6.1 RAM Disk Hardware and Software 3.6.2 Overview of the RAM Disk Driver in MINIX 3 3.6.3 Implementation of the RAM Disk Driver in MINIX 3 3.7 DISKS 3.7.1 Disk Hardware 3.7.2 RAID 3.7.3 Disk Software 3.7.4 Overview of the Hard Disk Driver in MINIX 3 3.7.5 Implementation of the Hard Disk Driver in MINIX 3 3.7.6 Filesystem Disk Handling 3.8 TERMINALS 3.8.1 Terminal Hardware 3.8.2 Terminal Software 3.8.3 Overview of the Terminal Driver in MINIX 3 3.8.4 Implementation of the Device-independent Terminal Driver 3.8.5 Implementation of the Keyboard Driver 3.8.6 Implementation of the Display Driver 3.9 SUMMARY 4 MEMORY MANAGEMENT 4.1 BASIC MEMORY MANAGEMENT 4.1.1 Monoprogramming without Swapping or Paging 4.1.2 Multiprogramming with Fixed Partitions 4.1.3 Relocation and Protection 4.2 SWAPPING 4.2.1 Memory Management with Bitmaps 4.2.2

<<操作系统设计与实现>>

Memory Management with Linked Lists4.3 VIRTUAL MEMORY4.3.1 Paging4.3.2 Page Tabling4.3.3 TLBS--Translation LOOKaside Buffers4.3.4 Inverted Page Tables4.4 PAGE REPLACEMENT ALGORITHMS4.4.1 The Optimal Page Replacement Algorithms4.4.2 The Next Recently Used Page Replacement Algorithm4.4.3 The First-in, First-out (FIFO) Page Replacement Algorithm4.4.4 The Second Chance Page Replacement Algorithm4.4.5 The Clock Page Replacement Algorithm4.4.6 The Least Recently Used (LRU) Page Replacement Algorithm4.4.7 Simulating LRU in Software4.5 DESIGN ISSUES FOR PAGING SYSTEMS4.5.1 The Working Set Model4.5.2 Local versus Global Allocation Policies4.5.3 Paging Size4.5.4 Virtual Memory Interference4.6 SEGMENTATION4.6.1 Implementation of pure Segmentation4.6.2 Segmentation with Paging of the intel Pentium4.7 OVERVIEW OF THE MINIX 3 PROCESS MANAGER4.7.1 Memory Layout4.7.2 Message Handling4.7.3 Process Manager Data Structures and Algorithms4.7.4 The read and WAIT System Calls4.7.5 The EXEC System Call4.7.6 The BRK System Call4.7.7 Signal Handling4.7.8 Other System Calls4.8 IMPLEMENTATION OF THE MINIX 3 PROCESS MANAGER4.8.1 The Header Files and Data Structures4.8.2 The Main program4.8.3 Implementation of FORK, EXIT, and WEXIT4.8.4 implementation of EXEC4.8.5 Implementation of BRK4.8.6 Implementation of Signal Handling4.8.7 Implementation of Other System Calls4.8.8 Memory Management Utilities4.9 SUMMARY5 FILE SYSTEMS5.1 INTRODUCTION5.1.1 File Naming5.1.2 File Structure5.1.3 File Types5.1.4 File Access5.1.5 File Attributes5.1.6 File Operations5.2 DIRECTORIES5.2.1 Simple Directories5.2.2 Hierarchical Directories5.2.3 Path Names5.2.4 Directory Operations5.3 FILE SYSTEM IMPLEMENTATION5.3.1 File System Layout5.3.2 Implementing Files5.3.3 Implementing Directories5.3.4 Disk Space Management5.3.5 File System Reliability5.3.6 File System Performance5.3.7 Log Structured File Systems5.4 SECURITY5.4.1 The Security Environment5.4.2 General Security Attacks5.4.3 Design Principles for Security5.4.4 User Authentication5.5 PROTECTION MECHANISMS5.5.1 Protection Domains5.5.2 Access Control Lists5.5.3 Capabilities5.5.4 Covert Channels5.6 OVERVIEW OF THE MINIX 3 FILE SYSTEM5.6.1 Messages5.6.2 File System Layout5.6.3 Bitmaps5.6.4 Inodes5.6.5 The Block Cache5.6.6 Directories and Paths5.6.7 File Descriptors5.6.8 File Locking5.6.9 Pipes and Special Files5.6.10 An Example of the exec System Call5.7 IMPLEMENTATION OF THE MINIX 3 FILE SYSTEM5.7.1 Header Files and Global Data Structures5.7.2 Table Management5.7.3 The Main Program5.7.4 Operations on individual Files5.7.5 Directories and Paths5.7.6 Other System Calls5.7.7 The I/O Device interface5.7.8 Additional System Call Support5.7.9 File System Utilities5.7.10 Other MINIX 3 Components SUMMARY6 BIBLIOGRAPHY

<<操作系统设计与实现>>

编辑推荐

本书全书共分6个部分，对操作系统的设计与实现作了介绍，具体包括进程、进程间通信、信号量、消息传递、调度算法、输入/输出、死锁等。
该书可供各大专院校作为教材使用，也可供从事相关工作的人员作为参考用书使用。

<<操作系统设计与实现>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>