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2.4.3 Analog and Digital Input/Output2.5 MICROPROCESSOR VERSUS MICROCONTROLLER; 2.5.1 Microprocessors; 2.5.2 Standard Microcontrollers; 2.5.3 Custom Microcontrollers; 2.6 DISTRIBUTED REAL-TIME ARCHITECTURES; 2.6.1 Fieldbus Networks; 2.6.2 Time-Triggered Architectures; 2.7 SUMMARY; 2.8 EXERCISES; REFERENCES; 3: REAL-TIME OPERATING SYSTEMS; 3.1 FROM PSEUDOKERNELS TO OPERATING SYSTEMS; 3.1.1 Miscellaneous Pseudokernels; 3.1.2 Interrupt-Only Systems; 3.1.3 Preemptive Priority Systems; 3.1.4 Hybrid Scheduling Systems; 3.1.5 The Task Control Block Model; 3.2 THEORETICAL FOUNDATIONS OF SCHEDULING
3.2.1 Scheduling Framework3.2.2 Round-Robin Scheduling; 3.2.3 Cyclic Code Scheduling; 3.2.4 Fixed-Priority Scheduling: Rate-Monotonic Approach; 3.2.5 Dynamic Priority Scheduling: Earliest Deadline First Approach; 3.3 SYSTEM SERVICES FOR APPLICATION PROGRAMS; 3.3.1 Linear Buffers; 3.3.2 Ring Buffers; 3.3.3 Mailboxes; 3.3.4 Semaphores; 3.3.5 Deadlock and Starvation Problems; 3.3.6 Priority Inversion Problem; 3.3.7 Timer and Clock Services; 3.3.8 Application Study: A Real-Time Structure; 3.4 MEMORY MANAGEMENT ISSUES; 3.4.1 Stack and Task Control Block Management; 3.4.2 Multiple-Stack Arrangement
3.4.3 Memory Management in the Task Control Block Model3.4.4 Swapping, Overlaying, and Paging; 3.5 SELECTING REAL-TIME OPERATING SYSTEMS; 3.5.1 Buying versus Building; 3.5.2 Selection Criteria and a Metric for Commercial Real-Time Operating Systems; 3.5.3 Case Study: Selecting a Commercial Real-Time Operating System; 3.5.4 Supplementary Criteria for Multi-Core and Energy-Aware Support; 3.6 SUMMARY; 3.7 EXERCISES; REFERENCES; 4: PROGRAMMING LANGUAGES FOR REAL-TIME SYSTEMS; 4.1 CODING OF REAL-TIME SOFTWARE; 4.1.1 Fitness of a Programming Language for Real-Time Applications
4.1.2 Coding Standards for Real-Time Software

Sommario/riassunto

The leading text in the field explains step by step how to write software that responds in real time From power plants to medicine to avionics, the world increasingly depends on computer systems that can compute and respond to various excitations in real time. The Fourth Edition of Real-Time Systems Design and Analysis gives software designers the knowledge and the tools needed to create real-time software using a holistic, systems-based approach. The text covers computer architecture and organization, operating systems, software engineering, programming languages, and compiler

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