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Nota di contenuto	Cover page; Half-Title page; Title page; Copyright page; Contents; Preface; List of Figures; List of Tables; 1: Introduction to Real-time Scheduling; 1.1. Real-time systems; 1.2. Material architectures; 1.2.1. CPUs; 1.2.2. Communication networks; 1.2.3. Sensors and actuators; 1.3. Operating systems; 1.3.1. Generalities; 1.3.2. Real-time operating systems; 1.3.3. Primitives provided by the kernel; 1.4. Scheduling; 1.4.1. Online and offline scheduling; 1.4.2. Task characterization; 1.4.3. Criticality; 1.4.4. Metrics related to scheduling; 1.4.5. Practical factors 1.4.5.1. Preemptibility and mutual exclusion1.4.5.2. Precedence constraints; 1.4.5.3. Activation jitter; 1.4.5.4. Suspensions; 1.4.6. Multi-core scheduling; 1.5. Real-time application modeling and analysis; 1.5.1. Modeling; 1.5.2. Analysis; 1.6. System architecture and schedulability; 2: Uniprocessor Architecture Solutions; 2.1. Introduction; 2.2. Characterization of a scheduling problem; 2.2.1. Task model; 2.2.2. Temporal constraint models; 2.2.3. Scheduling model; 2.2.4. Concepts and notations; 2.3. Scheduling

algorithms/optimality; 2.3.1. FP fixed-job priority algorithms
2.3.2. JFP algorithms2.3.2.1. EDF Scheduling: [LIU 73]; 2.3.2.2. FIFO scheduling:; 2.3.3. Dynamic priority algorithms; 2.4. Busy periods and worst-case scenarios; 2.4.1. Busy periods; 2.4.2. Worst-case scenarios; 2.5. Feasibility conditions; 2.5.1. FP feasibility conditions; 2.5.2. JFP feasibility conditions; 2.5.2.1. Feasibility conditions for EDF; 2.5.2.2. FIFO feasibility conditions; 2.6. Sensitivity analysis; 2.6.1. Sensitivity of WCETs; 2.6.1.1. Sensitivity of WCETs with FP; 2.6.1.1.1. Determination of the C-space with FP scheduling; 2.6.1.1.2. Margin on the WCETs with FP scheduling
2.6.1.2. Sensitivity of WCETs with EDF2.6.1.2.1. Determination of the C-space with EDF scheduling; 2.6.1.2.2. Margin on the WCETs with EDF scheduling; 2.6.2. Sensitivity of periods; 2.6.3. Sensitivity of deadlines; 2.6.3.1. Determination of the D-space with EDF; 2.6.3.2. Deadline modification with EDF; 2.7. Conclusion; 2.8. Bibliography; 3: Multiprocessor Architecture Solutions; 3.1. Introduction; 3.1.1. Application modeling; 3.1.2. Platform modeling; 3.2. Scheduler classification; 3.2.1. Online and offline schedulers; 3.2.2. Task preemption and migration; 3.2.3. Priorities of tasks
3.2.4. Classification3.2.4.1. Definition; 3.3. Properties of schedulers; 3.3.1. Qualitative properties; 3.3.1.1. Comparability of algorithms; 3.3.1.2. Optimality and existence of online algorithms; 3.3.1.3. Predictability, sustainability and scheduling anomalies; 3.3.2. Quantitative properties; 3.3.2.1. Utilization bounds; 3.3.2.2. Resource augmentation ratio; 3.4. Partitioned scheduling; 3.4.1. Partitioning algorithms; 3.4.2. Evaluation of partitioning algorithms; 3.4.2.1. Asymptotic ratio of the number of processor; 3.4.2.2. Utilization bounds; 3.4.2.3. Resource augmentation ratio
3.5. Global scheduling

Sommario/riassunto

Real-time systems are used in a wide range of applications, including control, sensing, multimedia, etc. Scheduling is a central problem for these computing/communication systems since responsible of software execution in a timely manner. This book provides state of knowledge in this domain with special emphasis on the key results obtained within the last decade. This book addresses foundations as well as the latest advances and findings in Real-Time Scheduling, giving all references to important papers. But nevertheless the chapters will be short and not overloaded with confusing details.