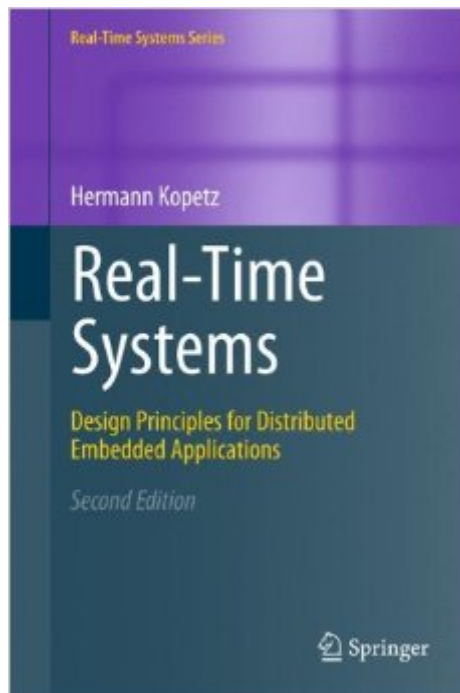


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# Real-Time Systems: Design Principles For Distributed Embedded Applications (Real-Time Systems Series)



## Synopsis

"This book is a comprehensive text for the design of safety critical, hard real-time embedded systems. It offers a splendid example for the balanced, integrated treatment of systems and software engineering, helping readers tackle the hardest problems of advanced real-time system design, such as determinism, compositionality, timing and fault management. This book is an essential reading for advanced undergraduates and graduate students in a wide range of disciplines impacted by embedded computing and software. Its conceptual clarity, the style of explanations and the examples make the abstract concepts accessible for a wide audience." Janos Sztipanovits, Director, E. Bronson Ingram Distinguished Professor of Engineering, Institute for Software Integrated Systems, Vanderbilt University

Real-Time Systems focuses on hard real-time systems, which are computing systems that must meet their temporal specification in all anticipated load and fault scenarios. The book stresses the system aspects of distributed real-time applications, treating the issues of real-time, distribution and fault-tolerance from an integral point of view. A unique cross-fertilization of ideas and concepts between the academic and industrial worlds has led to the inclusion of many insightful examples from industry to explain the fundamental scientific concepts in a real-world setting. Compared to the first edition, new developments in complexity management, energy and power management, dependability, security, and the internet of things, are addressed. The book is written as a standard textbook for a high-level undergraduate or graduate course on real-time embedded systems or cyber-physical systems. Its practical approach to solving real-time problems, along with numerous summary exercises, makes it an excellent choice for researchers and practitioners alike.

## Book Information

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## Customer Reviews

This book is exactly what I have been waiting for. I started to work as a programmer for Boeing in 1985, went to grad school, worked at a research lab, then am in the academe. Along the way, I have gotten exposed to real-time computing in bits and pieces on a good number of projects. But none of them required me to get very deep into real-time computing, and I have never had a class in it. But I have been meaning to learn more, and in a systematic way, for some time. So, from that context, it was with great anticipation that I learned of Prof. Kopetz's new edition (2ed). He is without question one of the top researchers in the area of fault-tolerant real-time computing, based on his long record of publishing in DSN and other top publication venues. He has worked with the auto industry literally for decades, and has recently branched out. So is is very applied and "down to earth". Ergo, my anticipation. This book did not disappoint this applied practitioner, researcher, and instructor. It had the gamut of topics, with a focus on time-triggered technologies, ranging from global time, models, fault-tolerance, real-time communication, real-time operating systems, and scheduling. All concrete and "meaty" topics. There were also a number of topics that seem very important to architecting and engineering a real-time system, including simplicity (that one surprised me, but made a lot of sense in hindsight), system design, and validation. It also had good material on very timely applied research concerns: an entire chapter on the "Internet of Things" (IoT), and "cyber-physical systems" issues were spread throughout the book.

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