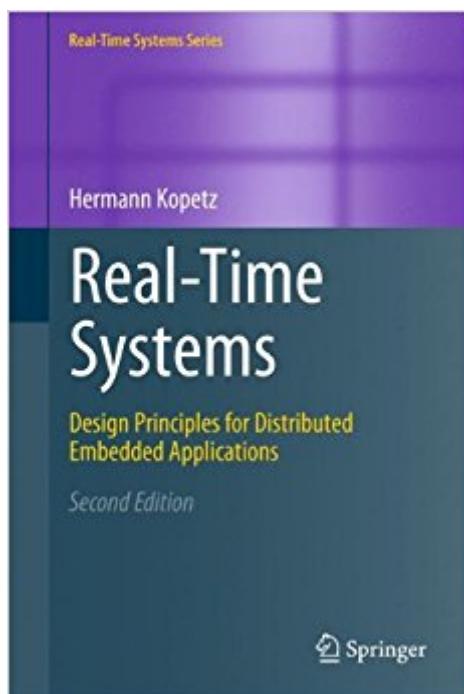


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# Real-Time Systems: Design Principles For Distributed Embedded Applications (Real-Time Systems Series)



## 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, DirectorE. Bronson Ingram Distinguished Professor of EngineeringInstitute for Software Integrated SystemsVanderbilt UniversityReal-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

From the reviews of the second edition:  
The book includes new chapters on simplicity, energy awareness, and the Internet, and, more importantly, some of the original chapters have been substantially revised. The book was designed to be a textbook. Its audience includes graduate and senior-level undergraduate students in real-time systems courses, as well as practitioners. | Overall, this is a very good book. • (Janusz Zalewski, ACM Computing Reviews, January, 2012)

None

Really good book, You can learn a lot if you are looking for an overview of embedded systems.

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 it 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. I strongly recommend this book for either practitioners who, like me, need or want to learn more about real-time systems (and more

systematically than one could learn by a smattering of tutorial and research papers). I also would recommend it for a senior undergraduate or a graduate class. Indeed, I may use it for half of the material in a seminar class next school year, depending on how I decide what topics I really want to cover.

As a graduate student, I used this book for work on real time communication and time triggered architecture. I must say, the book is very well organised and easy to read. The concepts presented in this book are all practical and very helpful for real time system practitioners. This book also helps students to gain overall understanding of the real time systems and ongoing research projects. I found the chapters on Real time model, real time communication and time triggered architecture very helpful for my research and the case studies on different time triggered architecture were very useful. If you are looking to dive into real time systems or taking a course on real time concepts or want to enhance your knowledge on real time system to take your research to next level, I highly recommend this book for you.

I am a grad student and recently read through most of this book. I enjoyed the time that I invested. The book is readable and provides a thorough expose of the issues that I wanted to learn in order to continue with my research. The book is well organized, the front part does a good job describing the concepts that are needed to understand the rest of the book, and most of the book discusses subjects other than OS. I liked the cross-references that were provided to earlier sections and chapters, so that as I read the book over several weeks, I could refresh my memory about something that I had gone over earlier and tie things together. The illustrations are well conceived and helpful. There are a few typos in the English version that the editor should have caught, but they don't interfere with the book's readability or its worth. I recommend this book.

I found this book very useful. Despite the general title, Hermann Kopetz is mainly concerned with time-triggered techniques. This approach is becoming increasing popular with developers of real-time systems because it has been found to result in very predictable system behavior and, hence, can help to improve system reliability. This book was one of the first to be published in this area. It provides a considerable amount of useful information.

Nice quality, quick delivery

Book arrived in really good condition.

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