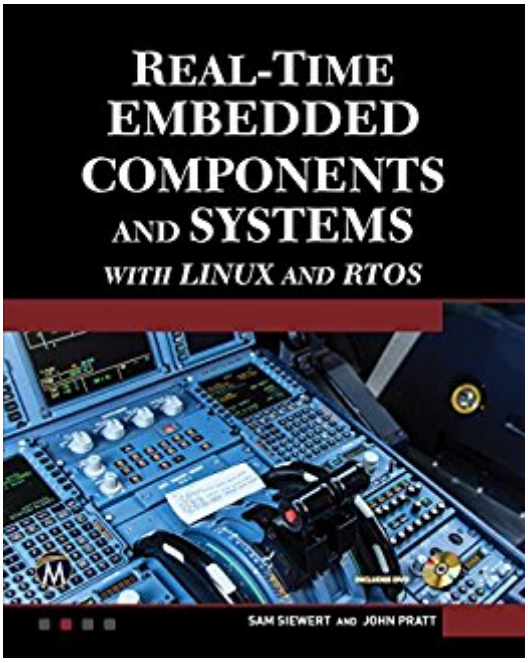
Real-Time Embedded Components And Systems: With Linux And RTOS



Synopsis

This book is intended to provide a senior undergraduate or graduate student in electrical engineering or computer science with a balance of fundamental theory, review of industry practice, and hands-on experience to prepare for a career in the real-time embedded system industries. It is also intended to provide the practicing engineer with the necessary background to apply real-time theory to the design of embedded components and systems. Typical industries include aerospace, medical diagnostic and therapeutic systems, telecommunications, automotive, robotics, industrial process control, media systems, computer gaming, and electronic entertainment, as well as multimedia applications for general-purpose computing. This updated edition adds three new chapters focused on key technology advancements in embedded systems and with wider coverage of real-time architectures. The overall focus remains the RTOS (Real-Time Operating System), but use of Linux for soft real-time, hybrid FPGA (Field Programmable Gate Array) architectures and advancements in multi-core system-on-chip (SoC), as well as software strategies for asymmetric and symmetric multiprocessing (AMP and SMP) relevant to real-time embedded systems, have been added. Companion files are provided with numerous project videos, resources, applications, and figures from the book. Instructorsâ ™ resources are available upon adoption. Features+Provides a comprehensive, up to date, and accessible presentation of embedded systems without sacrificing theoretical foundations+Features the RTOS (Real-Time Operating System), but use of Linux for soft real-time, hybrid FPGA architectures and advancements in multi-core system-on-chip is included+Discusses an overview of RTOS advancements, including AMP and SMP configurations, with a discussion of future directions for RTOS use in multi-core architectures, such as SoC+Detailed applications coverage including robotics, computer vision, and continuous media+Includes a disc (4GB) with videos, resources, projects, examples, and figures from the book[All files are available for downloading from the publisher with Order Number by writing to info@merclearning.com]+Provides instructorsâ ™ resources, including lecture notes, Microsoft PP slides, etc.Brief Table of ContentsPart I: Real-Time Embedded Theory. 1. Introduction. 2. System Resources. 3. Processing. 4. Resources. 5. Memory. 6. Multiresource Services. 7. Soft Real-Time Services. Part II: Designing Real-Time Embedded Components. 8. Embedded System Components. 9. Traditional Hard Real-Time Operating Systems. 10. Open Source Real-Time Operating Systems. 11. Integrating Embedded Linux into Real-Time Systems. 12. Debugging Components. 13. Performance Tuning. 14. High Availability and Reliability Design. Part III: Putting it All Together. 15. System Life Cycle. 16. Continuous Media Applications. 17. Robotic Applications. 18. Computer Vision Applications. Appendix A. Terminology Glossary. Appendix B. About the DVD.

Appendix C. Wind River Systems University Program for Workbench/VxWorks. Appendix D. Real-Time and Embedded Linux Distributions and Resources. Bibliography. Index.On the DVD! [All files are available for downloading from the publisher with Order Number by writing to info@merclearning.com]+The companion disc contains 4GB of additional resources including:+Videos (projects, tutorials)+All images from the text (including 4-color originals)+Documentation, project code, a Visio design example, articles related to real-time embedded systems, Linux, and more!About the AuthorsSam Siewert is an assistant professor at Embry Riddle Aeronautical University and an assistant professor adjunct at University Colorado-Boulder. He is the author of Real-Time Embedded Components and Systems (Cengage Learning). John Pratt is an adjunct computer engineering instructor at the University of Colorado-Boulder and Senior Staff Engineer/Manager at Qualcomm Inc.

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Customer Reviews

The code on the CD itself is well worth the money! I like the author’s apporach of balancing the real time theory and its application. Having worked with C++ and real time application in the past 10

years, this book tought me something that I didn't learn from anywhere else (RMA, VxWorks, Video driver...). For any serious hard real time application developers, this book is highly recommended!

Charles River Media is always a guarantee.One of the rare works on the 'eliterian' VxWorks RTOS. The teaching style from the University of Colorado a real gem !Source code examples cover most of the VxWorks API's.General theory of RTOS's combined with performace issues are the introducing chapters.Digital control, robotics and digital video and audio applications are dedicated and extremely clear chapters of this work.Real world examples, full of code and videoclips related to the subjects discussed in the book.

Real-Time Embedded Components and Systems with Linux and RTOS (Engineering) Real-Time Embedded Components And Systems: With Linux and RTOS LINUX: Linux Command Line, Cover all essential Linux commands. A complete introduction to Linux Operating System, Linux Kernel, For Beginners, Learn Linux in easy steps, Fast! A Beginner's Guide Linux: Linux Guide for Beginners: Command Line, System and Operation (Linux Guide, Linux System, Beginners Operation Guide, Learn Linux Step-by-Step) Memory Controllers for Real-Time Embedded Systems: Predictable and Composable Real-Time Systems: 2 Real-time Operating Systems (The engineering of real-time embedded systems Book 1) Linux for Embedded and Real-time Applications, Third Edition (Embedded Technology) Linux for Embedded and Real-time Applications (Embedded Technology) Linux for Embedded and Real-time Applications, Second Edition (Embedded Technology) Real Time Systems and Programming Languages: Ada 95, Real-Time Java and Real-Time C/POSIX (3rd Edition) DSP Software Development Techniques for Embedded and Real-Time Systems (Embedded Technology) Real-Time UML Workshop for Embedded Systems, Second Edition (Embedded Technology) Linux: Linux Mastery. The Ultimate Linux Operating System and Command Line Mastery (Operating System, Linux) Embedded Systems: Real-Time Operating Systems for Arm Cortex M Microcontrollers Real Estate: Learn to Succeed the First Time: Real Estate Basics, Home Buying, Real Estate Investment & House Flipping (Real Estate income, investing, Rental Property) DSP for Embedded and Real-Time Systems Embedded Systems: Real-Time Interfacing to ArmÂ® CortexTM-M Microcontrollers Real-Time Concepts for Embedded Systems Real-Time Software Design for Embedded Systems Computers as Components, Third Edition: Principles of Embedded Computing System Design (The Morgan Kaufmann Series in Computer Architecture and Design)