Software Engineering for Embedded Systems

Description: This Expert Guide gives you the techniques and technologies in software engineering to optimally design and implement your embedded system. Written by experts with a solutions focus, this encyclopedic reference gives you an indispensable aid to tackling the day-to-day problems when using software engineering methods to develop your embedded systems.

With this book you will learn:

- The principles of good architecture for an embedded system
- Design practices to help make your embedded project successful
- Details on principles that are often a part of embedded systems, including digital signal processing, safety-critical principles, and development processes
- Techniques for setting up a performance engineering strategy for your embedded system software
- How to develop user interfaces for embedded systems
- Strategies for testing and deploying your embedded system, and ensuring quality development processes
- Practical techniques for optimizing embedded software for performance, memory, and power
- Advanced guidelines for developing multicore software for embedded systems
- How to develop embedded software for networking, storage, and automotive segments
- How to manage the embedded development process

Includes contributions from:

Frank Schirrmieister, Shelly Gretlein, Bruce Douglass, Erich Styger, Gary Stringham, Jean Labrosse, Jim Trudeau, Mike Brogioli, Mark Pitchford, Catalin Dan Udma, Markus Levy, Pete Wilson, Whit Waldo, Inga Harris, Xinxin Yang, Srinivasa Addepalli, Andrew McKay, Mark Kraeling and Robert Oshana.

- Road map of key problems/issues and references to their solution in the text
- Review of core methods in the context of how to apply them
- Examples demonstrating timeless implementation details
- Short and to-the-point case studies show how key ideas can be implemented, the rationale for choices made, and design guidelines and trade-offs

Contents:

Overview of Embedded and Real-Time Systems
Embedded Systems hardware/software co-design
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Architecture and design patterns
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Embedded Operating systems
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Agile for embedded
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Embedded Software Development for Storage and I/O
Performance Engineering Case Study
User Interface Design Case Study
Multicore Case Study
Sensor programming case study

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