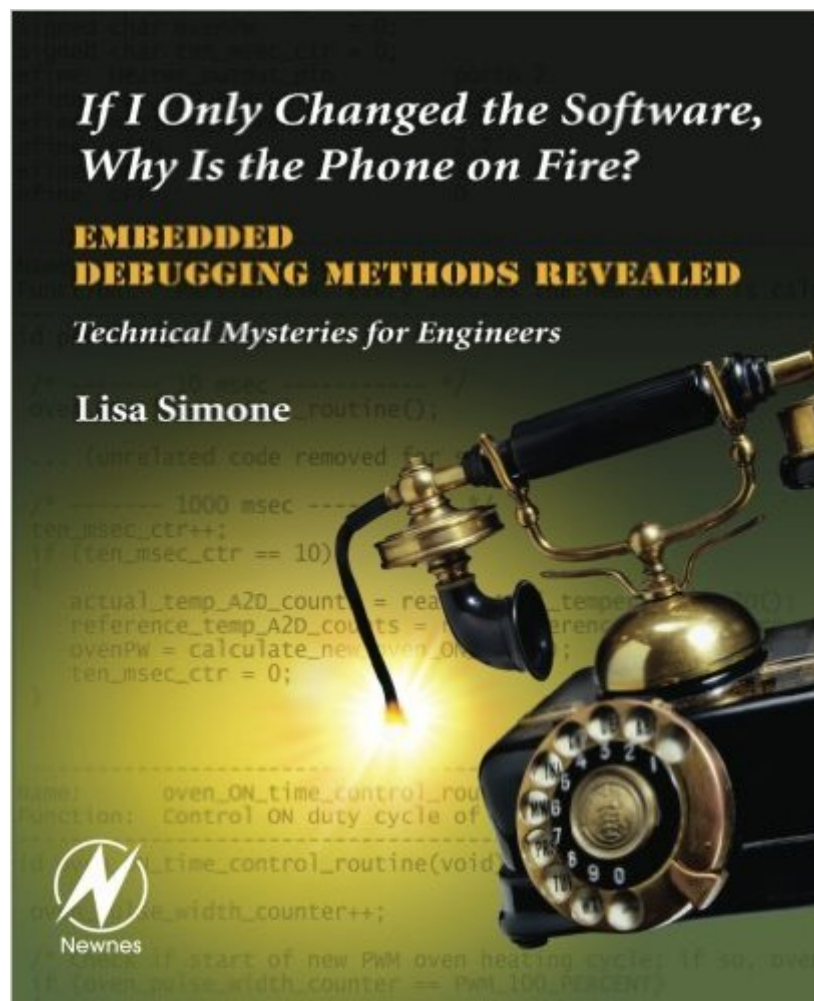


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# If I Only Changed The Software, Why Is The Phone On Fire?: Embedded Debugging Methods Revealed: Technical Mysteries For Engineers



## Synopsis

This new book manages the unthinkable- it conveys crucial technical information to engineers without boring them to tears! In this unique reference, expert embedded designer Lisa Simone provides the solutions to typical embedded software debugging problems from a fresh new perspective. She introduces a team of engineers who readers will recognize from their own workplaces, and then confronts them with real-world debugging scenarios of progressive complexity, drawing the reader into the "mysteries" with their new fictional colleagues, and guiding them step-by-step toward successful solutions.

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Â A Unique format casts the reader as "technical detective" by presenting a new mystery in every chapter

Â Not another dry technical book! Conversational tone and intriguing quandaries draw the reader into the action, while teaching crucial debugging skills

Â The final chapter, a summary of the smart debugging techniques introduced throughout the book, is a quick reference to help solve future problems

## Book Information

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## Customer Reviews

Embedded development isn't like other kinds of programming. Tight memory restrictions (a few dozen to a few hundred bytes for stack and variables) are the least of it. Really, it's the intimate integration of hardware and software that makes the difference. For example, I once made software changes that got the system 3 dB closer to the FCC RF emissions standard - that kind of thing. Add in real-time constraints, a user interface possibly consisting of one LED and a pushbutton, and little to no OS, and it becomes a whole new world. Lots of your old debugging techniques just won't work in that world. Some will, but you'll need lots of new ones, too, and not just the ICE or logic analyzer. That's where this book comes in. Nine chapters present different debugging scenarios, fictional but based on real-world experience. In each Simone walks the reader through the problem, the debug sessions, some source code, and an eventual solution. As always, your brain is your best debugging tool, and Simone offers plenty of ways to use it many programmers won't have seen before. For all the good in this book, I'm really not nuts about it. Each debug session has been scripted into a brief play between the four characters introduced. This mechanism allows Simone to walk through the debug reasoning in a realistic way and also lets her expose some of the human issues in system development. Still, it's a bit too "user friendly" for me - a notoriously unfriendly user. All that he-said/she-said interaction comes across as fluff; I prefer a higher density of technical content, others will prefer this book's chatty, conversational style. That's just me, though.

This is not a great book; it did nothing to change the way I think and I don't remember seeing anything that I had not seen (or done) before. However, it is a pretty nice introduction to the subtle skill of debugging. Debugging is a difficult thing to teach. In fact, it seems to me to be more difficult to teach than to learn: I have never seen an attempt to teach debugging succeed on any greater level than a list of tips and rules of thumb. On the other hand, the most successful debuggers, and the most effective debugging efforts, have completely transcended any tips or rules. The person doing the debugging coupled a deep (if not specific) understanding of the system or at least technology in question to arrive on the trail of the problem almost mystically. If I Only Changed the Software... does not try to present a grand theory of debugging, and it does have a list of tips, but it does more

to teach the feeling of debugging than any other work I've read. Perhaps the fictional, narrative-based scheme can teach at least what the process of debugging looks like. One nice (although some may feel otherwise) feature of the book is the use of, well, less than perfect code. Certainly, when I was less experienced than I am now I would have found the code a ghastly horror and a crime against nature. In fact, I would probably have been right. On the other hand, having seen more of other people's code, I now see the examples in the book as pretty typical. The big benefit of the code is that it demonstrates a bug may not be the bug. For example, the function `periodic_timer` in one chapter appears to be called every ten milliseconds. A bug with the code I immediately spotted involves a comment about "1000 msec"; that code is actually executed every 100 milliseconds.

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