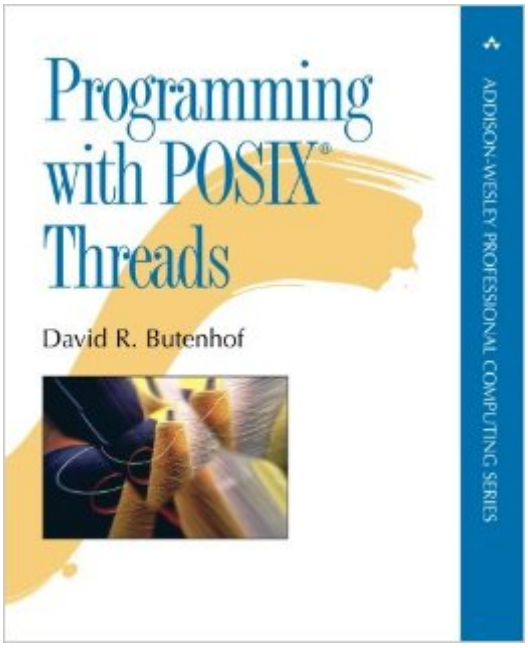
Programming With POSIX Threads



Synopsis

With this practical book, you will attain a solid understanding of threads and will discover how to put this powerful mode of programming to work in real-world applications. The primary advantage of threaded programming is that it enables your applications to accomplish more than one task at the same time by using the number-crunching power of multiprocessor parallelism and by automatically exploiting I/O concurrency in your code, even on a single processor machine. The result: applications that are faster, more responsive to users, and often easier to maintain. Threaded programming is particularly well suited to network programming where it helps alleviate the bottleneck of slow network I/O. Â This book offers an in-depth description of the IEEE operating system interface standard, POSIXAE (Portable Operating System Interface) threads, commonly called Pthreads. Written for experienced C programmers, but assuming no previous knowledge of threads, the book explains basic concepts such as asynchronous programming, the lifecycle of a thread, and synchronization. You then move to more advanced topics such as attributes objects, thread-specific data, and realtime scheduling. An entire chapter is devoted to "real code," with a look at barriers, read/write locks, the work queue manager, and how to utilize existing libraries. In addition, the book tackles one of the thorniest problems faced by thread programmers-debugging-with valuable suggestions on how to avoid code errors and performance problems from the outset. Â Numerous annotated examples are used to illustrate real-world concepts. A Pthreads mini-reference and a look at future standardization are also included.

Book Information

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Customer Reviews

This book has got what you want to know about pthreads. If that was all it had, and it had that in the right order, then it would be perfect. Instead, this is a very frustrating book to read.Take ’mutexes’ as an example. A useful explanation for a beginner might be as follows... (1) Where the word ’mutex’ comes from (2) What a memory conflict is (3) How a mutex can avoid it (4) How it works (simplified) (5) Some good examples in programsOn page 6 we first meet a mutex in a bit about putchar - we turn ’putchar into a ’critical section’ (unexplained) because ’putchar might lock a "putchar mutex" ’.Don’t bother trying to understand it. Next paragraph, we find ’the correct solution is to associate the mutex with the stream’, so it was a bad idea in the first place. Oh.Two chapters later, on page 47, you get to know what a ’mutex’ is. It’s mutual exclusion using a special form of Edsger Dijkstra’s semaphore, you dummy. Well, if you’ve read Edsger Dijkstra’s 1968 paper, then you aren’t likely to be reading this book, says I.Confused? Keep going. Finally on page 90, there is a neat tabular description of one thread reading a variable before the other one has written it, and how you can stop this with a mutex. Clear and simple, this should have been on page 6. The following section (marked "You may want to skip this explanation...") then describes the sorts of problem you get with real hardware - surely a ’must read’ if you are going to do this sort of stuff.There is a noble tradition of giving a bad coding example in one chapter, so you can show how cleverly you can fix it in the next. Look at any Stroustrop book.

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