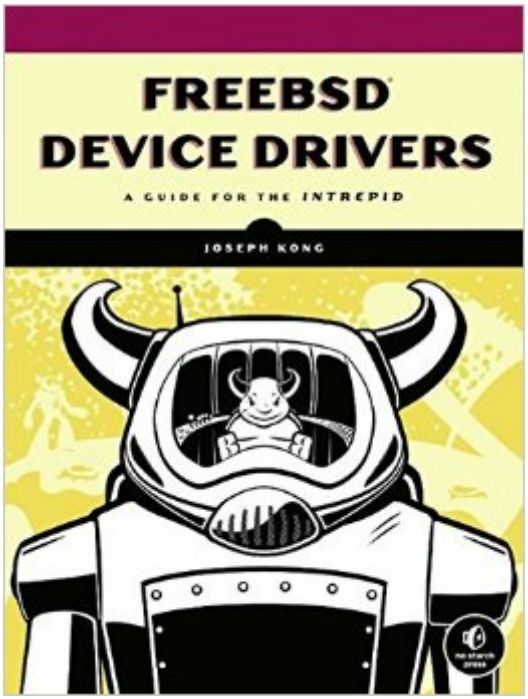
FreeBSD Device Drivers: A Guide For The Intrepid



Synopsis

Device drivers make it possible for your software to communicate with your hardware, and because every operating system has specific requirements, driver writing is nontrivial. When developing for FreeBSD, you've probably had to scour the Internet and dig through the kernel sources to figure out how to write the drivers you need. Thankfully, that stops now. In FreeBSD Device Drivers, Joseph Kong will teach you how to master everything from the basics of building and running loadable kernel modules to more complicated topics like thread synchronization. After a crash course in the different FreeBSD driver frameworks, extensive tutorial sections dissect real-world drivers like the parallel port printer driver. You'll learn:All about Newbus, the infrastructure used by FreeBSD to manage the hardware devices on your systemHow to work with ISA, PCI, USB, and other busesThe best ways to control and communicate with the hardware devices from user spaceHow to use Direct Memory Access (DMA) for maximum system performanceThe inner workings of the virtual null modem terminal driver, the USB printer driver, the Intel PCI Gigabit Ethernet adapter driver, and other important driversHow to use Common Access Method (CAM) to manage host bus adapters (HBAs)Concise descriptions and extensive annotations walk you through the many code examples. Don't waste time searching man pages or digging through the kernel sources to figure out how to make that arcane bit of hardware work with your system. FreeBSD Device Drivers gives you the framework that you need to write any driver you want, now.

Book Information

Paperback: 352 pages

Publisher: No Starch Press; 1 edition (May 10, 2012)

Language: English

ISBN-10: 1593272049

ISBN-13: 978-1593272043

Product Dimensions: 7 x 0.9 x 9.2 inches

Shipping Weight: 1.5 pounds (View shipping rates and policies)

Average Customer Review: 4.9 out of 5 starsÂ Â See all reviewsÂ (9 customer reviews)

Best Sellers Rank: #1,249,600 in Books (See Top 100 in Books) #22 inÂ Books > Computers & Technology > Programming > APIs & Operating Environments > Device Drivers #23 inÂ Books > Computers & Technology > Operating Systems > BSD #426 inÂ Books > Computers & Technology > Operating Systems > Unix

Customer Reviews

I already have the other book by the same author, Joseph Kong, "Designing BSD Rootkits: An Introduction to Kernel Hacking" and liked it very much, so when I got the chance to get an advance copy of his new book for review, "FreeBSD Device Drivers: A Guide for the Intrepid", I couldn't say no. :)To make the review more practical, I decided to write a simple driver myself and posted about it and the book on the FreeBSD forums, to find that post follow the WWW: link in the pkg-descr of the comms/uartlirc port (you can also look the port up on freshports.org .)About the book:The book introduces you to almost everything you need to know to write many types of drivers, it does this mainly by doing code walkthroughs for several example- and real-world drivers. It obviously cannot cover _everything_ (sound drivers for example are not covered, nor is miibus(4)), but what it covers I'd say should give you enough information to be able to look at manpages and existing drivers for missing details. 100% recommended!

Most programmers consider device drivers the darkest of the dark computer arts, but to write a good device driver what's needed is a decent template and some good documentation. The FreeBSD Operating Systems has plenty of templates, in the form of already working drivers, and with the publication of Joseph Kong's latest book, _FreeBSD Device Drivers_, now there is good documentation as well.The book takes the reader from the simplest types of drivers, such as those used to do serial communication, up through disk, usb and network drivers, which are far more complex and require the programmer to have a greater understanding about the operating system in which they're working. The introductory chapters give enough of the required background information for writing a driver, covering areas such as memory allocation, and synchronization primitives, without preventing the reader from, very quickly, getting down to working on real code.One of the beauties of this book is that it covers running code in a real world operating system, making it far more relevant for both students and working programmers. Many books on programming create neat and easy problems that the authors think will take the reader through the necessary steps to understanding a concept, but this book doesn't shy away from the nitty gritty details of low level code.The book has an easy to read, narrative style which makes reading it an enjoyable experience, a seeming rarity in technical books.I'd recommend this book to anyone who wants to truly understand what goes on, under the hood, in an operating system.

Just before this book was released, I recently started a FreeBSD device driver project. I started out by searching the web for all related documentation and tutorials. I found myself trying to piece together dozens of different sources, most of which were too simplistic, narrowly focused, or

outdated. Save yourself the time and frustration; start by buying this book. It is a well organized guide for learning to write device drivers and will get you productive much faster than scouring the web.

This is the type of book every Unix developer or systems administrator should own. Don’t let the title fool you, while this is definitely a FreeBSD-heavy book, the methodology and examples would be useful to any aspiring kernel developer or systems administrator. Using real world examples, with informative, in depth explanations on what is happening "under the hood," Joseph Kong’s book will walk the reader through every aspect of writing a drivers for a variety of hardware. As a systems administrator of FreeBSD, Linux, and Solaris systems, I have found this book to be an asset and am really happy I put it on my technical references shelf and feel confident any system administrator or kernel developer will feel the same way.

This is a really helpful book, I have read and searched forth and back the Freebsd documentation for clues for starting driver development, well you could read the source code of the drivers as well, but is it better to read this book first as it will make things clear or you will be more familiar with the current infrastructure, this book is really is a must if you want to start digging on FBSD driver coding, I really recommend it.

Plague: One Scientist’s Intrepid Search for the Truth about Human Retroviruses and Chronic Fatigue Syndrome (ME/CFS), Autism, and Other Diseases Plague: One Scientist’s Intrepid Search for the Truth About Human Retroviruses and Chronic Fatigue Syndrome, Autism, and Other Diseases Plague: One Scientist’s Intrepid Search for the Truth about Human Retroviruses and Chronic Fatigue Syndrome (ME/CFS), Autism, and Other Diseases Lesbian Pulp Fiction: The Sexually Intrepid World of Lesbian Paperback Novels 1950-1965 Highway 1, Hell & Horror - Vietnam War Convoys - Ambushes: Truck Drivers - Chasing Ghosts - Outsystem: A Military Science Fiction Space Opera Epic: Aeon 14 (The Intrepid Saga)