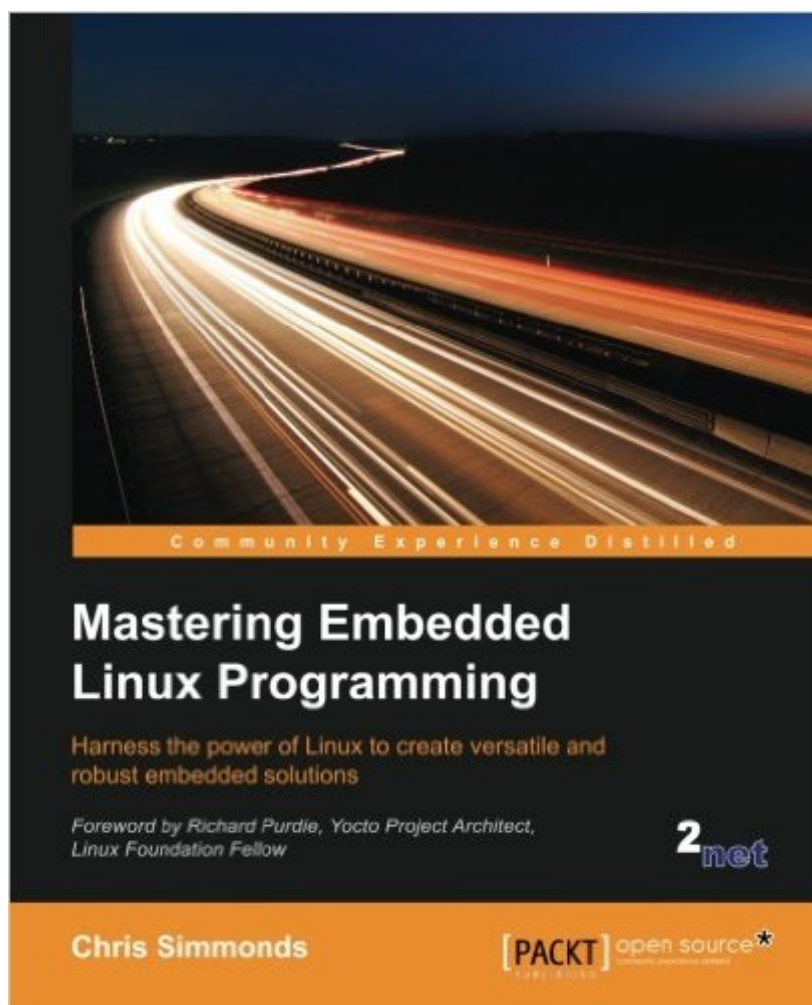The book was found

Mastering Embedded Linux Programming

Synopsis

Key FeaturesCreate efficient and secure embedded devices using LinuxMinimize project costs by using open source tools and programsExplore each component technology in depth, using sample implementations as a guideBook DescriptionMastering Embedded Linux Programming takes you through the product cycle and gives you an in-depth description of the components and options that are available at each stage. You will begin by learning about toolchains, bootloaders, the Linux kernel, and how to configure a root filesystem to create a basic working device. You will then learn how to use the two most commonly used build systems, Buildroot and Yocto, to speed up and simplify the development process. Building on this solid base, the next section considers how to make best use of raw NAND/NOR flash memory and managed flash eMMC chips, including mechanisms for increasing the lifetime of the devices and to perform reliable in-field updates. Next, you need to consider what techniques are best suited to writing applications for your device. We will then see how functions are split between processes and the usage of POSIX threads, which have a big impact on the responsiveness and performance of the final device The closing sections look at the techniques available to developers for profiling and tracing applications and kernel code using perf and ftrace.What you will learnUnderstand the role of the Linux kernel and select an appropriate role for your applicationUse Buildroot and Yocto to create embedded Linux systems quickly and efficientlyCreate customized bootloaders using U-BootEmploy perf and ftrace to identify performance bottlenecksUnderstand device trees and make changes to accommodate new hardware on your deviceWrite applications that interact with Linux device driversDesign and write multi-threaded applications using POSIX threadsMeasure real-time latencies and tune the Linux kernel to minimize themAbout the AuthorChris Simmonds is a software consultant and trainer who lives in southern England. He has been using Linux in embedded systems since the late 1990s, during which he has worked on many interesting projects, including a stereoscopic camera, intelligent weighing scales, various set-top boxes and home routers, and even a large walking robot.He is a frequent presenter at open source and embedded conferences, including the Embedded Linux Conference, Embedded World, and the Android Builders' Summit. He has been conducting training courses and workshops in embedded Linux since 2002 and in embedded Android since 2010. He has delivered hundreds of sessions to many well-known companies. You can see some of his work on the "Inner Penguin" blog at www.2net.co.uk.Table of ContentsStarting OutLearning About ToolchainsAll About BootloadersPorting and Configuring the KernelBuilding a Root FilesystemSelecting a Build SystemCreating a Storage StrategyIntroducing Device DriversStarting up - the init ProgramLearning About Processes and ThreadsManaging

MemoryDebugging with GDBProfiling and TracingReal-time Programming

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Customer Reviews

Considering how widely embedded Linux is used, we might expect more books on the subject. In
fact, there are precious few, and it seems fewer are published now than ten years ago. Why is that?
There is no shortage of books on other popular programming topics. It may be that writing
competently about embedded Linux requires broader knowledge and greater skill.This new book
Mastering Embedded Linux Programming is a surprisingly good book. The author clearly has deep
experience and it shows in the selection, organization, and presentation of embedded Linux topics
which include building cross toolchains, U-Boot, the Linux kernel, and Buildroot to generate the root
filesystem. You need a platform to run these things and the author wisely offers examples on
Beaglebone Black for actual hardware and QEMU for software platform emulation.I have experience
with these technologies and platforms, but had to scrape up and adapt information as best I could at
the time, so I can readily recognize coherent recipes that bring it all together. This book does that
exceedingly well and should prove most useful to any experienced or aspiring embedded Linux
developer.I am not just reading the book. I am working through the examples, trying the build
examples on an inexpensive $5/month cloud server. (Tip - If you have limited memory on the build
server, such as 512 MB on a cloud server, configure 2 GB Linux swap space since that is needed
by the Linux build tools.) I have found the examples to be entirely accurate so far, which is
uncommon for embedded Linux guides and speaks well of the care taken by the author and

technical reviewers.This book is professionally written, accurate, and highly recommended.

Linux: Linux Command Line - A Complete Introduction To The Linux Operating System And Command Line (With Pics) (Unix, Linux kemel, Linux command line, ... CSS, C++, Java, PHP, Excel, code) (Volume 1) Mastering Embedded Linux Programming Practical Linux Programming: Device Drivers, Embedded systems, and the Internet (with CD- ROM) (Programming Series) LINUX: Easy Linux For Beginners, Your Step-By-Step Guide To Learning The Linux Operating System And Command Line (Linux Series) Embedded Linux Porting on ARM & RFID Implementation Using ARM SoC: Developing a flexible and agile Board Secure Package Linux with multiple applications Embedded FreeBSD Cookbook (Embedded Technology) Linux For Beginners: The Ultimate Guide To The Linux Operating System & Linux Linux Administration: The Linux Operating System and Command Line Guide for Linux Administrators CompTIA Linux+ Powered by Linux Professional Institute Study Guide: Exam LX0-103 and Exam LX0-104 (Comptia Linux + Study Guide) Learning Embedded Linux using the Yocto Project Embedded Linux: Das Praxisbuch (X.systems.press) (German Edition) Embedded Linux Projects Using Yocto Project Cookbook Introduction to 64 Bit Assembly Programming for Linux and OS X: Third Edition - for Linux and OS X Practical UML Statecharts in C/C++: Event-Driven Programming for Embedded Systems Java: The Simple Guide to Learn Java Programming In No Time (Programming,Database, Java for dummies, coding books, java programming) (HTML,Javascript,Programming,Developers,Coding,CSS,PHP) (Volume 2) GNU/Linux Application Programming (Charles River Media Programming) Smart Home Automation with Linux (Expert's Voice in Linux) Linux: For Beginners - Step By Step User Manual To Learning The Basics Of Linux Operating System Today! (Ubuntu, Operating System) Linux Apache Web Server Administration (Linux Library) Linux Web Server Development: A Step-by-Step Guide for Ubuntu, Fedora, and other Linux Distributions