Building embedded Linux systems /

Yaghmour, Karim

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Monografía

There's a great deal of excitement surrounding the use of Linux in embedded systems -- for everything from cell phones to car ABS systems and water-filtration plants -- but not a lot of practical information. Building Embedded Linux Systems offers an in-depth, hard-core guide to putting together embedded systems based on Linux. Updated for the latest version of the Linux kernel, this new edition gives you the basics of building embedded Linux systems, along with the configuration, setup, and use of more than 40 different open source and free software packages in common use. The book also looks

Título: Building embedded Linux systems Karim Yaghmour [and others]

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Descripción física: 1 online resource (439 pages) illustrations

Nota general: Previous edition: published as by Karim Yaghmour. 2003 Includes index

Contenido: 1. Introduction -- Definitions -- Real Life and Embedded Linux Systems -- Design and Implementation Methodology -- 2. Basic Concepts -- Types of Hosts -- Types of Host/Target Development Setups -- Types of Host /Target Debug Setups -- Generic Architecture of an Embedded Linux System -- System Startup -- Types of Boot Configurations -- System Memory Layout -- 3. Hardware Support -- Processor Architectures -- Buses and Interfaces -- I/O -- Storage -- General-Purpose Networking -- Industrial-Grade Networking -- System Monitoring -- 4. Development Tools -- A Practical Project Workspace -- GNU Cross-Platform Development Toolchain -- C Library Alternatives -- Java -- Perl -- Python -- Other Programming Languages -- Eclipse: An Integrated Development Environment -- Terminal Emulators -- 5. Kernel Considerations -- Selecting a Kernel -- Configuring the Kernel -- Compiling the Kernel -- Installing the Kernel -- In the Field -- 6. Root Filesystem Content -- Basic Root Filesystem Structure -- Libraries -- Kernel Modules -- Kernel Images -- Device Files -- Main System Applications -- Custom Applications -- System Initialization -- 7. Storage Device Manipulation -- MTD-Supported Devices -- Disk Devices -- To Swap or Not To Swap -- 8. Root Filesystem Setup -- Filesystem Types for Embedded Devices -- Writing a Filesystem Image to Flash Using an NFS-Mounted Root Filesystem -- Placing a Disk Filesystem on a RAM Disk -- Rootfs and Initramfs -- Choosing a Filesystem's Type and Layout -- Handling

Software Upgrades -- 9. Setting Up the Bootloader -- Embedded Bootloaders -- Server Setup for Network Boot -- Using the U-Boot Bootloader -- 10. Setting Up Networking Services -- Network Settings -- Busybox -- Dynamic Configuration Through DHCP -- The Internet Super-Server -- Remote Administration with SNMP -- Network Login Through Telnet -- Secure Communication with SSH -- Serving Web Content Through HTTP -- Provisioning -- 11. Debugging Tools -- Eclipse -- Debugging Applications with gdb -- Tracing -- Performance Analysis -- Memory Debugging -- A Word on Hardware Tools -- 12. Introduction to Real-Time Linux -- What Is Real-Time Processing? -- Should Your Linux Be Real-Time? -- Common Real-Time Kernel Requirements -- Some Typical Users of Real-Time Computing Technology -- The Linux Paths to Real-Time -- 13. The Xenomai Real-Time System -- Porting Traditional RTOS Applications to Linux -- The Xenomai Architecture -- How Xenomai Works -- The Real-Time Driver Model -- Xenomai, Chameleon by Design -- 14. The RT Patch -- Interrupts As Threads -- Priority Inheritance -- Configuring the Kernel with the RT Patch -- High-Resolution Timers -- The Latency Tracer

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Autores: Yaghmour, Karim

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Baratz Innovación Documental

- Gran Vía, 59 28013 Madrid
- (+34) 91 456 03 60
- informa@baratz.es