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Nota di contenuto	Front Cover; Linux for Embedded and Real-Time Applications; Copyright Page; Dedication; Contents; Preface; Audience and Prerequisites; Personal Biases; Organization; 1: Introduction and Getting Started; 1: The Embedded and Real-Time Space; What Is Embedded?; What Is Real-Time?; How and Why Does Linux Fit In?; Open Source; Portable and Scalable; Where Is Linux Embedded?; Open Source Licensing; Legal Issues; Resources; 2: Installing Linux; Distributions; Debian GNU/Linux; Fedora; Red Hat Enterprise Linux; SUSE; Ubuntu; Hardware Requirements; Installation Scenarios; Stand-Alone; Dual-Booting VirtualizationDVD or Live CD?; Installation Process; Disk Partitioning; Package Selection; Resources; Specific Distribution Sites; Other Resources; 3: Introducing Linux; Running Linux-KDE; File Manager; Shell Window; Linux Features; Protected Mode Architecture; Real Mode; Protected Mode; "Flat" vs. Segmented Memory Models; Paging; The Linux Process Model; The fork() Function; The execve() Function; The Linux File System; File Permissions; The "root" User; The /proc File System; The Filesystem Hierarchy Standard; The /usr Hierarchy; "Mounting" File Systems; System Configuration; The Shell Getting HelpResources; 4: The Host Development Environment; Cross-Development Tools-The GNU Tool Chain; GCC; Make; GDB; Install Software; What's on the DVD?; Install Cross-Tool Chain; Install Root File System; The Terminal Emulator, minicom; Networking; Network

Address; What About Wireless?; Network File System; Trivial File Transfer Protocol; Resources; 5: The Hardware; Embedded Hardware; ARM Single Board Computer; Specifications; What About Other Boards?; BeagleBoard; Specifications (Rev. C4); Gumstix; Specifications; Raspberry Pi; Specifications; Setting Up the Mini2440
Flash Memory and File SystemsFlash Memory-NAND and NOR; Root File System in Flash; Preparing the Board; Sample Code; factory_images; The Script Files; mini_boot; set-mini_boot; *.sh; The Procedure; Final Steps; What Can Go Wrong?; The Boot Loader; Resources; Sites for Alternate Boards; 6: Eclipse Integrated Development Environment; Overview; Plug-ins; Workbench; Installation; Using Eclipse; The C Development Environment-CDT; Creating a New Project; Adding Source Code to the Project; Content Assist; Code Templates; Automatic Closing; The Program; Building the Project; Debugging with CDT The Debug ViewVariables View; Breakpoints View; Memory View; Finish Debugging; Summary; Resources; 2: Application Programming in a Cross-Development Environment; 7: Accessing Hardware from User Space; Review; ARM I/O Architecture; LEDs and Pushbuttons; Accessing I/O from Linux-Our First Program; Creating a Project; The Target Execution Environment; The led Program; The Makefile; A Data Acquisition Example; Resources; 8: Debugging Embedded Software; Remote Debugging with Eclipse; Remote Debug Launch Configuration; A Thermostat; Host Workstation as Debug Environment
Advanced Breakpoint Features

Sommario/riassunto

This new edition of Linux for Embedded and Real-Time Applications provides a practical introduction to the basics and the latest developments in this rapidly evolving technology. Ideal for those new to using Linux in an embedded environment, it takes a hands-on approach and covers key concepts plus specific applications. Key features include: Substantially updated to focus on a specific ARM-based single board computer (SBC) as a target for embedded application programming Includes an introduction to Android programming With
