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Autore	Axelson Jan
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Soggetti	USB (Computer bus) Embedded computer systems
Lingua di pubblicazione	Inglese
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Note generali	Includes index.
Nota di contenuto	Front Cover; Copyright; Contents; Introduction; USB Essentials; How Data Travels on the Bus; Bus Speeds; Devices; Transfers; Transfer Types; How the Host Communicates with Devices; Device Classes; Learning about Attached Devices; USB Hosts for Embedded Systems; Embedded Hosts are Different; Dedicated Functions; The Targeted Peripheral List; Requirements; Switching Off Bus Power; Attach Detection Protocol; Session Request Protocol; Functioning as a USB Device; Necessary Hardware; System Processor; USB Host Controller; Root Hub; Host Connectors; Source of Bus Current; What the Host Does Detecting and Enumerating Devices Supporting External Hubs; Managing Traffic; Managing Power; Communicating with Devices; Choosing a Development Platform; Comparing Options; Embedded PC; General-purpose Processor; Host Module; Processor with .NET Micro Framework; A Word about Protocol Analyzers; Non-USB Alternatives; Using Linux in Embedded Systems; Getting Started; The Beagle Board-xM Platform; Selecting a Distribution; Obtaining Additional Software; Creating and Running Applications; Using the Command Line; Obtaining a Toolchain; Writing and Compiling; Running Applications Issues for Embedded Systems Logging In Automatically; Setting Permissions; Running a Program without Supplying a Password; Using Rules to Grant Permissions; Running an Application at Startup; Providing Data for Debugging; Messages; LED Indicators; Initializing the LEDs; Turning the LEDs On and Off; Using the Functions; Exploring USB

in Linux; Learning about Attached Devices; Viewing Device Information; Using Device Nodes; Drivers for USB Communications; Host-controller Drivers; Driver Modules; Driver Attributes and Information; Monitoring Events on Attachment; Monitoring USB Traffic
Getting and Using Text Logs Decoding Text Logs with a Visual Display; Accessing Files on Drives; Inside the Mass Storage Class; Embedded Host Support; Preventing Data Loss due to Caching; Alternatives; Detecting a Drive; About Mount Points; Mounting and Unmounting a Drive; Finding a Mount Point; Checking if a Drive is Still Attached; Reading and Writing to Files; Writing to a File; Reading from a File; Getting User Input; Inside the Human Interface Device Class; Embedded Host Support; Using HID Reports; Generic Desktop Controls; Keyboard Reports; Mouse Reports; Composite Devices; Alternatives
Reading Keypresses Using Standard Input Devices; Reading Keyboard Input; Reading Keyboard Input without Blocking; Bridging to Other Interfaces; Inside the Communications Devices Class; Embedded Host Support; Devices That Use Vendor-specific Drivers; Alternatives; Using a USB Virtual Serial Port; The Application; Open the Port; Read from the Port; Write to the Port; Close the Port; Examine Received Data; Handle Ctrl+C; Communicating on a Network; Wired and Wireless Options; Connecting; Static and Dynamic IP Addresses; Wireless Networks and Security; Decoding URLs; Exchanging Data
Communicating over Bluetooth

Sommario/riassunto

A guide for designing and programming small, embedded systems that access USB devices, this book includes topics such as how embedded USB hosts differ from USB hosts in PCs, choosing a hardware and programming platform for a project, understanding USB host programming in embedded Linux systems, how host applications can access USB devices of all types, and designing a system that can communicate with both USB hosts and USB devices. Example code explains how to read and write to files on drives, get user input from keyboards, communicate over virtual serial ports and Ethernet bridges, reco
