

# Exploring BeagleBone: Tools and Techniques for Building with Embedded Linux

By Derek Molloy



**Exploring BeagleBone: Tools and Techniques for Building with Embedded Linux** By Derek Molloy

### In-depth instruction and practical techniques for building with the BeagleBone embedded Linux platform

Exploring BeagleBone is a hands-on guide to bringing gadgets, gizmos, and robots to life using the popular BeagleBone embedded Linux platform. Comprehensive content and deep detail provide more than just a BeagleBone instruction manual--you'll also learn the underlying engineering techniques that will allow you to create your own projects. The book begins with a foundational primer on essential skills, and then gradually moves into communication, control, and advanced applications using C/C++, allowing you to learn at your own pace. In addition, the book's companion website features instructional videos, source code, discussion forums, and more, to ensure that you have everything you need.

The BeagleBone's small size, high performance, low cost, and extreme adaptability have made it a favorite development platform, and the Linux software base allows for complex yet flexible functionality. The BeagleBone has applications in smart buildings, robot control, environmental sensing, to name a few; and, expansion boards and peripherals dramatically increase the possibilities. Exploring BeagleBone provides a reader-friendly guide to the device, including a crash course in computer engineering. While following step by step, you can:

- Get up to speed on embedded Linux, electronics, and programming
- Master interfacing electronic circuits, buses and modules, with practical examples
- Explore the Internet-connected BeagleBone and the BeagleBone with a display
- Apply the BeagleBone to sensing applications, including video and sound
- Explore the BeagleBone's Programmable Real-Time Controllers

Hands-on learning helps ensure that your new skills stay with you, allowing you to design with electronics, modules, or peripherals even beyond the BeagleBone. Insightful guidance and online peer support help you transition from beginner to

expert as you master the techniques presented in Exploring BeagleBone, the practical handbook for the popular computing platform. Visit the companion website for more information at exploring beaglebone.com.

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### Exploring BeagleBone: Tools and Techniques for Building with Embedded Linux By Derek Molloy Bibliography

• Sales Rank: #44701 in Books

• Brand: imusti

Published on: 2014-12-31Original language: English

• Number of items: 1

• Dimensions: 9.00" h x 1.20" w x 7.20" l, 2.15 pounds

- Binding: Paperback
- 600 pages

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### **Editorial Review**

#### Review

"Loaded with helpful information and coding tutorials..." Christine Long, BeagleBoard.org

"Exploring BeagleBone, is THE book to go to if you are interested in learning about embedded Linux programming ..." *Burford Furman*, *San José State University* 

#### From the Back Cover

- "Loaded with helpful information and coding tutorials, this exploration around the extensive capabilities of BeagleBone Black has me excited to connect everything I encounter to the Internet."
- -- Christine Long, BeagleBoard.org Foundation
- "What I've learned on this topic has taken me a decade of self-study culling through books and release notes and various platforms. Here, you've demystified it all in the span of a single (large) volume."
- -- Brian DeLacey, founder of the IoT Festival
- "This wonderful book is at the nexus of so many of the skills that are vital to today's computer scientists, electrical engineers, and innovators of all stripes as they turn their ideas into transformative creations."
- -- **Prof Ray Simar,** Professor in the Practice of Digital Signal Processing Architecture, Rice University, Texas
- "Derek Molloy's, Exploring BeagleBone, is THE book to go to if you are interested in learning about embedded Linux programming and how to use it to exploit the powerful capabilities of the BeagleBone single board computer."
- -- Prof. Burford Furman, San José State University, California

### GIVE LIFE TO YOUR CREATIONS WITH THE VERSATILE, LINUX-POWERED BEAGLEBONE

Whatever applications you can dream up, the BeagleBone can help you build them. This hands-on guide teaches you the essential BeagleBone skills and underlying engineering principles. It then takes you into interfacing, communication, and control so that you can create your own projects. Finally, you'll explore using the BeagleBone for advanced applications such as building Internet-of-Things systems and real-time interfacing. With hands-on examples and outstanding guidance, this book will give you the in-depth knowledge to do great things with the BeagleBone.

- Features a detailed review of the Linux, electronics, and programming skills required to master the BeagleBone
- Thoroughly examines interfacing the BeagleBone to almost any type of circuit or device
- Demonstrates advanced BeagleBone applications such as network communications; rich user interfaces; images, video, and audio; and real-time interfacing using the BeagleBone's PRU-ICSS
- Teaches transferrable essential skills to help you design with electronics, modules, or peripherals that can be used even beyond the BeagleBone
- Offers a strong "learn-by-doing" approach that supports both beginners and power users

Visit the companion website at **exploringbeaglebone.com** for source code, instructional videos, online peer discussions, and more!

About the Author

**Dr. Derek Molloy** is a Senior Lecturer in the School of Electronic Engineering at Dublin City University, Ireland. Derek produces a popular YouTube series on the BeagleBone platform and a wide variety of embedded Linux topics. His videos and personal blog have introduced millions of people to the BeagleBone, embedded Linux, and digital electronics.

### **Users Review**

#### From reader reviews:

#### **Agnes Higa:**

Why? Because this Exploring BeagleBone: Tools and Techniques for Building with Embedded Linux is an unordinary book that the inside of the e-book waiting for you to snap that but latter it will shock you with the secret it inside. Reading this book close to it was fantastic author who else write the book in such incredible way makes the content on the inside easier to understand, entertaining way but still convey the meaning totally. So , it is good for you because of not hesitating having this any more or you going to regret it. This unique book will give you a lot of benefits than the other book include such as help improving your expertise and your critical thinking method. So , still want to delay having that book? If I have been you I will go to the book store hurriedly.

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Your reading sixth sense will not betray an individual, why because this Exploring BeagleBone: Tools and Techniques for Building with Embedded Linux guide written by well-known writer who knows well how to make book which might be understand by anyone who read the book. Written inside good manner for you, still dripping wet every ideas and creating skill only for eliminate your hunger then you still question Exploring BeagleBone: Tools and Techniques for Building with Embedded Linux as good book not simply by the cover but also by the content. This is one reserve that can break don't assess book by its deal with, so do you still needing a different sixth sense to pick this!? Oh come on your reading sixth sense already said so why you have to listening to one more sixth sense.

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### **Alma Lewis:**

That guide can make you to feel relax. This particular book Exploring BeagleBone: Tools and Techniques for Building with Embedded Linux was colourful and of course has pictures around. As we know that book Exploring BeagleBone: Tools and Techniques for Building with Embedded Linux has many kinds or variety. Start from kids until teens. For example Naruto or Investigation company Conan you can read and think you

are the character on there. So, not at all of book are usually make you bored, any it offers you feel happy, fun and relax. Try to choose the best book for you personally and try to like reading in which.

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