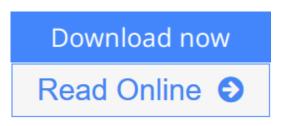


# Modern Embedded Computing: Designing Connected, Pervasive, Media-Rich Systems

By Peter Barry, Patrick Crowley



Modern Embedded Computing: Designing Connected, Pervasive, Media-Rich Systems By Peter Barry, Patrick Crowley

*Modern Embedded Computing: Designing Connected, Pervasive, Media-Rich Systems* provides a thorough understanding of the platform architecture of modern embedded computing systems that drive mobile devices. The book offers a comprehensive view of developing a framework for embedded systems-onchips. Examples feature the Intel Atom processor, which is used in high-end mobile devices such as e-readers, Internet-enabled TVs, tablets, and net books.

This is a unique book in terms of its approach - moving towards consumer. It teaches readers how to design embedded processors for systems that support gaming, in-vehicle infotainment, medical records retrieval, point-of-sale purchasing, networking, digital storage, and many more retail, consumer and industrial applications. Beginning with a discussion of embedded platform architecture and Intel Atom-specific architecture, modular chapters cover system boot-up, operating systems, power optimization, graphics and multi-media, connectivity, and platform tuning. Companion lab materials complement the chapters, offering hands-on embedded design experience.

This text will appeal not only to professional embedded system designers but also to students in computer architecture, electrical engineering, and embedded system design.

- Learn embedded systems design with the Intel Atom Processor, based on the dominant PC chip architecture. Examples use Atom and offer comparisons to other platforms
- Design embedded processors for systems that support gaming, in-vehicle infotainment, medical records retrieval, point-of-sale purchasing, networking, digital storage, and many more retail, consumer and industrial applications
- Explore companion lab materials online that offer hands-on embedded design experience

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## **Editorial Review**

Review

There is need for a good, comprehensive book on embedded design and the lab-based approach using the Intel Architecture is very good and practical.

? Tilman Wolf, Associate Professor, Department of Electrical and Computer Engineering, University of Massachusetts, Amherst

### From the Back Cover

Develop today's embedded computing systems with examples featuring the Intel Atom processor

## **Modern Embedded Computing**

### Designing Connected, Pervasive, Media-Rich Systems

Peter Barry and Patrick Crowley

Unlike embedded microcontrollers that perform only limited functions for industrial applications, modern embedded systems are connected, media-rich, and utilize networking, graphic user interfaces, and integration with PCs. Modern Embedded Computing will teach you the platform architecture of today's embedded computing systems that drive pervasive, connected devices such as mobile phones, digital cameras, and home automation systems.

Examples feature the Intel Atom processor, widely used in devices such as e-readers, Internet-enabled TVs, tablets, and net books. Beginning with a discussion of embedded platform architecture and Intel Atomspecific architecture, modular chapters cover system boot-up, operating systems, power optimization, graphics and multi-media, connectivity, and platform tuning. Both an embedded computing textbook and a resource for professional system designers who need to update their skills, the book provides a comprehensive view of how to develop a framework for embedded systems-on-chips.

#### Features

- Learn embedded systems design with the Intel Atom Processor, based on the dominant PC chip architecture. Examples use Atom and offer comparisons to other platforms
- Design embedded processors for systems that support gaming, in-vehicle infotainment, medical records retrieval, point-of-sale purchasing, networking, digital storage, and many more retail, consumer and industrial applications
- Explore companion lab materials online that offer hands-on embedded design experience

### About the Author

**Peter Barry** serves as principal engineer in the Intel Embedded & Communications Group. He has worked in the development of embedded systems for over twenty years in Intel, Basic Communications, Nortel Networks and Tellabs, working with processors from Z80, 68K, PowerPC, ARM, XScale and Intel

architecture systems. He is an expert in embedded operating systems and embedded platforms, and has developed board support packages for proprietary RTOS, pSOS, VxWorks, WinCE and Linux. He has developed protocol stacks and applications primarily for data communications and telecommunications and industrial applications.

**Patrick Crowley** is an associate Professor in the Department of Computer Science & Engineering at Washington University in St. Louis, Missouri. His research interests are in computer and network systems architecture, with a current focus on the design of programmable embedded network systems and the invention of superior network monitoring and security techniques. He co-founded the ACM/IEEE Symposium on Architectures for Networking and Communications Systems, and co-edited the three-book series, Network Processor Design. He serves as Associate Editor of the IEEE/ACM Transactions on Networking. In 2007, Crowley was chosen to join the DARPA Computer Science Study Group.

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