Massimo Alioto (Ed.)

Enabling the Internet of Things

From Integrated Circuits to Integrated Systems

- Covers all the fundamental building blocks and levels of abstraction related to the design of IoT devices, from circuit to architectures and systems
- Addresses the design of IoT nodes and related promising solutions in a cohesive manner, maintaining a constant focus on the "big picture"
- Presents innovative design techniques and motivates them consistently through a clear, system-level perspective and the consequences of actual constraints in IoT devices.

This book offers the first comprehensive view on integrated circuit and system design for the Internet of Things (IoT), and in particular for the tiny nodes at its edge. The authors provide a fresh perspective on how the IoT will evolve based on recent and foreseeable trends in the semiconductor industry, highlighting the key challenges, as well as the opportunities for circuit and system innovation to address them. This book describes what the IoT really means from the design point of view, and how the constraints imposed by applications translate into integrated circuit requirements and design guidelines. Chapter contributions equally come from industry and academia. After providing a system perspective on IoT nodes, this book focuses on state-of-the-art design techniques for IoT applications, encompassing the fundamental sub-systems encountered in Systems on Chip for IoT: ultra-low power digital architectures and circuits low- and zero-leakage memories (including emerging technologies) circuits for hardware security and authentication System on Chip design methodologies on-chip power management and energy harvesting ultra-low power analog interfaces and analog-digital conversion short-range radios miniaturized battery technologies packaging and assembly of IoT integrated systems (on silicon and non-silicon substrates). As a common thread, all chapters conclude with a prospective view on the foreseeable evolution of the related technologies for IoT. The concepts developed throughout the book are exemplified by two IoT node system demonstrations from industry.

1st ed. 2017, XIV, 520 p. 476 illus., 388 illus. in color.

Printed book

Hardcover

169,99 € | £149.99 | $219.99
[1]181,89 € (D) | 186,99 € (A) | CHF 200,50

Softcover

169,99 € | £149.99 | $219.99
[1]181,89 € (D) | 186,99 € (A) | CHF 200,50

eBook

139,09 € | £119.50 | $169.00
[2]139,09 € (D) | 139,09 € (A) | CHF 160,00

Available from your library or springer.com/shop

MyCopy [3]

Printed eBook for just
€ | $ 24.99
springer.com/mycopy

Part of **SPRINGER NATURE**