

1. Record Nr.	UNINA9910458598203321
Autore	Shearer Findlay
Titolo	Power management in mobile devices [[electronic resource] /] / Findlay Shearer
Pubbl/distr/stampa	Burlington, MA, : Newnes, c2008
ISBN	1-281-11239-9 9786611112394 0-08-055640-X
Edizione	[1st edition]
Descrizione fisica	1 online resource (337 p.)
Collana	Communications engineering series
Disciplina	621.384
Soggetti	Electronic digital computers - Power supply Wireless communication systems - Power supply Personal communication service systems - Power supply Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front Cover; Power Management in Mobile Devices; Copyright Page; Contents; Preface; About the Author; Chapter 1. Introduction to Power Management in Portable Personal Devices; 1.1 Power Trends; 1.2 Mobile Devices and Applications; 1.2.1 Cellular Phones; 1.2.2 Portable Media Players; 1.2.3 Portable Digital Audio Players; 1.2.4 Portable Navigation Devices; 1.3 Cellular Handsets: Deeper Dive; 1.3.1 Cellular System Overview; 1.3.2 Evolution of Cellular Systems; 1.3.3 Cellular Handset Teardown; 1.3.4 Seamless Mobility: Connectivity; 1.4 Summary; Chapter 2. Hierarchical View of Energy Conservation 2.1 Issues and Challenges 2.1.1 Closing the Technology Gaps; 2.1.2 Always On, Always Connected: Paradox of the Portable Age; 2.1.3 Balancing Battery Life with Performance and Cost; 2.2 Power versus Energy Types; 2.2.1 The Elements Power Consumption; 2.2.2 Elements of Dynamic and Static Power; 2.3 Hierarchy of Energy Conservation Techniques; 2.4 Low Power Process and Transistor Technology; 2.4.1 Process Technology Scaling; 2.4.2 Transistors and Interconnects; 2.5 Low Power Packaging Techniques; 2.5.1 Introduction; 2.5.2 Systems-in-Package; 2.5.3 Package-on-Package; 2.5.4 SiP versus PoP

2.6 Summary Chapter 3. Low Power Design Techniques, Design Methodology, and Tools; 3.1 Low Power Design Techniques; 3.1.1 Dynamic Process Temperature Compensation; 3.1.2 Static Process Compensation; 3.1.3 Power Gating; 3.1.4 State-Retention Power Gating; 3.2 Low Power Architectural and Subsystem Techniques; 3.2.1 Clock Gating; 3.2.2 Asynchronous Techniques: GALS; 3.2.3 Power Saving Modes; 3.3 Low Power SoC Design Methodology, Tools, and Standards; 3.3.1 Introduction; 3.3.2 Low Power Design Process; 3.3.3 Key EDA Vendors Approach to Low Power Design; 3.3.4 Low Power Format Standards

3.4 Summary Chapter 4. Energy Optimized Software; 4.1 Mobile Software Platform; 4.1.1 Modem Software; 4.1.2 Application Software; 4.1.3 Operating Systems for Mobile Devices; 4.1.4 Why an Operating System? Application Execution Environment; 4.2 Energy Efficient Software; 4.2.1 Dynamic Power Management; 4.2.2 Energy Efficient Compilers; 4.2.3 Application-Driven Power Management; 4.2.4 Advanced Power Management; 4.2.5 Advanced Configuration and Power Interface; 4.2.6 The Demand for Application-Driven Power Management; 4.3 Summary; Chapter 5. Batteries and Displays for Mobile Devices

5.1 Introduction 5.1.1 Battery Challenge; 5.1.2 Evolution of Battery Technology; 5.2 Battery Fundamentals; 5.3 Battery Technologies; 5.3.1 Sealed Lead Acid; 5.3.2 Nickel Cadmium; 5.3.3 Nickel Metal Hydride; 5.3.4 Lithium Ion; 5.3.5 Lithium-Ion Polymer; 5.3.6 Other Lithium-Ion Types; 5.4 Battery Chemistry Selection; 5.5 Portable Device Display Technologies; 5.5.1 Mobile Device Power Distribution; 5.5.2 Backlights; 5.5.3 Display Technologies; 5.6 Low Power LCD Display Techniques; 5.6.1 Dynamic Luminance Scaling; 5.6.2 Extended DLS; 5.6.3 Backlight Autoregulation; 5.6.4 Frame Buffer Compression
5.6.5 Dynamic Color Depth

Sommario/riassunto

Sealed Lead Acid...Nickel Cadmium...Lithium Ion...How do you balance battery life with performance and cost?This book shows you how!Now that ""mobile"" has become the standard, the consumer not only expects mobility but demands power longevity in wireless devices. As more and more features, computing power, and memory are packed into mobile devices such as iPods, cell phones, and cameras, there is a large and growing gap between what devices can do and the amount of energy engineers can deliver. In fact, the main limiting factor in many portable designs is not hardware or soft
