Efficient design of variation-resilient ultra-low energy digital processors

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Abstrak

This book enables readers to achieve ultra-low energy digital system performance. The authors main focus is the energy consumption of microcontroller architectures in digital (sub)systems. The book covers a broad range of topics extensively: from circuits through design strategy to system architectures. The result is a set of techniques and a context to realize minimum energy digital systems. Several prototype silicon implementations are discussed, which put the proposed techniques to the test. The achieved results demonstrate an extraordinary combination of variation-resilience, high speed performance and ultra-low energy.

Presents a full bottom-up micro-electronics approach: circuit-level, design strategy and CAD automation, architecture optimization

Motivates discussion with simulation results and/or measurements in an advanced nanometer CMOS process

Compares traditional circuit/design/architecture techniques and state-of-the-art, setting the landscape of current best performance and how it can be improved