On the Rapid Prototyping and Design of a Wireless Communication System on a Chip

Brian Kelley
Motorola Inc.
Wireless Integration Technology Center
Boynton Beach, FL

Abstract

The evolutionary convergence of computing, integrated circuit technology, and advances in wireless communications has led to an explosive growth of personal communication devices and services (PCS). In fact, the dramatic "Moore's Law" shrinkage of IC devices, itself, has lead to an unprecedented ability to place increasingly complex systems on a chip (SoC).

In a wireless communication environment, the integration task is made more difficult by the need to integrate RF, mixed signal, and digital systems. Furthermore, the digital system design task generally requires a mapping of heterogeneous stacks of software processes onto a similarly diverse collection of digital signal processors, microprocessors and application-specific integrated circuits.

In this presentation, we give an overview of a modern wireless communication device and describe advanced system level design methodologies utilized for rapid prototyping and design of current and next generation systems.