

Mobile Devices Solution

Overview

Designers face numerous challenges in developing the systems and ICs needed for today's leading-edge mobile devices on tight schedules.

- Defining, verifying, and implementing high-level algorithms
- Designing software in advance of final hardware
- Performing fast and accurate analog, full chip and mixed-signal simulation
- Maximizing yield in advanced processes
- Validating DSP algorithms on FPGAs
- Designing complex SoCs that consume little power
- Implementing comprehensive functional verification

Synopsys offers a powerful lineup of methodologies and technologies that have provided significant benefits for systems and IC designers of wireless ICs and systems.

Key Benefits

The key benefits of using Synopsys for wireless IC and systems designs (Figure 1) include:

- Reduced time and cost for system definition via a Virtual Modeling and systems design environment
- Quicker system verification through hardware/software co-design and FPGA-based prototyping
- Fast and accurate synthesis of DSP algorithms into popular FPGA devices
- First time design success via the industry's most comprehensive and trusted design and sign-off flow
- High quality-of-results via our complete selection of verification products and methodologies
- Fewer design respins through better predictability of process effects

Algorithm and Software Development

Designing for today's mobile products requires testing new algorithms and co-designing software in advance of working hardware (Figure 2). Meet and beat design goals by using Synopsys products such as System Studio, the system design tool used heavily for the algorithm definition essential to wireless design, and Innovator, the fully integrated, virtual modeling environment, that aids fast design and debug of software in advance of finished hardware.

The Synopsys high-level algorithmic synthesis solution, Synplify® DSP, uniquely addresses the increasing algorithmic content in mobile devices IC, providing the most efficient way to get algorithms into silicon.

Its synthesis engine allows designers to explore and implement optimized HDL architectures from a single model, automatically, promoting significantly faster design capture and time to market. It also enables rapid design exploration promoting improved product quality at a lower cost.

Verifying today's complex designs is increasingly crucial to meeting product quality goals, and can consume 70% of a design cycle. A verification methodology, such as FPGA-based prototyping, can help save the time required for this critical step.

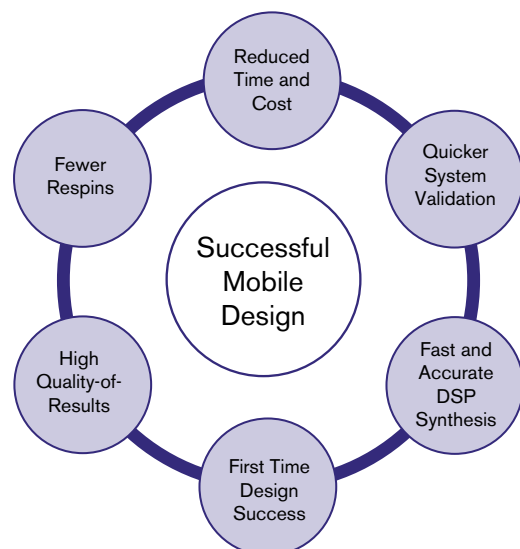


Figure 1: Key benefits of using Synopsys for mobile device design

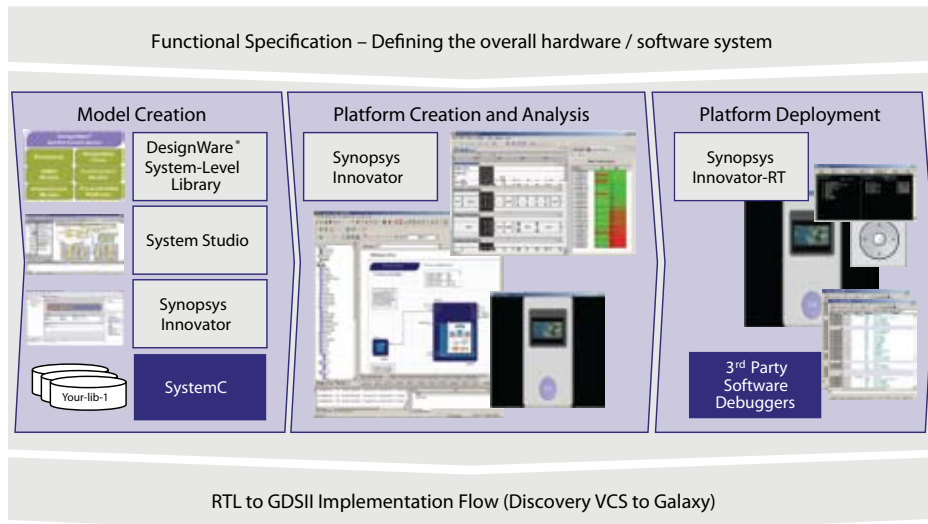


Figure 2: Virtual Platforms in the design flow leading from functional specification to RTL implementation

The Confirma™ Rapid Prototyping Platform, a tightly-integrated, easy-to-use, and comprehensive at-speed verification flow, accelerates the functional verification of complex designs. Ideal for teams that use FPGA-based prototypes, Confirma helps engineers eliminate hard-to-find hardware bugs and perform early hardware/software integration, which are key to avoiding costly device respins and accelerating time-to-market.

A Leader in Mobile and Multimedia IP

Synopsys is the leading provider of connectivity IP, helping top mobile and wireless IC vendors speed time-to-market for their designs. Synopsys offers a broad portfolio of high-quality silicon-proven DesignWare® IP for mobile multimedia SoCs, including components for USB, Mobile Storage, Embedded Memories, AMBA On-Chip Bus, and Datapath functions.

Significant Verification Expertise

Synopsys helps engineers at wireless IC companies manage the explosion in verification requirements driven by today’s powerful mobile devices. Synopsys offers the Discovery™ Verification Platform which enables mobile device manufacturers to start developing software up to 12 months before final silicon using virtual and hardware prototypes, as well as a comprehensive range of analog, digital, and RF simulation technology.

Design for Manufacturing

Merging multiple wireless functions onto a single chip (e.g. combined baseband processors and transceivers, or multiple radio ICs) requires designing at the complex and expensive 65 nm and 45 nm nodes. Synopsys provides a host of manufacturing solutions. Proteus predicts the 45 nm proximity effects

important for sensitive analog and RF structures. Odyssey™, a predictor of process yield issues, will allow you to move your designs to volume production faster and with less risk.

Trusted Low Power Design

Synopsys provides a full range of tools and methodologies to meet the design and power constraints, and tight market windows of today’s mobile device market. The Eclipse™ Low Power Solution is tailor-made to address the battery-constrained power budgets of mobile and wireless ICs.

Services

If you desire a consultative approach to planning and implementing your mobile-oriented design, Synopsys Professional Design and Consulting Services are available to aid you in deploying your tools, refining your design methodology, optimizing your verification flow, or helping you implement your chip, with the help of our market-leading strategic partners.

Summary

Synopsys provides leading-edge technology that is used and trusted by the top companies in the wireless and mobile multimedia device industry to build you the chips and systems found within their market-leading consumer devices. Find out how Synopsys can help you define, prototype, verify, and build the key components for the next, great, mobile device.

For more information about the Synopsys Mobile Devices Solution, support services or training, please visit us on the web at www.synopsys.com or call 650.584.5000.



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