Synopsys Advances Imaging System Development with Industry's First Complete Virtual Prototyping Platform

ImSym - Imaging System Simulator Offers Accuracy, Accelerated Time-to-Market, and Enhanced Team Collaboration

Highlights

- Industry's only system-level imaging virtual prototyping platform
- Integrates the trusted accuracy of Synopsys' CODE V and LightTools
- Significantly reduces the time required for imaging system conceptualization
- Features a unified simulation environment and Python interfaces for streamlined teamwork and custom workflows

SUNNYVALE, Calif., Sept. 10, 2024 /PRNewswire/ -- Synopsys, Inc. (Nasdaq: SNPS) today announced the launch of ImSym – Imaging System Simulator, a groundbreaking virtual prototyping platform for imaging systems, encompassing lenses, sensors, and image signal processors (ISPs). By integrating components of the imaging chain into a comprehensive end-to-end simulation platform, ImSym enables tailored optimizations of any imaging system, facilitates team collaboration, and dramatically reduces the risks of issues in later development stages. With accuracy powered by industry-proven CODE V® and LightTools® optical design software and a quantitative end-to-end simulation flow, ImSym reduces the need for physical prototypes and delivers simulations that can directly translate into production-ready designs.

"In today's competitive markets for imaging products, the ability to comprehensively and accurately prototype imaging systems virtually is a game-changer," said Emilie Viasnoff, head of Optical Solutions at Synopsys. "ImSym embodies our commitment to innovation by offering a comprehensive, intuitive, and physics-based software solution for imaging system design and validation. After decades at the forefront of software for optical design, we are proud to expand our trusted solutions into the virtual prototyping world."

"ImSym represents a significant advancement in optical system simulation by integrating the strengths of CODE V imaging design software with the powerful non-sequential capabilities of LightTools illumination design software," said Olga Resnik, co-founder of the JOYA Team. "ImSym allows users to seamlessly evaluate full system performance, which is crucial for many applications, particularly in augmented reality design. For the first time, system engineers can simulate all aspects of an imaging system within a unified platform and easily collaborate with experts from multiple disciplines."

Accelerates Imaging System Cycles

Traditionally, optical system builders have relied on one or more physical prototypes to optimize and confirm system performance. These physical prototypes can provide performance assurances, such as image quality assessment, but require significant build times and expenses.

ImSym introduces a dramatically new and intuitive paradigm by offering a comprehensive simulation of the entire imaging chain. ImSym presents users with a series of simulated images at each step in the imaging chain, enabling image quality assessment throughout the simulation flow. This enables optical system builders to quickly get the system right the first time. ImSym models geometric, aberration, and diffraction effects and simulates scene stray light and additive stray light sources. Additionally, ImSym models detector effects on imaging with radiometric accuracy and processes detected images with custom or built-in image and signal processing. ImSym simulates all imaging system components using physics to deliver a reliable solution.

By shifting the majority of imaging system development into virtual prototyping, ImSym can reduce development time from weeks to days, days to hours, and hours into minutes to achieve up to 60 times more efficiency than traditional methods.

Leading-Edge Interface Enhances Team Collaboration

ImSym provides a unified design environment supporting real-time updates and version control, ensuring all team members stay in sync. By encapsulating the entire imaging chain, domain experts—such as system engineers, lens designers, stray light analysts, ISP and detector engineers—can communicate and coordinate effectively, understanding the impact of all system components on overall performance.

The platform features an intuitive interface that guides users through each step of developing an imaging virtual prototype. Additionally, a Python programming language interface enables users to automate ImSym processes and customize ISP capabilities, supporting workflows tailored to users' unique requirements.

Availability and Resources

ImSym is available now to customers worldwide.

- Visit the ImSym product page: https://www.synopsys.com/optical-solutions/imsym.html
- Register to attend the ImSym webinar: https://www.synopsys.com/optical-solutions/support/training/imsym-introduction.html

About Synopsys
Catalyzing the era of pervasive intelligence, Synopsys, Inc. (Nasdaq: SNPS) delivers trusted and comprehensive silicon to systems design solutions, from electronic design automation to silicon IP and system verification and validation. We partner closely with semiconductor and systems customers across a wide range of industries to maximize their R&D capability and productivity, powering innovation today that ignites the ingenuity of tomorrow. Learn more at www.synopsys.com.

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