Latest Release of Synopsys' LightTools Delivers Faster Performance and Superior Illumination Analysis Features

LightTools version 8.1 is now generally available

MOUNTAIN VIEW, Calif., Dec. 16, 2013 /PRNewswire/ --

Highlights:

- Extends multi-threaded processing support for dramatically faster backward ray trace analyses and photorealistic rendering
- Supports targeted analysis of illuminance and intensity output charts to expedite design troubleshooting
- Accelerates creation of complex lighting components with new swept and freeform objects
- Provides new volume scattering types to facilitate the design of biomedical optics
- Expands street and automotive lighting design and analysis
- Includes new utilities that provide illumination simulation data in easy-to-read, customizable formats
- Enhances modeling of optical surface scattering for small-feature design

Synopsys, Inc. (Nasdaq: SNPS), a global leader providing software, IP and services used to accelerate innovation in chips and electronic systems, today announced the availability of version 8.1 of its LightTools® illumination design software, which delivers new modeling and analysis features for general lighting, automotive and biomedical applications, as well as speed improvements for tracing backward rays and generating photorealistic images.

Additional Multi-CPU Capabilities

LightTools' multi-threading capabilities, which enable illumination simulations to take advantage of all CPUs or cores on a computer, now support backward simulations and photorealistic renderings. This can dramatically improve the speed and efficiency of these processes, which are important for visually evaluating and communicating illumination designs.

"LightTools' multi-threaded processing is a game changer," said Thomas Hough, president of Whiterock Design, LLC. "Simulations that used to take 10 minutes to run are now finished in less than two minutes. This time savings really adds up, especially at the beginning of a project when I'm doing basic layout sketches by hand. During this phase, I am interacting directly with LightTools, tracing rays and changing things on the fly. I spend a lot less time waiting for results, which keeps the creative process moving forward in an organic manner."

"Innovation is a key focus of iGuzzini, and our constant research into ways to improve illumination systems requires the support of powerful and versatile software," said Massimo Gattari, Innovation Lab Director at iGuzzini illuminazione spa. "LightTools provides the tools that allow us to design, analyze and optimize optical designs quickly and accurately. The new release 8.1 enhances these features by introducing multi-threading capabilities for backward illumination simulations."

Region Analysis

Designers can now perform a region analysis to examine illuminance and intensity results in a specific area of interest in their 3D models. This provides a quick and easy way to analyze rays that contribute to a particular region of interest in the model and is useful for identifying undesirable hot spots in illumination systems.

"With every release, we strive to introduce features that set LightTools apart as an indispensable tool for our customers' success," said George Bayz, vice president and general manager of the Optical Solutions Group at Synopsys. "Improvements such as the region analysis feature, which can simplify the troubleshooting process for illumination designers, help customers achieve their design goals at an accelerated pace."

New Swept and Freeform Objects

Freeform solids and objects that can be swept along a path provide increased flexibility for designing state-of-the-art lighting components. These objects make it easier to create faceted reflector structures and model complex, 3-dimensional lightpipes and lens-like solid objects that can be optimized using the LightTools Optimization Module.

Expanded Volume Scattering Types

Two new volume scattering types, Henyey-Greenstein and Gegenbauer, expand LightTools' capabilities for modeling light interactions with scattering materials. Because of their usefulness for modeling the scattering

properties of tissues, these scattering types are particularly important for biomedical optics.

Street Lighting Utility

The LightTools Street Lighting Utility has been enhanced to provide a plot for visualizing the roadway from the driver's perspective. Based on roadway analysis, the utility can also make independent plots for the illuminance or intensity of a single luminaire at a roadway surface. In addition, the utility now supports files in Eulumdat format, the industry standard for photometric data in Europe.

Automotive Test Point Analysis Utility

The *Automotive Test Point Analysis* Utility allows designers to test intensity distributions against industry specifications, such as Society of Automotive Engineers (SAE) standards, as well as user-defined specifications. The utility has been enhanced to include many specifications from the Inland Transport Division of the United Nations Economic Commission for Europe (ECE).

New Ray Report and Plot Utilities

Added to the LightTools utility library in this release are the Ray Report utility, which allows users to visualize ray data in easy-to-read, customizable formats, and the Plot utility, which allows users to plot multiple raster charts and line charts side by side and provides additional data analysis features such as mesh apertures and data-differencing for receiver mesh data, user grids, IES files and user data files.

Enhanced Modeling of Optical Surface Scattering

LightTools models now support Bidirectional Scattering Distribution Function (BSDF) files generated by Synopsys' RSoft™ Photonic Component Design Suite that contain scattering information for periodic optical structures, such as subwavelength diffractive surface gratings. This facilitates the design and analysis of lighting systems with small-feature, diffractive optical structures such as nano-structured LEDs.

Availability & Resources

LightTools version 8.1 is available now. Customers with a current maintenance agreement can download this version from the Synopsys website using their SolvNet® account. Learn more about LightTools at http://optics.synopsys.com/lighttools.

About LightTools

LightTools is a 3D optical engineering and design software product that supports virtual prototyping, simulation, optimization and photorealistic renderings of illumination applications. For more information, visit http://optics.synopsys.com/lighttools.

About Synopsys

Synopsys, Inc. (Nasdaq:SNPS) accelerates innovation in the global electronics market. As a leader in electronic design automation (EDA) and semiconductor IP, Synopsys delivers software, IP and services to help engineers address their design, verification, system and manufacturing challenges. Since 1986, engineers around the world have been using Synopsys technology to design and create billions of chips and systems. Learn more at www.synopsys.com.

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