

# Synopsys Announces New Release of LucidShape Software for Automotive Lighting Design and Analysis

Version 2018.06, Now Available, Reduces Design Iterations Needed to Meet Lit Appearance and Regulatory Requirements

MOUNTAIN VIEW, Calif., June 13, 2018 /PRNewswire/ -- Synopsys, Inc. (Nasdaq: SNPS) today announced the latest release of its LucidShape<sup>®</sup> software for the design, simulation and analysis of automotive exterior lighting. Sophisticated new simulation capabilities in LucidShape version 2018.06 make the design of automotive headlight and signal light systems faster and more efficient.

- **New Luminance Region Analysis:** LucidShape's Luminance Camera Sensor feature performs rapid, high-accuracy luminance calculations and generates luminance images at multiple viewing directions for analyzing lit images of light guides, tail lights, reverse lights, stop lights, turn signal lights, and retro-reflectors. Now included with the Luminance Camera Sensor is a ray history sensor feature that enables designers to restore ray paths that correspond to a specified region on the luminance camera image. The new capability facilitates efficient troubleshooting of signal lighting optical systems by correlating regions in the luminance image with specific ray paths and optical surfaces. This significantly reduces the number of design iterations needed to achieve lit appearance requirements and regulatory compliance.
- **Fixed Random Seed Option for Simulations:** For Monte Carlo ray tracing simulations, it is now possible to set a fixed random seed, which deactivates the randomization of ray creation and interaction. This makes it possible to replicate the starting conditions for all rays, as well as the random events along the ray paths (e.g., scatter, Fresnel reflections), when you repeat a simulation using the same parameters. By causing the statistical noise to be the same between two simulations, this enhancement allows changes to the lighting model to have a stronger impact with a smaller number of rays.

"New simulation capabilities in LucidShape make the analysis of automotive headlights and signal lights more efficient and reproducible," said George Bayz, vice president of Synopsys' Optical Solutions Group. "For example, with the fixed random seed calculation, designers can re-simulate a model and precisely replicate previously obtained simulation results. This eliminates statistical variation for subsequent simulations when compared to the previous simulation, which is important when analyzing the impact of small model changes on photometry."

## About Synopsys LucidShape Products

Synopsys' LucidShape products provide a complete set of design, simulation and analysis tools for automotive lighting. With dedicated algorithms tailored for automotive applications, LucidShape software facilitates the design of automotive forward, rear, and signal lighting reflectors and lenses. The LucidShape CAA V5 Based product is an interactive tool that allows designers to perform optical simulations and analyses of automotive lighting products within the CATIA V5 environment, as well as build, analyze, and optimize light guides. The LucidDrive<sup>®</sup> tool provides the ability to perform virtual night-driving simulations that generate realistic lighting scenes in real time, which allows designers to quickly and accurately evaluate beam patterns for exterior automotive lighting applications on the road, traffic signs and surroundings prior to expensive fabrication and testing. For more information, visit <https://www.synopsys.com/optical-solutions/lucidshape.html>.

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## **About Synopsys**

Synopsys, Inc. (Nasdaq: SNPS) is the Silicon to Software partner for innovative companies developing the electronic products and software applications we rely on every day. As the world's 15<sup>th</sup> largest software company, Synopsys has a long history of being a global leader in electronic design automation (EDA) and semiconductor IP and is also growing its leadership in software security and quality solutions. Whether you're a system-on-chip (SoC) designer creating advanced semiconductors, or a software developer writing applications that require the highest security and quality, Synopsys has the solutions needed to deliver innovative, high-quality, secure products. Learn more at [www.synopsys.com](http://www.synopsys.com).

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