Synopsys' Latest LucidShape CAA V5 Based Enhancements Accelerate Automotive Lighting Design in CATIA

MOUNTAIN VIEW, Calif., July 2, 2019 /PRNewswire/ -- Synopsys, Inc. (Nasdaq: SNPS) today announced the latest release of its LucidShape® CAA V5 Based software product, which allows designers to perform comprehensive optical simulations and analyses of automotive lighting products within the CATIA V5 environment. LucidShape CAA V5 Based version 2019.06, now available, makes it faster and easier than ever for designers to conceptualize and explore design solutions for automotive lighting to meet aesthetic and functional requirements.

Expanded Surface Sensor

The LucidShape surface sensor feature supports accurate analyses of illuminance and irradiance on curved surfaces. This cutting-edge feature enables designers to evaluate performance of highly complex or curved lamp components, such as those used in interior ambient illumination, light guide surfaces, and stylized headlamps and tail lamps. The surface sensor feature has been expanded with more powerful and flexible analysis options that give designers the ability to:

- Measure luminous flux on any geometry when the surface sensor is combined with the lumen sensor material. Geometry can consist of a single surface with one or more faces or multiple surfaces, and surfaces can be planar or curved.
- Display results of the surface sensor with lumen sensor material in 3D in the part design view.
- Set separate analysis options for the lux sensor and lumen sensor in the same simulation to efficiently analyze lux sensor and lumen sensor results.
- Specify the criteria for light data measurements such as intersection point, maximum value (including its XYZ position), or integral value to streamline analyses and tailor the output to fit the application. It is also possible to control the scope of the measurement—to cover a single face, for example, or the entire lumen sensor.
- Analyze, measure, and visualize color effects directly in the part design view.

Ray Result Filtering by Surface

A new surface result filter allows designers to filter the rays recorded on a sensor based on their interactions with specified surfaces. For example, designers can record only rays that hit a surface last, rays that hit at least one of the specified surfaces, or rays that hit all the specified surfaces during a simulation. This feature provides an efficient way to identify and troubleshoot parts that interfere with light distribution.

Enhancements to the Light Guide Design Module

The Light Guide Design Module saves designers time with groundbreaking illumination optimization features that automatically design light guides and their extraction features. New capabilities in this release include:

- New options for prism items that enable designers to save portions of a design and apply them as a starting point for a new light guide, which could have a different number of prisms, if desired.
- An option that allows designers to set non-uniform spacing of prisms according to a desired extraction density (XWidth) curve, which is useful when there are design constraints on the smallest XWidth size.
- The ability to detect "ambiguous" surface profiles using end gaps, as well as the ability to make intelligent profile rotation guesses based on nearest "good" neighbor profiles.
- XYZ and LMN light target direction list options, which are easier to use than HV space, for example, to aim light from a light guide to a specific region in an interior lighting design application.
- Simplified view setup that allows designers to obtain parameter values by selecting an axis system.
- The ability to optimize for flux uniformity with prism items other than XWidth, which provides flexibility for special applications.

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 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. Learn more at www.synopsys.com/optical-solutions/lucidshape.html.

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 15th 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.

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