Synopsys Announces Release 11.2 of CODE V Optical Design Software

Latest Release Innovates Solutions for Optical Engineering Productivity and Design Manufacturability

MOUNTAIN VIEW, Calif., Sept. 12, 2018 /PRNewswire/ -- Synopsys, Inc. (Nasdaq: SNPS) today announced version 11.2 of its CODE V® optical design software, which includes enhancements to the software's industry-leading capabilities for the design, analysis, and optimization of superior imaging optics.

CODE V version 11.2 includes new solutions to increase optical engineering productivity, support cost-to-manufacture savings, and give reliable results in less time:

- **SpecBuilder™ improvements.** The CODE V SpecBuilder feature helps designers easily track and communicate how well their optical system designs are meeting project specifications and goals. Version 11.2 expands the library of pre-built specifications based on Synopsys' optical engineering and industry expertise. New specs include detector energy, PSF-based encircled energy diameter, and PSF-based Strehl ratio. Additional updates include user interface controls to quickly create a series of optical specifications, or to duplicate a selected specification across zoom positions, fields, and defocus positions.
- **Enhanced optimization constraints.** Already delivering the industry's most advanced optical design optimization capability, CODE V's Automatic Design feature is strengthened in this release with mechanical constraints that accept an optional overage scale factor and offset to define the physical edge with greater precision. The updated constraints give designers greater control over lens system manufacturability and are ideal for the design of compact objectives, as well as for any application where the volume of the optical system needs to be minimized.
- **Encrypted multilayer coating prescriptions.** For project-critical optical analysis, especially when polarization is important, designers need to define actual multilayer coating prescriptions on their optical surfaces. CODE V's encrypted coating file format allows vendors to share coating prescriptions with designers for accurate analysis, while keeping proprietary coating data secure.
- **Asphere Writer utility.** The Asphere Writer utility is integrated in CODE V and generates machine-readable files for aspheric surfaces that can be directly read by optical fabricators, including QED Technologies' optical grinding, polishing, and metrology equipment and Zygo Corporation's metrology equipment. The utility also has features for visualizing footprint plots, as well as plotting and listing sag departures.
- **New enclosed energy analyses.** The CODE V suite of analysis functions now includes the ability to evaluate the energy that is enclosed within circular, elliptical, square, or rectangular shape detectors. Engineers can also determine the size of various geometries that contain a specified percentage of energy. The metrics can be used for analysis, optimization, and tolerancing of optical systems, and are particularly useful for the design of superior aerospace systems using pixelated sensors.
- **2D-Q freeform surface formulation.** The new 2D-Q freeform surface in CODE V, based on G.W. Forbes' formulation, has a best-fit conic base shape and a series of Q-freeform, or 2D-Q, polynomials. It is a powerful tool for designing lightweight and compact optical systems, such as head-mounted display devices for augmented and virtual reality.
- **Visualization tool for aperture components.** The View Apertures (VAP) tool allows designers to see individual aperture components or composite apertures on any surface and is useful for visualizing optical systems with complex aperture shapes. It can be used with the CODE V Beam Synthesis Propagation feature to define apertures in a way that minimizes computation time.

"As an optical design and engineering firm that specializes in custom precision systems, we are continuously challenged with new and demanding projects. We appreciate new features in CODE V that help us analyze, optimize, and tolerance optical systems to get into production quickly," said Andrés Cifuentes, chief executive officer of ASE Optics Europe. "The View Apertures (VAP) feature has been helpful in analyzing non-rotationally symmetric systems with complex apertures in both imaging and beam shaping. VAP has also been very helpful for communications between our optics and mechanics teams, as well as with our customers and suppliers."

"The latest release of CODE V builds on its strengths as the leading optical design software solution for accelerating time-to-market and supporting cost-effective fabrication," said George Bayz, vice president of Synopsys' Optical Solutions Group. "With updated optimization constraints to control lens system manufacturability, the Asphere Writer and 2D-Q freeform surfaces to speed the design of compact optical systems, and improved tools for project validation and communications, CODE V enables optical engineers to increase their productivity and save on manufacturing costs."

About CODE V

CODE V software is an optical engineering and design solution that supports the optimization, analysis, and tolerancing of image-forming optical systems and free-space photonic devices. For more than 40 years, CODE V has enabled engineers to produce accurate virtual prototypes leading to superior, manufacturable optical systems. For more information, visit https://www.synopsys.com/optical-solutions/codev.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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