SYNOPSYS®

LucidShape Modules
Automotive Lighting Design Software

Base Module

The LucidShape Base Module includes the following functionality:

- LucidStudio, an interactive environment for design and simulation

- Basic geometry features

- Simulation kernel

- Analysis functions:
  - Measurement tables for automotive lighting for ECE, SAE and JIS regulations
  - Light data analysis and operations: gradients, filter, addition, subtraction, scale, mirror, etc.
  - Light data display properties such as log/linear scale and color mode
  - CIE TC4-45 headlamp benchmark

- CAD import and export

- Material/medium assignment and management, including surface and volume scattering modeling

All other LucidShape modules are fully integrated in the Base Module.

FunGeo MacroFocal Module

Supports the design of all automotive lighting functions, including headlamps:
- Freeform reflectors and lenses
- Automatic cut-off calculation
- Freestyling definition via base grids

FunGeo Procedural Surface / Poly-Curve System Module

Supports the design of all automotive lighting functions, including headlamps:
- Freeform reflectors and lenses
- Projector module headlight design
- Smooth and pillowed reflectors and lenses for signal functions

FunGeo Optimizer Module

Automatically changes geometry parameters to achieve the best design solution.

FunGeo Backlighting Module

Supports the design of automotive backlighting systems:
- Prism bands for light pipes
- Dot masks
- Retroreflectors
- Light guides

Visualize Module

Delivers high-speed photorealistic renderings of lit and unlit appearance. Includes:
- Environment light source
- Backward ray trace simulations
- Backward luminance camera
- High-Dynamic Range (HDR) Viewer

LucidCOM Module

Provides a programming API to automate LucidShape operations and develop custom solutions.

GPUTrace Module

Accelerates LucidShape illumination simulations using NVIDIA graphics cards.

SmartStart Library Module

Provides access to a library of materials and media commonly used in the design of automotive lighting systems. Includes refractive index and absorption data as well as pre-defined volume scatter and BSDF materials.

For more information, visit synopsys.com/optical-solutions/lucidshape.html