

/ Taken to the Power of Three

The unique combination of the Ansys product portfolio, platform, and ecosystem is redefining simulation in ways that enable people in every industry to change the world.



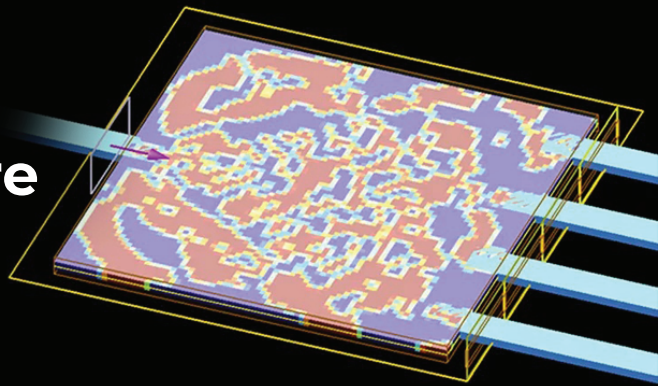
/ Ansys Comprehensive Capabilities

INDUSTRIES	...	AEROSPACE & DEFENSE	AUTOMOTIVE	ENERGY	HEALTHCARE	HIGHTECH	...
SOLUTIONS	...	AUTONOMY	ELECTRIFICATION	5G	IIoT	...	
APPLICATIONS	...	CHIP PACKAGE SYSTEM	ELECTRONICS RELIABILITY	TURBOMACHINERY	...		
SIMULATION PLATFORM		MATERIALS	CLOUD / HPC	OPTIMIZATION	PROCESS & DATA MANAGEMENT	MULTIPHYSICS	
SYSTEM OF SYSTEMS		DIGITAL MISSION ENGINEERING					
SOFTWARE & SYSTEMS SIMULATION		DIGITAL TWIN	SYSTEMS	EMBEDDED SOFTWARE	SAFETY ANALYSIS	MODEL BASED SYSTEMS ENGINEERING	
PHYSICS-BASED SIMULATION		STRUCTURES	FLUIDS	ELECTRONICS	SEMICONDUCTOR	OPTICAL	3D DESIGN
						PHOTONICS	



Ansys Lumerical Photonics Simulation & Design Software

Simulating light's interactions for the design of photonic components and systems



/ Photonics Business Value

Ansys Lumerical's comprehensive suite of photonics simulation and analysis tools offers component-level and system-level simulations to optimize performance, minimize physical prototyping costs and reduce time-to-market. Enhanced design flows enable designers with compact models calibrated to leading

/ Capabilities

Ansys Lumerical's photonics simulation and design capabilities enable engineers to model nanophotonics devices, circuits, processes, and materials.

- Circuit-level Simulation
- Nanophotonic Component-Level Simulation
- PDK Workflows
- 3D CAD Environment with Post-Processing Capabilities
- Automation and Scripting Support
- Laser Workflows
- Photonic Inverse Design with lumopt
- Compact Model Generation

/ Photonic Component & Circuit Design Software

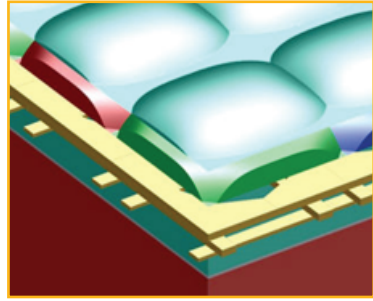
PIC Design · PDK Development · EDA Integration
Optical Simulation · Electrical Simulation · Thermal Simulation

SYSTEM Suite for Photonic Integrated Circuit Simulation	HPC & Cloud	Interoperability Products
INTERCONNECT CML Compiler CML Publisher+ Laser Library System Library Photonic Verilog-A Platform	FDTD FDTD Accelerator FDTD Burst Pack MODE MODE Accelerator	Automation API Python Lumerical Script Tool Integrations IPKISS Interoperability KLayout Interoperability Matlab Interoperability Tanner Interoperability Virtuoso ADE Interoperability Zemax Interoperability Foundry Support AIM Photonics Si-Ph Reader AMF Reader CompoundTek Reader HHI Reader imec Reader SMART Reader TowerJazz Reader
DEVICE Suite for Photonic Multiphysics Simulation		
FDTD MODE CHARGE HEAT DGTD FEEM MQW STACK	3D Electromagnetic Simulator Waveguide Simulator 3D Charge Transport Simulator 3D Heat Transport Simulator 3D Electromagnetic Simulator Waveguide Simulator Quantum Well Gain Simulator Optical Multilayer Simulator	



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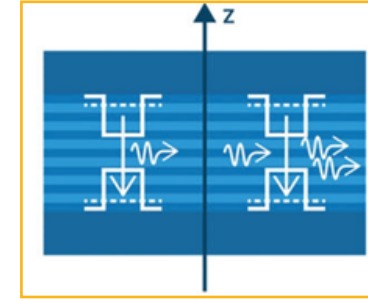




Ansys Lumerical FDTD

FDTD is the gold-standard for modeling nanophotonic devices, processes, and materials.

- Multi-coefficient models create accurate material modeling
- Simulate nonlinear and spatially varying anisotropic materials
- Utilize scripting, advanced pos-processing and optimization routines



Ansys Lumerical MQW

MQW simulates quantum mechanical behavior in atomically thin semiconductor layers.

- Fully coupled quantum mechanical structure calculation
- Wavefunction and band diagram calculation
- Gain and spontaneous emission

Ansys Lumerical MODE

MODE has everything you need to get the most out of your waveguide and coupler designs.

- Advanced conformal mesh for high simulation accuracy
- Variational FDTD propagation for large planar waveguides (varFDTD solver)
- Eigenmode analysis for large propagation lengths (EME solver)

Ansys Lumerical STACK

STACK is an ideal solution for the rapid analysis of thin film multilayer stacks.

- Ideal for prototyping thin film applications
- Plane-wave and dipole illumination functions
- Captures interference and microcavity effects

Ansys Lumerical Charge

CHARGE provides designers with the correct tools for comprehensive charge transport simulation in semiconductor devices.

- Finite element Poisson/drift-diffusion solver
- Steady-state, small signal AC and transient simulation
- Isothermal, non-isothermal and electro-thermal simulation

Ansys Lumerical RCWA

Based on the Rigorous Coupled Wave Analysis method, Lumerical RCWA complements Lumerical FDTD and STACK by providing a rapid simulation of light scattering for periodic and multilayer structures.

- Plane-wave illumination
- Ideal for prototyping photonic crystals and diffraction gratings
- Evaluating power and phase in each grating order of the structure

Ansys Lumerical HEAT

Built on the finite element method, HEAT provides designers with comprehensive thermal modeling capabilities.

- Steady-state and transient simulation
- Comprehensive thermal material models
- Study conductive, convective and radiative effects

Ansys Lumerical CML Compiler

Enables proven, automated, cross-simulator photonic compact model library (CML) generation.

- CMLs support multiple EDPA workflows
- IP protected INTERCONNECT and Verilog-A models from a single data source
- High-quality compact models for frequency and time domain simulations

Ansys Lumerical DGTD

DGTD tackles the most challenging classes of nanophotonic simulations with a finite element Maxwell's solver.

- Object-conformal finite element mesh, free of staircasing
- Accurate control with higher order mesh polynomials
- Far-field and grating projections

Ansys Lumerical Photonic Verilog-A Platform

Enables multi-mode, multi-channel and bidirectional photonic circuit modelling when used in conjunction with industry's leading EDA simulators.

- Facilitates design and implementation of electronic-photonic integrated systems
- Bidirectional optical port
- Scalable optical channels and modes through CML Compiler model generation

Ansys Lumerical FEEM

FEEM provides superior accuracy and performance scaling with a finite element Maxwell's solver.

- Accurate results for curved waveguide geometries
- Superior performance scaling with high order mesh polynomials
- Spatially varying index perturbations for modeling active devices

Ansys Lumerical INTERCONNECT

Ansys Lumerical's photonic integrated circuit simulator verifies multimode, bidirectional and multi-channel PICs.

- Hierarchical schematic editor
- Frequency domain analysis in circuit solver
- Transient sample and block mode simulators