

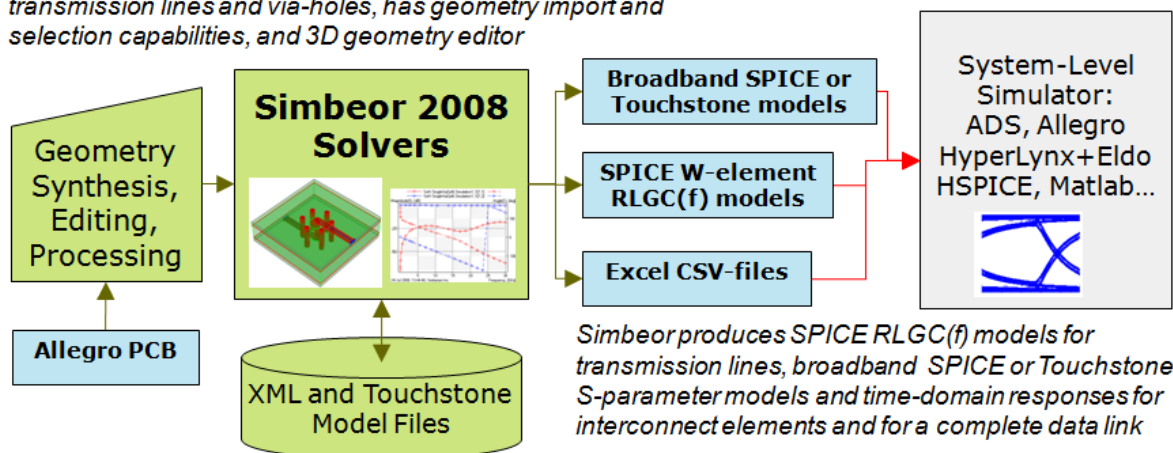
# Simbeor® 2008

## Electromagnetic Signal Integrity Software™

### Easy-to-Use, Efficient and Cost-Effective Software for Physical Design of PCB and Packaging Interconnects Operating at 6-100 Gb/s and Beyond

Faster data rates drive the need for design of minimal-reflection and low-loss interconnect links. Geometry synthesis of minimal-reflection elements for a data channel and advanced electromagnetic models are required to accomplish this task. Simbeor 2008 is an easy-to-use, efficient and cost-effective tool to synthesize geometry of single and differential transmission lines and via-holes, to build advanced electromagnetic models for transmission lines, periodic structures, discontinuities, via-hole transitions, to build macro-models of components and complete channel, and to analyze a complete data channel in frequency and time domains. The accuracy of the models is ensured in Simbeor 2008 through the use of advanced algorithms for 3D full wave analysis, benchmarking, and experimental validation. Analysis of a data link with the electromagnetic models eliminates uncertainties of simplified models and guarantees the first pass design success.

*Simbeor enables geometry synthesis of controlled impedance transmission lines and via-holes, has geometry import and selection capabilities, and 3D geometry editor*



### Use Simbeor 2008 For...

- Efficient geometry synthesis and electromagnetic modeling of transmission lines, via-holes and discontinuities for data links operating at 6-100 Gb/s and beyond
- Fast and accurate de-compositional frequency- and time-domain analysis of PCB and packaging interconnects at both design exploration and design verification stages
- Building rational compact and SPICE macro-models for connectors, packages, and data links
- Identification of parameters for a conductive or dielectric material on the base of measured data
- Validation of your design with 3D full-wave field solver instead of a less accurate static one, to avoid expensive board turns and product delays
- Clarifying doubts about results obtained with measurements or your current electromagnetic tool

### Technology

Simbeor 2008 solver innovative technology combines results of over 20 years of research. Hybrid simulation technique is based on the method of lines (MoL) and Trefftz finite element method (TFEM). MoL provides fast and accurate solution for multi-layered dielectrics and metal planes. TFEM is used to simulate trace conductors interior with rough surfaces. Method of simultaneous diagonalization is used for extraction of parameters of multi-conductor transmission lines and periodic structures and for precise de-embedding of discontinuities. Fast and accurate de-compositional analysis is used to simulate a complete communication link.

# Simbeor® 2008

Benefits	Features
<b>Ease of use</b>	Wizards to enter 3D geometry of transmission lines and via-holes with all elements for EM analysis, multiple wizards to create different types of circuits and simulations and to output final models
	Import of PCB geometry files with geometry selection and automatic de-composition capabilities
	Intuitive geometry editor with synchronized tree-view and interactive 3D view
	Automatic RLGC(f) parameters extraction for t-lines and periodic structures and output in SPICE format
<b>Efficiency</b>	Automatic multiport S, Y and Z parameter extraction and output in Touchstone and in SPICE formats
	Fast synthesis of geometry for single and differential impedance-controlled t-lines and via-holes
	Fast de-compositional linear frequency and time domain analyses of a complete data channel
	Integrated synthesis of broadband SPICE macro-models for components and for complete data channel
	Automatic processing of geometric symmetry (5 types) to accelerate EM analysis and preserve accuracy
	Integrated time-domain TDR/TDR and PRBS analyses of interconnects
	Interactive 2D graphs to plot parameters of t-lines, and S, Y and Z parameters of multiports
<b>Accuracy</b>	Parameterized solution spaces to quickly find optimal geometry
	Hybrid 3D full-wave EM simulation technology optimized for digital broadband multi-layered circuits
	Causal multi-pole and wideband Debye dielectric dispersion and loss models with loss tangent restoration
	Precise de-embedding of discontinuities and transitions in multi-conductor lines
	Simulation of multilayered metal surface finish and surface roughness
	Unique algorithm for traces with thick metallization and trapezoidal shapes
<b>Cost-Effectiveness</b>	Validated with benchmarks and comparisons with theoretical and experimental data
	Low cost, flexible subscription scheme, node-locked and floating licenses

## System Requirements

- Windows XP/Vista (32-bit and 64-bit) and compatible operating systems
- 1 GHz or faster processor with 1 GB memory, 2-3 GHz systems with 2 GB memory are preferable
- 3D graphic card with OpenGL support

## Support

Simberian engineers can answer your technical questions by telephone +1-408-627-7706 (skype *simberian*) or by e-mail [support@simberian.com](mailto:support@simberian.com). They can also provide technical assistance and online on-site training. Simberian Knowledge Base [www.kb.simberian.com](http://www.kb.simberian.com) gives you answers to your technical questions – 24 hours a day, 7 days a week.

## Prices and Ordering

License Level	L0	L1	L2	L3
One-year node-locked license fee (USA)	free	\$2,900	\$4,900	\$7,500
One-year network (floating) license fee (USA)	N/A	N/A	N/A	\$11,250

**License L0** includes all features for visualization, estimation of quality and correction of Touchstone models. **License L1** adds features for advanced stackup planning and interconnect budget exploration with full-wave transmission line models and externally created S-parameter models of components. It can be also used for macro-modeling and time-domain analysis of single-ended and differential channels. **License L2** adds features for advanced interconnect design exploration with precise analysis of discontinuities and via-holes and geometry synthesis of minimal-reflection via-holes. Macro-modeling and time-domain analysis of single-ended and differential channels with cross-talk can be also done with L2 license. **License L3** adds features for design verification with automatic de-compositional analysis and for package macro-modeling. See Simbeor features and prices datasheet for more details. **Online seminars and training classes, technical product support and software updates are included with all annual licenses.**

## For More Information and to Order Simbeor 2008

Contact Simberian at:  
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