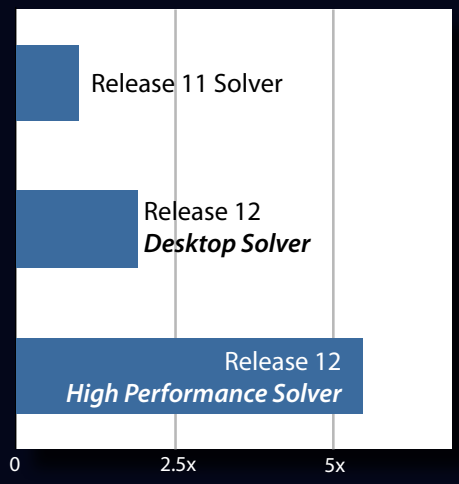
SONNET® New features in 12



Total Analysis Speed Improvement Factor

All simulations run on the same dual-processor quad core Intel Xeon workstation.

Speed

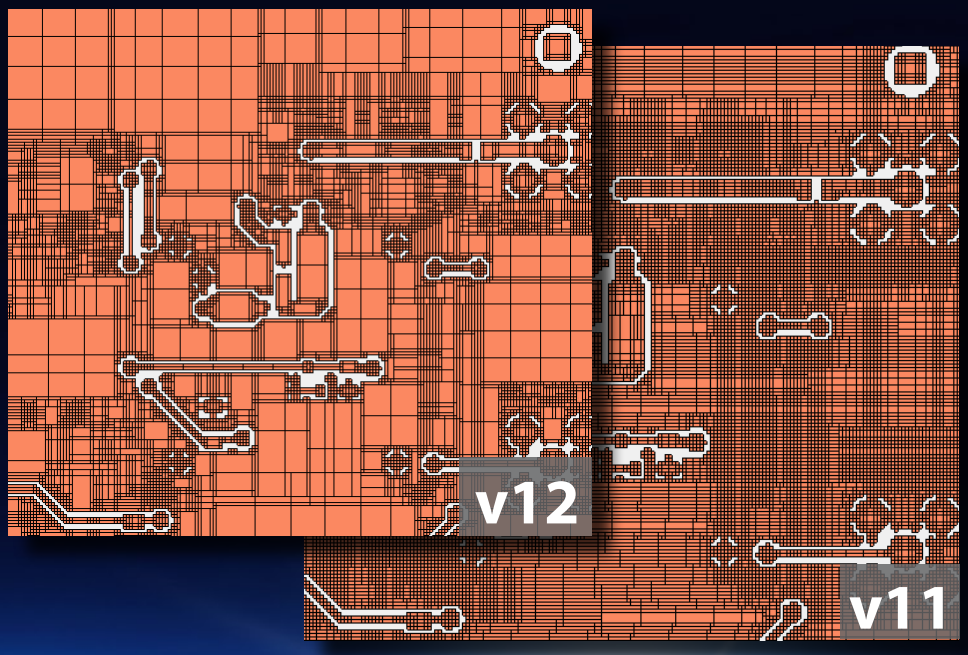
Sonnet unveils parallel processing on your desktop to accelerate EM analysis. PCs or Workstations using multi-core Intel or AMD processors can expect to see significant gains in simulation speed.

The Sonnet Desktop Solver uses dual-thread parallel processing for typical desktop computers with dual-core or quad-core processors, giving you nearly 2x faster analysis.

For high performance computing platforms (workstations with up to 8 or more cores), the new High Performance Solver yields on the order of 5.5x faster simulations! Combined with meshing algorithm improvements (below), analyses may run up to 10x faster or more for large multi-layer circuits.

Meshing

Sonnet's default meshing has been improved for circuits containing large ground planes and planar shields, irregular edges, and interior via connections. Circuits containing these features are accurately meshed with dramatic reductions in memory usage and analysis time. Matrix solve time reduction of 10x or more are not uncommon for such circuits.



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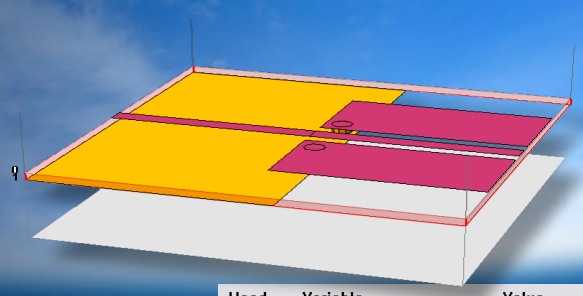
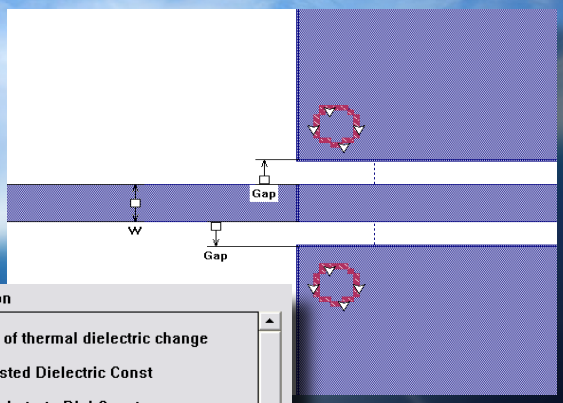
Variables and Equation Based Controls





Used	Variable	Value	Description
	CepsT	0.007	Coefficient of thermal dielectric change
	Er	Er_nom*(1+(T-22)*CepsT)	Temp-adjusted Dielectric Const
	Er_nom	4.0	Nominal Substrate Diel Const
	Gap	2/3*W	Geo. Param. Gap
	Mtl_thkness	0.67	Metal Thickness
	PCB_thickness	12.0+t_tol	PCB dielectric thickness
	T	35.0	Temp, degrees C
	W	24.0	Geo. Param. W

We've made it easier to control your geometry and material properties. New equation-based variables make it possible to express any geometric control as a function of variables, parameters, and math functions. You can also use equations and variables to control:

- Material property dependence on parameters like temperature
- Frequency-dependent properties and causal dielectrics
- Dielectric properties (permittivity, loss tangent, conductivity, etc.)
- Dielectric thicknesses
- Metal thickness and properties

And Much More

Gerber Import

- Support for RS274X Gerber formats
- Single and multi-layer import
- Automatic mapping of drill template to vias
- Automatic union and cleanup of complex polygons

Hot Key Integration

- User-defined key bindings for fast menu or action selections
- Import and export key binding definitions for backup and sharing

Enhanced Cluster Computing Support

- Ability to disconnect and reconnect desktop or laptop clients during analysis without job loss
- Up to 100x faster analysis when used with High Performance Solvers on cluster nodes
- Multiple slave computing processes per hardware node

Uniaxial Anisotropy

- Supports differing in-plane (X-Y) and out-of-plane (Z) dielectric properties
- Anisotropy for dielectric constant, loss tangent, conductivity, and magnetic properties for dielectric layers
- Accurate modeling for sapphire, FR-4 and other unique materials

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