

# CST DESIGN STUDIO(tm)

## Technical Specification

1 January 2011

### User Interface

- Easy insertion and connection of components by drag'n'drop operation
- Convenient and intuitive handling of components inside a schematic view
- Layout view created from the unique database and simultaneously updated after structural modifications

### Components

- Several analytical components
- Comprehensive analytical and 2D EM based microstrip and stripline component libraries
- Active, passive, linear and non linear circuit elements
- Support of hierarchical modeling, i.e. separation of a system into logical components
- Tight integration with 3D electromagnetic field simulations from CST MICROWAVE STUDIO®, CST EM STUDIO®, CST MICROSTRIPES™
- Tight integration with printed circuit board models from CST PCB STUDIO™
- Tight integration with cable harness models from CST CABLE STUDIO™
- Integration of high frequency planar analysis from the Sonnet em@2 suite
- Import of net lists and semiconductor device models in Berkeley SPICE format
- Import of models from SimLab CableMod™ and SimLab PCBMod™
- Support of the IBIS data file format
- Import of measured or simulated data in the TOUCHSTONE file format
- Control and use of extensible element library

### Analysis

- Global parameterization
- Parameter sweep with an arbitrary number of parameters
- Optimization for an arbitrary number of parameters and a combination of weighted goals
- Tuning parameters by moving sliders and immediately updating the results
- Powerful circuit simulator, offering DC, AC, S-Parameter, Time Domain and Harmonic Balance simulation
- Time domain circuit simulation supports easy creation of eye-diagrams and signal port definition to make possible comparisons with results from simulations within CST MICROWAVE STUDIO®

- Easy definition of simulation tasks
- Automatic (re-)calculation of results from integrated field simulators
- Result cache for CST MICROWAVE STUDIO® components
- Accelerated simulations by interpolation and result cache usage for simulated components
- Recombination of fields in CST MICROWAVE STUDIO® for stimulations defined in CST DESIGN STUDIO™
- True Transient EM/circuit co simulation - Fast time domain simulation of coupled problems by transient EM/circuit cosimulation with CST MICROWAVE STUDIO® and CST EM STUDIO®
- Accelerated simulations by interpolation for simulated blocks
- Solver transparency that allows selection of analytic or numerical evaluation of some components
- Elimination components' effects by de-embedding
- Enabling of all kinds of coupled circuit/EM simulations by using differential ports
- Consideration of higher order modes
- SPICE model extraction
- Template-based post-processing

## Visualisation

- Container data views and single data views of all results available
- Multi-window result plotting for single as well as for multiple 1D signals
- Several view options (real part, imaginary part, magnitude, polar plot, smith chart)
- Measurement functionality inside the views (axis markers, curve markers)
- 3D representation of the entire schematic

## Documentation

- Creation and insertion of text boxes and images inside the drawing for documentation purposes
- Annotations inside the data views

## Automation

- Powerful VBA (Visual Basic for Applications) compatible macro language including editor and macro debugger
- OLE automation for seamless integration into the Windows environment

## Minimum Hardware Requirements

- Intel® Xeon® based PC, 4GB RAM, DVD-Drive, at least 20 GB of free hard disc space.
- Fully OpenGL compliant graphic card
- Windows XP Professional, Windows Vista, Windows 7
- All solvers support RedHat Enterprise Linux (RHEL) 4.x und 5.x.
- Hardware recommendation depends on your application. If in doubt, please contact your local sales office for further information.

## General

- Sonnet em is a registered trademark of Sonnet Software, Inc.
- CableMod and PCBMod are trademarks of SimLab Software GmbH.
- APLAC is a registered trademark of AWR-APLAC Corp.
- APLAC® for CST DESIGN STUDIO™ is a subset of APLAC® Simulator, AWR-APLAC Corporations' Circuit Simulation and Design Tool, featuring a selection of linear and nonlinear elements and methods geared for EM/circuit co-simulation tasks.
- CST DESIGN STUDIO is a configurable tool with a choice of solvers and options. Not all listed options are included in the standard license. Not all listed features are available with all solvers. The standard configuration is one full solver process with one solver module and one additional frontend. Floating and node-locked licenses are available. Please contact your local sales office for further information.