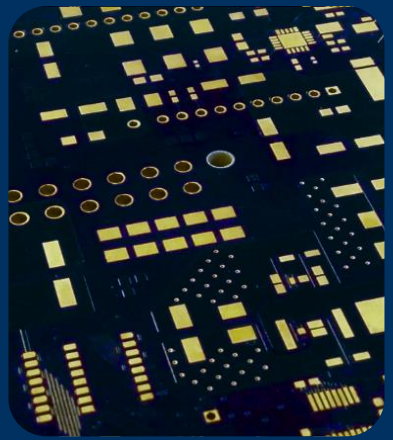


SPISim Modeling Suite

IBIS, IBIS-AMI model generation and general modeling

SPISim

EDA expertise in Signal, Power Integrity and Simulation

EDA focusing on SI and PI:

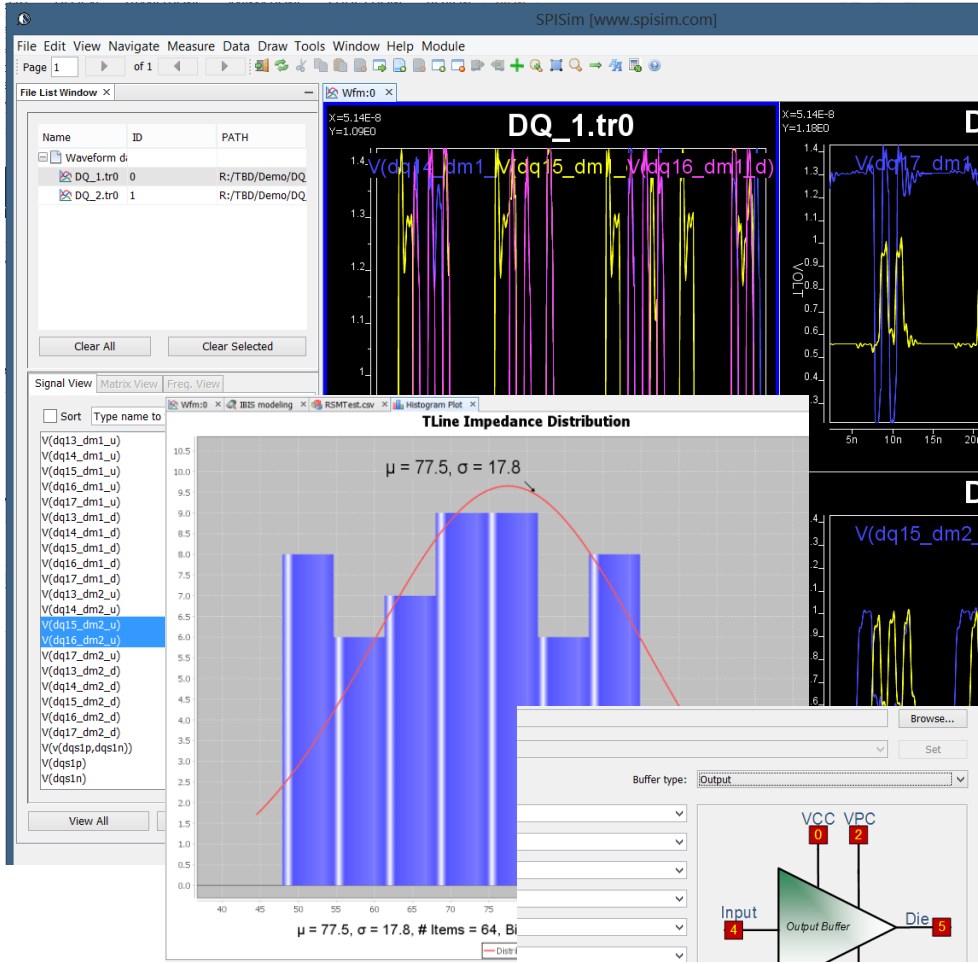
SPISim is an EDA company specialized in system level signal, power integrity and simulation. From pre-layout schematic editor, IBIS, Verilog-A, transmission line and S-parameters modeling and analysis to post-layout net based performance analysis and design synthesis. From design-of-experiments setup, design sample generations to linear programming, neural network or genetic algorithm based optimization. We have experience in them all and can provide industry level best practice flow to meet your high speed system design needs.

Unified analysis suite:

SPISim brings latest software technologies in framework infrastructure and libraries to our design. These modules and integrated suite are built from ground up to meet SI/PI engineers' day-to-day needs. Be they TD/FD/TLine/S-Parameters focused waveform viewing, model generation and analysis, or IBIS inspector and tuning capabilities, you will not find such comprehensive SI/PI capabilities in our single analysis suite.

Powerful yet affordable:

All our tools are cross-platform (Windows, Linux and OSX), self-patchable and extra licenses free. That means no need for hassle MCR installation or additional toolbox's purchase. Our tools can also integrate with your existing highly priced point tools to compose a streamlined flow. We also provide customization service based on our modules. With this, your company can focus on core business logic instead of reinventing wheel for the design infrastructure.



SPISim Modeling Suite

General and IBIS, IBIS-AMI model generation

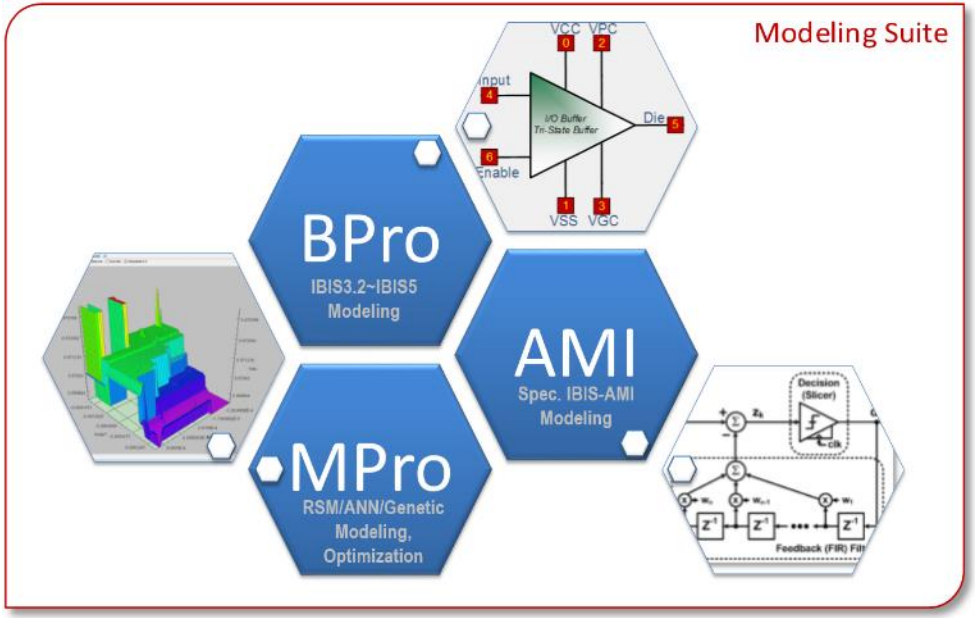
Model generation from A to Z:

SPISim modeling suite provides comprehensive data modeling, optimization and IBIS model generation capabilities. integrated the following core modules for pre-layout modeling and analysis needs:

- MPro: RSM, DOE, ANN, GA or Linear programming based modeling and optimization; It also has many 2D/3D charting capabilities for engineering use.
- BPro: IBIS model inspector, spec., design and simulation based behavioral model generation; IBIS model can be generated from spec. model without simulation, from transistor design or existing simulation data. Single-ended, true differential and Series element are all supported.
- AMI: Spec. based AMI model generation without any C/C++ coding or compilation. 10+ prebuilt IP including FFE, CTLE, DFE, CDR etc ready for customization instantly.

Dynamic and Scalable:

Modules used in SPISim complete suite are plug-N-play and can be extended to meet your growing designs and technology challenges. Add-ons can also be developed for your organization for to present a step-by-step, check mark or wizard based analysis flow. This means not only experienced engineer can make use of our tool's comprehensive capabilities, junior persons or lab technicians can also deliver productive results very quickly with simplified, straightforward GUI frontend.



SPIMPro:

Modeling and optimization

Sampling creation/collections:

The following sampling methods are provided by SPIMPro: design-of-experiments (DOE), full-factorial, Monte Carlo and custom design. Jscript, Ruby, Python or TCL script may be used to map these generic table into actual input conditions. With built-in pattern replacement functions and multi-threaded execution capabilities, user can create spice input files and perform simulation very efficiently. Post-processed results from these simulation data can then be used for device/system modeling.

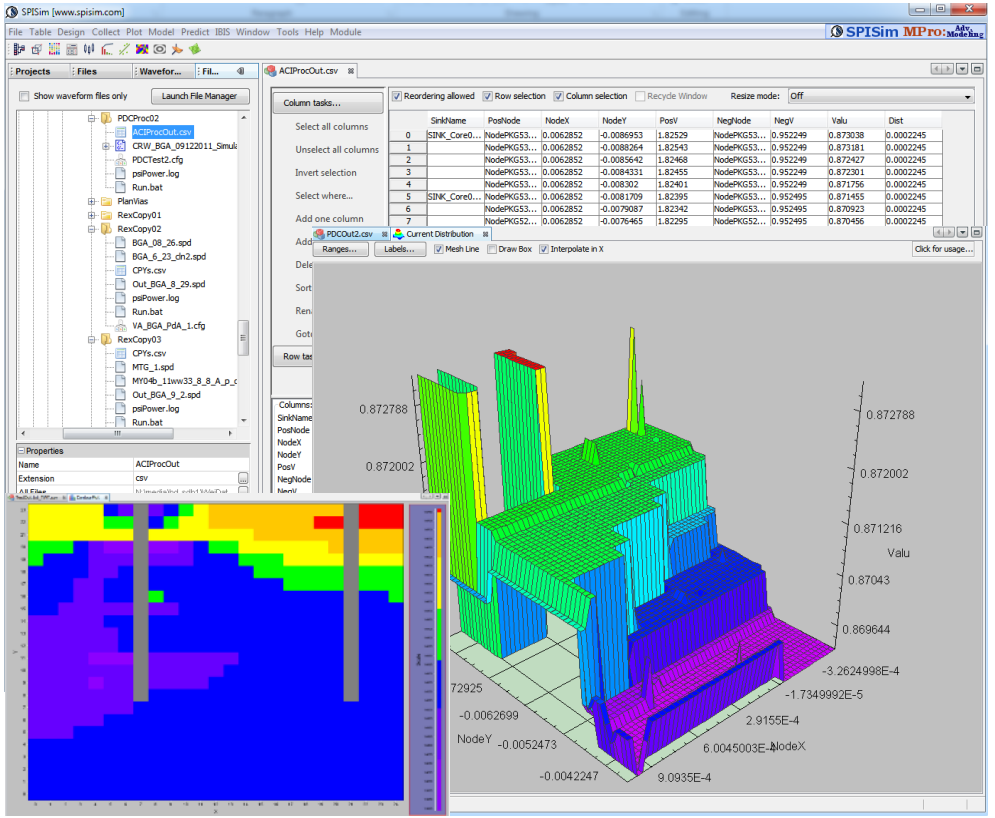
Plot, model and predict:

SPIMPro can plot data points in statistical (distribution, scatter, box-whisker), 2D table (contour and surface) and 3D (stem, contour and surface) plots. It can then normalize the data points or create models using response surface, neural network or wavelet transform. Created models can be exported as HSpice* compatible Verilog-A format or saved for re-evaluation of new data sets.

To evaluate performance or optimize generated models, linear method like linear programming, direct method and non-linear flow like genetic algorithm can be called directly within MPro. Residues and standard-deviation will be calculated and reported either in the table or for plotting.

Table data processing:

SPIMPro supports 10+ table based data processing not available in applications like excel. One may also use SQL to query and filter data sets. MPro has built-in function to convert table into database to facilitate this process.



SPIBPro:

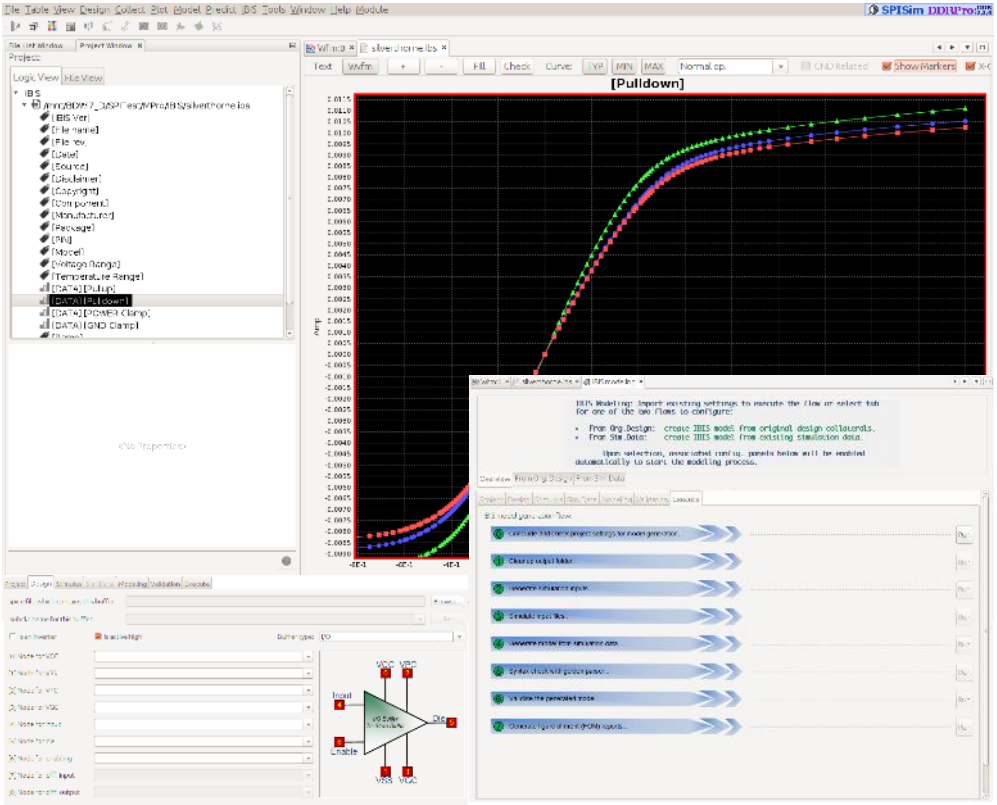
IBIS modeling and analysis

IBIS Modeling from A to Z:

SPIBPro is an add-on flow on SPIMPro for IBIS model inspection, generation, validation and reporting. It can generate IBIS model from either spec. model without simulation, transistor buffer sub-circuit and terminals settings provided or existing buffer simulation results. Step-by-step based full flow will guide user from generate HSpice* compatible input files for test-bench simulations, extract results to generate IBIS models, exercise golden parser to check the syntax/values, and correlate the results to original transistor buffer by validating generated IBIS models and analyze their electrical parameters qualitatively. SPIBPro supports from V3.2 (signal only) to V5.1 (power aware) model generation. It also has fine tuning capability to generate overclockable buffer without sacrificing modeling accuracy.

IBIS model inspector and visualization:

SPIBPro can import IBIS model to cross check texture data and its associated VT/IV/IT data curves. Drop-down menu allow simple switching between different TYP/MIN/MAX corners and VCC/VSS related curves. Convenient in-place data editor allow users to update data point value easily with mouse drag. Multi-pane data viewing allow comparison of IT and VT on the same time axis yet with appropriate voltage/current Y-axis scale. Utility function is available to merge multiple IBIS model files into one easily. Built-in screen capture and powerful editor for capturing data curve and editing modeling data in the same tool.



SPIimAMI:

IBIS-AMI modeling and analysis

IBIS AMI Make Easy:

SPISimAMI provides streamlined IBIS-AMI modeling and validation flow within SPIMPro environment. It eliminates the laborours needs to hand code C/C++ AMI functions, compile on different platforms and validate the generated or received AMI models. With SPISimAMI, IBIS-AMI model is streamlined, economical and efficient.

Pre-built AMI IP:

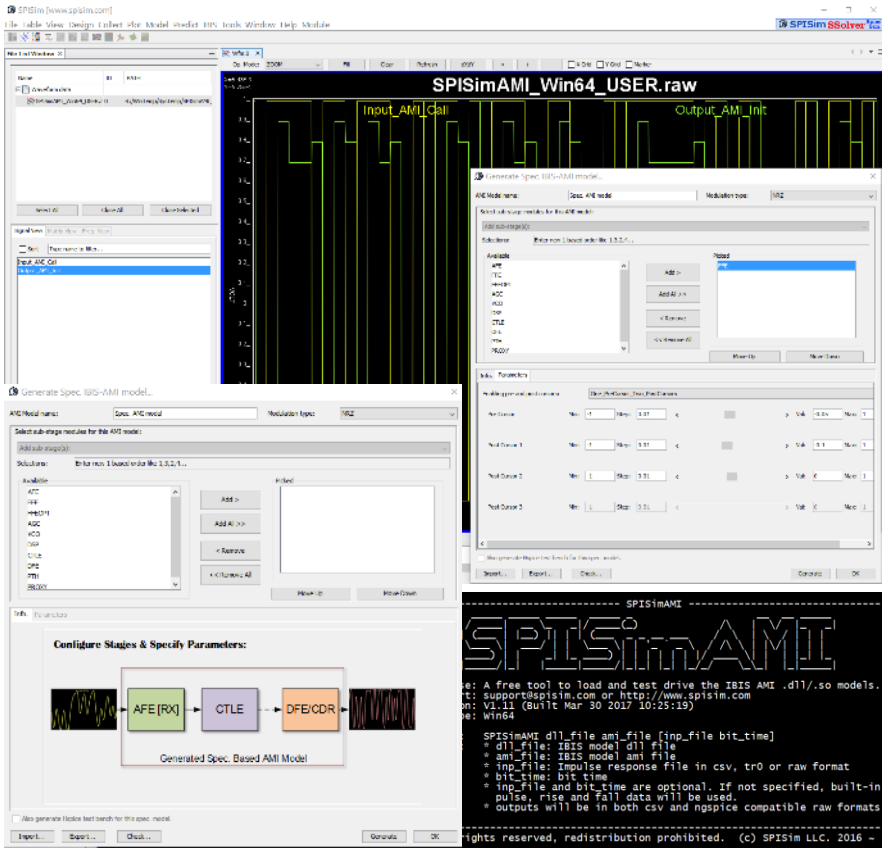
SPISimAMI module has 10+ pre-built analog IPs to support high speed SERDES analyss needs. They include FFE, CTLE, DFE, CDR, Digital Filters, VCO Pulse shaping and more. These modules' functions/performances have been parameterized to allow maximum customization, built with C/C++ and compiled on different platforms for your immediately assembly and use. Frequent AMI usages in common SERDES designs are all covered.

Script based AMI modeling:

When further AMI capabilities are needed, SPISim's script based AMI modeling framework can be used. User will be able to use their most familiar language, such as Matlab, python, perl etc to perform AMI prototyping again without any needs of C/C++ coding or compilation. Encrypted python and direct C-Python embedding is available with add-on features for user to release these model directly with maximum IP protection.

AMI validation:

Integrated environment also provides direct AMI validation using built-in or user provided input stimulus and view results right away.



EDA Expertise in Signal, Power Integrity and Simulation

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SPISim is a member of Synopsys HSPICE Integrator Program