Missing EDA Links

SMASH 5.18

DOLPHIN INTEGRATION

Mixed-Signal Behavioral Modeling

The rising complexity of circuits, along with the spread of mixed-signal designs, have led to the generalization of powerful mixed-signal behavioral modeling languages such as Verilog-AMS. However, good compliance with language standards is not sufficient to assist designers in the challenging task of modeling. The required support of additional language syntaxes for behavioral descriptions must come with features focused on easing analog and mixed-signal modeling.

SMASH 5.18 provides innovative features for model creation, such as the identification of poles and zeros for transfer functions, but also for mixed-signal design characterization using FFT and Jitter analysis on logic signals.

Key Features of SMASH 5.18

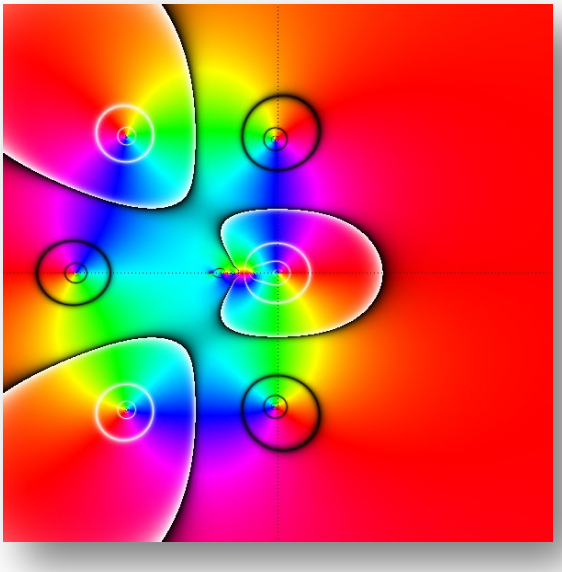
- ✓ IEEE 1076-2008 / 1364-2005 encryption of VHDL-AMS and Verilog-A(MS) models
- ✓ Increased Verilog-AMS language compliance
  - Detection of continuous events in discrete contexts
  - Detection of discrete events in continuous contexts
  - Support of port declaration syntax with explicit port identifiers
  - Support of port connections with dissimilar net types
- ✓ Implementation of .FFT and .JITTER directives for logic signals
- ✓ Implementation of domain coloring for a first approximation of the pole/zero locations and .PZ directive for pole/zero analysis
- ✓ Acceleration of circuit loading and simulation of SPICE descriptions
- ✓ Support of .wav audio files as input and output of logic designs
- ✓ Implementation of CCS segmentation extraction processing functions

Analog Behavioral Modeling and Analysis

The .PZ directive can be used for the design of analog circuits to list the poles and zeros of the transfer function of linear, time-invariant networks. The .PZ directive can be used to generate behavioral models in SPICE, Verilog-A or VHDL-AMS.

Domain coloring allows visualizing the location of poles and zeros in the complex plane, and analyzing their influence on the transfer function as well as on the stability of the system.

Domain coloring works like the small-signal (AC) analysis in the complex plane: it is available whatever the analog description language (SPICE, Verilog-A or VHDL-AMS).



SMASH is available identically under Linux and Windows.

dolphin-integration.com/eda
solutions@dolphin.fr

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Use of .FFT directive for Mixed-Signal Designs

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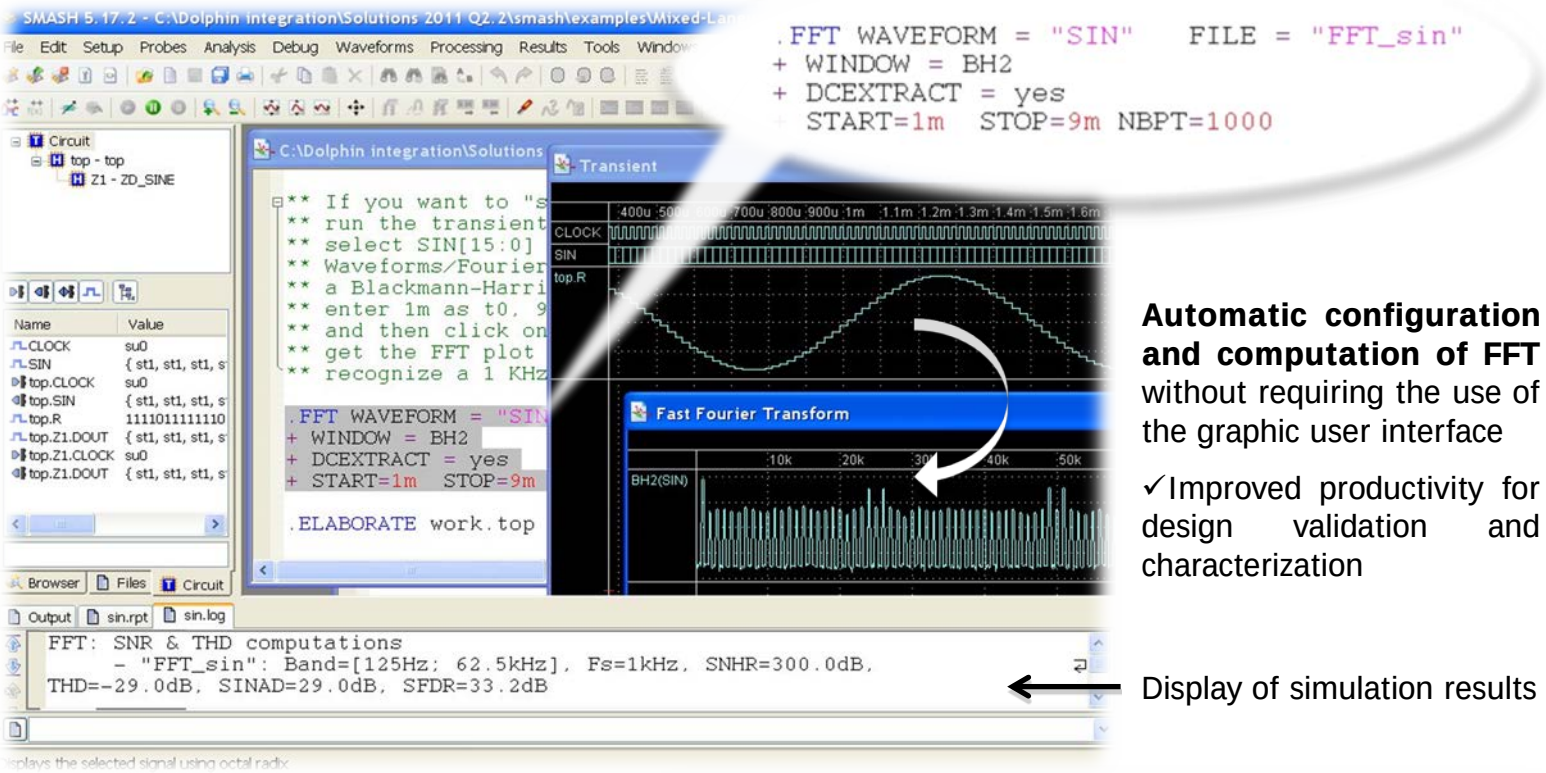
Fast Fourier Transform (FFT) based measurements are widely used by designers to verify their circuits in many fields such as signal conditioning, instrumentation, or audio applications.

SMASH can compute an FFT on either **analog or logic signals**. It can be launched at the end of a transient analysis as well as in post-processing.

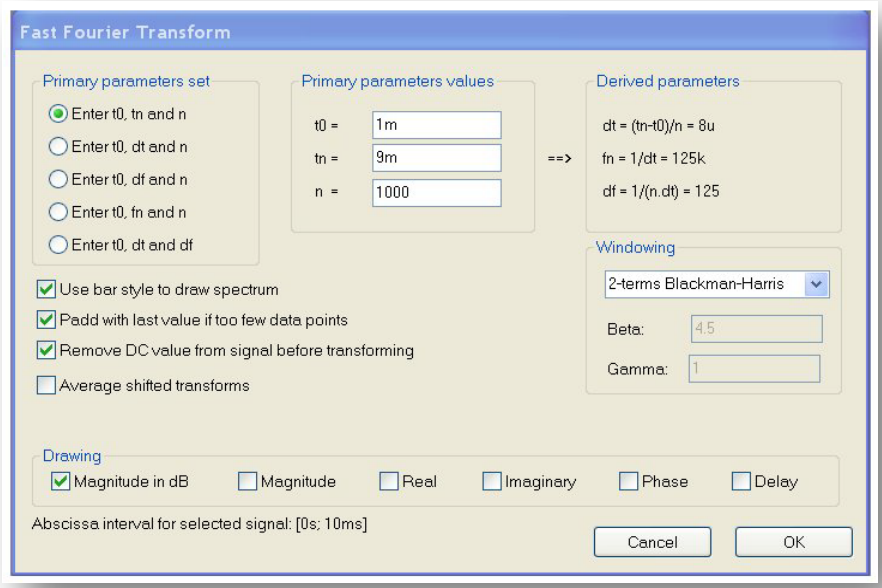
A typical use of the FFT analysis on a mixed-signal design is to check the noise reduction by comparing the analog input signal and the logic signal after digital filtering.



Automatic configuration and computation of FFT without requiring the use of the graphic user interface

✓Improved productivity for design validation and characterization

Display of simulation results



Dialog for **user friendly configuration of FFT analysis** on analog and logic signals

- ✓ Easy to define the sampling sequence instead of having to manually calculate derived parameters.
- ✓ Configurable display of FFT results

SMASH is available identically under Linux and Windows.