DOLPHIN INTEGRATION

SMASH 5.4 for Design Reliability & Yield

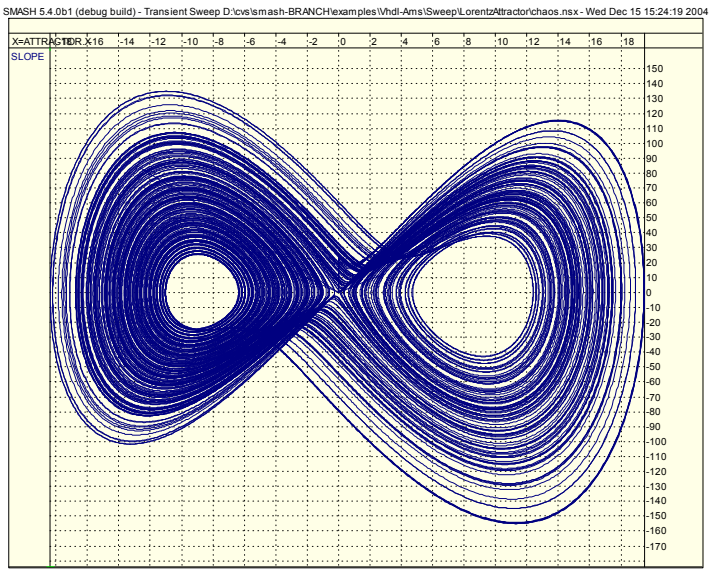
MEDAL promotion sheet

Confronted with ever larger circuits and ever smaller fabrication technologies, Design Reliability & Yield investigation, beyond mere assessment, is required in order to obtain acceptable fabrication yield. Obviously, for effective RoI, the ever increasing fabrication cost mandates single-spin tape-outs!

SMASH 5.4 focuses on enhancing Design Reliability Analysis as well as simplifying and empowering Virtual Characterization.

KEY FEATURES

- Parameter Sweep and Monte Carlo analyses extended to VHDL & VHDL-AMS
- LOT/DEV dispersion for process parameters in fabs' DRMs
- Enhanced extractions of measurements for interactive Virtual Characterization
- Improved output summary for Monte Carlo analysis
- Verilog & VHDL Toggle test coverage for logic simulations
- Interoperability improvements with HSPICE and ELDO



Phase space display of Transient Parameter Sweep of a Lorentz Attractor described in VHDL-AMS

DESCRIPTION OF THE ENHANCEMENTS

For multi level and multi domain Design Reliability & Yield assessment, SMASH 5.4 naturally extends Parameter Sweep and Monte Carlo analyses to VHDL & VHDL-AMS models using deferred constant declarations, thereby maintaining strict compatibility with the IEEE 1076 & 1076.1 standards.

For increased power of Virtual Measurements and increased productivity of Monte Carlo analysis, SMASH 5.4 implements major measure extraction improvements leveraging more expressive measure extraction results.

For automatic analysis of signal coverage and detection of testbench short comings, SMASH 5.4 provides Toggle test analysis of Verilog and VHDL logic descriptions.

For streamlined compliance with existing flows and tools, SMASH 5.4 enhances SPICE compatibility and interoperability improvements:

- automatic handling of $ end of line comments for the HSPICE flavor
- LOT/DEV model parameter dispersion specification for Monte Carlo analysis using foundry supplied model parameter sets
- extended ELDO compatibility for Monte Carlo analysis and specification of instance specific LOT/DEV dispersion

SMASH is available identically under Linux, Solaris and Windows.

www.dolphin-integration.com
smash@dolphin-integration.com

Dolphin Integration
Meylan - France
Tel. (33) 4 76 41 74 06
Fax. (33) 4 76 90 29 65

December 04

Dolphin Integration GmbH
Duisburg - Germany
Tel. (49) 203 306 2250
Fax. (49) 203 306 2269

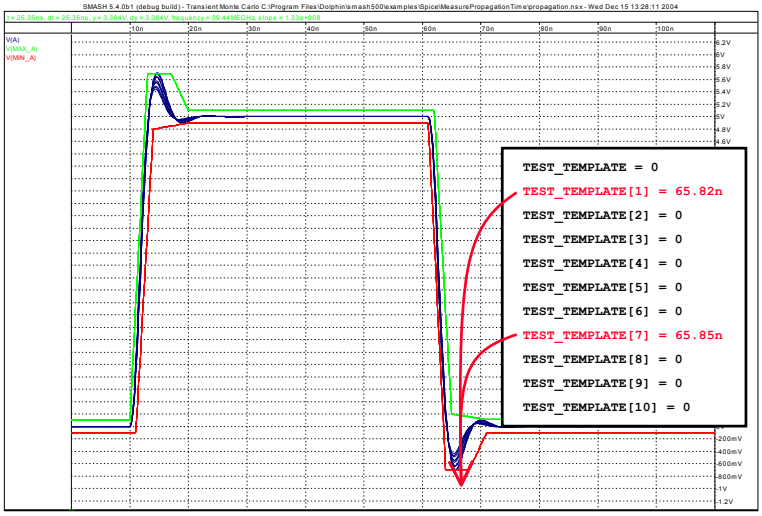
DOLPHIN INTEGRATION

SMASH 5.4
Measurement Extractions

MEDAL promotion sheet

KEY FEATURES

- Extended measurement extractions for Virtual Characterization
- Improved Monte Carlo output summary
- HSPICE interoperability improvements



Check whether V(A) complies with a predefined template

DETAILED ENHANCEMENTS

- Extended the available measurement extractions by adding:
  - ✓ internal variables of instances for operating-point measures,
  - ✓ settling time extraction with a constant target or a signal used as target,
  - ✓ template verification,
  - ✓ standard deviation extraction,
  - ✓ crest factor,
  - ✓ crossing occurrence declarations,
  - ✓ extraction on rising or falling edges and slope per octave or per decade,
  - ✓ multi-waveform measurements
- Extended measurement declarations to support any order and handle extractions hierarchically based on inter-measurement dependencies.
- Implemented use of operating-point measurement results in transient or small-signal measurements and added the possibility to perform extractions on an existing waveform file without needing to run the simulation.
- Improved the accuracy of area, RMS and average measurement extractions when a time window is specified.
- Implemented use of distinct measurement result files for each analysis and enhanced the format:
  - ✓ Output `NaN` special value when measurement extraction is not possible in order to clearly indicate the status of the extraction (Not A Number),
  - ✓ Output indexed measurement result names in order to report results for each individual run of Monte Carlo and Parameter Sweep analyses.
- Implemented support of Hspice compatible syntaxes for measurement directives when the preferred SPICE flavor is set accordingly.

www.dolphin-integration.com
smash@dolphin-integration.com

Dolphin Integration
Meylan - France
Tel. (33) 4 76 41 74 06
Fax. (33) 4 76 90 29 65

December 04

Dolphin Integration GmbH
Duisburg - Germany
Tel. (49) 203 306 2250
Fax. (49) 203 306 2269