SnpExpert 2019.01
Release Notes

XPEEDIC
ACCELERATE YOUR IC DESIGN

1. OVERVIEW

SnpExpert provides a quick way to explore S-parameters for SI engineers to understand the electrical characteristics of interconnects, connectors, packages, and systems. It offers comprehensive plotting functions in frequency and time domains. Crosstalk analysis is made easier with quick victim and aggressor setup and built-in PSXT, ILD, ICR, and ICN. COM analysis is also supported. Built-in compliance for various high-speed standards allows quick compliance checks. Thru-Only De-embedding (TOD) enables accurate test fixture removal with 2x thru and1x open/short/reflect. It has been verified with IEEE P370. It provides an accurate way to perform dielectric constant (Dk) and loss tangent (Df) extraction over a wide range of laminate materials. S-parameter quality such as passivity, causality, and reciprocity can be quickly checked and corrected.

The Release Notes cover the following releases:

SnpExpert 2019.01.h4

Release Date: June 10, 2020

The Release Notes present the latest information about SnpExpert Version 2019.01 in the following sections:

2. SUPPORTED OPERATING SYSTEMS

SnpExpert 2019.01 is available on both 64-bit Windows and Linux. Obtain the appropriate binary executable files for your operating system. The supported platforms for this release include:

- Windows 7 SP1
- Windows 8.1 KB2999226 or above
- Windows 10

3. NEW FEATURES AND ENHANCEMENTS IN SNPEXPERT 2019.01

SnpExpert 2019.01 provides new features and enhancements as described in the following sections.

- TOD:

  Support IEEE P370 compatible de-embedding method TOD with 2x thru, 1x open, 1x short and 1x reflect test fixture.

  Improve TOD accuracy up to 60GHz to meet 56Gbps system requirements.

  Support multi-port de-embedding for 4+ ports.

- Support IEEE P370 compatible S-parameters quality check and causality/passivity enforcement in both time and frequency domain.

- Dk/Df Extraction:

  Support TOD and GA optimization-based Dk/Df extraction for high-speed and wideband applications.

  Support Huray model surface roughness as an optimization target for optimization based DK/DF extraction flow.

- Add calculation of Sdc and Scd to keep the difference of original s-parameter skew in "Halve S-Parameter matrix".
- TDR:

  Add TDR windows to create a smooth transition repeated intervals, such as Rectangle, Hanning, Hamming, Butterworth, Gaussian and so on.

  Update Settings of Offset Time, Port Termination and Port Extension in "TDR Options".

  Add Impedance Peeling to get true impedance.
- Optimize delay and skew algorithm to improve calculation accuracy and speed.
- Add three types such as PSNEXT, PSFEXT and PSNEXT+FEXT in custom compliance.
- Add new built-in compliance for s-parameter exploration, including USB 3.1,VESA DisplayPort(HBR Cable) , PCIe 4.0 , 5.0 GenZ ,SAS 4.0 and GDDR 5 Connector compliance.
- Support calculation of Q, L, M and K values of Primary Center Tapped Transformer, Secondary Center Tapped Transformer, Dual Center Tapped Transformer.
- In Open-Short/Thru De-embedding, the defaults of Short and Thru are supported, and the results can be generated according to the intersection of bandwidth when de-embedding.
- Support customized ICN calculation independent of predefined compliance.
- Support manual selection of Plot in Grid and display of Grid Plot.
- Port Reorder supports batch processing.

- Support vertical line copy.

4. NEW FEATURES AND ENHANCEMENTS IN SNPEXPERT 2019.01.H2

SnpExpert 2019.01.h2 provides new features and enhancements as described in the following sections.

- Add compliance PSANEXT and PSAACRF to their corresponding plots automatically.
- Set log scale default in automative Compliace plots.
- Adjust some 802.3 protocol’ s mask name in automative compliance.
- Support CEI_56G_MR_PAM4 compliance automative.
- Support combination of massive s4p for a large number of ports.
- Support setting stop frequency of Dk/Df extraction based Optimization.
- Optimize S parameter quality enforce algorithm.
- Optimize function of Generate TE connector report automative.

5. NEW FEATURES AND ENHANCEMENTS IN SNPEXPERT 2019.01.H3

- Support adjust the font of mark point on vertical lines.
- Add USB 4.0 Gen3 protocol analysis related function.
- Support batch TOD with python script.
- Optimize De-skew related function and flow.
- Support 802.3ck COM calculation.
- Support RLGC template for more than 4port.
- Optimize delay&skew calculator flow. If the S parameter has been Auto Diff,you don’t need to Auto Diff again before calculating delay&skew.

- Support multiple data source items deletion at the same time in Combine S-parameter interface.
- Fix issues of Smith chart zoom in and Axis Scaling mode switching between linear and log.

6. New Features and Enhancements in SnpExpert 2019.01.h4

- Support Python scripts to dealing with cascading.
- Quality Metrics supports configuration of VF convergence conditions.
- DDR flow saves the last set net classification rule.
- Optimize the output of Half function.
- Dk/Df Optimization: add Multipole.
- Dk/Df supports abort simulation progress.
- Dk/Df supports configuration of number of iterations.
- Optimize Quality Check.
- Improve the calculation accuracy of USB Type C.
- Eye Diagram supports saving Vert Line.
- Data Source Window can be resized freely.
- Supports Exporting multiple S parameters.

7. Legal Notice

The source code used in SnpExpert comprises of both Open Source and proprietary software components.

The Open Source components used in SnpExpert are:

- Qt 5.13.2

This software uses the Qt library, a multiplatform C++ GUI toolkit from Trolltech. See http://www.trolltechcom/qt/ for more information.

- QtXlsx 0.3

  This software uses the Qt library, a multiplatform C++ GUI toolkit from Trolltech. See http://www.trolltechcom/qt/ for more information.

- GCC 4.8.2

  cpp (GCC): Copyright (C) 2003 Free Software Foundation, Inc.

- MPFR 2.4.2

  MPFR is free. It is distributed under the GNU Lesser General Public License (GNU Lesser GPL), version 3 or later (2.1 or later for MPFR versions until 2.4.x). The library has been registered in France by the Agence de Protection des Programmes under the number IDDN FR 001 120020 00 R P 2000 000 10800, on 15 March 2000. This license guarantees your freedom to share and change MPFR, to make sure MPFR is free for all its users. Unlike the ordinary General Public License, the Lesser GPL enables developers of non-free programs to use MPFR in their programs.

- MPC 0.8.1

  The library is built upon and follows the same principles as GNU MPFR. It is written by Andreas Enge, Mickaël Gastineau, Philippe Théveny and Paul Zimmermann and is distributed under the GNU Lesser General Public License, either version 3 of the licence, or (at your option) any later version (LGPLv3+). The GNU MPC library has been registered in France by the Agence pour la Protection des Programmes on 2003-02-05 under the number IDDN FR 001 060029 000 R P 2003 000 10000.

- GMP 4.3.2

The GMP Announcements mailing list is a read-only list for announcements regarding the GNU Multiple Precision Library (GMP).

- Boost 1.72

  Boost C++ Libraries http://www.boost.org is licensed under the `Boost Software License V1`http://www.boost.org/users/license.html

- CGAL 4.9

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- FFTW 3.3.4

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- Python 3.7.6

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- Inno Setup 6.0.4

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- Sklearn 0.21

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