Release Notes

ChannelExpert
2020.01.h2 Release Notes

XPEEDIC
ACCELERATE YOUR IC DESIGN

1. OVERVIEW

It is challenging for digital system designers to simulate high-speed SerDes channels. There are many different simulation scenarios to cover ranging from pre-layout/post-layout, frequency-domain/time-domain/statistical analysis, compliance check, to TX/RX optimization. ChannelExpert offers many built-in channel templates to support pre-layout exploration. Parametric S-parameters and transmission line models are supported for easy channel exploration. For the post-layout scenario, it can extract the desired channels with or without crosstalk from physical layout with transmission line and 3D via models automatically generated with built-in solvers. Its powerful multi-board channel extraction allows SI engineers to establish the board-to-board connection through pin mapping and automatically extract channels across different boards. IBIS-AMI with various equalization techniques is supported for channel simulation. Channel Operating Margin (COM) is incorporated in the tool to enable a quick check. Industry standards for Ethernet, computing, storage, etc. are also embedded to enable easy compliance checking.

The Release Notes cover the following releases:

ChannelExpert 2020.01.h2

Release Date: February 5, 2021

The Release Notes present the latest information about ChannelExpert Version 2020.01.h2 in the following sections:

2. SUPPORTED OPERATING SYSTEMS

ChannelExpert 2020.01.H2 is available on 64-bit Windows. The supported platforms for this release include:

- Windows 7 SP1
- Windows Server 2008 or above
- Windows 10

3. NEW FEATURES AND ENHANCEMENTS IN CHANNELEXPERT 2020.01

ChannelExpert 2020.01 provides new features and enhancements as described in the following sections.

- Pre-Layout Serdes flow

  Pre-layout channel built by template

  Add/combine S-parameter files

  TX and RX configuration in template

  Support many commonly used compliance

  Support 803.2 COM calculation

  Streamlined Frequency-Domain and Time-Domain plots

  New 2D and 3D eye diagram

  Support export simulation report to Word/WPS

  Support Export/Load Serdes analysis configuration

- Post-layout IL/XT flow

  Connect pin by net name

  Support set pin delay time as transmission line model

  Support export csv/xls table for IL results

Add Serdes COM analysis in XT flow

Support TX/RX/Next/Fext Aggressor configuration

- Add preview file and curve when loading S-parameter
- Support parameterization for R,L,C,TML model
- Common functions support shortcut key operation

4. NEW FEATURES AND ENHANCEMENTS IN CHANNELEXPERT 2020.01.H2

ChannelExpert 2020.01.H2 provides new features and enhancements as described in the following sections.

- Optimize traditional manually build schematic simulation flow, support multiple independent voltage sources and IBIS buffers.
- Support PDA (Peak distortion analysis) analysis, which can quickly calculate the DDR type parallel data bus eye diagram's inner contour and the crosstalk signals' strength of interference. Support measuring the height and width of the eye diagram and giving the corresponding worst case bit sequence.
- Support IBIS-AMI statistical eye diagram simulation, output time/voltage bathtub, SNR, rise and fall time, and measure the eye height/width under the given BER. Support bit by bit simulation mode.
- Support adding eye mask to the eye diagram, providing several templates such as rectangle, hexagon and diamond.
- Enhance waveform display module. Support waveform zooming horizontal / vertical, support adding horizontal/vertical mark lines, support adding differential mark lines, support measuring maximum and minimum value of the waveforms.

- Support PCIE3.0/4.0/5.0 channel evaluation,including statistical eye and bathtub.
- Support custom compliance.

5. LEGAL NOTICE

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

The Open Source components used in ChannelExpert 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

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- 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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- Python 3.7.6

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- Inno Setup 6.0.4

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- VTK 7.1.1

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- Sklearn 0.21

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