TmlExpert 2020.01

Release Notes

XPEEDIC

ACCELERATE YOUR IC DESIGN

1. OVERVIEW

Accurate transmission line modeling is essential for high-speed PCB system. The requirement can be very different ranging from a simple 2D RLGC simulation to a complicated 3D simulation. TmlExpert is built with the consideration of all the different simulation scenarios. It has three solver technologies including 2D RLGC, 2.5D MoM and 3D FEM to achieve the best accuracy and convenience. The 2D RLGC solver offers a quick way to check the transmission line properties such as RLGC per unit length (p.u.l.), impedance and attenuation for single-ended or differential microstrip and stripline. The 2.5D MoM solver can efficiently simulate tabbed routing and serpentine lines. For the transmission lines with 3D features such as those on a hatched ground plane and fiber weave pattern, the 3D FEM solver gives the most accurate modeling and simulation. All the transmission line types in TmlExpert are parameterized with built-in templates, which further enhances the transmission line exploration for SI engineers.

The Release Notes cover the following releases:

TmlExpert 2020.01.h1

Release Date: Feb 9, 2021

The Release Notes present the latest information about TmlExpert Version 2020.01.h1 in the following sections:

2. SUPPORTED OPERATING SYSTEMS

TmlExpert 2020.01.h1 is available on 64-bit Windows. The supported platforms for this release include:

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

3. NEW FEATURES AND ENHANCEMENTS IN TMLEXPERT 2020.01

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

Usability Improvements

- Adjust 2D FEM based RLGC Solver and mesh algorithm to improve transmission line simulation accuracy, and also with 1.2x speedup;
- Support microstrip and stripline synthesis flow empowered by advanced Xpeedic Machine Learning based Engine (XMLE), quickly and accurately synthesize multiple physical parameters of transmission line within seconds.
- Support quick calculation of transmission line impedance and delay with only one click.
- Add 6 new kinds of single-ended and differential coplanar waveguide templates with both simulation and synthesis flow;
- Add a new grounded coplanar waveguide template with finite size of reference plane;
- Support the editing of related parameters in stackup mode;
- Add material library;

- Support run TmlExpert simulation with command line mode.

4. New Features and Enhancements in TmlExpert 2020.01.h1

TmlExpert 2020.01.h1 provides new features and enhancements as described in the following sections.

Usability Improvements

- Add Causal Roughness model.
- Add Single-Ended Coplanar With Plane 2B.
- Add Single-Ended Offset Stripline Waveguide.
- Add Differential Coplanar With Plane 2B.
- Batch calculate impedance.

5. LEGAL NOTICE

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

The Open Source components used in TmlExpert 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.

- Clipper 6.1.3

  Freeware for both open source and commercial applications (Boost Software License).

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- 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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- Python 3.7.6

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- Inno Setup 6.0.4

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- Sklearn 0.21

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