



SIEMENS EDA

HyperLynx[®]

Release Highlights

Software Version VX.2.12
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Introduction

This document provides a high-level summary of the HyperLynx® VX.2.12 release that includes the following HyperLynx product areas: HyperLynx SI/PI/Thermal, HyperLynx Advanced Solvers and HyperLynx DRC. Refer to the HyperLynx Release Notes document on Support Center for the list of specific known issues and workarounds for all HyperLynx VX.2.12 products.

This document provides a high-level summary of this release. It includes a summary of the new features in this release, any authorization code changes required, any major installation changes, and any transitioning issues you should be aware of before installing. Additionally, any last-minute issues found in the final stages of testing are included.

Changes may be added to this document after the release. Refer to the Release Highlights documents on Support Center for the most up-to-date release information.

Siemens Version Support

Support is provided for a period of two years from the date of the first general customer release (also known as First Customer Ship or FCS). Support for releases older than two years is not available except at the sole discretion of Siemens.

New HyperLynx Features

The HyperLynx Flow has been enhanced with a number of new features that improve product usability and efficiency in the HyperLynx VX.2.12 release. Details of the following changes can be found within the following “*What’s New in HyperLynx VX.2.12*” PowerPoint presentation:

- [HyperLynx Flow Release Content](#)

New HyperLynx Features by Product

HyperLynx SI/PI/Thermal - Overview

This release contains improvements in SERDES analysis, DDRx analysis, and DC Drop analysis, as well as some notable usability improvements.

SERDES

- Batch S-parameter simulation in the SerDes Compliance Wizard. Allows users to sweep through a set of pre-solved/measured channel models with the same simulation parameters in the Wizard.
- Additional option for generating simplified reports, particularly useful when simulating large numbers of channels at once

DDRx and Power-Aware Analysis

- Revised monotonic measurement methodology for all generations of DDRx to ensure correct voltage thresholds were being used
- Made CA input mask width defined only for 1T timing
- Removed DBI for DDR5 (left in for LPDDR5)
- New advanced simulation flow for DDR5 which includes a new statistical solver capable of verifying BER down to 1e-16 and including non-LTI effects

Power Integrity

- Modified source pad modeling to mimic pin being placed on the pad: equipotential source is now $\frac{1}{2}$ the size of the pad and centered within the pad. Allows for more realistic current profiles around source pads.
- Improved integration with FLOEFD/Flotherm products for PI/Thermal co-simulation

Automation Enhancements

1. Advanced Coupling/Crosstalk Settings

- **New Objects**
 - CrosstalkSettingsEx
 - TraceCoupling
 - AreaFillCoupling
 - SParameterCoupling
- **New Properties**
 - Design.CrosstalkSettingsEx
 - Schematic.CrosstalkSettingsEx

2. 3D Area Automatic Search

- **New Objects**
 - Auto3DAreaParams
- **New Properties**
 - Design.Auto3DAreaParams

3. Schematic Symbols

- **New Objects**
 - o IcBoxPort
 - o ScmIcBox
 - o ScmPwrGndPin
- **New Properties**
 - o ScmComment.Text
- **New Methods**
 - o Schematic.CreatePwrGndPins

4. BoardSim Objects

- **New Properties**
 - o Pin.X
 - o Pin.Y
 - o Pin.Via

5. Unified method for specifying DC connections for any type of component

- **New Method**
 - o Comp.AddDCConnection

6. PowerScope

- **New Method**
 - o Representation.Comment
- **New Property**
 - o SimPlane.Layer

7. Touchstone Viewer

- **New Methods**
 - o Model.GetCausalityLevel
 - o Model.GetWorstCausalityFreq

App Explorer Enhancements

- Access with standard licensing
- SerDes App
 - o New parameters (3D Area Solver, solver options, etc.)
 - o SWS file determines min/max frequency for 3D Areas
 - o Greatly improved robustness
- DC Drop App enhancements – new parameters
- Loop Inductance App enhancements – new parameters
- Usability Improvements
 - o Better tool buttons and layout
 - o Improved board viewer experience & performance

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- o Better progress reporting and error handling
 - o Clear selection, filters, invert filters when selecting Nets/Components
 - o Drag and drop design files; save/restore current tab; timestamp sync

HyperLynx DRC - Overview

HyperLynx DRC adds some important new functionality and defect fixes. The sections below provide details on some of the new capabilities.

New Rules

- **New Rules for HyperLynx DRC 401**
 - o Nets Copy
 - o Total Via Count

Other Major Improvements

- **DDR Wizard Enhancements**
 - o Support global rule parameters, which collectively control common parameters for each rule
 - o Simplified the parameter settings process

HyperLynx Advanced Solvers - Overview

The sections below provide details of new capabilities in this version of the HyperLynx Advanced Solvers products.

User Experience Improvement

- Material Database Improvements
 - o Additional Database File support, including env var support
 - o Export Materials to database file
 - o Sorting of materials, better table sizing and error handling
- Many enhancements to Model Window and Object Browser:
 - o More Object Browser commands, default actions, better filtering
 - o Show/Hide shared objects, cube face commands, better wheel zoom
 - o Dielectric material rendering off by default
 - o Querying for new modeler and 3D current plots
 - o Pin shape properties
- Console log level controls (verbosity)
- Enhanced model merging

Import & Export Improvements

- ODM File support
- Better handling of conformal coat layers in multi-stack designs

Integration and Scripting Improvements

- Much improved model merging capabilities
- Close projects in scripting
- More Material database controls
- MessageCollector and MessageDetails

HyperLynx 3D Explorer Improvements

- HEEDS sweep integration
- Improved the Diff DC Blocking Via: Capacitor Configuration, Circuit Model, etc.
- Improved the One-Sided Serpentine template and help
- Ability to sweep Item types
- Ability to sweep pin shapes (post-process)
- Improved scalability for large number of simulations

Accuracy and Solver Improvements

- Loop Inductance
- Loop Resistance
- Net Capacitance
- Net Conductance

HyperLynx VX.2.12 Compatible PCB Flows

All HyperLynx VX.2.12 products are fully compatible with the following PCB flows:

- Xpedition® Enterprise VX.2.12
- Xpedition Package Integrator VX.2.12
- PADS® VX.2.12
- PADS Professional VX.2.12
- Valor® NPI v11.5

Generally, if you integrate to your layout tool (Siemens or 3rd-party) only through HYP, CCE, or ODB++ layout files, then HyperLynx SI/PI is very likely to work in all respects with your designs, even with pre-VX.2.2 versions of Xpedition or PADS / PADS-Professional. This is also applicable to BSXE V10. If you use a Siemens EDA PCB tool (Xpedition, PADS or PADS-Professional) and rely on “deeper” integration between HyperLynx and the PCB flow (for example, passing of data between Constraint Manager and

LineSim/BoardSim), you should use HyperLynx VX.2.12 only with one of the specific VX.2.12 tool versions listed above.

One integration feature, use of the Analysis Control plug-in to run DC-drop simulations from directly within Xpedition Layout, is limited to the Xpedition Enterprise X-ENTP VX.2.12 flow and only on Windows.

Authorization Codes

To use the latest releases, a minimum license version (Exact Access Date) of **2022.08** (August 2022) is required.

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For additional information on licensing, refer to the *Siemens Digital Industries Software Licensing Manual for Mentor® Products*.

Licensing Information

The release utilizes the SALT (Siemens Advanced Licensing Technology) MSL software version 1.6. Due to continued use of MSL v2020_1 by the installer and some legacy applications, the user should set both the SALT_LICENSE_SERVER and the MGLS_LICENSE_FILE variable to point to their license server.

For additional information on licensing, refer to the *Siemens Digital Industries Software Licensing Manual for Mentor® Products*.

Installation Information

This release uses the latest Mentor Installation Program. For additional information on installation, refer to *Managing Siemens EDA Systems Software* manual and the help system within the installation software. You can view this manual in the release_documents directory at the top level of the install tree.

Downloading and Installing Software from the Cloud

The Online Installer, which requires only a small download (50-65 MB) from Support Center, enables you to download and install Siemens products from the cloud. This is a much faster method and uses less space on your system because you only download and install the products you want. You can either download and install in one operation or download a local copy for later installation.

Product Support Changes for VX.2.12

Added Platforms: HyperLynx products are now supported on the following new platform:

- Windows 11

Deleted Platforms: HyperLynx products are no longer supported on the following platforms:

- None

Special Platform Support Notes:

- None

HyperLynx Media Export Compliance

The HyperLynx VX.2.12 release media has an *Export Classification Control Number* (ECCN) of 3D991.

Java Support

The version of the Java Runtime Environment that's provided is the OpenJDK 11.0.14.1. The OpenJDK version of Java is free from the licensing restrictions imposed on Oracle Java versions released after Oracle's change in Java licensing terms in January 2018.

This version of Java is the latest available at the time the contents of this release were established. The Java Runtime Environment is included in the product such that it is only used by Siemens EDA products and such that it does not conflict with any other version of Java installed on the target system. Because this version has been tested for use with the Siemens EDA products, ***replacement of the JRE with any other JRE version is not supported.***

Support Information

A support contract with Siemens is a valuable investment in your organization's success. With a support contract, you have 24/7 access to the comprehensive and personalized Support Center portal.

Support Center features an extensive knowledge base to quickly troubleshoot issues by product and version. You can also download the latest releases, access the most up-to-date documentation, and submit a support case through a streamlined process.

support.sw.siemens.com/

If your site is under a current support contract but you do not have a Support Center login, register here:

support.sw.siemens.com/register

Supported Platforms

Overall Notes

- Specified patches below are minimum levels. Later versions of the patches are valid, supported configurations.
- Except as noted, all products are supported on all platforms.
- Processor and Memory requirements vary based on the mix of applications being used, the design complexity, and infrastructure requirements. Individual needs may vary from those published below.

HyperLynx-Specific Memory Recommendations

The following are general recommendations, based on typical usage. Memory consumption varies significantly depending on the size and other details of your designs.

If you plan to use the following features, it is recommended that you install at least **8 GB of RAM in your machine**:

- Simulation sweeps (if a large number of parameter variations are enabled simultaneously)
- DDRx batch simulation under certain circumstances (especially with the “power-aware” option enabled)

For these features, 8 GB and preferably 16 GB are recommended:

- Power-integrity analysis of post-layout designs in BoardSim
- 3D EM simulation in the HyperLynx Full-Wave Solver (from either LineSim or BoardSim)

For this feature, 16 GB and possibly 32 GB are recommended:

- “Advanced decoupling analysis” using the new 2.5D power-integrity engine

In the sections below, the memory requirements do *not* assume use of these memory-intensive features.

HyperLynx-Specific Graphics Processing Unit (GPU) Recommendations

We have tested OpenGL with a variety of hardware, operating system, graphics cards, and drivers and have not experienced any problems for many years.

It should be noted that our products require graphics cards and drivers that support OpenGL version 1.3, 2.0, and 3.0. If any problems are encountered, we encourage you to go to the graphics card vendor website and download the latest version of the driver. If the issue persists, please contact customer support.

- 3D EM simulation in the HyperLynx Full-Wave Solver

Red Hat Enterprise Linux WS 7 (RHEL 7.9)

This release supports the 64-bit versions of RHEL7 (Update 9 Only). The following RPM packages and all dependencies must be loaded on the RHEL 7 machines. Most of the packages are available on the Red Hat media, but some * packages require a registered Red Hat Network to obtain.

Kernel version 3.10.0-+

packages required:

gdm
xorg-x11-server-Xorg
motif
libXtst
libX11
libxcb
xcb-util-image
xcb-util-wm

xcb-util-keysyms
xcb-util-renderutil
libXau
mesa-dri-drivers
mesa-libGLU
mesa-libGL
libstdc++
compat-libstdc++-33*
libSM
libXmu
ncurses-libs
nspr
libXft-2
libXinerama
glib2
libpng
libpng12
libtiff
libjpeg-turbo
dos2unix
libXrandr
redhat-lsb
xorg-x11-server-Xvfb*
gtk2
compat-libcap1
libcap
libcanberra-gtk2
PackageKit-gtk3-module
openldap
openssl-libs
libxslt
compat-openldap
libaio
elfutils-libelf
numactl
numactl-libs
libXdmcpc
dmidecode
compat-libtiff3
libpng
openssl11
tclsh
glibc

Red Hat Enterprise Linux WS 8 (RHEL 8.2, 8.3, 8.4 & 8.5)

This release supports the 64-bit versions of RHEL8 (Update 2, 3, 4 & 5). The following RPM packages and all dependencies must be loaded on the RHEL 8 machines. Most of the packages are available on the Red Hat media, but some * packages require a registered Red Hat Network to obtain.

Kernel version 4.18.0-*

Packages Required:

gdm
xorg-x11-server-Xorg
motif
libXtst
libX11
libxcb
xcb-util-image
xcb-util-wm
xcb-util-keysyms
xcb-util-renderutil
libXau
mesa-dri-drivers
mesa-libGLU
mesa-libGL
libstdc++
libSM
libXmu
ncurses-libs
nspr
libXft
libXinerama
glib2
libpng12
libpng15
libtiff
libjpeg-turbo
dos2unix
libXrandr
redhat-lsb
xorg-x11-server-Xvfb
gtk2
libcap
libcanberra-gtk2
PackageKit-gtk3-module
openldap
compat-openssl10
openssl-libs
libxslt
libaio
elfutils-libelf

numactl
numactl-libs
libXdmcpc
dmidecode
compat-libtiff3
libpng
libnsl
openssl
tclsh
glibc

SuSE Linux Enterprise Server and Desktop 12 (SLES 12.5, 15.1 & 15.2)

For SuSE 12.5, 15.1 and 15.2 systems with kernel 4.12.14*

Packages Required:

gdm-3
xorg-x11-server
libstdc++6-32bit
libstdc++6
libexpat1-32bit
libexpat1
libXdmcpc6-32bit
libXdmcpc6
lsb5
libpng12-0-32bit
libpng12-0
libGLU1-32bit
libGLU1
libXtst6-32bit
libXtst6
libgthread-2_0-0-32bit
libgthread-2_0-0
tclsh

For SuSE 15.2 systems with kernel 5.3.18-*

Packages Required:

gdm
xorg-x11-server
libstdc++6
libexpat1
libXdmcpc6
lsb-release
libpng12-0
libGLU1
libXtst6
libgthread-2_0-0
tclsh

Microsoft Windows 10 (Version 1909 and newer)

Microsoft Windows 10 (64-bit versions), Enterprise Edition and Pro Edition are supported.

While there is no known issue with running Microsoft Windows 10 Home Edition or Educational Edition, the product has not been tested with these editions and therefore is not supported.

Processor: Dual-core Intel or AMD processor minimum. See [Processor Note for Intel/AMD Processors](#) above.

Minimum RAM: 8GB Minimum, more highly recommended

Swap Space: 2x the amount of RAM

Microsoft Windows 11

Microsoft Windows 11 (64-bit versions), Enterprise Edition and Pro Edition are supported.

While there is no known issue with running Microsoft Windows 11 Home Edition or Educational Edition, the product has not been tested with these editions and therefore is not supported.

Processor: Dual-core Intel or AMD processor minimum. See [Processor Note for Intel/AMD Processors](#) above.

Minimum RAM: 8GB Minimum, more highly recommended

Swap Space: 2x the amount of RAM

Windows Server 2016

Additional OS Patches (the following 64-bit configurations are supported):

- Microsoft Windows Server 2016, with all current updates via Windows Update

Warning: Windows Server 2016 does not by default include an internet web browser. HyperLynx product documentation requires the installation of an internet web browser. Windows Server 2016 users should download and install your choice of browsers (Edge, Firefox or Chrome Browsers).

Processor Minimum: Dual-core Intel or AMD processor minimum. See [Processor Note for Intel/AMD Processors](#) above.

Minimum RAM: 8GB Minimum, more highly recommended (per simultaneously logged in user)

Virtual Memory: 2X the amount of RAM

Windows Server 2019

Additional OS Patches (the following 64-bit configurations are supported):

- Microsoft Windows Server 2019, with all current updates via Windows Update

Processor Minimum: Dual-core Intel or AMD processor minimum. See Processor Note for Intel/AMD Processors above.

Minimum RAM: 8GB Minimum, more recommended (per simultaneously logged in user)

Virtual Memory: 2X the amount of RAM