SIEMENS EDA

PADS Professional Flow Release Highlights

Software Version: PADS-ProVX.2.12

September 2022

SIEMENS

About Siemens Digital Industries Software

Siemens Digital Industries Software is a leading global provider of product life cycle management (PLM) software and services with 7 million licensed seats and 71,000 customers worldwide. Headquartered in Plano, Texas, Siemens Digital Industries Software works collaboratively with companies to deliver open solutions that help them turn more ideas into successful products. For more information on Siemens Digital Industries Software products and services, visit www.siemens.com/plm.

Support Center: support.sw.siemens.com
Send Feedback on Documentation: support.sw.siemens.com/doc_feedback_form

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Introduction

PADS Professional is powerful, but it's also easy to learn, use, and afford. It's designed to give the experienced user all the horsepower they need, yet intuitive, so casual or occasional users can accelerate their time to productivity.

The full flow of PADS Professional enables you to design, validate and manufacture PCB-centric systems incorporating advanced FPGA devices.

New Products and Features

PADS Professional Flow

The PADS Professional VX.2.12 release addresses a number of user-reported issues and incorporates available user feedback on new functionality introduced in the past release. Details of the new features and enhancements for PADS Professional VX.2.12 can be found in the following presentation:

- PADS Professional Release Content

New HyperLynx Features

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. Additional HyperLynx licensing may be required to fully utilize all the new HyperLynx SI/PI functionality detailed for VX.2.12.

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 ½ 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**
     - IcBoxPort
     - ScmIcBox
     - ScmPwrGndPin
   - **New Properties**
     - ScmComment.Text
   - **New Methods**
     - Schematic.CreatePwrGndPins

4. **BoardSim Objects**
   - New Properties: Pin.X, Pin.Y, Pin.Via

5. **Unified method for specifying DC connections for any type of component**
   - New Method: Comp.AddDCConnection

6. **PowerScope**
    - **New Method**
        - Representation.Comment
    - **New Property**
        - SimPlane.Layer

7. **Touchstone Viewer**
    - New Methods:
        - Model.GetCausalityLevel
        - Model.GetWorstCausalityFreq

App Explorer Enhancements

- Access with standard licensing.
- SerDes App:
    - New parameters (3D Area Solver, solver options, etc.).
    - SWS file determines min/max frequency for 3D Areas.
    - Greatly improved robustness.
- DC Drop App enhancements – new parameters.
- Loop Inductance App enhancements – new parameters.
- Usability improvements:
    - Better tool buttons and layout.
    - Improved board viewer experience & performance.
    - Better progress reporting and error handling.
    - Clear selection, filters, invert filters when selecting Nets/Components.
    - Drag and drop design files; save/restore current tab; timestamp sync.

HyperLynx® DRC VX.2.12 – Overview

HyperLynx DRC adds some important new functionality and defect fixes. The sections below provide details on some of the new capabilities. Additional HyperLynx licensing may be required to fully utilize all the new HyperLynx DRC functionality detailed for VX.2.12.

New Rules

Two new rules are available for HyperLynx DRC 401

- Nets Copy
- Total Via Count

Other major improvements

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

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 except at the sole discretion of Siemens.

Graphics Card and Driver Version

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.

Licensing

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.

Authorization Codes

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

Installation Information

Design Archive and Dashboard no longer delivered

Design Archive (also referred to as xAVE or DAVE) and Dashboard functionality is not included as part of the PADS Professional VX.2.12 release. The last release to include this functionality is PADS Professional VX.2.10 which was released in September of 2021.

Design Archive and Dashboard will receive the normal two-year version support per the Siemens EDA support policy based on the release date of PADS Professional VX.2.10.
Siemens EDA is committed to providing our customers with the functionality you need to get your job done. Next-generation technology, Connect for PADS Professional, is available to replace Design Archive. Connect extends the desktop to the cloud with cloud-based data-management, collaboration with design visualization and markup.

You can learn more about Connect for PADS Professional here. If you any questions, or need additional information, please don't hesitate to contact the PADS Product Marketing Manager, Jim Martens

Documentation Delivered in a Separate Install Download

With this release of PADS Professional Flow, product documentation is provided as a separate download from the software. This requires two separate downloads and installs of the complete PADS Professional Flow:

- Download and install product software
- Download and install product documentation.

You are given the option of performing a **Typical Install** of the software and documentation to a single location. This option most closely resembles the install you may be familiar with if you have previously installed Siemen's products. Both software and documentation reside on the same computer.

Shared Documentation Installation

As a second installation option, you can **install the software and specify a shared documentation location** from the software install(s). The following are points for consideration with this choice:

- You want to install the documentation to a single location and allow multiple software installs access to that documentation location; documentation does not have to be installed on every computer.
- The documentation tree is self-contained so you can have software installs at different locations access the documentation from a single location.
- The documentation can be installed to a web server (as the shared documentation location) as long as it is within your company's firewall (think same city, same campus).

EZwave Documentation

13.2 version PDF files are provided in an additional folder. For the 13.2 version PDFs, refer to the following location: *<documentation install root>/docs/ams_13.2*.

Downloading and Installing Software and Documentation 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.

Hardware Specifications for testing on Virtual Environments

Vendor	VCD	Hypervisor/OS	VDI	Graphics	OS	CPU
VMware	N/A	ESX 6.5.0	Horizon 7.8.0	gpu NVidia GridK1	N/A	8 x Intel(R) Xeon(R) CPU E5-2640 v3 @ 2.60GHz
VMware	N/A	ESX 6.5.0	Horizon 7.8.0	N/A	N/A	6 x Intel(R) Xeon(R) CPU E5-2680 v3 @ 2.50GHz no gpu option
VMware	9.1	ESX 6.5.0	N/A	N/A	Red Hat Enterprise Linux Workstation release 6.4	Intel(R) Xeon(R) CPU E5-2640 v3 @ 2.60GHz
VMware	10.0	ESX 6.7	N/A	N/A	CentOS Linux release 7.4.1708 (Core)	Intel(R) Xeon(R) CPU E5-2640 v3 @ 2.60GHz

AWS Verification

The following flows and configurations have been verified in the AWS environment for this release. All verification was done only with systems inside of the AWS environment.

- Xpedition Enterprise flow using Windows EDM clients and Windows EDM Server with Design and Library services
- Xpedition Enterprise flow using Windows clients and Windows EDM Server with Library services
- Xpedition IC Packaging flow using Windows clients
- Valor NPI vNPI 11.5
- Valor Parts Library 2205
- PADS Professional using Windows clients

Azure Verification

The following flows and configurations have been verified in the Azure environment for this release. All verification was done only with systems inside of the Azure environment.

- Xpedition Enterprise flow using Windows EDM clients and Windows EDM Server with Design and Library services
- Xpedition Enterprise flow using Windows clients and Windows EDM Server with Library services
- Xpedition IC Packaging flow using Windows clients
- Valor NPI vNPI 11.5
- Valor Parts Library 2205
- PADS Professional using Windows clients

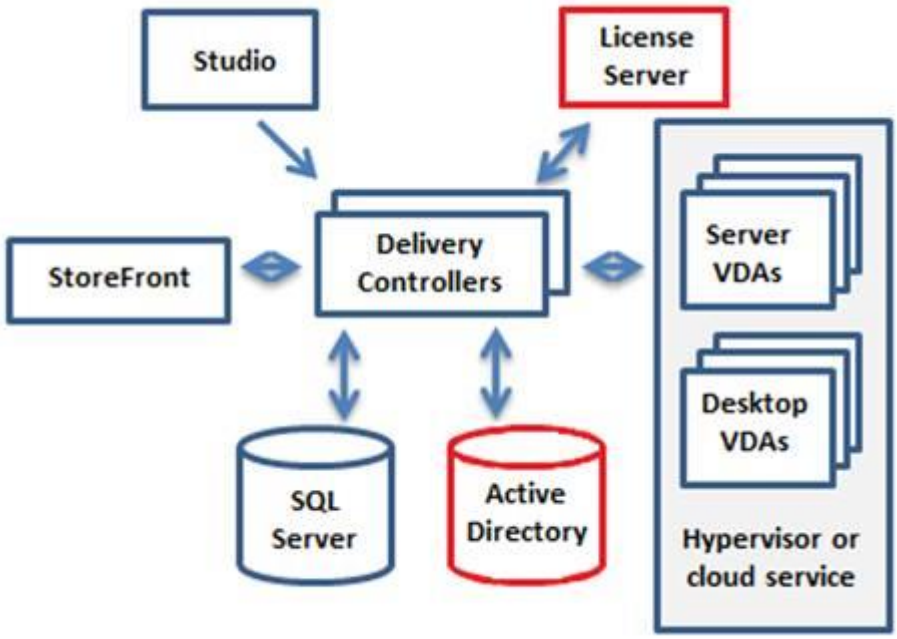
Citrix Verification

The following flows and configurations have been verified in the Citrix environment for this release. The Citrix environment was verified using an on-premise server. Verification was done with a mixture of systems only inside the Citrix environment as well as systems inside and outside of the Citrix environment.

- Xpedition Enterprise flow using Windows EDM clients and Windows EDM Server with Design and Library services (EDM Server was outside of Citrix)
- Xpedition Enterprise flow using Windows clients and Windows EDM Server with Library services
- Xpedition IC Packaging flow using Windows clients
- Valor NPI vNPI 11.5
- Valor Parts Library 2205
- PADS Professional using Windows clients

Citrix Configuration used for Verification

All of the functions in blue (Delivery Controllers, StoreFront,etc.) are part of the Citrix Virtual Apps & Desktops version 7.1912 which run on the Citrix Hypervisor 8.1.0.



Browser Support for PADS Pro VX.2.12

- Chrome* 77+,
- MS Edge* 40+
- Firefox* 69+,
- MS Edge Chromium* 80+
- No EDM Server single sign on between Web apps and Desktop Apps due to lack of java plugin support.

PADS Professional Media Export Compliance

The PADS Professional VX.12 release media has an *Export Classification Control Number* (ECCN) of 3D991.

Xcelerator Share

Xpedition Enterprise and PADS Professional flows support integration with the SaaS product called Xcelerator Share. This integration will allow customers to upload PDF files from Designer and JT files from Layout to collaborate across different teams. In order for this functionality to be available, the user will have to have Siemens Connector installed on their system as well as a new license feature. When both of these requirements are met, the user will have a new option in Designer and Layout called “Save to Share” located in the File pulldown. When you execute “Save to Share” command, it will generate the PDF or JT file and upload them into Xcelerator Share for collaboration. For more information on this functionality, please contact your local sales representative or our sales team by phone: 1-800-547-3000 or direct at (503) 685-8000 or by email:eda.sales.sisw@siemens.com

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 where specifically noted.
- 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.

Processor Note for Intel/AMD Processors

All Windows and Linux OS variants run on Intel or AMD x86 or x64 processors. In the past, the processor GHz speed determined the performance, but recent changes in the internal architecture of both Intel and AMD processors have made these comparisons difficult. Therefore, the following recommendations are being made for **all** Windows systems.

- Supported processors and systems are those manufactured since 2008 which conform to the subsequent requirements.
- Intel Celeron processors are not recommended.
- Minimum requirement is a dual-core (or dual processor) system. A quad core is recommended for improved overall system performance. A hyper threaded processor should be considered a single processor, not a dual processor.
- For best results, maximize processor speed and L1/L2/L3 processor cache memory.
- Typically, cost is the best indicator of performance, and extra investment in processor capability returns better system performance.

Microsoft Windows 11 (Version 21H2)

Kernel Configuration: N/A

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

Minimum RAM: 8GB recommended

Swap Space: 2x the amount of RAM

Microsoft Windows 10 (Version 1909 through 21H2)

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

While there is no known issue with running Microsoft Windows 10.0 Home Edition or Educational Edition, the product has not been tested with these editions, and therefore is not supported.

Kernel Configuration: N/A

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

Minimum RAM: 8GB recommended

Swap Space: 2x the amount of RAM

Product Excellence Program – Overview and Frequently Asked Questions

The Product Excellence Program helps Siemens Digital Industries Software understand how customers use our products and assists us in improving our products. The program is anonymous, and participation is voluntary.
The Product Excellence Program is the same program used by other Siemens Digital Industries Software products and is aligned with global privacy requirements. It is designed to protect the privacy of the user and the intellectual property created through the use of our products.

How does it work?

The Product Excellence Program is used to collect data about your installation, the features you use and how you use them. The data is sent to Siemens Digital Industries Software for analysis. By examining usage patterns, we gain insight into how the products are used and how to improve the software in future releases. Anonymous data collection occurs in the background as you use the software and does not affect performance or functionality.

Examples of data collection

The following table provides examples of the type of usage data that is collected by Siemens Digital Industries Software and, as equally important, clarifies what data is *not* collected by Siemens Digital Industries Software.

What we collect	**What we do *not* collect**
The data collected contains information about how the product is deployed and used, for example: • Client hardware information (OS Name, OS Version, OS Architecture, etc.) • Software version • Client locale • Session time • Command events executed (for example, **Startup**, **Add 3D View**) in the client.	The data collected *does not* contain user information or intellectual property, including: • Contact information or any data that would identify a natural person • Information about data created or managed in the product • IT infrastructure identifiable information such as host names

Frequently Asked Questions

There have been questions regarding how the Product Excellence Program protects the privacy of the user and intellectual property. The following list highlights the answers to some of the most frequently asked questions.

What kind of customer participation do we currently have from other products that include the Product Excellence Program?

- Siemens product groups that include data from NX, Capital and Teamcenter are reporting between 80 and 90 percent participation.

What happens to the collected information?

- Data is solely for use by Siemens Digital Industries Software to improve our products. We do not share this with any third-party or other groups within Siemens.

Where is the collected information stored?

- Data is stored in a secured Siemens AWS environment located in the United States.

How is the collected information protected against unauthorized access?

- Siemens has a comprehensive information security program to protect against unauthorized access. Data is only accessible by authorized Siemens employees via multi-factor authentication.

How is the customer ID obscured so only Siemens can extract customer ID information?

- Business systems maintains a secured database that includes Customer ID to Customer Name mapping. The Customer name can only be seen when visualizing the reports on our secure Analytics website. The business systems only process company name and not individuals.

How and where will the User data be anonymized so it cannot be backtracked to a user, a customer, an IP address, etc.?

- User ID is anonymized on user's machine and cannot be traced back to a particular user.

How will the geographical location be captured and how will it be obscured so nobody can construe detailed location data?

- The location is derived from the incoming data. The derived geographical location data is not stored anywhere and is only available temporarily to generate real time reports showing where our users are located.

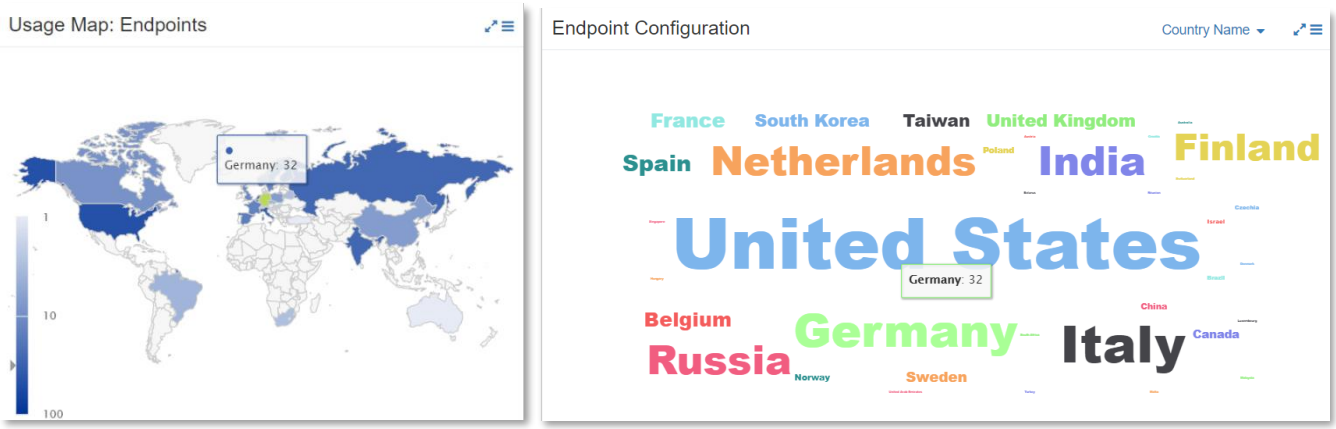


Figure 1: The geographical location by country over the monitored period of time as captured in the program.