Personal Automated Design System

Release Highlights

Software Version: PADS VX.2.1

November 2016

Introduction

This document provides a high-level summary of the PADS VX.2.1 release. Refer to the Release Notes on SupportNet for the list of specific known issues and workarounds.

This document includes a summary of the new features in this release. It also includes, if applicable, 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 SupportNet for the most up-to-date release information.

New Features Introduced in PADS VX.2.1

This is primarily a release aimed at fixing customers logged defects. The following new products, features and enhancements are introduced in the PADS VX.2.1 release.

New Product Options

There were no new product introductions for PADS VX.2.1.

However, the following new products were introduced in PADS VX.2. Product Creation Platform provides new product options that enhance the core schematic design and layout flow and delivers a full suite of analysis and simulations tools that are available for both PADS Standard and PADS Standard Plus.

- **PADS HyperLynx DC Drop** – Avoid unexpected circuit behavior by identifying power delivery issues early. Validate power supply impedance to optimize power distribution networks. Assess voltage drop by quickly and accurately identifying areas of excessive current density with fast and accurate results.

- **PADS HyperLynx DDR Analysis** – Identify and solve Signal Integrity and timing challenges specific to DDRX designs. Resolve typical SI impairments such as Overshoot/Undershoot and ringing. Identify DDX timing issues such as Setup/Hold, De-rating, Skew and Data bus margins.

- **PADS HyperLynx DRC** – A rules based approach versus traditional simulation to identify non-CAD constraints. Out of the box checks for EMI, Signal Integrity and Power Integrity. Simple to set up and fast time to results. Visual and report form of results for easy identification of violations**.**

- **PADS FloTHERM XT** – 3D computational fluid dynamic (CFD) solution that supports steady state and transient analysis. Allows electrical/hardware engineers to perform thermal analysis much earlier in the design cycle. Easily import mechanical objects such as product enclosures and heat sinks.

- **PADS AMS Design Suite** – Comprehensive circuit design and virtual prototyping environment, including support for analog and mixed signal (AMS) with SPICE based simulation engine and modeling. In addition to standard simulation analysis: DC Bias, time-domain, and frequency-domain simulations, AMS also includes multi-run parametric sweeps, sensitivity, Monte Carlo, and Worst Case analysis.

In addition, there is a new option for PADS Router:

- **PADS Multi-Trace HSD Routing** – Route and tune nets with high speed design constraints automatically without the need for the Batch auto-router.

The PADS 575 bundle has also been upgraded to include newer functionality:

- **PADS 585 bundle replaces the 575 bundle** – Includes PADS 3D + PADS MCAD Collaborator + Design Archive Manager

Improvements to Migration

With each release, improvements and enhancements are continually being delivered for both migration within MGC flows and translations from competitive tools. Approximately 18 defects have been addressed for VX.2.1 across the following areas:

- **Migration between MGC flows** – PCB migration from PADS to PADS Professional and Xpedition Enterprise

- **Library Migration** – PADS DX Designer and PADS Netlist libraries to Central Library

- **Translation from competitive tools** – Improved translation, with particular emphasis on Altium, to PADS Layout, PADS Professional and Xpedition Enterprise

- **Project Migration** – Migration of Electrical nets and associated design rules from Netlist to Integrated projects.

PADS Layout

PADS 3D

- General improvements to overall quality and usability

Flat DXF Export

- Several defects that represent approximately 18 Customer SRs have been addressed

Variant Outputs

- Variants are now supported in Partlister. This addresses 27 Customer SRs

- A further 7 Customer SRs have been addressed by fixing a defect where "BOM Reports Omit Refdes Values in the Microsoft Excel Bom Report .xls file"

PADS DX Designer

There are several ease of use improvements and new functionality for the VX.2.1 release.

Part Replace

- UI redesigned and functionality improvements

- Display list of replacement candidates

- Preserve Reference Designator

- Enhanced 'Assistant'

In-Line Block editing

- Change pin type (In/Out/Bi-Directional etc.)

- Propagate pin name to net (Per pin or per symbol)

- Delete pin

Symbol Editor

- Set default pin properties

- Set default symbol property order

Quick access to iCDB Server Manager and iCDB Project Backup

- Additional options in Tools menu

Easy way to add additional name to net

- Context menu option

- Only enabled for labelled nets

IDEAS

The following IDEAS have been addressed:

- D2776 - Update library alias for symbols

- D6337 - Automatically update properties on addition to library

- D14138 - Search and sort in pull-down

HyperLynx SI/PI/Thermal

HyperLynx v9.4.1 is a minor release that adds some new features to HyperLynx's signal integrity, SERDES (including 3D electromagnetic), power-integrity, and EMC simulation capabilities. HyperLynx v9.4.1 includes a number of defect fixes and improvements. For more details of some the HyperLynx specific updates please read the HyperLynx SI/PI/Thermal Release Highlights 9.4.1. Some of the HyperLynx updates/enhancements are listed below.

Restoration of EMC Simulation

The EMC simulation capability has been restored in this release. This capability simulates trace radiation on the net and board level. The capability was removed in HyperLynx 9.0 when the internal HyperLynx simulator was upgraded, since the new simulator lacked the ability to output trace currents needed for EMC simulation. That capability has now been added back into the simulator for EMC simulation.

Support for 2666MT/s and 3200MT/s Data Rates in DDRx Wizard

A specification for DDR4 2666 and 3200 DRAMS has emerged, so support has been added into the DDRx Wizard to support these data rates.

IBIS Enhancements

IBIS support for signal integrity simulations has been enhanced as well. This includes integration of the latest IBIS parser in the Visual IBIS Editor – version 6.1.2 from the IBIS committee. This also includes support for multiple D_to_A converters with polarity. Also added was support for true differential models with [Model Selector].

HyperLynx DRC 6.4 - Summary

The HyperLynx DRC v6.4 release focuses on improved integration between HyperLynx DRC and PADS VX.2.1. HyperLynx DRC v6.4 offers users a number of defect fixes and improvements.

HyperLynx DRC is a powerful and fast design rule checking tool that can run complex design rules that are not easily simulated, such as rules for EMI/EMC. HyperLynx DRC ships with 23 standard design rule checks (DRCs) (such as traces crossing reference plane splits, reference plane changes, and signal via quantities). This capability enables you to quickly identify locations on your board that may cause EMI/EMC, signal integrity, and power integrity issues.

Licensing

The PADS VX.2.1 release utilizes the Mentor Standard Licensing Server MGLS v2015_1 Patch 2. The latest version of MGLS is always available from SupportNet by searching for the product "System Administration" under the Product Finder. This version of PADS requires a FlexNet license server running at version v11.13.1.2 or higher. If you use floating licenses and your license server is not at least a FlexNet v11.13.1.2, you will need to update the license server.

Note: Customers desiring to run their Licensing Server on Windows 10 operating systems, should install Mentor Graphics Standard Licensing v2015_1 Patch 2 with FLEXnet v11.13.1.2 (or newer) currently available from SupportNet.

Related TechNote:

Why upgrade to FlexNet v11.13.1.2/v11.13.1.4? Download the latest licensing software.

Authorization Codes

To use PADS VX.2.1, you must be on support contracts for these products as of November 2016. For more information about "Exact Access" authorization code formats, see the explanation on SupportNet at:

http://supportnet.mentor.com/about/other-info/exact_access.cfm

You may download your site's existing authorization codes from SupportNet at:

http://supportnet.mentor.com/myaccount/index.cfm?fa=user.licenses

For additional information on licensing, refer to the *Licensing Mentor Graphics Software* manual.

Ordering Licenses

To order licenses, contact your local Mentor Graphics sales office. They can provide you with information on the number of node-locked and floating licenses your company purchased and any current license sever configurations you may have. You must provide them with:

- Any new license server configuration

- The host ID numbers of client and license server workstations for node-locked licenses

- The host ID number of the license server workstation for all floating licenses

Existing Mentor customers are reminded that your licensing report is available at the SupportNet web site (*http://supportnet.mentor.com/myaccount*), and then choose the My **Licenses** tab.

Note: The Customer Support web site requires a login and password. To register and obtain a password, go to *http://supportnet.mentor.com/user/register.cfm*. If you have difficulties, email *csd_registration@mentor.com*.

If you are registered, but have forgotten your password, go to

http://supportnet.mentor.com/user/forgot_password.cfm

Installation Information

This release uses the Mentor Graphics Standard Installation program. For additional information on installation, refer to *Managing Mentor Graphics PCB Systems Software* manual and the help system within the installation software. You can view this manual at the top level of the CD and on SupportNet.

Platform Support Changes

No platforms changes for PADS VX.2.1.

Support Information

If you have questions about this software release, please log in to SupportNet. You may search the KnowledgeBase with thousands of technical solutions or open a Service Request online at:

http://www.mentor.com/supportnet

If you do not have a SupportNet login, you may easily request one by filling out a short form:

http://www.mentor.com/supportnet/quickaccess/SelfReg.do

For phone support in the United States or Canada, please call 1-800-547-4303. For phone support in other locations, please contact your local sales office or distributor. All Customer Support contacts can be found on our web site at:

http://www.mentor.com/supportnet/support_offices.html

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.

Processor Note for Intel/AMD Processors

All Windows 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 7

Microsoft Windows 7 (32 and 64 bit versions), Professional Edition, Ultimate Edition, and Enterprise Edition are supported.

While there is no known issue with running Microsoft Windows 7 Starter Edition and Microsoft Windows 7 Home Premium 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.

Memory: 8GB recommended

Swap Space: 2x the amount of RAM

Windows Server 2008 R2

The following configurations are only supported for the sharing of libraries. All other PADS VX.2.1 products are not supported on any Windows Server platforms:

Microsoft Windows Server 2008 R2, Standard Edition with all current updates via Windows Update, both 32-bit and 64-bit versions.

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

Memory: 8GB recommended (per simultaneously logged in user)

Swap Space: 2X the amount of RAM

Microsoft Windows 8.1

Microsoft Windows 8.1 (32 and 64 bit versions), Enterprise Edition and Pro Edition are supported.

While there is no known issue with running Microsoft Windows 8.1 Basic Edition, the product has not been tested with this edition, 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.

Memory: 8GB recommended

Swap Space: 2x the amount of RAM

Windows Server 2012 & 2012 R2

The following configurations are only supported for the sharing of libraries. All other PADS VX.2.1 products are not supported on any Windows Server platforms:

Microsoft Windows Server 2012 with all current updates via Windows Update and Microsoft Windows Server 2012 R2, with all current updates via Windows Update

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

Memory: 8 GB recommended (per simultaneously logged in user)

Swap Space: 2X the amount of RAM

Microsoft Windows 10

Microsoft Windows 10 (32 and 64 bit versions), 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.

Warning: The new Microsoft Edge Browser delivered with Windows 10 is not supported with PADS VX.2.1.

Kernel Configuration: N/A

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

**Memory:** 8GB recommended

Swap Space: 2x the amount of RAM

Windows 10 VMWare Based Virtual Machine Installation

PADS VX.2.1 installation may not complete on VMWare based Virtual Machines running Windows 10 without the System Variable _JAVA_OPTIONS=-Dsun.java2d.d3d=false.

1. Go to System Properties -> Environment Variables -> New and add the following system variable. **Please pay attention to the following details**. Variable name has an underscore in the beginning and the variable value begins with a dash with an all lower case "false" at the end.

   Variable name: _JAVA_OPTIONS
   Variable value: **-**Dsun.java2d.d3d=**false**
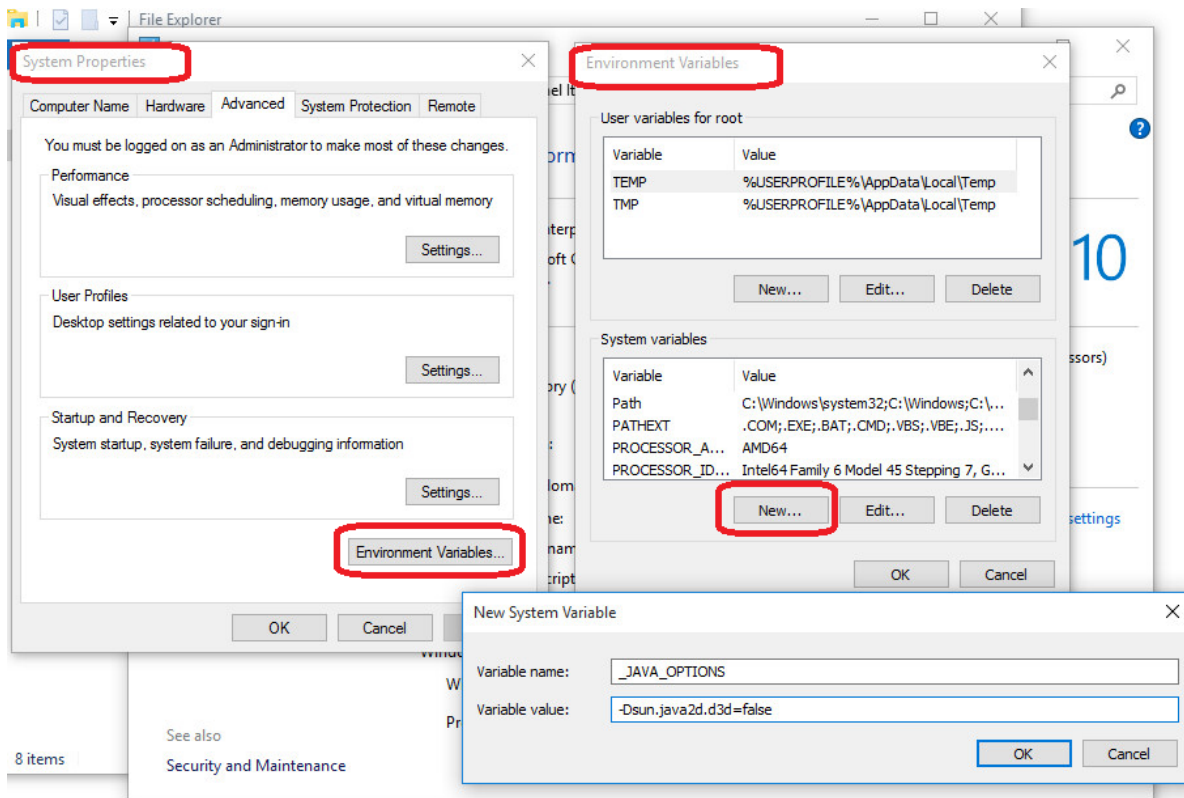
2. After you save it make sure to double check that this System variable set as documented.

3. Invoke PADSVX.2.1_mib.exe to start the PADSVX.2.1 Installer.

Warning: While performing the steps to set up the environment variable, ensure you do not copy and paste the variable text into the New System Variable dialog box; Microsoft Windows inadvertently converts the en dash into an em dash, thereby making the variable incorrect.

For more info about "en dash" vs "em dash" https://support.office.com/en-us/article/Automatically-format-hyphens-as-en-dashes-and-em-dashes-8742dd30-af01-464f-a8c8-ec6fdee23197