



# **PADS VX.0 Release Highlights**

July 2014

---

**© 2014 Mentor Graphics Corporation  
All rights reserved.**

This document contains information that is proprietary to Mentor Graphics Corporation. The original recipient of this document may duplicate this document in whole or in part for internal business purposes only, provided that this entire notice appears in all copies. In duplicating any part of this document, the recipient agrees to make every reasonable effort to prevent the unauthorized use and distribution of the proprietary information.

This document is for information and instruction purposes. Mentor Graphics reserves the right to make changes in specifications and other information contained in this publication without prior notice, and the reader should, in all cases, consult Mentor Graphics to determine whether any changes have been made.

The terms and conditions governing the sale and licensing of Mentor Graphics products are set forth in written agreements between Mentor Graphics and its customers. No representation or other affirmation of fact contained in this publication shall be deemed to be a warranty or give rise to any liability of Mentor Graphics whatsoever.

MENTOR GRAPHICS MAKES NO WARRANTY OF ANY KIND WITH REGARD TO THIS MATERIAL INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

MENTOR GRAPHICS SHALL NOT BE LIABLE FOR ANY INCIDENTAL, INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES WHATSOEVER (INCLUDING BUT NOT LIMITED TO LOST PROFITS) ARISING OUT OF OR RELATED TO THIS PUBLICATION OR THE INFORMATION CONTAINED IN IT, EVEN IF MENTOR GRAPHICS CORPORATION HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### **RESTRICTED RIGHTS LEGEND 03/97**

U.S. Government Restricted Rights. The SOFTWARE and documentation have been developed entirely at private expense and are commercial computer software provided with restricted rights. Use, duplication or disclosure by the U.S. Government or a U.S. Government subcontractor is subject to the restrictions set forth in the license agreement provided with the software pursuant to DFARS 227.7202-3(a) or as set forth in subparagraph (c)(1) and (2) of the Commercial Computer Software - Restricted Rights clause at FAR 52.227-19, as applicable.

**Contractor/manufacturer is:**

Mentor Graphics Corporation  
8005 S.W. Boeckman Road, Wilsonville, Oregon 97070-7777.  
Telephone: 503.685.7000  
Toll-Free Telephone: 800.592.2210  
Website: [www.mentor.com](http://www.mentor.com)

SupportNet: [supportnet.mentor.com/](http://supportnet.mentor.com/)

Send Feedback on Documentation: [supportnet.mentor.com/user/feedback\\_form.cfm](http://supportnet.mentor.com/user/feedback_form.cfm)

**TRADEMARKS:** The trademarks, logos and service marks ("Marks") used herein are the property of Mentor Graphics Corporation or other third parties. No one is permitted to use these Marks without the prior written consent of Mentor Graphics or the respective third-party owner. The use herein of a third-party Mark is not an attempt to indicate Mentor Graphics as a source of a product, but is intended to indicate a product from, or associated with, a particular third party. A current list of Mentor Graphics' trademarks may be viewed at: [www.mentor.com/terms\\_conditions/trademarks.cfm](http://www.mentor.com/terms_conditions/trademarks.cfm).

**End-User License Agreement:** You can print a copy of the End-User License Agreement from: [www.mentor.com/terms\\_conditions/enduser.cfm](http://www.mentor.com/terms_conditions/enduser.cfm).

## Introduction

The PADS VX.0 release is a significant milestone for the PADS product line. PADS joins the Mentor PCB VX platform, delivering unparalleled integration between schematic design and layout. A Central Library and a spreadsheet based constraint editing system is also new in this release. In addition, the Land Pattern Creator is now delivered with every PADS configuration, allowing the quick parametric definition of new footprints.

New archive management capabilities have been added (PADS ES Suite) that allow the generation, search, viewing, and graphical and/or database comparisons of archives.

The PADS VX.0 release also delivers a new starter library with PADS parts and footprints, along with xDX Designer symbols.

xDX Designer in the PADS VX.0 release has seen significant enhancements in the areas of usability and productivity. Many of these enhancements have been driven by you, our customers, from Mentor Ideas.

## Name Changes

In a rebranding effort, the following name changes have been made:

<u>Old Name</u>	<u>New Name</u>
DxDesigner	xDX Designer
DxDataBook	xDX Databook
I/O Designer	xDX I/O Designer
DxLibraryStudio	Library Studio
ECAD-MCAD Collaborator	xPCB MCAD Collaborator
Land Pattern Wizard	xDM Land Pattern Creator
EDIF Interfaces	EDIF IF

## Integrated Projects

The PADS VX.0 release introduces the new PADS integrated projects, along with the traditional netlist projects. xDX Designer users now have a choice of methodologies to deploy. You can continue to use netlist projects with PADS VX, with no impact on your work flow. Netlist projects continue to use the existing libraries, ASCII file based integration, and the dialog box based Design Rule editor. The integrated projects introduce increased levels of productivity with:

- 
- Central Library – one library to store xDX Designer symbols, Decals, part definitions, simulation models, and drafting objects.
  - Data synchronization – synchronized databases between xDX Designer, layout, and constraints eliminate ASCII file based integration, and provide real-time communication if a parts list, connectivity, constraint or other database change is made at any point in the design cycle.
  - Constraint Manager – a spreadsheet based constraint editor for the definition and management of constraints, including auto-assignment of differential pairs. The constraint manager is used in both xDX Designer and PADS, so a consistent user interface is realized.

To start using integrated projects, existing libraries must be migrated to the Central Library. A Migration Guide is available with the installation media to step you through this process. This Guide also describes the process of moving from PADS Logic to xDX Designer and integrated projects.

# New Features

The following new features are available in this release:



## Starter Library

- **A new starter library is available with PADS:**
  - § Includes xDX Designer symbols, with PADS parts and decals.
  - § Available for integrated and netlist projects, and can be download from our website at <http://www.pads.com/go/oda-pads>



## xAVE Design Archive

- **New Archive Management functionality is available for PADS ES Suite customers:**
  - § Create multiple archives per project
  - § Store in a vault on your computer or network
  - § View of schematic and layout in one environment with cross-probing
  - § Graphical and data comparisons
  - § Create “difference” reports between two archives (revisions).
  - § Multiple users can create archives.
  - § Extensive redline and markup capabilities to capture review intent between one or many reviewers



## xDM Land Pattern Creator (formerly Land Pattern Wizard)

- **xDM Land Pattern Creator is available to all PADS customers:**
  - § Footprint generation approved by IPC to build IPC-7351B compliant land patterns in minutes
  - § LP Librarian to save, store, and reference component dimensional data and land pattern design rules
  - § Searchable Starter Library with 10,000+ land patterns



## PADS Layout

- **Support of the Integrated Projects:**

- § Tight integration with xDX Designer via the Project Integration dialog and Indicators
  - xDX Designer project and layout PCB files are connected to each other
  - One click in xDX Designer to open the corresponding PCB file in Layout
  - One click communication (Forward or Backward Annotation)
  - Changes on either side (Schematic or Layout) are immediately visible via indicators
  - Clear information about Forward Annotation and Backward Annotation pending changes
  - Unified attributes (properties) that are common for Schematic and Layout
  - Cross-probing with xDX Designer
- § One centralized library that serves both xDX Designer and PADS
  - Clear symbol↔part↔decals relations that are correct by design
  - Default HLA models can be set at the library level
  - Effective interface to xDX Databook database
- § Constraint Management that allows entering same rules on both Schematic and Layout sides and then synchronize them between Schematic and Layout
  - Mentor Ideas D4038-Automate selection and assignment for Differential Pairs
  - Spreadsheet based
  - Easy creation of constraint classes, differential pairs, assigning nets to class
  - Cross-probing with Layout and xDX Designer
- § xPCB MCAD Collaborator (formerly ECAD-MCAD Collaborator)
  - Schema version supported by PADS VX.0 is 2.0 vs 1.2 that was supported by PADS 9.5
  - Minor fixes



## PADS Router

- **Support of the PADS Integrated Projects:**
  - § Constraint Management
  - § Cross-probing with xDX Designer
  - § Cross-probing with Constraint Manager



## xDX Designer (formerly DxDesigner)

- **Support of the Integrated Projects:**
  - § Tight integration with PADS Layout via the Project Integration dialog and Indicators
    - xDX Designer project and PADS Layout PCB files are connected to each other
    - One click in xDX Designer to open the corresponding PCB file in PADS Layout
    - One click communication (forward or backward annotation)
    - Changes on either side (schematic or layout) are immediately visible via indicators
    - Clear information about forward annotation and backward annotation pending changes
    - Unified attributes (properties) that are common for Schematic and Layout
    - Cross-probing with PADS Layout
  - § One centralized library that serves both xDX Designer and PADS Layout
    - Clear symbol↔part↔decal relations that are correct by design
    - Default HLA models can be set at the library level
    - Effective interface to xDX Databook database
  - § Constraint Management that allows entering same rules on either Schematic or Layout side and then synchronize them between Schematic and Layout
    - Spreadsheet based
    - Easy creation of constraint classes, differential pairs, assigning nets to class

- 
- Cross-probing with PADS Layout and xDX Designer

- **xDX Designer Usability Improvements:**

- § Extended/progressive tool tips with animated video How-tos for out-of-the-box ease-of-use
- § My Parts Window enables fast efficient placement based on Favorites and Recently Used as well as easy recognition for placement of special components
- § Dynamic Alignment provides alignment markers to aid in symbol placement
- § Objects Highlighted on hover indicates which object is under the cursor
- § Direct Insertion of text — Add annotation text by single click and typing directly on the drawing sheet
- § Ghost image on cut & paste — Don't need to click the left mouse after Paste to see the pasted object
- § Key Modifiers:
  - Area Select – Alt + Area Select (mouse) – switches between Fence and Overlap Mode
  - Graphical Line – Ctrl + Line – snaps to grid for straight/90/45 degrees
  - Smart Selection
    - § Shift + Area Select (mouse)
    - § Select one of the objects you're interested in
    - § Shift + Area Select – only selects the same objects within the fence
- § Net Names Snap to Nearest Vertex — Net names will anchor themselves to nearest segment vertex & mid-point as the name is moved (Idea D6867)
- § Enhanced Graphics – Smart Shapes — Arrow heads for graphic lines (Idea D12187)
- § Dynamic Graphical Rule Check
  - Follows a correct by construction approach – Eliminates manual time consuming correction of overlapping objects late in the design process
  - Highlights Object overlapping with nets, symbol graphics, properties and other text etc.
  - Allows object overlapping but highlights problems

- **xDX Designer Connectivity Improvements:**

- § Multi-Net Connections



- Minimizes the effort to connect symbols
- Ability to control how nets are routed
- Start Routing from ordered selection of pins
- Multi pin-to-pin connections driven by selecting two sets of pins
  - § Pin selection by group or individual pins
  - § Order of pins indicated by the selection box and displayed
  - § Selection area with +/- modes with different colors (source & destination/target pins)
- § Component to Bus Connections — Moves a component placed on a bus, rips nets and routes them to the component
- § Cut Nets — Disconnect nets by area selection
- § Multi-net split - Huge productivity gain for both Digital and Analog design
  - Ability to drop one net on multiple already placed symbols and create /connect individual nets with one mouse click
  - Ability to drop components on existing nets
    - § Open nets and reconnect to dropped component
    - § Reassign named nets by ‘drag and drop’
- § Connectivity Advisor for nets — Extended to net-to-net and net-to-bus connections
- § Net grab handles — Easily move solder dots, Insert net vertex

- **23 Mentor Ideas were implemented in xDX Designer:**

- § D13102 DxDesigner should have option to check , is the schematic free of any overlapping text
- § D12733 Being able to export and import directly from Excel would be very useful
- § D12732 It would be nice if the ICT export/import include the Ref Designator
- § D12294 Navigation View windows should stay open when switching/opening sheets
- § D12187 Arrow Head for Line in DxDesigner
- § D12071 Remove XCMP\* XSIG\* names in DX following DC2DX translation
- § D10981 Add method to disable the Start Page from opening when DxDesigner is launched

- 
- § D10646 Please highlight the problematic pin in DRC-501
  - § D8310 Allow the symbol has three or greater pins to split a net
  - § D8102 Open the default first page by dxdesigner
  - § D6867 Make net name location more useful
  - § D6651 Request that DxDesigner use pin labels for defining connectivity instead of pin IDs
  - § D6102 Make DxPDF print TrueType fonts the same scale as displayed in DxDesigner, and allow font embedding
  - § D3914 Ghost outline required when copying and pasting a component
  - § D3893 Add Symbols Preview Windows for selected Powers & Grounds
  - § D3683 Overlapping NETS & BUS Display
  - § D3315 Automatic bus connections
  - § D3085 Rename "Display Grid" to "Snap to Grid"
  - § D2592 Recently placed parts in DxDatabook
  - § D2482 Change the functionality of Cut Trace to Include Splitting a Net in Half
  - § D2201 Favorites bar for frequently used parts
  - § D1632 Need Access to Netlist.prp file for the Migration Process from DxD (pre-iCDB) to DxD (iCDB)



## HyperLynx

- **Welcome screen updates for standalone mode**
- **New PCB-Import Capability: ODB++**
  - § HyperLynx 9.1 offers an important new way of loading PCB-design data into BoardSim: through ODB++. This support is implemented with Valor's "golden" parser, ensuring conformance to the latest ODB++ specification.
- **Qualified Part Library (QPL) in LineSim**
  - § The qualified parts library (QPL) file and its editor are now available in LineSim.
- **Advanced Tool Tips**
  - § The HyperLynx toolbar now offers "advanced" tool tips, which provide a more-modern look and the ability to provide more-detailed information than with the older style.



---

## Important Notes

- **Although PADS now supports the integrated projects, the netlist flow continues to operate as before.**
- **When switching between releases (for example, PADS VX.0 and PADS 9.5), you must use the Release Switcher. You cannot use the Configurator.**

The Release Switcher can be found in the Start menu at:  
**Mentor Graphics PCB >MGC PCB Release Switcher**

## PADS Videos

There are many new and upcoming videos that provide product information and instruction. Please see:

<http://www.pads.com/videos#filter=multimedia-type;start=0;limit=9;>

## Authorization Codes

To take advantage of some of the new functionality in the PADS VX.0 release, new license features are available for some PADS Suites and Bundles, for users with a current maintenance contract:

- **PADS ES Suite** — for the new Design Archive software.
- **Some Layout Bundles** (075/125/575 only) — for the Specetra link.
- **All PADS Suites and Layout Bundles** — for the xDM Land Pattern Creator (formerly known as LP Wizard)

The most current copy of your Site's license file can be downloaded at any time from SupportNet: <http://supportnet.mentor.com/portal?do=user.authCodeForm>. Refer to the 'Licensing' section in TechNote [mg58662](#) for details on installing an updated license file.

The exact access date has increased to 2014.02. For more information about the exact access date, please see the following SupportNet page:

[http://supportnet.mentor.com/about/other-info/exact\\_access.cfm](http://supportnet.mentor.com/about/other-info/exact_access.cfm)

You may request your existing or updated authorization codes by opening a non-technical Service Request on SupportNet: <http://supportnet.mentor.com/>

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

## Installation Information

PADS VX.0 is a completely separate installation from previous PADS releases and uses new installation methods to create an easier installation experience. Database and ASCII formats for Layout and Router designs have been updated. The PADS library format in the netlist flow has not changed. PADS Logic ASCII and database format are the same as PADS 9.x. The Installation path for PADS VX.0 is still C:\MentorGraphics, but it is installed to a new \PADSVX.0 sub-folder to prevent overwriting an existing software installation. While PADS VX.0 installs the unique C:\MentorGraphics\PADSVX.0 folder and does not overwrite previous PADS installations, you should back up your existing PADS installation, designs and libraries prior to installing PADS VX.0. If you have been part of the beta program uninstall beta software before installing the released version of PADS VX.0.

For additional information on installation, refer to:

- *PADS Installation Instructions* (PADS\_VX.0\_install.pdf), available from the release\_documents directory at the top level of the DVD or download image.
- *Managing Mentor Graphics Systems Software* (manage\_sw\_pads.pdf) manual, available from the release\_documents directory at the top level of the DVD or download image.
- Help system within the installation software.

## The Mentor Graphics Documentation System

This release includes the updated v3.2 Mentor Graphics Documentation System—comprising a search and navigational interface called InfoHub™, and documents in PDF and HTML formats.

**NOTE:** A [v3 overview movie](#) is available on [SupportNet](#) (accessible from this link and from the “InfoHub Overview” link in the InfoHub footer). Watch the movie for an overview of highlights and tips on getting the most from InfoHub.

### Documentation System Enhancements

- Full Chrome support on SupportNet
- Better local Chrome support. No longer displayed in "Basic" mode. (For information on setting up Chrome options to properly access and view the InfoHub and SupportNet, see the “Browser Settings” topic in Chapter 1 of the *Mentor Graphics Documentation System* manual.)
- Improved search with special characters

---

## Documentation Improvements

- The entire *PADS Layout User's Guide and Reference Manual* has been reviewed, tested, and rewritten for technical correctness and ease of use.

## Providing Feedback

We welcome your feedback on the documentation system. You can access the feedback form in multiple ways, for example:

- Click **Feedback** in the button bar of HTML documents.
- Click **Documentation Feedback** in the Bookmark list of PDF documents.

If interested, you can discuss your feedback with the technical writer responsible for the documentation for your product line.

## Support Information

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

<http://supportnet.mentor.com/>

If your site is under current support and you do not have a SupportNet login, you may easily register for SupportNet by filling out the short form at:

<http://supportnet.mentor.com/user/register.cfm>

All customer support contact information can be found on our web site at:

<http://supportnet.mentor.com/contacts/supportcenters/>