



A Siemens Business

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# **PADS® Professional Release Highlights**

Software Version PADS Professional VX.2.4

September 2018

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## Introduction

Built for the independent, multi-discipline hardware engineer who does it all, PADS Professional utilizes Xpedition® technology that can handle the most demanding and complex designs, where other solutions fail.

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.

### Mentor 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 Mentor. For additional information, please visit Mentor Support Center: <https://www.mentor.com/support/en/about>

## New Products and Features

### New Product Options

- **PADS Professional DS Suite** - A new front end centric suite targeted at the engineer who is focused on schematic capture, constraint and variant definition and analog/mixed signal simulation and analysis. The DS Suite will replace the PADS DS Suite that some customers have been using to create PADS Professional projects, while eliminating current limitations such as incompatible libraries and no Variant Manager support. The following products and functionality will be delivered in the new DS Suite:
  - PADS Designer
  - PADS AMS
  - Variant Manager

## PADS Library Tools

### Standalone PADS Library Tools

A new option to run the PADS Library Tools standalone will allow users to access all of the library editors for Symbols, Parts and Cells at the same time and enables concurrent editing of all library objects.

Functionality available in the different modes and specific editors is summarized below:

Library Services	Standalone	Designer	Layout	Fablink XE
Setup Parameters	✓	✓	✓	✓
Property Verification	✓	✓	✓	✓
Units Display	✓	✓	✓	✓
Partition Editor	✓	✓	✓	✓
Partition Search Paths	✓	✓	✓	✓
Unreserve Partitions	✓	✓	✓	✓
Property Definition Editor	✓	✓	✓	✓
Visual IBIS Editor	✓	✗	✓	✓
Part Editor	✓	✓	✓	✓
Cell Editor	✓	✗	✓	✓
Padstack Editor	✓	✗	✓	✓
Symbol Editor	✓	✓	✗	✗
Layout Template Editor	✓	✗	✓	✓
Material Process Editor	✓	✓	✓	✓
Simulation Model Properties	✓	✓	✓	✓

The full PADS Professional license suite will be consumed in this mode, similar to if either schematic or layout is opened.

In addition, the Central Library will be locked in this mode and cannot be opened from within either PADS Designer or Layout.

PADS Library Tools will now also be available a separate option from the start menu.

In addition, multi user access to the Central Library has been enabled so that a front end user, who can invoke PADS Library tools from within PADS Designer, may edit the Symbol and Part partitions, at the same time that a PCB user can edit the Cell partitions when invoking PADS Library tools from within Layout.

## Library Services

Library Services have been enhanced to support management of bulk operations such as Import and Export, Copy, Move and Delete of library data.

Functionality available in the different modes and specific editors is summarized below:

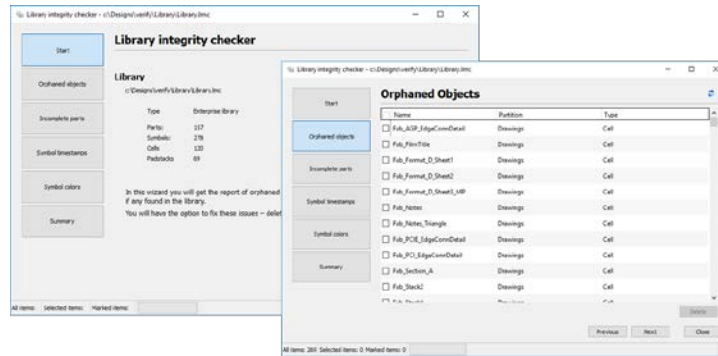
Object Type	Function	Designer	Layout/Fablink XE	Standalone
Parts	Import from Library Database	✓	✓	✓
	Import from file (encrypted HKP)	✓	✓	✓
	Export to Library Database	✓	✓	✓
	Export to part file (encrypted HKP)	✓	✓	✓
	Move between partitions	✓	✓	✓
	Copy (internal) to partition	✗	✗	✗
Cells	Import from Library Database	✗	✓	✓
	Import from file (encrypted HKP)	✗	✓	✓
	Export to Library Database	✗	✓	✓
	Export to part file (encrypted HKP)	✗	✓	✓
	Move between partitions	✗	✓	✓
	Copy (internal) to partition	✗	✓	✓
Symbols	Import from Library Database	✓	✗	✓
	Import from ASCII File	✗	✗	✗
	Export to Library Database	✓	✗	✓
	Export to ASCII File	✗	✗	✗
	Move between partitions	✓	✗	✓
	Copy (internal) to partition	✓	✗	✓
Padstacks	Import from Library Database	✗	✓	✓
	Import from file (encrypted HKP)	✗	✓	✓
	Export to Library Database	✗	✓	✓

## Library Verification

Library Verification provides basic library integrity checks.

- Orphaned objects
  - Symbols - a symbol that does not reference a part
  - Cell - a cell that isn't referenced in any part
  - Padstack - a Padstack that is not referenced in any cell
  - Part - a part that does not reference any cell or symbol
- Basic symbol checks
  - Missing timestamps
  - Objects without automatic colors
- Options to delete or Repair
- Summary Report

- Launched from within tools



# PADS Professional Layout

## OrCAD Netlist Interface

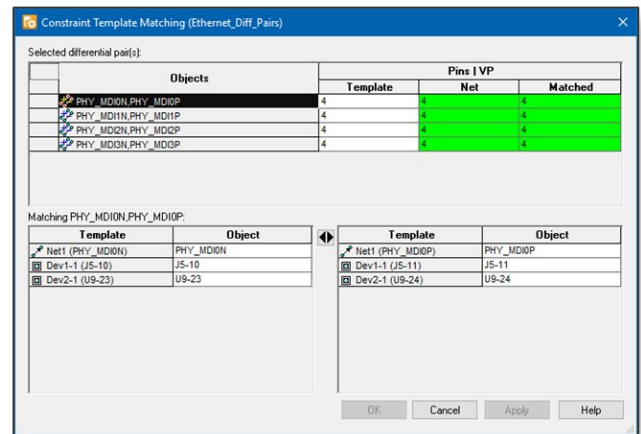
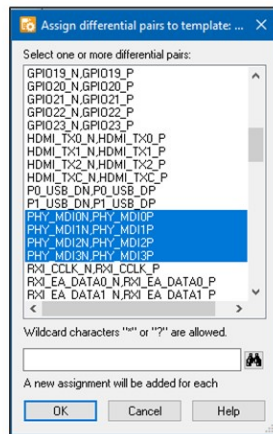
Support for the “Group” property has been added, which maps to the “Cluster” or Room property to group components in user defined groups to drive placement through the Component Explorer.

- Set Group property in OrCAD schematic or PADS Professional layout
- Forward and/or back annotate Group property to maintain synchronization and intent

## Constraint Manager Templates

Constraint Manager has added the capability to create a template of Nets and Differential Pairs.

Templates can include Constraints, Topology and Pin Pairs and can be assigned to other nets/differential pairs. This new functionality is useful for duplicating properties on multiple nets, such as setting up DDR nets.



## Test Points in Constraint Manager

The number of Test Points required for each net can now be defined within Constraint Manager as well as being able to view the Actual Number of placed layout Test Points.

Constraint Manager has added the ability to migrate current settings from Pads Professional Layout's Test Point Placement into Constraint Manager.

Constraint Class/Net	# Test Points		
	Required	Actual	
MGT_SW_SDI***	0	0	
MGT_SW_SDO***	0	0	
RESET_BTN_PS_SOC	1	0	
1V2_MGTAVTT_L	1	0	
\$5N1538_SOC	1	0	
1V2_MGTAVTT_R	1	0	
1V8_MGTVCCAUX_L	1	0	
1V8_VCC_PSDDR_PLL	1	0	
\$1N7345_SUPPORT	1	0	
POWER_BTN	2	7	
I2C0_CLK	1	7	
I2C0_RST	1	7	
Test Point Assignment			
Test point settings by net			
<input type="checkbox"/> Display only nets needing test points			
<input type="checkbox"/> Expand (Net) nets			
Net Class	Net Name	Required	Placed
SOC_SE	LED_PS_RED	1	0
SOC_SE	M01_3V_C50	1	0
SOC_SE	M01_3V_C51	1	0
SOC_SE	M01_3V_C52	1	0
SOC_SE	M01_3V_RST6	1	0
SOC_SE	M01_3V_RST11	1	0
SOC_SE	M01_3V_RST12	1	0
SOC_SE	M01_3V_SEE	1	0
SOC_SE	RESET_BTN_SOC	1	0
SOC_SE	M01_3V_3D0_PS_SCC	0	0
SOC_SE	M01_3V_3D0	1	0
SOC_SE	M01_3V_3D0_PS_SOC	0	0
SOC_SE	NET_RESET_SOC	1	0
SOC_SE	NR0_RESET_SOC	1	0



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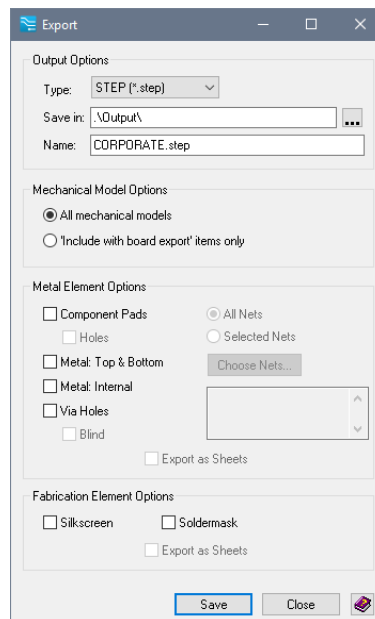
## Export 3D STEP

Export STEP has been enhanced to support an increased set of design objects as well as better overall control of the objects that are exported.

The 3D STEP model of the board now writes out multiple STEP files. The individual files allow the consumer to manage the amount of data and MCAD performance by choosing what they would like to load into the MCAD system.

The following electronic objects will be exported in individual STEP files:

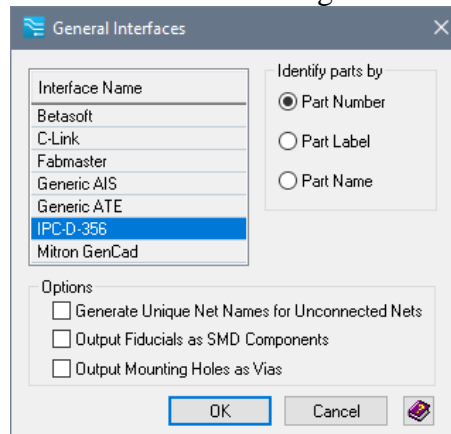
- Board, Holes in board (Via, Mounting, Component) and Components
- Conductors : Top/Bottom and Internal
- Silkscreen
- Soldermask
- Coverlay (Rigid Flex)



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## IPC-D-356 Export

Export IPC-D-356 is added to the General Interfaces dialog.



## MCAD Collaboration – Additional object support

Additional design objects are now supported through the MCAD Collaborator.

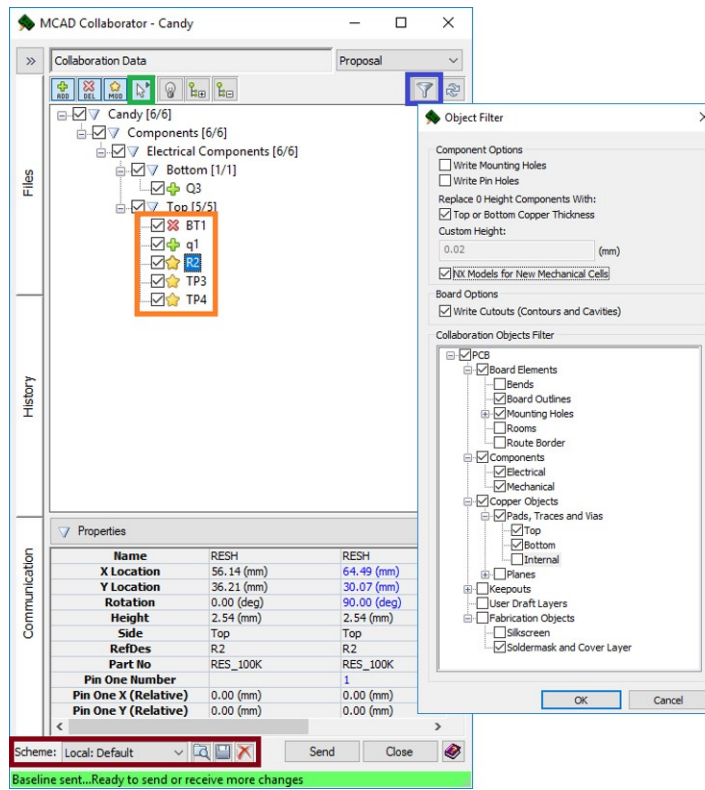
- Baseline Export
  - Internal copper
  - Fiducials
  - Planes
  - Partial Mounting Holes
  - Silkscreen
  - Soldermask/Coverlay (Flex Rigid)
  - Stiffeners
- Incremental Exchange
  - Flex areas
  - Bends
  - Component keep-ins (Rooms)

## MCAD Collaborator - Process Usability

The MCAD Collaborator dialogs are improved in several areas.

- Streamlined user interface
  - Select in edit window, locate in GUI
  - Easy to read icons
  - Schemes
  - Object filter for usability and performance
- Log files for implemented changes

- Email notification of file availability

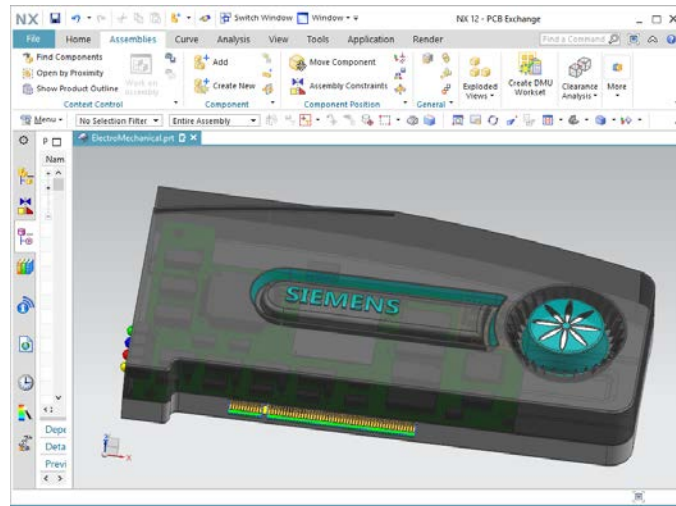


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## MCAD Collaborator – Siemens NX Integration

3D model exchange between PADS Professional and Siemens NX is now supported

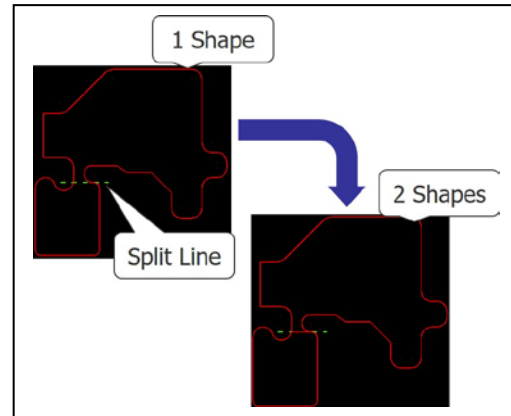
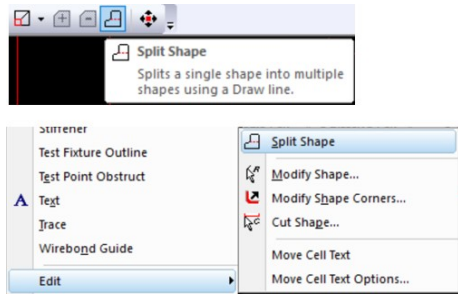
- Import of NX Parasolid models
- NX import of PADS Professional 3D models
- Models alignment and mapping



## Draw – Split Shape

The Split Shape command allows a complex, closed polygon Draw Object to be split into two or more Draw Objects

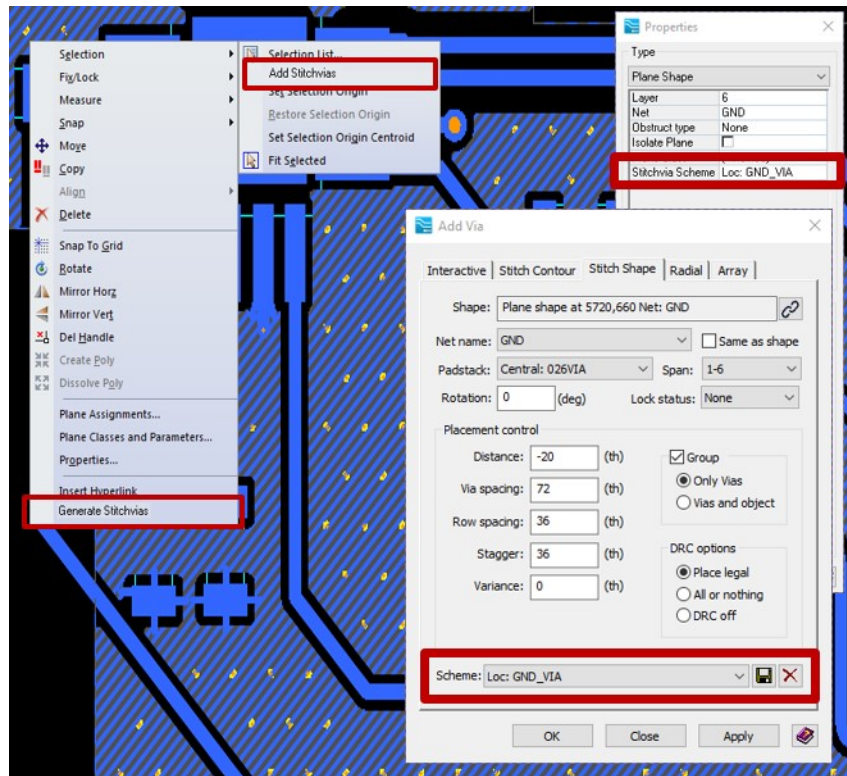
- Combination of a single Draw line and a closed Draw Object is used
  - Original closed shape is replaced by multiple shapes on the same layer
  - After split, the Draw Line remains for future reference or re-use
- Ideal for creating multiple shapes with a common, overlapping edge
  - Multiple Flex board outline shapes is one target use case
- Available in Draw Edit toolbar and Draw >Edit Menu



## Stitching Vias

There are enhancements to the addition and management of Stitch vias.

- Add Via dialog will allow stitch via generation parameters to be saved and reused by Scheme
- Plane Shapes, Conductive Shapes and draw objects on user layers can have a Stitch Via scheme assigned that defines how the vias for a given shape will be generated
- You will now will be able to select “Stitch Vias” as a new selection type
  - This new methodology enables quick selection and regeneration of Shielding Vias for a given shape



## PADS Professional Designer

There are several ease of use improvements and new functionality for the VX.2.4 release.

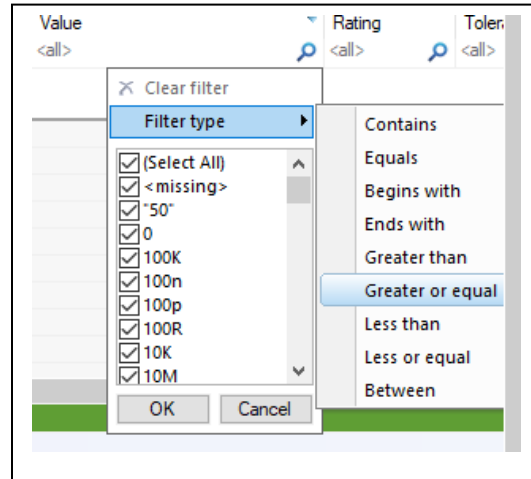
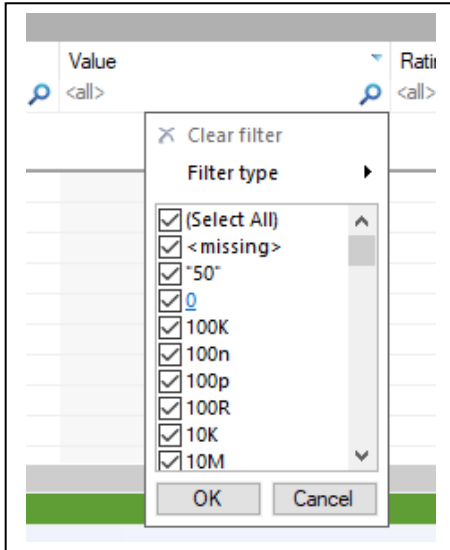
### Design Concurrency

Design concurrency is supported (.i.e one user editing the schematic while one user is also editing the layout) through the use of the RSCM server.

### Search Enhancements

Continued enhancements to the Search capabilities

- Support for “missing” and blank rows
- Conditional searches added to menu pick
  - Contains
  - Equals
  - Begins with etc.



## IDEAS

The following additional IDEAS have also been addressed:

- D3976 - Tooltip property display control
  - D1973 - Ability to define the popup symbol properties of a PDF-file created by DxPDF
  - Control which properties are displayed in the Tool Tip and PDF output
- D13367 - Show flattened net names in DxD from iCDB
  - Controlled from Display Control
  - On the net - superscript
  - In the Hint
  - In the Tool Tip
- D12798 - Add menu item for Graphical Rules Checker

## HyperLynx SI/PI/Thermal VX.2.4 - TBD

## Valor NPI - TBD

## Authorization Codes

To use the latest releases, you must be on support contracts for these products as of February 2018. For more information about "Exact Access" authorization code formats, see the explanation on Support Center at [Exact Access Licensing](#)

You may download your site's existing authorization codes from Support Center at [Account Center Licenses by site](#)

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## 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 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 2006 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 hyperthreaded 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



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**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.

## Microsoft Windows 8.1

Microsoft Windows 8.1 Professional Edition, Ultimate Edition, and Enterprise Edition are 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

## 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 Pro VX.1.2 and Later.

**Kernel Configuration:** N/A

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

**Memory:** 4GB Minimum, 8GB recommended

**Swap Space:** 2x the amount of RAM