EMA Currents

An Informative e-Newsletter from EMA Design Automation

Newsletter

EMA Launches the New ema-eda.com

EMA recently launched our new, completely redesigned website with the world's largest EDA store. The new site takes advantage of advancements in web design to deliver a significantly better user experience. The result is a simple, online portal for customers to contact us, access product resources, and purchase solutions.

Also in this issue:

…and Much More!

Growing the OrCAD Capture Marketplace

Improved Accessability, Free Trials, New Apps, and More

In the Fall of 2011 Cadence® launched the OrCAD® Capture Marketplace, an online resource with specialized tools for PCB designers. This marketplace was created to provide designers with additional functionality in the form of affordable apps, component information and models, and OrCAD-centric educational media.

The app-based delivery model is new to the PCB design industry, but has proven highly successful at quickly introducing new features and capabilities to customers. With Apps, Cadence has opened up development of the OrCAD platform to partners and private enterprise. Developers can quickly augment the existing OrCAD PCB design tools with additional capabilities. Often these apps are built to solve a specific customer's challenges, and then released to the general user community for all to benefit. In the smart phone world it's an app that helps you pick a restaurant; in the PCB world it's the CircuitFit app that helps you perform early fit studies on your design.

Online Access
Recently EMA and Cadence have expanded access to the marketplace beyond just those who have OrCAD Capture. The marketplace is now accessible online at orcadmarketplace.com. This allows anyone to utilize the marketplace, browse its content, or download apps for their OrCAD tools. This addition has received very positive feedback from customers.

"The OrCAD Capture Marketplace and Online Store for Apps provides a great resource for Cadence users to instantly access and acquire additional design capabilities as needed," said Rainer Brocker of Beckhoff Automation GmbH. "We were able to immediately improve our process by employing OrCAD Apps in our design flow. Expanding the marketplace to a general web browser will give the entire Cadence design community access to this valuable content."

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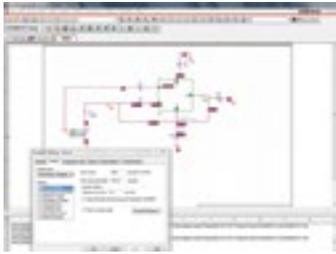
STMicroelectronics PSpice Integration

STMicroelectronics, a global leader in integrated circuits for communications, consumer, computer, automotive and industrial applications, has selected Cadence PSpice® technology to provide enhanced simulation capabilities to customers designing with their line of power IC's.

STMicroelectronics' analog products are supported today by the free SMPS eDesign Studio. This tool helps engineers determine the ST device that will best meet their Switched-Mode Power Supply (SMPS) system requirements. Circuits evaluated using the online eDesign Studio can now be directly imported into PSpice for more thorough evaluation and analysis.

A free version of the Cadence technology will be available for download at www.ema-eda.com/orcaddownload for analysis of ST products within specific circuit test-benches, which can be obtained through ST's SMPS eDesign Studio.

In the next issue of EMA Currents we will explain in detail how engineers can use this process. To sign up for the newsletter visit www.ema-eda.com/newsletterrequest

Popular Apps		
Name	**Description**	**Price**
Intelligent PDF	Intelligent PDF generation for OrCAD Capture	Free
CIPinCIS	Display component data in OrCAD Capture	Free
ClineRouteKeepout	Automatically add route keepout	Free
Find and Replace Text	Search and replace text globally in Capture	Free
Find in Design	Search multiple schematics and projects	Free Trial
TestPoint Annotator	Sync testpoints (PCB to schematic)	Free Trial

This type of feedback is exactly what EMA and Cadence aimed to accomplish by introducing the marketplace; rapid deployment of additional productivity enhancing solutions to improve customers' workflows. Online access will help continue the successful adoption of this innovative, productivity-enhancing resource.

New Apps and Free Trials
Since its introduction, the OrCAD Marketplace has steadily grown from its initial 16 apps to over 26. Users will be excited to know that many of these tools are free downloads, and nearly all have a free trial version. Some of the recent additions to the store include DFM Now! and CIS Quick Start.
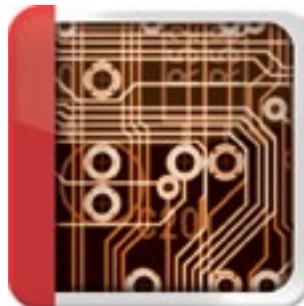
The DFM Now! App is an analysis and checking tool to help designers identify problems that will affect manufacturability. Design for Manufacturing (DFM) is an area that many PCB layout tools overlook, but by considering DFM earlier in the design process issues can be avoided and products can go to production more smoothly. The DFM experts at Numerical Innovations have created an efficient tool to catch common problems that are hidden in the Gerber artwork and drill files. DFM Now! is available for free on the marketplace, Orcadmarketplace.ema-eda.com/DFM. An on-demand webinar about the tool is available at www.ema-eda.com/DFMNow.

The CIS Quick Start App helps users quickly begin utilizing their Component Information System(CIS), a task that can be challenging and intimidating. CIS Quick Start automatically sets up a shared, searchable, component database that is pre-populated with a 1,000 part starter library. EMA has performed hundreds of CIS implementations for customers; based on that experience we created an ideal schema for part information. With the CIS Quick Start App a database can be up in minutes without requiring extensive time or advanced expertise. Learn about CIS Quick Start at orcadmarketplace.ema-eda.com/CIS

Contact Us
To learn about other apps in the marketplace visit orcadmarketplace.com or contact EMA sales at info@ema-eda.com. OrCAD Apps are available for OrCAD release 16.5 and above. To download the latest version go to support.ema-eda.com.

TechTip: Running Previous Versions of Cadence Tools

By Matthew Harms, Application Engineer, EMA Design Automation

The capability to run previous versions of Cadence software on a single desktop is very useful, even essential, to some users. This could be necessary for certain checking or verification rules that are dictated by the company. It also provides an additional guarantee that results will be consistent from year to year, and removes a potential cause for experimental error (changing software versions would create an additional variable in scientific method). This article will explain how to set your machine up to easily switch between versions.

Background

Cadence tools are executables (.exe files) that rely on a lot of libraries (.dll files) to provide additional resources to the tool being run. For example, if you want to start OrCAD Capture, you run capture.exe (located by default at C:\Cadence\SPB_16.5\tools\capture) and it uses several .dll's (dynamic linked libraries) that are found in the same directory as the executable, as well as some other directories. Many Cadence programs use the same type of approach as an executable program (.exe) that uses a variety of libraries (.dll's). The locations of where the tool can go looking for these .dll libraries is managed by an environment variable called PATH. PATH often keeps track of the library locations for other tools as well. Setting up the PATH environment variable is done automatically by the installer and allows your Cadence tools to operate correctly and without error.

One request that many users have is to be able to toggle between multiple installed versions on a single computer. If your machine is set up to run one version (ex. Capture 16.5) and you would like to run another version (ex. Capture 16.3) you're bound to get some errors if you try to open up the executable for the 16.3 version; this is due to missing .dll files. These .dll files are not really 'missing' but rather they are not correctly referenced in the PATH environment variable. Fortunately, there's an easy way to effectively change the PATH environment variable, which will cause the tool to reference the proper .dll files. First, let's see how the PATH environment variable is set up for Cadence tools.

Procedure

If you go into your environment variables (under Control Panel > System > Advanced > Environment Variables) you will see the PATH variable under the System Variables section (at the bottom) and it will have a value that includes these Cadence paths:

```
%CDSROOT%\tools\pcb\bin
%CDSROOT%\tools\bin
%CDSROOT%\tools\libutil\bin
%CDSROOT%\tools\fet\bin
%CDSROOT%\tools\specctra\bin
%CDSROOT%\tools\PSpice
%CDSROOT%\tools\PSpice\Library
%CDSROOT%\tools\Capture
%CDSROOT%\OpenAccess\bin\win32\opt
```

Notice that these are not paths in the traditional sense, but are instead a combination of another environment variable called CDSROOT. This is the main install location of the Cadence SPB tools, and then a specific tail end for the completion of the entire path. If we look at the CDSROOT environment variable, we can see that its value is C:\Cadence\SPB_16.5, or something similar that points us to the main install location. By combining the current CDSROOT with the Cadence specific PATH values above, the list would now look like this:

```
C:\Cadence\SPB_16.5\tools\pcb\bin
C:\Cadence\SPB_16.5\tools\bin
C:\Cadence\SPB_16.5\tools\libutil\bin
C:\Cadence\SPB_16.5\tools\fet\bin
C:\Cadence\SPB_16.5\tools\specctra\bin
C:\Cadence\SPB_16.5\tools\PSpice
C:\Cadence\SPB_16.5\tools\PSpice\Library
C:\Cadence\SPB_16.5\tools\Capture
C:\Cadence\SPB_16.5\OpenAccess\bin\win32\opt
```

You can imagine that by simply changing the CDSROOT environment variable you can quickly change the entire PATH structure. For example, if you changed CDSROOT to C:\Cadence\SPB_16.3, the .dll's that the tool would be looking for would now all be in the 16.3 installation instead of the 16.5 one. Instead of going into the environment variables to make this change individually, there's a utility that allows you to efficiently make the change called the Cadence SPB Switch Release. This tool is located at Start > Programs or directly at C:\Cadence\SPB_16.5\tools\bin\switch-version.exe. This program simply allows

Free Training for Designers Seeking Work

EMA has created a great way to help unemployed designers build their skills and be better prepared for new positions in the PCB Design Industry. We will be offering free training in Cadence OrCAD software to qualified engineers who are currently unemployed.

The goal of this program is to help engineers learn the most recent PCB design software. By getting up-to-date with their training, they will increase their opportunities for employment.

PCB Design Topics Offered:

- OrCAD Capture
- OrCAD Capture CIS
- PSpice A/D
- PSpice Advanced Analysis
- OrCAD PCB Editor
- SPECCTRA for OrCAD

To find out if you qualify for the program, potential candidates should visit www.ema-eda.com/DisplacedWorkers. You will be asked to provide a resume to validate your employment status and fill out a short form indicating your desired courses and other information.

EMA Currents

EMA Webinars

EMA's webinars are an ideal way to learn about products. Staying up-to-date on the newest capabilities of tools is key for designers to maintain high productivity.

Webinars are led by EMA's expert Application Engineers, who have years of experience educating users about these tools. This access allows a forum for questions through both panel and voice.

If you have a suggestion for a webinar you would like to see, please contact us at info@ema-eda.com

Recorded Webinars
All of our webinars are recorded and posted to our website for on-demand viewing. To view any of our recent webinars, please visit, www.ema-eda.com/webinars.

Featured Webinar:
Library Creation
As designs become more complex, it's important to identify opportunities to enhance design processes. EMA Design Automation has a solution for this; an automated, efficient, process for creating component symbol and footprint data. Watch the on-demand webinar at www.ema-eda.com/LCS.

you to change the CDSROOT variable by clicking on an available version to switch to and applying the change.

Note: It is recommended to always run the Cadence SPB Switch Release from the highest version of software that you have available on your machine.

Below is a screenshot with the two Cadence versions installed in their default location.


Two Cadence versions installed in default locations

Once all the environment variables are set up correctly, we still have one potential problem to overcome, using the shortcuts correctly. If you've used the Cadence Switch Release to change to version 16.3, you have to be sure to use the 16.3 shortcuts for your Cadence software. If you don't use the correct shortcut, you'll get similar .dll missing errors to the ones we were seeing originally. It would be wasteful to duplicate or triplicate the shortcuts used, all for the sake of different versions. Instead you can make shortcuts that open whichever version is active.

Start by right clicking on the desktop shortcut and selecting properties, you will need to make sure you are looking at the shortcut tab. If you look at a shortcut like OrCAD Capture CIS, you'll see that it has a target executable that launches (ex. C:\Cadence\SPB_16.5\tools\capture\Capture.exe) and a folder to start in (ex. C:\Cadence\SPB_16.5\tools\capture\). By copying what was done in the PATH environment variable here to our shortcuts, we can make the shortcuts reflect whichever version we are currently running.

Keeping OrCAD Capture CIS as the example, you can accomplish this by editing the shortcut and changing the target to %CDSROOT%\tools\capture\Capture.exe and the starting folder to %CDSROOT%\tools\capture\.
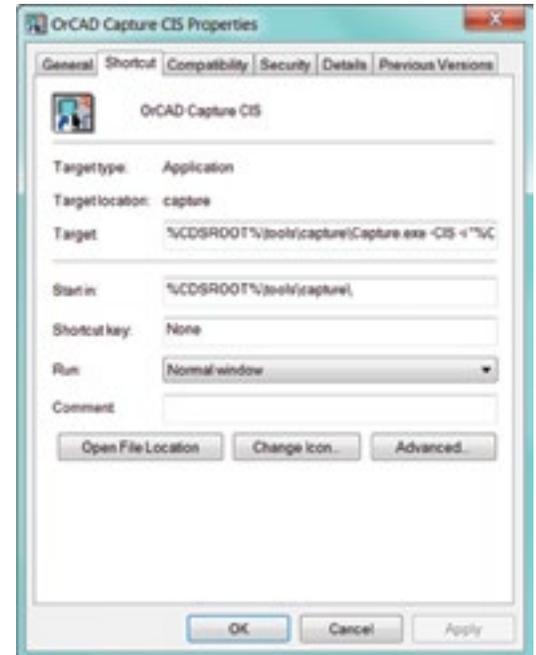
Setting up the shortcuts

You can do this for whichever Cadence tools you use frequently and then place the shortcuts on your desktop or in your taskbar. This allows you to get to the program with the correct version quickly and without any .dll errors. Once this is complete, you will be able to use the Cadence Switch Release to change to the version you want to use, and all your software and shortcuts will work just as they did previously.

If you would like additional help setting up this functionality please contact EMA at info@ema-eda.com.
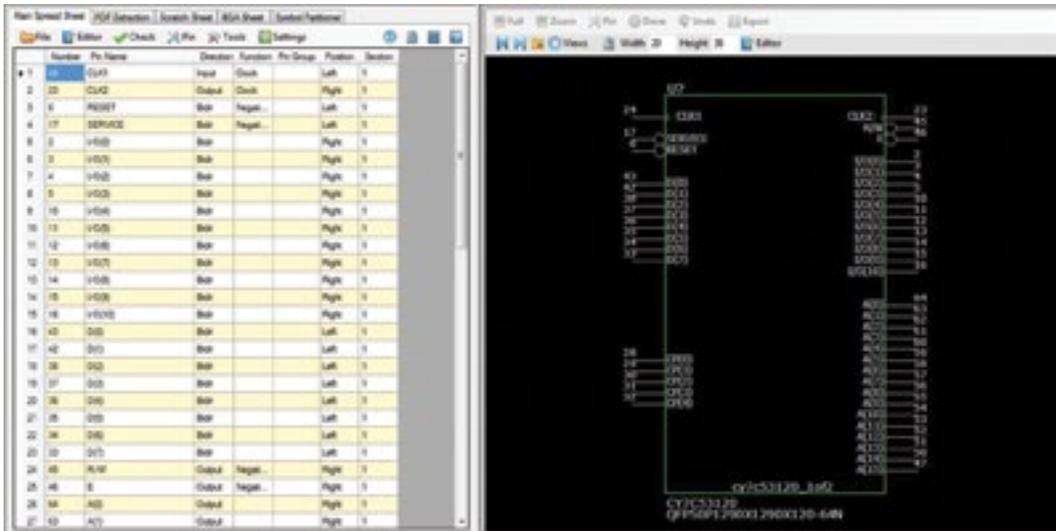
EDABuilder Explained

With Ron Smith, Executive Staff, EMA Design Automation

EMA recently launched its new EDABuilder software, an exciting tool that accelerates the symbol and footprint creation process. Some of the key features include advanced PDF extraction, automated pin assignment, IPC-7153 spec footprint creation, and custom padstacks. These features increase efficiency so much that tasks are reduced from hours to minutes.

EMA caught up with our own Ron "Smitty" Smith, C.I.D. Member, and Member of the Executive Staff at EMA, to learn more about this new tool.

Could you briefly explain how EDABuilder improves the symbol creation process?

At the heart of EDABuilder's symbol creation is a highly advanced PDF datasheet extraction capability. This unique feature allows you to extract not only tables, but diagrams as well. Datasheet extraction alone can save large amounts of manual, repeated effort and time.

> ## "This unique feature allows you to extract not only tables, but diagrams as well."

EDABuilder also contains all the tools necessary to edit, format, and assign your pin data at a higher level, providing huge time savings on high pin count devices. Pin placement is accelerated with an automated placement/fracturing option where the user sets rules for placement and

the tool generates the symbols. Users needing greater control can use an interactive, drag and drop, pin placement process.

Could you briefly explain how EDABuilder improves the footprint creation process?

EDABuilder's PDF datasheet extraction can also be utilized in the creation of PCB footprints. Vendor X – Y pin coordinate tables can be extracted and applied directly to the footprint calculator. This provides instantaneous footprint pin positioning that saves time and avoids pin location errors. Examples of devices that benefit from this technology are hexagon-style pin patterns like those used in the Intel® Sandy Bridge Mobile Two-Core Die 1023 ball package or circular-style connectors with off-grid radial pin positions.

Another major way EDABuilder improves the process is by building footprints to the IPC-7351 specification. The program automatically performs the calculations for the designer and can be set to a maximal, nominal, or minimal setting. Many different packages are supported and the GUI shows you exactly what you are creating. The process of footprint creation becomes very straightforward with EDABuilder, increasing designer efficiency, and allowing less technical users to be assigned this task. If you can match the pictures of package types and read dimensions from datasheets, you can create footprints with EDABuilder.
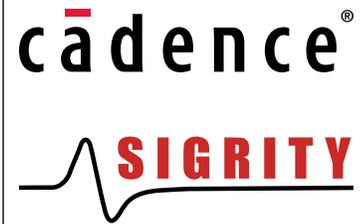
Cadence Acquires Sigrity

Cadence Design Systems recently acquired Sigrity®, a leading signal and power integrity technology provider. Sigrity provides a rich set of gigabit signal and power network analysis technologies, including a unique power-aware signal integrity analysis capability for system, printed circuit board (PCB), and IC package designs.

The combination of Sigrity analysis technologies with Cadence Allegro® and OrCAD® design tools will provide a comprehensive, front-to-back integrated flow. This will enable system and semiconductor companies to deliver high-performance devices employing gigabit interface protocols such as DDR and PCI Express.

Cadence will offer Sigrity technologies immediately as add-on options to Cadence Allegro and OrCAD PCB and IC Packaging tools. The company will also continue to support Sigrity technologies used with third-party design software.

To learn how you can add these tools to your design solution, contact info@ema-eda.com.

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OrCAD PCB Training

Classroom Training
Increase your PCB design productivity by attending our in-depth, hands-on, classroom training sessions. All our classroom courses are taught by professional instructors with years of training and application experience. Learn more at www.ema-eda.com/classroom-training

Virtual Training
We also offer Virtual Classroom Training. This is a great option for those who want to avoid travel, but still wish to receive first hand instruction. For details visit www.ema-eda.com/virtual-training

Onsite / Custom
Onsite or custom training is another way EMA provides our customers with exceptional service. For these trainings an EMA instructor can conduct the classes at your facilities. The option to learn only the topics that are most relevant to your design process not only saves time, it also enhances the effectiveness of training. Find out how at www.ema-eda.com/customtraining

Free How-To Videos
We have recently added an extensive collection of video demonstrations on OrCAD PCB Editor to our website: www.ema-eda.com/PCBEditorHowTo

EDABuilder also contains a higher degree of pad shape control than most other tools. Most common shapes are preloaded into the software and rounding or chamfering features can easily be selected. Completely custom shapes can be generated quite easily as well.
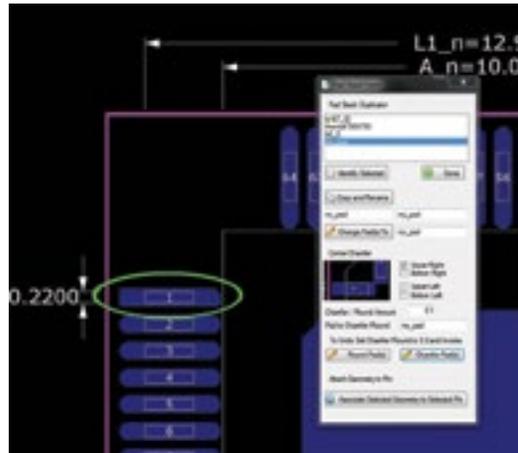
Custom Pad Shapes

Why did EMA create the EDABuilder Tool?

Due to our extensive experience in EDA software development, we are uniquely capable of tackling software design challenges. Our work with customers revealed an opportunity to improve the symbol and footprint creation process with automated tools. We also recognized that a comprehensive tool for symbols and footprints would provide highly desirable synergy in terms of verification. With EDABuilder we were able to address both of these needs.

Where do you see EDABuilder making the biggest impact on designers' work?

The biggest impact for designers will be the efficiency and time savings they experience. This is especially true when creating large pin count logical symbols. Being able to extract vendor datasheet information and paste it into spreadsheets for automatic or interactive symbol graphics rendering is extraordinary. This feature alone can literally save hours or days of manually creating CAD library symbol graphics.

What does EDABuilder offer for verification and accuracy checks?

The tool allows designers to verify that symbols and footprints match, identify errors, and quickly correct them. Because of the integrated symbol and footprint creation capabilities within EDA-Builder, cross-probing and cross-checking can be easily performed. A bi-directional graphical display of footprints and symbols with annotated fields shows designers where discrepancies exist and make corrections easier. Providing a unified UI for both symbol and footprint creation ensures accuracy because all information is on one screen, for easy visual reference.
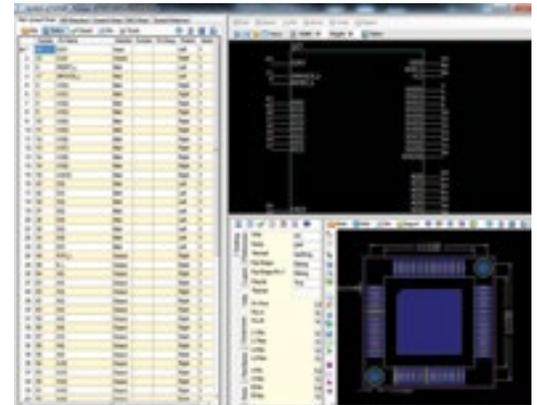

Bi-directional graphical display of footprints and symbols

How has EDABuilder grown and improved based on customer feedback?

EDABuilder is continuing to be improved and expanded based on feedback received from our users. We added the ability to import libraries created with LPWizard, a footprint creation solution from Mentor Graphics®. Companies using LPWizard and transitioning to EDABuilder need a way to continue capitalizing on their previously developed library investment. We can call up LPWizard footprints, modify or verify them against logic symbols in EDABuilder, and export them to your PCB layout tool.

Another feature recently added to EDABuilder introduces the concept of "Linked Dimensioning". This innovative technique allows the user to select dimensions on the PCB Footprint Land Pattern Graphical View, type in the datasheet value and have it automatically update the forms and graphics. This is much more intuitive, allowing the user to link the EDABuilder dimension to the datasheet footprint graphics.

For more information on the latest features and pricing for EDABuilder, please visit www.ema-eda.com/edabuilder. Several videos and datasheets are available under the multimedia center tab. Additionally, an on-demand webinar is available at www.ema-eda.com/LCS
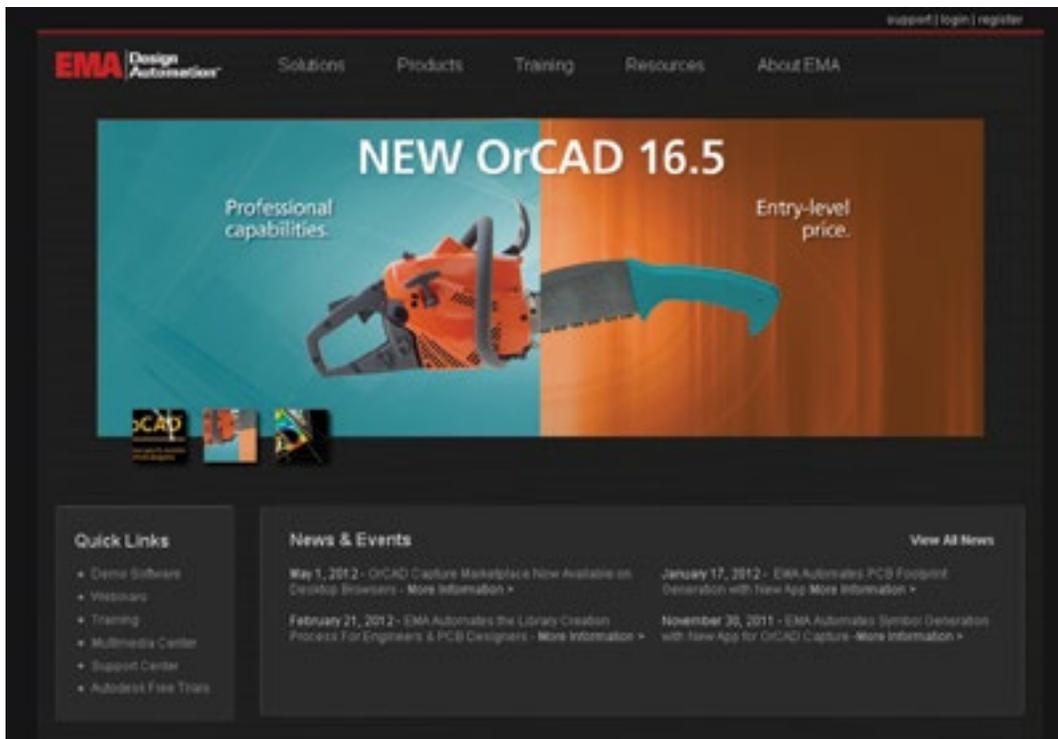
The New EMA-EDA.COM

By Joe Graham, Marketing Specialist, EMA Design Automation

EMA recently launched our new, completely redesigned website, www.eda-eda.com. The new site takes advantage of advancements in technology and web design to deliver a significantly better user experience. The changes we made were mainly related to navigation, usability, style, and e-commerce, as well as providing improved access from mobile devices. Additionally, the content for the new site saw major revisions, and video now plays a much larger role in our product education.

"In today's digital age, a company's website is more critical than ever; it's the primary method of interaction with many customers," said EMA's President, Manny Marcano. "Our new website reinforces EMA's commitment to providing exceptional customer service through all channels."

Navigation
Our goal for the navigation of the new site was to improve ease of use and functionality so users could quickly and intuitively find the right products for their design needs. The old site had become challenging to navigate due to the increase in our product offerings. We needed to re-think how visitors would navigate the site and be able to quickly locate their desired content.

The solution was a tabbed drop down menu that users click to open; these menus remain open until the user closes them. "The new navigation system presents all our products in an organized fashion, making it a snap to find what you are looking for and navigate to your desired page," said EMA's Graphic Designer, David Wilson.

The second major improvement was the addition of a solutions-based navigation method. We wanted an easy way for visitors who were unfamiliar with the names of our products to find the tools they were looking for. Solutions-based navigation does this by helping users find tools based on functionality.

Content and Style
We have a large, and ever growing, amount of resources and content to educate consumers about our products. On the new site we expanded these resources to include more videos, a better structure for the information, and improved accessibility. We also gave the site a fresh, modern look that reflected the cutting edge products we represent.

Videos have rapidly become one of the most popular online resources because of their ability to quickly show information. YouTube is a great

Stay Connected with EMA

EMA's LinkedIn page is a great way to stay up-to-date on the latest news and discounts from EMA, network with people in similar industries, and provide valuable product reviews to benefit everyone.

For Twitter users, one page has been created for those involved with EDA (www.twitter.com/ema_eda) and another has been created for those involved with MCAD (www.twitter.com/ema_mcad). These two pages provide information on all the EDA and MCAD technologies sold and supported by EMA.

For YouTube users, EMA's Channel (www.youtube.com/EMADesignAutomation) contains videos focused on all the technology sold and supported by EMA, as well as product integrations and enhanced capabilities provided to users of OrCAD technology.

Follow EMA on any of these sites to stay connected with us.
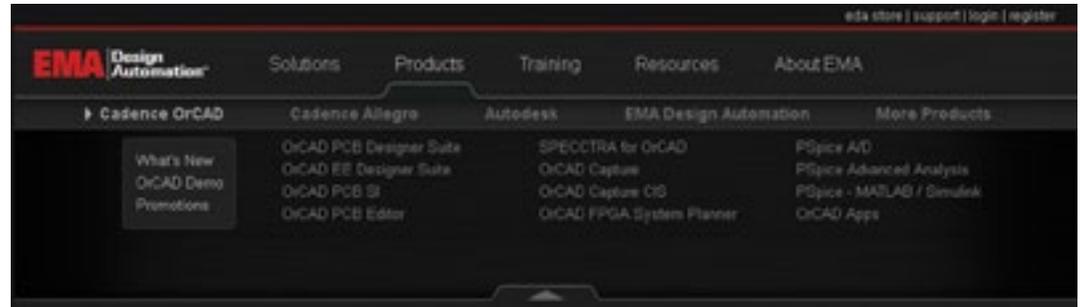
Sign Up for our Newsletters

EMA produces two newsletters to fit the interests of our diverse customer base. *EMA Currents* focuses on helping readers stay connected with the EDA and PCB Industry. *Mechanically Speaking* discusses topics of interest to the Mechanical Design industry.

To receive either newsletter, along with new product and company information when it is released, simply submit your email address at the link below.

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way to share videos, but is blocked on some company networks. To make sure that all users could access our video resources we chose a B2B hosted video solution. This gives us more control over bandwidth, and additional features to enhance our videos.

The structure of our new site was improved by breaking down product pages into tabs, such as Overview, Features, Product Matrix, What's New, and Multimedia. These tabs walk users through the important questions about a product:

- What does it do?
- What are the key features?
- Which options or edition do I need?

This is a highly effective solution and improves ema-eda.com as an educational resource. We also added filters to the Multimedia Center to make it quicker for users to find the exact piece of information they need. Additionally, pre-filtered multimedia resources are now available on each product page. This provides quick access to all of that particular products related information.

Along with updates to our design and content, customers will find it easier to contact EMA. We added a highly visible "Contact Us" button on every page and simplified our forms so users can easily request more information. Users may also create an ema-eda.com account, which will pre-populate all form fields. "Eliminating repetitive form questions for our web visitors was a major focus during the redesign," said Shannon Kelley, Webmaster at EMA. "Even if a user decides they do not want to create an account, we added functionality that remembers information for each session."

The new website uses a darker background and overall color scheme. This creates less viewer eye strain in many lighting conditions and provides a modern aesthetic. We didn't want to add any more strain to our customers, many of whom spend most of their day in front of a

monitor. The new site shows careful use of color and headings to ensure viewers are not over-whelmed, and can easily identify important items.

e-Commerce

The new EDA store is the largest of its kind and offers design products from several of EMA's partners, including Cadence Design Systems. Pricing and purchasing options are now placed directly alongside the product description for a streamlined, efficient process. Several licensing options are available, allowing the visitor to choose their desired configuration, such as floating or single-user, and time-based or perpetual licensing. Checkout is fast and secure using industry standard e-commerce payment methods.

"The convenience of online shopping is leading more customers to purchase online with a credit card," said Manny Marcano. "Some companies shy away from displaying product prices online, but we are confident that our products offer the best price / performance combination available on the market."

Learn More

We encourage you to visit the new site homepage at www.ema-eda.com and our new EDA Store homepage www.ema-eda.com/edastore. We are continuing to refine and improve the new site based on customer feedback and would appreciate hearing from you at info@ema-eda.com.