

# Dancing the Skies



Ability to connect multiple displays allows for easy visualization of long and complex shapes

## Customer:

Wills Wing

## Industry:

Engineering CAD

## Business Opportunity:

- ▲ Retain position as a leading supplier of hang gliders by maintaining quality control
- ▲ Maximize resources by applying technology throughout the design and manufacture process

## Solution:

- ▲ AMD FirePro™ professional graphics for CAD/CAM/CAE professionals

## Business Impact:

- ▲ Ability to render and model at the same time with RealView in SolidWorks®
- ▲ Screen captures of models so realistic they can be used for marketing material and catalogues
- ▲ Order Independent Transparency (OIT) within SolidWorks® 2014 enables intuitive decision-making for designers
- ▲ Ability to connect multiple displays allows for easy visualization of long and complex shapes

## Floating above the landscape

Crabbing, rolling, scratching and yawing, a hang glider playing the thermals can attain thrilling heights and traverse numerous landscapes between launch and final glide. The current world distance record, set in 2013, stands at 473 miles after eleven hours in the air. That's for an aircraft that can be carried on the shoulder and assembled in five minutes. With super strong materials and light carbon tubing, highly engineered hang gliders have come a long way since the sport first became popular in the 1970s.

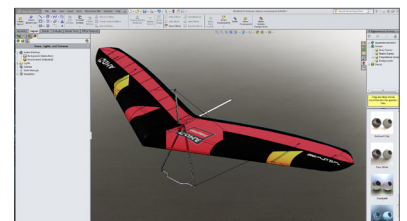
Each year, Wills Wing produces up to 700 custom hang gliders between fifteen configurations, all hand made by a small team of dedicated enthusiasts, Wills Wing is the world's largest manufacturer. In addition to certifying each glider to industry standards the company completely assembles and test flies each one as a final quality check before it is dispatched to a customer.

Steve Pearson has been managing the company since 1977. "Our customers are looking for both function and beauty. Not only does a part have to perform well, it must look organically right. We have outlasted many competitors, surviving and growing because we embrace new technology and tools. This means that we can innovate, design and deliver faster."

## Control and power

Having outsourced some activities in the past, the company encountered various issues and it now controls all design and manufacturing in-house using CAD, CAM and CAE simulation software. It employs SOLIDWORKS for 3D mechanical and electrical design and has its own CNC machine for producing various free form parts. Despite this level of sophistication, Wills Wing has a minute infrastructure – Pearson's workstation. He explained how this is achieved. "Graphics play a big part, especially as our products are typically 10 meters wide. We also have crucial components with tolerances of a fraction of a mm. Being able to visualize them all in detail is very important."

Pearson has been using AMD FirePro™ professional graphics for several years. "I had an AMD FirePro™ V5900 that I was very happy with. Then I read the benchmarks for the AMD FirePro™ W7000 and decided to invest in that. Now I have a W7100." The W7100 delivers incredible performance and superb visual quality, particularly for CAD/CAM/CAE professionals working with complex 3D models.



**"The AMD FirePro™ W7000 is phenomenal and now the W7100 is giving me a further 15 – 20% increase in speed. A couple of years ago such performance would have been completely out of our budget."**

Steve Pearson, Lead Partner and Chief Designer, Wills Wing

## Render as you model

“When I moved to the W7000, the difference was remarkable, particularly when using RealView for SOLIDWORKS®,” says Pearson. The graphics mode inside SOLIDWORKS, RealView incorporates Ambient Occlusion and adds scene reflections with advanced shading, translucency and self-shadowing to any model. With outstanding depth and realism it helps reduce the need for rendering.

“On large assemblies of 1,000 parts, it was previously not possible to use RealView®. It placed too much of a burden on the system and slowed everything down. The AMD FirePro W7000 was a big game changer; so powerful that I could rotate a model and change perspective with fantastic speed and agility. I went from rendering to modeling in RealView so I could really see a component and be sure that I was not missing a quality issue. For large assemblies view, RealView is automatically turned off but I make a point to go in and switch it on because it more accurately represents design intent.”

The fact that models do not need to be rendered certainly saves time for Wills Wing. Pearson estimated that the AMD FirePro W7000 led to display performance between two and five times faster. “That is a remarkable difference considering there are approximately 1,500 discrete components in a hang glider, however, I regard the time savings more in terms of expanding the quality of our products and services.”

Additionally the ability to take screen captures from RealView also began to save time and manual input because images from SOLIDWORKS could be used to create marketing materials and replacement part catalogues.

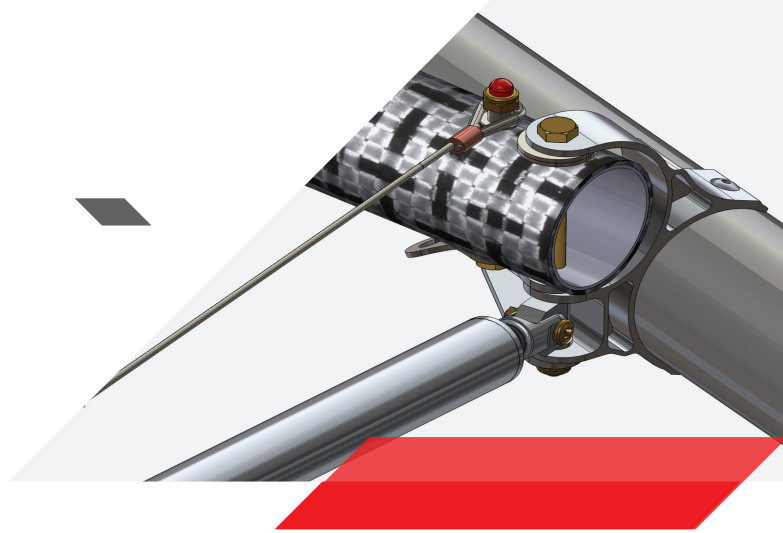
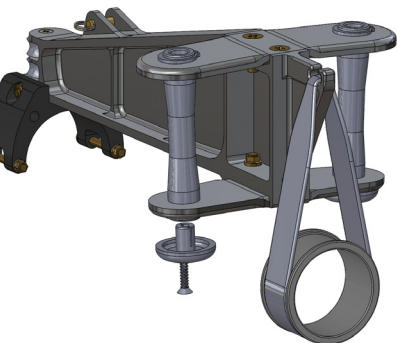
When Pearson replaced the W7000 with the W7100, performance made another significant leap. “Based on a simple benchmark, SOLIDWORKS Realview render speed for an assembly of about 1000 items seems to be 15-20% faster on my system; but my subjective impression is that the performance is even better than the timings indicate because there is no display lag and no frustration. It is very impressive.”

**Pearson also notes that the continuous GPU performance improvement that AMD FirePro™ professional graphics has provided has extended the life of his current computer by two or three extra years.**

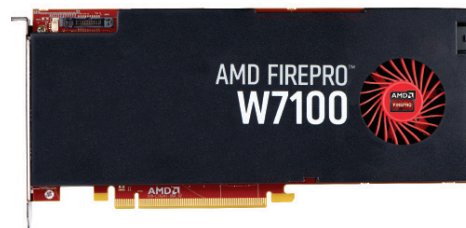
## A certified graphics card

Pearson admits that previously he didn't prioritize according to whether a card was certified for applications or not but he does now. “RealView, for example, will not even turn on unless the user has a professional card and I wouldn't consider a card without it. I also appreciate the extra measure of stability provided by a certified card.”

Use of a professional grade card also enables him to take advantage of Order Independent Transparency (OIT), a feature made available within SOLIDWORKS 2014. OIT provides a “pixel-accurate” representation of the model and its surrounding geometry. Because it is accelerated by the AMD FirePro graphics card, it runs much faster than the traditional blended mode, creating a more practical transparent 3D viewpoint that aids designers in decision making throughout the product development stages.



## AMD FirePro™ W7100 Workstation Graphics Fast Facts:



**Memory:** 8GB GDDR5

**Compute performance:** 2.4 TFLOPs peak single precision floating-point performance

**AMD Eyefinity technology:** support up to 4 displays<sup>2</sup>

**Supports:** RealView within SolidWorks®

## From a bird's eye view to close encounters

Like the AMD FirePro W7000, the W7100 delivers the benefits of multiple displays thanks to AMD Eyefinity technology. One W7100 card can support up to four displays. Pearson describes the advantages. “With two or three displays the space available for design is maximized. Working with one model on one display, I can make a change and see it appear instantly in the assembly on a second display while keeping track of emails on a third. It's fantastic and avoids the need to zoom in and out all the time.”

According to Pearson the ability of the small team at Wills Wing is growing exponentially. “We use the best materials and produce high quality products at a lower price point because we keep overheads down. The AMD FirePro W7100 helps us with this because it is extraordinarily economical and amazingly quick for such a modest investment.”

**For more information, visit [www.fireprographics.com](http://www.fireprographics.com)**



<sup>1</sup> Los Angeles Times, 11/4/2012, “O.C. hang glider maker is still soaring after 40 years,” by Ronald, D. White.

<sup>2</sup>AMD Eyefinity technology supports multiple DisplayPort™ monitors on an enabled graphics card. Supported display quantity, type and resolution vary by model and board design; confirm specifications with manufacturer before purchase. To enable more than two displays, or multiple displays from a single output, additional hardware such as DisplayPort-ready monitors or DisplayPort 1.2 MST-enabled hubs may be required. A maximum of two active adapters is recommended for consumer systems. See [www.amd.com/eyefinityfaq](http://www.amd.com/eyefinityfaq) for full details.

Images courtesy of Will's Wing design

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