Built stronger to last longer

HERBERT

Customer:
R J Herbert Engineering Ltd

Industry:
Handling systems for the agricultural, fresh pack, food processing, materials handling, waste management, airport and logistics sectors

Business Opportunity:
- Customers agree what they require before metal is cut

Solution:
- SolidWorks, Workstation Specialists WSX6 and AMD FirePro™ professional graphics

Business Impact:
- Getting it right first time on site

RJ Herbert celebrates 40th anniversary with four new products

In 2012, RJ Herbert celebrated its 40th anniversary by launching four new products, including Oculus, a high performance, compact, optical sorter for washed potatoes. With a maximum capacity of 36,000kg per hour, Oculus is more accurate, more efficient, more consistent and more effective than the previous models. Oculus uses 360° vision for inspection of every part of the tuber. It uses infrared cameras for the effective identification of greens, and digital colour cameras with resolution of up to 0.25mm sq pixel size for accurate defect identification. Bringing Oculus to market on time and on budget was largely due to the company's significant investment in the very latest design software and hardware: SolidWorks advanced 3D computer aided design (CAD) software running on Workstation Specialists high performance hardware equipped with AMD FirePro™ V7800 professional graphics.

RJ Herbert

RJ Herbert Ltd. is a privately-owned British manufacturing company based in Cambridgeshire, England. A family business employing 150 staff, Herbert designs, builds, installs and supports highly efficient handling systems for the agricultural, fresh pack, food processing, waste management, airport and logistics industries in more than 20 countries.

3D the ultimate aim

Martin Woollard is one of three senior design engineers at the company and is responsible for the pack house and process side of the design office. He recalls, "We started with one seat of SolidWorks in 2001 and used it primarily to design bespoke machinery, though our ultimate aim was to move fully to 3D. Over the next few years we grew the installation and we now have 13 SolidWorks licenses and are using 3DVIA for technical publications." Martin continues, "What we used to fear most was arriving on site to find the customer claiming 'that's not what I wanted'. The 3D visualisations help them to gain a better understanding of the system before any metal is cut. Getting that right is very important to us, as it reduces costly re-work & changes."

Now we are able to open the whole of the car and see at how these systems interact with each other. This allows us to eliminate design conflicts before the car is actually constructed. That helps a lot. We can manipulate assemblies and components much more smoothly rather than them being jerky and unresponsive. We can zoom in and out at will and the real-time rendering is superb. We can take articulating components such as suspensions through their full cycle, from maximum bump to full droop or from lock to lock, looking through the entire assembly for interferences. That's the more challenging problem for the hardware."

Workstation Specialists

"We are adamant we made the right choice with SolidWorks, Workstation Specialists and AMD FirePro."

Martin Woollard, senior design engineer at Herbert

SolidWorks: confidence in design

Owing to the number of sectors and industries Herbert operates in, the design team are very busy and can't afford for things to go wrong. Martin again, "We've developed a standard range of machinery that can be configured to suit the customers exact specifications, and we produce complete 3D visualisations for the sales team to use." He adds, "Our engineers are much more productive and the risk of errors and clashes in manufacture is reduced because we now have the ability to model complete systems before they are built. Designing in SolidWorks gives us confidence in our designs knowing that if there is a problem, it can be identified and rectified by the design engineer on the workstation rather than on the shop floor."

Martin points out, "We looked at three different packages and chose SolidWorks from NT CADCAM, we are still with them after 12 years. SolidWorks themselves take great interest in what we are doing. We push their software very hard because of the size of our models. In fact, they use some of our data from time to time when they test new releases."

Handling very large models

Over the years the company found that its hardware was not keeping pace with the developments in SolidWorks the way Herbert needed. Martin again, "Some of our largest models are approaching 50GB of RAM usage. The model behind a large quote drawing could comprise 400 individual machines and each of our machines could have between 500 and 4000 parts." He continues, "We would prefer to take the extended time to open such a model and get the stability from the functions we use rather than have the model crash. If you had a big assembly that takes a long time to open and then crashes, you could be wasting hours and hours of valuable engineering time." Martin adds, "We have 13 design engineers at present and the time that we could lose would easily cost us more in time than we'd have saved in hardware costs."

Speed, memory and graphics power

To help arrive at a solution, NT CADCAM suggested that Martin contacted Workstation Specialists. He says, "They listened to what we were doing with SolidWorks and how we were using it, they knew exactly what was needed hardware wise. We need as much raw processing speed as possible and as much memory as possible, too." Asked about the importance of high-performance graphics, Martin responds, "This is really important to us. We manipulate complete shaded models on screen, rotating and zooming as required and the way that it works is a function of the graphics card." He comments, "We have used another make of graphics card but we found that their drivers were not as stable as the AMD FirePro drivers and on the smaller machines we'd struggle. The graphics would just give up and we'd have to restart the machines. That's a lot of time lost and we can't afford that."

The right choice

Martin sums up by saying, "We are adamant we made the right choice with SolidWorks, Workstation Specialists and AMD FirePro. We have always been happy with what they have done and they have always been there when we needed them. We were - and still are - prepared to pay that bit extra for a workstation of the right specification that allows us to work the way we need. We would not buy any workstation lower in spec than 3.7 Ghz, 48 GB RAM and 2GB AMD FirePro professional graphics because we know it all works."
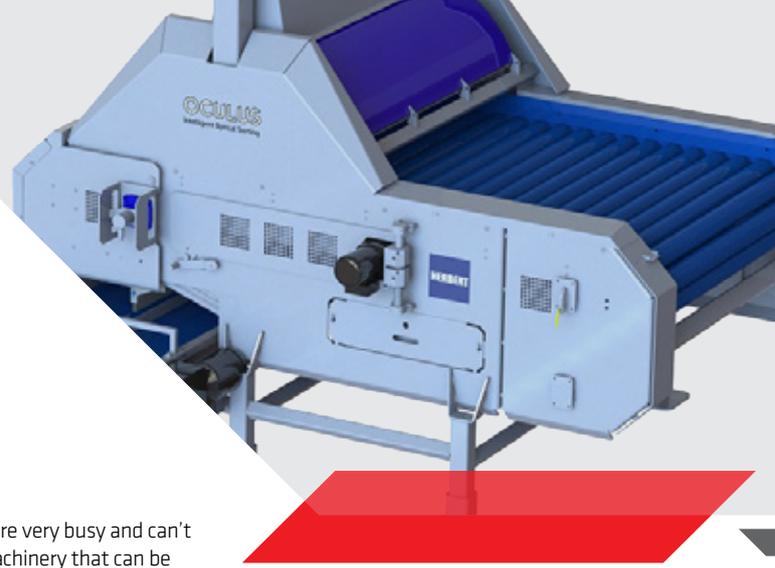
AMD FirePro™ W7100 Fast Facts:

Memory:
8GB GDDR5

Memory Bandwidth:
160 GB/s

Compute performance:
3.3 TFLOPs single precision floating point performance

Technologies:
AMD Eyefinity technology, support up to 4 displays[1]
Supports OpenCL™ 2.0
Supports OpenGL™ 4.4, DirectX® 11.2/12

For more information visit www.fireprographics.com

AMD