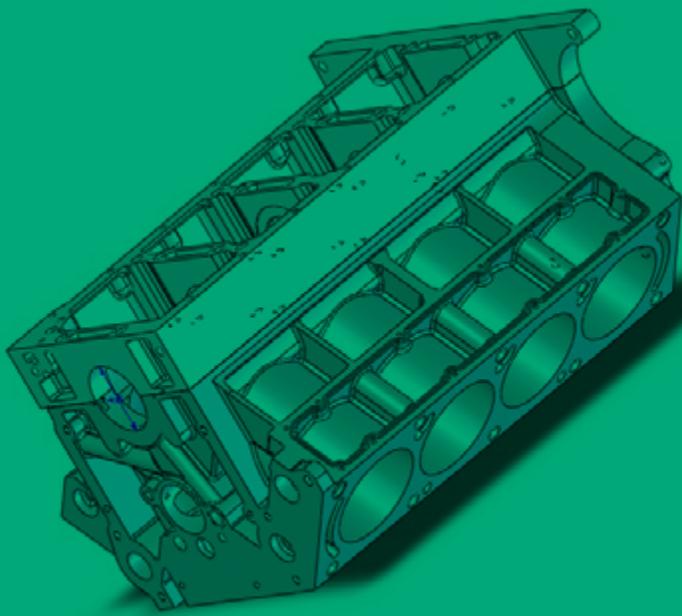


ACCELERATING PRODUCTION WITH SOLIDWORKS® SOFTWARE AND AMD OPTERON™ PROCESSORS

Kirkham Motorsports (KMS) in Provo, Utah has become one of the leading manufacturers in the component car industry. KMS has always endeavored to build the most accurate replicas of the fabled AC Cobra car in the business. While it continues to offer incredibly accurate aluminum-bodied replicas, KMS continually incorporates the latest engine and drive train technology to deliver the high performance its customers expect.

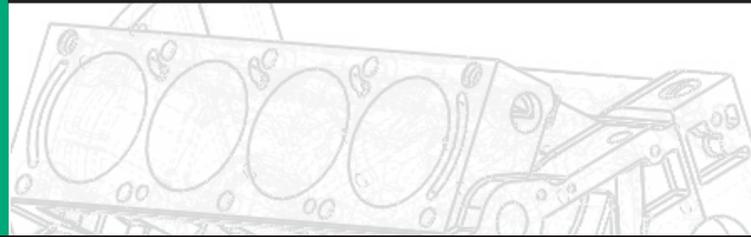
KMS's cars now owe a lot of their continuing evolution to SolidWorks 3D CAD software and AMD-powered workstations. With SolidWorks' advanced modeling software, KMS engineers design new components and ensure a precision fit before production begins, saving both time and money when the company introduces improvements.





"The 3D rendering process had become a real problem for us, but with the AMD Opteron™ processor-based workstations running SolidWorks 3D CAD software, we are moving from design to production more quickly than we ever thought possible. It's made a huge difference for us."

-- David Kirkham, president, Kirkham Motorsports



CHALLENGE

- Ensure rapid and continuous evolution of custom, high-performance autos with minimal engineering costs and the shortest time to market
- Use high performance workstations that render designs in the shortest possible time to maximize engineering productivity

SOLUTION

- SolidWorks 3D CAD software provides flexible and powerful design tools for pre-production rendering of new engine, brake, and suspension components

- Design workstations powered by Second-Generation AMD Opteron™ processors and FireGL™ V7300 workstation graphics accelerators provide extremely high performance that significantly improves engineering productivity

IMPACT

- Rapid design evolution with shorter time to market
- Minimal engineering costs through faster software execution and design rendering

CHALLENGE

Underneath the sleek aluminum bodies of its Cobra replicas, KMS offers a car with outstanding handling, acceleration, and braking to deliver a superior driving experience. Because KMS's cars are custom-built from the ground up, the company must design and build many of the components for its engine, suspension, and brake components in house. As a small company, KMS must minimize costs in the face of rising prices for aluminum and labor:

With annual production of several dozen cars, KMS's design and prototyping efficiency has a major impact on its ability to get cars to market. In 2000, the company bought 3D CAD software from SolidWorks to improve visualization and accurate production of parts on CNC machines. By enabling cost-effective CAD with full visualization of components and automated 3D rendering, SolidWorks allows engineers to design complete components in one pass, rather than having to produce four or more views from different angles of a component.

However, the standard desktop PCs at the time made for slow rendering of designs. In many cases, a design with perhaps 1500 elements would take hours to render, forcing the design engineer to turn to other production tasks. KMS upgraded to a media center desktop PC for its CAD software in 2006, but while it improved rendering performance somewhat, it still required hours to produce finished designs for the CNC mills. At the same time, KMS's design engineers were continually creating more complex assemblies (including a new billet aluminum version of the legendary Ford 427 Side Oiler engine block), and were about to begin designing an entirely new car.

SOLUTION

In early 2007, KMS replaced its desktop PC platforms with workstations powered by two Second-Generation AMD Opteron™ processors and configured with eight gigabytes of RAM, and a FireGL™ V7300 workstation graphics accelerator:

KMS had been using SolidWorks 3D CAD for more powerful handling of its car component designs, citing the software's superior ease of use and performance with large assemblies.

The result was instantaneous. SolidWorks design rendering jobs that once took hours were completed much more quickly, and overall, the AMD Opteron processor-powered workstations were dramatically faster than the previous systems. In fact, design rendering was so much faster that KMS was able to use one of its AMD Opteron processor-powered workstations as a high-performance server instead.

IMPACT

The AMD Opteron processor-based workstations have transformed the design and prototyping process at KMS. Prototype component designs are moving from the workstation to the CNC machine and onto test cars far more quickly than before. The company can now test and finalize new components so rapidly that it is producing finished cars more quickly than ever before. Production is up, and the new car design is well on its way to production.

The most important change has been that design engineers stay focused on their designs, and the finished renderings are produced quickly so there's very little waiting between design completion and the start of the CNC milling process. "We have to be able to do a new design quickly and to prototype it quickly so we can find out if it's going to work, because if it doesn't, you have to be able to turn around and do it again," says Steve Kirkham, manager of KMS. "We have four people running SolidWorks, but they're also running the CNC machine, prototyping parts and installing them on a test car. Because the old system would take hours to render a design, these guys would be held up on the other parts of the process."

According to Kirkham, it was an agonizing process for the designers, who were constantly waiting for designs to render. "They would either start on another job or punch out for lunch," he says. "Nobody wants to work on something frustrating when they can do something else. We even had cases on the old system where a designer would leave a job rendering and come back later to find that the whole computer had locked up and he had to start all over."

Upgrading to AMD Opteron™ processor-based workstations sped up production at KMS even though designs become more complex all the time. "Somehow, the number of parts in an assembly never seems to go down," says David Kirkham, president of KMS. "The 3D rendering process had become a real problem for us, but with SolidWorks and the AMD Opteron processor-based workstation, we are moving from

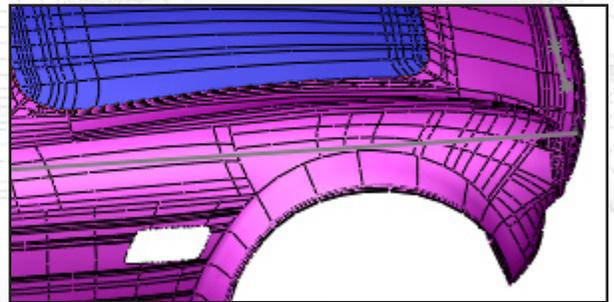
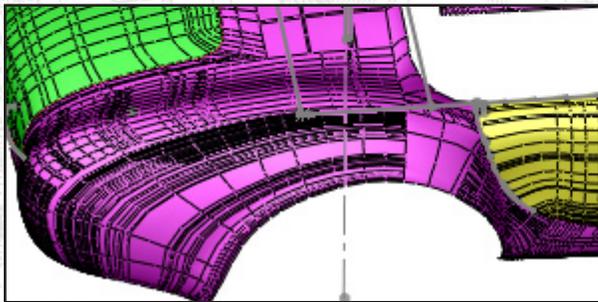
design to production more quickly than we ever thought possible. It's made a huge difference for us. After all, everyone is here to build great cars, and when employees are frustrated in that process, it's a problem."

The AMD-based workstations have delivered a price-to-performance combination that significantly improves productivity. "Multi-core AMD Opteron processors offer great value and performance and allow my most expensive employees to get more much done in the same amount of time," says Steve Kirkham. "There are only so many useful hours in the day, and the new workstations help us to make the most of them."

After experiencing the performance of AMD Opteron™ processor-based workstations, Steve Kirkham has become a believer in the value of the 64-bit, multi-core AMD processors and SolidWorks combination for rendering work. "I can't see any way to beat AMD in bang for the buck," he says, "especially with high end 64-bit AMD Opteron processor. The multi-core processors are an important point – operating systems have so much going on in the background today, it just makes sense to divide the workload among more than one core."

As a small automobile manufacturer that sells high performance innovation wrapped in the sensuous aluminum skin of an AC Cobra, KMS relies on ongoing improvements in its chassis and power train components. With SolidWorks software running on a workstation powered by Second-Generation AMD Opteron processors, the company's designs move into production at top speed.

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