

TRIPLE EIGHT RACING RELIES ON ATI TO GET TO THE WINNER'S CIRCLE

With four British Touring Car Championships (BTCC) wins in the last four years, getting to the finish line first has quickly become a tradition for Triple Eight Race Engineering. As the leading British racing team sets its sites on both the BTCC and the Australia Supercar Championship in 2005, it intends to maintain its winning ways with help from ATI's FireGL graphics accelerators.

Given the margin for victory at the track is measured in mere hundredths of a second, Triple Eight Race Engineering is constantly looking for better ways to design, engineer and assemble its championship Vauxhall VX racing cars. Adding ATI's FireGL graphics cards to its high-tech toolbox of 15 Inventor-based CAD workstations this year was the obvious choice in the team's ongoing quest for better 3D rendering, speed and reliability, according to Chief Designer John Morton.

"Our workstations are very high-spec but limitations have arisen in the past on the graphics side. We constantly strive to improve our graphics capabilities and we've really done that with ATI's new FireGL workstation cards, which are giving us much more reliability than we had with competitor's cards," says Morton from the team's headquarters in Greatworth, Banbury, England.

Triple Eight's team of nine engineers and designers is relying on leading edge technology to virtually design and test the components and working models of each race car before bolting in-house manufactured parts together to create a winning race car.

THE NEED FOR SPEED

For Triple Eight's design team, the race against the clock begins at the workstation, where engineers face a critical need for 3D imaging that's fast and reliable.

"We can't afford the time to do a mockup of the car so we create precise 3D simulations and use our experience to make sure we get it right the first time," Morton says. "Our timelines are very tight and very intense, so we need our design system and 3D visualization to perform well at all times. Optimizing our use of time is massively important because when you are developing a race car, every minute spent at your CAD workstation designing the car should be a minute spent improving that car."

With ATI's FireGL graphics cards, Triple Eight's engineers can now consistently work flat out, eliminating costly crashes and enhancing visualization speed to complete, in just four months, an auto design-and-build process that typically requires four years for conventional car manufacturers, notes John Waterman, the team's Chief Engineer at Triple Eight Racing.

"We only have a few months to get the car onto the track – so it's critical that we can accomplish a lot in an incredibly short time. You need to complete every job as quickly as is humanly possible," says Waterman. "To have a product like the FireGL in front of you to help you do that is a huge advantage. There is nothing worse than trying to design a car component quickly and then sitting there waiting for the computer to catch up to what you are trying to do."



BRITISH RACING TEAM USES FIREGL TO DESIGN AND BUILD CHAMPIONSHIP CARS

A CLEARER LOOK AT THE FUTURE

The FireGL's 3D-rendering capability provides a clearer window into the future by showing how well parts and designs will function under the extreme stress of racing, Morton adds.

"Good 3D rendering is crucial to us because it is often the only way that you can precisely check interference situations," he says. "In the past, car parts would disappear or renderings would be very jerky. Rendering is critical to the overall process of increasing our performance as a race engineering team."

From engine parts and the subframe to suspension, running gear and body work – Triple Eight can accurately simulate racing conditions and build in the performance requirements needed to win.

In developing complicated racing-suspension systems, for example, where an array of parts are constantly moving in different directions at once, being able to accurately simulate suspension performance using 3D images lets engineers test every conceivable situation to eliminate potential problems.

"Any failure in the performance of the suspension can cause you to lose the race – and we can never afford to see that happen," Morton says. "The more accurately you can use 3D graphics technology to create and simulate the demands of the racing environment, the better the results will be in terms of design and ultimately the performance of the car. If you are losing a view of a part or if the 3D images are rotating too slowly or unreliably on-screen, you are going to have problems."

Chief Engineer Waterman adds that the ability to move complex images and files easily during on-screen simulations is the key and ATI is making the difference today.

"With the design work we do, we tend to load up the display with images that require a lot of memory and rendering power, to the point where the wrong graphic cards will take a real pounding," he says. "With FireGL, we are getting much better performance, particularly in terms of the continuity of the 3D rendering, so that we can now move complex geometry and intricate on-screen images in any direction easily and quickly."

SHIFTING GEARS TO ATI WAS EASY

Triple Eight IT manager Richard Walker says that after four years of relying on a competitor's technology, making the switch to ATI's FireGL graphics accelerators was an easy choice after seeing them in action.

"We did some testing and discovered that ATI's FireGL performed better than the competitor's cards. We also were not happy with the competitor's driver releases, which seemed much more gaming-oriented," says Walker. "ATI gave us assurance that delivering high-end 3D applications, similar to what we require, is as important to them as gaming, and that has proven to be true in terms of the exceptional performance we are now getting with ATI's FireGL."

Triple Eight engineers have now eliminated costly, time-consuming crashes that were resulting from their need to translate and manipulate

original CAD files of stock Vauxhall car components created by Vauxhall parent-company General Motors. With ATI's FireGL, the task of translating CAD models from different pieces of CAD software has been simplified to the point that system crashes and slowdowns are a thing of the past.

"You put cards in the machines and you know something is good when no one complains, because engineers will always complain if there is a problem," Walker says.

"Richard's right," adds Chief Engineer Waterman with a laugh. "I have not complained once. ATI has been perfect in terms of the reliability and speed that we absolutely need."

SPEED + VALUE + SUPPORT = VICTORY

In addition to the clear value that FireGL technology is delivering, the Triple Eight team has high praise for the ATI team's expertise and enthusiastic support.

"We have had such an excellent relationship with ATI, and they continue to give us the best advice on hardware and how we should be using it," Morton says. "We've never had that kind of proactive working relationship with a supplier – ATI understands how

we work and really wants to make it work for us. The value we see goes beyond the cards and includes the support, advice and the relationship we have with ATI today. You can't put a price on that really."

"We can call our ATI rep any time and get good advice," adds Walker. "With the competitor we would need to sort of fish around on the Web site for information. Now, I can go to someone with my questions and get good input. ATI seems to hear us and understand what we are trying to do."

As Vauxhall's technical partner in British motorsport, Triple Eight is expanding its horizons to Australia and the World's Number One Touring Car series – the V8 Supercar Championship for 2005. While ultimately it is the final product – the race car itself – that will determine the team's success in 2005 and beyond, the Triple Eight team will happily continue to rely on ATI technology for the competitive edge it is providing along the way.

"The computer graphics card is not part of the race car, but having said that, we are often looking to improve the car's performance by hundredths of a second in a lap that lasts just one minute and 30 seconds," Morton says. "When every single one-hundredth of a second counts, every part of the process can make a difference. If the ATI card's performance and reliability buys us more efficient design time at the workstation, then it is directly responsible in that context for the ultimate performance of the car."

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