

Case Study: Briggs Automotive Company



Briggs Automotive Company Transforms Custom Car Design

From Modeling to Production: How Z by HP Revolutionized the BAC Design Process



Briggs Automotive Company (BAC) is renowned worldwide as the creator of the BAC Mono – the world’s first and only single-seater, road-legal sports car, with each vehicle made-to-order. BAC is a bespoke automotive design and manufacturing company based in Liverpool founded by brothers and car fanatics Neill and Ian Briggs. With Neill leading engineering and Ian leading design, BAC has achieved several industry firsts such as hybrid carbon-composite wheels and incorporating lightweight graphene into car body panels – all of which contribute to the car’s unmatched speed and agility.

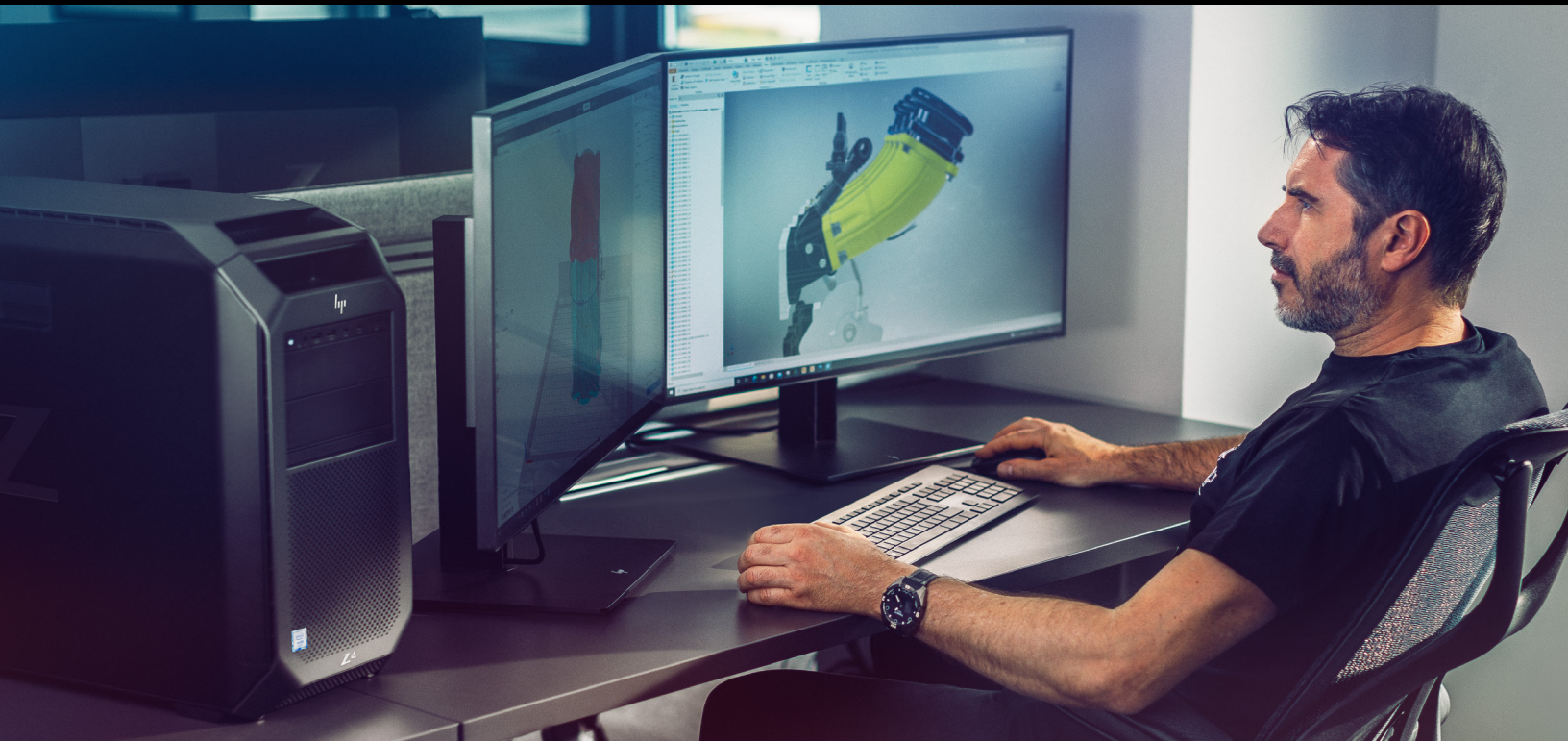
Technology plays a vital role in enabling BAC to design and manufacture high-caliber sports cars. This case study illustrates how high-performance compute solutions help drive a more efficient design iteration process, collaborative client reviews, and standout vehicle performance.

“In the past, we’ve sometimes struggled and been compromised with the rate at which we could do things. To physically have a computer that performs as quickly as you think, eliminates the frustration of having to wait for things to happen.

We're a high-performance company, and a high-performance computing solution is absolutely what we needed, and we've got Z by HP workstations to thank for that," explained Neill.

With a design and engineering process heavily dependent on 3D design, modeling, rendering with real-time ray tracing, visualization and simulation workflows, BAC was constantly hindered by compute limitations. Averaging 3-4 rounds of iteration per customer, and 7-8 hours per render, each customer session could easily add another 24 hours to project turnaround times. Furthermore, the master assembly file was simply too massive to run on its legacy computer systems, and not being able to see the full vehicle and interplay between all components had the potential to compromise the car's package and performance.

As a small team, BAC relies heavily on innovative computing technology for fast and frequent design iteration with customers and 100 suppliers on the 1,250 custom components used to craft each unique vehicle. Since launching the Mono in 2011, BAC has exported the car to over 40 countries around the world.



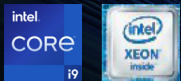
“ With Z by HP we’ve had a digital transformation in terms of our computing power, and that means that we can accelerate our innovation. As a small business, one of our strengths is that we’re an agile business, and we bring new technology and innovation to market very quickly. We couldn’t do that without the assistance of high performing computing. ”

NEILL BRIGGS

Director of Engineering & Co-Founder

Z by HP Enables Game-Changing Performance

BAC's desktop and laptop workstations include the latest generation Intel® Core™ and Xeon® processors, professional graphics cards, and large memory and storage configurations.



To address these challenges, Z by HP partnered with BAC and provided a range of high-performance solutions to support their quest to build bespoke, unencumbered sports cars. BAC currently utilizes a range of Z desktops and laptop workstations, displays and the HP Reverb G2 virtual reality headset in order to supercharge their compute-intensive end-to-end workflows. **The desktop and laptop workstations include the latest generation Intel® Core™ and Xeon® processors, professional NVIDIA RTX™ graphics cards, and large memory and storage configurations.** All of this built-in power enables hardware-accelerated raytracing and scalable compute power for reliable real-time 3D design and visualization, even in the most demanding professional applications like Autodesk® Inventor, VRED and Alias. This is crucial for BAC, as each Mono is built from the ground up to be completely tailored to its driver.

Z by HP has proven to be game-changing for the entire team at BAC.

“It’s always been a challenge for me to have a computer that doesn’t perform as quickly as your mind can think. It’s always been a frustration having to wait for things to happen. We’re a high performing company and we needed a high performing computing solution to take us to the next level,” explained Neill Briggs.

“ Processes that were taking 8 hours are taking literally 8 minutes now. Our Z by HP computers have transformed everything. ”

IAN BRIGGS

Design Director & Co-Founder



Faster Iteration and Interactive Visualization

For Murray Adams, Senior Designer at BAC, the Z4 desktop workstation has unleashed new levels of efficiency and productivity in his ability to iterate with customers. Customers value the ability to collaborate and see real-time, photoreal visualizations of their ideas throughout the process, as everything from the seat to the steering wheel is individually tailored. Now during the design phase, Adams can work seamlessly across multiple software applications at once, enabling much greater interactivity and responsiveness, even with demanding raytraced renders – so for the customer, what they see is truly representative of what they'll get.

“My Z4 workstation has the processing power to allow me to get things done quicker. For example, if I'm raytracing at a very high definition, it doesn't spoil my workflow if I'm working on another piece of software at the same time. And that's just something that I wasn't able to do before,” Adams explained.

Ian Briggs added, “Being able to use raytracing for visualization now has been the biggest difference in our interaction with our customers. They're not

trained designers or engineers, so they're perhaps not used to looking at CGI images. The more it can look like a photograph of the final car, it's easier for them to say ‘yeah, that's exactly what I want it to look like.’”

Adams also credits the 4K resolution on his two side-by-side Z27n monitors with allowing his customers to get a more accurate view of how their designs will look in the real world. Along with the HP Reverb G2 VR headset – which offers ultra-high-resolution – Adams can also visualize the car true-to-scale, which has been a valuable addition to the design and iteration process.

He shared, “It's really important when you're designing a car that you can get your proportions and other elements exactly how you want them. So being able to walk around the car in three dimensions with the HP Reverb G2 is a fantastic tool for us to have.”





Z technology has also been transformative throughout the engineering process. BAC engineers can now visualize and interact with the entire car model in real-time, with full details down to the individual screws, bolts, and wiring. This allows them to get a much more accurate picture of how different components affect each other, and the impacts of different design changes.

BAC Senior Design Engineer Guy Harvey explains, "If you have to cherry-pick the parts you want from separate models and create your own assemblies in order to see your full design, that's a very slow process. Z by HP has accelerated my workflow dramatically because now I'm able to literally open entire models and seamlessly rotate things around. It's much easier now - being able to look at the whole entity of what you're designing in one go, that's something we've never been able to do before."

The ability to interactively visualize full models, rather than lightweight stand-ins, has streamlined the interchange between design and engineering, leading to improved communication and productivity. The visualizations also look extra sharp on Harvey's Z38c curved widescreen monitor, which he credits for reducing his eye strain and offering a more accurate image for 3D models compared to a flat screen.

“All of these technological improvements have been hugely important to us as a niche volume manufacturer, because they enable us to go from concept to manufacture much quicker than large scale OEMs.”

MURRAY ADAMS

Senior Designer

Blazing New Trails for the Road Ahead

As BAC looks to the future and continues to raise the bar for automotive design and engineering, Z by HP is an integral factor in their success.

“Everything we do now end-to-end is Z by HP – and it’s allowing us to deliver better and better cars,” concluded Ian Briggs.

Efficiency is key to the design and engineering philosophy at BAC. It’s what enables the relatively small team of 20 to punch far above its weight in bringing new technology and innovation to market. With the added boost of high-performance computing, BAC continues to transform the future of road legal supercars and bring them to market at record speeds.



BAC

Made in Liverpool >>



Z by HP for Product Designers & Engineers

From 3D modeling and simulation to visualization in VR and more, power through your most demanding workflows with Z desktop or laptop workstations.

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BAC is a customer of HP and was provided products for their partnership in testing of these solutions.

