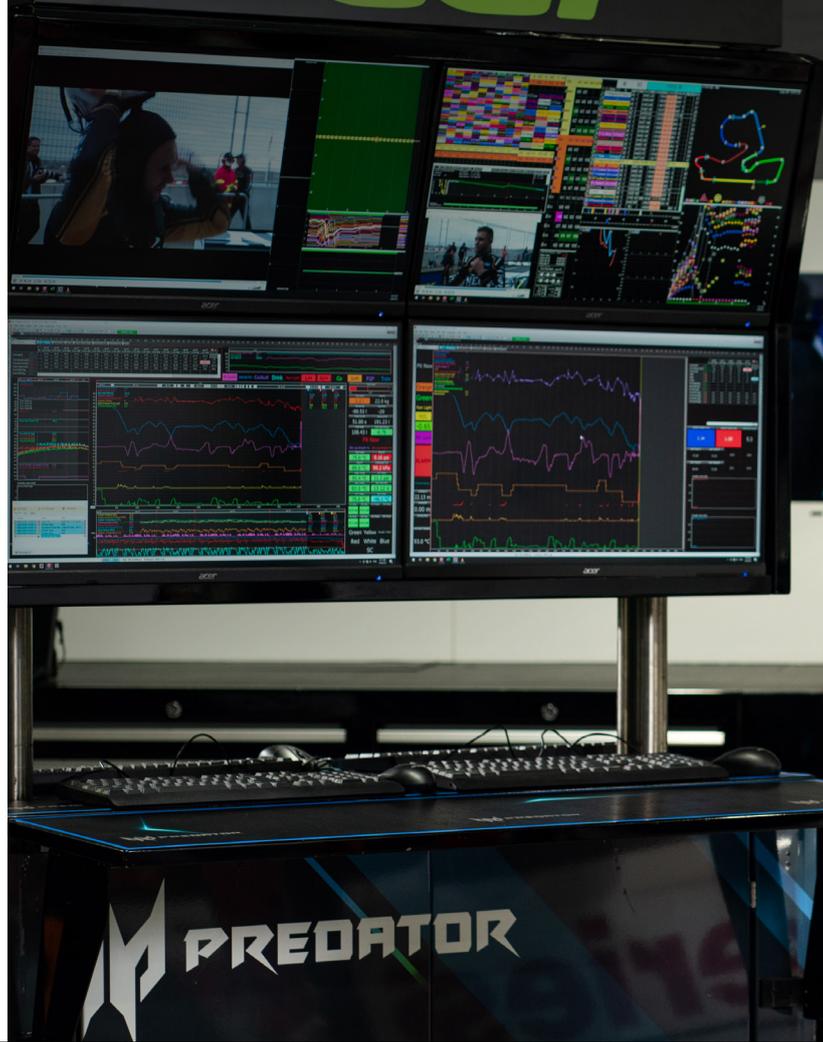


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INTRODUCTION

With the help of Acer's computing technology, Australian Supercar team Brad Jones Racing finds every possible performance advantage, second-by-second.

In the highly competitive sport of motor racing, every tenth of a second reduction in lap time that a team can achieve contributes to its chance of winning the race. And while the driver is a high-performance athlete, pushing both their body and their car to their physical limits, they are also dependent on engineers following the car's performance in real time and delivering feedback to the driver about what they can adjust to shave every possible millisecond off their lap time.

Over the years, Albury-based Supercars Championship team Brad Jones Racing has won championships in AUSSCAR, NASCAR and production cars before moving into the world of Supercars.

"Back in the day, when I was racing, there was a lot more time," said Brad Jones, Owner of BJR. "You could go and test any time you wanted, and the race meetings were three or four days long. Nowadays, our drivers are trying to maximise performance every single practise session. You get to the circuit on Friday, and you practise and race on Saturday and Sunday.

"As a result, data and technology have become critical in getting the job done properly. Here at BJR we have more than fifty people – from the design studio down to manufacturing and then to the race group, all focused on the one thing: speed."

"With the computing technology we have now, we have been able to make things happen a lot faster," he added. "And that's why having the right technical partner through the process is so important."

In 2017, BJR teamed up with Acer to provide the computing technology they need to achieve their motor racing goals. Since then the relationship has grown, with BJR staying up-to-date with the latest technology.

DRIVER, ENGINEER AND DATA – A THREE-WAY TEAM

The competitive nature of motor racing means that every small improvement in a car and driver's performance, however small, can have an impact during a race. This means collecting more data and acting on it quickly.

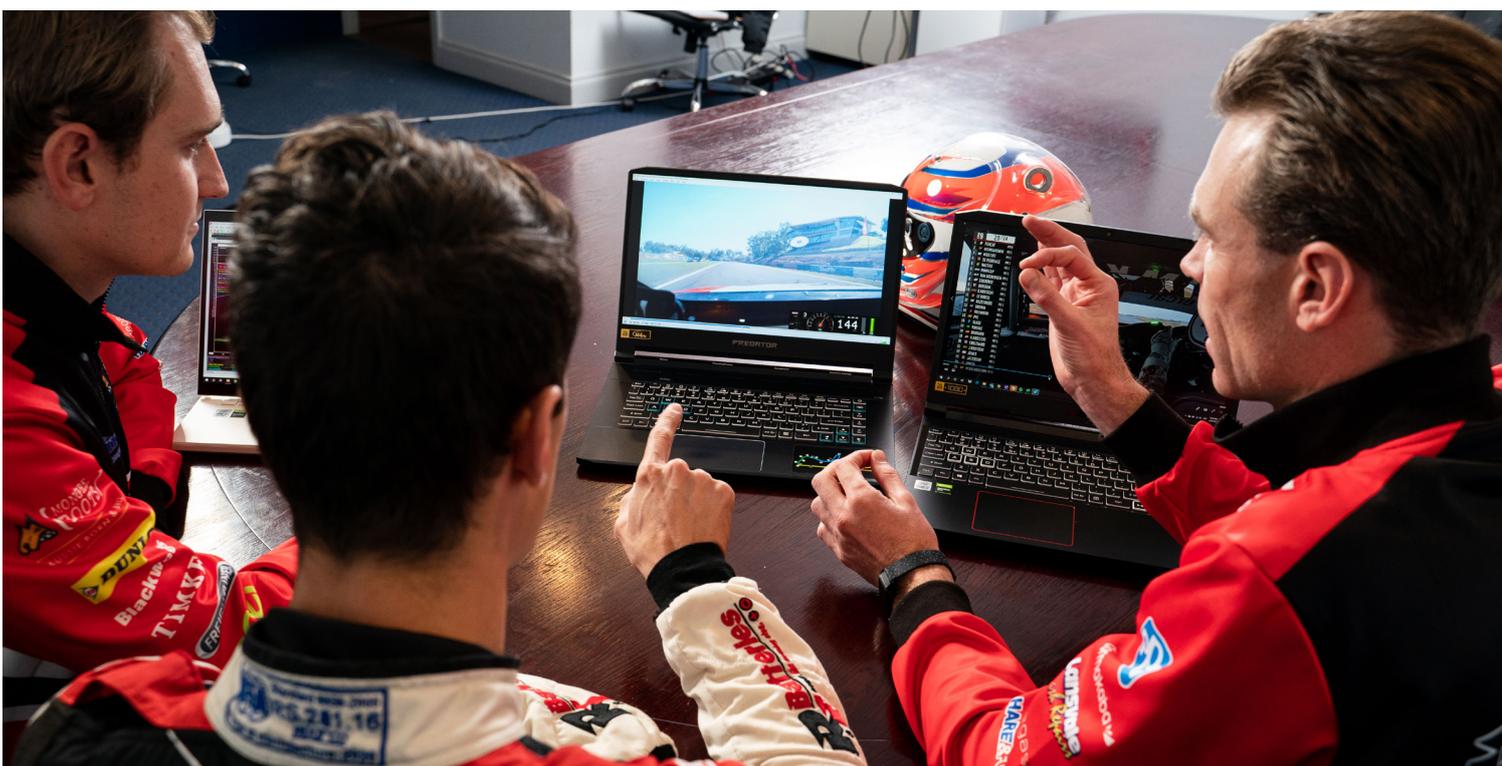
"It's way more than just me out there," said driver Nick Percat. "I know it's my name on the side of the car, but everyone in the team is accountable for making sure we have success.

"The coolest part of the BJR team, in terms of relationships, is the relationship between the driver and race engineer. You need to find somebody who matches your level and knows how to interpret what you're saying, as well as handle the ups and downs of emotions during a race – and we both have to have the one goal, which is to win at all costs."

"For us a successful round prep is about bringing various elements together," said Tony Woodward, Race Engineer. "We look at past round data, looking at what we did the last time we were at a particular track and what we can learn from it.

"We then use our lap-time simulation software that allows us to model all aspects of the car. With the technology we have, we can run many simulations, changing individual parameters of the car, to see what such physical changes would do when we come to the circuit. We also look at things like tyre compounds, and modelling different tyre performance.

"The aim is to bring research, development and design together to start off the round on the right foot."



RAW POWER WITH LIVE RACE DATA

“When we are at the race track, for me it is about extracting the most that we can from the car and the driver during the practice sessions – assessing whether the driver and the car are in the desired window, and what are the things we need to work on for the race,” said Tony. “The data also gives the driver a reference when it comes to qualifying, in terms of things like how the tyres will perform when hot and cold, and where his optimal braking markers are.”

There are also dynamic changes to the car going on during the race. There are three aspects of the car that the driver can change while driving – the adjustable front and rear anti-roll bars, and the brake bias adjustment. With radio feedback from the race engineer viewing the live data, the driver can make adjustments to the suspension and the brakes, often multiple times in a single lap.

Acer’s Predator Triton 500 gives BJR the processing power they are looking for at the track. Processing times are decreased with the Intel Core i9 processors and the NVIDIA GeForce RTX 3080 laptop GPU. Multitasking is further made possible thanks to the 32GB DDR4 memory and up to 1TB of storage and NVMe PCIe SSDs.

“We can also use our Acer gear between sessions: we can analyse the practice data, comparing with other cars in our team,” added Tony. “For the drivers it is a massive advantage, because they can get an idea about what the car is going to do before they even try it.”

One of the most important things is the tyres. With the continuous data flow from the car, BJR engineers can see how the tyres are behaving and how they are wearing, and the software can calculate the best time for a pit stop.



RAW POWER WITH LIVE RACE DATA

“The biggest change I have seen over the last few years is in the data we have access to and how quickly we can access and analyse it,” said Paul Scalzo, Engineering Manager. “The amount of data we collect has gone up exponentially over the last few years, and so the physical file sizes and the complexity of the data has gone up a lot.”

“For race simulations we also have Acer’s latest Altos server system as an AI server. The current machine has 64 cores supporting 128 threads, which means we can have 127 simultaneous simulations running. This allows us to prepare for the next race meeting by performing a large number of simulations in a short period of time.”

“With the increasing data available, our computing power has to always keep up, so that is why it is important to be partnered with a company like Acer: because we know we will always have access to the latest computing technology to keep us at the front of the field,” Paul concluded.



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