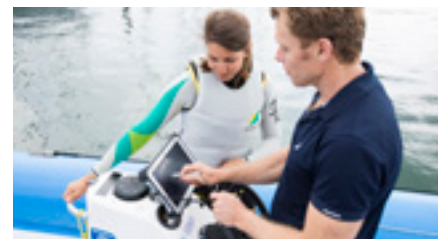




PANASONIC TOUGHPAD ON BOARD WITH AUSTRALIAN SAILING'S WINNING TEAM

TOUGHPAD FZ-G1 RUGGEDISED TABLETS SUPPORT TECHNICIANS, COACHES AND ATHLETES TO FORM A WINNING BID AT THE RIO 2016 OLYMPIC GAMES, WITH PLANNED IMPROVEMENTS FOR GREATER SUCCESS IN TOKYO DURING 2020.





The Australian Sailing Team use Toughpad tablets as their secret weapon to harness powerful cutting edge race modelling

Australian Sailing's high performance team now has its 'eye on the prize' for the upcoming Tokyo 2020 Olympics, following its most successful medal haul ever at the Rio 2016 Olympic Games where they finished with three gold and four silver across the talented Olympic and record-breaking Paralympic teams.

Success like this comes from years of hard work, with technicians, coaches and athletes sweating it out together and collaborating to create that winning edge. Sailing is a complex and sometimes frustrating sport, where the boats may have the most advanced design, but are still at the mercy of what Olympic silver medalist Lisa Darmanin calls 'the weather gods' – the winds, the tides and the currents that can confound the most experienced of athletes.

Peter Logan, Senior Performance Analyst, Australian Sailing, has the pivotal responsibility of coordinating all the technical services to support the teams bid, from meteorology support, to mast and hull testing plus the all-important performance analysis on the water for both boats and athletes. Reviewing videos and images is an important part of this role - and this is now underpinned by bespoke software and ruggedised hardware that's unique to the Australian team.

Australian Sailing's 'secret weapon' in its arsenal has been to harness powerful cutting edge race modelling technology that allows the coaching and sailing team to develop the best possible strategies when training for a particular competition and location. So, on race day – when athletes must compete without access to these aids - they're prepared and confident to compete in the most challenging and rapidly-changing conditions.

In the run up to the Rio 2016 Games, the team used FZ-G1 rugged Toughpads mounted in coaches' boats and plotting race scenarios - based on the collection and analysis of thousands of hours of course data, including wind, tide and currents combined with the boat and race marker information.

Highly experienced 49er Olympic coach Emmett Lazich, a veteran of five Olympic campaigns including the Rio, London and Beijing Olympics with the Australian team, explained: "We used the 'Toughy' to run Microsoft Windows-based race routing software which was critical for athlete results. Race modelling means using a computer to predict the fastest path around a course. Rio has complex winds and currents which vary greatly with small changes in time of day or racing location. In the 49er class, we used the software in conjunction with forecasted weather data which could be supplemented or updated with actual on-water measured wind and current fields."

The road to success

Directly after the 2012 London Olympics, the AST tech team began working with experts to develop an application that could be used for the Rio pre-event training to collect complex weather data and plot the quickest trajectory up and down the course. Peter Logan explained "In Rio, the Guanabara Bay tides were super complex, there were eddy formations the likes of which our modelers had never seen before. To get to that minute level was quite a challenge and it took them a few years to get it right."

Lisa Darmanin explained that the road to success in her first Olympic event meant testing, testing and more testing, leading to those final days when she and sailing partner Jason Waterhouse battled it out with the world's best. "Sailing is super complex as

we have our equipment, we have athletes and we have the weather. Technology is advancing in the boats and we have to do an enormous amount of testing to get the most out of them. Data analysis is important – we may feel that we are performing better in a situation, but when the data also backs that up, it gives us confidence. When you get to the event, you are not questioning anything – you are just focusing on your performance."

While the software was being honed, there was no question about the hardware to support it, Peter Logan explained.

"The team had an existing larger form factor Toughbook and had switched to a more slimline 10-inch Toughpad. The FZ-G1 was now on board with a suite of capabilities that could support 'technical warfare' without the risk of failure.

The FZ-G1 tablet was built to operate in the extreme conditions the team faced on water – sealed against sea and rain spray, grit and dirt, resistant to heat and cold, with a fully –ruggedised body protected against knocks and drops, and a daylight-readable screen designed to be seen under direct sunlight. There was nothing else you could reliably use when you had waves crashing over you, and where coaches would occasionally drop the device in the bottom of the boat and hope that it's still functioning later." - Logan.

"Selecting the FZ-G1 Toughpad for its robustness and durability was pretty easy."

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Robust strength, coupled with the power of a full PC housed in a slimline form factor, the Toughpad allowed technicians and coaching staff to use a single device – one that could support running complex and processing power-hungry live applications, and was portable enough to be carried as a handheld tablet on a day to day basis. It also had to be resilient enough to be installed on to the coaches' small speedboats via purpose built mounts, which were completely open to the elements.

Emmett Lazich's Toughpad stood up to sun, salt, driving rain and vibration without a hitch.

"It still works well today. I rinse it in fresh water, and there is just a little bit of rust on some screws."

The ergonomics were also key when 'multitasking' on the water: "The pen mode was very useful as it could be operated in the boat at speed when the keyboard couldn't. I could rest my hand on the screen and still write notes – as I was often coaching, driving the boat and running the modeller at the same time. I could operate the throttle with my left hand and the Toughpad with my right."

Building confidence

It was crucial that the Toughpad could streamline the task of getting teams up to speed with the Rio environment. As first-time Olympians in the Nacra 17 catamaran class, Lisa Darmanin and Jason Waterhouse didn't qualify until relatively close to the event, and spent 6 months out of the 12-month lead-up in Rio honing their skills. With Americas' Cup commitments, 49ers competitors Nathan Outteridge and Iain Jensen had just three months to prepare.

The training period was crucial as under Olympic Games rules, mobile data could be used in the lead-up, but not on competition days. The Toughpad could be accessed on race day by the athletes, up to 4 minutes before their race began.

Emmett Lazich said: "I used the Toughpad every single training day that I was in Rio. With only six rest days over an accumulated three months I got to know my Toughpad very well."

Previously, the team used some crude 'rules of thumb' to estimate wind changes and tides, and the plan would be on laminated A4 with diagrams and arrows. The Rio course was too complicated for that and it was clear the old way wouldn't cut it. Also, with limited time, using the race modeller allowed us to increase productivity – for example, what some teams had 20 days to achieve, the Australians had to master in five days.

Emmett explained: "At Rio, race modelling allowed us to instead of 'replay', to 'preplay'. We could model the course hours and often minutes before a race started. The built-in GPS was essential and worked flawlessly."

The technology was extremely accurate in its analysis, with the highly visual output on the Toughpad making it straightforward to work on strategy with the athletes.

"I've been coaching Nathan for 10 years and Ian for 9. The key difference with the new technology was athlete confidence in race strategy decisions. The software gave Nathan and Ian scenarios so they could operate the boat at a high level.

"We learned to trust our data and the Toughpad was the tool to make it possible. Confidence is a huge thing as the Olympics is a mental game."

4G data communications were crucial when out on the water during pre-Games training, Peter Logan added: "The wind modelling data we were collecting was getting pushed across to the boats' Toughpads and coaches for verification, so it was a pretty high powered computational need. We never had any problem with that."



Lisa Darmanin added: "As sailors we see the wind and test the course beforehand and create a strategy using our eyes and our skills. In training it was great as we could develop strategies before we went out there based on the technology and then test its reliability. Our coaches would throw us the Toughpad to look at, and the confidence we gained when our experience on the water matched the modelling data was a definite mental advantage. It was good to be able to check on the environment as it evolved throughout the day."

"For example having data on the Toughpad meant you could easily look at information broken down into 10-minute intervals – that's not something you can do with paperwork. The final race was probably the best race we've ever sailed. Pressure can make you do stupid things, but every maneuver and every decision in that race was perfect."

Peter Logan also gave a nod to technology as being an important factor in the Paralympic team's record-breaking achievement, saying: "The teams' event was on inner courses which we had the most intel on – and they used it pretty religiously."

There's little time for the winning team to rest on their laurels. With challenging events ahead in the lead up to qualifying for the next Olympics, the Toughpad is now confirmed as a fundamental part of the crew for Australian Sailing's Tokyo 2020 bid.

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