

## Datalight Delivers Winning Performance to Formula One Racing

### The Challenge

Magneti Marelli, leading supplier of high-performance automotive systems, was recently commissioned by several Formula One teams to develop a “black box” data logger – a recording device for race data on their Formula One cars. The number one customer requirement was of course speed, but it was also vital that the solution not sacrifice reliability in preserving critical race data. Further complicating the issue of performance vs. reliability, Formula One systems must survive brutal, computer-hostile environments, and are under strict regulation for system attributes like size, weight, processor and memory type. The Magneti Marelli system uses a CompactFlash card for memory with the VxWorks 6.6 operating system. Engineers tried several file systems including HRFS, a default for VxWorks, but were unable to configure the file system to meet the customer’s requirement for throughput speed.



### The Datalight Solution

As the Magneti Marelli engineering team soon discovered, Datalight Reliance™ offers a custom- tunable architecture known as Dynamic Transaction Point™ technology, which allows the developer a high degree of flexibility in finding the optimal balance between performance and reliability for any use case. Whereas other file systems the team tried were either fast OR reliable, Reliance enabled Magneti Marelli to offer their Formula One customer significant performance gains without sacrificing the reliability that they needed. Reliance accomplishes this with an unusual “transactional” architecture. The file system performs regular transactions, where data is moved from a “working state” to a “known good” state. Developers can control how often transactions occur and what triggers them according to time, system events (like shut-down), or through application control.

### The Customer Payoff

By implementing Reliance, Magneti Marelli easily met the Formula One customer’s requirements for speed and reliability. Riccardo De Filippi, Magneti Marelli Motorsport head of electronics product line had this to say; “Using Datalight Reliance allowed us to meet the performance requirements of our Formula One customer while maintaining the fail-safe operation they needed. We won’t hesitate to use Datalight software again when performance and reliability are top priorities.”