

AMD Drives Future Of Formula One Technology

December 9 2004

AMD Opteron Processor-Powered Supercomputer helps propel F1 team's CFD, aerodynamics and simulations past competitors

Using technology provided by AMD, Formula One team Sauber Petronas today launched its new supercomputer at the team's headquarters in Hinwil, Switzerland. This groundbreaking supercomputer, powered by more than 500 AMD Opteron processors and one of the most advanced in Formula One and the automotive industry, will act as the "brain" for the team's Computational Fluid Dynamics (CFD) center.

Because CFD is considered a key factor in optimizing the aerodynamic performance of race cars, the new AMD Opteron processor-powered supercomputer is expected to have a significant effect on reducing lap times, putting the Sauber team in a position to score valuable World Championship points. AMD is the leading supplier of micro-technology in Formula One and a premier processor manufacturer for organizations involved in CFD.

"If you look at all the factors in Formula One that can be influenced with engineering, more than 70 percent are aerodynamics," reveals Peter Sauber, team principal of Team Sauber Petronas. Sauber Petronas' Technical Director, Willy Rampf, adds: "Success in F1 requires world-class computational fluid dynamics and a cutting-edge aerodynamic team that is armed with the best tools available, such as the AMD Opteron processor."

The AMD Opteron processor, the world's first 32-bit and 64-bit processor compatible with the x86 architecture, plays a critical role in the creation and development of new and enhanced Sauber design innovations and evolutions. The new supercomputer, powered by AMD Opteron processor-based servers with Direct Connect Architecture, will enable Sauber to simulate more complex variables with greatly improved accuracy in reduced time, compared with the team's past supercomputer. This reduction in time required for aerodynamic development and testing will in turn enable the team to focus track testing on tire and engine development.

The 530 AMD Opteron processors, which run on a Linux operating system, will process a critical flow of robust CFD data. The new supercomputer is expected to allow Sauber to compile aerodynamic information faster and more efficiently through higher power calculations. This improved performance and optimized data analysis will enable better decisions and provide a competitive edge.

Sauber's Head of CFD, Torbjörn Larsson, is enthused by the potential gains that AMD64 technology will offer his department. "With our new AMD Opteron processor-powered supercomputer, Sauber should be able to increase its CFD calculation capacity by a factor of almost 30. This is particularly important in light of new FIA [Federation Internationale de l'Automobile – the governing body of world motorsport] regulatory changes to the cars' aerodynamics," said Larsson. "The AMD Opteron processor will also accelerate research and development processes, which are critical in the battle against both the time and testing constraints that are inherent to motor racing. AMD64 technology will deliver a number of key competitive advantages, and Sauber is determined to make the most of them."

"AMD aligns itself with teams and individuals who share our brand attributes – strength; determination; passion; excellence; people who rely

on technology for their success, and compete against the world's toughest competitors on a global stage," said Henri Richard, executive vice president of worldwide sales and marketing at AMD. "We serve individuals, teams and organizations who demand the highest levels of performance, without compromise. We'd expect nothing less. Sauber Petronas is a very demanding customer, and AMD is meeting those demands."

By delivering the world's first x86-based 64-bit processor capable of also running 32-bit applications, AMD has enabled customers like Sauber to leverage existing software with outstanding performance while seamlessly migrating to 64-bit applications as they are introduced. Of the Fortune Global 100 companies, 25 now use AMD Opteron processor-based systems to run their critical applications.

Team Sauber Petronas joins AMD's world-class stable of sporting heroes at the top of their game--14-time Formula One World Champions Scuderia Ferrari, six-time Tour de France winner Lance Armstrong, and the victorious United States Postal Service Pro Cycling Team. AMD's customer-centric products are driven by technical excellence and real-world customer needs. Its innovations are developed in the most extreme and elite environments and industries, from the FIA Formula One World Championship to the grueling Tour de France, to provide inspirational products to customers around the world.

About the AMD Opteron Processor

The world's first 32-bit and 64-bit processor compatible with the x86 architecture, the AMD Opteron processor is based on AMD64 technology with Direct Connect Architecture. Direct Connect Architecture helps eliminate the bottlenecks inherent in a front-side bus by directly connecting the processors, the memory controller and the I/O to the central processor unit to enable improved overall system

performance and efficiency. AMD was the first to announce the completion of an x86-based dual-core processor design and the first to demonstrate an x86-based dual-core processor for 32- and 64-bit computing. As more solution providers join the AMD64 ecosystem, the industry is approaching the day when 32-bit-only systems will become obsolete.

Citation: AMD Drives Future Of Formula One Technology (2004, December 9) retrieved 26 April 2024 from <https://phys.org/news/2004-12-amd-future-formula-technology.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.