

SAUBER Petronas C21 rendered by surface pressure

# Wind Tunnel & Computing Facility at Sauber Petronas

Two exciting new areas of technology advancement are taking place at Sauber Petronas in Hinwil, Switzerland, this year. A new wind tunnel facility came on-line in March after years of planning, building, and testing, and a new supercomputing center will be inaugurated in December.

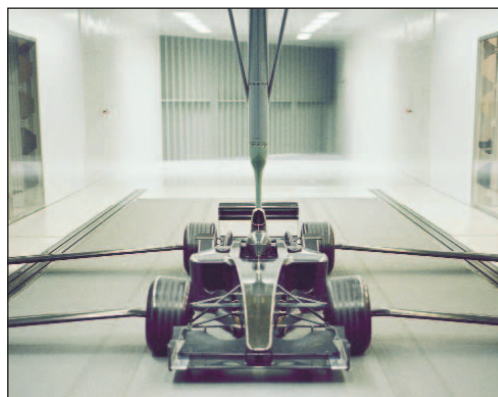
The Sauber wind tunnel features the most advanced technology currently available. When operating under a full load, the specially-mounted axial fan in the tunnel draws 3 MW of power and delivers wind speeds of 300 km/h. Considering its many features, such as the size of the test section and models, the dimensions of the "Rolling Road", the "Model Motion System" that simulates suspension and control of the vehicle, and cutting-edge data acquisition technology, the Sauber facility compares favorably with the existing Formula 1 wind tunnels.

Shortly after the new wind tunnel was commissioned, the Swiss company Dalco, a provider of optimized parallel computing systems throughout Europe, delivered a supercomputing system for Sauber Petronas' demanding computational needs. Following an exhaustive review of the technology options currently available, a Linux cluster architecture using AMD Opteron processors was chosen. With 530 processors, the high-performance computing system is one of the most capable of its kind in both the Formula 1 and automotive industries. It will enable the Swiss F1 team to perform complex computing tasks using FLUENT at much higher speed than ever before.

Amid these developments, Sauber Petronas and Fluent signed an agreement that extends their cooperation in the area of CFD until the end of 2006. Commenting on the extension of the technical partnership, Team Principal Peter Sauber said, "Aerodynamics has become an increasingly critical factor in recent years. This has made CFD simulation consistently more important as well. Fluent is a highly competent partner for us, making a major contribution to our ability to work in this field successfully." Torbjörn Larsson, Head of CFD at Sauber, regards the partnership with Fluent as an important basis for the team's aerodynamic developments. "The computational efficiency and accuracy of the Fluent software, combined with its functionality and flexibility, have allowed us to efficiently integrate CFD into the aerodynamic development process. The extension of our technical partnership with Fluent ensures that we use state-of-the-art fluid mechanics simulations," he said. ■



Fluent Germany's Udo Weinmann, left, and Peter Sauber, right, announce the continuation of the companies' partnership



A test model in Sauber's new wind tunnel