



Contacts:  
Maria McLaughlin  
Appro International, Inc.  
(408)888-6661  
[mmclaughlin@appro.com](mailto:mmclaughlin@appro.com)

## **ING Renault F1 Team Chooses Appro Xtreme-X™ Supercomputers for New Computational Fluid Dynamics Centre in UK**

### **Appro to Support Renault's Drive for Performance in Formula 1 Racing**

**Milpitas, CA -- 3/4/2008**— Appro (<http://www.appro.com>), a leading provider of high-performance enterprise computing systems, today announced that it has been awarded a contract for a 38TF Appro Xtreme-X™ Supercomputer for the ING Renault F1 Team Computation Fluid Dynamics (CFD) Centre, a brand new modern technology-driven research facility designed to place Renault “in the pole position” in Formula 1 competition. This award marks another milestone for Appro’s supercomputers in international HPC markets. The Appro Xtreme-X2 Supercomputer will be shipped and installed by Appro at the Renault F1 CFD Centre in the UK by the end of June, 2008.

Appro’s supercomputer will provide the ING Renault F1 Team’s CFD Centre with a five-fold increase in CFD computing capacity with the ability to run full-car simulations in addition to the aerodynamic testing of components such as the front and rear wings, turning vanes, brake ducts, fuel tanks and more. Appro’s Xtreme-X2 meets the capability computing and high availability requirements needed for the new CFD Centre computational resources. At current conservative development rates, the expanded facility will provide 50% of the gains of a fully-efficient mature wind-tunnel for less than 50% of the investment. With this added computing capacity provided by Xtreme-X2, the Renault F1 Team will generate a measurable competitive advantage to further establish the company as a technology leader in Formula 1 racing. The Supercomputer will also be used to expand the current computational support for Renault F1’s integration into the Renault-Nissan group’s research and development efforts. This integration means a valuable CFD resource will be made available at minimum cost to other business units for research beyond Formula 1.

“We are extremely pleased to work with ING Renault F1 Team to provide improved computing capability, better reliability, superior system performance and an outstanding management system delivered by Appro Xtreme-X2 Supercomputers”; said Daniel Kim, CEO of Appro. “Appro is excited to partner with a technology innovator like Renault to achieve the competitive edge in Formula 1 and beyond.”

“Renault is looking forward to the installation of the Appro Xtreme-X2 Supercomputer to enhance our CFD Centre computational resources”; said Bob Bell, Technical Director of ING Renault F1 Team. “Appro not only offered us a cost effective solution but they also improved our required technical specification through better reliability, greater fault tolerance and redundancy as well as more flexibility with regards to system scalability.

The Xtreme-X2 supercomputer to be delivered to the Renault F1’s CFD centre consists of more than 500 dual-socket, Quad-Core AMD Opteron™ processor-based compute nodes with over 4,000-processor cores. As configured, the computer has a peak capability of 38TF and is provisioned and managed as a single unified supercomputing system. The system has 4.4TB of high performance local memory with a usable aggregate bandwidth of more than 8Terrabytes/s. Each dual processor node has a peak capability of more than 70Gigaflops. The compute nodes in the system are interconnected by a dual-rail double data rate Infiniband interconnect fabric that provides reduced inter-processor latency and improved system reliability.

The system comes pre-configured with the Appro Management System that supports a dual-rail Infiniband network as a load balanced fault-tolerant interconnect and allows the use of shared receive queues with multi-

channel operation. The software is designed to maximize the bandwidth associated with MPI processes and to support non-stop operation for mission critical operations. The system is supported by large memory and visualization nodes equipped with dual Graphic Processing Units (GPU) to allow large panel displays to show simulation results. The system also includes a global parallel file system that is bridged directly to the Infiniband fabric allowing high bandwidth parallel access to the file system from all of the compute nodes. In addition, separate from the supercomputers, Appro will deliver multiple XtremeWorkstations based on Quad-Core AMD Opteron™ processors to ING Renault F1 Team with an impressive amount of memory and GPU performance.

The Appro Xtreme-X2 supercomputer is managed by the Appro Cluster Engine (ACE) management software providing a complete, remote lights-out management solution for the entire system including the interconnect networks, servers, clusters, resource management and scheduling. It also supports diskless operation with standard Linux distributions and fast boot operations independent of the system size. ACE also supports network load balancing and failover. ACE provides a total management capability for maximum performance and non-stop operation.

IDC projects that the CAE/CFD market segment alone will more than double in this decade to reach nearly \$2 billion in 2010," said Steve Conway, IDC research vice president, technical computing. "The ING Renault F1 Team contract shows that Appro can win HPC procurements with a demanding mix of requirements, in this case including dual-rail DDR interconnect capability and heterogeneous processing that combines x86 and streaming GPU modes."

"The intense computational demands of the ING Renault F1 Team are best addressed by innovative HPC solutions that can deliver enhanced performance while keeping power costs low," said Patrick Patla, Director of Product Management, Server/Workstation Division, AMD (NYSE: AMD). "The combination of AMD's revolutionary Direct Connect Architecture which provides outstanding system-level performance, and industry-leading features such as AMD's innovative power management capabilities and the new AMD Wide Floating Point Accelerator, a 128-bit floating point unit for increased floating-point performance, all combine to make native Quad-Core AMD Opteron processors an ideal computing solution for Renault's compute-intensive CFD Centre."

### **About Appro**

Appro is a leading developer of innovative workstations, density-managed servers, clusters and supercomputers. Appro is uniquely positioned to support High-Performance Computing markets focusing on medium to large-scale deployments where lowest total cost of ownership is a primary consideration. Appro accelerates technical applications and business results unlocking the value of IT through outstanding price/performance, balanced architecture, open standards and engineering expertise. Appro headquarters is in Milpitas, CA, with an R&D/manufacturing center in Asia and a sales and service office in Houston, TX. To learn more go to <http://www.appro.com>

### **About Renault**

The ING Renault F1 Team was born in 2002 with a singular purpose: winning the FIA Formula One World Championship with a 100% Renault car. Drawing on a heritage of motorsport innovation that stretches back to Renault's first Formula 1 race in 1977, and includes six world constructors' championships during the 1990s when Renault supplied V10 engines to front-running F1 competitors, the team steadily grew in competitiveness since 2002 thanks to a blend of performance, reliability and technology reinforced by the engineering expertise of the Renault Group. The team reached the pinnacle of performance during the 2005 and 2006 seasons, winning the drivers' and constructors' championships in both seasons in an historic double-double achievement. After such highs, 2007 proved to be a difficult year, but the resolve remains strong for 2008. With renewed optimism, an exciting driver line-up and innovative technical package, the team approaches the new season determined to bounce back and ready to fight at the front of the field.

AMD, AMD Opteron and combinations thereof, are trademarks of Advanced Micro Devices, Inc.