

GOING FOR THE

AMD's technology has helped Trek Bicycles build better, lighter and faster bikes.

GYCLE

IT MAY SEEM THAT A BICYCLE IS A BICYCLE AND THAT THE WAY TO make real improvement in the grueling sport of professional cycling is through longer and harder training, period. Perhaps that once was true. But that's before AMD and its partners, the Discovery Channel Pro Cycling team and Trek Bicycles--which supplies bikes for the team, put their heads together. (Don't worry, they were wearing helmets.)

As the official technology partner of Trek Bicycle Corporation, AMD again called on the same powerful formula that has worked so well for its auto-racing partners: Turn to powerful workstations and servers driven by AMD's most powerful processors, such as the 64-bit Dual-Core AMD Opteron™ processor; run sophisticated simulation software, particularly computational fluid dynamics (CFD) software, to predict how the machine and rider will respond under race conditions; build prototypes and ride them in low-speed wind tunnels; confirm the calculations; then do more modeling and follow up with a more refined prototype. The beauty of the new approach is the result: speed, accuracy and lower costs. Modeling gets done faster, it's more accurate and fewer prototypes are required.

The collaboration between AMD, Trek and Lance Armstrong dates back to the late 1990s. Michael Sagan, Trek Advanced Concepts Group senior designer/technology principal, Jim Colgrove, Trek carbon fiber expert, and Doug Cusack, lead frame engineer, used AMD processor-based systems to develop a time-trial bike for Armstrong's triumphant 2000 Tour de France. That was for the second of what would be seven straight wins and an amazing comeback for a person who, just four years earlier, had been

diagnosed with testicular cancer and given a 40 percent chance of survival.

Last year, riding Trek TTX time-trial bikes designed on systems powered by AMD processors, the team recorded the fastest time trial at the Tour de France. Using Dual-Core AMD Opteron processor-based HP Workstations, Trek engineers cut their design cycle from months to weeks. Trek says the workstations gave designers more than a 50 percent speed improvement when running CFD software. And it was all done in an accelerated timeframe: just 30 days.

"We wouldn't be where we are today without AMD technology making this team lighter, faster and more efficient," says Armstrong, seven-time champion of the Tour de France. The frame of Trek's most recent racing bike, the Madone SSL 6.9, is made of carbon fiber and weighs

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The Discovery Channel Pro Cycling team relies on AMD technology for the design and testing of its time-trial bikes.

less than 900 grams, or less than 2 pounds.

According to Scott Daubert, Trek's team liaison, "There's a pretty incredible relationship between the kind of computer power and the design aspect of it and how it eventually relates into something that we test in the wind tunnel. The computing power that we use at Trek, all of which is AMD powered, helps us make models that send us in the right direction. Then we can bring some of those models or ideas to the wind tunnel for validation."

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Daubert acknowledges there's still a strong attraction to getting out of Trek headquarters in Waterloo, WI, during the winter for a few days to log some time at the San Diego Low Speed Wind Tunnel that Trek favors, even though the accuracy of the modeling software has eliminated the need for at least some of those road trips.

"The partnership that Trek has with AMD is a huge advantage for this team," says Johan Bruyneel, director sportif of Discovery Channel Pro Cycling and, previously, of the U.S. Postal Service team, the Discovery team's predecessor. "We have forced the rest of the peloton to do what we do." ■

ONE CHALLENGE, ONE VISION

DELIVERING TECHNOLOGY TO INSPIRE AND EMPOWER THE CANCER COMMUNITY

When champion cyclist Lance Armstrong was diagnosed with cancer at age 25, he relied on technology — the power of computing and the in-depth resources of the Internet — to arm himself with an in-depth understanding of his diagnosis and treatment options. This information led Armstrong to a strategy for taking cancer head on and surviving the disease.

But Armstrong is not alone in his mission. AMD commissioned a survey among the cancer community and joins with the Lance Armstrong Foundation (LAF) to discover innovative ways to use the latest technologies to help cancer survivors live longer, stronger and healthier lives.

AMD and LAF talked to 550 cancer patients and professionals to understand how they're using technology. The results identified some critical issues:

- **Access:** More than four out of five cancer patients and oncologists use the Internet to research cancer-related issues. However, only one in 25 patients has access to technology resources at their treatment centers.
- **Information Management:** Seventy percent of cancer patients and oncology professionals are looking for technology tools that will help



Lance Armstrong understands the power of technology to enhance sports and health.

them better use the cancer-related information they receive.

- **Support:** Nearly nine out of 10 cancer patients want an online resource to notify them of new treatment options. More powerful technology-based support networks are needed.

AMD and LAF are working together to bridge these gaps and find other ways technology can benefit cancer survivors.

Making a Difference

People affected by cancer need knowledge and access — whether seeking information on a clinical trial, staying in touch with family and friends, or searching for doctors and treatment options.

By combining the latest information technology with an in-depth understanding of issues surrounding cancer research and survivorship, AMD and LAF are working to increase patient, family and healthcare provider access to crucial treatment and diagnosis information. AMD is also working with its leading technology partners to develop solutions that address access, information management and support issues facing the cancer community.

AMD will deploy its processor-based systems and technology counsel in the LAF's **LIVESTRONG™** Survivorship Center of Excellence Network and affiliated cancer treatment centers. By doing so, the firm hopes to better understand the role technology can fulfill in helping people living with cancer.

By providing improved data access and better interaction and knowledge-sharing opportunities among those confronting the disease, AMD can make a difference in reducing the incidence of cancer and improving quality of life.

To learn more about this program, log on to www.amd.com/amdlafvision.

For more information on cancer survivorship, log on to: www.livestrong.org.



Elite cyclist Bobby Labonte.

UNITED IN SPEED

Fans of different sports tend to focus on the differences among them. But it's the athletes who see the similarities, and one key parallel is the need to stay in peak physical condition.

Technology allows these athletes to use their bodies and their vehicles to their maximum potential. It can help improve aerodynamics, data analysis and safety which in turn equals time gained, improved design and performance. The net result is a greater sense of comfort for the athletes and their families.

AMD recently brought together a group of six such accomplished athletes from three of the sports in which AMD sponsors teams and/or is the official technology provider: Discovery Channel Pro Cycling, Formula One (F1) and NASCAR.

The site for the second annual "Cycling Meets Motorsports" event was Colorado Springs, CO, home of Carmichael Training Systems (CTS). Their goal is to provide personalized world-class coaching and training, including dietary fitness, for everyone

from the world's top athletes to recreational athletes.

Led by CTS founder Chris Carmichael and AMD vice president of global marketing Morris Denton, the assembled group discussed technology's role in sports and participated in two days of physiological testing, dietary analysis, training seminars and bike rides. Testing included CTS-administered V02 max, lactate threshold, resting metabolic rate and body-composition testing.

Participants in the June event were NASCAR Nextel Cup drivers Carl Edwards and Bobby Labonte, Craftsman Truck series driver David Ragan, F1 driver Mark Webber, and Discovery team cyclists Tom Danielson and Jason McCartney.

"I'm here because I believe you have to look into anything that can make you go faster, and being fit helps," says Edwards. The June Nextel Cup race at Sonoma, CA, a twisty road course with a track temperature of 125 degrees during the race, "was a good example of why you need to be fit. I was aware that toward the end of the race I was work-

ing harder to focus on driving the car. I know I'm in shape: I work out about four days a week. But coming to CTS made me take an honest look at myself. Now I know exactly how fit I am, and what I need to do to get fitter."

CTS athletes have included Lance Armstrong, triathlete Heather Gollnick, swimmer Ed Moses, Czech cross-country skier and mother of three Katerina Nash, two-time NFL Pro Bowler Bobby Taylor, and Montreal Canadian and cancer survivor Saku Koivu.

"Let's be clear on one thing: These guys are already athletes," says Carmichael. "What we can help them do is get fitter, and we do that by combining both nutrition and fitness into an integrated program. The reason that a driver needs to pay attention to his fitness is because all things being equal — same car, same driving skills — the ride is going to the fitter guy. The fact is, the fitter you are, the more blood you've got going to your brain and your central nervous system, which controls your reaction time and hand-eye coordination."