



Prevas develops intelligence in products and industrial systems

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Prevas is developing the world's largest real-time supercomputer for the Technical University of Denmark

Prevas A/S is behind the development of a supercomputer that will be used in diagnosing blood clots and other heart diseases non-invasively.

Prevas is working on developing what may be the world's largest and fastest real-time computer. The computer is designed for very complicated image processing that enables the entire heart to be viewed in 3D, along with the blood flow through all veins and arteries. This will make future diagnosis of blood clots and other heart diseases not only much faster, but also without using any invasive surgical procedures. The supercomputer is being developed in cooperation with CFU (Center for Fast Ultrasound Imaging), headed by Professor Jørgen Arendt Jensen.

This supercomputer is a third-generation research scanner based on more than 15 years of experience in the design of leading signal processing and computer systems.

Computational ability of 5,000 PCs

The new supercomputer will have a computational ability equivalent to at least 5,000 PCs. It will also be optimized for minimum delay so that images are immediately displayed as soon as the ultrasound wand is moved.

"With this new real-time computer, we will, in the future, be able to test the most advanced algorithms and be able to view the displayed images without any delay. That means that we will more quickly be able to see the results of our research. In our old system it could take a certain amount of time to generate a sequence of images. But, with the supercomputer, the waiting time is minimized and it is possible to see if one has obtained correct results," says Professor Jørgen Arendt Jensen of CFU.

The tremendous computational ability and level of detail achieved by this supercomputer is made possible using the latest technology. It is comprised of 640 PowerPCs that are integrated into 320 FPGAs, which simultaneously function as parallel coprocessors with a total of 1 TB RAM memory (1,000 GB). FPGAs are groundbreaking technology that is taking over in areas where traditional computer technology is currently used in PCs, as well as replacing many types of traditional electronics solutions. Prevas is a specialist in FPGA-based development projects and in Scandinavia, the company is currently a leader in this area.

Development platform of the future

This supercomputer has a modular design and it can be used for many other demanding applications, such as radar systems, advanced visual and image recognition, encryption and decoding. As part of the project, Prevas has obtained exclusive rights to utilize this platform for commercial purposes. Prevas is waiting for the project to move past the prototype phase before it can begin new projects using this supercomputer. Final delivery of the first version is expected to take place sometime around December 2008.

"The new supercomputer platform will make it possible for us to provide the outside world with data, while simultaneously testing new, complicated algorithm calculations. That means that we'll be able to shorten our customers' time-to-market, which we all know is of critical importance. That's particularly true when faced with the alternative of constructing a comparable supercomputer in-house. In this project, Prevas will continue as a developer and supplier of leading product development and platform solutions," says Michael Carl, President of Prevas A/S in Denmark.

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About Prevas

Prevas is an innovative IT company with a strong corporate culture that offers its customers a world-class competitive edge. Prevas has delivered customer benefit in the form of profitable solutions for the future for over 20 years. Prevas' solutions are characterized by innovation, quality assurance and delivery reliability, which has qualified Prevas for many successful assignments from leading global enterprises. Prevas is listed on the OMX Nordic Exchange in Stockholm, and has 560 employees in Sweden, Denmark and Norway.

Also see www.prevas.se.

About CFU – Center for Fast Ultrasound Imaging

CFU is an internationally renowned research center located at the Technical University of Denmark. The Center develops diagnostic methods and systems using ultrasound. Research is conducted in cooperation with B-K Medical A/S and Rigshospitalet, among others. The Center has 14 employees, of which eight are PhD students.

Read more about CFU at: www.elektro.dtu.dk/Centre/cfu/English.aspx/.