SUCCESS BRIEF

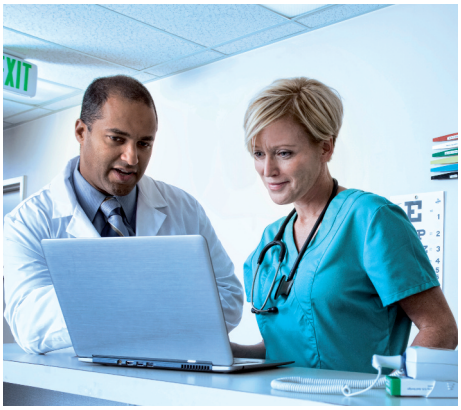
Intel® Xeon® Processor E5 Family

Healthcare

Performance for Data-Intensive Computing

Sharper Sight

Intel® Xeon® processor E5 family helps surgeons see the light



VISIONSENSE

"The scalability of the Intel® Xeon® processor E5 architecture combined with SIMD AVX instruction set allowed us to advance our algorithms and enable full stereo dual-stream processing in real time, at the high frame rates required for MIS."

Alex Chanin
President and CEO
Visionsense

Company

Visionsense develops technology that brings 3D stereoscopic sight to minimally invasive surgery (MIS). It utilizes advanced sensor technology and proprietary software to deliver depth perception, high resolution images and the ability to maneuver through the smallest spaces. Neurosurgeons, for example, use the technology to see into microscopically small crevices enhancing their ability to perform advanced MIS procedures.

Challenge

The company's product, the VSII* system, operates from a workstation. Proprietary software utilizes advanced image processing algorithms to render the data it receives into stereoscopic 3D images which are transmitted to a screen for the surgeon to view. This system represents a paradigm shift in MIS. It imitates the compound eye of an insect, which provides a far greater view angle compared to lens-bearing eyes. However, the company wanted to advance the technology as far as possible to help further MIS techniques and provide surgeons with ever more sophisticated tools.

Solution

The VSII system runs on hardware powered by the Intel® Xeon® processor 5600 series. This processor series runs streaming SIMD (single instruction, multiple data) extensions (SSE) to support the advanced image processing algorithms. However, the company was eager to test the performance of the new-generation Intel Xeon processor E5 family, which supports the SIMD Intel® Advanced Vector Extensions (Intel® AVX) instruction set. Benchmarking of the Intel Xeon processor E5 family revealed a four times performance increase[1] of the algorithms compared to the Intel Xeon processor 5600 series.

Benefits

The Intel Xeon processor E5 family enables the delivery of extremely high- definition stereoscopic video to the surgeon in real time, with minimal latency. The processed stereoscopic image retains the natural depth of information and provides the surgeon with the best possible view of the surgical site. This could advance surgical procedures and improve patient outcomes. As a result, Visionsense decided to tie its product development to the next generation of Intel Xeon processors. This is based on the understanding that the performance increase of its advanced image processing algorithms leads to an increasingly sophisticated product. For example, the VSII system will provide better quality images and new features can be added into the software. In turn, this will help Visionsense grow its business.

Find the solution that's right for your organization. Contact your Intel representative, visit Intel's Business Success Stories for IT Managers (**www.intel.co.uk/Itcasestudies**) or explore the Intel.com IT Center (**www.intel.com/itcenter**).

[1] Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations, and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products.

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