

ContextVision aims CT dose reduction at OEMs

Cell microprocessor boosts algorithm speed to cut dose

ContextVision has adapted its GOPView CT enhancement software to run on Sony's Cell microprocessor, an adaptation/hardware combination that promises the speed needed to maintain CT image quality at a dramatically lower dose.

This hardware-based image processing technology, publicly announced last week, can be integrated into new CT scanners coming off the production line or as an upgrade to a vendor's installed base.

ContextVision is pitching its new offering directly to OEMs, hoping to tune in to the increasing need by vendors to offer lower dose solutions for new and—especially—existing customers.

“When you have the economic downturn that we are in today, it is favorable to have an upgrade like this,” said Peter Kovamees, marketing manager at ContextVision.

The GOPView CT software has already been available for some time, but on

slower and clunkier technologies, such as multicore PCs. The software itself is based on the GOP algorithm, which has been adapted to enhance fine structure while reducing noise and speckle in MRI, x-ray, and interventional radiology equipment, as well as CT. The company has melded these versions on a range of hardware platforms, including multicore PCs, graphics processing units, and digital signal processors. The latest is the first adaptation to the Cell microprocessor.

Also known as the Cell Broadband Engine Architecture, this chip was developed through a collaboration among Sony, Toshiba, and IBM. Initially integrated into Sony's Playstation 3, its medical application by ContextVision offers a more elegant solution than the company's central processing unit-based product, as it brings to bear eight core processors versus the four typically found on CPU boards in PCs.

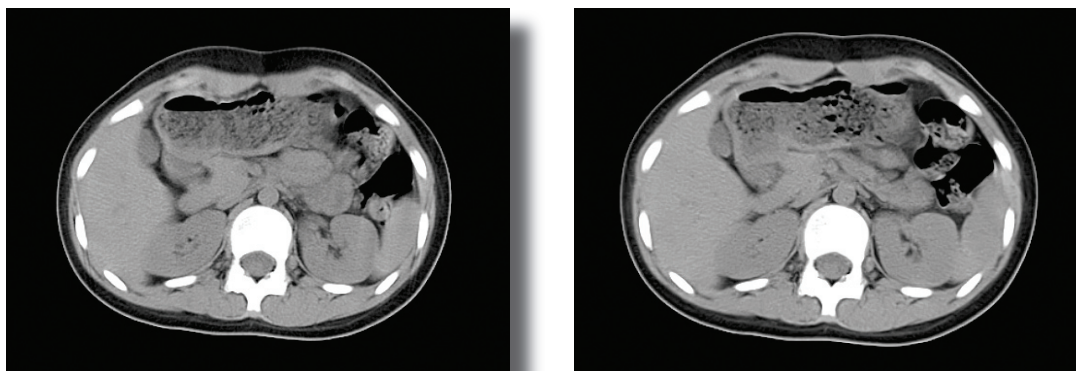
The Cell's ability to efficiently process floating point data makes it well-suited to run complex algorithms. Its computational performance delivers the highest speeds realized in CT: 40 frames per second using common filters, according to the company. Rather than save

a few seconds on image reconstruction, however, this computational horsepower can be leveraged to clean up noisy images acquired using less x-ray dose: 70% less dose than otherwise delivered, according to ContextVision.

“When you lower the milliamps to lower the dose, you get a little noisier image,” Kovamees said. “Then you add our software and lift up the image quality, so you have the same image quality as you had before but with a lower dose.”

The lower dose translates to less risk without sacrificing image quality or diagnostic accuracy. CT operators will benefit, as well as patients. The lower dose requires less power, which decreases wear and tear on x-ray tubes, extending their life spans.

The estimated 70% dose reduction is based on measurements made in the field using CT upgrades marketed to end users by ContextVision's sister company, SharpView, which has already entered the marketplace with an upgrade for the CT installed base combining GOPView CT and the Cell microprocessor. The advantage in going to OEMs is the reach these vendors may provide across the CT community. Right now, this community is primed for a product that addresses CT dose.



Abdominal image acquired at full dose (left) is indistinguishable from low-dose image (right) processed using ContextView's GOPView CT algorithm running on Sony's Cell microprocessor. (Provided by ContextVision)