Press Release

"CVCell" – Module developed by Fixstars that accelerates OpenCV Library for the Cell/B.E. processor

Achieved 27 times faster on PLAYSTATION®3 Linux® than Intel® Core™2Duo

November 28, 2007, Tokyo, Japan – Fixstars Corporation today announced that the company developed the new "CVCell" module aiming to accelerate several important OpenCV APIs for the Cell Broadband Engine™. CVCell achieved up to 27 times faster performance in image processing compared to Intel Core2Duo 2.4GHz.

OpenCV is an open source computer vision library developed by Intel Corporation. It provides many APIs, including Object Identification, Motion Tracking, and Stereo Matching. By installing the Cell/B.E. CVCell module together with the OpenCV library, we were able to accelerate by several tens of times the important OpenCV APIs.

We measured the processing time of major APIs which use the OpenCV library, and compared the performance of PS3 equipped with Cell/B.E. and a PC equipped with Intel Core2Duo.
The result indicated that PS3 with CVCell was up to 27 times faster than the PC[i].

"In the computer vision field where there is a speed-accuracy tradeoff, a high-speed computing processor such as Cell/B.E will bring technological innovations," said Dr. Yosuke Tamura, Chief Technology Officer of Fixstars. "We expect that it will be helpful in accelerating the construction of a Cell/B.E. ecological system, and penetrate into several markets to promote technological innovations."

Fixstars has been running the website "OpenCV on the Cell", where we provide CVCell and information about the OpenCV library for PS3 Linux (http://cell.fixstars.com/opencv/index.php).
CVCell is distributed as open source software on the website.

OpenCV API		Processing time (msec)		Speed-up Ratio	Processing Operation
		Core2Duo 2.4GHz	Cell/B.E. 3.2GHz		
1	cvErode	74.154	2.725	27.2	Erodes image by using arbitrary structuring element
2	cvFindStereoCorrespondence	845.571	59.176	14.2	Calculates disparity for stereo-pair
3	cvCvtColor(BGR2HSV)	29.876	3.010	9.9	Converts image from one color space to another (from BGR to HSV)
4	cvPyrDown	1.569	0.221	7.1	Downsamples image
5	cvHaarDetectObjects	1814.515	303.228	6.0	Detects objects in the image

The conditions for measurement were as follows:

• Image sizes are 1024x1536x24bit for.1 and 3, 1024x1536x8bit for 2 and 4, and 1280x960x8bit for 5.

• The result is an average of 10 executions.

• The number of SPEs used is 6.

About Fixstars

Fixstars Corporation has been providing solutions using cutting-edge software technology.

Since founded in 2002, Fixstars has been focused on the high computing performance of Cell/B.E., and have a high reputation for industry-leading levels of development for multi-core parallel programming using Cell/B.E., grid computing and sensor networks.

The company is headquartered in Tokyo. For more details, please visit http://www.fixstars.com/en.