

Socionext Develops World's First Graphics Display Controller with OpenVX Compliant Hardware Accelerator

Provides New Solutions for Embedded Computer Vision Applications

Yokohama, Japan March 2 --- Socionext Inc., a leader in state-of-the art system-on-chip technology, has developed the "SC1810" series, the fourth generation version of its high-performance graphics display controllers. In addition to further strengthening the graphics functions for in-vehicle display system, which the company has proven achievements, Socionext incorporated the world's first hardware accelerator that conforms with Khronos™ Group's computer vision API OpenVX™ to the SC1810. Socionext aims to provide high-performance, low power image recognition solutions for various embedded systems for home and industrial use, as well as automotive systems. Samples and the software development kit will be available from April 2017.

The SC1810 features further evolved functions and performance for in-vehicle graphics display controllers, which the company has proven track record. In addition to its high resolution graphics capability with improved 3-D image processing performance which is five times more than that of the company's previous products, the SoC is also capable of handling 6 channels Full HD video inputs and 3 channels of Full HD display outputs, enabling variety of input and output controls. The SoC realizes "Integrated HMI (Human Machine Interface) system" which manages various information from inside and outside the car and controls multiple displays, with higher definition and image quality.



Photo: SC1810

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Furthermore, the SC1810 is equipped with a proprietary "Vision Processor Unit (VPU)", which is compliant with the computer vision API OpenVX, developed by the standardization organization Khronos Group. The SC1810 VPU includes the world's first OpenVX compliant hardware accelerator, as well as programmable data parallel accelerator, enabling advanced image recognition and other advanced functions at high speed and low power consumption. Socionext has been providing solutions based on its graphics display controllers, such as OMNIVIEW, a 360-degree wrap-around view system, which generates a three dimensional view around the vehicle from any perspective, and the Approaching Object Detection function, which analyzes in-vehicle camera images and alerts the driver of objects such as pedestrians or bicycles. The SC1810, with its dedicated Vision Processor, is able to expand the image recognition capability while improving the conventional display controller functionalities. In addition, it has an H.264 CODEC that can process multiple channels of camera images simultaneously, supporting 360-degree recording by drive recorders which are rapidly gaining popularity.

OpenVX is an open standard API that has been developed to be implemented by hardware vendors. Conformance tests are available, making it an ideal platform for commercial use. Extended specifications to neural networks have already been released. It is thought to be an API that will lead various applications that require computer vision in the future. With the SC1810, compliant with OpenVX, Socionext can now offer a wide range of solutions in the computer vision field, including image recognition for a variety of embedded devices for home and industrial use, as well as for automotive. Socionext will continue expanding the libraries and aim to evolve and grow in the ever-developing field of computer vision technology.

“Socionext is furthering OpenVX adoption momentum with their OpenVX-compliant implementation,” said Frank Brill, chairman of the Khronos OpenVX Working Group and design engineering director at Cadence Design Systems. “Their SC1810 leverages one of the primary strengths of OpenVX, which is the ability to use a public, IP-free, standard API to access highly optimized, unique hardware blocks. OpenVX enables application developers to get to market quickly with high-performance, low-power embedded vision functionality. I congratulate Socionext on their achievement and look forward to the proliferation of vision-powered products based on the OpenVX standard.”

Conformance test result is available at:

<https://www.khronos.org/conformance/adopters/conformant-products#openvx>

Main Specifications of the SC1810 include the following:

CPU	ARM® Cortex™ A9 Quad 1066MHz
3D Engine	OpenGL ES PowerVR™ 8XE Series
2D Engine	SEERIS® Proprietary IP
Image Recognition Engine	OpenVX™ Vison Processor Unit Proprietary IP
Display Controller	3 outputs 1920 x 1080p (maximum) RGB, YUV, FPD
Video Capture	6 inputs 1920 x 1080p (maximum)
Memories	DDR3/3L 1866MHz (maximum) 32bit, 64bit
CODEC	H.264 CODEC, Motion-JPEG Decoder
Peripheral Interface	I2C, I2S, UART, USART, ADC, HS-SPI, SPI, USB2.0, SD/eMMC, FPD-Link, MIPI D-PHY, CAN, EthernetAVB, MediaLB

About Socionext Inc.

Socionext is a new, innovative enterprise that designs, develops and delivers System-on-Chip products to customers worldwide. The company is focused on imaging, networking, computing and other dynamic technologies that drive today's leading-edge applications. Socionext combines world-class expertise, experience, and an extensive IP portfolio to provide exceptional solutions and ensure a better quality of experience for customers. Founded in 2015, Socionext Inc. is headquartered in Yokohama, and has offices in Japan, Asia, United States and Europe to lead its product development and sales activities. For more information, visit socionext.com.

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