Nokia and STMicroelectronics Introduce New Camera-Module Standard For Mobile Devices

July 1 2004

SMIA Specification Targets Multiple Sourcing and Lower Camera-Phone Costs in Booming Market

Helsinki and Geneva, July 1, 2004 - Nokia and STMicroelectronics today announced that they are releasing a comprehensive specification for camera modules, aimed at standardizing this increasingly important component in mobile devices.

The specification, dubbed Standard Mobile Imaging Architecture, or SMIA, will cover all aspects of the modules, including their electrical, mechanical, and functional interfaces, and also address other key areas such as characterization, optical performance, and reliability. The SMIA specification is offered for free to the mobile imaging industry and is available at www.smia-forum.org.

The mobile-phone camera-module industry has developed rapidly in terms of technology, with dramatic increases in image quality and higher resolution. SMIA is a standardization effort to fulfill the emerging new requirements and enable mobile handset vendors to work with multiple suppliers. SMIA's target is to address the task of specifying functional and optical behavior of camera modules and therefore truly enable cost-efficient multiple sourcing of the module at the phone level.

"The camera phone market will increase rapidly with cameras entering

into key product segments of mobile devices. Nokia recently estimated that the camera phone market would exceed 200 million units this year. SMIA's target is to streamline and accelerate the camera module development, ultimately contributing to creation of the state-of art imaging mobile devices, independent of vendors," said Janne Haavisto, Director, Camera Entity, Nokia Technology Platforms.

"ST and Nokia have worked on this specification for more than two years and both companies are contributing significant intellectual property into SMIA," said Marc Vasseur, General Manager of ST's Imaging Division. "ST has been immensely successful in this market due to best-in-class pixel performance, sensor and module development capabilities, and full ownership of the manufacturing flow. Now, the standardization of interfaces and system partitioning, via SMIA, will enable us to address significantly more opportunities in the mobile phone industry."

The demand for higher image resolution to mega pixel and beyond has prompted the need for increasing bandwidth on the interface, while keeping the pin count low and EMI consistent with mobile phone design constraints. In addition, significant cost reductions are made possible by optimizing the architecture of the camera phone as a whole, as opposed to viewing the camera as a peripheral subsystem. SMIA proposes a framework for defining the related metrics.

SMIA specifies imaging sub-element partitioning that will enable independent technology evolution and optimal design development. Based on a partitioned architecture approach, the optics and sensor will be implemented on the SMIA camera module and imaging processing will be executed, for example, by the mobile phone's main application processor engine.

From electrical interface to optical performance:

SMIA has six chapters that cover all key aspects of a camera module:

The electrical interface specifies the physical layer (voltage levels, pin-count, timing), data rate (up to 650Mb/sec), EMI (electro-magnetic interference) performance, and output image format
The functional specification specifies frame and field formats, register maps for set-up and control and has three profiles that help easy video usability with high resolution sensors
The mechanical interface proposes a family of set of modules that provide mechanical outlines specifically designed for volume manufacturing
The characterization chapter provides for optical-performance metrics and sensor noise standards
The reliability chapter includes environmental-test and drop-test standards Finally, a software model is also provided in the SMIA specification, including reference device drivers and software architecture
Royalty-free license
While Nokia and ST hold key patents and other intellectual property in the SMIA specification, both companies have decided to open these up to any third party and will not assert those rights against anyone implementing a fully compliant SMIA module. No fee, nor royalty, will be levied. A simple license form can be found on www.smia-forum.org.

The original press release can be found here.