



Nethra Imaging Enters Market with Breakthrough Image Processing Solution for Mobile Handset Applications

Technology promises “print quality” images direct from cell phones

CUPERTINO, Calif., June 6, 2005 – Nethra Imaging, a privately-held imaging company, enters the market with a family of digital still camera chips that brings the image quality of the film industry to the mobile handset. The programmable image processor family provides performance, flexibility and low power for a wide range of digital consumer applications. Nethra initially is targeting its technology for 3-megapixel camera modules in cell phone systems.

According to analyst firm InfoTrends/CAP Ventures, the worldwide camera phone market is expected to surpass 860 million units in 2009. "Camera phone owners are looking for better image quality before they will begin to take more pictures, and they primarily measure image quality by megapixels," says Jill Aldort, senior consultant at InfoTrends. "We believe the development cycle for camera phones has accelerated to answer growing consumer demand, and many handset manufacturers will skip over two megapixel designs in favor of three megapixels. Sophisticated image processing solutions like Nethra's will resolve camera phone image quality shortcomings such as exposure, focus and image stabilization."

Current digital imaging solutions rely on digital signal processors and application specific integrated circuits that were not designed from the ground up for mobile imaging applications. Nethra has developed a fully flexible and programmable solution that outperforms DSPs and ASICs in handling multi-megapixel imaging and provides added flexibility beyond the performance of ASICs. This means consumers will soon get higher resolution and longer battery life from their mobile imaging devices.

"Our goal is to give consumers print-quality images direct from their cell phones," said Ramesh Singh, Nethra's president and chief executive officer. "Film has been the medium used to capture images for almost a century. Now, the industry's challenge is to deliver that same – or better – experience using digital technology. We believe we have an innovative solution that makes Nethra the technology of choice for 3-megapixel mobile handset designs of the future."

NI-20x0 product family

Nethra's first product entry, the NI-20x0 family of system-on-chip solutions, offers scalable performance to provide system designers the flexibility to meet a range of customer needs. With minimal platform changes and no need to write code or learn imaging, OEMs can focus on differentiating their products and getting to market quickly. The NI-20x0 products embed software needed to tune the picture quality and system control in the embedded flash. Mobile handset OEMs can concentrate on developing a camera application that communicates with the camera sub-system via

simple I²C commands. This development approach reduces product development time-to-market and provides the best picture quality from the mobile-handset camera.

The SOC includes an image processing engine, 32KB of SRAM, 64KB of embedded Flash memory, an embedded ARM[®] core and SDRAM in an 8 mm square chip scale package with 1.0 to 1.2 mm mounted thickness. System peripherals include pulse width modulators, general purpose input-output devices and serial peripheral interfaces. The NI-2080 and NI-2090 products have integrated SDRAM, and NI-2070 supports external SDRAM. The product's image processing engine is capable of processing image sensor data that in turn can produce print quality images. These digital-image processing SOCs are designed and architected for low power and cost sensitive applications such as camera modules in wireless and PDA imaging applications.

Camera phone architecture

Digital cameras are composed of three major functional blocks: image capture block, image process and compress, and image storage and display. The image process and compress block manipulates the captured image and compresses it for efficient storage. Because this requires billions of computations per image, memory bandwidth becomes the bottleneck. This drives the need to embed more sophisticated image processing algorithms in a handset (increase the number of megapixels) to create the best image quality.

Nethra has developed proprietary camera system algorithms that are used to gain high performance pixel processing at low power, resulting in the best images. By building the SOC architecture to support the needs of the core pipeline, the overall chip offers optimal balance in performance, cost and power consumption. Nethra's software algorithms support features including auto focus, auto exposure, auto white balance, and red eye correction. Other advanced features such as adaptive light control, enhanced night mode and electronic image stabilization are hardware enabled.

Pricing and availability

NI-20x0 development platforms are currently available for product evaluation and software development. Nethra is shipping product to select customers and plans to have production quantities available in Q3 2005. Contact Nethra for detailed pricing and availability.

About Nethra

Nethra Imaging is a privately-held semiconductor company focused on delivering imaging solutions for a wide range of digital consumer applications. The company's product roadmap uses proprietary algorithms to build flexible, fully programmable digital camera chips for mobile handsets. The core technology can address the needs of other imaging markets in the future. Incorporated in 2003, Nethra is located in Cupertino, Calif. and began full operations in January 2004. The company's leaders are a team of established entrepreneurs with a wealth of experience in imaging and silicon development. Nethra is fully-funded and entering the market in 2005 with a family of image processors for the rapidly growing mobile handset camera market. For more information, visit <http://www.nethra.us.com/>.

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