

System-on-a-Chip Imaging Solutions for Mobile Imaging Applications

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Abstract

As the digital imaging capability of mobile phones advances there are consumer demands for increasing image quality and functionality in very small form factors. New categories of mobile phones are emerging with higher resolution (such as 5 megapixels), optical zoom (such as 3X zoom) and expectations for connectivity to share and print high quality images. Space constraints within multi-functional devices such as smart phone-cams demand a compact imaging module and very low power consumption. As such, the image sensor designer's approach is to provide maximum functionality within minimum space through system-on-chip solutions. This paper describes the architecture of one such solution based on a CMOS image sensor embedded with an on-chip image signal processing pipeline. It describes the technical challenges overcome to

integrate motor drivers and auto-focus algorithms on-chip in a thin 3X zoom folded optic. Advanced CMOS image sensor solutions enable a new category of mobile phones that will deliver image quality and features consistent with consumer digital still cameras so that users can proclaim. When it's a phone it's a phone and when it's a camera, it's a camera.

Biography

Brian L. Benamati received BS and MS degrees in Electrical Engineering from Rochester Institute of Technology, Rochester NY. He joined Eastman Kodak Company in 1980 and has been involved in the development and commercialization of CCD image sensors. He is now a Product Line Manager for CMOS image sensors within Kodak's Image Sensor Solutions division and concentrates on integrating CMOS image sensors into mobile and digital still camera applications.