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Development of Infrared Image Sensors

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We present results from NIRCA –the near infrared readout controller ASIC for high-performance infrared image sensors, and we describe possible use with readout integrated circuits and microbolometer arrays. NIRCA features 16 analog inputs with programmable gain amplifiers, 16-bit/12MSPS analog-to-digital converters and high-speed serial outputs. We measured the performance in terms of linearity and noise, and we observe better than 1.5LSB integrated non-linearity (INL), less than 0.35LSB differential non-linearity (DNL) and 3LSB equivalent noise input (ENI). NIRCA is radiation hardened by design, making it suitable for use in both space and terrestrial applications at ambient temperatures ranging from -40℃ to +85℃. At the workshop, we will present NIRCA features, performance, and describe a possible use with microbolometer arrays for thermal infrared imaging.

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