

Evaluation of 1MHz, 16-bit Analog to Digital Converters (ADCs)

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There is an ever increasing need for faster readouts and multiple charged couple devices (CCDs) in telescope instrumentation, such as that at the Keck telescopes in Hawaii. CCD controllers are used to regulate the timing and readout of astronomy-grade CCDs. Small compact CCD controllers consisting of semi-custom integrated circuits (IC) and smaller, faster ADCs are needed. The objective is to shrink the size of the video board component of the CCD and use a 16-bit analog digital converter (ADC) with faster readout speed with equivalent or better performance.

The performance of new integrated 16-bit ADCs from Analog Devices will be tested and their performance will be later compared to the existing ADC on the Astronomical Research Camera (ARC) video boards, on which the controller design is based. A full evaluation of the ADC will be performed using evaluation boards supplied by Analog Devices. Performance testing of the ADCs will include offset, gain, noise, and frequency response tests. These results will eventually be compared to similar tests that will be performed on the old devices.



Sahar Kashef was born in Iran. She came to the U.S. in 1998 with her family. She is a Junior in college and plans to graduate within the next two years from the University of Iowa with a bachelor's degree in Electrical/Computer Engineering. She plans to attend in graduate school and get her degree in Computer Engineering.