

# New Technologies for Discovery IV: The 2018 CPAD Instrumentation Frontier Workshop

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## Commercial Detector Readout Hardware

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Microwave-multiplexed TES (uMUX) and Kinetic Inductance Detectors (KID) continue to have success in deployed instruments, and are being built in larger and larger arrays. Corresponding improvements in room temperature readout electronics are needed to keep pace with increasing multiplexing factors, as well as manage the power requirements and system complexity associated with the ever increasing total detector count in future instruments. In this talk, I review early work evaluating the commercially-available Xilinx RFSoc development board for use in uMUX/KID readout. This system integrates RF synthesis and sampling, an FPGA for signal processing, and a CPU for housekeeping tasks, all into a single chip. This results in significantly lower electrical power requirements than other solutions, which has the potential to reduce system complexity in ground-based installation, and significantly increases the potential for (sub-)orbital and space use.

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