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A fast sampling, Wilkinson ADC for Cross Strip Microchannel Plate Readout

To accurately reconstruct the charge cloud centroid from a microchannel plate (MCP) photon event with a cross strip anode readout, a fast sampling ADC is required. The digitization chip, HalfGraph, is an 8 channel, 12 bit Wilkinson based ADC manufactured on a 0.25um TSMC CMOS process. Each channel has 32 samples with 2048 addressable storage cells and over threshold triggering capability. The sampling speed is adjustable from 0.5 –1 Giga-sample per second. Internal logic controlled via 3-bit data bus and internal DACs allow the ASIC to use a QFN64 package for high PCB density. The output data is transmitted off chip over high speed LVDS lines.

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