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VMM - An ASIC for Micropattern Detectors

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The VMM is an ASIC that can be used in a variety of tracking detectors. It is designed to be used with resistive Micromegas and sTGC detectors in the New Small Wheel upgrade of the ATLAS Muon spectrometer. The ASIC is fabricated in the 130nm 1.2V 8-metal CMOS technology from IBM. The ASIC integrates 64 channels, each providing charge amplification, discrimination, neighbour logic, amplitude and timing measurements, analog-to-digital conversions, and either direct output for trigger or multiplexed readout. The front-end amplifier can operate with a wide range of input capacitances, has adjustable polarity, gain and peaking time. The VMM2 is the second version of the VMM ASIC family fabricated in 2014. It was tested with resistive Micromegas prototypes in the 2015 test beam campaigns at CERN. The specification and performance of the VMM2 will be presented as well as the Micromegas detector performance with the VMM2.

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