

A MICROPROCESSOR CONTROLLED READ OUT SYSTEM FOR DRIFTCHAMBERS

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A General Purpose Microprocessor Controller -GPMC- has been developed for applications where CAMAC modules with complex control functions are needed. Each application requires an appropriate Interface Module -IM- to be connected to the GPMC. The GPMC consists of a 6800 Microprocessor, 16K EPROM, 2K RAM, CAMAC I/O ports and interface, a RS 232C serial interface, an Advanced Data Link Controller and a port for controlling the IM. GPMC and IM are housed in a 2-U wide CAMAC module.

A special IM has been designed, which has 1K byte of RAM with its own control and which allows autonomous setting and reading analog voltages through a DAC and ADC. The GPMC can take control of the IM memory and set new voltages.

This system is used to control pedestals and gains of a driftchamber read out system, which is housed in a 5-U wide CAMAC module, holding 24 data cards corresponding to 24 sense wires. The data card receives pulses from the left and right end of a sense wire, amplifies and integrates the pulses over a fixed time. The two pulses are digitized by a SIEMENS SDA 6020 Flash Encoder, using the reference inputs, hence giving the position along the wire. Optionally, the sum of the two pulses can be digitized by a second SDA 6020, yielding a DE/DX measurement.

The GPMC/IM system interacts with the read out system via an analog multiplexer in each data card, which permits the reading of the reference inputs and the changing of the dc levels of these inputs, thus guaranteeing a high stability of pedestals and control of the gains during the operation of this system.

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