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Standard Hardware API for MicroTCA.4 Systems

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The adoption by experimental physics community of the Advanced Telecommunication Computing Architecture (ATCA), maintained by the PCI Industrial Computer Manufacturers Group (PICMG), in recent years will lead to the development of a multitude of embedded instrumentation and machine control applications. Having a set of standards and definitions will encourage hardware and software component interoperability and portability among the various scientific centers.

This motivation has lead a MTCA.4 committee, formed to extend the ATCA family of standards, to define the Standard Hardware Application Programming Interface (SHAPI) guideline. Developed, but not limited, for MicroTCA.4 systems, SHAPI provides a standardized and portable way for software applications to interact with physical hardware devices. It defines a structural and methodological approach to device access and interrupt handling while not restricting the physical communications channels and the address mechanisms by which software accesses such channels. In this presentation, we describe the main SHAPI definitions and advantageous.

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