

Digital LLRF system for SESRI Proton and Heavy Ion Accelerator Complex Injector

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A 300 MeV proton and heavy ion accelerator complex has been designed and constructed by the Institute of Modern Physics for the space environment simulation and research infrastructure (SESRI) project. The linac injector of the accelerator complex is based on normal-conducting rf structures. It consists of an RFQ, a buncher, three DTLs, and two debunchers. The requirements for the rf field stabilities are $\pm 1\%$ in amplitude and ± 1 degree in phase during flat-top. To satisfy these requirements, we developed a 108.48 MHz digital low-level RF system based on FPGA and compact PCI bus. This paper will present the design, implementation, and performance test.

Keyword

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