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New RFPI system for the PIP-II accelerating structures

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The cryomodule or cavity data like vacuum status, helium level, RF leakage level, field emission probe signal and others can be important indicators of potentially hazardous conditions for the RF operation of the superconducting structures. That is why the dedicated system (RF Protection Interlock - RPFI) has to closely monitor all sensitive parameters and drop the permission for RF operation instantaneously when a possible fault situation occurs.
The new design of such an RFPI system has been proposed by LUT-DMCS team. This system is dedicated to the PIP-II accelerating structures. The modular design and interlock logic realization by the SoC (system on Chip) module are the main driving factors for this development. Such an approach provides not only a fast reaction to upcoming faults but also wide flexibility in the input signal sets and protection logic configuration and implementation.
This contribution describes the proof of concept prototype design and evaluation as well as the full signal count prototype ongoing efforts.

Keyword

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