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Compact Data acquisition and Power supply system designed for hostile environment condition concerning radiation and magnetic field

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A compact data acquisition and power supply system housed in a water cooled special crate has been designed for the readout of the TOF (Time Of Flight) detector of the Alice experiment at CERN. The Crate contains a 12 slot VME64X bus that houses 2400 multi-hit 25ps TDC channels (TRM), a Trigger Module (LTM), a Clock Distribution Module (CPDM) and a data readout manger (DRM board) with two optical links and Ethernet. The same crate hosts the branch controlled power supply modules for the VME boards and the TOF detector front-end modules. The whole system shall be used close to the TOF detector and will work under moderate magnetic field and radiation (5 KGauss, 1.2 Gy/10 years TID). The TDC boards house TDC chips developed by CERN/ECP-MIC Division (HPTDC). Due to the radioactive environment, an accurate choice of components is required and the VME boards implement protections from Single Event Latch-up and from Single Event Upset.

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