

Field Programmable Gate Array Based Data Digitisation with Commercial Elements

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One of the most important aspects of particle identification experiments is the digitisation of time, amplitude and charge data from detectors. These conversions are mostly undertaken with application Specific Integrated Circuits (ASICs). However, recent developments in Field Programmable Gate Array (FPGA) technology allow us to use commercial electronic components for the required Front-End Electronics (FEE) and to do the digitisation in the FPGA. It is possible to do Time-of-Flight (ToF), Time-over-Threshold (ToT), amplitude and charge measurements with converters implemented in FPGA. We call this principle come & kiss: Use COMplex COMmercial Elements & Keep It Small and Simple.

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