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DAQ development for the characterization of the RD50 HV-CMOS devices

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This contribution will describe the developments foreseen for the characterization of the RD50 MPW1 HV-CMOS monolithic pixel sensors implemented in the LFoundry 150 nm technology in the framework of the RD50 collaboration. A custom board to accommodate the RD50 MPW1 device under test is being designed. This board will be fully compatible with the CaR (Control and Readout) interface board used in the CaRIBOu (Control and Readout Inner tracking Board) data acquisition system (DAQ). The CaRIBOu DAQ is widely used for the characterization of new pixel detectors and ASICs (CLICpix2, C3PD, FEI4 or H35Demo). The CaR board is an open hardware FMC mezzanine which can be used as a general purpose multi-chip interface board. As a first approach, some firmware and software will be developed to adapt the CaRIBOu DAQ to read out the RD50 MPW1 devices. Subsequently, the experience gained will allow us to develop our own modular and versatile DAQ system to be used with different radiation sensors or ASICs, such as the RD50 ENGRUN1 HV-CMOS monolithic pixel sensor currently being developed, as well as for other applications (accelerator instrumentation, medical physics, etc.).

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