# The Caribou Data Acquisition System

- Open source hardware, firmware and software for laboratory and high-rate beam tests

- Goal: Provide a modular and versatile DAQ system which
  - minimizes device integration effort
  - reduces time to get first data from a new detector
- Developed & maintained by collective effort from:

- System on Chip (SoC) running Linux and DAQ software on Processing System (PS) and detector control and data processing on Programmable Logic (PL)
- Periphery CaR board provides physical interface between SoC and detector
- Application-specific chip board

https://cds.cern.ch/record/2703500

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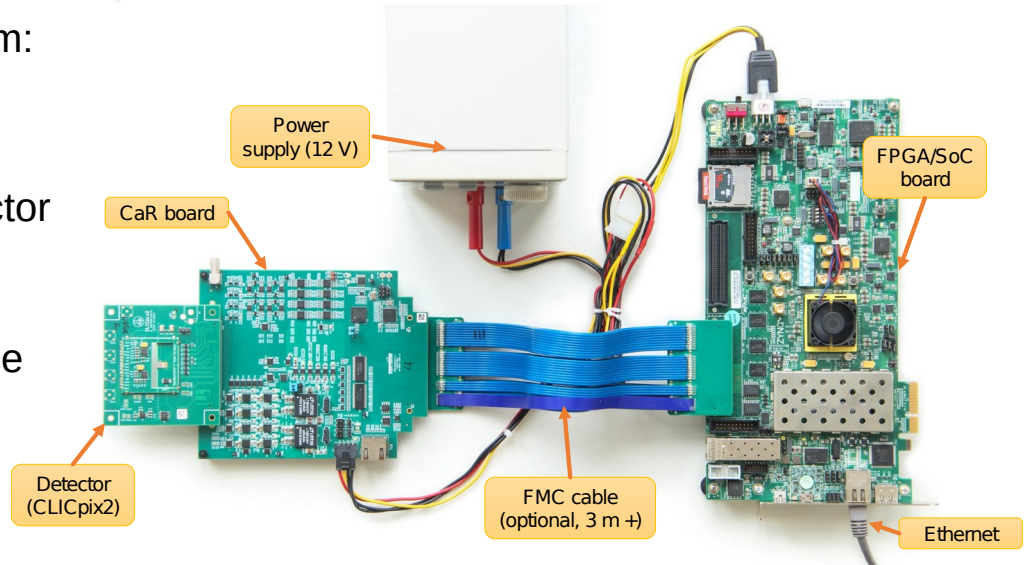
CaR Board v1.4

- Provides interface from FPGA/SoC to detector chip and hardware resources
  - Adjustable power supplies with monitoring
  - Adjustable voltage and current references
  - Slow (50 kSPS) 12-bit and fast (65 MSPS) 14-bit ADC
  - Programmable injection pulsers
  - Full-duplex high-speed GTx links (<12 Gb/s)
  - Bidirectional LVDS links and single-ended links
  - Programmable clock generator, inputs for HV, clock reference, trigger
- New iteration of CaR board hardware (v1.4)
  - New features
    - Programmable voltages for single-ended links
    - Programmable overcurrent protection
- Production of 20 boards, supported by RD50 common funds
  - Distributed to RD50 institutes:

    CERN (4), DESY (4), Univ. Liverpool (2), IFIC Valencia (2), HEPY Vienna (1), JSI Ljubljana (1), Univ. Sevilla (1), NIKHEF (1), Lancaster U. (4)