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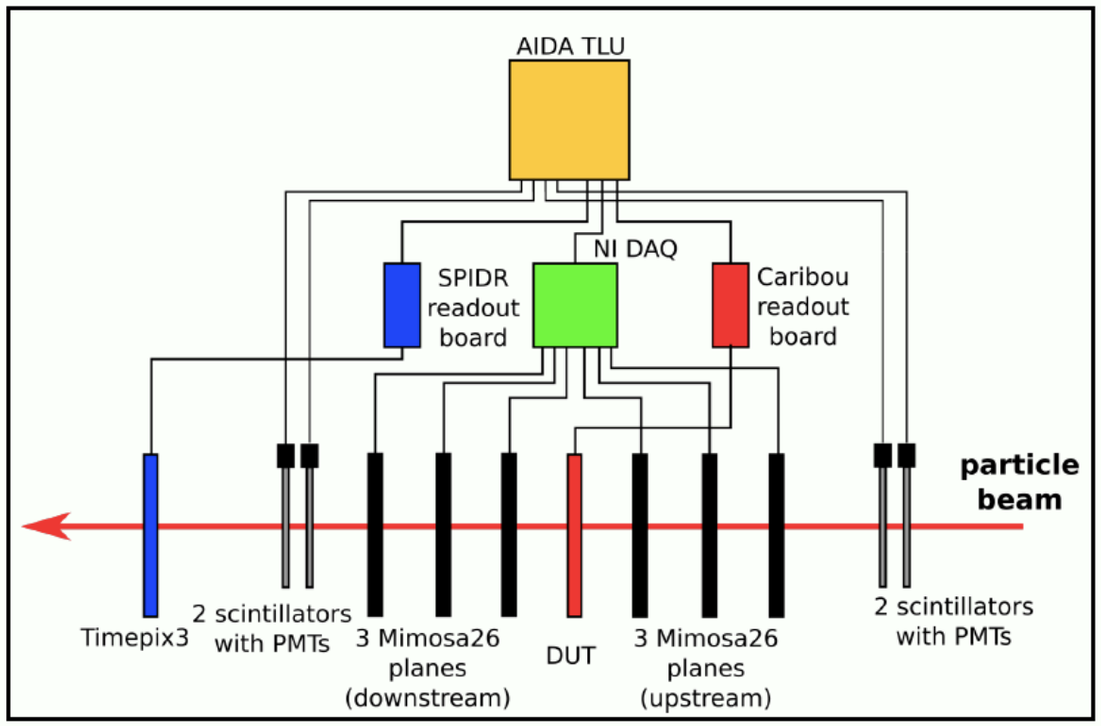
TEST-BEAM MEASUREMENTS AT DESY



6 MIMOSA planes:

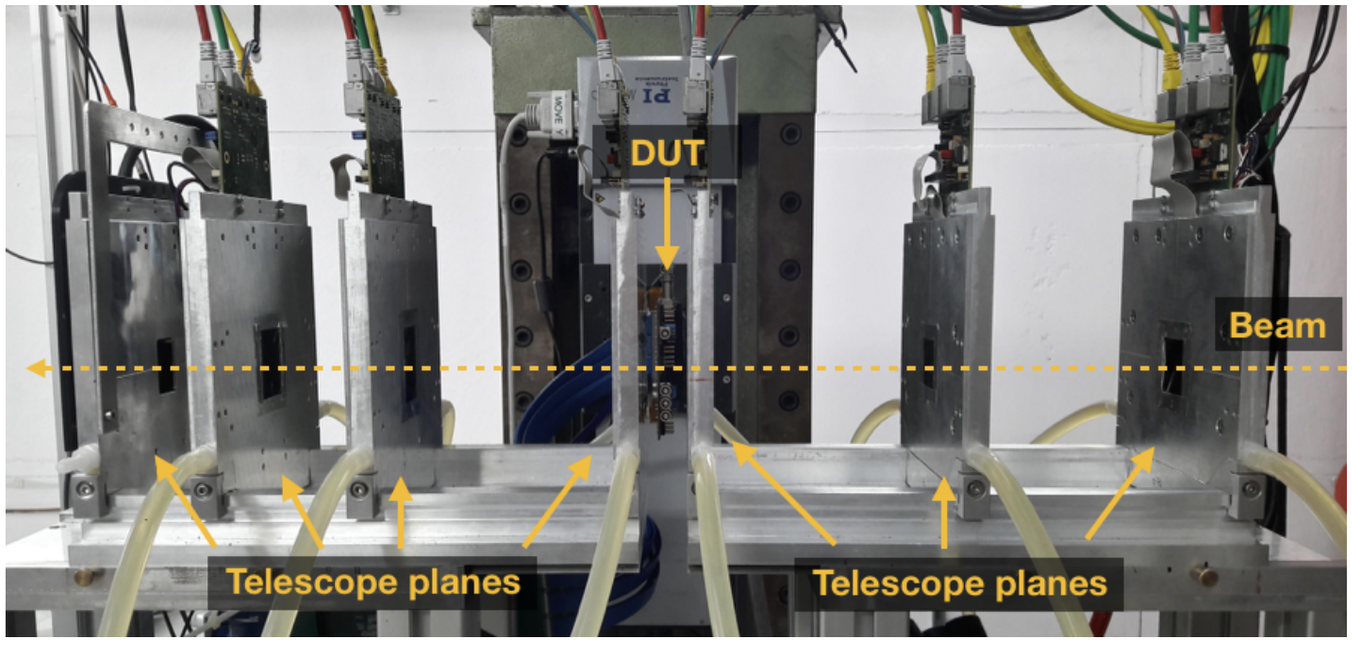
- High spatial resolution (~2 µm)
- Timing resolution > 100 µs

Timepix3 plane:

- Timing resolution: 1.1 ns (not calibrated)

4 scintillators:

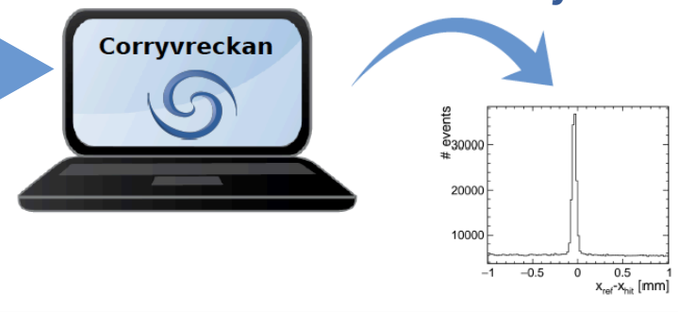
- Triggers MIMOSA rolling shutter r/o



Corryvreckan test-beam reconstruction

- Versatile test-beam reconstruction framework for offline event building
- Modular approach, highly flexible and configurable
- Features 4D pattern recognition, Millepede alignment algorithm and General Broken Line algorithm for tracking

https://gitlab.cern.ch/corryvreckan/corryvreckan



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CARIBOU DAQ SYSTEM

Caribou

https://gitlab.cern.ch/Caribou

Versatile data acquisition system based on programmable hardware

- Caribou provides common hardware and software cores, only detector-specific part is modified
- Successfully used for ATLASPix, ATLASPix2, ATLASPix3, CLICpix2/C3PD, H35Demo/FEI4, RD50-MPW1

System-on-Chip (SoC) board

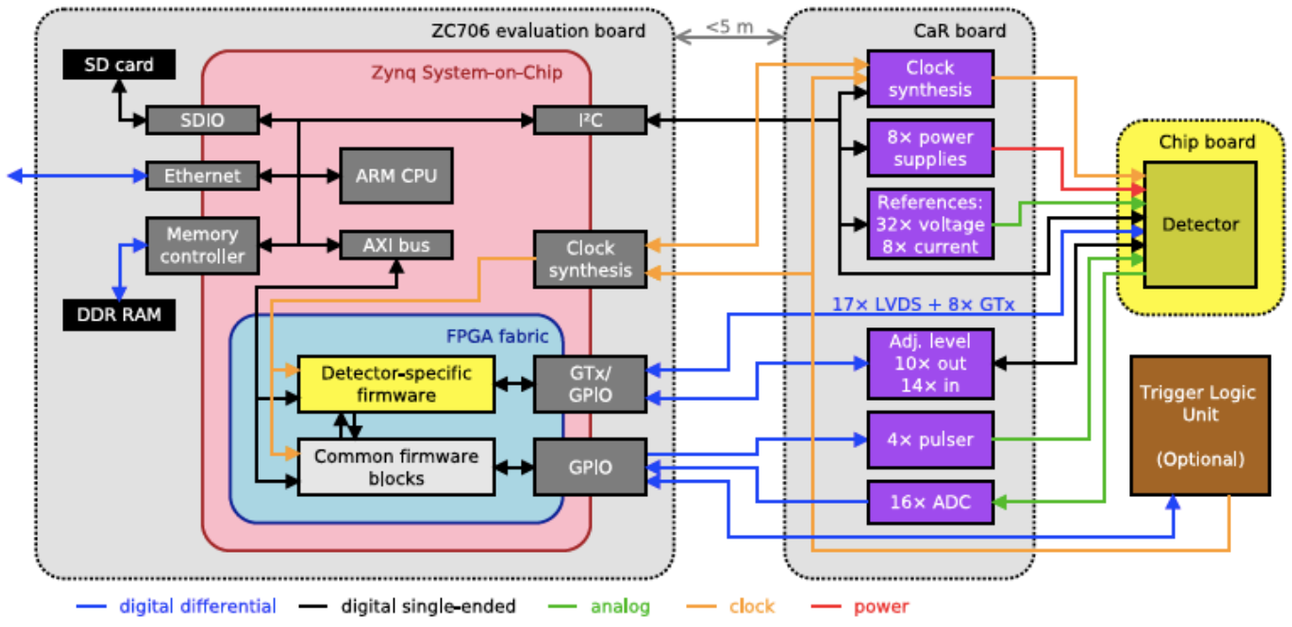
- Embedded CPU for DAQ, user interface, operating system (Linux)
- Field programmable gate array (FPGA) for detector control and data processing

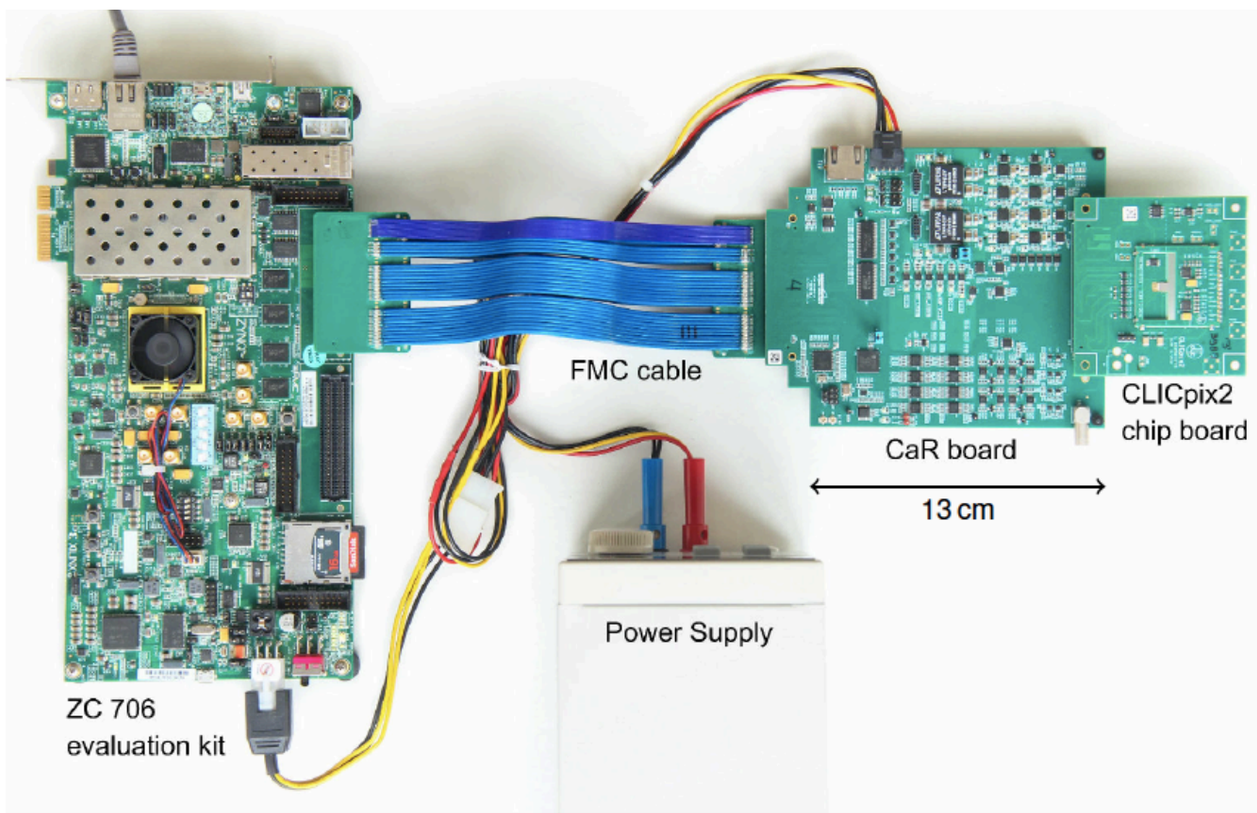
Control and Readout (CaR) interface board

- Physical interface from SoC board to detector chip
- Voltage regulators, ADCs, pulse/clock generator

Application-specific detector carrier board

- Only detector chip and passiv components





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FOR FURTHER READING

- Design and characterisation of the CLICTD pixelated monolithic sensor chip (CLICdp-Pub-2020-003)

  https://cds.cern.ch/record/2720283?ln=de

- Silicon Vertex and Tracking Detector R&D for CLIC (ICHEP 2020)

  https://indico.cern.ch/event/868940/contributions/3813899/

- Silicon Pixel Detector Test-beam Studies for the CLIC Tracking System (BTTB 2020)

  https://indico.cern.ch/event/813822/contributions/3648356/

- Vertex and Tracking Detector R&D for CLIC (CLICdp-Conf-2020-003)

  https://cds.cern.ch/record/2715334?ln=de

- CLICTD: A monolithic HR-CMOS sensor chip for the CLIC silicon tracker (arXiv:2004.02537)

  https://cds.cern.ch/record/2715334?ln=de