SRS-based Timepix3 Readout System

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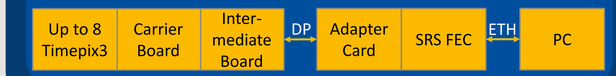
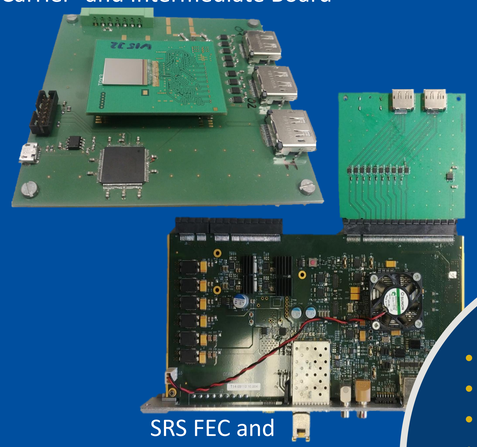
Hardware / Firmware

- Modular hardware concept
- Flexible use of 8 data links for 1 to 8 chips
- Usage of the Scalable Readout System (SRS) developed by RD51
- Monitoring via microcontroller



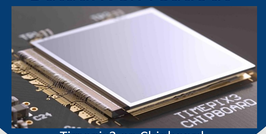
Carrier- and Intermediate Board



SRS FEC and Adapter Card

Timepix3

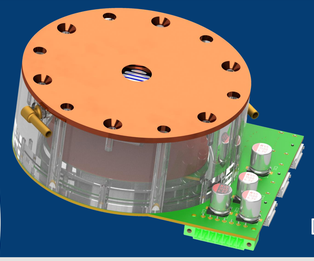
- 256 x 256 pixels
- 55 µm pixel pitch
- Simultaneous ToT & ToA
- 1.56 ns time resolution
- Datadriven readout



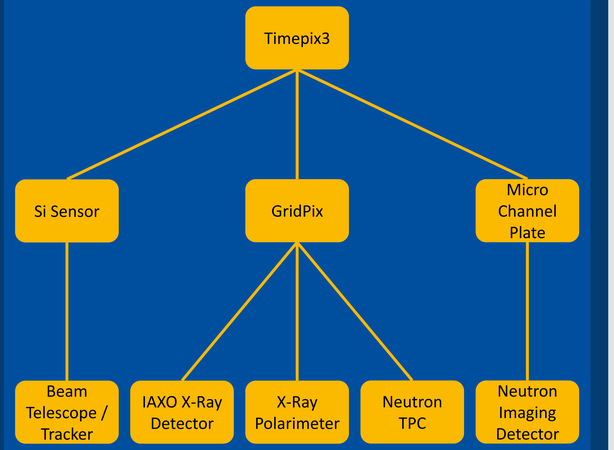
Timepix3 on Chipboard (Medipix Collaboration)

Detector Projects

- Combination of TPX3 with different technologies
- Wide range of applications
- DAQ developed for high adaptability



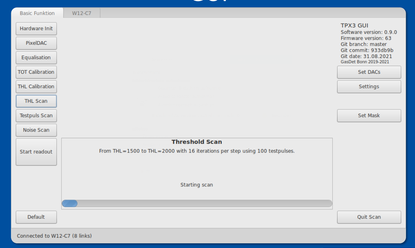
GridPix X-Ray Detector

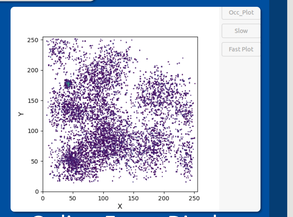


Software

- Based on the basil detector readout framework
- Written in Python
- Settings via YAML files
- Data storage in HDF5 files
- Open Source (GPL-3.0)
- Graphical User Interface (GUI)
- Command Line Interface (CLI)
- Scriptable for chaining scans

GUI





Online Event Display

Status (v0.9)

- All scans to use the system productively implemented
- Chip temperature monitoring via microcontroller possible
- 1.6 MHits/s hit rate achieved
- Compatible with EUDET Trigger Logic Unit (TLU)

Planned

- Full Multichip capability
- Analog DAC Scan
- Additional monitoring of supply voltages
- Upgrade of the hit rate
- Implementation of trigger and veto interfaces