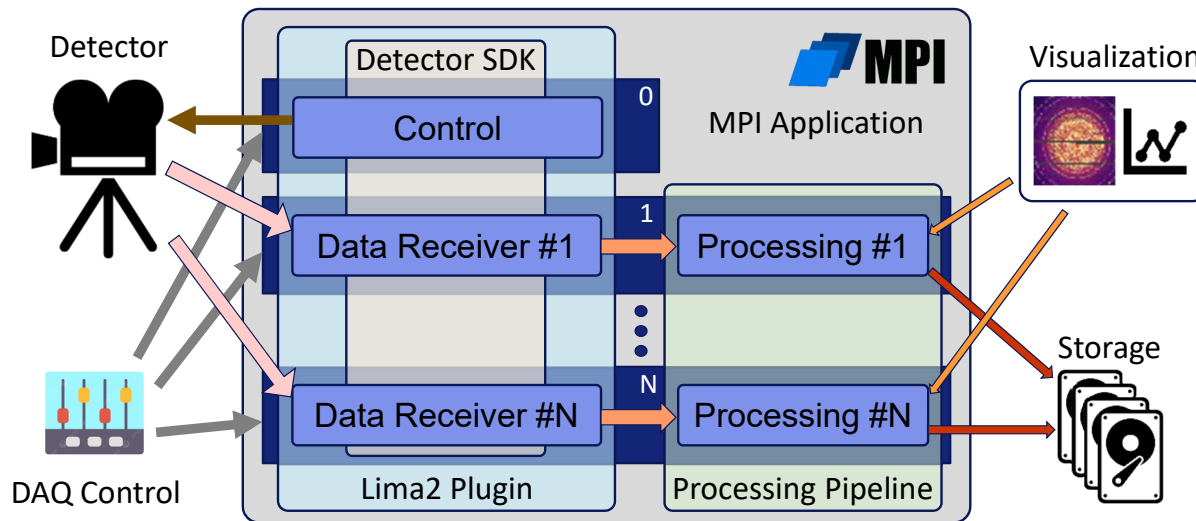


# LIMA2: EDGE DISTRIBUTED DAQ & PROCESSING FRAMEWORK FOR HIGH PERFORMANCE 2D DETECTORS

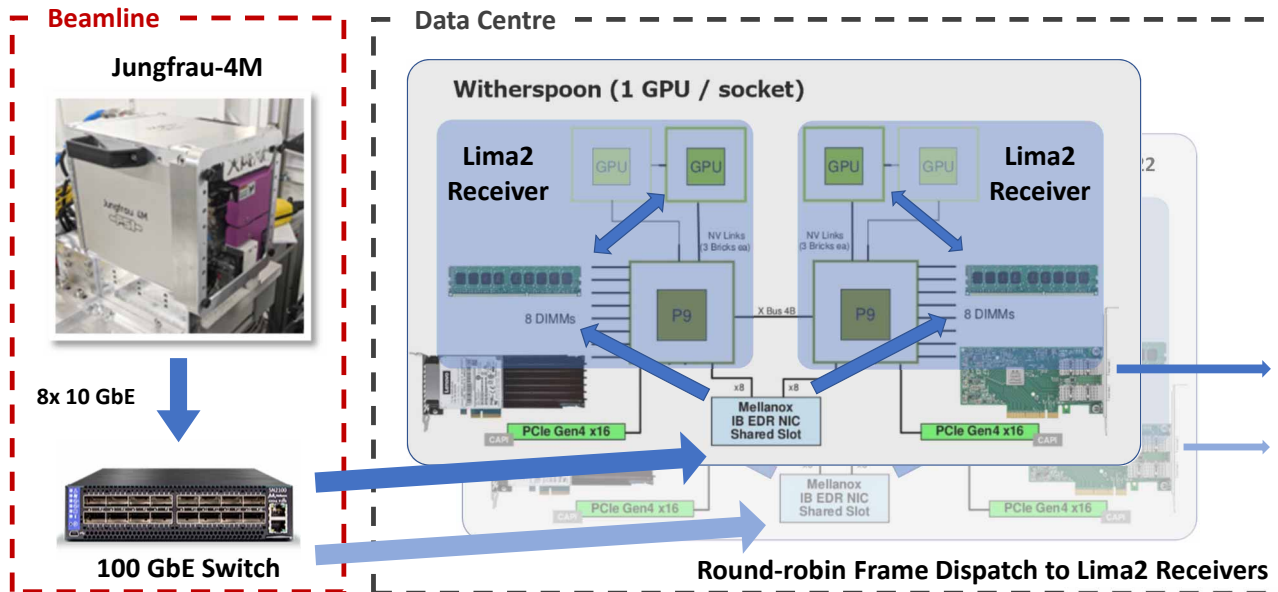
S. Debionne, A. Homs Puron, J. Keiffer, R. Ponsard, L. Claustre, A. Götz, P. Fajardo  
European Synchrotron Radiation Facility (ESRF), Grenoble, France

- LImA2: evolution of LImA towards distributed systems (from scratch)
- Goals: **scalable** DAQ and **low latency** processing



- C++ library
- Separate DAQ from processing
- **Feature extraction** and **advanced data reduction**
- Specific & optimized pipelines

# PSI JUNGFRAU 4M FOR SERIAL MX @ ID29



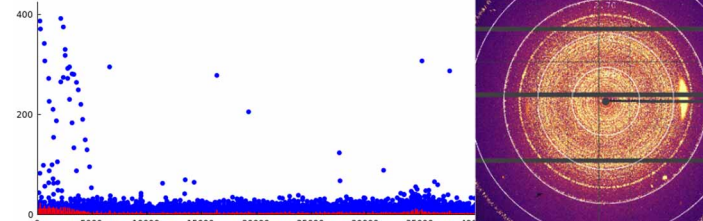
Parallel streams:

- 2x computers
- 2x receivers / computer

GPU:

- Geometry assembly
- Pedestal/gain correction
- Data sparsification
- Peak finding

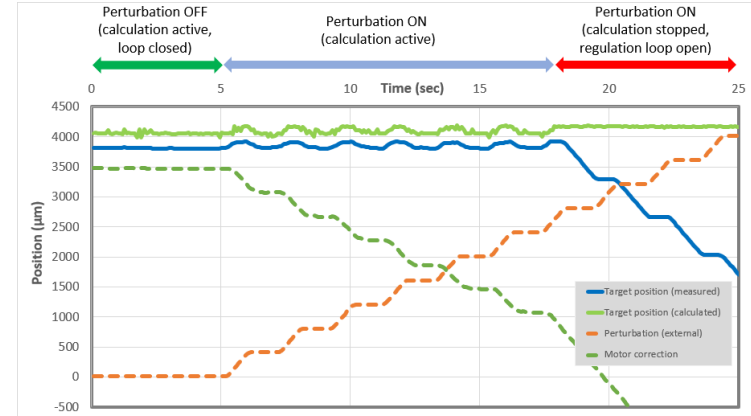
- Sparse data: x4-x100 factor reduction
- *Is-hit* information can be used as veto
- In production since January 2023
- Low-latency online visualization
- Continuous processing @ 500 Hz  $\Rightarrow$  1 kHz





## ESRF SMARTPIX/RASHPA

- Medipix3 chip, modular design
- 1 MPixel @ 6 kHz: 6 GB/sec
- Data transfer: PCIe & RoCEv2
- GPUDirect Technology
- **Active feedback** in advanced experiments



## Dectris Eiger2

- Multi-band image for **dual-threshold** capability
- Integration into **BLISS** scanning engine

More details in the poster! ⇒ **THMBCMO31**