


RASHPA: A DATA ACQUISITION FRAMEWORK FOR 2D X-RAY DETECTORS

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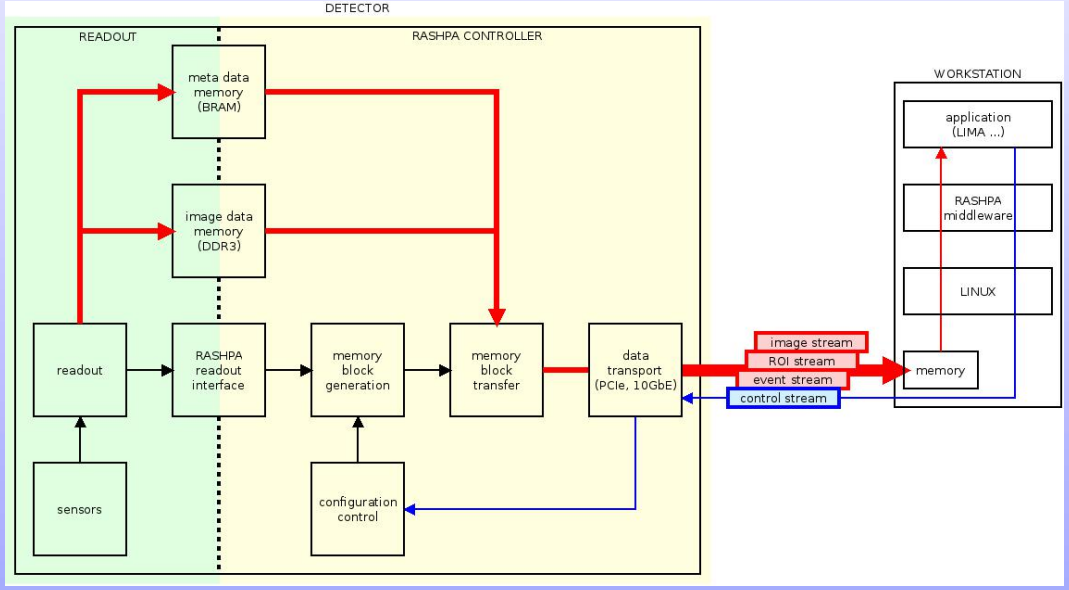
Overview

RASHPA defines and implements a framework to **move data** from a 2D X-Ray detector readout to a backend processing infrastructure memory buffers. It includes:

- **Specification** defining key concepts, hardware and software interfaces
- Reference implementation of the **hardware logic blocks**
- Reference implementation of the **software programming interface**



Key features

RASHPA is designed with both **performance** and **flexibility** in mind. **Integration** with upcoming processing technologies is also considered.

- Flexibility
  - multiple independently configurable **data streams** (images, ROIs, events …)
  - **scalable topology**: from single/multiple detectors to single/multiple workstations
  - not tied to a specific data transport layer
    - currently implemented with **PCIe over cable**
    - preliminary version with **10GbE**

- Performance
  - **zero copy**, in place transfers from source to applicative memory buffers
  - **low latency** events

- Technological integration
  - Well suited for multicore processing and NUMA architectures
  - NVM Express, GPU Direct