

Calibration and photon-detection:

a hybrid concept

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Different readout specifications:

| calibration | photon-detection |
|------------------|------------------|
| read/write | (mainly) read |
| slow IO | slow I/fast O |
| small duty cycle | continuous |
| subset of nodes | all nodes |



“Hybrid concept”

separate physically the calibration and photon-detection
systems

Preliminary (top-level) specifications:

- limited fraction of detector units are calibration units (10%)
- large fraction of detector units are photon-detection units (90%)
- calibration units use known technology
⇒ redundancy
- photon-detection units use “simplified” technology
⇒ reliability
- calibration and photon-detection units have balanced (total) power budget, e.g.:
 - calibration unit $\leq 1 \text{ kW}$
 - photon-detection unit $\leq 100 \text{ W}$

To be done:

- Monte Carlo simulations to prove concept
- workout design specifications
- verify detector architecture

Other issues:

- auto-calibration:
simultaneous physics and calibration
data taking
- trigger:
SPE ($1 \leftrightarrow 2$) calibration
- high energy ($\sim 10^{20}$ eV) calibration:
overlay of calibration events?
- absolute pointing
- ?