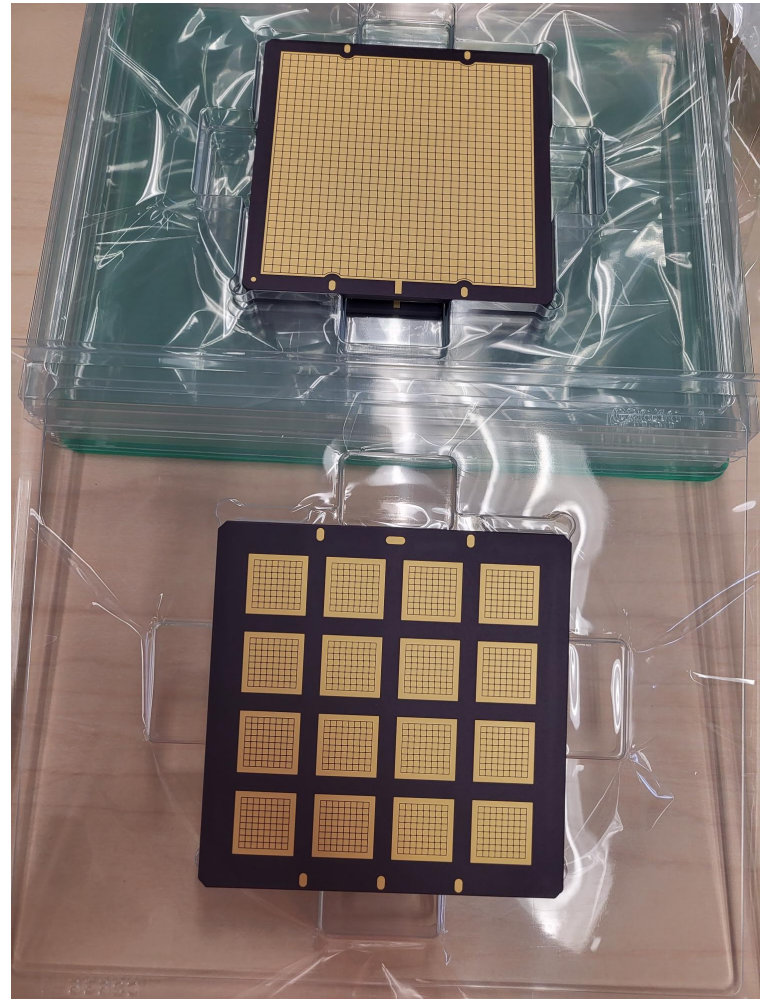
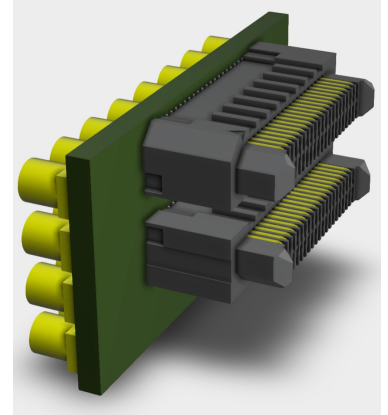
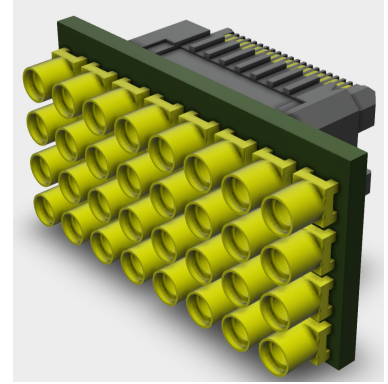
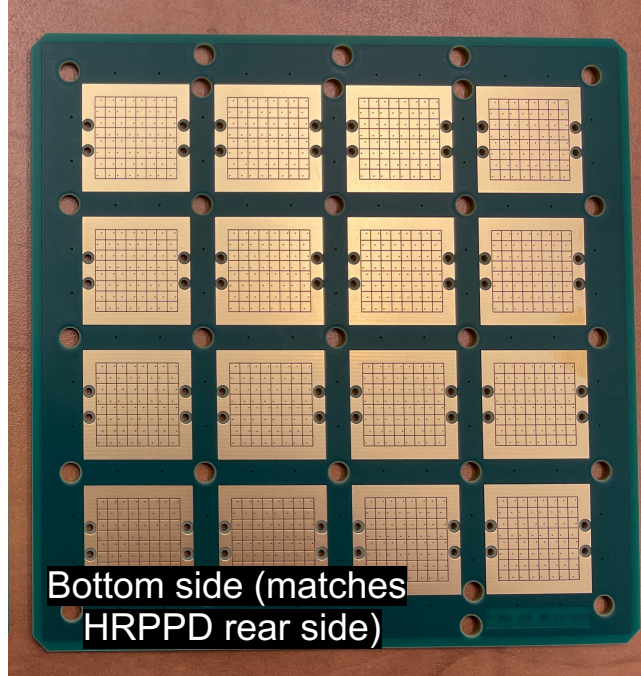


HRPPD manufacturing

- First five anodes received on Nov 22nd
 - The other five expected beginning of December
- Flatness tests are very encouraging
- Next steps of the QA procedure
 - Verify pad connectivity
 - Verify compatibility with the UHV
 - Verify C_d and trace resistivity (at BNL)
- Right now, Incom is sealing a HRPPD based on the Techtra plate (then it gets sent to BNL)
- Samtec interposers expected by Dec 5th
- If everything goes smoothly, we should expect a first functional tile by Christmas



HRPPD passive interface

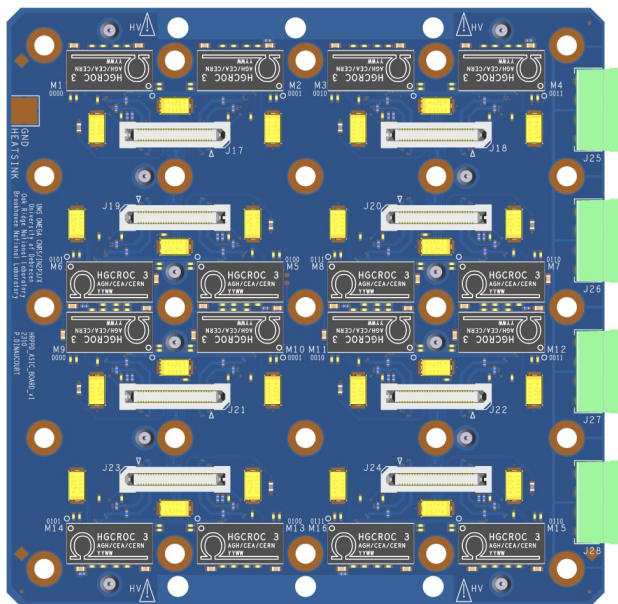


- The boards were received few weeks ago, nothing new here:
- Small Samtec -> MMCX adapter cards are still "in progress"

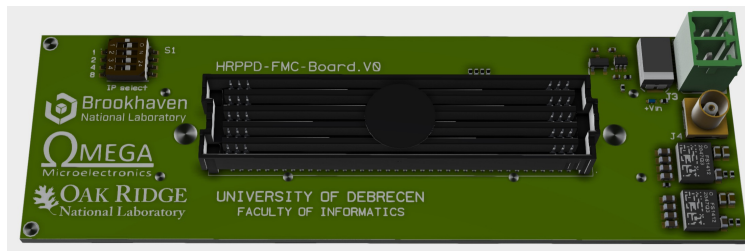
HGCROC3 ASIC / FPGA backplane

IN2P3 (OMEGA), Uni Debrecen, BNL, Oak Ridge

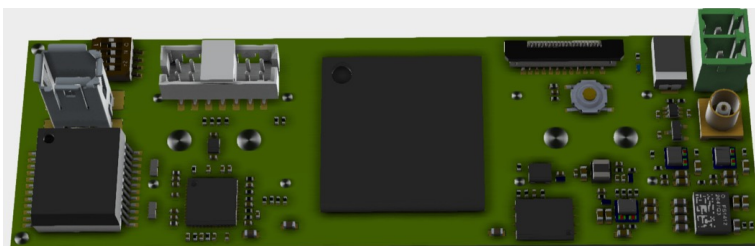
All: V0 iteration



ASIC board



“Passive” interface to a KCU105 kit



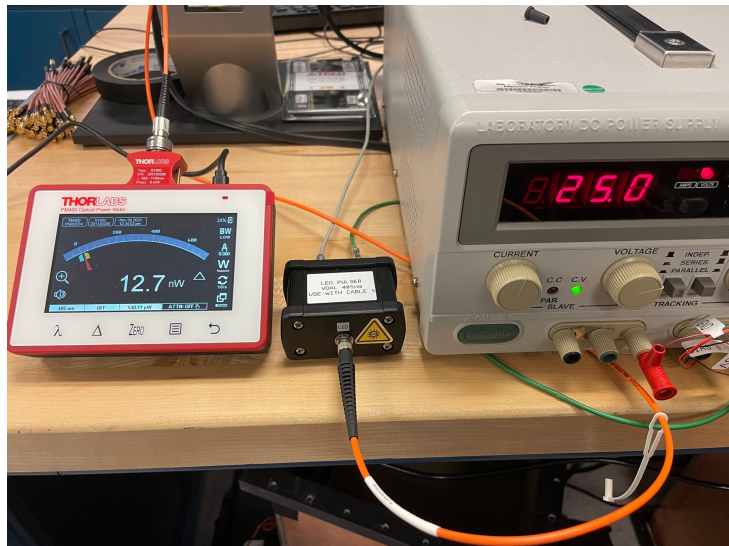
A fully fledged FPGA control board



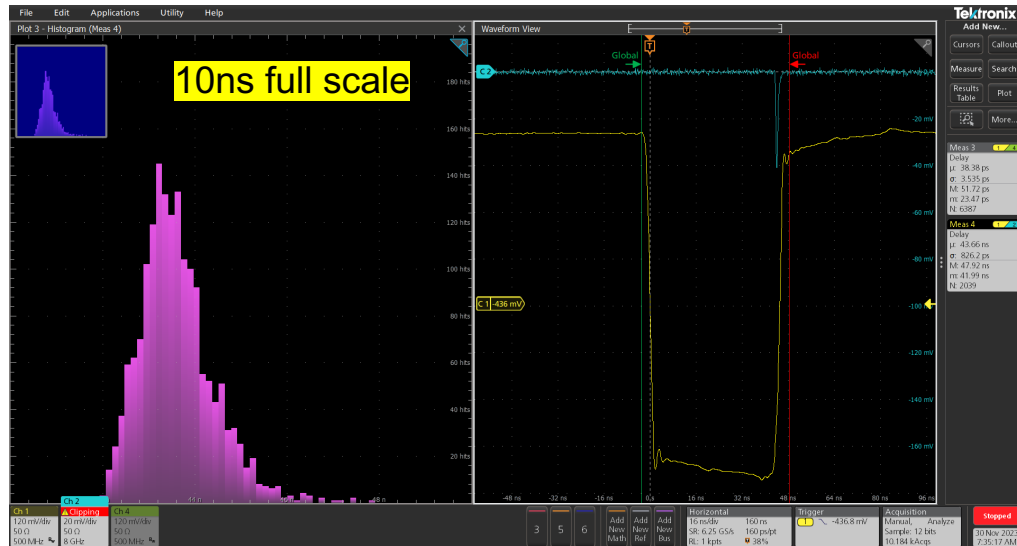
Full assembly; cooling

- ASIC & FMC (passive) boards ordered; expected by Christmas time; suffice for basic evaluation
- FPGA board requires another ~week of design work before ordering
- V1 (and final) iteration: some time in February

LED pulser monitoring system



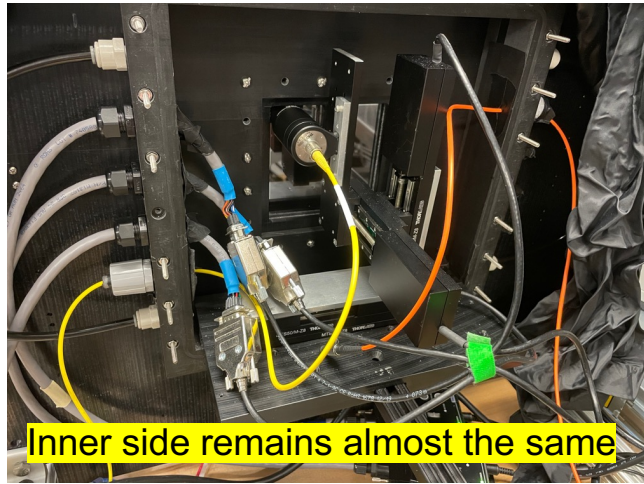
~ 10^6 higher flux



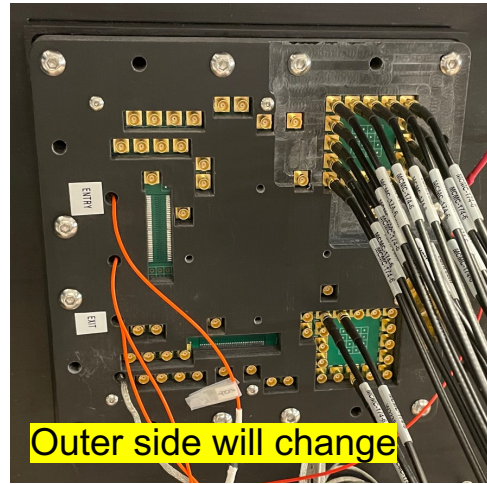
“Single photon” mode

- Was sent to BNL by Fernando back in September
 - Observed timing jitter ~700-800ps as expected, *but a very low flux (wrong fiber)*
- Now with a proper MM fiber observe a plenty of photons
- Need to foresee provisions (fiber ports) in the pfRICH prototype sensor plate

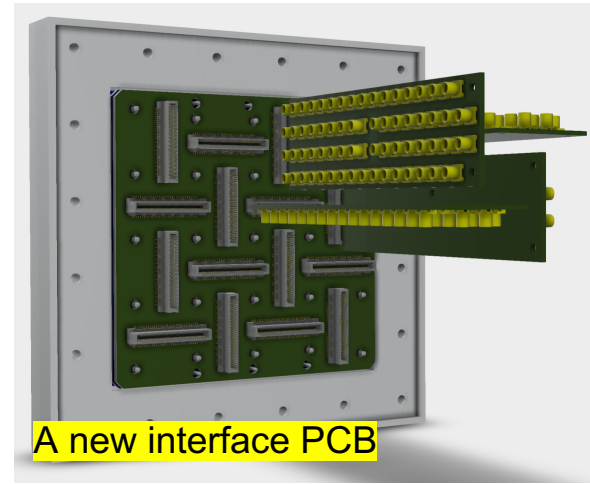
HRPPD QA station @ BNL



Inner side remains almost the same



Outer side will change



A new interface PCB

- 8x V1742s, PiLas (picosecond) and Elmo (femtosecond) lasers
- It seems one can comfortably use a slightly modified existing dark box
 - 2" XY-translation stages suffice to scan a single quadrant at a time, pixel by pixel
 - Data volume is manageable (assume 10^5 events per pixel, with ~5% single photon events)
- PDE (in a counting mode), gain, timing [as well as QE via a direct current measurement]

Beam test plans in 2024

- Default option: both “HRPPD” and “pfRICH” parts at Fermilab in May 2024
- Other possible options (in Europe, then “HRPPD” setup only?):
 - DESY in June 2024 (parasitic to AC-LGAD team)
 - Staffed by Glasgow, 1-2 people from BNL, ..?
 - CERN PS / SPS in Spring / Fall 2024 (parasitic to LFHCal team) -> questionable (our material budget)
 - In parallel with LHCb PID folks?
 - Perhaps in parallel with dRICH?

Other activities

- Vessel & mirrors -> next talks
 - Mirror QA station at BNL
- Overall pfRICH prototype design -> next talks
- HRPPD QA station @ Yale -> next time
- Aerogel -> next week
 - First (poor quality) tiles received by JLab

