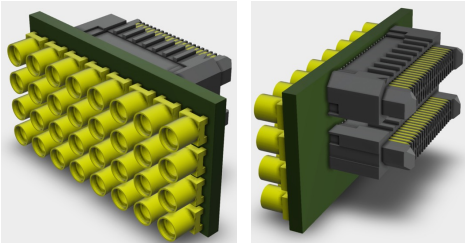
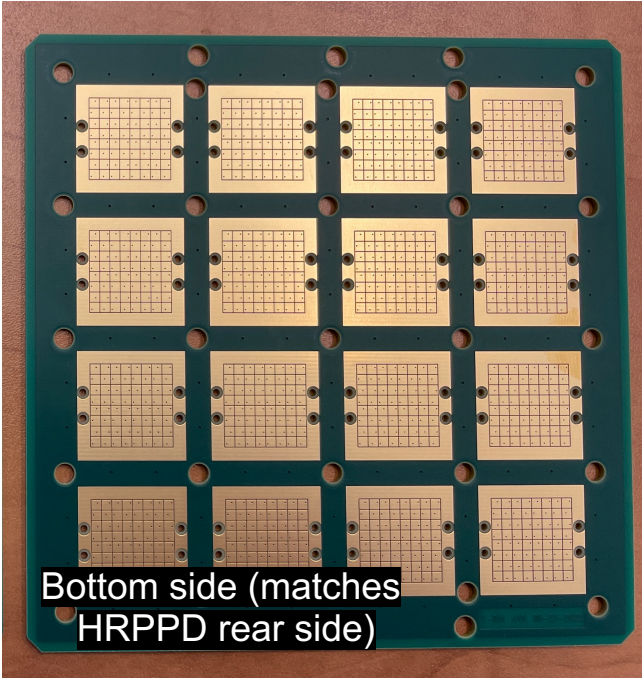
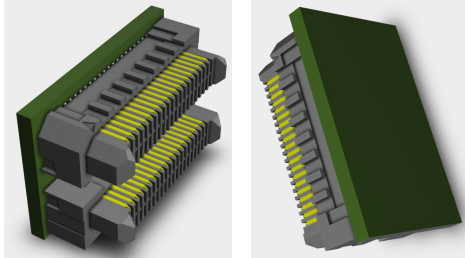


HRPPD passive interface #1



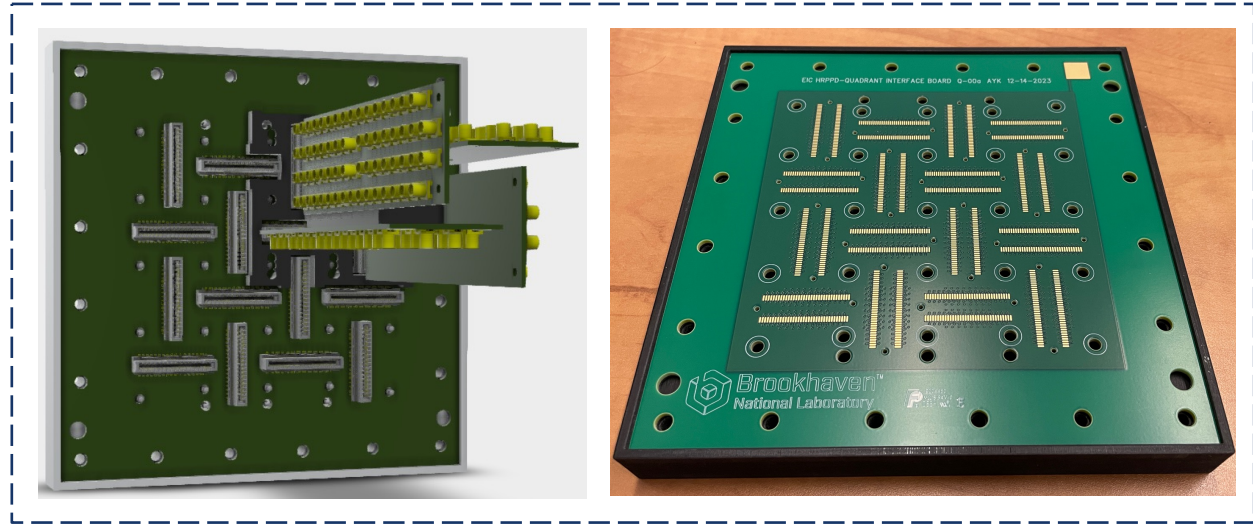
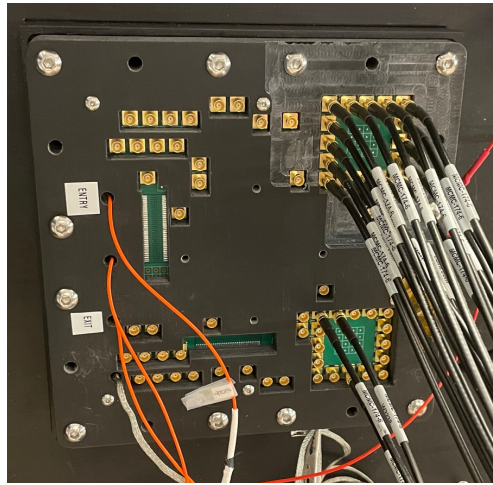
1x MMCX adapter



15x grounding caps

- Four sets assembled by now (one @ JLab, one @ Incom)

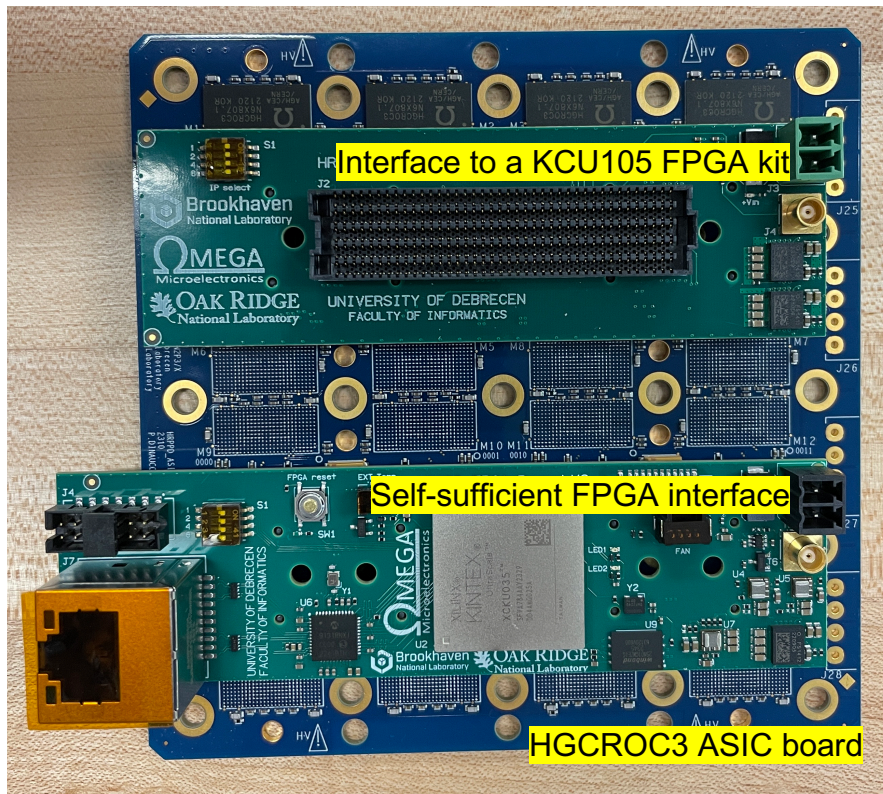
HRPPD passive interface #2



- Recycle existing 64-channel MCX adapters, 3D printed clam shell enclosure, etc
- Equip one HRPPD quadrant at a time for a scan and shorten to ground all other connectors
- Two sets assembled (one @ Incom & one @ BNL)

HGCROC3 ASIC / FPGA backplane

IN2P3 [OMEGA] (Pierrick, Damien), Uni Debrecen (Gabor, Miklos)
BNL (Daniel, AK), Oak Ridge (Norbert)



- Hardware part of the V0 iteration is ~complete
 - Four partly staffed ASIC boards
 - Few passive interface boards (for use with a KCU105 kit)
 - One FPGA board (received yesterday)
 - Cooling stuff (heat sinks, fans) for five HRPPDs
- Passive interface debugging takes more time
 - Host PC -> FPGA -> ASIC connectivity is established
- Next steps:
 - Debug the driver using FMC+KCU105 configuration
 - Make sure HRPPDs work with this analog frontend
 - Verify that FPGA-based implementation works
 - Proceed with ordering V1 backplane sets for N HRPPDs

AOB

- LAPPD Workshop #4: either 21st or 22nd of May 2024
- EIC R&D Day on March 25th
 - If there are no volunteers, AK will report
 - ... but groups input is needed anyway (**Glasgow**+USC, **INFN**, **Argonne**+JLab+USC+BNL)
 - Please provide by tomorrow Friday the latest
 - Should better be shown against the milestones
- Status of Photek MCP-PMT testing
 - The MCP-PMT itself will be shipped to Glasgow mid April
 - A passive interface is on its way to Glasgow
 - A new V1742 ordered via USC will be shipped to Glasgow in April as well

BNL contribution to the report

- Activities funded in FY24:
 - Menlo femtosecond laser adaptation to the HRPPD test stand
 - next two slides
 - Photek and Photonis MCP-PMT passive interface
 - Photek one is completed; Photonis one is coming some time in late Spring 2024
 - Participation in the Argonne B-field campaign in summer 2024
 - Will contribute V1742-based DAQ system, computing, etc
- All the rest (including HRPPD interfaces) was not part of the EIC R&D program

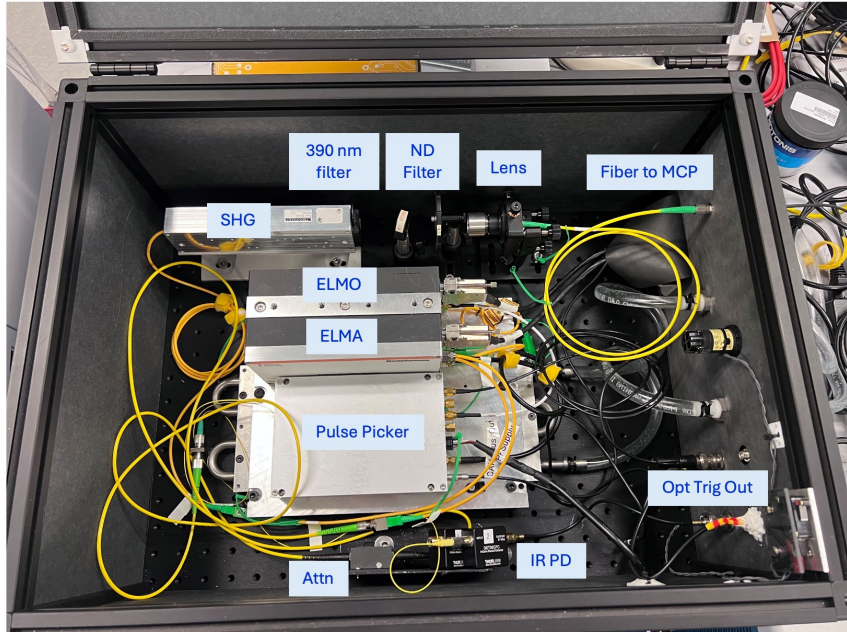
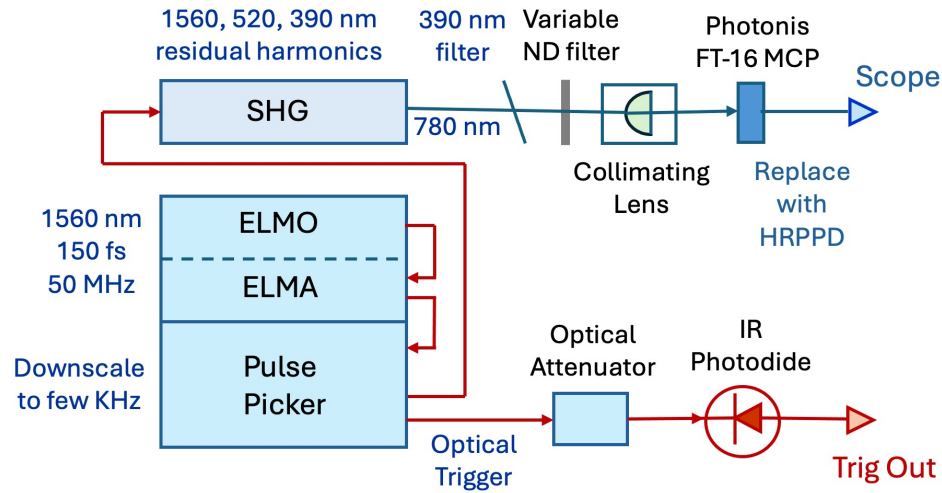
Femtosecond laser calibration system

Menlo Systems Elmo 780 Erbium Fiber Femtosecond Laser

ELMO = Primary Laser Oscillator

ELMA = Optical Amplifier

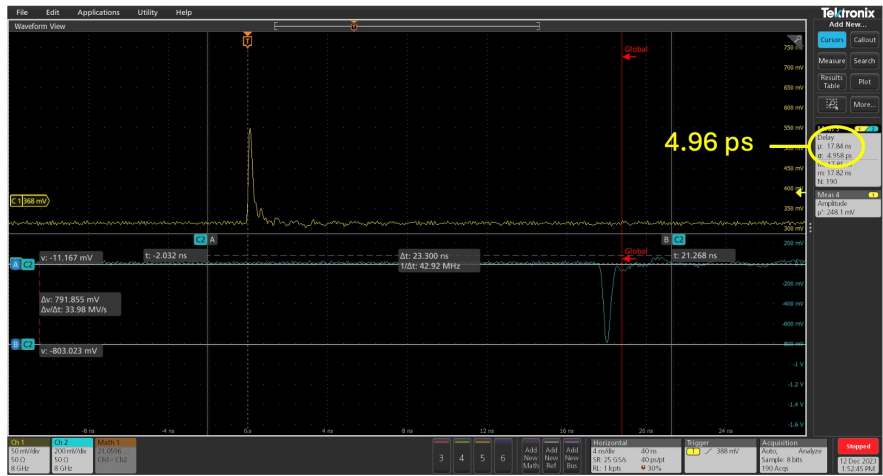
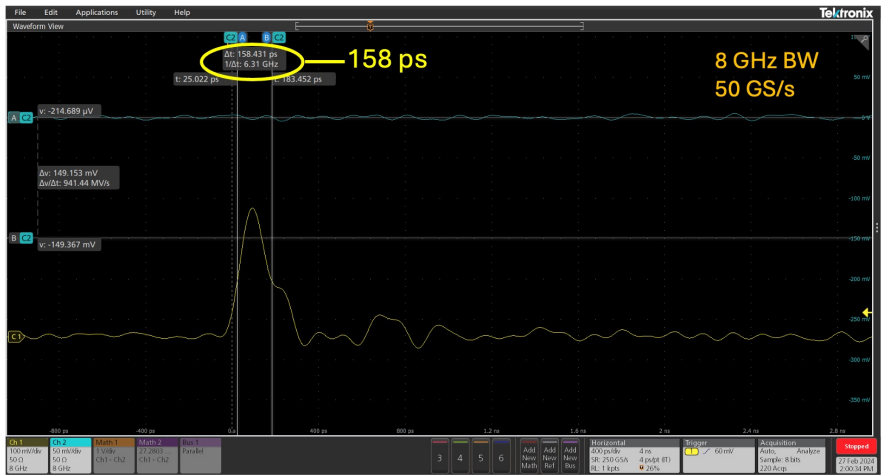
SHG = 2nd Harmonic Generator



Initial timing measurements with Photonis MCP-PMT

IR Photodiode Pulse
Rise Time ~ 70 ps
Pulse Width < 160 ps

Time Jitter between Photodiode Trigger
and MCP < 5 ps



Conclusion: We should be able to make timing measurements with a resolution < 10 ps