

# RDO preparation

D. Falchieri (INFN Bologna) for the RDO team:

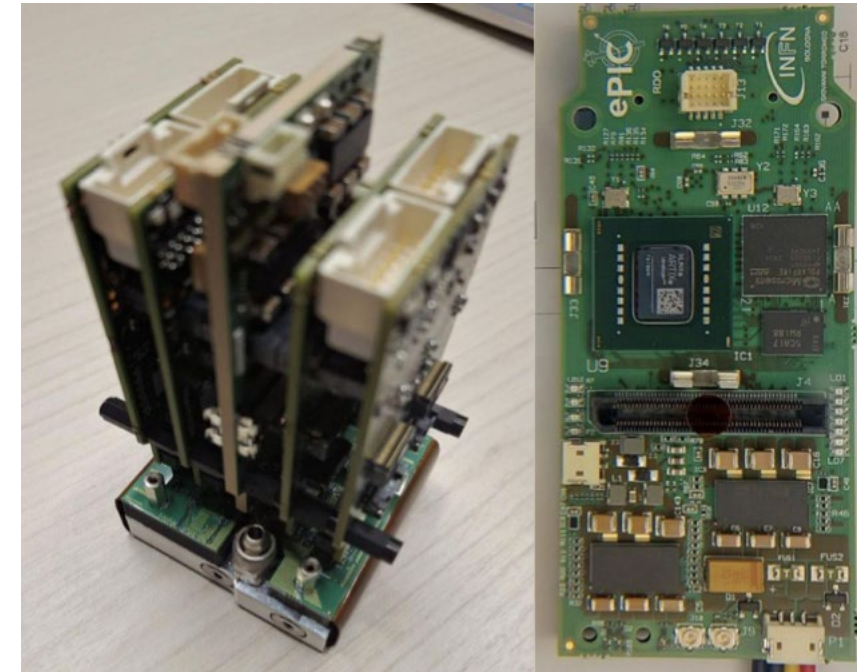
Pietro Antonioli, Sandro Geminiani, Luigi Rignanese, Giovanni Torrione

(+ many other people, especially from INFN Bologna and INFN Torino)

ePIC DAQ meeting  
06 November 2025

- [last status of RDO](#) presented at dRICH meeting – test beam (29 October 2025)
- [previous status of RDO](#) presented at [dRICH meeting 10 September](#) following Electronics and DAQ PDR

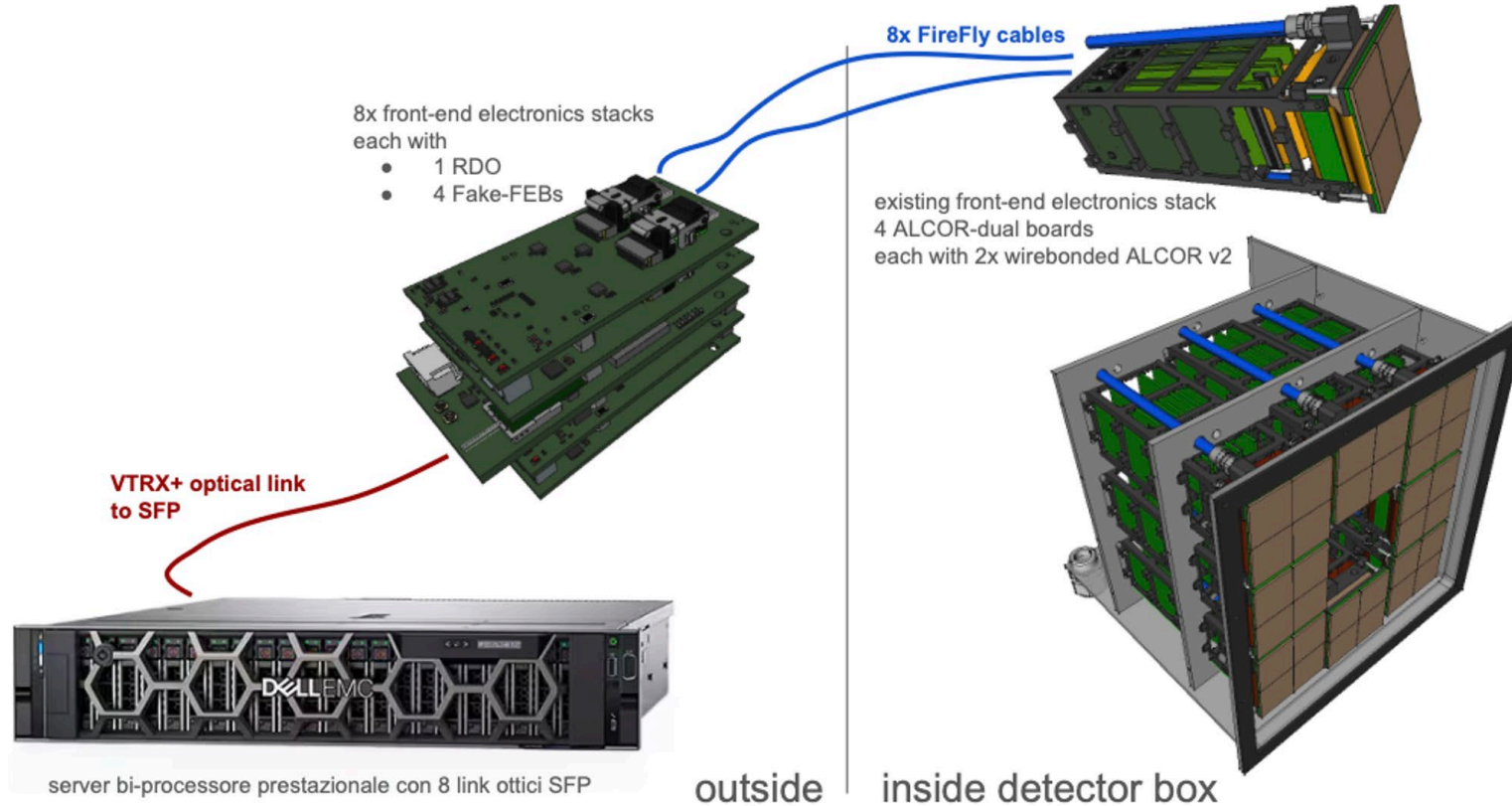
- **focus on RDO preparation for test beam which is happening now**



- Other relevant links:
  - [RDO presentation](#) at Electronics and DAQ PDR (Pietro Antonioli)
  - [TWEPPP presentation](#) on radiation measurements of RDO components (S. Geminiani)

## RDO setup for 2025 test beam (Nov. 2025)

- we use IPBUS protocol over VTRX+ with SFP NIC cards on receiving end
- "fake-FEB" (ALCOR v2.1 adaptor) : two FireFly connectors to reach existing FEB (with 2 ALCOR v2.1)

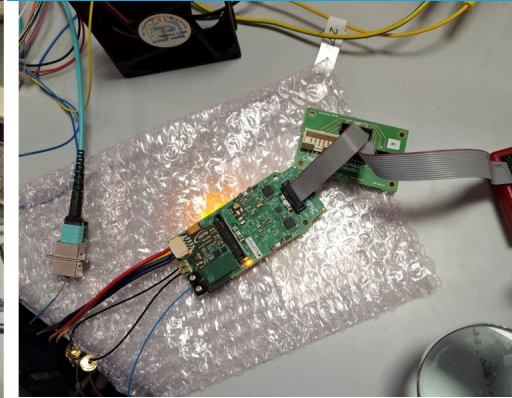
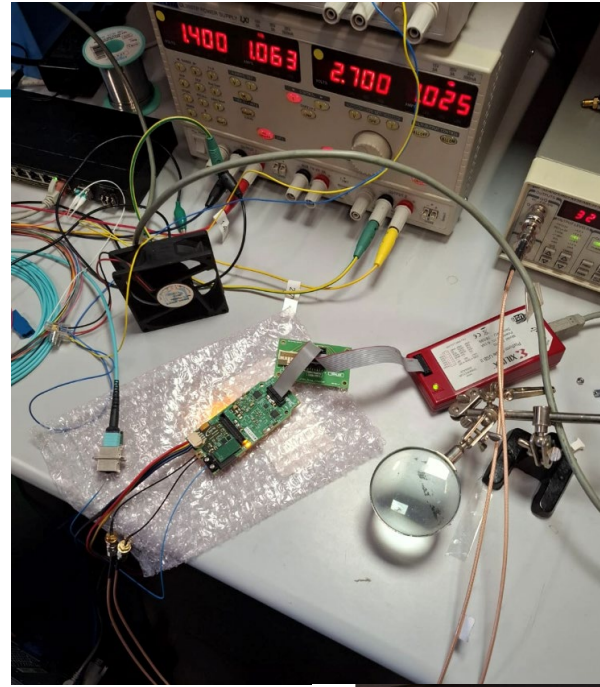


# RDO status (in short)

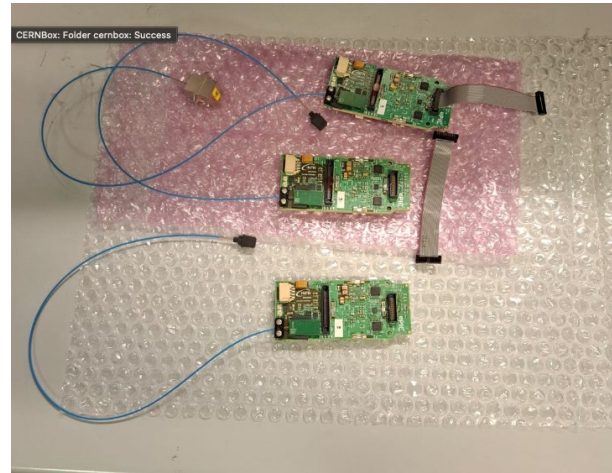
- 2 RDOs delivered 24th July → errors mounting components but working! → rework will be done after test beam
- 8 RDOs delivered first week of October
- now:
  - **9/10 boards are OK** → 1 has been reworked by ARTEL, but still shows power supply issues

**We are planning to use 9 RDO boards at the CERN test beam**

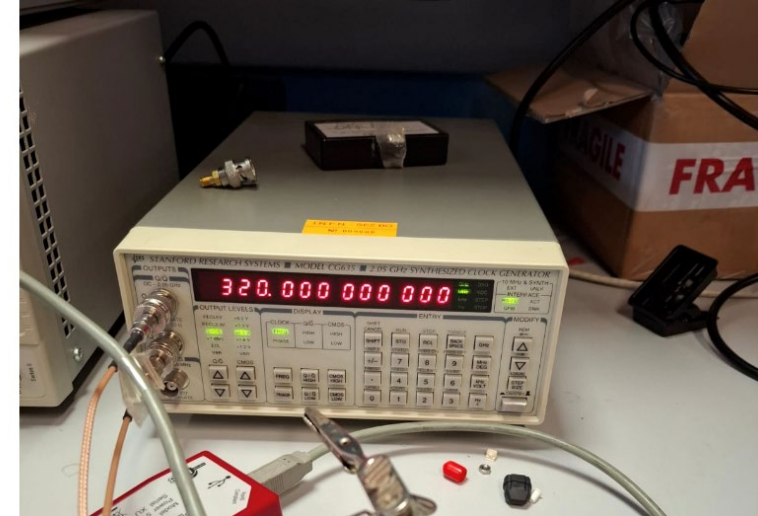
# RDO status (a few days ago in Bologna)



external clock



tested RDOs

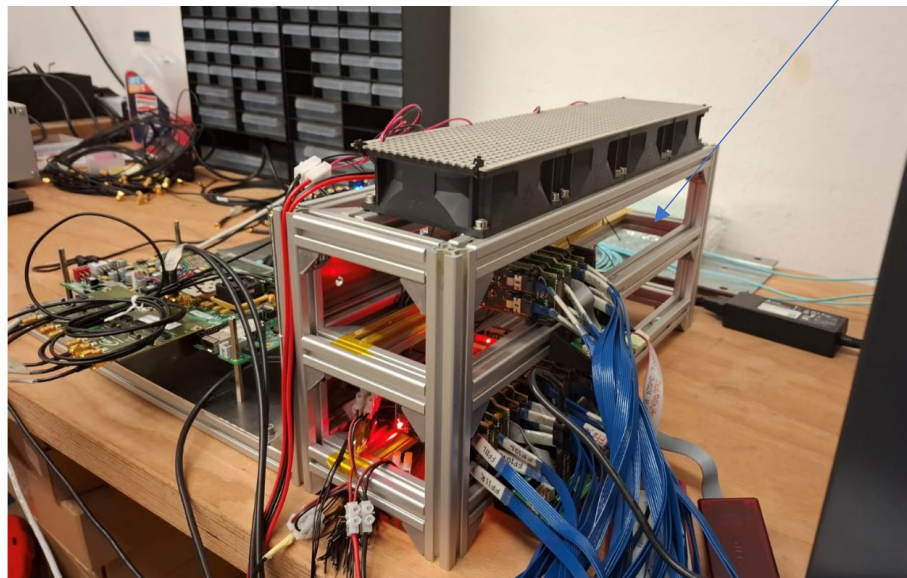


# RDO status (a few days ago in Bologna)

optical links from VTRx+



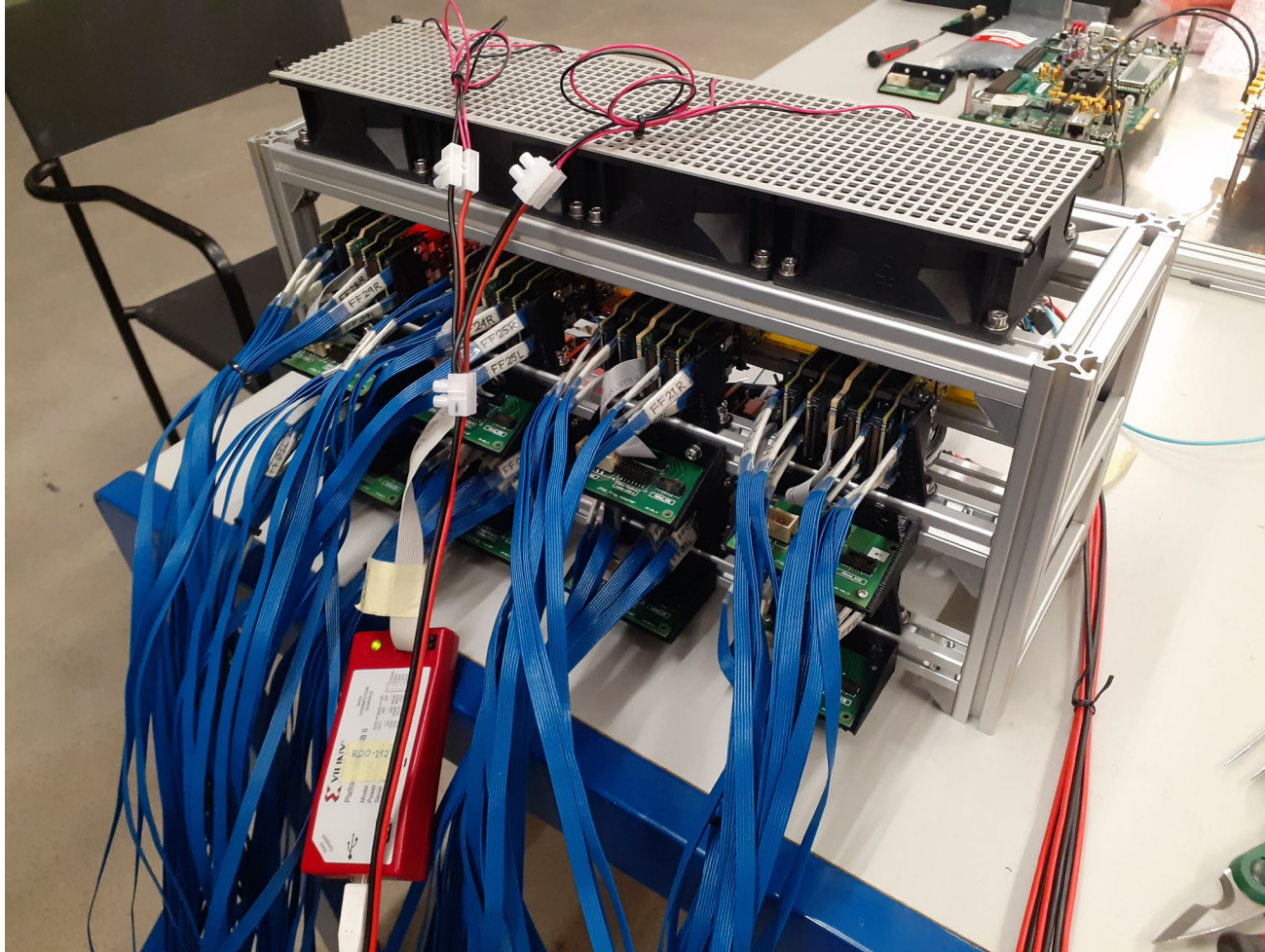
clock distribution  
trigger spill logic  
+ 1 KC705 for other stuff (timing)



RDO crate with RDO + fake-FEB



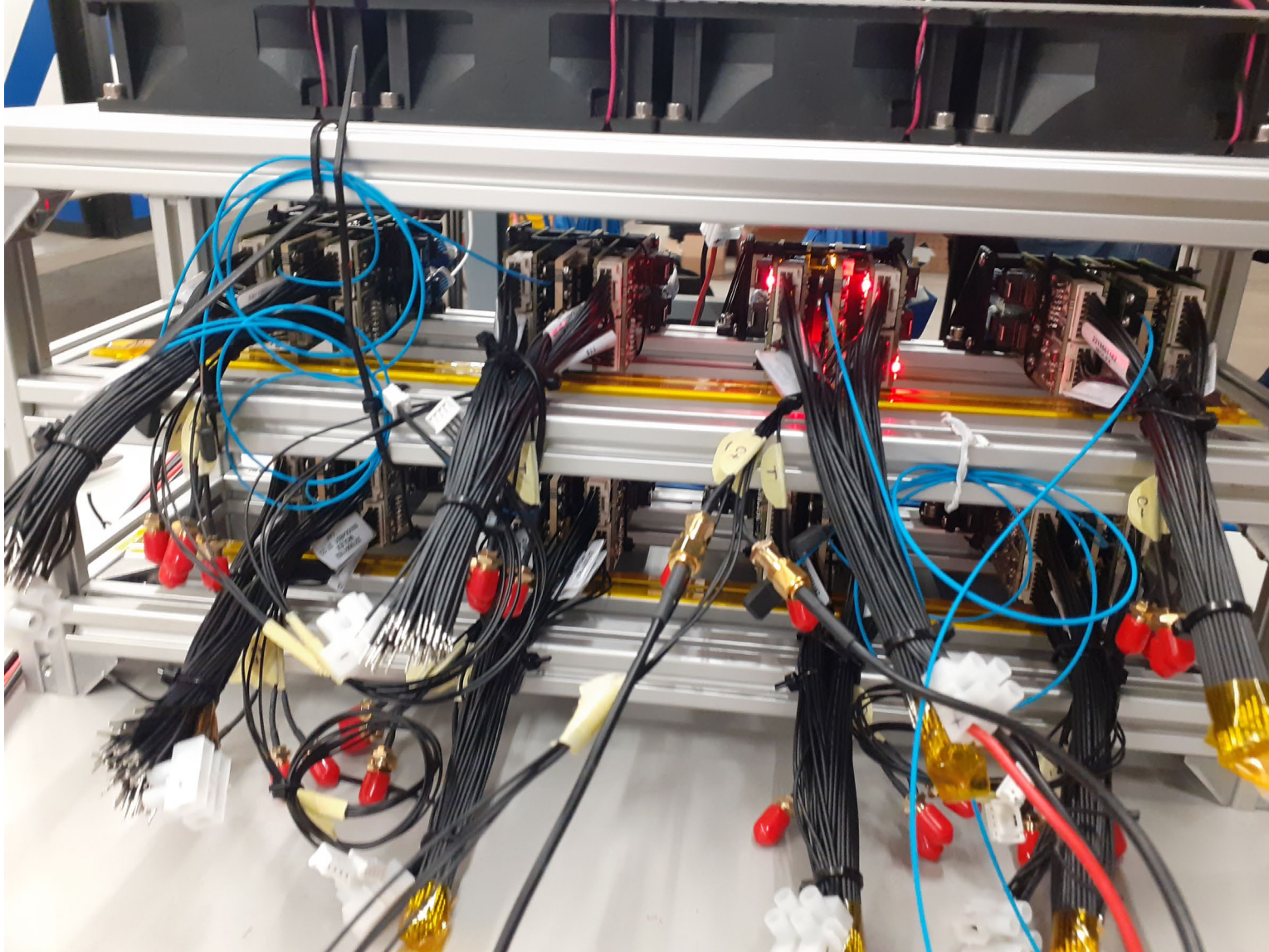
power + server with NIC SFP



Up to now 8 ROD-fake FEB boards are mounted and connected to the detector

front side

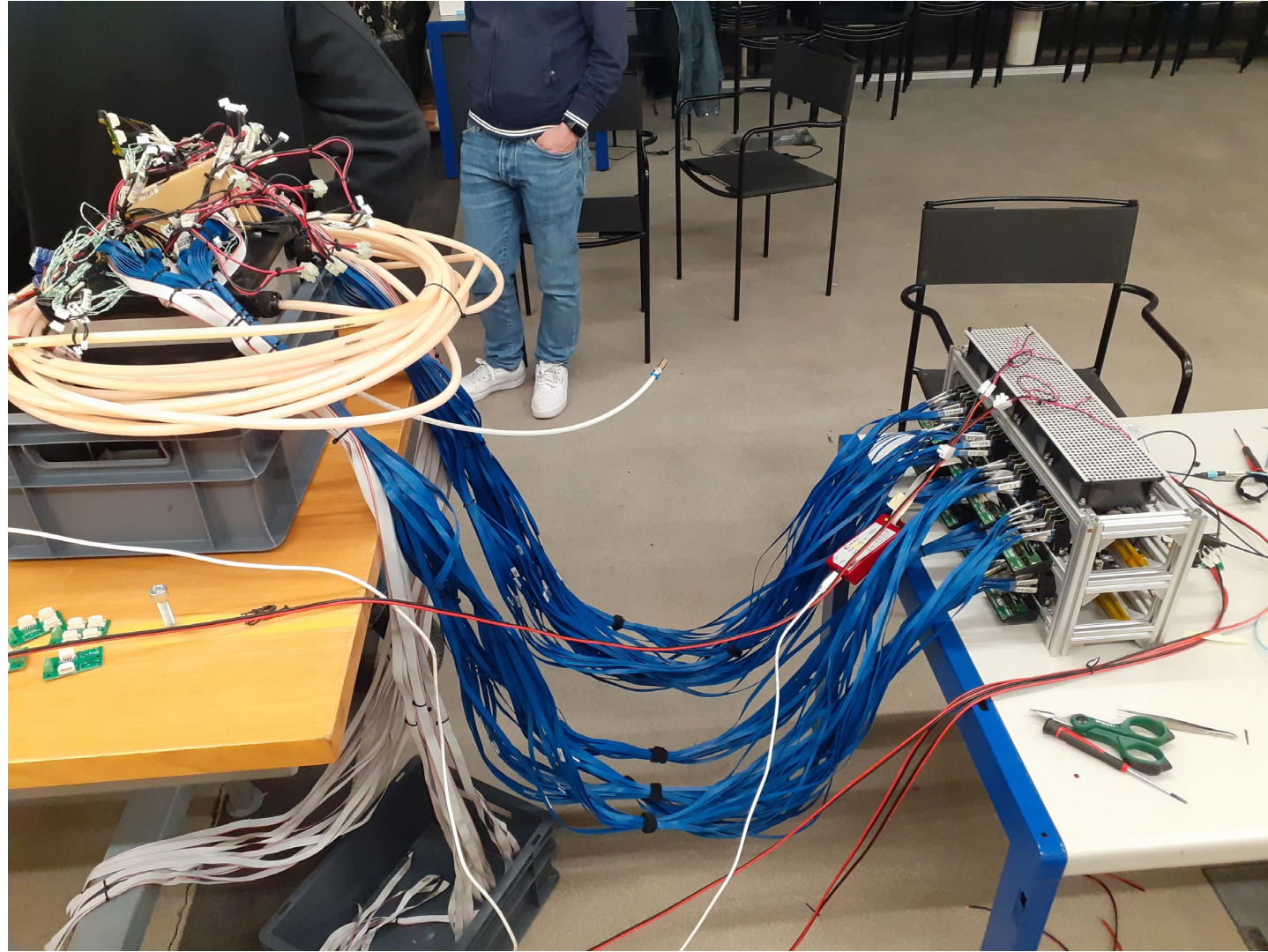
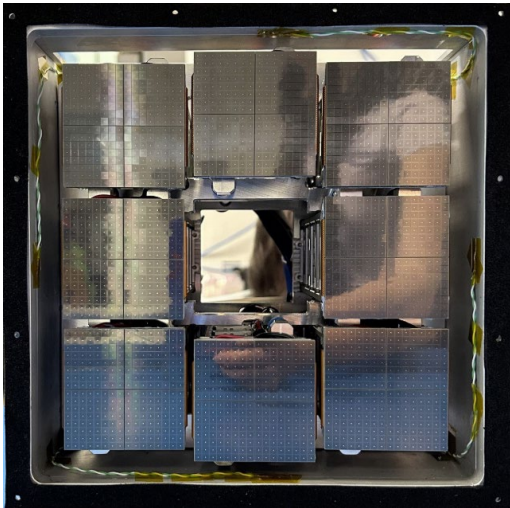
# RDO status (now at CERN)



back side



detector



8 RDO boards in parallel → 64 Alcor chips → 2048 SiPM channels

- huge amount of work debugging/preparing all this fixing hardware issues, firmware and software (including NIC configuration)
- the 8 RDO-fake FEBs have been connected to the detector yesterday at building 29:
  - we checked that all Alcor chips were programmable via SPI and that we could correctly received data from them
- now everything has been shipped to SPS, where it is being installed right now
- Hopefully we will have news at the next meeting!

