

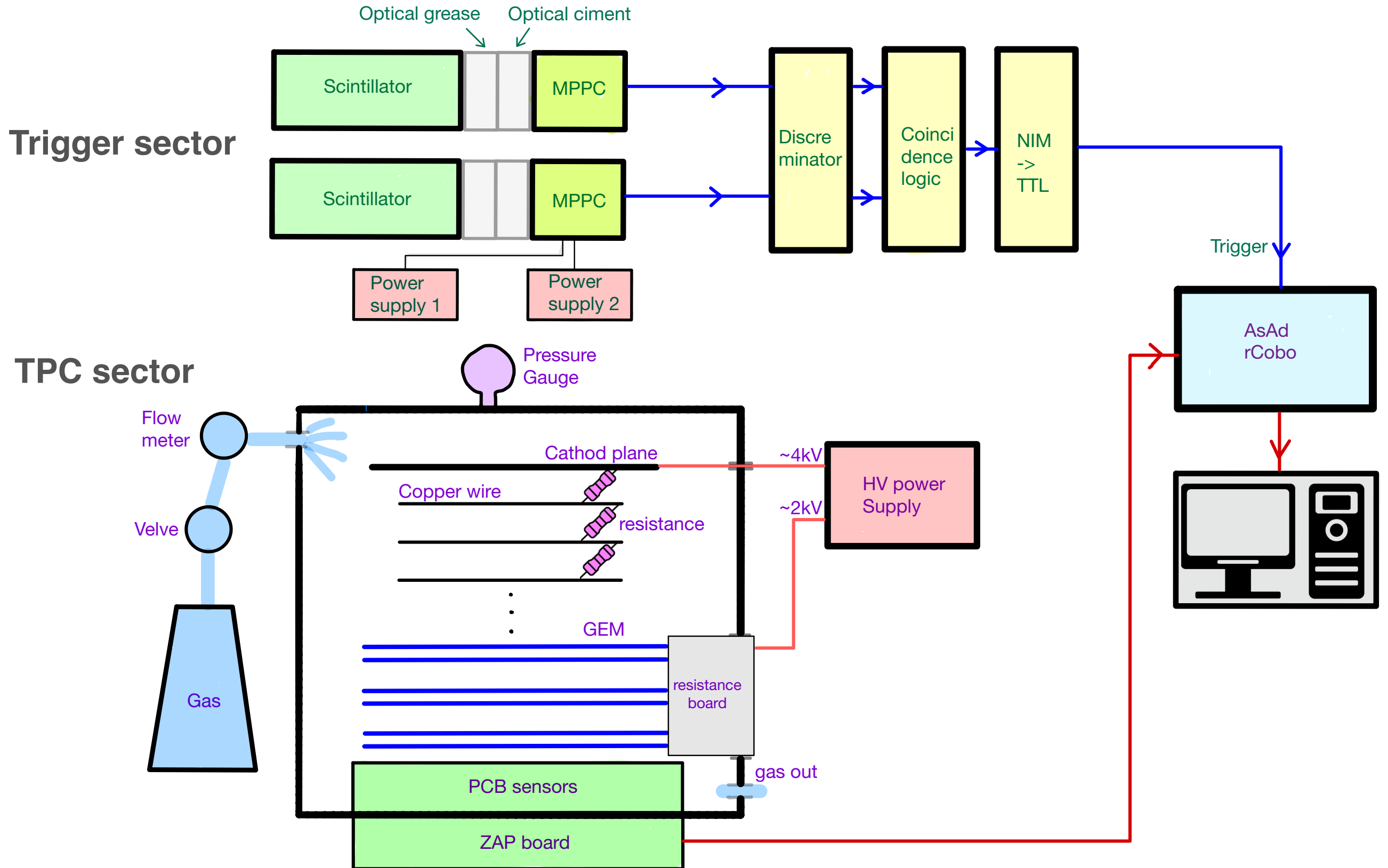
Courtesy of APS

2021 Plan for ATTPC

Yongsun Kim
LAMPS meeting
2021.Jan.27

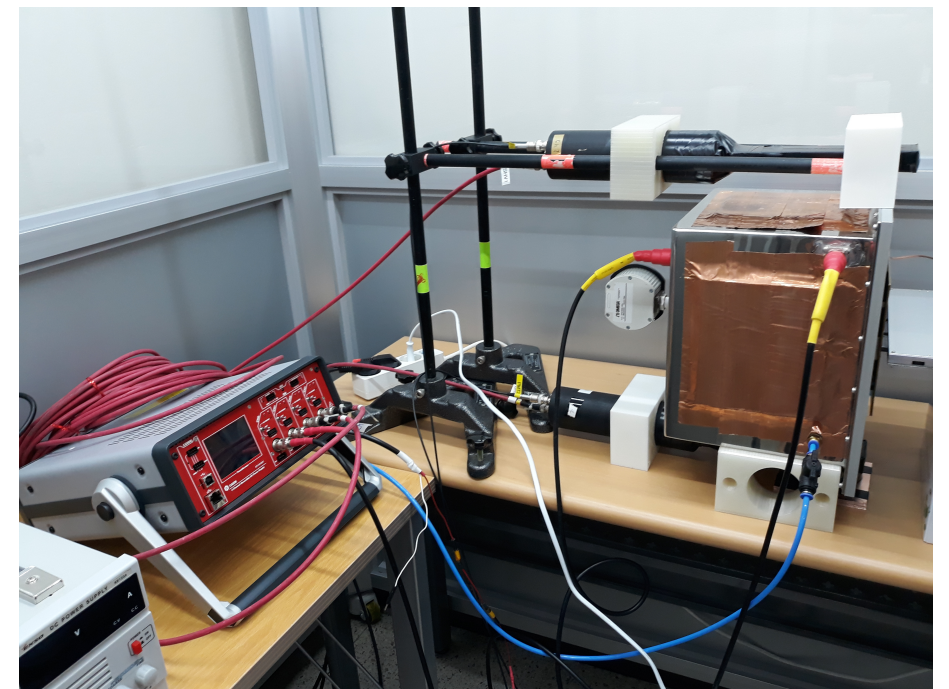
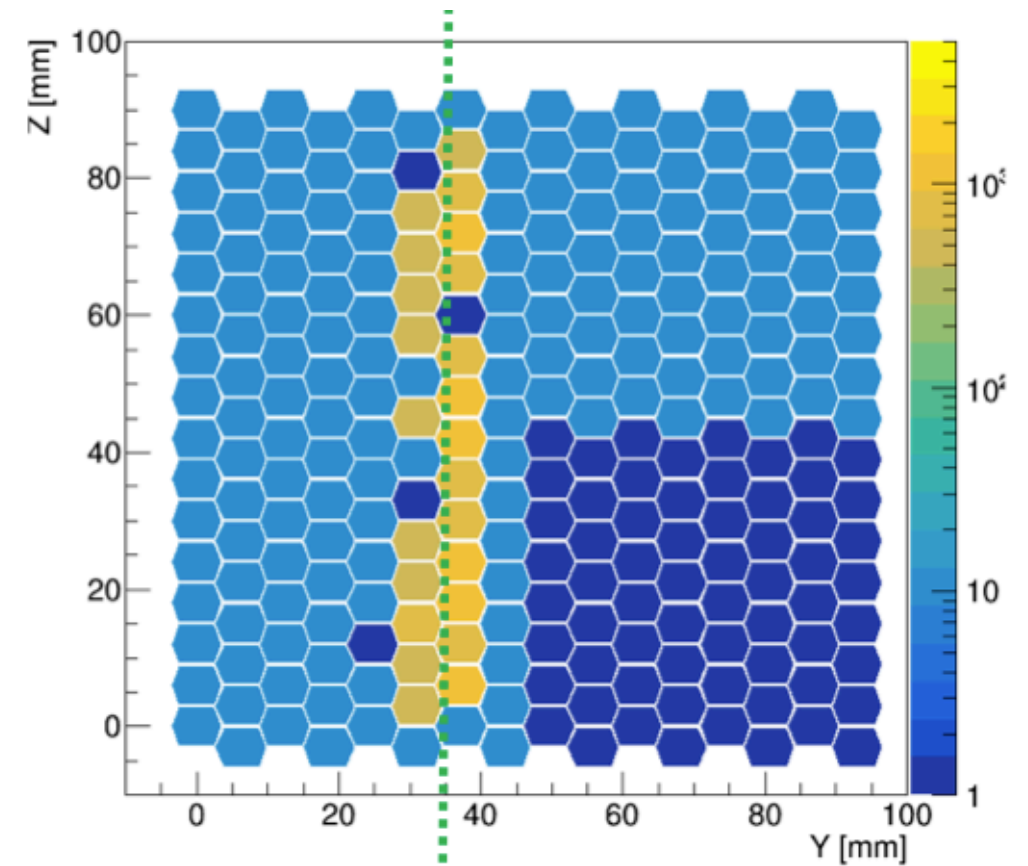


Achievement in 2020



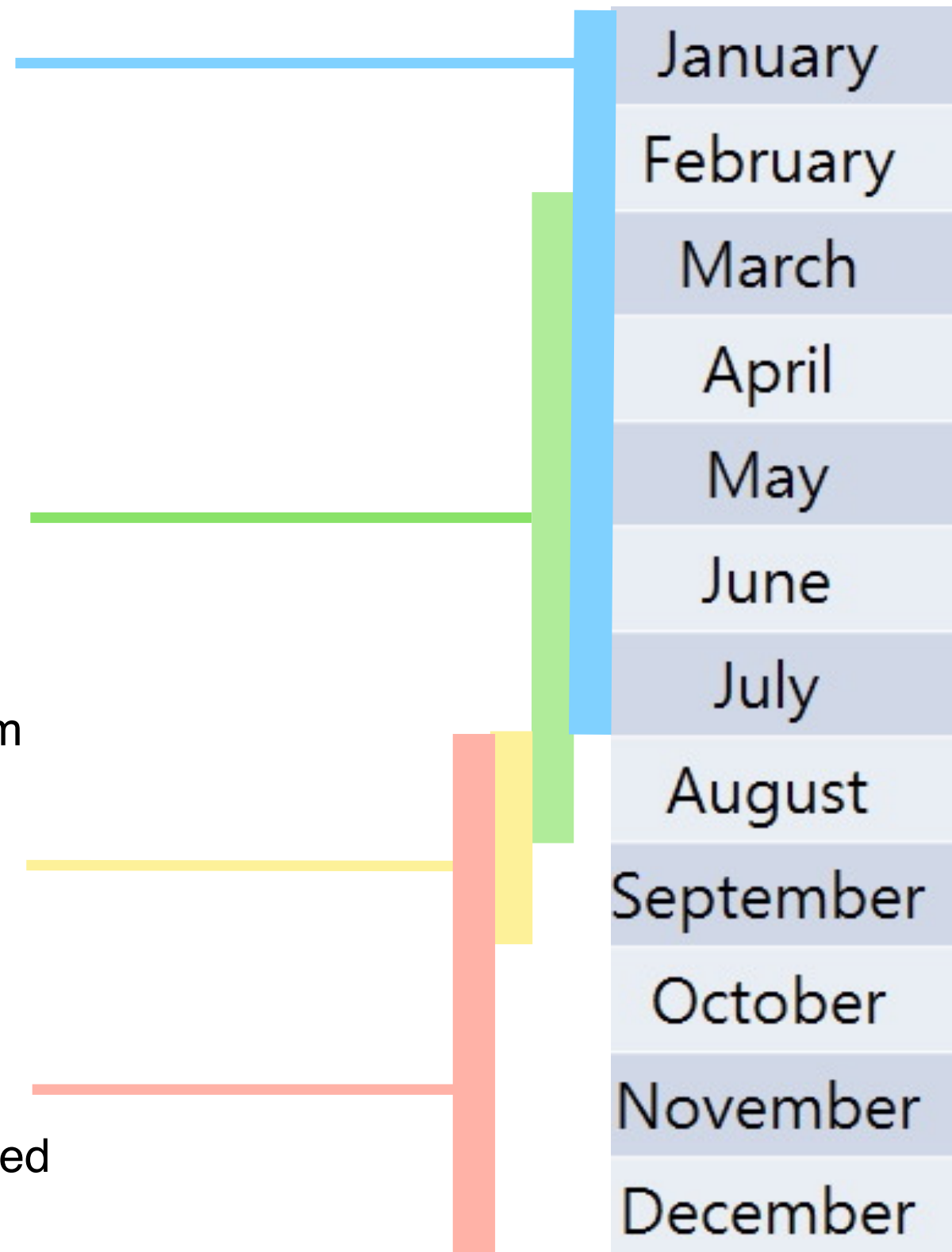
Lessons from KOMAC test

- Need to understand the gas response to proton
 - Prerequisite for the study of GEM gain, gas pressure and tracking algorithm
 - Will be a great reference for ion beam experiments
 - Full ATTPC simulation
- Pad Sensor is too small
 - Currently, 256 channels in 10x10cm²
 - Electron dispersion reaches only to neighboring pads or to nowhere
 - Plan to scale it down by factor of 4
- Etc.
 - rCOBO/AsAd works well for 256 channels
 - Need larger portfolio for PCB sensor boards
 - Need real-time monitoring tools for both hardware & software
 - Online manipulation for hardwares is very useful



Goals in 2021

- **Construction of ver. 2 prototype**
 - Gas tight down to 0.1 atm
 - 1024 channels (4 rCobo & AsAd?)
 - Keep 10x10 cm² for GEM foils
 - 3+3 months for construction and commissioning
- **Construction of supporting setups**
 - Low pressure gas supplier (2m)
 - Electronics for O(5k) channels
 - Collaboration with KOBRA-ATTPC team
- **Test for Ver.2 prototype in the magnet**
 - Input for the tracking algorithm
- **HIMAC experiment**
 - Find a physics topic which can be studied with Ver.2 prototype



BACKUP

zCoBo - an option for ver.2 prototype

- TPC at R3B <https://indico.gsi.de/event/11513/>

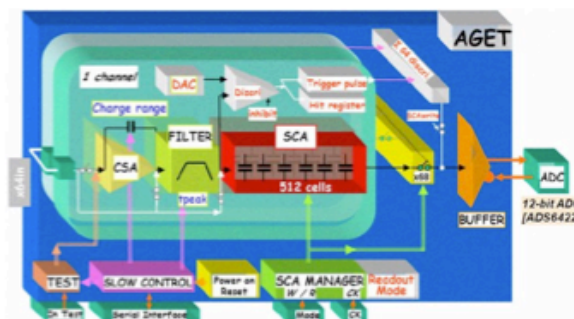
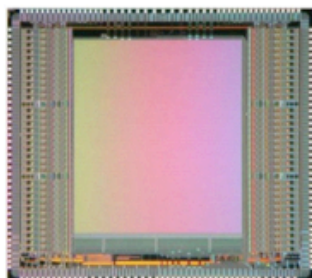


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Prototype electronics

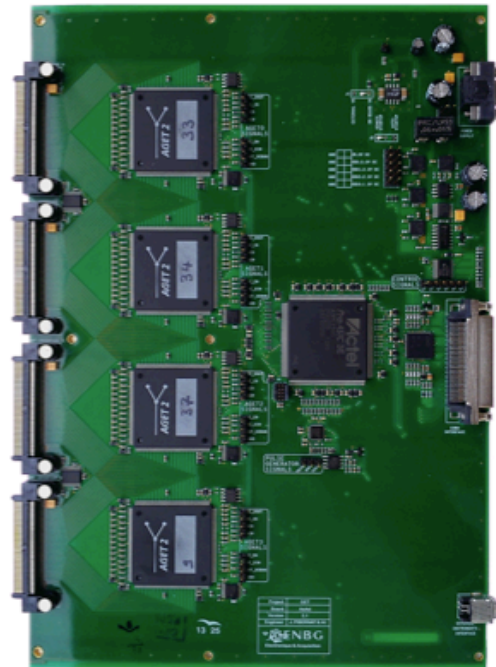
- ❑ AGET chip
- ❑ ASAD FE card
- ❑ ZAP protection cards
- ❑ **zCoBo** backend from Warsaw university (M. Cwiok, M. Zarembo)

64 channels
512 SCA, 12 bit ADC



AGET

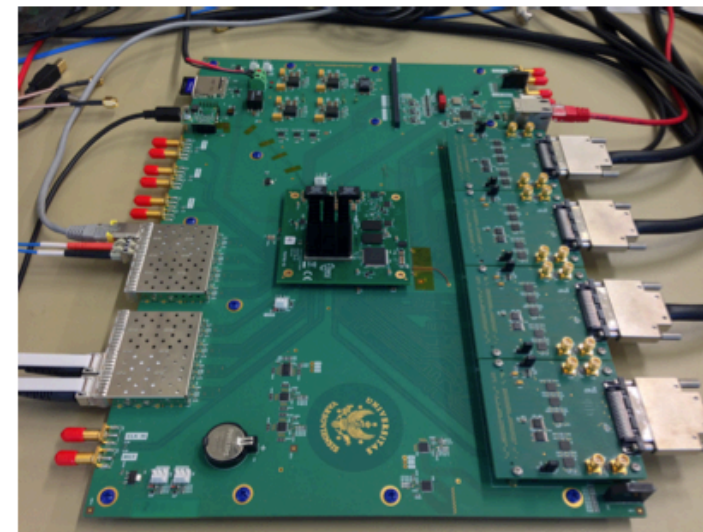
4 AGET, i.e. 256 channels



ASAD

Courtesy: F. Druille, CENBG

Max 4 ASAD, i.e. 1024 channels



zCoBo

Courtesy: M. Cwiok, Warsaw