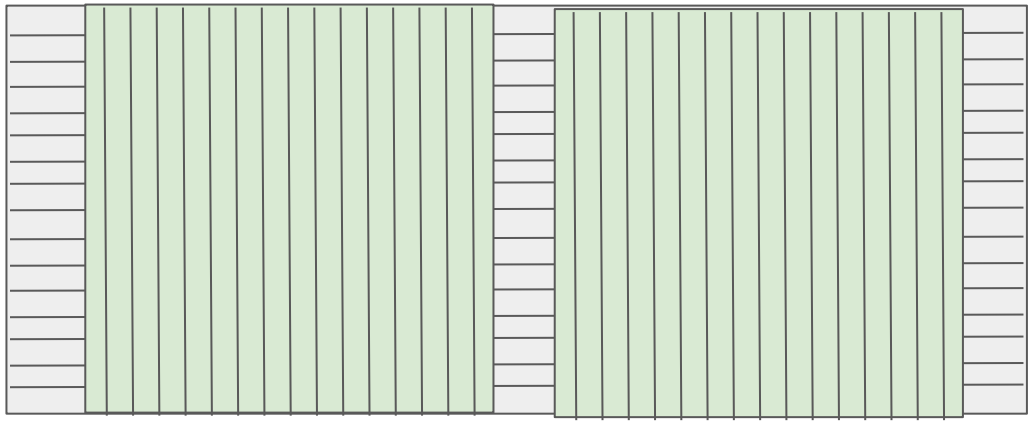
Status of NP02 CRTs

NP02 CRTs

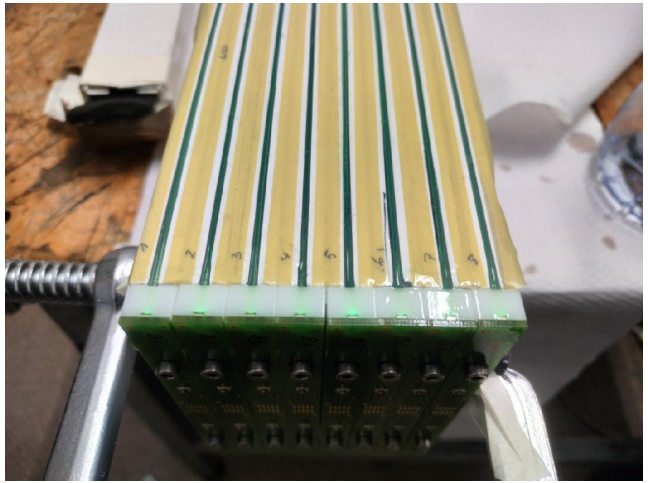
There are 2 CRTs of 4.5x1.8m provided by Bern.

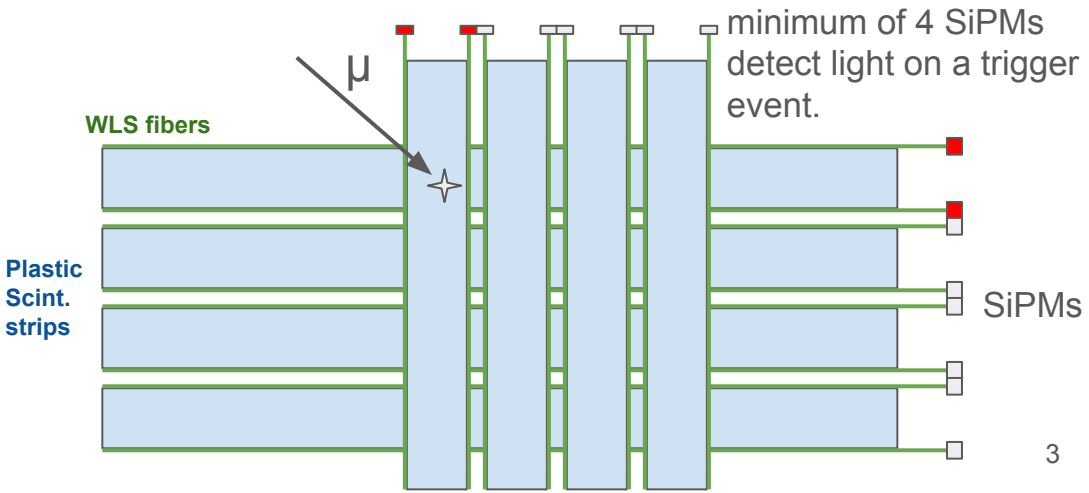
4 additional modules of 1.8x1.8m at 182.



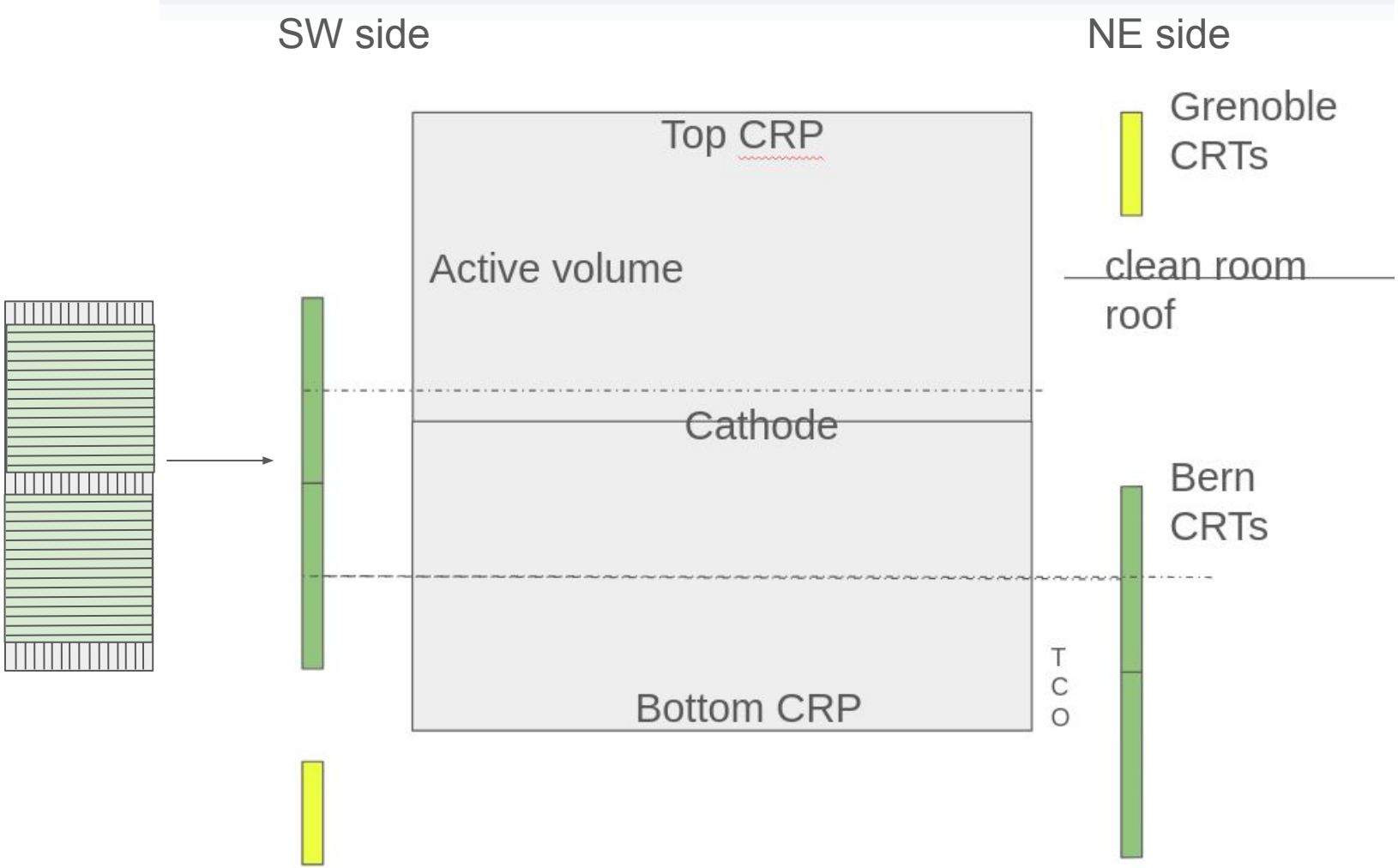
Bern CRT technology

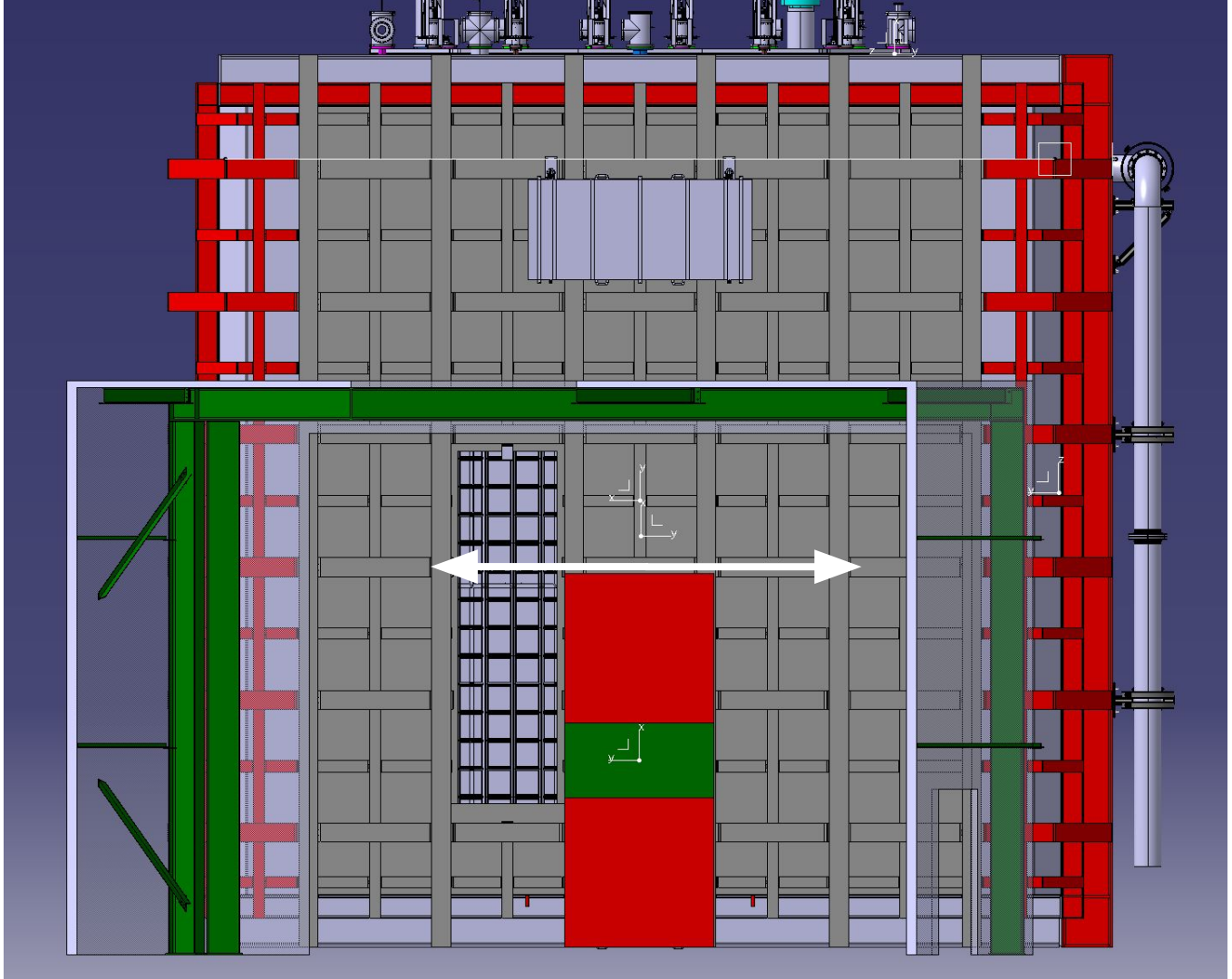
- Plastic scintillator strips (polyestyrene + PTP + POPOP)
- WLS fibers, Kuraray Y11(200)M ø1mm, are glued at the two sides, and Hamamatsu S10943-8754 SiPMs (1mm^2) coupled at one end. The other end is Al coated.
- A coincident signal on both SiPMs from the same scintillator strip will be required to trigger.
- All strips are assembled inside an aluminum case.

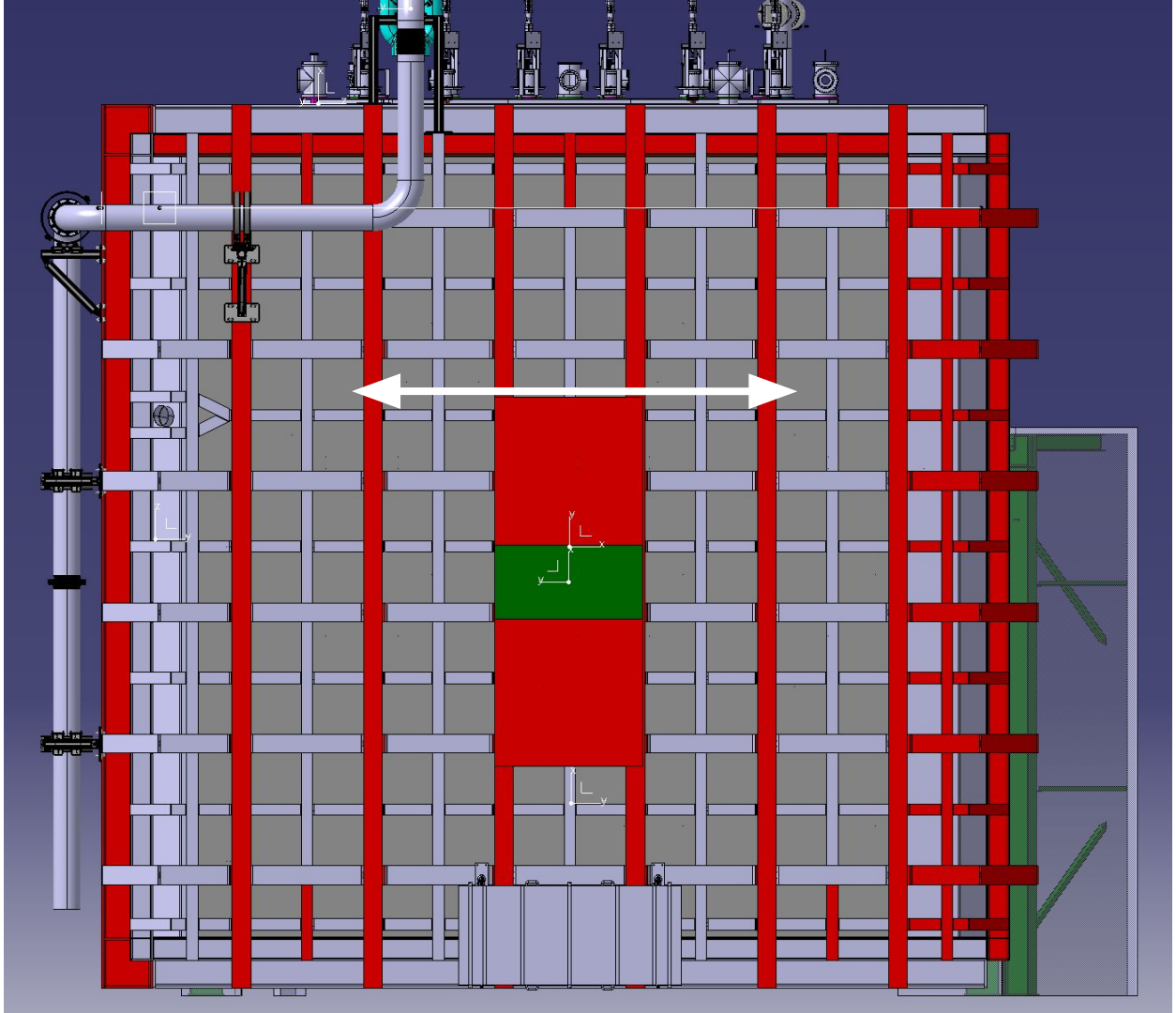


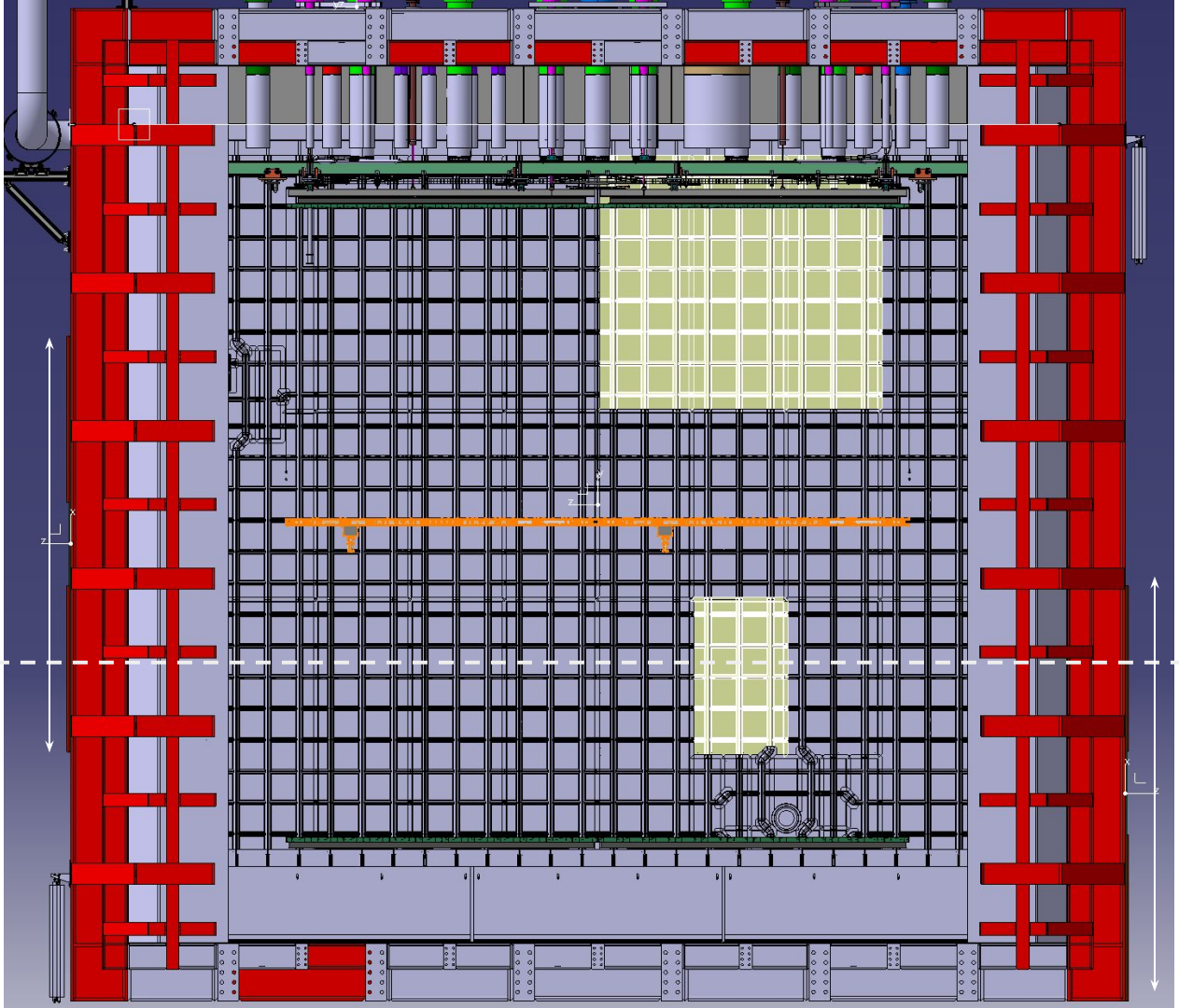


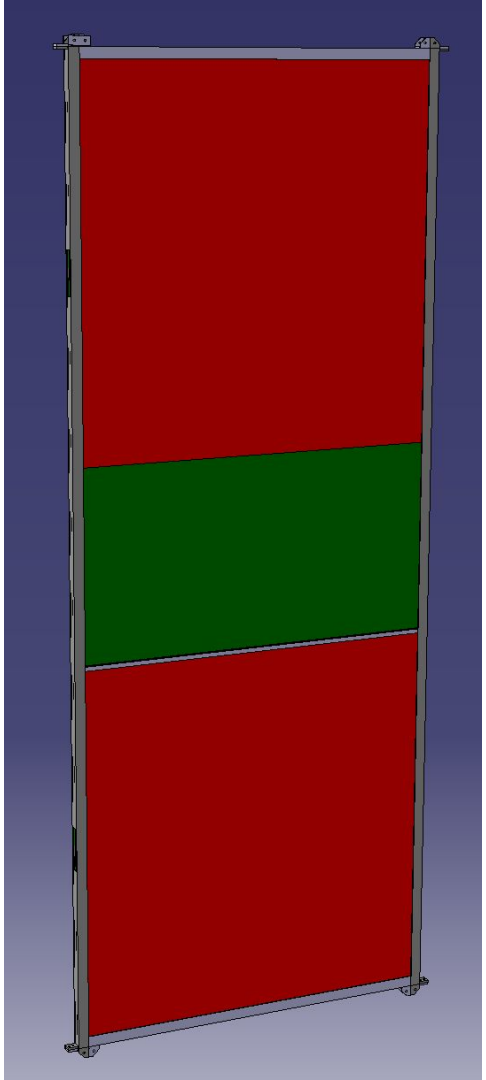
H2-VLE
NP-02
H4-VLE
NP-04

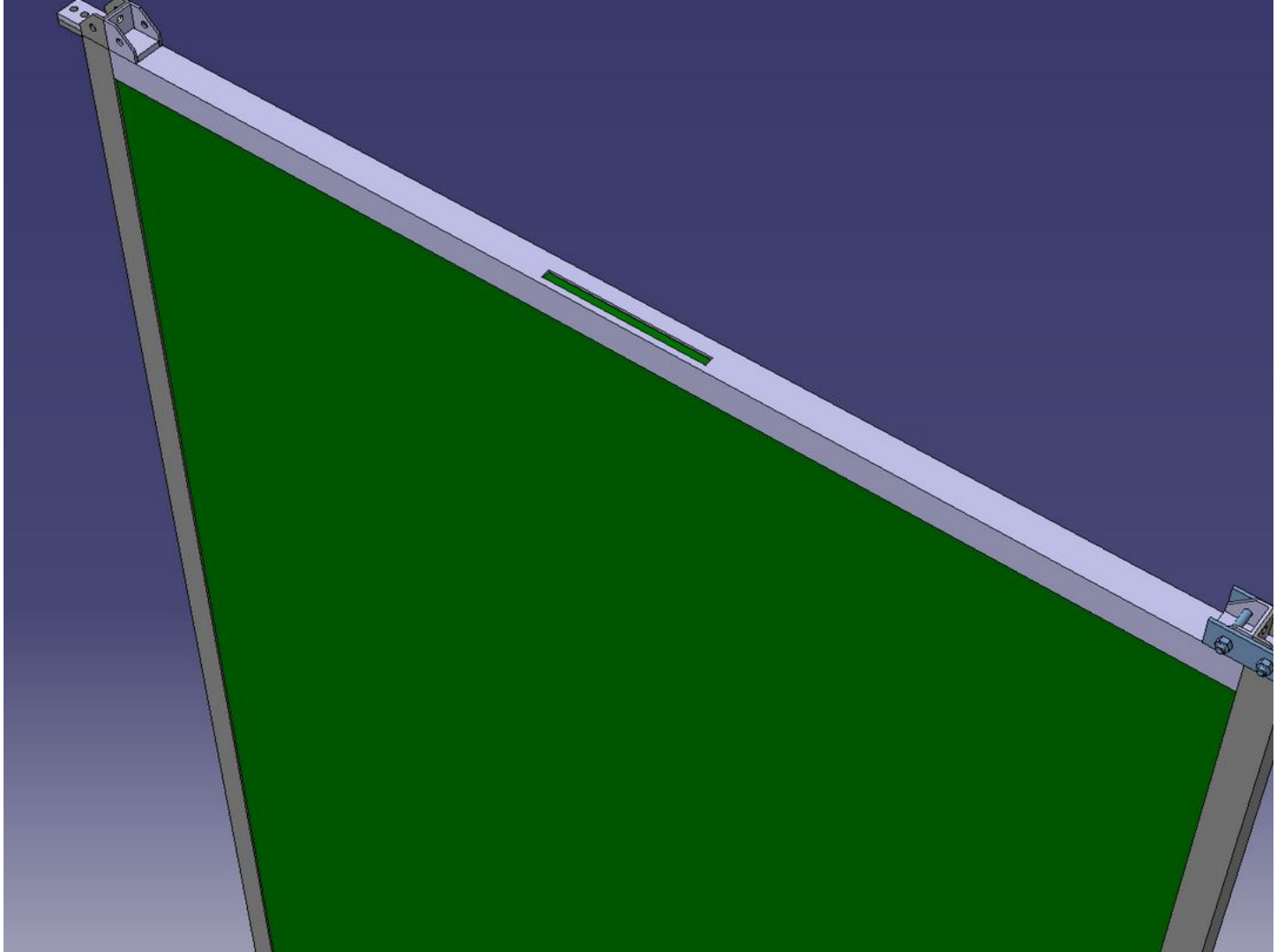

SW side
NE side
Top CRP
Grenoble
CRTs
Active volume
clean room
roof
Cathode
Bern
CRTs
T
C
O
Bottom CRP





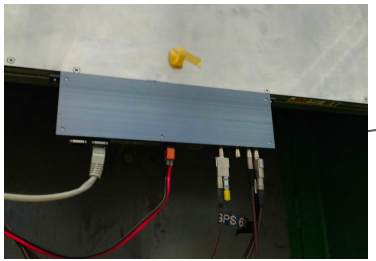


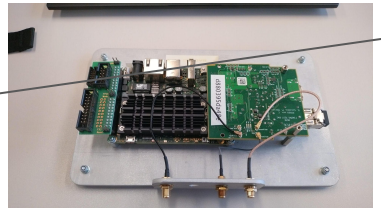


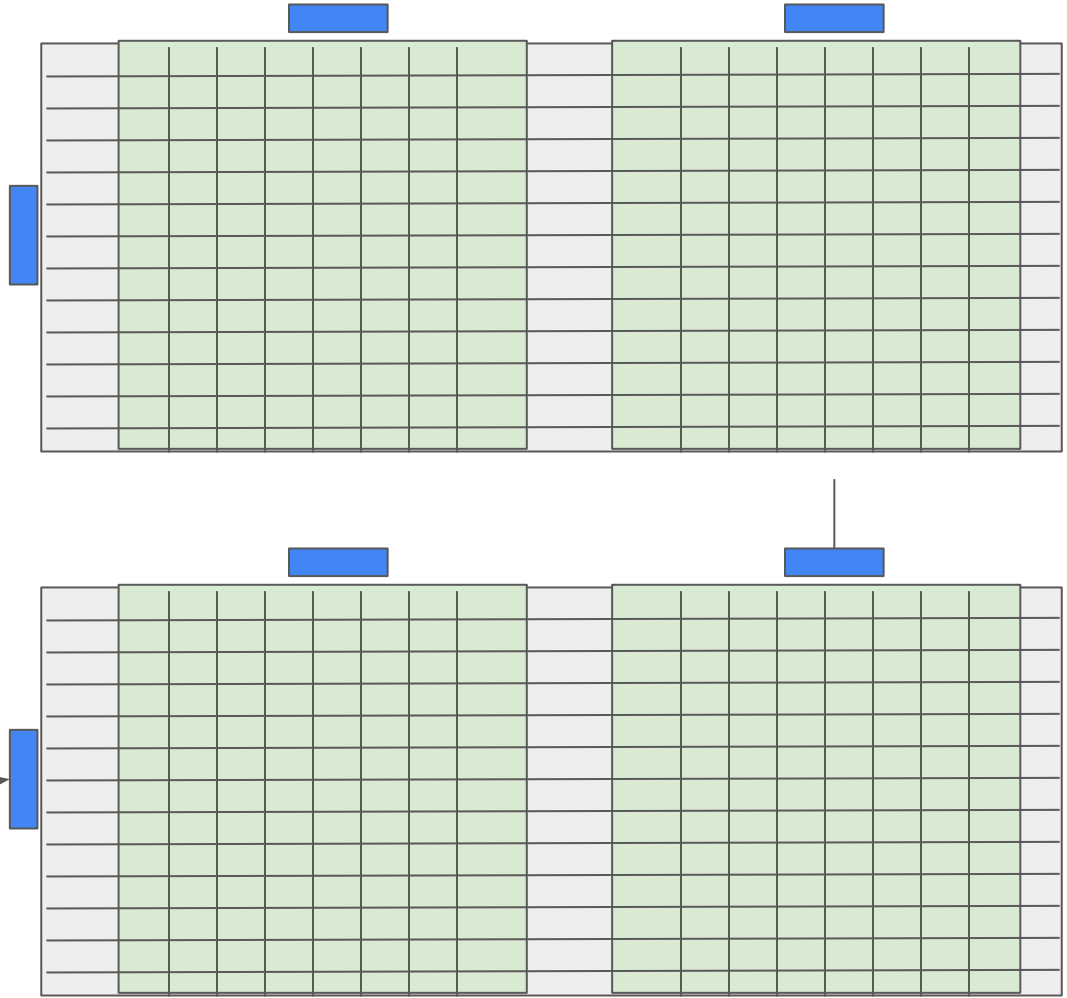


Electronics

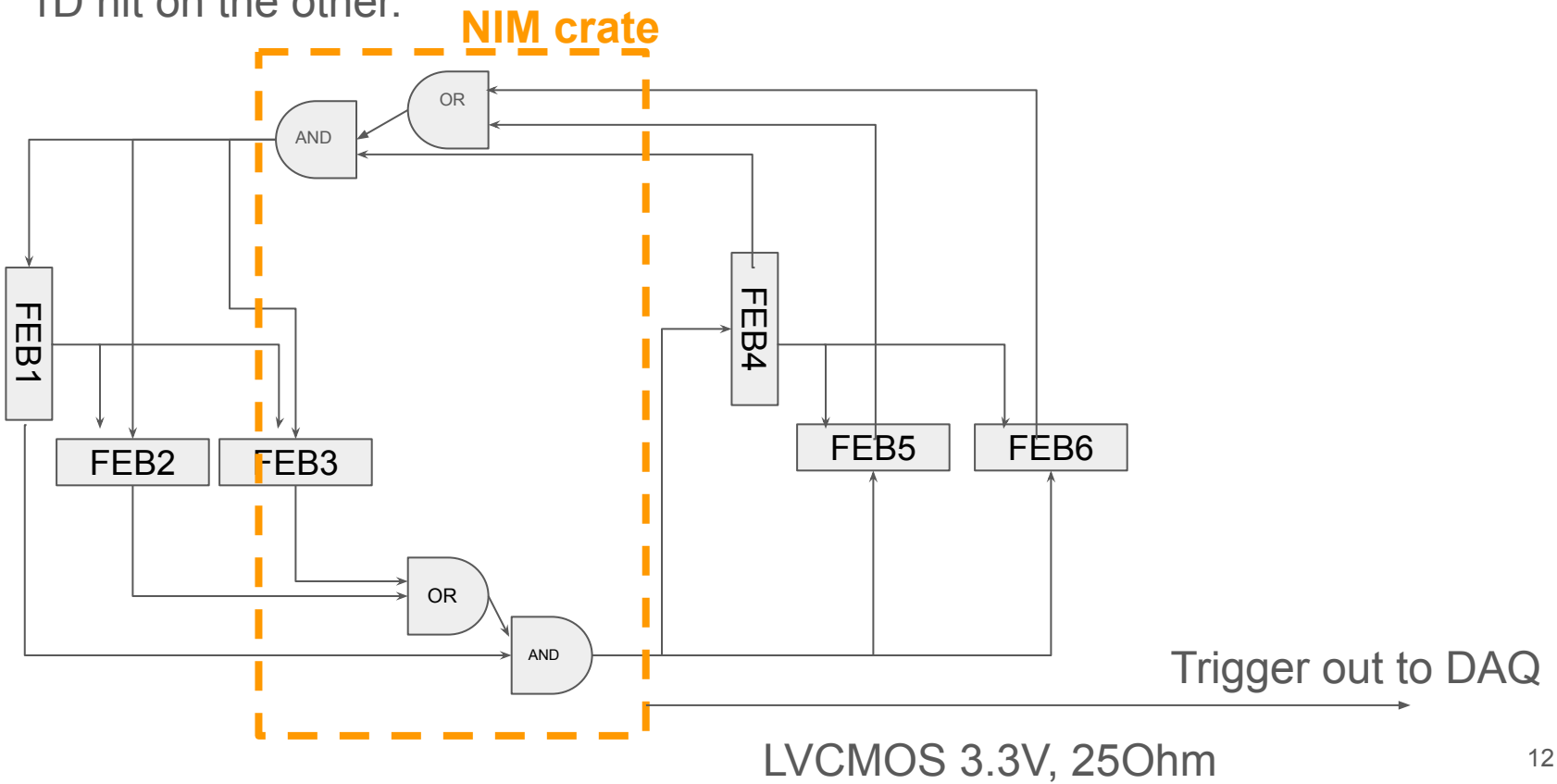
- 6 CAEN boards will be connected directly to the CRT modules.
- Each CAEN reads 32 SiPMs (16 bars)-> Each event is an array of 32 shorts (proportional to the collected light).
- **NIM crate + a module of coincidences** is needed to do the trigger validation (cabling in the backup).
- A timing module also placed next to each CRT (a fiber optic should arrive to each side).
- 1pps to reset the clock.

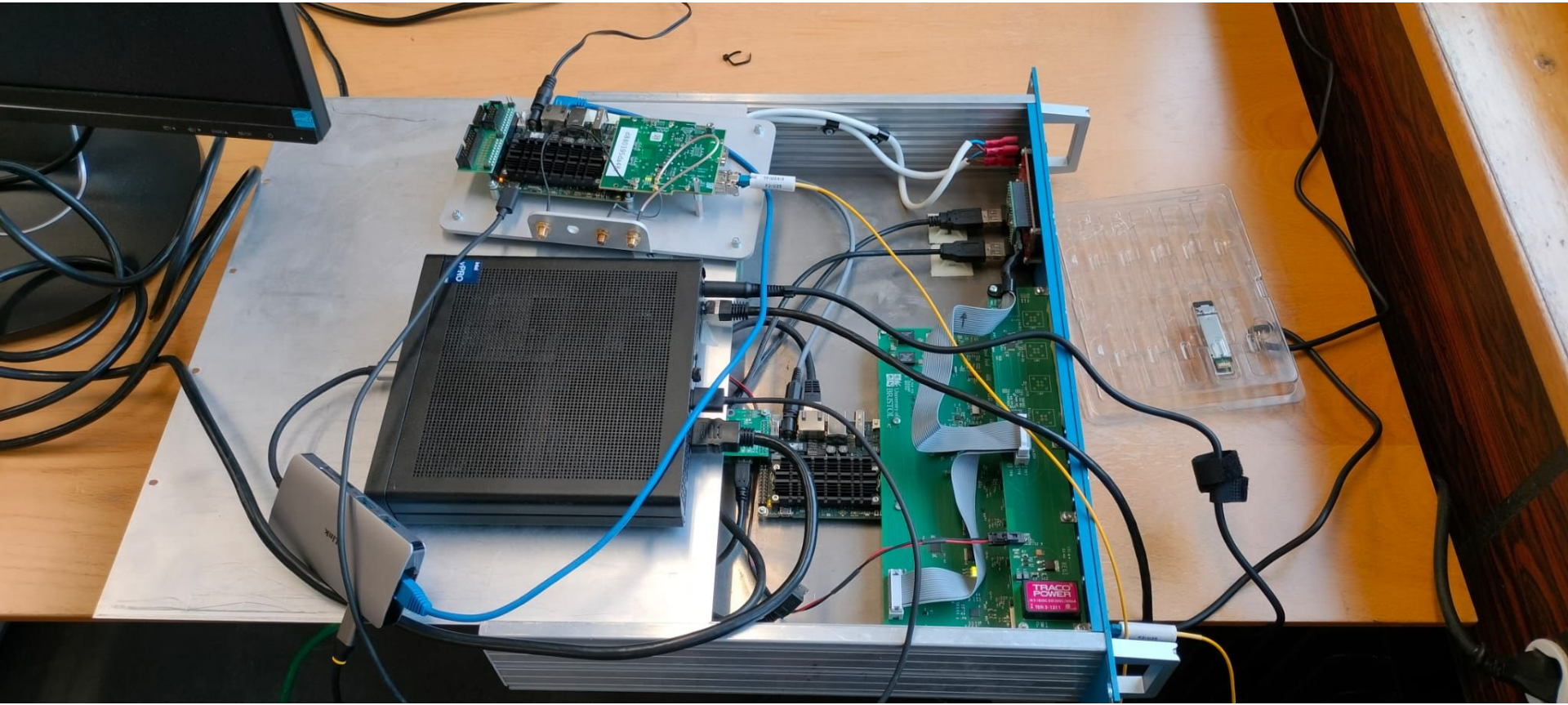




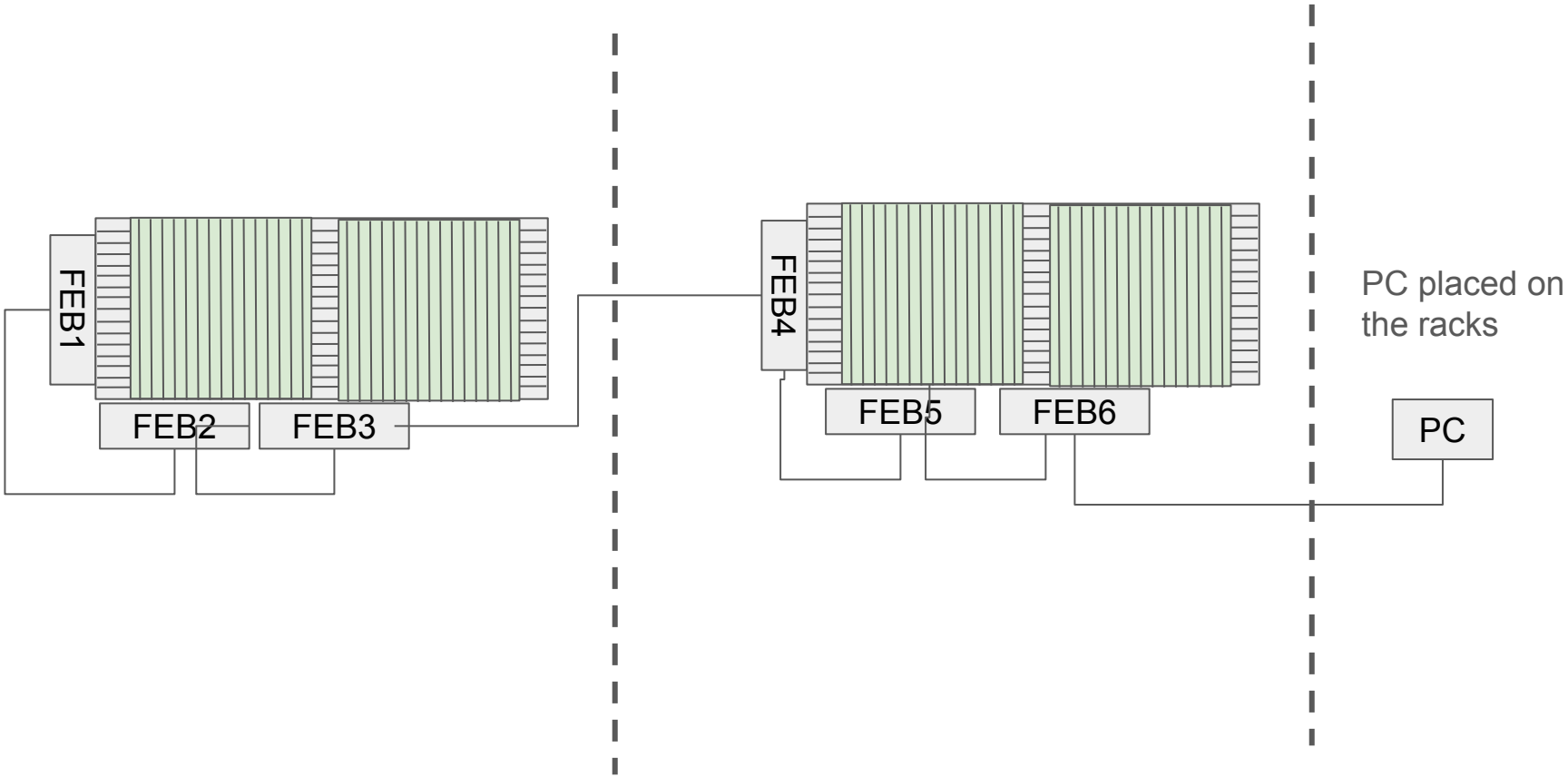


Trigger validation layout (using a module of coincidences)
In this configuration we would still have 2D hits in one CRT, and 1D hit on the other.

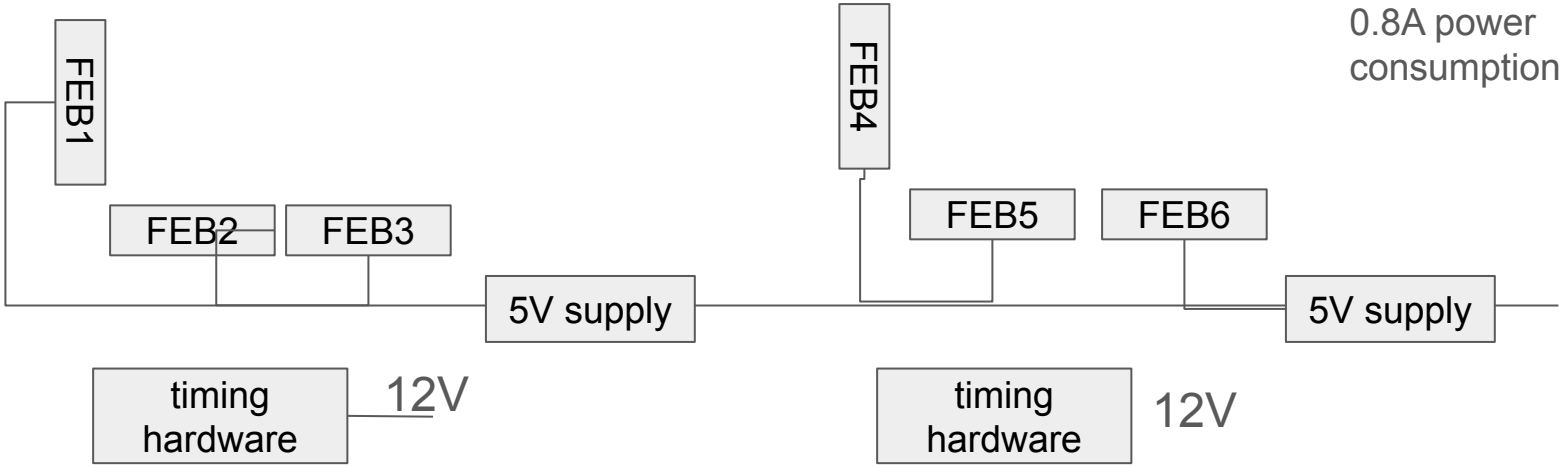



TRACO POWER

Readout cabling (ethernet):



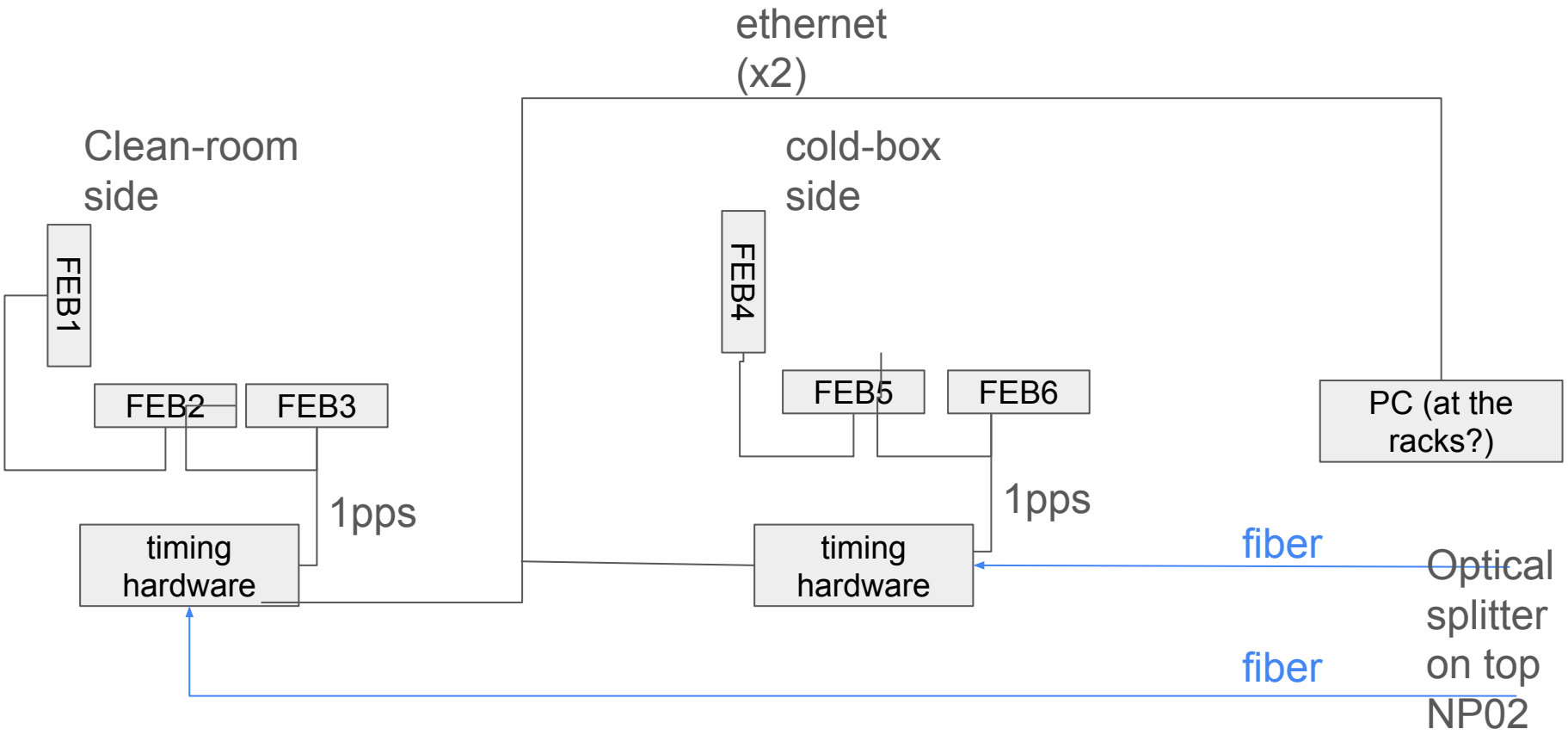
Voltage supply cabling (12V):



CAEN voltage supply missing.
0.8A power consumption per board

Ideally 4 power supplies, 2 at each CRT
can we use a socket near the CRTs?

Timing cabling:



Timing+DAQ integration

1st step /simpler approach:

- 1 PPS signal sent to the CAEN boards clocks.
- Online integration of the timestamp in the standalone CAEN DAQ software.
- Trigger is provided by a NIM signal from a dedicated coincidences module.

If that works:

- Write a DAQ application to full integrate the CAEN boards (using PDSP CRT application + SBND code).