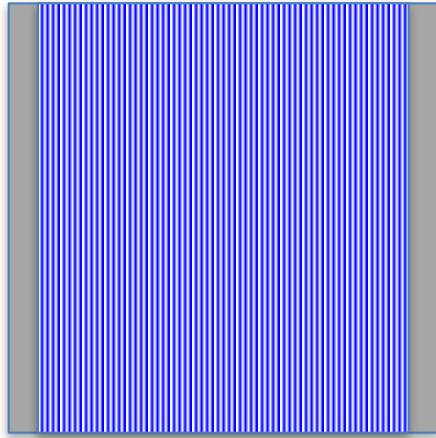
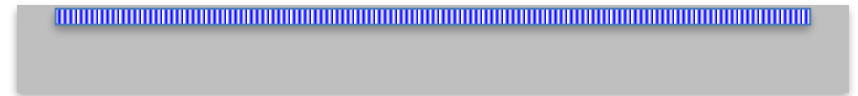
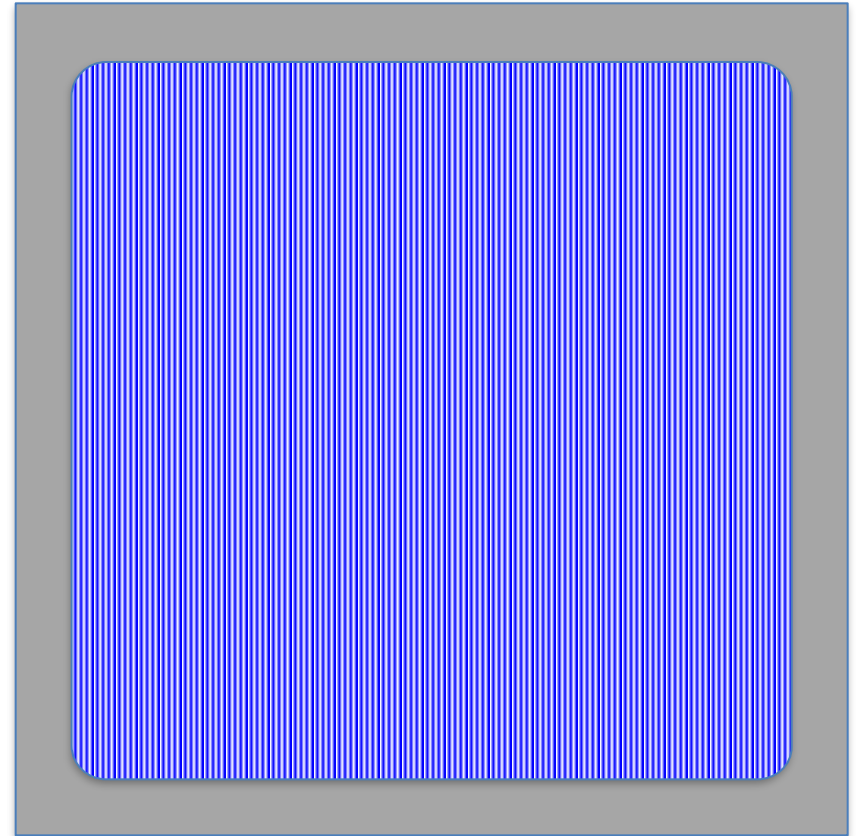


TRACKER: layer

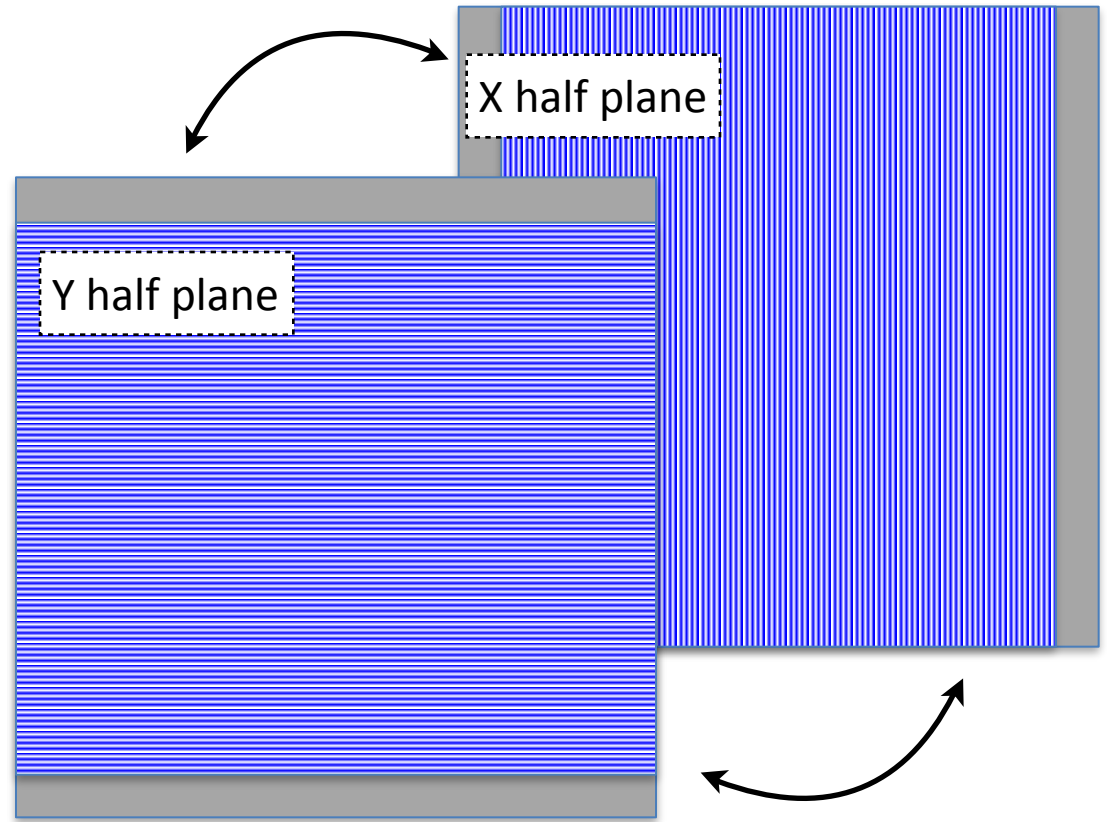


- 210x210 external
- 192x192 internal
- 384 BCF12 fibers: 0.5 mm x 0.5 mm
- double/single cladding (Saint Gobains)

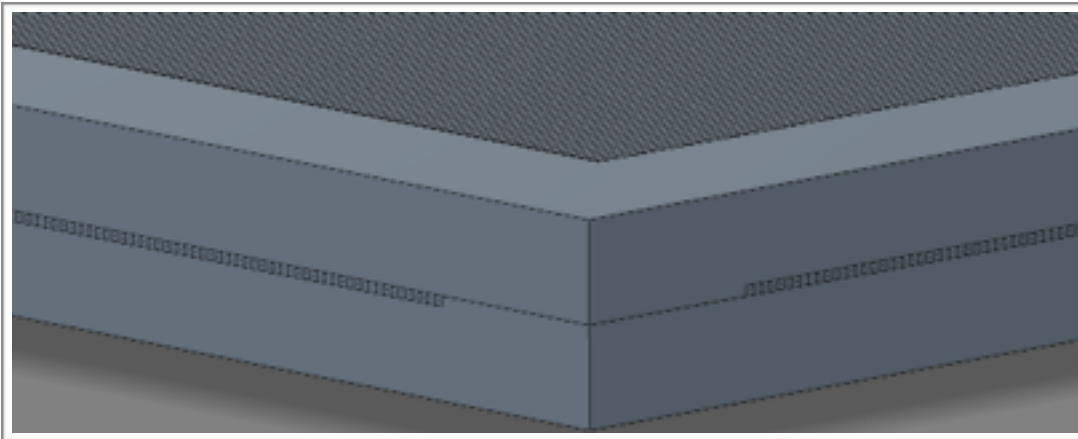


AlcaPlus 6.35 mm

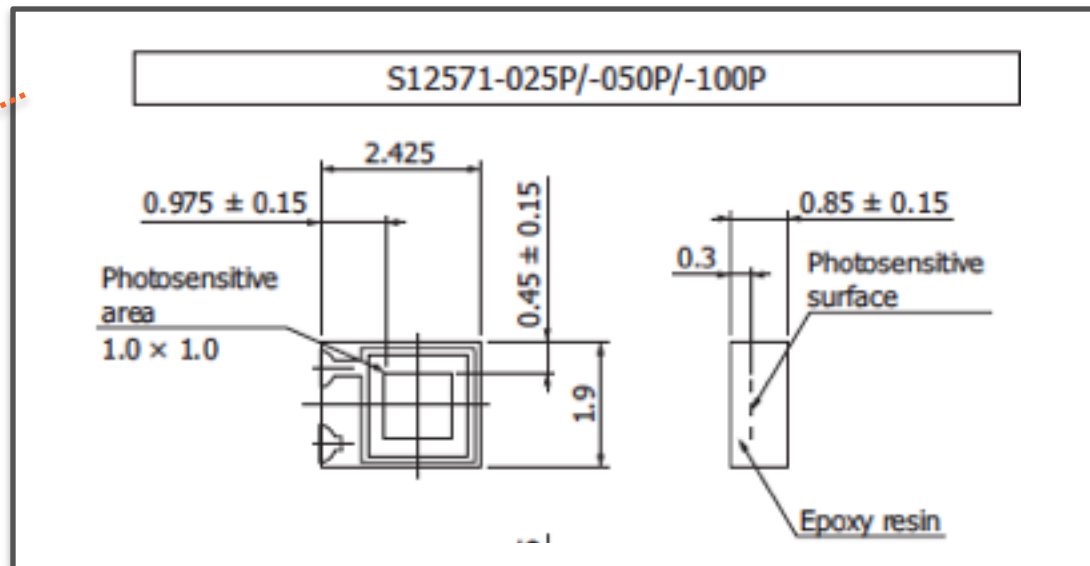
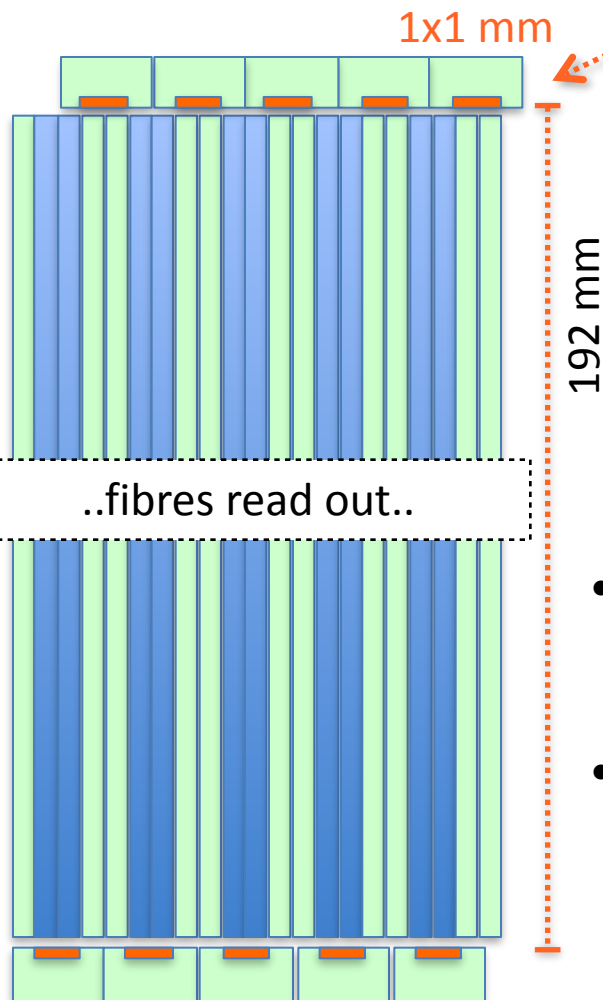
TRACKER: plane



- 6 planes
- SBAI(Magi)+ROMA1

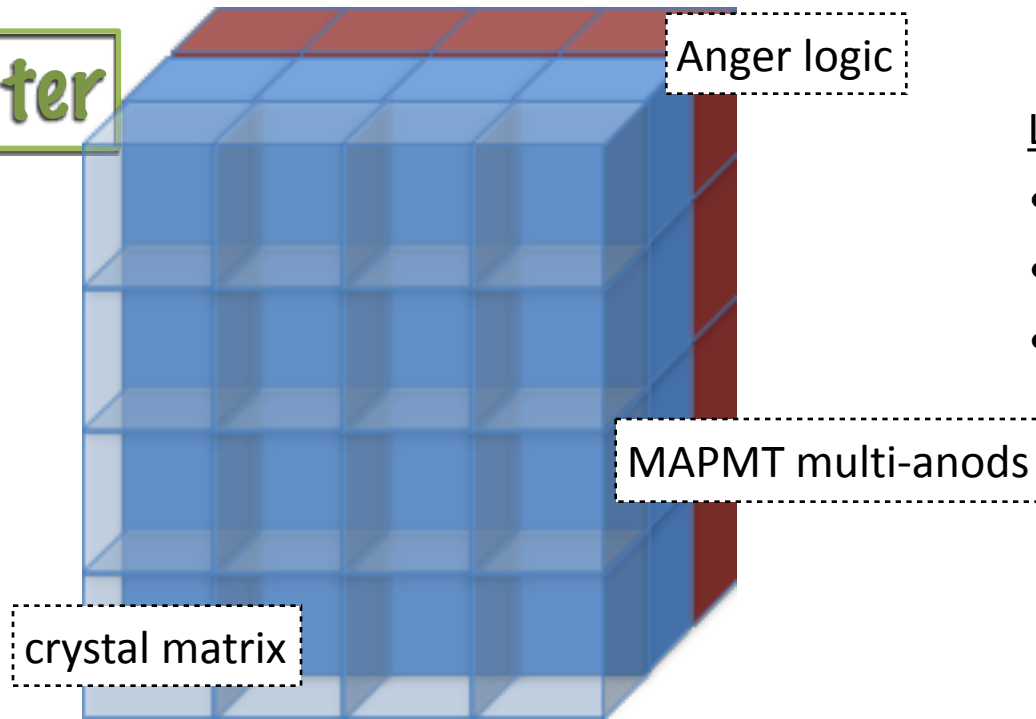


TRACKER: planes' readout



- new MPPC (SiPM) => higher efficiency (35%)/noise ratio (two 1mmx1mm pieces now at Milan)
 - 20x20 pixel ($50\mu\text{m} \times 50\mu\text{m}$) => for one fiber 10x10 pixel
- For a m.i.p.: $2\text{MeV}/\text{cm} = 20000 \text{ ph}/\text{cm} = 1000 \text{ ph}/\text{fiber}$
=> $1000 \times 4\% \times 35\% \sim 17 \text{ p.e.}/\text{fiber}/\text{m.i.p.}$

Calorimeter



LYSO matrices from ??:

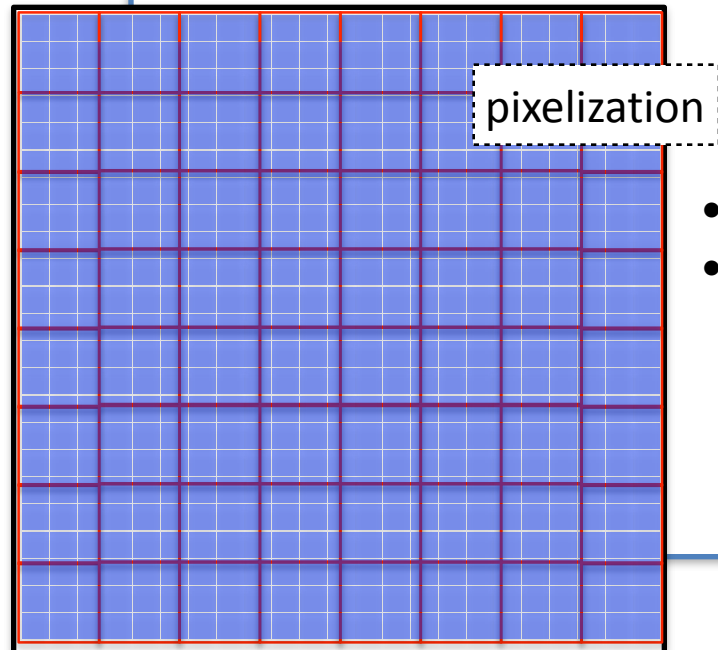
- Hilger "oldPISA"
- Epic "Cina"
- Hamamatsu "PET"

16 MAPMT H8500:

- already purchased
- partially tested



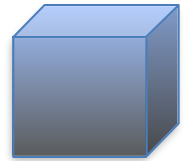
INSIDE - MILANO 24.3.2014



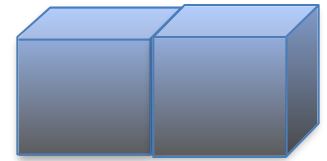
- 8 x 8 pixels PMT
- 23 x 23 pixels crystals

Profiler assembling: calorimeter

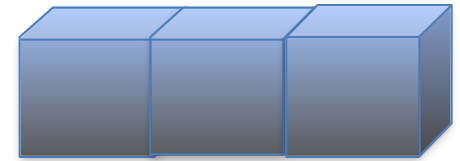
- one 50x50x20 LYSO matrix coupled to one H8500 8x8 multi-anodes photomultiplier



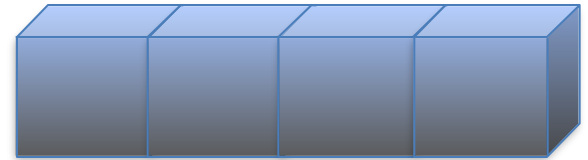
Profiler assembling: calorimeter



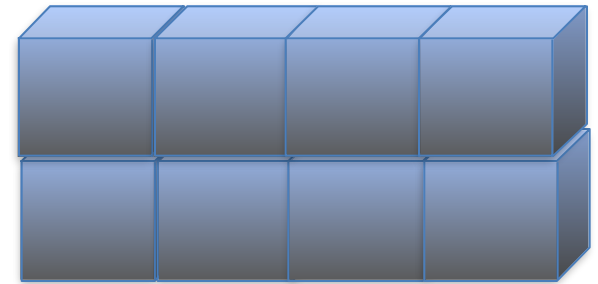
Profiler assembling: calorimeter



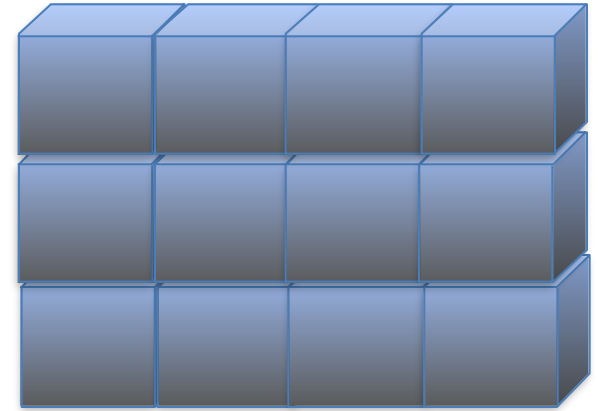
Profiler assembling: calorimeter



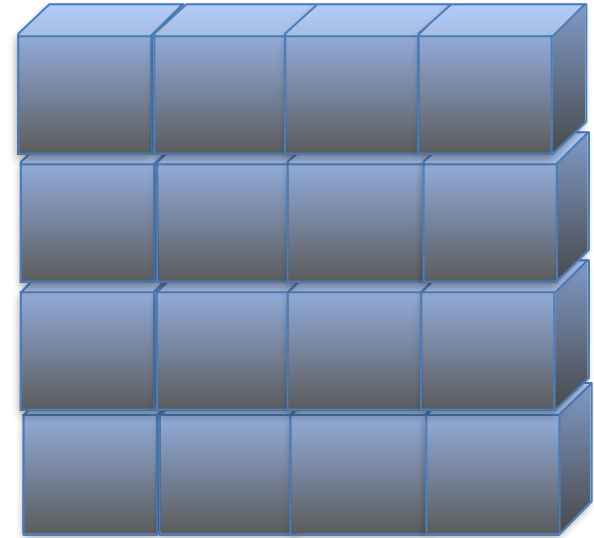
Profiler assembling: calorimeter



Profiler assembling: calorimeter

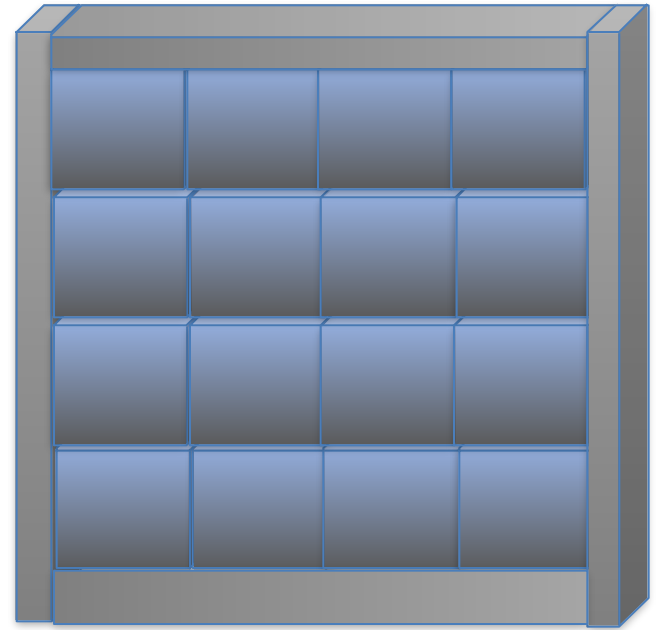


Profiler assembling: calorimeter

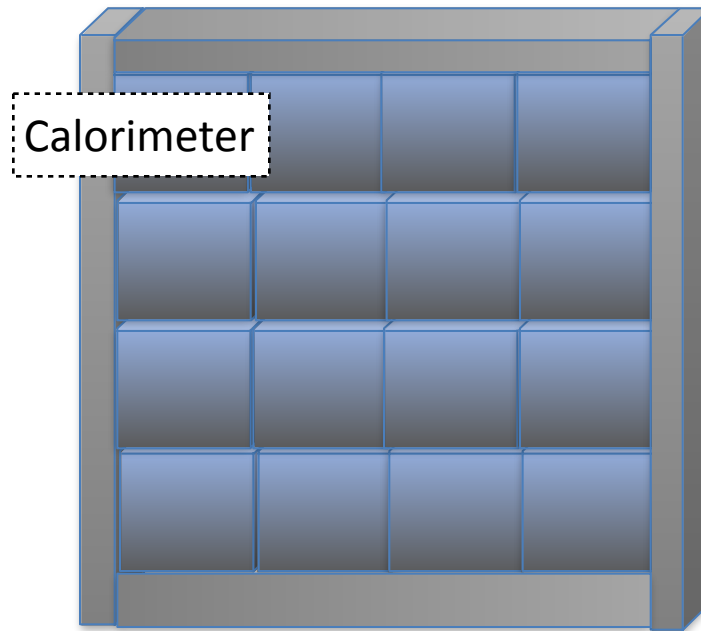


Profiler assembling: calorimeter

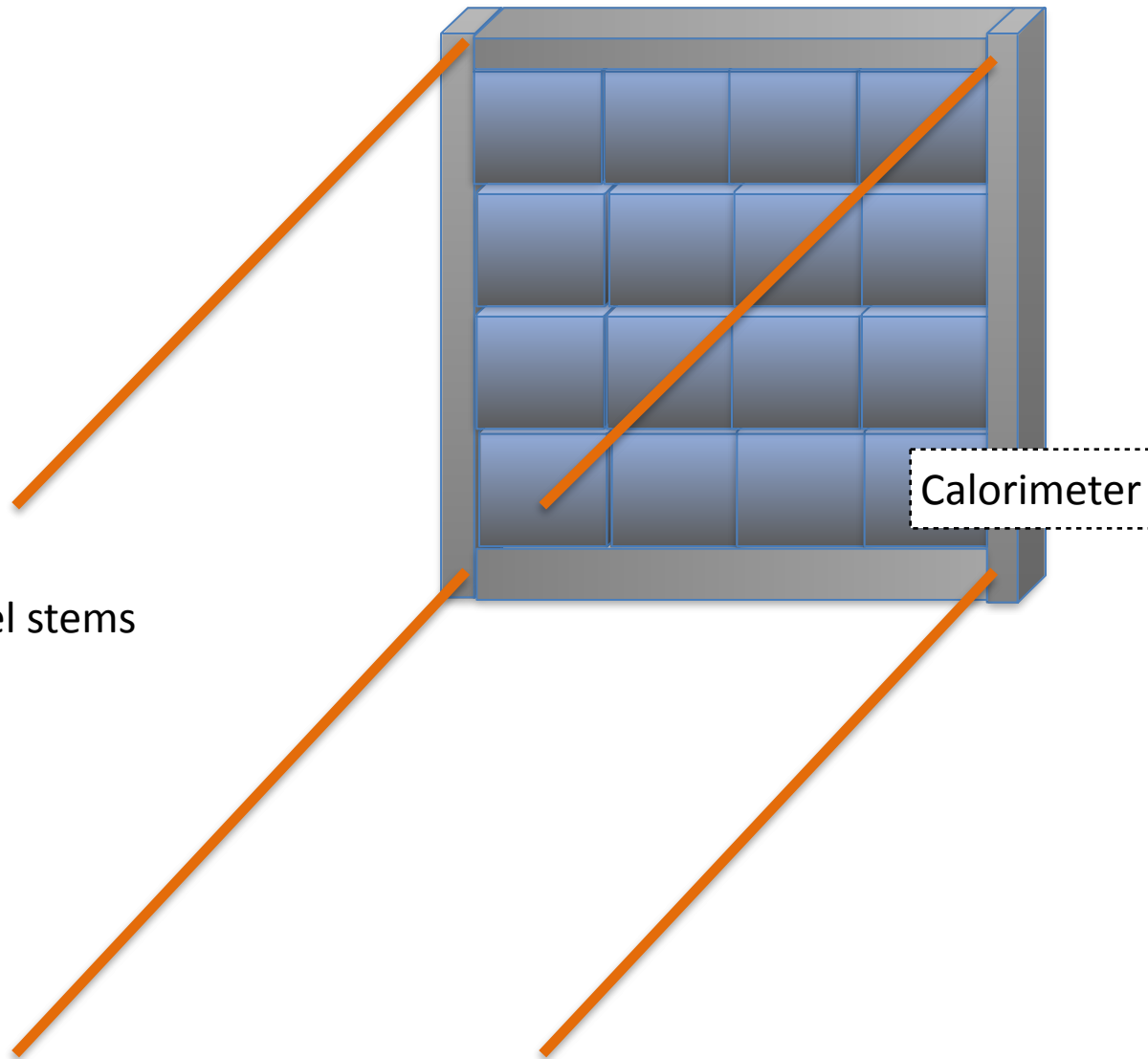
- ROMA1 (Zullo) will take care of this



Profiler assembling:

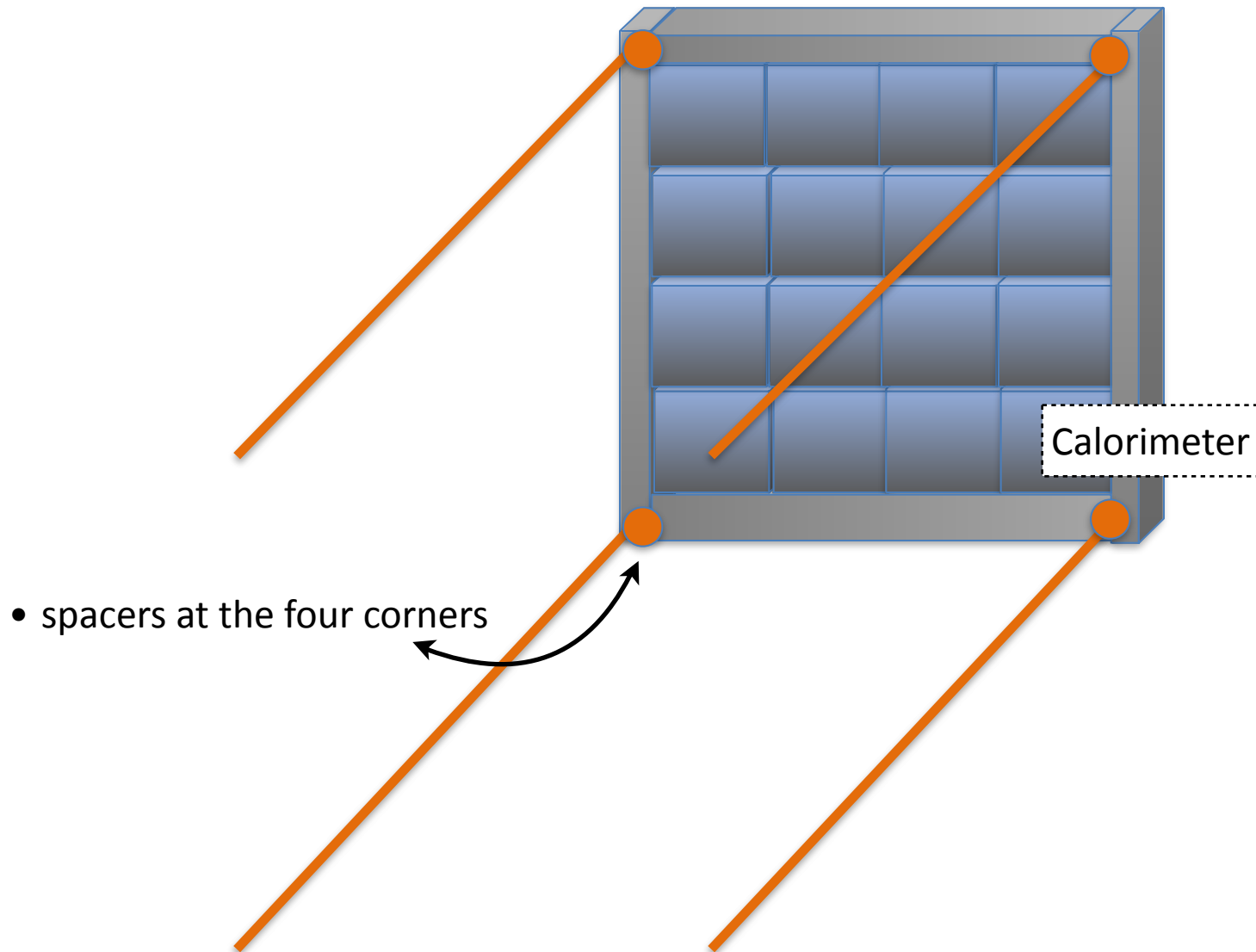


Profiler assembling:

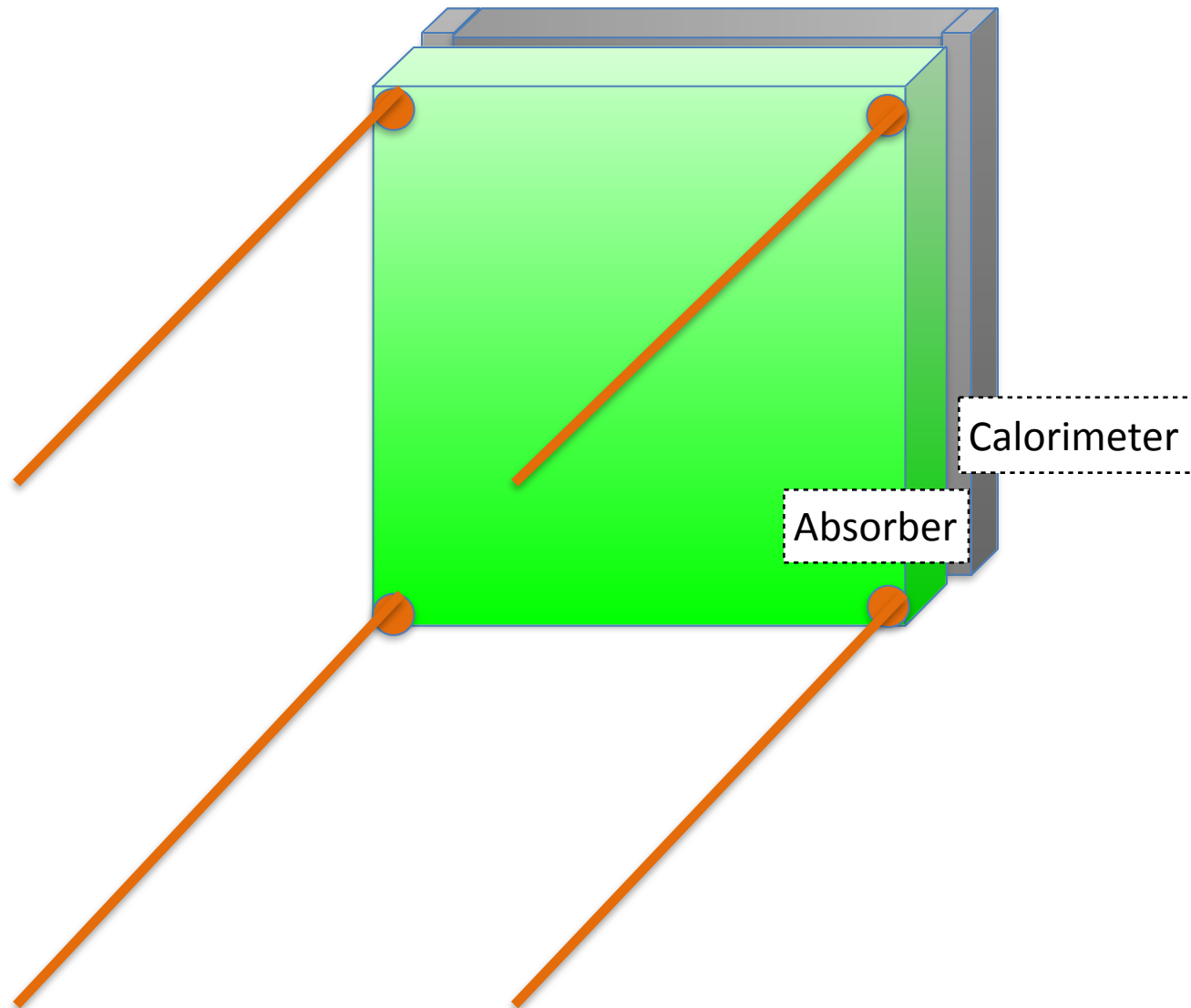


- 4 parallel stems

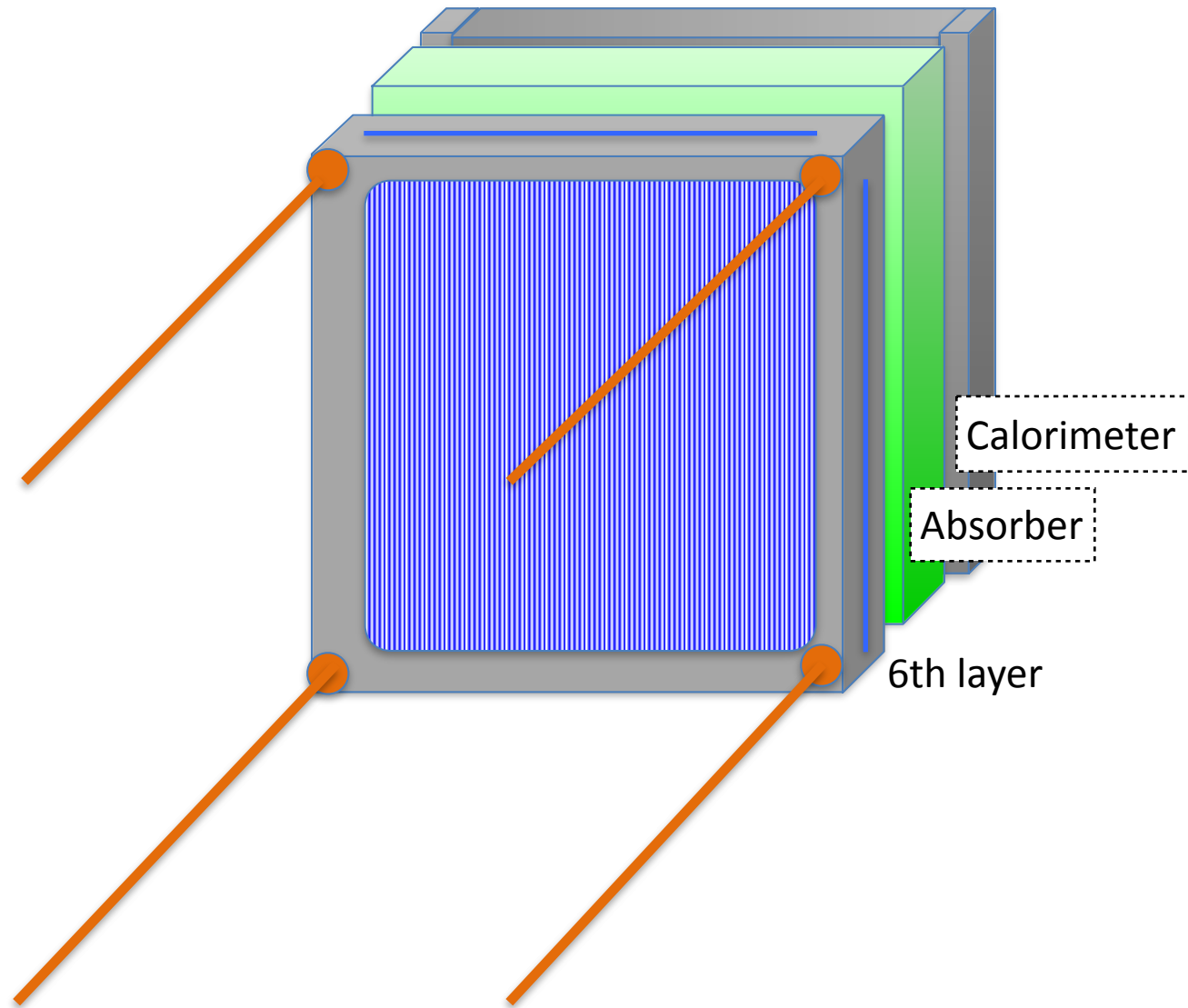
Profiler assembling:



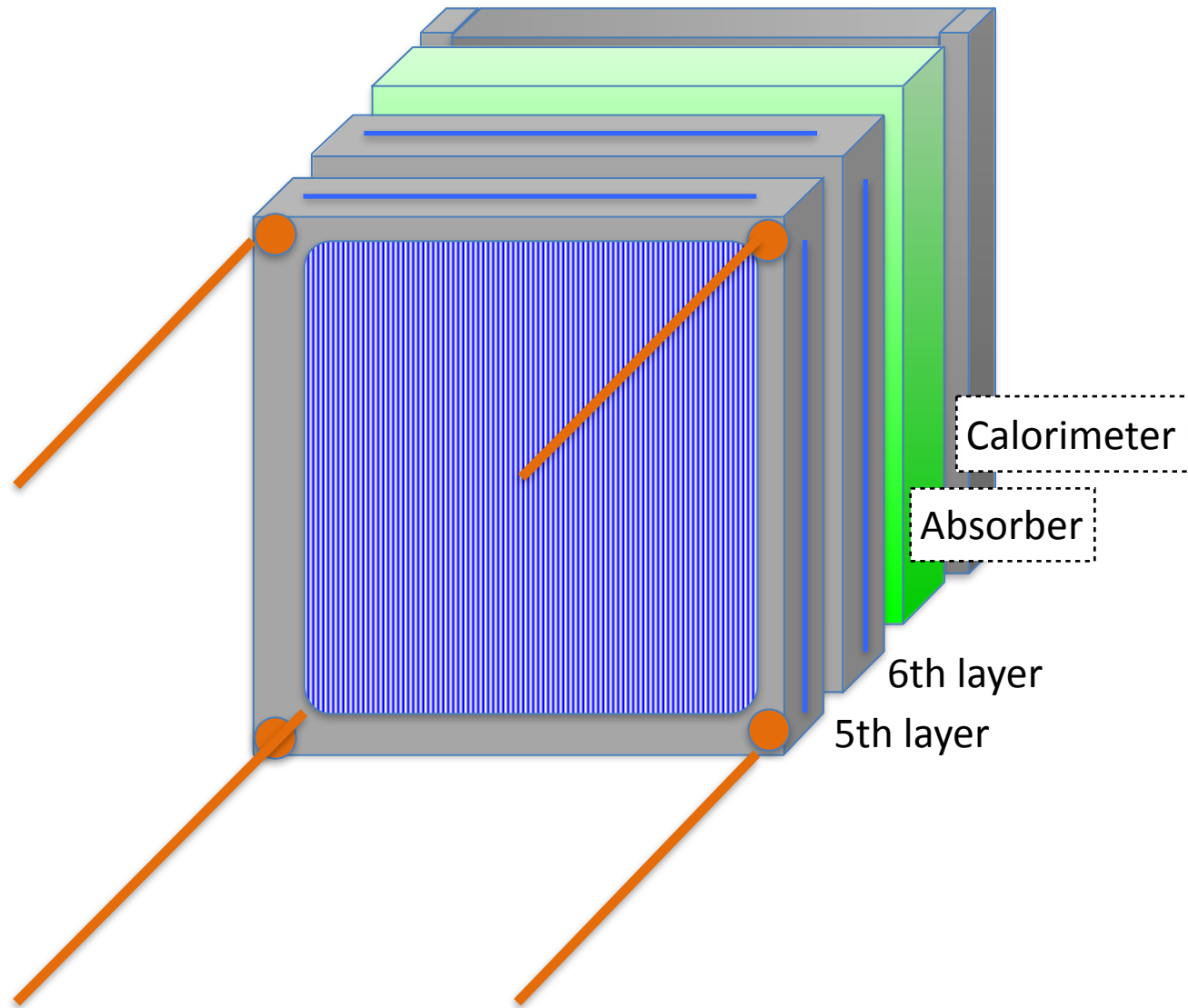
Profiler assembling:



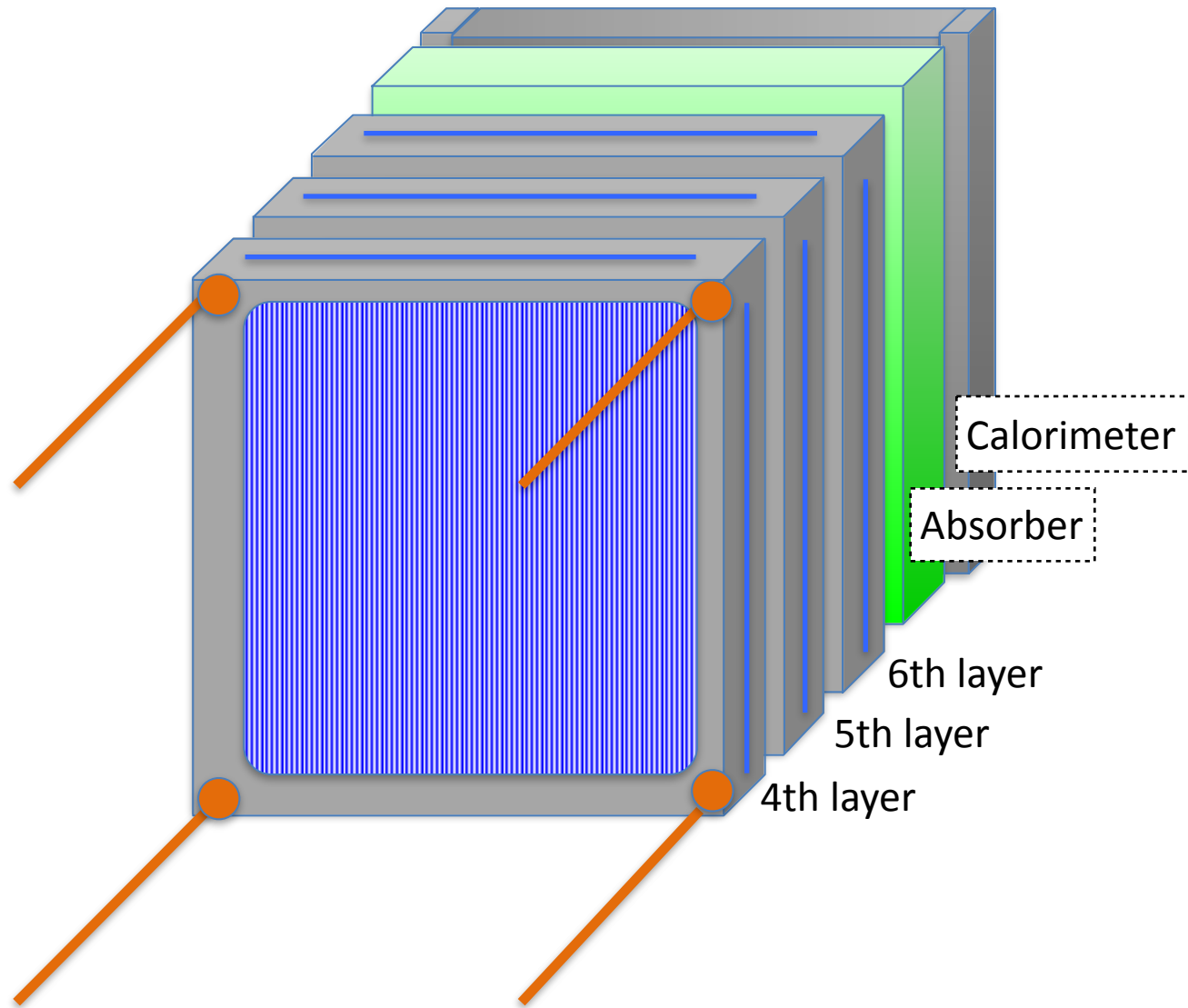
Profiler assembling:



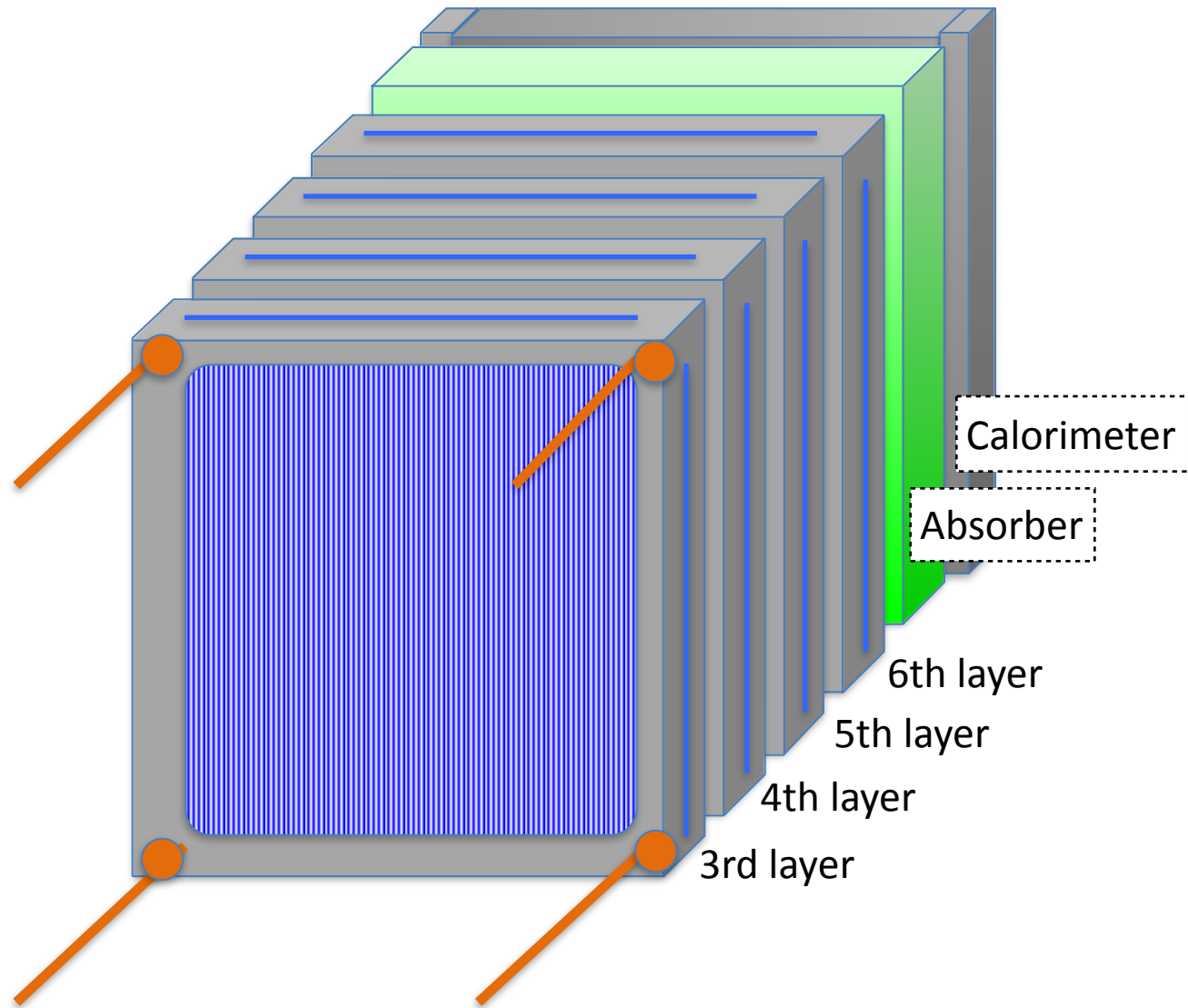
Profiler assembling:



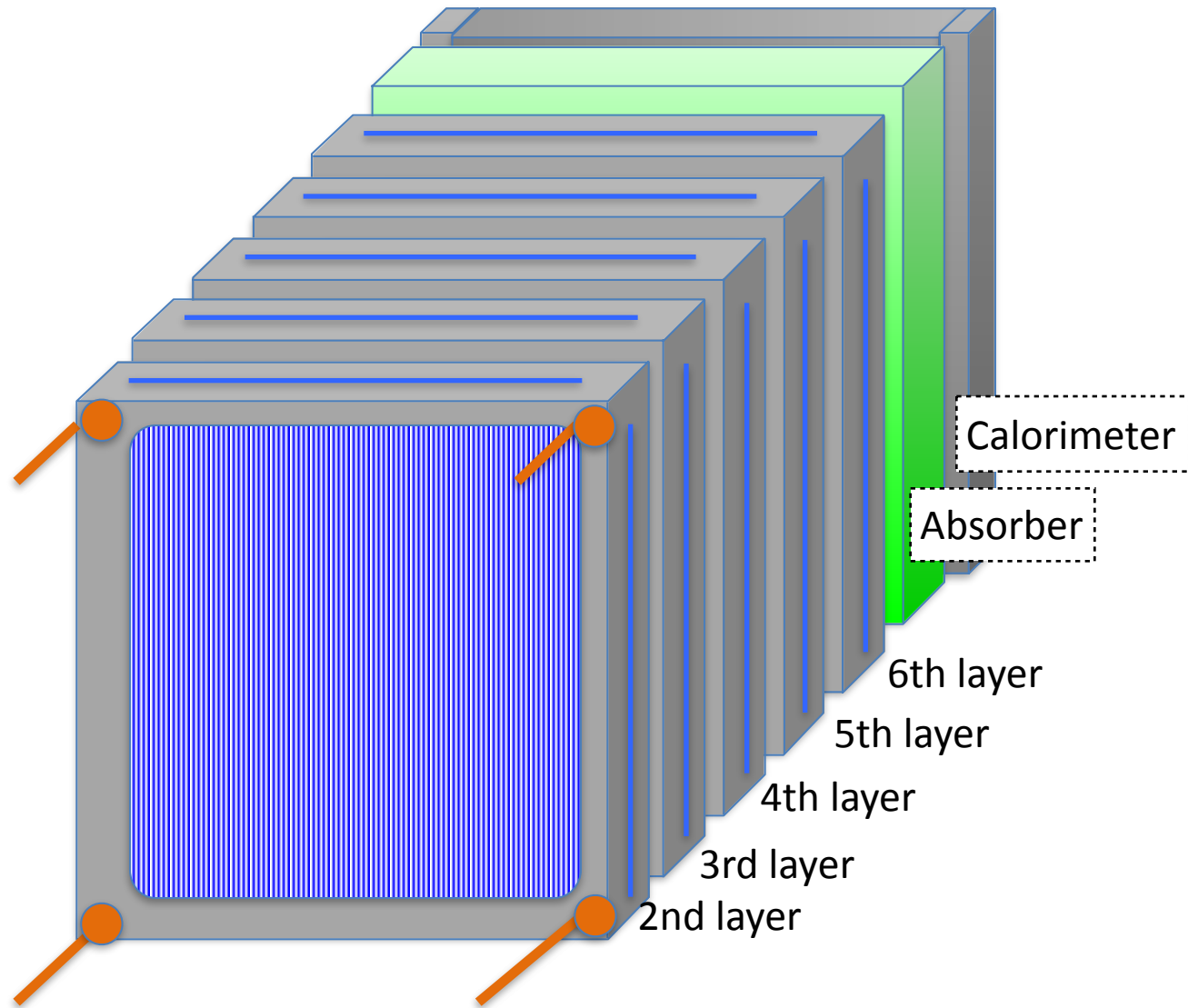
Profiler assembling:



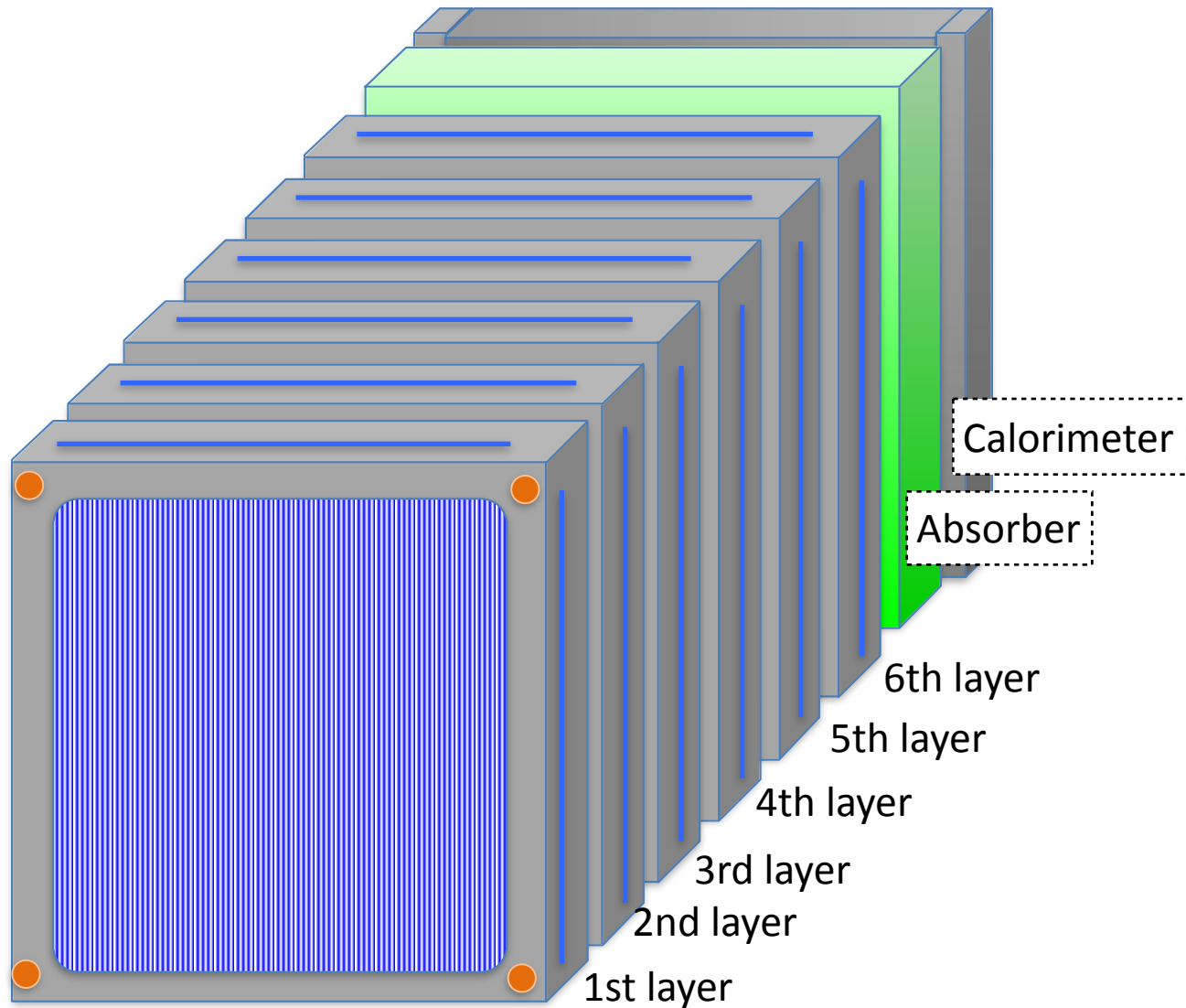
Profiler assembling:



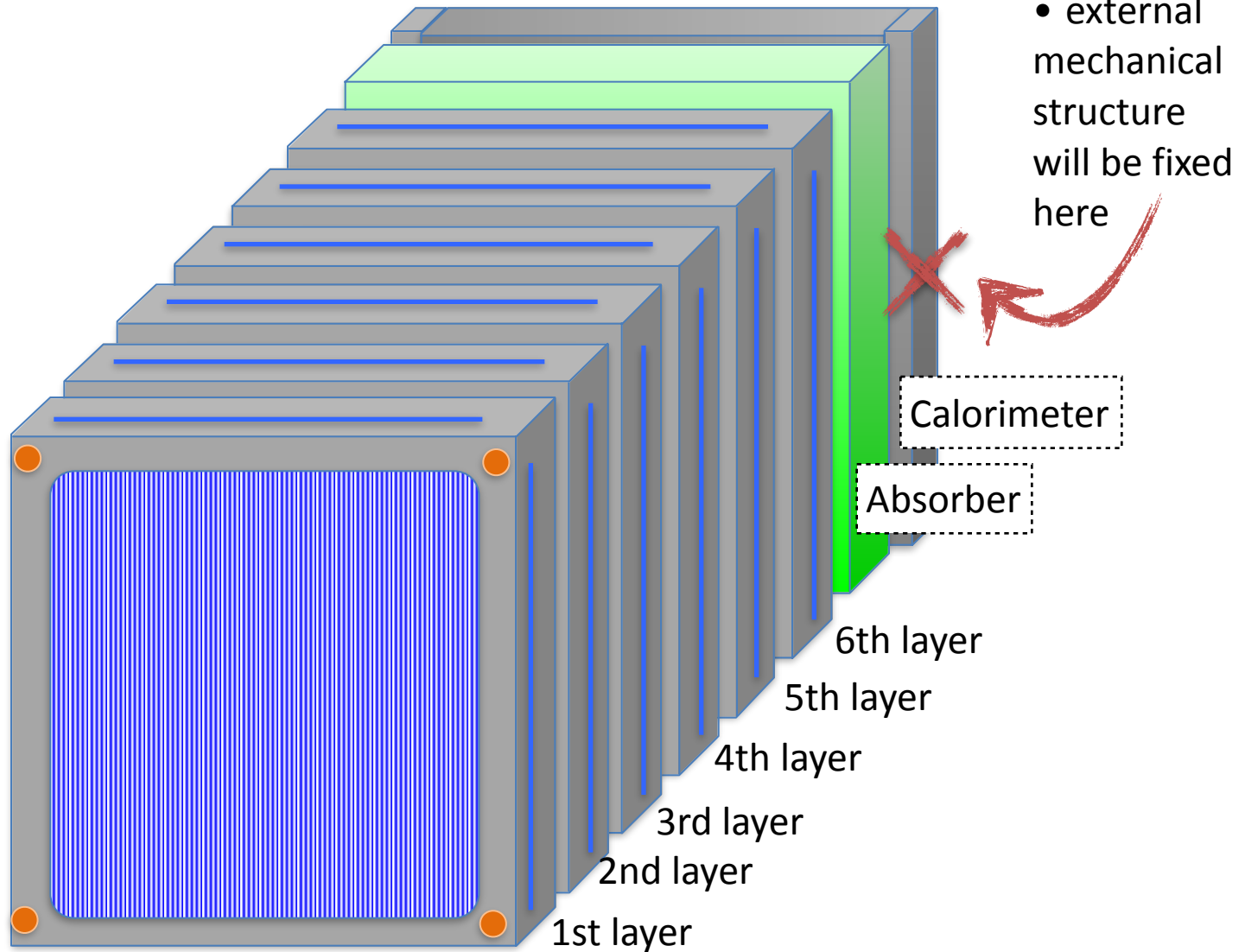
Profiler assembling:



Profiler assembling:



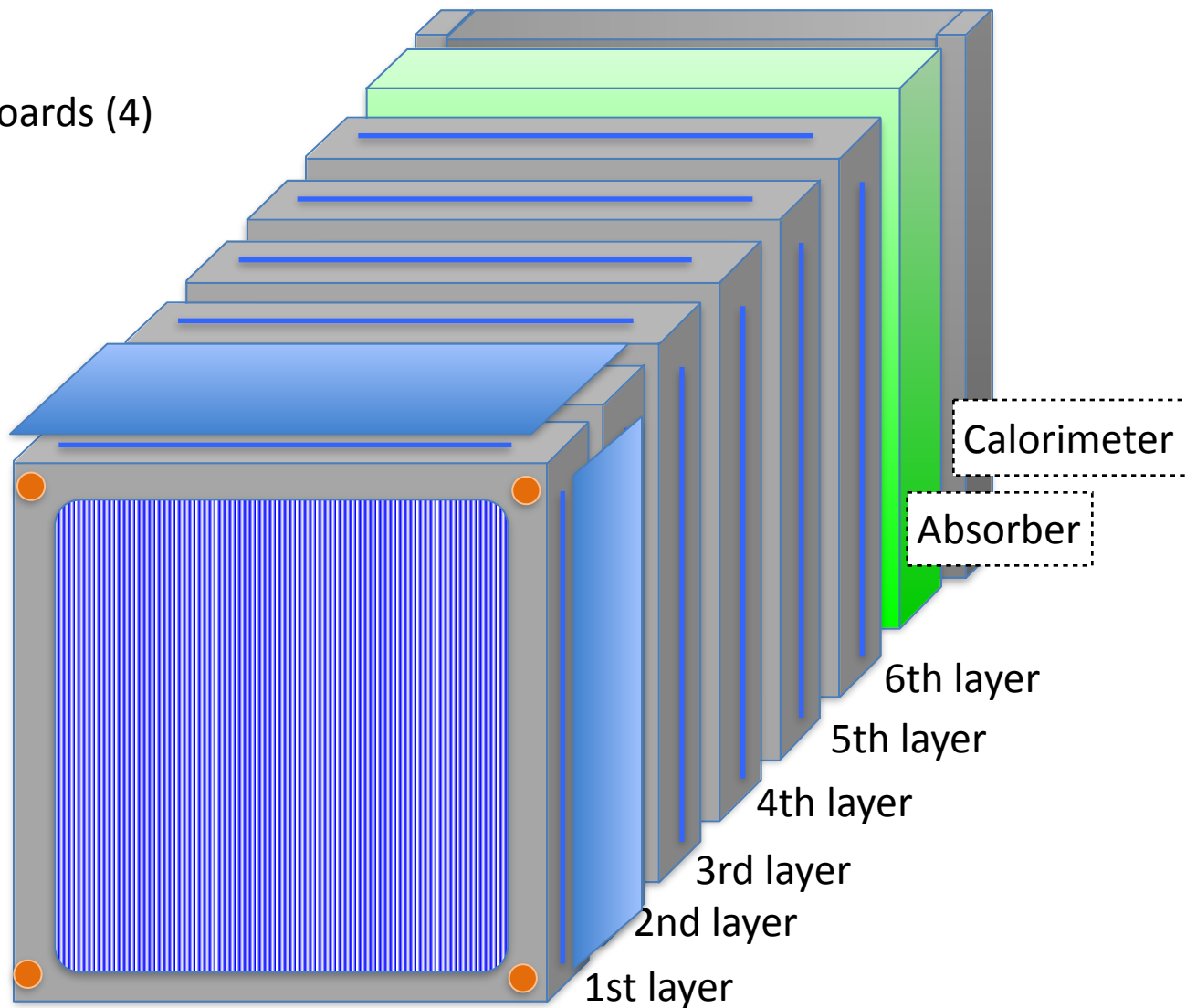
Profiler assembling:



- external mechanical structure will be fixed here

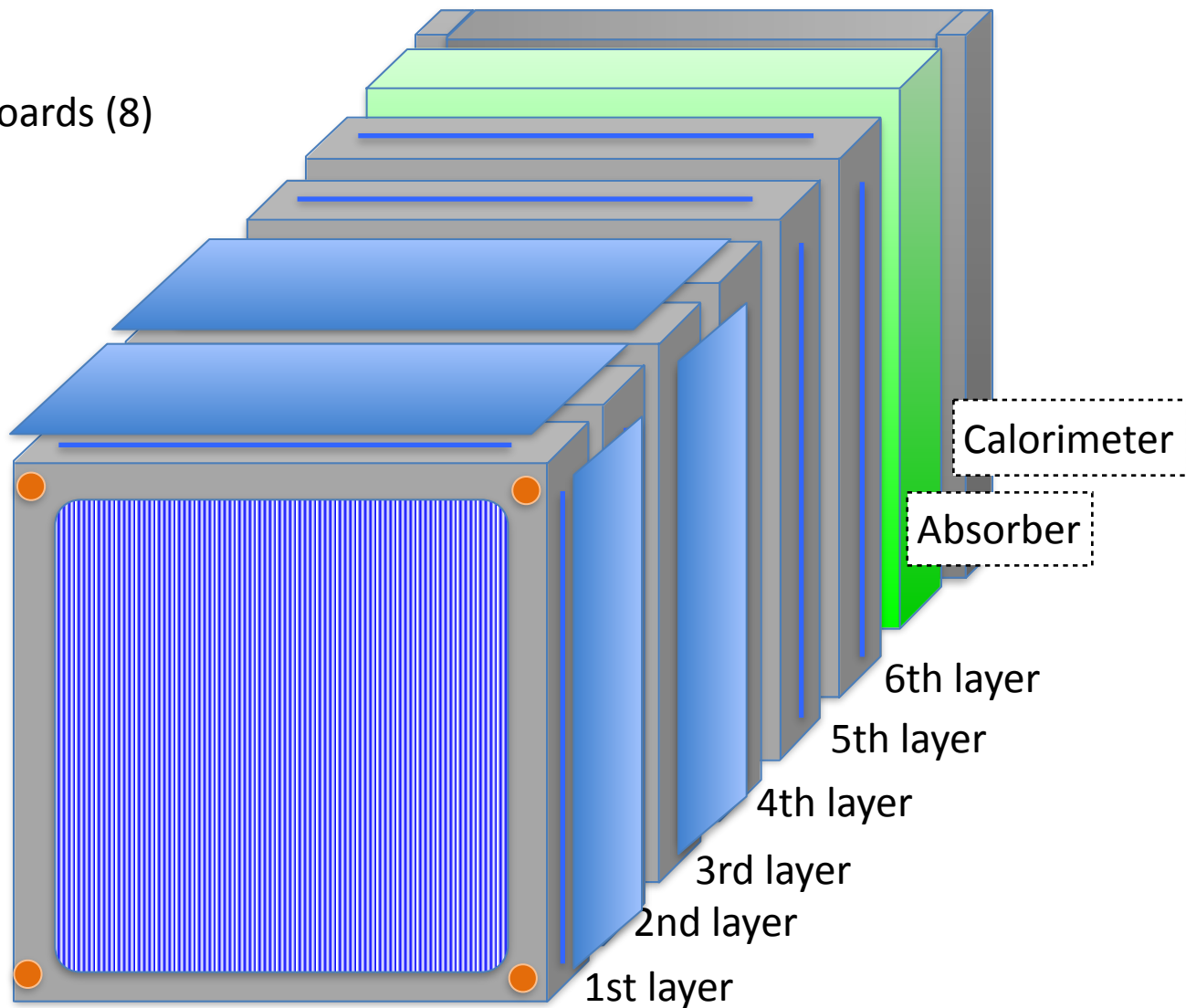
Profiler assembling:

- front end boards (4)



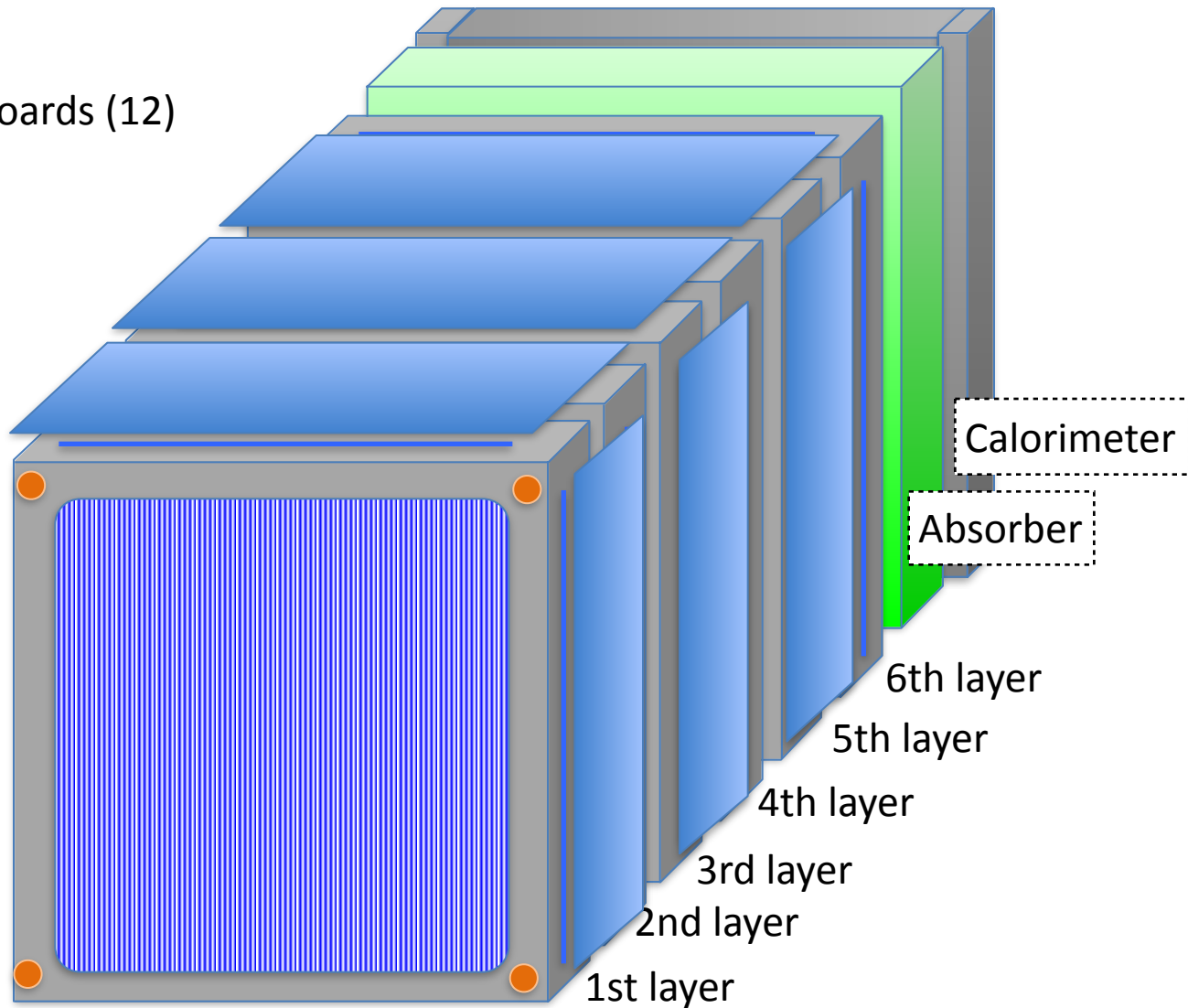
Profiler assembling:

- front end boards (8)



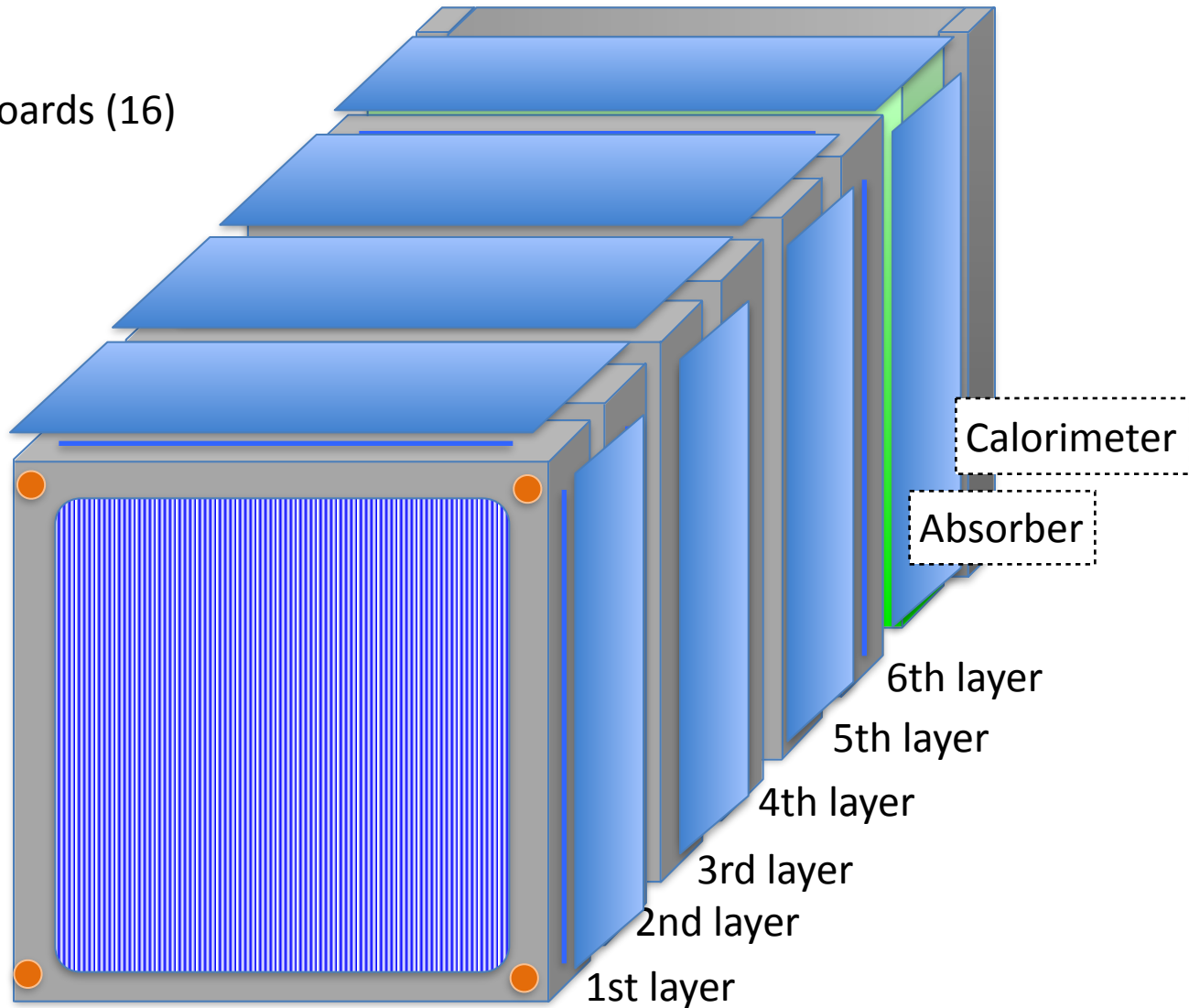
Profiler assembling:

- front end boards (12)



Profiler assembling:

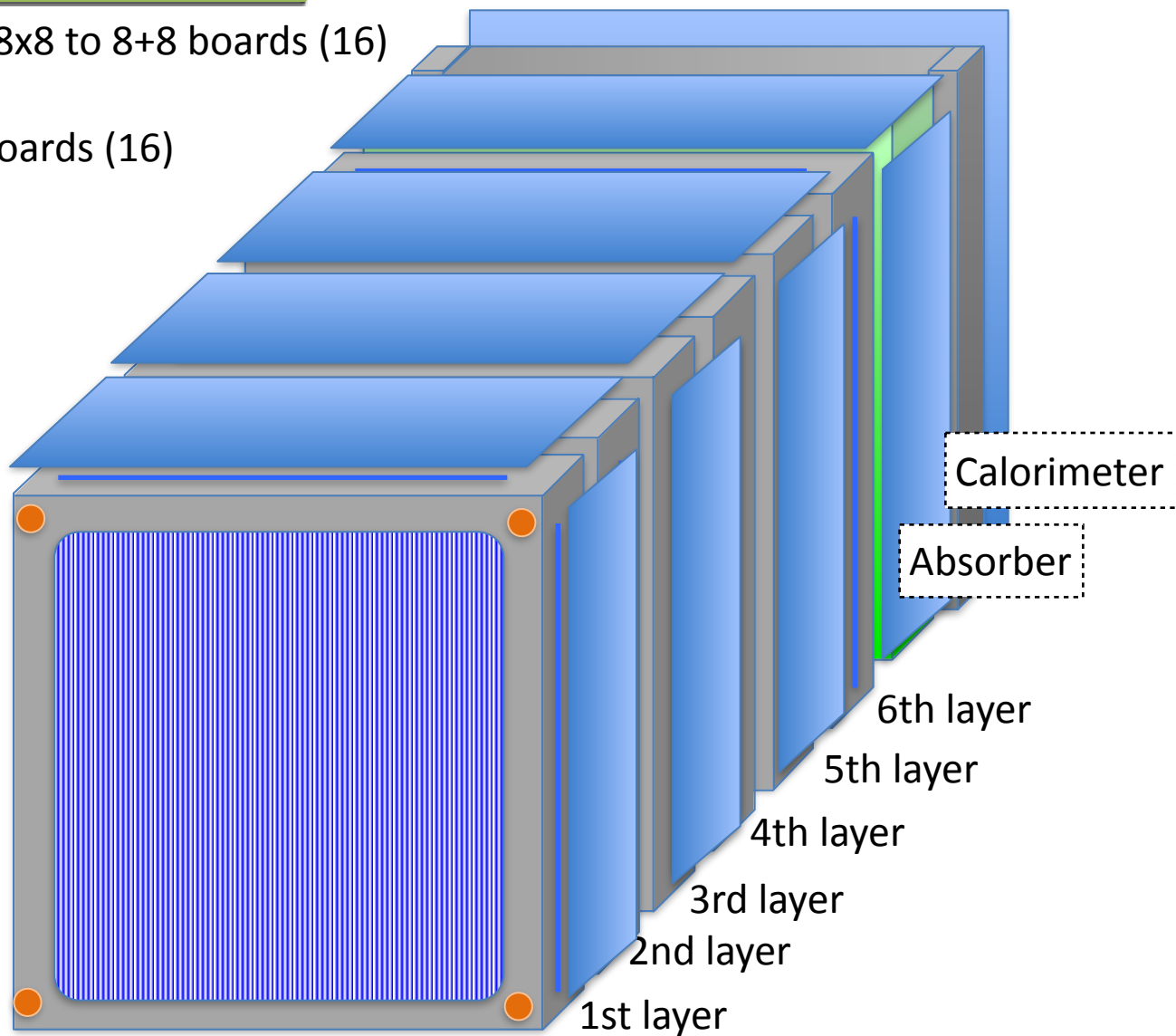
- front end boards (16)



Profiler assembling:

8x8 to 8+8 boards (16)

- front end boards (16)

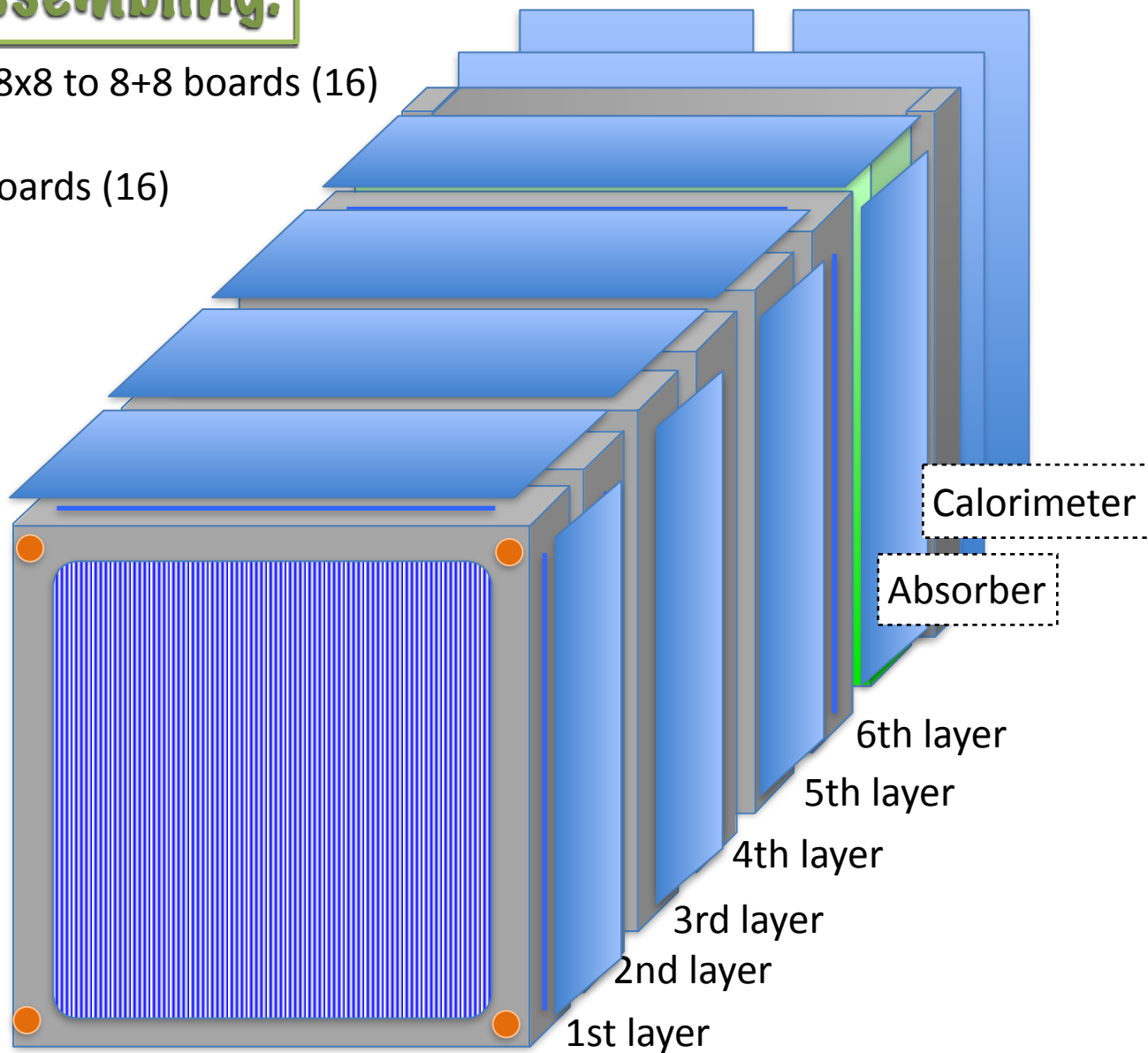


Profiler assembling:

8x8 to 8+8 boards (16)

8+8 to 2x2 boards (2)

- front end boards (16)



Calorimeter

Absorber

6th layer

5th layer

4th layer

3rd layer

2nd layer

1st layer

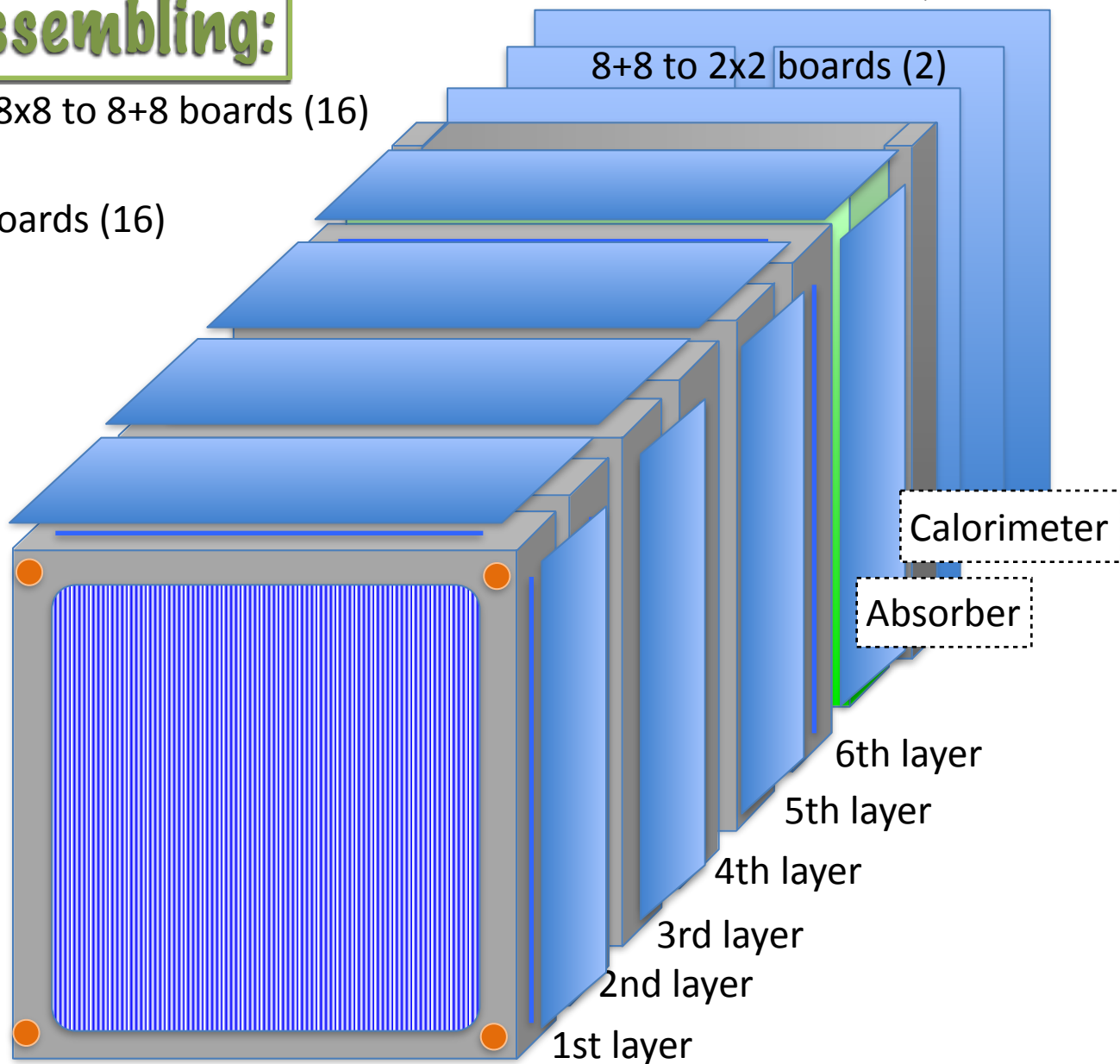
Profiler assembling:

8x8 to 8+8 boards (16)

HV LV TRG&DAQ

8+8 to 2x2 boards (2)

- front end boards (16)



Calorimeter

Absorber

6th layer

5th layer

4th layer

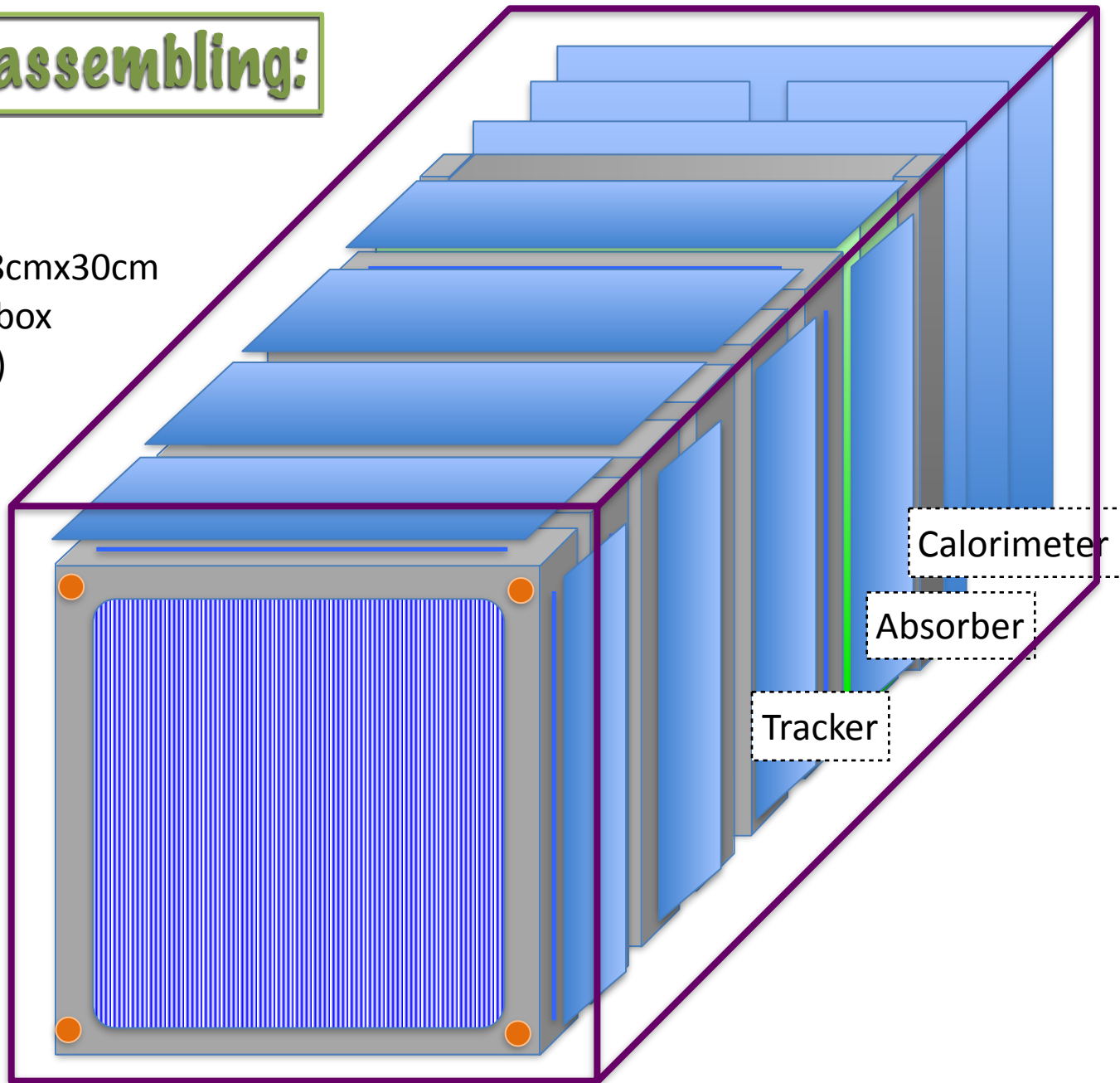
3rd layer

2nd layer

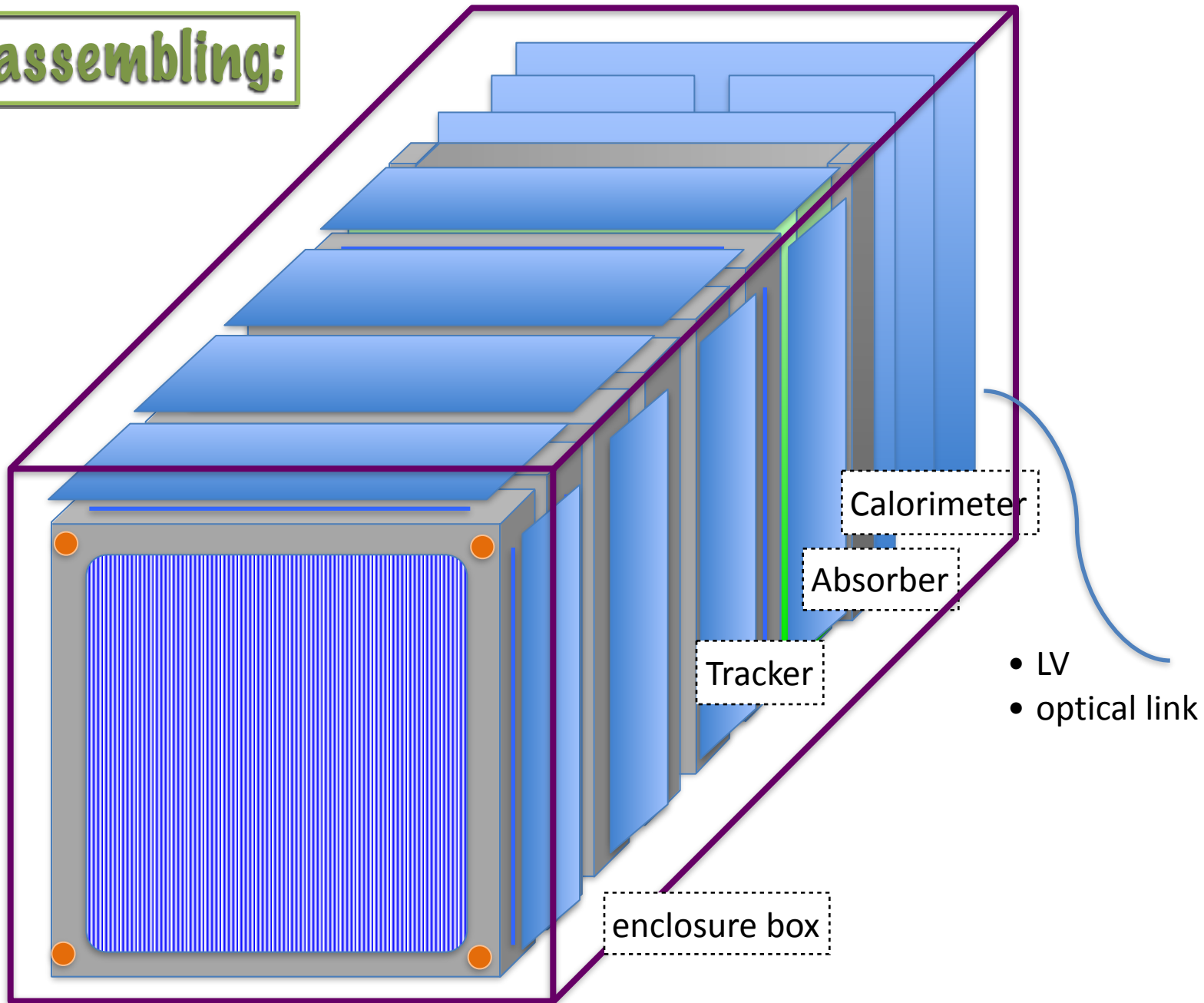
1st layer

Profiler assembling:

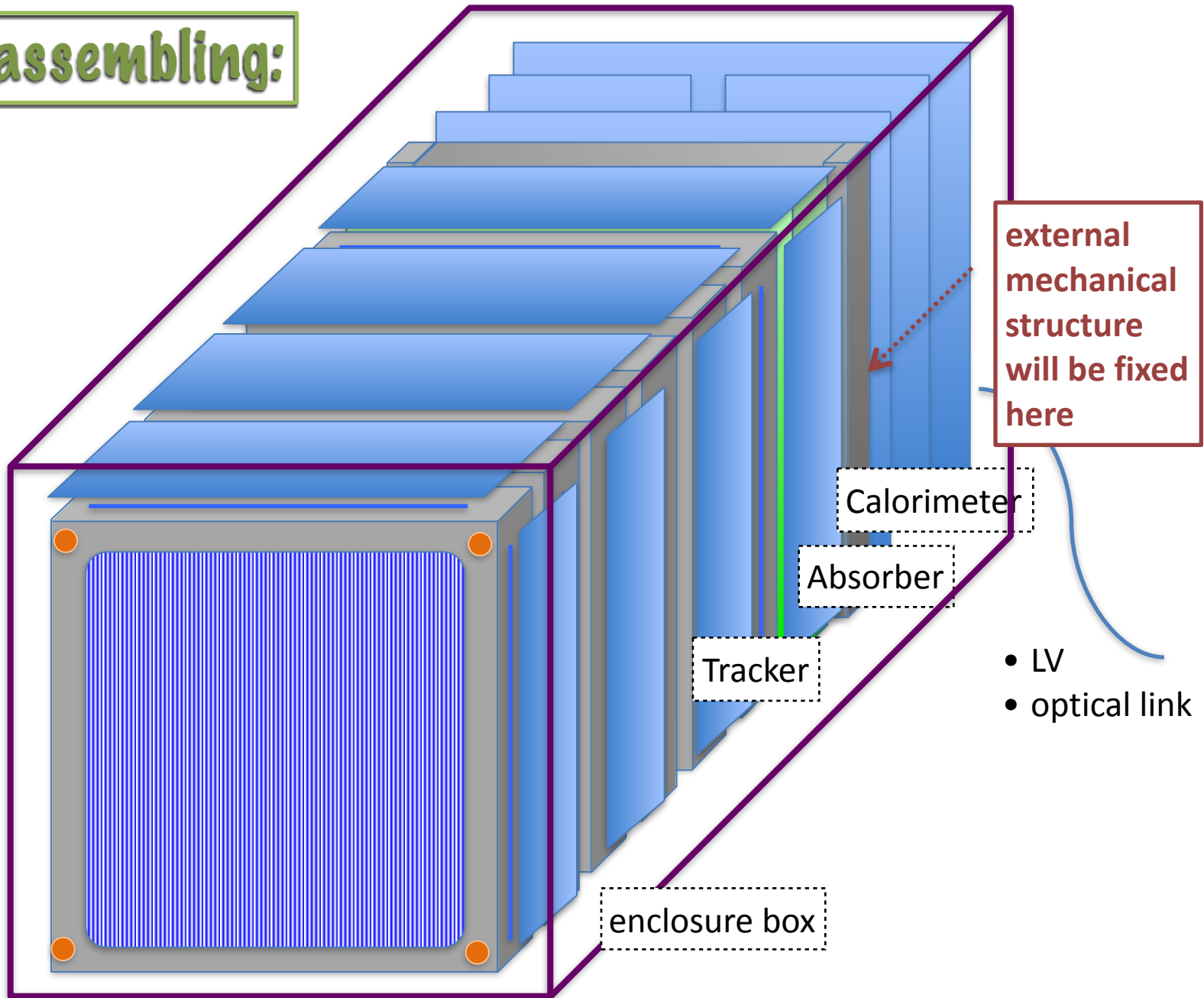
- 28cmx28cmx30cm enclosure box (light tight)



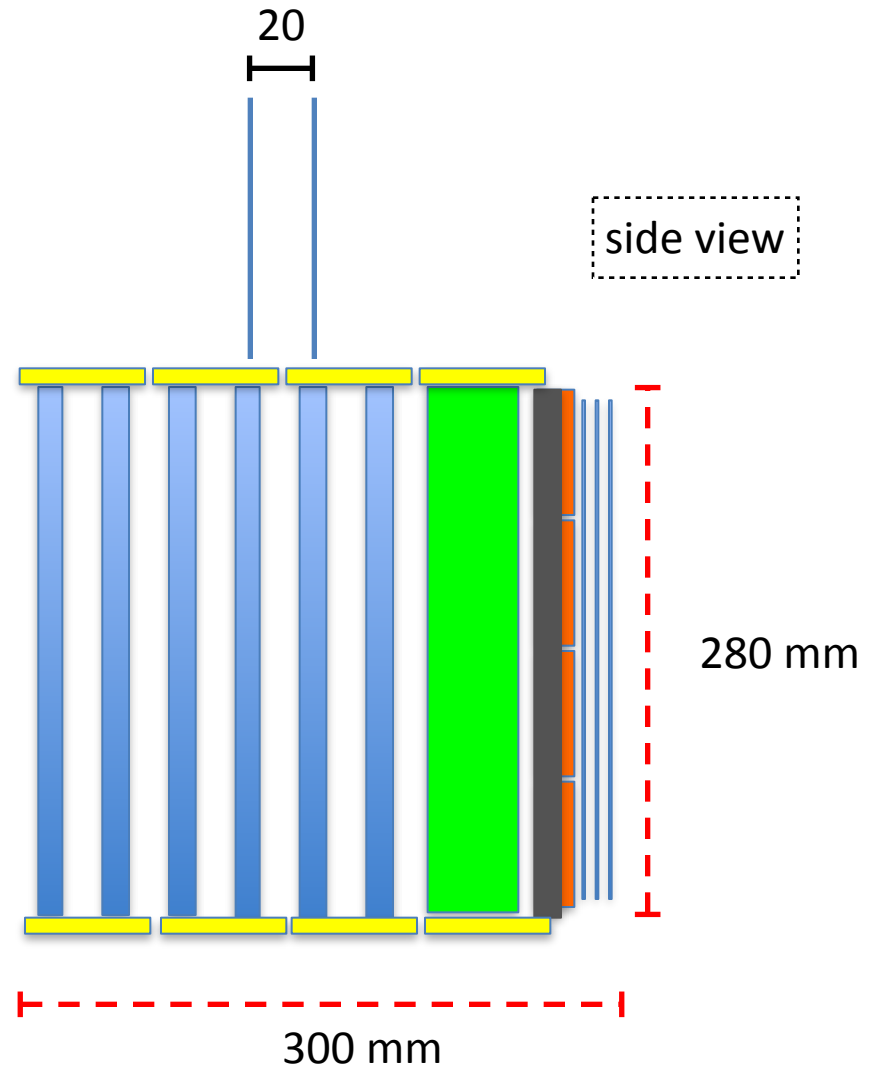
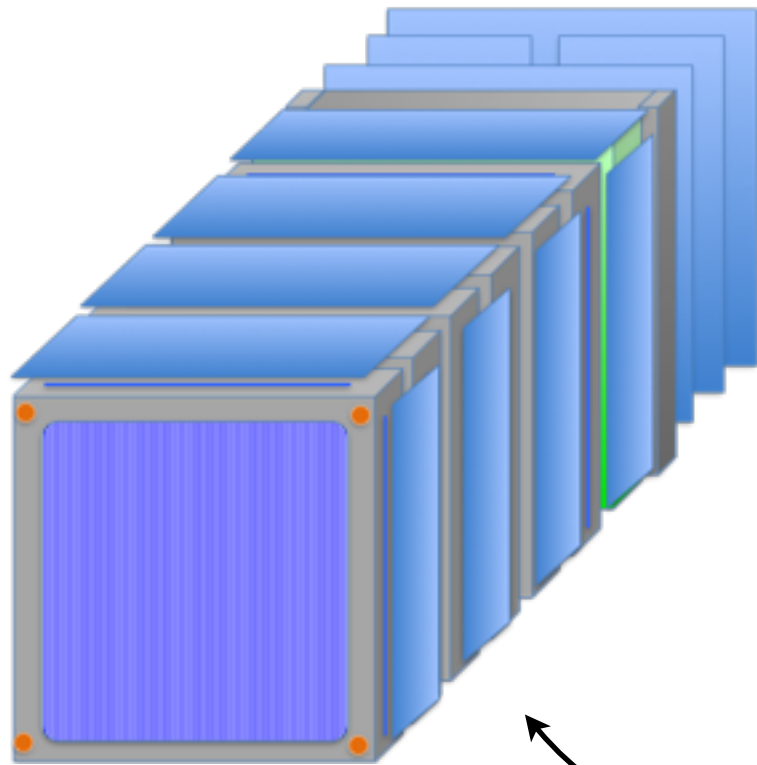
Profiler assembling:



Profiler assembling:



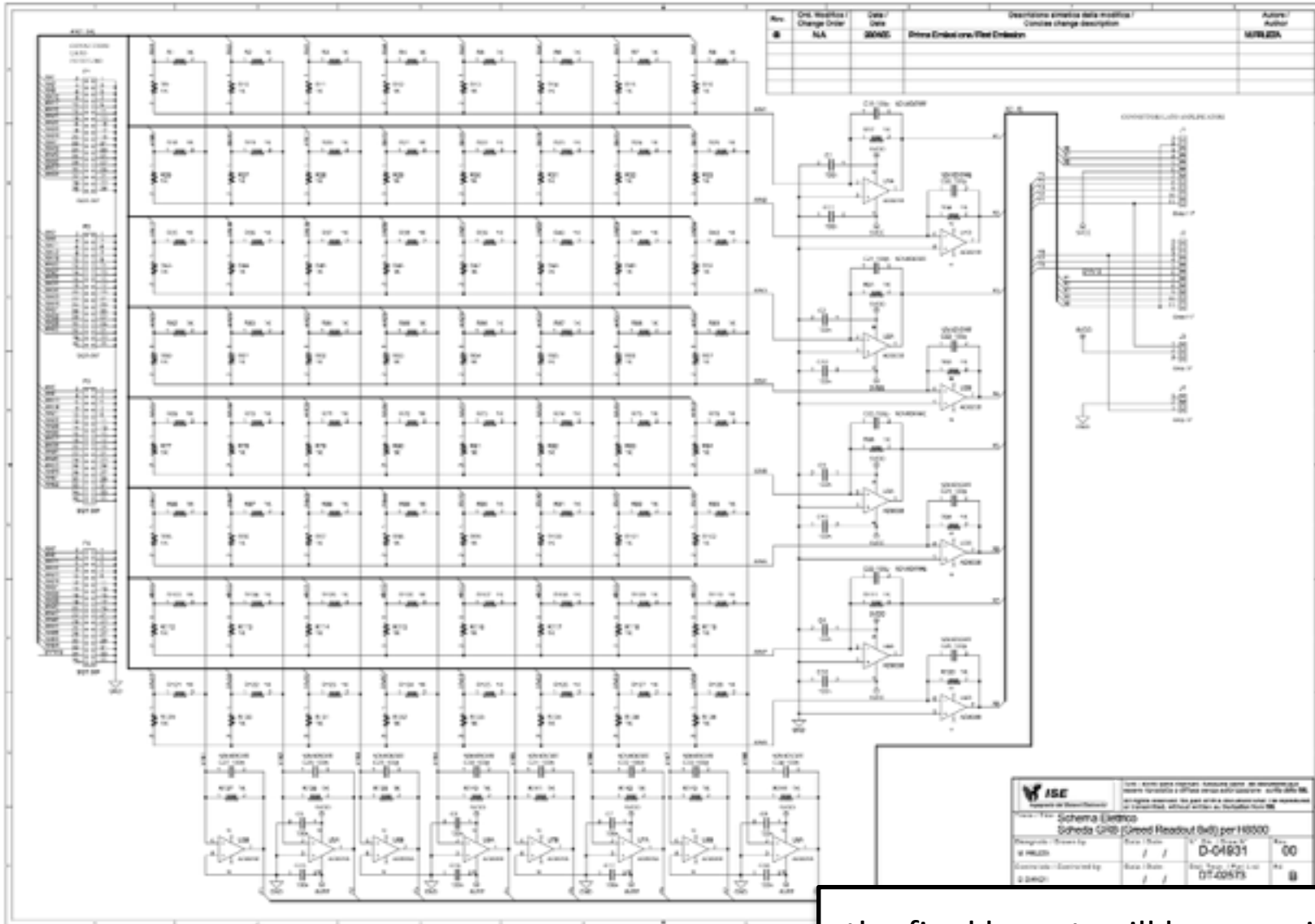
Profiler:



Calorimeter: readout (1)

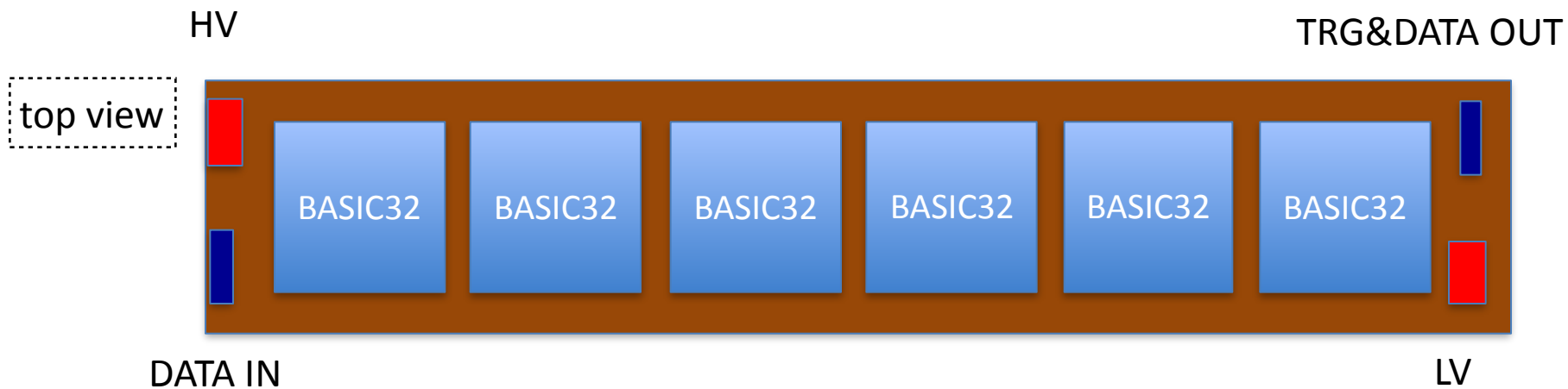
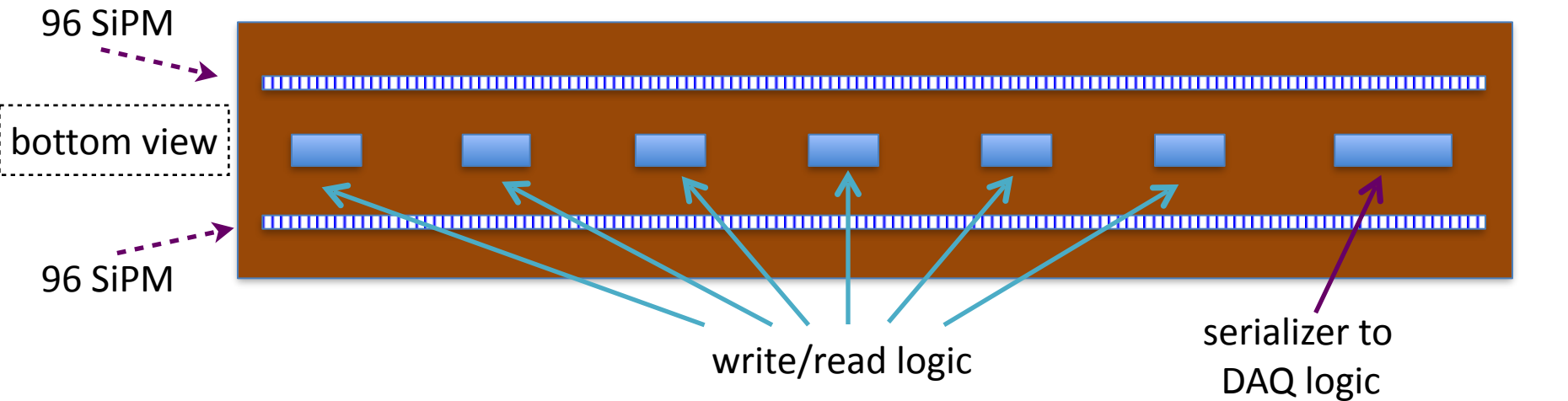
64 anods => 2 array of 8

from 8x8 to 8+8

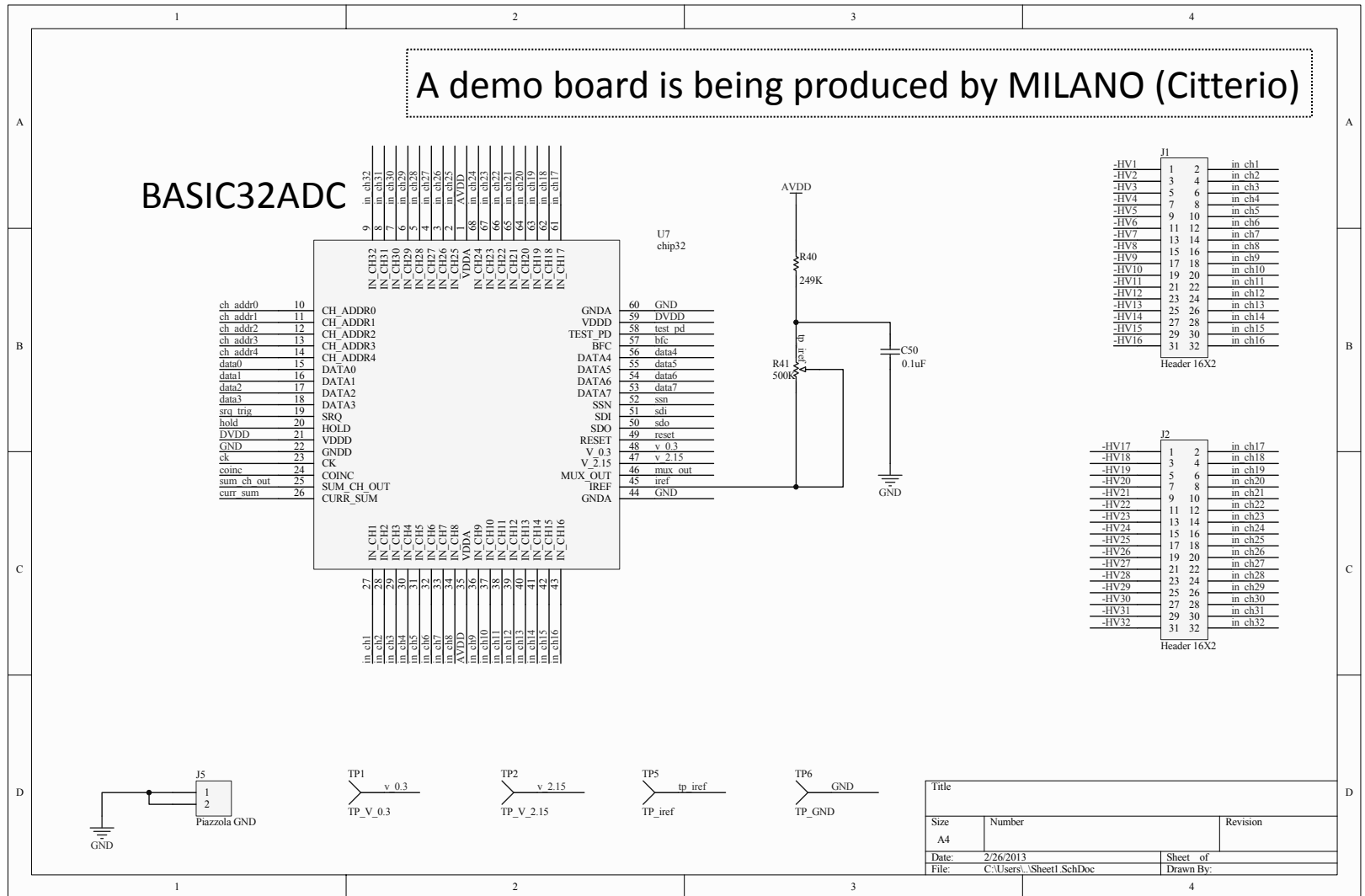


the final layout will be very similar to this

Profiler: tracker front end board



Profiler: tracker front end board



- qualify the 150 BASIC32ADC chips
- verify the fiber-SiPM-BASIC chain

Time Schedule

INSIDE - PISA 11.2.2013

2013

- profiler **layout optimization** with MC
- reconstruction algorithm development
- prototypes test
- electronics and DAQ design

2014

- one plane and one calorimeter module assembly and **test**
- stand alone mechanics
- electronics production

2015

- profiler assembly (mechanics, electronics, DAQ & TRG)
- **integration HW & SW**
- global device test & characterization

Time Schedule

now!

2013

- profiler **layout optimization** with MC
- reconstruction algorithm development

- prototypes test
- electronics and DAQ design

Milan is working
LNF will be more effective from June 2014

2014

- one plane and one calorimeter module assembly and **test**
- stand alone mechanics
- electronics production

2015

- profiler assembly (mechanics, electronics, DAQ & TRG)
- **integration HW & SW**
- global device test & characterization