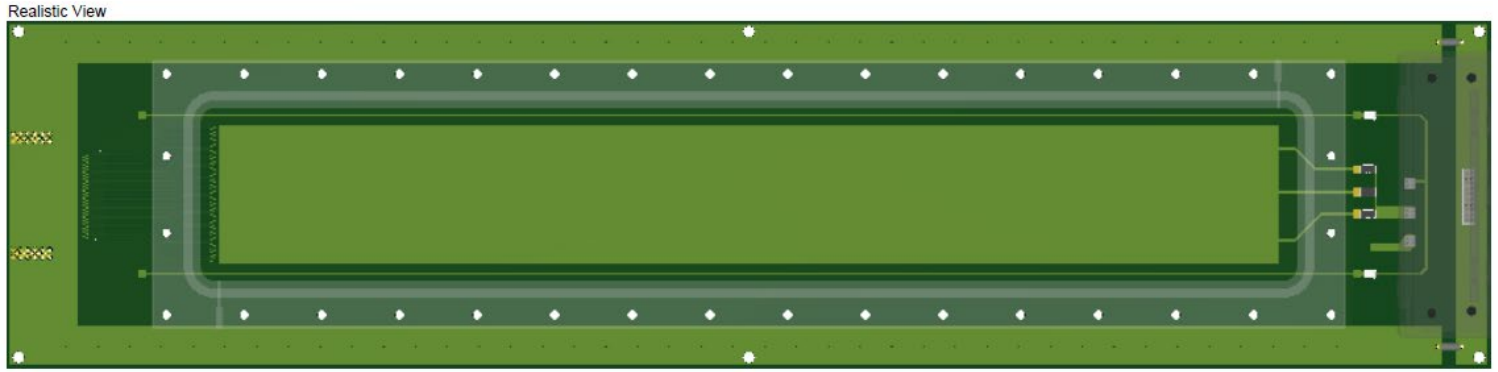
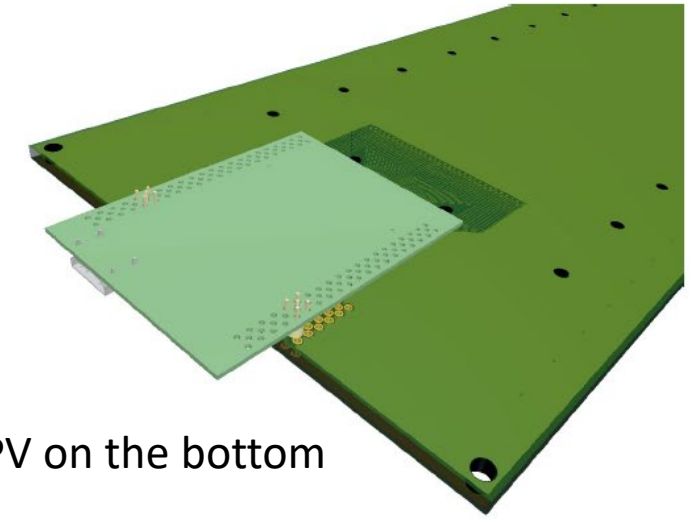
RD_FCC

3° Meeting

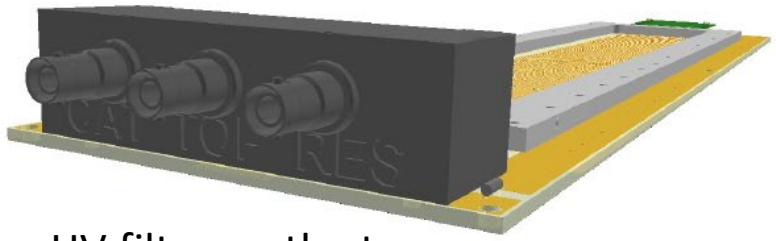
Detector Design



Layout design already discussed with Rui
Request order sent to Rui
6-4 weeks to recieve the detectors



APV on the bottom



HV filter on the top

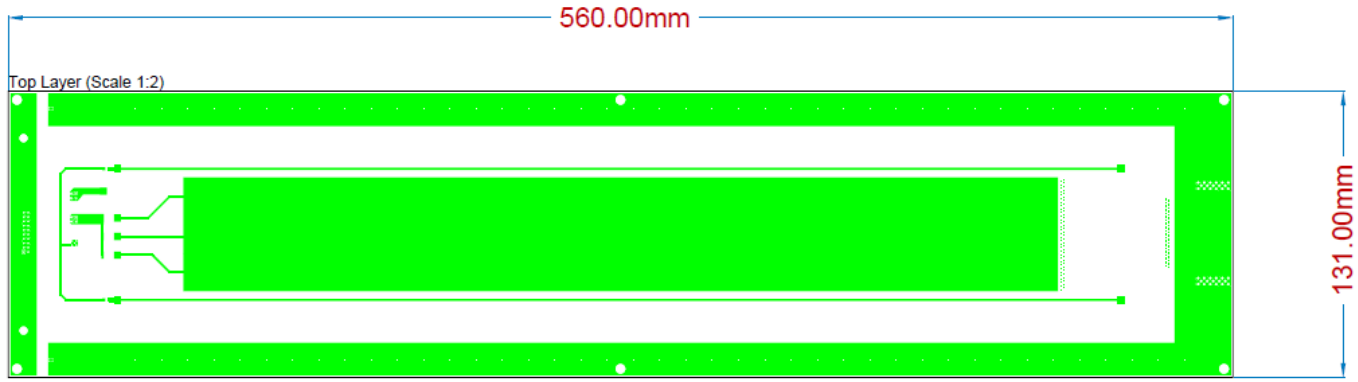
Protos active area:~ 5 x 40 cm2
Drift gap: 6mm

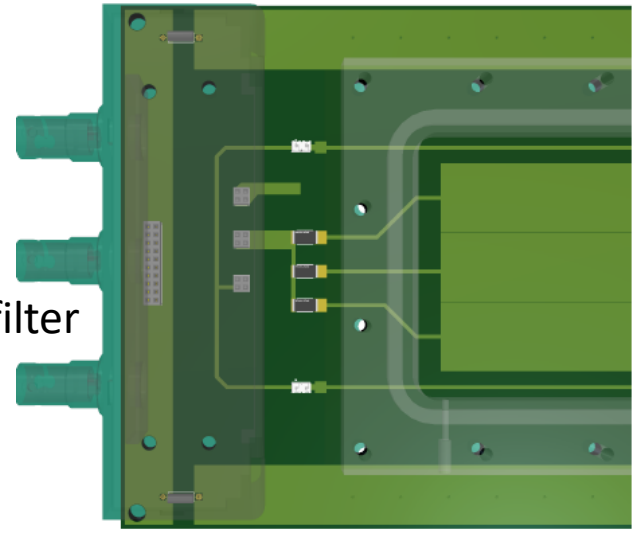
Design of the cathode electrode and frame is almost ready
→ to be order

Title IDEA-RD_FCC			INFN - LNF
Size: A3	Page Number:	RevisionProjectRevision	Via E. Fermi 54 (ex 40) 00044 FRASCATI ROMA
Date: 20/04/2021	Time: 12:46	Sheet 1 of 4	
File name: RD_FCC.PCBDwf		Status =ProjectStatus	

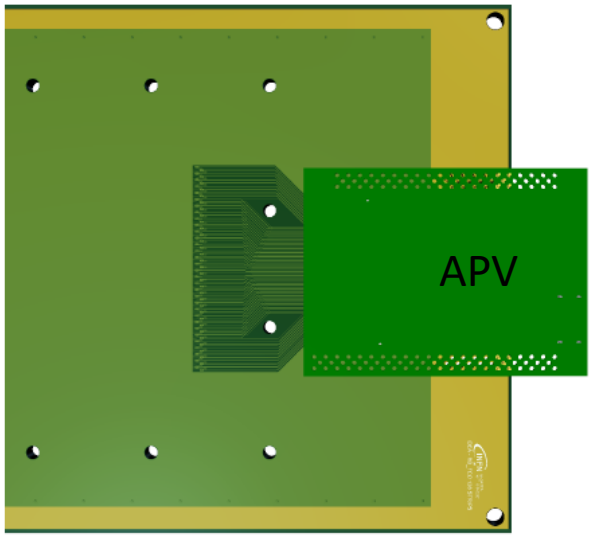
Detector Design

Pre-shower :
strip pitch=0.4 mm & strip width=0.15 mm:
resistivity: 10, 30, 50, 70, >100-200 MOhm/sq.
n. 5 protos (spare x2)





STRIPS WIDTH	0.15mm
STRIP PITCH	0.4 mm
STRIPS LENGTH	400 mm
NUMBER OF STRIPS	128
ACTIVE AREA DIMENSION	400X52 mm
Board DIMENSION	560X131 mm
NUMBER OF SIGNAL CONNECTOR	1
NUMBER OF HV CONNECTORS	3



Title IDEA-RD_FCC
Size: A3 | Page Number: | RevisionProjectRevision
Date: 20/04/2021 | Time: 12:46 | Sheet 4 of 4
INFN - LNF
Via E. Fermi 54 (ex 40)
00044 FRASCATI
ROMA

TB setup – Date 20-10 3-11 (2 weeks) - SPS-H8 C (LHCb slot- to be confirmed)

SETUP with protos NO enemy:

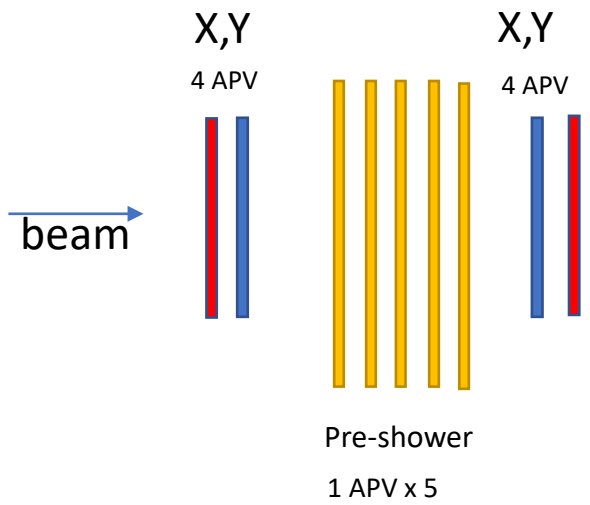
- N.2 Trackers (X,Y) for data cleaning & tracking → 4APVx2= 8 APV
- N. 5 protos with different resistivity = 5 protos with strip pitch=0,4 mm → 5 APV

TOT= 13 APV

Note: 2 RWELL trackers (only in X) for special runs will added in order to measure the contribution from external tracker, or add a X-tracker in the middle of the setup (see next slide)

To be order at CERN→ 45/15/40 gas bottle

TB setup

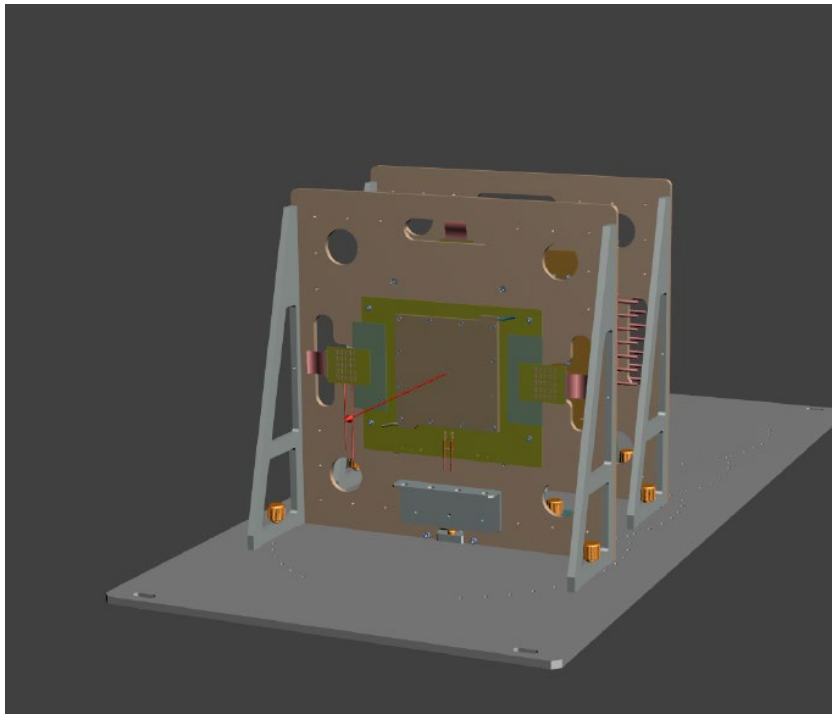


Tot. APV= 13

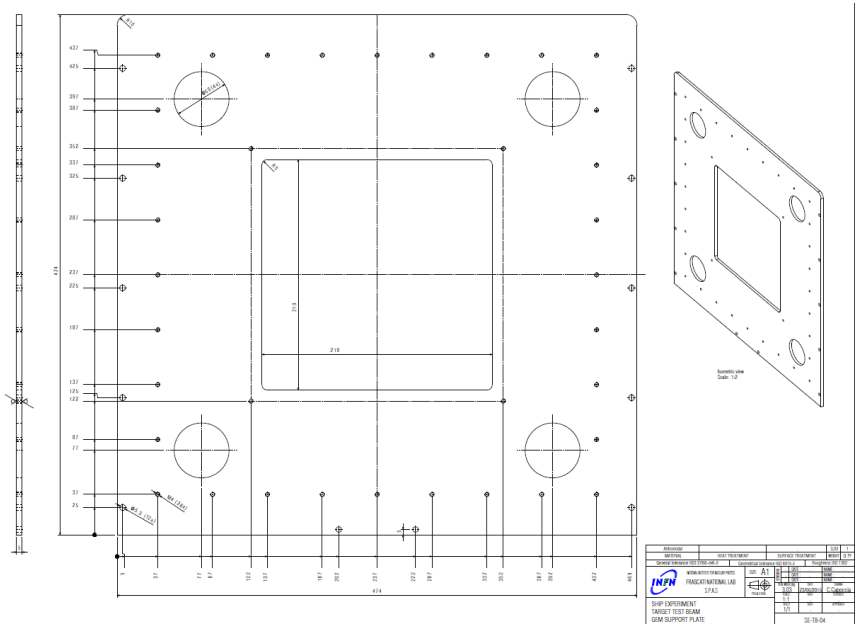
TB setup

Setup Mechanics:

- 2 plastic support for X,Y trackers (already designed → production foreseen by end of July)
- Plastic supports for N. 5 protos (to design and produce)
- Metallic base for the setup: rotable plane to perform measurement with CC & u-TPC
- 1 APV channel for the T0
- Trigger (scintillator, tile readout by SIPM)



Plasti support for X,Y trackers



Task

1) Detector design → LNF
2) Detector assembly & carachterization→ LNF
3) XY Trackers → LNF
4) Mechanics for the TB → Fe, Bo
5) APV electronics + flat cables → Bo
6) SRS+PC acquisition → Fe
7) Card for the T0 → LNF
8) Trigger (scint., tile, NIM modules, CRATE) → Fe
9) HV system + boards, cables + DAQ → LNF
10) PC for DAQ → Fe (laptop)?
11) Gas pipe, pressure reducer, column flowmeters , T-p-RH probe → LNF
12) Gas bottle pre-mix order @ CERN → Bo (?)
13) Material Transport → ??????

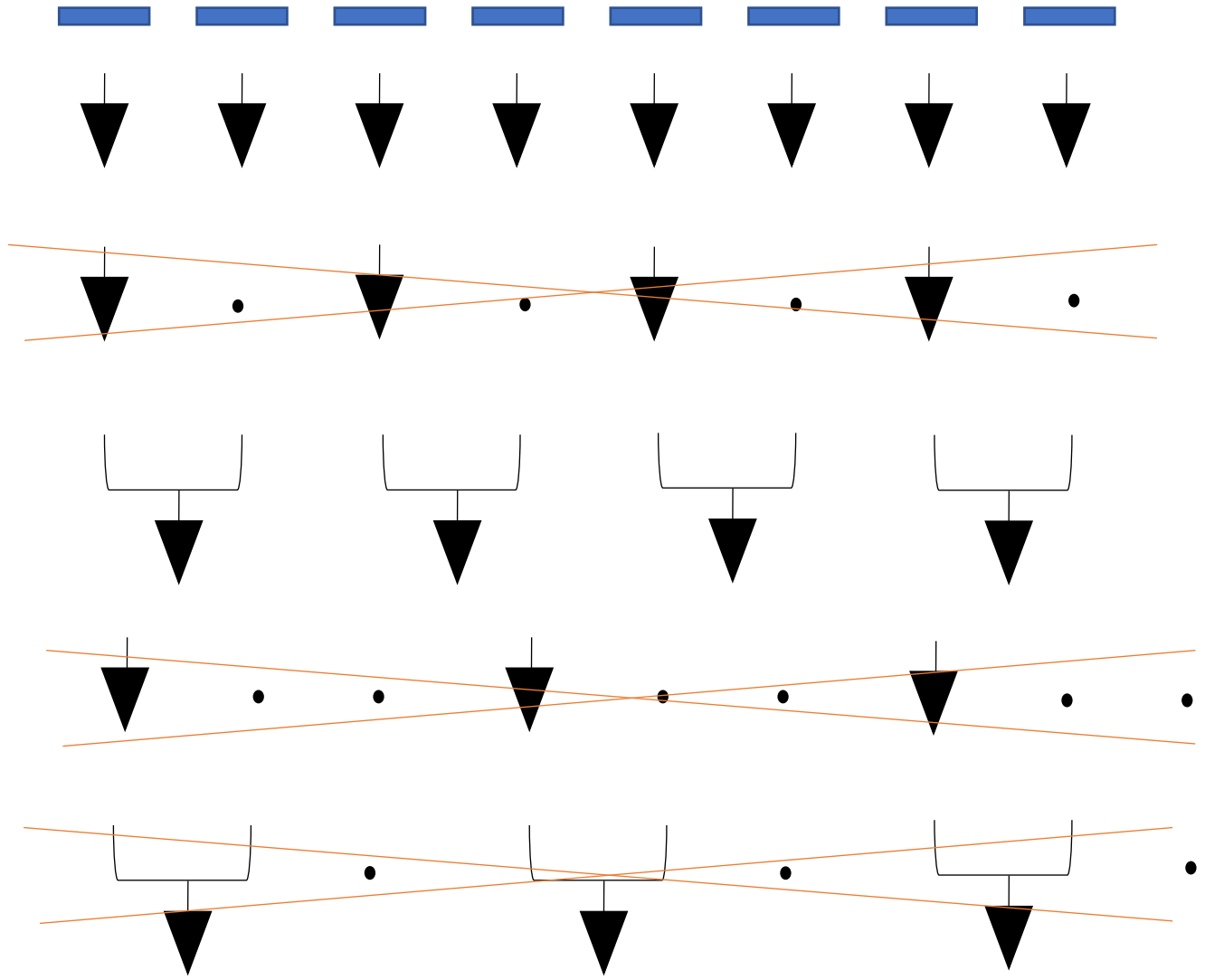
3° June - Discussion with referee

- Request for missioni (sj) before next Monday;
- Other request

backup

Intermediate Board (II)

pitch=0.4 width=0.15



NOTE:

All strips connected to APV
p=0.4 & w=0.15

Even strips connected to APV
Odd strips floating
p=0.8 & w=0.15

2 strips in OR connected to APV
p=0.8 & w=0.3

1 strip connected to APV
2 strips floating
p=1.2 & w=0.15

2 strips OR connected to APV
1 strip floating
p=1.2 & w=0.3