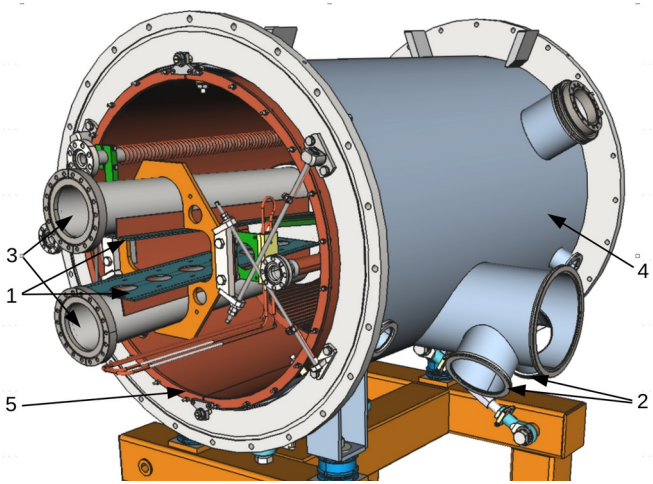
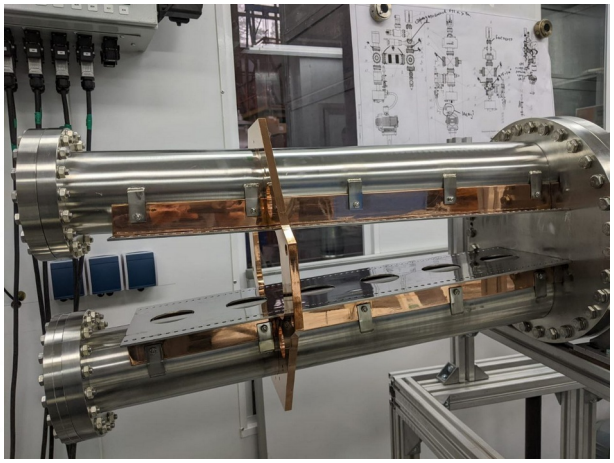
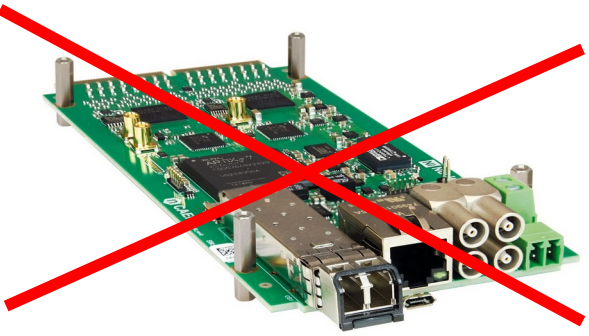
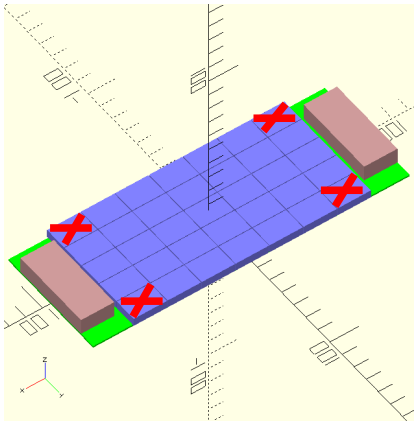
Zero Degree Calorimeter (ZDC) for SPD

Progress report







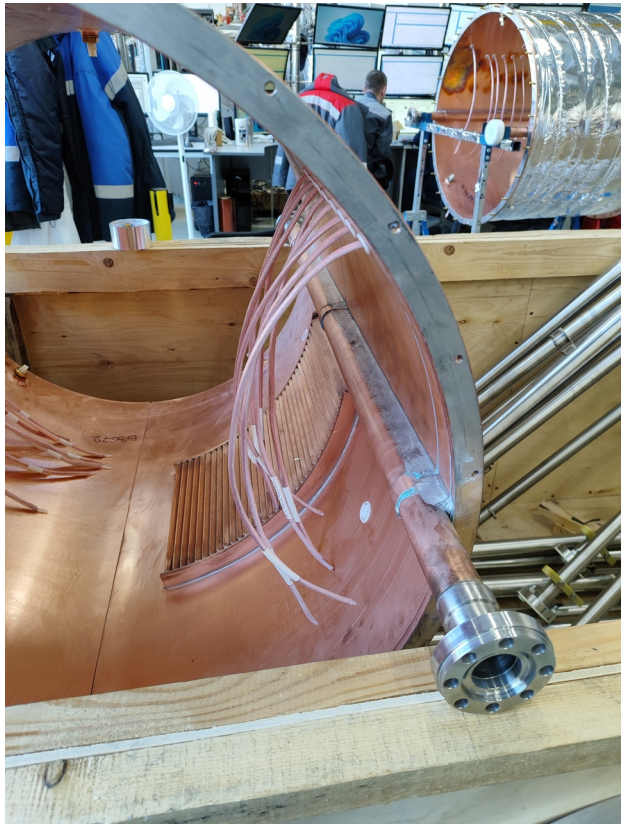


➔Beam pipe sections for the ZDC cite are received in JINR early October. Tested by vacuum group, but still not inserted into cryostat. As it looks now the place for ZDC is fine and well acceptable for installation. It is not sure when there will be the cryostat and other communications.

➔We think of testing CAEN FERS 5200 system for SiPM control and readout. 7 A5202 modules are ordered for the 1st NICA run. They will cover DAQ for two 6 planes ZDC (3 modules for each ZDC and 1 spare). A5202 is based on Citiroc-1A chip produced by WeeROC. It has 64 channels which provide SiPM bias, amplification and readout.

➔For the initial test a single ZDC plane with 31 scintillator tile (no tiles in the corners) is being developed.

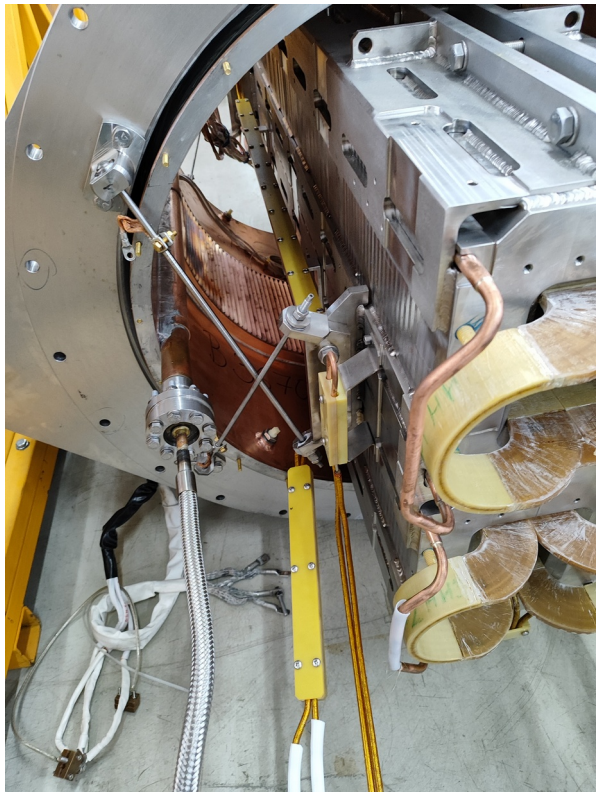
Tunnel installation around this fall ?



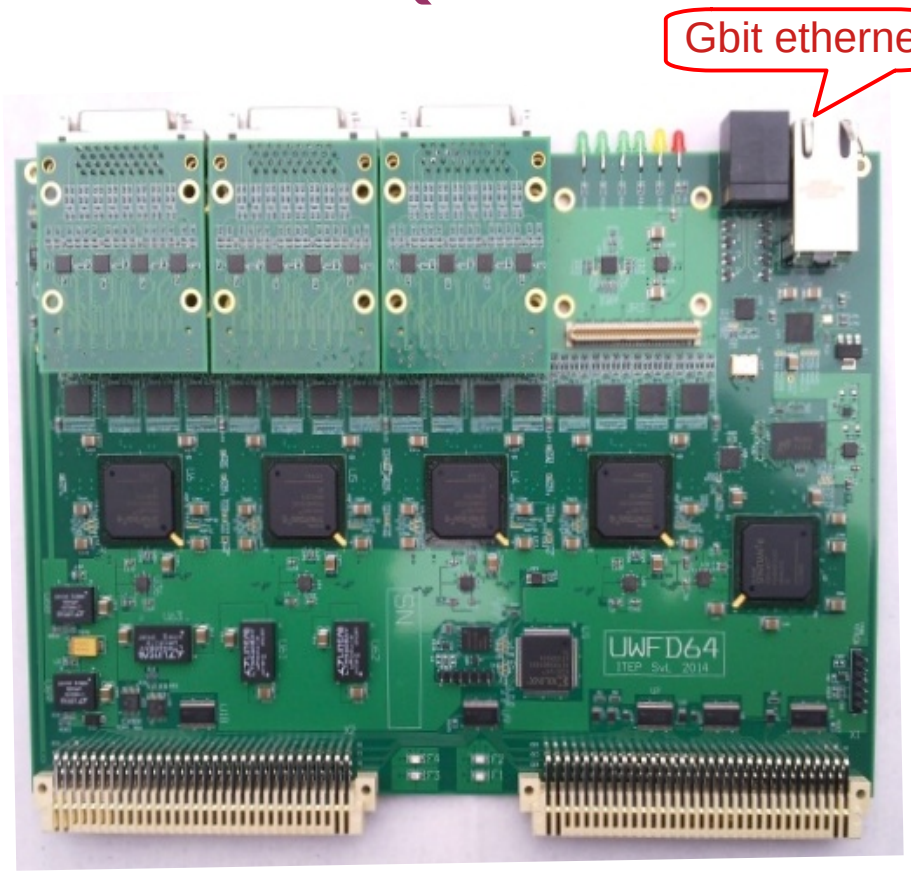
The minimum thing to be done is cable insertion for at least several years of operation!

- We consider preinstallation of cables for the prototype (6 planes, ~200 channels) version of calorimeter.
- Cables: 32 twisted pairs with D-sub connectors on both sides. “МГТФ” wire 0.12 mm^2.
- We need to put 16 cables (4 spares, both sides from IP)
- Material price estimate ~ 150 k rouble.

DHS-78F (DS1035-78F)



DAQ and front-end



DAQ:

- 64 channels
- 12 bits
- 125 MSPS
- 512 Mbyte DDR3 RAM
- Capable 64 bits DDR VME block transfer

Front-end:

- 32-channel
- ADA4940-2 based
- Need to be designed

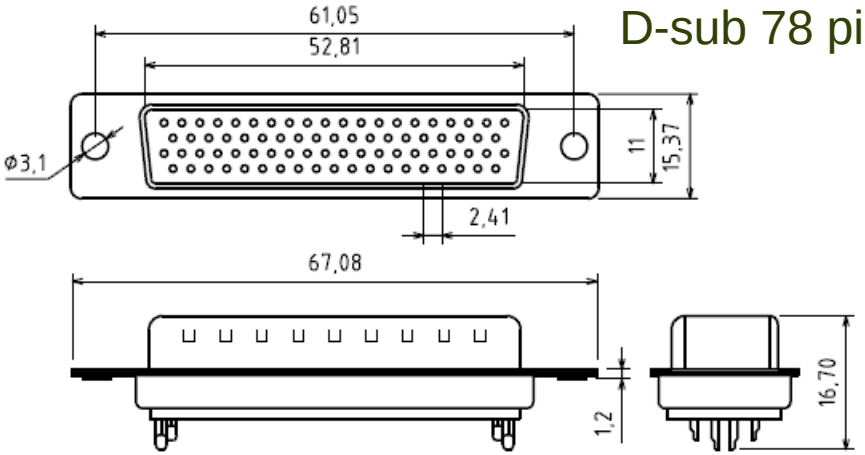
SiPM power:

- 32-channel
- AD5674 based
- Is developed now for DANSS upgrade

Price estimate:
8 UWFD modules ~ 5 M rouble
15 front-end boards ~ 0.5 M rouble
15 power boards ~ 0.5 M rouble

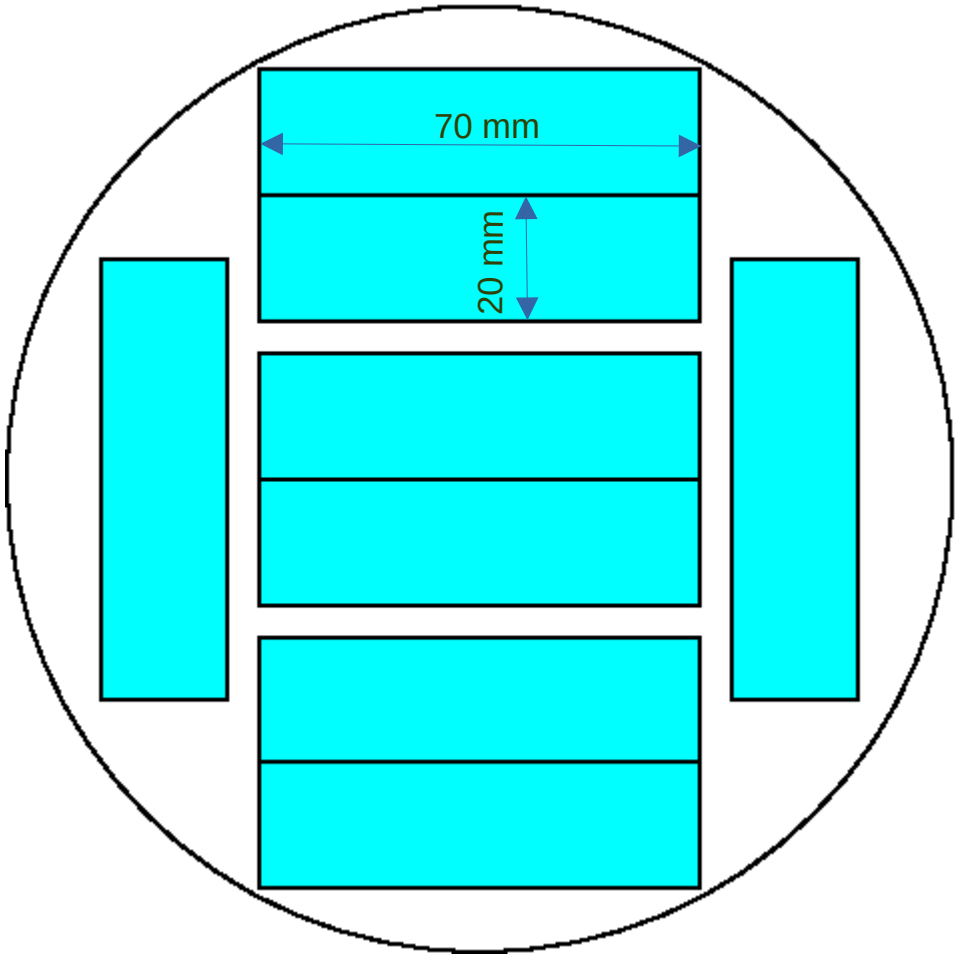
Thank you for your attention

Flange layout



D-sub 78 pins

6’’ flange



35 SiPM channels => 35*2=70 pins + ground and thermometer
Full setup (30 layers), 4 lfanges => 8 connectors per layer
We need one flange for the first year.