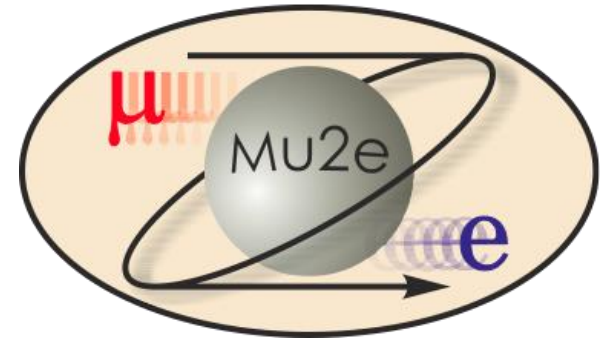




MUSE



Transfer of Knowledge

Franco Spinella
WP6 Co-leader

MUSE partners



- ❖ 3 industrial partners, 5 institutional
- ❖ Our goal is to ease technological transfer between partners

Network



- ❖ In the first 12 months 2 (over 3) of the industrial partners started a strong relationship with INFN groups (Pisa and Frascati)
- ❖ Our goal for the upcoming years is to improve the network connectivity.

Prisma <-> INFN

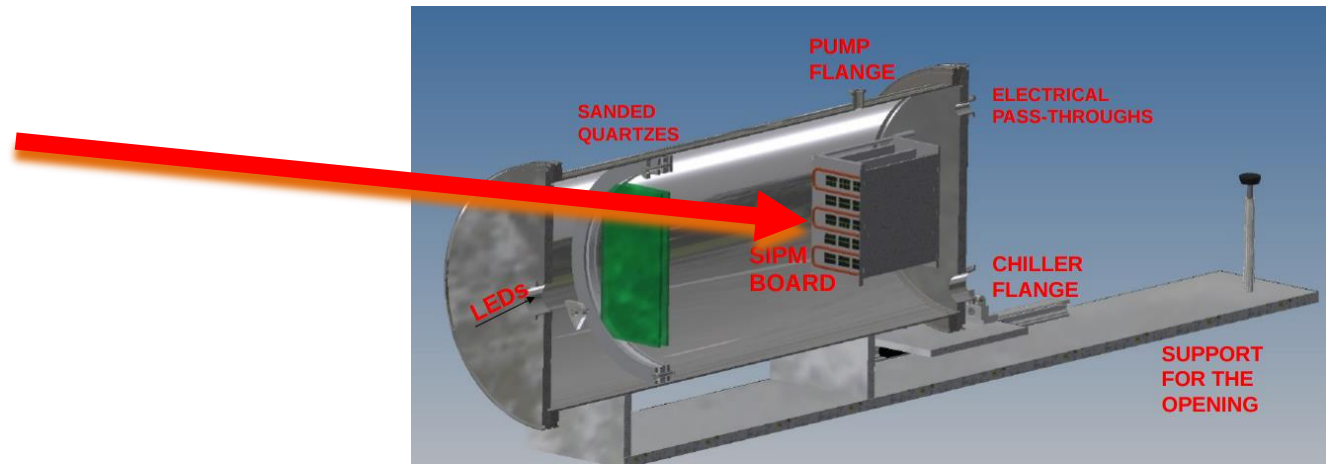
- ❖ Several interchange secondments between INFN researchers and Prisma employees happened in 2016:
 - ❖ 1 Prisma engineer was in the INFN Pisa for 2 months
 - ❖ 2 Prisma engineers were in INFN Frascati for 1 month
 - ❖ 1 INFN researcher was in Prisma in July for 2 weeks
 - ❖ 1 INFN researchers was in Prisma in August for 2 weeks

Joint activities Prisma <-> INFN PISA

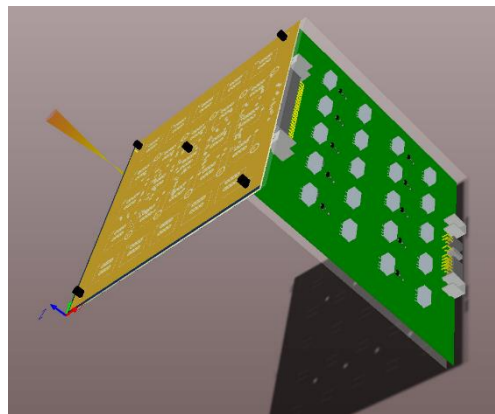
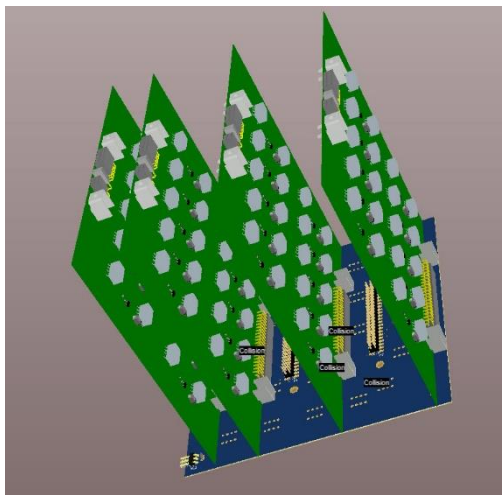
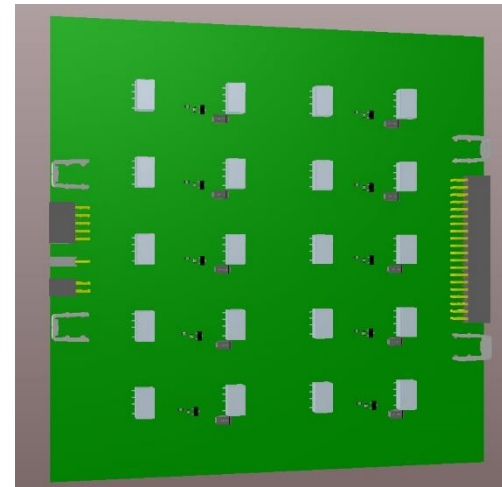
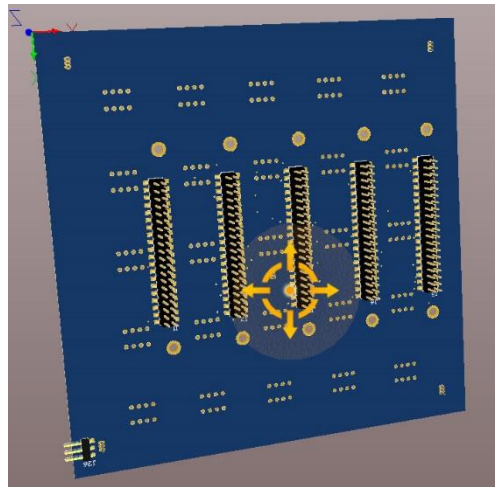
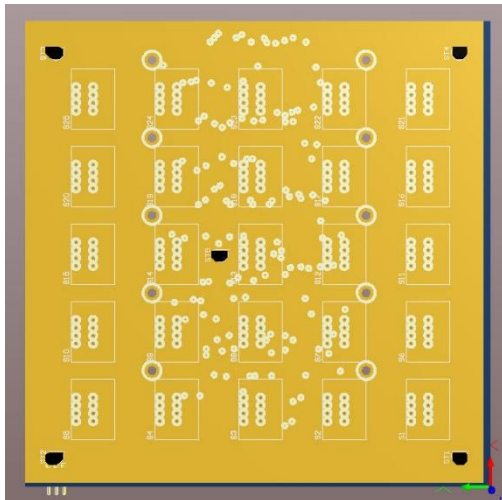
- ❖ Prisma has a high degree of expertise in the design of electronic systems for the industrial field, but aims to extend its potential market also to the big research laboratories (CERN & Fermilab & ...) developing systems to be used in the fundamental research, mainly readout systems for detectors.
- ❖ Pisa is involved in the design of a DAQ system for the validation of the SiPM (~ 4000) to be used in the MU2E calorimeter.



Prisma engineer seconded to Pisa was included in the group active in the design of the test station DAQ electronics




Joint activities Prisma <-> INFN PISA (2)



Joint activities Prisma <-> INFN LNF

- ❖ INFN Frascati is in charge of testing and qualifying half of the crystals needed for the Mu2E calorimeter, so they need to define and implement strict QA rules, including a database
- ❖ Prisma designs many high reliability systems to be used for military and space applications, so they are already experts on QA techniques

 People from both the nodes worked together in Frascati and Alexandroupoli to define techniques and tools needed for the crystals QA

Joint activities Prisma <-> INFN LNF (2) ^{MUSE}

- ❖ A preliminary database was implemented in PHP
- ❖ They already defined the data field, input format and login security



Prisma <-> CAEN (1)

- ❖ Waveform digitizers are one of the two core business of CAEN (HV is the other)

Digitizer Families

| | | |
|-----|-----------------------------|--|
| | 720 Digitizer Family | 8/4/2 Channel 12-bit 250 MS/s Digitizer |
| | 724 Digitizer Family | 8/4/2 Channel 14-bit 100 MS/s Digitizer |
| NEW | 725 Digitizer Family | 16/8 Channel 14-bit 250 MS/s Digitizer |
| NEW | 730 Digitizer Family | 16/8 Channel 14-bit 500 MS/s Digitizer |
| | 740 Digitizer Family | 64/32 Channel 12-bit 62.5 MS/s Digitizer |
| | 742 Digitizer Family | 32+2 / 16+1 Channel 12-bit 5 GS/s Switched Capacitor Digitizer |
| NEW | 743 Digitizer Family | 16/8 Channel 12-bit 3.2 GS/s Switched Capacitor Digitizer |
| | 751 Digitizer Family | 8-4 / 4-2 Channel 10-bit 1-2 GS/s Digitizer |
| | 761 Digitizer Family | 2/1 Channel 10-bit 4 GS/s Digitizer |



- ❖ They have a big variety of WD in their catalogue, but none qualified for an harsh environment (n, gamma,B,vacuum, high reliability... see Mu2e WD talk)

Prisma <-> CAEN (2)

- ❖ CAEN (A. Jovene) is very interested to the MU2E WD developed by INFN and to the related components qualification campaign
- ❖ We plan to organize some joint meetings with CAEN people, within MUSE, to share common experience on the field.