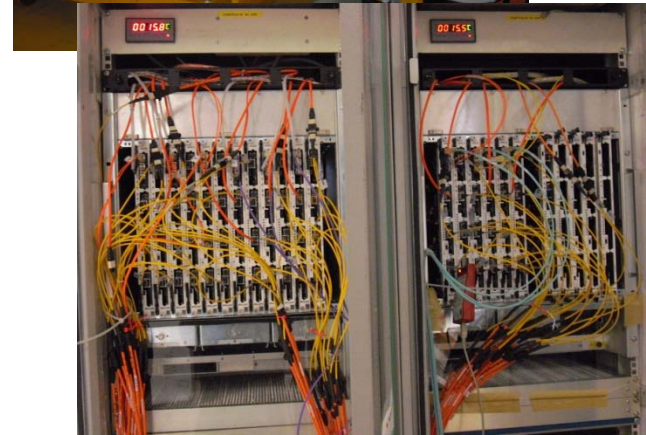
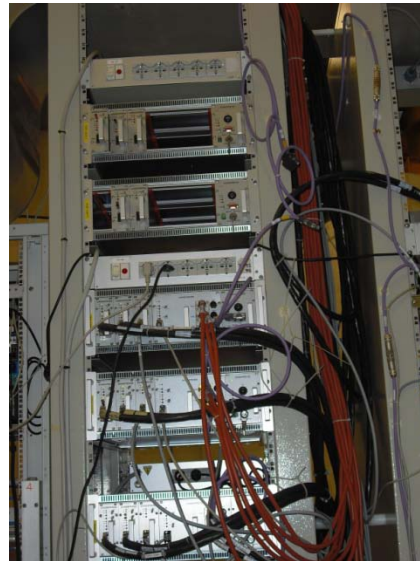
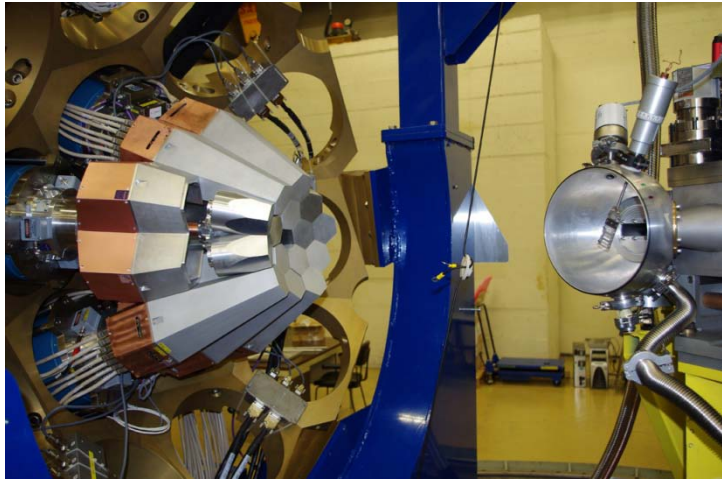


# AGATA at GSI

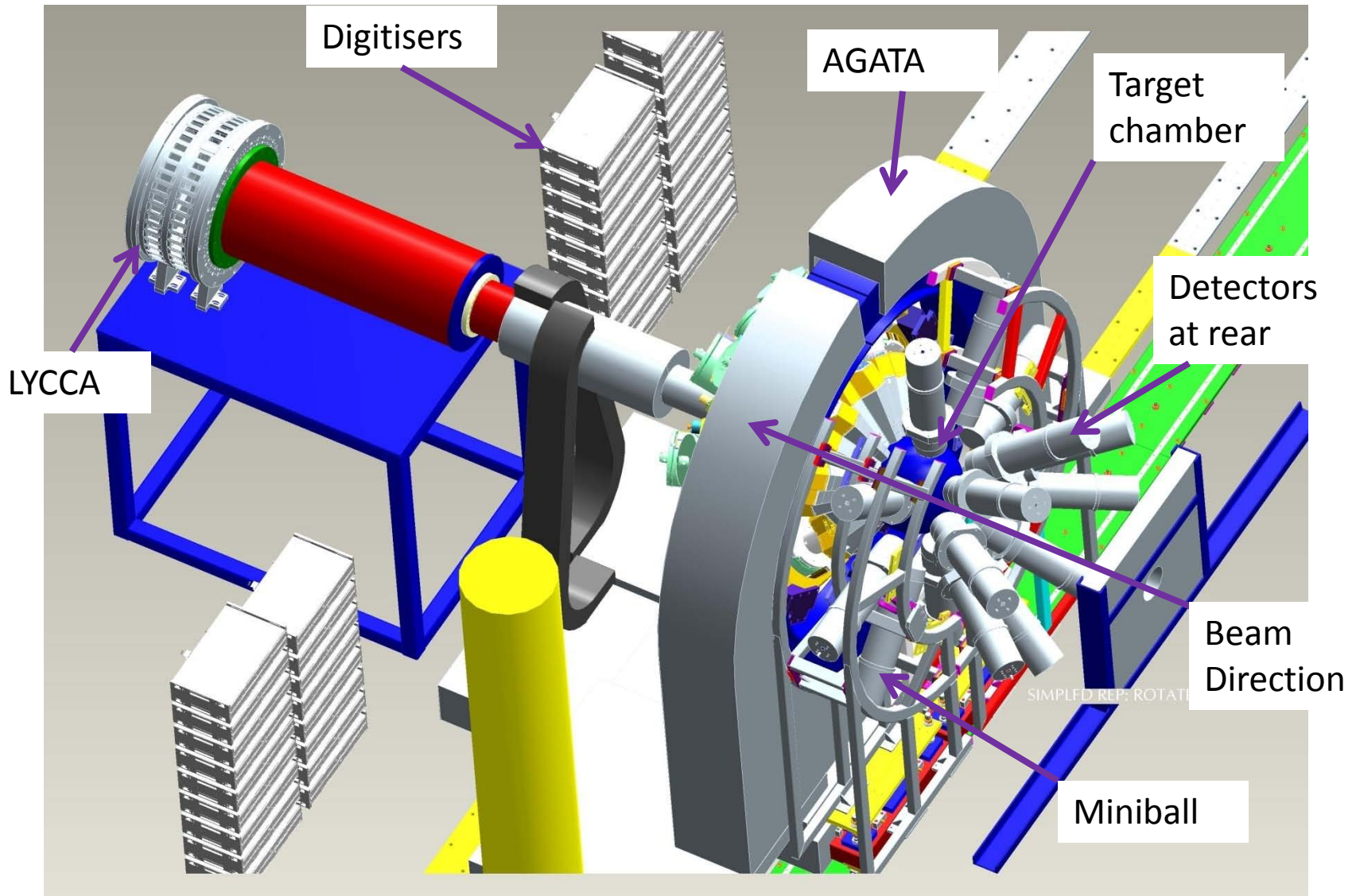
## Infrastructure Issues

- Overview of Infrastructure
- Detector Support System and Front End Electronics:
  - Detector supplies & location
  - Digitiser location
  - Cryogenics and location
  - Services (power, UPS, etc.)
- Grounding
- Preprocessing electronics location and connection to
- DAQ / computing
- Summary

# Overview of Infrastructure



# Location Constraints

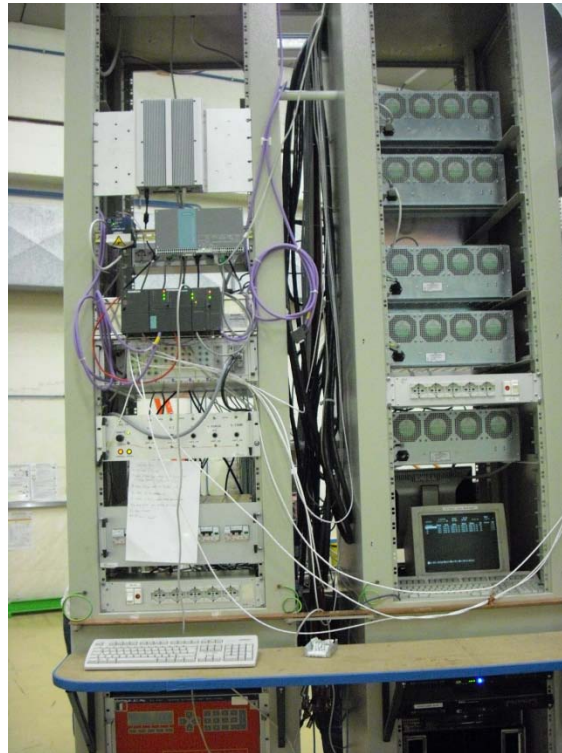
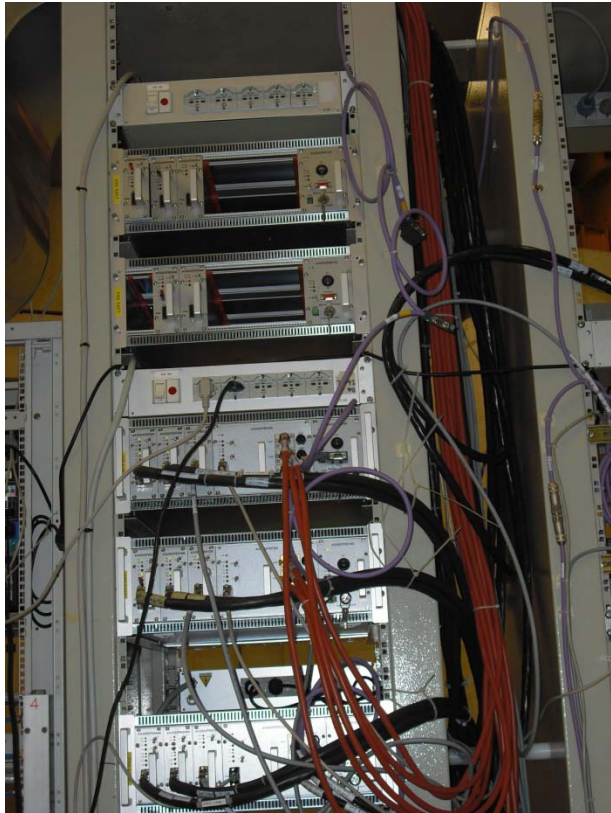


# Detector Support System and Front End Electronics

- Detector supplies & location
- Digitiser location
- Cryogenics and location
- Services (power, UPS, etc.)

# Detector Support System and Front End Electronics

## Detector supplies & location



### **LV:**

1 PSU powers 1 ATC + Digitiser  
(4U, 47kg) 10A, air cooled  
~15m cables to detector/digit  
2mV ripple (good ground)

### **HV:**

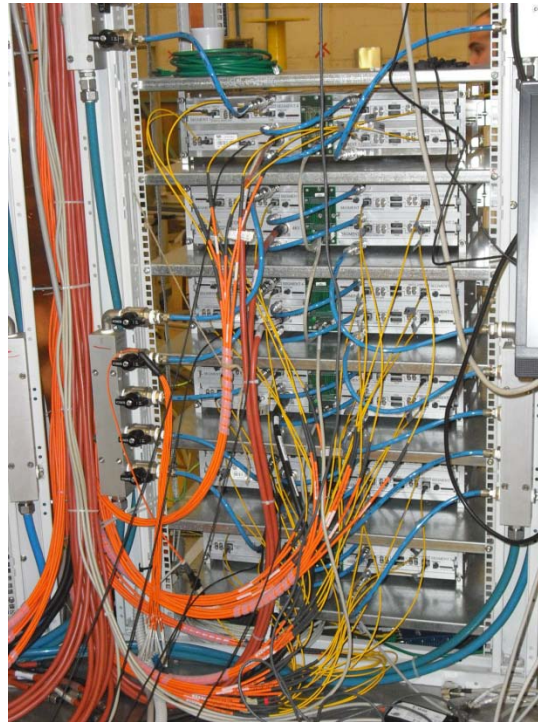
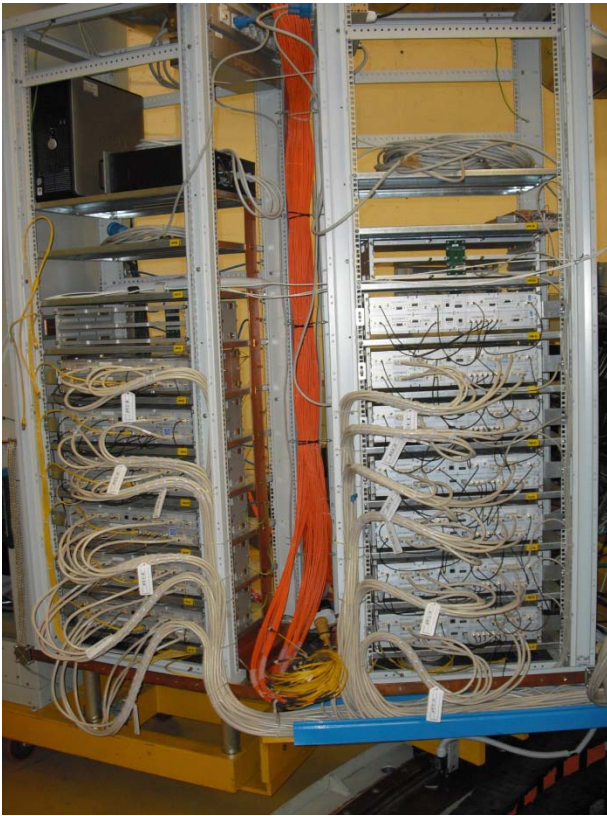
Currently CAEN supply or cable

### **Detector:**

Temp, LN2, etc.

# Detector Support System and Front End Electronics

## Digitiser location



### **Digitiser:**

1 digitisers connected to 1  
crystal via 6 MDR cable

3 digitiser per ATC

~3U, 55kg

<10m from detector (copper)

<50m from preproc (fibre)

Cooling: 1.5-2 bar, few l/min

# Detector Support System and Front End Electronics

## Cryogenics and location

Cryogenic supply to area  
Buffer tanks  
2 x 8 manifold

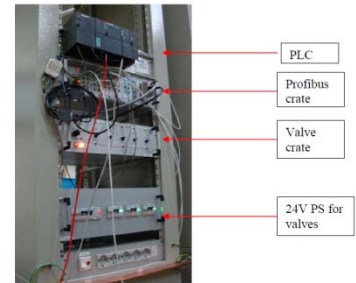
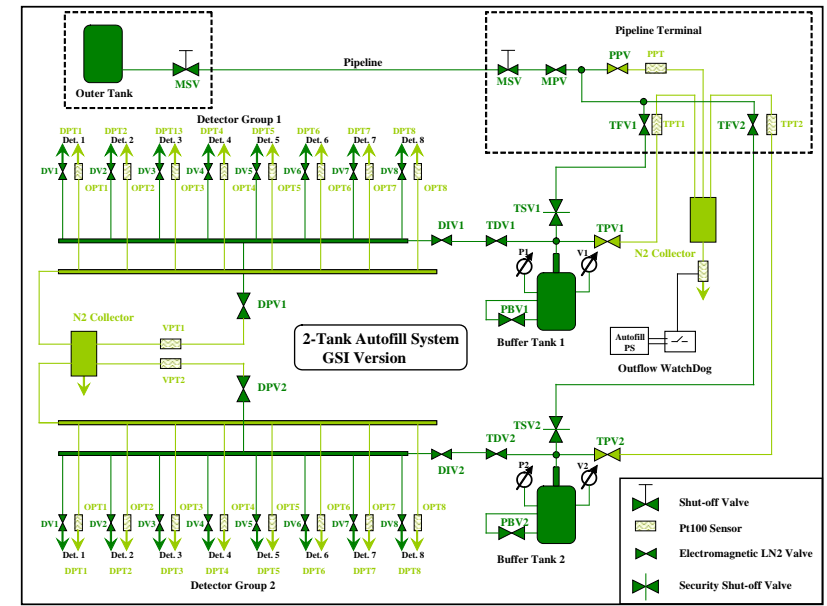
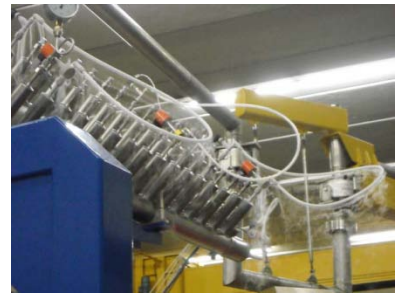


Fig 18.17: Autofill control command setup for tests in Legnaro



# Detector Support System and Front End Electronics

Services (power, UPS, etc.)



**Four UPS units are to be provided by the H. Labs for**

- the low-bias power supplies (including HV), the autofill, the associated slowcontrol systems and the front-end electronics (Digitiser modules)
- the pre-processing electronics
- the DAQ computers (PSA farms, event builder, tracking farm and data servers)
- the detector laboratory



UPS FILTER

Alarms  
Networking

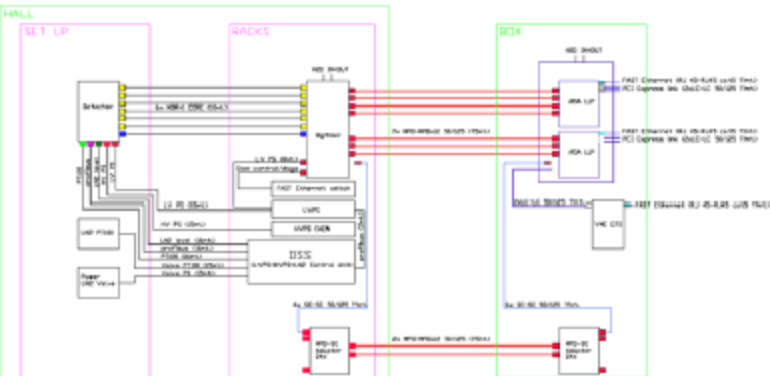
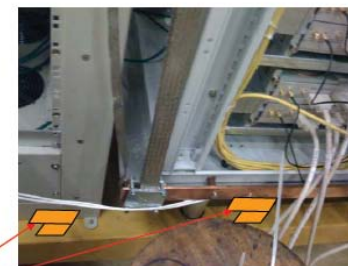


Figure 18.22: Draft of Demonstrator cabling at Legnaro



# Grounding



Take paint off and connect with large copper foil to the structure



Use a large copper to connect the 2 structures the width should be larger than the length.



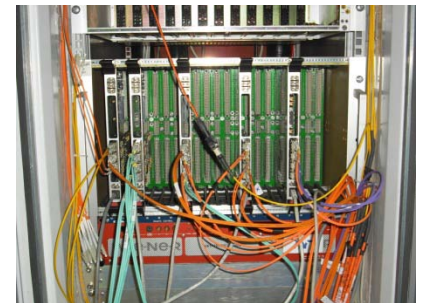
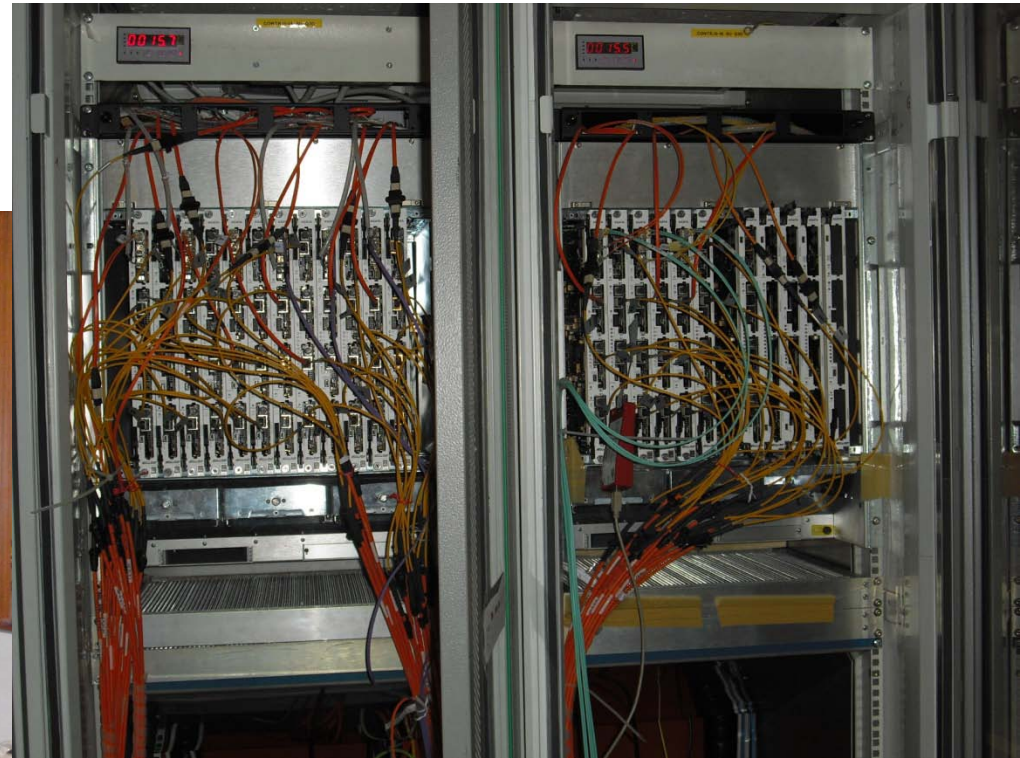
- The whole array is grounded to a common voltage
- The common voltage is provided by a large common conductive plate
- The array itself is formed from interconnected conductive components using as short and thick grounding shunts as possible
- The ground of every component of the AGATA array, especially electronic devices, is grounded to the common voltage
- The power distribution to the front-end of the array is insured via a single uninterruptible power supply

## 18.13.1. EMC performance

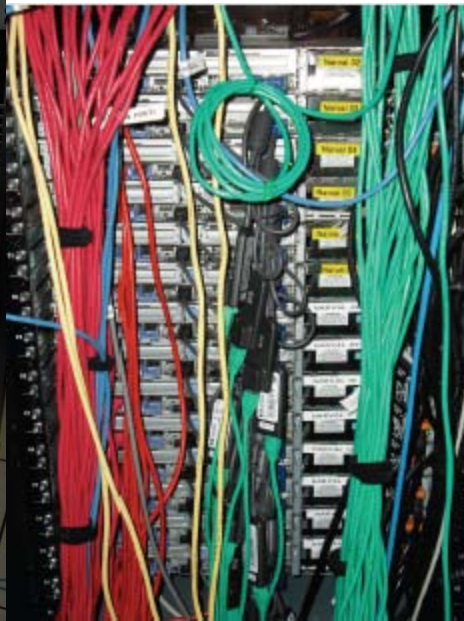
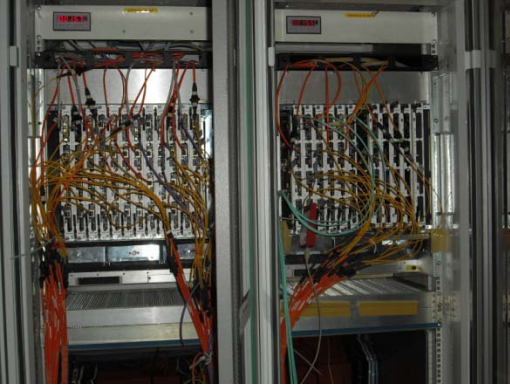
- AGATA front-end EMC performance is to be measured at both the low and the high frequencies.
- The 50Hz noise is to be less than 100 $\mu$ V rms.
- The high-frequency noise in a range 100 kHz - 100 MHz is to be less than 5mV maximum amplitude.

FIGURE23. Some low inductance alternatives to pigtailed

# Preprocessing electronics location and connection to



# DAQ / computing



Network connection from PP  
Currently 1 box / crystal  
Network connections  
Storage

# Summary

