# FTK infrastructure

### A. Lanza – INFN Pavia

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## **Status of racks in USA15**

### DF racks 06-07.A2 and 06-09.A2

Fiber installation completed at the end of June. All fibers, apart a few, are closed inside the fiber trays, ready to be connected to the DF boards when available and installed.



Storage of fibers inside the box



Fibers installed and fixed inside the fiber tray



Both racks now equipped with the final ATCA shelves

23/10/2015

### **Status of racks in USA15**

Core rack 05-09.A2

It is now used for cooling tests. Since August the Caen power supply was installed, and it is ready for other cooling tests



### CAEN Power Supply (A3488E)

#### Main specifications:

- 2 independent channels supplying 48V, 24V and 5V
- Each channel 48V@150A, 24V@35A,
  5V@120A, total power 8.64kW/channel
- INPUT voltage separated for each channel, 3phase 5 poles
- OUTPUT connectors made of M13 bolts, minimum distance among bolts 5 cm
- External interface implemented remotely by means of the Ethernet (SNMP) protocol and locally by means of a manual display
- Local/Remote controls: V/I monitor and ON/OFF for each voltage output
- OPC server used in ATLAS will be updated to include this new device
- Dimensions: 19" large, 9U tall and 680 mm deep
- EU conformity mark



#### Available since August

## The custom fan unit

The rack-mount version is available since middle of June. It was used for the first time in an FTK rack during the second set of cooling tests. The crate-mount version will be available by November 4th. Next year the CanBus interface will be joined by the Ethernet interface (hopefully)



### **Cooling tests**

In June we performed two cooling tests, using four (old) AMBslim boards. They were put in the central slots (6 to 9) and moved one slot at a time all together up to the slots 9 to 12. AMBslims were named 3v3, 1v2, 1v3 and 190W. The total dissipated power by the four AMBslims for both tests was about 0.9 kW.

The other slots in the crate were filled in with very old CDF AMBs (black front panel) and resistive load boards (clear front panel). No one of these boards was connected to the backplane. The aim was to simulate a real situation concerning the crate transparency to the air blown by the Wiener Hyper-Blower fan unit.

The first test, done on June 16<sup>th</sup>, used the Wiener H-B fan unit only. The second one, done on June 26<sup>th</sup>, used the Wiener H-B fan unit on bottom and the custom fan unit on top. Another test was performed on July 20<sup>th</sup> – 24<sup>th</sup>.



Positions of the 12 T sensors on an AMBslim. Only three AMBslim were equipped with sensors



Setup for both tests. The four AMBslims are without front panel

23/10/2015

### **Summary of cooling tests**

Two cooling tests were performed in June, with and without the new custom fan unit. Another test was performed at the end of July

Four old AMBslim were used as load, the total dissipated power was about 0.9 kW

The VME crate anyway was filled in with other passive boards to provide a realistic resistance to the air convection

With two fans the temperature is slightly higher at the centre of the board, about 60 °C, but it is much more uniform as a function of the slot number

Next test will be performed at the beginnin of November with two custom fan units, to compare with the present data obtained with one custom fan unit and one Wiener HB unit.

### Update of the Time Schedule presented on July 15<sup>th</sup>

	2015														
	May		Jun		Jul	Aug		Sep		Oct		Nov		Dec	
1. Rack preparation in USA15						]									
1.1 Electricity installation	Done														
1.2 Cooling installation				Done											
2. Wiener system															
2.1 Availability of the first system (bin + PS + HB)	Availab	le													
2.2 First system installation in rack 05-09.A2		Done													
2.3 Availability of the second crate			Done											1	
2.4 Second crate installation in rack 05-07.A2			Done												
3. CAEN PS														1	
3.1 Design and production of the CAEN PS															
3.2 Installation in rack 05-07.A2															
4. Custom fan tray															
4.1 Availability of a demonstrator	Availab	le													
4.2 Production of internal control boards															
4.3 Production of mechanical chassis			Done f	or one ui	nit									1	
4.4 Availability of two fan trays at Cern											$\rightarrow$				
4.5 Installation in racks 05-07.A2 and 05-09.A2					Done for one u	nit 🗕	1			1	$\rightarrow$				
5. Cooling tests															
5.1 With the Wiener system															
5.2 With the CAEN PS															
6. DCS															
6.1 Hardware procurement															
6.2 Wiener system tests in Lab 4															
6.3 CAEN PS tests in USA15													$\rightarrow$		
6.4 Board level and infrastructure in USA15															
7. Thermal simulations in Parma															
7.1 Installation of Icepack				Done w	ith 1 month de	ay									
7.2 IMEC simulation replications						1				İ	$\rightarrow$				
7.3 Simulation of two fan trays per crate														$\rightarrow$	
7.4 Simulation of a full rack															