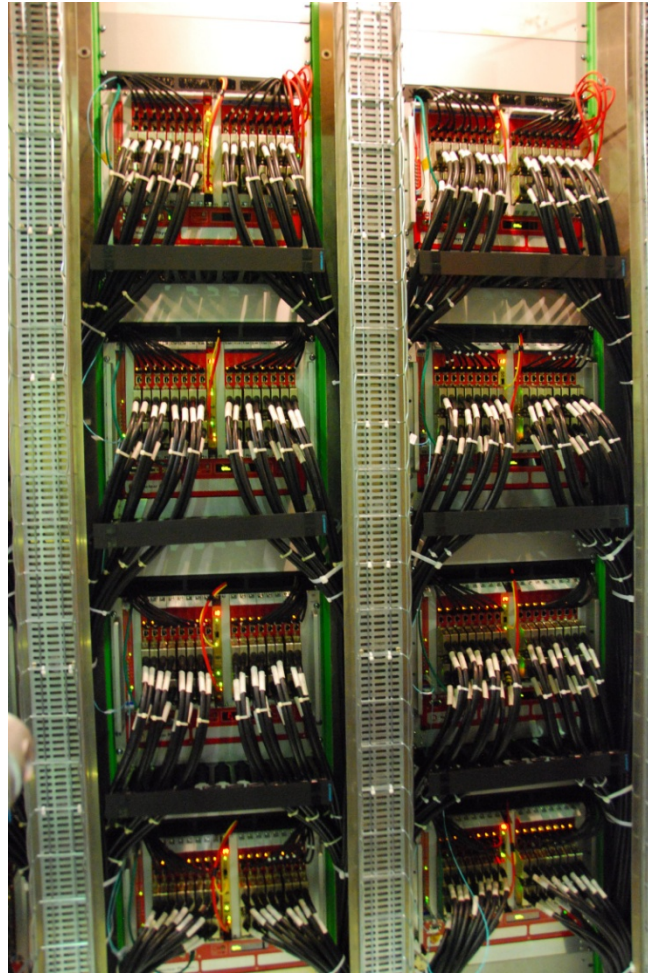


CREAM STATUS REPORT



Stefano Venditti
on behalf of the LKr working group
Ferrara NA62 collaboration meeting - 02/09/2014

OUTLOOK

- LKr DAQ system installation status
- Delivery of last CREAMs to CERN
- Last firmware developments
- Baseline measurement and calibration data
- Conclusions

INSTALLATION STATUS

The installation of the new LKr DAQ system is **almost** over

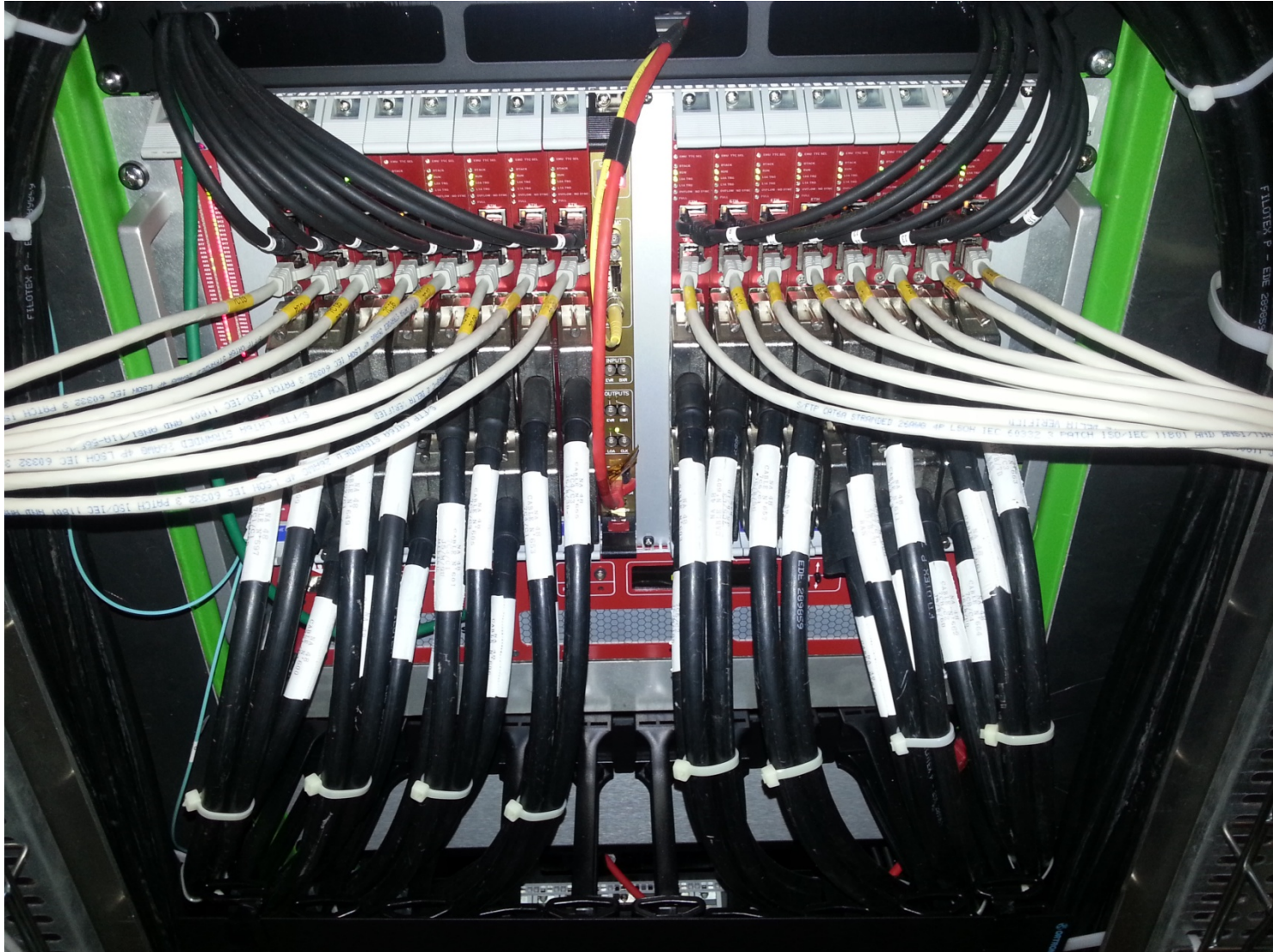
- All crates installed, tested and connected to the DCS
- 430 CREAMs out of 432 installed and tested in their main functionalities
- All bridges installed and tested (2 spares)
- All TTC-LKr boards installed and tested (4 spares)
- All required CHEF boards (CHOKe/ERROR handling) installed and tested
- 27 crates out of 28 cabled with signals from the LKr
- TSL of racks 6,7,8 cabled
- Cooling system fully operational, humidity, temperature and dew point remotely monitored (in order to avoid other CREAM flooding)

MISSING CREAMS (IN CRATE 2)

TEMPERATURE AND HUMIDITY MONITOR



INSTALLATION STATUS



A FULLY CABLED CRATE

DELIVERY OF LAST CREAMS TO CERN

- 18 CREAMs still to be delivered to CERN (including 3 found to be faulty during the tests), mainly those for which serious PCB problems were found
- A new production will be needed for some of them
- If needed, the 5 prototypes can be used during the run
(**DRAWBACK**: remote firmware upload through VME not possible)
- Spare CREAMs can be lent to Mainz for MUV1/2 readout upon request

LAST FIRMWARE DEVELOPMENTS

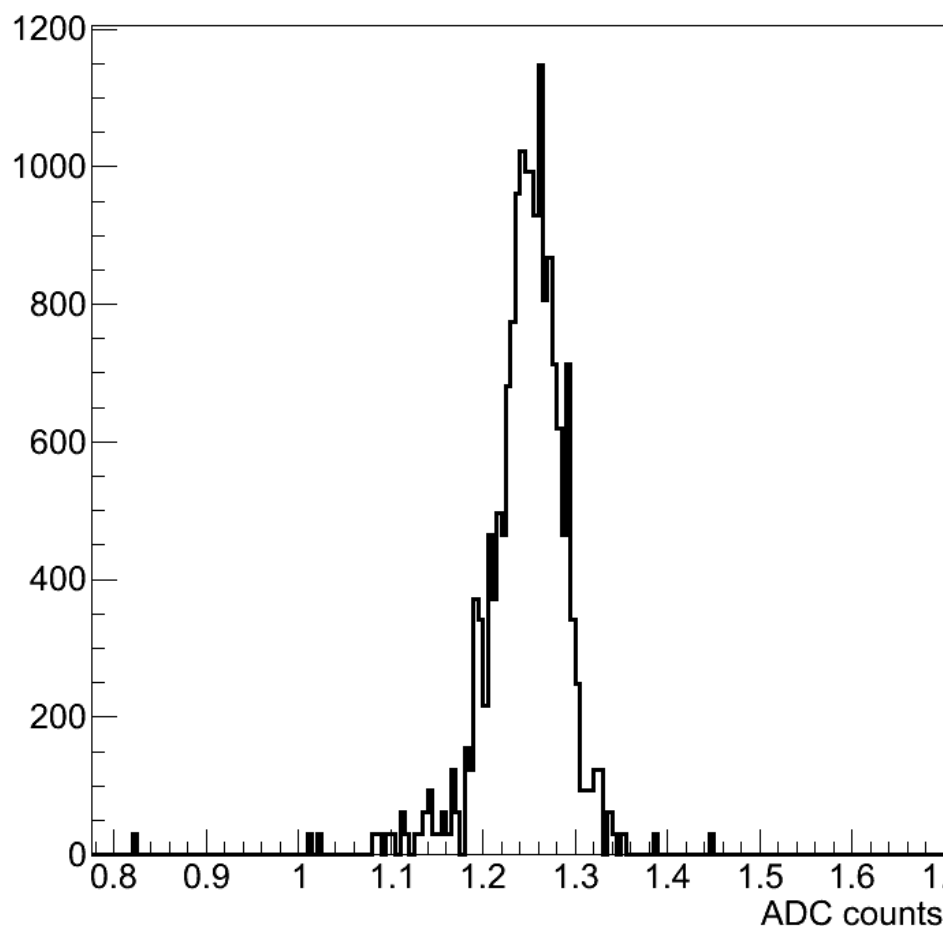
- A new fw version with minor corrections on choke/error handling should be delivered next week
- A problem with TSL handling was found, investigation to fix it is ongoing
- A problem spotted during the tests with the PC farm (probably due to the router) might require a further intervention in order to being able to better “space” data packets from the CREAMs

BASELINE DATA

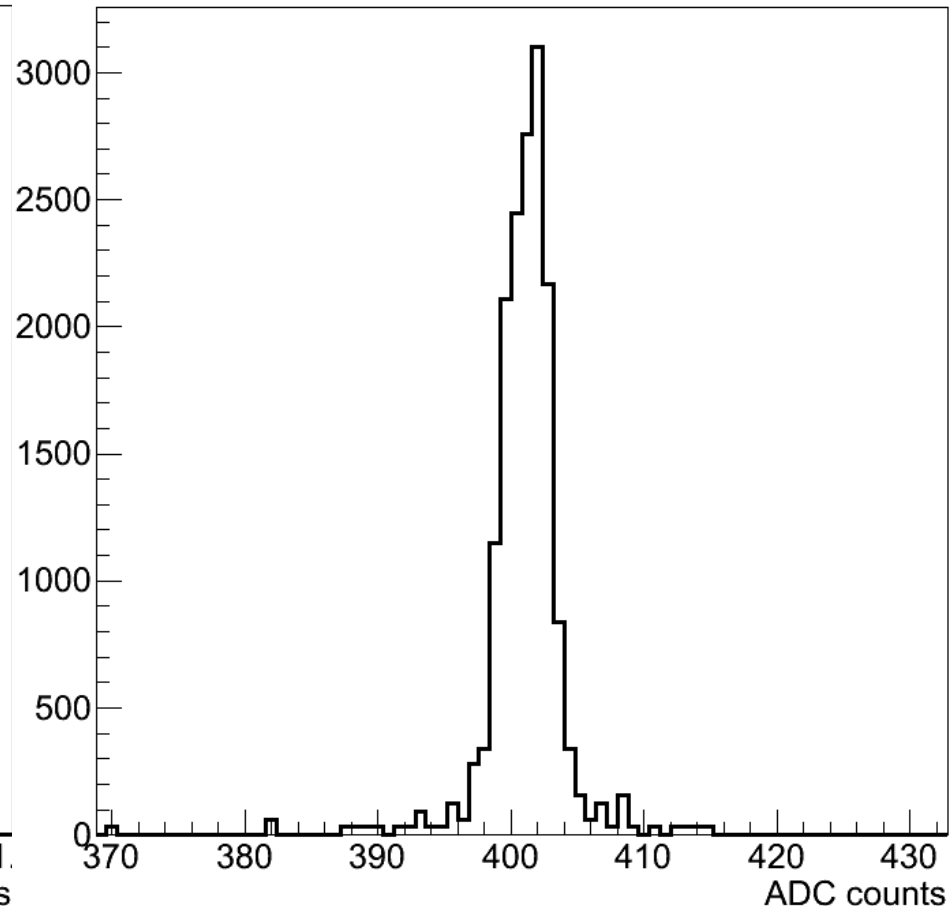
Baselines of each channel can be estimated by collecting events with periodic triggers. The distribution of the sigmas and of mean values after baseline adaptation (see next slide) is shown.

PREAMPLIFIERS OFF

Baseline sigma distribution



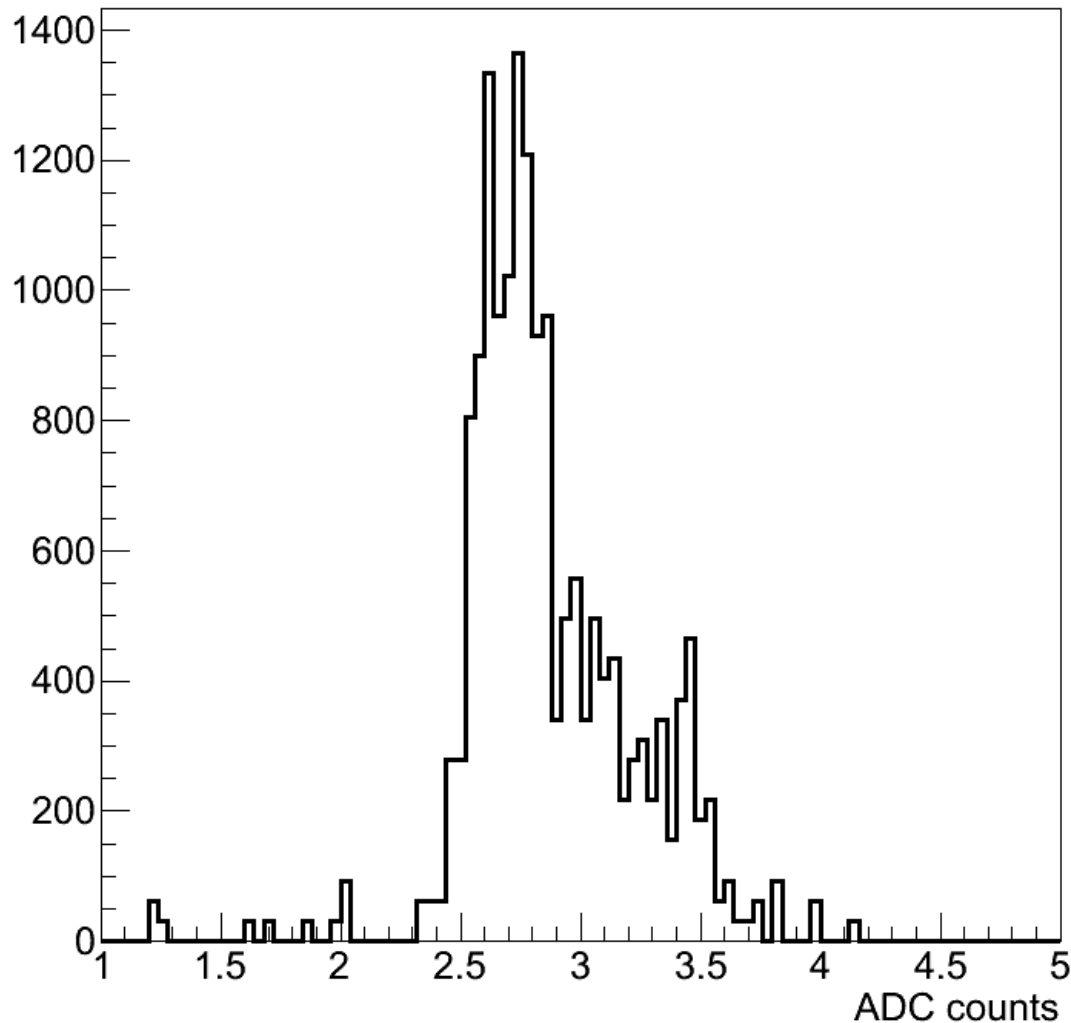
Baseline mean distribution



BASELINE DATA

As one expects, baseline widths are larger when LKr preamplifiers are on

Baseline sigma distribution



**NOT ALL
CHANNELS
INCLUDED**

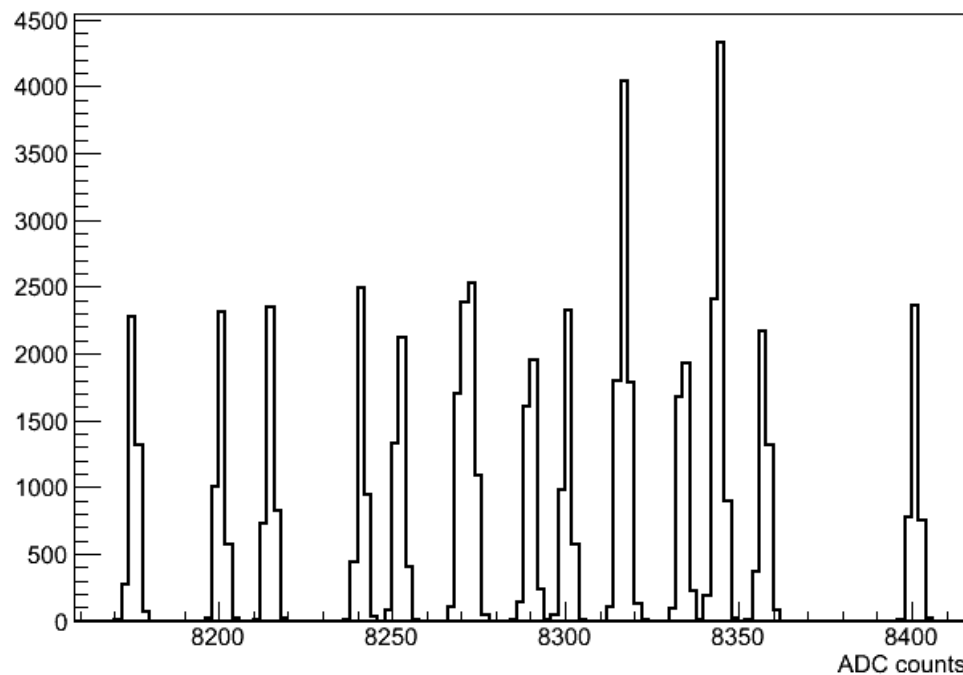
BASELINE DATA

An iterative routine to adapt the baselines of all channels (which in absence of DAC settings are close to 8K counts, i.e. half dynamic range) has been developed (further improvements and tunings needed)

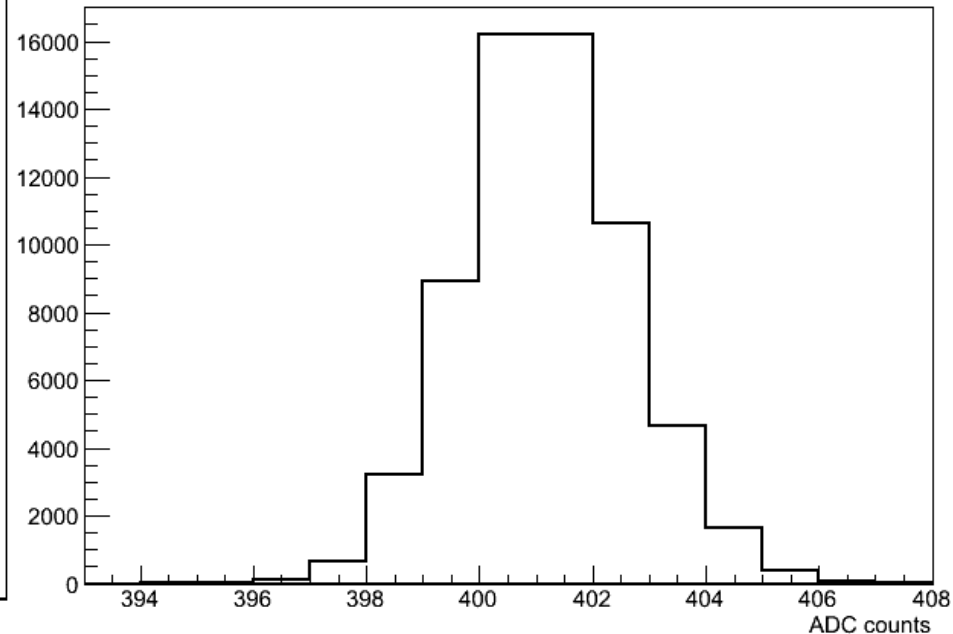
EXAMPLE: adaptation of 16 channels

- Required baseline value: 400 counts
- Tolerance: 2 counts
- Iterations required: between 3 and 5

BEFORE



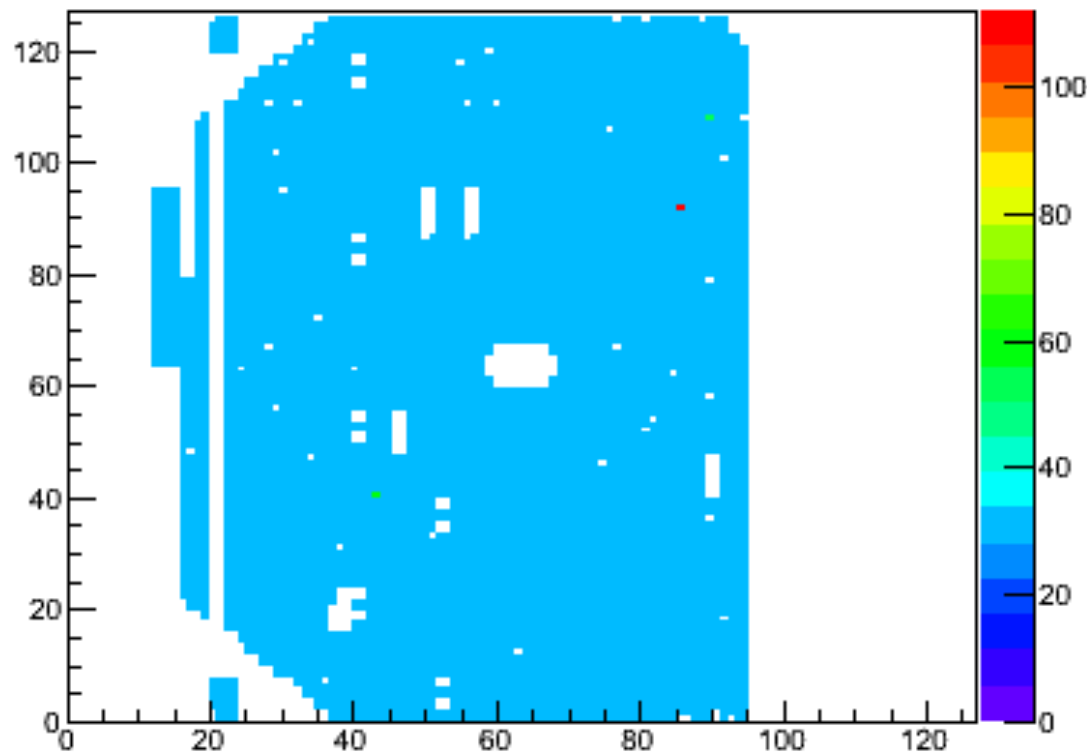
AFTER



CALIBRATION

Some calibration data was collected in August (thanks to Riccardo and Michal) using the old NA48 calibration system and new, C++ based control libraries

- After centering the calibration pulse within the acquisition window, It was checked whether the 6° sample was higher than a certain threshold
- Only 3/4 of the cells could be readout
- The missing slab points to a problem with one of the calibration cards



**SEE MICHAL'S
TALK FOR
MORE DETAILS**

CONCLUSIONS

- The new LKr readout is almost completely installed and tested
- It is also fully integrated in the NA62 TDAQ system
- Minor firmware changes expected in the near future
- The weeks before the start of the run will be mostly dedicated to improving the calibration system and integrating the CREAM configuration procedure within the NA62 mainframe