

GEM DAQ - Status

Danning
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SBS Weekly Meeting
Sep-16-2015

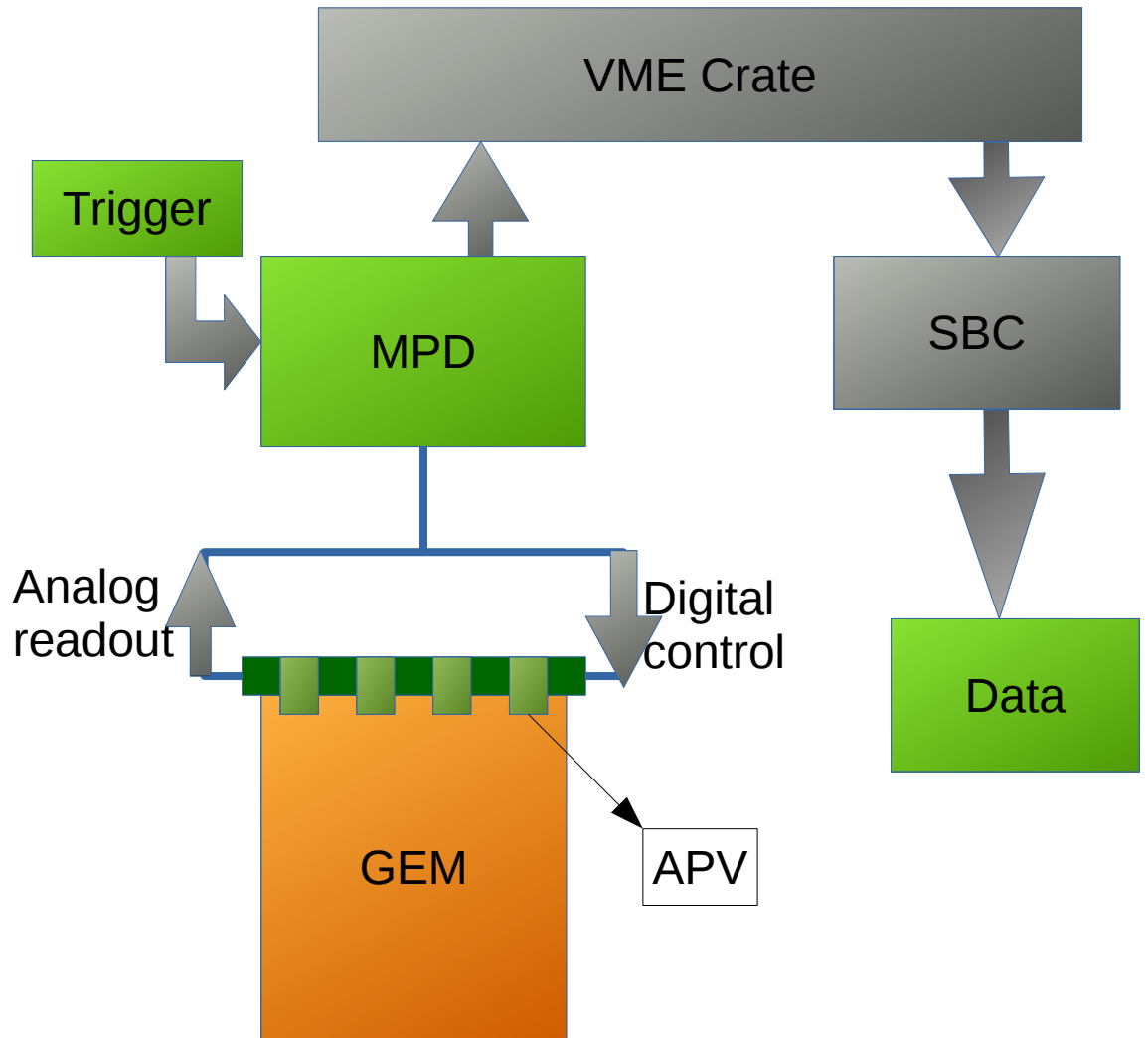
Status

- **Final goal:**
 - Control and readout MPD-APV25 system for GEM using CODA.
- **What has been done:**
 - Driver library for MPD using Intel-based controller by Bryan and Evaristo.
- **Inventory:**
 - Enough electronics for 3 GEM modules, and 2 INFN GEM modules.
- **First thing planned to do:**
 - Test the new MPD system(new MPD, new controller, new driver library), make sure we can successfully readout out reasonable data from APV before proceed to work with CODA
- **Recent progress(since Aug.11):**
 - Fixed a bit glitch in MPD library and an issue of receiving unexpected length of data.(effort mainly spent on this, Sep.14)
 - Started working on the *readout_list* of MPD for later integration of MPD with CODA.
 - Now we can talk with MPD, configure APV and read out data using the new Intel-based controller.

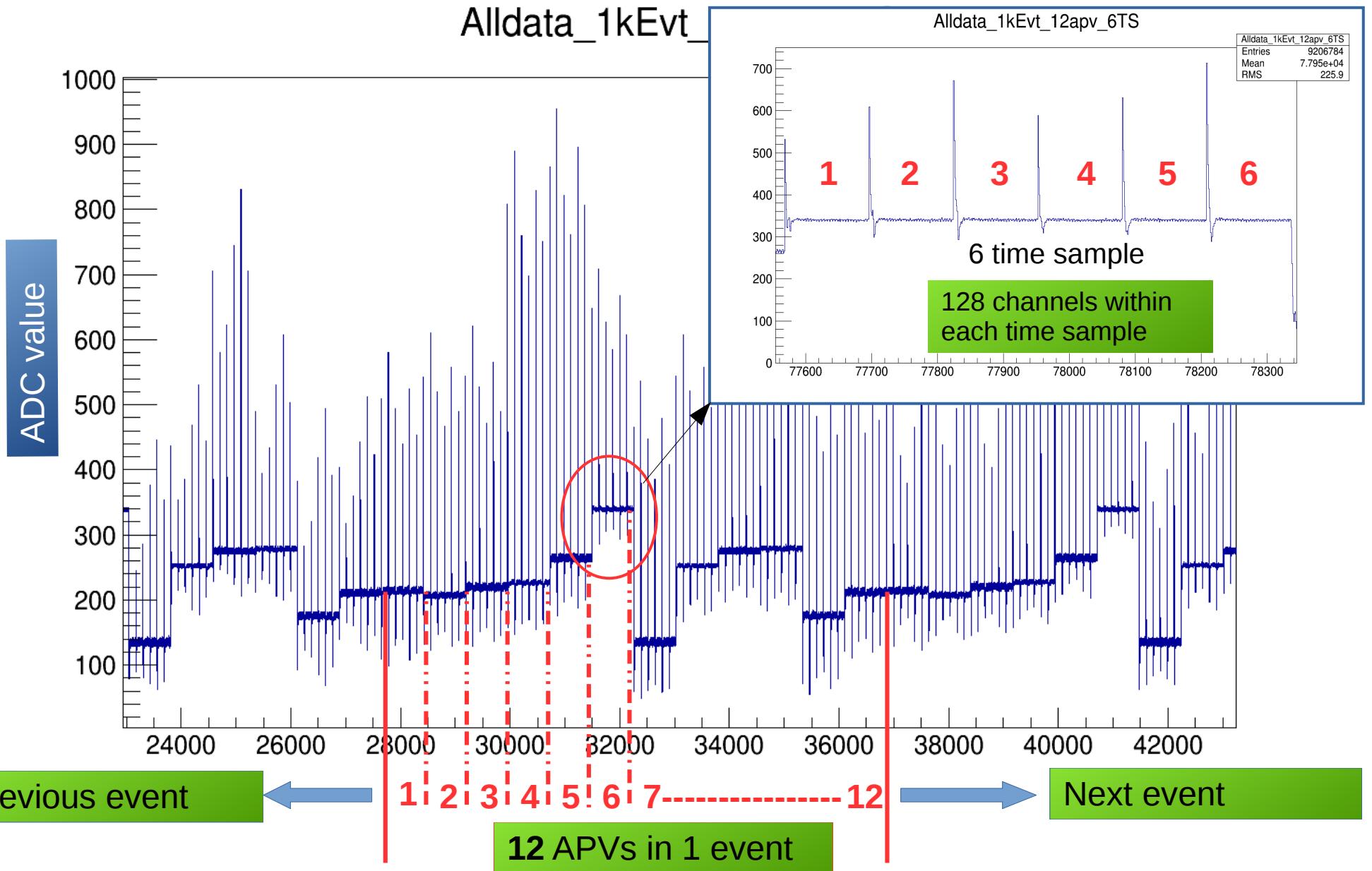
The Setup



MPD(Multipurpose Digitizer)

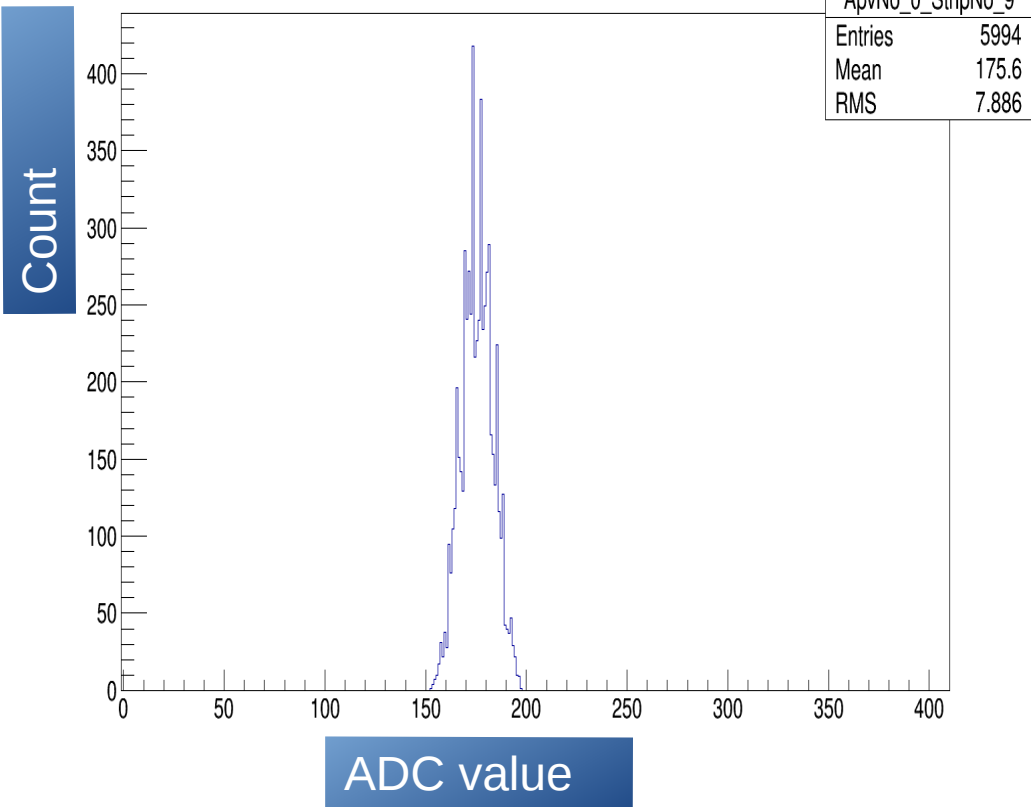


Overview of raw data



Compute pedestal

ApvNo_0_StripNo_9

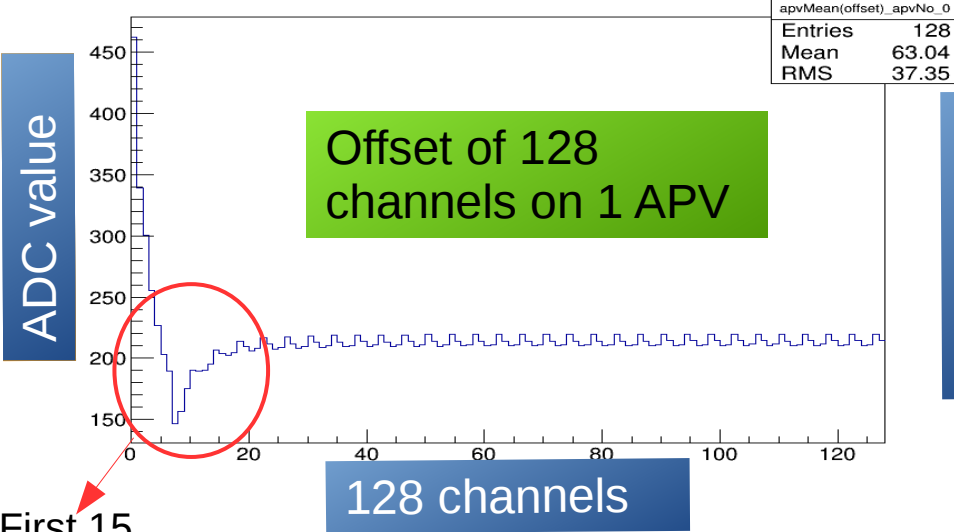


- For each channel on each apv, fill histogram of their ADC and get Mean(offset) and RMS

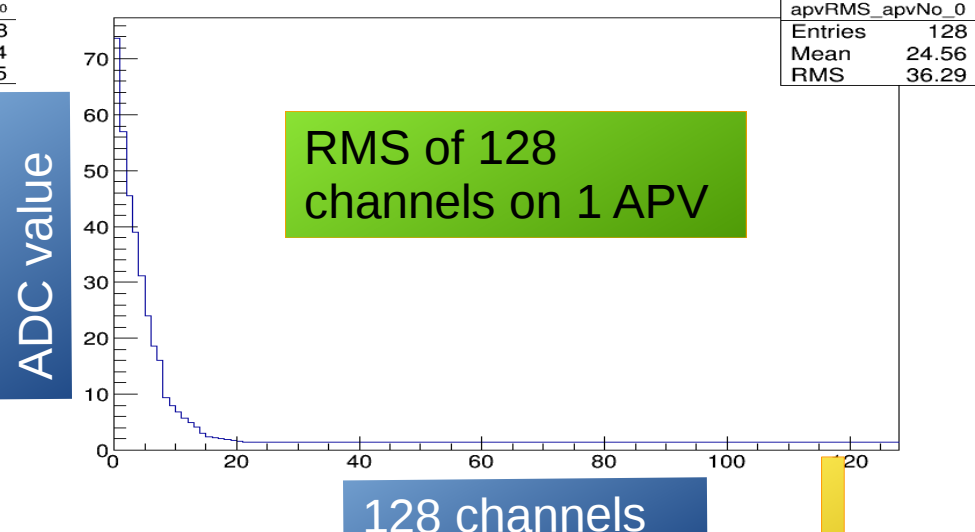
Pedestal Offset and RMS (preliminary)

Similar behavior shown on all APVs

apvMean(offset)_apvNo_0

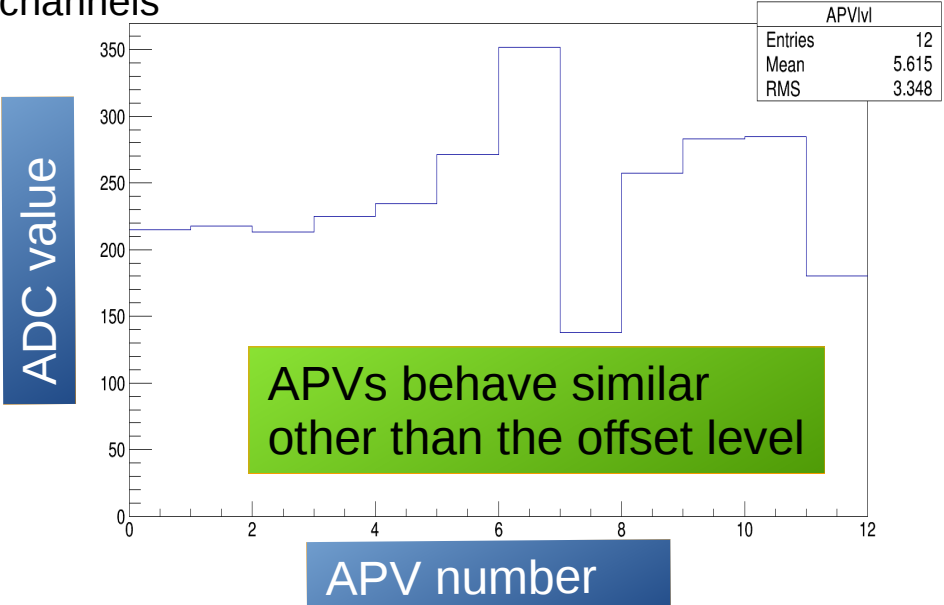


apvRMS_apvNo_0

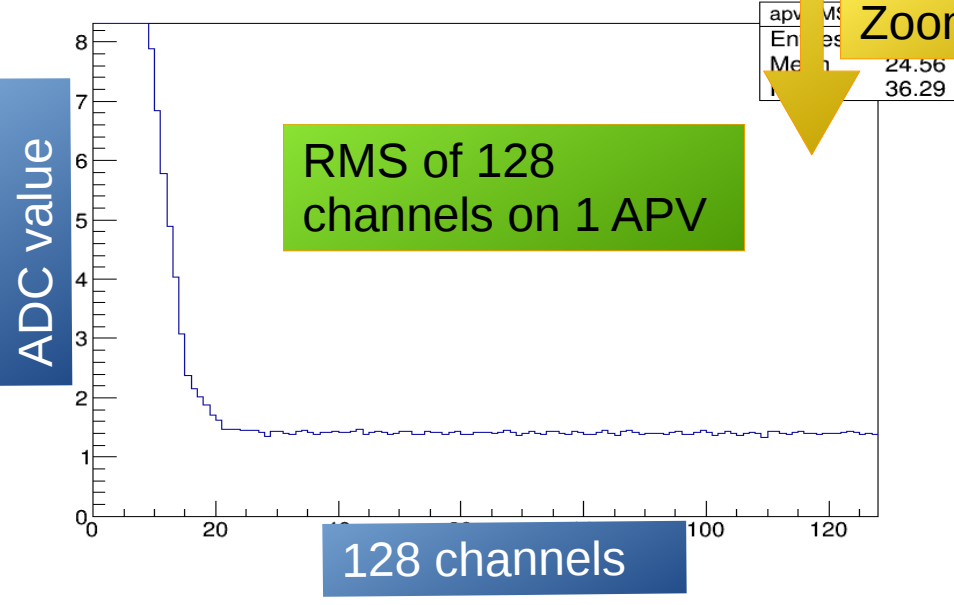


First 15 channels

APVs' ADC level



Zoom in



Comment and to do list

On the preliminary pedestal data:

- RMS too small compared to Evaristo's previous data using old system(minimum around 20 ADC). Modified the “muxgain” parameter to what Evaristo used, but not much change(minimum RMS still at 1~2 level)
- Out of 12 APVs connected, 8 are connected to GEM readout, the other 4 are not. Expecting larger RMS from the 8 with GEM readout, but no.

TO Do :

- Check with Evaristo about other MPD and APV configurations.
- At some point maybe turn on GEM, it would give best criteria of the data quality.(need high voltage and gas in test lab...)
- Finish readout list of ROC for MPD, configuration file of the MPD system for CODA and add TI into VME.