

JRA1 DAQ RootMonitor

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JRA1 - Meeting
31. January 2008

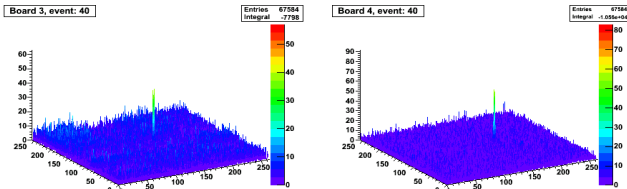
Modifications of the DAQ Online Monitor (RootMonitor)

Added Algorithms

- 5 ⊗ 5 cluster reconstruction
 - small improvement of the reconstruction because a neighbor threshold cut ($\frac{S}{N}$) was added
- cluster position determined with linear center of gravity (original version: seed position)

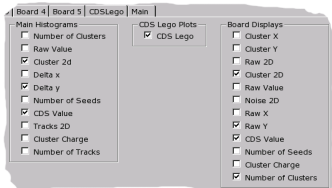
Added Histograms

- surface plot for the cds values for each board
 - reduces the performance of the RootMonitor
 - but it is usable because of some other changes (see next slide)



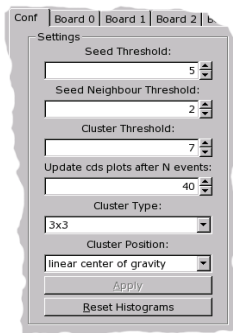
GUI Modifications

- separate tab for the surface plots
- configuration tab was added
 - possible to change online some cuts and values
 - changeable cluster type and cluster position reconstruction
 - check boxes to enable or disable histograms online
 - disabled histograms are filled in the background but not displayed
- Canvases are updated and divided dynamically depending on the number of enabled histograms



Performance Tweaks

- some small general improvements like pre-allocation of memory for large arrays
- now only pads containing modified histograms are updated \mapsto small but significant performance gain



Outlook, Ideas

RootMonitor was tested with the telescope in December.

- allow online changing of other hard coded parameter like board alignment (possibility to load a file containing the alignment parameters?)
- possibility to easily load and save settings
- pause mode for the RootMonitor to allow changing parameters without processing
- performance improvements are still needed → still too slow
- add more comments to the code and update the user documentation
- use the Qt library for the GUI for better performance
 - study Qt documentation and the Root implementation of it
 - some very tiny tests to understand the usage of Qt were executed
 - but detailed tests how to use it with the RootMonitor were not performed yet