

CALICE software status

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Software releases (Roman)

- Bug fixes
- Takes into account changes to the DAQ from January '06
 - Significant updates to DAQ classes
 - Runs > 2GByte possible
- Runs before that data can also be processed
- New versions
 - Calice_userlib v03-05
 - Calice_lcioconv v03-10
 - Calice_online v03-03

Software packages

- Calice_userlib
 - Contents have been reshuffled
 - Contains all software which is needed to process the converted (and reconstructed) data
 - Reconstruction software will go to calice_reco (which is empty till now)
- Calice_Icioconv
 - Package to convert the binary data to Icio
 - Linked versus Marlin v00-09-03, which can handle files larger 2GByte
- Calice_online
 - Provides access to the data types of the CALICE DAQ
 - Mainly provided by Paul

Conversion to LCIO

- All runs taken since 16.3.06 (run 200522) have been converted with the new version of the converter
 - Stored in /pnfs/desy.de/calice/tb-desy/raw/conv_v0310
 - Data base folder for condition data: /cd_calice_v0310_tent
- Known shortcomings:
 - Events do not contain event trigger information (left for future release)
 - No handling of software triggers
- Aims for next version
 - Fix above shortcomings
 - include also software maintained by Götz into common scheme

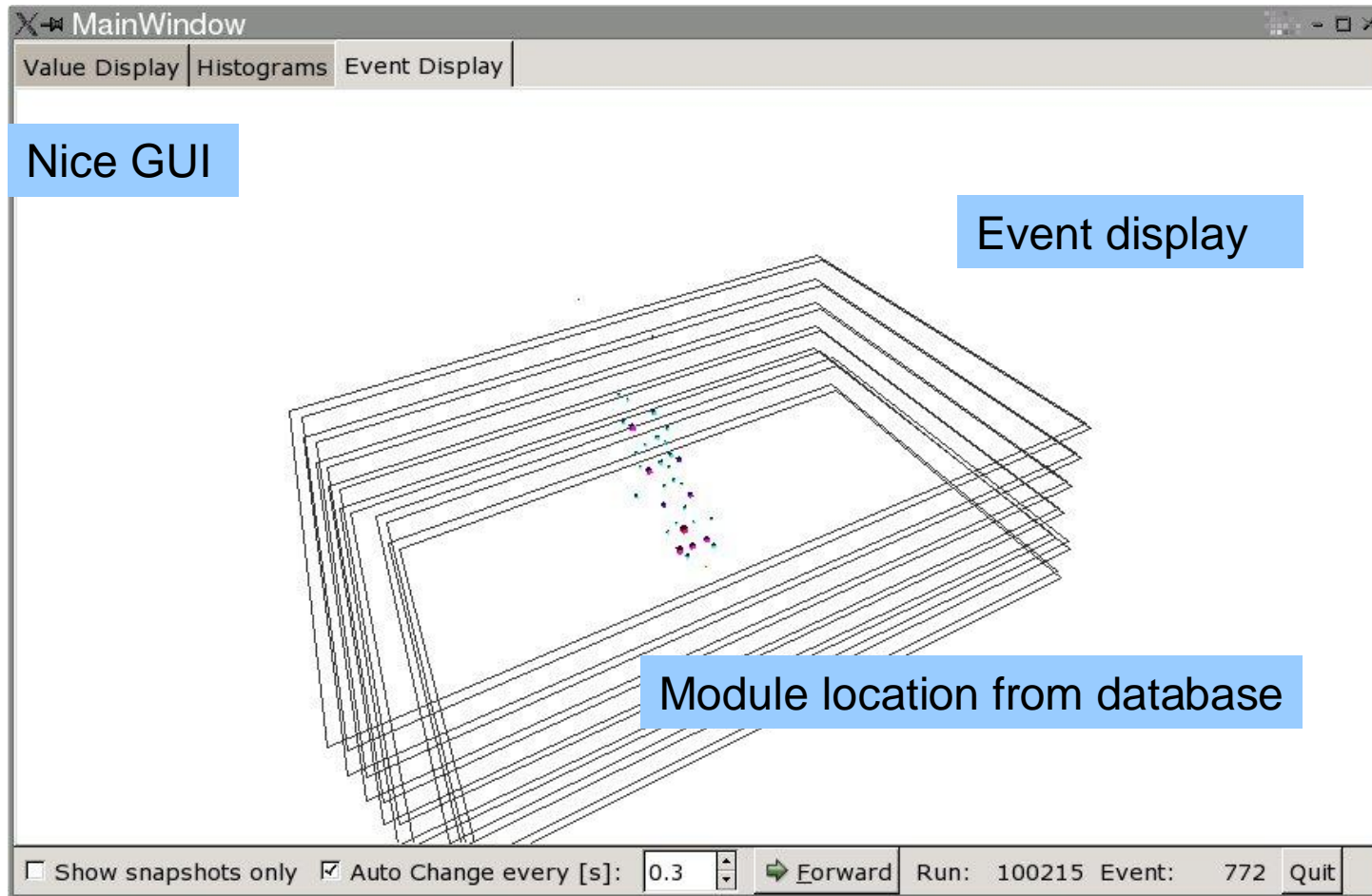
Runinfo ntuple

- Infos extracted from the conditions data base
- Written to root file
- Covers all run dependent information
 - Run number
 - Run types, run sub type
 - Firmware versions (Fe, Be, BeTrig, VME)
 - Start time, end time
 - Beam energies available once provided by DAQ/converter
- Works for runs converted with the newest version of calice_lcioconv (previous converters had a bug ...)
- If more information available/needed in the ntuple please tell me!

A brief look at the ECAL reconstruction software

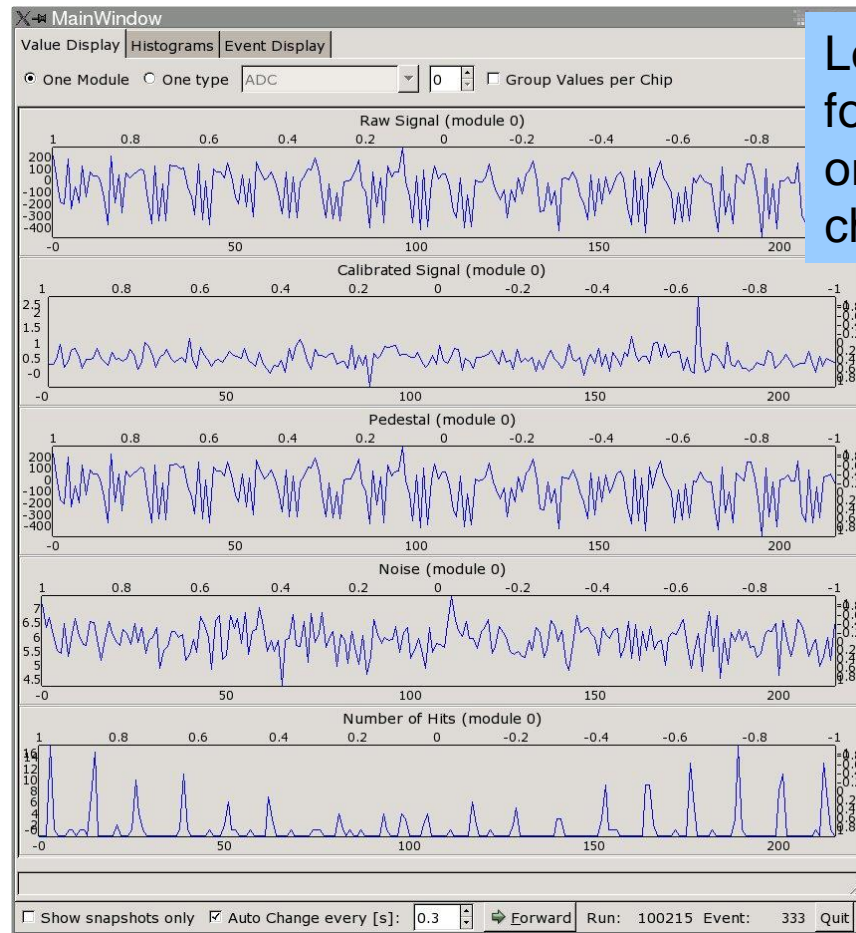
- Marlin based
- Standardized installation procedure (autotools, ...)
- Provides lot of framework
 - Event display
 - Histogram Manager with different categories (also time dependent)
 - On-the-fly conversion to LCIO (using calice_lcioconv)
 - Interface to root-files
- For ECAL modules: SimpleHitSearch
 - Pedestals, noise are extracted from the first events in a run and applied to the other events (works at least for cosmics ...)
 - This is the place where to put the HCAL physics!
- Clusteriser, MIPSelect
- Drift chamber analysis

A brief look at the ECAL reconstruction software



A brief look at the ECAL reconstruction software

- Raw signal
- Calibrated signal
- Pedestal
- Noise
- number of hits



Look at histograms for one module, for one data type, per chip, ...

A brief look at the ECAL reconstruction software

- More or less complete data management available based on conditions data base (what channel is located at what place using what electronics?)
- Most detector parameters read from database
 - Module definitions (size, cell positions)
 - Module locations (x,y,z)
 - Trigger definitions
 - Detector position, rotation
- Database still has to be filled manually for most cases
- Data structures prepared for HCAL modules but not yet completely implemented (currently worked on)

Steps to HCAL calibration/reconstruction

- Implementation needed for HCAL geometry, ...
- Calibration more complicated than currently implemented for ECAL
- More than one step of processing needed
 - Extract calibrations for certain time periods (maybe even with different methods ...) -> first processor
 - Event loop is only used to collect data in histograms which is afterwards processed
 - Apply calibrations in second iteration -> second processor
- Calibration data should be written to database module wise
 - Avoids overwriting of data when only one module is calibrated
 - Reduces memory consumption during calibration
- Problems might occur when calibrations are written with validity till far future (how does lccd scale in that case?)

Test beam issues

- Missing data need to be put into data stream (and LCIO/conditions data base)
 - Beam information from CERN (via slow control computer, DAQ, converter to conditions data base)
 - Temperature information (from slow control via DAQ, converter to conditions data base)
 - Information about settings, run types (from run data base on the web to conditions data base)

Conclusions

- New software releases
- First version of runinfo ntuple
- Quite some sophisticated ECAL reconstruction software available
- Efforts going on to use this analysis framework also for HCAL analysis
- Still some data needed for the test beam not included into software framework