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Recent TileCal software activities and work to be done

Work to be done

TileOfflineJobList contains info about work to be done.

New web pages

TileCTBAnalysis, TileEventDisplay, TileCommissioningAnalysis wiki pages created

Release 10.0.4 and 10.3.0

Release 10.0.4 was built on 31-May. Main change with respect to 10.0.2 for TileCal is ability to run Calibration hits simulation for CTB with GeoModel as input, so now it's possible to run this simulation on the grid. Unfortunately, not all bug fixes for LAr Calibration hits were backported from main branch to this 10.0.x branch and situation with LAr calib hit identifiers is the same as in 10.0.2. Some other problems reported by Tancredi (e.g. muon deposits a lot of energy in dead material somewhere). So it is not recommended to use 10.0.4 for massive production with Calibration Hits. Looks like 10.4.0 (end of July) will be better.

Serious problem related to reading TileRawChannels from POOL discovered after migration to Gaudi 16. A lot of error messages and even crashes. (see bug report at https://savannah.cern.ch/bugs/index.php?func=detailitem&item_id=8739) It turned out that new POOL version wants that dictionary for all classes stored in the POOL file is loaded at initialization. If all the dictionaries are loaded everything is fine, but reading is 10 times slower than it was before. Reading from ByteStream is not affected.

COOL integration in Athena is done for release 10.3.0. Now it's possible to retrieve constants from DB in Athena job using old interface provided by TileInfo class.

Many bug fixes are needed on top of release 10.3.0 to run reconstruction of June 2005 cosmic data. See TileMobiDAQAnalysis wiki page for details.

DC3 calibration questionnaire

Planning for DC3 has started. DC3 calibration questionnaire is attached here, and TileCal answer is given attached here

TODO: decide which physics samples we want to simulate in DC3

TODO: decide what we can do with miscalibrated samples provided in DC3, which algorithms can be applied to physics samples to recover calibration.

Detector Description

Anna Lupi is working on realistic description of the calorimeter installed in the pit. This means that instead of symmetric calorimeter with 64 identical phi-slices we want to describe all special modules as well as dead material in the gap between barrel and extended barrel modules. First step - to describe special ITC modules - is almost done and DetDescr database will be updated with new numbers related to special ITC modules in July. Second step - to describe special extended barrel modules and finally last step - special barrel modules. Full non-symmetric TileCal is expected by the end of the year.

TODO: description of dead material in the barrel/ext.barrel gap is not started yet. Need somebody to work on this: to make inventory of various crates, cables, pipes and to put all this in GeoModel

Gia Khorauli is working on GeoModel description of active and inactive material for simulation with Calibration Hits. The database update and all the code is expected in June

Simulation

Several bugs were fixed by Gia Khoraiulli in simulation with Calibration Hits. Final tag to use - TileG4Calib-00-00-19, which is available in 10.3.0 and 10.0.4 Many tests done by Gia demonstrated perfect energy conservation across full eta range and correctness of energy stored in TileHit object. Next step is to start massive production with Calibration Hits for the CTB setup - contact Francesco Spano and Tancredi Carli for details.

Famous TileCal sampling fraction, which was $1/40$ in TileCal software since release 1.0.0 needs to be updated. Andrea Dotti reported that correct factor to be used for CTB simulation is $1/38.1$ Gia Khoraiulli is checking now what is the correct factor using "truth" information from Calibration Hits

Stanislav Tokar started to work with Joe Boudreau from LAr on fast simulation for TileCal. Status report will be done during June TileCal week.

Event Display

There are two different Event Displays in ATLAS: Atlantis and v-atlas (former GeoModel hit display). Both will be used for commissioning. See [TileEventDisplay](#) wiki page

Reconstruction

Valencia people are comparing different opt filter methods

Calibration hit reconstruction - Gia Khorauli wrote code for CaloCalibHitRec package, mostly algorithms to store Calibration hits info in CBNT as well as algorithms to check correctness of Calibration Hits (e.g. invalid identifiers). Please, contact him if you feel that something is still missing there.

Common LAr+Tile reconstruction - need more people from TileCal testing common Calorimeter reconstruction, testing and tuning TopoClusters, working on hadronic calibration.

Databases

Conditions DB for commissioning: Karl Gellerstedt provided support for COOL database in release 10.3.0. We are using currently pcata007.cern.ch as a COOL server and stored there constants for 2004 CTB. Analysis of CIS runs taken in June 2005 is ongoing and will be stored in COOL as well. After release 10.4.0 we'll migrate to central ATLAS COOL server.

Trigger software

Giulio Usai is trying to use TileMuID algorithm in Level 2 Trigger. Reading of all TileCal channels from the ByteStream file takes about 18 ms, but this should be decreased to few ms before it can be used in Level 2.

Pedro Amaral updated BS conveter and now Digits->RawChannel conversion in BS converter is calling TileRawChannelBuilder, i.e. there is only one place in CVS where all optimail filtering is done. This modification was tested on testbeam data with Level2 people. Sasha Solodkov done the same for RawChannel->Cell conversion: TileCellBuilder is called from BS conveter.

Pedro Amaral provided code to create TileTTL1 object from TileRawChannel or TileDigit - needed for comparison of Level1 output and detector output at the testbeam. Code is available in 10.x.0 and 10.0.x. TTL1 shape provided by TileConditions was updated, but not yet used in the release. Now we need to simulate different shapes for different trigger cables.

Major updates:

-- Main.solodkov - 17 May 2005 -- Main.solodkov - 05 Jul 2005

%RESPONSIBLE% SanyaSolodkov

%REVIEW%

This topic: AtlasArchive > TileCalActivities

Topic revision: r7 - 2005-07-05 - SanyaSolodkov



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