Current Status of LAr HEC TestBeam software

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Updated

LArHECTBCnv (current version 00-00-08)

→ *Converter from EPIO format to TDS*

- New data objects are added in EVENT class.
  - RUNHEAD* : run header data (run number, beam energy...)
  - SLOWCONT* : slow control data (cryostat temperatur, pressure...)

  Normaly, they are recorded in only the first event.

- Move from **Identifier** to **SignalChannelID**

TestLArHECTBCnv (current version 00-00-07)

→ *Example package for LArHECTBCnv*

- Channel ID is modified according to updatd LArHECTBCnv.

† Some update are not reflected, and the early LArHECTBCnv-00-00-08 are tagged in release 2.2.0 and 2.3.0.

† They will be tagged in the coming release.

New Packages

Two new packages are added for LArHEC TB process under
`offline/LArCalorimeter/LArTestBeam`

LArHECTBPed (current version 00-00-01)

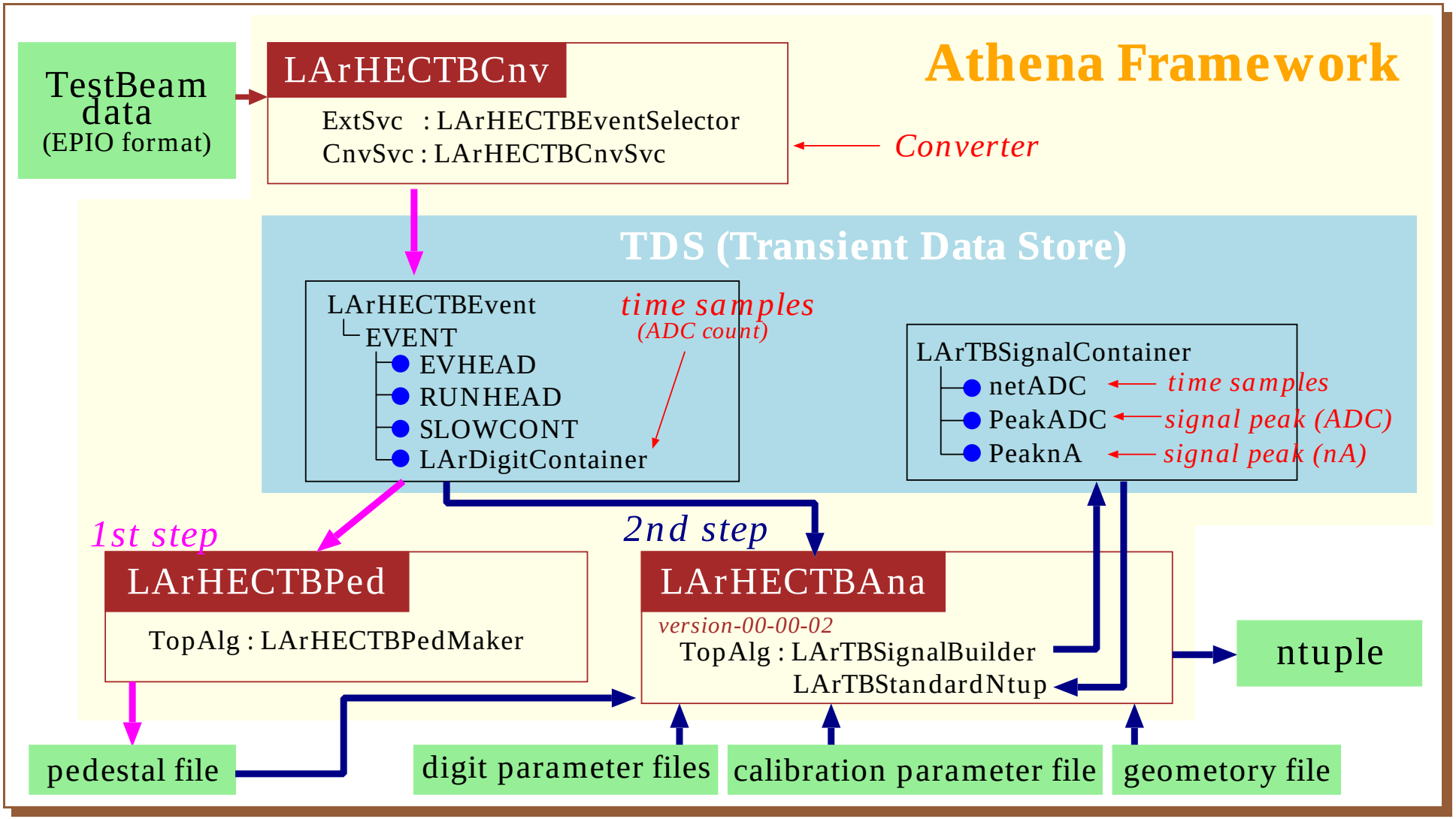
- *Performance* : Retrieve LArDigit and calculate a pedestal for each cell with event selection, “sigma-cut” (optional).

LArHECTBAna (current version 00-00-01)

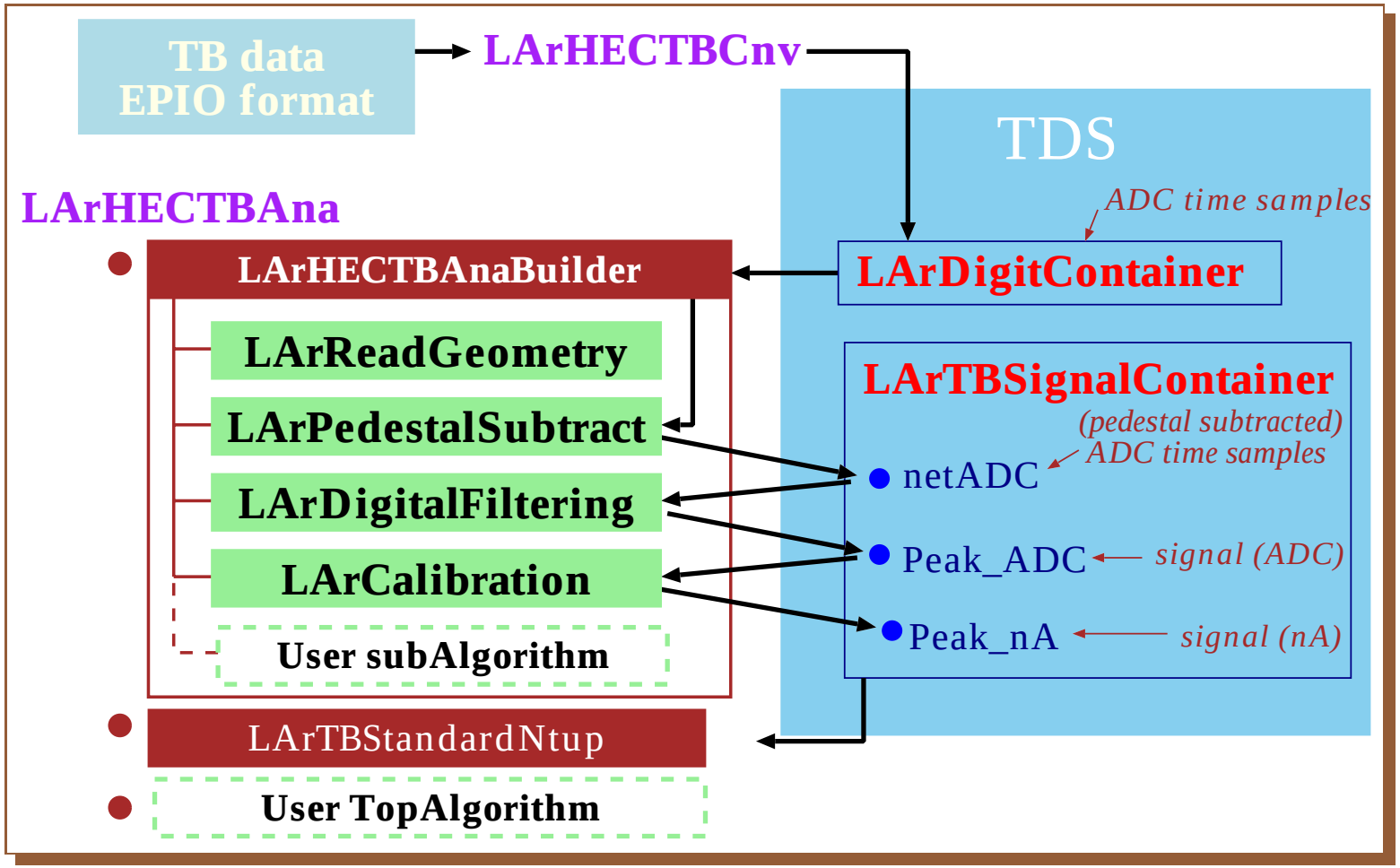
- *Performance*: Reconstruct signal and produce a standard nutple.
  - pedestal subtraction
  - digital filtering
  - calibration

† They’ve already been committed in cvs repository,
but not user friendly....

LAr HEC TestBeam packages in athena



LArHECTBAna package



LArHECTBPed package

Produce a pedestal file for LArHECTBAna packapge.

<LArHECTBPedMaker>

execute ( )

retrieve LArDigitContainer

for (ifirst != ilast ; ifirst ++) {

if (nevents < N) {

calculate σ_{cut} , μ_{cut} using the first N events

}

else {

calculate σ , μ using the remainning events with $|x - \mu_{cut}| < \sigma_{cut} * n$

}

}

finalize ( )

iostream out ;

out $\ll \mu \ll \sigma \ll N_{used} \ll \mu_{cut} \ll \sigma_{cut} \ll$ endl;

Following variables are given by *jobOptions.txt*.

- The first time sample # to be used.
- The last time sample # to be used.
- The number of events used for cut condition
- The number of sigma for event selection
- File Name

- Output format will be changed
- Store pedestal in *"condition database"*

Conclusion and Outlook

† Conclusion

- LArHECTBCnv-00-00-08 are **updated**.
  It will be tagged in the coming release.
- New packages, **LArHECTBAna** and **LArHECTBPed**, are prepared for LAr HEC TB analysis. But they are less flexible...
- More flexible version, **LArHECTBAna-00-00-02**, is ready.
  We have to think about the design to include EMEC TB data easily.

† Outlook

- LArHECTBAna will be extended to be more flexible and to include EMEC TB data.
- Incorporate *DataBase* as it becomes available.