

**Status  
of  
athena-based HEC beam test  
software**

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# Software development for EMEC/HEC combined TestBeam

*HEC TestBeam software can run in **athena** framework.*

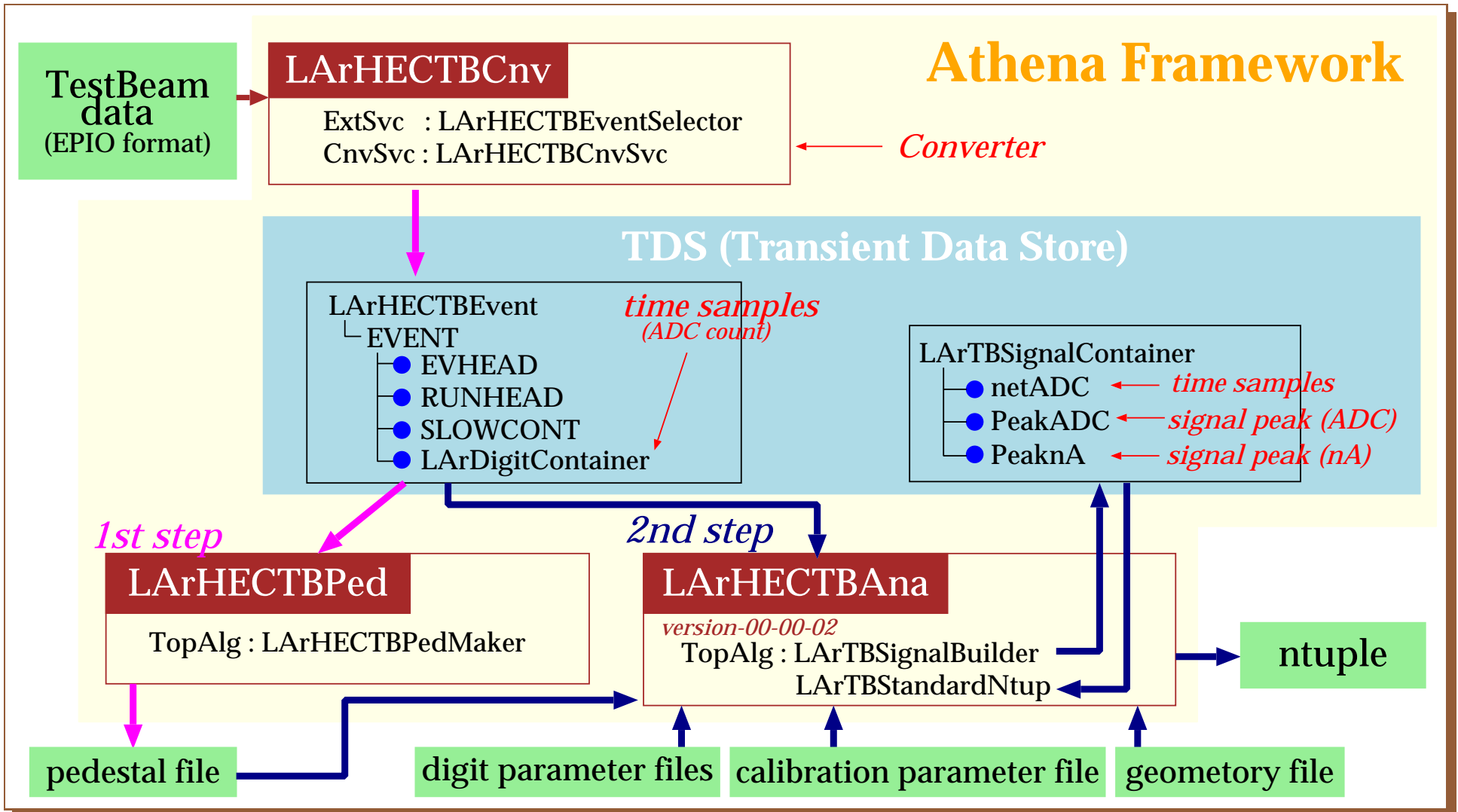
## Current Status

- † Step 1 : **Read** EPIO data in TDS (Transient Data Store).
- † Step 2 : **Produce** a standard ntuple for offline analysis.

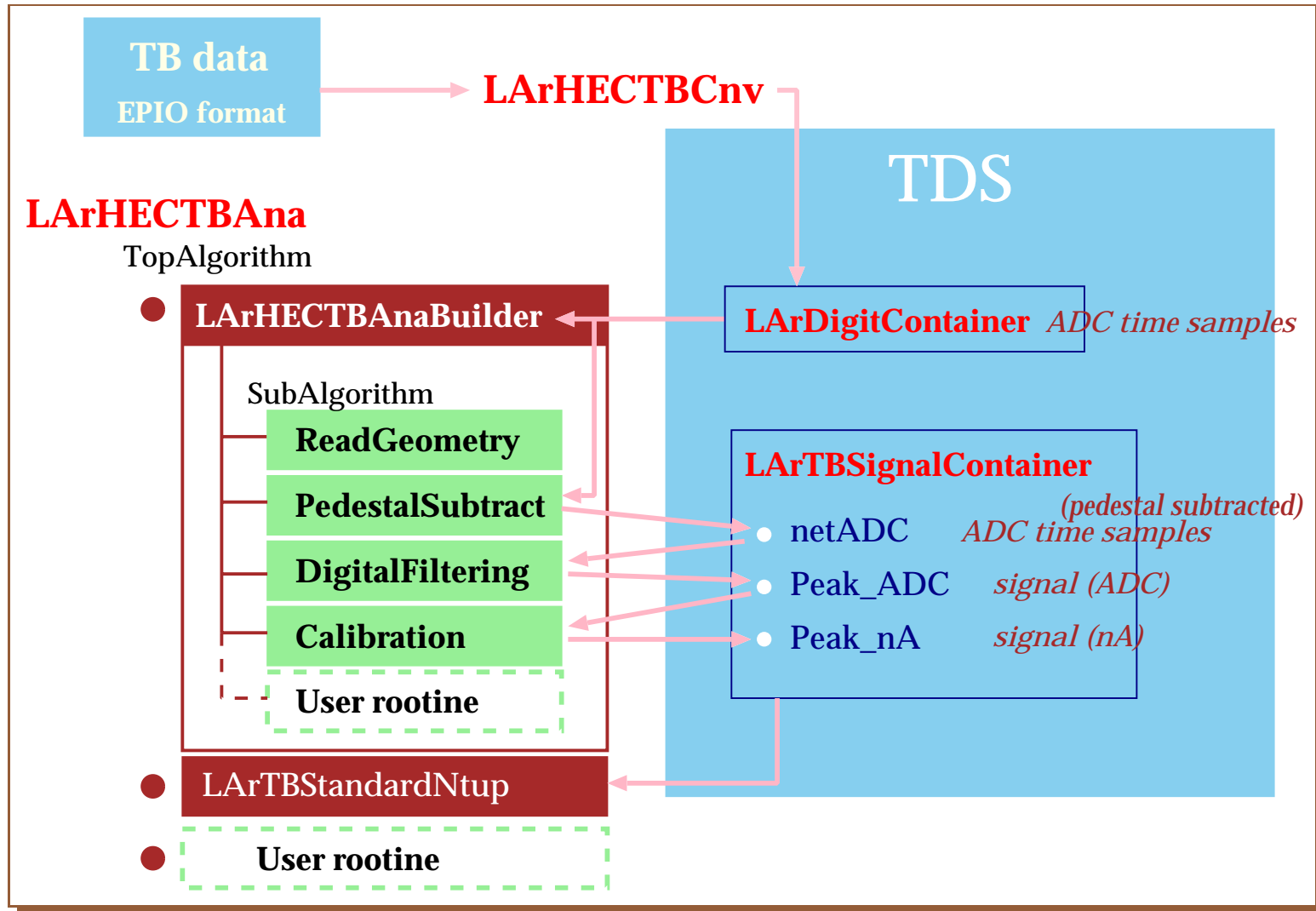
## Plans

- † Step 3 : **Extend** the software to
  - include EMEC TB data
  - produce histograms for online monitoring
  - make the package more user-friendly
- † Step 4 : **Incorporate** new software(DataBase) as it becomes available (e.g. store pedestal in “*conditions database*”).

# LAr HEC TestBeam packages in athena



# LAr HEC TestBeam packages in athena



# About New Package

LArHECTBPed-00-00-01

*This package calculated pedestal and write it in an ascii file.*

- Pedestal calculation is performed with “sigma-cut”. ( $|\mu - \mu_{\text{cut}}| < n \times \sigma_{\text{cut}}$ )
- Some conditions can be changed by *jobOptions.txt*.
  - the first time sample # to be read for pedestal calculation
  - the last time sample # to be read for pedestal calculation
  - the number of sigma ( $n$ )
  - the number of events for calculated for  $\mu_{\text{cut}}$  and  $\sigma_{\text{cut}}$
  - file name
- Package will be updated for increased flexibility if necessary.
- Pedestal data will be stored in database.

## About New Package

LArHECTBAna-00-00-01

*This package performs the following jobs to reconstruct signal :*

- pedestal subtraction
  - digital filtering
  - calibration
  - produce a standard ntuple (almost same as the one of hec\_adc)
- version 00-00-01 has less flexibility.  
Users can change only input parameter files and some parameters for timing correction.
  - version 00-00-02 (not exist in cvs repository)  
Each job is created as “sub-Algorithm”, and users can
    - choose algorithms you want to use by “jobOption.txt”
    - plug your own algorithm

## Summary and Outlook

### † Summary

- **LArHECTBCnv** (converter) is updated.
- New packages, **LArHECTBPed** and **LArHECTBAna**, are added.
- More flexible **LArHECTBAna** (version-00-00-02) is ready, and will be committed in cvs repository and tagged.

### † Prospect

- Athena and LArHEC specific tutorial Oct 12, 2001
- Extend packages to include EMEC TB data, and to be more user friendly ???, 2002
- **EMEC/HEC combined TestBeam** Jul, 2002 ?