



# Updates from TB Analysis Group

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# Overview

- Status of TB data
- Recent analysis highlights
- Issues with use of FairMu tracking software
- Computing model




# Status of TB Data

- Available runs as NTuples:
  - 3086
  - 3090
  - 3091
  - 3092
  - 3100
  - 3101
  - 3102
  - 3103
  - 3104 - First run with synced ECAL
  - 3105
  - 3108 - Vcth scan (Module #2)
  - 3110
  - 3112 - Electron run with ECAL
  - 3113 - Golden for physics
  - 3114 - Golden for physics
  - 3115 - Bias scan (Module #2)
  - 3116
  - 3117 - Full DLL scan
  - 3118 - All module bias scan
  - 3119
- Descriptions of individual runs can be found [here](#)

68.6 TB of  
stub data

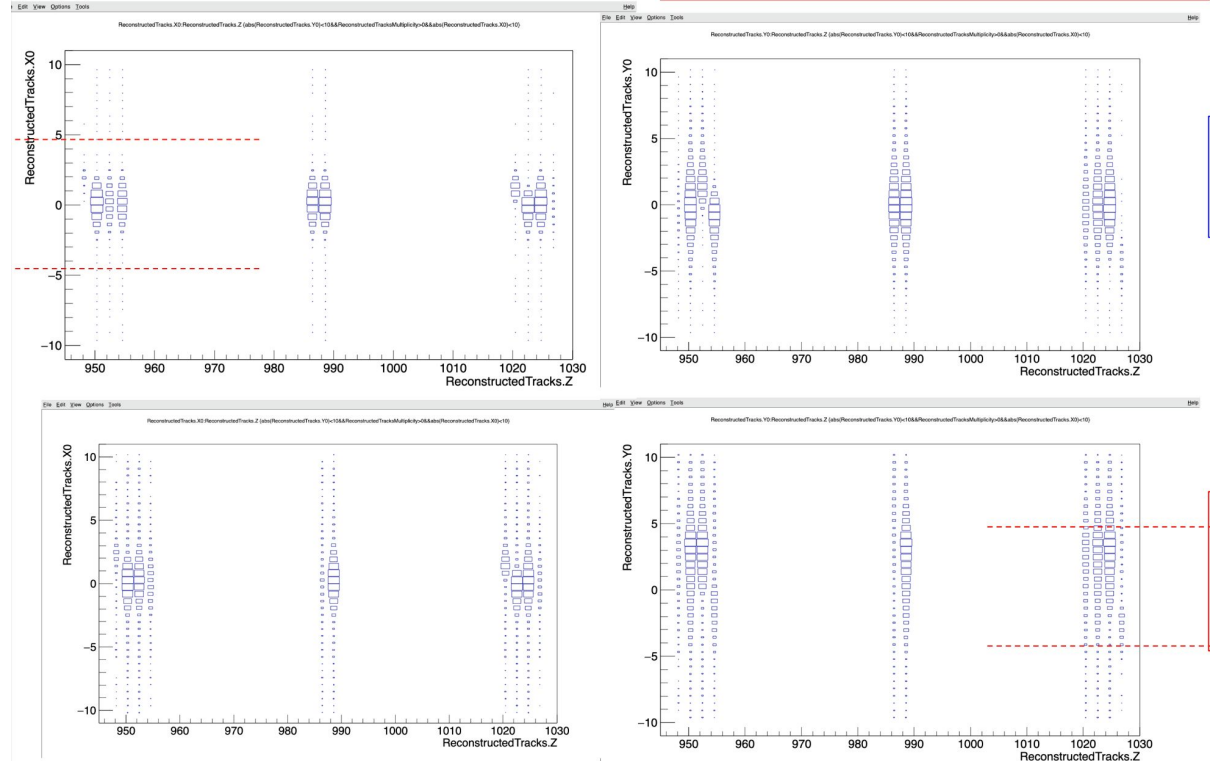


# Recent Analyses

- [Analysis of Electron Runs](#) (Clara Matteuzzi)
  - [Track Finding in HLS](#) (Michael McGinnis)
  - DLL Scan Analysis [1](#), [2](#) (Martin Delcourt)
  - [Intrinsic Resolution Measurement](#) (Riccardo Pilato)
  - [Tracking with N-1 modules](#) (Matteo Magherini)
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# Issues with Track Reconstruction using FairMu

- Came to my attention through the work being done by Clara on electron runs
- Reconstructed tracks can be found outside of the acceptance of the physical module
- Conversion problem?  
Mis-reconstruction?

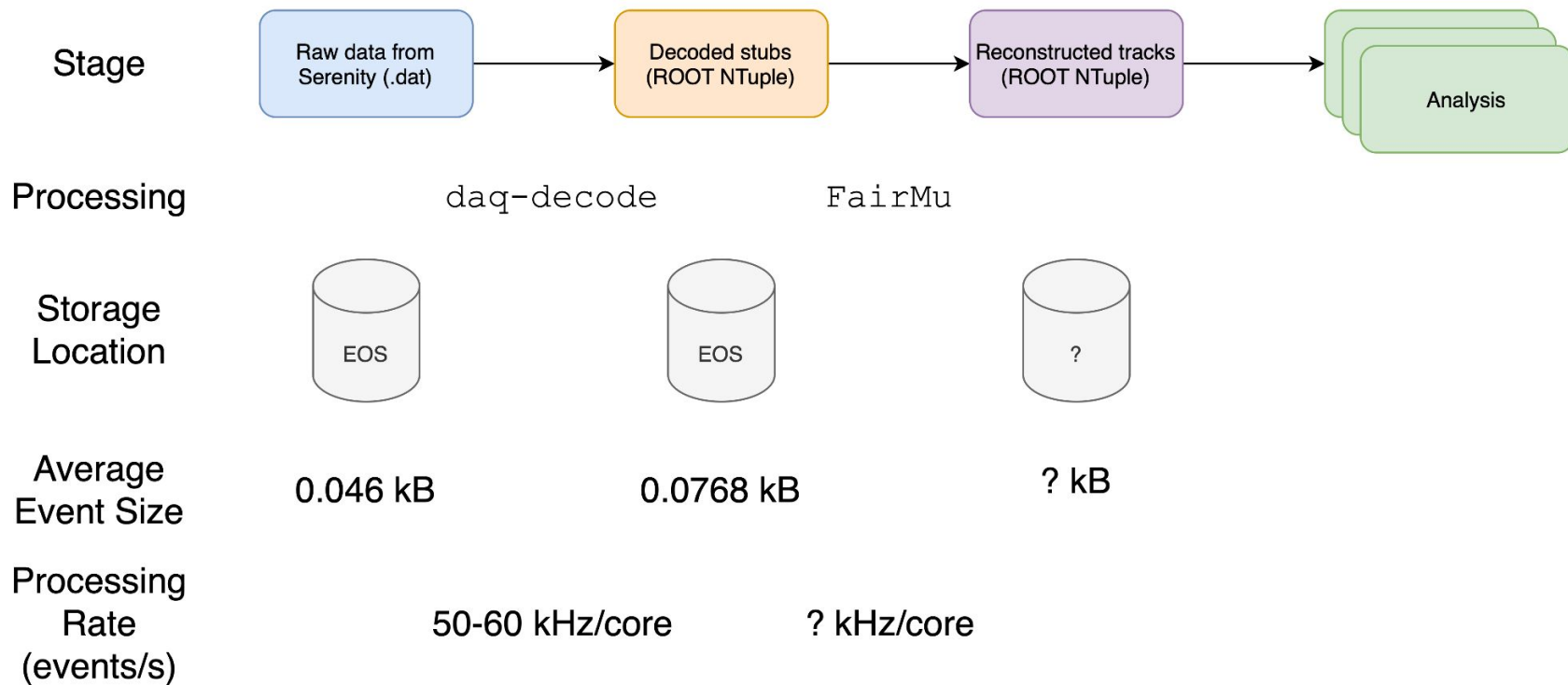


# Computing Model

- Necessary to understand requirements for next beam test and future experimental running, must be in proposal
  - Strongly emphasised by Umberto in recent meetings
- Current event definition: *Data stored for a single bunch crossing for a single station*
- Metrics required for each step in model:
  - Event size
  - Processing time/rate per event per core
  - Network/disk I/O
  - RAM usage

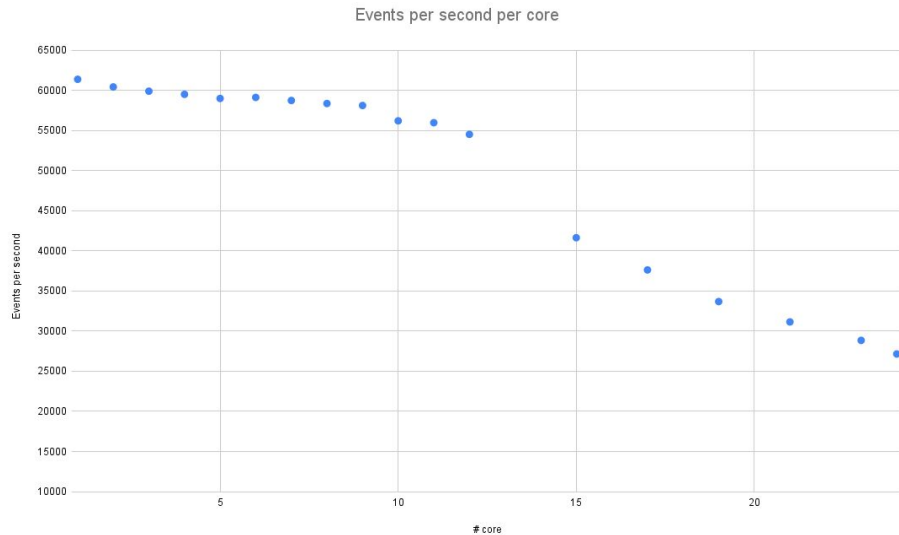


# Current Model



# DAQ Decoding Benchmarks

- Benchmarked on single DAQ machine in B888
  - AMD Ryzen 9 5900X, 12 cores, 24 threads @ 3.7 GHz
  - 128 GB RAM
  - 10Gb/s link to EOS
- Findings:
  - Decoding scales approximately constantly up to 12 parallel processes, drops off significantly once hyperthreading is required
  - RAM usage per core negligible
  - Network I/O 0.4-0.5 Gb/s for 12 parallel threads





# Next Steps

- We need your input - event size and processing rate for the track reconstruction
- Will NTuples of reconstructed tracks become available?
  - Vertexing studies
  - Beam dynamics

