STT: Hit filtering status

- What’s new
- Physics
- Timing
- To do

What's new

- Algorithms
  - implemented .ge.3 layers for
    - road-center based
    - all combinations
- Samples
  - Z to bb, +0, +2, +5 interactions
  - WH, +0, +2 interactions (Feb '97)
- Bug fixes (analysis, not algs)

Physics

Recall, comparing algorithms using physics purity and efficiency

- Purity
  - Number of geant tracks in track
  - χ^2, fit - true
- Efficiency
  - currently, "unfittable" CFT tracks
  - soon, real particles not fitted

Plots, plots, plots and more plots

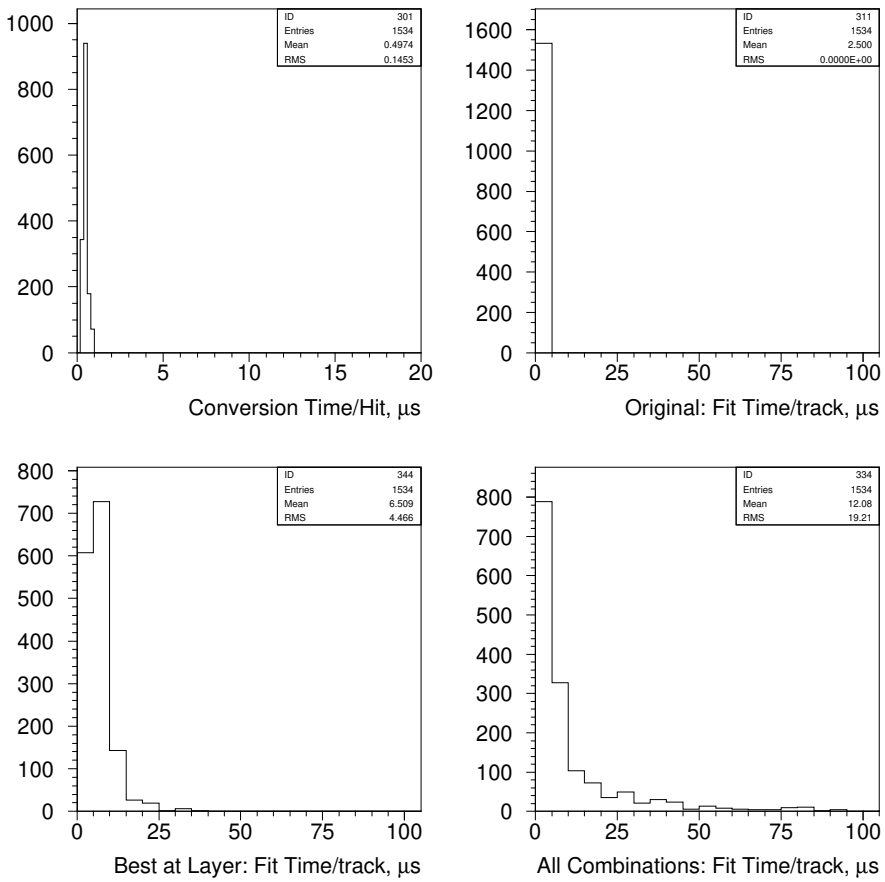
See http://www-d0.fnal.gov/~hobbs/d0_private/stt_980709_plots.ps

Preliminary Conclusion

- Generically best algorithms
  - road center using origin
  - all combinations
- Best luminosity behaviour
  - All combinations
    - Except for multiplicity overflow
    - Too big to process in parallel?
- Reducing to 3 layers
  - buys efficiency
  - performance OK?
- Still don’t understand some features
  - probably bugs...

Timing

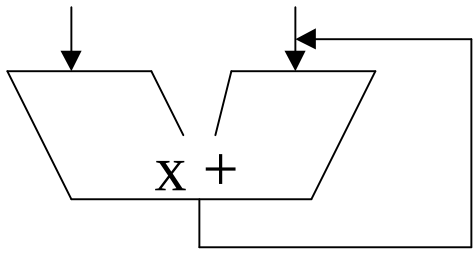
- 500 Mhz AXP



- DSP, Hal first pass, 350 µs/track

Timing, cont

- Altera 10k
  - starting looking at this
  - by hand, need
    - register sets w/parallel read/write
    - floating point multiply into add



  - Crudely, 10 parallel FP units/track candidate
    - approximately 20 “clock cycles”/fit
    - plus overhead
      - hit copying/assigning
      - χ^2 storage and comparison

To Do

- Debugging
- More samples
  - WH +4 int
  - backgrounds
- DSP timing
- further looking at FPGA