

# Production chain timing & CPU usage

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# Outline

- What do we compare ?
- How do we compare ?
- CPU usage
- Conclusions

# What do we compare ?

- We compare performance for four versions of reconstruction program:
  1. **Sti** (aka Star Integrated Tracker, which has been started as project in 2001 by Integrated Tracker Task Force - ITTF) is the baseline STAR tracker for last 6 years.
  2. **StiCA** is Sti with added Cellular Automata (CA) track seed finder. CA originally was developed in HERA-B and now this development is continued by GSI group (I.Kisel, et al.) for Alice , CBM, ... The fitting procedure in StiCA has not been touched. The only difference between Sti and StiCA the priority order in which track seed candidates are fitted.
  3. **Stv** is completely new development by Victor based of full GEANT3 geometry description, new fitting, new error parameterization, ...
  4. **StvCA** is Stv which uses CA seed finder.

# What do we compare ? (cont.)

From the above list we should expect :

- Rather small differences between Sti and StiCA from one side and
- Significant differences between Sti/StiCA and Stv/StvCA.

The last comment: StiCA and Stv/StvCA are playing on field of Sti.  
Multiple tune-ups for “calibration” parameters are optimized for Sti.

# How do we compare ?

We have to do two big chunks of comparison:

1. Reconstruction done for real data, and
2. Reconstruction done for simulated data.

The performance comparison is filling the following table

	StiCA/Sti	Stv/Sti	StvCA/Sti
Parameter/ condition	+/-/NA	+/-/NA	+/-/NA

The comparisons are (kind of artificially) splitted in three talks:

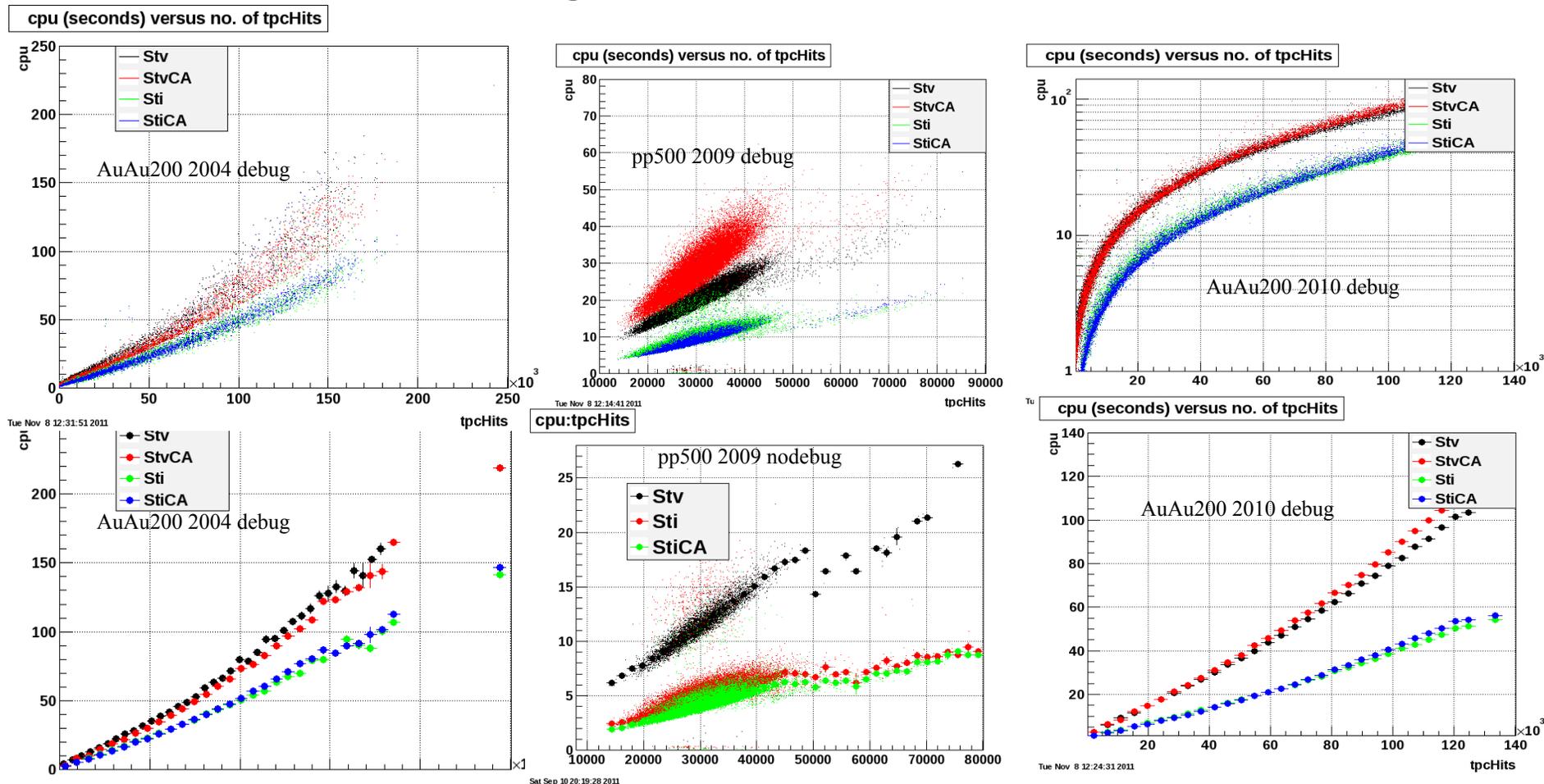
1. This one, which contains some definitions and comparison of CPU performance
2. Comparison for real data.
3. Comparison for Monte Carlo.

The full set of plots which will be referred in all three talks can be found at

<http://www4.rcf.bnl.gov/~fisyak/star/RECO/Eval/TbyT/> and

<http://www4.rcf.bnl.gov/~fisyak/star/RECO/Eval/MC/>

# CPU usage versus no. of TPC hits



- StiCA slightly faster than Sti (by 10÷30% depending on TPC occupancy and compiler options: debug or nodebug) mainly due to removing outliers. (Reduction of this factor from 1.5 which was claimed last year I attribute to rejections of sectors with too many hits which was introduced this year.)
- Stv and StvCA are slower than Sti by a factor 1.5÷3.

# Conclusions

	StiCA/Sti	Stv/Sti	StvCA/Sti
CPU/event	(+) 0.75	(-) 2	(-) 2