

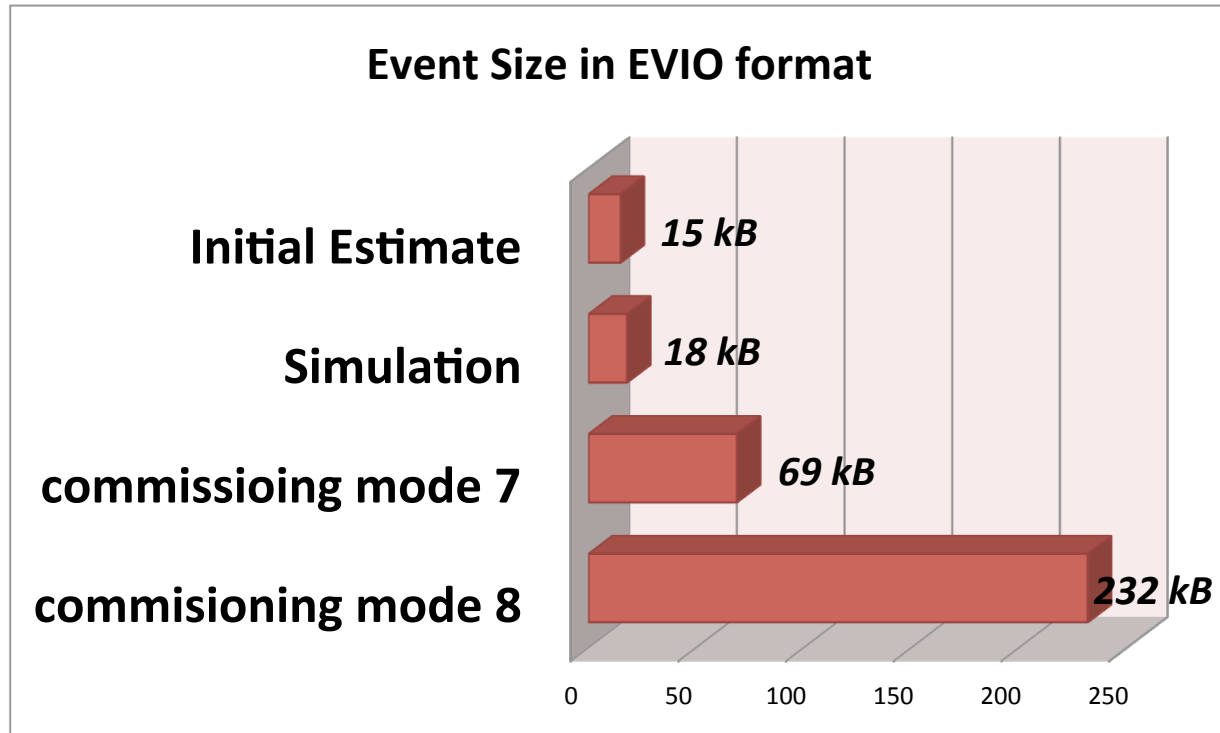
Rough Specs. Review

- $10^8 \gamma/s$ on LH_2 target \rightarrow $\sim 400\text{kHz}$ hadronic rate
- L1 trigger goal is to cut away $\sim 50\%$ leaving 200kHz
- L3 trigger goal is to reduce by $\sim 90\%$ leaving 20kHz
- Early simulation suggested $\sim 15\text{kB/event}$

- Design specs:
 - $15\text{kB/event @ } 200 \text{ kHz} = 3000 \text{ MB/s}$ (front end)
 - L3 reduction by factor of 10 = 300MB/s to RAID disk
 - 3 days storage on RAID = $300\text{MB/s} * 3\text{days} = 78\text{TB}$
 - Maintain 300MB/s transfer from RAID to tape

Event Size

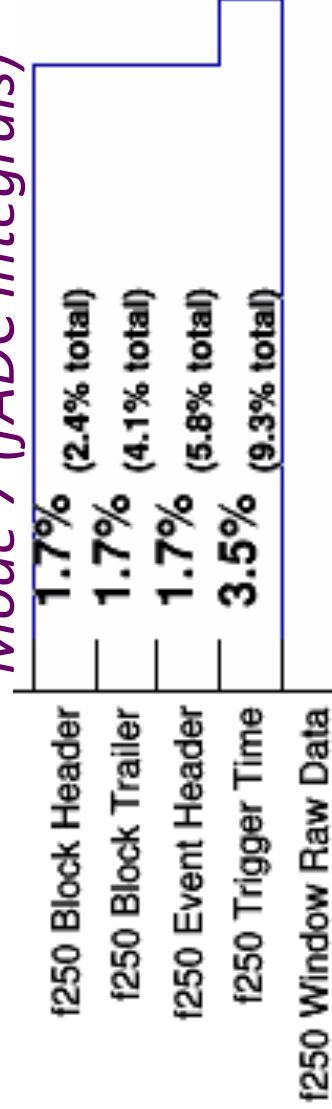
- Simulation was consistent with initial estimate of event size
- Actual data was more than x4 larger
- Much of the data was taken in “raw” mode where fADC samples were saved



- Each 32bit word in the EVIO file tallied to identify what file space is being used for
- Comparison between mode 7 and mode 8 data made

Example: some of the fADC250 word types

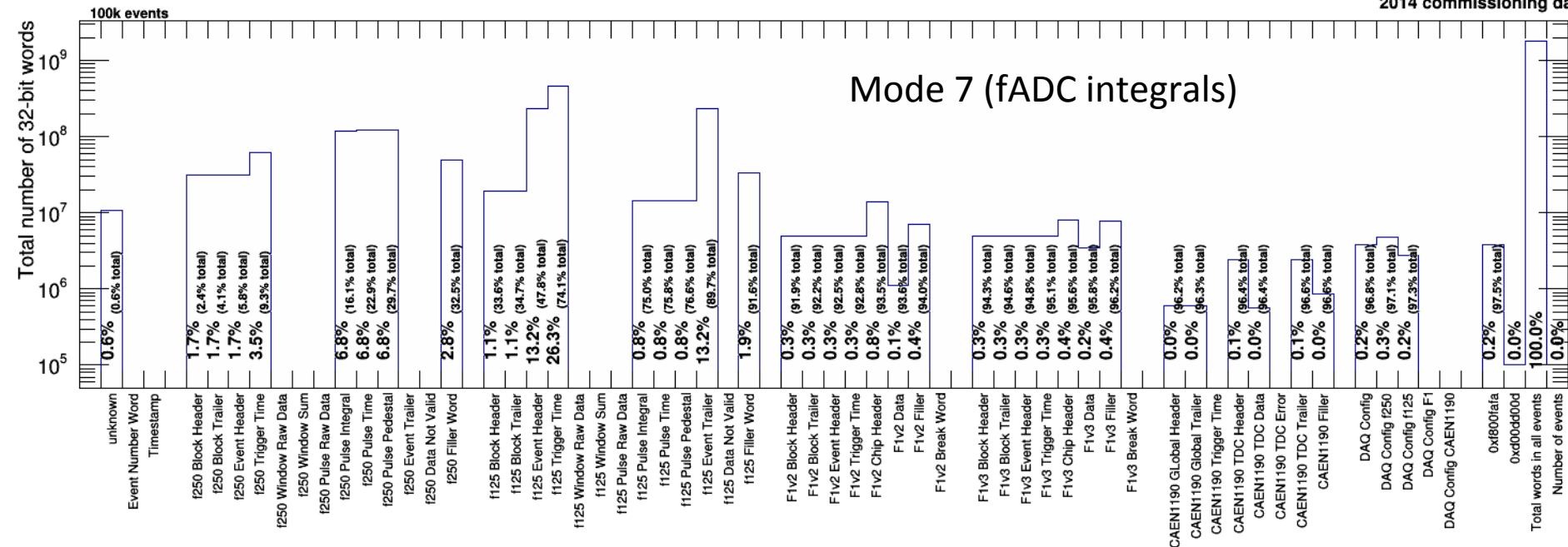
Mode 7 (fADC Integrals)



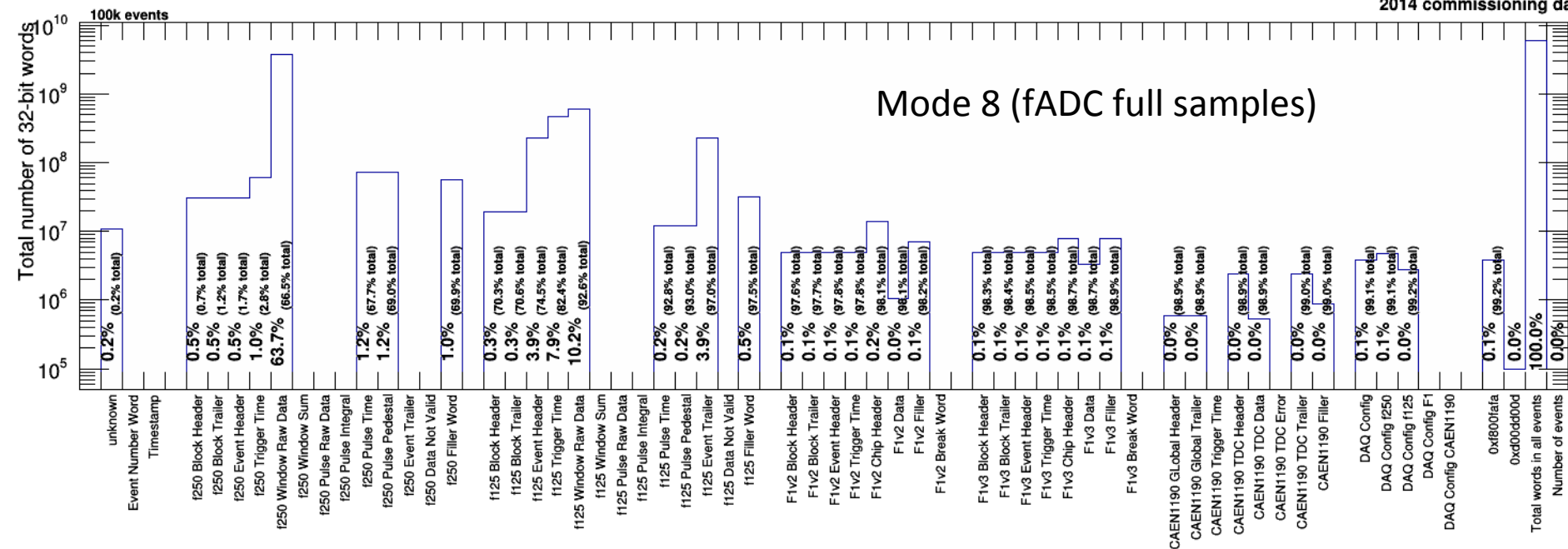
Mode 8 (fADC full samples)



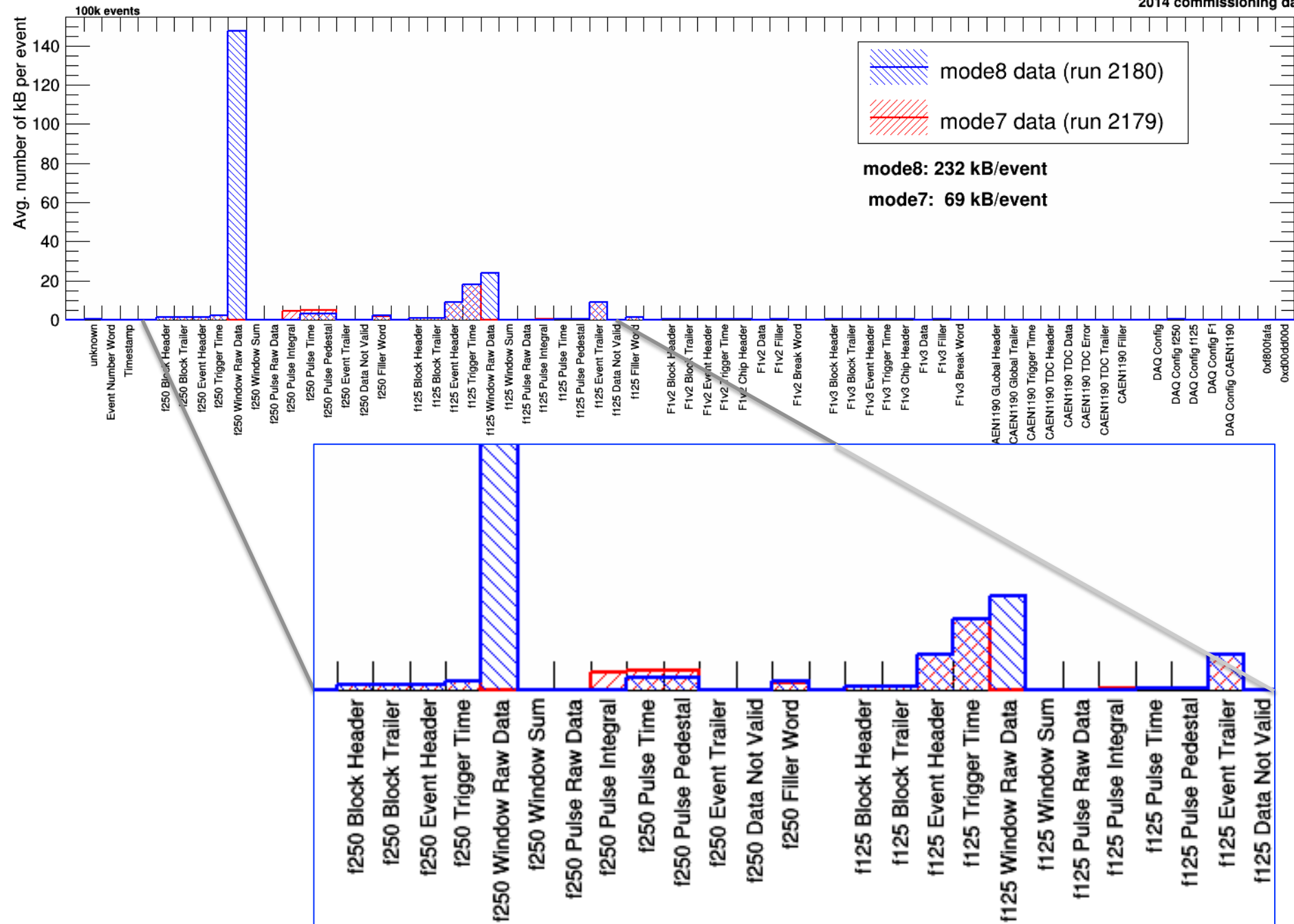
Number of words in 100k events for run 2179



Number of words in 100k events for run 2180



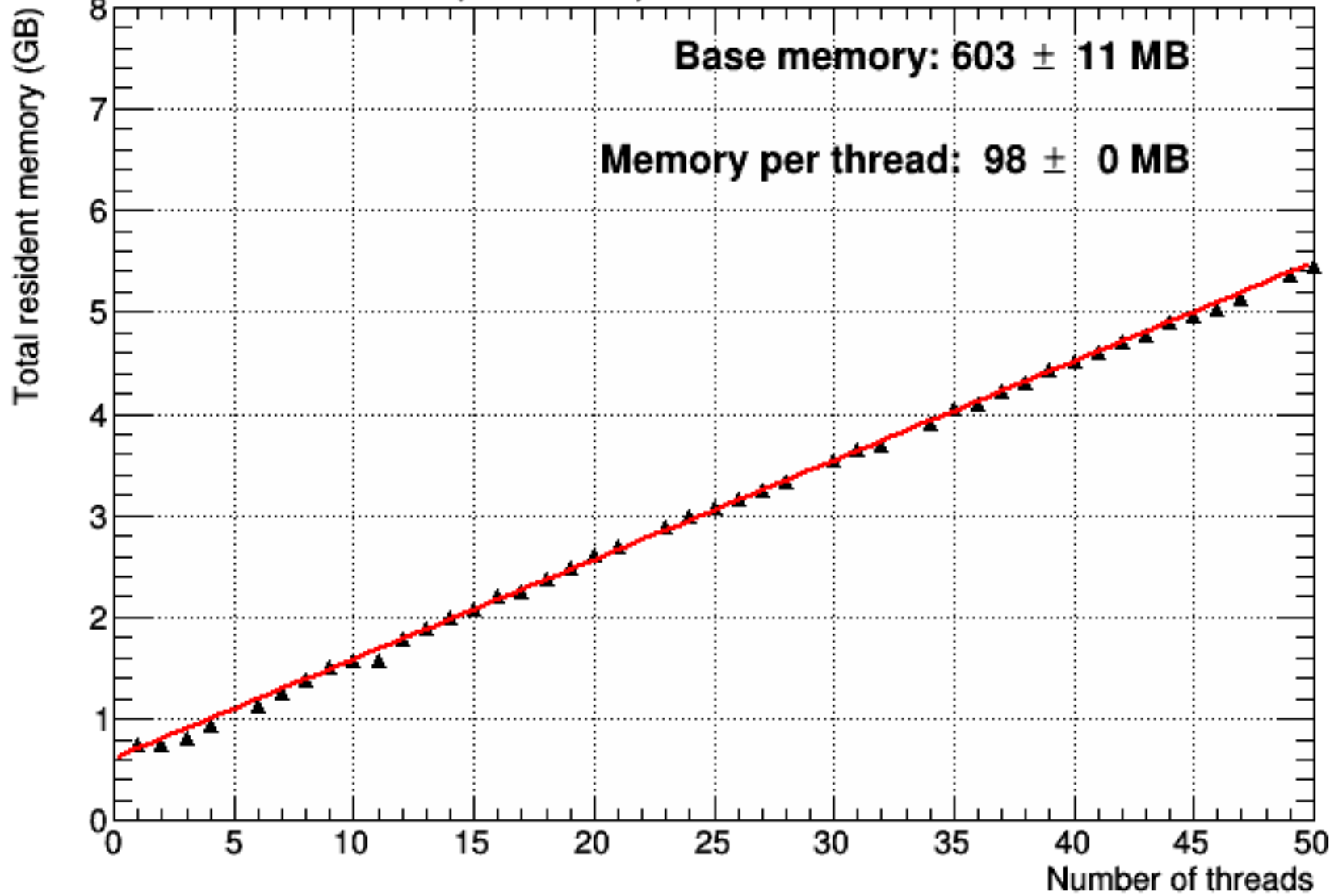
mode7(integrals) and mode8(full samples) EVIO words/event



Memory Usage vs. Num. Threads

January 23, 2015 DL
sim-recon: svn 17000, JANA svn 2115
5k bggen events

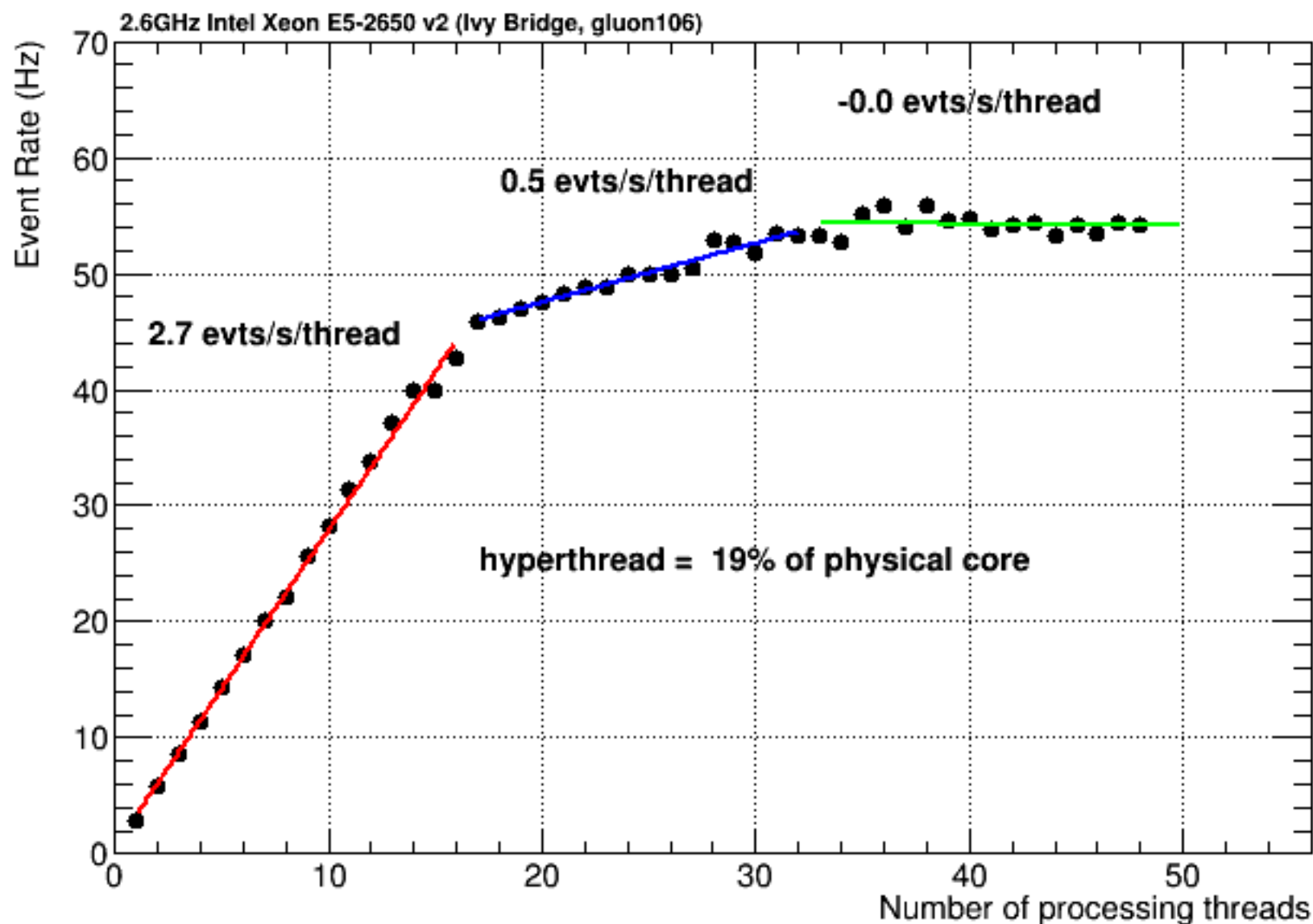
2.3GHz Intel Xeon E5-2670 v3 (Haswell farm14)



sim-recon-commissioning bggen data in EVIO

Integrated rate vs. number of threads

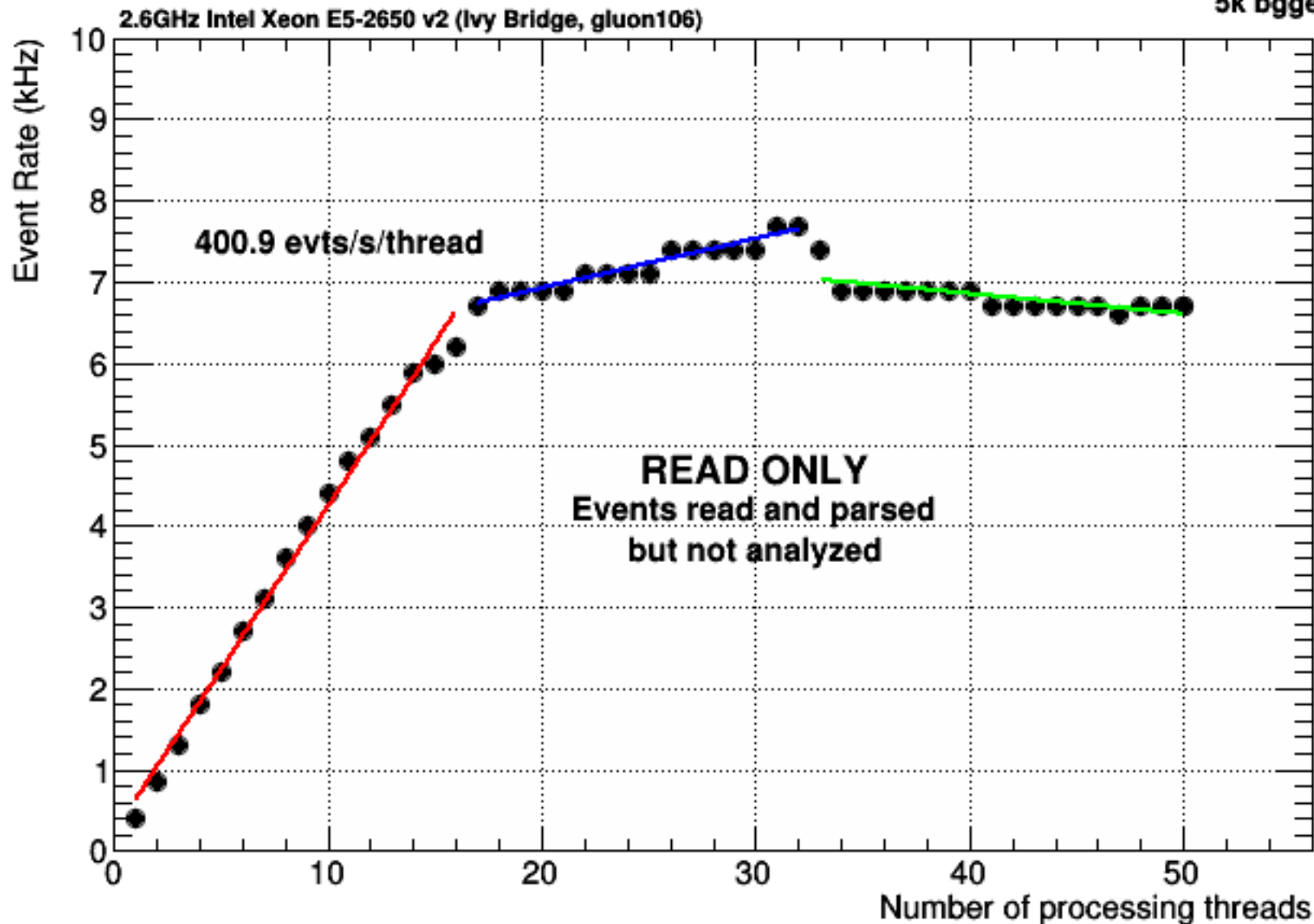
January 22, 2015 DL
JANA svn 2115 (pre0.7.3)



JANA TestSpeed with 100k GOVERNOR_ITERATIONS

Integrated rate vs. number of threads

January 23, 2015 DL
sim-recon: svn 17000, JANA svn 2115
5k bggen events

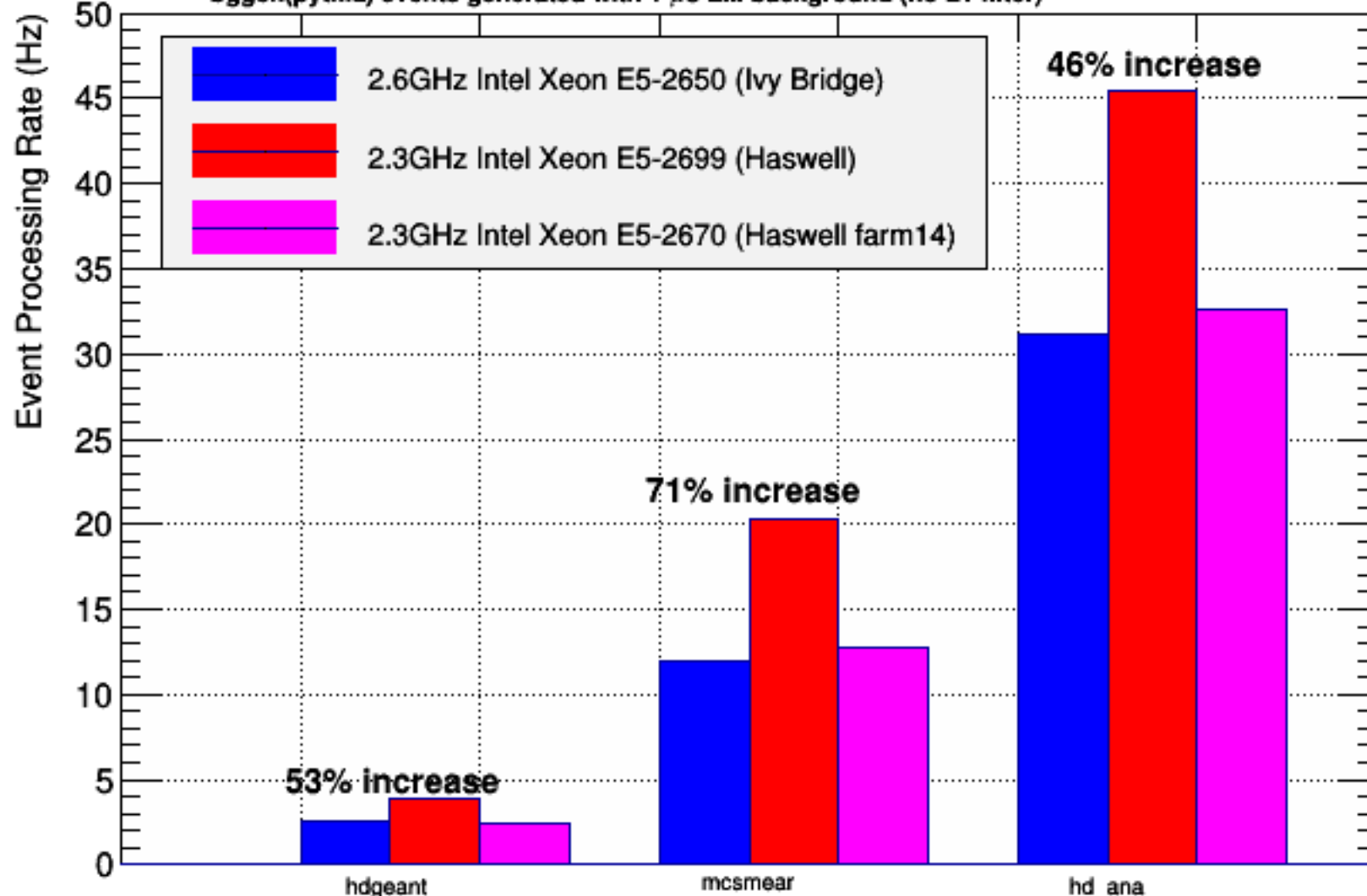


sim-recon-commissioning bggen data in EVIO

Single Thread Processing Rates

January 16, 2015 DL
svn revslon 14114

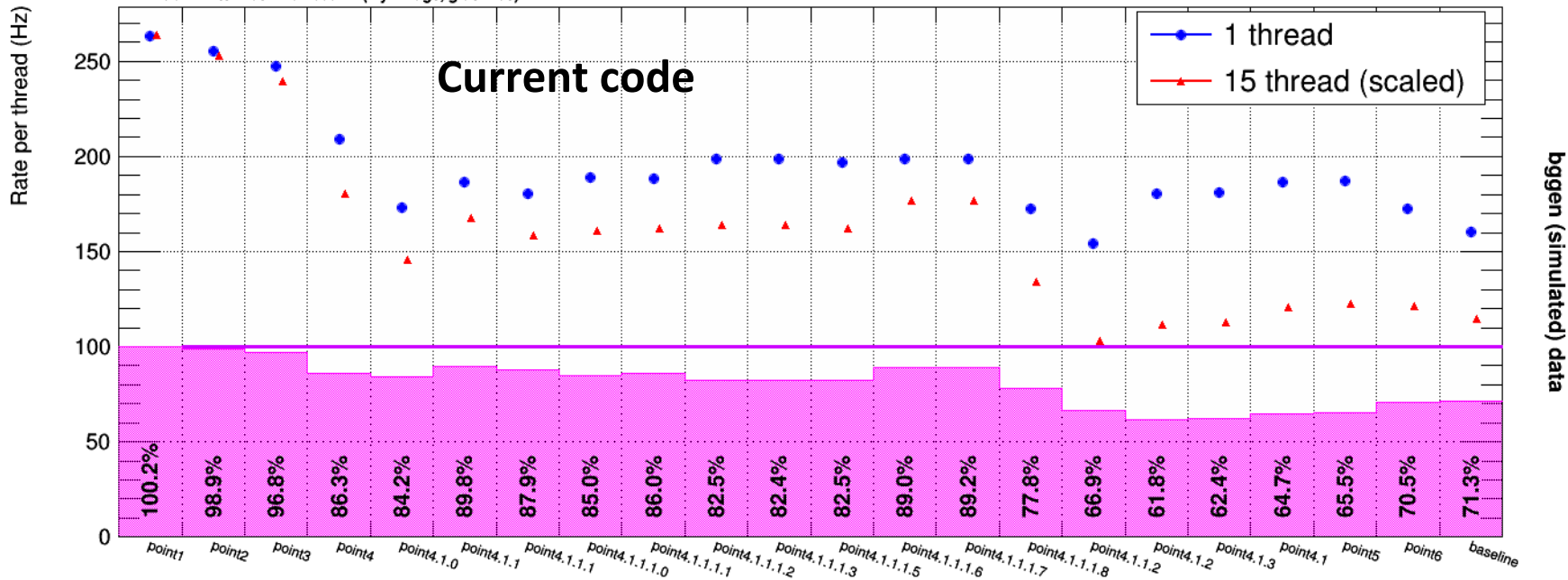
bggen(pythia) events generated with 1 μ s EM background (no L1 filter)



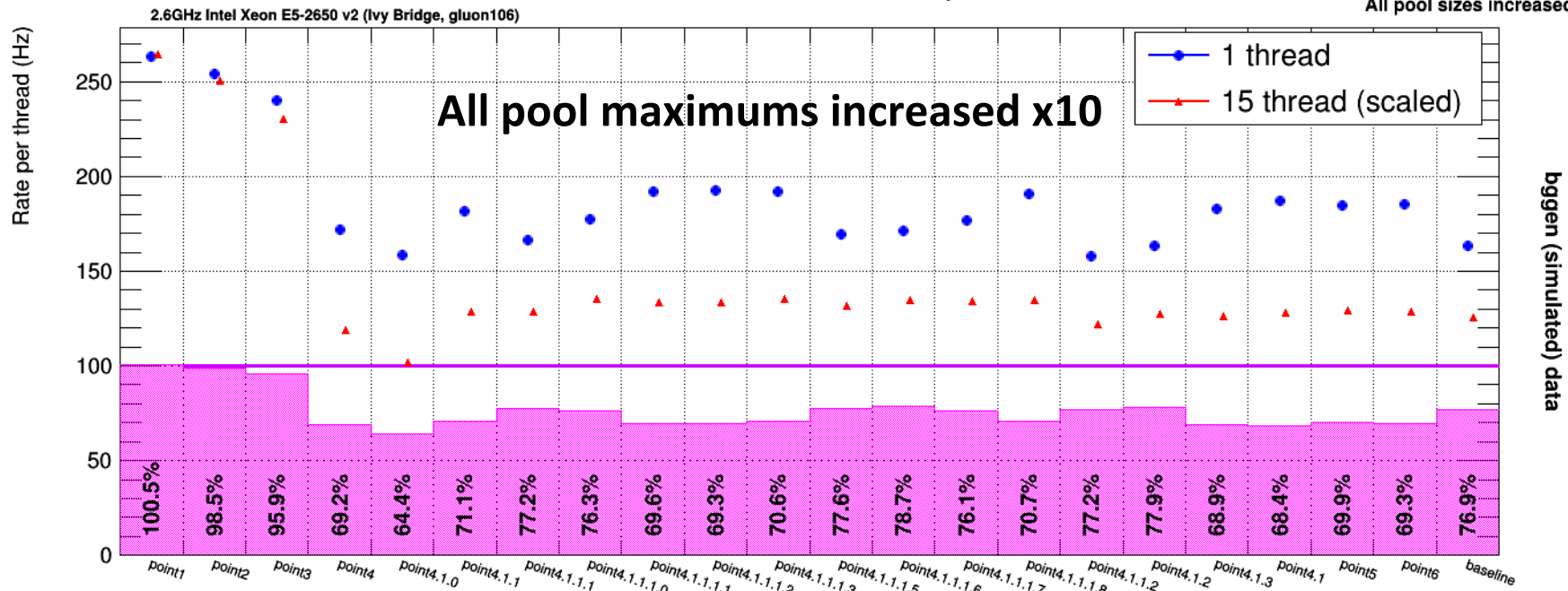
DTrackCandidate:CDC rate vs. point in code

January 28, 2015 DL
sim-recon: svn 17000, JANA svn 2115
All pool sizes nominal

2.6GHz Intel Xeon E5-2650 v2 (Ivy Bridge, gluon106)

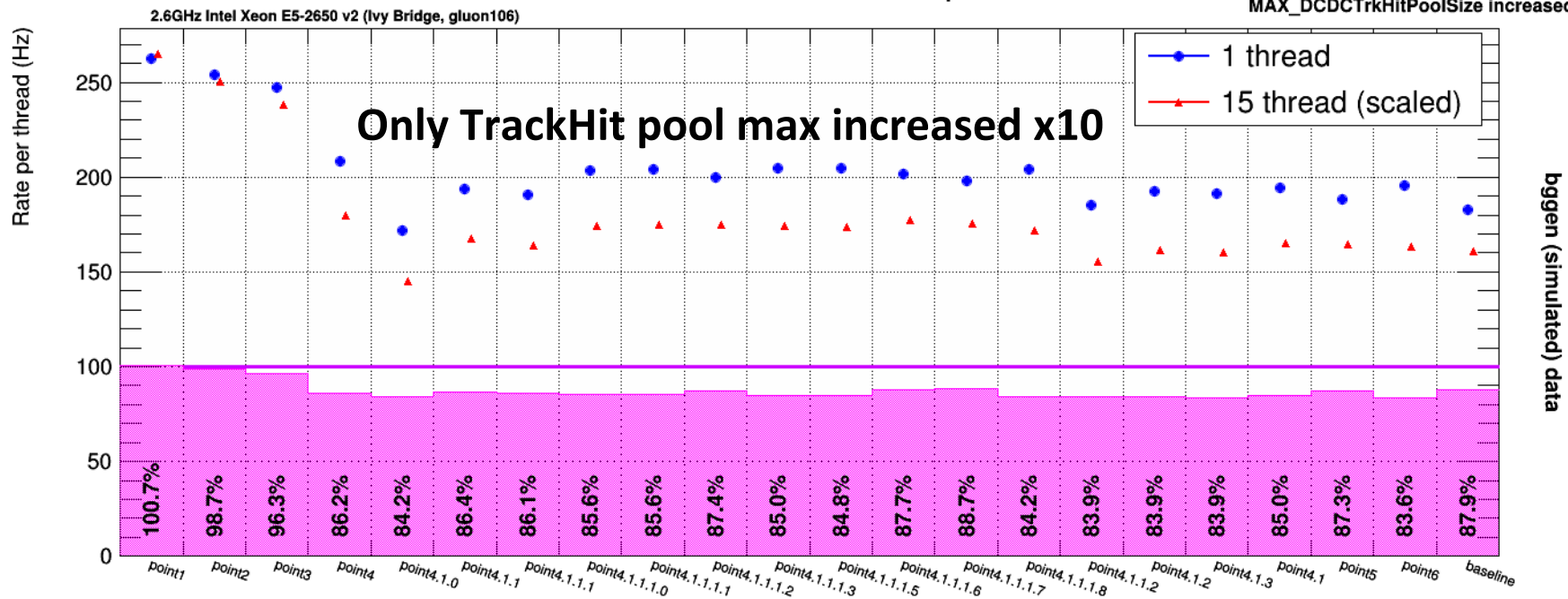


DTrackCandidate: CDC rate vs. point in code



bggen (simulated) data

DTrackCandidate: CDC rate vs. point in code



bggen (simulated) data