

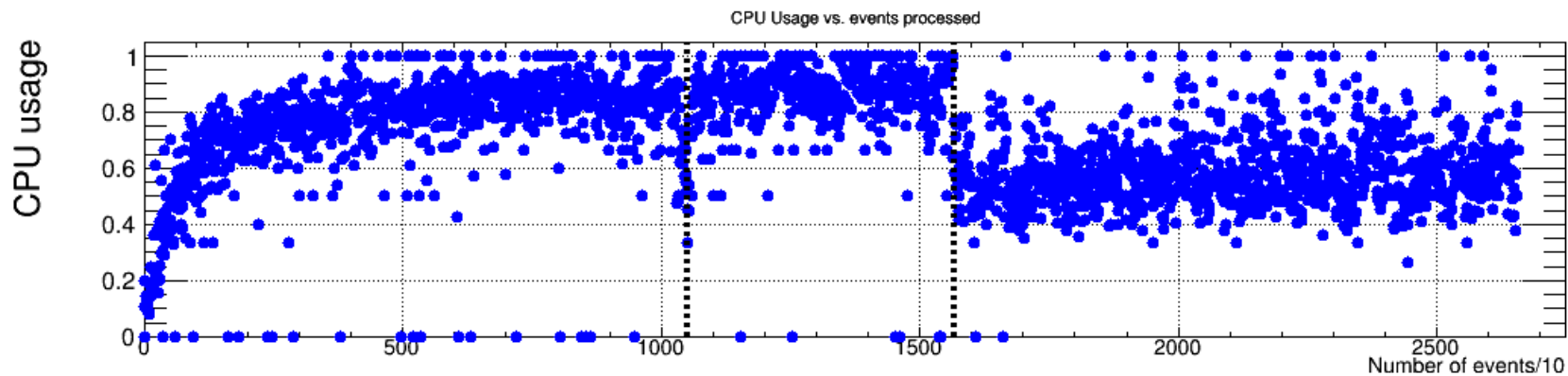
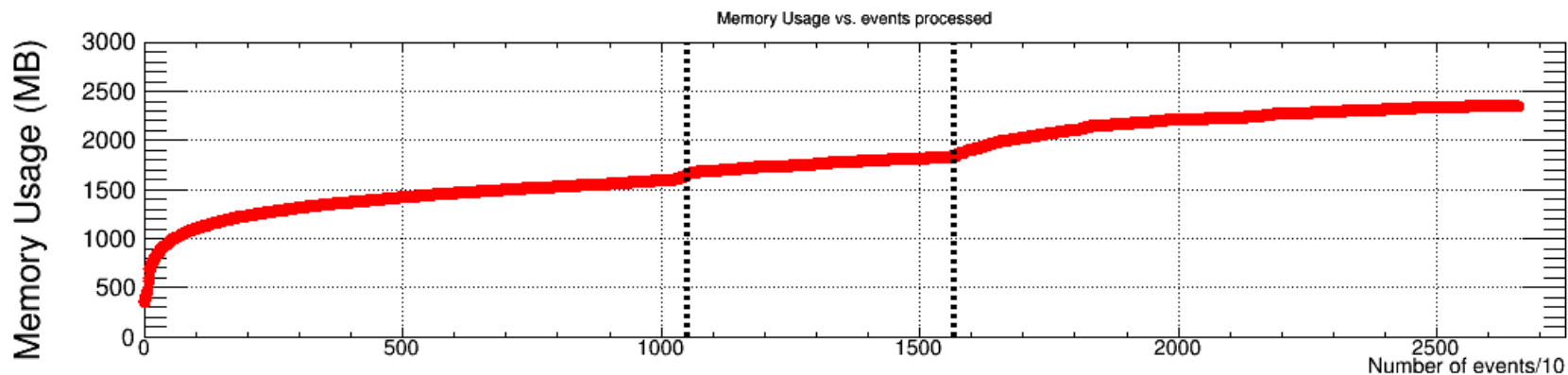
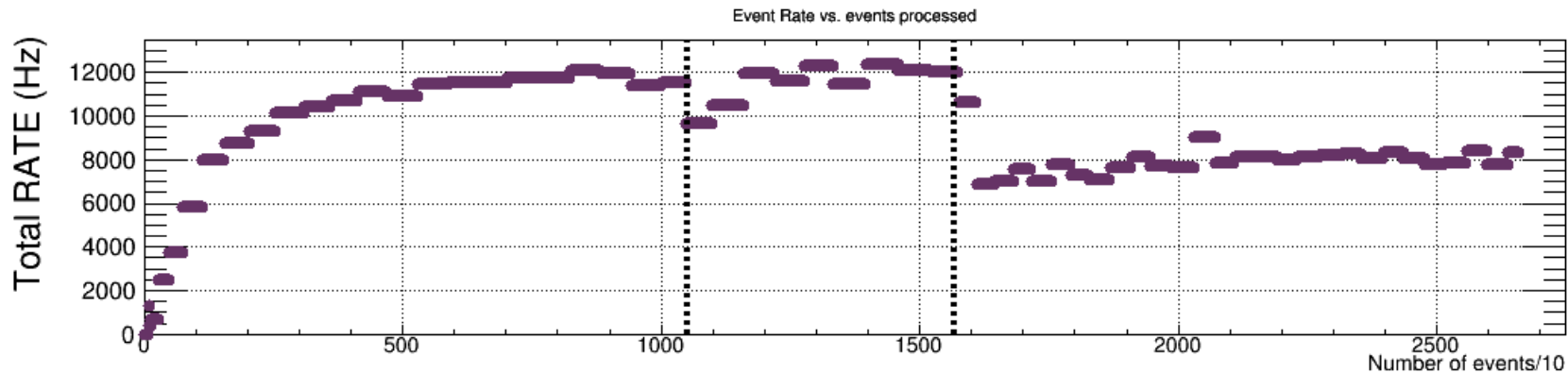
L3 Input processing

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Input Test File

- `hd_rawdata_011667_135.evio`
 - 120nA, 50 μ m diamond (PERP), 5.0mm collimator
 - $I_{\text{solenoid}} = 1345\text{A}$
 - 18kB/event
 - Measured I/O rate: $\sim 900\text{MB/s}$ (=50kHz)
 - `fspeed_reader`
 - `gluonraid2 -> gluon48`
 - Maximum sim-recon read speed: $\sim 33\text{kHz}$
 - Parsing and linking disabled



EVIO Parsing Time

Rate (kHz)	Time/core/event (ms)	Condition
2.5	8.0	All linking enabled
2.9	6.9	All linking except TriggerTime
3.8	5.3	All linking except BORConfig
3.0	6.7	All linking except Config
4.8	4.2	All linking except TriggerTime and BORConfig
5.9	3.4	Hit linking only
8.0	2.5	No Linking

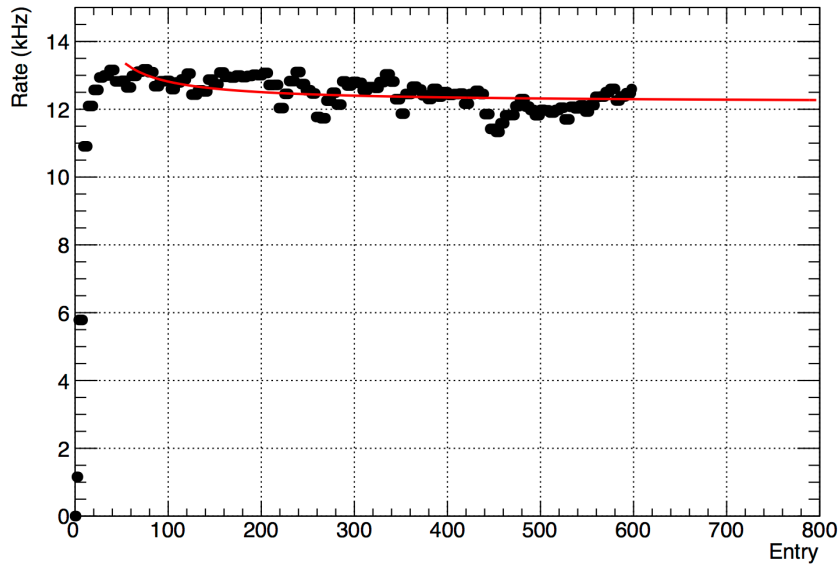
Fitting event rate vs. time

$$R(t) = R_o (1 + Q/t)$$

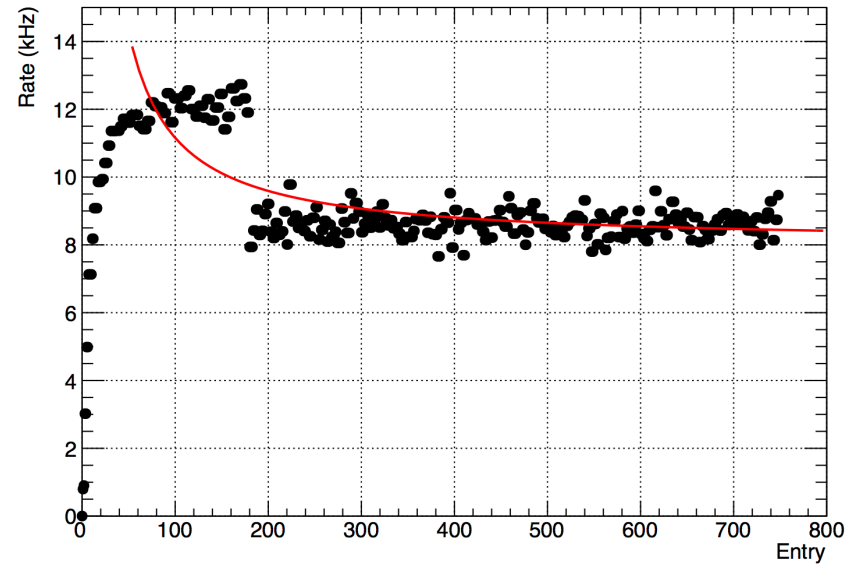
R_o = asymptotic rate

Q = relaxation term

14 Workers 18 Processors



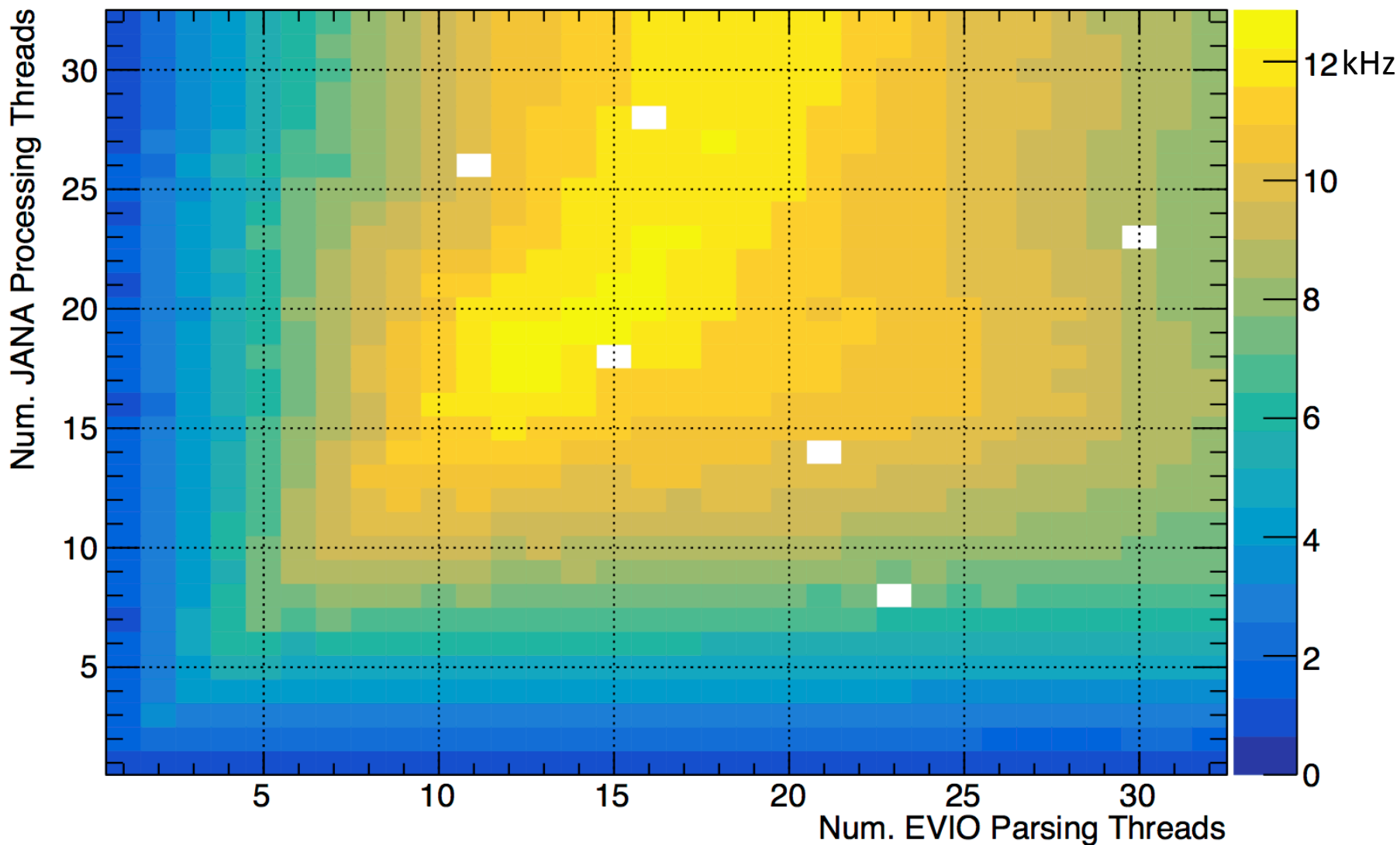
32 Workers 32 Processors



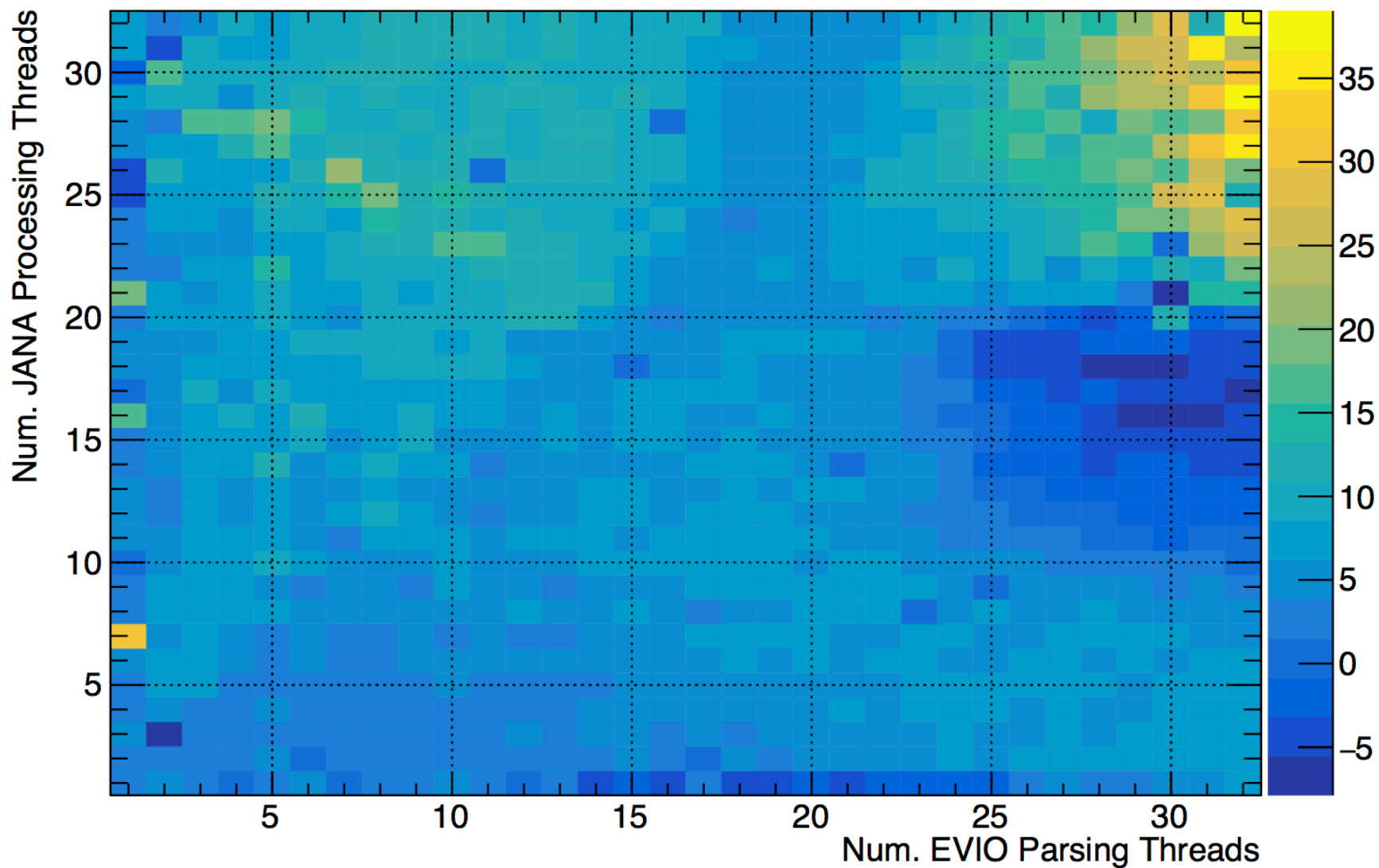
Parsing only

(no linking, no reconstruction)

Steady state rate

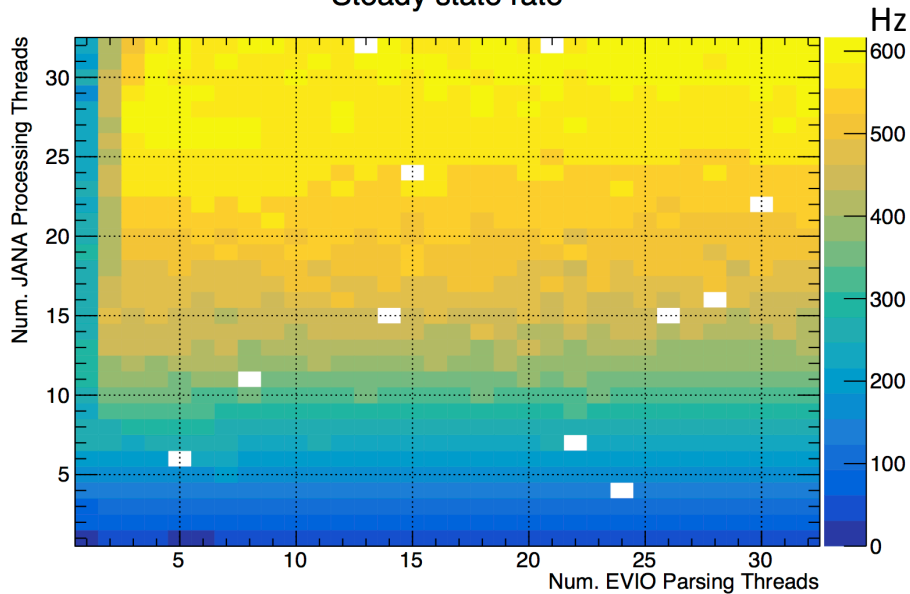


Relaxation term

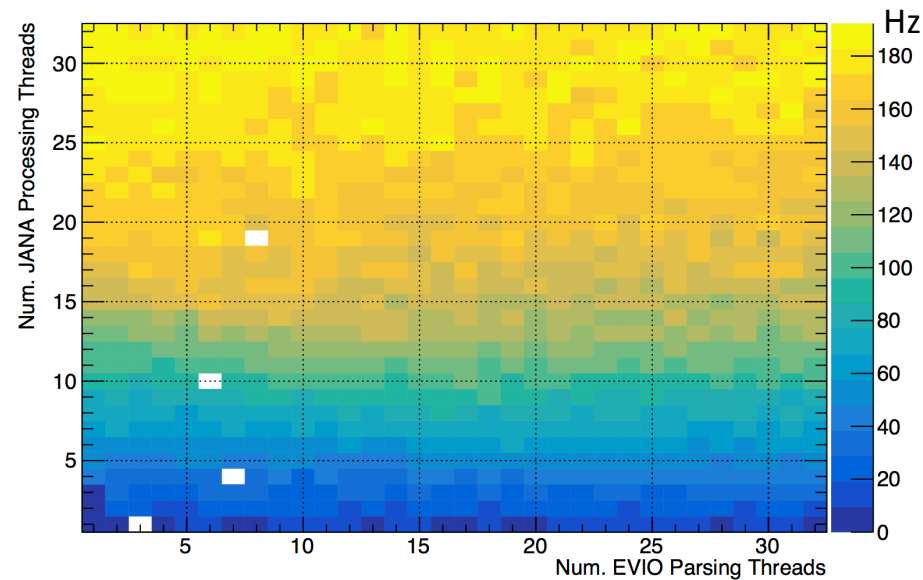


Event rates with tracking

Wire-based Tracking
Steady state rate



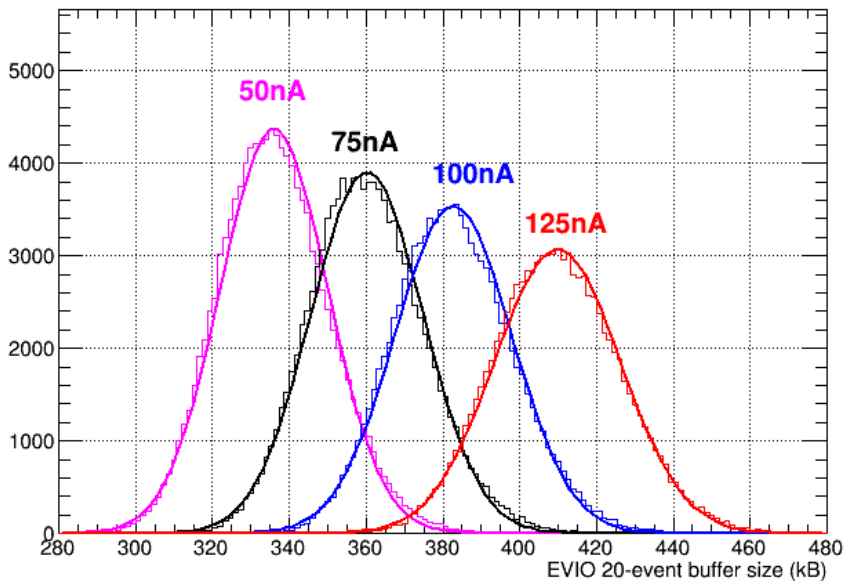
Time-based Tracking
Steady state rate



- With associated object linking, parsing threads run about 4 times slower
- Single parsing thread with full linking: ~250Hz

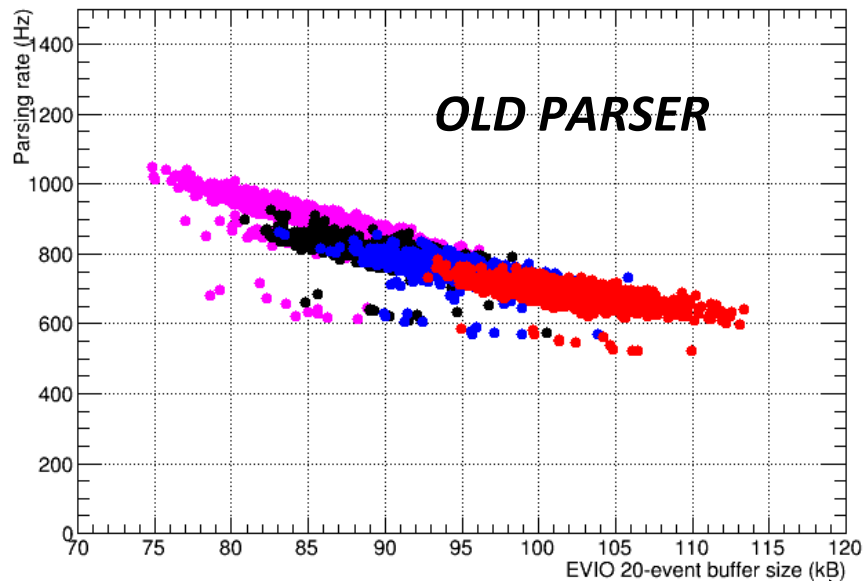
buffer size

March 14, 2016 DL
git revision #52de5c7
runs 10864-10867



EVIO Parsing Rate vs. buffer size

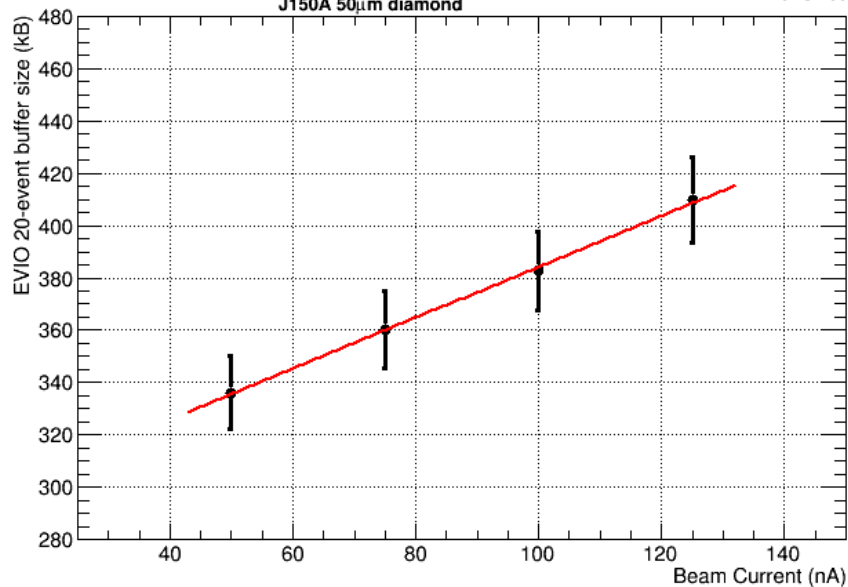
March 10, 2016 DL
git revision #c485bd1
runs 10864-10867



buffer size vs. beam current

J150A 50 μ m diamond

March 14, 2016 DL
git revision #52de5c7
runs 10864-10867



EVIO Parse time/event vs. buffer size

March 10, 2016 DL
git revision #c485bd1
runs 10864-10867

