

TPC Software and the DAQ

Significant progress has been made with the high rate problem in the DAQ 94k events at 20Hz with the TPC in before DAQ crashing (maybe even understand this crash)

The TPC software and DAQ are related but are different software and were written by 2 different people.

The TPC is by far the most demanding of DAQ resources.

Observation: Andre and I accomplish a lot when focused on the DAQ at the same time

The Last few weeks

Debugging high rate TPC/DAQ problem (found semaphore race)

Andre and I fixed race but problems continued with triggering
difficult memcopy problem

DSP assembly code changed to add new format to verify compression

- need 2 packets in one buffer block

Trigger cards tested (found issues and Andre resolved with Engineer)

Modified TPC software to readout new format

Worked with others to find trigger bug

Worked with Andre to plan a DAQ readout without races and debugged

- missing interrupts

- faulty semaphore communication between kernel and user space

- big memory leak

**Summary: TPC code is not changing much, most time is spent
with either DAQ problems, trigger problems or interfacing to the DAQ.**

Critical items to run the TPC fast for a reasonable amount of time

Fix memory leak in DAQ to get error rate below one part in 10^6

Test 2 packets per block feature of DAQ

Run new format to check compression algorithm. Hand data to David Lange to have independent verification.

Put pedestals into data stream

There are more items that are very important (like online monitoring, cleaning up pedestal code so shifters can run it, optimize the TPC code for speed, etc) but at the completion of the items above the TPC will be stable, fast and taking data that can be analyzed.