



XTRP Update

What we had for 36x36:

- *full complement of XTRP data boards (first time)*

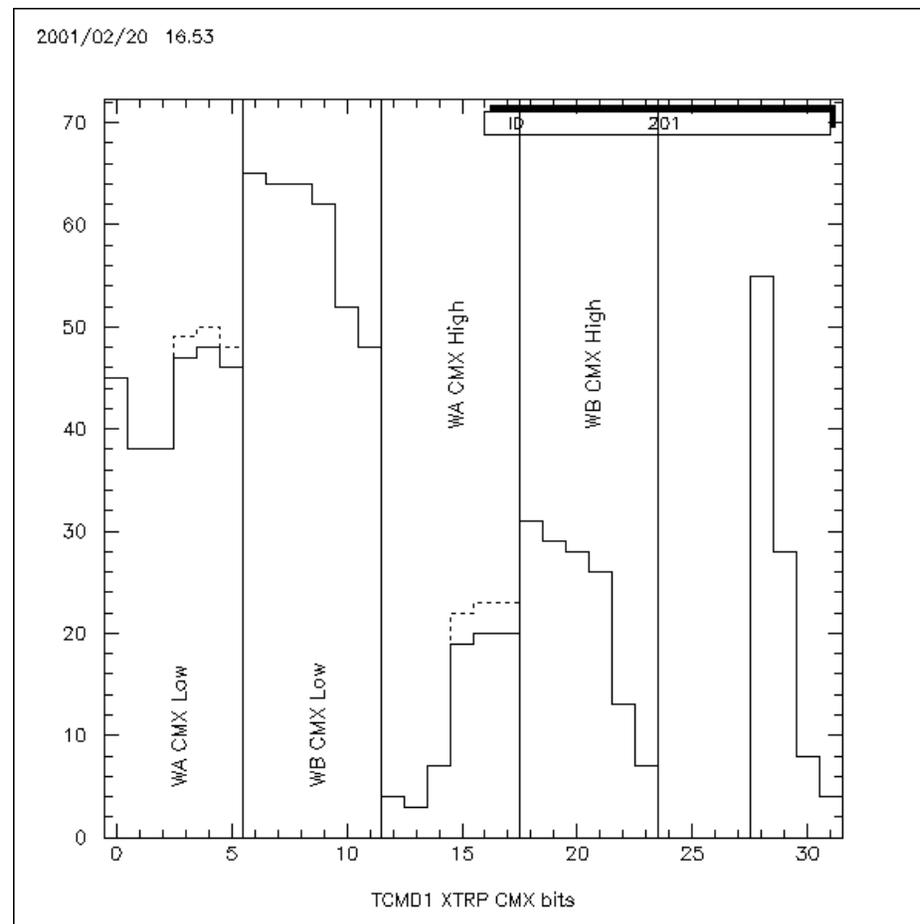
What we learned from 36x36 data:

- *The XTRP worked on some events and not others.*
- Problem was identified by Evelyn:
 - track triggers only occurred if the track showed up in specific segments (*aka linker chips*)
 - tracks in other segments wouldn't fire the trigger
 - **the XTRP set no muon or cal bits on those events**
 - **no indication of a timing problem (bits didn't show up early/late)**



Commissioning Run Data

- Problem was not present during commissioning run
 - not a board-level problem
 - verified not due to crate-loading

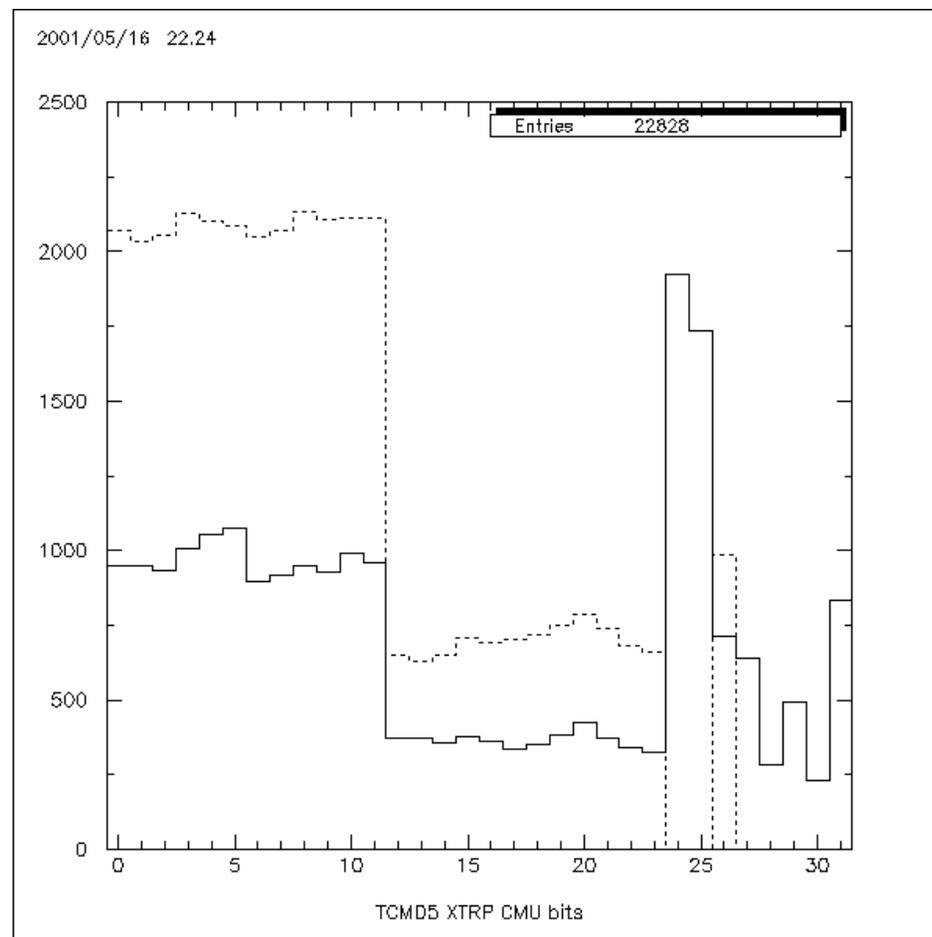


Commissioning run XTRP muon extrapolation data



36x36 Data

- Disagreement between data and simulation was quite evident in 1x8 data as well
 - originally thought to be a simulation problem
 - affects Low and High thresholds
 - problem consistent across all data boards.



Commissioning run XTRP muon extrapolation data



Solution

- The problem was found to be at the RAM output stage.
 - This is where we OR the output bits before shipping them out to muons/calorimeter.
- We have the ability to mask off “noisy” segments.
- Cold start code assumed the control lines came up active. **Some do/some don't.**
 - not a problem in commissioning run because we were setting up the boards by hand.
- **This problem is resolved.**
 - More problems to come.



Other problems/fixes

- Two boards with readout problems have been fixed.
- Pipeline for Dirac data (readout only) was one short.
 - Has been corrected.
- Several stuck bits have been found/fixed.
 - Will wrestle with these problems at a low level for some time due to board via problems.



Other good things

- The SVT interface (mostly) works.
 - XTRP sends sparsified list of tracks to L2/SVT
 - as Larry would say, “What’s 30° among friends?”
- Cold start is much faster
 - block transfers to load FPGAs
 - parallel loading FPGAs
- Readout time improved.
 - Implemented block transfer readout
 - will improve another 35% for next store



Status

- Full crate working for next store.
 - Looking forward to new data.
 - Lower level problems tough to see in 36x36 data due to the big problem.
- Test full track trigger paths without COT?
- Currently commissioning Two Track Trigger
 - see track data passed from XTRP→Track Trigger at single clock speed
 - full speed tests (XFT→XTRP→Track Trigger) in progress