

Work on the Level 1 Calorimeter Trigger that is Currently Under Way

D-Zero Trigger Workshop

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22-APR-2002

- Work on the CTFE cards at SiDet
 - Hardware work on the 320 CTFE cards
 - * ReWork the Trigger Pick Off Signal Analog Input Section
 - * Install the Term-Attn-Brd's
 - * Instructions are on the Web
 - * Will finish this work in 2 to 3 weeks
 - PROM re-programming 5,120 lookup PROM's
 - * PROM data files are ready for checking
 - * Programming and Verification a combination of SiDet and LaPaz
- Timing and Control Signal: Generation, FanOut, Cabling
 - Requirements for normal operation and for Tester - Exerciser
 - * TCC control of what Lookup Memory Pages are used per rack pair
 - * Different signals require different processing for Tester - Exerciser
 - Setup for operation at 396 nsec
 - * Not doing work to operate at 132 nsec at this time
 - * All work being done supports 132 nsec operation
 - Sequencer No. 2 and Calorimeter Trigger Timing Helper
 - * Designs similar to what is used for testing Trigger Framework
- Work on Tier's 2 and 3
 - Need to start running Tier 3
 - * With next pair of racks operation will require Tier 3
 - * See <http://www.pa.msu.edu/hep/d0/ftp/run1/l1/drawings/> for the layout
 - Generation of Global L1 Cal Trig And-Or Terms
 - * How much eta coverage is needed before missing Et is of use
 - * Should be using the CTRO but can probably skip it for initial operation
- Readout system work
 - Header/Trailer for L2
 - Seed Masks for L2
 - "Monitor Capture" of the readout data

- * The above 3 items require work on the Bougie FPGA
 - * Modern, big, easy to work on design
- Speed up by a factor of 2
 - * Should be straight forward to get to 6 or 7 usec.
- Readout data besides the Trigger Tower related quantities, CTRO cards
 - * Only functional description and design sketch exist
 - * Not hard to work on
 - * Needed for full rational operation
- DeBug the BLS cabling and bad channel issues
 - Lots of problems and different types of problems
 - * Cables, Hybirds, Connectors
 - Need to keep track of information
 - Need to be able to make quick pulser runs
 - * Debug problems
 - * Periodic verification that all is OK for Physics operation
- Routine Cal Trig Operation
 - Need to start running the Power Supply Voltage Monitoring
 - * Hardware is ready
 - * Documented what is plugged in where
 - Repair of Power Supplies
 - * 3 of the 4 types are still supported
 - * The unsupported type can be replaced
 - ReStart the full cooling system
 - * Speed up the air blower
 - * Drip detection is on in all racks
- How well is the L1 Cal Trig Working ?
 - Study the Calibration and Resolution
 - Monitor and Study the Triggers turn on curves and such
- Control Software Work

L1 Calorimeter Trigger TCC Software Work
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15-April-2002

GENERATING LOOKUP PROMS

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Software support 100% done

Needed

Crisp summary (in words) of what needs to be done
[Monday -> sign-off Tuesday morning]

Source file to describe the PROMs
[Tuesday -> sign-off Wednesday morning]

Generate the PROM files
[Wednesday]

Scrutanize, consistancy, etc
[Wednesday]

Declared official
[Thursday]

D0 Note about how these numbers were picked
[2 month ago?]

CONFIGURATION

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new analog front-end

75% done

underlying work already 100% done for prototype testing

needs to be integrated as part of running system
(and coexist with legacy system for a while)
[1 week]

need new pedestal finder (~ calibration)
[1 week]

readout

75% done

similar to L1FW
[1 week]

COOR PROGRAMMING
=====

90% done

missing quadrant term support in L1FW
[1 week]

misc other
[1 week]

MONITORING
=====

75% done

misc other
[1 week]

needs hardware support to capture event snapshot

TESTING
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in situ PROM checker

CTFE and CHTCR
[1 week]

Test/Diagnostics/Exercizer:

25% done

we have the bricks to program the resources
(= COOR programming)

but we need the exercizer software to exercise
the system at design speed

implement in stages
[5 weeks]

need additional hardware support to control PROM pages
and data capture