

# Level 2 Calorimeter and Level 2 Isolation Trigger Status Report

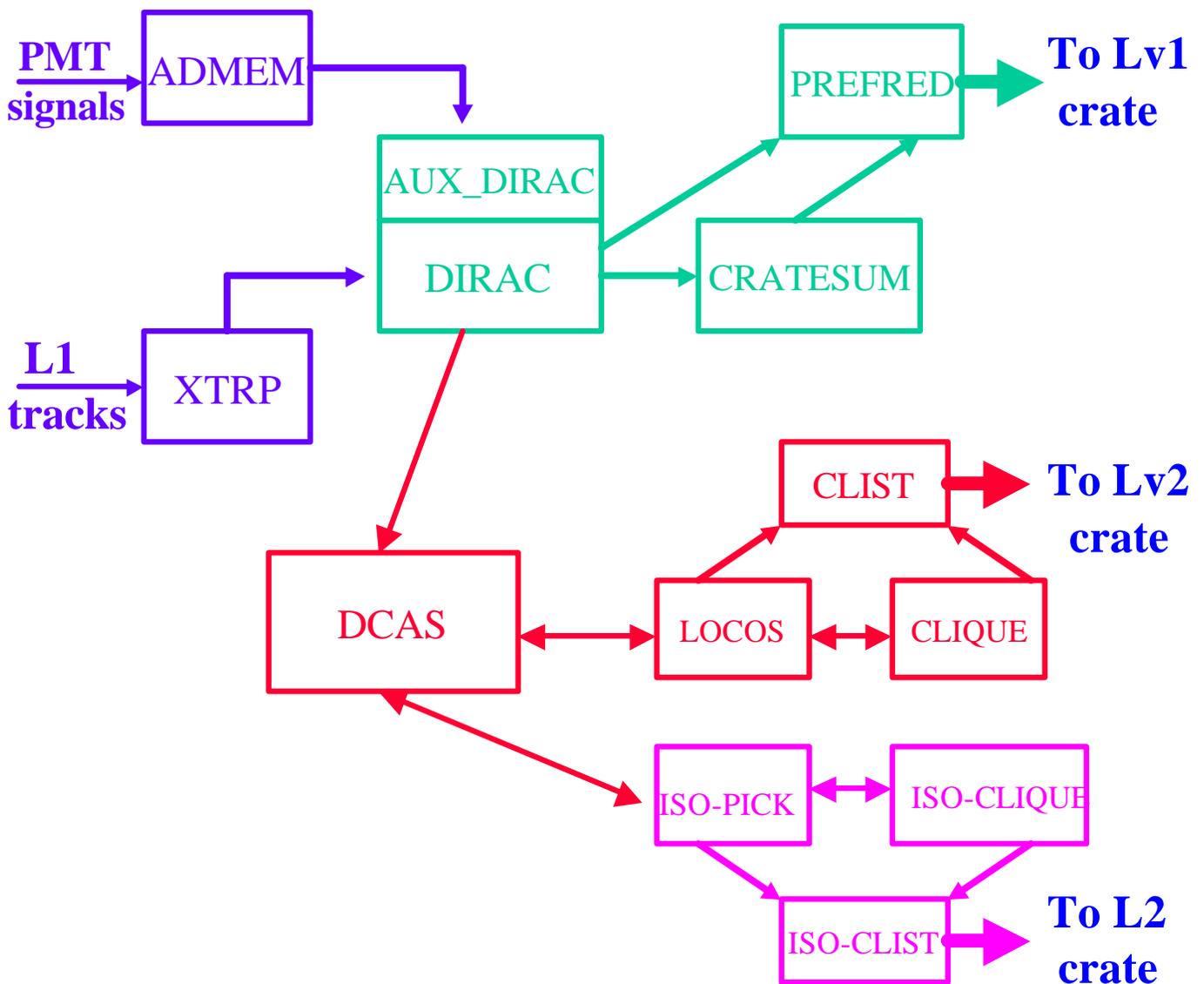
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Trigger Commissioning  
Workshop

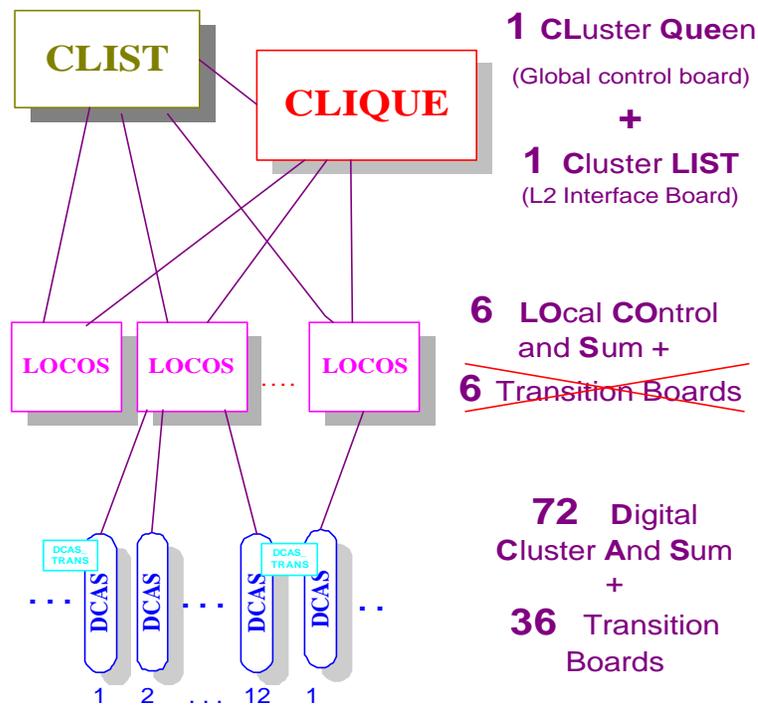
Monica Tecchio  
Aug. 17, 2000

Trigger Commissioning  
Workshop,  
Fermilab

# Calorimeter trigger Overview



# L2CAL Hardware Status



**DCAS:** 72 installed in B0 + 8 spare.

**DCAS\_TRANS:** 36 installed in B0 + 8 spares.

**LOCOS:** 10 production boards will arrive from ADCO next week (It is true. Myron saw them!).

**CLIQUE:** 3 production boards assembled + 1 to be done in the next month.

# L2CAL Hardware Status

## DCAS known problems

### 1) VME hangs at power-up:

 good news: already detected and solved in D0 boards which use same VME interface (Cypress '960/964 chipset).

 bad news: full fix requires lifting of pins in fine pitch component.

We have implemented a partial (easy!) fix on 7 boards. We will test it here tomorrow and see if it solves/improves the situation.

### 2) B0 counter mismatch

Confusing at the moment. There is a known problems with some chips having bad solder joints which was detected in Michigan.

Some boards in B0 showed occasional B0 counter mismatches in the past detected by Carla's problem. No reports of such problems for a while (checking disabled??).

Last week change of the Clock Module seemed to exacerbate the problem but "almost" gone away now. Pedro has a fix for DIRAC.

# L2CAL Hardware Status

## LOCOS known problems

- 1) Need fix for board automatic VME reset at power-up.
- 2) Minimal changes between prototype (working, in B0) and production version.  
Expected in B0 for Sept. 20.

## CLIQUE known problems

- 1) Minimal functional changes between prototype (working in B0) and production.
- 2) Still debugging clustering State Machine...need LOCOS to do a thorough job

Full system expected in B0 for Sept. 20.

**Timing tests** in May using LOCOS/CLIQUE prototype gave:

- 1.7  $\mu$ s to fully process one cluster in one pass.
- 7  $\mu$ s to fully process one event with 1 high  $p_T$  electron and 5 jets.

# L2CAL Software Status

**RC software** exists for DCAS, not yet for LOCOS (ID Prom only) and CLIQUE (ID PROM and clustering algorithm version). Will be done when production boards arrive in B0.

**TRIGSIM Simulation** done. Calorimeter DAQ readout tested. Clustering simulation is waiting for the hardware. Must define TRIGMON variables most useful for finding hot/dead towers, triggering efficiencies,....

**Top 2 goals for Commissioning Run:**

- 1) if full system works
- 2) if full system works well!

# Calorimeter Trigger Cable Tester

Heather Ray has been working on an automated test to check ADMEM ⌚ DIRAC ⌚ DCAS trigger cable continuity.

Use Diagnostic FIFO/FRAM in ADMEM to send out known patterns of data (walking bit 1, alternating 0's and 1's) for a single or multiple cables. Will not interfere with  $E_T$  weight look-up table.

RC integration done for ADMEM initialization in a special calibration run mode.

Working on L1A timing/synchronization so to test all of channels with a single FIFO load ⌚ need to add extra functionality to RC to simulate existing TS features.

# L2ISO Hardware Status

**ISOLIST:** 1 needed  
2 stuffed and working.

**ISOCLIQUE:** 1 needed  
2 stuffed  
1 tested and working.

**ISOPICKS:** 6 needed  
5 stuffed  
1 needs a part (delay) due last week  
2 tested and working.

## **ISO TERMINATION BOARDS:**

7 needed (but system works OK without)  
Artworks sent out this week.

If delay chip comes in next week, system should be ready and complete by Sept. 15.

# L2ISO Hardware Status

Integration tests with L2CAL and Alpha board still under way...

**Main known problem** 🕒 The queueing of seeds from the CLIQUE board looks fine on the scope but data from ISOLIST shows that many of those seeds are lost.

Probably simple to fix once it can be recreated at ANL.

# L2ISO Software Status

RC Control software does not exist (needed?  
No VME on isolation boards for what I  
know...)

TRIGSIM simulation existed as part of the  
RUN2TRS package. Don't know if  
imported in AC++ yet.