Presentation to Lar plenary - 7th February 2002

Level-1 Calorimeter Trigger

- **Overview**
- **Algorithms**
- **Hardware Implementation**
- **Comments on Calibration**
- **Software**
- **Project Status and Test Plans**

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Comments on Calibration

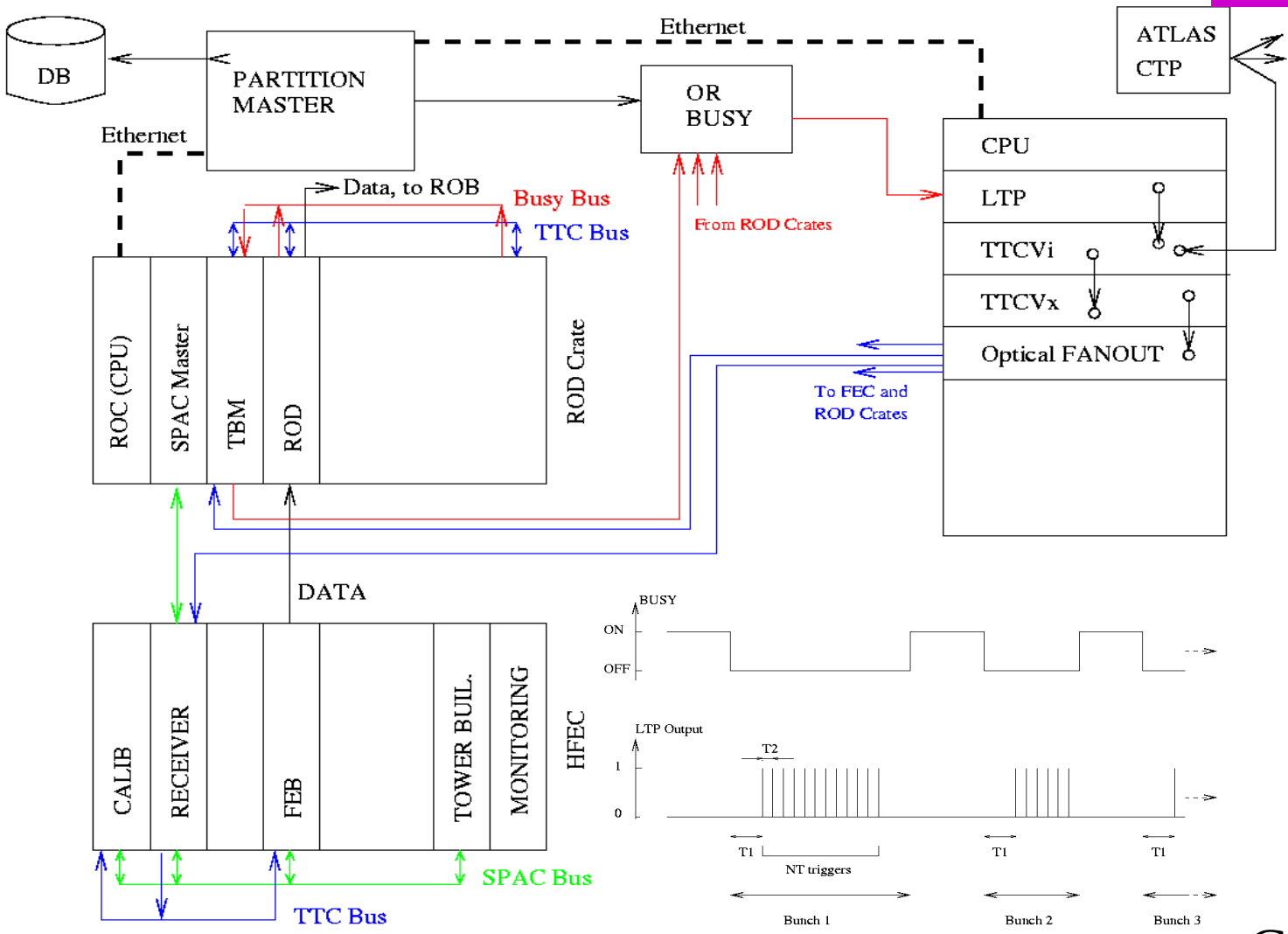
Several "Calibration" activities:

- **Digital Timing**
  - compensates for internal cable & electronics delays
  - checks internal data paths
- **** Analogue pulse peak timing**
  - phase and delay to capture
- **** Analogue Pulse Shape**
  - Preprocessor BCID settings
- **** Analogue Pulse Energy Calibration**
  - Tower builder delay & gain equalisation
  - Preprocessor LUT conversion factors to GeV
  - Integrity of tower building chain.

**** These need calorimeter signals - so we would like to set up a dialogue to agree how we should use the calorimeter calibration systems.**

Calibration Sequence

Based on use of fast HW signals:
BUSY and TTC commands



- BUSY on
- System ready
- BUSY removed
- The LTP sends 100 triggers
- the RODs have received 100 events
- They set BUSY ON, either it is OK, or because of an error
- The ROC asks the RODs their status: OK to continue, or error.
  - if OK, the ROC removes the BUSY
  - if Error, the ROC tells the partition master to resume at a previous stage (bunch no n)
- This info is forwarded to the crates via a TTC command.

Gelu Ionescu (DIG)

Project Status (3) - complete slice test

- **All modules (except CPROD) in the slice test are full-specification prototypes. All are in design or being tested.**
  - Some are very complex and will need extensive testing.
- **Previous slice test aimed to show trigger could work**
- **Now have to prove that it will always work**
  - No hidden corners in the phase space where it fails!
  - Fast automatic setup procedure, graceful handling of errors
  - Simple procedure to replace modules & restart…etc, etc.
- **My opinion: when the slice test is complete, we need to come back to the test beam with calorimeters:**
  - integration test with Calo, L1, TTC, calib system, DAQ, etc...

Calorimeter Interface

- **Proposal: set up a small working group, 2-3 from LVL1 , to discuss some details with Calo groups:**
  - Detailed mechanism for calibration
  - Integration planning.
  - N.B. although it would be good to do integration tests with real beam, it is possibly adequate with test pulses instead, e.g. immediately after a Lar or Tilecal beam test while people are still around.
  - When? Not in 2002; possibly in 2003?

End

Thank you