

## Minutes of ATLAS Level-1 Calorimeter Trigger Phone Conference – 10<sup>th</sup> August 2006

**Birmingham:** Richard Booth, Chris Curtis, Steve Hillier\*, Gilles Mahout, Simon Pyatt, Richard Staley, Pete Watkins

**Heidelberg:** Kambiz Mahboubi\*, Frederik Rühr\*

**QMUL:** Eric Eisenhandler\*\*, Murrough Landon\*

**RAL:** Bruce Barnett\*, Norman Gee, Tony Gillman, Weiming Qian\*

**Stockholm:** Christian Bohm\*

\*at CERN    \*\*at RAL

### 1. Birmingham

- Recent JEM tests revealed that the production Wiener CP/JEP crate has some FIO backplane pins shorted to ground – the same pin number on two non-adjacent slots. Careful cleaning around the pins has not been effective and visual inspection has not revealed the cause of the problem. Richard has confirmed that there is no danger of blowing any FIO pin drivers on the CPMs, and it is assumed that this is also true for the JEMs. Having checked several other backplanes in Stockholm and CERN, the fault appears to be restricted to the Birmingham crate, but its cause remains unknown. Eventually, it may be necessary to exchange the suspect backplane for the spare device currently in Stockholm, so that it can be examined in detail.

The problem was not observed during the full-crate tests with CPMs as it would only be seen with full ramping data patterns, which were exercised only on modules in the right-hand side of the crate. This will now be repeated for the left-hand side of the crate, where the suspect slots are located.

- Tests of data readout to a ROD have been carried out, with a total of 16 links operating simultaneously. No parity errors were observed in runs of ~one hour.

With DAQ data from five CPMs into a ROD, and all data being checked, no errors were seen in ~200,000 events.

- Chris reported that the CANopen code was tested successfully last week with the CPMs in Birmingham. The code has also been recently compiled successfully in Mainz.

### 2. Mainz

- This week there is further operation of multiple JEMs in full-crate tests in Birmingham. Seven modules are being used, four of which are the latest JEM1.3 versions. Once the appropriate BC offsets have been calculated, data will be read out to a ROD. Some dead channels are observed in the JEMs, which are known to be caused by faulty Input daughter-cards.

One dead LVDS input channel (JEM-only) has also been observed.

- The unstable (current-surgings) behaviour of the CP/JEP crate PSU observed a few weeks ago with multiple JEMs no longer occurs, but the cause remains unknown. It would be good to understand this effect, and it is particularly important to establish as soon as possible that the water-cooled crate PSU in USA15 is stable. However, as this will require the presence of a large number of CPMs it is unlikely to be possible in the near future, as there are still some CPM tests needed to be carried out in Birmingham.

### 3. RAL

- The final order for the production CPMs has been placed – a major milestone in the level-1 calorimeter trigger project.

#### 4. CERN

- The CMM-CTP interfacing tests were carried out in USA15 two weeks ago, with ramping data from the System CMM successfully captured by the CTP Input Module without errors. Two problems were identified: the data parity bit does not appear to be transmitted from the CMM, and the board clock occasionally loses its TTC lock (in some systematic way).
- The ROD tests in USA15 have progressed significantly in the past week. Flow-control now appears to be working, and with neutral-format data the event error rate  $\sim 10^{-4}$ . It is probable that these errors are firmware-related.
- Two more PPMs are now available in USA15 to populate fully the ROD S-links at high L1A rates.
- The level-1 trigger DCS computer has been delivered, but installation awaits a display screen and keyboard.
- During installation of the first water-cooled CP/JEP crate in USA15, it was observed that the PSU power cables were unacceptably inflexible. One source for suitable replacement cable has been identified, but it appears extremely expensive, so other alternatives are being explored.
- The 6U VME crates, which were originally delivered with incorrect PSU voltages, have been returned.
- Weiming will ask Paul Harwood about the status of the faulty CP/JEP air-cooled crate/PSU sent from Birmingham to CERN for repair many weeks ago.
- More information is also needed from Paul Harwood about the firmware updates required for the Wiener crates/PSUs to prevent their shutting down after a few hours of operation. Originally it had been suggested by Paul that these updates would best be carried out at CERN.
- The damaged connector on the Wiener VME64x (ROD) crate has been repaired.
- Next week (w/b 14<sup>th</sup> August) is another cabling week. Among other tasks, a start will be made on measuring cables to/from the lower RPPP crates.
- The combined FDR-PRR for the ROD will be held at CERN on Tuesday 15<sup>th</sup> August, assuming that the current severe problems at UK airports do not prevent travel. Alternative arrangements are being made to conduct the review as a telephone conference, if necessary.
- The batch of 50 TTCdecs are now at CERN, but have not yet been tested.
- Bruce suggested that it would help the planning of forthcoming tests in USA15 if a list could be prepared of all modules and components currently in production, together with their scheduled delivery dates.

**Next Phone Conference – Thursday 24<sup>th</sup> August 2006 at 12:00 (11:00 in UK)**

*Tony Gillman*