Minutes of ATLAS Level-1 Calorimeter Trigger Phone Conference – 5th January 2006

Birmingham: **Gilles Mahout, Richard Staley, Pete Watkins**

Heidelberg: **Paul Hanke, Eike-Erik Kluge, Karlheinz Meier**

Mainz: **Uli Schäfer**

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

RAL: **Bruce Barnett, Ian Brawn, Tony Gillman, Viraj Perera**

**at RAL **at CERN*

1. Birmingham

- 300 LVDS cables have been delivered to Birmingham from Stockholm, which will be sufficient for the full-crate CPM tests. It was noted that the few cables so far tested at RAL were about 25nsec shorter than the original 15m prototype cables. As this figure is not entirely consistent with the specified 11m lengths, it would be useful to measure a few actual physical lengths.
- The two pre-production CPMs delivered before Christmas have so far been tested successfully:
    - The input LVDS data windows are of normal width, and using both modules together the backplane FIO windows are ~2.5nsec in width.
    - Measurements of bit-error rates still have to be carried out, as well as checking backplane data transport to CMMs.
    - CANbus functionality has been checked, but more work is still needed, and one of the CPMs still shows faulty CANbus operation, which was not solved by changing to another TCM.
    - The rear vertical strengthening bars prove very helpful for module insertion.
- A further six CPMs were delivered to RAL before Christmas, and the final two modules (from the batch of ten) are probably awaiting collection from the RAL Stores (to be confirmed).
- Before Christmas some tests were successfully carried out at RAL driving the CP crate from a final ATLAS *Concurrent* CPU.
- Development work is under way in Birmingham to develop PVSS code for use in the full-crate CPM tests. Adam is being consulted.
- Work on the RPPPs is currently on hold. Some minor changes to the grounding scheme are required to be made to the layout before production of the first two types of RPPP can begin.
- The six RPPP crates have been delivered to CERN, and could be assembled and installed in USA15 next week by Simon and Xen.

2. Heidelberg

- The report summarising the PPM Interim Design Review, which was held before Christmas, will be issued as soon as possible.
- Following the IDR, work is under way to implement the necessary design changes, involving new component placement and routing.
- Another batch of MCMs was tested before Christmas, and the results are available on the usual web page.
- It was confirmed that the upper PPr crates in USA15 will have their PSUs mounted at the rear of the racks, with the insertion/extraction handles appropriately shortened to clear the rack rear doors, and the lower crates will have their PSUs mounted at the front of the racks. This will ensure that the front-panel analogue input cables will not prevent free access to the PSUs if an exchange is needed.

- Adequate cooling of the rear PSUs must be confirmed in the USA15 racks.
- It would be useful to have some more PPr crates installed in the USA15 racks to allow calorimeter commissioning to take place efficiently. The LVDS fanout backplane segments, which are already available, must be fitted to the crates before installation. Also, a cable strain relief system is essential for the LVDS cables, but this could probably be mounted later in-situ.

3. Mainz

- Following the Production Readiness Review, the latest design information for the pre-production JEMs was submitted to Rohde & Schwarz just before Christmas, and work will begin on the production of the modules next week.
- The new JEMs will be fitted with a set of strengthening bars similar to those used for the CPMs.

4. QMUL/CERN (contributions from Eric and Murrough)

- The TileCal group will recommence cable installation and sector commissioning next week.
- It would be useful to maintain a list of people who could periodically be at CERN to assist with the programme of installing the short analogue cables and commissioning calorimeter signals.
- The short analogue cables assembled as a test by the on-site company at CERN were satisfactory, and the company has now submitted a formal quotation to CERN to assemble all of the remaining connectors. Initially, they will assemble 100 connectors per month, starting at the beginning of February, but it is hoped that this can rapidly increase to 150 per month.

  The three technicians (Simon, Xen and Alexander) can then concentrate on measuring, cutting and finally installing the complete cable assemblies.
- There have been some concerns raised by Pascal Perrodo about the short analogue cables blocking access to crate PSUs and fan-trays, and also to the rack turbine units. The first indications are that the MTBF figures for these items vary between 40,000 and 100,000 hours, implying an exchange rate of ~3 units/year. A recent test by Dave and Murrough suggests that the down-time for uncabling/recabling needed for an exchange may only be ~2 hours.

  The suggestion of leaving large loops of cable, which could be pushed aside to provide access, unfortunately has safety implications. Eric will discuss the whole issue further with Pascal next week at CERN.

5. RAL

- The first two pre-production CPMs passed their JTAG tests satisfactorily at RAL before Christmas, and the next six modules are being JTAG-tested now. The PCB thicknesses have not yet been measured, but they do at least fit inside the crate card guides!

  Viraj will investigate the reason for the unexpected delay in receiving these modules.
- A batch of 30 TTCdec cards have been received, which Weiming will test.
- Two pre-production CMMs have been delivered, but some minor mechanical parts had unfortunately not been fitted correctly. Once this has been sorted out the modules will be JTAG-tested.
- The two new RODs had experienced some PCB manufacturing problems, which have now been resolved, and delivery is expected on 19th January.
- The VMM design files have been fully checked, all the components have been ordered and production will start very soon.
- The report summarising the TCM Final Design Review has been completed, and will be made available at the end of this week once it has been approved by the reviewers. Almost all the necessary design changes have now been made to the schematics of the TCM-VME, which will be the first variant to go into production.

- Ian is looking into the flow-control firmware for the ROD, which he believes will need some changes as its performance is currently somewhat unpredictable.

Next Phone Conference – Thursday 19th January 2006 at 11:00 *(UK)*, 12:00 *(Germany, Sweden)*

Tony Gillman