Minutes of ATLAS Level-1 Calorimeter Trigger Phone Conference – 30th March 2006

Birmingham:	**Richard Booth, Chris Curtis, Gilles Mahout, Simon Pyatt, Xen Serghi, Richard Staley, Peter Watkins**
Heidelberg:	**Paul Hanke, Eike-Erik Kluge, Kambiz Mahboubi**
Mainz:	**Uli Schäfer**
QMUL:	**Murrough Landon*,**
RAL:	**Norman Gee**, Tony Gillman, Viraj Perera, Weiming Qian*, Dave Sankey**

**at CERN **in Abingdon*

1. *Birmingham*

- The full-crate CPM tests have been continuing, using quasi-physics data patterns with 10% trigger tower occupancy. 14 CPMs are powered for these tests, but a maximum of only ten are receiving actual data, with the other four modules receiving zeroes. In this way, the total current drawn from the +5V supply is kept just below 200A.
- To allow all 14 CPMs to receive realistic data simultaneously, a 300A PSU has been ordered, for delivery ~now.
- Timing scans have been performed across these ten CPMs, showing that the CMM data window widths are at least 10 nsec.
- To check the readout paths, two of the ten active CPMs were connected via optical fibres to a DSS. Although this is not a high-statistics test, no parity errors were seen on the links, which remained completely stable.
- The latest version of the FPGA design tool software has just been installed, and fortunately no problems were encountered when used with the existing firmware.
- Production of all of the 9U RPPPs (Types 1, 2, 3 and 6) has begun, for delivery in about four weeks. Production of the 6U RPPPs (Types 4 and 5) has been delayed slightly after the discovery of a mechanical problem with the D-sub connectors, requiring an alternative part to be ordered.
- The RPPPs will be tested using Richard Staley's JTAG test interface boards.
- A number of dummy patch-panels (TCPP and RPPP), with holes representing connector positions, are being made in the Birmingham workshops. These will simplify the cable measuring task in USA15. Priority will be given to the TCPP variety, which hopefully will be ready for the next cabling visit during the week beginning 10th April.

2. *Heidelberg*

- Another batch of final lidded MCMs has been sent to KIP. Ralf has agreed with *Hasec* that the entire production will be completed by ~end of May. Although the total number of good MCMs will exceed the ATLAS requirements, some attempts will still be made to understand and repair some of the faulty devices.

  Full details of the current production and test status can be found at:

  http://www.kip.uni-heidelberg.de/atlas/db/DbPPr/welcome.html

- A total of 700 AnIn daughter-card pcbs (640 + spares) have been delivered to KIP and will be sent out for assembly imminently.
- 18 pcbs for the PPM LCDs are now being manufactured, with delivery expected on 20th April. They will then be assembled in industry.

- The PPM motherboard pcb layout has been progressing well, and is now almost complete. It is hoped to submit the design files for manufacture of the 18 pre-production boards before Easter. The first pcb will be assembled manually at KIP, with the remaining boards being assembled in industry.
- Sufficient CAN microcontroller chips are available for 18 CANbus daughter-cards.
- Paul has designed a mechanical strain relief system for the LVDS cables which connect to the 4-slot J3 backplane stubs in the PPr crates, and during the next two months enough parts will be manufactured to equip all eight crates. Paul will circulate some details. Although currently not compatible with the CP/JEP crate LVDS cabling, it could probably be easily modified for this role if necessary, so this should be discussed further with Sam.

3. Mainz

- The pcbs for the pre-production JEMs have had to be remanufactured by *Rohde & Schwarz*, which will add a delay of up to four weeks.
- The wrong type of surface-mount connectors were purchased for the Input Modules. The correct type have been reordered and will be delivered next week.
- There are still problems with the JEM/crate mechanics although the plastic spacers have been added to displace the Processor Backplane by 2mm. Although not seating well, the TCM appears to operate correctly, but the JEMs cannot be fully inserted into the Backplane connectors, causing intermittent connectivity problems. Uli believes that this is related to the TripleEase handles.

  We urgently need to study this problem in the final environment of a Wiener CP/JEP crate with a production Processor Backplane, as the TripleEase handles for the production JEMs may need to be ordered soon if they are on a long lead time.

4. RAL

- Tests of the pre-production CMMs are almost complete, but TTC operation cannot be checked in the test Lab as it is not equipped with a TTC system.
- ROD firmware development has been continuing. A recent problem seen is the non-functioning of the bunch-crossing number, except in the neutral data format version.
- Two pre-production VMMs have been received, but only basic mechanical checks have been performed so far.
- Quotes for the production VME64x TCMs have been received. With all modifications to the schematics and layout completed, an order will be placed next week, and the first two pre-production modules will be delivered by the end of April. The design changes required for the CP/JEP version of the TCM will begin immediately after placing the order for the pre-production VME64x TCMs.
- Two of the requisite three quotations have been received for production of the PPM RGTMs.
- Quotations have been received for manufacturing 350 production TTCdecs. As the most recent design modification (provision of a pre-PLL Des1 clock for use on the PPMs) has not yet been tested, it was agreed that production should be delayed for a few days until this can be done. Two latest-design TTCdecs from the batch of 30 have just been sent to KIP for this check to be carried out. If this small design change is confirmed, a small production batch of 50 TTCdecs will be ordered to satisfy the needs of the PPr full-crate tests, followed shortly afterwards by the full production.

5. CERN

Murrough summarised the current status of the analogue cabling installation:

- One of the cables that *Cegelec* has assembled has failed because of excessive crosstalk, so the offending connector has to be cut off and another fitted. Each cable has been cut sufficiently over-long to allow for this contingency.

- *Cegelec* has observed one cable with inconsistent labelling at its two ends; this (and others?) should be checked.
- Two 21m cables have been observed to have damaged connectors; they are believed to have been used during the 2004 Combined Test Beam run, but they can probably be salvaged by replacing the connectors.
- All of the new CPUs have been delivered, and two of them have been installed in USA15. Some initial problems have now been solved.
- Following their front-end electronics PSU problems, the TileCal group has restarted their signal commissioning, and would like to start working again with us, but the front-end part of the level-1 trigger, needed for checking calorimeter signals, has not been re-established, so we are not yet ready.
- The networking system in Bat 3150 has been improved by the provision of another wireless base station immediately adjacent to (inside?) our labs.
- The small repairs needed on the TileCal Receiver RTMs have almost all been completed.

Next Phone Conference – Thursday 13th April 2006 at 12:00 *(11:00 in UK)*

Tony Gillman