

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

Birmingham: Richard Booth, Dave Charlton, Chris Curtis*, Stephen Hillier*, Gilles Mahout*, Richard Staley, Peter Watkins*

Heidelberg: Florian Föhlich*, Paul Hanke, Eike-Erik Kluge, Frederik Rühr*

Mainz: Markus Bendel, Uli Schäfer

QMUL: Eric Eisenhandler**, Murrough Landon*

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

Stockholm: Christian Bohm, Sten Hellman, Sam Silverstein

* at CERN ** at RAL

1. Birmingham

- Another four CPMs from RAL have been tested and work correctly, making a total of 32 fully-working modules.

Six new modules have just been delivered from RAL and will be tested.

A further 13 modules are still with the assembly company.

One module will be tested at elevated temperatures, with the aim of exposing any weaknesses in BGA attachment.

- All of our *Wiener* crates have a known firmware bug, causing their PSUs to power down every few hours. This applies both to the 6U and 9U crates. A firmware revision from *Wiener* will fix the problem, but requires that the PSU units all be at CERN – obviously very inconvenient for those currently in the UK.

Eric and Tony will talk about other possibilities to Paul Harwood next week at CERN.

- The spare RPPPs are currently being prepared by Simon and Xen.
- One of the spare Type I RPPPs has a faulty PCB, so will be returned to the manufacturer for replacement.

2. Heidelberg

- Delivery of the 160 PPM motherboard PCBs to KIP is still scheduled for 8th December. It is hoped to get the SMD assembly completed before Christmas.
- All 160 CAN controller daughter-card PCBs have been delivered to KIP, and will be forwarded to the assembly company. Final assembly is expected before Christmas.
- Assembly of the LCDs has been suspended after occasional problems were observed with attachment of one of the FPGAs, resulting in bad solder joints. The problem was not present on the pre-production batch of 20 LCDs. The cause is understood, and a technique to modify the existing PCBs by filling some vias is now being tested. If successful, the technique will be incorporated into the assembly process, in consultation with *Lutke*, but new PCBs will be required if unsuccessful.
- The “Slot 5” TTC problem is understood. It is caused by the Auxiliary Backplane feeding TTC signals to Slot 5 by means of two pins on the J0 connectors that are isolated in the VME64x (ROD) crate backplanes but are intentionally common and bussed on the VME64xP (PPR) backplanes.

The solution requires a minor re-design of the Auxiliary Backplane to remove the TTC feed to Slot 2 and re-route it instead to Slot 5. The two pins currently connected to Slot 5 would be disconnected.

3. Mainz

- Tests of the production versions of the JEM G-link daughter-cards and Control Modules are under way.

All of the ten G-link cards tested so far are working correctly.

The first few Control Modules tested have shown two (minor) assembly errors. However, all Control Modules need to be re-worked, and are scheduled for delivery next week.

The Input Modules are being assembled and all of them are scheduled for delivery next week.

- There is no further update on the scheduled delivery date for the JEMs, but it is expected to be in early January, or possibly just before Christmas.

4. RAL

- Viraj summarised the latest statistics for CPM production:

From a total of 53 modules ordered, 44 have been tested.

Of these, 26 have passed JTAG tests and 24 of these 26 have been sent to Birmingham for system tests. The remaining two modules were returned to the assembly company for minor mechanical work.

The assembly company has a further nine untested modules.

18 modules have failed JTAG tests and require BGA re-working at the assembly company. Ten of these have already been partially re-worked, but so far none of the large BGAs has been re-worked..

The assembly company has been asked to remove one of the large BGAs to allow a careful visual inspection of the underlying PCB surface quality, as there is a possibility that some of the PCBs may need to be re-manufactured.

The objective is to get all of the modules re-worked and re-tested before Christmas.

A Route Cards is provided with each module, and all of these can be found on the web, as can the latest production schedule.

- The production TTCdecs are scheduled for delivery on 6th December. A Test Plan is still required.
- There have been problems in achieving the specified trace impedances on the CMM PCBs. The latest schedule gives PCB delivery on 4th December, with complete module assembly by 15th December.
- Four VMMs are expected on 20th December.
- CANbus access does not appear to be working on the TCM-64 module at CERN, although it does work correctly on the TCM-CP/JEP version, which is puzzling as this part of the design is identical for the two variants. Therefore the order for four TCM-64 modules, which is ready to be placed, has been put on hold until the problem is understood.
- Four pre-production TCM-CP/JEP modules have been produced so far, and Gilles can confirm that they work correctly. Therefore the remaining nine modules will now be ordered.
- The J0 Auxiliary Backplane for the ROD and PPr crates will require a re-layout (as discussed above).
- The S-Link RTM is in the Drawing Office at RAL to have the 5V option removed.
- 142 RGTM-O modules for the PPMs are scheduled for delivery on 6th December.
- The ROD layout is in the Drawing Office, with all of the latest changes incorporated. PCI connectivity checks were completed satisfactorily last week, and the final design is awaiting sign-off.
- Murrough suggested that it might be very useful to manufacture a further four RODs now, leaving the full production until after the RoIB and 2-ROD tests.

5. Stockholm

- Two more CP/JEP crates (#2 and #3) have now been shipped to CERN; one has already arrived, and the other is expected early next week.

- CP/JEP crate #4 will be ready to ship to CERN by next Monday. The custom backplane for crate #5 is ready, and crate #6 is being prepared. It is hoped to ship both of these to CERN before Christmas, giving us all six crates ready for installation in USA15.
- Sam is looking at a design for the perspex protective covers for the crates.
- The custom backplane in the Birmingham CP/JEP crate should be replaced at a suitable time.

6. *CERN*

- A considerable amount of work with the DCS system has been carried out in USA15 by Chris and others. All Receiver crates and four of the trigger crates can now be monitored. It is now important to define limits on the operating parameters for each crate.
- The DCS cables were installed during last week (cabling week). Also, the remaining RPPP cables were installed (other than those which await completion of the LVDS cabling). All of the short analogue cables for the Barrel calorimeters are now installed.
- There has been considerable progress with testing the ROD, and Bruce has recently issued a comprehensive summary of the current status.
- Tests of the ROD with the RoIB will take place this afternoon.
- The 2-ROD tests will take place next week, when the second ROD is available.
- The repaired CMM-CTP SCSI cables have been collected, and it is hoped to use Xen's cable test system to verify them. The CMM-CTP interface tests which were originally performed in July will then be repeated; this must be arranged with Ralf.
- The prototype LVDS cable strain relief block for the CP/JEP crates will be taken to CERN next week for evaluation in the USA15 crate.

Next Phone Conference – Thursday 14th December 2006 at 11:00 (10:00 in UK)

Tony Gillman