

Minutes of ATLAS Level-1 Calorimeter Trigger Phone Conference – 24th August 2006

Birmingham: Dave Charlton*, Chris Curtis, Steve Hillier*, Gilles Mahout, Richard Staley
Heidelberg: Florian Föhlich*, Paul Hanke, Eike-Erik Kluge, Karlheinz Meier, Frederik Rühr*
Mainz: Uli Schäfer
QMUL: Murrough Landon*
RAL: Ian Brawn, Tony Gillman, Viraj Perera, Dave Sankey
Stockholm: Christian Bohm*, Marianne Johansen*
*at CERN

1. Birmingham

- The new pre-production CP/JEP TCM has been operating successfully in the CP crate, although no CANbus traffic can be seen. The CAN operating code loads correctly, so the problem is being investigated.
- Automatic crate power shutdown via the CANbus will be tested soon.
- The investigations into the CP/JEP crate PSU oscillations are continuing. Richard wants to make some further measurements. With a small number of JEMs in the CP crate there are no PSU current oscillations, but when the number of JEMs increases to seven, along with five CPMs, the oscillations are very large. Uli would like to carry out a test using only a single PSU brick, rather than the multiple bricks currently configured (two for the 3.3V supply and three for the 5V supply).
- The CP crate is currently re-booting every hour or so. This is believed to be caused by the 5V supply dipping too low.
- Richard is awaiting some library parts from the RAL Drawing Office before he can complete the Clock Alignment Module (CAM) schematics.
- There is no more information available on the problem of pins shorted to ground in the Birmingham CP crate Backplane. Further investigations would require the removal of the Backplane, necessitating the uncabing of the LVDS cable plant – a major task.
- The RPPPs are almost all ready for shipment to CERN. The 6U modules are awaiting strengthening bars, which are due next week. Four or five modules will be assembled initially, with a second batch available two to three weeks later. The 9U modules are now all available and ready to ship.

2. Heidelberg

- Manufacture of the 20 pre-production PPMs is almost finished; 17 are complete, but the remaining three modules are still missing a few components. All 20 modules are expected to be delivered to KIP for testing by September 1st.
- There are more than enough AnIn daughter-cards to populate these first 20 pre-production PPMs. 20 LCD daughter-cards are also available.
- Production of all of the MCM batches is almost complete.
- The pcbs for the CANbus daughter-cards are available. The first one or two cards will be assembled by hand at KIP. It is not yet clear where the CANbus daughter-cards should be tested – CERN or Birmingham may be the best locations.
- The first production PPr crate is already prepared with all of the necessary cable strain relief mechanics, etc, and the full-crate PPM tests should be ready to start by ~5th September.
- The second PPr crate will be ready by early-September. The two existing PPr crates currently at CERN should be returned to KIP after the middle of September to be fitted with the necessary

mechanics. At the same time they will be replaced with the two fully-equipped crates from KIP (assuming that the full-crate tests are complete by then).

- Paul Hanke would like at least 20 of the original 15m prototype LVDS cables sent to Heidelberg soon for tests. An inventory check will be made to see how many can be located at RAL and in Birmingham.

3. *Mainz*

- Full-crate JEM tests have been continuing, driven remotely from Mainz, with ramp data being used for FIO tests.
- Some instability problems have been observed on the JEMs with the onboard Des2 clocks, due to signal quality. This is caused by insufficient drive current from the clock buffers producing clock edges that are too slow. One solution would be to use a pair of Des2 clock buffers in parallel, but further clock driver buffers cannot easily be added to the board at this late stage.
- An alternative solution would be to use the Des1 clocks delayed by firmware, but this must be verified by Attila.
- Once this clocking problem is solved, JEM production should be authorised as soon as possible.

4. *RAL*

- The faulty ROD has been returned to the assembly company for investigation, and after removal of the VME FPGA as many as 20 pads were found to have lifted from the pcb. Their location towards the one diagonal corner of the FPGA suggested some twisting of the pcb having produced extreme shear forces at some time, possibly as a result of damage during transit between Birmingham and RAL. This problem is potentially very worrying, and investigations are continuing.
- A batch of 14 RGTMs were shipped to Heidelberg on 21st August.
- Production of further CMMs is currently on hold, awaiting further information about the TTC reset problem from the tests at CERN. The symptom appears to be correlated with heavy VME traffic to/from the block RAMs.
- Ian reported that a test-bench of the PPM compression firmware for all four channels has been built for the ROD. It works correctly so far, but further testing is still needed.
- Dave is currently re-working the compression firmware to establish that it will fit comfortably inside the smaller input FPGA device. He estimates that he can complete the verification within a few days.

5. *Stockholm*

- The full set of LVDS cables should be shipped from Stockholm to CERN soon. There are still several cable in use in Birmingham.
- The order for the replacement flexible (silicone-sheathed) power cables has now been placed in the UK. Delivery will be to RAL, for subsequent onward shipping to Stockholm.

6. *CERN*

- Next week is another analogue cabling installation week. The first priority will be to install the upper direct cables on the C-side, all of which are available.
- Steve raised the question about our spares policy for the short analogue cables. The *Cegelec* contract was to provide 1040 cables only, with no provision for spares. It was proposed to hold a meeting at CERN during next week to establish an appropriate plan for producing and testing spare cables. We must ensure that sufficient cable and connectors are available.

Next Phone Conference – Thursday 7th September 2006 at 11:00 (10:00 in UK)

Tony Gillman