

12GeV Trigger meeting notes:

3-May-2013: C. Cuevas, B. Raydo, A. Somov, J. Gu, N. Nganga, H. Dong, J. Wilson, H. Dong

19-April-2013: C. Cuevas, B. Raydo, A. Somov, J. Gu, N. Nganga, H. Dong, E. Jastrzembski

12-April-2013: C. Cuevas, B. Raydo, N. Nganga, J. Gu, S. Kaneta

5-April-2013: C. Cuevas, N. Nganga, B. Raydo, J. Gu, S. Kaneta, B. Moffit, A. Somov

29-Mar-2013: C. Cuevas, N. Nganga, B. Raydo, J. Gu, S. Kaneta, B. Moffit, A. Somov

1. Trigger/Clock/Sync – TI/TD

3-May-2013

→Next week begin the procurement and document review for more production TS boards. It is not clear if Hall A will use/need a TS but before the order is placed ALL the halls should consider the quantity for the production order.

→The production TS board has the addition of line receivers for the LVPECL signals from the DensiShield cables. These receivers prevent the increase of current on the drivers when the TS is powered off. At some point soon, the production TS will be moved to the Hall D CH for testing, so a pre-production TS will be used the Global Test Stand. Be aware that the pre-production TS in the off condition will cause extra current for the GTP DensiShield cable drivers.

19-April-2013

→Final order for TS boards can be started in a few months. Need the final count for ALL the halls. The order should include a few extra bare boards.

→One pre-production TS boards is being used for the Hall D CH setup. No issues so far.

12-April-2013

→Hall C has requested a production TS. Ask Hall A and Hall B to join the order now because it does not make sense to just order one or two boards at a time.

→Plan on wrapping up the global trigger test stand in <month from now. Keep one of the crates to test a fully populated SSP->GTP crate in EEL109 lab. After that move this crate to Hall D.

5-April-2013

→William has tested the production TS and has transferred this board to the EEL109 three crate global test stand.

→Testing continues in the EEL109 lab.

→Alex has one of the pre-production TS boards in F117 and William will retain one pre-production boards indefinitely for firmware development/testing.

→Dave Abbott will need a TS to proceed with the Hall D multi-crate testing. Several TD boards have been installed in the Hall D CH and fiber connections exist for linking the TD to TI. NO CTP are required for the testing in the Hall D CH.

29-Mar-2013

→Preproduction TS is still being used in the 3 crate global test station. It would be a good idea to use the production TS board as soon as possible to verify performance of the three crate system. Plan to move the production board today or next week.

1. SUB-SYSTEM PROCESSOR (SSP)

3-May-2013

- All SSP boards have been acceptance tested. No significant issues noted.
- Fiber transceiver parts are installed for each of the 8 ports

19-April-2013

- Acceptance test code is close to completion.
- Final draft of the JLAB VXS L1 Trigger Protocol document has been created by Ben and includes many details of important items that will be required for diagnostics during Physics production runs. Lots of implementation and other development work will be needed.
- Start thinking about using one SSP to fan-out fibers to multiple SSPs in the global crate. The best opportunity to try multiple SSP will be in the Hall D CH.

12-April-2013

- Global Trigger crate testing takes priority
- Acceptance testing is at 60%
- Plan for testing multiple SSP with a GTP in EEL109

29-Mar-2013

- CTP to SSP fiber link firmware OK
- Diagnostics added to SSP for display readout of test results.
- SSP to GTP 5Gbps links are stable
- Acceptance testing for production units continues.

2. CUSTOMERS

3-May-2013

- It would be interesting to see initial results from the 12 crate DAq testing in the Hall D CH. Will ask Dave A about a presentation at an upcoming trigger meeting.
- NSU FADC250 boards are in EEL109.
- Begin to plan for the FADC250 test station activities.

19-April-2013

- No news on the progress in the Hall D counting house, and Dave A. borrowed several fibers to connect the TD outputs to the TI boards.
- I believe there are a few issues remaining with the FCAT with regards to the CTP alignment test results. (Hai, Bryan)

12-April-2013

- 7 of 12 crates in the Hall D CH are running.
- Ethernet cables assembled and data acquisition is imminent.

29-Mar-2013

- At least 12 full crates have passed the FCAT station and have been moved to the Hall D counting house. D. Abbot et al. will begin the DAQ/CODA testing soon. Dave will need at least two TD and a TS to begin the counting house tests.

3. "B" Switch - Signal Distribution Module (SD)

3-May-2013

→The SD production boards are enjoying an excellent transition to the installation phase and no issues have been discovered. There are a few firmware development projects to continue, but these developments are not critical.

19-April-2013

→SD boards for the F1TDC test stand have been modified and tested by Ed. Ready to ship to UMass. Modifications were loop back 'jumpers' specific for F1TDC test setup.

12-April-2013

→SD boards have been modified to run with the F1TDC test stand. The modifications are firmware only and two (Hall B) SD boards have been used for this purpose. (UMass testing)

29-Mar-2013

→Talk with Bob M. about an SD board. I think they can use a pre-production unit for their experiment.

→The SD→TI link is on the back-burner,,

4. System Diagrams/Fiber Optics

15-Mar-2013

→No action until cable trays are installed in the halls.

8-Mar-2013

→No report.

8-Feb-2013

→Patch panels and patch cables are being checked in now, and will be distributed to the hall groups

→START procurement for trunk cables in D and B by May??

5. Global Trigger & Trigger Distribution Testing

3-May-2013

→Scott had a presentation prepared for last week, but he meeting was canceled. His slides have been posted to the wiki. The overall trigger latency has been measured at 2.7us and the effort to reduce this time is significant and appreciated. There are several transmission latency paths that need to be measured and documented, (see slides) but the large latency paths are well known and cannot be reduced. (fiber cable delays)

→Trigger Processor (CLAS12) proposal has been circulated and the Hall B folks have generally accepted Scotts proposal. Review of requirements and cost estimates for the proposed FPGA solution should be performed again.

→Production GTP bare boards will arrive next week from ACE and the assembly will begin soon after that. The assembly was awarded to Advanced Assembly so this project is on schedule.

19-April-2013

→No report

12-April-2013

→GTP Ethernet register map is firming up quickly.

→Root GUI and other operating features are nice and will provide fast monitoring/diagnostic information for test parameters.

- GTP production assembly order is awarded to Advanced Circuits and the PCB order needed a cost increase for 4 bare boards. (ACE)
- The dirty laundry,,, front panels, alignment keys, any other peripheral components.

5-April-2013

- The three crate global trigger test station is providing good opportunity to verify the overall interaction between all the new trigger modules including verification of the input signals on the FADC250 boards.
- Measured overall latency is less than the absolute maximum value required by the F1TDC modules (3.9us). There are several methods to improve the overall latency so that we have a comfortable margin for trigger equation processing and any other miscellaneous 'features' that need to be added.
- The global trigger test stand includes production modules for TS, TD, TI, SSP, SD and FADC250. The GTP and CTP are pre-production prototypes, but are fully functional and variations from production units for timing and other critical performance parameters will have to be verified.
- Ben has circulated a document that lists several items that would be very useful for diagnostics and monitoring and these should be converted to 'requirements' for each of the boards in the system. In the present test stand configuration, it is difficult to identify why the system does not run or the status of the various Gigabit serial links in the system.

20-JAN-2012 (Keep this date to reference full DAq crate procedure)

3-June-2011

→ Successful testing with the two crates each with a single FADC250-V2, CTP, TI, SD and one SSP!!

16-July-2010 (Keep this note because it needs to be implemented and tested at some point) See older note dates for the list of items.

6. Crate Trigger Processor (CTP)

3-May-2013

- >Acceptance testing is going well.
- Transmit final BOM to MTEQ
- Front panel prototype adjusted, and updated files will be sent to machining shop.
- Send approval to MTEQ soon.

19-April-2013

- Delivery of 1st article still on track for 29-April.
- Will begin assembly of the CTP tester board next week after receipt of parts.
- CTP acceptance testing will be setup in DAQ lab F110.

12-April-2013

- No change to the schedule for receiving the 1st assembly at this point. (29-April-2013)
- The production CTP acceptance tester board has been received and will be assembled at JLAB. Armen will build this module in the lab. We will need a few alignment keys and P1 connectors.

5-April-2013

- 1st article bare board was inspected on Tuesday 9-April and there are very minor issues on several areas under the FPGA having to do with debris under solder mask and a few BGA pads.

ACTION ITEMS: Next meeting - Friday 10 May 2013 @10AM in TBD