

Subject: Minutes of the ASIC Testing Phone Conference
Date: 16 May 2007
Attendees: Jim Pinfeld, Lars Holm, John Schaapman – UA
Gerard Visser – IUCF
Elke Aschenauer, Fernando Barbosa, Elton Smith, Simon Taylor – Jlab
Mitch Newcomer – UPenn

Transcribed by F.J. Barbosa on 17 May 2007.

1. The ASIC package has been changed from the QFN64A 10x10 to the OCQFN64 9x9. This open cavity package is very appropriate for testing the prototype ASICs as it allows access to the dies for further probing, if needed. We may consider changing it back to the QFN64A 10x10 for the production run depending on reliability, availability and cost. This may necessitate a change in the final layout of the preamp card if the footprints cannot be made compatible but this change would take little time, cost very little and have no performance impact.
2. Fernando will order the test sockets for Mitch (LQW068-0570-16AM95) to use during his tests. Mitch will use the socket in a hand wired board for the tests. However, if the requirements for this PCB are simple enough, Fernando may provide a test PCB with socket. Mitch and Fernando will discuss the subject further.
3. Plans for testing the GAS-1 ASIC prototype were discussed, currently in fabrication at TSMC and to be delivered in June 2007. Mitch provided a preliminary recommendation for testing the ASIC and which we will use as a guide. Below are the steps we agreed upon:
 - a. ASICs will be delivered to UPenn – 32 packaged, 8 die.
 - b. Mitch will test all ASICs for design functionality using a semi-automated device available at UPenn . A database will be created containing all pertinent data for all the chips. This database will be used for selection of good chips to be assembled on the preamp cards. Note that die yield should be well over 90%.
 - c. The ASICs will be shipped to Jlab.
 - d. Jlab designs the preamp cards and will have the cards fabricated and populated with the ASICs. Preamp card tests will be performed for QC.
 - e. Preamp cards will be shipped to UA and IUCF for full characterization. A preamp card database will be created.
 - f. Once tested, the preamp cards will be shipped to Jlab and CMU for use on the FDC and CDC prototype chambers. Jlab will provide connector interface boards for use of these new preamp cards on the prototype detectors.
4. Based on Mitch's testing suggestions, specific test plans and database files need to be formulated for both the chip and the preamp cards. These plans need to also include scheduling information.
5. Mitch mentioned that there is a TSMC run by the end of August. If necessary, he could have a second prototype run which would include the additional gain of 5 option

and the calibration pulsing. The discriminator part would NOT be included in such short time. A third prototype run would still be necessary and would include the discriminator. The chips (maybe 80) from this final prototype run would be available sometime during the spring of 2008.

6. We briefly discussed the plans for testing the production ASICs (~ 4000). The ASIC testing will be performed by Mitch at UPenn (Semi-automated testing, QA, QC).

7. At this time there is no plan for testing of the preamp cards (~ 350). Elke reiterated that this project is behind schedule by about one year and there have been no plans put in place to formulate a viable testing plan, and there has been very limited consideration given to design a test station, allocate the required manpower, funding and scheduling. Because of the limited resources, it is suggested that these tasks not be duplicated by the various institutions.

8. Elke, Elton and Jim will discuss possible contractual and collaborative issues in private.