

Dear all,

Here are the minutes of the electronics meeting 14-Apr-04.

Action items:

- Mitch provide list of tests to be performed on the preproduction protection boards
- Provide Ole with Jumper data sheet for Endcap jumpers
- Penn to send chips to SEI and ACAMAS as soon as possible
- Get agreement on between Endcap and barrel folks about the loan of resistors and diodes for the barrel protection boards ahead of the receipt of the production parts.
- Order production protection boards once the design is verify
- Find an assembler for production protection boards

0) Endcap/chip items: (not on the agenda sent out)

~50K ASDBLR chips analyzed w/ yield almost the same as before (to within 1-2%)

SEI systems will produce ~10 DTM boards w/o jumpers within a week

20 new ASD boards with baked chips will be sent to CERN within a week or so
SEI will then wait to assemble more until told to do so by CERN

The bad chips have been sent back.

29-30 April a site visit to SEI is planned by several people

of the 10 boards produced 2 techniques (for attaching the jumper?) were used
boards 1-9 with on technique not favored by the company and board 10 with another one.

Penn needs Fujitsu connectors for type A boards. Ole reported that he sent ~300 connectors to Penn and 500 to SEU

Type A boards in fabrication now and due to go to assembly shortly

Penn is sending a kit of parts but is waiting on the Fujitsu connectors before sending the parts to the assembly in California. Assembly time 2 weeks.

Ole wants to get the type A electronics as soon as possible.

1) status of DAQ hardware and software in SR-1

Ben and Nabil are working on the software. They are making good progress. One of the adapter boards had holes drilled into it cutting several traces this cost them several weeks to discover. (Why would someone want to drill holes in the board causing such damage in the first place?) New adapter boards were found. They are currently working of full barrel board readout w/ minirods. Nabil is work w/ a rod using Peter's code. The rod buffers can be readout. Need to still integrate rod into DAQ software (work is progressing on that front)

2) update on the status of board test equipment (barrel and end-cap boards):

- are we ready to test production boards at CERN?
- when is Copenhagen equipped for board testing?
- what is the status of the injector hardware at CERN

Paul K is working at Penn to integrate a Rod into the test setup to free up a minirod. A new TTC has been shipped to Paul. In order to have test equipment for NBI it is thought that it would be faster to free up an old TTC from CERN. A minirod should be available soon. Philippe reported talked with Leia and her injector is working fine.

Ole will be going to Copenhagen the week before the workshop and bring the hardware to set things up.

3) Testing of ARIF boards/Stuffing of additional ARIF boards When can ACAMAS started stuffing the rest of boards? If so what is the delivery schedule to CERN or Copenhagen? What was discovered in testing the ARIF boards at CERN?

The NIS mounting problems have been fixed. ACAMAS understands the mistakes that they made in mounting the connectors. Bad ASD's have been sent back to Penn. Penn is sorting the ASD's now. Once the chips have been sorted then ACAMAS will be asked to produce 4 more boards. The assembly of the 4 boards should be faster this time because ACAMAS is keen on getting us good boards due to their mistake with the NIS connectors. ACAMAS will not assemble any other types of boards until the ARIF boards have been assembled and tested. (ed. Note – this will continue to introduce delays with the other boards required for the testbeam)

(ed Note – here is Rick's explanation of the cause for the chip sorting problems-)

Hi Doug,

I owe you a short description of what happened with the ASDBLRs and why we had the really bad channels included in the chips used to build the first ACAMAS boards.

In order to find the sensitivity of each channel, we inject a fixed charge and then move the threshold around until we get 50% firing efficiency - that gives us a more or less calibrated measure of the channel sensitivity. In order to speed up the measuring process, we don't just march through a fixed set of threshold values, but do an optimized search - starting with a good guess as to the likely threshold and then using the measured firing efficiency to approximate the next threshold value. If a channel is "normal" this works fine. Sometimes, the algorithm fails to find a good 50% point because the threshold required is outside the DTMROC DAC range or external noise confuses the algorithm - in those cases a negative code number is put into the database to indicate "convergence failure" - instead of the normal positive DAC value corresponding to that level of charge injection. All that is normal.

However, the algorithm that chose "good" chips was not correctly rejecting chips with negative codes in some channel - just rejecting that measurement and averaging the other 7 channels to see if the worst case deviation from average was acceptable. Thus, a significant number of chips with failed channels were included in the "good" list and were sorted out and sent to ACAMAS and SEI. We have found the algorithm bug and have taken newly sorted chips and remeasured them and found good agreement and no wildly off scale channels - so we have some confidence that this particular feature is under control.

Situation Normal, All Fouled (PC version) Up.....

cheers,

Rick

p.s. This was waiting for one final paranoia check - I think we are ok, so chips go out to ACAMAS and ADEC and SEI tomorrow, along with the boards for AR1BS. We have not yet gotten any AR2B boards, but Mitch has tested the AR2FL board on module and sees very good performance so that could be a final design, maybe with a couple of twisted pair switches.

4) test results from AR2F boards at Penn and design verification Are changes required to the existing design (not including the CAF changes)?

Mitch has had good results in testing 9 locations at a time due to a cabling issue. He is waiting for a new cable to readout all positions at once. This board as due the rest of the type 2 boards have some data lines switched.

5) status of Barrel AR1B stuffing. Given the delay in board stuffing can or will Penn assemble a few boards? When can ACAMAS stuff 4 panels? What is the plan for board burn-in? Do all boards get burned in?

The type 1B boards are built so that AR1BS are four boards to a panel and the AR1BL are four boards to a panel. Penn has the AR1BS panels and will send them to ACAMAS for assembly along with the kit of parts. The AR1BL panels are still at Cortex with problems. The nature of the problems is unknown. Burnin will be skipped on the first bunch of the boards assembled.

6) status of board submission for AR3B boards.

The boards have not yet been submitted. They are still under review as additional problems with the layout are being found. Hope to submit the board for fabrication next week. The AR3F boards are still being designed and a final design is not expected for several weeks. AR3B and AR3F boards design so that there is one module worth of boards per panel.

7) status of board fabrication for AR2B boards

One module per panel. Current design has inverted datalines. Cistelaier has solved their problems and produced 4 panels. 3 panels have been shipped to Bjorn. 1 Panel has been shipped to Penn. (Ed. Note – Bjorn has received his Panels and Penn has not). Bjorn will try to locate a local assembler. 10 panels were ordered on 1-April from Cortex. They are due to Penn next week. Penn to assemble 1-2 panels when they get them.

8) protection board status -

Bjorn has told me that he expects to receive 500 preproduction boards at Lund on Thursday.
When do they go to CERN? Has Penn shipped its manual protection board tester to CERN yet?
What is the status of the production order and testing of the parts?

Penn has built a manual tester and is shipping it on Wednesday afternoon to CERN. Will make a semi automatic tester. Perhaps the tester can go to the protector board assembler. Need to find an assembler who can assemble the bulk of the production protection boards at an acceptable price. There was a request to build at least 1000 protection boards as soon as possible. The production resistors are due at CERN 31-May and the production diodes are due at CERN 18-June-04.

(Ed Note – Fido has told me that he is working with Paula to have Lund order 600 and CERN order 600 protection boards once the production protection pc boards have been fabricated.)

(Ed. Note here an update on the protection boards from Bjorn -)

Hi,

Today I received the first part-delivery of protection-boards.

They were only able to deliver 100 boards this week but promises to deliver the rest next week.

Should these boards be sent directly to CERN (in that case to whom?) or Penn for tests in their test-setup?

Should I await the delivery of the rest of the boards next week before sending these 100 boards?

I also got 3 AR2B panels from Cistelaier in Italy.

They look great visually with gold-plating where it should be and the panel-planarity is excellent. They also seem to have solved the problem with drill-centering.

Should we submit the mounting to my local firm in order to try to validate more mounters or should it go to Acamas who we know do a great job?

Cheers,

Bjorn

9) RF gasket order... still on track to receive them 15-April? Has the copper tape been ordered? When can it be delivered to CERN?

100 RF gaskets are still due a Penn 15-April. Copper tape has been ordered (18 rolls of 1/2 inch tape). The distributor has 12 rolls on the shelf. No delivery date given.

Best Regards,

Doug