

Notes from the ST meeting at Gemmi, August 17/18, 2005

=====

oOlaf Steinkamp, August 19, 2005

Sensors

- The latest delivery schedules from HPK look okay.
- There seems to be a manpower bottleneck for IV/CV testing,
 - > This needs to be discussed in Zuerich

Beetles/Hybrids

- About 3600 "good" diced chips of each flavour are now available.
- HD currently accepts all chips that have a S/N > 20 for the worst pipeline cell on the chip. This cut should be raised to ~35. The impact on the chip yield has to be checked.
 - > Michael will provide the measured distribution of worst S/N values per chip, and of all S/N values per chip for chips with a low worst S/N .
- HD currently accepts all chips that have a signal remainder smaller than 50% for the worst pipeline cell on the chip. This cut must also be tightened. The impact on the chip yield has to be checked.
 - > Michael will provide the measured distribution of worst remainders per chip, and of all remainders per chip for chips with a large worst remainder.
- The correction for cross-talk from the last header bit to the first strip information could be more complicated than we thought so far, since the amount of cross talk could depend on event-to-event baseline variations (which affect the data but not the header).
 - > Someone (to be defined) has to study this in more detail.
- The go-ahead for the hybrid production at RHe will be discussed at the PRR on September 2. The ladder production schedule will be affected if the go-ahead is not given in the first week of September.
- The contract for IT hybrid assembly at RHe has still not been submitted.
 - > Michael will submit the contract asap!
- There is some confusion as to whether the series production of IT kapton prints at Optiprint has been started or not (see also the problems with the prints reported by Helge).
 - > Michael/Christian will discuss the status of the production with Optiprint.

IT ladder production

- The HV problems reported earlier seem to have been overcome by paying better attention to cleanliness during the ladder assembly and/or by changing the glue and the glueing procedure.
 - > Both changes will be applied during the startup of the module production. If time and resources permit, one could try to find out later which of the two was the key factor.
- Glueing tests were performed to demonstrate that the new glueing procedure gives strong enough bonds. These tests were done with glass on aluminium.
 - > To be sure, these tests should be repeated on Kapton foil, as it is used in the modules.
- The first modules built using the newly delivered pre-series hybrids suffer from low-voltage shorts. These shorts are most likely due to a misalignment of the grounding holes underneath the Beetle chips.
 - > All remaining pre-series hybrids in Lausanne and HD will be checked.
 - > Michael/Christian will discuss the problem with Optiprint asap.
 - > Helge and Christian will think of a means to fix the problem on the existing hybrids.

Control-Card

- Several problems with SPECS were observed and slow down progress. These problems need to be solved by the SPECS group.
 - > Will discuss the situation with Jorgen.
- The signal shape of the TTCrx clock is bad when the board is loaded with 2 SPECS slaves. This is probably due to reflections on not-impedance matched lines on the control card.
 - > Daniel is confident that he will be able to fix this easily.

IT box

- Cooling measurements are somewhat limited by the cooling power of the available chiller and by the fact that water-glycol is used as a coolant. All main results rely on extrapolations and are based on several assumptions.
 - > A new chiller should be purchased and all measurements should be repeated with a better setup and C6F14 as coolant.
- A rather large temperature step of more than 8 deg is observed between cooling liquid and cooling rod. This could be due to a not optimal connection of cooling pipe and cooling rod in the test box, or to the fact that with water-glycol the coolant flow is laminar.
 - > The tests should be repeated with a new cooling rod and C6F14.

- Extrapolation from the measurements gives a temperature of 13 deg for the "hottest" silicon sensor in the side boxes. This is acceptable with respect to leakage-current induced noise. It should be only just okay with respect to thermal runaway.
- > More precise studies with an improved setup seem necessary.
- No significant increase of the sensor temperature was found when the test box was operated upside-down.
- > Side boxes will be installed upside-down to reduce cable lengths over the active area of the OT.

IT support frames

- FE calculations performed at NIKHEF result in a ~2.5 mm vertical movement of the IT boxes when the OT stations are moved out (from -1.7mm with OT boxes in data taking position to +0.9mm when the OT are rolled out completely).
- > Need to discuss and decide whether this is acceptable.

TT ladder production

- Additional hybrids will be needed mid October.
- > Michael/Christian will check the status of the Kapton-print production at Optiprint.
- > The go-ahead for the production at RHe needs to be given by the end of August.
- Additional manpower for the ladder production is needed urgently, Frank asks for 0.5 technician.
- > This needs to be discussed in Zuerich.

TT burn-in

- Reliable data transmission seems to depend critically on the fine-tuning of discriminator thresholds on the Tell1 board.
- > Achim/Matt will discuss with Guido why this is so critical. If it cannot be fixed, an automatic tuning procedure for the experiment has to be developed.
- Wherever feasible, we should get spares for vital components, for example for the readout crate.
- > Achim will look into this.

Database

- The IT group should join the effort and start entering their data

into the common database as soon as possible.

- HD should provide a list of the information from Beetle/hybrid tests that they would like to include in the database.

XML description

- Need to decide on how far beyond the nominal acceptance the material description should extend. For example, should the C-frames of the TT station be included?

-> Need to find out who should be involved in this discussion.

Data format / high lumi

- Guido apparently plans to perform clustering per Beetle chip only. We had requested clustering over three Beetles (i.e. a hybrid) for IT and clustering over two Beetles (i.e. half hybrids) for TT.

-> Olaf/Matt will discuss this with Guido once more.

- Olafs will distribute his summary of the Zuerich discussion on the possible impact of high-lumi running.