**Minutes, 69th PXD EVO Meeting, 19.3.2014, 14:00**

Present: H.-G. Moser, A. Campbell, B. Schwenker, C. Niebuhr, C. Marinas, C. Kiesling, C. Kreidl, D. Münchow, D. Levit, E. Prinker, F. Müller, F. Lüttike, E. Konorov, I. Peric, L. Andricek, L. Li Gioi, M. Valentan, M. Ritzert, M. Schnell, M. Lemarenko, S. Lange. S. Rummerl , T. Schlüter (and more)

Agenda

Wednesday, 19 March 2014

* 14:00 - 14:20DCDpipe status *20'*

|  |  |
| --- | --- |
| Sprecher: | Ivan Peric |
| Material: | [**Slides**](https://indico.mpp.mpg.de/materialDisplay.py?contribId=0&materialId=slides&confId=2791)[powerpoint file](https://indico.mpp.mpg.de/getFile.py/access?contribId=0&resId=1&materialId=slides&confId=2791) |

* 14:20 - 14:40DHPT status *20'*

|  |  |
| --- | --- |
| Sprecher: | Mikhail Lemarenko |
| Material: | [**Slides**](https://indico.mpp.mpg.de/materialDisplay.py?contribId=1&materialId=slides&confId=2791)[pdf file](https://indico.mpp.mpg.de/getFile.py/access?contribId=1&resId=0&materialId=slides&confId=2791) |

* 14:40 - 15:00EMCM status *20'*

|  |  |
| --- | --- |
| Sprecher: | Laci Andricek |

* 15:00 - 15:30Beam Test News *30'*

|  |  |
| --- | --- |
| Sprecher: | Carlos Marinas |

* + ROI from HLT *10'*

|  |  |
| --- | --- |
| Material: | [**Slides**](https://indico.mpp.mpg.de/materialDisplay.py?subContId=0&contribId=3&materialId=slides&confId=2791)[pdf file](https://indico.mpp.mpg.de/getFile.py/access?subContId=0&contribId=3&resId=0&materialId=slides&confId=2791) |

* + ROI from DATCON *10'*

|  |  |
| --- | --- |
| Material: | [**Slides**](https://indico.mpp.mpg.de/materialDisplay.py?subContId=1&contribId=3&materialId=slides&confId=2791)[pdf file](https://indico.mpp.mpg.de/getFile.py/access?subContId=1&contribId=3&resId=0&materialId=slides&confId=2791) |

* + PXD6 Module *10'*

|  |  |
| --- | --- |
| Material: | [**Slides**](https://indico.mpp.mpg.de/materialDisplay.py?subContId=2&contribId=3&materialId=slides&confId=2791)[pdf file](https://indico.mpp.mpg.de/getFile.py/access?subContId=2&contribId=3&resId=0&materialId=slides&confId=2791) |

* 15:30 - 15:50Thermal Mockup *20'*

|  |  |
| --- | --- |
| Sprecher: | Carsten Niebuhr |
| Material: | [**Slides**](https://indico.mpp.mpg.de/materialDisplay.py?contribId=4&materialId=slides&confId=2791)[pdf file](https://indico.mpp.mpg.de/getFile.py/access?contribId=4&resId=0&materialId=slides&confId=2791) |

* 15:50 - 16:10AOB *20'*

|  |
| --- |
|  |

* + Schedule changes (Hans-Günther Moser) *5'*

|  |  |
| --- | --- |
| Material: | [**Slides**](https://indico.mpp.mpg.de/materialDisplay.py?subContId=0&contribId=5&materialId=slides&confId=2791)[powerpoint file](https://indico.mpp.mpg.de/getFile.py/access?subContId=0&contribId=5&resId=0&materialId=slides&confId=2791) |

* + RISE (Sören Lange) *10'*

|  |
| --- |
|  |

* + Participation in Tracking Meeting (Christian Kiesling) *10'*

**Status of DCDBPipeline**

Ivan reported on test results of the DCDpipeline. The results are based on the test of view columns of one chip. The performance of the channels tested is fine, noise, gain and linearity are ok. The chip works still at 500 MHz, the measurements were done at the nominal frequency of 320MHz. There is some non-linearity at very low currents, which is not seen as a problem. A bit worrisome is REFIN, which has to be adjusted within 50mV. The power supplies should be able to control that, but noise, chip to chip variations and radiation damage may become a problem (According to Ivan this can be adjusted by internal DAQs). Ivan has ordered additional 12 wafers, which will bring the number of chips available to production to 500 (160+ are needed). In case we need another production, the question whether the chips will be delivered with bumps is still unresolved.

Testing of the chips, both on hybrid boards and on ECMCs is of highest priority. Christian Kreidl is very buy with testing and bumping of DCDs (and also Switchers) and chips for testing are presently rare objects. Laci Andricek offers help for flip chipping the chips on bond adaptors, which should bring some relief.

**Status of DHPT 1.0**

Mikhail reported on the tests of DHPT 1.0. So far the tests have been very successfully, with few exceptions the chip performs flawlessly. Presently 100 chips are available which need to be tested. A second run with minor bug fixes will be submitted once the chips have been tested and verified (in Hybrid 5 and EMCM setups). There are two submissions a months and 12 weeks turnaround.

We decided to equip all new modules with DHPT (anyway, there are only few refurbished DHP0.2 left. We will not wait for wire bond adaptors but use then directly on the next EMCMs.

During the presentation we discussed the impact of the small bending radius of the infiniband cables due to space constraints. At some locations the bending radius is only 1cm, the cable specification is 2.5cm. This might reduce the performance and result in a show stopper. It was recommended to perform tests with the final cables (which are not yet ordered) in a realistic setup using the real bending profile. In parallel we should find more space (or request it) in order to allow for larger bending radii.

**Status of EMCM**

Laci gave an update on the EMCMs: Two EMCMs (version 2) and one PXD6 matrix are at IZM and will be flip chipped this week. Afterwards the EMCMs will be sent to finetech for soldering passive. EMCM from version 3 have been tested on a probe station with good results (at least for some sub-batch). The need another 2-3 weeks (copper and BCB) before they can be tested with the flying needle an assembled. Hence the ASICs (DCDpipe, DHPT and SwitcherG) need to be ready by in about one month rom now.

**Test Beam**

We had three presentations on beam test analyses. Two on ROIs (from the high level trigger and from DATCON). Both work fine.

Benjamin reported on the performance of the PXD6 module. It worked and detected hits, but shows a view problems (not unexpected, because of the missing optimisation):

* There are large fluctuations of the noise from run to run, perhaps correlated with changes of grounding or other interventions. We need to consult the logbook.
* The efficiency is moderate (20%-70%). Some of the inefficiency is due to the high noise which required a high threshold cutting into the signal. Some regions (essentially the lower left corners of both regions covered by each DCD) have 0 pedestals, meaning that part of the signals also fell below the DCD input range. Puzzling is the large difference of even and off rows.

Further analyses and tests are ongoing.

**Status of the thermal mockup**

Carsten reported on the status of the thermal mock up at DESY. PXD modules and cooling blocks are expected from MPP. The modules are ready and glued to ladders, Pt100 temperature sensors and Kapton flexes have been delivered. Missing are still the heater foils needed to emulate the power dissipation In the Kaptons. The design of the cooling blocks will be finished next week, then they can be produced in 3D rapid prototyping.

Components needed for the SVD part are in production as well. So far the work is on schedule.

**AOB**

**Schedule:** in a recent meeting of the Belle II TC, PXD and SVD it was decided to change the date for PXD/SVD integration from September 2015 to February 2016. After commissioning the SVD will be installed in Belle II in the summer shutdown 2016. These dates assume the present overall schedule.

This gives us another 5 months which can be used to compensate delays.

**RISE proposal**: Sören summarized the situation. It seems to be very difficult if not impossible (according to EU rules) for the German institutions to participate as a cluster. Individual participation will result in too many institutions which will reduce the changes of the proposal to be accepted. Alternatively the German institutions can make their own proposal. This needs further discussions.

**Participation in the software and tracking workshops in Italy in May**: So far only Tobias Schlüter plans to participate (tracking workshop in Pisa), Michael Ritzert only if needed.