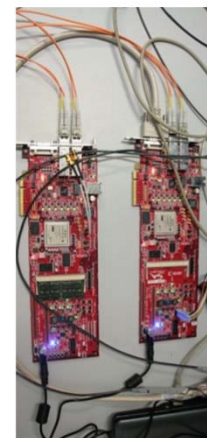
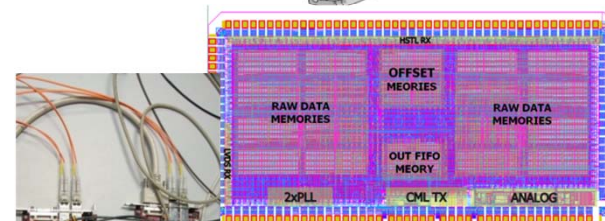
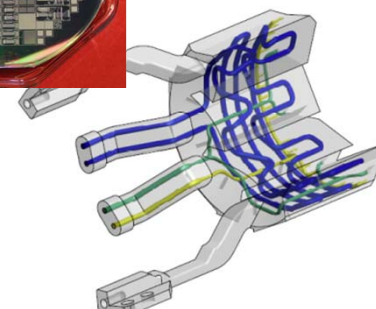
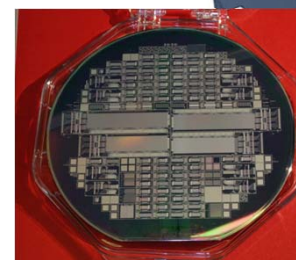
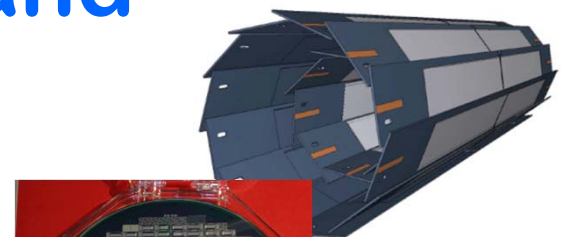


Introductory Remarks to the 13th International Workshop on DEPFET Detectors and Applications

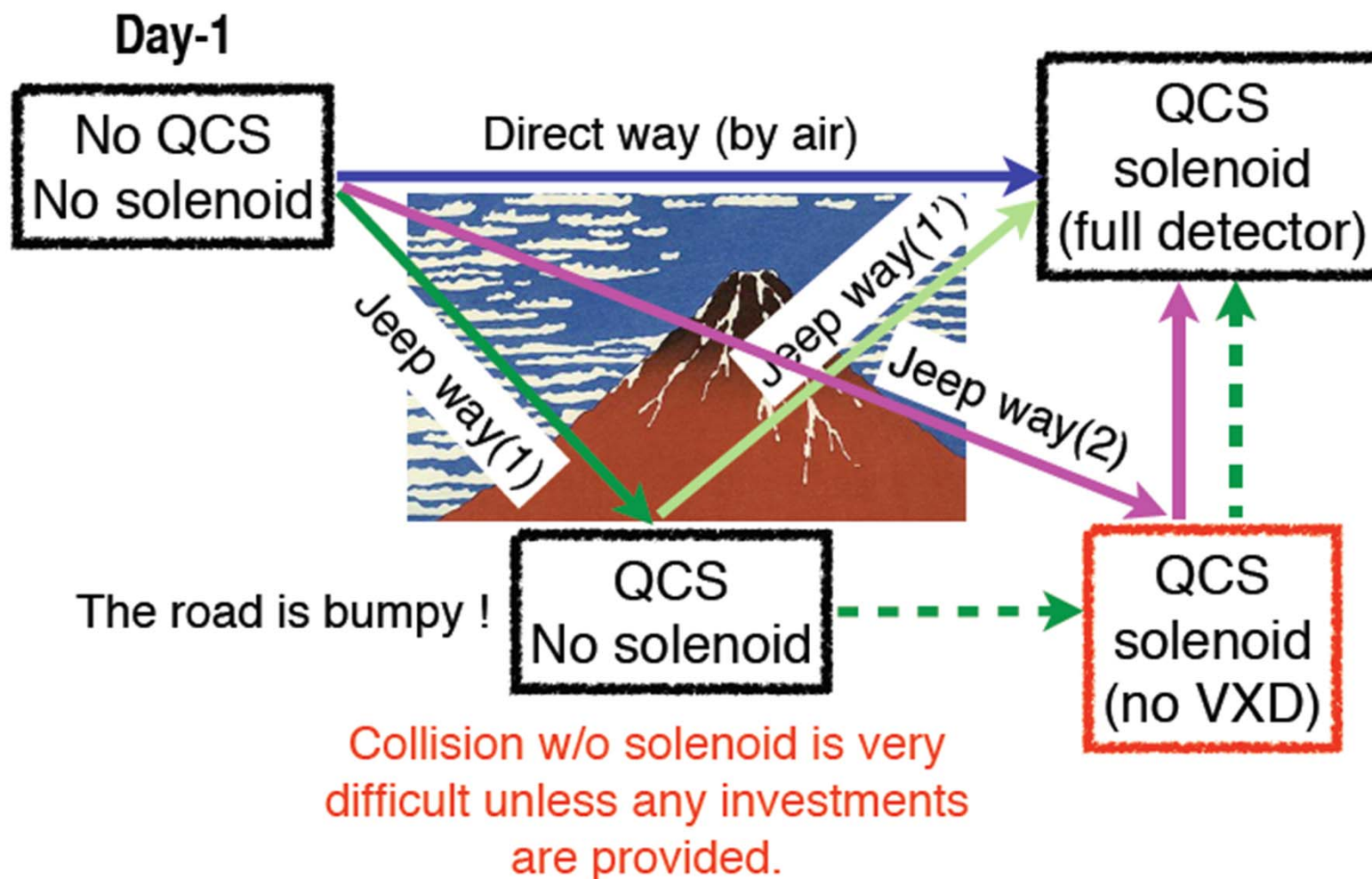
- News from/since March B2GM at KEK
Installation scenarios
BPAC Meeting
May KEK Meeting
- Schedule and Milestones
- Conclusions



Events Since Last DEPFET Workshop

- B2GM at KEK, March 4-7
 - discussions on VXD installation procedures
 - Italian groups want to join Belle II, offer help for the SVD and possibly PXD
- BPAC Meeting at KEK, March 10-11
- DESY Telescope Test Meeting, DESY, April 9-10
- DHP Design Review, Bonn, April 11
- VXD Assembly & Installation Meeting, KEK, May 13-17
- DCD Design Review, Mannheim, June 5
- [+ preparation for beam test and May beam test, see Test Beam Sessions]

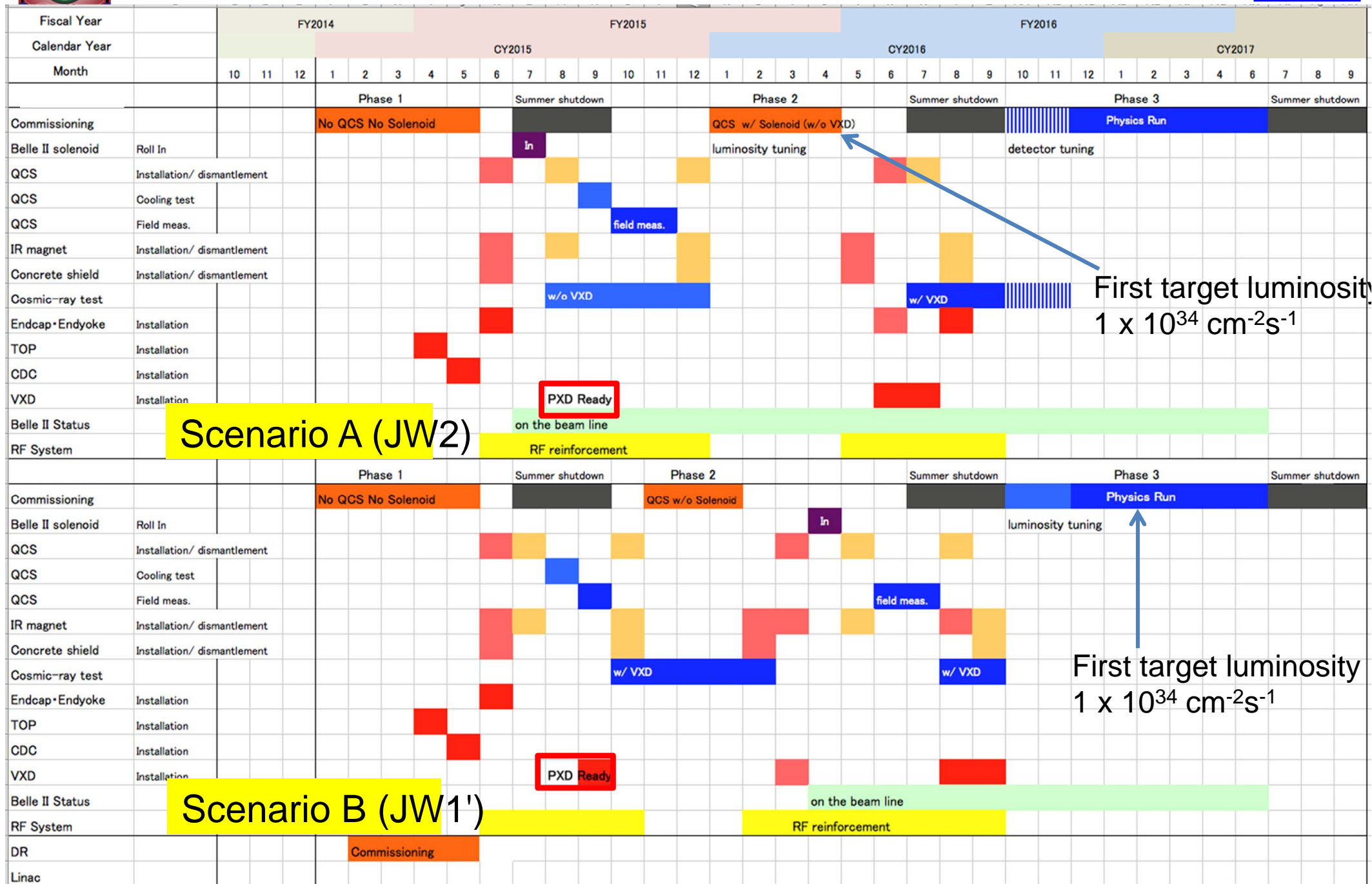
B2GM: Commissioning Strategies



Direct way or **Jeep Way 2** is preferable for accelerator commissioning.



Commissioning / Installation Scheduling



- Scenario A: PXD ready for integration with SVD and commissioning by August 2015, but without Belle II (doing GCR on beamline)
- There is almost one year between arrival of PXD and installation into Belle II
- Need to think of cooling / DAQ / trigger for commissioning in Tsukuba Hall
- In parallel to PXD / VXD commissioning need to install & operate BEAST II (see Test Beam Sessions)
- VXD-installation will happen in the beam position („QCS“ or „SVD2-mode“, see later)

B-factory Programme Advisory Committee

Review Summary Report
7th meeting, 10-11 March 2013 at KEK

G. Buchalla (München), D. Cassel (Cornell),
P. Charpentier (CERN), P. Collins (CERN),
M. Demarteau (FNAL), F. Grancagnolo (Lecce),
Y. Kuze (Tokyo Inst. Tech.), H. Lacker (HU Berlin),
Z. Ligeti (Berkeley), N. Neufeld (CERN), B. Ratcliff (SLAC),
J. Schwiening (GSI), M. Sullivan (SLAC),
and chaired by T. Nakada (EPFL),

Draft of 14 May 2013

Citation from the Report of the BPAC:

Concerns and Recommendations:

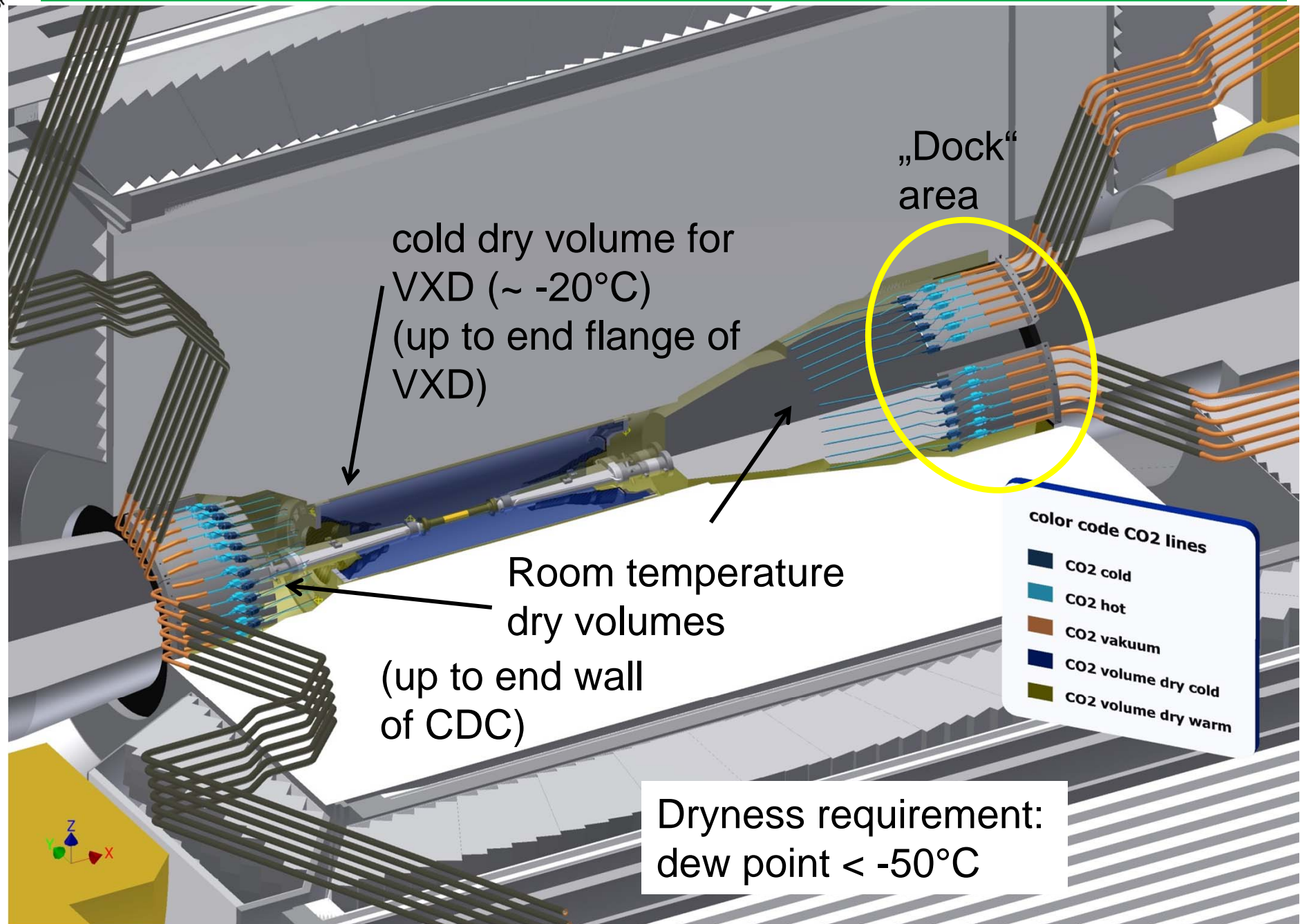
The unwavering attention of the pixel group to the production of the PXD9 sensors and the testing is commendable. The issue with the EMCM modules was immediately addressed and a backup solution found. Tests of the EMCM modules have been delayed and can only start in April. This makes for a very tight schedule to perform these tests in time for starting the second phase of the PXD production. Despite the very tight schedule, it is recommended that the full suite of tests of the EMCM not be curtailed and be carried out as originally foreseen even if it will cause a slight delay in the production schedule for the first batch of sensors. Given the accelerated production schedule of the second batch, a short delay should have minimal impact on the overall schedule.

Schedule:

May 13	Visit to Taiyo Company (see Stefan's session)
May 14	M: Brain Storming VXD assembly A: Meeting with Photon Factory Crew
May 15	M: Belle roll out (watching) A: SVD / PXD assembly procedures
May 16	M: SVD Mechanics / origami, RVC Status A: VXD assembly (KEK ideas), CO2 piping
May 17	M: PXD mechanics, VXD DAQ Meeting („Beast II“) A: RVC discussion and plans

Recent problem: Immanuel Gfall (Vienna engineer) left HEPHY

CO2 Piping and Dry volume





Itoh-san proposed a first test of the ROI scheme with beam during the BEAST II phase:

“Sector” of the VXD (similar to the DESY Telescope Test (DTT))

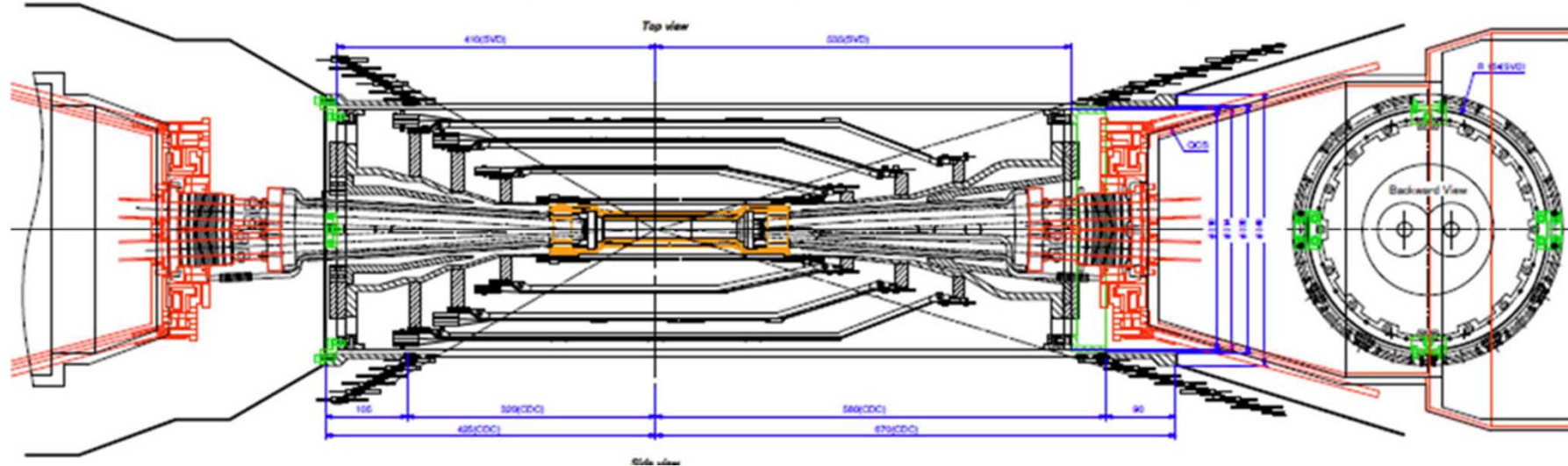
Reconstruct tracks from the CDC (and SVD) in the HLT, determine ROIs from the track information.

In principle a nice idea, but needs a lot of hardware preparation: “real” sensors, mechanics support, power, cooling, DAQ ...

Need 2 phases for BEAST II: second phase after bg optimization (before the VXD is being installed on the beamline)

All this while the VXD is doing stand-alone commissioning outside of the beamline.

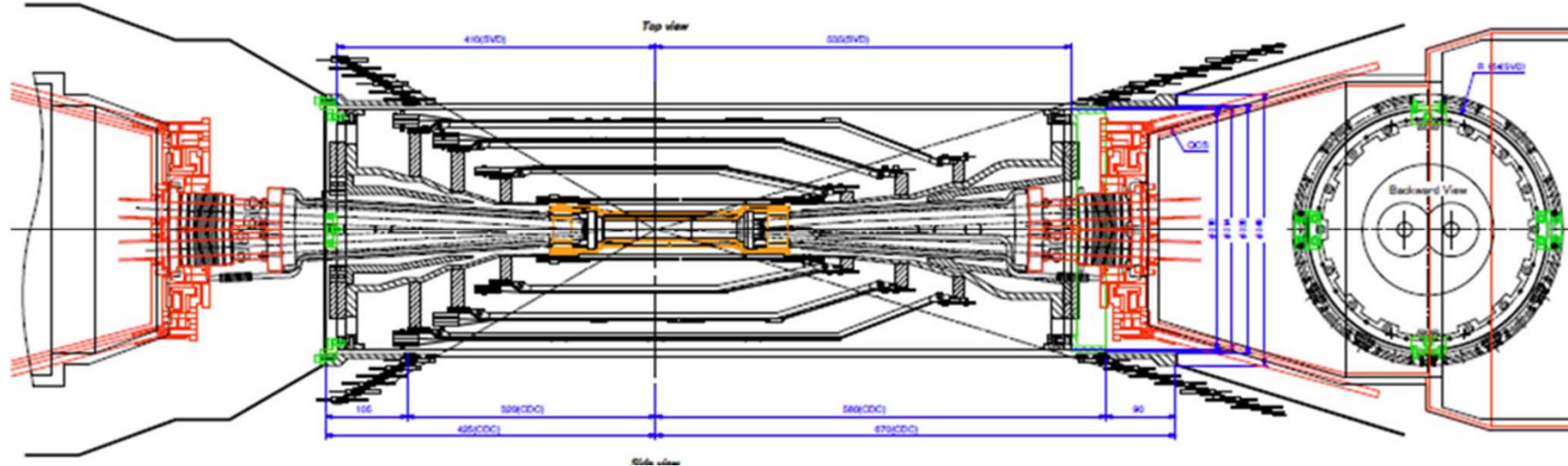
Need to think hard what is really involved ...



The Baseline-Installation scenario for the VXD (mounting on the fwd QCS) is well thought of by the KEK machine.

However, disadvantage of this method is the strong coupling between machine work and detector work (e.g. accessing the bellows)

For work on the bellows need a complete de-installation of the VXD, including all the cables the 2 x 12 x 3 high pressure CO₂ connections.

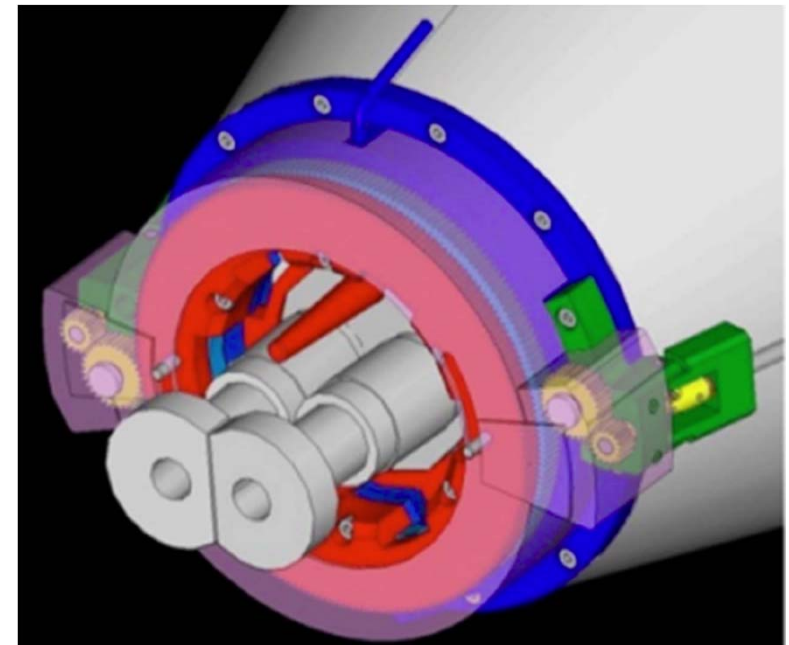


Space at Forward QCS too tight for manual vacuum connection Baseline installation: mount VXD on QCS and move together through CDC

Alternative approach by DESY:
remote vacuum connection (RVC)

Hydraulic system with special
locking mechanism,
Some redesign, mockup well tested now

RVC works !



RVC seriously considered for the BWD region by KEK

Main problem of “alternative” installation method (FWD):
How to recover when RVC fails ?

After some thinking we believe that we can use the baseline method to recover from such an (unlikely) failure of the RVC

This scenario seems acceptable for KEK, but no decision yet.

Next steps:

Ship RVC to KEK soon for checks of the system by KEK

Design installation procedure until coming September,
then build mockup of alternative installation, ship to KEK

Decide on the VXD installation procedure at Nov. B2GM

Milestones

Date



start EMCM electr. tests / flip chip	Sep.	2012
Power / Cooling / DAQ (prototype) ready	Jan.	2013
Final version of ASICs ready for submission	Feb.	2013
DESY Telescope Test (PXD / SVD), start install	Oct.	2013
DTT beam time	Jan.	2014
All ASICs produced (final version)	Mar.	2014
First PXD9 sensors available	Sep.	2014
Finish ladder production	May	2015
Power / cooling / DAQ ready, installed at KEK	Jul.	2015
Transport PXD to KEK	Aug.	2015
Start commissioning/integration with beampipe / SVD	Sep.	2015
Install VXD on beamline	Jul.	2016
Start physics run	Dec.	2016

Milestones (slight revision)

Date

start EMCM electr. tests / flip chip	Sep.	2012
Power / Cooling / DAQ (prototype) ready	Jan.	2013
“Final” version of ASICs ready for submission	Jun.	2013
DESY Telescope Test (PXD / SVD), start install	Oct.	2013
DTT beam time	Jan.	2014
Final(!) ASICs produced or submitted for production	Jul.	2014
First PXD9 sensors available	earlier! → Sep.	2014
Finish ladder production	May	2015
Power / cooling / DAQ ready, installed at KEK	Jul.	2015
Transport PXD to KEK	Aug.	2015
Start commissioning/integration with beampipe / SVD	Sep.	2015
Install VXD on beamline	Jul.	2016
Start physics run	Dec.	2016

- Final sensor production on schedule, but metal process needs attention
- Electronics (ASICs / DHH / DAQ) progressing well (May test !)
- Gated mode against injection noise needs „large scale test“
- EMCM will be crucial for the coming steps, including the DESY test
- Flip chip process needs increased attention (fall-back solutions ?)
- CO2 cooling project with CERN/Nikhef on a good way, but much to do
- DESY Telescope Test is THE important milestone for this year
- Last not least: DEPFET sensors also interesting for other fields in science, see talks Soichi, Sascha and Marcel