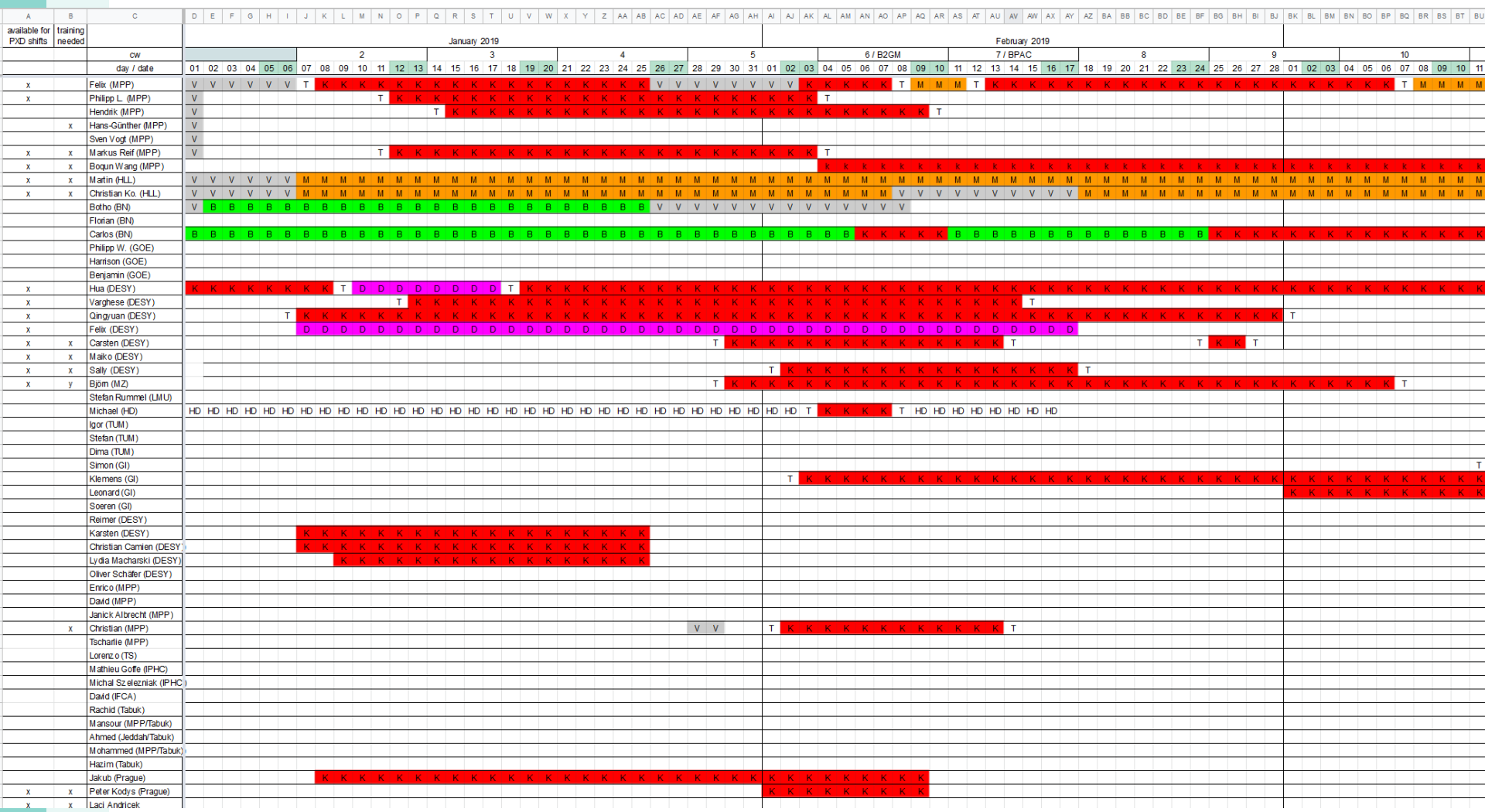
Status at KEK

24.01.2019

PXD weekly meeting

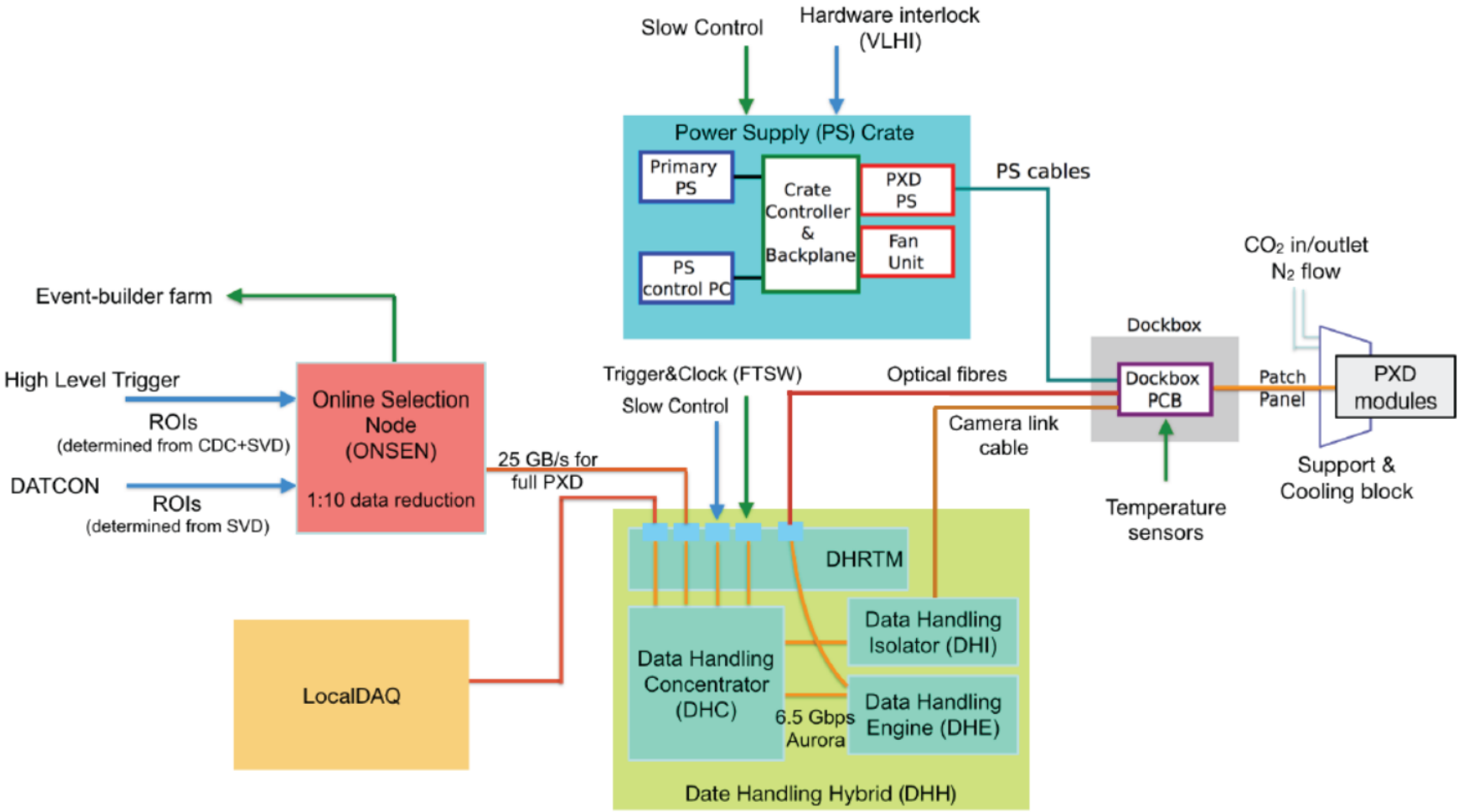
Hua Ye, Felix B. Mueller on behalf of the PXD people at KEK

Menpower at KEK



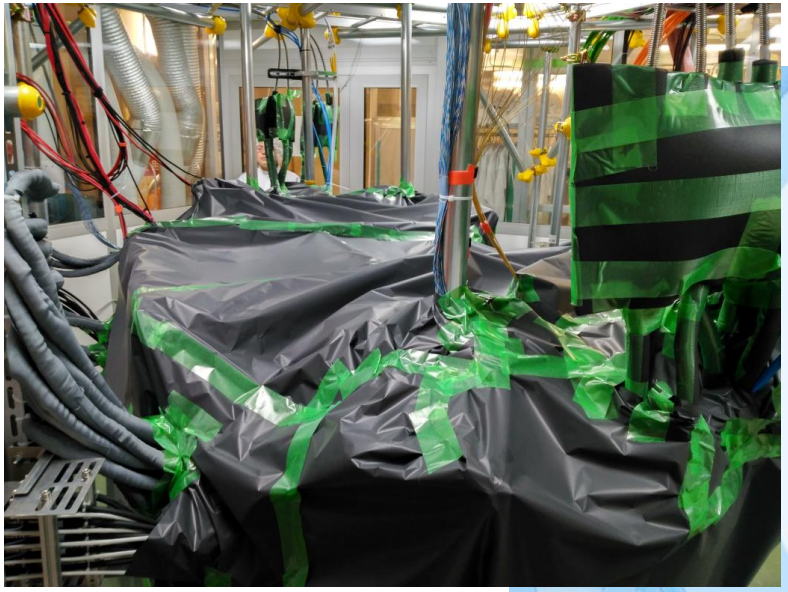
https://docs.google.com/spreadsheets/d/1smqz5YNgYnqwl5ZtELBAs7htW8HOCv6Y69lzRn4YAMo/edit#gid=0

Simplified system overview

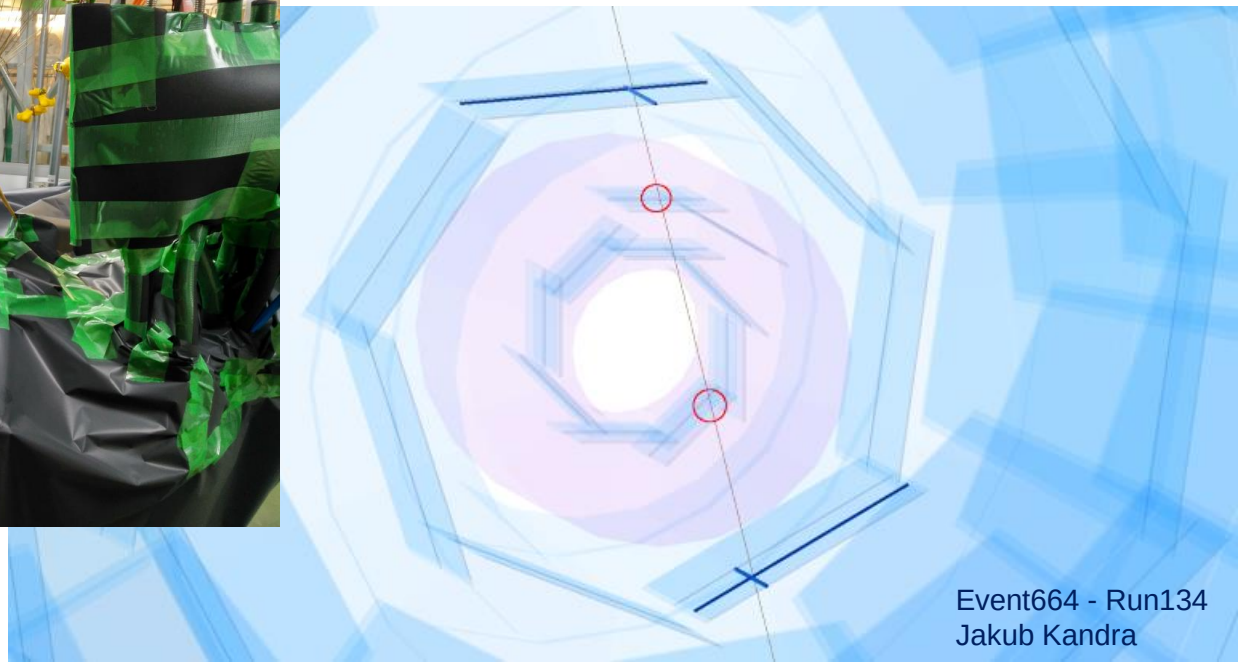


PXD Cosmics Run

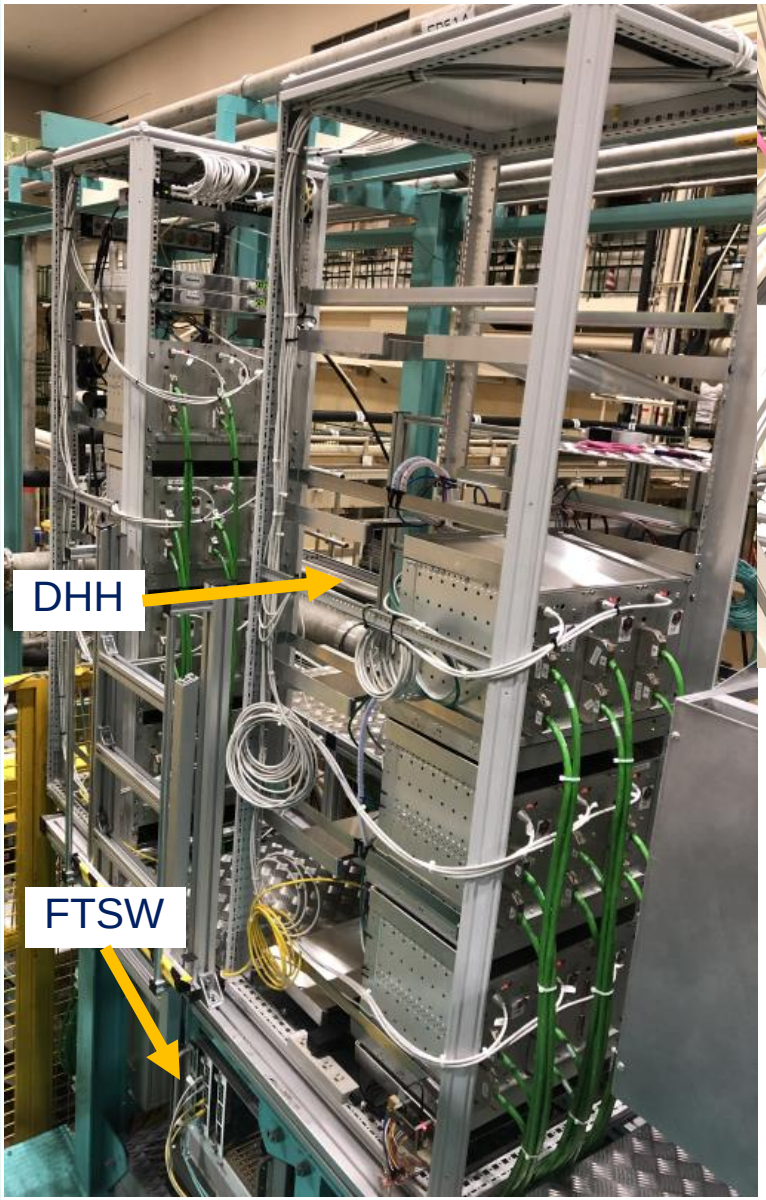
- Serious problems with MARCO → CO2 pipe from IBBelle to B4 Clean Room (for PXD 2020)
- Slow Control issues
  - Upload of pedestals (new method, fixed)
  - DHH need about 12 threads to upload pedestals
  - No offsets applied
- Nobody at KEK during last weekend

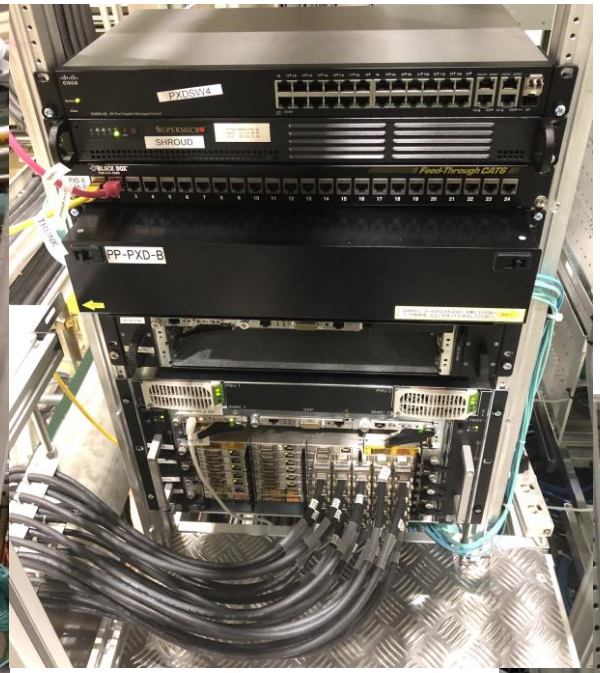


warm dry volume



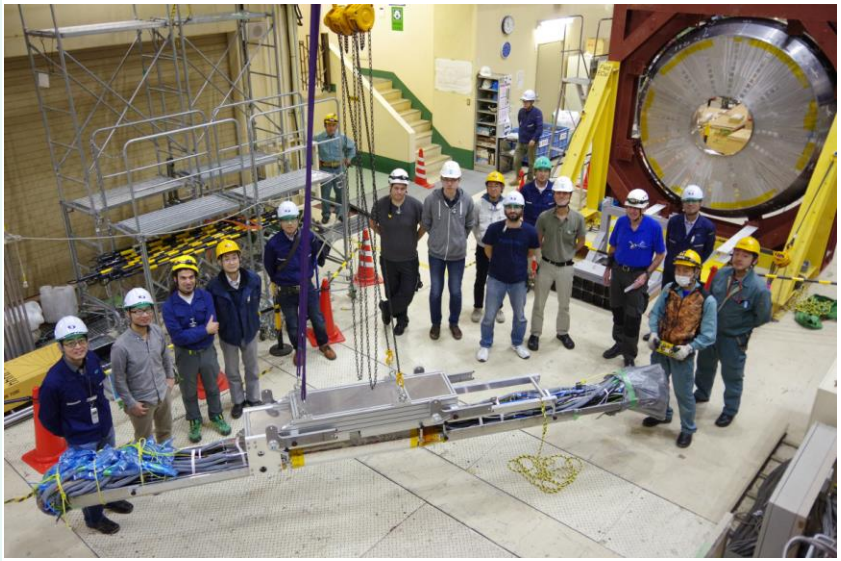
Top of Belle - Pictures

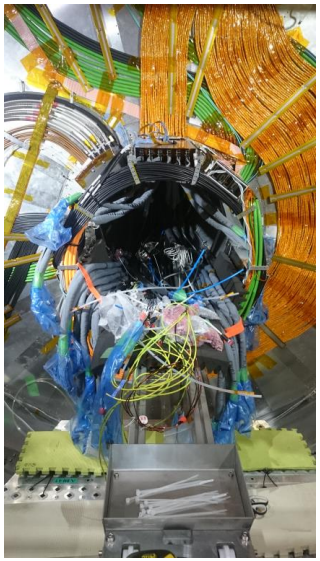




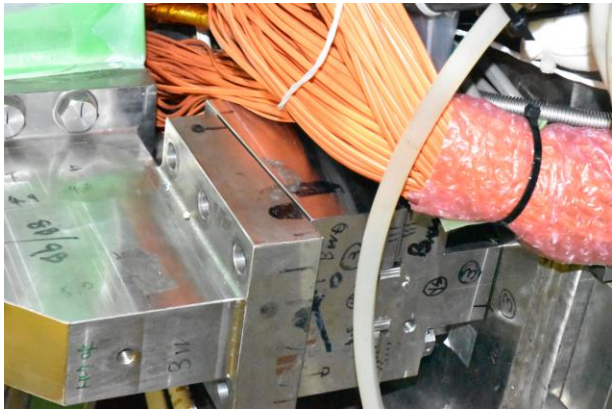
DHH is accessible from front and rear sides

Installation of VXD – November 2018

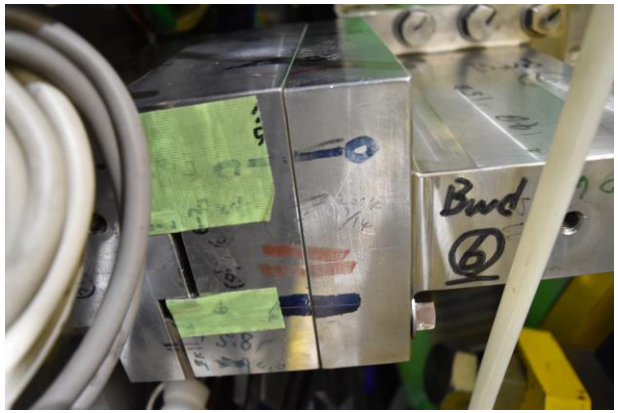


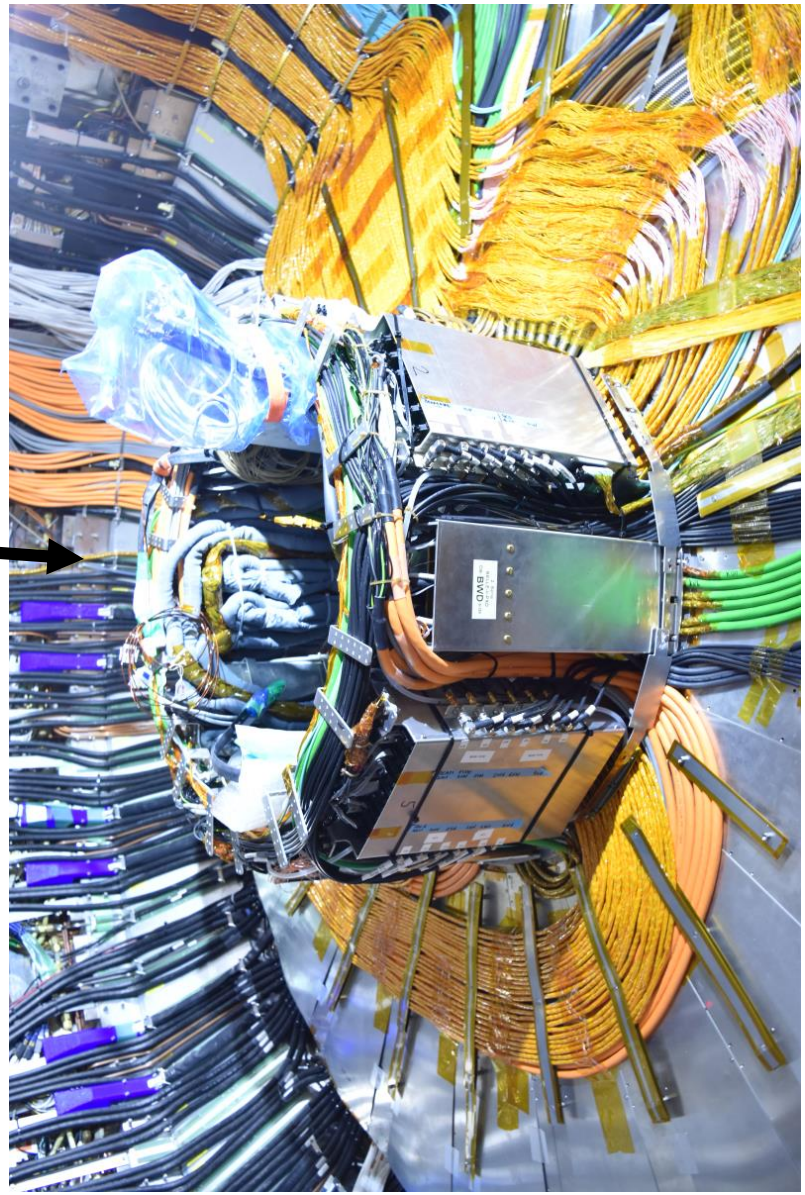


Belle installation – endcap push in & QCS insertion



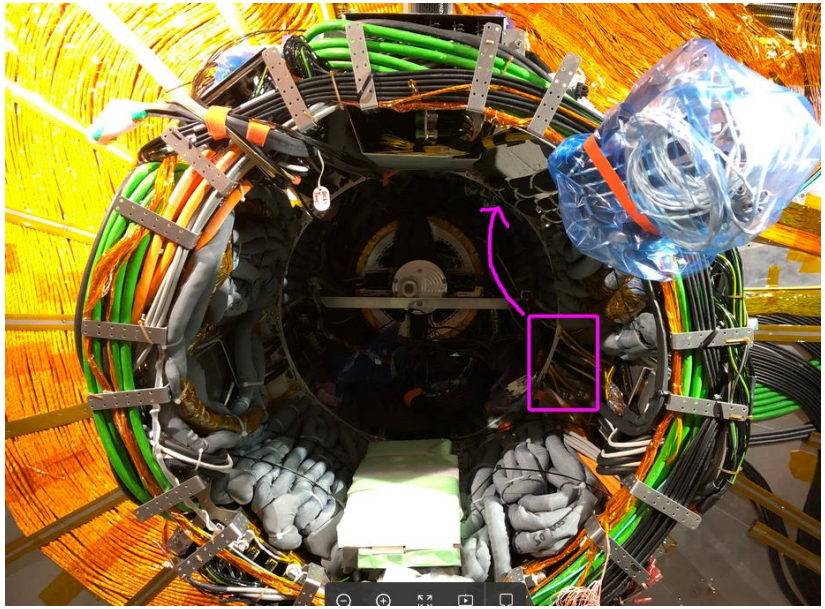
Endcap push in tests





Belle installation – endcap push in & QCS insertion

In particular cables for entire PXD (cooling pipes occupy too much space) => serious concerns about BWD by Karsten for PXD 2020



https://confluence.desy.de/display/BI/Improvements+for+2020

PXD sanitary checks after each operation / mechanical work step

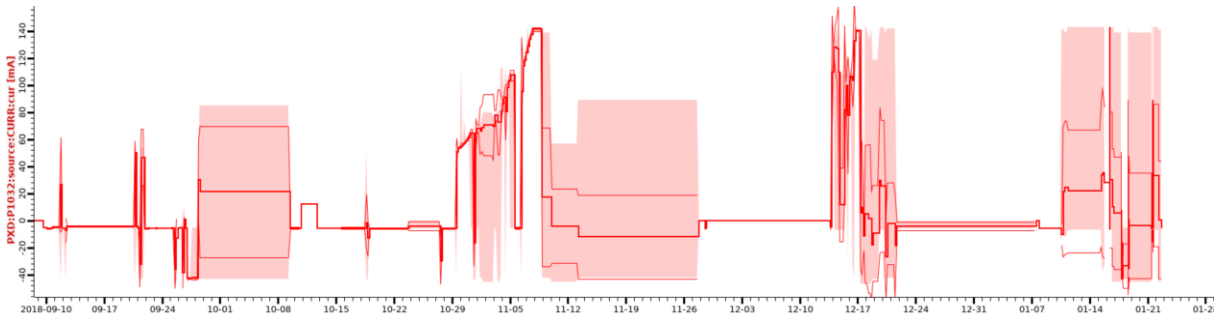
- Endcap insertion BWD done & 16 CLAWS modules installed
- Endcap FWD insertion on Jan 25, afterwards: CLAWS installation on Jan 25

PXD status (1)

OVP trigger occurred often (→ increase current limits & modify power up sequence => rarely triggered)

Module 1032

source current ↑



Stand alone tests in Dec 2018 – 2019 Jan 21

H2041: test pattern enabled in DCD3 if DCD4 is configured (=> must exclude DCD4 for DCD3 config)

End 2018: DHH firmware tests (DHI, DHC) → communication issues with modules → switch back to old ones (DHE firmware 180427_1330, DHC firmware 180626_2304, DHI firmware 180918_1112)

PXD calibrated: hs-links, delays, offsets, pedestals acquired & uploaded

- only 10 modules in parallel for pedestal upload
- oftentimes reupload of pedestals since DHP data rate are high [10^7 Bps at 20Hz]

PXD calibrations (delays, offsets, pedestals – implemented in GUI) – some are missing

Manual for shifters still under development & Training new people

PXD status (2)

Jan 21:

ready to take cosmics with PXD, but finally DHH does not receive any data (wrong FTSW connected to DHH) => solved on Jan22

Jan 22:

Movement of DHH rack and Patch Panels & fixation of power sockets and raspberry pi

Problems of slow control of H1041, H1071, H1072, H2042, H2052 => excluded and comics

Problem with slow response of NSM, only 1 HLT can be used with PXD

Jan 23:

Moved pxdioc4 close to DHH system

No slow control problems with module from Jan22

Investigation of H2041 => DCD3 must be excluded of JTAG chain

Cosmic runs with 2kHz, trigger ~4.3M trigger PXD crashes

Jan 24:

Investigation of H2041 (lower JTAG clock (TCK+divider=255) does not solve the problem

Rerouting of cables (power cables etc) & uplink of switches from CAT5e to optical

Preparations for integration of elog server

Plans < 24.01.2019

Plan: cosmics run over night

Cosmic runs over weekend (25. / 26.01.2019)

- Look at PXD data
- Combined data taking with SVD
- Still old DHH firmware (limit of trigger rate)

Shift management?

Missing until begin of phase 3

https://confluence.desy.de/display/BI/To+Do+till+Beginning+of+Phase+3

DHH sequence (who?)

- Verification of switcher sequence fails sometimes => high clear, gate and source currents
  - Not observed at DESY
  - Time stamps will be noted in future for further investigation (log files)
- Links are tried to establish during power up with DHE not DHI
- DHI outputs should be switched off when going to OFF state

DHH IOC

- Upload of pedestals fail often/corrupted => high data rates for zero suppressed data
  - Florian can implement a complete check of the uploaded sequence – (status?)
  - Drawback: this takes additional time
- High CPU load => split into 10+10 modules
  - Florian, Michael, changed the IOC, currently tested at DESY

Utility IOC

- Temperature interlock does not work at DESY

Shifts

- Manual
- Training for new shifters (→ DESY)
- Alarms ➔ see Felix Johannes Mueller's talk
- BPAC "An adequate pool of well-trained shifters should be available for the start of Phase 3 running. Training more staff to enlarge the pool of available experts is highly recommended.

Missing until begin of phase 3

DHH firmware + IOC

- When do we expect new firmware – when can we test?
- What need to be changed (IOC, control xml files, etc), is the IOC compatible with the one from Florian, Michael?
- Gated Mode
- Cannot reset the statistic counters

EPICS archiver + EPICS alarm

- PVs need to be specified for recording (PXD, PS, DHH, Shelf, ONSEN, DATCON) (status?)
- Alarm ➔ see Felix Johannes Mueller's talk

Calibration Software

➔ See Felix Johannes Mueller's talk

Gated Mode

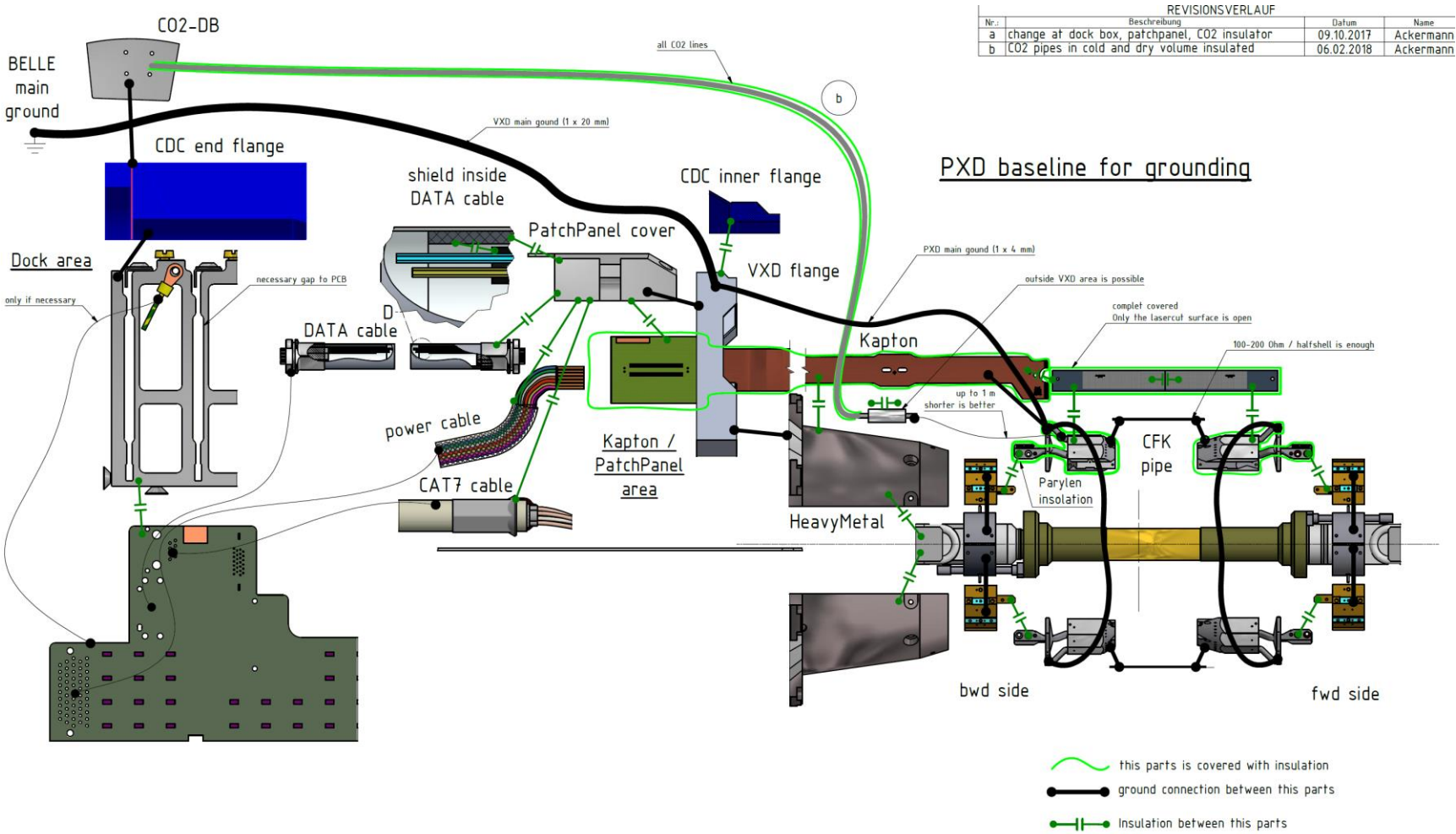
Everything – prepare tests already in Germany

Interlock System

Hiroyuki Nakayama asks for a hardware output of the PS state of the LMU PS

Backup

System ground



https://confluence.desy.de/display/BI/PXD+System+Grounding?preview=/43903273/84318745/106-012600-000%20Ground-Info-Feb-2018.pdf