Status of PXD 2 ONSEN System at KEK

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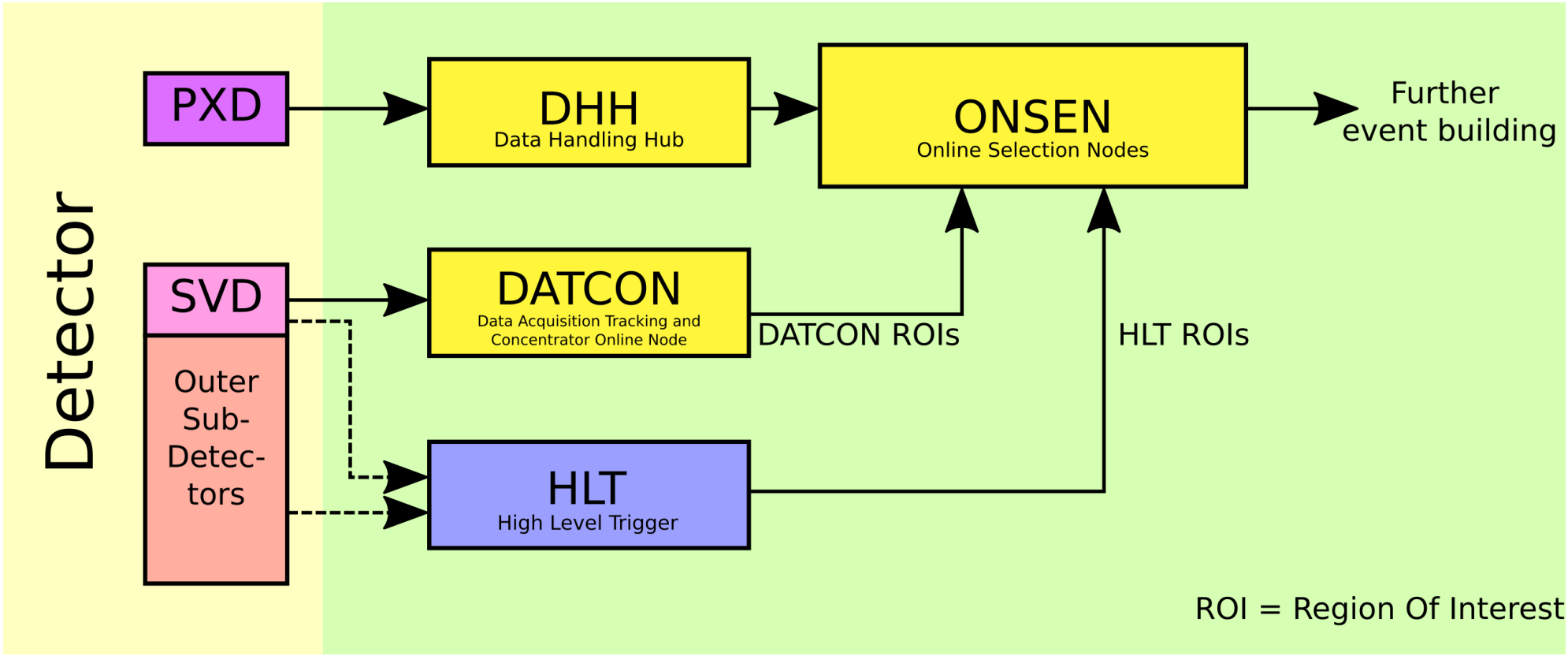
PXD Workshop

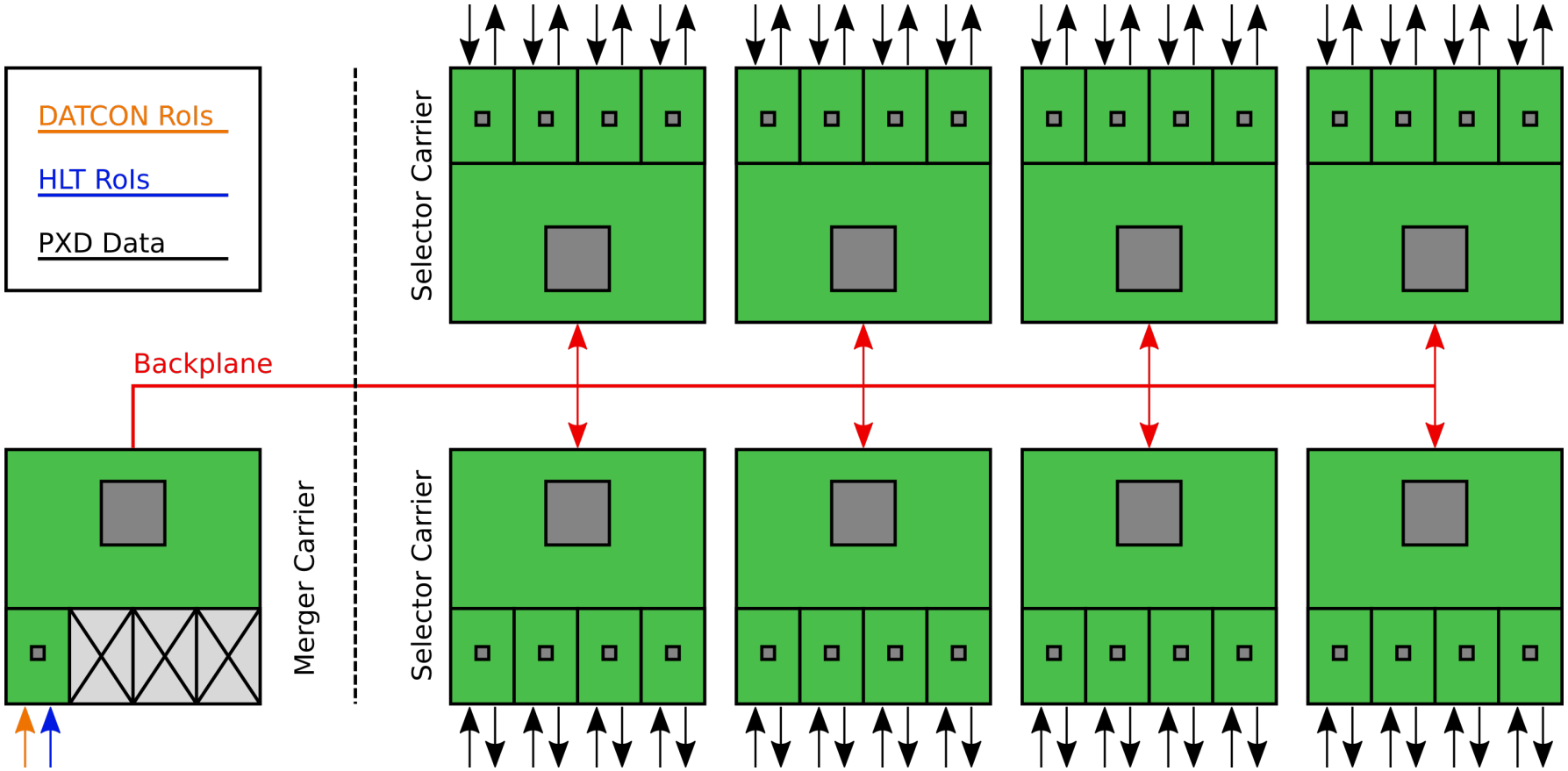
Mai 22, 2023

*(2 months at KEK as part of Jennifer-2)

Introduction



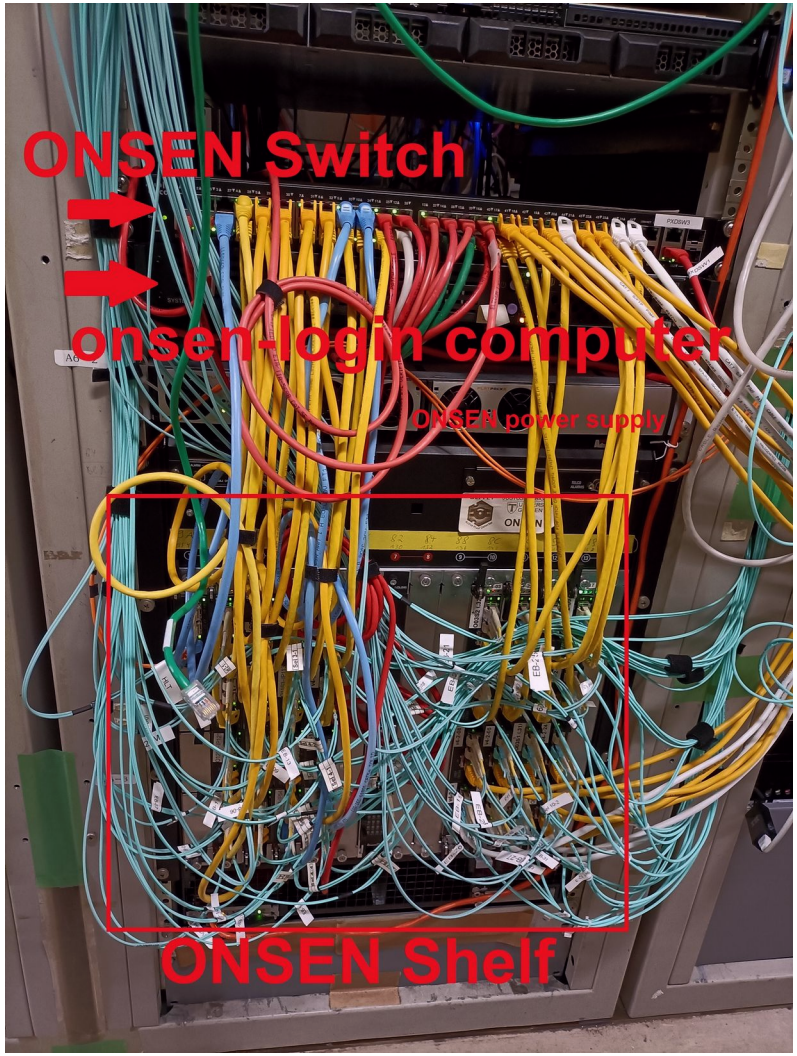
Introduction



Starting ONSEN

- Not all boards started properly up
- Slot 03 Carrier and AMCs shut down after several hours of running
  - This was not observed again
- The file `/tmp/envPaths` is created automatically during start up, is missing sometimes
  - Fixed by reprogramming the board
  - This can happen to every board
- All boards are running and functional

https://gitlab.desy.de/belle-ii-onsen/onsen/-/issues/97
https://confluence.desy.de/display/BI/PXD+ONSEN



Dockbox cabling (E-Hut)

- The full ONSEN system will be used, for the first time (factor 2 more hardware compared to phase phase 3)
- The remaining ONSEN board had to be connected to the dockbox

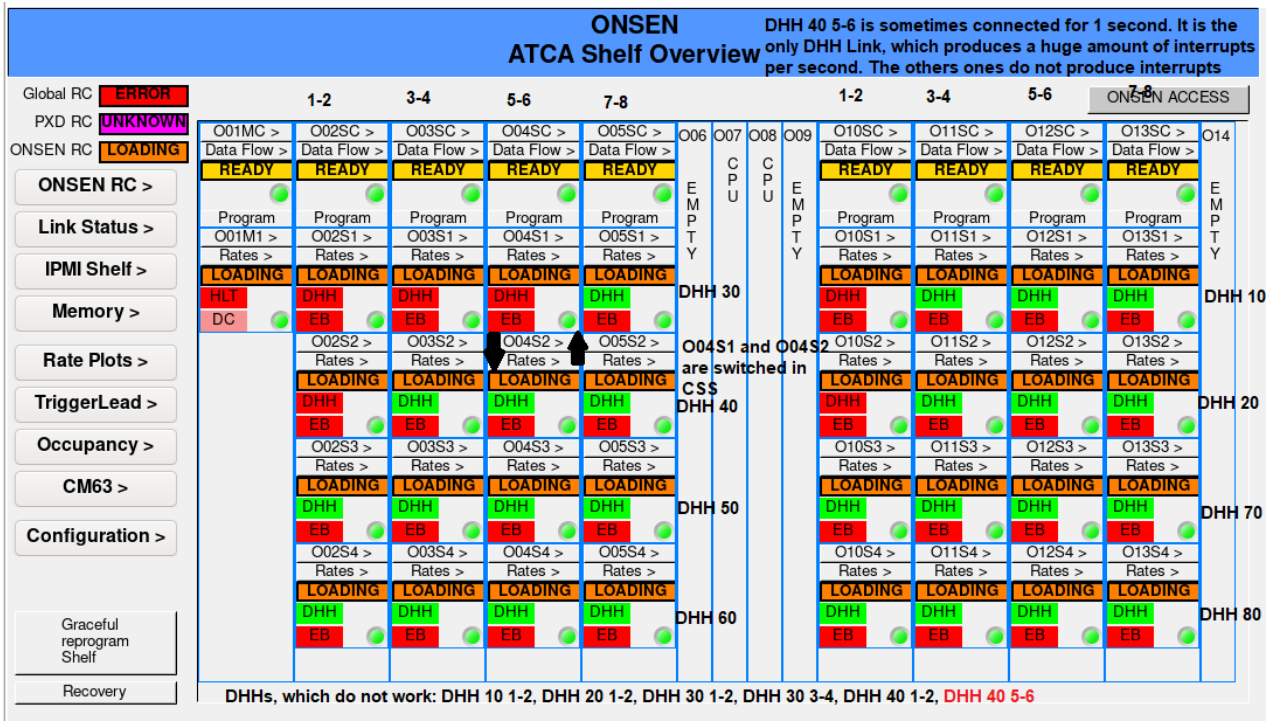
Configuration:
bold red = new/changed connections from B4 side w.r.t phase3
Where ONSEN connection not yet set DHH link names are given

PXD-F No01~No24		PXD-F No25~No48		PXD-F No49~No72		PXD-F No73~No96		PXD-B No01~No24		PXD-B No25~No48		PXD-B No49~No72		PXD-B No73~No96		PXD-B No97~No120	
1	2	3	4	25	26	27	28	**DHH10 1-2**	**DHH20 1-2**	2-1	2-2	Sel 2-3	Sel 2-4	**DHH70 1-2**	**DHH80 1-2**	**DHHNET** phase3: - pxdsw2 port 22 über media converter (what is this?)	**PXDSW2 MO TRUNK**
5	6	7	8	29	30	31	32	**DHH10 3-4**	**DHH20 3-4**	3-1	3-2	Sel 3-3	Sel 3-4	**DHH70 3-4**	**DHH80 3-4**		
9	10	11	12	33	34	35	36	**DHH10 5-6**	**DHH20 5-6**	4-1 phase3: 4-2, swapped with O04S1	4-2 phase3: 4-1, swapped with O04S2	Sel 4-3	Sel 4-4	**DHH70 5-6**	**DHH80 5-6**		
13	14	15	16	37	38	39	40	**DHH10 7-8**	**DHH20 7-8**	5-1	5-2	Sel 5-3	Sel 5-4	**DHH70 7-8**	**DHH80 7-8**		
17	18	19	20	41	42	43	44	**DHH10 localDAQ**	**DHH20 localDAQ**	**DHH30 localDAQ**	**DHH40 localDAQ**	DHH**50** BONNDAQ	**DHH60 localDAQ**	**DHH70 localDAQ**	**DHH80 localDAQ**	NC	NC
21	22	23	24	45	46	47	48	NC	NC	**NC**	**NC**	NC	NC	**NC**	**NC**	**FTSW TRG**	**FTSW TRG**
DATCON		DATCON		DATCON		DATCON				loopback1/2 connect 2 ports with one cable each						**FTSW CLK**	NC

https://gitlab.desy.de/belle2/detector/pxd/commissioning/-/issues/47
https://confluence.desy.de/display/BI/PXD2+B4+optical+cabling

Dockbox cabling (E-Hut) – Link Tests

- There was an error with the cabling at the DHH
- Tightening loose screws recovered the two links
- All DHH to ONSEN links are recovered

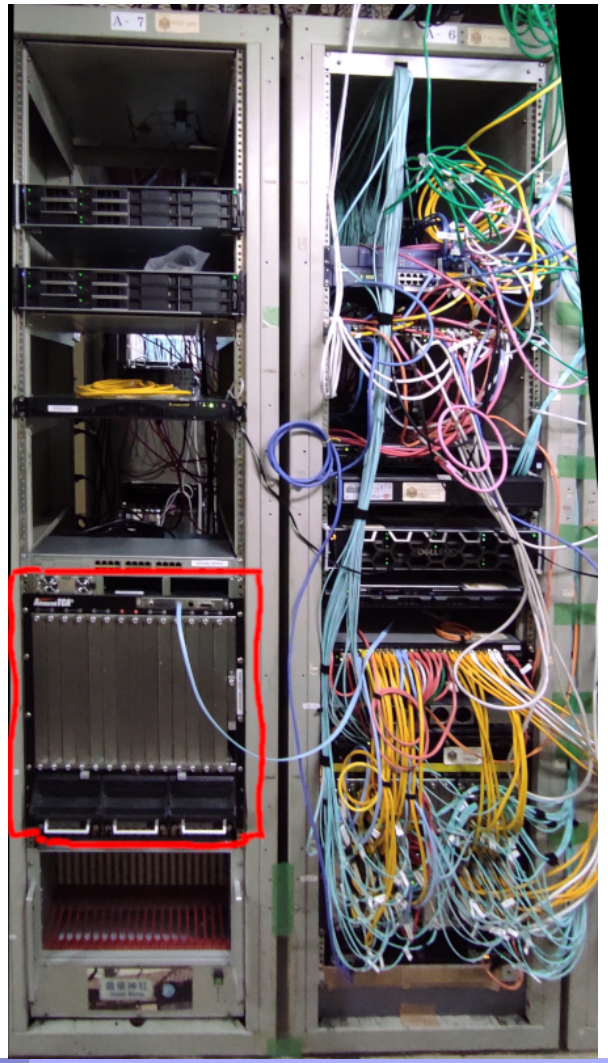


Dockbox cabling (E-Hut) – Link Tests

- A basic link test can be done without sending data
  - The data protocol is Aurora, which sends constantly idle characters
  - Interrupts are able to be produced and monitored
- To calculate an error rate, a longer link test should be done (~2 days of continues running)
  - No work should be done at the DHH or the corresponding pxdiocs
  - The DHH configuration should be final

ONSEN Spare Shelfs

- One 2-slot “pizza” ATCA shelf
- One 14-slot ATCA shelf without full-mesh backplane
- One 14-slot ATCA shelf with full-mesh backplane, which is bent
- All shelfs were located behind the shifter room in B3
- The bent shelf was moved to the E-Hut to be usable as spare



https://gitlab.desy.de/belle2/detector/pxd/commissioning/-/issues/27

ONSEN Spare Shelf

- ATCA shelfs have a lot of replaceable parts
- The only component, which can not be replaced it the backplane
- The risk of breaking the backplane is small
- The spare shelf contained:
  - One shelf manager → The shelf manager moved to the active shelf for redundancy
  - Three fans → Can not be used as spare
  - One filter, which is old and brittle

  - Two Power Entry Module (PEM) A+B → Can not be used as spares
  - On top is a PS crate with one PS→ Can not be used as spare