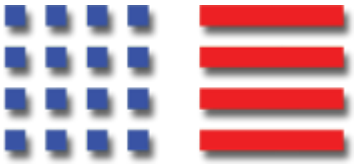

VXD Test Beam

C. Marinas[a], K. Nakamura[b]

[a]University of Bonn
[b]KEK

VXD Consortium

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DESY TB Schedule 2016

	Week		TB21		TB22		TB24/1		TB24
			DATURA	none	DURANTA	none	Telescope in PCMAG	PCMAG	none
4-Jan-16	1		Shutdown						
11-Jan-16	2								
18-Jan-16	3								
25-Jan-16	4								
1-Feb-16	5								
8-Feb-16	6								
15-Feb-16	7								
22-Feb-16	8								
29-Feb-16	9								
7-Mar-16	10		Startup		Startup		Startup		Startup
14-Mar-16	11		CMS-Pixel-Phase1		Mu3e				
21-Mar-16	12		Goettingen-CMOS		ATLAS-Pixel-AMSH35				
28-Mar-16	13		ATLAS-Pixel-MPP						
4-Apr-16	14		CMS-Pixel-Phase1				Installation Belle-II		
11-Apr-16	15		PLUME						
18-Apr-16	16		PLUME						
25-Apr-16	17		ATLAS-Pixel-AMSH35						
2-May-16	18		CMS-Pixel-PII-KA			CALICE-AHCAL			SiPM
9-May-16	19		CMS-Pixel-PII-KA						SiPM
16-May-16	20								
23-May-16	21		ATLAS-Strip-Glue		ATLAS-ITK-Strip			LCTPC-FLC	
30-May-16	22		ATLAS-Strip-Glue		ATLAS-ITK-Strip			LCTPC-FLC	
6-Jun-16	23								CMS-Pixel-Phase1
13-Jun-16	24								
20-Jun-16	25					CALICE-AHCAL			
27-Jun-16	26								
4-Jul-16	27								
11-Jul-16	28								
18-Jul-16	29								

TB24 and TB24/1
CW 14 – CW 17

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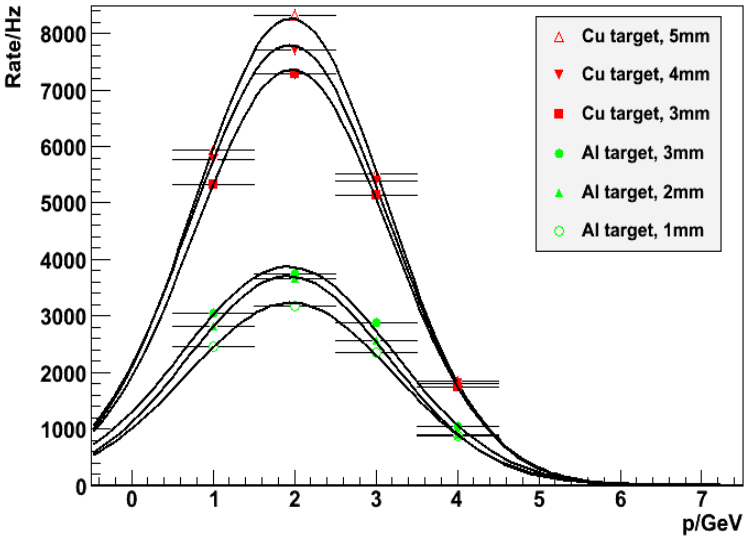
DESY TB

- VXD common test beam in April 2016 (4 weeks)
- Small sector of the final sensors and ASICs*
  2 PXD + 4 SVD ladders
- Complete VXD readout chain: HLT, monitoring, event building, PocketDAQ
- CO_2 cooling, slow control, environmental sensors
- Illumination with (up to) 6 GeV e^- under solenoid magnetic field (PCMAG)
- Alignment, tracking algorithms, ROI



- **Goal**: **System integration and Phase 2 Commissioning**

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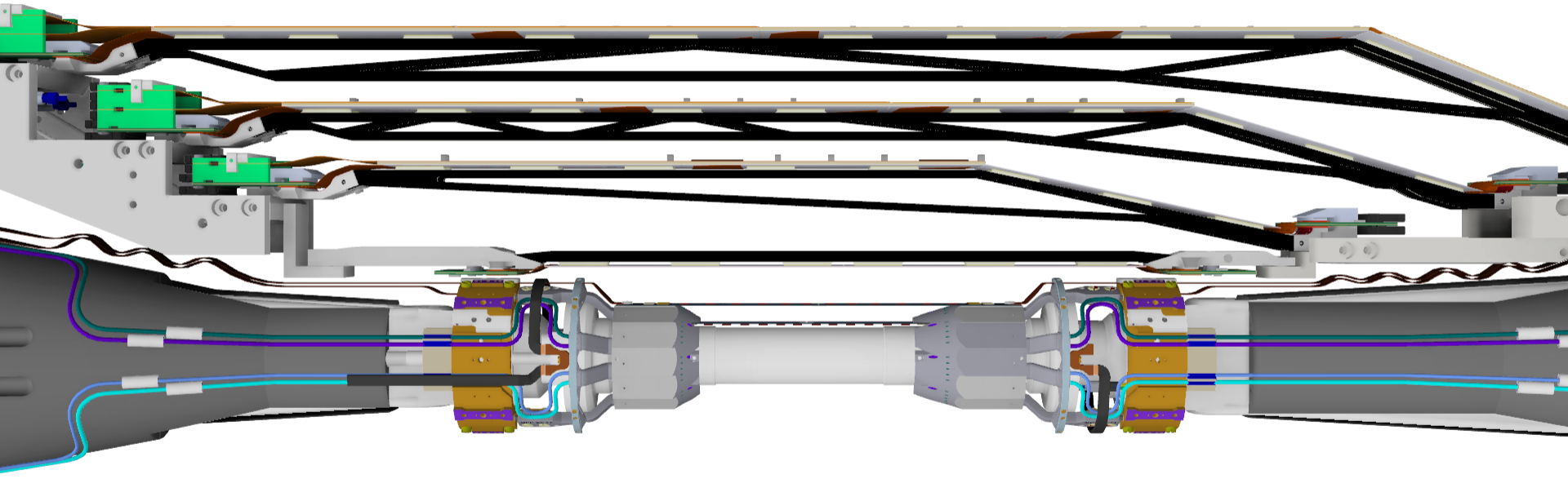
VXD Phase 2 Hardware

- Two PXD and four SVD layers
- +X direction, horizontal plane (highest background sensitivity)



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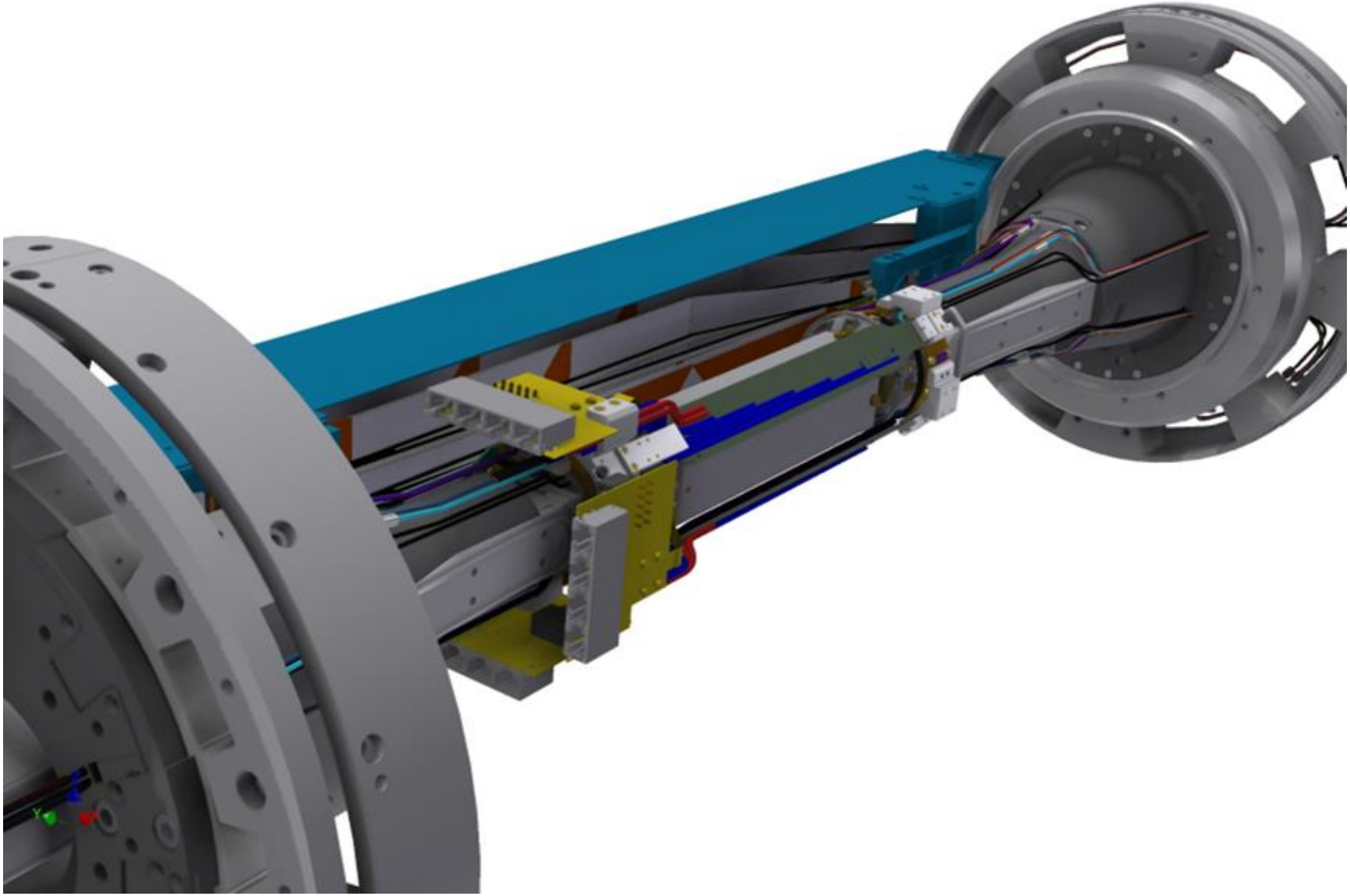
VXD-BEAST Detector Systems



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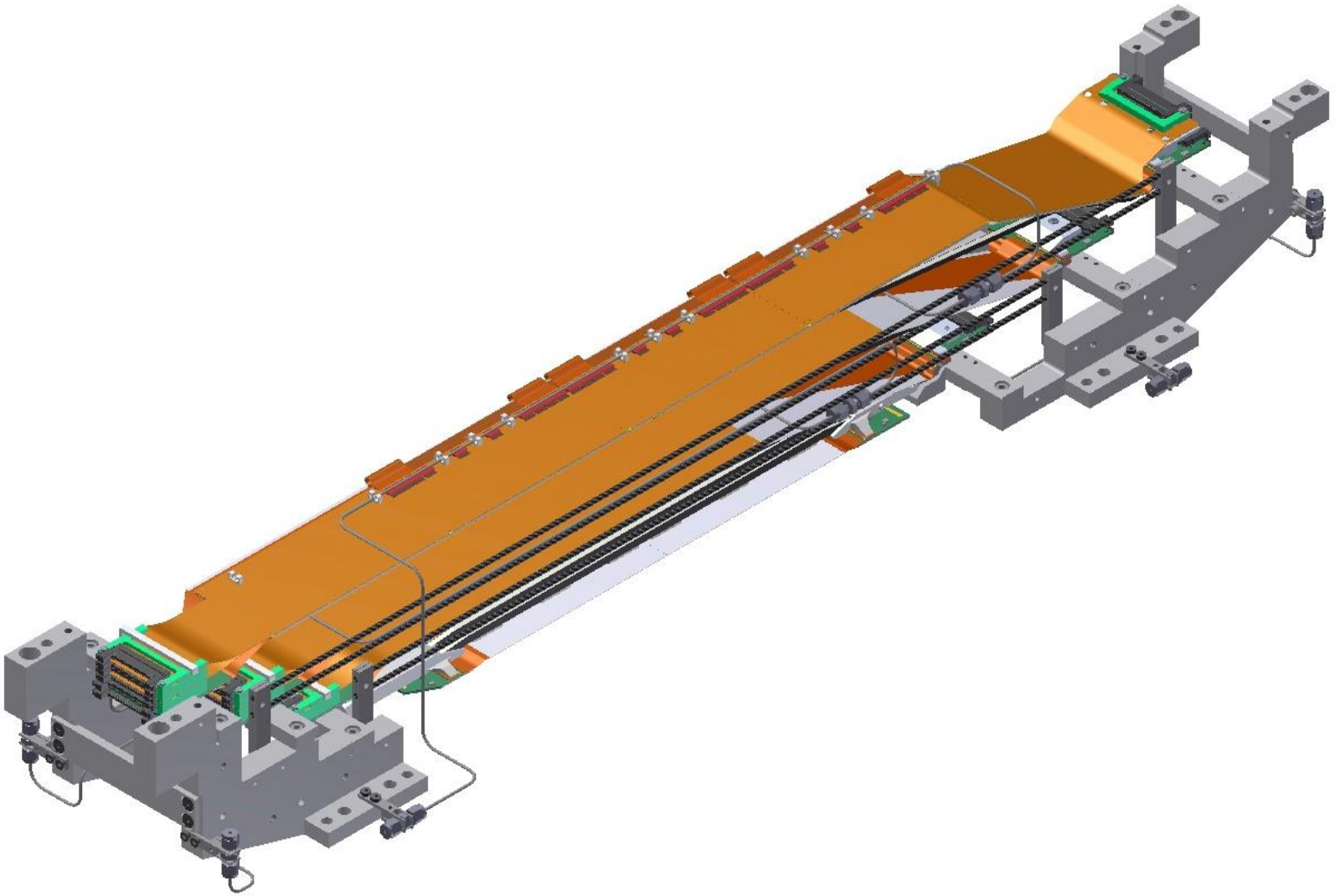
SVD Cartridge



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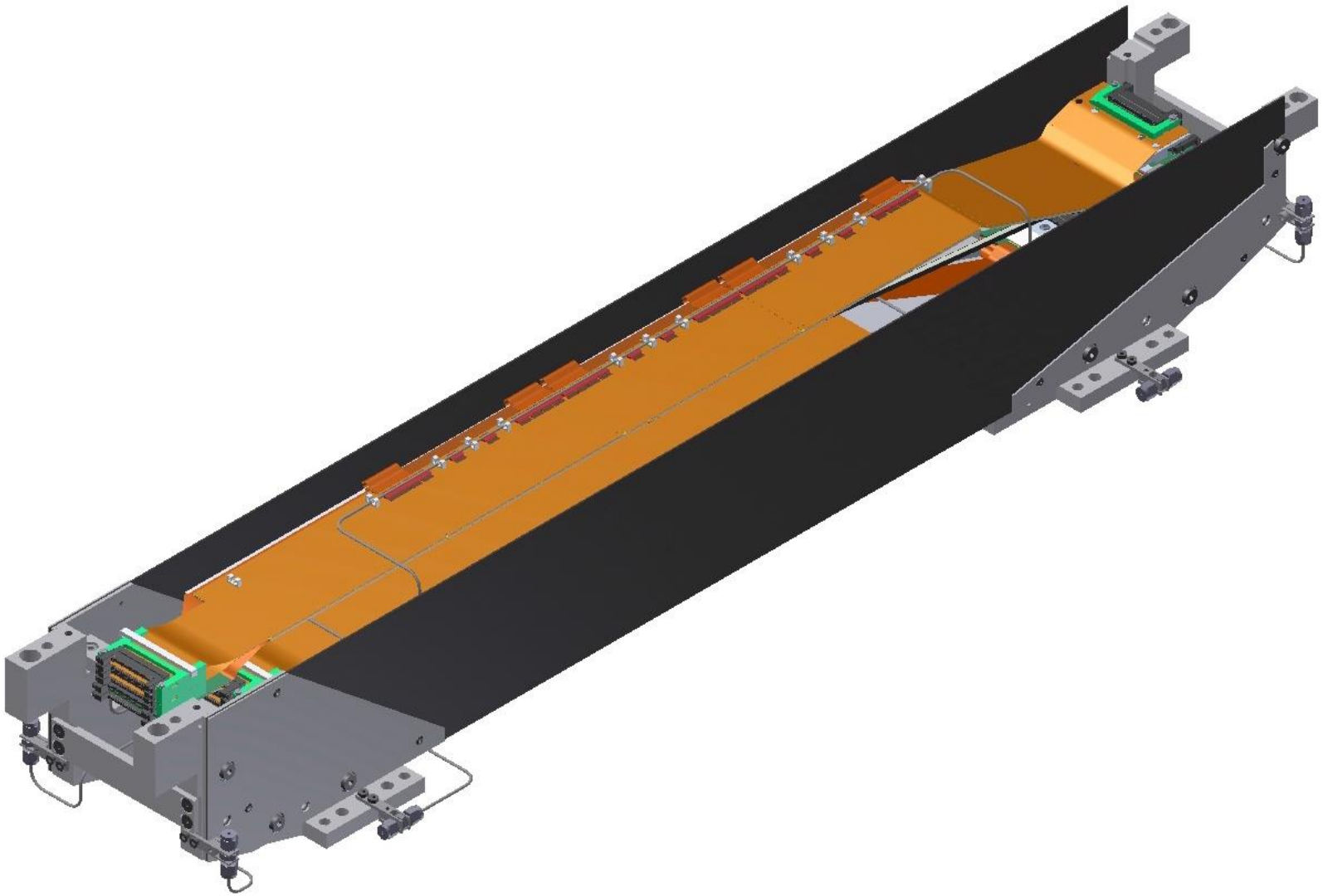
SVD Cartridge



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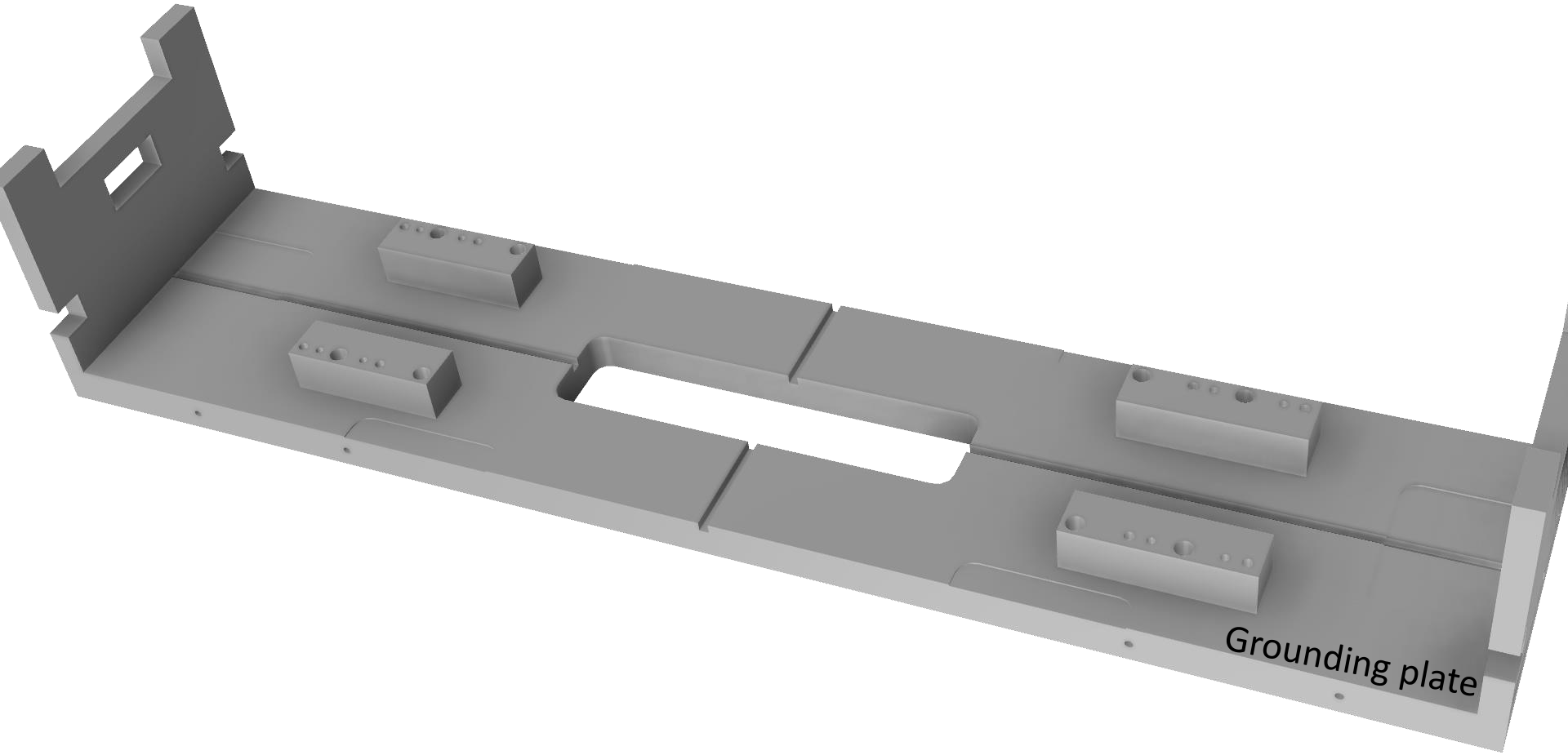
Dry Box



Test Beam set up to mimic Phase 2 arrangement

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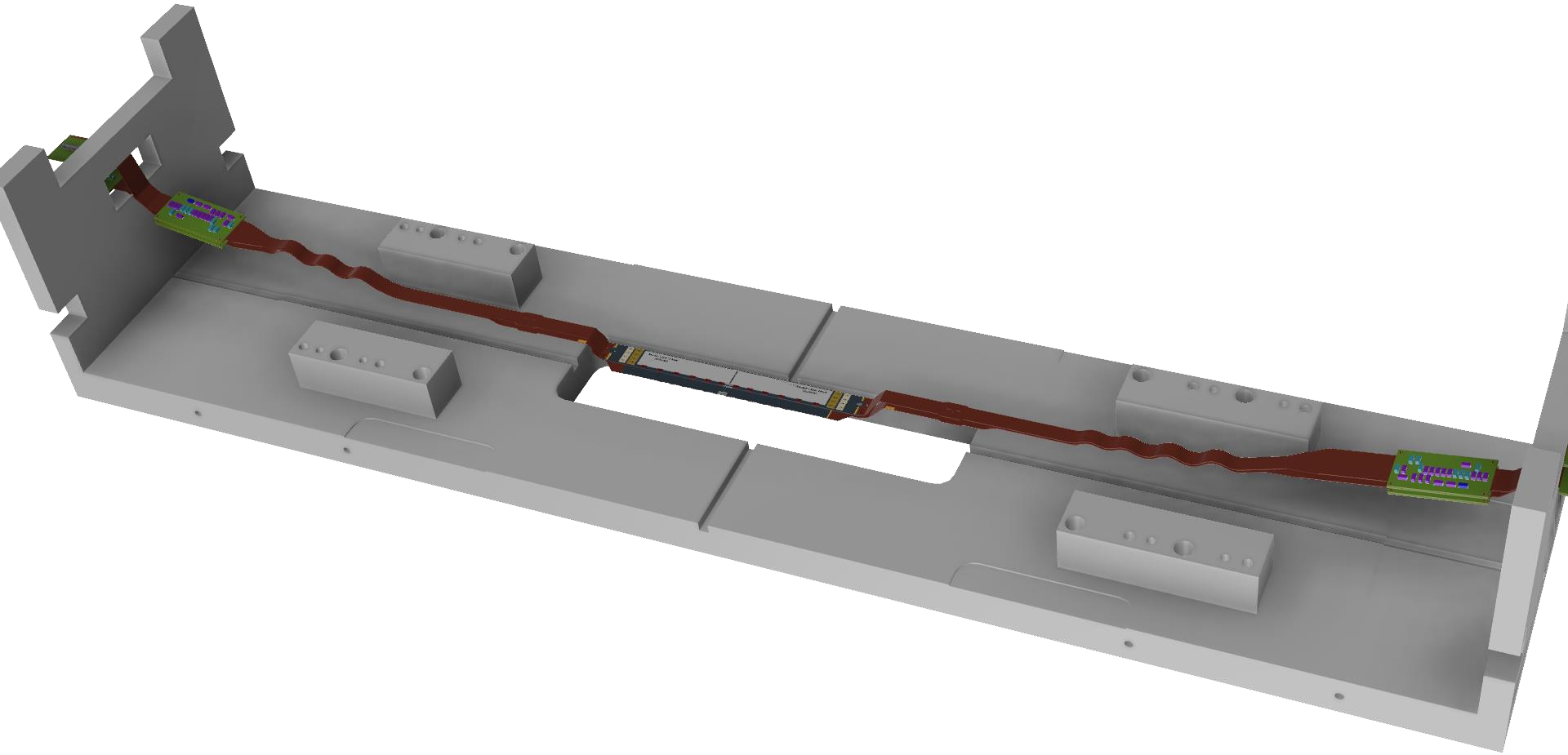
Dry Box



PXD SCB missing in this drawing

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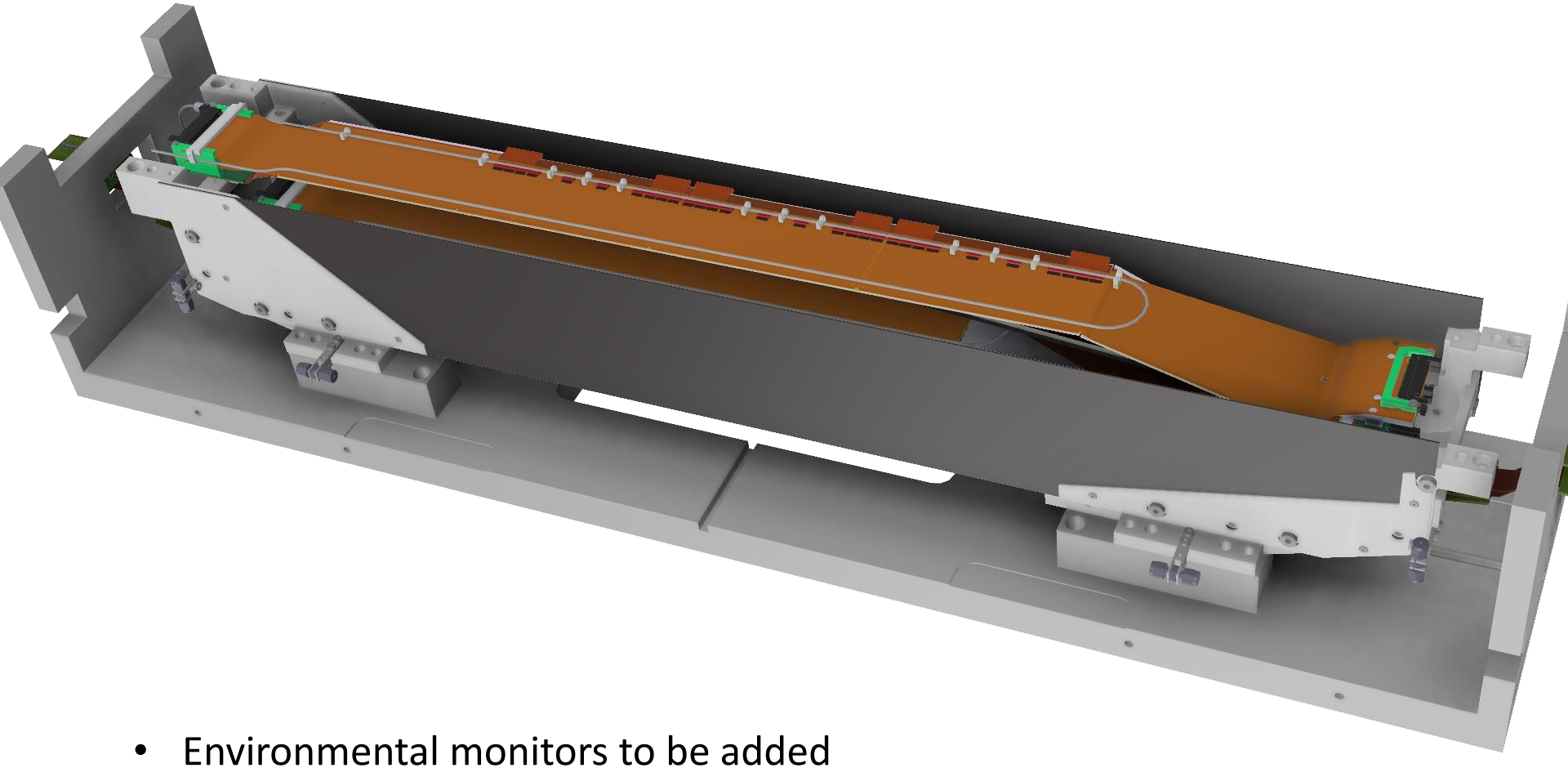
Dry Box



- Environmental monitors to be added

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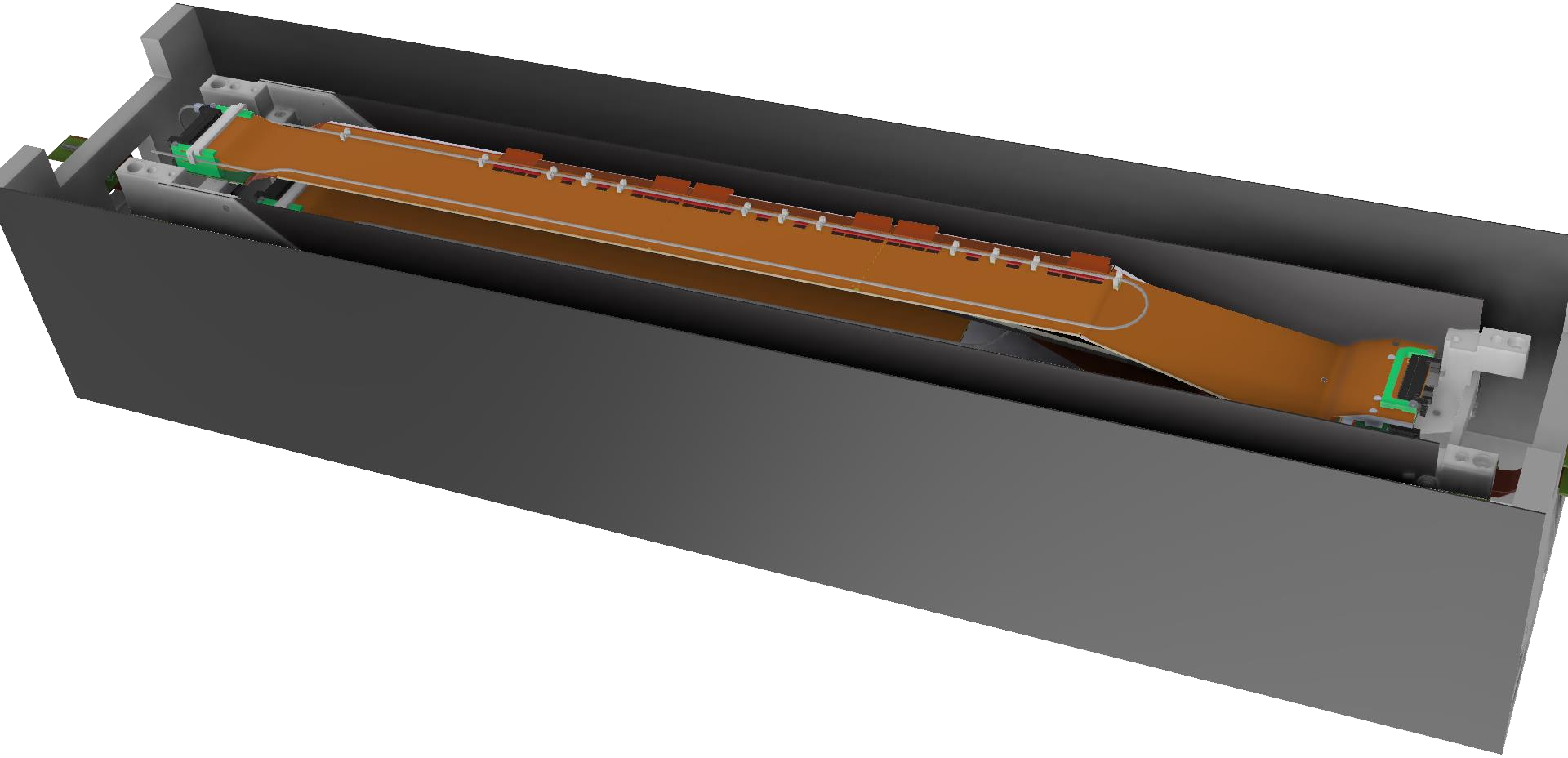
Dry Box



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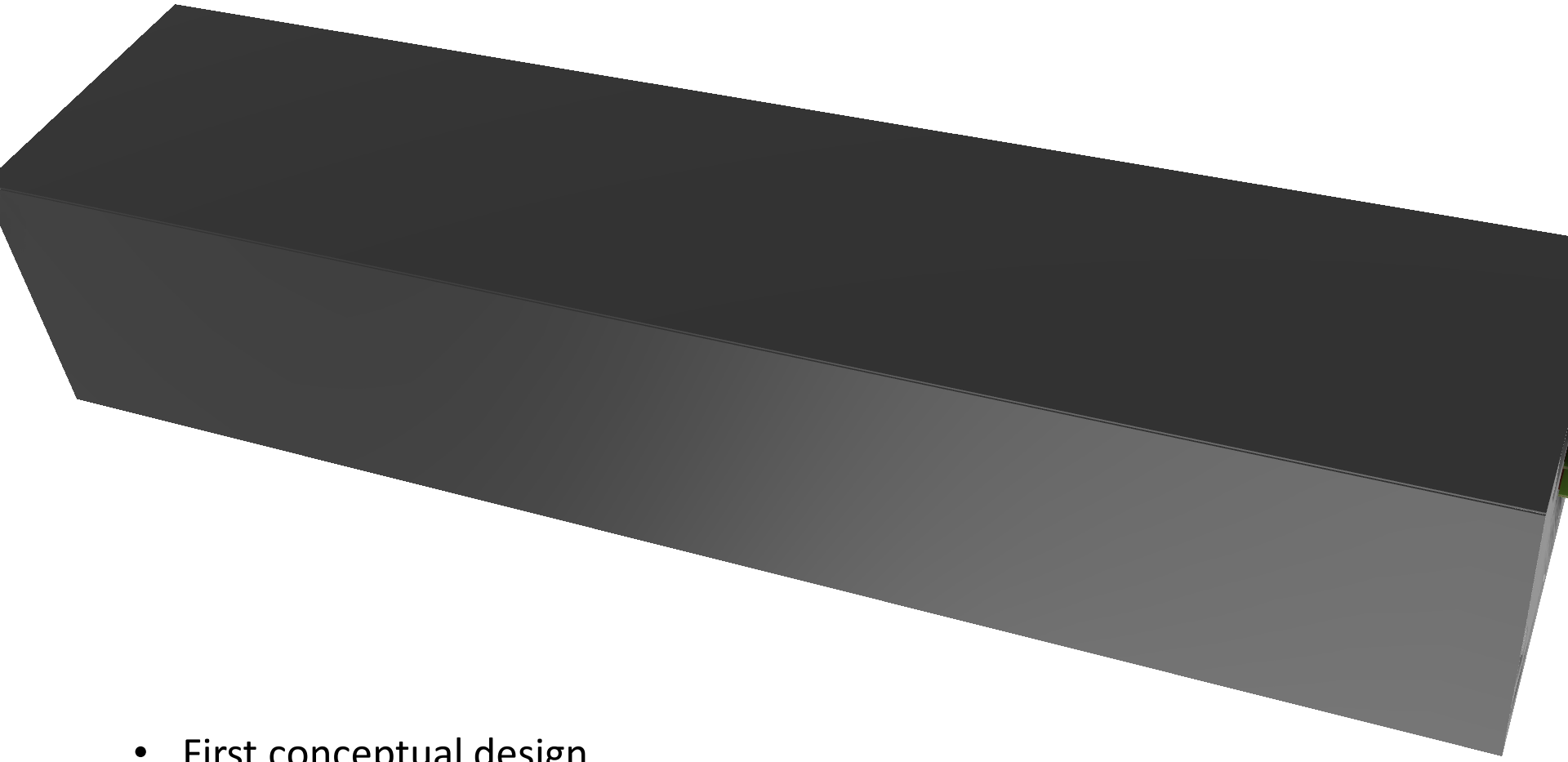
Dry Box



- First conceptual design

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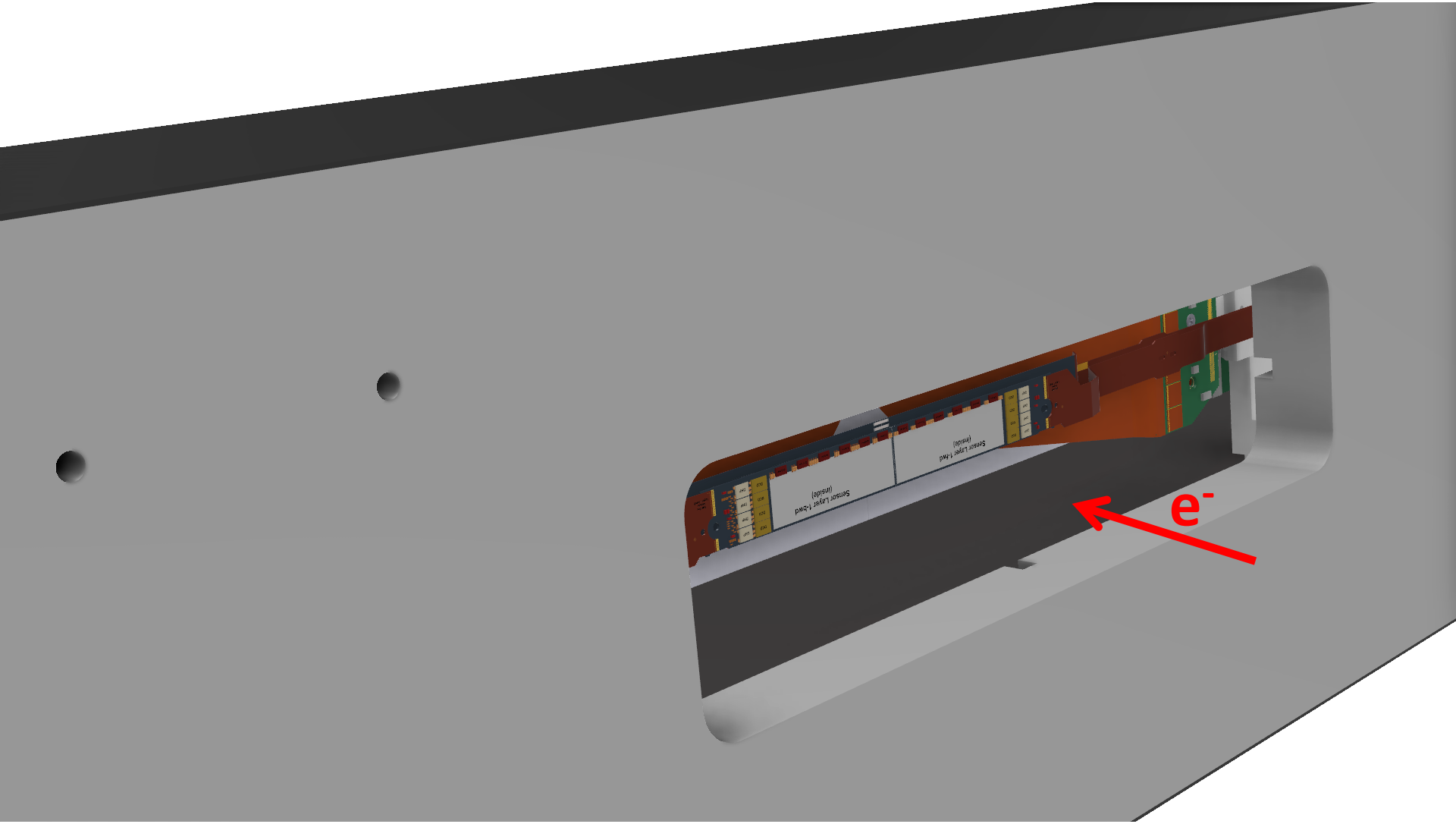
Dry Box



Box to be attached to the existing frame

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Combined Test Beam 2014

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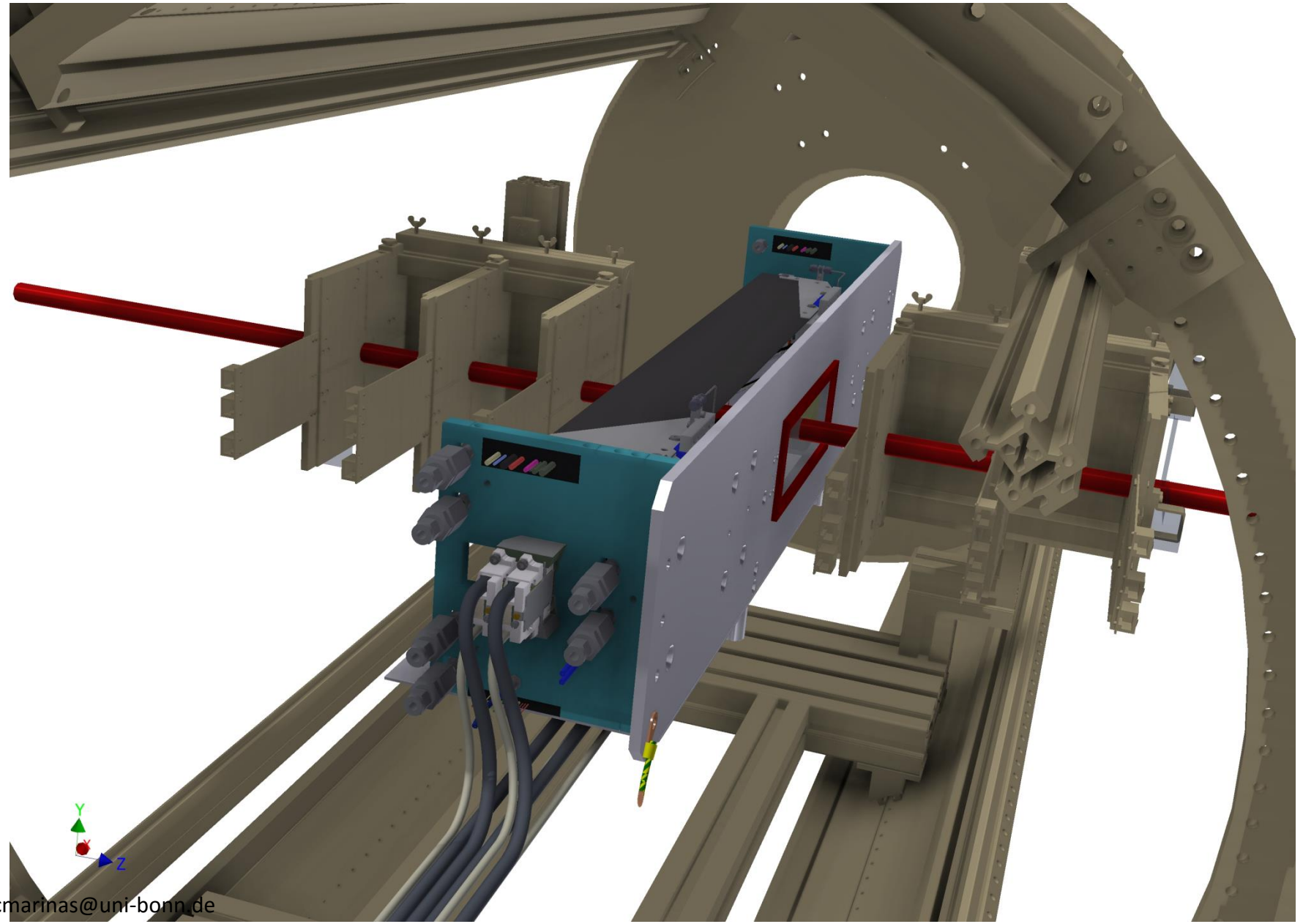
Integration into PCMAG



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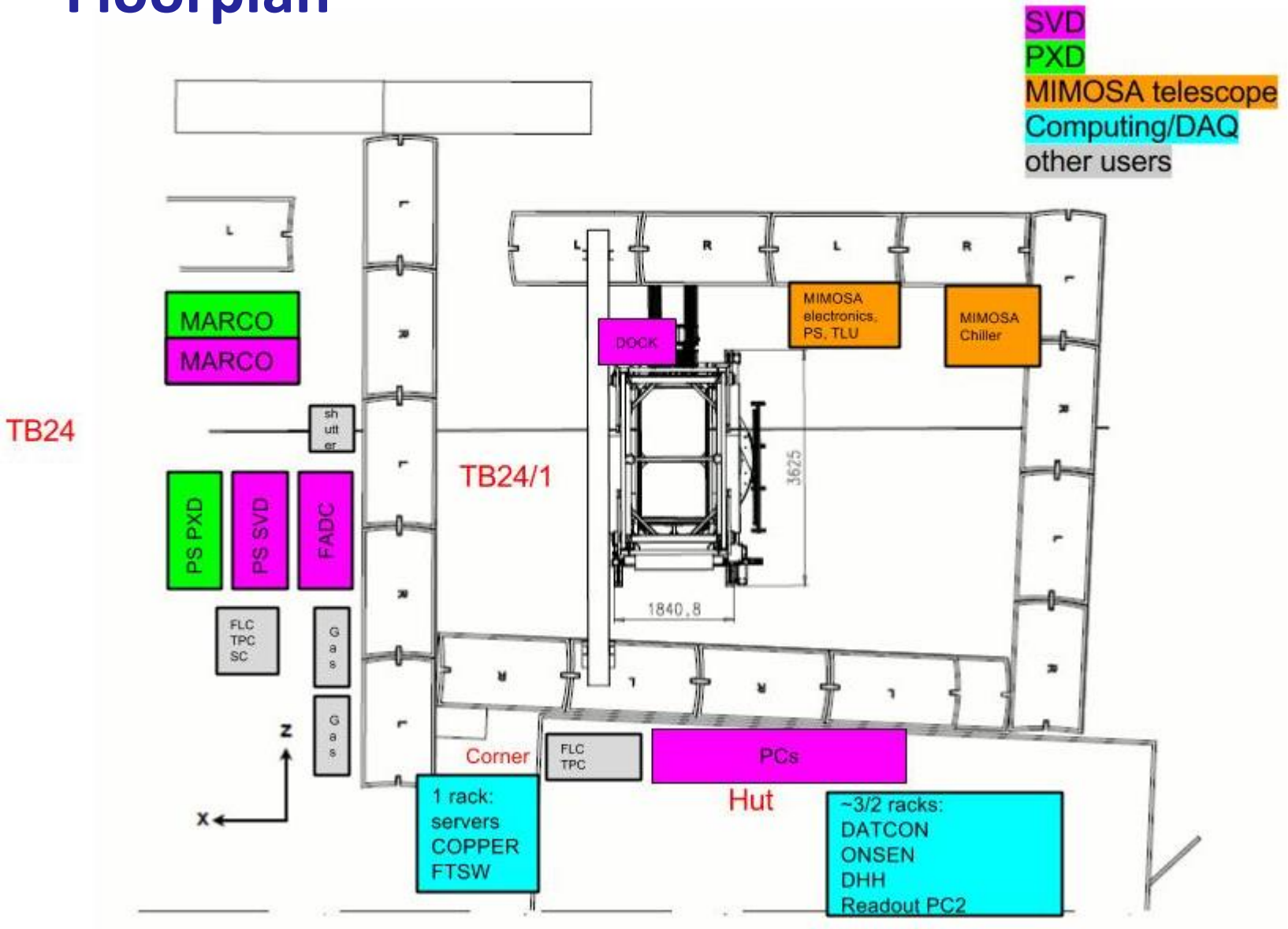
Floorplan



Default floorplan distribution as in 2014

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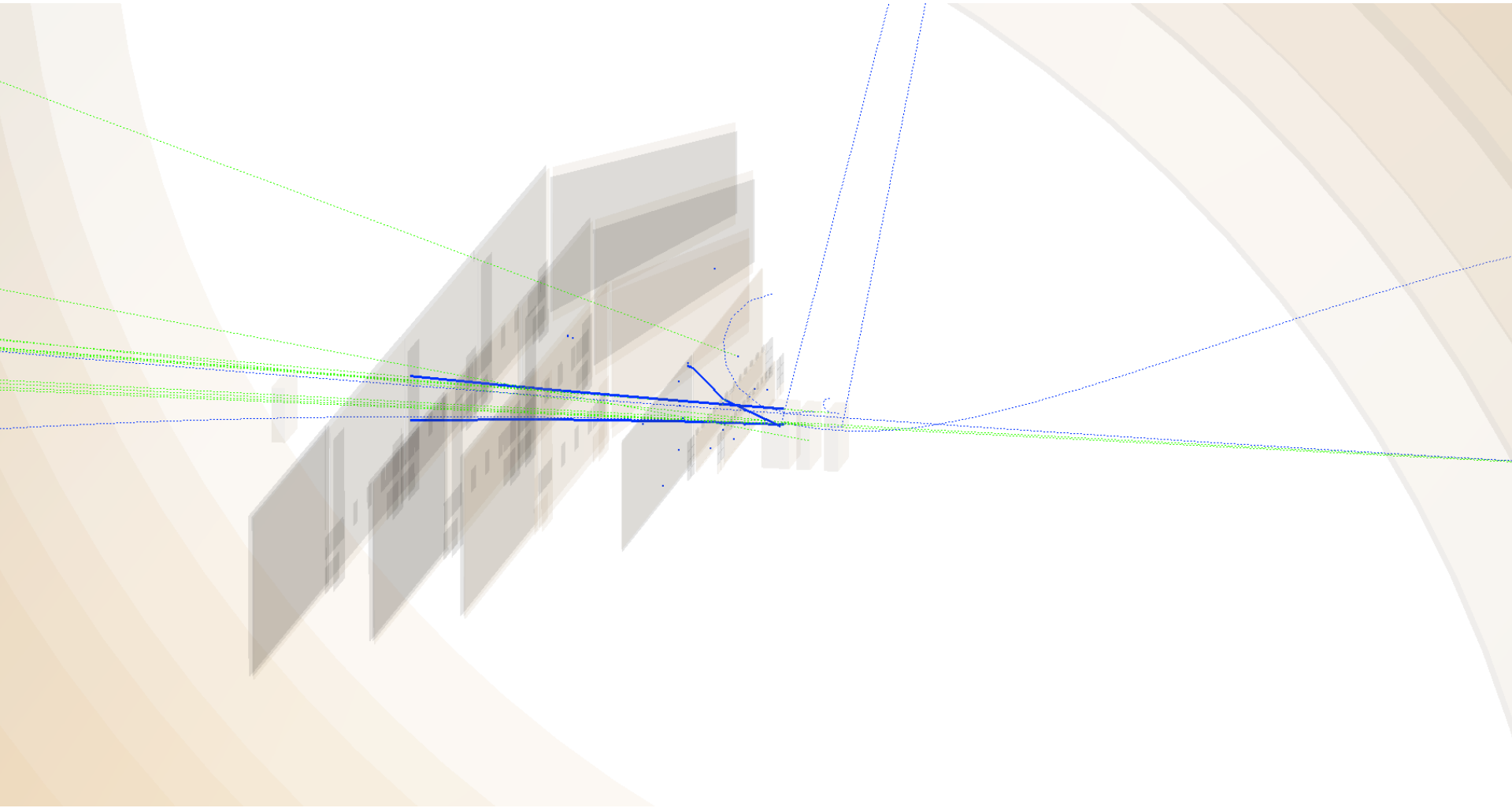
BASF2 Geometry Implementation



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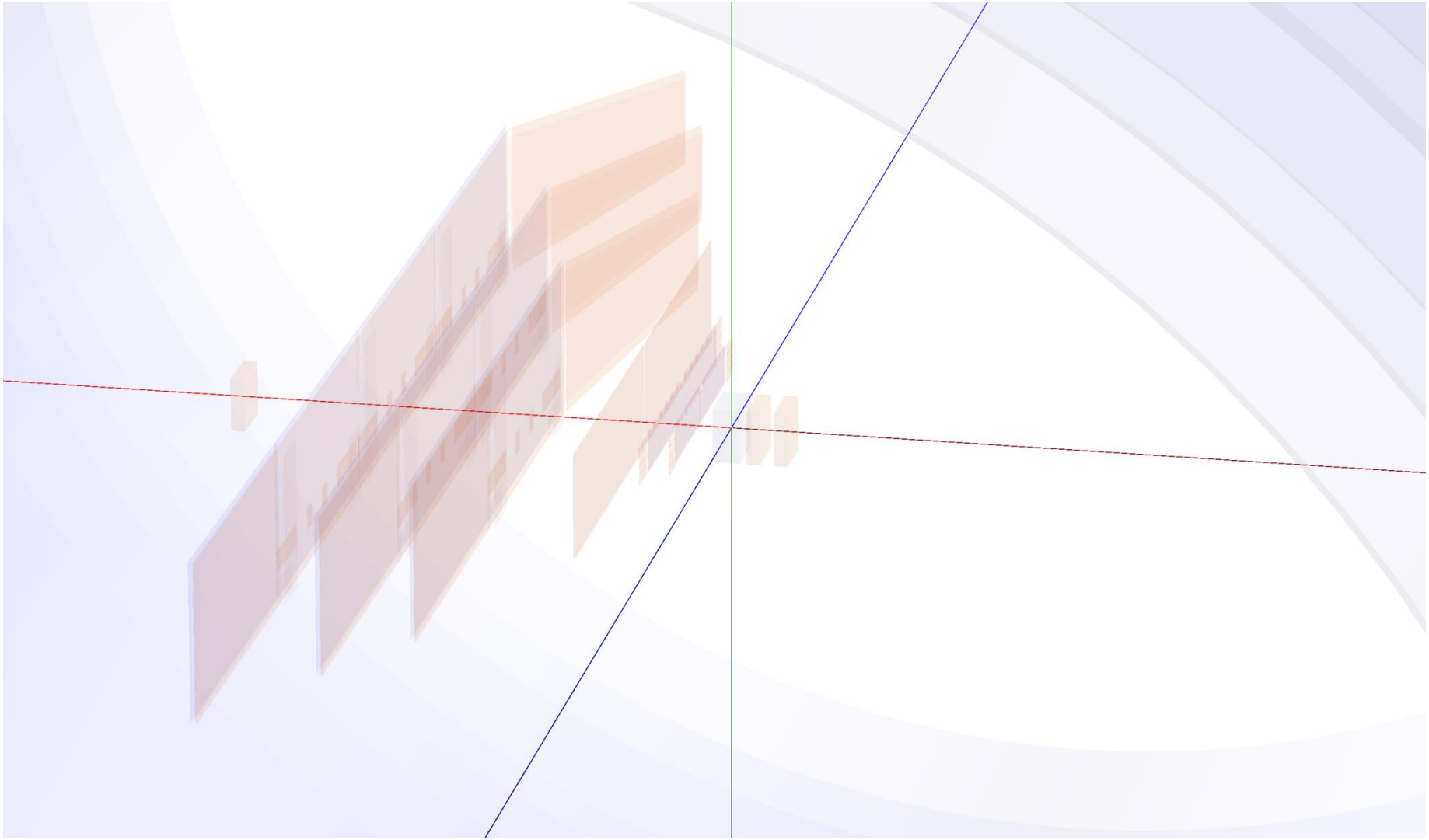
BASF2 Geometry Implementation



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Additional Info

- DESY safety requirements:

http://particle-physics.desy.de/test_beams_at_desy/tb_rules__safety_instructions/index_ger.html

  - Indico registration for the Belle II Test Beam
  - DACHS ID Card on site
  - Safety Course (Mondays 13h00)

- PXD Participants List:

https://docs.google.com/spreadsheets/d/1s6yj1QgzxW64QSZ5Ap6RQ332wl_IKFm5su9nvROEt40/edit#gid=0

- Logistics:

https://docs.google.com/spreadsheets/d/1_TASHzCRCjkKgByLdt1IXXMVPl1UBfBDuXpQODivy44/edit#gid=0

- AIDA TA finally available for 3 Japanese, 1 Indian, 1 Czech and 1 Austrian scientists

- TB meetings held bi-weekly from on Fridays at 9h00 CET

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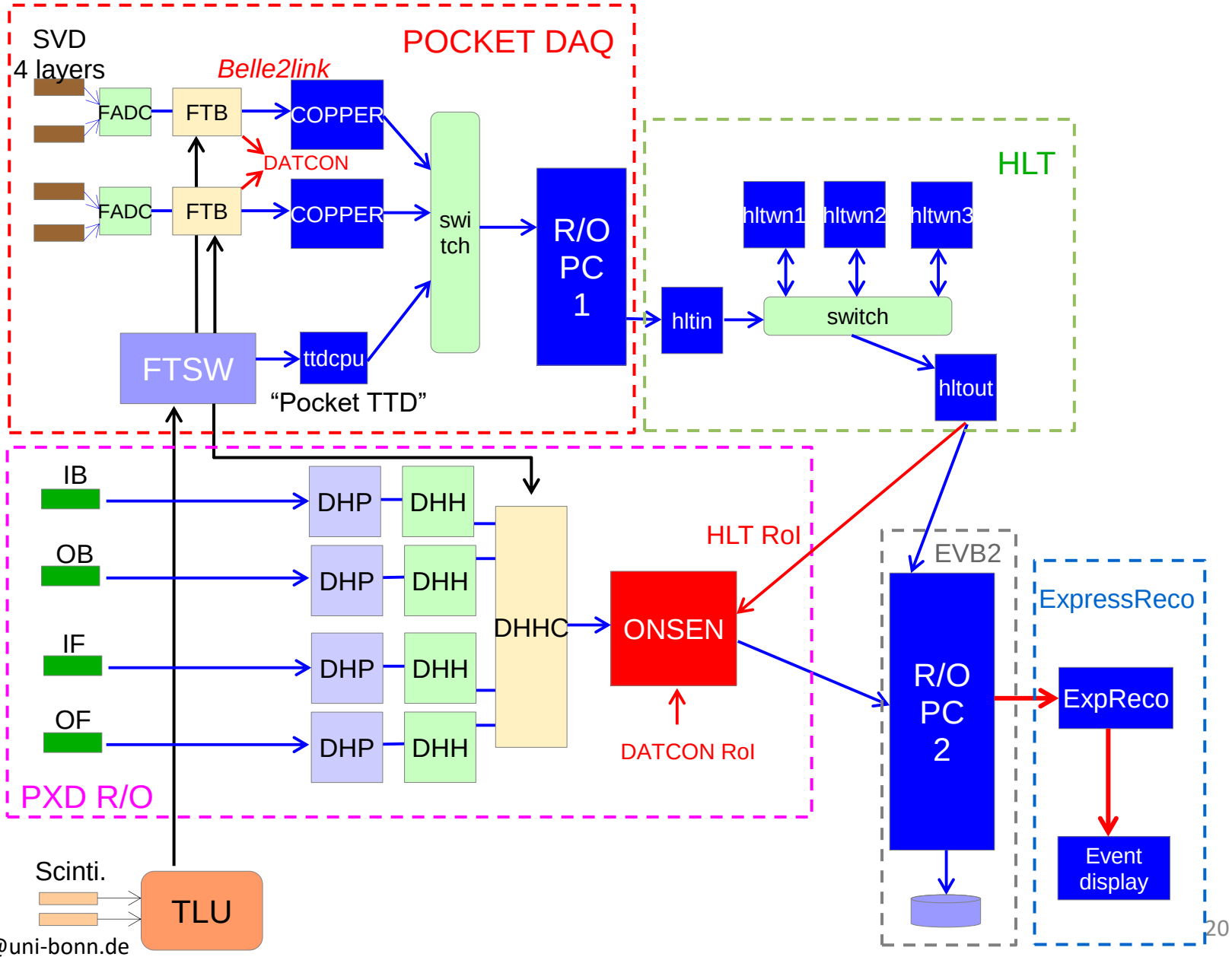
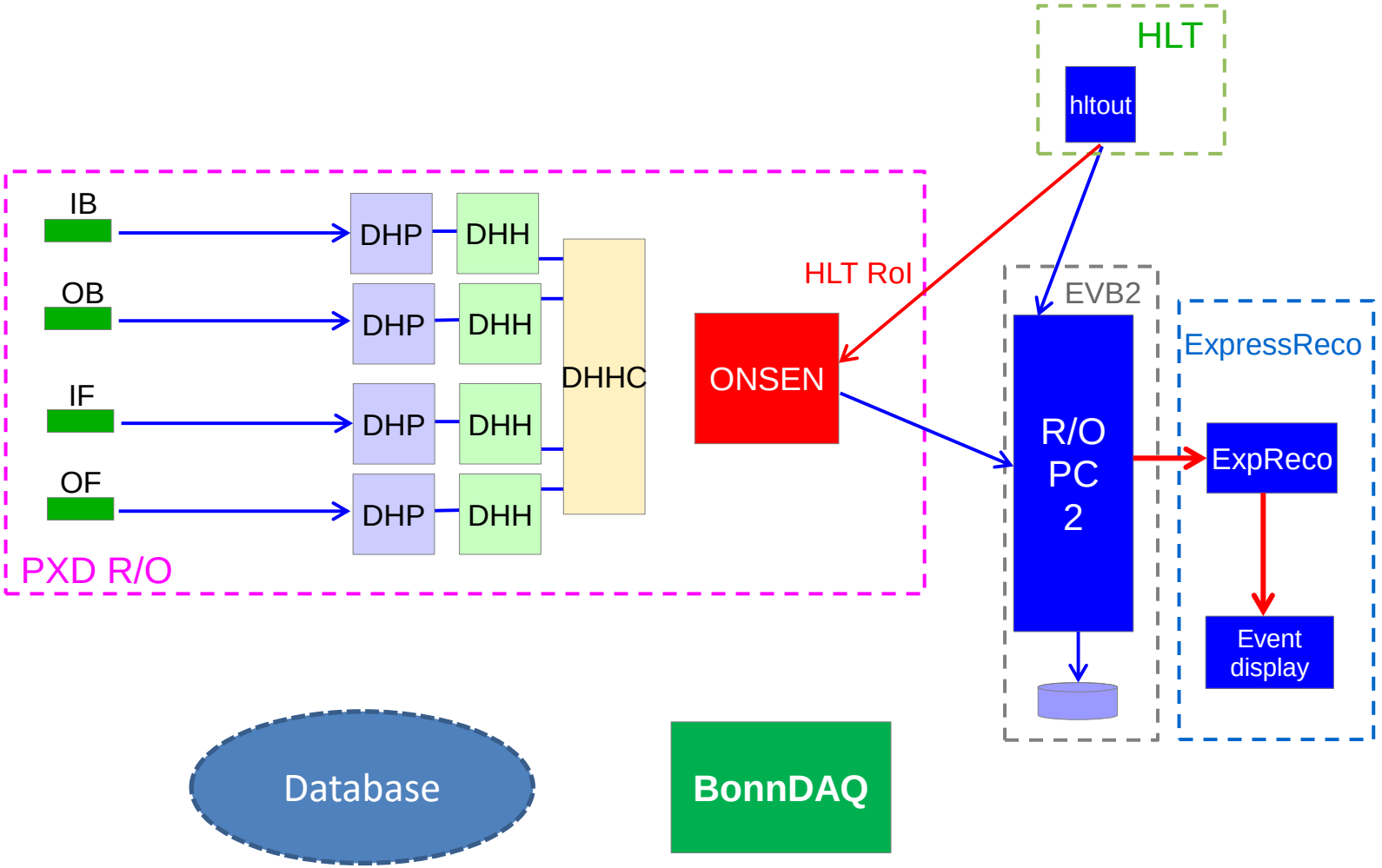
VXD-Test Beam DAQ Structure



Local Runs – ONSEN Standalone



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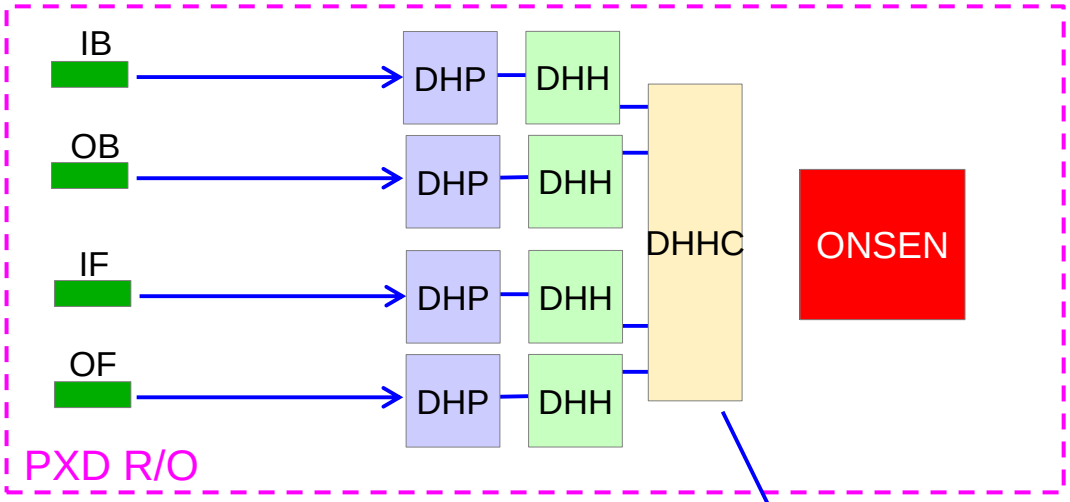
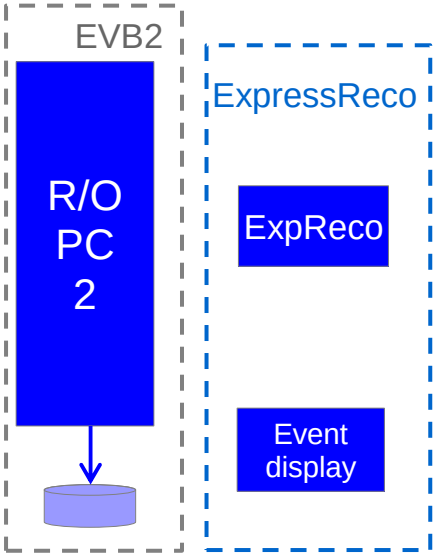
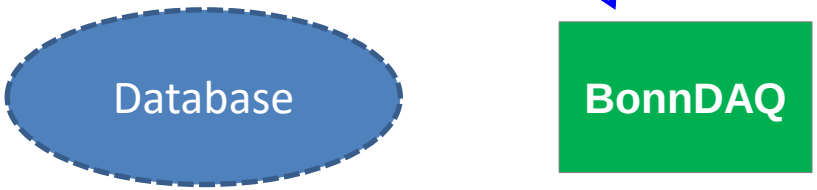
Local Runs - Calibration

- Pedestal calculation and compensation
- DCD optimization
- Delay scan
- Sensor optimization







PXD Run Control

Global Run Control

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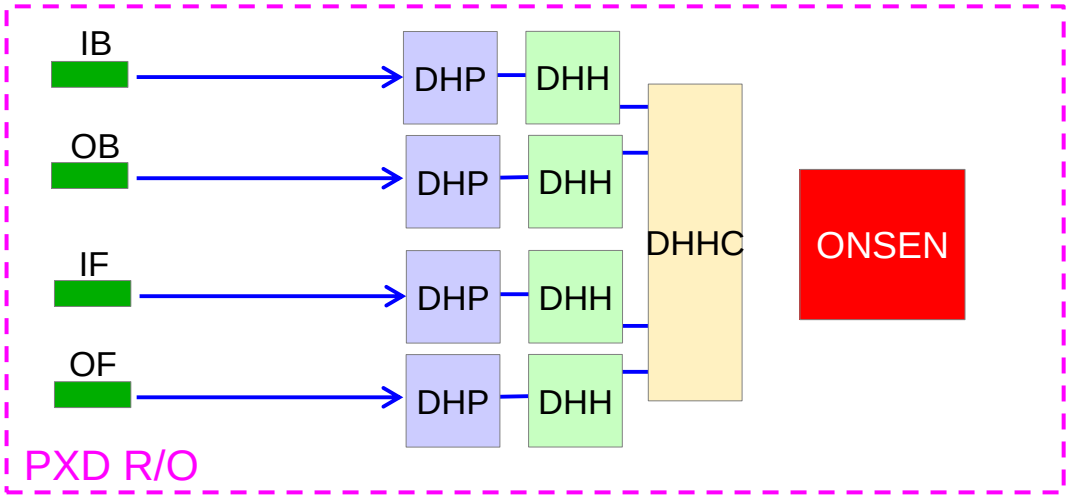
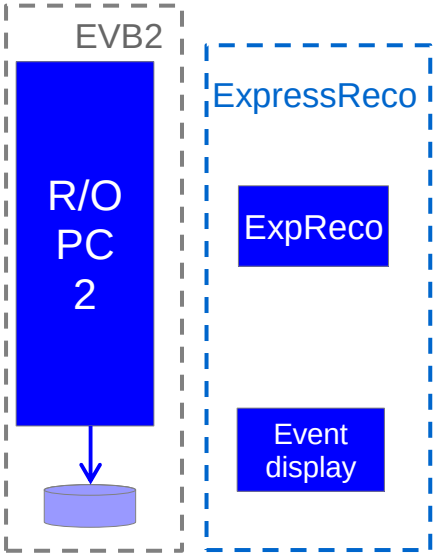
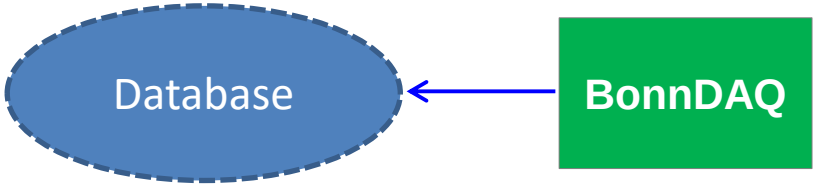
Database Update







PXD Run Control

Global Run Control

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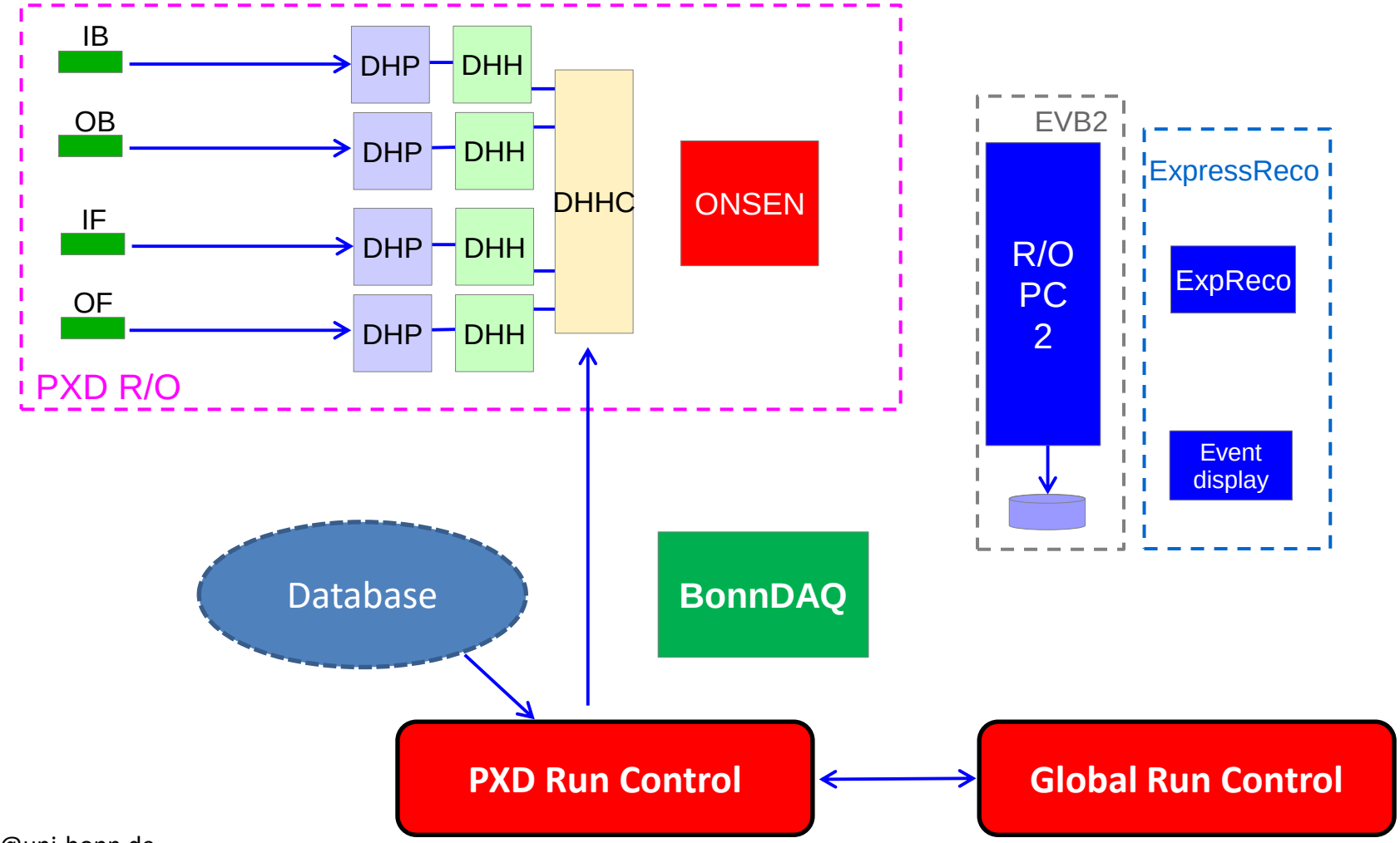
Start Up



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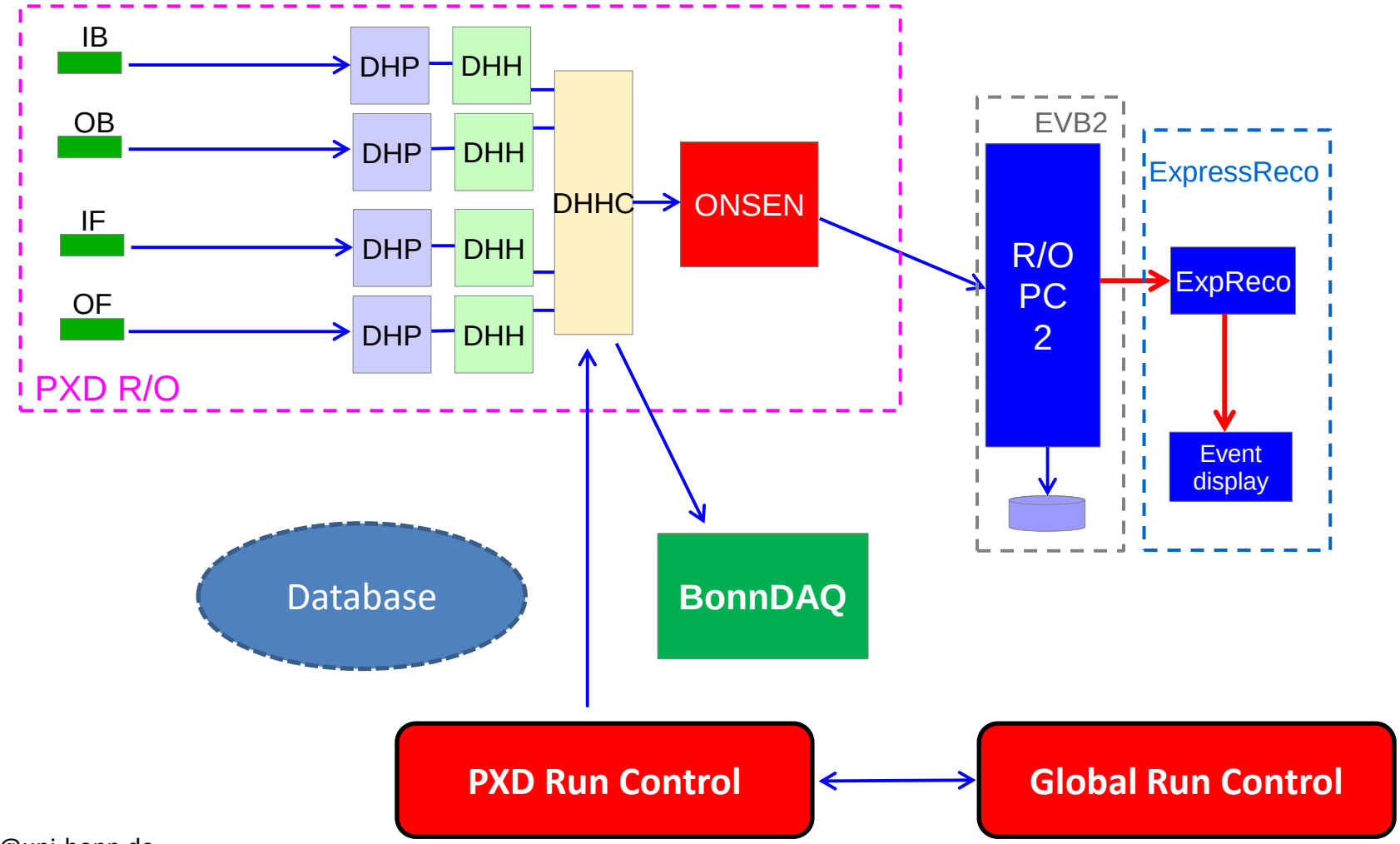
Start Run



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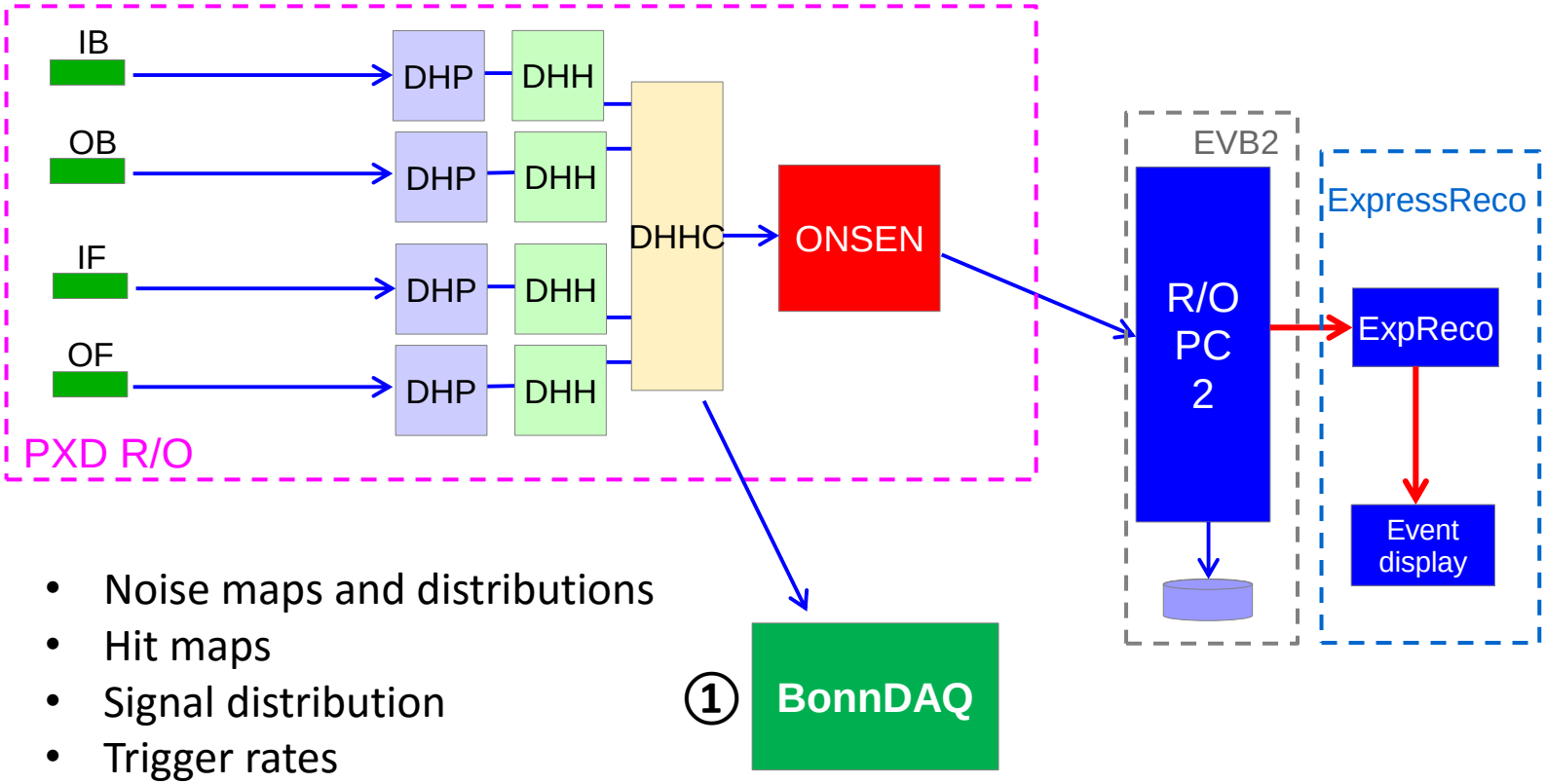
Monitoring



- Noise maps and distributions
- Hit maps
- Signal distribution
- Trigger rates
- Data size
- Software errors

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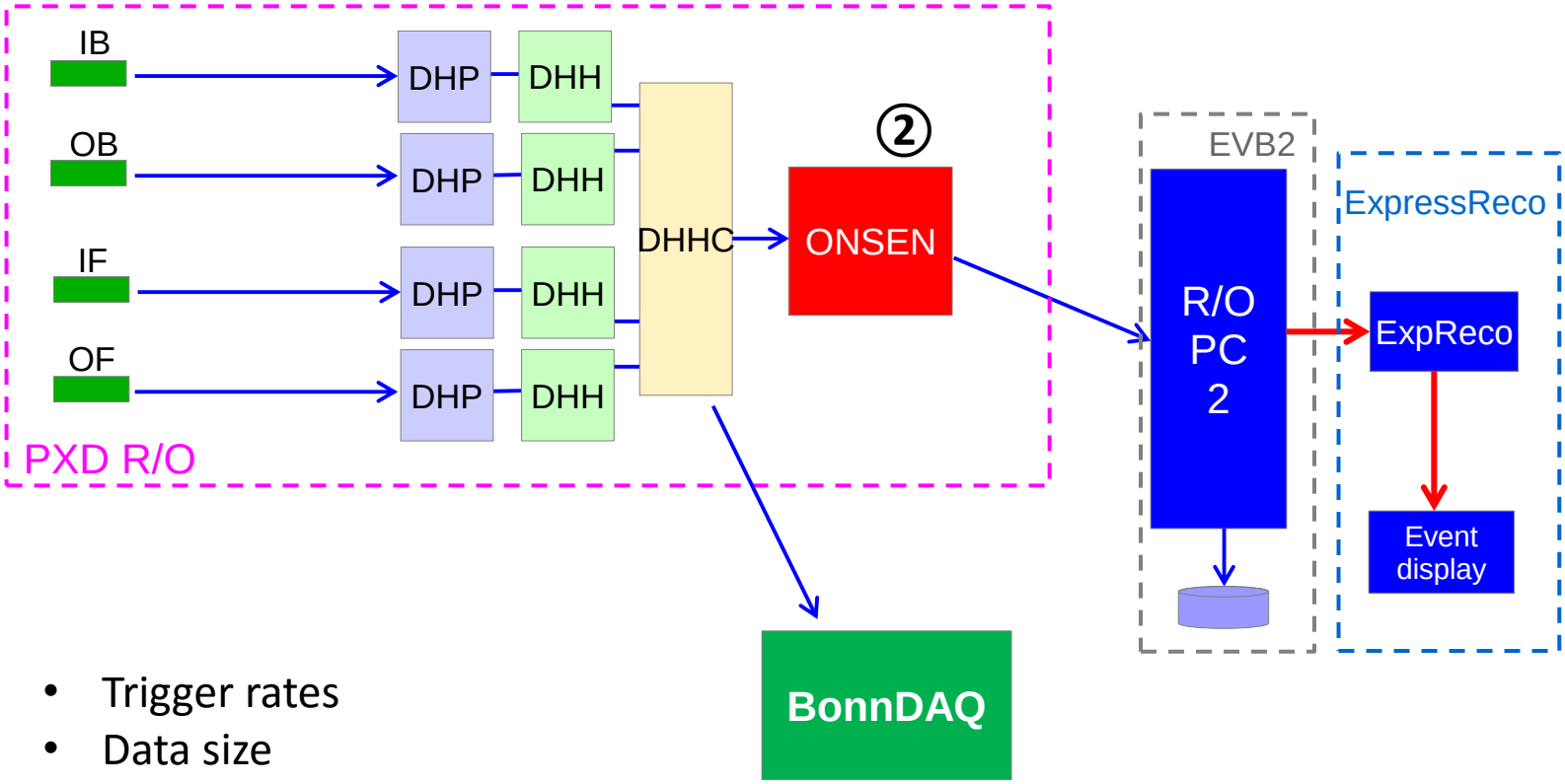
Monitoring (Slow Control)



- Trigger rates
- Data size
- Data rates (input/output)
- Links

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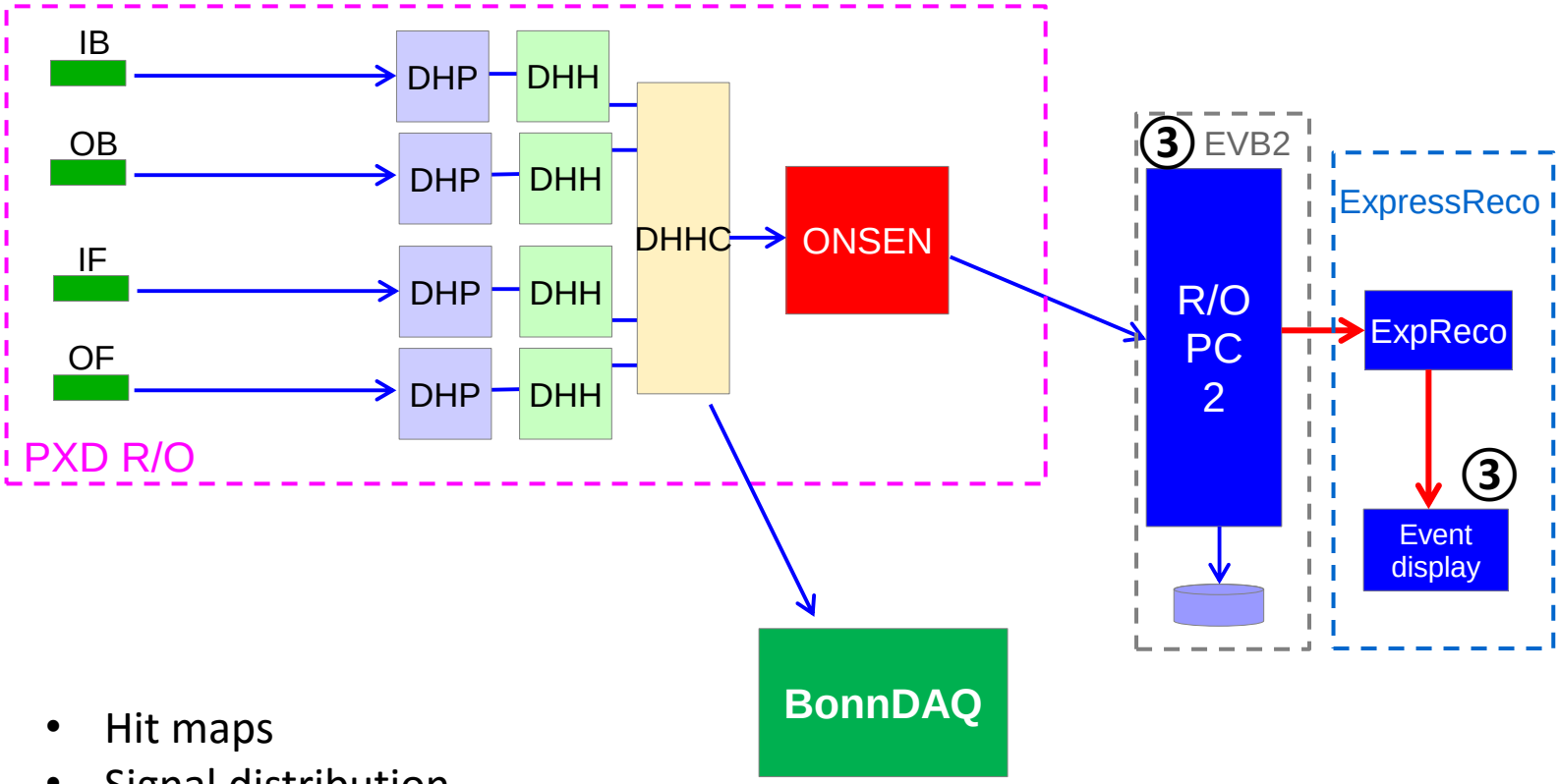
Monitoring



- Hit maps
- Signal distribution
- Complete VXD display

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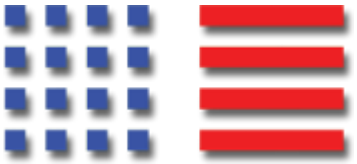

Thanks

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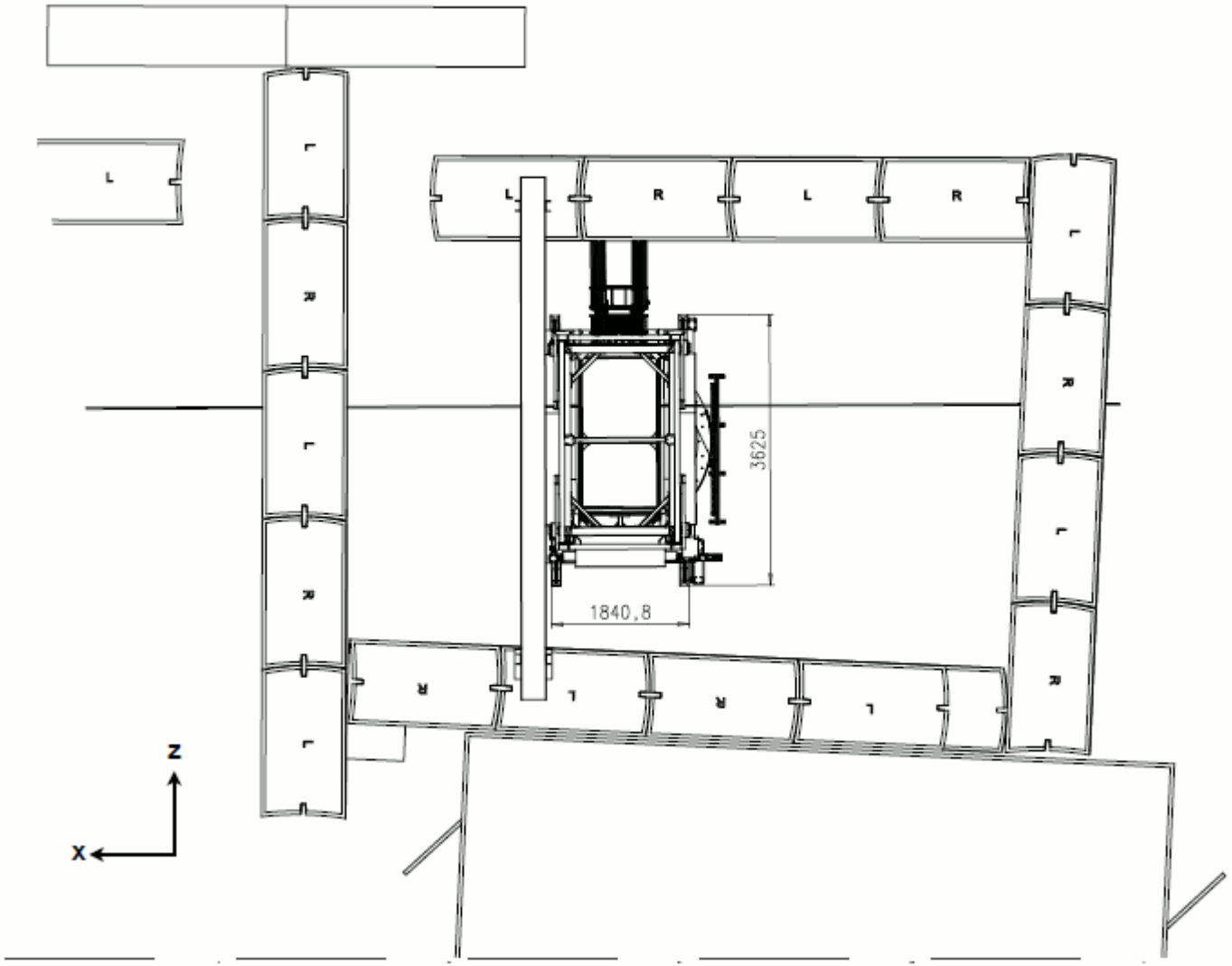

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