

# **PXD Permanent Set Up Goals and Schedule**

#### **PXD Permanent Set Up**

PXD permanent set up goal is fourfold:

- Have a complete and well controlled/understood/debugged set up running 24/7 in a large lab accessible by the entire collaboration for tests and for increasing the system complexity step by step
- Understand and disentangle DAQ/trigger issues (PXD and SVD), complemented by on site test beam campaigns
- Complete integration Phase 2 detector systems
- Commissioning of the half shells using final hardware before the shipment to KEK

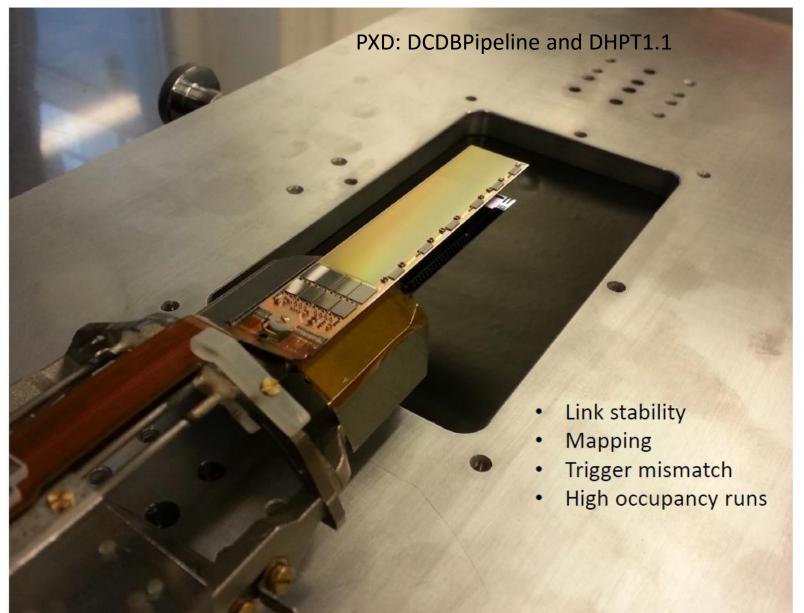


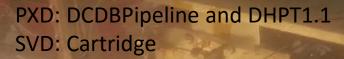


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#### Step 1: PXD





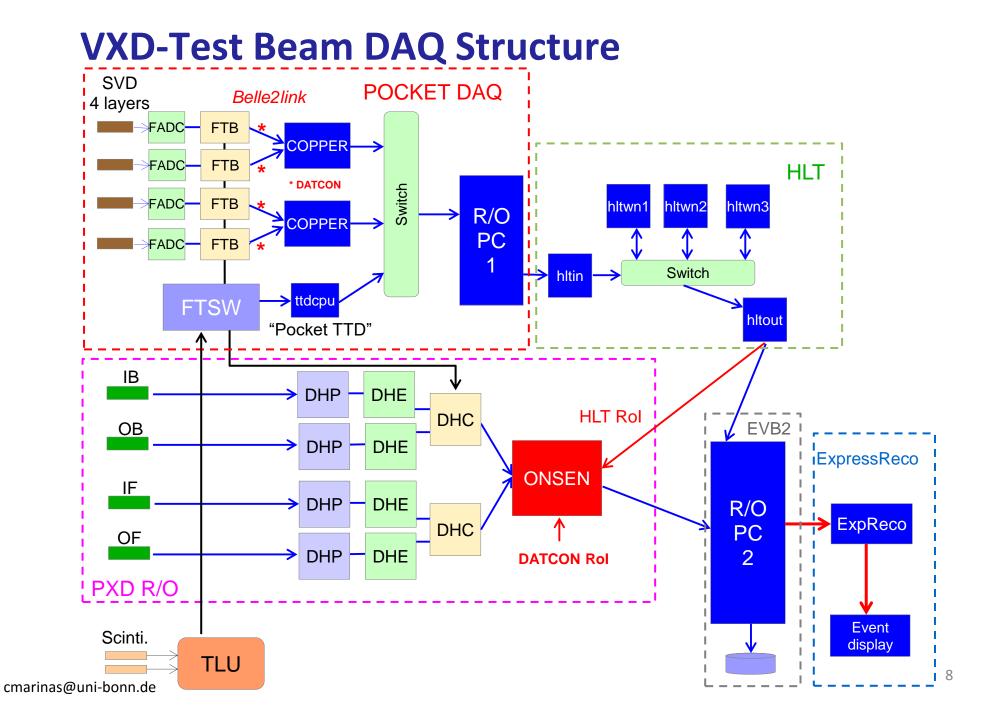
Step 2: VXD

Trigger mismatch

#### Step 3: Phase 2

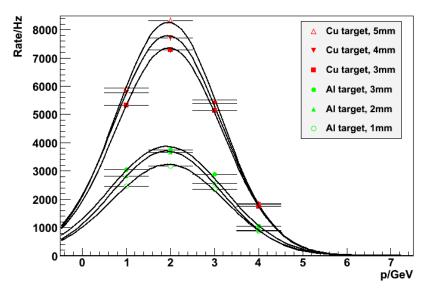
PXD: DCDB4.2\* and DHPT1.2\* SVD: Cartridge

- Mounting sequence
- Mechanical integration
- Cooling
- Grounding



#### Step 4: Test Beam

- VXD common test beam in **December 2016** (5<sup>th</sup> to 23<sup>rd</sup> December 2016)
- Small sector of the final sensors and ASICs
  2 PXD + 4 SVD ladders
- Complete VXD readout chain: HLT, monitoring, event building, PocketDAQ
- CO<sub>2</sub> cooling, slow control, environmental sensors
- Illumination with (up to) 6 GeV e<sup>-</sup> under solenoid magnetic field (PCMAG)
- Alignment, tracking algorithms, ROI
- <u>Goal</u>: System integration and (step 2) in Phase 2 Commissioning



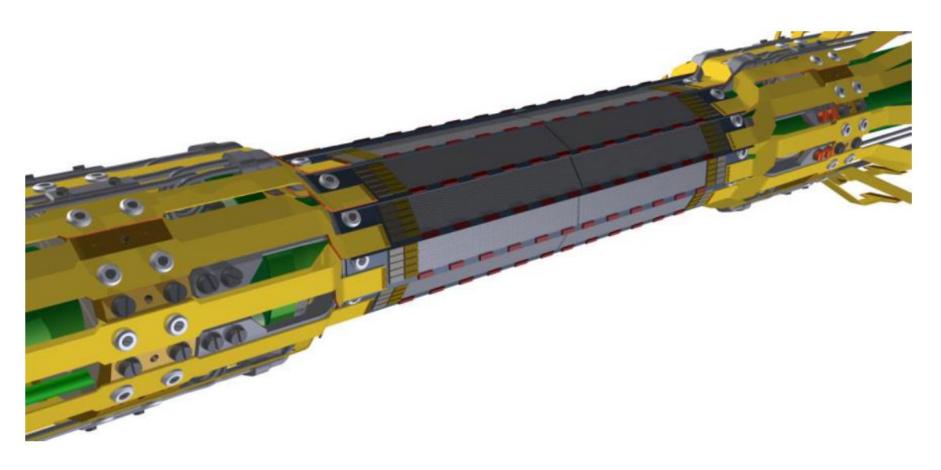
#### © DESY/Heiner Müller-Elsner

- VXDTF
- Data reduction system

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No longer workarounds

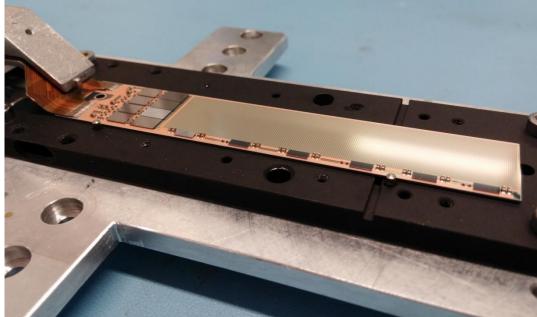
#### Step 5



Complete Phase 3 PXD

#### **Summary PXD Module Test**

- Each PXD module tested prior to assembly into the half shells:
- 1. Power up. Voltage sanity check
- 2. ASIC sanity check. JTAG boundary scan
- 3. Digital test pattern, delay scans
- 4. Switcher control signals
- 5. Raw data readout
- 6. Pedestal distribution, noise
- 7. Response on radioactive sources



#### Ladder Assembly – Half Shells

- Ladder assembly (and test)
- Ladder mounting

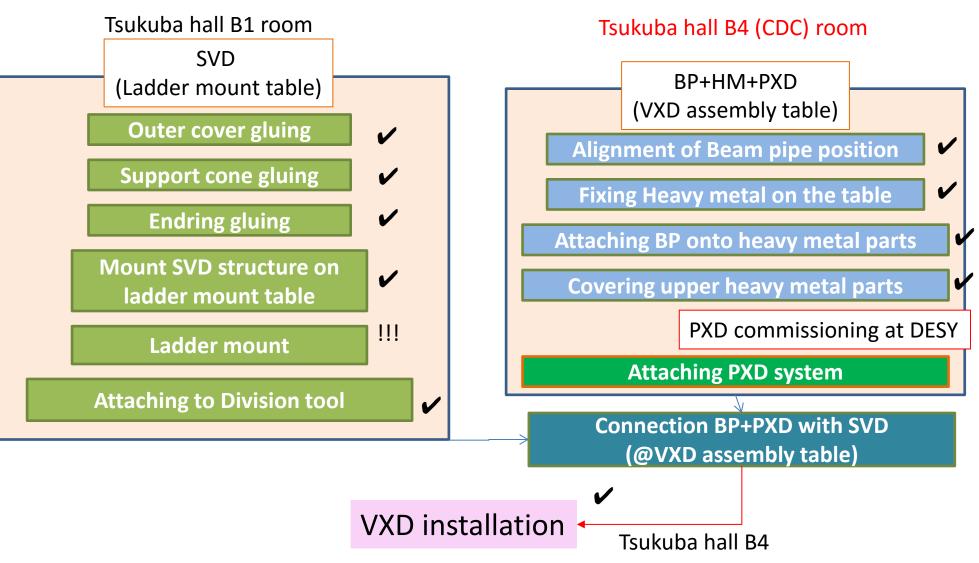


### Commissioning at DESY using the well debugged permanent set up

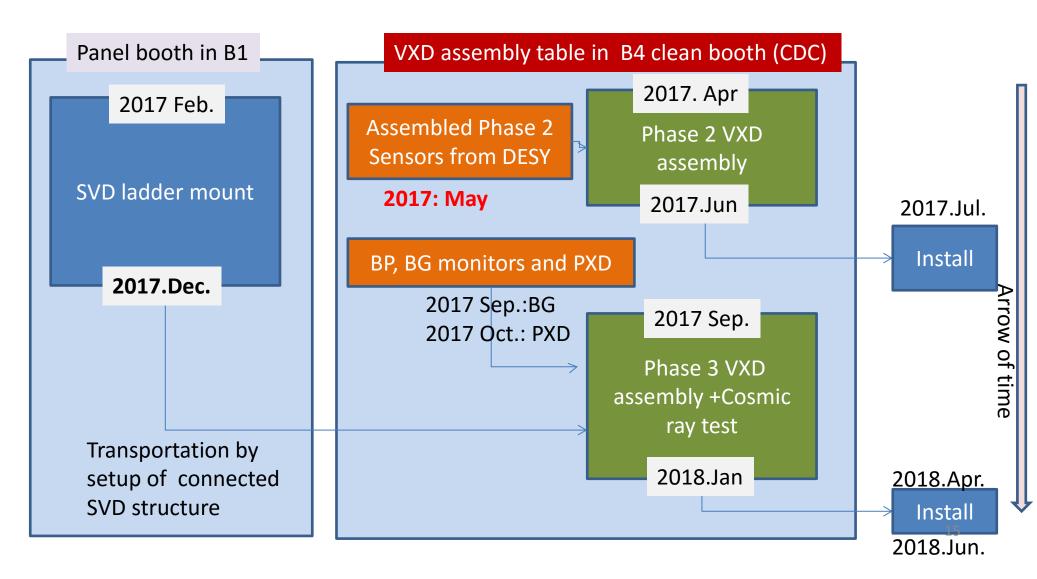
PXD full shell

cmarinas@uni-bonn.de

#### **Summary PXD Module Test**



#### **VXD** Assembly



### Schedule (possibly, but it will be decided in next B2GM)

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	クモー				⊨ XI	2016年、第1四年期 2016年 1	第2四半期 2016年,第3四	半期 2016年,第4四半期 2017   09月 10月 11月 12月 01月	名 第1四半期 2017年 第2四半期	2017年,第3四牛期 2017年,第	14四半期 2018年 第1四半期 2018年 第2四半期 2018 1月 12月 01月 02月 03月 04月 05月 06月 07月	8年,第3四半期 2018年,第4四半期 2019年	第1四半期
1	Belle II sub-detector installation on pit	141.88 day	16/08/11				05R 06R 07R 08R	098 008 018	02月 03月 04月 05月 06日	07月 08月 09月 10月 1	11月 12月 01月 02月 03月 04日 05月 06日 073	R 08 R 09 R 10 R 11 R 12 R 01 R	02.8 03.8
14	Belle I ready for roll-in	0 days	17/02/2		Phase	e 1 🔰			02/24		Additional dela	w hw	
		130 days	18/08/:								Adultional dela	iy by.	
	1 .	0 days	17/03/0	CO	mplet	ed as			03/01		1 TOD DMT icc		
			17/03/0						<b>1</b>		1, TOP PMT iss	ue	
21	7	0 days	17/03/0	S	chedu	Jled 🗾			♦ 03/08		2 FWD Endean	installation	
		107 days	15/02/01 (	月 16/06/28 ()			SuperKEKB				2, FWD Endcap	Instanation	
24	*								Belle II	roll-in			
25	IR clean up	30 days	16/06/29 ()	木 16/08/09 (3	¢ 23		<u>+</u>				(ARICH)		
28	QCSL assembly	122.88 days	16/06/15 ()	木 16/12/02 (1	È				early	2017		a Barana a	
44	QCSL cool down	30 days	18/11/07 (	月 16/12/16 (5	43				7		3, QCS(FWD) d	envery	
		1 wk		月 16/12/23 (雪									
	4			水17/03/17 년									
	Field measurement device in VXD volume			月 17/03/10 (9					1				
	1	2 wks 30 days		月 17/03/24 (d 月 17/05/05 (d									
	7	60 days		月 17/07/28 (1					· · ·				
65													
	1	33 days	16/08/01 ()	月16/09/14 C	ĸ								
67	QCSR assembly	129.88 days	16/08/29 (	月 17/02/24 (1	ż								
80	QCSR insertion, transfer tube, gas cooling pipe, power cable, signal cable	1 wk	17/03/13	17/08/17	56				*				
81	QCSR precision alignment, air tightness o	2 wks	17/03/20 ()	月 17/03/31 (金	80				<b>1</b>				
	QCSR legal inspection on high pressure gas system		17/04/03 (月)	17/04/07 (金)	81				т				
	QCSR cool down			月 17/05/26 (							Phase 2 from		
	1	60 days		月 17/08/18 (9					· · · ·				
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	1 .	3 mo		木 19/03/27 (7			2. 00.0				ready at KEK		
	1												Г



## Thanks