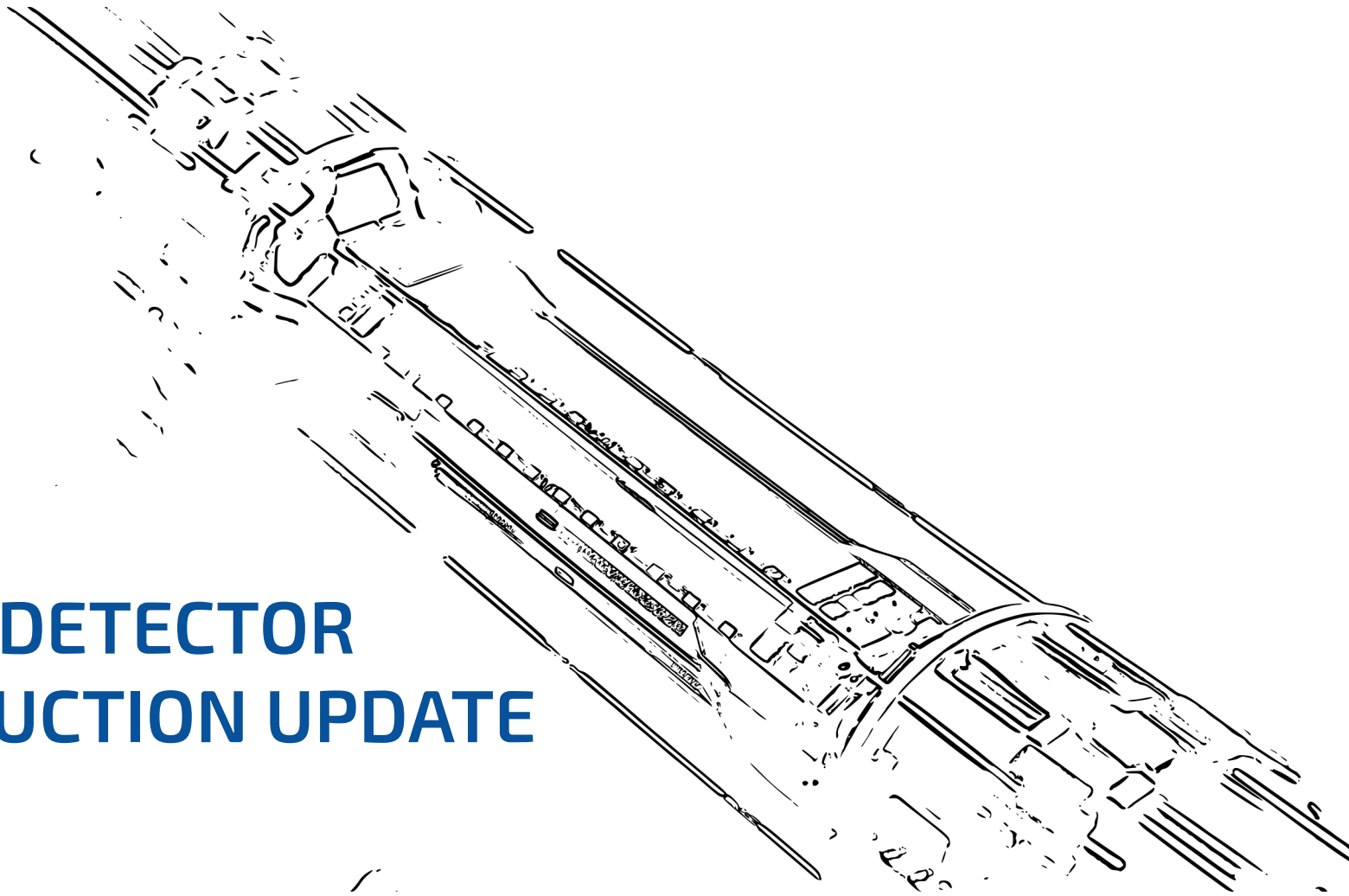
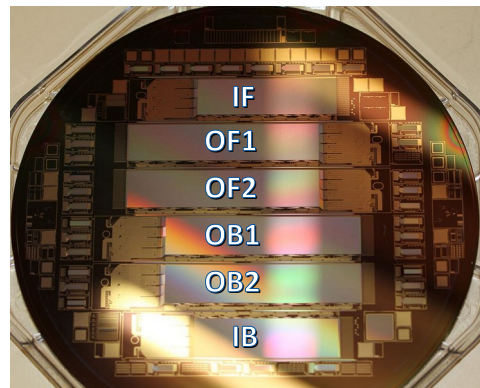


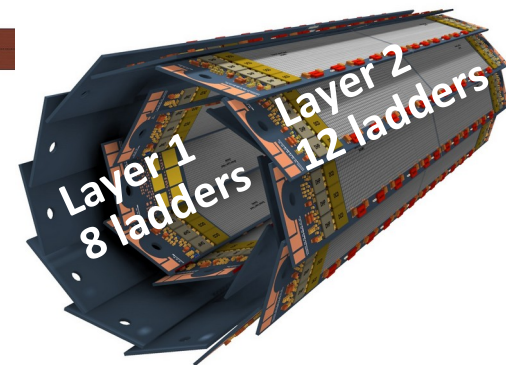
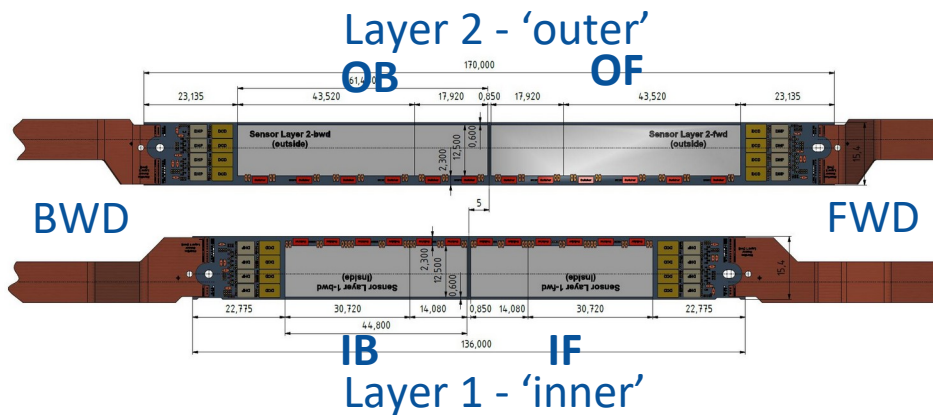
PXD2 DETECTOR PRODUCTION UPDATE



PXD2 PREPARATION



PXD9 wafer



PXD9-20 PRODUCTION STATUS

PXD9-20 Module production

	W50	W51	W52	W53	W54	W55	W56	W57	W58	W59	W60	W61
IF	C-L66	lost	A - L61	B - L62	A - L63	D	A - L64	lost	shear test	A - L65	0	lost in rework
OF1	NA	lost	NA	99.9	NA	100	A	A	0	under test GÖ	A - L70	100
OF2	NA	lost	NA	NA	NA	0	A	A	100	99.6	100	0
OB1	100	lost	99.5	100	A	99.8 Y	A - L70	C	99.5	100	99.4 B	0
OB2	0	lost	100 Y	A	99.5	lost in rework	B	98.9	0	A	0	0
IB	0	lost	A - L64	B - L62	A - L63	A - L61	A - L65	B	A - L68	A - L69	shorts H20	A

> All viable L1 modules assembled

- > 4 L2 modules Cu pads cleaned and Kapton attached (2 tested good, 2 still need testing)
- W54_OB1, W56_OF2, W59_OF1, W59_OB2




- L, B, C, D - full tested module
- part of ladder #
- KA - Kapton attachment
- FC - flip-chip
- number - bare sensor
- global passed, grade A
- global passed, grade B
- 0 - global tests failed (implant/poly short)

PXD9-21 PRODUCTION STATUS

PXD9-21

	W65	W66	W67	W68	W69	W70	W71	W72	W73	W74	W75	W76
IF	D	A – L68	A – L67	ready for KA	A – L69	bad after FC	ok	1 st gate	ok	1 st gate	ok	ok
OF1	ok	ok	ok	ok	ok	ok	bad	ok	ok	1 st gate	1 st gate	ok
OF2	bad	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok	ok
OB1	ok	ok	ok	ok	1 st gate	ok	ok	ok	ok	ok	ok	ok
OB2	ok	bad	ok	ok	ok	ok	bad	ok	ok	ok	1 st gate	1 st gate
IB	ok	bad	A – L67	any gate	B – L66	any gate	ok	ok	ok	1 st gate	ok	any gate

- 6 IF assembled
 - W65 problems previously known issues, W70 bad after assembly
 - **W68_IF JTAG problem fixed at HLL with reflow → at BN for testing**
 - 3 grade A
- 2 IB
 - both with first gate shorts, but tested good (A/B)
- Reminder: 1st gate shorts from testing
 - no problem for operation, pixels outside physics acceptance

B,C,D	– full tested module
L#	– part of ladder #
KA	– Kapton attachment
FC	– flip-chip
Ok	– bare sensor
1 st gate	– bare sensor 1 st gate short
	– global passed, grade A
	– global passed, grade B
	– global tests failed (implant/poly short)

LADDER INVENTORY

L1 ladders

L35	W04_IF	W04_IB	C/D	DESY) – water damage
L37	W05_IF	W42_IB	B/A	MPP – needs testing
L56	W37_IF	W06_IB	Ph II/C	MPP
L57	W11_IF	W46_IB	B/B	MPP - B
L58	W10_IF	W05_IB	A/A	MPP - HS1
L61	W52_IF	W55_IB	A/A	MPP – repaired IB bonds, but FWD problem
L62	W53_IF	W53_IB	B/B	MPP - B
L63	W54_IF	W54_IB	A/A	MPP - HS1
L64	W56_IF	W52_IB	A/A	MPP - HS1
L65	W59_IF	W56_IB	A/A	MPP – HS1
L66	W50_IF	W69_IB	C/B	MPP
L67	W67_IF	W67_IB	A/A	MPP – A
L68	W58_IB	W66_IF	A/A	MPP – A
L69	W59_IB	W69_IF	A/A	MPP – A

→ 3 grade A, 3 grade B, 1 B/C, 1 Ph II/C
 → enough ladders for HS1

L2 ladders

L42	W02_OF1	W03_OB1	?/B	MPP – needs tst
L44	W32_OF2	W32_OB2	A/A	MPP - HS1
L45	W33_OF1	W42_OB1	A/A	MPP - HS1
L46	W33_OF2	W46_OB2	A/A	MPP
– broken OB during assembly on HS				
L47	W46_OF1	W45_OB2	A/A	MPP
- broken OF found in storage				
L48	W03_OF2	W46_OB1	A/A	MPP – HS 1
L49	W08_OF2	W08_OB1	A/A	MPP – HS 1
L50	W46_OF2	W08_OB2	A/A	MPP – HS 1
L51	W45_OF1	W42_OB2	A/A	MPP – HS 1
L52	W43_OF1	W33_OB1	A/A	MPP
L53	W05_OF1	W04_OB1	A/A	MPP
L54	W45_OF2	W10_OB1	A/A	MPP
L55	W37_OF1	W37_OB1	2Ph II	MPP
L70	W60_OF1	W56_OB1	A/A	MPP

→ 3 grade A, 1 Ph II, 1 unknown
 → need 3 more plus spares

This year: 3 A + 1B/C L1 ladders, 1 A L2 ladder produced, five more L2 to go!

MODULE INVENTORY

	FC done Problem	FC done Good	Kapton Attached	Tested Good	Tested Backup	
IF	0	0	1	0	0	} 1 more L1 maybe
IB	1 (water dmg)	0	0	2	0	
OF	0	0	1	4*	0	} 4 L2-ladders + 1 backup maybe
OB	1 (1 bad sw)	0	0	4	1	

- *W56_OF1 Kapton looks angled
- Detailed current status on next two slides

<https://confluence.desy.de/display/BI/PXD+2+module+production>

MODULE INVENTORY L1

- Forward
 - W68_IF repaired at HLL, in Bonn for testing
 - 1 possibly good IF modules, 1 W65 pixel problems
 - **1 maybe + 1 bad**

 - Backward
 - W57_IB at MPP, tested grade B
 - W61_IB at MPP, tested grade A
 - W60_IB water damage, at HLL, dead → **would need replacement of all switchers**
 - **2 good IB**
- **1 possible good L1 ladders** with current inventory

MODULE INVENTORY L2

– Forward

- W56/57_OF2 at MPP, grade A
- W57_OF1 at MPP, grade A
- **W56_OF1 at MPP, angled Kapton (test ok)**
- **W59_OF1 in GOE, currently under test**
→ **3 good OF, 1 good w/ angled Kapton, 1 under test**

– Backward

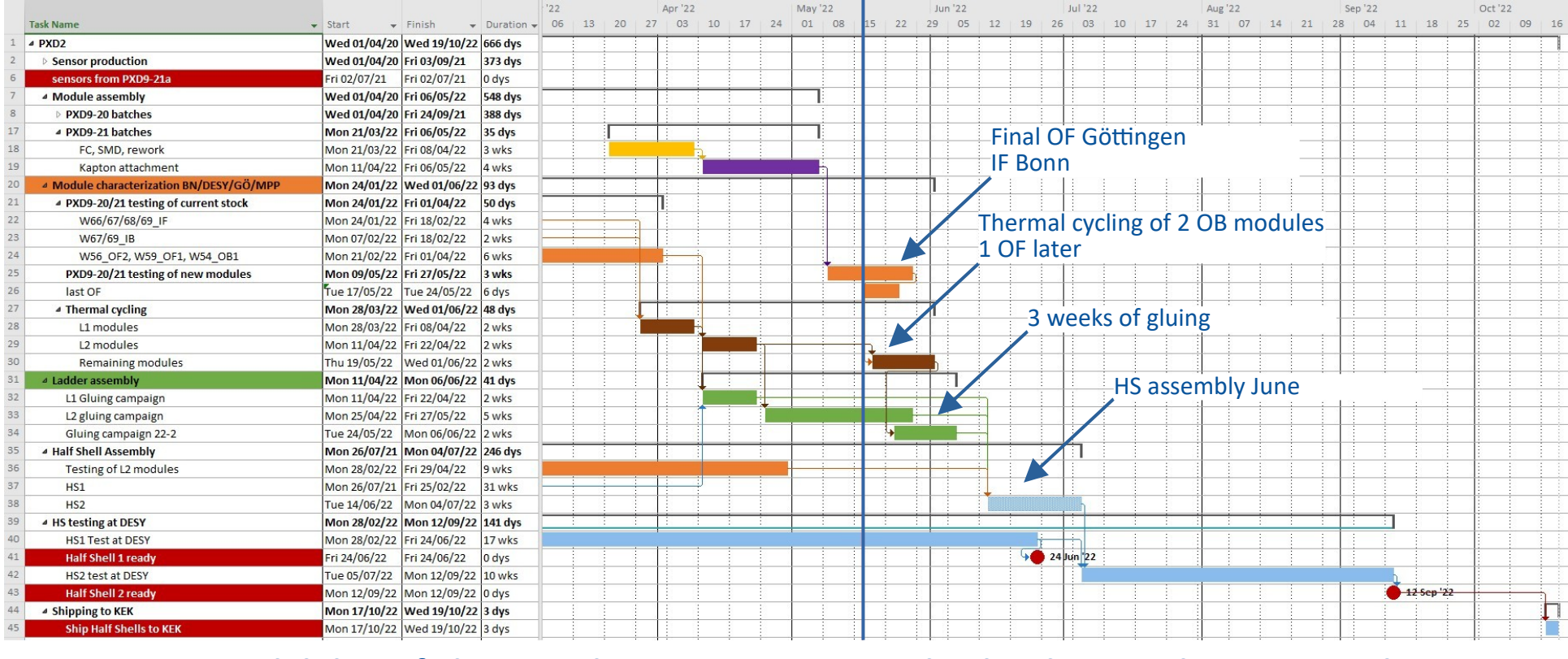
- W54_OB1, W53/59_OB2 at MPP, grade A
- W56_OB2 at MPP, grade B
- W57_OB1 at MPP, grade C
- W44_OB2 segmentation fault after retest at HLL → dead
→ **4 good OB + 1 backup**

→ **4 possible good L2 ladders with current inventory 1 OF need testing**

LADDER GLUING

- L1
 - Grade A
 - BWD: W61_IB
 - 1 more IF under test (W68_IF in Bonn)
 - > **1 L1 ladders need gluing**
- L2
 - Grade A
 - FWD: W57_OF1, W56/57_OF2
 - BWD: W54_OB1, (W53/59_OB2 needs temp. cycling)
 - Other:
 - W56_OF1 (grade A) with angled Kapton, W59_OF1 under test in Göttingen
 - W56_OB2 grade B, W57_OB1 grade C
 - > **3 grade A, 1 grade A/B, 1 backup - ladders need gluing**
- **5 – 6 ladders need gluing → max. 2 ladders/week → at least 3 weeks before gluing finishes**

PXD2 PRODUCTION SCHEDULE



Availability of gluing and mounting experts absolutely crucial May + June!

PXD2 PRODUCTION SCHEDULE

- To keep schedule **highest priority** at all sites necessary
- Immediate full testing chain of remaining module
 - Testing of W59_OF1 at GOE
- 2nd HS assembly **June!!**

MPP PLAN

- 1) 3.5-5.5. LK68 (1) W66IF/W58IB
- 2) 6.5.-9.5. LK69 (1) W69IF/W59IB
- 3) 10.5.-12.5. LK70 (2) W60OF1/W56OB1
- Half a week delay from here
- 4) 13.5.-16.5. LK71 (2) W56OF2/W54OB1
- 5) 17.5.-19.5 LK72 (2) W57OF1/W56OB2 A/B
- 6) 20.5.-23.5. LK73(2) W57OF2/W53OB2* (to be graded)
- 7) 24.5.-27.5. LK74(2) W56OF1 W59OB2* (to be graded)
- 8) 30.5.-1.6. LK75(1) W68IF*/W61IB (to be graded)
- SCB mounting starting ~ 13.06. and lasting ~ two weeks