

2017-11-03 XPP CSPAD Camera3 Alignment

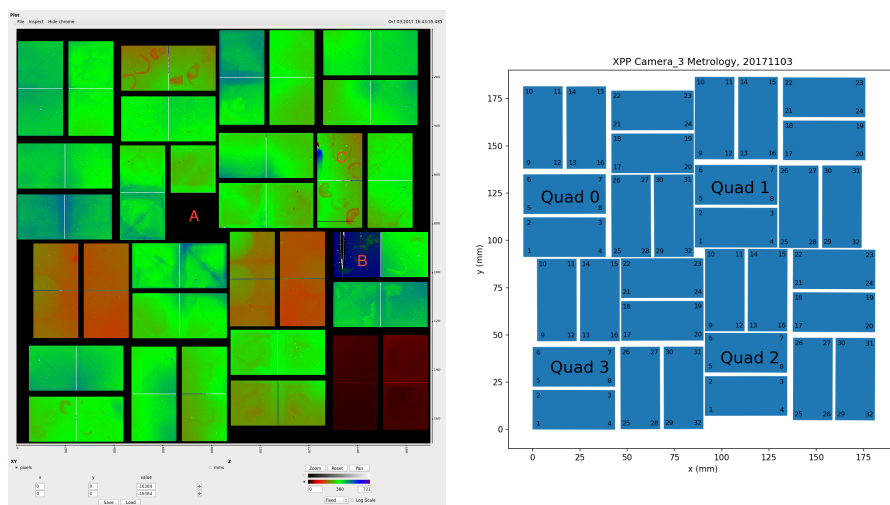
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Optical measurements

Comments from Gabriel Blaj: [CSPAD 2.3M \(in air\) Repair Oct 2017 Traveller.docx](#)



Metrology files:

[2017-11-03-CSPAD-XPP-Camera3-Metrology.xlsx](#) - WARNING: it has unusual numeration of quads (3,0,1,2), which is corrected in the text file

[2017-11-03-CSPAD-XPP-Camera3-Metrology.txt](#)

Quick quality check

Command: `optical_metrology_check 2017-11-03-CSPAD-XPP-Camera3-Metrology.txt` generates a few warnings:

```
X-Y quality check for optical metrology measurements
WARNING segm 8:  |-77| > 60.0
WARNING segm 9:  |-82| > 60.0
WARNING segm 19: |64| > 60.0
WARNING segm 29: |72| > 60.0
Z quality check for optical metrology measurements
WARNING segm 12: |341.0| > 100.0
WARNING segm 23:  |-151.0| > 100.0
WARNING segm 30:  |120.1| > 100.0
```

X-Y deviations are relatively small and are ignored.

Z deviations do not have any redundancy for obvious correction

Quality check in X-Y plane

X-Y Quality table												
2017-11-09 10:38:13 (info) CalibManager.GUIMetrology: Quality check in X-Y plane:												
segm:	S1	S2	dS1	dS2	L1	L2	dL1	dL2	angle(deg)	D1	D2	dD
(dS)	d(dL)											d
Quad 0												
segm: 0	20900	20901	-219	-218	43543	43578	73	108	0.28739	48302	48328	
-26	-1	-35										
segm: 1	20888	20934	-260	-214	43564	43566	104	106	0.31169	48316	48332	
-16	-46	-2										
segm: 2	-20918	-20925	98	91	43546	43556	45	55	0.12432	48319	48311	
8	7	-10										
segm: 3	-20923	-20917	-48	-42	43548	43549	-19	-18	-0.05921	48315	48310	
5	-6	-1										
segm: 4	-20904	-20909	143	138	-43541	-43556	-67	-82	0.18485	48313	48300	
13	5	15										
segm: 5	-20900	-20919	19	0	-43572	-43544	-2	26	0.01250	48301	48331	
-30	19	-28										
segm: 6	-20965	-20907	54	112	43552	43550	29	27	0.10919	48311	48332	
-21	-58	2										
segm: 7	-20897	-20916	39	20	43558	43531	22	-5	0.03882	48298	48308	
-10	19	27										
Quad 1												
segm: 0	-21005	-21087	6	-76	43609	43602	-22	-29	-0.04599	48411	48426	
-15	82	7										
segm: 1	-20997	-20982	-96	-81	43618	43541	22	-55	-0.11635	48394	48347	
47	-15	77										
segm: 2	-20897	-20913	29	13	-43560	-43551	-14	-5	0.02762	48312	48313	
-1	16	-9										
segm: 3	-20910	-20925	-118	-133	-43563	-43561	67	69	-0.16507	48317	48330	
-13	15	-2										
segm: 4	20912	20911	73	72	-43541	-43547	32	26	-0.09540	48311	48299	
12	1	6										
segm: 5	20936	20920	94	78	-43555	-43548	37	44	-0.11314	48319	48318	
1	16	-7										
segm: 6	-20904	-20907	-119	-122	-43566	-43550	56	72	-0.15850	48309	48320	
-11	3	-16										
segm: 7	-20911	-20909	17	19	-43563	-43549	-2	12	0.02368	48302	48327	
-25	-2	-14										
Quad 2												
segm: 0	-20907	-20902	-151	-146	-43542	-43606	116	52	-0.19526	48317	48340	
-23	-5	64										
segm: 1	-20911	-20895	-14	2	-43559	-43557	0	2	-0.00789	48315	48312	
3	-16	-2										
segm: 2	20903	20903	195	195	-43536	-43556	103	83	-0.25657	48304	48303	
1	0	20										
segm: 3	20903	20921	200	218	-43548	-43552	105	101	-0.27497	48308	48313	
-5	-18	4										
segm: 4	20906	20901	143	138	43540	43568	-73	-45	-0.18483	48318	48303	
15	5	-28										
segm: 5	20907	20909	216	218	43552	43544	-107	-115	-0.28550	48301	48313	
-12	-2	8										
segm: 6	20931	20906	-29	-54	-43545	-43529	-24	-8	0.05462	48298	48305	
-7	25	-16										
segm: 7	20925	20911	137	123	-43562	-43539	58	81	-0.17103	48307	48320	
-13	14	-23										
Quad 3												
segm: 0	20921	20921	-98	-98	-43527	-43549	-26	-48	0.12897	48294	48312	
-18	0	22										
segm: 1	20932	20929	-74	-77	-43594	-43522	-90	-18	0.09931	48341	48310	
31	3	-72										
segm: 2	20896	20913	-125	-108	43554	43555	50	51	0.15325	48306	48316	
-10	-17	-1										

segm: 3	20910	20956	-68	-22	43560	43560	12	12	0.05919	48320	48337
-17	-46	0									
segm: 4	-20923	-20912	-26	-15	43531	43537	-6	0	-0.02698	48304	48292
12	-11	-6									
segm: 5	-20920	-20906	-106	-92	43547	43573	-47	-21	-0.13022	48332	48308
24	-14	-26									
segm: 6	20900	20913	-111	-98	43550	43538	53	41	0.13750	48300	48305
-5	-13	12									
segm: 7	20920	20920	41	41	43534	43565	-28	3	-0.05394	48320	48307
13	0	-31									

Quality check in Z

Z Quality table

2017-11-09 10:38:13 (info) CalibManager.GUIMetrology: Quality check in Z:

segm:	SA	LA	XSize	YSize	dZS1	dZS2	dZL1	dZL2	dZSA	dZLA	ddZS	ddZL	dZX	dZY
angXZ(deg)	angYZ(deg)	dz3(um)												
Quad 0														
segm: 0	20900	43560	20900	43560	13	57	-16	28	35	6	-44	-44	35	6
0.09595	0.00789	43.977												
segm: 1	20911	43565	20911	43565	27	-25	37	-15	1	11	52	52	1	11
0.00274	0.01447	-52.059												
segm: 2	-20921	43551	43551	20921	-40	-3	-33	4	-21	-14	-37	-37	-14	-21
-0.01842	-0.05751	-37.000												
segm: 3	-20920	43548	43548	20920	-92	-79	61	74	-85	67	-13	-13	67	-85
0.08815	-0.23280	-12.976												
segm: 4	-20906	-43548	20906	43548	-16	-17	-42	-43	-16	-42	1	1	-16	-42
-0.04385	-0.05526	-0.981												
segm: 5	-20909	-43558	20909	43558	-46	23	21	90	-11	55	-69	-69	-11	55
-0.03014	0.07235	68.993												
segm: 6	-20936	43551	43551	20936	20	1	11	-8	10	1	19	19	1	10
0.00132	0.02737	18.998												
segm: 7	-20906	43544	43544	20906	31	-30	47	-14	0	16	61	61	16	0
0.02105	0.00000	60.981												
Quad 1														
segm: 0	-21046	43605	43605	21046	29	23	2	-4	26	-1	6	6	-1	26
-0.00131	0.07078	-6.114												
segm: 1	-20989	43579	43579	20989	27	-36	-17	-80	-4	-48	63	63	-48	-4
-0.06311	-0.01092	-63.122												
segm: 2	-20905	-43555	20905	43555	-117	-27	-34	56	-72	11	-90	-90	-72	11
-0.19733	0.01447	-90.032												
segm: 3	-20917	-43562	20917	43562	-59	7	-51	15	-26	-18	-66	-66	-26	-18
-0.07122	-0.02367	-65.996												
segm: 4	20911	-43544	43544	20911	343	2	401	60	172	230	341	341	230	172
0.30263	0.47127	-341.041												
segm: 5	20928	-43551	43551	20928	-35	-59	6	-18	-47	-6	24	24	-6	-47
-0.00789	-0.12867	-24.044												
segm: 6	-20905	-43558	20905	43558	-40	23	3	66	-8	34	-63	-63	-8	34
-0.02193	0.04472	-63.021												
segm: 7	-20910	-43556	20910	43556	13	7	19	13	10	16	6	6	10	16
0.02740	0.02105	5.995												
Quad 2														
segm: 0	-20904	-43574	20904	43574	-63	20	-100	-17	-21	-58	-83	-83	-21	-58
-0.05756	-0.07626	83.009												
segm: 1	-20903	-43558	20903	43558	13	-10	-8	-31	1	-19	23	23	1	-19
0.00274	-0.02499	-22.991												
segm: 2	20903	-43546	43546	20903	-2	-26	-16	-40	-14	-28	24	24	-28	-14
-0.03684	-0.03837	23.982												
segm: 3	20912	-43550	43550	20912	-14	-48	12	-22	-31	-5	34	34	-5	-31
-0.00658	-0.08494	33.957												
segm: 4	20903	43554	20903	43554	2	-18	33	13	-8	23	20	20	-8	23
-0.02193	0.03026	-20.026												
segm: 5	20908	43548	20908	43548	-79	72	-86	65	-3	-10	-151	-151	-3	-10

-0.00822	-0.01316	150.976												
segm: 6	20918	-43537	43537	20918	5	26	15	36	15	25	-21	-21	25	15
0.03290	0.04109	-21.044												
segm: 7	20918	-43550	43550	20918	28	24	-17	-21	26	-19	4	4	-19	26
-0.02500	0.07122	3.995												
Quad 3														
segm: 0	20921	-43538	43538	20921	1	37	-53	-17	19	-35	-36	-36	-35	19
-0.04606	0.05203	36.009												
segm: 1	20930	-43558	43558	20930	-7	20	-117	-90	6	-103	-27	-27	-103	6
-0.13548	0.01642	26.850												
segm: 2	20904	43554	20904	43554	117	-3	103	-17	57	43	120	120	57	43
0.15623	0.05657	119.997												
segm: 3	20933	43560	20933	43560	38	35	80	77	36	78	3	3	36	78
0.09854	0.10260	3.077												
segm: 4	-20917	43534	43534	20917	-63	-75	56	44	-69	50	12	12	50	-69
0.06581	-0.18900	-12.047												
segm: 5	-20913	43560	43560	20913	-48	-36	18	30	-42	24	-12	-12	24	-42
0.03157	-0.11507	11.965												
segm: 6	20906	43544	20906	43544	8	-12	11	-9	-2	1	20	20	-2	1
-0.00548	0.00132	19.995												
segm: 7	20920	43549	20920	43549	-54	33	-52	35	-10	-8	-87	-87	-10	-8
-0.02739	-0.01053	-86.975												

Constants

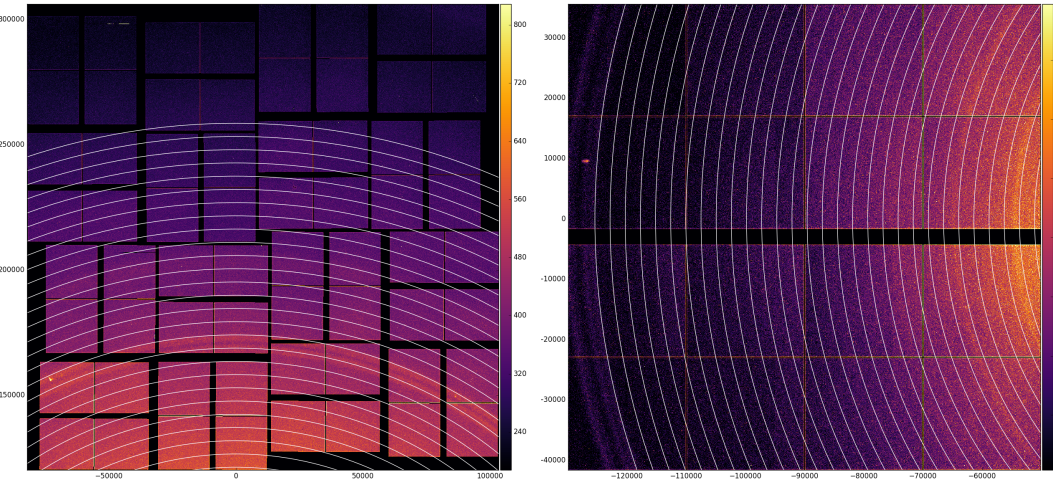
✓ Archive: /reg/g/psdm/detector/alignment/cspad/calib-xpp-2017-11-03-camera3/calib/CsPad::CalibV1/XppGon.0:Cspad.0/geometry/0-end.data

Check alignment for MFX

- exp=mfx11116:run=624-626
- MfxEndstation.0:Cspad.0 and MfxEndstation.0:Jungfrau.0

X-Y offsets for MfxEndstation.0:Cspad.0												
IP	0	CSPAD:V2	0	-77500	120000	1000000	0.0	0.0	0.0	0.00000	0.00000	0.00000

X-Y offsets for MfxEndstation.0:Jungfrau.0												
IP:V1	0	JFCAMERA:V1	0	-90000	-3000	100000	90	0	0	0.0	0.0	0.0



References

- [CSPAD Alignment](#)