

# Bad pixel mask

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Comparison of psana, cheetah and cctbx

## Comments

### Comments from Chuck

Chun Hong Yoon <yoon82@stanford.edu>  
Wed 11/22/2017 3:33 PM  
To: Dubrovin, Mikhail;  
Monarin Uervirojnangkoorn <monarin@stanford.edu>;  
Cc: O'Grady, Paul Christopher;

Hi Mikhail and Mona,  
Shall we try to compare cxic0415 run84? This is a dark run.  
Run85 is a light run.  
Cheetah bad pixelmap is here.  
/reg/d/psdm/cxi/cxic0415/res/cheetah/hdf5/r0101-se\_84\_new/badpixelmap.h5  
Best,  
Chuck

### Comments from Mona

Monarin Uervirojnangkoorn <monarin@stanford.edu>  
Wed 11/22/2017 6:29 PM  
Hi Mikhail,

Here is the mask for bad pixels generated from cctbx.  
/reg/d/psdm/cxi/cxid9114/scratch/mona/s1/discovery/mask\_cxic0415.txt  
The 0's are the bad pixel. I used r86 as Dark run and r100 as light run.  
I hope my understanding of their 64 x 185 x 194 format is correct. I also sent an email to Aaron. I'll let you know again if the format is not right.  
Cheers & Happy Thanksgiving!  
Mona

## Files

Compare cxic0415 run 84 - dark, 85 - light

- Cheetah bad pixelmap, shape=(8\*185,4\*388):  
/reg/d/psdm/cxi/cxic0415/res/cheetah/hdf5/r0101-se\_84\_new/badpixelmap.h5  
extracted with get-mask-cheetah-h5.py  
has ~50K edge and central pixel masked  
extracted by get-mask-cheetah-h5.py
- cctbx, shape=(64,185,194)  
  
/reg/d/psdm/cxi/cxid9114/scratch/mona/s1/discovery/mask\_cxic0415.txt  
includes bound pixels  
extracted by get-mask-cctbx-txt.py

psana pixel\_status

- /reg/g/psdm/logs/run\_proc/pixel\_status/CXI/cxic0415/work/nda-cxic0415-r0084-CxiDs1.0:Cspad.0-e001514-sta.txt
- /reg/g/psdm/logs/run\_proc/pixel\_status/CXI/cxic0415/work/nda-cxic0415-r0085-CxiDs1.0:Cspad.0-e157676-sta.txt
- mask is generated by get-mask-from-status.py

psana calibman for dark

- work/clb-cxic0415-r0084-peds-sta-CxiDs1.0:Cspad.0.txt
- work/clb-cxic0415-r0084-peds-msk-CxiDs1.0:Cspad.0.txt

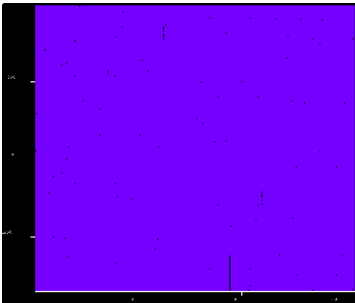
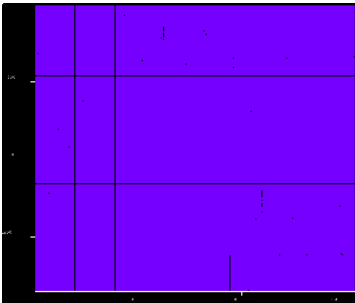
psana pixel\_status bits

Bits assignment and statistics in calibman and det\_ndarr\_data\_status for cxic0415 run84,85

Bit	Bit meaning	Run 84 calibman	Run 84 (dark)	Run 85 (light)
1	hot rms	1925	0	0
2	saturated	33	34	34
4	cold	975	1000	1012
8	cold rms	1513	1047	1039
16	average above limit	626	0	0
32	average below limit	1188	1008	979
64	max above limit	0	327	6266
128	min below limit	0	1013	1124

Mask pixel statistics

- cxic0415-r0084
- get rid of "geometry mask" pixels
- total number of cspad pixels 2296960 = 32\*185\*388
- masks are presented in cheetah style tables, shape=(8\*185, 4\*388).

file	zeros	ones	xpm	png
cctbx	3638	2293322	<a href="#">badpixel-cctbx.xpm</a>	
cheetah	2187	2294773	<a href="#">badpixel-cheetah.xpm</a>	

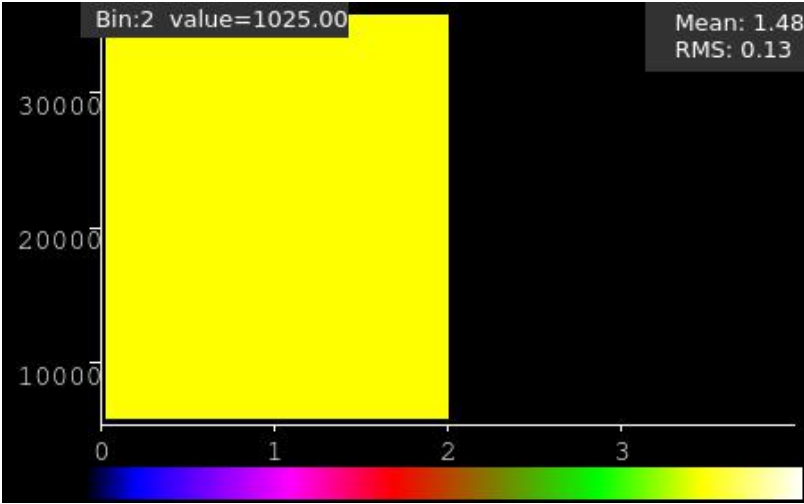
calibman	3391	2293569	<a href="#">badpixel-dark.xpm</a>	
data (r84)	1030	2295930	<a href="#">badpixel-data-r84.xpm</a>	
data all(r84)	1329	2295631	<a href="#">badpixel-data-r84-all.xpm</a>	
data (r85)	1034	2295926	<a href="#">badpixel-data-r85.xpm</a>	
data all(r85)	7049	2289911	<a href="#">badpixel-data-r85-all.xpm</a>	

## Comparison of masked pixels

Pixel maps are presented in cheetah style tables, shape=(8\*185, 4\*388).

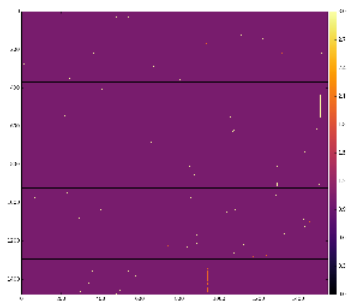
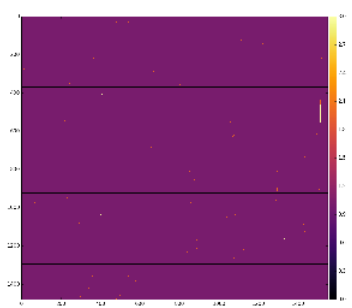
Color coding of pixels for comparison

- 0 - black - non-counted pixels at 2x1 edges
- 1 - purple - good pixel in both masks
- 2 - red - bad pixel in the 1st file
- 3 - green-yellow - bad pixel in the 2nd file
- 4 - white - bad pixel in both files



Comparison of bad pixel masks in pairs

file1	file2	coinside	only in 1	only in 2	xpm	png
cctbx	cheetah	1243	2395	944	<a href="#">mask-comp-cctbx-cheetah.xpm</a>	
cctbx	dark	2152	1486	1239	<a href="#">mask-comp-cctbx-dark.xpm</a>	

cheetah	dark	1162	1025	2229	<a href="#">mask-comp-cheetah-dark.png</a>	
dark	data	1030	2361	0	<a href="#">mask-comp-dark-data.xpm</a>	

References

- [Pixel status in data](#)