IST Calibration & Software Review

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IST DB initialization for Run 15

IST Geometry DB tables (copies from Run 14):

1) idsOnTpc:
“sim”: ideal geometry, time stamp 2014-12-15 00:00:00;
“ofl”: aligned geometry, time stamp 2015-01-14 00:00:00

2) pstOnIds:
“sim”: ideal geometry, time stamp 2014-12-15 00:00:00;
“ofl”: ideal geometry, time stamp 2015-01-14 00:00:00

3) istOnPst:
“sim”: ideal geometry, time stamp 2014-12-15 00:00:00;
“ofl”: aligned geometry, time stamp 2015-01-14 00:00:00

4) istLadderOnIst:
“sim”: ideal geometry, time stamp 2014-12-15 00:00:00;
“ofl”: survey geometry, time stamp 2015-01-14 00:00:00

5) istSensorOnLadder:
“sim”: ideal geometry, time stamp 2014-12-15 00:00:00;
“ofl”: survey geometry, time stamp 2015-01-14 00:00:00

IST DB initialization for Run 15

IST Calibration DB tables:

1) istControl:

"sim": time bin = 4, time stamp 2014-12-15 00:00:00;

"ofl": (1) time bin = 4, time stamp 2015-01-14 00:00:00

(2) time bin = 9, time stamp 2015-01-16 22:55:) 01

2) istGain (set to 1.0 as default as Run 14):

"sim": time stamp 2014-12-15 00:00:00

"ofl": time stamp 2015-01-14 00:00:00

3) istMapping (same mapping as Run 14):

"sim": time stamp 2014-12-15 00:00:00

"ofl": time stamp 2015-01-14 00:00:00

4) istChipConfig:

"sim": all chips in good status, time stamp 2014-12-15 00:00:00

"ofl": chip status per run was set based on the ist_bad_channels list (52 chips were masked out at the latest IST configuration file: /RTS/conf/ist/ist_bad_channels.txt@daqman.starp.bnl.gov) and the mis-configuration chip list (several chips in random were mis-configured, and were recorded in /net/ist01/RTScache/ist_apv_bad.txt @daqman.starp.bnl.gov). 144 entries were populated to DB from run 16014050 to 16019003 (here only good physics and pedAsPhys runs were taken into account), time stamp was set by each run's RTS time.

5) istPedNoise (detailed information can be found at next slide):

2014-12-15 00:00:00	sim	2015-01-20 17:59:19
2015-01-14 00:00:00	ofl	2015-01-20 17:33:40
2015-01-16 22:55:00	ofl	2015-01-20 17:33:48
2015-01-17 19:04:21	ofl	2015-01-20 17:33:55
2015-01-18 19:10:52	ofl	2015-01-20 17:34:02
2015-01-19 16:35:07	ofl	2015-01-20 17:34:09

IST DB initialization for Run 15

IST PedNoise DB tables:

(1) For simulation flavor

2014-12-15 00:00:00 sim

Based on the pedestal run 16015005 from /net/ist01/RTScache/IST_pedestals_16015005.txt@daqman.starp.bnl.gov

No bad chip/channel masking out.

(2) For real data

The mis-configuration (bad) chip list is ist_apv_bad.txt from /net/ist01/RTScache/ist_apv_bad.txt@daqman.starp.bnl.gov

The bad channel lists were from the Run 14 (179 bad channels masked out online at /RTS/conf/ist/ist_bad_channels.txt@daqman.starp.bnl.gov and 336 bad channels masked out at Babak's cosmic results for Run 14: /star/u/ypwang/disk01/offline_hft/DB/pedNoiseTable4DB/ChannelMaskList.20140601.txt@RCF)

The CM noise values were from the Run 14 cosmic results (I think it's fine due to we did not use it in offline chain in stead of masking bad chip by chip status table)

2015-01-14 00:00:00 ofl

Based on the pedestal run 16015005 from /net/ist01/RTScache/IST_pedestals_16015005.txt@daqman.starp.bnl.gov (loaded version for ZS by Tonko)

4 time bins (The time stamp was set to the starting time of physics run 15).

2015-01-16 22:55:00 ofl

Based on the pedestal run 16016150 from /net/ist01/RTScache/IST_pedestals_16016150.txt@daqman.starp.bnl.gov

(Due to loaded version not found, then corrected by myself. The channel pedestal/RMS values from mis-configuration chips was replaced by the corresponding values from /net/ist01/RTScache/IST_pedestals_16018035_loaded.txt@daqman.starp.bnl.gov)

9 time bins (The time stamp was set to the RTS starting time of the 1st physics run after IST firmware upgrade from 4 time bins to 9 time bins).

2015-01-17 19:04:21 ofl

Based on the pedestal run 16017053 from /net/ist01/RTScache/IST_pedestals_16017053.txt@daqman.starp.bnl.gov

(Due to loaded version not found, then corrected by myself. The channel pedestal/RMS values from mis-configuration chips was replaced by the corresponding values from /net/ist01/RTScache/IST_pedestals_16018035_loaded.txt@daqman.starp.bnl.gov)

9 time bins (The time stamp was set by its RTS start time).

2015-01-18 19:10:52 ofl

Based on the pedestal run 16018035 from /
net/ist01/RTScache/IST_pedestals_16018035_loaded.txt@daqman.starp.bnl.gov (loaded version for ZS by Tonko)

9 time bins (The time stamp was set by its RTS start time).

2015-01-19 16:35:07 ofl

Based on the pedestal run 16019055 from /
net/ist01/RTScache/IST_pedestals_16019055_loaded.txt@daqman.starp.bnl.gov (loaded version for ZS by Tonko)

9 time bins (The time stamp was set by its RTS start time).

IST DB updates for Run 14

New entry was added for idsOnTpc geometry DB table as Mustafa requested (TPC alignment is finalized for Run 14):

Hello, Hao, Yaping,

Can you updated the idsOnTpc tables for the PXL and IST?

Here are the new ones:

/star/institutions/lbl_prod/mustafa/cosmics_for_TPC_alignment/StarDb/Geometry/pxl/idsOnTpc.20140103.000002.C

/star/institutions/lbl_prod/mustafa/cosmics_for_TPC_alignment/StarDb/Geometry/ist/idsOnTpc.20140129.000001.C

-- Mustafa

IST calibration check for Run 14

Check results and macro (run14CalibCheck.C) can be found at:
http://www4.rcf.bnl.gov/~ypwang/IST_Performance_Study/run14CalibCheck/

run14CalibCheck_IST_sensor.pdf
IST sensor occupancy (<nHits> per event) vs run index

run14CalibCheck_IST_chip.pdf
IST APV chip occupancy (<nHits> per vent) vs run index

run14CalibCheck_badSensor.out
IST bad sensor list (bad decision: <nHits> > 10.0 or <nHits> < 2.0)
Format: run number, sensor geometry ID, <nHits>

run14CalibCheck_badAPV.out
IST bad APV chip list (bad decision: <nHits> > 2.0 or <nHits> < 0.1)
Format: run number, APV geometry ID, RDO, ARM, APV, <nHits>

run14CalibCheck_badChannel.out
IST bad channel list (bad decision: <nHits> > 0.02 or <nHits> < 0.001)
Format: run number, channel geometry ID, channel electronics ID, RDO, ARM, APV, CHANNEL, <nHits>

Software review

IST Fast simulator (StIstFastSimMaker):

- ☑ Updates were made according to Jason and Dmitri's comments, and no further feedbacks received.