System Tests – History of onboard filter

Frequency of bits hit for AllGamma simulations:

Trigger Name	##	v5r0p2	v6r2p8	v6r4	v6r5	v6r8	v7r0p2
DFC_M_STATUS_TKR_LT_2_ELO	15	0	0	0	0	0	0
DFC_M_STATUS_TKR_SKIRT	16	0	0	315	315	371	408
DFC_M_STATUS_TKR_EQ_0	17	2143	2142	2789	2789	2767	2330
DFC_M_STATUS_TKR_ROW2	18	91	96	73	73	93	104
DFC_M_STATUS_TKR_ROW01	19	252	249	227	227	226	215
DFC_M_STATUS_TKR_TOP	20	192	188	178	178	193	196
DFC_M_STATUS_ZBOTTOM	21	2001	2001	2688	2688	2659	2475
DFC_M_STATUS_EL0_ETOT_90	22	0	0	0	0	0	0
DFC_M_STATUS_EL0_ETOT_01	23	0	0	0	0	0	0
DFC_M_STATUS_SIDE	24	622	617	598	598	581	605
DFC_M_STATUS_TOP	25	152	147	143	143	154	161
DF C_M_STATUS_SPLASH_1	26	0	0	0	0	0	0
DFC_M_STATUS_E350_FILTER_TILE	27	525	512	301	301	272	248
DFC_M_STATUS_E0_TILE	28	1398	1408	1535	1535	1608	1944
DFC_M_STATUS_SPLASH_0	29	358	355	350	350	328	314
DFC_M_STATUS_NOCALLO_FILTER_TILE	30	1398	1385	1350	1350	1345	1342
DFC_M_STATUS_VETOED		0	0	0	0	0	0

v5r0p2: old tkrrecon, old caldigi; v6r2p8: new tkrrecon, oldcaldigi
v6r4 : new caldigi (muon gain, low cal noise, 1 MeV LAC threshold)
v6r5 : (flight gain, low cal noise, 1 MeV LAC threshold)
v6r8 : (flight gain, low cal noise, 1 MeV LAC threshold, bugfix to ULD settings)
v7r0p2 : altered cal constants in OF, flight-like cal noise, 2 MeV LAC threshold
see http://www-glast.slac.stanford.edu/software/AnaGroup/filter-updated.pdf for a description of each veto.

OnboardFilter

DFC_M_STATUS_TKR_SKIRT	16	0	0	315	315	371	408
DFC_M_STATUS_TKR_EQ_0	17	2143	2142	2789	2789	2767	2330
DFC_M_STATUS_ZBOTTOM	21	2001	2001	2688	2688	2659	2475
DFC_M_STATUS_E350_FILTER_TILE	27	525	512	301	301	272	248
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16 – A tracker track may have passed through the gap between the CAL and the ACD
17 – There is no evidence of at least one track and E(raw)>250 MeV
21 – Veto if the CAL have E>100 MeV but there is no evidence of a track into the CAL
27 – Event has less than 350 MeV in the CAL, and ACD filter tiles are hit.
28 – Event has no energy in the CAL, but has an ACD tile hit.

There is clearly still a mismatch between the new calibration constants introduced with the upgraded CalDigi and the hard-wired CAL constants used by the onboard filter. The change in #28 is probably due to the increased zero suppression threshold.

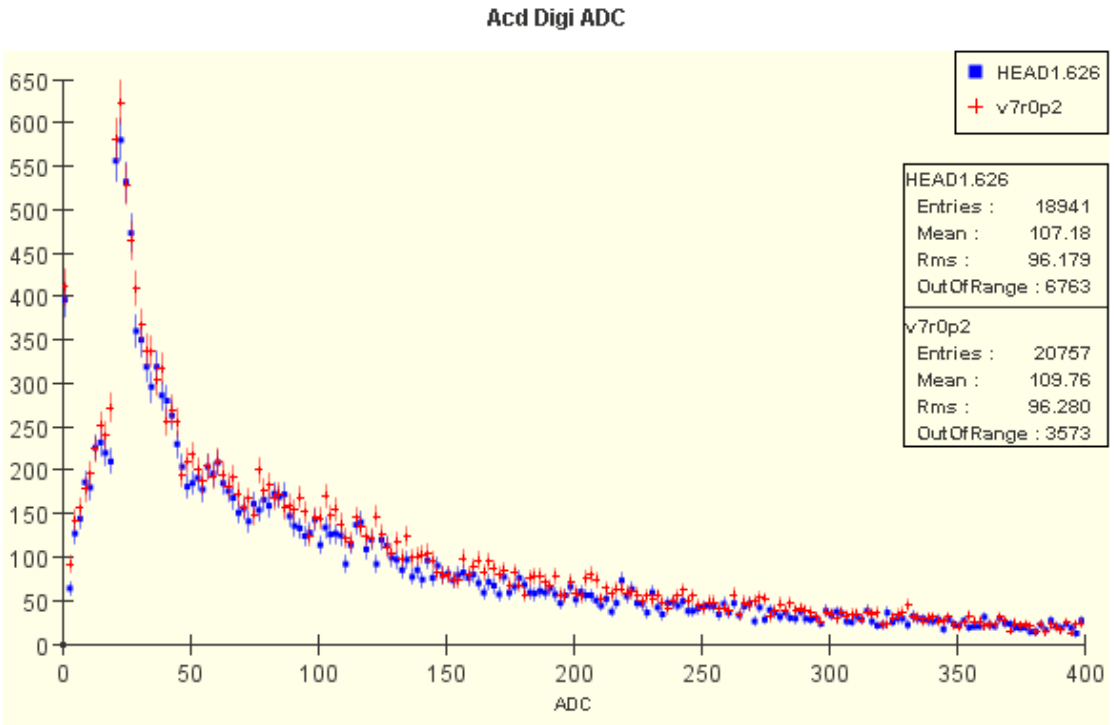
v5r0p2: old tkrrecon, old caldigi; v6r2p8: new tkrrecon, oldcaldigi
v6r4 : new caldigi (muon gain, low cal noise, 1 MeV LAC threshold)
v6r5 : (flight gain, low cal noise, 1 MeV LAC threshold)
v6r8 : (bugfix to ULD settings)
v7r0p2 : altered cal constants in OF, flight-like cal noise, 2 MeV LAC threshold

So the question is: do we want to filter the background runs with OF to reduce data volume and CPU usage?

ACD

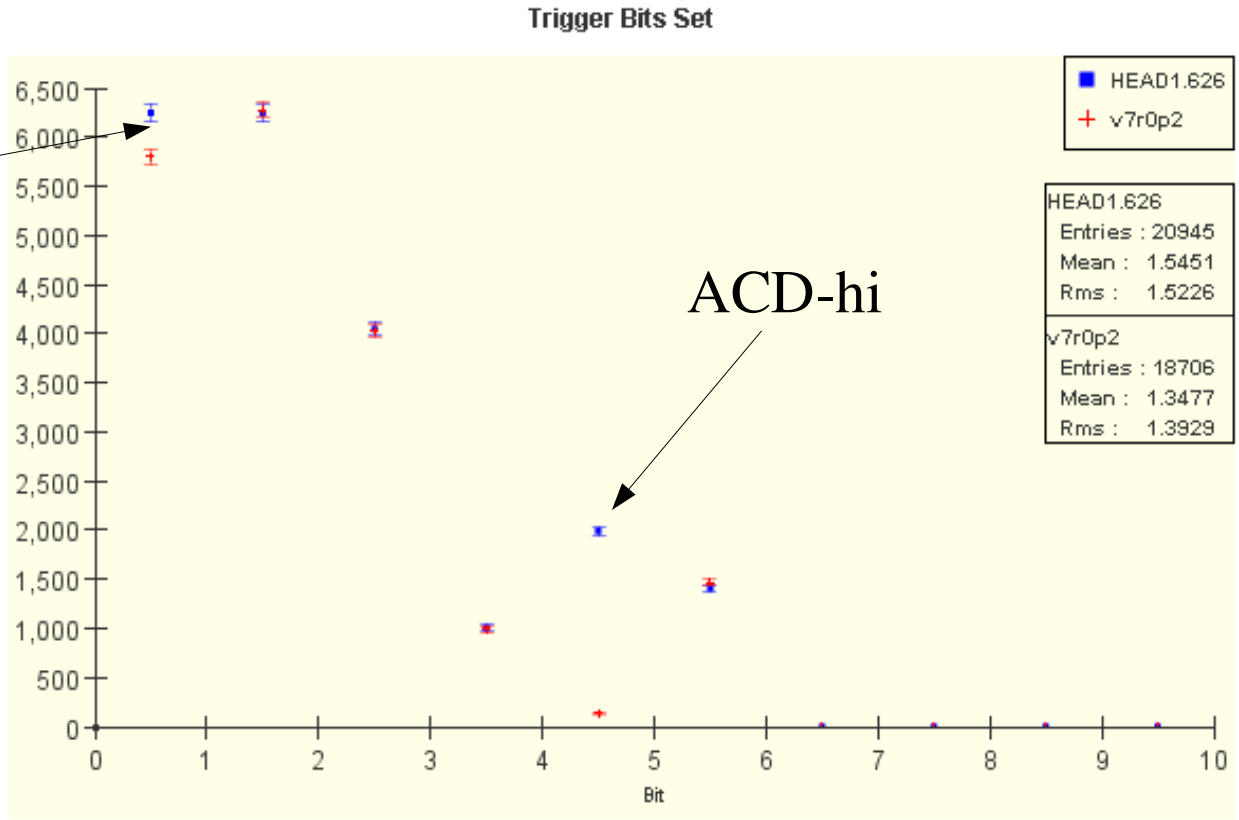
We have been creating a sequence of HEAD releases to test some changes.
HEAD1.626 – new ACD geometry.

AllGamma



ACD - cont.

AllGamma



ACD-lo

ACD-hi

Big increase in the number of ACD hi and ACD lo triggers.

Tracker Readout

HEAD1.631 – includes the new ACD geometry and Leons changes to implement readout truncation.

- There did not seem to be any changes. This may just mean that there are no events in the systests large enough that this matters.