

dunetpc - Bug #24419

Channel mapping in the ProtoDUNE DP rotated geometry

05/14/2020 01:54 PM - Vyacheslav Galymov

Status:	Assigned	Start date:	05/14/2020
Priority:	Normal	Due date:	
Assignee:	Vyacheslav Galymov	% Done:	0%
Category:		Estimated time:	0.00 hour
Target version:			
Description			
<p>The channel map that is used to assign DAQ channel record to the CRP views had a bug related to the TPC ordering convention followed in ProtoDUNE DP geometry.</p> <p>The geometry information is given here: https://wiki.dunescience.org/wiki/PDDP_geometry_info</p> <p>The issue was with the fact that the channel map was assigning channels corresponding to CRP0, CRP1, and parts of CRP3, which are the active readout areas of the detectors. However, the TPC (CRP) numbering convention for the DP geometry in larsoft follows an order defined by the TPC volume sorter comparison function. This means that the most upstream CRP with the lowest Y is the first one, while the one the most downstream with the largest Y is the last. This is however different from the CRP numbering scheme adopted during construction and installation as well as used in the commissioning and online event monitoring. The two schemes are illustrated in the wiki page above and in the image attached.</p> <p>The channels assigned to kZ view should be kY (and kY channels respectively kZ) CRP0 (online) should be CRP3 in larsoft CRP1 (online) is the same in larsoft</p> <p>The bug applies to the conversion of DAQ raw data to the art event format. Specifically it affects the data files decoded with dunetpc version before v08.48.01 (before April) and thus the first ProtoDUNE DP data production.</p> <p>The fix to the channel map has been committed: https://cdcv.sfnal.gov/redmine/projects/dunetpc/repository/revisions/8bd6e60b2699c0c7b1e221ce4884da515e132d</p> <p>The list of bad channels however still needs to be updated to take this CRP numbering convention into account.</p>			

Files

pddp_crpno.png	29.3 KB	05/14/2020	Vyacheslav Galymov
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