

Upstream DAQ Firmware

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December 10th 2020



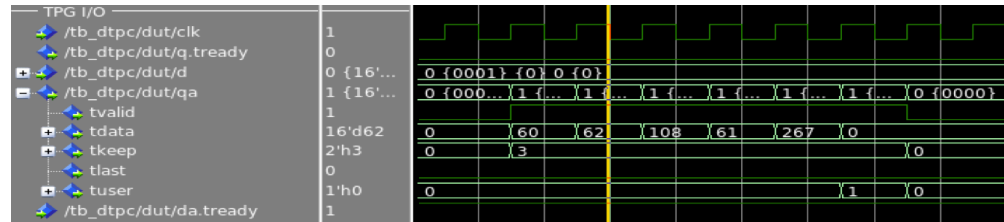
PDI captured data – Hit Continue issue

- Currently looking into the “Hit Continue issue”: hits found with HitContinue=1 while endTime<63
- Tony ran Joel’s code and converted captured data to axi4s/33b format files
 - By setting median/accum to right value we should be able to find the same issues in fw

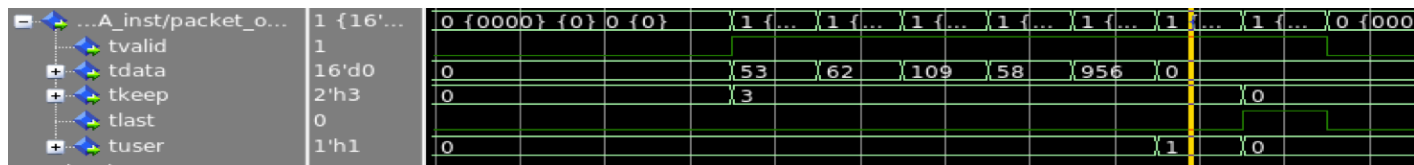
wireIndex	tstamphex	median	accum	strTime	endTime	peakADC	peakTime	sumADC	hitFlags	hitCont
72	0x11b54da5bd3da49L	2050	-4	60	62	108	61	267	0	1
117	0x11b54da5bd47689L	874	4	53	62	109	58	956	0	1

- Looking into the TPG core sim for wires 72 & 117 we find the same hit values but no HitContinue issue

Wire 72



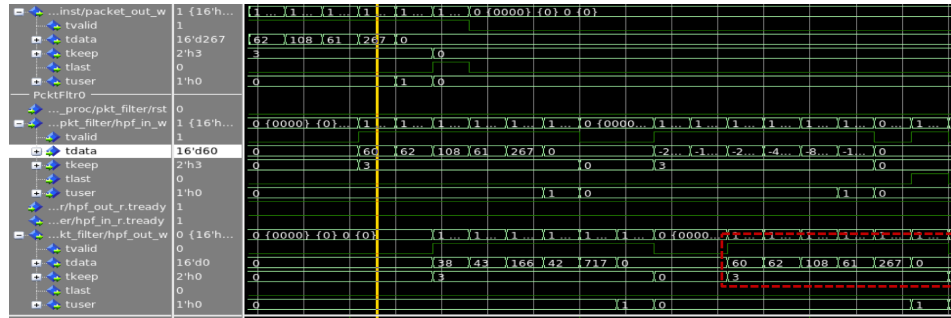
Wire 117



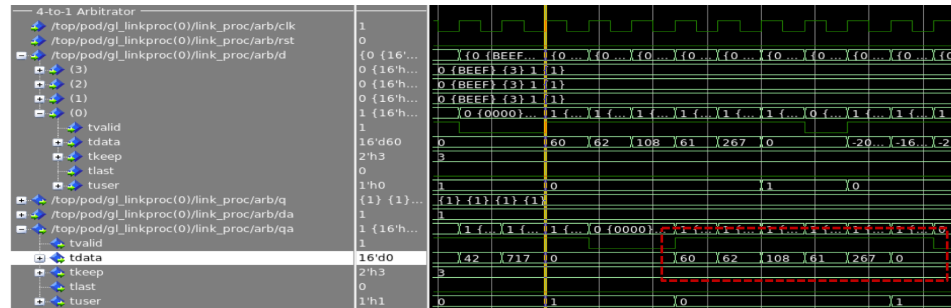
PDI captured data – Hit Continue issue

- Full Chain fw sim for wire 72

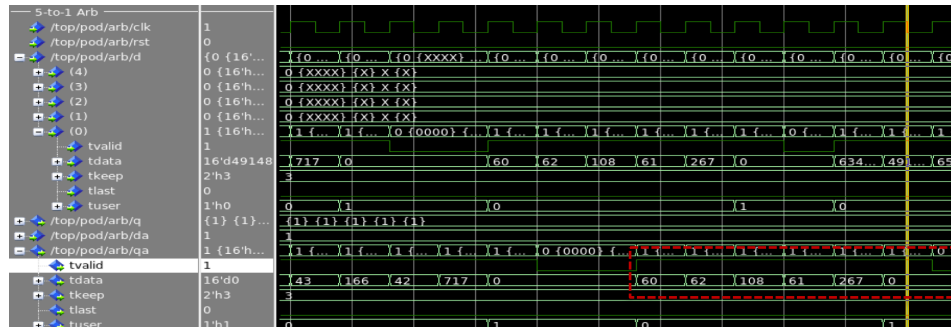
- Packet Filter:



- 4-to-1 Arbitrator

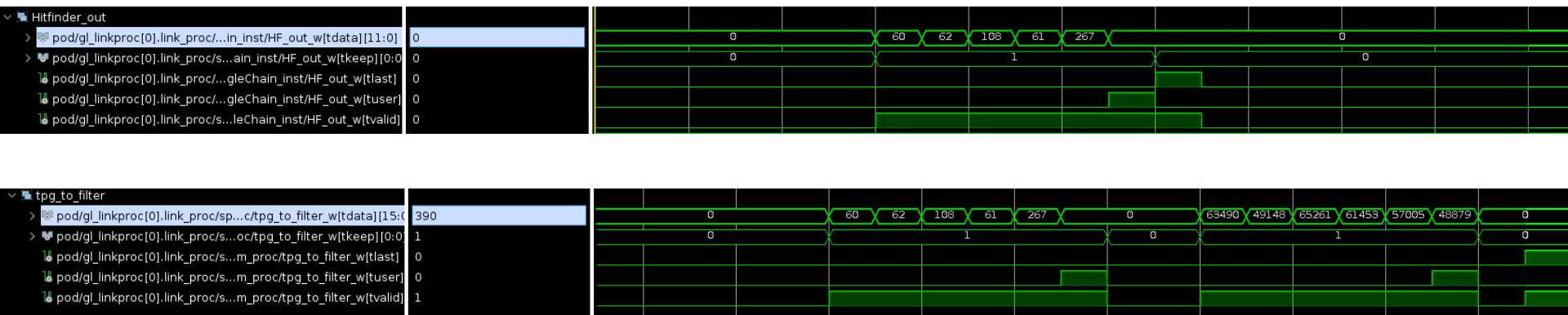


- 5-to-1 Arbitrator



PDI captured data – Hit Continue issue

- ZCU102 hw test with debug core for wire 72
 - TPG core:



Firmware releases

- Code review firmware ready (almost) to be tagged
 - Should go over documentation/recipes and make sure everything is up-to-date
- Each firmware release should include:
 - i) tested & documented fw,
 - ii) bit file with current version of DUNE-FELIX,
 - iii) hw test with FELIX card (could we use Wibulators or ZCU102 source board?)
 - iv) FELIX support sw
- Scheduled fw releases:
 - Dec 2020: reviewed fw + phase1 FELIX rebase
 - end of Jan 2021: phase2 FELIX rebase + new DP11 fw blocks
 - March 2021: phase2 FELIX rebase + DP11 fw