Upstream DAQ – Firmware

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December 3rd 2020

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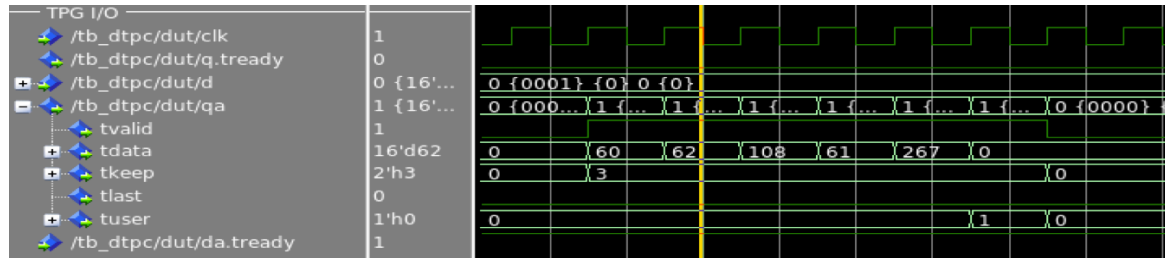Rutherford Appleton Laboratory

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PDI code review

- Have been working with Tony & Joel looking into fw simulation of PDI captured data

- Goal is to be able to recreate an issue in fw sim, as seen from captured data analysis

- Currently looking into the "Hit Continue issue": hits found with HitContinue=1 while endTime<63

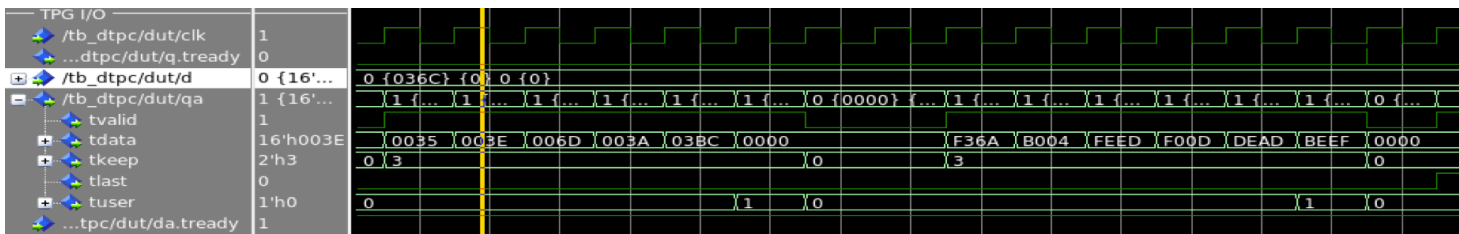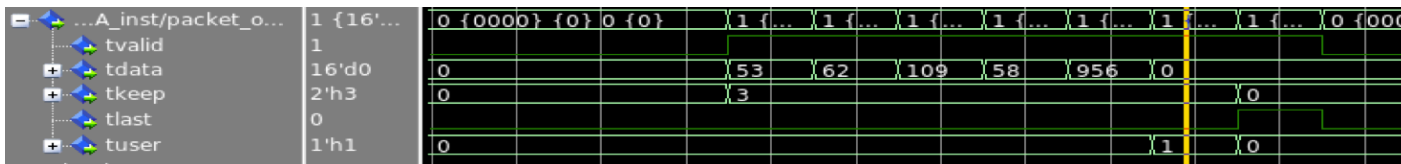| wireIndex	tstamphex	median	accum	strtTime.	endTime	peakADC	peakTime	sumADC	hitFlags	hitCont
72	0x11b54da5bd3da49L	2050	-4	60	62	108	61	267	0	1
117	0x11b54da5bd47689L	874	4	53	62	109	58	956	0	1

- 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

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PDI code review

- As a first step we focused on just the TPG core

- TPG output for wire 72: We do find the same hit values but no HitContinue issue

- TPG output for wire 117: Again same hit values but no HitContinue issue

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PDI code review

- This does not mean there is no Hit Continue issue with the fw!!

- Working on a full single chain sim and trying to find out if fw behaves the same

- Need to be able to see the same hits at the output of the Single Chain and the 5-to-1 Arbitrator

- It is good to know we are able to process the captured data and using timestamp/wire index and correcting median/accum we see the same hits in the TPG core fw