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Backup triggers to SSDL tau analysis triggers in 5e33 menu

Rates for the MET dataset triggers are evaluated using run 165970 (1e33) scaled to 5e33.

Path Name	L1 condition	L1 Prescale
OpenHLT_PFMHT50_Ele5_CaloIdVL_CaloIsoVL_TrkIdVL_TrkIsoVL	L1_ETMB0	1
OpenHLT_PFMHT50_Mi5	L1_ETMB0	1
OpenHLT_PFMHT50_DoubleIsoPFTau10_Trk3	L1_ETMB0	1
Total	Rate (AlCa not included) [Hz]	Throughput (AlCa included) [MB/s]
HLT	7.32+-0.09	1.10+-0.01

Rates of proposed control triggers taken from run 163374 (5e32) scaled to 5e33. As expected we see an increase in the rate with respect to those found from run 170354 (looser events in the ntuple).:

ElectronHad

Path Name	L1 condition	L1 Prescale
OpenHLT_HT400_Ele5_CaloIdVL_CaloIsoVL_TrkIdVL_TrkIsoVL	L1_HTT100	1
Total	Rate (AlCa not included) [Hz]	Throughput (AlCa included) [MB/s]
HLT	5.89+-0.08	0.88+-0.01

MiHad

Path Name	L1 condition	L1 Prescale	HLT Prescale	HLT Rate [Hz]	Total Rate [Hz]	Avg. Size [MB]	Total Throughput [MB/s]
OpenHLT_HT400_Mi5	L1_HTT100	1	1	6.13+-0.08	6.13	0.15	0.92
Total	Rate (AlCa not included) [Hz]	Throughput (AlCa included) [MB/s]					
HLT	6.13+-0.08	0.92+-0.01					

TauX

Path Name	L1 condition	L1 Prescale	HLT Prescale	HLT Rate [Hz]
OpenHLT_HT400_DoubleIsoPFTau10_Trk3	L1_HTT100	1	1	4.75+-0.08
OpenHLT_PFMHT50_DoubleIsoPFTau10_Trk3	L1_ETMB0	1	1	14.32+-0.08
Total				

	Rate (AlCa not included) [Hz]	Throughput (AlCa included) [MB/ s]
HLT	17.39+-0.13	2.61+-0.02

HT

Path Name	L1 condition	L1 Prescale	HLT Prescale	HLT Rate [Hz]	Total Rate [Hz]	Avg. Size [MB]
OpenHLT_HT400_PFMHT50	L1_HTT100	1	1	23.75+-0.16	23.75	0.15
Total	Rate (AlCa not included) [Hz]	Throughput (AlCa included) [MB/ s]				
HLT	23.75+-0.16	3.56+-0.02				

Backup triggers to SSDL tau analysis triggers in 5e33 menu from run 170354

Here the rates of the proposed control triggers are shown. The control triggers considered are HT400+Ele5, HT400+DiTau10, HT400+Mu5, PFMHT50+Ele5, PFMHT50+DiTau10, PFMHT50+Mu5, HT400+PFMHT50.

The definitions of the objects used in the triggers are the same as those used in the analysis triggers above. All paths are evaluated using L1_HTT100 as the L1 seed. This may not be optimal for the MHT+Lepton triggers...

HT400+Ele5, HT400+DiTau10 and HT400+Mu5 are run on EleHad, TauPlusX and MuHad samples respectively. HT400+PFMHT50 is run on HT samples. All PFMHT50+Lepton triggers are run on the MET dataset. This follows the datasets I anticipate these triggers would be included into. (Note that the PFMHT + Lepton triggers may be elsewhere - e.g. should PFMHT+DiTau be tested on TauX dataset?).

The rates are evaluated at 3e33 from run 170354.

Total rate is: (1.4 (HT_El) + 2.7 (HT_Mu) + 0.11 (HT_Di Tau) + 4.11 (HT_PFMHT) + 0.44 (El_PFMHT) + 1.09 (Mu_PFMHT) + 2.66 (Di Tau_PFMHT)) * 5/3 = 21 Hz.

Assuming we want \leq 1Hz:

- Prescale 2 for HT_Di Tau
- Prescale 5 for El_PFMHT
- Prescale 20 for HT_El, Mu_PFMHT, HT_Mu
- Prescale 40 for Di Tau_PFMHT, HT_PFMHT

This brings us to around 1Hz...

NB: the Di Tau_PFMHT rate is taken from running on the MET dataset rather than the value found running on the TauX dataset (shown below), this

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provides a more conservative estimate of the total rate.

ElectronHad dataset triggers

Path Name	L1 condition	L1 Prescale	HLT Prescale	HLT Rate [Hz]	Total Rate [Hz]	Avg. Size [MB]	Total Throughput [MB/ s]
OpenHLT_HT400_El e5_Cal oIdVL_Cal oIsoVL_TrkIdVL_TrkIsoVL	L1_HTT100	1	1	2.70+-0.04	2.70	0.15	0.40
Total	Rate (Al Ca not i ncl uded) [Hz]	Throughput (Al Ca i ncl uded) [MB/ s]					
HLT	1.42+-0.03	0.21+-0.00					

MiHad dataset triggers

Path Name	L1 condition	L1 Prescale	HLT Prescale	HLT Rate [Hz]	Total Rate [Hz]	Avg. Size [MB]	Total Throughput [MB/ s]
OpenHLT_HT400_Mi5	L1_HTT100	1	1	2.70+-0.04	2.70	0.15	0.40
Total	Rate (Al Ca not i ncl uded) [Hz]	Throughput (Al Ca i ncl uded) [MB/ s]					
HLT	2.70+-0.04	0.40+-0.01					

TauPlusX dataset triggers

Path Name	L1 condition	L1 Prescale	HLT Prescale	HLT Rate [Hz]	Total Rate [Hz]	Avg. Size [MB]	Total Throughput [MB/ s]
OpenHLT_HT400_DoubleIsoPFTau10_Trk3	L1_HTT100	1	1	0.11+-0.00			
OpenHLT_PFMHT50_DoubleIsoPFTau10_Trk3	L1_HTT100	1	1	0.14+-0.00			
Total	Rate (Al Ca not i ncl uded) [Hz]	Throughput (Al Ca i ncl uded) [MB/ s]					
HLT	0.22+-0.01	0.03+-0.00					

HF dataset triggers

Path Name	L1 condition	L1 Prescale	HLT Prescale	HLT Rate [Hz]	Total Rate [Hz]	Avg. Size [MB]	Total Throughput [MB/ s]
OpenHLT_HT400_PFMHT50	L1_HTT100	1	1	4.11+-0.04	4.11	0.15	0.62
Total	Rate (Al Ca not i ncl uded) [Hz]	Throughput (Al Ca i ncl uded) [MB/ s]					
HLT	4.11+-0.04	0.62+-0.01					

MET dataset triggers

Path Name	L1 condition	L1 Prescale	HLT Prescale	HLT Rate [Hz]	Total Rate [Hz]	Avg. Size [MB]	Total Throughput [MB/ s]
OpenHLT_PFMHT50_El e5_Cal oIdVL_Cal oIsoVL_TrkIdVL_TrkIsoVL	L1_HTT100	1	1				

Backup triggers to SSDL tau analysis triggers in 5e33 menu from run 170354

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OpenHLT_PFMHT50_Mu5	L1_HTT100	1
OpenHLT_PFMHT50_DoubleIsoPFTau10_Trk3	L1_HTT100	1
Total	Rate (All not included) [Hz]	Throughput (All included) [MB/s]
HLT	3.56+-0.04	0.53+-0.01

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