

Trigger Menu

Discussion with Ben

From Ben 2/26/14:

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Here's some general info that you may be interested in:

TI Master (TS for HPS):

- 1) 6 trigger input sources
- 2) prescalers on each input (in powers of 2 from 1, 2, ...65536)
- 3) can issue a random trigger

SSP:

- 1) Can supply 5 trigger signals to the TI Master

It would make sense to dedicate an SSP trigger output for each of the triggers you define in the table. This way the TS will be able to tag the events with unique trigger types that correspond directly to one of your trigger names...but if there are many more trigger definitions you want than we have trigger bits for we can mux so long as no more than 5 (or 6) are needed to run simultaneously, otherwise we may have to OR them together - you could use the SSP event data to let you know what trigger type happened in this case.

Thanks,
Ben

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Trigger Menu summary

Trigger name	Purpose	Prescale	Responsible	Comments
Random	Trigger debugging.	Yes	Name	
Single beam electron (multiple triggers)	ECal & SVT calibration	Yes (set of triggers)	Name	Set of triggers to evenly distribute clusters across the ECal face. Require single cluster with beam energy (within resolution).
Straight through single electrons	SVT no b-field run with upstream target.	No	Pelle	Only small region of ECal will be needed, defined by the limited track acceptance of the SVT in this run configuration.
Pair OR trigger	Trigger efficiency studies using tag & probe techniques	Yes	Name	'OR' of trigger in top and bottom halves. Would be good to have relatively flat energy spectrum.
ep elastic	Trigger in ep elastic scattering	No	Name	
Signal	Heavy photon discovery	No	Name	

In addition to the above beam electron trigger we can select beam electrons out of time with the signal trigger for calibration purposes.

Detailed requirements below.

Random trigger

Single beam electron trigger

Straight through single electron trigger

Pair OR trigger

Signal trigger