

DAQ News and Dry Run 2019

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On behalf of the Dry Run Coordinators and DAQ Group

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Federal Ministry
of Education
and Research



Available Triggers

TCSInfo

DAQ#	Run	Spill	Spill #	Evt #
0	fffff	0	109	74655

channname	incount	outcount	divide	new setting
0	SYNC	879706	73309	12
1	MT	0	0	0
2	LT	0	0	0
3	OT	33499511	0	0
4	CT	0	0	0
5	VI	0	0	0
6	Halo	0	0	0
7	BT	0	0	0
8	MTIncl	0	0	0
9	LAST	0	0	0
10	TRand	27948	0	0
11	NRand	1214140	6070	200

Load new settings

	Current setting		New setting		
	On spill	Off spill	On spill	Off spill	Rate
Calibration ch. 12	---	---	<input type="checkbox"/>	<input type="checkbox"/>	Low
Calibration ch. 13	---	Low	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Low

Apply calibration triggers

Setting as close as to 2021 setup! (like 2010 but without Inner Trigger)

New artificial Spill Generator/Switch and Trigger Generator

New artificial Spill/Trigger generator based on iFTDC hardware

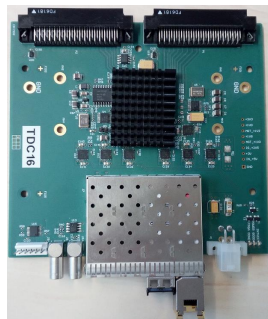
(as standalone part of the new TCS controller)

Hardware specifications:

- Xilinx ARTIX7 FPGA (XC7A-35)
- 64x LVDS Inputs/Outputs
- 2x NIM Inputs/Outputs
- 4x SFP-Cage
- Special carrier board

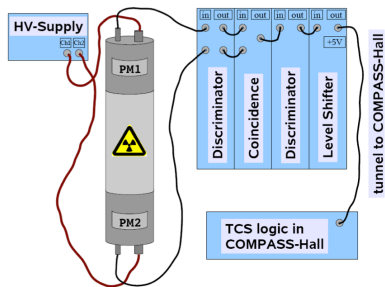
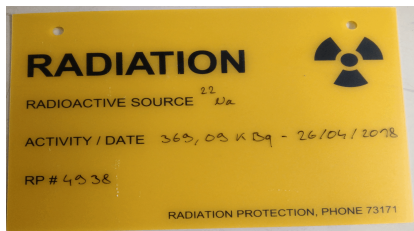
Features:

- Switching between SPS timing and artificial timing
 - Generating WE, WWE and EE signals
 - Generating variable clock as Trigger (SYNC)
 - Setting of Spill length, Spill pause and Begin of Spill Veto via IPBUS
- Measurement of the Spill length



Random Trigger sources

True Random Trigger (Trigger bit 10)



Detection of back-to-back annihilation photons from β^+ decay in coinci.

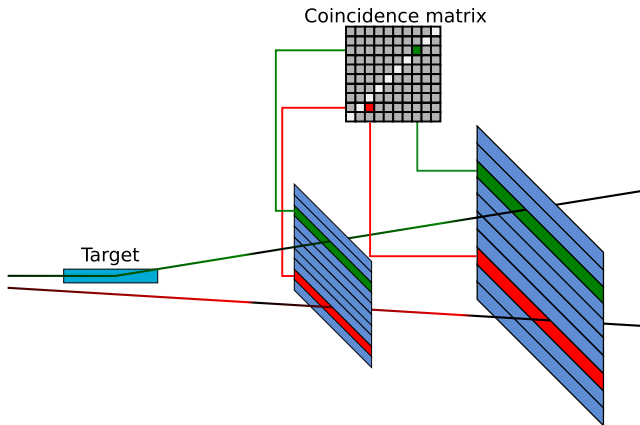
Activity today (30.9.2019) $\approx 252\text{ kBq} \rightarrow \approx 2\text{ kHz}$ (Triggerrate)

Noise Random Trigger (Trigger bit 11)

Thermal noise of resistor over threshold $\rightarrow \approx 100\text{ kHz}$ (Triggerrate)

Cosmics Trigger

Halo Trigger - Coincidence of HO04 and H2 Hodoscope [any slab with any]



Open Matrix Approach or Sky-Pointing (has to be evaluated)
→ Expected rate a few 10's of Hertz.

Additional Triggers

We can provide other kind of triggers ...

e.g Thin scintillator panel to put in front of an Radioactive Source to test dedicated Detectors.

Waiting for your requests ...

Two Dry Runs are planned during LS2.

Dry Run 2019 from 04. - 18. October!

	2019	2020
nominal gas	no	possible
SM1/SM2	no	no
chilled/raw water	yes	yes
liquid Helium→Target	no	planned
date	04.-18. October	July?
remarks	no DC5, RW, SciFi7/8 and beam-telescope	new HV, repaired detectors, Silicons