

BCO Issues in Stream Readout

Run#	Analyzer	Code	Felix Server	Symptom
	Takashi	Event Combiner		Stop processing after 78k Events
49960	Takashi	ddump		Missing BCO for 8.7s (event#14xx?)
49224	Joseph	Online Monitor Decoder		Nonsense BCO_FULL 0x0000000000 0x0b00000001 0x7300000001 0x8300000001 0xeb00000001 0xfb00000001
	Joseph			Stuck BCO?
			4	Fake hits in module 8 and 11 something to do with BCO?

About the streaming readout symptoms:

You mentioned 3 issues in an email to the sphenix-intt list

- o Data process stops at 78 kEvents (Slide 10 of Takashi's presentation)
- o BCO stuck in ddump (Slide 9 of Takashi's presentation)
- o Dozen of nonsense BCO found in a run (Reported by Joseph)

If I understood Takashi's presentation correctly, the first 2 bullets here are correlated.

Also, the second point of "BCO stuck" was described as "no BCO was found", which is different from "stuck BCO". I understand "stuck" means it doesn't go up, you have repeated BCOs in two events for a given ladder. Those are two different problems and it was not 100% clear to me which is it.

We need some statistics and, importantly, offline QA.

Then we can monitor the situation on a run-by-run basis.

There are reasonably straightforward checks we can do as part of offline QA at the event level. Most of the online monitoring is looking for issues at a hit level.

For the streaming readout, we need to know if consecutive strobes are 120 BCOs apart. If not, how many and where in the run that happens.

For the triggered readout, we need to know the percentage of the BCOs the GL1 has that we also have.

10:09 PM

For both modes, we need to make a ladder-by-ladder check to make sure all ladders have the same BCOs. If not, how many discrepancies are there?