

GADGET II

July 21, 2021

8:30 EST

Zoom

Meeting called by: Chris Wrede

Type of meeting: Zoom

Chris Wrede (CW), Lolly Pollacco (EP), Moshe Friedman (MF), Yassid Ayyad (YA), Ruchi Mahajan (RM), Tyler Wheeler (TW), Lijie Sun (LS)

Attendees:

Note taker: Ruchi Mahajan and Tyler Wheeler

Minutes

Agenda item: Count rate efficiency of the GET system

Discussion: We tested the GET system with pulses of different amplitude (200mV-110 V), different shapes (square, tail pulse with adjustable rise and fall time) and different frequencies using Random pulse generator. We discussed about the limitation on the count rate of the GET system. MF and CW suggested to cut out the beta background and higher energy protons and alphas, but we still need count rate more than 1 k pps. We can set the threshold around the events of interest but we cannot make this gate very narrow. So we have to be careful while setting the threshold on the energy. With the current configuration settings of the GET- software we are getting around 35% count rate efficiency in the partial read out mode and less than 20% count rate efficiency in the full read out mode with a frequency of 1 kHz. CW pointed out that do we really need to record the all the traces. EP suggested to enable the zero suppression threshold and YA suggested to look into the separation mode which would allow us to store only time buckets above certain threshold in order to increase the count rate. EP also suggested that we should contact or set up a meeting with the engineer to understand this system better. In order to increase the throughput we should replace our current Ethernet switch by 10 Gb/sec optical switch. The MAC Mini that we are currently using need to be upgraded to increase its Ram up to 32 GB. EP mentioned that he will send us the code to calculate the dead time of the GET system. YA sent us an email with different options to test the GET system by changing the different parameters of the GET-software. LS suggested us to use one Cobo per AsAd and this will also help in increasing the count rate efficiency of the GET system.

Conclusions:

Work on the different options suggested to increase the throughput of the GET system.

Action items	Person responsible	Deadline
✓ Send code to calculate dead time of GET system	EP	
✓ Try different options to increase the throughput	RM, TW	
✓ Replacing 1 Gb/sec switch to 10 Gb/sec switch	RM, TW	

Agenda item: Tests with 241Am Source and Trigger from Mesh

Discussion: RM explained how we are generating the trigger from the mesh by using Pre-Amplifier, Shaping Amplifier and Single Channel Analyzer. This gives us a gate with width of 10 μs which is adjustable using delay module. EP asked about the shaping time of the amplifier and to be careful for the delays that are introduced by the cable. MF pointed out the possibility of taking signal from the cathode and the use of ²⁵²Cf source to test the detector. CW mentioned that we should avoid this as it will pollute our detector. Testing with this source will give us an idea about count rate efficiency of the GET-system.

Conclusions: We will proceed our detector testing with the ²⁴¹Am source.

Action items	Person responsible	Deadline
✓ Testing the GET- system with different options suggested today in the meeting	RM, TW	

Other Information

We still have not received the 10 Gb/sec optical switch and we are waiting for that to proceed further. We also need the shorter cable to connect mesh to the pre-amplifier. The cable we currently have is very long.