

TITLE :

Test for a prototype readout board of Belle-II Drift chamber

FROM :

Name: Nanae Taniguchi (KEK)
Adress : 1-1, Oho, Tsukuba, Ibaraki, KEK, 305-0801
Phone number : +81-(0)29-864-5342
FAX number : +81-(0)29-864-5340
E-mail : nanae@post.kek.jp

MEMBERS

Name	Affiliation
S. Uno	KEK, Japan
N. Taniguchi	KEK, Japan
Y. Iwasaki	KEK, Japan
T. Uchida	KEK, Japan
E. Nakano	Osaka City University, Japan
M. Sumihama	Gifu University, Japan
M. Uchida	Tokyo Institute of Technology, Japan
Y. Sato	Tohoku University, Japan
K. Kasama	Shinshu University, Japan

Test for a prototype readout board of Belle-II Drift chamber

The purpose of the test is to study performance of readout board for Belle-II drift chamber. We will measure resolution for dE/dx and position using test chamber with helium-ethan gas mixture. We also study the performance of firmware including an event buffer that allows storage of at most 15 events in the specific data mode. We have confirmed that the event buffer works at the event rate of 10-20 Hz. High event rate at the test beam line is useful for us because the nominal average level-1 trigger rate is expected to be 20-30kHz. The TRG system will be studied using the trigger board module which provides a trigger signal of self tracking.

- Efficiency curve as function of high voltage for chamber
- High voltage dependence of position resolution
- Incident angle dependence of dE/dx and position resolution
- Performance of event buffer
- Performance of TRG system

Requesting Running Time : 4 days (3 days for data taking).

We will use the test area between the drift chamber (DC3) and the time of flight stop counters.

1 st	setup
2 nd	data taking with track trigger from trigger counter
3 rd	data taking with trigger of self tracking
4 th	data taking and remove setup from the test area

Type Of Beam

3GeV photon beam of 200kcps intensity on Pb target of 1.5mm thickness with magnetic field strength of 0.7 Tesla (corresponding to 800A, default value).

Apparatus

LEPS start counter, single TOF counter and NO DAQ system.

Figure 1 shows the set up for study. The test chamber with readout board is located in the test area between the drift chamber (DC3) and the time of flight stop counters. We need trigger signals from the start counter and stop counter of the LEPS detector. The cables for trigger and data transfer pass through a duct from the test area to outside. Figure 2 is the photo of the prototype of readout board and the test chamber.

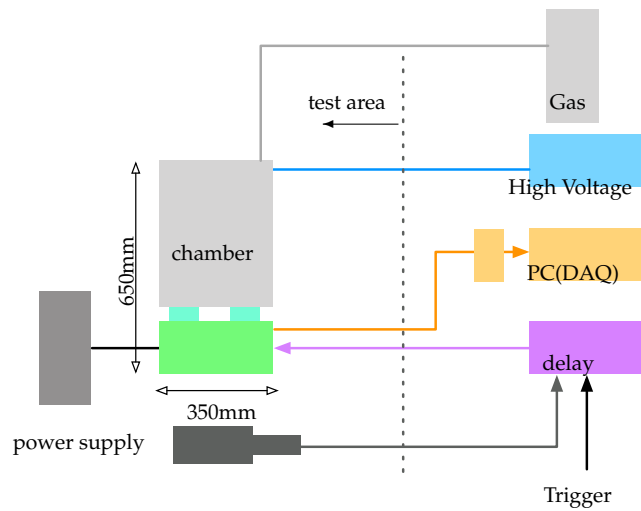


Figure 1: Setup in the test area. The trigger signal is provided by coincidence of the start counter and stop counter of the LEPS detector.

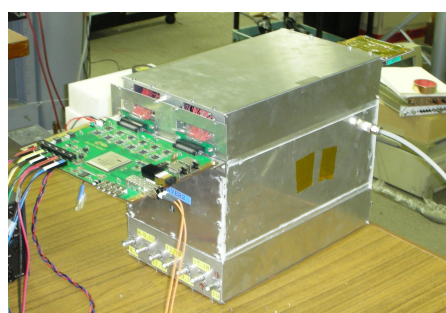
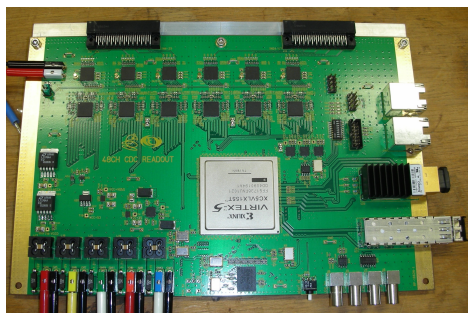


Figure 2: The prototype readout board and test chamber.