Application of Trigger Counter Board for Synchronized Data

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Two types of data, synchronized data and non-synchronized data, are utilized on J-PARC Linac and RCS. The synchronized data is attached measurement data with beam tag (shot number). By the beam tag, it is able to realize the synchronized monitoring and data acquisition corresponding to identical beam. The non-synchronized data is used for monitoring and archiving via LAN by EPICS Channel Access. The data is attached the time information (time stamp) but it is not included for beam information. Therefore, the data is not synchronized based on the beam.

A synchronized data with beam information (beam tag) is utilized on SNS, SACLA and other accelerators as the standard data type, recently [1][2]. To perform J-PARC upgrade by a 1MW beam power, it will become the higher necessity and importance to utilize the synchronized data in the years ahead. At the present, the synchronized data is provided by Refractive Memory (RM) system and Wave Endless Recorder (WER) system, on J-PARC Linac and RCS. However, the data synchronization is applied for each accelerator subsystem only. Therefore, it has not realized not only between RM system and WER system but also between each WER system [3].

In order to synchronize between each system or each subsystem, Trigger Counter Board (TCB) was designed and developed. This article presents the details of the function of TCB and the synchronization method, and the development status of synchronized function between RCS RM system and WER system.

References

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