The Proton Beam Realtime Monitor System in CSNS

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Proton Beam Measurement

In CSNS, the proton charge needs to be measured,
- to normalize neutron flux by the physical analysis software.
- option of termination conditions and statistical data of a neutron experiment.
- The time of proton bunch passing the beam monitor is also can be an option as the start of neutron flight time.

Measured at RTCT02 and RTCT03
Architecture of Real-Time Proton Charge Monitor

Signal from CT → Proton Beam Monitor → 25Hz Trigger → WR Realtime Network

- Trig Package
- Measurement Package

Agent → History Database
Agent → Proton IOC
Agent → Other Measurement

TDC and ADC based on PXI
Trigger and Timing
## Realtime Package based on LXI Potocal

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<thead>
<tr>
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<th>Field</th>
<th>Type</th>
<th>Length</th>
<th>Typical Value</th>
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<tr>
<td>Timestamp (Trigger time)</td>
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<td>0x04</td>
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Fix Length to Simply the design of FPGA Program
Data Check and Publish

2017/11/01 07:00:00 - 2017/11/02 07:00:00

2017/11/02 07:00:00 - 2017/11/03 07:00:00

2017/11/1 - 2018/5/29 质子流强图
Runing in CSNS

- From 1 Nov, 2017 to Now, $9.524 \times 10^7$ proton bunches in CSNS
- About 17Mwhr on target
- The monitor system running good
Thanks!