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GPS IRIG-B over the fiber - an alternative to NTP

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Time-stamping of neutron events and environment parameters at the Spallation Neutron Source (SNS) instruments is based on Network Time Protocol (NTP) to distribute GPS time to the instrument front-ends. We are presenting an alternative way of distributing GPS time using fiber optical channels. Instead of millisecond accuracy for NTP, we distribute GPS IRIG-B signaling to remote IRIG-B receivers with an accuracy in nanoseconds.
The new approach is implemented in VHDL and demonstrated on an FPGA development board using Vivado design tools.

Footnotes

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