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The timeless timing system

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The Canadian Light Source (CLS) is a third generation 2.9 GeV synchrotron comprised of a 250 MeV LINAC, a full energy booster, and a storage ring with 13 insertion devices and 22 operational beamlines ranging from infrared light to hard X-rays.
The Timing System supplies the triggers required to synchronize operation of all components responsible for injecting current into the storage ring. Signals from the Timing System can also be used to synchronize data acquisition on beamlines.
The Trigger Generator Unit (TGU), which was designed by the CLS, is the centerpiece of the timing electronics. The TGU is driven by the 500 MHz master oscillator and is controlled using digital I/O. The trigger signals are distributed via a fiber optic system, which was also designed in house.
The Timing System has been in operation since 2001 and has proven itself to be stable and robust. This paper provides a detailed overview of the system and its history and operational performance.

Footnotes

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