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TLS orbit feedback upgrade

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Orbit feedback system (OFB) of the Taiwan Light Source (TLS) had been deployed two decade ago and upgraded to improve performance several times. The loop bandwidth was limited by existed hardware. The system cannot remove perturbation form fast source. Therefore, to improve orbit feedback performance, the system have been upgraded in 2008 [1]. It included the BPM electronics upgraded from analogy type BPM to digital BPM and the corrector power supply was also replaced by high performance switching type power supply with wide bandwidth in the same time. Later after Taiwan Photon Source (TPS) commissioning in 2015, to share resources between TLS and TPS control system, it has been decided that TLS's control system would be migrated gradually to the EPICS (Experimental Physics and Industrial Control System) control system which has been adopted by TPS [2][3]. Orbit feedback system is one of the rejuvenated subsystem with EPICS support. Besides, the feedback computation unit is also upgraded to FPGA and increase calculating cycle from 2.5 kHz to 10 kHz. The integration of BPM, power supply control and fast orbit feedback will be summarized in this report.

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