

# LLRF Topical Workshop - Timing, Synchronization, Measurements and Calibration



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## White Rabbit application at KEK

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White Rabbit is one of the major timing systems for large-scale accelerators. It precisely synchronizes the FPGA clock of distant hardware modules by its deterministic network protocol. In addition to the timing signal delivery, the fruitful functions that enhance the accelerator operation are provided by this function.

The R&D and

application of White Rabbit is an important issue for future accelerator projects.

We report on the activities of White Rabbit R&D at KEK. The distributed TDC system was developed and applied to the SuperKEKB accelerator. This system is configured with the SPEC (Simple PCIe Carrier) board which is commercially available. Besides, the feasibility test of the IDROGEN board which has been recently developed at IJCLab is reported. After briefly introducing the IDROGEN specification, the sideband noise level and the accuracy of synchronization of the FPGA clock between the optically connected distant modules are shown.

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