

Applications of MTCA in SuperKEKB and KEK Facilities

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History and activities of MicroTCA at KEK facilities will be reviewed and features of low-level RF control system for SuperKEKB will be mainly presented.

SuperKEKB is a new upgrade project, which is aiming at 40-times higher luminosity than the KEKB, accordingly it requires much lower-emittance and higher-current beam storage. Accuracy and flexibility in accelerating field control are very essential for storage of high-current and high-quality beam without instability. Therefore, new low level RF (LLRF) control system, which is based on MTCA-platformed FPGAs (MTCA.0 standard), was developed for the SuperKEKB, and the good performance was demonstrated. The first commissioning of SuperKEKB (Phase-1) was accomplished in this year, and the new LLRF control system was successfully worked for Phase-1. Besides, in order to achieve such high luminosity, a beam-position feedback control system for the collision point of SuperKEKB has been developed by using MTCA.0-standard FPGA. On the other hand, new LLRF control system with MTCA.4 standard is also under development and its performance study is progressed in STF, which is the test facility at KEK for ILC.

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