

Event reconstruction using KSTAR FIS event counter in hot KSTAR plasma

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Korea Superconducting Tokamak Advanced Research (KSTAR) Fast Interlock System (FIS) event counter assigns counter values to various events occurring during plasma discharge. It is one of the KSTAR FIS functions that make it possible to check the order of event occurrence. It is made using the operation clock of the FPGA in synchronization with the timing signal received from KSTAR Time Synchronization System (TSS). Each event includes time information at the time of occurrence, and by analyzing this, the context of the event can be grasped. The counter has a resolution of 10 microseconds and is made to include almost all events related to the KSTAR plasma discharge. It was confirmed that collecting events occurring during plasma discharge at high speed and recording the occurrence time is very useful for debugging of Plasma Control System (PCS) and understanding device operation status. This paper will be presented including implementation and operation results of the KSTAR FIS event counter.

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