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EPICS software development of the Fast Event System for APS-U

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The Fast Event System, a global time base and event-based trigger distribution system, has been developed and commissioned for the Advanced Photon Source Upgrade (APS-U) project. The hardware components developed by Miro-research Finland (MRF) are installed in 24 VME Input/Output Controllers (IOCs) deployed with EPICS software. Based on the community-supported MRF device support repository, new driver functions and EPICS database templates are added to support new features of the MRF VME boards used in this project. In this presentation, the overall structure and function of the Fast Event System of APS-U are introduced. The EPICS device support modules developed for new features like the delay compensation for EVM modules and the onboard timestamp generation will be presented in detail. Additionally, user interface schemes, access security, and integration with legacy systems will be discussed. Finally, the prospects for future developments of the APS Fast Event system and the MRF component device support will be addressed.

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