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Development of new MADOCA control system for SPring-8-II

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The MADOCA control system was developed for the present SPring-8 in 1997. Nowadays we faced problems of outdated technologies of the MADOCA. In 2025, SPring-8 upgrade project "SPring-8-II" will be started. Toward to the SPring-8-II, we decided to renovate the MADOCA control system. The new control system inherits former MADOCA's concepts, which are characterized by SVOC-style messaging, database-oriented framework, and distributed control design using network system. In contrast with the inherited concepts, we renew the base technologies. Upgrades of messaging platform, data acquisition, and databases are already reported.\,* We continue to develop other components. For edge computing, we use both MicroTCA.4 and generic PC server instead of outdated VME system. By combining EtherCAT with these edge computers, we support various I/O interfaces with simple wiring. We also provide REST API as database reading method to support external system linkage. Prior to the SPring-8-II project, the new control system is introduced into NanoTerasu. In this paper, we report the latest developments and prospective of the new control system.

Footnotes

- T. Sugimoto et al, WECPL01, ICALEPCS'19. ** T. Fukui et al, TUAPP02, ICALEPCS'19.

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