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LLRF system based on MTCA.4 boards for the J-PARC Linac

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In the J-PARC linac, the low-level radio frequency (LLRF) system with the digital feedback (DFB) and the digital feedforward (DFF) based on the cPCI platform was adopted for the satisfaction of amplitude and phase stabilities. It was operated without serious problems. However, it has been used since the beginning of the J-PARC and are more than fifteen years into the development. The increase of the failure frequency for this system is expected. In addition, it is difficult to maintain it for some discontinued boards of DFB and DFF and the older OS and developing environment of software. Therefore, we had developed the new digitizer based on MTCA.4 boards for the LLRF system of the next generation. We installed and operated the seventeen digitizers at DTL3 and SDTL stations from the summer shutdown of 2020. In addition, we will install the three digitizers and one the MTCA.4 system, which is used to control four stations at MEBT1, in this summer. The project and the status of the LLRF system based on MTCA.4 for the J-PARC linac are introduced.

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