

## **Ursa Rojec - Integration of MTCA.4 components in medical and scientific applications**

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The article makes an overview of efforts made in scientific as well as medical applications based on MTCA.4 platform. In scientific, the focus is mainly on generalizing diagnostic and LLRF applications, based on various DAQ boards available on the market. In the medical field, the presented use-case is a Dose Delivery System, where the utilization of FMC carrier boards for device-specific interfaces and backplane connections for safe and redundant interlocking lead to a safe and rugged design.

The article also dives into best practices identified while integrating aforementioned systems. Both software and firmware aspect of such integration and how leveraging MTCA.4 properties such as modularity and the use of RTMs can have a positive impact on reducing development as well as maintenance effort. By choosing the right approach when devising software and firmware architecture, one can use same hardware and software components for different applications, additionally resulting in fewer items that need to be kept on stock for emergency repairs.

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