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GSI Helmholtz Centre for Heavy Ion Research - ALFA: Next generation concurrent framework for ALICE and FAIR experiments

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FAIR is a new, unique international accelerator facility for the research with antiprotons and ions. It is being built at the GSI Darmstadt in Hesse, Germany. The commonalities between the ALICE and FAIR experiments and their computing requirements led to the development of a common software framework in an experiment independent way; ALFA (ALICE-FAIR framework). ALFA is designed for high quality parallel data processing and reconstruction on heterogeneous computing systems. It provides a data transport layer and the capability to coordinate multiple data processing components. ALFA is a flexible, elastic system which balances reliability and ease of development with performance by using a message based multi-processing in addition to multi-threading. The framework allows for usage of heterogeneous computing architectures by offloading (portions of code are accelerated on the device) or natively (where the full program is executed on the device).

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