

# Low Level RF Workshop 2022



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## Electron-Ion Collider Common Platform System Architecture

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The Electron-Ion Collider (EIC), to be constructed at Brookhaven National Laboratory (BNL), is a roughly 10 year project to design and construct a facility to collide high energy polarized electron beams with polarized proton and heavy ion beams at center of mass energies from 20 GeV to 140 GeV and luminosity up to  $10^{34}$  cm<sup>-2</sup>s<sup>-1</sup>. The project is a partnership between BNL and the Thomas Jefferson National Accelerator Facility (Jefferson Lab, JLAB). The EIC Common Platform is an effort to design and implement a flexible, high-performance electronics platform for required Low Level Radio Frequency (LLRF), Timing, Machine Protection, Instrumentation, Power Supply, and general-purpose Accelerator Controls systems. The fundamental architecture of the Common Platform, centered on a Xilinx Zynq UltraScale+ MPSoC-based carrier board and a variety of function specific daughtercards, is an evolution of the LLRF Platform in use at the BNL Collider-Accelerator Department since 2009. The preliminary architectural design of the Common Platform and its application for LLRF controls is described.

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