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## Developments and applications of DAQ framework DABC v2

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The *Data Acquisition Backbone Core (DABC)* is a C++ software framework that can implement and run various data acquisition solutions on Linux platforms. In 2013 version 2 of *DABC* has been released with several improvements. These developments have taken into account lots of practical experiences of *DABC v1* with detector test beams and laboratory set-ups since first release in 2009. The plug-in interfaces for user code implementation, and configuration procedures have been simplified. Internally the framework has been enhanced by means of smart references and object cleanup mechanisms. Moreover, for monitoring and control a http web server, or a proprietary command channel access have been provided.

In May and August 2014, *DABC v2* was applied for production data taking of the *HADES* collaboration's pion beam time at *GSI*. It replaced the functionality of the established *HADES* event builder software *hadaq*, receiving frontend data via multiple Gigabit UDP streams, combining them, and storing them to RFIO tape and local disks. *DABC* was transparently integrated to the existing *HADES* DAQ environment, and the EPICS based control system. Additionally, the *HADES* quality monitoring process was fed online with data samples by a *DABC* "streamserver" socket instead of reading intermediate disk files, improving reaction time and stability. A maximum of 16 eventbuilder processes on 4 Linux server machines were processing data of 32 subevent inputs. Each of the eventbuilder processes could be configured to run either *dabc* or *hadaq* software. In the first beamtime block just one single quality monitoring node was replaced by *dabc*; finally in August eventbuilding was completely handled by *DABC*.

*GSI* standard DAQ systems often use PCIe boards *PEXOR/KINPEX* that receive data via optical *gosip* protocol from various front-end hardware. For *DABC v2* corresponding plug-ins and drivers have been developed to handle reading out such systems on Linux platform. Functionalities of the previous DAQ solution with the established multi-platform framework *MBS* have been re-implemented with *DABC v2* and were compared with the same hardware against *MBS*.

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