



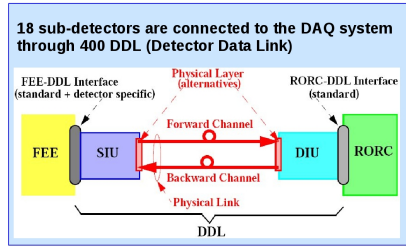
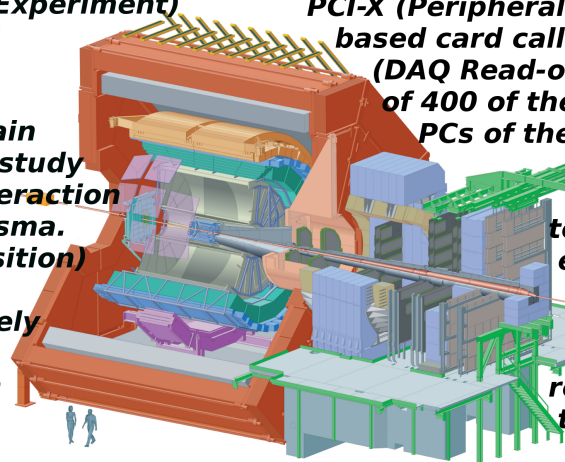
READOUT UPGRADE, HARDWARE AND SOFTWARE, FOR THE ALICE DATA ACQUISITION PROGRAM



ALICE DAQ GROUP

ALICE (A Large Ion Collider Experiment) is an experiment at the LHC (Large Hadron Collider) optimized for the study of heavy-ion collisions. The main aim of the experiment is to study the behavior of strongly interaction matter and quark gluon plasma. The ALICE DAQ (Data Acquisition) system has been deployed and used intensively during the commissioning of the experiment. The data produced by each detector are received by DATE (ALICE Data Acquisition program) using

PCI-X (Peripheral Component Interconnect) based card called D-RORC (DAQ Read-out Receiver Card). Of the order of 400 of these cards are installed in the PCs of the DAQ farm, and they are connected by optical links called DDL (Detector Data Link) to the detector readout electronics. The D-RORC is controlled by the readout software, part of the DATE program that reads the events coming from these cards.



D-RORC PCI Express

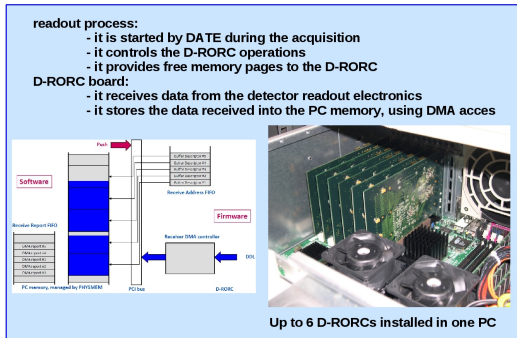
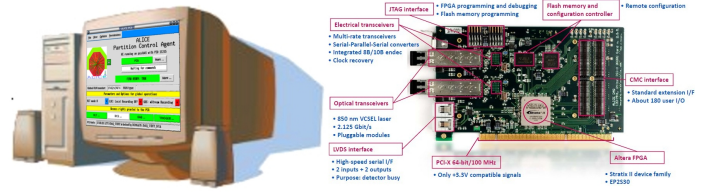


WORK IN PROGRESS ...

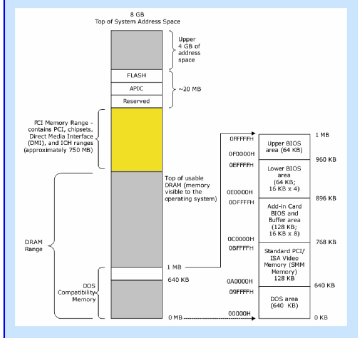


Prototype of D-RORC PCI Express card based on an ALTERA STARTIX GX II demo board

10G Ethernet PCI Express based card



For 64-bit architecture the physical address space is not continuous anymore, it is extremely important that the software which provides pages to the D-RORC avoids the situation where a page containing a hole has been passed.



New developments have also been started in view of the ALICE upgrade and the need for higher bandwidth. The readout software is being modified to be able to receive data not only from the D-RORC but also from 10G Ethernet links as a faster alternative to the DDL.

