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Data Acquisition Software for Experiments at the MAMI-C Tagged Photon Facility[1] BAYA OUSSENA, University of Mainz, Germany and The George Washington University, USA, JOHN ANNAND, University of Glasgow, UK — Tagged-photon experiments at Mainz use the electron beam of the MAMI (Mainzer MIcrotron) accelerator, in combination with the Glasgow Tagged Photon Spectrometer. The AcquDAQ DAQ system is implemented in the C++ language and makes use of CERN ROOT software libraries and tools. Electronic hardware is characterized in C++ classes, based on a general purpose class TDAQmodule and implementation in an object-oriented framework makes the system very flexible. The DAQ system provides slow control and event-by-event readout of the Photon Tagger, the Crystal Ball 4-pi electromagnetic calorimeter, central MWPC tracker and plastic-scintillator, particle-ID systems and the TAPS forward-angle calorimeter. A variety of front-end controllers running Linux are supported, reading data from VMEbus, FASTBUS and CAMAC systems. More specialist hardware, based on optical communication systems and developed for the COMPASS experiment at CERN, is also supported. AcquDAQ also provides an interface to configure and control the Mainz programmable trigger system, which uses FPGA-based hardware developed at GSI. Currently the DAQ system runs at data rates of up to 3MB/s and, with upgrades to both hardware and software later this year, we anticipate a doubling of that rate.

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