Development of FPGA-based NIM logic circuits HIDETADA
BABA, RIKEN Nishina Center — We have developed the Generic Trigger Operator
(GTO) module for nuclear physics experiments. This is a NIM module aimed at pro-
viding intelligent and remote trigger operations. Logic circuits are implemented in
field programmable gate array (FPGA) of GTO. NIM logic module like circuits such
as fan-in/fan-out, gate, delay, latch, coincidence and scaler have been successfully
implemented. One of the advantages of GTO is these logic circuits can be combined
into one NIM module as you want. The performance of the time jitter in usual NIM
logic modules is very good because of its function is implemented in Emitter-coupled
Logic IC. However, the time jitter of GTO depends on the complexity of FPGA cir-
cuit implementation. In this contribution, we show functionalities of GTO and its
timing performance in comparison with usual NIM logic modules.

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