



European Organization for Nuclear Research
Organisation européenne pour la recherche nucléaire

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Geneva, 11 September, 2012

To Whom it May Concern,

Re: Kristof Blutman

This is a reference letter for Kristof Blutman, to testify that he has been on internship at CERN.

Kristof spent 8 weeks at CERN as a visiting student during the summer of 2012. He participated in the GigaBit Transceiver (GBT) project - part of the Radiation Hard Optical Link Project - which aims at developing a radiation hard bi-directional optical link for use in the LHC upgrade programs. I supervised Kristof during his stay.

Kristof worked on implementing the GBT protocol in Field Programmable Gate Array (FPGA) devices. He had designed his own IP core for bit error rate testing (BERT), which he integrated into the existing GBT firmware for Xilinx Virtex 6 FPGAs. Furthermore, he implemented the design on a development platform based on the new Xilinx Kintex 7 FPGA family, which will allow an easier migration to the Xilinx Virtex 7 series FPGAs in the future. Using his firmware, he made loopback BER measurements using high-speed optical links. He performed BER test on the GBT-encoded data as well as on the raw data in order to calculate the GBT coding gain over the link.

During his internship, Kristof worked very well, let it be researching on topics like pseudo-random bit sequence generation, multi-gigabit transceivers and raw data pattern recognition, or implementing his design onto the FPGAs, or executing the measurements in the lab. I was impressed by his positive attitude about the project, his capacity to learn and to discover new domains in electronics engineering. Kristof was able to apply this newly acquired know-how to make a useful contribution to the GBT project.

Please do not hesitate to contact me should any further information be required.

Sincerely yours,

A handwritten signature in blue ink, appearing to read "Csaba Soos", written over a horizontal line.

Csaba Soos