

DESIGN AND IMPLEMENTATION OF 100GB/S ETHERNET ON VCU118 EVALUATION BOARD

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The next generation of radio telescopes need ultra-wideband signal processing digital backends. Higher signal processing and recording bandwidths require higher transmission rates. The current transmission rate used typically in telescope instruments is 40Gb/s. However 100Gb/s is becoming the standard in high performance ethernet adapters. In this project, we use the Xilinx VCU118 FPGA evaluation board to communicate to a processing system equipped with 100 Gb/s Mellanox adapters to test the throughput and validate the transmitted data. The system designed in this project uses a custom controller unit to configure the required registers of the 100 GbE subsystem using AXI-lite protocol. We aim to build a system will be flexible and reliable, providing up to 100Gbps usable bandwidth. This presentation will describe the protocol under development, and provide an update on porting the design to a block in the CASPER toolflow.