

Design of a FPGA Based Data Acquisition System for Radio Astronomy Applications

Yogindra Abhyankar¹, Sajish C¹, Pallavi Kulkarni¹

C.R.Subrahmanya²

¹Centre for Development of Advanced Computing,
University of Pune campus, Ganeshkhind,
Pune 411 007, India.

Email: yogindra@cdacindia.com

²Raman Research Institute, Bangalore 560 080, India

Email: crs@rri.res.in

Abstract

In this paper, we describe a high-speed, PCI based data acquisition system using a Xilinx FPGA for Very Long Baseline Interferometry. This system accepts data through LVDS interface and has time keeping options through external clocks for providing an accurate time tagging on the acquired data. It has provision for on-line flagging on selective data samples. Using the host interface, the system can communicate for data transfer through DMA. User can allocate multiple buffers in the host memory where the acquired data can be transferred. The system is very useful for a variety of high-speed signal processing applications in Radio astronomy and other areas.