

Abstract

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VHDL-Based Simulation of a Parallel Implementation of a Phase-Based Algorithm for Optical Flow

The computation of optical flow can be an important part in a diverse number of applications. However, optical flow algorithms can be categorized as either very accurate and slow and very fast and highly inaccurate. None of the optical flow algorithms combined both accuracy and efficiency. Among these algorithms was the phase-based fleet and Jepson algorithm. Although this algorithm has proved to produce relatively accurate results, it can not be exploited in many real-life applications due to its relatively long run-time. The goal of this paper is to combine the accuracy of the phase-based optical flow algorithm by Fleet and Jepson and exploit the parallelism and high performance capabilities of the FPGAs to provide an accurate and efficient optical flow algorithm for FPGA-based applications.