

基于 FPGA 的高速图像跟踪系统设计

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摘要: 针对基于数字处理器的图像处理系统实时性较差和资源利用不充分等问题, 设计了一种新的图像跟踪高速处理系统, 以 FPGA 作为核心处理器, 利用快速中值滤波实现图像预处理, 将平均绝对差算法和 FPGA 高速并行处理相结合, 对图像点目标进行实时跟踪. 系统测试结果表明, 该系统实时性和跟踪效果良好, 资源利用充分, 满足设计要求.

关键词: 图像跟踪; FPGA; 快速中值滤波; 平均绝对差

Design of High Speed Image Tracking System Based on FPGA

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Abstract: Due to the bad real-time, resource underutilizations and hard to design properties of the classical digital signal processor based image processing system, a new image tracking high-speed processing system is presented. In this system, the FPGA is used as the core processor, and the fast median filtering is used to implement the image preprocessing. Finally, the image real-time point target tracking is realized by the combination of the mean absolute differences and the FPGA high-speed parallel processing. The system test validates the system has the advantages of good real-time, the effect on tracking and resource utilization rates, which meets the design requirements.

Key words: image tracking; FPGA; fast median filtering; mean absolute differences

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