液晶与显示
中文核心期刊
Chinese Journal of Liquid Crystals and Displays
主管：中国科
主办：中国科
中国物
中国光
主编：郭海成

液晶与显示 2010, 25(6) 831-835 ISSN: CN:

器件驱动与控制

嵌入式多路视频采集显示系统设计

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摘要： 针对当前嵌入式领域中多路视频采集显示系统的问题,提出了一种基于FPGA的新方案。给出了系统的组成结构,详细分析了设
关键性问题。使用状态转移机实现了I^2C总线协议和TFT-LCD控制时序信号的产生,基于分时复用技术实现了对多路视频信号采集的同
SRAM切换技术解决了读写显示缓存的冲突问题,采用组帧技术完成了隔行扫描到逐行扫描的变换。经工程化验证,系统具有采集显示效
本小、功耗低等优点。

关键词： 多路视频采集显示 状态转移机 分时复用技术 双SRAM切换 组帧技术

Design of Embedded Multi-Channel Video Acquisition and Display System

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Abstract: Aimed at the problem of the embedded multi-channel video acquisition and display system, a new or
on FPGA is put forward. The configuration of the system is given. The principle and key issue are analyzed. Usi
status shift mechanism, the protocol of I^2C is realized and the controlling time sequence signals of TFT-LCD are
produced. The synchronization among multi-channel video acquisition is achieved by using time-division multipl
technology. The problem of conflict between reading and writing frame cache is solved through the two SRAM s
The frame composition technology is applied to accomplishing the change from interlaced scanning to progress
scanning. The result of project application shows the virtues of system, such as good effect of acquisition and
low cost and low power consumption.

Keywords: multi-channel video acquisition and display status shift mechanism, time-division multiplexing tech
two SRAM switch frame composition

收稿日期 2010-05-19 修回日期 2010-06-29 网络版发布日期 2010-12-20

基金项目:

武警工程学院基础研究基金项目(No.WJY202017)

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