

一种基于 NAND Flash 的多通道存储系统编址方式研究与实现

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摘要: 针对 NAND Flash 存储器的工作原理和物理特性, 大容量固态存储系统可以引入多通道并行技术来支持高速数据传输. 文章针对闪存阵列存储系统提出了一种新的编址方式—FVLA(Flash Virtual Layer Address), 该编址方式能很好地体现闪存系统的驱动顺序, 而且具有灵活的可配置性. 利用该编址方式设计出一种基于超级页的地址映射方法, 通过仿真证明了该映射方式能很好地执行并行操作并大幅降低了映射表所占用的存储空间.

关键词: NAND Flash; 多通道; FVLA; 超级页; 地址映射

Research and Implementation of Addressing Method Based on NAND Flash Multichannel Storage System

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Abstract: In view of the working principle and physical characteristics of NAND Flash devices, mass solid state memory system can introduce multi-channel parallel technology to support high-speed data transmission. This paper proposes a new addressing method for Flash Array Storage System—FVLA (Flash Virtual Layer Address), which can well reflect the operation sequence of flash memory system and can be configured flexibly. This paper uses the addressing mode to design an address mapping method based on superpage. The simulation results show that the mapping method can perform parallel operations and greatly reduce the memory space occupied by the mapping table.

Key words: NAND Flash; multichannel; FVLA; superpage; address mapping

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