

SM2242

SATA Solid State Drive 4-Channel Flash Controller

Overview

The SM2242 is the most advanced Serial ATA 3Gb/s 4-channel NAND Flash controller, a perfect combination of the high-speed Serial-ATAII host interface and Silicon Motion's efficient Flash management for the mainstream Netbook/UMPC storage applications.

The SM2242 provides the highest transfer throughput between hosts and NAND Flash, while its independent 15-bit BCH ECC engines, proprietary NAND management algorithm, and global wear-leveling technologies maximize the life expectancy of the Solid State Drive. SM2242 delivers the best in class performance and reliability in the market place today.

Key Features

- Host Interface Features
 - Supports Serial ATA 1.5 Gbps/3 Gbps
 - Compliant with Serial ATA II specifications
 - Supports SMART command set and ATA security command set
- NAND Flash Interface Features
 - 2 or 4 channels Flash interface
 - 8 chip-enabled pins per channel
 - Supports SLC/MLC of various Flash vendors
 - Supports 2K and 4K byte page SLC/MLC
 - Hardware BCH ECC detects/corrects up to 15-bit errors in 528 data
 - Supports global wear leveling
 - Programmable cycle time setting for different NAND Flash
 - In-System Programming (ISP) provides flexibility for new Flash and host compatibility support

Applications

- SATA II Solid State Disk
- Embedded Application
- High-Speed NAND Storage

Target Performance

- SLC sustained read rate: 105 MB/s*
- SLC sustained write rate: 80 MB/s*
- MLC sustained read rate: 100 MB/s*
- MLC sustained write rate: 40 MB/s*

Overall Features

- 128-pin TQFP package
- Operating temperature:
 - Commercial: 0~70°C
 - Extended: -40~85°C
- Power consumption
 - 240 mA (active mode)*
 - 65 mA (standby mode)*

*Figures may vary among platforms.

Block Diagram

