SM2685

SD Controller

The SM2685 is a SD 2.0 memory card controller offering high performance and low power consumption. In addition to standard SD commands such as content protection, write protection and card locking, the SM2685 supports ONFI 2.x interface and Toggle Mode DDR NAND to achieve higher data transfer rate for the needs of different system applications.

With the powerful and configurable ECC engine and proprietary flash management techniques, the SM2685 can fully support a variety of MLC and the new generation TLC (Triple-Level Cell; 3-bit/cell) NAND flash memories.

Applications

- SD cards of all form factors, including SD/miniSD/microSD
- Embedded system flash controller

General Features

- Provides 6 GPIO
- Enhanced ESD design
- Package: Die form/46-pin LGA

Key Features

- **SD 2.0 Interface**
  - Compliant to SD specifications v1.01/v1.1/v2.0
  - Applicable for single host voltage 3.3V
  - 4-bit data bus with bus clock rate 0 ~ 50 MHz
  - Supports Content Protection for Recordable Media (CPRM)
  - Supports standard capacity SD memory cards (≤ 2GB)
  - Supports SDHC capacity (4GB ~ 32GB)
- **SD Command Class**
  - Supports class 0, 2, 4, 5, 6, 7, 8, 10
- **Flash Interface**
  - Supports Toggle Mode NAND
  - Supports ONFI 2.x Interface
  - Single channel 8-bit flash interface
  - Configurable hardware ECC engine
  - 8 CE pins for connecting up to 16 NAND flash devices
  - 3.3V/1.8V flash I/O
  - Supports 2-plane operation
  - Supports the following TLC and MLC NAND flash
    - Toshiba/SanDisk 32nm/24nm TLC
    - Samsung 27nm TLC
    - Intel/Micron 25nm TLC
    - Toshiba/SanDisk 24nm MLC
    - Samsung 27nm/2ynm MLC
    - Intel/Micron 25nm/2ynm MLC
- **Upgradeable Firmware**
  - Supports firmware In System Programming (ISP) function for firmware upgrade
  - Capable of new features