

SM2683EN

SD Controller

The SM2683EN is one of the most advanced SD controllers that support the SD2.0 specifications (with backward compatibility to SD1.0/1.1 specifications). The SM2683EN is applicable for a variety of applications requiring an SD interface and flash storage.

With advanced technology, embedded regulator/voltage detector/oscillator, and configurable BCH ECC engine, the SM2683EN provides the maximum flexibility and extraordinary performance, and a cost-effective solution at a competitive price.

As the mainstream flash process migrates to 30nm, 20nm and below, the ECC function becomes more vital than ever. With the configurable BCH ECC, the SM2683EN provides full support for all NAND flash chips currently in the market, including those made by Samsung, SanDisk, Toshiba, Hynix, and Intel/Micron.

Applications

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

General Features

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

Key Features

- **Supports SD memory card**
 - Supports SD specifications v1.01/v1.1/v2.0
 - Applicable for single host voltage (3.3V)
 - 4-bit data bus with max 50MHz bus clock rate
 - Supports Content Protection for Recordable Media (CPRM)
 - Supports standard capacity SD memory cards ($\leq 2\text{GB}$)
 - Supports SDHC capacity (4-32GB)
- **Supports SD standard commands**
 - Command class 0, 2, 4, 5, 6, 7, 8, 10
- **Supports firmware In System Programming (ISP)**
 - Controller firmware upgradeable
 - Capable of adding new features
- **Flash interface**
 - Supports single channel 8-bit flash interface
 - Supports 4-way interleave
 - 8 CE pins on the channel to support up to 8 flash chips (die/LGA48)
 - Supports only 3.3V flash for SD cards
 - Supports 1.8V flash only when the flash chips are powered independently
- **Flash memory supported**
 - Configurable BCH ECC
 - Support 2-bits and 3-bits per cell MLC NAND type Flash
 - Supports SLC NAND flash
 - Support 256 page/block & 384 page/block architecture
 - Supports flash with 4KB/8KB page architecture
 - Supports 2-plane operation

