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ASolid Technology Co., Ltd.

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Data Book: SD Memory Card Controller AK2703

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1. Foreword

This document has been produced by ASolid Technology Co., Ltd., should the company modifies the contents of this specification, it will be re-released with an identifying change of release date and an increase in revision number as follows:

Revision mn.xy, where:

- mn the first two digit are incremented for major changes of substance, e.g., functional changes.
- xy the second two digits are incremented when minor changes have been incorporated into the specification, i.e., enhancements, corrections, updates, etc.

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2. Statement of Scope

This Data Book describes the main features and the applications of SD Memory Card Controller AK2703. For more details, please contact service.asolid@asolid-tek.com directly.

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3. General Description

SD Memory Card Controller AK2703 is the SD controller launched by ASolid Technology Co., Ltd., which utilizes UMC process technology. AK2703 is featured with higher performance and lower power consumption, and supports SD1.01, SD1.10, SD2.02 and SD3.01. The product is built in with single channel high speed flash interface with BCH error correction code, and supports all kinds of NAND type flash, including TLC, MLC and SLC.

3.1. Feature

- Fully compatible with SD Card standard specification v1.01/v1.1/v2.02/v3.01.
 - Support SPI mode.
 - Support Bus Speed Mode: Default Speed mode, High Speed mode, SDR12, SDR25, SDR50, SDR104 and DDR50.
 - Copyright Protection Mechanism-Complies with highest security of SDMI standard.
 - Support standard capacity SD memory card ($\leq 2\text{GB}$).
 - Support SDHC capacity (4GB to 32GB).
 - Support SDXC capacity (32GB to 2TB).
 - Support SD command class 0, 2, 4, 5, 6, 7, 8 and 10.
 - Support password protection and built-in write protection features.
- SD card interface with programmable output drive capability
- Flash interface support:
 - UP to 2 flash chip selection and 8-bit flash IO access
 - Support only 3.3V flash for SD card
 - 1.8V flash is supported if flash chips are powered independently
- Flash memory support:
 - Support ECC function to correct up to 7x-bits data errors per 1K bytes data automatically
 - Support SLC/MLC/TLC NAND type flash
 - Support flash with 2KB/4KB/8KB/16KB page architecture
 - Support four-plane operation
 - Support Toggle Mode flash
 - Support ONFI2.3/ONFI2.2/ONFI2.1/ONFI2.0 flash
- Low power consumption

- Enhanced ESD design
- Non-Direct remap architecture
- Manufacturing utility ready
- Support die and LGA46 package

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3.2. AK2703 Function Block Diagram

The following diagram is the internal block diagram of AK2703.

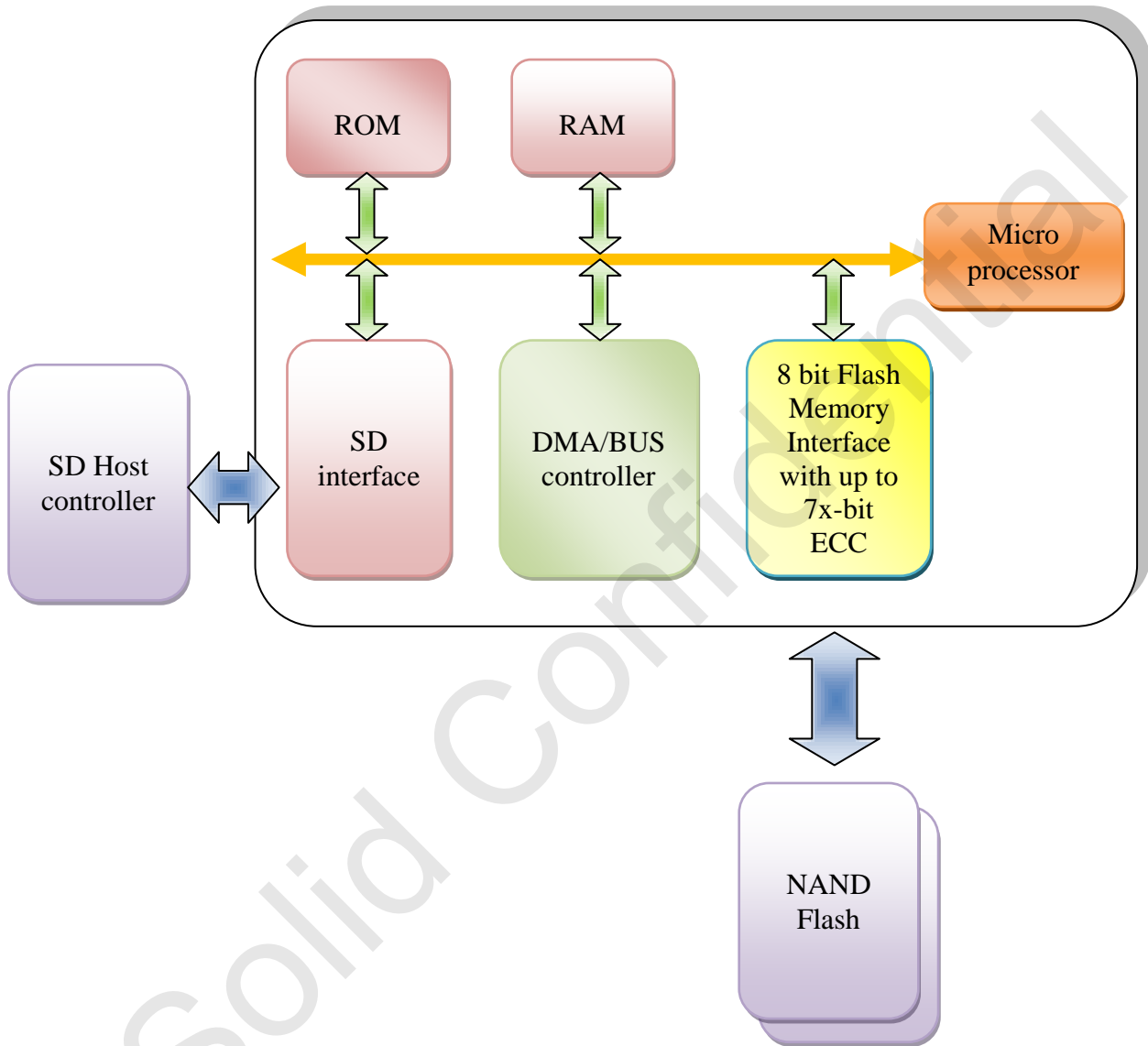


Figure 3-1 AK2703 Function Block Diagram