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Datasheet: Industrial SD Memory Card Controller AS2707EN-DI

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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 Industrial SD Memory Card Controller AS2707EN-DI. For more details, please contact service.asolid@asolid-tek.com directly.

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3. General Description

Industrial SD Memory Card Controller AS2707EN-DI is the SD controller launched by ASolid Technology Co., Ltd., which utilizes UMC process technology. AS2707EN-DI is featured with higher performance and lower power consumption, and supports SD1.01, SD1.10, SD2.02, SD3.01, SD4.1, SD5.1, SD6.0 and SD6.1. The product is built in with single channel high speed flash interface with advanced error correction code (ECC), and supports all kinds of 3D NAND type flash including TLC and QLC.

3.1. Feature

- Compatible with SD Card standard specification v1.01/v1.1/v2.02/v3.01/v4.1/v5.1/v6.0/v6.1.
 - Supports SPI mode.
 - Supports Bus Speed Mode: Default Speed mode, High Speed mode, SDR12, SDR25, SDR50, SDR104, DDR50 and DDR200.
 - Copyright Protection Mechanism-Complies with highest security of SDMI standard.
 - Supports standard capacity SD memory card ($\leq 2\text{GB}$).
 - Supports SDHC capacity (4GB to 32GB).
 - Supports SDXC capacity (32GB to 2TB).
 - Supports SD command class 0, 2, 4, 5, 6, 7, 8 and 10.
 - Supports password protection and built-in write protection features.
 - Supports CMD queue function
 - Supports Cache function.
 - Supports Function Extension.
 - Supports LVS(Low Voltage Signaling interface)
 - Supports A1,A2(Application performance class)
- SD card interface with programmable output drive capability
- Flash interface support:
 - UP to 4 flash chip selection and 8-bit flash IO access
 - Supports both 1.2V and 1.8V flash IO voltage for SD card
 - Supports both 2.5V and 3.3V flash core voltage for SD card
- Flash memory support:
 - Supports ECC function to correct up to equivalent 16x-bits data errors per 1K bytes data

automatically

- Supports 3D TLC/QLC type NAND flash
- Supports flash with 8KB/16KB page architecture
- Supports four-plane 16KB-page/eight-plane 8KB-page operation
- Supports Toggle Mode flash
- Supports ONFI 1.X/ONFI 2.X/ONFI 3.X NAND Flash
- Low power consumption
- Enhanced ESD design
- Non-Direct remap architecture
- Manufacturing utility ready
- Support industrial grade operating temperature: -40°C to +85°C

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3.2. AS2707EN-DI Function Block Diagram

The following diagram is the internal block diagram of AS2707EN-DI.

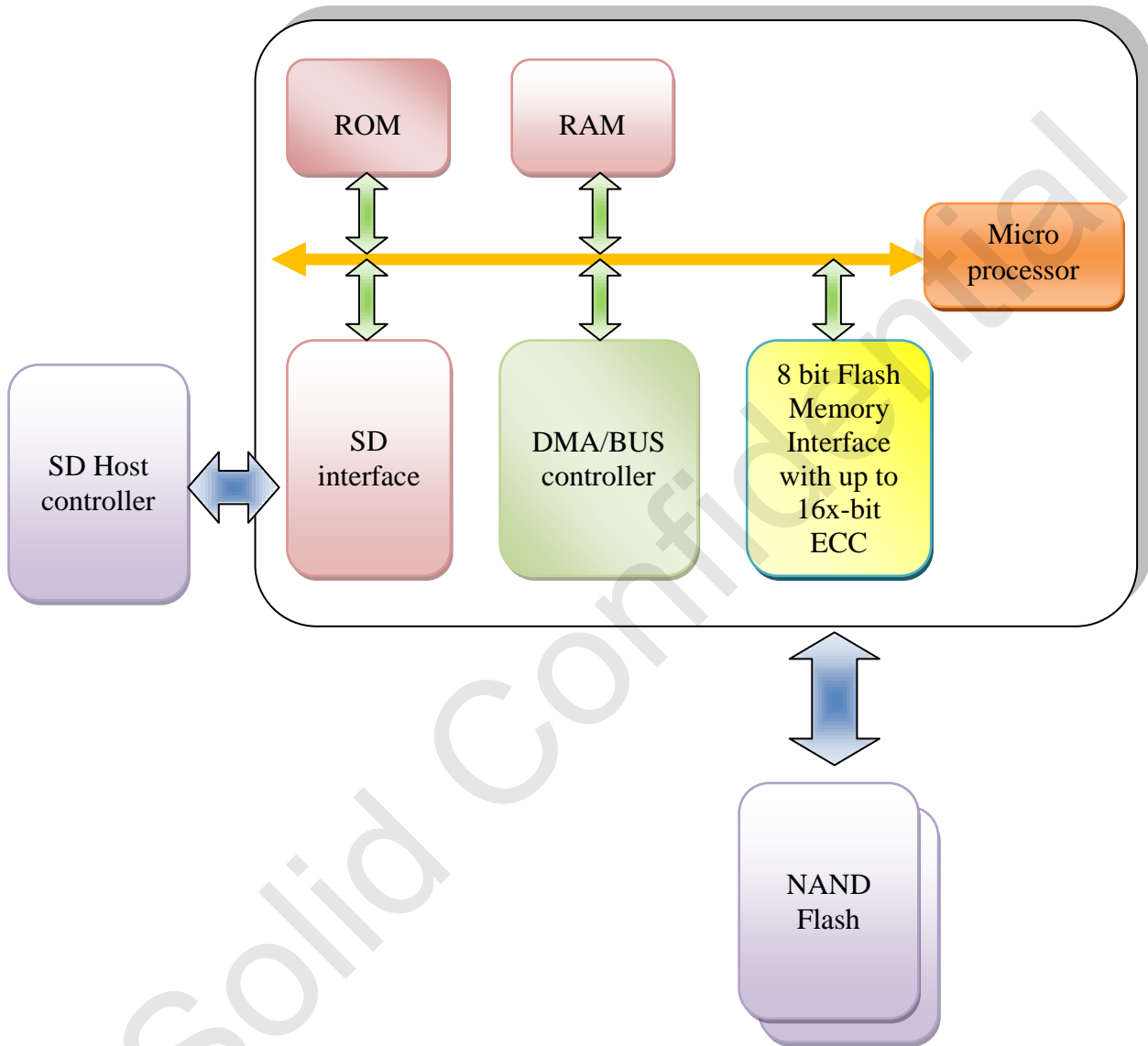


Figure 3-1 AS2707EN-DI Function Block Diagram