Datasheet: SD Memory Card Controller AM2691

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ADVANCED MEMORY TECHNOLOGY CO., LTD.
优存科技股份有限公司

Contents

1. Foreword

This document has been produced by Advanced Memory 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.

2. Statement of Scope

This Data Book describes the main features and the applications of SD Memory Card Controller AM2691. For more details, please contact service.asolid@asolid-tek.com directly.

3. General Description

SD Memory Card Controller AM2691 is the SD controller launched by Advanced Memory Technology Co., Ltd., which utilizes UMC process technology. AM2691 is featured with higher performance and lower power consumption, and supports SD1.01, SD1.10 and SD2.02. The product is built in with single channel high speed flash interface with BCH error correction code, supports all kinds of 2D and 3D NAND type flash including TLC, MLC and SLC.

3.1. Feature

- Fully compatible with SD Card standard specification v1.01/v1.1/v2.02:
    - Support SPI mode
    - Support Bus Speed Mode: Default Speed mode and High Speed mode
    - Copyright Protection Mechanism-Complies with highest security of SDMI standard
    - Support standard capacity SD memory card (<= 2GB)
    - Support SDHC capacity (4GB to 32GB)
    - Supported 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:
    - Support up to one 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 2D and 3D 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

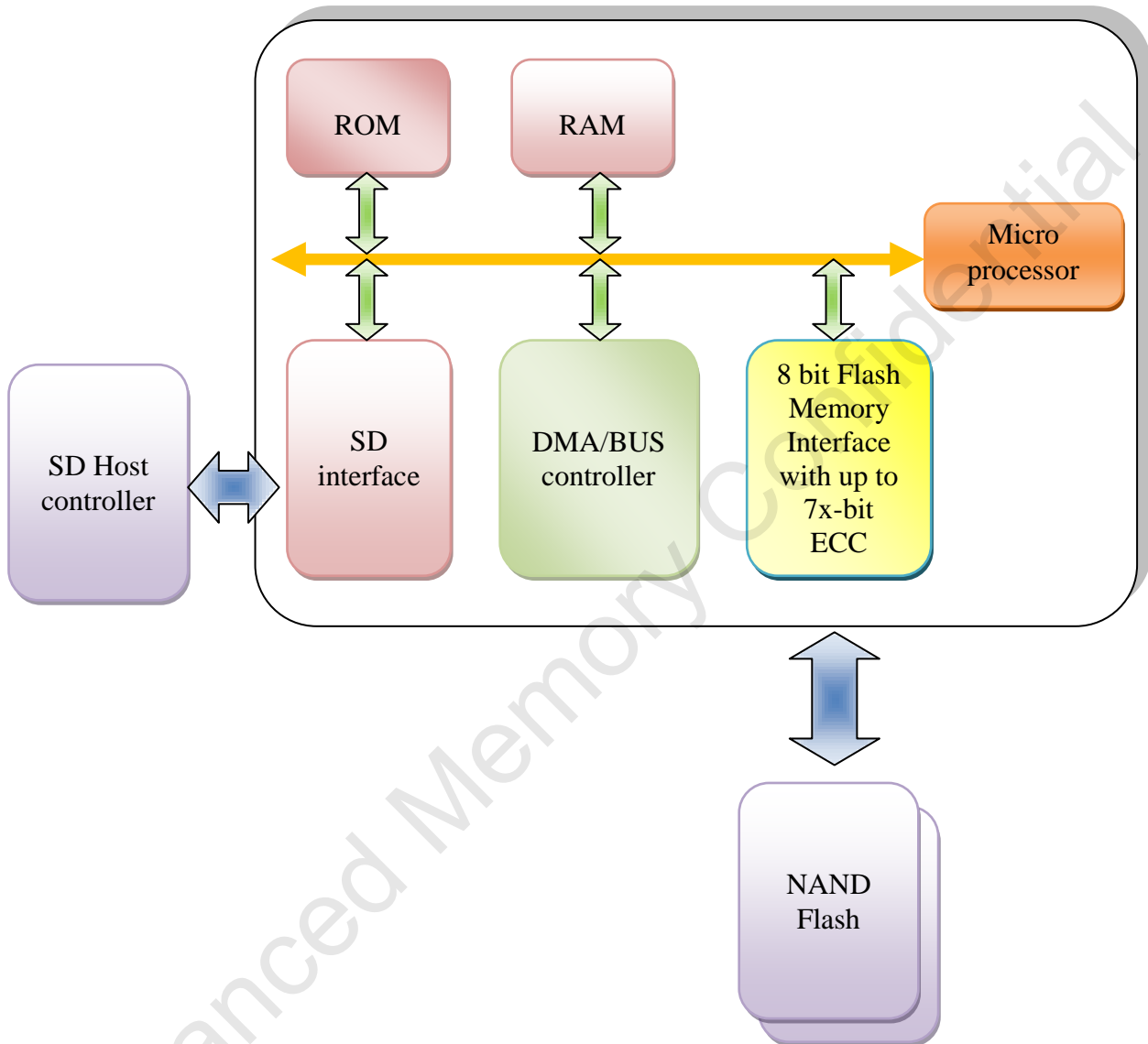## 3.2. AM2691 Function Block Diagram

The following diagram is the internal block diagram of AM2691.

Figure 3-1 AM2691 Function Block Diagram