

SDMMC: Secure Digital and MultiMediaCard

XMC™ microcontrollers
September 2016



Agenda

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SD/SDIO/MMC details

2

SDMMC use cases and benefits

Agenda

1

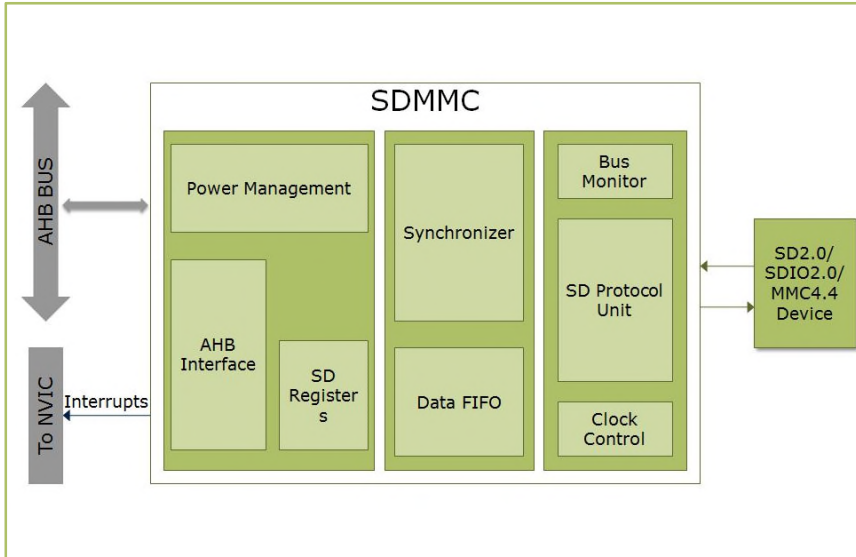
SD/SDIO/MMC details

2

SDMMC use cases and benefits

SDMMC

Secure Digital and MultiMediaCard



Highlights

Secure Digital/ MultiMediaCard interface (SDMMC) provides an interface between SD/SDIO/MMC cards and the AHB bus. The SDMMC module is able to transfer a maximum of 24 MB/sec for SD cards and 48 MB/sec for MMC cards.

Key feature

- › Compliant with the SD and MMC standards
- › Supports read wait control and suspend/resume operation

Customer benefits

- › Software compatibility, easy to port existing code to XMC™4000 device
- › Simpler handling of over run and under run events

Agenda

1

SD/SDIO/MMC details

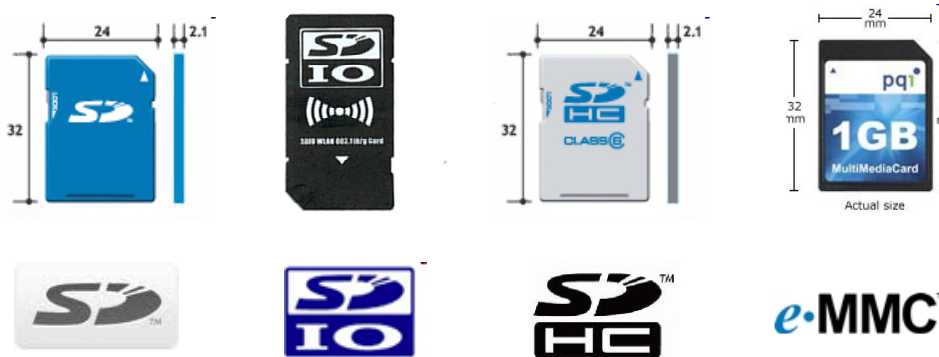
2

SDMMC use cases and benefits

Compliant with the SD and MMC standards

XMC™4000 supported SD and MMC standards

- › SD card host controller version 2.0
- › SD physical layer specification version 2.0
- › SDIO card specification version 2.0
- › SD memory card security specification version 1.01
- › MMC specification version 3.31, 4.2 and 4.4
- › Fully compatible with earlier versions of MMC
- › Supports SD, SDIO, SDHC and MMC cards at up to 48 MHz



Source: <https://www.sdcard.org>

- › Supports read wait control and suspend/resume operation

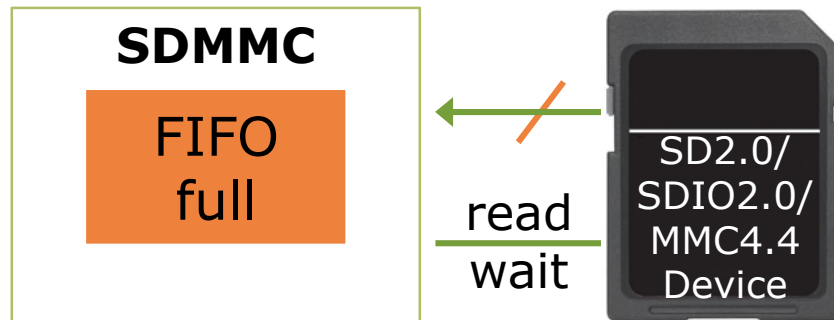
Read operation



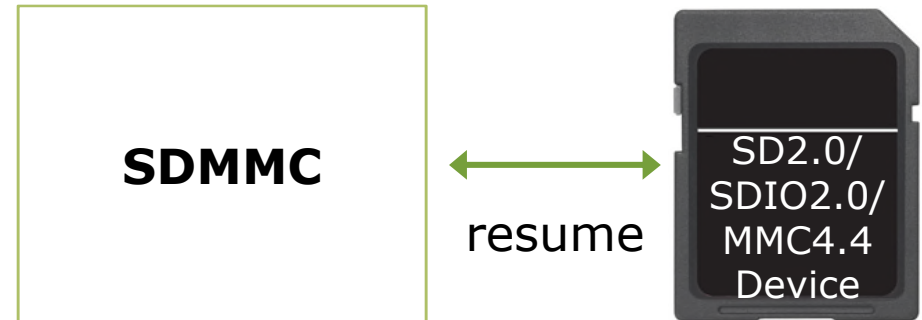
Read/write suspend



Read wait

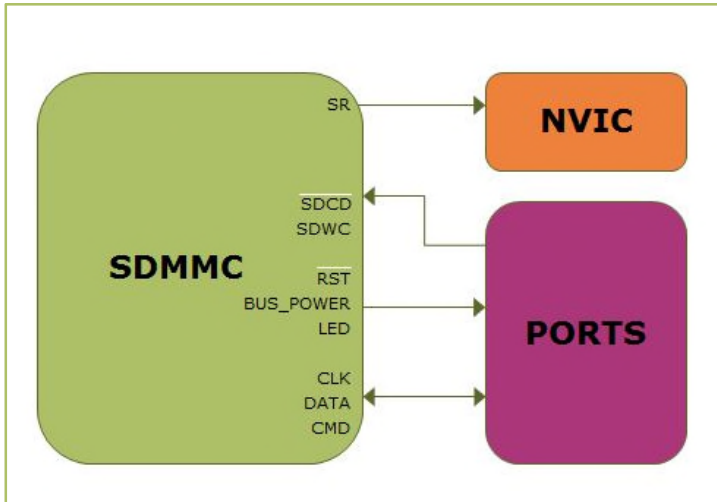


Read/ write operation



SDMMC

System integration



- › Target applications
 - Connectivity
 - Human machine interface
 - General purpose
- › Interconnection to Nested Vector Interrupt Controller (NVIC)
 - Trigger interrupt if any interrupt bits are set in the interrupt status register

XMC™4100	XMC™4200	XMC™4400	XMC™4500

- › Interconnection to PORTS
 - SDCD signal indicates card detection
 - SDWC signal indicates SD card read protection
 - RST signal triggers hardware reset to card
 - BUS_POWER signal controls power supply to the card
 - LED signal (LED light) indicates that card is being accessed
 - CLK signal indicates clock supplied to the card, or feedback clock from the pad
 - DATA signal transmits data to the card, or receives data from the card
 - CMD signal sends command in the cmd line, and receives response from the SD/MMC card

SDMMC

SD/SDIO/MMC details



- › SD/ SDIO transmission details
 - Transfers data in 1-bit and 4-bit SD modes
 - Cyclic redundancy check CRC7 for command and CRC16 for data integrity
- › MMC card interface
 - Supports MMC Plus and MMC Mobile
 - MMC card detection for insertion/removal
 - Error Correction Codes (ECC)
- › Miscellaneous
 - Two 512 byte buffer for data transfers between core and cards
 - Handles FIFO over run and under run conditions
 - Software support by DAVE™ Apps and low-level driver, including FAT32 file system for direct PC to XMC™4000 file exchange

Support material

Collaterals and Brochures



- Product Briefs
- Selection Guides
- Application Brochures
- Presentations
- Press Releases, Ads

- www.infineon.com/XMC

Technical Material



- Application Notes
- Technical Articles
- Simulation Models
- Datasheets, MCDS Files
- PCB Design Data

- www.infineon.com/XMC

- [Kits and Boards](#)

- [DAVE™](#)

- [Software and Tool Ecosystem](#)

Videos



- Technical Videos
- Product Information Videos

- [Infineon Media Center](#)

- [XMC Mediathek](#)

Contact



- Forums
- Product Support

- [Infineon Forums](#)

- [Technical Assistance Center \(TAC\)](#)

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