# NS1081C USB 3.0 Card Reader Controller

Introduction

NS1081C is a high-performance USB 3.0 Card Reader Controller. On one side, it connects with USB interface and is compatible with USB SuperSpeed (5Gbps), Hi-Speed (480Mbps), and Full-Speed (12Mbps). On the other side, it interfaces with various flash memory cards, such as Secure Digital (SD), SDHC, SDXC, miniSD, microSD (T-Flash), MultiMediaCard (MMC), RS-MMC, MMCmicro, or MMCmobile. It also supports high density memory cards with capacity up to 2TB, and high speed memory cards including SD3.0 UHS-I cards.

Block Diagram
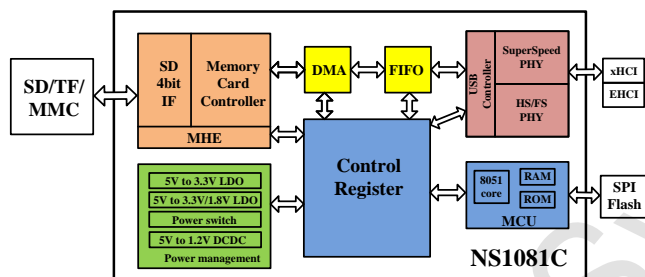
Highlights

- Self-developed high-performance USB 3.0 transceivers with low-power and low-jitter. The transceivers have built-in test capabilities for guaranteed functions and performance.

- On-chip high-efficiency regulators, including 5V to 1.2V DC-DC, 5V to 3.3V LDO, and 5V to 3.3V/1.8V LDO.

- Compliant with USB bus-powered and self-powered power consumption requirements. Consumed less than 2.5mA in USB 3.0 and USB 2.0 suspend mode.

Features

- Support USB 3.0 Specification Revision 1.0.

- USB 3.0 adaptive receiver equalization for better and reliable Super-Speed operation.

- Support USB Specification Revision 2.0.

- Support USB Mass Storage Class, Bulk-Only Transport Specification.

- Support USB 3.0 U0/U1/U2/U3 (P0/P1/P2/P3) and USB 2.0 L0/L1/L2 power saving modes.

- Support Secure Digital v1.0/v1.1/v2.0 SDHC/SDXC (Capacity up to 2TB).

- Support Secure Digital v3.0 UHS-I (Ultra High Speed)：SDR12/SDR25/SDR50/DDR50/SDR104.

- Support MultiMediaCard (MMC) specification v4.1/v4.2 x1/x4 bit data bus and DDR x4 bit data transfer mode.

- Built-in variable sampling clock generator to determine correct sampling point for SD UHS card SDR104 mode.

- Support user data locking, providing a privacy protection solution.

- Support SD Lock/Unlock Function.

- Support SPI and I2C interface for firmware and Vendor VID/PID customization.

- External Serial Flash memory interface.

- Support ISP（In System Programming）for firmware upgrade to external SPI Flash or I2C EEPROM via USB port.

- On-chip power MOSFETs for supplying flash media card power.

- Support Win8/ Win7/Vista/XP/2000/Me, Linux and Mac OS 9.x/10.x.

- Support two dedicated LED controllers.

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