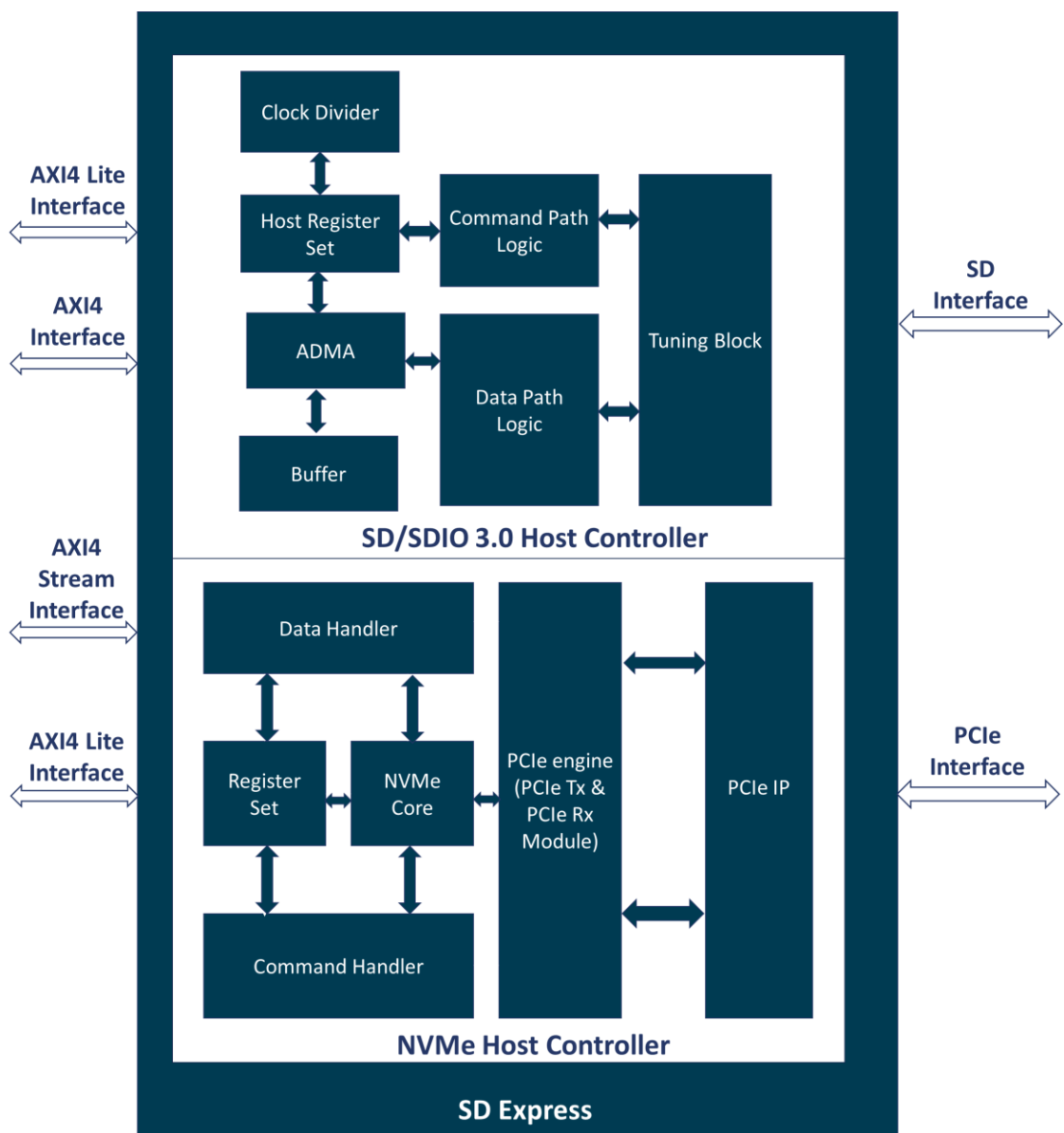


FPGA IP CORE

SD Express IP Core

SD Express FPGA IP core enables high-speed data transfer by leveraging PCIe and NVMe protocols over an SD card interface. It supports backward compatibility with legacy SD modes while offering significantly enhanced performance for storage applications. This enables the high-speed data transfer for next-generation storage applications as it supports the data rates significantly higher than traditional SD cards. Designed for FPGA-based implementations, it provides flexibility for custom storage solutions in embedded and industrial applications.



Technical Specifications

SD Mode Features	• Compliant with SD Host Controller Standard Specification Version 3.0 • Compliant with SD Physical Layer Specification Version 3.0 • Supports 1-bit,4-bit SD modes • Supports SD Card Detection input pin • Supports SD Card Write Protection input pin • Supports programmable clock frequency generation to the SD card • Supports Interrupt and ADMA2 transfer mode of operation • Individual 2Kbyte data buffer for read and write • Cyclic Redundancy Check (CRC) for command and data • Supports timeout monitoring for response, data, CRC token & busy • Supports a maximum block length of 2Kbyte • Supports both single block and multi block data transfer • Supports 32-bit AXI4 memory mapped interface towards host processor • Supports 32-bit AXI4 lite interface towards SD host Controller **Support Default speed and High-Speed including SDR12, SDR25, DDR50, SDR50 and SDR104 modes
PCIe Mode Features	• PCIe Express (PCIe) Gen 3 or Gen 4; 1 or 2 lanes*** • NVMe-Express revision 1.3 or later supported over PCIe interface • Dual simplex point to point connection • Identifies the card as standard Mass storage controller – NVMe device • Supports the legacy SD UHS-1 interface for backward compatibility • Supports AXI4 stream interface towards host processor • Supports AXI4 lite interface towards PCIe root port ** IP Supports SDR50 and SDR104 mode. Please contact us to check the SDR50 and SDR104 mode support in target device *** Support PCIe Gen3 or Gen4 depends on the target device
Highlights	• Complaint with SD Physical Layer Specification Version 9.1 • Support for SD express as well as well as legacy SD mode • Integrates the iWave NMVe host controller with legacy • SD controller for non-soc FPGA implementation • Uses the NVMe part of Linux with legacy SD controller for SOC FPGA implementation • Software support includes the standard SD driver for Linux and simplified baremetal driver

A Global Leader in Embedded Systems Engineering and Solutions

Since 1999, we have pioneered leadership in embedded systems technology, establishing ourselves as a strategic embedded technology partner for advanced solutions. Our comprehensive portfolio encompasses ARM and FPGA System on Modules, COTS FPGA solutions, and ODM solutions which include Telematics, Gateways & HMI Solutions.

Beyond our robust product ecosystem, we provide comprehensive ODM support with specialized custom design and manufacturing capabilities, enabling customers to accelerate and optimize their product development roadmaps. With a strategic focus on industrial, automotive, medical, and avionics markets, we deliver innovative technology solutions to global clients.

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