SILISCALE

PRODUCT BRIEF

Nadi DMA

A 25.6 ns PCIe DMA engine for FPGA.

Encrypted-IP licensed. Built on the Xilinx/AMD UltraScale+ platform.

LATENCY

25.6 ns doorbell → completion

10 cycles @ 390.625 MHz

SUPPORTED DEVICES

UltraScale+ family

PCIE4/PCIE4C integrated block

DELIVERY

Encrypted IP

Nadi DMA is a PCIe DMA engine for FPGA that delivers a 25.6 ns doorbell-to-completion path, the median of ten million packets on the Alveo U280. The DMA ships as encrypted IP through the Vivado catalog, under a free evaluation license capped at ∼1 million transactions and a paid production license per project.

For more info, evaluate and license, reach out at sales@siliscale.com.

HIGHLIGHTS

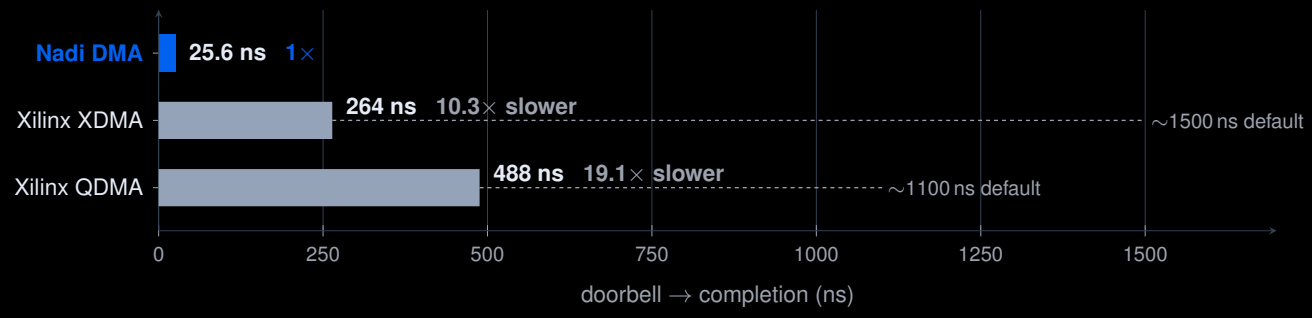
25.6 ns

Doorbell → completion

10 cycles @ 390.625 MHz

on Alveo U280, 64B frames

Median of ten million packets. One MAC cycle to the first byte, one cycle of loopback, eight cycles until the completion is queued.



Same device-side interval on this Alveo U280: doorbell accepted to completion queued, 64-byte payload and descriptor already on the card. Nadi is the median of ten million packets. XDMA and QDMA are one million samples, every sample the same. Dashed extensions are those products without that tuning: XDMA ∼1500 ns (59× Nadi), QDMA ∼1100 ns (43× Nadi).

The IP comes with a Linux VFIO userspace driver. A reference design for a 10/25G and 100G network interface card is also available, with a Linux network driver and a Data Plane Development Kit (DPDK) driver.

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Digital Design and Verification

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