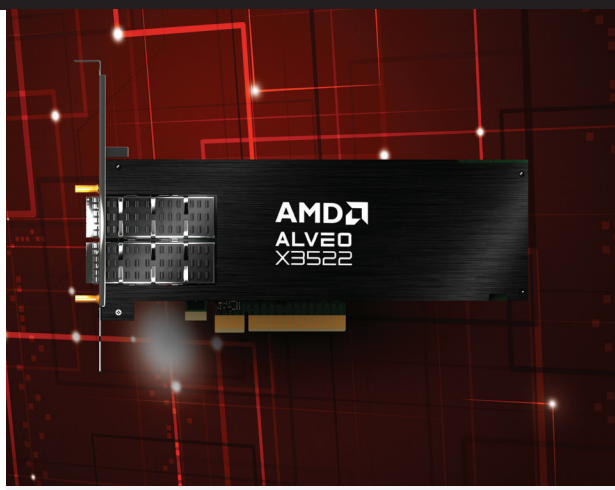
PRODUCT BRIEF

AMD Alveo™ X3 Series

Accelerating Electronic Trading Strategies



OVERVIEW

Today's leading trading firms, market makers, hedge funds, and exchanges demand low latency trade execution and risk management for competitive advantage. For traders seeking a plug-and-play upgrade, quants seeking computational offload to accelerate their algorithms, or partners seeking ultimate flexibility to build their own fintech solutions, the new Alveo X3 series of low latency network adapters and accelerator cards offers both turnkey deployment or custom implementation paths.

Providing a convergence of low latency network technology and adaptive compute, the Alveo X3 series accelerates a range of diverse trading strategies and financial applications.

Available in two variants, the Alveo X3522 low latency network adapter provides a low latency NIC with an optional upgrade for user programmability. The Alveo X3522PV adaptable accelerator card provides a fully programmable option for fintech customers to implement a customized, low latency solution. Collectively, the portfolio reduces overall system latency by bringing compute closer to the wire.

HIGHLIGHTS

Plug-and-Play Low Latency NIC

- Low latency networking solution with high port density (up to 4x 10/25GbE*)
- Optimized architecture for reliable operation and trade execution
- Support for full kernel bypass using field-hardened Onload and TCPDirect
- ef_vi API for high performance raw Ethernet networking
- Accelerates diverse trading strategies and increases fill rate

Programmable Architecture – Bringing Compute Closer to the Wire

- Optimize system latency by offloading functions onto programmable logic
- CPU host processing performed in parallel to low latency functions in FPGA
- Hardware upgradeability for evolving use cases and requirements

Custom Design and Implementation for Hardware and Software Developers

- Vitis™ SW environment allows implementation of custom functions in C/C++
- Vivado™ Design Suite for RTL design and hardware customization

TARGET USERS

- Brokers
- Exchanges
- Market Data Vendors
- Sell Side Vendors
- Proprietary Traders

USE CASES

- Tick-to-Trade
- Algorithmic Trading
- A/B Line Arbitration
- TCP Offload
- Market Data Accelerators
- Market Data Gateways
- Pre-Trade Risk Analysis
- Smart Order Routing
- FIX Gateway

AMD ALVEO U25N PLATFORM ARCHITECTURE

SPECIFICATIONS	
Adapter Hardware	> 4x10/25GbE* ports > PCIe® Gen 4 x8 / Gen 3 x8 > Half Height Half Length, single PCIe slot, low profile bracket default with spare full height bracket > 2x DSFP (SFP28/SFP+ compatible) with support for Direct Attach Copper (DAC) cables or optical transceivers > Onboard 8GB DDR4 memory > 1PPS In/Out SSMB connectors > Tamper resistant adapter – digitally signed firmware and secured private keys > Passively cooled
Network Acceleration	> Onload® - BSD sockets compliant TCP/UDP kernel bypass > TCPDirect - TCP/UDP kernel bypass > ef_vi low level API for high performance raw Ethernet networking
Adaptable Engine	> 16nm UltraScale+™ XCUX35 FPGA > -3 speed grade optimized for low latency > 400K Look-Up Tables (LUTs) for custom workload programmability
OS Support	> Red Hat RHEL, Ubuntu Server, and SUSE SLES
Software Framework Support	> Vivado™ HLSTM software environment to implement custom functions in C/C+
Time Synchronization and Hardware Timestamping	> On-board Stratum 3 compliant oscillator > IEEE 1588-2008 PTPv2 > Hardware receive and transmit timestamping
Manageability and Remote Boot	> UEFI • NC-SI over MCTP SMBus • PLDM over MCTP SMBus • MCTP PCIe VDM
Maximum Power	> X3522 (in 4-port NIC mode): 35W > X3522 (upgraded to hybrid mode): Up to 75W (programmable logic dependent)
Physical Dimensions	> L: 16.75 cm (6.6 in) • W: 6.9 cm (2.7 in) > End bracket height: - PCI Express standard: 12.0 cm (4.725 in), 7.92 cm (3.12 in) > FCC, UL, CE, UKCA • RoHS - complies with EU directive 2011/65/EU
Temperature and Humidity	> Operating Temperature: 0°C to 55°C (32°F to 131°F) > Storage Temperature: –40°C to 65°C (–40°F to 149°F) > Operating Humidity: 10% to 80% > Storage Humidity: 5% to 90%
ORDERING INFORMATION	
A-X3522-P08G-PQ-G	> 4-port, 10/25GbE PCIe low latency network adapter
SW-X3522-001	> X3522 configuration file to enable programmability > SKU provides a license to use the config file to upgrade a single X3522 adapter to enable programmability

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Adaptable Engine	> 16nm UltraScale+™ XCUX35 FPGA > -3 speed grade optimized for low latency > 1030K Look-Up Tables (LUTs) for custom workloads programmabilityty
Software Framework Support	> Vivado™ Design Suite for RTL design and hardware customization
Time Synchronization and Hardware Timestamping	> On-board Stratum 3 compliant oscillator > IEEE 1588-2008 PTPv2
Maximum Power	> 75W
Physical Dimensions	> L: 16.75 cm (6.6 in) • W: 6.9 cm (2.7 in) > End bracket height: - PCI Express standard: 12.0 cm (4.725 in), 7.92 cm (3.12 in) > FCC, UL, CE, UKCA • RoHS - complies with EU directive 2011/65/EU
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ORDERING INFORMATION	
A-X3522PV-P08G-PQ-G	> 4-port,10/25GbE adaptable accelerator card

*Note: Feature availability is dependent on software release support. 25GbE support in 2023. Please contact support-nic@amd.com for details.

TAKE THE NEXT STEP

Contact your local sales representative or complete the Product Inquiry form at **www.xilinx.com/x3**