

The FPGA-based development framework for finance nxFramework

What is nxFramework?

The Enyx Development Framework (nxFramework) is a hardware and software development environment designed to efficiently build and maintain ultra-low latency FPGA applications for the financial industry.

Based on 10 years of research and development, nxFramework is the foundation for all Enyx off-the-shelf solutions and provides our clients with the toolchain to manage a large portfolio of applications.

nxFramework ULL IP cores:

- 1G/10G MAC + PCS
- 1G/10G full TCP stack
- 1G/10G full UDP stack
- PCIe streaming DMA

Additional features:

- » 60+ IP cores for MMIO, streaming manipulation, math functions, cache & memory management
- » FPGA communication & IP core management via drivers & C/C++ libraries which support a variety of Linux distributions
- » Python scripts to manage development flow from synthesis to bitstreams and includes a simulation environment

Developed for building in-house high performance trading engines, order execution systems, pre-trade risk check gateways, and custom projects – the nxFramework offers:



Speed: driven by the latest FPGA technology, our IP cores are specifically optimized for financial use cases – the only solution of its kind on the market



Time-to-Production: reduce your overall development cycle and dedicate more time and resources to building the business logic that sets your firm apart from the competition. Get from your idea to a working proof of concept in weeks instead of months



Resiliency: a mature solution with almost a decade in-production experience, our framework is a proven, reliable technology that makes up the backbone of all our solutions



Flexibility: enables development of projects across different use cases via a modular design that is supported by a robust collection of IP cores & software libraries



Future-Proof: widely supported across multiple FPGA platforms, nxFramework is platform agnostic and is not restrained by current or future technology updates

Who should use nxFramework?

Any skilled FPGA developer starting a new low latency project, maintaining an existing one, or looking to change platforms can immediately reduce their time-to-production. Our platform agnostic solution allows for mobility from one platform to another with minimal effort and can support designs across multiple different hardware platform vendors.

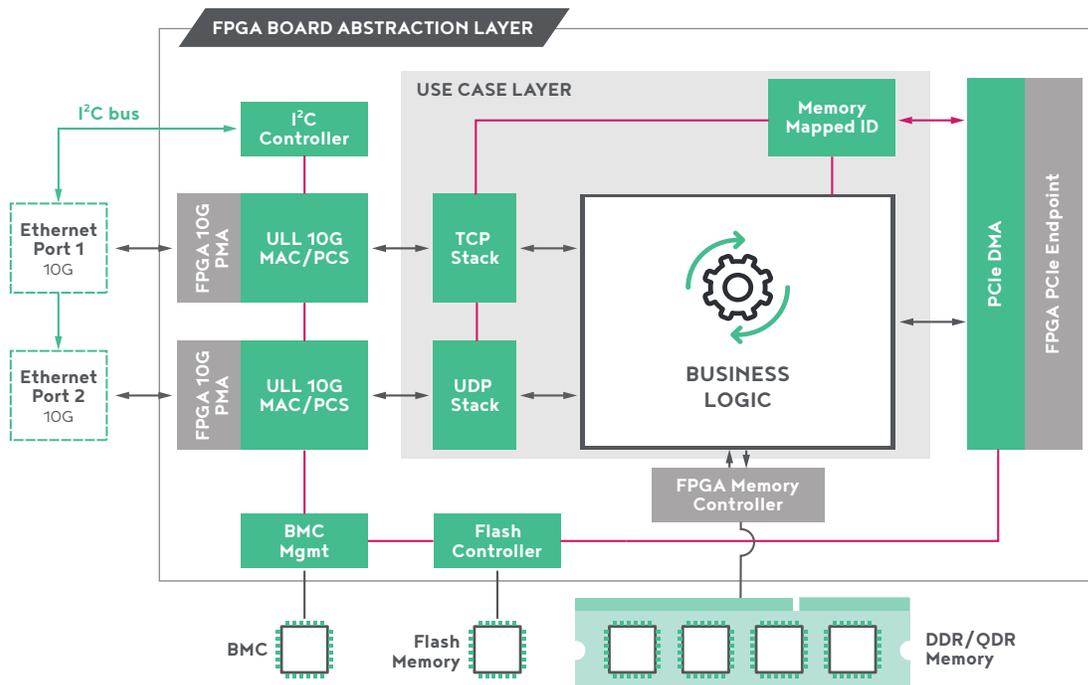
Common financial use cases:

- Market data processing engine
- Inbound pre-trade risk gateway
- Outbound order execution gateway
- Tick-to-trade electronic trading platform
- Financial data distribution application
- Smart order router

nxFramework

Key Features

- ✓ **Modular, Scalable, Unique**
Enables development of projects across different use cases via a modular design that is supported by a robust collection of IP cores & software libraries
- ✓ **Platform Mobility: Flexible & Future-Proof**
By providing support across multiple FPGA platforms, nxFramework is platform agnostic and not restrained by current or future technology updates
- ✓ **Mature technology, Proven FPGA Experts**
Take advantage of our FPGA expertise and support via regular product updates that provide performance & feature improvements
- ✓ **The Enyx Inspector: Efficient Debugging**
Equipped with a web-based GUI that can configure and monitor the FPGA at runtime, allowing for quick deployment and debug



Specifications

Ultra low-latency IP cores:

- 1G/10G MAC + PCS (37 ns RTT)
- 1G/10G full TCP stack (82 ns RTT)
- 1G/10G full UDP stack (76 ns RTT)
- PCIe streaming DMA (790 ns RTT)

Additional elements:

- The Enyx Inspector: a web-based debugging tool
- Linux drivers, communication & IP core mgmt libraries
- Off-the-shelf, configurable reference designs
- 60+ IP core library for MMIO, streaming manipulation, math functions, cache & memory management

Platform management cores:

- QSPI Flash controller support
- I²C bus controller for SFP/QSFP communication
- Unified cross-platform BMC & platform-specific BMC support
- Configurable instantiation of DDR & QDR memory controllers

Certified Hardware Platform Partners:



Evolve Past Latency.

www.enyx.com/nxFramework



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