

The FPGA Development Framework

Build your FPGA trading system in no time*



IT'S NOT WHAT YOU BUILD

IT'S WHAT YOU BUILD NEXT



Why Enyx?

Our value lies in our expertise, with over a decade of experience building reliable solutions that get the job done.

Our goal is to not only be the best at developing complex information systems for finance, but also lead the way in promoting transparency through open testing and reporting.



www.enyx.com/performance

Our Products

nxAccess Trade

An end-to-end market access solution that fully processes, filters and normalizes raw market data and can send orders both from a hardware and a software trading algorithm.

nxFeed Distribute

A full-featured ultra-low latency market data distribution system, which utilizes the power of FPGA technology to offer wire-speed performance and jitter-free determinism.

nxLink Connect

With fair bandwidth sharing and smart fiber arbitration, our wireless link management product suite is designed to build next generation, low latency trading infrastructure

nxFramework Develop

Our industry-first development kit for financial institutions to build FPGA-enabled solutions in-house, including pre-trade risk checks, smart order routing, and trading platforms.

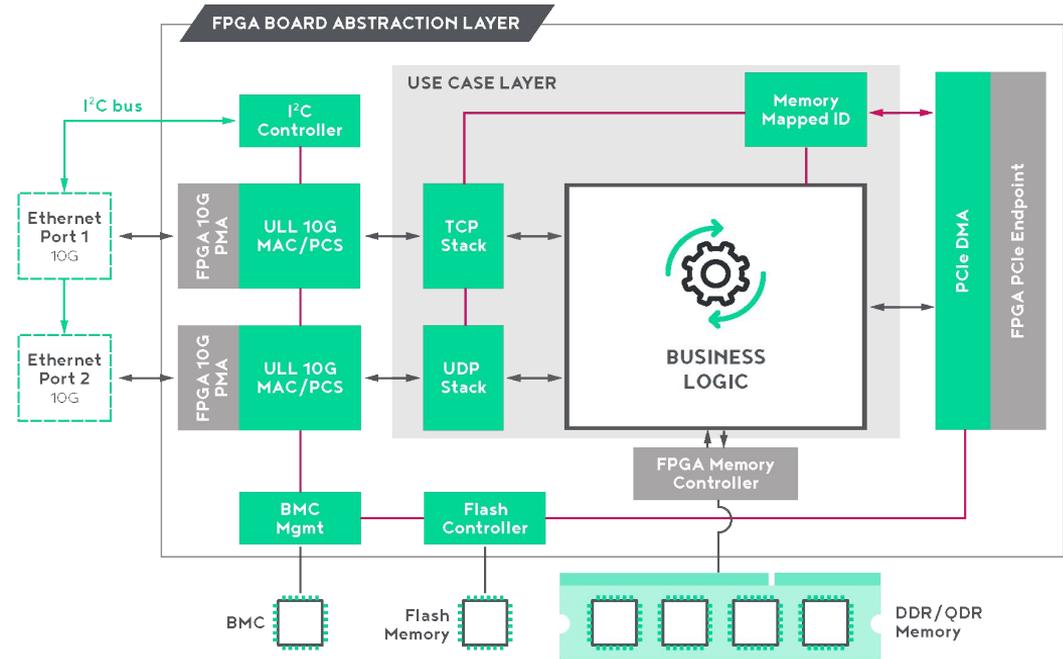
nxFramework

The FPGA development framework for finance

- Hardware & software development environment for FPGA applications
- Based on 10 years of research & development
- Foundation for all Enyx off-the-shelf solutions
- **ULL IP Cores:**
 - 1G/10G MAC + PCS (37 ns RTT)*
 - 1G/10G full TCP stack (82 ns RTT)*
 - 1G/10G full UDP stack (76ns RTT)*
 - PCIe streaming DMA (790ns RTT)*
- **Additional features:**
 - Library of 60+ IP cores for MMIO, streaming manipulation, math functions, cache & memory management
 - A web-based GUI for configuration & debug
 - Linux drivers, communication & IP core management libraries
 - Off-the-shelf, configurable reference designs

nxFramework

The FPGA development framework for finance



What is included?

Board Support Package (BSP)

**Xilinx Alveo, Bittware,
Reflex CES, Arista 7130**

What is included?

Configuration Files + Build Workflow Scripts

YAML IO/frequency configuration
Project workflow Python scripts

Board Support Package (BSP)

Xilinx Alveo, Bittware,
Reflex CES, Arista 7130

What is included?

Core Hardware IPs + Software Libraries

MAC/PCS, TCP, UDP, PCIe DMA
C++ libraries & Linux drivers

Configuration Files + Build Workflow Scripts

YAML IO/frequency configuration
Project workflow Python scripts

Board Support Package (BSP)

Xilinx Alveo, Bittware,
Reflex CES, Arista 7130

What is included?

NEW

Hardware MM & IO IP Libraries

Streaming bus manipulation
Memory Mapped & math functions

Core Hardware IPs + Software Libraries

MAC/PCS, TCP, UDP, PCIe DMA
C++ libraries & Linux drivers

Configuration Files + Build Workflow Scripts

YAML IO/frequency configuration
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Board Support Package (BSP)

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What is included?

NEW
Market
Data
IPs

NEW
Order
Execution
IPs

NEW
Bandwidth
Management
IPs

Market data decoders
Order & book management
Execution stack
Bandwidth management

NEW
Hardware MM & IO IP Libraries

Streaming bus manipulation
Memory Mapped & math functions

Core Hardware IPs + Software Libraries

MAC/PCS, TCP, UDP, PCIe DMA
C++ libraries & Linux drivers

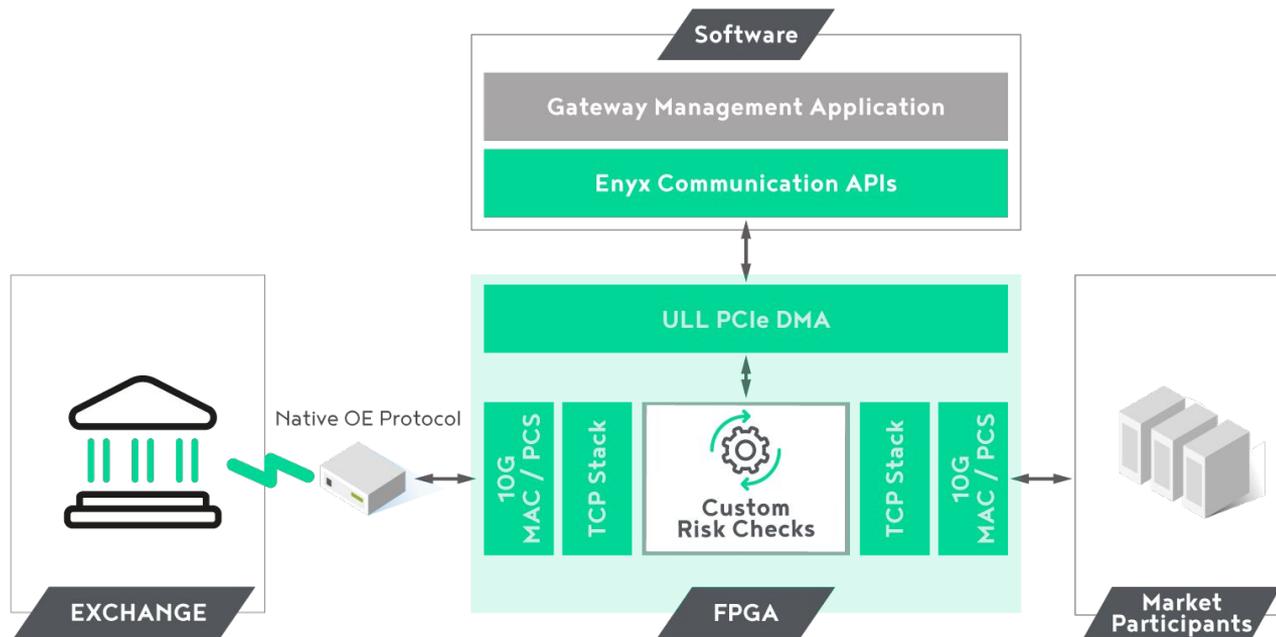
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Board Support Package (BSP)

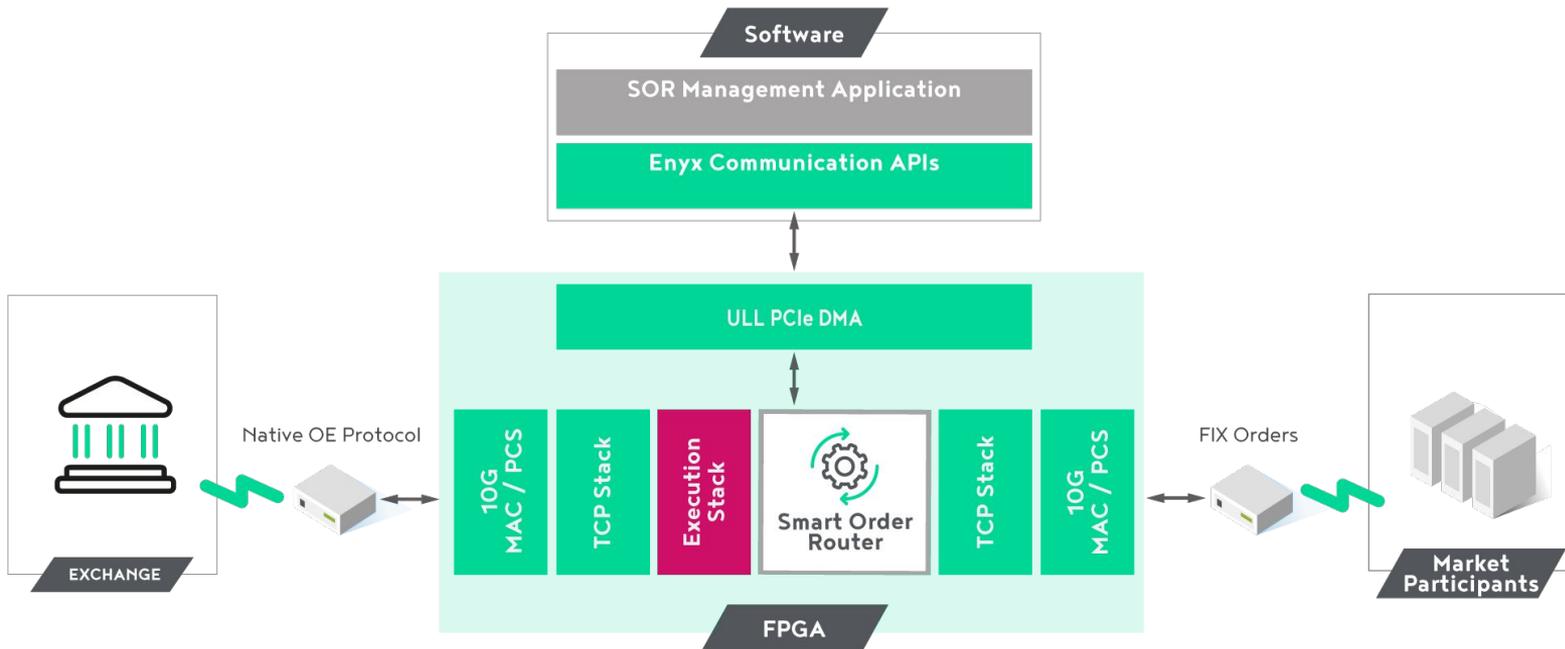
Xilinx Alveo, Bittware,
Reflex CES, Arista 7130

Use case: Risk check gateway



- 10G MAC + PCS
- PCIe MM register management
- Hardware IP Libraries: (ST/MM/Math/Memory/Cache)
- 10G full TCP stack
- Linux drivers & C++ libraries
- Synthesis to bitstream workflow

Use case: Smart Order Router

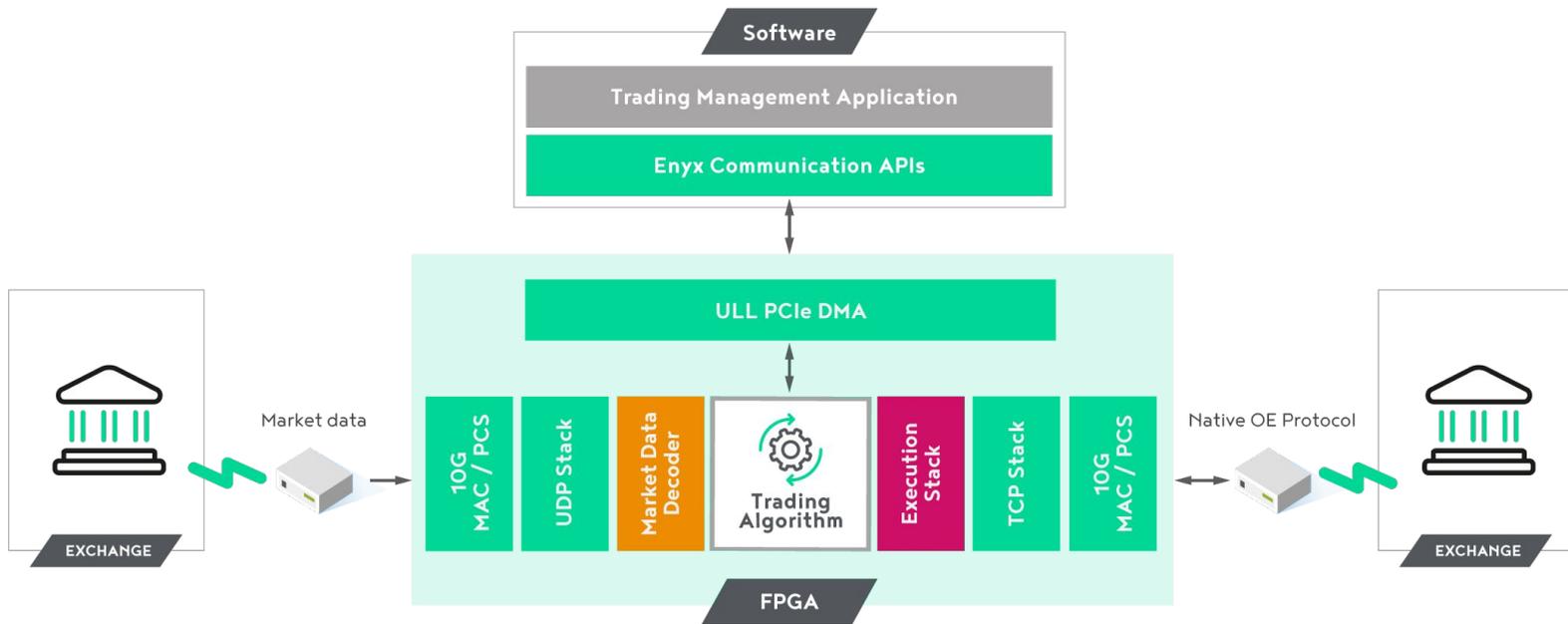


- ✓ 10G MAC + PCS
- ✓ 10G full TCP stack
- ✓ PCIe streaming DMA

- ✓ PCIe MM register management
- ✓ Linux drivers & C++ libraries
- ✓ Synthesis to bitstream workflow

- ✓ Hardware IP Libraries: (ST/MM/Math/Memory/Cache)
- ✓ Execution gateway

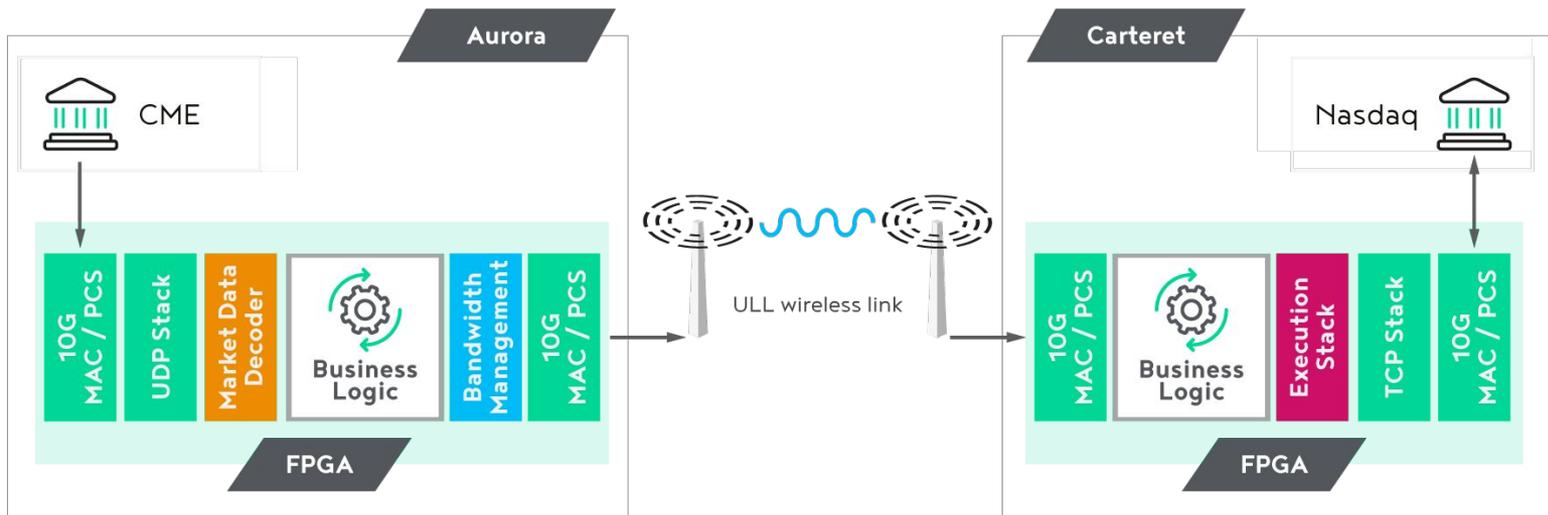
Use case: ULL tick-to-trade



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

- ✓ PCIe MM register management
- ✓ Linux drivers & C++ libraries
- ✓ Synthesis to bitstream workflow
- ✓ Hardware IP Libraries:
(ST/MM/Math/Memory/Cache)

- ✓ Execution gateway
- ✓ Market data decoder(s)



- ✓ 10G MAC + PCS
- ✓ 10G full TCP stack
- ✓ 10G UDP stack
- ✓ PCIe streaming DMA
- ✓ PCIe MM register management
- ✓ Linux drivers & C++ libraries
- ✓ Synthesis to bitstream workflow
- ✓ Hardware IP Libraries:
(ST/MM/Math/Memory/Cache)
- ✓ Execution gateway
- ✓ Market data decoder(s)
- ✓ Bandwidth management

Thank you!

Check the Enyx box for more information



To access our downloadable material: <http://info.enyx.com/global-stac-live20>

