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FOR IMMEDIATE RELEASE

Qwyit LLC Launches QChip™ Quantum-Safe Stream Encryption IP Core for FPGA Platforms

QChip™, the new FPGA cryptographic IP core powered by the Qwyit PDAF_SEC protocol, is now available for licensing. Designed to deliver real-time, quantum-safe encryption for streaming data, QChip provides a high-performance, low-latency alternative to traditional AES stream-mode implementations.

QChip is a fully synthesizable FPGA IP core engineered for seamless integration into modern FPGA systems. Built around the Qwyit Authentication and Data Security protocol, QChip enables continuous data stream encryption and decryption with no block-size limitations, no keystream reuse, and built-in key evolution—ensuring robust, forward-secure communications.

Unlike block-based encryption engines, QChip operates natively as a stream cipher, allowing efficient protection of real-time communications, embedded systems, and mission-critical platforms.

Key Features

- Real-time stream encryption and decryption

- Implements the Qwyit PDAF_SEC cryptographic protocol

- Continuous key evolution with no repeating keystream

- No block-size or message-length restrictions

- Quantum-safe cryptographic design

- Fully parameterized data width (8–256 bits)

- Configurable FIFO depth (8–1024 entries)

- Low latency, high throughput architecture

- Compatible with most modern FPGA families

- Drop-in replacement for AES stream-mode implementations

Architecture and Integration

QChip includes:

- Synthesizable RTL FPGA IP core

- AXI4-Stream Slave (data input)

- AXI4-Stream Master (data output)

- AXI4-Lite control interface

- Register map and user documentation

- License-controlled core (evaluation and production supported)

The IP core is compliant with AMBA AXI4-Stream and AXI4-Lite interface standards and integrates easily into existing FPGA-based systems.

Performance

In a representative configuration targeting the XC7K160T-2 FPGA device, QChip demonstrates:

- 8,834 Slices

- 8,909 LUTs

- 1,568 Slice Registers

- Maximum frequency of approximately 200 MHz

Performance and resource utilization scale according to selected data width and FIFO depth.

Target Applications

QChip is ideal for:

- Secure FPGA-based communications

- Defense and aerospace systems

- Industrial control and automation

- Secure sensor and telemetry pipelines

- Embedded and edge computing platforms

- Systems seeking a quantum-resilient replacement for AES stream-mode encryption

Licensing and Availability

QChip is licensed per project or deployment. Evaluation licenses are available with time-limited operation for integration and testing. Production licenses remove runtime limits and include full documentation. Delivery is provided electronically upon license issuance.

About Qwyit, LLC

Qwyit, LLC is a Virginia-based cybersecurity innovation company specializing in provably secure encryption and authentication technologies. With a portfolio spanning more than 25 years of patented breakthroughs, including the Fast Unbreakable Cipher, Real-Time Trust protocols, and Universal Unbreakable Encryption engines. Qwyit continues to advance the global state of digital security across hardware, software, financial, communication, and government sectors.

Qwyit LLC is a wholly owned subsidiary of Virginia Beach, VA based HST Global, Inc. For more information, please visit www.HSTGlobal.com.

About Qchip
QChip delivers next-generation cryptographic IP solutions for FPGA platforms, enabling secure, high-performance data protection designed for the evolving demands of quantum-resilient security.

Forward-Looking Statements

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These statements may include, but are not limited to, statements regarding the Company's business strategy, operations, and financial performance. Forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from those expressed or implied. Readers are cautioned not to place undue reliance on these statements, which speak only as of the date hereof. HST Global, Inc. undertakes no obligation to update or revise any forward-looking statements to reflect subsequent events or circumstances.

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