

CAST Introduces New MACsec Protocol Engine IP Cores

The first is area- and throughput-optimized for networks running up to 1Gbps; cores optimized for different speeds will follow.

Woodcliff Lake, New Jersey — June 30, 2023 — Semiconductor intellectual property provider CAST today announced the availability of a new IP core that serves as a custom-hardware engine for the MACsec Ethernet security protocol in FPGA or ASIC designs.

The first in a series of upcoming MACsec cores, the new **MAC-SEC-1G MACsec Protocol Engine for 10/100/1000 Ethernet** is optimized to use minimum power and silicon resources for networks operating at speeds of 10, 100, or 1000 Mbps. It provides Ethernet protection in automotive, industrial, or military systems with great efficiency by:

- operating with low latency and at line speed (up to 1Gbps) in both directions so that it does not slow down network traffic;
- featuring up to 64k security associations and supporting VLAN tags in clear text to make it suitable for both simple LANs and complex WANs;
- consuming less power and being more secure than any equivalent software solution; and
- being smaller than competing solutions.

Standardized interfaces make it simple for designers to use the MAC-SEC-1G with any standard Ethernet Media Access Controller (eMAC) or networking hardware stacks. It is especially well-suited for use with the Low-Latency eMAC, Time-

Hardware MACsec Protocol Engine

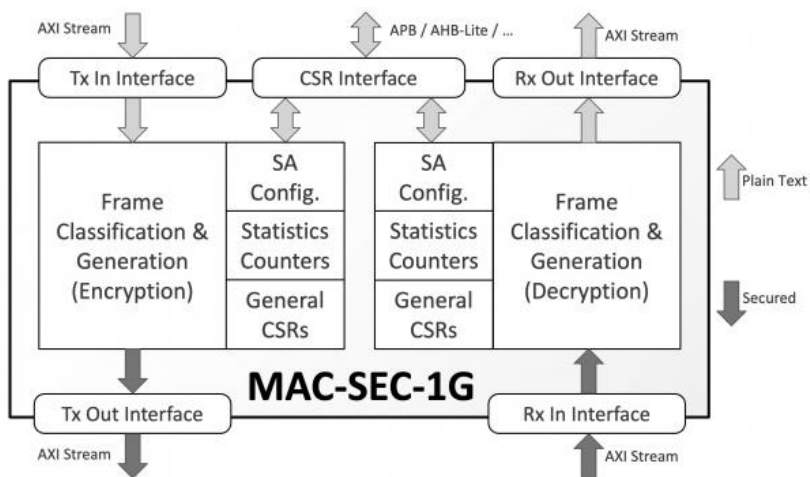
- ▶ Small & efficient for 10/100/1000 Mbps
- ▶ Highly configurable & easy to integrate
- ▶ Ideal add-on for CAST's eMAC, TSN, and TCP/IP and UDP/IP cores
- ▶ For ASICs & FPGAs
- ▶ First in a new MACsec series

**CAST**

Sensitive Networking (TSN) endpoints and switch, UDP/IP, and TCP/IP cores CAST also offers, and can be made available pre-integrated with any of them.

“Ethernet backbones are rapidly replacing older buses in automotive, aerospace and industrial systems,” said Jit Sur, product marketing manager for CAST. “We specifically designed the MAC-SEC-1G to satisfy frequent customer requests for reliable and efficient security for networks with speeds up to 1Gbps, and we believe it is one of the smartest choices available for the targeted applications.”

Sourced from [Fraunhofer IPMS](#), the new MAC-SEC-1G core is compliant with the IEEE 802.1AE-2018 and IEEE 802.1AEbw standards. It implements the GCM-AES and GCM-AES-XPN encryption modes with 128- or 256-bit keys, and provides for multiple Security Channels, Security Associations, and Security Entities.



System integration of the core with its 32-bit datapath is straightforward, as it offers standard interfaces and a high degree of configurability so designers can optimally match their specific system requirements. Once initialized and given security keys, the MAC-SEC-1G operates without further assistance from the host processor.

Like all the IP products available from CAST, the new core offers high quality, great reliability, and low risk by being developed following CAST’s strict design, verification, and productization standards. These ensure *A Better IP Experience*.

The new MAC-SEC-1G core is available now, in synthesizable RTL for ASICs or as a netlist targeted to any suitable FPGA device, and its deliverables include everything required for a smooth integration and successful implementation. Learn more on [the core’s product page](#), or visit CAST at the 60th Design Automation Conference, July 10–12, in San Francisco.

About CAST

Computer Aided Software Technologies, Inc. (CAST) is a silicon IP provider founded in 1993 and celebrating its 30th anniversary this year. CAST's ASIC and FPGA IP product line includes microcontrollers and processors; compression engines for data, images, and video; interfaces for automotive, aerospace, and other applications; various common peripheral devices; and comprehensive SoC security modules. Learn more by visiting www.cast-inc.com.

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