

Features

- Highest performance public key cryptography processors available as IP cores
- Over 5,000 RSA-1024 private key operations per Watt
- Scalable performance to over 100,000 1024-bit RSA private key operations per second
- Unparalleled "performance density"
- Speeds approaching 2 trillion 16-bit multiply accumulates per second
- Portable to any technology library
- Easy integration into any SoC design

Benefits

- Select from a family of compatible products optimized for throughput, latency, or area
- Fast delivery for accelerated time to profit
- Scalable up to 4096-bits *today*

Applications

- SSL and IPsec acceleration
- E-commerce
- SSL-based VPN
- Security appliances



TeraFire™ *the SSL Supercomputer*

The Athena Group delivers the world's fastest security processors as semiconductor intellectual property (IP) cores. Athena's TeraFire family of public key (PK) cryptography accelerators defines the standard for accelerated performance in security processing. Members of the TeraFire family range from the ultra-high performance EXP-A1200, which provides over 10,000 1024-bit RSA private key operations per second, with a *guaranteed* latency of less than 100 microseconds, to the EXP-A1030, which provides performance competitive with stand-alone accelerator chips in less than 1 mm² of die area. Address market opportunities from the consumer to the enterprise by selecting the optimum TeraFire core. And Athena is ready to support your product succession strategy - *today* - with even higher performance single cores and cores optimized for key lengths up to 4096-bits.

Athena technology delivers impressive performance while actually reducing silicon area and clock frequency. Athena's proprietary digital signal processing (DSP) technology can sustain a remarkable 1.5 trillion 16-bit multiply accumulates (MACs) per second in an area less than 7 mm on a side, at a pedestrian operating frequency of 250 MHz. This unparalleled "performance density," approximately 100 billion MACs/Watt, is characteristic of Athena's proprietary technology. The TeraFire processors join Athena's complete DSP IP library designed for power-sensitive applications requiring extraordinary performance.

Table 1: Terafire Product Family

Model	RSA-1024 Private Key	1024-bit Full Expo	RSA-2048 Private Key	Comments
EXP-A1200	10,000	7,400	3,700	<100 μ s latency
EXP-A1100	6,000	4,000	2,000	World class performance
EXP-A1060	4,000	1,000	500	Maximum performance density
EXP-A1030	2,000	N/A	N/A	<1 mm ²

Product Description

A single Terafire core can do the work that previously demanded an array, and do it in a fraction of the area and power. TeraFire security accelerators are available now in configurations optimized for native key lengths from 512-bits to 4096-bits, and with performance levels ranging to 10,000 RSA private key operations per second. Table 1 summarizes the single core performance of several members of the TeraFire family of PK accelerator cores.

Each TeraFire core is delivered as a firm core optimized to any customer-specified library. The package includes the core, verification suites, timing and simulation models, and documentation.

Athena’s IP cores are designed for efficient implementation and rapid delivery. The company's proprietary, wholly automated implementation and verification methodology produces synchronous, testable IP cores of the highest quality. All Athena IP cores achieve a score of 95% or better on the OpenMore scale of IP reusability.

About The Athena Group, Inc.

The Athena Group, Inc. of Gainesville, Florida licenses high-performance DSP technology that delivers breakthrough performance, reduced area, and lower power consumption in a broad range of SoC products. Athena’s proprietary technology powers leading edge applications such as secure e-commerce, wireless communications, and video compression. In addition to their high-value application level solutions, Athena also produces a full line of fundamental DSP functions suitable for SoC integration.

Athena was founded in 1986 and is privately held.



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