

## BCM5823 SECURITY PROCESSOR

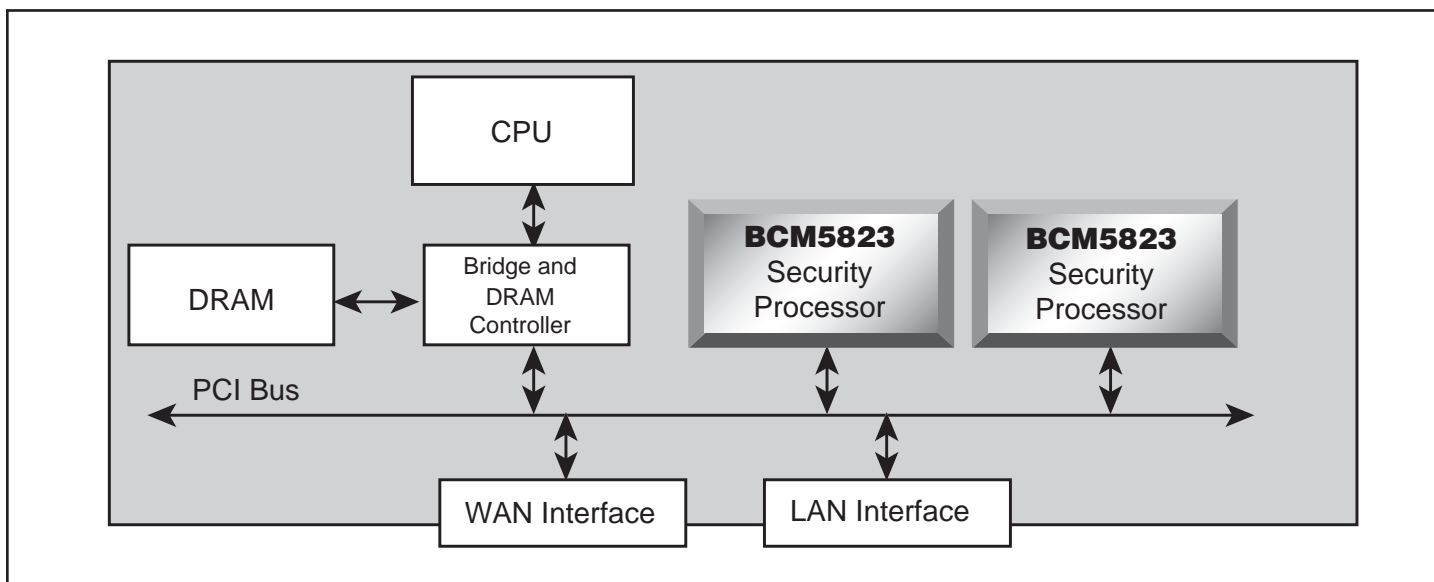
### BCM5823 FEATURES

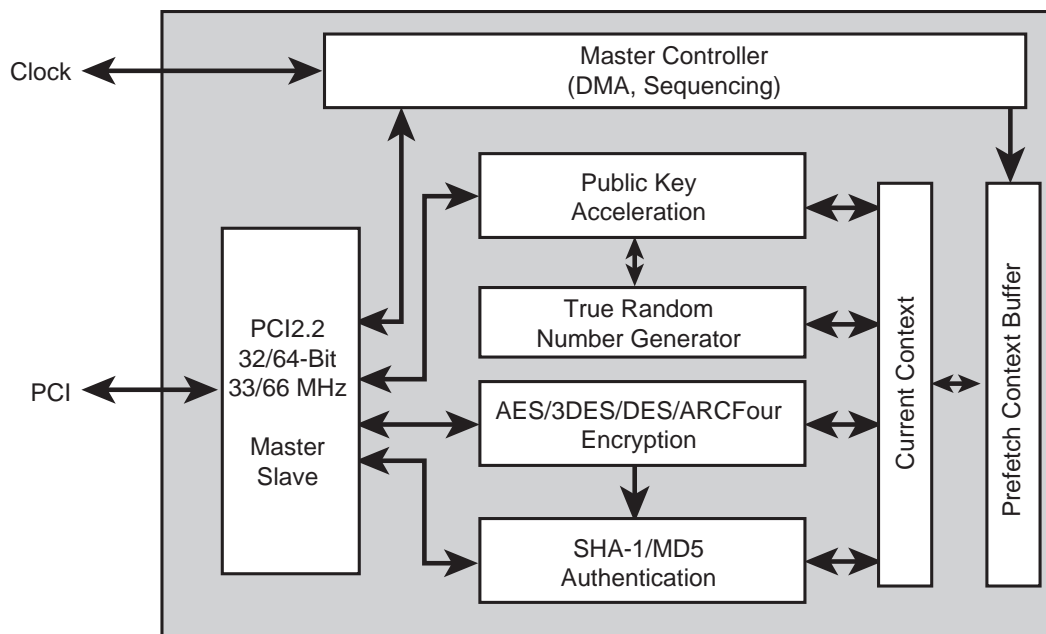
- High-performance security co-processor
- 500-Mbps system throughput
  - DES-CBC, 3DES-CBC
  - AES-CBC, AES-CTR (up to 256-bit key lengths)
  - HMAC-SHA-1, HMAC-MD5
  - Single pass encryption and authentication
- Integrated public key processor
  - 400 Diffie-Hellman transactions per second
  - 550 1024-bit RSA transactions per second
  - HW supports 1024 and 2048 bit RSA keys
  - Support for IKE and SSL/TLS modes
- Scalable to 1 Gbps of IPsec processing
- Concurrent public-key and symmetric key processing
- Software and package compatible with BCM5821
- True hardware random number generator
- Optimized PCI interface
  - PCI 2.2 interface, 32/64-bit, 33-66 MHz
  - Optional EEPROM interface to configure PCI registers
- 133-MHz operating frequency
- 0.18-μm CMOS technology, 1.8V core, 3.3v I/O
- Low power consumption: 1.3 W
- Package: 256 PBGA (27 x 27)

### SUMMARY OF BENEFITS

- Improves security performance in high-performance embedded applications
  - Firewalls
  - VPN Appliances
  - VPN-Enabled Routers
  - Access Devices
- AES support provides latest algorithm support and protects against obsolescence
  - 256-bit key length support of AES
- Scalability enables high-end architectures
- Two BCM5823s provide up to 1 Gbps performance
- Enables fast IKE negotiations for VPN applications
- Reduces load on host CPU for high-performance security processing
- Easy upgrade from BCM5821
- Extensive embedded software development kit (SDK)
  - VxWorks®, Linux™, BSD support
  - Software reference library
  - Complete reference design
- Concurrent processing minimizes latency on public-key and symmetric key operations
- Integration reduces footprint and power consumption for embedded applications

### BCM5823 in 1-Gbps VPN Application





The **BCM5823** security processor is a fully-integrated, high-performance cryptographic processor capable of performing 500 Mbps of IPsec (3DES, HMAC-SHA-1) system throughput. The **BCM5823** includes AES in its cryptographic engine with support of key lengths up to 256-bits. In addition to its high-performance symmetric key engine, the **BCM5823** offers public-key acceleration for IKE processing at the rate of 400 Diffie-Hellman transactions per second. The high level of performance and integration in the **BCM5823** makes it ideal for high-performance embedded applications with footprint and power limitations.

A true hardware random number generator on the **BCM5823** is well suited for IV seeding and secret key generation.

The **BCM5823** is ideal for high-end and mid-range firewall and VPN appliance applications. Able to scale to 1Gbps with multiple devices, the **BCM5823** addresses a very broad range of performance points. Utilizing a common software base, customers can develop families of products with common architectures and software platforms.

The **BCM5823** device's PCI interface makes it a perfect solution for all cost-sensitive security applications. Requiring no external components, the **BCM5823** is ideal for embedded applications with strict board space and power requirements. Furthermore, performance of the **BCM5823** can easily be scaled to increase both IPsec and public-key processing performance.

Unlimited security association (SA) support via system memory and a multi-threaded DMA engine utilizes system memory to maximize throughput in real-world applications. Ability to pre-fetch packet contexts, minimizes the performance degradation when processing small packets. Concurrent public-key and bulk payload processing minimizes latency and improves system performance dramatically.

Application program interface (API) support through Broadcom's Software Reference Library (SRL) for IPsec and SSL application software offers **BCM5823** users a complete system solution. The **BCM5823** SDK includes support for VxWorks®, Linux™ and BSD.

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## BROADCOM CORPORATION

16215 Alton Parkway, P.O. Box 57013  
Irvine, California 92619-7013

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Phone: 949-450-8700

FAX: 949-450-8710

Email: [info@broadcom.com](mailto:info@broadcom.com)

Web: [www.broadcom.com](http://www.broadcom.com)