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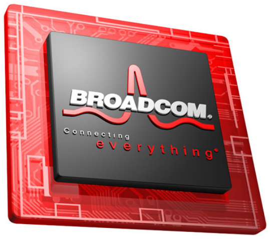
BCM5805 PRODUCT Brief



SECURITY PROCESSOR

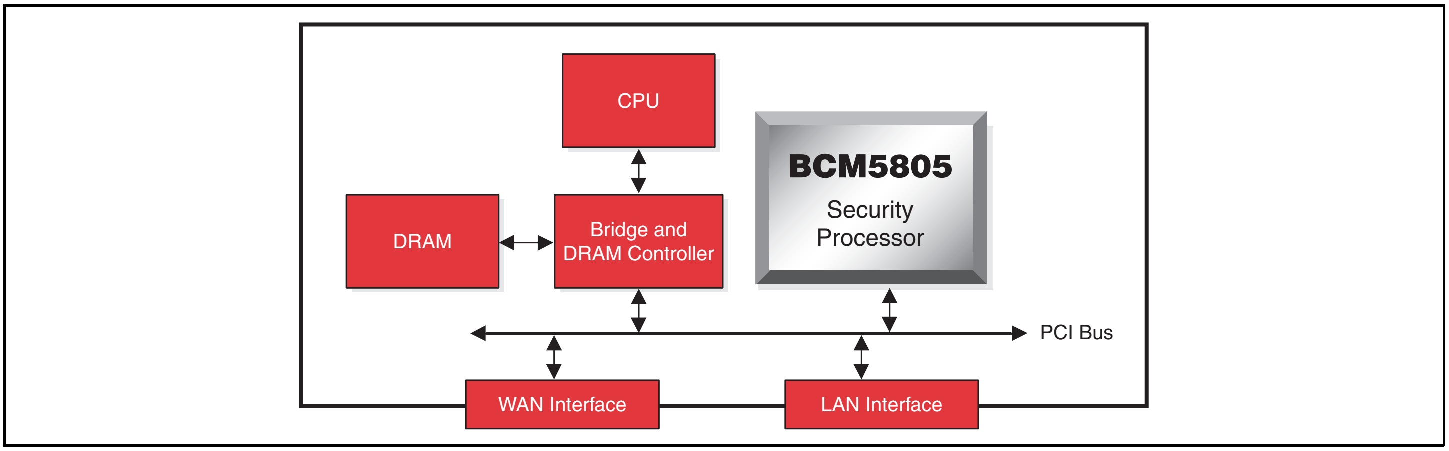
FEATURES

- High-performance single-chip security processor integrating full IPSec acceleration
- Supports DES, 3DES, HMAC- SHA-1, and HMAC-MD5
- 200-Mbps IPSec (3DES, SHA-1) "in-system" performance, with new Security Association (SA) per packet
- Unlimited SA support via system memory
- Extensive hardware acceleration support for IKE/SSL/TLS key setup
- Public-key acceleration unit supports over 180 Diffie-Hellman key exchanges/second
- Compatible with industry-standard SSH IPSec and IKE software
- True hardware random number generator
- Supports multi-packet processing and prefetch of packet data and context
- Multi-threaded DMA allows multi-packet processing with single PCI writes
- Accommodates most PCI latency problems without performance degradation
- PCI 2.2 interface, 32-bit, 33/66 MHz
- Low-power 3.3V design
- 144-pin DQFP package

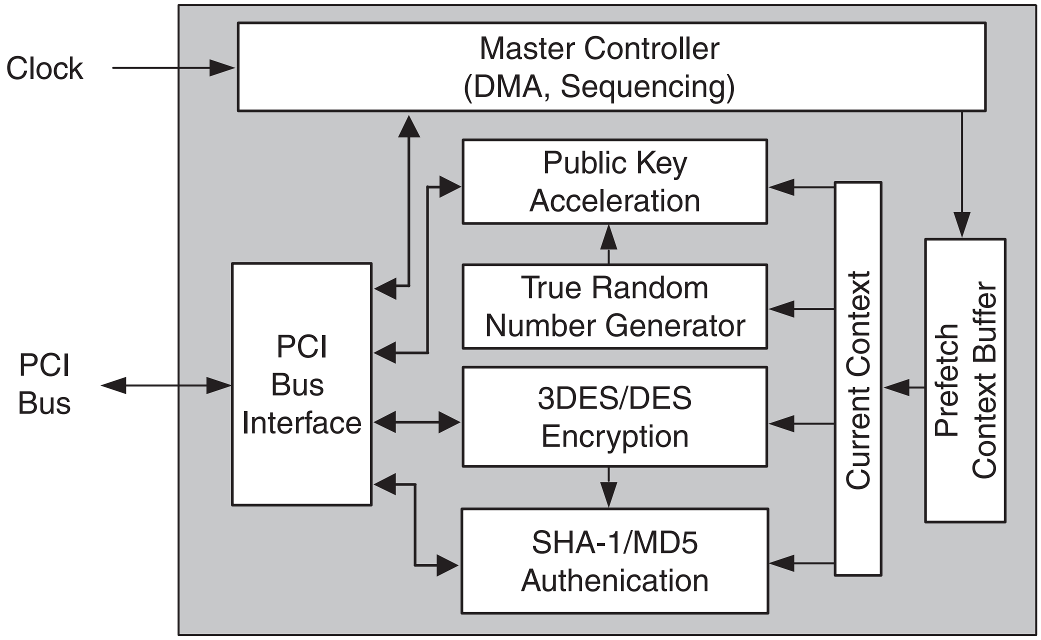
SUMMARY OF BENEFITS

- **Highly integrated security processor**
  - Single-chip IPSec, IKE, SSL/TLS accelerator
  - Multi-threaded DMA engine
  - True hardware random number generator
  - On-chip context buffer memory
  - Lowest system cost
- **Sustainable performance in real-world conditions**
  - DMA supports multi-packet processing
  - Prefetch of new context and packet
- **Flexible, easy-to-use PCI 2.2 interface**
  - No external components required
  - Ideal for low-cost add-in card applications
  - Compatible with all existing PC systems
- **Whole product solution minimizes time-to-market**
  - Software Reference Library (SRL) includes a hardware abstraction software layer
  - Compatible with industry-standard SSH IPSec and IKE software
  - Compatible with OpenSSL
- **Flexible VPN solution for all data security applications**
  - VPN appliances
  - SOHO routers and appliances
  - Access concentrators
  - IPSec acceleration

Virtual Private Network Appliance System Diagram



OVERVIEW



The BCM5805 security processor integrates a high-performance IPSec engine (DES, 3DES, HMAC-SHA-1, HMAC-MD5), public-key processor, true random number generator, PCI interface, and context buffer memory onto a single chip. The highly integrated BCM5805 security processor is an ideal solution for VPN-enabled networking products such as SOHO routers and gateways, VPN appliances, access concentrators, and network interface cards.

Accelerating bulk cryptographic functions (DES, 3DES, SHA-1, and MD5) and public-key operations, the BCM5805 is a streamlined design ideally suited for all cost-sensitive applications. Extensive hardware support for processing intensive public-key operations minimizes the user software required for IKE and SSL/TLS key negotiations.

The BCM5805 offers 200 Mbps of IPsec processing (3DES, HMAC-SHA-1) performance and 180 Diffie-Hellman key exchanges per second (1024-bit public key, 180-bit private key). IPSec performance is measured “in-system” on outbound packets, with new security associations per packet.

A true hardware random number generator on the BCM5805 is well suited for IV seeding and secret key generation.

The BCM5805 device’s PCI interface makes it a perfect solution for all cost-sensitive security applications. Requiring no external components, the BCM5805 is ideal for add-in card applications requiring IPSec acceleration. Unlimited security association (SA) support via system memory and a multi-threaded DMA engine utilizes system memory to maximize throughput in real-world applications. The ability to prefetch packet contexts minimizes the performance degradation when processing small packets.

Application program interface (API) support through Broadcom’s Software Reference Library (SRL) for IPSec and SSL application software offers BCM5805 users a complete system solution. Compatibility with OpenSSL and industry-standard IPSec software from SSH Communications eases integration and reduces time-to-market.

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