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BCM5820 PRODUCT Brief

E-COMMERCE PROCESSOR

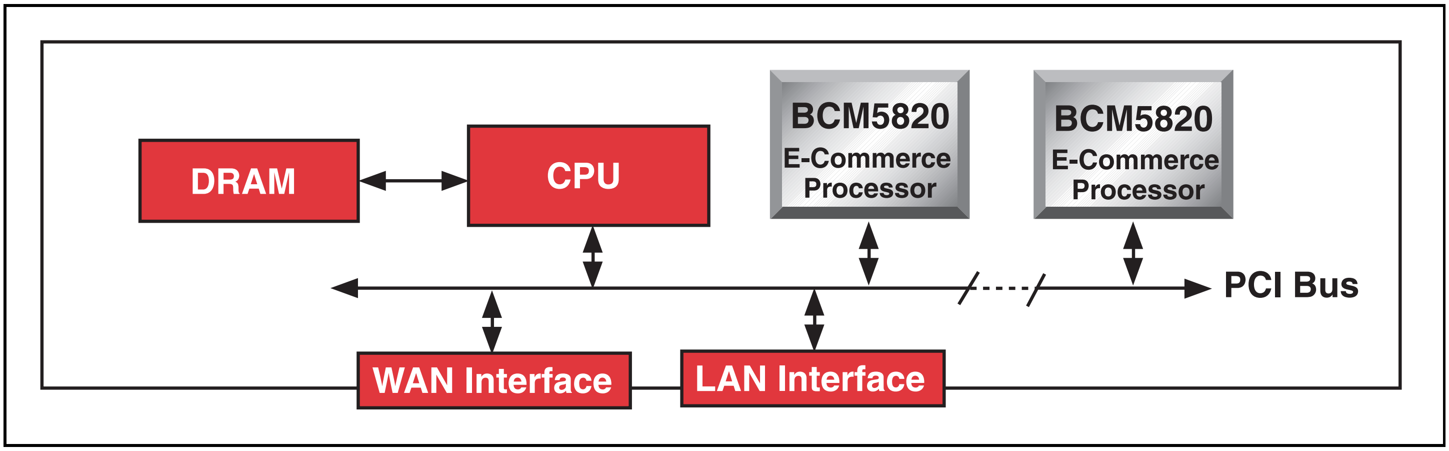
FEATURES

- **World's fastest integrated security processor for E-commerce SSL and VPN IKE applications. World's fastest integrated public-key setup processor includes:**
  - 1250 Diffie-Hellman key exchange pairs per second
  - 800-bit RSA private key signings per second
  - Hardware support for 2,048-bit keys
  - Extensive support for all SSL, TLS, and IKE modes
- **Integrated symmetric cryptography processor**
  - Support for IPSec and SSL/TLS payload processing
  - Single-pass IPSec encryption and authentication
  - 310-Mbps IPSec (3DES + MD5/SHA1)
  - 200-Mbps ARC4 processing
  - Support for unlimited number of simultaneous sessions
  - Full performance with a different session for each packet
- **Integrated true hardware random number generator**
- **Optimized prefetching PCI interface**
  - Full performance maintained independent of any reasonable PCI latency
  - PCI 2.2 interface, 32/64 bits, 33–66 MHz
- **0.22m-CMOS technology, 2.5V core, 3.3V I/0**
  - Low-power design
- **256-TBGA package**

SUMMARY OF BENEFITS

- **Incorporates all the functions of competitive board-level solutions at a fraction of the cost**
  - 800 RSA transactions per second, 4x–5x the speed of competitive boards
  - Integrated chip can reduce price point of SSL accelerators from thousands to hundreds of dollars
- **Reduces delays associated with secure E-commerce transactions**
  - Accelerates SSL protocol used in all web browsers
    - Standard in Internet Explorer® and Netscape Navigator®
    - Uses RSA encryption; compute-intensive operation
    - 4x the SSL connections per second of software-based Web servers
- **Features software-scalable architecture**
- **Software-compatible with the BCM5805**
- **Extensive software and systems support**
  - Software reference library supports popular E-commerce servers (Open SSL, Microsoft IIS®, iPlanet™/Netscape®, PKCS-11)
  - Complete reference design
  - FIPS 140-1 support
  - Multi-platform driver support:
    - Linux®,Win98®,Win2000®, FreeBSD, VxWorks®, Solaris™
- **Flexible E-commerce and VPN solution**
  - E-commerce servers
  - SSL proxy for Web switches, load balancers
  - SSL and VPN appliances

SSL/TLS E-Commerce Server Diagram



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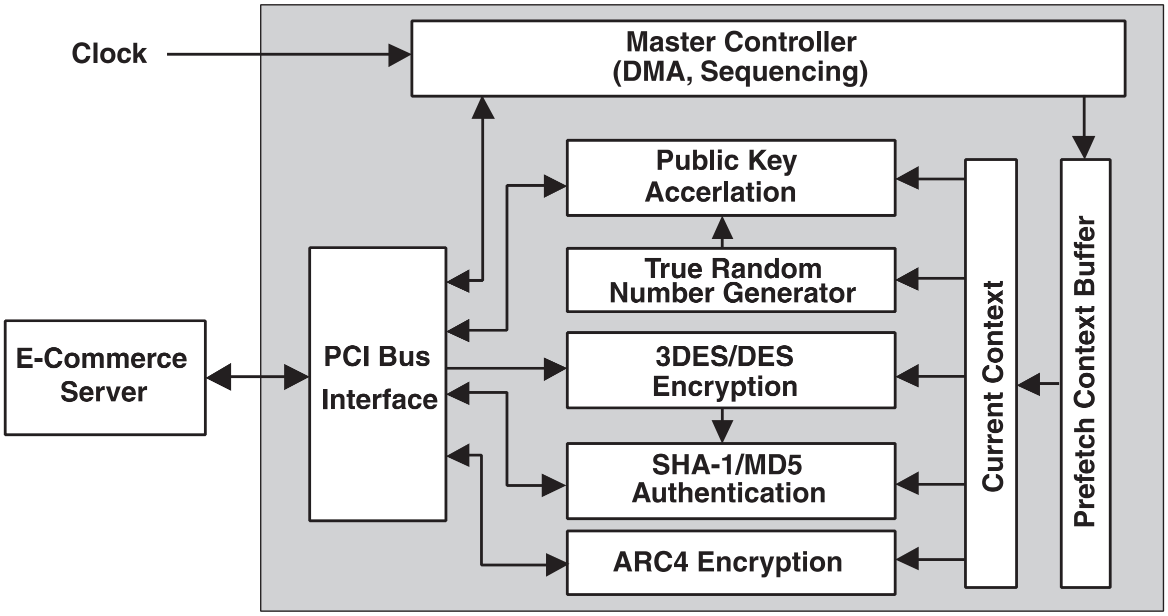
OVERVIEW



The BCM5820 integrates into a single 256-BGA package 4x–5x the public-key performance of competing board level products at a fraction of the cost. The BCM5820 device's 32/64 33- to 66-MHz PCI interface makes it a perfect solution for add-in card applications for high performance E-commerce servers, load balancing, and web switching equipment.

The BCM5820 offers full-duplex OC3 IPSec processing (310-Mbps 3DES, HMAC-SHA-1) performance, and in excess of 1250 Diffie-Hellman transactions per second (1024-bit public key, 160-bit private key), and 800 RSA private key signings per second. The BCM5820 is also ideal as a high performance VPN IKE coprocessor in Internet infrastructure aggregation equipment.

The highly integrated BCM5820 E-commerce processor is the ideal solution for offloading compute-intensive SSL operations in E-commerce servers and networking products such as Web switches and load balancing devices. Extensive hardware support for processing-intensive public key operations minimizes the user software required for IKE and SSL/TLS key negotiations. The BCM5820 is also software-compatible with the BCM5805 E-commerce processor.

The BCM5820 E-commerce processor integrates the industry's highest-performance single-chip public key processing unit, 200-Mbps ARC4 engine, true random number generator, high-performance IPSec engine (DES, 3DES, HMAC-SHA-1, HMAC-MD5), and 64/66 PCI interface all in a single chip configuration.

Requiring no external components, the performance of the BCM5820 system can easily be scaled by adding more BCM5820 chips in board-space-sensitive rack-mount equipment. An aggressive prefetch DMA eliminates the need for external memory and maximizes throughput under real-world conditions.

API support through Broadcom's Software Reference Library (SRL) for SSL and IPSec application software offers BCM5820 users a whole product solution. Compatibility with Open SSL, Microsoft IIS, iPlanet/Netscape, PKCS-11, Novell®, and industry leading IPSec software from SSH Communications eases integration and reduces time-to-market.

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