

## Benefits

- Silicon-proven
- High degree of integration
- World-class support
- Easy to integrate
- Modular design
- Reduces time to market
- Supports wide range of applications

*“The integration of SafeNet’s SafeXcel IP Packet Engine into our high-performance processors allows AMCC customers to address the growing security, cost, and performance requirements of today’s demanding applications.”*

Sam Fuller  
Vice President  
of Marketing, AMCC

# SafeXcel IP

## Silicon-Proven Semiconductor Security

In order to make next-generation processors suitable for fast and reliable security processing, chip designers are often faced with two options: designing security features from scratch, which often results in lengthy and expensive design cycles, or licensing silicon-proven semiconductor IP from a trusted security vendor that makes it easy and cost-effective for chip designers to integrate advanced security functionality into various semiconductor designs, such as NPUs, communications processors, and custom ASICs and FPGAs.

SafeNet provides high-performance, highly integrated security engines that support cryptographic algorithms and protocol-related security operations for a wide range of applications. Silicon-proven and ready-to-use, the SafeXcel™ IP security engines are a reliable security solution for chip designers—delivering quick time-to-market while reducing design cost.

### Broad Suite of Security Engines

SafeXcel IP solutions enable OEM customers to rapidly implement a wide range of security functions in system-on-chip designs, including cryptographic building blocks, VPN packet engines for SSL and IPSec, and content inspection engines.

### VPN Packet Engines

#### *SafeXcel IP – Packet Engine*

- Highly integrated, lookaside security processor
- Support for IPSec, SSL/TLS/DTLS, MACsec and SRTP packet transforms
- Support for IPv4, IPv6, and Jumbo packets
- Support for DES/3DES, AES, ARC4
- Support for MD5, SHA-1, GMAC, SHA-256/512, AES-XCBC-MAC-96
- Support for Pseudo Random Number Generation, True Random Number Generation, AES-XCBC-MAC-PRF
- Support for AES-GCM (ESP and 802.1ae (MACsec) mode) and AES-CCM (WiMAX and Wi-Fi)
- Support for public key operations (including ECC)

#### *SafeXcel IP – Inline Packet Engine*

- Highly integrated inline security processor
- Support for IPSec, MACsec and SRTP packet transforms
- Packet classification, flow processing, and firewalling
- Support for IPv4, IPv6 and Jumbo packets
- NAT, NAPT, NAT-T
- Support for DES/3DES, AES
- Support for MD5, SHA-1, HMAC, GMAC, SHA-256/512, AES-XCBC-MAC-96
- Support for Pseudo Random Number Generation, AES-XCBC-MAC-PRF
- Support for AES-GCM (ESP and 802.1ae (MACsec) mode) and AES-CCM (WiMAX and Wi-Fi)

### Cryptographic Building Blocks

#### *SafeXcel IP - DES / 3DES Accelerators*

#### *SafeXcel IP - AES, AES-GCM and AES-XTS Accelerators*

#### *SafeXcel IP - ARC4 Accelerators*

#### *SafeXcel IP - MD5/SHA-1/SHA-256/512 Accelerators*

#### *SafeXcel IP - True Random Number Generator*

#### *SafeXcel IP - Public Key Accelerators*

### Mobile Security Engines

#### *SafeXcel Trusted Module IP*

- Highly integrated module, designed for use in wireless and consumer devices
- Provides trust boundary in order to protect secret information from being compromised
- Small silicon footprint, low power requirements
- Supports hardware acceleration for encryption and hashing functions (DES/3DES, AES, MD5, SHA-1)
- Supports Public-Key Operations
- Supports True Random Number Generation
- Enables emerging mobile applications such as DRM (Digital Rights Management)

## Ease of Integration and World-class Support

Years of experience in designing silicon security products made SafeNet the leading vendor of complete, reliable, and high-quality semiconductor IP products, featuring cost-efficient designs and user-friendly product interfaces. SafeNet's global presence and expertise in security IP design enables us to provide our customers with world-class OEM support that is unmatched in the industry - supporting your design-in process and ensuring the success of your project.

## Complete Hardware/Software Solution

SafeXcel IP is a key component of SafeNet's fully integrated security systems for OEMs. SafeNet offers a wide range of security solutions for Telecommunications, SME, SOHO, ODM/OEM and Semiconductor markets with products that include QuickSec software development toolkits, SafeXcel hardware security co-processors and semiconductor IP. This complete suite of integrated security hardware and software products enable vendors to build complete network security. For more information, please visit [www.safenet-inc.com/oemnetworking](http://www.safenet-inc.com/oemnetworking)

## Deliverables

### Synthesizable Verilog RTL source code

- RTL test bench, including test vectors and expected result vectors
- Simulation script
- Synthesis script
- User Documentation : Data Sheet and Developer's Manual

## SafeNet Contact Information

For more information, please contact SafeNet's Embedded Security Division at +1 410-931-7500 or [oemnetworking@safenet-inc.com](mailto:oemnetworking@safenet-inc.com) or visit <http://www.safenet-inc.com/solutions/dev/intProp.asp>

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