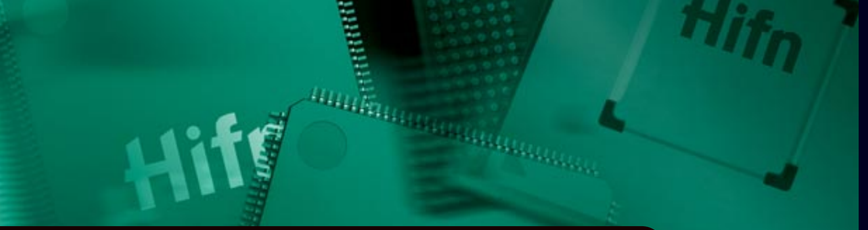

Data security can slow Internet communications down to a crawl because of the extra computing required to keep business transactions private. Hifn's security solutions provide the highest level of security without sacrificing line rate speed.

Hifn supplies the most advanced compression, encryption, authentication, and application recognition technologies. Companies around the world trust Hifn to accelerate, secure, and classify their data communication traffic across the Internet.

Hifn

Intelligent Secure Networking


**Headquarters**
750 University Avenue
Los Gatos, CA 95032
408.399.3500 tel
408.399.3501 fax
info@hifn.com
www.hifn.com

**East Coast Sales Office**
319 Littleton Road
Suite 308
Westford, MA 01886
978-392-4701 tel
978-392-4710 fax

**Central Sales Office**
19620 Via Verde Lane
Monument, CO 80132
719-487-0150 tel
719-487-0147 fax

**Europe Sales Office**
Vendeliersstraat 2
5175 TX Loon op Zand
The Netherlands
+31 (0) 651 338 959 tel
+31 (0) 416 348 624 fax

**General Information:**
info@hifn.com
**Sales Information:**
sales@hifn.com
**Public Relations:**
press@hifn.com
**Quality Information:**
quality@hifn.com
**Applications Support:**
applications@hifn.com


## About Hifn

Hifn, of Los Gatos, California makes integrated circuits and software for storage and network infrastructure developers. Hifn's integrated data flow technology enables intelligent secure networks with compression, encryption and application-aware classification. This is central to the growth of the Internet, helping to make electronic mail, web browsing, data storage, Internet shopping and multimedia communications better, faster and more secure. Most of the major network equipment manufacturers use Hifn's patented technology to improve packet processing.

## Hifn Security Processor Selection Guide

| Hifn Products | PCI | Streaming Bus | GigE Bus | LZS MPPC | 3-DES AES | SHA MD5 | RSA DSA | 1k-bit RSA SSL signatures set-ups per second | IKE main-mode tunnels per second | Hardware support for public keys up to | Hifn Intelligent Packet Processing | IPsec Performance | Package |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HIPP I 7815 | ■ | | | ■ | ■ | ■ | ■ | 120 | 85 | 2K bits | ■ | 325 Mbps | 480-pin PBGA |
| HIPP I 7855 | ■ | | | ■ | ■ | ■ | ■ | 241 | 150 | 2K bits | ■ | 600 Mbps | 480 OR 625-pin PBGA |
| HIPP II 8154 | ■ | ■ | | ■ | ■ | ■ | ■ | 906 | 450 | 3K bits | ■ | 2.4 Gbps | 576-pin TBGA |
| HIPP II 8155 | ■ | ■ | | ■ | ■ | ■ | ■ | 1000 | 500 | 3K bits | ■ | 2.8 Gbps | 576-pin PBGA |
| HIPP III 8300 | | | ■ | | ■ | ■ | ■ | 250 | 90 | 4K bits | ■ | 2 Gbps | 324-pin LBGA |
| HIPP III 8350 | | | ■ | | ■ | ■ | ■ | 400 | 150 | 4K bits | ■ | 4 Gbps | 324-pin LBGA |
| HIPP III 4300 | | | ■ | | ■ | ■ | ■ | 10 | 5 | 4K bits | ■ | 2 Gbps | 324-pin LBGA |
| HIPP III 4350 | | | ■ | | ■ | ■ | ■ | 300 | 75 | 4K bits | ■ | 4 Gbps | 324-pin LBGA |
| 7954 | ■ | | | ■ | ■ | ■ | ■ | 42 | 35 | 3K bits | | 148 Mbps | 480-pin TQFP |
| 7955 | ■ | | | ■ | ■ | ■ | ■ | 84 | 70 | 3K bits | | 307 Mbps | 480-pin TQFP |
| 7956 | ■ | | | ■ | ■ | ■ | ■ | 84 | 70 | 3K bits | | 632 Mbps | 480-pin TQFP |

## Hifn Compression Processor Guide

| Hifn Products | DMA | LZS | Package |
|---|---|---|---|
| 9600 | ■ | ■ | 100-pin PQFP |
| 9620 | ■ | ■ | 144-pin LQFP |
| 9630 | ■ | ■ | 144-pin TQFP |

## Hifn Network Processor Guide

| Hifn Products | Packet Speed | PCI | GMII | SMII | TBI | Package |
|---|---|---|---|---|---|---|
| 5NP4G | 4.5 million packets per second | ■ | ■ | ■ | ■ | 1088-pin BSM-CCGA |


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# Chips and Software Overview

Hifn

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# Hifn

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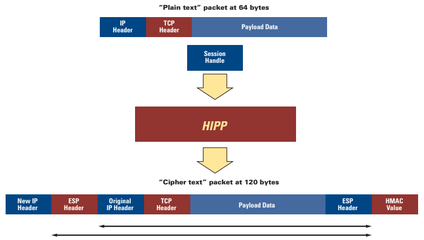
## Superior Technology

By using Hifn's comprehensive network security solutions, customers gain an edge over their competition. The unique Hifn all-in-one technology is inexpensive and easier to implement in networking hardware than other solutions on the market today. Hifn's unequaled compression expertise with LZS data compression – a de facto networking industry standard – means interoperability and huge deployment savings for network-based business communications.

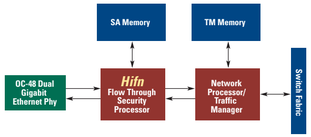
## HIPP (Hifn Intelligent Packet Processing)

In November 2000, the company brought to market the HIPP security processor. The first security processor on the market with intelligent packet processing, HIPP includes a wide range of industry standard compression, public key, encryption, and authentication engines. Hifn's security processors offer the unique ability to dynamically handle both IPsec and SSL processing. By leveraging firmware flexibility for protocol support for both IPsec and SSL, Hifn security processors can now support emerging applications that possess both IPsec VPN and SSL VPN functionality. Hifn also supports TLS and proposed AES ciphersuite extensions to TLS. TLS enhances SSL's older key exchange and message integrity options, for even stronger security. Hifn's IPsec and SSL solutions deliver high connection rates and scale to multi-gigabit throughputs. Hifn's packet processing firmware can also be extended to future protocols.




## HIPP III – Moving to FlowThrough™

The Hifn FlowThrough Security Architecture positions IPsec and other security processing where it belongs - directly in the data path. This approach enables expanded security processor functionality, optimizes encryption performance, and minimizes overall system overhead. System designers are freed from worrying about how security functionality will impact system design and performance. Integration is simplified through the use of standard software and hardware interfaces and the requirement of only a minimum of software for configuration and exception handling.



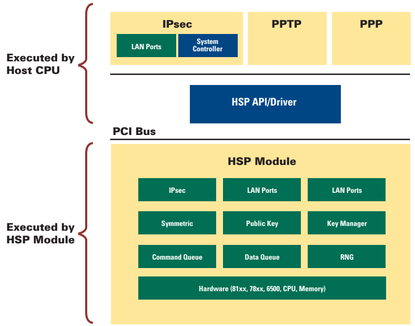

Hifn has again pioneered yet another higher level of security integration on a single chip. The HIPP III 4300, 4350, 8300 and 8350 are the industry's first true FlowThrough security processors and process the entire IPsec and IKE protocols in an in-line architecture. Hifn is the only vendor today that offers such a complete solution on a single chip.

This system-on-a-chip solution offers unprecedented price/performance value. This approach not only lowers the device cost, but also significantly lowers the system cost and engineering development cost. The FlowThrough architecture is indeed a significant leap forward in embedded security solutions.

## HSP

In addition to industry leading security processor chips Hifn can provide embedded systems solutions for high security FIPS 140-2 cryptographic modules. The Hifn Security Platform (HSP) provides the highest level of systems security to ensure that the integrity of the cryptographic system and secret keys even if a hacker or virus compromises the host processor. Viruses and vulnerabilities are no longer the exclusive problem of desktop and server computers. New exploits can now attack even the routers and firewalls that we depend on to keep our networks secure. The new watchword for security is "defense in depth." Strong cryptography requires strong systems at the endpoints to protect the keys and secrets that everything else depends on.

HSP uses a private CPU and memory inaccessible from the host to protect keys and session contexts. It uses a secure API and cryptographic authentication of it's own firmware to ensure that no secrets will be revealed even if an intruder gains full control of the host system.




## LZS Compression

Hifn's core compression technology has been adopted throughout its target markets in a wide variety of networking and storage standards. Hifn patents provide the fundamental know-how for the design of high-performance, cost-effective implementations of lossless compression of data. Hifn's LZS compression algorithm has been standardized by many organizations, including ANSI (X.3.241), QIC (122), IETF (RFC 1967, RFC 1974), TIA/EIA (655), and the Frame Relay Forum (FRF.9).

Apart from the storage market, LZS compression plays a vital role for VPN equipment manufacturers. Most of Hifn's security processors contain high-speed compression engines that grants service providers three primary benefits, which in turn, are passed on to the VPN user.

- **First, compressed packets consume less network equipment bandwidth.**
- **Next, compression reduces fragmentation of packets due to IPsec processing, since packet length is shorter.**
- **Thirdly, line rate performance is significantly enhanced.**

Hifn is the only company that provides LZS compression and security on a single, low-cost processor.

## MeterFlow™ Classification

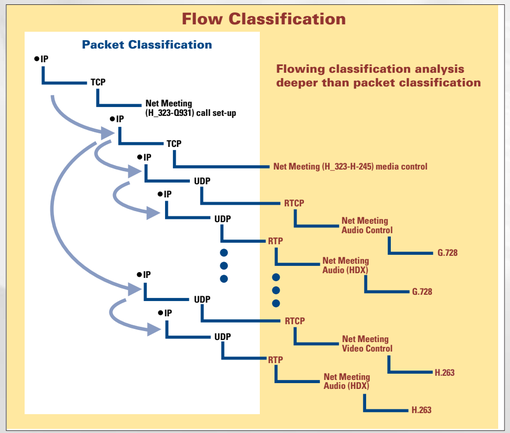
Through its stateful analysis, MeterFlow tracks applications as they dynamically create network sessions (VoIP, Web based FTP, Oracle, SAP, etc.). This capability is crucial for providing information about how network applications are performing and the effects they are having on network productivity.

MeterFlow's patented technology is used by OEMs to embellish their own solutions and product offerings by offering greater visibility to more application information thereby making the vendor solution more robust and differentiated. Systems such as firewalls, NAT (Network Address Translation) devices, intrusion detection systems, QoS & bandwidth management systems, and policy-based management tools can benefit from the application-awa re, deep packet classification information and services that MeterFlow provides.

## Network Processors

Hifn's line of network processors are advanced, robust, programmable, high-performance solutions for the most demanding routing applications. In addition, Hifn's run to completion software model allows network equipment vendors to provide services on the same routing platform. Hifn's family of network processors are designed to enable networking equipment vendors to respond to the rapid evolution of networking applications and market needs by enhancing and differentiating their products with multi-gigabit software rather than hardware.

The embedded PowerPC gives manufactures the flexibility to support custom functions, such as enhanced frame processing, configuration, and box management. The integrated PCI interface enables connection to new peripheral devices to help meet customer needs.




Meeting time-to-market requirements is essential. Hifn's Advanced Software Offering and development tools provide an open control and data infrastructure through APIs residing on a general-purpose processor and on the chip itself to leverage the hardware capability and programmability of the 5NP4G. A protocol stack interface provides specific application support for easier implementation of 5NP4G-based products in a wide range of network applications.