

Safer, simpler networks.

# Crossbeam X40<sup>®</sup>

## Security Services Switch



The Crossbeam X40 is the industry's first "Security Services Switch" – a custom built platform for high-end networks that gives users a totally secure infrastructure using the best security technologies available on the market.

**FOR ULTIMATE POWER AND CONTROL** The X40 platform is designed from the ground up to offer true carrier class **high availability** and **superior performance** (up to 4 Gbps of firewall) while running multiple best-in-class **security engines** for firewall, accelerated virtual private networks (VPNs), intrusion detection and prevention, anti-virus and employee Internet content management (URL Filtering). This solution offers organizations a **safer, simpler solution for network security** – resulting in operational and capital efficiencies not achievable with disparate products.

**MULTIPLE SECURITY TECHNOLOGIES** These days, just a perimeter firewall to protect a company's information security assets is not enough. Many technologies are needed, and many of these technologies are continually evolving. Traditional approaches to building layered defense-in-depth security architectures required multiple disparate devices. Each device required its own maintenance (patches, upgrades), management infrastructure, and connectivity. And configuring the right data flow through the separate security technologies required an intricate knowledge of routing, tapping, and/or port mirroring. Scaling performance meant adding load balancers which added yet another layer of complexity. All together every element increases complexity and vulnerability.

The X40 fundamentally improves the economics of security by integrating depth of defense into an easy to implement multi-technology security solution. All of the security technologies are tied together by a sophisticated chassis-based system that removes the need for external switches, load balancers, taps and/or port mirrors. Configuring flow paths through the multiple security technologies is easily handled from an easy to use Graphical User Interface (GUI) that gives the user complete flexibility. This consolidation creates the most secure and economical defense model in the industry.

# Crossbeam X40

The Crossbeam X40 security services switch is:

- A multiple security engine platform that delivers high-performance (up to 4 Gbps) of security processing including firewall, VPN, intrusion detection, anti-virus scanning, URL filtering, content filtering and anti-spam defenses
- A carrier-class chassis-based product with no single point-of-failure for the complete redundancy that is required in high-end data enterprise and service provider networks
- A modular architecture that decouples network processing from security application processing. Users are now able to adapt to new security requirements, additional performance requirements, and new and additional interface connectivity requirements, all without major equipment upgrades
- A platform that uses best-in-class security engines, providing users with the highest levels of protection and the best strategy for adapting to the ever-changing threat landscape

The X40 is composed of the following leading edge components:

## Chassis, Backplane, Power Supplies, and Fans

- 14-slot carrier-class chassis
- Two passive data backplanes (with 1.6 Gbps fully switched links)
- Two passive control backplanes (with 100 Mbps fully switched links)
- Up to four 1200W AC power supplies (only two, using around 600W, are used to run the entire system) with separate power feeds
- Two fan trays with a total of 15 fans



## Network Processing Modules (NPMs)

- Network Processing Modules (NPMs) support full line-speed flow classification and integrate Crossbeam's patent pending load balancing algorithm for an even distribution of flows. Flow definitions are fully user-configurable
- Two NPMs in an X40 can be configured to be completely independent, or they can be configured in a pair for Active/Active or Active/Standby redundancy



## FOUR VERSIONS OF THE NPM ARE OFFERED:

- The NPM 8200 has eight Gigabit Ethernet (SX or LX) interfaces
- The NPM 8210 has sixteen Fast Ethernet (10/100 Mbps) interfaces
- The NPM 4100/8100 has two Gigabit Ethernet (SX or LX) interfaces
- The NPM 4110/8110 has one Gigabit Ethernet (SX or LX) interface and eight 10/100 Ethernet interfaces

## Application Processing Modules (APMs)

- Application Processing Modules (APMs) process received flows from the NPM by using best-in-class security engines.
- Each APM runs one instance of a security engine and the APMs can be grouped to create load balancing groups for high availability and increased processing performance. Multiple APM groups can be created to design a complete defense-in-depth security model entirely housed within a single X40.



## APM OPTIONS

- Each APM can be ordered with either an optional 20 GB hard drive or VPN acceleration engine. The hard drive is recommended for disk-intensive security engines such as IDS and anti-virus, and the VPN acceleration engine is used to accelerate 3DES IPSEC traffic for VPN applications.
- Additionally, each APM can support up to 4 GB of local DRAM and a second CPU (recommended for anti-virus applications).

# Key Benefits

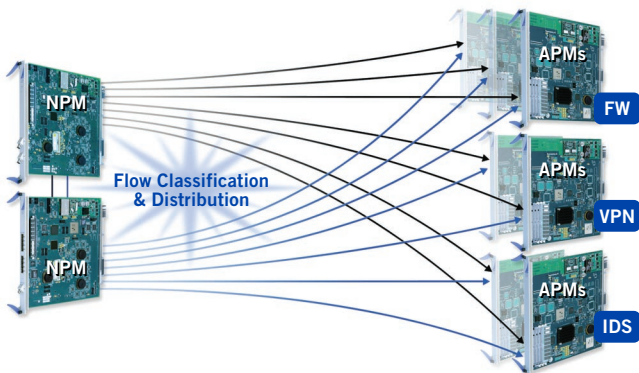
## Control Processing Modules (CPMs)

- Control Processing Modules (CPMs) manage the system's vital signs by constantly monitoring all modules for failures and performing the appropriate switch-over activity. The CPMs also provide the user with dedicated management interfaces to connect to management stations and logging servers.
- Two CPMs act as a redundant Active/Standby pair with RAID-1 mirrored hard drives.



## X-Series Operating System (XOS)

XOS is a secure operating system that combines both the power and speed of embedded real-time operating systems with the application flexibility and security of the Linux operating system.



The NPMs run a real-time OS from VxWorks™, the OS found in most high-end networking products. The APMs and CPMs run a hardened Linux kernel and operating system specifically optimized for the X40. This operating system is called Crossbeam Linux and is compatible with most security applications that are compiled for Linux.

The Crossbeam X40 Security Services Switch reduces security complexity for networking and security managers.

### REDUCED SITE COMPLEXITY

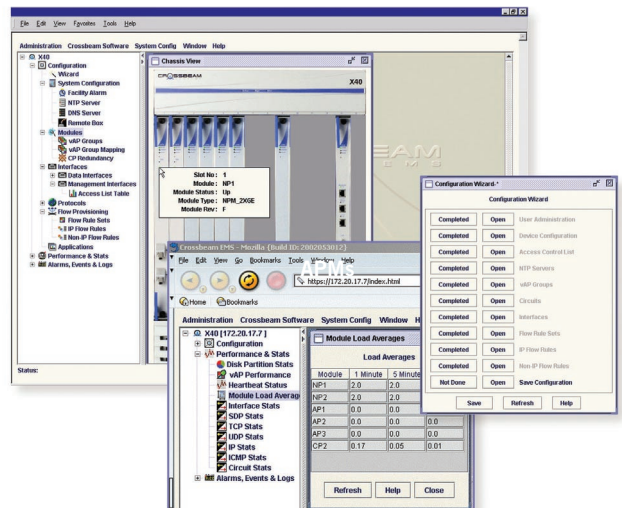
- Consolidation of multiple load balancers, switches and appliances into one security services switch for easier management and lower CapEx and OpEx
- Reduction in network resources and personnel to manage security infrastructure – freeing up resources for more critical activities and projects

### EASIER CONFIGURATION

- Automatic load balancing – no need for manual inputs
- Automatic fail-over for zero service disruption
- No configuration required to dynamically add resources to a group

### SIMPLER MANAGEMENT

- Management of one device versus tens, even hundreds, of devices
- Consolidated point of security policy administration resulting in fewer holes for intruders



# X40 CHASSIS Technical Specifications

## CHARACTERISTICS

Physical and Power	Dimensions: 762mmH x 444.5mmW x 444.5mmD (30in. H x 17.5in. W x 17.5in. D) Front and mid-rack mountable, standard 19" racks Weight: 100 lb. Chassis, 190 lb. fully loaded Power: 100-240 VAC, 1,000W (rated maximum)
Environment	Temperature: 0° - 40°C (32° - 104°F) with Single P-III APMs; 0° - 35°C with Dual P-III APMs Humidity: 10% - 90% non-condensing Altitude: 3048 m (10,000 ft.)
Regulatory Compliance	Safety: UL 60950, IEC 950
Emissions	FCC 47 CFR Part 15 Class A, EN 55022 Class A / EN 55024, VCCI V-3, AS/NZS 3548:1995, CNS 13438 Class A
Status Indicators	System status LEDs (Critical/Major/Minor), Module status LEDs, Port status LEDs, Power supply status LEDs

## NPM 4100/8100, NPM 4110/8110, NPM 8200, NPM 8210

Interfaces	NPM 4100: 2 x 1000BASE-SX/LX full duplex NPM 4110: 1 x 1000BASE-SX/LX, 8 x 100BASE-T NPM 8200: 8 x 1000BASE-SX/LX full duplex NPM 8210: 16 x 100BASE-T
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## INTERFACE SPECIFICATIONS

Interface	Gigabit Ethernet	10/100 Ethernet
Connector Type	1000BASE-SX or LX, LC multimode	10/100 RJ-45
Maximum Distance	62.5 micron fiber – 260 m (853 ft.), 50 micron fiber – 550 m (1805 ft.) 10 M with LXX	Cat 5 – 100 M (328 ft.)

## APM 4200/8200 — CHARACTERISTICS

Processor, Memory and Options	Single and dual Pentium III 1.26GHz options with 512 MB of Memory (up to 4 GB) Optional Local 20 GB Hard Drive or VPN Acceleration Engine
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## CPM 8100 — CHARACTERISTICS

Processor, Memory and Storage	Pentium III 1GHz with 256 MB Memory and 20 GB hard drive
Interfaces	Logging port: 10/100/1000 Management and HA ports: 2 x 10/100 Modem and console ports: 2 x RS232

## INTERFACE SPECIFICATIONS

Interface	10/100/1000	10/100	RS232
Connector Type	RJ45	RJ-45	DB9
Maximum Distance	Cat 5E, Cat 6-100m (328 ft.)		Cat 5 - 100m (328 ft.)

# Crossbeam X40

## Features

**CROSSBEAM'S X-STREAM™ FLOW TECHNOLOGY** The X40 platform supports highly complex, performance-intensive network security configurations through the X-Stream™ flow processing technology. X-Stream is composed of:

- *Intelligent Load Balancing* – load balancing from the NPMs to the APMs based on the actual device usage metrics on the APMs
- *Serialization* – allows security managers to route flows through the X40 in any conceivable order (e.g. firewall to anti-virus to URL filter to firewall via hardware-based multicasting)
- *Parallelization* – allows for the duplication of flows for passive or sensing applications such as intrusion detection

### **DATA CENTER- AND CARRIER-CLASS PLATFORM**

- Redundant fans, power supplies and redundant passive backplane
- Two (redundant) data switch fabrics and two (redundant) control switch fabrics
- Per - port logical interface redundancy (VRRP-based)
- Application availability (load balancing) and dynamic stateful reroute of flows around failed application modules
- Dynamic standby application module for M:N sparing
- Full hot-swap and zero-configuration replacements for failed applications modules
- Dedicated high availability link between systems

### **MULTIPLE SECURITY ENGINES RUNNING CONCURRENTLY**

- Applications pre-loaded and ready for easy installation
- Best-in-class security engines for firewall, VPN, intrusion detection/prevention, anti-virus and URL filtering

### **PERFORMANCE**

- Up to 4 Gbps firewall throughput and up to 2.8 Gbps VPN throughput
- Multiple applications processed in parallel with no added latency per application
- VPN hardware acceleration card for APM-4200 for up to 280 Mbps of VPN or SSL traffic per module
- QoS rate limiter that allows the user to define a guaranteed rate and a maximum burst rate with 1 Kbps granularity

**SECURE LINUX-BASED OPERATING SYSTEMS** The APMs use a custom hardened version of Linux that is specifically optimized for secure processing of network flows yet allows for quick and easy support of new applications or unique applications to the customer environment.

**EASE OF MANAGEMENT** X40 systems are managed over secure standards-based interfaces (SSH and SSL) with multiple levels of access control. Configuration and user policies are managed from a GUI-based management station. All configuration is also fully supported in a complete Command Line Interface (CLI). Applications running on the X40 are managed using their native management tools, and can be managed from the same station and over the same interfaces as the X40 system.

**COST EFFECTIVE SCALING TO MEET INCREASED BANDWIDTH AND SECURITY REQUIREMENTS** Data center deployment eliminates the need for multiple server and load balancer configurations (“firewall sandwiches”), enabling the X40 system to scale cost effectively with growing bandwidth and security application service requirements.

**FLEXIBLE CONFIGURATION AND REDUNDANCY** The Crossbeam X40 system has a flexible configuration with hot-swappable modules assuring in-service configuration modification.



## About Crossbeam Systems

Crossbeam Systems, Inc. is a leading global developer of total security solutions required for safer, simpler networks. Crossbeam enables companies to consolidate their security infrastructures while preserving their security policies, resulting in significant savings in capital and operational expenses. Crossbeam's patent-pending architecture integrates best-in-class security engines such as firewall, virtual private networks, intrusion detection and content security into high performance, highly available, self-healing security services switches. The company has tailored solutions for global enterprises, carrier networks and medium-sized businesses. More information is available at [www.crossbeamsystems.com](http://www.crossbeamsystems.com).

Crossbeam Systems is proud to partner with these best-in-class vendors:



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