

CROSSBEAM X-SERIES BLADES

BENEFITS:

- Utilize best-in-class applications to fit your business and maximize security
- Adapt security performance and scaling to fit your business
- Lower total cost of ownership with dramatic network consolidation and energy consolidation
- Extend hardware capital depreciation cycles to 5+ years
- Decrease downtime with self-healing fully modular platform

NETWORK PROCESSOR MODULES

The NPM blade provides the switching fabric, physical interfaces, load balancing, and switching functions for the X-Series platform. That means you can effectively consolidate networking gear - making you more efficient and reducing IT engineer installation and configuration time drastically.

But the NPM is so much more than that.

We believe at Crossbeam that as you add more processors, your overall performance should increase linearly. Why pay for processing you can't use? The NPM blade is like a finely tuned Direct Fuel Injection Engine, sending the drops of gasoline to the cylinders in just the right quantity at just the right time, to achieve maximum power and efficiency.

Like gasoline, the data is finely controlled as it enters the Crossbeam platform via the NPM. Using a Crossbeam technology called Switched Data Paths, we send data dynamically to the individual processor cores and can even re-allocate flows on the fly to maximize system performance.

The result? A well-tuned engine that can achieve true linear scalability as more processing cores are added to the platform. To use the same analogy, an off-the-shelf appliance would be using a manual engine carburetor that struggles to efficiently get the fuel to the engine as the car accelerates. Off-the-shelf architectures rely on a manual intervention to tie a physical interface to a processor core. The problem - what if the traffic load increases on different interfaces? The architecture can not adapt fast enough to cope with the changes in traffic flow.

Bottom line - In order to best leverage your assets and maximize system life, it's all about control.



	NPM-8620	NPM-8650	NPM-9610	NPM-9650
X-Series Chassis Compatibility	X45-AC3, X60, X80-AC2, X80-AC3, X80-DC2, X80-DC3, X80-S, X80-S-DC		X60, X80-AC2, X80-AC3, X80-DC2, X80-DC3, X80-S, X80-S-DC	
XOS Compatibility	XOS 8.5 or higher	XOS 8.5 or higher	XOS 9.6 or higher	XOS 9.6 or higher
Environment	Temperature 0 to 40°C (32 - 104°F); Humidity: 10% - 90% non-condensing; Altitude 3048m (10,000ft)			
Regulatory Compliance	RoHS; UL 60950, IEC 60950, FCC 47 CFR Part 15B Class A, EN 55022 : EN 55024, VCCI V-3 : AS/NZS CISPR22; CSA C22.2#60950			
Network Interfaces	10 x 1G SFP	10 x 1G SFP & 2 x 10G XFP	16 x 1G SFP/10G SFP+	16 x 1G SFP/10G SFP+
Memory	2GB	2GB	4GB	4GB
Memory Options	No Options Available	8GB memory upgrade available	16GB memory upgrade available	16GB memory upgrade available
Network Throughput	5Gbps	10Gbps	10Gbps	40Gbps
Performance Upgrade Options	No Options Available	No Options Available	10G to 40G license upgrade available	No Options Available
Packet Rate (PPS)	7 Million PPS	12 Million PPS	14 Million PPS	40 Million PPS
Maximum Connections	8 Million	8 Million (50 Million w/ memory upgrade)	18 Million (100 Million w/ memory & license upgrade)	18 Million (100 Million w/ memory & license upgrade)
Connection Setup Rate	65,000 CPS	115,000 CPS	115,000 CPS	115,000 CPS

APPLICATION PROCESSOR MODULES

The APM blade provides the horsepower to run the applications. The more blades the more power. Each APM can run one application in what we call a "Virtual Application Processor" (VAP) and you can decide to combine APMs together into what is called a VAP Group. This means that you can scale the performance of individual applications running inside the X-Series.



Our approach to application processing architecture is to use the very latest embedded Intel Xeon processors allowing us to run any X86 compatible application very quickly and with low power. Why design custom silicon to run one application, when all the others will be compromised? Three versions of the APM are available with 4, 8 and 12 core options, providing up to 120 processor cores per chassis and a total processing capacity per APM of up to 12Gbps.

	APM-8650-4 Core	APM-8650-8 Core	APM-9600 12 Core
X-Series Chassis Compatibility	X45-AC3, X60, X80-AC2, X80-AC3, X80-DC-2, X80-DC3, X80-S-AC, X80-S-DC	X60, X80-AC2, X80-AC3, X80 DC-2, X80-DC3, X80-S-AC, X80-S-DC	X60, X80-AC2, X80-AC3, X80 DC-2, X80-DC3, X80-S-AC, X80-S-DC
XOS Compatibility	XOS 8.5 or higher	XOS 8.5 or higher	XOS 9.5 or higher
Environment	Temperature 0 to 40°C (32 - 104°F); Humidity: 10% - 90% non-condensing; Altitude 3048m (10,000ft)		
Regulatory Compliance	RoHS; UL 60950, IEC 60950, FCC 47 CFR Part 15B Class A, EN 55022 : EN 55024, VCCI V-3 : AS/NZS CISPR22; CSA C22.2#60950		
Hard Drive System	Optional		
Memory	4GB	8GB	12GB or 24GB
Options	1 or 2 120GB SATA Hard Drives (S/W RAID 0 or 1) Memory Upgradable to 16GB (8 core only)		1 or 2 450GB SAS Hard Drives (H/W RAID 1) Memory Upgradable to 24GB
IP Forwarding Packet Rate (PPS)	1.7 Million PPS	2.2 Million PPS	2.2 Million PPS
HCC NAT Concurrent Connections	2.3 Million	9 Million	10 Million
HCC Connection Setup Rate	55,000	55,000	125,000

CONTROL PROCESSOR MODULES

The CPM is the brains of the system and the caretaker. It manages the system so you don't have to. The CPM continuously checks and monitors the health of the chassis for you and takes action to self-heal itself by re-provisioning blades. It does this while it stores all the application information together with all the configurations like all the system and network configurations.



Want to upgrade the firmware? We built a tool called Automated Workflow System (AWS) that is controlled by the CPM. Want to easily install a new version of XOS? Simply use the USBi that ships with every CPM. Want to monitor the health of the entire platform? - We created GEM, an intuitive [graphical element manager](#) so you can check every aspect of the platform in one screen.

	CPM-8600	CPM-9600
X-Series Chassis Compatibility	X45-AC3, X80-AC2, X80-AC3, X80-DC-2, X80-DC3, X80-S-AC, X80-S-DC	X60, X80-AC2, X80-AC3, X80-DC-2, X80-DC3, X80-S-AC, X80-S-DC
XOS Compatibility	XOS 7.3 or higher	XOS 9.5 or higher
Environment	Temperature 0 to 40°C (32 - 104°F); Humidity: 10% - 90% non-condensing; Altitude 3048m (10,000ft)	
Regulatory Compliance	RoHS; UL 60950, IEC 60950, FCC 47 CFR Part 15B Class A, EN 55022 : EN 55024, VCCI V-3 : AS/NZS CISPR22; CSA C22.2#60950	
Network Interfaces	1 RJ-45 10/100/1000Base-TX 2 x 1 Gigabit SFP (SX/LX/Copper) 2 x DB9, 1 x USB 2.0	
Processor System	Single Xeon Intel Processor	Single Quad Core Processor
Hard Drive System	2 x 250GB SATA Drive (RAID 1)	2 x 500GB SATA Drive (RAID 1)
Memory	4GB	16GB

Preliminary Subject to change without notice.

ABOUT CROSSBEAM

We improve the sophisticated networks of enterprises, government agencies, and service providers by architecting platforms that are more adaptable, high-performing, reliable, and secure.