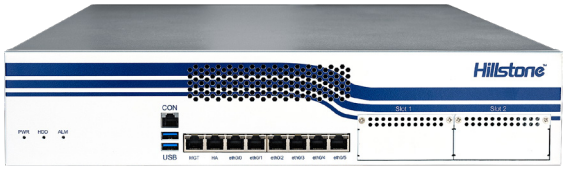
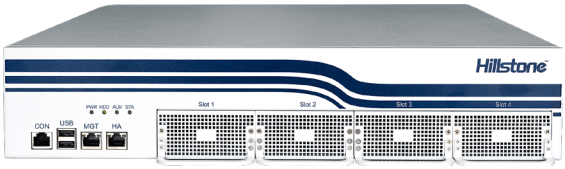
Hillstone AX-Series:
Application Delivery Controller (ADC)





Hillstone AX Series Application Delivery Controllers (ADCs) are the next generation of enterprise-class application delivery optimization products. The Hillstone ADC supports a full range of load balancing functions, including link load balancing (LLB), server load balancing (SLB) and global server load balancing (GSLB). In addition, the AX Series supports health checks for applications, servers and links, first-level network attack protection, SSL offload, application and data acceleration via caching, and more. The Hillstone ADC can greatly improve the availability and scalability of core applications and business platforms, and effectively improve the operational efficiency of enterprise data centers. Together with Hillstone security products such as next-generation firewalls, the Hillstone ADC can provide end-to-end application delivery and security capabilities for your applications and business operations.

Hillstone's ADC fully supports IPv6, high-performance clustering and carrier-grade high availability. It is widely used in server load balancing; traffic distribution and business continuity across multiple data centers; link optimization across multiple ISPs; CDN traffic management; and other application optimization and acceleration scenarios. The Hillstone ADC provides industry-leading solutions for government, finance, network operators, education, healthcare and other sectors.

Product Highlights

High-performance Server Load Balancing

Hillstone's AX Series provides server load balancing with high-capacity concurrent and new session processing capabilities. It intelligently adjusts traffic distribution based upon the health status of server nodes, and automatically completes switching to ensure the best user experience as well as application high availability. Hillstone's ADC utilizes Layer 4 to Layer 7 load balancing algorithms and load balancing based on domain names. Intelligent application identification based on characteristics, behavior and other information allows fine-tuning of performance and throughput to support employee productivity. It also supports application-layer content switching and rewrite to improve the availability of both servers and applications.

Intelligent, Efficient and Dynamic Link Load Balancing

Hillstone's AX Series ADC offers enterprise-class link load balancing technology. It features an innovative adaptive link selection control algorithm that can detect link connectivity, bandwidth utilization, delay, packet loss and jitter in real time, and adjust the traffic forwarding rules based upon the actual link quality and performance. Using an intelligent closed loop, the best route can be selected in real time so that problems such as unbalanced link utilization, single point of failure, poor cross-ISP access, wastage of link resources, and other performance problems are eliminated. The Hillstone ADC supports multiple link load balancing modes such as ECMP, ISP routing, dynamic link switching, and application routing to ensure optimal link access and support employee productivity.

High-performance SSL Offload for Secured Applications

Finance, healthcare, e-commerce and other applications are commonly secured via SSL encryption, which adds workload to servers that can impact performance and limit scalability. Hillstone's ADC supports SSL hardware acceleration technology that provides industry-leading 2048-bit SSL processing performance. By offloading SSL traffic to the Hillstone ADC's dedicated SSL processing resources, the server workload is significantly reduced resulting in improved server performance and scalability.

Full-featured IPv6

In addition to IPv6 support, the Hillstone ADC supports IPv6 application layer transformation technology to help IPv4 websites and networks seamlessly upgrade to or interoperate with IPv6. Through intelligent link processing technology, the addressing problem can be solved efficiently. The Hillstone ADC standard configuration comes with a 1T hard drive and supports log storage for the IPv6 application layer transformation.

End-to-end Security Protection

Together with Hillstone Networks' next-generation firewalls, CloudEdge, CloudHive and other security products, the Hillstone ADC can provide end-to-end security protection capabilities from network access to data centers.

Features

Server Load Balancing
- L4 and L7 server load balancing
- HTTP content switching based on URL, HTTP header, cookie
- HTTP content rewriting
- Redirection for HTTP requests
- Supports IPv6
- Supports HTTP2.0
- Supports WebSocket protocol
- Supports fastHTTP mode

Server Health Checks
- Predefined and custom health checks for ICMP, TCP, UDP, HTTP, HTTPS, SMTP, POP3, IMAP, DNS, FTP protocols and third-party objects
- Supports email exchange protocol / RADIUS protocol health checks
- Support server resource health check

Server Session Persistence
- Source IP based session persistence
- Session persistence for encrypted cookie
- Supports sharing session peersistence table across VMs

Application Acceleration
- HTTP caching (jpg, doc, ppt, xls, html, css, js, pdf, swf, mp3, avi, flv, mp4)
- TCP connection multiplexing
- HTTP compression (doc, ppt, xls, html, css, js)

SSL Inspection
- Software SSL offload; supported versions include SSLv2, SSLv3, TLS 1.0, TLS1.1, TLS1.2
- Hardware SSL offload
- Predefined or customized encryption algorithms with priorities
- SSL connection multiplexing
- Supports SSL proxy
- Works in conjunction with sBDS and NIPS to identify encrypted traffic

Link Load Balancing
- Supports IP address library and ISP address library with automatic update
- Policy routing supports domain name and geographic location routing

Global Server Load Balancing
- Supports DNS proxy
- DNS proxy blacklist and whitelist
- Inbound SmartDNS
- SmartDNS supports IP address library and ISP address library with automatic updates

System Management
- System management via WebUI, Console, Telnet and SSH
- Role-based authorization of administrators, auditors and operators
- Access control on the administrator address for remote management
- Supports WebUI administrators to bind to trust domain, and certificate authentication for administrators
- Configuration for password complexity and minimum length restrictions
- Supports SNTP, and synchronization of system time from multiple NTP servers
- Supports multiple configuration files and configuration file backup and recovery
- Supports hping, tcpdump and curl operation and maintenance tools

Application Identification
- Application identification based on application characteristics, behavior and related information
- Multi-dimensional application definitions
- Thousands of application signatures
- Application signature database updated in real-time

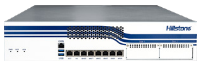
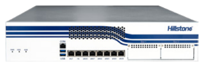
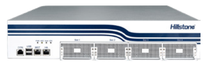
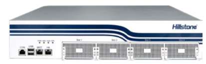
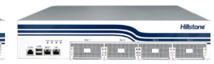
Log and Monitoring
- Supports a variety of log types, including event logs, network logs, configuration logs, NAT logs, SLB logs, health check logs, etc.
- Log storage in both local device and server
- Email alarms and log alarms
- Real-time WebUI display of system resource utilization and hardware status
- Monitoring and graphical display of the SLB status
- Device status monitoring on mobile devices via CloudView
- Supports forwarding SLB log, health check binary log to HSA

Deployment and Network Configuration
- Deployment via one-arm reverse proxy, routing, transparent, or DSR
- Supports static routing, ISP routing, policy routing, and RIP dynamic routing protocol, and supports import of ISP information
- HA / AP mode
- Supports configuration, session, health checks, PKI synchronization
- Policy control
- VSYS
- Supports AWS, Azure and Alibaba Cloud (manual deployment only)
- Support LMS centralized authorization
- Supports VMware / KVM / Xen / Hyper-V virtualization deployment
- QoS
- Session limiting
- Supports anti-DDoS
- Supports centralized management
- Supports programmable script aRules

DNS Server
- Supports A, AAAA, NS, CNAME, PTR, MX, TXT, SRV
- Recursive forwarding
- DNS transparent proxy

Hillstone NETWORKS

Specifications

	SG-6000-AX1000	SG-6000-AX1000S	SG-6000-AX2000	SG-6000-AX2000S	SG-6000-AX4060	SG-6000-AX4060S
						
L4 Throughput	20 Gbps	20 Gbps	40 Gbps	40 Gbps	80 Gbps	80 Gbps
L4 Connections/s	450,000	450,000	900,000	900,000	1.35 Million	1.35 Million
L7 HTTP Throughput	15 Gbps	15 Gbps	30 Gbps	30 Gbps	60 Gbps	60 Gbps
L7 HTTP Requests/s	320,000	320,000	650,000	650,000	1 Million	1 Million
Concurrent Connections	15 Million	15 Million	30 Million	30 Million	30 Million	30 Million
ECDHE RSA 2K SSL (CPS)	3,000	10,000	4,000	10,000	6,000	10,000
ECDHE RSA 2K SSL Throughput	2 Gbps	2.5 Gbps	3 Gbps	4.5 Gbps	5 Gbps	8 Gbps
SSL Acceleration Technology	Software	ASIC	Software	ASIC	Software	ASIC
DNS (QPS)	230,000	230,000	320,000	320,000	360,000	360,000
HDD	1 TB	1 TB	1 TB	1 TB	1 TB	1 TB
Memory	32 GB	32 GB	64 GB	64 GB	64 GB	64 GB
Management Ports	2 × USB Port, 1 × MGT, 1 × HA, 1 × RJ45 Port	2 × USB Port, 1 × MGT, 1 × HA, 1 × RJ45 Port	2 × USB Port, 1 × MGT, 1 × HA, 1 × RJ45 Port	2 × USB Port, 1 × MGT, 1 × HA, 1 × RJ45 Port	2 × USB Port, 1 × MGT, 1 × HA, 1 × RJ45 Port	2 × USB Port, 1 × MGT, 1 × HA, 1 × RJ45 Port
Available Slots for Expansion Modules	2	2	4	4	4	4
Expansion Module Option	IOC-AX-4GE-B, IOC-AX-4SFP, IOC-AX-8GE-B, IOC-AX-8SFP, IOC-AX-4GE4SFP, IOC-AX-2SFP+, IOC-AX-4SFP+	IOC-AX-4GE-B, IOC-AX-4SFP, IOC-AX-8GE-B, IOC-AX-8SFP, IOC-AX-4GE4SFP, IOC-AX-2SFP+, IOC-AX-4SFP+	IOC-AX-4GE-B-H, IOC-AX-4SFP-H, IOC-AX-8GE-B-H, IOC-AX-8SFP-H, IOC-AX-4GE4SFP-H, IOC-AX-2SFP+-H, IOC-AX-4SFP+-H	IOC-AX-4GE-B-H, IOC-AX-4SFP-H, IOC-AX-8GE-B-H, IOC-AX-8SFP-H, IOC-AX-4GE4SFP-H, IOC-AX-2SFP+-H, IOC-AX-4SFP+-H	IOC-AX-4GE-B-H, IOC-AX-4SFP-H, IOC-AX-8GE-B-H, IOC-AX-8SFP-H, IOC-AX-4GE4SFP-H, IOC-AX-2SFP+-H, IOC-AX-4SFP+-H	IOC-AX-4GE-B-H, IOC-AX-4SFP-H, IOC-AX-8GE-B-H, IOC-AX-8SFP-H, IOC-AX-4GE4SFP-H, IOC-AX-2SFP+-H, IOC-AX-4SFP+-H
Power Supply	Dual AC, 100-240V, redundant hot-swappable	Dual AC, 100-240V, redundant hot-swappable	Dual AC, 100-240V, redundant hot-swappable	Dual AC, 100-240V, redundant hot-swappable	Dual AC, 100-240V, redundant hot-swappable	Dual AC, 100-240V, redundant hot-swappable
Frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Average Power	350W	350W	550W	550W	550W	550W
Height	2U	2U	2U	2U	2U	2U
Dimension (W×D×H)	16.9 x 19.7 x 3.5 in (430 x 500 x 88 mm)	16.9 x 19.7 x 3.5 in (430 x 500 x 88 mm)	21.7 x 17.3 x 3.5 in (550 x 440 x 88mm)	21.7 x 17.3 x 3.5 in (550 x 440 x 88mm)	21.7 x 17.3 x 3.5 in (550 x 440 x 88mm)	21.7 x 17.3 x 3.5 in (550 x 440 x 88mm)
Net Weight	26.5 lb (12 kg)	28.7 lb (13 kg)	50.7 lb (23 kg)	52.9 lb (24 kg)	50.7 lb (23 kg)	52.9 lb (24 kg)
Gross Weight	35.3 lb (16 kg)	37.5 lb (17 kg)	61.7 lb (28 kg)	63.9 lb (29 kg)	61.7 lb (28 kg)	63.9 lb (29 kg)
Operating Temperature	32-104 °F (0-40 °C)	32-104 °F (0-40 °C)	32-104 °F (0-40 °C)	32-104 °F (0-40 °C)	32-104 °F (0-40 °C)	32-104 °F (0-40 °C)
Allowed Relative Humidity	5 ~ 85%, non-condensing	5 ~ 85%, non-condensing	5 ~ 90%, non-condensing	5 ~ 90%, non-condensing	5 ~ 90%, non-condensing	5 ~ 90%, non-condensing

Specifications (Continued)

	SG-6000-AX02	SG-6000-AX04	SG-6000-AX08
CPU	2 Core	4 Core	8 Core
HDD (min., max.)	20 GB, 1 TB	20 GB, 1 TB	20 GB, 1 TB
Memory	4 GB	8 GB	16 GB
Maximum Interfaces	10	10	10
L4 Throughput (SRIOV)	5 Gbps	10 Gbps	20 Gbps
L4 Throughput (VMXNet3)	4 Gbps	4 Gbps	4 Gbps
L4 Throughput (Virtio)	1.8 Gbps	1.8 Gbps	1.8 Gbps
L7 HTTP Throughput (SRIOV)	4 Gbps	7.5 Gbps	15 Gbps
L7 HTTP Throughput (VMXNet3)	4 Gbps	4 Gbps	4 Gbps
L7 HTTP Throughput (Virtio)	1.8 Gbps	1.8 Gbps	1.8 Gbps
L4 Connections/s	80,000	200,000	400,000
L7 HTTP Requests/s	60,000	150,000	300,000
Concurrent Connections	1 Million	3 Million	6 Million
ECDHE RSA 2K SSL (CPS)	400	1,000	2,000
ECDHE RSA 2K SSL Throughput	300 Mbps	800 Mbps	1.5 Gbps

Module Options

Module	IOC-AX-4GE-B	IOC-AX-4SFP	IOC-AX-8GE-B	IOC-AX-8SFP	IOC-AX-4GE4SFP	IOC-AX-2SFP+	IOC-AX-4SFP+
I/O Ports	4 × GE Bypass Ports	4 × SFP Ports	8 × GE Bypass Ports	8 × SFP Ports	4 × GE and 4 × SFP Ports	2 × SFP+ Ports	4 × SFP+ Ports
Dimension	1U (Occupies 1 generic slot)	1U (Occupies 1 generic slot)	1U (Occupies 1 generic slot)	1U (Occupies 1 generic slot)	1U (Occupies 1 generic slot)	1U (Occupies 1 generic slot)	1U (Occupies 1 generic slot)
Weight	0.33 lb (0.15 kg)	0.33 lb (0.15 kg)	0.55 lb (0.25 kg)	0.55 lb (0.25 kg)	0.55 lb (0.25 kg)	0.33 lb (0.15 kg)	0.44 lb (0.2 kg)

Module	IOC-AX-4GE-B-H	IOC-AX-4SFP-H	IOC-AX-8GE-B-H	IOC-AX-8SFP-H	IOC-AX-4GE4SFP-H	IOC-AX-2SFP+-H	IOC-AX-4SFP+-H
I/O Ports	4 × GE Bypass Ports	4 × SFP Ports	8 × GE Bypass Ports	8 × SFP Ports	4 × GE and 4 × SFP Ports	2 × SFP+ Ports	4 × SFP+ Ports
Dimension	1U (Occupies 1 generic slot)	1U (Occupies 1 generic slot)	1U (Occupies 1 generic slot)	1U (Occupies 1 generic slot)	1U (Occupies 1 generic slot)	1U (Occupies 1 generic slot)	1U (Occupies 1 generic slot)
Weight	0.33 lb (0.15 kg)	0.33 lb (0.15 kg)	0.55 lb (0.25 kg)	0.55 lb (0.25 kg)	0.55 lb (0.25 kg)	0.33 lb (0.15 kg)	0.44 lb (0.2 kg)

Version: EX-08.01-ADC-V2.7-0820-EN-01