

Hillstone E-6000 Series Next-Generation Firewall



E6160 / E6168 / E6360 / E6368



The Hillstone E-6000 Series Next Generation Firewall (NGFW) provides comprehensive and granular visibility and control of applications. It can identify and prevent potential threats associated with high-risk applications while providing policy-based control over applications, users, and user-groups. Policies can be defined that guarantee bandwidth to mission-critical applications while restricting or blocking unauthorized or malicious applications. The Hillstone E-6000 Series NGFW incorporates comprehensive network security and advanced firewall features, provides superior price performance, excellent energy efficiency, and comprehensive threat prevention capability.

Product Highlights

Granular Application Identification and Control

The Hillstone E-6000 Series NGFW provides fine-grained control of web applications regardless of port, protocol, or evasive action. It can identify and prevent potential threats associated with high-risk applications while providing policy-based control over applications, users, and user-groups. Security Policies can be defined that guarantee bandwidth to mission-critical applications while restricting or blocking unauthorized or malicious applications.

Comprehensive Threat Detection and Prevention

The Hillstone E-6000 Series NGFW provides real-time protection for applications from network attacks including viruses, spyware, worms, botnets, ARP spoofing, DoS/DDoS, Trojans, buffer overflows, and SQL injections. It incorporates a unified threat detection engine that shares packet details with multiple security engines (AD, IPS, URL filtering, Anti-Virus, Sandbox etc.), which significantly enhances the protection efficiency and reduces network latency.

Features

Network Services

- Dynamic routing (OSPF, BGP, RIPv2)
- Static and Policy routing
- Route controlled by application
- Built-in DHCP, NTP, DNS Server and DNS proxy
- Tap mode – connects to SPAN port
- Interface modes: sniffer, port aggregated, loopback, VLANs (802.1Q and Trunking)
- L2/L3 switching & routing
- Virtual wire (Layer 1) transparent inline deployment

Firewall

- Operating modes: NAT/route, transparent (bridge), and mixed mode
- Policy objects: predefined, custom, and object grouping
- Security policy based on application, role and geo-location
- Application Level Gateways and session support: MSRPC, PPTP, RAS, RSH, SIP, FTP, TFTP, HTTP, dcerpc, dns-tcp, dns-udp, H.245 0, H.245 1, H.323
- NAT and ALG support: NAT46, NAT64, NAT444, SNAT, DNAT, PAT, Full Cone NAT, STUN
- NAT configuration: per policy and central NAT table
- VoIP: SIP/H.323/SCCP NAT traversal, RTP pin holing
- Global policy management view
- Security policy redundancy inspection
- Schedules: one-time and recurring

Intrusion Prevention

- Protocol anomaly detection, rate-based detection, custom signatures, manual, automatic push or pull signature updates, integrated threat encyclopedia
- IPS Actions: default, monitor, block, reset (attackers IP or victim IP, incoming interface) with expiry time
- Packet logging option
- Filter Based Selection: severity, target, OS, application or protocol
- IP exemption from specific IPS signatures
- IDS sniffer mode
- IPv4 and IPv6 rate based DoS protection with threshold settings against TCP Syn flood, TCP/UDP/SCTP port scan, ICMP sweep, TCP/UDP/SCIP/ICMP session flooding (source/destination)
- Active bypass with bypass interfaces
- Predefined prevention configuration

Anti-Virus

- Manual, automatic push or pull signature updates
- Flow-based Antivirus: protocols include HTTP, SMTP, POP3, IMAP, FTP/SFTP
- Compressed file virus scanning

Attack Defense

- Abnormal protocol attack defense
- Anti-DoS/DDoS, including SYN Flood, DNS Query Flood defense
- ARP attack defense

URL Filtering

- Flow-based web filtering inspection
- Manually defined web filtering based on URL, web content and MIME header
- Dynamic web filtering with cloud-based real-time categorization database: over 140 million URLs with 64 categories (8 of which are security related)
- Additional web filtering features:
 - Filter Java Applet, ActiveX or cookie
 - Block HTTP Post
 - Log search keywords
 - Exempt scanning encrypted connections on certain categories for privacy

- Web filtering profile override: allows administrator to temporarily assign different profiles to user/group/IP
- Web filter local categories and category rating override

Cloud-Sandbox

- Upload malicious files to cloud sandbox for analysis
- Support protocols including HTTP/HTTPS, POP3, IMAP, SMTP and FTP
- Support file types including PE, ZIP, RAR, Office, PDF, APK, JAR and SWF
- File transfer direction and file size control
- Provide complete behavior analysis report for malicious files
- Global threat intelligence sharing, real-time threat blocking

Botnet C&C Prevention

- Regularly update the botnet server addresses
- prevention for C&C IP and domain
- Support TCP, HTTP, and DNS traffic detection
- IP and domain whitelists

IP Reputation

- Botnet server IP blocking with global IP reputation database

SSL Decryption

- Application identification for SSL encrypted traffic
- IPS enablement for SSL encrypted traffic
- AV enablement for SSL encrypted traffic
- URL filter for SSL encrypted traffic
- SSL Encrypted traffic whitelist
- SSL proxy offload mode

Endpoint Identification

- Support to identify endpoint IP, endpoint quantity, on-line time, off-line time, and on-line duration
- Support 10 operation systems
- Support query based on IP and endpoint quantity

Data Security

- File transfer control based on file type
- File protocol identification, including HTTP, FTP, SMTP and POP3
- File signature and suffix identification for over 100 file types
- Content filtering for HTTP-GET, HTTP-POST, FTP and SMTP protocols
- IM identification and network behavior audit

Application Control

- Over 3,000 applications that can be filtered by name, category, subcategory, technology and risk
- Each application contains a description, risk factors, dependencies, typical ports used, and URLs for additional reference
- Actions: block, reset session, monitor, traffic shaping
- Identify and control cloud applications in the cloud
- Provide multi-dimensional monitoring and statistics for cloud applications, including risk category and characteristics

Quality of Service (QoS)

- Max/guaranteed bandwidth tunnels or IP/user basis
- Tunnel allocation based on security domain, interface, address, user/user group, server/server group, application/app group, TOS, VLAN
- Bandwidth allocated by time, priority, or equal bandwidth sharing
- Type of Service (TOS) and Differentiated Services (DiffServ) support
- Prioritized allocation of remaining bandwidth
- Maximum concurrent connections per IP
- Bandwidth allocation based on URL category

Server Load balancing

- Weighted hashing, weighted least-connection, and weighted round-robin

Features

- Session protection, session persistence and session status monitoring
- Server health check, session monitoring and session protection

Link Load balancing

- Bi-directional link load balancing
- Outbound link load balancing includes policy based routing, ECMP and weighted, embedded ISP routing and dynamic detection
- Inbound link load balancing supports SmartDNS and dynamic detection
- Automatic link switching based on bandwidth, latency, jitter, connectivity, application etc.
- Link health inspection with ARP, PING, and DNS

VPN

- IPsec VPN
 - IPSEC Phase 1 mode: aggressive and main ID protection mode
 - Peer acceptance options: any ID, specific ID, ID in dialup user group
 - Supports IKEv1 and IKEv2 (RFC 4306)
 - Authentication method: certificate and pre-shared key
 - IKE mode configuration support (as server or client)
 - DHCP over IPSEC
 - Configurable IKE encryption key expiry, NAT traversal keep alive frequency
 - Phase 1/Phase 2 Proposal encryption: DES, 3DES, AES128, AES192, AES256
 - Phase 1/Phase 2 Proposal authentication: MD5, SHA1, SHA256, SHA384, SHA512
 - Phase 1/Phase 2 Diffie-Hellman support: 1,2,5
 - XAuth as server mode and for dialup users
 - Dead peer detection
 - Replay detection
 - Autokey keep-alive for Phase 2 SA
- IPSEC VPN realm support: allows multiple custom SSL VPN logins associated with user groups (URL paths, design)
- IPSEC VPN configuration options: route-based or policy based
- IPSEC VPN deployment modes: gateway-to-gateway, full mesh, hub-and-spoke, redundant tunnel, VPN termination in transparent mode
- One time login prevents concurrent logins with the same username
- SSL portal concurrent users limiting
- SSL VPN port forwarding module encrypts client data and sends the data to the application server
- Supports clients that run iOS, Android, and Windows XP/Vista including 64-bit Windows OS
- Host integrity checking and OS checking prior to SSL tunnel connections
- MAC host check per portal
- Cache cleaning option prior to ending SSL VPN session
- L2TP client and server mode, L2TP over IPSEC, and GRE over IPSEC
- View and manage IPSEC and SSL VPN connections
- PnPVPN

IPv6

- Management over IPv6, IPv6 logging and HA
- IPv6 tunneling, DNS64/NAT64 etc
- IPv6 routing protocols, static routing, policy routing, ISIS, RIPng, OSPFv3 and BGP4+
- IPS, Application identification, URL filtering, Anti-Virus, Access control, ND attack defense

VSYS

- System resource allocation to each VSYS
- CPU virtualization
- Non-root VSYS support firewall, IPsec VPN, SSL VPN, IPS, URL filtering
- VSYS monitoring and statistic

High Availability

- Redundant heartbeat interfaces
- Active/Active and Active/Passive
- Standalone session synchronization
- HA reserved management interface
- Failover:
 - Port, local & remote link monitoring
 - Stateful failover
 - Sub-second failover
 - Failure notification
- Deployment options:
 - HA with link aggregation
 - Full mesh HA
 - Geographically dispersed HA

Twin-mode HA

- High availability mode among multiple devices
- Multiple HA deployment modes
- Configuration and session synchronization among multiple devices

User and Device Identity

- Local user database
- Remote user authentication: TACACS+, LDAP, Radius, Active
- Single-sign-on: Windows AD
- 2-factor authentication: 3rd party support, integrated token server with physical and SMS
- User and device-based policies
- User group synchronization based on AD and LDAP
- Support for 802.1X, SSO Proxy
- WebAuth page customization
- Interface based Authentication
- Agentless ADSSO (AD Polling)
- Use authentication synchronization based on SSO-monitor

Administration

- Management access: HTTP/HTTPS, SSH, telnet, console
- Central Management: Hillstone Security Manager (HSM), web service APIs
- System Integration: SNMP, syslog, alliance partnerships
- Rapid deployment: USB auto-install, local and remote script execution
- Dynamic real-time dashboard status and drill-in monitoring widgets
- Language support: English





Logs & Reporting

- Logging facilities: local memory and storage (if available), multiple syslog servers and multiple Hillstone Security Audit (HSA) platforms
- Encrypted logging and log integrity with HSA scheduled batch log uploading
- Reliable logging using TCP option (RFC 3195)
- Detailed traffic logs: forwarded, violated sessions, local traffic, invalid packets, URL etc.
- Comprehensive event logs: system and administrative activity audits, routing & networking, VPN, user authentications, WiFi related events
- IP and service port name resolution option
- Brief traffic log format option
- Three predefined reports: Security, Flow and network reports
- User defined reporting
- Reports can be exported in PDF via Email and FTP





CloudView

- Cloud-based security monitoring
- 7/24 access from web or mobile application
- Device status, traffic and Threat monitoring
- Cloud-based log retention and reporting

Product Specification

| Specification | SG-6000-E6160 | SG-6000-E6168 | SG-6000-E6360 | SG-6000-E6368 |
|---|---|---|--|---|
| |  |  |  |  |
| FW Throughput ⁽¹⁾ | 60Gbps | 60Gbps | 80Gbps | 80Gbps |
| IPSec Throughput ⁽²⁾ | 35Gbps | 35Gbps | 50Gbps | 50Gbps |
| AV Throughput ⁽³⁾ | 20Gbps | 20Gbps | 27Gbps | 27Gbps |
| IPS Throughput ⁽⁴⁾ | 25Gbps | 25Gbps | 35Gbps | 35Gbps |
| IMIX Throughput ⁽⁵⁾ | 30Gbps | 30Gbps | 40Gbps | 40Gbps |
| NGFW Throughput ⁽⁶⁾ | 16Gbps | 16Gbps | 24Gbps | 24Gbps |
| Threat Protection Throughput ⁽⁷⁾ | 12Gbps | 12Gbps | 18Gbps | 18Gbps |
| New Sessions/s ⁽⁸⁾ | 800,000 | 800,000 | 1.1M | 1.1M |
| Maximum Concurrent Sessions (Default/Max) | 20M | 20M | 30M | 30M |
| IPSec Tunnel Number | 20,000 | 20,000 | 20,000 | 20,000 |
| SSL VPN Users (Default/Max) | 8/10,000 | 8/10,000 | 8/10,000 | 8/10,000 |
| Storage Options | N/A | 512G SSD | N/A | 512G SSD |
| Management Ports | 1 x Console Port, 1 x AUX Port, 1 x USB Port, 1 x HA, 1 x MGT | 1 x Console Port, 1 x AUX Port, 1 x USB Port, 1 x HA, 1 x MGT | 1 x Console Port, 1 x AUX Port, 1 x USB Port, 1 x HA, 1 x MGT | 1 x Console Port, 1 x AUX Port, 1 x USB Port, 1 x HA, 1 x MGT |
| Fixed I/O Ports | 2 x GE, 8 x SFP+ | 2 x GE, 8 x SFP+ | 2 x GE, 8 x SFP+, 2 x QSFP+ | 2 x GE, 8 x SFP+, 2 x QSFP+ |
| Available Slots for Extension Modules | 2 x Generic Slot 1 x Bypass Slot | 2 x Generic Slot 1 x Bypass Slot | 2 x Generic Slot 1 x Bypass Slot | 2 x Generic Slot 1 x Bypass Slot |
| Expansion Module Option | IOC-8GE-M, IOC-8SFP-M, 2MM-BE, 2SM-BE | IOC-8GE-M, IOC-8SFP-M, 2MM-BE, 2SM-BE | IOC-8GE-M, IOC-8SFP-M, 2MM-BE, 2SM-BE | IOC-8GE-M, IOC-8SFP-M, 2MM-BE, 2SM-BE |
| Twin-mode HA | Yes | Yes | Yes | Yes |
| Maximum Power Consumption | 2 x 450W Redundancy 1 + 1 | 2 x 450W Redundancy 1 + 1 | 2 x 450W Redundancy 1 + 1 | 2 x 450W Redundancy 1 + 1 |
| Power Supply | AC 100-240V 50/60Hz DC -40 ~ -60V | AC 100-240V 50/60Hz DC -40 ~ -60V | AC 100-240V 50/60Hz DC -40 ~ -60V | AC 100-240V 50/60Hz DC -40 ~ -60V |
| Dimension (W×D×H, mm) | 2.5U 17.3 × 18.1 × 4.3 in (440×460×110 mm) | 2.5U 17.3 × 18.1 × 4.3 in (440×460×110 mm) | 2.5U 17.3 × 18.1 × 4.3 in (440×460×110 mm) | 2.5U 17.3 × 18.1 × 4.3 in (440×460×110 mm) |
| Weight | 30.4 lb (13.8kg) | 30.4 lb (13.8kg) | 30.4 lb (13.8kg) | 30.4 lb (13.8kg) |
| 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) |
| Relative Humidity | 10-95% (no dew) | 10-95% (no dew) | 10-95% (no dew) | 10-95% (no dew) |
| Compliance and Certificate | CE, CB, FCC, UL/cUL, ROHS, IEC/EN61000-4-5 Power Surge Protection, ISO 9001:2015, ISO 14001:2015, CVE Compatibility, IPv6 Ready, ICSA Firewalls | | | |

Module Options

| Specification | IOC-8GE-M | IOC-8SFP-M | 2MM-BE | 2SM-BE |
|---------------|---|---|--|---|
| |  |  |  |  |
| Name | 8GE Extension Module | 8SFP Extension Module | 2SFP Multi-Mode Bypass Extension Module | 2SFP Single-Mode Bypass Extension Module |
| I/O Ports | 8 x GE | 8 x SFP, SFP module not included | 2 x SFP, MM Bypass (1 pair bypass port) | 2 x SFP, SM Bypass (1 pair bypass port) |
| Dimension | ½ U (Occupies 1 generic slots) | ½ U (Occupies 1 generic slot) | ½ U (Occupies 1 bypass slot) | ½ U (Occupies 1 bypass slot) |
| Weight | 1.8 lb (0.8kg) | 2.0 lb (0.9kg) | 0.66 lb (0.3kg) | 0.66 lb (0.3kg) |

Unless specified otherwise, all performance, capacity and functionality are based on StoneOS5.5R5. Results may vary based on StoneOS® version and deployment.

NOTES: (1) FW throughput data is obtained under single-stack UDP traffic with 1518-byte packet size; (2) IPSec throughput data is obtained under Preshare Key AES256+SHA-1 configuration and 1400-byte packet size packet; (3) AV throughput data is obtained under HTTP traffic with file attachment; (4) IPS throughput data is obtained under bi-direction HTTP traffic detection with all IPS rules being turned on; (5) IMIX throughput data is obtained under UDP traffic mix (64 byte : 512 byte : 1518 byte = 5:7:1); (6) NGFW throughput data is obtained under 64 Kbytes HTTP traffic with application control and IPS enabled; (7) Threat protection throughput data is obtained under 64 Kbytes HTTP traffic with application control, IPS, AV and URL filtering enabled; (8) New Sessions/s is obtained under TCP traffic.