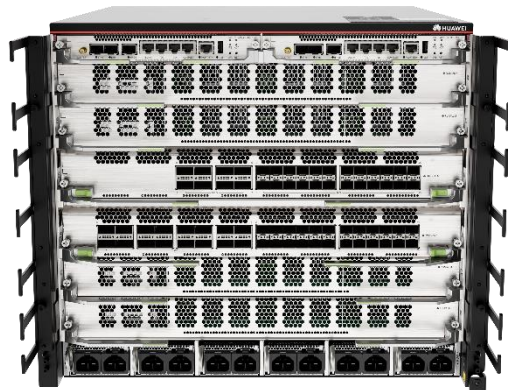


## HUAWEI HiSecEngine USG12000-H6 AI Firewall

Combining advanced hardware architecture with a wide array of cutting-edge technologies — from energy conservation to reliability mechanisms and security features — HiSecEngine USG12000-H6 offers highly accurate, real-time defense against known and unknown threats at the network edge for large data centers and campus networks.



HiSecEngine USG12000-H6



## Product Description

Huawei HiSecEngine USG12000-H6 firewall uses multi-core processing chips and a distributed hardware platform, with 400Gbps for a single board and 1.6Tbps throughput for the entire system, providing industry-leading service processing and expansion capabilities. LPUs and SPUs are directly connected to build an innovative and simplified architecture. All components are fully redundant to ensure core router-level high reliability and hot swappable is supported on all MPUs and SPUs to ensure service continuity on highspeed network. In addition, the power consumption of the entire system and components is dynamically adjusted. The single-bit power consumption is 50% lower than that of the industry average. This greatly reduces the cost of equipment rooms and power consumption and promotes the green and low-carbon development of key ICT infrastructure devices.

Huawei HiSecEngine USG12000-H6 firewall provides multiple types of line processing units (LPUs) for external connections and data transmission. In addition, this firewall supports GE, 10GE, 40GE, and 100GE interfaces to meet diversified requirements, such as high-capacity or highdensity interface requirements.

The SPUs of Huawei HiSecEngine USG12000-H6 firewall process all services. SPUs and threat processing boards are combined into one, which supports flexible selection for achieving different performance. The multi-chip multi-processor hardware is used, and various service features are implemented through software modules.

## Hardware

### Chassis



HiSecEngine USG12000-H6

### Specifications

Hardware Specifications	HiSecEngine USG12000-H6
<b>Dimensions without packaging (H×W×D) [mm(in.)]</b>	392.12 mm × 442 mm × 515.5 mm (15.44 in. × 17.4 in. × 20.3 in.)

<b>Chassis height [U]</b>	8.8 U
<b>Maximum power consumption [W]</b>	3278 W
<b>Maximum heat dissipation [BTU/hour]</b>	11185 BTU/hour
<b>MTBF [year]</b>	23.42 years
<b>MTTR [hour]</b>	1 hour
<b>Availability</b>	0.9999958912
<b>Power supply mode</b>	AC built-in, HVDC built-in, DC built-in
<b>Rated input voltage [V]</b>	AC input: 110 V AC/220 V AC, 50 Hz/60 Hz High-voltage DC input: 240 V DC/336 V DC DC input: -48 V DC, -60 V DC, or 48 V DC
<b>Input voltage range [V]</b>	AC input: 90 V AC to 290 V AC; 45 Hz to 65 Hz High-voltage DC input: 190 V DC to 400 V DC DC input: -38.4 V DC to -72 V DC or 38.4 V DC to 57.6 V DC
<b>Maximum input current [A]</b>	DC: 63 A/power module AC/HVDC: 10 A/power module, 16 A/power module
<b>Types of fans</b>	Pluggable
<b>Number of fan modules</b>	2
<b>Number of MPU slots</b>	2
<b>Number of service board slots</b>	6
<b>Long-term operating temperature [°C(°F)]</b>	-5°C to 45°C (23°F to 113°F) at an altitude of -60 m to 1800 m (-197 ft. to 5906 ft.)
<b>Storage temperature [°C(°F)]</b>	-40°C to +70°C (-40°F to +158°F)
<b>Long-term operating relative humidity [RH]</b>	5% RH to 95% RH (noncondensing)
<b>Long-term operating altitude [m(ft.)]</b>	-60 m to 5000 m (-197 ft. to 16404 ft.)

Performance and Capability	HiSecEngine USG12000-H6
IPv4 Firewall Throughput (1518/512/64-byte, UDP)	1.6 Tbps/1.2 Tbps/600 Gbps
IPv4 Concurrent Connections (HTTP1.1)	720 Million
IPv4 New Connections/Second (HTTP1.1)	18 Million
IPSec VPN Throughput (AES-256 + SHA256, 1420-byte)	500 Gbps
Maximum IPSec VPN Tunnels	768,000
SSL VPN throughput	120 Gbps
Concurrent SSL VPN users (default/maximum)	100/60,000
FW+SA Throughput (HTTP 100KB)	600 Gbps
NGFW Throughput (HTTP 100KB) <sup>1</sup>	432 Gbps
Threat Protection Throughput (Enterprise Mix) <sup>2</sup>	168 Gbps
Firewall Policies (Maximum)	300,000
Virtual Firewalls (Default/Maximum)	10 / 4095
URL Filtering: Categories	More than 130
URL Filtering: URLs	Can access a database of over 200 million URLs in the cloud
Automated Threat Feed and IPS Signature Updates	Yes, an industry-leading security center from Huawei ( <a href="http://sec.huawei.com/sec/web/index.do">http://sec.huawei.com/sec/web/index.do</a> )
Third-Party and Open-Source Ecosystem	Open API for integration with third-party products, providing RESTful and NetConf interface Other third-party management software based on SNMP, SSH, Syslog
Centralized Management	Centralized configuration, logging, monitoring, and reporting is performed by Huawei SecoManager

High Availability Configurations	Active/Active, Active/Standby
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Note:

1. NGFW throughput is measured with Firewall, SA, and IPS enabled; the performance is measured using 100 KB HTTP files.
2. The threat protection throughput is measured with Firewall, SA, IPS, and AV enabled; the performance is measured using the Enterprise Mix Traffic Model.

## Software Features

Feature	Description
Basic firewall functions	Routing, transparent, and hybrid modes Status detection Blacklist and whitelist Access control Application specific packet filter (ASPF) Security zone division Security policy
NAT/CGN	Destination NAT/PAT NAT No-PAT Source NAT-IP address persistency Source IP address pool group NAT server Bidirectional NAT NAT-ALG Unlimited IP address expansion Policy-based destination NAT Port range pre-allocation Hairpin connections Smart NAT NAT64 6RD
IPS	25,000+ IPS signatures Abnormal protocol detection User-defined signatures Automatic update of knowledge base Attack defense against worms, Trojan horses, and malware
SA	Identifies and controls 6000+ protocols: P2P, instant messaging, game, stock, VoIP, video, streaming media, email, mobile phone, web browsing, remote access, network management, news, etc.

AV	Multi-level protection technology can help detect hundreds of millions of viruses and variants.
URL filtering	Provides a URL category database with over 200 million URLs and accelerates access to specific categories of websites, improving access experience of high-priority websites.
Egress load balancing	ISP-based routing Intelligent uplink detection Application-based flow control Link-based flow control Time-based flow control
Ingress load balancing	Application-based QoS
PKI	Online CA certificate obtaining Online CRL check Hierarchical CA certificates Support for public-key cryptography standards (PKCS#10 protocol) CA authentication Support for OCSP and CMPv2 protocols Self-signed certificate
Anti-DDoS	Prevention of SYN, ICMP, UDP, DNS, HTTP, HTTPS, and SIP floods Prevention of port scan, Smurf, teardrop, and IP sweep attacks Defense against attacks using IPv6 extension headers Export of attack logs
Networking/Routing	Support for GE, 10GE, 40GE, and 100GE ports DHCP relay/DHCP server Policy-based routing (PBR) IPv4/IPv6 dynamic routing protocols, such as RIP, OSPF, BGP, and IS-IS Inter-zone/Inter-VLAN routing Link aggregation, such as Eth-Trunk and LACP Traffic management
High reliability	Active/active and active/standby modes Hot standby (Huawei redundancy protocol) Configuration synchronization and backup Device fault detection Link fault detection Dual-MPU switchover

Virtual system	VSYS definition VLAN on VSYS Security zones on VSYS User-configurable resources on VSYS Inter-VFW routing VSYS-specific Committed Access Rate (CAR) Resource isolation for different tenants
Management	CLI (console) CLI (remote login) CLI (SSH) Hierarchical management Software upgrade Configuration rollback STelnet and SFTP
Logging/Monitoring	Structured system logs SNMP (v2) Binary logs

## Service Processing Unit (SPU)



SPUG-USG-02



SPUG-USG-03

Hardware Specifications	SPUG-USG-02	SPUG-USG-03
<b>Dimensions without packaging (H×W×D) [mm(in.)]</b>	45.2 mm × 433.0 mm × 292.9 mm (1.78 in. × 17.05 in. × 11.53 in.)	
<b>Typical power consumption [W]</b>	240 W	340 W
<b>Typical heat dissipation [BTU/hour]</b>	818.9 BTU/hour	1041 BTU/hour
<b>Maximum power consumption [W]</b>	319 W	467 W

<b>Maximum heat dissipation [BTU/hour]</b>	1088.4 BTU/hour	1593 BTU/hour
<b>CPU</b>	Two service CPUs, 32 cores, 2.2 GHz	Three service CPUs, 32 cores, 2.2 GHz
<b>Memory</b>	Standard DDR4 68 GB	DDR4 100 GB (standard configuration)

<b>Performance and Capability</b>	<b>SPUG-USG-02</b>	<b>SPUG-USG-03</b>
<b>Firewall Throughput (1518/512/64-byte, UDP)</b>	270/200/100 Gbps	400/300/150 Gbps
<b>Concurrent Sessions (HTTP1.1)</b>	120M	180M
<b>New Sessions/Second (HTTP1.1)</b>	3M/s	4.5M/s
<b>IPsec VPN Throughput (AES-256 + SHA256, 1420-byte)</b>	84 Gbps	126 Gbps
<b>Maximum IPsec VPN Tunnels</b>	128,000	192,000
<b>FW+SA Throughput(HTTP 100KB)</b>	100 Gbps	150 Gbps
<b>FW + SA + IPS Throughput (HTTP 100K)</b>	72 Gbps	108 Gbps
<b>Full protection Throughput (Real-world)</b>	28 Gbps	42 Gbps

## Line Processing Unit (LPU)



LPUG-U-16CQ24XS



LPUG-U-8CQ24XS



Hardware Specifications	LPUG-U-16CQ24XS	LPUG-U-8CQ24XS
Dimensions without packaging (H×W×D) [mm(in.)]	55.4 mm × 433.0 mm × 292.9 mm (2.18 in. × 17.05 in. × 11.53 in.)	
Dimensions without packaging	4.19 kg (9.24 lb)	3.91 kg (8.62 lb)
(H×W×D) [mm(in.)]	320 W	250 W
Weight without packaging [kg(lb)]	1091 BTU/hour	853 BTU/hour
Typical power consumption [W]	492 W	358 W
Typical heat dissipation [BTU/hour]	1678.7 BTU/hour	1221.5 BTU/hour
Maximum power consumption [W]	Quad-core, 1.4 GHz	Quad-core, 1.4 GHz
Maximum heat dissipation [BTU/hour]	Standard 4 GB	Standard 4 GB

## Order Information

Description: (To facilitate display, the following uses the device abbreviation.)

Hardware	
<b>USG12000-H6-B01</b>	Basic Configuration, USG12000-H6, USG12000-H6-B01, Basic configuration of the USG12000-H6 outside China (Including the integrated assembly chassis, 2 MPUs with HTMs, 2 FANs, without power supply, applicable to countries outside China)
<b>SPUG-USG-03</b>	USG12000-H6 Service Processing Unit-03
<b>SPUG-USG-02</b>	USG12000-H6 Service Processing Unit-02
<b>LPUG-U-16CQ24XS</b>	16-port 40G/100GBase-QSFP28 and 24-port 100M/1G/10GBase-SFP+ interface card
<b>LPUG-U-8CQ24XS</b>	8-port 40G/100GBase-QSFP28 and 24-port 100M/1G/10GBase-SFP+ interface card

<b>Virtual System License</b>	
<b>LIC-USG12000-VSYS-5</b>	Quantity of Virtual Firewall (5 Vsys)
<b>LIC-USG12000-VSYS-10</b>	Quantity of Virtual Firewall (10 Vsys)
<b>LIC-USG12000-VSYS-25</b>	Quantity of Virtual Firewall (25 Vsys)
<b>LIC-USG12000-VSYS-50</b>	Quantity of Virtual Firewall (50 Vsys)
<b>LIC-USG12000-VSYS-200</b>	Quantity of Virtual Firewall (200 Vsys)
<b>LIC-USG12000-VSYS-500</b>	Quantity of Virtual Firewall (500 Vsys)
<b>LIC-USG12000-VSYS-1000</b>	Quantity of Virtual Firewall (1000 Vsys)
<b>LIC-USG12000-VSYS-2000</b>	Quantity of Virtual Firewall (2000 Vsys)
<b>LIC-USG12000-VSYS-4000</b>	Quantity of Virtual Firewall (4000 Vsys)
<b>USG12000 Performance RTU</b>	
<b>LIC-USG12000-H-LPU100G</b>	1*USG12000-H FW 100G interface capacity expansion license (Applies to 16*100G/8*100G interface board)
<b>LIC-USG12000-H-PERF-20G</b>	Firewall Service Expansion 20G license

<b>Threat Protection License</b>	
<b>LIC-USG12000-H6-IPS-1Y</b>	IPS Update Service Subscribe 1 Year (Applies to USG12000-H6)
<b>LIC-USG12000-H6-AV-1Y</b>	AV Update Service Subscribe 1 Year (Applies to USG12000-H6)
<b>LIC-USG12000-H6-URL-1Y</b>	URL Update Service Subscribe 1 Year (Applies to USG12000-H6)
<b>LIC-USG12000-H6-IAU-OVS</b>	IPS+AV+URL Filtering Feature Database 1 Year Upgrade Service (Applies to USG12000-H6 Overseas)
<b>LIC-USG12000-CONTENT</b>	Content Security Group Function (Applies to USG12000)
<b>LIC-USG12000-H6-ICS-1Y</b>	Industrial Security Service Per Year (Applies to USG12000-H6)

<b>Management License</b>	
<b>N1-USG12000-H6-Lic</b>	N1-USG12000-H6 Foundation, Per Device
<b>N1-USG12000-H6-SnS1Y</b>	N1-USG12000-H6 Foundation, SnS, Per Device, 1 Year
<b>N1-USG12000-H6-A-Lic</b>	N1-USG12000-H6 Advanced, Per Device
<b>N1-USG12000-H6-A-SnS1Y</b>	N1-USG12000-H6 Advanced, SnS, Per Device, 1 Year
<b>N1-C-USG12000-H6-Lic</b>	Cloud Deployment Model Foundation, Per Device, 1 Year
<b>LIC-USG12000-H6-BPRF-1Y</b>	Border Protection and Response Standard (Applies to USG12000-H6), Per Device, 1 Year
<b>LIC-USG12000-H6-BA-1Y</b>	Border Protection and Response - Threat automatic blocking (Applies to USG12000-H6), Per Device, 1 Year
<b>LIC-USG12000-H6-TPU-1Y</b>	Threat Protection Database Upgrade Service (Applies to USG12000-H6), Per Device, 1 Year

Note:


The preceding order information is for reference only. Contact your Huawei representative for details

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