

# HUAWEI USG Series Terabit-level Next-Generation Firewall Configuration Quote Operation Manual

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## Change History

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Date	Version	Description	Author
2017-03-03	1.0	Initial release.	Pan Yicong/90006903

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# 1 Overview

[Description]

1. This document guides the local marketing personnel, network design personnel, and product data engineers (PDEs) through product configuration, product quotation, and configuration generator (CFG) development. Note that this version applies only to the industry network.
2. This document is an internal document and must not be disclosed to customers or peer vendors.
3. This document applies to V500R001C50. In this version, NGFW features are integrated to normalize low-end, mid-range, and high-end firewall versions. V300R001 features are also included in this version.

## 1.1 Version Positioning and Hardware Description

The USG9500 V500R001C50 applies to the USG9520, USG9560, and USG9680 chassis and is the main version to be sold globally in 2017. This high-end firewall can provide a maximum of 1.92Tbit/s throughput based on the scenario.

HUAWEI ENTERPRISE ICT SOLUTIONS A BETTER WAY			
Overview of USG9500 Series Specifications			
Model	USG9520 	USG9560 	USG9580 
Height	4 U (DC)/5 U (AC)	14 U	32 U
Number of expansion slots	3	8	16
FW throughput*	120 Gbit/s	720 Gbit/s	1.92 Tbit/s
Number of new connections per second	1,600,000	12,800,000	25,600,000
Maximum number of concurrent connections	160,000,000	1,280,000,000	2,560,000,000
Interface types	GE, 10GE, 40GE, and 100GE		
Feature	FW: NAT, PAT, ASPF, Anti-DDoS, SLB, virtual FW VPN: IPSec/GRE/L2TP/SSL/IKEv2 NGFW: IPS, URL filtering, antivirus, DLP, ACTUAL awareness, Smart Policy Routing: RIP/OSPF/BGP/static routing/IGMP Reliability: hot standby (HRP), hot swap, link-group, IP-link, and dual-MPU		

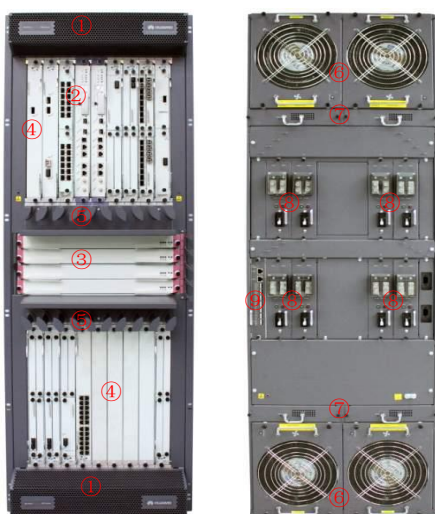
 **NOTE**

The maximum throughput is obtained by testing 1518-byte packets in ideal conditions. The specifications may vary depending on live network environments.

Hardware description:

The **USG9500** series has the distributed hardware architecture, and the quotation items include the chassis, MPU, SFU, power supply, CF card, DDR memory, LPU, SPU, optical transceiver, optical fiber, and license.

### USG9580 Appearance



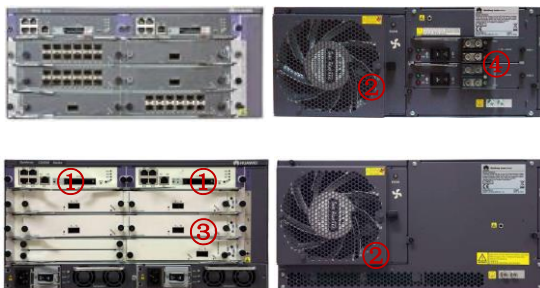
No.	Module	Quantity	Remarks
①	Air intake vent	×2	
②	MPU	×2	1:1 backup
③	SFU	×4	3+1 backup
④	LPU+SPU	×16	
⑤	Cable trough	×2	
⑥	Fan module	×4	2+2 backup
⑦	Low-frequency filtering unit	×4	
⑧	Power module	×8	4+4 backup Powering by zone independently
⑨	Independent monitoring unit	×1	

### USG9560 Appearance



No.	Module	Quantity	Remarks
①	Air intake vent	×1	
②	MPU	×2	1:1 backup
③	SFU	×1	3+1 backup ( three in all, two SFUs are integrated on MPU physically)
④	LPU+SPU	×8	
⑤	Cable trough	×1	
⑥	Fan module	×2	1+1 backup
⑦	Low-frequency filtering unit	×2	
⑧	Power module	×4	2+2 backup
⑨	Independent monitoring unit	×1	

## USG9580 Appearance



No.	Module	Quantity	Remarks
①	MPU	×2	1+1 backup
②	Fan module	×2	1+1 backup
③	LPU+SPU	×3	
④	Power module	×2	1+1 backup

For quotation convenience, basic configurations of each model are bundled, for example, the USG9560 DC configuration. In the basic configurations, the chassis, MPUs, SFUs, CF cards, and DDR memory modules are included. For high availability and excellent performance, the maximum numbers of these components are configured. If you select the AC model, configure external AC power supplies.

# 2 LPU

Two factors need to be considered when you configure the LPUs: interface capacity requirement and interface type. For the former, communicate with customers about the interface capacity requirements on the USG9500, such as 2 x 10GE interfaces and 4 x GE interfaces. Another interface capacity requirement comes from the product. For example, in a two-node deployment scenario, Gigabit/10-Gigabit interfaces must be reserved for interconnecting the two nodes. For the interface type, you also need to confirm with the customer the interface type of the peer device connected to the USG9500, a 10G Ethernet or POS interface, Gigabit Ethernet optical interface or electrical interface.

The USG9500 supports LPUF-21 (20G), LPUF-40 (40G), LPUF-101 (100G), LPUF-120 (120G) and LPUF-240 (240G) are supported.

LPU Type	Subcard Type	Width of the Occupied Slot
LPUF-21 (20G, 2 sub-slots and each occupying 1/2 slot)	12 x 1GE SFP Flexible Interface Daughter Card	1/2
	12 x 1GE RJ45 Flexible Interface Daughter Card	1/2
	1 x 10GE XFP Flexible Interface Daughter Card	1/2
	1 x 10G POS XFP Flexible Interface Daughter Card	1/2
LPUF-40 (40G, 2 sub-slots and each occupying 1/2 slot)	20 x 1GE SFP Optical Flexible Interface Daughter Card	1/2
	2 x 10GE XFP Flexible Interface Daughter Card	1/2
LPUF-101 (100G, 4 sub-slots and each occupying 1/4 slot, or 2 sub-slots and each occupying 1/2 slot)	24 x 1GE SFP Flexible Interface Daughter Card	1/2
	4 x 10GE SFP+ Flexible Interface Daughter Card	1/4
	5 x 10GE SFP+ Flexible Interface Daughter Card A	1/2
	1 x 40GE CFP Flexible Interface Daughter Card	1/2
LPUF-120 (120G, 2 sub-slots and each occupying 1/2 slot)	6 x 10GE SFP+ Flexible Interface Daughter Card A	1/2
	12 x 10GE SFP+ Flexible Interface Daughter Card A*	1/2
	1 x 100GE CFP Flexible Interface Daughter Card A	1/2
	5 x 10GE SFP+ Flexible Interface Daughter Card A	1/2
	24 x 1GE SFP Flexible Interface Daughter Card	1/2
	1 x 40GE CFP Flexible Interface Daughter Card	1/2
	20 x 1GE RJ45 Flexible Interface Daughter Card	1/2



LPU Type	Subcard Type	Width of the Occupied Slot
	3×40GE QSFP+ Flexible Interface Daughter Card	1/2
LPUF-240** (240G, 4 sub-slots and each occupying 1/4 slot)	6 x 10GE SFP+ Flexible Interface Daughter Card	1/2
	12 x 10GE SFP+ Flexible Interface Daughter Card	1/2
	1 x 100GE CFP Flexible Interface Daughter Card	1/2
	5 x 10GE SFP+ Flexible Interface Daughter Card	1/2
	24 x 1GE SFP Flexible Interface Daughter Card	1/2
	1 x 40GE CFP Flexible Interface Daughter Card	1/2
LPUI-100 (100G processing capability)	1-port 100G CFP Integrated Line Processing Unit	1

\*When two 12 x 10GE SFP+ flexible interface subcards are installed on the LPUF-120 LPU, the processing capability of each subcard is converged to 60 Gbit/s.

\*\*LPUF-240 cannot be used on the USG9520 chassis, but can be used on the USG9560 and USG9580 chassis.

If some flexible subcards listed in the preceding table have the same name, they can be used in different mother boards.

# 3 SPU



When configuring the SPU, take into consideration the application scenario first, then the service processing capacity. SPUs of the USG9500 support flexible configurations that provide refined service perfectly meeting the customers' requirements.

USG9500 V500R001 supports SPUs with 240Gbit/s throughput in a single slot. For the market in China, SPUs can be configured according to requirements. For example, SPUs and expansion cards with the FW/NAT throughput of 40G, 80G, 100G, 120G can be configured to adapt to different application scenarios. For the market outside China, SPUs starting with 20 Gbit/s (step 20 Gbit/s) can be configured. License capacity can be expanded through hardware and software.



#### NOTE

The SPU throughput is obtained by testing 1518-byte packets in ideal conditions. The specifications may vary depending on live network environments.

V500R001 firewall SPUs have a hardware architecture design similar to the LPU, that is, baseboard + subcard. The subcard occupies a 1/2 slot and can be classified into single-CPU firewall SPC (40 Gbit/s performance, 100Gbit/s performance), dual-CPU firewall SPC (80 Gbit/s performance, 120Gbit/s performance), and application security SPC. For sales outside China, licenses are used for performance expansion. There is single-CPU firewall SPC, dual-CPU firewall SPC and application security SPC. The dual-CPU firewall SPC provides 20 Gbit/s processing performance. If you require a higher performance, purchase 20 Gbit/s firewall or 40 Gbit/s firewall performance license for expansion. The processing performance can be expanded to 100 Gbit/s on the single-CPU firewall SPC, or expanded to 120 Gbit/s on the dual-CPU firewall SPC. If the traffic exceeds 120 Gbit/s, you need to purchase a new hardware subcard. The application security SPC is the same as that for the market in China. This card is still in hardware sales mode. The antivirus, URL filtering, and intrusion

prevention functions provided by this SPC can be upgraded using independent licenses or one integrated upgrade service license. That is, if a customer needs to purchase 1-year upgrade service for two application security SPCs, the customer needs only 1 set of 1-year upgrade service license.

BOM Code	External Model	Description
82703612	LIC-SPC-IPS-1Y	IPS Feature Database 1 Year Upgrade Service
82703613	LIC-SPC-IPS-3Y	IPS Feature Database 3 Year Upgrade Service
82703614	LIC-SPC-AV-1Y	AV Feature Database 1 Year Upgrade Service
82703615	LIC-SPC-AV-3Y	AV Feature Database 3 Year Upgrade Service
82703616	LIC-SPC-URL-1Y	URL Filtering Feature Database 1 Year Upgrade Service
82703617	LIC-SPC-URL-3Y	URL Filtering Feature Database 3 Year Upgrade Service
82703618	LIC-SPC-IAU-1Y	IPS+AV+URL Filtering Feature Database 1 Year Upgrade Service
82703619	LIC-SPC-IAU-3Y	IPS+AV+URL Filtering Feature Database 3 Year Upgrade Service

# 4 New Quotation Items

USG9500 V500R001C50 has the following new hardware quotation items.

BOM Code	Model	Description
03056989	SPU-X3-B2	X3 Service Processing Unit 2(Base Board)
03057426	SPUA-20-O-H	Enhanced 20G Firewall Service Processing Unit A 60&80
03057427	SPUA-20-O-M	Enhanced 20G Firewall Service Processing Unit A 20
03057429	SPCA-20-O-H&M	Enhanced 20G Firewall Service Expansion Card A
03057520	SPUB-20-O-H	Enhanced 20G Firewall Service Processing Unit B 60&80
03057518	SPUB-20-O-M	Enhanced 20G Firewall Service Processing Unit B 20
03057522	SPCB-20-O-H&M	Enhanced 20G Firewall Service Expansion Card B
03056890	FW-20X1G-RJ45	20-Port 10/100/1000Base-RJ45 Flexible Card
03056848	FW-3X40G-QSFP+	3-Port 40GBase-QSFP+ Flexible Card

USG9500 V500R001C50 adds the following software quotation items.

BOM Code	Model	Description
8270G9WX	LIC-SSL-100-USG6000	Quantity of SSL VPN Concurrent Users(100 Users)
8270G9WY	LIC-SSL-200-USG6000	Quantity of SSL VPN Concurrent Users (200 Users)
8270G9X0	LIC-SSL-500-USG6000	Quantity of SSL VPN Concurrent Users (500 Users)
8270G9X1	LIC-SSL-1000-USG6000	Quantity of SSL VPN Concurrent Users (1000 Users)
8270G9X2	LIC-SSL-2000-USG6000	Quantity of SSL VPN Concurrent Users (2000 Users)
8270G9X3	LIC-SSL-5000-USG6000	Quantity of SSL VPN Concurrent Users (5000 Users)
88034AFS	LIC-SSL-10000-USG9500	Quantity of SSL VPN Concurrent Users (10000 Users)
88034AFR	LIC-SSL-20000-USG9500	Quantity of SSL VPN Concurrent Users (20000 Users)
88033YVH	LIC-CS-1Y-USG9500	Cloud Sandbox Inspection 1-Year Service
88033YVG	LIC-CS-3Y-USG9500	Cloud Sandbox Inspection 3-Year Service

The software license of V500R001C50 has the following changes compared with that of V500R001C30:

1. Added the function of the SSL VPN and the license of SSL VPN concurrent user quantity.
2. Added the function of the cloud sandbox inspection and the one-year license and three-year license of cloud sandbox inspection service.

By default, V500R001C50 provides the following resources (do not need to buy the license or boards):

1. Ten virtual systems are provided, excluding the root system.
2. The number of IPSec tunnels is not limited and are provided for free.
3. The number of CGN (including 6RD, NAT64, and DSLite) sessions is 1 million.
4. Service Awareness (SA) is integrated into the firewall SPU and application security SPC.
5. URL source tracing is integrated into the firewall SPU, and additional boards are not required.

## 4.2 Version Mapping

The following table lists the version mapping for USG9500 V500R001.

Device	Version	Remarks
LogCenter	V100R001C20SPC205	
VSM network management platform	V300R005C00SPC302	

## 4.3 Legal and Regulatory Restrictions

### 4.3.1 Security Redline Restrictions

USG9500 V500R001C50 meets Huawei cyber security requirements.

### 4.3.2 Export Control Restrictions

1. China  
Sales are allowed.
2. Non-trade embargoed or controlled countries (non-sensitive countries)  
Sales are allowed for governmental public information service projects and commercial enterprise security projects.  
Sales are forbidden for confidential government services, national and social security monitoring systems, and carrier security projects.
3. Non-trade embargoed or controlled countries (security-sensitive countries)  
Sales are forbidden in France and all its dependent territories.

Sales are allowed for governmental public information service projects and commercial enterprise security projects.

Sales are forbidden for confidential government services, national and social security monitoring systems, and carrier security projects.

4. Partially embargoed countries (nine countries)

Sales are allowed for only commercial enterprise security projects, not for other projects.

Sales on behavior audit, content audit, and content filtering licenses are forbidden for commercial enterprise security projects.

5. Fully embargoed countries (five countries)

Sales are forbidden.

Description of sales restriction:

1. Stick to the "being integrated" strategy. The following items are not allowed: direct sales, content resolution, and integration or OEM of content resolution products.
2. Avoid direct or indirect funding or preferential loans by the Chinese government.
3. After measures are taken to avoid associated legal and control policy risks (such as a contract **DISCLAIMER**), standard products and components are allowed to be provided based on the business principles and risk premium principles.

# 5 Product Configuration

## 5.1 Typical Configuration and Parts Replacement

### 5.1.1 Typical Configuration

USG9500 V500R001C50 supports the typical configuration of the 200 Gbit/s DC/AC switching host bundle. For the typical configurations of the USG9520 and USG9560, the same parts (altogether 4 types) are used in and outside China. These parts are different from those used in V300R001C20. Pay attention to this point.

For new sites, the default configurations of the 200 Gbit/s DC/AC switching host bundle are used by default.

The four types of typical configurations are as follows:

BOM Code	Model	Description
02350FRR	USG9520-BASE-AC-51	USG9520 AC Standard Configuration(include X3 AC Chassis,2*MPU)
02350FRU	USG9520-BASE-DC-51	USG9520 DC Standard Configuration(include X3 DC Chassis,2*MPU)
02350FRW	USG9560-BASE-DC-51	USG9560 DC Basic Configuration(include X8 DC Chassis,2*SRU,1*SFU)
02350FRX	USG9580-BASE-DC-51	USG9580 DC Standard Configuration(include X16 DC Chassis,2*MPU,4*SFU)

If the USG9560 requires AC power, the following parts shall be configured for each device:

BOM Code	02310YXU	AC Power Module	1
Lower-Level BOM Code	02400376	Power Distribution Cabinet,220V,50/60HZ,72000mA,None,E PS200-4850A	1
Lower-Level BOM Code	02130872	Power module--33degC-65degC-90VAC-290VAC-(-53.5)VDC/54.2A-AC/DC rectifier	4

If the USG9580 requires AC power, the following parts shall be configured for each device:

BOM Code	02310YXU	AC Power Module	2
Lower-Level BOM Code	02400376	Power Distribution Cabinet,220V,50/60HZ,72000mA,None,EPS200-4850A	2
Lower-Level BOM Code	02130872	Power module--33degC-65degC-90VAC-290VAC-(-53.5)VDC/54.2A-AC/DC rectifier	8



**NOTE**

The USG9560 and USG9580 are chassis introduced from the NE40E-X router, and the existing roadmap does not provide independent AC chassis. Therefore, a solution of a DC chassis with an AC power module shall be provided to address the issue of AC power supply.

### 5.1.2 External Quoted Cables or Optical Fiber Configuration

For details, see *HUAWEI USG9500 Series Terabit-level Next-Generation Firewall Product Configuration Manual*.

### 5.1.3 Optical Transceiver Configuration

If the LPU provides optical interfaces, additional optical transceivers are required for connecting the optical fibers. Verify the specification of the optical transceiver (XFP, SFP, or eSFP). Specifications, including the mode of optical transceivers, wavelength, and transmission distance require customer confirmation.

For details, see *USG9500 V300R001 Product Configuration Manual*.