

# NE20E-S Series Universal Service Routers



## Product Overview

Huawei ® NetEngine20E-S Universal Service Router (NE20E-S) Series is medium- or high-end network product developed by Huawei for transportation, finance, energy, government, education, enterprise and Internet service provider (ISP) networks. The NE20E-S Series Routers mainly serve as aggregation nodes on wide area network (WAN) networks and egress nodes on the enterprise or campus networks.

The NE20E-S Series includes the NE20E-S2E, NE20E-S2F, NE20E-S4, NE20E-S8, and NE20E-S16 (Figure 1).

Figure 1 Huawei NE20E-S Series Routers



NE20E-S2E



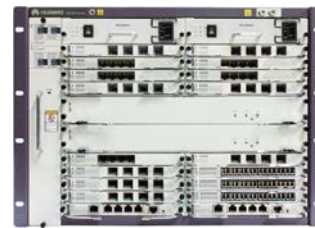
NE20E-S2F



NE20E-S4



NE20E-S8



NE20E-S16

The high-performance main processing unit MPUE1 and network service processors NSP-A/B are supported on the NE20E-S Series Routers so that the NE20E-S Series Routers can support up to 25,000,000 IPv4 BGP routes and 4,000,000 IPv4 FIB entries.

The NE20E-S Series Routers are compact and environment-friendly. As the NE20E-S Series Routers can properly work in a wide temperature range of  $-40^{\circ}\text{C}$  to  $65^{\circ}\text{C}$ , it can be installed in street cabinets.

The NE20E-S Series Routers run on the Versatile Routing Platform (VRP ®) operating system and use Huawei-developed NP chips and hardware-based forwarding and non-blocking switching technologies. The NE20E-S Series Routers have the following features:

- Line speed forwarding capabilities, industry-leading reliability, excellent scalability, a well-designed quality of service (QoS) mechanism, and strong service processing capabilities.
- Powerful service access and aggregation capabilities and various features, such as Layer 2 virtual private network (L2VPN), L3VPN, multicast, multicast VPN (MVPN), and Multiprotocol Label Switching - Traffic Engineering (MPLS-TE).
- Various service features, such as Generic Routing Encapsulation (GRE), IP Security (IPSec), Network Address Translation (NAT), and NetStream.
- Support for IPv6 and smooth transition from IPv4 to IPv6.

The NE20E-S Series Routers can be flexibly deployed at the access and aggregation layer of IP/MPLS networks and work with other NE routers to provide an all-around network solution for enterprise users, satisfying diversified service requirements in the future.

NE20E-S Series Routers are applicable to the following scenarios:

- NE20E-S Series Routers can function as the egress routers on large-scale campus networks or small-scale data centers, access or aggregation routers on large-scale WANs, backbone routers on small-scale WANs, and network probes.
- As network loads grow and service types increase, the device performance becomes insufficient for the live network configuration, causing user experience to deteriorate. In this case, NE20E-S Series Routers can be used for network expansion to improve the bearing capability of networks and maintain sustainable development for networks.
- Some old switches that function as aggregation nodes on the live network are about to experience End of Production or End of Maintenance. In this case, NE20E-S Series Routers can be used to replace these old switches. NE20E-S Series Routers can support up to 25,000,000 IPv4 BGP routes and 4,000,000 IPv4 FIB entries, and multiple services, such as QinQ, L2VPN, L3VPN, and MVPN services.
- The existing SDH leased line network features the following characteristics: The CAPEX and OPEX are high; access services are limited; service provisioning is slow; the scalability is poor. To better serve users, services are migrated to the IP network that boasts low costs, great scalability, and flexible service access. NE20E-S Series Routers support multiple interfaces, such as E1, POS, CPOS, CWDM, GE, 10GE, and 40GE interfaces, and support the IP hard pipe function and the OAM and protection mechanism. NE20E-S Series Routers help IP networks to provide leased line services similar to SDH so that IP networks features high security, high bandwidth, low delay, and great OAM ability.

## Product Features

Table 1 lists the features of the Huawei NE20E-S Series Routers.

**Table 1.** Features of Huawei NE20E-S Series Routers

Features	Description
<b>Powerful Service Support</b>	
Comprehensive access and aggregation capabilities	The NE20E-S supports various interface types (E1, POS, CPOS, GE, 10GE, and 40GE) and high-density fixed ports to provide access and aggregation WAN services as well as Ethernet multi-service transmission platform (MSTP) aggregation services, satisfying various service requirements.
Powerful routing capabilities	The NE20E-S supports various routing protocols, such as Routing Information Protocol (RIP), Open Shortest Path First (OSPF), Intermediate System-to-Intermediate System (IS-IS), Border Gateway Protocol version 4 (BGP4), and multicast routing protocols. The NE20E-S supports plaintext and ciphertext authentication as well as fast convergence. These features ensure network stability and security in complex routing environments.
Strong service bearer capabilities	The NE20E-S can have L2VPN, L3VPN, and MVPN deployed at the same time, as networks require. The NE20E-S also supports TE, selective 802.1Q-in-802.1Q (QinQ), Dynamic Host Configuration Protocol (DHCP), Layer Two Tunneling Protocol (L2TP), and NetStream. The NE20E-S can provide access for both traditional and newly emerging services, satisfying the needs of multiple service environments.
Powerful and expansible multicast capabilities	The NE20E-S supports IPv4/IPv6 multicast protocols, such as Protocol Independent Multicast - Sparse Mode (PIM-SM), PIM - Source Specific Multicast (PIM-SSM), Multicast Listener Discovery Version 1 (MLDv1), MLDv2, Internet Group Membership Protocol Version 3


Features	Description
	(IGMPv3), and IGMP snooping. The NE20E-S has the flexibility to carry video services, such as Internet Protocol Television (IPTV), and satisfy multicast service requirements on networks of any scale.
<b>High Availability</b>	
Equipment-level reliability	The NE20E-S provides redundancy backup for key components. These key components support hot swap and hot backup. The NE20E-S also uses technologies, such as Non-Stop Routing (NSR), Non-Stop Forwarding (NSF), and In-Service Software Upgrade (ISSU), to ensure uninterrupted service forwarding.
Network-level reliability	The NE20E-S uses the following technologies to provide network-level reliability: IP fast reroute (FRR), Label Distribution Protocol (LDP) FRR, VPN FRR, TE FRR, hot standby, fast convergence of Interior Gateway Protocols (IGP), BGP, and multicast routes, Virtual Router Redundancy Protocol (VRRP), trunk load balancing and backup, hardware-based Bidirectional Forwarding Detection (BFD) of 3.3 ms, MPLS OAM, and Ethernet OAM. The NE20E-S provides an end-to-end protection switching speed of 200 ms with no service interruption.
Service-level reliability	The NE20E-S uses the following technologies to provide service-level reliability for L2VPNs and L3VPNs: VPN FRR, E-VRRP, VLL FRR, Ethernet OAM, and PW redundancy. These technologies ensure stable and reliable service operation with no service interruption.
<b>High Security</b>	
Device security	<p>The NE20E-S supports multiple security mechanisms to ensure that the packets sent for central processing (CP) conform to the configured specifications. The NE20E-S can filter the spoofing and malformed packets sent for CP through unicast reverse path forwarding (URPF) on an interface and TCP/IP attack defense, discard packets with invalid TTLs through Generalized TTL Security Mechanism (GTSM) detection of TTLs of packets sent for CP, classify packets sent for CP according to protocol granularities and restrict the bandwidth, protect management interfaces and service interfaces through management plane protection.</p> <p>The NE20E-S also supports Management Plane Access Control (MPAC) function to protect devices from attacks. MPAC enables devices to filter packets destined for the CPU based on rules specified in an MPAC policy and discard unnecessary packets, which helps prevent attacks to the CPU.</p>
Service security	<p>The NE20E-S supports IPSec tunnel to provide high quality, interoperable and cryptology-based security for IP protocol packets.</p> <p>The NE20E-S supports Unicast Reverse Path Forwarding (URPF) to defend a network against attacks that are based on source address spoofing.</p> <p>The NE20E-S supports Layer 2 loop detection, which is a security mechanism used to detect loops on a Layer 2 network.</p> <p>The NE20E-S supports Keychain to provide authentication functionality to the applications such as Routing Protocol Application (RPA), Transmission Control Protocol (TCP), and signaling protocols (such as LDP). It also provides dynamic change of authentication keys to all required applications. Keychain supports Message Digest 5 (MD5), Secure Hash Algorithm-1 (SHA-1)-12, Hash Message Authentication Code for Message Digest 5 (HMAC-MD5), HMAC-SHA1-12, HMAC-SHA1-20, SHA2-256, and HMAC-HA2-256 as authentication algorithms.</p>
Flexible VS technologies	The NE20E-S supports flexible virtual system (VS) technologies. A physical router can be divided into multiple logical routers between which resources are separated. Services can be deployed on different VSs to form a multi-service network with service separation. The use of VSs enhances security and reliability.

Features	Description
<b>Flexible and Scalable, Investment Protection</b>	
Control- and forwarding-plane separation	The NE20E-S adopts a centralized routing engine and a distributed forwarding architecture, which helps to provide rich and flexible service and to perform large-capacity forwarding. In addition, the NE20E-S has a monitoring plane, which helps ensure stable addressing and forwarding performance. The data plane, control plane, and monitoring plane are separated and you can upgrade each plane separately.
Advanced VRP platform	The NE20E-S uses the latest VRPv8 platform, which is also used by the NE5000E core router. The VRP uses the Resilient Distributed Framework (RDF), with separated management plane, service plane, data plane, and monitor plane, greatly increasing the system flexibility, reliability, manageability, and expansibility.  The VRP has grown mature and stable over the years. So far, more than 7 million sets are running on live networks. Its rich features and stability have proven themselves through wide applications.
Huawei-developed chips, service on demand	The NE20E-S uses in-built Huawei-developed NP chips that allow the NE20E-S to have a flexible programmable architecture. Microcode programming can be used for new service deployment, without the need to replace hardware, which saves investments. In addition, this architecture drastically shortens the technological innovation cycle and accelerates new service launch speed, helping customers build flexible and scalable networks.
<b>Industry-leading Original Technology</b>	
IP hard pipe	IP hard pipe is an IP network-based access technology newly developed by Huawei. It works with MPLS-TE and HQoS and reserves hardware resources to implement dedicated use of bandwidth for leased line services, ensuring low delay and high reliability.  The NE20E-S supports IP hard pipe, providing a high-quality IP leased line solution for enterprises. IP hard pipe strictly isolates soft and hard pipes by hardware so that soft and hard pipe bandwidths are isolated and cannot be preempted. A hard pipe is similar to a synchronous digital hierarchy (SDH) rigid pipe. IP hard pipe uses IP Flow Performance Measurement (FPM) to measure service quality of flows and uses the NMS and uTraffic to display the measurement result and real-time service operating status, making IP leased line services controllable, manageable, and visible.
OAM	Except for P2P Ethernet in the First Mile (EFM), E2E Connectivity Fault Management (CFM), E2E Y.1731, and their combinations to provide a complete Ethernet OAM solution, the NE20E-S supports IP FPM developed by Huawei to measure IP network performance. IP FPM directly measures IP service packets and monitors service changes online for fast fault locating. IP FPM provides highly-accurate measurements. It can be flexibly deployed and has no impact on services.
<b>Less Investment</b>	
Dynamic energy-saving design	The NE20E-S can dynamically change the number of forwarding chip processing cores, frequency, and bus bandwidth to compensate for service traffic changes, reducing boards' power consumption.
Reducing installation space	The NE20E-S Series Routers are only 220 mm deep and the lowest one is only 2 U height, reducing the required installation space.
Wide temperature range design	The NE20E-S can be used when the ambient temperature is between -40°C and +65°C, applicable to outdoor deployment.

## Usage Scenarios

Table 2 describes the usage scenarios of Huawei NE20E-S Series Routers.

**Table 2.** Usage Scenarios of Huawei NE20E-S Series Routers

Usage Scenarios	Product Features
Large-scale campus/small-sized data center egress router	<p>The NE20E-S supports the NAT, IPSec, and flexible PBR (redirection) functions, and provides up to 4,000,000 IPv4 FIB entries and 2,000,000 IPv6 FIB entries.</p> <p> <b>NOTE</b></p> <p>On an NE20E-S4/8/16, NAT and IPSec can be implemented only on an NSP-A/NSP-B board, with no license being required.</p> <p>The NE20E-S2F supports IPSec, with no license being required.</p> <p>Only an NE20E-S, equipped with the MPUE1 and NSP-A/B, supports up to 4,000,000 IPv4 FIB entries or 2,000,000 IPv6 FIB entries.</p>
Large-scale WAN access/aggregation router or small-scale MAN backbone router	<p>The NE20E-S supports various interface types (E1, POS, CPOS, GE, 10GE, and 40GE) and high-density fixed ports to provide access and aggregation WAN services as well as Ethernet multi-service transmission platform (MSTP) aggregation services, satisfying various service requirements.</p> <p>The NE20E-S can have L2VPN, L3VPN, and MVPN deployed at the same time, as networks require. The NE20E-S also supports TE, selective 802.1Q-in-802.1Q (QinQ), Dynamic Host Configuration Protocol (DHCP), Layer Two Tunneling Protocol (L2TP), and NetStream.</p> <p>The NE20E-S supports IP hard pipe and reserves hardware resources to implement dedicated use of bandwidth for leased line services, ensuring low delay and high reliability.</p>
Probe	<p>The NE20E-S supports various OAM Technologies, such as IP FPM, Two-Way Active Measurement Protocol (TWAMP), Y.1731, RFC 2544, RFC 1564, Network Quality Analysis (NQA).</p>


## Product Specifications

Table 3 lists the specifications of Huawei NE20E-S Series Routers.

**Table 3.** Specifications of Huawei NE20E-S Series Routers

Item	NE20E-S2E	NE20E-S2F	NE20E-S4	NE20E-S8	NE20E-S16
Switching capacity	160Gbps	320Gbps	480Gbps	480Gbps	480Gbps
Forwarding performance	70 Mpps	150 Mpps	180 Mpps	360 Mpps	360 Mpps
Fixed ports support	2*10GE (SFP+) + 24*GE (SFP)	4*10GE (SFP+) + 40*GE (SFP)	NA	NA	NA
Slot number	2 PICs	2 PICs	2 MPUs 1 NSP 4 PICs	2 MPUs 2 NSPs 8 PICs	2 MPUs 2 NSPs 16 PICs

Item	NE20E-S2E	NE20E-S2F	NE20E-S4	NE20E-S8	NE20E-S16
MPU support	Integrated	Integrated	1:1	1:1	1:1
NSP support	Integrated	Integrated	1	1:1	1:1
Huawei VRP Software release	V800R007	V800R007	V800R007	V800R007	V800R007
Default memory	4GB	8GB	2GB (MPUE)	2GB (MPUE)	2GB (MPUE)
			8GB (MPUE1)	8GB (MPUE1)	8GB (MPUE1)
Storage (Using eUSB)	2GB	2GB	2GB	2GB	2GB
MTBF (year)	59.2	59.2	31.07	138.61	138.61
MTTR (hour)	2	2	0.5	0.5	0.5
System reliability	0.9999996143	0.9999996143	0.999998163	0.999999588	0.999999588
Physical dimensions (Note 1)	Height: 89mm (3.46in.) (2U) Width: 442mm (17.40in.) Depth: 220mm (8.66in.)	Height: 89mm (3.46in.) (2U) Width: 442mm (17.40in.) Depth: 220mm (8.66in.)	<ul style="list-style-type: none"> <li>• DC</li> <li>Height: 132mm (5.20in.) (3U)</li> <li>Width: 442mm (17.40in.)</li> <li>Depth: 220mm (8.66in.)</li> <li>• AC</li> <li>Height: 175mm (6.89in.) (4U)</li> <li>Width: 442mm (17.40in.)</li> <li>Depth: 220mm (8.66in.)</li> </ul>	<ul style="list-style-type: none"> <li>• DC</li> <li>Height: 222mm (8.74in.) (5U)</li> <li>Width: 442mm (17.40in.)</li> <li>Depth: 220mm (8.66in.)</li> <li>• AC</li> <li>Height: 264mm (10.39in.) (6U)</li> <li>Width: 442mm (17.40in.)</li> <li>Depth: 220mm (8.66in.)</li> </ul>	Height: 353mm (13.90in.) (8U) Width: 442mm (17.40in.) Depth: 220mm (8.66in.)
Weight (in empty configuration) (Note 2)	7.2kg (15.87 lb) (DC)	7.3kg (16.09 lb) (DC)	5.5kg (12.13 lb) (DC)	8.8kg (19.40 lb) (DC)	14.0kg (30.86 lb) (DC)
	7.2kg (15.87 lb) (AC)	7.3kg (16.09 lb) (AC)	6.6kg (14.55 lb) (AC)	10.2kg (22.49 lb) (AC)	14.0kg (30.86 lb) (AC)
Weight (in full configuration)	9.3kg (20.50 lb) (DC)	9.4kg (20.72 lb) (DC)	13.7kg (30.21 lb) (DC)	22.3kg (49.16 lb) (DC)	34.0kg (74.96 lb) (DC)
	10.3 kg (22.71 lb) (AC)	10.4kg (22.93 lb) (AC)	18.1kg (39.91 lb) (AC)	27.0kg (59.52 lb) (AC)	36.0kg (79.37 lb) (AC)
Redundant power supply	1+1	1+1	1+1	1+1	1+1

Item	NE20E-S2E	NE20E-S2F	NE20E-S4	NE20E-S8	NE20E-S16
Heat dissipation	593.7 BTU/hour (DC) 671.6 BTU/hour (AC)	963.6 BTU/hour (DC) 1047.9 BTU/hour (AC)	1232.9 BTU/hour (DC) 1421.1 BTU/hour (AC)	2005.1 BTU/hour (DC) 2193.2 BTU/hour (AC)	2160.8 BTU/hour (DC) 2303.5 BTU/hour (AC)
Power consumption (in full configuration)	195 W (DC) 219 W (AC)	309 W (DC) 335 W (AC)	398 W (DC) 456 W (AC)	645 W (DC) 703 W (AC)	696 W (DC) 740 W (AC)
Power input	Worldwide ranging AC (90 to 290 V; 110V or 220V nominal) Worldwide ranging DC (-38.4 to -72V; -48V or -60V nominal)	Worldwide ranging AC (90 to 290 V; 110V or 220V nominal) Worldwide ranging DC (-38.4 to -72V; -48V or -60V nominal)	Worldwide ranging AC (90 to 290 V; 110V or 220V nominal) Worldwide ranging DC (-38.4 to -72V; -48V or -60V nominal)	Worldwide ranging AC input range (90 to 290 V; 110V or 220V nominal) Worldwide ranging DC (-38.4 to -72V; -48V or -60V nominal)	Worldwide ranging AC input range (90 to 290 V; 110V or 220V nominal) Worldwide ranging DC (-38.4 to -72V; -48V or -60V nominal)
Rack-mounting	19-inch, 21-inch, or 23-inch standard cabinet, with the depth greater than or equal to 300 mm (11.8 in.)				
Wall-mounting	No	No	No	No	No
Airflow	Left-to-right	Left-to-right	Left-to-right	Left-to-right	Left-to-right
Operating temperature (nominal) (Note 3, Note 4, Note 5, Note 6)	-5 to 65°C (23 to 147°F) (DC) 0 to 45°C (32 to 113°F) (AC)	-5 to 65°C (23 to 147°F) (DC) 0 to 45°C (32 to 113°F) (AC)	0 to 45°C (32 to 113°F) (Ordinary mode) -40 to 65°C (-40 to 149°F) (Enhancement mode)  <b>NOTE</b> Ordinary mode: using NSP-50, NSP-120, NSP-A or NSP-B. Enhancement mode: using NSP-50-E or NSP-120-E, which supports wide temperature range. The device in enhancement mode can start at an ambient temperature higher than -20°C (-4°F).		
Operating temperature (short-term) (Note 3, Note 4, Note 5, Note 6)	-5 to 55°C (23 to 131°F) (AC)	-5 to 55°C (23 to 131°F) (AC)	-5 to 55°C (23 to 131°F) (Ordinary mode)	-5 to 55°C (23 to 131°F) (Ordinary mode)	-5 to 55°C (23 to 131°F) (Ordinary mode)
Operating humidity (nominal) (relative humidity) (Note 3, Note 6)	5 to 85%, non-condensing				
Operating humidity (short-term) (relative humidity) (Note 3, Note 6)	5 to 95%, non-condensing				
Storage temperature (Note 3, Note 4)	-40 to 70°C (-40 to 158°F)				

Item	NE20E-S2E	NE20E-S2F	NE20E-S4	NE20E-S8	NE20E-S16
Storage humidity (relative humidity) (Note 3)	5 to 95%, non-condensing				
Long-term operating altitude	≤3000 m (9842.4 feet)				
Storage altitude	≤5000 m (16404 feet)				
EMC standards	<p><b>Safety</b></p> <ul style="list-style-type: none"> <li>• UL60950-1</li> <li>• CSA C22.2 No. 60950-1-03</li> <li>• EN 60950-1</li> <li>• IEC 60950-1</li> <li>• AS/NZS 60950.1</li> </ul> <p><b>Electromagnetic Emissions Certification</b></p> <ul style="list-style-type: none"> <li>• FCC 47 CFR Part 15 Class A</li> <li>• VCCI Class A</li> <li>• AS/NSZ Class A</li> <li>• ICES-003 Class A</li> <li>• EN55022/CISPR 22 Information Technology Equipment</li> </ul> <p><b>Emissions</b></p> <ul style="list-style-type: none"> <li>• EN55024/CISPR 24 Information Technology Equipment</li> </ul> <p><b>Immunity</b></p> <ul style="list-style-type: none"> <li>• EN300 386 Telecommunications Network Equipment</li> </ul> <p><b>EMC</b></p> <ul style="list-style-type: none"> <li>• EN50082-1/EN61000-6-2 Generic Immunity Standard</li> </ul> <p><b>Network Equipment Building Standards (NEBS)</b></p> <ul style="list-style-type: none"> <li>• GR-1089-CORE</li> <li>• GR-63-CORE</li> </ul>				

**NOTE**

Note 1: In the physical dimensions shown in the table, the width (W) does not include the rack-mounting ears.

Note 2: "Empty configuration" includes Chassis, integrated NSP, fan box, and not includes Power.

Note 3: Temperature and humidity are measured at 1.5 m (4.92 ft.) above the floor and 0.4 m (1.31 ft.) in front of the cabinet. There should be no protection board on the front or back of the cabinet.

Note 4: Temperature change rate limit: 30°C/hour (86°F/hour).

Note 5: The use of optical components may limit the ambient temperature range.

Note 6: "Short-term" refers to continuous working time that does not exceed 96 hours and accumulated working time per year that does not exceed 15 days. If the working time exceeds either of these values, it is considered "nominal" or "long-term".



## Ordering Information

To place an order, visit the [UniSTAR SCT](#) Workspace.

### Basic Hardware Configurations

**Table 4.** NE20E-S2E Basic Configuration Bundle

Order Name	BOM Number	Description	Remarks
CR2P2EBASD10	02311ARG	NE20E-S2E Basic Configuration (Includes NE20E-S2E Chassis, 2*10GE-SFP+ and 24GE-SFP fixed interface, 2*DC Power, Fan Box, Power cord, without Software Charge and Document)	-
CR2P2EBASA10	02311ARH	NE20E-S2E Basic Configuration (Includes NE20E-S2E Chassis, 2*10GE-SFP+ and 24GE-SFP fixed interface, 2*AC Power, Fan Box, Power cord, without Software Charge and Document)	-

**Table 5.** NE20E-S2E Basic Components

Order Name	BOM Number	Description	Remarks
CR2B0BKP0210	02350BUN	NE20E-S2E Integrated Chassis Components	Include: Chassis, backplane, integrated NSP, fan box. Not include: Power.
CR5B2PWRDC00	02311BHJ	DC Power Supply Unit 600W	Two for each device.
CR5B2PWRAC00	02311BLJ	AC Power Supply Unit 500W	Two for each device.
CR2M002FBX10	02311BQQ	Fan Box	One for each device. Included in the chassis components.

**Table 6.** NE20E-S2F Basic Configuration Bundle

Order Name	BOM Number	Description	Remarks
CR2P2FBASD10	02311ARQ	NE20E-S2F Basic Configuration (Includes NE20E-S2F Chassis, 4*10GE-SFP+ and 40GE-SFP fixed interface, 2*DC Power, Fan Box, Power cord, without Software Charge and Document)	-
CR2P2FBASA10	02311ARR	NE20E-S2F Basic Configuration (Includes NE20E-S2F Chassis, 4*10GE-SFP+ and 40GE-SFP fixed interface, 2*AC Power, Fan Box, Power cord, without Software Charge and Document)	-

**Table 7.** NE20E-S2F Basic Components

Order Name	BOM Number	Description	Remarks
CR2B0BKPO211	02350BUP	NE20E-S2F Integrated Chassis Components	Include: Chassis, backplane, integrated NSP, fan box. Not include: Power.
CR5B2PWRDC00	02311BHJ	DC Power Supply Unit 600W	Two for each device.
CR5B2PWRAC00	02311BLJ	AC Power Supply Unit 500W	Two for each device.
CR2M002FBX10	02311BQQ	Fan Box	One for each device. Included in the chassis components.

**Table 8.** NE20E-S4 Basic Configuration Bundle

Order Name	BOM Number	Description	Remarks
CR2M04BASD01	02357980	NE20E-S4 DC Basic Configuration (Includes NE20E-S4 Chassis, 1*MPUE, 2*DC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.
CR2M04BASD02	02357978	NE20E-S4 DC Basic Configuration (Includes NE20E-S4 Chassis, 2*MPUE, 2*DC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.
CR2M04BASA01	02350DWY	NE20E-S4 AC Basic Configuration (Includes NE20E-S4 Chassis, 1*MPUE, 2*AC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.
CR2M04BASA02	02350DXA	NE20E-S4 AC Basic Configuration (Includes NE20E-S4 Chassis, 2*MPUE, 2*AC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.
CR2M04BASD11	02350FVB	NE20E-S4 DC Basic Configuration (Includes NE20E-S4 Chassis, 1*MPUE1, 2*DC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.
CR2M04BASD12	02350FVD	NE20E-S4 DC Basic Configuration (Includes NE20E-S4 Chassis, 2*MPUE1, 2*DC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.
CR2M04BASA11	02350FVL	NE20E-S4 AC Basic Configuration (Includes NE20E-S4 Chassis, 1*MPUE1, 2*AC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.
CR2M04BASA12	02350FVP	NE20E-S4 AC Basic Configuration (Includes NE20E-S4 Chassis, 2*MPUE1, 2*AC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.

**Table 9.** NE20E-S4 Basic Components

Order Name	BOM Number	Description	Remarks
CR2B0BKP0410	02355528	NE20E-S4 Integrated DC Chassis Components	-
CR2B0BKP0411	02350DCV	NE20E-S4 Integrated AC Chassis Components	-
CR5D00PSUC70	03030QAS	DC Power Supply Unit 1200 W	Two for each device.
CR5D00PSUAC00	02310RBJ	AC Power Supply Unit 1600 W	Two for each device.
CR2M004FBX10	02310MSU	NE20E-S4 Fan Box	Universal fan box for AC or DC subracks; included in the chassis components.
CR2D00MPUE10	03030QCX	Main Processing Unit E	Equipped with a 2GB memory; one or two for each NE20E-S4 model.
CR2D0MPUE110	03031EDQ	Main Processing Unit E1	Equipped with an 8GB memory; one or two for each NE20E-S4 model.

**Table 10.** NE20E-S8 Basic Configuration Bundle

Order Name	BOM Number	Description	Remarks
CR2M08BASD02	02357981	NE20E-S8 DC Basic Configuration (Includes NE20E-S8 Chassis, 2*MPUE, 2*DC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.
CR2M08BASA02	02357982	NE20E-S8 AC Basic Configuration (Includes NE20E-S8 Chassis, 2*MPUE, 2*AC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.
CR2M08BASD12	02350FVR	NE20E-S8 DC Basic Configuration (Includes NE20E-S8 Chassis, 2*MPUE1, 2*DC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.
CR2M08BASA12	02350FVS	NE20E-S8 AC Basic Configuration (Includes NE20E-S8 Chassis, 2*MPUE1, 2*AC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.

**Table 11.** NE20E-S8 Basic Components

Order Name	BOM Number	Description	Remarks
CR2B0BKP0810	02355529	NE20E-S8 Integrated DC Chassis Components	-
CR2B0BKP0811	02356553	NE20E-S8 Integrated AC Chassis Components	-
CR5D00PSUC70	03030QAS	DC Power Supply Unit 1200 W	Two for each device.
CR5D00PSUAC00	02310RBJ	AC Power Supply Unit 1600 W	Two for each device.

Order Name	BOM Number	Description	Remarks
CR2M008FBX10	02310MSV	NE20E-S8 DC Fan Box	Included in the DC chassis components.
CR2M008FBX11	02310SFU	NE20E-S8 AC Fan Box	Included in the AC chassis components
CR2D00MPUE10	03030QCX	Main Processing Unit E	Equipped with a 2GB memory; two for each NE20E-S8 model.
CR2D0MPUE110	03031EDQ	Main Processing Unit E1	Equipped with an 8GB memory; two for each NE20E-S8 model.

**Table 12.** NE20E-S16 Basic Configuration Bundle

Order Name	BOM Number	Description	Remarks
CR2M16BASD02	02357983	NE20E-S16 DC Basic Configuration (Includes NE20E-S16 Chassis, 2*MPUE, 2*DC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.
CR2M16BASA02	02357984	NE20E-S16 AC Basic Configuration (Includes NE20E-S16 Chassis, 2*MPUE, 2*AC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.
CR2M16BASD12	02350FVT	NE20E-S16 DC Basic Configuration (Includes NE20E-S16 Chassis, 2*MPUE1, 2*DC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.
CR2M16BASA12	02350FVU	NE20E-S16 AC Basic Configuration (Includes NE20E-S16 Chassis, 2*MPUE1, 2*AC Power, Power cord, without Software Charge and Document)	NSPs are configured additionally.

**Table 13.** NE20E-S16 Basic Components

Order Name	BOM Number	Description	Remarks
CR2B0BKP1610	02356551	NE20E-S16 Integrated Chassis Components	-
CR5D00PSUD71	03030RFQ	DC Power Supply Unit 1600 W	Two for each device.
CR5D0PSUAC00	02310RBJ	AC Power Supply Unit 1600 W	Two for each device.
CR2M016FBX10	02310QMQ	NE20E-S16 Fan Box	Included in the chassis components.
CR2D00MPUE10	03030QCX	Main Processing Unit E	Equipped with a 2GB memory; two for each NE20E-S16 model.

Order Name	BOM Number	Description	Remarks
CR2D0MPUE110	03031EDQ	Main Processing Unit E1	Equipped with an 8GB memory; two for each NE20E-S16 model.

**Table 14.** Compatible NSPs in NE20E-S Series Routers ("●" indicates "support", and "-" indicates "not support")

Order Name	BOM Number	Description	NE20E-S2E	NE20E-S2F	NE20E-S4		NE20E-S8		NE20E-S16	Remarks
					AC	DC	AC	DC		
CR2D0NSP5010	03030QGY	NSP-50	-	-	●	●	●	●	●	50Gbps line speed forwarding.
CR2DNSPE5010	03030QHA	NSP-50-E	-	-	-	●	-	●	-	50Gbps line speed forwarding, supporting wide temperature range.
CR2DNSP12010	03030RFH	NSP-120	-	-	●	●	●	●	●	120Gbps line speed forwarding.
CR2DNSP1201E	03030RFG	NSP-120-E	-	-	-	●	-	●	-	120Gbps line speed forwarding, supporting wide temperature range.
CR2DNSPA0010	03031DBV	NSP-A	-	-	●	●	●	●	●	120Gbps line speed forwarding, supporting NAT/IPSec.
CR2DNSPB0010	03031DBX	NSP-B	-	-	●	●	●	●	●	240Gbps line speed forwarding, supporting NAT/IPSec.

#### NOTE

NE20E-S4 supports only one NSP.

It is recommended to configure two NSPs of the same type for NE20E-S8/S16 to support 1:1 NSP backup.

## Line Card Configuration

**Table 15.** Compatible Line Cards in NE20E-S Series Routers ("●" indicates "support", and "-" indicates "not support")

Order Name	BOM Number	Description	S2E	S2F	S4	S8	S16	Remarks
CR2D00E1MF70	03031LPW	1-Port 40GBase-CFP Physical Interface Card(PIC)	-	●	●	●	-	Occupies one slot and must be installed on an NSP-120/A/B.
CR2D00L4XF11	03031DJP	4-Port 10GBase LAN/WAN-SFP+ Physical Interface Card	-	●	●	●	-	Occupies one slot and must be installed on an NSP-120/A/B.

Order Name	BOM Number	Description	S2E	S2F	S4	S8	S16	Remarks
CR2D00L2XF12	03030WGQ	2-Port 10GBase LAN/WAN-SFP+ Physical Interface Card	●	●	●	●	●	Occupies one slot.
CR2D0L2XFH10	03031DKC	2-Port 10GBase LAN/WAN-SFP+ Physical Interface Card H	-	●	●	●	●	Is a hard pipe card that occupies one slot and must be installed on an NSP-A/B.
CR2DL1XE8G11	03031DJQ	1-Port 10GBase LAN/WAN-SFP+ + 8-Port 100/1000Base-X-SFP Physical Interface Card	●	●	●	●	●	Occupies one slot.
CR2D00EAGF10	03031DJK	10-Port 100/1000Base-X-SFP Physical Interface Card	●	●	●	●	●	Occupies one slot.
CR2D0EAGFH10	03031DKK	10-Port 100/1000Base-X-SFP Physical Interface Card H	-	●	●	●	●	Is a hard pipe card that occupies one slot and must be installed on an NSP-A/B.
CR2D00E8GE12	03031DHB	8-Port 100/1000Base-RJ45 Physical Interface Card	●	●	●	●	●	Occupies one slot.
CR2D00E8GF11	003030QCL	8-Port 100/1000Base-X-SFP Physical Interface Card	●	●	●	●	●	Occupies one slot.
CR2DP2C1HF11	03031DKA	2-Port OC-3c/STM-1c (or 1-Port OC-12c/STM-4C) POS-SFP Physical Interface Card	●	●	●	●	●	Occupies one slot. Commands can be used to switch the interface rate between 622 Mbps and 155 Mbps.
CR2D00C1CF11	03031DKB	1-Port Channelized STM-1c POS-SFP Physical Interface Card	●	●	●	●	●	Occupies one slot.
CR2D00C4CF11	03030QCN	4-Port Channelized STM-1c POS-SFP Physical Interface Card	●	●	●	●	●	Occupies one slot.
CR2D00P4CF11	03030RET	4-Port OC-3c/STM-1c POS-SFP Physical Interface Card	●	●	●	●	●	Occupies one slot.
CR2D000IE111	03030QCP	32-Port E1 Physical Interface Card(120ohm)	●	●	●	●	●	Occupies one slot.
CR2D000IE110	03030QCQ	32-Port E1 Physical Interface Card(75ohm)	●	●	●	●	●	Occupies one slot.

Order Name	BOM Number	Description	S2E	S2F	S4	S8	S16	Remarks
CR2D000DE111	03030REY	16-Port E1 Physical Interface Card(120ohm)	•	•	•	•	•	Occupies one slot.
CR2D000DE110	03030RFA	16-Port E1 Physical Interface Card(75ohm)	•	•	•	•	•	Occupies one slot.
CR5D08CWDM70	03030RJQ	8-Channel CWDM Multiplexing & Demultiplexing (1471/1491/1511/1531/1551/1571/1591/1611nm) Physical Interface Card(PIC)	•	•	•	•	•	Occupies one slot.

## Software Configuration

The NE20E-S Series Routers provide software license charging policies. The general principle is **base packages + feature licenses + upgrade fees**.

- Base package: mandatory for each version and must be purchased for a new site.
- Feature license: optional and can be purchased based on requirements to implement certain functions.
- Software version upgrade fee: The software version upgrade fee is required if a current version needs to be upgraded to a later version to support new features.

**Table 16.** NE20E-S2E/S2F Software Configuration List

Order Name	BOM Number	Description	Remarks
CR2S20BS8700	88032REP	NE20E-S Series Base SoftWare,VRP8,V800R007	Mandatory.
CR2S20CLCK01	81400417	NE20E-S Series 1588v2 Function License	(Optional) one for each device.
CR2S3000FQ00	81400630	NE20E-S2 Series H-QoS Function License	(Optional) one for each device.
CR2S200FPM00	81400574	NE20E-S Series IP Performance Measure License (IP FPM)	(Optional) one for each device.
CR2S30IPHF01	81400650	NE20E-S2F Fixed Interface IP Harden Pipe Function License	(Optional) one for each device. The license controls the IP hard pipe function of all fixed interfaces.
CR2S200VXL00	81400679	NE20E-S Series VxLAN License	(Optional) one for each device and must be installed on an NSP-120/A/B.
CR2S20EF0001	88031TXA	NE20E-S Series Software Release Entitlement from Rn to R(n+1)	Version upgrade fees.



### NOTE

The NE20E-S2E and NE20E-S2F both support NAT with no license being required, and NE20E-S2F supports IPSec with no license being required.

**Table 17.** NE20E-S4/S8/S16 Software Configuration List

Order Name	BOM Number	Description	Remarks
CR2S20BS8700	88032REP	NE20E-S Series Base SoftWare,VRP8,V800R007	(Mandatory) one for the MPUs working in 1:1 backup mode.
CR2S20CLCK01	81400417	NE20E-S Series 1588v2 Function License	(Optional) one for each device.
CR2S200FPM00	81400574	NE20E-S Series IP Performance Measure License (IP FPM)	(Optional) one for each device.
CR2S200VXL00	81400679	NE20E-S Series VxLAN License	(Optional) one for each device and must be installed on an NSP-120/A/B.
CR2S20EF0001	88031TXA	NE20E-S Series Software Release Entitlement from Rn to R(n+1)	Version upgrade fees.

**NOTE**

On an NE20E-S4/8/16, NAT and IPSec can be implemented only on an NSP-A/NSP-B board, with no license being required.

## Software Upgrade Paths

To get VRP software release version or patch for NE20E-S2E/S2F, visit [Software Upgrade Paths for S2E/S2F](#).

To get VRP software release version or patch for NE20E-S4/S8/S16, visit [Software Upgrade Paths for S4/S8/S16](#).

## For More Information

For more information about the Huawei NE20E-S Series Routers, visit <http://e.huawei.com> or contact us in the following ways:

- Global service hotline: <http://e.huawei.com/en/service-hotline>
- Logging into the Huawei Enterprise technical support web: <http://support.huawei.com/enterprise/>
- Sending an email to the customer service mailbox: support\_e@huawei.com




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### HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base  
Bantian, Longgang  
Shenzhen 518129, P.R. China  
Tel: +86-755-28780808

[www.huawei.com](http://www.huawei.com)