NetEngine 8000 M4

Universal Service Router

Overview

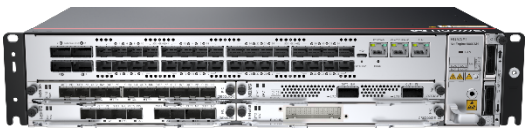
NetEngine 8000 M4 is the most cost-effective mini BNG router. Though only 2U high and 220 mm deep, it packs up to 1.6 Tbps of port capacity and four service slots. It provides 400G, 100GE, 50GE, 40GE, 25GE, 10GE, and GE ports to flexibly adapt to different service scenarios and supports features such as SRv6, EVPN, FlexE, and 1588v2. Its compact design saves space resources, significantly lowering CAPEX.

The product fully supports the future-oriented next-generation unified network SRv6 technology and can be used to build IP backbone, metro, mobile backhaul, and data center networks. It can be used for individual/enterprise cloud migration, inter-cloud interconnection, IoT, government and enterprise private lines, home broadband applications, and CDN. As a basic bearer protocol of the entire network, SRv6 implements end-to-end full-service bearer capabilities. SRv6 enables simplified protocols, large-scale networking, seamless integration, high reliability, integrated service chains, network and service programmability, and a full ecosystem.

- Support for data redundancy elimination (DRE) to compress and decompress data between WAN border routers, reducing bandwidth consumption of WAN links, reducing line costs, and accelerating the deployment of distributed data centers.

NetEngine 8000E series router integrates multiple functions, simplifies the network structure, provides rich service types, reliable service quality, and intelligent O&M. It leads the IP WAN to an intelligent network with self-driving driving, and continuously drives the business success of enterprise customers.

Product Highlights



NetEngine 8000 M4 (DC)

NetEngine 8000 M4 (AC)

Small body, large capacity

- Size: 2U, 220 mm deep, 70% less space
- Capacity: entire device is 1.2T, and the port capacity is 1.6T

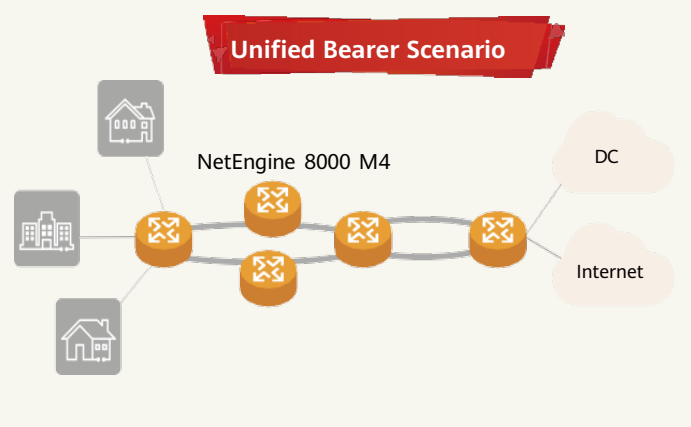
All-Scenario Platform

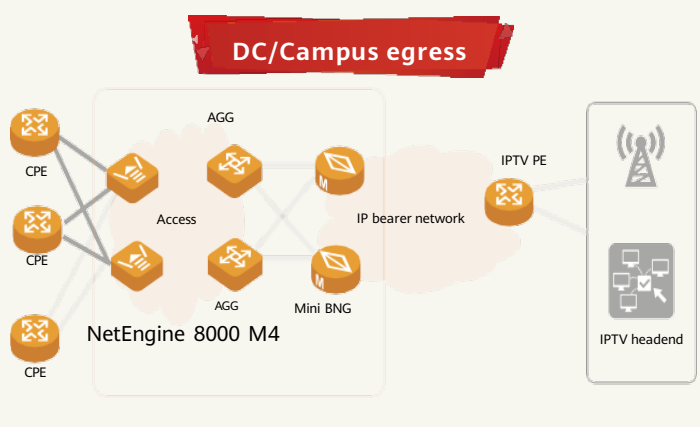
- SR, BRAS, CGN, IPSec and SA functions full-service, 5-in-1
- Various interfaces: 400GE/100GE/50GE/40GE/25GE/10GE /GE/POS/CPOS/E1

Leading Capabilities

- SRv6/EVPN: Simplified protocols
- NP Architecture, to meet future evolution
- Industry-leading network slicing

Application Scenario





Product Specifications

Property	Description
Switching Capacity	2.4 Tbps
Forwarding Performance	405 Mpps
Maximum Board Capability	400 GE
Interface types	400G/100GE/50E/40GE/25GE/10GE/GE/FE/E1/cPOS/POS/V.35/X.21/V.24/C37.94&CoDir64K/FXS/FXO/E&M/RS232/RS485
Main Control Board	Single
Service Slots	4
Dimensions (W x D x H)	442mm x 220mm x 88.9mm(2U)
Typical Power Consumption	283.4 W
Voltage	DC: –48 V/–60 V; AC: 200 V to 240 V/100 V to127 V dual live wires, support 240 V HVDC
Clock	1588v2, 1588 ATR, 1588 ACR, G.8275.1, Synchronous Ethernet
Temperature	DC: –20°C to +60°; AC: –20°C to +55°C

NOTE For details, see the corresponding product manual.

Flexible combo modes

- **Flexible switching of combo modes**: 4 combo groups can be switched to 6 modes.
- **Type 1 is used by default.** After the device is running, you can switch the mode using the command line. The group traffic will be interrupted when switched to a new combo mode.
- **Each group can be switched independently**, and other groups are not affected.

Group 1: Port 0, 4, 6, 8, 10

Group 3: Port 2, 12, 14, 16, 18

0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34		ETH/OAM	CLK/TOD/RS-485	ALMI
100G/50G	100G/50G	25G/10G/GE	25G/10G/GE	25G/10G/GE	25G/10G/GE	25G/10G/GE	25G/10G/GE	25G/10G/GE	25G/10G/GE	25G/10G	25G/10G	25G/10G	25G/10G	25G/10G	25G/10G	25G/10G	25G/10G	USB Type-C	RJ45	RJ45	RJ45
100G/50G	100G/50G	25G/10G/GE	25G/10G/GE	25G/10G/GE	25G/10G/GE	25G/10G/GE	25G/10G/GE	25G/10G/GE	25G/10G/GE	25G/10G	25G/10G	25G/10G	25G/10G	25G/10G	25G/10G	25G/10G	25G/10G				
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35				

Group 2: Port 1, 5, 7, 9, 11

Group 4: Port 3, 13, 15, 17, 19

Combo mode, flexible switchability in each group

Combo mode	1 port	Corresponding to four ports
Type 1 (default)	**100GE (50GE/40GE auto-sensing)**	**4*GE**
Type 2	4 x 25GE ports	4*GE
Type 3	50GE	4*10GE/GE and LAN/WAN ports are switched together.
Type 4	40GE	4*10GE/GE and LAN/WAN ports are switched together.
Type 5	4 x 10GE	4*10GE/GE and LAN/WAN ports are switched together.
Type 6 **(Without GE)**	NULL	Only 4*25GE/10GE ports and LAN/WAN ports are switched together.

Maximum number of supported ports (fixed ports)

Combo mode	100GE/50GE/40GE	25GE/10GE
Type 1 (Default)	4*(100GE/50GE/40GE+4*GE)	16*25GE/10GE
Type 2	4*(4*25GE(breakout)+4*GE)	
Type 3	4*(50GE+4*10GE/GE)	
Type 4	4*(40GE+4*10GE/GE)	
Type 5	4*(4*10GE+4*10GE/GE)	
Type 6	4*(4*25GE/10GE)	

Product Features

Features of Huawei NetEngine 8000 M4 Series Routers

Feature	Description
L2	IEEE 802.1q, IEEE 802.1p, IEEE 802.3ad, IEEE 802.1ab, STP/RSTP/MSTP, G.8032, STP/RSTP, MSTP, L2 protocol transparent transmission, BPDU, LACP, VLAN, Bridge domain, L2TPv3, QinQ, MTU per port 9600 bytes
L3	OSPF/OSPF3, RIP/RIPng, IS-IS/IS-ISv6, BGP/BGP+, ACL, IPv4/IPv6, 6VPE, ARP, VLANIF, VXLAN
MEF	• E-LINE: EPL, EVPL • E-LAN: EP-LAN, EVP-LAN
IPv4	TCP/IP, for example, ICMP, IP, TCP, UDP, Socket (TCP/UDP/RAW IP), ARP Static DNS, DNS Client FTP Server, FTP Client TFTP Client DHCP Relay, DHCP Server Ping, Tracert, NQA IP policy-based routing Forwarding next hop based on traffic IP policy-based route load balancing The QinQ interface (QinQ termination and dot1q termination) supports IPv4 load balancing. Enabling and disabling the rapid ping reply function based on interface boards Forcible fragmentation for packets with length greater than MTU and DF enabled MPLS-in-UDP tunnel egress

Feature	Description
IPv6	IPv6 (ND) Path MTU (PMTU) TCP6 Ping IPv6 Tracert IPv6 Socket IPv6 DHCPv6 Relay Static IPv6 DNS TFTP IPv6 Client IP policy-based routing IPv6 ND fast reply
MPLS	LDP, RSVP-TE, seamless MPLS, Segment Routing MPLS, MPLS-TP
Multicast	IGMP, Static Multicast Routing, PIM-SM, PIM-SM/SSM, MBGP, MG MVPN, IPv4 Multicast, IPv6 multicast, BIERv6
SRv6	IS-IS for SRv6, OSPFv3 for SRv6, SRv6 TE Policy, SRv6 TE Policy Shortcut, SRv6 Flex- Algo, SRv6 SRH compression, SRv6 network slicing BGP for SRv6, SRv6 BE, SBFD for SRv6 BE, SRv6 TI-LFA FRR, SRv6 middle-node protection, SRv6 micro-loop avoidance, SRv6 OAM, SRv6 SFC, G-SRv6
L2VPN	PWE3/VLL, VPLS, VXLAN, VPWS, L2TPv3, BGP/MPLS IPv4/IPv6 VPN, PBB-EVPN, PBB VPLS, GRE
L3VPN	CE routers can access the L3VPN through L3 interfaces. Support static routes between CE and PE, BGP, RIPv1/v2, OSPF and IS-IS Inter-AS VPN, including RFC2547bis option A Inter-AS VPN, including RFC2547bis option B Inter-AS VPN, including RFC2547bis option C NG MVPN IPv6 VPN HoVPN Seamless MPLS BGP LSP entropy label Redirect to VPN L3VPN PIPE/Uniform mode L3VPN statistics

Feature	Description
EVPN	EVPN E-LAN/E-Line/E-Tree, EVPN L3VPN, EVPN VXLAN, PBB EVPN
Value added service	BNG/BRAS (IPoE/PPPoE), NAT/CGN, IPsec, MACsec, service awareness (SA)
Clock	NTP, Physical layer synchronization (SynE), 1588v2 ACR/ATR, G.8275.1, SMPTE-2059-2, CES ACR, Atom GPS 3.0
QoS	QPPB, DiffServ, 5-level HQoS, redirection, traffic classification & re-marking & scheduling
Reliability	IP FRR, LDP FRR, TE FRR, VPN FRR, BGP FRR, mLDP FRR, Bit-error-triggered protection switching
Maintainability	• A network management system (NMS) with a graphical user interface, which simplifies NE management, improves O&M capabilities, and facilitates network- wide or end-to-end performance monitoring and fault diagnosis. • Plug-and-play based on DHCP or DCN. The NMS can automatically detect and configure the newly connected devices, which helps to implement remote batch commissioning. • Directional Forwarding Detection (BFD), Ethernet OAM, MPLS OAM, and MPLS- TP OAM • Bandwidth association with microwave devices is supported. Bandwidth association simplifies QoS configurations and requirements on the microwave device, and the complex QoS logic is implemented on the NetEngine 8000 device. • Seamless MPLS • SNMP (v1/v2c/v3) • CLI • NETCONF • RMON • YANG • Telnet • AAA RADIUS and TACACS • IFIT, IP FPM, NQA, TWAMP, telemetry • BFD, VRRP • Ethernet OAM, IEEE 802.3ah, IEEE 802.1ag, Y.1731, ITU-T Y.1564 • Ethernet LPT • Syslog

Regulatory Compliance

Item	Description
Regulatory compliance	**EMC** • ANSI C63.4 • AS/NZS CISPR 32 • CISPR 24 • CISPR 32 • EN 55024 • EN 55032 • ETSI EN 300 386 • ETSI ES 201 468 • FCC CFR47 Part 15 Subpart B • ICES-003 Issue 6 • ICES-GEN Issue 1 • IEC 61000-3-2 • IEC 61000-3-3 • IEC 61000-4-11 • IEC 61000-4-2 • IEC 61000-4-29 • IEC 61000-4-3 • IEC 61000-4-4 • IEC 61000-4-5 • IEC 61000-4-6 • IEC 61000-6-2 • IEC 61000-6-4 • VCCI-CISPR 32 **Environment** • IEC 60068-2-30 • IEC 60068-2-78 • IEC 60068-2-14 • IEC 60068-2-1 • IEC 60068-2-2 **Safety** • IEC/EN/UL/CSA 60950-1 • IEC/EN 62368-1

Item	Description
Regulatory compliance	**Environmental protection** • 2011/65/EU & (EU)2015/863 (EU RoHS) • Regulation (EC) No.1907/2006 (REACH) • 2012/19/EU (WEEE) • 2006/66/EC & 2013/56/EU on batteries and accumulators

NOTE

- In the physical dimensions shown in the table, the width (W) does not include the rack-mounting ears.
- Temperature and humidity are measured at 1.5 m (4.92 ft.) above the ground 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.
- "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 "long-term".

Software Upgrade Paths.

Visit Software Upgrade Paths to get VRP software release version or patches

For More Information

For more information about the NetEngine 8000 M4 series router, visit https://e.huawei.com or contact us in the following ways:

Global service hotline: https://e.huawei.com/en/service-hotline

Logging in to the Huawei Enterprise technical support web: https://support.huawei.com/enterprise/

Sending an email to the customer service mailbox: support_e@huawei.com

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