Huawei NE08E & NE05E series ENP Based Cloud Era Mid Service Router Product

Huawei NetEngine08E / NetEngine05E series is the cloud era ENP Based Mid Services Router which is to help transportation, finance, power, government, education, enterprise to build agile networks, can be flexibly applied to IP / MPLS network edge access scenarios, to meet the diverse needs of users for future business development.

NetEngine08E / NetEngine05E series is cloud service architecture design oriented, large cache to ensure the best service experience; IP pipeline firmness and flexibility, support IP soft pipes for statistical multiplexing to improve resource efficiency and IP hard pipe exclusive resources to ensure the best customer experience.

HUAWEI TECHNOLOGIES CO., LTD.

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Product Appearance

Huawei NetEngine08E / NetEngine 05E products contain NE08E-S6, NE05E-S2, NE05E-SE, NE05E-SF, NE05E-SG, NE05E-SH, NE05E-SI, NE05E-SN, NE05E-SJ, NE05E-SK, NE05E-SL and NE05E- SM.

NE08E-S6

NE05E-S2

NE05E-SE

NE05E-SF

NE05E-SG

NE05E-SH

NE05E-SI

NE05E-SN

NE05E-SJ

NE05E-SK

NE05E-SL

NE05E-SM

Product Highlights

Smart

- **IP pipeline firmness and flexibility:** supports IP soft pipes for statistical multiplexing to improve resource efficiency and IP hard pipes for resources exclusive.

  IP hard pipe technology is another major innovation of Huawei in the IP field, on the basis of the existing network using MPLS-TE, HQoS technology, hardware resources earmarked , to achieve dedicated bandwidth for leased line services, while ensuring low traffic latency, high reliability.

- **Hardware NQA & OAM:** OAM packets are forwarded by the hardware (CPU does not need to participate in treatment), packet interval of 3.3ms (rather than 10ms), to ensure that the massive services 50ms fast switching, hardware NQA achieve high-precision service quality monitoring; support RFC 2544 / Y.1564, fast implementation failures delimitation and provide performance reports.

Simplified

- **Plug and play, replace and play, high efficiency deployment**
- **Access Virtualization:** through SDN technology, the routing control plane of NE08E / NE05E can be moved to the aggregation layer router for unified management , the NE08E / NE05E device can be virtualized as aggregation layer remote boards to achieve centralized control, and all network operations for edge routers can concentrate on the aggregation routers.
- **SDH like, Visualization U2000 NMS, Across IP large network O & M gap:** Supporting template and GUI based configuration, hardware-based NQA and fast failure detection mechanisms, which can realize rapid fault location and greatly simplify the IP network operation and maintenance, helping operators across the operation and maintenance gap from SDH to IP.

Scalable

- **Self-developed chips, service demand and dynamic**
- **Covering the whole scene**
- **Comprehensive clock synchronization solution:** Support IEEE1588v2 OC, BC and TC all mode, 1588 ACR, Synchronous Ethernet, Adaptive clock recovery.

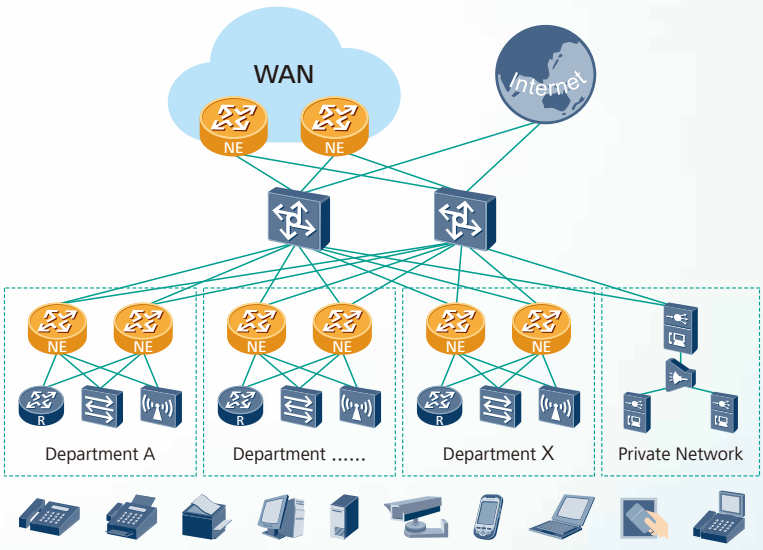
Sustainable

- **leading industrial design, green concept:** low power, green energy, low carbon and environmental protection. Since ENP chips, each GE consumes less than 30% of the industry, 10000 NE reduce 9,970 tons CO2 emissions annually.

Typical application

An NE device is generally located at the intersection between an enterprise's internal network and an external network. An NE05E or NE08E is the only entrance and exit of data flows between the internal and external networks. An NE05E or NE08E can bear multiple types of services, greatly reducing network construction investment and long-term operation and maintenance costs of an enterprise network.

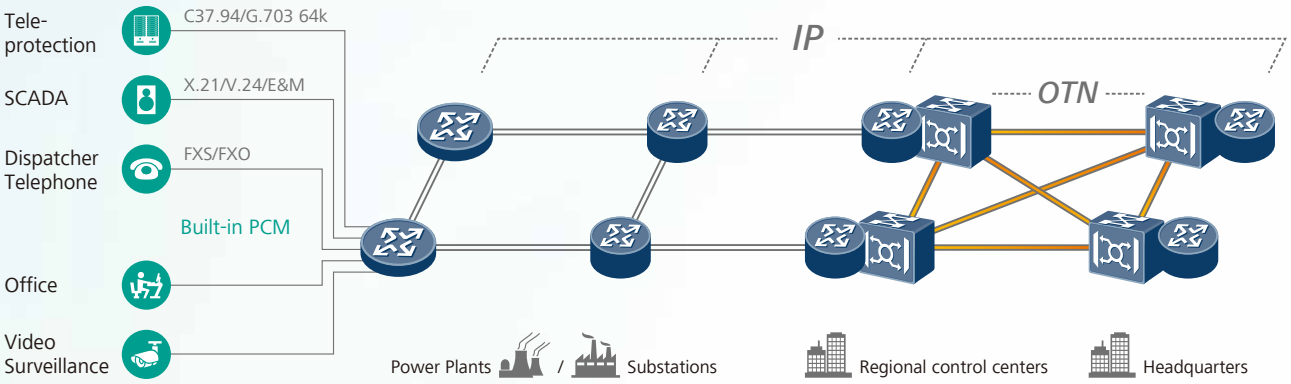
An NE device adopts the advanced programmable forwarding engine and independent distributed switching technique. The NE05E and NE08E series products support indoor and outdoor environments, support fixed and flexible plug-in cards, and are diversified in models and specifications. These characteristics allow you to choose an NE05E or NE08E as an egress gateway based on the user scale.



Application Environment of NE devices in Enterprise Network

Application Environment of NE devices in Power Network

As a part of the all-IP solution for a Huawei power network, NE devices are deployed between substations/power plants and IP aggregation routers and provide data access services for the substations/power plants.



Application Environment of NE devices in Power Network

Product Specification

Attribute	NE08E-S6	NE05E-S2
Switching Capacity (IPv4/IPv6)	NED2CXPB: 37.162Mpps NED2CXPE: 47.297Mpps	17.85Mpps
Forwarding Performance with Service (IMIX)	112Gbps	24Gbps
Interface type	10GE/GE/FE, E1, Channelized STM-1, STM-1, FXS/FXO, V.35/X.21/V.24, E&M, RS232, RS485, C37.94, 64K and so on	GE/FE, Smart E1/T1, Channelized STM-1, XDSL, FXS/FXO, V.35/X.21/V.24, E&M, RS232, RS485, C37.94, 64K and so on
Clock	1588v2, ACR, Synchronous Ethernet, E1/T1 line clock	1588v2, ACR, Synchronous Ethernet, E1/T1 line clock
Typical power consumption	181W	68W
Power	DC: -38.4 V ~ -72.0 V AC: 90V ~ 280V	DC: -38.4 V ~ -72.0 V AC: 100V ~ 240V
Slots	2 slots for CXP and 6 slots for service interface boards	1 slots for CXP and 2 slots for service interface boards
Dimension (W×D×H)	442mm×220mm×88.9mm (2U)	442mm×220mm×44.45mm (1U)
Full equipped weight	8.42kg	4.8kg
Operating Temperature	-40°C to +65°C	-20°C to +60°C
humidity	5% RH ~ 95% RH, non-condensing	

Attribute	NE05E-SE	NE05E-SF
Switching Capacity (IPv4/IPv6)	37.2Mpps	
Forwarding Performance with Service (IMIX)	88Gbps	
Interface type	2*10GE+16*GE/FE(O)+8*GE/FE(E)	2*10GE+8*GE/FE(O)+8*GE/FE(E)+2*8E1
Clock	1588v2, ACR, Synchronous Ethernet	1588v2, ACR, Synchronous Ethernet, E1 line clock
Typical power consumption	51.43W	54.47W
Full equipped weight	3.6kg	3.6kg
Power	DC: -38.4 V ~ -72.0 V AC: 100V ~ 240V	
Dimension (W×D×H)	442mm×220mm×44.45mm (1U)	
Operating Temperature	-40°C ~ +65°C	
Humidity	5% RH ~ 95% RH, non-condensing	

Attribute	NE05E-SG	NE05E-SH	NE05E-SI	NE05E-SN
Switching Capacity (IPv4/IPv6)	17.856Mpps	17.856Mpps	17.856Mpps	17.856Mpps
Forwarding Performance with Service (IMIX)	24Gbps	24Gbps	24Gbps	24Gbps
Interface type	4*GE/FE(O)+4*GE/FE(E)+ 4*GE/FE Combo	4*GE/FE(O)+4*GE/FE(E)+ 4*GE/FE Combo +2*8E1	4GE(O)+4GE/FE(O)+ 4GE/FE(E)	4*GE/FE(O)+4*GE/FE(E)+ 4*GE/FE Combo +2*8E1
Clock	1588v2, Synchronous Ethernet	1588v2, Synchronous Ethernet	1588v2, Synchronous Ethernet	1588v2, Synchronous Ethernet
Dimension (W×D×H)	442mm ×220mm×44.45mm (1U)			442mm×310mm ×44.45mm (1U)
Typical power consumption	25.76W	30.55W	35W	29.5W
Power	DC: -38.4V ~ -72.0V AC: 100V ~ 240V	DC: -38.4V ~ -72.0V AC: 100V ~ 240V	AC: 90V to 260V Support POE output	AC: 100V ~ 240V Support double AC
equipped weight	4kg	4kg	3kg	5.1kg
Operating Temperature	-40°C to +65°C	-40°C to +65°C	-20°C to +60°C	-40°C to +65°C
heat dissipation	nature heat dissipation	nature heat dissipation	air cooling	nature heat dissipation
humidity	5% RH ~ 95% RH, non-condensing			

Attribute	NE05E-SJ	NE05E-SK	NE05E-SL	NE05E-SM
Switching Capacity (IPv4/IPv6)	8.688Mpps	8.688Mpps	8.688Mpps	5.792Mpps
Forwarding Performance with Service (IMIX)	12Gbps	12Gbps	12Gbps	8Gbps
Interface type	2*FE/GE(O)+2*FE/GE(E)+ 2*FE/GE Combo	2*FE/GE(O)+2*FE/GE(E)+ 2*FE/GE Combo	2*GE(O)+2*FE/GE(O)+ 2*FE/GE Combo	1*GE(O)+2*GE/FE(E)+ 1*FE/GE Combo
Clock	1588v2, Synchronous Ethernet			
Typical power consumption	14.5W	17w	16.2W	18.3W
Power	AC 100V to 240V	-48V/-60V: DC -38.4 V to -72.0 V +24V: +19V ~ +30V	AC 100V to 240V	AC 100V to 240V Support POE output
equipped weight	1.8kg		2.7kg	2.9kg
Dimension (W×D×H)	250mm×180mm×44mm	250mm×180mm×52mm	180mm×52mm×250mm	180mm×52mm×250mm
Operating Temperature	-40°C to +65°C	-40°C to +65°C	-40°C to +55°C	-40°C to +55°C
Lighting Proof	-	-	6KV	6KV
IP Shield	-	-	IP65	IP65
heat dissipation	nature heat dissipation			
humidity	5% RH ~ 95% RH, non-condensing			

Industry requirements	
Certification standards compliance	• CCC • FCC, NRTL • IC • CE • VCCI • RCM
Enterprise satisfaction	• Electric Power Industry IEC61850-3, IEEE1613 • Transportation Standards EN50121
Vibration and environment test	IEC60950-1, EN60950-1, UL60950
EMC	• FCC 47 CFR PART15, Class A • ICES-003 Class A • EN55022, CLASS A • VCCI V-3, CLASS A • AS/NZS CISPAR 22 CLASS A, AN/NZS CISPR 24 • CISPR11 CLASS A, CISPR22 CLASS A • ETSI EN300386 • IEC61000-4-2 (ESD): ±8 kV contact discharge, ±15 kV air discharge • IEC61000-4-3 (RS): 80M-2700MHz, 20V/m [80%AM (1kHz)] • IEC61000-4-4 (EFT): Power cable: ±4 kV; data cable: ±4 kV • IEC61000-4-5 (Surge): Power Interface: Differential mode 6kV, Common mode 6kV; • IEC61000-4-6 (CS): 0.15MHz-80MHz, 10V • IEC61000-4-8 (PMS): Long time 30A/m, Short time 300A/m

Industry requirements	
	• IEC61000-4-11 (AC DIP) • IEC61000-4-10 (Damped oscillation): 30A/m • IEC61000-4-18 (Damped oscillatory wave): Common mode 2.5Kv, Differential mode 1kV • IEC61000-4-16 • IEC61000-6-2 • IEC61000-6-4
Environmental reliability	• ETSI EN300 019-1-1 ETSI EN300 019-1-2 ETSI EN300 019-1-3 • ETSI EN300753 • IEC60870-2-2 Class A, IEC61373 Class B
Energy saving and environmental protection	• RoHS\REACH\WEEE

Software Featrue	
L2 feature	• VLL, VPLS, PWE3; • VLAN Switch;
L3 feature	• IPv4, IPv6 routing protocols: OSPFv2/V3, RIPv2, IS-IS/IS-ISv6, BGPv4/BGPV4+, IPv6 over IPv4 Tunnel, IPv6CP, IPv6 ACL/Telnet, 6VPE, Static routing; • Dynamic ARP and static ARP; • VLAN IF; • IGMP Snooping;
Multicast	• IGMP v1/v2/v3, IGMP Snooping, PIM-SM/SSM/DM, MBGP, MVPN
MPLS feature	• LDP, RSVP-TE • L2VPN (VPLS/VLL) • MPLS/BGP L3VPN • Seamless MPLS
QoS	• Based on traffic classification DiffServ model • Based on VLAN, 802.1p, VLAN+802.1p traffic classification • WRED • CAR • Based on port traffic Shaping • Supports priority queues per SQ8 • PQ, WFQ, LPQ • HQoS
Network Reliability	• GR/NSR/NSF • LSP1:1, PW Redundancy, IP/LDP FRR, TE FRR, VPN FRR • NQA, MPLS TP OAM, BFD for LSP, PW, IGP, IPV4 • IEEE 802.1ag, IEEE 802.3ah, ITU-T Y.1731, G.8032 • STP/RSTP/MSTP, RRPP • support hot-swappable modules
OAM	• ETH OAM (IEEE802.1q, IEEE802.1p, IEEE 802.3ad IEEE 802.1abY.1731) • BFD • NQA • RFC 2544, Y.1564, TWAMP • MPLS-TP OAM • IP FPM
O&M	• DHCP Plug &Play • DCN Plug &Play

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