ENP Series Cards Native Wireless Access Controller Brochure

The ENP cards are next-generation innovative hardware cards developed by Huawei. Integrated with Huawei's Ethernet Network Processor (ENP), the cards can function as common LPUs to provide data access and switching services and also as WLAN access controllers (ACs) to provide wireless access control functions. In this way, the cards achieve wired and wireless convergence.

The ENP cards are applicable to Huawei S12700 series agile switches, as well as S9700 and S7700 high-end chassis switches. After the ENP cards are installed, the S9700 and S7700 switches are upgraded to agile switches, bringing customers new experience and innovative technologies, such as iPCA quality perception, Super Virtual Fabric (SVF), and Native AC.

Currently, the ENP cards are available in four models: X1E, X2H, X2E and X2S.

Product Appearance

Card Name	Appearance	Description	Applicable Products
G48SX1E		48-Port 100/1000BASE-X Interface Card (X1E,SFP)	S12700,S9700,S7700
G48TX1E		48-Port 10/100/1000BASE-T Interface Card (X1E,RJ45)	S12700,S9700,S7700
S04SX1E		4-Port 10GBASE-X and 24-Port 100/1000BASE-X and 8-Port 10/100/1000BASE-T Combo Interface Card (X1E,RJ45/SFP/SFP+)	S12700,S9700,S7700
S08SX1E		8-Port 10GBASE-X and 8-Port 100/1000BASE-X and 8-Port 10/100/1000BASE-T Combo Interface Card (X1E,RJ45/SFP/SFP+)	S12700,S9700,S7700
X32SX2H		32-Port 10GE SFP+ Interface Card(X2H,SFP+)	S12700,S9700
C04HX2H		4-Port 100GE QSFP28 Interface Card(X2H,QSFP28)	S12700,S9700
X32SX2E		32-Port 10GE SFP+ Interface Card(X2E,SFP+)	S12700,S9700,S7700
S24SX2E		24-Port 10GE SFP+ Interface and 8-Port GE SFP Interface Card(X2E,SFP+)	S12700,S9700,S7700

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Card Name	Appearance	Description	Applicable Products
S16SX2E		16-Port 10GE SFP+ Interface and 16-Port GE SFP Interface Card(X2E,SFP+)	S12700,S9700,S7700
L08QX2E		8-port 40GBASE-X interface card (X2E, QSFP+)	S12700,S9700,S7700
C04HX2E		4-Port 100GE QSFP28 Interface Card(X2E,QSFP28)	S12700,S9700,S7700
H02QX2E		2-Port 100GE QSFP28 Interface and 2-Port 40GE QSFP+ Interface Card(X2E,QSFP28)	S12700,S9700,S7700
X32SX2S		32-Port 10GE SFP+ Interface Card(X2S,SFP+)	S12700,S9700,S7700
S24SX2S		24-Port 10GE SFP+ Interface and 8-Port GE SFP Interface Card(X2S,SFP+)	S12700,S9700,S7700
S16SX2S		16-Port 10GE SFP+ Interface and 16-Port GE SFP Interface Card(X2S,SFP+)	S12700,S9700,S7700
X48SX2S		48-port 10GBASE-X interface card (X2S, SFP+)	S12700,S9700,S7700
C04HX2S		4-Port 100GE QSFP28 Interface Card(X2S,QSFP28)	S12700,S9700,S7700
H02QX2S		2-Port 100GE QSFP28 Interface and 2-Port 40GE QSFP+ Interface Card(X2S,QSFP28)	S12700,S9700,S7700

NOTE: X1E series cannot be used universally between S12700, S9700, and S7700 switches. X2H, X2E and X2S series can be used universally between S12700 and S9700 switches.

Product Characteristics

Low network construction costs

On traditional networks, customers need to add independent AC devices or cards to the existing wired network for wireless support. With the introduction of ENP cards, wired and wireless management is converged, and customers do not need to purchase independent AC devices or cards, which saves network construction costs.

Large wireless forwarding capacity

- On traditional networks deployed with independent AC devices or cards, wireless service traffic needs to pass through the switch to reach the ACs. This results in unnecessary delay in wireless traffic transmission. The overall wireless forwarding capacity is also restricted due to performance bottleneck of traditional ACs.
- The native AC encapsulates and decapsulates CAPWAP packets on a service card of the chassis switch. After decapsulation, wireless packets are forwarded in the same way as wired packets. The switch provides a forwarding capacity of up to 4 Tbit/s, eliminating forwarding bottlenecks. The native AC capability helps customers better cope with challenges in the high-speed wireless era.

Unified wired and wireless convergence management

- On traditional networks, wired and wireless users are managed by the switch and AC respectively. Scattered management points increase the network operation and maintenance (O&M) difficulty.
- The native AC unifies wired and wireless user management. The wired and wireless management points are uniformly deployed on the same device to implement wired and wireless convergence management, which simplifies network O&M.

High reliability

- To ensure reliability, traditional ACs are usually configured to work in 1+1 backup mode. The two ACs require an extra channel to synchronize data between them. Since data is synchronized between two different devices, the real-time performance and reliability are low.
- The native AC can leverage CSS technology of switches to enhance network reliability. ENP cards of different switches form an Eth-Trunk to connect to downstream switches and synchronize data in real time based on the CSS architecture. This backup mechanism provides higher performance and reliability than the traditional 1+1 backup mode.

Product Specifications

Feature	Specifications
Networking between APs and ACs *	Layer 2 networking Layer 3 networking Direct AC connection to APs AC Layer 2 bridging or Layer 3 routing
Forwarding mode	Tunnel forwarding Direct forwarding
Wireless networking mode	WDS bridging: Point-to-Point (P2P) wireless bridging Point-to-multipoint (P2MP) wireless bridging Automatic topology detection and loop prevention (STP) Wireless Mesh networking: Access authentication for mesh APs Mesh routing algorithm Zero touch configuration
AC discovery	AC discovery through DHCP Option 43 AC discovery through DNS AC discovery through CAPWAP AC discovery through the static AC IP address list
CAPWAP tunnel	CAPWAP control channel and data channel (optional) Forwarding mode configuration based on service sets CAPWAP heartbeat detection and tunnel reconnection
AC backup	Intra-chassis ENP card backup Inter-chassis ENP card backup in a CSS

*: The AC in this document refers to the native AC supported by the ENP card on agile switches.

Application

The ENP cards are applicable to Huawei S12700, S9700, and S7700 high-end chassis switches. In addition to data access and switching functions of common LPUs, the ENP cards provide also wireless functions. Therefore, customers only need to deploy the ENP cards to meet wireless requirements but do not need to purchase additional AC hardware. The ENP series cards achieve real convergence of wired and wireless management, reducing network construction costs. The ENP cards are widely used on networks of various industries, such as enterprise and school campus networks.

For more information, visit http://enterprise.huawei.com or contact your local Huawei sales office.