

DPtech DPX8000 Series High-end Core Routing Switches



Overview

With the wide application of new technologies such as cloud computing and Web2.0, the network data transmission capacity has grown exponentially. According to Gilder's law, the bandwidth will double every six months in the next 25 years. Such rapidly growing data services will not only make the network architecture very complex, but also face enormous challenges such as network security, application experience, and continuous service availability.

DPX8000 series is based on DPtech's APP-X hardware architecture, ConPlat operating system, and APP-ID application and threat signature database. It adopts the CLOS multi-level switching architecture, the control plane and the forwarding plane are physically separated, and the main control engine and the switch fabric board hardware is independent of each other. The product is designed based on the 100G platform, which meets the expansion requirements of high-density 40G and 100G interfaces, supports a variety of data center features, and realizes the deep integration of network and business, providing enterprises with a high-speed, intelligent and reliable next-generation network infrastructure platform.

The DPX8000 series supports distributed L2/L3 MPLS VPN, complete Layer 2 and Layer 3 multicast features, etc., which can meet the needs of large-bandwidth applications such as enterprise multimedia video conferencing, data access, etc. precise scheduling, so as to meet the service quality requirements of different user terminals and different business types of the enterprise.

DPX8000 series can realize N:M virtualization capability through VSM (Virtual Switching Matrix) N:1 virtualization and OVC (OS-Level Virtual Context) 1:M virtualization function, and convert multiple similar service modules into flexible scheduling. The "resource pool" provided by DPtech provides automated network management and operation and maintenance solutions through the self-developed network management platform. At the same time, SDN can be implemented through APP Flow or third-party interfaces.

The DPX8000 series adopts a number of innovative cooling technologies such as dual air duct design, which can reduce equipment power consumption and environmental noise, and save energy and protect the environment. The redundant design of its key components provides multiple technologies such as uninterrupted restart, hot patching, ring network protection, and separation of data/control/monitoring planes to ensure 99.999% carrier-grade reliability.

Features

■ Strong service processing capabilities

The DPX8000 series adopts the CLOS multi-level switching architecture, in which the control plane and forwarding plane are physically separated, and the main control engine and SFB hardware are independent of each other. It

supports 40GE and 100GE Ethernet standards, supports up to 12 expansion slots, and provides high-performance service boards, which can meet the service bearer requirements of large-scale campus network cores and cloud data centers, and meet the requirements of high-bandwidth applications such as multimedia video conferencing and data access.

It supports distributed L2/L3 MPLS VPN functions, MPLS, VPLS, hierarchical VPLS, and VLL to meet the access requirements of enterprise VPNs.

It supports perfect Layer 2 and 3 multicast protocols such as PIM SM, PIM DM, PIM SSM, MLD, and IGMP Snooping, and meets the requirements of multi-terminal HD video surveillance and video conferencing access.

■ **Complete security control policies**

The DPX8000 series supports MAC address authentication, 802.1x authentication, and PORTAL authentication, and has a built-in authentication server. It supports dynamic or static binding of user identity elements such as user accounts, IPs, MACs, VLANs, and ports, and implements dynamic delivery of user policies.

The DPX8000 series provides enhanced ACL access control, supports ultra-large capacity inbound and outbound ACLs, and supports VLAN-based ACL delivery, simplifying the user configuration process and avoiding the waste of ACL resources.

■ **Virtualization features**

Relying on the self-developed VSM and OVC technologies, the DPX8000 series can transform multiple similar service modules into "resource pools" that can be flexibly scheduled, realize the "granularization" of service platform resources, and greatly improve the resource utilization efficiency. Combined with DPtech's self-developed network management platform, it provides users with automatic network management and O&M solutions.

■ **Comprehensive business convergence capabilities**

The DPX8000 series integrates the three functions of switching routing, network security, and application delivery, and is the first to realize the integration and expansion of network security multi-service card modules, and all service modules in a single device can be managed based on one IP, making complex networking simple. The thermally elastic service expansion technology allows you to dynamically adjust service modules without restarting, plug-and-play, and realize on-demand elastic deployment of services.

■ **Original intelligent traffic scheduling technology**

The DPX8000 series can finely define data flows based on combination policies, and flexibly customize the data flow direction between different service modules, eliminating the restrictions of traffic scheduling between different service modules and realizing flexible scheduling at the business level.

■ **Comprehensive IPV4/IPV6 dual stack**

The DPX8000 series hardware supports IPv4/IPv6 dual-stack and IPv6 over IPv4 tunnels (including manual tunnels, 6to4 tunnels, and ISATAP tunnels), and supports IPv6 Layer 3 line-speed forwarding, which can be used for pure IPv4 or IPv6 networks, as well as IPv4 to IPv6 coexistence networks.

■ **Carrier-grade high reliability**

The DPX8000 series supports technologies such as master control redundancy, fan redundancy, N+1 power supply, uninterrupted reboot, hot patching, and data/control/monitoring plane separation to ensure 99.999% carrier-class reliability. Fast fault detection technologies such as BFD and OAM provide a variety of device-level and network-level fault detection methods.

■ **Environment-friendly and energy-saving**

The DPX8000 series adopts a number of innovative heat dissipation technologies such as dual air duct design, and the heat dissipation efficiency is increased by 30%. It supports the temperature detection of key components such as service boards and SFUs, and implements intelligent zoning speed regulation of fans according to the temperature and configuration of each component, reducing power consumption and environmental noise, and saving energy and environmental protection.

Models



DPX8000-A3-S



DPX8000-A7-S



DPX8000-A5-X



DPX8000-A12-X

Specification

Model	DPX8000-A3-S	DPX8000-A7-S	DPX8000-A5-X	DPX8000-A12-X
Switching Capacity	1.44Tbps	2.88Tbps	1.92Tbps	9.6Tbps
Packet Forwarding Rate	857.08Mpps	1714.17Mpps	1142.78Mpps	5713.92Mpps
Dimensions (W*D*H)	420*480 *175mm 4U	420*448*353mm 8U	442*480*309mm 7U	442*480*703mm 16U
MPU Slots	2*Half-width slot	2*Half-width slot	2*Half-width slot	2*Half-width slot
MPU Name	MPU-A3	MPU-XS	MPU-X	MPU-X
SFU Slots	-	1	1	2
SFU Name	-	DXP-XS	DXP-X	DXP-X
Module Slots	3	6	4+1*Half-width	10+2*Half-width
Module	8XGS-X, 2QXP-X, 48GT-X, 48GP-X, 6QXP-X, 24GT20GP4XGS-X, 8XGS-X, 24XGS-X, 48XGS-X			

Operating Environment	Temperature: 0°C ~ 45°C, Humidity: 5%~95%, non-condensing			
Storage Environment	Temperature: -40°C ~ +70°C, Humidity: 5%~95%, non-condensing			
Power Slots	2	4	2	4
Input Voltage (AC)	110V~240V, 50/60Hz (High voltage DC:190V~390V) ≤16A(1200W), ≤10A(650W), ≤10A(550W)			
Input Voltage (DC) ⁽¹⁾	-48V~-60V, ≤42A(1200W), ≤25A(650W)			
Power Supply	550W, Hot-swappable	550W, Hot-swappable	1200W/650W, Hot-swappable	1200W/650W, Hot-swappable
Fan Slots	1	2	1	2
Fans	4	8	8	12
Air Inlet and outlet direction	Right-side inlet, backend outlet	Right-side inlet, backend outlet	Left and right ventilation	Left and right ventilation
Empty Frame Weight (kg)	≤13.5kg	≤19kg	≤25.8kg	≤49.1kg
Fully Loaded Weight (kg)	≤30kg	≤50kg	≤100kg	≤150kg
Dimension (W*D*H, mm)	420*480*175, 4U	420*448*353, 8U	442*480*309, 7U	442*480*703, 16U
MTBF (hrs)	>200000h	>200000h	>200000h	>200000h
MTTR (hrs)	<0.5h	<0.5h	<0.5h	<0.5h
Extensible Features	iNAC, ADX, NGFW, DAC, IPS, Anti-DDoS, WAF, SSL VPN, Unified Audit Gateway (UAG) and traffic control, Vulnerability Scanning, Wireless Controller, etc.			
Layer-2 Features	VLAN, STP, RSTP, MSTP, QinQ, flexible QinQ, VLAN Mapping, full duplex traffic control, back pressure traffic control, link aggregation (support 128 aggregation groups, with each group consisting of 8 members), cross-board link aggregation, cross-board port/flow mirroring, port broadcast/multicast/unknown unicast forwarding storm suppression, Jumbo Frame, VLAN division based on port/protocol/subnet and MAC, PVLAN, GVRP, CoS priority, etc.			
Layer-3 Features	IPv4: Static routing, RIP v1/2, OSPF, ISIS, BGP, policy-go-together, etc. IPv6: IPv6 static routing, RIPng, OSPFv3, ISISv6, BGP4+, transition tunnel technology from IPv4 to IPv6, etc.			
Virtualization features	Support VSM (Virtual Switching Matrix) N:1 virtualization technology, which performs virtualization of multiple L2 ~ 7 physical devices into a single L2 ~ 7 logical device Support OVC (OS-Level Virtual Context) 1:M virtualization technology, which performs virtualization of a single L2 ~ 7 physical/logical device into multiple L2 ~ 7 logical devices Support service chain technology, which defines business streams based on L2-7 protocol features, and allows on-demand assignment of physical/logical service modules for traffic passage Support IP-based unified management between the host and service modules and unified configuration interface			
SDN and Data Center Features	Support 802.1Qbg and DCB Support mainstream Overlay standards such as VXLAN Support Openflow1.3 protocol			

MPLS/VPLS	Support L3 MPLS VPN, VPLS, VLL, hierarchical VPLS, QinQ+VPLS access, P/PE, LDP, MPLS QoS, MPLS OAM, etc.
Multicast features	Support IGMPv1/v2/v3, IGMPv1/v2/v3 Snooping, PIM-SM/PIM-DM/PIM-SSM
Other network layer features	Support ACL rules including source IP, source port, destination IP, destination port, protocol number, physical port Support Ingress/Egress CAR, 802.1P/DSCP priority Mark/Remark Support permit, deny, redirect, VLAN modification, mirroring and other actions
Service features of iNAC	Support Portal, 802.1x, IP/MAC, SMS access Support non-sensing roaming to enhance users' access experience Support policy follow-up to granular access control for users Support personnel traceability, ensuring accountability Support unified management of users
Services features of wireless controllers	802.11 a/b/g/n/ac/ax AP Management, wireless user access control and security protection Support 802.1x, MAC address and Portal authentication; support centralized/distributed forwarding
Service features of application firewall	Support security domain division, access isolation, attack prevention, NAT, IPSec/SSL/L2TP VPN, etc.
Service features of IPS	It provides seven layers of security defense with active prevention against vulnerability exploit/exploitation, web page tampering, and SQL injection; IPS also has a built-in professional virus library that can block various worms and viruses in real time
Service features of UAG	Traffic control: seven layers of detection, classification and control enables immediate visualization of network traffic and applications; traffic control over non-critical services such as P2P and games helps ensure bandwidth for critical services and convenient management of network bandwidth Unified auditing: through a detailed review of access histories and permission management of Web access, online games, stock trading, online film and television and other online behaviors, it helps ensure they meet relevant requirements and laws and regulations; with a signature library consisting of more than 5,000 network layer and application layer protocols, as well as a URL address library consisting of ten million entries, it allows refined UAG for users
Service features of WAF	It supports Web application security protection, offering vulnerability protection, Web policy optimization, HTTP protocol reinforcement and other functions to ensure the availability and reliability of Web applications
Service features of Anti-DDoS system	Combining detection and cleaning to effectively protect metropolitan area networks and IDCs from a huge amount of DDoS attacks
Service features of application delivery	Support link load balancing, server load balancing, application acceleration to ensure fast and available of applications
Service features of IoT application security control system	Support device security access, data application control and other whitelist functions Support asset identification and management, illegal outreach, etc.
Management features	Support FTP, TFTP, X-modem Support Web management port, SNMP v1/v2/v3 Support RMON, NTP clock, intelligent power management
Reliability	Support master control board 1+1 redundancy

	Support power N+1 redundancy Passive backplane design; all boards support hot-plug Support online status monitoring protocol to perform detection of key components including master control engine, backplane, chip and storage
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- 1) It does not support AC and DC mixed plugging; DC power supplies do not support the HVDC feature.

Ordering

1. Power Supply Module List

Model	Description	Allocation Quantity			
		DPX8000-A3-S	DPX8000-A7-S	DPX8000-A5-X	DPX8000-A12-X
PSU-AC550	550W, AC	1~2	1~4	Not Support	Not Support
PWR-AC650	650W, AC	Not Support	Not Support	1~2	1~4
PWR-DC650	650W, DC	Not Support	Not Support	1~2	1~4
PSU-AC1200	1200W, AC	Not Support	Not Support	1~2	1~4
PSU-DC1200	1200W, DC	Not Support	Not Support	1~2	1~4

2. MPU/SFU Module List

Model	Description	Allocation Quantity			
		DPX8000-A3-S	DPX8000-A7-S	DPX8000-A5-X	DPX8000-A12-X
A12-MPU-GC	main controller module	Not support	1~2	Not support	Not support
MPU-XS	main controller module	Not support	1~2	Not support	Not support
MPU-X	main controller module	Not support	Not support	1~2	1~2
MPU-A3	main controller module	1~2	Not support	Not support	Not support
DXP-XS	Switched grid board	Not support	1	Not support	Not support
DXP-X	Switched grid board	Not support	Not support	1~2	1~2

3. Interface Module List

Model	Description
48GT-X	48 x GE RJ45
48GP-X	48 x GE SFP
24GT20GP4XGS-X	24 x GE RJ45 + 20 x GE SFP + 4 x 10GE SFP+
8XGS-X	8 x 10GE SFP+
24XGS-X	24 x 10GE SFP+
48XGS-X	48 x 10GE SFP+
2QXP-X	2 x 40GE QSFP+
6QXP-X	6 x 40GE QSFP+