

# DPX17000 Deep Service Core Switch



## Overview

Network connectivity is of paramount significance at the very beginning of network construction. However, given the ever-increasing network size and diversified business categories, providing high performance cloud computing capability on the basis of network connectivity while ensuring a secure and controlled multi-service environment has drawn greater attention from users. In response, DPtech launched the DPX17000 Series next generation deep service core switches, designed for large secure networks and cloud data centers.

Based on DPtech's core technologies including APP-X hardware architecture, ConPlat operating system and APP-ID application and threat signature database, the DPX17000 Series uses a flexible switching architecture with separated control plane and forwarding plane to meet 40G and 100G high-density interface expansion requirements through a 100G platform design. Supporting multiple data center features, it realizes deep integration of network and service, providing enterprises users with next generation network infrastructure that is high-speed, intelligent and reliable.

**High performance:** DPX17000 Series is provided with CLOS multi-level switching architecture, separated control plane and forwarding plane, and relatively independent master control engine and switch boards. With continuous bandwidth upgrade capability, a single device can support a maximum of 20 service slots and high-density 40G and 100G interface modules. This Series is also equipped with innovative hardware cluster technology, doubling system performance while ensuring reliability.

**Virtualization and data center features:** DPX17000 Series supports N:1 virtualization of VSM and 1:M virtualization of OVC, achieving layers 2 ~ 7 N:M virtualization, and converting multiple similar business, security, and application delivery modules into a flexible scheduling resource pool

**Network and service integration:** DPX17000 Series has the most abundant business features in the industry, providing more than 10 service modules including iNAC, application delivery, application firewall, IPS, Unified Audit Gateway (UAG) and traffic control, SSL VPN, anti-DDoS system, and WAF. A single service board can process a capacity of 240G. The hot elastic service expansion technology can made dynamic adjustments to service modules without restarting the device, enabling an increase of expansion modules to improve business processing performance, and realizing plug-and-play flexible deployment by expanding the types of modules to include more service features. As a complete integration between services and network, the DPX17000 Series, based on service chains enabled by its original service chain technology, allows flexible allocation of services among modules in the resource pool in a graphical manner. It has therefore eradicated all the limitations posed by traditional resource scheduling.

The DPX17000 Series deep service core switches are composed of three variants, namely, DPX17000-A5, DPX17000-A12 and DPX17000-A20. In compliance with performance, service and port requirements of networks of various sizes, it can be deployed in critical locations such as large secure network core, data center core, metropolitan area network convergence and high-traffic Internet egress.

### ■ **High Performance Security Network Core**

The DPX17000 Series is designed with a cutting-edge CLOS architecture, separated control plane and forwarding plane, and relatively independent master control engine and switch boards. In this way, it helps greatly improve device reliability while laying a foundation for future bandwidth upgrades. With an innovative semi-slot design concept, it offers users with more flexible expansion methods and fully satisfies the application requirements of next-generation enterprise network for a fundamental IT platform.

DPX17000 Series makes an innovative progress from network security to security network. Moreover, the traditional blacklist mechanism has evolved to the whitelist concept centered on management and control.

### ■ **L2~7 Virtualization**

Relying on VSM and OVC technologies independently developed by DPtech, the DPX17000 Series converts multiple similar service modules into a flexible scheduling resource pool, thus enabling a granular management of business platform resources and improving the utilization of resources. In conjunction with UMC management platform, it provides users with automatic management and operation and maintenance solutions.

### ■ **Full Service Integration Capabilities**

Combing switching&routing, network security and application delivery, the DPX17000 Series becomes the first to realize the deep integration of layers 2 ~ 7. All service modules in a single device can be managed based on a single IP, making it simple to establish complex networking.

With a series of rich business scalability capabilities, the DPX17000 Series provides more than 10 service slots including iNAC, application delivery, application firewall, IoT application security control system, IPS, Unified Audit Gateway (UAG) and traffic control, anti-DDoS system, WAF, vulnerability scanning, and wireless controller.

The hot elastic service expansion technology can made dynamic adjustments to service modules without restarting the device, enabling plug-and-play on-demand deployment of services.

With strong network adaptability, it offers full support of QoS, IPv4/IPv6 routing, MPLS VPN and other network services.

### ■ **Innovative service chain Technology**

Based on the innovative “service chain” concept, the DPX17000 Series is able to provide refined definition to data streams according to portfolio policies, customize data flow directions among various service modules, remove limitations of traffic scheduling between different service modules, and realize flexible scheduling at the business layer.

### ■ **SDN and Data Center Features**

The DPX17000 Series supports mainstream Overlay standards such as VXLAN to address the issue of multi-tenancy. It offers a flexible virtual machine migration solution so as to meet users’ needs for large-scale server deployment and cross-domain connectivity in cloud computing environments. It is

compatible with Openflow1.3 protocol, and offers multiple controllers and multi-level flow tables. It can serve as Openflow-hybrid to allow Openflow operations and standard Ethernet switching simultaneously.

- **Full backward compatibility with DPX8000**

The DPX17000 Series supports a maximum of 20 expansion slots and is backward compatible with the DPX8000 Series boards to protect users' investment effectively.

- **carrier-grade High Reliability**

Fully redundant hardware architecture DPX17000 Series supports master control board 1+1 redundancy, switching board N+1 redundancy, fan module 1+1 redundancy, power supply module N+M redundancy. It supports uninterrupted restart, hot fixes, separated data/control/monitoring planes and other technologies, ensuring 99.999% carrier-grade reliability. It supports BFD, OAM and other fast fault detection technologies, and provides a series of device-level and network-level fault detection methods.

- **Green and energy efficiency**

In response to an orthogonal architecture of service boards and switching boards, the DPX17000 Series is equipped with multiple innovative cooling technologies such as a dual air duct design, increasing heat radiation efficiency by 30%.

It is capable of performing temperature detection on key components such as service boards and switching boards. Based on the temperature and configuration of each component, it can realize intelligent fan speed regulation, reduce power consumption and environmental noise, and guarantee energy efficiency.

## Product Series



**DPX17000-A5**



**DPX17000-A12**



**DPX17000-A20**

## Function Descriptions

Product Model	DPX17000-A5	DPX17000-A12	DPX17000-A20
Switching capacity	53.1Tbps/204.8Tbps	88Tbps/307.2Tbps	135Tbps/387Tbps
Packet forwarding rate	8400Mpps/48000Mpps	14400Mpps/86400Mpps	19200Mpps/115200Mpps
Number of master control slots	2	2	2
Number of switching boards	1—4		
Maximum service slots	5	12	20
VSM hardware cluster	Supported	Supported	Supported
Power supply	N+M redundancy (full rack: 2)	N+M redundancy (full rack: 4)	N+M redundancy (full rack: 6)
Type of port	Support 24 GE ports, 48 GE optical interfaces, 48 GE electrical interfaces, 4 10GE ports, 8 10GE ports, 16 10GE ports, 32 10GE ports, 2 40GE ports, 12 40GE ports, 4 100GE ports, etc.		
Type of service board	iNAC, application delivery, application firewall, IoT application security control system, IPS, Unified Audit Gateway (UAG) and traffic control, anti-DDoS system, WAF, vulnerability scanning, SSL VPN, and wireless controller.		
Layer-2 Features	VLAN, STP, RSTP, MSTP, QinQ, flexible QinQ, VLAN Mapping, link aggregation, 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, BGP, policy-go-together, etc IPv6: IPv6 static routing, RIPng, OSPFv3, 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		

MPLS/VPLS	Support L3 MPLS VPN, VPLS, VLL, hierarchical VPLS, QinQ+VPLS access, P/PE, LDP, MPLS OAM, etc.
Multicast features	Support IGMPv1/v2/v3, IGMPv1/v2/v3 Snooping, PIM-SM/PIM-DM/PIM-SSM
SDN and Data Center Features	Support 802.1Qbg and DCB Support mainstream Overlay standards such as VXLAN Support Openflow1.3 protocol
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
Service features of application delivery	Support link load balancing, server load balancing, application acceleration to ensure fast and available of applications
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 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 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
Services features of wireless controllers	Support 801.11ac AP and 802.11n AP Management, wireless user access control and security protection Support 802.1x, MAC address and Portal authentication; support centralized/distributed forwarding

Management features	Support FTP, TFTP, Xmodem Support Web management port, SNMP v1/v2/v3 Support RMON, NTP clock, intelligent power management Support unified management platform (UMC)		
Reliability	CLOS architecture, and separated master control engine and switching boards It supports uninterrupted forwarding, Graceful Restart, hot fixes, separated data/control/monitoring planes and other technologies Support BFD, OAM and other fast fault detection technologies Support master control board 1+1 redundancy, switching board N+1 redundancy, fan module 1+1 redundancy, power supply module N+M redundancy Support online status monitoring protocol to perform detection of key components including master control engine, backplane, chip and storage		
Power supply capacity as a whole unit	2400W	4800W	7200W
Weight	25.8kg	49.1kg	80kg
Dimension (width x height x depth) (in mm)	442×309×480	442×703×480	442×1019×480

Hangzhou DPtech Technologies Co., Ltd.

Address: 6th Floor, Zhongcai Building, No. 68 Tonghe Road, Binjiang District, Hangzhou City, Zhejiang Province

Postcode: 310051

Official Website: [www.dpotech.com](http://www.dpotech.com)

Service Hotline: 400-6100-598

Hangzhou DPtech Technologies Co., Ltd. All rights reserved.

Disclaimer: DPtech endeavors to provide accurate information in this document. However, we do not guarantee that this document is free of any technical errors or printing errors, and would not be held liable with regard to concerning the accuracy of information. DPtech maintains the right to amend this information without prior notice.