DPX19000 Next-generation Cloud Business Core Platform

Product Brochure
DPX19000 Series

Overview

The next generation Cloud business core platform, the DPX19000 Series is based on DPtech' s core technologies including APP-X hardware architecture, ConPlat operating system and APP-ID application and threat signature database. In compliance with performance, service and port requirements of networks of various sizes, it can be deployed in critical locations such as large Cloud-based data center core, and metropolitan area network convergence.

The advent of an era of cloud computing and big data brings about server virtualization and centralized data deployment, which, in turn, significantly changed the way how traditional network is applied. A surge in data and services will not only add complexity to the existing Network Security, but also bring about a great number of challenges in network security, application experience, and business availability. In traditional network featuring switch + security architecture, L4~7 devices become performance bottlenecks due to their incapability to effectively provide protection and traffic control. Meanwhile, as it fails to provide the ability to pool resources, the industry is looking for products and solutions with Cloud business capabilities that realize true integration of network and application. DPX19000 is the industry's first Cloud business core platform that is equipped with high performance layers 2 - 7, deep integration of network and application, and resource pooling.

Cloud indicates virtual machine awareness, resource pooling, and automatic formation. In full support of 802.1Qbg, the DPX19000 Series is the first to provide granular protection of and traffic control on virtual machine in VLAN. N:1 virtualization of VSM and 1:M virtualization technologies of OVC, achieving N:M virtualization of layers2~7, and converting multiple similar business, security, and application delivery modules into a flexible scheduling resource pool Automatic network management and operation solutions are enabled by UMC platform, and SDAN (Software Defined Application Network) by APP Flow or third-party interfaces.

Services indicate deep integration of layers 2-7, high performance service processing capabilities, and flexible deployment. As a whole unit, the DPX19000 Series can offer a maximum processing performance of 3.2Tbps (64 bytes), 3.2 billion concurrent connections, and 128 million new connections per second. It helps enhance the performance of layers 4 to 7 to that of network layer to eliminate performance bottlenecks. ConPlat operating system facilitates DPX19000 in the complete integration of service and network. The innovative and flexible service scheduling based on service chain technology removes all limitations caused by traffic scheduling between different modules in the frame. Besides, the hot elastic service expansion technology can made dynamic adjustments to service modules without restarting the device, enabling plug-and-play deployment. The 1+1 or N+1 service backup capability helps ensure RAID service reliability.

Core Platform indicates that the device is provided with the architecture and performance required by the data center core. The DPX19000 Series is provided with CLOS multi-level switching architecture, separated control plane and forwarding plane, and redundancy design of power supply and fans, guaranteeing a highly reliable carrier-grade network. By using the industry-leading N + M hardware cluster feature and an innovative dual air duct design, it improves energy efficiency by 30% with a power consumption of less than 6,000W, promoting the construction of a green network.

Product Features

- **Cloud Business Core Platform**

  The DPX19000 Series is designed with a cutting-edge CLOS switching 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.

  Combing switching routing and network security, the DPX19000 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.

  DPX19000 Series is highly scalable. It supports deep service functions such as application firewall and IPS, providing powerful security protection for network core. 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.

  It can provide single routing boards of million class; the connection boards support up to 24GB cache at a large caching rate of 200ms; when used with distributed ingress cache mechanism, it can meet the needs of large data centers with high burst traffic.

- **Non-blocking hardware cluster**

  The DPX19000 Series adopts the industry's leading non-blocking hardware cluster system. Through cluster switching boards and VSM cluster matrix, it enables non-blocking switching in strict sense without occupying any business ports. Networking through 1 + 1 back-to-back interconnection or N + M interconnection is allowed.

- **Full Service Integration Capabilities**

  Combing Combing switching, network security and application delivery, the DPX19000 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.

  DPX19000 Series is highly scalable by supporting application firewall, IPS and other service slots.

  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.

- **L2~7 Virtualization**

  Relying on VSM and OVC technologies independently developed by DPtech, the DPX19000 Series converts multiple similar service modules in a Cloud data center into a flexible scheduling resource pool, thus enabling a granular management of business platform resources and improving the utilization of resources. Automatic network management and operation solutions are enabled by UMC platform, and SDAN (Software Defined Application Network) by APP Flow or third-party interfaces.

- **Innovative service chain Technology**

  Based on the innovative "service chain" concept, the DPX19000 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 DPX19000 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.

- **carrier-grade High Reliability**

  Fully redundant hardware architecture DPX19000 Series supports 1+1 redundancy of master control board.N+1 redundancy of switching board,1+1 redundancy of fan module, N+M redundancy of power supply module. 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 DPX19000 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, and reduce power consumption and environmental noise. It improves energy efficiency with a power consumption of less than 6,000W, promoting the construction of a green network.

Product Series

DPX19000-A6

DPX19000-A10

DPX19000-A18

Function Descriptions

Product Model	DPX19000-A6	DPX19000-A10	DPX19000-A18
Switching capacity as a whole unit	184Tbps/417Tbps	268Tbps/516Tbps	416Tbps/1032Tbps
Packet forwarding rate	172800Mpps	230400Mpps	345600Mpps
Service processing performance (64 bytes)	800Gbps	1.6Tbps	3.2Tbps
Number of concurrent connections	800 million	1600 million	3200 million
New connections per second	32 million/second	64 million/second	128 million/second
Number of master control slots	2	2	2
Number of service slots	4	8	16
Number of switching board slots	6	8	8
VSM hardware cluster	Supported	Supported	Supported
Power supply	N+M redundancy (full rack: 4)	N+M redundancy (full rack: 8)	N+M redundancy (full rack: 12)
Type of service board	Application Firewall, IPS, etc.		
Two-layer Features	VLAN, STP, RSTP, MSTP, QinQ, flexible QinQ, VLAN Mapping, full duplex traffic control, back pressure traffic control, 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.		
Three-layer 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.		
SDN and Data Center Features	Support 802.1Qbg, DCB, etc. Support mainstream Overlay standards such as VXLAN Support Openflow1.3 protocol		
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		
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, separated master control engine and switching boards, and all boards support hot-plug 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	8000W	16000W	24000W

Weight	100kg	200kg	300kg
Dimension (width x height x depth) (in mm)	440x 353 x 848	430x 795 x 821	436x 1197 x 823

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