

DPX19000 Next Generation Cloud-Ready Service Core Platform



Overview

DPX19000 is a next generation cloud-ready service core platform self-developed by Hangzhou DPtech, Co., Ltd. Based on DPtech APP-X hardware architecture, ConPlat operation system, APP-ID application and threat signature database, DPX19000 turns to be DPtech's state of art innovation of the technique concept "Application as Network".

As application infrastructure reaches the era of cloud computing with big data, server virtualization and data centralized deployment significantly changes the traditional network deployment model. The rapid growth of data and services has not only complicated the network architecture, and also exposed themselves to great challenges, such as network security, customer experience, and high availability service. There lacks a product and solution in industry which can realize deeply integration of L2-7 layer services and provide cloud-ready service capability.

DPX19000 is the industry's first cloud-ready service core platform, which provides L2-7 layer high-performance, deep integration of network with application, and resource pooling.

"Cloud-Ready" means virtual machine aware capability, resource pooling and automatic orchestration. DPX19000 fully supports for 802.1Qbg, and first achieves protection and flow control for virtual machines within VLAN. VSM (Virtual Switching Matrix) N:1 virtualization and OVC (OS-Level Virtual Context) 1:M virtualization will enforce the L2-7 layer N:M virtualization, which can convert multiple physical devices of network, security and application delivery modules into "resource pool" for flexible scheduling. Using UMC management platform, DPX19000 provides automatic network control and maintenance programs, and can enable SDAN (Software Defined Application Network) through APP Flow or third-party interface.

"Service" means L2-7 layer deep integration, high-performance service processing capability and flexible service deployment. DPX19000 can provide a maximum of 3.2Tbps (64 bytes) service process performance, 3.2 billion concurrent connections per second and 128 million new connections per second, thus to upgrade L4-7 layer performance to a network level and resolve performance bottleneck. Due to the ConPlat operating system, DPX19000 becomes a platform fully integrating services with network. The innovative service scheduling based on "flow definition template", has completely solved flow scheduling constraints between different service modules in chassis. Besides, service modules can dynamically adjust to add performance and new services, plug and play. Featuring with 1 +1 and N +1 services backup capability, DPX19000 achieves RAID level service reliability.

"Core Platform" means devices possess architecture and performance following core requirements of data center. DPX19000 series can provide a maximum of 64Tbps switching capacity. Featuring with CLOS architecture, DPX19000 separates the control plane and the forwarding plane by hardware, along with power supply and fans fully redundancy design, and achieves carrier-class hardware availability.

Innovative dual air flow design improves the efficiency by 30%, controls power consumption in less than 6000W, and builds a green network.

DPX19000 next generation cloud-ready service core platform consists of three models: DPX19000-A6, DPX19000-A10 and DPX19000-A18. It can meet demands of different-scale networks for performance, services and ports. It can be deployed in critical positions such as core of large cloud data center, large MAN and turns into a solution integrating non-loss high-performance access control, intrusion prevention, anti-DDos, application protocol identification, traffic management module, application delivery, CGN, and DPI.

Series



DPX19000-A6



DPX19000-A10



DPX19000-A18

Features

Industry's Highest L2-7 Layer Service Processing Performance

- Provide a maximum of 64Tbps switching capacity, 3.2Tbps (64 bytes) service processing performance, 3.2 billion concurrent connections per second and 128 million new connections per second.
- Provide a maximum of 960 Gbps per-slot bandwidth for all slots and system support a maximum of 128*100GE, 384*40GE, 1536*10GE wire-speed ports.

Virtual Machine-Aware and Flow Control

- Support IEEE 802.1Qbg and provide flow control ability to virtual machines under server virtualization environments.

- First achieve protection and flow control for virtual machine within VLAN, deployment of security policies between virtual machines on demand within a same VLAN, provide deep flow analysis and precise flow control between virtual machines, and upgrade security protection and flow control granularity of data center to single virtual machine level.

Resource Pooling Capability

- Innovative N:M virtualization can virtualize multiple physical devices of network, security and application delivery modules as one logical device, then virtualize this large logical device into several independent virtual devices, achieving "granulation" of resources on service platform and greatly improving utilization efficiency of resources, thus provide users flexibility to deploy resources for on demand applications.
- OVC (OS-Level Virtual Context) can virtualize a physical device into Ns logical devices, satisfying multi-tenant demands for sharing core devices, and can realize complete isolation of L2-7 layer services between multi-tenants through OVC technology.
- VSM (Virtual Switching Matrix) can virtualize multiple physical devices into one single logical device, and provide control plane redundancy for virtual groups, distributed forwarding, cross-device link aggregation and unified IP management.
- TRILL (Transparent Interconnection of Lots of Links) provides large L2 layer networking capabilities for numerous server access in cloud data center, and provides simple and flexible L2 layer loopless multi-path forwarding.

Deep Integration Network Services

- Integrate basic network, network security and application delivery into a unified system, simplifying deployment and release supervisors from complex network management.
- Rich service expanding capabilities with support deep service features such as application firewall, IPS, traffic management control, application delivery, Anti-DDoS and wireless Controller.
- Innovative service scheduling based on "flow definition template", which can precisely define data flow according to portfolio policies, flexibly customize data flow between different service modules, and completely solve flow scheduling constraints between different service modules in chassis.
- Dynamic adjustments of service modules without restarting system are supported by elastic service expansion technology, plug and play, and achieve flexible deployment of services on demand.
- Powerful network adaptability with support abundant network features such as IPv4/IPv6, L2/3 MPLS VPN and provide various high-density ports such as 48*GE, 32*10GE, 48*10GE, 8*40GE, 24*40GE, 2*100GE and 8*100GE.

Core-Level High Availability

- Industry-leading CLOS architecture, main processing engine and switching fabric are independent from each other, significantly improving reliability and ensuring bandwidth upgrade of subsequent products.
- Fully redundancy hardware architecture, 1+1 main control unit redundancy, N+1 switching fabric redundancy, 1+1 fan module redundancy and N+M power supply redundancy.
- Support technologies such as graceful restart, hot patches, data/control/monitor plane separation, and ensuring 99.999% carrier-class reliability.

- Support fast fault detecting technologies such as BFD, OAM, and offers multiple device-level and network-level fault detecting ways.

Innovative Energy-Efficient Design

- Orthogonal architecture for service card modules and switching fabric modules, innovative dual air flow design, improve heat dissipation efficiency.
- Support temperature inspection of critical components such as service card modules, switching fabric modules, provide intelligent fan speed partitioning according to temperature and configuration of each component hence reduce power consumption and ambient noise.

Specification

Item	DPX19000-A6	DPX19000-A10	DPX19000-A18
Switching Capacity	16 Tbps	32 Tbps	64 Tbps
Packet Forwarding Rate	5.76 Bpps	11.52 Bpps	23.04 Bpps
L4-7 Throughput (64 bytes)	800 Gbps	1.6 Tbps	3.2 Tbps
Concurrent Connections per Second	800,000,000	1,600,000,000	3,200,000,000
New Connections per Second	32,000,000	64,000,000	128,000,000
MCU (Main Control Unit) Slots	2	2	2
Switching Fabric Module Slots	6	8	8
Service and I/O Module Slots	4	8	16
Power Supply	N+M redundancy (4 block)	N+M redundancy (8 block)	N+M redundancy (12 block)
Line Card	<ul style="list-style-type: none"> • Support 48*GE, 32*10GE, 48*10GE, 8*40GE, 24*40GE, 2*100GE and 8*100GE 		
Service Module	<ul style="list-style-type: none"> • Application Firewall Module • Intrusion Prevention System (IPS) Module • Traffic Management Module • Anti-DDoS Module • Application Delivery Module • Wireless Controller Module 		

Item	DPX19000-A6	DPX19000-A10	DPX19000-A18
Layer 2 Feature	<ul style="list-style-type: none"> • VLAN, PVLAN, VLAN Mapping • VLAN assignment based on MAC address/port/subnet/protocol • QinQ, Flexible QinQ, • Link aggregation • Port mirroring and traffic mirroring • Storm constrain, Broadcast/multicast/unknown unicast suppression • STP,RSTP,MSTP 		
Layer 3 Feature	<ul style="list-style-type: none"> • IPv4: Static routing, RIP v1/v2, OSPF, BGP, and policy routing • IPv6: IPv6 static routing, RIPng, OSPFv3, BGP4+,VRRPv3 and IPv4 to IPv6 tunneling protocols 		
Virtualization	<ul style="list-style-type: none"> • VSM (Virtual Switching Matrix) N:1 virtualization • OVC (OS-Level Virtual Context) 1:M virtualization, • N:M virtualization 		
MPLS / VPLS	<ul style="list-style-type: none"> • L3 MPLS VPN, VLL, VPLS, hierarchical VPLS, QinQ + VPLS 		
Data Center Feature	<ul style="list-style-type: none"> • TRILL, DCB 		
Multicast Feature	<ul style="list-style-type: none"> • IGMPv1/v2/v3 • IGMPv1/v2/v3 Snooping • PIM-SM/PIM-DM/PIM-SSM 		
Other Network Layer Feature	<ul style="list-style-type: none"> • Support 802.1p priority • Traffic classification based on Layer 2, Layer 3, Layer 4, and priority information • Support standard ACL and extended ACL • Support Ingress and Egress CAR 		
Application Firewall Module	<ul style="list-style-type: none"> • Support features such as security zone isolation, access control, attacks defense, NAT, and IPSec/SSL/PPTP/L2TP VPN 		
IPS Module	<ul style="list-style-type: none"> • L7 layer security protection and active protection against threats, SQL injection. Meanwhile, built-in IPS anti-virus database provides real-time intercept against various worms and viruses 		
UAG Module	<ul style="list-style-type: none"> • Identification, classification and L7 deep packet traffic management • Achieve visualization of network traffic and application, • Ensure critical services bandwidth by constrain non-critical services like P2P and games • Provide nearly 10 million URL database which is divided into dozens of categories, thus users can use URL control strategies simply and flexible 		

Item	DPX19000-A6	DPX19000-A10	DPX19000-A18
Application Delivery Module	<ul style="list-style-type: none"> Support features such as link load balance, server load balance and application acceleration, ensuring fast and available applications 		
Anti-DDoS Module	<ul style="list-style-type: none"> Integrate detection and cleaning, effectively protecting MAN and IDC against DDoS attacks 		
Wireless Controller Module	<ul style="list-style-type: none"> Support management of 802.11 a/b/g/n APs Support wireless user access control and security protection Support 802.1x, MAC and portal authentication Support centralized and distributed forwarding 		
Management	<ul style="list-style-type: none"> Support FTP, TFTP and Xmodem WEB GUI interface and SNMP v1/v2/v3 Support RMON, NTP, IEEE 1588v2 and Intelligent power control UMC (Unified Management Center) 		
Availability	<ul style="list-style-type: none"> CLOS architecture Support fast fault detecting technologies such as BFD and OAM Support 1+1 MCU redundancy, N+1 switching fabric redundancy, 1+1 fan module redundancy and N+ M power supply redundancy Support online device health detection, achieve inspection for key components such as MCU, service module, switching fabric, memory chips and storage ,etc. 		

Ordering Information

Part Number	Model Description	Remarks
02050219	DPtech DPX19000-A6 AC Host	Required
02050216	DPtech DPX19000-A10 AC Host	Required
02050160	DPtech DPX19000-A18 AC Host	Required
02010144	DPtech 2000W AC Power Module	Required
02010123	DPtech N-MPUA Module	Required
02010122	DPtech N-FUA Switching Fabric Module	Optional

02010173	DPtech N-FUB Switching Fabric Module	Optional
02010174	DPtech N-FUC Switching Fabric Module	Optional
02010142	DPtech N-48GET 48 Ports GigaBit Electrical Interface Module(RJ45)(S)	Optional
02010141	DPtech N-48GEP 48 Ports GigaBit Optical Interface Module(SFP)(S)	Optional
02010124	DPtech N-32XGES 32 Ports 10-GigaBit Optical Interface Module(SFP+)(M)	Optional
02010175	DPtech N-48XGES 48 Ports 10-GigaBit Optical Interface Module(SFP+)(M)	Optional
02010172	DPtech N-8QXP 8 ports 40-GigaBit Optical Interface Module (QSFP+)(M)	Optional

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