Terrabit Networks

PRODIGY

PRODIGY   DATA CENTER TOR SWITCH

PD1-S51-8321
Data Center TOR Switch

PRODUCT OVERVIEW

○ PD1-S51-8321 is a new generation full-10G TOR switches oriented for high-performance computing, data center and high-end campuses. PD1-S51-8321 adopts advanced hardware architecture design.

○ PD1-S51-8321 supports up to 640Gbps switching capacity, PD1-S51-8321 with 1U height supports 24 10G ports + 2 40G ports or 8 10G ports.

○ PD1-S51-8321 supports PVSS, TRILL, SDN and FCoE/FC. By cooperating with PD-S51-Series can access to 15000+ 10G servers.

○ Developed on the basis of PDROS 6 - a software platform PRODIGY with its own independent intellectual property rights, PD1-S51-8321 provides high-performance L2/L3/L4 wire speed switching capacity by integrating services such as IPv6 flow analysis, virtualization, with high reliable techniques including continuous forwarding, graceful restarting and loop network protection, the work efficiency of PD1-S51-Series and its maximum running time are guaranteed.

○ PD1-S51-8321 supports the "GreenTouch" architecture and "Smart@CHIP". Its power consumption is lower than 200W.

PRODUCT CHARACTERISTICS

○ Advanced Hardware Architecture Design & Industry Leading Processing Capacity

• It adopts the industry leading hardware architecture design. PD1-S51-8321 with 1U height supports 24 10G ports + 2 40G ports, or 8 10G ports.

• With high-performance ASIC switch chip and multi-core processor, PD1-S51-8321 supports up to 640Gbps switching capacity.

• PD1-S51-8321 is designed with front/back wind tunnels of the data center. It supports wind tunnel to switch between front-back mode and back-front mode.

○ Rich Data Center Services

• PVSS (PRODIGY Virtual Switch System).

• PD1-S51-8321 supports PVSS, which can virtualize multiple physical devices into one in logic. The virtualized system is superior to the independent physical device in performance, reliability, flexibility and management.

• Doubled Performance: The virtualized system makes the best use of each link in the device and avoids the blocking of STP to the link.

• High-reliability: Based on the advanced distributed processing technique and the efficient function of cross-physical device link aggregation, PD1-S51-8321 provides with non-stop layer-3 routing forwarding and avoids single points of failure.

• Flexibility: With the function of PD1-S51-8321 virtual clusters, the distance of virtual cluster system can expand to 80KM, breaking the geographic restriction of traditional cluster technique.

• Large Layer-2 Network Technique: PD1-S51-8321 adopts large layer-2 network technique which supports TRILL/SPB protocol. With the technique, the network structure has become simple and compress, which can access to data center large-scale servers.

• Unified Architecture: PD1-S51-8321 supports FCoE (FC over Ethernet) technique, which solves the problem of discrepancy between

• LAN network and FC storage network and integrates computing, data and storage networking.

• SDN: PD1-S51-8321 supports SDN (Software Defined Network), which can realize network virtualization and centralized management.

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○ Data Center Level High-reliability

• PD1-S51-8321 adopts HPS (Hitless Protection System). The key components of PD1-S51-8321 such as the power system and the fan system support redundancy design. All system modules support hot-swap and seamless switching without need of manual intervention.

• PD1-S51-8321 supports redundancy protection mechanism such as STP/RSTP/MSTP protocol, VRRP protocol, ring network protection, dual uplink active/standby link protection and LACP link aggregation.

• PD1-S51-8321 supports ISSU (In-Service Software Upgrade), guaranteeing the user data non-stop forwarding when the system is upgrading.

• PD1-S51-8321 supports BFD and realizes fault detection and service recovery in seconds through linking with layer-2 or layer-3 protocol.

• PD1-S51-8321 has perfect Ethernet OAM, 802.3ah, 802.1ag and ITU-Y.1731 which can real time monitor the network operating state and rapidly detect and locate the malfunction.

• High Reliability (99.999%): MTTR of PD1-S51-8321 is 50ms, meeting the requirement of the carrier-level service.

○ Comprehensive Service

• PD1-S51-8321 Supports complete layer-2 and layer-3 multicast routing protocol and meets the access requirement of IPTV, multi-terminal high-definition video monitoring and high-definition video meeting.

• PD1-S51-8321 supports complete layer-3 routing protocol and a super-large routing table capacity, which make super-large data center network, campus network, enterprise network and industry private networks available.

○ Comprehensive IPv6 Solutions

• PD1-S51-8321 comprehensively supports IPv6 Neighbor Discovery, ICMPv6, Path MTU Discovery and DHCPv6.

• PD1-S51-8321 supports IPv6 based Ping, Traceroute, Telnet, SSH, ACL, meeting the need of IPv6 network equipment management and service control.

• PD1-S51-8321 supports IPv6 multicast characteristics including MLD, MLD Snooping and IPv6 layer-3 routing protocols including IPv6 static routing, RIPng, OSPFv3 and BGP4+.

• PD1-S51-8321 supports IPv4-to-IPv6 technologies including IPv6 manual/automatic tunnel, auto tunnel, IPv6-to-IPv4 tunnel, and ISATAP tunnel.

○ Innovative Green Environmental Design

• PD1-S51-8321 supports the "GreenTouch" architecture.

• Smart Power Management System: PD1-S51-8321 adopts advanced power system architecture design which can realize the function of efficient power switching, private power monitoring, soft start, real-time monitoring, intelligent adjustment and energy-saving.

• Smart Fan Management System: PD1-S51-8321 is designed with the intelligent fan and supports switching between front-back mode and back-front mode and fan automatic speed regulation.

• PD1-S51-8321 supports Efficient Ethernet and complies with International standard IEEE 802.3az.

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PRODUCT SPECIFICATIONS

Switch Capacity: 640Gbps
Packet Forwarding Rate: 480Mpps
Power Slots: 2
Fan Slots: 5
Ports: 24 10G SFP+ ports and 2 40G QSFP+ ports or 8 10G ports, 1 10/100/1000TX management port, 1 mini USB console port
Data Center Characteristics:
- PVSS
- TRILL/SPB large layer-2 technique
- FCoE technique
- SDN

MAC Switching Capacity:
- Static Configuration And Dynamically Learning Of MAC Address
- Check And Delete MAC Address
- MAC Address Aging Time
- Limit On MAC Address Learning Number
- MAC Address Filtering Function
- Black-Hole MAC Items

VLAN:
- 4K VLAN entries
- GVRP
- 1:1 and N:1 VLAN Mapping
- Basic Qinq And Selective Qinq
- Private VLAN

STP:
- 802.1D (STP), 802.1W (RSTP), 802.1S (MSTP)
- BPDU protection, root protection and ring protection

Multicast:
- IGMP v1/v2/v3
- IGMP Snooping
- IGMP Fast Leave
- Multicast Group Policy And Multicast Number Limit
- Multicast Traffic Cross Vlan Duplication
- PIM-SM and PIM-DM

IPv4:
- Static Routing, RIP V1/V2, OSPF And BGP
- Policy Routing
- Load Balance Through Equal-Cost Routing
- BFD For OSPF And BGP

IPv6:
- ICMPv6, DHCPv6, ACLv6, IPv6 Telnet
- IPv6 Neighbor Discovery
- Path MTU Discovery
- MLD and MLD Snooping
- IPv6 static routing, RIPng, OSPFv3 and BGP4+
- Manual Tunnel, ISATAP Tunnel And 6-To-4 Tunnel

QoS:
- Traffic Classification Of Each Field Of L2/L3/L4 Protocol Headers
- CAR Traffic Control
- 802.1P/DSCP Priority Remark
- Multiple Queuing Algorithms Such As SP, WRR Or SP+WRR
- Tail-Drop, WRED
- Traffic Supervision And Traffic Shaping

Security Features:
- Identification And Filtration Of L2/L3/L4 Based ACL
- Defend Against DOS Or TCP Attacks,
- Suppression Of Broadcast, Multicast And Unknown Unicast Packet.
- Port Isolation
- Port Security, Ip+Mac+Port Binding
- Dhcp Snooping And Dhcp Option 82
- Ieee 802.1x Certification
- Radius And Bdtacacs+
- Urpf
- Command Line Authority Control Based On User Levels

Reliability:
- Power 1+1 Redundancy
- Power And Fan Hot Swap
- Static Lacp Link Aggregation And Cross Service Card Link Aggregation
- Ring Network Protection Including Eaps
- Vrrp And Hsrp
- Ethernet Oam 802.3ah/802.1ag/Itu-Y.1731
- Gr For Ospf And Bgp
- Bfd For Ospf And Bgp
- Issu

Management and Maintenance:
- Console, Telnet and SSH
- SNMP v1/v2/v3
- Upload And Download Of TFTP Files
- Remote Network Monitoring (RMON)
- Statistics Analysis Of Sflow, Netflow

Energy saving: IEEE 802.3az green Efficient Ethernet
Environment:
- Operating temperature/humidity:0°C -50°C , 10%-90% non-condensing
- Storage temperature/ humidity: -20°C -70°C ; 5%-95% non-condensing

Power supply:
- AC: 100V-240V, 50Hz±10%
- 1+1 power redundent power supply

Dimensions mm (W×D×H): 442.5×404×44, 1U

ORDERING INFORMATION

Model	Description
PD1-S51-8321	Ethernet routing switch with 24 -port 10G optical +2 port 40G optical (1 Console port, a band management Gigabit electrical interface, a USB2.0 port, 24 Gigabit SFP + optical interfaces, two 40G QSFP + optical ports (each 40G port can expand to four 10G ports used); two power supply slots, at least one optional; five fan slot; 1U height, 19-inch rack mount)
Power Supply	
PWR-460-AC-FB	PD1-S51-8321 hot-swap AC power supply (max power 460W, AC100~240V input, independent fan dissipation, front-back wind tunnel, ventilation opening at the back of the chassis)
PWR-460-AC-BF	PD1-S51-8321 hot-swap AC power supply (max power 460W, AC100~240V input, independent fan dissipation, back-front wind tunnel, ventilation opening in the front of the chassis)
PWR-460-DC-FB	PD1-S51-8321 hot-swap DC power supply (max power 460W, DC-36V ~ -72V input, independent fan dissipation, front-back wind tunnel, ventilation opening at the back of the chassis)
PWR-460-DC-BF	PD1-S51-8321 hot-swap DC power supply (max power 460W, DC-36V ~ -72V input, independent fan dissipation, back-front wind tunnel, ventilation opening in the front of the chassis)

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