



NEC ProgrammableFlow

UNIVERGE PF5248

Product Features

- Open Networking with OpenFlow 1.0, 1.3, certified OpenFlow Conformant by the Open Networking Foundation
- Up to 160,000 flow entries
- 176 Gigabits per Second non-blocking bidirectional throughput in a 1U form factor.
- 8x SFP/+ ports that operate at 1GbE or 10GbE
- 2x UTP ports that operate at 10/100/1000 Gigabit speeds.
- Hybrid OpenFlow - Connects OpenFlow Networks to L2/L3 Networks
- L2/L3 - OSPF, BGP, RIP, VRRP, PIM, MLD, STP, RSTP, MSTP, PVST, IGMP, Rate limiting, bandwidth control
- Modular design with internal redundant hot-swappable power supplies and fan
- Front to Back or Back to Front Airflow

Business Benefits

- Reduced TCO - OpenFlow Dramatically reduces network operation costs by eliminating the need for traditional distributed protocols such as Spanning Tree and OSPF
- Investment Protection - By decoupling network services from the hardware operating system, ProgrammableFlow protects customer investment in internal business process and know how.
- Programmability – the PF5248 enables the quick development and deployment of OpenFlow based service
- Higher Throughput and Availability – ProgrammableFlow provides 8-way multipath for higher availability and improved cross sectional network bandwidth



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Specifications

MODEL		PF5248F-48T4XW	PF5248R-48T4XW
Maximum Switching Capacity		176Gbps	
Maximum Packet Processing Performance		131Mpps	
Network Interface Features	10/100/1000BASE-T	2	
	1000BASE-X SFP(SX/LX/ZX)	8	
	10GBASE-R SFP+(SR/LR)		
OpenFlow Features	Version	OpenFlow Version 1.0. 1.3.1	
	Switch Instance	RSI(Real Switch Instance),VSI(Virtual Switch Instance)	
	Secure Channel	TLS Connection, TCP Connection, Inband/Out of Band	
	Protocol	Hello, Error, Echo, Features, Get Configuration, Set Configuration, Packet In, Port Status, Packet Out, Flow Mod, Flow Removed, Port Mod, Statistics, Barrier, Queue Get Config	
	Matching Fields	Ingress Port, Ethernet source address, Ethernet destination address, VLAN ID, VLAN priority, Ethernet type, IP protocol/ARP Op-code, IPv4 ToS bits, IP source address/ARP IP source address, IP destination address/ARP IP destination address, Transport source port/ICMP Type, Transport destination port/ICMP Code, IPv6 Flow Label, Traffic Class, Next Header, MPLS_LABEL, MPLS_S , MPLS_BOS, METADATA	
	Packet Forwarding	Single port output (Unicast), multiple ports output (Multicast), port group output, output from all ports, forwarding to the controller, TCP/IP termination, loopback at ingress port, L2/L3 forwarding, flooding, QoS class queue designation, discarding	
	Field Translation	source MAC address, destination MAC address, VLAN ID, VLAN priority, VLAN tag header removal, IPv4/IPv6 ToS bits, source IPv4/IPv6 address, destination IPv4/IPv6 address, source transport port number, destination transport port number, TTL, MPLS LABEL, MPLS TC, MPLS TTL	
	Flow entries	64K - 160K(Maximum)	
	IP Multicast	Yes	
	QOS	Policing, Scheduling/Bandwidth Limiting	
Fast fault detection	Layer 2 monitoring		
MAC Address Table		32,768	
VLANs		4,094	

MODEL		PF5248F-48T4XW	PF5248R-48T4XW
Routing Protocol	IPv4	Unicast	Static, RIP, RIP2, OSPF, BGP4
		Multicast	IGMPv2/v3, PIM-SM, PIM-SSM
	IPv6	Unicast	Static, RIPng, OSPFv3, BGP4+
		Multicast	MLDv1/v 2, PIM-SM, PIM-SSM
Layer2 Features	VLAN		Port-VLAN, Tag-VLAN(IEEE802.1Q), Tag translation
	Spanning Tree Protocol		STP(IEEE802.1D), RSTP(IEEE802.1w), MSTP(IEEE802.1s), PVST+, BPDU Filter, Root Guard
	Layer3 Cooperation		IGMP/MLD snooping
	Jumbo Frame		Maximum 9,234bytes (tagged), 9230 bytes (untagged)
Network Features	Security		Filter (L2/IPv4/L4), Interruption of relays between ports
	QoS		Classifier L2/IPv4/L4, Rate Limiting, Marking(DSCP/User Priority), Discard Control, Shaping(8class, Port Bandwidth Control, Scheduling(PQ, WPR, WFQ)), Diffserv
	Reliability, Availability		ECMP(IPv4/IPv6), VRRP(IPv4/IPv6), Static Polling(IPv4/IPv6), VRRP Polling (IPv4/IPv6), Link Aggregation(IEEE802.3ad), Strom Limiting, Graceful Restart(helper), UDLD(IEEE802.3ah), Ring Protocol, Local ProxyARP, L2 Loop Detection, Uplink trunk redundant, CFM(IEEE802.1ag)
	L2-VPN		VLAN Tunneling(Extended VLAN)
Operational & Management Features		SNMPv1/v2c/v3 , MIB II, IPv6 MIB, RMON, syslog, CLI, ping, traceroute, SSHv2, telnet, ftp, tftp, NTP, IPv4 DHCP Server/Relay, Prefix Delegation, LLDP, OADP, Port Mirroring, RADIUS, TACACS+, sFlow	
Power Saving Features		Remote Power Control, Port LED Brightness Control, Power Consumption Monitor	
Redundancy		Internal redundant power supply Hot-swappable	
Input Voltage		AC100V, 120V, 220-230V, 240V	
Maximum Power Consumption		264W	
Operating Conditions		Temperature 0 to 40°C, Humidity 20 to 85% Non-condensing	
Dimensions WxDxH (mm)		445x588x44(1U)	
Weight		15kg	
Air Flow		Front to Rear	Rear to Front

Switch Configurations

- Q24-HL000000059762 PF5248, Front to Rear Airflow, Standard Power
- Q24-HL000000059763 PF5248, Front to Rear Airflow, Redundant Power
- Q24-HL000000059765 PF5248, Rear to Front Airflow, Standard Power
- Q24-HL000000059766 PF5248, Rear to Front Airflow, Redundant Power

Repair Parts

- B02035-W0F11 - AC PSU, front to rear airflow
- B02035-W0F21 - Fan Unit, front to rear airflow
- B02035-W0N31 - Memory Card (SD1G)
- B02035-W0N51 - AC Power Cable (CBLACA1X)
- B02035-W0R11 - AC PSU, rear to front airflow
- B02035-W0R21 - Fan Unit, rear to front airflow

Interfaces

- B02035-W0N41 - SFP 1000Base-SX Optical Transceiver
- B02035-W0N42 - SFP 1000BASE-LX transceiver
- B02035-W0N43 - 1000BASE-ZX transceiver
- B02035-W0N44 - SFP+ 10GBase-SR Short Range Transceiver
- B02035-W0N45 - SFP+ 10GBase-LR Long Range Transceiver
- B02040-00N71 SFP+ Copper Twinax DACs-1M
- B02040-00N72 SFP+ Copper Twinax DACs-3M
- B02040-00N73 SFP+ Copper Twinax DACs-5M



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