PICA8
OPEN NETWORKING

Top: P-3920 Bottom: P-3780

➡ First Open Switch for open networks

➡ High-performance Layer 2 / Layer 3 switches with OpenFlow integration

➡ Fully non-blocking fabric with ultra-low latency

➡ Leading developer of hardware-agnostic switch OS

➡ Cost-effective, high-performance switching platforms

Overview

Pica8's purpose-built open switches are ideal for cloud or virtualized data centers that require flexibility and adaptability. Pica8™ open switches seamlessly integrate with today's data center applications on traditional network architectures, while allowing the exploration of new software defined networking (SDN) technologies, such as OpenFlow.

Pica8 switches incorporate PicOS™, an open network OS that runs standard-based Layer 2/Layer 3 protocols with Industry-leading OpenFlow / Open-vSwitch integration. PicOS utilizes proven high performance hardware with a maximum switching fabric capacity 176 Gbps for 1 GbE and 1.28 Tbps for 10 GbE platforms.

Two Models to Choose From

Pica8 P-3920
- Up to 64 10 GbE SFP+ ports leveraging the 48 port 10 GbE SFP+ base unit, with four 40 GbE QSFP+ or 16 10 GbE QSFP+ uplinks
- High density aggregation or line-rate connectivity to the core

Pica8 P-3780
- 48 10 GbE SFP+ port base unit for cost-effective 10 GbE server aggregation

	Features	Benefits
»OPEN	• Only switching platform with Linux on board and accessible • OpenFlow 1.2 compliant with Open-vSwitch (OvS) support 1.7.1	• Optimize and customize by leveraging vast high-quality Linux tools • Leverage industry-leading SDN technology ahead of your competition
»FLEXIBLE	• High-performance Layer 2 / Layer 3 switching platform for both IPv4 and IPv6 networks • Selectable store-forward or cut-through switching modes for ultra-low latency • Manage traffic with Q-in-Q or ECMP support for meshed fabrics	• Integrates with existing networks seamlessly • Tunes the switching fabric to meet your application performance needs • Leverage encapsulation or deploy resilient multi-path networks
»ADAPTIVE	• SDN ready • Multiprocess OS ensures each process has independent memory space, thread control, and interrupt handling for improved feature scaling	• Investment protection as your application needs change • Seamlessly add new protocols through Pica8's OS

PROTOCOLS & STANDARDS SUPPORTED

Layer 2 Features

- Jumbo frame up to 9,216 bytes
- Provide non-blocking wire speed L2 switching
- 128K MAC address entries
- Flow Control
  - IEEE802.3x for full duplex mode
  - Back-Pressure flow control in half duplex mode
- Provide Broadcast, Unicast, Multicast storm protection
- IGMP snooping, up to 1K groups
- Support VLAN
  - IEEE 802.1Q VLAN
  - 4094 VLANs
  - port-based VLAN
  - VLAN Trunking Protocol
- Spanning Tree
  - STP, IEEE 802.1d
  - RSTP, IEEE 802.1w
  - MSTP, IEEE 802.1s
- Link Aggregation
  - up to 24 trunk groups
  - up to 8 ports per trunk group
  - 802.3ad Link Aggregation and LACP
- Provide Port Mirror (many-to-1)
- LLDP
- Support Q-in-Q

Layer 3 Routing Features

- Maximum Routes (IPv4, IPv6): 12,000
- ECMP: 32
- RIP v2
- OSPF v2
- OSPF/ECMP
- VLAN routing
- VRRP
- IP routing
- DHCP-Relay

Layer 3 Multicast

- Support PIM-SM
- Support IGMP v1/v2

IPv6 Layer 3 Routing Features

- RIPng
- OSPFv3
- IPv6 Routing

Security

- User/Password protected system management
- L2/L3/L4 ACL
- TACACS+ AAA
- SSH v1/v2
- SSL v3/TLS v1
- Denial of Service

Quality of Service

- 802.1p based CoS
- 8 priority queues per port
- DSCP based CoS
- Policy based Diffserv
- IPFIX/sFlow

Network Management

- Command Line Interface (CLI) via console port
- Telnet remote login through IP management port
- SNMP v1/v2c

Open vSwitch 1.7.1

- Compatible with OpenFlow 1.2 specification
- Interoperate with NOX
- Interoperate with Floodlight
- Support GRE/MPLS/OpenFlow

Standards Compliance

- 802.1d Bridging and Spanning Tree Protocol
- 802.1s Multiple Spanning Tree Protocol
- 802.1w Rapid Spanning Tree Protocol
- 802.1p QOS/COS
- 802.1Q VLAN Tagging
- 802.3ad Link Aggregation with LACP
- 802.3ab 1000Base-T
- 802.3z Gigabit Ethernet
- 802.3ae 10 Gigabit Ethernet
- 802.3ba 40 Gigabit Ethernet

Top: P-3920 (rear view) Bottom: P-3780 (rear view)

SNMB MIBs

- RFC-1213 MIB II
- RFC-1493 Bridge MIB
- RFC-1573 Interface Extensions MIB
- RFC-1643 Etherlike MIB
- RFC-1757 RMON1 MIB
- RFC-1157 SNMPv1
- RFC-1212 Concise MIB definition
- RFC-1901 Community based SNMPv2
- RFC-1905 Protocol Operations for SNMPv2
- RFC- 1906 Transport Mappings for SNMPv2
- RFC- 1907 Management Information Base for SNMPv2
- RFC- 1908 Coexistence between SNMPv1 and SNMPv2
- RFC- 2096 IP Forwarding table MIB
- RFC- 2233 The Interface Group MIB using SNMPv2
- RFC- 2665 Ethernet-like Interfaces
- RFC- 1215 SNMP traps
- RFC- 1256 ICMP router discovery
- RFC- 1573 Interface table MIB
- RFC- 2021 RMON2 probes
- Pica8 private MIB

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TECHNICAL SPECIFICATIONS

Model Details	P-3920	P-3780
Ports	48 x SFP+, 4 x QSFP+	48 x SFP+
Throughput Rate	1.28 Tpbs	960 Gpbs
Forwarding Speed	960 Mpps	720 Mpps
Forwarding Option	Cut-Through/Store-Forward	Cut-Through/Store-Forward
Latency	900 ns (64 byte)	1 µs (64 byte)
CPU	P2020	MPC8548
System Memory	512 MB DDR	512 MB DDR
SD/CF Memory	2 GB	2 GB
Packet Buffer Memory	9 MB	9 MB
Management Port	1 x 10/100/1000Base-T	1 x 10/100/1000Base-T
Console Port	1 x RJ45 Serial	1 x RJ45 Serial

Optics and Cables supported		
Interface Type	SFP+ Ports	QSPF+ Ports
1000Base-SX, LX, TX	Supported	–
10GBase-SR	300m	–
10GBase-LR	10km	–
10GBase-LRM	300m	–
10GBase-CR4 (Twinax Copper)	Pre-terminated lengths ranging from 0.5m to 7m	–
40GBase-SR4	–	100m (OM3) / 150m (OM4)
40GBase-LR4	–	10km
40GBase-CR4 (Twinax Copper)	–	Pre-terminated lengths ranging from 0.5m to 7m

Physical and Environmental Specifications	
Size (inches):	P-3920: 1.69(H)x 17.13(L) x 15.5 (D) P-3780: 1.69(H)x 17.13(L) x 15.5 (D)
Weight (lbs):	P-3920: 16.94 P-3780: 16.28
Input Voltage	100-240V AC
Power Draw	P-3920: 230 W P-3780: 195 W
Input Frequency	50-60 Hz
Operating Temperature	50 to 122°F (10 to 50°C)
Operating Humidity	80% max. relative humidity
Power Redundancy	2 hot-swappable power supplies
Air Flow	Front to back
LEDs	Link, Activity/10GE port Speed, Link, Activity / Management port
MTBF	P-3920:129,916 hours P-3780: 198,185 hours

Regulatory Compliance	
Emissions	FCC, CE, VCCI-A, CCC, KCC, BSMI (for P-3780 only)
Safety	UL, CE
RoHS	Yes

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