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SWH1530VP

PACIFIC DEFENSE

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SWH1530VP

Dual Enclave 100/40 GbE Switch

Integrated Multi-Mission Comms/EW/C5ISR Solutions

The SWH1530VP is the next generation high-speed, low Size, Weight, and Power (SWaP) 100/40 GbE Ethernet switch aligned with the SOSA™ Technical Standard. This 3U VPX plug-in card supports both Data Plane and Control Plane switching capabilities to facilitate high-speed time-sensitive switching across two physically separated enclaves, accelerating security certification. With a combination of interoperability, time-synchronization and determinism on the Control Plane and up to 100 Gbps data rates supported on the Data Plane, the SWH1530VP is ideally suited for dual-use, commercial and defense, applications deployed across Air, Land, and Sea platforms.

Based on leading-edge high-performance switch fabrics from Marvell's Prestera® Aldrin2 and Ironman families of Ethernet switch devices, the SWH1530VP delivers advanced standards-based Layer 2/Layer 3 switching with support for select Layer 4 network protocols and an integrated web-based network management suite. The next generation Ironman-based Control Plane switch significantly expands networking capabilities with enhanced auto-negotiation support, IEEE 1588 Precision Time Protocol (PTP) Transparent Clock functionality, integrated MACsec security acceleration, and a roadmap for future Time Sensitive Networking (TSN) software feature enablement.

The SWH1530VP is compliant with the ANSI/VITA 48.2 mechanical standard for VPX REDI conduction cooling and the VITA 47 ECC3 environmental class standard.

KEY FEATURES

- Built to CMOSS, SOSA™, and OpenVPX™ standards
- 3U VPX form factor
- Backplane support of
- 100GBASE-KR4, 40GBASE-KR4, 10GBASE-KR, and 1000BASE-KX
- Two independent Layer 2/3+ multi-gigabit Ethernet switch matrices
- Designed to support two physically separated enclaves to facilitate security certification
- Speed, duplex, flow control, and power management on all ports
- Front panel 3x 1/10/40/100* Gbps Data Plane and 1/10 Gigabit Control Plane Ethernet ports access
- Future support for Time Sensitive Networking (TSN) via software update
- Slot profiles
  - SLT3-SWH-6F1U7U-14.4.14
  - SLT3-SWH-5F4UG7U-14.4.14
  - Other software configurable profile options are supported
- Conduction cooled

** 2/3 ports up to 100G rates, 1/3 supports up to 40G*

General Characteristics

- VLAN support for 802.1Q tagging, port mirroring, and MAC-based filtering and access control
- Ingress filtering
- Loop prevention and redundant path management via RSTP (IEEE 802.1w) and MSTP (IEEE 802.1s)
- Static IPv4/IPv6 routing available today, OSPFv2/v3 and RIPv2/RIPng with remote routing table configuration on a roadmap
- QoS with 802.1p Priority Code Point and IP DSCP
- Access Control Lists (L2, L3, and L4)
- Multicast with IGMPv3 snooping (compatible with v1 and v2) and MLDv2 snooping (v1, v2)
- Authentication and access control supports local authentication, RADIUS/TACACS+ remote management authentication, and IEEE 802.1X Port-Based Network Access Control (PNAC)
- Link-layer security supports IEEE 802.1AR Device Identity (DevID) for secure device identification and encrypted Ethernet communications with 256-bit encryption and IEEE 802.1AE MACsec with 802.1X MACsec Key Agreement (MKA) in the near future
- Provision for future certificate-based authentication enhancements, e.g., EAP-TLS and X.509 credentials
- Console access via UART, SSH and Telnet over In-band and Out-of-band interfaces
- SNMP, Syslog, DHCP, DNS, and SNTP management services
- SNMPv1/v2c/v3 support with private MIB extensions
- Software configuration; GUI management and in-system upgrade
- System Management using Intelligent Platform Management Interface (IPMI)
- PBIT/BIST Status coming soon

Applications

- Networking
- Edge Computing
- Modular Data Center
- Cyber Security Solutions
- Electronic Warfare
- Signal Intelligence
- Communication
- Other low power embedded connectivity solutions

INNOVATIVE

DEFENSE & COMMERCIAL SOLUTIONS

Data Plane Ethernet Characteristics

- 6x ports to the backplane: 4x supporting 1/10/40/100 Gbps, and 2x 1/10/40 Gbps
- 3x ports to the front panel optical interfaces, two support 1/10/40/100 Gbps and one port supports 1/10/40 Gbps
- Supports IEEE 802.3ap auto-negotiation, Reed-Solomon and Firecode forward error correction for 10G/40G/100G port modes
- Ports configurable for lane speed, flow control, FEC, and breakout mode to affect power allocation
- Status telemetry includes CPU utilization, temperature, port Link/PHY/MAC state
- Statistics reporting for ports, VLANS RMON, ACL, and IEEE 802.1X authentication

Control Plane Ethernet Characteristics

- 7x 1/10 Gbps ports to the backplane
- 1x 1/10 Gbps port to front panel optical interface
- Supports IEEE 802.3ap auto-negotiation, Firecode forward error correction for 10G port mode
- Ports configurable for lane speed, flow control, and FEC to affect power allocation
- P2P/E2E transparent clock per IEEE 1588 PTPv2
- Hardware provision for Time Sensitive Networking (TSN) via software update

Network Management Software

- Extensive CLI library for configuration, control, display, and troubleshooting
- CLI consistent with IETF network protocols
- User searchable CLI commands

CMOSS SOSA Sensor Open Systems Architecture MEMBER OpenVPX

Pacific Defense is designed to support the DoD's disciplined movement to modular open standards and to mirror the way military services address EMS warfare – holistic mission planning and execution. The company's approach inherently enables what it refers to as a rapid prototyping paradigm – embedding a commercial mentality into the defense industry. Products are designed from the outset for modern, AI-driven autonomy and CMOSS and SOSA-aligned hardware and software solutions. This includes state-of-the-art processing that can readily follow the evolution of commercial technology with complete data sharing across networks and platforms.

Headquartered in El Segundo, California, Pacific Defense takes an organic, commercial-minded approach to military-use electromagnetic spectrum technologies, and solutions. Focus areas include autonomous systems, command and control, communications, cyber operations, intelligence collection, and electronic warfare. Spectranetix, Perceptronics, and Spear Research are part of the Pacific Defense family, specializing in highly-advanced RF spectrum technologies, and engineering with innovative AI-backed algorithms.

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