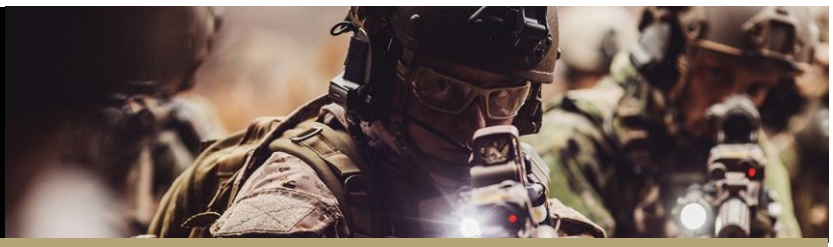
ENERCON TECHNOLOGIES LTD | Networking Products



MILTECH™ 680G3UVPX TSN – SOSA™ ALIGNED

Military Grade 6 x 100G Ethernet Data Plane + 8 x 10G Ethernet Control Plane, Managed L2/L3 3U VPX Ethernet Switch With Advanced TSN Features

In the past decade, technological progress has witnessed remarkable advancements with the introduction of many high performance VPX platforms for a variety of airborne and vehicular applications. The growing demand for higher bandwidth and tighter synchronization led to a requirements of high bandwidth advanced Networking Modules with support in advanced Time Sensitive Networking (TSN) protocols.

A defining capability of the 680G3UVPX TSN is its advanced timing and TSN infrastructure. The switch supports deterministic networking through 1PPS and 10 MHz timing signals available on both the front panel and VPX backplane, complemented by full TSN functionality, Sync-E, and PTP hardware timestamping. These interfaces enable precise timing distribution essential for modern mission systems.

The module supports also FPGA based advanced features such as: NED, secure boot, PBIT/CBIT/IBIT, and zeroization. In line with the SOSA technical standard, module monitoring and management is supported via IPMI Tier III.

The module was designed for harsh environment, designed to meet MIL-STD-461E, MIL-STD-810F/G, when installed in an appropriate chassis.

SPECIFICATIONS

ETHERNET AND MANAGEMENT PORTS:	Slot Profiles (per SOSA™): 1. SLT3-SWH-6F1U7U - 14.4.14 (Module PNs: 1-680G3UVPX-000/1-680G3UVPX-001) 2. SLT3-SWH-6F8U – 14.4.15 (Module PNs: 1-680G3UVPX-010/1-680G3UVPX-011) Backplane Ports: • 6 x 40G/100G-KR4 Data Plane Switch ports, including auto port split feature • 7 or 8 x 10G-KR Control Plane Switch ports • 1 x 1000Base-T Control Plane Switch with Sync-E capabilities (only in: SLT3-SWH-6F8U) • IPMI A/B (Tier I, II and III) and LVCMOS/RS232 Data and Control Switches CLI ports • 1PPS and EXT_CLK I/O signal options (P0 connector, firmware configurable) Front panel Ports: • 1 x 40G F/O (Multi-Mode) Data Plane Switch Port, MPO connector • 1 x 1000Base-T Data Plane Port management port, HARTING IX P/N 09451812560 • 1 x 1000Base-T Control Plane Port with Sync-E capabilities, HARTING IX P/N 09451812560 • 1 x USB Type-C for Data Plane Switch, Control Plane Switch, and Control FPGA CLI • 1 x SMA (50ohm) for 1PPS I/O signal (Input compatible with ICD-GPS-060) • 1 x SMA (50ohm) for 10MHz I/O clock, TTL/LVCMOS
TIMING AND SYNCHRONIZATION:	• Backplane I/O: 1PPS and 10MHz signaling - MLVDS (selectable by firmware) • Front panel I/O: 1PPS and 10MHz signaling (selectable by firmware), 2 x 50ohm SMAs • IEEE-STD-1588v2, sub-nanosecond-accurate for one-step and two-step timestamping • Hardware processing and PTP frame generation • Sync-E • NTP

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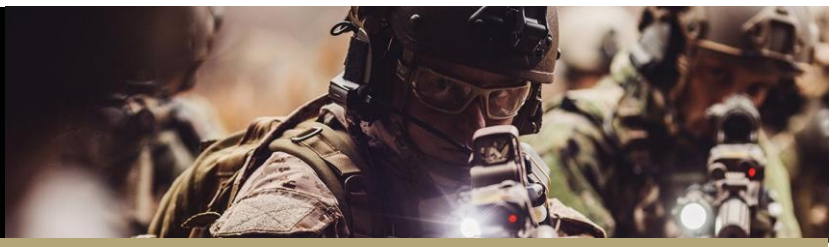

SPECIFICATIONS

TSN PROTOCOLS:	• IEEE 802.1AS – gPTP – as Master-clock, Boundary-clock, and Transparent-clock • IEEE 802.1Qbu - enhancements to the forwarding frame preemption • IEEE 802.3br - allows the transmission of express traffic • IEEE 802.1Qci - Forwarding and Queuing Enhancements • IEEE 802.1Qbv - enhancements for scheduled traffic • IEEE 802.1Qch - synchronized cyclic enqueuing and queue draining procedures
NETWORKING:	• Spanning Tree (802.1d), RSTP (802.1w) and multiple Spanning Tree (802.1S) for fast recovery rings • Security via Radius Authentication 802.1x, Port Security, Port Mirroring • Multicasting (IGMP Snooping), GARP, GMRP, and GVRP Broadcasting and flooding Control up to 8K Groups • 802.1q Tagged based VLAN up to 4K VLAN groups • QoS Multi-Layer Classifier, 802.1p, ToS/DSCP traffic classification. WFQ, Strict Queuing • Bridge support for Q-in-Q • Full L3: VRRP, OSPF V3, PIM, RIP V1/V2, ECMP • Link Aggregation 802.3AD • WEB, CLI, Telnet Management
SPECIAL FEATURES:	• Quick boot time with enhanced Built-in-Test (PBIT, IBIT, CBIT) • Secure Boot via FPGA • NED (Nuclear Event Detection) – module immediate power off upon dedicated P0 signal assertion • IPMI SOSA™ Aligned per VITA 46.11 tier I, II and III • Data Switch and Control Switch CLI - LVCMOS/RS232 via backplane or Front Panel (USB Type-C, active when connected)
STANDARDS COMPLIANCE:	• Fully VITA 65 and SOSA™ Aligned • VITA 46.11 - Tier I, II and III • IEEE 802.1AS • IEEE 802.1x MAC based Authentication • IEEE 802.1Q VLAN Tagging • IEEE 802.1P QoS • IEEE 802.1S Multiple STP • IEEE 802.1W Rapid STP • IEEE 802.1AD Link Aggregation • IEEE 802.1X
EMC/ENVIRONMENTAL	• MIL-STD-461E, MIL-STD-810F/G, when installed in an appropriate chassis
POWER:	• Voltage Input: 12VDC (Backplane) + 3.3VDC secondary supply per SOSA™ guidelines • Power Consumption: Typical 90W • Front Panel LED indications: Power, Status, Front pane ports link/activity
PHYSICAL:	• 3U VPX Form Factor, 1” pitch. Weight: 380gr (TBD) • Two level maintenance (2LM) covers
COOLING:	• No Moving Parts, Conduction Cooling
OPERATING TEMP:	• -40°C to +85°C (-40°F to +185°F) Cold Start-Up
STORAGE TEMP:	• -40°C to +85°C (-40°F to +185°F)

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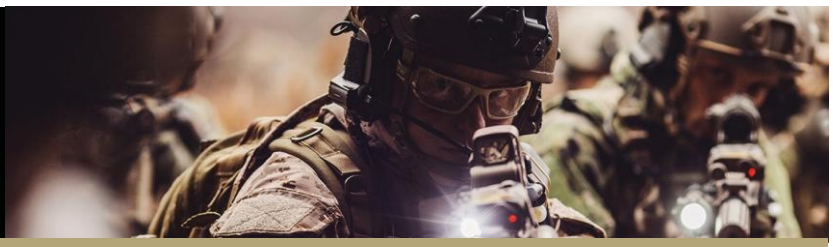

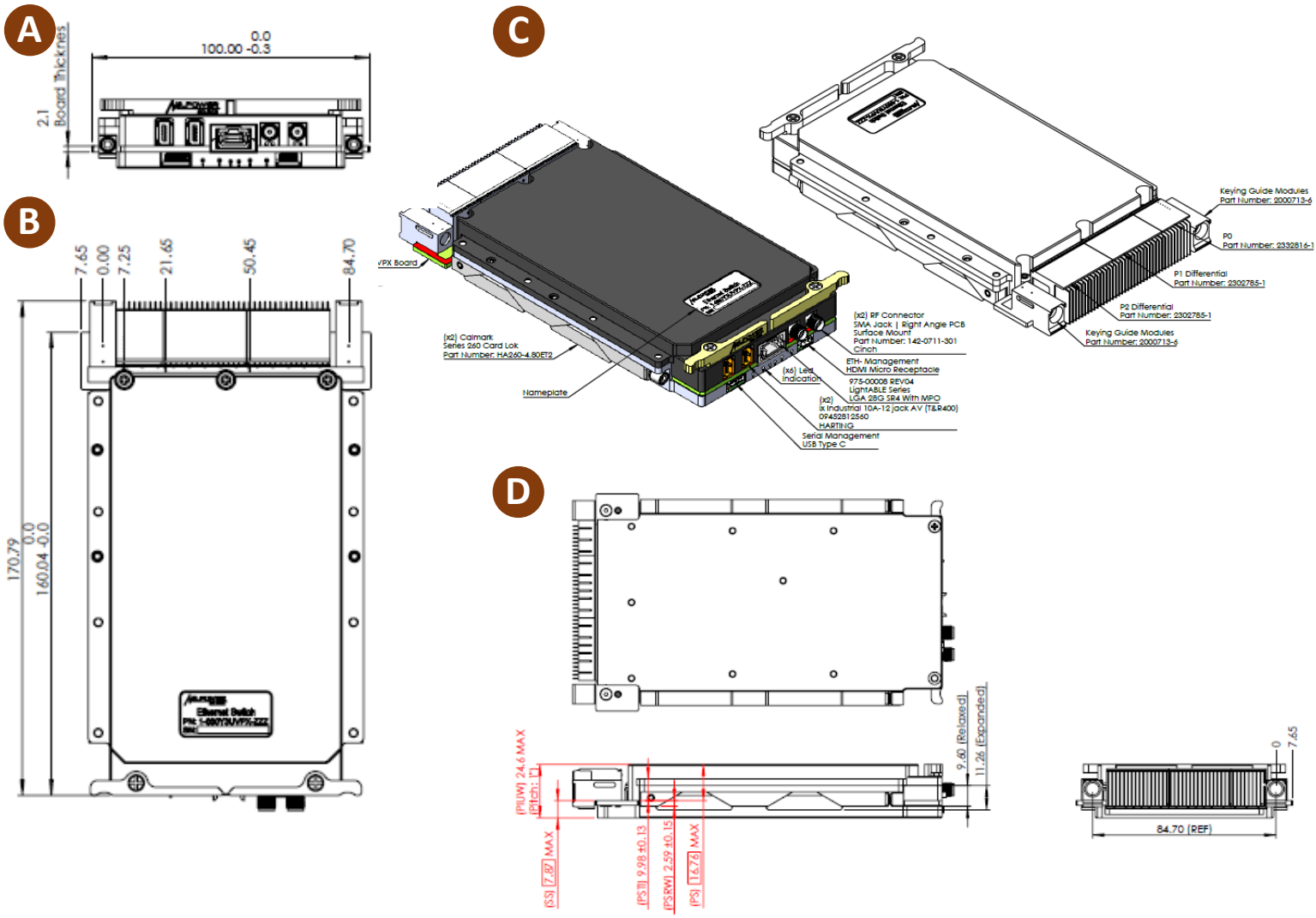

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
1-680G3UVPX-000	3U VPX Full TSN Dual Ethernet Switch Module, SLT3-SWH-6F1U7U–14.4.14 (6x100G-KR4 + 7x10G-KR), RS232 Mng.
1-680G3UVPX-001	3U VPX Full TSN Dual Ethernet Switch Module, SLT3-SWH-6F1U7U–14.4.14 (6x100G-KR4 + 7x10G-KR), LVCMOS Mng.
1-680G3UVPX-010	3U VPX Full TSN Dual Ethernet Switch Module, SLT3-SWH-6F8U–14.4.15 (6x100G-KR4 + 8x10G-KR +1000Base-T), RS232 Mng.
1-680G3UVPX-011	3U VPX Full TSN Dual Ethernet Switch Module, SLT3-SWH-6F8U–14.4.15 (6x100G-KR4 + 8x10G-KR +1000Base-T), LVCMOS Mng.

• This product series comply with EU REACH, ROHS regulations. Contact the factory for more details.

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