CORE® VPX

Network and Radio Controller

Delivering Global Lightning connectivity, DAMA-IW IBS receive, audio interfaces for voice networking, integrated HAIPE device, secure hosting for Red/Black separation, and modern mission computing in a rugged package

CORE VPX is a modular secure network management solution – MOSA/SOSA compliant – that provides additional security and heterogeneous connectivity for commercial autonomous platforms. This solution allows multiple simultaneous waveforms to operate with secure hosting and High Assurance crypto.

CORE VPX is a rugged multi-slot 3U OpenVPX chassis that hosts SOSA-aligned Plug-In Cards, configurable with industry leading CPU, GPU, FPGA/MPSoC, AI accelerators, storage, network switching, and IO to meet customer needs. CORE® VPX provides the common, commercial computing baseline used at the core of modern mission systems—Communications, EW/EA, Sensor, High Performance Compute, and tactical displays all leverage a core processor to host hardware, software, and firmware-based applications. Waveforms are hosted in software (CPU/GPU) and software defined (FPGA) radio implementations installed on cards in the chassis.

CORE VPX devices are right-sized compute resources at the edge which provide high performance hardware resources that enable Network Function Virtualization—using dynamic software packaged in containers and VMs which implement scalable, micro-segmented, and high throughput network functions like Ethernet switching, IP routing, cyber/network defense, layer 4-7 proxying, load balancing, VPN concentration, and application/service hosting.

CORE VPX solutions support rapid configurations and technology upgrades, speeding time to capability. With its multiple interface options, the CORE architecture addresses a platform's networking and cybersecurity needs—and can host additional software-defined radios quickly and affordably.

CORE® VPX flexibly, powerfully, and securely extends operational communications and networking capability for enhanced mission execution

Flexible
> Configurable slot profiles, Plug-In Cards, and front panel IO
> SOSA-aligned backplane and flexible IO routing to front panel
> Support modern containerized application deployment
> Provides adaptable Ethernet switching and routing capacity
> Enables network and application micro-segmentation
> Configurable with AI accelerator devices

Powerful
> Industry leading CPU, GPU, and FPGA horsepower
> Up to 100G Fabric Ethernet to enable data center applications

Accessible
> T3 network management software delivers cross-node visibility into enterprise-wide system configuration and metrics, for local and remote monitoring or modification
> ADSI® TDL Gateway with C2 certification for integrating sensors and TDLs
> Supports concurrent networks

Secure
> Made in the USA
> Multiple encryption layers, including robust data at rest encryption (DAR)
> Zero Trust Architecture compliance. Modern firewall supports deep packet inspection up to layer 7 of the OSI stack

Proven
> Built upon proven system components providing advanced communications and network optimization, cybersecurity, data encryption, and intuitive network management services
> Designed to MIL-STD-810H environmental, MIL-STD-461G electromagnetic
> Optimized for austere environments

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CORE VPX Specifications

Physical

Size	L-11.67" X H-7.97" X W-5.28"
Weight	22-39 lbs (depending on configuration)

Form Factor

- 5-slot 3U OpenVPX/SOSA-aligned chassis, hosts multiple enclaves
- Convection over Conduction cooling

Power

- Integrated SOSA power supply with electromagnetic interference (EMI) filtering

Environmental (design to MIL-STD 810)

- **Shock:** Per MIL-STD 810H
- **Vibration:** Per MIL-STD 810H
- **Electric Power:** Per MIL-STD 704
- **Electromagnetic Compatibility:** Per MIL-STD 461G

Configuration

- Supports multi-domain (ciphertext), NSA-secure architecture
- Integrated HAIPE (3U OpenVPX)
- Integrated ENTR v4 UHF Receiver with front panel RF connector for antenna
- Integrated Global Lightning Transceiver/Modem/Processor solution with Ethernet and RF interface to external antenna/aperture, capable of PLEO transmit/receive network participation (NGSO BLOS)
- Versatile analog and digital audio/voice interface support for integration with host platform and crew positions
- Front panel KEY FILL ports adaptable for integrated CCI PICs with ECUs
- A-PNT capable, support PNT PICs, PTP/NTP Ethernet, and 1PPS IO

Operational I/O

- Flexible front panel IO for BASE-T and BASE-SR/SR4 Ethernet
- Flexible front panel IO for serial, console, maintenance, security functions

SDN Components

OS: Red Hat Enterprise Linux running kernel-based virtual machines, PODMAN containers, and/or Docker containers, rancher/k3s/kubernetes supported

Processors: SOSA IO Intensive and Compute Intensive 3U OpenVPX form factor allowing for customization

RAM: 32-64GB per IO/compute PIC

Storage: 1-2 TB NVMe per IO/compute PIC

Routing: IPv4/6, OSPF-MANET, PIM-SM multicast, DiffServ QoS, supports heterogeneous networking

Addressing: Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS), Network Address Translation (NAT), 802.1Q VLAN, Ethernet Virtual Connection (EVC), and VXLAN

VPN: IPsec VPN, Dynamic Multipoint VPN (DMVPN), Easy VPN, SSL VPN, and FlexVPN

MPLS: MPLS VPN, virtual routing/forwarding (VRF), and Bidirectional Forwarding Detection (BFD)

Security: Embedded HAIPE PIC (Security Module); FIPS-140-2/3 compliant; CSfC “Two-Site Gateway” package candidate

Waveforms

- GL + PTW BLoS (PLEO SHF)
- IBS UHF DAMA-IW receive
- Supports 3U modems
- Integrates with legacy federated solutions

Other SDN Components

- Support for boundary defense protection system and deep packet inspection (e.g., Cisco ASA or Palo Alto)
- WAN optimization and acceleration (e.g., Riverbed VCX)
- Native Linux bridging for VLAN tagging, isolation, trunking, and separation of system management plane from data plane

Specifications are subject to change without notice

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