# 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 that provide high performance hardware resources to enable Network Function Virtualization. The devices use dynamic software packaged in containers and VMs that 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

> Aligned to emerging Government Reference Architectures (GRA)
> Configurable slot profiles, Plug-In Cards, and front panel IO
> SOSA-aligned backplane and flexible IO routing to front panel
> Supports 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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