CORE 5

Multi-Function Network Controller

Resilient, secure data sharing over a heterogeneous mesh of SATCOM, line-of-sight, and tactical data links with embedded gateway

CORE 5
Patent No. 10,177,914

CORE 5® is a compact, powerful, and rugged advanced network management solution—running open architecture—that reliably connects airborne, surface, ground, and undersea vehicles with each other, with command centers, and with intel nodes across secure and unclassified networks.

CORE is the premier Fuse hardware solution for reliable and secure warfighter communications and networking—across domains and manned/unmanned platforms—in even the most rugged environments. The patented minimized size, weight, and power (SWaP) solution offers unmatched flexibility for system hardware and software and is optimized to host our tactical edge networking (TEN) architecture and software.

CORE 5 is small, streamlined, and powerful. The minimized SWaP CORE 5 features a server-class processer for high-compute capability, powerful enough to maintain the high-speed computing and bandwidth required for today's demanding communications needs. Two fully independent security domains support classified and unclassified enclaves, all within one unit.

Unlike typical hardware-based networking systems, our software-based CORE solution supports 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 applications quickly and affordably.

CORE 5 flexibly, powerfully, and securely extends operational communications and networking capability for enhanced mission execution and is made in the USA.

CORE 5 delivers unmatched benefits to system integrators and network managers.

SWaP
> Minimized footprint smaller than standard 3u VPX chassis
> Replaces bulky and obsolete routers

Flexible
> Virtualized environments with separation of key components to enable flexible adaptation to changing needs without costly changes to hardware or footprint
> Vendor agnostic network infrastructure components
> Configurable network paradigm, for future CONOPS
> Compatible with legacy and modern platforms and systems
> MOSA/SOSA aligned

Powerful
> CORE units can interconnect to form a powerful system of multiple enclaves

Accessible
> T3 network management software delivers cross-node visibility into enterprise-wide system configuration and metrics, for local and remote monitoring or modification

Secure
> Multiple encryption layers, including robust data at rest encryption (DAR)
> Powerful NSA-certified encryption inside CORE keeps your computing environment secure (Type I to commercial)
> Zero Trust Architecture compliance. Modern firewall supports deep packet inspection up to layer 7 of the OSI stack
> National Cyber Range tested
> Made in the USA

Proven
> Built upon proven system components providing advanced communications and network optimization, cybersecurity, data encryption, and intuitive network management services
> Designed to MIL-STD-810 environmental, MIL-STD-461 electromagnetic, and MIL-STD-704 power requirements for aircraft and mobile installation
> Patented technology. Two independent security domains within a single chassis

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CORE 5 Specifications

Physical

Size (L x W x H)	9.555 x 5.000 x 7.602 in
Weight	12 lbs with GD KG-175Nano

Power

- 95-W with KG-175N
- Integrated power supply with electromagnetic interference (EMI) filtering

Environmental

- **Temperature:** -40deg C to 71deg C (operational); -40deg C to 71deg C (storage)
- **Humidity:** 95% at 60deg C
- **Altitude:** 50,000 ft (operational)
- **Explosive Atmosphere:** Per MIL-STD-810 Method 511.5
- **Vibration:** Per MIL-STD-810 Method 514.6
- **Shock:** Per MIL-STD-810 Method 516.6: 20 G (operational)
- **Acceleration:** Per MIL-STD-810 Method 513.6: 5.5 G (operational)
- **Sand/Dust:** Per MIL-STD-810 Method 510.5 Blowing Sand
- **Salt Fog:** Per MIL-STD-810 Method 509.5

Configuration

- Supports multi-domain (ciphertext), NSA-secure architecture
- Two fully independent security domains
- Intel Core i7-13800HRE Processor
- 1 TB NVMe onboard
- 64 GB RAM onboard

Operational I/O

- Seven 1GB Ethernet ports per enclave
- One USB 3.0 interface per endave
- One RS-232, one RS-422 interface per endave
- 4 GPIO (2 in, 2 out) interfaces per endave

Management I/O

- One USB 3.0 interface per endave
- One mini display port per endave
- One 1GB Ethernet port per enclave

SDN Components

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

Processor: Intel Core i7-13800HRE Processor

RAM: 64 GB RAM onboard

SDD: 1 TB NVMe onboard

Routing: Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), policy-based routing, IPv6, Virtual Route Forwarding–Lite (VRF-Lite), multicast, LISP, and Generic Routing Encapsulation (GRE)

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: Cisco IOS Zone-Based Policy Firewall, access control list (ACL), RADIUS, TACACS+, and authentication, authorization, and accounting (AAA)

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

Compliance

- TEMPEST-compliant NSTISSAM 1/92 Level I design
- MIL-STD-810, MIL-STD-461, MIL-STD-464, MIL-STD-704

Optional Capabilities for CORE 5

Fuse Network Provisioner

A software utility that ingests a platform's mission computer configuration information and dynamically reformats it into a device- and vendor-agnostic data scheme before reformatting to the formats appropriate to each module in the network stack. With the innovative Fuse Network Provisioner, even advanced network configurations are faster, easier, and more secure than having to pre-configure each device for every platform.

- **Hardware is vendor-agnostic.** Works with Cisco, Juniper, Palo Alto, FRR routers and any others
- **Universal.** Works with legacy and modern mission computers
- **Multi-layer support.** Extends templates beyond routers to firewalls, radios, and application layers
- **Common language.** Uses one ontology for all network components, simplifying links between the network components to support transparency and troubleshooting

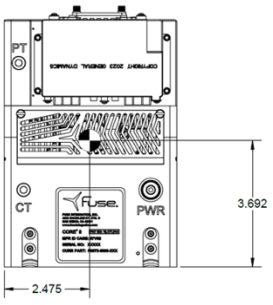
Embedded Firewall

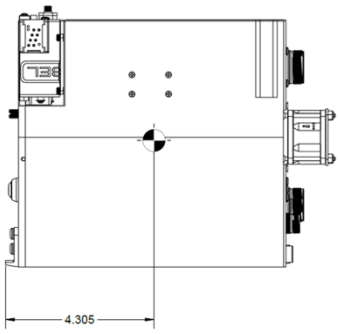
Optional embedded firewall provides extra security for communications.

Expansion interfaces

CORE 4 PT enclave has an XMC expansion slot and a mPCIe expansion slot to support additional capabilities including:

- MIL-STD-155B
- STANAG 7221
- AI/ML Processor (Wolf GPU)
- Software Defined Radio
- FPGA expansion





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