

CORE[®]

This patented rugged minimized SWaP[†] network management solution is built upon proven system components providing advanced communications and network optimization, cybersecurity, data encryption, and intuitive network management services in a package as small as a ¼ ATR[‡] form factor.



CORE 3.1

CORE 4.0



CORE was designed and engineered to provide maximum flexibility and security. CORE integrates virtual software defined network components compatible

with multi-domain ciphertext core networks and NSA-certified HAPE encryptors into a rugged package suitable for manned and unmanned platforms. CORE's flexible architecture utilizes removable single board computers capable of rapid technology upgrades and multiple interface options to provide a unique solution to host a platform's networking and cybersecurity needs while providing the capability to host additional user defined applications for mission execution. Combined, these features allow for the rapid reconfiguration of the system without the added cost and time to procure new hardware components. CORE is significantly smaller than currently deployed enterprise networking solutions, but maintains the high-speed computing and bandwidth required for today's demanding communications and application needs.



Removable, ruggedized single board computer (SBC).

CORE host a powerful Decoupled System Manager (DSM) application that provides local or remote visibility of system and network performance across multiple distributed nodes with an easy to use graphical interface. Using bandwidth efficient protocols, DSM can communicate key status information to remote operation sites for increased situational awareness across multiple users.


Contact

For more information about CORE or Fuse, please refer to the following points of contact:

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CAPABILITIES

-  Advanced, enterprise-level routing.
-  Tested to MIL-STD-810G environmental, MIL-STD-461G electromagnetic, and MIL-STD-704F power requirements for aircraft and mobile installation.
-  Powerful NSA-certified encryption inside CORE keeps your computing environment secure (Type I or Suite B).
-  Optional embedded firewall provides extra security for communications.
-  Minimized footprint as small as 1/4 ATR size.
-  Cross-node visibility into enterprise-wide system configuration and metrics through distributed, decoupled network management software.
-  Multiple CORE units can interconnect to form a powerful system of multiple enclaves.
-  Virtualized environments with separation of key components to enable flexible adaptation of the system as a whole. Virtualized subsystems allow CORE to adapt to changing needs without costly changes to hardware or footprint.
-  CORE is made in the USA. (A secure supply chain is important to Fuse.)

[†] Size, weight, and power (SWaP).

Patent No. 10,177,914

[‡] Air transport rack (ATR).

CORE® 3.1 Specifications

Physical

Size (L x W x H):	15.98 x 2.25 x 7.625 in
Weight:	9 lbs with Viasat KG-250XS

Power

- 68-W max power with Viasat KG-250XS
- Integrated power supply with electromagnetic interference (EMI) filtering
- MIL-STD-704 28-VDC input voltage support
- MIL-STD-461 EMI filtering
- Integrated 50-millisecond hold-up time
- Optional 115-VAC internal power supply
- Lower power option available with Intel Atom processor

Environmental

Temperature:	-40°C to 55°C (operational), -40°C to 71°C (storage)
Humidity:	95% at 60°C
Altitude:	50,000 ft (operational)
Explosive Atmosphere:	Per MIL-STD-810G Method 511.5
Vibration:	Per MIL-STD-810G Method 514.6
Shock:	Per MIL-STD-810G Method 516.6: 20 G (operational)
Acceleration:	Per MIL-STD-810G Method 513.6: 5.5 G (operational)
Sand/Dust:	Per MIL-STD-810G Method 510.5 Blowing Sand
Salt Fog:	Per MIL-STD-810G Method 509.5

Configuration Options

- Supports multi-domain (ciphertext), NSA-secure architecture
- Two fully independent security domains each with ruggedized, removable SBC
- Intel Core i7 processor (7th or 8th generation)
- Up to 16 GB DDR4 memory
- Up to 1 TB NVMe SSD
- vPro Virtualization Support
- Trusted Platform Module v2.0

Rear Panel I/O

- Six 10/100-T Fast Ethernet ports per enclave
- Two RS-232 serial ports per enclave, one RS-422 port per enclave
- Two LVTTTL GPIO ports per enclave

Front Panel I/O

- One 10/100-T Fast Ethernet maintenance port per enclave

SDN Components

OS:	Red Hat Enterprise Linux running kernel-based virtual machines
Processor:	Intel Core i7 (7th or 8th generation)
RAM:	Up to 16 GB DDR4
HDD:	1 TB NVMe SSD
Routing:	Border Gateway Protocol, Open Shortest Path First, Enhanced Interior Gateway Routing Protocol, policy-based routing, IPv6, virtual routing/forwarding-lite, multicast, Lisp, and Generic Routing Encapsulation
Addressing:	Dynamic Host Configuration Protocol, Domain Name System, Network Address Translation, 802.1Q VLAN, Ethernet Virtual Connection, and VXLAN
VPN:	IPsec VPN, Dynamic Multipoint VPN, Easy VPN, SSL VPN, and FlexVPN
MPLS:	MPLS VPN, virtual routing/forwarding, and Bidirectional Forwarding Detection
Security:	Cisco IOS Zone-Based Policy Firewall, access control list, RADIUS, TACACS+, and authentication, authorization, and accounting

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)
- Open vSwitch Layer 2/3 virtual switch for VLAN tagging, isolation, trunking, and separation of system management plane from data plane

Compliance

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

CORE® 4.0 / CORE® ER Specifications

Physical

Size (L x W x H):	16.875 x 3.925 x 7.625 in
Weight:	14.5 lbs (4.0) or 15.3 lbs (ER) with Viasat KG-250X

Power

- 88-W (4.0) or 110-W (ER) max power with Viasat KG-250X
- Integrated power supply with electromagnetic interference (EMI) filtering
- MIL-STD-704 28-VDC input voltage support
- MIL-STD-461 EMI filtering
- Integrated 50-millisecond hold-up time

Environmental

Temperature:	-40°C to 55°C (operational), -40°C to 71°C (storage)
Humidity:	95% at 60°C
Altitude:	50,000 ft (operational)
Explosive Atmosphere:	Per MIL-STD-810G Method 511.5
Vibration:	Per MIL-STD-810G Method 514.6
Shock:	Per MIL-STD-810G Method 516.6: 20 G (operational)
Acceleration:	Per MIL-STD-810G Method 513.6: 5.5 G (operational)
Sand/Dust:	Per MIL-STD-810G Method 510.5 Blowing Sand
Salt Fog:	Per MIL-STD-810G Method 509.5

Configuration Options

- Supports multi-domain (ciphertext), NSA-secure architecture
- Two fully independent security domains: PT (2 SBCs) and CT (1 SBC)
- Intel Core i7 processor (7th or 8th generation)
- Up to 16 GB DDR4 memory
- Up to 1 TB NVMe SSD
- vPro Virtualization Support
- Trusted Platform Module v2.0

Rear Panel I/O

- Ten 1-GB Ethernet ports per enclave
- One RS-232 serial ports per enclave, one RS-422 port per enclave
- Six LVTTTL GPIO ports per enclave
- Dual redundant MIL-STD-1553B bus in PT enclave (ER only)

Front Panel I/O

- One 10/100-T Fast Ethernet per SBC on one maintenance port per enclave

SDN Components

OS:	Red Hat Enterprise Linux running kernel-based virtual machines
Processor:	Intel Core i7 (7th or 8th generation)
RAM:	Up to 16 GB DDR4
HDD:	1 TB NVMe SSD
Routing:	Border Gateway Protocol, Open Shortest Path First, Enhanced Interior Gateway Routing Protocol, policy-based routing, IPv6, virtual routing/forwarding-lite, multicast, Lisp, and Generic Routing Encapsulation
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- WAN optimization and acceleration (e.g. Riverbed VCX)
- Open vSwitch Layer 2/3 virtual switch for VLAN tagging, isolation, trunking, and separation of system management plane from data plane

Compliance

- TEMPEST-compliant NSTISSAM 1/92 Level I
- MIL-STD-810G, MIL-STD-461G, MIL-STD-464C, MIL-STD-704F, MIL-STD-1553B (ER only), STANAG 7221 (ER only)