



OpenEdge™

Software-Enabled Satellite Terminals for More Power and Flexibility at the Network Edge

Software-defined satellites, multi-orbit constellations and other new technologies in space are driving the digital transformation of satellite ground systems. To keep pace with these changes and provide enhanced performance, satellite ground networks must embrace a software-defined approach across the system, from the gateway to the remote satellite terminals, also known as the network edge.

Today's analog remote satellite terminals are composed of dedicated hardware that can't offer the performance and flexibility required to meet the demands of dynamic space.

OpenEdge, part of the OpenSpace Platform, takes software-enabled operations to the edge of the network to provide the increased processing power, faster response times, and improved customer experience that users demand. The goal? To help satellite operators make their services as mainstream as cellular communications and to capitalize on new services such as 5G.

More Power and Flexibility for Your Customers

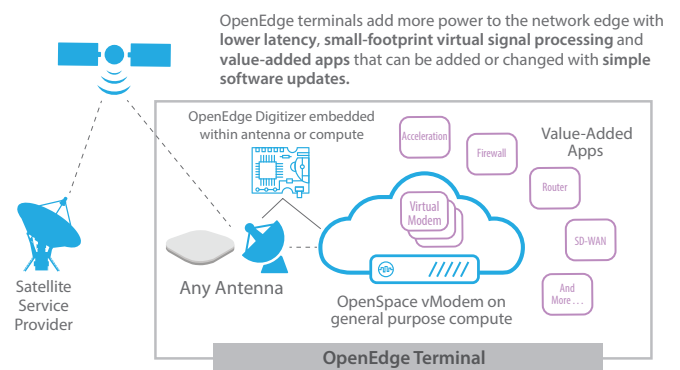
OpenEdge is the first software-enabled satellite terminal that brings virtual signal processing and other applications closer to the end user for faster, more flexible and powerful service delivery at the network edge. OpenEdge utilizes digitization and virtualization to provide many advantages over analog remote satellite terminals, including:

- Support for Multiple Missions
- Standards-Based Operating Environment
- Reduced Hardware Footprint
- Orchestrated Operations

Deliver the Speed and Response Time Your Customers Want

OpenEdge's open, standards-based operating environment provides the benefits of virtualization. For satellite networks, it means that if modems or other

At the Edge of the Dynamic SATCOM Network



network functions that previously existed as dedicated hardware need to be installed, replaced or updated, it happens with a simple software update over the air. When networks can have hundreds of satellite terminals existing in remote places worldwide, zero-touch provisioning and maintenance reduce site visits for substantial cost savings.

Because services can be added, changed and updated in real time, revenue streams are accelerated and the end user experience is maximized.

Load Value-Added Software Applications

Since OpenEdge satellite terminals leverage general purpose compute, signal processing can happen alongside value-added third-party software applications that would have previously been additional hardware mounted alongside the modem in the terminal stack. Some examples of these applications include:

- Network acceleration for improved performance
- SD-WAN/SASE for the delivery of efficient, agile connections
- Firewalls for enhanced security
- Routers for orchestrated connection sharing
- And More . . .

Seamless Integration into Other Networks

OpenEdge utilizes Carrier Ethernet interoperability standards enabling, OpenEdge terminals to work side-by-side with standards compliant devices from other companies. Because of this, it is much easier for network operators to integrate spaced-based services into the global communications grid to capture new markets and revenue.

Choose the Configuration for Your Unique Business Needs

An OpenEdge terminal includes a digitizer, one or more virtual modems, general purpose compute and any fixed or mobile antenna. The hardware components

are assembled based on unique business and customer needs, which includes the placement of the integrated digitizer – either in the antenna or in the general-purpose compute. OpenEdge offers these different configurations to support smallSat, enterprise, and military applications.

The general purpose compute runs as Universal Customer Premise Equipment (uCPE) that is customizable based on performance, size, weight and power (SWaP) requirements. uCPEs provide open, disaggregated networking that does not require any specialized hardware such as Field Programmable Gate Arrays (FPGAs) or Graphics Processing Units (GPUs).

Technical Specifications

OpenEdge 2500 Integration-Ready Digitizer

OpenEdge 2500 is an integration-ready digitizer designed to enable digital antennas or OpenEdge software-enabled terminals on the OpenSpace Platform.

Digitizer Interfaces

Tx Interface <ul style="list-style-type: none"> Connector: 2 x SMA, 50Ω Frequency: 950 - 2450 MHz Output Range: -40 dBm to +5 dBm BUC Power Supply: +24V, 2A* BUC Reference: 10 MHz or 50 MHz 	Rx Interface <ul style="list-style-type: none"> Connector: 2 x SMA, 50Ω Frequency: 950 - 2450 MHz Input Range: -60 dBm to -10 dBm LNB Power Supply: 13 VDC or 18 VDC LNB configurable on/off 22KHz tone
Instantaneous Bandwidth <ul style="list-style-type: none"> 2 Channels x 500MHz IBW Full-Duplex 	Data and Management Interface <ul style="list-style-type: none"> Data Ports: 2 x SFP+ <ul style="list-style-type: none"> - DIFI/IEEE-ISTO Std 4900-2021 or VITA 49 Management Ports: 2 x 1Gige RJ-45
Timing and Frequency Interfaces <ul style="list-style-type: none"> 1PPS and 10 MHz MMCX Interfaces 	

Mechanical and Environmental

- Dimensions: H 3.8 cm x W 7.6 cm x D 25.4 cm (H 0.8 in x W 3 in x D 9 in)
- Operating Temperature Range: -40°C to 60°C

Power Supply

- Input Voltage Range*: 12-48VDC
- Power Consumption: <40 Watts

OpenEdge 2500 Remote

OpenEdge 2500 Remote is a uCPE with integrated digitizer built for OpenEdge satellite terminals on the OpenSpace Platform.

Compute Resources

- Processor: 20 Core/40 vCPU Xeon-D 1700
- RAM: 128 GB of DDR4
- Storage: NVMe 256 GB SSD

Compute Interfaces

Data Interfaces <ul style="list-style-type: none"> 2 x 10 GbE RJ-45s 2 x 1 GbE RJ-45s 1 x IPMI RJ-45 	Peripheral Interfaces <ul style="list-style-type: none"> 1 x VGA 2 x USBs
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Software and Operating System

- SLE Micro 5.2
- K3s Kubernetes
- OpenSpace vModem

Remote RF Interfaces

Tx Interface <ul style="list-style-type: none"> Connector: 2 x SMA, 50Ω Frequency: 950 - 2450 MHz Output Range: -40 dBm to +5 dBm BUC Power Supply: +24V, 2A* BUC Reference: 10 MHz or 50 MHz 	Rx Interface <ul style="list-style-type: none"> Connector: 2 x SMA, 50Ω Frequency: 950 - 2450 MHz Input Range: -60 dBm to -10 dBm LNB Power Supply: 13 VDC or 18 VDC LNB configurable on/off 22KHz tone
Instantaneous Bandwidth <ul style="list-style-type: none"> 2 Channels x 500MHz IBW Full Duplex 	Data and Management Interface <ul style="list-style-type: none"> Data Ports: 2 x SFP+ <ul style="list-style-type: none"> - DIFI/IEEE-ISTO Std 4900-2021 or VITA 49 Management Ports: 2 x 1Gige RJ-45

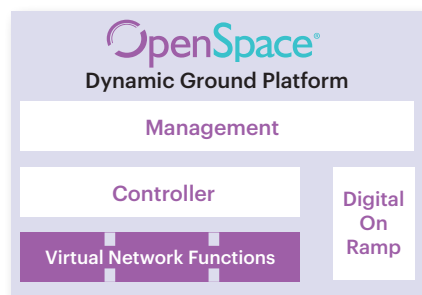
Timing and Frequency Interfaces

- 1PPS and 10 MHz MMCX Interfaces

Mechanical and Environmental

- Operating Temperature 0°C ~ 40°C
- Dimensions 19" rack-mount, 1U (1.75") x 15.7" depth
- Weight ~18 lbs (8.16 kg)

*This specification is subject to change.



OpenSpace is the industry's first and only fully virtualized, software-defined and orchestrated satellite ground system platform. The OpenSpace platform includes OpenEdge solutions with OpenSpace vModems for signal processing across a range of applications at the remote satellite terminal. The OpenSpace Controller administers how service chains are deployed, and OpenSpace OpsCenter provides unified management across the entire satellite ground system.



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