# ATSC Rocket™

**Linux® Based, Cost Effective, Ultra High Speed IP to ATSC Multiprotocol Encapsulator for Seamless Delivery of IP or Private Data and Video Over Terrestrial Broadcast Transmission in USA, Canada, and Korea – Complies with MPE 301-192. Other ATSC Encapsulation Standards Forthcoming.**


## Features

- *Unlimited* number of remote IP addresses (clients), depending on server memory
- Inputs: GigE and SMPTE 310M
- Output: SMPTE 310M
- Linux® based architecture for 24/7 operation
- Implements Unicast, Multicast, and QoS routing
- Fully complies with all IEC standards for multiprotocol DVB encapsulation
- Typical forwarding delay is 1/10th of others – latency of 6 milliseconds
- Supports C, Ku, and Ka bands
- Tested with major brands of multiplexers and modulators – Tandberg, Radyne, Harmonic, Newtec, Motorola, EF Data, and Sencore
- Field proven on major satellites and teleports
- Aggregate throughput up to full ASI (213 Mb)
- QoS for guaranteed services
- Easy to use remote monitoring and control via secure shell access and web interface
- Low jitter
- Supports opportunistic data insertion (SMPTE 325M)
- Used currently in DVB-S/S-2, DVB-T/T2, and DVB-C environments – DVB-C2 coming soon
- Optional IP Multicast File Delivery Client Software/ Hardware for transmitting to Mobile and Handheld devices – Instacast 4.0

## Applications

- Satellite and Internet Service Providers (ISPs)
- Broadcast networks and stations
- Data service providers
- Large retail organizations
- Financial institutions

atsc Advanced Television Systems Committee

DVB Digital Video Broadcasting

Linux®

## Overview

All television stations now beam ATSC standard based video transport streams all over the country. An encapsulator is a device specifically created to inject IP content or other types of data into ATSC transport streams, which are used frequently in these communications satellites. When used in such a way a single "Rocket" can be dedicated to deliver Internet Services to an unlimited number of users.

The Internet service provided in this way typically exceeds the speed of land based Internet services. In order to select the "Content Pages" the end user of the service communicates with his ISP via a regular phone line. Two types of receivers can be used for reception: set top boxes with IP outputs that are designed to filter out IP packets to an IP port, or PC based solutions with ATSC tuners and PCI interfaces that route the IP traffic to the computer just like a network interface. All Internet browsers can be configured to work in this manner.

The **ATSC Rocket™** is a simple yet elegant design for an encapsulator. It is based on a SuperMicro 1 RU Server along with our proven 3rd generation ATSC Master FD™, running Linux®. It is fully compliant with all international standards that govern multi protocol encapsulation, such as EN 301 192. Not only does the Rocket function as a router where it forwards packets based via easily managed routing tables, but it also acts as a switch whereby it creates virtual connections that remain open until closed.

Our new ATSC Rocket is the first ATSC compliant IPv4 / IPv6 encapsulator available in the market. It is the latest addition to our product family of IP/ATSC encapsulators. ATSC Rocket gives customers the ability to seamlessly integrate IP and other data services over ATSC technology in existing ATSC compliant video broadcast distribution systems. It fully implements ATSC standard for transmitting IP data over ATSC systems and other customized transmission modes.

The ATSC Rocket is based on Linux® operating system software. This makes our encapsulator a very stable but also simple system. Drivers are fully embedded in the OS kernel, thus improving performance.

DVEO Digital Video ExtraOrdinaire™
**Computer Modules, Inc.**
**11409 West Bernardo Court**
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**www.dveo.com**

## Routing Capabilities

ATSC Rocket uses IETF standard routing policies. Static routes are configured for IP-unicast packets (e.g., TCP and UDP user traffic) and for IP multicast (UDP) traffic.

The IP/SMPTE 310M switch completes the routing information with the MPEG-2 transport stream packet identifier (PID) and receiver's Ethernet MAC address information.

## Support for Newer Applications

- **Fast (broadband) mobile Internet access**
  - High-speed Internet delivery to handhelds
  - Combine GSM/GPSR (mobile telephony) with DVB-T/ATSC
- **Embed multimedia services in DTV**
  - Multimedia Home Platform (MHP)
  - Multimedia Car Platform (MCP)
- **Stream IP multicast**
  - MPEG-4 video over IP multicast
  - Deliver content (Webcasting, VOD, Ticker)

The ATSC Rocket can insert IP multicast and unicast in MPE (multi protocol encapsulators), addressable sections, data piping, and object carousels. For example, ATSC Rocket runs with S & T's (www.s-and-t.com) Object Carousel generator/ transmitter.

## Reliability

- Embedded Linux® is a very stable, enterprise oriented environment with very high uptime
- Typical empirical MTBF (mean time between failures): 30,000 hours
- Easy remote login via secure environment for remote maintenance (SSH and web browser)
- Optional dual redundant power supplies and dual channel hot swappable disk drives

## Compatibility & Interoperability

**Tested compatible with most Harris and Axcera transmitters.**

## Compliance

- ATSC Data Encapsulation

## Specifications

**Input & Output Ports**
- Two Fast Ethernet input ports/output ports
- SMPTE 310M in and out

**Virtual Channels**
- Up to 16
- Simultaneous and independent
- Transmission rate can be set to any rate between 2 Kbps and 60 Mbps
- One PID per channel

**Data Piping**
- Sourced from 1 GB port

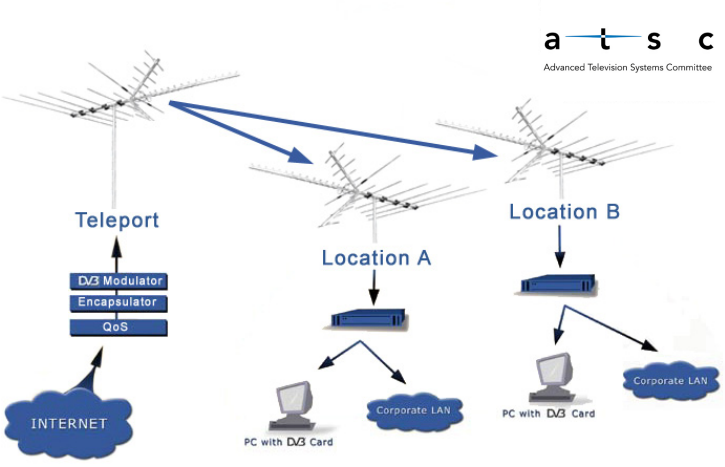
**SI Tables**
- None

**Protocols**
- TCP/IP, Unicast, Multicast

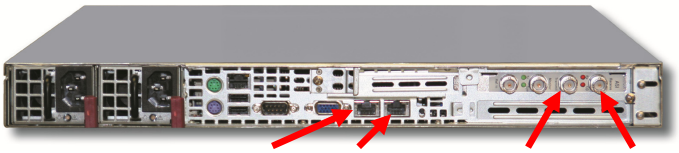
## QoS Function

- Fully implements industry standard QoS for guaranteed levels of service in QoS oriented router environments
- Each route can be assigned as bandwidth limit
- QoS can be turned on or off by management

## Application Diagram



# Inputs/Outputs



**WAN (Either can be Used for IP Input or Output)** **LAN** **SMPTE 310M Out** **SMPTE 310M In**

# Standards Compliance

- Can run in ATSC compliant environments
- Complies with ETR 290
- Fully tested to be compliant using WWG's DTS-A ATSC/DVB protocol analyzer

# Instacast Client/Server Option

**High Speed Scalable Overlay From 256 KBPS to 20 MBPS, Based on DVB Technology – Ideal for Transmitting to Mobile and Handheld Devices**

Instacast provides a turnkey hardware and software solution for connecting multi-continental based LANS and/or users into a seamless single whole LAN via our DVB encapsulators and receivers. Instacast is a satellite overlay solution for terrestrial intranets and Internet connections. It combines a broadband receive-only satellite link with a terrestrial IP network infrastructure.

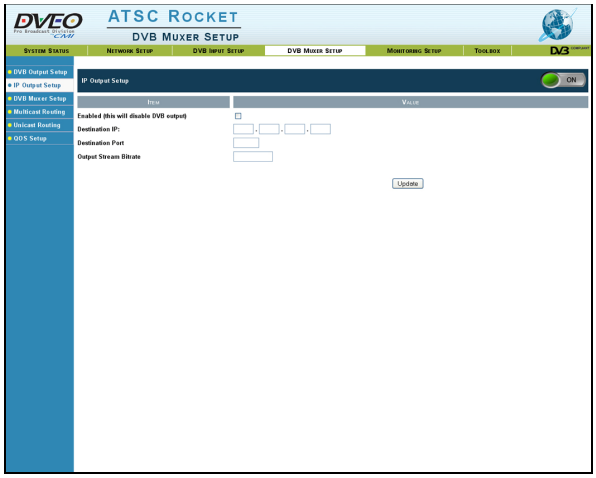
- Implements a platform for delivery of value-added, IP-multicast channels and multimedia, such as live webcasting and real-time news delivery
- Improves performance through higher bandwidth return channel
- Provides an asymmetric overlay that does not disrupt existing network infrastructures

# Ordering Information

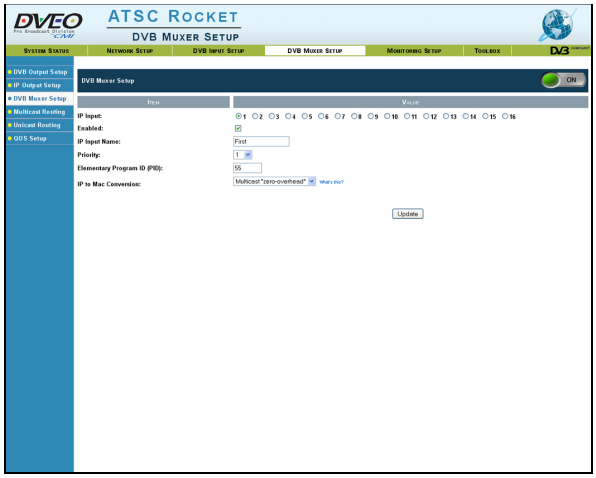
- ATSC Rocket Ultra High Speed IP to DVB Encapsulator
  - Standard ATSC Rocket in 1 RU SuperMicro server, non-redundant box
- ATSC Rocket/HA IP to DVB Encapsulator
  - High-end ATSC Rocket, standard industrial PC (IPC) with:
    - Redundant power supply
    - Hot swappable disk drives
- Instacast 4.0 Client/Server Option



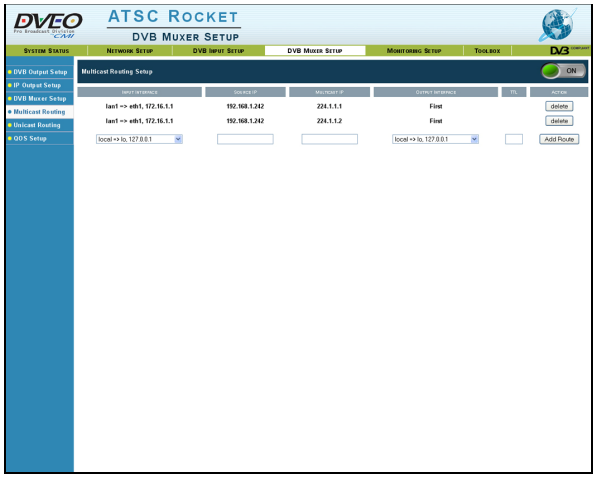
# Sample of GUI's




**IP Output Setup**




**DVB Muxer Setup**




**Multicast Routing –**
**to Add Multicast IP Streams to be Muxed**

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