



# BNPxr

## RGB Broadcast Network Processor

RGB's Broadcast Network Processor (BNP) delivers the industry's highest density digital video processing solution for grooming, statistical multiplexing, transrating, digital program insertion (DPI) and digital overlays. Based on RGB's flexible, scalable and modular platform, the BNP simplifies and expedites deployments of advanced video services, simplifies operation and management, and reduces operational and capital costs.

### Simplified, Grooming, Transrating, Ad Insertion and Digital Overlays

- Based on RGB's Video Intelligence Architecture™ (VIA), the BNP dramatically lowers the cost of delivering advanced services in digital video environments.
- The first high density product capable of concurrent grooming, statistical multiplexing, transrating, splicing, and overlays, delivering simplicity and cost-efficiency.
- Transrates video programs with impressively high video quality.
- Support of multiple ad zones from a single device simplifies operation and management.
- Powerful digital overlay technology allows dynamic incorporation of graphics and text on any program, providing an elegant solution for critical enhanced applications.
- Standards-based control of program substitution enables customized regional program line-ups using external scheduler management.
- Simplified product architecture improves manageability.
- Flexible and scalable platform dramatically reduces product obsolescence, as well as operational and capital costs.

An ideal solution for digital video environments, including digital simulcast, the BNP supports a variety of services and applications including standard definition (SD) and high definition (HD) digital broadcast, switched digital video, zoned and targeted ad insertion, digital overlays, program substitution and local channel insertion. Receiving input through its Gigabit Ethernet or ASI interfaces, this advanced product can statistically multiplex hundreds of SD and HD programs while performing concurrent grooming, digital ad insertion and overlays. The BNP is fully MPEG-2 compliant and interoperable with leading cable industry equipment.

The high density of the BNP simplifies and facilitates the operation and management of centralized DPI systems by enabling operators to manage multiple ad zones from a single, central location. This simplified and centralized management allows operators to expand and customize ad zones resulting in increased operational revenue.

The BNP's digital overlay technology enables the dynamic incorporation of graphics and text on any program providing incremental ad revenue, as well as support for service announcements, logo branding and many other enhanced applications. Offering an all-MPEG, compressed video solution, the BNP is ideal for use by cable operators, broadcasters and programmers, eliminating the need for a secondary decode-encode cycle as required by less efficient video baseband processing equipment.

Furthermore, the BNP's simplified product architecture provides full processing scalability designed to grow with each operator's changing environment. Just as the BNP's high density is an ideal solution in a centralized environment, its scalability offers an equally compelling solution for distributed DPI environments where density requirements may vary.

RGB's Broadcast Network Processor is configurable through an easy-to-use, web-based graphical user interface or through SNMP using standard network management applications.

**High Density Platform Improves Manageability and Generates Significant Savings**

The BNP processes hundreds of SD and HD MPEG programs over its input interfaces, performing grooming, statistical multiplexing, transrating, digital program insertion and overlays on incoming programs and then routing them out through its output interfaces.

The high density video processing offered by the BNP enables operators to build a centralized DPI architecture and manage multiple ad zones from a single, central location, thus simplifying manageability and reducing operational costs. Furthermore, a single BNP, occupying only one rack unit, can replace the equivalent of a full rack of today's equipment performing similar functions. The industry-leading density offered by the BNP translates into ease-of manageability and significant space savings, which in turn reduce capital and operational costs.

**Advanced Transrating and Digital Ad Insertion Improve and Simplify Operations**

Based on RGB's Video Intelligence Architecture (VIA), the BNP transrates and delivers video streams of the highest quality in the industry. VIA enables transrating of more programs into an output multiplex than any existing solution without compromising video

quality. The BNP can transrate hundreds of SD and HD video streams in a single rack unit. It also offers multiple QoS priority levels on any program stream enabling selection of the desired level of priority for transrating.

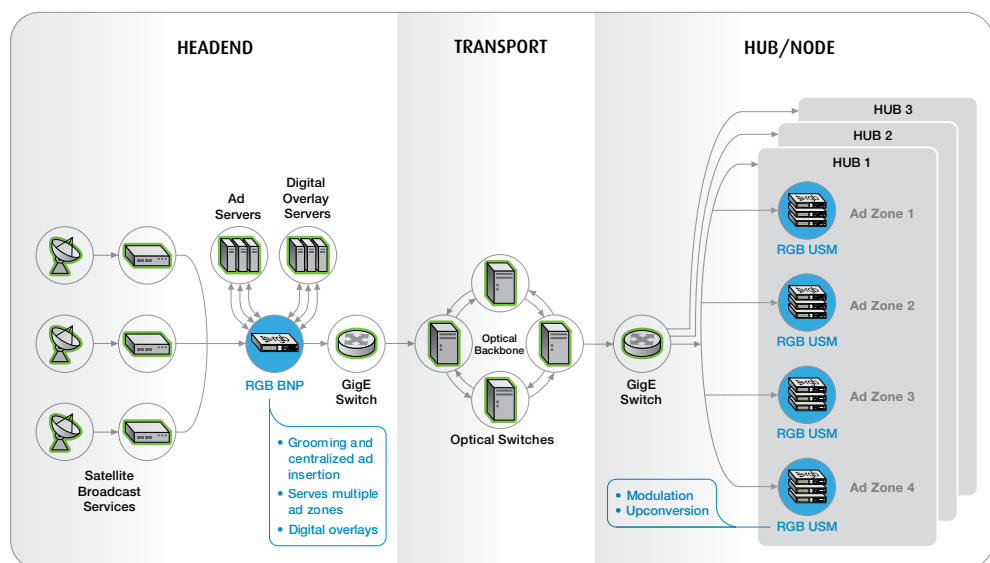
The BNP can concurrently groom, statistically multiplex, perform seamless splicing and digital overlays of SD and HD programs, eliminating the need to dedicate multiple devices to these functions. This unique ability simplifies installation, wiring and configuration, thus reducing system deployment time. The BNP is fully compliant with SCTE 30 and SCTE 35 standards and is interoperable with the leading DPI ad servers and ad management services. This flexible product can also perform SCTE 30 to SCTE 35 conversion to support remote digital ad insertion at the hub. With a high degree of flexibility, the BNP is a solution for centrally located DPI systems at the headend facility, as well as for distributed DPI systems.

Additionally, customized program line-ups can be created using program substitution based on SCTE 30 management. An external scheduling manager can control the BNP's ability to switch between primary and secondary program feeds allowing operator's to cater to regional audiences and comply with local regulations.

**Simplified Architecture Provides Scalability and Flexibility**

The BNP's modular and programmable platform is designed to provide operators with full processing scalability to meet their specific processing requirements today and in the future. The program density of the BNP is software configurable and upgradeable, allowing operators to start at lower densities and upgrade to the full hardware capacity through software licenses as their stream densities and network needs grow.

**DPI in a Centralized Architecture:**  
Centrally serve multiple ad zones from one device



This scalability reduces capital costs and allows operators to allocate budgets accordingly. By paying for processing on an as needed basis, operators can wisely plan budgets based on today's requirements and avoid over allocation to meet future needs. The programmable and upgradeable architecture of the BNP, as well as its high processing power, eliminates hardware changes and will simplify and expedite future deployments of new video processing applications.

The BNP supports both ASI and Gigabit Ethernet interfaces, allowing operators who have deployed Gigabit Ethernet networks to profit from the increased cost-efficiency offered with this transport, while still providing support for operators with legacy ASI networks. This flexibility enables operators with ASI networks to continue with their existing infrastructures while providing an upgrade path for a future transition to an IP-based network.

The BNP has eight Gigabit Ethernet interfaces and is scalable to support up to 18 ASI interfaces using up to three ASI modules. The Gigabit Ethernet interfaces are part of the BNP's base configuration and no additional hardware or licensing is required to utilize these ports. Providing added flexibility, each ASI interface is software configurable as input or output via an easy-to-use graphical user interface.

**Significant Power Savings**

With RGB's BNP, operators can also enjoy significant savings in power consumption. The BNP requires less than 300 Watts, compared to thousands of Watts for other solutions requiring multiple devices to process the same number of programs. This power savings results in considerable cost savings over time.

**Increased Availability and Reliability**

System and program downtime cost operators precious time, money and resources, adversely affecting their revenues. To reduce system downtime, the BNP has been designed to support multiple levels of redundancy to provide operators with increased uptime and availability of services. The BNP features service level redundancy and one-to-one redundancy. The BNP's service level redundancy provides the ability to automatically switch to backup programs in case of a program service failure. Its one-to-one redundancy enables full hardware redundancy and automatic failover in case of any software or hardware failure in the primary chassis.

**Intuitive Graphical User Interface Eases and Simplifies Management**

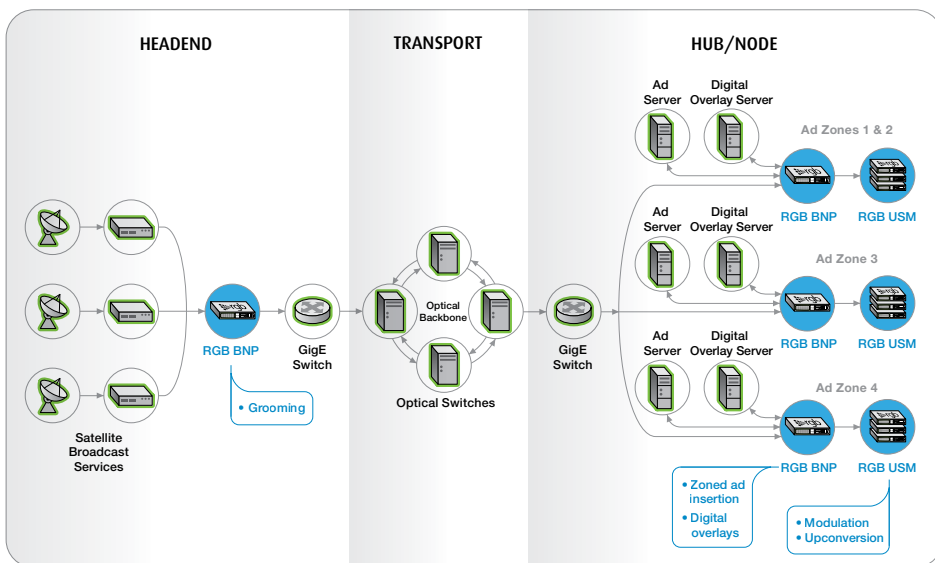
The BNP is configurable through a web-based graphical user interface or through SNMP using standard network management applications. The easy-to-use interface offers a variety of features that simplify the set-up and operation of the BNP, including program and transport level drag and drop grooming; simultaneous bit rate analysis of input and output transport streams and programs; alarms and system logs; and full configurability of ASI and Gigabit Ethernet ports.

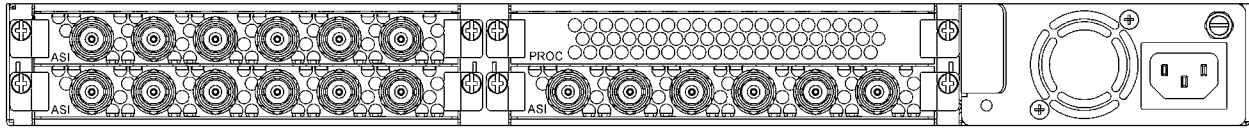
**RGB VIA Product Family**

The Broadcast Network Processor is a member of RGB's groundbreaking VIA product family of intelligent video processors. Based on RGB's flexible Video Intelligence Architecture (VIA), the VIA product family leverages standards-based Gigabit Ethernet and IP data networking technologies to easily integrate with existing infrastructure and dramatically reduce the cost of delivering advanced video services in today's digital video environments. This multi-function platform is programmable and upgradeable, making the future-proof VIA product family an intelligent choice to help deliver personalized video services.

**DPI in a Distributed Architecture:**

*Distributed ad insertion with multiple ad zones*





RGB BNPxr Rear View

**RGB BNPxr Specifications for v2.0**

<p><b>INPUT/OUTPUT INTERFACES</b></p> <p>Gigabit Ethernet Fast Ethernet ASI</p>	<p>8 SFP interfaces – copper or optical 1 10/100BaseT control and management interface Up to 18 ASI ports per chassis Up to 3 ASI modules with 6 ASI ports each Software configurable as input or output 213 Mbps data rate/port</p>
<p><b>MPEG PROCESSING</b></p> <p>Transrating Multiplexing &amp; Table Processing DPI Digital Overlays Digital EAS Closed Captioning Jitter Tolerance</p>	<p>SD and HD MPEG-2 video streams VBR and CBR support QoS – Ability to set priority for the level of transrating desired MPEG-2 and MPEG-4 H.264/AVC multiplexing and re-multiplexing MPTS, SPTS, multicast and unicast support CBR and VBR support PID filtering and re-mapping PCR re-stamping and de-jitter PAT and PMT generation Generation and pass-through of PSIP tables Seamless SD and HD splicing Program substitution scheduling management based on SCTE 30 SCTE 30 (DVS-380, DVS-638) and SCTE 35 (DVS-253) compliant SCTE 30 to SCTE 35 conversion Overlay graphic crawl messages and logos SCTE 18 (Emergency Alert message for cable) SCTE 21 to SCTE 20 conversion +/- 100 ms</p>
<p><b>VIDEO FORMATS</b></p> <p>MPEG Profile and Level All SD and HD Resolutions Frame Rates</p>	<p>MPEG-2 MP@ML (SD) and MP@HL (HD) MPEG-4 H.264/AVC (all profiles supported) SD – 720 x 480, 704 x 480, 544 x 480, 528 x 480, 352 x 480 HD – 1080i x 1920, 1080i x 1440, 1080i x 1280, 720p x 1280, 480p x 720, 480p x 704, 480p x 640 24, 29.97, 30, 59.94, 60</p>
<p><b>AUDIO FORMATS</b></p>	<p>Dolby AC-3, MPEG-1 Layer 2 (Musicam, MP2), MPEG-2 Layer 2</p>
<p><b>DIGITAL BROADCAST</b></p>	<p>ATSC PSIP (A/52B, A/53E, A/58, A/65) DVB (DVB-SI, DVB-SUB, DVB, TXT)</p>
<p><b>REGULATORY COMPLIANCE</b></p> <p>Safety Electro Magnetic Hazardous Substances</p>	<p>CE UL, TUV/GS, cTUVus FCC Part 15, Class A, EN55022, EN55024 RoHS (Restricted use of Hazardous Substances)</p>
<p><b>ELECTRICAL/MECHANICAL</b></p> <p>Input Power Line Frequency Power Consumption Dimensions Weight Cooling</p>	<p>AC: 100-127 VAC @ 3.0A to 200-240 VAC @ 1.5A DC: 48 VDC @ 7A (range 36-75 VDC) 50-60 Hz 300 W maximum – fully loaded 1 rack unit – 1.75" H x 19" W x 23" L (43.6 H x 433 W x 583 L mm) 30 lbs. (11.34 kg) Front to back</p>
<p><b>ENVIRONMENTAL</b></p> <p>Storage Temperature Operating Temperature Humidity</p>	<p>-40° to 70°C 0° to 40°C 5% to 95% (non-condensing)</p>



**RGB Networks, Inc.**  
390 West Java Drive, Sunnyvale, CA 94089 USA  
T: +1.408.701.2700 | F: +1.408.701.2710  
www.rgbnetworks.com