NetProcessor 9040

MPEG MULTIPLEXER, TRANSRATER, SPLICER, STREAMER

The NetProcessor 9040 solution provides multiplexing, remultiplexing, PSI/SI processing, transrating, splicing, data injection, ad insertion, and the scrambling of hundreds of services received and delivered over DVB ASI and telecom interfaces.

The Grass Valley™ NetProcessor range of products, a family of video and network processing solutions is designed for the full range of digital TV applications.

The NetProcessor line is a hierarchical range of products that provides:

- Network adaptation for the transport of MPEG compressed video over telecom networks

- MPEG processing, including multiplexing, demultiplexing, scrambling, as well as IP streaming

- Video processing, including transrating, splicing, and ad insertion

These products include the NetProcessor 9040 solution, a highly integrated and powerful MPEG-2 and MPEG-4 standard- and high-definition (SD and HD) transport stream processor that features outstanding video processing capabilities,

including transrating and splicing. It's perfect for broadcasters, content owners, and network operators looking to migrate from DVB ASI legacy environments to IP-based infrastructures—and ideal for localizing or remodeling content.

The NetProcessor 9040 solution provides multiplexing, re-multiplexing, PSI/SI processing, transrating, splicing, data injection, ad insertion, and the scrambling of hundreds of services received and delivered over DVB ASI and telecom interfaces. It is also a bandwidth manager that can combine local or geographically distributed encoders in the same pool with incoming transrated programs thanks to its hybrid remote Flextream™ technology.

Complementing these functions is a range of interfaces, including ASI, gigabit Ethernet/IP, PDH-SONET, DVB-S/S2,

and SDH/ATM. Together, this feature set makes the NetProcessor platform a highly integrated device that can replace multiple previous-generation multiplexers and network adaptors with a single device.

Highly serviceable, the NetProcessor 9040 solution features dual network interfaces (IP and/or ATM) and dual hot-swappable power supplies to address the most mission-critical applications.

With this combination of flexibility, scalability, and serviceability, the NetProcessor 9040 platform can cope with almost any situation, even those involving a large number of streams, heterogeneous interfaces, or video/audio processing combined with scrambling or IP streaming.

KEY FEATURES

- Up to 22 ASI mix of inputs and outputs, up to 213 Mb/s per interface

- Input and output telecom interfaces:
  — 2x PDH-SDH-SONET/ATM
  — 2x gigabit Ethernet/IP ports

- Dual DVB-S/S2 front end

- Multiplexing/remultiplexing of a large number of transport streams received over ASI and telecom interfaces

- Multiple transport streams generated and delivered over the output interfaces

- Splicing and/or transrating of many tens of TV channels

- Compliant with SCTE35 and SCTE30 for ad/local program insertion (DPI)

- Advanced management of PSI/SI/PSIP tables, service filtering, and remapping

- Opportunistic data insertion

- DVB common scrambling algorithm, simultaneous support of multiple conditional access (CA) systems

- Supports Grass Valley hybrid remote Flextream multiplexing of local/remote encoder pool with transrated turnaround channels

- Bandwidth monitoring and policing, advanced overflow prevention

- Embedded SFN adaptation on up to four (4) generated transport stream for DTTV applications

- Error-free transmission over any network thanks to IP and ATM forward error correction (FEC) and advanced clock recovery mechanisms

- Management: Web, SNMP, XMS™ eXtensible Management System

- Compact 1 RU cabinet with dual AC or DC power supplies

- Applications:
  — Satellite TV
  — Terrestrial TV
  — Cable TV
  — IPTV

SPECIFICATIONS

DVB-ASI Interfaces (optional)

- Up to 22 ASI inputs and up to 10 ASI outputs are available
- Up to 213 Mb/s per interface

Gigabit Ethernet/IP Interfaces (optional)

- Two independent gigabit Ethernet ports, each providing 1000Base-T (twisted pair, RJ-45) and 1000Base-X (SFP)
- 10/100/1000Base-T auto-sensing
- Half and full duplex
- Video encapsulation over IP compliant with Pro-MPEG Forum COP#3 rev2 including FEC
- Unicast and multicast (IGMP V2 and V3)
- VLAN 802.1p and 802.1q and IntServ/ DiffServ ToS byte field tagging for quality-of-service support
- Static and dynamic IP routing (RIP, OSPF)

PDH-SDH-SONET/ATM Interfaces (optional)

- E3, DS3 (BNC connectors)
- STM1/OC3 – electrical and optical (multimode and single mode)
- PVC, full range of VPI/VCI, AAL1 with FEC
- Traffic policing and shaping
- Up to 10 input or 10 output transport streams over ATM
- IP data over ATM services, up to 50 Mb/s per direction
- VP crossover between the two ports allowing add/drop/mux functions in the ATM layer and ring architectures

DVB-S/S2 Interfaces

Dual DVB-S/S2 RF inputs

Features for each RF input/tuner/ demodulator:

- Frequency: from 950 MHz to 2150 MHz
- LNB control and alimentation
- DVB-S or DVB-S2 standard selectable

DVB-S features are as follows:

- Symbol rate: 5 to 45 MBaud
- Demodulation: QPSK
- FEC: auto, 1/2, 2/3, 3/4, 5/6, 7/8

DVB-S2 features are as follows:

- Application area and profile: broadcast service only
- Symbol rate: 7 to 30 MBaud
- Demodulation: QPSK/8PSK
- BCH

One DVB-CI slot allowing one transport stream to be partially descrambled (specifications depend on DVB-CI module used)

MPEG Processing

- [N to P] transport stream grooming and routing capability
- Processing performance: up to 400 services
- No signaling, ISO, DVB, and ATSC signaling modes
- Interfaces with external signaling manager
- Advanced management of PSI/SI/ PSIP tables, service, and component filtering and remapping
- Compliant with DVB common scrambling and interfaces with all major CA systems

- Incoming bit-rate monitoring and policing (component/service/transport stream)
- Support for remote statistical multiplexing pool of encoders (extended Flextream solution)
- Visualization of MPEG stream structure (services, components, bit rates)
- ETR 290 monitoring over all interfaces

Video Standards

Support for MPEG-2 MP@ML, MPEG-2 MP@HL, MPEG-4-AVC Main, and High Profiles

Video Processing

- Seamless splicing of SD (or HD) services (or selected components)
- Splice out after anchor (I or P), splice in before anchor (I)
- SCTE30 and SCTE35 support for digital program insertion
- Transrating of SD (or HD) services from CBR/VBR to CBR/VBR
- Support for hybrid remote statistical multiplexing pool of locally transrated services and remote/local encoders

Audio Processing

Support of MPEG-1 layer 2/3, AC3 (including 5.1), AAC LC, AAC HE audio standards

IP Data Injection

- Injection of up to 8 Mb/s over a dedicated 100Base-T interface supporting DVB simulcrypt, constant or opportunistic bit rate for optimum use of allocated bandwidth
- Injection over any ASI interfaces, gigabit Ethernet or ATM interfaces

SFN Adaptation

- Interface for external GPS receiver, 1 pps and 10 MHz, BNC connectors
- MIP insertion, inserts synchronization marks in the DVB-T transport stream

Management

- 100Base-T for management over IP/ Ethernet
- Embedded Web server for control and configuration
- In-band and out-of-band management
- SNMP v.2 agent
- Multiple configuration files stored in flash memory, activation via GUI and SNMP
- Supported by Grass Valley XMS eXtensible management system

Physical Characteristics

- 1 RU x 19" (44.5 mm high x 484 mm wide x 620 mm deep)
- Weight: 10 kg (22 lbs.)
- 110V to 240V AC, -40V to -60V DC (optional)
- Hot-swappable dual power supplies

Environmental Conditions

- Operating temperature: 5° to 45°C (41° to 113°F)
- Storage temperature: -25° to 70°C (-13° to 158°F)
- Maximum humidity: 85%

Compliance

CE and UL certifications

ORDERING INFORMATION

N904BASGAA

NetProcessor 9040. Dual swappable AC power supply in a 1 RU chassis. No ASI module (optional). Includes licenses for four transport streams in and one transport stream out. Scrambling capability. Two gigabit Ethernet ports for MPEG-over-IP transmissions. 16 transrate licenses included.

N904ASB3AA

Main ASI module with 10 ASI ports configurable as input or output.

Please contact your authorized Grass Valley representative for additional hardware and software options.

www.grassvalley.com/sales

PROFESSIONAL SERVICES

Our professional services offerings ensure optimal system performance and maximize uptime. These services include call centers staffed around the clock; system planning, design, and commissioning; professional training courses; and technical maintenance programs and service agreements.

www.grassvalley.com/support

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