

NETPROCESSOR 9030/40

▶ MULTIPLEXER & VIDEO PROCESSOR



The NetProcessor 9030/40 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 Thomson 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 9030/40 solution, a highly integrated and powerful MPEG-2 and MPEG-4 standard- and high-definition (SD and HD) transport stream processor. If required, a hardware option provides 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 9030/40 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 Flexstream™ technology.

In addition to multiple re-multiplexing capabilities, the NetProcessor 9030/40 can behave as a DVB-T2 gateway. It encapsulates a multiplex into DVB-T2-MI stream, providing signalization,

transmission and synchronization parameters to DVB-T2 modulators—which offers in a DTTV SFN environment, a deterministic way of building the final signal to broadcast.

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.

With this combination of flexibility, scalability, and serviceability, the NetProcessor 9030/40 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
- Embedded service redundancy and service substitution
- Splicing and/or transrating of many tens of TV channels (hardware option)
- DVB-T2 mono-PLP gateway
- 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 Thomson hybrid remote Flexstream 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 streams 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™ 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 Flexstream solution)
- Embedded service redundancy mechanism
- Support for time-shared service through service substitution
- 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

Audio Standards

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

Audio/Video Processing (optional)

- Up to 2 optional video processing boards (these boards can be ordered at the time of initial purchase, or later on through an on-site upgrade) 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

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
- Megaframe synchronization in 1+1 configuration of NetProcessors (Nominal + Backup)

DVB-T2 Gateway

- Encapsulation of any generated multiplex into DVB-T2 frames
- Generation of up to 4 DVB-T2-MI streams over ASI or IP
- Interface for external GPS receiver, 1 PPS and 10 MHz

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 Thomson XMS 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

N903BASGAB

NetProcessor 9030/40 (1 or 2 NetRater boards can be added for video processing). Dual swappable AC power supply in 1 RU. No ASI module (optional). Scrambling capability. Two Gigabit Ethernet ports for MPEG over IP transmissions.

N903ASB4AA

Main ASI module with 10 ASI ports configurable as inputs or outputs, GPS inputs for SFN adaptation, and GPI I/O.

N9041T00GA

Hardware option. Additional FIRST NetRater board. Can be ordered with NetProcessor 9030 (N903BDxxAB) to get the video processing capabilities of the NetProcessor 9040. Includes 16 transrater licenses.

Please contact your authorized Thomson Video Networks representative for additional hardware and software options.

E-mail: sales@thomson-networks.com

PROFESSIONAL SERVICES

Our professional services offerings ensure optimal system performance and maximized 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.