B-NOVA

Professional Headend Solution

The BLANKOM B-NOVA Chassis is the core of IPTV modular platforms and cable TV headends. B-NOVA enables the operator to setup a very compact headend configuration using various processing and interfacing modules. B-NOVA scales from one chassis "headend in a box" to a multiple chassis system for bigger headend systems and is designed for very high performance, high density and very low power consumption.

B-NOVA Architecture

The B-NOVA chassis has 6 module slots for interface and processing modules. The B-NOVA architecture is future proof to support new module development later on by having all stream processing features in sub modules. Therefore, new functionality can be introduced later into the platform without touching the chassis.

Benefits

- Fully modular platform that grows with your business, from a compact 1 RU "headend in a box" to a multi-site, distributed headend solution

- Small footprint enables efficient space usage

- Low power consumption guarantees longer module lifetime and lower energy costs

- Energy efficiency reduces site cooling requirements

- Internal switch for cable free interconnections and simplified maintenance

- Advanced DVB stream processing offers flexibility for channel creation and simplicity in multi-vendor environments

The B-NOVA Platform

The stream processing in B-NOVA is distributed to sub modules, which utilize virtually unlimited processing capacity in practical configurations, without problems typically caused by a central shared processor. All sub modules can independently process incoming streams.

The internal router is managing the interconnection between the sub modules and the payload gigabit Ethernet input and output ports. This means much less cabling at the headend and thereby simplifies headend configuration.

The router also has a separate internal management network for sub modules and a chassis, which guaranties reliable operation even in high-load situations. All internal connections are gigabit Ethernet enabling high-performance operation.
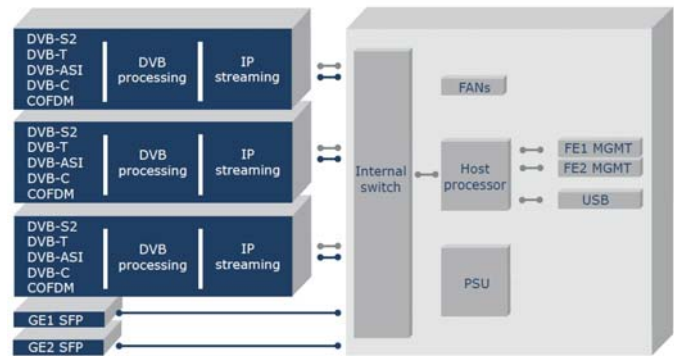
High-Density Design

The new component technology and selected architecture of B-NOVA creates a very high-density design saving a lot of rack space compared to traditional headend setups.

B-NOVA can accommodate up to 12 receivers with descrambling capability in one chassis. If 6 quad receiver modules without descrambling are installed into the chassis, it increases the receiver count up to 24 in the chassis.

Using quad SI-modules allows a single chassis to have up to 24 ASI inputs or ASI outputs.

Installing six quad QAM modules provides up to 24 QAM output channels per chassis.

The B-NOVA chassis can also have a mix of modules to adapt to the various application needs of the operator.

Embedded DVB Content Protection

B-Nova has the capability to protect services with DVB scrambling. The chassis provides DVB Simulcrypt interface to Conditional Access systems, which allows integration with a large variety of CA vendors. The content protection has been designed to scale to a large number of scrambled streams with minimal system configuration.

The actual scrambling is an integrated feature of the B-NOVA sub modules providing scalable performance and maximum flexibility of the system configuration and supporting both centralized and decentralized scrambling solutions.

Any service can be scrambled simultaneously with multiple CA systems. Other advanced features include shortkey change intervals, automatic PSI/SI table generation, detailed monitoring of the interaction with CA systems, support of redundant ECM generators and scheduled changes of the content protection properties.

Management

The B-NOVA chassis has centralized management features for configuration and status monitoring of the sub modules and chassis as well as connection to a centralized Server based NIT, EPG and STB-Management system: The Broadcast Manager.

Management features are optimized for typical CATV or IPTV headend operations. There are many helpful features making headend daily operation easy and effective.

The intuitive WEBUI is designed for easy management, monitoring and troubleshooting. It allows the user to establish setup quickly just by entering a few parameters, and then let B-NOVA do the detailed config-

uration based on internal intelligence. There is still the possibility to also adjust the detailed configuration for professional users.

Automatic service identification and PID remapping based on internal rules create unique values for all streams. Therefore, it is very easy to do the system-level configuration.

The CLI (Command Line Interface) is helpful to do configuration updates in patches and also makes it possible to manage B-NOVA through low-speed communication links.

Monitoring parameters and warning/alarm messages are available using SNMP protocol and traps. This allows integration with the element management system or with higher-level management systems.

The front panel has an indicator to get a quick overview status of B-NOVA. All sub modules have status indicators for module operation and interface indicators for signal status. Indicator LED´s are helpful to locate an interface or a module that requires action.

Features

- 6 processing and interface module slots
- 19" 1RU rack mechanics
- Installation rails for easy installation
- Slot for Power Supply and I/O module
- Power Supply Redundancy
- USB port for initial setup
- 2x gigabit Ethernet ports (SFP modules) for payload
- 1+1 chassis redundancy
- Intuitive WEB user interface
- Automatic SID and PID remapping
- CLI (Command Line Interface)
- SNMP monitoring and traps
- DVB Simulcrypt

Dual DVB-S2 (S) Module with Dual Common Interface Module (optional) Installed.

Quad DVB-S2 (S) Module.

Dual DVB-T Module with Dual Common Interface Module (optional) Installed.

Quad DVB-ASI Module.

COFDM-Modul

Quad QAM Modul

B-NOVA Professional Headend Solution Specifications

B-NOVA Chassis

Sub module slots, hot swap	6
Fans replaceable	4
Dimensions h x w x d	44 mm x 483 mm x 385 mm
Operating temperature range	-10...+55 °C
Storage temperature range	-30...+70 °C
EMC compatibility	EN 50083-2
WEB Browser User Interface, CLI and SNMP V2 & V3	IE7.0 or Mozilla Firefox 3.0 (or newer)
Power Supply, 110V … 230VAC	max 120 W
Streaming Ports	2x Gb Ethernet SFP
Management and Dataports for Scrambling	2x RJ45

B-NOVA Receivers

Impedance, F-connector	75 ohm
Transport Stream Bitrates per RF input w/o descrambling	90 Mb/s
descrambling in use	72 Mb/s

Satellite Receiver RF Input

Frequency Range	950 … 2150 MHz
AFC Range	8 MHz
Constellation	QPSK, 8PSK, 16APSK
FEC modes (auto-detected)	All ratios compliant with ETS302307
Signal levels	-70 … -25 dBm
Symbol rate	QPSK 1,5…47 MS/s
8PSK	1,5…31,5 MS/s
16APSK	1,5…47 MS/s
Standard	ETS300421, ETS302307
Adjustable voltage	13/18 V
22 kHz tone	on/off
Max output current per connector	500 mA

Terrestrial Receiver RF input

Frequency Range	47 … 862 MHz
Constellation	QPSK, 16QAM, 64QAM
FEC modes (auto-detected)	All ratios compliant with standard
OFDM spectrum	2k and 8k
levels	-90 … -20 dBm
Channel Bandwidth	6, 7, 8 MHz
Standard	ETS300744

DBV ASI input

DBV ASI input	BNC 75 ohm
Maximum speed per interface payload traffic	216 Mb/s
Maximum speed total (4 ports shared)	250 Mb/s
Standard	EN50083-9

DVB Common Interface Descrambling

Connector dual slots	PCMCIA
Standard	DVB_CI EN50221
CA module Hot Plug	PC-Card type II

DVB Common Scrambling Algorithm Content Protection Scrambling Option

Max service to be scrambled per module (dual Inputs)	120
quad inputs module	120

B-NOVA IP-Output

IP Streaming	DVB transport packets over UDP/IP
Packet format	1…7
Traffic type	unicast or multicast
Maximum IP streamer per module	120
Maximum streaming capacity per module	250 Mb/s
Traffic shaping	max peak traffic limiter

IP Inputs

Frame formats (1…7 TS packets per frame)	UDP/IP
Max inputs streams per module	128
De-jittering buffer size (adjustable 100…500 ms)	200 ms

B-NOVA Output Modules Common Multiplexers

Number of multiplexers per module	4
Max input service per multiplexer	64
Max components per service	32

IP Streamer Output of Multiplexer

Framing format	raw UDP/IP
Traffic type	unicast or multicast
TS packets per UDP frame	1…7
Max TS packet speed per streamer	100 Mb/s
Maximum speed total (4 streamers)	250 Mb/s

DVB Common Scrambling Algorithm Content Protection ext. CA-Server

Max service to be scrambled per module	120

QUAD QAM

Output speed (Four adj. Channels)	depends on QAM modulator settings
Standard	ITU-T J.83 Annex A/C
QAM constellations	64, 128, 256
Symbol Rate	4…7,4 MS/s
Output Level	102 … 112 dBμV
Output center frequency	85 MHz … 1GHz
MER	>43 dB

COFDM Output

Transmission mode	2K, 8K
Transmission Guard Interval	1/32, 1/16, 1/8, 1/4
QAM constellations	QPSK, QAM16, QAM64
Channel bandwidth	6, 7, 8 MHz
HO code rate	1/2 , 2/3, 3/4, 5/6, 7/8
Output Level (Four adj. channels)	102 … 112 dBμV
Output Level accuracy	+/- 2 dB
Output Power step size	0,2 dB
Output center frequency	85 MHz … 1GHz

QUAD ASI Output / Multiplexer Module

Traffic mode (VBR or CBR)	adjustable
Output speed for constant bitrate	adjustable 1…100 Mb/s
Maximum speed per interface (payload traffic)	100 Mb/s
Maximum speed total (4 ports shared)	250 Mb/s
Standard	EN 50083-9