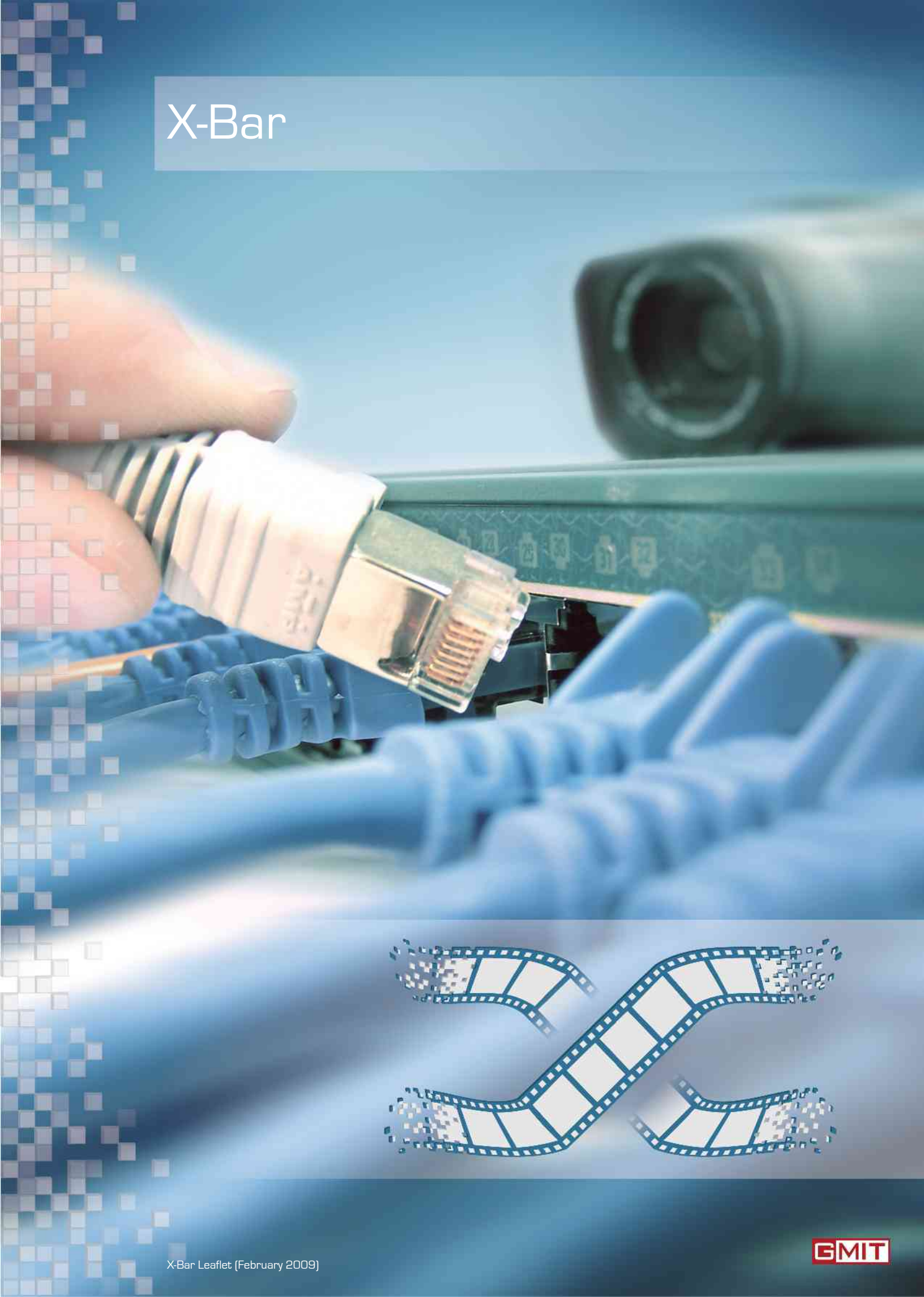


# X-Bar



## DESCRIPTION

The GMIT X-Bar product family offers switching, repair and failover functionalities, interference-free and invisible for consumers, being able to handle the most common IP-based broadcast protocols: RTP video, audio and data streams, MPEG transport streams, but also other UDP sources.

The GMIT X-Bar has been designed for setting up full redundant video head end systems for digital TV platforms. Capable of being integrated at any point of the system chain, the X-Bar will give more flexibility, safety and reliability within the network.

## X-BAR PRODUCTS AVAILABLE

- **UDP Choice:** Input redundancy with automatic maintenance video loop insertion
- **UDP Sense:** Output redundancy with automatic failover functionality
- **UDP Switch:** Seamless NTP exact switching and processing
- **UDP FEC:** Stream reparation and error simulation for transport over unreliable media
- **MCP:** IP address conversion and optional redundant stream scrambling

## UDP CHOICE FEATURES

The X-Bar UDP Choice provides mechanisms to switch between several RTP, UDP or MPEG transport stream inputs in case of an error at the transmitting component (e.g. encoder failure). Therefore UDP Choice selects from two available input streams and produces an interruption-free output stream. The key features at a glance:

- Consider Group of Pictures (GOP) and increasing sequence numbers of RTP streams
- Display of maintenance video loop if all inputs fail

## UDP SENSE FEATURES

The X-Bar UDP Sense offers seamless fail over mechanisms for several sources in multicast environments. The UDP Sense “senses” the status of the active component and automatically starts transmitting data in failure cases without the need of an additional management system. The following features are provided:

- Service operation in “hot-standby” mode with automatic failover (also on distributed platforms)
- Seamless switching without any noticeable drop-outs on client side

## UDP SWITCH FEATURES

The X-Bar UDP Switch is an advanced stream processor for seamless switching of MPEG transport and RTP streams. Choosing between several input

streams without interrupting the output stream allows stream replacement or switching at exact the times requested. It can be used for “Ad-Insertion”, program changes or localisation scenarios. The X-Bar UDP Switch consequently brings all advantages of classical video crossbars to modern IP-based video distribution.

The following features are provided:

- Content sensitive switching at Group of Pictures (GOP) borders
- Timing parameters and sequence counters adaptation
- Automatic PID selection and remapping in case of MPEG transmission
- NTP-based accurate switching

## UDP FEC FEATURES

The X-Bar UDP FEC allows transmission of MPEG transport streams or RTP streams via unreliable transmission channels such as Internet or WAN connections. The generation of additional informations allows to recover dropped IP packets and ensures an error-free transport stream on receiver side. The following features are provided:

- Stream protection using PRO-MPEG or RTP generic Forward Error Correction (FEC)
- Built-in error provocation concerning MPEG and RTP (random IP packet loss) for testing and demonstration purposes

## MCP FEATURES

The X-Bar Multicast Proxy (MCP) provides IP address translation and conversion combined with the unique X-Bar redundancy functionalities. Additionally using the scrambler component, allows the setup of fully redundant DVB-H stream protection. The following features are provided:

- IP Unicast/Multicast conversion
- IP address and UDP Port conversion
- Optional stream scrambling using standardized encryption methods ISMACryp and Simulcrypt in combination with GMIT Scrambler

## GMIT PRODUCTS

GMIT products provide highest service availability and are ready to run 24x7, proofed in several commercial deployments. They are based on software-only components, allowing the use of regular IT-based server hardware. Even one server can host more than one GMIT product.

Due to its highly flexible architecture and design, GMIT software can easily be adapted. Customers are therefore flexible for future enhancements and upcoming standards and well prepared for individual integrations and customizations.



## TECHNICAL SPECIFICATION

### Input

#### INPUT FORMAT

- MPEG single/multiple program transport stream (ISO/IEC 13818-1 compliant)
- Free-to-air RTP / RTCP streams
- Encrypted RTP/RTCP streams (including key streams)
- Raw UDP data streams

#### ADDITIONAL UDP FEC INPUT

- PRO MPEG FEC packets for stream reparation (FEC decoder)
- RTP generic FEC packets (RFC 2733 compl.) for stream reparation (FEC decoder)

### Output

#### TRANSPORT LAYER

- IP version 4 unicast or multicast
- UDP (RFC 768 compliant)

#### SERVICE LAYER

- MPEG single/multiple program transport stream (ISO/IEC 13818-1 compliant)
- Free-to-air RTP / RTCP streams
- Encrypted RTP/RTCP streams (including key streams)
- Raw UDP data streams

#### ADDITIONAL UDP FEC OUTPUT

- PRO MPEG FEC packets for stream reparation (FEC encoder)
- RTP generic FEC packets (RFC 2733 compliant) for stream reparation (FEC encoder)

### Additional Functionality

#### GOP SWITCHING

(UDP SWITCH/UDP CHOICE)

- MPEG-2 video codec (ISO/IEC 13818-2 compliant)
- H.264 (MPEG-4 AVC) video codec (ISO/IEC 14496-10)

#### FORWARD ERROR CORRECTION (UDP FEC)

- Pro MPEG COP#3

### Administration and Monitoring

#### LOCAL

- Control: Console-based UI

#### REMOTE

- Control: Web-based UI and SNMPv2 Control
- Monitoring: Web-based UI and SNMPv2

### Hardware and System Requirements

#### HARDWARE REQUIREMENTS

- CPU: max. 1x INTEL XEON Quadcore (depending on stream count)
- RAM: 4 GByte
- USB: Port for license key (alternative network connection to dedicated license server)

#### OPERATING SYSTEM

- Ubuntu Linux LTS 8.04 (Hardy) 32 bit server
- #### SUPPORT
- Internet connection (FTP) necessary for easy installation (alternative installation possible)
  - SSH connection for additional GMIT support

### UDP SWITCH



### UDP FEC



### UDP CHOICE





# Contact

## GMIT GMBH

Novalisstr. 10  
10115 Berlin  
Germany

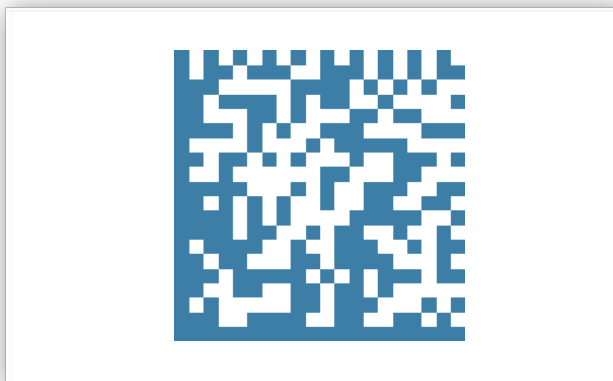
PHONE: +49 30 240 88 23 30

FAX: +49 30 240 88 23 59

WEB: [www.gmit-gmbh.de](http://www.gmit-gmbh.de)

E-MAIL: [info@gmit-gmbh.de](mailto:info@gmit-gmbh.de)

## GET MORE INFORMATION



## MORE GMIT PRODUCTS



GMIT is a component supplier providing headend technology and interactivity for digital and mobile broadcast. Our software products for stationary and mobile TV are optimized to satisfy the essential needs for reliability, economy and flexibility.