



***TSP100
DVB
Transport Stream
Player***



TSP100

- Play-out of audio and video fragments and still video frames •
- Play-out of decoder applications like STB loader data •
 - Continuing timestamps for smooth file transitions •
 - Looping play-out of transport stream files •
 - Automatic (CBR/VBR) bit rate per source file •
 - Built-in video-encoder and PSI/SI-generator •
 - SNMP • ASI and GbE •



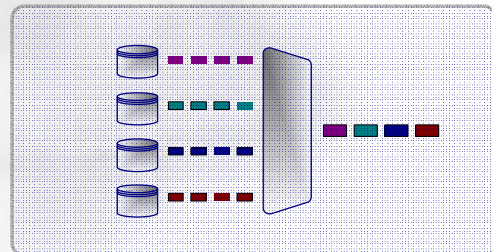
ITNM Systems TSP100 DVB Transport Stream Player

Functionality of digital television

Digital television distribution systems require for processing not only complete transport streams offered by the programme suppliers, but also several kinds of additional information. Integration of play-out systems supplying that information appears to be sometimes more difficult than expected. With maximum customer satisfaction, ITNM Systems develops applications that fully comply to the applied multiplexers, so that the complete system operates with optimum performance.

TSP100 DVB Transport Stream Player

The TSP100 is a play-out system for additional information like decoder specific operating systems and decoder applications. Examples are set-top box loaders and middleware like OpenTV, but also still video pictures and audio fragments to broadcast messages and programme announcements. The TSP100 generates a transport stream containing all required components in order to successfully import the services into the multiplexer equipment.



Universal transport stream player TSP100

TSP100

TSP100 Product description

The solution

The TSP100 Transport Stream Player is a stand-alone system designed to generate a carousel containing transport stream components. It can simply be added to a multiplex system for digital television.

Basics

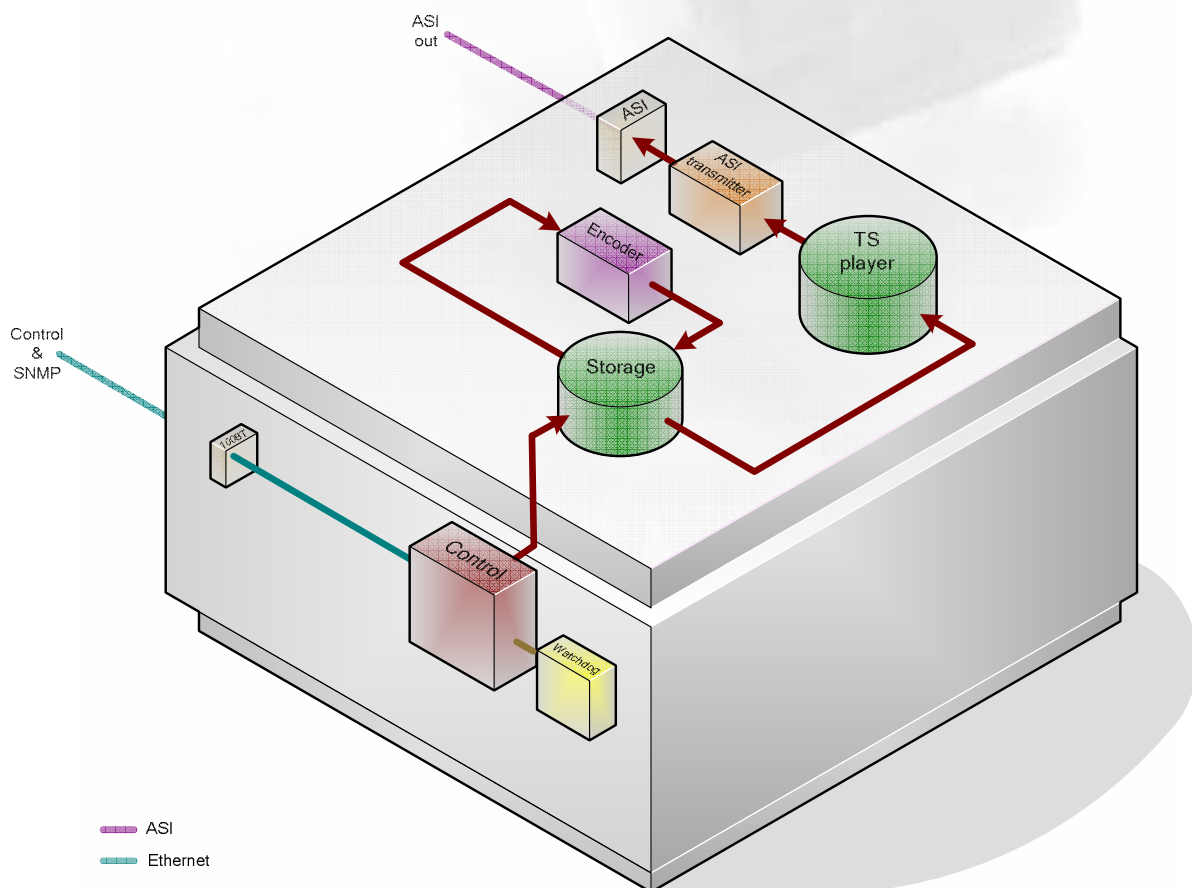
The player gets its source information from the local hard disk. Data that has to be played-out can simply be transported to a dedicated folder by means of a network connection.

Implementation

For maximum flexibility, two options are available to process this signal; by (Gigabit) Ethernet or by Asynchronous Serial Interfaces (ASI). This will make integration an easy job in existing systems. The output signal is equally composed in both situations.

Schematic overview

The drawing below shows an overview of the internal construction.



Schematic overview TSP100

TSP100

TSP100 Product description

Functionality

The TSP100 is able to play-out several kinds of supplied data like still video, running video and audio fragments, decoder applications but also DVB Service Information specifically required for a multiplexer.

Video and audio encoder

Besides playing-out already encoded video and audio files, the TSP100 can be equipped with a built-in video encoder so that pictures can be processed directly out of bitmap format. An audio encoder can be added as well to be able to convert spoken messages out of wav-format based files.

Integration

The TSP100 supplies all by the multiplexer required components like PMT (Programme Map Table), PTS (Presentation Time Stamp) and PCR (Programme Clock Reference) for a successful integration in existing systems. An SNMP-generator - suitable to display the status of the system - is standard. The system is preconfigured and ready to install. Adaptation according to customer demands is possible as well.

HD demo

The picture below shows one of the application options of the TSP100; in use for a HD demo trailer on a reserved channel of the digital decoder.



Video announcement TSP100



Play-out of HD-demo with TSP100

TSP100

TSP100 Networks

Integration in networks

The TSP100 is applicable in several kinds of digital television network architecture.

Implementation

Normally the system is placed at the location where centralised processing of digital radio and television services is performed; the head-end or digital play-out centre. There are many ways to connect, depending on the construction of the existing multiplexer and receiver equipment.

Connections

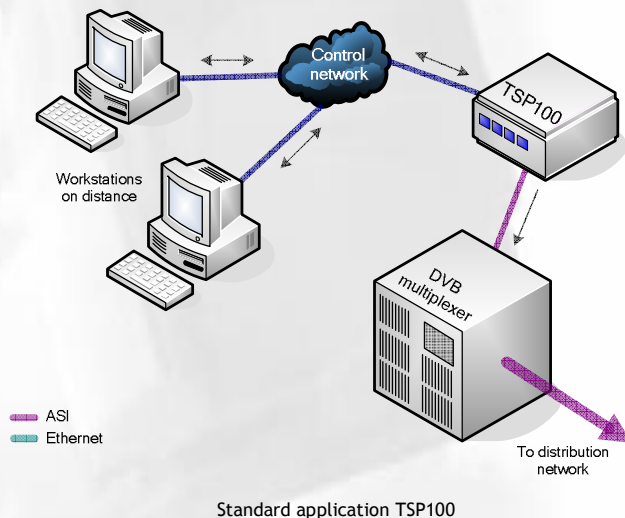
In the standard set-up, all DVB transmission is done by ASI interfaces. It is also possible to choose for Ethernet instead of ASI (Asynchronous Serial Interface). At the output the TSP100 supplies a complete transport stream. Communications with the TSP100 for maintenance and SNMP is done by common Ethernet.

Examples

The following drawings show examples of implementation of the TSP100 in several kinds of network design. However, the possibilities are not limited to these examples.

Application in the multiplex centre

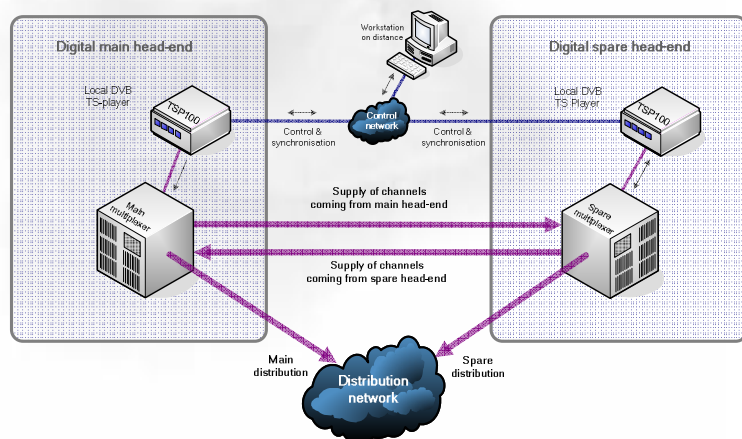
Normally the TSP100 is installed in the neighbourhood of the DVB multiplexer. The files that have to be played-out can be transferred by one or more workstations.



Standard application TSP100

Application in a redundant network design

In a redundant design the SIC100 can also be applied redundantly. A synchronisation procedure keeps both systems alike.



Application TSP100 in a redundant network

TSP100

TSP100 Specifications

Capacity

- Up to 30 supplied transport stream files
- Maximum size of transport stream files: 100 GByte
- Total bit rate up to 40 Mbit/sec
- Up to 20 PCR PIDs
- Up to 20 video PIDs wherein actual PTS is applied

Functionality

- Multiplexing of transport stream files
- Looping play-out of transport stream files
- Play-out of audio and video fragments and still video frames
- Play-out of decoder applications like STB loader data and middleware like OpenTV
- Play-out of specific DVB Service Information
- DVB PSI/SI generator
- PID filtering of unwanted PIDs in source files
- Manually adjustable bit rate per source file
- Automatic (CBR/VBR) bit rate per source file according to PCR
- Insertion of PCR and restamping of the PTS for still video
- Restamping of PCR for jitter correction
- Continuous timestamps for smooth file transitions
- SNMP
- ASI output

Options

- Video encoder
- Audio encoder
- System dependent adaptations
- Gigabit Ethernet output
- Redundant design
- User specific demands

ITNM Systems reserves the right to change the specifications.

TSP100

TSP100 Foundation

Construction

The foundation of the TSP100 is a Supermicro industrial server controlled by Linux operation system. The power supply and hard disk can be swapped from the outside. A watchdog circuit is monitoring the availability continuously. Communications for maintenance and SNMP can be done by means of common Ethernet. The foundation can optionally be equipped with redundant power supplies and ditto hard disks. Delivery based on a HP Proliant server is also an option.



Front and rear panel of the industrial server

Standard configuration

Industrial server
 Watchdog circuit
 Swappable power supply and hard disk
 No keyboard or mouse needed to start up
 Mains 230 V 50 Hz (other available on request)
 Used power 150-250 W*
 Colours beige and black

Dimensions (width x depth x height):

1 RU = 438 x 681 x 43 mm

Environmental conditions:

Temperature range storage 0 - 50 °C
 Temperature range operating 10 - 35 °C
 Humidity 8%-90% non-condensing

Safety and EMC:

CE compliant (EN 60950/IEC 60950)

Connections:

1 x MPTS output (ASI)
 1 x Control/SNMP (10/100/1000Base-T)

Connection options:

2 x MPTS output (GbE 1000Base-SX)

* Dependent on the configuration.

ITNM Systems reserves the right to change the specifications of the configuration.

TSP100

TSP100 Management

Purpose

Besides powerful and advanced functionality and cost-effective design durability of a part in a digital television broadcast system is of course of vital importance. A service level agreement is the appropriated means for a user defined improved or continuous availability.

Service level agreement

A service level agreement covers preventive as well as corrective maintenance of the whole system as well as possible bugs in the applications. The standard rate is 7 % of the installed base per year. The standard coverage in the Netherlands implies a maximum response time of one hour during seven days a week between 9 o'clock in the morning and 11 o'clock in the evening. The response time at the location is four hours maximum. Spare material can be included on customer's demand as part of the delivery.

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