



# DTV Head-end Processor

## Product Outline

The DTV head-end processor is the new generation of intelligent headend processing equipment. This 1-U case comes with 6 independent module slots. Each module can be configured individually based on the applications including encoding, decoding, trans-coding, modulating, multiplexing, descrambling processing and the combination of all these functions. It supports DVB-S/S2, IP and GE inputs, and RF, IP, ASI, and GE outputs. With its powerful performance and low cost, this head-end processor is especially adequate for the new generation CATV system.



Redundancy power supply (optional)

## Key Features

- Support flexible combination of different type of modules
- Support up to 6 modules
- Support 1 ASI (MPTS) output
- Support 2 GE output, RJ45 interface
- Support Web management, Updates via web

## Module Specifications:

### 4 ASI/IP Multiplexing Module



#### Module Specifications:

ASI inputs/outputs: 4 ASI bi-direction, BNC 75Ω  
 IP inputs/outputs: 2 100/1000M Ethernet Port  
 Re-multiplexing: PID remapping, PCR correction, generate PSI/ SI table automatically  
 Stream In: maximum 4 ASI input, 256×2 IP input  
 Stream Out: maximum 4 ASI output, 256×2 IP output

### 5 ASI Multiplexing Module



#### Module Specifications:

ASI inputs/outputs: 5 ASI bi-direction, BNC 75Ω  
 Stream in: maximum 5 ASI input  
 Re-multiplexing: PID remapping, PCR correction, generate PSI/ SI table automatically  
 Stream out: maximum 5 ASI output

# Head-end Processor

## 4 CVBS Encoding Module



### Module Specifications:

Encoder inputs: 4 CVBS video inputs, 4 Stereo Audio inputs (BNC 75Ω)

#### Video Processing:

Video format: MPEG-2

Image format: PAL, NTSC SD signal

Input resolution: 720×480\_60i, 544×480\_60i, 352×480\_60i

352×240\_60i, 320×240\_60i, 176×240\_60i, 76×120\_60i, 720×576\_50i, 704×576\_50i, 640×576\_50i, 352×288\_50i, 320×288\_50i, 176×288\_50i, 176×144\_50i,

GOP structure: IBBPB

Video bitrate: 0.1Mbps~8Mbps each channel

#### Audio processing:

Audio format: MPEG-1 Layer 2, AC3

Sampling rate: 48KHz

Resolution: 24-bit

Audio bitrate: 128Kbps, 192kbps, 256kbps, 320kbps, 384kbps each channel

## 2 HDMI Encoding/Transcoding Module



### Module Specifications:

Encoder inputs: 2 HDMI inputs

#### Video Encoding:

Video format: MPEG2 & MPEG4 AVC/H.264

Input resolution:

1920\*1080\_60i, 1920\*1080\_50i, 1280\*720\_60p, 1280\*720\_50P

720\*480\_60i, 720\*576\_50i

Rate control mode: CBR/VBR

Aspect ratio: 16:9, 4:3

Video bitrate: 0.5~19.5Mbps for H.264 encoding

1~19.5Mbps for MPEG-2 encoding

#### Audio Encoding:

Audio format:

MPEG1 Layer II, MPEG2-AAC, MPEG4-AAC, Dolby Digital AC3 (2.0)

Sampling rate: 48KHz

Audio bitrate: 64Kbps-320kbps each channel

#### Video Transcoding:

2\*MPEG2 HD → 2\*MPEG2/H.264 HD ;

2\*MPEG2 HD → 2\*MPEG2/H.264 SD ;

4 \*MPEG2 SD → 4 \*MPEG2/H.264 SD

2\* H.264 HD → 2\*MPEG2/H.264 HD ;

2\* H.264 HD → 2\*MPEG2/H.264 SD ;

4\* H.264 SD → 4 \*MPEG2/H.264 SD

#### Audio Transcoding:

MPEG-1 Layer 2, AAC and AC3 any-to-any or pass through

## 4 HDMI Encoding Module



### Module Specifications:

Encoder inputs: 4 HDMI inputs

### Video Processing:

Video format: MPEG-4 AVC/H.264 encoding

Input resolution:

1920×1080\_60P, 1920×1080\_50P, 1920×1080\_60i, 1920×1080\_50i,  
1280×720\_60P, 1280×720\_50P, 720×576\_50i, 720×480\_60i

GOP structure: IBBP

Video bitrate: 0.8Mbps~19Mbps each channel

Rate Control: CBR/VBR

### Audio processing:

Audio format: MPEG-1 Layer 2 (HE-AAC V2, LC-AAC Option),  
AC3 passthrough

Sampling rate: 48KHz

Resolution: 24-bit

Audio bitrate: 64Kbps~384Kbps each channel

Audio Gain: 0-400

## 2 IP Transcoding Module



### Module Specifications:

Resolution: 480i, 576i, 720P@50, 720P@60, 1080i@50, 1080i@60,  
1080P@50, 1080P@60

Video Transcoding:

2\*MPEG-2/ H.264/ AVS/AVS+ HD/SD → 2\* H.264 HD/SD

Audio Transcoding:

MPEG-1 Layer II, LC-AAC, HE-AAC, AC3, DRA →

MPEG-1 Layer II, LC-AAC, HE-AAC

Audio bitrate: 64Kbps-384Kbps

Rate Mode: CBR, VBR

GOP Struct: IBBP, IPPP, IBP

## 2 HD-SDI Decoding Module



### Module Specifications:

ASI inputs: 2 ASI bi-direction, BNC 75Ω

Decoding:

Video Format: MPEG-2/H.264

Audio Format: MPEG1 Layer2, LC-AAC, AC3, HE-AAC, E-AAC

Stream In: 1-2 ASI input

Video/Audio Out: 2 HD/SD SDI output

# Head-end Processor

## 16 RF Modulating Module



### Module Specifications:

IP inputs/outputs: 512×2 IP input, 2 100/1000M Ethernet Port (Optical)  
RF outputs (DVB-C): F type  
16 channels of multiplexing, scrambling and modulation.

### Multiplexing:

Maximum PID Remapping: 180 input per channel  
Function: PID remapping ( automatically or manually), Accurate PCR adjusting, generate PSI/ SI table automatically

### Scrambling:

Maximum simulcrypt CA: 4  
Standard: ETR289, ETSI 101 197, ETSI 103 197  
Connection: Local/remote connection

### Modulation:

Standard: EN300 429/ITU-T J.83A/B/C  
MER:  $\geq 40$ db  
RF frequency: 30~999MHz, 1KHz step  
RF output level: -20~+10dbm(87~117 db $\mu$ V), 0.1db step for all carriers  
Symbol Rate: 5.0Msps~7.0Msps, 1ksps stepping  
Constellation: 16/32/64/128/256QAM  
Output: 16 non-adjacent carrier outputs within 200M bandwidth

## 2 DVB-S/S2 Descrambling Module



### Module Specifications:

DVB-CI: 2 independent common interface slots  
Standard: DVB-S/S2

	DVB-S	DVB-S2
Input Frequency:	950-2150MHz	950-2150MHz
Symbol Rate:	QPSK 2~45Mbauds	QPSK 1-45Mbauds 8PSK 2~30Mbauds
FEC Demodulation:	1/2, 2/3, 3/4, 5/6, 7/8	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10

Signal Strength: -65~-25dBm

Stream in: 2 Tuner input

Stream out: 1 ASI output 2 IP output over UDP protocol, 1000M Base-T

### Multiplexing:

Maximum PID Remapping: 256 input  
Function: PID remapping ( automatically or manually), Accurate PCR adjusting, generate PSI/ SI table automatically

### Descrambling:

CAM/CI Quantity: 2

## 4 FTA Tuner Module



### Module Specifications:

DVB-S2 inputs: 4 Tuner inputs, BNC 75Ω

Standard: DVB-S/S2

	DVB-S	DVB-S2
Input Frequency:	950-2150MHz	950-2150MHz
Symbol Rate:	QPSK 2~45Mbauds	QPSK 1-45Mbauds 8PSK 2~30Mbauds
FEC Demodulation:	1/2, 2/3, 3/4, 5/6, 7/8	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10

Signal Strength: -65~-25dBm

### Multiplexing:

Maximum PID Remapping: 256 input

Function: PID remapping ( automatically or manually), Accurate PCR adjusting, generate PSI/ SI table automatically

### Descrambling(Optional):

BISS Mode: Mode 1, Mode E; up to 120Mbps

## Equipment Specifications:

### Base Unit Parameters

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Dimension(W×L×H): 482mm×410mm×44mm

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Approx weight: 8kg

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Environment: 0~45°C (work); -20~80°C (Storage)

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Power requirements AC 110V± 10%, 50/60Hz, AC 220 ± 10%, 50/60Hz

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Power consumption : 20W

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