



DHP 400A

DTV Head-end Processor

Product Outline

DHP400A 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, multiplexing, descrambling and modulating processing and the combination of all these functions. It supports multiple input and output interfaces and signal formats. With its powerful performance and low cost, DHP400A is especially adequate for the new generation CATV system.

Key Fetures

- Support flexible combination of different type of modules
- Support up to 6 modules
- Support 1 ASI output(As copy of One of the IP out from GE1)
- Support IP input and output from GE1 and GE2
- Support Web management, Update via web



Redundancy Power Supply (Optional)

Two options for redundancy power supply

- ◆ Non-Hot Plugging (option 1)
- ◆ Support Hot Plugging (option 2)

IP Multiplexing Module



DX506

Module Specifications:

IP input: 512 SPTS or MPTS input over UDP, RTP, Unicast and Multicast thru GE1 Ethernet Port (100/1000M)

Re-multiplexing: PID remapping, PCR correction, generate PSI/ SI table automatically

IP Out: 512 SPTS output over UDP, RTP, Unicast and Multicast through GE2 Ethernet Port (100/1000M)

4 CVBS Encoding Module



DX214/DX214A

Module Specifications:

Input: 4 CVBS video, 4 Stereo Audio (DB9 to RCA)

Output: 1MPTS and 4 SPTS output over UDP/RTP, unicast and multicast, SFP/RJ45

Video Encoding:

Video format: MPEG-2 (4:2:0)

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

GOP structure: IP, IBP, IBBP, IBBBP

Video bit rate: 0.5Mbps~8Mbps per channel

Support CC (closed caption)

Audio Encoding:

Audio format: MPEG-1 Layer 2, DD AC3 (2.0)

Sampling rate: 48KHz

Resolution: 24-bit

Audio bitrate:128/192/256/320/384kbps each channel

Support Logo, Caption, QR Code insertion (for DX214A only)

8 CVBS Encoding Module



DX218S

Module Specifications:

Input: 8 CVBS video, 8 Stereo Audio (DB15 to RCA)

Output: 1 MPTS and 8 SPTS output over UDP/RTP, unicast and multicast, SFP/RJ45

Video Encoding:

Video format: MPEG4 AVC/H.264

Image format: PAL, NTSC SD signal

Resolution: 720×576i, 720×480i

Rate Control: CBR/VBR

GOP structure: IPP

Video bitrate: 1~7Mbps each channel

Audio Encoding:

Audio format: MPEG-1 Layer 2

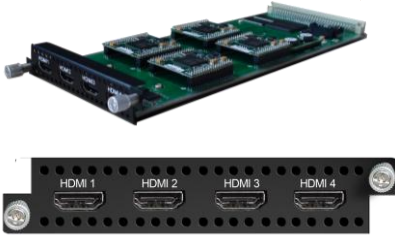
Sampling rate: 48KHz

Resolution: 24-bit

Bit-rate: 64/128/192/224/256/320/384Kbps each channel

Support Logo, Caption, QR Code insertion

4 HDMI Encoding Module



DX224

Module Specifications:

Input: 4*HDMI

Output: 1*MPTS & 4*SPTS output over UDP/RTP, Unicast/Multicast, SFP/RJ45

Video Encoding:

Video format: MPEG-4 AVC/H.264

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 Encoding:

Audio format: MPEG1 Layer II, (MPEG-2 AAC, MPEG-4 AAC Optional), AC3 passthrough

Sampling rate: 48KHz

Resolution: 24-bit

Audio bitrate: 64~320Kbps each channel

Audio Gain Control: 0-400%

4 HDMI Encoding Module



DX224S

Module Specifications:

Input: 4*HDMI

Output: 1*MPTS output over UDP/RTP, Unicast/Multicast, SFP/RJ45

Video Encoding:

Video format: MPEG-4 AVC/H.264

Input resolution: 1920×1080_60P, 1920×1080_60i, 1920×1080_50P, 1920×1080_50i, 1280×720_60P, 1280×720_50P, 720×576_50i, 720×480_60i,

Output resolution: 1920×1080_30P, 1920×1080_25P, 1280×720_30P, 1280×720_25P, 720×576_25P, 720×480_30P,

GOP structure: IP...P (P Frame adjustment, without B Frame)

Video Bit-rate: 1Mbps~13Mbps each channel

Rate Control: CBR/VBR

Audio Encoding:

Audio format: MPEG1 Layer II, **support audio gain adjustment**

Sampling rate: 48 KHz

Resolution: 24-bit

Audio Bit-rate: 64kbps, 128Kbps, 192kbps, 224kbps, 256kbps, 320kbps, 384kbps

Support Logo, Caption, QR Code insertion

2 HD-SDI Decoding Module

DX702
Module Specifications:

ASI input/output: 2 ASI bi-direction, BNC 75Ω

IP input: 2 IP input

IP output: 1 MPTS output over UDP, Unicast/Multicast, SFP/RJ45

Decoding:

Video/Audio Out: 2 HD/SD SDI output

Video Format: MPEG-2, MPEG-4 AVC/H.264

Resolution: 480i,480p,576i,576p,720p@50/59.94/60,1080i@50/59.94/60

Chroma: 4:2:0

Audio Format: MPEG1 Layer2, LC-AAC, HE-AAC, AC3 (2.0/5.1), AC3

Passthrough,

 Support **Dual Audio** Out

Support CC/Subtitle

2 HDMI Encoding/Transcoding Module

DX202A
Module Specifications:

Input: 2*HDMI, 2*BNC for CC (Closed Caption) input, 4 IP input

Output: 1*MPTS output over UDP, Unicast/Multicast, SFP/RJ45

Video Encoding:

Video format: MPEG2 & MPEG4 AVC/H.264

Input resolution:

1920*1080_60P, 1920*1080_50P, 1920*1080_60i, 1920*1080_50i,

1280*720_60p, 1280*720_50P, 720*480_60i, 720*576_50i

Output resolution:

1920*1080_60P, 1920*1080_50P,1920*1080_60i,1920*1080_50i,1440*1080_60i

1440*1080_50i, 1280*720_60p, 1280*720_50P, 720*576_50i, 720*576_50P,

720*576_30P,720*576_25P,720*480_60i,720*480_60P,720*480_30P,

720*480_25P, 320*240_60P, 320*240_50P, 320*240_30P, 320*240_25P,

320*180_60P, 320*180_50P, 320*180_30P,

320*180_25P,960*540_50I,704*576_50i,704*480_60i,

640*576_50i,640*480_60i, 544*576_50i,544*480_60i,

Rate control mode: CBR/VBR

Aspect ratio: 16:9, 4:3 Support CC (closed caption)

Video bitrate: 0.8~19Mbps for MPEG-2/H.264 encoding

Audio Encoding:

Audio format: MPEG1 Layer II, MPEG2-AAC, MPEG4-AAC,

Dolby Digital AC3 (2.0) encoding (Optional); AC3 (2.0/5.1) passthrough

Sampling rate: 48KHz Audio bitrate: 64Kbps-320kbps each channel

Video Transcoding:

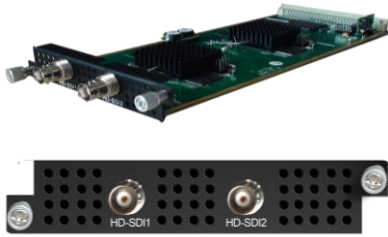
2*MPEG2 HD → 2*MPEG2/H.264 HD; 2*MPEG2 HD → 2*MPEG2/H.264 SD;

2* H.264 HD → 2*MPEG2/H.264 HD; 2* H.264 HD → 2*MPEG2/H.264 SD;

4 *MPEG2 SD → 4 *MPEG2/H.264 SD; 4* H.264 SD → 4 *MPEG2/H.264 SD

Audio Transcoding:

MPEG-1 Layer 2, AAC and AC3

2 SDI Encoding/Transcoding Module

DX202A-D
Module Specifications:

Input: 2*HD-SDI, 2 IP input

Output: 1*MPTS output over UDP, Unicast/Multicast, SFP/RJ45

Video Encoding:

Video format: MPEG2 & MPEG4 AVC/H.264

Input resolution:

1920*1080_60P, 1920*1080_50P, 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: 0.8~19Mbps

Support CC (closed caption)

Audio Encoding:

Audio format:

MPEG1 Layer II, MPEG2-AAC, MPEG4-AAC,

Dolby Digital AC3 (2.0) encoding (Optional), AC3 (2.0/5.1) passthrough

Sampling rate: 48KHz

Audio bitrate: 64Kbps-320kbps each channel

Video Tanscoding:

2*MPEG2 HD → 2*MPEG2/H.264 HD; 2*MPEG2 HD → 2*MPEG2/H.264 SD;

2* H.264 HD → 2*MPEG2/H.264 HD; 2* H.264 HD → 2*MPEG2/H.264 SD;

4 *MPEG2 SD → 4 *MPEG2/H.264 SD; 4* H.264 SD → 4 *MPEG2/H.264 SD

Audio Tanscoding:

MPEG-1 Layer 2, AAC and AC3

16/32 QAM Modulating Module

DX316/DX332
Module Specifications:

Data input: 512×2 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP), 128 IP input through front panel GE2 port or internal IP output

Data output: 16 or 32 IP output over UDP/RTP/RTSP, unicast/multicast, 2 GE Ports (RJ45/SFP)

Trans Rate: Max 840Mbps/GE Port

RF output (F type): 16/32 channels of multiplexing, scrambling and modulation.

Multiplexing:

Maximum PID Remapping: 180 output pids per channel for DX316. 256 output pids per channel for DX332.

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 (DVB-C)

MER: ≥40dB

RF frequency: 50~960MHz, 1KHz step

RF output level: -20~+10dBm (87~117 dBμV), 0.1dB step for all carriers

Symbol Rate: 5.0Msps~7.0Msps, 1ksps step

Constellation: 16/32/64/128/256QAM

DX316 Output: 16 non-adjacent carrier outputs within 192M bandwidth

DX332 Output: 32 non-adjacent carrier outputs within 384M bandwidth

6 ISDB-Tb Modulating Module



DX306I

Module Specifications:

Data input: 32×6 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP) and stream connector

Data output: 6 IP output over UDP/RTP/RTSP, unicast/multicast, 2 GE Ports (RJ45/SFP)

Trans Rate: Max 840Mbps/GE Port

RF output (F type): 6 channels of multiplexing and modulation.

Multiplexing:

Maximum PID Remapping: 180 output pids per channel

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

Modulation:

Standard: ARIB STD-B31

Bandwidth: 6M

Constellation: QPSK, 16QAM, 64QAM

Guard Interval: 1/32, 1/16, 1/8, 1/4

Transmission Mode: 2K, 4K, 8K

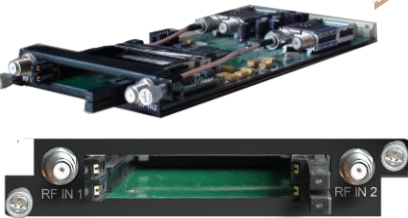
Code rate: 1/2, 2/3, 3/4, 5/6, 7/8

MER: ≥40dB

RF frequency: 50~960MHz, 1KHz step

RF output level: -20dBm~+10dBm (87~117dBμV), 0.1dB stepping

2 Tuner Descrambling Module



DX902/DX912

Module Specifications:

Stream in: 2 Tuner input, F Type

Stream out: 1 MPTS output over UDP, Unicast/Multicast, SFP/RJ45

DVB-CI: 2 independent common interface slots

Standard: DX902: DVB-S/S2; DX912: DVB-C

Tuner Section	Standard	Input Frequency	Symbol Rate	Signal Strength	FEC Demodulation
Tuner Section	DVB-S	950-2150MHz	QPSK 1~45Msp	-65~-25dBm	1/2, 2/3, 3/4, 5/6, 7/8
	DVB-S2	950-2150MHz	QPSK/8PSK 1~45Msp 16APSK 1~45 Msp 32APSK 1~32 Msp		1/2, 2/3, 3/4, 5/6, 7/8, 4/5, 5/6, 8/9, 9/10
	DVB-C	30-960MHz			

Support Diseqc function (For DX902)

Multiplexing:

Maximum PID Remapping: 256 output pids

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

Descrambling:

CAM/CI Quantity: 2

BISS Mode: Mode 1, Mode E; up to 120Mbps (Optional as required)

4 FTA Tuner Module

DX904A/DX914A/DX944A
Module Specifications:

Stream in: 4 Tuner input, F Type
 Stream Out: 4* MPTS output over UDP/RTP, unicast/multicast, SFP/RJ45
 Standard: DX904A: DVB-S/S2; DX914A: DVB-C; DX944A: DVB-T/T2

DVB-S	DVB-S2
Input Frequency: 950-2150MHz	950-2150MHz
Symbol Rate: QPSK 1~45 Msps	QPSK/8PSK 1~45 Msps, 16APSK 1~45 Msps, 32APSK 1~32 Msps <i>(16APSK&32APSK are optional as required)</i>
FEC Demodulation: 1/2, 2/3, 3/4, 5/6, 7/8	1/2, 2/3, 3/4, 5/6, 7/8, 4/5, 5/6, 8/9, 9/10
Signal Strength: -65 ~ -25dBm	
Support Diseqc function (For DX904)	
DVB-C Standard: J.83A (DVB-C), J.83B, J.83C	
Input Frequency: 30-1000MHz	
Constellation: 16/32/64/128/256 QAM	
DVB-T/T2: Standard: DVB-T/T2	
Input Frequency: 30 MHz~1000 MHz	
Bandwidth: 6M, 7M, 8M	

Equipment Specifications:

Base Unit Parameters

Dimension(W×L×H): 482mm×410mm×44mm
Environment: 0~45℃(work); -20~80℃(Storage)
Power requirements AC 110V± 10%, 50/60Hz, AC 220 ± 10%, 50/60Hz

Parameters Comparison:

	DHP400	DHP400A
IP Data Transport	One-way Transport: GE1/GE2 support output maximum 8MPTS & 512SPTS	Bi-directional Transport: GE1/ GE2 support IP data input and output
TS Processing Number	Support 1 TS (MPTS/SPTS) input from each module, and maximum bitrate is 350Mbps	Support maximum 512 TS (MPTS/SPTS) input from each module, and maximum bitrate is 350Mbps
Multiplexing	Support multiplexing function: It can mux TSs from different modules to one TS and output through one module or GE1/GE2 port	Doesn't support multiplexing function: It can combine TSs from different modules and output these TSs through one module or GE1/GE2 port
Output Per Module	1 MPTS after multiplexing	1 or multiple MPTS/SPTS