



Product Outline

DHP400 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, DHP400 is especially adequate for the new generation CATV system.

Key Features

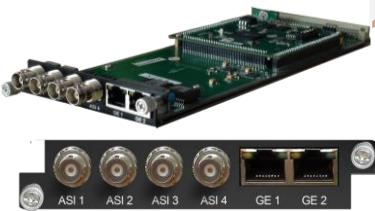
- Support flexible combination of different type of modules
- Support up to 6 modules
- Support 1 ASI output (MPTS2)
- Support 2 GE output, 512 SPTS (UDP, RTSP/RTP) output from GE1, 8 MPTS (UDP,RTP) output from GE2, Unicast/Multicast, RJ45/SFP interface
- Support Web management, Updates via web



Redundancy power supply (optional)
Hot Plugging (optional)

Module Specifications:

4 ASI/IP Multiplexing Module



DX504

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, 4 IP output

5 ASI Multiplexing Module



DX505

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

4 CVBS Encoding Module

DX214/DX214A
Module Specifications:

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

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, 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 per channel (for DX214)

0.5Mbps~8Mbps per channel (for DX214A)

Support CC (closed caption)

Audio Encoding:

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

Sampling rate: 48KHz

Resolution: 24-bit

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

4 CVBS Encoding Module

DX214B
Module Specifications:

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

Video Encoding:

Video format: MPEG-2, MPEG4 AVC/H.264

Image format: PAL, NTSC SD signal

Resolution:

PAL: 720*576/352*288/320*240/320*180/176*144/160*120/160*90@50Hz

NTSC: 720*480/352*288/320*240/320*180/176*144/160*120/160*90@59.94Hz

Rate Control: CBR/VBR

GOP structure: IBBPB

Video bitrate: 0.25~15Mbps for MPEG4 AVC/H.264 encoding

0.5~15Mbps for MPEG-2 encoding

Audio Encoding:

Audio format: MPEG1 Audio Layer 2, LC-AAC, HE-AAC V2

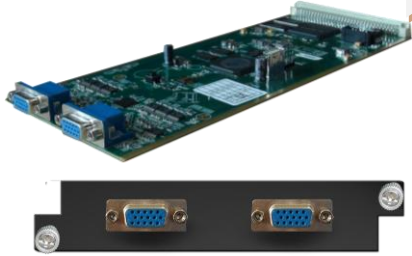
Sampling rate: 48KHz

Resolution: 24-bit

Bit-rate: 32Kb/s~384Kb/s (each channel)

Support Logo, Caption, QR Code insertion

8 CVBS Encoding Module



DX218S

Module Specifications:

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

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: 0.5Mbps~8Mbps 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

2 HDMI Encoding/Transcoding Module



DX202A

Module Specifications:

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

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: 0.5~19.5Mbps for H.264 encoding
 1~19.5Mbps for MPEG-2 encoding

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

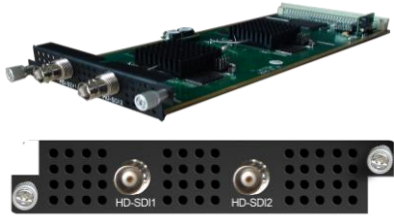
Audio bitrate: 64Kbps-320kbps each channel

Video 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 any-to-any

2 SDI Encoding/Transcoding Module

DX202A-D
Module Specifications:

Input: 2*HD-SDI

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

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 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 any-to-any

4 HDMI Encoding Module

DX224
Module Specifications:

Input: 4*HDMI

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

Support HD (1080i/720p_50/60) to SD (576p/480p_25/30) resolution downscale conversion

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: 64Kbps~320Kbps each channel

Audio Gain Control: 0-400

4 HDMI Encoding Module



DX224S

Module Specifications:

Input: 4*HDMI

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**

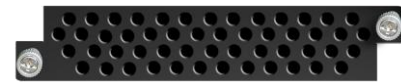
Sampling rate: 48 KHz

Resolution: 24-bit

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

Support Logo, Caption, QR Code insertion

2 IP Transcoding Module



DX202

Module Specifications:

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

Video Tanscoding:

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

AudioTanscoding:

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

Audio bitrate: 64Kbps-384Kbps

Rate Mode: CBR/VBR

GOP Struct: IBBP, IPPP, IBP

2 HD-SDI Decoding Module



DX702

Module Specifications:

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

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

16/32 QAM Modulating Module

DX316/DX332
Module Specifications:

Data input: 512×2 IP input over UDP/RTP, 2 GE Ports (RJ45/SFP)

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 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 (DVB-C)

MER: ≥ 40 db

RF frequency: 50~960MHz, 1KHz step

RF output level: -20~+10dbm (87~117 db μ V), 0.1db step for all carriers

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

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

8 DVB-T/ATSC Modulating Module

DX308T/DX308AT
Module Specifications:

Data input:

512×2 IP input over UDP/RTP, 2GE Ports (RJ45/SFP) — DX308T

256 IP input over UDP/RTP, 2GE Ports (RJ45/SFP) — DX308AT

Data output: 8 IP output over UDP/RTP/RTSP, unicast/multicast, 2 GE Ports (RJ45/SFP)

Trans Rate: Max 840Mbps/GE Port

RF Output (F type): 8 non-adjacent carrier outputs within 192M bandwidth

Multiplexing:

Channel Number: 8 multiplexing channels

Maximum PID Remapping: 180 input per channel

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

Modulation: DX308T (8*DVB-T)

Standard: ETSI EN300 744 MER: ≥ 40 db

RF Frequency: 50~960MHz, 1KHz step

Constellation: QPSK/16QAM/64QAM Bandwidth: 6/7/8 MHz

Trans mode: 2K/4K/8K FEC: 1/2, 2/3, 3/4, 5/6, 7/8

RF Output Level: -20~+10dbm (for all carriers), 0.5db stepping

Modulation: DX308AT (8*ATSC)

Standard: ATSC A/53 MER: ≥ 40 db RF Frequency: 50~960MHz, 1KHz step

Constellation: 8VSB Bandwidth: 6MHz FEC: RS(208 188)+Trellis

RF Output Level: -20~+10dbm (for all carriers), 0.5db stepping

6 ISDB-Tb Modulating Module



DX306I

Module Specifications:

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

Input Channel: 192
 Maximum PID Remapping: 180 input 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

2 Tuner Descrambling Module



DX902/DX912

Module Specifications:

Stream in: 2 Tuner input, F Type
 DVB-CI: 2 independent common interface slots
 Standard: DX902: DVB-S/S2; DX912: DVB-C

Tuner Section	DVB-S	Input Frequency: 950-2150MHz Symbol Rate: QPSK 1~45Mbauds Signal Strength: -65~ -25dBm FEC Demodulation: 1/2, 2/3, 3/4, 5/6, 7/8
	DVB-S2	Input Frequency: 950-2150MHz Symbol rate: QPSK/8PSK 1~45Mps 16APSK 1~45 Msps 32APSK 1~32 Msps FEC Demodulation: 1/2, 2/3, 3/4, 5/6, 7/8, 4/5, 5/6, 8/9, 9/10
	DVB-C	Standard: J.83A(DVB-C), J.83B, J.83C Input Frequency: 30-960MHz Constellation: 16/32/64/128/256 QAM

Support Diseqc function (For DX902)

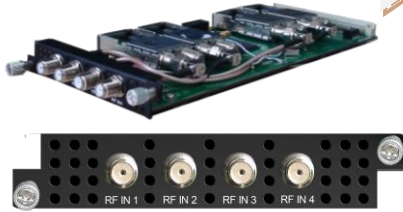
Multiplexing:

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

Descrambling:

CAM/CI Quantity: 2
 BISS Mode: Mode 1, Mode E; up to 120Mbps (Optional as required)

4 FTA Tuner Module



DX904/DX914/DX944

Module Specifications:

Stream in: 4 Tuner input, F Type

Standard: DX904: DVB-S/S2; DX914: DVB-C; DX944: 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

Multiplexing:

Maximum PID Remapping: 256 input

Function: PID remapping (automatically/ manually), Accurate PCR adjust

Equipment Specifications:

Base Unit Parameters

Dimension(W×L×H): 482mm×410mm×44mm
Approx weight: 8kg
Environment: 0~45°C(work); -20~80°C(Storage)
Power requirements AC 110V± 10%, 50/60Hz, AC 220 ± 10%, 50/60Hz